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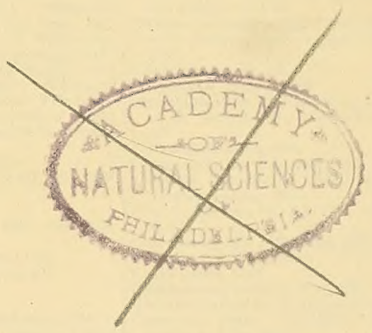
GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE

FOR

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ESSRS. JOHN STAND SH AND CO. are now selling fine strong plants of his extraordinarily productive NE at 21s., 42s., and 63s. each.
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RANCIS & ARTHUR DICKSON & SONS have to offer several thousand EXTRA STRONG, thoroughly well-ripened, rt-jointed VINES, of the best known kinds, including the NEW ES of this season. Inspection invited. All who have seen them nounce them to be as fine a lot of Vines as were ever grown. PRICED LIST free by post on application.
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VEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LIST of these varieties from Mr. WEBB, Calcot, Reading.

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HENRY GODFREY, NURSERYMAN, Stourbridge, has to offer a large quantity of HERBACEOUS CALCEOLARIAS, ised from seed saved from a particularly fine strain; established small pots, from 2s. 6d. to 3s. per dozen, basket and package cluded. When three or more dozens are taken, Post-office orders postage stamps must accompany orders.

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CHARLES TURNER can strongly recommend PRINCESS ROYAL and ALBERT VICTOR as the most beautiful and dissimilar of the Horticultural Society's New Coleus. Orders are now being received, and will be executed in rotation in March next. 7s. 6d. each.—The Royal Nurseries, Slough.

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JAMES CARTER AND CO. have a large stock of very fine Bulbs. Price on application.
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COMPLETE COLLECTIONS
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To suit Gardens of various sizes,
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"THE WHITE GRAPE, ABOVE ALL OTHERS, FOR GENERAL CULTIVATION."

SEE THE FOLLOWING EXTRACTS:—

"This is indeed a noble Grape, and one which will take the highest rank amongst White varieties. It supplies a desideratum which has long been felt, viz., the possession of a White Grape of easy culture like the Black Hamburgh."—*B., in Gardeners' Chronicle.*

"In size and appearance it far surpasses any White Grape, and in flavour it is excelled by none except Muscats."—*Journal of Horticulture.*

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"Robust in constitution and free bearing as a Black Hamburgh, this is certainly the best White Grape (always excepting the Muscat of Alexandria), the world—so far as we know of it—has ever seen."—*Nottingham Guardian.*

Plants are now being sent out, price 21s. and 42s. each.
Strong Fruiting Canes, 63s. each.

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NEW GOLDEN QUEEN MELON.

THE FINEST MELON IN CULTIVATION.

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Price per packet, 2s.

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List of Firms who have received a supply of the above from S. & M. will be published shortly.

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As exhibited by Mr. MELVILE at the Royal Horticultural Society's Meeting on the 15th inst.; see *Gardeners' Chronicle*, page 1317 (1868).

INVALUABLE AS A WINTER DECORATIVE PLANT.

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WAITE, BURNELL, HUGGINS & CO.

Have great pleasure in introducing to the Public this

NEW LONG WHITE-PODDED VARIETY OF RAPHANUS CAUDATUS,

Which is much more delicate in flavour and attractive in appearance than the old brown-podded sort.

Only a few Hundred Seeds having arrived in this country, an early application will be necessary from those who wish to obtain this new and improved variety.

Price 2s. 6d. per packet of Six Seeds. A discount allowed to the Trade.

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Is now ready, and will be forwarded Post Free to all customers and applicants.

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A perusal is respectfully solicited; every article is priced, and purchasers may depend on the Seeds being true to name, and everything of the best quality. Exaggerated descriptions are carefully avoided.

All Orders of more than £1 in value sent Carriage Free.

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Full-grown Evergreens.

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ROSES, Half Standard, 12*s* per dozen; Dwarf, 9*s.* per dozen
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&c., &c. For cash only.
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The FRUIT TREE collection is one of the largest in Europe; the Pears alone number over 1000 sorts.
The NEW CATALOGUE of FRUITS consists of above 200 pages of Cultural and Descriptive matter, and is the most complete record of these in the English language. Price 1*s. 6d.*

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ALLAMANDA WARDLEIANA.

Good Plants of this splendid Allamanda, 21s. each; a few Larger, 31s. 6d. & 42s. each.

N.B.—Our ALLAMANDA WARDLEIANA, *alias* HENDERSONI, True, is the same variety that has been shown under these names at the London Exhibitions. In No. 43 of the *Gardeners' Chronicle*, page 1117 (1868), this Allamanda is very ably described by Mr. Leach, who obtained his Plant from us.

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SELECTED
VEGETABLE & FLOWER SEEDS, POTATOS, &c.

Fully DESCRIPTIVE PRICED CATALOGUE of the above, containing all the desirable NOVELTIES of the Season, is now ready, and will be sent *Gratis* and *Post Free* on application.

James Dickson & Sons.

OLD ESTABLISHED SEED & NURSERY BUSINESS,
102, EASTGATE STREET, AND "NEWTON" NURSERIES, CHESTER.

PAUL'S NURSERIES AND SEED WAREHOUSE,
WALTHAM CROSS, LONDON, N.

GENUINE AND FIRST-CLASS SEEDS.

WILLIAM PAUL

BEGS TO ANNOUNCE THAT HIS

CATALOGUE OF SELECT VEGETABLE AND FLOWER SEEDS,

Including many Novelties, is now ready, and may be had Free by Post on application.

In proof of QUALITY he need only refer to the numerous Prizes awarded at various Horticultural Shows throughout the country, for both Vegetables and Flowers grown from his Seeds, and in regard to prices these are in all cases affixed on the lowest possible scale to be remunerative. The following Gardens in Hertfordshire, justly renowned for their Vegetables and Flowers, have long been supplied from his Seed Warehouse:—Brockett Hall, Panshanger, Danesbury, Poles, Digswell, Wyddial Hall, Woodhall, Youngsbury, Bedwell Park, Essendon Place, Campfield Place, Bayfordbury, Knebworth, Frogmore Hall, Childwickbury, Codicote Lodge, and many others of equal celebrity throughout the country.

To purchasers who are unacquainted with the best varieties of Vegetables and Flowers, or who wish to save the trouble of writing a List, the following Collections are made up on equally liberal terms with any other House in the Kingdom. All are of the best quality, and cannot fail to give the fullest satisfaction.

VEGETABLE SEEDS.

No. 1. The WALTHAM COLLECTION of VEGETABLE SEEDS, for a Large Garden, price £3 3*s.*
No. 2. The WALTHAM COLLECTION of VEGETABLE SEEDS, for a medium-sized Garden, price £2 2*s.*
No. 3. The WALTHAM COLLECTION of VEGETABLE SEEDS, for a Small Garden, price £1 1*s.*
Smaller Collections for Small Gardens or Cottagers, 15*s.*, 10*s. 6d.*, or 5*s.* each.

FLOWER SEEDS.

No. 1. The WALTHAM COLLECTION of FLOWER SEEDS, including the finest imported Asters, Stocks, &c., price £2 2*s.*
No. 2. The WALTHAM COLLECTION of FLOWER SEEDS, including choice imported Asters, Stocks, &c., price £1 1*s.*
No. 3. The WALTHAM COLLECTION of FLOWER SEEDS, including the most effective for a Small Garden, price 10*s. 6d.*
No. 4. PAUL'S CHOICE COLLECTION of HOLLYHOCKS, in 12 distinct named sorts, price 5*s.*

NOVELTIES, OR VARIETIES OF SUPERIOR MERIT.

BEET, Paul's Superb Crimson, 1*s.* per packet.
BROCCOLI, Lauder's Superb Protecting Late White, 2*s. 6d.* per pkt.
BROCCOLI, Snow's Winter White, very select stock, 1*s.* per packet.
BRUSSELS SPROUTS, Paul's Waltham, 1*s.* per packet.
CAULIFLOWER, Hill's Dwarf, 1*s. 6d.* per packet.
CAULIFLOWER, Superb Dwarf Hertfordshire, 1*s.* per packet.
CUCUMBER, Paul's Improved Telegraph (true), 2*s.* per packet.
*** This Variety was first sent out by me in 1861, and is distinct from many varieties of Telegraph, and acknowledged to be the most prolific and best flavoured of all Cucumbers.
ENDIVE, Waltham Green Curled, 1*s.* per packet.
LETTUCE, Brockett Hall Brown Cos, 1*s.* per packet.
LETTUCE, Hill's Compact Brown Cos, 1*s. 6d.* per packet.
PARSLEY, Paul's Selected Extra Curled, 6*d.* per packet.

For more particular information, see Seed Catalogue. *All Seeds, except very small parcels, Carriage or Post Free.*

LILIUM AURATUM.—Flowering bulbs, 2*s.* to 7*s. 6d.* each; 18*s.* to 72*s.* per dozen.
GLADIOLI.—A very fine assortment to name, 6*s.* to 24*s.* per dozen.
ROSES.—A fine stock still on hand, Standards, Dwarf-standards, Dwarfs, and in pots for forcing.
FRUIT TREES.—Standards, Pyramids, and Dwarf-trained, and a large general Nursery Stock in excellent condition
PRICED CATALOGUES Free by Post.

☞ IMPORTANT.—To prevent confusion, all Letters should be addressed WILLIAM PAUL—the Christian name in full, as above.

Forest and Ornamental Trees, &c.

FRANCIS & ARTHUR DICKSON & SONS respectfully invite parties about to plant to inspect their almost unlimited stock of HARDY ORNAMENTAL TREES, SHRUBS and PLANTS; FOREST TREES, PLANTS for GAME COVER, and GENERAL NURSERY STOCK.
Their Nurseries extend over some 150 Acres, in a *very bleak and exposed* situation, and from the great hardiness of their Plants, they are found to succeed admirably in all parts of the Country.
DESCRIPTIVE PRICED CATALOGUES gratis and post free on application. The "Upton" Nurseries Chester.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING AND COMPANY (Limited),
COLN, SEED, MANURE, AND OILCAKE MERCHANTS.
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstok
Samples and prices post free on application. Prize Medals, 1 for Wheat; 1862, for "Excellent Seed Corn and Seeds."

NOTICE is HEREBY GIVEN, that the PARTNERSHIP heretofore subsisting between us, the undersigned, ANTHONY WATERER and ROBERT GODFREY, carrying on business as Nurserymen and Farmers at Knap Hill Nursery, near Woking, in the County of Surrey, under the style or Firm of WATERER & GODFREY, was DISSOLVED on the 24th day of JUNE last, by MUTUAL CONSENT, and that all Debts due to, and owing by, the late Firm will be received and paid by the said ANTHONY WATERER, by whom the business will in future be carried on
Dated this 1st day of December, 1868.
ANTHONY WATERER
ROBERT GODFREY.

STEPHEN BROWN begs most respectfully to tender his best thanks to the Nobility, Gentry, and his Customers generally for the very liberal patronage he has received during the number of years he has been in Business, and has much pleasure in recommending as his successor MR. DAVID GOLD McKAY, who has purchased the BUSINESS and STOCK in TRADE carried on at 11, Market Hill, Sudbury, and he is sure the Business will be conducted with satisfaction to those who may favour him with their patronage.
DAVID GOLD McKAY, who has Purchased and Succeeded to the above Business, begs respectfully to solicit from the Nobility, Gentry, and the Public generally, a continuance of the support so long and so liberally bestowed upon his predecessor, and assure them it is his full determination, combined with his long experience in the Trade, to send out Seeds True to Name, Genuine, and Unadulterated, at strictly moderate prices (see Catalogue); and from those who have not hitherto favoured his predecessor with Orders he respectfully solicits a trial, believing it would lead to increased confidence. All orders (however small) shall receive his careful and personal attention, and be executed with the greatest possible dispatch.
DESCRIPTIVE and ILLUSTRATED CATALOGUE of Vegetable and Flower Seeds and Gladioli is now ready, and may be had post free on application.
The Old Established Seed Warehouse, Market Hill, Sudbury, Suffolk.—January 1, 1869.

STEPHEN BROWN offers the following at the annexed low prices:—

	s. d.
CONIFERÆ, 25 choice sorts, 2 to 3 feet high, in fine condition	40 0
18 choice do.	28 0
25 choice do., larger size	70 0
18 choice do. do.	50 0
STANDARD TREES, as Scarlet Chestnut, Scarlet Thorn, Weeping Ash, &c., 12 fine sorts	16 0
FLOWERING SHRUBS, 25 fine sorts	14 0
PYRAMIDAL APPLES and PEARS, finest vars. per doz.	12 0
do., extra splendid, large fruiting trees, each 3*s.* to	5 0
GRAPES, from eyes, strong canes in pots each 2*s. 6d.* to	3 6
STRAWBERRIES, Bradley's Dr. Hogg per 100	10 0
Underwood's Lady	10 0
other fine and popular sorts—per 100, 3*s.* to	5 0
RHUBARB, Salt's Crimson Perfection per doz	10 0
Royal Albert	6 0
POLYANTHUS, Gold Chain	8 0
choice named vars. each 1*s.* to	2 6
PINKS, in eight fine vars., for	7 0
HOLLYHOCKS, choice and show vars. per doz. 6*s.*, 9*s.* and	12 0
PAMPAS GRASS, very strong per doz. 6*s.* to	15 0
GYNERIUM ARGENTEUM ROSEUM PENDULA, an elegant Pampas Grass, with drooping spikes of a purple-rose tinge, each 2*s. 6d.* to	3 6
DWARF ROCK CISTUS, 20 beautiful varieties for	10 0
DOUBLE POTENTILLA, very beautiful, 6 varieties for	10 0
VIOLETS, the finest varieties, per dozen 3*s.* to	6 0
HERBACEOUS PLANTS, in 800 best sorts. Catalogues free.	
LILIES, in 80 superb varieties, per dozen 5*s.*, 9*s*, 12*s.*, 18*s.*, and	24 0
GLADIOLI GANDAVENSIS hybrids, in 150 finest varieties, per dozen 3*s.*, 6*s.*, 9*s.*, 12*s.*, and	15 0
PÆONY, CHINESE, 12 finest varieties	9 0
PÆONY, CHINESE, FRAGRANS ALBA, fine large showy white flowers	9 0
CYCLAMEN, 12 beautiful varieties 12*s.* to	21 0
CYCLAMEN, 6 beautiful varieties 6*s.* to	10 6

NURSERY, HERBACEOUS, and BULB CATALOGUES free on application.
STEPHEN BROWN, Sudbury Nursery, Sudbury, Suffolk.

Choice New Seeds.

THE FOLLOWING have been either saved at the ROYAL NURSERIES, or from stocks selected by CHARLES TURNER.

BALSAM, from a prize collection, 1*s.* per packet
CENTAUREA CANDIDISSIMA, 1*s.* per packet
" GYMNOCARPA, 1*s.* per packet
CARNATION, from exhibition kinds, 2*s. 6d.* per packet
CLIVEDEN FORGET-ME-NOT (FLEMING), 1*s.* per packet
FOXGLOVE, from Ivery's varieties, 1*s.* per packet.
HOLLYHOCK, from all the new kinds, 1*s.* per packet
" Collection of 24 named varieties, 5*s.*
LOBELIA SPECIOSA, 1*s.* per packet
PHLOX, Herbaceous, from own collection, 1*s.* per packet
PINK, PICOTEE } from named varieties, 2*s. 6d.* per packet
PELARGONIUM, SHOW, 2*s. 6d.* per packet
" FANCY, 2*s. 6d.* per packet
" TRICOLOR, 2*s. 6d.* per packet
" VARIEGATED, 2*s. 6d.* per packet
" ZONAL, 1*s.* per packet
PETUNIA, very choice, 1*s.* per packet
PYRETHRUM GOLDEN FEATHER, 2*s. 6d.* per packet
VERBENA, from finest named kinds, 1*s.* per packet
VIOLA CORNUTA, 1*s.* per packet
" LUTEA, 2*s. 6d.* per packet

VEGETABLE SEEDS.

BEET, PINE-APPLE, 1*s.* per oz.
BROCCOLI, SNOW'S TRUE, 2*s. 6d.* per packet
CABBAGE, BAILEY'S SUPERB, 1*s.* per packet
CELERY, TURNER'S INCOMPARABLE, 1*s.* per packet
CUCUMBER, BERKSHIRE CHALLENGE, 1*s. 6d.* per packet
" HEDSOR PROLIFIC, 1*s. 6d.* per packet
MELON, BAILEY'S ECLIPSE, 2*s. 6d.* per packet
" GOLDEN QUEEN, 2*s. 6d.* per packet
" BEECHWOOD, True, 1*s.* per packet
PEAS, LITTLE GEM, First Crop, 3*s.* per quart
" ADVANCER, Second Crop, 2*s.* per quart
" PREMIER, Third Crop, 2*s.* per quart
SAVOY, NEW FRENCH, 1*s.* per packet

CHARLES TURNER'S NEW SEED CATALOGUE, containing all the newest and best varieties, can now be had post free on application.
THE ROYAL NURSERIES, SLOUGH.

FOSTER'S "XL" FINE LONG RIDGE CUCUMBER.—This new variety is a remarkably fine hardy long dark green Cucumber, and one that can be recommended with the greatest confidence. It is very prolific, and keeps its colour to the last. All who have seen it growing are satisfied that it cannot be surpassed, and those who have tried its flavour are convinced of its excellent quality, insomuch that the small quantity of seed raised is already nearly exhausted. Length 12 to 18 inches. Price per packet of 12 seeds, 1*s.*
EXTRA FINE NEW HYBRIDIZED PETUNIA.—Saved from the best large crimson, blotched, striped, and pencilled varieties. Price 1*s.* and 2*s. 6d.* per packet.
DIXON'S MAMMOTH WHITE CELERY, per packet 1*s.*
DIXON'S YORKSHIRE NEW PEA, per quart 2*s.*
FOSTER'S EMPEROR, fine frame CUCUMBER, per packet 2*s.*
EDMUND PHILIP DIXON, 57, Queen Street, Hull.

THE ADVANTAGES OF PROCURING SEEDS DIRECT FROM THE GROWERS CANNOT BE OVER-ESTIMATED.

LONDON. PARIS.

JAMES CARTER & CO.,

SEED FARMERS AND NURSERYMEN,

237, 238, AND 261, HIGH HOLBORN, LONDON, W.C.

1862. 1867.

CARTER'S COMPLETE ASSORTMENTS OF CHOICE VEGETABLE SEEDS

FOR LARGE OR SMALL GARDENS.

JAMES CARTER AND CO. include only the most approved varieties in the following Collections, and can confidently recommend them to intending purchasers, as affording the most complete and economic means of producing a plentiful supply of Vegetables all the year round.

	No. 1. For Gardens quarter of an acre in extent	No. 2. For Gardens half an acre in extent.	No. 3. For Gardens 3 qrs. of an acre in extent	No. 4. For Gardens one acre in extent.
BEANS, ROYAL DWARF FAN	..	..	..	1 quart
„ MONARCH LONG-POD	..	..	1 quart	1 quart
„ BROAD WINDSOR	1 pint	1 quart	1 quart	2 quarts
„ GREEN NONPAREIL	1 pint	1 quart	1 quart	1 quart
„ FRENCH FORCING	½ pint	1 pint	1 pint	1 pint
„ SION HOUSE	..	..	1 pint	1 pint
„ SCARLET RUNNERS	½ pint	1 pint	1 pint	1 pint
BEET, ST. OSYTH	..	large packet	1 ounce	1 ounce
„ PINE APPLE	..	..	1 ounce	1 ounce
BORECOLE or KAIL, COTTAGERS'	..	packet	large packet	large packet
KAIL, NEW, ASPARAGUS	packet	large packet	large packet	large packet
„ DWARF SCOTCH	packet	large packet	large packet	large packet
BRUSSELS SPROUTS, best	packet	large packet	large packet	large packet
BROCCOLI, SNOW'S WINTER	packet	large packet	large packet	large packet
„ KNIGHT'S PROTECTING	..	..	large packet	large packet
„ CARTER'S CHAMPION	packet	large packet	large packet	large packet
„ ADAM'S EARLY WHITE	packet	large packet	large packet	large packet
„ PURPLE	..	large packet	large packet	large packet
„ WALCHEREN	..	..	..	large packet
„ WHITE SOUTHAMPTON	..	..	..	large packet
„ WILCOVE	..	..	large packet	large packet
CABBAGE, CARTER'S EARLY	packet	large packet	large packet	large packet
„ DWARF NONPAREIL	packet	large packet	large packet	large packet
„ ENFIELD MARKET	packet	large packet	large packet	large packet
„ EARLY YORK	..	..	large packet	large packet
„ TOM THUMB	..	large packet	large packet	large packet
„ M'EWEN'S EARLY	..	..	..	large packet
„ SUGARLOAF	..	..	large packet	large packet
„ RED DUTCH	..	..	..	large packet
„ SAVOY, GREEN CURLED	packet	large packet	large packet	large packet
„ „ DRUMHEAD	..	..	large packet	large packet
„ „ DWARF ULM	..	..	large packet	large packet
CAPSICUM	..	..	..	large packet
CARROT, FRENCH FORCING	..	..	1 ounce	1 ounce
„ EARLY HORN	1 ounce	1 ounce	2 ounces	2 ounces
„ JAMES'S GREEN-TOP	..	1 ounce	..	3 ounces
„ SELECTED SCARLET	1 ounce	1 ounce	3 ounces	4 ounces
CAULIFLOWER, EARLY LONDON	packet	..	..	large packet
„ WALCHEREN	..	..	large packet	large packet
„ CARTER'S DWARF MAMMOTH	..	large packet	large packet	large packet
CELERY, INCOMPARABLE dwarf WHITE	packet	large packet	large packet	large packet
„ MANCHESTER RED	..	large packet	large packet	large packet
CRESS, PLAIN	4 ounces	4 ounces	½ pint	1 pint
„ CURLED	..	..	4 ounces	½ pint
„ AUSTRALIAN	packet	1 ounce	1 ounce	1 ounce
„ AMERICAN	..	..	1 ounce	1 ounce
CUCUMBER, CARTER'S CHAMPION	..	packet	packet	packet
„ LYNCH'S STAR of the WEST	..	..	packet	packet
Price, including packing	**12s. 6d.**	**21s.**	**42s.**	**63s.**

Continued :—	No. 1. For Gardens quarter of an acre in extent	No. 2. For Gardens half an acre in extent.	No. 3. For Gardens 3 qrs. of an acre in extent	No. 4. For Gardens one acre in extent.
CUCUMBER, CUTHILL'S BLACK SPINE	..	..	packet	packet
ENDIVE, FRENCH CURLED	..	large packet	large packet	large packet
„ WHITE CURLED	..	..	..	large packet
„ IMPERIAL BATAVIAN	..	..	large packet	large packet
„ LEEK, AYTON CASTLE	..	large packet	large packet	large packet
LETTUCE, CARTER'S GIANT WHITE	packet	large packet	large packet	large packet
„ DUNNETT'S GIANT (for autumn)	..	..	large packet	large packet
„ DRUMHEAD	packet	large packet	large packet	large packet
„ WHEELER'S TOM THUMB	..	large packet	large packet	large packet
„ VICTORIA	..	large packet	large packet	..
MUSTARD	4 ounces	4 ounces	1 pint	1 pint
MELON, CARTER'S EXCELSIOR	..	packet	packet	packet
„ LADY SEFTON	..	..	packet	packet
ONION, GIANT MADEIRA	packet	large packet	1 ounce	1 ounce
„ READING	packet	large packet	4 ounces	4 ounces
„ JAMES'S KEEPING	..	..	2 ounces	4 ounces
„ DEPTFORD	..	..	..	4 ounces
„ SILVER-SKIN	..	..	1 ounce	1 ounce
PARSLEY, DUNNETT'S GARNISHING	packet	large packet	1 ounce	1 ounce
PARSNIP, STUDENT	1 ounce	1 ounce	2 ounces	2 ounces
PEAS, CARTER'S EARLY	1 pint	1 quart	1 quart	2 quarts
„ DICKSON'S FAVOURITE	..	..	1 quart	..
„ PRINCESS ROYAL	..	..	..	2 quarts
„ PREMIER, new	..	..	1 pint	1 quart
„ PRIZETAKER	..	1 pint	2 quarts	2 quarts
„ CHAMPION of ENGLAND	1 pint	1 quart	1 quart	2 quarts
„ SCIMITAR	..	..	..	2 quarts
„ BISHOP'S LONG-POD	..	..	1 pint	2 quarts
„ CARTER'S SURPRISE	1 pint	1 pint	1 quart	2 quarts
„ „ VICTORIA	..	1 pint	1 quart	2 quarts
„ VEITCH'S PERFECTION	1 pint	1 pint	1 quart	1 quart
RADISH, WOOD'S FRAME	..	2 ounces	2 ounces	2 ounces
„ EARLY SHORT-TOP	2 ounces	2 ounces	4 ounces	4 ounces
„ SCARLET TURNIP	2 ounces	2 ounces	2 ounces	4 ounces
„ WHITE TURNIP			2 ounces	4 ounces
RAMPION	..	..	packet	packet
SPINACH, ROUND SUMMER	½ pint	½ pint	½ pint	1 pint
„ PRICKLY, WINTER	½ pint	½ pint	½ pint	1 pint
SALSIFY	..	..	large packet	large packet
SCORZONERA	..	..	large packet	large packet
TURNIP, EARLY SIX-WEEK	1 ounce	1 ounce	1 ounce	2 ounces
„ WHITE DUTCH	..	..	..	1 ounce
„ ORANGE JELLY	..	..	1 ounce	1 ounce
„ YELLOW MALTA	..	1 ounce	1 ounce	1 ounce
„ GOLDEN STONE	..	..	..	1 ounce
TOMATO, RED	..	packet	packet	packet
„ DE LAYE	..	..	..	packet
VEGETABLE CREAM, MOORE'S	packet	packet	packet	packet
POT HERBS	..	4 packets	5 packets	5 packets
Price, including packing	**12s. 6d.**	**21s.**	**42s.**	**63s.**

CARTER'S COMPLETE ASSORTMENTS OF FLOWER SEEDS.

Consisting of popular and easily cultivated varieties, selected to produce the most showy appearance in the Flower Garden.

DETAILED LIST of CONTENTS will be forwarded on application.

Collection A. includes
FRENCH ASTER, 12 varieties
GERMAN STOCK, 16 varieties
24 packets:—
HARDY ANNUALS
TENDER ANNUALS
Price 10s. 6d.
By Post, 11s.

Collection B. includes
FRENCH ASTER, 12 varieties
GERMAN STOCK, 16 varieties
36 packets:—
EVERLASTING FLOWERS,
NEW ANNUALS,
HARDY ANNUALS,
TENDER ANNUALS,
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Collection C. includes
FRENCH ASTER, 12 varieties
GERMAN STOCK, 16 varieties
DWARF LARKSPUR, 10 varieties
45 packets:—
EVERLASTING FLOWERS,
NEW ANNUALS,
HARDY ANNUALS,
TENDER ANNUALS,
PERENNIALS
Price 21s.
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Collection D. includes
FRENCH ASTER, 12 varieties
CHRYSANTHEMUM ASTER, 8 varieties
GERMAN STOCK, 16 varieties
LARKSPUR, 10 varieties
BALSAM, 12 varieties [vars.
DOUBLE WALLFLOWER, 12
79 packets:—
EVERLASTING FLOWERS,
New ANNUALS, PERENNIALS
HARDY & TENDER ANNUALS
SEEDS for GREENHOUSE
Price 42s.
By Post, 42s. 6d.

Collection E. includes
FRENCH ASTER, 12 varieties
CHRYSANTHEMUM ASTER, 8 varieties
GERMAN STOCK, 16 varieties
BALSAM, 12 varieties
ANTIRRHINUM, 12 varieties
HOLLYHOCK, 12 varieties
LARKSPUR, 10 varieties
PHLOX DRUMMONDI, 12 vars.
PETUNIA, 12 varieties
DOUBLE WALLFLOWER, 12 varieties
DOUBLE ZINNIA, 6 varieties
111 packets:—
NEW, HARDY, TENDER ANNUALS and PERENNIALS,
GREENHOUSE PLANTS,
ORNAMENTAL FOLIAGED PLANTS
ORNAMENTAL GRASSES, &c.
Price 63s. **By Post, 64s.**

POTATOS, the most approved varieties
RHUBARB ROOTS, best kinds, extra strong
For Prices see
SEAKALE, strong roots for forcing
ASPARAGUS, fine 2 and 3-year old plants

CARTER'S GARDENER'S AND FARMER'S VADE MECUM (Illustrated) FOR 1869,

Just published, and forwarded Post Free for 12 stamps (Gratis to Customers), containing illustrations and full descriptions of the most desirable Floral and Vegetable Novelties of the season.

JAMES CARTER AND CO., SEED FARMERS AND NURSERYMEN, 237, 238, AND 261, HIGH HOLBORN, LONDON, W.C.

Genuine and First-class Seeds.

WM. PAUL begs to announce that his NEW CATALOGUE of VEGETABLE and FLOWER SEEDS is just published, and will be forwarded free by post on application.

He has made enlarged arrangements, by which he believes he will be able to secure for his Customers, as usual, the best races of VEGETABLE and FLOWER SEEDS, of good germinating qualities, free from admixture.

Important.—All letters should be addressed Wm. Paul, Waltham Cross, London, N.

New Catalogue.

LEWIS S. WOODTHORPE will be happy to forward, post free, on application, his CATALOGUE (which will be found very reasonably priced) of NEW and CHOICE PLANTS, beautiful SPRING FLOWERS, and GENERAL NURSERY STOCK.

A heavy discount to the Trade.

Munro Nursery, Sible Hedingham, Essex.

4000 Polianthes tuberosa (Double Tuberoses) at

EUGENE VERDIER, Fils Aîné, SEEDSMAN, 3, Rue Dunois, Paris.

Gladioli, Gladioli, Gladioli,

True and exact to name, and at the lowest prices, are to be obtained of EUGENE VERDIER, Fils Aîné, NURSERYMAN, 3, Rue Dunois, Paris.

Standard and Dwarf Roses.—To the Trade.

EUGENE VERDIER, Fils Aîné, NURSERYMAN, 3, Rue Dunois, Paris, has still for disposal several Thousands of very fine ROSES of the best sorts and at the very lowest prices.

TRICOLOR PELARGONIUMS.

LADY CULLUM, 24s. per doz. | ITALIA UNITA, 5s. p. doz
SOPHIA DUMARESQUE, 18s. p. doz. | PICTURATA, 6s. per doz.
SUNSET, 6s. per dozen. | MRS. BENYON, 6s. per doz.

In strong plants, at the above prices, for cash, package included.

ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

VARIEGATED PELARGONIUMS.

Lucy Grieve	Lady Cullum	E. G. Henderson
Queen of Tricolors	St. Cloud	Beauty of Calderdale
Sophia Dumaresque	Rosette	Picturata
Duke of Edinburgh	Neatness	Sophia Cusack

The above for 24s. If any of the kinds are not required, others of equal value can be substituted. Remittances requested from unknown Correspondents.

Address, ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his NEW GENERAL CATALOGUE of 92 Pages, containing SELECT, DESCRIPTIVE, and PRICED LISTS, of New and Rare Stove, Greenhouse, and Hardy Plants, Hardy Bedding Plants, &c.; Alpine and Herbaceous Plants, Aquatics, Azalea indica, Conifers, Exotic Orchids, Ferns, &c., Hardy, Greenhouse, and Stove; Grapes; Miscellaneous Stove, Greenhouse, and Hardy Plants; Ornamental Palms, Cycads, &c.; Rhododendrons, Roses, Sweet Violets, Hyacinths, Tulips, Gladioli, and other Bulbs, is now published, and will be forwarded free to applicants on receipt of six postage stamps.

Exotic Nursery, Tooting, Surrey, S.W.

Bedding-out and Hardy Climbers.

JACKMAN'S HARDY HYBRID CLEMATISES,

AWARDED TWENTY FIRST-CLASS CERTIFICATES AND TWO SPECIALS.

GEORGE JACKMAN AND SON are desirous of drawing the attention of those who intend using their Clematises for a permanent bedding plant, &c., to the fact that the present time is most favourable for planting.

OPINIONS OF THE PRESS.

"They have in their several varieties the very colour of which our summer gardens are in a great measure deficient." J. F. (Cliveden), *Gardeners' Chronicle*, August 31.—"They will be of the highest value as purple bedding plants—our present colours in this way being poor indeed compared to these." *The Field*, September 28.—"There is no finer flowering plant for lawn decoration, no more gorgeous subject for garden avenues, not even excepting Pillar Roses; . . . while the glorious mass of rich violet purple furnishes quite a new sensation in bedding out." The "Florist and Pomologist," November, 1867.

An ENGRAVING from a Photograph, showing the flowering qualities, and a GENERAL CATALOGUE of PRICES, will be forwarded gratis by enclosing a stamp.

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The Gardeners' Chronicle.

SATURDAY, JANUARY 2, 1869.

IN reviewing the events of the PAST YEAR in its horticultural aspect, we can no more help calling to mind the political doings of the same period than, according to SHAKSPEARE, the gardeners of RICHARD THE SECOND'S time did under similar circumstances. In matters political there be those who would, in the words of our great dramatist—

> "Superfluous branches
> Lop away, that bearing boughs may live;"

while, on the other hand, there are others whose policy is to

> "Give some supportance to the bending twigs."

Fortunately for us in regard to these matters

> "All must be even in our government:"

while in matters purely pertaining to our craft, and wherein our neutrality is not enforced, there is happily, in spite of minor differences, a unanimity of purpose and a singleness of aim directing all our efforts to

> "Keep law and form and due proportion
> Within the compass of our pale."

True, the means of doing this are very varied. While some

> "Cut off the heads of too fast growing sprays,"

others—

> "Root away
> The noisome weeds, that without profit suck
> The soil's fertility from wholesome flowers."

And so in gardening matters—using the phrase in its widest sense—while the aim of all is the general advancement of the craft and of the craftsmen, the means of effecting this end are not a little different. Speaking broadly, there are those whose anxious forethought and watchful care are made manifest by the brilliant and solid results they lavish on our exhibition tables, while there are others equally hard working, with the self-same ultimate object in view, joying in their work, though with a sense that the "results" may not so speedily be realised or presented in so attractive a form.

Among the Horticultural Exhibitions of the year the two most noticeable were those of Ghent and Leicester. The former, which was of an international character, was again strongly suggestive, as most of the foreign shows are, of the desirableness of a more picturesque arrangement of the plants brought together—a feature which to some extent regulates the prize schedule, inasmuch as such bold objects as large Palms, Ferns, and Cycads, are more freely used than with ourselves. This picturesque disposition is obtained mainly by the economical abandonment of staging, the dwarfer plants being set *en masse* on the surface, and the taller ones used either as "starers" to break the view at particular points, or to hide the retaining walls. Single graceful plants set up thus on slender pedestals, here and there, produce far more effect than when all are staged alike in formal phalanx. The Leicester show confirmed the experiment of the preceding year at Bury, and though not so successful in a pecuniary sense, showed conclusively that the provincial visits of the leading horticultural body must to a greater or less extent stir up the horticultural

talent of the country, and thus be productive of benefit both to gardening and gardeners.

Another feature, which we may certainly note with pleasure, is the steady progress of the taste for Spring Gardening. It is not every one who could hope to compete with Cliveden, Belvoir, or Nuneham in these matters. It is not every one who is endowed with the taste or the enthusiasm of the proprietress of Wardie Lodge, but there is not a suburban fore-court a rod square in extent, but might be brightened at a trifling cost by the tender children of the spring.

Turning to other departments—the establishment of a Scientific Committee by the Royal Horticultural Society to co-operate with the other committees, is a real matter for congratulation. Discussion by men competent in their several departments—free, open, unbiassed discussion—will be most serviceable in many matters connected with horticulture. Again, the sub-committees told off to investigate and report on such subjects as spot in Orchids, the relation of manures to the growth of particular plants, the best modes of pruning, and the like, cannot fail to do good service, even if they do not entirely settle the points in dispute. One thing we may remark with reference to this committee. If it is to become one of the chief means, as we hope it is, of educing the horticultural talent of the country—if it is to be the focus through which the rays of chemistry, of botany, of geology, and what not, are to be converged on horticulture—it must have some more efficient means of bringing its work before the public than it now has. Up to the present time our own columns have, as we believe, formed almost the only channel through which the doings of the committee have been made known to those most concerned. It is our duty, no less than our pleasure, to act as chroniclers in this matter, but we can but feel that the communications that are made to the committee are deserving more full publicity than the abstract that our space permits us to give.

The publication of Mr. DARWIN'S work on the Variation of animals and plants under domestication is another of the features of the year. We do not hesitate for a moment in saying that this work will exercise a powerful influence on practical gardening and agriculture in the future, none the less powerful in that its effects will be made manifest by practitioners to whom the very name of the author may be unknown. Looked on merely as a repertory of facts, we do not know where else the student could find, collected together in one book, such a mass of details relating to the history of our domesticated animals and plants, and of their manifold varieties, as is collected together in these volumes; while the chapters on inheritance, hybridisation, selection, and variation teem with lessons and suggestions which the thoughtful practitioner will not fail to turn to good account. The work in question may well encourage observers to record the results of their experience, when they see the use made of them. In this sense it is with peculiar pleasure that we find our own columns, and those of our contemporaries, have furnished so many facts and illustrations to the author.

The Obituary of the year—always a painful list to look on—is perhaps not so full of great names as has unfortunately been the case of late years. Still we have had to lament the loss, within the cycle, of persons so intimately connected with horticulture as ELISA DE VILMORIN and NATHANIEL BAGSHAW WARD, both of whom seem to have had the faculty of securing the esteem of all with whom they came in contact. Among botanical collectors—that enterprising band to whom we owe so much—the losses have been severe, how severe the names of PEARCE, BOWMAN, HUTTON suffice to indicate. Among botanists and travellers we have had recently to record the death of WALKER-ARNOTT, VON MARTIUS, SCHNIZLEIN, and PÖPPIG, the two latter better known in Germany than here, the two former of world-wide repute. Surely it is no violation of propriety to speak in the same breath of the loss of these great men, and of the destruction of the dragon tree of Teneriffe, to which so much interest attached. To us fell the lot of being the first to record the overthrow of this famous tree, which had an interest for the general public almost as great as for professed plant-lovers.

Of our own share in the work of the year we must of course say but little. We have endeavoured to keep our readers *au courant* with what has been doing in the horticultural world, and to afford them a free stage for the discussion of all matters of interest to them. Thanks to our correspondents, we have been enabled to give illustrations of gardening and cognate matters, not only in this country but from China to Peru—at any rate, in Tuscany and in Australia, in the Riviera and in New Zealand, in Russia and in India, in Switzerland and in Spain. The year before us is one that promises to be full of interest for plant-lovers of all descriptions. With the assistance of our correspondents we hope to do our part as faithful chroniclers of its events.

—— THE recently-published triple number of M. VAN HOUTTE'S "Flore des Serres" contains pictures of some remarkably beautiful NOVEL GLOXINIAS (Ligeria speciosa). One of these in particular, called Fleur de Flandre, is the most charming we have yet seen. It is one of the drooping-flowered race, the corolla being white, with an internal belt of crimson halfway down the tube, which, beyond this to the base, is minutely dotted, as in the new French sorts, while the throat and inner portion of the limb is pure white, the extreme margin being also a narrow line of pure white, just within which is a bold and prettily feathered band of reddish-violet. This combination of colours has a most charming effect. Another, called Rose et Hermine, is erect-flowered, white, with the limb almost wholly of a mottled carmine tint. Ceinture d'Hebe is semi-drooping, with a white tube and narrow even white border, while the limb segments are of a carmine rose dashed with lilac. Cordon lavande is erect-flowered, white, with a narrow belt or edging of pale lilac. Violette neigeuse, a drooping-flowered sort, is of an entirely novel and curious mottled tint of dark heavy purple. Finally, Leon Van der Wee is a very richly-coloured drooping-flowered variety, with the lower part of the tube pale and spotted, the upper part and the throat of a deep rich purple-crimson, coloured equally all round the tube, this passing off into bright carmine over the centre of each limb segment, and surrounded with a broad edging of white. These lovely flowers have wonderfully improved of late, and M. VAN HOUTTE'S establishment has long been famous for the successful hybridisation of these and other Gesnerads—witness the splendid Plectopomas, recently alluded to in our list of Plant Portraits.

—— We have before us fine blooming specimens of the noble LASIANDRA MACRANTHA, sent us by Mr. BULL, which shows that the flowers of this grand plant may be had in winter as well as in summer, which is an additional recommendation. Notwithstanding what may seem to be an unfavourable season, the blossoms are even now nearly five inches across, and are of the richest violet hue, a tint which has not been reproduced in any of the illustrations which have yet appeared.

—— We are requested to state that the pamphlet advertised as "The IMPROVED METHOD of GROWING FRUIT," is by the Rev. JNO. FOUNTAINE, and is merely a slight variation on orchard-house culture. The subject was mentioned in our columns, 1867, p. 1193.

—— For the benefit of a rapidly increasing class, we this week commence a series of notes on TOWN GARDENING, by one of the most successful practitioners of gardening under difficulties.

APPLE STOCKS.

1. *The English Paradise.*—This was introduced from Holland early in the last century, and is called by Miller in his Dictionary the "Dutch Paradise." It is quite distinct from the stock called the Doucin in France. A very near relative of this kind of stock is to be found among the stock-growers in Surrey. To quote Miller, "This sort will not decay or canker as the other (the French Paradise), nor does it stint the grafts so much, so is generally preferred for planting espaliers or dwarfs, being easily kept within the compass usually allotted to these trees."

Since the time of Miller there have been, doubtless, other surface-rooting seedling Apples raised, having the same effect on the graft as the above, and hence called English Paradise stocks. I can testify to two kinds raised here from seed some 40 years since, and now found so eligible for cordons, bushes, or pyramids, as to supersede all other kinds of dwarfing Apple stocks, and to lead to the planting here alone of from 60,000 to 70,000 annually. One of these stocks, the Nonsuch, gives such a prolific habit to Apple trees, that small bushes only 1 foot high are crowded with blossom buds, and some trees exhibited at South Kensington in October last were equally crowded with fruit, although but 18 inches in height. Besides these kinds of Paradise stocks, Mr. Scott, of Crewkerne, has, I believe, raised one or two kinds of Paradise Apple stocks equally eligible. Hence I am enabled to contradict decidedly Mr. Robinson's assertion in a contemporary, that the term "English Paradise is a misnomer," if by that he implies that no such stock exists.

2. *The Doucin.*—This is used in France for pyramidal Apples in gardens. There are several varieties under this name in the different departments of France, some of them very inferior, with small leaves, and a stunted, cankery habit; the best kind approaches to the habit of the English Paradise in having broad, shining leaves, but, on the whole, is not equal to it, as the stock does not swell so regularly with the graft in our climate. It is, as Mr. Robinson says, an inferior stock for cordons, and not at all equal to our English Paradise stocks for that, and all other garden purposes.

3. *The Burr Knot.*—Some years since, when making a call on Mr. Fleming at Trentham, he mentioned this stock as being an excellent one for garden Apple trees, inasmuch as it seemed to suit the soil and climate. This turned my attention to it, and I found it was well known in this county, as a Mr. Byde, a magistrate, then living at Ware Park, had planted it extensively, calling it his "walking-stick Apple," because he used to cut off a truncheon from an old tree, and after using it as a walking-stick, plant it in his garden, when, if planted deeply, say 18 inches, it would root and bear fruit the second year. Independently of its being a really good kitchen Apple, it forms a good stock, rooting at the surface, and inducing fruitfulness. It is more difficult of propagation than the English Paradise stock, its young shoots not rooting so freely. Near Narberth, South Wales, there is a race of the Burr Knot Apples, all the varieties of which root freely at the surface, and make good stocks for garden Apple trees.

4. *The French Paradise*, or Pommier du Paradis of our French neighbours.—My knowledge of this stock dates from 1827, that of Mr. Robinson cannot be of so long a date; and if the old schoolboy's proverb, "experientia docet" means anything, I ought to know something about it. There is no doubt about its being one of the dwarf Apples of Armenia, as I have had them both under cultivation, and the early French cultivators most probably named it under the idea that it came thence. In those old times (1650) the idea was entertained that the site of Paradise was in ancient Armenia, for Reland and Calmet place Eden in the high lands of Armenia, considering the text, Gen. ii., 8, points to a position near the sources of the four rivers—the Pison, the Phasis, the Gihon, and the Araxes. Armenia being an old Apple-growing country would give such abnormal products as dwarf Apple trees, after the manner that Japan and China give variegated and other strange varieties of trees and shrubs; these are the effects of domestication. England is now becoming old in Apple cultivation, hence it is that if the seeds of our old varieties of Apples are sown, they often produce dwarf surface varieties, sorts fit for stocks for garden trees. One variety raised from seed here, is so small that I call it my pigmy stock; it is of the same habit as the Armenian or French Paradise, but is smaller in all its parts, so that an Apple tree grafted on it could be grown in a breakfast cup. The unmeaning name given to this stock probably had its origin in this way. In the middle of the 17th century there was a much deeper Christian, or perhaps superstitious, feeling on the Continent than in these times, and the little prolific Apple trees brought from Armenia would be looked upon with great interest, and some good-natured priest would perhaps suggest that, as Eden was situated in Armenia, these might be the Apples of Paradise, and hence the name. In Evelyn's time, and even before then, this stock seems to have been in our gardens, for in noticing double grafting I shall have occasion to mention a very old writer on fruit trees. It seems never to have made much progress, being in fashion for a few years (owing to some writer having seen the little trees in France, and then coming home and talking and writing of the marvels he had seen), and then going out, as has been the case with ladies fashions, for doubtless chignons were worn before the Flood! In Miller's time (the middle of the last century) the French Paradise seems to have been in common cultivation in England, for he says, the "Paradise Apple hath of late years greatly obtained for stocks to graft a bud upon, but these are of not long duration unless they are planted so low that the graft may take root, when it is equal to no stock. These trees have been much more esteemed in France, but being only curious are not esteemed in England." Many years elapse before we hear again about this stock; no special correspondent seems to have lived and sung its praises. The truth, I believe, is, that fruit gardening was confined to the orchard of the farmer, and the perfect walled-in gardens of the wealthy, and that Paradise stocks and Quince stocks were equally ignored, for I remember, in 1825 to 1830, buying 500 English Paradise stocks of Messrs. Buchanan, of Camberwell; they were grafted here, and but few were sold, for gardeners would not believe that any stock would make a tree dwarf and prolific. I believe I was inclined to go with them, but I soon found that the path did not lead forwards. I planted some of these stocks, and grafted them with Sturmer Pippins. They are still here.

I have in a preceding paragraph disposed of Mr. Robinson's assertion, that the English Paradise was a misnomer. I must, in the cause of truth, be equally peremptory with respect to the Apple trees grafted on the French Paradise stock being fit for horizontal single cordons, trained to a wire. I simply and decidedly assert, that in England they are the most unfit of all for that purpose. To the question why? I answer, because the tree when bent down to be fastened to the wire puts forth such clusters of blossom spurs at the bend, that there is not enough of vital force in the stock to throw out a leading shoot to be tied to the wire, and thus continue the edging; thus, if trees are planted only 4 or 6 feet apart, they are long before they touch each other, and, in fact, instead of cordons they become stumps. It would be pleasant to take one's friend into the fruit garden, and to be compelled to say *Voici mes chicots* (look at my stumps) instead of cordons. The English Paradise stock, on the contrary, forms a nice continuous cordon, the leading shoot being more vigorous, so that it may be grafted on to its brother in front.

Again I am compelled to be decisive. Mr. R. affirms that the French Paradise stock flourishes better in stiff cold clayey soils than in those that are light and fertile. This, as regards England, is a complete mistake, it is the exact converse of the truth. In France, owing to the heat and dryness of the climate, the French Paradise stock requires a cool, moist, retentive soil; in England a light, generous loam, and a warm, dry summer. It is not tender as regards frost, for, as is well known, Armenia is very cold. It is quite plain

that some of the cultivators either misled Mr. Robinson or, to judge more charitably, they were thinking and talking only of France, and not of what was suitable for our country.

The White Calville Apple (Calvillo Blanc).—It is now some years since my attention was called to this Apple by Mr. Fleming, of Trentham, who stated that it was a great favourite with the French cook there, and that he grew a number of trees in pots in the orchard-houses for the supply of the house. Oddly enough, from that time to the present I had never compared it with our English Apples when cooked. The other day I had two of our old-fashioned English Apple puddings made with the usual light flaky crust—a thing unknown to French cooks—one with Rymer Apples, the other with the White Calville, and the next day I had two compotes of the same sorts served. The difference in the two kinds in both instances was most remarkable, the Rymer Apples were most piquant and full of flavour, their colour darker than the others. The Calvilles came to table looking quite charming: the quarters into which they were cut were intact, and of a pale straw colour, yet when touched they were soft and melting—as a compote, quite nice to look on. Alas for looks! their flavour, as compared with the Rymers, was flat, without the least piquancy, and tasting, as a London friend said, like London (imported) Apples in spring. Owing to the hot summer this kind has borne well and ripened its fruit well this season; its flesh I find tender and juicy, but entirely destitute of the aroma of our fine English Apples, such as the Ribstone Pippin, the Golden Pippin, and many others; and then in March (for it keeps well), how inferior is it to such sorts as Ashmead's Kernel, White Nonpareil, Duke of Devonshire, Keddlestone Pippin, Lord Burghley, and many others. It is strange, but quite true, that the Continent as a rule produces Apples of an inferior flavour; our insular climate gives a superior taste not only to our beef and mutton, but also to our Apples, and Grapes, and Plums, and many other things.

Double Grafting.—Mr. Robinson alludes to this with a slight sneer. It is a very old English practice, for I have only very recently discovered the following passage in a book by John Rea, Gent., 1665:—"You should graft the cyon of the Paradise Apple on to a Crab or other Apple stock close to the ground with one graft, and when that is grown to the bigness of a finger, graft thereon about eight inches higher the fruit desired, which will stop the luxurious growth of the tree." This passage, although curious as being the earliest mention of double grafting, is not quite correct as to the result: for a Paradise scion placed on a rich stock loses its nature, and the graft draws from the Crab stock the normal vigour which belongs to that stock. It must be some 20 years since that, on finding the Marie Louise, Beurré Rance, and Gansel's Bergamot, always offered in the French catalogues as *sur franc*, or on the Pear stock, I told one or two of my French friends how readily they grew and how fertile they became, if double grafted on the Quince. It might have been practised in France to a small extent before that period; I know that it is common there now with a few of the intelligent nurserymen. There is yet much to be done with this mode of improving fruit trees, but it requires time and thought. I have an article on the subject not yet completed, because of the time required to carry out experiments.

Pear Growing.—All that Mr. Robinson states about walls and tarpaulin protectors savours of retrogression. We might as well imitate the wooden plough of the Arab cultivator, so well described by Mr. Wingfield in his very nice book, "Under the Palms." If I were a betting man, I would wager that I would grow more Pears, and of a much finer quality, in a Pear-tree house 100 feet by 24 feet, costing 150*l.*, than on any wall that would cost 500*l.*; for no ugly copings are required. In England, owing to our having less sun than our neighbours on the Continent, the blossoms are often injuriously affected by the shade of opaque copings and protectors. The *modus operandi* to grow Pears in a house is to have them as close pyramids on Quince stocks in 12-inch pots, so that a glass span-roofed house, 100 feet by 24, with sides of boards, would hold 2000 trees. These should occupy the house from October till the first week in June, and then be removed to the open air in a sheltered place, and the pots plunged so as to require but little water. The house, being thus clear, would ripen a large crop of Grapes. No Pear tree should be suffered to bear more than a dozen fruit, which it will do without fatigue, thus giving 2000 dozen as a certain annual crop, with no anxiety about frosts and storms—coping destroyers—in April and May. This method of growing Pears is as great an advance on walls and protectors, as the steam-plough is on the wooden one of the Arab farmer. It is probably not new, for I have found nothing new in fruit culture, but orchard-houses, ground vineries, and dessert orange culture, and these require to be carried out after a regular system.

Feeling that some of your readers would like to understand the nature of the English and French Paradise stocks more fully than can be done by description, I have sent to Mr. May, No. 4, Great Russell Street, Covent Garden, a few trees of each sort; their roots are packed in Moss, so that they may rest there a few weeks without injury. It will be seen that both give equal fertility to the graft, as their heads, only two years old, are surrounded with blossom-buds. The bulging of the graft over the stock is very apparent in the French Paradise stock, and this bulge, if it comes into contact with the soil, puts forth roots, the stock then becoming, as Miller quaintly expresses it, "no stock." The English Paradise stock, with the same fruit-giving nature, has not this bulge; the union is more perfect, it will consequently retain its health and be longer lived than its near relative. *Thos. Rivers.*

BOTANICAL DRAWING.—No. I.

It has been suggested to me by some who, I trust, are better able to appreciate my qualifications than my native modesty will allow me to do, that a few hints on botanical drawing, from my pen, might be useful to some of the readers of the *Gardeners' Chronicle*. Yielding to their superior judgment—though I am more accustomed to the pencil than the pen—I shall venture to make a few remarks, which, however simple and trifling they may appear to me, and perhaps to others, may be of some service to those who are ambitious of doing correctly what any one is supposed to be capable of doing, viz., sketching a flower, or a plant.

I have frequently heard the remark, that Mr. So-and-so is a good colourist but a bad draughtsman—a very left-handed compliment, equivalent to that of being pronounced able to write but not to spell, to paint a portrait but not to represent the individual. It is as well that correct drawing and colouring should be found in the same work, for the absence of the former cannot be compensated by any excellence in the latter. Most beginners in flower drawing are desirous of rushing into colour before they can sketch—unaware that the most gorgeous daub, however laboured, if incorrectly drawn is only a crude effort at "paper staining," as it is technically termed. The eye of a qualified critic is not to be foiled by colour. Facility in colouring is easily acquired, but a correct eye for drawing is only to be rendered by constant observation.

I may have occasion hereafter to say something about colouring—botanical and fanciful, for there is a difference between the two—similar to that between a portrait, and a mere picture. A strictly botanical drawing generally represents but one or two individual plants, and they must be equally correctly drawn and coloured. A fancy drawing or group in proportion to the number of plants introduced may have the details judiciously slurred over, for the eye of the observer cannot comprehend the minute points of all at a glance, so there is no labour lost. I may state that this dependence upon the carelessness of the observer is very frequently carried too far—and if at all times far from flattering, is often offensive; and that the works of many professors of flower drawing are not calculated to improve the public taste for the domain of Flora.

To argue the propriety of correctness in anything may seem like discussing a truism, but correctness is very often a question of degree, or a matter of taste. We judge according to the light that is in us.

I have particularly in view the edification of young gardeners; for in the numerous works intended for their instruction, I am not aware that there are any hints in relation to botanical or flower drawing. Judging from the omission, one might almost suppose it was thought that if the pupils but mastered half the matter that was written for their improvement, they might well dispense with so trifling an accomplishment. I need not dilate on the usefulness to gardeners of a knowledge of sketching, not flowers only, but anything in the way of their profession, for many have expressed to me their regret at their inability, being deterred from testing it by imaginary difficulties. I may state that a slight sketch is often more explanatory than any description; and to collectors and cultivators, figures of the plants they collect or deal in are particularly desirable. I purpose making a few remarks, which I hope will be of assistance to beginners in overcoming the difficulties they may encounter in their first attempts. The simple means I have employed in the course of some years' experience will be found applicable equally to drawing dried as well as living plants.

I may premise that a knowledge of botany, however slight, is of great use in enabling the artist to avoid the errors which are occasionally perpetrated in respectable drawings and publications, such as introducing an abnormal number of stamens in a flower; giving it an inferior ovary when it should have a superior one, and *vice versâ*. I have frequently seen such negatively instructive illustrations of ignorance,—quite inexcusable, for a little knowledge would enable them to be avoided. It is more creditable that one's works should furnish an example than a warning. *W. H. Fitch.*

PORTULACAS.

THE hot dry summer brought out in full force the value and beauty of these superb annuals, and those who saw the bed of double varieties growing at the Royal Horticultural Gardens at Chiswick, in August last, could hardly fail to have been struck with its gay appearance. I am not certain, however, that the double varieties are more showy than the single kinds. I really incline to the use of the latter for decorative purposes, yet both are well worthy of cultivation. The following were the kinds grown at Chiswick:—Thellusoni fl.-pl., orange maroon; splendens fl.-pl., violet rose, showy and handsome; aurea fl.-pl., yellow; rosea fl.-pl., a pale form of splendens; sulphurea fl.-pl., sulphur, rather dull-looking, but yet acceptable as a variety; and alba fl.-pl., creamy white. It was noticeable about the yellow-coloured variety that only a few of the flowers came true, a large proportion being the sulphur-coloured kind.

When well-grown, the Portulacas are remarkable for brilliancy of colour, and are well adapted for the decoration of beds, vases, or rockwork, or they can be grown in clumps, or in pots, and even used for edgings. A dry and sunny position should be afforded them, where they can have the full benefit of the sun. It is best to raise the plants in a gentle warmth, in common with most half-hardy annuals, using a fine compost compounded of sandy peat, leaf-mould, and charred earth, and about June plant in the open ground. Messrs. Carter & Co. recommend that when planted out, an inch or two of lime rubbish, burnt earth, and sand, should be placed over the border, as this tends to prevent the plants from damping off. Though classed with the half-hardy annuals, it often happens that seed shed by the growing plants will readily vegetate in the early part of the summer, after lying in the ground during the winter. Mr. Barron deserves thanks for giving an opportunity for seeing under such good conditions, that old favourite of the flower garden in past times—the Portulaca. *R. D.*

CORDONS *v.* OTHER MODES OF FRUIT GROWING.

AT p. 1314 of your last volume Mr. Robinson advances 12 reasons why Cordon Apples should be grown in preference to all others. I highly approve of this mode of putting the question; it is handy for comparison and reference, and places the merits of this mode of training succinctly before your readers. I have no prejudice against cordons; on the contrary, I like the system well, but I like conical training better. I hope, therefore, that you will be good enough to reprint Mr. Robinson's 12 recommendations and the 12 answers of the pyramidal trees, side by side:—

Cordons.	*Conicals.*
1. The fruit is larger and finer than those borne on the Crab or any other stock.	1: That has yet to be proved by actual experiment. Our fruit is large and fine enough for ordinary desserts on the common Paradise. If fewer fruit were left, it might easily be grown much larger.
2. The tree comes into bearing much earlier.	2. That is hardly possible, as we produce fruit the second year from the graft. In fact, no sooner is wood made, than fruit-buds are formed, and fruit produced.
3. The growth is dwarfer and much more compact than any other stock, and it may be kept in a compact form without root pruning.	3. We produce fruit at a foot high, as can be seen any day at Swbridgeworth; and this is dwarf enough for any fruit tree.
4. The fruit being held at an average of one foot from the ground, is in consequence benefited by a greater degree of heat; and from the compactness of the form the leaves and wood enjoy a greater amount of sun than is the case with high trees, and it need not be said that these are great advantages.	4. Our rule is, any distance from the ground our owner pleases; but a foot being the hottest, as Mr. Robinson points out, and likewise the coldest place, which he is silent about, we prefer rising from the surface upwards, to a height of from 3 to 6 feet. We utterly deny the last part of this proposition. The cordons only have the full sun on one side; we get it on all four; so we necessarily enjoy the greatest amount of sun, and we are never allowed to get high enough to shut it out; while, tapering from a wide base to a spiral point, no part of our beautiful structure can possibly overshadow the other.
5. The tree being confined to a single stem, and stubby fruit-spurs held near the surface of the ground, there is in consequence no injury to the fruit from wind or the swaying about of branches; besides, the fruit, if it does fall, is not injured.	5. Neither can our solid framework be tossed about with wind; consequently, our fruit will not fall until it is quite ripe, and then it is tenderly gathered by our careful growers.
6. The trees may be more readily protected than any other form whatever.	6. This is true—in the sense of their being smaller and needing less of it—hardly in any other. All we need to ensure us against frost is a parasol over our head, of the same or a little larger diameter than the width of our base.
7. They may be attended to in pinching, pruning, thinning the fruit, &c., more readily than any other form.	7. Not at all. It is much more difficult to pinch, prune, gather, &c., at 1 foot from the ground than up to 4 or 5 feet. We should like to see Mr. Robinson's back bent all day over trees a foot from the ground. Would he not soon be glad to look up, and pinch and thin our branches, instead of the cordons? We have often heard our owners say that it was a positive pleasure to pinch our branches, and gather our fruit.
8. Being little taller than a neglected Box edging, they shade no garden crop.	8. We ought to leave this to the modern Box edgings, 2 inches high, to deal with. What would they say to this libel on their bright green line of neatness and beauty? But as to shade, we only cast our beautiful shadows over the crop to exhibit our exquisite forms, without inflicting any injury. We observe that our owners plant right up to us, and we often hear them say to visitors, "You see they shade nothing." The vegetables are as good at our roots as anywhere else.
9. They take up but little space, and the positions best suited to them are those that hitherto have been made very little use of.	9. We take up less ground space than the cordons. The latter spread themselves all over the surface of the ground. We carry our forms right up into the air, where there is room enough and to spare, rent free. As to spaces that have hitherto been made little of, we never see them in gardens where we are well grown. Every inch is cropped, either with other fruits, vegetables, or our rival cordons, whom we gladly welcome as allies, useful enough in their place, but whose superiority to ourselves we cannot for one moment admit.
10. They will enable us entirely to do away with the ugly and gouty old Apple trees now so common in gardens.	10. We have already done so: in fact we have not seen one for years.
11. The Apple on the Paradise grows to its highest perfection on stiff loamy and clayey soils, those which are often most inimical to fruit culture.	11. We also like a stiff loam best, but we grow our fruit in almost any soil, having long ago acquired the useful art of adapting ourselves to circumstances, and of achieving the largest possible amount of success under all conditions.
12. By planting it against walls we may grow for ourselves the fine winter Apples now supplied to the capitals of Europe from northern France. These are real advantages, which cannot be claimed for any other kind of tree whatever. It can hardly be necessary to add, that the system is not recommended for orchard culture, and that it would be most unwise to adopt it except as a garden one for the finest kinds of Apples.	12. Only cut one side of us away, and back us up against walls, and see if we will not grow as fine Apples, and almost double the quantity of them, as our smaller sisters. In fact, cordons on walls may be termed closely pruned conicals, and conicals on walls loosely grown cordons.

Although Mr. Robinson says that these 12 merits are

real advantages, which cannot be claimed for any other kind of tree whatever, we trust your readers will allow that the conicals have advanced good reasons for claiming them; and that they will not be in any haste to get rid of their old-loved trees that have supplied them well, to take on with the new loves, whose chief merits consist in crawling along nearer to the ground, and in being smaller. As to our stock, we are perfectly satisfied with our English Paradise foundation; I know it to be sound and good; it possesses all the merits claimed for it in the foregoing *per contra* statement, and, notwithstanding your correspondent's emphatic denials and positive assertions, I still believe that Mr. Rivers knows more about the Apples of Armenia, or anywhere else, than—well, "any other man." I wish to ask Mr. Robinson why the stocks that he pronounces good enough for us and espaliers and bushes, are not good enough for cordons, and on what physiological basis the statement rests, that cordons will not do on the English Paradise, unless on the driest soils? It is also an easy matter to say that a stock is nothing of this kind or that; but such statements ought to be backed up with some more definite information than a rambling account of the hardiness of stocks, or the kind of soil that the French one delights in.

Asserting so decidedly what the French stock is not, we are entitled to an equally lucid explanation of what it is. It is the more needful to have this matter of the stocks cleared up, from the fact of the importance given to it in connection with the importation by your correspondent of over 3000 Apple trees from France, which I must add, although I am not in the trade, seems to have rather too much of the ring of the commission agent, to be quite fair to our English growers of fruit trees. *Pyrus pyramidalis.*

PINE-APPLE PESTS.

I HAVE lately observed in your columns some remarks on the pests, culture, &c., of this noble fruit, and wish to state a few facts, and make a few remarks in reference thereto. One correspondent tells us that by some mischance or oversight he once got on to his fruiting plants in bloom and out of bloom that troublesome and filthy insect the mealy-bug, and that objecting to use the old-fashioned nostrums, previously had recourse to by old hands, he sought for something new, more easily applied, in order to exterminate them. "Just so." After the lapse of a week or so, my old pupil and friend, Mr. Westcott, of the Raby Castle gardens, ventured his excellent advice, just such as I myself should have given in such a doleful case. However, I observe that Mr. Hamilton steps in with the further recommendation to "hold hard, and save the plants;" and his remedy is to collect Walnut-leaves, dry and bruise them, and dredge the dust thus prepared into the eyes and throats of the insects, to stop their depredations. It would be difficult just now to procure fresh Walnut-leaves, and your unfortunate correspondent's Pines may be utterly ruined ere again we see the Walnut-leaf in maturity, and fit for such a purpose. Perhaps a little Scotch snuff or sulphur-vivum, similarly dusted, might in the meantime keep the pest in check.

As a sequel, I will venture to relate what I once witnessed at a thriving little manufacturing town. A company of mountebanks had pitched their tent, and commenced their conjuring and other tricks, for the amusement of the yokels; and they did good business for several evenings, it being fine summer weather. The last evening of their performance was announced in due course, and every subscriber thereto was to receive a prize of great value. All went on merrily, and sure enough every one did receive a prize, in the shape of a little packet neatly done up in five or six wrappers of various coloured papers, the outer wrapper being labelled, "Flea powder." Mr. Mountebank went on extolling the wonderful exterminating powers of this powder, enough to drive the whole of the fleas from the locality; but not a word was said as to how it was to be applied, and many persons began to be inquisitive on this point; at last a man of middle age, more gallant than his neighbours, ventured into the ring, and fairly asked the question, In what way was it to be applied? After further expatiation on its wonderful properties, the inquirer was told that he must first catch the flea, and then tickle him till he laughed, and while his mouth was open he was with a spoon to thrust a portion of the powder into it. This would effect the certain and immediate destruction of the flea. "No doubt about it."

May I be allowed to inquire of Mr. Hamilton how to reach and exterminate those mealy-bugs, with their eggs and young brood, which are snugly nestled in the soil, the cracks of the pots, the drainage, the plunging materials, the fissures in the walls or rafters, and the many other places in which these vermin are so well known to hide away out of sight? Till I can understand this pretty well, I shall put as much faith in the Walnut-leaf dust as I did in the mountebank's flea powder, which, on the packets being opened, proved to consist of about half a nutshellful of oatmeal. This is a fact. *James Barnes, Bicton, Devon.*

Home Correspondence.

Names of Plants.—Some time since the meaning of the word "Appleringing" was asked by one of your correspondents, and various explanations were given. I lately met with a copy of Dr. Jameson's Scottish Dictionary, and found the word was, as one of your correspondents thought it, of French origin. There is another word which I think is suggestive of the same origin, but I have never seen it in print, and I do not know whether I can spell it properly, but it is something like "Robert de Baillie," a name given sometimes to the common Wallflower. Has any of your readers ever heard of such a word? Mark Alexander Boyd, who is said to have been an extraordinary genius, was born in 1562. Among his many works there is one called "Hymni," the subject of which is, not hymns, as might be supposed, but a description of different plants. The titles of his poems are:—1. Rosa; 2. Viola; 3. Lilium; 4. Hyacinthus; 5. Papaver; 6. Petilius; 7. Nardus; 8. Thymbra; 9. Linum; 10. Calendula; 11. Iris; 12. Crocus. Among all my lists of plants, I cannot find the word Petilius. Will Nardus be our Nardus stricta—the mat-grass of moors and heaths? or the French *nard*, Lavandula latifolia? Will Thymbra be the Satureja Thymbra, or the Thymbra spicata? It is wonderful the changes that the names of some plants undergo. Take, for instance, the Welsh Onion, Allium fistulosum. In the old poets we find it Chasbollis; in Ballentinus Livy, Chesbollis; in some of the early works on gardening, Shibols; in our modern works, Cibaule; until it arrives at the Scotch, Sybie, or Sybow. If a few Scotch and Irish local names of native plants would be of any service to Mr. Britten, I would send them. *P. Mackenzie.* [We are sure that many of our readers would be glad if our correspondent would favour us with the names he speaks of. EDS.]

Water Tanks.—A "Subscriber," at p. 1317, 1868, asks for information relative to a water-tank. Having had three of them in the course of 30 years, I will give him my experience. In the first place, I think if he requires so large a tank it should be underground (and might be covered with a mound sown with Grass), in which the water will always continue sweet and good, not so if in an overground tank. Again, I feel assured that with the dimensions he has given, a 9-inch wall would be insufficient to sustain the pressure of 640 cubic feet of a fluid so heavy as water pressing laterally as well as vertically, the weight of which, if I am not mistaken, when filled, exceeds 20 tons. I have a tank in my yard for holding water flowing from a well on high ground, which, after cementing and becoming quite dry, was carefully painted inside and out with coal-tar (previously well boiled, and in which, before boiling, a portion of sifted lime was mixed), and the tar allowed to dry before the water was let into it. It has stood well for four years. If the cement is not thoroughly dry before the tar is laid on, it will be liable to splinter the first severe frost. I have a second tank of larger dimensions for rain-water, made and painted in the same manner, which has stood more than 10 years. The water for a short time will taste of the tar, but it will soon wear off; but if the tar is first dried, the water cannot injure plants. *J. M. E.*

Orchard-house Lettuces.—I forward samples of some Lettuces grown in my Cherry-house. The rows of trees plunged in pots are 3 feet apart, and one foot space in the centre, between each row, is devoted to winter Lettuces. Part of the crop of those sent has been in use all the month; the seed was sown early in September, those sown in October will come into use in February and March. The sort is that known some 40 or 50 years since as the Tennisball, now as Tom Thumb; it is, however, probably an improved variety of the old sort, and is decidedly one of the best to grow in orchard-houses for winter salads, the Cos Lettuces not making such firm hearts, neither does that most tender-leaved of all Lettuces, the Grand Admiral. It is curious to observe how averse English gardeners have been to the introduction of the *cloches* or bell-glasses of the French gardeners. Many years ago Loudon wrote warmly in their favour, and, if I mistake not, the late Dr. Lindley argued strongly for their introduction: still without avail. It is, therefore, to be presumed that English gardeners find other means equally good of growing winter Lettuces. Our glass structures in England are now so numerous, that winter Lettuces of the finest quality are easily obtained. My Cherry-house, 60 feet by 14, will give me about 1200 Lettuces and Endive. *T. R.* [Capital samples—fresh, crisp, juicy. EDS.]

Earliness of the Season.—The season is much earlier than usual this year. The fruit-buds begin to swell, and very soon the bullfinches will attack the young tender ones. In this neighbourhood there are great numbers which at present content themselves with the seeds on Brambles and Heath, and also the young buds of Larch: to shoot them all is impossible. The plan I have followed for some years, with great success, is to prune Gooseberry and Currant bushes in December, and then to cut strips of bass about 18 inches long, and tie these on the shoots of the bushes in a half-knot, which will leave about 9 inches on each side to wave about; even if there is no wind, the air keeps them in perpetual motion, and no bird will venture near, not even the tame robin, for a bush 3 feet over would require about 40 strips tied on it, which any boy can do. Last year our trees were covered with an abundance of Gooseberries, whereas in several other places in this locality they had no fruit, and but very little foliage, as they did nothing to prevent the birds from destroying the buds. I tie bast on all stone-fruit trees where practicable, but cut the strips into 26-inch lengths. Currants after being pruned are dusted all over with slack lime, which not only keeps the birds away, but dislodges insects and kills moss, and makes the bushes healthy. *James Bowring.*

Snakes.—I beg to suggest to "Enquirer" a simple method of keeping the snakes which trouble him so much, in moderate bounds without killing them. If at the proper season he will have the heaps of litter preparing for kitchen garden use, or deposits of similar material where mowings of Grass plots or garden rubbish of any kind are thrown in addition, well searched, he will most likely find large masses of the eggs of the ringed snake, and destroying these will help him much. *E. O.*

Adulteration of Seeds.—I have seen with some surprise that one of your correspondents considers the inquiry which the Council of the Royal Horticultural Society has been making into the adulteration of seeds a farcical one. I can assure him the public do not see anything comical or farcical in it, and I trust that the time is far distant when an inquiry into the fair dealing of the British tradesman will be so considered. A charge has been made to all appearance most seriously affecting the principal seed merchants, not by some anonymous libeller, but by a sub-committee of the Council of the Royal Horticultural Society, and the charge has been allowed to lie unanswered except by two or three houses, who, in repudiating it as regards themselves, either virtually admit it or actually charge it against the rest of the trade. If your correspondent, Mr. Hugh Aiton, Little Ellingham, who, from his communication, seems to be up in the subject, would help the public to an explanation of the taciturnity of the trade, it would be more to the purpose. Will he tell us, for instance, whether it is true that it is a general or common practice of the trade to mix killed seed with good seed to increase the apparent quantity? and whether it is true that the principal seedsmen have formed themselves into an association, which sits in conclave, and decides what kinds shall be adulterated, and what percentage of killed seed shall be mixed with those which are to be so treated. If he knows these things to be true, his advice to change one's seedsman when one gets bad seed can scarcely be made *bonâ fide*, for it is useless to go from one member of the association to another pledged to the same quality. If he does not know whether these things are true or not, the inquiry to which he objects seems all the more necessary. *Victim.* [As this sheet is passing through the press, we have received a second interim report from the Royal Horticultural Society on the adulteration of seeds, to which we shall call attention in our next issue. We may, however, note that the statements in the report are based on the existence of such an association as our correspondent alludes to. Various suggestions are made to remedy the evils complained of, and a general system of testing recommended. EDS.]

Pines and Mealy-Bug.—I beg to thank Mr. Westcott and Mr. Hamilton for their advice touching my fruiting Pines. We have here four houses set apart for the growth of Pines. The fruiting house in question is the only one infested with the bug, and that was brought about by placing in it a few stove plants, of course infested, which were sent as a present to my employer. I have decided to isolate, as it were, the house till all the fruit are ripe, and to burn, as they ripen, the old stools, root and soil. I shall then have a good opportunity of cleansing the house, as Mr. Westcott suggests. I hope I may never be troubled with the pest again, and so not have occasion to try Mr. Hamilton's remedy, which, whatever others may think of it, I do not consider too simple. *Escob.*

Peacock Butterflies.—I have this day, Dec. 22, seen in the open fields a beautiful peacock butterfly. He was so merry and active that I could not capture him, though I had a good view of his wings as he rested for an instant; the colours were splendid. I never remember to have seen any butterfly at this date before. *J. C. Clutterbuck.*

Autumn Fruiting Raspberries.—In the kitchen garden at Nuneham Park, near Abingdon, can be seen in October some red and yellow autumnal-bearing Raspberries, loaded with fruit of fine quality. This was the aspect presented on the 4th of October last, when a visit was paid to the garden. They begin to fruit about the second week in August, and bear till Christmas if the weather be at all favourable. Dry frost does the fruit but little harm, but if wet days and gloomy weather be followed by frost, the crop gets destroyed. Mr. Stewart conceives that the two kinds just noticed differ from those known as the Red and White Antwerp, which these were supposed to be when planted. Mr. Stewart's mode of treatment is as follows:—Each winter, after fruiting, the canes are cut away entirely, like the decayed flowering-stalks of an herbaceous Phlox, and the young wood made in the spring produces fruit in July and onwards. Treated in the ordinary manner, as biennials, the wood so left will not produce fruit in the following summer, but only from the young growth made in the spring; therefore it is advisable, and also necessary to cut away the old wood, that as much strength as possible may be imparted to the new. After all, are these only the Red and Yellow Antwerp Raspberries subjected to a special treatment, which treatment certainly appears necessary; or are they something distinct in character, and not generally found in cultivation? *R. D.* [There are plenty of autumn-fruiting sorts in cultivation. EDS.]

Crickets.—If your correspondent "R. W." (p. 1289, 1868) will procure and mix some oatmeal and arsenic, and place it near where they commit their depredations, it will soon completely destroy them. *D. Walker, Gr. to H. Reed, Esq., Dunorlar, Tunbridge Wells.*

Princess of Wales Peach.—Mr. Rivers states that this Peach ripens just before Late Admirable, but Dr. Hogg, in his "Fruit Manual," says it does not ripen till the end of November. Which is correct? *Enquirer.* [The Princess of Wales Peach ripens, as Mr. Rivers states, just before Late Admirable. The discrepancy in the two reports may be accounted for, when we know that when the work referred to was issued this Peach, being almost new, ripened its fruits later than now. Its season was scarcely ascertained. *B.*]

Keeping Grapes in Water.—I was much pleased on reading an article in the *Gardeners' Chronicle* (p. 1189, 1868) by Mr. Tillery, on keeping Grapes in bottles of water. Having kept them myself as late as May 25 last year, it may be interesting to know my treatment. The Grapes were grown in a cold vinery, and were cut on November 5, 1867, and put into ounce phials of water with a teaspoonful of animal charcoal in each. I had holes bored 2 inches deep and 4 inches square in a bar of wood, to insert the bottles, which fitted quite tight. I then inserted from 2 to 3 inches of the stem of the bunch in the neck of the bottle; if the stem did not

fill up the neck I pressed in a small wedge of wood, and then rested the bar holding the bottles containing the Grapes on two pegs. The place they were kept in is used as a general fruit-room, partly underground, and nearly dark, with a north aspect, with ventilation through from the south. During the severe weather we sometimes get here, the frost gets in, as it did last February, to the extent of some four or five degrees, but it did not injure the Grapes in the least. I find the smallest and most thinned bunches keep the best, and the sorts that keep best are Black Hamburgh, Muscat of Alexandria, and Muscat Hamburgh, especially the latter variety. The three previous years I kept them with the stems pressed into Beetroots, and kept them without shrivelling until the end of March. They were cut about the same time as those beforementioned, as it would not be safe to let them hang on the Vines any later, as we are liable to have 20° of frost any time after the middle of October. I think the keeping of Grapes greatly depends on well thinning the bunches and on giving plenty of air. Many err in not giving air enough when they are ripe. When cut they should be as cool and dry as possible. By keeping them in bottles I was enabled to supply my employer's table for nine months, from August to the end of May. I will, if you wish it, give you the result of this year's experience in keeping them. [Pray do. EDS.] *E. Townsend, Gr. to John Young, Esq., Undermount, Hamilton, Canada West.*

Eucharis amazonica.—I know of no plant that will stand a greater amount of hard work in the way of forcing than this, as with judicious management it can be had in flower three, and sometimes even four times a year. The effect of a healthy well flowered specimen, if placed in a vase in a well appointed drawing room, must be seen to be appreciated. We pay special attention to its culture here, and are seldom without a plant of it in flower. We have six large plants in pots, varying from 14 to 16 inches, and also a quantity of small-sized bulbs coming on to maturity in smaller pots. During the past season we have had on some of the largest plants as many as 12, 14, and 16 flower-stems at one time. Last September I had a specimen occupying a vase in the centre of the winter garden, with 17 flower-stems, 11 of the stems bore seven flowers, the other six had six each. The individual flowers measured 4½ inches across, the flower-stems averaged 2 feet 3 inches in length and 2½ inches in circumference at the base. The foliage was long, broad, and of a deep healthy green colour. I have been thus minute in describing the plant, as I hold that the mere mention of a given number of flower-stems without additional particulars would be no criterion of success in its culture. In proof of this I may say that I recollect seeing not long ago at a horticultural exhibition, among a group of flowering stove plants, a plant of the Eucharis amazonica with 27 flower-stems. Were we merely to hear of this fact, without seeing the plant or being furnished with additional particulars, we might have imagined this to have been a right royal specimen. It was quite the reverse: the plant appeared to have exhausted itself—the flower-stems were puny and short, and each required a stake to support its few half-developed flowers; altogether it was the only indifferently grown specimen in the group. The Eucharis has not of late had the attention in your columns to which I think it is entitled, for with the exception of the seasonable remarks by "W. E." in the Operations of the Garden the other week, and the editorial protest (in your issue of April 18, 1868, p. 401) against the mutilation of its chaste petals to fit them for the "bouquet of the belle, or the button-hole of the swell," and against the practice of inserting into the centre of the cup a spray of the Scarlet Euphorbia jacquiniflora, it is chiefly conspicuous by its absence. It might be both seasonable and instructive were some of our plant growers to compare notes in the *Gardeners' Chronicle* as to the best mode of treating the Eucharis. *D. Melville, Bellegrove, Queen's County.* [See Mr. Howard's account of his method of treatment of his famous "International" plants in our volume for 1866, p. 637. EDS.]

Camellias.—Owing to my not labelling the Camellias exhibited by me at the Royal Horticultural Society's Floral Committee meeting, Dec. 15, a slight mistake has crept into the report (p. 1317), which might have passed unnoticed but for the honour of a flower which certainly deserves it. The variety mentioned as Marchioness of Exeter was the Duke of Lancaster, a variety perhaps not so much grown as it should be, as it is a fine, noble flower even on a small plant. With us it generally measures from 4 to 5 inches in diameter, and sometimes we have had a flower nearly 6 inches. I hope to exhibit it with others at the spring meeting of the Royal Horticultural Society, as you well observe that cut Camellias would make exceedingly attractive stands, especially if they were exhibited in quantity. *Charles Allen, Gr., Withington Hall, Cheshire.*

Christmas Rose.—It has been lately said by one of the medical staff of Netley Hospital that the flowers of the Christmas Rose (Helleborus niger) are, from the poisonous nature of the plant, injurious when placed in a vase in a sitting-room. Is this really the case? *D.* [Very doubtful indeed. EDS.]

Mildness of the Season.—I beg to send you the following list of plants in bloom here, as an example of the mildness of the season in this locality:—Arabis albida, Pansies of sorts, purple Rocket, Pentstemon, Emperor Stocks, Morina persica, Daisies, many sorts of Primroses, Auriculas, Hepatica, double red; Antirrhinum majus, Wallflowers, Scabious, purple; Pampas Grass, 8½ feet high; Geum, scarlet; Alpine Strawberry, Pyrethrum of sorts, Alyssum saxatile, Helleborus niger, pot Marigold, Vinca elegantissima, Aponogeton distachyon; Yucca gloriosa, stem 5½ feet high, flowers nearly opening, three other plants having flower-stems not quite so forward; China and many sorts of Hybrid Perpetual and Bourbon Roses in bloom and in fine bud. On walls and trelliswork: Calampelis scabra, Chimonanthus grandiflorus, Jasminum nudiflorum, flowers just opening; Magnolia grandiflora, late; Ivy-leaved Pelargonium, Escallonia macrantha, Garrya elliptica. Lamarque Noisette Rose, Gloire de Dijon (Tea). *John Webster, the Gardens, Gordon Castle, Banffshire, Dec.* 26, 1868. — I beg to forward you, as an illustration of the mildness of the season, some flowers grown in my garden in the open air, and which were even more beautiful a few days ago, before the rain soiled them. *T. S. Ware, Hale Farm, Tottenham, Dec.* 21. [The bouquet consisted of Helleborus niger, H. atro-rubens, double pink Hepatica, Aubrietia purpurea, Mignonette, Arabis albida, Daisy "Snowflake," D. "Conspicua," Vinca minor, Phlox verna, Gentiana acaulis, G. verna, Primula acaulis (two varieties). To Mr. Ware's list we may add the following, seen in bloom in the neighbourhood of Richmond, Surrey:—Common Hazel, male catkins in flower December 20; Sambucus nigra laciniata, many leaves fully expanded; Virginian Stock, a few blooms; Veronica Andersoni, V. decussata; Laurustinus, monthly Roses, Chrysanthemums. Jasminum nudiflorum was particularly full of bloom, while Clematis cirrhosa, var. balearica, generally treated as half hardy, was in full bloom against a shaded wall; this, with its shining elegant foliage and graceful flowers, is one of the most charming of plants. EDS.]

Societies.

HORTICULTURAL OF VICTORIA.—At a recent monthly meeting of this Society, Dr. von Mueller in the chair, it was reported that the gardens were now in excellent order. Mr. Brunning, of St. Kilda, exhibited a fine collection of Roses (18 varieties), conspicuous among-st which were—Pierre Notting, Madame Furtado, Claude Millon, George Prince, Princess of Wales, Viscountess Douglass, and Clemence Joigneaux; also a beautiful climber, Bignonia Lindleyana. Mr. Sims, of Brighton, showed a new English annual, Viscaria elegans picta, a bright carmine, belted with pure white. Mr. T. C. Cole, of Hawthorn, exhibited Beurré Bretonneau, a dessert Pear of fine character, in good condition for table, and worthy of being better known, and more generally cultivated. Mr. Cole also exhibited fruit of 18 new hybridised Strawberries, a collection of great public interest, as showing the tractable character of this fruit in the hands of the skilful experimentalist. The committee was unanimous in the desire that pointed attention should be drawn to this successful result of Mr. Cole's patient labour. Mr. Cole also exhibited a seedling Cherry, Early Black Guigne, raised by Mr. J. C. Cole. The annual exhibition was not so fine as usual, owing to the unfavourable influence of the recent hot weather. The department of cut flowers was naturally the most seriously affected by this cause, though Mr. Johnson, of Hawthorn, distinguished himself with his Roses, and Mr. Brunning, of St. Kilda, sent a number of fine blooms. Mr. Brunning's Zonal Geraniums were also fine. The collection of ornamental plants and shrubs sent by Mr. J. F. Roberts, gr. to Mr. R. Virgoe, included upwards of 200 varieties, and gave quite a character to the show; amongst them was a fine lot of Begonias, a large number of beautiful Caladiums, Screw Pines, &c.; and specimens of the Egyptian Papyrus, the sacred Banian tree of India, the Cocoa-nut tree, the Tea and Coffee plants, Sugar-cane, &c. A novelty in the exhibition was the competition for a prize of 5*l.* 5*s.*, offered by Mr. D. Masterton, for the best kept market garden within the district of Brighton. The prize was awarded to Mr. W. Box, and the judges, after inspecting the various gardens, expressed the opinion that a great deal of good had resulted from the competition. *Melbourne Paper.*

ENTOMOLOGICAL: *Dec.* 7, 1868.—Mr. W. H. Bates, President, in the chair. The deaths of Professor Bohemann, of Stockholm, honorary member of the Society, and of Mr. W. E. Shuckhard, a writer on Hymenopterous insects, were announced.—Mr. F. Bond exhibited some interesting varieties of the white Admiral butterfly, and also a female of Polyommatus Adonis, one of the wings of which was streaked with the blue colour of the male; also a curious specimen of Lasiocampa quercus.—Mr. Edward Saunders exhibited a new British moth, Crambies myellus, allied to C. pinetellus, captured near Aberdeen, by Mr. D. E. Brown.—Dr. Dutton exhibited a splendid specimen of Catocala Frazini, taken at Eastbourne on the 20th August.—The Secretary announced the proposal of a Prize Essay by the Milan Academy, on the best mode of taking honey from bee-hives without injuring the bees.—Professor Westwood exhibited drawings and read descriptions of various remarkable exotic Hymenopterous insects.—A paper by Mr. W. F. Kirby was read, containing observations on the application of the law of priority to the names of the genera of diurnal Lepidoptera, the strict observance of which would certainly lead to a complete revolution in their names; the chief difficulty arising from the want of a fixed principle in selecting a typical species, for which the generic name should be retained when the genus came to be broken up by future writers.

The Apiary.

THE AMERICAN BEE JOURNAL.—In the numbers for last December of this periodical, the Editor has done me the honour of reprinting, nearly *in extenso*, an article from my pen reviewing the contents of the first numer of the "Bee Journal," which was sent to me from across the Atlantic, and which appeared in pp. 923 and 946 of the *Gardeners' Chronicle*. In this paper I gave an extract of part of a letter from "A Novice," who related the extraordinary manner in which his bees consumed large quantities of rye and oatmeal. To this I appended a few observations of my own, in which, while not in any way disputing the correctness of the statement, I said that meal as a substitute for pollen had been given to bees by myself and some other English apiarians, and that we had never succeeded in inducing our bees to make any use whatever of it. To this the Editor replies in a foot-note, and as his remarks tend to dissipate the clouds which have hitherto obscured our vision, and show why it is that bees in one district will make use of rye or oatmeal for food, while in another they only endeavour to cast it forth as a nuisance from their hives, and utterly repudiate it as an article of nutriment, I here take the liberty of quoting them for the benefit of your readers.

"In warm localities and southern districts, where early blossoming pollen-yielding trees and plants abound, the bees will not carry in flour of any description. They prefer the natural article to any substitute whatever, and in any situation forsake the meal-pan as soon as they can obtain a supply of pollen from natural sources. In northern latitudes or colder districts, however, where brooding *en masse* commences long before catkins make their appearance on the Willows, Hazels, and Maples, the great demand existing for nitrogenous nutriment makes the workers eager to obtain it, in the interval, from any available source, and they readily accept the proffered substitute. Probably in the milder climate of England, as in the Southern States of the Union, natural supplies may appear contemporaneously with the first production of brood in the hives, and the bees instinctively resort in preference to that table which they find profusely decked by the hand which caters for them as providently as for the sparrow." *Ed. A. B. J.*

This reasoning appears to be very conclusive. In my own district there is hardly any portion of the winter and spring, unless when frost prevails, in which our bees cannot gain access to some pollen-bearing plants. I have noticed pollen to be carried in in January and February, frequently in considerable quantities during the latter month. In the autumn the Ivy affords a large supply, and this is followed by some other late-flowering garden plants, so that it is not at all unusual, up to nearly the close of the year, to see an occasional bee alighting at the entrance of its hive with its hard-won load of pollen. In some of the more northern parts of our island, a very different state of things exists, the climate is equally unfavourable to the late secretion of pollen by plants and to the out-of-door labour of the bees. It would be interesting to know if, in such localities, rye or oatmeal would be made use of by them. Perhaps some of our northern friends will, in the coming spring, experiment in this matter and acquaint us with the result.

There is a great deal in the present number of the "Bee Journal" on wintering bees in cellars, or in dark chambers constructed for the purpose. This mode of management may be successful and advantageous in climates such as those in the Northern States of America, but I do not think it at all feasible or desirable in a climate like that of the South of England. My bees are out in large numbers during some part of every mild, dry day, and their impatience at being confined would be excessive. I have tried shutting up bees in a dark room on a small scale, but it did not answer at all favourably. Those left on their summer stands passed through the winter much more satisfactorily. I much prefer Mr. Langstroth's method of removal of the crown boards, and the substitution for them of mats made of straw, rushes, or woollen cloths, the hives being allowed to remain in their ordinary situations.

The American "Bee Journal" has my best wishes for its successful campaign in the coming year. Its pages are full of very interesting apiarian matter, and I can strongly recommend our English apiarians to obtain it regularly from the publisher, Samuel Wagner, of Washington; the price, two dollars per annum, being moderate. I shall probably have again to refer to the contents of this number on an early opportunity. *S. Bevan Fox.*

ERRATUM.—At p. 1319, col. *a*, of our last volume, last line, for "enclosed in" read "unbred in."

Obituary.

WE have, with much regret, to record the death, on the 24th ult., of Mr. WILLIAM HURST, the senior partner in the well-known and highly respected firm of Hurst & Son, seedsmen, of Leadenhall Street. Mr. Hurst, who had been for some time in failing health, all but reached the allotted threescore and ten, being 69 years of age.

Miscellaneous.

Acrophyllum venosum.—This is generally considered a very difficult plant to cultivate, but by following the plan I am about to describe, I have always found it to grow freely, and produce abundantly large spikes of its fine Spiræa-like flowers. Procure a young healthy plant in a 48-size pot; shift into a 32-size, using good fibry peat, broken into small pieces, and well mixed with a liberal quantity of silver sand. Provide ample drainage, over which place a layer of rough fibry peat, and pot firmly. Place the plant in a cool airy greenhouse, and never subject it to a high artificial temperature. Pay great attention to watering, as the plant must never be allowed to suffer from want of water at the roots, so that a fresh supply must be given before the ball of earth becomes dry; damp the foliage slightly morning and evening at all seasons, except when the weather is very wet. About the end of February it will require another shift, and if well rooted a pot two sizes larger should be used. One shift annually in February will then be sufficient, but always use good fibry peat and sand, as above recommended for the purpose. The thrips must be looked sharply after, and kept down; for if once allowed to gain a footing, they will soon destroy not only the foliage, but the plant also. As soon as blooming is over, remove the seed vessels from the stems, in doing which care must be taken not to injure the wood, as the young growth continues on from the top of the flower-spike, the point of which should be taken off above the first set of leaves. *Henry Chilman, in "Florist and Pomologist."*

Imantophyllum miniatum.—The growth of the Imantophyllum is much assisted by gradually inuring the plants, after their spring growth, to the temperature of the greenhouse. This temporary rest serves to mature the newly-added growth, and the accumulated secretions become duly elaborated for the development of blooming stems. On the approach of cold weather the plants should be replaced in a warmer atmosphere, with a good exposure to light. They thrive in a compost of equal portions of well pulverized turfy loam and peat, mixed with a sixth part of partially dried leaf-mould and sand. *Illustrated Bouquet.*

Garden Operations.

(For the ensuing week).

PLANT HOUSES.

AMONGST Orchids, there are some varieties of *Zygopetalum* which have lately flowered, and which in a general way will have formed young shoots, or growths. These should receive every encouragement, by placing them in the lightest and warmest corner of any structure adapted to their wants. *Oncidium flexuosum* will also be making fresh growth, and will need a like share of care and attention. I have frequently found that the few Orchids which thus insist, against our best efforts to check them, upon forming fresh growths at this dull season, are very much exposed to the attacks of nocturnal and other pests, their young and tender roots being instinctively sought after by wood-lice, cockroaches, slugs, and snails; the better to protect them, it is at all times advisable to place them over pans that are constantly filled with water. This has its usefulness in other ways; where it may not be convenient to syringe the plants, or to afford a general body of atmospheric moisture around them, the slight amount of evaporation constantly going on will prove a valuable assistance to the young growing roots. I have found that the pretty Cuphea-like *Libonia floribunda* adapts itself to almost any form of treatment. It may be grown with ordinary care in any cool greenhouse. Whilst in the stove or intermediate house, it quickly forms compact, neat, bush-like plants. Large plants, when attainable, will prove at this season invaluable for conservatory decoration. They force into flower quickly, and a good succession may be kept up constantly, if needed. Except to push forward a few very early ones, much forcing is not necessary, as they were last month in full bloom. I have a plant at the present time some three feet high, and as much in circumference, which is very gay. Old plants of *Tydæa*, which have just ceased flowering, should be cut down, if good strong young growths exist at the base. Give the young shoots every encouragement to grow, and any that are sufficiently large and are easily removed from the larger bulk of roots, may be at once shifted or potted into proper sized pots. They delight in an admixture of peat, leaf-mould, and silver sand. As the days slowly increase in length, and the sun gains more power, give more air to all stoves and similar structures. Give it early in the morning, and close the lights or ventilators early, say by one o'clock. By so doing, it will be possible to secure a few degrees of heat from the sun's warmth.

FORCING HOUSES.

Take advantage of every ray of sunlight in this department to afford more air, with which a larger outlay of moisture will be possible. Light and air, it should be understood, are the two prime movers in all cases pertaining to the growth of vegetation; and moisture is the valuable and necessary ally, and can only be made use of, and turned to a useful account, according to the amount of light and air. It is useless to try and glut the roots or foliage with an excess of moisture, or more than can easily be disposed of by the leaves in the process of elaboration, which goes on but slowly at such a season even with the best of growths. Excess of water at the root deranges the delicate spongioles: whilst an excess forced on to, and in contact with, the leaf surface, even should it not cause damping or decay, does cause injury to the delicate organism, however minute or inappreciable it may be. Be particular, in increasing the amount of moisture with that of the light, not to give a too great preponderance of the former. The whole surface foliage of forced plants should be perfectly dry once at least in every twenty-four hours. Should we be favoured with more sun, it will be observed that many tender forced plants will flag. This, in the majority of instances, will not be caused by exhaustion brought on by want of water, as many would surmise, but rather from inability to withstand the sun's increasing influences. Afford, in all such instances a slight shading for about half an hour, and so aid them the better to surmount such trying periods. *Figs* in pots intended for an early supply of fruit should now be plunged into a good bottom-heat of from 85° to 90°. Do not water them too freely at the roots until some little growth has been made. But these and all other subjects similarly treated, and more especially deciduous plants, are benefited at this early stage by being constantly syringed previous to the actual formation of leaves. *Dwarf French Beans*, which have been sown a week or two back, will have assumed the rough leaf by this time, and will therefore require shifting into 16 or 24-sized pots. They delight in a good fibrous yellow loam, with properly decayed leaf-mould intermixed. They should be potted rather firmly, taking care in the operation to bury some part of the necessarily elongated and rather drawn footstalks in the fresh soil, and studiously afford them as much light and air as possible.

HARDY FLOWER GARDEN.

Tulips planted out in open borders and beds have already the tips of their leaves peeping through the ground. Where valued plantings exist, no delay should occur in placing the necessary materials beside them, or to hand, ready for their protection should frosts arrive. The "fancy" only know how much the after-beauty is destroyed by inattention to these matters. The old, but very beautiful Grape Hyacinths, are already some inches aboveground, which is very early for them, and affords an excellent opportunity to transplant them where necessary. All dried roots of such bulbs as *Crocus*, *Snowdrops*, &c., should now be planted if they are required to flower this season. These, and other similar bulbous plants, which are now showing through the ground, may also be taken up, and safely replanted, by all who contemplate any re-arrangement.

HARDY FRUIT GARDEN.

Proceed with the pruning and nailing of Morello and other *Cherries* upon north walls during mild weather. The young wood, especially of Morellos, with flower-buds attached, should all be retained, if not too thick. Remove with a sharp knife all old fruiting portions which do not seem likely to bear again, or which may be replaced by younger and more healthy shoots. I have observed black-fly still alive upon some Cherry wood, so that without rather severe weather ensues, resort must be had to the winter dressing of these amongst other things. *Plums* should be pruned but sparingly when the trees are established and have filled the necessary vacancies. It should be borne in mind that the fruit is formed upon the short stiff spurs which emanate from branches a few years older than themselves; these old branches must, therefore, be retained, if fruitfulness is intended; should the formation of fresh and younger wood be required, the removal of these in part, or wholly, will of course be necessary.

KITCHEN GARDEN.

Where *Rhubarb* and *Seakale* are forced in Mushroom-houses, or other similar places, it is advisable to take up a good successional supply of crowns or stools to store away in some protected place, preliminary to their being wanted on an early day. This will tend to advance them a stage, in the event of frosty weather visiting us. It is not advisable to take them up when the ground is more or less frozen, as then the sudden extreme from cold to heat will prove injurious in its general effects upon them. A successional light or two of *Asparagus* should also be filled with the necessary roots, to succeed those now showing. Attend to any draining operations in contemplation, where the soil holds too much stagnant water, and embrace the opportunity to burn up all rubbish or heaps of waste. *W. E.*

TOWN GARDENING.

THE principal operation to be performed now in the town garden is the preparation of the soil. I shall, therefore, in the first place, call attention to this subject, for without something like good soil we cannot expect to attain to anything like success even in the country, much less in town. It is quite certain that all the parts of plants are enlarged during summer by the nutriment taken up by the roots. Not only is the soil in the course of time exhausted, by the plants withdrawing all the essentials of vegetation, but it is often actually poisoned by soot and cats, and choked with the accumulated rubbish of years. In our large towns, therefore, as much of the old soil as is unfit for vegetation must be removed, and its place supplied with fresh loam—the stiffer the better, so that it is not actually clay, with a mixture of rotten dung. I prefer good stiff loam for town gardening for this reason—the neighbourhood is so drained by sewers, pipes, &c., that the percolation of water goes on at too great a rate. I therefore recommend 18 inches of stiff loam, and mulching over the roots. The dry carbonizing influence of the atmosphere is very prejudicial to vegetation; we miss those salutary dews so essential, but so seldom experienced, in towns; and to compensate for this as much as possible, syringing over the tops every fine evening should be had recourse to, and this, with a renewal of the soil, will have a tendency to purify the atmosphere. By mulching the roots and syringing the tops, and making a suitable selection of plants, every lover of gardening may succeed in growing and blooming plants even in the most confined spots, where it has hitherto been thought difficult to keep them barely alive. This is also the time to attend to the Irish Ivy, which is one of the most useful plants for covering walls, &c. Nail it close, and take off all superfluous shoots of old plants, and press down close those used for edgings. Hyacinths which were put in glasses in the autumn, and set in a dark place, should now be brought to the light, and the glasses filled up with soft water. Plants in frames should be kept dry and clean, and have plenty of air; they must also be well protected from frost. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Dec. 30, 1868, as observed at the Horticultural Garden.

Dec.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth. 1 foot 2 feet deep.	deep.	Wind	Rain.
Thurs 24	10	29.701	28.896	52	32	42.0	48	47	S.W	.02
Friday 25	11	29.421	29.119	50	35	42.5	45	46	W.	.00
Satur. 26	12	29.760	29.416	51	40	47.0	46	45	S.W.	.51
Sunday 27	13	29.130	28.820	48	32	40.0	48	45	W.	.04
Mond 28	14	29.406	29.155	49	31	41.5	45	45	S.	.01
Tuesd 29	○	29.301	28.967	48	24	36.0	44	44	S.E.	.00
Wed 30	16	29.463	29.325	49	30	39.0	44	44	S.W.	.56
Average		29.383	29.072	48.7	32.4	40.5	45.7	45.1		.80

Dec. 24—Cloudy but fine, showery, boisterous, clear and fine.
— 25—Clear and fine, very fine, fine, and very clear
— 26—Fine, clear and fine, showery, boisterous, with rain.
— 27—Boisterous, with rain, showery, barometer very low; very boisterous
— 28—Very boisterous, showery; exceedingly boisterous at 1 P.M.; overcast
— 29—Rain, very dark, heavy rain; clear and frosty.
— 30—Overcast, snowing, cloudy and stormy.
Mean temperature of the week, 44·10th deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending Jan 9, 1869.

January.	Average Max. Temp.	Average Min. Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday .. 3	42.6	30.6	36.3	19	0.59in	2	4	7	1	6	12	5	6
Mon. .. 4	42.2	28.6	35.4	17	0.81	4	8	6	5	3	12	3	2
Tues. .. 5	41.4	27.3	34.4	16	0.54	4	10	4	1	4	11	5	1
Wed. .. 6	41.1	28.6	34.8	14	0.31	4	7	5	5	1	10	6	1
Thurs. .. 7	41.7	29.1	35.4	17	0.45	3	7	5	3	2	11	7	5
Friday .. 8	41.0	30.1	35.5	14	0.26	4	6	7	4	1	17	2	2
Satur. .. 9	41.2	30.8	36.0	15	0.71	1	8	4	1	5	13	6	1

The highest temperature during the above period occurred on the 5th, 1865—therm. 57 deg., and the lowest on the 4th, 1867—therm. 11 deg. below zero.

MONTHLY DEPTH OF RAIN, in inches and hundredth parts of an inch, which fell at Chiswick in the years 1841 to 1868 inclusive.

	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.	1858.	1859.	1860.	1861.	1862.	1863.	1864.	1865.	1866.	1867.	1868.
	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.
January	2.60	1.06	1.33	2.25	2.97	2.85	1.91	1.16	1.73	1.43	0.95	2.72	2.14	1.92	0.10	1.76	2.09	0.41	0.61	2.18	0.82	1.53	2.19	0.57	3.50	3.72	2.16	1.64
February ..	0.76	1.32	2.35	2.27	0.93	1.47	1.34	3.12	2.52	0.95	0.90	1.00	0.59	0.78	1.95	0.62	0.31	1.48	1.31	2.72	1.41	0.93	0.26	0.76	1.63	3.80	1.93	0.95
March	1.32	1.81	0.47	2.44	1.25	1.09	0.41	3.05	0.85	0.13	3.57	0.25	1.48	0.42	1.75	0.97	0.73	0.88	0.77	1.63	1.59	3.74	0.68	2.53	0.95	1.65	1.97	0.93
April	1.58	0.15	1.62	0.33	0.95	3.03	0.92	0.28	3.59	1.84	1.79	0.52	2.58	0.30	0.26	1.97	1.77	2.19	2.01	0.95	1.43	2.29	0.54	0.77	0.35	1.98	1.67	0.93
May	2.16	1.73	5.26	0.25	2.89	1.95	1.59	3.06	2.21	3.53	0.74	1.74	1.60	4.03	1.94	4.38	0.87	2.05	1.80	3.04	1.43	1.31	1.46	1.95	3.19	1.17	2.05	1.05
June	2.45	1.58	1.62	0.97	1.36	0.80	1.31	2.20	2.49	2.36	0.42	3.54	2.41	0.58	1.15	1.99	3.52	1.05	4.05	2.82	1.78	2.74	3.47	2.79	0.58	4.04	2.69	2.55	2.37
July	3.56	1.52	1.67	2.10	2.31	1.78	0.79	2.21	2.82	2.68	3.90	2.28	4.17	2.40	6.30	1.43	1.22	2.55	2.18	2.72	1.90	2.09	0.80	0.50	2.37	1.30	3.00	1.32
August	2.69	2.81	3.28	1.84	2.79	4.50	1.50	4.70	1.60	0.97	2.08	3.71	1.87	1.77	1.45	3.50	2.80	1.46	2.49	4.16	0.50	2.40	1.96	1.59	3.64	2.69	2.55	2.37
September..	3.71	3.39	0.98	1.31	1.77	1.76	1.66	2.20	2.49	2.36	0.42	3.54	2.41	0.58	1.15	1.99	3.52	1.05	4.05	2.82	1.78	2.74	3.47	2.79	0.58	4.04	2.81	1.88
October	4.61	1.71	4.19	4.13	1.30	5.54	1.75	2.93	2.18	1.55	2.01	3.87	3.78	2.61	6.15	2.40	4.01	1.36	2.55	1.60	1.04	3.00	1.56	1.42	6.25	2.00	1.41	1.93
November ..	3.41	4.43	2.13	3.06	2.11	1.43	2.96	0.90	1.92	2.03	0.55	6.20	0.91	1.31	1.34	0.94	1.53	0.10	2.72	2.60	4.10	1.01	1.68	1.94	1.70	1.10	0.39	1.07
December ..	2.12	0.76	0.53	0.39	2.01	1.21	1.81	2.03	1.28	1.15	0.02	1.07	0.30	1.27	1.11	1.88	0.30	1.53	2.95	2.08	0.94	1.49	1.29	0.94	0.92	1.93	1.02	4.80
Annual amount }	30.97	22.27	25.43	21.34	23.23	27.71	16.65	28.34	22.84	18.38	20.79	32.55	24.37	18.92	24.38	22.72	21.06	15.78	25.54	30.08	19.48	26.54	20.32	16.80	26.92	29.04	21.23	19.26

The amount of rain which fell in 1868 was 19.26 inches, or 4 inches 28 hundredths below the average of 40 years.

Notices to Correspondents.

DRACÆNA COOPERI: *E C.* The probable cause of the leaves turning brown is that the atmosphere is too continuously charged with excessive moisture, and possibly at the same time there is a deficiency of heat. Too much moisture at the root would lead rather to general ill-health.

NAMES OF FRUITS: *R B L.* Apple: Aunt Hannah.—*J E T.* Pears: some decayed, others unknown. Apples: 1, Winter Pearmain; 2, London or Five-crowned Pippin; 3, Braddick's Nonpareil probably; 4, unknown; 5, like Rhode Island Greening; 6, Zimt Reinette.—*W G.* Your Apple is correctly named Seek no Further.—*W D F.* Pear: Glou Morceau; Apple: Beauty of Kent.

NAMES OF PLANTS: *W T.* Begonia Dregei, *alias* parvifolia.—*H C P.* We cannot guess what plant it was you saw labelled Collonia monotifida, 20 years ago, at Chiswick. As there is no species bearing a name resembling this, it is possible your memory may have been treacherous.—*Constant Reader.* 1, Pleopeltis Billardieri; 2, Athyrium Filix-femina polydactylum; 3, Blechnum occidentale; 4, Polystichum aculeatum.

PEAT: *G B C.* We cannot undertake to recommend dealers. See our advertisement columns.

ROYAL HORTICULTURAL SOCIETY'S COLLECTION OF ECONOMIC ENTOMOLOGY.—We are requested by Mr. Murray to acknowledge with thanks the receipt of a box of British insects from Miss E. Ormerod, Sedbury Park, Chepstow, for the purposes of this exhibition.

VINE BORDERS.—We have several communications on this subject, which we shall publish as speedily as possible.

COMMUNICATIONS RECEIVED.—G. W.—J. McD.—T. B.—W. B.—A. G. W. T.—C. A.—J. R.—W. B.—G. G.—J. D.—W. M.—D. S—H. T.—L. & L.—B. M.—R. C. C. L.—T. W.—W. P. Ayres.—J. A.—Dr. Souheiran.

WHEELER'S MILKY-WHITE POTATO,
4s. per peck; 15s. per bushel.

WHEELER'S GLOUCESTERSHIRE KIDNEY,
3s. per peck; 12s. per bushel.

Wheeler's Tom Thumb Lettuce,
1s. per packet.

WHEELER'S COCOA-NUT CABBAGE,
1s. per packet.

Wheeler's Guinea Collection of Garden Seeds
Comprises the Finest Varieties in Cultivation. For Details see
WHEELER'S LITTLE BOOK for 1869,
price 6d., post free.

J. C. WHEELER & SON, Seed Growers, Gloucester; and 59, Mark Lane, London, E.C.

Wheeler's Milky-White Potato.
This is the best of all Potatos.
J. C. WHEELER & SON, beg to caution the Trade against inferior and spurious varieties.
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Price 6d., post free.
"WHEELER'S 'Little Book' is an agreeable and instructive companion."
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"WHEELER'S 'Little Book' will do something to satisfy their expectations."
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Rainham Kentish Early Kidney Potatos.
WAITE, BURNELL, HUGGINS AND CO. have great pleasure in informing the Public that they have purchased the stock of this invaluable POTATO.
The Rainham is the earliest Kidney Potato known, being at least 14 days earlier than the Ashleaf; extremely productive, and attaining a very large size when allowed to grow till quite ripe. Price 7s. 6d. per peck. A discount allowed to the Trade.
The Rainham Potato can be had from the following Firms:—
London:—
Messrs. James Carter & Co., High Holborn, W.C.
Mr. Robert Cooper, 152, Fleet Street, E.C.
Messrs. George Gibbs & Co., Down Street, Piccadilly, W.
" Hurst & Son, 6, Leadenhall Street, E.C.
" Peter Lawson & Son, Budge Row, Cannon Street, E.C.
" Minter, Nash & Nash, 60, Strand, W.C.
" Notting & Son, 60, Barbican, E.C.
" Rutley & Silverlock, 412, Strand, W.C.
" Smithers & Crichton, 1, Bunhill Row, E.C.
" Jacob Wrench & Sons, London Bridge
Belfast.. Mr. R. B Matthews, 53, Victoria Street
" Messrs. Thomas McKenzie & Sons, Victoria Street
Brighton Mr. Edward Carpenter
Bristol.. Messrs. James Garaway & Co., Durdham Down Nurseries
Chester.. Mr. John McHattie, Northgate Street
" Messrs. F. & A. Dickson & Sons, Eastgate Street
Cork.. .. .. Messrs. Thomas McKenzie & Sons, Camden Quay
Dublin .. .. Messrs. Thomas McKenzie & Sons, 34, Dawson
Exeter .. .. " Lucombe, Pince, & Co. [Street
" Mr. R. T. Veitch
Gloucester.. .. Messrs. J. C. Wheeler & Son
Manchester .. Mr. C. H. Dickson, 23, Market Place
Newcastle-on-Tyne Messrs. Samuel Finney & Co., 25, Groat Market
Plymouth .. .. " Lamoureux, Clark & Co., West of England Seed Warehouse
Reading .. .. " Sutton & Sons
Westerham .. Mr. John Cattell
Wisbeach .. .. Mr. John Cockett
Wolverhampton .. Messrs. Richard Lowe & Co.
Worcester.. .. Mr. J. S. Haywood, 26, Broad Street
Mr. Richard Smith
Seed Warehouse, Southwark Street, London, S.E.

Seedsmen to the Queen.

FRANCIS & ARTHUR DICKSON & SONS, the "Old-established" Seed Warehouse, 106, Eastgate Street, Chester.
The Best EARLY PEA in Cultivation is DICKSON'S "FIRST and BEST." Price 1s. 6d per quart.
Genuine NEW SEEDS for the GARDEN and FARM, of the most select character, each Variety being saved from the best Stock known of its kind. DESCRIPTIVE PRICED CATALOGUES on application. Seeds of £2 value delivered Carriage Free to any Station

Early Peas for Market.—The best variety is
SUTTONS' IMPROVED EARLY CHAMPION.
A week earlier than Daniel O'Rourke and more prolific.
SUTTON & SONS having grown the above excellent early Pea extensively this season to meet the increasing demand, are prepared to make special quotations to Market Gardeners and other large consumers. Lowest price per quarter on application.
SUTTON & SONS, Seed Growers, Reading.

SUTTON'S HOME-GROWN SEEDS
A FIRST PRIZE
SILVER MEDAL, PARIS, 1667.
SUTTONS' RINGLEADER PEA,
The Earliest in Cultivation.
The Royal Horticultural Society have this season tested the merits of the leading early Peas, and their report (*vide Gardeners' Chronicle*, June 27, 1868) contains the following emphatic statement:—
"The earliest form of all was the Ringleader. Several of the Peas blossomed at the same time, but Ringleader was fit to gather first."
Retail price, 2s. per quart.
CAUTION.—No Pea is identical with Suttons' Ringleader, except Carter's First Crop. S. & Sons have no Agents, and cannot be responsible for any Peas or Seeds not procured direct from them.
SUTTON & SONS, Seedsmen to the Queen, Reading, Berks.

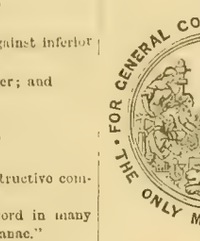
ELLETSON'S SURPRISE, new, large, late WHITE PROTECTING BROCCOLI.—The best late Cauliflower Broccoli extant, price 2s. 6d. per packet. May be had of the following Agents:—
Messrs. Hurst & Son, 6, Leadenhall Street, London, E.C.
Mr. Robert Cooper, 152, Fleet Street, E.C.
Messrs. Barr & Sugden, 12, King Street, Covent Garden, W.C.
Mr. Wm. Paul, Waltham Cross, N.
Messrs. Peter Lawson & Son, Edinburgh and London.
" Bolton & Co., Ealing, London, W.
" Jas. Backhouse & Son, York.
" Stuart & Mein, Kelso, N.B.
Additional names will be inserted as they are received.
EDMUND PHILIP DIXON, The Yorkshire Seed Establishment, 57, Queen Street, Hull.

James Carter & Co
Seed Growers
237 & 238, & 261, HIGH HOLBORN, LONDON, W.C.

SEED FARMS:
EAST HOUSE FARM, DEDHAM, ESSEX;
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PRIZE MEDALLISTS:

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1862.

PARIS.



1867.

CARTER'S PRIZE MEDAL PERMANENT GRASS SEEDS,
MIXED TO SUIT ALL SOILS.
28s. to 32s. per acre; cheaper quality, 24s. to 26s. per acre.
See Carter's "Gardener's and Farmer's Vade Mecum for 1869." Post Free, 1s.; Gratis to Purchasers.

Testimonial from J. BROMWICH, Esq., *Rugby.*
"The Grass Seeds I had from you last year were very good; *indeed, a more beautiful crop could not be found.*"

CARTER'S PRIZE MEDAL LAWN GRASS,
1s. per lb.; 20s. per bushel, as supplied to
H.I.M. THE EMPEROR OF THE FRENCH,
H.R.H. THE CROWN PRINCESS OF PRUSSIA,
THE GOVERNMENT OF THE UNITED STATES,
THE IMPERIAL COMMISSIONERS, PARIS EXHIBITION,
&c. &c.

THE NEW FORAGE PLANT,
BROMUS SCHRŒDERI.
See *Gardeners' Chronicle*, page 1345, Dec. 26, 1868, from which the following is extracted:—"The crop (of Bromus) was perfectly satisfactory as regards both the quantity and quality of its produce. *The Horsekeepers buying it preferred it to Italian Rye-grass*, and the Farmer selling it was very much inclined to agree with them."

E. DAWES, Esq., *Pirbright, Guildford*, writes:—
"I beg to offer my thanks to Messrs. CARTER & Co for calling attention to the valuable plant, Bromus Schrœderi.
"I purchased some seed to test its value, and it occurred to me that a report of my experience might prove of interest.
"The seed was sown in July on ground as dry as dust, but it vegetated freely, the first shower causing it to grow with amazing rapidity. *The first cutting was made October* 20, *the plant being* 2 *feet high*, and I found my cattle preferred it to any food I could offer them; *I now have* (*Nov.* 20) *a luxuriant second growth*, in spite of the cold weather.
"I may mention that I was first induced to cut the Grass on account of my Pony refusing its ordinary food, *and was gratified to find the Bromus greedily consumed.*"
Sow 35 lb. per acre in drills.
Price 1s. per lb.; cheaper per cwt. See

CARTER'S
GARDENER'S AND FARMER'S VADE MECUM FOR 1869,
Post Free for 12 Stamps; Gratis to Customers.

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To Landowners, whether Tenants in Fee or for Life, Estate Agents, the Clergy, &c.
THE LANDS IMPROVEMENT COMPANY
(Incorporated by Special Act of Parliament in 1853), advances Money, unlimited in amount, for all purposes of Agricultural Improvement:—the whole outlay and expenses being liquidated by a rentcharge over 25 years.
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THE GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY.
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Works of Drainage of any extent, Irrigation, Enclosing, Wood Grubbing, Road-making, Farm Houses, Farm Buildings, and Labourers' Cottages, are executed on all descriptions of Property, whether Freehold, Entailed, Mortgaged, Trust, Ecclesiastical, Corporate, or Collegiate, or Loans granted for the purpose to Landowners who desire to execute the works by their own agents.
Tenant-farmers may also, by arrangement with their landlords, procure the execution of the above improvements on their farms at an annual cost to themselves of between 6 and 7 per cent. on the outlay and official expenses.
The whole of the outlay in the works, with all official expenses, may be charged on the Estate for a term of years, to be fixed by the landowners to meet the circumstances of tenants.
No investigation of title being required, no legal expenses are incurred.
Applications to be made to Mr. HORACE BROKE, the Secretary, at the Office of the Company, 22, Whitehall Place, S.W.

The Agricultural Gazette.

SATURDAY, JANUARY 2, 1869.

Is anybody satisfied, or ought any person to be satisfied, with the existing CONDITION of AGRICULTURE and of agriculturists in this country?

Rents, indeed, are gradually rising, and the value of land for sale is increasing even faster than its value to the farming tenant. The landlord, therefore, probably least of all has reason to complain. His social supremacy remains unchallenged, his wealth increases with every agricultural improvement, and, as just suggested, it is still more influenced by every addition to the wealth of all other classes. For the advantages of his position—whether its political influence, its personal endowments, or the enjoyments of life within its reach—he is envied even more than ever hitherto, and on all these grounds he is quite as much as ever to be congratulated. And though even he is often shackled and disabled by conditions very much of his own creation, which interfere with the immediate serviceableness of his property, and which damage his power to deal with the responsibilities he has to bear, yet we cannot suppose that he has much reason for the complaint suggested in our opening sentence.

Come now, however, to the tenant of his land. No doubt country homes are as comfortable as ever, rents are paid with promptitude enough, and wages are paid at least as easily as they used to be, and we do not suppose that any one will say the condition of things as regards the farmer has suffered upon the whole during the past quarter of a century. On the contrary, there has been improvement; but it has been improvement of a kind which only indicates the character and quality of the progress which is still required. In all the materials of his occupation he is no doubt better off than five-and-twenty years ago. Drainage Companies, created by Lands' Improvement legislation, have been at work for him. Many hundred thousands of acres have had their fertility immensely increased, and many hundreds of farms have been equipped with buildings properly adapted for an increased and more valuable stock and crop. The manure importers and manufacturers have been at work for him. Millions of tons have been added to the staple of English soil, during all these years, of just those ingredients on which its fertility depends, and in which it is naturally deficient. Implement makers have been at work for him. His land is cultivated, and its products are dealt with, more effectively and economically than was formerly the case. The ordinary plough is an implement of easier draught, and of increased efficiency. The steam-plough is now our willing and efficient servant, and hundreds of farms are testifying to its powers. The flock-master and the cattle-breeder have been at work for him. The means of economically consuming the green produce of his land are, if not cheaper than they used to be, at least better and more abundant; and this great division of his business—the meat manufacture—has been improved by the supply of imported cattle foods, as well as by the power of using better stock. Certainly in all the material details of his occupation the farmer is better furnished and more capable than he used to be.

But as to his position socially, while that of

course varies with every individual occupant of the ground—(for farmers, varying in their means and character, from the allotment tenant to the tenant of 2000 acres, are scattered over as long a ladder as that on which the landlord himself stands, on whose lower round we find the 40-shilling freeholder)—yet, as a whole, no doubt the tenant-farmer class does not hold the position that properly belongs to it.

For what is the tenant-farmer of this country? He has been well described in an eloquent address before the Swindon Farmers' Club, in words which ought to be oftener quoted than they are:—

"He is the great middleman between poverty and wealth, between labour and capital, between the many and the few. The landlord is comparatively unknown to the law. Whether he lives abroad all his days and is never heard of, or resides in the heart of his property, he may be equally a nonentity. In respect to that property he has scarcely one legal obligation. The tenant, on the other hand, is looked upon as the universal paymaster. Once among green fields and hedgerows, and he is your immediate superior. The road you are riding upon, the ditch you leap, and the bridge you cross, are maintained by him. If you damage a fence it is his—the cattle are his—the labourers are in his pay. The village shop and the village public-house are supported by his servants. If profits fail, he has to draw on his capital to keep things going; if wages are reduced, he has to bear the odium; if disaffection spreads, his ricks are burned. When he can no longer pay wages, he must still pay rates—if there are widows, or orphans, or old men, or cripples, or sick, or vagrants, the tenant-farmer must maintain them; and if they die without friends, he must bury them. Who is so competent and rightful an authority in matters of domestic finance as the tenant-farmer, and who is more entitled to be represented, as directly and honestly and truly as can be?"

Such is the tenant-farmer, in the eloquent and truthful words of Captain HORSELL. His property, indeed, as actually engaged in agriculture, may not exceed 10 to 20 per cent. of that which his landlord owns in the land he cultivates. The latter, however, is fixed and safe, and men will lend money on it as their security up to within a very small margin of its value. The former, on the other hand, is *risked*—it is immediately sensitive to every change in the general prosperity of the country. It is destructible—before a hailstorm or a cattle plague it may vanish. Moreover, it is in the hands of another man—the landlord, acting within the letter of the law, may virtually eat it up. And people will not lend their money on it. There never was a greater fallacy than the contrast between the landlord and the tenant, which one hears alleged, when the former protests that he will never hand over his land unprotected for a term of years, or put his property absolutely in another's hands for so long a period. The tenant has not one-tenth the ability to injure the property of the landlord which is leased to him, that the latter has to injure the property of the former under the system of tenancy at will. We say, then, that the tenantry of this country give heavier hostages to fortune—they throw a bolder stake and incur a heavier risk—not merely relatively, but actually and positively—than their landlords do. And they are more immediately and directly, and even *to a greater extent*, interested in a fluctuating national prosperity. And yet, as Captain HORSELL says, we have no Ministry of Agriculture. And yet, as he might have added, there are not more than three men within the walls of Parliament of whom it can with propriety be said that they are truly tenant-farmers' members.

Whosever fault this is, it may be taken along with several other considerations as convincing proof that some great progress yet is needed before we can be satisfied with the condition of the class who occupy the land. Whose fault, however, is it? Certainly it is not the fault of the Constitution. That acknowledges most fully all the considerations which Captain HORSELL urges. The election of all the county members is virtually put by it in the hands of the farming class—given to those who hold and cultivate the land, whether their own or another man's. The blame lies on the head of the class themselves who suffer. The fault is one out of which those who are thus to blame will no doubt be ultimately educated—out of which, indeed, they might step at once if they chose to exercise their power, for they are already capable enough—and out of which we may rest assured that they will confidently step when once the Chamber of Agriculture organisation has felt and worked its way.

There are others besides the tenant-farmer on whose condition and position a sound judgment of the agricultural status of the country very much depends. The agricultural labourer—of all classes of the population now alone pronounced unfitted for the possession and exercise of the franchise—whose plight is exhaustively discussed in a recent Blue-book, named on another page—certainly must furnish a large and important contribution to any full discussion of the great condition-of-agriculture question. The food consumers, too—and they are the whole population of the country—may well protest that they also have a voice in the inquiry. They may well protest that that system cannot be considered satisfactory which does not provide more than two-thirds of the bread they eat,—which maintains nevertheless the rushy pastures, straggling hedgerows, swampy green lanes, and general agricultural muddle of many a midland district,—under which indeed one can hardly even now with any confidence declare whether more weeds or cultivated plants are annually grown on many English farms. But it is the social and political weight of the tenant-farmer class that is more specially our present subject. And to it we must return, for there is ample justification of its discussion here in the unquestionable fact that it is no mere matter of sentiment; but that, on the contrary, it has practical and immediate bearings, and produces direct and palpable effects on produce—wages—profits—rent.

—— THE Wheat trade throughout the country has continued in the same dull and unchanging state which prevailed during the greater part of December. Fine malting Barley has, however, been in increased demand, the value of which has risen quite another 1*s.* per quarter. —— The agricultural seed trade is, in some respects, in a state of activity for the season. This is probably owing to the large extent of second sowings last autumn, and the almost total failure of the Clover seed crop in this country, in consequence of the prolonged autumn drought, these conditions have now induced some speculations in Italian Ryegrass and Clover seeds, the former being readily saleable at 1*s.* to 2*s.* advance per cwt. —— At the Metropolitan Cattle Market on Monday, there was a short supply of beasts, the number being 2080, and the previous high prices were fully maintained. Sheep were also short, 10,340 only being penned. Fine qualities therefore made high prices, the quotation per stone being 5*s.* to 5*s.* 6*d.*, the top price being once more equal to the highest prices given for beasts. On Thursday there was a large supply of inferior kinds, both of cattle and sheep, and prices consequently receded, the demand not being sufficient to effect anything like a clearance of the second-rate and inferior sorts. Prime qualities, however, were readily disposed of at previous high rates.

—— An unusually wet December has done much to bring the rainfall of the past year up to an average quantity. The land, which was all through the summer as dry as tinder, is now waterlogged wherever undrained; and from the same window whence bleached and burned up pastures, with dark-green lines of hedgerows intersecting them, were seen six months ago, we now look out on an unbroken sheet of water. A very great extent of surface has been flooded during the past week. Let us hope that the time of frost, which appears at length to have set in, may be everywhere employed for the cartage of drainage tiles on to undrained lands, and that works of that kind may be largely prosecuted during the early months of the new year.

—— MR. J. CLAYDEN, chairman of the Home Cattle Defence Association, writes to the *Daily News* to state that since the recent outbreak of cattle plague on the Prussian frontiers, cases of this dreadful scourge have been reported from Lower Austria, a district from which we receive supplies of cattle. These facts cannot, in his opinion, be too widely known, as showing how the meat supply of the country is jeopardised. The trade in foreign cattle still remains, both as regards the home producer and consumer, in the same unsatisfactory condition as when so abortively discussed in the last House of Commons.

—— In Lancashire the other day, at the Newton Petty Sessions, the question whether horses drawing lime to be used upon the land were liable to toll, was thus decided:—The Chairman addressing the defendant said:—"In this case it is quite clear you have been misled. The Acts of Parliament are perfectly clear. The general Acts for the 3d Geo. IV. c. 126, s. 2 and 5, and the 6th William IV. c. 18, s. 1, lay down the law by taking lime out from the exemption of all other manures; they so make it liable to pay toll. All manure except lime is exempted. Lime is especially taken out under these Acts. Therefore, lime is liable to toll; and it must be remembered, not only for the sake of this, but other districts, that this law is really governed by the Local Acts. If the Local Act says lime is to pay toll, then it does pay toll; if the Local Act says it is not to pay, then it does not. But if the Local Act does not contain any provision at all upon the subject, as the Local Act in your case does not, then lime is liable to pay toll. We shall not put any fine upon you: you must pay expenses and pay toll." The Editor of the *Farmer's Almanac*, in reporting this case to the *Mark Lane Express*, says the enactment excepting lime from the list of other manures, which are all free from turnpike toll, probably originated from lime being useful as a manure only on certain formations of our island, and from the difficulty of avoiding fraudulent claims to exemption from toll, on account of lime intended for other purposes. The Legislature, however, feeling the injustice to the farmer of making lime pay toll in districts where it is largely employed as a fertiliser, authorised the trustees of roads in such districts to exempt such lime from toll from 1850. By the 13 & 14 Victoria, c. 79, s. 3, it is enacted, that it shall be lawful for the trustees or commissioners of any turnpike road, in case it appear to them expedient so to do, and notwithstanding any provisions of any Local Act affecting such road—and without the consent of any person entitled to money borrowed and remaining due on the credit of the tolls of such road * * * to reduce or wholly take off the tolls on horses, beasts, cattle, and carriages employed in carrying or conveying lime on such road for the improvement of land. If, therefore, in districts where lime is usually employed as a fertiliser, the trustees of a turnpike road have neglected to act upon this section of the 13 & 14 Vict., they have deprived the farmers of a privilege which was intended for, not their benefit only, but for that of the whole community.

—— We see it announced that the list of prizes offered at the Manchester meeting next July of the Royal Agricultural Society of England amounts to no less a sum than 4850*l.*, including 1290*l.* for horses, 1407*l.* for cattle, 1061*l.* for sheep, 255*l.* for pigs, and 644*l.* for implements.

—— At a meeting of the Farmers' Club at Tring the other day, a "West Herts Farmers' Co-operative Association" was formed, on the plan of the corresponding Agricultural Society at Sleaford, to which reference was made in these columns some months ago. Mr. LITTLE, the secretary of that Society, had then completed a contract for 1000 tons of phosphatic manure at 4*l.* 2*s.* 6*d.* per ton, to be delivered at any station within 80 miles of Lincoln. A few months previously they had been paying 6*l.* 10*s.* for an article that was not so good. The trade in artificial manures is now of gigantic proportion. Every kind of specific is offered for sale by all sorts of persons; spurious articles, and some perfectly useless nostrums, are palmed off on agriculturists. The Association at Tring proposes to have only one kind of artificial manure—superphosphate of lime—which returns to the soil that which had been taken from it, and consequently every shilling spent in this manure is spent to the greatest advantage. Farmers often purchase manures of the nature of which they are completely ignorant. The first sample which had been analysed at Sleaford cost 6*l.* per ton, and contained 22½ per cent. of manure. One sample cost 6*l.* 10*s.* per ton, containing 12 per cent. of manure. Another, still worse, costing 6*l.* 10*s.*, contained only 2 per cent. of manure. Some other analyses were given, in the first of which there was only 8 per cent. of manure, and the price was 7*l.* per ton, the worst case being a sample which cost 6*l.* per ton without having a vestige of manure in it, and therefore worth nothing at all.—Mr. BROWN, the secretary of the Tring Society, stated that a contract had been taken for the supply of superphosphate at 3*l.* 18*s.* per ton, exclusive of the carriage [as we understand], to be delivered in quantities of not less than two tons.—Mr. PARKES, an agent for a London manure company, stated that they gave a guarantee of the quality of all manures sent out by them—that the strength [we presume "the soluble phosphate"] was over 26 per cent.—that one great evil was that some farmers did not order their manures in time, so that manufacturers were often driven into the market and obliged to purchase manures of an inferior quality. Then, again, some expected six months' credit, and some took twelve months'. Of course he would be able to deal at a lower figure with an early order for two or three hundred tons.—That no doubt is the explanation of the difference between the treatment of a co-operative society by a firm and the treatment of an individual customer by an agent. We commend the example of Sleaford and of Tring to other neighbourhoods.

—— The following words, descriptive of his own experience of land agency, were lately spoken by one of the most distinguished land agents of the day, Mr. JOHN BEASLEY, of Northamptonshire:—

"A land agent is one of those creatures who may do a great amount of mischief and prevent a great amount of good being done, but the good he does must mainly depend on his employers. I think I may say—I won't say it has been my good fortune, for fortune is a word I don't admit into my vocabulary—but it has been my lot to serve more good masters than it has fallen to the lot of any one man to serve. I will not refer to those good men who have passed away, although it would be in accordance with my sympathies to do so, but I know that their memories are engraved on your hearts as on mine, in characters of gratitude, affection, and respect. But I say advisedly, and without fear of contradiction, that two large and important estates are committed to my management, under two of the best landlords and two of the best masters in England. If it were not so, I should not be standing here as the recipient of your generosity. Whatever good I might have wished to have done, I could not have done without their entire concurrence; and without that I should have been in the position of a man with his hands fast tied and bound. You must all know that I could not of my own free will have assisted you in the draining of your land—the forerunner of all other improvements; I could not have improved your farmhouses, and enabled you to fulfil the first of domestic duties—that of making your own homes as happy as possible; I could not have improved your farmyards—that great assistant to good farming; I could not have built cottages for your labourers, thereby, as I trust, improving their physical, moral, and religious position; and I could not have built schools for those who cannot provide for the education of their own children. All these are great and costly works; and, although I doubt not they will pay in the long run tenfold, yet they cannot be done without great present sacrifices, even by those who have the largest incomes. I am sure you will, therefore, join me in saying 'Honour to whom honour is due;' and, depend upon it, you cannot set too great a value on those high-minded noblemen who understand and carry out the duties, as well as enjoy the privileges, of their exalted position. To possess their confidence and the confidence of

their tenants, to believe that I have given satisfaction to both parties, is all the reward for which I have ever sought, and is full compensation for the toil, labour, and anxiety of many years. But, gentlemen, I feel sure that many of you have, with me, listened to and read speeches in which men of my standing have been alluded to as having outlived their times—though I don't know what that means. We are told that we do not understand the position and requirements of the tenant-farmer of the present day; that they want more freedom, more liberty of action; that the law between landlord and tenant has become obsolete; that it wants revising at once, that the landlord should not have the first claim on a farm for rent, because the having it makes him more careless of the capital of the tenant, and if not understanding their arguments be taken as a criterion, I must acknowledge I have got into my second childhood. I am perfectly at a loss to conceive what liberty you require that you do not already possess. I know there are many links which form the chain that binds you to your landlord, to your farms, and your homes, but I am under a great mistake if you think any of them are fetters. On the contrary, I feel that every year adds a link of confidence and good-feeling. I am not against Reforms, but I am old enough to know that there may be Reforms without improvements, and though it may be said that old men get prejudiced, I am sufficiently prejudiced to 'let well alone.' There was a time when I thought there should be a tenant-right for the whole country, but my experience has taught me it is impossible. The custom of a district has become the law of that district; it is perfectly understood, and I very greatly doubt whether you would find a better. What is it the tenant-farmer requires? It is perfect confidence. If you have got that, you have got a lever of great power, and if you have not got that, I don't care what you have got in lieu of it, it will prove but a broken reed. As to the landlord having the first claim on a farm for rent, I certainly don't care whether it is the first or the last. It would make no difference to me. I never took a guarantee or security from a tenant for his rent, and, as far as my memory goes, I only lost rent from a tenant once in my life. Last September I completed all the receipts of rents it was my duty to collect, and very soon afterwards I made up my books, making up my rents. They consisted of sums varying from 10*s.* to 1500*l.* or 1600*l.* At the end of the half-year I had only one arrear, and that was 10*s.* Now, if I had had any arrear of importance I should not have alluded to this subject; for I should not have liked to have set you guessing whether it was Joseph Green, John White, or George Brown, or who was the unfortunate wight. But at the end of a year, which was not one of the greatest prosperity, that was the state of my rent-roll. These rents are paid by a body of tenantry with whom I am very proud to be connected, and though they all hold their farms, with one exception, from year to year, I will venture to say those farms have been improved within the last few years, equal to any farm in the United Kingdom."

Mr. JOHN BEASLEY is agent on the estates of LORD SPENSER and Lord OVERSTONE, and it is these two noblemen to whom he refers above, in a speech addressed to their tenantry the other day, on the occasion of receiving from them a handsome testimonial in grateful acknowledgment of the kind consideration they have received from him during the long period of his agency.

—— In the "GOODENOUGH" plan of shoeing horses, to which prominence has been given by a notice in the *Times*, the natural use of the frog in the hoof of the unshod horse is retained. The method of preparing the foot and of applying the shoe is as follows:—In the first place, a shoe which precisely fits the outline of the hoof is selected from the stock, and care is taken that it remains perfectly level and true. The farrier then prepares the hoof by cutting or rasping away the surface of that portion of the crust on which the iron will rest, leaving the centre of the sole and the frog and bars untouched. Having given what he judges to be a true level to this marginal seating for the shoe, the shoe is applied cold, and the hoof is rasped again and again until horn and iron come into perfect contact in every part. After awhile, the adjustment being correct, the shoe is nailed on in the ordinary way, and the process is complete; the frog, which, dwarfed and deformed by previous ill-treatment, does not reach the ground at once, ultimately by natural practice reaches it fairly and fully, forming an elastic wedge which gives the horse a conscious and safe foothold upon every surface. The sole also grows somewhat within the circle of the shoe, and forms a shoulder by which the firmness and security of the latter are greatly increased, so that fewer and smaller nails are required. At first, too, it is necessary to have a considerable thickness of iron, in order to supply the place of the horn usually removed by the excessive cutting of the ordinary farrier; but when the hoof has grown to its natural proportions, smaller and lighter shoes will be sufficient. Mr. GOODENOUGH'S system has been in use for two months upon 200 horses belonging to the London General Omnibus Company, and employed in drawing those Chelsea omnibuses that stand at the Chelsea end of their journey. It has quite recently been tried upon a few horses in the Royal stables. It has been in use in America for about seven years, and comes recommended by a singular concurrence of testimony from large and small employers of horse labour, from omnibus and railway companies, from cavalry officers, from surgeons, human and veterinary. The surer foothold is said so much to diminish labour that horses are kept in condition on an appreciably smaller quantity of food; and diseases of parts from the knee or hock downwards are said almost to have disappeared from the stables.

—— At a meeting the other day at Gloucester, assembled to do honour to Mr. DANIEL LONG, of Whaddon, whom we have known for more than a quarter of a century as an energetic leader in agricultural matters in the Vale of Gloucester, Mr. HOLLAND, of Dumbleton, thus referred to the wholesome influence of social gatherings. In giving the toast of the evening he said:—"I have been told that this is a convivial party—just what I like; that it is not a party of business—and I like it the better for that. But the party also is a matter of feeling, and is a matter connected with that which could not happen in any but a free country like our own. Here am I your chairman—and a Radical! What is Mr. LONG? A good Tory. And yet here we are, with our different positions in regard to politics, sitting hand-and-glove together, and likely to go on so for the rest of our lives! In a country possessing what is called a paternal Government, and where the monarch or his ministers may, if they think fit, leave the people out of the Government altogether, such a thing could not exist. But in a country where we have free thought, full scope for feeling and freedom to do as we please, we act as men, and give play to the fullest extent we choose to our feelings with respect to those who are our friends and neighbours." Mr. HOLLAND went on to express the feelings of the meeting towards their guest, with whose excellent judgment and good common sense they had been well acquainted since the earlier days of their county agricultural society. "Since those days," he said, "the agricultural world has taken a start. Every branch of industry, indeed, has taken a start. But the agricultural world was a little behind the rest of the world; it is said to be always behind, though I don't believe it. However, agriculture, in this county at all events, has taken a start, and it has worked itself up to a position here which is certainly as high as that in any other county. I believe that we may thank our friend Mr. DANIEL LONG for having aided and assisted in the attainment of that position."

OUR LIVE STOCK.

MR. HARWARD has published the pedigrees of two remarkably well-bred bulls, which will serve cows at Winterfold at 20 gs. each, on certain conditions stated in the circular. The name of the eminent breeder of these animals—Captain Gunter—will be sufficient to arrest the attention of breeders, and we feel sure that a further examination of the pedigrees will in no way diminish their interest. 3D DUKE OF CLARO (23,729), is white, was calved May 30, 1866; he was by 2D DUKE OF WHARFDALE (19,649), out of *Duchess 87th*. On his mother's side he is, therefore, unexceptionably bred, his ancestry passing through 13 generations of Duchesses. His sire was by 7TH DUKE OF YORK out of *Duchess 73d*, and his dam was also by the 7TH DUKE OF YORK. This is near breeding, but we are assured that the result is satisfactory. His grandam, *Duchess 80th*, was by GRAND DUKE OF OXFORD, also bred by Captain Gunter, and afterwards sold to Mr. O. Sheldon, of Geneva, U.S. *Duchess 72d*, mother to *Duchess 80th*, was by Earl Ducie's 4TH DUKE OF OXFORD (11,387), and out of *Duchess 67th*, by Earl Spencer's USURER (9763). Previously we may trace his pedigree to *Duchess 41st*, by BELVEDERE (1706). 5TH DUKE OF WHARFDALE, the second of the two bulls, is a yearling. He is by 3D DUKE OF WHARFDALE (21,619), and out of *Duchess 86th*, also the dam of 3D DUKE OF WHARFDALE. This is exceedingly close breeding, which, while it secures a progeny of exceedingly pure blood, must be practised at considerable risk. The pedigree of this bull will bear close scrutiny, and is in some respects preferable to that of the 3D DUKE OF CLARO.

—— We present our readers with a tabulated view of the principal Shorthorn sales of the past year, in the order in which they took place. The total number of sales has been 30, and of these 14 have been conducted by Mr. Strafford, three by Messrs. Wetherell, one by Mr. Thornton, and the remainder by other auctioneers.

Name.	Place.	No. of Cattle.	Highest Price.	Lowest Price.	Average			Total.		
			Gs.	Gs.	£	*s.*	*d.*	£	*s.*	*d.*
Packo ..	Prestwold..	84	130	9	37	11	10	3157	17	6
Rutson ..	Newby-Wiske	30	50	5½	23	11	10	707	14	0
Hunt ..	Thorning-ton	59	70	3	29	8	10	1737	4	6
Cradock ..	Hartforth ..	52	52	6½	23	17	9	1242	3	0
Stratton ..	Broadhin-ton	100	54	6	27	1	4	2706	18	0
Adkins ..	Milcote ..	48	345	18	75	4	7	3610	19	0
Stephens ..	Inchbroom	68	75	..	40	5	10	2740	8	0
Champion ..	Calcot ..	56	56	5½	29	3	6	1633	16	0
Clayden ..	Littlebury ..	59	120	13	47	5	4	2788	16	0
Jones ..	Clonmore ..	42	80	4	29	0	6	1219	1	0
Lampson ..	Rowfant ..	25	300	16	62	0	8	1550	17	0
Morgan ..	Newfield ..	24	43	2	19	8	0	465	13	6
Harward .	Winterfold	49	80	12	31	4	5	1529	17	0
Carnsew ..	Somers .	21	29	4	16	16	6	353	6	6
Earl of Aylesford	Packington.	38	45	5	20	5	1	769	13	0
Holland ..	Dumbleton.	28	51	10½	35	14	0	999	12	0
Boys ..	Eastbourne.	28	30	5½	18	3	9	509	5	0
Cartwright .	Haugham ..	80	53	5	25	6	6	2025	19	6
Robarts ..	Lillingstone Dayrell	45	48	13½	29	4	0	1314	1	6
Longland & Adcock	Grendon Farndish	54	80	9½	26	0	6	1405	8	6
Forster ..	Killhow ..	66	400	6	67	7	2	4445	14	0
Duke of Devonshire	Holker ..	4	250	100	153	11	3	614	5	0
Fawcett ..	Scaleby Castle	71	71	5½	29	6	0	2080	1	0
Adcane ..	Babraham Hall	25	40	9½	22	3	2	554	0	0
Slye.. ..	Beaumont Grange	29	115	8	34	16	7	1010	2	0
Bocherby ..	Middleton St. George	15	54	10½	29	19	2	449	8	0
Rich ..	Didmarton..	58	380	27	69	3	3	4013	2	0
Lubbock ..	High Elms..	26	37	3	15	17	0	412	2	6
Reid ..	Danestown.	79	53	9	24	11	9½	1942	10	0
Storer ..	Rugby ..	21	150	20	58	12	0	1230	12	0
Various ..	York ..	39	65	5	27	14	10	1082	0	6
Total		1423	400	2	35	7	0	50,302	7	6

Of the above sales one was held in Ireland and two in Scotland. The highest price for a single animal was obtained at Killhow, for *Moss Rose*, purchased by Mr. D. R. Davies for 400 gs. Among other high prices we may mention that made by *Kirklevington 12th*, sold to Mr. Leney for 380 gs.; Sir C. M. Lampson's *Fancy*, purchased by Mr. Robarts for 300 gs.; Mr. Adkins' Princess cow, sold to Mr. E. H. Cheney for 345 gs.; and two heifers of the same blood, sold at Mr. Forster's sale for 630 gs. Upon glancing over the list of sales, it will be seen that Mr. Adkins' is the sale of the season, when the high average of 75*l.* 4*s.* 7*d.* was obtained. Next in order of merit we must mention the average of 69*l.* 3*s.* 3*d.* made at Didmarton, and the averages obtained at the Killhow, Rowfant, Rugby, and Littlebury sales. Mr. Strafford alone has sold 622 animals, at an average of 42*l.* 12*s.* each. Contrasting this with past seasons, we find that last year Mr. Strafford conducted 21 sales, and averaged over all the animals disposed of, 50*l.* 10*s.* 9*d.* This high figure was in a great measure due to the sale of Messrs. Betts and McIntosh's herds, and Mr. Sheldon's American Shorthorns. In 1866, the cattle-plague year, few sales of Shorthorns were effected. Mr. Strafford during that season sold 385 head, at an average of 29*l.* 9*s.* 3*d.* In 1865 the same auctioneer disposed of 457 head, at an average of 46*l.* 4*s.* 3*d.*, among the most notable of which may be mentioned Mr. Heegan's Grand Duchesses.

HORSE-POWER AND STEAM CULTIVATION.

AT p. 1326 "West Indian" asks, "Can a traction engine be made available for draft purposes—viz., corn-cart, dung-cart, and all the light operations and job work on a farm?" The main question to be considered before this one can be fairly answered is—when are all these things to be done? I have the data at hand upon which I can consider the matter, for I have a "correct card" of my horses' doings for the year 1865; and here it is, month by month:—

HORSE WORK ON WOOLSTON FARM, 1865.

1865.	Carting Corn.	Carting Dung.	Job Work.	Cultivating.	Drilling Corn.	Carting Hay.	Ploughing.	No. of Days Work of One Horse.
Jan. 4	2	..	..	..	..	..	..	
,, 12	2	..	..	..	..	..	..	
,, 20	3	..	..	..	..	..	..	
,, 23	..	3	..	..	..	..	..	
,, 24	..	3	..	..	..	..	..	
,, 25	..	3	..	..	..	..	..	
,, 26	..	3	..	..	..	..	..	
,, 27	1	2	..	..	..	..	..	
	—	—	—	—	—	—	—	22
Feb. 1	2	..	..	..	..	..	..	
,, 2	..	..	2	..	..	..	..	
,, 7	2	..	..	..	..	..	..	
,, 11	..	..	1	..	..	..	..	
,, 13	..	..	2	..	..	..	..	
,, 14	..	..	3	..	..	..	..	
,, 15	..	..	2	..	..	..	..	
,, 17	3	..	..	..	..	..	..	
,, 18	2	..	..	..	..	..	..	
,, 20	3	..	..	..	..	..	..	
,, 23	..	..	1	..	..	..	..	
,, 26	..	..	2	..	..	..	..	
	—	—	—	—	—	—	—	25
Mar. 4	..	..	1	..	..	..	..	
,, 6	2	..	..	..	..	..	..	
,, 7	3	..	..	..	..	..	..	
,, 9	2	..	..	..	..	..	..	
,, 10	..	..	1	..	..	..	..	
,, 17	..	..	2	..	..	..	..	
,, 20	3	..	..	..	..	..	..	
,, 21	..	..	..	2	..	..	..	
,, 22	..	..	..	2	..	..	..	
,, 24	..	..	3	..	..	..	..	
,, 25	..	..	..	4	..	..	..	
,, 27	2	..	..	..	..	..	..	
,, 28	..	..	..	4	..	..	..	
,, 29	..	..	..	4	..	..	..	
,, 30	..	..	..	4	..	..	..	
,, 31	..	..	..	..	..	..	4	
	—	—	—	—	—	—	—	43
April 1	..	..	..	..	4	..	..	
,, 3	..	..	..	..	4	..	..	
,, 4	2	..	..	..	..	..	..	
,, 12	..	..	3	..	..	..	..	
,, 14	..	..	1	..	..	..	..	
,, 25	..	..	1	..	..	..	..	
,, 28	..	..	2	..	..	..	..	
	—	—	—	—	—	—	—	17
May 2	..	..	2	..	..	..	..	
,, 15	..	3	..	..	..	..	..	
,, 16	..	3	..	..	..	..	..	
,, 17	..	3	..	..	..	..	..	
,, 18	..	3	..	..	..	..	..	
,, 19	..	3	..	..	..	..	..	
	—	—	—	—	—	—	—	17
June 21	..	..	..	..	3	..	..	
,, 22	..	..	..	..	3	..	..	
,, 23	..	..	..	..	3	..	..	
,, 24	..	..	..	..	3	..	..	
,, 26	..	1	..	..	..	..	..	
,, 28	..	..	..	..	..	3	..	
	—	—	—	—	—	—	—	13
July 28	..	3	..	..	..	..	..	
	—	—	—	—	—	—	—	3
Aug. 8	3	..	..	..	..	..	..	
,, 9	3	..	..	..	..	..	..	
,, 14	..	..	1	..	..	..	..	
,, 19	3	..	..	..	..	..	..	
,, 22	4	..	..	..	..	..	..	
,, 27	4	..	..	..	..	..	..	
,, 28	4	..	..	..	..	..	..	
,, 29	4	..	..	..	..	..	..	
	—	—	—	—	—	—	—	26
Sept. 1	..	2	..	..	..	..	..	
,, 2	3	..	..	..	..	..	..	
,, 4	3	..	..	..	..	..	..	
,, 6	..	3	..	..	..	..	..	
,, 7	..	3	..	..	..	..	..	
,, 8	..	..	3	..	..	..	..	
,, 9	2	..	..	..	..	..	..	
,, 11	..	..	2	..	..	..	..	
,, 15	3	..	..	..	..	..	..	
,, 17	3	..	..	..	..	..	..	
,, 23	3	..	..	..	..	..	..	
,, 27	..	3	..	..	..	..	..	
,, 28	..	3	..	..	..	..	..	
,, 29	..	3	..	..	..	..	..	
,, 30	..	3	..	..	..	..	..	
	—	—	—	—	—	—	—	62
Oct. 2	..	..	3	..	..	..	..	
,, 3	..	..	3	..	..	..	..	
,, 4	..	..	..	..	..	..	..	3
,, 5	..	..	..	..	..	..	..	3
,, 6	..	..	..	..	..	..	..	3
,, 7	..	..	..	..	..	..	..	3
,, 9	..	..	..	..	..	..	..	3
,, 10	..	..	..	..	..	..	..	3
,, 11	..	..	..	..	..	..	..	3
,, 12	..	..	..	..	4	..	..	
,, 13	..	..	..	..	4	..	..	
,, 15	..	..	..	..	4	..	..	
,, 16	..	..	..	..	..	..	..	3
,, 17	..	..	..	..	..	..	..	3
,, 18	..	..	..	..	..	..	..	3
,, 19	..	..	..	..	..	..	..	3
,, 20	..	..	..	..	..	..	..	3
,, 23	..	..	1	..	..	..	..	
,, 24	..	..	2	..	..	..	..	
,, 25	..	..	..	..	..	4	..	
,, 26	..	..	Wet	..	..	..	..	
,, 27	..	..	..	..	..	4	..	
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,, 30	..	..	Wet	..	..	..	..	
,, 31	..	..	..	..	..	4	..	
	—	—	—	—	—	—	—	73
Nov. 1	..	..	..	..	..	4	..	
,, 2	..	..	..	..	..	4	..	
,, 3	..	..	..	..	..	4	..	
,, 4	..	..	Wet	..	..	..	..	
,, 6	..	..	3	..	..	..	..	
,, 7	..	..	3	..	..	..	..	
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,, 10	..	..	1	..	..	..	..	
,, 14	..	..	1	..	..	..	..	
,, 17	..	..	2	..	..	..	..	
,, 20	2	..	..	..	..	..	..	
,, 21	..	..	1	..	..	..	..	
,, 24	..	..	2	..	..	..	..	
,, 25	1	..	1	..	..	..	..	
,, 27	1	..	1	..	..	..	..	
,, 28	..	..	3	..	..	..	..	
,, 29	1	..	2	..	..	..	..	
,, 30	..	..	2	..	..	..	..	
	—	—	—	—	—	—	—	37
Dec. 1	..	..	2	..	..	..	..	
,, 9	2	..	..	..	..	..	..	
,, 11	..	..	2	..	..	..	..	
,, 15	3	..	..	..	..	..	..	
,, 17	3	..	..	..	..	..	..	
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Total horse-power, 365 days for the year, or 121⅔ days for each of my three horses, giving my pony's work up to them.

Those days on which four horses are worked are busy days, on which my pony was had out to assist.

The job-work is—coal-carting, shifting of tackle, and all sorts of odd jobs on the farm.

Here, then, is the horse-power needed on my farm of 112 acres of arable and 50 to 60 acres of grass-land, when the engine is worked only 14 or 15 days a year to

do the heavy work: this year I worked it 15 days, in 1865 I worked 14 days.

Now we are in a position to consider "West Indian's" question:—

January.—The carting the corn to market could be done, and so could the dung-cart from the yard to the field, into which it would be taken after harvest, but let us see how this dung-carting must be done. I generally employ three men to fill the carts, and one man to tip and throw it into the heap—men kept on the farm for all purposes of that kind. Then we must have two large carts made, say three times as big as a horsecart, one for the men to be filling while the engine takes the other to the heap, gets it tipped, and comes back for another load. This might be done both on my light and heavy land, for at the latter it is always done in dry weather, and there is no hill when taking it from the yard to the field, but the two 6*d.* boys who lead the horses will not do to attend to the engine, they must stand by and look on while the engine-man does his bit.

February.—I need say no more about corn-carting; but must talk a little about job-work. The steamer might do some of that, but it is very questionable as to whether it could do all, even in February. In other months I know it could not, for it could not do the horse-hoeing or the water-carting when it is doing the cultivating, and it would be found a troublesome fellow at many other jobs, some of which it would take much longer to get steam up than to do.

March.—Here we get some drilling to do; and I am sure it will not do for that work, for it would do no end of damage to heavy land at that season, whether it worked the drill by rope traction or by locomotion. This shows plainly that we must have some horses to do our hoeing and drilling.

May.—Dung-carting can be done, and so might its two horses for one day's job-work, no doubt.

June.—The hay carting from my flat meadows might be done, but I am inclined to fancy that an engine amongst a lot of dry hay would be a very doubtful customer. To be sure the men would take the best care they could, but if a spark did happen to catch, we must take the consequences; and we must have three carts and two engines, for we must do it while the sun shines, for that is the time to make hay. One cart loading, one on the road, and another at home emptying, to be changed with the one on the road when it comes. This is rather awkward, for it begins to show very costly, what with carts, engines, and men—all high-priced ones. Never mind; let us go on, for July gives only one day's work for three horses at job-cart.

August comes in with carting corn; this work makes me rub my head, and think how it is to be done. On my flat land it could be done, if it did not happen to catch fire the same as my hay might; but on my heavy land, which is very hilly and uneven, it is very doubtful to me as to whether it could do it at all. I know that the steam pressure would have to go up so high that the sparks would fly in all directions in the way in which the wind blows, that is, if it pulled its loads up that steep hill, up which nearly every load would have to come. This, and what I have said about carting hay and hoeing, &c., half frightens me from trying the thing, but let us go on to September and see if we can get on a bit better.

September may be seem to be a busy month, the horses are at work nearly every day in drawing the dung to the land and job-work. One of the engines (that I have before shown must be kept) might be doing the dung-cart and job-cart while the other might be doing the smashing that must be done in that month.

October brings with it some ploughing, drilling, and cross cultivation. The ploughing might be done by steam, but it cannot be done so well as horses can do it. The drilling cannot be done at all well by steam, and to cross cultivate by steam makes a dear job of it. Taking it all in all, I do not think much of the traction engine for farmers' work, and when I see the word "wet"—noted as a hindrance to my Wheat-seeding—I begin to think as to whether it could help me or not; and when I find that in such seasons as that it must become a regular stick-in-the-mud, I begin to get frightened; but for all that let us look into November.

November says Wheat-seeding and wet again, therefore I am quite done up, and dare not have anything to do with it, especially as there is nothing in *December* to cheer me on. I will stick therefore to a common portable engine for doing my smashing and ridging and subsoiling in September and October, for with that I have never been stuck in the mud, not even in 1865, when all the locomotives did, and will again when we get another wet autumn. It was nice dry weather at Leicester for them to dash about in, but now is the time to try them on some heavy clay land upon that point. *William Smith, Woolston, Bletchley Station, Bucks, Dec.* 21.

Home Correspondence.

Red Clover Sickness.—We roll land heavily in order to consolidate it—for to the looseness of the land we attribute, on deeply cultivated lands, our Clover failures. We roll it to secure an even surface and an equable depth for the seed. And both before and after sowing the Clover we roll it, with the view of retaining moisture by the exclusion of the too powerful action of the atmosphere on the newly deposited seed. A few facts illustrative of the evil of neglecting such rolling may not be now out of place, in proof of the danger of trusting solely to theory, no matter how speciously written, by the most scientific men. I have been a successful, and in some instances an unsuccessful, Clover grower for over half a century; and never have I been unsuccessful, *cæteris paribus*, but when rolling was omitted, or but lightly done. This very season I have seen hundreds of acres in Ireland, and perhaps I can include a trifle of England, too, where Clover seed had failed to grow because of the absence of the moisture which a better pulverization of the soil by rolling at the time of sowing would have secured; and I have seen in some of the same localities, subject to the same vicissitudes, land sown with the same quality and condition of Clover seed a perfect "hit," because of judicious rolling at the time of sowing. I have often seen the same before in dry seasons, and, where the seed was not perfectly scorched, a full crop of Clover to spring up when saturated with moisture on the return of rains in Autumn. I have known the same results to accrue in the case of Barley and Oats sown in dry seasons when there was not sufficient moisture in the land or atmosphere to give an adequate supply to the grain to promote germination, and hence the steeping and "sprouting" of grain before sowing it in dry seasons, to insure a successful "braird." I saw in England last August many Clover failures that might have been of less magnitude had adequate rolling been adopted at the time of sowing. One example out of many may suffice in illustration. Early in August last I visited a professional agriculturist in a central English county. On showing me over the grounds under his management, I had seen misses in his Clover crops, as I had seen to a greater extent elsewhere. He asked my opinion as to what he should do with these "patchy" crops, to secure an early bite for ewes and lambs in spring, and soiling for his house-fed stock in summer. I advised him to sow Italian Rye-grass or Italian [?] Clover, or both, on the missed patches, saying, at the same time, "your spring-sown Clover and Grasses may grow there yet;" and before I left the heavy rains came down, and verified my prediction. *Fingal.*

Royal Agricultural Society.—As one of those who were present at the annual meeting of the members of the Royal Agricultural Society, in Hanover Square, I must confess that, except that it gave one an opportunity of ascertaining the real tone of the meeting and of the members generally on the principal subject before the meeting, the time employed or wasted was much to be regretted. The meeting being fixed for noon, and at a considerable distance from the Islington Show, the day was to a great extent sacrificed in attending it, and the two rooms in which it was held were so confined in space that those who were compelled, like myself, to come late could neither see, hear, nor sit down. Now, why cannot this important meeting be held at Islington? Surely the shareholders and directors of the Hall, who are nearly all members, would gladly and gratuitously place a large room at the disposal of the Council. I am surprised that Mr. Sidney, who appears to be a public censor on these occasions, and whose remarks, judging from the wincing they occasioned, appeared to be rather truer than pleasant, did not advocate such a proposition, which he is in the best position to assist in carrying out. The members present may be considered to represent the feeling of the members generally. Nothing could be more unmistakeable than the strong expression of disapprobation with which the members regarded the dismissal, for such it really is, of the late Secretary. Previous to this meeting it was thought that the Council, or rather the governing few amongst them, had some strong and weighty reason for their action, but now it appears that there is not a word to be said against Mr. Hall Dare, that he has been a very good Secretary, and of course knew ten times more about the business now than he did when he was first elected. He is dismissed because he is not a good Editor, and yet it is stated that the Secretaryship is the more important of the two offices. The argument for economy is fallacious, as the same sum could have procured two good men. Mr. Dare might have been offered 400*l.*, with the house, for the Secretaryship, and 200*l.* per annum would have procured a good Editor, provided he was allowed to engage in other pursuits, and which, seeing that he had only to bring out two volumes per annum, he might readily have done. Nothing can be truer than Mr. C. S. Read's assertion that the Council virtually elect themselves, to which may be added, that they carefully keep out of the Council, and often out of other offices, such as that of judges, the oldest, most talented, and most active members of the Society. This censure does not apply to the more aristocratical members of the Council, who are really the most liberal, but to those who, having pulled themselves up, are careful enough to cut the rope by which they have mounted, to prevent others climbing up afterwards. It appears from a statement of a member, that so far from the boasted economy being attained, hundreds and thousands might have been saved at Leicester in the erection of the buildings alone. I agree with Mr. Sidney that the time is gone by for Prize Essays, which might, however, still be continued for one or two subjects occasionally, for the encouragement of young writers, but very few men who have made their mark will contend, more particularly when, as has often happened, the award will not so much depend on the merits of the essay, as on whether the opinions advanced therein correspond with the peculiar, perhaps crotchety, ideas of the essay judges. Fresh blood is sadly wanted in the Council. The number should be increased, and should be elected from the different districts by the members generally, who having thus a small voice in the Council, will be saved from indifference or disgust, which is now the prevailing feeling. *W. C. S.*

Agricultural Steam Engines.—1. Let the engine be a thorough locomotive. Aveling's road locomotive fulfils my ideas of what it should be, because the fast and slow motions are a great advantage. 2. Let this engine be furnished either with a driving pulley or a universal joint, to connect on when wished to the usual farm machinery for threshing, chaff-cutting, &c. 3. For ploughing, have an iron frame (to fit on below the tubular part of the boiler), containing two winding drums, each able to take on 800 yards of rope, the one delivering its rope in front of the large driving wheels, and the other in front of the small wheels. The front wheels could turn between the two pulleys. This frame of drums should be movable, so as to be taken off or put on by half an hour or an hour's work in the shed while the steam was getting up. It should be furnished with self-acting coiling gear, and each drum should be capable of revolving independently of the other, so as to avoid the necessity of "slack gear" on the plough. Of course the drums would only be put on when the engine was going to work at ploughing. 4. When ploughing, there must, of course, be a pulley and anchor on the opposite headland—Fowler's patent 5 or 6-disc anchor seems to me the proper thing. Arranged in this way, a steam-engine would be a thoroughly useful farm implement, and would serve three distinct purposes. 1. It would draw heavy loads as a locomotive. 2. It would work a steam-plough on the direct-motion system. 3. It would drive all sorts of agricultural machinery, as threshing-machines, chaff-cutters, turnip-pulpers, &c. Engines of all sizes could be so fitted, say 4 or 6 or 8 or 10-horse power. I do not think it is desirable to go beyond 10-horse power for an agricultural engine, because of its great weight. A 6-horse or an 8-horse would in my opinion be the most suitable size. If the farm required more I would rather use two engines. For most farms a 6-horse engine would be ample. With suitable implements it would make a single furrow 13 inches deep and 18 inches wide, or a double furrow 9 inches deep and 24 inches wide, or a treble furrow 6 inches deep and 30 inches wide, or a quadruple furrow 4½ inches deep and 40 inches wide. Or it would drive a single furrow 6 inches deep and 10 inches wide, with a subsoiler working in the bottom of the furrow 8 inches deep. Taking the average plough work of a farm as being 8 to 9 inches deep, then a 6-horse engine working 10 hours a day, and wasting say 1½ hour in turning at the headlands, would, in the remaining 8½ hours, plough 5 acres a day, or say 400 acres in 80 days. If we add one-half more for harrowing, seeding, and rolling down, that would be 40, making 120 days in all for cultivation, which would leave 190 days for the engine to do other work, in threshing, chaff-cutting, and hauling, on a farm having 400 acres every year under plough. *G. A. H., Penython, December* 28, 1868.

Competitive Indian Appointments.—In these days, when there is such a talk about professional education, it is well that people should know the dearth of facilities in this country for obtaining that knowledge which is now considered necessary for officers of the Crown in India connected with agriculture. The Secretary of State for India having resolved to send out from this country eight young men, properly trained and well educated, for service in the forests of India, it is determined that after their selection the candidates shall proceed to either Hanover or France, "to learn the practical work of a forester, and the science of forestry." One year is to be devoted to practical work in the forest, and the last year and a half "to practical instruction in surveying, land-measuring, and road-making, and those branches of the natural sciences, and the science of forestry, which are required for a forest officer in India;" and it is calculated that the total expense of this education will be 487*l.* 10*s.*—*i. e.*, 195*l.* per annum. Now the question I would like answered is—How does it happen that this country does not offer the means of education to such youths? We have pre-eminence among Continental nations for our agriculture, we have a flourishing Royal Agricultural Society, and yet it would seem no facilities for educating youths in forestry, and those branches of natural science requisite for an officer in India. Perhaps, sir, some of your readers may be able to answer this question. I would merely add, for the information of parents, that these appointments are thrown open to the public for youths between 17 and 25 years of age; that application must be made to the Revenue Department of the India Office on or before the 8th of January, 1869; and that the examination of the candidates will be held on the 28th of the same month. *A Constant Reader.*

Bromus Schrœderi.—We are glad to see your remarks on Bromus Schrœderi (p. 1345). It is a never-failing plant when cultivated, as we advised in our Farm List, viz., drilled as Barley, and mowed or fed-off five or six times a-year. The oftener it is cut the more vigorously it sprouts, but as soon as it is let alone it forms seed and ceases to grow. To ensure success on any soil, with or without sewage, it is only necessary to drill the seed thickly, mow or graze very often, and keep the hoe going between the drills. In addition to the summer growth, the Bromus continues all the winter except in the most severe weather. A plot of Bromus odoratus, introduced by Mr. Rivers, may be seen growing by the side of Bromus Schrœderi at our trial farm, at Earley, near Reading; they are somewhat similar, but B. odoratus is more succulent, and would probably be preferred by cattle, but we have never known horses or cows refuse either. *Sutton & Sons.*——We are gratified to find our estimate of the valuable properties possessed by Bromus Schrœderi (as an auxiliary green crop) confirmed in the *Gardeners' Chronicle* of December 26, p. 1345. A very large acreage has been sown during the autumn, under various conditions, and we continue to receive the most satisfactory reports from those who have tried it. The following report from a correspondent may be interesting:—"I purchased a quantity of the seed of Bromus Schrœderi, which was sown in July, on ground as dry as dust, but it vegetated freely, the first shower causing it to grow with amazing rapidity. The first cutting was made October 20, the plant being 2 feet high, and I found my cattle preferred it to any other food I could offer them. I now have (November 20) a luxuriant second growth, in spite of the cold weather that would check

the advancement of our other green crops. I may mention that I was first induced to cut the Grass on account of my pony showing symptoms of illness, and refusing his ordinary food, and I was gratified to find the Bromus greedily consumed." *James Carter & Co., 238, High Holborn, W.C.*

Societies.

COGGESHALL.—At the 29th anniversary of this useful Society, which was celebrated last week, there was some useful agricultural discussion, which we extract from the columns of the *Chelmsford Chronicle*.

Mr. SUTTON WESTERN, who presided, referred, among other subjects, to that of game. He felt as strongly as any man that no one had any right to keep up an undue quantity of hares or rabbits; he might call them vermin, which destroyed the crops not only of the tenants who might perhaps be able to come to some arrangement with their landlord, but of those who were not tenants, but whose land ran up to his covers. He should be very glad to see something done to remedy the hardships under which the tenants groaned, and he thought the landlords would be in a better position if there was not such a multiplicity of hares and rabbits as seemed to run about in parts of this district. These were no new doctrines of his, but opinions he had always entertained, and anybody who knew anything about their family estate knew that the great desire of the owner of the estate was, that no rabbits to any extent should be preserved, and if any tenant on the estate thought he had a right to complain of any excess of four-footed animals, he had only to make his complaint, and it would be immediately remedied.

In answer to a personal toast, Mr. MECHI, who was received with cheers, said, as this was an agricultural meeting it might not be amiss if he said something about agriculture. His object in improving his farm was to increase its profit, and he laid it down as an axiom, which he thought should always be accepted as undeniable, that anything done in agriculture that did not pay could not be right. There were several things also that were left undone in agriculture that could not be rightly neglected, because they would be profitable. He knew he was there among some of the very best farmers in England—he meant as far as regards the cleanliness and cultivation of the soil; but if he were asked whether they had studied their own profit to the greatest extent, he should say most decidedly not, for they had still a good deal to learn with regard to the increase of profit. He said that very respectfully, and would name one point on which he thought they were very short-sighted. Every farmer of 300 acres or less—certainly if more—should have a little fixed steam-engine for the purpose of preparing the food for his cattle, grinding corn, and doing things of that sort. Large farmers, men with plenty of money, and farming five, six, or seven hundred acres of land, sent to him, a distance of three or four miles, to grind their corn, and paid him a profit on it which they might have put into their own pockets if they had engines of their own. One argument against a fixed engine was that it would become the property of the landlord, but he would ask any gentleman whether if a farmer who desired to put up a fixed engine applied to his landlord he would not readily get permission to remove it at the end of his lease?

Mr. BEAUMONT.—The law gives him that power now.

Mr. MECHI said he was not aware of that, but he was very glad to hear that the law gave them the power. Now came the question of expense. They could put up a steam-engine of 6-horse power for 150*l*. He had had one which cost him that money for 20 years, and with it he could work his chaff-cutter, turnip-cutter, cake-breaker, grinding-mill, threshing-machine, &c., if he chose, and pump all his water. Then what was the annual cost? In his own case, with the immense amount of business he did, it cost him for coals 32*l*., and the cost of attending to it was 20*l*.—making 52*l*. a year. Those kind friends who sent their corn to him to be ground were therefore foolish enough to pay for all his coals, and also to allow him to get all his own work done for nothing. Now this was a great mistake; he was speaking on the subject to a farmer of 700 acres in Norfolk the other day, who objected to a fixed engine as he had a portable one, and told him he always cut his own chaff and employed two horses constantly at chaff-cutting. He immediately pointed out to him that the cost of the horses would be at the least 50*l*. per year, besides wear and tear, and thus merely for chaff-cutting he stood at a larger expense than he (Mr. Mechi) for all the work of his farm. That was clearly a mistake, and in his opinion every man with the large quantity of stock he ought to keep on 200 or 300 acres should have a fixed engine. Generally speaking, agriculture was progressing tolerably rapidly. He looked around and saw that steam was now very generally accepted in the cultivation of the soil, and he believed that as they got more and more accustomed to it, its use would be very considerably extended. He was much gratified at seeing from his dining-room window two of his neighbours using steam-cultivators, and he was glad to know that one of them was ready to come upon his (Mr. Mechi's) land when he required it, for it would hardly answer his purpose to have another engine for ploughing unless he could arrange to do work for his neighbours. As regarded the preparation of food for cattle, he had received from Glasgow a sample of baked corn—Beans, Peas, Indian Corn, and so on, ground up into pastry and baked; and he was assured that this was sent very largely from Glasgow to Aberdeenshire for making those fine fat bullocks with which the Aberdeenshire farmers supplied the London markets. His own experience was greatly in favour of preparing food for cattle, and this year, with some 40 bullocks and 300 or 400 sheep, he had no difficulty in finding food, in spite of the small supply of roots, and he still had enough roots to last three or four months. If they wanted confirmation of what he said, he could show it to them. This was not the time for detail, but on taking up a Scotch paper he found that one very intelligent farmer had put up a fixed engine and cooked all his cattle food; and this was a very important point, for undoubtedly stock must be the sheet-anchor of the farmer—not for its direct profit, for he did not believe there was any direct profit in feeding stock, but he was sure from 25 years' experience that the more stock they kept and the more stock they fed with something that did not grow on the farm, the larger would be their crops of corn and other produce. One weak point in agriculture was that there was not meat enough made on their farms to produce a large quantity of manure. He thought they could not complain of the price of their meat, for at this very moment they were selling it at 8*d*. a pound in the carcase, and if it were true that 7 lb. or 8 lb. of cake would make a pound of meat they might lose a little by cattle-feeding directly, but indirectly it was the cheapest way of obtaining manure he knew of, and far superior to guano and artificial manure generally. As a rule, farmers did not keep half stock enough. Then came the question, whether their landlords would not help them a little in the improvement of their buildings for the increased quantity of their stock. He believed the old open farmyard must, as a source of profit, be given up. Their bullocks should not go out into the open, neither should they be in an open yard, and if anybody doubted this let him read Professor Voelcker's analysis of farmyard manure, in which he states that the best parts of the manure are rendered comparatively worthless by allowing the water of heaven to fall on it, and wash out the solutions down the brooks. These were improvements that ought to be adopted on every farm in the kingdom, and if they doubted it let them try them on a small scale. For instance, a man might rent a shed for 20 bullocks for 130*l*. Let him pay his landlord 6*l*. for it, and keep his bullocks and his manure under cover, and he would soon see the advantage of it, and would find his crops considerably better than when he used manure from an open farmyard, or artificial manure. He begged to thank them for the patience with which they had listened to him, and for the honour they had done him in drinking his health on that occasion.

Mr. HILLS, the secretary, said.—As regarded the remarks of his friend Mr. Mechi, he had not a fixed engine himself because he held two or three farms, which, though in the same parish, were a little distance from each other, and therefore he had a portable engine. He must say that as yet he had not found engineering cheap work, though he did not know how it would be in the end. He had no doubt that a portable engine could be bought as cheaply as a fixed one.

Mr. MECHI.—No.

Mr. HILLS said that was matter of orinion. A portable engine could be sent round to their neighbours, and his (Mr. Hill's) engine could be had by anybody when he didn't want it himself.

Mr. MECHI.—Do you grind your corn for your cattle?

Mr. HILLS said yes, of course he did, but he sent it to the millers, where it was properly ground. He had a friend in his neighbourhood who had a fixed engine, and had attempted to grind his corn, but he had been obliged to give it up and go back to the miller. What did farmers know about grinding? They knew a good deal more about grumbling. If they let the farmer and miller alone they would rub on together very comfortably, but for any man to monopolise three or four trades he didn't think was right at all.

The CHAIRMAN proposed "The health of Mr. Catchpool," with thanks to him for placing his land at the disposal of the Society.

Mr. E. CATCHPOOL said, considering the state of the land, he had never seen the ploughing done better. The boys' work was remarkably well done, and one little boy, hardly higher than the ploughstaff, was almost equal to some of the men, showing what a lad might do by application and attention. As to the digging he was sure every one present must have felt proud of the way in which the men went to their work; they dug pretty nearly 14 inches deep, and he had no doubt he should have the benefit of it in his crops. The vegetables were very good for the season, the Potatos particularly so, and he thought he might say that their poorer neighbours understood the cultivation of things of that kind as well as any labourers in the kingdom. This Society was not established for the benefit of the farmers. It did not give prizes for fat bullocks or big Mangels, but was intended to benefit their poorer neighbours. Farmers did not come there to praise each other, and, indeed, he had sometimes thought that they rather came to abuse each other. He was not yet convinced that a fixed engine was cheaper than a hired portable one. He once had an engine of his own, but he found the repairs were so enormous that he thought it was better for somebody else to pay for the repairs and bring the engine to him to do his work. He happened to drive through Mr. Mechi's farm about the beginning of harvest, and there he saw a hired portable engine knocking out the sacks of Wheat by wholesale. "Halloa," he said, "here is Mahomet come to the mountain;" and he asked the man about it, and was told that he had persuaded his master to hire it, as he thought it was cheaper. When he got to Mr. Mechi's house his friend told him they had just knocked off 80 quarters, but he (Mr. Catchpool) certainly could not understand why he had done it in that way if a fixed engine was cheaper than a portable one.

Mr. MECHI said what his friend had stated was quite true. He hired the engine for two or three days, but, as he afterwards explained to his man, the cost was, taking a very moderate figure, 3*l*. a day, and he had to find coals, and as they worked their engine 160 days in the year, that would come in a year to 480*l*., whereas it only cost him 32*l*. a year for coals for his own fixed engine.

Reviews.

First Report of the Commissioners on the Employment of Children, Young Persons, and Women, in Agriculture. Her Majesty's Stationery Office.

In this Blue Book we have, first, the report of Messrs. Tremenheere and Tuffnell, her Majesty's Commissioners, in which they recapitulate the topics of the inquiry, discuss in detail the reports of the Assistant Commissioners, and refer in particular to the allotment system, the effect of inclosures upon the condition of the labourer, and the condition of the cottages in which, for the most part, agricultural labourers live. The second part of the book includes all the district reports received from the assistant inspectors; and to a few extracts from the first of them, that of the Rev. J. Fraser, who visited the counties of Norfolk, Essex, Sussex, and Gloucester, we shall now direct the attention of our readers:—

The Education of Country Children.—"Instead, therefore, of applying, with very doubtful prospects of success, the regulations of the Factory Acts to agriculture, I should like to see, as the Commissioners of 1861 wished to see, the Factory Acts themselves revised. I am satisfied that the age of 8 is too early, on physical grounds, for children to go to constant work; I am satisfied that the age of 8 is too early, on educational grounds, for them to commence half-time or periodic attendance at school. But whether the Factory Acts are thought to require revision or not, it will be seen by any one who cares to peruse the evidence that I have collected, that it is the almost unanimous opinion of every person and body of persons who have expressed opinions upon the subject, that the best mode of promoting the education of children in agricultural districts would be (1) to prohibit their employment on the land under the age of 10; (2) to to make provision for securing their regular attendance at school for the five years preceding that age; and in several cases the suggestion was added that (3) to prevent the possible loss, by disuse, of what they had attained, the children, when emancipated from entire restriction, should still be required to fulfil a certain amount of winter attendance—say 150 hours—either at day or night school, for two years more. I should add that not only do farmers think that this mode of dealing with the subject would be the mode least embarrassing to them in the cultivation of their land, but that managers and teachers of schools declare that they could do more for the children's education in this way, than they could hope to do if regular attendance ceased at 8, and intermittent attendance took its place till 13. My own opinion, formed upon an experience of 20 years as manager and (to a considerable extent) teacher of a rural school, entirely coincides with theirs. It is the opinion of the teachers particularly, that irregularity of attendance is the most formidable difficulty with which they have at present to contend,—children kept at home for all sorts of frivolous purposes by the parents, or withdrawn for all sorts of varying lengths of time by the farmer; and that a child kept constantly at school till 10 ought to be able to pass in the Government's Fourth Standard, indicating an amount of attainment which, though something of its completeness may be detracted by the friction of life, is likely, in its main elements, to stick to him to the end. I found a perfect agreement amongst the farmers that, whether his education makes him a better labourer or not, every English labouring man ought to have placed within his reach the opportunity of education, and that his education ought, at least, to extend as far as the power to read, to write, and to cipher; and the admission was very frankly made that the present general standard of attainment is far below this. I entirely go along, also, with the opinion very frequently expressed, that the ability to write and to cipher are of secondary importance compared with the ability to read. They can be easily and quickly secured, if the desire exists, at almost any period of life, and there will always be abundant motives for securing them; but the power to read, if not acquired in youth, is rarely acquired with any facility at all, while it is, emphatically, the key of all subsequent knowledge and self-improvement. And there is a certain analogy between the capacity to read and the capacity to swim. A man whose mastery of this useful accomplishment, when a boy, was limited to the power of sustaining himself in the water for half-a-dozen strokes, and whose practice stopped there, if he should unhappily fall into deep water 20 years afterwards, even within easy distance of the bank, will infallibly be drowned; but he who has once accomplished the feat of swimming across the Thames will find that he has endowed himself with a power that he will never lose. So too with reading."

Agricultural Cottages.—"I am happy to say that at all my meetings the farmers were quite as loud and outspoken as the clergy in denouncing the mischievous results of the present condition of too many English cottages. It was unanimously agreed to, again and again, that every cottage inhabited by a labourer with a mixed family ought to have three bedrooms. It was more than once suggested that something in the shape of a Building Act should be introduced which should require a certain proportion of the cottages of every proprietor to have this amount of accommodation. Inspection of cottages by an independent officer like the exciseman, who should have power to limit the number of their inmates in some proportion to the number and cubical capacity of their rooms, was in many cases urgently advised. While still stronger, perhaps, and, under the circumstances, even more natural, was the feeling of the farmers about "close"

parishes. Indeed anything more selfish, and, I will venture to say, wicked, than the motive which led to the creation of such parishes, it is difficult to conceive. They arose from a desire to rid one's self of a just share of a burden which is only tolerable when borne by all equally. Mixed with this was a desire to get rid of an eyesore and of a nuisance; of people intruding upon the squire's privacy or disturbing his game. Added to which was an utter abnegation of all moral and social responsibility in respect of those whose labour was producing our wealth, and whose strength and muscle was being worn out in our service. By the change in the law of settlement, it is true, *nous avons changé tout cela*. At least we have changed the principle; though it will be long before we have undone all the effects of the practice. Just now a righteous Nemesis has fallen upon the creators of close parishes. They find their rates increased three and four-fold; they sometimes experience a difficulty in letting their farms. I am informed that a farmer's question when he comes to look at a farm no longer is, 'What are the rates?' because he knows they will be equal throughout the union, but, 'How many cottages, and what supply of labour can I command?' Tenants are beginning to fight shy of farms without cottages, and of a labour supply that has to be fetched three or four miles. It would be almost a less loss and a less inconvenience to a farmer to go that distance after his water. The proper proportion of cottages to each 100 acres of land depends very much on the nature of the soil, whether heavy or light; the mode of cultivation, whether arable or in grass, and the kind of labour employed, whether chiefly adult male, or that of women and children too. In the dairy district of the Vale of Berkeley, one or at the most two cottages to the 100 acres is considered a sufficient supply; in Essex and Sussex, where female labour is less used, four cottages is the proportion desired; in Norfolk and on the Cotswolds, from two and a half to three. Heavy land requires more labour than light: arable land than pasture; a district that produces corn than a district that produces butter and cheese; while the labour of women and children, of course, to a certain extent displaces the labour of men. I consider, however, that in an average district, where the farming is of a mixed description, and the labour employed is mixed too, three cottages to 100 acres would be an adequate, perhaps almost an excessive, proportion."

The Statute Fair.—"The system of monthly hiring, which is the rule of domestic service, is applied in farm labour whenever workmen are engaged for the purpose by time at all, to the solitary instance of the harvest. Those who are emphatically called farm servants are hired mostly by the year. This applies chiefly to the labourers without whose services the farm could not be carried on for a single day, and whom, therefore, the farmer considers himself obliged to secure by bonds not easily broken—the shepherd, the carter, the stockman, the ploughboys, the dairymaid. The usual periods of such hirings are in the spring, or, more commonly, in the autumn; and, where those abominations exist, the transaction generally takes place at the 'mop' or statute fair. I believe that in law a verbal agreement, if it can be proved, is as valid as a written one; and, as a matter-of-fact, the terms of the contract are seldom put upon paper; what weighs most on the mind of the young farm recruit, and impresses him with the strongest sense of obligation, is the mystical shilling which passes from the palm of his new master into his own, and which may be regarded as the agricultural *sacramentum*. These yearly hirings appear to me to operate ill in many ways. The statute fair, which is one of their accompaniments in many counties, in Gloucestershire to wit, is one of those ancient customs which, however out of keeping with our present state of civilisation, however demoralising in their modern abuse, still hold their ground in this conservative country, simply because they are ancient. A contract entered into between two parties, each probably previously a stranger to the other, and in which small account is made of character on either side, cannot but too often issue in a result unwelcome to both; the servant finds he has got an unsatisfactory master, the master that he has hired an unprofitable servant. The boys often run away, and the master does not think them worth the cost and trouble of a pursuit."

Mr. Fraser's report is full of information and suggestions on education, cottage accommodation, modes of hiring servants, the multiplication of beer-houses, the system of largess and harvest frolics, the preservation of game, and the co-operative system applied to agriculture; and to these, and the topics of the other reports in this valuable Blue Book, we shall draw attention from week to week.

Farm Memoranda.

ESTATES IN GALWAY AND IN MAYO.—I will select four estates, two in the county of Galway and two in the less favoured county of Mayo. The two in Galway are Creggs and Glynsk, now the property of Allan Pollock, Esq., a resident proprietor; and in Mayo, the two extensive estates of Lord Dillon and the Earl of Arran, both generally absentees. I select these, not alone because I have been long and intimately acquainted with them, but also because the late management of the Galway estates has been the greatest possible contrast to the management of the Mayo estates.

I will begin with the Galway estates, which I was professionally engaged to value and report upon about 15 years ago, pending a sale in the Encumbered Estates' Court, just prior to Mr. Pollock's purchase of both. The state of the people on the lands of Creggs I found to be bad enough, but certainly not worse than I had seen on other properties; but when I came to the Glynsk division—the arable land of which is naturally good, and the reclaimed land equally so—the condition, both of the people and of the land, was indescribably wretched. Seeing this I lingered longer than might under other circumstances be necessary for my general inspection, to ascertain the fundamental causes of such a wretched state of things, and I learned from both clergyman and parishioners that such industrial improvements would be carried out, and such an increased rent would be undertaken, as I would advise. Notwithstanding, however, my successful experience in such matters previously, I, on mature consideration, advised my principal to have nothing whatever to do with the property; and Mr. Pollock coming in soon after, purchased the two estates of Glynsk and Creggs, and the agricultural world has since heard much of both. On the latter he effected such improvements as Ireland at least had never before witnessed, but with what pecuniary results to himself the public are not now, I fear, likely to be made acquainted, whilst many political economists believe that the same or even a far less expenditure of capital on smaller farms would have contributed far more to the wealth and strength of the nation. Some even go so far as to say privately, what they would find a great difficulty in proving publicly, that Mr. Pollock's speculative improvements have been to him personally a losing game.

Mr. Pollock's large farms and expensively large homesteads can hardly be productive of such gains as if the manufacturing capabilities of the district had been also utilised. Nor should we now in all probability be hearing, as we do, that Mr. Pollock is advertising to be let four townlands varying in extent, of farms from 600 to 1000 acres, splendidly supplied with farm buildings, and 4000 acres on the Glynsk estate less expensively equipped. Let me now take a turn into Mayo, and give a short notice of the two estates already named there, with which I am more intimately acquainted. Lord Dillon's property in Mayo contains nearly 100,000 acres, and on the whole of this vast range there were not, when I was professionally engaged on it, nor have I any reason to think there are yet, 12 farms that would average 50 acres each, nor 12 ploughs, 12 carts, or 12 horses that an English or intelligent Scotch farmer would call worthy of their names. At that time the only farms that could not be profitably let were a few of the very best parts of the estate. In fact, there was not an estate in England, or perhaps I might add, Great Britain, on which the rents (in all cases fair ones) were more punctually paid. This happy state of things arose from the simple fact of having this estate managed by an agent and his subalterns who knew their respective duties, and had them executed with strict justice to both landlord and tenants. Instead of clearing off the small holders, though in some cases previously all but pauperised by middlemen, till then so common in Ireland, each of them had his farm readjusted and revalued; and for approved improvements by themselves ready money was paid by the agent. Beyond this, although the re-adjusted rents were fully 50 per cent. less than they were under to the middlemen, yet each townland was raised from 25 to 50 per cent. higher in the landlord's rent-roll than they used to stand.

I have now but to add a few words in regard to the Earl of Arran's estate, Mayo. I am led to understand that when his lordship came into the management of this estate, both it and its occupants were in a condition socially as bad as those on the Glynsk estate when I inspected it. When I last saw Lord Arran's property, in adjudicating on the merits of his tenants for prizes offered by his lordship, those tenants were in a state which might well be copied anywhere. How did his lordship, in a few years, some of which were the worst for such purposes, effect these extraordinary reformations? Was it by ejecting tenantry and expending thousands of pounds in clearing and enlarging farms, and building palatial homesteads? Was it by paying the tenants for improving their little holdings, as on Lord Dillon's property? No; it was first in getting rid of harpies that bullied them and robbed them; secondly, in having their farms and rents re-adjusted; and, finally, by giving them practical instruction in the reclamation and culture of their lands, without expending one penny in such improvements beyond the salaries of the two instructors engaged, and the prizes for merit already alluded to.

Now, as Ireland is believed to be on the eve of a social revolution, would it not be well to have the foregoing crudely-expressed facts well studied by your great English capitalists? They are seeking for certainly less profitable investments in other countries. Let them first consider how far such investment could be made in Ireland, and thereby help to strengthen the United Kingdom while benefiting themselves. *Fingal.*

NORTH RIDING OF YORKSHIRE: *Dec.* 30.—The month, now near the close, has been unparalleled for the amount of rainfall and unseasonably mild weather. A sudden change has, however, now taken place, and as we write the snow flakes are flying, and we have a cover of snow about 6 inches in depth.

The weather in one respect has been favourable for stock, inasmuch as on dry porous soils the warmth has induced a growth of Grass, and tended to eke out the short crops of roots; but on the other hand, owing to so much rain, sheep stock have done very indifferently during the month, and this more especially on high-lying situations. Should the storm be a lengthened one, all sorts of fodder will rule high, and the question will be—not how to fatten either sheep or cattle, for few are attempting that, but how to find food to keep them alive.

Catch crops of Rape, &c., of which so much was expected, have, in this district at least, proved a failure. In our own case we had the Oats stooked at wide intervals, and immediately the corn was cut had the stubbles cultivated and sown with Rape, applying 2 cwt. of guano as manure; and although the seed was sown before the 12th of August, the crops have proved meagre in the extreme, and we are of opinion that the same money spent in cake would have proved a much better investment. Some of the Turnip fields where the plants had failed were resown with Greystone Turnips about the same time, but with no better success.

Fat cattle and sheep are now in few hands, and in the course of another month will be very scarce. Best Christmas beef has made from 8*s.* 6*d.* to 10*s.* per 14 lb., and mutton 8*d.* per lb.

All our low lands have been laid under water, and on some of the non-drained and badly drained clay soils the excessive wet has damaged the Wheat plant; but on dry porous soils it looks well. Further experience proves the last Wheat crop to be a full average yield. *W. J. M.*

The Poultry Yard.

THE MANCHESTER POULTRY SHOW.

WE have to report progress, and that successful progress, on a show that, in the face of many apparent difficulties, holds its own right manfully. The long and imposing list of patrons and vice-patrons, and the solid and trusty committee, are alike wanting from the prize list of the Manchester show: "George Jennison, secretary," *et voila tout.*

The eighth Christmas meeting, which closed on the 28th Dec., was characterised by the competition of a collection of birds of unusual merit. Judging from the catalogue, one would imagine that the best birds, both from Birmingham and Liverpool, combined to settle their differences at Bellevue. In the first class for grey Dorking cocks, Admiral Hornby took the first prize, followed by Messrs. Longland and Martin. When such exhibitors as Mrs. Arkwright and Mr. Statter have to content themselves with commendation, every one will know that competition was more than keen. In the class for hens, the same exhibitor won first, Mr. Clarke second, and the Duke of Newcastle third. The barren honours were distributed among exhibitors who are accustomed to better fare. Mr. Statter, of Stand Hall, took first in the class for Dorking cockerels with a very grand bird, one that is likely to be heard of again. Mr. Ryder took the second prize, and Mrs. Arkwright 3d. The competition in Dorking pullets was very keen indeed, the quality of the birds very high, Mrs. Arkwright, Admiral Hornby, and the Hon. H. W. Fitzwilliam took the prizes in the order in which we have placed them. An examination of the birds in this class gave evidence of the great amount of meat put on by the Dorking fowl in proportion to its bone.

Mr. John Martin and his Grace the Duke of Newcastle took 1st and 2d for the rose-combed Dorkings. The class for silver grey Dorking cocks did not bring out one adult bird—at least no bird was entered in the catalogue as over one year. This colour class for Dorkings is not a satisfactory one to those who regard these birds with agriculturists' eyes. Uniformity of feather is very pretty, and in some breeds necessary, but in the Dorking it is nearly always obtained by the sacrifice of some quality more valuable. Mr. Smalley was the winner for cocks, and Mr. Raines for pullets, in the silver grey classes at Manchester.

The class for white Dorkings was a failure, but the winner, Mr. Lingwood, is a breeder, to whom success at poultry shows is an everyday occurrence, and the result would very possibly have been the same had the competition been great.

We have no breed of fowls in which the marked success of certain strains is so fully exemplified and marked as in the Spanish. We see exhibitors rise to eminence, achieve success, and the strain at once becomes sought after as one from which to breed for show or sale. There were 60 pens of these favourite fowls at Bellevue, and among the principal prize-takers were the Hon. Miss Douglas Pennant, Messrs. Teebay, Thresh, Comber, Heath, &c.

In the class for buff Cochin cocks, Mr. W. A. Taylor was successful with a very handsome bird; Messrs. Mapplebeck and White taking 2d and 3d. For hens Mr. Julius Sichet took 1st, Mr. Mapplebeck taking 2d and 3d, and also 1st for pullets.

No one will be surprised to read that Mr. Tudman was 1st both with cock and hens in the classes for the dark-coloured birds; Mr. J. A. Taylor winning for pullets. The show of white Cochins was, as usual, very poor in number; but here, as at Birmingham, the quality of the birds was very fine. The 1st prize bird of Mr. Smalley pleased all, and to the same exhibitor went both 1st and 2d in the class for hens and pullets.

Mr. Julius Sichet may be well proud of winning 1st in such a class of Brahma cocks (dark), Mr. W. Hargreaves and the Rev. E. Alder taking 2d and 3d; Mr. Lingwood, Messrs. Pomfret and Hargreaves, being the winners for hens and pullets.

The light Brahmas are working hard for distinction, and find many supporters, but we do not think they can distance the pencilled birds. Mr. Henry Lacy took both firsts, Mr. John Pares 2d and 3d, and Mr. Dowsett also two prizes.

The Polish fowls were all exhibited in two classes; and, we think, wisely. No doubt the exhibitors will complain, but the breed loses rather than makes way, and really has but little to recommend it. It must have been hard for Mr. Atkins' birds to find themselves anywhere but first; but so was it; Mr. Nichols winning for a cock bird, and Mr. Senior for hens.

The Crèvecœurs were excellent, the prizes going to names well known at all our principal shows as exhibitors of French produce—Messrs. Blenkhorn, Cooper, Fitzwilliam, and Colonel Wortley winning.

Mr. Julius Sichet took 1st for Houdans, and Mr. J. C. Cooper for La Flèche.

Mr. W. C. Brierly won 1st with a black-breasted red game cock, that was much admired, Mr. Boney taking

2d; Mr. Richardson 1st, Mr. Aykroyd 2d, for adult hens; Mr. Challoner 1st for cockerels, Mr. Poole for pullets.

Everyone will be prepared to read that Mr. James Wood was successful with brown-red game cocks. Mr. Brierly won 1st for hens, and 1st for a young cock, also 1st for pullets.

For duckwing game, Mr. Aykroyd for cocks, and Mr. Briggs for hens; Miss Sadler and Mr. John Halsall for cockerel and pullet.

Mr. Brierly was again a winner in the last class for game cocks.

The classes of Rouen drakes and ducks were well worth seeing, and gave great satisfaction as well as much hard work to the judges, as nearly every pen was noticed. Mr. Statter was first with a giant drake, and Mr. Burn with two ducks of unusual merit.

The Aylesburys were few, but the quality of them will be apparent when we say that Mrs. Seamans was beaten.

A large and interesting class of waterfowl was very attractive to all visitors: Mr. Ley winning first for Mandarins; Mr. John Jennison, 2nd and 3rd for Pintails and Carolinas.

The turkeys, geese, and pigeons must receive notice next week.

G E O. The occurrence of deeper colour and strong flavour in duck eggs is not unusual, and many causes have been assigned. Generally it is traced to some part of the diet, and we have known one or two cases where, the birds having fed very foully, the eggs were so strong as to be uneatable. We should recommend in this case that the ducks be penned off for a few days, and restricted in food to plain corn and meal.

Miscellaneous.

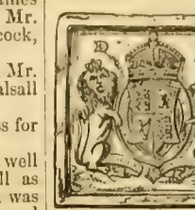
The Royal Agricultural College, Cirencester.—"My own habits of thought and action induced me to give the fullest consideration I was able to the internal discipline and general arrangements of the college. After fourteen years' experience of agricultural education at Glasnevin, it was natural that the college arrangements should interest me. I was anxious to study the system pursued here, not only for its own sake, but for the purpose of assisting my judgment whenever my employers should think fit to consult me regarding the Glasnevin establishment. Under these circumstances, I have no hesitation in expressing my conviction of what a student *may* do at the college. I say advisedly what a student *may* do, because you can judge an institution of this kind fairly *only* by its attentive and assiduous students. It is unfair to the Royal Agricultural College to judge it by the careless and inattentive student. Every man of experience knows there are some men whom you cannot by possibility induce to study. So it must have been, and so it must continue to be, at Cirencester. But a student who is bent on acquiring a thorough knowledge of his profession, who is determined to use his best effort to gain a good position amongst his brother farmers, who has a laudable amount of ambition to excel, who, in short, is anxious to use such abilities as the Almighty has endowed him with for his own advantage, could spend a couple of years at this college more profitably than at any place of which I have any knowledge. Apart from the scientific knowledge to be acquired at Cirencester, and the invigorating influence exerted by its class-discipline on the mind, the students acquire thus a vast amount of practical agricultural knowledge. I am unwilling to mention individual students by name, as I might omit others of equal merit, but I may add that I was invited to examine several for the coellge diploma in November last. I examined them on the farm for several weeks, and I had an opportunity of testing their knowledge of farming acquired in the college class-rooms and on the farm. It is due to the college, and to those by whom they were instructed, to state that I have never met with young men who, during the time, had acquired so large a mass of scientific and practical agricultural knowledge. I do not believe it possible that they could, in the same time, have stored their minds with the same amount of knowledge of principles and practical details on the farm of any private individual. In making this remark I have no desire to undervalue the private farm as a school for practical instruction. Some of the students at the college struck me as possessing a better knowledge of the theory and practice of modern farming than many men of their age I ever met with. They will never regret the time they spent at the college; and the time will come when students of their stamp will take their place in the current of agricultural progress, and be living witnesses of the value of a sound agricultural education. It only remains for me to express a hope that the college will prosper, and fully realize the aspirations of its founders." *T. Baldwin, Director of the National Schools of Agriculture in Ireland. (Journal of the Royal Agricultural Society.)*

Notices to Correspondents.

POROSITY OF SOILS: *A.* Experiment has proved that 100 lbs. of a dry sand in a bag will take up and hold 25 lbs. of water before it begins to drip—that 100 lbs. of loam will in like manner take up about 40 lbs. of water, and that 100 lbs. of pure dry clay will take up 70 lbs. of water in the same way. That shows whether soils become more or less porous as they become stiffer and more clayey.

WHAT ARE HAYDES? *T H.* says:—In J. Mordant's "Complete Steward," 2 vols. 8vo, 1761, at p. 421, vol. i., there is given a terrier of an open field manor farm of 529½ acres, in which the lands are described as "Ten ridges lying together, with haydes at both ends," &c. "Six ridges together, with haydes at the south end only." "Two ridges together, without haydes," &c. There are 41 pieces of arable land with haydes, and 21 pieces without haydes; the greensward, ley, and meadow lands are described without this word "haydes." Will you, Mr. Editor, kindly inform me what "haydes" are, as I have searched Somner, Spelman, Skinner, Cowell, and C. Johnson for the word, in vain?

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SIBERIAN ARBOR-VITÆ, 2 to 2½ feet, 40*s.* per 100; 2½ to 3 feet, 50*s.* per 100; 3 to 3½ feet, 75*s.* per 100; 3½ to 4 feet, 100*s.* per 100.
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Arbor-vitæ, American, 5 to 6 feet
" aurea, 12 to 16 inches
" Lobbii, 2 to 3 feet
" Siberian (Ware's), 3 to 3½ feet
Aucuba japonica, 18 to 21 inches
Berberis Darwinii, 1 to 1½ foot
" Jamiesonii, 12 to 15 inches
Cupressus Lawsoniana, 3 to 4 feet
Hemlock Spruce, 3 to 4 feet
Hartogia capensis, 1 to 1½ foot
Juniperus chinensis, 1½ to 2 feet
Mahonia japonica, 9 to 12 inches
Norway Spruce, extra fine, 3½ to 4 feet
Phillyrea oleafolia, 2 to 2½ feet
Picea balsamea, 4 to 6 feet
Portugal Laurel, 2½ to 3 feet
Pyracantha, scarlet berried, 1 to 1½ foot
Pinus Laricio, 3 to 4 feet [2 feet.
Rhododendron ponticum, 1½ to
Taxus japonica, 15 to 18 inches
Thujopsis borealis, 2 to 2½ feet
Thuja plicata, 2 to 3 feet

At 18*s.* per dozen:—
Abies inverta, 1½ to 2 feet
" Douglasii, 2 to 2½ feet
" Menziesii, 4 to 5 feet
Arbor-vitæ, American, 6 to 7 feet
" compacta, 1½ to 2 feet
" Lobbii, 3 to 4 feet
" Siberian (Ware's), 3½ to 4 feet
Aucuba japonica, 2 feet
Berberis Darwinii, 1½ to 2 feet
" Jamiesonii, 15 to 18 inches
Cedrus argentea, 2 to 2½ feet
Cryptomeria Lobbii, 5 to 6 feet
" viridis, 5 to 6 feet
Cupressus fragrans, 3 to 4 feet
" Lawsoniana, 4 to 4½ feet
Hartogia capensis, 1½ to 2 feet
Hemlock Spruce, 4 to 5 feet
Ivy, green, tree, 1½ to 2 feet
" new silver-striped, tree, 15 to 18 inches [15 inches
" tricolor variegata, tree, 12 to
Juniperus chinensis, 2½ to 3 feet
" Lee ana, 2 to 2½ feet
" Schottii, 2 to 2½ feet
" thurifera, 1½ to 2 feet
" glauca, 1½ to 2 feet
" drupacea, 15 to 18 inches
" viridis pendula, 2 to 3 feet
Laurel, Colchic, 5 to 6 feet
" Portugal, 3 to 3½ feet
Mahonia japonica, 12 to 15 inches
Pinus austriaca, 3 to 4 feet
" Laricio, 4 to 5 feet
Phillyrea oleafolia, 2½ to 3 feet
Rhododendron ponticum, 2 to 2½ feet
Taxus elegantissima, 15 to 18 ins.
" gold-striped, 15 to 18 inches
Thujopsis borealis, 2½ to 3 feet
Thuja plicata, 3 to 4 feet
" incurvata, 3 to 4 feet [ins.
Wellingtonia gigantea, 15 to 18

At 30*s.* per dozen:—
Abies elegans, 2 to 2½ feet
" inverta, 2½ to 3 feet
" Menziesii, 6 feet
" orientalis, 2 to 2½ feet
Arbor-vitæ, American, 7 to 8 feet
" compacta, 2 to 3 feet
" Lobbii, 5 to 6 feet
" Siberian, 4 to 5 feet
Arbutus unedo, 2½ to 3 feet
Box, tree, 2½ feet by 2½ to 3 feet
Cedrus argentea, 3 to 4 feet
Cupressus Lawsoniana, 4½ to 5 ft.
" fragrans, 4 to 5 feet
" McNabiana, 3 to 4 feet
Garrya elliptica, 2 to 2½ feet
Hemlock Spruce, 5 to 6 feet
Irish Yews, 5 to 6 feet
Juniperus chinensis, 3 to 3½ feet
" fragrans, 2 to 2½ feet
" glauca, 3 to 3½ feet
" Leeana, 2½ to 3 feet
" Schottii, 3 to 3½ feet
" thurifera, 3 to 4 feet
" virginiana, 5 to 6 feet
" viridis pendula, 3 to 4 feet
Laurel, Colchic, 7 to 8 feet
Pinus austriaca, 4 to 5 feet
" Laricio, 5 to 6 feet
Taxus elegantissima, 1½ to 2 feet
Thujopsis borealis, 4 to 4½ feet
Thuja incurvata, 4 to 5 feet
Wellingtonia gigantea, 2½ feet

At 42*s.* per dozen:—
Abies Albertiana, 3½ to 4 feet
" inverta, 3 to 4 feet
" orientalis, 2½ to 3 feet
" pyramidalis, 4 to 5 feet
Arbor-vitæ, American, 8 to 9 feet
" aurea, 2 to 2½ feet
" compacta, 3 to 3½ feet
" japonica, 2½ to 3 feet
" Siberian, 5 to 6 feet
Cedrus argentea, 4 to 5 feet
Cupressus fragrans, 5 to 6 feet
" Lawsoniana, 5 to 6 feet
Hemlock Spruce, 6 to 7 feet
Irish Yews, 6 to 7 feet
Juniperus chinensis, 3½ to 4 feet
" densata, 4 to 5 feet
Juniperus glauca, 4 to 5 feet
" Leeana, 3 to 4 feet
" Smithiana, 3 to 4 feet
" thurifera, 5 to 6 feet
" virginiana, 6 to 7 feet
" viridis pendula, 4 to 5 feet
Laurel, Colchic, 8 to 10 feet
Pinus, Cembra, 5 to 6 feet
" Laricio, 6 to 7 feet
Quercus austriaca sempervirens, 3 to 3½ feet
" Fordii, 3 to 3½ feet
Thujopsis borealis, 5 to 6 feet
Thuja Lobbii, 6 to 7 feet
Wellingtonia gigantea, 3 to 4 feet

At 60*s.* per dozen:—
Abies Albertiana, 4 to 5 feet
" inverta, 6 to 7 feet
" orientalis, 3½ to 4 feet
" pyramidalis, 5 to 6 feet
Arbor-vitæ aurea, 2½ feet
" compacta, 3½ to 4 feet
" gigantea, 4 to 4½ feet
" japonica, 3½ to 4 feet [ins.
Cephalotaxus Fortunei, 21 to 24
Juniperus chinensis, 4 to 5 feet
" thurifera, 6 to 7 feet
Pinus Cembra, 6 to 7 feet
Quercus austriaca sempervirens, 3½ to 4 feet
" Fordii, 3½ to 4 feet
Thujopsis borealis, 6 to 7 feet
Wellingtonia gigantea, 4 to 5 feet

Each:—
Abies Albertiana, 6 to 7 ft., 7*s.* 6*d.*
" " 7 to 8 feet, 10*s.* 6*d.*
" Douglasii, 8 to 10 ft., 7*s.* 6*d.*; 84*s.* per dozen
" " 10 to 12 feet, 10*s.* 6*d.*; 100*s.* per dozen
" Menziesii, 7 to 8 feet, 5*s.*
" " 8 to 10 feet, 7*s.* 6*d.*
" orientalis, 5 to 6 ft., 10*s.* 6*d.*; 100*s.* per dozen
Araucaria imbricata, 5 to 6 ft., 21*s.*
" " 6 to 7 feet, 42*s.*
" " 7 to 8 feet, 63*s.*
" " 8 to 10 feet, 105*s.*
Arbor-vitæ japonica, 4 to 4½ feet,
" " 4½ to 5 ft., 10*s* 6*d.* [7*s.* 6*d.*
Picea grandis, 4 to 5 feet, 15*s.*
Picea grandis, 5 to 6 feet, 21*s.*
" nobilis, 3 to 3½ feet, 31*s.* 6*d.*; 300*s.* per dozen
" " 3½ to 4 feet, 42*s.*
" " 4 to 4½ feet, 51*s.* 6*d.*
" " 4½ to 5 feet, 63*s.*
" Nordmanniana, 4 to 5 ft., 21*s.*
" " 5 to 6 feet, 31*s.* 6*d.*
" " 6 to 7 feet, 42*s.*
" " 7 to 8 feet, 50*s.*
" Pinsapo, 3 to 3½ feet, 10*s.* 6*d.*
" " 3½ to 4 feet, 15*s.*
" " 4 to 5 feet, 21*s.* to 31*s.* 6*d.*
Pinus Cembra, 7 to 8 feet, 7*s.* 6*d.*
Yews, for hedges, about 12 feet high, 45 years old, recently transplanted, 31*s.* 6*d.*

RICHARD SMITH,
NURSERYMAN AND SEED MERCHANT, WORCESTER.

Forest Trees, Evergreens, &c.

CHIVAS AND WEAVER have much pleasure in drawing the attention of Planters during the ensuing season to their very large stock of the above, grown with the greatest care, and regularly transplanted. The situation of their Nurseries being particularly exposed, renders the safe removal of plants to any part of the Kingdom almost a certainty.
SPECIAL PRICED LISTS (with terms of free delivery), on application. Large purchasers most liberally dealt with.
Eaton Road Nurseries, Chester.

To the Trade.

WANTED, LARCH, 1 to 3 feet; SPANISH CHESTNUT, 3 to 4 feet.
Apply, stating price, quantity, and size, to THOS. BUNYARD & SONS, Nurserymen, &c., Maidstone.
We offer in our TRADE LIST (which may be had on application) fine Standard, New Cluster, Prune, and Cheshire Damsons; dwarf-trained Morello and Mayduke Cherries, Kent Cobs and Filberts, Standard-trained Pears, extra fine Peaches, Nectarines, &c., &c.: fine Arbutus, Berberis Bealii, double Furze, Juniperus sinensis, Thuja aurea, gigantea, japonica, splendid Biota elegantissima, Forest Trees and General Nursery Stock, Climbers, and Ceanothus azurea.

Autumn Planting.
ORNAMENTAL TREES AND SHRUBS.

PETER LAWSON AND SON have an immense stock (extending over many acres) of the leading varieties of HARDY ORNAMENTAL TREES and SHRUBS, of such sizes as are most suitable for immediate effect, which they offer at moderate prices; and purchasers of large quantities will be very liberally dealt with.
PETER LAWSON & SON, after much experience of Autumn Planting, are fully satisfied of the beneficial results arising from it, and would respectfully bring under the notice of their Customers the desirability of early operations during the present favourable season.
Edinburgh and London.

For Lawn and Cover Planting.

BERBERIS DARWENI.—Too much cannot be said of this fine Evergreen species. It is hardy, and the profusion of its orange-coloured Blossoms, together with the quantity of Berries which it bears (of which pheasants are very fond), render it one of the most attractive and desirable Plants for Lawn as well as Cover Planting ever introduced.
Price:—9 in. to 12 in., per 100, 7*s.* 6*d.*; per 1000, 60*s.*; 18 in. to 2 ft. 6 in., per 100, 20*s.*; 12 in. to 18 in., per 100, 10*s.* to 15*s.*; 2 ft. 6 in. to 3 ft. 6 in., very bushy, each, 1*s.* 6*d.* to 2*s.* 6*d.*

COTONEASTER SIMMONSII.—This is a beautiful Hardy Evergreen Shrub, with glossy dark green leaves, and bearing a large quantity of Scarlet Berries, which ripen later than the Berberis Darweni, and will hang all winter.
Price:—18 in. to 2 ft., per 100, 20*s.*; 3 ft. to 4 ft., per 100, 45*s.*; 2 ft. to 2 ft. 6 in., per 100, 30*s.*
DESCRIPTIVE CATALOGUE post free, on application.
WILLIAM BARRON & SON, Elvaston Nurseries, Borowash, near Derby.

Wandsworth Common Nursery.
Ten minutes' walk from Clapham Junction.

MR. ROBERT NEAL begs to invite the attention of the Nobility, Gentry, and the Trade in general to his very extensive and healthy stock of PLANTS, consisting of a large collection of Standard, Pyramidal, and Dwarf-trained FRUIT TREES, of all sizes; Standard and Dwarf ROSES, Coniferous and other Evergreens, Forest and Ornamental Trees and Shrubs; also a large collection of Rhododendrons, all the very best in cultivation, and are of endless variety, from deep crimson and dark purple (every shade) up to white, and hybrid seedlings, and all the leading kinds of scarlet, both standard and dwarf, set with bloom buds, which he can supply in large quantities at a very low price.
CATALOGUE will be sent on application.

The American Nursery, Bagshot, Surrey.

JOHN WATERER respectfully invites the attention of Gentlemen and others engaged in planting to the undernamed selections from his general stock. He has much satisfaction in recommending them as being symmetrically grown and really of first-rate excellence, and from frequency in removal are in an excellent state for transplanting. Having a very large stock, he is determined to treat on most liberal terms. He would, however, earnestly invite Purchasers to make a visit and choose for themselves, which is easily accomplished by South-Western Railway (Reading Branch) to Sunningdale Station, which is near the Nursery.
RHODODENDRONS (Standards)—Of all the leading choice, scarlet, and other varieties, 3 to 4 feet stems, consisting of such as Alexander Adie, Michael Waterer, The Warrior, Princess Mary of Cambridge, Quadroona, Mrs. Ino Penn, Joseph Whitworth, and all such others as have been exhibited annually at the Royal Botanic Gardens, Regent's Park.
RHODODENDRONS (Half Standards)—Of all the approved kinds; 2 to 3 feet stems.
RHODODENDRONS.—Hardy scarlet, crimson rose, white; for superior clumps or borders fine well-grown plants. An excellent assortment would be supplied at £15 per 100. Fine bushy plants can also be supplied, averaging 3 to 5 feet.
RHODODENDRONS.—Immense quantities of really good coloured seedlings, with Catawbiense and Hybrid Catawbiense, 1½ to 2 and 3 feet, £10 to £12 10*s.* per 100. These varieties are very suitable for admixture with the better kinds. The plants are bushy, and mostly well set with blooming buds, and from rose to white in colour.
RHODODENDRONS (Dwarf-growing kinds).—These are very close growing varieties, and are recommended for filling winter beds. Daphnoides, Myrtifolium, and Hybridum are the best suited for such purposes. Odoratum is delightfully scented, and much used for potting and forcing.
RHODODENDRON PONTICUM.—This kind is the most common, and now generally admitted to form the best permanent cover for game. In the most severe weather it is never injured by hares or rabbits. Good plants, 21*s.* to 30*s.* per 100.
AZALEAS, HARDY, of the most popular kinds, of all colours, and in fine plants, covered with a profusion of blooming buds. These are much used for forcing. 18*s.* to 30*s.* per dozen.
ANDROMEDA FLORIBUNDA.—One of the most hardy plants used for decorating winter clumps. Of these we are large holders, and can supply beautiful specimens at 30*s.* per dozen, covered with blooming buds.
KALMIA LATIFOLIA and MYRTIFOLIA.—Fine grown plants, of all sizes.
HARDY HEATHS.—A very fine collection, in 20 kinds, 30*s.* p. 100.
ABIES NORDMANNIANA.—Of this fine kind we are very large holders, all of which are seedlings, and of all heights, from 2 to 4 to 6 to 8 and 10 feet.
ABIES MAGNIFICA.—Fine specimens, 2 to 5 feet.
ABIES NOBILIS.—All seedlings, 1½ to 3 to 5 feet.
ABIES LASIOCARPA.—From 2 to 3 to 5 to 7 feet.
ABIES GRANDIS (of Douglas).—Fine specimens, 2 to 6 feet.
ABIES DOUGLASII.—3 to 4 to 6 to 10 feet.
ABIES PINSAPO.—2 to 3 to 5 to 10 feet.
ARAUCARIA IMBRICATA.—Fine specimen, 2 to 4 to 6 to 12 feet
THUJOPSIS BOREALIS.—2 to 3 to 4 to 6 feet.
THUJA AUREA.—All sizes, 2 to 4 to 5 feet, perfect globes.
THUJA GIGANTEA.—Immense quantities, from 3 to 4 to 6 feet.
WELLINGTONIA GIGANTEA.—Of all sizes from 2 to 12 feet.
IRISH YEW.—Selected specimens, 4 to 12 feet.
HOLLIES (Green).—Fine, 2 to 3 to 4 to 6 feet.
HOLLIES (Gold and Silver).—In the most approved kinds, of all sizes.
STANDARD GOLDEN HOLLY (WATERER'S).—The best for standards; fine plants.
STANDARD WEEPING HOLLIES (Green and Variegated).
We have likewise immense quantities of the leading kinds of EVERGREENS, of all sizes, such as Yews, Box, Bays, Aucubas, Arbutus, Phillyreas, Common and Portugal Laurels, &c., as well as fine strong transplanted FOREST TREES, 2 to 3 and 4 feet, consisting of Ash, Beech, Alder, Spanish Chestnut, Hazel, Withy, Larch, Spruce, Pinus austriaca, &c.
CATALOGUES describing the colours of all the RHODODENDRONS worthy of cultivation, with a LIST of CONIFEROUS PLANTS, with heights and prices, forwarded to all applicants.
☞ Purchasers of large quantities of goods are informed that the great expense incurred by package is now greatly diminished, as we can forward from Sunningdale, in through trucks without change, to all Stations on the Great Northern, North-Western, Eastern Counties, and Great Western (narrow gauge) Railways; also by South-Eastern and Brighton Lines by way of Blackwater.
The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway, and Blackwater Station, South-Eastern Railway, where excellent Conveyances await all Trains.

LAWES' WHEAT MANURE for AUTUMN SOWING, NOW READY for DELIVERY.—All other Manures and Cakes as per Price List, supplied on the lowest terms. Apply for Prices, &c., to JOHN BENNET LAWES, 1, Adelaide Place, London, E.C.; Dublin, and Shrewsbury.

J. B. LAWES, of 1, Adelaide Place, London Bridge, begs to give NOTICE that he has REMOVED his business to 59, MARK LANE, Ground Floor.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)
Have now ready for delivery in fine condition,
CORN MANURE, for Spring Use.
DISSOLVED BONES, for Dressing Pasture Lands.
SUPERPHOSPHATES of LIME.
PREPARED GUANO.
MANGEL and POTATO MANURES.
Also Genuine PERUVIAN GUANO, and NITRATE of SODA ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c. E. PURSER, Secretary.
Offices, 116, Fenchurch Street, E.C.

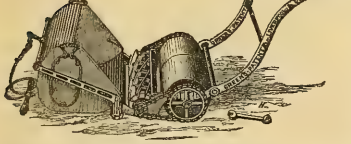
ROLL TOBACCO PAPER, finest quality, equal in strength to Tobacco, 1s. per lb.; cheaper in quantities. SAML. MAY, Seed Merchant, 180, Wade Lane, Leeds.



GISHURST COMPOUND.
One of the oldest and best remedies against
BLIGHT and MILDEW.
Sold by the Trade in Boxes, 1s., 3s., and 10s. 6d. each.
Wholesale by PRICE'S PATENT CANDLE COMPANY, Limited, Battersea, London, S.W.

THE TANNED LEATHER COMPANY.
Armit Works, Greenfield, near Manchester.
TANNERS, CURRIERS, and MANUFACTURERS of IMPROVED TANNED LEATHER DRIVING STRAPS for MACHINERY
PRIME STRAP and SOLE BUTTS.
Price Lists sent free by post.
Warehouse: 81, Mark Lane, London, E.C.

Green's Patent Noiseless Lawn Mowers.
GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every prize that has been given in all cases of competition, and in proof of their superiority upwards of 44,000 have been sold since the year 1856.
They are the simplest in construction, least liable to get out of order, and can be worked with far greater ease than any other Lawn Mower extant.
They are the only Machines in constant use at
Buckingham Palace Gardens
Marlborough House Gardens
Royal Horticultural Society, South Kensington
The Royal Botanic Gardens, Regent's Park
The Crystal Palace Company's Gardens, Sydenham
The Hyde Park Gardens
The Winter Palace Gardens, Dublin
The Dublin Botanic Gardens
The Liverpool Botanic Gardens
The Leeds Royal Park
The Hull Botanic Gardens
The Botanic Gardens, Brussels
The Sunderland Park
The Preston Park
And in most of the principal Parks and Squares in the United Kingdom.



Every Machine is warranted to give entire satisfaction, and if not approved of can be returned at once unconditionally.
Illustrated Price Lists on application, which include Free Delivery to all the principal Railway Stations and Shipping Ports in England. All Orders executed on the day they are received.
T. G. & Son have ten times more Lawn Mowers in Stock at their Establishment, 54 and 55, Blackfriars Road, S., than any other firm in London, that intending Purchasers can select from.
Having very extensive premises in London, we are in a position to do all kinds of repairs there as well as at the Works at Leeds.
THOMAS GREEN & SON, Smithfield Iron Works, Leeds; and 54 and 55, Blackfriars Road, London, S.

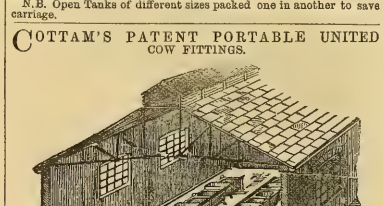
Indestructible Terra-Cotta Plant Markers.
MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c. MAW & Co., Benthall Works, Broseley.

"Every Cottage should be provided with a Water Tank." *Disraeli.*
Iron Cisterns.
F. BRABY AND CO. having laid down more extensive and Improved Machinery on their Deptford premises (IDA WHARF), are prepared to supply WROUGHT-IRON TANKS, GALVANISED or PAINTED, of superior quality, at reduced prices, and at very short notice.



An Illustrated Price List of Galvanised Iron, and other of BRABY'S special Manufactures, sent on application.
F. BRABY & Co., Limited, FITZROY Works, Euston Road, London; or through all respectable Ironmongers.
N.B. Open Tanks of different sizes packed one in another to save carriage.

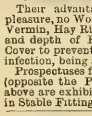
COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rick dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of Iron. Prices of Fittings per Cow, 55s.
Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.



GARDEN BORDER EDGING TILES, in great variety of patterns and materials, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.
F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price List free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also TESSELATED PAVEMENTS of more enriched designs than the above.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability. Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cement, &c.
To be obtained of F. & G. ROSHER, at their premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.
FLINTS, BRICK BURRS or CLINKERS for Rockeries or Grotto Work. F. & G. ROSHER.—Addresses see above.
N.B. Orders promptly executed by Railway.

Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the name SAYNOR, also the Corporate Mark, OBTAIN WARRANTED, without which none are genuine.
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.
S. & C.'s PRUNING and BUDDING KNIVES are the best and the cheapest in the market.
Paxton Works, Sheffield. Established upwards of 125 years.

Horticultural Glass Warehouse.
THOMAS MILLINGTON AND CO., 87, Bishopsgate Street Without, London, E.C.
NEW LIST for ORCHARD-HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.
ORCHARD-HOUSE SIZES.

in.	in.		4ths.	3rds.	2nds.	Best.
20 by 12						
20 by 13		15 oz.	14s 3d	16s 6d	18s 6d	20s 0d
20 by 14	Per 100 feet					
20 by 15		21 oz.	19s 6d	22s 2d	25s 6d	26s 6d
20 by 16						

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7	12s 3d	13s 3d	16s 0d	18s 0d
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½				

Per 100 feet.

10 by 8	12 by 9	12½ by 10½	14½ by 10½	13s 3d	14s 6d	17s 3d	19s 0d
10½ by 8½	12½ by 9½	13 by 10	15 by 10				
11 by 9	13 by 9	13½ by 10½	13 by 11				
11½ by 9½	12 by 10	14 by 10	14 by 11				

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best
15½ by 10½	14 by 12	22 by 12	22 by 16					
16 by 10	14½ by 12½	17 by 13	24 by 16					
14½ by 11½	15 by 12	23 by 13	20 by 17					
15 by 11	15½ by 12½	18 by 14	22 by 17					
15½ by 11½	16 by 12	22 by 14	24 by 17	14s 3d	15s 6d	18s 6d	20s 0d
16 by 11	16½ by 12½	24 by 14	20 by 18					
21 by 11	17 by 12	22 by 15	22 by 18					
13 by 12	18 by 12	24 by 15	24 by 18					

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.
SHEET GLASS.
In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	36s.	4ths quality, per 200 feet case,	36s.
3ds " "	42s.	3ds " "	42s.
2ds " "	60s.	2ds " "	60s
Best " "	75s.	Best " "	75s.

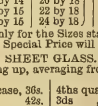
SHEET GLASS is made only in the following substances, 15 oz., 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.
HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.
BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.
PAINTS, COLOURS, VARNISHES, &c.
STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.
WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a-half of White Lead and six gallons of Linseed Oil. Especial Dryers for this Paint.
IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4s. per gallon.

	Per cwt.—s. d.		Per gallon.—s. d.
GENUINE WHITE LEAD	30 0	LINSEED OIL	2 10
SECONDS WHITE LEAD	28 0	BOILED OIL	3 2
GROUND PATENT DRYERS, 3d. to 4½d. per lb.		TURPENTINE	2 7
" OXFORD OCHRE, 3d. to 4½d. per lb.		LINSEED OIL PUTTY, 8s. per cwt.	
" RAW UMBER, 4½d. to 6d. per lb.		FINE OAK VARNISH, 10s. to 12	0
" BURNT do., 6d. to 9d.		" CARRIAGE do., 12s. to 14	0
GREEN PAINT, all shades,	28s. to 60 0	" PALE do. 10s. to 12	0
BLACK PAINT,	24s. to 36 0	" COPAL	16 0
RED PAINT	28s. to 36 0	KNOTTING	10 0
		Patent GOLD SIZE	10 0
		" BLACK JAPAN	12 0
		GLAZIER'S DIAMONDS and TOOLS	
		MILLED LEAD and PIPES	
GROUND BRUSHES.		OLD LEAD Bought or taken in	
DUSTERS. SASH TOOLS.		exchange.	
DISTEMPER BRUSHES.			

The above are Net, for Cash, and as such cannot be booked.
Lists of any of the above on application

Glass for Garden Purposes.
JAMES PHILLIPS AND CO. beg to submit their REDUCED PRICES as follows:—

PROPAGATING GLASSES.



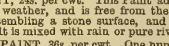
	Each.—s. d.		Each.—s. d.
2 inches in diameter	0 3½	12 inches in diameter	1 9
3 " "	0 4½	13 " "	2 0½
4 " "	0 5½	14 " "	2 6
5 " "	0 6½	15 " "	3 0
6 " "	0 8	16 " "	3 6
7 " "	0 10	17 " "	4 0
8 " "	1 0	18 " "	5 0
9 " "	1 2	19 " "	6 0
10 " "	1 4	20 " "	7 0
11 " "	1 6		

BEE GLASSES, with ventilating hole through knob.

4 inches in diameter	0s. 6d.	9 inches in diameter	1s. 8d.
6 " "	0 8	10 " "	2 0
6 " "	0 10	11 " "	2 6
7 " "	1 1	12 " "	3 0
8 " "	1 4		

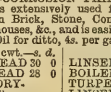
Either flat or conical tops.

CUCUMBER GLASSES.



24 inches long	2s. 0d.	16 inches long	1s. 4d.
22 "	1 10	14 "	1 2
20 "	1 8	12 "	2 6
18 "	1 6		

HAND GLASSES, WITH OPEN TOPS.



	Each.—s. d.		Each.—s. d.
12 inches	6 6	18 inches	9 0
14 "	7 6	20 "	10 6
16 "	8 6	22 "	11 6
		24 "	12 6

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours ground ready for use.
SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of prices and estimates forwarded on application to
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JOHN BENNET LAWES,
CHEMICAL MANURE MANUFACTURER AND SEED MERCHANT,
MARKET STREET, SHREWSBURY; LONDON AND DUBLIN.

LAWES' MANURES were the first Chemical Artificial Manures manufactured and introduced, and have now been used for 28 years with great success. A large supply for the coming season is now ready for delivery at the Factories, or from Agents in all parts of the Kingdom.
LAWES' PATENT TURNIP MANURE, DISSOLVED BONES, LAWES' SUPERPHOSPHATE of LIME, LAWES' WHEAT, BARLEY, GRASS, and MANGEL MANURES, PERUVIAN GUANO, NITRATE of SODA, &c.; LINSEED CAKE, and other FEEDING STUFFS.
JOHN THOMAS, MANAGER, Manure Department.

AGRICULTURAL SEEDS.
From the increasing demand, and with a view to its further extension, the Seed Department has been placed under a separate Manager, and will now be carried on by MR. GEORGE RUTHERFORD, who has been for many years in the Seed Trade, both in England and Ireland, and being thoroughly acquainted with the best Home and Foreign Markets, will be able to secure supplies from the most reliable sources.
A supply of all kinds of AGRICULTURAL SEEDS will be kept in stock, comprising CLOVERS, ITALIAN and PERENNIAL RYE-GRASS, NATURAL GRASSES for Permanent Pasture, TURNIP, MANGEL, CARROT, &c.
A CATALOGUE will be issued in February, and forwarded on application.
FREE DELIVERY.—All Orders for Seeds amounting to £2 value (Grain, Vetches, &c., excepted) will be delivered Carriage Free to any Railway Station or Canal Wharf.
GEORGE RUTHERFORD, MANAGER, Seed Department.

MARKET STREET, SHREWSBURY.—Dec. 30, 1868.

HOTHOUSES for the MILLION, CHEAP, SUBSTANTIAL, and EASILY FIXED.
INVENTED AND PATENTED BY THE LATE SIR JOSEPH PAXTON.
Illustrated Circulars, with full particulars, sizes, and prices free on application to
BEREMAN & MORTON, 7, Pall Mall East, London, S.W.

HOT-WATER APPARATUS of every description, fixed complete in any part of the country, for Warming Greenhouses, Conservatories, Forcing Pits, &c.
Plans and Estimates on application.
J. JONES & SONS, 6, Bankside, Southwark, London, S.E.

Heating Apparatus.

J. MEREDITH continues to supply and fix HOT-WATER APPARATUS in VINERIES, and every description of HOTHOUSE BUILDINGS, &c.
The Vineyard, Garston, near Liverpool.

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ACCURATELY REGISTER the EXTREMES of HEAT and COLD. Etched Stems on Porcelain Scales. Simple, cheap, and efficient. Maximum, 10s. 6d. Minimum, 10s. 6d. Packed for Rail, 11s. 6d. each, or 21s. the pair. To be had only of
W. & J. BURROW, Malvern.
Verification from Kew Observatory given with each.

HOT-WATER PIPES, BOILERS, &c., &c., delivered in London, Liverpool, Bristol, or equivalent.
Large stock kept at the Works.

	2-inch.	3-inch.	3½-inch.	4-inch.
	s. d.	s. d.	s. d.	s. d.
HOT-WATER PIPES—per yard	0 11	1 5	1 8½	1 11
ELBOWS .. .. .. each	1 4	2 1	2 6	2 9
TEES .. .. .. ,,	2 0	3 0	3 6	4 0
SYPHONS .. .. .. ,,	1 9	3 0	3 6	4 0
VALVES .. .. .. ,,	10 0	11 6	12 0	13 0

Nett cash price on receipt of invoice.
GEORGE ROBINSON, The Dial Iron Works, Stourbridge.
Estimates, Priced Credit Lists, with terms, by post.

HOT-WATER PIPES.
CASH PRICES.

	2-inch.	3-inch.	4-inch.
PIPES .. .. per yard	1s. 0d.	1s. 6d.	2s. 0d.
ELBOWS .. .. each	1 6	2 3	3 0
TEES .. .. ,,	2 6	3 6	4 6
SYPHONS .. .. ,,	2 6	3 6	4 6
VALVES .. .. ,,	10 0	11 6	13 0

No credit will be given when Pipes, &c., are invoiced at the above prices.
J. JONES AND SONS,
6, Bankside, Southwark, London, S.E.
Price Lists, with terms for credit and for delivery at country stations, will be sent on application.

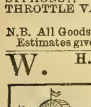
Heating by Hot Water.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, S.E.

	2-inch.	3-inch.	4-inch.
HOT-WATER PIPES, from stock—per yard	1s. 0d.	1s. 6d.	2s. 0d.
ELBOWS for ditto .. .. each	1 6	2 3	2 9
TEES .. .. ,,	2 3	3 6	4 6
SYPHONS .. .. ,,	2 3	3 6	4 6
THROTTLE VALVES .. .. ,,	10 0	11 6	13 0

Cash remittance with order.
N.B. All Goods of first-class manufacture. No second quality kept.
Estimates given, and orders punctually attended to the same day.

W. H. LASCELLES' MACHINE-MADE MELON LIGHTS.



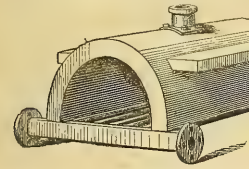
	Each
6 ft. by 4 ft. Lights, 2 ins. thick, unglazed	£0 5 0
,, ,, Primed and Glazed with 16 oz. Sheet	0 11 0
,, ,, with stout Portable Box, not Painted	1 3 0
,, ,, Painted four coats, and Handles on..	1 8 0
,, ,, Packed and Delivered in Railway Van	1 10 0
6 ft. by 8 ft., Double Lights, do.	2 16 0

GREENHOUSES. Per ft. super.

Woodwork only Prepared and Fitted	0 0 6
,, Primed and Glazed with 16 oz. Sheet ..	0 0 9
,, Delivered, and Fixed with Ironwork ..	0 1 0
,, Painted four coats, two sides, ready for use	0 1 3

Finsbury Steam Joinery Works, 121, Bunhill Row, E.C.

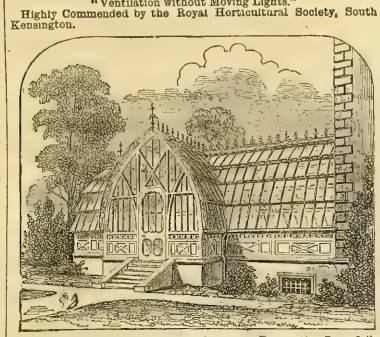
Great Flower Show, Manchester, June, 1867.
FIRST-CLASS CERTIFICATE TO



THE PATENT TERMINAL SADDLE BOILER, with following note :—
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HOT-WATER APPARATUS MANUFACTURERS.
ILLUSTRATED CATALOGUES Sent free on application.
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CRANSTON'S PATENT BUILDINGS for HORTICULTURE.
"Dry Glazing without Putty."
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"Ventilation without Moving Lights."
Highly Commended by the Royal Horticultural Society, South Kensington.

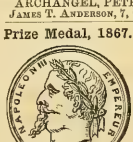


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HENRY J. GROWTAGE, Manager, 1, Temple Row West, Birmingham.

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ANDERSON'S TAGANROG MATS, No. 1, are the Heaviest, Best, and Cheapest for covering Garden Frames. Price 80s. per 100, or 8s. per bundle of 10.
ARCHANGEL, PETERSBURG, and other MATS at low prices.
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Prize Medal, 1867. PRIZE MEDAL for BEST



LIQUID MANURE CARTS,
CLOD CRUSHERS,
and ROLLERS,
also 21 other PRIZES,
Awarded to I. JAMES, Tivoli, Cheltenham.

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PATENT MOULDED INDIA RUBBER CLUMPS for BOOTS and SHOES.—A new invention, unsurpassed for durability, economy, and comfort. These Clumps wear twice as long as Leather, are impervious to Damp, not affected by Heat or Cold, and any handy man can easily attach them. Full printed instructions are sent with the Clumps.
Price per Pair, Round or Square Toes.

No. 1.	2	3	3A	4	5	6	7	8	9
2s.	1s. 9d.	1s. 7d.	1s. 6d.	1s. 3d.	1s. 2d.	1s.	9d.	8d.	7d.

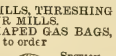
To ensure a fit, a Paper Pattern, giving exact size of Bottom of Boots, should be sent with order.
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Established 1833.



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HANCOCK'S INDIA-RUBBER HOSE and TUBING.
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HORSE SINGEING APPARATUS, with GAS BURNERS, and INDIA-RUBBER TUBING.
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WATERPROOF CART and WAGGON COVERS made any size.
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For Samples and Prices apply to
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GEORGE HALL AND SON'S CELEBRATED PRUNING and BUDDING KNIVES, SCISSORS, &c., may be obtained from the most respectable Nurserymen and Seed Merchants in the kingdom, also America, France, Germany, Holland, Prussia, Russia, &c.
N.B.—We only make one quality, the best that can be manufactured, the same as the late Saynors always made during their lifetime, with all the latest improvements.
CAUTION.—None are genuine unless marked "GEO. HALL & SON." Other marks would cause disappointment, as these blades are tempered by a process known only to the Makers.
Engravings of Patterns, with PRICE LISTS, gratis on application.
Horticultural Cutlery Works, Sheffield.

Health of Horses, Stables, and Dog Kennels.
MASTERS OF HOUNDS
Will find the greatest advantage in Paving the Floors of Stables and Kennels with

PYRIMONT SEYSSEL ASPHALTE.
Thirty years' experience of the durability of this material, for the above and many other purposes, testifies to its value. A List of all such and other works can be had on application to
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E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, and Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, Royal Gardens, Kew, &c.

The Best Shading is

"FRIGI DOMO" NETTING, White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes for
PROTECTION from the COLD WINDS and MORNING FROSTS,
"FRIGI DOMO" NETTING, 2 yards wide, 1s. 6d. per yard run.
"FRIGI DOMO" CANVAS.

Two yards wide	1s. 9d. per yard run.
Four yards wide	3s. 6d. per yard.
An improved make, 2 yards wide ..	1s. 9d. per yard.
An improved make, 3 yards wide ..	2s. 8d. per yard run.

ELIZA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.

New Silkworms.

EGGS, of different Mulberry varieties, producing Yellow, White, or Green Silk, 1s. per 100; Oak-leaf kinds, 1s. for 15; Ailantus sorts, 1s. for 20. MULBERRY and AILANTUS seedling plants, &c. See CIRCULAR, &c., 3d.
L. HARMAN, Jr., Old Catton, Norwich.

Farm Poultry.

GREY DORKING FOWLS, of purest breed, in any numbers.
Imported TOULOUSE GEESE, the largest and most productive breed known.
Improved NORFOLK TURKEYS, large, hardy, and good breeders.
AYLESBURY and ROUEN DUCKS.
Imported BELGIAN HARE RABBITS, for size and early maturity.
BRAHMA POUTRA, CREVECŒUR, and LA FLECHE FOWLS, for constant layers.
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Established Nursery Grounds.

TO BE LET, with Immediate Possession, an Old-Established NURSERY, in full business, a few miles from Liverpool, occupying about 25 Acres, about Six Acres being Pasture Land, all in good growing condition. The stock is in a fine healthy state, and will be Sold at a large discount from the valuation.
For particulars apply to Mr. JOHN WHITE, 12, Cases Street, Liverpool.

TO BE DISPOSED OF, in consequence of the sudden illness of the present proprietor, an old-established, well-stocked NURSERY and SEED BUSINESS, with a rapidly increasing connection, situate in the West of England.
Full particulars will be forwarded on application to B. A., Messrs. Hurst & Son, 6, Leadenhall Street, London, E.C.

Eligible Opening for Nurserymen and Seedsmen.

FOR SALE, the GOOD-WILL of the BUSINESS of NURSERYMEN and SEEDSMEN, hitherto carried on by Messrs. GUNN & PETRIE, Inverness, with the whole STOCK in their NURSERY, Ness Walk, Inverness, and in their SHOP in Bridge Street, Inverness.
The Nursery Grounds are in excellent order, and fully stocked with every variety of Tree and Plant suitable for the Trade. The extent of the grounds is 16½ Acres, the Rent £64 sterling per annum, and there are 14 years of the Lease to run from Martinmas, 1868.
The Shop is conveniently situated, and is well stocked with Seeds and Garden Implements of all varieties.
Offers will be received by Mr. D. G. Ross, Merchant, Dingwall, Trustee on the Sequestrated Estate of Messrs. Gunn & Petrie, up till 1st February next, and Lists of the Stock may be seen by intending Offerers with Mr. JOHN CHISHOLM, 106, Church Street, Inverness, who will show the Nursery and the Stock in the Shop, and give any further information that may be required.
So favourable an opportunity for a man with a practical knowledge of the Business, and who can command a Capital of from £1000 to £1500, is rarely offered.—Inverness, 26th December, 1868.

Sales by Auction.

10,000 Bulbs of Lilium auratum,
Just arrived from JAPAN, and an Importation of ORCHIDS from BORNEO, and BULBS from the CAPE.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, January 6, at half-past 12 o'Clock precisely, without reserve, 10,000 fine BULBS of LILIUM AURATUM, just arrived per mail steamer from Japan, a consignment of BULBS from the Cape, and the contents of five cases of ORCHIDS from Borneo.
On view the Morning of Sale, and Catalogues had.

To Nurserymen and Others.

MR. WILLIAM SHADFORTH, AUCTIONEER, will SELL by AUCTION, at the house of Mrs. Brown, Three Tuns Hotel, New Elvet, Durham, on TUESDAY, January 12, 1869, at 2 for 3 o'Clock in the Afternoon, all that Large and Commodious DWELLING HOUSE and SHOP, with about 2 Acres of productive Grounds, and the Greenhouses and Propagating Houses thereon, situate on the south side of Gilesgate, in the city of Durham, as lately occupied by Mr. James Anderson, deceased, together with the Shop Fixtures and Fittings, and the entire Stock of Plants, Ornamental Trees, Shrubs, Fruit and Forest Trees, &c.
A lucrative Business has hitherto been carried on in the above Premises, which are well adapted for the purposes of a Nurseryman.
The Grounds, which command one of the finest views in the neighbourhood, also afford a good opportunity for the erection of several first-class Villa Residences.
The Property will be offered in one Lot, the Purchaser to have the opportunity of taking the Plants, Trees, Shrubs, &c., at a valuation; but if not sold, the Property will be put up in such other Lots as may then be agreed upon.
Persons applying on the Premises will be allowed to view the same, and further particulars may be had on application to the Auctioneer, North Road, Durham; Mr. WM. FLEMING, Land Agent, Tudhoe; or at the Offices of WILLIAM MARSHALL, 10, Market Place, Durham.
Durham, December 16, 1868.

PARIS EXHIBITION, 1867—GOLD MEDAL.

CLAYTON, SHUTTLEWORTH, & CO.,

At the Great Triennial Trials of THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND, held at Bury St. Edmund's, July, 1867, received the following Awards:—

For Single Cylinder Portable Steam Engine, **The FIRST PRIZE of £25.**
For Double Cylinder Portable Steam Engine. **The FIRST PRIZE of £25.**
For Horizontal Cylinder Fixed Engine. **The FIRST PRIZE of £20.**
For Double Blast Finishing Threshing Machine. **The PRIZE of £15.**
Also the SOCIETY'S SILVER MEDAL, for Adjusting Blocks for Machines.

The duty performed by all C., S. & Co.'s Engines on this occasion, *considerably exceeded that of any other.* C., S. & Co. refer with pleasure to the fact that the duty of their "COMMERCIAL" or SINGLE VALVE ENGINE, at Chester, so long ago as 1858, was not equalled by any "ordinary" Engine at Bury.

CLAYTON, SHUTTLEWORTH, AND CO., LINCOLN; and 78, LOMBARD ST., LONDON.

NEW HYBRIDIZED COLEUS SEED, &c.

Seed of the above obtained by cross hybridization from the finest varieties of 1868,

6s. per dozen seeds.

Pyrethrum Golden Feather.

The finest golden-leaved bedding plant offered in seed, from which it comes perfectly true; more even in growth, and less liable to form flower buds.

1*s.* and 2*s.* 6*d.* per packet.

Pelargoniums.

TRICOLOR-LEAVED, GOLDEN-BRONZE ZONED } Choice varieties

2*s.* 6*d.* per packet.

Lobelia Queen Victoria.

Finest tall variety for effective bed.

6*d.* and 1*s.* per packet.

Centaurea ragusina compacta.

The finest variety for bedding purposes, as the dwarfest, most compact, and most effective pure white leaved plant in the whole group. Vigorous seedling plants.

60*s.* per 100.

Special prices for larger quantities.

Verbena Sir Robert Napier.

The best bedding Verbena of its colour; bright crimson scarlet, with superior habit, form and truss combined. See further features in the autumn Catalogue. Vigorous young plants for growing stock.

Golden-leaved Bedding Geraniums.

MISS BEATRICE, bronze zoned, BEAUTY of RIVERDALE, „ } First-class kinds for effect.

VEGETABLE SEED LIST sent on application.

The same List, with the Descriptive Flower Seed Catalogue, by the middle of January.

E. G. HENDERSON AND SON, WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON.

SUTTONS' HOME-GROWN SEEDS, CARRIAGE FREE.

SEEDS DIRECT FROM THE GROWERS THE BEST MEANS OF PREVENTING DISAPPOINTMENT.

SUTTON'S HOME-GROWN SEEDS A FIRST PRIZE — SILVER MEDAL, PARIS, 1862

SUTTONS'

SPRING CATALOGUE and AMATEUR'S GUIDE FOR 1869,

CONTAINING DESCRIPTIVE PARTICULARS OF

NEW VEGETABLE AND FLOWER SEEDS,

WITH COMPLETE CULTURAL INSTRUCTIONS,

Is now ready, and may be had Post Free for 12 stamps, Gratis to Customers.

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SUTTONS' ABRIDGED CATALOGUE for 1869 is now ready, and may be had Gratis and Post Free.

SUTTONS' RINGLEADER PEA, the earliest in cultivation, price 2s. per quart.

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SURPLUS BEDDING-OUT BULBS, and BULBS for CONSERVATORY

AND IN-DOOR DECORATION, FOR PRESENT PLANTING AND SPRING FLOWERING.

BARR & SUGDEN,

THE METROPOLITAN SEED, BULB, AND PLANT WAREHOUSE,

12, KING STREET, COVENT GARDEN, LONDON, W.C.

No. 1. Four Guinea Collection, for Beds and Flower Borders, comprises the following :—

200 HYACINTHS	200 Garden NARCISSUS	600 CROCUSES	300 RANUNCULUS
50 POLYANTHUS NARCISSUS	400 TULIPS	200 ANEMONES	400 SNOWDROPS.

Half the above quantities, Two Guineas; Quarter of the above quantities, One Guinea; Eighth of the above quantities, 10*s.* 6*d.*

No. 2. Four Guinea Collection, for Conservatory and Indoor Decoration, comprises the following :—

100 Named HYACINTHS	200 TULIPS	30 SPARAXIS	30 BABIANAS
50 POLYANTHUS NARCISSUS	30 IXIAS	30 TRITONIAS	300 Seedling CROCUS

300 SNOWDROPS, and 12 CYCLAMEN PERSICUM.

Half of the above quantities, Two Guineas; Quarter of the above quantities, One Guinea; Eighth of the above quantities, 10*s.* 6*d.*

Special offers on application for large quantities of Bulbs.

Those who have not yet completed their Bedding-out for Spring Decoration, can still have, in quantity, MYOSOTIS, DAISIES, PANSIES, ARABIS, ALYSSUM, and all the usual Plants which go to make up a Spring Garden.

CATALOGUE with Prices on application.

CAREFULLY SAVED GARDEN SEEDS.

ARTHUR HENDERSON & CO.'S

CATALOGUE of choice VEGETABLE and FLOWER SEED NOVELTIES

Is now Published, and can be forwarded Post Free on application.

The VEGETABLE SEED SECTION contains—

Selected LISTS of the best varieties of each kind most worthy of cultivation, also some excellent new sorts of both VEGETABLE and FLOWER SEEDS of sterling merit; attention is also directed to the Pine-apple Compact-top BEET (the finest and richest flavoured variety extant), carefully saved, true from the original stock. Also the new DWARF WATERLOO BEET: top leaves rich metallic crimson; growth true, even, and regular. This beautiful foliaged variety may with advantage be cultivated in the flower garden as a border, ribbon, or edging plant; its root is a trifle larger than the Pine-apple Compact-top, flavour excellent, full of sweet saccharine juice, colour crimson, texture tender and uniform throughout.

The FLOWER SEED SECTION contains—

Imported GERMAN FLOWER SEEDS in Collections; Choice Strains of FLORISTS' FLOWER SEEDS; a careful LIST of FLOWER SEED NOVELTIES of the season; HORTICULTURAL REQUISITES of every kind, KNIVES, PROTECTING MATERIALS, HORTICULTURAL MANURES, &c., &c.

N.B. Everything in this CATALOGUE is Priced.

PINE APPLE PLACE, MAIDA VALE, LONDON, W.

All Seeds Carriage Free.

GOLDEN COLEUS, QUEEN VICTORIA.— This is the brightest in colour of the whole series, having the centre of the leaves of a rich bronzy bright crimson, delicately shot with pale violet, with a bright yellow edge, somewhat broken with crimson veinings, so as to appear as if the borders were formed of a double row of golden beads." (See Catalogue.)

Messrs. JOHN & CHARLES LEE were the fortunate purchasers of this, the most splendid of all Coleuses, at the recent sale by Mr. Stevens of the Royal Horticultural Society's new Collection. A figure of Queen Victoria will shortly appear in the "Florist." Orders are being booked for delivery early in Spring. Price 7*s.* 6*d.* Special offer to the Trade on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

New Golden Coleus.

DOWNIE, LAIRD, AND LAING have much pleasure in offering the following three distinct Novelties, which are really acquisitions. Albert Victor and Baroness Rothschild were purchased by us at the last sale of the Royal Horticultural Society. We may state that Albert Victor and Princess Royal commanded the highest price at the sale, and both gained First-class Certificates, which they were well worthy of. Will be sent out early in spring, at 7*s.* 6*d.* each—price to the Trade on application.

ALBERT VICTOR.—A very distinct tricolored variety, the centre of the leaves being bronzy red, stained with large blotches of deep purplish carmine, and the golden margin is very broad, much more so than in any other sort; the marginal teeth are also marked out by rich carmine lines. A very free habit of growth.

PRINCESS BEATRICE.—A charming variety, of a beautiful light golden hue, the main veins being slightly marked, and the margin entirely defined by dark crimson lines. We hold the whole stock of this.

BARONESS ROTHSCHILD.—An exquisite variety, the centre of the leaves being of a bright bronzy crimson, without stains or blotches; margin bright golden, the teeth beautifully marked with light carmine. In habit of growth it resembles Albert Victor. Orders are now being booked, and will be executed in rotation.

The Nurseries, Stanstead Park, Forest Hill, S.E.

Rhododendron fragrantissimum.

WILLIAM ROLLISSON AND SONS beg to inform their kind Patrons that they are continuing to send out the above new and beautiful RHODODENDRON, at prices as below. This splendid Hybrid Sikkim is the result of a cross made between R. Edgworthii and R. Gibson, the flowers partaking of the delicious fragrance of the former, while the plant retains the shrubby habit and abundant flowering qualities of the latter. The flower, which is of great substance, and measuring upwards of 5 inches in diameter, is of the purest white, with the exception of the upper petal, which is lightly spotted with ochre; the back of the flower is nevertheless very beautiful, being most delicately pencilled and shaded with rose on a glistening, alabaster-like ground.

From the splendid habit and profuse-blooming qualities of this Hybrid, we feel confident it will prove a very formidable rival, as an exhibition plant, to the Azalea indica, comprising, as it does, the same freeness of growth, good habit, and free-flowering qualities, accompanied with one of the most exquisite perfumes it is possible for any flower to possess. It was awarded a First-class Certificate by the Committee of the Royal Horticultural Society at Kensington, and has since been admired by all who have seen it.

Prices of Plants:—First Size, extra fine plants, in 5-inch and 6-inch pots, with from 8 to 10 shoots, 63*s.* each; Second Size, do., in 4-inch and 5-inch pots, with from 6 to 8 shoots, 42*s.* each; Third Size, do., in 3-inch and 4-inch pots, with from 4 to 6 shoots, 21*s.* each. Trade prices forwarded on application.

The Nurseries, Tooting, London, S.W.

RHODODENDRONS by the doz., 100, 1,000 or 10,000.

		Doz.	Per 100	Per 1000
		s. d.	£ *s. d.*	£ *s. d.*
RHODODENDRON PONTICUM, fine bushy plants, well rooted ..	9 to 15 inches	3 0	0 15 0	7 0 0
„ „ „ „ „	1 to 1½ foot	4 0	1 0 0	9 10 0
„ „ „ „ „	15 to 20 inches	4 6	1 2 6	11 0 0
„ „ „ „ „	1½ to 2 feet	5 0	1 5 0	12 0 0
„ HYBRIDUM, bushy plants,	9 to 15 inches	4 0	1 5 0	..
„ „ „ „	1 to 1½ foot	5 0	1 10 0	..
„ „ „ „	1½ to 2 feet	6 0	2 0 0	..
„ MAXIMUM ALBUM „	1 to 1½ foot	4 0	1 5 0	12 0 0
„ „ „ „	15 to 20 inches	5 0	1 10 0	14 0 0
„ „ „ „	1½ to 2 feet	6 0	2 0 0	..
The above sorts selected in bloom bud 2*s.* doz. ex.				
„ HIRSUTUM, dwarf Alpine, nice bushy plants		3 0	0 15 0	7 0 0
„ 120 named varieties, 1, 2, and 3 year, from grafts, 1*s.* 6*d.* to 3*s.* 6*d.* each.				
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ARBOR-VITÆ, American, fine bushy well-rooted plants, fine for single plants or hedges	1½ to 2 feet	2 0	0 12 0	..
„ „ „ „ „	2 to 2½ feet	2 0	0 15 0	..
„ „ „ „ „	2½ to 3 feet	3 0	0 18 0	..
„ „ „ „ „	3½ to 4½ feet	4 0	1 5 0	..
„ „ „ „ „	4 to 5 feet	5 0	1 10 0	..
„ „ „ „ „	5 to 6 feet	10 0	..	..
Double "WHIN," FURZE or "GORSE," good plants, extra transplanted	1 to 1½ foot	3 0	0 12 0	..
„ „ „ „	15 to 20 inches	4 0	0 15 0	..
„ „ „ „	nice plants in pots	4 0	1 0 0	..
COTONEASTER MICROPHYLLA, nice bushy plants	1 to 1½ foot	..	0 12 0	5 0 0
„ „ „ „	1½ to 2 feet	..	0 15 0	..

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JAMES SMITH, Darley Dale Nurseries, near Matlock.

Fruits, Fruits, Fruits.

WILLIAM ROLLISSON AND SONS beg respectfully to inform the Nobility, Gentry, and the Public generally that their DESCRIPTIVE and PRICED CATALOGUE of HARDY and ORCHARD-HOUSE FRUITS, comprising all NOVELTIES of real merit, is now published, and may be had gratis on application to

The Nurseries, Tooting, London, S.W.

STRONG STANDARD and DWARF TRAINED APPLES and PEARS, TULIP TREES, 7 to 8 feet; bushy LAURELS and LAURUSTINUS, strong evergreen PRIVET; a choice collection of CONIFERÆ, a large assortment of Standard and Dwarf Perpetual and Dwarf CHINA ROSES, and a general Nursery Stock. All the above have been regularly transplanted, and are well rooted. Prices on application to

CHARLES BURGESS, the Nurseries, London Road, Cheltenham.

ARTHUR HENDERSON AND CO. can supply strong fruiting Canes, capable of carrying six to eight bunches of fine GRAPES of the undermentioned sorts, at 10*s.* each.

BLACK HAMBURGH	BUCKLAND SWEETWATER
GOLDEN HAMBURGH	LADY DOWNE'S
MILL HILL HAMBURGH	DUCHESS of BUCCLEUCH
MUSCAT of ALEXANDRIA	ROYAL MUSCADINE
MUSCAT HAMBURGH	WEST'S ST. PETER'S
WHITE FRONTIGNAC	BARBAROSSA

Also those fine sorts, GOLDEN CHAMPION, MRS. PINCE'S BLACK MUSCAT, and MADRESFIELD COURT.

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Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 2.—1869.] SATURDAY, JANUARY 9. {Price Fivepence. (STAMPED EDITION, 6d.

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LOUGHBOROUGH HORTICULTURAL SOCIETY EXHIBITION, JULY 14, 1869.—A Special Prize will be given for the best 12 Stove and Greenhouse Plants, consisting of 6 Foliage and 6 in Flower (not to include Orchids), £10, £6, £4. Open to all England. For further information apply to JNO. S. JONES, Sec.

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To the Trade.—Dwarf Roses.

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Standard and Dwarf Roses.

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CHARLES VERDIER, Fils, NURSERYMAN, 12, Rue Dumeril, Paris, still has a very large assortment of the above, at the lowest prices.

CALCEOLARIAS, Herbaceous, of the choicest strains, nice plants, established in 2½-inch pots; fine plants, potted on in 4-inch pots; also plants pricked out in pans. Price per dozen or hundred from H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

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GEO. LIGHTBODY being, from infirmity, obliged to give up the Cultivation of his Collection of SHOW RANUNCULUS, will DISPOSE OF the whole in one Lot, on favourable terms, to any Person who may wish to add them to their stock. Particulars on application.—Falkirk, January 5, 1869.

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Mrs. Pince's Black Muscat Grape.

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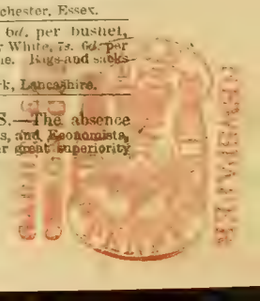
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Foot's Cray Nursery, S.E.

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A heavy discount to the Trade.
Munro Nursery, Sible Hedingham, Essex.

Vegetable, Agricultural, and Flower Seeds.

MISCELLANEOUS HARDY BEDDING PLANTS, SWEET VIOLETS, &c.

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Intending purchasers are requested to compare the prices with those of other houses.
Exotic Nursery, Tooting, Surrey, S.W.

Choice New Seeds.

CHARLES TURNER can recommend the following, having been saved by himself or under his inspection.

	Per packet.—s.	d.
BALSAM, from a prize collection	1	0
CENTAUREA CANDIDISSIMA	1	0
,, GYMNOCARPA	1	0
CARNATION, from exhibition kinds	2	6
HOLLYHOCK, from exhibition kinds	1	0
,, Collections of 24 named varieties	5	0
PINK (from the newest and best varieties)	2	6
PICOTEE ,,	2	6
PELARGONIUM, SHOW ,,	2	6
,, FANCY ,,	2	6
,, TRICOLOR ,,	2	6
,, VARIEGATED ,,	2	6
,, ZONAL ,,	2	6
TROPÆOLUM GOLDEN KING OF TOM THUMB	1	0
GOLDEN FEATHER PYRETHRUM	2	6
VEGETABLE SEEDS.		
BROCCOLI, SNOW'S WINTER WHITE	2	6
CABBAGE, BAILEY'S SUPERB	1	0
CUCUMBER, BERKSHIRE CHALLENGE	1	6
,, HEDSOR PROLIFIC	1	6
MELON, GOLDEN QUEEN	2	6
PEAS, LITTLE GEM, First Crop per quart	3	0
,, ADVANCER, Second Crop per quart	2	0
,, PREMIER, Third Crop per quart	2	0
SAVOY, NEW FRENCH	1	0

CHARLES TURNER'S NEW SEED LIST, containing all the newest and best varieties, can now be had post free on application.
The Royal Nurseries, Slough.

Genuine Seeds.—Carriage Paid.

B. S. WILLIAMS, SEED MERCHANT AND NURSERYMAN,
Victoria and Paradise Nursery, Upper Holloway, London, N.

COMPLETE COLLECTIONS OF KITCHEN GARDEN SEEDS,
To suit Gardens of various sizes,
10s. 6d., 21s., 42s., 63s., and 84s. each.

NEW and CHOICE VEGETABLE SEEDS.	Per Pkt. s.	d.
WILLIAMS' IMPROVED GREEN CURLED BORECOLE	0	6
WILLIAMS' ALEXANDRA BROCCOLI	1	6
EARLEY'S SELECTED BRUSSELS SPROUTS	1	0
WILLIAMS' MATCHLESS RED CELERY	1	0
SHARMAN'S UNIVERSAL CUCUMBER (new)	1	6
TELEGRAPH IMPROVED (Woolley's variety)	1	6
WILLIAMS' PARADISE GEM MELON, scarlet flesh, of excellent flavour, and 12 days earlier than any other in cultivation (new)	2	6
DIGSWELL PRIZE ENDIVE	1	0
WILLIAMS' VICTORIA COS LETTUCE (new)	1	0
MALVERN HALL MELON	1	6
GOLDEN QUEEN (New Hybrid Prize) MELON	2	0
BEDFORDSHIRE CHAMPION ONION (new)	1	0
NUNEHAM PARK ONION 1s. and	1	6
CULLINGFORD'S CHAMPION MARROW PEA, an excellent cropper, and fine flavour (new) per qrt.	3	6
MACLEAN'S LITTLE GEM PEA (very early) ,,	2	6
LEE'S GIANT ORACH	1	0
ORANGEFIELD DWARF PROLIFIC TOMATO	1	0

NEW and CHOICE FLOWER SEEDS.	Per Pkt.
WILLIAMS' SUPERB STRAIN of PRIMULA.—B. S. W. can with confidence offer his superb strain of Primula as being the finest in cultivation.	
Red, White, or Mixed 2s. 6d., 3s. 6d., and	5 0
CINERARIA (Weatherill's extra choice strain) 2s. 6d. and	3 6
CALCEOLARIA (Nelli's extra choice strain), 2s. 6d., 3s. 6d., and	5 0
,, (James' strain) 2s. 6d. and	3 6
,, (Dalkeith Palace strain)	2 6
CYCLAMEN (Wiggins' prize strain) 1s. 6d., 2s. 6d., and	3 6
POLYANTHUS (Wiggins' prize strain) 1s. 6d. and	2 6
BALSAM (Williams' superb strain) 1s. 6d. and	2 6
GLOXINIA VERNA (the best of all the species)	1 0
GERANIUM LE GRAND 1s. 6d. and	2 6
SOLANUM (Weatherill's hybrids) 2s. 6d., 3s. 6d., and	5 0
VIOLA LUTEA (yellow flowered Violet) 1s. 6d. and	2 6
WALLFLOWER (Saunders' fine dark variety)	1 0
SALVIA ARGENTEA, a beautiful silvery-foliaged ornamental plant	1 0
DIANTHUS HEDDEWIGII DIADEMATUS fl.-pl., flowers very large, and colours most beautiful (new)	2 6
OXALIS VALDIVIANA, quite hardy, the flowers are bright yellow and sweet scented, and produced in bunches of large size (new)	1 0
PALAVA FLEXUOSA, very pretty annual (new)	1 0
MYOSOTIS AZORICA ALBA, the flowers are pure white, contrasting beautifully with the blue variety Celestina (new)	2 6
STOCK, EAST LOTHIAN.—This is a splendid variety, of dwarf and compact habit, producing immense spikes of bloom, and very double. They make a grand display in beds, and for ribbon borders. Per collection of three colours (Scarlet, Purple, and White)	2 6
AMARANTHUS SPECIOSUS AUREUS (New Golden Prince Feather)	1 0
ANTIRRHINUM ASARINA, very beautiful for rockwork (new)	1 0
HELICHRYSUM APICULATUM (new)	1 0
MIMULUS REPENS, this is a very distinct species, the flowers are of a pale lilac-purple colour, the lower lip being prettily spotted with orange-yellow (new)	1 0
ABRONIA ARENARIA, the flowers are of a pale waxy yellow, delicately mottled, and produced in long succession	1 0
ZINNIA ELEGANS TAGETIFLORA fl.-pl. (new)	1 0

B. S. W.'s DESCRIPTIVE CATALOGUE of FLOWER, VEGETABLE, and AGRICULTURAL SEEDS, is now ready, post free on application.
Victoria and Paradise Nursery, Upper Holloway, London, N.

GENUINE SEEDS OF SUPERIOR STOCKS.

SEEDSMEN TO THE QUEEN.

FRANCIS & ARTHUR DICKSON & SONS,

THE "OLD" ESTABLISHED SEED WAREHOUSE, 106, EASTGATE STREET, CHESTER.

THE BEST EARLY PEA IN CULTIVATION,
DICKSON'S "FIRST AND BEST," price 1s. 6d. per quart.

CATALOGUE OF NEW AND SELECT VEGETABLE AND FLOWER SEEDS, POTATOS, &c., FOR 1869,

With practical Cultural Directions, will be sent Post Free on application.

Their Seeds are all of the most select character, each being saved from the best Stock known of its kind.

GARDEN SEEDS of £2 value delivered Carriage Free. FLOWER SEEDS sent Post Free, except heavy articles, such as Sweet Peas, Lupins, &c.

NEW HYBRIDISED COLEUS SEED, &c.

Seed of the above obtained by cross hybridisation from the finest varieties of 1868,
6s. per dozen seeds.

Pyrethrum Golden Feather.
The finest golden-leaved bedding plant offered in seed, from which it comes perfectly true; more even in growth, and less liable to form flower buds.
1s. and 2s. 6d. per packet.

Pelargoniums.
TRICOLOR-LEAVED, GOLDEN-BRONZE ZONED } Choice varieties
2s. 6d. per packet.

Lobelia Queen Victoria.
Finest tall variety for effective bed.
6d. and 1s. per packet.

Centaurea ragusina compacta.
The finest variety for bedding purposes, as the dwarfest, most compact, and most effective pure white leaved plant in the whole group. Vigorous seedling plants.
60s. per 100.
Special prices for larger quantities.

Verbena Sir Robert Napier.
The best bedding Verbena of its colour; bright crimson scarlet, with superior habit, form and truss combined. See further features in the autumn Catalogue. Vigorous young plants for growing stock.

Golden-leaved Bedding Geraniums.
MISS BEATRICE, bronze zoned, BEAUTY of RIVERDALE, } First-class kinds or effect.

VEGETABLE SEED LIST sent on application.
The same List, with the Descriptive Flower Seed Catalogue, by the middle of January.

E. G. HENDERSON AND SON, WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON.

CAREFULLY SAVED GARDEN SEEDS.

ARTHUR HENDERSON & CO.'S

CATALOGUE of choice VEGETABLE and FLOWER SEED NOVELTIES

Is now Published, and can be forwarded Post Free on application.

The VEGETABLE SEED SECTION contains—

Selected LISTS of the best varieties of each kind most worthy of cultivation, also some excellent new sorts of both VEGETABLE and FLOWER SEEDS of sterling merit; attention is also directed to the Pine-apple Compact-top BEET (the finest and richest flavoured variety extant), carefully saved, true from the original stock. Also the new DWARF WATERLOO BEET: top leaves rich metallic crimson; growth true, even, and regular. This beautiful foliaged variety may with advantage be cultivated in the flower garden as a border, ribbon, or edging plant; its root is a trifle larger than the Pine-apple Compact-top, flavour excellent, full of sweet saccharine juice, colour crimson, texture tender and uniform throughout.

The FLOWER SEED SECTION contains—

Imported GERMAN FLOWER SEEDS in Collections; Choice Strains of FLORISTS' FLOWER SEEDS; a careful LIST of FLOWER SEED NOVELTIES of the season; HORTICULTURAL REQUISITES of every kind, KNIVES, PROTECTING MATERIALS, HORTICULTURAL MANURES, &c., &c.

N.B. Everything in this CATALOGUE is Priced.

PINE APPLE PLACE, MAIDA VALE, LONDON, W.
All Seeds Carriage Free.

HAMMOND'S IMPERIAL HARDY WHITE BROCCOLI,

1s. per packet.

WILLIAM ARMITAGE & SON,

SEED MERCHANTS, HUDDERSFIELD,

HAVING SECURED THE STOCK FROM MR. HAMMOND, HAVE IT NOW READY TO SEND OUT.

It can be had through any of the London Trade.

From "THE GARDENER'S MAGAZINE," *May* 30, 1868.

"HAMMOND'S IMPERIAL HARDY WHITE BROCCOLI.—We have received samples of this variety from Mr. W. Hammond, Market Gardener, Birkby, Huddersfield, Yorkshire. The heads are large, even in outline and hemispherical, so close that there is not space anywhere for so much as the point of a pencil, the colour creamy white, average weight when trimmed for cooking 3lb., in quality first-rate, as mild and sweet as a Cauliflower.

From "THE GARDENER'S MAGAZINE," *June* 13, 1868.

"HAMMOND'S IMPERIAL HARDY WHITE BROCCOLI."—Several correspondents have inquired after seed of this variety, and in one case stamps are forwarded to us for a supply. We have returned the stamps to the sender, and informed him, as we now, for the hundredth time, inform everybody, that we do not trade in seeds, plants, or any kind of nursery produce. In the note on this Broccoli, at page 240, we told our readers all we knew about it, and gave the name and address of the cultivator to whom we were indebted for the samples. But as some of our readers wish for further information, we return to the subject for the purpose of publishing Mr. Hammond's statement of its character and merits. He says: 'The Broccolis I sent you were fair samples of about 8000 grown for market. Hundreds of them weigh eight pounds to ten pounds each. The plant is of dwarf robust habit, and stands the severest winter. I have grown it upwards of twenty years, and have always carefully selected the best for seed to keep it true. It is the only Broccoli that we can rely upon to stand the winter in this locality. The samples sent to you were fully exposed to the sun, which soon changes their colour, but if shaded with a leaf the heads are as white as snow.' The great size to which this variety may be grown is, in our opinion, no great recommendation; but there are thousands of cultivators who believe in large Broccoli, and to such this will be valuable. As for those who prefer smallish heads (as we do), planting rather thick will no doubt accomplish their object, and render the plants additionally self-protective against severe winter weather. Any further inquiries on this subject must be addressed to Mr. Hammond, Market Gardener, Birkby, Huddersfield."—*S. H.*

ARTHUR HENDERSON AND CO. can supply strong fruiting Canes, capable of carrying six to eight bunches of fine GRAPES of the undermentioned sorts, at 10s. each.

BLACK HAMBURGH	BUCKLAND SWEETWATER
GOLDEN HAMBURGH	LADY DOWNES
MILL HILL HAMBURGH	DUCHESS of BUCCLEUCH
MUSCAT of ALEXANDRIA	ROYAL MUSCADINE
MUSCAT HAMBURGH	WEST'S ST. PETER'S
WHITE FRONTIGNAC	BARBAROSSA

Also those fine sorts, GOLDEN CHAMPION, MRS. PINCE'S BLACK MUSCAT, and MADRESFIELD COURT

Pine-apple Place, Maida Vale, London, W.

LAMONT AND MITCHELL have to offer a quantity of well-ripened, short-jointed VINES, of all the leading varieties, true to Name. Prices on application.

Nurseries, Dean Park, Edinburgh.

LAMONT AND MITCHELL offer to the Trade SEED of Dell's superb BLACK BEET, the finest in cultivation, both for Decorative and Culinary purposes. Prices on application.

Seed Warehouse, 3, Hanover Street, Edinburgh.

PYRAMIDAL PEARS on QUINCE. — Handsome bearing Trees, transplanted last year, all the best kinds recommended by Mr. Rivers and other high authorities. 12s. per dozen; also, all other kinds of FRUIT TREES, EVERGREENS, ROSES, &c., may be had at moderate prices from

ISAAC DAVIES, Brook Lane Nursery, Ormskirk, Lancashire.

FINE ORANGE TREES for SALE. — Ten very handsome Trees, in robust health, loaded with Fruit; clean, straight stems, about 4 feet; symmetrical heads, 5 feet diameter. One CITRON, same size. In ornamental green tubs.

Apply to the GARDENER, Woburn Park, Weybridge, Surrey. Inquiries by post address FRANCIS R. KINGHORN, Sheen Nursery, Richmond, S.W.

CORDON APPLE TREES, on the true French Paradise Stock, as recommended by Mr. Robinson in his "Gleanings in French Gardens." All the best kinds, including CALVILLE BLANC, REINETTE DU CANADA, and other sorts. Prices upon application.

B. S. WILLIAMS, Victoria and Paradise Nursery, Upper Holloway, London, N.

Elvaston Nurseries, Borrowash.

WILLIAM BARRON AND SON'S PRICED DESCRIPTIVE CATALOGUE of CONIFERÆ, HARDY JAPANESE PLANTS, Forest Trees, Evergreen and Deciduous Shrubs, Roses, Rhododendrons, Fruit Trees, &c., for the Autumn of 1868 and Spring of 1869, is now ready, and may be had post free on application. Their stock this year is unusually fine.

Elvaston Nurseries are only three minutes' walk from the Borrowash Station, on the Derby and Nottingham Railway.

Forest Trees, Evergreens, &c.

CHIVAS AND WEAVER have much pleasure in drawing the attention of Planters during the ensuing season to their very large stock of the above, grown with the greatest care, and regularly transplanted. The situation of their Nurseries being particularly exposed, renders the safe removal of plants to any part of the Kingdom almost a certainty.

SPECIAL PRICED LISTS (with terms of free delivery), on application. Large purchasers most liberally dealt with.

Eaton Road Nurseries, Chester.

Nursery Stock.

J. SCOTT, Merriott, Somerset, has to offer one of the finest collections of Trees, Shrubs, &c., in the kingdom, CATALOGUES of which will be forwarded on application.

The FRUIT TREE collection is one of the largest in Europe; the Pears alone number over 1,000 sorts.

The NEW CATALOGUE of FRUITS consists of above 200 pages of Cultural and Descriptive matter, and is the most complete record of these in the English language. Price 1s. 6d.

Planting Season.

DICKSONS AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, 1, Waterloo Place, Edinburgh, are now prepared to execute orders for all kinds of FOREST TREES, ORNAMENTAL TREES and SHRUBS, FRUIT TREES, ROSES, &c.; of all of which they have an extensive and very healthy stock.

CATALOGUES with Prices may be had free on application.

Established, 1770.

LUCOMBE, PINCE, AND CO. beg to call special attention to their unsurpassed stock of fine SPECIMEN IRISH YEWS. These plants have been trained to single stems, and cannot be equalled for symmetry; their roots have been carefully attended to, so that they can be moved any distance with perfect safety. A Lithograph with lowest price will be forwarded post free on application to them.

Exeter Nursery, Exeter.

W. HANDSCOMB, The Nurseries, Aspley Guise, offers the following—prices on application :—

100,000 QUICKS, 2-yr.
20,000 GREEN HOLLIES, 9 to 18 inches.
20,000 LARCH FIR, 2 to 5 feet.
20,000 SPRUCE do., 2 to 3 feet.
1,000 ,, 4 to 6 feet.
20,000 LAURELS, 2 to 3 feet.
10,000 SCOTCH, 2 to 2½ feet.
500 PORTUGAL LAURELS, 2 to 3 feet.
5,000 TREE BOX, 2 to 2½ feet.
60 LIME TREES, 12 to 15 feet.
10 RED MULBERRY, 8 to 9 feet.
100 TARTARIAN MAPLE, 8 to 10 feet.
200 ELMS of sorts, 12 to 16 feet.
2,000 BLACK ITALIAN POPLARS, 6 to 8 feet.
2,000 HORSE-CHESTNUTS, 2 to 3 feet.
5,000 ASPARAGUS PLANTS, 3-yr. old.

The Planting Season.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON respectfully invite especial attention to their very large stock of STANDARD ORNAMENTAL TREES, of large size, suitable for planting as single specimens on Lawns or in Parks where immediate effect is desired.

WEEPING ASH, 7 to 9 feet stems.
AMERICAN WILLOWS, 6 to 7 feet stems.
CATALPA SYRINGÆFOLIA, 6 to 8 feet.
ELMS, CHICHESTER and ENGLISH, 8 to 10, and 10 to 12 feet.
SILVER and SPRUCE FIRS, 6 to 7 feet.
HORSE-CHESTNUTS, 6 to 8, and 8 to 10 feet.
SCARLET HORSE-CHESTNUTS, extra fine plants, 6 to 8, and 8 to 10 feet.
LABURNUMS, Yellow and Purple, 6 to 8 feet.
POPLARS, BLACK ITALIAN and LOMBARDY, extra fine, 8 to 10, and 10 to 12 feet, and various other HARDY TREES.

See PRICED CATALOGUES, which may be had free on application.

Fruit the First Season.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON respectfully solicit attention to their enormous stock of FRUIT TREES in a fruit-bearing state.

PYRAMIDAL APPLES and PEARS, full of fruit buds.

Apples, 18s. per dozen; Pears, 24s. per dozen.

DWARF-TRAINED TREES, of extra size, in a fruiting state, adapted for walls or espaliers, including Apples, Pears, Plums, Cherries, &c.

STANDARD TRAINED FRUIT TREES for walls.

PRICED CATALOGUES may be had gratis on application.

Plants for Hedges.

TWO HUNDRED THOUSAND COMMON LAURELS, from 1½ to 3 feet.

WM. WOOD & SONS.

AMERICAN ARBOR-VITÆ, especially recommended for Hedges:—2 to 3 feet, 6s. per dozen, 40s. per 100; 3 to 4 feet, 9s. per dozen, 60s. per 100; 4 to 5 feet, 18s. per dozen (extra fine), 100s. per 100.

Extra fine Transplanted BEECH and HORNBEAM, 2 to 3 ft. and 3 to 4 feet; also fine EVERGREEN PRIVET, in large quantities.

WM. WOOD & SONS, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

Full-grown Evergreens.

HENRY GODFREY, NURSERYMAN, Stourbridge, has a large quantity of the following Evergreens to offer, in well grown plants: Green and Variegated HOLLY, Siberian and American ARBOR-VITÆ, Common and Portugal LAUREL, English and Irish YEWS, RHODODENDRONS PONTICUM and PONTICUM VARIEGATUM; Green and Variegated BOX, AUCUBA JAPONICA, ARAUCARIA IMBRICATA, &c.

Autumn Planting.

ORNAMENTAL TREES AND SHRUBS.

PETER LAWSON AND SON have an immense stock (extending over many acres) of the leading varieties of HARDY ORNAMENTAL TREES and SHRUBS, of such sizes as are most suitable for immediate effect, which they offer at moderate prices; and purchasers of large quantities will be very liberally dealt with.

PETER LAWSON & SON, after much experience of Autumn Planting, are fully satisfied of the beneficial results arising from it, and would respectfully bring under the notice of their Customers the desirability of early operations during the present favourable season.

Edinburgh and London.

PTYCHOSPERMA ALEXANDRÆ—the new "Alexandra Palm" of Western Australia. Of this quite newly discovered and lovely Palm the following notice appears in the *Queensland Guardian* :—We have now to notice the discovery of a very beautiful new species of the Palm family growing a short distance from the town of Rockhampton, sent by Mr. E. M. Bowman to Dr. Mueller, Director of the Botanic Gardens at Melbourne, who has just described it in the 33d Number of his 'Fragmenta Phytographiæ Australiæ,' and named it after the Princess of Wales 'Ptychosperma Alexandræ—the Alexandra Palm.' This tree is one of the most lovely of the Palms found in Australia, and one which is well worthy of a place in the gardens of our own country, and the greenhouses of colder climates." This most welcome discovery being strictly a greenhouse Palm, not requiring heat, as other kinds, will speedily become a universal favourite, now that seeds have been safely imported.

HOOPER & Co. have just received a good supply of the Nuts from Queensland direct, which they offer at the following prices, viz., two seeds for 2s. 6d., five for 5s., twelve for 10s.

HOOPER & Co. have also received along with the above a parcel of Seeds of a perfectly new species of Queensland PALM, as yet unnamed. It is apparently of small size, and will be equally hardy with the above. Seeds offered at the same price as the above.

Liberal offers to the Trade on application.

HOOPER & Co., Seed Merchants, Covent Garden, London, W.C.

The American Nursery, Bagshot, Surrey.

JOHN WATERER respectfully invites the attention of Gentlemen and others engaged in planting to the undernamed selections from his general stock. He has much satisfaction in recommending them as being symmetrically grown and really of first-rate excellence, and from frequency in removal are in an excellent state for transplanting. Having a very large stock, he is determined to treat on most liberal terms. He would, however, earnestly invite Purchasers to make a visit and choose for themselves, which is easily accomplished by South-Western Railway (Reading Branch) to Sunningdale Station, which is near the Nursery.

RHODODENDRONS (Standards).—Of all the leading choice, scarlet, and other varieties, 3 to 4 feet stems, consisting of such as Alexander Adie, Michael Waterer, The Warrior, Princess Mary of Cambridge, Quadroona, Mrs. Ino Penn, Joseph Whitworth, and all such others as have been exhibited annually at the Royal Botanic Gardens, Regent's Park.

RHODODENDRONS (Half Standards)—Of all the approved kinds; 2 to 3 feet stems.

RHODODENDRONS.—Hardy scarlet, crimson rose, white; for superior clumps or borders fine well-grown plants. An excellent assortment would be supplied at £15 per 100. Fine bushy plants can also be supplied, averaging 3 to 5 feet.

RHODODENDRONS.—Immense quantities of really good coloured seedlings, with Catawbiense and Hybrid Catawbiense, 1½ to 2 and 3 feet, £10 to £12 10s. per 100. These varieties are very suitable for admixture with the better kinds. The plants are bushy, and mostly well set with blooming buds, and from rose to white in colour.

RHODODENDRONS (Dwarf-growing kinds).—These are very close growing varieties, and are recommended for filling winter beds. Daphnoides, Myrtifolium, and Hybridum are the best suited for such purposes. Odoratum is delightfully scented, and much used for potting and forcing.

RHODODENDRON PONTICUM.—This kind is the most common, and now generally admitted to form the best permanent cover for game. In the most severe weather it is never injured by hares or rabbits. Good plants, 21s. to 30s. per 100.

AZALEAS, HARDY, of the most popular kinds, of all colours, and in fine plants, covered with a profusion of blooming buds. These are much used for forcing. 18s. to 30s. per dozen.

ANDROMEDA FORIBUNDA.—One of the most hardy plants used for decorating winter clumps. Of these we are large holders, and can supply beautiful specimens at 30s. per dozen, covered with blooming buds.

KALMIA LATIFOLIA and MYRTIFOLIA.—Fine grown plants, of all sizes.

HARDY HEATHS.—A very fine collection, in 20 kinds, 30s. p. 100.

ABIES NORDMANNIANA.—Of this fine kind we are very large holders, all of which are seedlings, and of all heights, from 2 to 4 to 6 to 8 and 10 feet.

ABIES MAGNIFICA.—Fine specimens, 2 to 5 feet.

ABIES NOBILIS.—All seedlings, 1½ to 3 to 5 feet.

ABIES LASIOCARPA.—From 2 to 3 to 5 to 7 feet.

ABIES GRANDIS (of Douglas).—Fine specimens, 2 to 6 feet.

ABIES DOUGLASII.—3 to 4 to 6 to 10 feet.

ABIES PINSAPO.—2 to 3 to 5 to 10 feet.

ARAUCARIA IMBRICATA.—Fine specimen, 2 to 4 to 6 to 12 feet

THUJOPSIS BOREALIS.—2 to 3 to 4 to 6 feet.

THUJA AUREA.—All sizes, 2 to 4 to 5 feet, perfect globes.

THUJA GIGANTEA.—Immense quantities, from 3 to 4 to 6 feet.

WELLINGTONIA GIGANTEA.—Of all sizes from 2 to 12 feet.

IRISH YEW.—Selected specimens, 4 to 12 feet.

HOLLIES (Green).—Fine, 2 to 3 to 4 to 6 feet.

HOLLIES (Gold and Silver).—In the most approved kinds, of all sizes.

STANDARD GOLDEN HOLLY (WATERER'S).—The best for standards; fine plants.

STANDARD WEEPING HOLLIES (Green and Variegated).

We have likewise immense quantities of the leading kinds of EVERGREENS, of all sizes, such as Yews, Box, Bays, Aucubas, Arbutus, Phillyreas, Common and Portugal Laurels, &c., as well as fine strong transplanted FOREST TREES, 2 to 3 and 4 feet, consisting of Ash, Beech, Alder, Spanish Chestnut, Hazel, Withy, Larch, Spruce, Pinus austriaca, &c.

CATALOGUES describing the colours of all the RHODODENDRONS worthy of cultivation, with a LIST of CONIFEROUS PLANTS, with heights and prices, forwarded to all applicants.

☞ Purchasers of large quantities of goods are informed that the great expense incurred by package is now greatly diminished, as we can forward from Sunningdale, in through trucks without change, to all Stations on the Great Northern, North-Western, Eastern Counties, and Great Western (narrow gauge) Railways; also by South-Eastern and Brighton Lines by way of Blackwater.

The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway, and Blackwater Station, South-Eastern Railway, where excellent Conveyances await all Trains.

SELECTED

VEGETABLE & FLOWER SEEDS, POTATOS, &c.

Fully DESCRIPTIVE PRICED CATALOGUE of the above, containing all the desirable NOVELTIES of the Season, is now ready, and will be sent *Gratis* and *Post Free* on application.

All Orders for VEGETABLE SEEDS amounting to 20*s.* and upwards delivered *Carriage Free.*

FLOWER SEEDS in all cases *Delivered Free* by post or rail.

James Dickson & Sons

OLD ESTABLISHED SEED & NURSERY BUSINESS,

102, EASTGATE STREET, AND "NEWTON" NURSERIES, CHESTER.

BARR & SUGDEN'S

(12, KING STREET, COVENT GARDEN, LONDON, W.C.)

NEW SEEDS READY TO SEND OUT.

NEW DESCRIPTIVE SPRING CATALOGUE of CHOICE SEEDS ready, and may be had free by intending purchasers. The Catalogue embraces every Novelty and Speciality in Flower and Vegetable Seeds worthy of notice, with a Special List of nearly 400 sorts of ALPINE and HERBACEOUS PERENNIALS, which have been saved from one of the most choice Collections in Europe; and the most extensive LIST of GLADIOLI offered, embracing all the new kinds. Also (offered for the first time in this country) a SPECIAL LIST of NEW TABLE MAIZE, the most highly esteemed varieties of those cultivated by our American Cousins, who use the green cobs as one of their most popular Vegetables: and as, in this country, they will come into use when the supply of Green Peas is becoming short, they will be found an agreeable substitute for these. The late Judge Haliburton (Sam Slick), when residing at Isleworth, used this Vegetable when in season daily. The Rev. T. C. Bréhaut, of Guernsey (Her Majesty's Commissioner at the Paris Exhibition of 1867 to report on the present state of Fruit Culture on the Continent), through the American Commissioners received the varieties of Maize referred to and enumerated in our Catalogue, and has placed the entire stock he raised last year in our hands for distribution, feeling confident that the success which has attended their cultivation in the Island of Guernsey warranted him in introducing them into England for domestic use.

BARR & SUGDEN,

THE METROPOLITAN SEED, BULB, AND PLANT WAREHOUSE,

12, KING STREET, COVENT GARDEN, LONDON, W.C.

COLLECTIONS of VEGETABLE SEEDS, 12*s.* 6*d.*, 15*s.* 6*d.*, 21*s.*, 31*s.* 6*d.*, 42*s.*, 63*s.*, 84*s.*, and 105*s.*

COLLECTIONS of FLOWER SEEDS, 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 10*s.* 6*d.*, 21*s.*, 31*s.* 6*d.*, and 42*s.*

COLLECTIONS of HERBACEOUS and ALPINE SEEDS, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, 15*s.*, 21*s.*, and 30*s.*

COLLECTIONS of GLADIOLI, 5*s.* 6*d.*, 8*s.* 6*d.*, 10*s.* 6*d.*, 13*s.* 6*d.*, 21*s.*, 30*s.*, 42*s.*, and 63*s.*

GLADIOLI, by the Hundred, 10*s.* 6*d.*, 15*s.*, 21*s.*, 25*s.*, and 30*s.*

COLLECTIONS of TABLE MAIZE, 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, and 10*s.* 6*d.*

COLLECTIONS of ORNAMENTAL GOURDS, 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, 10*s.* 6*d.*, 15*s.*, and 21*s.*

COLLECTIONS of ORNAMENTAL GRASSES for TABLE DECORATION, &c., 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*,

COLLECTIONS of SEEDS for SUBTROPICAL GARDENS, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, and 10*s.* 6*d.* [and 10*s.* 6*d.*

COLLECTIONS of CLIMBERS, CARNATIONS, PELARGONIUMS, HOLLYHOCKS, STOCKS, ASTERS, BALSAMS, ZINNIAS, LANTANAS, EVERLASTINGS, AQUATICS, PALMS, &c. Full particulars will be found in the DESCRIPTIVE SPRING CATALOGUE, which will be sent Free to intending purchasers.

BARR AND SUGDEN, 12, KING STREET, COVENT GARDEN, W.C.

ROYAL HORTICULTURAL SOCIETY, 1869.

SCHEDULES FOR THE SPRING AND SUMMER EXHIBITIONS,

TO BE HELD AT THE GARDENS, SOUTH KENSINGTON, W.

SHOW of HYACINTHS and SPRING FLOWERS.

SATURDAY, MARCH 13, 1869.

LIST OF PRIZES

Class.
1. 18 Hyacinths, distinct (Nurserymen), £3, £2, £1.
2. 18 Red Hyacinths, distinct kinds (Open), £2, £1 10s., £1.
3. 6 Hyacinths, distinct (Amateurs), £1, 15s., 10s. [£1, 15s., 10s.
4. 6 Hyacinths, distinct, grown in windows in pots (Amateurs),
5. 6 Hyacinths, new kinds, never before exhibited (Open), £1, 15s.,
6. 6 Pots of Narcissi, distinct (Open), £1, 15s., 10s. [10s.
7. 12 Pots of Tulips, 6 kinds (Nurserymen), £1 10s., £1, 15s.
8. 12 Pots of Tulips, 4 kinds (Amateurs), £1 10s., £1, 15s.
9. Crocuses, collection of (Nurserymen), 15s., 10s.
10. Crocuses, 12 pots of (Amateurs), 15s., 10s.
11. 12 Camellias, cut blooms, 6 kinds (Open), £1 10s., £1, 10s.
12. 6 Camellias, in flower, distinct (Open), £2, £1 10s., £1.
13. 6 Pots of Lily of the Valley (Open), £1, 15s., 10s.
14. Collection of Cyclamens (Open), £1 10s., £1, 10s.
15. 6 Chinese Primulas, various colours (Open), £1, 15s., 10s.

NOTE.—Hyacinths in the above Classes must have one bulb in each pot: Narcissi and Tulips, 3 bulbs in each pot.

SPECIAL PRIZES FOR HYACINTHS SUBSCRIBED BY THE FOLLOWING BULB GROWERS IN HOLLAND.

Per T. F. WILDING, F.R.H.S.

Breuet Brothers	Roozen, L.
De Bosm, V.	Rosenkrantz, J., & Son
Krelage, E. H., & Son	Schertzer, P., & Son
Kruyff, H.	Van Edon, A. C., & Co.
Mol, J. P., & Co.	Van der Schoot, R., & Son
Moey, H. Pelman	Van Velsen, P., & Sons
Roozen, Ant.	Van Waveren, M., & Sons

For 36 Hyacinths, distinct sorts. Open to all Growers.

First Prize .. Twelve Guineas | *Third Prize* .. Five Guineas
Second Prize .. Eight Guineas | *Fourth Prize* .. Three Guineas

THE FOLLOWING PRIZES ARE SUBSCRIBED BY

Veen, J. H., of Haarlem
Van Velsen, Francis, Jun., Overveen, near Haarlem.
Kersten & Co., Haarlem

Per WILLIAM PAUL, F.R.H.S.

The best collections of 36 Hyacinths, in 12 sorts, 3 of a sort:—

First Prize .. Ten Guineas | *Second Prize* .. Five Guineas

SHOW of AZALEAS and SPRING FLOWERS.

SATURDAY, APRIL 17, 1869.

LIST OF PRIZES.

1. 9 Azaleas, distinct (Nurserymen), £3, £2, £1.
2. 6 Azaleas, distinct (Amateurs), £2, £1 10s., £1.
3. 6 Azaleas, distinct (Nurserymen), £1 10s., £1, 15s.
4. Azalea, single specimen (Open), 15s., 10s.
5. 6 Roses, distinct (Open), £2, £1 10s., £1.
6. 6 Cinerarias, distinct (Open), £1 10s., £1, 15s.
7. 6 Calceolarias, distinct (Open), £1, 15s., 10s.
8. 12 Camellias, cut blooms, 6 kinds (Open), £1 10s., £1, 10s.
9. 6 Camellias, in flower, distinct (Open), £2, £1 10s., £1.
10. 9 Auriculas, edged, distinct (Open), £1 10s., £1, 15s.
11. 9 Auriculas, Selfs and Fancies, distinct (Open), £1 10s., £1, 15s.
12. 6 Cyclamens, in flower (Amateurs), 15s., 10s., 5s.
13. 6 Violets, in flower, not fewer than 3 kinds (Open), £1, 15s. [10s.
14. Miscellaneous collection of Plants in Flower (Open), £1 10s., £1,

SHOW of POT ROSES and SPRING FLOWERS.

SATURDAY, MAY 8, 1869.

LIST OF PRIZES.

1. 9 Roses, in pots, distinct (Nurserymen), £2, £1 10s., £1.
2. 6 Roses, in pots, distinct (Amateurs), £2, £1 10s., £1.
3. 12 New Roses of 1867 or 1868, in pots, distinct (Open), £2, £1 10s.,
4. Rose, single specimen, in pot (Open), 15s., 10s. [£1.
5. 9 Auriculas, edged, distinct (Open), £1 10s., £1, 15s.
6. 9 Auriculas, Selfs and Fancies, distinct (Open), £1 10s., £1, 15s.
7. Collection of Alpine Plants, in 6 boxes, each 1 foot sq. (Open),
8. 6 Polyanthuses, distinct (Open), £1, 15s., 10s. [£1 10s., £1, 15s.
9. 6 Rhododendrons, 3 kinds (Open), £2, £1 10s., £1.
10. Rhododendron, single specimen (Open), 15s., 10s.
11. 8 Pansies, in pots, distinct (Open), 15s., 10s., 5s.
12. 6 Pots of Lily of the Valley (Open), £1 10s., £1, 15s. [£1, 15s.
13. Miscellaneous Collection of Plants in Flower (Open), £1 10s.,

NOTE.—Roses to be grown and exhibited in Pots not exceeding 10 ins. in diameter. New Roses are to date from the time when first put in commerce, either in this country or abroad.

SPECIAL PRIZE and PELARGONIUM SHOW.

SATURDAY, MAY 22, 1869.

PRIZES OFFERED BY HIS GRACE THE PRESIDENT.

1. 9 Greenhouse Azaleas, in bloom (Open), £10.
2. 9 Roses, in Pots, in bloom (Open), £10.
3. 6 Double-flowered Zonal Pelargoniums, not fewer than three kinds, in bloom (Open), £5.

PRIZES GIVEN BY THE SOCIETY.

4. 6 New Plants, sent out in 1867 or 1868 (Open). Silver Flora Medal—Bronze Flora Medal.
5. 6 New Plants, sent out in 1869 (Open). Silver Flora Medal—Bronze Flora Medal.
6. New Plant shown for the first time in flower in Great Britain (Open), Silver Flora Medal—Bronze Flora Medal.
7. New Foliage Plant shown for the first time in Great Britain (Open). Silver Flora Medal—Bronze Flora Medal.
8. New Garden Seedling, of any kind, in flower (Open). Silver Flora Medal—Bronze Flora Medal.

NOTE.—Certificates of the Floral Committee will also be awarded at the discretion of a Sub-Committee of that body, in Classes 6, 7, and 8.

9. Group of Foliage and Flowering Plants, 3 of each (Open), £5, £3.
10. 6 Stove and Greenhouse Plants, distinct, in flower, in 12-inch pots (Open), £5, £3.
11. 6 Cape Pelargoniums, distinct, in flower (Open), £2, £1 10s., £1.
12. Painting of Flowers and Fruits, botanically correct, £5, £3, £2.

SUBSCRIPTION PRIZES FOR VARIEGATED ZONAL PELARGONIUMS, &c.

*** Certificates of the Floral Committee will be awarded by a Sub-Committee of that body, to Seedlings staged in any of the subjoined Classes, or in Class 3, provided the varieties are duly entered for that purpose, and have not been previously certificated.

13. 1 Golden Variegated Zonal (Tricolor) Pelargonium (Open), 15s., 10s., 5s. [10s., 5s.
14. 1 Silver Variegated Zonal (Tricolor) Pelargonium (Open), 15s.,
15. 1 Gold and Bronze Zonal (Bicolor) Pelargonium (Open), 15s.,
16. 1 Gold-leaved or Golden Pelargonium (Open), 15s., 10s., 5s. [10s., 5s.
17. 1 Silver-edged Pelargonium (Open), 15s., 10s., 5s.
18. 1 Tricoloured Pelargonium, in bloom (Open), 15s., 10s., 5s.
19. 1 Nosegay Pelargonium, in bloom (Open), 15s., 10s., 5s.
20. 1 Zonal Pelargonium, in bloom (Open), 15s., 10s., 5s.

NOTE.—In Classes 14 to 20, three pots of each variety are required. They may be shown in pots of any size.

21. 6 Golden Variegated Zonal (Tricolor) Pelargoniums, distinct (Open), £2, £1 10s., £1
22. 6 Silver Variegated Zonal (Tricolor) Pelargoniums, distinct (Open), £2, £1 10s., £1 [£1 10s., £1.
23. 6 Gold and Bronze Zonal Pelargoniums, distinct (Open), £2,
24. 12 Zonal Pelargoniums, distinct, of any Class (of certain additional kinds to be named) (Nurserymen), £3, £2, £1
25. 6 Zonal Pelargoniums, distinct, of any Class (of certain additional kinds to be named) (Amateurs), £2, £1 10s., £1.
26. 12 Zonal Pelargoniums, distinct, in bloom (Nurserymen), £4, £3, £2 £1 10s., £1.
27. 6 Zonal Pelargoniums, distinct, in bloom (Amateurs), £2, £1 10s., £1.
28. 6 Nosegay Pelargoniums, distinct, in bloom (Open), £2, £1 10s., £1

NOTE.—In Classes 21 to 23, and 26 to 28, inclusive, no pots larger than 7 inches in diameter will be admitted. In Classes 24 and 25 there is no restriction as to the size of the pots.

GRAND SUMMER FLOWER SHOW,

WEDNESDAY, JUNE 2, and FOLLOWING DAY.

§ 1. PLANTS CHIEFLY SHOWN FOR THEIR FLOWERS.

Class.
1. 9 Greenhouse Azaleas, distinct (Open), £10, £7, £5.
2. 6 Greenhouse Azaleas, distinct (Nurserymen), £6, £3, £2.
3. 6 Greenhouse Azaleas, distinct (Amateurs), £6, £3, £2.
4. 6 Greenhouse Azaleas, in pots not more than 12 inches in diameter (Amateurs), £3, £2, £1.
5. 15 Greenhouse Azaleas, in pots not more than 12 inches in diameter, not fewer than 5 varieties (Open), £7, £5, £3.
6. 9 Roses, distinct, in pots not more than 13 inches in diameter (Open), £9, £7, £5.
7. 6 Roses, distinct, in pots not more than 13 inches in diameter (Open for exhibition not showing in Class 6), £6, £4, £3.
8. 6 New Roses, not sent out previous to 1866 or 1867, in any sized pot (Open), £3, £2, £1.

NOTE.—New Roses are to date from the time when first put in commerce, either in this country or abroad.

9. 9 Show Pelargoniums, distinct, in pots not larger than 8 inches in diameter (Nurserymen), £3, £2, £1.
10. 6 Show Pelargoniums, distinct, in pots not larger than 8 inches in diameter (Amateurs), £6, £3, £2.
11. 6 Fancy Pelargoniums, distinct, in pots not larger than 8 inches in diameter (Nurserymen), £5, £3, £2.
12. 6 Fancy Pelargoniums, distinct, in pots not larger than 8 inches in diameter (Amateurs), £5, £3, £2.
13. 6 Zonal Pelargoniums, distinct—Nosegay and Variegated sorts excepted (Amateurs), £5, £3, £2.
14. 6 Zonal Pelargoniums, distinct—Nosegay and Variegated sorts excepted (Nurserymen), £5, £3, £2.
15. 6 Nosegay or Hybrid Nosegay Pelargoniums, distinct (Open), £5, £3, £2.
16. 6 Fuchsias, distinct, in pots not larger than 13 inches in diameter (Open), £4, £3, £2.
17. 6 Herbaceous Calceolarias (Open), £3, £2, £1.
18. 3 Liliums, in pots, distinct (Open), £2, £1, 15s. [10s.
19. 12 Early Pinks, in pots, three or more varieties (Open), £1, 15s.,
20. 12 Exotic Orchids, distinct (Open), £12, £10, £7.
21. 10 Exotic Orchids, distinct (Nurserymen), £9, £6, £5.
22. 6 Exotic Orchids, distinct (Amateurs), £5, £4, £3.
23. Specimen Exotic Orchid (Open), £2, £1, 15s.
24. 12 Stove or Greenhouse Plants, distinct (Open), £12, £10, £7.
25. 6 Stove or Greenhouse Plants, distinct (Nurserymen), £5 £1, £3.
26. 6 Stove or Greenhouse Plants, distinct (Amateurs), £5, £4, £3.
27. 6 Stove or Greenhouse Plants, in pots not larger than 12 inches in diameter (Amateurs), £3, £2, £1.
28. Specimen Stove or Greenhouse Plant (Open), £2, £1.
29. 8 Greenhouse Ericas (Open), £7, £5, £3.
30. 6 Greenhouse Ericas, distinct (Amateurs), £5, £3, £2.
31. 6 Greenhouse Ericas, in pots not larger than 12 inches in diameter (Amateurs), £3, £2, £1.
32. 12 Amaryllis, distinct (Open), £3, £2, £1.
33. Collection of 12 Hardy Alpine Plants, in boxes 1 foot square each, distinct (Open), £3, £2, £1.

§ 2. PLANTS CHIEFLY SHOWN FOR THEIR FOLIAGE.

34. 9 Fine-foliaged Stove or Greenhouse Plants, distinct, including Variegated Plants (Open), £7, £5, £3.
35. 6 Fine-foliaged Stove or Greenhouse Plants, distinct, including Variegated Plants (Amateurs), £5, £3, £2.
36. 12 Coleus, distinct, in pots not larger than 8 inches in diameter (Open), £3, £2, £1.
37. Echeverias, in or out of flower, distinct (Open), £3, £2, £1.
38. Pair of Greenhouse Yuccas or Beaucarneas, &c. (Open), £3, £2, £1.
39. 1 Pair of Draccenas or Cordylines (Open), £3, £2, £1.
40. 6 Agaves, distinct (Open), £3, £2, £1.
41. 6 Variegated Zonal Pelargoniums, distinct (Open), £5, £3, £2.
42. 12 Stove or Greenhouse Ferns, distinct (Open), £6, £4, £3.
43. 6 Stove or Greenhouse Ferns, distinct (Amateurs), £3, £2, £1.
44. 12 Hardy Ferns, species or varieties, distinct (Open), £3, £2, £1.
45. 1 Pair of Tree Ferns (Open), £4, £3, £2.
46. Collection of 12 Hardy Variegated Alpine Plants, in boxes 1 foot square each, distinct (Open), £3, £2, £1.

§ 3. NEW PLANTS AND SEEDLINGS.

47. 6 New Plants, of any description, in or out of flower, distinct (Open). Silver Flora Medal—Bronze Flora Medal—Certificates.
48. 1 New Plant, shown for the first time in flower (Open). Silver Flora Medal—Bronze Flora Medal—Certificates.
49. 1 New Plant, in or out of flower, not found in commerce (Open). Silver Flora Medal—Bronze Flora Medal—Certificates.
50. Seedling Florists' Flower, of any kind, named (Open). Certificates.
51. New Garden Variety, named (Open). Certificates.

NOTE.—The Certificates in the Classes of New Plants will be awarded by Judges selected from the Floral Committee. In Classes 47, 49, 50, 51, Plants will not be eligible which have received a Certificate or Medal from the Floral Committee of the Royal Horticultural Society previous to June, 1868.

§ 4. MISCELLANEOUS.

52. Miscellaneous Plants or Flowers, not specially invited in the preceding sections (Open), £3, £2, £1 10s., £1, 10s.

§ 5. FRUIT.

A. Pine-apple, any variety, £2, £1 10s., £1.
B. Grapes, Black, single dish, £2, £1 10s., £1.
C. Grapes, White, single dish, £2, £1 10s., £1.
D. Peaches, single dish, £2, £1 10s., £1.
E. Nectarines, single dish, £2, £1 10s., £1.
F. Apricots, single dish, £1 10s., £1, 15s.
G. Figs, single dish, £1, 15s., 10s.
H. Cherries, single dish, £1, 15s., 10s.
I. Strawberries, single dish, £1, 15s., 10s.
J. Melon, green-fleshed, £1, 15s.
K. Melon, scarlet-fleshed, £1, 15s.
L. Miscellaneous, for Fruit not mentioned in Schedule, £1, 15s., 10s.

NOTE.—A dish of Grapes to consist of 3 bunches; Peaches, Nectarines, Apricots, and Figs, of 6 Fruits each; and Strawberries and Cherries of 50 fruits each. All fruit must be ripe and fit for table. The Classes are all open.

Certificates of the Fruit Committee will also be awarded, at the discretion of a Sub-Committee of that body, to any meritorious object not eligible under any of the above Classes.

GREAT ROSE SHOW.

TUESDAY, JUNE 29.

*** The National Rose Show is incorporated with this Exhibition.

1. 72 Cut Roses, distinct, 1 truss of each (Nurserymen), £6, £4, £3, £2
2. 48 Cut Roses, distinct, 3 trusses of each (Nurserymen), £6, £4, £3, £2.
3. 24 Cut Roses, Hybrid Perpetuals only, distinct, 3 trusses of each (Nurserymen), £4, £3, £2, £1.
4. 24 Cut Roses, distinct, 1 truss of each (Nurserymen), £3, £2, £1, 10s.
5. 48 Cut Roses, distinct, 1 truss of each (Amateurs), £6, £4, £3, £2.
6. 31 Cut Roses, distinct, 1 truss of each (Amateurs), £5, £3, £2, £1 10s.
7. 24 Cut Roses, distinct, 1 truss of each (Amateurs), £4, £3, £2, £1.
8. 12 Cut Roses, distinct, 1 truss of each (Amateurs), £2, £1 10s., £1, 10s.
9. 18 New Roses of 1867 or 1868, single trusses, distinct kinds (Open), £2, £1 10s., £1, 15s.
10. 12 trusses of any New Rose of 1867 (Open), £1 10s., £1, 10s., 7s.
11. 6 trusses of any New Rose of 1868 (Open), £1, 15s., 10s., 7s.
12. 12 Yellow Roses, single trusses, not fewer than six kinds (Open), £1 10s., £1, 10s.
13. The best exhibition of Yellow Roses, one or more kinds, not fewer than 24 trusses (Open), £3, £2, £1.
14. 12 Tea-scented and Noisette Roses, single trusses (Amateurs), £2, £1 10s., £1.
15. 12 Tea-scented and Noisette Roses, single trusses (Nurserymen) £1 10s., £1, 15s.
16. 12 Roses, distinct, single blooms (Open), £1 10s., £1, 15s.
17. Vase or Basket of Roses (Open), £3, £2, £1.
18. 6 Bouquets of Roses, 6 distinct kinds, 6 trusses to each bouquet (Open), £3, £2, £1.

NOTE.—Each bouquet to be shown separately, in a hyacinth glass, or some similar kind of stand.

GREAT ROSE SHOW *(Continued)*—

Class.
19. 6 Moss Roses, distinct kinds (Open), £1, 15s., 10s.
20. 24 Roses in pots, not fewer than 10 distinct kinds, the pots not to exceed 8 inches in diameter (Open), £6, £4, £3.
21. 20 New Roses of 1866, 1867, or 1868, in pots, not fewer than 10 distinct kinds, the pots not to exceed 8 inches in diameter (Open), £6, £4, £3.

NOTE.—Exhibitors can only show in two of the Classes, 5, 6, 7, 8. New Roses are to date from the time when first put in commerce, either in this country or abroad.

TUESDAY SCIENTIFIC, FRUIT AND FLORAL MEETINGS.

Jan. 19.—Fruit and Floral Committees at 11 A.M.; Scientific Committee at 1.30 P.M.; General Meeting at 3 P.M.
Feb. 16.—Fruit and Floral Committees at 11 A.M.; Scientific Committee at 1.30 P.M.; General Meeting at 3 P.M.

PRIZES OFFERED.

1. Dessert Apples, single dish (Open), £1, 15s., 10s.
2. Dessert Pears, single dish (Open), £1, 15s., 10s.
3. Dessert Apples, three dishes (Open), £1 5s., 15s., 10s.
4. Apples, 6 dishes of the best kept fruits (Open), £1 5s., 15s., 10s.

March 2.—Fruit and Floral Committees at 11 A.M.; Scientific Committee at 1.30 P.M.; General Meeting at 3 P.M.
March 16.—Fruit and Floral Committees at 11 A.M.; Scientific Committee at 1.30 P.M.; General Meeting at 3 P.M.
April 6.—Fruit and Floral Committees at 11 A.M.; Scientific Committee at 1.30 P.M.; General Meeting at 3 P.M.

PRIZES OFFERED.

1. White-spined Cucumber, 1 brace, of 1 sort only (Open), £1, 10s.
2. Black-spined Cucumber, 1 brace, of 1 sort only (Open), £1, 10s.
3. Smooth Cucumber, 1 brace, of 1 sort only (Open), £1, 10s.
4. 6 Cucumbers, not confined to one sort (Open), £2, £1.

April 20.—Fruit and Floral Committees at 11 A.M.; Scientific Committee at 1.30 P.M.; General Meeting at 3 P.M.
May 4.—Fruit and Floral Committees at 11 A.M.; Scientific Committee at 1.30 P.M.; General Meeting at 3 P.M.
May 18.—Fruit and Floral Committees at 11 A.M.; Scientific Committee at 1.30 P.M.; General Meeting at 3 P.M.
June 1.—Fruit and Floral Committees at 11 A.M.; Scientific Committee at 1.30 P.M.; General Meeting at 3 P.M.
June 15.—Fruit and Floral Committees at 11 A.M.; Scientific Committee at 1.30 P.M.; General Meeting at 3 P.M.

PRIZES OFFERED BY W. WILSON SAUNDERS, ESQ., V.P.R.H.S.

1. 12 Herbaceous Plants, in flower, distinct, to be exhibited in pots or boxes, £1 10s., £1, 10s.

PRIZES OFFERED.

2. 24 Pinks, cut blooms, distinct (Nurserymen), £1 5s., £1, 15s.
3. 12 Pinks, cut blooms, distinct (Amateurs), 15s., 10s., 7s.
4. 6 Calceolarias, distinct, in bloom (Open), £2, £1 10s., £1.
5. 6 Double-flowered Zonal Pelargoniums, 3 sorts, in bloom (Open), £2, £1 10s., £1. [10s., 5s.
6. 1 Double-flowered Zonal Pelargonium, in bloom (Open), 15s.,

July 6.—Fruit and Floral Committees at 11 A.M.; General Meeting at 3 P.M.

PRIZES OFFERED.

1. 24 Carnations, cut blooms, distinct (Nurserymen), £1 5s., £1, 15s.
2. 12 Carnations, cut blooms, distinct (Amateurs), 15s., 10s., 7s.
3. 6 Carnations, cut blooms, distinct (Amateurs), 10s., 7s., 5s.
4. 24 Picotees, cut blooms, distinct (Nurserymen), £1 5s., £1, 15s.
5. 12 Picotees, cut blooms, distinct (Amateurs), 15s., 10s., 7s.
6. 6 Picotees, cut blooms, distinct (Amateurs), 10s., 7s., 5s.
7. 36 Carnations, Picotees, and Cloves, mixed, cut blooms (Nurserymen), £1 10s., £1.
8. 12 Carnations, Picotees, and Cloves, mixed, cut blooms (Amateurs), 15s., 10s. [at 3 P.M.

July 20.—Fruit and Floral Committees at 11 A.M.; General Meeting
August 3.—Fruit and Floral Committees at 11 A.M.; General Meeting at 3 P.M.

PRIZES OFFERED.

1. Peaches, single dish, from pot plants (Open), £1, 10s.
2. Peaches, single dish, grown on planted-out trees, under glass (Open), £1, 10s.
3. Nectarines, single dish, from pot plants (Open), £1, 10s.
4. Nectarines, single dish, grown on planted-out trees, under glass (Open), £1, 10s. [£1.
5. Peaches and Nectarines, best collection, named (Open), £3, £2,

Aug. 17.—Fruit and Floral Committees at 11 A.M.; General Meeting at 3 P.M.

PRIZES OFFERED.

1. 24 Gladiolus, cut spikes, distinct (Open), £2, £1 10s., £1.
2. 12 Gladiolus, cut spikes, distinct (Nurserymen), £1, 15s., 10s.
3. 12 Gladiolus, cut spikes, distinct (Amateurs), £1, 15s., 10s.
4. 6 Gladiolus, cut spikes, distinct (Amateurs), 10s., 7s., 5s.
5. 6 Hollyhocks, cut spikes, distinct (Open), £1, 15s., 10s.
6. 24 Hollyhocks, cut blooms, distinct (Nurserymen), 15s., 10s., 5s.
7. 12 Hollyhocks, cut blooms, distinct (Amateurs), 10s., 7s., 5s.

Sept. 7.—Fruit and Floral Committees at 11 A.M.; General Meeting at 3 P.M.
Sept. 21.—Fruit and Floral Committees at 11 A.M.; General Meeting at 3 P.M.

PRIZES OFFERED BY H. G. BOHN, Esq., F.R.H.S., and Member of Fruit Committee.

1. Peaches grown on standards out-of-doors, not less than 8 fruits, £2, £1.

Oct. 5.—Fruit and Floral Committees at 11 A.M.; General Meeting at 3 P.M.

PRIZES OFFERED BY W. WILSON SAUNDERS, Esq., V.P.R.H.S.

1. Collection of Edible and Poisonous Fungi, £5, £3, £2.

*** These should be tastefully set up, and, as far as possible, correctly and conspicuously named.

PRIZES OFFERED.

2. Grapes, 3 bunches of Chasselas Musqué (Open), £1, 10s.
3. Grapes, 3 bunches of Muscat Hamburgh (Open), £1, 10s.
4. Grapes, 3 bunches of Frankenthal or Hamburgh (Open), £1, 10s.
5. Grapes, 3 bunches of White Muscat of Alexandria (Open), £1, 10s.
6. Grapes, 3 bunches of Alicante (Open), £1, 10s.
7. Grapes, 3 bunches of any new or recent variety (Open), £1, 10s.
8. Grapes, the best collection, named (Open), £2 10s.

Oct. 19.—Fruit and Floral Committees at 11 A.M.; General Meeting at 3 P.M.

PRIZES OFFERED BY THE REV. GEO. KEMP, F.R.H.S., and Member of the Fruit Committee.

1. For the best dish of Grapes, consisting of 6 bunches of any variety, grown in the open air against a wall, without any protection whatever, £3, £2.

Nov. 16.—Fruit and Floral Committees at 11 A.M.; Scientific Committee at 1.30 P.M.; General Meeting at 3 P.M.

PRIZES OFFERED by W. WILSON SAUNDERS, Esq., V.P.R.H.S.

1. Collection of Winter Bedding Plants, to be exhibited in pots or boxes, £2, £1.

PRIZES OFFERED. [15s., 10s.

2. 4 Chrysanthemums, large-flowered, in pots, distinct (Open), £1,
3. 4 Chrysanthemums, Pompones, in pots, distinct (Open), £1, 15s., 10s. [7s., 5s.
4. 12 Chrysanthemums, cut blooms, distinct (Nurserymen), 10s.,
5. 6 Chrysanthemums, cut blooms, distinct (Amateurs), 10s., 7s., 5s.
6. 12 Plants bearing decorative fruits, in pots, varied (Open), £1 5s., £1, 15s. [10s., 5s.
7. 6 Plants bearing decorative fruits, in pots, varied (Open), 15s.,

Dec. 21.—Fruit and Floral Committees at 11 A.M.; Scientific Committee at 1.30 P.M.; General Meeting at 3 P.M.

PRIZES OFFERED BY THE REV. GEO. KEMP, F.R.H.S., and Member of Fruit Committee.

1. For the best winter dessert of Apples and Pears, 3 dishes of each, £3, £2.

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PARIS, 1867,

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No. 2 Collection, for medium size do., carriage free	2	2	0
No. 3 Collection, for medium size do., carriage free	1	11	6
No. 4 Collection, for an ordinary size do., carriage free	1	1	0
No. 5 Collection, for a small do., carriage free	0	15	0
No. 6 Collection, for a very small do.	0	12	6

Collections of Flower Seeds.

No. 1 Collection, free by post or rail	£2	2	0
No. 2 Collection, free by post or rail	1	11	6
No. 3 Collection, free by post or rail	1	1	0
No. 4 Collection, free by post or rail	0	15	0
No. 5 Collection, free by post or rail	0	10	6

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1 „ BEANS, Minster Giant
1 „ do., Longpod, two sorts
1 pint do., Scarlet Runners
½ „ do., Longpodded Dwarf
1 ounce BEET, Suttons' Fine Dwarf Red
1 packet KALE, Curled Scotch
1 „ do., Cottager's
1 „ do., Miller's
1 „ do. SPROUTS, Brussels
1 „ do. BROCCOLI, Superb Early White
1 packet do., Frogmore Protecting
1 „ do, Purple Sprouting
1 „ do, Basket's Late White
1 „ do., Walcheren
½ ounce CABBAGE, Suttons' Imperial
½ ounce do., Dwarf Early York
½ „ do, Large York
1 packet do., Blenheim
1 „ do., Pickling
1 „ COUVE TRONCHUDA
4 ounces MUSTARD, White
2 „ CRESS, plain
1 „ do., Curled
1 „ do., Australian
½ „ do., American
1 packet SAVOY, Green Curled
1 „ do., Drumhead
1 „ CAULIFLOWER, London
1 packet CELERY, Superb White
1 „ do. do., Superb Pink
1 packet CUCUMBER, Stockwood
1 „ do., best Frame [ing
1 ounce ONION, Improved Read-
1 „ do., Brown Globe
½ „ do., White Globe
½ „ do, Blood Red
1 packet MELON, best flavoured
1 ounce CARROT, Early Horn
1 „ do., Long Red Surrey
1 „ do., Intermediate
2 „ PARSNIP, Student
1 packet ENDIVE, Green Curled
1 „ LEEK, Musselburgh
1 „ SWEET BASIL
1 „ THYME
1 „ SAVORY, Summer
1 „ do., Winter
1 „ LETTUCE, Suttons' Superb White Cos
1 packet do., Hammersmith
1 „ do., finest mixed
1 „ GOURD, mixed [mixed
1 „ VEGETABLE MARROW,
1 ounce PARSLEY, superior curled
1 packet CORN SALAD
1 „ RAMPION
1 ounce TURNIP, Suttons' Short-top Six-weeks
1 „ do., Greentop Six-weeks
1 „ do., Orange Yellow
1 packet TOMATO, mixed
2 ounces SPINACH, round
2 „ do., prickly
1 packet ORACH [top
2 ounces RADISH, Beck's Short-
1 „ do., Scarlet Olive
1 „ do., White Olive
2 „ mixed Turnip

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PRIZE MEDALLISTS:

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James Carter & Co. are prepared to supply on the 15th of January next the following Four handsome

New Varieties of Coleus,

Raised at the Gardens of the Royal Horticultural Society, and purchased by them at the Public Auction on the 10th of December, 1868:—

COLEUS HER MAJESTY.—This variety is of very free habit, and the broad leaves are of a deep bronzy red, with the narrow beaded edging somewhat less golden tinted than Princess of Wales. It is, however, very effective. Price 5*s.* each.

COLEUS PRINCE OF WALES.—A free-growing variety, with leaves of a deep purplish red, marked with deeper coloured blotches, and having scarcely any golden markings at the edge, so that it resembles Albert Victor, minus the golden margin. Price 3*s.* 6*d.* each.

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COLEUS PRINCE ARTHUR.—The leaves of this variety have a yellowish ground colour, while the base, the costa, and the principal veins are heavily marked with deep purplish red, the margin also being red. These markings give the plant rather a grotesque appearance. It has the close habit and general peculiarities of Coleus Gibsoni. Price 3*s.* 6*d.* each.

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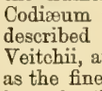
LUCOMBE, PINCE AND CO. beg to call attention to this magnificent new Winter-blooming Plant. For Table or other Decoration it surpasses anything ever before seen.

Plants now coming into Bloom, 15*s.* and 21*s.* each. A few fine Specimens, measuring 20 inches through, 31*s.* 6*d.* each.

HENRY GODFREY, NURSERYMAN, Stourbridge, has to offer a large quantity of HERBACEOUS CALCEOLARIAS, raised from seed saved from a particularly fine strain; established in small pots, from 2*s.* 6*d.* to 3*s.* per dozen, basket and package included. When three or more dozens are taken, Post-office orders or postage stamps must accompany orders.

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The Gardeners' Chronicle.

SATURDAY, JANUARY 9, 1869.

ONE of the most pleasant of our editorial tasks is that of taking a retrospective glance, at the end of each recurring year, over the many valuable NOVELTIES which in the course of the season have been brought specially under notice. New Plants, New Fruits, and New Vegetables crowd upon us annually, and it would be strange indeed if, among so many additions, we did not meet with some to which one's thoughts could recur with feelings of satisfaction. We propose, as usual, to pass these new levies briefly under review, and to-day confine ourselves to NEW PLANTS, in respect to which we shall hope to show that 1868 has not run out its sands without leaving us some important auxiliaries, which we may expect will hold their place in the ranks of our garden plants, against all comers, for many a year.

Let us look into the stove department, and inspect the company of recruits stationed there. Of the flowering series, the plant of the year is certainly the noble Lasiandra macrantha, whose gigantic flowers, as we mentioned last week, are borne in winter as well as in summer. From the neat bushy habit of this plant, and the freedom with which its ample purple blossoms are produced, we anticipate that when it gets into the hands of our skilful plant growers, grand examples will soon be forthcoming. To the genus Ixora we have to record two promising additions, Ixora amabilis and I. Dixiana, both bearing salmony-orange flowers, and both, we believe, "developed" garden seedlings, showing an advance upon older kinds. The New Grenadan Aphelandra nitens, with its polished leaves and vermilion flowers, will be a fit companion for the brilliant A. Roezliana; while another Acanthad, this time from tropical Africa, the Dicentranthera macrophylla, with its long spikes of bell-shaped rosy-purple flowers, gives us an entirely new form of this showy family. Eranthemum elegans, of which a full account will be found in our last volume, must not be omitted from the list of acquisitions; its fine continuous-blooming spikes of gaily-spotted flowers entitling it to distinction. The more herbaceous group of stove flowering plants gives us the Tydæa Lindeniana, a very distinct species, with silvery striped leaves, and short-tubed white flowers, having a yellow throat and violet-coloured markings on the limb; while several beautiful hybrid forms of Plectopoma, remarkable at once for the large flowers, brilliant colours, and profuse inflorescence, which we have already mentioned under the head of Plant Portraits, are grand additions to the ranks of decorative Gesnerads.

Great and grand have been the additions made to the group of handsome-leaved stove plants, among which the first place must be assigned to the numerous, varied, and beautiful forms of Codiæum variegatum, which we have already described at length. Those called maximum, Veitchii, and Wisemannianum, may be specified as the finest of the yellow series, as undulatum is of the purple varieties. Then come two new Marantas, virginalis and Baraquinii, both broad-leaved, marked with silvery bands, and exceedingly handsome; and some Dieffenbachias, noticed in our account of the Ghent show last spring, all something after the style of D. Weirii, but distinct, namely, D. princeps, D. mirabilis, and D. decora; the latter, or something very near to it, has also been produced by hybridisation, at Chiswick. Among Palms, Dr.

SEEMANN has sent from Central America a beautiful dwarf species, which bears the name of Geonoma Seemanni, and is remarkable for its uniform, plicate, bilobed leaves, the smallest of which, an inch or two long, are exact miniatures of the larger ones borne by older plants.

Passing on to Orchids, we find some choice gems amongst the novelties of the year. Fully deserving of the highest honours is Dendrobium cristallinum, a species bright and beautiful as D. Wardianum, which is no small praise. Then we have—each a precious acquisition in its way—Saccolabium Huttoni, with rosy-purple flowers; Cœlogyne Reichenbachiana, a new and very handsome Pleione, with rosy-lilac flowers, having the white fringed lip marked with bold magenta-coloured lines; Thunia Bensoniæ, a terrestrial species, with large bright rosy-purple flowers; the true Vanda insignis, which proves to be a lovely species, and which may be known by its o lip being rounded and hollowed like ell; Oncidium macranthum, remarkable for its large and nearly equal, leathery, tawny-yellow flowers; and Oncidium Rogersii, with its immense flat yellow lip, the largest and the brightest-coloured yet known. Nor are these all. In Cattleya speciosissima Lowii, in Lælia purpurata Nelisii, in Lælia anceps Dawsoni, we have some exquisite varieties of their respective species; and such plants as Miltonia festiva, Epidendrum paniculatum, Masdevallia Veitchiana, and Zygopetalum Gautieri, are each of sufficient importance to be thus chronicled, either as being charming in their colours, or curious in their structure. Anæctochilus, or, as the learned in Orchid lore write, Anecochilus Dawsonianus, has the reputation of being one of the most vigorous-growing of that interesting group, and certainly has very handsomely marked leaves.

Turning to Ferns we find amongst the Maidenhairs alone enough to render the year memorable. Thus, Adiantum amabile and A. decorum, both much divided in their fronds, are amongst the most elegant and graceful of their race, as may be said also of the dwarfer A. excisum multifidum; while A. Veitchianum is another charming Fern of a distinct type of beauty, remarkable rather for its well-proportioned and beautifully-chiselled outline, than for gracefulness of habit. Then, Cyathea Hookeri, a most interesting miniature Tree Fern, of no mean order of merit, is an acquisition of the year; as are also two grand suffruticose Mexican Cibotiums, named C. regale and C. spectabile. Under this head we must not omit to mention one of the handsomest of all British Ferns, Polystichum angulare Pateyi, a Dorsetshire variety, which was first introduced to the public last summer. This exceedingly beautiful Fern will be best understood if we describe it as the analogue amongst Polystichums of Polypodium cambricum, only that from the larger size of the fronds and the multiplicity of their parts, it possesses a degree of beauty which that handsome Fern fails to typify. The lobes of the pinnules are deeply cut and toothed and overlapping, the pinnules thus become frilled, and they too are overlapping, and this renders the pinnæ, themselves overlapping, also frilled; so that the whole frond is a densely crowded mass of the most finely cut divisions. This plant is as rare as it is beautiful, being unfortunately a sterile variety.

We have perhaps fewer sterling greenhouse novelties to record. The Passiflora cincinnata, described by us some time since, is a fine showy evergreen climber, well worth growing. Cordyline Guilfoylei, a variegated plant, with something of the aspect of a variegated Yucca, will, we believe, prove an acquisition; as will both the green and variegated forms of the narrow-leaved New Zealand Phormium Colensoi. As autumn and winter decorative plants, the hybrid Solanums, S. Pseudo-Capsicum rigidum and S. Pseudo-Capsicum Weatherillii, are probably the most important of recent acquisitions for the greenhouse, as they are far finer in appearance than S. Capsicastrum, while they are smaller and more manageable than the old S. Pseudo-Capsicum, beautiful though it be. The new hybrids, well grown, make nice little fruit-bearing bushes the first year from the seed. Rhododendron fragrantissimum is one of the better crosses between the Indian R. Edgworthii and R. ciliatum, and is deliciously fragrant. Finally, as a representative of the succulent family, now deservedly becoming more and more popular, comes Agave Seemanni, a distinct dwarf species, with rosulate spathulate and strongly spine-toothed leaves, introduced from Nicaragua.

The modern subtropical garden is not without its novelties. Thus the Abutilon Thompsoni, which attracted little notice as an indoor pot plant, became startlingly beautiful with its grotesque motley markings of gold and white and green, when planted out in rich soil, and well exposed to light. Alternanthera amabilis promises to be the best of that family, being richly coloured with an intermixture of rose and orange tints, and of a more robust habit than those previously grown. Iresine Lindeni, again, promises to eclipse the older sort, which, however well-coloured and attractive in some situations, is too commonly a wretched-looking object out-of-doors, and has the radical defect of producing puckered foliage, which is not the case with the new I. Lindeni, whose flat elliptic leaves are of a rich blood-red colour, and which, as we just learn from M. VAN HOUTTE, will stand uninjured a temperature of 20° Fahr. And then, since succulents have been so effectively introduced into this style of gardening, what so useful as a new hybrid Echeveria, E. glauco-metallica to wit, the compound name of which reveals its parentage, and which while retaining the spathulate leaves, glaucous colour, and rosulate habit of E. glauca, has been magnified by the union to fully three times the size of that well-known plant.

The flower-garden proper will have acquired, in the Gladiolus cruentus, a most strikingly beautiful summer occupant, whether cultivated for its own sake, or with a view to hybridising. Its almost regular bell-shaped flowers, with the entirely novel markings of the two lateral segments of the lower lip, must affect the character of hybrids obtained through its agency, while its bright blood-red colour will render it one of the most ornamental amongst half-hardy corm-bearing plants.

Turn we now to more hardy subjects, amongst which also we find some things worthy of record. Two years since we had to name a Golden Alder, last year a Golden Elm, and this year a Golden Oak, far superior in beauty to the Quercus Robur aurea previously known. This novelty is called Quercus Robur Concordia, and has leaves of a bright yellow hue. As a contrast to it we next mention the blood-red Acer platanoides rubrum; while as graceful hardy shrubs we have the evergreen Retinospora filicoides, remarkable for the fern-like character of its ramifications; and the deciduous Tamarix plumosa, which is so extremely branched and feather-like as to have acquired across the water the epithet of *marabout*. Hardy creepers of merit have been mainly of the Vine family: *e. g.* Ampelopsis dissecta, of slender growth, with palmisected leaves having pinnatifid segments; Ampelopsis tricuspidata, *alias* Veitchii, also slender growing, and with the leaves either simple or three-lobed; Ampelopsis japonica, which has broader leaves or leaflets changing to a rich orange-red tint; and Vitis heterophylla humulifolia, which has three-lobed or five-lobed leaves, and cymose clusters of small pale blue berries.

There are a few sterling novelties of the hardy herbaceous perennial, the bulbous, and the annual classes. Of the former Spiræa palmata holds the first rank, its bright red stems, palmately lobed serrated leaves, and large heads of deep crimson flowers, rendering it grandly conspicuous. Contrasting with this is the deep purple bell-shaped blossoms of the dwarf erect-growing Campanula turbinata; and the remarkably floriferous Campanula isophylla, with its smaller deeply cut greyish-blue blossoms and bushy branching habit; while the North China Dorcoceras hygrometrica, a dwarf plant, with something of the aspect of Ramondia, and purple flowers somewhat resembling those of Violets, introduced to the French gardens, promises to be both hardy and handsome. To dwarf rock plants the tufted rosy-flowered Lychnis Lagascæ is a lovely addition. The re-introduced white-flowered Erythronium giganteum is also a plant of sufficient mark to be here recorded. Of hardy bulbs, Lilium Wilsoni may certainly be pronounced one of the finest species yet known. Its large orange-red gold-banded black-spotted flowers, produced in great branched umbels, are magnificent, and combine the form of Thunbergianum with the golden band of auratum, and the spotting of tigrinum. Of distinct new annuals, the Collinsia corymbosa, with its grey-blue upper and white lower lip, must be regarded as promising; and Leavenworthia aurea, a dwarf crucifer with rosy-lilac yellow-eyed flowers, is worth trying in masses, where beds of annuals form part of the flower-garden arrangements.

We must not bring this rapid march-past of the acquisitions of 1868 to a close without referring to the varieties of golden-leaved Caladium raised at Chiswick, among which some very beautiful leaf-colouring occurs. These plants appear to great advantage in a mixed collection during the early spring and late autumn months, when their colours are eminently attractive. Nor must we omit the brilliant golden-leaved Coleuses which have been recently distributed, and which we believe will be found, when the season arrives to grow them properly exposed to light and air, to far exceed the expectations of those who have become their fortunate possessors. As especially beautiful we mention those called Queen Victoria, Albert Victor, Princess Royal, Princess of Wales, and Princess Beatrice.

Next week we shall briefly review the acquisitions of the other departments above referred to.

—— A CORRESPONDENT furnishes us with some particulars of the LEEDS PROFESSIONAL GARDENERS' BENEFIT SOCIETY. Properly managed, such societies may be very useful. In the Society in question none but professional gardeners are admitted. It has been in existence for two years in Leeds. It is an enrolled Society, and now numbers 101 paying members, besides honorary members, who subscribe from 10*s.* to 21*s.* each. Its chief objects are to assist the members in sickness or distress, and to give aid on the death of a member or his wife. The second annual dinner took place in Leeds on New Year's Day, and about 80 members and friends were present, Mr. ROBERT FEATHERSTONE, a well-known local gardener and president of the Society, in the chair. At each of the monthly-meetings a paper on some gardening subject is read, and discussion invited. Mr. Councillor GREEN, of the firm of Messrs. GREEN & SON, the well-known makers of mowing machines, offered to give the opening lecture of the year, on the origin and progress of steam and hot-water apparatus, and laid before the meeting models of a new boiler just patented, which requires no brickwork.

—— We are reminded that, in omitting to place the MANCHESTER SHOW on a level at least with that at Leicester, in our remarks last week, p. 5, we committed an injustice to the cotton-metropolis. Our correspondent will see, on reflection, that the cases are not entirely parallel; nevertheless, we have not the slightest desire to depreciate Manchester—quite the reverse. We are told that the success of the Manchester exhibition depends in great measure on the large sums distributed in prizes,—sums exceeding in amount those awarded by any London Society,—and, moreover, paid to the successful exhibitors before they leave the ground. All success, then, to the Whitsuntide Show at Manchester, no less than to the similar exhibition in July.

BOTTOM-HEAT FOR VINES.

As one of those who have publicly recommended the application of bottom-heat to Vines that are forced during the winter months, I have been much interested in the discussion bearing on the subject, that has been going on for some time in the columns of the *Gardeners' Chronicle*; and I have come to the conclusion that I owe it to those who have acted on my advice in the matter, to offer a few observations in reply to Mr. Sage's paper at p. 1340, 1868, as I believe it is calculated to mislead—not that he intended it to do so. I pass by that part of his remarks where he advances some—to me, at least—entirely new theories in natural philosophy, and come to the case of the Vines at Woburn, on which he founds his opposition to the application of bottom-heat to Vine-borders; but I think the majority of your readers will, when the whole case is before them, arrive at exactly the opposite conclusion to what he has done.

Mr. Sage writes:—"As foreman at Woburn Abbey under Mr. Forbes, I may claim to have had the charge of growing perhaps the earliest and best Hamburgh Grapes that have ever been exhibited in London. These Grapes were ripened by the middle of January, 1855, from Vines rooted outside. There was no chambered and heated border, nor was the border covered till October, when a thin stratum of leaves, increased to a foot in thickness a little later, was put on, just to keep in the heat of the summer, but certainly nothing beyond this. In this house was a pit, which was planted with Hamburgh Vines, but the Grapes from the inside-planted Vines were far inferior to those that had their roots outside." I was at Wrotham Park when Mr. Forbes exhibited the Grapes in question, and as they were the earliest Grapes I had ever heard of at that date, though they are not so now, I wrote and asked him how he managed them, and his reply was that the hot autumn had prematurely started the vinery that had been earliest forced, and seeing that it was showing fruit, he shut it up, and covered the border as Mr. Sage describes, to keep in the heat derived from a hot autumn sun, and the result was early Grapes in January, more in the shape of a second crop ripened off by the aid of fire-heat, than legitimately forced Grapes. Mr. Forbes concluded his letter, by asking me to visit him, as I had often done before, and see the Grapes in question. Circumstances, however, did not admit of my doing so, but in the month of April I wrote, informing him that I was leaving my then situation for my present one, and expressed a hope that I might meet him at the Regent's Park show in May, where I inferred he would be an exhibitor of Grapes, and I make the following extract from his reply, which is before me:—"I shall have no Grapes to exhibit at any of the early shows; I began last October

to try to get another vinery to follow my early one, but could not possibly get them to break till Christmas, and I will have none fit to cut for this month to come, which I much regret." Here then we have one of the best gardeners of his day, aided by one of the best of foremen—for I have heard Mr. Forbes speak of Mr. Sage, who left him about the date of this letter for his present situation, as such—failing to produce ripe grapes in the end of May, though they began forcing in October, just eight months previous, or perhaps I ought to say nine months, for Mr. Forbes' letter is dated the 4th of May, 1855, and he writes, "I will have none fit to cut this month to come." I will now present this matter as it appears to me. Mr. Forbes informed me that the one vinery took him by surprise by showing a sort of second crop; and if my memory serves me right, the houses were of iron, the borders sloped to the sun, and the whole surroundings of the Vines during a hot August were such as would tend to start them after they had had a rest in June and July. This took place, and they were judiciously treated, and the result was a partial crop of nice Grapes. The other houses had not been forced quite so early, they did not start with the autumn sun-heat, the borders were not covered to keep in "the heat of summer," and the result was what the letter before me describes. I ought ere this to have remarked, that the Vines in the pit inside the house had not the same chance of getting their roots warmed by the sun's rays as those outside had: hence the reason why they did not succeed so well.

I think I may conclude that Mr. Sage, as well as the majority of your readers, will admit that in addition to the longer rest, a warm border had something to do with the pliable character of the Vines in the one case, and the cold, because uncovered, border something to do with their obdurate character in the other; and if so, will he show why such heat should not be supplied by hot-water pipes under the border? On the 1st of this month I shut up a vinery, which is one of three to which I have applied the power of giving bottom-heat by means of hot-water pipes underneath the borders. These pipes are heated by a separate boiler; I kept a slow fire burning for six days, and the temperature rose, as shown by an underground thermometer, from 42°, when the fire was applied, to 60°, when the fire was discontinued. Dry leaves, thatched with straw, were placed on the surface of the border, to prevent radiation, and on examining the thermometer on the 28th of December, I found it 58°. My usual practice is to repeat the fire for a week about the time the Vines are in bloom, raising the temperature of the border to 65°, after which it is not applied again.

There are writers on this subject who seem to suppose that bottom-heat for Vines must roast the roots, parch the soil, and produce untold evils, and I have little doubt but that some, or all, of these results could be arrived at by constantly heating the pipes, but to do this would be perfectly irrational, and no fault of the system. The Vines in the house to which I applied bottom-heat here for six days in the beginning of this month are just bursting their buds, whereas the houses at Woburn took three times as long to do so, for the very reason that they had no bottom-heat. *Wm. Thomson, Dalkeith Park, Dec.* 28, 1868.

ADULTERATION OF SEEDS.

[THE Sub-Committee appointed by the Royal Horticultural Society to investigate this question has issued the following second interim report on the Adulteration of Seeds:—]

VITALITY.

So far as they have heard, no exception has been taken by any one to the statements in their former report. They understand that they are admitted to be a fair and moderate statement of facts, so far as they go. Some of the details have been explained or apologised for, and the burden and odium of others have been shifted from England to the Continent—but the fact of their existence has not been disputed.

The minor details of manipulation your Committee think of little consequence. The mixing of old seed or killed seed with new, to increase the apparent quantity, is the chief evil, and the practice which your Committee have found it most difficult to deal with. At first blush it seems a monstrous absurdity, not to say iniquity, that the grower should be at pains to clean his seed, and bring it to a high average of good seed, only to have the dealer put himself to equal pains to undo his work and reduce it again; but an explanation of the peculiarities of the business has shown how naturally and easily the practice has imperceptibly glided on from innocent and natural precautions to its present questionable state.

The crop of many of the seeds which form the staple of the seedsmen's business is always uncertain and precarious in this country. A single night's frost at a critical period may destroy the whole of the crops of Turnip, Mangel, Cauliflower, or Cabbage seed exposed to it. The seedsman thus can never calculate on the supply of the coming year. It may be a failure; and he most properly provides against this by laying in a larger stock when the crop is abundant and good. But what is he to do with the large stock so laid up in the case of a sequence of two or three good years? He uses it up by mixing the product of the different years together. By-and-by a bad year comes, but, by the seedsman's precautions and forethought, a sufficient over-supply from previous years remains in stock, and the country is not unprovided. From such occasional intermixture there is a natural and easy descent to a constant lowering of the average. Troublesome questions are put if the seed is found better or worse one year than another. So it comes to be thought that it would be more easy for the seedsman, and less troublesome for the customer, if it were kept always at about the same average, and the price correspondingly lowered; and so the system of regular manipulation and tampering with the quality is introduced.

The next stage of introducing killed seed instead of old dead seed is still more easy. It is obviously much more to the customer's advantage, if the average is to be lowered, that it should be done by the intermixture of clean fresh-killed seed, rather than of old musty seed, full of the spores of Fungi and the eggs of insects. So regarded, the introduction of killed seed is a boon to the buyer instead of an injury. There is, indeed, another point of view from which to look at it. The old dead seed betrays its presence; the killed seed does not; and so the purchaser is deprived of that means of testing the quality of the article he purchases.

Everything is thus thrown upon the honesty of the dealer. He fixes the price, he regulates the quality, and the purchaser is kept in the dark, and has no check upon either. This is a temptation beyond that to which the average frailty of human nature ought in fairness to be exposed.

It is not to be supposed that the existing system could have reached its present magnitude through the separate and independent action of individuals; it is the combined action of the trade which has done it. At what time it commenced your Committee have not learned, but it is no modern device. Most of the present members of the seed trade have succeeded to it as to a fatal heritage, and they have found themselves constrained to conform to the traditional custom of the trade, or run the risk of sacrificing important and well established businesses, to the ruin of themselves and their families.

The combined action of the trade, which has consolidated the system, has been exerted through a trade's club, or association, something in the nature of a trade's union, which, as in other businesses, the London wholesale seedsmen have established among themselves. One of the chief functions of the association is, as your Committee are informed, the regulation of prices, and the determination, by mutual consultation and advice, what kinds of seeds should have their average lowered, and to what extent it should be done.

Supported by the countenance of their fellows, and animated by a belief that by their foresight and superintendence they are regulating the supply and demand of the kingdom, and preserving the country from the dire consequences of an occasional famine in some of the most important articles of food, it is not surprising that the seedsmen should have lent themselves to a practice which, in addition to these good qualities, had the recommendation of being at the same time so easily adapted to their own advantage.

Accordingly the practice has taken root so firmly, and ramified in so many directions, that it now penetrates every branch of the business. Of its extent no stronger evidence can be given than the regular quotation in certain of the seed-trade lists of the prices of "nett seed," and "trio," or "000."—"nett seed" meaning good seed which has not been adulterated or mixed,—"trio," or "000," meaning seed whose vitality has been killed for the purpose of mixing with good seed.

It must not be supposed, however, that there are no exceptions to the universality of the practice; the results of your Committee's inquiries, confirmed, as they have been, by the trials recorded in the last report, enable them to speak to the contrary. From these, were it their cue to do so, they could name the few houses which proceed on a different system, and which are struggling single-handed against the overwhelming preponderance of those who do not. But to do so would be by implication to reflect on others; and as the object of the Council in this inquiry is entirely of an impersonal nature—to redress a public grievance, and not to attack individuals,—they feel bound to refrain from mentioning names on either side, even when the mention would be laudatory.

Of the complication and difficulty of doing away with the system, an idea may be formed from some of the following facts. Instead of purchasing their seeds from growers in the market, wholesale seedsmen find it necessary to enter into a sort of quasi-partnership, or joint adventure, with the growers. They supply them with the seeds they want grown, and receive the product from them after harvest at certain previously fixed, or proportionately arranged prices. In no other way (of growing by a third party) could they make sure that the seeds they purchase were of the kind they wanted, the seeds of many different species, and especially of varieties, being undistinguishable. Unless they knew that the produce of any particular field was to be their own, they would neither have the right nor the interest to examine it while growing, to make sure of its kind. As may be supposed, the bargains with these growers vary infinitely; sometimes the seedsman is the owner of the soil, and the grower his tenant; and leases or bargains for growing seeds, extending over many years, have been entered into on the faith of the continuance of the present system of conducting the seed business.

Again, one apology for the present system is, that under it the seedsman keeps the price much more equable from year to year than it would otherwise be. He charges always more nearly the same price, trusting to the average of years and prices equalising things in the course of a number of years. Your Committee do not think that this uniformity of price is any advantage to the purchasers, but a great disadvantage, if obtained, as it is, at the cost of variation in the quality of the seeds. But the fact being that, whether an advantage or not, the seedsmen have been to a certain extent acting upon it, it is plain that injury might be inflicted upon them if the system were suddenly put a stop to. If, for example, a seedsman is now in the midst of a course of years, of which the first half, which is past, has been bad, a sudden change would deprive him of the chance of restoring things during the remainder of his cycle of years, which, as the first half had been disadvantageous, he might reasonably expect to be good.

It is plain, also, that arrangements made in dependence on the continuance of the present system cannot stop merely at the actual bargains between the dealer and grower; a multitude of engagements, sales, and purchases in advance, more or less arising out of the same state of things, are all in dependence. Even the discharge of the servants employed in the mere mechanical operations of mixing the seeds would of itself occasion much distress, if any change leading to it were carried out suddenly and without ample premonition.

Too much caution, therefore, cannot be used in dealing with a matter affecting so many and such important interests, and where the consequences of any error would be so grave.

At the same time matters cannot be allowed to remain as they are; and your Committee's first idea was, that the seedsmen themselves should undertake their own deliverance. They believe that these gentlemen are themselves thoroughly in earnest in their desire to get rid of the present system; nay, more; they believe that the more repectable members of the trade take no advantage from it, that their profits are not greater than those of other similar branches of industry, and that pecuniarily they would be gainers by the abolition of the system, and the substitution of a higher price for a better quality of seeds. But it is to be feared that they are so hedged in by the engagements and bargains that they have made, that it is very doubtful if they would be able to shake themselves free from its trammels by any efforts of their own. And even although they could, and were, by a unanimous resolution of the trade, to renounce all mixing of seeds thenceforward, the public would not benefit; on the contrary, they would be losers—for, instead of having the system conducted as at present, by men of respectability, who, at least, aimed at providing a constant supply, the public would find their places supplied by a lower and more unscrupulous class, who would have no object but fleecing the public as rapidly and filling their own pockets as full as they could. Any effort for good must, therefore, not be limited to the voluntary abstinence of individuals, but must be compulsory and of universal application.

It may be said that if, notwithstanding the unfavourable appearances arising from their erroneous system, the seedsmen do really conduct their business so fairly and honestly and with such attention to the welfare of the public, why should any change be made at all? Why not allow matters to remain as they are? If all did so, and all would continue to do so, and no further lowering of the averages would be practised by the retail seedsmen and small dealers, the public might be content to allow matters to remain as they are; but it is patent and notorious to all that the reverse of all this is the case. Not even all the wholesale seedsmen are content with the lowness of average fixed by their own association (see the results of the trials in last report); and the average of the stock of the small country dealers who have been supplied with seed filtered through two or three retail hands must be correspondingly bad. But, more than this, your Committee learn from a reliable source that some of the growers themselves have begun to lower the average before it leaves their hands. It can scarcely be denied that this is a fraud suggested by the example of the seedsmen themselves. The practices they have taught them they execute; and it shall go hard but they will better the instruction. The half educated husbandman will be slow to appreciate the difference between an admixture of lifeless seed by themselves and one by their employer, or to believe that what is fraud on their part is only estimable precaution on that of the others. Nor until the seedsman distinctly warns his customer that he is not selling "nett seed," will the public generally admit the distinction. No doubt the grower undertakes to deliver, and receives the agreed on price for, "nett seed," whereas the seedsman only charges his customers for seed of a lower average a price corresponding to its quality. If a purchaser demanded "nett seed," he would have to pay more for it. But the public know nothing of such distinctions. They have never heard of "nett seed" or "trio;" and in purchasing seed they naturally suppose that they are getting the best the dealer can give them. There is no objection to the dealer, if he chooses, having half-a-dozen different averages at half-a-dozen different prices, as a grocer sells half-a-dozen different kinds of tea, or a wine merchant of vintages; but they should be stated to be so. This may seem a digression, but it is not irrelevant; for the equivocal system which the trade have so long practised will render an extra openness for a long time necessary to recover the confidence of the public.

Your Committee are of opinion, therefore, that something more than good resolutions on the part of the trade are absolutely essential; what that should be is the difficulty. Various suggestions have been made to your Committee; but they have found no one plan adequate to meet the evil. An application to the Board of Trade for the appointment of a Government inspector has been suggested by some; either trials of seed at the request of dealers themselves, or unknown to them, and the publication of the results, has been recommended by others; and the passing of an Act of Parliament to render it penal to adulterate or to mix killed seeds with good seeds, is the specific of a considerable number of men whose opinion is entitled to respect: but your Committee have been unable to see that any one of these steps would of itself be sufficient to meet the end. Probably a combination, or rather a selection, of them might, especially if supported by genuine and sincere exertions on the part of the trade itself. For actual adulteration (as of Clover seed) an Act seems indispensable; no one will object to this: but your Committee think it should also extend to the use of killed seed for mixing. No Act, indeed, that could be expected to pass would directly reach the use of old naturally dead seed for this purpose, but it might indirectly; for if the use of killed were prevented, the actual supply of old dead seed would not be sufficient to do much harm; and even if it were used, its appearance would betray its presence, and put the purchaser on his guard.

There are other points which can only be reached by introducing more generally a system of actual trials previous to purchases; and to this your Committee think every effort should be directed. In some districts it appears that farmers and growers are now getting into the way of taking their half-dried Grass-seed to the kiln to be dried. Whether it gets a roasting or a gentle heating merely sufficient for the purpose is, as business is now conducted, a matter of no great importance either to the kiln-owner or his customer. It may be sold as good seed, or, if found out, will, at least, do for "trio." But if "trio" were abolished, and trials were general, the farmer would soon find his roasted seed left on his hands; if this happened once or twice, the process would either be made safe or abandoned.

It is not easy to understand how anyone who has to use considerable quantities of seed should ever dispense with this precaution. It may be that they suppose that the trouble of testing is greater than it really is, or that experience has shown the experiment to be useless, as, from the general adoption of the same average, no better quality is to be had in one shop than another. If the latter be the cause of the neglect of this self-evident precaution, it must soon cease to be a reason; for, as soon as the public know that the quality of the seed sold has hitherto been matter of regulation, they will evince a preference for those tradesmen who do not adopt that practice—and, of course, the demand for such will produce its natural consequences—a supply. It will then become essential for the public to know whether those who profess to have abandoned the old system have really done so or not; and the only effectual way of ascertaining this is to test their seeds. It can scarcely be doubted that if the public were once alive to the importance of this, and if, at the same time, some simple and easy plan of testing the vitality of seeds were made generally known, testing would become general, and a most salutary change in the management of the seed business be effected.

Your Committee have had under their consideration the various modes of testing seeds which are known to them; and that which they feel inclined to recommend as on the whole the easiest, cleanliest, least troublesome, and most likely to be acceptable to the general public, is the placing of the seeds between folds of moist flannel, and keeping them in the temperature of a sitting-room or kitchen for a few days. This, of course, is not equal to Nature's own test, actual growth in the earth. It may not answer for all seeds; but it answers perfectly for most kinds; and any seed that gives a good return under it, may be depended on as certain not to give a worse result when actually sown. An idea of its efficiency may be gathered from a trial of it made by one of your Committee upon 100 seeds of one of the sorts whose average of good seed had in previous trials been found to be 75. The simple method recommended gave 25 seeds germinating on the third day, 23 on the fourth, 16 on the fifth, 9 on the sixth, and 3 on the seventh—total, 76; but whatever plan the Council think most suitable for general use, your Committee recommend that that plan should be made as widely known, and its practice be as strongly inculcated, as possible.

WINTER GARDENING: THE KALE BEDS.

PEOPLE are apt to ridicule any attempt to decorate flower-beds with Kale. We have been the rather accustomed to associate it with corned beef and the "kaleyard," and hence the prejudice against transferring it to the flower garden. One can scarcely be reconciled to the change from the useful to the ornamental without very strong evidence indeed. No puny efforts will raise it to a prominent position, and the tyro who makes the attempt to mould the varieties of Kale into objects of beauty, will probably retire from the whole thing in disgust.

Miss Hope, of Wardie Lodge, has for a long time been the redoubtable champion of the Kales, and her

efforts in her own garden have beyond question been successful, for her Kale beds would add both grace and beauty to the most imposing flower garden. Gardens at this time of year are generally remarkable for baldness, and for the want of diversified colours to brighten up what are looked upon as the choicest spots out-of-doors. Miss Hope's garden, after being divested of its summer garniture, is equally well and comfortably dressed with material suitable for winter clothing, and forsooth, it wears by no means sombre habiliments. The gaiety and diversity of the colours greatly astonished me.

Let me cite two or three examples for illustration, beginning first with the centre piece of the design. It is a circle divided into eight segments, the partitions being variegated Aucubas, the centre a nice portable specimen of the Irish Yew, and the sections filled or rather packed in with divers-coloured Kales. Now, those who never saw such an arrangement might suppose that the bed was a tall, gaunt, hideous looking thing, with a goodly portion of bare-legged Kale stocks staring you in the face, but it is no such thing. The labour incurred in sinking the hundreds of them required for the bed in question, so as to have the leaves resting flat upon the soil, must be something considerable, but the effect is such as to repay the labour. That bed has a fine bizarre appearance, and is all the more conspicuous from being elevated above its fellows. By far the most chaste beds are, however, some curved parallelograms surrounding this central or key bed, and they are of ample size to afford scope for design. Laying across the beds are four diamonds, equidistant, and forming raised panels, filled with red, yellow, and whitish Kales, while in the centre of the diamonds are standards about the size of an umbrella, upon which variegated and choice Ivies are clambering. These beds are quite as effective, and more quiet and chaste than some summer beds I have seen. The groundwork is planted with Rue, which has a good effect against the variegated Hollies which form the boundaries of the diamonds, and the belting of variegated Ivy that marks the outline of the beds. No hardy shrubs, even of the rarest and most commanding character, could at all cope with this for effect; moreover, the groups are easily surveyed by the eye, and would be generally acceptable to admirers of effect.

Again, the subsidiary and detached beds that teem upon the grass-plat are each of themselves worthy of inspection, and have something individually to recommend them. Nothing could be less objectionable than beds of Stonecrops, with the most finely cut-leaved and highest coloured Kales set amongst them, and the whole encircled with the variegated Periwinkle. The more select Flags are inserted at intervals in some of the arrangements; and then there are both groundwork and broad beltings of the fine-leaved Thyme, and edgings of the Gnaphalium lanatum, which very much relieve the sameness of the Kales. The whole forms an example of accomplished gardening art. An effect can positively be given, which those who have never seen it little dream of; and the undulating style which Miss Hope patronises—now raising, now flattening the beds, and duly balancing size and colour—is such as evinces correct taste, and makes her winter garden quite as worthy of a critical examination as a fine landscape from an artist's pencil.

Careful selection and a determined elimination is evidently required to procure such an admirable breed, whose quality is combined with desirable variations in colour. The question that escaped my lips, and which must present itself to most readers, is, "How do they stand the frost?" "They have stood every season," replied Miss Hope, "with impunity, when even the hardiest of the curly greens have been injured." This is most important evidence, and is the best certificate possible for maintaining the Kales in their prominent position throughout four of the dullest months of the season.

As regards preparation, there must be growing space afforded during summer proportionate to the demand, and this is what most people will be ready to find fault with. "There is nothing can be provided cheaper. You may talk of shrubs and their suitability for this sort of work, but the Kale can be used quite as effectively, and at one tithe of the cost." So said Miss Hope; and I need only point, by way of comparison, to the accommodation provided for even the most common of the summer bedders, to the cost of spring bulbs, and to the labour incident on the getting up of the many beautiful articles used in spring gardening. The labour involved in the massing of these Kales in their various winter beds must, however, be by no means inconsiderable; 4 feet of their stems are buried in the ground, and they offer no opposition to the ordeal. Then they are packed together as if one were packing for economy of space. With Miss Hope they are all inserted in beds on a grassy groundwork, and this seems to be the better way of exhibiting them to advantage. Order of the highest character is maintained, and litter scrupulously looked after, and the lawn rolled and kept firm as a bowling-green.

One word as to the different phases of decorative gardening. It seems to be an unsatisfactory mode to attempt winter gardening, spring gardening, and summer bedding all in the same parterre, if it be an instruction that each is to be of representative character. Bulbs are beautiful in flower, but unsightly when the green foliage springs up, or shows symptoms of decay. It is true, winter gardening and summer bedding can be managed thoroughly. Spring gardening does not come a bit too soon for the anxious admirer of flowers, but it has a tendency to tread too closely upon the heels of bedding-out proper, and many fine lots of bulb foliage have to be prematurely sacrificed, or otherwise the whole removed to auxiliary quarters. All the phases may be had respectably, but one is so ambitious now-a-days that something near irreproachable decorative gardening at all the seasons, is the grand aim of both the sightseer and the grower. *J. A.*

METEOROLOGICAL TABLE FOR THE QUARTER ENDING DECEMBER 31, 1868.

Observed at Weybridge Heath, Surrey. Lat. 51° 21′ 18″ N.; long. 0h. 1m. 46s. W. 150 feet above mean sea level, on the Lower Bagshot sand. Soil and subsoil fine sand.—By W. F. Harrison, Esq., F.M.S.

Mean pressure of dry air reduced to 32° at sea level.	Highest temperature of the air in the quarter.	Lowest ditto.	Range of temperature in the quarter.	Mean of all highest.	Mean of all lowest.	Mean monthly range of temperature.	Mean daily range of temperature.	Mean temperature of the air.	Mean temperature of the dew point.	Mean reading of thermometer in sun's rays.	Mean ditto on grass.	Mean temperature of the earth.		Mean elastic force of vapour.	Mean weight of vapour in a cubic foot of air.	Mean additional weight required for saturation.	Mean degree of humidity (complete saturation = 100).	Mean weight of a cubic foot of air.	Mean estimated strength (0—6).	Wind. Relative proportion of				Mean amount of ozone (Schönbein's scale)	Mean amount of cloud (0—10).	Rain.	
												One foot deep.	Two feet deep.							N.	E.	S.	W.			Number of days on which it fell.	Amount collected.
Inches.														Inches.	Grains.	Grains.		Grains.									In.
29.874	69°.00	24°.00	36°.00	59°.20	38°.46	31°.20	11°.74	43°.86	39°.80	65°.46	34°.62	44°.42	43°.72	.248	3.5	0.5	84.33	546.0	1.22	31	5	73	17	2.93	6.5	49	9.06

Home Correspondence.

Arboriculture.—It is really astonishing how few landed proprietors take the least interest in the management of their woodlands. The few who do so are well paid for the time spent in studying "arboriculture," not only in the pleasure they must derive from such study, but from the handsome profits realized out of their woods. It is true that timber does not now give such returns as it formerly did, which circumstance may to a certain extent, account for so many proprietors feeling indifferent on the subject. About sixteen years ago the writer could readily obtain 2*s.* 6*d.* per foot, cubic, for large oak wood, 1*s.* 8*d.* is now about the highest it will realise; larch which sold for 1*s.* 6*d.*, now sells for 1*s.* and 1*s.* 2*d*; Scotch fir sold for 10*d.* and 1*s.*, present value 8*d.* or so. Notwithstanding these low prices, it is probable that three times the quantity then used is now consumed, and if it be so, it might reasonably be expected that the value of timber ought to be proportionately higher, but such is not the case. This leads to the inquiry, why has the value of home-grown wood fallen so much? There may be many causes at work tending to produce this result, but the main one, I believe, is the quantity of foreign timber imported into the country; and however disagreeable the fact, to those who are interested in the culture of home-grown wood, it is undeniable that free trade in timber has reduced the value to a minimum. And so long as we are not able to supply the increased consumption from our home woods, it is certain we must be dependent on foreign timber, for the payment of which money must be sent out of the country which should be spent in improving our own. Next to our food and clothing, wood holds the third place, sheltering us from the storm, and supplying fuel for our fires, which it would do, even though our coal mines, as some fear will be the case, were exhausted. Hence, not only are landed proprietors interested in the proper management of woods, but the public is more or less also, and this leads me to inquire whether, if the immense tracts of waste lands throughout the country were converted into woodlands, and afterwards managed as they ought to be, it would not be possible to grow such a supply of timber from our home woods as would compete successfully in our markets with foreign, or at all events prevent their being glutted as at present, to the almost total exclusion of our own produce? It must not be supposed that it is possible to do without foreign timber for house building and other like purposes. I am firmly convinced, however, that home-grown wood of good quality is vastly superior to foreign for outdoor uses, such as fences and other erections exposed to our variable climate, as also for underground purposes. But so long as foreign timber is cheapest, home-grown wood will be of less value than it has been. The preference given to foreign for outdoor use, because of its cheapness, appears to me to be, in common language, "penny wise and pound foolish," as has been proved by our railways purchasing foreign sleepers, which are said to last about one-third the time that larch or good Scotch fir sleepers do; they are of course much cheaper, but if they require to be renewed in the proportion of three to one, entailing the same expense in lifting and relaying as the others, there cannot be much saving. *A Forester.*—I am glad to observe in your impression of December 19 that you take this subject up. Arboriculture has been too long looked upon as a name more than anything else. It very frequently occurs that from the poor encouragement given, parties are appointed to the charge of plantations who, by reason of a limited education, and a want of professional skill, do not reflect credit on the profession, or tend to advance the science. The remedy for this lies in a higher quarter than with the foresters alone. No doubt foresters can do much, and ought to take the initiative; but their endeavours can never be fully successful unless they are seconded by the real parties who will be benefited, viz., proprietors. Books have been written on the subject, and many other efforts have been made in Scotland to improve the status of forestry. Among other endeavours, the Scottish Arboricultural Society was instituted about 14 years ago, and since that time it has been plodding away, by dint of sheer perseverance on the part of two or three indomitable foresters, with varied success, but it has now assumed a position higher and more influential than it ever did before, because the good effects of its efforts are now beginning to speak for themselves on the sylvan appearance of the country, and also on the incomes of the landlords. This Society has done much, but it still has a great deal to do; and it is to be desired that all parties interested will see it to be their duty to give their support to the advancement of a cause which will do material good to the country, and improve the value of lands which are at the present time utterly worthless. Mr. Brown, factor, Invercauld, read a paper before the British Association two years ago on "The Claims of Arboriculture as a Science;" this paper was very favourably received, and it may be hoped will have some effect. A deputation of the Scottish Arboricultural Society also attended the meeting of the same Association last year at Norwich, and pressed similar claims; and I entertain the hope, from the encouragement then accorded by that learned body, that on a future occasion they will see it their interest to recognise arboriculture as a science calculated to improve the internal and commercial interests of Great Britain. The admission contained in your valuable article, "that we are obliged to send all our young men to France and Germany to acquire a knowledge of forestry for the Indian forest appointments," is certainly very humbling to us, and ought to make us bestir ourselves in that direction, so as at least to equal our Continental neighbours. Great difficulties lie in the way of establishing forest schools upon the same basis, as the forests here are quite different to what they are on the Continent; but by establishing societies similar to that in Scotland, and having these societies presided over and managed by a staff of thoroughly practical men, and men with scientific knowledge, I think much might be done towards improving the education of foresters, and filling up the blank which at present exists. *Shoulder to Shoulder.*

Winter Temperature for Variegated Zonal Pelargoniums.—If "Enquirer" will turn to Mr. Grieve's handy little book upon the production and cultivation of these plants—a book which ought to be in the hands of every grower—he will find at p. 67 the following useful practical information:—"Winter them in a temperature not under 45°, keeping them near to the glass, and watering them very sparingly." These three points comprehend all that is needed to carry them safely through the winter. These plants suffer most in the dull season from being drawn up by being placed far from the glass, and having an excess of water. Mr. Grieve says not under 45°; they may safely have a temperature of 50° if placed near the glass, and kept rather short of water. In such a position the author assures us that early in March the pots will be filled with roots, and the plants may be shifted into 10 or 12-inch pots. These pots must be clean and the drainage so perfect as to occupy at least one-fourth of the entire depth of the pot. Over this layer of carefully arranged drainage a layer of Moss is to be spread to keep the soil from mixing with it, and choking up its interstices or waterways. Mr. Grieve recommends a rather stiff loam for potting, enriched with a portion of hotbed manure well rotted, the finer parts being rejected through a ¾ inch sieve. The roughest soil is then placed on the layer of Moss, and a small portion of the finest siftings used to smooth off the surface. Pot firmly; return to the same quarters; water sparingly at first, and keep rather close and moist with surface syringings for a fortnight or so after potting. Early in June, the winter and spring treatment comes to an end, and the plants are removed to their summer quarters, in a cold pit, stood upon ashes, the glass only being used as a protection against heavy rain and hail. Such is a *resumé* of Mr. Grieve's winter, spring, and summer treatment, not exactly in his own words; and it would almost seem presumptuous, as it is wholly unnecessary, to add anything to them. I can most heartily commend his

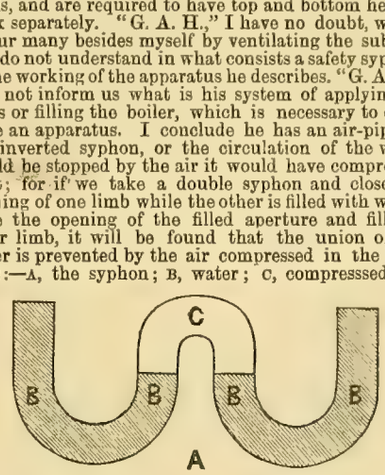
little *brochure* to all who are in want of a trustworthy guide in the production or cultivation of these most interesting and beautiful plants. *Observer.*

Pelargonium Stella.—Stella is a glorious thing, and worthy of all the praise bestowed upon it by "J. D." But comparisons are—well, no matter what. At all events, they induce others to speak up for their favourites. And so I declare that Cybister beats Stella utterly. Perhaps "J. D." will say that they cannot compete, as the colours are so different, Stella being a red and Cybister a flaming scarlet. Well, in other respects Cybister will match Stella, even in size of truss, freedom and robustness of growth, and beauty of foliage, it matches, if it does not master it. I hardly understand "J. D.," when he writes of the identity of Stella and Mangles' sanguineum. Identical in what? The word can hardly be used as meaning that the two are alike. Certainly few who know both sorts would endorse that opinion; and assuredly the enthusiastic raiser did not think so. He was proud of Stella; I had my first cutting from his own hands, and he held me by the coat-collar with one hand and flourished his knife about with the other for nearly a quarter of an hour in his wonderful repertory of hybrids at Surbiton, while descanting with his usual energy upon the merits of his new *protégé*, but he kept its pedigree a profound secret. Even in those early days, however, he seemed to have grasped clearly the capabilities and powers of his new hobby. I hardly think, however, that he was spared to see its variegated sports; at least he hinted nothing at mixed blood,—in fact, it is well known that Beaton scarcely entered the region of variegation. Whites, Scarlets, and Nosegays were his hobbies, and it must be admitted he rode them to good purpose. There is something very peculiar in the persistent sporting of Stella. I know of no variety so entirely green that so constantly manifests this tendency to variegation. I have never grown it through a season without sports being produced; and these also vary considerably from each other. It is strange that such a weak infusion of variegated blood should possess such an amount of potency. I think it probable that "J. D." is right about the source from which the variegation was derived, although these sports in no way resemble the Countess of Warwick; neither must they be confounded with Stella variegata, which has no relationship with Beaton's Stella: on the contrary, I believe that the latter is a seedling of Mr. Grieve's. As I read "R. D.'s" vivid description of that grand houseful of beauty at Slough, I could not but wish that good old Donald Beaton could have lived to see it all, and to have stereotyped his impressions on the spot, for the pleasure of his contemporaries, and the benefit of posterity. Not that he could have done this better than "J. D.," but every man has his own style and manner of doing things, and I confess to a wonderful degree of tender weakness for my warm-hearted old friend's stimulating admixture of corn and chaff—the former however very largely predominating—with which he was wont to lighten up your Paper, and those of your contemporary, the "Journal of Horticulture." *D. T. F.*

Muscat Vines. — Will you or any of your correspondents kindly say what weight of Muscat Grapes should be considered a fair average crop, grown in a span-roof vinery, 38 feet by 15 feet, taking an average of four years, grown by an amateur. *F.* [We should consider a fair average crop of Muscat Grapes for a span-roofed vinery, 38 feet by 15 feet, to be about 300 lb. Some cultivators may take double that weight, and others not so much. It is greatly a matter of cultivation. *B.*]

Pruning Forest Trees.—I have just been reading your report of Mr. A. Murray's essay before the Scientific Committee (why not the arboricultural?) upon this subject, and, if you have reported him correctly, either Mr. Murray's philosophy is at sea, or our philosophical teachings are not what we have hitherto considered them to be. Mr. Murray, according to your report, and referring to the experiments of Mr. Herbert Spencer, said these vessels formed tubes, terminating below in a mouth at the end of the root fibrils, and above in another mouth or mouths in the leaves. The timber is deposited between and around the tubes by the sap, which oozes through the walls of the tubes in its passage. Hence, argued Mr. Murray, if the forester cuts off so many leaf-mouths by removing the side branches, then an equal number of root-mouths are deprived of their natural termination, and anastomose with the other unmutilated tubes, which then carry so much more sap. Now, as these tubes already deposit as much wood as they can, the additional sap received from the anastomosis of the mutilated tubes is carried forward and applied to lengthening the tubes and in deposit ng wood around the elongation. Now, does Mr. Murray think that any such action as this can take place, or that an atom of substance can be added to the tree, except through the reciprocal action of root and leaf? If all the roots in creation could be attached to one tree, I do not believe they could add a single grain to the tree except through the elaborating influence of the leaves; and therefore to talk of "lengthening the tubes and depositing wood around the elongation," if it is not an impossibility, is certainly contrary to received physiological induction. If we want to reduce the vigour of the tree, we either reduce the foliage as fast as it is produced, or we curtail its first cause, the roots. Why we should attempt to grow timber by practices contrary to those which favour the growth of other plants, I cannot conceive. The theory of natural selection, "the struggle for existence," may have produced some fine trees in the primeval forest, but I do not know of anything grand, anything beyond scaffold poles, in our forests. When I say scaffold poles, I speak in a comparative sense—of trees with long attenuated stems, without foliage sufficient to lay on wood in proper quantity. In the farm and the garden we know that we cannot raise fine plants of any kind without exposing them to the full influence of light and air, and therefore how crowded trees are to succeed better than those which have their foliage duly exposed to the solar influence, is certainly inexplicable. If we want a particularly fine specimen in the greenhouse or upon the lawn, what do we do? The conditions being provided as to root action, we give all the light and air we can; and just as these, in conjunction with moisture, are supplied, so is the progress of the tree. If we crowd the plants we get length but no bulk, and so it must be in the forest; we cannot have timber without the natural conditions of its production being observed in the proper manner and at the proper time. As to pruning, that need not, if commenced at the proper time, go beyond the thumb and finger or ordinary pruning-knife. Where branches have to be lopped, it will be because the work was not done properly at the proper time. When the laws of Nature are changed, then crowded trees may succeed in making finer trees than those which receive a due supply of light and air, but not until then. In forest management we may go back to the treatment of Billington, promulgated 30 years ago. His theory was the correct one as to pruning, and the further we depart from it the further shall we depart from the teaching of Nature and inductive philosophy. *W. P. Ayres, Dec.* 19.

Boilers.—There are one or two remarks in "G. A. H.'s" article on heating by hot water, which I think would tend to mislead those who are about to erect hot-water apparatus. His assertion that the boiler should be placed on a higher level than the pipes it is intended to heat would be found a difficult principle to follow out where houses are placed on different levels, and are required to have top and bottom heat to work separately. "G. A. H.," I have no doubt, would favour many besides myself by ventilating the subject, as I do not understand in what consists a safety syphon, or the working of the apparatus he describes. "G. A. H." does not inform us what is his system of applying air pipes or filling the boiler, which is necessary to complete an apparatus. I conclude he has an air-pipe on the inverted syphon, or the circulation of the water would be stopped by the air it would have compressed in it; for if we take a double syphon and close the opening of one limb while the other is filled with water, close the opening of the filled aperture and fill the other limb, it will be found that the union of the water is prevented by the air compressed in the bend thus:—A, the syphon; B, water; C, compresssed air.



Therefore, if a boiler be erected as described in p. 1317, 1868, and filled from a supply cistern on the same level or higher than the top of the syphon, the water would rise in the boiler and up the pipes till it meets the compressed air in the syphon, which would prevent a junction of the water; the air in the syphon would not be displaced by the expansion of water by fire-heat, and thus it would prevent the circulation of the water, and as the water expanded in the boiler it would be ejected out of the supply cistern. In hot-water apparatus the circulation of water does not take place alone through the influence of fire-heat, but is assisted by hydraulic pressure. I think that some boilers have failed by leakage or bursting through too great an hydraulic pressure, while in the erection of supply cisterns it is not studied what pressure is being placed on the boiler. *James Ratty, the Gardens, Turville Park, near Henley-on-Thames.*

Effects of Stock upon Scion.—With the utmost deference to your editorial judgment, I think rather more is made of the Bess Pool Apple case than the published facts will warrant. Every fruit-grower is familiar with the fact that, if a healthy tree be headed down and grafted with another variety, the fruit on such scions will be for many years much finer than the usual run of such fruits on trees that have not been headed down. But this enlargement does not necessarily arise from any admixture of blood "sap" between the scion and the stock, for the same improvement in size, and likewise in quality, is generally seen where there is no grafting at all. In fact, the most obvious result of heading back trees is to renew the strength and enlarge the produce of the new heads formed. And as this happens alike when new shoots are allowed to spring out from the old heads, or when these are superimposed by grafting, the grafting must not be credited with the improvement, unless on good and sufficient evidence. It may be, it probably is true, that the stock has the power of modifying the produce of the scions, but the Bess Pool Apples of Joseph Hames, Esq., by no means prove so much. The quality of the samples shown may have readily been the result, simply and wholly, of the heading down, and that concentration of vital energy which a sudden reduction of the top, while the roots are left wholly intact, necessarily induces. It will take many years—if indeed it ever can be done—before the new head will again overtake the collective strength of the feeding roots; and, until that time arrives, there will be an excess of organisable matter to be transformed into wood, worked up into leaves, and consolidated into fruit. The entire phenomena may readily be explained upon the assumption that the Apples, having a more generous diet, become larger in consequence. In such cases it seldom occurs that the fruit alone is enlarged; the wood and leaves are developed with it; and the whole case often resolves itself into an excessive supply, and a limited demand. It would be interesting, however, to know how long the trees have been double grafted, what is the area of their present heads compared with the original trees of the Bess Pool, and what proportion the number of fruit on the double-grafted trees bears to those on the single. Also, if they are trained alike, grow on the same soil, the respective circumference and height of stem in each case, if the fruit have been thinned on either trees, or both; and, in one word, if position, cultivation, and treatment have been identical, with the single exception of the double grafting. Doubtless the Scientific Committee will take careful cognisance of all these and any other points that affect the matter. At present, my views are best expressed in the words of the verdict so common in the Scotch law courts—that the connection between these fine Apples, and the double grafting, is Not Proven. *Excelsior, Dec.* 28.

Rainfall in Durham.—Although we have had such a dry summer, the fall of rain in some parts of the county of Durham during the present year appears to be very little below the average depth. If any of your correspondents in other parts of England would kindly state through your columns the quantity of rain which has fallen in other counties, as compared with former years, it could not fail to be interesting to your readers. *Rain.*

The Heating of Vine-borders.—The theory which Mr. Sage has advanced (at p. 1439 of your last volume), if not original, is certainly amusing; and, if that gentleman can "pin his faith" to a doctrine so opposed to recognised hydrostatic laws, it appears almost a pity to disturb the pleasing hallucination. Does Mr. Sage really think that heat will travel downwards except when forced to do so in some way? If he does, he thinks that which has never taken place, and never will, until the laws of nature are inverted, and the specific gravity of heated air is greater than that of air unheated. Everyone ought to know that it is the nature of heated air to rise into space, and cold air to sink to the surface of the ground; and, therefore, if Mr. Sage covers his Vine-borders with glass, and heats the atmosphere enclosed by hot-water pipes, he will merely be wasting the force employed upon the ever-absorbent power of the air above the glass, and certainly contributing very little heat to the border beneath. As a means of protecting the border from cold rains, and the chilly entrance of the "Ice King," the proposition is good enough; but, as a means of heating the Vine-border, or any other border, certainly useless, unless he provides air-drains below the border, through which the warmed air can circulate. Then a little heat may be got into the subjacent soil, but the process will be a slow and expensive one, much more so than when the heating power is placed below the soil to be heated. In fact, Mr. Sage proposes to boil the kettle at the top of the chimney, at the same time knowing he could accomplish that feat much more simply and cheaply by placing it in contact with the fire. Surely Mr. Sage would not place any fancy arrangement which man could devise in comparison with the invigorating influence of the sun's rays acting directly upon the surface of the soil. Then we know a well drained absorbent soil in the height of the season will have its temperature raised to 80°, or even 100°, in a very short time; and if such heat is supplemented by what is commonly called a "nice warm rain," it needs no great stretch of imagination to perceive that the ground will also be warmed in a proportionate ratio, so far as the rain penetrates. This is the real secret of the ground being warmed, water being a much better carrier of heat to the subjacent soil than air in any form. Just the same is it with a border covered with fermenting material: dry heat passes very slowly downwards, but when the rain comes the heat is carried down with it very rapidly. At the Cape of Good Hope we have the authority of Sir John Herschel for saying the soil of his bulb-beds rose as high during the day as 150°, a temperature which in this country could only be approximated by overlaying the soil with red hot plates. Fancy a soaking rain upon soil so heated, and we know what that beneath must quickly become. Mr. Sage's expansion theory is scarcely worthy of refutation, for while the heated air can rise, it is pretty certain it will pass into the soil in very limited quantity. However, as facts are better than fancies, I will give one or two for the special edification of Mr. Sage and his followers. In some vineries, where the flow pipe lays within 2 inches of the surface of the border, I plunged a thermometer to the depth of 1 foot, and the advantage of this close contact to a surface pipe was what?—why, scarcely 2°, the heat being 55° against a little more than 53° at the same depth in other parts of the same house. But now mark another fact: underneath the border of one of the houses a 2-inch return pipe conducts the water to the boiler, being laid in a brick drain covered with 3-inch York slabs. Over this drain at a foot deep the heat was 62°. This shows very conclusively, I think, the advantage of sunk over surface pipes for bottom-heat. Here I would gladly stop; but as Mr. Sage has, perhaps unconsciously, furnished us with some very strong facts in favour of bottom-heat for forcing early Grapes, he must not be surprised if I take advantage of them. I know not whether the Grapes at Woburn, which Mr. Sage describes as "perhaps the earliest and the best ever exhibited in London," were the result of design or accident—that is, were gathered from Vines forced, or, as has generally been the case with fresh mid-winter Grapes, were cut from those which had started prematurely into growth. But be that as it may, it is certain Vines could not have commenced growth under circumstances more advantageous as to terrestrial heat. Started in August, as they must have been, with the ground at its greatest heat—60° to 70° at one to two feet deep, according to the nature of the soil—the earlier processes of fruiting would be carried on under most advantageous circumstances; whilst in October the border was covered with a stratum of leaves, increased to a foot in thickness a little later, which, of course, husbanded the natural warmth of the season, and perhaps added a little to it. Could anything be better, so far as root temperature was concerned, or more likely to promote good results? Contrast this with Vines started in December, with an unprotected border, and I think the advantages will be sufficiently apparent. The reason why the fruit from the Vines in the inside pit were not so good, may be accounted for in many ways; such as neglect in watering, or over-watering, or by the Vines being planted in a border not properly prepared for permanent occupation. Be that as it may, I thank Mr. Sage for the evidence he has advanced against himself, and in favour of early forcing by a proper system of bottom-heat. I am no bigot; I care not whether my system be carried out or not; but until a more simple, cheap, and efficacious one be made known, I must be excused if I consider my own the best. The system is open to criticism, and I hope those who have experience in early forcing will not fail to speak out. *George Westland, Witley Court.* —— Having unfortunately placed myself on the side of the small party of advocates of bottom-heating for early Vine-borders, will you kindly permit me to reply to Mr. Miller's strictures on the system (see p. 1339). Mr. Miller begins by making our little band subject to the "Darwinian theory" of the natural selection of species, and compares our cause to that of animals threatened with extinction in the struggle for life. This is not very consolatory, but I believe Mr. Westland and Mr. Ayres will be able to defend their own position and

practice better than I can. My only object in appearing in this discussion is to give a few facts in my own practice as regards heating early Vine-borders, and this extends to 32 of the 40 years in dispute respecting them. All practical gardeners know the effect of bottom heat in early forcing, and a young Vine in a pot plunged in a nice mild bed of leaves or other fermenting materials will show a different result from one placed on cold stones, that is, when all other circumstances are equal when forcing is commenced. The one plunged will ripen its fruit and wood earlier than the unplunged one, and bear far finer and larger bunches. No amount of capillary attraction, whether received through the stones, bricks, or earth on which the pot is placed, will put the unplunged plant on equal terms with the other. When the late Mr. Mearns commenced his chambered borders at Welbeck for forcing early Grapes, there was no extravagant cost in their construction. All the artificial heating applied was merely the temperature of the vineries, which circulated in the chambers below and in the borders above. The only things costly about them were the glass lights protecting the roots on the outside, which I did away with, finding wooden shutters a better protection in severe weather. Purple Constantia and other varieties of Frontignan ripened in these early vineries in March and April, and to have new Grapes ripe in these months I consider the most successful test of all Grape growing. The late Mr. Forbes, when at Woburn Abbey, was bound to have a supply of new Grapes in the winter months, and he told me that his Vines only lasted a few years in bearing, and that he always had to have another vinery in preparation to take the place of the exhausted one. I expect the borders of his early vineries were unheated, and this and the hard winter's work of forcing, would cause his Vines to get weaker every year. The chambered early vineries at Welbeck kept on bearing well for 16 or 17 years, until the old garden was condemned. This, therefore, was an instance of the longevity of early forced Vines, from the roots being well cared for. For Grapes ripening in May, June, and July, heated borders are not so requisite, and for late Grapes not at all. Should the situation be low and damp, with a cold clay subsoil, aerated borders such as Mr. Fowler, of Castle Kennedy, recommends, will be found to answer well. In a large Muscat house at Welbeck, the aërating system is employed with the best results, and I wish one or two more houses had been done at the same time, the subsoil being a strong red clay of great depth. As to the heated borders at Kingston Hall, I visited that place some 14 or 15 years ago in October, and saw very heavy crops of Grapes, but they seemed sadly mismanaged, for the red spider had quite destroyed the foliage in places in the large vinery, but this was some time before Mr. Westland was gardener there. Without searching through the files of the *Gardeners' Chronicle* for 20 years, if Mr. Miller will only turn to the volume for 1861, p. 673, he will find a description by Mr. Dean of the state of the Vines on the heated borders at Kingston Hall at that time, which will perhaps astonish him. *W. Tillery, Welbeck.*—If we are to take for our guidance as to the most successful modes of Grape growing as practised in England, fruit that has been before a public tribunal in competition for prizes, I imagine we should say, "Let heating the border alone." Look at Garston, Keele Hall, Cole Orton Hall, and, not least, Combe Abbey. There is nothing there but good drainage, good fresh turf, mixed with lime scraps or bone-dust, to maintain the mechanical condition of the border. So long, therefore, as these hold their own in competition, where is the advantage of even making the attempt? But, say they, "Wait a wee, and we will show you results." It must be that you forward illustrations to the metropolitan shows, before you convince us; mere assertion is not sufficient at the present day; we, who are so stubborn, must have facts. The very shallow border maker, and if so, the narrow one also, has suffered to a great extent this year; the mulching might be there, but there was no water to spare to give the roots a good watering. I believe that the noblest examples of Grape growing are to be found amongst Vines whose roots are not subject to climatic influences (I mean hot or cold draughts); and I believe also in the capabilities of the Vine as a single plant, where it is allowed freedom of growth, and where the roots are in a warm, gravelly, congenial soil. *W. Brown, Merivale Hall, Dec. 24, 1868.* [If the results of exhibitions are to be taken as decisive of this question of border-heating, those held later than the end of May, must be left out of account. EDS.]

Foreign Correspondence.

CULTIVATION OF THE VINE IN ALGERIA.—Lindley mentions in his "Vegetable Kingdom" that the Vine is a native of the shores of the Caspian Sea in lat. 37° N., but it is stated by Dr. Hooker, in the Journal of his voyage in the Himalayas, that the native country of the Vine is not precisely known. In the neighbourhood of Saida, in the province of Oran, Algeria, wild Vines are exceedingly abundant, climbing up the trees which skirt the watercourses of that district, and they are in all probability indigenous, as the Vine is not cultivated within 30 miles of Saida. Wild Vines are not uncommon in the neighbourhood of Algiers, and produce very palatable Grapes, but they are evidently sown by birds which feed upon the produce of the cultivated Vines.

I cannot tell the age that a Vine will reach, but it may be counted by hundreds of years. I measured the stem of a Vine last year at Tlemcen, in the province of Oran, and its circumference was 20 inches, but I remember to have seen a Vine (now destroyed) in the court of the great Mosque at Tlemcen some years ago, whose trunk was 3 feet 3 inches in circumference.

When the French took possession of Algiers in 1830, the cultivation of the Vine was confined to small patches in the gardens of the Moors, the largest of which did not exceed half an acre. The Grapes were either consumed fresh, or else made into raisins, as the Mahometan religion forbids the use of wine and all other fermented liquors. The neighbourhood of Medeah, about 40 miles south of Algiers, was celebrated for its vineyards, and I have tasted wine made by the Jews who inhabited Medeah before the French occupation of Algeria, which was very good in quality, and resembled dry Malaga or sherry. The Kabyles bring large quantities of very fine Grapes to the market of Algiers, and I have heard of bunches weighing 25 lb. These Grapes are grown on the slopes of the Atlas Mountains, about 50 miles east of Algiers.

The French had occupied Algeria for nearly 10 years before the attention of the colonists was directed to the planting of vineyards, and the first attempts which I observed in 1839 at Hydra, about three miles from Algiers, proved a complete failure. It was not until 1852 that the cultivation of Vines was undertaken on a large scale, and there are now in the province of Oran colonists who possess more than 100 acres of vineyards.

The cultivation of the Vine does not extend to more than 20 or 30 miles from the sea coast, as the extremes of heat in summer and cold in winter in the districts beyond these limits are not favourable to its success. At Sidi Bel Abbas, a town situated not more than 20 miles in a direct line from the coast, the tender shoots are frequently injured by late frosts in spring, but I never knew, during a sojourn of 25 years, but one instance of frost affecting the Vines near the sea, and that was in 1856, in the neighbourhood of Oran, when about 50 plants were injured by a frost which occurred early in the morning of the 29th April. These Vines were in a low-lying moist situation, and hundreds of acres in the immediate neighbourhood were unhurt.

As Algeria is peopled by settlers from all parts of France and the south of Spain, the method of cultivating Vines varied in the commencement, according to the customs of the settler in his native climate, but at present the sole mode of Vine planting is that used by the inhabitants of the south of France: no props or *échalas* are required, as in the centre and north of France.

All kinds of soil, from alluvium to rocky mountain slopes appear to be suited to the Vine, but a loose gravelly soil produces the best quality of wine, and a deep loam or even clay, the largest quantity of Grapes. I have known 25 hogsheads of wine produced in stiff clay by a hectare (= 2½ acres) of ground, but 10 hogsheads per hectare is considered a very good return.

Mode of Planting.—A trench is dug in the ground the whole length of the field, 19 inches in depth, and the same in width, and at the distance of one mètre (39 inches) a parallel trench is dug, and so on until the whole field is completed. Any time from the beginning of December until the end of February, the Vine cuttings are planted 39 inches apart, each cutting being from 3 to 4 feet in length. A cutting is taken in the left hand of the planter, and about 6 inches of its lower part is placed across the bottom of the trench, or if the cutting be less than 2 feet long it is simply placed upright. The foot is then placed upon the bent part of the cutting, and the remainder is held perpendicularly at the side of the trench, the point sometimes standing 1 or 2 feet above the level of the ground, according to its length. With a hoe in his right hand, the planter draws the earth around the lower part of the cutting, pressing it firmly with his foot, covering it to the depth of about 10 inches, and, leaving the point upright; he then proceeds in the same manner with other cuttings, until the whole trench is planted. Other workmen follow, who entirely fill up the trench. When the whole field is planted, every cutting is shortened to two eyes out of the ground, and the operation is complete. Thus the plants are in straight rows, 39 inches (1 mètre) apart, and sometimes during the first year the intervening space between the rows is made use of for planting a line of dwarf French Beans, or Chick Peas (Cicer arietinum), but many cultivators never allow anything to be planted in a vineyard. The cuttings are of the last year's wood, and sometimes have an inch of two years old wood, but they are not preferred on this account. The only care during the first year is to keep the ground clear from weeds by ploughing, or if a crop of French Beans is taken, the hoe can only be used.

Another method of planting Vines is sometimes practised, particularly in rocky ground. A hole is made with an iron crowbar to the depth of from 15 to 18 inches, and the Vine cutting is inserted, and loose soil or sand poured into the hole; the cutting is then shortened to two eyes out of the ground. This is a much simpler and less expensive operation, but it is thought that the Vine does not live so long when planted by this method, although it comes earlier into bearing. The Vines begin to fruit in the third year after planting, but they do not bear a full crop until the fifth year, and with care will continue fruitful for 100 years. When their fruitfulness diminishes through age, the stock is buried in the ground about 2 feet, and two or three of the last year's shoots pegged down, and allowed to stand with two eyes out of the ground; these shoots will bear the first year, and at the end of two or three years are cut off from the parent stock, and form new plants. I have by this method renewed Vines which had been planted by the Moors much more than a hundred years previously.

Mode of Pruning.—Any time from the beginning of December until the end of February, the young shoots are cut down to two eyes, and any rootlets within 2 or 3 inches of the surface of the ground removed. The same operation is repeated every year, only leaving two spurs the second year, and three the third year, and so on, until five spurs are formed, when no more are allowed to remain. These spurs should be equally strong, and of the same length, and the skill of a good pruner is to properly regulate them. A Vine of 50 years old will have no more than five short branches, each about 3 or 4 inches long, and the stock or stem from 6 inches to a foot above ground. From 5 to 6 lb. on each Vine is considered a fair return, but I have had Vines of 10 years old producing 12 lb. on a plant.

There are few varieties of Grapes cultivated in Algeria, and all these have either French or Spanish names, which would be unintelligible to an English reader. The Grapes used for making wine are not considered good table fruit, as they contain little pulp and much juice, and table Grapes are not used for making wine, for the contrary reason. The best table Grapes are cultivated on trellises, generally in front of houses, or as an avenue in a garden. The price of the fruit in the market is about 1*d.* per lb. The process of wine-making is exceedingly simple. The Grapes are trodden by the feet in a large vat, and at the end of about a week, according to the fermentation, the wine is drawn off and put into barrels. The price is about 2*l.* a hogshead, or 2½*d.* a quart. In making some of the sweet wines, the Grapes are laid out on a terrace for a week, more or less, and then treated as before related. *Giles Munby, Alice Holt Forest, Farnham.*

Notices of Books.

1. *Rapport sur les Progrès de la Botanique Phytographique.* Par M. Adolphe Brongniart. Large 8vo. Pp. 216. Paris. (Williams and Norgate.) Report on the Progress of Descriptive Botany, &c.

2. *Rapport sur les Progrès de la Botanique Physiologique.* Par M. Duchartre. Large 8vo. Pp. 408. Paris. (Williams and Norgate.) Report on the Progress of Physiological Botany, &c.

3. *Histoire des Plantes.* Par H. Baillon. Paris and London, Hachette. Large 8vo. Parts i.—iv.

The first two publications mentioned above form part of a collection of reports published, under the auspices of the French Minister of Public Instruction, on the occasion of the International Exhibition of 1867, and are intended to pourtray the existing condition of various branches of science in France, and the progress made in them during the last twenty-five years. We are greatly disappointed not to see any report on the progress of horticulture or agriculture, but at the same time we are glad to get two such reports as these on the progress of scientific botany. It must be remembered, however, that these respective publications refer exclusively to what has been done by Frenchmen in France, and that the labours of naturalists of other countries are either not mentioned at all or only incidentally.

We can but think this restriction is an unfortunate one. It gives necessarily a partial and one-sided view of the matter. It has evidently hampered both authors in the treatment of their subject, and an excellent opportunity of giving a *resumé* of the condition of botanical science in general, and not as limited to France, has been thrown away. It would be difficult to find two botanists as competent for their respective tasks as the two reporters above-named, and had they been allowed to act up to the reported dictum of Napoleon, "*la science n'a pas de nation*," we cannot doubt but that the reports would have been of greater interest and value than they now are. But making allowances for the circumstances just mentioned, it must be admitted that the progress of France in both departments of botany, the descriptive and the physiological, has been splendid. M. Brongniart, in his report, deals with the monographs and descriptions of families which have been executed in France in the last quarter of a century, and when we call to mind the publications of Thuret, of the brothers Tulasne, and others among the Cryptogams, and those of De Jussieu on the Malpighiaceæ, of Tulasne on the Podostemads, of Weddell on the Urticads and Cinchonas, the numerous publications of Brongniart himself, of Decaisne and Naudin, and others too numerous for us to detail, we may well use the epithet "splendid." In the matter of "floras" of various countries, or of their own colonies, the same remark does not apply, and the French have little to show in this department as compared with British botanists.

Of course, in France, as elsewhere, there are two schools in the matter of species—while M. Jordan, of Lyons, makes 53 distinct species out of the varieties of poor little Draba verna, M. Decaisne, from his researches and experiments on cultivated Pears and other fruit trees, comes to a very different conclusion. M. Brongniart's own views as to the nature of species are very orthodox, perhaps rather too much so, according to modern lights, but whether or no, to be received with all the respect due to any expression of opinion from so distinguished a botanist. A species, says M. Brongniart, is essentially invariable, and can neither be transformed into any other, nor can it give origin to new species.

M. Brongniart accords, and deservedly, considerable space to a summary of the most important discoveries relating to the fertilisation of the Seaweeds, in which French naturalists have taken so distinguished a part, and with the general result of establishing the fact that sexual forms of these plants are as distinct as in higher plants, while the modifications of the process in the various groups are wonderfully complicated and varied. The writings and monographs of the leading French botanists within the period indicated, are, as a rule, models of accuracy and perspicuity—excellent in all ways. We cannot say as much for those of the rank and file. These too often bear the marks of hasty construction, and far too little literary research as regards what has been done in the same field out of France.

If the nature of the subject precludes us from entering into details with reference to M. Brongniart's report, still more so is that the case in the instance of M. Duchartre. The subjects mentioned are so numerous and so varied that anything like an analysis is wholly impracticable. We can only say that in this department of botany the glory of France is quite as amply sustained as in the case of systematic botany, and when we glance at the numbers of physiological memoirs published in that country, and compare them with what are published in our own, the contrast is not very agreeable to our complacency. This country unfortunately lost two physiological botanists of great merit at an early age, Griffith and Henfrey, and there seem to be few successors in their paths, and fewer still in the case of physics, as applied to plant life. In the case of plant anatomy also we have little to compare with the writings of Mirbel, of Gaudichaud, of Trécul, of Chatin, or Payer; in the department of physics still less to class with the memoirs of Dutrochet or Boussingault, and the host of French chemists.

M. Baillon's "History of Plants," is published in the form of a series of monographs, each devoted to a single natural order. The plan followed is to give a somewhat detailed description of one or more of the genera

taken as types of the family, or its minor subdivisions, such details being taken as far as possible from fresh specimens grown in gardens—an excellent plan, as it enables the observer to see clearly many points which he can only see dimly or not at all in the dried state. Moreover, he can investigate the development of the several organs, a thing generally quite impossible in herbarium specimens. After this detailed description there follows a more concise account of the other genera of the order, enriched with copious notes on the morphology of the several organs. These latter are peculiarly valuable, as embodying the latest researches on general morphology. Systematic botanists are apt to cling to old formulæ and old modes of expression, simply from expediency, in the same spirit as that which in former times resisted the introduction of the natural system. If it be objected that by the adoption of modern notions of the morphology of plants systematists would be building on a shifting and insecure basis—one liable to change from year to year, the reply would be, that the existing basis in many points is notoriously unsound, and to build on it is to mislead students and to set up an obstacle to all progress. There is another feature in M. Baillon's publication that deserves notice, the more so as a similarly ample recognition and appreciation of the labours of other botanists who do not happen to be Frenchmen is decidedly rare. We allude to the copious reference made to the writings of other European and American naturalists. The whole work, so far as it has gone, bears evidence not only of great personal labour, but of ample research. We cannot coincide with M. Baillon in many of his views, especially as to the degree of affinity between some of the groups. Some of these opinions, we suspect, time will modify, but in the meantime we cannot withhold our tribute to the industry and pains he has bestowed in this work. But does M. Baillon contemplate the attainment of the age of Methuselah? It would almost seem so from the detailed plan he is following—88 pages to one natural order, 95 to another, and so on, and this without including any particulars as to the discrimination of species. It is clear that no ordinary lifetime will suffice to carry out a work planned on such a scale. At the same time the account of each order is complete in itself, and is available for consultation without reference to the others. We have only to add that the monographs are copiously illustrated with well chosen and admirably executed woodcuts. In this latter particular our French neighbours infinitely surpass us. The representation of texture, and the general finish of these woodcuts is much superior to anything of the kind in English works of the like nature.

Florists' Flowers.

THE record of the NEW FLOWERS of the past year is as bulky as that of any that have gone before it; there is, indeed, never any lack of plants of this character; and from out of much that is little better than rubbish there may generally be met with a few novelties of unusual excellence, that shine forth as bright particular stars, find a place in the plant lists, and in their generation do good service to the grower. At the beginning of a new year it is, therefore, well to ask what is there of last year's contributions that can be fairly classed as novelties of unusual excellence?

There has been at least no falling off in the way of superb new Alpine Auriculas—those grand spring flowers, radiant with rich hues happily blended, and lighting up large and massive flowers, altogether unlike those which held sway a few years ago. Among those of the past season, King of Crimsons stands out as marking a great advance in point of brilliancy of colour, and fine proportions. Of the show kinds Mrs. Mendel is a new white-edged variety, remarkable for the regularity and evenness of the colouring and marking.

Strange to say, no really distinct new Azalea has put in an appearance amongst us, though some new Continental kinds are reported to have brilliant properties.

New Chrysanthemums are certain to be in force, though it requires something distinct in character to take the place of many of the fine flowers of the past year or two. Pink Perfection, a beautiful large-flowering kind, is distinct, from the delicate softness of its colour and fine proportions; and Princess of Teck, delicate blush, has very full and symmetrical flowers. The first-named supplies a most useful new variety for the exhibition table. The new Japanese kinds, so curious in form and novel in colour, that excite the ridicule of some florists and the admiration of many more, begin to assume proportions little dreamed of two years ago. A most distinct and handsome flower is Dr. Masters, with an abundance of shred-like florets of a reddish-brown and golden hue; while Hero of Magdala has flowers so unusual in character as to border on the extraordinary. Both are fine additions to these useful late autumn-blooming plants, and will become very popular for house decoration.

While the Cineraria has, if anything, retrograded, the new hybrid Clematises, as represented by Jackman's strain, have superadded to flowers of the size and texture of C. Jackmanni, rich blue tints, which add not only to their variety, but also to their attractiveness. Such flowers as Beauty of Surrey and Sir Robert Napier are cases in point, and these promise to become as popular as their immediate progenitors. Most striking of all, however, is a red form of C. Viticella, named rubra grandiflora, the flowers of which are nearly double the size of the parent plant, and most freely produced, while it is also quite as hardy.

During a season most unexceptionably hostile to the fine development of the Dahlia, a few flowers of rare excellence have yet appeared on the scene. Emperor has much to commend it in the way of novelty of character, being compounded of claret, crimson, and purple, the presence of each of these colours being clearly perceptible, while its other qualities are in keeping with its unique character. Indian Chief is a fine addition to the dark flowers, as King of Prussia is to the yellows, the latter having a peculiarly soft primrose hue. James Hunter, a golden ground flower, with a lacing of orange lake; and a pleasing, pale, rose-coloured flower, named Memorial, complete the list of the best kinds. Unique has taken the highest honours; but, in addition to being undersized, it has the appearance of being somewhat uncertain in character. Of Fancy Dahlias, the record of the year gives no variety that may be termed an advance on existing kinds.

While new Fuchsias appear to be plentiful enough, they rarely find their way to those tribunals whose province it is to determine the relative value of new flowers. Something really distinct in character is now wanted, but as yet that does not appear to be forthcoming. A good addition of the golden-leaved kinds appears in Regalia, which is lively-looking and distinct, and will be found as useful for house decoration as for ornamenting the garden.

Both the Gladiolus and the Gloxinia have been well represented in new and improved forms during the last season. Of the former, Formosa, Julia, and Lord Napier, seedling flowers raised by Messrs. Kelway & Son, of Langport, are richly marked and novel kinds; and Ulysse, a Continental variety, stands forth prominent as a striking and beautiful flower. Gloxinias, both of the erect and drooping flowering kinds, have appeared somewhat numerously in regard to previous years, as many as seven new kinds having received First-class Certificates. Of these, Bergerette and Mons. Brongniart were particularly noticeable. A semi-duplex form or two of this superb flower has appeared, which bid fair to develop into altogether unique flowers.

So exceptional a season told on the Hollyhock, and to some extent marred its usual rich beauty. Ida and Willingham Model form good additions to the yellow and buff flowers, and Sovereign to the dark bright crimson flowers. Other promising flowers have also been seen, but could not be shown in fine condition.

If the granting of Certificates to new Hyacinths can be taken as recognising the presence of high merit in the flowers, then the year has been singularly fertile of fine new kinds. King of Yellows is a decided acquisition to the flowers of this colour, and Clio to flowers having white centres to a dark mauve or purple ground. If our readers ask when are they likely to see these flowers in commerce we cannot reply, but commend the old proverb: "He that waiteth patiently, waiteth well." In all probability they will form the heritage of a new generation.

In the matter of bedding Lobelias, the new dwarf forms of the pumila section, especially those with lilac and pink-coloured flowers, are decided acquisitions if they will prove available for bedding purposes, and there is little reason to doubt their adaptability. Distinction, a rosy-red flowering variety, with a large white centre to each flower, marks a real advance in varieties of this shade.

The various sections of Pelargoniums have received welcome additions during the season. The large flowering section is well reinforced by Troubadour, a splendid carmine-coloured variety; and Cinderella, a very novel stained flower, of good properties. During the past two years the Fancy division has been strengthened by the addition of some very novel and beautiful flowers, that may be said to combine all the high attributes an Ambrose or an Ayres patiently toiled to realise in former years. Princess Teck, a beautiful and delicate light flower, and Vivandiere, a rich looking dark flower, mark the furthest outcome of the progress towards perfection made during the past season.

Of bedding Pelargoniums, the double-flowered section has received some fine additions in the way of pink flowers—Madame Lemoine and Sparkhill Beauty being the most distinct. Of crimson shades, in which there is yet much room for improvement, Triomphe de la Reine is a good acquisition. Of golden-edged Variegated Zonals, Ettie Beale, Mdlle. Christine Nilsson, Mrs. Dunnett, and Sir Robert Napier, are all fine additions, the latter having much novelty of character. White-edged Variegated Zonals are much strengthened by the additiou of Mrs. John Clutton and Mrs. Col. Wilkinson, both of which have taken the highest honours. In the gold and bronze section there are some very promising kinds, of which Crown Prince, Harrison Weir, and Stanstead Beauty promise to achieve as high a reputation as their immediate predecessor, Kentish Hero. The golden-leaved sections are yet open to great improvement, though there has been no lack of new introductions. The bedding class is strongest with new Nosegay kinds. Masterpiece and Lizzie, are two very fine varieties, the latter being novel in character; while Fire King and B. K. Bowley complete a fine set of new kinds, the two last-named especially noticeable for their rich and vivid hues of colour. Mr. Wills' hybrids of Lateripes are as yet comparatively unknown; they represent a fortunate break, that is likely to yield us a most useful race of Pelargoniums.

In the way of Verbenas we have been fortunate in securing some new kinds, quite distinct in character. Anna Keynes was one of the most striking flowers of the season, from the richness of its deep mulberry hue, and the massive proportions and finish of the flower; while Conspicua and Mrs. Eckford promise exceedingly well. One of the most beautiful novelties of the year is Mrs. Reynolds Hole, a very pleasing, delicate flower, of great beauty; and we may also mention as decided acquisitions, Model, Mrs. Perry, Perfection, and Spot.

The foregoing remarks prove, that there is little to bewail in the way of a falling off of floral enterprise. The decay of floriculture is mourned by some. Its aspects may have changed to some extent, for the pure florist of yore is now being rapidly merged into the horticulturist; but the spirit of old is yet abroad among us, and in its own good time will give us abundant indications of its activity and success.

The Apiary.

THE "AMERICAN BEE JOURNAL."—The best method of "wintering bees,"—that is, of carrying them through the winter in the most favourable manner for their future prosperity,—engages a very considerable amount of the attention of our American brethren, and occupies many pages of the December number of their "Bee Journal." Although to us, on this side of the water, much of what they recommend and practise may appear to be unnecessary, yet perhaps there may be something to be learned from a careful scrutiny of their practice, and we may possibly improve on our own generally very careless methods of putting up our hives to stand the winter. Too often no attention is paid to the hives after the period of autumnal deprivation; they are left on their usual stands in exactly the same state as during the summer; not examined to ascertain if the bees require food, but allowed to take their chance, and perhaps not looked at until the returning spring, when a little interest is excited to know if the bees are living and likely to thrive, or dead. If dead, the owner deplores his bad luck; if living, he plumes himself on his good management, forgetting that his bees are prosperous in spite of his utter mismanagement.

A correspondent of the "Bee Journal" writes:—"In the fall of 1866 I had nine stands, four in frame hives, and four in common box hives. The four frame stands, in two of which Italian queens had been recently introduced, with one of the box hives, were too weak in stores for the winter. These I fed with brown sugar syrup, knowing no better then; and, to make sure of the two Italians, I mixed half honey with their syrup. I took off the honey-board, and spread a piece of warm carpet over the tops of the frame, then stuffed the caps with dry straw or shavings, and put them on. I merely opened the holes of the box hives and put on wirecloth, then put the caps on stuffed as above. One of the Italians being weaker than the other, I took a bundle of rye straw, flattened it to 4 inches thick and a little wider than the top of the hive, thus making a flat mat, and sewed a piece of tow linen around it. I laid this on the frames, and spread a piece of oilcloth over, to keep off the rain; placed a board on top weighted with a stone, to keep the wind from blowing all off—the caps being also left off. This stand wintered so well, that I wintered it again with the same mat last winter, and also three others prepared in the same manner.

"In January I examined the five weak stands, to see if all was right: found the two Italians in good condition, dry and warm; but the other three were dying of dysentery. I rather attributed this to the brown sugar I had fed them on exclusively, as each hive still had sealed honey. On the first of February I examined the two hives of Italians, and found them all right, dry and warm, with plenty of honey. I re-examined them on the 8th of March: they still had plenty of honey, with some brood. The six stands wintered well, and from them I increased my stock to 18 the next season—all of which I wintered successfully in the same manner, only setting the weak hives in larger boxes, and filling the space between with shavings, sawdust, straw, &c., and covering the tops well to keep out dampness. I also drove down stakes, and fastened boards around all sides, except the front, and stuffed the space between with straw. All my hives face the south-east; the entrances are left open all the winter, only being contracted to half an inch in cold spells. I am confident that some of my weak stands had not over 10 lb. of honey last fall, and I had no idea of wintering them, but concluded to try, as an experiment, and the result was a complete success, for I only had to feed the two weakest in April, when the supply of honey was exhausted by the brood. The mats can be made by any person in a few hours, and will last for years if kept in a dry place in summer. My apiary is so situated as to break the force of the wind, and receives the warmth of the sun most of the day."

On the same subject R. Bickford writes:—"Bees, to winter well, must have sufficient ventilation to carry off the excessive moisture which accumulates in well-stocked hives. This moisture partly arises from the exhalations from the bodies of the bees, but mostly, I think, from the surrounding atmosphere, which constantly holds in suspense a greater or less amount of moisture, according as its temperature is higher or lower. The warm atmosphere of the hive is capable of holding a considerable quantity, until it is condensed by coming in contact with the cold walls of the hive, at some distance from the cluster of bees. There it condenses, first into minute drops of moisture, and afterwards, if the cold increases, into frost. The constant accumulation of the quantity, by repeated thawing and freezing, in a hive that has no efficient means of ventilation, gradually encroaches on the space occupied by the bees, finally reaching those on the outside of the cluster; these grow benumbed, cease to eat, lose their vitality, grow cold, the frost forms on their bodies, and they die where they stand. The frost continues to penetrate the cluster, if the cold weather is prolonged, until the last bee dies covered with frost. The warm days of spring then melt this frost, and on examination, the whole mass of bees is found dead, and as wet as if just dipped from a basin of water. I found one hive in that condition last spring. The entrance to this hive was left open, but the honey-board was left on tight, without any upward ventilation, as an experiment. All my other colonies wintered well on their summer stands, having their entrances open three or four inches wide, and the front and rear openings in the honey-boards (half-an inch wide, and extending the whole length of the hive) uncovered, but the middle opening closed. For the coming winter I have adopted Mr. Langstroth's plan with some modifications. I shall omit the outside

covering of the hive, believing that it is better to have the hive of a single thickness of board, say seven-eighths of an inch, in order that the heat of the sun may easily penetrate it, and warm up the hive almost daily, thus giving the bees an opportunity to bring to the central part of the hive fresh supplies of food from the outer combs. This may lead to a somewhat greater consumption of honey; but if a swarm of bees will give its owner from 50 to 100 lb. of surplus honey in a season, as mine have done the past summer, he ought to be entirely willing to have them eat all they need during the winter. I have removed all the honey-boards, placed two half or three-quarter inch strips across the frames, and covered the whole top of the frames with any old woollen garments that could be found about the house. Pack them in as you would pack a trunk—two, three or half-a-dozen thicknesses will make no difference. The moisture will pass through as readily as the insensible perspiration of our bodies will pass through our best clothing. The hives will remain dry and the bees warm." *S. Bevan Fox.*

(To be Continued.)

Miscellaneous.

Early Peas in Pots.—Having the advantage of a great length of glass wall-covering, I made a trial of all the earliest Peas in cultivation, and took means to have them true from the raisers. They were all sown on the same day early in February, in the same sized pots, soil, and situation. The varieties were Carter's First Crop, Suttons' Ringleader, Dickson's First and Best, Taber's Perfection, Dillistone's Prolific, and Sangster's No. 1. The First Crop and Ringleader showed flower at the same time; Taber's Perfection and Dickson's First and Best were two days later; Dillistone's Prolific was evidently the spurious variety, for it was a week later than the other in flowering; and Sangster's No. 1 the last. The first dish was gathered off Carter's First Crop and Ringleader (for they are identical in growth and earliness), on the 15th of May. Dickson's First and Best, and Taber's Perfection, were only two days later in furnishing their first picking. Sangster's No. 1 and Dillistone's Prolific were eight days later. The results were as follows:—First Crop and Dickson's First and Best averaged only three and four Peas in a pod, and came in nearly all at once. By far the best podder and forcer was Taber's Perfection, for it averaged four and five Peas in a pod of good size, and was well flavoured. The sort I had for Dillistone's Prolific was similar to Sangster's No. 1, for they were both ready at nearly the same time, and resembled each other in the size of the pods and in growth. I had a long low pit filled with Maclean's Little Gem, which produced by far the finest and earliest Peas I have ever grown in May. The first batch of pots was sown in November, and came in in the end of April; and two other sowings made in December produced some good dishes in the beginning of May. In fact the pods and Peas were as large as those produced in summer, and quite of the Marrow flavour. For the future I intend discarding all the tall early Peas for forcing, and only using Little Gem and Tom Thumb, with Advancer for the tallest variety. *W. Tillery, in "Florist and Pomologist."*

Garden Operations.

(For the ensuing week).

PLANT HOUSES.

Caladiums, which are now at rest, require a more than ordinary amount of care during this their dormant period, to enable them to retain such an amount of vitality as will insure a good vigorous growth at a future date. More of these valued tuberous-rooted plants are lost at this time of the year than during the whole period of ther growth, simply through the want of a little closer study of their characteristic peculiarities. I believe that dry-rot destroys more of them than any form of dampness or latent moisture is capable of doing. This is invariably brought on by great fluctuations of temperature and dryness in excess. Their succulent roots become so injured in either case, that they are incapable of retaining a sufficiency of nourishment to maintain a proper vitality, and hence rot is induced, dry in form, which permeates the whole. To insure the plants against this state of things, endeavour at all times to keep the pots as far as possible from any source of heat, whether pipes or flues, but in a temperature never less than 55°. If plenty of moisture exist in the atmosphere, a sufficient quantity will attach itself to the pots and soil. I would, however, recommend that the pots, which should lay upon their sides, be occasionally sprinkled over with tepid water. A good deal might no doubt be learnt in regard to these plants by a reference to the native Arum of our woods and hedges. Though generally found in dry situations (not always), it stands the wet of our long winter months with entire immunity from injuries of this sort. *Cinerarias* will now be expanding a few of the first blooms, or some among them will have the buds forming very prominently. Where the least symptoms of green-fly or other pests exist, a good fumigation should be given, as when once these gain a lodgment at this season, or at the early flowering period, they generally succeed in disfiguring some of the younger buds, and damaging the beauty of the plant. Good waterings with liquid manure should be given them from now onwards. Continue potting successional batches of *Herbaceous Calceolarias* as quickly as their roots advance to the sides of the pots, until they are finally shifted into the flowering ones. Early *Cape Pelargoniums* should have gentle aid afforded them by a slight amount of heat being kept in the pipes daily. Those, however, which are intended for the ordinary blooming season should be kept as cool as possible, not to unduly excite them. Give more water to *Heaths* and *Epacrises* which are opening their flower-buds, and thus promise an early display. I have lately given similar advice in regard to *Camellias*, which delight in a good supply at this period. Those who have ordinary bedding stuff, or semi-hardy plants of any other sort, stored away in unheated or other makeshift houses or frames, will do well to withhold water from them for the next three or four weeks. Sufficient moisture will exist to insure them from any injury through the want of water at the roots.

FORCING HOUSES.

A plentiful supply of fresh air should be given to *Vineries* as soon as the buds have pushed, should the weather prove favourable. Upon bright sunny days, or at any time when the outer thermometer runs up to about 50°, let it be admitted with judgment at the front, especially in instances where the air-holes are placed contiguously to the heating media, and the air blows freely upon and between them, so becoming warmed on its way into the structure—at the same time giving more atmospheric moisture with the increase of air. The bottom-heat at the roots of fruiting *Pines* should now be kept up to a mean of from 79° to 83°. Strong successionals may be kept some 10° or 12° lower than this. Where symptoms of a decrease exist, steps should be taken to stir up the material, and if required, to add more fresh tan or other substances which may be needed. Be cautious in the use of the water-pot for some little time to come, unless where the plants are plunged in the vicinity of pipes or flues, and are the more likely to be affected thereby. If the *Peaches* or *Nectarines* in the earliest house are commencing to expand their blossoms, increase the temperature by some 5° at night, and 8° or 10° by day. Do not syringe them during the early stages of flowering, but rather keep the air as dry and buoyant as possible, the more to aid this delicate process. Permit the warmth caused by sunshine only to run up to from 72° to 75°, with air at all times for a like purpose.

HARDY FLOWER GARDEN.

Where alterations and improvements are contemplated in this department, this will be found a good season to push forward such operations with vigour. *Carnations* should now receive every attention at our hands; the season, being a wet dripping one, has not been very propitious to them. Carefully attend to all the younger stuff likely to have been influenced by the late wind-storms, and secure them by every possible means against any further bad weather. Composts, which are heaped up for the purposes of decomposition or protection, may be turned over with much benefit after the late frost. This will not only tend somewhat to destroy insect life, but also aid by its resuscitating influence to make the same more valuable. All trees intended to be transplanted should now be removed as quickly as possible, that the soil may become well settled about the roots, and fresh rootlets be formed, preliminary to their forming early spring buds.

HARDY FRUIT GARDEN.

Where delay has occurred in the planting of *Fruit Trees* (against which I protested some months since), I would again urge the desirability of planting at once. Do not cut away any of the branches for a little time to come, as so doing causes an undue and unnecessary expenditure of sap, which would be already taxed in the process of removal. The excessive rain of the past few months has caused the ground to become unusually moist; this will give to all a good idea concerning the sort of substrata their fruit-tree borders, and the soil contiguous to them, are possessed of, and may suggest the desirability of a more efficient system of drainage. A soil containing stagnant moisture is farthest removed from that which is likely to produce good fruit, and with moderate constancy of supply. Hence, by drawing attention to the question, I may induce greater scrutiny into such matters by possessors of soil of this description. The sooner all draining operations are concluded, the better. Any who, being in the possession of old walls, contemplate having them pointed over, or wired for fruit-tree training, will do well to push such work forward during mild weather, as the early spring operations in connection with these will now quickly need attention.

KITCHEN GARDEN.

The earlier sowing of *Peas* and *Broad Beans* should again be earthed up a little upon a dry day. Some sort of protection should be afforded them from the attacks of sparrows and the feathered tribe generally. One or more rows of worsted, which has been previously dipped in naphtha, strung along the tops of their young growths, I believe to be an excellent remedy. Do not omit any opportunity to dig well, or to trench over, every vacant or spare place, that frosts and snow may have full play upon the ground. Many growers I observe remove for present use the crowns, or terminal growth of *Brussels Sprouts;* but excepting in instances where they are slow to button, or are wanted early off the ground, this practice is bad. It exposes the whole stalk to the decaying influences of frosts; and causes them to cease growing, however favourable the weather between now and spring may be for the production of more sprouts. A few *Potato Onions* may now be planted in a favourable situation in rich and well prepared ground. Press them firmly into the soil, and bury all excepting the tip of the crown in the operation. Onions are likely to be very scarce ere the season is far advanced, so that every opportunity should be embraced to increase the stock. *W. E.*

TOWN GARDENING.

SHOULD the weather continue open, now is a good time to attend to grass-plots. Take out all Daisy and other weeds that are visible, and give a good dressing of mould; rake it well about, and roll well, in fine dry weather, this being of the utmost importance to town Grass. Where it is intended to lay turf or sow Grass seeds the ground should now be turned up, levelled, and all rough rubbish picked out. Hyacinths, Narcissus, Crocuses, and Tulips that yet remain above-ground should be planted as soon as possible, so as to succeed those planted in autumn. If not previously done, take up all Chrysanthemums—large-flowered and pompons, and lay them in close together, so that they can be protected; for, though they are tolerably hardy, I have known a lasting frost kill a great many, and by removing the plants the beds and borders can be well manured and properly dug. Lilacs and other deciduous shrubs should now be looked over, and all dead wood, old straggling branches, and suckers from the bottom cut out, and the ground turned up with Parker's patent fork. As all British Ferns do well in towns, a rock-work should now be formed. A bank of any kind of earth should be thrown up, of an irregular outline, and on this an artificial rockwork can be formed with clinkers, burnt bricks, and old roots; and as there is no class of plants differing so much in their nature and habits as Ferns—some thriving in swamps, some on rocks, some on ruins, and some on trees—we must endeavour, in forming the rockery, to supply their individual wants by imitating Nature as far as possible. The vacancies between the rockwork should be filled up with such soils as are likely to suit each individual variety—planting, for instance, the Royal Fern, Osmunda regalis, in a mixture of bog and sand, and in a position where it can be kept moist; the Blechnum boreale, or Hard Fern, higher and drier, in a mixture of loam and peat; the Hart's-tongue in a mixture of leaf-mould and old brick rubbish, on the darkest side of the rock; and the various other kinds in accordance with their natural habits. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Jan. 6, 1869, as observed at the Horticultural Garden.

Dec. and Jan.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind	Rain.
Thurs. 31	17	29.939	29.670	49	19	34.0	43	44	W.	.00
Friday 1	18	30.022	29.775	49	34	41.5	40	42	S.W.	.04
Satur. 2	19	29.874	29.694	53	39	46.0	43	43	W.	.02
Sunday 3	20	29.513	29.235	53	37	45.0	47	43	S.W.	.12
Mond. 4	21	29.924	29.863	52	37	44.5	45	43	W.	.08
Tuesd. 5	((	30.159	29 914	52	24	38.0	47	44	S.	.08
Wed. 6	23	30.197	30.150	53	36	44.5	45	43	S.W.	.44
Average		29.947	29.757	51.6	32.3	41.9	44 3	43.1		0.78

Dec. 31—Fine, cloudy; very fine; clear and frosty.
Jan. 1—Sharp frost; clear and fine; densely overcast; rain.
— 2—Clear and fine; very fine; densely overcast.
— 3—Boisterous, with rain; showery; clear and fine.
— 4—Fine and clear; very fine; densely overcast, rain.
— 5—Boisterous, with rain; showery; clear and fine.
— 6—Clear and frosty; very fine; heavy rain.
Mean temperature of the week, 6 deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending Jan. 16, 1869.

January.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..10	42.0	30.3	36.1	18	0.40 in.	3	10	3	5	6	7	7	2
Mon. ..11	41.5	30.1	35.8	22	1.00	4	7	5	3	6	11	6	2
Tues. ..12	42.1	29.5	35.8	18	0.79	2	7	4	4	8	4	4	3
Wed. ..13	43.0	29.3	36.2	19	0.62	6	5	5	4	9	7	5	2
Thurs. ..14	42.1	29.9	36.0	19	0.86	4	7	6	5	2	12	5	2
Friday ..15	41.7	28.9	35.3	13	0.54	3	7	5	3	4	9	9	3
Satur. ..16	42.0	31.0	36.5	20	0.34	1	10	5	3	7	9	5	3

The highest temperature during the above period occurred on the 12th, 1852—therm. 54 deg.; and the lowest on the 13th, 1867—therm. 3 deg.

Notices to Correspondents.

BOOKS; *C B.* Martius' "Palms" is an *ouvrage de luxe* in three folio volumes, and its cost is considerable. The most suitable work on the culture of greenhouse and stove plants is Glenny's "Handbook."

GARDENERS' AND HORTICULTURAL AGENT: *A B.* We have repeatedly cautioned advertisers against the "agents" in question.

GRAFTING WAX: *Novice.* Excellent grafting wax is made of three parts beeswax, three parts rosin, and two parts of tallow. For other recipes see "Thomson's Gardeners' Assistant."

GREENHOUSE CLIMBERS: *E F G.* Six free-flowering sorts, to be grown in large pots, might be Jasminum azoricum, Kennedya monophylla, Mimosa prostrata, Passiflora cœruleo-racemosa, Solanum jasminoides, Tecoma australis. Tacsonia Van Volxemii, if it could be well fed and allowed to run, would be a grand object. Or if you prefer to substitute soft-wooded plants, by all means take Rhodochiton volubile, Maurandia Barclayana, and Cobœa scandens.

IMPROVING STONE FRUITS: *A Gardener* asks for information on the best means of improving stone fruits, "to lessen the stone and increase the flesh." Our answer is—good cultivation, by which the fruit will be made to swell out to the full extent of which it is capable; though it is to be remembered that large size is not always an indication of the finest quality.

NAMES OF PLANTS: *S. G. W., Roxburgh.* Echeveria gibbiflora.—*D. K.* 1, Thyrsacanthus Schomburgkianus (syn. T. rutilans); 2, Cupressus Lawsoniana.—*W. B.* Lonicera fragrantissima.—*F. M.* Thyrsacanthus Schomburgkianus (syn. T. rutilans).—*H. F.* Ruscus racemosus; Portugal.—*Nicot.* Nicotiana Tabacum.

PORTRAITS OF BOTANISTS: *G Stabler.* Messrs. Maull & Co., of Piccadilly, publish *cartes de visite* of most of our leading botanists; also photographs of a larger size. Photographic portraits of scientific men (including botanists) have also been issued, with memoirs, by Messrs. Reeve & Co. and Mr. A. W. Bennett. The Asplenium has much improved; you should exhibit it in London.

YELLOW-FLESHED MELON: *Rusticus.* We do not know of any distinctly Yellow-fleshed Melons. Some of the so-called scarlet-fleshed sorts are more nearly orange-coloured, which might possibly be called yellow, and this would be quite as correct as the common appellation.

COMMUNICATIONS RECEIVED.—S. K.—Yeovil.—Inquirer.—R. C. L.—Q.—J. F.—A. H.—J. A.—Charles.—F. H.—J. R.—P. G.—J. B.—T. C. E.—J. S.—G.—C. R.—D. L.—Escob.—F. G.—Pine-apple.—T. R.—W. B. H.—A. R.—W. J.—T. S.—H. H.—J. H.—W. A.—M. T.—W. M'A.—M. F. N.—J. Barnes.—W. P. A.

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See *Gardeners' Chronicle*, page 1345, Dec. 26, 1868, from which the following is extracted:—"The crop (of Bromus) was perfectly satisfactory as regards both the quantity and quality of its produce. *The Horsekeepers buying it preferred it to Italian Rye-grass*, and the Farmer selling it was very much inclined to agree with them."

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"The seed was sown in July on ground as dry as dust, but it vegetated freely, the first shower causing it to grow with amazing rapidity. *The first cutting was made October* 20, *the plant being* 2 *feet high*, and I found my cattle preferred it to any food I could offer them; *I now have* (*Nov.* 20) *a luxuriant second growth*, in spite of the cold weather.

"I may mention that I was first induced to cut the Grass on account of my Pony refusing its ordinary food, *and was gratified to find the Bromus greedily consumed.*"

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The EXAMINATION of CANDIDATES for the SOCIETY'S EDUCATIONAL PRIZES will take place in the week commencing MONDAY, April 12, 1869. Copies of the Form, required to be sent in by March 18, may be obtained on application to

H. M. JENKINS, Secretary.

12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, JANUARY 9, 1869.

THE cattle plague, obeying the law which seems to regulate the progress of contagious diseases generally, is advancing westward from its reputed home in the Steppes. Hungary has been suffering from its effects for some time past. It also prevails in Lower Austria, in at least three districts. In Transylvania nearly 30 places are infected. Buckovina is not free from the pestilence, and Galicia is reported to have several infected districts. Altogether, in Hungary, Lower Austria, Buckovina, Transylvania, and Galicia there appear to exist between 60 and 70 centres of infection. Saxony, we learn, has prohibited the passage of Steppe cattle over the Sax-Bohemian frontier, but permits the entrance of Bohemian cattle with certificates of health.

The contemplation of these facts is not likely to produce a very cheerful state of mind among those who are especially interested in home-bred stock. We have felt ourselves tolerably secure from invasion up to this time, because we have been principally supplied with foreign cattle from healthy districts; but now the Grass season is over, and we are about to import cattle bred in the districts which are now being ravaged by the cattle plague, or in very decided proximity to them, Galician, Hungarian, and white Austrian cattle will now be sent to our markets; and, although all those cattle are presumed to have been feeding for many months in Austrian and Prussian distilleries, and growing fat upon the refuse products, there is at least a possibility of other animals of the same breed being smuggled over the Prussian frontier. Indeed the probability of such an occurrence was distinctly admitted by the Veterinary Congress, held in Vienna in 1865. Our own experience is strongly in favour of the presumption, that such violation of frontier rules is neither so difficult of execution nor so infrequent as many persons would lead us to believe.

In the spring of 1867 an outbreak of cattle plague in the East of London was, with good reason, charged upon white Austrian cattle, which, according to the system pursued on the Continent, ought not to have been capable of introducing the disease. Regulations, however, are not always carried out as they should be; and there is nothing to justify the assertion that foreigners have stronger scruples about "running the blockade" than Englishmen have. We found it here exceedingly easy to pass Orders of Council, and to issue directions from all sorts of authorities, but the task of enforcing the laws was by no means trifling, particularly when people quietly ignored their existence, and acted in accordance with their own ideas of right or convenience. Providing that all the regulations respecting the passage of animals through Prussia are carried out stringently, we may perhaps rest in tolerable security, but any evidence of the fallibility of the precautions which are adopted by that Power will necessarily disturb our repose, and such evidence we undoubtedly have had. Under ordinary circumstances the system of feeding Bohemian and other "white cattle" in the large distilleries works well, and no foreign beasts imported to this country "die better," in butchers' phrase, than the cattle so treated; but this is small compensation for an occasional outbreak of cattle plague in the metropolis, or elsewhere. So long as all the conditions of security are maintained, no danger need be apprehended. Capitalists on the Continent may buy hundreds of cattle in Bohemia, Moravia, and Hungary, feed them upon the waste products of their distilleries, and having brought them to a condition fit for the English market send them to England; the time required to fatten them will in itself be a guarantee of their freedom from infection, and if there is no disease in the locality where they are fed, they may safely be treated as though they had been bred there. The travel of these cattle through Prussia to the coast is permitted only under restrictions; evidence of their having come from a healthy locality is required; and, in short, every care is taken by the Prussian authorities, as might be expected, to prevent the entrance of infected animals into their country—not always with success, as their records will show.

The transit of cattle through Prussia to this country occupies some days. Cattle coming from Bohemia are usually on the road about six or seven days before they reach the London market; and it may be said in reference to the "white cattle" of Austria, that their passage occupies something like a week. This fact is often quoted in support of the theory that infected animals—that is, cattle infected in any part of Austria (in Bohemia or Moravia, for instance)—cannot be sent to London, because by the time they arrive the disease will be sufficiently advanced to be at once detected by the inspectors. The argument rests entirely upon the assumed fact that the cattle which first became infected in their own country are as a matter of course brought on to London, altogether ignoring the probability of such animals falling sick before they are shipped, and being disposed of, while the remainder of the herd—a certain number of them having received the infection from those originally diseased—will be shipped for England, and thus arrive in our ports two days, instead of six or seven, after infection. In this way the Silesian cattle, which are said to have imported the disease in 1867, may not, and most likely did not, show any symptoms of ill-health on their arrival in this country, although some of them died here so shortly afterwards that there was no possibility of their having been infected after landing in London, where, indeed, cattle plague did not then exist.

It is to be hoped, in view of the steady progress of the plague in the Austrian provinces, that every care will be taken to prevent its introduction here, but it is quite impossible to doubt the extent of the risk which we must continue to incur, so long as the malady exists in countries adjacent to those from which we now obtain large supplies of foreign cattle.

TURNIPS and Swedes are not generally approved on heavy land as a preparation for corn. Their removal is costly; and though they are useful for stock feeding, the moderate crop yielded by heavy land does not always pay the cost of production. There is manure to put to the credit of the account; but this is all wanted, the heavy-land farmer declares, to restore the condition of his land. If the Turnips be folded off in the winter, the Barley crop suffers from the effect of treading the land, which even frost does not obliterate; and even if eaten off before winter, either Wheat or Barley will probably be a worse crop than after bare fallow. Good heavy land will yield a full crop of Barley after bare fallow, and it may fairly be asked—what more can it do under any circumstances? If injury be done by treading, a light crop is certain to follow; and if the folding takes place in early autumn, and the land is enriched, the succeeding crop may prove stout in straw and light in corn. It must be remembered that crops do not always behave as theory predicates, they obey their own habit of growth.

Even on poor heavy land that requires dressing we have seen a spirited and very successful attempt to introduce root cultivation attended by very doubtful results as regards the corn that followed. Next to the farm we refer to is a similar holding, under the old routine of fallow for corn. The bare, pale earth on one side of the hedge, was a sorry sight compared to the luxuriant green of a capital crop of early white Turnips on the other. Sheep fed with oilcake soon came on the scene, and it was delightful to

watch the progress of improvement, made more striking by contrast. Then came the corn crop —Wheat in each field. We are unfortunately unable to complete the comparison. The "improver" had steam-cultivated his field for Turnips, and kept it on the flat; he left it so on ploughing for Wheat: the fallow was kept in ridge. The tillage, or "summut," as an old inhabitant remarked, had brought up the seeds of numerous weeds, the legacy of a lately departed tenant; consequently the Turnip Wheat struggled under difficulties, and even the sheep-fold did not extricate it. The observation was not quite conclusive; but the field was a large one, the cultivation was not alike throughout; surely some portions might have beaten the bare fallow over the hedge!

We abstain from giving other examples of Turnips on heavy land, eaten off under the most favourable circumstances, and yet disappointing the grower; but we may add a few words on the cost of growing Turnips on heavy land, with an account of our own outlay, per acre:—

	£	s.	d.
3 ploughings	1	6	0
1 scarifying	0	4	0
6 harrowings, 2 rollings	0	4	0
Drilling and seed	0	2	6
Hoeing	0	12	0
Hurdles, cost of folding	0	10	0
2 cwt. guano }	2	6	0
3 cwt. superphosphate }			
Rent and taxes	1	15	6
	£7	0	0

The land must be clean at starting to require only 3*l.* in tillage; these items may be varied, but probably the above total will not be found to exceed the average. If one more ploughing be added to it the account then compares fairly with the operations of bare fallow as a preparation for Barley or Wheat, and in cost it exceeds it by about 4*l.* If the corn crop is the same after Turnips as after bare fallow, then it is simply a question of the value of the crop of Turnips—are they worth 4*l.*? In the average of years the crop will not exceed 12 tons of bulbs —are they worth more than 4*s.* a ton?

In the cultivation of Mangel or Swedes, to be removed from the land, it is necessary to add at least 2*l.* an acre for farmyard dung, for it will be required either before or after the root crop, to restore the condition of the land, which is always considerably exhausted by the removal of roots. The 10*s.* allowed for folding will carry off the crop. There remain the yard expenses, and these are considerable, and should be fairly reckoned: they do not cease until the roots are finally swallowed by the animals. We think we have made out a case for economy both in the details of cultivation and in the use of roots on heavy land. They can only pay when used as an adjunct with a large quantity of dry food.

The question of roots or bare fallow will be decided in particular districts by experience. Though indispensable to the maintenance of a proper quantity of stock, roots on heavy land are without doubt more expensive, when "all is told," than any other description of food. The present will probably be an instructive season to many persons, who will have special reasons for the sparing consumption of their roots. The first step in the practice of economy is to thatch the straw stacks, and take care of the Pea and Bean haulm. In the absence of a boarded place to store the chaff, an asphalte floor is a substitute cheaply and speedily obtained. A root-pulper and chaff-cutter, driven by horse-power, are also indispensable for the economy of roots; and this season we should add a copper for boiling water. Old oxen and sheep can readily be fattened without any roots, by substituting chaff softened by hot water, but they will require a larger share of corn than when they receive their usual rations of root. A very small allowance of roots, pulped and mixed with chaff, is an approved way of feeding. We have found it a good plan to make the chaff palatable by mixing the meal and cake with it, and to give the small share of roots whole; their slow mastication in that state is favourable to digestion, more particularly when the larger portion of the food is given in a prepared state. 4 lb. of roots daily for a tegg and 18 or 20 lb. for an ox is better than entire deprivation; but whatever quantity of roots it is determined to give, the supply should be regular, since variation of diet, especially of a favourite article of food, is distressing to the animals.

It is a common practice in Grass districts to winter store cattle without roots, on straw, cut or uncut, and about 4 lb. of meal daily; and cattle so fed, retaining their rough winter coats till late in spring, thrive far better the following summer than the sleek cattle, with smooth, shining coats, that have been fed on plenty of roots during the winter.

—— THE Wheat trade throughout the country has taken a considerable turn in favour of sellers, the increase in prices since yesterday week being from 2*s.* to 3*s.* per quarter. These rates are likely to be maintained, if they be not increased, for the small crop of Barley, and the large demand there is for all kinds of grain and pulse for stock feeding, have left Wheat for some weeks at a lower comparative value than has been realised for any other kind of agricultural produce Barley is less equal to the demand, and a further rise in prices has consequently ensued—55*s.* to 56*s.* per quarter being now quoted for Chevalier and other fine malting sorts. Oats are also slightly dearer, and the short supply of hay, Turnips, and Mangel, keeps Beans and Peas in request at their present high value.——The seed trade has not lost any of its speculative character, and prices for Clover, Trefoil, Italian Rye-grass, and Rape, are tending upwards. The short crops of these seeds last year at home, and the large demand there is certain to be at the time of spring sowing, will permit sellers to hold for high prices, unless a larger foreign supply arrives than is at present anticipated.——The fat stock and meat markets remain in much about the same state as they have been for some weeks; high prices are obtainable for fine qualities, and thin sorts are dull of sale. The former may be accounted for from the great cost at which well-fed animals are produced, as the main ingredient of their fattening food must be corn or cake, while the latter undoubtedly arises from the straitened circumstances in which so many persons now find themselves. The half time at which so many "hands" at Manchester are employed, is undoubtedly the cause of many hundred head of beasts and sheep being turned south from the Midland Counties, instead of north. With present short supplies, however—calculating weight per head as well as numbers—there is every probability that the present high rates will shortly be considerably increased, that is, if the consuming powers of the comunity do not lessen instead of increase with the rise of the spring.

—— An able survey of the corn trade of 1868 has been given, in a letter to the *Times*, by Mr. H. KAINS-JACKSON, of 60, Mark Lane. This review is given month by month. January found quotations of all articles of food high, and experienced merchants foretold famine rates. As a set-off to these views, there had been a good seed-time, and the high current rate —72*s.* 4*d.* per qr.—was attracting cargoes on passage estimated at 2,000,000 qrs. In February, nevertheless, the average increased 1*s.* per qr., half of which rise was maintained to the end of March. "April found France our chief competitor, as she had been in the autumn; out of every 20 ships laden with Wheat from the Danube, Marseilles stopped 15 for France and Algeria; and as the price was quite as high in Paris as in London, fears were expressed that our average, 73*s.* 4*d.* per qr. (only equalled in the Crimean war), would further advance before harvest above 80*s.*, a price several country markets were already making." More cheerful views were taken towards May, when the average was 73*s.* 11*d.* per qr. In May, "great steamers from the Black Sea poured in their cargoes. France was now out of the field; Wheat fell 5*s.* to 7*s.* per qr. New Beans from Egypt were on offer in Mark Lane on the 29th, and Wheat ears were gathered in Kent on the 30th; while in all districts a very early harvest was expected. Wheat 72*s.* 3*d.* per qr." On June 1 a fall of 6*s.* to 8*s.* on English, and 8*s.* to 12*s.* on foreign Wheat occurred. A panic followed, and millers would not buy for some days at any price, but a recovery of 2*s.* to 3*s.* occurred in the third week from storms raging on the east coast. Bread was made in France from new Wheat. The British average fell to 67*s.* 5*d.* per quarter. July saw the earliest harvest this generation has known. "On the 18th, harvest had well commenced in England, and Talavera Wheat was sold in Mark Lane in the third week at 78*s.* per quarter, dropping to 68*s.* the week after. General prices fell in London 8*s.* in the month: average 62*s.* 9*d.* Future prices were estimated as likely to range from 45*s.* to 55*s.* These facts, as they run up to the turning point of last year's scarcity, are highly interesting when brought together. The decline continued about as follows:—In August to 56*s.* 11*d.*; September, to 53*s.* 7*d.*; October, "to 52*s.* 11*d.*; November, 51*s.*; the latter having been "a very discouraging month, value losing 3*d.* at almost every market." "December," it is continued, "has written 'plenty' throughout its course, all the more plainly, because value has slightly advanced." This seems odd doctrine, we may remark, but it is literally Mr. KAINS-JACKSON'S. "Value has sunk throughout the year 33 per cent., giving to the public at Christmas, 1868, three loaves at the cost of two in 1867." As regards the future, it is said, the look onward for the new year is satisfactory. The late harvest, from increased area and a large yield of splendid grain, has given the nation fully 5,000,000 qr. of Wheat more than last year, and has reduced our requirements from foreign countries to 6,000,000 qr. at the outside, the cost of which, moreover, will only be about the cost of 4,000,000 qr. at last year's rates. After some speculations on the crops of 1869-70-71, Mr. KAINS-JACKSON concludes:—"From a general point of view, the corn trade appears likely to keep steady at present currencies until spring shipments and spring weather come to give it modification."

—— A farmer occupying 700 acres of land in Norfolk has been committed by a London Alderman to prison for a month, without the alternative of a fine, for sending a carcase of diseased meat to the Metropolitan Market.

OUR LIVE STOCK.

WE are informed that Mr. Leney's *Grand Duchess 9th*, purchased at Preston Hall sale in 1867 for 210 gs., produced a very good rich roan bull calf to LORD OXFORD 2D (20,215). We have pleasure in adding that *7th Maid of Oxford's* heifer calf, by 15TH GRAND DUKE (21,852), is doing well, as is also the *Duchess of Geneva 7th*, imported by Mr. Sheldon, and sold to Mr. Leney for 700 gs. This heifer is due to calve in about 10 weeks.

—— Mr. Garne, of Chipping Norton, has hired Mr. Booth's ROYAL BENEDICT, a roan bull by CHRISTIAN (22,581), dam *Royal Bridesmaid*, by PRINCE ALFRED (13,949). He left Warlaby early in the present week.

—— It may be interesting to some of our readers to take a short review of the two great exhibitions of the past year—the Royal, at Leicester, and the Yorkshire, at Wetherby, which were looked forward to by breeders of Shorthorns with unusual interest from the fact that during the two preceding years, owing to the cattle plague restrictions, no cattle were exhibited. The partisans of Bates, Booth, or other favourite strains each anxiously awaited the decisions of the judges, as a test of merit between the conflicting families. From the fact that during the past 25 years, or from 1840 to 1865, animals from the Killerby and Warlaby herds had won 55 prizes at the Royal and 97 prizes at the Yorkshire shows, the supporters of the Booth blood were most sanguine of its further success, and in this they were not disappointed. At the Royal show, out of 22 prizes offered in the Shorthorn classes, 13 were won by animals of the Booth blood. Following the Royal, and second only to it in importance, was the great Yorkshire show, the decisions there being nearly in the same ratio in favour of the same blood, only some of the animals changed places, the most important being that Mr. Booth's COMMANDER-IN-CHIEF, the 1st prize aged bull at the Royal, was here placed second to Mr. Peel's KNIGHT OF KNOWLEMERE, who took second honours at the Royal. The judges also reversed the decision in Mr. Booth's two beautiful yearling heifers, *Lady Gaiety* and *Patricia*, but the beautiful Warlaby cow *Lady Fragrant* was immovable, she held her Royal honours against all comers, and was allowed by all impartial judges to be the best cow shown for many a long day. The most remarkable fact, however, is that Mr. Peel's KNIGHT OF KNOWLEMERE (22,055), Lady Pigot's CHARLES LE BEAU (23,542), Mr. Booth's *Lady Fragrant* and *Lady Gaiety*, all winners of prizes at the Royal and Yorkshire shows, are all in a right line descendants of the Booth cow *Bliss*. Nor is this all; for VALASCO (15,443), the sire of COMMANDER-IN-CHIEF (21,451); LORD BLITHE (22,126), the sire of Mr. Booth's yearling heifer, *Patricia*, the 2d at the Royal and Yorkshire shows; PRINCE OF THE EMPIRE (20,578), the sire of Mr. How's second Royal prize cow *Jolly Queen*, and of his yearling heifer *Lady Anne*, 1st at the Royal, and 3d at the Yorkshire, are all descended from *Bliss*; while the sire of Mr. Foljambe's 1st and 2d Royal prize bull calves, KNIGHT OF THE BATH and KNIGHT OF THE CRESCENT, as also at the Yorkshire show, of his 1st prize yearling bull KNIGHT OF THE THISTLE, and his 1st and 3d prize bull calves KNIGHT OF THE CRESCENT and KNIGHT OF THE WHISTLE, was by KNIGHT OF THE GRAND CROSS (22,064), also a descendant of *Bliss*. Also *White Ladye*, the dam of Lady Pigot's *Rosolio*, the 2d prize 2-year-old bull at the Royal, and 3d at the Yorkshire, and also the dam of *Dame of Roselea*, the 2d prize 2-year-old heifer at the Royal, were by VALASCO, as before mentioned a g.g. son of *Bliss*. The cow *Bliss* and her immediate offspring, from whom this array of prize animals are descended on the dam or sire's side, are worth a passing notice. *Bliss* was bred at Warlaby in 1841, and is described by Mr. Carr in his history of the "Killerby, Studley, and Warlaby Shorthorns," as being a "neat, medium-sized cow, of a good roan colour, and with good hair." Being a very heavy milker and regular breeder, she was wont to get low in condition, but when dry, like all her family, got rapidly into good case, and looked very attractive in her holiday trim. She gave birth to *Blithe* by HOPEWELL, *Bonnet* by BUCKINGHAM, and *Bridget* by BARON WARLABY. *Blithe* was a very neat roan cow, with remarkably well sprung ribs, and a great milker. She was the dam of VALASCO, and the granddam of *Lady Fragrant* and *Lady Gaiety*. *Bonnet* was a compact well-framed cow, with a sweet head, well-laid shoulders, good neck vein, splendid fore-flank and fore-rib, a great milker, and withal a cow of excellent constitution. She was presented by Mr. R. Booth to his brother, being at the time in calf to ROYAL BUCK; the offspring was *Wide-awake*, which, with her dam, were sold at the Killerby sale in 1852. *Bonnet* is the granddam of PRINCE OF THE EMPIRE, and g.g.d. of KNIGHT OF KNOWLEMERE, CHARLES LE BEAU, and KNIGHT OF THE GRAND CROSS. Shortly after the Killerby Sale *Bonnet* became the property of Mr. Wood, of Castle Grove, in Ireland, in whose hands she produced *Bustle*, by VALIANT (10,989). *Bustle* was sold to Lady Pigot, at eight years old, for 450 gs., and Mr. Wood also disposed of three of her daughters and one granddaughter to Mr. Carr, of Stackhouse, for 1200*l.*, two of them being calves. *Bonnet* also bred PRINCE PATRICK (16,760), which bull Mr. Wood sold to Messrs. Atkinson, of Peepy, Northumberland, in 1861, for 250 gs. It was remarked years ago that the blood of PRINCE PATRICK (his sire by CROWN PRINCE, and his dam by BUCKINGHAM, with *Bliss* for his grand-dam) could not be excelled, and recent events have proved the correctness of the assertion. PRINCE PATRICK was retained in the Peepy herd upwards of six years. During this time he was twice let out on hire, and only finished his career of usefulness a few weeks ago, being upwards of 10 years of age. The Peepy herd now contains about 10 cows by him, among whom are

several which have received honours in the showyards of the northern counties and in Scotland.

In 1864, KNIGHT OF THE GRAND CROSS, another descendant of *Bliss*, through *Wide-awake* and *Bonnet*, and referred to before, was transferred from Stackhouse to Peepy for a good consideration, where he was used with success; and the young stock in the Peepy herd (among whom are some very promising young bulls) are principally by KILLERBY LAD (20,052), from cows by PRINCE PATRICK and KNIGHT OF THE GRAND CROSS, which cows are now principally served by ROAN WINDSOR (24,967), a pure Booth bull, full of the famous OLD WINDSOR (14,013) and LORD OF THE VALLEY (14,837) blood, the richest of roans, and full of hair. His produce are looked for with the highest anticipations.

Female descendants from *Bliss* are to be found in the herds at Warlaby, Knowlemore, Stackhouse, and Branches Park.

THE SMITHFIELD CLUB SHOW AS AN INDEX OF PROGRESS.

THE recent successful gathering in the Agricultural Hall may be considered the concluding exhibition of the year, and as such each of its four divisions—viz., live stock, implements, manures, and roots and seeds—may be reviewed as an index of progress.

Live Stock.—The practical question under this head includes not only the improvement made in fatting during the past year, but also that of breeding, the two being inseparable. Stock must be bred before they are fatted, and their aptitude to fatten depends very much not merely upon breed, but how an animal of any given breed has itself been bred; and in the several classes of oxen, sheep, and pigs, there is evidently reason to conclude that a perceptible advance has been made in this respect.

The improvements referred to were more strikingly illustrated in the Devon and Hereford breeds of oxen than in the others, and perhaps less in the pigs than sheep generally speaking. We do not recollect of ever seeing the former (the Devons and Herefords) carry their fat with so much comfort to themselves; and the question, whether the animals themselves feel comfortably, is the first thing successful feeders and breeders consult every morning and the last thing every night; and when fat animals stand the journey to the capital, and the handling they receive in the Agricultural Hall, and yet feel themselves comparatively at ease, it may be taken as a more sure index of healthy organisation than outward symmetry with a fine handle. It also shows when the forcing system of fatting, as it is termed, is being carried too far; for whenever obese fat begins to be formed the nervous and muscular system both begin to give way, actually to waste and grow less, hence the difficulty experienced in breathing when those of the lungs lose their normal force, and so on. Now, the two breeds in question were freer than usual from any mischief due to obesity or over-feeding, the majority being sound in lung and limb. The Shorthorns, although very liable to obesity, exhibited a large number of fine animals comparatively free from it. Some of the Scotch cattle felt the pressure of abnormal fat rather uncomfortably, more so perhaps than usual, as the carcases prove when cut up; and the same remark applies to some of the long-woolled sheep, and also to not a few pigs.

But although a perceptible advance has been made during the past year in the breeding and fattening of oxen, sheep, and pigs, there is yet much room for further improvement. It is easy to prove this, for butchers have too much reason to grumble at the large sackfuls and tubfuls of parings that go to the tallow chandlers, and Paterfamilias of the drippings which are sold as kitchen stuff, and which realise something less than half the price of the saleable meat. Do butchers buy fat of the farmer to lose money by it? or heads of families of the butcher? Unquestionably not; hence the practical problem which calls for solution at the hands of producers and consumers.

Implements and Machinery.—The articles actually on show at the recent meeting cannot be taken as a fair index of the progress made during the past year. The Hall, large as it is, does not hold a fraction of what improved agriculture now requires; and as the requirements of modern husbandry are known to both implement makers and farmers, the selection on exhibition indicates a great deal more than is actually seen. Thus, in the case of the steam ploughs, cultivators, &c., the two large firms of Leeds and Bedford only showed each a few of the articles they exhibited at Leicester, and yet the former were so judiciously selected that it was easy to explain by them the whole of the latter. To those not acquainted with the progress made in steam culture, this may appear parodoxical, but it was otherwise as between buyer and seller. It is something similar in the case of the different kinds of steam engines, threshing machines, mowing and reaping machines—the articles exhibited for sale were sold, but the orders given for new implements and machinery indicate a much greater diversity than those not versant with the actual progress of applied science would perhaps be willing to credit were the facts of each case laid open before the public; and yet it is the things ordered which constitute the real index in the march of improvement, and these are obviously in favour of progress under this head.

That the application of steam to agricultural purposes has been greatly extended during the past year hardly requires notice. At Leicester we were promised a new rotary traction engine at Christmas, but it has not made its appearance. We have, however, got a Paragon engine in its place. The mode of converting the rectilineal motion of the piston into the angular of the fly-wheel is both simple and ingenious. How far it may be adapted to the somewhat unequal resistance of threshing and steam culture, must be left to experience to determine. The principle of the mechanism is old and well tried, and the perfection to which construction has now obtained is likewise in its favour; and therefore for actuating centrifugal and chain pumps, an encouraging opinion may be expressed. It would require a drawing to give an intelligible description of its special mechanism.

The twin system of hauling steam-tillage implements directly by means of winding drums was evidently the order of the day, and the indication in its favour was sufficiently strong during the meeting to warrant the conclusion that this system will eventually supersede all others now in use. It will, no doubt, be said that there is no progressive novelty in the principle of this system. Granted; but progress has been made in working out its details, and the perfecting of details is the peculiar characteristic of the progress made during the past year, as indicated by the Smithfield Club Christmas exhibition in all the departments of implements and machinery. It is, however, more especially the case in articles of comparatively recent invention, as the steam-plough, which first made its appearance at Carlisle (Fisken's implement), and at Chelmsford (Smith's cultivator and Fowler & Greig's plough), and the several modes of hauling them, which embody all the principles now in use. But when we examine the special mechanism exhibited at the recent meeting, and compare it with what was exhibited at Carlisle, Chelmsford, Salisbury, and down to the Christmas meeting of last year, we then see the chain of progress, and the vast improvement which has been made from first to last.

Farmers have since 1855 been improving the working of steam tillage implements, and the Christmas meeting proves that during the past year progress has been made in the working of engines, tackle, and implements. Thus, the twin system of direct haulage is more a question of progress by the farmer in the field than by the implement maker in his manufactory.

Again, although steam harrows, rollers, and land pressers were introduced at previous meetings by implement makers, their use in the field by farmers has during the past year been extended.

In barn machinery, although a very high degree of perfection had previously been attained, yet during the year improvements have been made in the separation of the corn from the straw—in the clearing, scouring, and screening of the corn for granary or grinding, and also in the cutting of the straw into chaff, sifting, &c.

In dairying, progress has been made in each department, while the Society of Arts offer prizes for improved means of conveying dairy produce by railway.

Manures are considered as being either natural or artificial, solid or liquid, animal, vegetable, or mineral; and whichever of these views we take, progress has been made, both in the manufacture and application.

At the recent Smithfield Club Show, three stands were specially occupied with artificial manures, viz., No. 8, Arcade, by G. F. Stoffell, of the Atlas Manure Works, Rotherhithe, and Nos. 108 and 114 in the gallery—the former by H. J. Salmon, Chemical Works, Bermondsey, and the latter by William Newton, Manor Works, Bermondsey. On several other stands rape-cakes and other manures were shown along with roots, seeds, &c., as on No. 40, by Rainbird, Dowling, & Co.; but below-stairs and in the gallery, the chief centres of attraction were the various kinds of liquid manure-pumps for the application of farm and town sewage to land, and artificial manures by water drills.

To enumerate the different kinds of artificial manures on exhibition is unnecessary. Those which merit special notice are (1) the improved fish manures and phosphato-fish manures of Mr. Stoffell; (2) the ammonia-fixed manures, by Bell's patent process; (3) the improvements made in the application of town sewage; (4) and the improvements made in the liquid rape-cake manures according to the Flemish practice.

1. That fish, flesh, and blood are three of the best raw materials for the manufacture of rich nitrogenous manures has for a long time been a realised fact, and the recent improvements in chemical manipulation have been of great service in the manufacturing process. Thus, quoting Professor Johnson's "Elements of Agricultural Chemistry," the following articles, in a dried state, yield of nitrogen per cent.:—

Dried skate ..	.. 15.39	Dried beef ..	.. 14.0
,, haddock	.. 14.64	,, mutton	.. 12.30
,, herring	.. 14.48	,, blood ..	.. {12.0 / 13.0}
,, flounder	.. 14.28		

The practical conclusion from the above list is easily drawn. Again, ammonia and superphosphate of lime are obtained both from animal and mineral substances, and the improvements made during the past year promises to render the quality of the latter equally good with the former.

2. The ammonia-fixing process by Bell's patent is an important advance, which is promising to lead speedily to others, if it has not done so already. It is no easy matter to monopolise chemical manipulation in the manufacture of manure, and at the present time the number of patents whose object is to fix ammonia in sewage and almost every manurial substance by improved processes, would surprise some of our readers were we to enumerate them.

3. The immense crops produced by the Essex Sewage Manure Company at Barking kept the galleries alive with sewage farming during the whole five days of the Show. At the previous meetings the general opinion dwelt upon the growth of Italian Ryegrass as the only crop which could be profitably grown by sewage, a thousand doubts being raised against corn and roots; but the dry summer of last year has done more than toss exceptions and prejudices to the winds, for it has convinced everybody that liquid manure of some kind must of necessity be had, the sewage of towns being a ready-made article wherever at command. But the growing demand for liquid manure far exceeds what our towns can supply. Hence the eager looks that were directed to pumps and other hydraulic apparatus, as if stream and river water were about to follow town sewage on the land. It was interesting to hear the question put and the answer given as to the quantity of sewage or river water which a farmer's portable or traction engine could raise so many feet per hour; and for small holdings, the merits of the common barrel pumps, and of Warner's chain pump for hand-power, were as keenly scrutinised as were the centrifugal pumps of Gwynne and of Owens & Co. for steam-power.

4. The liquid-manure system of Flanders, carried out by means of the improved machinery and apparatus now in use in this country, was keenly canvassed during the Show; and flax manure, for the extended growth of Flax, was not omitted. The chain pump was a favourite with some Irish landowners and large farmers, but the expense was too high for a small tenant. But by nailing four boards together we have made a chain pump for a quarry at the cost of a few shillings, so that the addition of a hundred or two hundred yards of hoseing would not be a deadly sum. There is, therefore, nothing to prevent rape-cake being mixed with the present flax-water, and the liquid manure thus made applied to the land generally, as it is now being done in a few isolated cases. During the flax-steeping season the rivers in the province of Ulster are in a horribly putrid state. The loss of manurial element is great, and there cannot be a doubt that from the movement now on foot the whole of that loss will be obviated by the manufacture of the flax-water into liquid manure on the Flemish plan, and its application to the land in this form.

Seeds and Roots form the last division of our subject. That they indicate progress is manifest. In the live-stock department the specification of the food consumed in fatting is a wise provision, and were the manure used in the growth of roots and seeds and the nature of the soil on which they are grown likewise specified, it would be an improvement. Thus it was highly satisfactory to know that the roots, &c., from the Barking farm were the produce of sewage, and it would have been equally satisfactory to know how the other roots, &c., were produced. In point of fact, climate, soil, and manure, are of more importance to the farmer than the quality of the seed in other respects, and the roots and dried specimens are intended chiefly to show the quality of the seed. *W. B.*

THE MILK TRAFFIC.

[We abridge from the Journal of the Society of Arts the following account of the proceedings of their Food Committee on this subject.]

MR. GEORGE BARHAM, managing director of the Express Country Milk Company, Museum Street, attended before the Committee, to give evidence relative to the conveyance and distribution of milk to London, &c. He stated that Mr. Alexander Wood, deputy-chairman of the Great Western Railway Company, had expressed an opinion before the Committee that it was desirable that the size of the cans in which milk is brought to London by railway should be reduced from a capacity of eight barn gallons to about one-fourth that size, with tight-fitting lids, after the fashion of the French cans; also, that the vessels should be completely filled, so as to prevent disturbance of the particles of the milk by motion in transit. He (Mr. Barham) thought it was not desirable to reduce the size of the cans to the extent suggested, if at all, because, he said, the present large cans could be rolled along the platform of a station quicker than small cans could be carried the same distance by hand, the latter being so short that it would be impossible to roll them on the bottom, as was done with those now in use, which are protected at the bottom by a stout iron rim. The shaking of the milk in the conveyance would not be greater in a large can than in a small one, provided in both cases they were filled thoroughly full. His own opinion was, that if the milk were in a cool state before it was put into the cans, the shaking would have no prejudicial effect upon it. The great secret of getting the milk in good condition was in allowing it to cool sufficiently before being placed in the cans. A large quantity of milk arriving at night was left standing at the station till 4 A.M., when it was fetched for delivery. If the milk were put into the cans warm, and the lids were kept on all night, it would acquire a bad smell, and it would take two or three hours for that smell to pass off. In answer to an inquiry, Mr. Barham said that if the milk were packed at a temperature of 50° to 60° Fahr. the particles would not be injured by the agitation. It was very difficult to make butter with milk at that temperature. They might be all day over it. If the milk were packed at 70° or 80° Fahr., the agitation would tend to separate the butter, and to promote the deposit of caseine. If the temperature of the air were not higher than that of the milk, he thought no injury would be occasioned by the admission of the air to the milk whilst it remains in the cans. In answer to a suggestion that great economy of space in the vans would be gained by the cans being made in the form of a parallelogram, instead of circular with a considerable taper towards the top, whereby a great deal of space was wasted, Mr. Barham replied the rectangular form might answer if the cans were of an easily portable size, but they could not then be rolled along the platform, as were the cans at present in use, and they would be very much battered at the angles. Another objection to the parallelogram form would be the difficulty of keeping the vessels perfectly sweet and clean.

THE CHAIRMAN inquired whether the agitation of the milk in travelling destroyed the cream in the milk brought into London?

MR. BARHAM replied, in his opinion the globules would not be destroyed if the milk were put into the

cans at a sufficiently low temperature. He considered milk ought never to be packed at a temperature of more than 60°, and if that were observed the milk would come to London in perfectly good condition. The Express Country Milk Company received milk for two years from Wareham, in Dorsetshire, a distance of 130 miles by rail and seven miles by road. It arrived in fine condition. He attributed this result to the chalky nature of the soil, and to the milk being thoroughly cooled before being packed. It was well known that the milk of cows fed off heavy, clayey land would not keep so long by several hours as that produced on a chalky soil. The agitation of the milk in travelling did not permit the obtaining of cream if it were required. The most favourable time for setting milk for cream was the moment after it came from the cow, or at about 90° Fahr. Dairies in the country were not kept at that temperature, but it was seldom they were so low as 60° Fahr. in the summer, and artificial heat was employed in the winter to maintain that temperature. If the object were to prevent the globules of the milk being destroyed by the shaking, that would be best effected by completely filling the cans. The cans at present in use cannot be so completely filled as to prevent agitation. The Express Country Milk Company received 10 cans of milk from one dairy every day through the last summer, and there was not a particle of butter in them, though they travelled two miles by road to the station, 48 miles by rail to the metropolitan terminus, and three miles by van to the place of business. Some of the cans were only three-parts full, and yet the cream was retained on the milk, although, from being cooled, it would take some hours longer for the cream to rise. The best way of supplying cream in London would be to have it sent in a separate state from the country, as was done to a certain extent at the present time, though on a comparatively small scale. Cream might be supplied in almost any quantity, daily if the demand were regular, but, as the demand was extremely irregular, beyond doubt there was occasional difficulty in obtaining it. The amount of cream which rose to the surface of the milk when set was rendered less by about 20 per cent. through travelling, that percentage being retained in the milk. He had never used the Devonshire method of getting cream, and he believed it had not been tried in London. The milk which was served in London in the morning would probably have been milked from four to eight hours previously; that supplied in the afternoon was more recently milked. The system of 12 hours milking was generally adopted. The milk supplied to London in the early morning was milked during the night, say from 7 P.M. to 2 A.M., the hour depending upon the time the last train at night or the early mail train called at the country station. The afternoon milk was milked from 9 to 11 A.M., and was distributed between 2 and 4 o'clock P.M. When cream was sent in a separate state, it was packed solid in bottles prepared for the purpose, and kept cool by Grass or Cabbage leaves fastened round the bottles. The average yield of cream from milk of good quality, set as soon as it came from the can, would be about 5 gills per barn gallon of milk, from cows fed on good pasture. The same milk in London would probably not yield more than a pint of cream, and would require a much longer time to rise to the surface, owing to the cooling of the milk. The milk from which the cream was taken was sold as skim-milk, at 2*d.* per quart. In some neighbourhoods there might be a demand for skim-milk, but it was not generally the case in London, and it would require depots in the poorer neighbourhoods to do anything like a trade with it. The major portion of the skim or surplus milk was disposed of at a low price to biscuit-bakers, who use it in their manufacture in a sour state, when it forms lactic acid. Looking to the fact of the readiness with which milk can be tested by the use of the lactometer and the cream tube combined, it was surprising to him that customers did not more generally test the article they were supplied with, although he believed there was no test by which we could detect the water added by way of dilution from that which was in the milk naturally. He did not think feeding upon grains produced an inferior quality of milk, but such food, being of a stimulating nature, might increase the quantity of milk. He knew it was the habit of some dairy-keepers to drive their cows to water before milking, in order to increase the yield of milk. He did not think there would ever be a large demand for skim-milk in London, even in the poorest districts. The very poor—particularly the Irish poor—were for the most part excellent judges of milk, and what little they bought they preferred to have good. In some neighbourhoods diluted milk was sold as new milk at 2½*d.* to 3*d.* per quart. It was impossible to equalise supply and demand so as to have but little waste milk, but it went to the biscuit bakers' or the pigs. It was the object of the milk dealers to obtain such a customer for surplus milk at a low price, or else it would be all wasted. There has been a considerable diminution in the number of London cowsheds since the late epidemic. The medical officers of health had reported so frequently of the unhealthiness of localities where cows were kept, that magistrates would not grant any licenses in particular districts. St James's and St. Clement Danes were two instances, and in other districts it was well-known that no new licence would be granted, nor an old one renewed, except upon proof of great cleanliness, space, &c. Many cowkeepers had had severe losses from disease, and were afraid to keep cows in London; and the sheds formerly occupied in that way were employed as stables for other purposes. Some of the London cowkeepers had farms out of town, and sent their milk by railway. He was decidedly favourable to the entire abolition of cowsheds in London, although he believed it was the opinion of some dealers that the presence of cows promoted their business. Reverting to the subject of the cans, in answer to the inquiry whether there was any great advantage in the large cans, with the exception of the facility for rolling them from place to place, it was replied that the question of the return of the empty cans must be regarded, inasmuch as the railway companies charged as much for a small can as for a large one. He thought the transit was facilitated by the use of the large cans. In respect of the effects produced upon the milk itself, he did not know that the large cans gave any advantage over small ones. If suitable arrangements were made for the conveyance of small cans, he thought the large ones might be dispensed with; and in the event of milk being packed in a warm state, it might be advisable to send it in smaller bulks; but if it were cooler than the atmosphere, the larger the bulk the better. He had not tried the experiment of hermetically sealing the cans when completely filled, and excluding all air, nor was he able to give an opinion on that point. At present fully half the milk that was sent to London in small quantities came in cans that were not full. The Parisian milk was generally acknowledged to keep longer than that supplied to London; this had been attributed to its being hermetically closed while travelling; but an old Parisian dairyman had let him into the real secret, and that was they mixed bi-carbonate of soda with their milk.

In the course of some general observations made by Mr. Barham, he stated his opinion that London was better supplied with milk now than it had been at any previous period in his recollection, although he thought it could be greatly improved by the total abolition of the London cowsheds, and the use of properly-constructed railway vans for the conveyance of country milk. The London cowkeepers did not now, and probably never did, study the quality of the milk their cows give. The retail dealer and distributor, in obtaining his daily supplies, made an arrangement to milk the cows himself, and to pay a certain sum per gallon,—thus he defeated any direct attempt at adulteration; but as the cowkeeper's object was quantity not quality, he adopted every means of stimulating the secretions of milk in the animal, by the manner of feeding and keeping it, and by those means deteriorated the quality and wholesomeness of the article. Now, on the contrary, three-fourths of the present supply was obtained from the farms of noblemen, gentlemen, and farmers of repute, who take great pride in the breed and condition of their stock, and in the quality of the milk their cows yield.

Referring to the necessity of improved railway vans being used in the transmission of milk to the metropolis, Mr. Barham said that, in their present mode of conveyance, the railway companies were open to grave rebuke. Notwithstanding they charged 13 per cent. on the prime cost of the article for carriage, their manner of conveying it was simply abominable, not to say offensive. It is frequently put into the guard's van, and had baskets of fish, watercress, and other material placed upon it, which were permitted to drain and drip through the perforated top of the cans and mix with the milk. He related an instance within his own experience of a leaky can or bottle containing naphtha being placed on a milk-can, which, draining into the latter, totally spoilt 70 quarts of milk. He quoted other and similar instances of the neglect of railway companies as carriers of milk from country districts; notably, their custom of placing the cans in open trucks, exposing them in the summer time to the scorching rays of the sun attracted by the tin, and in the winter to heavy rains and snow, and at all times to the soot and coke drift from the furnace of the engine. Not unfrequently, continued Mr. Barham, the cans are placed in horse-boxes, from which horses have just been removed, and in the summer season the smell in these boxes is most offensive.

Home Correspondence.

Will the present Government remove the especial Burthens pressing upon Agriculture?—This is a question asked by many connected with "the landed interest." The Liberals have not hitherto been considered especially favourable to that interest, and are generally supposed to hold views rather inimical to it. They used to say, that the landed interest was too powerful, and that it possessed too many exclusive privileges. What can they say now? The privileges and the protection of agriculture are gone, but the exclusive burthens remain. Will the Liberal Government remove them? They make a startling commencement—such a beginning as heretofore no Government ever attempted—the disestablishment and disendowment of the Irish Church. Now, my view of true State policy is the determination to do the most good, to confer the greatest benefit upon the community, irrespective of class interests; to put every institution, however old and predominant, to the test of public utility; to cause a thorough investigation into every grievance, every burthen, and as far as possible to remove them; and place every class of their fellow subjects upon a just and equitable footing, a fair and honest equality, so that no one class shall have an unequal share of the public burthens, or, on the other hand, receive any exclusive share of public benefits, support, or privilege, but that all good and loyal subjects shall be politically equal. Well, if this Liberal Government can undertake such a movement, what may we not expect? We have only to show them our grievances—our especial burthens—and depend upon it, they will try to remove them, and distribute them equitably, and place them fairly upon the nation at large. We don't ask them to interfere with English tithes. The Church of England does in a great degree fulfil its mission, but we do complain that it is mainly, if not exclusively, upheld by the tithe upon the land: whereas the population ought to share in the cost of religious instruction, not the land merely—they ought to bear their fair share in support of their own Church. This, ere long, will be a subject of inquiry. There are, however, several very important questions we shall require then to examine closely—first, that of local rating. It is unjust to burthen the land only with the support of the poor, the county expenditure, the repairs of highways. Why should not the population, who are the cause, and who bring the poor to poverty, who are protected and guarded by the police, and who use the roads, contribute their quota towards the cost? It is a wrong done to occupiers of land. Take the oft-repeated fact—320,000,000*l.* contribute to the Income-tax, 110,000,000*l.* only to these local rates. While numbers with very small incomes contribute to the local rates, none whose incomes do not reach 100*l.* contribute to the Income-tax. See the disparity. If all were alike charged, the Income-tax to be charged would exceed 500,000,000*l.*, a small sum or rate among so many. We take the Malt-tax next. We repeat the oft-told statement: 7,000,000*l.* is paid upon Barley, the produce of British soil, before it is used to produce the finest general beverage in the world. What an injustice to the growers of Barley. If such a tax were put upon Wheat before its conversion into flour or bread, the British public would not tolerate it for a moment. If not upon their bread, why in fairness upon their drink? They are both necessities. True, they may drink water. Yes! and they may eat Potatos. It is unjust to the growers of Barley. *O. F.*

Steam Cultivation.—[Our correspondent, G. W. Gray, had asked Mr. Smith how he employed his men and boys after steam cultivation when the cultivator was not at work; believing that in that difficulty might lie the justification of the hiring system: and Mr. Smith replies to him.] I cannot give your correspondent the daily particulars so correctly as I did to "West Indian" as to my horse employment, not having kept a daily account of every man's and boy's doings, but that account of horse-work will assist me in showing what my men and boys are employed about all the year round, by which I hope to satisfy G. W. Gray as to "how I propose to show him how I employ the men necessary to work a set of tackle," and I will take the employment given to my horses in 1865 to represent the year 1868, just ending, and thus make matters quite clear to him. January shows four days' corn-carting. This signifies that there had been some threshing and dressing of corn. Five days' dung-carting may be seen—then my men were at dung-cart. In addition to this, they would have to attend to the sheep and cattle and all job-work throughout the month. February shows that there had been some threshing and dressing of corn, and the job-work done by my horses reminds me that my men were Bean setting half the month, while the horses split the ridges (put up by my steam-power ridger in the autumn) and covered in the Beans as fast as the men set them; and besides all that, the men had to look after the cattle and sheep and do all the job-work for the month. March shows that some more threshing and dressing of corn had been done, and as I did two days' smashing in that month last year, they would be all hands to the pump. At that and after that they would assist in getting this recently smashed land ready and planted with Barley. In addition to this the cattle and sheep must be attended to. April does not show much horse-work, therefore my men would be employed in hoeing all my corn as fast as possible. May shows that they were at dung-carting as well as hoeing corn and planting the root crops. June: In addition to the hay-making, &c., they would be cleaning the crops sown the preceding month. July is an idle month with my horses, but not so with my men, for, in addition to the regular work on the farm, I always set them to work in that month to dig gravel, repair roads, and put everything in order on the farm that I possibly can. August: I need not say much about that, for it is well known that they must be up from light to dark cutting and carting corn. September (last) gave to them four days' smashing, a lot of dung-cart and stubble-cart, and it was altogether a busy month with them. October (last) gave to them 11 days' ridging and subsoiling, and full employment all the rest of the month in drilling Wheat and putting all things in order on the farm after the busy time. November (last): Sheep and cattle needed attendance. In addition to that, my men and boys looked carefully over my 55 acres of ridged and subsoiled land, walking every ridge, and every morsel of objectionable weed that could be found upon it they took off—not burnt, as we have recently read something about, for they did not get, while looking over the 55 acres, enough to make a single fire. They found a little round the hedges, and that was about all. December: Sheep and cattle need some attention; in addition to that my men have been cutting hedges and cleaning-out ditches. To-day my windlass man looks after my feeding sheep, and in addition has filled up his odd time by doing a bit of gardening for me. One of my anchor-men has been threshing Beans and tending my store sheep; my other anchor-man has been at work with my carter cutting hedges and cleaning-out ditches. My boy, 14 years of age, that did my smashing and ridging and subsoiling, was at work with them, and so were my two roller boys and my water carrier. My engine-man is away with the engine, doing some grinding. In addition to this I put a man on last week (who was hard-up for a job and bread) to dig a couple of drains into some land that the water did not pass off quick enough to please me, and in addition to this I set another man on (who was out of employment from no fault of his own, an over-stocked market), banking some grass-land. G. W. Gray will see that he is wrong altogether, and that my having an engine at hand to use when I want it does not mean "idle men" even on this little farm of mine of 112 acres of arable, and from 50 to 60 acres of

grass-land. Every 250 acres of arable land ought to have a set of tackle of its own. *William Smith, Woolston, Bletchley Station, Dec.* 28, 1868.

Steam Cultivation.—I am sorry to find "Plough-boy," in *Bell's Weekly Messenger*, has closed his correspondence on this subject. However, as "Plough-boy" advises others to move about "to see other systems of steam cultivation," I have a hope that he reads other agricultural papers, and that this may catch his eye. In his letter of 25th November he says, "I have perhaps had more and better opportunities than many men of seeing and judging which is the best system of steam cultivation, not only on my own farm but on many others too." I think you will agree with me that he is a most likely person to fill up the space offered by the Editor in these words: "If any one will send us the history of a steam-cultivated farm, where the cost of cultivation is as low as that of Mr. Smith's, we will gladly give it a place in our columns;" more especially as he sums up his advice to "Smithonian," in his letter of the 17th ult., "You will return home a wiser man, and will never again state that there is no other machinery besides Mr. Smith's that can cultivate the soil so cheaply." The wide-spread experience he claims for himself will, I hope, enable him to give an opinion on a statement quoted by Mr. Smith, of Woolston, in his pamphlet—the same, I assume, "West Indian" lately referred to in the *Agricultural Gazette*. Now, I am thinking of purchasing a steam apparatus for the cultivation of my farm. My average root crop has been from 35 to 45 acres; the extent of farm bordering on 200 acres; fields from 6 to 14 acres; tidy hedges not overdone with timber. The fields are not quite so "shapeable" as might be wished for steam-ploughing; but as my grandfather planted most of the hedges, it is not to be wondered at, as he never thought of a steam-plough. I have thinned here and there some of the trees; and, looking from my homestead, I think as much has been done in that direction as is necessary, allowing me to retain a nice country appearance about the farm. What is best to be done? Will some of your readers help me? I hope "Plough-boy" will lend me a hand. *Agricola.*

Good Health.—It is said that a "Green winter makes a fat churchyard;" how far this may be true I know not, but I think we may be able to avoid some defects which a warm winter brings with an abundance of vegetables. I find upon all our table vegetables, and more particularly the Savoy Cabbage, much insect life, looking like mildew, which upon being brought into an ordinary warm room become small flies. The best way to remove these and all others after the outer leaves are taken off is to apply a strong stream of water over them while suspended. In reference to our ordinary water, it teems with both animal and vegetable life. I have caused to be adopted a piece of flannel six inches diameter, about the size of a butter plate, to be drawn round and tied with a string to the common water-cock in the form of a bag; this is to be changed every day: the fouled piece is rendered useable again by being immersed in salt water and otherwise washed. Those who will adopt this simple plan will find that they need not call upon Professor Pepper to illustrate the living facts by his light, while I may observe that this description of mechanical filter in calico is found in sugar-refining to be the best known for the first process, while it is also obvious that the sponge in the ordinary table filter does the same duty. *Henry Grafton, C.E., Rigma Road, Tolington Park, N.*

Farmers' Clubs.

MIDLAND COUNTIES: *The Means of Increasing our Home Produce of Animal Food.*—At the last monthly meeting of this club, Mr. WILLOUGHBY WOOD read a paper on this subject. Its urgency, he said, was not owing to the mere increase in numbers of the population, for in other countries the population had advanced more rapidly than in our own. The increased demand for meat was caused by the steadily advancing well-being of the people. The last twenty years had witnessed the steady growth of the class which earned remunerative wages, and the importance of this class was becoming very great. When we thought of the teeming population of our large towns, and the simultaneous advance in all wages which had been established during the period in question, it must be evident that these were no accidents, but permanent and essential phenomena of our social state. The necessity for providing additional supplies of animal food had long attracted the attention of public men. Even before the trade in corn was thrown open, Sir R. Peel deemed it his duty to endeavour to make meat more accessible to the humbler classes, by allowing the importation of foreign cattle. The time selected for this innovation, however, was a great mistake. Men, having had no previous experience of complete free trade, exaggerated its effects, whether for good or for evil. Farmers, knowing that the grain of Russia and America was soon to come into unrestricted competition with the produce of their own fields, had consoled themselves to a certain extent with the idea that they would retain in their own hands the supply of meat to the home market. When, however, this small comfort was withdrawn, a complete panic took possession of their minds; and, singularly enough, its effects were more strongly felt in the price of stock than in that of grain. For it so happened that, owing to some deficient harvests which occurred about the time the protective duty was finally taken off, the fall in the price of grain was much less than was expected. The depression in the price of stock, on the contrary, was most serious. Everyone appeared anxious to sell, and buyers were nowhere to be found. Meat, for some years, was lower than it had been for a generation. That was a golden time for consumers, but there was another side to the question. It was evident that to rear stock at such prices as had lately prevailed was to incur a certain loss, and the consequence was that the breeding of both cattle and sheep was extensively abandoned. Large tracts of grass-land were broken up, and farmers endeavoured to compensate themselves for reduced prices by growing an increased quantity of grain. But, singularly enough, the imports of foreign stock were for a time insignificant in numbers, and so inferior in quality as only to be fit for the lowest class of consumers. The panic in the trade, both in cattle and in meat, was found to be almost entirely the result of imagination. As a natural consequence, it was not long before stock became really scarce, and an advance in prices took place which was without a parallel in previous history, when its permanence was taken into account. The fact was, that in all probability the mischief effected by those few years of panic had not yet been repaired. Extensive breeding grounds were then broken up which have not yet been restored, and which may never again be put to their former use.

Had Sir Robert Peel to his many acquirements added a practical knowledge of agriculture, how different would have been the result. He would have been so forcibly impressed with the immense superiority of our breeds of domestic animals over those of foreign countries that he would have been convinced that our climate, our system of farming, and our tenure of land, were all more favourable to the production of meat than those of most of the Continental nations. He would have said to the British farmers—"You are about to be exposed to the competition of the world as regards grain. But, after all, Wheat is not your staple produce; and these foreigners may sometimes excel you in quality. In your live stock you are unrivalled. Your soil and climate are pre-eminently adapted for Grass, Clover, and Turnips. Rear and feed as much stock as you will, wealthy customers around you will be glad of it all; and I will guarantee you against foriegn competition in that department. And should it be found after the lapse of years that you are unequal to the task of feeding the increasing population, and in consequence the ports should be opened to foreign stock, you will have obtained such a stand over your rivals that you may regard their efforts with indifference." Had such been that policy pursued by the great statesman—had he allowed some years to elapse after the repeal of the Corn Laws before permitting the importation of foreign stock, how different might have been the result! There was one lesson which must be learned from these events, which was the necessity for a Minister of Agriculture, who, being conversant with the subject, would be able to appreciate the representations made to him by practical men. Reverting to the history of the importation of foreign cattle, it was remarkable that they never in any appreciable degree, after the first panic subsided, reduced the price of meat in the home market.

While, however, foreign cattle had done little directly to benefit the consumer, they had indirectly caused him serious injury in many other ways besides causing the panic which was the origin of our scarcity. They were the means of introducing pleuro-pneumonia and the foot-and-mouth disease; and on the whole he was disposed to agree with those veterinary authorities who maintained that the loss in British cattle caused by the entry of foreign stock had exceeded the number of the importations, even without taking into account the late fearful visitation of rinderpest. It was to be feared that even now some of our legislators had not learned wisdom from the past. Every year it became more profitable to import cattle from countries which are the centre of infection; and the opponents of a Cattle Regulation Bill would allow such animals unrestricted access to every part of the country to come into contact with our own healthy herds. This, it was said, was to be done in the interest of the consumer; and because the proposed separate market might probably exclude a few hundred inferior cattle, some legislators would allow the fate of Cheshire to overtake the entire kingdom. He did not wish it to be supposed for a moment that he was inimical to the importation of foreign cattle; for he would not place any obstacles in the way of the entry of them. All he desired was so to regulate the trade that contagious diseases should not be introduced among our own stock. The cattle plague had led to the adoption of precautions with regard to our internal traffic; and he would suggest that all dealers in cattle should be licensed, and that those who were convicted of dealing in animals infected with contagious disease should forfeit their licenses.

If British farmers had only fair play they would, without doubt, be able to furnish a supply of meat adequate to the increasing wants of our population. The problem to which their attention should be directed was to discover the means of providing for more stock than they were at present able to maintain. In the first place, they must improve their cultivation by every appliance suggested by science and experience. If the whole kingdom were as well managed as the best farms, the result would be an amazingly increased growth both of grain and of cattle provender. As, however, it was not his province on that occasion to enter on so wide a subject, he would merely indicate by one word the means of accomplishing this vast improvement, and that word was, capital. And he must add, that if landlords desired increased capital to be invested on their property they must give it security. Even on the better cultivated class of land much remained to be done to bring our system into harmony with the requirements of the present day. It was not now so much an object as formerly to devote a large proportion of the farm to the growth of Wheat, and their policy should rather be, by improved culture to increase the acreable yield, while allowing a greater breadth to crops suitable for maintaining live stock. In some instances old pasture land had been inconsiderately broken up, but he did not advocate the laying of it down again without regard to the circumstances of each individual case. There are localities in which no amount of outlay would produce good permanent pasture; and in such situations land of medium quality under the plough would produce more food for cattle than it does while in grass. The four-field system was admirably adapted, on the higher class of soils, both for the growth of cereals and of roots. It was probable, however, that there were other rotations which, on strong land, were better calculated for the production of cattle food. An important modification consisted in allowing the Clover, Rye-grass, &c., to remain down for a second year, or even longer. On his own farm he never ploughed up his Clover at the end of the first year unless in the rare case when the plant was deficient. Clover sickness was unknown with him; and he considered the second year's seeds to pay as well as anything else to which the land could be devoted. He thought it was on strong soils that the maximum of cattle food was to be obtained at the smallest cost—first, by devoting a moderate breadth to roots, but aiming at a heavy acreable produce. Second, by keeping about one-third, instead of one-fourth, of the arable land under Clover or other Grass seeds, on which cake should be regularly consumed. Third, by the cultivation of Tares (either for soiling or for folding sheep), Cabbages, Beans, and Peas.

He regretted that tenant-farmers were often placed under so many restrictions, courses of cropping being sometimes prescribed to them, and in the majority of instances being debarred from selling hay and straw. He thought that, when a tenant was a man of character and capital, he should be allowed perfect liberty, in the majority of cases, to manage his land so as to do the best both for himself and for his landlord. On large farms, chiefly under plough, it was almost impossible to consume all the straw profitably. In such cases the surplus should be sold and the money expended in the purchase of linseed cake, the value of which for manure was nearly 4*l.* per ton, while the value of straw for the same purpose was only 10*s.* per ton. But to check the impoverishment of grass-land in the abstraction by dairy farmers of the phosphates in the shape of cheese, he would stipulate that a certain annual outlay, proportioned to the acreage, should be made either on cake, bones, superphosphate, or dung. Here was the key to an immense reserve fund of food for cattle.

Mr. Wood condemned the wretched manner in which stock are kept upon many dairy farms. He also went on to deprecate the reckless way in which roots were often thrown to cattle, and said that variety in food ought never to be lost sight of, as eminently conducive to health. He would lay it down as an axiom that the system of treatment which was most beneficial for stock was one which was calculated at the same time to maintain the fertility of grass-land. And four of the principal feeding stuffs—viz., linseed and rape cakes, malt-dust, and brewers' grains—returned a considerable percentage of their price in the manure which they enriched.

Mr. Wood afterwards referred to the paper read at the last meeting of the Club by Mr. Mechi, and said he was bound to protest against the doctrine contained in the following sentence:—"The grass-land of this kingdom is a great national loss and a mistake; it is starving our people, and to advocate its extension is cruel." The error lay in making sweeping assertions without regard to modifying circumstances. Speaking generally, if a line were drawn from north to south through the centre of England, that portion of the kingdom which lies to the east of it was best adapted for the growth of corn, while that to the west of it was most suitable for Grass.

After having spoken of the necessity for judicious liberality in the feeding of stock, Mr. Wood impressed upon his hearers the importance of keeping well-bred animals. The great body of farmers were still not sufficiently alive to the practical value of blood on dairy farms. A dairy farmer was too often content to use some bull of his own rearing. Such men had not yet learned that a well-bred animal is a machine which not only does its work in a shorter time than a badly-bred one, but which in that time turns out such work as the other is incapable of accomplishing. To recapitulate, Mr. Wood said the Legislature must give security against the introduction of contagion from abroad. Farmers must neglect none of the means of increasing the produce of their land which modern science placed at their disposal. Above all, they must improve grass-land by returning to it a portion of those valuable constituents of which the sale of dairy stock usually deprived it. They must feed their store stock with such reasonable liberality as to keep them in a constantly growing state. This would furnish one important means of improving the land. Landlords must co-operate in the good work by improving buildings, and by affording to liberal tenants security for the outlay of their capital.

DISCUSSION.

MR. BRAWN, in opening the discussion, said there were various difficulties affecting the production of meat which were not entirely within the control of the occupiers of land. So far as the cattle plague was concerned, if they looked at it in its proper light they would see that it was not so much a calamity to the tenant-farmer as it was upon the entire community. But no sooner did the tenant-farmer ask for governmental restrictions to prevent the introduction and spread of the disease than the old cuckoo cry of protection was raised, and they were told that they were going to enrich themselves at the expense of the public. In his opinion the members for Birmingham would serve their constituents by assisting the farmers to obtain wise legislative enactments to protect our flocks from the introduction of foreign disease. After an allusion to the destruction of sheep and cattle food by "ground game," Mr. Brawn went on to contend for security of tenure; and to say he believed they would never see the full development of the agricultural resources of this country until they obtained some equitable arrangements for compensation for

unexhausted improvements. But he believed farmers might help themselves by changing the rotation of crops, and in the management of their farms so as to increase the production of animal food. He believed the system to which Mr Wood had alluded, and which he had called the "four-field system," was susceptible of improvement. Speaking in reference to that kind of land where the crop of Wheat upon Clover lea was very uncertain, he would advise that the Clover lea should be grazed further on in the season. If they continued to depasture their sheep upon it until December, and then turned it over with the application of farmyard manure, they would find there was very little to be done in spring to render it fit for the reception of the root crop. With regard to land of a stronger quality, particularly that round Tamworth, with which he was acquainted, and where sometimes the farmers would break up their Clover lea at midsummer, he would suggest that the Clover lea should remain not only until Christmas, but even to the latter end of February, when he would break it up, and after giving it a dressing of farmyard manure, sow it with Oats instead of with Wheat. When the Oats came up the land would be found in such a state that it could be well broken to pieces, and with the aid of a little artificial manure or lime it would, he was convinced, from practical experience, bear as good a crop of Wheat as it would have done in the first instance. Thus they not only would save the grazing of the Clover for a considerable time longer than by the common plan, but they had a crop of Oats as well. Then by threshing out the Oats for the sheep, and giving the straw to the cattle, they had the means of increasing very considerably the amount of butcher's meat. With regard to the use of straw, cut into chaff and given to cattle in a raw state, straw only yielded half its nutriment, but if it were either steamed or scalded they would get the benefit of all its feeding properties. Mr. Wood had said that they should keep the best bred cattle on their farms, and he agreed with him, for a well-bred animal would feed much faster and at a less cost than an ill bred one. But still he did not believe that every animal which boasted a pedigree was the best animal they could use.

Mr. MASFEN had great pleasure in moving a vote of thanks to Mr. Wood for his very able paper, which combined the cry with practical recommendations that it would be advisable for them as farmers to adopt. Having referred to the paper recently read by Mr. Mechi before the Central Farmers' Club, and expressed his dissent from the views therein expressed in reference to grass-land, Mr. Masfen proceeded to contend that there was no want of capital amongst farmers, and that it could soon be found when security of tenure was forthcoming.

Mr MAY seconded the motion. He said they would all agree with the tenour of Mr. Wood's paper, though there might be one or points on which they would differ from him, and were it not so late, he might enter into some of them. He could bear testimony to the soundness of the advice that all stock should be kept moderately well from its birth. He was sure no one would deny that any man placed in the position of a farmer, and having the means of doing it, ought to cultivate his land to the best of his ability. Both Mr. Wood and Mr. Masfen had alluded to the want of security for the outlay of capital. It was not long since himself and Mr. Masfen were in Stafford together, when a nobleman, who was a very large landowner in the county, told them that they never met at their Club in Birmingham without its being said that they could get no security for their capital, which was quite a mistake, for if the majority of the landowners in Staffordshire were asked for security, they would grant it. He also said that it was the duty of the tenant to ask and not the duty of the landlord to offer it. He (Mr. May) replied that if he were a landowner he should endeavour to influence the whole of his tenants to farm well. He would hold out inducements to that end, and when they were declined, he should tell the tenant to go. He wished then to say, that if the reason the tenant-farmers had no security was that they did not ask for it, the sooner they did ask the better.

The resolution was carried with acclamation.

Mr. WOOD, in acknowledging the compliment, observed that in the cotton famine an association was formed which made inquiries in different parts of the world as to where cotton could be procured. They were now suffering from a scarcity of materials for cattle food, some of the most important of which were linseed and rape cake; and he suggested that the Chamber of Agriculture should commission gentlemen acquainted with the subject to inquire where linseed cake and other materials could be procured, and to put the producers in different parts of the world in communication with the buyers in this country.

HEXHAM: *Manures.*—At the last monthly meeting of this Club, Mr. H. I. J. BROWELL, analytical chemist, Newcastle, read a paper on "Manures."

THE THEORY.

Mr. BROWELL said.—"Plants, in common language, may be said to consist of an organic and an inorganic portion. If we take any plant, be it a tree or the smallest herb, be it Wheat, Hay, or Turnip, and burn this until all is burnt which will burn, we shall find that everything has disappeared excepting a small quantity of whitish ash; the quantity of ash varies in different plants, but it is always a small proportion of the entire weight of the plant. In the seeds, as in Wheat, Oats, Peas, Beans, &c., it is seldom much over 3 per cent. by weight; in Hay, about 5 or 6 per cent.; in Turnips and other roots, little more than 5 per cent.; and this small quantity of ash is all that the plant has obtained from the soil, or, at all events it is all that it is necessary that it should obtain from the soil. The whole of the 90 or 95 per cent. which has disappeared could be obtained from the atmosphere, to which it has returned. The ash, then, is what is called the inorganic portion of the plant, and that which has disappeared is what is called the organic portion. This ash, or inorganic part, varies in quantity in different plants, and it varies in its chemical composition also very much in different plants: but as a rule, the quantity of ash in the same kind of plant, although taken from different kinds of soil and from different localities, does not vary much, and the chemical composition of the ash from different specimens of the same plant grown at different times and places, varies very little indeed; so much is this the case that the plants of the farm have been classified, according to the chief constituents of their ash, into lime plants, or those in whose ash lime predominates; silica plants, or those in which silica predominates; and potash plants, or those in which potash predominates. Now, most soils contain all the substances which plants require for their growth; but it is only in very favoured cases where the soil contains them in sufficient abundance to produce the different kinds of crops rapidly enough and in large enough quantity to pay without some assistance in the shape of manure. In ordinary soils a few crops so far exhaust their fertility that they cease to produce remunerative crops. Suppose that we have a moderately rich soil in pretty fair heart and condition; suppose we grow on this a crop of Turnips, which we carry off the land, and after this, without any further manure of any kind, a crop of Wheat, and of Clover and seeds, and then Oats. So far as the inorganic matters are concerned, we can tell exactly what has been taken away by the crops, and what is therefore necessary to restore the soil to the same state of fertility that it was in before. We know by analysis what is the composition of the ash of the crops, and we know, or we can easily ascertain, what weight of each of the crops was taken away; it then becomes a very simple calculation to show what is required. This, so far as the inorganic part is concerned, which, as we saw, is much the smallest proportion of the plant; but although it is perfectly true that the plant can obtain all else that it requires from the atmosphere, it is not always desirable to leave it entirely to this resource, as in some cases it is required that the growth shall be more rapid than this supply would afford. Suppose we want to grow some forage crop, such as Italian Rye-grass, here we want a great bulk grown as rapidly as possible. If the soil does not already contain a large quantity of organic matter, animal or vegetable, for the supply of the organic materials, it is desirable that we should give it a supply of these in the form of organic manure, either vegetable or animal—generally a combination of the two, as in the case of farmyard manure, composed of litter and the excrements of the animals. Farmyard manure of course supplies not only the organic constituents, but also the inorganic matters which are required; it is a complete manure, supplying everything required by farm crops, and in a form which can readily be made available for the plants. Now, it follows that the position we are in is this—that although in most fertile soils we could grow our farm crops just as they are, we could not in this way grow them sufficiently good to pay, for we have always to bear in mind that in producing a crop a great many of the items of expense are as great for a bad crop as a good one; therefore, to incur all the cost of the rent, rates, tillage, and seed, and to lose the chance of a good crop by not manuring sufficiently, is like the proverbial folly of "spoiling the ship for a ha'porth of tar."

THE PRACTICE OF MANURING.

The problem we have to solve, then, is, how can we most effectively supply to the soil the materials of which we deprive it, or which it requires to produce abundant crops. If ordinary farms, under ordinary farming, supplied as much home-made manure as would keep them up to the mark, or bring them up to the mark as the case might be, there would be an end of the difficulty, but we all know that this is far from being the case; in the present day, when, from the development of rival sources of supply, prices are often very low for what we have to sell, and the cost of labour has so seriously increased, it behoves us to grow the largest crops we possibly can; to do this, we must increase the fertility of our fields, and to accomplish this we must increase our supply of manure. How is this to be done? There are various methods of doing this, and it depends on a variety of circumstances which is the best in particular cases. But I have no hesitation in placing first the increasing of both the quantity and quality of our farmyard manure by keeping and feeding a greater quantity of stock. There can be no question that in the majority of cases much greater numbers might be kept than is at present done. Where we cannot grow a large quantity of Turnips they might often be made to go much further than they do; instead of giving almost unlimited quantities of Turnips and cut into great lumps or slices, they might serve twice or sometimes thrice as many beasts if they were cut very small, or pulped and mixed with chopped straw. And much greater liberality might be shown than is usually done in the supply of crushed grain or meal, and oilcake or such-like food; under such an improved system, as no doubt most here would testify, the cattle would feed faster and more economically, and the improvement in the quantity, and especially in the quality of the dunghill, would soon speak for itself in the crops. I believe that a larger consumption of the various kinds of cake on a farm will pay, even when they are as dear as at the present time. Calculations have been made of the money value of the manure resulting from the consumption of many of the articles of food in use for cattle—I will mention a few. Thus, for a ton of linseed-cake consumed by your cattle you will get back in the manure something like *4l.* 12*s.*; linseed-cake, *4l.* 12*s.*, present price, 12*l.*; linseed, *3l.* 13*s.*; rape-cake, *4l.* 18*s.*, present price, 7*l.* 15*s.*; Beans, *3l.* 13*s.* 6*d.*, present price, 10*l.* 10*s.*; Peas, *3l.* 2*s.* 6*d.*; Oats, *1l.* 14*s.* 6*d.*, present price, 10*l.* 15*s.*; Wheat, *1l.* 13*s.*, present price, 11*l.* 10*s.*; Indian Corn, *1l.* 11*s.* 6*d.*; Barley, *1l.* 9*s.* 6*d.*; hay, *1l.* 5*s.*; oat straw, 13*s.* 6*d.*; wheat straw, 12*s.* 6*d.*; barley straw, 10*s.* 6*d.*; Swedes and other Turnips, 4*s.* Now these calculations are probably sufficiently accurate to be taken as a guide in an inquiry like the present, and I think they ought to go a long way in satisfying us of the economy of using rich food for our stock. Even on farms where from the nature of the soil only a small acreage of Turnips, or even none at all, can be profitably grown, there is a large quantity of straw produced, and there is nothing to prevent young cattle being wintered in courts, where they will thrive very well on straw, water, and cake. For this purpose it is not at all necessary to use the expensive linseed-cake, rape and the other cheaper cakes answering perfectly well, and being quite as valuable for the manure. Young cattle done in this way come out in the spring in an excellent state to go on to the grass. Another method of increasing the stock of manure by means of cattle, which may be carried out on most farms, is that of summer soiling on Clover, Tares, or other green crop, cut and brought home to the courts or boxes. The cattle fed with these and oilcake fatten well, and produce a lot of first-rate manure, which will come in at a very useful time for the autumn manuring of the fallows; if too late for this, it will be ready to plough into the stubbles—a plan which has much to recommend it, and which no doubt would be much more followed if the supply of rough manure were available. There can be no doubt of the excellent effects, on all but very light, sandy soils, of having the rough manures ploughed in to decompose in the soil, instead of losing its carbonic acid and ammonia in the dunghill. I would just make a remark here as to the treatment of the manure when made on the farm. There is no great loss by allowing the manure to lie for a length of time in the dunghill or in the yards; still less when in the boxes where it has been made; as experiment has shown that very little, if any, of the ammonia is lost during fermentation, so long as it is kept from being washed by rain: but this is an important consideration; for, the ammonia being easily dissolved, there is a serious loss when the manure is exposed to rain, and the drainage from it allowed to be lost, for hereby much of the ammonia may be carried away: and you must remember that ammonia is the constituent you have to pay most money for when you buy any artificial manure containing it. There is no great loss either if you cart your farmyard manure out into the fields, and it has to lie either in heaps or spread on the land for some time; for, as the great risk of loss to a manure heap is by washing, it is obvious that if rain comes when it is lying in the field, anything washed out of it will be saved by the soil. Where climate and soil admit of it, the plan of eating the crops on the land with sheep confined by hurdles, cake been given with the green food, is an excellent and profitable one, here all the expense of carting the crop off and the manure on to the land being saved. I need scarcely apologise for these passing remarks on feeding, as they bear so closely on the subject of manure, being in fact, from our present point of view, indirect manuring, and in my opinion, in the generality of cases, the most scientifically and economically correct. Where farms are situated near to towns or near a railway they can generally obtain large quantities of scavenger and ash-pit manure; but owing to the domestic and sanitary arrangements which have become common of late years this manure has been deprived of much of its most valuable portion, and one sometimes almost doubts whether it be worth the cost of carriage. I will just here remark that I hope we see the commencement of a change which will stop the enormous waste of valuable manure in the sewage of towns, whereby a material is made to flow into our rivers to be not only wasted, but in many cases to become a nuisance and source of disease, which if collected would probably be worth each year more than the amount raised by the Income-tax.

LIME.

I will just say a few words on lime as a manure before I pass on to consider what are usually called artificial manures. Lime is, in the first place, a manure in the direct meaning of the word, as it is a constituent of the ash of all plants, and in some cases to a notable extent, as, for example, in the case of Peas, Beans, Potatos, and Clover; all plants, therefore, require that some lime should be present in the soil; but most cultivated soils contain lime in quantity, probably sufficient for the requirements of most plants, or at all events to such an extent that we cannot imagine that the striking effects often resulting from an application of lime to the soil can be due to the quantity of it which the roots take up. Its most important action is, doubtless, an indirect one; and this is the explanation of it. Amongst the substances required by plants are the alkalies, potash and soda; most clays contain these in appreciable quantity, but they are combined in such a state that water won't dissolve them, and the roots of the plants can only get a slow supply of them; they are combined with silica. Well, when quicklime is added to a soil, it exerts an action on the clay which decomposes these compounds, and sets at liberty, so to speak, these alkalies; so that the roots of the plants can at once appropriate them. In doing this, it also, to a certain extent, renders soluble the silica with which they were combined; and silica is required by all plants, especially by the straw of the different kinds of grain, and by the Grasses. In effecting this, decomposition, lime alters to some extent the mechanical condition of the soil, rendering it lighter and more friable. This, then, is the explanation of the beneficial effect of the application of lime to clay soils. Its beneficial action on soils containing a large quantity of vegetable or peaty matter is mainly owing to its decomposing the vegetable matter, and liberating ammonia and carbonic acid, which are quickly appropriated by the plants. Lime, then, is chiefly useful, not as adding to the riches of the soil, but in putting into circulation what is already contained in it.

ARTIFICIAL MANURES.

I will now endeavour, very briefly, to bring before you what appears to me to be the most important points in connection with what are generally meant by artificial manures. Now, although the list of substances which plants must obtain from the soil, in order to grow, is a long one (including potash, soda, lime, magnesia, oxide of iron, silicic acid or silica, phosphoric acid, sulphuric acid, and chlorine), most of them are tolerably abundant, and there are only a few which we usually require to provide. From this point of view, phosphoric acid is the most important, being constantly found as a constituent of plants, and especially so in the seeds of the various species; for example, the grain of Wheat contains 46 per cent. of it. No plant can thrive where it is absent or not present in sufficient quantity, and especially can no plant mature its seed

without a sufficient supply of it. The usual and only economical form in which it can be applied is in the form of phosphate of lime; and the sources of this are bones or bone ash, the different kinds of guano, and the superphosphates. Potash is another constituent which is constantly found in plants in considerable quantity, both in the grain and in the straw, and notably in Turnips, Potatos, and Cabbages. It is not, however, very often given to the soil excepting in the case of farmyard manure and guano. Many experiments have been made, and the direct addition to the soil of some of the compounds of potash, such as sulphate or muriate, have been found to produce marked effects on certain crops; but the high price of these materials prevents their being much used. The only other constituent of plants which is much applied in the form of special manures is nitrogen. This is not found in the ash of plants, it is found in the organic part, or that which disappears in burning. It is usually supplied in Peruvian guano, which contains it in the form of ammonia, or some compound capable of yielding ammonia; in nitrate of soda, where it exists in the form of nitric acid united with soda; or as sulphate of ammonia, where it exists as ammonia united to sulphuric acid; it is a constant constituent also of all animal manures, and to its presence is owing, in a great degree, their value. Now, it follows that the money value to the farmer of such manures as the different kinds of guano, depends on the proportion they contain of phosphoric acid or phosphates of ammonia, or other compounds of nitrogen, and, to some extent, the quantity of potash—the value of superphosphates on the quantity of phosphates they contain, or, in other words, the quantity of phosphoric acid; but besides this, as superphosphates are made by partially rendering soluble the phosphate of lime in bones, bone-ash, or some of the natural mineral phosphates of lime, by means of sulphuric acid, it is an important point to know to what extent this process has been carried; or, in other words, what is the percentage of soluble phosphates, as the phosphates or phosphoric acid, in a soluble form, are much more easily taken up by the plants, and are, therefore, much more valuable. Sulphate of ammonia, nitrate of soda, and such-like materials, being definite chemical compounds, don't vary in composition. All that has to be regarded in their case is, therefore, to know what percentage of the pure salt they contain. Bones depend for their value on the quantity of phosphoric acid and nitrogen which they contain. Besides these manures, which may mostly be classed as phosphatic or nitrogenous, there are a few others not unfrequently used, as, for example, common salt and gypsum, or sulphate of lime. Both these are useful in certain cases; the former, mixed with other materials, as a top-dressing, especially for Wheat, frequently has a beneficial effect; the latter is, perhaps, most marked in its effects when applied as a top-dressing on Clover. The mode in which common salt acts is not so easily explained as that of the other manures we have mentioned. The beneficial effects of sulphate of lime or gypsum on Clover is partly explainable by the fact of the large proportion of lime found in its ash, and which the gypsum would supply. There are many other materials which are valuable, but which are only occasionally met with; refuse materials from manufacturing operations of various kinds, as, for example, all kinds of animal matters; any material containing a considerable quantity of phosphoric acid, or capable of yielding ammonia, is sure to be valuable.

ADULTERATION OF MANURE.

Now, these manures of which we have just been speaking, depending for their value on the proportion they contain of a few special constituents, and their cost being considerable, it is very important that the farmer shall obtain them genuine and of good quality, for there may be two samples differing little in their external appearance, and which may yet differ very much in their value. The question then presents itself, How is the purchaser to protect himself, and to ensure his getting a good article? An answer often given to this query is—Deal with a respectable manufacturer, whose character is a guarantee for the article he will supply to you. Now, this is very good advice; but I think something more than this is required. The only way in which we can judge with certainty of the quality of a manure is by having a chemical analysis of it. Now, as an analysis will cost from 20*s.* to 2*l.* or 3*l.*, according to its nature, it is not likely that a purchaser of 2 or 3 tons would go to this expense; but I think that a plan—which might easily be carried out in a club like yours—would be for as many of you as might choose to agree on the quantity they would require of, say superphosphate, some time before the season when it was required, and then, supposing that 20 farmers amongst them required 50 or a 100 tons, a bargain might be made with some manufacturer to supply it of a certain standard and at a certain price—*i.e.*, being of a certain composition, containing a certain per centage of soluble and insoluble phosphates and nitrogen or ammonia: then samples should be taken of the bulk supplied by some one agreed to by both buyer and seller—the sample so taken to be analysed by a competent chemist, so as to know if it were of the standard agreed for; you would thus have a certainty that you had got what you bargained for, and the cost when divided would not on 50 tons amount to more than between 1*s.* and 2*s.* per ton, as one analysis could, of course, serve for the whole of the 50 or 100 tons. Another advantage of this plan would be that, if you went to a manufacturer with a large order like this you would find him willing to supply you at a lower price than if you were ordering only two or three tons. Most manufacturers and their agents, in soliciting your orders, show you an analysis of their manure by some chemist of repute; well, how much wiser are four out of five farmers when they read this? Do they know what it means? We cannot all be chemists, so as to understand and judge fully of these things, but by adopting my plan you would go to your analytical chemist and have such-like points explained to you sufficiently for your purpose. This suggestion applies with most force to the purchase of the various kinds of superphosphates. There is not so much variation in the quality of Peruvian guano, bones, bone-ash, or nitrate of soda; though I think it would be worth while to apply the same arrangement to them. Now comes the question, to what extent is it desirable to use these manures, and which of them? The extent must depend partly on what the farmer can afford, on the state of his land, and his stock of home-made manure; but I think he will find that it will generally pay him to expend from 30*s.* to 60*s.*, or even more per acre in this way on his Turnip and Potato crop, and from 20*s.* to 30*s.* on his Clover, Wheat, and Barley crops, to be applied in the shape of top-dressings in spring. The question what materials to use, is a much wider one. We have seen that so-called artificial manures are divided into phosphatic and nitrogenous, or a combination of the two. The phosphatic comprises some kinds of guanos, bone-ash, and those superphosphates not containing nitrogen. The nitrogenous comprise nitrate of soda and sulphate of ammonia—while Peruvian guano, bones (raw), and superphosphates, containing nitrogen, combine these two classes to some extent in one. Now, although nitrogen or ammonia is undoubtedly food for plants, we may, I think, with a certain licence of language, describe the nitrogenous manures as stimulants, and the phosphatic as more stable and more beneficial to the soil. In practice, I should generally prefer a mixture of the two kinds as being most likely to ensure success. Climate and other local circumstances, no doubt, have a good deal to do with this question. It has been said, and I believe with much truth, that the further north you come the more you require ammoniacal or nitrogenous manures: that whereas, in the southern parts of England, with their long warm season, you may grow root crops with superphosphate only, you must, to produce an equal effect in the north, use a manure containing considerably more ammonia. As to what mixtures or kinds of artificial manures should be used for each crop, numbers of experiments have been made, and the results published in the various agricultural journals, which those who wish can see and study for themselves. I believe, however, that in the case of Turnips we will not be far wrong in using a mixture of equal parts of good superphosphate and Peruvian guano, and an excellent addition to this is some crushed bones. If the superphosphate you use contains much ammonia, you may use more of it and less Peruvian guano. Such a mixture will cost about 8*s.* or 9*s.* per cwt. and from 4 to 6 cwt. of this, with a fair allowance of farmyard manure, should be considered a pretty good allowance per acre. I would use the same mixture for Potatos. Now, there is a little more uncertainty, perhaps, as to what is best to do in the matter of top-dressings, for they depend much more on the nature of the season for their effect; if the season be showery they produce much more effect than if it be dry. As a rule, it is the nitrogenous or ammoniacal manures which are most suitable for top-dressings. Nitrate of soda is perhaps the most used, and it seldom fails in its effect, on both grasses and cereals. It is, however, one of the most expensive materials, seldom costing less than 13*l.* per ton; and experiment has shown that it produces nearly or quite as good an effect on grain crops when mixed with common salt to the extent of one-half its weight, or even an equal weight, and this is, or course, a great saving in price, common salt only costing about 20*s.* per ton; but experiment has also shown that Peruvian guano, used as a top-dressing, produces almost, if not quite, as much effect as nitrate of soda; and as it is less of a mere stimulant, and is more beneficial to the soil, I generally prefer to use some of it with the nitrate. I think a useful mixture for top-dressings is equal parts of Peruvian guano, nitrate of soda, and common salt, at a cost of about 8*s.* or 10*s.* per cwt.; and from 2 to 4 cwt. of this mixture would be a fair quantity to use. There is another mode of applying artificial manures, which I have found very beneficial on strong land, and that is to sow 2 or 3 cwt. of superphosphate per acre with the seed on the fallows. I have this autumn added crushed bones to the superphosphate.

Mr. C. G. GREY said—A friend of his, who lived at Corbridge, a great Potato grower, used to buy a few barrels of damaged herrings and plant them in drills, and his verdict was that there was nothing like red herrings for growing a good crop of Potatos. He had to buy his experience, and they had to buy their experience, and often at great expense, and it would be a step in advance if they had the power of analysis of which he spoke brought within their reach. They had in that Club made considerable use of analyses in regard to feeding stuffs and manures, which many farmers had studied before making their purchases of cakes and manures. He had heard discussions going on over these analyses in the shops of manure dealers in this town, which were useful to the farmer and also to the tradesman, in letting him know how far he could go in taking profit out of his customers. No doubt farmyard manure was the best, if they could get enough of it, and it was a matter of importance how they could improve the quality of it. Mr. Browell had told them that rape-cake, and he presumed cotton-cake too, were nearly as good for producing manure as linseed-cake, and cost much less money. If, however, the cattle were to be fattened for the butcher, they should go to the expense of buying linseed-cake. Still, they might go to much expense in buying cake and in improving the manure-heap, and yet waste much manure, if the liquid portion was allowed to run off for the ducks to paddle in, and this also accounted for the luxuriant crops of Grasses and Thistles they sometimes saw. These might seem small matters, but they were worth the attention of the farmer, who ought always to endeavour to keep order and economy about his place. Sometimes this waste of manure took place when the farmer was pushing his work forward, and had much to do for both his men and horses, but then he very often lost a good deal in this way simply to save half a day's work of a boy. By a little more outlay he might prevent a considerable loss. There was another matter in the paper, about which he often thought. They had to pay the same charges for laying down their crops, whether these turned out good or bad. Now, they knew what their rents were, what the rates were, also the cost of working the land; and yet on the poor land of this county they saw miserable crops of Oats, which would hardly pay for rents, rates, seed, and tillage. But by the judicious application of a little more stimulating manures a profit could be derived from these crops. On some very wet lands they might throw away an application of artificial manure, but on most poor lands he had no doubt the application of considerable manuring would pay in the crop itself, particularly if the application were of guano. There were consequential advantages also to be derived from this treatment, in the increased supply of straw and the more extensive roots which remained in the soil. The land was thus improved, and the manure-heap also, from the extra quantity of straw. After a heavy crop the land was more easily worked than after a poor one, and the weeds were more easily kept down. He had observed, however, that those who had the poorest crops were not members of the Club, so that his remarks were like those of a person preaching against people for not attending church, when those of whom he spoke were not present to hear him.

Reviews.

The Potato Disease: its Cause and Cure. By W. Taylor, Howwood, Renfrewshire. W. Macrone, 23, St. Enoch's Square, Glasgow.

In this tract of five pages, printed for gratuitous circulation, Mr. Taylor has urgently represented, to the comparative exclusion of other agencies, one very probable and important cause of the Potato disease, which is no doubt often mischievous enough, and which well deserves the consideration of the growers of all other plants as well as of the Potato. In Mr. Taylor's opinion "the primary source of this calamity exists in the mistaken system of over-crowding, or close setting the seed, and of forcing the plant by the use of fertile manures, more especially that of horses; thereby bringing forth an exuberance of foliage, which checks ventilation and excludes the free admission of air, so essential to the formation of a vigorous and healthy plant.

"This mass of foliage falling (across the furrows) between the drills, creates the most favourable circumstances for the growth of Fungi, which fasten on the leaves and stem of the plant, and disseminate their putrid influence.

"From over-crowding, forcing, heating, cutting, and bleeding, the stem of this esculent root has been enfeebled and deprived of a portion of its woody fibre, so that instead of now having strong and upright stems, they have degenerated to a mere 'crawler,' resembling a garden Cress, the wind blowing over them as across a field of slugged [? lodged] Wheat or hay.

"In the years 1809-10," Mr. Taylor says, "I was employed to pluck the flowers from the plant, an idea being then prevalent that the weight of the plums would increase the roots. In pursuing this fallacious occupation, I can well remember, when passing up and down between the drills, the stems opened before and closed behind me with the elasticity of Willows; but now, you would become entangled among the 'crawlers.'

"In those days it was a truly gratifying sight to look upon a field of Potatos in full bloom; like a sea of flowers in all their variegated hues, gracefully waving to and fro in the summer breeze; their own motion causing a fresh supply of air to effectually extinguish the generation of Fungi. But, in the present day, there is a very marked absence of this motion; the wind blows over them, not into them, and the disease is generally developed when a few weeks of dry warm weather are followed by heavy showers of rain, succeeded by a sultry, moist atmosphere; Fungi spring into existence, rot ensues, and is announced by a stench so well known to Potato growers."

What, then, is the cure of this great evil?

"Potatos for seed," says Mr. Taylor, "should be planted in a separate plot of ground; select the most sandy part of the field, manure the ground at the end of autumn, ploughing it well, and taking particular care to have it thoroughly grubbed or harrowed, form shallow drills, 3 feet 6 inches apart; seed about the size of a duck egg is preferable and should be planted whole in the spring, putting in two sets where at present it is customary to put in four, hoe them up only once (if some are green, all the better for seed), remove the weeds and grub deep between the drills. Let them be completely ripe before lifting, dig in sunshine, dry them by exposure to the rays of the sun for a day or two (more if the weather will permit), spread them on the floor of a dry barn or outhouse, and if any exhibit symptoms of sprouting, turn them; the smallest may be retained for next years' 'seed,' and the largest cut and planted for the general crop.

"About 14 years ago, I was so thoroughly convinced that the want of air was in a great measure the cause of the disease, that I raised a small mound 3 feet high in the most airy part of my garden, and planted therein a few sets; they were entirely free from the disease, whilst the others were more or less infected.

"Seven years ago I planted several sets in the same manner as Dahlias, supporting the foliage—no disease. The following year I repeated the experiment, some of them yielded blossom, and in another year all did well, carrying flowers and a profusion of plums.

"If this method of planting and preserving the seed from year to year is adopted," Mr. Taylor promises us that "the plant will become erect, strong, and healthy, and the disease will only be a thing of the past. On the other hand, if nothing is done to raise this fallen plant, the first year that comes with the same atmospheric influences for producing Fungi as the year '45, we shall have the disastrous results, but greatly aggravated, as the Potato is weaker now than it was then, and less able to resist its deadly influence."

To demonstrate the advantages of the theory he thus advocates, Mr. Taylor recommends the agricultural societies of this country to appoint committees, with a

concerted plan of operations for practically testing the efficacy of this system, and reporting thereon; and if his remarks should stir up a spirit of inquiry, and tend to the regeneration of this down-fallen plant, the design of the writer will be accomplished.

Farm Memoranda.

HAMPSHIRE: *Dec.* 31, 1868.—The past season has been of an entirely exceptional character, and will be long remembered in the annals of agriculture on account of the extreme drought which prevailed through the whole of the summer months, and, in consequence, the great dearth of cattle food, which was felt most severely upon all soils, not only as regards the arid and useless condition of the grass-lands, but also upon the arable lands, on which it was quite impossible to grow anything like the usual produce of root food for cattle.

The hay crop, on the whole, was under an average, and for a time fetched a very high price, but has receded somewhat in value as the winter advanced. It is to be hoped that the fear as to provision being found for cattle and sheep stock has now abated, owing to the extremely favourable autumn, the mildness of the weather having to a considerable extent mitigated the evils of a general scarcity; and it must be very gratifying to the agricultural interest that Providence has thus, up to the end of the year, so far compensated them for the difficulties which beset them during the summer.

In referring to the health and condition of our flocks and herds, we find it much better than could have been expected under such trying circumstances, but the dry season has no doubt had the effect of holding in check the foot lameness, to which the flocks of sheep have been subject for a number of years; in fact, it has prevailed more or less ever since the year 1845, and we fear that the constitutions of our sheep are so impregnated with the epidemic and foot lameness, that they will not be entirely free from attack for a long period when the seasons are wet and mild, for we find numerous flocks have fallen lame within the last week, caused, no doubt, by the prevailing wet weather. Neat cattle seem to have been very free from disease in this county, which may to some extent be attributed to the extreme rigour of the Orders in Council applied to the cattle trade during the cattle plague, and also through not allowing any cattle to come out of the London markets alive; and it is to be hoped that this view of the matter will not be lost sight of in any future arrangements connected with the cattle trade, both English and foreign.

This is now the third favourable lambing season we have had to report of the early horned ewes, the present being the best we can ever recollect, both as regards the number of lambs saved, and the general good health and condition of the ewes, and it is to be hoped that the Hampshire Down flocks on the hill farms will have equal success, as the few early Down ewes we find have lambed equally as well as the horned ewes.

The supply of fat stock for Christmas markets has exceeded our expectations both in numbers and quality, and upon the whole must be considered satisfactory in prices obtained for them; nor has the consuming public any right to complain, considering the scarcity of food which prevailed. It may be worthy to remark the great success which has attended the cattle auctions throughout the kingdom, for not only has the auction this Christmas held at Southampton astonished people generally, but it is to be noticed that auctions for the sale of stock are increasing rapidly, and finding favour with the agriculturists in nearly all the leading market towns of the Midland and other counties; and it may be confidently anticipated, from the direction that public opinion is now taking, that they will continue to increase and prevail, and chiefly because auctions possess so many and great advantages as compared with the ordinary open markets. It is to be noticed that steam cultivation has made considerable progress during the past year. There are now a number of sets of tackle on hire in various parts of this county, and they have been in full employ as long as the weather proved favourable, and it is to be seen during this rainy season how readily the water passes into the subsoil and escapes on steam-cultivated land, whereas on land under ordinary culture, the water is seen on the surface on all the strong soils, very much to the injury of the crops and future tillage. *Joseph Blundell, Southampton.*

SOUTH STAFFORDSHIRE: *Dec.* 31, 1868.—We are fairly into the new year almost without knowing it, so little cold weather have we had. A good deal of rain has fallen, but none too much to replenish the springs; a large breadth of low-lying meadow land is, however, under water. Upland pastures are looking quite green. I walked over our steam-dug fallows yesterday, and they trod quite sound. Wheat is looking well, and I think none too forward. Italian Rye-grass, winter Tares, and late-sown Turnips are all flourishing. A good deal of corn is threshed, but I do not hear of the 30 per cent. extra average. Some very good yields of Wheat there are on well farmed clay soils, but on light lands only so-so, and Barley comes out very short indeed.

Christmas beef made a full price, and mutton is now inquired after. Store cattle, too, are dearer, and fresh things will probably keep ahead as regards price, from the butchers competing for the half-meated ones. Sheep, particularly lambs, require much attention, and a full supply of dry food. Malt-dust is selling in Burton at 7*l.* a ton! There must be a large consumption of cake, seeing the price keeps up with a heavy supply of seed. *G. A. M.*

The Poultry Yard.

As a rule, nothing is so unwelcome as good advice, and yet we would tender some to those of the more enthusiastic of our readers who are already making preparations for the autumnal and winter campaign of 1869. To non-racing men it seems always a little curious to find, three days after the Derby of any one year, quotations in the betting for that of the next. Thus, with the echoes of the cock-crowing of Bingley Hall, Belle Vue, and Clifton in our ears, it seems a bold leap to make calculations and arrangements for the *début* of chickens 10 and 11 months hence. The pleasure of anticipation is undoubtedly a great one, and long-headed philosophers have described it as exceeding that of the reality. That may or may not be; but one thing is certain—that is, those of us who are poultry fanciers and breeders have much more of the former than of the latter. To increase the solid satisfaction as much as may lay in our power is not only a duty but a great pleasure; and if any of the hints we now give appear to some as twice-told tales, we must ask their indulgence, and beg them to think of those who are only now starting on the path which they themselves have successfully trodden.

To those who are intending to keep fowls, but who as yet have none, it is important to choose a brood suited to the locality, soil, and accommodation assigned to it. There are certain breeds that require to be thus studied, others that will thrive anywhere almost, under any circumstances. One thing is certain, and unfortunately common among our poultry breeders—and from it springs the chorus of complaint that we hear after bad weather, sudden change, &c.—the immediate supervision of the poultry yard is often delegated to an extent that, carried out with other stock, or the dairy, would be very much felt.

To those who have already their stock made up of breeding birds, we would urge a close and severe scrutiny, to see that no worn-out bird is kept on. The success of the produce of a particular cock bird often has induced his owner to keep him on one season too long, and the mistake has been found out too late. Where you have such a bird, give him every chance by putting him in a little pen with a couple of hens, and run a younger one with your ordinary stock. Be particularly careful to cull out any hen that lays eggs defective in shell, as their continued failure reduces considerably the numerical success of your settings. Good keep and good care will help you much in getting your hens on for early laying, and anxiously must you watch for the first symptoms of broodiness in hen or pullet; foster it, encourage it in every way. Make the nest as secluded and enticing as may be, but be very careful and assured before you put any eggs under the hen. Test her thoroughly first by letting her be for some days on an empty nest, then put two or three common eggs under her, and if she remain staunch on them at night confide to her the seven, nine, or eleven that are destined to success at the show, or on the table. Where breeding is carried on with a view to profit by sale of stock birds, it is always well to have two or more yards, and in these days of machine-made peg-lattice it is easy and inexpensive for any one to do so who has the necessary ground. The advantages of such a plan are very great. Suppose the breed kept to be Brahmas or Crèvecœurs: the stock birds have the full run, but in convenient or adaptable corners are two small pens, or large ones if practicable; in one of these five or six young cocks, kept there as a reserve, and, if the space be good, increasing in value daily—in the other a reserve of young pullets, growing and developing, ready to be turned down into the breeding yard, as the older ones are withdrawn for setting, &c.

A. B. J. writes to ask why the Aylesbury duck is giving way in all districts to the Rouen? We think the great cause is the delicacy of the beak of the Aylesbury. We all know that for the bird to be considered of at all passable quality the beak must be of a delicate pale flesh colour. We all know how extremely sensitive the beak is, and that once wounded, whether by ice or pebble, it never recovers its even and pure surface. Again, many of the breeders who have so wonderfully succeeded with Rouen ducks, to the prejudice of the Aylesbury, live in districts where the water is so strongly impregnated with mineral and chemical substances, that the beak of the famous "lily-white duck" becomes, after a very short sojourn therein, as yellow as a guinea, and the value of the bird falls like shares in a bubble company.

A Correspondent writes us with regard to the inquiry answered in last week's number as to the variation in colour and flavour of duck eggs, that having fed his ducks on barley-meal, in which some maltdust had become accidentally mixed, they took so strong a flavour from it as to be uneatable.

Coney writes for advice as to rabbit keeping. If he has waste garden or farm produce he may keep them with good profit. Four does and a buck make a good stock for a start. We should recommend the Belgian hare rabbit as the best variety.

Notices to Correspondents.

GUANO: *B. A.* Guano, if genuine, should not weigh more than 70 to 72 lb. per bushel. By drying and burning Peruvian guano should lose 55 to 60 per cent. of its weight. Its ash should be white, and should dissolve readily, and without effervescence, in dilute muriatic acid, leaving insoluble residue, which should not amount to more than 2 per cent. of the weight of the guano.

WHAT ARE HAYDES? *Wm. Marshall* writes as follows: "In reply to your correspondent, 'T. H.' (p. 17), who asks the above question, it appears to me that the word is neither more nor less than 'heads,' provincially pronounced, and means a ridge of land running at right angles across the 'heads' of other ridges of land, to which it serves as a way, and in the days of open fields used to be ploughed and sown after the others. In this neighbourhood (Ely) they were called 'haydens'—in good English, 'headings,' or headlands — which is really only another form of your correspondent's word. The context, moreover, in the work he refers to, suggests also the same interpretation,—*e.g.*, 'Ten ridges lying together, with haydes at both ends.' 'Six ridges together, with haydes at the south end only.' Nares, in his 'Glossary,' under the word Hade, says, 'Apparently a high pasture;' and adds, 'I see no probable origin for it but the Saxon *had* or *head*.' and Halliwell, in his 'Dictionary of Archaic or Provincial Words,' has, 'Hade, a ridge of land,' and refers to Drayton's 'Polyolbion,' xiii., p. 921:—

> 'And on the lower leas, as on the higher *hades*,
> The dainty Clover grows, of grass the only silk.'"

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AMERICAN ARBOR-VITÆ, 4 to 5 feet, at 50*s.* per 100; 5 to 6 feet, at 84*s.* per 100; 6 to 7 feet, at 100*s.* per 100.
SIBERIAN ARBOR-VITÆ, 2 to 2½ feet, 40*s.* per 100; 2½ to 3 feet, 50*s.* per 100; 3 to 3½ feet, 75*s.* per 100; 3½ to 4 feet, 100*s.* per 100.
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SPECIMEN CONIFERS and EVERGREENS, handsome and well-grown, for Lawns, Pleasure Grounds, and Parks, have been recently transplanted, and are full of health and vigour. For Descriptions, also Prices of smaller quantities and sizes, see RICHARD SMITH'S LISTS.

Trucks for 1 ton and upwards may be sent through to any Railway Station on the narrow guage lines, at a moderate cost, thereby saving delay and expense of packing.

At 12*s.* per dozen:—

Arbor-vitæ, American, 5 to 6 feet	Norway Spruce, extra fine, 3½ to 4 feet
„ aurea, 12 to 15 inches	Phillyrea oleafolia, 2 to 2½ feet
„ Lobbii, 2 to 3 feet	Picea balsamea, 4 to 5 feet
„ Siberian (Ware's), 3 to 3½ feet	Portugal Laurel, 2½ to 3 feet
Aucuba japonica, 18 to 24 inches	Pyracantha, scarlet berried, 1 to 1½ foot
Berberis Darwinii, 1 to 1½ foot	Pinus Laricio, 3 to 4 feet [2 feet.
„ Jamiesonii, 12 to 15 inches	Rhododendron ponticum, 1½ to
Cupressus Lawsoniana, 3 to 4 feet	Taxus japonica, 15 to 18 inches
Hemlock Spruce, 3 to 4 feet	Thujopsis borealis, 2 to 2½ feet
Hartogia capensis, 1 to 1½ foot	Thuja plicata, 2 to 3 feet
Juniperus chinensis, 1½ to 2 feet	
Mahonia japonica, 9 to 12 inches	

At 18*s.* per dozen:—

Abies inverta, 1½ to 2 feet	Juniperus chinensis, 2½ to 3 feet
„ Douglasii, 2 to 2½ feet	„ Lecana, 2 to 2½ feet
„ Menziesii, 4 to 5 feet	„ Schottii, 2 to 2½ feet
Arbor-vitæ, American, 6 to 7 feet	„ thurifera, 1½ to 2 feet
„ compacta, 1½ to 2 feet	„ glauca, 1½ to 2 feet
„ Lobbii, 3 to 4 feet	„ drupacea, 15 to 18 inches
„ Siberian (Ware's), 2½ to 4 feet	„ viridis pendula, 2 to 3 feet
Aucuba japonica, 2 feet	Laurel, Colchic, 5 to 6 feet
Berberis Darwinii, 1½ to 2 feet	„ Portugal, 3 to 3½ feet
„ Jamiesonii, 15 to 18 inches	Mahonia japonica, 12 to 15 inches
Cedrus argentea, 2 to 2½ feet	Pinus austriaca, 3 to 4 feet
Cryptomeria Lobbii, 5 to 6 feet	„ Laricio, 4 to 5 feet
„ viridis, 5 to 6 feet	Phillyrea oleafolia, 2½ to 3 feet
Cupressus fragrans, 3 to 4 feet	Rhododendron ponticum, 2 to 2½ feet
„ Lawsoniana, 4 to 4½ feet	Taxus elegantissima, 15 to 18 ins.
Hartogia capensis, 1½ to 2 feet	„ gold-striped, 15 to 18 inches
Hemlock Spruce, 4 to 5 feet	Thujopsis borealis, 2½ to 3 feet
Ivy, green, tree, 1½ to 2 feet	Thuja plicata, 3 to 4 feet
„ new silver-striped, tree, 15 to 18 inches [15 inches	„ incurvata, 3 to 4 feet [ins.
„ tricolor variegata, tree, 12 to	Wellingtonia gigantea, 15 to 18

At 30*s.* per dozen:—

Abies elegans, 2 to 2½ feet	Irish Yews, 5 to 6 feet
„ inverta, 2½ to 3 feet	Juniperus chinensis, 3 to 3½ feet
„ Menziesii, 6 feet	„ fragrans, 2 to 2½ feet
„ orientalis, 2 to 2½ feet	„ glauca, 3 to 3½ feet
Arbor-vitæ, American, 7 to 8 feet	„ Lecana, 2½ to 3 feet
„ compacta, 2 to 3 feet	„ Schottii, 3 to 3½ feet
„ Lobbii, 5 to 6 feet	„ thurifera, 3 to 4 feet
„ Siberian, 4 to 5 feet	„ virginiana, 5 to 6 feet
Arbutus unedo, 2½ to 3 feet	„ viridis pendula, 3 to 4 feet
Box, tree, 2½ feet by 2½ to 3 feet	Laurel, Colchic, 7 to 8 feet
Cedrus argentea, 3 to 4 feet	Pinus austriaca, 4 to 5 feet
Cupressus Lawsoniana, 4½ to 5 ft.	„ Laricio, 5 to 6 feet
„ fragrans, 4 to 5 feet	Taxus elegantissima, 1½ to 2 feet
„ McNabiana, 3 to 4 feet	Thujopsis borealis, 4 to 4½ feet
Garrya elliptica, 2 to 2½ feet	Thuja incurvata, 4 to 5 feet
Hemlock Spruce, 5 to 6 feet	Wellingtonia gigantea, 2½ feet

At 42*s.* per dozen:—

Abies Albertiana, 3½ to 4 feet	Juniperus glauca, 4 to 5 feet
„ inverta, 3 to 4 feet	„ Lecana, 3 to 4 feet
„ orientalis, 2½ to 3 feet	„ Smithiana, 3 to 4 feet
„ pyramidalis, 4 to 5 feet	„ thurifera, 5 to 6 feet
Arbor-vitæ, American, 8 to 9 feet	„ virginiana, 6 to 7 feet
„ aurea, 2 to 2½ feet	„ viridis pendula, 4 to 5 feet
„ compacta, 3 to 3½ feet	Laurel, Colchic, 8 to 10 feet
„ japonica, 2½ to 3 feet	Pinus, Cembra, 5 to 6 feet
„ Siberian, 5 to 6 feet	„ Laricio, 6 to 7 feet
Cedrus argentea, 4 to 5 feet	Quercus austriaca sempervirens, 3 to 3½ feet
Cupressus fragrans, 5 to 6 feet	„ Fordii, 3 to 3½ feet
„ Lawsoniana, 5 to 6 feet	Thujopsis borealis, 5 to 6 feet
Hemlock Spruce, 6 to 7 feet	Thuja Lobbii, 6 to 7 feet
Irish Yews, 6 to 7 feet	Wellingtonia gigantea, 3 to 4 feet
Juniperus chinensis, 3½ to 4 feet	
„ densata, 4 to 5 feet	

At 60*s.* per dozen:—

Abies Albertiana, 4 to 5 feet	Juniperus chinensis, 4 to 5 feet
„ inverta, 6 to 7 feet	„ thurifera, 6 to 7 feet
„ orientalis, 3½ to 4 feet	Pinus Cembra, 6 to 7 feet
„ pyramidalis, 5 to 6 feet	Quercus austriaca sempervirens, 3½ to 4 feet
Arbor-vitæ aurea, 2½ feet	„ Fordii, 3½ to 4 feet
„ compacta, 3½ to 4 feet	Thujopsis borealis, 6 to 7 feet
„ gigantea, 4 to 4½ feet	Wellingtonia gigantea, 4 to 5 feet
„ japonica, 3½ to 4 feet [ins.	
Cephalotaxus Fortunei, 21 to 24	

Each:—

Abies Albertiana, 6 to 7 ft., 7*s.* 6*d.*	Picea grandis, 5 to 6 feet, 21*s.*
„ „ 7 to 8 feet, 10*s.* 6*d.*	„ nobilis, 3 to 3½ feet, 31*s.* 6*d.*; 300*s.* per dozen
„ Douglasii, 8 to 10 ft., 7*s.* 6*d.*; 84*s.* per dozen	„ „ 3½ to 4 feet, 42*s.*
„ „ 10 to 12 feet, 10*s.* 6*d.*; 100*s.* per dozen	„ „ 4 to 4½ feet, 51*s.* 6*d.*
„ Menziesii, 7 to 8 feet, 5*s.*	„ „ 4½ to 5 feet, 63*s.*
„ „ 8 to 10 feet, 7*s.* 6*d.*	„ Nordmanniana, 4 to 5 ft., 21*s.*
„ orientalis, 5 to 6 ft., 10*s.* 6*d.*; 100*s.* per dozen	„ „ 5 to 6 feet, 31*s.* 6*d.*
Araucaria imbricata, 5 to 6 ft., 21*s.*	„ „ 6 to 7 feet, 42*s.*
„ „ 6 to 7 feet, 42*s.*	„ „ 7 to 8 feet, 63*s.*
„ „ 7 to 8 feet, 63*s.*	„ Pinsapo, 3 to 3½ feet, 10*s.* 6*d.*
„ „ 8 to 10 feet, 105*s.*	„ „ 3½ to 4 feet, 15*s.*
Arbor-vitæ japonica, 4 to 4½ feet,	„ „ 4 to 5 feet, 21*s.* to 31*s.* 6*d.*
„ „ 4½ to 5 ft., 10*s.* 6*d.* [7*s.* 6*d.*	Pinus Cembra, 7 to 8 feet, 7*s.* 6*d.*
Picea grandis, 4 to 5 feet, 15*s.*	Yews, for hedges, about 12 feet high, 45 years old, recently transplanted, 31*s.* 6*d.*

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CARTER'S CHAMPION KIDNEY (for forcing), 5s. per peck, 18s. per bushel

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This is the best of all Potatos.

J. C. WHEELER & SON, beg to caution the Trade against inferior and spurious varieties.

J. C. WHEELER & SON, Seed Growers, Gloucester; and 59, Mark Lane, London, E.C.

Wheeler's Little Book for 1869.

Price 6d., post free.

"WHEELER'S 'Little Book' is an agreeable and instructive companion."

"WHEELER'S 'Little Book' is now a household word in many establishments, and as regularly looked for as the Almanac."

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Rainham Kentish Early Kidney Potatos.

WAITE, BURNELL, HUGGINS AND CO. have great pleasure in informing the Public that they have purchased the stock of this invaluable POTATO.

The Rainham is the earliest Kidney Potato known, being at least 14 days earlier than the Ashleaf; extremely productive, and attaining a very large size when allowed to grow till quite ripe. Price 7s. 6d. per peck. A discount allowed to the Trade.

The Rainham Potato can be had from the following Firms:—

London .. Messrs. James Carter & Co., High Holborn, W.C.
" Mr. Robert Cooper, 152, Fleet Street, E.C.
" Messrs. George Gibbs & Co., Down Street, Piccadilly, W.
" " Hurst & Son, 6, Leadenhall Street, E.C.
" " Peter Lawson & Son, Budge Row, Cannon Street
" " Minier, Nash & Nash, 60, Strand, W.C.
" " Nutting & Son, 60, Barbican, E.C.
" " Rutley & Silverlock, 412, Strand, W.C.
" " Smithers & Crichton, 1, Bunhill Row, E.C.
" " Jacob Wrench & Sons, London Bridge
Belfast .. Mr. R. B. Matthews, 53, Victoria Street
" Messrs. Thomas McKenzie & Sons, Victoria Street
Brighton .. Mr. Edward Carpenter
Bristol .. Messrs. Jas. Garaway & Co., Durdham Down Nurseries
Chester .. Mr. John McHattie, Northgate Street
" Messrs. F. & A. Dickson & Sons, Eastgate Street
Cork .. .. " Thomas McKenzie & Sons, Camden Quay
Dublin .. " Thomas McKenzie & Sons, 34, Dawson Street
Exeter .. " Lucombe, Pince, & Co.
" Mr. R. T. Veitch
Gloucester.. Messrs. J. C. Wheeler & Son
Manchester Mr. C. H. Dickson, 23, Market Place
Newcastle-on-Tyne } Messrs. Samuel Finney & Co., 25, Great Market
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Reading .. " Sutton & Sons [Warehouse
Westerham Mr. John Catteli
Wisbeach .. Mr. John Cockett
Wolverhampton.. Messrs. Richard Lowe & Co.
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Seed Warehouse, Southwark Street, London, S.E.

Seeds Carriage Free.

THE SOUTH OF ENGLAND SEED ESTABLISHMENT.

WILLIAM WOOD AND SON,

NURSERYMEN, SEEDSMEN, and FLORISTS,

TO



OF PRUSSIA.

WM. WOOD & SON'S No. 1 COLLECTION of VEGETABLE SEEDS for Gardens quarter of an acre in extent, sent, hamper and carriage free, to any Station on the South Coast and South-Eastern Rail for 12s. 6d.

No. 2 COLLECTION, for half an acre, hamper and carriage free, for £1 1s.

The following will be sent, hamper and carriage free, to any Station in Great Britain:—

No. 3 COLLECTION, for three quarters of an acre, for £2 2s.
No. 4 COLLECTION, for an acre, for £3 3s.
DESCRIPTIVE CATALOGUES may be had on application.
Woodlands Nursery, Mayesfield, near Uckfield, Sussex.

To the Trade.

WILLIAM RUSHFORTH, NURSERYMAN, Leeds, offers as under, fine:—

10,000 SEAKALE, 2 and 3-yrs., per 1000, 60s. and 70s.
70,000 GIANT ASPARAGUS, 3 and 4-yrs., per 1000, 25s. and 30s.
60,000 SEEDLING HOLLIES, 2-yrs., per 1000, 7s. 6d.
RASPBERRIES, RED ANTWERP, per 1000, 30s.
YUCCA ALÆFOLIA VARIEGATA, fine, per dozen, 60s.
LOBELIA FULGENS, QUEEN VICTORIA, per 100, 18s.

Seedsmen to the Queen.

FRANCIS & ARTHUR DICKSON & SONS, the "Old-established" Seed Warehouse, 106, Eastgate Street, Chester.

The Best EARLY PEA in Cultivation is DICKSON'S "FIRST and BEST." Price 1s. 6d per quart.

Genuine NEW SEEDS for the GARDEN and FARM, of the most select character, each Variety being saved from the best Stock known of its kind. DESCRIPTIVE PRICED CATALOGUES on application. Seeds of £2 value delivered Carriage Free to any Station

Early Peas for Market.—The best variety is SUTTONS' IMPROVED EARLY CHAMPION.

A week earlier than Daniel O'Rourke and more prolific.

SUTTON & SONS having grown the above excellent early Pea extensively this season to meet the increasing demand, are prepared to make special quotations to Market Gardeners and other large consumers. Lowest price per quarter on application.

SUTTON & SONS, Seed Growers, Reading.

SUTTON'S HOME-GROWN SEEDS

A FIRST PRIZE



SUTTONS' RINGLEADER PEA,

The Earliest in Cultivation.

The Royal Horticultural Society have this season tested the merits of the leading early Peas, and their report (*vide Gardeners' Chronicle*, June 27, 1868) contains the following emphatic statement:—

"The earliest form of all was the Ringleader. Several of the Peas blossomed at the same time, but Ringleader was fit to gather first."

Retail price, 2s. per quart.

CAUTION.—No Pea is identical with Suttons' Ringleader, except Carter's First Crop. S. & SONS have no Agents, and cannot be responsible for any Peas or Seeds not procured direct from them.

SUTTON & SONS, Seedsmen to the Queen, Reading, Berks.

ELLETSON'S SURPRISE, new, large, late WHITE PROTECTING BROCCOLI.—The best late Cauliflower Broccoli extant, price 2s. 6d. per packet. May be had of the following Agents:—

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Mr. Robert Cooper, 152, Fleet Street, E.C.
Messrs. Barr & Sugden, 12, King Street, Covent Garden, W.C.
Mr. Wm. Paul, Waltham Cross, N.
Messrs. Peter Lawson & Son, Edinburgh and London.
" Bolton & Co., Ealing, London, W.
" Jas. Backhouse & Son, York.
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Additional names will be inserted as they are received.

EDMUND PHILIP DIXON, The Yorkshire Seed Establishment, 57, Queen Street, Hull.

FOSTER'S "XL" FINE LONG RIDGE CUCUMBER.—This new variety is a remarkably fine hardy long dark green Cucumber, and one that can be recommended with the greatest confidence. It is very prolific, and keeps its colour to the last. All who have seen it growing are satisfied that it cannot be surpassed, and those who have tried its flavour are convinced of its excellent quality, insomuch that the small quantity of seed raised is already nearly exhausted. Length 12 to 18 inches. Price per packet of 12 seeds, 1s.

EXTRA FINE NEW HYBRIDIZED PETUNIA.—Saved from the best large crimson, blotched, striped, and pencilled varieties. Price 1s. and 2s. 6d. per packet.

DIXON'S MAMMOTH WHITE CELERY, per packet 1s.
DIXON'S YORKSHIRE NEW PEA, per quart 2s.
FOSTER'S EMPEROR, fine frame CUCUMBER, per packet 2s.

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CORN, SEED, MANURE, and OILCAKE MERCHANTS.

Address, 89, Seed Market, Mark Lane, E.C.; or Basingstok

Samples and prices post free on application. Prize Medals, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

An Invaluable Discovery.

CLARKE'S INSECT-DESTROYING COMPOUND.—A Discovery made solely for private use, now offered to the Public. A Discovery which will save Gardeners endless trouble and care. The discovery of a Compound in Solution, which will destroy every Insect it comes in contact with, and this without the slightest injury to FOLIAGE, FRUIT, or FLOWERS. A Solution which may be used without care, similar to clear water, which will be found instant death to Green Fly, Thrip, Red Spider, Brown and White Scale, and a thorough eradicator of Mealy Bug, Ants, and the Caterpillars which infest Cabbages and Gooseberry Trees, also Blight and Mildew.

See Report of Trials, "Journal of Horticulture," July 30, p. 72.

A 2s. Box will make SIX Gallons, a 4s. Box Twelve Gallons. Directions for use with each Box. Also a Solution prepared expressly for Mealy Bug, which is instant death to all it touches, in Bottles ready for use, 2s. each. May be had of most of the principal Nursery and Seedsmen, and of the Proprietor,

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THE LONDON MANURE COMPANY

(ESTABLISHED 1840)

Have now ready for delivery, in fine condition,

CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES.

Also Genuine PERUVIAN GUANO, and NITRATE of SODA ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c.

E. PURSER, Secretary.

Offices, 116, Fenchurch Street, E.C.

LAWES' WHEAT MANURE for AUTUMN SOWING, NOW READY for DELIVERY.—All other Manures and Cakes as per Price List, supplied on the lowest terms. Apply for Prices, &c., to JOHN BENNET LAWES, 1, Adelaide Place, London, E.C.; Dublin, and Shrewsbury.

J. B. LAWES, of 1, Adelaide Place, London Bridge, begs to give NOTICE that he has REMOVED his business to 69, MARK LANE, Ground Floor.

A MANUFACTURER of a MANURE, established 16 years, wishes to appoint a few respectable AGENTS. Good Commission.—Address by post, with occupation, &c., "Manure Agency," at No. 158, Bishopsgate Street Without, London, E.C.

ROLL TOBACCO PAPER, finest quality, equal in strength to Tobacco, 1s. per lb; cheaper in quantities.

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GENUINE TOBACCO PAPER, of the finest quality, 10d per lb., or 8½. per cwt.

WILLIAM RUSHFORTH, Nurseryman and Seed Merchant, Leeds.

TOBACCO TISSUE, for destroying Red Spider, Mealy-Bug, Thrip, Green and Black Fly, without the aid of a Fumigator.—This article having been before the Public for the last three years, and being now used by many of the leading Horticulturists,—from several of whom Testimonials have been received as to its efficacy,—the Manufacturers beg to recommend those who have not used it to give it a trial, feeling confident when they have done so they will use nothing else, as it is far superior to paper or rag, and will not injure the plants. Sold in 1lb. packets and upwards; price 3s. 6d. per lb., carriage free. A reduction in price for large quantities.

To be had of Messrs. ROBERTS & SONS, Tobacco Manufacturers, 112, St. John Street, Clerkenwell, E.C., of whom Samples and Testimonials may be obtained; and of all Seedsmen and Nurserymen.



Red Spider — Magnified.

GISHURST COMPOUND.

One of the oldest and best remedies against

BLIGHT and MILDEW.

Sold by the Trade in Boxes 1s., 3s., and 10s. 6d. each.

Wholesale by PRICE'S PATENT CANDLE COMPANY, Limited, Battersea, London, S.W.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rick dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of Iron. Prices of Fittings per Cow, 55s.

Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

Green's Patent Noiseless Lawn Mowers.

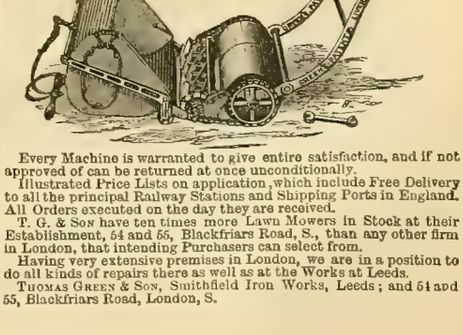
GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every prize that has been given in all cases of competition, and in proof of their superiority upwards of 44,000 have been sold since the year 1856.

They are the simplest in construction, least liable to get out of order, and can be worked with far greater ease than any other Lawn Mower extant.

They are the only Machines in constant use at

Buckingham Palace Gardens
Marlborough House Gardens
Royal Horticultural Society, South Kensington
The Royal Botanic Gardens, Regent's Park
The Crystal Palace Company's Gardens, Sydenham
The Hyde Park Gardens
The Winter Palace Gardens, Dublin
The Dublin Botanic Gardens
The Liverpool Botanic Gardens
The Leeds Royal Park
The Hull Botanic Gardens
The Botanic Gardens, Brussels
The Sunderland Park
The Preston Park

And in most of the principal Parks and Squares in the United Kingdom.



Every Machine is warranted to give entire satisfaction, and if not approved of can be returned at once unconditionally.

Illustrated Price Lists on application, which include Free Delivery to all the principal Railway Stations and Shipping Ports in England. All Orders executed on the day they are received.

T. G. & SON have ten times more LAWN Mowers in Stock at their Establishment, 54 and 55, Blackfriars Road, S., than any other firm in London, that intending Purchasers can select from.

Having very extensive premises in London, we are in a position to do all kinds of repairs there as well as at the Works at Leeds.

THOMAS GREEN & SON, Smithfield Iron Works, Leeds; and 54 and 55, Blackfriars Road, London, S.

JOHN WEEKS AND CO.,

HORTICULTURAL BUILDERS

AND

HOT-WATER APPARATUS MANUFACTURERS.

ILLUSTRATED CATALOGUES
Sent free on application.

The Show Establishment and Offices at the Works,
King's Road, Chelsea, S.W.

THE HYDRONETTE,
(Barnes' Patent,) for Gardens, Greenhouses, Conservatories, Hothouses, &c. Unrivalled ease of action, simplicity, convenience, and force.



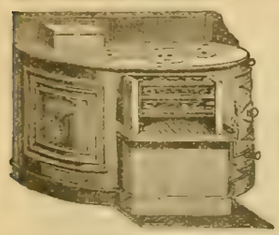
The HYDRONETTE is a more useful, easy working, reliable, and convenient water-throwing machine than any other in use. It is made in five sizes, viz.:—No. 1, with 4 feet of Suction Hose, Strainer, Jet, and Rose, 12s. 6d.; No. 2, 15s. 6d.; No. 3, £1 1s.; No. 4, £1 5s.; No. 5, £1 10s. Extra Hose and Union Joints furnished to order.

DIRECTIONS FOR USE.—Take the Hydronette in the left hand, lay hold of the handle with the right, drop the strainer end of the Hose into the pail, then work the plunger quickly a few strokes, until water is drawn up to the brass tube; then work it slowly, or quickly, at will.

To be obtained through any Ironmonger or Florist in the United Kingdom, or of the Proprietors,

HAYNES & SONS, 227, 229, and 231, Edgware Road, Paddington, W.

BARTON'S PATENT CIRCULAR-FRONT COOKING STOVE, with Open Chimney and Roasting Fire, that will adapt to Roast any size of Joint in Front of it.



Roasts Before the Fire.
Roasts or Bakes in the Oven.
Ventilates the Kitchen.
Carries off the Smell of Cooking.
Carries off the Dust.
Cures Smoky Chimneys.
Saves Labour.
Has an Open Chimney.
Keeps the Kitchen Cool.
Is Simple in Construction.
Has a Small Fire.
Saves the Coals.
Wastes no Heat.
Gives a Large Supply of Hot Water.

HAYNES & SONS, 227, 229, and 231, Edgware Road, Paddington, W.
Sole Agents for London.

In the Patent Circular Range the Fire is angle-shaped, and when in use, as shown in the illustration, Baking, Steaming, and Boiling up to the Hot Plate can be thoroughly maintained. By turning the handle the Fire Box is lowered, and a full size Roasting Fire obtained.

Particulars, with numerous Testimonials, free on application.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.—This Stove is the nearest approach to heating by hot-water. It will burn day and night for weeks with little care; is admirably suited for Conservatories, Halls, Churches, &c.; and is deserving of special attention, because of its safety, healthfulness, durability and extreme simplicity. Capacity of the apartment which these Stoves will warm:—

First Size .. 2,000 cubic feet. | Third Size .. 30,000 cubic feet.
Second Size.. 15,000 cubic feet. | Fourth Size .. 45,000 cubic feet.
Fifth Size .. 60,000 cubic feet.

London Depôt: HAYNES & SONS, 227, 229, and 231, Edgware Road, London, W.

HOT-WATER APPARATUS of every description, fixed complete in any part of the country, for Warming Greenhouses, Conservatories, Forcing Pits, &c.
Plans and Estimates on application.
J. JONES & SONS, 6, Bankside, Southwark, London, S.E.

CRANSTON'S PATENT BUILDINGS for HORTICULTURE.
"Dry Glazing without Putty."
"Glass without Laps."
"Ventilation without Moving Lights."
Highly Commended by the Royal Horticultural Society, South Kensington.



Plans and Estimates free on application. Descriptive Book fully illustrated, post free for 20 stamps, from the Author and Patentee, JAMES CRANSTON, Architect, Birmingham.
Works: Highgate Street, Birmingham.
HENRY J. GROWTAGE, Manager, 1, Temple Row West, Birmingham.

Heating by Hot Water.
W. J. HOLLANDS, IRON MERCHANT,
31, Bankside, S.E.

	2-inch.	3-inch.	4-inch.
HOT-WATER PIPES, from stock—per yard	1s. 0d.	1s. 6d.	2s. 0d.
ELBOWS for ditto .. .. .. each	1 6	2 3	2 9
TEES .. .. „	2 3	3 6	4 6
SYPHONS .. .. „	2 3	3 6	4 6
THROTTLE VALVES .. .. .. „	10 0	11 6	13 0

Cash remittance with order.
N.B. All Goods of first-class manufacture. No second quality kept.
Estimates given, and orders punctually attended to the same day.

HOT-WATER PIPES.
CASH PRICES.

	2-inch.	3-inch.	4-inch.
PIPES .. .. per yard	1s. 0d.	1s. 6d.	2s. 0d.
ELBOWS .. .. each	1 6	2 3	3 0
TEES .. .. „	2 6	3 6	4 6
SYPHONS .. .. „	2 6	3 6	4 6
VALVES .. .. „	10 0	11 6	13 0

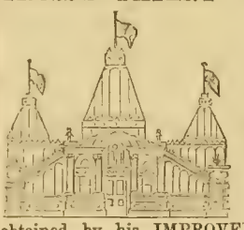
No credit will be given when Pipes, &c., are invoiced at the above prices.
J. JONES AND SONS,
6, Bankside, Southwark, London, S.E.
Price Lists, with terms for credit and for delivery at country stations, will be sent on application.

HOT-WATER PIPES, BOILERS, &c., &c., delivered in London, Liverpool, Bristol, or equivalent.
Large stock kept at the Works.

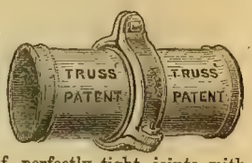
	2-inch.	3-inch.	3½-inch.	4-inch.
	s. d.	s. d.	s. d.	s. d.
HOT-WATER PIPES—per yard	0 11	1 6	1 8½	1 11
ELBOWS .. .. .. each	1 4	2 1	2 6	2 9
TEES .. .. .. „	2 0	3 0	3 6	4 0
SYPHONS .. .. .. „	1 9	3 0	3 6	4 0
VALVES .. .. .. „	10 0	11 6	12 0	13 0

Nett cash price on receipt of invoice.
GEORGE ROBINSON, The Dial Iron Works, Stourbridge.
Estimates, Priced Credit Lists, with terms, by post.

PORTABLE AND FIXED HOT-WATER APPARATUS,
FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH
TRUSS'S PATENT UNIVERSAL FLEXIBLE AND LEAKLESS PIPE-JOINTS.



T. S. TRUSS



Begs to state that the immense number of APPARATUS annually Designed and Erected by him in all parts of the kingdom, and for the ROYAL HORTICULTURAL SOCIETY at SOUTH KENSINGTON and CHISWICK, with unrivalled satisfaction, is a guarantee for skill of design, superior materials, and good workmanship; while the great advantages obtained by his IMPROVED SYSTEM cannot be over-estimated, consisting of perfectly tight joints with neatness of appearance; EFFECTS A SAVING OF 25 PER CENT. on cost of Apparatus erected compared with other systems; facility for extensions, alterations or removals without injury to Pipes or Joints; can be erected by any Gardener; an ordinary size Apparatus erected in one day, and PERFECTNESS of DESIGN SUPPLIED, INSURING NO EXTRAS. Complete Apparatus, of the best materials, with Saddle Boiler, delivered to any Railway Station in England, and Erected at the following prices. Erection beyond 25 miles of London, railway fare for one man additional. Considerable reduction on large works.

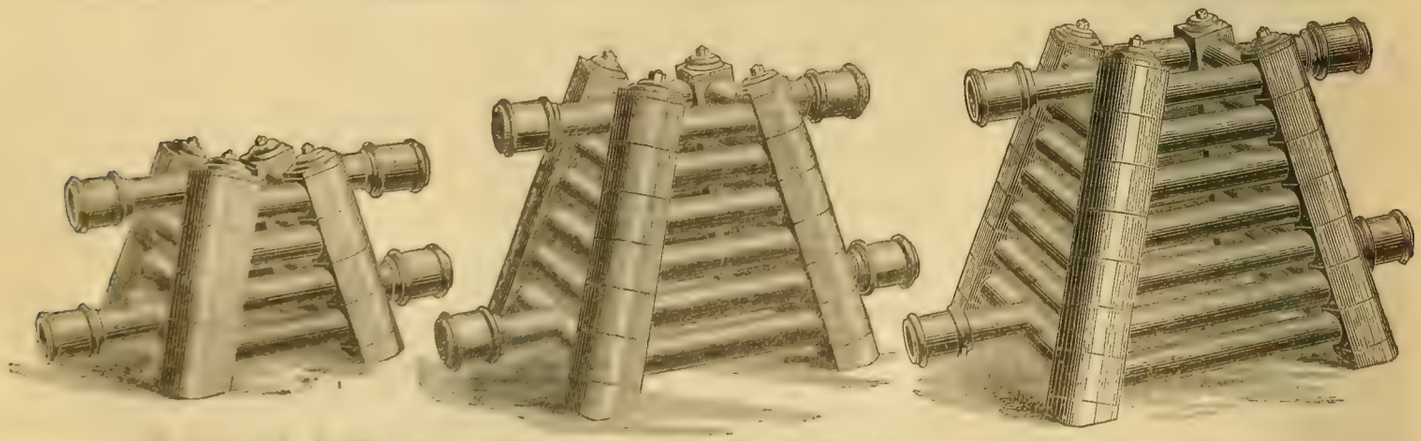
TWO FOUR-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
20 feet by 10 feet ..	£9 0 0 ..	£2 0 0	50 feet by 15 feet ..	£17 10 0 ..	£3 0 0
30 feet by 12 feet ..	11 15 0 ..	2 10 0	75 feet by 15 feet ..	20 0 0 ..	3 0 0
40 feet by 15 feet ..	15 0 0 ..	2 15 0	100 feet by 15 feet ..	26 0 0 ..	3 5 0

Bath and Gas Work erected in town or country. The Trade Supplied.
Horticultural Buildings of every description from 1s. 6d. *per foot superficial, inclusive of Brickwork.*

Price Lists, Plans, and Estimates forwarded on application to
T. S. TRUSS, C.E., CONSULTING HORTICULTURAL ENGINEER, &c., SOLE MANUFACTURER,
IRON MERCHANT and HORTICULTURAL BUILDER,
FRIAR STREET, BLACKFRIARS ROAD, LONDON, S.E.

THE NEW PATENT A 1 HORIZONTAL TUBULAR BOILER.
THIS IS THE MOST POWERFUL AND IN EVERY RESPECT THE BEST BOILER YET MANUFACTURED.

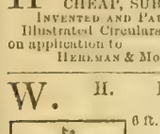


IT CAN BE MADE TO HEAT FROM 100 TO 10,000 FEET OF PIPE OR UPWARDS.

Its advantages are set forth in our CATALOGUE, which will be forwarded on application to
DENNIS AND SCRUBY,
HORTICULTURAL ENGINEERS, PATENTEES, AND GENERAL HORTICULTURAL BUILDERS IN WOOD OR IRON.
POSTAL ADDRESS—ANCHOR WORKS, CHELMSFORD. LONDON OFFICE—6, SLOANE STREET, S.W.

HOTHOUSES for the MILLION, CHEAP, SUBSTANTIAL, and EASILY FIXED.
INVENTED AND PATENTED BY THE LATE SIR JOSEPH PAXTON.
Illustrated Circulars, with full particulars, sizes, and prices free on application to
HERRMAN & MORTON, 7, Pall Mall East, London, S.W.

W. H. LASCELLES' MACHINE-MADE MELON LIGHTS.



	Each
6 ft. by 4 ft. Lights, 2 ins. thick, unglazed	£0 6 0
" " Primed and Glazed with 16 oz. Sheet	0 11 0
" " with stout Portable Box, not Painted	1 3 0
" " Painted four coats, and Handles on	1 8 0
" " Packed and Delivered in Railway Van	1 10 0
6 ft. by 8 ft., Double Lights, do.	2 15 0

GREENHOUSES. Per ft. super.

Woodwork only Prepared and Fitted	0 0 6
" Primed and Glazed with 16 oz. Sheet	0 0 9
" Delivered, and Fixed with Ironwork	0 1 0
" Painted four coats, two sides, ready for use	0 1 3

Finsbury Steam Joinery Works, 121, Bunhill Row, E.C.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—
GLASS for ORCHARD HOUSES,
As supplied by them to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.
Each Box contains 100 feet. The prices only apply to the sizes stated.
Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.

	16 oz. to the foot.	21 oz.
Fourth quality	15s. 0d.	19s. 6d.
Third ditto	17s. 0d.	22s. 6d.
Seconds	18s. 0d.	23s. 0d.
English	20s. 0d.	27s. 0d.

The above prices include the boxes, which are not returnable.
HORTICULTURAL GLASS.
Stock sizes, 16-oz., in 100 feet boxes, boxes included.
These prices only apply to the sizes stated.

				4ths.	3rds.	2nd.
				s. d.	s. d.	s. d.
11 by 9	12 by 9	13 by 9	14 by 9	13 6	15 6	17 0
12 " 10	13 " 10	14 " 10	15 " 10			
13 " 11	14 " 11	..	..			
14 " 12	15 " 12	15 " 11	16 " 11			
18 " 12	19 " 12	16 " 12	17 " 12			
16 " 13	17 " 13	20 " 12	..			
16 " 14	20 " 13	18 " 13	..	15 0	17 0	18 6
	17 " 14	18 " 14	..	16 to 17 oz. to the foot.		
	20 " 14					

SMALL SHEET SQUARES.
In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	12s. 0d.
8 by 6	8½ by 6½	9 by 7	9½ by 7½	
		10 by 8	10½ by 8½	13s. 0d.

Boxes 2s. each returnable at full price.
Painted and Glazed with 16-oz. Sheet Glass.
London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS.
PAINTS of various colours ground ready for use.
SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of Prices and Estimates forwarded on application to
JAMES PHILLIPS & Co., 180, Bishopsgate Street Without, E.C.

Horticultural Glass Warehouse.
THOMAS MILLINGTON AND CO., 87, Bishopsgate Street Without, London, E.C.
NEW LIST for ORCHARD-HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.
ORCHARD-HOUSE SIZES.

in. in.		4ths.	3rds.	2nds.	Best.
20 by 12					
20 by 13					
20 by 14	Per 100 feet	15 oz.	14s 3d	15s 6d	18s 6d	20s 0d
20 by 15					
20 by 16		21 oz.	19s 6d	22s 2d	25s 6d	26s 6d

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5		8 by 6		9 by 7			12s 3d	13s 3d	16s 0d	18s 0d
6½ by 4½	7½ by 5½		8½ by 6½		9½ by 7½						
Per 100 feet.											
10 by 8	12 by 9		12½ by 10½		14½ by 10½			13s 3d	14s 6d	17s 3d	19s 0d
10½ by 8½	12½ by 9½		13 by 10		15 by 10						
11 by 9	13 by 9		13½ by 10½		13 by 11						
11½ by 9½	12 by 10		14 by 10		14 by 11						

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best
15½ by 10½	14 by 12		22 by 12	22 by 16					
16 by 10	14½ by 12½		17 by 13	24 by 16					
14½ by 11½	15 by 12		23 by 13	20 by 17					
15 by 11	15½ by 12½		18 by 14	22 by 17		14s 3d	15s 6d	18s 6d	20s 0d
15½ by 11½	16 by 12		22 by 14	24 by 17					
16 by 11	16½ by 12½		24 by 14	20 by 18					
21 by 11	17 by 12		22 by 15	22 by 18					
13 by 12	18 by 12		24 by 15	24 by 18					

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.
SHEET GLASS.
In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	36s.	4ths quality, per 200 feet case,	36s.
3ds " "	42s.	3ds " "	42s.
2ds " "	60s.	2ds " "	60s
Best " "	76s.	Best " "	76s.

SHEET GLASS is made only in the following substances, 15 oz., 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.
HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.
BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.
PAINTS, COLOURS, VARNISHES, &c.
STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.
WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a-half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.
IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4s. per gallon.

Per cwt.—s. d.		Per gallon.—s. d.	
GENUINE WHITE LEAD	30 0	LINSEED OIL	2 10
SECONDS WHITE LEAD	28 0	BOILED OIL	3 2
GROUND PATENT DRYERS, 3d. to 4½d. per lb.		TURPENTINE	2 7
" OXFORD OCHRE, 3d. to 4½d. per lb.		LINSEED OIL PUTTY, 8s. per cwt.	
" RAW UMBER, 4½d. to 6d. per lb. (per lb.		Fine OAK VARNISH, 10s. to 12	0
" BURNT do., 6d. to 9d.		" CARRIAGE do., 12s. to 14	0
GREEN PAINT, all shades, 28s. to 60	0	" PAPER do. 10s. to 12	0
BLACK PAINT, 24s. to 36	0	" COPAL	16 0
RED PAINT .. 28s. to 36	0	KNOTTING	10 0
		Patent GOLD SIZE ..	10 0
		" BLACK JAPAN ..	12 0
GROUND BRUSHES.		GLAZIER'S DIAMONDS and TOOLS	
DUSTERS. | SASH TOOLS.		MILLED LEAD and PIPES	
DISTEMPER BRUSHES.		OLD LEAD Bought or taken in exchange.	

The above are Net, for Cash, and as such cannot be booked.
Lists of any of the above on application.

Redhill Street, Regent's Park, London, N.W.
MRS. BIRCH begs to inform the Nobility, Gentry, and the Public, that she is prepared to ERECT any style of GREENHOUSE or CONSERVATORY in any part of the Town or Country (her late husband having manufactured the Paxton Patent Hot-House for the last 20 years). She will erect plain Orchard Houses, Vineries, &c., with 21-oz. good sheet Glass, and any simple plan of Ventilation, at the low rate of from 1s. 7d. to 1s. 10d. per foot superficial (heating and brickwork not inclusive.) Apparatus for opening all the Ventilators at one time, from 7s. 6d. each set.
Plans and Estimates sent on application.

Indestructible Terra-Cotta Plant Markers.
MAW AND CO.'S PATENT.—Price 1s. Printed Patterns, and Specimens sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c. MAW & Co., Benthall Works, Broseley.

IRON HURDLES (Silver Medal of the Royal Agricultural Society):
SHEEP, 3s. 3d.; CATTLE, 4s. 2d.; OX, 5s. 11d.
List by post. GATES and FENCING of every description.
St. Pancras Iron Work Company, Old St. Pancras Road, London, N.W.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.
For particulars apply to JOHN FOWLER & Co., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

THE TANNED LEATHER COMPANY.
Arnsit Works, Greenfield, near Manchester.
TANNERS, CURRIERS, and MANUFACTURERS of IMPROVED TANNED LEATHER DRIVING STRAPS for MACHINERY PRIME STRAP and SOLE BUTTS.
Price Lists sent free by post
Warehouse: 81, Mark Lane, London, E.C.
"Every Cottage should be provided with a Water Tank." *Disraeli.*

Iron Cisterns.
F. BRABY AND CO. having laid down more extensive and Improved Machinery on their Deptford premises (IDA WHARF), are prepared to supply WROUGHT-IRON TANKS, GALVANISED or PAINTED, of superior quality, at reduced prices, and at very short notice.



An Illustrated Price List of Galvanised Iron, and other of BRABY'S special Manufactures, sent on application.
F. BRABY & Co., Limited, Fitzroy Works, Euston Road, London; or through all respectable Ironmongers.
N.B. Open Tanks of different sizes packed one in another to save carriage.



GARDEN BORDER EDGING TILES, in great variety of patterns and materials, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.
F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price List free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also TESSELATED PAVEMENTS of more enriched designs than the above.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cement, &c.
To be obtained of F. & G. ROSHER, at their premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—1s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.
FLINTS, BRICK BURRS or CLINKERS for Rockeries or Grotto Work. F. & G. ROSHER.—Addresses see above.
N.B. Orders promptly executed by Railway.

FOR SALE, a SMALL GAS APPARATUS, suitable for a Gentleman's Mansion, Hotel, or Public Institution, capable of supplying from 150 to 200 Lights. Price £70; is in good condition, and situate within two miles of a Railway Station, which is connected with all parts of England.
JOHN STRACHAN, Gas Engineer, Reading, Berks.

WOOD'S PATENT SELF-FEEDING CHANDELIER, for PARAFFIN and other MINERAL OILS.—This invention is a Chandelier of ornamental design, so arranged that any number of lights are supplied from one Reservoir. The advantages of this lamp over any yet introduced are:—1st, Entire freedom from smoke and smell. 2d, A brilliant and steady light, resulting from a regular supply of oil to the burner. 3d, Any number of lights can be supplied from the same reservoir, thus saving much trouble in filling, which is done without removing the burners. 4th, The arrangement does not interfere with the design of a handsomo Chandelier; and not requiring the unsightly reservoirs underneath, each burner is therefore shadowless. 5th, It is well adapted for lighting Private Residences, Halls, Public Buildings, Churches, Chapels, Schools, &c. For designs, particulars, and prices, apply to the Patentee, THOMAS WOOD, General Furnishing Ironmonger, Bridge Street, Chester.



GEORGE HALL, late Manager to the late Saynor's Firm. He was for 30 years in their employ.
GEORGE HALL AND SON'S CELEBRATED PRUNING and BUDDING KNIVES, SCISSORS, &c., may be obtained from the most respectable Nurserymen and Seed Merchants in the kingdom, also America, France, Germany, Holland, Prussia, Russia, &c.
N.B.—We only make one quality, the best that can be manufactured, the same as the late Saynors always made during their lifetime, with all the latest improvements.
CAUTION.—None are genuine unless marked "GEO. HALL & SON." Other marks would cause disappointment, as these blades are tempered by a process known only to the Makers.
Engravings of Patterns, with PRICE LISTS, gratis on application.
Horticultural Cutlery Works, Sheffield.

SHAW'S TIFFANY.
For Samples and Prices apply to
J. SHAW & Co., 20, Oxford Street, Manchester.

Protect your Plants from Frost.
ANDERSON'S TAGANROG MATS, No. 1, are the Heaviest, Best, and Cheapest for covering Garden Frames. Price 20s. per 100, or 3s. per bundle of 10.
ARCHANGEL PETERSBURG, and other MATS at low prices.
JAMES T. ANDERSON, 7, Commercial Street, Shoreditch, London, E.

F. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, and Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, Royal Gardens, Kew, &c.

The best Shading is "Frigi Domo" Netting,
White or Brown, made of prepared Hemp and Wood, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for
PROTECTION from the COLD WINDS and MORNING FROSTS.
"FRIGI DOMO" NETTING, 2 yards wide, 1s. 6d. per yard run.
"FRIGI DOMO" CANVAS.

Two yards wide	1s. 9d. per yard run.
Four yards wide	3s. 6d. per yard.
An improved make, 2 yards wide	1s. 9d. per yard.
An improved make, 3 yards wide	2s. 8d. per yard run.

Etc., as Thomas Archer, Whole and Sole Manufacturer, 7, Great Trinity Lane, Canton Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.

Caution to Gardeners.—When you ask for
SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the Corporate Mark, OBTAIN WARRANTED, without which none are genuine.
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.
S. & C.'S PRUNING and BUDDING KNIVES are the best and the cheapest in the market.
Paxton Works, Sheffield. Established upwards of 125 years.

To Florists, Nurserymen, and Others.
TO BE SOLD, at a great sacrifice, a newly-erected GREENHOUSE and GRAPERY, 100 feet long, 25 feet wide, and divided into four Compartments, with Furnace and Hot-water Pipes complete, on the most approved principle.
Apply to Mr. GROVES, Maybury Park Nursery, Woking, Surrey.

STRAWBERRY HOUSE for SALE.—That superior made Strawberry House, with its stages, known as INGRAM'S FRUITING STRAWBERRY HOUSE, exhibited at the Royal Horticultural Society's Gardens, South Kensington. This house cost £60, and is made in the best possible manner. Alterations about to take place require its removal. Will be sold for about one-half its value.—Apply to
J. WEEKS & Co., Horticultural Builders, King's Road, Chelsea, S.W

Eligible Opening for Nurserymen and Seedsmen.
FOR SALE, the GOOD-WILL of the BUSINESS of NURSERYMEN and SEEDSMEN, hitherto carried on by Messrs. GUNN & PETRIE, Inverness, with the whole STOCK in their NURSERY, Ness Walk, Inverness, and in their SHOP in Bridge Street, Inverness.
The Nursery Grounds are in excellent order, and fully stocked with every variety of Tree and Plant suitable for the Trade. The extent of the grounds is 10½ Acres, the Rent £61 sterling per annum, and there are 14 years of the Lease to run from Martinmas, 1868.
The Shop is conveniently situated, and is well stocked with Seeds and Garden Implements of all varieties.
Offers will be received by Mr. D. G. Ross, Merchant, Dingwall, Trustee on the Sequestrated Estate of Messrs. Gunn & Petrie, up till 1st February next, and Lists of the Stock may be seen by intending Offerers with Mr. JOHN CHISHOLM, 106, Church Street, Inverness, who will show the Nursery and the Stock in the Shop, and give any further information that may be required.
So favourable an opportunity for a man with a practical knowledge of the Business, and who can command a Capital of from £1000 to £1500, is rarely offered.—Inverness, 26th December, 1868.

Sales by Auction.

To the Trade.
31,000 LILIUM AURATUM, JUST ARRIVED FROM JAPAN.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, January 12, at half-past 12 o'Clock precisely, 31,000 fine BULBS of LILIUM AURATUM, just arrived from Japan, in lots from 20 to 200 bulbs in each.
On view the Morning of Sale, and Catalogues had.

Roses and Fruit Trees from France, Bulbs from Holland, &c.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, January 13, at half-past 12 o'Clock precisely, 800 Standard and Dwarf ROSES from France, FRUIT TREES, RHODODENDRONS, Climbing ROSES, HARDY AZALEAS, HONEYSUCKLES, FLOWERING SHRUBS, GLADIOLI for Spring Planting, &c.
On view the Morning of Sale, and Catalogues had.

To Nurserymen and Others.
MR. WILLIAM SHADFORTH, AUCTIONEER, will SELL by AUCTION, at the house of Mrs. Brown, Three Tuns Hotel, New Elvet, Durham, on TUESDAY, January 12, 1869, at 2 for 3 o'Clock in the Afternoon, all that Large and Commodious DWELLING HOUSE and SHOP, with about 2 Acres of productive Grounds, and the Greenhouses and Propagating Houses thereon, situate on the south side of Gilesgate, in the city of Durham, as lately occupied by Mr. James Anderson, deceased, together with the Shop Fixtures and Fittings, and the entire Stock of Plants, Ornamental Trees, Shrubs, Fruit and Forest Trees, &c.
A lucrative Business has hitherto been carried on in the above Premises, which are well adapted for the purposes of a Nurseryman.
The Grounds, which command one of the finest views in the neighbourhood, also afford a good opportunity for the erection of several first-class Villa Residences.
The Property will be offered in one Lot, the Purchaser to have the opportunity of taking the Plants, Trees, Shrubs, &c., at a valuation; but if not sold, the Property will be put up in such other Lots as may then be agreed upon.
Persons applying on the Premises will be allowed to view the same, and further particulars may be had on application to the Auctioneer, North Road, Durham; Mr. WM. FLEMING, Land Agent, Tudhoe; or at the Offices of WILLIAM MARSHALL, 10, Market Place, Durham.
Durham, December 16, 1868.

Didmarton, near Chippenham.
IMPORTANT SALE of SHORTHORNED CATTLE.
MR. STRAFFORD begs to announce that he has received instructions to SELL by AUCTION, without reserve, on TUESDAY, March 23 next, at Didmarton, the remaining portion of the extensive and valuable HERD of first-class SHORTHORNS, belonging to Stiles Rich, Esq. (who is retiring from farming), which have been long and carefully bred chiefly from Cows obtained of the late Earl Ducie, at Tortworth Court, since which have been used Bulls of the famed Kirklevington blood; most of the young stock are by the 7th Duke of York (17,754), 13th Grand Duke (21,850), 2d Duke of Claro (21,576), and 2d Duke of Collingham (23,730); this splendid young Bull will be included in the Sale, and is the one by which the Cows and Heifers are chiefly served. Mr. STRAFFORD having seen the Herd, can with confidence invite the attention of Shorthorn breeders, assuring them that they will find in it a combination of symmetry, quality, and good breeding.
Catalogues, with Pedigrees and other particulars, will be issued in due time, and announced in future Advertisements.
London: 13, Euston Square, January 4, 1869.

ALLAMANDA WARDLEIANA.

Good Plants of this splendid Allamanda, 21s. each; a few Larger, 31s. 6d. & 42s. each.

N.B.—Our ALLAMANDA WARDLEIANA, *alias* HENDERSONI, True, is the same variety that has been shown under these names at the London Exhibitions. In No. 43 of the *Gardeners' Chronicle*, page 1117 (1868), this Allamanda is very ably described by Mr. Leach, who obtained his Plant from us.

T. JACKSON AND SON, NURSERIES, KINGSTON, S.W.

NEW GOLDEN QUEEN MELON.

THE FINEST MELON IN CULTIVATION.

The Raiser of this valuable Melon having saved his entire Stock for S. & M., and having been grown in a frame by itself with no other variety near, it may be relied on as GENUINE.

Price per packet, 2s.

STUART AND MEIN, SEEDSMEN, KELSO, N.B.

List of Firms who have received a supply of the above from S. & M. will be published shortly.

NEW TRIPLE CURLED VARIEGATED PERENNIAL BORECOLE.

As exhibited by Mr. MELVILE at the Royal Horticultural Society's Meeting on the 15th December, 1868; see *Gardeners' Chronicle*, page 1317 (1868).

INVALUABLE AS A WINTER DECORATIVE PLANT.

S. & M. having received the whole Stock of the above from the Raiser, are now sending it out in

Sealed packets, 2s. 6d. each.

STUART AND MEIN, SEEDSMEN, KELSO, N.B.

List of Firms who have received a supply of the above from S. & M. will be published shortly.

PAUL & SON,

THE "OLD" NURSERIES, CHESHUNT, HERTFORDSHIRE,

HAVE NOW READY, AND WILL SEND POST FREE,

NEW DESCRIPTIVE CATALOGUE of GARDEN and FARM SEEDS.

Each article is individually priced. By a careful and practical selection not more kinds are given than varieties of soil or situation render necessary. Growth of all Seeds is tested; and the well-known first-rate quality of their Seeds, as supplied to the leading Hertfordshire and Essex Gardens, induces MESSRS. PAUL AND SON to hope for a large extension of this branch of their Business.

PAUL AND SON can strongly recommend their own home saved varieties of VEGETABLE SEEDS:—Pauls' Superb BEET, Snow's Winter White BROCCOLI, Improved TELEGRAPH CUCUMBER, Selected SPANISH ONION, Pauls' Hardy Broad-leaved ENDIVE.

Of FLOWER SEEDS:—Paul & Son's HOLLYHOCKS, 12 varieties, as name, *5s.*; PRIMULA, finest Pyramidal variety; CINERARIAS; CALCEOLARIAS, from James' varieties. For Prices and Descriptions see List.

GLADIOLI, except the novelties home-grown, at very reasonable prices.

B. S. WILLIAMS'

NEW GENERAL PRICED SEED CATALOGUE for 1869,

Is now ready, and will be forwarded Post Free to all customers and applicants.

It contains Lists of all New Flower Seeds of merit, Choice Strains of Florists' Flowers, imported Flower Seeds in collections, the most useful Annuals, Biennials, and Perennials for Spring and Summer Flowering; carefully selected Descriptive List of approved Varieties of each kind of Vegetable Seed, with a few Practical Hints as to Culture; also an Appendix containing Gladioli and other Summer and Autumn-flowering Bulbs; Knives, Horticultural Implements, Horticultural Manures, Insect-destroying Composition, and every article likely to be required in the Garden.

A perusal is respectfully solicited; every article is priced, and purchasers may depend on the Seeds being true to name, and everything of the best quality. Exaggerated descriptions are carefully avoided.

All Orders of more than £1 in value sent Carriage Free.

VICTORIA and PARADISE NURSERY, UPPER HOLLOWAY, LONDON, N.

STOCKS, STOCKS, STOCKS.

B. S. WILLIAMS

HAS MUCH PLEASURE IN OFFERING CAREFULLY SELECTED

SEED OF THE SUPERB EAST LOTHIAN INTERMEDIATE STOCK,

Feeling sure, from personal observations of several years, that it is without question the finest strain of Intermediate Stock extant.

The colours are Purple, Scarlet, and White. The two first are remarkably brilliant, and the latter very pure. They produce immense branched spikes of large double flowers, and are admirably adapted for ribbon borders and general bedding purposes; indeed, the effect which can be produced by these three varieties in both spring and autumn gardening is not surpassed by any of the now popular plants. If sown early in March, and transplanted in May to their blooming places, the amount of double flowers produced, and the grand display they make, is truly surprising. For either flower gardening or pot culture they are unapproachable, and cannot be too strongly recommended.

An assortment of three colours (Scarlet, Purple, and White), 2s. 6d.

B. S. WILLIAMS, VICTORIA and PARADISE NURSERY, UPPER HOLLOWAY, N.

TRICOLOR PELARGONIUMS.

LADY CULLUM, 21s. per doz.	ITALIA UNITA, 5s. p. doz
SOPHIA DUMARESQUE, 13s. p. doz.	PICTURATA, 6s. per doz.
SUNSET, 6s. per dozen.	MRS. BENYON, 6s. per doz.

In strong plants, at the above prices, for cash, package included

ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

VARIEGATED PELARGONIUMS.

Lucy Grieve	Lady Cullum	E. G. Henderson
Queen of Tricolors	St. Cloud	Beauty of Calderdale
Sophia Dumaresque	Rosette	Picturata
Duke of Edinburgh	Neatness	Sophia Cusack

The above for 21s. If any of the kinds are not required, others of equal value can be substituted. Remittances requested from unknown Correspondents.

Address, ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

MESSRS. WAITE, BURNELL, HUGGINS, AND CO., have reason to believe that, owing to the late irregularities of the Post Office, many of their WHOLESALE SEED CATALOGUES for 1869, posted last month, have not been delivered. They therefore take this opportunity to request any of their Customers who may not have received a Catalogue, to apply for the same to them at their Seed Warehouse, Southwark Street, London, S.E.

Choice Scarlet Rhododendrons.

JOHN WATERER begs to announce that his CATALOGUE of HARDY, SCARLET, and other RHODODENDRONS, as annually exhibited at the Royal Botanic Gardens, Regent's Park, is now published, and will be forwarded to all applicants. It contains faithful descriptions of all the popular kinds, and likewise a SELECT LIST of CONIFERS, with heights and prices.

The American Nursery, Bagshot, Surrey.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his NEW GENERAL CATALOGUE of 92 Pages, containing SELECT, DESCRIPTIVE, and PRICED LISTS, of New and Rare Stove, Greenhouse, and Hardy Plants, Hardy Bedding Plants, &c.; Alpine and Herbaceous Plants, Aquatics, Azalea indica, Conifers, Exotic Orchids, Ferns, &c., Hardy, Greenhouse, and Stove; Grapes; Miscellaneous Stove, Greenhouse, and Hardy Plants; Ornamental Palms, Cycads, &c.; Rhododendrons, Roses, Sweet Violets, Hyacinths, Tulips, Gladioli, and other Bulbs, is now published, and will be forwarded free to applicants on receipt of six postage stamps.

Exotic Nursery, Tooting, Surrey, S.W.

Genuine and First-class Seeds, Carriage Free.

WM. PAUL begs to announce that his NEW CATALOGUE of SELECT VEGETABLE and FLOWER SEEDS is just published, and will be forwarded free by post on application.

He has made enlarged arrangements, by which he believes he will be able to secure for his Customers, as usual, the best races of VEGETABLE and FLOWER SEEDS, of good germinating qualities, free from adulteration. For further particulars, see large Advertisement of last week.

Important.—All letters should be addressed WM. PAUL, Waltham Cross, London, N.

GOLDEN COLEUS, QUEEN VICTORIA.—"This is the brightest in colour of the whole series, having the centre of the leaves of a rich bronzy bright crimson, delicately shot with pale violet, with a bright yellow edge, somewhat broken with crimson veinings, so as to appear as if the borders were formed of a double row of golden beads." (See Catalogue.)

Messrs. JOHN & CHARLES LEE were the fortunate purchasers of this, the most splendid of all Coleuses, at the recent sale by Mr. Stevens of the Royal Horticultural Society's new Collection. A figure of Queen Victoria will shortly appear in the "Florist." Orders are being booked for delivery early in Spring. Price *7s. 6d.* Special offer to the Trade on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

Standard Roses, and Dwarf Maiden Peaches and Nectarines.

STANDARD ROSES, best leading sorts, *70s.* per 100.
DWARF MAIDEN PEACHES and NECTARINES, leading sorts, *60s.* per 100.
STANDARD PORTUGAL LAURELS, 30s. per doz.

EDWARD PIERCE, Yeovil Nursery, Somerset.

Roses.

JOHN CRANSTON will be happy to forward on application his DESCRIPTIVE CATALOGUE of ROSES for 1868 and 1869. For quality or quantity the stock is unsurpassed; the Maretti Roses especially are acknowledged to be the finest grown plants in the Trade.

Nurseries, King's Acre, near Hereford.

Roses (Trade Prices).

LÉVÊQUE ET FILS, NURSERYMEN, 132 and 134, Boulevard de l'Hôpital, Paris, beg to offer—

TEA ROSES, on their own roots, grown in pots:—Mdme. Falcot, Canari, Safrano, Homère, Souvenir d'un Ami, Pactole, Pauline Labonté, and many others. Good sorts, 48s. per 100.
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DWARFS, Hybrid Perpetual, all good sorts, strong plants; our choice, 40s. per 100; £9 per 500.
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NEW SORTS, from the Autumn, 1867.—50 sorts, grafted on Manetti, grown in pots, 10s. per dozen, or £2 for the selection.
NEW SORTS, from 1868. List and prices on application.
CATALOGUE of ROSES and GLADIOLI sent on pre-paid application.

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CONIFERÆ, 25 choice sorts, 2 to 3 feet high, in fine condition	40	0
18 choice do.	28	0
25 choice do., larger size	70	0
18 choice do. do.	50	0
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PYRAMIDAL APPLES and PEARS, finest vars. per doz.	12	0
,, do., extra splendid, large fruiting trees, each 3s. to	5	0
GRAPES, from eyes, strong canes in pots each 2s. 6d. to	3	0
STRAWBERRIES, Bradley's Dr Hogg per 100	10	0
,, Underwood's Lady ,,	10	0
,, other fine and popular sorts—per 100, 3s. to	5	0
RHUBARB, Salt's Crimson Perfection per doz	10	0
,, Royal Albert ,,	6	0
POLYANTHUS, Gold Chain ,,	8	0
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PINKS, in eight fine vars., for	7	0
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DWARF ROCK CISTUS, 20 beautiful varieties for	10	0
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PÆONY, CHINESE, 12 finest varieties	9	0
PÆONY, CHINESE, FRAGRANS ALBA, fine large showy white flowers	9	0
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NURSERY, HERBACEOUS, and BULB CATALOGUES free on application.

STEPHEN BROWN, Sudbury Nursery, Sudbury, Suffolk.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 3.—1869.] SATURDAY, JANUARY 16. {Price Fivepence. (Stamped Edition, 6d.

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THE GARDENERS' CHRONICLE and AGRICULTURAL GAZETTE of this day contains the second of a series of Articles, to be continued Fortnightly, on BOTANICAL DRAWING, with Woodcuts from Drawings by W. H. Fitch, Esq. Order of any Newsvendor, or a Copy sent from the Office for Six Stamps. 41, Wellington Street, Strand, W.C.

ELEVENTH YEAR of the GRAND YORKSHIRE GALA, YORK.—JUNE 16, 17, and 18. FLORAL FETE. PRIZES nearly FOUR HUNDRED POUNDS. Schedules may be had on application to JNO. WILSON, Secretary, 13, New Street, York.

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J. MEREDITH is now prepared to execute orders for this fine Grape. CANES, fit for immediate planting, from 10s. 6d. upwards.
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By the Dozen, Hundred, or Thousand.

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EDWARD HOLMES, Whittington Nursery, Lichfield, begs to offer to the Trade 1-year Seedling SCARLET OAK. Price (very low) on application.

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To the Trade.

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To the Trade.

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Free by post.
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FIRST QUALITY.

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SEED POTATOS.—Early Ashleaf, 6s. 6d. per bushel 56 lb.; Rivers' Royal, 6s. per bushel; Milky White, 7s. 6d. per bushel. Cash prices. All sound and true to name. Bags and sacks charged cost price. Apply to
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PELARGONIUMS, in 50 choice named sorts, Show, French and Fancy, 2-yr. old, strong, stocky plants, clean and healthy.
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Prices of the above, per dozen or hundred, from
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LADY CULLUM, 21s. per doz.	ITALIA UNITA, 5s. p. doz.
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In strong plants, at the above prices, for cash, package included
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The above for 21s. If any of the kinds are not required, others of equal value can be substituted. Remittances requested from unknown Correspondents.
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Cheap, Cheap, Cheap.

TRICOLOR and other PELARGONIUMS.

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LADY CULLUM	£0 18 0
SOPHIA DUMARESQUE	0 12 0
ITALIA UNITA	0 4 0
CRYSTAL PALACE GEM	0 4 0
LORD DERBY	0 6 0
MRS. POLLOCK (per 100)	1 8 0

In strong plants, for cash, package included.
JOHN BARRATT, St. John Nursery, Bury St. Edmund's, Suffolk.

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Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

Bedding-out and Hardy Climbers.
JACKMAN'S HARDY HYBRID CLEMATISES,
AWARDED TWENTY FIRST-CLASS CERTIFICATES AND TWO SPECIALS.

GEORGE JACKMAN AND SON are desirous of drawing the attention of those who intend using their Clematises for a permanent bedding plant, &c., to the fact that the present time is most favourable for planting.

OPINIONS OF THE PRESS.

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An ENGRAVING from a Photograph, showing the flowering qualities, and a GENERAL CATALOGUE of PRICES, will be forwarded gratis by enclosing a stamp.
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RHODODENDRONS by the doz., 100, 1,000 or 10,000.

	Doz.	Per 100	Per 1000
	s. d.	£ s. d.	£ s. d.
RHODODENDRON PONTICUM, fine bushy plants, well rooted .. 9 to 15 inches	3 0	0 15 0	7 0 0
" " " " " 1 to 1½ foot	4 0	1 0 0	9 10 0
" " " " " 15 to 20 inches	4 6	1 2 6	11 0 0
" " " " " 1½ to 2 feet	5 0	1 5 0	12 0 0
" HYBRIDUM, bushy plants, 9 to 15 inches	4 0	1 5 0	..
" " " " 1 to 1½ foot,	5 0	1 10 0	..
" " " " 1½ to 2 feet	6 0	2 0 0	..
" MAXIMUM ALBUM " 1 to 1½ foot	4 0	1 5 0	12 0 0
" " " " 15 to 20 inches	5 0	1 10 0	14 0 0
" " " " 1½ to 2 feet	6 0	2 0 0	..
The above sorts selected in bloom bud 2s. doz. ex.			
" HIRSUTUM, dwarf Alpine, nice bushy plants	3 0	0 15 0	7 0 0
120 named varieties, 1, 2, and 3 year, from grafts, 1s. 6d. to 3s. 6d. each.			
Hardy HEATHS, 10 varieties, nice plants, by the dozen, 100, or 1000, very cheap. See Catalogue.			
ARBOR-VITÆ, American, fine bushy well-rooted plants, fine for single plants or hedges .. .. 1½ to 2 feet	2 0	0 12 0	..
" " " " " 2 to 2½ feet	2 6	0 15 0	..
" " " " " 2½ to 3½ feet	3 0	0 16 0	..
" " " " " 3½ to 4½ feet	4 6	1 5 0	..
" " " " " 4 to 5 feet	5 0	1 10 0	..
" " " " " 5 to 6 feet	10 0	..	..
Double WHIN, FURZE or GORSE, good plants, extra transplanted 1 to 1½ foot	3 0	0 12 0	..
" " " " 15 to 20 inches	4 0	0 15 0	..
" " " " nice plants in pots	4 0	1 0 0	..
COTONEASTER MICROPHYLLA, nice bushy plants .. .. .. 1 to 1½ foot	..	0 12 0	5 0 0
" " " " " 1½ to 2 feet	..	0 15 0	..

PRICED CATALOGUES and any information may be had on application to
JAMES SMITH, Darley Dale Nurseries, near Matlock.

Vegetable, Agricultural, and Flower Seeds.
MISCELLANEOUS HARDY BEDDING PLANTS, SWEET VIOLETS, &c.

ROBERT PARKER begs to announce that his CATALOGUE, containing DESCRIPTIVE LISTS of the finest kinds in cultivation of the above-named, is now published, and will be forwarded to applicants. The stocks of Seeds have all been procured from the best possible sources; all are warranted genuine, and are offered at the lowest possible prices.
Intending purchasers are requested to compare the prices with those of other houses.
Exotic Nursery, Tooting, Surrey, S.W.

PTYCHOSPERMA ALEXANDRÆ—the new "Alexandra Palm" of Western Australia. Of this quite newly discovered and lovely Palm the following notice appears in the *Queensland Guardian*:—We have now to notice the discovery of a very beautiful new species of the Palm family growing a short distance from the town of Rockhampton, sent by Mr. E. M. Bowman to Dr. Mueller, Director of the Botanic Gardens at Melbourne, who has described it in the last Number of his 'Fragmenta Phytographiæ Australiæ,' and named it after the Princess of Wales 'Ptychosperma Alexandræ—the Alexandra Palm.' This tree is one of the most beautiful of the Palms found in Australia, and one which is well worthy of a place in the gardens of our own country, and the conditions of similar climates." This most welcome discovery being among the Feather Palms, and requiring heat, as other kinds, will probably become a universal favourite, now that seeds have been safely imported.
HOOPER & Co. have just received a good supply of the Nuts from Queensland direct, which they offer at the following prices, viz., three for 2s. 6d., each for 1s., twenty for 10s.
Messrs. Hooper & Co. have also received along with the above a parcel of Seeds of a perfectly new species of Queensland PALM, as yet unnamed. It is supposed to be quite hardy, and will be equally hardy with the Chusan Palm, and offered at the same price as the above.
Also fine fresh Seeds of Cocos, &c., other Choice PALMS, viz.:—ARECA MADAGASCARIENSIS (the Fibre Palm), very superb; SEAFORTHIA ELEGANS, most graceful; OREODOXA OLERACEA (the Cabbage Palm), strong, from the youngest state. Seeds are fresh and true to name, and offered at the same price throughout, viz., three for 2s. 6d., each for 1s., twenty for 10s.
Liberal offers to the Trade on application.
HOOPER & Co., Seed Merchants, Covent Garden, London, W.C.

NEW HYBRID PASSION FLOWERS.

PASSIFLORA MUNROI, and PASSIFLORA LAWSONIANA

(Fully noticed and described in the *Gardeners' Chronicle* of December 12, 1868, p. 1288).

PETER LAWSON & SON

Intend to send out the above-named charming Climbers, *for the first time*, early next May; and are now prepared to book orders for

Plants at 21s. each, with the usual discount to the Trade.

EDINBURGH AND LONDON.—January, 1869.

TACSONIA ERIANTHA

(WOOLLY-FLOWERED TACSONIA).

A noble plant, resembling in habit and colour of flower the well-known T. mollissima, from which, however, it differs conspicuously in the white under-surface of the foliage and long bracts. As a Greenhouse or Conservatory Climber, it rivals the T. mollissima, and is as free a flowerer. (*Vide* "Curtis's Botanical Magazine" for January, Tab. 5750.)
PETER LAWSON AND SON have been fortunate in acquiring the Stock of this splendid Climber from Isaac Anderson Henry, Esq., F.L.H., and intend to send it out simultaneously with their new Passifloras.

Orders for Plants will now be booked at 21s. each. Trade allowance as usual.

EDINBURGH AND LONDON.—January, 1869.

GENUINE SEEDS OF SUPERIOR STOCKS.

SEEDSMEN TO THE QUEEN.

FRANCIS & ARTHUR DICKSON & SONS,

THE "OLD" ESTABLISHED SEED WAREHOUSE, 106, EASTGATE STREET, CHESTER.

THE BEST EARLY PEA IN CULTIVATION,
DICKSON'S "FIRST AND BEST," price 1s. 6d. per quart.

CATALOGUE OF NEW AND SELECT VEGETABLE AND FLOWER SEEDS, POTATOS, &c., FOR 1869,

With practical Cultural Directions, will be sent Post Free on application.

Their Seeds are all of the most select character, each being saved from the best Stock known of its kind.
GARDEN SEEDS of £2 value delivered Carriage Free. FLOWER SEEDS Free by Post or Rail.

NEW HYBRIDISED COLEUS SEED, &c.

Seed of the above obtained by cross hybridisation from the finest varieties of 1868,
6s. per dozen seeds.

Pyrethrum Golden Feather.
The finest golden-leaved bedding plant offered in seed, from which it comes perfectly true; more even in growth, and less liable to form flower buds.
1s. and 2s. 6d. per packet.

Pelargoniums.
TRICOLOR-LEAVED, GOLDEN-BRONZE ZONED } Choice varieties
2s. 6d. per packet.

Lobelia Queen Victoria.
Finest tall variety for effective bed.
6d. and 1s. per packet.

Centaurea ragusina compacta.
The finest variety for bedding purposes, as the dwarfest, most compact, and most effective pure white leaved plant in the whole group. Vigorous seedling plants.
60s. per 100.
Special prices for larger quantities.

Verbena Sir Robert Napier.
The best bedding Verbena of its colour; bright crimson scarlet, with superior habit, form and truss combined. See further features in the autumn Catalogue. Vigorous young plants for growing stock.

Golden-leaved Bedding Geraniums.
MISS BEATRICE, bronze zoned, BEAUTY of RIVERDALE, " } First-class kinds or effect.

VEGETABLE SEED LIST sent on application.
The same List, with the Descriptive Flower Seed Catalogue, by the middle of January.

E. G. HENDERSON AND SON, WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON.

STOCKS, STOCKS, STOCKS.

B. S. WILLIAMS

HAS MUCH PLEASURE IN OFFERING CAREFULLY SELECTED

SEED OF THE SUPERB EAST LOTHIAN INTERMEDIATE STOCK,

Feeling sure, from personal observations of several years, that it is without question the finest strain of Intermediate Stock extant.

The colours are Purple, Scarlet, and White. The two first are remarkably brilliant, and the latter very pure. They produce immense branched spikes of large double flowers, and are admirably adapted for ribbon borders and general bedding purposes; indeed, the effect which can be produced by these three varieties in both spring and autumn gardening is not surpassed by any of the now popular plants. If sown early in March, and transplanted in May to their blooming places, the amount of double flowers produced, and the grand display they make, is truly surprising. For either flower gardening or pot culture they are unapproachable, and cannot be too strongly recommended.

An assortment of three colours (Scarlet, Purple, and White), 2s. 6d.

B. S. WILLIAMS, VICTORIA and PARADISE NURSERY, UPPER HOLLOWAY, N.

NEW GOLDEN QUEEN MELON.

THE FINEST MELON IN CULTIVATION.

The Raiser of this valuable Melon having saved his entire Stock for S. & M., and having been grown in a frame by itself with no other variety near, it may be relied on as GENUINE.

Price per packet, 2s.

STUART AND MEIN, SEEDSMEN, KELSO, N.B.

List of Firms who have received a supply of the above from S. & M. will be published shortly.

B. S. WILLIAMS'

NEW GENERAL PRICED SEED CATALOGUE for 1869,

Is now ready, and will be forwarded Post Free to all customers and applicants.

It contains Lists of all New Flower Seeds of merit, Choice Strains of Florists' Flowers, imported Flower Seeds in collections, the most useful Annuals, Biennials, and Perennials for Spring and Summer Flowering; carefully selected Descriptive List of approved Varieties of each kind of Vegetable Seed, with a few Practical Hints as to Culture; also an Appendix containing Gladioli and other Summer and Autumn-flowering Bulbs; Knives, Horticultural Implements, Horticultural Manures, Insect-destroying Composition, and every article likely to be required in the Garden.

A perusal is respectfully solicited; every article is priced, and purchasers may depend on the Seeds being true to name, and everything of the best quality. Exaggerated descriptions are carefully avoided.

All Orders of more than £1 in value sent Carriage Free.

VICTORIA and PARADISE NURSERY, UPPER HOLLOWAY, LONDON, N.

CAREFULLY SAVED GARDEN SEEDS.

ARTHUR HENDERSON & CO.'S

CATALOGUE of choice VEGETABLE and FLOWER SEED NOVELTIES

Is now Published, and can be forwarded Post Free on application.

The VEGETABLE SEED SECTION contains—

Selected LISTS of the best varieties of each kind most worthy of cultivation, also some excellent new sorts of both VEGETABLE and FLOWER SEEDS of sterling merit; attention is also directed to the Pine-apple Compact-top BEET (the finest and richest flavoured variety extant), carefully saved, true from the original stock. Also the new DWARF WATERLOO BEET: top leaves rich metallic crimson; growth true, even, and regular. This beautiful foliaged variety may with advantage be cultivated in the flower garden as a border, ribbon, or edging plant; its root is a trifle larger than the Pine-apple Compact-top, flavour excellent, full of sweet saccharine juice, colour crimson, texture tender and uniform throughout.

The FLOWER SEED SECTION contains—

Imported GERMAN FLOWER SEEDS in Collections; Choice Strains of FLORISTS' FLOWER SEEDS; a careful LIST of FLOWER SEED NOVELTIES of the season; HORTICULTURAL REQUISITES of every kind, KNIVES, PROTECTING MATERIALS, HORTICULTURAL MANURES, &c., &c.

N.B. Everything in this CATALOGUE is Priced.

PINE APPLE PLACE, MAIDA VALE, LONDON, W.

All Seeds Carriage Free.

BARR & SUGDEN'S

(12, KING STREET, COVENT GARDEN, LONDON, W.C.)

NEW SEEDS READY TO SEND OUT.

NEW DESCRIPTIVE SPRING CATALOGUE of CHOICE SEEDS ready, and may be had free by intending purchasers. The Catalogue embraces every Novelty and Speciality in Flower and Vegetable Seeds worthy of notice, with a Special List of nearly 400 sorts of ALPINE and HERBACEOUS PERENNIALS, which have been saved from one of the most choice Collections in Europe; and the most extensive LIST of GLADIOLI offered, embracing all the new kinds. Also (offered for the first time in this country) a SPECIAL LIST of NEW TABLE MAIZE, the most highly esteemed varieties of those cultivated by our American Cousins, who use the green cobs as one of their most popular Vegetables: and as, in this country, they will come into use when the supply of Green Peas is becoming short, they will be found an agreeable substitute for these. The late Judge Haliburton (Sam Slick), when residing at Isleworth, used this Vegetable when in season daily. The Rev. T. C. Bréhaut, of Guernsey (Her Majesty's Commissioner at the Paris Exhibition of 1867 to report on the present state of Fruit Culture on the Continent), through the American Commissioners received the varieties of Maize referred to and enumerated in our Catalogue, and has placed the entire stock he raised last year in our hands for distribution, feeling confident that the success which has attended their cultivation in the Island of Guernsey warranted him in introducing them into England for domestic use.

BARR & SUGDEN,

THE METROPOLITAN SEED, BULB, AND PLANT WAREHOUSE,

12, KING STREET, COVENT GARDEN, LONDON, W.C.

COLLECTIONS of VEGETABLE SEEDS, 12*s.* 6*d.*, 15*s.* 6*d.*, 21*s.*, 31*s.* 6*d.*, 42*s.*, 63*s.*, 84*s.*, and 105*s.*
COLLECTIONS of FLOWER SEEDS, 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 10*s.* 6*d.*, 21*s.*, 31*s.* 6*d.*, and 42*s.*
COLLECTIONS of HERBACEOUS and ALPINE SEEDS, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, 15*s.*, 21*s.*, and 30*s.*
COLLECTIONS of GLADIOLI, 5*s.* 6*d.*, 8*s.* 6*d.*, 10*s.* 6*d.*, 13*s.* 6*d.*, 21*s.*, 30*s.*, 42*s.*, and 63*s.*
GLADIOLI, by the Hundred, 10*s.* 6*d.*, 15*s.*, 21*s.*, 25*s.*, and 30*s.*
COLLECTIONS of TABLE MAIZE, 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, and 10*s.* 6*d.*
COLLECTIONS of ORNAMENTAL GOURDS, 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, 10*s.* 6*d.*, 15*s.*, and 21*s.*
COLLECTIONS of ORNAMENTAL GRASSES for TABLE DECORATION, &c., 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*,
COLLECTIONS of SEEDS for SUBTROPICAL GARDENS, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, and 10*s.* 6*d.* [and 10*s.* 6*d.*
COLLECTIONS of CLIMBERS, CARNATIONS, PELARGONIUMS, HOLLYHOCKS, STOCKS, ASTERS, BALSAMS, ZINNIAS, LANTANAS, EVERLASTINGS, AQUATICS, PALMS, &c. Full particulars will be found in the DESCRIPTIVE SPRING CATALOGUE, which will be sent Free to intending purchasers.

BARR AND SUGDEN, 12, KING STREET, COVENT GARDEN, W.C.

Roses.

JOHN CRANSTON will be happy to forward on application his DESCRIPTIVE CATALOGUE of ROSES for 1868 and 1869. For quality or quantity the stock is unsurpassed; the Manetti Roses especially are acknowledged to be the finest grown plants in the Trade.

Nurseries, King's Acre, near Hereford.

HOOPER AND CO'S GENERAL CATALOGUE will be published in the ensuing week

It INCLUDES PROBABLY MORE BONA-FIDE MATTER, and a larger variety of genuine objects, than any other published in Great Britain.

It ENUMERATES NATIVE SEEDS from various parts of the world, several from hitherto unexplored districts, and therefore not yet described in Botanical Works.

The SEEDS OFFERED are UNADULTERATED, and as cheap as those of any House which sends out good articles.

The KITCHEN GARDEN SEEDS are of the very finest quality, and sent carriage free to any part of the Kingdom.

All FLOWER SEEDS are sent free.

Hooper & Co.'s GENERAL CATALOGUE for 1869 (referred to above) is published at 6*d.*, and gratis to all Customers.

Hooper & Co. have *no connection whatever* with any other Seedsman of the same name, and the ONLY PLACE where their genuine Seeds can be obtained, is at their Retail Seed Warehouse in Covent Garden Market, London, W.C.

Choice New Seeds.

CHARLES TURNER can recommend the following, having been saved by himself or under his inspection.

	Per packet — *s.*	*d.*
BALSAM, from a prize collection	1	0
CENTAUREA CANDIDISSIMA	1	0
" GYMNOCARPA	1	0
CARNATION, from exhibition kinds	2	6
HOLLYHOCK, from exhibition kinds	1	0
" Collections of 24 named varieties	5	0
PINK (from the newest and best varieties)	2	6
PICOTEE	2	6
PELARGONIUM, SHOW	2	6
" FANCY	2	6
" TRICOLOR	2	6
" VARIEGATED	2	6
" ZONAL	2	6
TROPÆOLUM GOLDEN KING OF TOM THUMB	1	0
GOLDEN FEATHER PYRETHRUM	2	6
VEGETABLE SEEDS.		
BROCCOLI, SNOWS WINTER WHITE	2	6
CABBAGE, BAILEY'S SUPERB	1	0
CUCUMBER, BERKSHIRE CHALLENGE	1	6
" HEADSOR PROLIFIC	1	6
MELON, GOLDEN QUEEN	2	6
PEAS, LITTLE GEM, First Crop per quart	3	0
" ADVANCER, Second Crop per quart	2	0
" PREMIER, Third Crop per quart	2	0
SAVOY, NEW FRENCH	1	0

CHARLES TURNER'S NEW SEED LIST, containing all the newest and best varieties, can now be had post free on application.

The Royal Nurseries, Slough.

Genuine Seeds.—Carriage Paid.

B. S. WILLIAMS,
SEED MERCHANT AND NURSERYMAN,
Victoria and Paradise Nursery, Upper Holloway, London, N.

COMPLETE COLLECTIONS
OF
KITCHEN GARDEN SEEDS,

To suit Gardens of various sizes,
10*s.* 6*d.*, 21*s.*, 42*s.*, 63*s.*, and 84*s.* each.

NEW and CHOICE VEGETABLE SEEDS.	Per Pkt. *s.*	*d.*
WILLIAMS' IMPROVED GREEN CURLED BORECOLE	0	6
WILLIAMS' ALEXANDRA BROCCOLI	1	6
EARLEY'S SELECTED BRUSSELS SPROUTS	1	0
WILLIAMS' MATCHLESS RED CELERY	1	0
SHARMAN'S UNIVERSAL CUCUMBER (new)	1	6
TELEGRAPH IMPROVED (Woolley's variety)	1	6
WILLIAMS' PARADISE GEM MELON, scarlet flesh, of excellent flavour, and 12 days earlier than any other in cultivation (new)	2	6
DIGSWELL PRIZE ENDIVE	1	0
WILLIAMS' VICTORIA COS LETTUCE (new)	1	0
MALVERN HALL MELON	1	6
GOLDEN QUEEN (New Hybrid Prize) MELON	2	0
BEDFORDSHIRE CHAMPION ONION (new)	1	0
NUNEHAM PARK ONION 1*s.* and	1	6
CULLINGFORD'S CHAMPION MARROW PEA, an excellent cropper, and fine flavour (new) per qrt.	3	6
MACLEAN'S LITTLE GEM PEA (very early) "	2	6
LEE'S GIANT ORACH	1	0
ORANGEFIELD DWARF PROLIFIC TOMATO	1	0

NEW and CHOICE FLOWER SEEDS.	Per Pkt.
WILLIAMS' SUPERB STRAIN of PRIMULA.—B. S. W. can with confidence offer his superb strain of Primula as being the finest in cultivation.	
Red, White, or Mixed 2*s.* 6*d.*, 3*s.* 6*d.*, and	5 0
CINERARIA (Weatherill's extra choice strain) 2*s.* 6*d.* and	3 6
CALCEOLARIA (Neill's extra choice strain), 2*s.* 6*d.*, 3*s.* 6*d.*, and	5 0
" (James' strain) 2*s.* 6*d.* and	3 6
" (Dalkeith Palace strain)	2 6
CYCLAMEN (Wiggins' prize strain) 1*s.* 6*d.*, 2*s.* 6*d.*, and	3 6
POLYANTHUS (Wiggins' prize strain) 1*s.* 6*d.* and	2 6
BALSAM (Williams' superb strain) 1*s.* 6*d.* and	2 6
GENTIANA VERNA (the best of all the species)	1 0
GERANIUM LE GRAND 1*s.* 6*d.* and	2 6
SOLANUM (Weatherhill's hybrids) 2*s.* 6*d.*, 3*s.* 6*d.*, and	5 0
VIOLA LUTEA (yellow flowered Violet) 1*s.* 6*d.* and	2 6
WALLFLOWER (Saunders' fine dark variety)	1 0
SALVIA ARGENTEA, a beautiful silvery-foliaged ornamental plant	1 0
DIANTHUS HEDDEWIGII DIADEMATUS fl.-pl., flowers very large, and colours most beautiful (new)	2 6
OXALIS VALDIVIANA, quite hardy, the flowers are bright yellow and sweet scented, and produced in bunches of large size (new)	1 0
PALAVA FLEXUOSA, very pretty annual (new)	1 0
MYOSOTIS AZORICA ALBA, the flowers are pure white; contrasting beautifully with the blue variety Cœlestina (new)	2 6
STOCK, EAST LOTHIAN.—This is a splendid variety, of dwarf and compact habit, producing immense spikes of bloom, and very double. They make a grand display in beds, and for ribbon borders. Per collection of three colours (Scarlet, Purple, and White)	2 6
AMARANTHUS SPECIOSUS AUREUS (New Golden Princes Feather)	1 0
ANTIRRHINUM ASARINA, very beautiful for rockwork (new)	1 0
HELICHRYSUM APICULATUM (new)	1 0
MIMULUS REPENS, this is a very distinct species, the flowers are of a pale lilac-purple colour, the lower lip being prettily spotted with orange on a yellow ground (new)	1 0
ABRONIA ARENARIA, the flowers are of a pure waxy yellow, deliciously scented, and produced in long succession (new)	1 0
ZINNIA ELEGANS TAGETIFLORA fl.-pl. (new	1 0

B. S. W.'s DESCRIPTIVE CATALOGUE of FLOWER, VEGETABLE, and AGRICULTURAL SEEDS, is now ready post free to all applicants.

Victoria and Paradise Nursery, Upper Holloway, London, N.

SEEDS DIRECT FROM THE GROWERS THE BEST MEANS OF PREVENTING DISAPPOINTMENT.

SUTTON'S HOME-GROWN SEEDS A FIRST PRIZE SILVER MEDAL, PARIS, 1862

SUTTONS' HOME-GROWN SEEDS, NEW AND UNADULTERATED,
CARRIAGE FREE.

SUTTON'S HOME-GROWN SEEDS A FIRST PRIZE SILVER MEDAL, PARIS, 1862

SUTTON & SONS,
SEED GROWERS AND MERCHANTS,
ROYAL BERKS SEED ESTABLISHMENT, READING,

IN CALLING ATTENTION TO THEIR

COMPLETE COLLECTIONS OF VEGETABLE AND FLOWER SEEDS
FOR ONE YEAR'S SUPPLY,

Desire it to be understood that their "COMPLETE" COLLECTIONS consist only of those varieties which have been proved in their Experimental Grounds to be the most prolific, best flavoured, and most worthy of cultivation.

The following are the prices, with Contents, of SUTTONS' COMPLETE COLLECTIONS of VEGETABLE SEEDS :—

SUTTONS' COLLECTIONS OF HOME-GROWN SEEDS.	No. 1 Complete Collection £3 3 0 Carriage Free.	No. 2 Complete Collection £2 2 0 Carriage Free.	No. 3 Complete Collection £1 11 6 Carriage Free.	No. 4 Complete Collection £1 1 0 Carriage Free.	No. 5 Complete Collection 15s. Carriage Free.	No. 6 Complete Collection 12s. 6d.
PEAS, the best sorts for succession, as proved in Messrs. Suttons' Trial Grounds	18 quarts	10 quarts	7 quarts	5 quarts	3 quarts	4 pints
BEANS, the best sorts for succession do.	7 ditto	4 ditto	3 ditto	2 ditto	1½ ditto	1 ditto
FRENCH BEANS, Runners and Dwarfs do.	6 pints	3½ pints	3 pints	1½ pint	1½ pint	1 ditto
BEET, the finest in cultivation	3 ounces	2 ounces	2 packets	1 packet	1 packet	1 packet
BORECOLE, or Kale, of best sorts	5 packets	4 packets	3 ditto	3 ditto	2 ditto	2 ditto
BRUSSELS SPROUTS, fresh imported seed	1 large packet	1 large packet	1 ditto	1 ditto	1 ditto	1 ditto
BROCCOLI, the best sorts for succession, as tested in Messrs. Suttons' Trial Grounds	9 ditto	7 ditto	6 ditto	5 ditto	4 ditto	2 ditto
CABBAGE, best sorts for succession	9 packets	7 packets	6 ditto	5 ditto	4 ditto	1 large packet
SAVOY, finest curled	4 ditto	3 ditto	3 ditto	2 ditto	1 ditto	1 packet
CARROT, best sorts for summer and winter use	16 ounces	10 ounces	7 ounces	3 ounces	2 ounces	1 ounce
CAULIFLOWER	2 large packets	2 large packets	1 packet	1 packet	1 packet	..
CELERY, white and red	2 ditto	2 ditto	2 ditto	2 ditto	1 ditto	1 packet
COUVE TRONCHUDA, a most delicious vegetable	1 packet	1 ditto	1 ditto	1 ditto	1 ditto	1 ditto
ENDIVE, best sorts	¼ ounce	2 ditto	1 ditto	1 ditto	1 ditto	1 ditto
CRESS, plain, curled, &c.	1½ pint & 2 packets	8 ounces & 2 packets	6 ounces & 1 packet	4 ounces & 1 packet	3 ounces & 1 packet	3 ditto
CUCUMBER, the best sorts in cultivation	4 packets	3 packets	3 packets	2 packets	2 packets	1 ditto
LEEK, large sort, very fine	1 ounce	1 ditto	1 ditto	1 ditto	1 ditto	1 ditto
LETTUCE, Suttons' Superb Cos, and others	6 packets	4 ditto	3 ditto	3 ditto	2 ditto	2 ditto
MUSTARD	1 quart	1 pint	½ pint	4 ounces	3 ounces	2 ounces
MELON, choicest sorts known	3 packets	2 packets	2 packets	1 packet	1 packet	1 packet
ONION, true Reading and others	13 ounces	8 ounces	6 ounces	3 ounces	2 ounces	1 ounce
PARSLEY, splendid curled kinds	3 ditto	2 ditto	1 ditto	1 ditto	1 packet	1 packet
PARSNIP, Student	6 ditto	4 ditto	3 ditto	2 ditto	1 ounce	1 ditto
RADISH, finest sorts for succession	1 pint and 10 ounces	14 ditto	9 ditto	6 ditto	4 ditto	3 ounces
SPINACH, summer and winter kinds	3 pints	2 pints	6 ditto	4 ditto	3 ditto	2 ditto
SALSAFY	1 large packet	1 packet	1 packet	..	..	..
SCORZONERA	1 ditto	1 ditto	1 ditto	..	..	..
TURNIP, fine sorts for succession	16 ounces	8 ounces	6 ounces	3 ditto	2 ditto	2 ditto
VEGETABLE MARROW, best sorts	1 large packet	1 large packet	1 packet	1 packet	1 packet	1 packet
SWEET and POT HERBS, of all the useful kinds	8 packets	6 packets	4 ditto	4 ditto	2 ditto	2 ditto
MIXED GOURD	1 ditto	1 ditto	1 ditto	1 ditto	..	..
RAMPION	1 ditto	1 ditto	1 ditto	1 ditto	..	..
TOMATO	1 ditto	1 ditto	1 ditto	1 ditto	..	..
CAPSICUM and CHILI	2 ditto	2 ditto	1 ditto	..	..	..
CORN SALAD	1 ditto	1 ditto	1 ditto	1 ditto	1 ditto	1 ditto
ORACH	1 ditto	1 ditto	1 ditto	1 ditto	..	..
	For a Large Garden £3 3 0 Carriage Free.	For a Medium-sized Garden £2 2 0 Carriage Free.	For a Medium-sized Garden £1 11 6 Carriage Free.	For an Ordinary Sized Garden £1 1 0 Carriage Free.	For a Small Garden 15s. Carriage Free.	For a very Small Garden 12s. 6d.

5 per cent. allowed for cash payments.

Post-office Orders payable to SUTTON & SONS, Reading.

N.B. Any articles not required will be omitted, and others substituted according to the wish of the purchaser.

SUTTONS' COMPLETE COLLECTIONS OF FLOWER SEEDS,

Containing choice assortments of German and English varieties to produce a beautiful display during the entire Summer and Autumn.

No. 1, £2 2*s*. | No. 2, £1 11*s*. 6*d*. | No. 3, £1 1*s*. | No. 4, 15*s*. | No. 5, 10*s*. 6*d*. | Smaller Collections, 2*s*. 6*d*. to 7*s*. 6*d*.

To those who prefer making their own Selections, full particulars of the best varieties, including

CHOICE NOVELTIES FOR THE FLOWER AND KITCHEN GARDEN,

will be found in SUTTONS' PRICED CATALOGUE, Gratis and Post Free.

SUTTONS' RINGLEADER PEA, THE EARLIEST IN CULTIVATION.

The ROYAL HORTICULTURAL SOCIETY last year tested carefully the merits of the leading kinds of EARLY PEAS, and it is gratifying for us to observe the Report of their Trials, which appeared in the *Gardeners' Chronicle*, June 27, 1868, contains the following brief but emphatic statement:—

"The earliest form of all was Ringleader. Several of the Peas blossomed at the same time, but Ringleader was fit to gather first."

In thus referring to the result of this important Trial, we may mention that it strictly coincides with Trials made by our Customers, and also in our own Experimental Grounds. The first sowing last year of the Ringleader Pea at our Seed Farm was made on February 12, and harvested fully ripe for threshing on June 16, coming off in good time for Turnips. Retail price, 2*s*. per quart. SUTTONS' Ringleader Pea is included in all Messrs. SUTTONS' Collections of Vegetable Seeds.

SEEDSMEN BY APPOINTMENT Sutton AND Sons.

SUTTONS' CHOICE POTATOS FOR PLANTING.

SUTTONS' EARLY RACEHORSE, the forwardest known, 5*s*. per peck.
SUTTONS' BERKSHIRE KIDNEY, the best and most prolific in cultivation, 5*s*. per peck.
SUTTONS' GOLDEN BLOSSOM KIDNEY, a very distinct second early variety, 5*s*. per peck.
SUTTONS' KING OF POTATOS, a splendid variety, took First Prize at Birmingham, 3*s*. per peck.

And numerous other sorts, moderate in price, true to name, and free from disease. For prices see SUTTONS' SPECIAL POTATO LIST, Gratis on application.

SEEDSMEN BY APPOINTMENT Sutton AND Sons.

SUTTONS' SPRING CATALOGUE AND AMATEUR'S GUIDE,
Price 1*s*. Gratis to Customers.

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☞ *All Goods Carriage Free, except very small parcels. Five per Cent. allowed for cash payments.*

SUTTON AND SONS, SEEDSMEN TO THE QUEEN, READING, BERKS.

British Fern Catalogue.

ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 30 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, S.E.

HENRY GODFREY, NURSERYMAN, Stourbridge, having a large stock of FERNS and SELAGINELLAS, offers them in 12 fine varieties, at from 9s., 12s., to 18s. per dozen. These are fine healthy plants, full of fronds, grown in a cool greenhouse. Post-office orders or postage stamps must accompany all orders.

GLADIOLI SEEDLINGS (Mixed).—Beautiful Flowers equal to any collection, of all colours. Strong Flowering Bulbs, 7s. per 100; 3l. 10s. per 1000. Apply to
LEVEQUE et FILS, Nurserymen, 132 and 134, Boulevard de l'Hôpital, Paris.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.—Mr. WEBB, Calcot, Reading.

SUTTONS' HOME-GROWN SEEDS,
Carriage Free.



Seeds direct from the Growers the best means of preventing disappointment.



NEW SEEDS for the KITCHEN GARDEN, complete Collections from 12s. 6d. to £5 5s., carriage free.
NEW SEEDS for the FLOWER GARDEN, complete Collections from 6s. to £2 2s., carriage free.
SUTTONS' HOME-GROWN SEEDS, PRICED DESCRIPTIVE CATALOGUES gratis and post free.
SUTTON & SONS, Seedsmen to the Queen, Reading.

VERBENAS, VERBENAS.—Fifty varieties of 1868, including 12 of the New Italian Stripes, strong healthy plants with not less than four to six cuttings on each plant, 3s. per dozen. Purple, White, Scarlet, and Pink colours, with plenty of cuttings, 3s. per dozen. Terms cash. Package included.
PHILIP LADDS, Nursery, Bexley Heath, Kent.

Superb New Plant, Gesnera Exoniensis.
NOW READY.

LUCOMBE, PINCE AND CO. beg to call attention to this magnificent new Winter-blooming Plant. For Table or other Decoration it surpasses anything ever before seen.
Plants now coming into Bloom, 15s. and 21s. each. A few fine Specimens, measuring 20 inches through, 31s. 6d. each.

HENRY GODFREY, NURSERYMAN, Stourbridge, has to offer a large quantity of HERBACEOUS CALCEOLARIAS, raised from seed saved from a particularly fine strain; established in small pots, from 2s. 6d. to 3s. per dozen, basket and package included. When three or more dozens are taken, Post-office orders or postage stamps must accompany orders.

NEW SEEDS.—PETUNIA, extra choice, double, PETUNIA, extra choice, single; Large-flowered and Small-flowered, separate or mixed, each 1s. per packet.
For new ASTERS, STOCKS, PHLOX, and all other New and Choice Flower and Vegetable Seeds, see J. SCOTT's DESCRIPTIVE CATALOGUE for 1869, free on application.
J. SCOTT, the Seed Stores, Yeovil, Somerset.

Planting Season.

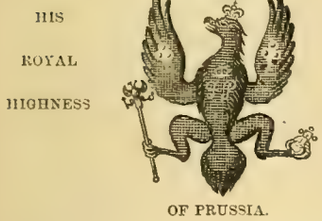
WM. URQUHART AND SONS, Dundee, respectfully announce that their PRICED LIST of Seedling and Transplanted FOREST TREES, SHRUBS, &c., may be had free on application.

New Catalogue.

LEWIS S. WOODTHORPE will be happy to forward, post free, on application, his CATALOGUE (which will be found very reasonably priced) of NEW and CHOICE PLANTS, beautiful SPRING FLOWERS, and GENERAL NURSERY STOCK.
A heavy discount to the Trade.
Munro Nursery, Sible Hedingham, Essex.

Seeds Carriage Free.

THE SOUTH OF ENGLAND SEED ESTABLISHMENT.
WILLIAM WOOD AND SON,
NURSERYMEN, SEEDSMEN, and FLORISTS,
TO



OF PRUSSIA.

WM. WOOD & SON'S No. 1 COLLECTION of VEGETABLE SEEDS for Gardens quarter of an acre in extent, sent, hamper and carriage free, to any Station on the South Coast and South-Eastern Rail for 12s. 6d.
No. 2 COLLECTION, for half an acre, hamper and carriage free, for £1 1s.
The following will be sent, hamper and carriage free, to any Station in Great Britain:—
No. 3 COLLECTION, for three quarters of an acre, for £2 2s.
No. 4 COLLECTION, for an acre, for £3 3s.
DESCRIPTIVE CATALOGUES may be had on application.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

Choice Scarlet Rhododendrons.

JOHN WATERER begs to announce that his CATALOGUE of HARDY, SCARLET, and other RHODODENDRONS, as annually exhibited at the Royal Botanic Gardens, Regent's Park, is now published, and will be forwarded to all applicants. It contains faithful descriptions of all the popular kinds, and likewise a SELECT LIST of CONIFERS, with heights and prices.
The American Nursery, Bagshot, Surrey.

Hardy Scarlet, White, Puce, Rose,
AND OTHER CHOICE NAMED RHODODENDRONS.

W. H. ROGERS, Red Lodge Nursery, Southampton, offers a large and magnificent Collection of the above. Nice bushy plants, full of Blooming Buds, well adapted for Forcing, at 30s. per dozen; or selected, extra fine, 3s. 6d. each. A detailed CATALOGUE may be had on application, and also of one of the finest and most extensive General Nursery Stocks in the kingdom.

Cheap Sale of Nursery Stock.

DICKSONS AND CO. beg to intimate that, having to relinquish upwards of Six Acres of their Leith Walk Nursery for Feuing purposes, they are now SELLING OFF the STOCK at greatly reduced prices.
The Stock comprises a large and valuable Collection of American Flowering Shrubs, fine Specimen Hollies of sorts; large Named and Mixed Hybrid Rhododendrons; handsome specimens of Ornamental Trees, Weeping Trees, Araucarias, Deodars, and other Valuable Pines; Fruit Trees, Gooseberry and Currant Bushes, Roses, &c.; also, a choice Collection of Herbaceous and Alpine Plants, all correctly named.
As the ground must be cleared by Whitsunday, D. & Co. respectfully invite an early inspection of the Stock.
D. & Co. also beg to call attention to their large and healthy Stock of Forest Trees, which are now in excellent condition for removal.
Seed Warehouse, 1, Waterloo Place, Edinburgh.

The advantages of procuring Seeds direct from the Growers cannot be overestimated.

James Carter & Co.
Seed Growers

237, 238, and 261, HIGH HOLBORN, LONDON, W.C.

CARTER'S GENUINE GARDEN SEEDS,

In assorted Collections, including only the most approved varieties to produce a good supply of the best Vegetables all the year round. Detailed Table of Contents on application.

No. 1. For Cottage Gardens	.. ..	12s. 6d.
No. 2. For Small Gardens	.. ..	21s.
No. 3. For Medium Gardens	.. ..	42s.
No. 4. For Large Gardens	.. ..	63s.

No charge for packing.

CARTER'S PRIZE MEDAL FLOWER SEEDS,

In assorted Collections, to produce the most economic and effective display in the Flower Garden.

Collection A,	10s. 6d.;	Free by Post, 11s.
,, B,	15s.;	Free by Post, 15s. 6d.
,, C,	21s.;	Free by Post, 21s. 6d.
,, D,	42s.;	Free by Post, 42s. 6d.
,, E,	63s.;	Free by Post, 64s.

PRIZE MEDALLISTS:

LONDON.



1862.

PARIS.



1867.

JAMES CARTER & Co. are prepared to supply on the 15th of January next the following Four handsome

New Varieties of Coleus,

Raised at the Gardens of the Royal Horticultural Society, and purchased by them at the Public Auction on the 10th of December, 1868:—

COLEUS HER MAJESTY.—This variety is of very free habit, and the broad leaves are of a deep bronzy red, with the narrow beaded edging somewhat less golden tinted than Princess of Wales. It is, however, very effective. Price 5s. each.

COLEUS PRINCE OF WALES.—A free-growing variety, with leaves of a deep purplish red, marked with deeper coloured blotches, and having scarcely any golden markings at the edge, so that it resembles Albert Victor, minus the golden margin. Price 3s. 6d. each.

COLEUS PRINCESS OF WALES.—This has still less yellow than either Queen Victoria or Princess Royal, but has instead a much more decided and deeper glow of purple. Price 5s. each.

COLEUS PRINCE ARTHUR.—The leaves of this variety have a yellowish ground colour, while the base, the costa, and the principal veins are heavily marked with deep purplish red, the margin also being red. These markings give the plant rather a grotesque appearance. It has the close habit and general peculiarities of Coleus Gibsoni. Price 3s. 6d. each.

The set of four for 14s.

New Double Zonal Geranium for 1869,

WILHELM PFITZER (LEMOINE).—A novelty without a rival, possessing all the desirable qualities to make it a valuable addition to every collection; dwarf, free-blooming habit, and brilliancy of colour.

Plants not higher than 5 inches had two and three trusses fully expanded, each measuring rather more than 5 inches across; the individual flowers are large, very double, of the most perfect shape, and dazzling orange-scarlet colour.
We have purchased the entire stock for distribution in England, of the raiser, M. Lemoine, of Nancy. Plants to be ready by February 15, 1869. Price 7s. 6d. each.

Lilium auratum (Golden-rayed Lily).

Fresh imported Bulbs, 2s. 6d. each, and upwards.

CARTER'S SEEDS FOR THE FARM,

See page 59, of this days *Gardeners' Chronicle*.

CARTER'S PRIZE MEDAL LAWN GRASS will produce a Permanent Turf of finest quality.
1s. per lb.; 20s. per bushel.

CARTER'S FERTILIZER, the best Manure for the Garden.
In Tins, 1s. 9d. and 4s. 6d. each.
In Bags, 15s. and 25s. each.

See CARTER'S "Gardener's and Farmer's Vade Mecum for 1869" (Illustrated), 34th year of publication. Post Free for 12 Stamps; Gratis to Customers.

JAMES CARTER AND CO., SEED GROWERS,
237 and 238, and 261, High Holborn, London, W.C.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

AT A GENERAL MEETING of the SUBSCRIBERS, held on WEDNESDAY, January 13, for the purpose of ELECTING TWO PENSIONERS on the Funds, the following was the result of the BALLOT:—

CANDIDATES.

NAME.	AGE.	VOTES
GEORGE ANABALL	72	513
THOMAS WILLMER	81	455
CATHERINE BROWN	81	249
WILLIAM HAYES	68	113
WILLIAM MAJOR	69	94
HENRY DAGLEISH	75	89
MARY McARDELL	69	284
ROBERT PETRIE	75	0
JOHN SOUTAR	67	75

The Meeting declared George Anaball, of Norton Cuckney, and Thomas Willmer, of Sunbury, as having the greatest number of Votes, duly elected Pensioners of this Society.
By Order, EDWD. R. CUTLER, Secretary.
11, Tavistock Row, W.C., Jan. 14.

July 19th to 24th, 1869.

THE ROYAL HORTICULTURAL SOCIETY'S GRAND EXHIBITION at MANCHESTER,
In connection with the
SHOW of the ROYAL AGRICULTURAL SOCIETY.
Amongst various Special Prizes,
A SILVER CUP (copy of the famous Cellini Cup), VALUE £21
will be offered by the Proprietors of the
GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE
for the best COLLECTION of 5 FRUITS and 5 VEGETABLES, to be made up as follows:—

	Good.	Medium.	Inferior.
Grapes	6 marks	3 marks	1 mark
Melons (2 fruits)	6 ,,	3 ,,	1 ,,
Strawberries	3 ,,	2 ,,	1 ,,
Gooseberries	3 ,,	2 ,,	1 ,,
Currants	3 ,,	2 ,,	1 ,,
Cherries	3 ,,	2 ,,	1 ,,
Raspberries	3 ,,	2 ,,	1 ,,
Apples of 1868	6 ,,	3 ,,	1 ,,
(Any 5 of the above 8 subjects).			
Peas	3 ,,	2 ,,	1 ,,
French Beans	3 ,,	2 ,,	1 ,,
Broad Beans	3 ,,	2 ,,	1 ,,
Cauliflowers	3 ,,	2 ,,	1 ,,
Cucumbers (brace)	3 ,,	2 ,,	1 ,,
Summer Cabbages	3 ,,	2 ,,	1 ,,
Early Carrots	3 ,,	2 ,,	1 ,,
Turnips	3 ,,	2 ,,	1 ,,
Globe Artichokes	3 ,,	2 ,,	1 ,,
Onions	3 ,,	2 ,,	1 ,,
Spinach	3 ,,	2 ,,	1 ,,
Rhubarb	3 ,,	2 ,,	1 ,,
Potatos	3 ,,	2 ,,	1 ,,
Mixed Salading	3 ,,	2 ,,	1 ,,
(Any 8 of the above 14 subjects).			

This Prize is open for Competition amongst Amateurs and Gardeners of private families. The Fruit and Vegetables produced must be of *the Exhibitor's own growing*; and any article otherwise obtained will disqualify the Collection. It is expected that the several articles will be neatly and effectively displayed.
In awarding the Prize, Marks will be adjudged according to the above scale, for the several subjects produced.

The Gardeners' Chronicle.

SATURDAY, JANUARY 16, 1869.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, Jan.	19	Royal Horticultural (Fruit and Floral Committees), at South Kensington	11 A.M.
		Ditto (Scientific Committee)	1.30 P.M.
		Ditto (General Meeting)	3 P.M.
THURSDAY,	21	Linnean	8 P.M.

WE take an early opportunity of announcing that the Proprietors of this Journal again offer their CELLINI SILVER CUP as a SPECIAL PRIZE for the best collection of Fruit and Vegetables, to be competed for at the Exhibition of the Royal Horticultural Society, which is to be held in July next, at Manchester, in conjunction with the Show of the Royal Agricultural Society.

To prevent misconception, we may add, that the Cup is to be competed for by amateurs and gardeners of private establishments only. From amongst these numerous classes we hope to see a larger number of competitors, and a more hearty competition than heretofore; and, inasmuch as in this respect Leicester was an improvement on Bury, we look forward to witness at Manchester a marked improvement on Leicester. Those who in other fields on previous occasions have won, or well contended for the prize, should not be debarred, either by gain or loss, from again trying their strength, for we wish the contest to be general, and not local. The Cup is open free to the gardeners of all England—and those of Scotland, Wales, and Ireland, too. We ask them to enter freely into the arena, and to contend vigorously for a prize which is intended solely to act as a stimulus for the advancement of the craft, by bringing prominently before the assembled crowds the results of real practical skill in fruit and vegetable culture. On this ground, mainly, we urge upon cultivators, one and all, who have the opportunity, the duty of engaging with veritable *esprit de corps* in the contest for our special prize.

IF the acquisitions of the past year in the department of FRUITS have not been so numerous as usual, they have been in many respects unusual in merit. Pomona's offerings are of a more lasting and sterling character than those of her fair but changeable sister, Flora. She is not to so great an extent subject to the whims of caprice or fashion; her ends and desires being always the same—a steady improvement of size,

quality, and constitution, so that those who would aid and assist her have a more difficult though more straightforward work before them than their fellow-labourers in the floral world.

In Grapes alone, the noblest and most prized of all our fruits, if there were nothing else, we have sufficient of note to write down the departed year 1868 in red letters. Mr. W. THOMSON, whose efforts as a hybridiser of the Vine have in previous years been crowned with success, is again entitled to our especial thanks for the production of the Golden Champion, the most magnificent Grape of which our country can boast. This splendid acquisition is a hybrid between the Champion Hamburgh and the Bowood Muscat twice removed. The berries are of enormous size, somewhat resembling huge Canon Hall Muscats. It is every inch a champion, golden in colour as the Muscat itself, with a flavour equalling its rival for richness, although partaking more of the Hamburgh character, and with a vigorous constitution. We have here a Grape which will take the highest rank, and worthily fill up the blank which has long been felt—that of a white companion to the Black Hamburgh. Some curious crosses of Mr. PEARSON's from the Strawberry Grape, a deliciously perfumed although in other respects worthless variety, are deserving of especial mention, combining as they do, in a powerful degree, the Strawberry scent with the Muscat flavour: the latter too rich—too musky in fact to be pleasant, and the flesh being of the peculiar slimy texture belonging to all the American, or Fox Grapes as they are called. It is however an important break, a result which could scarcely have been anticipated, and one from which we may hope in future years to obtain scented Grapes of the finest quality—who knows? We would here suggest that some of our hybridisers should turn their attention to the raising of a race of hardy Grapes—Grapes of large size and good quality, that will ripen their fruit early and well, in the open air of England.

Amongst Peaches and Nectarines we are again indebted to Mr. RIVERS for some splendid acquisitions. The improvements which are being effected in this class of fruits are truly marvellous, so numerous are the seedlings raised and fruited every season. Many of those of the past season we have tasted, and have found them excellent, all being possessed of a peculiarly rich and tender flesh. The gem of the season is Magdala, raised from Rivers' Orange Nectarine, a Peach of medium size, ripening in August, with very tender melting flesh, and a flavour "quite original and exquisite." Another variety, a seedling from Cooledge's Favourite, is also one of very great promise. A new yellow-fleshed Peach of Mr. PEARSON's may be mentioned as an acquisition to that class, although the yellow-fleshed sorts are not generally looked upon with much favour in this country—why, we cannot tell, for there is something peculiarly pleasing and warm-looking about them, though in flavour they are as a rule inferior.

Figs have come in for a more than usual share of attention during the past season. They have been strangely neglected in this country, yet there is no fruit so really delicious. The Negro Largo, introduced by Mr. FLEMING, of Cliveden, from Spain, is a great gain, a noble-looking fruit, of large size, prolific, and of excellent quality. The Bourjassotte Grise, figured at p. 1260 of our last volume, though not new, is but little known, and may be thus prominently noticed as being without exception the richest of all the Figs we have tasted. The Col de Signora Blanca panachée is also an extremely good, and a particularly beautiful sort, the fruits being handsomely striped with broad bands of green and yellow.

Amongst Apples, we have the following worthy of notice:—Annie Elizabeth, a large culinary winter variety; Beauty of Waltham, an autumn dessert sort; and Coole's Seedling, another dessert sort of really good quality. Amongst Pears, we have one sterling acquisition in the Summer Beurré d'Aremberg, which ripens in August, and which was raised by Mr. RIVERS from the old Beurré d'Aremberg. Beurré du Cercle, a large October Pear, is an introduction from the Continent, and has flesh resembling that of the Marie Louise and Glou Morceau; and Madame Treyve may not only be pointed out as one of the most beautiful Pears in existence, but also as one of most excellent quality.

Though several Cherries and Plums have been brought forward, we have no decided acquisitions to record amongst these fruits. Strawberries would doubtless have furnished us with abundant materials to chronicle had the weather been more favourable; but, being so hot and dry at their season of ripening, they were in a great measure spoiled. Some seedlings raised by Mr. STANDISH and Mr. WILLIAM PAUL, not yet named, are of wonderful promise; also the following of Dr. RODEN's raising—Duke of Edinburgh, Lord Napier, and the Sultan. Melons furnish us with two good varieties, viz., Golden Queen, a beautifully netted, bright golden-skinned and green-fleshed variety; and Queen Emma, a white-fleshed variety. New Melons are always plentiful enough, and the flavouring of them is principally a matter of good cultivation.

The progress made in the VEGETABLE department has not been so great as amongst fruits, the past season having, in consequence of the excessive drought, been perhaps the worst that has ever been experienced for the proper prosecution of this, the least attractive, but by far the most important of a gardener's pursuits. We do not here look so much for novelty as we do amongst flowers or fruits. The improvements amongst vegetables are effected by careful selection of particular forms, and by the husbanding of seed from these, rather than by the exertions of the hybridiser. Thus, when a new vegetable is announced, it will in most cases be found that it is only a particular form carefully selected from some variety already in cultivation. In Peas, however, we have one or two grand exceptions to this rule, and to Mr. LAXTON, of Stamford, our thanks are again especially due for his successful exertions in this field of labour. By his efforts in hybridising the Pea, we are gradually becoming possessed of a race of early green Marrows of wonderful excellence. We last season recorded the introduction of Laxton's Supreme, and Alpha, which have quite maintained their high character; now we have to record a still greater acquisition, which has been named William I., a wrinkled blue marrow, as early as Sangster's No. 1, and producing very large pods—a grand acquisition truly. Multum-in-Parvo, a larger form of Little Gem, is in some respects an improvement on that variety.

Amongst Kidney Beans, the Salmon-coloured Kidney proves to be very good amongst dwarfs; while amongst Runners Premier is a decided acquisition—a true Kidney Bean with a running haulm, and consequently a continuous bearer. The new Purple-podded, has proved to be more curious than useful, the dark colour of the pods militating against it. Of Celeries we have Sandringham White, a selected and somewhat taller form of the Incomparable White, and Carter's Incomparable Red, an excellent dwarf kind. Of Endives we have Fraser's Broad-leaved Batavian; and of Lettuces, All the Year Round and many fine forms of Paris White Cos. Mr. MELVILLE has been working assiduously for some years past in hybridising the old perennial Woburn Kale with the variegated Borecole, the object being to secure a perennial variegated Kale for the decoration of our shrubberies in winter, and in this he seems now to have succeeded, the new form being an important acquisition, although not yet quite so perfectly coloured as we may expect to have it.

Amongst Cucumbers there are always numerous so-called novelties bearing at least new names, yet there is nothing particularly new amongst them; the Telegraph of Rollisson and Paul, Pearson's Long Gun, and Masters' Prolific, may be cited as perhaps the best forms of the year. Winter Favourite, a hybrid from the hardy ridge sort, promises to be an excellent winter variety, as does the Early Winter Prolific. To these may be added the magnificent varieties raised and sent out by Mr. HAMILTON.

In Potatos—one of the most important of all Mother Earth's productions—we have abundance of new material. The past season was, however, one of the strangest and most trying that has ever been experienced for this particular crop; and although disease was happily almost absent, the excessive drought affected them greatly. Almond's Yorkshire Hero of our great Potato king, Mr. FENN, is a fine sort. Carter's Main Crop, of the Red Regent class, will prove a most useful variety, being excellent in quality, like the Regent itself. There are also Giant King, Veitch's Improved Ashleaf, and many others too numerous to mention. Thus throughout the entire vegetable kingdom, in almost all its various departments, we have something new to write down, some improvement to be thankful for, all tending to show that our gardeners are ever watchful, and ever ready to aid and assist Nature in her steady onward march. *B.*

—— WE have just had a very curious communication from one of our best producers of TRICOLOR and ZONAL PELARGONIUMS. It is well known to raisers of plants from cuttings, especially in the case of Tea-scented Roses, that a large callus is often formed at the base of the cutting, which keeps increasing in size, without throwing out a single root, and eventually the cutting dies. The case before us is somewhat, though not entirely, similar. A quantity of cuttings of Variegated Pelargoniums were observed to die off at the tips, and when examined, with a view to ascertain the cause, it was found that from the base of the lowest internode a spongy mass was thrown out, which ultimately branched and assumed the appearance of some Clavaria. In the specimen before us not a single root was thrown out, and this appears to have been generally the case, and indeed the fungoid mass proved, on close examination, to belong, not to any root formation, but to an unnatural development of the axillary bud where the lowest leaf was torn off. This appeared to be the case from an abnormal development of deformed foliaceous appendages being at length produced in many cases on the tuberiform body. The appearance, in fact, is similar, though in a modified degree, to one which occurs occasionally on different parts of Pelargonia, of which an illustration was given some years ago in this Journal. The body was too much decomposed, in consequence of transmission by the post, to admit of microscopic examination, but we have no doubt about its being a transformed bud, whether normal or adventitious. The cause of these curious freaks, no one is, we believe, in our present state of knowledge, able to explain. *M. J. B.*

—— MR. H. C. BAILDON, of Edinburgh, has just issued a specimen of his new patented process of NATURE-PRINTING, in the form of four folio plates, containing figures of 12 species and varieties of exotic and British Ferns. The plants are for the most part very nicely and truthfully represented, though from their being printed in colours, one can scarcely look for the perfect accuracy of first-class hand-colouring. The process adopted seems to be that of taking impressions direct from the specimen, after carefully dressing it with prepared ink, on transfer paper, whence the figure is conveyed to a lithographic stone, the various colours being then obtained by successive printings. As compared with what is more usually called Nature-Printing, the Naturselbstdruck of the Germans, the process presents both advantages and disadvantages, for while on the one hand it avoids all undue expansion of the parts, and permits of more accurate colouring, especially as regards the thicker parts, as the stipes and rachis, on the other hand, the structural details, the venation especially, are less distinctly brought out. To remedy this latter deficiency in the present case, enlarged woodcut figures, drawn by Mr. FITCH, have been given in the letterpress. The work is published by REEVE & Co.

—— Below we give the results of the Royal Horticultural Society's December EXAMINATION OF GARDENERS. We understand that the Examiners, while stating that the papers worked on this occasion are below the average, specially point out that in respect to orthography, both in the case of ordinary language, and of the names of plants, the result is not very satisfactory, words and names being too often incorrectly spelt, as may be illustrated by such cases as "Lordizabella" for Lardizabala, and "Amaroculous" for Hemerocallis. The schoolmaster has evidently some occupation still amongst the rising generation of gardeners. Surely with the kid-glove propensities and high estimate of the value of their services on the part of the young men of the period, we ought at least to look for a better display of the rudiments of learning. It may be necessary to indicate that the total of marks for the questions set was, in Floriculture 1200, and in Fruit and Vegetable culture 1600. The awards are as follow:—

Name.	Floriculture		Fruit and Vegetable Culture.	
	Cert.	Marks.	Cert.	Marks.
R. J. Lynch, Kew	1	1040	2	1115
J. M'Ardle, Chiswick Student	2	870	3	620
W. J. Stone, Eridge Castle Garden	2	860	3	660
R. Inglis, Kew	2	810	1	1280
R. Wright, Kew	2	780	2	855
G. Payne, Acton	2	690	2	880
R. Barnes, Chiswick Student..	2	630	0	425
J. French, Regent's Park ..	3	580	—	—
S. Futrell, Chiswick	3	530	3	795
J. McGregor, Kew	3	520	2	945
W. D. Dickson, Kew	3	480	3	590
R. Mearns, Kew	3	460	3	575
J. Mersum, Chiswick Student	0	240	0	360

New Plants.

MORMODES SKINNERI, *sp. n.*

Sepalis petalisque lineari-ligulatis acutis deflexis, labello late unguiculato dein dilatato transverse rotundulo villoso (non velutino), fovea impressa in linea media, antice medio tridentato, dentibus lateralibus obtusangulis abbreviatis, dente medio triangulo longiori reflexo.

When we first obtained this plant we believed it to be Mormodes barbatum, Lindl., but that has a transverse lamina to the lip, covered with dense velvet, and without the three apicilar teeth. Our species is very pretty. The sepals and petals are honey-coloured, with five longitudinal bars of blotches and lines of a dragon's-blood colour. The lip is deep yellow, with red spots and white hairs. The column is whitish.

Messrs. Veitch obtained the plant through the late G. Ure Skinner, Esq., from Central America. We have dedicated it to the memory of that gentleman, whose death was a severe loss for Orchidology. *H. G. Rchb. fil.*

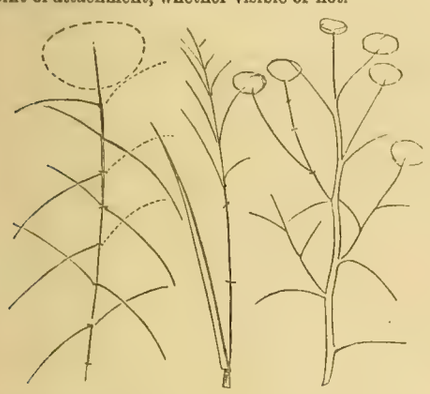
BOTANICAL DRAWING.—No. II.

FOR flower drawing smooth paper is best suited, as it allows of finer touches and lines, and smoother washes of colour.

The best pencil to use is an H. for delicate subjects, such as white flowers, and an F. for leaves, and any part which is to receive dark colours, so that the lines may not be entirely obliterated.

In botanical subjects it is sometimes desirable to represent the roots, bulbs, &c., but they are so easily drawn that I think no special directions are necessary.

Stems.—In the straight stem there is always some degree of curve, therefore the ruler should never be used; it is the last resort of those unable to make "straight strokes," and only worthy of schoolboys. It is more difficult to draw parallel lines, and the best practice is to sketch grasses or long-leaved plants. Leafy stems or branches should be first faintly outlined their whole length, of their proper thickness, so that the drawing may occupy a well-balanced position on the paper. Then mark whence the leaves spring. It is also desirable to note the shape of the stem, whether square, round, winged, &c. The slight sketch below will show the advantage of proceeding thus cautiously, and will enable every leaf petiole to have its proper point of attachment, whether visible or not.



Leaves.—If the leaves are more or less erect in relation to the stem, sketch the lower ones first, as a guide for those above, as in the left-hand cut in the following sketch.

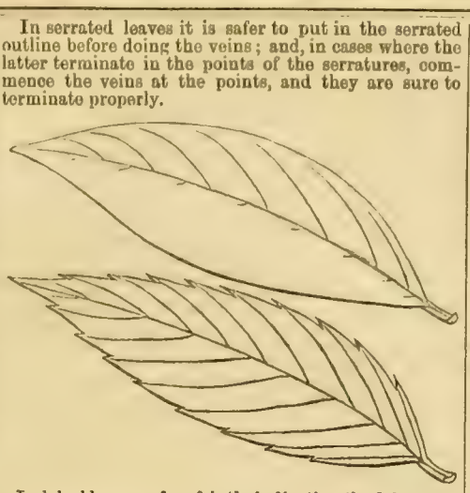
If reflexed, commence with the upper leaves, for the same reason. If done thus systematically, there will be a great saving of time and india-rubber.

Opposite leaves are best shown slightly askew, but if the stem is branched, the leaves on some of the branches should be more or less foreshortened, for the sake of variety.



Outline large leaves faintly before sketching them decidedly, and that should be done with one stroke of the pencil, and not with repeated touches, unless the leaves are woolly, when an indefinite outline is advisable. It is better to put in the midrib first, and it should always have some degree of curve, however stiff the leaves may be—leaves are very seldom so rigid as to have none; then mark whence the veins spring.

In serrated leaves it is safer to put in the serrated outline before doing the veins; and, in cases where the latter terminate in the points of the serratures, commence the veins at the points, and they are sure to terminate properly.



In lobed leaves, after faintly indicating the lobes, put in the ribs and veins first, and the outline of the lobes particularly if they be toothed, will be found much easier. In digitate leaves indicate the petiole and midribs first, the relative position of the leaflets can be kept with greater certainty. In pinnate leaves, when large, after faintly sketching the rachis and



the points whence the leaflets spring, put in the midribs first, and define the leaflets last; if the pinnate leaf is small, this is unnecessary. *W. H. Fitch.*

APPLE STOCKS AND FRUIT GROWING.

IT is impossible to exaggerate the importance of the question of Stocks, and of a correct knowledge of them. No single variety of a fruit, however good, is at all so important as a stock which exercises a good effect on all the varieties of a species grafted upon it, and therefore exact knowledge is of tenfold greater importance in the case of a stock than of any of the varieties grafted upon it. The pith and marrow of this discussion lies in the answer to the question—What is the true French Paradise stock, and what is its value?

1. *The French Paradise Stock* (Pommier du Paradis).—Mr. Rivers (and also the Rev. T. C. Bréhaut, the author of the Government Report on Fruit Trees at the Paris Exhibition) states that it "seems identical with the dwarf Apple of Armenia," referred to in the Journal of the Horticultural Society, Part 2, Vol. iii., page 115. Any person with the slightest knowledge of the Paradise stock of Continental gardens, and who refers to this account, will rise from it with a feeling of surprise, that any intelligent person could suppose the dwarf Apple, therein mentioned, to be the French Paradise, for it is described as never exceeding in thickness of stem, even at 40 or 50 years of age, "that of your fore-finger." To test the fact that the diminutiveness was not owing to its being always kept in pots or boxes, the writer put out three plants, and, after keeping them three years in the open ground, found they had made no perceptible progress. Young plants of the Paradise, in which the buds have missed, may be seen larger than the tiny trees above described in many French nurseries. Apples worked on the Paradise are not delicate, tiny shoots, but strong, clean, handsome plants, 4, 5, and even 6 feet high, at little more than a year from the bud; and in numerous gardens in northern France the very fruiting branchlets of the trees on the Paradise are stouter than the dwarf Apple of Armenia is said to be at any period of its life! Any person who steps into the Imperial gardens at Versailles will find therein some 5 miles of cordon Apple trees, chiefly Calville Blanc and Reinette du Canada, trained near the ground, worked on the Paradise. The soil is rich, deep, cold, and clayey, and the trees, instead of being too weak, grow stronger than is desired, the very smallest spray displaying more vigour than this Armenian Liliputian, of which not a word is said as to the fruit, flowers, or other characteristics, that would enable anyone to say what it is or what it is related to; and yet Mr. Rivers, without offering any evidence in support of his opinion, declares it to be identical with this unhappy little Eastern Apple, of which nobody knows anything or possesses any means of learning anything.

Having now seen what the Paradise is not, we will next learn what it is, according to the learned Professor Karl Koch, of Berlin, who is known to have devoted more attention to the origin of our cultivated fruit trees than anybody else:—"The name Malus paradisiaca appears to have been first used by Ruellius, in the year 1537, and does not refer to the Apple of which our first parents partook in Paradise, but to a fruit which is supposed to have been sent from heaven. It is a native of south-east Russia, the Caucasus, Tartary, and the Altai mountains. I have often seen this plant in the Caucasus, where it forms dwarf trees, often accompanied with suckers, near the Don and the Volga. It gives forth strong branches near the root or rather from the under part of the trunk, and grows more quickly than the smooth-leaved Apple tree. On this account it is very much used by fruit growers for stocks for trees; it keeps the trees dwarf, and it bears fruit earlier. It always remains dwarfer than the varieties of the smooth leaved Apple, and is of shorter duration. It is sometimes met with in gardens as Malus tatarica." I have much more from Prof. Koch, but this is enough for my present purpose. There is nothing in what he says about it or its relatives, from a botanical point of view, that does not coincide with the practical experience of Continental fruit growers. In addition to the origin of the Paradise it is desirable that we should know something definite about its personal appearance. The following description of it is from the pen of M. Carrière, of the Jardin des Plantes, and Editor of the "Revue Horticole":—"Roots much ramified and tidy, short, remaining near the surface, and never tap-rooted. Shrub, bush-like, much branched, the branchlets rather long, and with a lateral tendency, the adults covered with a smooth bark of a reddish colour; lightly pubescent in the case of the young shoots. Leaves lanceolate, elliptical, of a light green above and velvety beneath, finely denticulated, acuminate at the ends, but principally at the base. Petiole broadish and channeled. Calyx, with divisions acuminated and recurved, often contorted, as long as the peduncle. Petals straightly elongated at the base, faintly keeled, borne on a thin base, prolonged into a sort of keel. Ovary on a slender base, pubescent. Fruit higher than broad, lightly ribbed, skin white, flesh sweetish, almost insipid; ripening in July." It flowers more abundantly, and eight days earlier, than the Doucin.

Let us next approach the subject from a more practical and important point of view, clearly understanding that the Paradise stock is considered of the highest value in France, in Belgium, Switzerland, and the neighbouring countries. When I state that I have seen many gardens without a single Apple tree that was not growing upon it and trained as a low horizontal edging to walks and borders, and these gardens in possession of abundance of the finest Apples, I shall have conveyed a fuller idea of its importance than by quoting any number of opinions from authors, cultivators, or nurserymen. We can breakfast in London in the morning, and dine in Paris conveniently the same evening. In the gardens of M. Bac at Ivry, M. Chardon at Fontenay aux Roses, M. Mallet at Brunoy, M. Cochet at Suisnes, Baron Rothschild at Ferrières, and in the Imperial Gardens, not to mention hundreds of other places, it is grown, and preferred above all other ways of Apple growing, so that ascertainable evidence of its value is abundant. Of this stock, so appreciated across the Channel, Mr. Rivers writes:—"1st, it is too tender for this climate; 2d, I decidedly assert that it is the most unfit of all for forming single horizontal cordons; 3d, the tree, when bent down to be fastened to the wire, puts forth such a cluster of blossom-buds at the bend, that there is not enough of vital force in the stock to throw out a leading shoot to be tied to the wire; 4th, trees on it, instead of cordons, become stumps; 5th, it is exactly the converse of the truth that the French Paradise stock flourishes better in stiff, cold, clayey soils, than in those that are light and fertile"! I could fill a column with proofs from England as well as France that each and every one of these statements is exactly the reverse of the truth, but I shall simply quote a few opinions of weight. Professor Decaisne, who is probably the first pomologist in Europe, says "it is absolutely certain that the *Paradis* cannot be killed by frost." M. F. Jamin, the part-owner of the large nurseries at Bourg-la-Reine, says, "The *Paradis* does best on bad, clayey soils; and if thrown on the surface of the ground, with its roots exposed all the winter, cannot be killed by our hardest frosts." Prof. Morren, of Liège, says, "The Apple on the *Paradis* has been tried extensively in the Flemish part of the country, and has succeeded remarkably well." Any person who casts his eye on the map of Europe and sees that southern England and the Flemish part of Belgium are merely divided by a few miles of sea, will surely have to ask himself, Is there magic in the air, that a plant which is pronounced a marvellous success on one side of the Channel should be such a worthless thing on the other? The reader will probably have made up his mind about the matter by this time, and said, "It is now a matter of simple experiment; let us try it, and, if convenient, in competition with the English Paradise." Knowing that eye-proof is better than any other, I have recently placed 400 Apples on the Paradise, on clay soil, to the north of London, and in a position where they can be seen by everybody; and by-and-by, if this plantation does not prove every one of Mr. Rivers' five propositions to be untrue, I shall be the first to proclaim it. I appeal to the gardeners of England to test the matter. Many of my friends have already taken it in hand, and in a year or two we shall know the result. One word to those about to test it: always allow the apex of the young cordon to grow a little upwards, which will prevent the tree from losing all its "vital force" at the bend. This is indispensable to the quick and successful formation of a line of cordons. Repress the point, or tie it closely down on a level with the other parts of the tree, and assuredly the sap will make an effort to ascend somewhere nearer to the base, but keep the growing point a little higher than any other part of the tree, and the sap will course through the whole length of the stem, and escape most at the apex, which may be tied down from time to time.

Mr. Rivers states that the Paradise was common in England in Miller's time, and quotes his opinion against it, but does not say that at present we require the Paradise for quite a different purpose. Miller says that "the dwarf Apple, which is rather a shrub than a tree, commonly called Paradise Apple, is undoubtedly a distinct species from all the others," and that the difference is "permanent when raised from seed." He says the stocks are not of long duration, nor will the trees grafted on them ever grow to any size, in both of which statements he is perfectly right. The cordon was unknown in his time, and if the Paradise grew bigger than it does, it would be useless for this purpose, but the Paradise was known and spoken of long before then. In the "Compleat Gard'ner" of the "famous M. De La Quintinye, made English by John Evelyn, Esq.," London, 1693, at p. 112, I find these words:—"Moreover, Apple wildings, whatever they be and however grafted, are fit to make high standards, but not in the least fit for dwarfs; and the quite contrary with Paradise stocks, insomuch that Apple trees must never be planted to remain dwarfs, and take up little room unless they be grafted upon Paradise stocks; these quickly bear fruit and shoot little wood, the others are a long while producing nothing but a vast quantity of wood, which make excessive large trees, and are long before they bear fruit." But we find allusions, and distinct ones, to the "Paradise" long before this date. I can trace interesting notices of the Paradise in books that appeared 112 years before 1768, the date of my edition of Miller, but space forbids giving them here. They are all much to the same effect as Miller's account of it; indeed he appears to have adopted their statements. Since their day many generations of men and Apple stocks have been resolved into their original dust and water, and fruit culture has increased tenfold with us, and in a much greater degree on the Continent.

Early in last June I visited Mr. J. Wood, an English nurseryman, many years settled at Rouen, and in discussing fruit culture with him he said, with much emphasis, "For every fruit tree planted in England there are one thousand planted in France." In France there are regular professors of fruit culture, who frequently lecture to numbers of gardeners and amateurs on the subject. The French have published books and pamphlets on

the subject, and many of them very able ones, in the proportion of 1 to 1 of our efforts in the same way. The Paradise stock is used in nearly every garden, it is grown by the million around Paris, at Angers, Orleans, and many other parts of France, and everywhere the cordon on it is pronounced an invaluable gain—a gain which no gardener can afford to dispense with unless his soil be peculiarly dry and poor, and disagreeable to it. With us the Paradise has as yet been tried but on a very small scale, and in very few instances for the purpose for which it is best fitted, but one of those who have so tried it condemns it in the most emphatic way. All of us know the great value of the Quince for the Pear in some soils—suppose one of those who at first tried it on a soil in which the Pear on it nearly refuses to grow. The action of the Pear on the Quince on various soils in the two countries is exactly analogous, but because the Paradise has not succeeded in one spot, "our insular climate" is brought in to prove that a hardy tree, which is known to thrive on moist cold soils across the Channel, requires "very warm and dry soils" in England.

The Doucin and the "English Paradise."—In stating that the "English Paradise" was a misnomer, I merely followed the authority of Mr. Rivers himself. He now tells us that this "English Paradise" is not English at all, but introduced from the Dutch, and that it is called the Dutch Paradise, with apparent propriety, by Miller in his Dictionary. Until reading the article by Mr. Rivers at p. 6, I was quite sure that he considered the English Paradise to be the Doucin, as he had so stated it to be in his old writings; but then these are railway times, and ideas sometimes change quickly. Let us, therefore, glance at some of his very recent expressions of opinion about the matter. A few weeks ago there appeared in a contemporary an account of Mr. Rivers' place: it was written by a well-known fruit grower, taking deep interest in the stock question, and he states Mr. Rivers believes the English Paradise and the Doucin to be one and the same. In the just issued edition of Mr. Rivers' book he states, "The Doucin stock is, I am inclined to think, the same as that called 'Dutch Creeper,' or 'Dutch Paradise,' by Miller in 1759." This Dutch Paradise Mr. Rivers asserts to be the "English Paradise," in the opening lines of his article, and then immediately follows with the assertion, "It is quite distinct from the stock called the Doucin in France." (!) Where could we discover such another instance of self-contradictions? The gentleman sent over by the Government to write "A Report on the Present State of Fruit Culture on the Continent," tells us, in his essay on the very important subject confided to him, that "the Doucin is identical with the Dutch Paradise of Miller," following Mr. Rivers, of course. Should another edition of this report be issued, it will be necessary to state that the Dutch Paradise is "quite distinct from the stock called the Doucin in France." In addition to the former, and, indeed, to the present statements of Mr. Rivers, his last revelation excepted, I had the evidence of one of the largest and most intelligent fruit nurserymen in France, and one who has studied with Mr. Rivers. He, anxious to prove what the English Paradise was worth, planted it alongside the Doucin, and found that in appearance and effects upon the trees grafted upon it, it seemed identical with the Doucin. I myself am strongly in favour of the positive mode of investigation, and having recently planted a few of the Doucin and a few of the French Paradise, intending to let them grow up, flower, and fruit, I shall now add to them a like number of the so-called "English" or "Dutch" Paradise, seeing that Mr. Rivers has so completely contradicted himself on these points. Doubtless others will do the same, and as it is desirable to know what the *Doucin* really is, I append the following description of it:—Roots rather long and strong, tap-rooted. Tree not much ramified, straight in its growth, with branchlets short, large, in adult specimens covered with a deep dull brown bark; very tomentose, and whitened in the case of the young shoots. Leaves broadly oval or nearly oboval, lightly blistered, shining on the upper and pubescent on the lower surface, rather broadly denticulated, scarcely accuminate at the apex, abruptly contracted and round at the base. Petiole broad, scarcely channeled. Calyx with divisions usually horizontal, occasionally recurved, rather large. Petals suboval, nearly blistered, keeled, borne on a base short and rather broad. Ovary on a stout support, covered with a tomentose down, white and thick. Fruit depressed, broader than high, not ribbed, the skin of an intense green, marked here and there with brownish spots: flesh of a high and agreeable flavour; ripening in August. It will be seen that while the Paradise is a shrub, the Doucin is a tree, so that should Mr. Rivers' former opinions prove more correct than his last, and the Doucin and English Paradise prove one and the same, we shall have no difficulty in determining the cause of the many failures of cordons, &c., in consequence of the "irrepressible growth," which some of your readers have complained of. In any case, no gardener or amateur need be in doubt about the true Paradise or Doucin, when he sees them in fruit or flower, and he can also readily test the "English Paradise." Plants of all could no doubt be had through any nurseryman, and if not Apples on these stocks are not difficult to procure. By cutting down a plant of each, just below the graft, they would soon shoot and show their characters.

I have been to see the French and English Paradise stocks which Mr. Rivers has sent to London for examination, and found them, not at 4, Great Russell Street, but at 15, Brydges Street, Covent Garden. These samples bear out all I have already stated about the subject. Both of them seem smaller and riper, so to speak, than they usually are, appearing to have been grown on a soil inducing a fruitful and dwarfish tendency in the tree. The samples of the French Paradise sent are poor and dwarf compared to a fair average stock of such. Handsome, clean, and straight trees of the true French Paradise, far superior to those, and larger, though younger, may now be seen in several of our nurseries. Nevertheless, I should prefer the selected stock of French Paradise which Mr. Rivers has sent, to those of the "English Paradise," for the forming of cordons. The French trees are slighter in their stem and branches, make the buds closer to the main stem, and have the smaller surface roots. The "English" lot have the more branched habit, the thicker stems, and the stronger roots of the Doucin. Neither of them seems nearly so suitable as the straight and handsome stuff sold for cordon-making in the French nurseries. P.S. If "Pyrus pyramidalis" will give his name, I will undertake to refute every point he has raised—if not, let our statements stand opposed till the question be settled by the many trials which are now being instituted. *W. R.*

[We have received an interesting article on the same subject from Mr. Scott, of Crewkerne, which we hope to publish in our next issue. Ed.]

THE WEATHER OF 1868.

January.—There were no remarkable extremes, either of heat or cold, in this month. The mean temperature was nearly the average. The highest temperature in the shade was 51 on the 15th and 17th, and the lowest was 19° on the 2d; with this exception there were no severe frosts. The weather, on the whole, was of a seasonable character. The amount of rain was 1.64 inch, none of which fell before the 11th, and until that time N.E. winds prevailed. The barometer continued tolerably steady during the month.

February.—The thermometer stood high throughout the month, the mean temperature being a little more than 4° above the average. The extreme highest was 62° on the 25th, a temperature never before reached in February; and on the 1st the thermometer was also very high, being 59°, accompanied by a strong west wind, which increased on the 2d to a hurricane. The lowest temperature was 20° on the 8th. The depth of rain was nearly half an inch below the average, amounting only to 0.95 inch, half of which fell on the 29th. W. and S.W. winds were prevalent. The barometer was very high throughout the month.

March.—There were no great extremes in this month. The mean temperature was 1.47° above the average. The highest temperature reached was 60° on the 31st, and the lowest 21° on the 23d. The amount of rain was 0.93 inch, as much below the average as in the preceding month. N.W. and S.W. winds prevailed.

April.—This was on the whole a warm month, the mean temperature was nearly 1° above the average. The highest temperature was 69° on the 5th, and on 13 other days was 60° or upwards; the lowest was 25° on the 12th and 14th, after which date the temperature was never lower than 30°. The amount of rain was exactly the same as in March. N.W. winds were prevalent.

May.—In this month the day temperature was remarkably high, the highest was 87° on the 19th and 30th, the lowest at night was 27° on the 6th, and 28° on the 7th; with these exceptions there was no frost during the month. The amount of rain 1.05 inch, 0.40 of which fell on the 29th, accompanied by a violent thunderstorm. S.W. winds prevailed.

June.—This month was especially noticeable on account of the day temperature being remarkably high, and that of the nights unusually low. The highest temperature was 86° on the 12th, and on 11 other days it ranged from 80° to 85°; the lowest was 35° on the 7th, and 36° on the 2d and 8th. The amount of rain was 0.33 inch, none of which fell till after the 19th. The barometer was very steady during the month; but the winds were very changeable.

July.—This month was remarkable for its extremely hot days and comparatively cool nights. The highest temperature was 93° on the 21st and 22d; on 19 days the thermometer was 80° and upwards; the lowest was 41° on the 31st. The amount of rain was 1.32 inch, nearly an inch of which fell on the 11th and 12th, accompanied by heavy thunder; there were only five days in all on which rain fell during the month. The barometer was very steady.

August.—In this month the thermometer was more steady as regards the day and night temperature; the mean maximum was 1¼° above the average, and the mean minimum was 2.37° above the average. The highest temperature was 89° on the 5th, and the lowest 40° on the 25th; but there were only 10 nights on which the thermometer was below 50°. The amount of rain was nearly equal to the average; between the 16th and 22d nearly 2 inches fell.

September.—In the early part of this month the day temperature was again very high, the mean maximum being more than 3½° above the average. The highest temperature was 91° on the 7th; the nights were, in comparison, rather cold, the lowest temperature being 34° on the 10th. The amount of rain was 1.88 inch, the whole of which fell after the 17th. N.E. and S.E. winds were most prevalent.

October.—The day temperature in this month was fully maintained, being rather more than half a degree above the average; but the nights were generally cold for the season of the year, being nearly 5⅔° below the average. The highest temperature was 69° on the 9th and 12th, and the lowest 22° on the 18th; on 11 nights in all there was frost. The amount of rain was 1.93 inch, of which half an inch fell on the 4th.

November.—The day and night temperatures in this month were both below the average, the highest temperature was 57° on the 1st and 4th, and the lowest was 18° on the 19th, with this exception there was no severe frost during the month. The amount of rain was 1.07 inch, of which 0.68 fell on the 21st and 22d. The barometer was very unsteady, and N.E. winds were prevalent.

December.—This month was remarkable for its high day and night temperature, the former being 6¾° above the average, and the latter 4.37° above the average. The highest temperature was 58° on the 5th, 6th, and 15th, and the lowest, 19°, on the 31st; there were only nine nights in all on which there was frost. The amount of rain was 4.86 inches, of which 1.16 inch fell on the 29th and 30th; there were only eight days on which rain did not fall. The barometer fell very low towards the end of the month, which was on the whole very boisterous, with S. and S.W. winds.

The Year has been remarkable for its mild spring, long continued, hot, dry summer, absence of severe frost in autumn, and the large quantity of rain which fell towards its close, accompanied with strong gales. *R. T.*

TABLE SHOWING THE HEIGHT OF THE BAROMETER AND THERMOMETER, AND DEPTH OF RAIN AT CHISWICK, FOR EACH MONTH OF 1868, COMPARED WITH THE AVERAGE OF THIRTY-SIX YEARS.

1868.	Barometer. Extreme Highest.	Barometer. Extreme Lowest.	Temperature. Mean Maximum.	Temperature. Above (+) or below (—) the average.	Temperature. Mean Minimum.	Temperature. Above (+) or below (—) the average.	Temperature. Mean.	Temperature. Above (+) or below (—) the average.	Temperature. Extreme Highest.	Temperature. Extreme Lowest.	Rain. Amount.	Rain. Above (+) or below (—) the average of 40 years.
	Inches.	Inches.	Degs.	Degs.	Degs.	Degs.	Degs.	Degs.	Degs.	Degs.	Ins.	Ins.
January	30.321	28.950	42.90	+0.09	30.90	—0.12	36.90	—0.01	54	19	1.64	—0.02
February	30.495	29.227	51.07	+5.35	34.41	+2.73	42.74	+4.04	62	20	0.95	—0.44
March	30.530	29.092	53.35	+2.58	33.74	+0.37	43.54	+1.47	60	21	0.93	—0.45
April	30.392	28.887	58.70	+1.26	36.90	+0.72	47.80	+0.99	69	25	0.93	—0.59
May	30.250	29.452	70.87	+6.25	39.80	—2.21	55.33	+2.02	87	27	1.05	—0.93
June	30.294	29.688	77.40	+5.42	45.33	—3.32	61.36	+1.05	86	35	0.33	—1.69
July	30.253	29.608	81.84	+7.24	52.23	+0.92	67.03	+4.07	93	41	1.32	—1.04
August	30.235	29.275	74.68	+1.25	52.87	+2.37	63.77	+1.79	89	40	2.37	—0.05
September	30.280	29.111	71.23	+3.56	46.10	+0.17	58.66	+1.86	91	34	1.88	—0.58
October	30.303	29.432	59.77	+0.54	35.38	—5.71	47.57	—2.59	69	22	1.93	—0.80
November	30.354	29.160	47.83	—1.84	33.20	—2.01	40.51	—1.93	57	18	1.07	—1.12
December	30.141	28.820	52.11	+6.76	37.67	+4.37	44.89	+5.56	58	19	4.86	+3.43
Mean	30.530	28.820	61.81	+3.20	39.87	—0.14	50.84	+1.53	93	18	19.26	—4.28

The Mean Temperature was 1.53° above the average.
The Mean Maximum Temperature was 3.20° above the average.
The Mean Minimum Temperature was 0.14° below the average.
Amount of Rain, 4.28 inches below the average.

THE DROPPING OF CAMELLIA BUDS.

FOR years past I have observed complaints in the *Gardeners' Chronicle* respecting Camellias casting their blossom buds, and much seemingly reasonable advice has been given thereupon. Some have opined that the plants have not been growing in a suitable soil; others that the drainage was not correct; others that the evil arose from a lack of water; others, again, that the plants have been too much soddened with water, or that the water has been applied cold, or that it has not been applied warm. No doubt there is some reason in all this; but I wonder if any of those who have given this advice are really good cultivators, and could show us any day in the year, and for years in succession, some finely cultivated plants, in robust health, producing annually an abundance of strong bloom-buds, such as it takes much time to go over, and thin again and again between August and November, while still leaving a heavy crop to expand into noble flowers. Such Camellias are worth going a long distance to see. In order that you may have ocular demonstration of what I am writing about, I will go round to-day and take off a shoot from 40 or 50 large Camellia trees—yes, trees—that are growing out-of-doors here in various soils and aspects, every tree loaded with buds and blossoms. These outdoor plants are now (the last day of the year) full of open blossoms, with a succession of strong buds to keep up the blooming period till May next. If we get frost to cut off those now in bloom, there is an immediate succession coming on, and the plants are soon again gay with bloom.

Indoors in a span-roofed house, 18 feet high, and 125 feet long, with a middle bed up the centre from end to end, and of course all planted out, the trees have for many years reached the summit, and the back and end walls are all covered with the most luxuriant plants, while in front, in each space between the pillars, is a luxuriant plant running up and arching over the walks and roof, covered with buds and bloom from base to summit, and yielding thousands of flowers of all colours every day from September till the middle of April or May, when we set to and pull all off, pruning the trees and faggoting up the prunings, and conveying it to the stacks for firewood. Here we never knew the buds fall off, but we have the pleasure of a long season of thinning Camellia buds from August to November, and many long days it takes, however quick one may be in performing it, as the buds are not taken off by the quart, but by the bushel.

It is a much greater pleasure to see such plants than the poor leathery, pimping-leaved plants, with buds of the size of a pea, that we so often meet with—plants which their owners never thin when the buds happen to form in bunches, because, they say, they are sure to thin themselves by falling off before they come to perfection. The whole mystery, as to this falling off, lays in a nut-shell. I send a sample of outdoor foliage and buds, thick, fleshy, crisp, and of a dark luxuriant colour. They are exposed to wind, sun, rain, and lashing storms of hail, sleet, and snow, and are never in the least protected. I send also from the house, foliage and buds of a similar but more luxuriant character, on sturdy, short-jointed young wood, of the most vigorous description. Now, just consider these simple facts, by the aid of a little common sense and reason, and it will be seen that this mysterious bud-dropping is caused by the stint of moisture. It is just this and nothing more. Our outdoor plants get at all seasons all that drops from the heavens. Our indoor plants are abundantly supplied with soakings of water, and the great engine is freely set to work amongst them morn-

ing and evening, so that during all the growing season the plants are regularly deluged, and manure and soot-water are freely applied Herein may be found the explanation of the deficiency of bloom-buds, and of their falling off, as well as of the weakness of bud, blossom, and foliage of which we so often hear, and which we so often witness.

The Camellia, when well used, is about the grandest and most useful ornamental plant for bloom and foliage, as an every-day plant, that was ever yet discovered. For eight months of the twelve it is in bloom here; and then, to allow it a season of rest and time to make its annual growth, it takes several of us days to pick off the remaining blossoms and unexpanded buds. We pick up daily, throughout the blooming season, bushels of over-blown flowers, as they fall in succession. I forward some of the fallen Camellia flowers picked up to-day, with a few outdoor buds and foliage; also a few indoor buds and foliage, just taken at hap-hazard, in order that you may see whether or not my statements are facts or mere palaver; for I see it is time to be out-spoken in defence of this grand, but too often miserably ill-used plant. *James Barnes, Bicton, Devon.* [The accompanying samples of leaves, buds, and blossoms were most luxuriant, the foliage large, and of an intense green, and some of the unexpanded buds measuring upwards of 3 inches round. EDS.]

CALCUTTA BOTANIC GARDEN.

(*Continued from p.* 1315, 1868.)

FERONIA ELEPHANTUM: This is the Elephant or Wood Apple of India. It is a large tree, belonging to the Aurantiaceæ, and is common all over India, Ceylon, and Burmah. The fruit is about the size of a large Apple, with a hard woody rind, and contains a mass of pulpy substance, in which the seeds are imbedded. It is this pulpy portion of the fruit that is edible, and the natives make it into a jelly, somewhat resembling Black Currant. The leaves, when bruised, smell like anise, and the native practitioners use them as a stomachic and carminative. The wood is of a light colour, hard, and durable; from the stem, when cut or bruised, a gummy substance exudes, which is used in dyeing, and also for mixing with painters' colours, and by bricklayers in preparing a superior kind of white-wash. The Calcutta tree was 63 years old, and measured 6 inches diameter.

Ficus religiosa: This is the Pepul tree of India, common in all parts of the empire, and known by its long-pointed cordate leaves. It is venerated by the Hindoos, from the belief that their deity Vishnu was born among its branches. It is commonly planted near pagodas, houses, &c. Silkworms are said to be very fond of the leaves, which are also used by the Arabs in tanning. Birds devour the fruits, and the seeds are thus frequently carried and dropped into cracks of buildings and other crevices, where they germinate and grow on, frequently causing much damage. The wood is light and useless, as is also that of F. artocarpifolia, which is likewise in the collection, and which was cut from a tree 31 years old, and is 8 inches diameter.

Dillenia speciosa: This is a tree about 40 feet high, growing in all parts of tropical India and the Malay Islands, and also largely cultivated on account of its handsome and ornamental appearance. The flowers, which appear at the same time as the leaves, are large and showy, having white petals and numerous bright yellow anthers, forming a brilliant globular mass in the centre of the flowers. The fruit is composed of a series of fleshy carpels, and is inclosed in a swollen and fleshy calyx, which is very acid, and is used for making jellies. A cooling drink, used in fevers, is made from the acid juice sweetened with sugar. The large, hard, rough leaves are used for polishing furniture and tin ware. The wood is hard and tough, and is used to make gun-stocks, &c. Dillenia scabrella is, like the preceding, a very useful economic species, the fruits of which are used in a similar manner. The specimen of wood of the former received from Calcutta measured 1 foot in diameter, and was 69 years old, while that of the latter species was 54 years of age, and measured 1 foot 2 inches across.

Diospyros Ebenum is a native of Ceylon, and is the tree which yields one of the best sorts of commercial Ebony. Diospyros montana is a middling-sized tree the wood of which is variegated with dark and white veins. D. Embryopteris is called "Gaul" by the Hindoos. The fruit of this species is very astringent, and is used in tanning, and the viscid juice which it contains is used by the Indians for coating their fishing-nets for the purpose of strengthening them. The specimen of D. montana shows the tree to have been 61 years old, and measured 1 foot 4 inches in diameter. A specimen of D. ramiflora measures 11 inches across, and was 70 years old. D. discolor, 7 inches across, and 53 years old; and D. heterophylla, 7 inches across, and 37 years old.

Chloroxylon Swietenia: This tree yields the bulk of the Satinwood of commerce, grows to a height of 50 or 60 feet, and is a native of Ceylon, the Coromandel coast, and other parts of India; the flowers, which are small, and of a whitish colour, are borne in large panicles at the ends of the young branches; the fruit is a three-celled capsule, dehiscing by valves, and exposing in each cell four winged seeds; the wood is so well known as to need no description. The satin-wood of commerce is not, however, the produce of this tree alone; much of it comes from the West Indies, and is yielded by an unknown tree. The specimen in the Calcutta collection measures 10 inches across, and was 63 years old.

Bassia latifolia, the Malwah tree of Bengal, grows some 40 or 50 feet high, with alternate oblong or elliptic leaves, and small whitish flowers, which have a sweet taste, and are collected in abundance under the trees morning and evening during the season, for the purpose of distilling from them a kind of ardent spirit. It is said that in some parts of India where these trees abound every village has its shop for the sale of this liquor, which, when carefully distilled, and kept for some time, tastes very much like good Irish whisky; the fresh spirit, on the contrary, is very deleterious, owing to the large quantity of empyreumatic oil which it contains; the flowers are likewise eaten raw. The seeds yield a large quantity of concrete oil, used both for culinary purposes as well as for burning in lamps. The wood is very strong and durable, and is much used for the naves of wheels, carriage work, &c. The Calcutta specimen measures 1 foot 2 inches in diameter, and was 64 years old.

Soymida febrifuga: This, the Redwood tree of India, grows to a height of 60 feet or more, and is the only representative of the genus. It has abruptly pinnate leaves, and the flowers, which are greenish white, are arranged in terminal or axillary panicles. Its specific name of febrifuga is derived from the fact of the bark being used with success in cases of intermittent fever; it is also used as a brown dye. The wood is of a dull red colour, remarkably hard and heavy, and is considered by the natives the most durable of all woods, so that they mostly use it in the building of their temples. The specimen from Calcutta measures 1 foot 5 inches across, and was 77 years old.

From the foregoing notes a pretty good idea may be formed of the amount of destruction wrought in the Calcutta Garden, as well as of the value of the collection presented to Kew. I have only attempted to notice some of the oldest or most important economic trees, many possessing botanical or horticultural interest—such, for instance, as Jonesia Asoca, a tree of 70 years, and 1 foot 6 inches diameter—being necessarily left out; and when I repeat that the collection comprises 222 species, it will be at once seen that many more of great interest must of necessity have shared a similar fate. *John R. Jackson, Kew.*

PLANTING FRUIT TREES.

I BEG leave again to call the attention of your readers to the subject of planting fruit trees on a more extensive scale than generally takes place in England. I have at various times advocated the covering of cottage walls with fruit trees, both for the sake of ornament and profit; also the planting of fruit trees round our fields to take the place of those hideous, naked stumps, known in England as hedge pollards.

In England this must be done by the proprietor finding the trees, and binding the tenant to deliver so many over at the end of his lease or term. The farmer who holds his farm from year to year, or the cotter who has his cottage from week to week seldom think of planting fruit trees because of the shortness of their tenure. This is very natural, as some one else might step in the week after, and reap the fruits of their trees and care.

In Switzerland and in France things are quite different. We have no large landed proprietors who own a county or two. The great majority of the large and small farmers are the owners of the land they farm; hence they have an interest in everything in the shape of improvement, such as draining, road making, tree planting; and it is pleasing to see, on the afternoon of a market day, the farmers trotting home with 30 or 40 young fruit trees in their carts, and their more humbler neighbours with half-a-dozen over their shoulders. I have seen as good fruit grown in Ireland as I have ever seen on any part of the Continent, but now that Irish landlords are giving such very short leases, it will be some time before Ireland will be a fruit exporting country.

To return to my subject. A cold foggy November morning found me and Mr. Weiss *en route* for the farm of Beully, to buy our Apples, Pears, cider, and Potatos for the winter. Ten miles walking and a climb of some 2500 feet up the slope of the mountain, brought us to our destination. Beully farm is exactly such a one as described by the Ettrick Shepherd:—

> "A snug thack house,
> Before the door a green,
> And on the midden
> Cocks and hens were seen."

The climb from Auchable to the farm is about two English miles, the road on each side being planted with Apple and Pear trees, in some places forming a dense archway over the public road. The sight of these trees, when in flower in spring, or when laden with fruit in autumn, is something that it takes a long time to forget Let us leave the ornamental part of the business for another time, and come at once to the useful. What is the result of this filling of hedgerows with Apple, Pear, and Plum trees? Tons of very fine fruit have been sold at a very low price, still they have paid the rent of the farm, and at the time of my visit about 3600 gallons of cider and perry had been made, and many cartloads of fine Apples and Pears were waiting their turn for the press.

Now, if this Savoyard farmer can pay his rent out of his hedgerows, surely our English farmers might get something out of theirs. A year's rent and 3600 gallons of cider from the hedges, if it only happened every four or five years, would be a godsend to many a farmer. The sorts of Apples grown are the Court-pendu and the Grey Reinette, both first-rate keeping sorts. I saw them good and sound in our market in the early part of August; in fact, they were better than the new Apples that were being sold from the same stall. The Court-pendu is *par excellence* the Apple for the cottager, being in use for nine months out of the twelve. I bought fine Apples from these hedgerows for less than 2*s.* per cwt., and as good cider and perry as I ever tasted in Devonshire at the rate of 5*d.* the gallon. These abundant crops do not happen every year, but there is never a year that they do not produce enough of fruit for the household. Fruit is used daily at this farm, not as a matter of luxury, but as a matter of food, like Potatos, flour, &c. A small kind of Pear is also largely grown, both in the hedges and in an adjoining wood. It is valued for its fine flavour and keeping properties. When gathered they are put in the oven and half roasted among wood ashes, and then strung up like Onions; in this way they keep good for years. I speak from experience when I say that a dish of these Pears stewed is most delicious. The finer kinds of dessert Pears and Apples are kept in (what was to me) quite a new way. They are not laid on shelves, as with us, but strung up in ropes of about 10 feet long from the beams at the top of the fruit room. It is a capital plan, as the fruit touches nothing, and a rotten speck is detected at once. The fruit is cut from the rope with a pair of scissors. *John A. Watson, Campagne Lammermoor, Geneva, Switzerland.*

LETTUCES.

JUST now, when seed catalogues are being compiled and when the attention of gardeners and others is being turned to the necessity of ordering a supply of seeds for the coming season, it may be of interest to endeavour to give some description of the character of a large number of the varieties of Lettuce that find a place in these trade lists. I had an opportunity last summer of seeing trial grounds where, in spite of what was undoubtedly a hostile season, a very good proof of Lettuces was obtained, and from an inspection of these the following notes have been drawn up.

Of what are popularly denominated Brown Cos Lettuces, one called Monstrous Cos (Vilmorin) proved a very loose-growing and coarse variety, not worth garden room. Blood Winter Cos (Vilmorin) has the leaves much tinted with reddish-brown, and is a good compact-growing variety, standing tolerably well. Red or Blood Cos (Vilmorin) has coarse blistered leaves, tinted with reddish-brown, and is a poor kind. Spotted Cos (Vilmorin) has the leaves spotted with brown, and is a coarse-growing variety. Magdalena (Vilmorin) is a somewhat large and irregular-growing Lettuce, the leaves tinted with brown, crisp, and of good flavour, but too coarse in habit. Improved Spotted Cos (Vilmorin) differs from the spotted variety only in being more compact in growth. Spotted White Cos (Vilmorin) has the leaves of a pale green, spotted with brown, but is by no means true to character; it is evidently a selection from the foregoing. Suttons' Berkshire Brown Cos appears to be an ordinary stock of Bath Cos Lettuce, though somewhat small in size, owing to being sown late. An assumed variety, termed Hardy Brown Cos, was identical with the well-known black-seeded Brown Bath Cos.

Of White Cos Lettuces I have seen examples of the following:—Carter's Giant White Cos, which appears to be identical in every respect with Paris White Cos. Moore Park Cos, a coarse form of the Paris White Cos, with a more spiral mode of growth. Ivery's Nonsuch Cos, a very large, pale green Cos Lettuce, distinct in character, and thoroughly reliable for summer work, as it stands well, though it does not form a good close heart; it should have plenty of room. Florence Cos, not so tall in growth but rather more compact than the foregoing, which it much resembles. Field's Hardy White Cos appears to have a hardihood of habit not possessed by the Paris White Cos, suggestive of its being good for winter work. The London White or Fulham Cos proved to be an inferior variety. Maltese White Cos is a good stock of Paris White Cos. Suttons' Improved White Cos is identical in appearance with Paris White Cos, and came mixed with some "rogues." There were also some three or four samples of Paris White Cos obtained from different growers, but showing different degrees of quality. There is no doubt that to insure a true and fine quality of both the forms of Paris Cos Lettuce they should be annually imported from the Continent. As a general rule, the seed of Paris White Cos Lettuce, saved in this country, produces an inferior form, something like what the wholesale seedsmen denominate common White Cos.

Of Green Cos Lettuces, that known as the Paris Green Cos (of which I saw several samples) differed as much in quality as the white variety. A sample of Paris Green Cos, from Messrs. Vilmorin & Co., was exceptionably fine. It is noticeable that the Paris Cos Lettuces have a peculiar conformation, in that while the outside leaves reflex slightly, the inner leaves, forming the heart, fold over towards the centre, and become quite close and compact. The Paris Grey Cos is a kind of intermediate between the green and white kinds, having a greyish green tint; it is a good standing Lettuce but somewhat rough in growth, getting a curious twisted appearance. A thoroughly good Lettuce is the Holme Park Green Cos, which has the style of growth of the Paris Green Cos, but with darker leaves, of a distinct metallic green hue, and narrower and more pointed; it is a variety that stands well in hot weather, and is therefore the more valuable. The Green Winter Cos (Vilmorin) has a somewhat distinct habit of growth, but has a tendency to run early to seed.

Among Brown Cos Lettuces, a strain termed the Giant Brown Cos, black seed, rapidly run to seed, as if better adapted for winter work. A sample of the common black-seeded Brown Bath Cos was of indifferent quality; and Carter's Giant Bath Cos, white seed, also run to seed. On the other hand, there are to be had strains of black-seeded Bath Cos Lettuce that stand remarkably well in the hot, dry weather. Perhaps one of the most valuable can be found growing at Nuneham Park, near Abingdon.

Of Cabbage Lettuces, Messrs. Barr & Sugden have had some interesting trials, and they appeared generally to have done better than the varieties of the Cos. Of White Cabbage Lettuces there were samples of Drum-

head and Malta, between which there is no actual difference, though some appeared to mature themselves earlier than others. White Silesian is a kind of fringed Drumhead, the leaves tinted with brown, a very good Lettuce, of irregular growth. Royal Albert appears to be of the same type, but a better grower. Crisp German (Vilmorin) is of the same type also as the White Silesian, but without the brown tint. Early Simpson is a very coarse looking variety, that does not heart well. The foregoing have blistered or irregular-surfaced leaves. Of Green Cabbage Lettuces, with the same irregular leaves, the Neapolitan is a very fine and useful summer variety, with a large and compact heart. Brown Batavian, or Marseilles, is a large dark green form of the Drumhead, tinted with brown on the upper surface of the leaves.

Of Cabbage Lettuces, with a smoother leaf-surface, I have noticed several. The Royal White Summer, and the White Berlin, both from Messrs. Vilmorin & Co., of Paris, appear to be the same, though the last-named was of the largest growth. Victoria is identical with the Royal White Summer. Longstander (Brown) is of the same type as the White Berlin, but of a paler hue, and more compact in growth. Leyden White Dutch is a very fine new kind, the most compact in growth, and having a large and close white heart, very crisp and sweet; extra fine. Imperial Asiatic (Vilmorin) appeared to be the same as Longstander, but the heart was not so full, nor the plants so compact in growth. Victoria, red edge, is a tinged brown type of the well-known Grand Admiral. Turkish or Butter (Vilmorin) is of the same type as the Imperial Asiatic, but of a more conical growth. Green Leyden is of the same character as the White Leyden, but green; a good Lettuce. Hammersmith Green Winter (Vilmorin), a green form of the ordinary hardy green Cabbage Lettuce of the London markets, but which does not run to seed so readily as its better known congener, while the leaves are also tinted with brown. Large Marseilles (Vilmorin) is a green form of the Victoria.

Of the Tom Thumb, or dwarf-growing section of the Cabbage Lettuces, Tom Thumb (Carter) is a small compact-growing whitish-green kind, with black seed, and a capital variety for table purposes. Green Stone Tennisball (Vilmorin) is larger in size than the foregoing, but does not stand so long. White Tennisball (Vilmorin) is a paler form of the kind just noticed. George's Early Spring White, is same as White Tennisball. Small Crêpe (Vilmorin) is in the way of the Tennisball, but not so compact in growth, and more reflexed in habit. Gotte Spring is a small bright green form of the foregoing, which goes to seed very early.

Brown and dark-coloured Cabbage Lettuces are represented by the following kinds:—Brown Dutch, black seed, a large dark Lettuce, of a good habit of growth, and full heart. Brown Dutch, white seed, a paler coloured selection from the foregoing as is supposed, though the difference in the colour of the seed has yet to be accounted for. There is yet another form of the Brown Dutch Lettuce, bearing yellow seeds—certainly the only yellow-seeded Lettuce I am acquainted with—and which has the same compact growth as the Brown Dutch type, while it is a Cabbage Lettuce well worthy a more extended cultivation. This variety was not included in the trials, the results of which are here given. Longstander is of nearly the same style of growth as Brown's, but much tinted with red, and rather more compact in growth. White Capucine appeared to be identical with Brown Dutch, white seed; Brown Geneva is the same as Brown Dutch, black seed. Mousseronne (Vilmorin), is a fringed, reddish-brown, Cabbage Lettuce, but classed among the early sorts, as it is reported not to stand the summer, nor does it appear to do so.

Lastly come the Spotted Cabbage Lettuces, of which there are both black and white-seeded kinds. The latter is a large variety, of compact growth, with dark green leaves spotted with reddish-brown.

One may well complain that we are overdone with so-called varieties of Lettuce. Messrs. Vilmorin & Co., of Paris, catalogue 44 kinds of Cabbage and 19 of Cos Lettuces, while a London house, like Messrs. Carter & Co.'s, vends 14 kinds of Cos and 13 of Cabbage Lettuces. There is no doubt but that they are capable of a large reduction, if only thoroughly good and distinct sorts, suitable for certain seasons and purposes, are required. The evil of re-christening is operating more extensively among the Lettuces than among any other class of vegetables. In the winter of 1866-67 a fine, new, and somewhat distinct Lettuce was put into circulation for the first time; and there is reason to believe that this self-same kind is this winter appearing under two or three new names, and is being sold at the same price which it realised when originally distributed. *Quo.*

Home Correspondence.

Elms.—There are four varieties of Elms common in this part of the kingdom, known as the Scotch or Wych, English, Cornish, and Guernsey, all of very distinct growth and appearance. The first is a luxuriant but straggling grower, with large leaves thinly dispersed, which fall early. This sort is not considered a desirable variety for avenues or any ornamental purposes. The second is most commonly grown, as it forms a fine tree for parks and avenues. The leaves are not so large as the Scotch or Wych, and its growth is more compact. It produces the most valuable timber of any. The third is a small-leaved variety, of low and stunted growth. It suckers profusely, and is not considered of any value except for game covers and rough plantations. The fourth is one of the best and most useful sorts in cultivation. The leaves are a medium size, and thickly dispersed. Its growth is rapid, erect, compact, and handsome. It is perfectly hardy, and thrives in the most exposed situations; and as it retains its foliage longer than most other trees, it is unrivalled for public avenues and ornamental plantations. During the late autumn, after the excessive drought, and long after every other tree was bare, the foliage of the Guernsey Elm was almost perfect. It does not sucker, and is only propagated by grafting on the Scotch or Wych. Probably no better tree could be planted for the Thames Embankment. *W. H. Rogers, Red Lodge Nursery, Southampton.*

Variegated Zonal Pelargoniums.—It must not be forgotten that in common with many other plants there must be, in the case of the Variegated Zonal Pelargonium, an adaptation of the cultivable process to the particular season of the year. My visit to Mr. Turner's house of plants (see p. 1293, 1868) was made on a fine bright early autumnal day, when the temperature without was soft and genial, perhaps somewhat unusually so at that season. By a "low temperature" was meant that a free circulation of air was admitted by one of the doors (as a matter of course that particular door opposite to the quarter from which the wind happened to be blowing at the time), the which was tempered by the warm mid-day sunshine streaming through the glass. There is no doubt but that growers have been somewhat wrong themselves, and have misled others, by the use of the term "high temperature." This has come to mean, at any rate with many, a close, dry, stifling atmosphere, without the admission of air, and it invariably happens as a necessary result that the leaves of the plants have a faded and washed-out appearance, pretty well destitute of colouring matter. There is reason to believe that a free circulation of air has as much to do with the production of fine colouring matter in the leaves as warmth. Mr. Turner, therefore, allowed a full circulation of air from without as long as the sun's rays played upon the house; as the sun drew towards the west and they were withdrawn, the house was closed, and a fresh, invigorating temperature prevailed within. This principle should be applied as fully as possible throughout the autumn and winter; therefore, should a fine bright sunny day happen then when it is full on the house, air should be given. Cold draughts of air acting directly on the plants should be avoided as much as possible. In wet, damp, dull, and cold weather, apply some fire-heat, even briskly so, and admit air according to the state of the weather. Roughly estimated, a mean temperature of from 45° to 50° might be maintained; in comparison with the stifling atmosphere that fills the houses of some growers, this might be well termed "low." A dry, warm atmosphere within, freshened in so far as it can be done by the admission of the outer air, is the main condition by which these beautiful decorative plants will best succeed where subjected to house cultivation. Mr. Grieve, in his useful little book, speaking of specimen plants, says: "Winter them in a temperature not under 45°, keeping them near to the glass, and watering them very sparingly." I trust this will meet "Inquirer's" case, and I hope ere very long to address you again on the matter. *R. D.*

The Vine as an Ornamental Plant.—I am glad to perceive that the merits of the Vine as a hardy and ornamental creeper are at last found out. I have planted it both in Ireland and in the Regent's Park. It has had no protection in winter, and has done well in both places. In London it was used to cover a low parapet wall along a terrace. It has grown with the greatest luxuriance, and this autumn, when in September I left London, the numerous bunches of berries were turning purple. The Plane, the Ivy, the Aucuba, and the Vine, are invaluable in the murky atmosphere of our great metropolis. *Brinsley Mailay, Brixton.*

Large Trees.—I send the dimensions of the trunks of some of the Yew trees standing in the Park here. The first measured has a girth of 16 ft. 6 in. at 1 ft. from the ground, 14 ft. 4 in. at 5 ft., and 14 ft. 6 in. at 10 ft., where it first branches. This is a fine specimen, round and clean, and perfectly straight. No. 2 measured 19 ft. at 1 ft. and 22 ft. 6 in. at 5 ft. from the ground; this is hollow. No. 3 averages 19 ft. 6 in. for 3 ft., when it branches; it is sound. No. 4 averaged 22 ft. 6 in. for 3 ft.; it is slightly decayed. There are many others of from 10 to 15 ft. girth. There is also a Spanish Chestnut with a trunk girthing 29 ft. at 1 ft. from the ground and 28 ft. at 3 ft.; another one 24 ft. at 1 ft. and 19 ft. 6 in. at 6 ft.; and a Horse-Chestnut, averaging 19 ft. 6 in. up to the branches. *Thos. Woodford, Eastwell Park, Ashford, Kent.*—There is growing here a very fine silver-variegated Holly, 35 feet in height, with a very fine head, which, at 20 feet from the ground, is 95 feet in circumference; the body of the tree at the base is 6 feet 2 inches in girth; at 6 feet from the ground it is 4 feet; it then spreads out its branches to a fine healthy tree. I should think it must be 100 years old, as there is a man in the garden who has known the plant for 70 years. It has been cut a very great deal at Christmas time, or it would have been much larger there is no doubt. *Henry Hepburn, Scaresbrick Hall Gardens.*

Influence of Stock on Scion.—Undoubtedly there is a large field open for research and experiment, which, if followed up with zeal and keen observation, must be attended with results destined to work no small improvement in our hardy fruits. The beginning of this in some instances has been brought about by a desire to substitute one variety of fruit for another without destroying the existing stock, improvement in size or quality being quite unlooked for. But the mysterious action and influence exercised by the stock has not only improved the size, but sometimes the flavour and character of the variety substituted has undergone great changes. I have here a Chaumontel Pear, on a branch of which is grafted a Marie Louise, and I have noticed for two seasons past a great difference in the size of the fruit of the latter from this graft, in comparison with that of the same variety in the same garden, single grafted, those from the Chaumontel being considerably the finest fruit. More than this, they were from two to three weeks later in coming into use. It is well known that Pears are very capricious, some varieties doing exceedingly well in some places, and in others altogether indifferently—proving, in fact, worthless; and there is every reason to hope that by a scientific examination of the subject, and by a careful noting of the primary scions employed, at least some of those capricious varieties may be induced to succeed with a profitable result in localities where, at the present time, they are looked upon as being anything but desirable. *Jno. Ridout, Woodhatch Lodge, Reigate.*

Aeration of Vine-borders.—Alas! poor Vine, what an unhappy fate is yours; to have so many cultivators (like doctors) all differing about your state of health and welfare. Last spring a hot discussion was entered into about the proper extending or restricting the size of your branches. Now there is likely to be something as lively about caring for your roots. The puzzling fact of this Vine *embroglio* is this, that both extendors and restrictors are changing sides on the aërating question, and it will require Mr. Cannell again to step in with another 100*l.* worth of good advice to decide between the parties. A new correspondent, "Live and Learn" (see p. 1314, 1868) has essayed to give his opinions on Vine culture and border heating, and he seems to have lived and learned to some purpose, if we take him at his own price. "Live and Learn," according to his communication, has no faith in heating Vine-borders, except in exceptional cases, and in this I think he is right. In order, however, to enlighten benighted cultivators in the matter, he has given them a rough plan, not drawn to any scale, but which he says any intelligent gardener may make use of to his advantage. I for one, however, fail in seeing any advantage in his plan over Mr. Westland's, either in simplicity or economy, and believe that the introduction of the hot-air socket pipes through the middle of the border would be too drying for the roots. In making Vine-borders "Live and Learn" is quite agreeable to "the shallow spit of an old pasture," with a "fair share of bones and mortar rubbish," but he says, "folding sheep on the soil," or using "calcined oyster-shells," are nostrums, and do more harm than good. Permit me, however, to say, that some of the finest Grapes ever grown in England were produced from the borders where the "nostrum" of folding sheep on the soil was followed. The late Mr. Dowding, when gardener at Oak Hill, when he set about making new Vine-borders had the turfy soil intended for them ridged up in the winter, and sheep folded on it, and the ridges frequently turned in frosty weather. The records of the Horticultural Society at Chiswick, and of some of the great fruit salesmen of Covent Garden Market, will prove the assertion I have made, as to the superlative quality of the Grapes grown at Oak Hill. In covering Vine-borders "Live and Learn's" maxims are quite sound, and worthy of adoption by all Grape growers. He likewise makes an earnest appeal to Mr. Stevens, of Trentham, to set us all right, by giving us the results of the different systems of heating and covering Vine-borders followed there at different periods. Should Mr. Stevens deign to reply, and be successful in "exploding a deal of nonsense and expense in Grape growing," Live and Learn" will have earned the thanks of all gardeners for the communication he has penned for their benefit. *Thoth.*

Double Grafting.—Permit me to ask the correction of line 12 in paragraph 9 of my article at p. 7, in which "rich" should be "Crab." That strange operation of nature, by which a dwarf stock ceases to be a dwarfing medium under certain circumstances, is worthy of much attention by the scientific practical horticulturist. The man of science *par et simple*, it is to be feared, is not a budder or grafter, and yet these operations must be skilfully done, and their effects carefully watched. If one of our most dwarf Apples, such as I have described in p. 6, paragraph 5, be grafted on to a vigorous Crab stock, it represses the growth of the stock, and becomes a dwarf tree; but, if this dwarf tree be regrafted with some vigorous-growing sort, it at once loses its dwarfing nature, and the scion placed on it partakes as much of the normal vigour of the Crab as if it had been placed on to it below the graft of the dwarf stock. If the scion be of a vigorous nature, such as the Blenheim Orange Apple, its shoots will be so stout and strong as to leave the experimenter to inquire, How is it possible for the large quantity of sap required to produce them, to make its way through the cellular tissue of the intermediate stock without rupturing it? This should have close microscopic observation, and is quite worthy the attention of the scientific cultivator. One of the most remarkable instances of the repressive nature of a scion of a dwarf tree on a vigorous stock is the Dwarf Elm (Ulmus montana nana). I have a tree of this kind on my lawn, some 30 years old, it is grafted on Ulmus montana, the most vigorous of Elms, yet it is barely 36 inches in height; while a tree of Ulmus glabra, of the same age, grafted on the same kind of stock, and growing near it, is upwards of 40 feet high. Some years since (trusting to memory) I had one of these very dwarf Elms regrafted with a vigorous-growing sort, and it at once grew vigorously, not being checked by the intermediate graft. I hope (D.V.) to repeat the experiment this season. In describing the above various dwarf Elms, I am reminded of the tendency of our forest and fruit trees, when "under domestication," to quote Mr. Darwin, to produce miniature resemblances of themselves. The dwarf varieties of the Norway Spruce Fir, several in number, grow 1 inch in a season, while trees of the species in the same period will grow 3 feet. It is also curious to notice the dwarf varieties of the American Arbor-vitæ (Thuja occidentalis), which very recently have been brought into notice by the American nurserymen. This tree has been cultivated or "domesticated" for some two centuries probably, and it has now commenced to vary, for

three varieties are offered by one firm at Rochester, United States—Tom Thumb, ericoides, and globosa, all dwarf compact-growing varieties of the tall straggling tree, Thuja occidentalis. *Thos. Rivers.*

Conservatory Plants.—What can I do to make plants thrive in a conservatory which I have erected over a seed shop? The conservatory is about 30 feet by 20, and heated with hot water, the way to it being by an enclosed staircase out of the shop. I first had it glazed with the strong horticultural glass, but finding the plants losing all their leaves and the blossoms dying and falling off, I had it reglazed with 16 oz. sheet glass, having four sliding sashes in the roof, and three long openings at each end for giving air. I also had the roof lime-whited over, and the floor, which is covered with lead, covered over with sand, well syringed every morning and evening, allowing water to remain on the floor. Still the plants failed to open their flowers. I particularly noticed some Gloire de Dijon Roses, which lost all their foliage; also Habrothamnus coming into bud, then turning yellow and dying off. The above happened during last summer and autumn before any gas was used in the shop; now the gas is lit we naturally expect some escape, but the plants continue about the same, certainly no worse; it has been a very great expense, loss, and disappointment. *Charles.* [The evils you complain of would result either from too much or too little water. They were not caused by the glass, and the ventilation is, no doubt, sufficient. Have you a competent person to manage the plants? If so, you ought to succeed. The plants you name are very impatient of neglect, and if allowed to get dry would, on being watered, cast their leaves. EDS.]

Cloches.—One of your correspondents ("T. R.") remarked at p. 8: "It is curious to observe how averse English gardeners have been to the introduction of the *cloches*, or bell-glasses of the French gardeners." Allow me to ask whether it is not of the English glass-blowers that he should complain? Mr. Robinson assures us that bell-glasses, 30 inches in diameter, may be bought in France for 10*d.* apiece, or less if ordered by the 100; but at a large shop for such articles at the east end of London the price for *cloches* of this size is 3*s.* 6*d.*, and at the cheapest shop in the country town at which I live I should have to pay at least 4*s.*!—a sufficient reason, surely, why they are not used in England as in France. This is not the place to discuss the glass trade, but I may perhaps be allowed to mention, that at least one English firm largely engaged in constructing greenhouses, finds it answer to get all its glass from Belgium. If some spirited individual could make it pay to import *cloches*, there are probably many who, like myself, would gladly become purchasers. *G.*

The Mild Season.—Believing that this subject is one of great interest to gardeners and farmers, and wishing to elicit information from observers in other districts, I venture to communicate the results of my morning's walk on the last day of the old year, instituted mainly for the purpose of ascertaining the state of vegetation in this neighbourhood. I cannot, from my own experience, say what the effects of the mild weather now so much prolonged beyond the usual period are likely to be if severe frost set in, but judging from the advanced state of flower-buds of fruit trees, I should imagine that a very short crop of fruits would probably be the consequence. The buds of many trees appear almost ready to burst, and others have already sprouted, while herbaceous plants have made considerable growth. Of course, so far as herbaceous plants are concerned, little injury is likely to ensue, for at most they would only be weakened; but in the case of fruit trees and ornamental trees, the loss of fruit or leading shoots may be expected. Whether a bud is more susceptible in an advanced stage, though not actually burst, than when it is closely enveloped in its bracts, is a question I cannot answer, but I should think it to be so. I append a list of plants noticed in bloom, omitting, however, those midwinter-flowering plants that we expect to see. First, the native vegetation: Primula veris, Viola odorata (blue and white), Brassica sinapistrum, Heracleum Sphondylium, Anagallis arvensis, and several Veronicas were in flower, and Orchis mascula and Ophrys apifera were found in ordinary situations with leaves from 3 to 5 inches in length. Arum maculatum, Adoxa Moschatellina, Geranium molle, Digitalis purpurea, Veronica Beccabunga, Scilla nutans, and many others, were several inches above-ground, or had made new growth of corresponding length. Ulex europæus is often in full bloom here at Christmas, but this year it is earlier than usual; Ulex nanus, however, I have never seen before May or June. Of garden plants, Anemones, Pansies, the Czar Violets (very fine), Gentiana acaulis, Daphne Mezereon, Lonicera ligustrifolia, Laurus nobilis, Kniphofia Uvaria (throwing up fresh spikes), and many others not quite in flower, were observed. *W. B. H., Polegate, Sussex.*

Hyacinths.—I potted my Hyacinths the second week in November, some in old pots and others in new ones—no water had been near them before use. Now, the bulbs in the old pots are doing well, making some splendid roots, but those in the new ones are not doing so well; they have rooted well into the compost, but as soon as the roots reach the sides of the pots they turn brown and rot off. What can be the cause of this rotting? They were all potted the same day, in the same kind of compost, plunged to the rim of the pot in ashes, and watered, then covered to the depth of 3 inches in rough sand and ashes. I constantly examined them, and the pots seemed to have absorbed as much moisture as though they had been steeped in water before the roots come in contact with them. *F. H.* [Mr. William Paul kindly furnishes the following reply to the above query:—"I can only account for the rotting of the roots of the Hyacinths immediately that they come in contact with the sides of the pots on the following supposition: 'F. H.' says the pots are new, and 'seem to have absorbed as much moisture as if they had been steeped in water;' probably there is something deleterious in the earth of which the pots are made, and this is too freely absorbed by the roots with the abundant moisture."]

Horticultural Congress.—I concur in all that has been said respecting a meeting of this kind, and as it is to be under the auspices of the Royal Horticultural Society, I beg of the craft generally to prepare papers to be read before that august meeting. The subject of heating Vine-borders could be discussed on its merits, as well as hosts of real or supposed grievances: also such subjects as seeds and the seasons, cultivation and decoration, and other matters too numerous to mention. It would also be advisable to establish sub-congresses in local districts, to consider subjects, and send delegates to report progress annually to the congress proper. No great error can be made in moving along with the Royal Agricultural Society, as both societies will work cordially together for the benefit of the country. Particulars can be discussed of the various branches of horticulture, as well as of each other's success or disappointment, as exhibitors or visitors. It is to be hoped that every one will take his best productions, so that we shall not hear any more of the old tale of having left better at home. Much pleasure will also be experienced in witnessing the great collections of implements, and the large gathering of the animal as well as the vegetable kingdom. Finally, as these meetings are for the benefit of the employer as well as the employed, let there be a clear understanding between both parties that the expenses to such meetings be duly entered on the debit side of the garden cash-book. *J. Miller, Worksop Manor.*

Atmospheric Pressure.—As it may be interesting to some of your readers to compare the remarkable depression of atmospheric pressure during the past month with that which occurred towards the close of December, 1821, I copy the movements of the barometer (reduced to sea level) on that occasion from the "Proceedings of the Meteorological Society," vol. i., p. 206:

DECEMBER, 1821.

	8 A.M.	2 P.M.	10 P.M.		8 A.M.	2 P.M.	10 P.M.
	Ins.	Ins.	Ins.		Ins.	Ins.	Ins.
Dec. 11	..	30.36	..	Dec. 26	28.46	28.67	28.87
,, 21	29.18	29.42	29.56	,, 27	28.97	29.03	29.12
,, 22	29.56	29.44	29.18	,, 28	28.55	28.15	29.18
,, 23	29.15	29.26	29.34	,, 29	28.57	28.87	29.13
,, 24	28.94	28.67	28.29	,, 30	29.29	29.38	29.77
,, 25	28.57	28.60	28.65	,, 31	30.07	30.13	30.17

And on Jan. 19, 1822, the barometer rose to 30.58 inches. *R. C. Cann Lippincott, F.M.S., Overcourt, near Bristol.*

Rainfall, &c.—The rainfall of last month was remarkable, and an account of it may be interesting. My instruments are placed on the side, and near the bottom of a hill, in a sheltered situation, free from walls and trees.

DECEMBER, 1868.

	Ins.		Ins.		Ins.		Ins.
1	.08	10.. ..	.02	18.. ..	.15	26.. ..	.07
2	.11	11.. ..	.07	19.. ..	.34	27.. ..	.38
3	.12	12.. ..	.06	20.. ..	.00	28.. ..	.13
4	.02	13.. ..	.02	21.. ..	.20	29.. ..	.40
5	.12	14.. ..	.02	22.. ..	.30	30.. ..	.15
6	.17	15.. ..	.10	23.. ..	.10	31.. ..	.06
7	.60	16.. ..	.25	24.. ..	.35		
8	.59	17.. ..	.08	25.. ..	.13	Total	5.34
9	.15						

The highest observed (uncorrected) reading of the barometer at 9 A.M. was 30.126° on the 9th, the lowest, 28.642°, on the 24th. The highest self-registered temperature occurred on the 7th, 59°, the lowest on the 30th, 33.5°. The highest observed temperature of the dew-point at 9 A.M. was 52° on the 11th; the lowest, 31°.5, on the 12th. The highest humidity at 9 A.M. was 100° on the 1st and 29th, the lowest, 78°, on the 12th. The greatest horizontal movement of the air in 24 hours occurred on the 28th. The direction of the wind was south-westerly on 15 days, south-easterly on four days, southerly on three days, westerly on five days, and easterly on four days. Ozone was very abundant throughout the month, the only day showing a deficiency being the 2d. *R. C. Cann Lippincott, F.M.S., Overcourt, near Bristol, Jan. 2.*

Butterflies at Pau on New Year's Day.—One of your correspondents mentions the fact of his having seen a Peacock butterfly on the wing in the open fields on the 22d of December last. This is, I believe, "for this realm of England," quite an unparalleled case; but on New Year's Day I noticed three species within a few miles of Pau (France), viz., the common Atalanta, a species of Fritillary, and the sulphur-coloured. Whether there was anything unusual in their being seen in mid-winter in that locality I do not know. *J. B.*

Tubers of Oxalis crenata.—At Paris, on my return from Pau, having a little time to spare between the trains, I strolled into the Palais Royal, where, in a "depôt" of "comestibles," I noticed, among other good things, the tubers of an Oxalis, which I have no doubt was my old friend O. crenata, that I had not seen for 30 years. The hour being early, and the shop only just opened, there was no one there but an ignorant woman, and all that she could tell me was, that the tubers were grown in the open air, and in the neighbourhood of Paris. I brought away a number of them, which I hope to exhibit and comment upon at the next meeting of the Royal Horticultural Society at South Kensington, and in the meantime I should be particularly obliged to any of your correspondents who might kindly send me information on the subject. *J. B.*, 9, *Hyde Park Gate, South, W.*

Tanks.—Can you or any of your readers tell me of a plan to get water out of a tank. It is of brick, cemented, and is 12 feet long, 6 feet wide, and 4 feet deep. It is 3 feet below the surface, 1 foot above it, and has no step down to it. We find a moderate-sized can feels heavy when we have to dip low for it, and besides the men drag the can up the sides of the tank, and thus injure them and make them leak. *S. Keere.* [Fix one of Warner's manure pumps at one corner. EDS.]

Crickets.—In reply to "R. W." (p. 1289), a clergyman's gardener near here recently informed me that he had tried arsenic and every conceivable remedy to get rid of crickets and cockroaches, but without success, until last autumn; when, having found Scott's wasp-destroying mixture so extraordinarily effectual in getting rid of wasps, a thought occurred to him that it might also get rid of his other pests, and one trial proved it to be equally as valuable, the results being perfectly marvellous. Mode of operation:—Put a little on some bread and put it into their holes, or where they frequent, and for certain good-bye to crickets and cockroaches. *Feovil.*

Cucumbers.—Doubtless there are many amateurs who are equally perplexed as I am myself in regard to the choice of one or more good Cucumbers. Every seedsman or grower recommends his as superior to all others. I find nearly all of these "improved," or very enticing names are too delicate, except under a constant heat by hot water of not less than 75°. I shall be obliged if you can give me the names, and where seed is procurable, of a good prickly, fine-flavoured handsome sort of about 18 to 20 inches in length, well covered with bloom (to be raised on a hotbed of dung, in a brick pit, with outer linings), that is tolerably hardy, and will not damage, should the heat occasionally fall to 60°, when it loses the sun's influence. Years gone by, such as I am anxious to procure used to be grown by the then unscientific, and a fine specimen cut early in March. Is there a Cucumber known as the Racehorse? and where obtainable? *Q.*

Rats.—I have made a garden joining a meadow, with a brook running through, and am greatly troubled with rats; your correspondents would greatly oblige by informing me of the best method of getting rid of them. *A. Hammond, Griffin Hotel, Bury St. Edmund's.*

Phalænopsis Schilleriana.—A fine specimen of this magnificent Orchid will shortly be in bloom at Messrs. Carter & Co.'s nursery, Perry Hill, Sydenham. The plant is not over large, but in fine condition, having four very handsomely marked leaves, and it has thrown up a flower-spike about 40 inches in length, and in addition to the terminal shoot of the spike there are eight lateral shoots, the aggregate of flower buds being 57. It promises to be an exhibition in itself, and it is to be hoped thal when in bloom it will appear at one of the meetings of the Floral Committee at South Kensington. *R. Dean, Ealing.*

Sedum acre variegatum.—I have some small circular beds carpeted with this showy little Sedum, that are each in their way a mimic "Field of the Cloth of Gold." Growing close to the ground it presents the appearance of masses of minute golden blossoms, most striking at this season of the year. It is one of the prettiest and most useful foliage plants for spring work that I have ever employed, and I marvel that our spring gardeners do not use it extensively. The mild, moist weather suits it uncommonly well, though amid the hardest frost it never loses its cheerful and bright appearance. *R. Dean, Ealing.*

Telegraph Cucumber.—I forward you a brace of Rollisson's Telegraph Cucumber: they are not quite equal to what I have been cutting, in consequence of having cropped them rather heavily. My reason for sending them, is to show that my brother gardeners need not be under any fear in growing this variety in winter or early spring. Several spurious varieties have been sold for Rollisson's Telegraph, and were complained of by some correspondents in the *Gardeners' Chronicle* last season. I have heard of two or three instances in which Cucumbers could not be produced of this variety in winter; they certainly cannot have been the true kind, for I find it an extraordinarily free setter and cropper. I do not think there is anything to equal it, especially for winter use. I sowed some seed on the 21st August, and began to cut on the 20th October, and have been cutting ever since (from eight plants) an average of 12 Cucumbers a week. From my previous knowledge of its cropping qualities, I feel certain the plants would continue bearing until next autumn, if required to do so. I find it a very shy seeder if kept true, but if fertilised with any other free seeding kind it will produce seeds freely, but it then becomes almost worthless in comparison with the pure stock. In one list of seeds I have seen this variety offered at a very low rate, lower than some popular and common kinds; the seedsman may, perhaps, have had the true stock, but it is very doubtful if he has kept it true, as I am convinced that he could not grow the seed for the low price he asks. One of the principal things that is required of seedsmen is, to send out articles true to name. Suppose a gardener like myself is depending upon a crop of winter Cucumbers, either for his employer's table, or for market purposes: and after growing them several months he finds that he has not got the true kind, but an almost worthless variety, that will not bear fruit longer than a Gherkin, and will only now and then produce one of the miserable-looking fruit! Sending out articles true to name does not apply to Cucumbers alone, but to the general articles sold in the trade. I think this is of equal, if not more importance, than the mixing of seed, which is being discussed in the columns of the *Gardeners' Chronicle. J. D.* [Considering the season, the samples sent were very good. EDS.]

Pruning Forest Trees.—Mr. W. P. Ayres objects to the principles I laid down in the paper on forest pruning, which I read at the last meeting of the Scientific Committee of the Horticultural Society. I need not trouble you with a reply to his criticisms, because having said my say, it is open to every one else to say theirs in their turn, and to confute my conclusions if they can. But I trouble you with a few lines to prevent Mr. Ayres' statement of my position being

accepted as that which I really hold. I have, ever since I understood anything of forestry, been a strenuous advocate for free thinning, and as zealous an opponent of pruning (except under what may be called surgical advice or for some particular purpose), and that whether the pruning be by hacking off great boughs with the axe, or pinching off young buds with the finger and nail (which latter Mr. Ayres seems, somewhat inconsistently, as it appears to me, to approve of). The exception that has hitherto been taken to anything I have written or said on the subject is that I carry my views to extremes. It is therefore a novel position for me to find myself placed in the ranks of the pruners and non-thinners, and to be fired away at as a recruit in that regiment. I decline to accept the position, and insist on remaining where I was—among the enemies of pruning, and supporters of plenty of air and elbow-room for plant, or beast, or body. The passage to which Mr. Ayres has taken exception was a somewhat incidental one, in which I said that if a planter wanted to grow straight poles, and in order to secure that object preferred to sacrifice the timber he would otherwise have gained, then the best way for the wilful man to do it is to plant thick and not prune, instead of planting thin and afterwards pruning. But I never recommended any one to make such a sacrifice. It is not my cue. My recommendations are all the other way, and I am very glad to find companions of my way of thinking, even although they begin by knocking me down, under the mistaken impression that I belong to the other side. Still, as I do not wish to be knocked down oftener than I can help, I crave permission to holloa out in time that I belong to the blues. *Andrew Murray.*

Cyclamens.—I send you, in a small tin box, a few blooms of Cyclamen Atkinsii (in variety), gathered this morning from the open borders, and without the slightest protection. They are not in single ones or twos, but I have just counted 25 on one root. They generally begin to bloom about this time in the open with me, but this season, from its mildness, are finer than they usually are so early. *James Atkins, Painswick, Jan. 4, 1869.* [Little gems. EDS.]

Pines and White Scale.—I feel much pleasure in relating the total destruction of the white scale, by the recipe I mentioned in your issue of the 12th December. When first engaged as gardener at Heaton Mersey, near Stockport, I found under my charge a stock of nearly 500 Pine plants literally covered with white scale; they had so preyed upon the plants that the fruit ripening upon them did not weigh more than from 10 to 12 oz. each. My employer assured me that the plants had been infested with these pests for a great number of years; that he had been at a great expense with previous gardeners, who had tried various means to extirpate them, but without success. He had, therefore, come to the conclusion, in order to get rid of the nuisance, to destroy all his plants and purchase a new clean stock. I assured him my recipe was infallible, and received his permission to apply it, and with one application every insect was totally destroyed, without the slightest injury to any of the plants, beyond the usual check of shaking the roots out of their balls. The recipe is as follows:—Sulphur, 1 lb.; Scotch snuff, 8 oz.; nux vomica, 8 oz.; hellebore powder, 8 oz.; soft soap, 8 oz.; Cayenne pepper, 2 oz.; tobacco liquor, 1 qrt.; add to this 5 or 6 quarts of boiling water, stir the mixture well up, breaking the lumps, and when cool, strain it through a rough cloth. After standing one night it may be used at any time. Having provided a brush tied to the end of a stick, let the entire plant, the under as well as the upper side of the leaves, be washed, allowing a portion to run down the bottom of each leaf. After each plant is washed it must be tied up, and laid to drain with the top downwards, to prevent the liquor lodging too long in the heart of the plant. If every portion of the leaves has been washed, no insect can possibly survive the process. The plants of course have a soiled appearance until they commence growing, when the occasional sprinklings overhead soon so cleanse them that nothing can surpass their healthy appearance before the end of summer. I ought to remark that when the mixture is used for the white scale, the insect should be removed by the washing. When applied for the mealy-bug, the roots should also be washed, as well as the bottom of the trunk. The first week in March is the best time to perform the operation. *Joseph Hamilton.*

Orchard-House Culture.—A paragraph in your Paper recently stated that the improved method of growing fruit, as advertised therein, was by the Rev. John Fountaine, but the public would have ascertained that in a subsequent Paper, as I had requested my name to be appended to the advertisement previously to seeing the paragraph. It stated also that it was "merely a slight variation on orchard-house culture," which was also true as regarded the actual treatment of the trees in pots; indeed, we cannot hope to make much improvement upon what Mr. Rivers has taught us on this head. But the variation is very great as to the method of applying it; and had it not also been very great in the results as regards the healthiness of the foliage, size, and especially flavour in the fruit, I should never have been at the trouble of writing about it, much less of advertising it. My remarks will be of little use to those who are satisfied that they obtain perfect flavour from their orchard-houses, as they have already got the most beautiful and elegant system of growing fruit ever introduced. What more then need be desired? Those who are not so convinced may, I do not hesitate to say, learn how to have it in the greatest perfection, and may in addition have a house full of first-rate Grapes, which they could not have before. The best authorities recommend the pots to be removed, by hand, from the house before the ripening of the fruit, and to be plunged in the garden to improve its flavour; and no doubt the flavour is improved thereby under favourable circumstances, but it cannot be depended upon. The season just past was the most favourable for the purpose I ever remember; but had my trees been out when they were full of fruit, not only the fruit, but the leaves and the trees themselves, would have been utterly smashed, for we had such a hailstorm, extending over many miles in this district, as I never remember. My gardener had 25 panes of glass broken in the windows of his dwelling-house. But admitting this to be exceptional, I will only quote another case from an interesting article in the "Journal of Horticulture," of the 26th of last November, as it bears not only on this question, but also on another I shall state further on. I leave the public to draw their own conclusions:

"'Growing fruit for market at Little Sutton, Chiswick' (Mr. Francis Dancer). Now this is no small concern: the writer says that he has known 153 bushels of Plums to be sent to Covent Garden in one day! He states, 'There is, I premise, a very great difference between growing fruit for market, and growing fruit for a gentleman's table. The method of cultivation, and the end desired—good fruit—may be the same, yet the one is generally for quantity, while the other is for quality, and variety,' &c. 'Quantity is evidently more prized than quality, especially if the latter is attended with scarcity,' &c. 'Nearly all the Plums sent to market are gathered from the trees in this half-ripe state. They may not be quite so good for dessert, but as they are principally used for tarts, &c., it matters little. It does not pay a Plum cultivator to wait until the fruit are quite ripe; they would not carry to market in good condition, and the losses arising from spoilt fruit, through bad weather and other causes, are sometimes very serious indeed. A day of rain makes sad havoc among ripe Plums; I have seen hundreds of bushels destroyed; the skin cracks, and the fruit splits, and is totally spoiled. Mr. Dancer runs no risk of this sort, but gathers the fruit as soon as it will sell.'"

Such is almost always the case with pots turned out. I have had a difficulty about putting a price upon the pamphlet. Had I advertised it gratis, the gentlemen (to whom it more especially applies) would not have considered it worth their notice, and it would have fallen into the hands of the gardeners and small growers, who according to the views of the above quotation, would not have been much benefited, and by charging five stamps as now, there was the risk of drawing hard-earned pence from the pockets of these worthy men, which is the very last thing I desire. I have therefore appended to the advertisement that the pamphlet is addressed solely to gentlemen. I am glad to say that the system is slowly and surely making progress, in spite of a little cold water occasionally sprinkled upon it, which, like dew, chills for a little time only to increase the after vigour. *John Fountaine, Southacre Rectory, Brandon.*

Rockwork.—Can any of your correspondents tell me how to get vegetation as soon as possible on a piece of rockwork that is building here at present—the large pieces of rock look so staring and new? I have tried Moss on a piece of rockwork built 18 months ago, plastering it over with loam and finely sifted leaf-soil, making it into a sort of puddle, but the birds scratch everything off. *A. McA., Bromley.* [Try Sedums, &c. EDS.]

Foreign Correspondence.

GARDENING NOTES FROM RUSSIA.—Before proceeding further, I wish to make some remarks on the kitchen vegetable productions in the more southern parts of the country.

Melons.—There are several varieties of these grown in the open field, but the most popular is the Water-Melon, called in Russian "Arbooz." It measures in general from 6 to 9 inches in diameter, is quite round in form, dark green outside, and red inside. It is so full of cool, sweet, and refreshing juice that it is in the greatest request during the hot weather, but it is only after the month of July that it is abundant and so cheap as to be within the reach of the very poorest. A good sized Arbooz may be had for less than a penny, that is to say for two or three kopeks. By the month of August immense quantities are brought from the neighbouring fields to the markets every day, and very soon after distributed all over the town. A whole cart-load costs only about three roubles, often much less. When the Arbooz is in season, of course no dinner or supper can be complete without it. People here don't grumble much if a Cantaloup, or similar sort has been forgotten, but they cannot dispense with the Arbooz. The rich have it by the end of June, but only with the help of frames during the spring. In the country every poor peasant has a plot of ground occupied with it. It grows readily in almost any common soil, and requires no attention. This particular part of his field or garden is the Bagshta—that is to say, his Melon-ground. But those who grow it for market have large fields of it. The Arbooz may be grown in the more northern parts of the country, but it is only in what is called Little Russia that it is as cheap as water.

Cucumbers.—If, according to Buckle, everything depends on climate, it is surely true with respect to food. The Water-Melon is abundant, and in the greatest request here, but there is another product of the kitchen garden that is in still higher favour, and if possible still more plentiful, that is Goortsee, or in plain English, Cucumber. But here you rarely see Cucumbers longer than 2 or 3 inches; certainly never longer than 5 or 6 inches. The Little Russians especially cannot live without Goortsees—they must have them winter and summer at every meal, except, perhaps, tea. These small Cucumbers are raised in frames for the first supply. As early as February, and before the snow has melted, long trenches, about 3 feet deep and 4 or 5 wide, are filled with stable dung, and the lights put on. After a week or so, the soil, previously prepared and protected during winter, is laid in, and the seed sown. These frames are generally very rude and simple in their construction, never rising above the surface of the ground, but the lights are good. For at least six weeks before Easter people here are condemned by the laws of the Church to live in the most abstemious manner; but at Easter they are free to indulge in whatever they please. Great preparations for feasting are made for Easter-day, and most growers try to have these small Cucumbers ready for that time, for then they are sure of a good price. I have seen them sold at 50 kopeks a-piece, that is about 1*s.* 6*d.*, but then they are very rare at that early season. It is only in the gardens of the rich growers that they can be got ready so soon; and, as I mentioned before, even the richest seignor here tries to make a profit by his garden. Everybody who has one or two acres of ground has a certain number of Cucumber frames. Many of the poorer nobles are very glad to obtain a few roubles in this way. Some of the merchants, too, near Harkoff, have extensive Cucumber grounds, with more than 1000 frames; one I am told has more than 2000 lights. Every light, it is calculated, yields to the extent of three and sometimes four roubles. Towards the beginning of May Goortsees, raised in frames, are plentiful enough to be within reach of everybody. The field crops come in about the end of June, and continue till the winter sets in. The winter supplies are stored in barrels of water, sand, and salt. In this way they keep in good condition till the following season, but they do not keep hard and crisp; on the contrary, they become softer and more pleasant to the taste after being in the barrels a month. In some parts of the South the last course at table, before dessert, is never, or very rarely, served in winter without these salted Cucumbers, and sometimes Apples, preserved almost in the same way, are served along with them.

Potatos.—In this country, where the soil is so light and so easily worked, nothing is so rare as a good Potato. Whether it is that people do not know how to select the sorts, how to cultivate them, or how to cook them, I cannot decide, but it was only last year, while staying a week or two in the Government of Koorsk, that I tasted Potatos deserving the name. I am inclined to believe that the varieties are bad, for, with that single exception, I always find that they are pale, watery, or waxy. But the cooks here are also in fault, for Potatos are always served either cut up and drowned in sauce, or beaten to something like batter. It is strange that the Russian gentry, who in general are great *gourmands*, should never have a good Potato, or a bit of well cooked butcher's meat on their table. Here the kitchens are all arranged on the French system, but for roast beef there is nothing equal to a grate and a turnspit. As for beefsteaks, notwithstanding the inventions that have been brought before the public for preparing this much-prized dish, the very best and simplest mode is that employed by the London chop-house keeper. I shall close these remarks on Potatos and beefsteaks by mentioning that, in the South in particular, butcher's meat sells at about 1*d.* per lb., or 6 kopeks. It was only 3 kopeks a year or two ago, but it has risen lately.

Cabbages are extensively used all over the country, by rich and poor. The Russians have a cheap and wholesome soup which they prize above any other; in the South it is called borshshtya, in the north shtyee, and it is composed chiefly of cabbage leaves cut down small. With this soup is served another dish equally wholesome, and, if possible, cheaper, called kasha; it is probable that as much of this soup and kasha may be had for a penny as would make a good dinner, that is, when cooked at home; and it would be difficult to find a dinner cheaper or more nourishing. Nobody here need starve when borshshtya and kasha are so cheap. But it is of Cabbages I wanted to write: for to see the immense crops grown here, you might suppose that some other use was made of them than that I have mentioned; but it is not so. One market-gardener once told me that this crop was the most profitable of all, for he could clear as much as 20*l.* an acre by it, only the work was extremely hard.

Sunflower Seed.—Would you imagine that the seed of Helianthus could ever form an article of extensive consumption? Such, however, is the fact; and I believe it produces some thousands of roubles every year. In the more southern parts of the country especially, the habit of eating this seed is almost universal with high and low; yet it is nothing more than a habit, and one which I consider exceedingly disagreeable. Wherever you go, early or late, you continually hear the crick-crack which is produced in breaking these seeds between the teeth, accompanied by the spitting out of the husks. On *fête* days especially, when people have nothing to do in the way of work, Sunflower seeds are in every hand, and the walks in the gardens and other places are literally covered with the husks. There are people who must always have something to occupy their fingers; the little Russians must always have something to occupy their teeth. About a pint of Sunflower seed sells at a penny, and a great many poor make a small trade of it. But all who have a plot of ground grow enough for their own wants, even if they grow nothing else.

Grapes.—I believe that even as far north as Moscow good Grapes may be grown in the open air, at least on walls with a south aspect. I do not say that they would be large or well swollen, but, at the very least, quite eatable, and of good flavour. In the Governments of Harkoff, Poltava, and Ekaterinoslav, the only reasons why excellent Grapes are not produced, are the ignorance and indifference of the gentry. I have seen beautiful ripe Grapes on an espalier by the first week of September, only a few versts from Harkoff. I have also seen them fit for any table near the town of Poltava, and yet nobody takes the trouble to cultivate them. Very true, Vines are sometimes seen covering the side of a house, or a few espaliers, or a wall, but nobody looks after them and thins out the fruit, or protects them against thieves. Common fruit, such as Cherries, Pears, Apples, and Plums, are plentiful. Last year there was a general failure. This year (1868), in the interior of the country, there are only Apples,

but they are very abundant. The great supply of Grapes comes from the Crimea. In general they are large and well-flavoured, and sell here (Moscow) at about 10 kopeks a pound.

Since the emancipation of the serfs, a great advance has been made in the way of horticulture. Almost everybody now has a plot of ground of his own, often as much as one or two acres, and it is pleasant to see with what care and assiduity these poor people try to make the most of it. As yet their efforts are confined to the commonest kitchen vegetables; but no doubt, in the course of a few years, fruit and flowers will also receive attention. There is especially a great deal to be done in the way of raising seed, whether for the garden or farm. *K.*

Societies.

EDINBURGH BOTANICAL: *Dec.* 10, 1868.—Charles Jenner, Esq., President, in the chair. After the election of office-bearers for 1868-69, Dr. Cleghorn, the newly-elected President, took the chair. Donations to the library and museum at the Royal Botanic Garden were announced. The following communications were read:—I. *Notes on the Botany and Agriculture of Malta.* By Dr. Cleghorn. The author described the agriculture of the island, which he had traversed in every direction during a four months' residence. The mode of cultivating the Orange groves, and the value of the Carob Bean, and the Hedysarum coronarium, were dwelt upon, and the supply of fruit and vegetables as seen in the markets was detailed. The history of that remarkable plant, Cynomorium coccineum, or Fungus melitensis, was given, and the present condition of the Florian and St. Antoine Gardens described. The measurements of the largest trees in these gardens were recorded, and some remarks were added as to the peculiarities of the local flora, and the results of the recent introduction of Australian trees. The importance of extended arboriculture was also urged. The paper will appear in full in the Society's "Transactions."——II. *Reports on Botanical Excursions in July and August*, 1868. By Professor Balfour. Specimens of the principal plants collected in the various trips were exhibited.——III. *On the Preparation of Fungi.* By Mr. James English, Epping; communicated by Prof. Balfour. The author remarks that during his entomological rambles he had for many years observed Fungi, and often thought that it was a pity that no plan had been adopted for preserving such beautiful forms, so as to have characteristic specimens in botanical museums. It is only three years ago that he hit upon a method which promises good results. The process adopted is that of waxing the specimens, and thus preserving their natural pileus and stipe. Specimens preserved in 1866 are now as fresh as when first prepared. A series of Fungi thus prepared by Mr. English, and now in the Museum at the Royal Botanic Garden, were exhibited to the meeting.——IV. *Miscellaneous Communications.*—1. Dr. Thomas Anderson, Calcutta, sent a report on the number and distribution of Cinchona plants in the Government plantations at Darjeeling on September 1, 1868. The total number in the various plantations at that date was 2,075,078—viz., C. succiruba, 1,118,557; C. Calisaya, 20,354; C. micrantha, 29,667; C. officinalis and vars, 901,408; C. Pahudiana, 5092—2,075,078. 2. Mr. R. M. Stark gave an account of a botanical tour which he had made last autumn through some parts of Switzerland, and noted the principal plants met with. 3. Professor Dickson gave a demonstration of the peculiar microscopical structure of the shell of the Brazil nut. Preparations were exhibited under the microscope. 4, Mr. Stark exhibited growing plants of Asperula azurea and Sedum Maximowiczii.

Florists' Flowers.

THAT in the face of such a trying season as the past summer has proved for bedding plants generally, and for the Verbena in particular, the Floral Committee should have awarded three First-class Certificates to Verbenas, as fine and useful bedding kinds, out of a somewhat limited number of plants bedded out for trial, is a fact enough to rouse to a high pitch of enthusiasm the loyality of those advocates of the VERBENA AS A BEDDING PLANT who, sustained by a faith no calamity that has happened to their favourite can darken, were still found prophesying that "the new-fangled bedding plants, in which dingy and uncertain aspects of self-coloured foliage, or leaf-variegation, supply but indifferently well the place of gay and varicoloured flowers, will last but for a season, and ere long be supplanted by the old and more reliable plants whose legitimate possession of the flower garden they have for a brief time usurped." True it is, that in the flower garden the neglected Verbena has just come to the foreground, and taken high honour in that kind of competitive examination a season's trial affords. With other bedding plants, Mr. Barron this season planted out a few Verbenas, and to the following varieties First-class Certificates were awarded, as recorded above:—James Birbeck (Perry), shaded pink, dashed with violet; a fine and showy free blooming, bedding kind, trusses of good shape, keeps its colour well under a burning sun, and is of excellent habit and style of growth. John Wilson (Perry), scarlet, dashed with violet, with all the admirable qualities of the foregoing, but yet distinct in colour. Miss Wimsett (Wills), deep purplish violet, with conspicuous white eye, which, however, becomes a little pale with age, but without presenting a washy appearance; very free blooming, and excellent dwarf habit. For cultivation in pots this latter variety appears to be eminently adapted, and should be noted by cultivators who so grow the Verbena. Hercules (Perry), was also very good, yet having to a certain extent the fault that attaches to most rose-coloured Verbenas when used for bedding purposes—a tendency to become pale and washy; this variety has deep rose flowers with white eye, with a crimson ring surrounding it; it has also free-blooming properties, and an excellent habit for bedding purposes. While on the subject of rose-coloured Verbenas, it may be stated that there has been seen growing in the neighbourhood of Halifax during the past summer a rose-coloured sport from the well-known Purple King, identical with it in every respect save in the colour of the flowers. In the somewhat moister atmosphere of the West Riding of Yorkshire (though it appears somewhat difficult of proof to assert that the atmosphere has been moist anywhere during such an almost unprecedented summer), this sport has done very well indeed; and if getting pale as the flowers age, it is to some extent compensated for by the wondrous prolificacy of bloom it yields. It did not appear to have been named, but was simply known as a rose-coloured sport from Purple King. A variety known as Crimson King, sent out by Mr. Methven, of Edinburgh, was seen remarkably fine at Mr. Kinghorn's nursery, Richmond, in August last. It has bright deep crimson flowers, with a pale lemon eye, and a good bedding habit. Mr. D. Thomson, lately of Archerfield, strongly recommends this variety for bedding purposes—a pretty sure guarantee that it is well adapted for the purpose. The dry season has had a beneficial effect on a somewhat rampant grower like the old Lord Raglan, as it has tempered its growth and increased its tendency to bloom freely and continuously. It was largely used this past summer at the Promenade Gardens, Great Malvern, by Mr. R. H. Vertegans, and on some sloping banks, with a north-west aspect, it was gloriously fine. It is an excellent kind also to cut from, having a long stiff flower-stalk, while in regard to constitution it is so hard and wiry in habit that it blooms unusually late in the season. It is somewhat late in the career of this variety to write thus much in praise of it, but these are the very qualities that have kept it so long in cultivation. Blanche of Castille is another capital bedding kind, having pure white flowers with a slight lemon eye, and a good habit. This was also very attractive at Mr. Kinghorn's nursery.

At the Royal Nursery, Slough, Mr. Turner planted out this summer a number of kinds, to test their value for bedding purposes. It afforded a very good opportunity to get something like reliable impressions of their apparent usefulness in this respect. The best thus employed were:—Apollo (Sankey), pale flesh, with bright crimson centre, and suffused with the same; a wonderfully free blooming kind, of excellent habit, and which kept its colour well. Madame Herman Stenger (Boucharlat), very showy indeed, and useful as a bedder; something in the way of Apollo, but white, bright rose and cherry centre. Blue Queen (Perry), bluish purple, with white eye, keeping its colour better than flowers of this hue of colour generally do; nice dwarf compact habit. Modesty (Perry), another good light-coloured bedder, blush, with bright crimson centre, and capital habit. King of Bedders (Henderson), bright crimson-flowering variety, in the way of Admiral Dundas, habit dwarf and compact. Spark, bright scarlet, a variety that does not burn, and has a fine glow of colour. L'Avenir de Ballant, a very good bedder, opening bright rose, with small centre of bright rosy crimson, the flowers pale a little with age, but without becoming "washy." Black Prince (Smith), rich plum purple, with white eye, a good bedder. James Birbeck (Perry), and John Wilson (Perry), both very fine and effective here as at Chiswick; the predominant hue of the former is scarlet, of the latter ruby. Miss Turner (Perry), habit very good, but comes much suffused with pink out-of-doors, yet a very pretty variety. Hercules (Perry), a good bedder, and of a deep rose hue, approaching to ruby; in its effect it has more of rose in the flower than is found in the case of John Wilson, and out-of-doors the two kinds approximate much more closely to the same hue of colour than when grown under glass; the colour of Hercules fades a little as the flowers age. Lilac King (Perry), pale lilac, free blooming, and good habit. Harry Law (Perry), shaded purple, with white eye, a good bedder, and free blooming. Shirley Hibberd (Perry), a splendid bedding kind, of a close, compact habit, and most profuse in blooming; colour bright plum purple, with small white eye, a kind that retains its colour remarkably well, and also promises to be a good variety for pot culture; and J. C. Ward (Perry), bright purple, good bedding habit, and free blooming, but with a tendency to come pale round the small white eye soon after it opens.

Of pure white flowers, the old Snowflake has done most admirable duty as a white bedder during the past summer. In a few instances where it has been seen (and they represented somewhat diverse localities) it, too, had lost something of the strong growth it will frequently manifest, and had produced many more blossoms than usual. It would thus appear that the dry weather has beneficially affected strong and rampant growers; a fact that may be of use to cultivators in the future. No doubt the great bane of the Verbena, as affecting its attractiveness, is wet weather, as a heavy rain will soon impair the beauty of a bed; but it should be borne in mind that all flowering plants grown in the open air are more or less injured by the same cause, and a too sweeping condemnation of the Verbena should be modified by such a consideration. *E. D.*

The Apiary.

WINTERING BEES (*continued from* p. 31).—In my last communication on this subject I gave the ideas of some writers in the "American Bee Journal" who are in favour of wintering bees on their summer stands, providing for them proper protection and ventilation suitable to such a condition. I now, from the same number of the Journal, give the views of some advocates of the dark cellar or separate house system of wintering, leaving it to my readers in this country to judge for themselves whether the adoption of either method is desirable, and if so, which plan would best suit their purpose.

"Novice" says:—"We are going to put all our bees into the cellar. Does any one care to know why? Well, you remember the one weak swarm (or rather quart of bees) that we kept in the cellar last winter, which consumed less than one frame of honey, and of which so many were lost, after being set out a day or two! Though they did become very weak, yet, without any assistance in the spring, except the rye and oatmeal, they became a strong colony, and have yielded us more than 50 lb. of honey. Now, had they been left out with the others, they would assuredly have died, as did three or four much stronger ones, and we should have had nothing but empty combs. (By the way, Mr. Editor, we will pay 25 cents each for frames of empty worker comb, so that a Langstroth hive from which the bees have died, is worth 2 dollars 50 cents for combs alone.)" I extract this last paragraph, though not relating to the subject under consideration, for the purpose of showing our readers the value which, by some bee-keepers, is placed upon empty combs, which, in truth, should always be carefully preserved for giving assistance to weak stocks, or for making artificial swarms. "Now, if we can save 10 lb. of honey from each stock, by carrying them in the cellar (which we do not doubt), we shall have 350 lb. more ready for our honey machine next spring. We shall place a thermometer there, so as to keep the temperature as near 35° or 40° as we can. A great deal is said about keeping bees quiet, yet the weak swarm first mentioned was struck every day for three months, with hardly an omission, to see if they were alive, and we are going to 'look at' and 'punch' our bees this winter whenever we feel inclined to do so. We cannot help thinking Mr. Langstroth's new plan for wintering is an 'awful sight of trouble,' and that it will not answer the same purpose as keeping them in a cellar at a temperature of about 40°. Will not the same objection come in that was made to double hives—that the sun cannot warm them through as quick as a thin hive?" This writer is a warm advocate for the use of rye and oatmeal. He thinks that his large harvest of honey the last poor season was mainly owing to the large amount of rye and oatmeal fed last spring. "We think," he remarks to the Editor, "you should advise, at the proper season, in large letters, the use of rye and oatmeal; but then how few would take the trouble to provide it?"

Another correspondent, B. S. Hoxie, says:—"I gave my method of wintering bees in the Journal some time since, and will now say that I have tried most of the plans recommended, and think any temporary arrangement too expensive, with too much time, too much litter with clamps, loose boards, &c. I say, make a suitable permanent house. It need not be expensive, and will last for years. I set my bees into their winter quarters as soon as severe cold sets in; remove the caps entirely, and put on the straw mats, which are made of soft oat-straw, and so constructed that they fit tightly on the top of the hive, with a space of ⅜ inch between the straw and the frames. This allows a free passage for the bees to all the combs, and a warm place for them to cluster. Perhaps ashes, woollen rags, or something of this kind may answer; but nothing is so cheap and clean to handle as the mat made in a frame with strips of lath.

"A.," Salisbury, says:—"In November, 1867, I put 103 stocks of bees in the basement of my double-walled, brick, sweet potato house; the walls of which were 16 inches thick, with a 4-inch dead-air space between; and the floors filled up 1 foot with dry sand, to prevent moisture arising from the earth. The larger proportion of the hives were well filled with honey, but some eight or ten that came off late in August (some swarms having issued as late as the 25th) were only half supplied. All these were inverted, and flat pieces of sugar-candy laid on the combs, to save the honey for spring consumption when first set out of the house, that being the most dangerous time to feed, from the interference of robbers. I removed them from the house about the middle of March—all being in very fine condition. On the 15th May they commenced sending out natural swarms (they were Italians, of course). I did not lose a swarm after setting them out in March. During the winter the mercury did not fall below 40° (F.) in my room, when it was 10° below zero out-of-doors. I do not admit a ray of light in the room. I shall put 130 stocks in the same room this winter."

This writer hails from Illinois. There seems to be a great deal to be said on both sides of the question as to which place is the best, but evidently the climate of his district has the most influence on the decision to which each bee-owner must arrive. *S. Bevan Fox.*

Obituary.

WE regret to have to record the death of Mr. EDWARD PARKE FRANCIS, on the 11th inst., at his residence, North Road Cottage, Hertford, in his 67th year. Mr. Francis had been in business for nearly 40 years.

Miscellaneous.

Planting Conifers.—The two great evils that Conifers suffer from are, an excess of moisture at the roots, and planting in low confined situations. Unfortunately Conifers do not always show the effects of these evils. In dry seasons and mild winters the plants do pretty well. It is only when there is a heavy rainfall in the autumn, and this is followed by a severe winter, that Conifers planted in badly drained land and confined situations suffer to any extent, but the results then are often disastrous. Plants that are perfectly hardy are thus set down as tender. Hardy Conifers when planted in badly drained land, or in confined places, will suffer seriously from a few degrees of frost, while the very same kinds will, when planted in thoroughly well-drained land and open airy situations, stand many degrees of frost without sustaining the slightest injury. When Conifers are planted in badly drained land and in confined places, the wood very rarely gets properly matured, and in consequence it suffers from a few degrees of frost. Excess of moisture at the roots in winter causes the spongelets to perish, and the plant is in consequence weakened and less able to stand frost. From long practical observation I have very little

doubt that excess of moisture at the roots is one of the chief causes why so many hardy Conifers suffer so much injury in severe winters. Of the several thousands of Conifers planted here in the park, the pleasure ground, and woods, not one of those in exposed situations, and where the subsoil is of a dry porous nature, suffer in the slightest degree from frost. A few only, in low places, or where from the nature of the ground the surface water could not pass off freely, suffer slightly. I am perfectly convinced if more attention was paid to the drainage of the land, and to planting in open airy situations, where the wood would get ripened, we should not hear so often of wholesale destruction of Conifers in severe winters. In our mois climate the land for Conifers cannot be too dry in winter, if we wish to save the fine roots from perishing; nor can the situation be too open and airy provided it is sheltered from the fury of the destructive west winds. *M. Saul, in "Florist and Pomologist."*

Incombustible Wood.—According to M. Schattenmann's experiments, there is an easy and cheap way of rendering wood incombustible; it consists of coating it with chloride of lime. It is true, writes the "English Mechanic," this will only protect the surface, but it will prevent the flames from spreading. Chloride of lime, or more properly chloride of calcium, is obtained on a large scale by decomposing bones with hydrochloric acid, which dissolves the calcareous part without attacking the gelatine they contain. This neutral and liquid chloride marks 14° by Baumé's aërometer, and contains 15 per cent. of anhydrous chloride. To this liquid an equal weight of slaked lime should be added, and it may then be applied to the woodwork to be preserved. The operation should be repeated twice with a common whitewashing brush. The cost is at the rate of about 5 francs per 100 square mètres, the liquid costing 1 franc, and the rest being the men's wages. The Bouxwiller Mining Company, which extracts gelatine from bones, can afford to sell liquid chloride of lime at 2 francs per 100 kilogrammes, not including the price of the cask. Where chloride of lime cannot be had, it may be made by treating chalk with hydrochloric acid. To test the incombustibility of wood prepared in this way, take a few bricks and inclose a square with them; fill up the space with a kilogramme of straw; place three wooden laths across, coated as above, then put another row of bricks upon the first, and place the three uncoated laths across. Having well secured them, set fire to the straw, when the upper or uncoated laths will catch fire immediately and be consumed in five or six minutes, while the lower ones, protected by their coating, will only glimmer and be carbonized where the flames touch them, but will everywhere else be safe from combustion. Fir-wood should be selected for the experiment.

Garden Operations.

(For the ensuing week.)

PLANT HOUSES.

THE past season having been favourable to *Heaths*, the stock in the Heath-house should in consequence be healthy and vigorous. A cold temperature approaching closely to frost will not injure this class of plants so much as a few degrees too much artificial heat. On the other hand, a close, damp atmosphere must always be guarded against, as this tends to cause a weakened and drawn growth. With an abundance of air upon all favourable occasions, and a temperature averaging at this season a mean of about 55°, a good sound growth may be insured without in any way injuring the constitution of any particular variety. *Conservatories* should now be looking neat and gay, and to insure a continuance of bloom it will be necessary to constantly look forward in regard to introducing a necessary quantity of plants into forcing pits, &c., to keep up the supply. Every semblance of decay, whether of leaves or flowers, should be removed daily, as nothing in this way should be permitted to remain to destroy the freshness of the plants. Afford, on all favourable occasions, a plentiful supply of air, taking care not to give any more artificial heat than may be necessary to keep out frosts, or occasionally, to prevent the ill effects of damp. The former has a tendency to hasten the decay of forced flowers, weakly as they are, by its harsh dryness; and the latter to cause decay, which may or may not be outwardly perceptible, before its natural time. Attend to and search all hard-wooded plants for mildew, as this destructive agent ofttimes causes considerable injury before it is detected. Take advantage of "bad weather" to wash all pots, pans, or tubs, requiring such attention, and by this means aid in forwarding all such small jobs, so as to have the same well under hand when the busy months, which are now fast approaching, arrive.

FORCING HOUSES.

Vines which are now in flower should have a temperature of about 70° by day, with a decrease of 10° by night, and with a dry atmosphere. It is well at this early period to aid the process of fertilisation artificially by slightly jerking the whole bunch with the hand, the better to distribute the pollen. In certain instances, one variety of Grape, or plants of separate identity, may have a larger supply of pollen than others; in all such instances it will be practicable to cross-fertilise therewith any others which show a scarcity. The process of disbudding must be carried on gradually, removing all laterals in like manner as soon as a healthy leaf or two has been secured upon all where required. Other Vines which are now swelling their buds should have an increase of 3° or 4° more heat, and with rather more air, when the first symptom of actual leaf-formation exhibits itself. Tan-pits in *Pineries* should now have careful attention. Should the heat be on the decline, let the pots be taken out, and the tan be well stirred up from the bottom, as previously advised. This operation will be the more necessary to secure a good uniform heat by the end of the month, at which time some of the most forward successionals may be induced to show fruit; at which juncture great attention in this and other matters must be given if fine fruit are to be secured. Early *Kidney Beans* may now be grown with very little trouble; they should be sown five in a 60-sized pot, and be potted on into 16's, so soon as the rough leaves show. Afford to young *Seedling Cucumbers* as much light and air as possible without risk of injury by the latter. Where convenience exists, sow *Melon* seeds for an early crop, treating them in every respect similarly to the former. Introduce a successional stock of *Strawberries* into any cool structure, such as a Peach or Cherry house, to make a primary start preliminary to being removed into a higher temperature. Be very gentle in regard to forcing *Cherries;* these have a great dislike to excess of heat, artificial heat more especially. A mean of about 44° to 46° will be ample until the buds have pushed.

HARDY FRUIT GARDEN.

Hardy outdoor Vines should now be pruned without further delay. It is not advisable to prune them so closely as is often practised. I would always advise that one or more good firm buds be retained upon each properly ripened shoot of the last year's growth. Those should, however, be chosen which are properly placed for tacking neatly to the wall. Remove any very old wood, and replace it at once with younger; or wait until shoots of the current season's formation become sufficiently long to fill up the vacancy. I would advise every one who has any spare space on walls having a southern aspect to plant a Vine at once; they amply repay the necessary outlay in a season or two. Finish pruning espalier *Pears*, and remove all young wood, excepting where needed to refill a vacancy, or to extend the area of the tree's usefulness, &c., and take all care of the smaller compact fruit-buds at their base. In most instances it is advisable to leave a few buds at the base of each young shoot so cut back, for the purpose of forming fruit-spurs.

HARDY FLOWER GARDEN.

This has hitherto been, so far as damp is concerned, a rather trying period for rare sorts of *Auriculas;* they should be kept thoroughly clean, and in such a position that the fresh air may keep the atmosphere as dry as possible. Much good is done to all such plants, where it is necessary to keep them in a cold pit or frame, by shifting the whole round, and removing each from the dampness it has communicated to the object it stood upon, by placing it a few inches further to one side or the other. *Pæonies*, whether of the herbaceous or tree section, should now be transplanted or otherwise, as may be contemplated; they delight in a good stiff yellow loam, with plenty of well-decomposed leaf-mould intermixed. A good deep soil should always be afforded them, as they often root perpendicularly to the depth of 3 or 4 feet. *Box edgings* may be planted at this season during mild weather. The sward upon lawns should now be well rolled, for the double purpose of removing worm-casts, and to keep up a neat and tidy appearance. Roll gravel walks as frequently as is convenient after rains, &c.; the better this operation is performed at this time of the year, the firmer and superior will the walks be in the drier summer months. Plant where necessary deciduous or *Privet hedges*; and perfect any arrangement in contemplation for the removal or transplanting of evergreen shrubs of whatever sorts. This will be found a good time to purchase any further quantity of *Ranunculuses* which may be required, in readiness for planting at an early date, to which I hope again to refer at the proper season. Some choice evergreen and other shrubs I have noticed have become unusually forward. The buds upon such as Kalmias, Syringas, Persian Lilacs, and the like, having pushed already, it will be advisable to check them somewhat by a process of transplanting. Take them carefully up by the root and replant immediately in the same position if necessary, and the object in view will be attained. In some instances it will be advisable, should sharp frosts visit us, to afford all choicer varieties which have been forced to push thus prematurely the protection of a mat. *Roses* of all sorts are also making growth at the apex of the shoots of the past season's formation; it will be well, therefore, to defer all pruning operations in regard to them for a time. To prune them closely under such a state of things will be to induce those very buds to shoot which we are desirous of saving, and from which we anticipate a future display of flowers. I reiterate past advice: transplant Roses at the earliest possible moment.

KITCHEN GARDEN.

It is an old practice to plant about this date a few early Ashleaf *Potatos*, and one well worthy of following now. With weather at all favourable, these early sets often gain such a march on later planted ones, as to precede them by some two or three weeks in the production of early tubers. They should be planted deep, so that no injury may befall them by frost. Seven inches will generally be found a tolerably secure depth. I advise all with only limited means who desire to have a few as early as can be produced without the aid of frames, &c., to plant their sets in a drill row properly drawn out, and to cover them with two parts of moderately rotten dung, and one of the natural soil. Mix it well together in the operation, and do not trample it down more than is necessary. Thus, not only will they enjoy greater immunity from frost, but finer tubers will be formed than when contact with the cold soil alone is afforded. *W. E.*

TOWN GARDENING.

A CLEAN neat path is an important requisite in a garden at all seasons, both for its appearance and use, and as this is a good time to commence walk making, a few practical hints on the same will perhaps interest as well as instruct those who are about commencing this operation. There are many different opinions about the choice of gravel, but that which I prefer most in the London district is that obtained either from the neighbourhood of Tooting or Kensington. Being rather fine, it requires a little binding loam to be mixed with it, which causes it to adhere well together when dry, and in wet weather it is not liable to stick to the shoes. It is of a good colour, which is a great desideratum. The depth of the gravel should be about 6 inches, with not less than 3 inches of coarse rubble underneath it. In making new walks great attention is necessary in regard to the level of the ground on which they are intended to be made, so that when finished they will slope gradually towards the lowest parts, that the wet may be drained off easily, for if this is not done the water will remain upon the walks a considerable time after heavy rain, and leave a deposit of soot and dirt which will render them unsightly and unfit for use. When the ground is level and there are no declivities to carry off the wet, it will be advisable to raise the walks about 2 inches in the centre, where they are about 5 feet wide, and to have sink-stones laid by the sides at convenient distances, to let off the water into cesspools, from which it will soak away in a short time. The month of March is the best time for finally completing walks, but as that is a busy month in the garden, it is advisable, in order to forward as much work as possible, to complete them now, with the exception of the final layer of 3 inches, giving this finishing touch in March, so that they may be bright and fresh for the summer. Old walks should now be edged and swept, and well rolled two or three times a week. This operation should be particularly attended to, as a clean hard walk is the principal feature of an enjoyable garden at this dull period. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Jan. 13, 1869, as observed at the Horticultural Garden.

January.	Moon's Age.	Barometer.		Temperature. Of the Air.			Of the Earth		Wind	Rain.
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 7	24	30.273	30.225	50	41	45.5	46	43	N.	.00
Friday 8	25	30.409	30.318	56	48	52.0	48	44	W.	.00
Satur. 9	26	30.437	30.366	51	39	45.0	48	45	S.W.	.00
Sunday10	27	30.270	30.166	44	38	41.0	47	45	S.E.	.00
Mond. 11	28	30.126	30.106	41	37	39.0	46	45	S.E.	.00
Tuesd. 12	●	30.091	30.016	42	38	40.0	45	44	S.E.	.00
Wed. 13	1	29.957	29.879	41	34	37.5	45	44	E.	.00
Average.		30.223	30.154	46.4	39.3	42.8	46.4	44.3		0.00

Jan. 7—Densely overcast; cloudy and overcast, foggy.
— 8—Overcast; densely overcast; fine, but overcast.
— 9—Densely overcast and foggy; very dull; fine and overcast.
— 10—Fine, overcast; fine, cold wind; overcast at night.
— 11—Densely overcast throughout; cold wind.
— 12—Overcast; densely overcast; cloudy and overcast.
— 13—Densely overcast; fine, very dull; overcast.
Mean temperature of the week, 6 9-10 deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending Jan 23, 1869.

January.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..17	42.6	28.7	35.6	15	0.48 in.	4	8	3	4	5	10	5	4
Mon. ..18	42.6	31.3	36.9	18	0.56	2	3	2	5	8	11	7	5
Tues. ..19	43.1	30.6	36.9	20	0.88	4	2	4	4	7	11	8	3
Wed. ..20	42.4	30.6	36.5	15	0.25	4	7	4	2	8	11	3	4
Thurs. ..21	42.9	32.0	37.5	20	0.48	1	5	5	1	8	14	7	2
Friday ..22	43.1	32.3	37.7	18	0.47	3	6	1	6	4	17	6	1
Satur. ..23	42.6	32.4	37.5	18	0.27	2	4	2	3	8	14	4	6

The highest temperature during the above period occurred on the 19th, 1828—therm. 68 deg.; and the lowest on the 19th, 1838—therm. 4½ deg. below zero.

Notices to Correspondents.

BOOKS: *C D.* We can only advise you to apply to one of the foreign booksellers, who may be able to procure it for you.

COLEUS: *Enquirer.* The plant which is popularly called the "Nettle-leaved Geranium," and is so commonly seen in the windows of living-rooms, is the Coleus fruticosus, a native of South Africa. It has also borne the name of Plectranthus fruticosus. It was introduced nearly a century ago. C. Blumei came from Java about 1850, C. Verschaffeltii from Java about 1860; C. scutellariodes insignis (nigricans) from the Eastern Archipelago about 1863, and C. Gibsoni and Veitchii from the South Sea Islands about 1866. The name comes from Koleos, a sheath.

NAMES OF PLANTS: *S E T.* Libonia floribunda.—*Seyah.* Clematis cirrhosa, var. balearica.—*A B.* 1, Veronica parviflora; 2, Angiopteris hypoleuca; 3, Asplenium obliquum.

PINE-APPLES: *P A.* It is not usual nor desirable that small suckers on Pine-apple plants, swelling their fruit, should show fruit. Yours is probably the result of some accident, perhaps of too dry a *regime:* nor are three crowns to a plant at all desirable, as they spoil the beauty and symmetry of the fruit. The supernumerary ones should have been, if possible, destroyed at a very early stage.

PRIMULAS: *W C & Son.* The flowers were too much discoloured by pressure to enable us to judge if the strain is new. They are certainly very fine, averaging fully two inches in diameter.

REMOVAL OF PLANTS: *Cheltenham.* The answer to your question, we suppose, depends entirely on the agreement that was made when the plants were put in.

SPHÆROGYNE: *Constant Reader.* This plant requires to be grown on freely in a strong, moist heat, with plenty of light, and should have a good, porous, well-drained soil of rough, lumpy peat and sand. The leaves of your plant are probably becoming yellow from want of sufficient heat. Old plants are seldom so effective as young ones, which require to be grown on as freely and vigorously as possible, and never look so well as when from 1 to 2 feet high, with all the leaves perfect. It would be best to strike the top in a Cucumber frame, and grow on afresh.

TAN FOR HEATING: *C. Carliste.* There will be no danger in using the tan in your vinery for the purpose of raising a little heat to start the Vines. We have never used it, however, as we much prefer good stable manure mixed with leaves for that purpose. If you use tan, try a depth of 12 inches at first, which can easily be increased if necessary. It must be turned over every other morning, so as to let the hot fumes penetrate among the leaves.

COMMUNICATIONS RECEIVED.—W. C.—T. B.—W. J.—T. D.—G. —J. F.—W. F.—W. T.—G. A. H.—A. S. H.—W. D.—P. M.—R. P. D.—A. M.—G. S.—Somerset.—D. T. F.—E. S.—C. C.—W. H.—J. Wills.

ERRATUM.—In our notice of Florists' Flowers last week, Dahlia King of Prussia was mentioned. It should have been King of Primroses (Rawlings).

First Crop or Ringleader Pea.

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Messrs. Barr & Sugden, 12, King Street, Covent Garden, W.C.
Mr. Wm. Paul, Waltham Cross, N.
Messrs. Peter Lawson & Son, Edinburgh and London.
" Bolton & Co., Ealing, London, W.
" Jas. Backhouse & Son, York.
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Additional names will be inserted as they are received.

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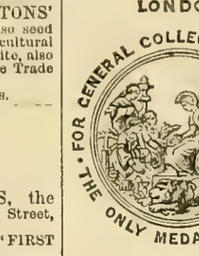
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ROYAL AGRICULTURAL SOCIETY of ENGLAND.

AGRICULTURAL EDUCATION.

The EXAMINATION of CANDIDATES for the SOCIETY'S EDUCATIONAL PRIZES will take place in the week commencing MONDAY, April 12, 1869. Copies of the Form, required to be sent in by March 18, may be obtained on application to

H. M. JENKINS, Secretary.

12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, JANUARY 16, 1869.

THE agricultural statistics of the country for the past year have just been issued in detail. Any one desiring to know whether, and how many acres, more Wheat or Barley, Potatos, &c., were grown in 1868 than in 1867, in England, Scotland, Ireland, &c., can read the figures in the Blue-Book. There also he can see what stock, both in total numbers and per 100 acres, there was each year in every county in the kingdom. And there is an immense mass of useful information in its pages—for which we have to thank the statists of the Board of Trade—connected with population, stock, and crop of every county, and of every division of the country, and of every other civilised country in the world, which cannot but be interesting to the agriculturist. The substance of the introductory report, signed by Mr. A. W. FONBLANQUE, is given in another page. Besides the extract there given, a preliminary statement must be adverted to here, in which the history and progress of the inquiry is described. The figures given are not yet in any case an exact statement of fact. Wherever such a statement has been refused, as it still is in some few instances, the best available means are employed to return a careful estimate. But this, though vitiating the totals as strictly accurate records, does not much spoil the trustworthiness of the inferences which may be drawn from a comparison of one year with another. The character and quantity of error on this account can hardly be supposed to differ very much from year to year; and while, therefore, we can hardly affirm that the total acreage or total numbers here alleged of every crop or kind of stock is absolutely true, we may nevertheless entirely believe the statement that so many more acres of any crop, so many more or fewer of a particular kind of stock, have been cultivated in 1868 than in 1867. It is as indicating the tendency and growth of agriculture in particular directions that these Tables are essentially valuable, and we shall, therefore, during the next few weeks transfer them to our pages entire.

It is much to be hoped that the gradually dying jealousy on the part of the farmers of some districts, which leads them to refuse all information to Government officials, and thus to some extent to spoil or make imperfect the information readily given by others, will soon altogether cease. We believe it will. It will soon appear that the information asked for can have no personal or immediate interest whatever. Every item is lost in the mass to which it is contri-

buted. And no one need suppose that any one is going to be a bit the wiser regarding his personal affairs, because he is public-spirited enough to answer such questions regarding them as may result in some trustworthy information to the country at large, as to what the home supplies of food are likely to be.

The following are some of the principal facts brought out by the inquiries of 1867 and 1868:—

Of the 56,964,260 statute acres of Great Britain, 29,955,694 acres were returned under crops, bare fallow, and Grass, against 29,727,047 acres in 1867. In England, of 32,590,397 acres, 23,038,781 acres were under cultivation, against 22,932,356 acres in 1867. In Scotland, of its 19,639,377 acres, 4,413,267 acres were under cultivation, against 4,379,552 acres in 1867. Of the total area of Ireland—20,322,641 acres, 15,575,270 acres (including 206,446 acres under Flax) were under cultivation in 1868; the proportional number of acres under each head closely followed that returned in 1867. The results for the United Kingdom, including the Channel Islands and the Isle of Man, are as follows:—Of a total acreage of 77,513,585, 45,652,545 acres were under cultivation in 1868, against 45,387,066 in 1867, showing an excess of 265,479 acres in the year under review. The proportional per centage numbers, under each head, in each of the years 1867 and 1868 were—corn crops, 25.2 and 25.5; green crops, 10.9 and 10.6; bare fallow, 2.1 and 2.2; Clover, &c., 12.5 and 12.5; permanent pasture, 48.6 and 48.6, or nearly one-half of the total acreage returned.

The aggregate acreage under corn and green crops in the United Kingdom in 1868, as compared with 1867, shows the following results:—In corn crops there has been an increase of 227,000 acres, and in green crops, exclusive of Potatos, a decrease of 170,000 acres. The acreage under Potatos was larger in 1868 than in 1867 by 84,000 acres, of which 50,000 acres were in Great Britain and 34,000 in Ireland. In each division of the kingdom the acreage under Wheat was larger in 1868 than in 1867. The total increase amounted to 310,000 acres. The acreage under Barley shows a falling off in England of 112,000 acres; in Wales and Scotland, however, there was an increase of 4000 acres, and in Ireland of 16,000 acres, so that the decrease in the entire kingdom amounted only to 92,000 acres. Under Oats there was an increase in the United Kingdom of 48,000 acres; the chief part of the increase, 40,000 acres, was in Ireland, but Wales and Scotland also show an increase of 24,000 acres; England shows a decrease of 18,000. Exclusive of Potatos, the acreage under green crops was generally lower in each division of the kingdom in 1868 than in 1867. The acreage under Flax in Great Britain is distinguished for the first time in the present return. In 1868 there were under that crop 15,828 acres in England, 169 in Wales, and 1546 in Scotland; the acreage under Flax in Ireland was, as before stated, 206,446.

The returns relating to live stock show a marked increase in the number of cattle and sheep in 1868 over that of 1867. In the United Kingdom the total increase in cattle amounted to 352,000. In Great Britain the increase was as much as 430,000; but there was a decrease of 82,000 in Ireland, not accounted for by an increase in the exports of cattle to Great Britain. The number of sheep in the kingdom was larger by 1,790,000; this increase occurs exclusively in Great Britain, the number in Ireland showing scarcely any difference in the two years. In the number of pigs—a stock discouraged by the high prices of food—there was a decrease in 1868, compared with the previous year, to the extent of 1,032,000. The chief part of the reduction is in Great Britain, where the number was less by 658,000; in Ireland the decrease amounted to 371,000.

The proportional number of live stock to every 100 acres under crop, bare fallow, and Grass, in Great Britain, in 1867 and 1868 respectively, was as follows:—Cattle, 16.8 and 18.1; sheep, 97.3 and 102.5; pigs, 10 and 7.7. The proportional numbers for sheep in England were 86.3 and 90.8; in Scotland the proportions were 157.4 and 161.2; but this apparently high ratio for Scotland is no doubt owing to the sheep pasturage being moorland, not included in the returns.

These, and a number of other facts, will be gathered from Mr. FONBLANQUE'S report on another page, and from the Tables themselves, which we shall lay before our readers during the next few weeks.

Mr. DARWIN, in his work on "Animals and Plants under Domestication," appears to have brought together every opinion, and well nigh every fact, bearing upon his difficult subject, in order to throw light upon the origin and diversity of various existing breeds. Horses, cattle, sheep, and pigs, are each in turn treated with consummate skill, and examples of slight variation, or the propagation of well marked peculiarities, are brought together from all parts of the world, selected from the writings and observations of naturalists, military men, and travellers.

The modesty and fairness with which this mass of facts is used to illustrate Mr. DARWIN'S arguments, or confirm his views, are not among the least charming features of his admirable work. Among domesticated animals and plants we find organisms cultivated for a purpose; and as each has to serve a special use, those specimens are most prized which exhibit in the highest degree the qualities for which the species or variety is valued. Hence we find that the requirements of man have modified the original type in many points exceedingly interesting to the naturalist as well as to the agriculturist. These modifications are the more curious when the variations in any one species of domestic animal are studied in distant countries under the ever varying conditions of climate, and the diverse influences of new national customs. The subject when treated in such a comprehensive manner throws much light both on the plasticity of the domesticated races, whether of plants or animals, and also on those points of common resemblance which may be considered to point backwards to the primæval type.

To the agriculturist the history and origin of his horses, his cattle, sheep, and pigs, as well as of his cultivated plants, should be both an amusing and instructive study, and for this reason we would commend to his notice the most masterly work upon the subject which has yet appeared. We propose to place before him on the present occasion some remarks upon the horse. The first general fact of interest regarding this important animal is that no positively aboriginal or truly wild horse is now known to exist, those found in the East having most probably escaped from thraldom at a remote period. Naturalists are almost agreed that all the varieties of domesticated horses found throughout the world are descended from one species which has now ceased to exist in the wild state. What the appearance and character of this wild horse were, it is of course impossible now to say. Mr. DARWIN, however, leans to the view that the primitive stock were dun-coloured, and more or less striped, as are various species of zebras and quaggas. This result is arrived at after much deliberation, and many examples collected from all parts of the world, in which horses have exhibited a tendency to revert to the supposed original type.

A single spinal stripe is frequently met with in English racehorses, although this feature often disappears as the colt approaches maturity. Instances are not wanting in which the spinal stripe is accompanied with transverse shoulder markings, and an illustration is given showing a dun Devonshire pony, marked with four parallel shoulder stripes, and similar markings on the undersides of his fore-legs. "The most interesting case which I have met with," says Mr. DARWIN, occurred in a colt of my own breeding. A bay mare (descended from a dark brown Flemish mare by a light grey Turcoman horse) was put to Hercules, a thoroughbred dark bay, whose sire (Kingston) and dam were both bays. The colt ultimately turned out brown; but when only a fortnight old it was a dirty bay, shaded with mouse-grey, and in parts with a yellowish tint: it had only a trace of the spinal stripe, with a few obscure transverse bars on the legs, but almost the whole body was marked with very narrow dark stripes, in most parts so obscure as to be visible only in certain lights, like the stripes which may be seen on black kittens. . . . The stripes were plainest on the forehead, between the ears, where they formed a set of pointed arches, one under the other, decreasing in size downwards towards the muzzle. Exactly similar marks may be seen on the forehead of the quagga or BURCHELL'S zebra. When this colt was two or three months old, all the stripes had entirely disappeared."

In Norway the native horse is dun-coloured, and the presence of spinal and leg stripes is looked upon as indicating pure blood. This observation is borne out by observations made in other parts of the world, and in South America horses more or less striped are of frequent occurrence. In the North-Western parts of India striped horses are more frequent than in any other part of the world. The Kittawar breed are of all colours, but the several kinds of duns prevail; and these are so generally striped that a horse without such markings is not considered pure. The frequency of similar cases, in which a tendency towards a certain well-defined type is exhibited, has led Mr. DARWIN to the conclusion already stated with regard to the primitive horse, from which our many domesticated varieties have sprung.

With regard to the many breeds of horses, we may conclude that the purposes to which they have been put have exercised a most important influence upon their appearance, speed, or strength. A judicious commingling of Arab, Turk and Barb blood, followed up by scrupulous attention to pedigree, and the constant proof of excellence supplied by the "turf," have resulted in the English racer. The requirements of other horses for slower and heavier work have done much to develop the ponderous form of our dray and agricultural horses. Another class of modifying circumstances is found in geographical distribution. Horses inhabiting small islands and mountain ranges are usually small, a peculiarity which is in a great measure due to want of nutritious food, and not to the severity of climate, as it is not confined to high latitudes, and a similar reduction of size is found on the Virginian and Mediterranean islands. Horses can indeed withstand intense cold, as well as thrive under high temperatures. They possess an instinct which is significant of the habits of their progenitors, namely, that of scraping the snow away with their feet, in order to find the underlying herbage. This is a true instinct which teaches us that the aboriginal horse was fitted for high latitudes. The wild cattle of the Falklands never scrape away the snow, and perish when the ground is long covered.

This interesting subject might be further prolonged. We must, however, bring these remarks to a close by mentioning one or two cases of peculiar breeds. Horn-like projections have been several times observed. Mr. PERCIVAL describes a case in which they arose to about two inches in length, and were very like the horns of a calf, of from five to six months old. A Russian breed has also been described as possessing frizzled hair, and in Paraguay horses are occasionally born, but are generally destroyed, with hair like that on the head of a negro, and this peculiarity is transmitted even to half breeds. Examples such as these show how, by propagating from such monstrosities, peculiar and novel breeds of horses might be introduced.

—— AT Mark Lane and throughout the country there has been a great effort on the part of buyers to lower the price of all kinds of grain and pulse. In regard to Wheat this design has succeeded to the extent of 1*s.* per qr., but at this fall none but necessary sales have taken place. Barley, Oats, Beans, and Peas, have, however, been sold or held for the previous high prices which they fetched.——The trade in fat stock and meat remains in the unvarying state which has prevailed for some weeks. Beef still ranges between 3*s.* 4*d.* and 5*s.* 6*d.* per stone, which leaves a margin that has seldom or ever before existed for several consecutive weeks. Mutton is again quoted at the same price as beef, viz., 5*s.* 6*d.* per stone for the best qualities. From the great scarcity of ordinary farm fodder, and the high price of grain and other auxiliary food, a large number of inferior animals continue to be sent to market. Hence the above anomaly in prices, the well-fed being scarce, and the half-bone half-meat sorts cheap, because the present straitened circumstances of the humbler classes decreases the demand. Nothing could more forcibly show the intimate relation which exists between manufactures and agriculture.——The Agricultural Seed trade is in a state of great animation, in consequence of the short supplies at command to meet the ordinary spring calls. France has usually sent us a considerable supply of Clover seeds, but this season nearly all that which comes from French ports is said to be of German growth, and its quality to be of an inferior character. The American crop is also stated to be defective, both in quantity and quality. Italian Rye-grass has risen in value from 2*s.* to 3*s.* per cwt., from last year's crop in France having been only about half the average. French Beans are as variable in price as Hops, and this year Scarlet Runners are making extreme prices, from the drought of last autumn causing them to fail in maturing.

—— At the recent annual meeting of the Lincolnshire Farmers' Association, to which we have referred more than once as illustrating the advantages of association for trade purposes, an abstract of accounts, prepared by the secretary, showing the amount of money received and paid, and the quantity of manure delivered and ordered for future delivery, from the commencement of the Association in June last, was read and explained by the chairman. And it appears that there are 161 members, occupying altogether 57,105 acres, that the manure delivered and ordered for future delivery was 1799 tons, and that the net balance in favour of the Association, after payment of all claims and expenses, was 170*l.* 11*s.* 8*d.* This, be it remembered, is on the purchase of superphosphate, guaranteed to contain 26 per cent. of soluble phosphate, at 3*l.* 18*s.* per ton. It was announced, for those members who had not purchased sufficient for their use next seed-time, that Mr. TOYNBEE had offered to supply any further quantity of manure required by the Association, guaranteed to contain not less than 26 per cent. of soluble phosphate, and in good condition, at 4*l.* 0*s.* 6*d.* per ton in bulk (being 2*s.* 6*d.* per ton more than his last contract), provided the orders were received not later than March 31 next, and the manure delivered not later than June 30 next; and it was resolved that the committee be empowered to make a further contract with Mr. TOYNBEE on those terms, but that the present members of the Association only should be entitled to the benefit thereof. It is also now proposed that the

Association should undertake in like manner to supply pure linseed-cake to its members.

—— We referred in some detail last week to Mr. KAINS-JACKSON'S report of the fluctuations in the corn trade of 1868. If any of our readers desire to see at a glance all that was then stated, cumbrously and imperfectly in so many words, they should procure Mr. ALLNUTT'S* Annual Diagram for 1868, which exhibits at once all the variations of price, week by week, which were experienced during the year.

—— It is announced that the well-known old-established firm of Messrs. RANSOMES & SIMS, of Ipswich, have added to the name of their firm that of Mr. HEAD—a gentleman who, for some years, has been a partner. The title will, therefore, henceforth be "Messrs. RANSOMES, SIMS & HEAD."

—— Messrs. PICKSLEY, SIMS & Co.'s large agricultural implement manufactory at Leigh, Lancashire, was destroyed by fire on Friday, the 8th inst. The destruction of property was considerable, the damage being estimated at 20,000*l.*

OUR LIVE STOCK.

A SECOND Didmarton sale is announced by Mr. Strafford, to take place on the 23d of March. The selection of animals last October was so judicious that it is difficult to judge as to the relative merits of the two portions into which Mr. Rich has divided his famous herd. Last autumn we saw a Waterloo and Kirklevington fetch high prices, and these capital Bates' names are again on the catalogue for March. The Florentia family, many of whose representatives were greatly admired, and whose excellent sale proved the esteem in which they are held, again appear in force, as also do several members of the Ursula and "P." families. In our impressions of July 11 and 18 of last year we gave an account of the origin and the condition of the various families composing the herd. The Florentia tribe is descended from the late Earl Ducie's *Flourish*, by USURER (9753), dam *Florentia*, by ZENITH (5702), and previously through an excellent strain of blood from a cow by the renowned FAVOURITE (252). Since this tribe came into Mr. Rich's possession, Earl Ducie's KOH-I-NOOR (11,642), Mr. Sainsbury's CUPID (14,359), Mr. Rich's own bulls, and the 7TH DUKE OF YORK, have been used; while some of the youngest members are by the Duchess bulls, 2D DUKE OF CLARO and 2D DUKE OF COLLINGHAM. The original Ursula was out of *Crystal*, by USURER, and became the property of Messrs. E. W. & S. Rich at the Tortworth sale. The pedigree on the female side extends back to *Cowslip*, by FAVOURITE, and *Cowslip*, by PUNCH (531), or, in other words, to the best Colling blood. *Ursula 12th*, the oldest living member of this family, was giving, when we last visited the herd, 18 to 19 quarts of milk per day. Among the members of the "P." family, a tribe derived from Captain Gunter's *Phantom*, by Mr. J. S. Tanqueray's 6TH DUKE OF YORK, we may mention *Peri* and *Persiani*, the first by 7TH DUKE OF YORK, out of *Palmyra*, by MARQUIS OF OXFORD (18,339), and the latter, by the same famous sire, and out of *Peru*, by CUPID. Both these animals are of first-rate quality, and will no doubt create some competition on the sale day. The Kirklevington and Waterloo families have already been alluded to; the first will be represented by a 10-months-old bull by the 7TH DUKE OF YORK, dam *Kirklevington 12th*, and consequently of first-rate blood on both sides. *Waterloo 32d*, a daughter of the 7TH DUKE and *Waterloo 28th*, and two Waterloo bulls, will well represent the second family. Another Didmarton tribe, full of Bates blood, is found in the "Carolinas," descended from Mr. Bates' "Craggs" family. *Carolina 4th*, a very handsome cow, but which failed to breed, has been recently slaughtered. She weighed 74 scores 5 lb. It is hardly necessary to speak of the admirable quality of the three sires, 7TH DUKE OF YORK, the sire of a large portion of the heifers, and the 2D DUKE OF CLARO and 2D DUKE OF COLLINGHAM, which have been recently used. All are Duchess bulls, bred at Wetherby, and an examination of the pedigrees of any one of them is most satisfactory. The 2D DUKE OF COLLINGHAM will be sold at the forthcoming sale.

—— Mr. Lace, of Grenaby, in the Isle of Man, has purchased two well-bred heifers from Mr. Willis, of Manor House, Bedale, at high prices. The first of these, *Frederica Colling*, white, is by LORD FREDERICK (22,156) dam *Alfreda Colling*. She is more than four months gone in calf to WINDSOR FITZ WINDSOR, and is described as a very large and straight-backed heifer, with strong loins and shoulders, well laid back, "indeed she is almost faultless." The other, *Jane Eyre*, is a rich roan, 14 months old, also by LORD FREDERICK (22,156), dam *Charlotte Bronte*, by FIRST FRUITS (16,048). She is very symmetrical, exceedingly even, with a deep and prominent bosom. Considering the good quality and excellent breeding of these two heifers, we do not think our readers will feel surprised that Mr. Lace should have given 150 gs. for the first-named heifer, and 100 gs. for the second. It may be remembered that Mr. Lace's first purchase of Shorthorns was at Captain Spencer's sale in 1860, when he purchased *Sunflower* for 27 gs., afterwards put to HEIRLOOM (18,045), a son of WELCOME GUEST, and bred by Mr. Jefferson.

—— Lady Pigot has purchased of Mr. Carr, of Stackhouse, two of the representatives of Mr. R. Booth's "Farewell" family, namely *Dame Quickly*, a white cow now eight years old, by VALASCO (15,443), the sire of COMMANDER-IN-CHIEF, dam *Barmaid*, purchased for 100 gs. at Mr. Crawley's sale in 1860; and also her daughter *Pauline*, a roan heifer, calved Nov. 1865, by PRINCE OF THE REALM, of the Bliss family. Both animals are now in calf to pure Booth bulls.

* At the Agricultural Library, 200, Fleet Street.

—— There is every token of approaching activity in the Shorthorn world, and rumours of sales are rife—so plentiful, indeed, that we must defer the notice of one at least for a future occasion. The dispersion of Mr. Chaloner's herd, of King's Fort, Kells, Ireland, however, commands our serious attention. This important Irish sale will be conducted by Mr. John Thornton, of Langham Place, on Easter Tuesday, March 30th. The herd consists of from 50 to 60 head of well-bred Booth cattle, about half of which are descended from the Studley "Anna" tribe, the "Flower" family from Barmpton, the "Wharfdale" family from Burley, and the "Bright Rose" and "Waterloo" from Aylesby. Six are traceable to Mr. R. Booth's *Medora*, through the Farnley herd; five belong to the celebrated "Victoria" family, bred by Mr. Holmes, of Moycashel, for many years, from stock originally purchased at the Chilton sale, and, lastly, seven are of the well-known Sylph family. The three sires last used have been BRITISH FLAG (19,351), RAVENSPUR (20,628), and ROYAL SOVEREIGN (22,802), all bred at Warlaby.

—— Mr. Thornton's Shorthorn Circular, No. 3, is advertised. This number is apparently about to come before us in even a more inviting form than its predecessors. Besides the account of important sales, the awards of prizes at shows, and interesting births, we are destined to receive a large amount of valuable information upon the earliest representatives of the Durham breed, extending back to a period long antecedent to Hubback, much of which will be published by Mr. Thornton for the first time.

SEWAGE FARMING PROSPECTS.

MUCH as has been done during the past and preceding years, the sewage question at the commencement of 1869 is far from being solved, to the satisfaction either of the agricultural or general public. The pioneers of progress are nearly as much divided as ever as to the principles upon which the question is to be finally solved, *i. e.*, whether it is to be a liquid system or a solid system, or some sort of modified practice between the two. Thus, if the records of the Patent Office for 1868 are consulted, it will be found that the solid manure theory is far from hopeless, and that all the shortcomings of former experiments are about to be obviated! From the same quarter we learn that the Barking experiment, successful as it has proved itself to be, is subject to improvement, but that ample provision is also forthcoming for all its shortcomings. A third party of pioneers look upon the solid system and the liquid system as a long way short of meeting the manurial requirements of modern improved agriculture, granting that all their present imperfections were removed. Hence the intermediate question, and the peculiar practice required for its solution. The sewage to the land is now the universal problem, if ever it were otherwise, but the (practical difficulty in the way of its satisfactory solution is to suit the supply to the demand.

All who have any successful experience in farming, are familiar with the fact that the requirements of the crops grown on the British soil are of a very diversified character, and from this simple fact sewage farming will be found no exception in any province of the kingdom. It has long been a common error to believe in a panacea for infertility adapted for all soils and crops—such as farmyard manure and town sewage, peculiar modes of cultivation making up for diversity of soil, and rotation of crops for the requirements of different plants. But such universal theories, although yet very commonly acted upon, are of far greater diversity in their working details than is generally imagined. Thus, for example, where soils and climate are equal, the work of cultivation is so differently performed in different cases, as also the management and application of the manure, as to account satisfactorily for the variety of results at harvest-time. In examples, again, where soils and climate are different, the details and their results are still more diversified, cultivation and cropping being according to a uniform rule, much more depending upon the skill of the farmer than upon old-creed theories of manuring and cropping the land.

In all other arts the highest value is put upon the skill of the artist, every credit being given to him for his labour. Why should it be thought otherwise in agriculture? There are very few intelligent farmers of the present day who use farmyard manure alone, or who assert that it is specially adapted for every soil or crop different from their own. And it would be as much opposed to science as to profitable practice to conclude otherwise relative to sewage in any form, solid or liquid, however successful isolated experiments with either may prove.

Viewing the variety of soil and climate in our different provinces as they ought to be viewed, together with the peculiar requirements of practice in different localities, it is not surprising if the more intelligent and experienced of the agricultural public look upon sewage farming as only in its infancy. In every place where town sewage has been successfully applied on land, the practice may be profitably extended. Thus at Edinburgh the practice has been extended, although the extension has not been in accordance with the success. The Barking practice may also be extended to all similar soils in the neighbourhood with equal success, so far as the production of farm produce is concerned, and so on for other profitable examples. But is this all that is required to induce farmers in the vicinity of Edinburgh and Barking to adopt respectively the two practices on similar soils? Certainly not: for although it has been asserted over and over again that any extent of sewage grass-land could be profitably disposed of at Edinburgh, we know, from personal experience in Auld Reekie, that the conclusion is a hap-hazard one, upon which no successful practical farmer can place any reliance. As for Barking, if some difficulty has been experienced in getting rid of the milk of some 300 cows—at a time, too, when the supply of London dairymen was greatly short of the demand of their customers—what would be the result were the milk of 3000 cows, in addition, thrown upon the market, at a time when the supply of London dairymen is fully equal to the demand? No doubt the consumption of country milk is on the increase, but at the present time the supply is fully equal to the demand, so that the conversion of the metropolitan sewage into milk is a speculation not in accordance with successful practical farming. Whether it can be converted into butter and cheese, is another but unsolved question.

The sewage question is a much more comprehensive one than is generally credited by the inhabitants of towns, and the limited view thus taken of it simply results in a work of time and money, and is therefore much against its successful solution. That progress is being made, and rapid progress, too, requires no proof, for every new example, whether in itself successful or not, may be quoted as an advance in the cause, for some of the comparative failures have actually done more good than some of the more successful examples.

The solid manure question is one of money. Can a portable manure be made from the sewage that will be worth the money required to make it, and, at the same time, the watery portion of the sewage rendered sufficiently pure for being turned into rivers? Up to 1869, comparatively nothing of a practical character has been done towards the solution of the question, and the prospects of the future cannot be said to be very promising, for the price required by the manufacturer to make the manure appears to increase faster than the value to the farmer of the manure itself. Hence the *finale*.

The Edinburgh practice—the growth of Grass for town dairymen—the second plan of utilising sewage, was never a very popular one in the estimation of the agricultural body, and during the past year it has been thrown overboard altogether, the arable or mixed system of sewage farming having grown into general favour, of which method the Barking farm practice may be quoted as the most successful example of the day.

The chief objections to points of the Barking farm practice are as follows—first, the waste of the fertilising properties of the sewage before it reaches the land. It has from time immemorial been an acknowledged fact that flowing water purifies itself; that hard water becomes soft on exposure to the sun, and so on. With these data we may take it for granted our readers are familiar, and that they are therefore in a position to apply the doctrine to sewage flowing in sewers, or viaducts of any kind, exposed to the sun and atmosphere. Thus, sewage flowing in sewers purifies itself. The gases given off, and which are now giving rise to serious apprehensions as to their deleterious effects upon the health of the inhabitants of towns, prove this. These gases are the product of the decomposition of the organic portion of the sewage. It must be borne in mind, however, that this is no objection to the examples themselves, but to the manner the sewage is being conveyed to the land. Practically speaking, it is the reverse of an objection, for were the sewage conveyed to the land free from the waste in question, sewage farming under this system would be more successful than it is, even at Barking itself.

The second objection to this class of examples is the small price sewage farmers are able to give townspeople for their sewage. Were farmers to give a price equal to what Flemish farmers give for nightsoil, reckoning it at so much per head of the inhabitants, the sewage of towns would yield a revenue more than sufficient to cover the expense of sending it to the country. But the sewage is so wasted before it gets to the land that a very small fraction of the Flemish price is all that can be given. If the sewage was sent to the land in its normal state, free from waste, it would be worth more money to the farmer; but deprived of its fertilising properties, very little can be given for it per head of the inhabitants. The objection, it will thus be seen, emanates from the first steps taken, so that it does not militate against the prospects of sewage farming on this plan, when properly conducted, but the contrary.

The third objection raised relates to the expense of sewage farming and the high price of the produce necessary to cover expense. Sewage farmers, for example, cannot produce richer and cheaper milk than town dairymen, nor any other product of the land at a lower figure to consumers than do farmers who do not use sewage; and this is considered by not a few to be an objection to the system. Were the sewage farmers able to produce and sell the milk at half the price of town dairymen, there would be no difficulty experienced in the conversion of sewage into milk, for under such conditions town dairymen would then either become sewage farmers or get their milk from sewage farms. But until they can thus undersell town dairymen, things will remain as they are; hence the nature of the objection. Like the last, it emanates from the first process—the manurial waste of the sewage; consequently it falls to the ground as against the system, being only against the present mode of applying the sewage, cropping, and using the produce of the land.

A fourth objection is raised to the present plan of mixing storm-water with the sewage. Practically considered, the objection is of a twofold character. Thus, when it rains in town it also rains in the country, generally speaking; so that the land in rainy weather requires sewage less diluted with water. There are, no doubt, some soils, including the staple and subsoil, sufficiently porous to drain off the surplus water of sewage in rainy weather, but they must be considered the exception and not the rule; and even in the cases of such exceptions, when we see drains discharging brown stout from lands newly manured with farmyard

dung, the obvious conclusion is against allowing storm-water to be mixed with sewage. In the second place, where the sewage is thus diluted to an excess with storm-water, it prevents its being stored up in cisterns, as in the Flemish practice, at seasons when it cannot be applied to the land—as when the ground is frozen and covered with snow. The objection is a valid one, but like the others preceding it, is only applicable to the mismanagement of sewage by towns, for were it obviated it would be greatly in favour of sewage farming.

The fourth plan of sewage farming is simply to do away with the objections to the third plan, and to add artificial manure of a specific character to the sewage, so as to make it more efficacious in producing certain crops, as roots, cereals, Flax, &c. It is therefore in principle similar to the practice now pursued by farmers, who thus improve the efficacy of their farmyard manures.

Such is the position of the sewage question at the commencement of the new year (1869). The liquid manure system, as illustrated by the practice of the Barking farm, with such differences of detail as differences of soil and climate may indicate, is that which meets with the approval of the agricultural public. But before the practice can be adopted generally, the objections raised against it must be obviated, and this requires to be done by towns. "Send the sewage to the land" is now a public mandate, endorsed by Parliament in a special statute, and its soundness meets with universal approbation in town and country. But when the practical question is raised—are towns sending their sewage to the land? the above four objections return a negative answer! Thus towns are wasting the fertilising elements of the sewage which the land so much needs, only sending what the land seldom requires; and yet during the whole of the year 1868, which has just expired, the general complaint has been that farmers will not receive their sewage on any terms!

Experience is a wise master-teacher, and no doubt towns will eventually get the practical tuition they now so much stand in need of at this school. Sewage *per se* will cover the expense of sending it to the land, and something over. And thus, to send it to the land without waste of fertilising matter is the grand problem of problems of the present day. That night-soil will stand a sufficient dilution with water for its conveyance to the country in close pipes has long ago been proved in Flanders, China, and other places where manure is used and even preferred by farmers in a liquid form, and before the close of 1869 we hope to see it tested by experiment how far sewage can be conveyed in pipes flowing full bore, without undergoing deterioration of its manurial value. And when this is done, there is not a town in the kingdom which will not have itself to blame if it does not get rid of its sewage *per se*, on remunerating terms. There may be many difficulties in the way of obviating the wasting of the sewage and the other three objections raised, but these only exemplify the magnitude and importance of the general question involved in the practice of sewage economy, for the objections, one after the other, will disappear the moment towns begin at the beginning of the great work, by sending their sewage in its normal state to the land, free from waste; for, this done, the several propositions involved in the second and third objections would be carried out by farmers. There only remains the fourth objection, and the chief difficulty in the way of separating the storm-water from the sewage is the disposal of horse droppings in the streets, and the manner they are got rid off in dry weather suggests the remedy. There are, however, many plans of purifying storm-water in towns, so as to render it fit for being turned into rivers. Indeed, almost every town would have something special in the solution of this question. Into the details of a practice so widely diversified we cannot go. But the conclusion is manifest, that were towns to go this length in the economy of their sewage, storm-water would soon be got rid off satisfactorily, one way or another. *W. B.*

PARING AND BURNING.

I HAVE lived all the days of my life in the neighbourhood of extensive "paring and burning." Moreover, although I am now a Rosarian and Fragrarian, I have been all my days a practical farmer. Mr. Mechi's system is, was, and always will be right—to

Make horn
Drive corn.

Horn is, of course, a generic term for cattle. It means feed high; and instead of sending out all corn from the farm, to send out fatted cattle and corn. That is Mr. Ford's plan at Rushton. The above is what doctors call a foreign substance, and I only mention it as it gives me an opportunity of expressing my great admiration of Mr. Mechi. I will now say a word on the above heading.

1. *Paring and Burning of Light Thin Land.*—I have seen lots of this; and my impression is, that though by this process you can without further expense (about 30*s.* per acre, it used to be), by the stimulation of the ashes, get a most remunerative crop, either of Wheat or Oats, at once, yet is it objectionable. We do not in common life argue against the use of a thing from its abuse. How often have I seen persons who break up this thin down land give the land a greasing, which means a crop of Wheat followed by a crop of Oats! This of course is the abuse of paring and burning thin down land. It might still be done; and so great a mischief as I have seen might not occur if the land was highly farmed from the first. These lands are too light already—they won't "seal," and the ashes make them unsealable for ever. Moreover, these lands are generally at a great distance from the homestead; the consequence of which is, they get little or none of the best of manures—farmyard manure. When these thin pastures are pared, the sods should be turned downwards, and a layer of fresh stable manure put on, and then another layer of sods, till the pile assumes the appearance of a rick. Lord Rivers allowed me to break up a bit of this fine land here. I have a rick of it now (no stable manure at all in it); and I have carried out on a bit of the same land a clod-rick, thoroughly dissolved, made about a year ago. It was only turned once. Burning would not hurt this fine sandy loam land, but the other, in the end, I knew would be the best plan. However, I am now talking of paring and burning thin light land. It is a thing that should not be done. Were I a landlord, I would insist upon the top clod, which is the richest part of the land, being dissolved; and I would insist upon the first crop being Rape, raised by bones or superphosphate. The latter acts more quickly, but half-inch bones are the most lasting. For cold lands I think Peruvian Guano (the cheapest of all manures) is best. Mr. Burgess, of Launceston Farm (my oldest agricultural friend), in the parish of Tarrant Moreton, tenant of Mr. Farquharson, passed by, some years ago, a piece of broken up land. I said—"Here is a pretty mess." "Ah!" said he, "that land, if laid down to Grass, will not be as good in 40 years as it was when broken up! The land was too light before, now the ashes have made it lighter, to say nothing of the exhaustion occasioned by the stimulation of the ashes." He is a renter of 1500 acres—one of the finest farms in Dorset. His corn-fields are about 60 acres each, square, with nice thorn hedges round them. Each ridge ploughed would be about 4 acres. The house is in the centre, with nice water meadows, and at either end of the farm are capacious downs. The arable land is about 800 acres. The testimony of such an experienced and excellent farmer is worth a thought. If a person pares and burns his land he must begin, not with taking the grease out, but by putting it in, as Mr. Mechi would do.

2. *Paring and Burning the Sward of Staple Land.*—You may sum up this in one word—it is folly. Simply rick the swards, turning the green part downwards. Turn the rick once, and in a year or less it will be dissolved, and fit to cart out. But why break up good staple land at all—I mean grass-land that pays? When I read the queries of "J. B. S., Cirencester," in a later impression, I laughed, and came to the conclusion (he won't be offended) that to break up such land as he spoke of would be the act of a lunatic! On reading it a second time I came to the conclusion it was only playful sarcasm!

There is a class of deep, heavy, poor, foxy clay that would be benefited if it was stifle-burnt an inch deep every time it came to Wheat. That is the sort of land to pare and burn, whether grassed or under tillage. Burn it as often as you like; the ashes will stimulate, sweeten, and keep the land open. If the land is wet it must be drained 3 feet 6 inches deep.

As regards Couch-grass, there ought to be none; but if there is any, mix it with stable manure in the field, and turn it; it will soon dissolve. If there is little Couch-grass the ashes will be *nil;* if there is much Couch the shame will be in the ratio of the ashes. *W. F. Radclyffe.*

ESTATE MANAGEMENT IN IRELAND.

I DO not think your correspondent "Fingal" is happy in his illustrations of modes of managing property in Ireland, given in your Paper of the 2d inst. Mr. Pollock's system is as much in excess on the one side as the other instances are deficient on the other.

Mr. Pollock spent money on his estate with a most lavish hand, and without any regard to economy. He bought out the occupiers, land, stock, crop—all that they had, even the pig—at prices far above their value, often four times above it—a course which, anywhere but in Ireland, with its unpractical sentimentalities, would be thought uncommonly satisfactory to the sellers. No doubt Mr. Pollock overdid the whole thing in a way no practical man of moderate means could have done; no one but himself, of course, knows his accounts; still, the best opinion is, that after all he makes a fair interest for his money.

I happen to have tried both the other two systems recommended, viz.:—1. Making allowances to tenants for such permanent improvements as they effect; and 2. Employing an agriculturist to teach them better plans of farming. The vice of making allowances is, that the tenants very seldom do the improvements thoroughly. A cat watching a mouse is nothing at all to the vigilance needed to get an Irish tenant to do work well for which his landlord is to make him an allowance. It soon comes, too, that no one on the estate will do anything at all that he is not allowed for. Common-place repairs are neglected till a case can be made for a job to be allowed for. I soon found I was paying substantially as much in allowances for work badly done, as I could have it done well for myself. The employment of agriculturists answered very well at first, when men who had never grown a Turnip before had to be taught how to do so; but I found when this early, rough stage was past, little more good could be done by him. I think the reason was, that the influence of the landlord or agent could make the tenant grow some Turnips, but it is very hard to bring such influence to bear on the better or worse preparation of the land, better or worse manuring and thining of the crop, earlier or later sowing; and so, in spite of the agriculturist, with most tenants an excuse did duty for good management in these respects.

I believe there is no substitute in Ireland, any more than in England, for the outlay of the landlord's capital on proper landlord's improvements. There is plenty of room and need for both landlord's and tenant's capital on nearly every farm in Ireland. Few farms are all wet, and the tenant's capital spent in manuring the dry part of his farm will pay him much better than in doing landlord's improvements. If a landlord's improvements pay him 5 per cent. permanently, he is well paid, but a tenant's capital laid out at that rate is a loss to him. Money spent judiciously in manure, is almost always, on land in such condition, repaid in two crops, often in one, and with a large profit for as long as the tenant continues to hold the farm. Ten or 20 per cent. of the landlord's rental laid out in permanent improvements will in 20 years change the face of the estate, and add as much to the rental, with good profit to the tenants. And whereas in Ireland the money can be borrowed from the Government, under the Land Improvement Acts, repayable, principal and interest, at 6½ per cent. in 22 years, or at 5 per cent. in 35 years, there is no excuse on earth for landlords not doing the permanent improvements themselves in a substantial manner, employing the labourers on their estates, who are at least as deserving a class as the tenants, and leaving the tenant's capital to its proper use—manuring land that grievously wants it.

It is, therefore, that I say that the systems described by "Fingal" err as much in defect as Mr. Pollock's in excess. I do not wish, however, to imply that the estates he mentions are not much improving. The truth is, any orderly system carried out in a fair business-like way is sure to improve an Irish estate, more or less; if it is only a business-like enforcement of the rent, even a high rent, the estate will improve. Neglect is a far greater evil than any other thing in Ireland. An easy-going, indulgent, careless management, will in 10 years ruin any estate, if the rents are ever so moderate. Once an Irish tenant gets in arrear he is a lost man; no one gets in arrear without getting in debt besides. If good years come the debts and arrears swallow up all the gains, and the man is only rather less in debt, and with greater liberty to borrow more, and with no more spirit to farm better. Without arrears, though he may have hard work some years to pay his way, yet when good years come, the gain is his own, and better farming is the consequence.

I believe there is no point relating to Ireland on which so much ignorance prevails, as the number of estates on which the landlord's capital is being largely spent in permanent improvements. Whilst political capital is made of every abuse, great or small, however accidental or arising from mere personal causes, all that tends the other way is little heard of. *An Irish Landlord.*

AGRICULTURAL STATISTICS.

[The following is the report by Mr. Fonblanque, of the Statistical Department of the Board of Trade—by which the tabular results of this year's statistical inquiry, just published, are prepared.]

THE first two tables show abstracts of the agricultural returns for each division of the United Kingdom, the figures for Ireland being taken from the returns issued by the Registrar-General in Dublin. The total number of acres returned as under all kinds of crop, bare fallow, and Grass in the United Kingdom in 1868, was 45,652,000, which is 265,000 in excess of the total in 1867, and 1,307,000 in excess of the total in 1866. The large increase in 1868 as compared with 1866 is, however, chiefly owing to the increased acreage of permanent pasture returned in Great Britain in 1867 and 1868 under a more comprehensive heading in the forms used for collecting the returns. Of the total number of 45,652,000 acres returned for the United Kingdom in 1868, 11,659,000 were under corn crops, 4,865,000 under green crops, 984,000 were under bare fallow, 5,690,000 under Clover and other rotation Grasses, and 22,164,000, or nearly one-half of the total acreage returned, were under permanent pasture. The proportion of permanent pasture varies considerably in the different divisions of the kingdom. The abstract Tables show that the proportion of permanent pasture to the total acreage returned was 48 in every 100 acres in the United Kingdom, 42 in England, 56 in Wales, 23 in Scotland, and 64 in Ireland. The average returned in 1868 as under bare fallow or uncropped arable land amounts to 958,000 acres for Great Britain, and to 24,000 acres for Ireland. In Great Britain the proportion of bare fallow to the total acreage returned is 3 in every 100 acres, but it is 5¾ to every 100 acres under corn, green, and rotation Grass crops, and 7½ to every 100 acres of corn and green crops only. There is reason for believing that in parts of Great Britain land capable of cultivation, but lying waste or untilled, is erroneously returned under the heading of "bare fallow or uncropped arable land."

The aggregate acreage under corn and green crops in the United Kingdom in 1868, as compared with 1867, shows the following results:—Corn crops, an increase of 227,000 acres, and green crops, exclusive of Potatos, a decrease of 170,000 acres. The acreage under Potatos is larger in 1868 than in 1867 by 84,000 acres, of which 50,000 acres were in Great Britain, and 34,000 in Ireland. The acreage under Wheat is larger in 1868 than in 1867 in each division of the kingdom, the total increase amounting to 310,000 acres. The acreage under Barley in 1868, compared with 1867, shows a falling off in England to the extent of 112,000 acres, but as there is an increase of 4000 acres under Barley in Wales and Scotland, and of 16,000 acres in Ireland, the actual decrease of acreage under that crop in the United Kingdom in 1868 amounts to 92,000 acres. In the acreage under Oats there is an increase in the United Kingdom of 48,000 acres in 1868 over 1867, the chief part of the increase, 40,000 acres, occurring in Ireland, England showing a decrease of 18,000, and Wales and Scotland an increase of 24,000 acres. The acreage under each kind of green crop (excepting Potatos) is generally lower in each division of the United Kingdom in 1868 than in 1867. The decrease in the kingdom in 1868 is 24,000 acres under Turnips, 9000 acres under Mangels, 12,000 acres under Cabbages, Kohl-rabi, and Rape, and as much as 122,000 acres under Vetches, Lucern, &c. The acreage under Flax in Great Britain is distinguished for the first time in the returns for 1868. There were under that crop

15,828 acres in England, 169 in Wales, and 1546 in Scotland. The acreage under Flax in Ireland in 1868 was 206,446.

A marked advance is shown in the number of cattle and sheep in 1868 over 1867. In the United Kingdom the total increase in cattle amounts to 352,000. In Great Britain the increase is as much as 430,000, but there is a decrease of 82,000 in Ireland, not accounted for by an increase in the exports of cattle to Great Britain. The number of sheep in the United Kingdom is larger in 1868 than 1867 by 1,790,000. The increase may be said to have occurred exclusively in Great Britain, the number of sheep in Ireland showing scarcely any difference in the two years. As regards pigs, a kind of stock discouraged by the high prices of food, there is a decrease in the number in 1868, compared with 1867, to the extent of 1,032,000 for the United Kingdom. The chief part of the reduction is in Great Britain, where the number is less by 658,000. In Ireland there is a decrease of 371,000.

The general Tables exhibit the relative agricultural condition of the several counties in England, Wales, and Scotland. In Table No. 3 the percentages of corn crops to the total acreage returned, and the proportionate number of live stock to every 100 acres under crop, show variations that may be noticed with local and general interest. The counties may be arranged with a view to various results, but there are two groups of acknowledged importance and interest, the grazing and corn-growing counties. Mr. Caird, in his published volume of letters upon English agriculture, gives an outline map of England with a line of division running from north to south to distinguish the corn and grazing counties. Following this plan, but with some little variation suggested by the proportion of corn crops to the total acreage under cultivation as ascertained by the agricultural returns, the following Table has been prepared to show the chief results of such a division of the English counties. The counties are arranged, as far as practicable, geographically from north to south. In the two divisions the number of counties is the same, and the total of the acreage returned is not very different. The percentage proportions of corn crops to the total acreage returned in each county are shown in Table No. 3, and it will be observed that in the grazing counties the proportion of corn crops is as low as 10 per cent., and not higher than 33 per cent.; but in the corn-growing counties the proportion of corn crops ranges between 33 and 35 per cent. As regards the number of the live stock in two divisions, it must be recollected that the figures relate to the stock returned as in the possession of the occupiers of land and owners of live stock upon the 25th of June.

Grazing Counties.—Northumberland, Cumberland, Durham, Westmoreland, York (North and West Ridings), Lancashire, Cheshire, Derbyshire, Stafford, Leicester, Salop, Worcester, Hereford, Monmouth, Gloucester, Wilts, Dorset, Somerset, Devon, and Cornwall.

Corn-Growing Counties.—York (East Riding), Lincoln, Nottingham, Rutland, Huntingdon, Warwick, Northampton, Cambridge, Norfolk, Suffolk, Bedford, Bucks, Oxford, Berks, Hampshire, Hertfordshire, Essex, Middlesex, Surrey, Kent, and Sussex.

	Grazing Counties.	Corn Counties.
Total acreage returned as under crops, bare fallow, and Grass	12,109,000	10,929,000
Acreage under Wheat	1,286,000 or 10 per cent. of total acreage.	2,111,000 or 19 per cent. of total acreage.
Acreage under permanent pasture	6,363,000 or 52 per cent. of total acreage.	3,341,000 or 30 per cent. of total acreage.
Total number of cattle returned	2,484,000 or 66 per cent. of total number in England.	1,295,000 or 34 per cent. of total number in England.
Total number of sheep returned	10,638,000 or 51 per cent. of total number in England.	10,292,000 or 49 per cent. of total number in England.

An increased interest may be taken in returns relating to the agriculture of the country if the annual addition to the total number of consumers of food in Great Britain be considered. In round numbers, about 240,000 persons are annually added to the resident population of Great Britain. The additional Wheat supply required for that number, at an average of six bushels per head, amounts to nearly 180,000 quarters, which at an average English yield of 28 bushels per acre, represents the produce of upwards of 50,000 acres, and of a much larger acreage at a lower rate of production. Returns relating to the price and to the number of live stock in British possessions and foreign countries, so far as can be obtained, will be found at the end of the returns for Great Britain.

Later returns than those published last year have been obligingly furnished by the statistical departments in the respective countries, for Sweden, Prussia, Wurtemburg, France, and some additional particulars have been supplied for Norway and Holland. The returns recently collected in Belgium are not yet complete. Agricultural returns have not as yet been obtained in Switzerland nor Italy, and not for a recent period in Austria, Spain, or Russia. For the United States the particulars published last year are again given, as complete returns for this year have not been at present obtained by the agricultural department in that country. The information received respecting agriculture in foreign countries, stated in English measures, is arranged to afford a comparison of the agricultural resources of this and other nations. Many international interests will be benefitted when more exact comparisons can be made of the food-producing capabilities of different countries. *A. W. Fonblanque, Statistical Department, Board of Trade, Whitehall, Dec.* 1868.

[The following is the first of the Tables appended to Mr. Fonblanque's report:—]

No. 1.—Population, Area, Abstract of Acreage under Crops, &c., and Number of Live Stock, in Each Division of the United Kingdom.

	Years.	England.	Wales.	Scotland.	Total for Great Britain.	Ireland.*	Isle of Man.	Channel Islands. Jersey.	Channel Islands. Guernsey, &c.	Total for United Kingdom.
Total Population	1868	20,451,233	1,198,144	3,188,125	24,837,502	5,532,343	147,811			30,517,656
Total Area (in Statute Acres)	..	32,590,397	4,734,486	19,639,377	56,964,260	20,322,641	180,000	28,717	17,967	77,513,585
Abstract of Acreage:—										
Under all kinds of Crops, Bare Fallow, and Grass	1867	22,932,356	2,415,139	4,379,552	29,727,047	15,542 208§	84,498	20,355	12,958	45,387,066
	1868	23,038,781	2,503,646	4,413,267	29,955,694	15.575,270§	88,561	18,716	14,304	45,652,545
Under Corn Crops	1867	7,399,347	521,404	1,364,029	9,284,780	2,115,137	27,039	2,827	2,157	11,431,940
	1868	7,499,218	547,873	1,386,441	9,433,532	2,192,785	27,888	3,453	2,197	11,659,855
,, Green Crops	1867	2,691,734	138,387	668,042	3,498,163	1,432,252	12,670	5,636	3,075	4,951,796
	1868	2,585,019	128,292	672,555	3,385,866	1,456,307	13,310	5,766	3,808	4,865,057
,, Bare Fallow	1867	753,210	86,257	83,091	922,558	26,191	1,990	2,550	709	953,998
	1868	799,739	83,720	74,762	958,221	24,017	439	740	829	984,246
,, Grass:—Clover, &c., under Rotation	1867	2,478,117	300,756	1,211,101	3,989,974	1.658,451	26,884	3,250	874	5,679,433
	1868	2,370,638	328,232	1,261,138	3,960,008	1,691,797	32,525	5,204	784	5,690,318
Permanent Pasture, not broken up in rotation†	1867	9,545,675	1,368,328	1,053,285	11,967,288	10,057,072	15,915	6,092	6,143	32,052 510
	1868	9,703,884	1,415,327	1,016,825	12,136,036	10,003,918	14,391	3,553	6,686	22,164,584
Per Centage of Acreage:—‡										
Under Corn Crops	1867	32.3	21.6	31.1	31.2	13.6	32.0	13.9	16.7	25.2
	1868	32.5	21.9	31.4	31.5	14.0	31.5	18 4	15.4	25.5
,, Green Crops	1867	11.7	5.7	15.3	11.8	9.2	15.0	27.7	23.7	10.9
	1868	11.2	5.1	15.2	11.3	9.4	15.0	30.8	26.6	10.6
,, Bare Fallow	1867	3.3	3.6	1.9	3.1	.2	2.4	12.5	5.5	2.1
	1868	3.5	3.4	1.7	3.2	.2	.5	4 0	5.8	2.2
,, Grass:—Clover, &c., under rotation	1867	10.8	12.5	27.7	13.4	10.7	31.8	16.0	6.7	12.5
	1868	10.3	13.1	28.6	13.2	10.9	36.7	27 8	5.5	12 5
Permanent Pasture not broken up in rotation†	1867	41.6	56.6	24.0	40.3	64.7	18.8	30.0	47.4	48.6
	1868	42.1	56.5	23.0	40.5	64 2	16.2	19.0	46.7	48.6
Total	..	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Abstract of Live Stock returned: Total Number of Cattle	1867	3,469,026	544,538	979,470	4,993,034	3,702,378	18,672	10,081	7,308	8,731,473
	1868	3,779,691	593,373	1,050,917	5,423,981	3,620,352	19,727	12,225	7,131	9,083,416
,, of Sheep	1867	19,798,337	2,227,161	6,893,603	28,919,101	4,826.015	70,958	529	1,348	33,817,951
	1868	20,930.779	2,668,505	7,112,112	30,711,396	4,822,444	72,116	501	1,355	35,607,812
,, of Pigs	1867	2,548,755	229,917	188,307	2,966,979	1,233,893	7,706	5,804	6,748	4,221,100
	1868	1,981,606	187,319	139,614	2,308,539	862,443	5,271	7,135	5,779	3,189,167
Proportionate Number of Live Stock to every 100 Acres under Crops, Fallow, and Grass:— Cattle	1867	15.1	22.5	22.4	16.8	23.8	22.1	49.5	56.4	19.2
	1868	16.4	23.7	23 8	18.1	23.2	22.3	65.3	49.9	19.9
Sheep	1867	86.3	92.2	157.4	97.3	31 1	84.0	2.6	10.4	74.5
	1868	90.8	106.6	161.2	102 5	31.0	81.4	2.7	9.5	78.0
Pigs	1867	11.1	9.5	4.3	10.0	7.9	9.1	28.5	51.8	9.3
	1868	8.6	7.5	3.2	7.7	5.5	6.0	38.1	40.4	7.0
Number of Returns obtained: From:— Occupiers of Land owning Live Stock, and Occupiers of Land only	1867	378,249	54,085	78,792	511,126	About 600,000	2,329	..	..	..
	1868	383,577	55,283	80,111	520,971		2,459	..	..	..
Owners of Live Stock only	1867	7,475	578	2,993	9,046		100	..	..	..
	1868	6,572	447	2,392	9,411		141	..	..	..

* The detailed Returns for Ireland will be found in the Annual Reports prepared by the Registrar-General, and laid before Parliament.

† Exclusive of heath or mountain land.

‡ Stated exclusively of the small percentages for Flax and Hops.

§ Including, under Flax, 253,115 acres in 1867, and 206,446 acres in 1868.

Home Correspondence.

Deep and Shallow Drainage.—I observe that after a dry summer, the fields drained 5 feet deep at 30 and 40 feet apart, in stiff clay, do not discharge water through the drains so early in the season as those of 30 inches deep, at closer intervals. The reason appears to me to be obvious. The 60-inch drains take the surplus water from 6000 tons of earth, the 30-inch drains only lay dry 3000 tons. It is easy, therefore, to understand that when the autumnal rains come, the 6000 tons take longer to supersaturate than the 3000 tons. The deep drained lands had only commenced running to-day (Jan. 8), after the recent heavy rains. Are not those extra 3000 tons more available for the roots of plants than the same quantity undrained under the 30-inch drains—for the roots of plants descend several feet? P.S. One inch deep of earth gives over 100 tons per acre. *J. J. Mechi, Jan.* 8, 1869.

The Cattle Plague.—In a report on the trade and commerce of Poland just received at the Foreign Office, the following note on the cattle disease in that kingdom occurs. After stating that no accurate statistical information on the number of beasts affected could be obtained, it proceeds to say that the disease was by no means prevalent, and certainly less so than in the previous year. The following remedy has been recently published at Kieff, but the best authorities on the subject seem to doubt whether any remedy will be so efficacious as the system of stamping out the disease, supported by a compulsory mutual insurance. "Remedy: As soon as the disease is discovered, to separate the sound from the infected cattle, changing even the attendants. Mixture for the diseased cattle: Nine parts of oil (sort not specified), to one of muriatic acid; a quart of the mixture to be given three times a day until the disease moderates itself, and subsequently one pint twice a day. The fodder of the sound beast is to be changed; chaff, straw, and grain to be avoided, but plenty of oilcake or vegetable fodder, such as Beet-root,—the latter, however, must be squeezed out; when the above is not attainable, to mix fodder with flour, as conducive to digestion. Above all, the beast to remain in the open air as much as possible." *John R. Jackson, Kew.*

Horse-power versus Traction-engine.—My thanks to Mr. Smith for his "correct card" of work done by his horses, and for the great readiness he has shown to try and see if it can be done, or to such an extent as to permanently reduce the horse labour, or expenses we may fairly call it. I know he can, from his practical knowledge, afford great assistance in the matter. Following him month by month, he will, perhaps, turn over my suggestions in his mind, well stored with contrivances no doubt, and tell me if they are impossible. Crude my ideas may be, but everything has a beginning. January: Work seems practicable. February: Coal-carting, shifting itself and tackle; it can do water-carting now. Using the roundabout tackle, engine being stationary, cannot we dispense with water-cart by fixing on a spot to work from (or even two) as a rule, say near the water-course, a tank being dug large enough to supply engine with water? Once dug, there is the end of it. March: Drilling and horse-hoeing I would not be frightened about. The farmer's nag must be kept, and an odd job-horse. Drilling is often done per acre. Better so than let it stand in our way. June: Haymaking. Why two engines? Remember, our carts are to be "three times as big as a horse-cart." August: This month and in June, Mr. Smith is afraid of fire. Is there more danger than in our stackyards? Cannot sparks be prevented? Is it necessary he should go up the hill? Perhaps having the sheaves placed more conveniently, and say a new entrance into field to suit our new work, might obviate much of this. September: A very heavy month; but let us work when we can work. Do not count the hours. October: Ploughing can be done by steam, though crop cultivation may run dear, but everything is at hand. Let Mr. Smith look over "G. A. H.'s" communication (same paper). It looks like work. *West Indian.*

Plenty of Money, but we won't use it.—An influential member of one of the improvement companies informed me that money was superabundant, but they could not find parties enough willing to employ it in agricultural amendment. To-day I have an application from a gentleman wishing to invest capital in such companies. I was obliged to reply that the necessity for agricultural improvement was not yet sufficiently impressed on the rural mind, and therefore the channel was not open to his investment. I am more and more inclined to think that nothing pays better than agricultural improvement; for although in 1867 I made a clear 18 per cent. on tenant's capital after providing for the improved rent, I have reason to believe that my forthcoming balance-sheet for 1868 will show more than 20 per cent. net profit, and house-rent free. Many town traders would rejoice in such a net result as this. *J. J. Mechi, Jan.* 1869.

Tithe Commutation—Septennial Averages. — As many of your readers may feel anxious to know the result of the corn averages for the seven years to Christmas, 1868, published in the *London Gazette* of this evening—viz.: Wheat, 6*s.* 5¼*d.* per imperial bushel; Barley, 4*s.* 5¼*d.*; Oats, 2*s.* 11*d.*—I beg to state for their information that each 100*l.* of the tithe rent-charge will, for the year 1869, amount to 103*l.* 5*s.* 8¼*d.*, or nearly 2⅝ per cent. more than last year. The following shows the worth of 100*l.* tithe rent-charge for the last seven years:—

For the year	1863	£107	5	2	For the year	1867	£98 13 3
,, ,,	1864	103	3	10¾	,, ,,	1868	100 13 8
,, ,,	1865	98	15	10½	,, ,,	1869	103 5 8¼
,, ,,	1866	97	7	9½			

The average value of 100*l.* tithe rent-charge for the 33 years elapsed since the passing of the Tithe Commutation Act is 100*l.* 17*s.* 7½*d.* *Montague Marriott, Editor*

of Willich's Tithe Commutation Tables, 26, *Montpelier Square, S.W., Jan.* 5.

The Importance of Comparative Experiments.—Whenever I use an artificial manure I leave a portion of the field unmanured with it, and am thus enabled to judge by the crop if I am remunerated for the outlay. So various are the soils and conditions of each field, that such a comparative test becomes absolutely necessary, for where the whole field is manured, and no portion left undressed, no just conclusion can be arrived at. On this farm I have frequently applied bone-dust, superphosphate, blood manure, and other artificial manures, without the least increase of crop, while Peruvian guano, and especially our shed manure, are always profitable. As I know that on many farms such manures have been found very effective, there must be causes that render them inoperative on this soil. No doubt shed manure, resulting from animals fed with corn, cake, roots, and, hay, malt-combs, and bran, contain all the elements for every crop. Possibly it may be that having thus enough phosphates, the addition of more is not required or availed of by the plant. At all events my case proves the necessity for comparative trial.—*J. J. Mechi.*

Catch Crops and Winter Food.—I think it would be instructive if your correspondents, who favoured you in August last with their views on the means best suited to meet the requirements for any deficiency in winter food, would now state how each has been successful or otherwise. This notice has been suggested to me by the communication of your correspondent "W. J. M.," whose experience has been different from my own. He says that "catch crops of Rape, &c., of which so much was expected, have, in his district at least, proved a failure." I have this autumn seen some of the best crops of White Turnips, after Peas and Early Potatos, which ever came under my observation, and, as a rule, the catch crops have been good. On such crops sheep have paid well. Another case in point is, on August 13 I planted a field with sprouting Broccoli after a crop of Rye, and on December 9 I sold them for the London market for 12*l.* an acre. To obtain this result I not only deep-ploughed the land, but well manured it. Catch crop cultivation, to be satisfactory, must be well done, the same amount of seed and nearly as much labour is expended on a crop dressed with 2 cwt. of guano as it would be with 4 cwt. The produce might be double. Plants can only develop themselves at the expense of the medium in which they are placed—if generous a full, if meagre a stunted growth. In August I ventured an opinion that we might expect an open autumn, which is now verified, and we have got into the new year with little extra demand on the root crop. Higher prices were expected for Mangel than up to this time have been realised. *P. Mitchell, Rainham, Essex, Jan.* 11.

Societies.

HIGHLAND AND AGRICULTURAL: *Jan.* 6. — A monthly meeting of this Society was held this day—his Grace the Duke of Buccleuch, K.G., President, in the chair.

OFFICE-BEARERS FOR 1869.

Mr. F. N. MENZIES reported that the following noblemen and gentlemen, proposed for election at the general meeting of the Society on the 20th current to fill the vacancies in the list of office-bearers, had all agreed to act:—Vice-Presidents: Most Noble the Marquis of Tweeddale, K.T.; the Right Hon. R. C. Nisbet Hamilton. Extraordinary Directors: Sir William Baillie, of Polkemmet, Bart.; Patrick Dudgeon, of Cargen; Robert Dundas, of Arniston; John Stirling, of Kippendavie. Ordinary Directors: Sir George Warrender, of Lochend, Bart.; Robert Binnie, Seton Mains, Longniddry; John Dickson, Saughton Mains, Edinburgh; Thomas A. Hog, of Newliston, Kirkliston; James Ewen Newton, Linnbank House, Lanark; John Wilson, Professor of Agriculture, University of Edinburgh; Alexander Young, Keir Mains, Dunblane.

The Duke of BUCCLEUCH expressed his willingness to continue in office for another year, so as to complete the period specified in the charter, but as a great desire had been evinced by many members that the range of the choice of president should be widened, and as a strong feeling existed in favour of the Marquis of Tweeddale being elected to the office of president, it appeared to his Grace that this would be a fit opportunity to nominate his Lordship. Owing to the general show being held in Edinburgh this year, his Grace thought it would be a proper compliment to ask the Marquis to take the president's chair when the show took place in his immediate district.

In accordance with his Grace's desire, it was agreed that the Marquis of Tweeddale should be transferred from the list of vice-presidents to the presidentship of the Society.

Sir WILLIAM STIRLING MAXWELL then moved that the Earl of Dalkeith should be appointed vice-president in room of the Marquis. The list as amended will be submitted to the general meeting for confirmation.

EDINBURGH SHOW, 1869.

The report of the meeting of members, held at Edinburgh on the 9th of December, was submitted; and with reference to the remarks which were then made in regard to the overfed state of bulls and other stock exhibited at the general shows of the Society, the following new rule was recommended, and the secretary was instructed to insert it in the general regulations for the Edinburgh show:—"Breeding stock must not be shown in an improper state of fatness, and the judges will be prohibited from awarding premiums to overfed animals."

PROPOSED SHOW AT DUMFRIES IN 1870.

Mr. F. N. MENZIES reported that he had attended a meeting at Dumfries on the 16th December, when the list of classes of stock, as fixed by the committee on general shows, and agreed to by the directors, had been submitted and approved of, subject to certain alterations and additions suggested for the consideration of the directors.

PREMIUM BOOK FOR 1869.

Various subjects for which premiums were offered in 1868 were deleted from the list, and the following were added:—Reports—On the farming customs and covenants of leases formerly in use in the various districts or counties of Scotland; on the various modes of striking the "fiars" prices throughout the different counties of Scotland; on the cheapest, speediest, and most convenient mode of covering the grain crops in harvest; on improved methods of transporting dead meat for distances that may occupy from 24 to 48 hours, so that it may arrive in the least injured condition; on improvements in the vessels used for transporting milk from country districts to the neighbouring towns; on the advantages of a system of contract entered into by stockowners and veterinary surgeons; on the comparative advantages in point of economy, as well as durability, of home-grown timber, as compared with foreign, for general outdoor estate work; on the effects of the very dry season of 1868 on trees and shrubs in different soils, situations, and elevations; on the results obtained by experience of seedlings of Conifers, being the produce of trees grown in Britain, as compared with plants obtained from foreign ripened seed.

PROPAGATING POTATOS FROM SEED.

The following communication from Mr. Henry Stephens, the author of "The Book of the Farm," was read:—

"Redbrae Cottage, 9th Dec. 1868.

"Gentlemen,—Allow me to direct your serious attention to a subject which materially affects the interests of the farmer and of the community. The subject I refer to is the propagation and establishment of good and sound varieties of the Potato from the seed. A very successful instance I will take the liberty of bringing under your notice.

"Mr. William Paterson, of Dundee, was initiated in the art of gardening by his father, who for many years supplied vegetables to the inhabitants of that thriving town. He commenced business on his own account in the fruit trade, and has the best fruit shop in Dundee.

"At the period of the Potato failure, observation and reflection impressed his mind strongly that decay in the constitution of the Potato plant, occasioned by a forced culture of long continuance, and the incessant employment of the tuber itself as the means of reproduction of the crop, were the superinducing causes of the disease. Such a conclusion was doubtless a rational one. With this conclusion strongly entertained, Mr. Paterson endeavoured to procure everywhere samples of the soundest Potatos, in order to obtain therefrom seed from the apples, as also seed imported direct from South America. Thus provided, after much toil, waste of time, and expenditure of money, he has succeeded in producing some excellent varieties of Potatos in a course of 20 years of unwearied perseverance and anxiety. We all are sensible of what the difficulty must have been of selecting the best out of the hundreds of varieties of tubers which are produced but from a few seeds of the Potato plant, the numbers of years required ere the selected plants produce such a size of tuber as can be presented at table, and a still further course of years ere those tubers can adequately supply the markets of the country with the favourite Potato. It is, therefore, not surprising that, attaining even success, Mr. Paterson has incurred heavy pecuniary loss, as well as loss of time, which might, perhaps, have been otherwise more profitably employed. Having no land of his own, he had to rent land, to pay for manures and hired labour, and to wait for years before he had a chance for remuneration from his experiments.

"I am furnished with a detail of many of these experiments, and with numerous testimonials from all quarters of the kingdom in regard to the prolificacy and superior quality of the Potatos which Mr. Paterson has thus produced.

"Having a knowledge of these facts his friends in Forfarshire have resolved upon bestowing on Mr. Paterson some recompense for his patriotic exertions, and I understand the Earl of Dalhousie has headed a subscription with 50*l.* The Gold Medal would be a gracious mark of the Society's approval of his efforts, and by the Society thus giving encouragement to the movement, the country generally might more readily be induced to support it.

"I have the honour to be, gentlemen, your obedient and faithful servant, (Signed) "HENRY STEPHENS.

"To the Directors of the Highland and
Agricultural Society of Scotland."

The secretary was instructed to inform Mr. Stephens that Mr. Paterson should transmit a report on the subject, when the Gold Medal may be awarded.

Farmers' Clubs.

CIRENCESTER: *Jan* 4.—*Rural Education, and the Employment of Women and Children in Agriculture.*—The Rev. JOHN CONSTABLE, Principal of the Royal Agricultural College, and President of the Cirencester Chamber of Agriculture, spoke on this subject at the last meeting of this Chamber; and we make the following extracts from his address, as reported in the *Wilts and Gloucestershire Standard*:—

WHAT IS EDUCATION?

I presume, at the outset, that we are pretty unanimous that education is a good thing, and that the children of agricultural labourers should be educated, but the moment we use this word "educated," we are instantly sensible that scarcely a dozen persons who accidentally meet on any occasion mean the same thing by the word. Some think of education as knowing how to do this or that—others as an acquaintance with what is called the "three R's"—others, as a more extended knowledge, embracing history and geography; while another large class cannot apply the word to any system which is not based upon and incorporated with religious teaching. Now, it is almost hackneyed to say that education is the training of mind and hand, so that mind and hand can best fulfil the duties imposed upon them in the sphere of life in which God has placed the individual; and yet, stale as it is, it cannot be too often repeated, for besides teaching the essentials of every education, reading, writing, and arithmetic, the object should be to cultivate reflection, relf-reliance—qualities, in fact, and habits. Stating this, I may at once remark that I am opposed to the attempt which has been so often made of adding to all this a large amount of what is called useful knowledge, such as history, geography, and the like. If these subjects are capable of being made the vehicles, or, as we might term them, the roots for the production of the real fruits of true education, well and good, use them; but if they are merely additions, cast them aside. From my own experience, I feel certain that everything can be done which is necessary for the class we speak of by good sound instruction in reading, writing, and arithmetic. I know no subject that in my judgment and experience has been so misunderstood. Years ago I felt sure that disappointment would overtake the Government expectation, and I was led into this from perusing the inspectors' reports, and from estimating the standards which these gentlemen placed before them. Highly-educated men themselves, who never had had the training of any but the best intellects in the land, they could not estimate the material of the ordinary village school. I remember, in one case especially, a first-class inspector lamenting that in examining in decimals, although those examined could do what was set remarkably well, he was surprised and grieved to find that they were unable to give him reasons for the work performed. An inspector writes, "The habit of following in an intelligent manner the steps of an arithmetical operation, and of reasoning upon the truths involved in numbers, would give to the students themselves a training in accuracy of reasoning which the papers that I have lately revised show that they sadly lack." Why, I will engage to prove that this complaint might be applied with justice to nine-tenths of the honour men at Cambridge; the philosophy of numbers is one of the last things a student either reads or masters. Not many days ago I read in a report of a meeting held in one of the southern counties, that a speaker, and one occupying a leading position as an educationist, advised "that they should require some certificate, or some other means should be taken to ascertain, before they intrusted a person with the care of an implement which they knew might injure him for life, whether his knowledge of the nature of it was sufficient to make him competent to manage the implement he was about to use." Why, those who know anything practically of education are aware that this kind of knowledge is of all kinds the most difficult and of the highest order. Consider those who use the microscope—or, to descend to a more agricultural illustration, those who look through a surveyor's level or theodolite—how little do they in general know of the theory of these instruments. This worthy gentleman is, perhaps, himself not very *au fait* at the mechanism of his own time-piece, and yet I imagine he can take care of it. The requirement alluded to appears to me about as reasonable as if the consumption of food by a person were forbidden till that person knew the mechanical principles involved in the action of arms, fingers, jaws—the chemical principles in the digestion of food, and the physiological principles in the formation of muscle and bone from the blood. It is enough for the majority of persons to know how to eat and what to eat. But even assuming that the requirement is reasonable—that such knowledge is desirable—I am far from believing that the knowledge could be imparted. We at the College, who have been trying to do it for years with the more cultivated intellects of men, know to our sorrow and confusion the small results usually secured. Let me, however, say that if possible I would introduce into village school teaching a little more work with the eye and hand than is usually attempted. The hand and eye are to the labourer the organs upon which his skill greatly depends. Free-hand drawing and mechanical drawing are subjects easily and inexpensively taught, and these, combined with the three fundamental subjects, would afford an excellent rudimentary training. I am sure the results of even little attention, such as we give at the College, are singularly surprising and encouraging.

[Mr. Constable proceeded to prove, from his experience in parishes in Gloucestershire and Hampshire, and by extracts from the recent Blue-Book on the subject, that the poor do desire and will pay for education. He adds:—]

I can understand the man who says education is a personal matter, which every man must provide for his family by his own industry, and the poor are no exception, but who yet may, when facts are pressed upon him, make the poor an exception; but I cannot understand the economist who says, Benefit the rich as much as possible by endowments and exclusive universities, but it is an injurious system to aid the poor. And this appears to be the real state of the case. I advocate a consistent course. The *Times* says, speaking of the Commissioners' Report, "It is only a question of money: who is to pay?" Precisely so; but I say, is it not conceivable that the poor may be so helped as to enable them to be the paymasters?

SUGGESTED INCREASE OF WAGES.

If we have a certain amount of the interest of our capital to spend on a given work, and four men have to be paid for it instead of three, the four must receive less wages; and therefore those, in the second place, who clamour for an increase in wages as a means of benefitting the poor, should reflect that wages follow laws—that wages can only be permanently raised by certain definite means. "Wages can only be raised by taking from the profits of capital or from the additional wealth produced by making labour more efficient." The latter method is the legitimate one—the one open to us all—the one which every man who wishes agriculture to progress has before him. No outlay pays better than that for labour judiciously expended. Let me cite an illustration from Mr.

Nevile's pamphlet:—"A dispute once arose between my bailiff and my foreman on a field in my own occupation, whether a field of Beans would or would not pay for the hoeing a second time. I decided to hoe half this field a second time. I paid 1*s.* 1*d.* an acre for it. The produce was exactly a sack an acre more on the land hoed, which, at two guineas a quarter, gives a profit of 100 per cent. in four months." It also needs little to prove that the better the quality of the labour, the less it costs. I quote at length the Commissioners' remarks on a portion of Mr. Culley's report (xxviii. 129, 130), for it establishes what has long been known to all employers of labour, that the best article is the cheapest,—that an indifferent horse, a bad machine, a worn-out engine, had better be got rid of at once. Mr. Culley brings to light the striking fact that the cost of labour is upwards of 7*s.* per acre greater in Bedfordshire than in North Northumberland. Of the reduced cost in Northumberland, "some part," Mr. Culley states, "may be due to management, some part is due to the employment of a class of women almost equal to the ordinary run of Bedfordshire male labourers, and the remainder, which is no very small part, is due to the fact that the northern hind, at a slightly higher wage, is a much cheaper article." And the results to the farmer, the landowner, and the labourer, are as follows:—To the farmer, "it amounts to an ability to pay about 7*s.* an acre more rent, besides escaping with a much smaller poor rate; to the landlord there is the difference of 7*s.* an acre greater rent as a compensation for building eight cottages (an obligation he cannot escape in Northumberland) and letting them rent free, instead of building, or thinking he ought to build 14, for which, if built, he would receive a rent amounting to a fair interest on the cost of eight." The net result to the landowners is an addition of 84*l.* in rent upon every farm of 400 acres (the basis of Mr. Culley's estimate), after deducting the "fair interest" of 7 per cent. on the cost of eight cottages. To the labourer the result is still more important. In Bedfordshire the income, arising from employment in agriculture on a farm of the size above-named, "amounts to 603*l.* 4*s.*, to be divided among 14 families, giving about 43*l.* 1*s.* 9*d.* to each;" whereas in the other it amounts to 483*l.* 16*s.*, "to be divided among eight families, giving 60*l.* 9*s.* 6*d.* to each." In Buckinghamshire the cost of labour per acre is, in some cases, higher than in Bedfordshire, and the contrast greater with that of the North. While in Glendale, North Northumberland, the cost, as given by Mr. Culley, is 1*l.* 3*s.* per acre, and in Bedfordshire 1*l.* 10*s.* 2*d.* per acre. In Buckinghamshire cases are stated where the "cost of labour paid in wages on farms having the larger portion arable," was "over 2*l.* an acre; in the valley of the Thames, in one instance, 2*l.* 10*s.* per acre; and in another instance, where the labour-books are well kept, and almost all the work is done by the piece, it appears to be 2*l.* 5*s.*" It is to be feared that much time must elapse before the majority of cultivators will understand the teaching of such an example as this—progress can only be the work of time. Yet none can fail to observe that there are causes at work which must sooner or later affect the labour market. Railroads tend to equalise the price of labour as well as the price of food; agitators are among the agriculturists as among the operatives—men like Canon Girdlestone are pointing out how change of air is sometimes beneficial to the poor as well as the rich, that emigration may benefit him who goes as well as him who remains behind. Let it be taken for granted, then, that the pecuniary condition of the agricultural labourer can only alter very slowly, and that at present he needs aid for the education of his children. How is it to be given?

Allotments.

Assuming then, as I do, that a development and extension of our present system is all that is needed—assuming that the poor value a good education, and will often find means to pay for it where it can be got, it remains to inquire whether there are not ways by which the Legislature can indirectly aid the resources of the labourer, so as to put it in his power always to take advantage of the educational resources in his neighbourhood. The direct way—viz., by higher wages and better modes of remuneration—cannot be dealt with by the Legislature. This must be left to private adjustment, but the Commissioners put forth two very feasible schemes by which improved laws may aid the pecuniary condition of the agricultural labourer: the first is the allotment system as it is called, that is, the allotment of such an amount of land to the labourer's cottage or in default of that the assignment to him of such an amount of land as near to his dwelling as possible as will profitably employ the leisure hours of himself and family without turning him into a small farmer, or leading him to place his chief dependence on the produce of his land and not on wages. This I consider the most legitimate as it is the most hopeful, for it proceeds upon the soundest posssible principles of political economy, for it "tends to the production of additional wealth by making labour more efficient." The importance of this system cannot be over-estimated; for more than half a century thoughtful men, having the interests of their country at heart, have laboured to effect its extension, indeed universal adoption. Pamphlets upon pamphlets were written on the subject from 1815 to 1820, and stronger language could not be used to set forth the imperious necessity than many able writers of that day adopted. Favourable testimony has again and again been given to Parliament, in 1827, in 1830, in 1834, in 1843, and in the report before us. Let us then glance at some facts connected with allotments. You are aware that two centuries ago there were large districts of uncultivated land over which the poor enjoyed certain rights. By the enclosure of these lands the labourer has been a direct pecuniary loser. Between 1760 and 1867 the poor lost no less than 7,000,000 acres of common, which they had formerly the privilege of using for their pigs, geese, and a number of other things—that is, nearly one-third of the total acres in cultivation (25,151,626). We cannot say that this removal of rights was done without a semblance of compensation. In all Acts of Enclosure these rights have been recognised, and provision has been made for a substitute, but unfortunately in many cases ineffectual provision, through one cause or another. In 1795, a select committee of the House recommended that in any general Inclosure Bill that might be passed, some regulation should be inserted, "to secure for the cottagers as much accommodation in the use of land as they may have occasion for."—(xxxiii. 161.) "In 1806, the Rev. S. Demainbray, rector of Broad Somerford, Wiltshire, suggested that a clause should be introduced into an Inclosure Bill for his parish, assigning to every cottage in the parish, whether the owner had any common rights or not, an allotment of half an acre of land, to be vested in trustees to secure its proper use. The Act was passed in 1806, and the example was followed by almost every adjoining parish in that part of Wiltshire."—(xxxiv, 167.) And more than this, both in 1819, in 1831, and in 1832, Acts were passed to encourage and facilitate the letting of portions of land to cottagers with a view to adding to their resources. So that we are not without testimony, 1st, that the necessity of the system has more or less been long recognised, and that where tried it has proved successful: and therefore it is no leap in the dark when we advocate its more general adoption. Experience has given us some facts connected with the system which it would be well to gather up.

1st. A labouring man, even when his family is large, can seldom occupy more than half an acre.

2nd. That the proprietor of the land should not exact more rent than he could expect to receive, if he let his land to be farmed in the ordinary way.

3d. That all rates should be included in the rent.

4th. That the net profit of a quarter of an acre may be taken to be 4*l.* for poor land; for good land, 5*l.*—*i. e.*, 2*s.* an average to each family.—(xxxvii. 191.)

5th. That an allotment has no effect upon wages—is a clear addition to the labourer's means.—(xxxvii. 195.)

I would here remind you that, in this very neighbourhood, we have testimony that the poor can profitably rent land at 20*l.* an acre. Garden land, not one quarter of a mile from this room, is let to the poor at 2*s.* and 2*s.* 6*d.* a lug, the most convincing proof that it is worth in profit what we state, from 16*l.* to 20*l.*, for we know that it is good ordinary land which here brings in 30*s.*, and if owners would let the garden land at 30*s.*, the present poor occupier would have a yearly benefit of 18*l.* 10*s.* per acre. Why owners of land should charge the rich man 30*s.*, and the poor 20*l.*, can only be explained by the universal desire to make as much of property as circumstances permit; but without violating any principle of political economy, I would say it is worth the consideration of any owner of land, whether he may not in the long run greatly benefit himself by the present sacrifice of a few pounds of income. There is abundant evidence to prove that the moral and social advantages of this allotment system are immense. I cannot put the matter in more forcible language than that used by Sir Henry Fletcher, Bart:—"The good is seen not only in the money it puts into the pockets of the labourer, but in the money it keeps there, in inducing him to go to his allotment instead of the public-house. It creates domestic habits very much—a man and his wife and his children can work at it together—it raises the moral character, and causes a marked improvement in the internal economy and management of their cottages."—(xxxvii. 194.) And as regards the social aspect, "The effect of the allotments is to keep labourers and their families off the rates. Their moral character, their steadiness, industry, and skill are greatly improved; crime becomes less frequent; their feelings towards those above them are greatly improved, and, what is of such importance to the farmer when labour is scarce, the attachments to home are increased, and the motives of the labourer for seeking the means of bettering his condition elsewhere are diminished."—(xxxix. 204.) It is much to be regretted that "A Bill amended from one of the previous Sessions, brought into the House of Commons by the Hon. W. Cowper, 1845, entitled, A Bill to promote the letting of field gardens to the labouring poor, which passed through the House of Commons and through the Lords to a second reading, did not go to a third reading."—(xl. 208.) How sadly have the proposer's words on introducing the Bill been verified. "Notwithstanding all that had been done, he believed that a generation might be expected to pass away before there would be a general allotment of garden ground for labourers."

As special information, let me say that under the Inclosure Act now in force, 8 and 9 Vict., c. 118, we find that since 1845 to the present time 484,900 acres have been enclosed; out of these the Commissioners had power over 320,855, and the allotment to the poor has been 2119 acres, or 66 per cent.—(l. 286, 296.) Now, calculating three labourers to each 100 acres, we have nearly 300 labourers for 66 acres of allotment—a very fair proportion. From the census of 1861, it is calculated that there are 745,977 agricultural labourers of 20 years and upwards, and that 233,117 acres would be required for half-acre and quarter-acre allotments, which, at 16*l.* or 20*l.* per annum, would amount to 2,729,872*l.* per annum.—(xlii. 226, 229.) Of course we are aware that many of these acres have already been allotted, but it is to be feared that these bear only a small proportion to the whole. The Commissioners suggest (233) that it would be highly desirable that a return of the quantity so allotted should be made from each agricultural parish at the same time that the annual agricultural returns are collected by the officers of the Inland Revenue department, under the direction of the statistical department of the Board of Trade. Surely a system which is seen capable of effecting an improved cultivation over 232,000 acres—extra work done by labourers after they have finished their daily labour, while it stimulates industry and promotes morality—must also increase the wealth of the nation. Let us ever remember that the labour is extra. Without the allotment "the extra labour would never be expended." I would wish to make a few remarks also as to another depressing influence on the labourer—capable of alteration, although not by Parliamentary interference—"The absorption of the small farms in larger ones has, in proportion as it has advanced, lessened his opportunities, and tended to deprive him of the hope of rising out of the condition of a day labourer into one of importance and independence." While small farms existed the labouring man might look forward to one as the reward of his industry and good character; it was to him "the attainable point of hope." (*Quarterly Review*, 1816.) Since their extinction over many wide districts of the country, and the great reduction of their number everywhere, an accessible step in the social scale has been taken from him (xlviii. 269), and a wide gap has been created, which no exertion on his part can surmount. It was in families of the small occupiers of this class that the best farm labourers used formerly to be trained. "We have destroyed nearly all of them, and have left nothing but the everlasting 8*s.*, or 10*s.*, or 12*s.* a-week, and the union workhouse, a system which has no reward for carefulness and frugality, and no punishment for extravagance and waste." I would say then, in the words of the Commissioners, that the gradual alienation of the class of labourers in agriculture from the soil, "which has been going on for the last 100 years, cannot be overlooked or treated otherwise than with the deepest sense of its importance in any inquiry having for its object, as this inquiry has, the intellectual and moral benefit of the agricultural labourer."

[We have not room for Mr. Constable's remarks upon the Cottage question.]

Field Labour of Women.

After all that has been said, it is almost self-evident that to be true to these principles one cannot advocate legislative interference with the labour of women. Whether field labour be conducive to their well-being or not, they and they only, or their husbands, must have the control of it. In the report before us the evils incident to it are distinctly stated, nor can any one be blind to them. The woman who works in the field is apt to get coarse and unwomanly, if single, indisposed to enter domestic service; if married, to neglect her children, to have an untidy uncomfortable home, and this becomes the indirect means of driving her husband to the alehouse (Mr. Fraser, x. 24; Mr. Norman, xxxvi. 120; Mr. Portman, xxiv. 108). This is one side of the picture. Another, and a more pleasing one, is given us from Northumberland:—"There are many who hold the opinion that field work is degrading, but I should be glad if they would visit these women in their own homes after they become wives and mothers; they would leave the cottage with the conviction that field work has had no degrading effect, but that he has been in the presence of a thoughtful, cultivated, unselfish woman." The Commissioners' opinion is that field work does them no harm, physically or morally. This is the county in which female labour is perhaps seen to the greatest advantage. The general custom is for the women to cease field work when they marry. And perhaps were testimony gathered from every district in England, it would be so various as to perplex the clearest head, for witnesses, without intending it, are the victims of prejudice. We too frequently believe what we wish to believe. So that the difficulties of legislating on such evidence would be immense. But I hold that not only has the Government nothing to do with it, but that it is an evil, if an evil, which will cure itself. Let the husbands and the children's earnings be better, we shall find women absent from our fields, except in those pleasant times of the year when the most soft-hearted philanthropist would hardly forbid their presence—haymaking and harvest. How is it in those parts where wages are high?—say in Hampshire, 15*s.* and 16*s.* Of the women in this county, one speaker the other day, Mr. Chute, said:—"They had few women, especially young girls, employed on their farms. It was the most difficult thing to obtain the services of a woman." Mr Trash said they might take it for granted that few women were employed in Hampshire. Mr. Stanhope (xviii. 71): "There is a growing disinclination to field work among women themselves." Will any one explain what equivalent the married woman, who is forbidden to work in the field, is to have for her 4*s.* a week thus lost? Or who is to support the large number of single women dependent on their own exertions, if debarred from field work? When we consider the case of children under a certain age, there may perhaps seem a cause for legislative interference. We believe that the Factory Act has in a measure worked beneficially, and there appears to be some ground for supposing that the Printworks' Act might be extended to agricultural children, "modified and made elastic enough to meet the necessities and vicissitudes of agricultural operations."—(xxx. 141.) The most feasible plan for obtaining continuous education appears to be to fix an age below which no child shall go to work for hire, with or without compulsory attendance at school, to require a certain amount of school attendance from that age, to 13 or 14 years of age, and perhaps, in addition, the production of a certificate of such school attendance before hiring (Mr. Portman, xxii. 102). Interference is wanted, not so much to prevent cruelty to children as to secure for them that elementary instruction which is considered essential to their well-being. It seems to be generally allowed by farmers in all parts of England that the limitation to 10 years could be

made without hardship to the parents or inconvenience to the farmer. The report gives testimony to this.

SUMMING-UP.

To sum up all that I have advanced on the subject of rural education, I would say in a few words, let Parliament do everything in its power to elevate the *status* and increase the comfort of the poor man, by facilitating the erection of good cottages and certainly by the allotment system; let every Act be passed which can encourage the development of greater individual effort; but may the country be defended from the appropriation by Government of duties which belong to individuals, as individuals, as parents, and which if not fulfilled, are only neglected because of the unequal distribution of property, a subject far more worthy the attention of Parliament, and one certainly more capable of alteration. And therefore, as almost a corollary to this, we deprecate the interference of law, to unduly restrict women or children from working in the fields—the true remedy, as in the aforesaid subject, is to raise the poor above the necessity of it. In their present condition it would be cruel and almost unjust (xlix. 272) to forcibly diminish the joint earnings of a family. Let the condition be improved, and I believe the evil will vanish.

The proposition I place before you for acceptance is "That direct legislation in the matter of rural education, and in that of the employment of women in agriculture, is not needed, but may be necessary in the case of the employment of children under 10 years of age."—At the close of the discussion which followed Mr. Constable's paper, the following letter was read:—

"The Queens, Cirencester, Jan. 4.

"My dear Mr. Constable,—I should have been glad, could I have attended your meeting this evening, upon so interesting and important a subject as that of the employment of women and children in agriculture. As respects the former, there has been much nonsense spoken and written by those who have not considered the matter from practical observation. The most common objection is, that it leads to immorality. The immoral will indulge their propensities, be their occupation what it may. I can perceive no special opportunity while engaged in work in the fields constantly under the eye of their own sex, and the other sex, including the master. The advantages, on the other hand, are great in a poor family. There are several farming operations which women will soon learn to do quite as well as men, and will get over nearly, if not quite, as much ground in a day under the stimulus of piece-work. At such work a woman is, of course, entitled to the same price per acre as a man, and she will often earn as much, after the same experience. Then, there is no comparison as respects the health and strength of women engaged in agriculture, and those in indoor occupations, generally in close, ill-ventilated apartments. They have greatly the advantage, even of household servants, in exemption from ordinary ailments.

"As respects boys, we all know they are teachable to read at six years old, and may be taught to read and write sufficiently well at ten years old, and the three first rules of arithmetic in addition. I think boys ought not to be put to work on a farm under that age; and it rests with those who claim their services then, to see that proper and efficient means exist in their parishes for the necessary preliminary education. Subsequent attendance at the Sunday school should be required, to maintain, if not to improve, the progress already made. I would not object to any restriction against the employment in agriculture of any boy or girl who could not at least read fluently. Such are some of the observations I would have offered at the meeting could I have been present.—Yours very truly, "CHAS. LAWRENCE.

"Rev. John Constable."

Reviews.

Chippenham Agricultural Association: Report of the Judge (Mr. W. Spearing) *in Awarding the Special Premium of 25l. given by the Right Hon. T. Sotheron Estcourt, for the best 5 acres of Swedes grown with Artificial Manures only.* G. Noyes, High Street, Chippenham.

A copy of this tract has been sent to us, and we shall lay the substance of it before our readers. We do not quite understand the policy of the reward the adjudication of which is here described. It is not, that we know of, the interest of the tenant especially, that he should grow his green crops by the help of superphosphate of lime, or other artificial manure alone. And certainly neither is it for the interest of the landlord. It is however desirable for both that farmers should learn, if they do not already know it, what a powerful help artificial manures have placed in their hands for obtaining a good crop of Swedes, and thus of creating a good heap of farmyard dung, on which, after all, and on that good farm management which it indicates, all who are interested in the fertility of the soil would do well to depend. Perhaps it is on that ground that Mr. Estcourt offers his handsome premium; anyhow, we are glad to have Mr. Spearing's report of the competition for it, notwithstanding that the chief lesson that it gives evidently is that the natural circumstances override and dominate all artificial effort: and that succulent growth is impossible in a drought, whether natural or artificial fertilising be depended on.

The upshot of the competition is that Mr. Edmund Miles, of Stanton, has won a prize of 25*l.* for growing nearly 12 tons of Swedes per acre! Mr. Spearing says:—

"When the result of the different experiments are considered, it will, nevertheless, I believe, be proved to the general satisfaction, that a great amount of benefit is to be derived from the proper application of artificial manure, and this will be found, from the results shown by the annexed Tables, to be more particularly the case in regard to light and thin stone brash soils; it will be seen that soils of this description have grown a larger amount of weight per acre than those of a loamy and sandy nature; this may, in a measure, be accounted for by their not having suffered so severely from the ravages of grub, but even supposing this to be admitted, the fact still remains that the thin stone brash soils will bear but a very poor crop of roots, of a dry summer, without the aid of artificial manure.

"In most instances the crop was best where the previous corn was taken after Grass, and this is a point well worthy the consideration of those who are largely interested in the growth of roots, and it is also a matter which, I believe, applies more especially to the lighter description of soil.

"In one or two instances where no artificial was used, the Swedes were growing more gross apparently, and the smaller roots stronger, but the bulbs were not nearly so large; this may probably be accounted for by the smaller roots having to extend themselves farther for support, and also from their not having had sufficient nourishment to force them in the dry weather: this remark will apply particularly to No. 4 in annexed Table.

"The manures from which the heaviest crops have been grown are those of Proctor, Matthews, and Long, in the order named.

"It will also be noticed that the experiments made have fully proved the great utility of the water drill: the advantage to be derived from its use in such a season as the last can hardly be estimated. The use of salt in No. 2 was, I have reason to believe, very advantageous.

"The heaviest crop of Swedes, it will be seen, was grown with 5 cwt. of Proctor's superphosphate of lime, drilled with water, on a light stone brash piece of land. In estimating the quantities, I weighed two poles on each of the two acres on either side of the centre acre, and also two poles in every centre acre, with the exception of No. 8, where I estimate the whole acre at 56 lb. In adopting this plan with all competitors, I believe a very fair conclusion has been arrived at.

"No better means of proving the advantage of the use of artificial manure could be devised than in the case of No. 8, where there is a field of 20 acres, with a very good crop of roots for the season, with the exception of the unmanured acre, clearly demonstrating the futility of endeavouring to grow Swedes in such a season as the last, on that particular soil, without artificial aid. With regard to No. 5, I cannot account for the greater amount of weight upon the centre acre, unless it is from the plant being thin, and also from the soil having a large admixture of sand; and the result in No. 2 would seem to strengthen this opinion, and to lead to the conclusion that artificial manure, or at any rate the particular kind used, does not act very beneficially in a dry summer on a sandy soil.

"The greatest difference between the manured and unmanured portions will be found, with the exception of No. 8, in No. 6, a piece of roots remarkably good and growing for the season.

"The crops, generally, were thin on the ground; this was more apparent in Nos. 1, 3, 5, 9, and these, more especially, suffered from the ravages of the grub.

"In awarding the premium to No. 4, I have taken into account the weight of the whole 5 acres, and, to some extent, the weight of the single acre. The next in merit, with regard to the 4 manured acres, is No. 6, where the roots were in better proof than No. 4, but the unmanured acre was not nearly so good, neither was it equal to the similar one in No. 2, which accounts for the gross weight there being heavier than No. 6. The reason of the unmanured acre in No. 2 being heavier, may be partly accounted for by the land not having been in cultivation for a very great number of years.

"The whole of the land on which the roots were grown was clean, and generally free from weeds; the expense of hoeing had varied from 10*s.* to 14*s.* per acre, and there evidently appeared to be a desire on the part of all the exhibitors to carry out, in the best possible manner, the intentions of the donor of the premium.

"In drawing this report to a conclusion, those who may have been inclined to doubt the value of artificial manures in a dry summer could not have failed to have their doubt removed. The great advantage of the water-drill has been also proved; and I am inclined also to believe, from the experiments, that ashes are not beneficial in a dry summer.

"The results obtained by the experiments, although lessened in importance from the facts I have before stated, must certainly tend to prove how much, especially the light-land farmer, has to depend for a crop of roots upon a judicious outlay of his capital to remunerate him for his trouble. The quantity of manure to be used is a question which must depend on the nature and condition of the soil, but my opinion is, that from 4 to 5 cwt. may be used with advantage in most instances."

The following is the account of the winning crop:—

					T.	cwt.	lb.	T.	ct.	lb.
Lot 1	Wheat after Clover	Thin stone brash	5 cwt. of Proctor's superphosphate of lime, drilled with water. 35*s.* per acre.	2 lb. of Skirving's Swede seed drilled per acre, June 1.	11	17	56			
Lot 2	..	..	Without manure..	..	6	0	0			
				Difference	5	17	56	53	10	0

"A very good piece of roots for the season; a very fair plant, showing a much greater difference when pulled up, between the manured and unmanured portions, than would be supposed when walking over them; in some places affected with blight and mildew."

Farm Memoranda.

WEST GLOUCESTERSHIRE: *January* 4.—The heavy and almost continual rain of the last month has begun already to make us wish for fair weather; not that it has been injurious to the young Wheat, except where the land is imperfectly drained, there the plant looks rather sickly; but upon the whole the Wheat looks well and quite forward enough for the season. The heavy farm work, such as winter ploughing and dung-carting has been at a standstill for some time. Those who took time by the forelock, and carted out their manure for Beans and roots early, and pushed forward their winter ploughing, have now the advantage of having all things ready, besides the pleasure of seeing their land lying up high and dry, notwithstanding the tremendous rain which we have had of late. We are witnessing now the value of deep cultivation upon a very stiff wet-lying soil. I will very briefly give our treatment of it: as soon as the Wheat was cut and got in the stubble was skimmed off as lightly as possible and raked up and burned in order to secure some ashes for mixing with our artificial manure (which, by the way, we have been making this week). Early in November 20 loads of good farmyard dung per acre was carted upon it, and ploughed in about 7 inches deep, with three horses single. The subsoil plough closely followed and smashed up the soil 6 inches more, and thus the land received a stirring upwards of a foot deep, and almost as effectually as if it had been subjected to steam-power. In order to imitate as far as possible the steam-plough, we caused the surface plough horses to walk upon the land close to the edge of the furrow, thus leaving the subsoil work perfectly hollow. Although the surface furrow was subjected to the trampling of three horses, it is now lying well up to the influences of the atmosphere, and will by spring be moultered down to a fine tilth. We have left about an acre in the same field unsubsoiled; there the water has been shining upon it for some time past, whereas upon the subsoiled land not a sign of it has been seen, the drainage being the same in either case. The extreme mildness of the season has conduced alike to the production of more winter keep for stock, and to the saving of the hayricks. Turnips which were sown last August and September are grown into very valuable sheep keep. We intend to draw several acres, and to pit them in the following way:—We shall open a trench with the plough, and then stow as many Turnips as we possibly can into it, and plough a good deep furrow upon them; by this means we shall not destroy the tops, which we certainly should do by pitting them in heaps in the usual way. Our sheep are doing very well, and are perfectly free from scour; we find the acorns, if used judiciously, a valuable astringent through this very wet time. All our cattle are now in the yards, and are doing well upon their straw chaff and Potato soup.

The Christmas sales of fat stock were well attended in this neighbourhood, and nearly all the stock was disposed of at prices ranging from 68*s.* to 75*s.* per cwt.; good wethers, 7*d.* per lb.; ewes, 3½*d.* to 6*d.* per lb.; bacon pigs, 11*s.*; porkers, 11*s.* 6*d.* per score. Milch cows have been selling well, but are now somewhat lower in price. Store sheep are but little sought after, and are still very low indeed. The downward tendency of the Wheat markets has somewhat checked the farmers from threshing of late. The accounts we hear of the yield from all quarters confirms the opinion at harvest time—that it would be the best known for many years, but many growers in this neighbourhood have threshed out, so that there is no more in stock now than we have known in ordinary seasons, notwithstanding the abundant crops of last year. *J. W.*

ROXBURGHSHIRE, TWEEDSIDE: *January* 1.—The mild winter we have had up to Tuesday last has been a great boon to farmers, from its allowing them to get their labour well forward. Turnips have been stored in good condition, and store stock have, up to this time, been thriving well on Turnip shaws and the Grass they could get hold of. The frosty nights and the slight fall of snow we had the fore part of the week forced us, however, to confine the cattle to the strawyards, where they are kept on Oat and Barley straw with four pounds of rape-cake per day (which, this season, is remarkably sweet and good, the stock eating it freely). Store cattle kept on the same fare last year throve well, and came out in capital grazing condition. Turnips that have been allowed to stand have been growing a little, but we like to have them all up by the middle of December, as they are believed to lose more in quality than they gain in quantity after that time. The crop has turned out very much as we anticipated—the Swedes a full half crop; but the whites and yellows only about a third of an average, and these seem to have had but little feeding quality in them, as the sheep throve badly till they were folded on the Swedes. We have stored our Turnips in large flat pits, 2 feet deep, and 10 yards wide. They are covered with straw, and a slight covering of earth thrown over the sides to prevent the straw from blowing away and to keep out the frosty winds. We have had them in heaps like these for several years, and find them to keep fully as well as in the common narrow pits, while with this plan there is this advantage, it takes less straw to cover them and less labour in pitting. There will not be more than the half of the usual number of cattle fed in this county this year, and there will also be many sheep fewer than usual fed off Turnips. *H.*

BANFFSHIRE, BOYNE DISTRICT: *Jan.* 5.—1868 has passed away, but it will be a year long remembered in the annals of agriculture. To us in the northern counties of Scotland, who are accustomed to frost and snow lying long and deep, it will be remembered for its openness and absence of snow; also for its early spring and fine seed-time, for its fine season for cleaning of land. It will also be remarkable for its heat and drought in the summer months, as the months of June and July were almost tropical, threatening a famine of cattle food and water. It will also be remarkable for its early harvest, it being six weeks earlier than the average. It will also be remarkable for its small stackyards and scanty crops of Turnips, for we have seen larger stackyards in the month of March than

there is at "Old Yule." But amidst all these there is room for thankfulness, for although our crops were scant they are healthy, and what we want in quantity is nearly made up in quality, and the agriculturist will find the old adages still true—"Where there's a will there's a way," and "Necessity is the mother of invention." So to keep his stock on will rouse his inventive genius, and make him lay hold on all the schemes and all the honest shifts that may be propounded, also to take more advantage of machinery and artificial food, which, although in the meantime expensive, yet in the long run will pay indirectly.

Our live stock through the year has been healthy. With the exception of quarter-ill, we have scarcely heard of any other disease in the county, and those who were able to keep on their best stock have been well rewarded by the high prices given at the Christmas markets. As our northern breeders and feeders were again successful prizetakers at the Christmas shows, I have been at some trouble to look over the Shorthorn sales of the past year in our two northern counties of Aberdeen and Banff, and shall give the average prices of these sales, believing, as I do, in the fact that it is in a great measure owing to the selection of well-bred bulls that the stock sent from our two counties stand their ground so well. As you mention two of these sales in your tabulated review, I shall begin with the Messrs. Cruickshanks, Sittyton, whose average for 37 bull calves was 46*l.* 5*s.* 9*d.*; Campbell of Kinnellar's average for 20 bull calves was 34*l.* 7*s.* 9*d.*, also 5 heifers, 21*l.* 8*s.*; Bruce of Broadland's 13 bull calves averaged 31*l.* 13*s.*; Longmore of Rettie's average—12 bull calves, 36*l.* 4*s.* 6*d.*, and 5 heifers 33*l.* Milne of Kinaldie had two sales: at his first sale his average for 15 bulls was 27*l.* 8*s.*, and 10 heifers at 25*l.* 2*s.*; at his second sale in the autumn his average for 17 bulls was 22*l.* 14*s.*, and 9 heifers, 18*l.*; Glendronach's average was 30*l.* 5*s.*; Glasgoforest average, 20*l.*; Oldwhat, 24*l.* 2*s.* 6*d.* Also a great many are sold by private bargain at equally high prices. The most of these prices are paid by our tenant-farmers, not for one particular season, but year after year as they require them. It is no wonder, then, that they feel anxious about being protected from foreign diseases; and we hope, now that we have three tenant-farmer members in the House of Commons (we should have three times three), they will put their best energies forth to secure that end, and then they will have the good wishes of all right-minded agriculturists from Land's End to John o'Groat's. *W. J.*

The Poultry Yard.

POULTRY and game are near akin, and hand-rearing as now applied to the latter has brought about a still closer *rapprochement*. A few remarks on game may not be altogether out of place in a poultry column; and as the close of the season approaches, it behoves those who care for their sport to look at the state of their coverts and stock, with a view to September and October next. Towards the end of the shooting season most keepers and many masters get nervous, and fancy that the place is being shot too close; the forebodings are heavy, and each day's sport is noted and laid up in memory, to be kept in reserve, and answer for shortcomings and ill-luck afterwards. When the season is closed, and the guns put away, the hounds come to draw the wood; both master and man are astonished to find so many birds left, and in their hearts wish they had killed more.

More harm is done by leaving too many birds than by killing close. Where cock pheasants are too numerous, they are always running and fighting; they chase the hens away, overrun the nest, and cause much disappointment.

With the partridges this year, every one who has made a good bag has thoroughly deserved it, for it has been the result of hard walking and hard work. From the drought of the summer the ground was so bare of cover, that the birds were unusually wild at the commencement of the season. There was no getting within shot of them; and in many parts where there is only fair walking, shooting, and no driving, many coveys remain intact. It is a question whether the strength and quality of the birds be not depreciated by the great numbers remaining on the ground. Certain it is that the proportion of weakly, thin, and diseased birds, is, and has been, greater this year than usual. It is hard work; but where the big coveys remain yet in their entirety, they deserve constant attention at the hands of the gunner as long as his certificate will hold him harmless.

The principal manufacturing towns have their Chambers of Commerce, and now the agricultural districts have their Chambers of Agriculture, where the interest and requirements, the advantages and burdens under which our farmers labour, are ventilated, discussed, and sometimes remedied. Much good has already been done, progress made, and is still making; everything connected with farmers and farming has had, and still has, its share of attention and discussion, except—poultry. He would be a bold man, and would doubtless be considered a visionary, who would attempt in England to put the poultry on a farm on the footing of the other stock, and yet we think he would be right. We know the rivalry and struggles between neighbours as to who shall have the first lamb ready for market; why should not the same extend to young poultry? At this time the Vale of Aylesbury is sending its first ducklings into the London market, where they made, at the commencement of this week, 4*s.* and 5*s.* each. Young pigeons sent from France are returning 1*s.* 6*d.* each, because there are no English ones in the market. Since Christmas, French Turkeys have been fetching from 12*s.* to 16*s.* each, only because the English feeders have sent none up, and the same remarks apply to the geese. The Christmas sales were very good, and the sums realised by some of the senders were very great. One Cambridgeshire feeder took more than 1200*l.* for his week's sale, and many take from 300*l.* to 400*l.* The goose-feeders also did well, some of them making 10 and 11 gs. per score of their geese. A small prize-list added to the schedule of the county agricultural meetings, framed for the especial encouragement and development of farm poultry, would be well received, and ultimately well supported. By introduction of fresh blood, crossing, and interchange of stock consequent on such a show, in an agricultural district, many who now take no notice of their poultry would take pains to improve it; many who now keep none would be induced to try it; and the money taken at the showyard gate would be considerably increased. It is worthy a trial, and we hope that in framing the prize-lists for the meetings of 1869, the different county committees will give it their favourable consideration.

Miscellaneous.

The Need of "Tenant-Right."—Mr. Masfen, at Stafford, referred to a recent case in the Bankruptcy Court, "where a man had spent a great amount of capital in the improvement of his farm, and, when he died, his widow and family were brought to penury." Mr. Masfen did not enter into particulars; but the case he mentioned came on in Birmingham, where the widow, Mrs. Shelton, when under examination, said: "We were there 41 years, and we did everything—buildings, gates, and everything on the farm; for it was like an uninhabited place when we went there, and we never got a farthing for all we had done. My poor husband said on his dying bed, 'I am sorry for you. I have been working all my lifetime for the Squire, not for you and my family.'" Again: "Only six years ago all the land wanted draining, and we had to do it all, except just putting the tiles in. Then my poor husband lay ill 11 weeks, and we never had the least transaction of any kind, and I had to sell my beasts and pay some debts directly after his death. Then I had half a year's rent and above 170*l.* odd to pay. I was obliged to sell my stock, and I paid all that off. Then at the latter end of the year I had another rent to pay, and then they sent me out of the farm without a farthing, for all we had done upon it. There was not anything in the world on it but what we had built ourselves—we improved the land as well as the building. We built a lime-kiln, and we bought all the manure round that ever we could get." At this season more especially, so conducive to kindly feeling and good will, it makes one's heart bleed to read such a story. But allowing even, as we so far have no right to do, that the poor widow in her trouble has over-coloured the picture, that her husband and his have in 40 years reaped the return for some of their outlay, does not this case show the necessity for the exercise of the tenant-right principle where no agreement exists. They were, however, still liming, still buying manure, and six years since they drained all the land. There were men of the highest authority called as witnesses before the Tenant-right Committee of the House of Commons, who said that the allowance for drainage properly done should extend from 10 to 30 years. Was the drainage more or less efficient on the Sheltons' holding? At any rate, were tenant-right established, the widow could claim to have the work inspected, and her claim regulated accordingly. Had she been living in Lincolnshire instead of in the midlands, such a claim would never have been for a moment disputed, and the tenant-right district in Lincolnshire is about the best farmed land in the kingdom. *Mark Lane Express.*

Notices to Correspondents.

CHEMISTRY OF SOILS: *W C P.* "Solly's Rural Chemistry," and "Johnston's Lectures on the Chemistry of Agriculture." Apply to the Agricultural Library, 200, Fleet Street, E.C., for their list.

RINDERPEST: *Butler.* We have seen it published that Holland has had the disease in 1713—19, in 1744—56, and 1768—86. We are not aware in what degree that country is dependent upon Eastern Europe for its breeding stock.

SEWAGE: *A Gardener.* The most recent analyses will be published shortly in these columns; and they will answer your question. Meanwhile, you may safely assume that sewage contains all the waste of every kind of vegetable and animal food for man. It thus really contains every ingredient of the most complete manure, not necessarily in the proportion in which plants require them, nor necessarily in the form in which all plants can best use them, but still so dissolved and ready for use that they are at once available for the growth of the plant.

WATER-WHEELS: *A Constant Subscriber* states the following case:—"I wish to employ an undershot water-wheel to pump water from a river into a reservoir, which is about 400 yards distant, and about 50 ft. higher than the stream. The river is about 50 ft. wide, and is spanned by a bridge built upon five arches, the domes of which are 4 ft. above the bed of the river. The velocity of the stream varies gradually, from 2 ft. to 5 ft. per second. The fall of the bed of the stream under the bridge (which is 12 ft. wide), from the upper to the lower side, is about 8 in. The depth of water above the bridge varies very gradually from 1 ft. to 3 ft., the extremes occurring very rarely. I purpose fixing a wheel, or wheels, under one or more of the arches, and placing a hatch in front to regulate the flow upon the floats of the wheel. I have already stated that the fall under the bridge is only 8 in., consequently the tail water would not flow away very freely, and the wheel cannot be more than 4 ft. in diameter. Having stated these details, I wish to know: 1. What width the wheel should be? 2. What number, shape, and depth of floats would be best, in order to give me sufficient power to work three 4 in. pumps? 3. Would three pumps working separately, or a double-action pump, be the best for the purpose?" [Information in answer to these questions, including hints respecting the most simple and efficient kind of gearing for the purpose, will be very gratefully received by "A Constant Subscriber." We publish his letter, thinking it possible that similar circumstances to those of our correspondent may perhaps exist elsewhere; and that some one's experience on the subject may be described, without much trouble, for his benefit.]

RICHARD SMITH'S
FRUIT LIST



Contains a sketch of the various forms of Trees, with directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by post for three stamps.

RICHARD SMITH,
Nurseryman and Seedsman,
Worcester.

RICHARD SMITH'S LIST of all the EVERGREEN TRIBE, suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious index of their synonymes. Free by post for six stamps.

RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

DWARF-TRAINED TREES.—By the Thousand, Hundred, or Dozen. Apples, Pears, Plums, Cherries, Peaches, and Nectarines. Fine, flat, well-trained, of best quality, and true to name.

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ORCHARD-HOUSE TREES Fruiting in Pots.—Peaches, Nectarines, Apricots, Cherries, Plums, Pears, Apples, Vines, and Figs.

RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

EVERGREEN HEDGES.
AMERICAN ARBOR-VITÆ, 4 to 5 feet, at 30*s.* per 100; 5 to 6 feet, at 45*s.* per 100; 6 to 7 feet, at 15*s.* per 10.
SIBERIAN ARBOR-VITÆ, 2 to 2½ feet, 15*s.* per 100; 2½ to 3 feet, 50*s.* per 100; 3 to 3½ feet, 75*s.* per 100; 3½ to 4 feet, 10*s.* per 10.
RICHARD SMITH, Nurseryman, Worcester.

SURPLUS STOCK.—VERY CHEAP.

SPECIMEN CONIFERS and EVERGREENS, handsome and well-grown, for Lawns, Pleasure Grounds, and Parks, have been recently transplanted, and are full of health and vigour. For Descriptions, also Prices of smaller quantities and sizes, see RICHARD SMITH'S LISTS.

Trucks for 1 ton and upwards may be sent through to any Railway Station on the narrow guage lines, at a moderate cost, thereby saving delay and expense of packing.

At 12*s.* per dozen:—

Arbor-vitæ, American, 5 to 6 feet
" aurea, 12 to 15 inches
" Lobbii, 2 to 3 feet
" Siberian (Ware's), 3 to 3½ feet
Aucuba japonica, 18 to 21 inches
Berberis Darwinii, 1 to 1½ foot
" Jamiesonii, 12 to 15 inches
Cupressus Lawsoniana, 3 to 4 feet
Hemlock Spruce, 3 to 4 feet
Hartogia capensis, 1 to 1½ foot
Juniperus chinensis, 1½ to 2 feet
Mahonia japonica, 9 to 12 inches
Norway Spruce, extra fine, 3½ to 4 feet
Phillyrea oleafolia, 2 to 2½ feet
Picea balsamea, 4 to 5 feet
Portugal Laurel, 2½ to 3 feet
Pyracantha, scarlet berried, 1 to 1½ foot
Pinus Laricio, 3 to 4 feet [2 feet.
Rhododendron ponticum, 1½ to
Taxus japonica, 15 to 18 inches
Thujopsis borealis, 2 to 2½ feet
Thuja plicata, 2 to 3 feet

At 18*s.* per dozen:—

Abies inverta, 1½ to 2 feet
" Douglasii, 2 to 2½ feet
" Menziesii, 4 to 5 feet
Arbor-vitæ, American, 6 to 7 feet
" compacta, 1½ to 2 feet
" Lobbii, 3 to 4 feet
" Siberian (Ware's), 3½ to 4 feet
Aucuba japonica, 2 feet
Berberis Darwinii, 1½ to 2 feet
" Jamiesonii, 15 to 18 inches
Cedrus argentea, 2 to 2½ feet
Cryptomeria Lobbii, 5 to 6 feet
" viridis, 5 to 6 feet
Cupressus fragrans, 3 to 4 feet
" Lawsoniana, 4 to 4½ feet
Hartogia capensis, 1½ to 2 feet
Hemlock Spruce, 4 to 5 feet
Ivy, green, tree, 1½ to 2 feet
" new silver-striped, tree, 15 to 18 inches [15 inches
" tricolor variegata, tree, 12 to
Juniperus chinensis, 2½ to 3 feet
" Lecana, 2 to 2½ feet
" Schottii, 2 to 2½ feet
" thurifera, 1½ to 2 feet
" glauca, 1½ to 2 feet
" drupacea, 15 to 18 inches
" viridis pendula, 2 to 3 feet
Laurel, Colchic, 5 to 6 feet
" Portugal, 3 to 3½ feet
Mahonia japonica, 12 to 15 inches
Pinus austriaca, 3 to 4 feet
" Laricio, 4 to 5 feet
Phillyrea oleafolia, 2½ to 3 feet
Rhododendron ponticum, 2 to 2½ feet
Taxus elegantissima, 15 to 18 ins.
" gold-striped, 15 to 18 inches
Thujopsis borealis, 2½ to 3 feet
Thuja plicata, 3 to 4 feet
" incurvata, 3 to 4 feet [ins.
Wellingtonia gigantea, 15 to 18

At 30*s.* per dozen:—

Abies elegans, 2 to 2½ feet
" inverta, 2½ to 3 feet
" Menziesii, 6 feet
" orientalis, 2 to 2½ feet
Arbor-vitæ, American, 7 to 8 feet
" compacta, 2 to 3 feet
" Lobbii, 5 to 6 feet
" Siberian, 4 to 5 feet
Arbutus unedo, 2½ to 3 feet
Box, tree, 2½ feet by 2½ to 3 feet
Cedrus argentea, 3 to 4 feet
Cupressus Lawsoniana, 4½ to 5 ft.
" fragrans, 4 to 5 feet
" McNabiana, 3 to 4 feet
Garrya elliptica, 2 to 2½ feet
Hemlock Spruce, 5 to 6 feet
Irish Yews, 5 to 6 feet
Juniperus chinensis, 3 to 3½ feet
" fragrans, 2 to 2½ feet
" glauca, 3 to 3½ feet
" Lecana, 2½ to 3 feet
" Schottii, 3 to 3½ feet
" thurifera, 3 to 4 feet
" virginiana, 5 to 6 feet
" viridis pendula, 3 to 4 feet
Laurel, Colchic, 7 to 8 feet
Pinus austriaca, 4 to 5 feet
" Laricio, 5 to 6 feet
Taxus elegantissima, 1½ to 2 feet
Thujopsis borealis, 4 to 4½ feet
Thuja incurvata, 4 to 5 feet
Wellingtonia gigantea, 2½ feet

At 42*s.* per dozen:—

Abies Albertiana, 3½ to 4 feet
" inverta, 3 to 4 feet
" orientalis, 2½ to 3 feet
" pyramidalis, 4 to 5 feet
Arbor-vitæ, American, 8 to 9 feet
" aurea, 2 to 2½ feet
" compacta, 3 to 3½ feet
" japonica, 2½ to 3 feet
" Siberian, 5 to 6 feet
Cedrus argentea, 4 to 5 feet
Cupressus fragrans, 5 to 6 feet
" Lawsoniana, 5 to 6 feet
Hemlock Spruce, 6 to 7 feet
Irish Yews, 6 to 7 feet
Juniperus chinensis, 3½ to 4 feet
" densata, 4 to 5 feet
Juniperus glauca, 4 to 5 feet
" Lecana, 3 to 4 feet
" Smithiana, 3 to 4 feet
" thurifera, 5 to 6 feet
" virginiana, 6 to 7 feet
" viridis pendula, 4 to 5 feet
Laurel, Colchic, 8 to 10 feet
Pinus, Cembra, 5 to 6 feet
" Laricio, 6 to 7 feet
Quercus austriaca sempervirens, 3 to 3½ feet
" Forsii, 3 to 3½ feet
Thujopsis borealis, 5 to 6 feet
Thuja Lobbii, 6 to 7 feet
Wellingtonia gigantea, 3 to 4 feet

At 60*s.* per dozen:—

Abies Albertiana, 4 to 5 feet
" inverta, 6 to 7 feet
" orientalis, 3½ to 4 feet
" pyramidalis, 5 to 6 feet
Arbor-vitæ aurea, 2½ feet
" compacta, 3½ to 4 feet
" gigantea, 4 to 4½ feet
" japonica, 2½ to 4 feet [ins.
Cephalotaxus Fortunei, 21 to 24
Juniperus chinensis, 4 to 5 feet
" thurifera, 6 to 7 feet
Pinus Cembra, 6 to 7 feet
Quercus austriaca sempervirens, 3½ to 4 feet
" Fordii, 3½ to 4 feet
Thujopsis borealis, 6 to 7 feet
Wellingtonia gigantea, 4 to 5 feet

Each:—

Abies Albertiana, 6 to 7 ft., 7*s.* 6*d.*
" " 7 to 8 feet, 10*s.* 6*d.*
" Douglasii, 8 to 10 ft., 7*s.* 6*d.*; 84*s.* per dozen
" " 10 to 12 feet, 10*s.* 6*d.*; 100*s.* per dozen
" Menziesii, 7 to 8 feet, 5*s.*
" " 8 to 10 feet, 7*s.* 6*d.*
" orientalis, 5 to 6 ft., 10*s.* 6*d.*; 100*s.* per dozen
Araucaria imbricata, 5 to 6 ft., 21*s.*
" " 6 to 7 feet, 42*s.*
" " 7 to 8 feet, 63*s.*
" " 8 to 10 feet, 105*s.*
Arbor-vitæ japonica, 4 to 4½ feet,
" " 4½ to 5 ft., 10*s.* 6*d.* [7*s.* 6*d.*
Picea grandis, 4 to 5 feet, 15*s.*
Picea grandis, 5 to 6 feet, 21*s.*
" nobilis, 3 to 3½ feet, 31*s.* 6*d.*; 300*s.* per dozen
" " 3½ to 4 feet, 42*s.*
" " 4 to 4½ feet, 31*s.* 6*d.*
" " 4½ to 5 feet, 63*s.*
" Nordmanniana, 4 to 5 ft., 21*s.*
" " 5 to 6 feet, 31*s.* 6*d.*
" " 6 to 7 feet, 42*s.*
" " 7 to 8 feet, 50*s.*
" Pinsapo, 3 to 3½ feet, 10*s.* 6*d.*
" " 3½ to 4 feet, 15*s.*
" " 4 to 5 feet, 21*s.* to 31*s.* 6*d.*
Pinus Cembra, 7 to 8 feet, 7*s.* 6*d.*
Yews, for hedges, about 12 feet high, 45 years old, recently transplanted, 31*s.* 6*d.*

RICHARD SMITH,
NURSERYMAN AND SEED MERCHANT, WORCESTER.

Grape Vines.

B. S. WILLIAMS' STOCK this season is remarkably fine, and in good condition for sending out. Kinds and prices can be had on application.

B. S. WILLIAMS, Seed Merchant and Nurseryman, Upper Holloway, London, N.

Superb New Late Grape.

"MRS. PINCE'S BLACK MUSCAT" may now be seen in full perfection. This is acknowledged to be the finest Grape extant. Splendid Canes are now ready for immediate planting, 7s. 6d., 10s. 6d., and 21s. each. Fine planting Canes of other kinds, a LIST of which can be sent on application.

Exeter Nursery, Exeter.

PINES and VINES.—PINES, all the best sorts, Fruiting and Succession, very strong and fine, from a Stock that never had Scale. VINES, the leading sorts, very strong and short-jointed Canes, about 12 feet long, in 12-inch pots, full of healthy roots.

M. REDFORD, Market Gardener, Page Green, Tottenham, N.E.

ARTHUR HENDERSON AND CO. can supply strong fruiting Canes, capable of carrying six to eight bunches of fine GRAPES of the undermentioned sorts, at 10s. each, excepting Black Hamburgh, which we price below.

BLACK HAMBURGH, 8s. | WHITE FRONTIGNAC
MUSCAT HAMBURGH | BUCKLAND SWEETWATER
LADY DOWNE'S

Also those fine sorts, GOLDEN CHAMPION, MRS. PINCE'S BLACK MUSCAT, and MADRESFIELD COURT.

Pine-apple Place, Maida Vale, London, W.

WANTED, BROMPTON and PEAR-PLUM STOCKS, also MAHALEB and COMMON CHERRY STOCKS, with good, clean, and straight stems. Any one having the above Stocks for Sale, are requested to send word the quantities, and price of them, to

WILLIAM ROLLISSON & SONS, The Nurseries, Tooting, London, S.W.

Standard Roses, and Dwarf Maiden Peaches and Nectarines.

STANDARD ROSES, best leading sorts, 70s. per 100. DWARF MAIDEN PEACHES and NECTARINES, leading sorts, 60s. per 100.

STANDARD PORTUGAL LAURELS, 30s. per doz.

EDWARD PIERCE, Teovil Nursery, Somerset.

CORDON APPLE TREES, on the true French Paradise Stock, as recommended by Mr. Robinson in his "Gleanings in French Gardens." All the best kinds, including CALVILLE BLANC, REINETTE DU CANADA, and other sorts. Prices upon application.

B. S. WILLIAMS, Victoria and Paradise Nursery, Upper Holloway, London, N.

FINE ORANGE TREES for SALE.—Ten very handsome Trees, in robust health, loaded with Fruit; clean, straight stems, about 4 feet; symmetrical heads, 5 feet diameter. One CITRON, same size. In ornamental green tubs.

Apply to the GARDENER, Woburn Park, Weybridge, Surrey. Inquiries by post address FRANCIS R. KINGHORN, Sheen Nursery, Richmond, S.W.

STRONG STANDARD and DWARF TRAINED APPLES and PEARS, TULIP TREES, 7 to 8 feet; bushy LAURELS and LAURUSTINUS, strong evergreen PRIVET; a choice collection of CONIFERÆ, a large assortment of Standard and Dwarf Perpetual and Dwarf CHINA ROSES, and a general Nursery Stock. All the above have been regularly transplanted, and are well rooted. Prices on application to

CHARLES BURGESS, the Nurseries, London Road, Cheltenham.

Fruit the First Season.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON respectfully solicit attention to their enormous stock of FRUIT TREES in a fruit-bearing state.

PYRAMIDAL APPLES and PEARS, full of fruit buds.
Apples, 1s. per dozen; Pears, 2s. per dozen.
DWARF-TRAINED TREES, of extra size, in a fruiting state, adapted for walls or espaliers, including Apples, Pears, Plums, Cherries, &c.
STANDARD TRAINED FRUIT TREES for walls.
PRICED CATALOGUES may be had gratis on application.

Fruit Trees, Nursery Stock, Roses.

L. PAILLET, NURSERYMAN, Chatenay lez Sceaux, près Paris, offers for the present season a very large quantity of Nursery Stock, and especially FRUIT TREES and ROSES, at very low prices:—

	Per 1000.
PEARS, 1-yr., extra choice, 6 to 8 millimètres in diameter	£1 10
Do., 1-yr., extra choice, 4 to 6 do. .. .. (per 10,000)	11 12
QUINCE, extra choice, 7 to 13 do.	1 10
Do., first choice, 6 to 7 do.	8 12
APPLES, 1-yr., extra, 6 to 8 do.	0 18
Do., transplanted 6 to 9 do.	1 0
DOUCIN, extra choice, 6 to 9 do.	1 6
Do., first choice, 4 to 6 do.	0 17
PARADISE, extra choice, 6 to 8 do.	1 2
Do., first choice, 4 to 6 do.	0 12
PLUMS (real St. Julien), extra, 1-yr., 5 to 8 do.	1 10
CHERRIES, 1-yr., extra, 6 to 8 do.	0 12
Do., transplanted, 5 to 8 do.	0 15
ST. LUCIE, 1-yr., extra, 5 to 8 do.	0 10
Do., transplanted, 5 to 8 do. .. .. .. (per 10,000)	5 0

NOTE.—The measure in diameter is taken level with the ground, near the collar of the roots; and 25 millimètres make one inch.

ROSES—Our own best selection:—

Standards, 3 feet to 3 feet 7 inches .. per 100	£3 15
Half-Standards, 2 feet to 2½ feet high .. .. do.	2 10
Low-Budded (Dwarf-) .. .. .. per 1000	17 10
On their own Roots .. .. .. do.	13 10
Bengals, three best varieties .. .. .. do.	6 0
Sr. Malmaison (own Roots) .. .. .. do.	14 10

CATALOGUES sent on application. Discount of 5 per cent. will be allowed on prepaid orders.

The cost of carriage, freight, and other expenses, from Chatenay to London, is from 6s. to 7s. per 100 lb. weight.

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STEPHEN BROWN offers the following at the annexed low prices:—

	s. d.
CONIFERÆ, 25 choice sorts, 2 to 3 feet high, in fine condition	40 0
1- choice do.	28 0
25 choice do., larger size	70 0
1- choice do. do.	50 0
STANDARD TREES, as Scarlet Chestnut, Scarlet Thorn, Weeping Ash, &c., 12 fine sorts	16 0
FLOWERING SHRUBS, 25 fine sorts	14 0
PYRAMIDAL APPLES and PEARS, finest vars. per doz.	12 0
do., extra-splendid, large fruiting trees, each 3s. to	5 0
GRAPES, from eyes, strong canes in pots .. each 2s. 6d. to	3 6
STRAWBERRIES, Bradley's Dr. Hogg .. .. per 100	10 0
" Underwood's Lady	10 0
" Other fine and popular sorts—per 100, 3s. to	5 0
RHUBARB, Sabi's Crimson Perfection .. .. per doz	10 0
" Royal Albert .. .. .. "	6 0
POLYANTHUS, Gold Chain	8 0
choice named vars. .. .. .. each 1s. to	2 6
PINKS, in eight fine vars., for	7 0
HOLLYHOCKS, choice and show vars. per doz. 6s., 9s. and	12 0
PAMPAS GRASS, very strong .. .. .. per doz. 6s. to	15 0
CYPERUM ARGENTEUM ROSEUM PENDULA, an elegant Pampas Grass, with drooping spikes of a purple-rose tinge, each .. .. 2s. 6d. to	3 6
DWARF ROCK CISTUS, 20 beautiful varieties for	10 0
DOUBLE PORTULLA, very beautiful, 6 varieties for ..	10 0
VIOLETS, the finest varieties, per dozen .. .. .. to	6 0
HERBACEOUS PLANTS, in 200 best sorts. Catalogues free.	
LILIES, in 50 superb varieties, per dozen 2s., 3s., 4s., 6s., 9s., and	24 0
GLADIOLI GANDAVENSIS hybrids, in 12 finest varieties, per dozen .. .. 2s., 3s., 4s., 12s., and	15 0
PÆONY, CHINESE, 12 finest varieties	9 0
PÆONY, CHINESE, FRAGRANS ALBA, fine large showy white flower	9 0
CYCLAMEN, 12 beautiful varieties .. .. .. 12s. to	21 0
CYCLAMEN, 6 beautiful varieties .. .. 6s. to	10 6
NURSERY, HERBACEOUS, and BULB CATALOGUES free on application.	

STEPHEN BROWN, Sudbury Nursery, Sudbury, Suffolk

KNAP HILL NURSERY, WOKING, SURREY.

ANTHONY WATERER

BEGS TO SUBMIT THE

FOLLOWING LIST to the NOTICE of INTENDING PLANTERS.

EVERYTHING IS WELL-GROWN AND FINELY ROOTED.

In proof of which he gives the date of their last removal.

ABIES ORIENTALIS, 5, 6, 7, and 8 feet, 10s. 6d. to 21s. each.
" " beautiful specimens, 10, 12, and 14 feet high, 15 and 20 feet in circumference, 31s. 6d. to 63s. each, and upwards. Moved April, 1868.
" ALBERTUS, 5 to 9 feet, 30s. to 60s. per doz., moved April, 1868.
" DOUGLASSII, 5, 6, 7, and 8 feet, 5s. to 10s. 6d. each, moved August, 1868.
" CANADENSIS, 4, 5, 6, 7 feet high, 18s. to 30s. per dozen.
" PUMILA } Hundreds of these dwarf varieties of the
" PYGMÆA } common Spruce Fir, many are 20 and
" CLANBRASILIANA } 30 years old.
" GREGORII }
" EXCELSA.—The Common Spruce, 5, 6, and 7 feet high 7 to 10 feet round, moved April, 1868, 21s. to 30s. per dozen.
PICEA NOBILIS, 4, 5, 7, 8, and 10 feet high, 8 and 15 feet in circumference, 42s. to 147s. each. Hundreds of magnificent plants of the best glaucous variety. None are grafted, and all moved since March, 1868.
" NORDMANNIANA, beautiful seedling plants, 1½ to 2 feet, 30s. and 42s. per dozen.
" " 3, 4, 5, 6, and 8 feet, 10s. 6d. to 105s. each.
" " Splendid trees, moved August, 1868, 10 and 15 feet high, 15 to 20 feet in circumference, 7 guineas each and upwards.
" MAGNIFICA or NOBILIS ROBUSTA, 2 feet, 18s. each.
" " " 2½ to 3 feet, 6 feet in circumference, 21s. to 31s. 6d. each.
" " " " 3, 4, and 5 feet, 31s. 6d. to 63s. each and upwards. Mr. WATERER has hundreds of this handsome Fir, all seedlings.
" LASIOCARPA, 2 to 2½ feet, 60s. per dozen. [each.
" " 3 to 4 feet high, 8 and 9 feet in circumference, 21s. and 31s. 6d.
" " 5, 6, 7, and 8 feet high, 10 and 12 feet in circumference, 42s. and 63s. each; hundreds of them. [42s. each.
" PINSAPO, 3, 4, and 5 feet high, 9 and 10 feet round, 7s. 6d. to " " 7, 8, and 10 feet high, 63s. to 147s. each, moved August, 1868.
PINUS AUSTRIACA, moved April, 1868, 3 feet, £5 per 100.
" BENTHAMIANA, moved April, 1868, 2 to 2½ feet, 30s. per doz.
" CEMBRA, 8 to 10 feet, 10 and 12 feet round, moved 1863, 10s. 6d. to 21s. each.
CEDRUS ATLANTICA, 5 to 6 feet, 42s. to 60s. per doz., moved 1868.
" " 7 to 8 feet, 84s. per dozen, moved 1868.
" " 8 to 10 feet, 7s. 6d. and 10s. 6d. each, moved 1868.
" DEODARA, 4 to 6 feet, 42s. and 60s. per dozen.
" " 7 to 8 feet, 84s. per dozen.
" " 10 to 12 feet, 120s. per dozen and upwards. Some thousands of these large Deodars, the majority moved since Jan., 1868.
" LIBANI, moved April, 1868, 5, 6, 7, and 10 feet, 5s. to 21s. each.
CUPRESSUS LAWSONIANA, 4 to 5 feet, 30s. per dozen.
" " 5 to 6 feet, 42s.; 7 to 8 feet, 60s.
" " 9 to 10 feet, 7s. 6d. to 10s. 6d. each.
" " 12 to 18 feet high, and as much round, 21s. to 63s. each. We have thousands of these large Lawsonianas, from 5 to 15 feet high, the majority moved in 1868.
JUNIPERUS CHINENSIS, 4 to 5 feet, 36s. and 42s. per dozen; 6 to 7 feet, 60s. to 84s. per dozen; 8 and 9 feet, and as much round, 21s. each; some magnificent plants, 10 to 15 feet high, 15 and 20 feet in circumference, 63s. to 105s. each and upwards. We have several thousands of this fine Juniper, 4 feet and upwards, the majority moved in 1868.
JUNIPERUS VIRGINIANA (Red Cedars), 4, 5, 6, and 7 feet, moved August, 1868, 18s. to 42s. per dozen.
YEW, ENGLISH.—Many thousands, 4, 5, 6, 7, 8, 10, 12 and 15 feet high, nearly all of which have been moved within 12 months.
" IRISH.—Handsome plants, 7 to 8 and 10 feet, 7s. 6d. to 10s. 6d. each, and upwards.
" GOLDEN and ELEGANTISSIMA.—Hundreds of fine plants, on their own bottoms and worked, from 3 to 6 and 8 feet high.
Many of these plants are 30 years old; all have been recently removed.
THUJA AUREA.—This plant originated at this Nursery. We have large numbers of fine specimens, 3, 4, 5, and 6 feet high, 8, 10, and 15 feet round.
" GIGANTEA.—Splendid plants, moved August, 1868, 10 to 15 feet high, 21s. to 42s. and upwards each.
" LOBBII, 6 to 7 feet, and as much round, 5s. to 7s. 6d. each.
" " 10 to 14 feet, do. do., 21s. to 63s. each.
All moved in 1868.
THUJOPSIS BOREALIS, 5 to 6 feet, 60s. per dozen.
Do. do., 7 to 8 feet, 10 and 12 feet in circumference, 10s. 6d. each and upwards. Moved in 1868.
WELLINGTONIA GIGANTEA, 4 to 5 feet, 7s. 6d. to 10s. 6d. each.
Do. do., 6, 7, 8, and 9 feet, 21s. to 63s. each. All moved August, 1868.
HOLLIES, GREEN, COMMON.—Stout, finely rooted plants, 3 feet, 18s. per dozen; £6 per 100.
Many thousands 4, 5, 6, and 7 feet high, 30s. to 84s. per dozen and upwards.
A number of splendid plants, 10 to 15 feet high, 15 and 20 feet round. All moved April, 1868.
" SCOTTICA, } Three of the finest hardy Evergreen
" LAURIFOLIA, } known. Thousands of beautiful plants, 5,
" MYRTÆFOLIA, } 6, 7, 8, and 9 ft. high, 7s. 6d. to 21s. each, and upwards.
" HODGIN'S HOLLY, 4, 5, and 6 feet.
" GOLDEN QUEEN.—Hundreds of magnificent plants, 4 to 8 feet high, and as much in circumference.
" WATERER'S.—This variety originated here, and we have them by hundreds. 3, 4, and 5 feet high, 8 to 15 feet in circumference—the admiration of everybody who sees them. There are many of them 20 and 30 years old, and have been constantly and recently removed.
" SILVER QUEEN, 3, 4, and 5 feet high.
" STANDARD, WATERER'S, and GOLDEN QUEEN HOLLIES, 5 to 6 feet stems, with heads 6 to 9 feet round, very handsome.
" STANDARD WEEPING HOLLIES.—Some of the finest plants in the kingdom, worked and on their own roots. One, probably the finest that exists in any Nursery, has a stem 10 feet high, 20 inches in circumference, perfectly straight, with a magnificent head covered with berries. This plant was moved August, 1868.
" VARIEGATED, of the ordinary kinds.—A stock of many thousands, from 4 to 5, 6 and 8 feet high. Plants in finer condition cannot be desired. The prices will be found fair and reasonable.
BOX, GREEN and VARIEGATED, 4, 5, 6, 7, and 8 feet high, 2s. 6d. to 10s. 6d. each and upwards.
" PYRAMIDS, up to 8 feet, very fine
BAYS, STANDARDS, } from 3 to 10 guineas a pair.
" PYRAMIDS. }
LAURUSTINUS, STANDARDS, 31s. 6d. each and upwards.
LAURELS, PORTUGAL, 4 and 5 feet high, 7 and 8 feet in circumference, 42s. and 60s. per dozen. Moved July, 1868.
RHODODENDRONS.—One of the finest stocks of all the leading kinds, nice healthy bushy plants, 1½ and 2 feet high, many of them layers (far preferable to grafted plants), from £7 10s. to £15 per 100.
" STANDARDS.—A large number of the oldest and finest specimens to be met with in any Nursery, many of them being 20 and 40 years of age, with heads measuring 15 and 30 feet in circumference, and when in bloom are objects of wonderful beauty.
" SEEDLING varieties, varying much in colour, fine plants, many of them blooming, 1½ to 2 and 3 feet, £5 to £15 per 100.
" DWARF varieties, several kinds, £5 to £7 10s. per 100.
" ODORATUM, } Nice blooming plants, beautifully scented,
" GOVENIANUM, } 12s. and 18s. per dozen.
" PONTICUM, for cover, good plants, £7 10s. to £15 per 1000.
The Exhibitions of Rhododendrons in the Horticultural Society's Gardens are supplied from Knap Hill.
AZALEAS.—A fine stock of the most beautiful varieties in cultivation, good blooming plants, carefully selected, will be supplied at 18s. to 30s. per dozen. Large plants, 3, 4, 5, and 6 feet high, of all the fine Ghent and other kinds.
KALMIA LATIFOLIA.—Nice blooming plants, 12s. and 18s. per dozen; larger, of all sizes.
ERICA HERBACEA CARNEA.—The prettiest of the Spring-flowering Heaths; fine plants, by the 100 or 1000. A large stock of the best varieties of Hardy Heaths at 30s. per 100.
DAPHNE CNEORUM MAJUS.—A grand improvement on the old variety; fine plants, 18s. per dozen.
AUCUBA JAPONICA, up to 3 feet; thousands.

THE FOLLOWING ORNAMENTAL TREES, OF LARGE SIZE,

Are well grown and well rooted, and stout.

PLANES, ORIENTAL and OCCIDENTAL, 10 to 15 feet high.
SYCAMORE, 10 to 14 feet.
WEEPING BIRCH, 8 to 12 feet.
MOUNTAIN ASH, 8 to 10 feet.
HORSE-CHESTNUTS, COMMON, 10 to 12 feet.
SCARLET HORSE-CHESTNUTS, very fine flowering Trees, 10 years, worked.
BEECH, WEEPING, 7 to 15 years, worked.
BEECH, PURPLE, 8 to 15 feet high.
DECIDUOUS CYPRESS, 8 to 12 feet.
NORWAY MAPLES, 8 to 12 feet.
LOMBARDY POPLARS, 10 to 12 feet.
THORNS, fine Standards, of the most ornamental kinds.
ASH, Gold-barked, Flowering, and other varieties; fine Standards, 8 to 10 feet.
LIMES, 10 to 12 feet.

As well as the above-mentioned articles, at Knap Hill will be found one or perhaps the most extensive Stock of all the better kinds of HARDY EVERGREENS, DECIDUOUS and FLOWERING ORNAMENTAL TREES and SHRUBS.

A PRICED AND DESCRIPTIVE CATALOGUE

Will be forwarded on application.

Purchasers are respectfully invited to inspect the Plants growing in the Nursery. No Catalogue can adequately represent such a Stock.

The Nursery is readily reached by Train from Waterloo to Woking Station, where conveyances may at all times be depended on.

The Railways now take Goods at through rates to almost any Station, thus doing away with the expense of package.

ANTHONY WATERER, KNAP HILL NURSERY, WOKING, SURREY.

GENUINE SEEDS.

JAMES VEITCH & SONS

BEG TO ANNOUNCE THAT THEIR

ILLUSTRATED PRICED CATALOGUE OF GARDEN AND FLOWER SEEDS for 1869,

WITH LIST OF IMPLEMENTS AND OTHER GARDEN REQUISITES,

Is now published, and will be forwarded Post Free on application.

ROYAL EXOTIC NURSERY, CHELSEA, LONDON, S.W.

SELECTED

VEGETABLE & FLOWER SEEDS, POTATOS, &c.

Fully DESCRIPTIVE PRICED CATALOGUE of the above, containing all the desirable NOVELTIES of the Season, is now ready, and will be sent *Gratis* and *Post Free* on application.

All Orders for VEGETABLE SEEDS amounting to 20*s.* and upwards delivered *Carriage Free.*

FLOWER SEEDS in all cases *Delivered Free* by post or rail.

James Dickson & Sons

OLD ESTABLISHED SEED & NURSERY BUSINESS,

102, EASTGATE STREET, AND "NEWTON" NURSERIES, CHESTER.

NEW TRIPLE CURLED VARIEGATED

PERENNIAL BORECOLE.

As exhibited by Mr. MELVILE at the Royal Horticultural Society's Meeting on the 15th December, 1868; see *Gardeners' Chronicle*, page 1317 (1868).

INVALUABLE AS A WINTER DECORATIVE PLANT.

S. & M. having received the whole Stock of the above from the Raiser, are now sending it out in

Sealed packets, 2s. 6d. each.

STUART AND MEIN, SEEDSMEN, KELSO, N.B.

List of Firms who have received a supply of the above from S. & M. will be published shortly.

HAMMOND'S IMPERIAL HARDY WHITE BROCCOLI,

1s. per packet.

WILLIAM ARMITAGE & SON,

SEED MERCHANTS, HUDDERSFIELD,

HAVING SECURED THE STOCK FROM MR. HAMMOND, HAVE IT NOW READY TO SEND OUT.

It can be had through any of the London Trade.

From "THE GARDENER'S MAGAZINE," *May* 30, 1868.

"HAMMOND'S IMPERIAL HARDY WHITE BROCCOLI.—We have received samples of this variety from Mr. W. Hammond, Market Gardener, Birkby, Huddersfield, Yorkshire. The heads are large, even in outline and hemispherical, so close that there is not space anywhere for so much as the point of a pencil, the colour creamy white, average weight when trimmed for cooking 3lb., in quality first-rate, as mild and sweet as a Cauliflower.

From "THE GARDENER'S MAGAZINE," *June* 13, 1868.

"HAMMOND'S IMPERIAL HARDY WHITE BROCCOLI."—Several correspondents have inquired after seed of this variety, and in one case stamps are forwarded to us for a supply. We have returned the stamps to the sender, and informed him, as we now, for the hundredth time, inform everybody, that we do not trade in seeds, plants, or any kind of nursery produce. In the note on this Broccoli, at page 240, we told our readers all we knew about it, and gave the name and address of the cultivator to whom we were indebted for the samples. But as some of our readers wish for further information, we return to the subject for the purpose of publishing Mr. Hammond's statement of its character and merits. He says: 'The Broccolis I sent you were fair samples of about 8000 grown for market. Hundreds of them weigh eight pounds to ten pounds each. The plant is of dwarf robust habit, and stands the severest winter. I have grown it upwards of twenty years, and have always carefully selected the best for seed to keep it true. It is the only Broccoli that we can rely upon to stand the winter in this locality. The samples sent to you were fully exposed to the sun, which soon changes their colour, but if shaded with a leaf the heads are as white as snow.' The great size to which this variety may be grown is, in our opinion, no great recommendation; but there are thousands of cultivators who believe in large Broccoli, and to such this will be valuable. As for those who prefer smallish heads (as we do), planting rather thick will no doubt accomplish their object, and render the plants additionally self-protective against severe winter weather. Any further inquiries on this subject must be addressed to Mr. Hammond, Market Gardener, Birkby, Huddersfield."—*S. H.*

JOHN BENNET LAWES,

CHEMICAL MANURE MANUFACTURER AND SEED MERCHANT,

MARKET STREET, SHREWSBURY; LONDON AND DUBLIN.

LAWES' MANURES were the first Chemical Artificial Manures manufactured and introduced, and have now been used for 28 years with great success. A large supply for the coming season is now ready for delivery at the Factories, or from Agents in all parts of the Kingdom.

LAWES' PATENT TURNIP MANURE, DISSOLVED BONES, LAWES' SUPERPHOSPHATE of LIME, LAWES' WHEAT, BARLEY, GRASS, and MANGEL MANURES, PERUVIAN GUANO, NITRATE of SODA, &c.; LINSEED CAKE, and other FEEDING STUFFS.

JOHN THOMAS, MANAGER, Manure Department.

AGRICULTURAL SEEDS.

From the increasing demand, and with a view to its further extension, the Seed Department has been placed under a separate Manager, and will now be carried on by MR. GEORGE RUTHERFORD, who has been for many years in the Seed Trade, both in England and Ireland, and being thoroughly acquainted with the best Home and Foreign Markets, will be able to secure supplies from the most reliable sources.

A supply of all kinds of AGRICULTURAL SEEDS will be kept in stock, comprising CLOVERS, ITALIAN and PERENNIAL RYE-GRASS, NATURAL GRASSES for Permanent Pasture, TURNIP, MANGEL, CARROT, &c.

A CATALOGUE will be issued in February, and forwarded on application.

FREE DELIVERY.—All Orders for Seeds amounting to £2 value (Grain, Vetches, &c., excepted) will be delivered Carriage Free to any Railway Station or Canal Wharf.

GEORGE RUTHERFORD, MANAGER, Seed Department.

MARKET STREET, SHREWSBURY.—Dec. 30, 1868.

Native Scotch Fir, &c.

HOWDEN BROTHERS, Inverness, N.B., offer to the Trade 1-yr. Seedling, 2-yr. Seedling, and 2-yr. 1-yr. Transplanted HIGHLAND FIR. Also, HARDY RHODODENDRONS, large and small sizes.

EVERGREEN OAKS for SALE.—A quantity of very fine Evergreen Oaks, averaging 2 feet, in healthy condition, fit for immediate removal.

Apply to the GARDENER, Surrenden, Pluckley, Kent.

WANTED (100 each), HORSE-CHESTNUTS and LIME TREES, clean, straight stems, 10 feet, well rooted; also 1000 to 1200 best KENTISH COB and FILBERT TREES. Price and particulars, and where delivered, to

M. H., 211, Upper Kennington Lane, London.

Full-grown Evergreens.

HENRY GODFREY, NURSERYMAN, Stourbridge, has a large quantity of the following Evergreens to offer, in well grown plants: Green and Variegated HOLLY, Siberian and American ARBOR-VITÆ, Common and Portugal LAUREL, English and Irish YEWS, RHODODENDRONS PONTICUM and PONTICUM VARIEGATUM; Green and Variegated BOX, AUCUBA JAPONICA, ARAUCARIA IMBRICATA, &c.

FOREST TREES, &c.—500,000 LARCH, 1-yr. Seedling, strong; 40,000 do. Transplanted, 12 to 15 inches; 500,000 SCOTCH FIR, native, 2-yr. Seedling; 100,000 do. do. Transplanted, 6 to 15 inches; 30,000 NORWAY SPRUCE, 1 to 2 feet; 1000 POPLAR, of sorts, 2 to 8 feet; 3 to 4 cwt. SCOTCH FIR SEED, native. Special prices on application to

MITCHELL & YOUNG, Brechin, N.B.

LARCH, fine, 3½ to 4, and 4 to 5 feet; ASH, 2 to 3, and 3 to 4 feet; BIRCH, 2 to 3, and 3 to 3½ feet; ELM, 3 to 4, and 4 to 5 feet; POPLAR, BLACK ITALIAN, 2 to 3 and 3 to 4 feet; SYCAMORE, 1½ to 2, 2 to 3, 3 to 4, and 4 to 5 feet. These can be supplied in large quantities, good stuff.

YEWS, ENGLISH, splendid roots, 3½ to 4, 4 to 5, and 5 to 6½ feet; these are well furnished, extra strong stuff. For price, apply to

H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

COMMON LAURELS, 3 to 4 feet, 7*s.* per 100; single stems, 5*s.* per 100; extra stout, 2 feet, bushy, 8*s.* per 100.
ROSES, Half Standard, 12*s.* per dozen; Dwarf, 9*s.* per dozen
SPRUCE FIR, 3 and 4 feet, fine plants, 3*s.* per dozen.
SYCAMORES and LABURNUMS, 5 feet to 7 feet, 7*s.* 6*d.* per 100
SEEDLING OAK, 12 to 20 inches, 3*s.* per 1000; &c., &c.
For cash only.

A. WILKIN, Tiptree, Kelvedon, Essex.

Forest Trees, Evergreens, &c.

CHIVAS AND WEAVER have much pleasure in drawing the attention of Planters during the ensuing season to their very large stock of the above, grown with the greatest care, and regularly transplanted. The situation of their Nurseries being particularly exposed, renders the safe removal of plants to any part of the Kingdom almost a certainty.

SPECIAL PRICED LISTS (with terms of free delivery), on application. Large purchasers most liberally dealt with.

Eaton Road Nurseries, Chester.

Trees and Shrubs.

THOMAS KENNEDY AND CO have as usual a very large and superior stock of FOREST and ORNAMENTAL TREES and SHRUBS, which they are selling at moderate prices. The Trees and Shrubs, being of all ages and sizes, are particularly well suited for extensive planting or giving immediate effect in the formation and improving of Ornamental Parks, Pleasure Grounds, &c. CATALOGUES sent free by post on application.

The Nurseries, Dumfries, N.B.

The American Nursery, Bagshot, Surrey.

JOHN WATERER respectfully invites the attention of Gentlemen and others engaged in planting to the undernamed selections from his general stock. He has much satisfaction in recommending them as being symmetrically grown and really of first-rate excellence, and from frequency in removal are in an excellent state for transplanting. Having a very large stock, he is determined to treat on most liberal terms. He would, however, earnestly invite Purchasers to make a visit and choose for themselves, which is easily accomplished by South-Western Railway (Reading Branch) to Sunningdale Station, which is near the Nursery.

RHODODENDRONS (Standards).—Of all the leading choice, scarlet, and other varieties, 3 to 4 feet stems, consisting of such as Alexander Adie, Michael Waterer, The Warrior, Princess Mary of Cambridge, Quadroona, Mrs. Ino Penn, Joseph Whitworth, and all such others as have been exhibited annually at the Royal Botanic Gardens, Regent's Park.

RHODODENDRONS (Half Standards)—Of all the approved kinds; 2 to 3 feet stems.

RHODODENDRONS.—Hardy scarlet, crimson rose, white; for superior clumps or borders fine well-grown plants. An excellent assortment would be supplied at £15 per 100. Fine bushy plants can also be supplied, averaging 3 to 5 feet.

RHODODENDRONS.—Immense quantities of really good coloured seedlings, with Catawbiense and Hybrid Catawbiense, 1½ to 2 and 3 feet, £10 to £12 10*s.* per 100. These varieties are very suitable for admixture with the better kinds. The plants are bushy, and mostly well set with blooming buds, and from rose to white in colour.

RHODODENDRONS (Dwarf-growing kinds).—These are very close growing varieties, and are recommended for filling winter beds. Daphnoides, Myrtifolium, and Hybridum are the best suited for such purposes. Odoratum is delightfully scented, and much used for potting and forcing.

RHODODENDRON PONTICUM.—This kind is the most common, and now generally admitted to form the best permanent cover for game. In the most severe weather it is never injured by hares or rabbits. Good plants, 21*s.* to 30*s.* per 100.

AZALEAS, HARDY, of the most popular kinds, of all colours, and in fine plants, covered with a profusion of blooming buds. These are much used for forcing. 18*s.* to 30*s.* per dozen.

ANDROMEDA FLORIBUNDA.—One of the most hardy plants used for decorating winter clumps. Of these we are large holders, and can supply beautiful specimens at 30*s.* per dozen, covered with blooming buds.

KALMIA LATIFOLIA and MYRTIFOLIA.—Fine grown plants, of all sizes.

HARDY HEATHS.—A very fine collection, in 20 kinds, 30*s.* p. 100.

ABIES NORDMANNIANA.—Of this fine kind we are very large holders, all of which are seedlings, and of all heights, from 2 to 4 to 6 to 8 and 10 feet.

ABIES MAGNIFICA.—Fine specimens, 2 to 5 feet.

ABIES NOBILIS.—All seedlings, 1½ to 3 to 5 feet.

ABIES LASIOCARPA.—From 2 to 3 to 5 to 7 feet.

ABIES GRANDIS (of Douglas).—Fine specimens, 2 to 6 feet.

ABIES DOUGLASII.—3 to 4 to 6 to 10 feet.

ABIES PINSAPO.—2 to 3 to 5 to 10 feet.

ARAUCARIA IMBRICATA.—Fine specimen, 2 to 4 to 6 to 12 feet

THUJOPSIS BOREALIS.—2 to 3 to 4 to 6 feet.

THUJA AUREA.—All sizes, 2 to 4 to 5 feet, perfect globes.

THUJA GIGANTEA.—Immense quantities, from 3 to 4 to 6 feet.

WELLINGTONIA GIGANTEA.—Of all sizes from 2 to 12 feet.

IRISH YEW.—Selected specimens, 4 to 12 feet.

HOLLIES (Green).—Fine, 2 to 3 to 4 to 6 feet.

HOLLIES (Gold and Silver).—In the most approved kinds, of all sizes.

STANDARD GOLDEN HOLLY (WATERER'S).—The best for standards; fine plants.

STANDARD WEEPING HOLLIES (Green and Variegated).

We have likewise immense quantities of the leading kinds of EVERGREENS, of all sizes, such as Yews, Box, Bays, Aucubas, Arbutus, Phillyreas, Common and Portugal Laureis, &c., as well as fine strong transplanted FOREST TREES, 2 to 3 and 4 feet, consisting of Ash, Beech, Alder, Spanish Chestnut, Hazel, Withy, Larch, Spruce, Pinus austriaca, &c.

CATALOGUES describing the colours of all the RHODODENDRONS worthy of cultivation, with a LIST of CONIFEROUS PLANTS, with heights and prices, forwarded to all applicants.

☞ Purchasers of large quantities of goods are informed that the great expense incurred by package is now greatly diminished, as we can forward from Sunningdale, in through trucks without change, to all Stations on the Great Northern, North-Western, Eastern Counties, and Great Western (narrow gauge) Railways; also by South-Eastern and Brighton Lines by way of Blackwater.

The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway, and Blackwater Station, South-Eastern Railway, where excellent Conveyances await all Trains.

The Planting Season.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON respectfully invite especial attention to their very large stock of STANDARD ORNAMENTAL TREES, of large size, suitable for planting as single specimens on Lawns or in Parks where immediate effect is desired.
WEEPING ASH, 7 to 9 feet stems.
AMERICAN WILLOWS, 6 to 7 feet stems.
CATALPA SYRINGÆFOLIA, 6 to 8 feet.
ELMS, CHICHESTER and ENGLISH, 8 to 10, and 10 to 12 feet.
SILVER and SPRUCE FIRS, 6 to 7 feet.
HORSE-CHESTNUTS, 6 to 8, and 8 to 10 feet.
SCARLET HORSE-CHESTNUTS, extra fine plants, 6 to 8, and 8 to 10 feet.
LABURNUMS, Yellow and Purple, 6 to 8 feet.
POPLARS, BLACK ITALIAN and LOMBARDY, extra fine, 8 to 10, and 10 to 12 feet, and various other HARDY TREES.
See PRICED CATALOGUES, which may be had free on application.

Plants for Hedges.

TWO HUNDRED THOUSAND COMMON LAURELS, from 1½ to 3 feet.
WM. WOOD & SON.

AMERICAN ARBOR-VITÆ, especially recommended for Hedges:—2 to 3 feet, 6s. per dozen, 40s. per 100; 3 to 4 feet, 9s. per dozen, 60s. per 100; 4 to 5 feet, 18s. per dozen (extra fine), 100s. per 100.
Extra fine Transplanted BEECH and HORNBEAM, 2 to 3 ft. and 3 to 4 feet; also fine EVERGREEN PRIVET, in large quantities.
WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

SPECIAL OFFER to GENTLEMEN.—See CATALOGUE 53, p. 11, for quantities of 5,000, and above 20,000, carriage paid.
SPRUCE, fine and extra fine, 7s., 9s., and 11s. per 1000.
HAZEL, fine and extra fine, 17s., 19s., and 23s. per 1000.
SCOTCH FIR, fine and extra fine, 9s., 10s., and 12s. per 1000.
WYCH ELM, fine and extra fine, 10s., 11s., and 12s. 6d. per 1000.
LARCH, OAK, PLANE, BIRCH, ASH, THORN, &c., reasonable.
To the Trade.—We are requiring 1000 P. NORDMANNIANA, 1 to 2 feet; SCARLET and WHITE RHODODENDRONS, extra strong. JOSEPH TREMBLE & SONS, Nurserymen, Penrith.

Autumn Planting.

ORNAMENTAL TREES AND SHRUBS.

PETER LAWSON AND SON have an immense stock (extending over many acres) of the leading varieties of HARDY ORNAMENTAL TREES and SHRUBS, of such sizes as are most suitable for immediate effect, which they offer at moderate prices; and purchasers of large quantities will be very liberally dealt with.
PETER LAWSON & SON, after much experience of Autumn Planting, are fully satisfied of the beneficial results arising from it, and would respectfully bring under the notice of their Customers the desirability of early operations during the present favourable season.
Edinburgh and London.

For Lawn and Cover Planting.

BERBERIS DARWENI.—Too much cannot be said of this fine Evergreen species. It is hardy, and the profusion of its orange-coloured Blossoms, together with the quantity of Berries which it bears (of which pheasants are very fond), render it one of the most attractive and desirable Plants for Lawn as well as Cover Planting ever introduced.
Prices:—9 in. to 12 in., per 100, 7s. 6d.; per 1000, 60s.; 18 in. to 2 ft. 6 in., per 100, 20s.; 12 in. to 18 in., per 100, 10s. to 15s.; 2 ft. 6 in. to 3 ft. 6 in., very bushy, cash, 1s. 6d. to 2s. 6d.

COTONEASTER SIMMONSII.—This is a beautiful Hardy Evergreen Shrub, with glossy dark green leaves, and bearing a large quantity of Scarlet Berries, which ripen later than the Berberis Darweni, and will hang all winter
Prices:—1 to 2 ft., per 100, 20s.; 3 ft. to 4 ft., per 100, 45s.; 2 ft. to 2 ft. 6 in., per 100, 30s.
DESCRIPTIVE CATALOGUE post free, on application.
WILLIAM BARRON & SON, Elvaston Nurseries, Borowash, near Derby.

Wandsworth Common Nursery.

Ten minutes' walk from Clapham Junction.

MR. ROBERT NEAL begs to invite the attention of the Nobility, Gentry, and the Trade in general to his very extensive and healthy stock of PLANTS, consisting of a large collection of Standard, Pyramidal, and Dwarf-trained FRUIT TREES, of all sizes; Standard and Dwarf ROSES, Coniferous and other Evergreens, Forest and Ornamental Trees and Shrubs; also a large collection of Rhododendrons, all the very best in cultivation, and are of endless variety, from deep crimson and dark purple (every shade) up to white, and hybrid seedlings, and all the leading kinds of scarlet, both standard and dwarf, set with bloom-buds, which he can supply in large quantities at a very low price.
CATALOGUE will be sent on application.

1868.—Mangel Wurzel Seed.

H. AND F. SHARPE can offer the Trade some splendid STOCKS of the above-named Seed, grown on their own Farm this season from picked Bulbs. The quality is very fine, and prices low. Samples may be obtained on application.
Seed Growing Establishment, Wisbech.

SURPLUS STOCK.—Special offer to the Trade.

PEAS, SANGSTER'S No. 1	Per bush.	£0	11 0
,, EARLY EMPEROR	,,	0	9 0
,, BISHOP'S LONGPOD DWARF	,,	0	12 0
,, PARADISE EARLY MARROW	,,	0	11 0
,, WATERLOO or VICTORIA	,,	0	11 0
,, SCIMITAR (selected stock)	,,	0	12 0
,, BECK'S GEM or TOM THUMB	,,	0	13 0
,, VEITCH'S PERFECTION	,,	1	8 0
,, HAIG'S DWARF MAMMOTH	,,	1	8 0
BEANS, GREEN WINDSOR	,,	0	15 0
,, GREEN LONGPOD	,,	0	11 0
BROCCOLI, CHAPPELL'S CREAM	Per lb.	0	2 3
,, ELLETSON'S MAMMOTH	,,	0	2 6
,, IMPERIAL WINTER WHITE	,,	0	2 6
,, WILCOVE LATE WHITE	,,	0	2 3
,, KNIGHT'S PROTECTING	,,	0	2 6
,, BRIMSTONE	,,	0	2 3
,, ADAM'S EARLY WHITE	,,	0	2 6
,, PURPLE SPROUTING	,,	0	1 3
CABBAGE, EARLY YORK	Per cwt.	6	0 0
,, LARGE YORK	,,	6	0 0
,, NONPAREIL (true)	,,	6	0 0
CARROT, ALTRINGHAM (small)	,,	3	8 0
,, JAMES' INTERMEDIATE	,,	3	10 0
,, WHITE BELGIAN	,,	2	16 0
ONION, WHITE GLOBE	Per lb.	0	2 6
,, BROWN GLOBE	,,	0	2 6
,, RED GLOBE	,,	0	1 8
RADISH, WOOD'S EARLY FRAME	Per bush.	1	8 0
,, RED TURNIP	,,	1	8 0
SPINACH, PRICKLY	,,	0	7 6
TURNIP, EARLY STONE'S GOLDEN BALL	,,	1	8 0
,, EARLY SNOWBALL WHITE GLOBE	,,	1	1 6
SWEET PEAS [illegible]	,,	1	17 6

Terms Cash, or Stamps. Packing and Carriage extra.
ALFRED LAWRENCE, Seed Merchant, 7, Argyle Terrace, London, E.

East Lothian, White, and Purple Intermediate Stock.

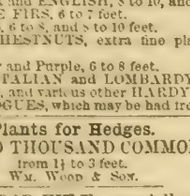
T. METHVEN having secured the Seed saved by Mr. D. Lawrence, one of Mr. Laing, Mr. T. Laing, Tyninghame, and others, begs to announce that, owing to the very favourable season, a splendid crop of Seed of these very desirable STOCKS, has been saved. Packets, containing about 1000 Seeds, 2s. 6d. and 5s.
EAST LOTHIAN SCARLET INTERMEDIATE STOCK at 6d., 1s., and 2s. 6d.
This Stock ought to be grown by all who have a flower border.
Prize for the London and Provincial.
THOMSON'S SUPERB HERBACEOUS CALCEOLARIA, saved from the finest strain in Cornwall, in packets of 1s., 2s. 6d., and 5s.
T. M. also begs to announce that his CATALOGUES of GARDEN, FLOWER, and AGRICULTURAL SEEDS, &c., and FRENCH HYBRID GLADIOLI for 1869, is now ready, and may be had post free on application.
Seed Warehouses, 15, Princes Street, and Nursery Gate, Leith Walk, Edinburgh.

ROLLISSON'S TELEGRAPH CUCUMBER (True).

THERE ARE MANY SPURIOUS  VARIETIES IN CULTIVATION.

From the universal satisfaction that their Telegraph Cucumber has given, WILLIAM ROLLISSON & SONS are much encouraged in again offering good and well ripened Seed of this most extraordinary variety. Its wonderful cropping qualities have this year been witnessed at their Establishment by many experienced judges, all of whom have agreed that it is the best in cultivation for that purpose; in fact it has been acknowledged to be, by the best authorities of the day, the most productive yet introduced for Winter and Early Spring use, in proof of which
See *Gardeners' Chronicle*, January 12, 1867.
See *Gardeners' Chronicle*, August 31, 1867.
See *Gardeners' Chronicle*, March 16, 1867.
See *Gardeners' Chronicle*, October 12, 1867.
See *Gardeners' Chronicle*, January 11, 1868.
See *Gardeners' Magazine*, January 18, 1868.
See *Journal of Horticulture*, August 20, 1868.
The above may be had, in printed and sealed packets, guaranteed true, price 2s. 6d. each, from
The Nurseries, Tooting, London, S.W.

New Seeds for the Garden and Farm, 1869.



ARCHD. HENDERSON'S DESCRIPTIVE and PRICED CATALOGUE of SEEDS, containing Cultural Remarks on all the most important SEEDS,
A select list of GLADIOLUS for Spring Planting,
GRAPE VINES, in Pots, an unrivalled Collection.
Also his DESCRIPTIVE CATALOGUE of GENERAL NURSERY STOCK is now ready, and may be had gratis and post free upon application.
Sion Nursery, Thornton Heath, Surrey; and at the East Surrey Seed Warehouse, College Grounds, North End, Croydon.

THE LONDON MANURE COMPANY (ESTABLISHED 1840)
Have now ready for delivery, in fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES.
Also Genuine PERUVIAN GUANO, and NITRATE of SODA ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c.
E. PURSER, Secretary.
Offices, 116, Fenchurch Street, E.C.

LAWES' MANURE for GRASS LANDS should be applied during the months of February and March. NITRATE of SODA supplied ex Ship or from Stocks at Docks at London, Liverpool, and other ports, at lowest market prices.

LAWES' MANURES are now ready for delivery for present season, 1869.
LAWES' PATENT TURNIP MANURE.
,, DISSOLVED BONES.
,, SUPERPHOSPHATE of LIME.
,, WHEAT, BARLEY, GRASS, and MANGEL MANURE.
,, CONCENTRATED CORN and GRASS MANURE.
These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom.
GENUINE PERUVIAN GUANO direct from the importers.
NITRATE of SODA, SULPHATE of AMMONIA, and other Chemical Manures.
AMERICAN and other CAKES at market prices.
Address, JOHN BENNET LAWES, 59, Mark Lane, London, E.C.; 22, Eden Quay, Dublin; and Market Street, Shrewsbury,

A MANUFACTURER of a MANURE, established 16 years, wishes to appoint a few respectable AGENTS. Good Commission.—Address by post, with occupation, &c., "Manure Agency," at No. 168, Bishopsgate Street Without, London, E.C.

Tobacco Tissue,

FOR DESTROYING RED SPIDER, MEALY-BUG, THRIP, GREEN and BLACK FLY, without the aid of a Fumigator.—This article having been before the Public for the last three years, and being now used by many of the leading Horticulturists—from several of whom Testimonials have been received as to its efficacy,—the Manufacturers beg to recommend those who have not used it to give it a trial, feeling confident when they have done so they will use nothing else, as it is far superior to paper or rag, and will not injure the plants. Sold in 1lb. packets and upwards; price 3s. 6d. per lb., carriage free. A reduction in price for large quantities.
To be had of MESSRS. ROBERTS AND SONS, Tobacco Manufacturers, 112, St. John Street, Clerkenwell, E.C., of whom Samples and Testimonials may be obtained; and of all Seedsmen and Nurserymen.

By Royal Appointment

To HER MAJESTY, by Special Warrant dated 27th December, 1865.  To the PRINCE OF WALES, by Special Warrant, dated 10th February, 1866.

DAY, SON, AND HEWITT, Original and Sole Proprietors of the STOCK-BREEDERS' MEDICINE CHEST, for Disorders in Horses, Cattle, Calves, Sheep, and Lambs. Patronised by upwards of Seventy Thousand of the principal Stock-breeders, Horse Proprietors, and Agriculturists in England, Ireland, Scotland, and Wales.
CAUTION.—The first Animal Medicines known to the world as "DAY'S," and in much universal repute under that title, are those only manufactured by us, as a Bill in Chancery, we recently filed, has established; and no one, as was there shown, knows anything of our discovery, or our mode of compounding.
The Chest contains the following matchless preparations:—
Half-a-Dozen CHEMICAL EXTRACT, at 30s. per dozen.
One Dozen GASEOUS FLUID, at 20s. per dozen.
One Dozen RED DRENCHES, at 13s. per dozen.
One Dozen RED PASTE BALLS, at 7s. 6d. per dozen.
Adapted for all ailments among Stock during the present season. Price of Chest complete, with Shilling Book on Farriery, £2 16s. 6d., carriage paid. Either preparation may be had separately in boxes.

TESTIMONIALS.

"DAY, SON, & HEWITT'S Six-Guinea 'Stock-breeders' Medicine Chest' is the handiest and completest we know of—in fact, it lets a Farmer see a whole Pharmacy—not exactly in a nutshell, but in a neat little box."—*Mark Lane Express*, 16th Dec., 1867.

"The 'Gaseous Fluid' is sufficient for all the ills that Calf-stock is liable to."—*J. Beart, Author of the Prize Essay on Calves.*

"Mr. Shepherd declares the 'Chemical Extract' to be worth a guinea a bottle."—*H. Woods, Lecturer on Breeding and Management of Sheep.*

"The 'Gaseous Fluid' is the best corrective of Scour in Sheep I have ever tried."—*T. Rigby, Lecture on Summer Grazing of Sheep.*

"DAY, SON, & HEWITT, supply most excellent remedies for Scour, Grubs, and other diseases, and we have used their Medicines for some years with success."—*Sporting Gazette.*

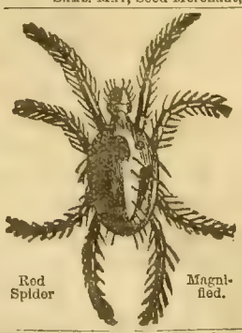
"We have found the 'Calf Drinks' (Gaseous Fluid) prepared by DAY, SON, & HEWITT, act as an invaluable remedy."—*Mark Lane Express.*

Orders sent by Post will be promptly attended to if addressed:—DAY, SON, & HEWITT, 22, Dorset Street, Baker Street, London, W. Branch Depôt at Wantage, Berks.

PUBLICATIONS.
The "Shilling Key to Farriery," free by post for 13 stamps.
The "Rearing of Calves," free by post for Three stamps.
The "Breeding and Management of Sheep," by H. Woods (Lord Walsingham's Agent), free by post for Five Stamps.

GENUINE TOBACCO PAPER, of the finest quality, 10d. per lb., or 84s. per cwt.
WILLIAM RUSHFORTH, Nurseryman and Seed Merchant, Leeds.

ROLL TOBACCO PAPER, finest quality, equal in strength to Tobacco, 1s. per lb.; cheaper in quantities.
SAML. MAY, Seed Merchant, 180, Wade Lane, Leeds.



GISHURST COMPOUND.
One of the oldest and best remedies against
BLIGHT and MILDEW.
Sold by the Trade in Boxes 1s., 3s., and 10s. 6d. each.
Wholesale by
PRICE'S PATENT CANDLE COMPANY, Limited,
Battersea, London, S.W.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, and Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, Royal Gardens, Kew, &c.
The best Shading is "Frigi Domo" Netting,
White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for
PROTECTION from the COLD WINDS and MORNING FROSTS.
"FRIGI DOMO" NETTING, 2 yards wide, 1s. 6d. per yard run.
"FRIGI DOMO" CANVAS.

Two yards wide	1s. 9d. per yard run.
Four yards wide	3s. 6d. per yard.
An improved make, 2 yards wide	1s. 9d. per yard.
An improved make, 3 yards wide	2s. 8d. per yard run.

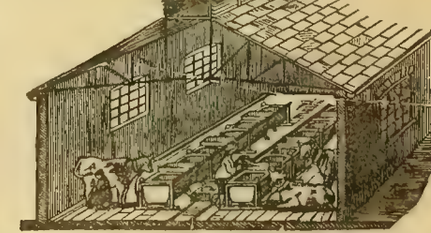
ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.

Established 1833.



HANCOCK'S INDIA-RUBBER HOSE and TUBING.
CARRIAGE, GIG, & DOG-CART APRONS.
HORSE SINGEING APPARATUS, with GAS BURNERS, and INDIA-RUBBER TUBING.
Improved INDIA-RUBBER DOOR STOPS.
WATERPROOF CART and WAGGON COVERS made any size.
HORSE-LOIN COVERS (Waterproof), with Straps complete.
BELTING for SAW MILLS, THRESHING MACHINES, and FLOUR MILLS.
Trade Mark.
IMPROVED INDIA-RUBBER WEDGE-SHAPED GAS BAGS, for Microscopes and Dissolving Views; anysize to order
FLANGE TUBING, for excluding Draught and Dust, and preventing the Slamming of Glass Doors.
SECTION.
VULCANISED INDIA-RUBBER BILLIARD CUSHIONS.
WATERPROOF BILLIARD TABLE COVERS.
Illustrated Price Lists on application.
JAMES LYNE HANCOCK, Vulcanised India-Rubber Works, 266, Goswell Road, London, E.C.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rick dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of Iron. Prices of Fittings per Cow, 55s.
Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.



GARDEN BORDER EDGING TILES, in great variety of patterns and materials, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.
GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price List free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also TESSELATED PAVEMENTS of more enriched designs than the above.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cement, &c.
To be obtained of F. & G. ROSHER, at their premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.
FLINTS, BRICK BURRS or CLINKERS for Rockeries or Grotto Work. F. & G. ROSHER.—Addresses see above.
N.B. Orders promptly executed by Railway.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

MR. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

Acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in GARDENERS' CHRONICLE *of International Exhibition, May* 24, 1862, *page* 476.

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

☞ *They are made of all sizes, which, with prices, may be had on application.*

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

HOTHOUSES FOR THE MILLION.

BY HER MAJESTY'S



ROYAL LETTERS PATENT.

INVENTED BY THE LATE

SIR JOSEPH PAXTON.



MANUFACTURED in LONDON, GLOUCESTER, COVENTRY, ULVERSTONE, PAISLEY, and ABERDEEN only. Of best materials, good workmanship, and at lowest Prices for Cash.

Simple in construction, easily erected, and legally removable.

Used for VINERIES, PEACH WALLS, ORCHARD-HOUSES, GREENHOUSES, CUCUMBER and MELON PITS, PINERIES, and sheltering BEDDING PLANTS, &c., &c.

SIR J. PAXTON'S "HOTHOUSES for the MILLION"

Have also been Erected as BOUNDARIES to KITCHEN GARDENS instead of Walls, at little extra cost, covering great space, and securing otherwise uncertain crops of Fruit.

ILLUSTRATED CIRCULARS, with definite Sizes and Prices, Free on application.

ESTIMATES given for every description of HORTICULTURAL BUILDING, and SPECIAL DESIGNS prepared for ORNAMENTAL CONSERVATORIES to suit any style of Architecture. HOT-WATER APPARATUS arranged and fixed complete.

HEREMAN AND MORTON, 7, PALL MALL EAST, LONDON, S.W.

NOTICE.—MESSRS. HEREMAN AND MORTON having taken New Premises for the construction of HORTICULTURAL BUILDINGS, beg to inform their Patrons and the Public that they possess the exclusive privilege of Manufacturing the above Patent Hothouses, and they are now also enabled to supply Ornamental and Plain Conservatories at reduced prices.

A "HANDBOOK OF VINE AND FRUIT TREE CULTIVATION,"

With Illustrations of the various forms of PATENT ROOFS, VIEWS of CONSERVATORIES, HINTS for HEATING, and carefully prepared LISTS of FRUIT TREES, &c., by S. HEREMAN, Chatsworth, Post Free for 13 stamps.

"None who take an interest in the construction of Hothouses, or in the management of their contents, should fail in adding this to their collection, however complete that may already be."—*The Farmer*, November 13, 1867.

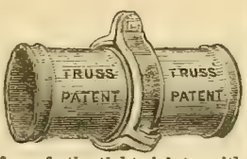
PORTABLE AND FIXED HOT-WATER APPARATUS,

FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH

TRUSS'S PATENT UNIVERSAL FLEXIBLE AND LEAKLESS PIPE-JOINTS.



T. S. TRUSS



Begs to state that the immense number of APPARATUS annually Designed and Erected by him in all parts of the kingdom, and for the ROYAL HORTICULTURAL SOCIETY at SOUTH KENSINGTON and CHISWICK, with unrivalled satisfaction, is a guarantee for skill of design, superior materials, and good workmanship; while the great advantages obtained by his IMPROVED SYSTEM cannot be over-estimated, consisting of perfectly tight joints with neatness of appearance; EFFECTS A SAVING OF 25 PER CENT. on cost of Apparatus erected compared with other systems; facility for extensions, alterations or removals without injury to Pipes or Joints; can be erected by any Gardener; an ordinary size Apparatus erected in one day, and PERFECTNESS of DESIGN SUPPLIED, INSURING NO EXTRAS. Complete Apparatus, of the best materials, with Saddle Boiler, delivered to any Railway Station in England, and Erected at the following prices. Erection beyond 25 miles of London, railway fare for one man additional. Considerable reduction on large works.

TWO FOUR-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
20 feet by 10 feet ..	£9 0 0 ..	£2 0 0	50 feet by 15 feet ..	£17 10 0 ..	£3 0 0
30 feet by 12 feet ..	11 15 0 ..	2 10 0	75 feet by 15 feet ..	20 0 0 ..	3 0 0
40 feet by 15 feet ..	15 0 0 ..	2 15 0	100 feet by 15 feet ..	26 0 0 ..	3 5 0

Bath and Gas Work erected in town or country. The Trade Supplied.

Horticultural Buildings of every description from 1*s.* 6*d. per foot superficial, inclusive of Brickwork.*

Price Lists, Plans, and Estimates forwarded on application to

T. S. TRUSS, C.E., CONSULTING HORTICULTURAL ENGINEER, &c., SOLE MANUFACTURER,
IRON MERCHANT and HORTICULTURAL BUILDER,
FRIAR STREET, BLACKFRIARS ROAD, LONDON, S.E.

Green's Patent Noiseless Lawn Mowers.

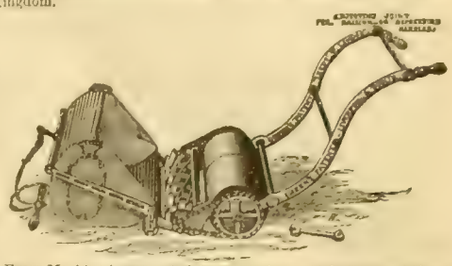
GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every prize that has been given in all cases of competition, and in proof of their superiority upwards of 44,000 have been sold since the year 1850.

They are the simplest in construction, least liable to get out of order, and can be worked with far greater ease than any other Lawn Mower extant.

They are the only Machines in constant use at

Buckingham Palace Gardens	The Winter Palace Gardens, Dublin
Marlborough House Gardens	The Dublin Botanic Gardens
Royal Horticultural Society, South Kensington	The Liverpool Botanic Gardens
The Royal Botanic Gardens, Regent's Park	The Leeds Royal Park
The Crystal Palace Company's Gardens, Sydenham	The Hull Botanic Gardens
The Hyde Park Gardens	The Botanic Gardens, Brussels
	The Sunderland Park
	The Preston Park

And in most of the principal Parks and Squares in the United Kingdom.



Every Machine is warranted to give entire satisfaction, and if not approved of can be returned at once unconditionally.

Illustrated Price Lists on application, which include Free Delivery to all the principal Railway Stations and Shipping Ports in England. All Orders executed on the day they are received.

T. G. & SON have ten times more Lawn Mowers in Stock at their Establishment, 64 and 65, Blackfriars Road, S., than any other firm in London, that intending Purchasers can select from.

Having very extensive premises in London, we are in a position to do all kinds of repairs there as well as at the Works at Leeds.

THOMAS GREEN & SON, Smithfield Iron Works, Leeds; and 54 and 65, Blackfriars Road, London, S.

TO NURSERYMEN, SOLICITORS, and Others.—The Advertisers are wishful to PURCHASE a good NURSERY BUSINESS. In the meantime,

Address NURSERYMAN, *Gardeners' Chronicle* Office, W.C.

Eligible Opening for Nurserymen and Seedsmen.

FOR SALE, the GOOD-WILL of the BUSINESS of NURSERYMEN and SEEDSMEN, hitherto carried on by Messrs. GUNN & PETRIE, Inverness, with the whole STOCK in their NURSERY, Ness Walk, Inverness, and in their SHOP in Bridge Street, Inverness.

The Nursery Grounds are in excellent order, and fully stocked with every variety of Tree and Plant suitable for the Trade. The extent of the grounds is 16¼ Acres, the Rent £64 sterling per annum and there are 14 years of the Lease to run from Martinmas, 1868.

The Shop is conveniently situated, and is well stocked with Seeds and Garden Implements of all varieties.

Offers will be received by Mr. D. G. Ross, Merchant, Dingwall, Trustee on the Sequestrated Estate of Messrs. Gunn & Petrie, up till 1st February next, and Lists of the Stock may be seen by intending Offerers with Mr. JOHN CHISHOLM, 106, Church Street, Inverness, who will show the Nursery and the Stock in the Shop, and give any further information that may be required.

So favourable an opportunity for a man with a practical knowledge of the Business, and who can command a Capital of from £1000 to £1500, is rarely offered.—Inverness, 26th December, 1868.

Sales by Auction.

Periodical Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, January 19, at half-past 12 o'Clock precisely, First-class SPANISH, BRAHMAS, GAME BANTAMS, HAMBURGHS, COCHINS, GAME, DORKINGS, &c.; also, an assortment of choice PIGEONS, from the yards and lofts of well-known Breeders and Exhibitors.

On view the Morning of Sale, and Catalogues had.

Important Notice to the Trade.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, January 27, at half-past 12 o'Clock precisely, the SECOND PORTION of Messrs. YOUELL AND CO.'s superb collection of GLADIOLI; many of them will consist of their finest Seedlings, which have been highly commended.

The above will be sold without any reserve, in consequence of Dissolution of Partnership.

Stanhope Nursery, Westerham Hill, Kent.

THE WHOLE OF THE VALUABLE NURSERY STOCK of ABOUT 18 ACRES.

MESSRS. G. B. AND T. BAXTER AND PAYNE have been instructed by Mr. A. Fairall, to SELL by AUCTION, on the Premises as above, on TUESDAY, January 26, and three following days, at 11 for 12 o'Clock each day, a large quantity of FRUIT TREES, of different sorts, and fine SPECIMEN SHRUBS; also 32,000 Common Laurels, 1000 Portugal Laurels, 150,000 Ash, and 100,000 Seedling ditto, 1500 Variegated and other Box, 600 Cotoneasters, 2000 Standard Roses, 1000 ditto Thorns, 230 Euonymus Japonica, 130 Variegated Hollies, 2000 Scarlet and other Chestnut, 50 Mountain Ash, 200 Acuba Japonica, 200 Cytissus worked on Laburnum, 50 Deutzia scabra, 50 Purple Beech, 500 Acacia, 1000 Alder, 1200 Beech, 6000 Birch, 200 Poplar, 2000 Sycamore, 2000 strong Quick, 40,000 Larch, 25,000 Spruce, 1500 Scotch and 3000 Silver Fir, 4500 Balm of Gilead, 21 Araucaria, 100 Deodara, 650 Cupressus Lawsoniana, 150 Cedar, various; 500 Pinus austriaca, 160 Pinus pinaster, 350 Weymouth Pine, 13 Wellingtonia gigantea, 500 Irish and other Yews, 1000 Arbor-vitæ, 50 Laurustinus, 250 Rhododendrons, &c.

Messrs. B. & P. beg to call the attention of Gentlemen, Nurserymen, and others, to this important Sale, the Stock being first-class, and every care and attention having been given them, therefore offers an opportunity to those planting rarely to be met with.

May be be viewed four days' preceding the Sale, and Catalogues had at the King's Arms Hotel, Westerham; Crown Inn, Sevenoaks; Lion Inn, Farningham; Black Horse Inn, Sidcup; Queen's Head Inn, Down; New Inn, Farnborough; Swan Inn, West Wickham; Greyhound Inn, Croydon; Fox and Hounds, Westerham Road; and of the Auctioneers, Valuers, and Estate Agents, Town Hall, Bromley, Kent, S.E.

Willis's Nursery Gardens, Fulbrook, Oxfordshire.

TO BE SOLD, by AUCTION, by Messrs. BAKER AND SONS, at the Auction Mart, Tokenhouse Yard, E.C., on TUESDAY, February 2, at 1 o'Clock in the afternoon precisely, by direction of the Trustees for Sale, under the will of the late proprietor, Thomas Willis, all that substantially-built DWELLING-HOUSE, with detached Store-house and Seed-room over, Brew-house, and other Outbuildings, with the FOUR NURSERY GROUNDS or GARDENS, lying partly contiguous and partly very near thereto, and containing altogether 7a., 3r., 9p. The Property is Freehold of Inheritance, and the business of a Nurseryman and Seedsman has been successfully carried on thereupon during four successive generations. It deserves the attention of the Trade. Is disposed of solely by reason of the death of the late Proprietor. The only outgoing is a land tax of £1 13s., and possession may be had on completion of the purchase. The Purchaser is to take to the Timber and Live and Dead Stock in Trade and Fixtures at a Valuation.

The Property lies about half-a-mile from Burford, and about five miles from Shipton Station. It may be viewed by application on the Premises, and further particulars and Conditions of Sale may be obtained ten days before the Auction of Messrs. PRICE & SONS, Solicitors, Burford; or Messrs. PEACOCK & GODDARD, Solicitors, 3, South Square, Gray's Inn.

PAUL'S NURSERIES AND SEED WAREHOUSE,

WALTHAM CROSS, LONDON, N.

GENUINE AND FIRST-CLASS SEEDS.

WILLIAM PAUL

BEGS TO ANNOUNCE THAT HIS

CATALOGUE OF SELECT VEGETABLE AND FLOWER SEEDS,

Including many Novelties, is now ready, and may be had Free by Post on application.

In proof of QUALITY he need only refer to the numerous Prizes awarded at various Horticultural Shows throughout the country, for both Vegetables and Flowers grown from his Seeds, and in regard to prices these are in all cases affixed on the lowest possible scale to be remunerative. The following Gardens in Hertfordshire, justly renowned for their Vegetables and Flowers, have long been supplied from his Seed Warehouse:—Brockett Hall, Panshanger, Danesbury, Poles, Digswell, Wyddial Hall, Woodhall, Youngsbury, Bedwell Park, Essendon Place, Campfield Place, Bayfordbury, Knebworth, Frogmore Hall, Childwickbury, Codicote Lodge, and many others of equal celebrity throughout the country.

To purchasers who are unacquainted with the best varieties of Vegetables and Flowers, or who wish to save the trouble of writing a List, the following Collections are made up on equally liberal terms with any other House in the Kingdom. All are of the best quality, and cannot fail to give the fullest satisfaction.

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FOR A LARGE GARDEN,
Price £3 3s.

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FOR A MEDIUM-SIZED GARDEN,
Price £2 2s.

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FOR A SMALL GARDEN,
Price £1 1s.

Smaller Collections for Small Gardens or Cottagers, 15*s.*, 10*s.* 6*d.*, or 5*s.* each.

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No. 1. The WALTHAM COLLECTION of FLOWER SEEDS,
INCLUDING THE FINEST IMPORTED ASTERS, STOCKS, &c.,
Price £2 2s.

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INCLUDING CHOICE IMPORTED ASTERS, STOCKS, &c.,
Price £1 1s.

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IN TWELVE DISTINCT NAMED SORTS,
Price 5s.

NOVELTIES, OR VARIETIES OF SUPERIOR MERIT.

BEET, Paul's Superb Crimson, 1*s.* per packet.
BROCCOLI, Lauder's Superb Protecting Late White, 2*s.* 6*d.* per pkt.
BROCCOLI, Snow's Winter White, very select stock, 1*s.* per packet.
BRUSSELS SPROUTS, Paul's Waltham, 1*s.* per packet.
CAULIFLOWER, Hill's Dwarf, 1*s.* 6*d.* per packet.
CAULIFLOWER, Superb Dwarf Hertfordshire, 1*s.* per packet.
CUCUMBER, Paul's Improved Telegraph (true), 2*s.* per packet.
*** This Variety was first sent out by me in 1861, and is distinct from many varieties of Telegraph, and acknowledged to be the most prolific and best flavoured of all Cucumbers.
ENDIVE, Waltham Green Curled, 1*s.* per packet.
LETTUCE, Brockett Hall Brown Cos, 1*s.* per packet.
LETTUCE, Hill's Compact Brown Cos, 1*s.* 6*d.* per packet.
PARSLEY, Paul's Selected Extra Curled, 6*d.* per packet.

FOR MORE PARTICULAR INFORMATION, SEE SEED CATALOGUE.

All Seeds, except very small parcels, Carriage or Post Free.

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GLADIOLI.—A very fine assortment to name, 6*s.* to 24*s.* per dozen.

ROSES.—A fine stock still on hand, Standards, Dwarf-standards, Dwarfs, and in pots for forcing.

FRUIT TREES.—Standards, Pyramids, and Dwarf-trained, and a large general Nursery Stock in excellent condition.

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☞ IMPORTANT.—To prevent confusion, all Letters should be addressed WILLIAM PAUL—the Christian name in full, as above.

SUTTONS' £3 3*s.* COLLECTION of VEGETABLE SEEDS, carriage free. For Contents, see page 48 of this week's *Gardeners' Chronicle*.

SUTTONS' £2 2*s.* COLLECTION of VEGETABLE SEEDS, carriage free. For Contents, see page 48 of this week's *Gardeners' Chronicle*.

SUTTONS' £1 11*s.* 6*d.* COLLECTION of VEGETABLE SEEDS, carriage free. For Contents, see page 48 of this week's *Gardeners' Chronicle*.

SUTTONS' £1 1*s.* COLLECTION of VEGETABLE SEEDS, carriage free. For Contents, see page 48 of this week's *Gardeners' Chronicle*.

SUTTONS' 15*s.* COLLECTION of VEGETABLE SEEDS, carriage free. For Contents, see page 48 of this week's *Gardeners' Chronicle*.

SUTTONS' 12*s.* 6*d.* COLLECTION of VEGETABLE SEEDS. For Contents, see page 48 of this week's *Gardeners' Chronicle*.

LAMONT AND MITCHELL have to offer a quantity of well-ripened, short-jointed VINES, of all the leading varieties, true to Name. Prices on application.
Nurseries, Dean Park, Edinburgh.

LAMONT AND MITCHELL offer to the Trade SEED of Dell's superb BLACK BEET, the finest in cultivation, both for Decorative and Culinary purposes. Prices on application.
Seed Warehouse, 3, Hanover Street, Edinburgh.

NEW and GENUINE AGRICULTURAL and GARDEN SEEDS.—Special prices and advantageous offers of above on application to
ALFRED LEGERTON, Seed Merchant, 5, Aldgate, London, E.

ALFRED LEGERTON begs to inform the Trade, that his WHOLESALE SEED CATALOGUE for the present season is now ready, and will be sent free by post on application.
Stocks the best, and prices the lowest, in London.
Wholesale Seed Establishment, 5, Aldgate, London, E.

New Garden and Farm Seeds.
BOLTON AND CO.,
SEED MERCHANTS,
EALING, LONDON, W.
NEW SEEDS of every description—GARDEN, FLOWER, and AGRICULTURAL.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY (Limited),
CORN, SEED, MANURE, AND OILCAKE MERCHANTS.
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstok
Samples and prices post free on application. Prize Medals, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

LONDON and CONTINENTAL SEED COMPANY,
68, WELBECK STREET, CAVENDISH SQUARE,
LONDON, W.

THE LONDON and CONTINENTAL SEED COMPANY has purchased the old and important Business of Rendle & Co., of Plymouth, which has been established for nearly 100 years.

THE LONDON and CONTINENTAL SEED COMPANY.—Mr. RENDLE, the head of the old Firm, has conntod to be the Managing Director of this Company.

DISCOUNT of TWOPENCE in the SHILLING will be taken off the published prices of any London or Provincial Seed Merchant.

DISCOUNT of TWOPENCE in the SHILLING will be taken off the published prices of Seeds for the Farm, the Kitchen Garden, and the Flower Garden.

DISCOUNT of TWOPENCE in the SHILLING.—This new system of supplying Seeds for cash payment is the same plan so successfully introduced by Mr. Rendle, the Honorary Director of the Town and Country Book Society.

DISCOUNT of TWOPENCE in the SHILLING.—The Bookselling system, of taking off a large Discount to all cash purchasers, is now introduced into the Seed Trade by the LONDON and CONTINENTAL SEED COMPANY.

SEEDS, the newest and freshest, all the growth of 1868.—Another new system introduced by the London and Continental Seed Company, is to dispose of all surplus stock at the end of each season, so that the new season is commenced without an ounce of old or imperfect seed.

SEEDS, all the growth of 1868, can be obtained from the LONDON and CONTINENTAL SEED COMPANY.

THE LONDON and CONTINENTAL SEED COMPANY have made arrangements with the most important Continental Growers for the quick delivery of all newseed. Express parcels every week in the season from the leading Continental cities.

THE NEW GARDEN SEED LIST is now ready, and can be had on application, gratis. A Discount of Twopence in the Shilling off all Garden Seeds.

THE NEW FARM SEED LIST is now ready, and can be had on application, gratis. A Discount of Twopence in the Shilling off all Farm Seeds.

THE ILLUSTRATED NEW FLOWER SEED LIST is now ready, and can be had on application, gratis. It contains numerous illustrations of the choicest novelties. Everyone who has a Flower Garden should have a copy. A Discount of Twopence in the Shilling off the price of all Flower Seeds.

LONDON and CONTINENTAL SEED COMPANY.—Purchasers of all kinds of seeds are strongly recommended to obtain the CATALOGUE now published by this Company.

Address,
LONDON and CONTINENTAL SEED COMPANY,
68, WELBECK STREET, CAVENDISH SQUARE,
LONDON, W.

NOTICE is HEREBY GIVEN, that the PARTNERSHIP heretofore subsisting between us, the Undersigned, JOHN NUNN AND EDWARD HOBDAY, carrying on business as Nurserymen, &c., at St. Augustine's Nursery, in the City of Norwich, under the style or Firm of Nunn & Hobday, was DISSOLVED by MUTUAL CONSENT on the 10th day of October last; and that all Debts due to and owing by the late Firm will be received and paid by the said JOHN NUNN, by whom the Business will in future be carried on. JOHN NUNN.
Dated this 1st day of January, 1869. EDWARD HOBDAY.

HENRY BAILEY, FLORIST, begs to inform the Nobility, Gentry, and the Trade, that he has succeeded to the Country Nursery of William Catleugh, at Feltham, Middlesex, and trusts by strict attention and perseverance to merit a continuance of past favours afforded by the late customers to his predecessor. It will be his endeavour to merit their approbation by sending out a really good article at a moderate price.
Being a Cultivator for Covent Garden Flower Market, visitors will have an opportunity of selecting from some thousands of Plants. CUT FLOWER Trade will also be carried on.
New Plants, &c., not in Stock, supplied at advertised prices.
Royal Nursery, Feltham.—January 1, 1869.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by JAMES MATTHEWS, at the Office of Messrs. BRADBURY, EVANS, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the Co. of Middlesex, and Published by the said JAMES MATTHEWS at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, January 16, 1869.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 4.—1869.] SATURDAY, JANUARY 23. {Price Fivepence. {Stamped Edition, 6d.

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GRAND NATIONAL HORTICULTURAL EXHIBITION, 1869: MAY 14 to 21.—PRIZES, NINE HUNDRED POUNDS.—The above SHOW will be held in the MANCHESTER BOTANIC GARDEN. Schedules will be issued in the course of a few days. BRUCE FINDLAY.
Botanic Gardens, Manchester.

Strong Fruiting Vines.

J. C. PADMAN has still on hand a quantity of BLACK and MUSCAT HAMBURGHS, price 5s. to 7s. 6d. each. The usual discount to the Trade.
Boston Spa, Yorkshire.

GOLDEN CHAMPION GRAPE.—Plants are now being sent out of this extraordinary Grape, price 21s. and 42s. each. OSBORN & SONS, Fulham Nursery, London, S.W.

Pines.

B. S. WILLIAMS has all the best kinds, in splendid condition, warranted clean. Prices on application.
B. S. WILLIAMS, Seed Merchant and Nurseryman, Upper Holloway, London, N.

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B. S. WILLIAMS' STOCK this season is remarkably fine, and in good condition for sending out. Kinds and prices can be had on application.
B. S. WILLIAMS, Seed Merchant and Nurseryman, Upper Holloway, London, N.

Mrs. Pince's Black Muscat Grape.

J. MEREDITH is now prepared to execute orders for this fine Grape. CANES, fit for immediate planting, from 10s. 6d. upwards.
The Vineyard, Garston, near Liverpool.

Superb New Late Grape.

"MRS. PINCE'S BLACK MUSCAT" may now be seen in full perfection. This is acknowledged to be the finest Grape extant. Splendid Canes are now ready for immediate planting, 7s. 6d., 10s. 6d., and 21s. each. Fine planting Canes of other kinds, a LIST of which can be sent on application.
Exeter Nursery, Exeter.

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MESSRS. JOHN STANDISH AND CO. are now selling fine strong plants of this extraordinarily productive VINE at 21s., 42s., and 63s. each.
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EXTRA STRONG FRUITING VINES.—With stout close-jointed Canes, thoroughly ripened without bottom-heat. Nearly 2000 to select from, or samples forwarded on application.
JAMES DICKSON & SONS, "Newton" Nurseries, Chester.

TO the TRADE, or LARGE BUYERS.—Fine well-grown Planting and Fruiting VINES, in 10 and 18-inch pots, of all the best varieties, at £10 per 100, 36s. per dozen, or 3s. 6d. each. A few extra large, will carry 6 to 8 bunches, 5s. each.
LEWIS S. WOODTHORPE, Munro Nursery, Sible Hedingham, Essex.

Pyramidal Cherries, extra fine, for Gardens.

WM. WOOD AND SON have a magnificent stock of the above to offer. The Pyramid Cherries are especially fine.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LIST of these varieties from Mr. WEBB, Calcot, Reading.

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R. M. STARK has just published his ANNUAL LIST of NEW and RARE PLANTS, comprising many interesting novelties, which can be had on application.
York Road, Trinity, Edinburgh.—Jan. 20.

CHARLES TURNER'S SEED LIST.—A DESCRIPTIVE CATALOGUE now ready, to be had free on application. The Royal Nurseries, Slough.

Priced Seed Catalogue for 1869,
Post free on application to
JOHN AND CHARLES LEE, Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

JOHN STANDISH AND CO.'S ILLUSTRATED CATALOGUE of NEW and RARE PLANTS, HARDY TREES, CONIFERÆ, SHRUBS, &c., for the Spring of 1869, is now ready, and will be sent post free on application.
Royal Nurseries, Ascot, Berks.

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WM. PAUL begs to announce that his CATALOGUE of ROSES is now ready, and will be forwarded free on application.
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BY THE DOZEN, HUNDRED, OR THOUSAND.

WM. WOOD AND SON have to offer many thousands of fine plants of the above.
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PAUL AND SON'S ROSE CATALOGUE for the year.—This contains List, with prices per dozen, of the very best BEDDING ROSES. A Selection, with names, of 50 leading kinds, as Standards, for £3 15s.; as Dwarfs, for £2 10s.; and brief Hints on Pruning. The Old Nurseries, Cheshunt, N.

ORDER, at ONCE, of CHARLES NOBLE,
ROSES FOR FORCING,
ROSES FOR PLANTING,
ROSES FOR WORKING (MANETTIS).
The Stock can scarcely be equalled.

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To the Trade.—Gladiolus Brenchleyensis.

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237 and 238, High Holborn, London, W.C.

NEW and GENUINE AGRICULTURAL and GARDEN SEEDS.—Special prices and advantageous offers of above on application to
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To the Trade, at Low Prices.

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ORDER, WITHOUT DELAY, of CHARLES NOBLE,
RHODODENDRONS for FORCING,
RHODODENDRONS for PLANTING,
RHODODENDRONS for COVER.
The Stock embraces millions.

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H. AND G. FARNSWORTH have to offer a large quantity of QUICK, SPRUCE, 16 to 24 inches; SCOTCH, 1½ to 2 feet; and 3-yr. Seedling RHODODENDRONS. Prices low.
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JAMES DICKSON & SONS, "Newton" Nurseries, Chester.

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EVERGREEN OAKS for SALE.—A quantity of very fine Evergreen Oaks, averaging 2 feet, in healthy condition, fit for immediate removal.
Apply to the GARDENER, Surrenden, Pluckley, Kent.

Sixty-seven Pages of Nursery Stock.

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PARIS, 1867. SUTTONS' GRASS SEEDS for ALL SOILS. A PREMIER PRIX SILVER MEDAL for GARDEN SEEDS, GRASSES, and GRASS SEEDS, was Awarded to SUTTON AND SONS, SEEDSMEN to the QUEEN, Reading, Berks.

ALFRED LEGERTON begs to inform the Trade, that his WHOLESALE SEED CATALOGUE for the present season is now ready, and will be sent free by post on application.
Stocks the best, and prices the lowest, in London.
Wholesale Seed Establishment, 5, Aldgate, London, E.

Genuine Garden and Farm Seeds to be had of

THOMAS KENNEDY AND CO., SEEDSMEN and NURSERYMEN, Dumfries, at extremely moderate prices, and delivered, free of carriage, at nearest Railway Station.
CATALOGUES sent gratis on application.

Agricultural and Garden Seeds.

H. AND F. SHARPE'S SPECIAL PRICED LIST of HOME-GROWN SEEDS is now ready, and may be had on application.
Seed Growing Establishment, Wisbech.

Genuine Garden and Agricultural Seeds.

CARTER AND CO.,
SEED FARMERS, MERCHANTS, and NURSERYMEN.
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EVERY GARDEN REQUISITE KEPT in STOCK at CARTER'S New Seed Warehouse, 237 and 238, High Holborn, London.

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Mangel Wurzel Seed.

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Bardney Manor, Lincoln.

Cucumber Plants.

TELEGRAPH, from seed of own saving, selected stock, warranted true, in any quantity.
Apply for prices to A. WATKINS, Hockerill, Bishop Stortford.

Cucumber Plants, Wholesale and Retail.

WALKLING'S PROLIFIC, TELEGRAPH, and other sorts; a few Hundred more of Choice TRICOLOR and other GERANIUMS for Sale, or Exchange for Standard or Dwarf ROSES. G. WALKLING, Nurseryman, High Road, Lewisham, S.E.

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G. SCRYMGER begs to offer Seed of the above superior variety of Brussels Sprouts, in packets, at 1s. each, post free 14 stamps. Price to the Trade on application to
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To the Trade.

T. HANDASYDE AND DAVIDSON have to intimate that they are now executing orders for MUSSELBURGH and AYTON CASTLE LEEK SEED. Prices on application.
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SUTTONS' IMPROVED READING, 1s. per ounce. The NEW BEDFORDSHIRE CHAMPION, 1s. per packet. NUNEHAM PARK, 1s. per packet.
Free by post.
SUTTON & SONS, Seed Growers, Reading.

ASPARAGUS ROOTS, 4-yr. old, for Sale. Apply to J. STEWART, Bangholm Cottage, Edinburgh.

ASPARAGUS PLANTS, extra fine and strong, 2, 3, and 4-yr., at moderate prices.
WM. WOOD & SON, Nurseries, Maresfield, near Uckfield, Sussex.

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SEED POTATOS.—Early Dalmahoy and Skerry Blue, a few tons to offer at £5 a ton; also a few tons of King of Potatos, cheap.
JOS. JACKSON, Blakedown Nursery, near Kidderminster.

Two Tons of Myatt's Ashleaf Kidney Potato,
FIRST QUALITY.

ANDW. G. DALY, Newry, Ireland, offers to the Trade 2 tons of this fine ASHLEAF; 5s. per bushel, 56 lb.; or 10s. per cwt. Every care taken to have this large-producing variety pure and true.

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Do., 1-yr., extra choice, 4 to 6 do. .. .. (per 10,000)	11 12
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Do., transplanted 6 to 9 do.	1 0
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Do., first choice, 4 to 6 do.	0 17
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MAIDEN and 2-yr. APPLES,
MAIDEN and 2-yr. PEARS,
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PYRAMID and STANDARD CHERRIES.
The Stock will please every one.

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PYRAMIDAL APPLES and PEARS, full of fruit buds.
Apples, 18s. per dozen; Pears, 24s. per dozen.
DWARF-TRAINED TREES, of extra size, in a fruiting state, adapted for walls or espaliers, including Apples, Pears, Plums, Cherries, &c.
STANDARD TRAINED FRUIT TREES for walls.
PRICED CATALOGUES may be had gratis on application.

GOLDEN COLEUS, QUEEN VICTORIA.—"This is the brightest in colour of the whole series, having the centre of the leaves of a rich bronzy bright crimson, delicately shot with pale violet, with a bright yellow edge, somewhat broken with crimson veinings, so as to appear as if the borders were formed of a double row of golden beads." (See Catalogue.)

Messrs. JOHN & CHARLES LEE were the fortunate purchasers of this, the most splendid of all Coleuses, at the recent sale by Mr. Stevens of the Royal Horticultural Society's new Collection. A figure of Queen Victoria will shortly appear in the "Florist." Orders are being booked for delivery early in Spring. Price 7s. 6d. Special offer to the Trade on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

HENRY GODFREY, NURSERYMAN, Stourbridge, has to offer a large quantity of HERBACEOUS CALCEOLARIAS, raised from seed saved from a particularly fine strain; established in small pots, from 2s. 6d. to 3s. per dozen, basket and package included. When three or more dozens are taken, Post-office orders or postage stamps must accompany orders.

Choice Seeds, Gladioli, &c.

WM. CUTBUSH AND SON'S CATALOGUE of the above contains description and price of many very superior home-grown VEGETABLE and FLOWER SEEDS, and choice varieties of GLADIOLI, &c., all of which are highly recommended. Post free on application.

Highgate Nurseries, London, N.

New Catalogue.

LEWIS S. WOODTHORPE will be happy to forward, post free, on application, his CATALOGUE (which will be found very reasonably priced) of NEW and CHOICE PLANTS, beautiful SPRING FLOWERS, and GENERAL NURSERY STOCK.

A heavy discount to the Trade.

Munro Nursery, Sible Hedingham, Essex.

Genuine and First-class Seeds, Carriage Free.

WM. PAUL begs to announce that his NEW CATALOGUE of SELECT VEGETABLE and FLOWER SEEDS is just published, and will be forwarded free by post on application.

He has made enlarged arrangements, by which he believes he will be able to secure for his Customers, as usual, the best races of VEGETABLE and FLOWER SEEDS, of good germinating qualities, free from adulteration. For further particulars, see large Advertisement of last week.

Important.—All letters should be addressed WM. PAUL, Waltham Cross, London, N.

Vegetable, Agricultural, and Flower Seeds.

MISCELLANEOUS HARDY BEDDING PLANTS, SWEET VIOLETS, &c.

ROBERT PARKER begs to announce that his CATALOGUE, containing DESCRIPTIVE LISTS of the finest kinds in cultivation of the above-named, is now published, and will be forwarded to applicants. The stocks of Seeds have all been procured from the best possible sources; all are warranted genuine, and are offered at the lowest possible prices.

Intending purchasers are requested to compare the prices with those of other houses.

Exotic Nursery, Tooting, Surrey, S.W.

Cœlogyne cristata.

R. S. YATES possesses the largest stock in the world of the above most lovely of all ORCHIDS ever introduced. He is prepared to dispose of a limited number, at from Three to Twenty Guineas each, nett cash price. Some of the plants have 400 or 500 bulbs, and are well set with flower-spikes. They will bloom during all this and next month.

Sale, Cheshire; or 14, Corporation Street, Manchester.—Jan. 14.

Spring Flowers—Cheap and Good.

LEWIS S. WOODTHORPE, having a large Stock on hand, begs to offer the following:—VIOLETS, in 24 of the best varieties in cultivation; also, HEPATICAS, PRIMROSES, AURICULAS, POLYANTHUS, DAISIES, ROCKETS, HELIANTHEMUM, CLOVES, PINKS, Hardy PRIMULAS, with every other kind of Spring-blooming plant, from 2s. per dozen. Also, a fine and choice Collection of all the newest and best TRICOLOR GERANIUMS.

CATALOGUES of NEW SOFT-WOODED PLANTS, with Special Priced Lists, forwarded free upon application.

Munro Nursery, Sible Hedingham, Essex.

Seeds.

AVERSE as MR. WILLIAM BULL is to publishing Testimonials, and for the reason that all good Houses must constantly receive them in some shape or other, still, so much has recently been written and said about inferior Seeds, and Mr. W. B., knowing that Seeds of such excellence as are supplied from his Establishment can scarcely be procured elsewhere, quotes in corroboration the following extract from a letter just received from Lieut. Col. E. Boddam, Honorary Secretary of the Agri-Horticultural Society of Mysore, Bangalore:—

"We have been sorely tried with Seeds, sent us as Novelties and best kinds; I have found the sealed packets sent us, bearing your name, are out and out the best we get."

CATALOGUE of SEEDS just published, with everything priced, can be obtained by enclosing 12 stamps.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

HOOPER AND CO'S GENERAL CATALOGUE is now published.

It INCLUDES PROBABLY MORE BONA-FIDE MATTER, and a larger variety of genuine subjects, than any other published in Great Britain.

It ENUMERATES NATIVE SEEDS from various parts of the world, several from hitherto unexplored districts, and therefore not yet described in Botanical Works.

The SEEDS OFFERED are UNADULTERATED, and as cheap as those of any House which sends out good articles.

The KITCHEN GARDEN SEEDS are of the very finest quality, and sent carriage free to any part of the Kingdom.

All FLOWER SEEDS are sent free.

HOOPER & Co.'s GENERAL CATALOGUE for 1869 (referred to above) is published at 6d., and gratis to all Customers.

HOOPER & Co. have *no connection whatever* with any other Seedsman of the same name, and the ONLY PLACE where their genuine Seeds can be obtained, is at their Retail Seed Warehouse in Covent Garden Market, London, W.C.

Choice New Seeds.

CHARLES TURNER can recommend the following, having been saved by himself or under his inspection.

	Per packet.—s.	d.
BALSAM, from a prize collection	1	0
CENTAUREA CANDIDISSIMA	1	0
" GYMNOCARPA	1	0
CARNATION, from exhibition kinds	2	6
HOLLYHOCK, from exhibition kinds	1	0
" Collections of 24 named varieties..	5	0
PINK .. .. .. (from the newest and best varieties)	2	6
PICOTEE .. .. "	2	6
PELARGONIUM, SHOW "	2	6
" FANCY "	2	6
" TRICOLOR "	2	6
" VARIEGATED "	2	6
" ZONAL "	2	6
TROPÆOLUM GOLDEN KING OF TOM THUMB	1	0
GOLDEN FEATHER PYRETHRUM	2	6
VEGETABLE SEEDS.		
BROCCOLI, SNOW'S WINTER WHITE	2	6
CABBAGE, BAILEY'S SUPERB	1	0
CUCUMBER, BERKSHIRE CHALLENGE	1	6
" HEDSOR PROLIFIC	1	6
MELON, GOLDEN QUEEN	2	6
PEAS, LITTLE GEM, First Crop .. .. .. per quart	3	0
" ADVANCER, Second Crop .. .. .. per quart	2	0
" PREMIER, Third Crop .. .. .. per quart	2	0
SAVOY, NEW FRENCH	1	0

CHARLES TURNER'S NEW SEED LIST, containing all the newest and best varieties, can now be had post free on application.

The Royal Nurseries, Slough.

GENUINE SEEDS OF SUPERIOR STOCKS.

SEEDSMEN TO THE QUEEN.

FRANCIS & ARTHUR DICKSON & SONS,

THE "OLD" ESTABLISHED SEED WAREHOUSE, 106, EASTGATE STREET, CHESTER.

THE BEST EARLY PEA IN CULTIVATION,

DICKSON'S "FIRST AND BEST," price 1s. 6d. per quart.

CATALOGUE OF NEW AND SELECT VEGETABLE AND FLOWER SEEDS, POTATOS, &c., FOR 1869,

With practical Cultural Directions, will be sent Post Free on application.

Their Seeds are all of the most select character, each being saved from the best Stock known of its kind.

GARDEN SEEDS of £2 value delivered Carriage Free. FLOWER SEEDS Free by Post or Rail.

GENUINE SEEDS.

JAMES VEITCH & SONS

BEG TO ANNOUNCE THAT THEIR

ILLUSTRATED PRICED CATALOGUE OF GARDEN AND FLOWER SEEDS for 1869,

WITH LIST OF IMPLEMENTS AND OTHER GARDEN REQUISITES,

Is now published, and will be forwarded Post Free on application.

ROYAL EXOTIC NURSERY, CHELSEA, LONDON, S.W.

NEW HYBRID PASSION FLOWERS.

PASSIFLORA MUNROI, and PASSIFLORA LAWSONIANA

(Fully noticed and described in the *Gardeners' Chronicle* of December 12, 1868, p. 1288).

PETER LAWSON & SON

Intend to send out the above-named charming Climbers, *for the first time*, early next May; and are now prepared to book orders for

Plants at 21s. each, with the usual discount to the Trade.

EDINBURGH AND LONDON.—January, 1869.

TACSONIA ERIANTHA

(WOOLLY-FLOWERED TACSONIA).

A noble plant, resembling in habit and colour of flower the well-known T. mollissima, from which, however, it differs conspicuously in the white under-surface of the foliage and long bracts. As a Greenhouse or Conservatory Climber, it rivals the T. mollissima, and is as free a flowerer. (*Vide* "Curtis's Botanical Magazine" for January, Tab. 5750.)

PETER LAWSON AND SON have been fortunate in acquiring the Stock of this splendid Climber from Isaac Anderson Henry, Esq., F.L.H., and intend to send it out simultaneously with their new Passifloras.

Orders for Plants will now be booked at 21s. each. Trade allowance as usual.

EDINBURGH AND LONDON.—January, 1869.

CAREFULLY SAVED GARDEN SEEDS.

ARTHUR HENDERSON & CO.'S

CATALOGUE of choice VEGETABLE and FLOWER SEED NOVELTIES

Is now Published, and can be forwarded Post Free on application.

The VEGETABLE SEED SECTION contains—

Selected LISTS of the best varieties of each kind most worthy of cultivation, also some excellent new sorts of both VEGETABLE and FLOWER SEEDS of sterling merit; attention is also directed to the Pine-apple Compact-top BEET (the finest and richest flavoured variety extant), carefully saved, true from the original stock. Also the new DWARF WATERLOO BEET: top leaves rich metallic crimson; growth true, even, and regular. This beautiful foliaged variety may with advantage be cultivated in the flower garden as a border, ribbon, or edging plant; its root is a trifle larger than the Pine-apple Compact-top, flavour excellent, full of sweet saccharine juice, colour crimson, texture tender and uniform throughout.

The FLOWER SEED SECTION contains—

Imported GERMAN FLOWER SEEDS in Collections; Choice Strains of FLORISTS' FLOWER SEEDS; a careful LIST of FLOWER SEED NOVELTIES of the season; HORTICULTURAL REQUISITES of every kind, KNIVES, PROTECTING MATERIALS, HORTICULTURAL MANURES, &c., &c.

N.B. Everything in this CATALOGUE is Priced.

PINE APPLE PLACE, MAIDA VALE, LONDON, W.

All Seeds Carriage Free.

New Catalogues.

DOWNIE, LAIRD, AND LAING beg to intimate that their GENERAL SEED, FLORIST FLOWER, and GLADIOLUS CATALOGUES are now ready, and may be had free on application.
17, South Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E.

THOMAS METHVEN begs to announce that his CATALOGUES of GARDEN, FLOWER, and AGRICULTURAL SEEDS, &c., and FRENCH HYBRID GLADIOLI for 1869, is now ready, and may be had post free on application.
Seed Warehouses, 15, Princes Street, and Nursery Gate, Leith Walk, Edinburgh.

Superb New Plant, Gesnera Exoniensis.

NOW READY.

LUCOMBE, PINCE AND CO. beg to call attention to this magnificent new Winter-blooming Plant. For Table or other Decoration it surpasses anything ever before seen.
Plants now coming into Bloom, 15s. and 21s. each. A few fine Specimens, measuring 20 inches through, 31s. 6d. each.

VERBENAS, VERBENAS.—Fifty varieties of 1868, including 12 of the New Italian Stripes, strong healthy plants with not less than four to six cuttings on each plant, 3s. per dozen. Purple, White, Scarlet, and Pink colours, with plenty of cuttings, 3s. per dozen. Terms cash. Package included.
PHILIP LADDS, Nursery, Bexley Heath, Kent.

VIOLETS.—The CZAR.—This is the finest and hardiest Violet ever raised. It will bloom all the winter, is large, a fine blue, and very odoriferous; flowers gathered fresh every morning. Plants on Sale, now in Bloom, from 1s. to 5s. each, or 10s. per dozen.
R. S. YATES, 14, Corporation Street, Manchester.

DOBSON AND SONS' Prize and Celebrated Strain of HYBRIDISED CALCEOLARIAS may be had of the leading Seedsmen in Great Britain. Sealed packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s. each; and of
JOHN DOBSON & SONS, Woodlands Nursery, Isleworth, W.

DOBSON AND SONS' Prize and Celebrated Strain of CINERARIAS, which took Fifty First Prizes in six years, may be had of the leading Seed Merchants in England, Ireland, and Scotland. Sealed packets, 1s., 2s. 6d., and 5s.; and of
JOHN DOBSON & SONS, Woodlands Nursery, Isleworth, W.

DOBSON AND SONS' Celebrated and Prize Strain of PRIMULAS may be had of the leading Seedsmen in Great Britain and Abroad. Sealed packets, 1s., 2s. 6d., and 5s.
☞ Took First Prize, Open Class, Kensington, 1868.
Special Prize, " 1868.
JOHN DOBSON & SONS, Woodlands Nursery, Isleworth, W.

NOTICE.—LORD BURGHLEY APPLE was exhibited at the Royal Horticultural Society on December 15, 1868, and pronounced "excellent." Maiden Trees, 1s. 6d. each; Fine Fruiting Trees, 2s. 6d. and 3s. 6d. each.

VINES.—Eyes of MRS. PINCE'S BLACK MUSCAT, 2s. per dozen; Sample Eye for three stamps. Planting Canes, 5s. each. 200 Extra Strong Fruiting and Planting Canes of the leading sorts; names and prices on application.

GERANIUM MRS. POLLOCK.—Several thousand Autumn-struck plants to offer, very strong; 40s. per 100.

NAMED HOLLYHOCKS.—Several hundred choice varieties, in pots, 6s., 9s., and 12s. per dozen. Seedlings, from first-class sorts, 4s. per dozen, 30s. per 100.
J. HOUSE, Eastgate Nursery, Peterborough.

SUTTONS' HOME-GROWN SEEDS,
Carriage Free.

Seeds direct from the Growers the best means of preventing disappointment.

NEW SEEDS for the KITCHEN GARDEN, complete Collections from 12s. 6d. to £5 5s., carriage free.
NEW SEEDS for the FLOWER GARDEN, complete Collections from 5s. to £2 2s., carriage free.
SUTTONS' HOME-GROWN SEEDS, PRICED DESCRIPTIVE CATALOGUES gratis and post free.
SUTTON & SONS, Seedsmen to the Queen, Reading.

British Fern Catalogue.

ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, S.E.

HENRY GODFREY, NURSERYMAN, Stourbridge, having a large stock of FERNS and SELAGINELLAS, offers them in 12 fine varieties, at from 9s., 12s., to 18s. per dozen. These are fine healthy plants, full of fronds, grown in a cool greenhouse. Post-office orders or postage stamps must accompany all orders.

Show and Fancy Pansy.

DOWNIE, LAIRD, AND LAING have a few ounces of the above to spare, saved from their own collection of the best varieties in cultivation. Price on application.
17, South Frederick Street Edinburgh, and Stanstead Park, Forest Hill, London, S.E.

Hardy Scarlet, White, Puce, Rose,
AND OTHER CHOICE NAMED RHODODENDRONS.

W. H. ROGERS, Red Lodge Nursery, Southampton, offers a large and magnificent Collection of the above. Nice bushy plants, full of Blooming Buds, well adapted for Forcing, at 30s. per dozen; or selected, extra fine, 3s. 6d. each. A detailed CATALOGUE may be had on application, and also of one of the finest and most extensive General Nursery Stocks in the kingdom.

Choice Scarlet Rhododendrons.

JOHN WATERER begs to announce that his CATALOGUE of HARDY, SCARLET, and other RHODODENDRONS, as annually exhibited at the Royal Botanic Gardens, Regent's Park, is now published, and will be forwarded to all applicants. It contains faithful descriptions of all the popular kinds, and likewise a SELECT LIST of CONIFERS, with heights and prices.
The American Nursery, Bagshot, Surrey.

NEW SEEDS.—PETUNIA, extra choice, double; PETUNIA, extra choice, single; Large-flowered and Small-flowered, separate or mixed, each 1s. per packet.
For new ASTERS, STOCKS, PHLOX, and all other New and Choice Flower and Vegetable Seeds, see J. SCOTT'S DESCRIPTIVE CATALOGUE for 1869, free on application.
J. SCOTT, the Seed Stores, Yeovil, Somerset.

To Market Gardeners, Florists, &c.

SCARLET PERPETUAL WINTER-FLOWERING TREE CARNATIONS.—Strong Plants of this, the most favourite flower for cutting for market, &c., in 32-sized pots, 2 to 3 feet in height, 18s. per dozen, or £6 per 100; in 48-sized pots, 12s. per dozen, or £4 per 100. Delivered by the 100, carriage free, within 10 miles.
T. W. BEACH, Ealing Lane Gardens, Old Brentford, W.

The advantages of procuring Seeds direct from the Growers cannot be over-estimated.

James Carter & Co.
Seed Growers

237 and 238, HIGH HOLBORN, LONDON, W.C.

CARTER'S SEEDS FOR THE KITCHEN GARDEN,

In assorted Collections, including only the most approved varieties, to produce a plentiful supply of the best Vegetables throughout the year.

Collection No. 1. For Cottage Gardens, 12s. 6d.
Collection No. 2, 21s., contains—

BEANS, Nonpareil, 1 qt.
" Broad Windsor, 1 qt.
" best French, 1 pt.
" Scarlet Runners, 1 pt.
BEET, St. Osyth, lrg. pkt.
BORECOLE or KALE, Cottager's, lrg. pkt.
KALE, new Asparagus, lrg. pkt.
" Dwarf Scotch, lrg. pkt.
BRUSSELS SPROUTS, best, lrg. pkt.
BROCCOLI, Carter's Champion, lrg. pkt.
" Snow's Winter, lrg. pkt.
" Adam's Early White, lrg. pkt.
" Purple Sprouting, lrg. pkt.
CABBAGE, Carter's Early, lrg. pkt.
" Enfield Market, lrg. pkt.
" Dwarf Nonpareil, lrg. pkt.
" Tom Thumb, lrg. pkt.
" Savoy, best curled, lrg. pkt.
CARROT, Early Horn, 1 oz.
" James's Green-top, 1 oz.
" selected Scarlet, 1 oz.
CAULIFLOWER, Carter's Dwf. Mammoth, lrg. pkt.
CELERY, Incomparable Dwarf White, lrg. pkt.
" Manchester Giant Red, lrg. pkt.
CRESS, plain, 4 oz.
" Australian, 1 oz.
CUCUMBER, Carter's Champion, pkt.
ENDIVE, French curled, lrg. pkt.
LEEK, Ayton Castle, lrg. pkt.
LETTUCE, Carter's Giant White, lrg. pkt.
" Drumhead, lrg. pkt.
" Victoria, lrg. pkt.
MUSTARD, White, 4 oz.
MELON, Carter's Excelsior, pkt.
ONION, Giant Madeira, lrg. pkt.
" Reading, lrg. pkt.
PARSLEY, Dunnett's Garnishing, lrg. pkt.
PARSNIP, Student, 1 oz.
PEAS, Carter's Early, 1 qt.
" Premier, new, 1 pt.
" Bishop's Long-pod, 1 pt.
" Prizetaker, 1 pt.
" Carter's Surprise, 1 pt.
" Champion of England, 1 qt.
" Carters' Victoria, 1 pt.
" Veitch's Perfection, 1 pt.
RADISH, Wood's Frame, 2 oz.
" Early Scarlet Short-top, 2oz.
" mixed Turnip, 2 oz.
SPINACH, Summer, ½ pt.
" Winter, ½ pt.
TURNIP, Early Six-week, 1 oz.
" Yellow Malta, 1 oz.
TOMATO, pkt. [pkt.
VEGETABLE CREAM, Moore's, POT HERBS, 4 pkts.

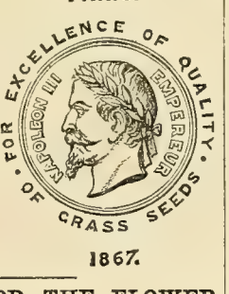
Collection No. 3. For Medium Gardens .. 42s.
Collection No. 4. For Large Gardens .. 63s.

No charge for packing.

PRIZE MEDALLISTS:

LONDON. PARIS.





1862. 1867.

CARTER'S SEEDS FOR THE FLOWER GARDEN,

Consisting of the Choicest Varieties to produce the most effective display.

Collection A, 10s. 6d.; Post Free, 11s.
" B, 15s.; Post Free, 15s. 6d.
Collection C, 21s.; Post Free, 21s. 6d., contains—

12 choicest varieties of FRENCH ASTER, colours separate.
16 choicest varieties of GERMAN STOCK, colours separate.
10 choicest varieties of Dwarf Stock-flowered LARKSPUR, colours separate.
6 packets of choicest EVERLASTING FLOWERS and ORNAMENTAL GRASSES for Winter Bouquets.
6 packets of showy New ANNUALS for bedding.
12 packets of showy Hardy Dwarf ANNUALS, including Tom Thumb Nasturtium, Saponaria, Blue Nemophila, &c., &c.
15 packets of showy Tender ANNUALS (to be sown in frames, and then transplanted or sown in the open borders at the end of April, for summer and autumn blooming, including choice Phlox Drummondi, Balsam, Celosia, the new Amaranthus ruber, Perilla nankinensis, Zinnia, &c., &c.
6 packets of Hardy PERENNIALS for autumn and spring blooming, including Hollyhock, Wallflower, Gaillardia, Alyssum saxatile, &c.

Collection D, 42s.; Post Free, 42s. 6d.
" E, 63s.; Post Free, 64s.

Testimonial from Mrs. ROBINSON, *Armagh.*

"I am well satisfied with the Flower Seeds I had from your house."

CARTER'S
SEEDS FOR THE FARM.

See page 87, of this days *Gardeners' Chronicle.*

CARTER'S PRIZE MEDAL LAWN GRASS will produce a Permanent Turf of finest quality.
1s. per lb.; 20s. per bushel.

CARTER'S FERTILIZER, the best Manure for the Garden.
In Tins, 1s. 9d. and 4s. 6d. each.
In Bags, 15s. and 25s. each.

See CARTER'S "Gardener's and Farmer's Vade Mecum for 1869" (Illustrated), 34th year of publication. Post Free for 12 Stamps; Gratis to Customers.

JAMES CARTER AND CO., SEED GROWERS,
237 and 238, High Holborn, London, W.C.

SUTTONS' £3 3s. COLLECTION of VEGETABLE SEEDS, carriage free. For Contents, see page 100 of this week's *Gardeners' Chronicle.*

SUTTONS' £2 2s. COLLECTION of VEGETABLE SEEDS, carriage free. For Contents, see page 100 of this week's *Gardeners' Chronicle.*

SUTTONS' £1 11s. 6d. COLLECTION of VEGETABLE SEEDS, carriage free. For Contents, see page 100 of this week's *Gardeners' Chronicle.*

SUTTONS' £1 1s. COLLECTION of VEGETABLE SEEDS, carriage free. For Contents, see page 100 of this week's *Gardeners' Chronicle.*

SUTTONS' 15s. COLLECTION of VEGETABLE SEEDS, carriage free. For Contents, see page 100 of this week's *Gardeners' Chronicle.*

SUTTONS' 10s. 6d. COLLECTION of VEGETABLE SEEDS. For Contents, see page 100 of this week's *Gardeners' Chronicle.*

July 19th to 24th, 1869.

THE ROYAL HORTICULTURAL SOCIETY'S GRAND EXHIBITION at MANCHESTER,
in connection with the
SHOW of the ROYAL AGRICULTURAL SOCIETY.
Amongst various Special Prizes,
A SILVER CUP (copy of the famous Cellini Cup), **VALUE £21**
will be offered by the Proprietors of the GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE for the best COLLECTION of 5 FRUITS and 8 VEGETABLES, to be made up as follows:—

	Good.	Medium.	Inferior.
Grapes	6 marks	3 marks	1 mark
Melons (2 fruits)	6 "	3 "	1 "
Strawberries	3 "	2 "	1 "
Gooseberries	3 "	2 "	1 "
Currants	3 "	2 "	1 "
Cherries	3 "	2 "	1 "
Raspberries	3 "	2 "	1 "
Apples of 1868	6 "	3 "	1 "
(Any 5 of the above 8 subjects).			
Peas	3 "	2 "	1 "
French Beans	3 "	2 "	1 "
Broad Beans	3 "	2 "	1 "
Cauliflowers	3 "	2 "	1 "
Cucumbers (brace)	3 "	2 "	1 "
Summer Cabbages	3 "	2 "	1 "
Early Carrots	3 "	2 "	1 "
Turnips	3 "	2 "	1 "
Globe Artichokes	3 "	2 "	1 "
Onions	3 "	2 "	1 "
Spinach	3 "	2 "	1 "
Rhubarb	3 "	2 "	1 "
Potatos	3 "	2 "	1 "
Mixed Salading	3 "	2 "	1 "
(Any 8 of the above 14 subjects).			

This Prize is open for Competition amongst Amateurs and Gardeners of private families. The Fruit and Vegetables produced must be of *the Exhibitor's own growing;* and any article otherwise obtained will disqualify the Collection. It is expected that the several articles will be neatly and effectively displayed.
In awarding the Prize, Marks will be adjudged according to the above scale, for the several subjects produced.

The Gardeners' Chronicle.

SATURDAY, JANUARY 23, 1869.

MEETING FOR THE ENSUING WEEK.
MONDAY, Jan. 25—Entomological (Anniversary) .. .. 7 P.M.

THE second "interim Report" on the ADULTERATION OF SEEDS issued by the Sub-Committee of the Royal Horticultural Society, and published in our columns at p. 27, after dealing generally with the question of the vitality of seeds in its relation to their adulteration, goes on to exhibit in a more elaborated form the alleged evil practices its aim is to expose; it shows the injurious influences incident thereto, and closes with some practical suggestions in the way of doing away with these malpractices, and thus obviating their unjust consequences.

The Sub-Committee appear to be fully justified in asserting that in "so far as they have heard, no exception has been taken by any one to the statements in their former Report. They understand they are admitted to be a fair and moderate statement of facts, so far as they go." Anything approaching hostile criticism of the Report, has not been directed either to a denial, or to a justification of the practices alleged, and admitted to prevail in the seed trade; the tendency has rather been to evade the main question by eulogising the high character of the dealers in general. The seed trade has had ample time and opportunity to rebut (if possible) the charge made against it in the Report, but it has not done so, though at the same time its silence should not be arbitrarily construed into an admission of guilt. Certain it is, however, that those of its members who have taken a part in the discussion clearly admit the prevalence of culpable practices. Still it must not be forgotten that there are, according to the Report, a few houses who do not adulterate their seeds, "and which are struggling (almost) single-handed against the overwhelming preponderance of those who do."

Before proceeding to criticise the details of the second Report, it would seem to be necessary to caution the Sub-Committee not to hazard statements except they are fully convinced they are in the main correct. It is not too much to assert that from the very constitution of the Sub-Committee its members cannot have had any very great personal knowledge of the subject

towards which their inquiries have been directed. The first Report may be said to have represented an aggregation of facts that had come under their notice, coupled with some information they had been able to obtain by "making inquiries of those who have the means of knowledge," and on whose statements they could rely. The second Report deals largely with such kind of information, and there are in it two or three statements, the correctness of which is open to doubt.

In inquiries of this nature it most frequently happens that information is readily volunteered, and sometimes by those whose testimony is not the most reliable. In certain quarters statements have been made relative to the alleged practices of the seed trade, so absurdly sweeping and so recklessly hazarded, as to carry with them their own refutation. The Sub-Committee would necessarily have some difficulty in ascertaining what was true, and what only founded on conjecture, and would be open to be misled. It is to two or three points partaking of this character that we would now direct attention.

In the first place, it must not be assumed that in every case the grower of the seeds supplied to the trade is "at pains to clean his seed, and bring it to a high average of good seed, only to have the dealer put himself to equal pains to undo his work and reduce it again." This general estimate of the grower would doubtless be as wide of the mark as would be an assertion to the effect that the whole of the wholesale seed houses in London are guiltless of the practices charged against them by the Sub-Committee. Seeds of home growth are mainly obtained from two classes of growers, the one representing those independent of the trade, who fix their own prices according to the market value or the quantity or quality of the stock of the articles they vend. Of these, it may fairly be assumed that the majority are at pains to clean their seed, and bring it to a high average of quality, though there are less honourable exceptions. The large majority of the growers, however, are subject to contracts from the wholesale houses, and are paid so much per acre, or per quarter, or per pound, as the case may be. It will be readily seen that to such, quantity is an object of the first importance; though there are not wanting instances when, in case of a bad season, an advanced price has been paid by the trade beyond that fixed by the contract. However, it often happens that such supplies produce indifferently cleaned samples, and this is quite as often the rule as the exception. Seed of indifferent quality has been known to be placed with seed of better quality to increase the bulk; and it has happened (as a fact of experience in the case of Onion seed), that seed of indifferent growth has been placed in a layer between samples of seed of good growth at the bottom and top of a sack. The object of this *ruse* on the part of the grower will be readily seen when it is understood that the seeds reach London in the growers' sacks, that the contents are then "shot" into the dealers' sacks, and so, if a sample be taken from the top of either sack, good seed will be certain to be obtained. It is the custom of the dealer to take a sample from every bulk of seed received from the grower, and to test the growth of the same in the proof-room attached to the place of business, and generally fitted up with hot-water apparatus for the purpose. Such a case of stratagem is no doubt exceptional, but in a discussion of this character it is imperative that full justice be meted out to all parties.

The statement also made in the report relative to the mixing of the product of two or three or more successive years' growth of seeds by the trader, and one or two collateral statements related to it, must be accepted in a modified form. It is true that a wholesale seedsman not only will, but must endeavour to hold over from each year till the next season as much as he can of the quantity usually required for a season's consumption, in the case of a scarcity arising from frost, blight, drought, or any other injurious agency. In the matter of Peas, Beans, &c., the samples of which become much discoloured, and therefore depreciated by keeping, the current season's supply is depended on. If that fails, then scarcity prevails (too often combined with indifferent quality), and naturally enough advanced prices rule. The mixing of the several products of successive years (if done at all) is never heedlessly done by a seedsman who has a regard for his reputation as such. With him the quality of his stock overrides all other considerations, and as the product of each year's growth is carefully tested in his trial ground, any strain of inferior quality is withheld, perhaps, if all the allegations of the Report can be sustained, to be converted into dead seed. "The easy descent to a constant lowering of the average," we believe to be not so prevalent as is assumed by the Report, as the seedsman makes every effort to obtain a certain average of growth; and when from causes over which he has no control, or from a scarcity or otherwise, the growth falls below this average, it is a practice, of the best houses at least, to state as much to their customers.

We shall take an early opportunity of considering some other statements in the Report.

—— We are enabled to announce that the ANNUAL GENERAL MEETING of the Royal Horticultural Society will be held on Tuesday the 9th February, at 3 o'clock precisely, and the chair will be taken by the President, or one of the Council of the Society. The Council, in accordance with the Charter and By-laws, recommend for removal the three following members:—Lord HENRY GORDON LENNOX, M.P., Mr. B. T. BRANDRETH GIBBS, and Mr. SIGISMUND RUCKER; and they recommend for election in their places the following Fellows, viz.:—H. S. H. the Prince TECK, Lord LONDESBOROUGH, and the Rev. JOSHUA DIX. The Council recommend the following as officers for the ensuing year, viz.:—His Grace the Duke of BUCCLEUCH, K.G., President; Mr. JOHN CLUTTON, Treasurer; Lieut.-Colonel SCOTT, R.E., Secretary; Mr. JAMES NICHOLSON, Mr. JOHN GIBSON, and Mr. ROBERT HUDSON, F.R.S., Auditors; Mr. HENRY COLE, C.B., Mr. JOHN CLUTTON, and Lieut.-Colonel SCOTT, R.E., Expenses Committeemen.

—— The anniversary dinner of the HORTICULTURAL CLUB took place on Tuesday evening last, at Radley's Hotel, under the presidency of the Rev. S. REYNOLDS HOLE. A large number of members were present, and the evening passed off very satisfactorily.

—— At the Annual Meeting of the GARDENERS' ROYAL BENEVOLENT INSTITUTION, held on Jan. 13, it was reported that the Committee had not only been enabled to add to their pension list, but to increase the funded stock of the Society, which now yields an annual income of upwards of 220*l*. There are at present on the pension list 28 men, at 16*l*. per annum, and 28 women, at 12*l*. per annum. The officers of the Society, except those members of the Committee who retire by rotation, were re-elected—Mr. CUTLER, the Secretary, being re-elected for the 27th time. We should be glad to see a longer list of annual subscriptions.

—— We have just received two very curious cases of VEGETABLE PATHOLOGY, one of which is entirely new to us. The first is a strange growth on the stem of a seedling Geranium which has not yet flowered, consisting of a large bundle of root-like fibres some inches in length, coming out at about 2 inches from the base; and falling down over the sides of the pot. At first sight it looks exactly like the bundles of rootlets which so often choke up drain tubes, and to which we should certainly have referred them had we received the specimen without any information as to its origin. The fibres, which are straight and apparently unbranched, consist of a quantity of elongated cells with a fascicle of scalariform vessels, such as we should expect to find in such adventitious rootlets. The case is, however, very singular and worthy of record. The other case is closely related to, if not identical with, one which we described some years ago as occurring on the roots of certain Melon plants. In the present instance it is those of a Cucumber which are diseased, the variety being that known under the name of the Telegraph, which is so valuable for winter cultivation. Our informant writes as follows:—"I have grown it entirely from cuttings for three years, and it may have been propagated in this manner much longer, for I had only a cutting to begin with. The soil, a rather sandy loam (taken from the park, about 6 inches thick, and stacked up for 18 months), mixed with a little turfy peat to keep it open. The bottom-heat has been kept steady at 80°. The house at night from 60° to 65°, day heat from 70° to 80°, according to the amount of light. The plants have carried the finest crop of winter Cucumbers I have ever seen. I cut a perfectly shaped fruit last week 21½ inches long. I have uncovered the roots of some of the other plants, and they have a warty appearance, as if they were attacked with the same disease as the piece I have sent you." The piece in question is 3 inches long, and swollen here and there into large globose or lobed knobs about half an inch in diameter, and having very much the appearance of a number of pale, smooth-skinned Truffles. On dissection this similarity is still more striking, as the substance, like that of a Truffle, is veined with alternate watery and pale patches, which might at first be taken for true fructification. On examination under the microscope a slice consists of ordinary hexagonal cellular tissue, intermixed more or less with short reticulated cells, which vie in beauty with those in the aërial roots of Orchids. A few contain real spiral threads, which are so loose that they sometimes project from the edges, and look like threads of mycelium. Imbedded in the tissue are a number of cysts which at present contain merely a few oily globules, but which, we doubt not, as the weather becomes warmer, would be filled with vibrios, like the diseased Melon roots mentioned above. We have not been able to detect any at present, but the structure is so exactly the same, that we do not doubt that the two things belong to the same category; and we should therefore recommend that when the crop is over, the soil should on no account be used again for the same purpose. We should be glad to have specimens again later in the season, that we may confirm or refute the diagnosis. *M. J. B.*

—— We are informed that the trees now being planted, under Mr. MCKENZIE's superintendence, on the THAMES EMBANKMENT, are of the so-called Western Plane, and exactly of the same variety as those grown in the streets of Paris. The trees have all been grown on the Continent, and are planted at distances of 40 feet apart, with smaller trees intervening. It was at one time, we believe, intended by Mr. MCKENZIE to plant Planes and Black Italian Poplars alternately, but the difficulty in getting trees of a uniform size prevented this intention from being carried out. The intermediate trees will be very useful when they are no longer requisite on the line, whereas Poplars would have been useless. The permanent trees are planted in pits 9 feet square and 6 feet deep, filled with 1 foot 6 inches of brick rubbish, the remainder, in equal proportions, of good garden soil—soil from the pit when suitable, and turfy loam from Barking Creek. Thus at length does our much-abused metropolis bid fair to have a promenade which other capitals will find it hard to rival.

—— A correspondent sends us from Heybridge, Essex, an "EXTRAORDINARY GOOSEBERRY." As this is not exactly the season for such productions, albeit Parliament is not sitting, and as, moreover, we have the evidence of our senses in support of the statement, we do not hesitate to publish it. The branch sent by our correspondent is almost in full leaf, and bears well-formed fruit, though of course not quite of the dimensions usually pertaining to extraordinary Gooseberries. Our correspondent states that he has Senateur Vaisse Rose in bloom, together with Narcissus, and other flowers. From Deal, Kent, we hear of Roses, Fuchsias, Mignonette, Canterbury Bells, &c. We ourselves could, a day or two since, produce a bud of Souvenir de la Malmaison Rose, grown in the vicinity of London.

—— The discussion that has been carried on in our columns, the statements that appear in to-day's issue, and still more the specimens exhibited at the last meeting of the Scientific Committee, go to show beyond a doubt that very great confusion exists as to APPLE STOCKS. That fruit-growers and stock-raisers, who have been all their lives engaged in their respective pursuits, should still differ in opinion as to what is the true French Paradise stock, seems astounding. It appears, however, certain that the Pommier de Paradis of Messrs. SCOTT and MESTON, and which has had so large a share of Mr. ROBINSON's attention, is not what Messrs. RIVERS and other pomologists consider to be the French Paradise, and yet the opinions of the former gentlemen are supported by the authority of the French growers themselves. It is clear that all the discussion in the world will not settle the points in dispute, till the premises are laid down with more certainty. The whole question is one of great importance, practically and scientifically: and hence we rejoice that the specimens exhibited are to be grown at Chiswick. We shall, at a future time, revert to this subject.

—— In another column will be found mention of the plants of PHALÆNOPSIS SCHILLERIANA, exhibited by Baron ROTHSCHILD and Messrs. CARTER, at the last meeting of the Floral Committee, together with Mr. BATEMAN's comments thereon. We have since learnt that at Viewfield House, Arbroath, N.B., there is a plant of this species with six leaves and two flower panicles, bearing between them 112 flowers. At Manley Hall, near Manchester, there is a plant of this species with two panicles, one 49 inches long bearing 67 flowers, while the other has 41 flowers, in all 108. Another plant in the same establishment has a spike 28 inches long, with 70 flowers on it. A plant of Phalænopsis Lüddemanniana, also at Manley Hall, has "2 breaks with 10 leaves and 3 spikes, one of which measures upwards of 40 inches." The flowers are not yet expanded.

—— In the list of the candidates that obtained honours at the last Examination of the Royal Horticultural Society, given at p. 50, the name W. J. STONE appears in error. It should have been WALTER JOHNSTONE, Eridge Castle Garden.

New Plants.

DENDROBIUM WILLIAMSONI; *Day and Rchb. f.*

(Nigro-hirsuta) pseudobulbis junioribus fusiformibus, erectis polyphyllis; foliis vaginisque fusco piloso velutinis, foliis oblongo-ligulatis apice inæqualiter bilobis, nunc contortis; perigonio oboraceo; sepalis triangulo acuminatis supra nervum medium carinatis, lateralibus in cornu extinctoriiforme ovarium pedicellatum non æquanti extensis; petalis subæqualibus ecarinatis, labello flabellato antice trifido, laciniis lateralibus obtusangulis antice minutissime denticulatis, lacinia antica oblonga subacuta, crispulo undulata, disco medio a basi in discum lacinie anticæ elevato incrassato utrinque carinato, venis laciniæ anticæ ac partis laciniarum lateralium totis erectis barbellatis, fasciculo pilorum brevi utrinque in ima labelli basi; anthera basi antica pilosula, androclinio eroso, pede columnæ non excavato.

Sepalum impar extus ochraceum. Sepala lateralia latere superiori interno extus candida, eotorum extus ochracea. Omnia intus candida. Labellum pallide ochraceum, macula magna triloba retrorsum bicruri cinnabarina in disco antico.

A very pretty new Dendrobium, with certainly a good deal of orchidaceous charm in the strong texture of the tissues of its fusiform, upright, velvety pseudobulbs, with firm velvety leaves; while its eboraceous flowers, much like those of Dendrobium Draconis, Rchb. fil. (D. eburneum, Rchb. fil., ex Bat., nec ex Rchb. fil.), with some light Bismarck brown hue contrasting with the ivory-white colour of actual peace, and bearing on the lip a grand three-lobed, blood-red spot, reminding one of the past war, are so exquisite as to render the plant a highly interesting one.

It is one of the numerous fine species sent from Assam by W. J. Williamson, Esq., Mr. Day's nephew. Among the novelties which appeared, this Dendrobium proved the most interesting of all, and it was therefore but justice to name it Dendrobium Williamsoni, in acknowledgment of the most useful services rendered, both to horticulture and to science, by the gentleman just-named. *H. G. Reeb. fil.*

APPLE STOCKS.

PYRUS MALUS PRÆCOX, *alias* P. M. paradisiaca, or the Pommier de Paradis of the French, and the Paradise stock of English cultivators, for our little hardy friend bears all these names. As regards the native country of this tree, I think it has had its origin in the Caucasian range of mountains, on which it is found at considerable elevations, and mostly in damp or wet places, where it gets a continual supply of moisture from the snows melting above it. That it has, at the present day, a very wide geographical range, I think there cannot be any doubt. It is just one of those plants that can travel, every inch of branch and root being easily transformed into a tree from the very great facility of its rooting; and I think that it has been called the Dutch Creeper because it throws up such quantities of suckers, and thus creeps along—"*Se trainer par les racines*," as the French say, and which means to crawl or creep. No doubt a pretty little flowering tree like the Pommier attracted the attention of mankind at an early date, and that it was carried far and wide by the many nomadic tribes of the East, for it has found its way south into Syria and north into Siberia, the latter country being the most congenial to its nature. From Syria, Persia, and Armenia, it was carried by both the Greeks and Romans into their respective countries; for we find that Sextus Papinius carried two sorts of Apple trees to Rome, in the time of Augustus Cæsar, one of which is supposed to have been the Pommier de Paradis. It was introduced into this country about the year 1500 by Maschal, who planted it at Plumstead, in Sussex. And it is curious to note that our Golden Pippin had its origin at Porham Park, very near to the above place, no doubt from seed of the Pommier de Paradis, which it resembles in shape, size, and flavour, also in manner of growth and colour of the wood; and Jean de la Quintinye, speaking of the Golden Pippin, says "it has altogether the character of the Paradise, or some other wild Apple."

Gerard, in his "History of Plants," mentions "a dwarf kind of sweet Apple, called the Paradise Apple, which bears the Apples very timely without grafting." Can there be much doubt but that this was our little friend, so easy to propagate, and hence easy to carry over the world? I have, I think, traced the Pommier de Paradis to London, but before going further into its merits, I shall give an extract from M. Karl Koch, who lived and travelled in the Caucasus for several years. He says:—"Apples have had their origin from trees which grow in the more northern regions of Asia—in Mongolia, Tartary, and, perhaps, also in the eastern parts of the Caucasus. Of these, one is a shrub (no doubt our Pommier); the other two are trees." Marschall in his herbarium—collected in the Caucasus—has, as well as I can recollect, a specimen of the Malus præcox, which I could not determine as different from the Pommier de Paradis; and I have also seen specimens of a round-leaved Pear, said to grow in Armenia, which may have been mistaken for an Apple, although I do not doubt but that the Pommier de Paradis may now be found wild in Armenia, and may possibly be the same as that mentioned by a writer in the Transactions of the Horticultural Society of London as the "Dwarf Apple of Armenia." Its being found in the latter country does not prove that it had its origin there, or that it is a tender plant, as there are in Armenia mountains of great altitude on which the Pommier would flourish as well as in the Caucasus, or any more northern range. That it flourishes in the plains of Armenia I think I can deny. Cold and moisture are necessary for its perfect development; and this brings me to its cultivation in this country as a stock for grafting other kinds of Apple upon.

When living in Paris I have seen thousands of trees worked upon it as a stock; every market day on the Marché aux Fleurs, or at least adjoining to it, might be seen cartloads of Apple trees all worked upon this stock. At the present day are there not, I may say, millions of it worked, and sent to all parts of the world? and I had never heard any one complain that the stock was tender, or that the trees refused to grow upon it, until a cry was got up a year or two ago by two persons who had bought several thousands of the stock in question, and with whom it died; they both declared it tender, and were backed by the Editors of one of your contemporaries. I then stated my opinion freely on the subject, and got somewhat hauled over the coals for my temerity. I have not altered my opinion yet, and I do not think that any of the writers I have alluded to, or all of them again combined, can prove the stock called Pommier de Paradis tender. I then showed, as I intend to do now, that they were all mistaken, for I do not think a more hardy tree exists than what I know as the Pommier de Paradis. In 1860 and again in 1866, when hundreds of trees and stocks were killed, there was not a twig of this little hardy tree hurt; and I will stake my reputation as a nurseryman and pomologist against it being possible to injure the said tree by frost at zero. I have seen it under colder conditions, and yet not injured in the least.

In 1867, May 23 was a memorable day for nurserymen, as most of us lost largely by it, for a frost such as that was, is far more destructive to trees, than a thermometer at 0° when vegetation is asleep; a few degrees of spring frost, especially so late as May paralyses trees to a ruinous extent, and hundreds that pass unscathed through the winter fall easily before the frosts of spring, when the vessels are filled with sap. In one of my nursery quarters I had several thousands of each of the three following stocks—viz., Crabs, English Paradise, and the Pommier de Paradis; adjoining to these were quarters of Beech and Oak: all were rendered nearly useless by the May frost, save and except the little stock that, according to the statements of others, was killed by the thousand in a common winter. Now this said stock was in a position the worst possible to resist frost. It was placed at the bottom of the quarter, close to a river, in very damp ground, where I grow my Willow beds, and subject to be covered every evening with the heavy dew, yet it passed through the ordeal unhurt. And I have sent you some English Paradise, some Crabs, and some Pommier de Paradis stocks, taken out of the same rows as those mentioned above; you will see which has suffered, and which not. They all grew within 6 yards of each other, and exactly under the same conditions, as regards soil, situation, moisture, &c., and within 20 yards of the river that runs past them, the Pommier being the nearest to it. The Beech and the Oaks were nearly killed.

I also send you a few trees worked on the Pommier, and you will see, that although they were transplanted last April, and had to encounter a decided dry season, yet they pushed considerable shoots, as much so as most trees that were not removed or worked upon another stock. [The specimens alluded to, bear out our correspondent's statements; they were exhibited at the Scientific Committee (see p. 83). EDS.]

I shall conclude my defence of a very useful tree by saying that when I was attacked on the subject, I wrote to M. Decaisne, asking him whether he considered the said stock hardy; his answer was: "*Certainement il ne gèle pas*," and to which I say, Amen! but will add, that although it will not freeze it will burn; dry and light soils are fatal to its well-being, damp, strong soils are its favourite places; and, like the Pear upon the Quince, those who wish to have either do well must plant them in damp soils, which alone are adapted to their natures. Nevertheless, there are some sorts of Apples and Pears that will succeed upon dry places, even on the Pommier de Paradis and the Quince. It may not be out of place to say that the French nurserymen consider the Doucin stock a variety of the Pommier de Paradis with larger leaves, smooth shoots, and a more robust nature. It is generally considered to have come from seed of the Pommier. All other sorts of stocks called Paradise are, I think, misnomers. The Burr Knot and Stibbert are not easily propagated from cuttings, but require to be layered from stools, and the Doucin also. The Pommier, of all other Apples, is the easiest to make strike root. I have tried hundreds of Apples and Pears as cuttings, but must say that I have not been successful except with a few, and I consider their rooting a rare exception to the rule.

It therefore is not often that Apples grafted upon the Pommier will root above the junction, even when buried an inch or two below the surface of the ground—I never find mine do so; neither do Pears grafted on Quinces, at least rarely: and these I also cover an inch or two over the junction, as in the case of the Pommier, to hide the swelling that takes place at the junction of graft and stock. This same swelling takes place in the Pear grafted upon the Quince, and I cover for this cause, and also because, the Quince stock being tender, the covering saves it from the frost. The rooting from the graft above the stock is a rare occurrence, and hardly worth taking notice of. I once challenged certain parties to send me a Pear-tree that had rooted above the graft; no one has as yet done so, and, out of the tens of thousands which I grow, I have failed to find one that has so rooted, yet I do not deny the possibility, but merely say it is a rare occurrence, and that I have not seen it, although I have wandered through the world as much as most men "in search of that knowledge." I shall still be glad to repeat the challenge that I formerly made, *i. e.*, to pay 1*l.* to the Gardeners' Benevolent Institution if any one will send me a Pear tree rooted above the graft. *John Scott, Merriott, Taunton.*

GREEN'S PATENT HOT-WATER BOILER.

AMONG the many new forms of boiler, that invented by Messrs. Green, of Leeds, seems to me to be one of the most promising. The Messrs. Green & Sons (whose names are household words in connection with the mowing machine), after successfully producing a powerful boiler for generating steam, which is easily placed in position, and supplies the amount of power required at the lowest possible cost in fuel, labour, &c., conceived the idea that the same principle would hold good with boilers adapted to the purposes of horticulture, or for heating buildings of any description. They accordingly had some made on the same principle, and one of them was sent for trial to the Royal Horticultural Society's Gardens, South Kensington. I am so thoroughly convinced of its merits, that I have ordered one, to take the place of a large new boiler, which has only been at work four months, and which cost over 50*l.*, including fittings.

The following are some of the advantages which this new boiler possesses:—1. It requires no brick-work in setting, which is a very important consideration, for should there be any necessity at any time to repair the boiler much labour is avoided, as well as the inconvenience of having heaps of bricks and rubbish laying about in all directions; there is also a saving in bricks and labour in the first instance. 2. There is no necessity for a large chimney stack; a stout sheet-iron chimney answers all purposes. 3. It is complete in itself, having perfect means of regulation. 4. It takes up little room, and can be fixed in places inaccessible to other boilers. 5. It consumes its smoke, and is economical in respect to fuel—which last is a very great advantage, the expense of fuel, in many parts of the country, proving a hindrance to those who would like to gratify their taste for horticulture. 6. In case of an accident one boiler can be taken away, and another put in its place in two hours, and during this short time little or no harm could happen to the most tender plants, even during frosty weather.

Mr. Green has thus, I believe, conferred a great boon on amateurs, and those whose means are limited, by producing a boiler which will heat a large or small space with a very small quantity of fuel; and when once the pipes are warm—which, according to Mr. Eyles' experience, will be in the course of half an hour after the fire has been lighted—very little attention is required afterwards to keep all right.

The boiler at Kensington is 4 ft. 8 in. high, and 2 ft. 4 in. in diameter, and has upwards of 1000 ft. of 4 in. pipe attached to it. The amount of coke consumed in 12 weeks since Oct. 15 is 6 chaldrons, which, at 11*s.* 6*d.* per chaldron, amounts to 3*l.* 9*s.* 6*d.*; and as it has been found necessary to keep one of the furnace doors almost continually open, to check its action, it is quite fair to assume that the boiler would do more than double the work it has to do if required. Mr. Eyles reports that he cannot tell what its capabilities really are, as all he has had to do has been to check it, in order to keep the heat sufficiently low. The boiler is made of the best wrought iron, which will bear a pressure of 40 lb. to the square inch, and the tubes, which are placed cross-ways inside the boiler, and immediately over the fire, are connected with the inner plates. There is but a small space left for water between the two iron plates which form the boiler, and as the action of the fire takes immediate effect on the inner surface and tubes, the water it contains must circulate very rapidly. Besides the Horticultural Gardens, this boiler may be seen here, both at work and otherwise. *J. Wills, F.R.H.S., Ashburnham Park Nursery, Chelsea.*

PINE-APPLE CULTURE.

CUTTING DOWN.

I HAVE latterly observed some correspondence in the *Gardeners' Chronicle* respecting the so-called "cutting down" or "cutting over" system of inducing the fruiting of Pine plants. The first notice of this practice was, I think, by Mr. Thomson, then of Archerfield, and subsequently Mr. Simpson and Mr. Miller state that they have adopted the system to their own satisfaction. So far as I can understand, your correspondents imagine this to be a new system and one worthy to be followed, the question being who shall carry the bell. I leave others to decide who may be entitled to that honour.

It would appear, from the explanation your correspondents give of this system, that their practice is not yet quite up to the mark as to fruiting Pines to a certainty with, according to the season of the year, from 10 to 16 months' growth; but that they have old long-shanked plants standing over, requiring, if kept for another season, to be taken down a peg or "cut over," as the system is now called. I had considered all this to have been long ago cast aside, for it has been long known to Pine cultivators that an old plant will never produce a fruit at all equal in property to a robust healthy young plant of a few months' vigorous growth. That a season is lost is evident by their own admission, for the old plant that should have fruited this year has to be chopped off, repotted, and put in place of a young, vigorous plant, to fruit the ensuing year.

I will endeavour, for the information of your readers, and as an old Pine-apple cultivator of above 50 years' standing, to relate some facts in illustration of the subject, leaving them to draw their own conclusions. Fifty years ago Pine-cultivators were few and far between, and very different were the conditions we had to contend with, compared with what we have had for the last 30 or 40 years. Then we had poor, crowded, lean-to houses, or pits, in which to cultivate this noble fruit; they were heated by the trumpery old flue, very often badly constructed, the rafters being almost as large as the beams of a barn, and glazed with dirty grey or green glass, and lapped with lead. Add to this, that fuel was scarce and of the worst quality, while there was no means of conveying it to any considerable distance, even if it was allowed, which in many cases it was not—for, owing to the lack of wealth, and the niggardly feelings of some employers, any rubbish was considered good enough for the poor gardener to consume as fuel. I myself have had for years to tend hot-house flues with nothing to burn but peat turf and refuse wood, which used to choke up the flues with soot in a few days, so that if not attended to by opening and cleaning they would catch fire, and get red hot, and burn, and roast up everything in the house. The first luxury that I fell in with was on going to London; there we had small refuse coal allowed, to mix with clay, this was made into balls, and a dirty, smothering job it proved to be to keep stoking these fires night and day, but still it was a luxury compared with the dust, &c., of peat burning. Then, I assure you it was a difficult matter to maintain a kindly, moderate, sweet heat; and it is true that Pine plants were kept three or four years—not, indeed, growing, but standing nearly like statues, through stagnation of one sort or the other. In those days they were considered annual-rooted plants, which they certainly were, owing to the treatment they received; and being generally infested with some kind of vermin, their under leaves died away, or were pulled off, till, there is no doubt about it, there was a naked stem, which was chopped off, as we then called it, and the plant repotted. The months of March and August were then the only two months in the year in which it was considered right to meddle with, disroot, chop back, or repot Pines. Water was

applied very sparingly, and not warm, as there was then no means of warming it; and as to syringing, such a thing was not thought of. It was thought that they did not require water above once in six months; and in case of a drop falling into the axils of their leaves, or a drip from the old ramshackled structure (which was pretty sure to be plentiful in driving rains), a squirt with a long beak was kept handy, and in constant use, to suck out the little water that had got to the base of the leaves. Thus, through age, and from the plants being drawn up in close fusty structures, it was in those days a system, and often a necessity, to chop off many of the plants at the earth's surface, and repot them.

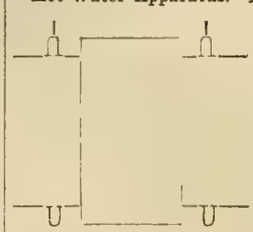
The last time that I chopped off a lot of Pine-apple plants was in the month of July, 1824. I was at that time in full sway, and in my glory, with one of our then noted London market gardeners and growers of forced fruit, more particularly Pine-apples. A gentleman who grew Pines at Stoke Newington in the north of London, then a village, advertised his stock of Pines for sale; they were all Queens and, for that time of day, very good plants, though from having grown close together they were drawn and naked-legged. My master bought the whole lot, and I was sent to fetch them. We had in store plenty of tan and dung, and on their arrival a temporary boarded pit was cleared out, and at once filled to the extent required from the tan stack. I set to with a bill-hook, and chopped them all off aboveground, pulled off some of their lower leaves, repotted them, and made nice dwarf plants of them at once. They were then arranged in their new quarters, and syringed, and a dung lining was applied. Most of the large plants soon showed fruit, and they grew and swelled marvellously, as autumn, or rather late summer shows, which these were, always do. However, we had the best and finest lot of Queen Pine-apples for Lord Mayor's Day that I had ever seen, and Messrs. Grange & Co., the great fruiterers, purchased freely, the remainder being bought up by a fruiterer named Cook, who was also in a large way of business at that period.

Just about this time the hot-water system of heating was introduced. It was then looked in as a new-fangled novelty, but nevertheless we went in with it strongly, and people came from all quarters to see it in operation. Then we began to push on the Pine plants with humidity, and with manure water, and by the aid of a stronger, more uniform, and more kindly heat, we fruited the plants with more certainty, and in half the time—very soon in one-third of the time previously taken. Since then I have considered that if there happened to be a few old plants standing over, they were not worth chopping off, and taking up the room of robust young plants. In fact, till recently I had not seen or heard of the old chopping-down system being put into practice, since we began to cultivate, as above noted, our young stock of Pines by a more enlightened system. They then had the advantage of fermenting materials, with extra heat at certain seasons, and full command of heat when required, and they were allowed much humidity, strongly charged with ammonia. The fruiting plants were grown on in a kindly heat, supplied by hot-water, and thus under perfect control, while at the seasons when it was required, there was a command of humidity and facility for charging the atmosphere methodically with ammonia. Lately, however, this old wind-bag of "cutting over," which I had long supposed to be resting in the corner of curiosities, has been once more brought to light, and a discussion has taken place as to who is entitled to the honour of ownership. One correspondent truly states that there is nothing new under the sun, and this is just my reason for, as Mr. Miller puts it, taking the bull by the horns, and relating facts which have come under my own observation, and been embodied in my own practice during my short travel through life. These I leave openly to be challenged by those whom it may concern, concluding with this one remark, that the practice in question was in use to my knowledge above 50 years ago, being then adopted as a necessity incidental to the rough appliances of those times. *James Barnes, Bicton Gardens.*

Home Correspondence.

Grafting Ligatures.—Some weeks ago one of your correspondents, quoting a French book recently published by a French nurseryman on grafting, recommended a species of Rush (Sparganium ramosum) as being useful and cheap. It is now many years since I first saw this poor substitute for bast employed by the French gardeners. I then imputed it to a sort of poverty, and want of speculation. I found, however, that Archangel mats were scarcely known by the French gardeners, and that hemp, worsted, and Rushes, all very inferior to bast, were employed as ligatures for grafting and budding. The Rush (Sparganium), and Typha latifolia, are found on the banks of our rivers and ditches, but, owing probably to the moisture of our climate, they have but little strength of fibre, and are quite unfit for the usual mode of grafting in English nurseries, viz., whip grafting with clay, which, by the way, is far superior to the open-air grafting of the Continental gardeners; for it is not uncommon to see, in a well-managed nursery, a "quarter" of Apples, Pears, and Plums, whip-grafted, tied with strong bast, and covered with the usual lumps of tenacious clay, succeed marvellously—scarcely five per cent. failing, and with Apples not two per cent. I have, indeed, seen a "quarter" (a term used to denote a square or a parallelogram devoted to one kind of tree), of 10,000 Plums with but five per cent. of failures, and the same of 20,000 Apples with less. The great object in our whip grafting is to have a strong ligature, so as to unite the graft with the stock firmly—a Rush would not be worth a Rush for that purpose. As to cheapness, the time it would take, even if they were fit for the purpose, to gather Rushes, to dry them, and keep them, as recommended by M. Baltet in his book, would much exceed in value the expense of employing bast taken from large Archangel mats, weighing from 6 to 7 lb. each. One of these mats, costing 1*s.*, will give from 1200 to 1300 ligatures for grafting, more or less, depending upon the quality of the mat, and 1500 ligatures fit for budding. No Rushes can compare in cheapness with this excellent material for all temporary ligatures. I presume it is the difference of climate that has given rise to the clumsy mode of cleft grafting with grafting wax, still in use in French nurseries; this is the most pernicious of all modes, as the cleft stock is often very long before it closes. There are some 25 or more modes of grafting given by French horticultural authors, *greffes de fantaisie*. Some of them may amuse the leisure of an amateur, but to reduce open-air grafting to English common sense, whip grafting and rind grafting will suffice. *An English Grafter.*

Hot-Water Apparatus.—Mr. Ratty misunderstands my remarks about boilers and hot water. I never proposed putting two syphons together, as pointed out by him. I have five houses now fitting up on my plan, which is simply as in the margin. The upper syphon has a safety air-pipe in it, as a safety-valve for the boiler. The cold water comes in at the bottom of the lower syphon. Let Mr. Ratty look now at what I said (page 1316, 1868), and he will understand. *G. A. H.*



Local Names of Wild Plants.—I am very glad to see that Mr. Britten has undertaken to collect the local names of British plants (see p. 1259, 1868); and I hope that all those who are in a position to assist him will do so, in order that we may soon have as complete a catalogue as possible. I have long been interested in this subject, but for want of time and opportunity I have done nothing in it. Perhaps I may be permitted to offer a few suggestions respecting the scope and arrangement such a work in my opinion should comprise. I am not aware what Mr. Britten's intentions may be, but I venture to hope nothing short of a good etymological dictionary is contemplated. It should contain a separate, complete list for each district or county, with a tabular view of the names common to two or more districts, and notes on the peculiar names of the different districts. Care should be taken to ascertain what names are actually employed by the peasantry rather than by the herbalists and botanists of the several districts. Farmers and farm-labourers are the persons from whom the principal information valuable for such a work could be obtained by a competent botanist on the spot, for they more than any other class of men use the names that are peculiar to any district. A comparison of the areas over which names of diverse derivation are used, and of the directions whence they have spread, would be very interesting. It will not be difficult to discriminate between names diffused by the early herbalists and astrologers, and by later agricultural works, and those names which have spread naturally and which may more properly be said to form a part of the common language. I think all names now employed in Great Britain where English is spoken should be included, whether they are from the Welsh, Gaelic, Anglo-Saxon, or French, provided they are now used by persons speaking English; but no Anglicised Latin names of recent introduction should be admitted. The present German and French names, from which many of ours were derived, might also be given. I add a few names that occur to me, some of which, so far as I know at present, may be peculiar to Sussex: at some future time I hope to furnish a complete list. Kilk—Brassica Sinapistrum; Batchelor's Buttons—Lychnis diurna, L. vespertina; Snappers—Stellaria Holostea; Sweet Amber—Hypericum Androsæmum; Cuckoo Sorrel—Oxalis Acetosella; Skewer Tree—Euonymus europæus; Chequers—Pyrus torminalis; Poor Man's Pepper—Sedum acre; Sun-green—Sempervivum tectorum; Water Hemlock—Œnanthe crocata; Poke-needle—Scandex Pecten; Coney Parsley—Anthriscus sylvestris; Bird-seed—Plantago major; Fat Hen—Chenopodium album; Sweet Willow—Myrica Gale; Ram's-horn—Orchis Morio and mascula. *W. B. Hemsley.*

Autumnal Raspberries.—I very much doubt whether the two kinds of Raspberries which fruited in October last at Nuneham Park (p. 8), were the Red and White Antwerp, these being summer Raspberries; and as far as my own experience in the matter goes, I am persuaded that no regular autumnal crop will be obtained from summer Raspberries, even when treated after the system of Mr. Stewart, this kind only producing fruit from the previous year's canes in June or July, and seldom or never from the summer shoots late in the same season. To have an abundant crop of this useful and delicious fruit in the autumn (and a great treat it is), real autumnal kinds must be planted, and these will crop abundantly from the young canes from August till the frost sets in. The canes, after having thus fruited, will again yield a crop (of course a smaller one) in the following June, and be replaced by fresh suckers from the same root, and then die off. Of this class the following are chiefly grown in this country:—Red: Merveille des Quatre Saisons Rouge, since superseded by Surpasse Fastolf, larger and of a brighter red, whilst in other respects as good as the old summer Fastolf; Belle de Fontenay, which I consider inferior to Catawissa, an American kind of the same size, but more prolific and of dwarfer habit. White or yellow: Merveille des Quatre Saisons Jaune; this is likewise quite superseded by more recent sorts, namely, Surpasse Merveille, Surprise d'Automne, and Sucrée de Metz, all enormous bearers, and their fruit of the largest size. Of the foregoing I should select as the "cream"—Red: Surpasse Fastolf, Catawissa; Yellow: Surprise d'Automne, Sucrée de Metz, to which may be added Rivers' Autumnal Black, a variety recently introduced, of quite a novel colour, probably a cross between the Raspberry and Blackberry. This bears most profusely, large berries, of a deep black colour, with a fine bloom and very pleasant flavour. As a distinct and very handsome summer Raspberry I recommend Brinckle's Orange, an American kind, of a deep rosy orange colour. *Ferdinand Gloede, Beauvais, France.*

Ipomœa ternata.—When at Messrs. Carter & Co's. nursery, Perry Hill, Sydenham, a few days ago, I saw in flower in one of their stoves a very fine white flowering Ipomœa under this name, that deserves to be better known. The blooms were pure white and very stout and slightly reflexed, and in point of size half as large again as those of I. Horsfalliæ, with whose branches it was alternately arranged under the roof of the house. It appeared to be free blooming, and for a white flowered stove creeper was much more showy than Stephanotis floribunda. It would also be invaluable for cutting purposes, as the individual blooms, being so stout in substance, would keep for a considerable time. Is the specific name correct? I have looked for this kind in lists of evergreen stove climbers, as well as in lists of Ipomœas, but have failed to find it. *R. Dean, Ealing.* [Without specimens of the plant we cannot answer this question. Ipomœa ternata should have large whitish flowers. EDS.]

Eucharis amazonica.—There is a fine specimen of this beautiful plant here. It was potted in an 18-inch pot, in August, 1868; it flowered in October, having at that time 20 flower-spikes. It is again in flower at the present time, and has 25 spikes from 2 to 2½ feet in length, and averaging six flowers on a spike, many of them measuring 5 inches in diameter. Its foliage is from 2 to 2½ feet in length, and from 6 to 7 inches wide. *M. Thurtle, Plantsman, Chatsworth.*

Canadian Emigration.—By the last mail I am informed that the Government of Ontario has determined to make a free grant of 200 acres to each *bonâ fide* settler. This will be an immense boon to the working classes about to emigrate to Canada. To such I would say—Club together; pay in something weekly; get other help as much as possible. As soon as 7*l.* is raised, take a through ticket from London, Liverpool, Glasgow, or Cork, to Toronto, Hamilton, London, or any place "west of Kingston." Get employment, which is easy enough, at wages of 16*s.* per week, upwards, and all found. Save. After, say nine months, go the Hon. Mr. Richards, at Toronto, and claim the 200 acres. After five years you will get on comfortably, and by industry, care, and perseverance, be able to make a good provision for old age. Abstain altogether, if possible, but especially avoid whisky; join yourself to some church. I feel, through the liberality of the Ontario and other Governments, Canada will be the best place for a poor man to emigrate to. We have, in St. Paul's, Clerkenwell, carried on, with great success, a society based on the sound principle of "self-help and mutual help." We have 284 members, representing nearly 1000 persons. Should any friends be inclined to help these poor but deserving families to emigrate to Canada, I shall be most thankful for any assistance. *A. Styleman Herring, President and Incumbent, 45, Colebrook Row, N.*

Mushrooms from their Spores.—I beg to report the result of an experiment upon this subject, which will not be without interest to some of your readers, as my experiment, I hope, has been attended with some degree of success. There is abundant evidence that, under favourable conditions, the mycelium of Mushrooms is freely generated in stable manure; and the presumption is that it proceeds from spores, which, having been swallowed by horses along with their food, have performed the circuit of their stomachs and intestines. Whether Mushrooms can be raised from spores which have not first passed through the stomach of some animal, the authorities seem to doubt; but I think I have proved that spores artificially sent through the channel just indicated do grow and produce Mushrooms. In a paper which I addressed to you upon the subject, which appeared in your columns in the month of April last (p. 434, 1868) I suggested means by which these spores could be procured, and passed in large quantities through the stomach of a horse; and that materials might thus be obtained for testing the stomach treatment experimentally. Having caused the spores of Mushrooms to be ingested by a horse with his daily food, I obtained from the stable a quantity of the desired material, which must have contained some millions of the semidigested spores; this was carefully turned over, and dried in the sun and air in the month of May, and on the 8th of June a quantity of this material was sown in a flower-pot of 16 inches aperture, on a bed prepared in the usual way for the growth of Mushrooms. This pot was kept for three months in a Mushroom-house, at a temperature of from 60° to 70°, and on the approach of cold weather it was transferred to a forcing pit, of a slightly lower degree of heat. Up to the middle of December there was no appearance of Mushrooms, but as the soil looked dry I gave it an "autumnal shower" of tepid water, such as always precedes the appearance of Mushrooms in the fields. The effect of this application was wonderful! a beautiful crop of Mushrooms having made their appearance next day; and these have now swelled up to the size of cherries, to the number of upwards of a dozen. My experiment, I am afraid, is not absolutely conclusive as to the origin of my crop; inasmuch as there is no doubt that Mushrooms do sometimes come up in such a matrix as I employed,

spontaneously, or rather by accident; nevertheless, from all appearances, there is a strong presumption that my spores must have germinated, and may possibly bear some physiological or horticultural fruit. Would it not be possible, by the process I have described, to grow mushrooms freely in our fields and meadows, their natural habitat? We can procure the spores, in any quantity and at any season, in the peculiar condition in which they take root and grow in the fields; and there seems no reason why these spores, artificially prepared, and preserved through the Winter, should not have a much better chance of growing, when sown in the Spring, than the spores of wild Mushrooms, which have to encounter all the dangers of six months of damaging Winter weather. With a handful of the prepared material, one might inoculate a whole pasture with the true "Agaricus campestris." *G. S. Cundell, Clapham Park, Dec.* 22, 1868.

Game Cover.—I have read from time to time in the *Gardeners' Chronicle* several articles for and against the different sorts of shrubs best adapted for planting as underwood and game cover, most of which are very good in their way; still I am opinion there is nothing better than the Rhododendron ponticum for giving a thorough cover and warm appearance as underwood, besides a floral display rarely to be met with in May, and just at the time when the young and fresh colour of the then expanding green spines and leaves of the different sorts of forest trees are calling out for something to give a contrast. I have seen several policies in the county Waterford newly carried out on this system. I perfectly agree with my friend Mr. M'Donald, that planting in clumps through the woods is by far the best plan; besides, it tends greatly to curtail the expense, at the same time giving equal, if not better, advantages. I have seldom known hares or rabbits to do any material injury to the Rhododendron ponticum—in fact, sheep, should they break through, will turn up their noses at them, and look for something more suitable to their taste. The simplest and cheapest plan for those not having the ways and means of raising seedlings is to buy a quantity every year, say at from 3*l.* to 5*l.* per 1000; plant them in nursery ground for a year or two till they get strong, planting in the woods the same quantity of stronger plants that have been bought. I have been adopting for several years a very simple and cheap plan of getting up underwood with common Laurel, viz., when cutting down overgrown Laurel, which I do in quantities every year, in place of sending them to the fire or rot-heap, I have them carted to the woods, and making circular holes, say 6 feet diameter, lay in the prunings rough and ready, fill up the holes with the soil, tramp, and clip the tops to the ground. This process succeeds best when done from October till Christmas. I seldom have a failure. Many of your readers will no doubt have tried the same plan; it is not new, but is certainly worth adopting. *A. R., Castleboro, Enniscorthy.*

Garrya elliptica.—I am surprised at seeing so few of this beautiful and curious shrub in gardens. They either have uncongenial soils or sites, or are too much crowded in general, otherwise any one seeing them this mild season would assuredly have more. Here (400 feet above the sea) the plant is like a fountain; its catkins are 5 to 6 inches long, appearing like falling water; it is not more tender than the Myrtle, and stands wind which that will not, but it cannot endure the drip of trees or smoke. *Somerset.*

Grape-growing and Ivy on Trees.—Will any of your correspondents who may have tested the "sentry-box" mode of growing Grapes be kind enough to state what is the success of the system? Also, what varieties of Grape are best suited to it? I should also be glad to learn any one's opinion as to the injurious effect (if any) of Ivy growing closely round the trunks of trees. I have a handsome Pine tree, with Ivy nearly up to the top, 40 feet high. This autumn the foliage is turning brown, and I fear the tree is dying. May it be attributed to the Ivy, and if so, is it too late to save it by cutting the Ivy off? *John Fryer, Manor House, Chatteris.*

Camellias Outdoors.—I have this day, January 11, counted 49 blooms on one plant of the Saccoi nova Camellia. It is planted in a south-eastern aspect. There are also some Rhododendrons here in full bloom. *Wm. Hamilton, Gr., Tweed House, Lymington.*

The Calville Blanc Apple (White Calville).—Mr. Rivers states, at p. 7, that from first having had his attention called to the Apple to the present time he had never compared it with English Apples when cooked, but now, having tried it, he finds it "flat and without the least piquancy." Vaguely remembering that Mr. Rivers has somewhere before praised this Apple in an extravagant degree, I search a little, and find the following statement in the "Journal of Horticulture" for 1866, p. 140. It occurs in an article, specially devoted to the Calville Blanc, by Mr. Rivers. In it he relates how he used to hear its merits extolled by French cooks, and "but like most of us English I felt that a French Apple could not be compared to ours, and told them so. It is only within the past few years that I have been compelled to think as they do, that the Calville Blanc is the finest of all Apples for kitchen use." Then he tells how to grow and how to cook it, and declares that they "give out plenty of juice, are most delicious, and become a perfect sweatmeat." These passages need no comment. I called attention to it particularly, finding that its finer specimens were selling at an extraordinary price; and knowing that many people were under the impression that it came from some paradisiacal climate, I showed how it may be grown to perfection in our gardens, not doubting that if a really good Calville Blanc should be found flat, others of our excellent Apples, and also of the American ones will be found highly improved by the same mode of culture. Indeed for none of the finer American Apples is the system worth adopting, if the splendid Calvilles and Reinettes that we now see in London are to be considered worthless. *W. R.*

Double Grafting.—I find that Mr. Rivers states, in his last edition, how that double grafting had "originated," to use his own word, in his place; that he "never remembered seeing it carried out by the clever (the "clever" here was no doubt put in in an unguarded moment) fruit-growers of France and Belgium; and that if practised by them, it has been recently "copied from English practice." I find the Rev. T. C. Bréhaut states in his Report, printed separately "by special permission of her Majesty's Commissioners," that "double working is *unknown abroad*, though its advantages are obvious and great—" the italics are his own. Seeing that this was unjust to nations who, howsoever far behind us as horticulturists in some respects, are certainly expert in all matters of fruit-tree multiplication, training, and culture, I simply told the truth about it. When in the flush of youthful enthusiasm about British discoveries in fruit culture, I told several experienced French fruit-growers and nurserymen about the double grafting of Pears originating with us, they smiled at my innocence, and one was cruel enough to point to a wall of old Pears double grafted beside the spot where we were standing. From the *Gardeners' Chronicle* (p. 7), I now learn that Mr. Rivers knows double grafting is now common in France with a few of the intelligent nurserymen, though the observation as to its not occurring there occurs in his book issued a few weeks ago. *W. R.*

Mealy-Bug on Pines.—Mr. Barnes (see p. 8) inquires of me how the eggs and young brood of the mealy-bug out of sight are to be destroyed, &c. Mr. Barnes having, as he states, been once tricked with a mountebank's powder, appears to be determined not to be deceived by anything in that shape a second time; and in his zeal to run rough-shod over all such ideas as powder recipes, misquotes my paragraph by stating my remedy was to dredge the dust into the eyes and throats of the insects. It would appear that Mr. Barnes repudiates all idea of effluvia or gases being detrimental to animal life, although I have no doubt he frequently uses gases himself for the destruction of insects. I remember once reading in the *Gardeners' Chronicle* an account of the destruction of insects by bruising Laurel-leaves and scattering them about the house. This success was attributed to the prussic acid contained in the Laurel. Mr. Barnes inquires how those bugs, snugly nestled in various fissures, and out of sight, are to be reached? I presume that every fissure, however small, is permeable to gases, consequently no hiding-place for the insects is safe if the atmosphere in the house is charged with vapours poisonous to the insect. Goldsmith, who was no mountebank, in his "Animated Nature" states that the seeds of Staphisagria Larkspur, and Tobacco, reduced to powder, will destroy certain disgusting insects, although no mention is made of dredging the eyes or throats of the vermin. But have we nothing to relate concerning the efficacy of the Walnut in the destruction and dispersion of insects? Goldsmith says, the bed-bug will not live in the Walnut tree. In America, where insects, such as the mosquitos, horse-flies, &c., are very numerous, horses and other cattle are so much annoyed and injured with flies, that some farmers, until a recent period, have suffered much for the want of a remedy, and this remedy has been discovered in the use of Walnut leaves boiled in water. It was first published, I am informed, by the Editor of the *Rural New Yorker*, an American agricultural paper, published in Rochester, New York. The water in which the leaves are boiled is sponged over the horses and the cattle, and all insects, I am told, are either destroyed or dispersed. My friend lost an excellent horse a short time before he heard of the recipe, from what is called the bot-fly. It deposits its larvæ amongst the hairs and frequently in the flesh of the horse; the latter, by licking the affected parts, receives the larva on its tongue, and this frequently proves fatal, the insect getting down to the stomach, which it nearly consumes. I have now stated all I know about Walnut leaves, and in conclusion, I do know that I was so unfortunate as to have a numerous brood of the cotton-bug on my Pine plants at Thornfield, and I can prove by the evidence of Mr. Errington, son of the late Mr. Errington, of Oulton Park, whom I had the honour of recommending as gardener to my late employer, that no such insect as the cotton-bug was about the place when I left. If the Walnut leaves did not destroy or disperse the insect, then they must have left of their own accord. I will leave this question for Mr. Barnes himself to solve. *Joseph Hamilton.*

Plants in Vineries.—"Sigma" is neither the Alpha nor will he be the Omega that will have to labour under the difficulty of growing grapes and plants together. No great difficulty either. But, to bring them both up to a standard of excellence, when thousands of plants have to be sheltered during winter, and not a few grow along with the Vines in summer, puzzles a good many besides "Sigma." If "Sigma" is a gardener whose employer wishes him to concentrate all his energies in producing sensational Grapes, he ought to allow him the privilege of giving the plants, to a great extent, their *congé* from the vinery. Otherwise he may expect to be disappointed in the results. Certainly exceptional cases may occur, and it will be chiefly found where the Vines are in the full glow of youthful vigour and able to hold their own for a year or two; but to continue to grow and to huddle together a lot of miscellaneous plants, year after year, in vineries, however expedient, is a course ill adapted for the full perfection of either. There are two vineries here, each 50 feet long by 17, and for the last 25 years they have more or less been also occupied with plants. At the present moment they are both crammed as full as possible. I shall soon start the early house, and everything that is in it, with a few exceptions, must come out, and be stowed away, goodness knows where. At the same time, the late one has a goodly number of bunches hanging, but from the crowded state of the house, and the water that is required, the scissors have often to be applied, so that the bunches are becoming beautifully less every day. I have no hesitation in saying, that had this vinery been denuded of its plants, the season might have been extended two months longer. As it is, I am sick of seeing the remnants hanging, and care not how soon the work of destruction is ended. The houses are heated with hot water. The Vines are planted in an outside border, which is covered with long litter and a few old lights on the top. The early house contains Black Hamburghs, Black Prince, and Muscat of Alexandria, and for the last three years they have borne very good crops of moderately-sized bunches and well coloured. I generally recommend cutting about the latter end of May; while Azaleas, Camellias, from 6 to 9 feet high, and a host of other big and little plants have to be grown by turns under the Vines. From the foregoing it may be deduced that I have too many plants and too little room, not an uncommon thing with which gardeners have to contend; and from the great number of plants housed in the late vinery the season is very much shortened; also greater attention is required in keeping the Vines in healthful vigour while so many insect hot-beds are in the closest proximity; and lastly, it would be next to an impossibility to produce sensational bunches from those Vines. But, as a balance, my employer is quite as well pleased to see bunches from 1lb. to 3lb. in weight, and plenty of them, as he is those of heavier calibre. Nevertheless, I like to go to a great show now and then, and feast my eyes on the productions of my more favoured neighbours. *Brassica, Read Hall, Whalley, Lancashire.*

Potatos.—I commenced Potato-planting Jan. 16, and I shall keep on till I have finished. I do not hold with "chimping" Potatos, especially Kidney sorts, and therefore, as they are growing out fast, I plant. I am planting mostly with a stick, and I am induced to do so for two reasons—firstly, because they come up more regularly so planted; and secondly, because the stick leaves an artificial drainage under the roots, which, in case of heavy falls of rain this next season, may be serviceable. As regards the quality of last year's Potatos, I may say I never ate better! I am not yet "an old donkey." By letting the Potatos stay in the ground till the supertubers were ripe I gained quality, and lost in numbers. I would, however, rather have 12 good eatable Potatos than 24 bad ones—squashy, waxy, and twi-ripe. I have just finished the supertubers of the Lapstones: I never ate a better Potato—it is my best. This Potato, though called Haig's Kidney, was raised by an old cobbler in Lancashire—so Mr. H. Taylor informed me. The Yorkshire Hero, which I gave to Mr. Fenn, who won a special certificate with it in London as a cooked Potato, is a hybrid, by grafting, of the Lapstone and old Ashleaf. With such parentage, it is no wonder that it is so good. I have had it ever since it came out, and it has always acquitted itself nobly. I spoke of it in the periodicals, I believe, before ever its raiser, Mr. Almond, blew a "fugue." I cannot get up a stock of it, because it is so great a favourite that all comers fill their jackets for seed, eat them up, and then write, "They are stunners; send me some more, there's a good *feller!*" "D.," of Deal, went off with Hero, Gryffe Castle seedling—the best of the Regents—and the Early Uprights, a most first-class Potato, apparently an early and superior Fluke: and then, having eaten them up, wrote for more; but I am not "an old donkey,"—he must wait till next digging time. I have sent one tuber each of the Early Uprights—a fine specimen—and of the Peach Potato—a first-class round (I think it is American Rose), to Mr. Fenn, and I am sure that he will be pleased with them. I have also sent to Mr. Turner 24 Heroes, and 12 of Taylor's Yorkshire Hybrid; and unless he grows the Lapstones he has nothing better. Next year he must have the Early Uprights, Gryffe Castle, and the Peach Potato, and then he will have my best, and good enough for anybody. I am more than pleased to hear from Mr. Fenn (King of Potatos) that he has succeeded, after 30 years' persevering labours, in winning a First-class Certificate for a collection—some of them his own seedlings—at Kensington. He says in his letter: "I selected Taylor's Yorkshire Hybrid, Yorkshire Hero, and Fenn's Onwards for the cooking test. Hero won by several necks. The Committee awarded it a First-class Certificate, and right honestly too. It certainly is the Potato of Potatos, and the country must thank you for bringing it out." Taylor's Hybrid is a smaller Potato, with longer stalks and blue flowers (Hero has short bushy stalks and white flowers), but it is quite equal to it as regards quality and flavour. Finally, I hope Mr. Fenn and other Potato raisers will turn their attention to late-keeping Potatos. There are legions of good "second earlies;" but with the exception of the deep-eyed Gramma and Salmon Kidney—formed like a Jerusalem Artichoke—I have none that keep good till the Royal Ashleaf comes in. Whether the Potato be round, or kidney, or lapstone-shaped, I want, be its colour white, purple, pink, red, or mixed, a late first-rate Potato, with uniform shape, level surface, prominent eyes, and a good cropper. Here is a nut for Mr. Fenn to crack. *W. F. Radclyffe.*

The Camellias at Bicton.—Having had the privilege of seeing the beauties of Bicton last autumn, my impressions of which, I trust, you will soon be able to give to your readers, permit me to confirm all that Mr. Barnes says (p. 52) about the marvellous health, luxuriance, and inflorescence of these splendid plants, indoors and out. Nothing could exceed the freshness of their dark glossy leaves, nor the abundance and size of their blossom-buds. I felt then as I do now, that it was worth the journey from Hardwicke to Bicton—and it is a long one—to see those splendid plants alone. And in the recent dark days I have often con-

jured up that splendid blaze of beauty from base to summit that the Camellia-house at Bicton must now present for the pleasure and delight of all visitors, and to the satisfaction of the skilful cultivator. *D. T. Fish, F.R.H.S., January* 19.

Peas in Blossom all through the Winter.—Last summer was a most trying one for maintaining a supply of green Peas. In consequence of this difficulty I continued sowing later than usual. Our last crop of Marrows was put in early in September. I have several times succeeded in gathering green Peas nearly all through November by sowing towards the end of August. These latest Peas this year began to come in splendidly during November, when several degrees of frost came and penetrated their delicate pods, and destroyed their white sheets of bloom. As the plants were uninjured I left them growing, and all through December and now in the middle of January they continue to blossom freely, and young pods are forming like those sent. I find, however, that 4°, or at the most 5° of frost destroys the blossoms, and penetrates through the young pods, and kills the Peas. Still I intend to leave the crops for the winter, and will report progress or ruin at a future time. I am not without hope of being able to send you a dish of green Peas for your young ducklings early in May from these last year's crops; but should the coming frost conquer, you must take the will for the deed. *D. T. F., Jan.* 19.

Winter and Spring Bedding.—The remarks of "W. P." on this subject deserve much attention; and Mr. Higgs has improved the subject, and is perfectly correct as regards expense, as without exception it is the most expensive hobby that can be followed in gardening, to carry it out to the perfection I saw it a few days back. At the residence of an invalid, in the midland counties, this system is carried out better than I have ever seen; no expense is spared, and spring gardening is blended with it, which is a great relief, as there is always something in flower from December till May, and not the dull appearance as seen at Heckfield, where the great object appears to be to get as many plants as possible in the least space, and so many plants are laid on their sides to cover the ground that they look as if heeled in. Vinca major elegantissima (not Vinca variegata) does better there than in any place I know, but becomes very seedy before the season is over. Sempervivum californicum, not common Houseleek, has been also lately used there; but on the whole, the frequent repetition of the same plants, although the figure is altered, causes monotony, and is not pleasing. Mr. Wildsmith states that the expense is not so great as Mr. Higgs might fancy, and only 10*l.* a year is allowed. As the whole stock was got up before Mr. Wildsmith had the management of the garden, he has no idea of the cost of getting such a lot of shrubs together, and my experience tells me that winter gardening is five times more expensive than summer, and if followed alone without spring flowers not worth the cost. Among the beds I saw at ————, the following were very effective:—1st, a bed of the yellow-berried Holly and Helleborus niger alternately, edged with the bronze-leaved Holly: the fine green of the Holly, without fruit, and the flowers of the Hellebore were particularly pleasing; 2d, the centre, Retinospora ericoides and yellow Tulips, edged with Arabis lucida variegata; 3d, Retinospora leptoclada and Scilla verna, edged with Erica herbacea; 4th, Aucuba viridis and Hyacinths, edged with Biota aurea; 5th, Euonymus radicans variegata and Scilla sibirica, edged with Ilex crenata; and 6th, a small bed of Eurya latifolia variegata and Thujopsis lætevirens. I found that two sets of the varieties of Holly, Box, and some others were required, as annual moving made them too scrubby to be effective. *A. M., Paddington.*

Cucumber.—If your correspondent "Q.," at p. 55, will try "Suttons' Berkshire Champion," he will find it answers the description of the sort he requires. I have grown it on an ordinary hotbed 24 inches long. It is a good bearer, and of excellent flavour. I may add, that I am not in any way pecuniarily interested in the sale of this Cucumber. *C. J., Carshalton.*

Cloches.—Cloches were supplied to me by Messrs. Stuart & Mein, Kelso, for 2*s.* each. I am informed by that firm that 50 per cent. were broken in transit, hence the difference of price as compared with the French quotation of 10*d.* each. But even at this price they are infinitely superior to the cumbersome and costly hand-light so-called of British gardens. As to their utility, no gardener who has seen them can say otherwise than that they are valuable appliances, suitable alike for production, propagation, and protection. To the amateur they would prove themselves a friend in need, for what have they, I may ask, in comparison with this clean and efficient bell-glass? The glazier, plumber, and painter are necessary to keep the hand-light in decent order, while an old woman will clean and put in order several hundreds of *cloches* in a few hours. An amateur may have his early Violets, Salads, a few Asparagus heads, and a Strawberry or two before his neighbours. He may ripen maturely a persistent Melon in a dung frame. He may also ripen one earlier than the rest. Frames are very good and useful in a garden, but if I were commencing to garden to-morrow for profit, I would order of a French glass manufacturer 4000 *cloches*. Many gardens in France have more than this, and they are added to yearly. A Frenchman finds to his profit that there is no outlay in repairs—no rusty iron to paint, no rotten wood to repair, and no drip on his produce. Up to this moment scarcely any protection is wanted for Salads and the like out-of-doors; but suppose it to be an ordinary winter, with 20 of frost frequently, a garden of any pretensions should have say 16 *cloches* over Parsley, 4 over Tarragon, 12 over Sorrel, and other things in proportion, with 200 or 300 for Lettuces, Cauliflowers, &c. Even in a Mushroom-house patches of Mushrooms may be forwarded at intervals; the heat and humidity arising from the bed is confined to the surface by the *cloche*. To the practical man dozens of ways will open up for utilising them from January to December, even though he uses one stuck upside down in a flower-pot, and filled with an aquatic and half-a-dozen gold and silver fish swimming about—hundreds of things look more hideous in a garden now-a-days. *H. Knight, Floors Gardens.*

Planting Shrubs.—I pray you, judge between my gardener and me. In planting shrubs upon the lawn, he puts back the turf close up to the stem, asserting that it tends to keep the soil round the shrub moist and cool. I urge that growing Grass tends to dry the earth in the hot weather, and that a circle of stirred soil, formed saucer-fashion, would be more conducive to the health of the shrub. Which is right? *Seyah.* [Both, to a certain extent. The Grass keeps the earth moist and cool, and thus far is a bad conductor of heat; more than this, Grass is a powerful radiator of heat; so far, then, your gardener is right, as the Grass will tend to maintain a lower temperature than the soil. Then, as to moisture, the Grass tends to hold it, perhaps as well or better than the bare soil, or any other form of mulching. For young shrubs, or indeed old ones, when first moved, there is no better mode for the well-being of the plants than that described by our correspondent, only in addition we would cover the earth with 3 or 4 inches of cocoa-fibre refuse. EDS.]

Mahogany.—Can any of your readers refer me to sources of information regarding the introduction of Mahogany wood into this country for constructive purposes previous to 1724? *Timber.*

Heating Vine-borders.—Without wishing to enter formally into this discussion, you will perhaps permit me to state that my experience leads me to the conviction that a gentle bottom-heat for early forced Vines is not only desirable, but is essentially necessary to the best results. By early forcing, I mean Grapes to be ripe not later than April or May. For summer Grapes artificial heat may not be so necessary, but even that will depend upon circumstances, such as the situation of the border, and the nature of the subsoil. If either or both are cold or damp, bottom-heat will be an advantage; but if, on the contrary, they should be upon a warm sand or gravel, such artificial heat can more safely be dispensed with. There are situations where the Vine roots may be allowed to run wild with perfect safety, and where to make a border is a wanton waste of means; there are others where, if the roots are not confined to a properly prepared border, failure is certain. At Trentham Mr. Fleming found his Vines fail to colour their crop directly the roots had passed the concrete bottom, and entered the drain in the front of the border. Last season we had occasion to examine a Vine-border in the Valley of the Trent; the border had been concreted, drained, and walled in, and the Vines for some years had produced fine crops of well finished Grapes. But one cane of Frankenthal failed slightly in 1867, and was much worse in 1868. This was strange, as Muscats and Frontignans ripened perfectly in the same house. Suspecting the roots had got into the outer soil, a trench was opened in front of the failing Vine, and there we found a root had passed through a fault in the bricks, and was spreading its roots in all directions in the wet subsoil of an Asparagus bed. To plant Vines in such a situation, without confining the roots to the prepared space, would be perfectly useless, but in more elevated spots in the same village, Vines succeed perfectly in the open soil. Many years ago the forcing gardeners in the Valley of the Thames used to start their Vines without any thought of protecting or even mulching the border in any way, but at that time we were not aware that the roots of those Vines were from some 3 to 5 feet deep in the gravel beneath, and hence were not exposed to those alternations of weather which they must have experienced if unprotected in a shallow border. To argue from such facts that early forced Vines do not require to have the borders protected, would be calculating upon false *data*. Of the borders at Kingston, referred to by Mr. Westland, it is necessary to say that chambering has been prepared in the best and most substantial manner, the cost of the foundations alone being greater than would be necessary to cover the same at the present times with vineries equally well suited for Grape growing. These houses have for a quarter of a century produced prodigious crops of Grapes, and are still in a hale condition. Under Mr. Westland's management they greatly improved; so much so that I can fully endorse Mr. Ayres' statement respecting the crops; and having seen the Grapes at the International Exhibition, and those at Kingston, both before and after it, I am warranted in saying, that had Mr. Westland exhibited he could not have failed to have taken the premier prizes in every class except Muscats, which he was not growing at the time. Notwithstanding this Mr. Westland has long been convinced that the same end could be attained by more natural and less expensive means, and hence the reason for promulgating the plan, as published by Mr. Ayres. I believe it is the cheapest, most simple, and efficacious that has yet been made known, with the advantage that it not only produces the means of heating the border sufficiently, but at the same time supplies a means of ventilation which cannot be objected to. No man knows better than Mr. Westland the great watchfulness required to manage a chambered border satisfactorily, more especially where the roots can pass through the masonry into the chamber beneath,—those where the atmosphere is surcharged with moisture being right enough, but leave the evaporating pans empty for a night, and the crop, if not ruined, will receive a severe check. To provide against such risks is Mr. Westland's object in the new scheme; and, with earthenware carriers and cement joints, it is almost impossible that the roots can be in any way injured. Mr. Tillery, of Welbeck, who has had more experience with chambered borders than any other man, has introduced a similar scheme in the early vineries there, with the best result. What reason is there, therefore, for further cavil? Anything which will facilitate and render more certain the production of early Grapes, must be a gain both to the employer and the employed. And, therefore, I say all hail to Mr. Westland's scheme. *Henry Gadd, Wollaton, Nottingham.*

——I am not to be regarded as an authority on Vine growing, and must therefore give an excuse for stepping into the ring, but I see my name has been mentioned (at p. 39) by Mr Tillery, in referring to my notice of Kingston Hall Gardens a few years ago. I am unable to refer to the *Gardeners' Chronicle* containing that report, but I distinctly recollect the first class condition of the Vines and crop in the two large vineries there, the borders of which are chambered. The Chasselas Musqué was just then a Grape of some interest, as it had a few years before been introduced as Josling's St. Alban's, and had been planted in many places, and I vividly recollect the superb bunches I saw at Kingston Hall, in which scarcely a crack was to be seen. I have no memoranda to refer to, but I recollect the rafters were 30 feet long, and were well and most regularly filled with fruit in a high state of perfection. Chasselas Musqué was so fine that I thought it must be a new Grape, and doubted Mr. Westland's accuracy until it was tasted. I was so struck with the fine Grapes I saw there, that I induced Mr. Westland to send a superb collection of Grapes to the Leeds Exhibition that year. Since then I have firmly believed in heated Vine-borders, when properly constructed and under skilful management—without these necessaries they may become a curse. I have read with great interest, Mr. William Thomson's paper on "Bottom-heat for Vines," and I think few will now fail to be convinced, that judiciously applied bottom-heat, such as he describes, is most desirable for early Grapes; but it must not be overlooked that the results may be unsatisfactory if inexperienced men are employed to construct them, and inexperienced men have to work them. Mr. Tillery truly observes, that "for Grapes ripening in May, June, and July, heated borders are not so requisite;" but I think in this district, where we have so much cold, damp, dull weather in the autumn, there is a greater necessity for chambered borders generally. It is very difficult indeed, in fact it is almost impossible, about Bradford and other places near here, to get a warm, loamy soil, such as Vines like; and in such places, where only a cold, retentive soil is to be had, heated outside Vine-borders, properly constructed and managed, are of great practical value generally, and without them very early Grapes in outside borders are not to be had, that is, to be ripe by the end of May. I think Mr. Brown is not grasping the point of the discussion. Early Grapes appear to me to be the point at issue in connection with heated borders. He is quite right in instancing Garston, Keele Hall, and other places, where competing Grapes are so successfully grown; but these Grapes are generally seen at exhibitions from June onwards, and with a "warm, gravelly, congenial soil," such as Mr. Brown names, heated borders for general and late crops are unnecessary, but for winter work, are they to be so utterly condemned? I think not. *William Dean, Shipley, Yorkshire.*——Mr. Westland has admitted that I have amused him, and now I will try to instruct him, or leave it to your readers to say whether it is my fault or his that he is not instructed. Mr. Westland assumes that heated air must of necessity always rise; now the necessity for heated air to rise depends entirely upon the admission of the colder and heavier air which forces it to do so, and the gardener who could not modify this external pressure in the case of heating the surface of a Vine-border by hot-water pipes is not worthy to have charge of a vinery. And the man who would allow an excess of radiation through the glass (if used) is wholly unfit to have charge of a Cucumber frame in summer. Instead of rain being, as Mr. Westland says, the means of warming, its general tendency is to cool the earth. The principle upon which the land is made warmer by drainage is that the drain carries away the superabundance of water in place of its being left at the surface to be evaporated by the sun's rays, and therefore so much loss of heating power to the earth. In summer some warmth may be carried down by the water that has been warmed by passing through the heated surface of the earth, but with the same power of sun heat the earth would be warmer without the rain; for though water may be a more rapid conductor downwards, it is also a far greater radiator than air, whose place it has filled in the earth. The common expression, nice warm rain, means that moisture is being combined with the previously accumulated sun heat in the soil, and that combination gives a satisfactory development of vegetable life. There is also another common expression among farmers and gardeners: "it is too wet, things cannot grow;" and who has not seen even the Turnip cease to grow in extreme showery weather? I can fully understand the truth of what Mr. Westland says respecting the heat of the earth beneath his flow-pipe. The heat of the pipes would be neutralised, just as is often seen in the case of the bright clear sunshine of March, by a cold north-east wind. Mr. Westland should remember that the flow-pipe was not put there to warm the earth below, and the 2-inch pipe that gave the greatest heat to the earth would be comparatively useless for warming the house on a cold night. I cannot expect Mr. Westland to understand the principle upon which I think the heat would enter the border from surface-heating, when he denies the possibility of its doing so. It is quite correct, as Mr. Thomson states, that Mr. Forbes started his Vines in October, and failed to get them to break till the end of December. But the cause of their not starting into growth sooner was certainly not the want of heat at the roots, for simultaneously with the starting of the Vines the border was covered with a mixture of dung and leaves to a depth of from 2 to 3 feet; and well do I remember that the test sticks proved a degree of warmth that could not but have satisfied the greatest advocate of heat for the roots of the Vine. I have every reason to believe the cause of those Vines not breaking sooner was that forcing was commenced too soon after the Vines were pruned. Mr. Forbes was conscious of this at starting, but his object was to try and keep up a continual supply of Grapes, the Duke of Bedford requiring a few for his individual consumption every day if he could procure them. Mr. Forbes, under these circumstances, may be pardoned for making this attempt to do perhaps what he never had been called upon to do before, and I who went to Woburn to learn how to grow Grapes, learned this lesson, which for the benefit of those who are inexperienced in Grape growing I will give, which is—never start Vines for early forcing till after they have been pruned six weeks. Of course this is more applicable to Vines that are being prepared for early forcing, than for those that have been forced many years. If time must be gained, rather do so by pruning early, though there may be often green leaves at the extremity of the shoots. Mr. Thomson's using a separate boiler for bottom-heat shows how conscious he is that danger to roots has arisen, and may arise, by over-heating and drying; and I cannot believe but even a separate boiler for general practice will create unnecessary care and anxiety to the Grape grower, and there are many now that in themselves seem nothing. If hot-water pipes must be used for heating the roots of the Vine, for myself I would much prefer that they should be placed on the top in place of the bottom of the border; though the heating would be slower it would be safer, and more in harmony with the natural condition of the Vine. Mr. Thomson and myself seem to agree that 65° is the highest degree required, but why Mr. Thomson required 60° at starting I cannot conceive; I have a strong conviction that Vines will break as strong, or stronger, at 50° than 60° for bottom-heat. Our early vinery is just showing leaf, and nothing could possibly be more regular, and I find the bottom-heat to be 49°. Our second vinery is just breaking about half an inch, and a greater regularity of growth could not be produced: the border of this vinery is now as bare as a fallow field, and the bottom-heat I find to be 47°. Finally, I will say to those who doubt—come and see. *Emanuel Saye, Gopsall, Atherstone.*

Societies.

ROYAL HORTICULTURAL: *Jan.* 19.—James Bateman, Esq., F.R.S., in the Chair. Sixteen new Fellows were elected, including H.S.H. Prince Teck, and his Highness Prince Hassam Pacha. The Rev. J. Dix in announcing the awards of the Floral Committee, alluded to a box of cut blooms of Camellias grown in the open air, and sent from her Majesty's Garden at Osborne, together with two photographs of the trees from which these blooms were obtained. The flowers were very fine for outdoor cultivation, and strongly illustrative of the

mildness of the season. He then referred to some large plants of Senecio Ghiesbreghtii, having very fine heads of flower, and being very sweet-scented, from Mr. Gibson, Battersea Park, and stated that they were very effective as decorative plants at this season. G. F. Wilson, Esq., announced the awards of the Fruit Committee, and specially noticed some fine Parsley, named Earley's Selected, from Mr. Earley, gr., Digswell Park. A dish of a new pear-shaped ornamental Gourd, from Messrs. E. G. Henderson, was then shown to the meeting; and Mr. Wilson, in remarking that a First-class Certificate had been awarded to it, stated that he thought it would prove very useful and ornamental to mix with Pears, &c., for the dessert. A fine dish of Oranges from Seymour Tenlon, Esq., was then noticed, and which Mr. Wilson stated were rather dry when cut open. He then referred to some very fine Muscat of Alexandria Grapes, sent for exhibition by Mr. Fowler, gr. to the Earl of Harewood, but which unfortunately arrived too late for the meeting of the Committee.

The Rev. M. J. Berkeley in addressing the meeting, stated that as there were no plants that required special notice, he would call the attention of those present to the Gourd exhibited by Messrs. E. G. Henderson, already mentioned by Mr. Wilson. This was an interesting kind, and no doubt a variety of Cucurbita Pepo. The best account of the Gourds was that given by M. Naudin, in vol. vi., 4th series, of the "Annales des Sciences Naturelles." Mr. Jenner sent up a supposed new species of Thistle described in the Transactions of the Botanical Society of Edinburgh, but which might possibly be a hybrid between Carduus palustris and C. heterophyllus. Mr. Berkeley then alluded to some shoots of Peach trees from the Earl of Winchelsea's garden, at Eastwell Park, Kent, the tips of which, or sometimes the central portions, were completely destroyed. Mr. Berkeley attributed this to the change from excessive drought to copious moisture, and stated that he had observed that the midsummer shoots on Peach trees were not formed this season until September, instead of in July, as is usually the case. Mr. Berkeley then alluded to the Pelargonium roots, and to the excrescences upon the roots of the Telegraph Cucumber, already mentioned at p. 78.

Mr. Bateman, in calling the attention of those present to the Camellias exhibited by her Majesty, stated that about a fortnight since he had seen Camellias in bud at Pau. He considered that the climate of the Isle of Wight was nearly if not quite equal to that of Pau; and alluded to the wisdom of the late Prince Consort in establishing gardens at Osborne, and which had proved a source of invaluable information to horticulturists. With reference to Camellias, it was probable that in the Isle of Wight they might be made to bloom in ordinary seasons, but in less favoured parts of the country, although the Camellia was proved to be quite hardy out-of-doors, it produced no flowers; this year, however, the summer had been hot enough to enable the plant to produce its flowers. Allusion was then made to the tubers of the Oxalis crenata, mentioned in our columns last week. Mr. Bateman stated he had not been able to grow it successfully out-of-doors, but 30 years ago he had grown it in a vinery, and there obtained handsome tubers. He suggested that it might be worth while to try it in orchard-houses, and, if the experiment were successful, an important addition to our scanty stock of vegetables would be obtained, as when cooked the tubers are as light as *soufflet* flour, and have a very pleasant taste. Mr. Bateman stated that Truffles had been extraordinarily plentiful in Paris this year, and lamented the speedy disappearance of their aroma; he had kept one on his dressing-table, and had found that at the end of one week it had lost its perfume. Alluding to Orchids, Mr. Bateman first exhibited an elegant basket, invented by Mr. Briggs, of Chester, the composition of which was unknown, but if it should prove to be durable, and if the sensitive roots of the Orchids discover no injurious ingredients in it, as they do in baskets made of Portland cement, it would be a great improvement upon the tasteless structures composed of mussel or oyster shells, such as may sometimes be seen. Alluding to the fine specimens of Phalænopsis Schilleriana, exhibited by Baron Rothschild and Messrs. Carter, he stated that on one spike of a plant imported by Mr. Williams no less than 100 flowers had been counted. Reference was then made to some of the Orchids exhibited, including the curious Bonatea, which he thought would succeed in the Mexican house. Mr. Bateman then alluded to the growing importance of the Orchid collection of Lord Londesborough, and to the question as to whether Lap-Dogs should be admitted as Fellows, and, if so, under what restrictions. For his part he was willing to give a prize for the most beautifully tinted Lap-Dog Fellow of the Society!

Mr. Berkeley stated that there were at least 40 species of Truffles in Britain, but not the Tuber melanospermum of the Paris markets. The best way to cook them was to roast them in ashes; the aroma might be partly retained by preserving them in oil.

Scientific Committee, *Jan.* 19.—W. W. Saunders, Esq., F.R.S., V.P., in the chair. After the routine business had been transacted, the Rev. M. J. Berkeley exhibited the Pelargonium described by him at p. 78.

Referring to some imported Orchid shoots destroyed by some minute insect, Mr. Horne stated that in India Liliaceous plants were frequently injured by a similar insect. The matter was referred to Professor Westwood, to report upon at a future meeting. Mr. Horne also laid on the table an extensive series of coloured illustrations of Himalayan Fungi, and other plants.

Dr. Hogg exhibited, on the part of Messrs. Rivers, a series of Apple and other Stocks, and made some comments on them. The stocks sent were as follows:—

"Group No. 1.—Apples on the Nonsuch English Paradise stock, with two stocks one year old. The trees were one and two years old, with the exception of the dwarf bushes, which were two and three years old; this stock was raised at Sawbridgeworth from the Nonsuch Apple some 30 odd years ago. The specimens sent showed the great property of the stocks to produce surface-roots, and of the scions grafted on them to produce bloom-buds, while their vigorous growth was checked.

"Group No. 2.—Apples on the broad-leaved English Paradise stock, with two stocks one year old; the trees were one and two years old. This stock was raised from seed in the same season as the former; its parentage is, however, unknown. Both these stocks are remarkable for their rooting freely at the surface, and giving a robust growth with great fertility.

"Group No. 3.—Apples on the French Doucin stock, one and two years old, the best variety received from France. This kind does not root so freely near the surface in this climate as the English Paradise stocks. Two stocks, one year old, were sent with the trees. This stock is different from the French Para line.

"Group No. 4.—Apples on the French Paradise stock, one and two years old, with two stocks one year old. The trees on this stock are very fertile, but are apt to canker in the stiff cold loams of Sawbridgeworth. These had been recently imported."

As to this stock, which is apparently quite different from that sent by other exhibitors as the true Pommier de Paradis (see Mr. Scott's remarks, p. 79), Dr. Hogg remarked, that it was of very dwarf habit, and never threw out strong woody roots. It differs from the English Paradise, which latter is much stronger growing, and not nearly so dwarf as the French Paradise.

"Two Peach trees—Bellegarde and Grosse Mignonne Early—budded on a kind of White Magnum Bonum Plum. The "French Peaches" were formerly budded on the White Pear Plum and the Brompton Plum stocks; in France at the present day they are budded on the Black Damask and the Mirabelle Plum stocks, with no great success, as the stocks do not swell freely. The stock now sent swells with the scion, and seems likely to supersede all other kinds of Plum stocks for the French Peaches."

With reference to these, Dr. Hogg stated that the kinds formerly used as stocks for Peaches were the Mussel Plum, the Pear Plum, and the common Plum; but it was found that the French Peaches, such as the Téton de Venus, and others, would not unite satisfactorily with these stocks. Mr. Rivers, however, had discovered in Worcestershire a kind of Plum which he calls the Pershore Plum, which is closely allied to the White Magnum, and which is suitable for all Peaches and Nectarines. Messrs. Rivers also exhibited the following stocks:—

"One Burr Knot, a surface-rooting Apple, forming a very good stock for garden Apple trees; two Pigmy Paradise stocks, one year old; two Miniature Paradise stocks, one year old. These were sent to show the tendency of our old kinds of Apples to produce from seed surface-rooting dwarf trees; they have not yet been employed as stocks to graft Apples on, owing to their feeble growth; they were raised at Sawbridgeworth from seed some years since. One lateral single cordon Apple tree on the English Paradise stock, five years old; one vertical cordon Apple tree, on the same kind of stock, and of the same age; one lateral single cordon Apple tree on the French Paradise stock, five years old—an imported tree from France: the three last-mentioned trees had been growing side by side in a stiff, cold, clayey soil."

Dr. Masters exhibited, on behalf of Mr. Scott, of Merriott, specimens of Crab stocks, of English Paradise, received as such from the Woking growers, and which had been injured by frost in 1867; and specimens of the Pommier de Paradis of the French, growing in the same soil, and of the same age, as the English Paradise. This is apparently quite different from the Pommier de Paradis sent by Mr. Rivers. It was considered by the Committee as likely to canker, while the knobs or burrs so freely produced on its stem, and from which roots proceed in abundance, were considered to be objectionable, as likely to harbour American blight and similar pests. It is a vigorous stock, quite hardy, and producing an abundance of somewhat horizontal surface fibrous roots. Further particulars as to the specimens sent by Mr. Scott are given in his own words, at p. 79. Dr. Masters also showed, on behalf of Mr. J. F. Meston, of Addlestone, specimens of the French Paradise stock (apparently similar to that shown by Mr. Scott) and of the Doucin stock, together with cordons of Reinette Francha, Calville Blanc, Belle de Bois, and Canada Gris, worked on the French Paradise, and of Reinette du Canada on the Doucin stock. The plants were imported from France, and those on the Paradise were little more than a year from the graft. The exhibition of these stocks, &c., created great interest, and it was resolved that the exhibitors be requested to allow the specimens to be sent to Chiswick, in order that they may be tested. We shall take another opportunity of alluding to them.

Dr. Masters then laid on the table some specimens of fasciated branches of Sycamore which had been sent by Mr. D. T. Fish, and stated that one probable cause of the formation of such growths was some check given to the terminal bud, resulting in the formation of a large number of secondary buds, which became fused together as they grew, and ultimately became separated one from the other.—Rev. M. J. Berkeley stated that he had ascertained in one instance, in a species of Sambucus, that a parasitic fungus (Æcidium) was the cause of the mischief.—In reply to a question, Dr. Masters stated that the condition was occasionally reproduced in seedling plants, but was not, so far as he knew, perpetuated by grafting or budding. Various speakers alluded to the frequency of the occurrence in some plants, as the Ash, the Cotoneaster, &c. Allusion was also made to the Cockscomb and the Sedum cristatum. [M. Lemaire, of Ghent, has recently called attention to the similar malformation which exists in some Cactuses, and which he calls Lophocauly. EDS.]

Mr. D. T. Fish likewise sent a spray of Holly, of which the following account was given:—"A shoot of the yellow-berried Holly has just come under my notice with the berries of a bright orange-red. It was gathered from an old grafted tree about 20 feet high, and from 25 to 30 years old. The plant stands near the outside wall of the Botanic Garden at Bury St. Edmund's, and as far as can be ascertained has not been observed to produce other than yellow berries till this season. Certainly it has generally produced berries of the usual colour. This year, as will be seen from the specimen, they are of a decidedly orange-red. The tree is grafted near to the ground, in the usual mode of grafting Hollies in nurseries. This renders the case the more singular, that such a short length of stock of the original Red Holly should have power to change the colour of the berries. It seems likewise to have influenced the wood, as the leaves and the stem are not quite like those of the yellow-berried variety." [But for the latter part of Mr. Fish's statement, it might have been thought that possibly pollen from a red-berried Holly had been applied to the stigma of the yellow-berried one, and thus produced the effect. Analogous instances of the effect of pollen on the ovary have been cited; some cases are mentioned in Darwin's work on "Variation." Possibly it may be a case of reversion. EDS.]

Mr. Miers exhibited a specimen of Oncidium Cebolleta affected with black spot.

Floral Committee.—The most remarkable objects shown on this occasion were two glorious specimens of Phalænopsis Schilleriana, the one exhibited by Mr. Forsyth, gr. to the Baron Rothschild, Gunnersbury, the other, from the nursery of Messrs. Carter & Co. The former, a grand plant, bore two flower-panicles, one of which had seven branches; this had between 60 and 70 flowers and buds. The other was equally fine, and bore an eight-branched spike, one of the branches being again ramified. They well deserved the Special Certificate which was awarded to each. Messrs. Carter & Co. also showed examples of half-a-dozen of the new Golden Coleuses, together with good specimen masses of Dichorisandra undata, and Fittonia argyroneura, for which collection a Special Certificate was awarded. Mr. Denning, gr. to Lord Londesborough, Grimstone Park, showed a remarkable Oncidium, which gained a Second-class Certificate. It had been purchased as O. nebulosum, but appeared to be nearly allied to sphacelatum; the pseudobulbs were compressed and grooved, the leaves lorate, and the flower panicles of a peculiar narrow elongate character, as if the flowers had been loosely strung on a slender wire, the branches being very short, 2-3 flowered, and placed tolerably close together from the apex nearly to the base of the flower-stem, which was between four and five feet long; the sepals and petals were pale greenish-yellow, spotted with brown, lanceolate acute and wavy, the dorsal ones standing erect, and the lateral ones and petals standing at right angles right and left one above the other, while the lip had two large hump-like basal lobes, and an obcordate front lobe, and was of a pale straw-yellow stained with brown near the base. From the same collection came a very finely coloured Lycaste Skinneri, everywhere deeply suffused with rose colour, the petals most so, and the lip dotted with crimson. Mr. Williams sent a collection comprising many interesting plants, for which a Special Certificate was given. It comprised several well-grown Orchids, as Odontoglossum cristatum, Bluntii, nebulosum, and Cervantesii, Angræcum eburneum virens, Calanthe vestita Turneri, Vanda tricolor, and Cypripedium villosum and venustum. With it came a group of Weatherill's hybrid Solanums, previously noticed; a rather striking Aralia called peltata, with leathery lobate leaves on long slender petioles, and well suited for decorating halls, conservatories, &c.; Chamærops gracilis, an elegant erect-habited variety of C. humilis; the curious Bonatea speciosa; and Lycaste Schilleriana, a distinct and rather pleasing species, with the pseudobulbs and leaves of L. Skinneri, and flowers having long recurved olive-green sepals, and smaller somewhat connivent white petals and lip. This latter received a Second-class Certificate. Mr. Gibson sent some fine examples of Senecio Ghiesbreghtii, which had seen service last summer in the sub-tropical department at Battersea, and which now, with their large dense corymbose heads of yellow flowers and bold oblong coarsely-toothed leaves, were seen to be admirable subjects for conservatory decoration. Messrs. Veitch & Sons, of Chelsea, sent a pretty dwarf tufted growing Asplenium, allied to erectum, from Monte Video, to which a First-class Certificate was given; also, under the name of Phormium Cookianum variegatum, a form of New Zealand Flax, said to differ from P. tenax in its narrower leaves and more erect habit, but which is certainly not the P. Colensoi grown in other establishments, though, according to Dr. Hooker, P. Colensoi and P. Cookianum are synonymous. The Committee desired to see these when more developed. With them came for comparison P. tenax, P. tenax variegatum, and the green form of the plant shown under the specific name of P. Cookianum. Mr. Green, gr. to W. Wilson Saunders, Esq., obtained a First-class Certificate for Agave Besseriana hystrix, a dwarf tufted plant, with narrowish leaves, 4 to 5 inches long and of a glaucous hue, tipped by a stout black spine an inch long, and bordered by smaller spines, also of a black colour. Messrs. E. G. Henderson & Sons, Wellington Road Nursery, sent flowering and fruiting specimens of the very ornamental Habrothamnus, or Cestrum elegans; it is singular that, from the resemblance in colour between the flowers and the fruit, the general effect is at first sight much the same in both conditions. A Cattleya, called Galbrandiana, sent by Mr. Woodward, gr. to Mr. Torr, Galbrand Hall, Ewell, was one of the forms of C. Trianæi. Mr. Cutbush, of Highgate, produced a group of 25 Hyacinths in fine condition; and from Mr. Wiggins, gr. to W. Beck, Esq., Isleworth, came a showy group of Cyclamens, various in colour, and several well-grown white Chinese Primroses. These severally received Special Certificates. Mr. Helmer, gr. to A. Scrutton, Esq., Blackheath, had some good double-flowered Chinese Primroses. Two collections of cut blooms of Camellias received Special Certificates: one came from Mr. Allen, gr. to Captain Glegg, Withington Hall; the other from Mr. Baxter, gr. to C. Kieser, Broxbourne. In the set shown by the latter, and which consisted generally of very fine blooms, was a variety named Kelvingtoniana, of remarkable size and beauty, the flowers having immense guard petals and a tufted centre, and measuring fully 5 inches across, the colour being of deep carmine-crimson, freely blotched with white. A very interesting and varied collection of British Ferns, from R. A. Thompson, Esq., of the South Kensington Museum, received a Special Certificate.

Fruit Committee.—On this occasion the subjects brought before the Committee were not very numerous. Messrs. E. G. Henderson, Wellington Nursery, St. John's Wood, exhibited a small pear-shaped ornamental Gourd, of a fine clear yellow colour, and which received a First-class Certificate. In consequence of some misunderstanding respecting the date of the meeting at which prizes were offered, two collections of three dishes each of Apples were sent for competition, from Mr. S. Wells, Holme Lacy, and Miss Harrison, Warden Hall. These were in very fine condition, and will be brought before the Committee at the next meeting. A fine dish of Oranges was sent by Seymour Tenlon, Esq., Tenchley Park, Limsfield; they were of good size and colour, but when cut were very dry, and had evidently been grown on old trees. From the Society's Garden, Chiswick, came some very pretty examples of Melville's Variegated Garnishing Kales. Mr. Fowler, gr. to the Earl of Harewood, Harewood House, near Leeds, sent some excellent specimens of the Muscat of Alexandria Grapes,

which unfortunately did not arrive in time to be laid before the Committee. The bunches sent were well shouldered, of a rich golden colour, with a very fine bloom, and of excellent flavour. The Vine from which these Grapes were obtained was planted in the year 1788, and now produces annually between 400 and 500 bunches of first-rate quality. From Mr. Sampson, Yeovil, came good specimens of the Telegraph and Victory of Bath Cucumbers. Mr. Earley, jr., Digswell Park, exhibited some very fine Parsley, called Earley's Selected, and which proved to be of good quality.

Notices of Books.

Greater Britain: a Record of Travel in English-Speaking Countries. By Charles Wentworth Dilke, M.P. London: Macmillan. 2 vols. 8vo. Pp. 832.

That such a record as is here made public should be possible, is in itself as remarkable a circumstance as any related in the present volumes. Greater Britain, as here understood, includes the United States, Canada, the Pacific States of America, New Zealand, the several Australian colonies, and India from Ceylon to Kurrachee and Lahore, and all these were visited by our author in little more than 12 months. It is true that the "beaten track" was rarely departed from, except in the journey across America, but we are not sure whether the significance of the epithet "Greater" Britain is not all the more intense from this very circumstance.

The main purport of the journey seems to have been to study the existing condition of the Anglo-Saxon race; to notice how it is modified by climatal conditions and association with other races, to observe the working of Teutonic laws and habits of thought when transplanted into the newer worlds of America and Australia, or into that vast Asiatic promontory which boasts a civilisation far more ancient than our own.

Such being the objects of the book it might be thought that the interest of these volumes would be so purely political or politico-economical that they would present no feature of interest to the naturalist. This assumption would be unjust alike to the author, and to natural science. Mankind is so intimately dependent on physical conditions, and so inseparably connected with other living creatures, that to study the one and neglect the other, is in a great measure to throw away the best opportunities of arriving at an intelligent appreciation either of the one or the other. After all, Edward Forbes was not so far out when he declared that the crawl of a periwinkle might be more important than the march of an Alexander! The greatest travellers have been men who have recognised and, so far as it was possible for them to do so, have acted up to these facts. The remarks of a Humboldt or of a Martius on the political economy of the districts visited by them, were of as great importance at the time they were penned, as were their observations in natural history. That the latter have the more permanent value is only because the changes in government and laws in those particular countries have been more rapid than are those in departments of which natural or physical science takes special cognisance.

The author of the present volumes makes no claim to be considered a naturalist—the objects of his journey were in no way directly connected with natural history, and hence the indications that we get in perusing these volumes of the connection between the human and the other inhabitants of this globe are all the more significant, at the same time that they reflect the greater credit on the philosophic insight of the author. Here is an illustration of our meaning. Speaking of the Banana, "the true staff of life," Mr. Dilke writes:—

> "The terrible results of the plentiful possession of this tree are seen in Ceylon, at Panama, in the coast lands of Mexico, at Auckland in New Zealand. At Pitcairn's Island the Plantain grove has beaten the missionary from the field; there is much lip-Christianity, but no practice to be got from a people who possess the fatal plant. The much-abused Cocoa-nut cannot come near it as a devil's agent. The Cocoa Palm is confined to a few islands and coast tracts—confined, too, to the tropics and sea level; the Plantain and Banana extend over 70° of latitude, down to Botany Bay and King George's Sound, and up as far north as the Khyber Pass. The Palm asks labour—not much, it is true, but still a few day's hard work in the year in trenching, and climbing after the nuts. The Plantain grows as a weed, and hangs down its branches of ripe, tempting fruit into your lap, as you lie in its cool shade. The Cocoa nut tree has a hundred uses, and urges man to work to make spirit from its juice; ropes, clothes, matting, bags from its fibre; oil from the pulp: it creates an export trade which appeals to almost all men by their weakest side, in offering large and quick returns for a little work. John Ross's 'Isle of Cocoas,' to the west of Java and south of Ceylon, yields him heavy gains; there are profits to be made upon the Liberian coast, and even in Southern India and Ceylon. The Plantain will make nothing; you can eat it raw or fried, and that is all; you can eat it every day of your life without becoming tired of its taste; without suffering in your health, you can live on it exclusively."

In New Zealand, as in America, our author appears to have been much struck with the replacement of species, a matter which has attracted fresh attention since the now well-known writings of Darwin and Wallace "on the survival of the fittest." One of his chapters commences thus—

> "'As the Pakéha fly has driven out the Maori fly;
> As the Pakéha Grass has killed the Maori Grass;
> As the Pakéha rat has slain the Maori rat;
> As the Pakéha Clover has starved the Maori Fern,
> So will the Pakéha destroy the Maori.'
>
> These are the mournful words of a well known Maori song.
>
> "That the English Daisy, the White Clover, the common Thistle, the Camomile, the Oat, should make their way rapidly in New Zealand, and put down the native plants, is in no way strange. If the Maori Grasses that have till lately held undisturbed possession of the New Zealand soil require for their nourishment the substances A, B, and C, while the English Clover needs A, B, and D, from the nature of things A and B will be the coarser earths or salts, existing in larger quantities, not easily losing vigour and nourishing force, and recruiting their energies from the decay of the very plant that feeds on them; but C and D will be the more ethereal, the more easily destroyed or wasted substances. The Maori Grass, having sucked nearly the whole of C from the soil, is in a weakly state, when in comes the English plant, and, finding an abundant store of untouched D, thrives accordingly, and crushes down the Maori.
>
> "The positions of flies and Grasses, of plants and insects, are, however, not the same. Adapted by Nature to the infinite variety of soils and climates, there are an infinite number of different plants and animals; but whereas the plant depends upon both soil and climate, the animal depends chiefly upon climate, and little upon soil—except so far as his home or his food themselves dep nd on soil. Now, while soil wears out, climate does not. The climate in the long run remains the same, but certain apparently trifling constituents of the soil will wholly disappear. The result of this is, that while pigs may continue to thrive in New Zealand for ever and a day, Dutch Clover (without manure) will only last a given and calculable time.
>
> "The case of the flies is plain enough. The Maori and the English fly live on the same food, and require about the same amount of warmth and moisture: the one which is best fitted to the common conditions will gain the day, and drive out the other. The English fly has had to contend not only against other English flies, but against every fly of temperate climates: we having trading with every land, and brought the flies of every clime to England. The English fly is the best possible fly of the whole world, and will naturally beat down and exterminate, or else starve out, the merely provincial Maori fly.
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> "Natural selection is being conducted by nature in New Zealand on a grander scale than any we have contemplated, for the object of it here is man. In America, in Australia, the white man shoots or poisons his red or black fellow, and exterminates him through the workings of superior knowledge; but in New Zealand it is peacefully, and without extraordinary advantages, that the Pakéha beats his Maori brother.
>
> "That which is true of our animal and vegetable productions is true also of our man. The English fly, Grass, and man, they and their progenitors before them, have had to fight for life against their fellows. The Englishman, bringing into his country from the parts to which he trades all manner of men, of Grass seeds, and of insect germs, has filled his land with every kind of living thing to which his soil or climate will afford support. Both old inhabitants and interlopers have to maintain a struggle which at once crushes and starves out of life every weakly plant, man, or insect, and fortifies the race by continual buffetings. The plants of civilised man are generally those which will grow best in the greatest variety of soils and climates; but in any case, the English fauna and flora are peculiarly fitted to succeed at our antipodes, because the climates of Great Britain and New Zealand are almost the same, and our men, flies, and plants—the 'pick' of the whole world—have not even to encounter the difficulties of acclimatisation in their struggle against the weaker growths indigenous to the soil."

These citations, together with many others that space forbids our inserting, show how alive our author is to the effect of natural causes in promoting the welfare of the strong and the gradual disappearance of the weak among the nations.

Contrast what is said of Australia and New Zealand anterior to the advent of Europeans, and when the native races were already dying out from a process of slow starvation, as now in Easter Island, owing to the want of cultivation and their ignorance of agriculture, with the account given of the Mormon Peaches:—"These growers of fruit from standard trees think but small things of our English wall-fruit—baked on one side and frozen on the other. There is a mellowness about the Mormon Peaches that would drive our gardeners to despair." Whether our gardeners will admit the latter part of this assertion remains to be seen. Certainly the advocates of orchard-houses may truthfully assert that mellowness in Peaches is not confined to Mormondom, and that British-grown Nectarines, unknown in Utah, would make even the great Brigham's mouth water, and his 50 wives faint with ecstacy.

We have said enough to show that our author is quite capable of appreciating the bearing of the great questions agitating natural history on the science of mankind and of government; at the same time we must express our regret that he tantalises us now and then with descriptions of prairie flowers,—"Morning Blowers," "Rockwood Lilies," and the like,—descriptions glowing enough to aggravate the reader, but not sufficiently technical to enable one to ascertain what are the plants spoken of.

Throughout his wanderings the author displays a discriminative, if not rapturous appreciation of natural scenery, of which the subjoined extract, which will be of interest to cultivators, may serve as evidence:—

> "The peculiarity which makes the New Zealand west coast scenery the most beautiful in the world, to those who like more green than California has to show, is that here alone can you find semi-tropical vegetation growing close up to the eternal snows. The latitude and the great moisture of the climate bring the long glaciers very low into the valleys; and the absence of all true winter, coupled with the rainfall, causes the growth of Palm-like Ferns upon the ice-river's very edge. The glaciers of Mount Cook are the longest in the world, except those at the sources of the Indus, but close about them have been found Tree Ferns of 30 and 40 feet in height. It is not till you enter the mountains that you escape the moisture of the coast, and quit for the scenery of the Alps the scenery of fairyland."

With these extracts we take leave of a work which has deservedly received the approbation of the critics in general.

Florists' Flowers.

HAVING an hour or two at my disposal, I cheerfully sit down to give our Floral friends a short *resumé* of my doings with the GLADIOLUS for the year just closed, feeling hopeful that the interest in this most beautiful of autumn flowers may continue steadily to increase, as it has done for some years. In my notes at the close of 1867 I expressed a belief that my habit of planting very early, and covering deeply (6 inches), was a mistake, and I now wish to state that for 1868 I adopted a totally different system with the chief portion of my stock, and I think I am justified in saying with complete success, so far as success was possible in the very hot year 1868.

I planted my five best beds, of 100 bulbs each, at the end of the third week of February, in rich fresh loam, intermixed with about one-fourth of the very heavily manured soil of the previous year, covering the bulbs 2 inches. This was very different from the deep planting of previous years, and I am of opinion it will be found better practice. The green shoots began to show, thick and strong, early in April, and when about one-half were well up, I gave a dressing of 1 inch of the same soil, and one inch more about the end of May. I commenced watering about the middle of May, and continued to do so in moderation every evening all through the season, up to the time of our exhibitions, about the end of August. This, and a liberal mulching of well-rotted manure in July, kept my stock alive and well, in the face of the great heat of last summer. The main bloom came early, far too early for our chief exhibition—the Autumn Show of the Royal Horticultural Society of Ireland (Sept. 3), which we had unfortunately fixed to come off about two weeks later than our usual time, to meet the views of some special class of exhibitors. The spikes were much less tall than usual; the colouring of the flowers was, all through, more brilliant, and, I may safely add, more evanescent, than I ever remember to have observed before; the bulbs were ripe early, and took up large and in prime condition, generally; the quantity of spawn was greatly in excess of any year I ever remember, and also seed was plentiful, and ripened early, and in fine condition. Such of my readers as are growers of the Gladiolus, will observe a marked difference in the foregoing, on several points, from the results of past years. The past year was a bad one for shallow planting, and where it was possible to succeed moderately in 1868, the chances of obtaining a fine bloom in ordinary seasons by the same course of action will be greatly increased. I have said my bulbs took up well, large, and good, and dry; their average depth from the surface, before being taken out of the ground, was not more than an inch, the soil having been gradually washed away by the incessant waterings. I had all placed in boxes, made specially for them, like those for Tulips, on a larger scale, by the middle of October, and I left them out for a month, lying on a Tulip bed, with the canvas over them whenever rain came. When I got them into the house, and had leisure to go over them to clean them, I found fully as many bulbs as usual dead, shrivelled up, and utterly worthless, and this in many cases, as my note-book tells me, where the growth had been fine, and the spike or spikes of bloom splendid. So we are still saddled with a certainty (almost) of a heavy annual loss, under the best circumstances—to the extent, I would venture to say, of about one-tenth of our entire stock of this noble flower, from some inscrutable cause which no one seems able to fathom. This is a heavy blow and great discouragement to young beginners. I know several friends whom I have induced to order 50 or 100 bulbs to begin with, and whose little stocks I have supplemented with a few of my spare varieties, who complain with long faces at the blooming time, that they have had very few good spikes; and when the succeeding winter has been got through, the supply of bulbs saved over for planting has been miserably small; in fact, the bulbs of Gladioli seem to melt away in a strange manner in the hands of all save the few who are possessed of all facilities for covering them, and of what is still more rare, a love of flowers sufficiently strong to induce them to devote many an hour during the winter, in the fruit and bulb room, to the close examination and supervision of their favourites. I have grown a most valuable stock of Tulips for many years, and I very rarely lose a bulb, not more than two or three in a year out of a stock of over 2000; but I never sit down to order my new Gladioli for the coming year without having to go back, and repeat choice varieties, which I have grown in quantity for years, but which somehow have dwindled away.

I had a fine bloom of my own seedlings this year, some 800 to 1000 good strong spikes coming in rather late, and doing good service at show time. These I planted in March, about 3 inches deep, in good ordinary soil, well manured, and I top-dressed in May, and watered heavily about twice a week. The spikes were much taller, and the losses by decayed bulbs greatly less than among the named varieties. The novelties just let out are generally finer the first year than they ever come after, so that it would seem to be true of other flowers, as Mr. William Paul says it possibly is of Roses, when treating of the vigorous novelties of last year, in the "Florist" of this month, "that many kinds really vigorous, when beginning life anew from seed, fail and sink under the fast life which, if there is anything in them, they are often compelled to lead." The novelties sent out last season by M. Souchet were more numerous than usual, and I think, as a lot, not by any means up to the mark in quality. Before I proceed to give my notes on them, I would venture to express an opinion that the half-dozen sent out together in 1865 (I think: I quote from memory), have individually or collectively never been excelled. They were: Shakespeare, Eurydice, Newton, Maréchal Vaillant, Meyerbeer, Prince of Wales. While there are some few decidedly valuable acquisitions in last year's batch, there are not certainly six flowers at all equal to those just named. First of last season's lot I would name Ulysse, a splendid flower, rosy violet, bright crimson feathers, straw throat, xxx spike. Next I would place Rossini, rich rosy crimson, scarlet feathers, throat crimson and white shaded; third, Semiramis, deep rosy violet, crimson feathers, white throat—a very stylish flower, the blooms well shaped, but rather small, and the spike just middling. Those three I consider, in the main, valuable acquisitions, and likely to hold a high place for some time. Taking the next trio, I would give the first place to Norma, soft white, pale mauve throat and feathers, the colours flushing or running after a day or two, large flower, fine spike; next La Fiancée, pure white, red lilac throat, xx spike, good shape and substance, fades quickly; next, Eugène Scribe, purple shade of

rose, straw throat, crimson blotch, good spike. Then there are Mozart, Barillet Deschamps, Etendard, Uranie, Bernard de Jussieu, Marie Verdier, and a few others, not likely, in my opinion, ever to take a leading place, unless they improve on a second trial, which I do not expect. I may here observe that Byron bloomed very much finer last season, both as regards size of spike and depth of colour, than I had ever seen it before. This was very exceptional.

For the guidance of "the many," in their purchases for the coming season, I give here the names of what I consider the 50 best varieties known to the public up to the present time. I do not profess to be infallible, nor (as taste and judgment differ) do I suppose that any two amateurs would agree exactly in their estimates of the various sorts; still I think the following approximates pretty closely to what the balance of educated (floral) opinion, if attainable, would pronounce for:—Shakespeare, Eurydice, Meyerbeer, Maréchal Vaillant, Prince of Wales, Newton, Ulysse, Rossini, Semiramis, Adolphe Brongniart, Thomas Moore, Princess Mary of Cambridge, Norma, La Fiancée, Eugène Scribe, Félicien David, Flore, Madame Vilmorin, Milton, Madame de Sévigné, Edulia, Belle Gabrielle, Apollon, Reine Victoire, Naomie, Impératrice Eugénie, Byron, Ensign, Carminata, Etendard, Marie Dumourtier, Samuel Weymouth, Mozart, Linne, Reverend Berkeley, Madame Basseville, Madame Rabourdin, Le Poussin, Empereur Napoléon, Lady Franklin, Sir Joseph Paxton, Anais, Achille, Le Titien, Cherubini, The Colonel, Bernard Palissy, Madame Furtado, Fulton, James Veitch.

For a still more numerous class, who may wish for a nice little collection at a moderate cost, I add a list of 50 older and less expensive varieties, of good quality, which any respectable establishment in the seed and bulb trade should be able to supply together, for about 50*s.*:—Archimedes, Madame Binder, Duc de Malakoff, Lælia, Joan of Arc, Mrs. Siddons, Lord Raglan, Madame de Vitry, Ophir, Madame Souchet, Madame Eugène Verdier, Dr. Antony, Ninon de l'Enclos, Clémence, Adonis, Endymion, Isoline, Rembrandt, Napoleon III., Comte de Morny, McMahon, Marie, Bertha Rabourdin, Theresa, Julia, Ceres, Janin, Galathea, Rebecca, Cuvier, Brenchleyensis, Victor Verdier, Madame Domage, Dr. Hogg, Clara, Madame Haquin, Zoë, Mars, Oracle, John Bull, Madame Truffaut, Mr. Marnock, Madame Lesèble, Lord Granville, Juliet, Princesse Mathilde, Calendulacus, The Cardinal, James Watt, Canarii. *J. F. Lombard, Dublin, January*, 1869.

Garden Memoranda.

DICKSON AND CO.'S NURSERIES, EDINBURGH.—These nurseries have long been well known throughout the country, and several men of high reputation, not only as business men, but as horticulturists and promoters of horticulture, have owned them, from "Watty Dickson" down to James Alexander, the present senior partner. They occupy between 70 and 80 acres of ground, in different parts of the suburbs. Edinburgh, like all great towns, is extending its building circumference, and driving out to new allotments the nurseryman and the market gardener. The most important ground, at first tenanted and latterly owned by the firm, is that called Redbraes. The site has many natural advantages. In the centre of the ground is an irregular lake of considerable size. Surrounding this lake is a large basin in the form of an amphitheatre of about 60 feet acclivity, made up of a soil in which loam and peat form the principal ingredients, and hence the luxuriance which is manifest in the hosts of standard and other Rhododendrons, and standard Portugal Laurels, which vie with one another in their beauty of outline, and attest that, beyond dispute, they are the plants and the species that ought to be selected for terraces and wide promenades in our climate. The Colchican Laurel is unquestionably well adapted for that sort of work; its leaves are more oblong than those of the Bay, its habit more vigorous, and with a little manipulation it can be made to form one of the best of pyramidal standards; moreover, it flowers twice a year, and is a prominent object among its fellows.

Here, among selected Conifers, the Biota glauca and Juniperus glauca were growing side by side, the latter the more elegant in the shape of its lateral leafy spray; while some of the larger-growing species stood up in bold relief, such, for instance, as Pinus taurica, one of the best of the Laricio or austriaca type, and grown here in quantity, as well as the dense form of P. insignis, which latter fails in some localities, though at Taymouth, we were told, it forms a most splendid object, the leaves being tinted with a golden hue. While among Conifers, in this same ground, we had an opportunity of testing the growing capacity of Cedrus atlantica alongside of Cedrus Libani. The batches of seedlings had been sown at the same dates, in similar boxes, had been planted out in the usual way, and after planting and re-planting, the batch of the former averaged 9 feet high, and the latter about 2 feet. Unless in some specially favoured locality, the Cedar of Lebanon will not do nearly so well as the C. atlantica, which quite bears out Mr. McNab's high character as a Conifer likely to tell upon the future arboriculture of the country. Strangely enough, while the Lebanon Cedar was constantly losing its top, and showing an indisposition to be comfortable in the district, the far more generally coddled Libocedrus chilensis was growing as rampant as a Siberian Arbor-vitæ; and yet how often do we see it treated almost as a greenhouse plant. A most noble thing for the garden of the amateur, and everybody else, is Thuja compacta; it grows like a gigantic aurea, and it needs very little other recommendation. Nor should we omit to name the beautiful Chinese Juniper—beautiful at all times, and interesting in spring from its profuse inflorescence. The Californian Pinus monticola is a choice Conifer, possessing one of the best of habits and a fine glaucous hue; nor should the merits of P. Pinaster, which was revelling in luxuriance, with its golden-tipped foliage, be overlooked. Even the puny Abies Clanbrasiliana and A. archangelica were getting up their heads far above what one is in the habit of seeing, showing that a proper soil is of more consequence to them than a warm climate. Thuja ericoides deserves a better position than is usually granted it; its conical habit and elegant foliage invest it with rather an imposing character, suitable for individualising upon lawns, and quite distinct from that of its ally, Retinospora ericoides. It proves to be quite hardy at Redbraes, and although a little discoloured from the effects of winter, puts on a beautiful coat during the summer months. All these plants above-named are individually beautiful and interesting, but it is when we come to look at them collectively, that we see what it is in the power of exotic Conifers and other choice plants to do, in decorating our British landscapes.

Here the Eugenia Ugni was in great stock, and the largest of the plants had stood out for six years without a mishap of any kind. It had made young growths over 18 inches long, and was berried in proportion to its size. An excellent plant for forcing is to be found in Menziesia empetrifolia, as well as for the general shrubbery, yielding, as it does, an abundance of large inflated Heath-like flowers, and the plant itself quite as hardy as the Crowberry. The Pernettyas are pretty plants—both mucronata and speciosa, the latter the best of the two for flowering; so is the Genista triquetra, with its ground-running stems, yielding a profusion of yellow flowers. There are many of these choice things in this establishment, grouped in fifties, and hundreds, or more, which adds greatly to the effect. In Berberis there is nothing to equal nepalensis, taking foliage and habit into consideration; the fine pinnate leaves are so lustrous as to command admiration. B. glumacea is also a good shrubby plant, of a dwarf character, and B. Darwinii is too well known for its free flowering to require any commendation. The almost unplaced, in botanical science, Griselinia littoralis, is a nice thing for what used to be called an "American border," and the Skimmia japonica seems to have a future before it, out-of-doors, judging by the plants which had stood over unprotected at Redbraes.

Leaving special for more general things, we found a collection of Ivies, not the least useful among them being the palmated variety, which seems to hold on so fast, either upon wood or wall, that it would require some effort to displace it. Hollies and Araucarias are in great abundance; the beautiful standard varieties of the Golden Queen Holly are as fine as many indoor foliage plants. Faced up against a wall were lots of the Chinese Privet. Its fine broad leaves, coupled with its flowering in clusters, like the Ash, in autumn, renders it a generally useful plant. Rhododendrons are in great stock, a hybrid variety between caucasicum and campanulatum, named Eugénie, being much sought after for its freeness and beauty; so is also the dwarf R. myrtifolium, flowering as it does so densely, and capable of being planted in places where the taller sorts prove unsuitable. In inspecting a stock of Oriental Planes, we were much struck by the tenacity with which that species in particular holds on its leaves. Every other deciduous tree had parted company with its gaudy garniture, but the large palmate leaves of this were still adorning it, even so late as the day of my visit (Oct. 29). This is a fact of some importance to every planter. Another capital thing for autumn tints is the scarlet Oak: It is indeed one of the best of American introductions. A splendid plantation of the variegated-leaved Aucuba was growing under the dense shade of gigantic Beech trees, quite with impunity. English and Irish Yews put on almost a mournful appearance, looking to the great breadth of them, and the scanty demand. But it would occupy too much space to dwell upon the many choice subjects that met the eye, even supposing these notes to be made instructive to the general reader.

Passing on to another of the divisions, we notice in the first place groups of plants especially reared for game cover. Not the least important, for density and rampant growth, is the Gooseberry-leaved Currant, lots of Sloes, or Blackthorn, plenty of Dogwood, or Cornelian Cherry, rather handsome with its fine claret-coloured stems; and Leycesteria formosa, particularly ornamental and attractive in autumn from its fine crimson thyrses of fruit drooping from ornamental bracts. Then comes Tamarix germanica, a fine seaside plant; lots of standard white Broom, which, when cut, makes a handsome pyramid for minor border work, or even for lawns; and plenty of Mahonias, Guelder Roses, and Spiræas, all valuable for underwood. By all means select the Bedfordshire Weeping Willow in preference to the Babylonian; its habit is more rigid, and it eventually, as we saw from large plants, turns out a much better tree. Keeping company with the above was an extra fine lot of the Box-leaved Privet; this is superior to the common one for hedges, being of sturdy habit, and having lustrous coriaceous foliage, densely clothing the stem. It has the additional attraction of being an evergreen, and consequently is altogether a most desirable plant. While talking of hedges Cotoneaster Simonsii might be safely recommended for an ornamental screen. Its habit is very desirable, and then the ovate leaves are so prettily set alternately on the stems. Passing quantities of Hazel and yellow Spanish Broom, a fine plant for selected mixtures, the eye is arrested by a plantation of English Maple: the small and elegant 3-lobed leaves invest it with a decided character among so many species and varieties. "But what do you call that striking woolly-leaved variety of Poplar?" "Oh," says Mr. Welsh, "that is the new variety. You will see the old Abele growing close by, and you can judge for yourself which is the better plant. Moreover, the Abele does not grow readily from cuttings, but this does." And it was so, for some cuttings of the woolly, or rather of the extra woolly, variety in nursery lines, had grown 3 feet in one season! We observed capital stools of the true red-twigged variety of the Lime tree layered for youngsters for the market. The Kilmarnock Weeping Willow, with its distinct large ovate leaves set wide apart, was grown in quantity, and it seems to do best on its own roots, trained or assisted with a stake, for the first 20 feet of its height; it is able afterwards to do well on its own account. The Huntingdon Willow and the Black Italian Poplar appear to be much sought after for forest nurses, being rapid growers, and readily convertible into cash when thinning is necessary, to do duty for railway plant.

The Larch, the Scotch, and the Spruce trade in all Scotch nurseries is very considerable. The demand fluctuates, but the thousands and even millions that change hands in a season is something wonderful. When one looks at acres quite covered with either or all of these coniferous plants, it is difficult to conjecture where they all find an outlet. In the nurseries in question there is a magnificent stock; in fact, Larch, which was a drug in the market in 1866, 1867, and during the early part of 1868, is now eagerly sought after, especially three years transplanted stuff. The practice which the trade has of interlining the rows is a good and economical one, allowing free scope for the atmosphere to play upon the lower laterals, and one of the best preventives against the approach and propagation of bug. Then again as to kinds, it seems almost indisputable that the native will turn out to be far more enduring than the Tyrolese, for the former was brown and quite ripe, the latter as green as midsummer, at the date already mentioned; and taking the hardihood of the native Scotch against the Hagenau, there do not seem to be two opinions in the North, for, independently altogether of the question of tenderness, Mr. Alexander emphatically declares that the foreign seedlings are much softer in the wood. There were beds and beds of them, but only a small modicum of the Hagenau. What nursery people call the lining process seems to be a conservative one; there are fewer losses by this method, and greater encouragement for growth. The *modus operandi* is to take one years' seedlings of any of the three great Conifers in demand, and line them somewhat thickly and densely, leaving only space between the rows for aëration. Afterwards goes on the process of one year's, two years', and three years' transplanting, and then the interlining process, before the plants take their place among the larger stages of stock that find their way into the plantations of this and other countries. In this nursery great attention is paid to a change of cropping, in truth it is looked upon as necessary as the rotation of agricultural husbandry and as effectual in results. The green cropping process, whose manuring has to be attended to, is of absolute importance, and it is not without its remunerative results. For instance, a portion of ground covered with White Globe Turnips, actually realised this season, which of course has been an exceptional one, 30*l.* per imperial acre. Without good land and good cultivation there could not have been the uniformity and vigour of growth that characterised the various plantations of Larch, Scotch, and Spruce over these nurseries.

In the Leith Walk Nursery, which has all along been the headquarters of the establishment, and which is being fast used up for building purposes, there are many choice things. The stock of Pansies for which this firm has for many years been famous, is congregated in frames, and many are the choice seedlings that have been reared under the eye of Mr. Tait. Herbaceous plants and choice American shrubs, along with a large collection of hardy Heaths, are unusually prominent, besides many choice rock plants, which must be passed over unnoticed. Then the Camellia-house is full of large and small plants, among which is a specimen of great size and bristling with buds of Rhododendron Dalhousiæ grafted on the ponticum. The collection of Heaths and Epacris is large and well managed; while Ferns, stove plants, Pelargoniums, and other soft-wooded plants, have all house accommodation. There being a quantity of walls in the nurseries, ample space is provided for trained fruit trees of all kinds. An immense traffic is carried on in Pear stocks for the American market. Growers over that large continent aver that they cannot raise them in a satisfactory or a remunerative way from seed, and hence the demand upon our market. After they are ready for receiving the scions, it appears they succeed well enough, which is somewhat strange, and it would be interesting if our American cousins could explain the anomaly.

Spanish Chestnuts are very numerous, and find a ready sale in the English market for hop-poles. Hazel, Alder, and Birch cover large spaces, and are used up in infancy for bobbins. The Mountain Ash is a fine tree in a mixed multitude, ornamental, from the seed-bed, all through its chequered life. Evergreen Oaks, partially sheltered in a compartment surrounded by high Beech hedges, are conspicuous, and seeing that they are the most difficult of all forest trees to transplant they are grown in pots, and plunged in nursery rows. This is a most valuable subject for seaside places—as for example at Castle Kennedy, where every tree of the forest kind is a mere scrub, this the alone exception. Then the cup-leaved Hornbeam and the cut-leaved Birch are highly ornamental plants, and so is the Weeping Birch, all of which were well cared for. What telling objects standards of the Siberian Lilac make, and what a magnificent addition to the tribe is Charles X; its deep blue purple clusters of flowers know no rival. Some fine evergreen plants adorn these nurseries, of which we can barely mention such

as the ubiquitous and excellent Cupressus Lawsoniana, Chinese and Siberian Arbor-vitæ, Hemlock Spruce in high health, and Cryptomeria japonica and Lobbii, which both do far better than Taxodium sempervirens, and there were plenty of them to take observations from. In fine, it was a pleasure to see the whole grounds under systematic management, the extent and variety of the articles under cultivation, and the good order which was everywhere manifest. *J. A.*

Obituary.

WE regret to announce the death of Mr. JAMES BACKHOUSE, on the 20th inst., at his residence, Holdgate House, near York, in the 75th year of his age. Mr. Backhouse was the senior partner of the eminent firm of James Backhouse & Son, nurserymen and seedsmen, York.

Miscellaneous.

Covent Garden Notes.—During the past fortnight there has been a good supply of Broccoli sent to Covent Garden Market from the neighbourhood of Penzance, Cornwall. This comes packed in large open hampers, and when not delayed in transit, arrives in good condition. The principal flowers produced in quantity during the above period were Primulas and Hyacinths, which are chiefly obtained from the localities of Isleworth, Barnet, and other places near London.

To Make Paint Adhere to Zinc.—It is difficult to get a coat of paint to adhere well to zinc, which rapidly oxidizes when exposed to air and moisture; and, as most engineers know, galvanised iron goes very quickly when once the covering of zinc has decayed. Many means have been tried to obtain the firm and close adherence of paint to zinc. The last we have met with is due to Dr. Bottger, who professes to have completely succeeded. He makes a solution of one part of chloride of copper, one part of nitrate of copper, and one part of chloride of ammonium in 64 parts of water and one part of commercial hydrochloric acid. This solution acts as a sort of mordant. It is paid with a wide brush over the zinc, which immediately becomes a deep black colour, forming, according to the Doctor, a basic chloride of zinc, and what he calls an amorphous brass. The black colour changes in the course of 12 or 24 hours to a grey, and upon this grey surface any oil paint will dry, and give a firmly-adhering coat. Summer heat and winter rain will have no effect in disturbing this covering, which affords complete protection to the zinc. *Builder.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

Gardenias are plants which will endure much hard forcing, and, by treating two or three batches differently may be had in bloom almost every month in the year, as almost every matured shoot will produce flower-buds. Those who wish to have flowers early may have them by placing the necessary quantity of plants into a warm moist temperature. Few plants—even evergreens, will endure so much strong, unwholesome steam as these. A bottom-heat of from 85° to 90° may be freely afforded them, using for this purpose strong steaming horse or stable manure, with an upper temperature some 10° less (produced by properly studied gradation) than that in which they have previously been standing. *Cape Pelargoniums*, intended to make the finest specimens, should now have their final shift, within a week or two. Particular study should, therefore, be given to the preparation of soils, to form a compost for them. Like all other plants grown in pots, they do not succeed thoroughly unless the pots have become well crammed with roots, previous to the formation of flower-buds. Hence, as they are not very great rooters, small pots are essentially necessary. And the best possible compost should be obtained for filling them; good hearted, yellow, friable, fibrous loam, with one part of thoroughly decomposed manure, not too moist, and a good sprinkling of silver sand, will suit them well. The whole should be well incorporated; and after a good drainage has been insured, they should be potted firmly. It often happens, when giving such small shifts to plants, that the whole space between the ball and the inner sides of the pot are not uniformly and evenly filled. To obviate this evil, and to be certain that no vacuum exists, it will at all times be necessary to use a thin lath about half the thickness of the fingers, and with which the soil should be forced well home. Besides the loss of valuable space, caused by carelessly performing this operation, at watering the ball is not uniformly moistened, as the water will flow more freely through the lightly pressed portions, leaving that which is properly finished off hard and dry. The temperature in such Pelargonium houses should now be raised about 5°. Insure a minimum of 55° by night. Place them constantly as near the glass as possible, and keep them perfectly free from green-fly and all similar pests. The continued damp, unwholesome weather will have taxed the efforts of growers of specimen soft-wooded plants. Unceasing attention is still needed in the removal of every particle of decay. My previous advice regarding the occasional use of slight fires has greater force the longer this sort of weather lasts. It should be thoroughly understood, however, that it will do more harm than good to make the pipes or flues so hot as to dry the house and plants that are contained therein by sheer force of heat alone; for, were it possible to do so, immediately the heat declined the dense moisture contained in the external air would find its way through every aperture and be condensed, thus making the matter worse instead of better, and unnecessarily putting the plants to undue excitement. When slight fires are necessary, let them be such as will insure to the air a greater buoyancy only—such, in fact, as will cause it to rush out at the apex by its own force, carrying with it a fair proportion of the moisture from within.

FORCING HOUSES.

Early Vineries, which may have fruit set, and which are beginning to swell, should now have a uniform temperature of 58° to 60° by night, with an increase of 10° to 12° by day, which will bring it up to 70° or 72°. A nice moist growing atmosphere should be insured, and a moderate amount of air only be afforded for a time. Shut up close soon after noon, and so secure a little sun-heat if possible. Be very careful not to permit draughts in any form on to the delicately forced berries. Though no injury may be perceived from such carelessness at the time, a certain amount of mischief is certain to follow. In regard to *Pines*, little can be added to past advice, given in former Calenders. As the potting season of some successionals will soon arrive, it may be well to remind the reader of the necessity of procuring the necessary soil, and placing it to dry in proper positions, chopping it up, &c. Continue disbudding the earliest *Peach* and *Nectarine Trees* as soon as the fruit begins to swell and young wood shoots are forming; increase the temperature by some three or four degrees by day in light weather, but with due caution not to have recourse to any excess which is likely to cause undue excitement, or to make forced growths beyond the capability of each plant to mature at such a period.

HARDY FLOWER GARDEN.

The present season, with its extreme mildness and much moisture, greatly favours the formation and growth of every variety of parasitical Moss or Fungus. I notice that *Ghent Azaleas*, and many other deciduous shrubs, even to the evergreen Rhododendrons, are in some situations overrun with such growths. That these are very injurious I scarcely need add. It will be well to give all that are attacked therewith a good dressing with wood-ashes, properly prepared by sifting, &c. Scatter it well into and amongst the branches at a time when they are wet, and the ashes are likely to adhere. Where wood-ashes are not readily procurable, a slight dusting with dry lime, which has been slacked a few days previously, will also prove destructive, but must be used with greater caution, especially upon evergreens. In cold, moist, tenacious soils, it will be advisable to stop all digging operations until such time as the beds, borders, &c., become drier. This is excellent weather to re-lay and to level irregular lawns, and any work of this kind in contemplation should be pushed forward with vigour.

HARDY FRUIT GARDEN.

The present weather is all that can be desired for all newly-planted trees; so thoroughly have the continued rains washed down and settled the earth around the roots. Should a moderately dry period ensue, it will be advisable to level the soil in instances where it may have settled down irregularly, thus causing water to stand after heavy showers, which would quickly be absorbed and carried off if the surface were level. Keep a sharp look-out at this particular time after winged pests. So tender have the buds become upon bush fruit, and in many instances so prominent, that the birds are already mutilating them. Besides the many ordinary ways of keeping them away, resort may be had to dipping worsted-thread in spirits of naphtha and tying it in short lengths equally distributed upon each bush.

KITCHEN GARDEN.

Radishes may, if the weather continues mild, be sown in very warm southern situations with a fair prospect of success. Sowings should also be repeated upon slight beds of fermenting material, and under lights placed upon a south border. Continue to turn over and to sweeten the necessary heap of material upon which *Cucumbers* and *Melons* are shortly to be planted. It must be perfectly sweet and free from any impurities, which are readily detected. Everything in the way of *Cauliflowers*, *Lettuces*, and the like, under frames or hand-glasses, whilst they may be protected from excessive superficial rains, must however be afforded plenty of fresh air by day and night, by tilting the lights, &c. Even with the slight protection thus afforded, and with plenty of air allowed, they begin to look very weakly. If any amount of confidence could be placed in the weather it would do them much good to remove all frames or glass quite away from them for a week or so, allowing the air to blow freely amongst them on all sides, and so harden them a little. *W. E.*

TOWN GARDENING.

FROM some cause, possibly from the want of a knowledge of what will grow successfully in confined places, no trees are to be seen in many of the squares and gardens of London, with very few exceptions, but the common Lilac and Poplar, and these in a very starved and miserable condition. The managers of our public parks have of late set a good example by planting many beautiful and rare trees and shrubs, which thrive well, though they are not entirely out of the reach of smoke. Of course they are better situated than those in squares and gardens in the heart of the town. As fresh soil in sufficient quantity to plant in may be obtained, it is quite certain that, with due care and attention, many trees and shrubs may be grown in all the squares, and not a few in the most confined localities of large towns. In the first place, it is of the utmost importance that the trees to be planted in such places should be young, and if they have been previously transplanted once or twice in the nursery so much the better, as they will then remove with more fibrous roots. When they are removed from the nursery they should be lifted with as much mould around their roots as possible; at the same time, as much fresh soil should be obtained as will be sufficient to plant them in. In planting, the soil should be carefully distributed amongst the fibrous roots, and be trodden firmly down. They should be firmly secured with stakes, to prevent the wind from disturbing their roots. A good watering should then be given, repeating the same occasionally until the plants have well started into growth. I consider the end of February the best time for planting in towns, as they start better than when planted early, for then they get coated with soot. These precautions should be carefully attended to, for on them depends the success of most trees in towns. Rotten leaves and dung will be of great service to shrubs planted in towns, if forked in as shallow as possible, so as not to disturb their roots. In my next I will give a list of some of those trees that are best calculated to answer the purpose in view. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending Jan. 20, 1869, as observed at the Horticultural Garden.

January.	Moon's Age.	Barometer.		Temperature. Of the Air.			Of the Earth		Wind	Rain.
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 14	2	29.801	29.579	49	34	41.5	44	44	S.E.	.08
Friday 15	3	29.872	29.520	53	33	43 0	46	44	S.W.	.08
Satur. 16	4	30.156	30.054	50	35	42.5	46	44	S.W.	.08
Sunday 17	5	30.155	30.039	52	30	41.0	48	45	S.	.00
Mond. 18	6	30.307	30.291	43	34	38.5	45	44	W.	.00
Tuesd. 19	7	30.400	30 388	42	21	31.5	45	44	S.E.	.00
Wed. 20	8	30.311	30.197	44	25	34.5	42	43	S.E.	.00
Average.		30.143	30.008	47.5	30.3	38.9	45.1	44.0		0.24

Jan. 14—Densely overcast; fine; slightly overcast.
— 15—Overcast; showery; fine; heavy clouds.
— 16—Fine, cloudy; rain; fine, slightly overcast.
— 17—Rain; showery; clear and fine.
— 18—Foggy; dense fog throughout.
— 19—Fine, overcast; densely overcast; clear and frosty.
— 20—Sharp frost; very fine and clear; frosty.

Mean temperature of the week, 2 6-10 deg. above the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 43 years, for the ensuing Week, ending Jan 30, 1869.

January.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..24	43.1	32.1	37.6	19	0.63 in.	3	5	2	2	5	18	6	2
Mon. ..25	43.4	32.3	37.9	21	0.93	1	6	3	1	5	16	6	6
Tues. ..26	43.5	32.3	38.9	20	0.50	2	6	3	4	3	16	4	5
Wed. ..27	44.6	31.2	37.9	20	0.70	3	5	4	1	5	17	6	2
Thurs. ..28	45.8	30.8	38.3	21	0.17	2	5	4	1	2	17	7	6
Friday ..29	45.6	31.5	38.5	18	0.23	5	5	1	2	2	14	8	7
Satur. ..30	44.7	32.2	38.5	22	0.39	2	3	4	4	4	15	8	3

The highest temperature during the above period occurred on the 29th, 1864—therm. 57 deg.; and the lowest on the 30th, 1857—therm. 8 deg.

Notices to Correspondents.

Bee should consult our advertising columns, or make known her wants through the same medium. We cannot recommend dealers.

CAPE GOOSEBERRY: *W F W H G.* The Cape Gooseberry is the Physalis edulis. It is easily grown in an intermediate house, or against a wall in a warm situation outdoors in summer. The most fertile plants are those raised from cuttings. For outdoor culture these are best propagated in January, grown on in a genial temperature, and hardened off for planting out as soon as the weather permits. A plant or two against the back wall of an intermediate house would probably keep up a continuous supply. You had better sow your seeds at once.

GLAZING PLANT STRUCTURES: *H W N.* who sent us a paragraph on this subject in October last, will greatly oblige by forwarding us his address.

GREENHOUSE MANAGEMENT: *G E X.* In winter admit air daily, unless the atmosphere is frosty, or heavily laden with damp or fog. When there is a piercing wind, open the leeward side only. Of course open most freely when the air is mild and balmy; under such conditions the house may be left open nearly all day: in less propitious weather open at 9 or 10 o'clock, and close by 1, or 2, so as to shut in sun-heat if possible. The question of firing depends on the class of plants cultivated, but supposing you grow an ordinary mixed greenhouse collection, make fires only to *keep out* frost. You must watch the outside thermometer very closely, or a sharp morning frost may catch you at a disadvantage, with your plants unprotected against it.

LAWN WEEDS: *H L.* The weed is Prunella vulgaris, the common Self-heal, and indicates poverty of soil. Pick out with a small spade the worst patches, and dress the lawn with fine compost, as rich as you can obtain it, adding a dressing of guano by and by, when the spring showers come on. If the removal of the weeds cause bare spaces, scratch into them a mixture of fine Grass seeds before putting on the top-dressing. Cynosurus cristatus and Festuca duriuscula will be the best sorts to use.

MARIGOLDS: *N.* What are called double-flowered French Marigolds are not to be entirely depended on from seed, though sometimes, after careful selection for a series of years, they will come tolerably true.

NAMES OF FRUITS: *W Fowle.* No. 1, Reinette du Canada, grown in France. It is somewhat tender in this climate, and the fruits never are half so fine, excepting from a wall or orchard-house. 3. Adams' Pearmain; two others unknown.

NAMES OF PLANTS: *J S.* Pinus Pinaster.—*G F.* 1, Asclepias curasavica; 2 and 3, Litobrochia macilenta.—*New Sub.* 1, Nephrolepis tuberosa; 2, Pteris flabellata probably; 3, Pteris serrulata; 4, Adiantum cuneatum; 5, Pteris hastata macrophylla; 6, Selaginella Martensii; 7, Ardisia crenulata.—*Constant Reader.* 1, Polypodium vulgare cambrican; 2, Onychium japonicum; 3, Pteris serrulata; 4, Lastrea dilatata.—*N.* The leaves appear to be those of the Golden Feather Pyrethrum. The other specimens belong to Eurybia moschata, often called the Musk tree of New Zealand.

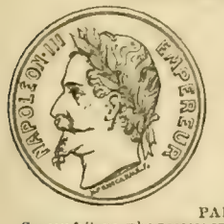
PRIMULA SINENSIS: *J. Jefferies & Son.* Yours appears to be a very good strain, but has nothing novel about it. The colours are rich and striking.

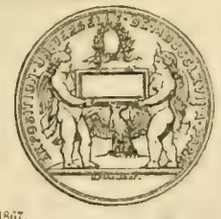
TAN FOR HEATING: *C. Carlyle.* There will be no danger in using the tan in your vinery for the purpose of raising a little heat to start the Vines. We have never used it, however, as we much prefer good stable manure mixed with leaves for that purpose. If you use tan, try a depth of 12 inches at first, which can easily be increased if necessary. It must be turned over every other morning, so as to let the hot fumes penetrate through the leaves.

TENANCY: *C C* asks whether a market gardener on a yearly tenancy (without agreement) is entitled to an outgoing valuation upon quitting the land. We do not think he is, but as the answer may depend on local customs, &c., we advise our correspondent to consult his solicitor.

COMMUNICATIONS RECEIVED.—M. D.—H. K.—N.—W. B. H.—J.—M. H.—W. M.—G. J. W.—E. O.—J. M.—J. C. M.—W. F.—Fairplay.—W. M.—C. W. S.—J. D.—R. M.—J. S.—R. L. M.—W. S.—J. C.—A. F. B.—Anonymous.—T. F.—T. R.—J. F. L.—A. Dean.—W. H.

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PARIS, 1867.

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Sow 6 to 12 lb. per acre.
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	Per peck.—s. d.
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THE NEW FORAGE PLANT,
BROMUS SCHRŒDERI.

See *Gardeners' Chronicle*, page 1345, Dec. 26, 1868, from which the following is extracted:—"The crop (of Bromus) was perfectly satisfactory as regards both the quantity and quality of its produce. *The Horsekeepers buying it preferred it to Italian Rye-grass*, and the Farmer selling it was very much inclined to agree with them."

E. DAWES, Esq., *Pirbright, Guildford*, writes:—

"I beg to offer my thanks to Messrs. CARTER & Co. for calling attention to the valuable plant, Bromus Schrœderi.

"I purchased some seed to test its value, and it occurred to me that a report of my experience might prove of interest.

"The seed was sown in July on ground as dry as dust, but it vegetated freely, the first shower causing it to grow with amazing rapidity. *The first cutting was made October 20, the plant being 2 feet high*, and I found my cattle preferred it to any food I could offer them; *I now have (Nov. 20) a luxuriant second growth*, in spite of the cold weather.

"I may mention that I was first induced to cut the Grass on account of my Pony refusing its ordinary food, *and was gratified to find the Bromus greedily consumed.*"

Sow 35 lb. per acre in drills.

Price 1s. per lb.; cheaper per cwt.

CARTER'S
SEEDS FOR THE GARDEN.
See page 77 of this day's *Gardeners' Chronicle.*

PRIZE MEDALLISTS:

LONDON.



1862.

PARIS.



1867.

GRASS SEEDS for PERMANENT PASTURES.

See Article on the best Mixtures of Grass Seeds as adapted to particular localities, commencing page 75 in **Carter's "Gardener's and Farmer's Vade Mecum for 1869." Post Free, 1s.; Gratis to Purchasers.**

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"The Permanent Pasture Grass Seeds I had from you (and sown just before the rains), is now up a full plant, and in spite of frosts and hot suns is growing fast."

GRASS SEEDS for LIGHT SOILS,
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Special low estimates for quantities.

CARTER'S PRIZE MEDAL LAWN GRASS,
AS SUPPLIED TO
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THE GOVERNMENT OF THE UNITED STATES,
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1s. per lb.; 20s. per bushel.

Testimonial from M. BARILLET, Chief Superintendent of the Gardens of H.I.M. Napoleon III.

"*The Grass which we have laid down with your Seed has come up well, and is magnificent.*" [Translation.]

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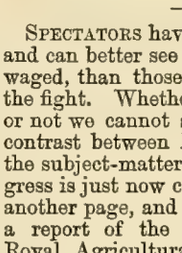
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The NEXT SESSION commences FEBRUARY 8. For Forms of Admission apply to the Principal.



ROYAL AGRICULTURAL SOCIETY of ENGLAND.

AGRICULTURAL EDUCATION.

The EXAMINATION of CANDIDATES for the SOCIETY'S EDUCATIONAL PRIZES will take place in the week commencing MONDAY, April 12, 1869. Copies of the Form, required to be sent in by March 18, may be obtained on application to

H. M. JENKINS, Secretary.

12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, JANUARY 23, 1869.

SPECTATORS have a better idea of the contest, and can better see the field on which it is being waged, than those who are actually engaged in the fight. Whether that be the true explanation or not we cannot say, but there is a marvellous contrast between Lord GRANVILLE'S survey of the subject-matter with which agricultural progress is just now concerned, which is reported in another page, and that which one gathers from a report of the last general meeting of the Royal Agricultural Society of England. The fact that, let the skill of the agriculturist and the artificial fertility of the soil (which, after all, are the two great divisions of the subject with which agricultural societies have to deal)—let these be what they may, their produce from the land is being in some districts eaten up by rabbits and hares—the other almost equally important fact that the manure from at least one quarter of the live stock of this country is being absolutely wasted, and never reaches the land at all—those relations of the land to the great natural fertiliser which are involved in the words land drainage and deep tillage—the business and social relations sustained by the farmer with the landowner on the one side, and with the labourer on the other—his own appropriate education and that of the people he employs:—these were properly displayed and urgently represented last Saturday at Shrewsbury as the topics on which Chambers of Agriculture ought to bring their influence to bear. At the last agricultural meeting in Hanover Square, on the other hand, one of the two annual meetings held there by the Royal Agricultural Society of England, after the discussion of a purely domestic subject had concluded, the topics to which the meeting directed their attention were, the proper shoeing of horses

and the exact length of wool to be allowed on a sheep for exhibition. We do not at all wish to disparage the value of either of these subjects, but it is plain that the central Society will have the wind taken out of its sails by the younger provincial Chambers if it does not take a more constant, life-like, and active part in the discussion of the greater agricultural topics to which Lord GRANVILLE referred.

It is one of the great advantages of a change of officers and system in the management of a society, that those who occasionally represent to the authorities such a consideration as the above shall not be met with the objection that the Society has already given its attention to the topics thus urged upon its notice. With one, or, perhaps, two great exceptions, this is no doubt true. Its Journal contains papers and lectures on Land Drainage, Deep Tillage, Tenant-Right, Agricultural Education, Town Sewage, and the Condition of the Labourer, &c. A new man, happily, has not his memory charged with all the great things which the Society has already accomplished; he is more interested in its future, for which alone, after all, it exists. It is not so much the dry and dogmatic discussion of topics in regular course that is so serviceable. It is when the country generally is alive to their importance that any new utterance upon them is most influential; and it is always more or less "now or never" that the several objects at which agricultural progress aims can be serviceably discussed. Let us hope that the new Editor of the Society's Journal, who must, even more than Lord GRANVILLE, look on these subjects from the outside, struck by the anomalies which an intelligent spectator cannot help detecting in the condition of English agriculture, and in the agencies at work for its improvement, may display the insight, intelligence, and resolution which his office plainly needs.

MAY we express a hope that those readers who scan this part of our Journal with a professional eye, are also wont to carry their view across the intervening columns into the horticultural section preceding us? Gardens are said to have been first planted for man's delight: they may be made a fruitful source of his instruction too. In these days of agricultural activity, attention has been directed to the improvement of the breeds of animals and plants. Much has been done in the former department, something in the latter. The achievements of horticulture in this direction have been marvellous; and a farmer, commencing the very hopeful and interesting art of PLANT IMPROVEMENT, would learn what to do and what to avoid by tracing their history. There are two circumstances greatly in favour of the horticulturist in his endeavours to modify the plants he cultivates: these arise from the value of his subjects and the nature of the changes he wishes to induce in them. He usually wishes to alter their form, size, flavour, or the colour of their flowers. But the object of the agriculturist is generally to increase the seed-producing propensities of his crops, and that is a very different, and a very difficult, matter. The mere alteration of the size, shape, and quality of his "root" crops is easy, and in that direction much has been done.

The relation between the physiological laws that govern the vegetable and animal world is exceedingly close. The behaviour of plants and animals under corresponding treatment is much the same. Both may be pampered into abnormal bulk by the same means, they both become constitutionally debilitated and sterile by in-and-in breeding, or by gross feeding, and an over-accumulation of tissue. A cross of varieties induces vigour and fecundity as in the half-bred sheep, or in mixed varieties of Wheat and other plants. A cross of species induces sterility, as in the mule, and in the hybrid between the White Turnip and Swede.

The application of these principles explains the common observation, that an improvement in form and size is often accompanied by a diminution of the power of reproduction. An advantage is gained in one direction by a sacrifice in the other. Our own experience is that improvement must be slow, to be safe; habits must not be bent too fast. In most cases, crossing is the starting point, and it must be succeeded by selection to get purity and fixity of type. External influences, such as those of manure, extra space for growth, thin seeding, or any system of pampering, to encourage size, must be very cautiously applied, for the reasons before given. Wheat, thinly seeded and thus grown to an extra size, with straw "like reeds," mammoth ears and "giant" grains, becomes soft, light, and tender, eschewing all but the kindest Wheat soils, and being eschewed by all good millers. It is almost a physiological axiom that a gain in bulk is accompanied by a loss in seed—at any rate under artificial treatment it is so.

But there is hope for the plant-improver, although he cannot mould the cereals to his own fashion as easily as a gardener can modify the blossoms of Hollyhocks and Balsams. A power of variation is inherent in plants; even Wheat may have been ennobled from "twitch," but such changes are slow. In Nature's course cycles are as one day: in man's life a few years are all that is given. The word abnormal is a vague expression, meaning something not natural. We cannot define with precision the exact limits to the natural size of animals, plants, and seeds. There are large Beans and small Beans, but we do not expect to see Beans as big as flounders, or grains of Wheat as big as Beans. We have found the grains of "giant" varieties of Wheat to be deficient in vitality and constitution, they are abnormal in their habit and probably in their origin. Extremes in size are to be avoided.

The intermixing of varieties is secured by those provisions of Nature which, even in such complicated and enclosed flowers as those of the Orchis, have provided for that introduction of new blood—pollen, rather—which is necessary to the continued maintenance of vigour. Plants differ widely in the freedom with which they cross: Wheat runs into varieties with great facility, Peas and Beans less easily, both are easily fertilised artificially with the pollen of other varieties. As might be expected, plants which cross spontaneously have little fixity of type. The breeder must proceed systematically with his half-bred varieties, and they must be fixed by a method analogous to that which has made the Oxford Down sheep a fixed type. An old, high bred, superior sort of Wheat should be taken as the first parent, and crossed with a productive variety, and then another strain of the sire's pollen should be thrown in. With plants, as with animals, pure and high-bred stock exercises a preponderating influence on the progeny, which "take after" the high-bred sire. Our half and three-quarter-bred Nursery crosses have many of the finer features of that stock, combined with the more robust habit of the Spalding or Browick.

In saving Mangel or Turnips for seed, sound roots of moderate size, grown with little manure, should be chosen. By ten years' selection we have reached great uniformity of shape and type. Perhaps there is no subject more hopeful for the breeder than the Potato; its disease has apparently arisen from causes similar to those that have affected the Vine, and induced the debility and decay of some old varieties of the Apple, viz., propagation by cuttings instead of by seed. Potatos fail under abnormal modes of treatment. They grow old, and cannot be rejuvenated by the mere removal of a part of the same individual, and planting it elsewhere. There must be a new life; in other words, renewal by seed: and more than that—a due compliance with Nature's laws requires a mixing of varieties. May not the sickness of Red Clover arise from a constitutional failure of strength, rather than a chemical deficiency in the soil?

The establishment of new and improved breeds of the plants of agriculture is comparatively an undeveloped field of enterprise; it is a singularly attractive one, and will some day boast of its BAKEWELL or its ELLMAN.

—— THE Corn Market at Mark Lane on Monday ended with a fall of 2*s.* to 3*s.* per quarter, but this has not been fully followed in the provinces. Not much recovery however occurred in London yesterday.—— In the Cattle Market quotations continue precisely the same, but a short supply of stock on Thursday, after barely an average supply on Monday, caused trade to be unusually brisk for these times.——The Agricultural Seed Trade is generally firm at previous high prices, For Red Clover there is active inquiry; Tares have risen 2*s.*, and Rape 1*s.* per quarter.

—— The Cattle Plague Orders are very properly being rigidly enforced by the constituted authorities. At Bow Street, on Thursday last, several slaughter-house keepers were summoned for infringing the provisions of an Order of the Privy Council, in regard to the infectious character of the cattle plague, by neglecting to forward to the police the market passes authorising the removal of Cattle. This Order was made in August, 1867, and came into operation on the 15th of September in that year. The importance of this movement cannot be overestimated. Mr. UNDERDOWN (the prosecuting solicitor) read the Order, and commented on the parts relating to the removal of cattle to and from the metropolitan market. He subsequently described the publicity which had been given to this Order, which very properly sets forth that all passes for the removal of cattle shall be sent within a given time to the inspector of the district police. This is necessary to facilitate the tracing of animals in case of an illegal act being committed. With this Order, however, the defendants had not complied. In the first case, however, a butcher named CLARKE had hired a slaughter-house of another butcher, named FREEMAN, and, as it afterwards turned out, the summons had been taken out against the wrong man. On this point Mr. VAUGHAN said:—"It was impossible to fix the proprietorship of the slaughter-house on CLARKE, and the summons must therefore be dismissed. If FREEMAN kept a slaughter-house, he was responsible for what was done there under his license, and it was his duty to exercise a supervision over those who slaughtered on his premises, and see that the passes were duly forwarded. However, his case was not before the Court. If he was summoned by the Solicitors to the Treasury, it would then be time enough to discuss it." In the next case, Mr. NASH, a Limehouse butcher, complained bitterly of "a want of sufficient notice." To this Mr. UNDERDOWN replied, "The *Times*" (in which the notice had been advertised) "was a local paper for the Metropolis." "It might be in other parts," rejoined Mr. NASH, "but the *Times*," he added, creating great laughter in the Court, "did not reach the East-end of London." This somewhat ingenious but lame defence was not at all convincing to Mr. VAUGHAN, for he said the defendant was evidently quite aware of the duty imposed upon him. It was to be feared that the Act was evaded to a very considerable extent, and it now became necessary to enforce it very strictly. The defendant was liable to very heavy penalties—20*l.* on each summons, and 5*l.* each for every beast above four. However, he had power to mitigate these penalties, and should do so by ordering defendant to pay upon each summons 5*l.* and costs. In another case, the more plausible excuse of illness on the part of the defendant's foreman was admitted and the mitigated penalty of 1*l.* a head on each of the four summonses before the Court was imposed. These cases constitute a wholesome caution, and one which, it is to be hoped, will have the desired effect.

—— The list of subjects for discussion before the London Farmers' Club has just been announced:—On February 1 the important subject of Pauperism and Vagrancy will be introduced by Mr. J. TRASK, of Highleaze, Yeovil; on March 1 the Adulteration of Feeding Stuffs and Artificial Manures will be discussed by Prof. VOELCKER; on April 5 the Systems of Local Rating in England, Scotland, and Ireland, are to be considered in a paper by Mr. F. L. DASHWOOD, of Kirtlington, Oxford; the May subject yet remains to be fixed; on November 1, Continental Farms will be discussed by Mr. J. HOWARD, M.P., of Bedford; on December 6 the Common Form of Farm Agreement, as tending to the fullest Development of Agriculture, will be discussed by Mr. R. H. MASFEN, of Pendeford, Wolverhampton.

—— Mr. MECHI writes to the *Times* that, so far as he has observed in Norfolk, Cambridgeshire, and Essex, Wheats have planted well, too well where thickly sown, for, owing to the mild and wet season, the roots, where closely drilled, must be already intermixed and competing for their food, by no means a good preparation for their subsequent more ample requirements and development. "With only one bushel per acre," he says, "mine are quite thick enough." As long as we have to quote only testimony to fact, we do so with unquestioning faith, for Mr. MECHI is a good observer, but when by the light of an exuberant imagination he deals with the testimony of other people, he is certainly not so trustworthy. Old men remind him that there was a light or full moon at Christmas, which, they say, is a bad augury, and implies light sheaves to follow, while a dark moon at Christmas forbodes heavy sheaves. "It certainly has been so the last two years as regards the Wheat crop, and my bailiff finds, on referring to the past ten years, that this has been the rule." Neither two nor ten years suffice to prove a law either in meteorology or in agriculture, and how is it that, while Mr. MECHI has to trust to his bailiff for testimony on this subject, he is, nevertheless, willing to give the "old men" credit for a better memory than his own?—The moon being new or full at Christmas cannot by any possibility matter one farthing to the next year's harvest; and so frequent a writer as Mr. MECHI is on agricultural subjects, ought to have some regard for his own reputation as an agricultural teacher.

OUR LIVE STOCK.

MR. ROBARTS has just issued a catalogue of considerable interest, containing the names of 24 females and six bulls. Although the Lillingstone Dayrell herd has suffered a considerable reduction in numbers, an inspection of the pedigrees of the remaining animals shows that it is very select. With the exception of *Fancy*, purchased at Rowfant for 300 gs., all may be traced to five well known tribes, each of which we shall briefly notice. *Seraphina 7th*, white, calved February, 1856, the oldest matron of the herd, comes of an old and esteemed family long bred by Mr. E. Lawford, of Southcott, from whom she was purchased in 1864. The only produce of this cow at Lillingstone is SINBAD, a bull calf now three weeks old, by 2D DUKE OF CLARO. *Seraphina 3d* and *Seraphina 4th* were bred by Mr. Elias Clarke, from whom they were purchased by Mr. Robarts. Both are by ROYAL ESSEX (18,767), and out of *Spangle* by FITZ-CLARENCE (11,477). The first of these two cows has produced *Sultana* by 3D GRAND DUKE (16,182), a bull purchased of Mr. Atherton for 190 gs., and *Songstress*, calved in May, 1868, by Mr. Betts' famous 16TH GRAND DUKE. *Lady Barrington*

7th by BARON TARVES (17,387), was purchased in 1862 from Mr. Atherton, of Chapel House. She is descended from *Lady Barrington 2d*, by BELVEDERE (1706), bred by Mr. Bates, and afterwards the property of Mr. R. Bell, of Mosbro' Hall. The mother of the cow under consideration was purchased by Mr. Atherton from Mr. Phillips, of Broomborough. Mr. Robarts possesses four young heifers of this strain of blood, one by DUKE OF YORK (23,032), two by 3D GRAND DUKE, and one by 7TH GRAND DUKE. The next family to be noticed consists of five females descended from Mr. G. Sainsbury's Darlington family, through *Diadem*, by MARMADUKE (11,897), out of *Darlington 5th*, by 4TH DUKE OF OXFORD (11,387). *Diadem* was purchased from Mr. S. Majoribanks in 1862, and from her are descended some first-rate heifers by the 3D, 7TH, and 16TH GRAND DUKES, and ROYAL BUTTERFLY 5TH (18,756). Another purchase at Mr. Atherton's sale was *Duchess of Cambridge 2d*, by 2D DUKE OF CAMBRIDGE (12,713), a well-bred Bates cow, dam *Fuchsia 2d*, by WEATHERCOCK (9815), descended from Mr. Bell of Kirklevington's *Fuchsia*, by 2D CLEVELAND LAD (3408). Since this excellent strain of blood has been in Mr. Robarts' hand it has been further enriched by a cross with 3D GRAND DUKE (16,182), the sire of all the younger members of the family. Lastly, we have to mention *Wild Eyes 25th*, purchased from Mr. Atherton, and her two daughters, by 3D GRAND DUKE. It is needless to dwell upon the first-rate breeding of the bulls recently used in the herd, the names of which have already been mentioned more than once.

—— The name of Bell is closely associated with that of Bates and Kirklevington. We have, therefore, the more pleasure in calling attention to a catalogue scarcely a month old, issued by Mr. Thomas Bell, of Brocton House. This list contains the names of 30 females and 11 bulls, almost all of which boast a considerable number of Bates crosses. As there are, however, no less than 16 families represented, we can only speak generally of their extraction. In the majority of cases we find a good foundation of Colling, Charge, or Bates blood, surmounted in some cases by crosses with bulls from the late Earl Ducie's, Captain Blathway's, and Mr. Thorn's herds, but still oftener by bulls bred by Mr. T. Bell. Too frequently the pedigrees are short; thus in six cases there are only three crosses, and in 11 only four crosses of pure blood. The period of time thus indicated is too short to insure true-bred stock, that may be relied upon to transmit their good qualities to their progeny.

—— Some weeks ago we gave some account of the Siddington herd, and mentioned Mr. Bowly's intention of selling a portion of his stock in the spring. Although unable yet to name the day, we hear that the sale will take place in April, and that the whole of the Musical and Violet families, and three members of the Siddington (Kirklevington) family, will be disposed of. SIDDINGTON 2D, by 4TH DUKE OF OXFORD, dam *Kirklevington 7th* will be offered, as will also her two daughters, both by the 7TH DUKE OF YORK. This tribe commends itself to all lovers of Bates' cattle, and the three representatives just spoken of will no doubt create considerable interest, and provoke high bidding on the sale day. We may also mention that *Siddington 2d* is own sister to *Kirklevington 12th*, which was sold for so high a price at Didmarton last October. Particulars as to the origin and history of the Siddington herd will be found in our impressions of November 7th and 14th of last year.

—— It is more than probable that Mr. Leney will make a sale of young stock this spring. On a future occasion we hope to present our readers with some account of the breeding and condition of the animals which will on that occasion be offered.

—— Mr. Duckham has given notice to the breeders of Hereford cattle, that the 7th volume of Eyton's "Herd Book" is now in course of preparation. This number will contain the pedigrees of bulls and cows, and their produce up to the close of last year.

SEWAGE FARMING PROSPECTS.

I HAVE read with very great interest and satisfaction "W. B.'s" article, for it shows that this subject is now very much better understood than it was even a short time ago, and certainly "W. B." has given proof of a better understanding of the subject in all its bearings than any other outsider, for I apprehend from one or two phrases that he makes use of that he is an outsider, and has no personal experience of, nor any pecuniary interest in, the utilisation of town sewage. Nevertheless, some of his statements are hardly in accordance with the facts, and some of his deductions are in my judgment unsound; therefore, because of the general excellence of his article, I am the more anxious to point out where I think he is mistaken: while, in order not to assume in the eyes of your readers an impartiality which I do not pretend to, I will remind them that as *concessionnaire* of the London sewage, I am more personally and pecuniarily interested in the utilisation of sewage than perhaps anyone else.

"W. B.'s" opening remarks upon the fallacy of regarding any manure, whether farmyard or sewage, or anything else, as a universal manure, applicable to all soils and every crop, have no doubt a great deal of truth in them, and perhaps apart from the pounds, shillings, and pence question, which ever interferes in such an annoying way with all theories, may be absolutely true; that is to say, that if crops were manured according to the chemical results obtained from an analysis of their ash, probably the precise ingredients with which they were fed would be varied for almost every crop. But first, if a farmer has at hand a cheap manure with which he can obtain with certainty a good result with every crop, it will not pay him to doctor his manure for every different crop that he grows. For instance, London sewage at 1*d.* a ton, which is its standard price, will produce an excellent crop of Wheat, or any other cereal, for 10*s.* to 15*s.* per acre; 71 tons of Grass per acre for 16*l.* 13*s.* 4*d.*; 52 tons of Mangel Wurzel per acre for 4*l.* 11*s.* 8*d.* Now, granting that by some slight amount of doctoring with artificial manures at the usual market prices (at which prices London sewage would be worth nearly 2½*d.* per ton), the same result could have been obtained with a slightly less amount of sewage, or a larger result have been obtained with the same amount of sewage, would it have paid—first, the market cost of the artificial manure; secondly, its cartage to the farm; thirdly, the labour of distributing it evenly, either as a dry powder, or by dissolving it in the sewage? I think not; at least with such results as absolute facts before one's eyes the possibility of obtaining a better pecuniary result is very faint. No doubt these results were all obtained from soil of a more or less open character, either gravelly soil or a light loam, but it must be remembered that the universality and completeness of sewage, in the case of North London at least, as a manure, was put to a crucial test by the experiments of the Metropolis Sewage Company with the 4000 tons of Maplin sand—pure sea sand, Baron Liebig notwithstanding—spread 2 feet deep over a measured acre of land. The varieties of crops that have been grown in that sand prove that London sewage contains all the elements necessary for the nourishment of any crop that an English farmer is at all likely to cultivate, and that the mixture is singularly well proportioned. Of course these experiments do not afford any indication as to the adaptability of sewage to stiff clay land, but they do prove that it can produce all crops on land containing little or no organic matter. The question of its adaptability to clay lands is reduced simply to a question of drainage, which again is simply a question of money, and as clay land without drainage is not worth as much under ordinary cultivation as similar land well drained, the expenditure which the application of sewage to such land would necessitate for drainage would be a permanent and profitable improvement to the land even without sewage. It must further be remembered that where large quantities of sewage have been used, and a large return obtained, although no doubt there has been a slight temporary waste of some of the ingredients in the sewage which exist in excess of the wants of the particular crop—as in the case of the 71 tons of Grass from 4000 tons of sewage—yet this waste is only temporary and apparent, for the ingredients not used by the first crop can be taken up by the succeeding crop, and thus it is not lost.

I think, therefore, that it is a fair inference to draw from the above facts, that sewage is practically a complete and universal manure; or, at least, that until there is such a demand for it that it may be sold at its extreme value, according to the market prices of its ingredients, it would not pay to doctor it.

But in all these results I wish it to be distinctly understood that I speak principally of London sewage, or rather North London sewage, and I have every reason to believe, both from actual analyses and corroborative facts, that London sewage is richer than the sewage of any small town, and probably richer than that of such towns as Birmingham and Manchester. I mean richer in every sense, both per head of the population and per ton of the liquid, and this chiefly for the following reasons:—The distance from the centre of London to the nearest fields is so great, and therefore the mean distance between its streets and the country is so great, that dust contractors are never anxious to carry away more than they can help, and thus everything is sent down the drains that will go: added to which London servants are proverbially wasteful and extravagant, and the quantities of fat and grease found in the London sewage abundantly prove how much we are benefited by domestic waste.

Again, the quantity of water consumed by manufactories for steam-engines and other purposes is not great on the north side of the Thames, compared with the population, and it must be further taken into account that the North London sewage is added to by several hundred thousand persons who reside in the country, and come up to town daily for business.

All these causes have satisfied me that the results obtained by the application of North London sewage are better than those that are likely to be obtained from the application of the sewage of perhaps any town in the country.

Then, with regard to the application of liquid sewage by irrigation, *versus* Moule's dry-earth system, or the various attempts that have been made to reduce the liquid sewage to a dry, portable form, I will say at once, that for small villages, isolated public institutions, and country houses in flat situations, the dry-earth system presents many great advantages, and I should unquestionably prefer it in such situations in the wetter parts of the country; but for the climate of Essex, where the average rainfall is 5 inches less than even that of London, and where farmers suffer from drought nearly every summer, I should consider it a misfortune to be deprived of the additional advantage of the water in which the sewage manure is contained.

As to the different attempts that have been made to desiccate sewage, the difficulties are two-fold: first, to fix and precipitate the matters in solution, and yet keep them in a form in which they are easily again soluble; secondly, supposing the first difficulty to be overcome to the satisfaction of the Royal Commission on Pollution of Rivers, there is a further question of getting rid of the water.

Now, the best of the chemical processes for overcoming the first difficulty, only rob the liquid of some 60 to 80 per cent. of the chemical ingredients in solution, and when the clear water has been drawn off the residuum still contains a very large portion of water—something like 70 to 80 per cent. No doubt it is unnecessary to drive off the whole of this, as it would be sufficiently marketable if it still contained 10 or 15 per cent. of water, but it clearly requires a very carefully prepared process for getting rid of so large a volume of water from a manure which, when reduced to the comparatively dry state I have indicated, is still not a concentrated manure. In the case of London, I have pointed out that in the growing season it would be a misfortune to the farmer using the sewage to be deprived of the water, and I think that this would apply to almost every other case in the country. Therefore, supposing that some process satisfactory to the Rivers Commission were adopted during the months of November, December, January, and February, for desiccating the sewage, it is quite clear that any such process would be called into action at the very time when it was least applicable, or rather, when the difficulties in its application were greatest, because in those months there is always a great deal of rain, and always a great deal of street mud washing down the drains. The quantity of street mud, which by itself has practically no value, becomes therefore the measure of the possible value of the desiccated sewage manure, for no one has yet attempted to separate the two things except by a dual system of drainage; and as the street mud, even if separated, would still be offensive, it would have to be disposed of somehow; and the additional convenience of getting rid of this out of the more concentrated manure would probably not pay the extra expense of the operation. Taking, therefore, the desiccating processes as they now exist, we find that according to a favourable analysis recently made by Prof. Voelcker—favourable because not made in rainy weather—the extreme limit of the possible value of the desiccated sewage is something like 40*s.* a ton. Now, 40*s.* a ton is an inconvenient degree of concentration. It is a bulky article, and the cost of manipulating it before it becomes saleable, and the further cost of carriage, would be very serious items. I am, therefore, agreed with "W. B." that irrigation is the only mode for the utilisation of sewage, which at present requires practical consideration.

Next, with regard to its use for the production of Grass, I can speak from a two-fold point of view. As well as being a sewage farmer, I am also a practical milkman—that is to say, I retail milk in London to private consumers, and this on a larger scale than anybody else. Now, though I do not for a moment wish to contend that Grass is the only crop to which sewage should be applied, I wish to point out to "W. B.," and all your readers who are sufficiently interested in this question to read my letter, that, careful as he has been, yet "W. B." has not got at the whole truth, with regard to the manufacture and sale of Grass and milk. First, with regard to the cost of production, taking into account the following considerations—1. The largest crops, with no further expense for manure the year after maximum quantities of Italian Rye-grass, have been obtained by the use of sewage. 2. The milk-producing properties of rapidly grown Italian Rye-grass. 3. The advantages of stall feeding (which can hardly be conducted in summer without the use of irrigation of some kind), both in increasing the quantity of milk and in diminishing the mortality of the stock. I maintain that milk can be produced by the use of sewage cheaper than in any other way, and in this view I am confirmed by a conversation I recently had with a small farmer and cowkeeper in the neighbourhood of Barking. Next with regard to the disposal of the milk. I assert as a London milkman that I have far more fear of not obtaining a sufficient supply, than of not obtaining a sufficient sale, and that the real impediment in the way of an enormously extended sale of pure milk in London is the large quantity of water and skim milk which is at present sold under that name. It is a fact within my own personal knowledge, and which I have proved by careful experiments, that there are districts in London where there is never a drop of pure milk sold at all, and that the vast majority of the small dealers never sell it pure by any accident. Thus taking the number of the cows which at present supply London with milk at 30,000, I have no doubt that the quantity of liquid sold under the name of milk and cream represents the produce of at least 45,000 or 50,000 cows; and I am also quite sure, from my practical experience, that if the mass of the population could obtain a supply of really pure milk, their consumption would increase very largely. Therefore, as regards London, I do not think that the utilisation of sewage is likely to produce more milk than the population will consume; and as wherever there is a supply of sewage there is also a large town population, the same may be said, to some extent, in every case; although, of course, the smaller the population the less true it would be, for the radius within which a town can draw its supply of fresh milk is of course the same whatever the population at the centre of the circle may be. I cannot admit, therefore, that the utilisation of a large portion of the sewage of a town in the production of milk is a plan which either has been or ought to be "thrown overboard altogether."

The next point on which I must join issue with "W. B." is "the waste of the utilising properties of the sewage," which he assumes by deduction must take place before it reaches the land in a liquid state. He argues that "because flowing water purifies itself, hard water becomes soft on exposure to the sun," and so on, therefore sewage flowing in sewers purifies itself; and he further states that "the gases given off, and which are now giving rise to serious apprehensions as to their deleterious effects upon the inhabitants of towns, proves this." Here he is altogether mistaken. You may have a very bad smell from a liquid rich in ammonia and other fertilising ingredients, and yet the waste of these unwholesome ingredients may be so small as to be altogether unappreciable. Several of our scientific

witnesses stated this positively before the Parliamentary Committees of 1864 and 1865, and Professor Way gave, I recollect, one very striking example. He said, in effect, this:—You may take a certain number of grains of musk and scent a room with it for years, during all which time it is apparently giving off part of its substance, yet at the end of these years it will weigh exactly what it weighed at the commencement. Again, arguing by induction, and not deduction, if it were true that sewage flowing through an open channel, or through a sewer provided with some of Mr. Chadwick's ventilators, lost a large proportion of its ammonia in such a journey, it could only be because air had a greater affinity for ammonia than water; and if it were a fact that it did lose its ammonia, that would be a proof that air had a greater affinity for ammonia than water; but the facts are opposed to this. If you place a basin of water in one corner of the room, and let off some free ammonia in the opposite corner of the room, it is a fact that water has so much greater affinity for ammonia than air, that you would, in the course of time find the ammonia in the basin of water. The smell which "W. B." has evidently encountered was, in all probability, nothing but sulphuretted hydrogen, as sewage which has not been stagnant gives off little else. It is no doubt a very disagreeable smell, but it is only when sewage becomes stagnant that fermentation can set in, without which no appreciable decomposition can take place; though even then the decomposition would not be of the nature that "W. B." supposes. And with regard to the escape of gas in houses, to which he appears to allude in one of the senteuces just quoted, it arises, as a rule, from local defects in pipes and drains allowing leakage of matter, which thus ferments, and, then, in addition to the sulphuretted hydrogen, which must be looked upon as a warning given by Providence of danger to come, there arises also the danger itself, probably without any appreciable smell of its own, for, according to the latest discoveries and best founded theories of infection, the seeds of the evil are not in the disagreeable gas, but in the odourless, or comparatively odourless, cryptogamic life which springs into existence from the putrefactive decomposition of organic matter consequent upon the fermentation induced by stagnation. This disposes of "W. B.'s" first objection to the utilisation of sewage by irrigation.

His second in reality is the same as the first, at least it is the direct consequence of the first, and is, I believe, equally fallacious, viz., that a farmer—and I will take an Essex farmer, as my remarks apply throughout more to London than to any other sewage—cannot afford to pay the same price for sewage per head of the population that a Flemish farmer can give for night-soil. I believe that this is altogether a mistake, and that, on the contrary, before many years are over, Essex farmers will pay more than Flemish farmers, for the simple reason that where the ammonia and other valuable fertilisers are imprisoned in water, there is a minimum of waste, whereas by the cesspool system, to which "W. B." refers, there is probably a maximum of waste.

I now come to the third objection, relating to the expenses of sewage farming, and the high price of the produce necessary to cover expenses. At any such price as 1*d.* a ton, and which price would work out probably higher than the average amount paid by Belgian farmers—which I am satisfied has been greatly over-rated—I am certain, from many very careful and exhaustive calculations, based upon actual facts and prices, that the sewage farmer can not only beat a town dairyman, if that industrious person were deprived of his metallic cow—a reform which I trust may be effected by some of the new brooms recently come into office—but also beat all farmers in every kind of crop. To take only the case already quoted: how can a farmer under any known mode of cultivation, except sewage irrigation, obtain from poor land 6 qrs. per acre of Wheat, year after year if he likes, at an expenditure of 45*s.* in manure; or 71 tons of Italian Rye-grass per acre, at an expenditure of 16*l.* 13*s.* 4*d.* in manure; or, for that matter, at any expenditure at all?—or how can 52 tons of Mangel per acre be obtained for 4*l.* 11*s.* 4*d.*? Besides which there comes every now and then, at least in the South of England, a year when the ordinary farmer could hardly get any green crops at all, whereas with sewage he will still get a magnificent crop; and taking into account these exceptional years, a sewage farmer can, on the average, undersell his neighbours very largely indeed. "W. B." should recollect also, that wherever sewage is to be obtained there is more or less a market for vegetables; and our experience with London sewage proves, not only that we can produce all kinds of vegetables both faster and cheaper than by ordinary market gardening, but that the produce always, from its fine colour and delicate quality, takes the top price in the market.

With regard to the expenses of farming by sewage, I admit at once that to obtain the best result, a very considerable increase of farming capital per acre is required. The crops are very much larger, and in the case of market gardening, and even plain farming, more numerous; therefore, much more hand-labour can profitably be used: more horses are required, both for the more frequent cultivation thus rendered possible, and for the heavier produce which has to be carted. But while I admit the increase of expense, I deny altogether that it is any objection; but, on the contrary, I assert it to be an advantage of the system, for it practically means that a farmer can employ his capital upon and obtain the same result from a diminished area of land, thus saving rates and taxes—probably some amount of rent, and rendering a thorough supervision and control much easier.

The fourth objection to sewage irrigation, arising from the mixing of storm-water with house sewage, which "W. B." calls attention to, I do not regard as very serious, for he assumes that the sewage cannot be applied to the land when it is freezing and covered with snow: but this is not the fact. It can be and is applied, not only to fallow land, but also to Italian Rye-grass, during frost and snow; therefore there is no absolute necessity for storing it at such a time; and I am inclined to doubt whether Colonel Ewart's recent recommendation of a separation of storm-water from house sewage will ever be popular among ratepayers, or obtain the sanction of the Rivers Commission. In cases where there is peculiar difficulty in utilising the waste drainage received over a large area of land whose drainage is mixed with the sewage, in proportion to the population producing the sewage, or from the nature of the soil to which alone it can be applied, I think the true remedy is to be sought among the different processes for desiccating the sewage.

I am immensely gratified to find that the Barking system, as "W. B." calls it, obtains on the whole the approbation of so patient an inquirer as "W. B.;" and I trust that the preceding remarks will secure for the Barking system a still more unqualified approbation from him. *Hope, Parsloes, Barking, Jan.* 20.

TIPTREE HALL FARM ACCOUNTS.

[INCLUDING THE BALANCE-SHEETS OF 1865, 1866, 1867, AND 1868.]

	Paid.—1865.	Paid.—1866.	Paid.—1867.	Paid.—1868.
JANUARY 1.—Valuation:—				
Live stock	£827 12 0	£1144 10 0	£854 6 0	£1066 18 0
Poultry	20 0 0	20 0 0	30 0 0	28 0 0
Horses and donkey	124 0 0	154 0 0	130 0 0	167 0 0
Tillages, manure, &c.	472 10 9	501 18 4	489 7 8	612 10 6
Hay, corn, &c. (unsold)	286 4 0	252 18 0	636 12 6	558 6 0
Implements	435 11 6	430 0 0	425 11 6	425 11 6
	2165 18 3	2503 6 4	2565 17 8	2858 6 0
Fixed steam-engine, irrigation pumps, millstones, and threshing machine, valued in estate	—	—	—	—
Corn and hay for live stock, produce of farm, charged at market prices	301 2 0	188 14 0	139 17 0	181 17 0
Corn, cake, malt combs, bran, &c., purchased for live stock	369 7 0	418 3 7	427 16 6	690 19 4
Grinding corn for live stock by our own engine, at the usual prices charged to others	25 15 10	16 0 0	16 15 0	24 0 0
Sundries for live stock	7 19 0	4 4 0	} 4 12 0	1 17 6
Veterinary	1 12 6	—		
Medicals	2 16 0	1 15 0		
Live stock purchased	281 0 0	185 15 11	465 10 6	450 1 0
Plough-horse purchased	47 12 6	15 15 0	38 18 6	40 10 0
Horse food purchased from farm	114 0 0	105 16 0	139 17 6	100 0 0
Ditto purchased elsewhere	15 0 0	42 1 0	58 17 0	132 11 10½
Farm labour, including engine driver and working bailiff	386 16 11	353 12 5	452 18 6	476 2 5
Rent of chapel land, 45 acres	45 0 0	45 0 0	45 0 0	45 0 0
Tithes, taxes, poor, highway, church, and county rates	82 4 5	84 2 7	83 0 10	93 8 4
Reserve for wear and tear and depreciation of machinery and implements	25 0 0	25 0 0	25 0 0	25 0 0
Coals for steam-engine	51 10 0	31 7 11	34 14 1	44 2 7
Tradesmen's bills:—Wheelwright, blacksmith, founder, harness maker, bricklayer, carpenter, painter, basket maker, cooper	57 8 0	41 8 11	74 12 9	99 0 0
Malt and Hops for beer for labourers	22 0 0	21 9 6	25 0 11	27 13 7
Seeds and plants purchased	33 1 4	28 15 9	62 9 10	30 16 10
Ditto of our own growth	29 7 0	42 19 0	35 4 3	50 0 6
Purchased manures	110 17 10	78 0 0	117 18 5	93 6 1
Ditto straw	16 8 0	6 0 0	—	—
Miscellaneous petty expenses:—Mole and rat catching, mending sacks, postage stamps, stationary and farm account books, oil, candles, cart grease, tallow, packing for engine	8 1 10	5 10 0	3 15 0	20 1 9
Thatching	7 15 0	5 9 0	8 13 0	10 7 9
Thatching stuff	1 2 0	1 0 0	1 5 0	1 11 0
Corn-blowing machine	—	1 1 0	—	—
Sheep troughs	—	2 10 0	—	1 7 0
Hired horse work	—	—	3 11 6	4 7 6
Ditto threshing work	—	—	8 14 6	12 12 0
Grinding corn at our own mill for our farmhorses	—	—	9 2 6	12 10 0
	4208 15 5	4255 16 11	4849 2 3	5527 10 0½
	Received.—1865.	Received.—1866.	Received.—1867.	Received.—1868.
DECEMBER 31.—Valuation:—				
Live stock	£1144 10 0	£854 6 0	£1066 18 0	£1054 17 6
Poultry	20 0 0	30 0 0	28 0 0	25 0 0
Horses and donkey	154 0 0	130 0 0	167 0 0	179 10 0
Tillages, manure, &c.	501 18 4	489 7 8	612 10 6	644 0 4
Corn and hay, &c. (unsold)	252 18 0	636 12 6	558 6 0	379 0 0
Implements	430 0 0	425 11 6	425 11 6	425 11 6
	2503 6 4	2565 17 8	2858 6 0	2707 19 4
Corn sold for money	601 5 10	478 19 9	1186 11 2	1327 6 3
Corn and hay sold to live stock as per contra	301 0 0	188 16 0	139 17 0	181 17 0
Peas (for picking) sold	44 0 0	2 0 0	41 5 0	68 0 2
Home-grown corn used as seed, and charged per contra	27 2 0	42 19 0	35 4 3	50 0 6
Oats, Beans, and hay, home grown, sold to our horses, and charged per contra	114 0 0	105 16 0	139 17 0	100 0 0
Hay sold (and straw in 1867)	72 17 0	10 2 6	130 1 6	145 19 6
Mangel roots and seeds sold	39 17 6	91 10 3	1 3 0	—
Horse work on hire	—	—	5 13 9	19 8 0
Fat meat sold	813 1 0	1123 7 11	873 0 2	1264 10 11½
Wood sold	19 10 0	54 1 1	23 5 0	29 10 0
Poultry and eggs sold	44 10 9	43 15 0	49 5 5	47 0 9
Grinding for hire	73 15 4	32 5 3	32 0 4	39 5 1
Grinding for own stock	25 15 0	16 4 0	16 15 0	24 0 0
Grinding for horses, as per contra	—	—	9 2 6	12 10 0
Milk and butter	11 5 0	12 0 0	12 10 0	14 0 0
Rent of cottages	15 17 0	15 17 0	15 17 0	15 17 0
Dead horse	—	0 15 0	—	0 10 0
Horse sold	—	—	2 9 0	—
Received for sundries	—	—	5 5 0	5 9 0
	4707 2 9	4784 8 5	5577 8 1	6053 3 6½
Paid	4208 15 5	4255 16 11	4849 2 3	5527 10 0½
Balance for rent of 128 acres and profit on farm capital	498 7 4	528 11 6	728 5 10	527 13 6

LIVE STOCK.

	Paid.—1865.	Paid.—1866.	Paid.—1867.	Paid.—1868.
JANUARY 1:—				
To valuation of bullocks, sheep, pigs, and poultry, now in hand	£847 12 0	£1164 10 0	£884 6 10	£1094 18 0
Hay and corn purchased from our own farm at market prices	301 2 0	188 14 0	139 17 0	181 17 1
Corn, cake, malt combs, bran, &c., purchased elsewhere	369 7 0	418 3 7	427 16 6	690 19 0
Grinding corn by own engine	25 15 0	15 0 0	16 15 0	24 0 0
Veterinary medicine and sundries	12 7 6	—	4 7 6	1 17 6
Live stock purchased	281 0 0	185 15 11	465 10 6	450 1 0
	1837 3 6	1972 3 6	1938 13 4	2443 12 7
Balance	204 8 3	114 8 6	114 5 3	
	2041 11 9	2086 12 0	2052 18 7	
	Received.—1865.	Received.—1866.	Received.—1867.	Received.—1868.
DECEMBER 31:—				
Meat sold (fat)	£813 1 0	£1092 9 11	£873 0 2	£1264 10 11½
Wool sold	19 10 0	54 1 1	23 5 0	29 10 0
Poultry, eggs, and milk sold	44 10 9	55 15 0	61 15 5	61 0 9
Valuation of bullocks, sheep, and poultry in hand, at market prices	1164 10 0	884 6 0	1094 18 0	1079 17 6
	2041 11 9	2086 12 0	2052 18 7	2434 19 2½
Loss				£8 13 4½

	Average price of Wheat per qr.	Capital.	Profit on Tenant's Capital at Tiptree Farm.
1865 ..	40*s.* 2*d.* ..	£2165 ..	£238 = 11 per cent.
1866 ..	40*s.* 6*d.* ..	2503 ..	268 = 10¾ ,,
1867 ..	61*s.* 7½*d.* ..	2571 ..	463 = 18 ,,
1868 ..	63*s.* 9*d.* ..	2858 ..	269 = 9¼ ,,

Average of four years, 12¼ per cent., or 33*s.* 4*d.* per acre.

Dr.	1866. £ *s.* *d.*	1867. £ *s.* *d.*	1868. £ *s.* *d.*
Dec. 31.—Sundry unpaid accounts owing by the farm.			
Farm capital:— Cr.			
Valuation on Dec. 31 ..	2561 17 6	2858 6 0	2708 0 0
Cash in hand or at banker's.			
Outstanding unpaid accounts owing to the farm.			

APPORTIONMENT OF FARM CAPITAL.

	1866.	1867.	1868.
Live Stock	£6 0 0	£6 10 0	£6 10 0
Horses	1 0 0	1 0 0	1 1 0
Tillages, &c.	2 10 0	3 10 0	3 15 6
Implements and machinery .	2 10 0	2 10 0	2 10 0
Hay, corn, &c., unsold ..	3 0 0	3 5 6	2 5 0
Tenant's capital per acre ..	£15 0 0	£16 15 6	£16 1 6

ANNUAL COURSE OF CROPPING.

	1865. Acres	1866. Acres	1867. Acres	1868. Acres	1869. Acres
Wheat	42	55½	56¾	72¾	65¼
Barley	12	12¼	11	6½	6
Oats	14½	12	7½	6	6½
Beans	17½	6½	13½	6½	20
Peas	8	8½	17	7	6
Red Clover	13½	20½	12½	15	6
White Clover	—	—	—	7½	—
Permanent Pasture	14½	14½	14½	14½	14½
Sewaged Italian Rye-grass .	12½	12	12	11½	12
Mangel Wurzel	16¾	10½	9	7	8
Cabbage	3	1	1	—	4½
Winter Tares for feed ..	6	6	4	6½	9
Carrot	—	1	½	—	—
Swedes	—	—	1	—	1½
Available acres	160	160	160	160½	159¾
Cabbage after Tares, second crop, same year	6	3	5	6½	9
White Turnips and Rape after Peas, second crop	8	8	6	—	6
White Turnips after Peas, second crop	—	—	—	7	—
Swedes after Tares, 2d crop.	—	3	—	—	—
Swedes after White Clover fed off	—	—	—	7½	—

Available acres	160
Fences, ditches, and road	5
Ditto on my own farm	7
Buildings, stackyard, &c.	2
Private house, garden, and shrubberies ..	3
Total (landlord's measure)	177

CORN, &c., SENT TO MARKET.

	1867.	1868.
White Wheat	£586 5 9	£767 14 9
Red Wheat	240 8 6	157 8 6
Rivett Wheat	130 4 0	310 2 6
Barley	122 5 0	48 7 6
Peas and Beans	66 0 2	23 2 6
Oats sold to horses (except 8*s.*) ..	0 7 0	12 13 0
White Clover seed	24 15 0	—
Potatos	16 5 9	—
	£1186 11 2	£1319 8 9
Green Peas	41 5 0	68 0 2
Sold for money	1227 16 2	1387 8 11
Corn and Hay sold to live stock and farm horses	279 14 0	281 17 0
Corn used as seed	35 4 3	50 0 6
	£1542 14 5	£1719 6 5

REMARKS ON THE BALANCE-SHEET OF 1868.

[We have received the following notes from Mr. Mechi in explanation of the above tables.]

My abundant and extensive Wheat crops, of fine quality, sold at remunerative prices, had led me to anticipate a very profitable year, but my expectations were disappointed when I made up my live stock account, so that the net surplus of income over expenditure is only say 525*l.* 13*s.* 6*d.*, instead of the 728*l.* 5*s.* 10*d.* of 1867. The failure of the root and green crops, the high prices of purchased food, and the necessity for using much more of it than usual, caused the live stock account to show a much greater loss than usual. The 900*l.* worth of purchased food was probably 20 per cent. dearer than in 1867. The live stock account leaves nothing for 30 acres of root and green crops, and nothing for attendance, &c. A very large amount of valuable manure has, however, resulted from the great consumption of food not grown on the farm. No stock is sold off this farm except in prime fat condition. Had we sold lean store stock the loss would have been much greater, and so it would had not our stock been carefully folded or housed, and fed on prepared, pulped, chaffed, and mixed warm food. In any case, it does not answer to farm without plenty of fat stock. Cow-farming and the raising of lean store stock are opposed to abundant corn-growing on poor soils like mine.

The hot, dry season was very unfavourable to light land farmers, and I have reason to believe that flock and stock breeders on our 22 millions of acres of permanent pasture have suffered severe losses by forced sales at low prices, and by dearly-purchased food. Horse food has been more expensive than usual, wages have been high, and the hard, dry ground has brought to grief many farm implements and vehicles, and thus increased the amount of tradesmen's bills.

Although the Wheat crop was good, this has not been a good farmer's year, Barley, spring Beans, and Oats having been light crops. My profit as a tenant-farmer (after paying my improved rent of 10*s.* per acre) will this year be only 1*l.* 13*s.* per acre, or 9½ per cent., while last year it was 3*l.* 0*s.* 3*d.* per acre, or 18 per cent. Let us hope for better times.

It will be seen by the annexed balance-sheet that the average profit of the four years is 12¼ per cent. on tenant's capital, or 33*s.* 4*d.* per acre—this, of course, after providing 40*s.* per acre, the improved rent. *J. J. Mechi, Jan.*, 1869.

A DISCUSSION ON FAT CATTLE.

THE conditions under which breeding cattle should be fed for show is a subject which regularly crops up from time to time, the intervals being long or short according as the genius or humour of practical men is spurred into activity by glaring cases of deterioration from the abuse of fatting resources. After this question has, however, been taken up and discussed in earnest, there it ends. This is often the result of deliberations which can only end in putting definite conclusions on paper. There is here no line that can be drawn and defined as the certain limit, beyond which no one shall go. It is a question which must be left open to the judgment of authorities who are accredited with responsibility at the time when stocks are brought before them to deliberate over in the judging ring or show shed. It is not a question that can be answered by rule, nor with mathematical or geometrical nicety, nor by any form of weights and measures, but it must be determined by that phase of human judgment which is established by enlightened individual experience being disseminated by tedious repetition till the principle become general enough to be what is termed "fashionable." As fashions are ever changing, however, we take courage under this view. It is not long since that so many feet of circumference was considered to be a befitting form of ladies' attire, both indoors and abroad. The exact reverse of distension is now considered to be the pink of perfection or fashion. Stalwart men are, in a mental sense, and in their business, scarcely less credulous or impressible than are the "softer sex," that is, when they are addressed in a manner and by means which they respect, or, as the case may be, in a way which they fear.

These reflections were induced by the revival of the subject of "cattle feeding" at the annual meeting last week of the Royal Northern Agricultural Society (Mr. McCombie in the chair), and the recollection we have of what kind or condition of animal was "fashionable" at our great stock shows 10, 15, and 20 years ago. Mr. Marr condemned the present system. He urged the propriety of drawing a line of demarcation in the feeding of cattle for shows. He thought no animal above a year old should be allowed to compete that had received anything but common fodder—that is, had been fed on Grass in the summer, and straw and Turnips in the winter. Certain animals might even get too fat for breeding on this, but this would, more than anything else, show their quality. He thought a resolution carrying out this would have a good effect, inasmuch as many animals were destroyed by over-feeding. By the present system they must either give up showing the animals, or must feed them with artificial food, and he thought that such a resolution as he had hinted at would do much good. Of course he would allow any food to bullocks, as they were intended to be fed.

Mr. Leslie pointed out the difficulty of the question, and while he agreed with Mr. Marr's views in regard to the injury done to stock animals, he would not advise the meeting to enter on a resolution. Mr. Campbell fully supported Mr. Marr, adding that the line of demarcation was easily drawn, and he could see no difficulty in confining animals to be shown to the ordinary food of the farm—Turnips, straw, and Grass. Mr. Copeman and the Chairman differed with Mr. Marr in regard to the expediency of drawing the line and the effect which would be produced if the line was drawn. Other members expressed their views for and against the line of demarcation, and, as usual, as we have intimated, "the subject then dropped," and in this case apparently without having so much even as any "moral" influence.

Here, then, is this great question raised once more, and brought by discussion to its true bearing, and then dismissed as one with which practical men cannot effectively deal. Scotchmen generally take unto themselves the notion that they are essentially men of practice—that they are not only ready to learn, but that they can carry out any subject or idea which they have mentally mastered. If this be so, how is it that the leading members of the Royal Northern Agricultural Society, after having agreed upon a question which, in our opinion, is a very simple one, could not embody their sentiments in a resolution which would convey their judgment to the absent members of their own Society, and, "on the wings of the Press," to the members of all other societies? This is clearly an admission of the "moral" weakness of a society composed of practical men that ought to have been studiously avoided. The evil is pointed out, understood, and openly acknowledged, and the conclusion is subsequently declared and promulgated that it is irremediable!

All this we could have understood, if it had occurred in connection with the Royal Agricultural Society of England, about the management of which there has of late been so many and just complaints. But let us take the shows of this Society, and gather up our recollections in regard to the character of animals which were fashionable there only a few years ago, and compare them with those which are looked upon as the first style of fashion now. It is not long since that blubbery and hairless rumps and flabby backs were the only ones that stood any fair chance of being awarded honours by the Society's judges. Milking qualities were thought nothing of whatever, but a "wet nurse" establishment was provided by the Society's stewards, as it was considered to be a necessary institution. We are not attempting to prove by this that the present fashion, as set by the national society, is based on the intelligent or reasonable grounds which are commonly supposed to belong to a society which takes for its motto "Science with Practice:" but we should be doing both the Society itself and our subject an injustice if we did not freely and candidly admit that the improvement in the fashion which has guided judges of late years, has been great, and that its importance has been quite equal to its extent.

This is just the point. How has this improvement been effected? Simply by the outward pressure which has been brought to bear on the Council and their stewards and judges by practical men. A few fussy, fanciful breeders, and their amateur friends, merged into a coterie that became compact and nearly all-powerful, and they set the fashion which, even to this day, has inflicted considerable injury on many of our flocks and herds. Their fancies and crotchets, however, might at any time have been likened to a house of cards, for no sooner were they blown upon by the breath of more intelligent men, than they were driven out of form, never to be again raised to prominence. It is the remedy, however, which has to be applied to a course of evil that becomes expensive, and proves the losses inflicted. To this day this expensiveness and these losses are felt: indeed in some cases they have not in the slightest degree decreased. The issue of many animals, both as members of flocks and herds, whose parents have a long pedigree, have to be fed on milk and sugar and every delicacy of the pasture, field and granary to make them grow to less weight in a given time than more reasonably and naturally bred issue will grow to on common and comparatively inexpensive food. This result of judging and awarding prizes at shows is, so far, the exact reverse of commercial wisdom. Both the farmer and the consumer wants an increase of lean meat, while nearly the whole tendency of awarding prizes at our principal shows has generally been simply an encouragement to produce a greater disproportion of fat to lean. Hence many flocks and herds have been going the way which the once fashionable Leicesters have gone—to a state of degeneracy which will only produce puny and weak frames that are predisposed to grow much grease and but little muscle. Pigs have gone the same way, and many porcine herds which were once fashionable are now used up, or seldom heard of.

These data are too well known to need further exposition at our hands, and if the Council of our national society had not been what was at the time aptly termed a "close borough," they would have been acknowledged in Hanover Square, and practically asserted in the showyard.

Let the Royal Northern Agricultural Society, and similar practical societies, take courage, therefore, and when they have found the evil and dragged it to the surface, by all means let us have the said evil, and the best possible remedy for it that can be devised, embodied in a resolution. Had the Royal Northern Agricultural Society done justice to itself on the occasion in question, other societies would undoubtedly have followed its example, when an incalculable amount of good would speedily have been effected. If this British privilege—the proposing, seconding, and "carrying" resolutions—was more frequently done by local agricultural societies, when commonly acknowledged errors are made practically conspicuous, glaring faults of judgment and management would soon disappear. Many of the best practical men in the country hold themselves aloof from Royal and country shows. If these men be right, agricultural prizes, as now awarded, must be wrong. These awards are too often a gratification of vanity, and too seldom an award of commercial merit. Let, therefore, real practical societies go on condemning the follies on which we have touched, and let these condemnations be put into a tangible form. If this be done we shall see as great a change for the better in the character of animals shown in the next 10 years as there has been in the last 10. Even the Royal Agricultural Society may by this time, if it be reformed within, begin to have some appreciation of profit and loss in breeding and feeding animals. Should this much-to-be desired result ensue, we may then be able to praise its examples as worthy of being followed by local societies, instead of urging local societies to bring their practical knowledge to bear on false and profitless fashions wherever these are to be found. *W. W. G.*

THE WARM, WET WEATHER.

THAT Christmas is the best time for frost and snow is an old song, the truth of which need not be questioned; but farmers could do well without either frost or snow if they could only make up their minds to think it, for the too common belief that the former kills insects and permeates the land, and that the latter clothes and fertilises it, is based upon a very doubtful foundation. No doubt many insects perish when taken by surprise, but Nature is no less careful of these than she is of other families, and generally insects are gifted with an instinct, and the means of carrying it into effect, which leads them to penetrate the soil to a depth below the reach of frost, or to find some other retreat equally out of the way of harm. As to the drying and disintegration of the surface soil, the benefits thus produced are greatly magnified, and those which in reality do exist are more than counterbalanced by the injury done by frost to the manure in the land, and the crops which have to stand the winter, as Grass, Wheat, &c., and to live stock. That snow covers the ground, and thus protects it, is manifest, but the truth of the argument is its own death

warrant, for the protection thus afforded is from the cause of its own existence, *i.e.*, the absence of heat. In practice, when we have the one we cannot get rid of the other; but at present we have neither. And with regard to the fertilising effects of snow, the old philosophy of going to the clouds for every cause which could not be accounted for otherwise, is getting out of favour with the present age; and, what is more, the green fields of the current Christmas point in the opposite direction.

How best to get on with the present high temperature and superabundance of rain, and at the same time make suitable provision for an unfriendly visit of frost in spring, is another and a more important question. So far as gone, autumn-sown Turnips have done well, but they and the summer crops, more especially the latter, in the field, are beginning to show signs of running to seed. So long as the nights are long and the days short, the danger is not very great; but as the day lengthens out, and the force of vitality increases, it will be otherwise, for if the warm growing weather continues to the end of the current month, harm will be done. The early-sown Wheats are getting rather "proud," but, so far as we have seen and heard, not to that extent which might have been expected from the season. Perhaps we should have heard more numerous complaints had not the late-sown Turnips been doing so well; and, besides, a large breadth of Mangels and Swedes were later in being removed from the ground than usual, and, consequently, the getting in Wheat, ploughing, and other outdoor works are at the dawn of spring, and in the stock department the weather has been singularly in favour of both the cattleman and shepherd, not only in the provision of outdoor keep, but also in the reduced indoor consumption, cattle requiring less food in warm weather than in cold.

The force of vegetation up to this date is chiefly due to the following causes, (1), the high temperature and dryness of the soil during the past summer; (2), the higher state of drainage in which the soil and subsoil were thus placed; (3), the warm southern rains; (4), the manner they were drained through the soil; (5), the minimum rate of evaporation and reduction of terrestrial heat thereby; (6), and the generally high combustion of organic and mineral matters in the soil, *i. e.*, bottom-heat. A very cursory glance at these several causes will suffice to illustrate the soundness of the above conclusion.

The solar heat of the past summer penetrated the soil and subsoil to a much greater depth than usual, the temperature of the surface being at the same time higher. The quantity of heat in the subsoil and staple must, therefore, have been considerably in excess of that of ordinary years.

This increase of heat would contract, crack, and fissure clayey soils to a greater degree and depth than the general drought, great as it was on the surface, ever indicated. This effected an improved drainage of the subsoil, and also increased its capacity for holding and retaining water below the level of the artificial drainage of the land. The drainage of the majority of porous soils was not much increased by the increase of temperature; a few, however, were less or more affected: but the capacity of all to retain water was increased.

Such being the nature of the rain, and the condition of the soil and subsoil, the latter for a time absorbed almost the whole of the former, and the immediate effect of the moisture, accompanied with its usual amount of oxygen and carbonic acid, caused a rapid decomposition of organic and inorganic matters, an increase of heat, and a forced vegetation. No doubt, from the surface of the land the solar heat which fell was principally removed by the rapid evaporation which took place. But none of the previously absorbed heat was removed by the rain. On the contrary, what took place increased the actual quantity of heat in the soil in a twofold way—first by the heat which the rain itself contained, and second, by the heat produced by the decomposition in question.

After the drains began to flow, and rivers to swell, a certain amount of heat would then be removed from the soil by the percolation of the rain-water through it, but the total quantity during the whole season has been unprecedentedly small, the rain-water and drain-water being nearly of a uniform temperature.

The removal of heat by surface evaporation has, during the greater portion of the period, a few days in November excepted, been upon a minimum scale. Throughout the whole time, and even at the date we write, the state of the atmosphere relative to evaporation has been singularly uniform, the heat removed being rather under than above that daily added by the sun. The high temperature of the week ending the 9th of January will hardly permit of a different conclusion.

From such a combination of causes it is easy to account for the favourable growth of autumn Turnips and the green pastures of Christmas, there being a forcing supply of bottom-heat and plant food in the laboratory of Nature. With the heating of the hay-stack and the dunghill all are familiar, and although cause and effect are less perceptible to the senses in examples of the bottom-heat in question, the difference is only one of degree; and no little of the success of modern farming depends upon the cost of keeping up this bottom-heat to the proper degree, so as to take out of the soil all the manure that is put into it in the shortest time.

This naturally brings us to the present and future of the season. If the winds continue for the most part near about from south to west, the farmers need not fear. But should the wind change and blow from the opposite points of the compass, it will take thoughtful practice to prevent injury.

The master work is in principle the economy of heat, both above and below the surface. In the meadows and pastures an over-luxuriant vegetation is not to be dreaded. There Nature may be allowed to run riot if she pleases. It is otherwise in the Wheat fields, whether early or recently sown. To check vegetation we have put the harrows over the land. In clayey soils lying in ridges, attach harrows to a long yoke or bar the breadth of the ridge; hook two horses, the one before the other in the furrow, to each end, so as to cover a ridge at a time, the teams going in the furrows. Light land requires light harrows, and strong land heavy harrows, and if strong land gets dry and stubborn the harrows may require to be loaded. In this manner the growth may be checked for a month or so, and the temperature of the soil at the same time kept up to a higher degree, the better to protect the roots should severe frost set in later in spring. Sheep are sometimes turned into winter-proud Wheats, but they never do well on heavy land, and seldom on light land, in seasons like the present. And besides, cropping by sheep and mowing with the scythe are objectionable on other grounds, for instead of checking growth they have rather a tendency the opposite way. Hence the reason why they are employed when crops get over-luxuriant, so as to prevent lodging, by relieving the ear, and thus advancing the process of ripening. The ear is formed at a very early period, and if allowed to get too far advanced, and then to be frost-bit, the safety of the Wheat crop afterwards depends upon fresh shoots from the roots, or by "tillering," as it is technically termed in most provinces. Indeed, when the ear gets too far advanced in January and February it generally perishes, the subsequent crop being from branch shoots off the parent plants, so that in seasons like the present more particularly every means should be used to protect the roots of the parent plants, and have the ground in the best condition for tillering or branching when the season gets beyond further danger.

The land is very liable to get consolidated, clay soils "running together" in seasons like the present. Porous soils soon absorb solar heat as the day lengthens out, but it is otherwise with heavy land, owing to its strong affinity for water, and the water being a bad conductor of heat: consequently, spring Wheats, and late winter Wheats, which have not established themselves in the ground, are very liable, first to get sickly, and then to perish, there being a want of normal vitality to send out lateral shoots.

Frost frequently relieves land when in a rain-bound condition, but generally at a great sacrifice of plant. This arises from the unnatural way in which the work of loosening the soil is done—the plants being uprooted, many of them torn from the parent seed kernel before they have been sufficiently established to derive sustenance from the roots. We need not go into the detail of what follows, as the facts of the case may better be left to their own tale when the thaw comes. If the land is immediately reconsolidated by pelting rains, the majority of the young plants may hold on, but if the change has been effected by soft southern winds and burning suns, it will be otherwise.

Art can do the work of loosening the soil about the young tender plants better far than frost. Thus in open seasons like the present we have put light seed harrows over the ground, sometimes giving it a double turn, so as to loosen the surface, and thus let in the heat, and at the same time reduce capillary attraction from below, and the surface evaporation and chilling that follows. The effect of thus loosening the soil is well understood, so that we need not go further into the detail of the practice. The harrows may kill a number of plants, but not nearly so many as the frost, and the rapidity with which those that stand the harrowing recover and tiller out, thus covering the ground, may be incredible except to farmers who have been eye-witnesses to the practice. As soon as the horse and hand hoes can be started they should be kept going at their work.

Steam-power has many advantages over horse-power in hauling harrows and hoes at all times, but doubly so at work of the above kind. As yet we have no experience of the Messrs. J. and F. Howard's steam-harrows in checking winter-proud Wheat, and in loosening the soil about late-sown crops, but we believe they would soon repay their cost. And besides, common harrows, hoes, and drill-harrows, specially constructed for the work, could be successfully used by steam tackle long before a horse-hoof dare enter the field.

With few exceptions ploughed lands, intended for spring corn, will not excite any fears. Those who plough lands in bad weather, in the hope that the winter frost will correct the harm thus done, will of course be disappointed should frost not come. But the day is gone by when haphazard work of this kind can be commended, for steam renders it wholly unnecessary to run the risk. Lands intended for root and green crops, if heavy, should have the steam cultivator drawn through them as soon as the season will permit. Afterwards they should be worked between the wet and the dry, so as to have a sufficiently fine mould for the seed, the practical maxim being, "Trust nothing to the weather." Consolidating rains and loosening frosts may follow, and so on; it may be argued to the contrary, "but they may not follow;" so that those who rely upon such contingencies are oftener left to reap the just reward of their day dreams than otherwise. Should rain come, it may give rise to an additional working of the steam-cultivator, but it will not undo the benefits which the former operation conferred upon the land; and if frost comes, the land thus smashed up will be the better prepared to receive it.

With regard to Turnips in the field, when they begin to run to seed some draw the scythe along the drills; but this does not check vegetation to the extent imagined, for the bulbs continue to draw nourishment from the ground, and to exhaust themselves in putting forth fresh leaves. The better plan is to plough them up, and to cover the roots of four drills in one furrow, the tops and tails being both taken off. The work should be done in time. *W. B.*

SPECIAL CATTLE FOODS.

THE prominence acquired, by constant advertisement, for Thorley's Cattle Food, has led to the introduction of numerous compositions of a similar nature. The latest of these is advertised as "Nutritious Cocoa Extract for Horses and Cattle." This is a novel application of Cocoa, if the food is actually a preparation from the Cocoa tree. Cocoa, as we all know, is exceedingly nutritious, and is becoming more and more a favourite beverage in this country. Linnæus' name of the genus of plants which yield the Cocoa of commerce—Theobroma, ought alone to recommend its use, since the word (which is composed of the two Greek words for god and food) signifies that the seeds are a fit "food for a god." Benzoni, however, who travelled in the 16th century, speaks of it as a drink "fitter for a pig than for a man." He does not, however, say anything against its nutritive qualities. The value of Cocoa as an article of human food, as we all know, is very great; it contains a large percentage of fatty matter, starch, gum, and gluten, besides theobromine, which is its peculiar principle, and which contains a large quantity of nitrogen. Baron Liebig, indeed, says that theobromine is the most highly nitrogenised of all vegetable principles, and, as such, is the most nutritious, and certainly amongst the best flesh-forming vegetable products. If, then, Cocoa, which was formerly considered a luxury, but which has of late years become more generally used, can be imported, prepared, and sold for human food at 6*d.* per lb., we do not see why the Theobroma should not produce a profitable article for feeding cattle. We do not at all expect that the Cocoa seeds, or "beans," as they are commercially called, will ever be imported into this country for such a purpose. But the question remains: What becomes of the fruits themselves—the capsules and pulp which enclose the seeds? Though we never heard of these fruits being utilised, or their properties tested, there can be little or no doubt that where the seeds are so rich in nutritive properties, the capsule itself must partake in some proportion of the same properties, and it may be the source whence the new cattle food derives its name. Even if the fruit contained every property of the seed in exact proportion, the fact of its being woolly and not so easily granulated, would prevent its use for human food, but it would be no reason why it should not be mixed with other articles for cattle food. There is no doubt that much of what is now considered the refuse of commercial articles might be turned to account in this direction. As an instance I may mention that not long since the seeds of the Tea plant were brought to my notice as likely to produce a good nourishing food: this seed contains similar properties to Cocoa, but is very oleaginous, and would therefore be crushed and used in the form of cake. Other instances of plants which do not come under the designation of fodder plants may be found in the Carob, Locust, or St. John's Bread (Ceratonia siliqua, L.), the produce of a tree native of South Europe, the Levant, &c., where the pods have long been used for feeding horses, mules, pigs, &c. It is not till within the last 16 or 18 years that they have been imported into this country in anything like the quantity they are now. They are perhaps more agreeable in flavour than highly nutritive in quality, and belong probably more to that class of food called carbonaceous, or heat givers, the real flesh-forming, or nitrogenous matter, being contained in the small black seeds, which do not get properly crushed in the manufacture, and escaping mastication pass through the system entire.

The seeds of the Fenugreek (Trigonella Fœnum-græcum, L.) is another of a similar class of food as the above, and is the produce of a small annual plant native of the region about the Mediterranean, but now cultivated in India and most other warm countries; it is also occasionally grown in England, but the British climate is not suited to it. The principal use of Fenugreek now is as a condiment for flavouring cattle foods and rendering damaged hay palatable, Fenugreek powder also enters largely into the composition of those quack nostrums so frequently believed in by unintelligent grooms and horsekeepers. Amongst the Greeks and Romans Fenugreek had a high repute for medicinal and culinary purposes.

Amongst the oilcake series of cattle foods many additions have been made of late years; it does not appear long since oilcake was made almost entirely from Rape seed, then Linseed, after expressing the valuable oil which that seed contains, supplied, and continues to supply a large quantity of that now consumed. Besides that made in this country, a large quantity of linseed-cake is imported from abroad, chiefly from the United States. Cotton seed is another comparatively modern, but very important introduction to the oilcake series, as is also that of the Soy bean (Soja hispida, Mœnch), a small quantity of which was imported and recommended for use some few years ago, since which time little or nothing has been heard of it. The plants yielding these beans are extensively cultivated in tropical Asia, the seeds themselves being produced in small oblong two or five-seeded pods. The beans are similar in form to the common Kidney Bean, though not much larger than an ordinary pea; from these seeds the well-known sauce, called Soy, is procured, by boiling them with equal quantities of barley or wheat then leaving the whole mass to ferment for a long time, after which salt and water is added, and the fluid strained. The residue of the beans thus treated is said to be highly nutritious, and to form an excellent cattle food. There are two varieties of the Soja hispida known, one yellow and the other green, and an analysis has shown that in the green variety a larger quantity

of nitrogenous matter is contained than in the yellow; thus, while the latter shows 36.089 per cent., the former shows 38.919 per cent. Besides the use of these beans in the manufacture of Soy, the Chinese cook them for consumption at their own tables. A sample of this bean-cake is in the museum at Kew, and from comparison with Rape, Cotton, &c., a favourable opinion might be formed.

A question has lately arisen as to the efficacy of giving horses treacle or sugar in their food; there can be no doubt that both will help to produce a sleek, smooth, glossy coat. We are so accustomed to look to our home produce for the food for our beasts, that any new source does not, perhaps, meet with such a welcome reception as it would were it destined for our own individual consumption, or for application in the arts or manufactures, we are therefore glad to see some prospect of Beetroot pulp having an efficient trial as a cattle food in this country.

The most striking instance, however, of the introduction of foreign food, is that mentioned in a recent issue of the *Daily Telegraph*, where we learn that a vessel was then unloading at Liverpool a cargo of 1000 tons of closely packed hay, grown in the Bombay Presidency. The writer of the paragraph referred to rather poetically suggests, that this novel article of import may probably taste of the fragrant Lemon-grass and Kus-kus plants indigenous to Indian soil, and imported to this country for perfumery purposes; if so, and the flavour is agreeable to English horses, our home-grown hay may become at a discount, our beasts preferring that of tropical growth to the produce of the English meadows. Whether or not this new import is the beginning of a regular trade remains to be seen. At the same time this, and those we have mentioned in the early part of this paper, point to some new sources from whence we may expect some day to derive benefits. *John R. Jackson, Kew.*

PRIME SCOTS.

[Abridged from the "Broadway" for December.]

THE title of this paper is simply a quotation from the ordinary price list of the Islington Cattle Market as it appears week by week in journals that give attention to the buying and selling of "neat" stock. Persons versed in matters of domestic economy donot need to be informed that the technical "prime Scots" has come to be pretty nearly synonymous with the best quality, or the highest price of meat. It may not, however, be so generally understood how the prime Scots have attained the sort of pre-eminence in the market they have held for a good many years; how it comes to pass that from the northern corner of the island we obtain a large proportion of the very best beef sold in the London market all the year round, while at such a season as Christmas a few Scotch graziers and cattle-dealers regularly send forward to the metropolitan cattle market large lots of beeves, which, in point of size and perfection of fattening, are hardly equalled by the finest cattle sent from the richest midland counties in England.

A HISTORICAL SKETCH.

At an early period our Scotch neighbours would seem to have addicted themselves to trafficking in cattle. It is told how, at the time of the union between England and Scotland, in 1707, Lord Seafield, the Scotch Chancellor, took occasion to remonstrate with his brother, the Hon. Patrick Ogilvie, because he had adopted the plebeian and undignified pursuits of the cattle-dealer. Seafield, as Chancellor, had taken a prominent part in bringing about the union of the two kingdoms, which, it need hardly be remarked, was very unpopular north of the Tweed, and to his remonstrances, accordingly, Patrick gruffly replied, "Better sell nowte than sell nations," which no doubt was considered a very smart retort. But while this might be the aristocratic view of cattle-dealing—as, indeed, the Scotch "gentlemen" of that date looked rather scornfully on all forms of mercantile trading—the practice of "droving" cattle from the southern counties of Scotland to the great English fairs had even then been long established. And before the close of the 16th century we find the English Parliament thinking well to punish the northern kingdom by prohibiting the introduction of Scotch cattle into England; and the effects of the prohibition are said to have been pretty severely felt in some of the richer Scotch counties, which alone could rear cattle to export in those days. A century later, Ireland seems to have been the quarter against which the policy of protection was directed. Sir David Dunbar, of Baldoon, in Galloway, who had "a famous park," in which he could keep, "summer and winter, a thousand bestial," sent yearly "18 or 20 score" to St. Faith's, and other fairs in England; and in the autumn of 1682 "nine-and-fifty" of the best sort of cattle of his own rearing, four years old, which would have yielded between 5*l.* and 6*l.* sterling the piece, were seized upon in England for "Irish cattle." No great offence, abstractly considered. Yet because there was nobody ready "at the precise hour" to "swear that they were seen calved in Scotland," they were, by order of certain magistrates, "knocked on the head and killed." The fiscal policy of the time was certainly exclusive enough. Cattle could be imported from Ireland into Scotland only by special permission of the Privy Council, and under strict limitations; and certain cargoes of grain attempted to be brought over about the date indicated were staved and sunk by authority.

Still the cattle trade from Scotland to England appears to have grown and prospered. One chronicler informs us that at a great fair held at Crieff, in Perthshire, in 1723, there were at least 30,000 cattle sold, most of them to English drovers, "who paid down 30,000 guineas, in ready money, to the Highlanders; a sum they had never seen before." He adds that the Highlanders "hired themselves out for a shilling a day to drive the cattle to England, and to return home at their own charge."

As already mentioned, the business of rearing stock for the English market commenced in the southern counties of Scotland. It gradually penetrated further northward; first to the Lothians and Fife, and from thence, toward the close of last century, to Aberdeenshire and the surrounding north-eastern counties . . . At the beginning of the present century it was estimated that about 8000 cattle were annually "droved" from Aberdeenshire to the English markets. That number has now increased more than five-fold, with this very material difference, that while the 8000 that crept slowly southward, day after day, before the drover and his dogs—camping at night where they could find fields to graze in—till they reached the termination of their journey, were in a lean or half-fattened condition, the 40,000 are, without exception, sent off fully fattened; and, indeed, the larger part in the form of dead meat, carefully packed for the London market.

CATTLE BREEDING IN THE NORTH.

As the cattle trade grew in importance, increased attention was given to improving the character of the stock. The native cattle were better cared for, and Shorthorned cattle, from some of the best herds in England, soon found their way into the far north. Captain Barclay Allardice, of Ury, in Kincardineshire—a descendant of Robert Barclay, the "Apologist" of the Quakers, and himself famous for sundry exploits in a different line—such as his feat of walking a thousand miles in a thousand hours, and his patronage of men like Tom Cribb, of pugilistic memory, and "Molyneux the Black"—was among the first, successfully, to introduce this handsome and valuable variety of the bovine species into the north of Scotland. He was soon followed by others, and notably by Mr. Anthony Cruickshank, in Aberdeenshire. Mr. Cruickshank's fine herd, at Sittyton, numbers about 300 cattle; it has been formed by many years of patient and skilful attention, and includes "blood" from a number of the best English herds, procured at great expense. First among the breeders of the native black cattle is Mr. M'Combie, of Tillyfour; his herd of Polled cattle is also very large, and of great value. Mr. M'Combie carried some of his stock to France, for competition, on more than one occasion, and at the famous Poissy show his black cattle, *sans cornes*, were regarded with peculiar interest, as contrasted with the native breeds, all furnished with ample length of horn. Several prizes and medals of honour were there awarded to their owner, who, it may be remarked, is in possession of a collection of silver cups, and medals of bronze, silver, and gold—the results of innumerable victories in the cattle showyards of Britain, where his Polled cattle have been exhibited—which, in point of extent and value, is probably unique of its kind. . . . . The greatest honour bestowed on the tenant of Tillyfour, however, was a visit paid to his farm, during last summer, by her Majesty the Queen, who drove thither from Balmoral Castle, a distance of 20 miles, for the purpose of seeing what is unquestionably the largest and most famous herd of Polled cattle in Scotland, and probably in the world.

SHORTHORNS *versus* POLLED.

The Sittyton and Tillyfour herds may be taken as representative of the two great sections of pure-bred cattle in the north-eastern parts of Scotland. But it would be a mistake to suppose that the northern farmers and graziers give their attention to these exclusively. On the contrary, they put faith largely in "crosses." The tenant-farmer, who is the principal breeder of ordinary marketing stock, makes sure of having the bull that is the sire of his stock pure bred; and, curiously enough, over Aberdeenshire and the adjoining cattle-breeding counties, it is not the native black Polled breed that most prevails, but the Shorthorns of English extraction. At one or other of the annual sales by the great Shorthorn breeders in the district—such as Cruickshank, of Sittyton, Campbell, of Kinnellar, or Longmore, of Banff—the ordinary tenant-farmer buys a young bull, whose pedigree is duly set forth from the "Herd Book." The price for an animal six months old may be any sum from 15 to 90 guineas. But the importance of good blood in the successful rearing of stock is universally understood; and thus we find that men who, as seen at their daily avocations, are scarcely to be distinguished from their own labourers by their dress, and who live almost as sparely as they in the matter of food, do not hesitate about giving sums that appear, to the uninitiated, altogether out of proportion to the value of the animals purchased for calves which commend themselves to their critical judgment. About their cows they are less exact as to breed; they may be Shorthorns, black Polled, Longhorned, Highlanders, or crosses between a Shorthorned sire and a dam of any of the other breeds. It is only demanded that the cow be not ugly in shape nor "hide-bound" in quality.

THE ABERDEENSHIRE FARMER AND HIS CATTLE AND CATTLE SHOWS.

The result of this care in the matter of breeding is that the calves, as a rule, have in them "the makings of a good beast," that will grow rapidly, and fatten readily. The enthusiasm of the Aberdeenshire farmer in the matter of breeding and feeding cattle is something to be witnessed rather than taken on hearsay. His talk is all of oxen; and not only that, but he is a perfectly scientific judge of their merits. He will pick you out their "points" to a nicety, and unfailingly discriminate between the "hard" and the "kindly" "toucher" by the most casual stroke of his horny palm. In the latter part of summer the great period of cattle shows occurs. Every district, in some cases every parish, has its cattle show, at which all the crack stock in the locality are turned out for inspection and the award of prizes; these generally amounting to a few shillings in value, and drawn from the entry money paid by the various exhibitors. With the cattle do congregate their owners and the *cognoscenti* of the locality in general. Three "practical" men, breeders or farmers of established reputation not connected with the district, do the work of "judges:" and theirs is no sinecure office. Perhaps from 150 to 250 animals of the various classes, bulls, cows, heifers, bullocks, and calves, are, lot by lot, passed under review in succession, the best ones selected first, and then the precise merit of each individual beast among these ticketed off with exactitude; and all this with the ring surrounded by groups of sharp-eyed amateur judges, balancing the probabilities and speculating on results.

To the district show succeeds the county show; and to it the more ambitious and successful exhibitors carry their stock to compete for higher awards. Similarly, above these is the annual show of the national Highland and Agricultural Society, to which the primest of the prime are taken; or it may be that some remarkable mountain of symmetrically developed flesh, after running the gauntlet successfully at home, crosses the border late in autumn, and goes by Darlington and Liverpool to compete for the honours of the fat stock showyards there, before he puts in his final appearance at Smithfield. Before he has reached that stage, the photographer's art has in all probability been called into requisition, to preserve him in outward form and feature; to rekindle the recollections of his admiring master; and for the information of breeders and feeders who have not been so happy as to see him in the flesh. And there the famous ox or heifer will remain, framed in gilt, and hung up in the comfortable farm parlour, a prominent object of interest among the other homely pictorial adornments of the place.

THE MARKET AND MARKETING.

In the handsome market buildings at Aberdeen a series of butchers' stalls run round the interior side walls of the middle floor. And if the visitor happen to pass through the market in the afterpart of the day, he will probably see under the arches in front of these stalls several groups of burly well-conditioned men, strolling about, or engaged in converse, loud and strong. These are the owners of the stalls. They are not, as a rule, mere retail purveyors of meat. All the principal dealers among them combine the operations of grazier and cattle-dealer with the retail business represented in the stalls. During great part of almost every day of the week these men may be seen on the railways, running to this or the other country fair to buy cattle, or visiting the farms, where they have stock of their own feeding on the pasture fields, or Turnips rented from the tenant occupiers of the soil. Whilst they prosecute the business of retail butchers in Aberdeen, three-fourths of their transactions are directly for the London market, 600 miles off. They pick up fat cattle from day to day over the country, bring them on to Aberdeen, and then send them off to London by railway or steamer, in the form of live stock, or as dead meat. In either case, they are consigned to the London salesmen, who dispose of them at the succeeding Monday or Thursday market at Islington, and the Aberdeen dealer has his money returned within the week in which his consignment has been made. He has himself, however, in the first place, paid cash to the farmer from whom he bought. And it is no unusual thing for some of these dealers to go to a country fair and pay out of hand over the rickety table in some temporary booth as much as 600*l.* or 700*l.* in Scotch bank notes for the day's purchase of cattle.

When the "droving" of cattle to the English market ceased, and the first ventures of a few fat beasts for the London market were made, they were sent from Aberdeen by sailing vessels. Sending by steamer came next; but the vessels not being very powerful, instances occurred where, in stormy weather, almost the whole of the live freight were either thrown overboard to ease the ship, or smothered below decks before the vessel reached the Thames. The introduction of larger and more powerful vessels has obviated this risk, or, at any rate, reduced it to a minimum; and one favourite boat in particular—the City of London—well known at the wharves at Wapping, of large size and admirable steaming qualities, often carries very considerable numbers of fat stock. Her freight on the trip directly before the London Christmas market in December, 1867, besides sheep and swine, included 188 very large cattle, which might be valued at fully 6000*l.* the lot. For the 12 months of 1867 the Aberdeen steamers carried to the London market 2758 cattle (an exceptionally small number), and 494 tons of dead meat. During the same time they carried 26,983 sheep and 4673 pigs. The number of sheep here stated is as near as may be half the number exported from Aberdeen to London and elsewhere. The country being mainly agricultural rather than pastoral, fewer sheep are fed than in districts still farther northward.

Formerly, the greater part of the Aberdeen cattle were sent on to London as live stock. But the greater despatch and diminution of risks secured by the forwarding in the shape of dead meat has reversed this, and now the despatches of dead meat—the carcases being halved and carefully sewed into packing sheets—exceed those of live stock by a long way. A comparison of the returns for 1865 with those for 1859, shows that the number of live cattle sent by rail had diminished fully one-fourth within that period, while the number of tons of dead meat had increased in more than a corresponding proportion. In 1865 there were 9031 live cattle sent southward by railway from Aberdeen, and 10,074

tons of dead meat, the whole, with inconsiderable exceptions, going direct to the London market. The same year the steamers carried 1558 fat cattle from Aberdeen to London. Let us take the live cattle at 13,000 net, discounting the odd 500 for the benefit of the provincial towns by the way; and reckoning each of the 10,000 tons of dead meat as equivalent to the carcases of three average bullocks—and the estimate, I believe, is tolerably correct—we have a total of 43,000 as the annual export of fat cattle from Aberdeen to the London market. A moderate average per head gives the gross value of the whole as 1,075,000*l.*

Thus far of the general supply for the year. But, as I have said, the larger farmers and dealers make a point of preparing special lots for the great Christmas market, which is held about the second or third Monday of December. To that market some of the principal Aberdeen dealers frequently forward as many as 100 to 120 cattle, all well matured in growth and thoroughly fattened, and varying in value from 80*l.* to 50*l.* each. For just as the Aberdeen men send no inferior beef to the London market at any season of the year, so the grand Christmas beeves are, to a large extent, the pick and choice of their herds, marked out and destined to that particular purpose many months before. On the middle days of the week preceding the great Christmas market the long cattle trains come steaming slowly over the various local railway lines to "the Granite City," the astonished bullocks, all unconscious of their destination, staring and blowing over the edges of the high-walled trucks in which they are cooped up. At Aberdeen the London trains are at once arranged, and despatched southward with as little delay as possible. The numbers sent on by these special trains of course vary, but the prediction may be safely ventured, that the total Christmas consignments to Smithfield and Islington of these astute northern purveyors in the month of December last did not fall much short of 1200 fat bestial, of the primest of "prime Scots," worth 40,000*l.* to 50,000*l.*

Home Correspondence.

Water Wheels.—About 15 years ago I did the very thing your correspondent inquires about, viz., made use of the power of a river running under a bridge. The river in my case was reduced by the abutments of the bridge to about 12 feet wide. I divided this into two portions, putting down a wheel of about 8 feet diameter on one side the division, and a row of rimers, or sluice gates, on the other. When these are put in they turn the whole of the water through the wheel, raising the head about 12 inches, and giving me sufficient power to raise water, by a three-throw pump, to drive a 3-horse power threshing-machine, or to grind Barley for pigs, cut chaff, and other purposes. It has answered exceedingly well, costs little in repair, and is in constant requisition. The first cost, including grist-mill and other machinery, was 200*l.* Your correspondent would have more trouble than I had, as he would have to stop several arches with rimers when the wheel is in use. I may say that the millers on the stream—a mill above and a mill below me—were satisfied that by taking this power *en passant* I did them no injury. I have no right to stop the water, but when it is not running through the wheel it runs through the other half of the passage. *J. B. M.*

What are Haydes?—Hayde (singular), haydes (plural), a hedgeway, walk, or riding in Grass. The word is derived from *hay*—a hedge. According to the "Farmer's Dictionary," 1807, *hay* was used in Norfolk about the commencement of the present century to denote "a clipped hedge." It is generally agreed to be from the French *haie*. In Spelman's "Glossarium" it will be found under *haia*, and in Cowell's "Law Dictionary," under *heye*, its old English name. At Kimbolton, Hunts, we have heard the ridings termed haydes by an old hedger. In Mordant's "Complete Steward," hayde is used both in the singular and plural, and also in contradistinction from headland. Thus, one plot has "a headland hayde," meaning the hayde was used both as a headland and riding. The ridings at Kimbolton were generally used as headlands. In another plot the headland is specified as being one of the ridges, and the "six ridges, together with haydes at the south end only," quoted by "T. H." must have had a headland at the north end for the teams and plough to turn upon. This also was common at Kimbolton. With regard to the use of the plural by Mordant, he most probably means a hayde on each side of the hedge. But in the olden time there were sometimes double ridings on one side of the fence. In the quotation from Drayton's "Polyolb.," s. 13:—

> "on the higher hades
> The dainty clover grows."

hades is evidently a contraction of haydes, and coincides in meaning with the above definition. *Editor of "Nesbit's Practical Land Drainage."*

Mr. Mechi's Correction of an Error.—I have to apologise for committing a blunder in my letter "On plenty of money, but we won't use it" in your last number. Since writing it we have finally made up the farm accounts for 1868, and find the net tenant's profit is 9½ per cent. The estimated profit of 20 per cent. was erroneously computed without reference to the live stock account, which showed an unusual loss owing to the dry season. The average farm profits of the last four years have been 12½ per cent. on the average capital of 14*l.* 12*s.* 6*d.*, or 3*l.* 4*l.* per acre. *J. J. Mechi.*

Societies.

SHROPSHIRE: *Jan.* 17.—At the annual dinner of this Society, the Right Hon. Earl GRANVILLE, President of the Chamber, occupied the chair. There were upwards of 300 of the leading agriculturists of the county present.

In proposing the toast of "Success to the Shropshire Chamber of Agriculture," Earl GRANVILLE said—As far as he had been able to learn, there were only two objections urged against Chambers of Agriculture—it being said on the one hand that the landlords were opposed to their institution, and on the other that there was a danger of their degenerating into mere associations for promoting political and party purposes. He could not help thinking, when he looked around the table at which he sat and saw there representatives of the first families in the country, that their presence on that occasion was a sufficient answer to the first objection. And when he called to mind the cheers which had greeted alike the members for the county and those gentlemen who had been opposed to them in the late elections, and when he saw by his side his noble friend the Earl Powis, whose long political antagonism to himself had been co-existent with their long, warm, and sincere personal friendship, he felt that the two parties, which outside the walls of the chamber were political enemies, were united to further its interests when they met within.

There were several questions to which he thought Chambers of Agriculture might address themselves with the probability of obtaining practical good. First, there was the most difficult and delicate question of the relation between landlord and tenant, which was comprised in three words—tenure of land. It had not, he understood, been the custom in Shropshire to grant many leases, but there were some which were arranged upon a fair and equitable basis, and it was not to be denied that there were others which were simply disgraceful, opposed to the interest of national prosperity, and to the interest of the landlord, as incompatible with high rents and a high cultivation of the land. This was a question which required careful consideration on the part both of the landlord and of the tenant, first as to whether the extension of leases was a desirable thing, and next, if it were decided in the affirmative, as to what was the best way to adopt a gradual change. There was another question which merited the attention of Chambers of Agriculture, but he rather feared to approach it, more particularly as he had observed that none of the county members came within 100 miles of it, and he might prove to be the fool who rushed in where angels feared to tread. He referred to the question of the Game Laws. A noble lord had once said that he had no objection to rabbits, except that they were 2 or 3 inches too short. He had a shrewd suspicion that there were a large number of gentlemen in the room who objected to them on the score of their being some 16 or 17 inches too long. He was fond of shooting, but he must confess that, even in the excitement of the sport, it had always appeared to him perfectly unjustifiable that, for the sake of a few hours' amusement, the growth of an animal should be encouraged which destroyed so much of the tenant-farmer's produce. He was afraid, however, that the putting down of rabbits would prove no easy task. With the exception of a poor hard-working curate of the Established Church, rabbits were, he believed, the most prolific animals in the world. Half measures would not do with them. *Delenda est Carthago.* It was impossible to keep rabbits within proper bounds, and he thought they must destroy them altogether. To accomplish this with a due respect to the rights of property would not be a difficult task for a body composed of the elements which went to make up Chambers of Agriculture, and, either by the institution of some agreement between landlord and tenant, or by the creation of a wholesome state of public opinion upon the matter, they might put to rest a question which had occasioned more bad feeling between landlord and tenant than all their other disagreements put together.

Questions of the drainage of land and of the utilisation of sewage also claimed the attention of Chambers of Agriculture. The towns wanted to get rid of their sewage, and it was of great importance to the farmer that so much valuable matter should be lost to the land. Agriculturists were now, he believed, convinced of the advantages of the system of deep drainage, and the experience of the past summer had brought forcibly to their minds the necessity of obtaining supplies of water in seasons of drought. How best to do all this was subject for debate and counsel in their several chambers. There was one other point to which he must refer, and which was perhaps somewhat of a hobby of his—he meant education. As he believed that the future welfare and prosperity of this great empire depended upon the education of all classes of its people, so he felt sure there was absolutely no class in the country which was so deeply interested in its spread as were agriculturists. The grand old art of agriculture had within the past half century quite changed its character. In the present day every man who was worth his salt wished to improve his own store of knowledge, and to see his children enjoy a better chance of acquiring learning than he had himself possessed. In these days it was necessary for an agriculturist that he should be an educated man. How many amongst them had felt the deficiency of their early education, and been obliged to accept the painful position of applying to others for information as to the practical results of scientific inquiry. It was not merely elementary education that would carry a farmer through his work in the present day. The higher he carried his business the more education he required, and this held good, not only as regarded the farmer himself, but with respect to the labourers whom he employed, for the more delicate the work they were called upon to undertake, and the more complicated the machinery placed under their care, the more requisite was it that they should have their faculties developed by education. It behoved agriculturists to move with the march of education if they would avoid that which must otherwise fall upon them—a diminution of material wealth, the loss of social influence, and the decay of political power.

He trusted that the Central Chamber would be enabled to suggest to the Legislature a measure which, if embodied in an Act, would relieve them from the danger of having their flocks and herds carried off by disease, and at the same time would not interfere with the necessary supply of meat to the teeming populations of large towns. He would recommend Chambers of Agriculture, as associations perfectly independent of politics, carefully to watch the expenditure of the public money, and by keeping a constant pressure upon those responsible for it, to see that a shilling's worth was obtained for every shilling that was spent. With regard to the management of the funds raised by local taxation, he did not doubt, after what he had heard from previous speakers, that there was no real difficulty in the way of doing what was right in principle and just in detail, and that a policy somewhat similar to that unanimously recommended by a Committee of the House of Commons last year would be adopted and would pass into law. The incidence of local taxation was the last point upon which he should touch, and he must say he could not conceive anything more disgraceful than some of the facts connected with the present state of local taxation. If they were to ask an exceptionally well-informed man what sum was annually raised throughout the land by local taxation, he might guess at twenty millions sterling, and that might probably be about the actual figure; but there was not anywhere any official document to show by what means and upon what security that vast sum was raised.

He saw that the Chamber of Agriculture proposed dealing with the question of rating, and he would venture to give them one word of caution. They had a new Parliament, in which the manufacturing interest was more largely represented than heretofore, and they might be sure that any measure brought forward by agriculturists would be most carefully examined, and they must be prepared to meet with counter claims. He could not help thinking that the more careful they were in ascertaining the character of the ground upon which they trod, in seeing the exact way in which they wished to effect a change, the more likely they were to succeed. As he did not himself hold much land, he would not say anything as to the advisability of their going in for rating woods; but, as they knew, he was largely interested in mining property, and he thought it possible that they might be able to make out a case for the extension of rating to mines. Since his visit to Shropshire he (the noble lord) had met with some old friends who entertained the most gloomy convictions with respect to the future of England. They had explained how, owing to the machinations of certain unprincipled politicians, whom his (Lord Granville's) position debarred him from doing more than darkly allude to, this great country will shortly lose its church, its army, and its navy, and after a few spasmodic revolutionary throes will sink into that state of ruin and decay which had befallen a village apostrophised some hundred years ago as

> "Sweet Auburn, loveliest village of the plain."

Well, he had known England during a political life extending over 30 years. He had seen the country ruled by different ministers; he had seen different parties in power; he had seen it not insensible to the occurrence of great and portentous events in other parts of the world; he had seen it suffering from adverse elements, and from a deficient season of harvest; and yet during the whole of that time it had appeared to him that England, of which they were all so proud, had been increasing in all that constitutes the greatness of an empire. Its wealth had been greatly increased, the level of general intelligence had been raised, the manners of the people softened, and the hostile feeling between class and class had been done away with. He trusted that this progression would not be retarded by the change which had recently taken place in the government of the country.

Reviews.

First Report of the Commissioners on the Employment of Children, Young Persons, and Women in Agriculture. Her Majesty's Stationary Office.

We continue our extracts from Mr. Fraser's report, which, our readers will remember, relates to the counties of Norfolk, Essex, Sussex and Gloucester.

Gardens and Allotments.—"A good garden attached to his cottage is not only a great convenience, but a great gain to the labouring man. It is an addition to his domestic resources, which, notwithstanding his lower wages, places the material position of the peasant, in many cases, on a level with that of ths town artizan. It supplies him with all the vegetables he consumes. If well stocked with fruit trees, as cottage gardens often are in Gloucestershire, it almost pays his rent. There is a reciprocal and a beneficent connection between it and the stye; the garden half keeps the pig, and the pig in turn more than half keeps the garden. The garden enables the labourer to make a profit out of his own spare time; there, under a father's eye, the children make their first rude essays in the cultivation of the soil. There is something even refining in its influence; the flower-beds, often tended with no ordinary care, at least gratify a pleasurable sentiment, and develop a purifying taste. The heart is not irredeemably gross which can appreciate the simple beauties of nature. One of the saddest features in a case like that of Docking is to hear, 'there are very few gardens.' A garden, to be profitable to a labouring man, need not be very large. Of ordinary land, 30 rods would be an ample quantity; of rich land, requiring a good deal of trenching to

bring out its quality, an eighth of an acre would probably be thought enough. No man, I am told, ought to have more garden than he can cultivate thoroughly in his own time. If he has to hire labour the profit is gone; while 30 rods of thoroughly worked ground will bear a larger crop than a quarter of an acre badly done. With a garden of sufficient size attached to his house the labourer does not require, probably would not even desire to have, a distant allotment. The garden, it is obvious, has many superior advantages. It is close under the man's eye, and he can turn to account in it any ten spare minutes of time. It is manured, being within reach of the pig-stye, with a much less expenditure of labour. An allotment-ground is always an ugly feature in a landscape; the cottage garden, if only tolerably cared for, as certainly enhances the beauty of the scene. The large allotments which prevail in some parishes in Gloucestershire—occupations of from three to ten acres in size—are found to exercise an influence highly unfavourable to education, though probably contributing considerably to the material comforts of the people. The farmers don't like them any better than the schoolmaster. They deprive the former of his proper supply of labour; they deprive the latter of his proper supply of pupils. Being worked entirely from within the family, on a sort of garden system of cultivation, they demand the whole time both of parents and children for many months, in the aggregate, in the year. When a man cultivates both an allotment and a garden he commonly regards the former rather as his little farm, cropping it on a three or four course system of husbandry, and growing his 10 or 20 rod patches of Wheat, or Barley, or Beans, or Potatos. I have known cases where labourers, prohibited, by what I think are harsh restrictions, from keeping a pig, have thrown up their allotment, which they found they could no longer cultivate to a profit; but speaking generally, allotments are much prized, and on Sir Edward Kerrison's estate there is a keen competition for any vacant parcel. Both on Sir Edward's and Lord Cholmondeley's estates, which are managed by the same agent, careful supervision is exercised over the allotments, without which Mr. Freuer thinks they would be of little benefit to the people; and prizes are annually given for the best samples of cultivation, which are found to have operated with the very best effect; in fact, the two motives are applied which are in other cases found to be most effective in dealing with human nature—the motive of kindly encouragement, and the motive of salutary, but liberal, restraint."

Co-operation in Agriculture.—"In the year 1830—11 years, therefore, before the commencement of the enterprise of the Rochdale Pioneers, which has attained such gigantic proportions—the idea suggested itself to a Suffolk squire that he would attempt to apply, by way of experiment, the principle of co-operation or co-partnership to a farm. Selecting 60 acres of land of medium quality, furnished with a rough but not unsuitable homestead, he formed his little company of shareholders, all of them taken from the class of farm labourers, to which he gave the name of the Assington Co-operative Agricultural Society. The number of the original shareholders was 15, who put 3*l.* a-piece into the concern, by way of subscribed capital; the landlord, to give his bantling a chance of life, liberally advanced to the co-operators the sum of 400*l.* without interest, on loan. The society has grown and prospered. The occupation has been increased from 60 acres to 130; the number of shareholders has been enlarged from 15 to 21. The present value of the shares, as the bailiff told me, is 'all of 50*l.*' All year have not been equally remunerative, but there has not been one since the concern started without some little matter to divide. The company have repaid the landlord all the borrowed money, and all the stock and implements on the farm are now their own. The stock consists of six horses, four cows, 110 sheep, and from 30 to 40 pigs. The rent of the land is 200*l.* a year, the company paying tithe, rates, and taxes. The farm is held on a 14 years' lease, which is on the point of being renewed. The land is farmed on the four-course system of husbandry, and ordinarily employs five men and two or three boys. The members are not bound to work upon the farm, which, indeed, could not find employment for all; but it is understood, though there is no rule to that effect, that if a co-operator is out of work elsewhere, he has a claim to employment before any other man. When a co-operator works on the farm, he is paid wages at the usual rate; and if he were not an efficient labourer, there would be no scruple about discharging him. The affairs of the concern are managed by a committee of four, but the practical direction of the farm rests with the bailiff, himself a co-operator, but employed as a servant of the company, and paid 1*s.* per week above the usual rate of day wages. Some of the members of the committee cannot read or write. Two fresh members are elected in rotation every year; and though want of scholarship would not exclude him, yet if a man were not thought sufficiently intelligent for the business he would have to discharge, he would be refused when his turn came. All the voting is by ballot. No member is allowed more than one share; only labourers of the parish are eligible for membership; and if a man goes to live three miles away from the parish he must dispose of his share. As long as he remains a member, he must, by the rules of the society, be a member also of the Stoke and Melford Benefit Club. A member can sell his share, with the landlord's and committee's approval. When a fresh member is admitted he pays 5*l.* down, and the remainder of the current value of the shares by successive instalments. The landlord chose the original members, and claims to have the approval of new members; but he does not interfere with the company, as regards the cultivation of the land, more than he would with any other tenant. The premises are required to be kept in repair by the tenants, the landlord finding rough materials. They are to be insured in the amount of 500*l.*, and every 12 years the farm is revalued. A member falling into difficulties, can have a loan advanced to him up to half the current value of his share; a privilege, however, I was informed, which has rarely been used. The annual profits are divided equally among the shareholders. Among the members are four widows, one of whom has four small children; they do what they can for themselves, and up to the present time have been able to maintain themselves by their work and the dividend on their shares, without the aid of parochial relief. Indeed, the guardians would disallow relief in the case of any person possessed of property of the amount represented by the value of a share, so that the scheme has a direct tendency to diminish pauperism. The first experiment apparently succeeded so well, that in 1854 Mr. Gurdon was tempted to try a second, and started the "Assington Co-operative Agricultural Association." The new concern began with 70 acres of land, and 36 members, each subscribing 3*l.* 10*s.* by way of capital. Again, the liberality of the landlord was taxed to supplement this inadequate amount of capital by a loan, without interest, of 400*l.* The company has so far prospered that, though the times have been somewhat hard with them in consequence of the burden of this debt (which is now, however, wholly repaid), and the taking in and stocking a considerable accession of land, their present condition is as follows:—they now occupy 212 acres, at a yearly rent of 325*l.*, the company paying tithe, rates, and taxes, which amount to about 50*l.* a year. The company is entirely out of debt; the stock of the farm is valued at 1200*l.*; the original 3*l.* 10*s.* shares would sell freely for 30*l.* There has not yet been anything worth speaking of in the way of profits to divide; and what has generally been distributed has been some article in kind, as a ton of coals, or something of the sort, to each shareholder; but the members are satisfied with the state of things, and the prospects of the concern are bright in the future. All the members but six are of the class of farm labourers; the six excepted ones are a miller, a blacksmith, a shoemaker, a wheelwright, and two carpenters. Female labour is only employed at weeding time, or for a job of stone-picking; and at present there are only three boys working on the farm, one of 10, the second of 14, the third of 16 years of age. The societies are not yet incorporated, but intend to be. The squire, I believe, has ceased for some years to be resident at Assington; so that the success of the two experiments may fairly be set down, not to any sentimental fondling on his part, but to the sound principles on which they were based, and the prudent management by which they have been conducted. The only exceptional advantage which the societies have enjoyed, as they do not appear to be at all favoured in the matter of rent, was in the landlord's original loan, in both cases now paid off, to enable them to stock their farms."

Game Preserving.—"The extent to which the system of game preserving is carried in many parts of England, and particularly in the county of Norfolk, is assuming a serious significance, both in a moral and in an economical point of view. The farmer cannot cultivate his land with the proper measure of profit, and there is a tangible loss thereby sustained in the resources of the country; while the way in which, and the extent to which, preserves are stocked to meet the present taste for battue-shooting and to satisfy the notion that you have had no sport unless, like Samson with his Philistines, you have slain 'heaps upon heaps,' act as irresistible incentives with the peasant, who loves his bit of sport as truly as the gentleman, and whose honest earnings are not sufficient to enable him to overcome the temptation thus thrown in his way, to both poach and steal. The sport of shooting certainly assumes proportions in Norfolk that, so far as I have observed, are unknown elsewhere. It is the one thing cared for. It has enhanced within the last 25 years by I know not how much per cent. the value of land. Fabulous rents are offered for the occupation of a mansion, and the right of shooting over a few thousand acres of stubble and plantation, where the hirer possibly does not intend to reside more than a fortnight, or at the outside a month in the year. The art of preserving is studied and cultivated as if it were the great business of life. The highest ambition of the sportsman is to exhibit from his game-book at the end of the season the greatest aggregate of slaughtered game. Indeed, this document is almost as valuable to the owner of a property as his title-deeds, and I suppose that no one would ever think of either renting or purchasing an estate in Norfolk without having this proof of its value submitted to his inspection. Fifty brace of partridges shot in a day would be thought no extraordinary performance for three or four guns; and when battue-shooting has commenced, it would be deemed poor sport if the day's spoil were not reckoned by hundreds. Game in Norfolk is classified into two species—'ground game' and 'winged game,' the first belonging to the quadruped, the second to the biped order. The first species is the one that works most mischief to the farmer; the second species is that which most harms the peasant. Rabbits and hares play havoc with the farmer's Oats and Barley; partridges and pheasants corrupt and demoralize the virtue of the labourer. Adequately to stock these vast preserves and these illimitable stubbles, the keeper is obliged to lay in, in the spring, a proportionate supply of pheasants' and partridges' eggs. These eggs are sold, I know not how far openly, at 12*s.* and 18*s.* a dozen. To show the extent to which the trade in these articles is carried on I will relate the following anecdote, told me by a gentleman who is fully alive to the demoralising tendency of the present system of things. Himself and a friend, not with any purpose of buying, but merely as trying an experiment of curiosity, went to a well known purveyor in Norwich one market-day and asked for 2000 eggs. 'Longs' or 'shorts?' was the question put in reply. I forget which of the two classes was selected, but the information arrived at was, that though not in stock at that moment, the quantity could be procured by the following Tuesday. There is, I believe, a legitimate way of procuring eggs so ordered; but there is also an illegitimate; and I was assured upon more than a single authority, of what it requires no credulity to believe, that many a lad tending sheep or scaring rooks has been taught his first lesson in crime by the agents of these egg-purveyors, who will offer him 1*s.* or 5*s.* a dozen for any number of eggs they can procure. Thus while the magistrate punishes, the game preserver through his servant encourages, the poacher; and a system of things is growing up which in its development seems, to my humble judgment, to be fraught with mischief to the morality of at least one important class of our countrymen who are affected by it. Game preserving, carried to this excess, I regard as a simple evil; and I venture to raise the question whether noblemen and gentlemen are morally justified in buying their pleasure at this price:—

'Est modus in rebus; sunt certi denique fines.'"

The Poultry Yard.

IT is said we go on improving. Certain it is that we go on; but whether we improve as we go is uncertain, and in some cases we may safely say doubtful. We think, however, we announce progress, and that in the right direction, when we say that a pigeon show has been held in the Crystal Palace. It is true it was only a semi-private one, yet it was an advance on the previous meetings held at the Freemasons' Tavern, under the auspices of the same society. We believe, however, that the pigeons were exhibited by the members of two clubs, called respectively the Philo-Peristeron and National Columbarian. We express a fervent hope that the directors of a place so popular as the Crystal Palace will see that the tendency is towards them, and that they will advance half way to meet a large body of breeders and amateurs, who would give them good and hearty support were the programme of a really good poultry show issued by them. The Home Counties and the South of England sadly need a show at which they can contest without being obliged to send so far as Birmingham, Manchester, or Liverpool; and would support well a show that would give them a chance of fighting now and then on their own ground. The programme of a singing-bird show is now published by the Crystal Palace Company; and we wish they would put into competent hands the task of framing a schedule for next season to comprise all varieties of birds—in fact, an ornithological gathering. It might comprise everything, from the ostrich to the tom-tit. There is plenty of room at Sydenham, and almost every variety of bird has its admirers among us. The managers at the Crystal Palace have shown many times the resources at their command. We invite them to a new field for their exercise.

Bristol has for some years identified itself with Spanish fowls of high quality. From the days of Mr. Rake's success, silver cups, medals, and prizes have found their way to Bristol and its suburbs. One breeder of note sold his surplus stock under the auspices of Mr. Stevens, at King Street, on Tuesday last, and the knowledge that some choice birds would be submitted for competition attracted a numerous company. The cockerels were very handsome; the pullets very good in face, but sadly deficient in size. The best birds brought very good prices. One May bird cockerel, first at Manchester Chicken Show, 2*l.* 2*s.*; one pullet, 2*l.* 2*s.*; one pullet, a winner at Birmingham, 2*l.* 12*s.* 6*d.*; another, 2*l.* 2*s.*; a cock aged 19 months, 5*l.* This was a very handsome bird, a really good type of a Spanish cock, and will, we think, be heard of at many shows if he lives and thrives. The examination of the birds here would almost lead us to adopt the same plan with Spanish as the spangled Hamburgh breeders do for their best birds, which is to make up two yards, one from which to breed pullets, the other cockerels. We should think that the pullets at this sale would average about a guinea each; the cocks a good deal more. The sale, which was a large one, was made up by birds of almost all breeds; but the quality of the remainder was by no means high, and the prices fetched were the extreme value.

There is a great outcry at present among exhibitors of poultry at the breaches of good faith and exhibition morality committed by many of their number, in trimming, colouring, and even splicing the plumage of the birds they exhibit. It is very sad that such should be the case, and it is quite proper that it should be condemned, and that vehemently. Its condemnation, however, would be hardly sufficient if steps be not taken to put a stop to it. The committees and *gerants* of our principal shows, when looking over their prize lists for the coming season, must bear in mind that there are black sheep who will enter, and must frame their clauses stringently. One great outcry, and a very natural one, but at the same time one very difficult of detection, is vulture hock in the Brahmas and Cochins. Now we know that abroad no bird of either breed is accounted pure or good unless it be heavily vulture hocked. At the same time, we know that France and Germany both received their birds from us, and that with us the peculiarity was always discarded. It would seem natural that we should get rid of that which we disliked, and very probably the exported birds were those so distinguished. With regard to the trimmed hocks as here exhibited, it is said they are pulled with fraudulent intent some time before the exhibition takes place, so that when in the pen the hock appears properly, and only properly, covered. If the bird takes honours and is sold, probably at a good price, the purchaser is disgusted to find how much more he

bought than he bargained for. Unfortunately for himself he finds it too late; for, if purchased for a stock bird, he has in all probability begun to breed from it, and will find ugly proof in the development of his chickens. To guard against such frauds is the duty and interest of both committees and exhibitors.

The hatching season of 1869, as far as we yet hear, is a very favourable one, and we hear of better broods than usual.

Obituary.

The late Mr. Hall, of West Firsby Hall, Lincolnshire.—The deceased was (the *Doncaster Gazette* records) for many years well known and universally respected as the land agent of the Wiseton estates, during the lifetime of the Earl Spencer, who was more generally known as Lord Althorp. Under Mr. Hall's able management the whole of those extensive estates were remarkable for their high state of cultivation. At the day of his death, Mr. Hall had some months entered on his 86th year, retaining his intellectual powers unclouded to the last hours of his prolonged existence. He was probably the oldest living life member of the Royal Agricultural Society of England, and there is a very striking portrait of him in the well-known picture (since engraved) of the members of that Society. For many years Mr. Hall officiated as one of the judges, and not only at the shows of the Royal Agricultural Society, but at all the principal agricultural exhibitions of the kingdom. Mr. Hall's extensive experience, great knowledge of stock, and strict impartiality, caused his services to be frequently sought by the committees of such associations. It was, however, in connection with the establishing and perfecting of the world-famed Wiseton herd of Shorthorns that Mr. Hall's name became more generally known to the agricultural world. Earl Spencer proved his high appreciation of the way which his agent had carried out his wishes and instructions by bequeathing that large and valuable herd to Mr. Hall at his death. After the death of Earl Spencer, Mr. Hall, leaving Wiseton, became the purchaser of the Hesley Hall estate, and resided at Hesley Hall for more than 20 years. Full of years—respected and esteemed by all who knew him, from the peer to the peasant—Mr. Hall has passed away at an age to which few men attain.

Notices to Correspondents.

ASPHALTE: *Mammell-Langley.* Some of our readers may give you further information, meanwhile we beg to say, that asphalte is more slippery than stone or concrete, and while slippery when hard, it softens in hot weather, and wears into holes, which are very difficult to patch up.

COW-FOOD: *Cor.* One bushel of distiller's grains, with 40 lb. of pulped Mangel, mixed with chaff of hay and sweet straw, and 3 lb. of good linseed-cake a day, and access to clean water, is as good a ration for a cow in milk as you can have. If you cannot have grains, and have not got Mangel Wurzel, then you are shut up to hay, and cake, and water, and the milk will not pay for the food.

FOOD FOR FATTING CATTLE: *Subscriber.* There is a saving in pulping roots, and mixing them with chaff of straw and hay. The hard dry food is thus softened, and, as it were, cooked and rendered more digestible; and, moreover, you take from the beast the power of picking and wasting its food. That is the only one of your questions that can be answered confidently. We reprint the others, hoping that they may raise discussion:—Is bran a good feeding stuff? and what is it worth per ton? What quantity of Oats ought a feeding bullock to get per day? and whether are they better ground into meal, or merely crushed? What is the cheapest feeding stuff at the present high rates?

SOOT AND LIME: *Mr. R. Smith* asks about the application of soot or lime as manure to his land—black, white and black downs land. [Soot is a finely-divided charcoal, containing a small percentage of ammoniacal salts, more or less, according to the processes carried on by means of the fire which generated the soot. It is possible that the chimney of a kitchen wherein a large amount of cooking, in the shape of roasting or baking meats, is carried on may contain a greater percentage of ammonia, but this variation can be hardly worth consideration. For starting young Turnips, Swedes, or Mangels, it is a useful fertiliser: for Wheat or spring corn, which has a weak blade, and a yellow sickly tinge, it will act almost like a charm in giving the plants a start. But it cannot be depended on for supporting a large crop of roots, nor a heavy crop of corn. Superphosphate of lime (dissolved bones) is necessary in addition, if a heavy and sound crop of either roots or grain is the object. On land which produces too much "top," or blades, of either roots or cereals, soot would be superfluous, and might be injurious. This, however, is a practical question, which any farmer may, in connection with the above remarks, easily judge of for himself. Lime, as a rule, would be a correct application where soot is not required. If lime be applied to black land it will bring into use much of that vegetable matter which imparts to it this blackness—such substances as partially decomposed vegetation, which grew and fell, or decayed as roots, at some previous period of the history of the soil which contains them. These are in a crude form, and they become soluble slowly by the action of atmospheric solvents, helped probably by the roots of plants, whose excretions may have the power of producing a slow chemical action in their neighbourhood. This process is, however, too slow for farmers to rely upon. Hence the use of lime. These black substances require to be reduced to very much the same condition as soot, and thereafter to be made soluble. But to burn the surface containing them would be to drive off these deposited substances, and they would be driven away before the wind. Lime is the best application to produce solubility in crude vegetation. Its caustic qualities induce a process of slow burning, which does not result in being driven away like smoke. These, then, are the leading data relating to soot and lime. When it is correct to use one or the other, no one can decide without a knowledge of the soils which require to have their fertility increased. Lime, however, we may remark, is an application which, like burning, exhausts soils, and therefore it will not do to depend upon it for a permanency, although it may be used once in every three or four years on such deep deposits as the Lincolnshire or other fen lands, as these deposits are practically inexhaustible.]

SPURREY: *W. W. C.* Frequent hoeings before the plant is in seed, during both corn and green crop cultivation, must ultimately destroy it. It is the plague of poor sandy soils.

KNAP HILL NURSERY, WOKING, SURREY.

ANTHONY WATERER

BEGS TO SUBMIT THE

FOLLOWING LIST to the NOTICE of INTENDING PLANTERS.

EVERYTHING IS WELL GROWN AND FINELY ROOTED.

In proof of which he gives the date of their last removal.

ABIES ORIENTALIS, 5, 6, 7, and 8 feet, 10*s.* 6*d.* to 21*s.* each.
" " beautiful specimens, 10, 12, and 14 feet high, 15 and 20 feet in circumference, 31*s.* 6*d.* to 63*s.* each, and upwards. Moved April, 1868.
" ALBERTUS, 5 to 9 feet, 30*s.* to 60*s.* per doz., moved April, 1868.
" DOUGLASSII, 5, 6, 7, and 8 feet, 5*s.* to 10*s.* 6*d.* each, moved August, 1868.
" CANADENSIS, 4, 5, 6, 7 feet high, 18*s.* to 30*s.* per dozen.
" PUMILA, " FYGMÆA, " CLANBRASILIANA, " GREGORII — Hundreds of these dwarf varieties of the common Spruce Fir, many are 20 and 30 years old.
" EXCELSA.—The Common Spruce, 5, 6, and 7 feet high 7 to 10 feet round, moved April, 1868, 21*s.* to 30*s.* per dozen.
PICEA NOBILIS, 4, 5, 7, 8, and 10 feet high, 8 and 15 feet in circumference, 42*s.* to 147*s.* each. Hundreds of magnificent plants of the best glaucous variety. None are grafted, and all moved since March, 1868.
" NORDMANNIANA, beautiful seedling plants, 1½ to 2 feet, 30*s.* and 42*s.* per dozen.
" " 3, 4, 5, 6, and 8 feet, 10*s.* 6*d.* to 105*s.* each.
" " Splendid trees, moved August, 1868, 10 and 15 feet high, 15 to 20 feet in circumference, 7 guineas each and upwards.
" MAGNIFICA or NOBILIS ROBUSTA, 2 feet, 15*s.* each.
" " " " 2½ to 3 feet, 6 feet in circumference, 21*s.* to 31*s.* 6*d.* each.
" " " " 3, 4, and 5 feet, 31*s.* 6*d.* to 63*s.* each and upwards. Mr. WATERER has hundreds of this handsome Fir, all seedlings.
" LASIOCARPA, 2 to 2½ feet, 60*s.* per dozen. [each.
" " 3 to 4 feet high, 8 and 9 feet in circumference, 21*s.* and 31*s.* 6*d.*
" " 5, 6, 7, and 8 feet high, 10 and 12 feet in circumference, 42*s.* and 63*s.* each; hundreds of them. [42*s.* each.
" PINSAPO, 3, 4, and 5 feet high, 9 and 10 feet round, 7*s.* 6*d.* to
" " 7, 8, and 10 feet high, 63*s.* to 147*s.* each, moved August, 1868.
PINUS AUSTRIACA, moved April, 1868, 3 feet, £5 per 100.
" BENTHAMIANA, moved April, 1868, 2 to 2½ feet, 30*s.* per doz.
" CEMBRA, 8 to 10 feet, 10 and 12 feet round, moved 1868, 10*s.* 6*d.* to 21*s.* each.
CEDRUS ATLANTICA, 5 to 6 feet, 42*s.* to 60*s.* per doz., moved 1868.
" " 7 to 8 feet, 84*s.* per dozen, moved 1868.
" " 8 to 10 feet, 7*s.* 6*d.* and 10*s.* 6*d.* each, moved 1868.
" DEODARA, 4 to 6 feet, 42*s.* and 60*s.* per dozen.
" " 7 to 8 feet, 84*s.* per dozen.
" " 10 to 12 feet, 120*s.* per dozen and upwards. Some thousands of these large Deodars, the majority moved since Jan., 1868.
" LIBANI, moved April, 1868, 5, 6, 7, and 10 feet, 5*s.* to 21*s.* each.
CUPRESSUS LAWSONIANA, 4 to 5 feet, 30*s.* per dozen.
" " 5 to 6 feet, 42*s.*; 7 to 8 feet, 60*s.*
" " 9 to 10 feet, 7*s.* 6*d.* to 10*s.* 6*d.* each.
" " 12 to 18 feet high, and as much round, 21*s.* to 63*s.* each. We have thousands of these large Lawsonianas, from 5 to 15 feet high, the majority moved in 1868.
JUNIPERUS CHINENSIS, 4 to 5 feet, 36*s.* and 42*s.* per dozen; 6 to 7 feet, 60*s.* to 84*s.* per dozen; 8 and 9 feet, and as much round, 21*s.* each; some magnificent plants, 10 to 15 feet high, 15 and 20 feet in circumference, 63*s.* to 105*s.* each and upwards. We have several thousands of this fine Juniper, 4 feet and upwards, the majority moved in 1868.
JUNIPERUS VIRGINIANA (Red Cedars), 4, 5, 6, and 7 feet, moved August, 1868, 18*s.* to 42*s.* per dozen.
YEW, ENGLISH.—Many thousands, 4, 5, 6, 7, 8, 10, 12 and 15 feet high, nearly all of which have been moved within 12 months.
" IRISH.—Handsome plants, 7 to 8 and 10 feet, 7*s.* 6*d.* to 10*s.* 6*d.* each, and upwards.
" GOLDEN and ELEGANTISSIMA. — Hundreds of fine plants, on their own bottoms and worked, from 3 to 6 and 8 feet high.
Many of these plants are 30 years old; all have been recently removed.
THUJA AUREA.—This plant originated at this Nursery. We have large numbers of fine specimens, 3, 4, 5, and 6 feet high, 8, 10, and 15 feet round.
" GIGANTEA.—Splendid plants, moved August, 1868, 10 to 15 feet high, 21*s.* to 42*s.* and upwards each.
" LOBBII, 6 to 7 feet, and as much round, 5*s.* to 7*s.* 6*d.* each.
" " 10 to 14 feet, do. do., 21*s.* to 63*s.* each.
All moved in 1868.
THUJOPSIS BOREALIS, 5 to 6 feet, 60*s.* per dozen.
Do. do., 7 to 8 feet, 10 and 12 feet in circumference, 10*s.* 6*d.* each and upwards.
Moved in 1868.
WELLINGTONIA GIGANTEA, 4 to 5 feet, 7*s.* 6*d.* to 10*s.* 6*d.* each.
Do. do., 6, 7, 8, and 9 feet, 21*s.* to 63*s.* each.
All moved August, 1868.
HOLLIES, GREEN, COMMON.—Stout, finely rooted plants, 3 feet, 18*s.* per dozen; £6 per 100.
Many thousands 4, 5, 6, and 7 feet high, 30*s.* to 84*s.* per dozen and upwards.
A number of splendid plants, 10 to 15 feet high, 15 and 20 feet round. All moved April, 1868.
" SCOTTICA, " LAURIFOLIA, " MYRTÆFOLIA, — Three of the finest hardy Evergreen known. Thousands of beautiful plants, 5, 6, 7, 8, and 9 ft. high, 7*s.* 6*d.* to 21*s.* each, and upwards.
" HODGIN'S HOLLY, 4, 5, and 6 feet.
" GOLDEN QUEEN.—Hundreds of magnificent plants, 4 to 8 feet high, and as much in circumference.
" WATERER'S.—This variety originated here, and we have them by hundreds. 3, 4, and 5 feet high, 8 to 15 feet in circumference—the admiration of everybody who sees them. There are many of them 20 and 30 years old, and have been constantly and recently removed.
" SILVER QUEEN, 3, 4, and 5 feet high.
" STANDARD, WATERER'S, and GOLDEN QUEEN HOLLIES, 5 to 6 feet stems, with heads 6 to 9 feet round, very handsome.
" STANDARD WEEPING HOLLIES.—Some of the finest plants in the kingdom, worked and on their own roots. One, probably the finest that exists in any Nursery, has a stem 10 feet high, 20 inches in circumference, perfectly straight, with a magnificent head covered with berries. This plant was moved August, 1868.
" VARIEGATED, of the ordinary kinds. — A stock of many thousands, from 4 to 5, 6 and 8 feet high. Plants in finer condition cannot be desired. The prices will be found fair and reasonable.
BOX, GREEN and VARIEGATED, 4, 5, 6, 7, and 8 feet high, 2*s.* 6*d.* to 10*s.* 6*d.* each and upwards.
" PYRAMIDS, up to 8 feet, very fine
BAYS, STANDARDS, " PYRAMIDS, — from 3 to 10 guineas a pair.
LAURUSTINUS, STANDARDS, 31*s.* 6*d.* each and upwards.
LAURELS, PORTUGAL, 4 and 5 feet high, 7 and 8 feet in circumference, 42*s.* and 60*s.* per dozen. Moved July, 1868.
RHODODENDRONS.—One of the finest stocks of all the leading kinds, nice healthy bushy plants, 1½ and 2 feet high, many of them layers (far preferable to grafted plants), from £7 10*s.* to £15 per 100.
" STANDARDS.—A large number of the oldest and finest specimens to be met with in any Nursery, many of them being 20 and 40 years of age, with heads measuring 15 and 30 feet in circumference, and when in bloom are objects of wonderful beauty.
" SEEDLING varieties, varying much in colour, fine plants, many of them blooming, 1½ to 2 and 3 feet, £5 to £15 per 100.
" DWARF varieties, several kinds, £5 to £7 10*s.* per 100.
" ODORATUM, " GOVENIANUM, — Nice blooming plants, beautifully scented, 12*s.* and 18*s.* per dozen.
" PONTICUM, for cover, good plants, £7 10*s.* to £15 per 1000.
The Exhibitions of Rhododendrons in the Horticultural Society's Gardens are supplied from Knap Hill.
AZALEAS.—A fine stock of the most beautiful varieties in cultivation, good blooming plants, carefully selected, will be supplied at 18*s.* to 30*s.* per dozen. Large plants, 3, 4, 5, and 6 feet high, of all the fine Ghent and other kinds.
KALMIA LATIFOLIA.—Nice blooming plants, 12*s.* and 18*s.* per dozen; larger, of all sizes.
ERICA HERBACEA CARNEA.—The prettiest of the Spring-flowering Heaths; fine plants, by the 100 or 1000. A large stock of the best varieties of Hardy Heaths at 30*s.* per 100.
DAPHNE CNEORUM MAJUS.—A grand improvement on the old variety; fine plants, 18*s.* per dozen.
AUCUBA JAPONICA, up to 3 feet; thousands.

THE FOLLOWING ORNAMENTAL TREES, OF LARGE SIZE,

Are well grown and well rooted, and stout.

PLANES, ORIENTAL and OCCIDENTAL, 10 to 15 feet high.
SYCAMORE, 10 to 14 feet.
WEEPING BIRCH, 8 to 12 feet.
MOUNTAIN ASH, 8 to 10 feet.
HORSE-CHESTNUTS, COMMON, 10 to 12 feet.
SCARLET HORSE-CHESTNUTS, very fine flowering Trees, 10 years, worked.
BEECH, WEEPING, 7 to 15 years, worked.
BEECH, PURPLE, 8 to 15 feet high.
DECIDUOUS CYPRESS, 8 to 12 feet.
NORWAY MAPLES, 8 to 12 feet.
LOMBARDY POPLARS, 10 to 12 feet.
THORNS, fine Standards, of the most ornamental kinds.
ASH, Gold-barked, Flowering, and other varieties; fine Standards, 8 to 10 feet.
LIMES, 10 to 12 feet.

As well as the above-mentioned articles, at Knap Hill will be found one or perhaps the most extensive Stock of all the better kinds of HARDY EVERGREENS, DECIDUOUS and FLOWERING ORNAMENTAL TREES and SHRUBS.

A PRICED AND DESCRIPTIVE CATALOGUE

Will be forwarded on application.

Purchasers are respectfully invited to inspect the Plants growing in the Nursery.
No Catalogue can adequately represent such a Stock.

The Nursery is readily reached by Train from Waterloo to Woking Station, where conveyances may at all times be depended on.

The Railways now take Goods at through rates to almost any Station, thus doing away with the expense of package.

ANTHONY WATERER, KNAP HILL NURSERY, WOKING, SURREY.

Autumn Planting.
ORNAMENTAL TREES AND SHRUBS.

PETER LAWSON AND SON have an immense stock (extending over many acres) of the leading varieties of HARDY ORNAMENTAL TREES and SHRUBS, of such sizes as are most suitable for immediate effect, which they offer at moderate prices; and purchasers of large quantities will be very liberally dealt with.

PETER LAWSON & SON, after much experience of Autumn Planting, are fully satisfied of the beneficial results arising from it, and would respectfully bring under the notice of their Customers the desirability of early operations during the present favourable season.

Edinburgh and London.

Forest Trees, Evergreens, &c.

CHIVAS AND WEAVER have much pleasure in drawing the attention of Planters during the ensuing season to their very large stock of the above, grown with the greatest care, and regularly transplanted. The situation of their Nurseries being particularly exposed, renders the safe removal of plants to any part of the Kingdom almost a certainty.

SPECIAL PRICED LISTS (with terms of free delivery), on application. Large purchasers most liberally dealt with.

Eaton Road Nurseries, Chester.

The Planting Season.

WOODLANDS NURSERY, MARKSFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON respectfully invite especial attention to their very large stock of STANDARD ORNAMENTAL TREES, of large size, suitable for planting as single specimens on Lawns or in Parks where immediate effect is desired.

WEEPING ASH, 7 to 9 feet stems.
AMERICAN WILLOWS, 6 to 7 feet stems.
CATALPA SYRINGÆFOLIA, 6 to 8 feet.
ELMS, CHICHESTER and ENGLISH, 8 to 10, and 10 to 12 feet.
SILVER and SPRUCE FIRS, 6 to 7 feet.
HORSE-CHESTNUTS, 6 to 8, and 8 to 10 feet.
SCARLET HORSE-CHESTNUTS, extra fine plants, 6 to 8, and 8 to 10 feet.
LABURNUMS, Yellow and Purple, 6 to 8 feet.
POPLARS, BLACK ITALIAN and LOMBARDY, extra fine, 8 to 10, and 10 to 12 feet, and various other HARDY TREES.

See PRICED CATALOGUES, which may be had free on application.

To the Trade.

THOS. CRIPPS AND SON beg to announce they still hold a good stock of the following, in fine healthy stuff:—ABIES ALBERTIANA (Williamsoni), 2-yr. seedlings, to 16 feet; A. MENZIESI, 9 ins. to 12 ft.; ARAUCARIA IMBRICATA, 6 ins. to 20 ft.; Cupressus Lawsoniana (an unequalled stock), 2-yr. seedlings, to 15 feet; Picea balsamifera, 3 inches to 7 feet; P. Nordmanniana, 3 inches to 7 feet; P. Pinsapo, 6 inches to 18 feet; P. poctinata (Silver Fir), 1 to 4 feet; Pinus austriaca, 2½ to 7 feet; P. Lambertiana, 1 to 5 feet; P. muricata, 1 to 2 feet; P. Benthamiana, 2-yr. seedlings, to 7 feet; Retinospora ericoides, 5 inches to 3½ feet; R. obtusa, 6 inches to 6 feet; R. pisifera, 1 to 8 feet; Taxus ericoides, 6 inches to 2 feet; Thujopsis dolabrata, fine stuff, 3 to 15 inches; Wellingtonias, 3 ins. to 20 ft.; Horse-Chestnuts, all varieties; Aucubas, a complete collection; Berberis Bealii, japonica, intermedia, Darwinii, dulcis, stenophylla, vulgaris; Laurels, common, 3 to 6 feet; Laurels, Portugal and Myrtle-leaved do.; Daphne pontica Stocks; Deutzia crenata fl.-pl.; D. scabra, Leycesterias, Manetti and Rhododendron Stocks; Malus floribunda (handsomest of the flowering Crabs); Prunus triloba, Hardy Azaleas, Ericas, Gaultherias, Menziesias, and Pernettyas; Standard Roses, Blush and Crimson China do.; Standard Apples, Cherry Plum Stocks, Strawberries; Pinus excelsa and Picea Webbiana, 1-yr. seedlings; Alder, 2 to 5 feet; Spruce Firs; Lilium auratum and punctatum. For particulars and prices of which, see our TRADE CATALOGUE, to be had free on application.

The Nurseries, Tunbridge Wells, Kent.

The American Nursery, Bagshot, Surrey.

JOHN WATERER respectfully invites the attention of Gentlemen and others engaged in planting to the undernamed selections from his general stock. He has much satisfaction in recommending them as being symmetrically grown and really of first-rate excellence, and from frequency in removal are in an excellent state for transplanting. Having a very large stock, he is determined to treat on most liberal terms. He would, however, earnestly invite Purchasers to make a visit and choose for themselves, which is easily accomplished by South-Western Railway (Reading Branch) to Sunningdale Station, which is near the Nursery.

RHODODENDRONS (Standards)—Of all the leading choice, scarlet, and other varieties, 3 to 4 feet stems, consisting of such as Alexander Adie, Michael Waterer, The Warrior, Princess Mary of Cambridge, Quadroona, Mrs. Ino Penn, Joseph Whitworth, and all such others as have been exhibited annually at the Royal Botanic Gardens, Regent's Park.

RHODODENDRONS (Half Standards)—Of all the approved kinds; 2 to 3 feet stems.

RHODODENDRONS.—Hardy scarlet, crimson rose, white; for superior clumps or borders fine well-grown plants. An excellent assortment would be supplied at £15 per 100. Fine bushy plants can also be supplied, averaging 3 to 5 feet.

RHODODENDRONS.—Immense quantities of really good coloured seedlings, with Catawbiense and Hybrid Catawbiense, 1½ to 2 and 3 feet, £10 to £12 10s. per 100. These varieties are very suitable for admixture with the better kinds. The plants are bushy, and mostly well set with blooming buds, and from rose to white in colour.

RHODODENDRONS (Dwarf-growing kinds).—These are very close growing varieties, and are recommended for filling winter beds. Daphnoides, Myrtifolium, and Hybridum are the best suited for such purposes. Odoratum is delightfully scented, and much used for potting and forcing.

RHODODENDRON PONTICUM.—This kind is the most common, and now generally admitted to form the best permanent cover for game. In the most severe weather it is never injured by hares or rabbits. Good plants, 21s. to 30s. per 100.

AZALEAS, HARDY, of the most popular kinds, of all colours, and in fine plants, covered with a profusion of blooming buds. These are much used for forcing. 18s. to 30s. per dozen.

ANDROMEDA FLORIBUNDA.—One of the most hardy plants used for decorating winter clumps. Of these we are large holders, and can supply beautiful specimens at 30s. per dozen, covered with blooming buds.

KALMIA LATIFOLIA and MYRTIFOLIA.—Fine grown plants, of all sizes.

HARDY HEATHS.—A very fine collection, in 20 kinds, 30s. p. 100.

ABIES NORDMANNIANA.—Of this fine kind we are very large holders, allof which are seedlings, and of all heights, from 2 to 4 to 6 to 8 and 10 feet.

ABIES MAGNIFICA.—Fine specimens, 2 to 5 feet.

ABIES NOBILIS.—All seedlings, 1½ to 3 to 5 feet.

ABIES LASIOCARPA.—From 2 to 3 to 5 to 7 feet.

ABIES GRANDIS (of Douglas).—Fine specimens, 2 to 6 feet.

ABIES DOUGLASII.—3 to 4 to 6 to 10 feet.

ABIES PINSAPO.—2 to 3 to 5 to 10 feet.

ARAUCARIA IMBRICATA.—Fine specimen, 2 to 4 to 6 to 12 feet

THUJOPSIS BOREALIS.—2 to 3 to 4 to 6 feet.

THUJA AUREA.—All sizes, 2 to 4 to 5 feet, perfect globes.

THUJA GIGANTEA.—Immense quantities, from 3 to 4 to 6 feet.

WELLINGTONIA GIGANTEA.—Of all sizes from 2 to 12 feet.

IRISH YEW.—Selected specimens, 4 to 12 feet.

HOLLIES (Green).—Fine, 2 to 3 to 4 to 6 feet.

HOLLIES (Gold and Silver).—In the most approved kinds, of all sizes.

STANDARD GOLDEN HOLLY (WATERER'S).—The best for standards; fine plants.

STANDARD WEEPING HOLLIES (Green and Variegated).

We have likewise immense quantities of the leading kinds of EVERGREENS, of all sizes, such as Yews, Box, Bays, Aucubas, Arbutus, Phillyreas, Common and Portugal Laurels, &c., as well as fine strong transplanted FOREST TREES, 2 to 3 and 4 feet, consisting of Ash, Beech, Alder, Spanish Chestnut, Hazel, Withy, Larch, Spruce, Pinus austriaca, &c.

CATALOGUES describing the colours of all the RHODODENDRONS worthy of cultivation, with a LIST OF CONIFEROUS PLANTS, with heights and prices, forwarded to all applicants.

☞ Purchasers of large quantities of goods are informed that the great expense incurred by package is now greatly diminished, as we can forward from Sunningdale, in through trucks without change, to all Stations on the Great Northern, North-Western, Eastern Counties, and Great Western (narrow gauge) Railways; also by South-Eastern and Brighton Lines by way of Blackwater.

The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway, and Blackwater Station, South-Eastern Railway, where excellent Conveyances await all Trains.

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FRUIT LIST



Contains a sketch of the various forms of Trees, with directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by post for three stamps.

RICHARD SMITH,
Nurseryman and Seedsman,
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DWARF-TRAINED TREES.—By the Thousand, Hundred, or Dozen. Apples, Pears, Plums, Cherries, Peaches, and Nectarines. Fine, flat, well-trained, of best quality, and true to name.

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ORCHARD-HOUSE TREES Fruiting in Pots.—Peaches, Nectarines, Apricots, Cherries, Plums, Pears, Apples, Vines, and Figs.

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EVERGREEN HEDGES.
AMERICAN ARBOR-VITÆ, 4 to 5 feet, at 50s. per 100; 5 to 6 feet, at 84s. per 100; 6 to 7 feet, at 100s. per 100.
SIBERIAN ARBOR-VITÆ, 2 to 2½ feet, 40s. per 100; 2½ to 3 feet, 50s. per 100; 3 to 3½ feet, 75s. per 100; 3½ to 4 feet, 100s. per 100.

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SURPLUS STOCK.—VERY CHEAP.

SPECIMEN CONIFERS and EVERGREENS, handsome and well-grown, for Lawns, Pleasure Grounds, and Parks, have been recently transplanted, and are full of health and vigour. For Descriptions, also Prices of smaller quantities and sizes, see RICHARD SMITH'S LISTS.

Trucks for 1 ton and upwards may be sent through to any Railway Station on the narrow guage lines, at a moderate cost, thereby saving delay and expense of packing.

At 12s. per dozen:—

Arbor-vitæ, American, 5 to 6 feet
" aurea, 12 to 15 inches
" Lobbii, 2 to 3 feet
" Siberian (Ware's), 3 to 3½ feet
Aucuba japonica, 18 to 21 inches
Berberis Darwinii, 1 to 1½ foot
" Jamiesonii, 12 to 15 inches
Cupressus Lawsoniana, 3 to 4 feet
Hemlock Spruce, 3 to 4 feet
Hartogia capensis, 1 to 1½ foot
Juniperus chinensis, 1½ to 2 feet
Mahonia japonica, 9 to 12 inches
Norway Spruce, extra fine, 3½ to 4 feet
Phillyrea oleafolia, 2 to 2½ feet
Picea balsamea, 4 to 5 feet
Portugal Laurel, 2½ to 3 feet
Pyracantha, scarlet berried, 1 to 1½ foot
Pinus Laricio, 3 to 4 feet [2 feet.
Rhododendron ponticum, 1½ to
Taxus japonica, 15 to 18 inches
Thujopsis borealis, 2 to 2½ feet
Thuja plicata, 2 to 3 feet

At 18s. per dozen:—

Abies inverta, 1½ to 2 feet
" Douglasii, 2 to 2½ feet
" Menziesii, 4 to 5 feet
Arbor-vitæ, American, 6 to 7 feet
" compacta, 1½ to 2 feet
" Lobbii, 3 to 4 feet
" Siberian (Ware's), 2½ to 4 feet
Aucuba japonica, 2 feet
Berberis Darwinii, 1½ to 2 feet
" Jamiesonii, 15 to 18 inches
Cedrus argentea, 2 to 2½ feet
Cryptomeria Lobbii, 5 to 6 feet
" viridis, 5 to 6 feet
Cupressus fragrans, 3 to 4 feet
" Lawsoniana, 4 to 4½ feet
Hartogia capensis, 1½ to 2 feet
Hemlock Spruce, 4 to 5 feet
Ivy, green, tree, 1½ to 2 feet
" new silver-striped, tree, 15 to 18 inches [15 inches
" tricolor variegata, tree, 12 to
Juniperus chinensis, 2½ to 3 feet
" Lee ana, 2 to 2½ feet
" Schottii, 2 to 2½ feet
" thurifera, 1½ to 2 feet
" glauca, 1½ to 2 feet
" drupacea, 15 to 18 inches
" viridis pendula, 2 to 3 feet
Laurel, Colchic, 5 to 6 feet
" Portugal, 3 to 3½ feet
Mahonia japonica, 12 to 15 inches
Pinus austriaca, 3 to 4 feet
" Laricio, 4 to 5 feet
Phillyrea oleafolia, 2½ to 3 feet
Rhododendron ponticum, 2 to 2½ feet
Taxus elegantissima, 15 to 18 ins.
" gold-striped, 15 to 18 inches
Thujopsis borealis, 2½ to 3 feet
Thuja plicata, 3 to 4 feet
" incurvata, 3 to 4 feet [ins.
Wellingtonia gigantea, 15 to 18

At 30s. per dozen:—

Abies elegans, 2 to 2½ feet
" inverta, 2½ to 3 feet
" Menziesii, 6 feet
" orientalis, 2 to 2½ feet
Arbor-vitæ, American, 7 to 8 feet
" compacta, 2 to 3 feet
" Lobbii, 5 to 6 feet
" Siberian, 4 to 5 feet
Arbutus unedo, 2½ to 3 feet
Box, tree, 2½ feet by 2½ to 3 feet
Cedrus argentea, 3 to 4 feet
Cupressus Lawsoniana, 4½ to 5 ft.
" fragrans, 4 to 5 feet
" McNabiana, 3 to 4 feet
Garrya elliptica, 2 to 2½ feet
Hemlock Spruce, 5 to 6 feet
Irish Yews, 5 to 6 feet
Juniperus chinensis, 3 to 3½ feet
" fragrans, 2 to 2½ feet
" glauca, 3 to 3½ feet
" Leeana, 2½ to 3 feet
" Schottii, 3 to 3½ feet
" thurifera, 3 to 4 feet
" virginiana, 5 to 6 feet
" viridis pendula, 3 to 4 feet
Laurel, Colchic, 7 to 8 feet
Pinus austriaca, 4 to 5 feet
" Laricio, 5 to 6 feet
Taxus elegantissima, 1½ to 2 feet
Thujopsis borealis, 4 to 4½ feet
Thuja incurvata, 4 to 5 feet
Wellingtonia gigantea, 2½ feet

At 42s. per dozen:—

Abies Albertiana, 3½ to 4 feet
" inverta, 3 to 3 feet
" orientalis, 2½ to 3 feet
" pyramidalis, 4 to 5 feet
Arbor-vitæ, American, 8 to 9 feet
" aurea, 2 to 2½ feet
" compacta, 3 to 3½ feet
" japonica, 2½ to 3 feet
" Siberian, 5 to 6 feet
Cedrus argentea, 4 to 5 feet
Cupressus fragrans, 5 to 6 feet
" Lawsoniana, 5 to 6 feet
Hemlock Spruce, 6 to 7 feet
Irish Yews, 6 to 7 feet
Juniperus chinensis, 3½ to 4 feet
" densata, 4 to 5 feet
Juniperus glauca, 4 to 5 feet
" Leeana, 3 to 4 feet
" Smithiana, 3 to 4 feet
" thurifera, 5 to 6 feet
" virginiana, 6 to 7 feet
" viridis pendula, 4 to 5 feet
Laurel, Colchic, 8 to 10 feet
Pinus, Cembra, 5 to 6 feet
" Laricio, 6 to 7 feet
Quercus austriaca sempervirens, 3 to 3½ feet
" Fordii, 3 to 3½ feet
Thujopsis borealis, 5 to 6 feet
Thuja Lobbii, 6 to 7 feet
Wellingtonia gigantea, 3 to 4 fee

At 60s. per dozen:—

Abies Albertiana, 4 to 5 feet
" inverta, 6 to 7 feet
" orientalis, 3½ to 4 feet
" pyramidalis, 5 to 6 feet
Arbor-vitæ aurea, 2½ feet
" compacta, 3½ to 4 feet
" gigantea, 4 to 4½ feet
" japonica, 3½ to 4 feet [ins.
Cephalotaxus Fortunei, 21 to 24
Juniperus chinensis, 4 to 5 feet
" thurifera, 6 to 7 feet
Pinus Cembra, 6 to 7 feet
Quercus austriaca sempervirens, 3½ to 4 feet
" Fordii, 3½ to 4 feet
Thujopsis borealis, 6 to 7 feet
Wellingtonia gigantea, 4 to 5 feet

Each:—

Abies Albertiana, 6 to 7 ft., 7s. 6d.
" " 7 to 8 feet, 10s. 6d.
" Douglasii, 8 to 10 ft., 7s. 6d.; 84s. per dozen
" " 10 to 12 feet, 10s. 6d.; 100s. per dozen
" Menziesii, 7 to 8 feet, 5s.
" " 8 to 10 feet, 7s. 6d.
" orientalis, 5 to 6 ft., 10s. 6d.; 100s. per dozen
Araucaria imbricata, 5 to 6 ft., 21s.
" " 6 to 7 feet, 42s.
" " 7 to 8 feet, 63s.
" " 8 to 10 feet, 105s.
Arbor-vitæ japonica, 4 to 4½ feet,
" " 4½ to 5 ft., 10s 6d. {7s. 6d.
Picea grandis, 4 to 5 feet, 15s.
Picea grandis, 5 to 6 feet, 21s.
" nobilis, 3 to 3½ feet, 31s. 6d.; 300s. per dozen
" " 3½ to 4 feet, 42s.
" " 4 to 4½ feet, 51s. 6d.
" " 4½ to 5 feet, 63s.
" Nordmanniana, 4 to 5 ft., 21s.
" " 5 to 6 feet, 31s. 6d.
" " 6 to 7 feet, 42s.
" " 7 to 8 feet, 50s.
" Pinsapo, 3 to 3½ feet, 10s. 6d.
" " 3½ to 4 feet, 15s.
" " 4 to 5 feet, 21s. to 31s. 6d.
Pinus Cembra, 7 to 8 feet, 7s. 6d.
Yews, for hedges, about 12 feet high, 45 years old, recently transplanted, 31s. 6d.

RICHARD SMITH,
NURSERYMAN AND SEED MERCHANT, WORCESTER.

Full-grown Evergreens.

HENRY GODFREY, NURSERYMAN, Stourbridge, has a large quantity of the following Evergreens to offer, in well grown plants: Green and Variegated HOLLY, Siberian and American ARBOR-VITÆ, Common and Portugal LAUREL, English and Irish YEWS, RHODODENDRONS PONTICUM and PONTICUM VARIEGATUM; Green and Variegated BOX, AUCUBA JAPONICA, ARAUCARIA IMBRICATA, &c.

Trees and Shrubs.

THOMAS KENNEDY AND CO. have as usual a very large and superior stock of FOREST and ORNAMENTAL TREES and SHRUBS, which they are selling at moderate prices. The Trees and Shrubs, being of all ages and sizes, are particularly well suited for extensive planting or giving immediate effect in the formation and improving of Ornamental Parks, Pleasure Grounds, &c. CATALOGUES sent free by post on application.

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THREE HUNDRED THOUSAND 2-yr. THORN, 2s. per 1000; 50,000 2-yr. ASH, 2s. per 1000; 50,000 1-yr. HORSE CHESTNUT, 1s. do.; 30,000 2-yr. HORSE-CHESTNUT, 6s. do.; 50,000 2-yr. OAK, 3s. do.; 30,000 2-yr. TURKEY OAK, 6s. do.; 30,000 2-yr. SILVER FIR, 3s. do.; Trade List on application.

FENNESSY & SON, Waterford Nursery.

FOREST TREES, &c.—500,000 LARCH, 1-yr. Seedling, strong; 40,000 do. Transplanted, 12 to 15 inches; 500,000 SCOTCH FIR, native, 2-yr. Seedling; 100,000 do. do. Transplanted, 6 to 15 inches; 30,000 NORWAY SPRUCE, 1 to 2 feet; 1000 POPLAR, of sorts, 2 to 8 feet; 3 to 4 cwt. SCOTCH FIR SEED, native. Special prices on application to

MITCHELL & YOUNG, Brechin, N.B.

SURPLUS STOCK, VERY CHEAP.

9s. per dozen.

Arbo-rvitæ, Chinese, 4 to 5 feet
" American, 4 feet
Abies alba, 3 feet
" canadensis, 3 to 4 feet
" excelsa or Norway Spruce,
Bay, 2½ feet [4 feet
Berberis Darwinii, 2½ feet
Cupressus Lawsoniana, 3 feet
Cupressus sempervirens, 3 to 4 ft.
English Yew, 2½ feet
Irish Yew, 2 feet
Pinus austriaca, 2½ feet
" Laricio, 3 feet
Portugal Laurel, 2 feet
Thuja plicata, 3 feet
" sibirica, 3 feet

18s. per dozen.

Abies Douglasii, 2½ feet
" Menziesii, 4 feet
" Morinda, 4 feet
" Pinsapo, 2 feet
Acer Negundo variegata, 5 feet
Arbor-vitæ, Chinese, 6 to 7 feet
" American, 6 feet
Berberis japonica, 2 feet
Cryptomeria Lobbii, 5 to 6 feet
Laurustinus, 2½ by 2½ feet
Pinus Austriaca, 4 to 5 feet
" insignis, 4 to 5 feet
" Laricio, 5 to 6 feet
" bratia, 4 feet
" pyrenaica, 4 feet
" Strobus, 5 to 6 feet
Portugal Laurel, 3 feet
Thujopsis borealis, 3 feet
Wellingtonia, 2½ feet
Yew, English, 4 feet

60s. per dozen.

Abies Morinda, 6 feet
" Menziesii, 6 feet
Araucaria imbricata, 2½ feet
Arbor-vitæ aurea, 2½ by 2½ feet
Cupressus Lawsoniana, 6 feet
" Lambertiana, 8 feet
Pinus insignis, 6 to 7 feet
Pinus excelsa, 6 to 7 feet
" pyrenaica, 6 feet
Thuja gigantea, 4 feet
" Lobbii, 6 to 7 feet
Wellingtonia, 4 to 5 feet
Yew, English, 5 to 6 feet
" Irish, 6 to 7 feet

Each.

Abies Douglasii, 6 feet, 5s.
Deodara, 7 to 8 feet, 7s. 6d.
" 10 to 11 feet, 15s.
Arbor-vitæ japonica, 5 ft., 10s. 6d.
" aurea, 3 by 2½ feet, 10s. 6d.
Araucaria imbricata, 3 ft., 7s. 6d
Cupressus torulosa, 7 to 8 feet, 7s. 6d.
Pinus excelsa, 8 to 9 feet, 7s. 6d.
" insignis, 8 feet, 7s. 6d.
Thuja gigantea, 6 feet, 10s. 6d.
" Lobbii, 8 to 9 feet, 7s. 6d.
Wellingtonia, 6, 7, 8, and 9 feet, 10s. 6d. to 25s.
Yews, English Pyramids, 5½ to 6 feet, 7s. 6d.

All frequently transplanted and in finest condition.

Delivered to railway trucks. Selection left to purchaser.

Standard Roses, best perpetuals, 18s. per dozen
Dwarfs, 9s. per dozen
Strong Hawthorn Quick, 20s. per 1000
Common Laurels, 10s. per 100

GEORGE DAVISON, White Cross Nursery, Hereford.

IVERY'S NONSUCH LETTUCE.—The best Summer variety in cultivation; will stand a month longer than any other kind without running to Seed. 1s. per packet, sealed with initials, "M. A. I." Price to the Trade on application.

A GENERAL SEED CATALOGUE can be had post free on application. The Trade supplied with superior MUSHROOM SPAWN. Hanover Nursery, Peckham, S.E.

Henry's Hybrid Prize Leek.

DOWNIE, LAIRD, AND LAING are now sending out seed of the above celebrated LEEK, warranted true. This is the largest and finest sort in cultivation. In sealed packets, at 1s. each.

17, South Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E.

East Lothian, White, and Purple Intermediate Stock.

THOMAS METHVEN having secured the Seed saved by Mr. D. Thomson, late of Archerfield, Mr. T. Lees, Tyninghame, and others, is happy to state that, owing to the very favourable season of 1868 for saving Seed of these very desirable STOCKS, he is enabled to supply liberal packets of them at 1s., 2s. 6d. and 5s.

EAST LOTHIAN SCARLET INTERMEDIATE STOCK at 6d., 1s., and 2s. 6d.

These Stocks ought to be grown by all who have a flower border. Price to the Trade on application.

THOMSON'S SUPERB HERBACEOUS CALCEOLARIA, saved from the Dalkeith Collection, in packets at 1s., 2s. 6d., and 5s.

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Mr. Robert Cooper, 152, Fleet Street, E.C.
Messrs. Barr & Sugden, 12, King Street, Covent Garden, W.C.
Mr. Wm. Paul, Waltham Cross, N.
Messrs. Peter Lawson & Son, Edinburgh and London.
" Bolton & Co., Ealing, London, W.
" Jas. Backhouse & Son, York.
" Stuart & Mein, Kelso, N.B.
" Sutton & Sons, Reading, Berks.
" J. Slater & Sons, Malton, Yorkshire.
Mr. Edward Taylor, Malton, Yorkshire.
Messrs. Dreghorn & Aitken, Kilmarnock, N.B.
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ROLLISSON'S TELEGRAPH CUCUMBER (True).

THERE ARE MANY SPURIOUS  VARIETIES IN CULTIVATION.

From the universal satisfaction that their Telegraph Cucumber has given, WILLIAM ROLLISSON & SONS are much encouraged in again offering good and well ripened Seed of this most extraordinary variety. Its wonderful cropping qualities have this year been witnessed at their Establishment by many experienced judges, all of whom have agreed that it is the best in cultivation for that purpose; in fact it has been acknowledged to be, by the best authorities of the day, the most productive yet introduced for Winter and Early Spring use, in proof of which

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See *Gardeners' Chronicle*, August 31, 1867.
See *Gardeners' Chronicle*, March 16, 1867.
See *Gardeners' Chronicle*, October 12, 1867.
See *Gardeners' Chronicle*, January 11, 1868.
See *Gardeners' Magazine*, January 18, 1868.
See *Journal of Horticulture*, August 20, 1868.

The above may be had, in printed and sealed packets, guaranteed true, price 2s. 6d. each, from

The Nurseries, Tooting, London, S.W.

First Crop or Ringleader Pea.

CHARLES SHARPE AND CO., having grown largely this EXCELLENT EARLY PEA, with great care, have much confidence in offering it to the Trade. Price on application.

Farm Seeds Direct from the Grower.

CHARLES SHARPE AND CO. will be glad to send special offers of their carefully selected TURNIP, MANGEL, and other FARM SEEDS on application.

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CHARLES SHARPE AND CO.'S PRICED TRADE LIST of PEAS, BEANS, and other GARDEN SEEDS can be had on application.

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CHARLES SHARPE AND CO. are now prepared to make special offers of all the leading sorts of POTATOS.
Sleaford.

THE ADVERTISER has a quantity of SUTTONS' RINGLEADER PEA to offer, at 15s per bushel: also seed of the tall white fine BROCCOLIS:—Cattell's Eclipse, Horticultural Superb, Carter's Summer, Clifton and Garraway's New White, also Snow's Winter White, and the early Purple Sprouting. The Trade liberally dealt with.
Apply to W. HORLEY, Seed Grower, Toddington, Beds.

1868.—Mangel Wurzel Seed.

H. AND F. SHARPE can offer the Trade some splendid STOCKS of the above-named Seed, grown on their own Farm this season from picked Bulbs. The quality is very fine, and prices low. Samples may be obtained on application.
Seed Growing Establishment, Wisbech.

Large Evergreens and Forest Trees.

MESSRS. PAMPLIN AND SON have a large quantity of the following, and offer them at low prices, part of their Grounds being required for building purposes:—

Cedars of Lebanon, 10 to 20 feet	Black Italian Poplar, 20 feet
Cedrus Deodara, 6 to 15 feet	Balsam ditto, 10 to 15 feet
Aucuba japonica, 2 to 6 feet	Lombardy ditto, 20 feet
Portugal Laurels, 2 to 6 feet	Horse Chestnut, 10 to 15 feet
Chinese Arbor-vitæ, 5 to 12 feet	Spanish Chestnut, 10 feet
American ,, 5 to 10 feet	Limes, 10 to 15 feet
Thujopsis aurea, 1 to 4 feet	Walnuts, 10 to 15 feet
Green Box, 1 to 6 feet	Ash, 10 to 20 feet
Striped ditto, 2 to 4 feet	Elm, 10 to 15 feet
Evergreen Oak, 7 to 10 feet	Acacia, 10 feet
Yew, Common, 4 to 10 feet	Mountain Ash, 10 feet
Irish Yew, 3 to 5 feet	Turkey Oak, 10 to 12 feet
Laurel, 2 to 6 feet	Sycamore, 10 to 14 feet
Araucaria imbricata, 10 feet	Weeping Willow, 10 to 15 feet
Green Hollies, 1 to 12 feet	Lilac, Common, 8 feet
Weymouth Pine, 3 to 6 feet	Persian ditto, 6 feet
Spruce ditto, 2 to 4 feet	Laburnum ditto, 8 feet
Birch, 14 feet	Privet ovalifolia, 8 feet

The Nurseries, Lea Bridge Road, Leyton; and Wood Street, Walthamstow, Essex, N.E.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY (Limited),
CORN, SEED, MANURE, AND OILCAKE MERCHANTS.
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Samples and prices post free on application. Prize Medals, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

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Have now ready for delivery, in fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
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LAWES' MANURE for GRASS LANDS should be applied during the months of February and March. NITRATE of SODA supplied ex Ship or from Stocks at Docks at London, Liverpool, and other ports, at lowest market prices.

LAWES' MANURES are now ready for delivery for present season, 1869.
LAWES' PATENT TURNIP MANURE.
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,, WHEAT, BARLEY, GRASS, and MANGEL MANURE.
,, CONCENTRATED CORN and GRASS MANURE.
These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom.
GENUINE PERUVIAN GUANO direct from the importers.
NITRATE of SODA, SULPHATE of AMMONIA, and other Chemical Manures.
AMERICAN and other CAKES at market prices.
Address, JOHN BENNET LAWES, 59, Mark Lane, London, E.C.; 22, Eden Quay, Dublin; and Market Street, Shrewsbury,

The Cheapest and Best Insecticide.
DUTY-FREE TOBACCO.
BY HER MAJESTY'S ROYAL LETTERS PATENT, AND BY PERMISSION OF THE HON. BOARD OF CUSTOMS.

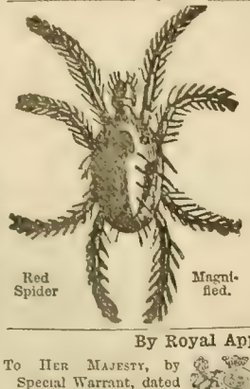
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Sold by Nurserymen, Seedsmen, and Florists,
In Tins at 1s., 2s. 6d., and 5s.
Powder Distributors, 2s. 6s. and 3s. 6d. each.
"I find it exceedingly useful for killing the Aphides on Roses and other Plants."—GEO. EYLES, Superintendent, Royal Horticultural Gardens, South Kensington. May 7, 1868.
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Tobacco Tissue,
FOR DESTROYING RED SPIDER, MEALY-BUG, THRIP, GREEN and BLACK FLY, without the aid of a Fumigator.—This article having been before the Public for the last three years, and being now used by many of the leading Horticulturists,—from several of whom Testimonials have been received as to its efficacy,—the Manufacturers beg to recommend those who have not used it to give it a trial, feeling confident when they have done so they will use nothing else, as it is far superior to paper or rag, and will not injure the plants. Sold in 1lb. packets and upwards; price 3s. 6d. per lb., carriage free. A reduction in price for large quantities.
To be had of MESSRS. ROBERTS and SONS, Tobacco Manufacturers, 112, St. John Street, Clerkenwell, E.C., of whom Samples and Testimonials may be obtained; and of all Seedsmen and Nurserymen.

An Invaluable Discovery.
CLARKE'S INSECT-DESTROYING COMPOUND.—A Discovery made solely for private use, now offered to the Public. A Discovery which will save Gardeners and Amateurs trouble and care. The Discovery of a Compound in one Solution, which will destroy every Insect it comes in contact with, and thus without the slightest injury to Foliage, Fruit, or Flowers. A Solution which may be used with care, stronger to some plants than others, but found instant death to Green Fly, Thrip, Red Spider, Brown and White Scales, and a thorough eradicator of Mealy Bug. A safe and sure Caterpillar killer, both Garden and Greenhouse Trees, also Blight and Mildew.
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A 2s. Box will make Six Gallons, to be Used as Garden Directions for use with each Box. A 4s. Syringe, prepared expressly for Mealy Bug, which is instant death to all Caterpillars, in Bottles ready for use, 2s. each. May be had of most of the principal Nursery and Seedsmen, and of the Proprietor.
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ROLL TOBACCO PAPER, finest quality, equal in strength to Tobacco, 1s. per lb.; cheaper in quantities.
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GISHURST COMPOUND.
One of the oldest and best remedies against
BLIGHT and MILDEW.
Sold by the Trade in Boxes 1s., 3s., and 10s. 6d. each.
Wholesale by
PRICE'S PATENT CANDLE COMPANY, Limited,
Battersea, London, S.W.

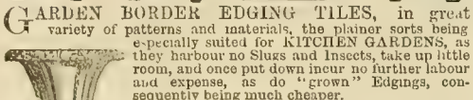
By Royal Appointment
To HER MAJESTY, by Special Warrant, dated December 27, 1865.
To the PRINCE OF WALES, by Special Warrant, dated February 10, 1866.

DAY, SON, AND HEWITT, Original and Sole Proprietors of the STOCKBREEDERS' MEDICINE CHESTS, for DISORDERS in HORSES, CATTLE, CALVES, SHEEP, and LAMBS.

No. 1 MEDICINE CHEST, Contains Sixteen different kinds of Compounds, admirably arranged, with Complete Guide to Farriery. Price £6 6s., carriage paid.

No. 2 MEDICINE CHEST, Contains the Extract, Gaseous Fluid, Red Drench, and Red Paste, with Shilling Key to Farriery. Price £2 16s. 6d., carriage paid.

Every Stockowner should send for DAY, SON & HEWITT'S Work on Farriery. Large Edition, 2s. 6d., or free by post for 33 stamps. Small Edition, 1s., or free by post for 13 stamps.
DAY, SON & HEWITT, 22, Dorset Street, Baker Street, London, W.



GARDEN BORDER EDGING TILES, in great variety of patterns and materials, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.
GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.
F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.



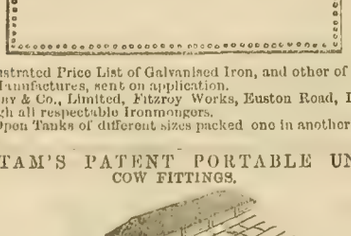
Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price List free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also TESSELATED PAVEMENTS of more enriched designs than the above.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cement, &c.
To be obtained of F. & G. ROSHER, at their premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.
FLINTS, BRICK BURRS or CLINKERS for Rockeries or Grotto Work.
F. & G. ROSHER.—Addresses see above.
N.B. Orders promptly executed by Railway.

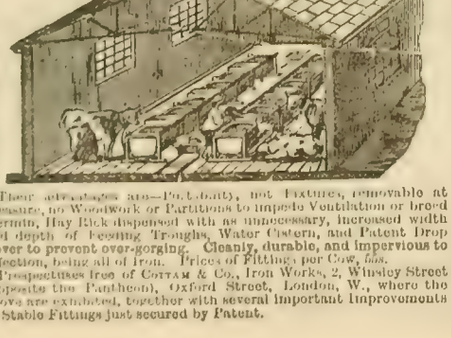
"Every Cottage should be provided with a Water Tank." *Disraeli.*

Iron Cisterns.
F. BRABY AND CO. having laid down more extensive and Improved Machinery on their Deptford premises (IDA WHARF), are prepared to supply WROUGHT-IRON TANKS, GALVANISED or PAINTED, of superior quality, at reduced prices, and at very short notice.



An Illustrated Price List of Galvanised Iron, and other of BRABY'S special Manufactures, sent on application.
F. BRABY & Co., Limited, Fitzroy Works, Euston Road, London; or through all respectable Ironmongers.
N.B. Open Tanks of different sizes packed one in another to save carriage.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rick dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of Iron. Prices of Fittings per Cow, £6 5s.
Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

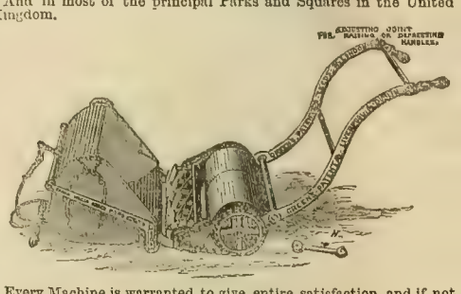
GEORGE HALL, late Manager to the late Saynors' Firm. He was for 30 years in their employ.
GEORGE HALL AND SON'S CELEBRATED PRUNING and BUDDING KNIVES, SCISSORS, &c., may be obtained from the most respectable Nurserymen and Seed Merchants in the Kingdom, also America, France, Germany, Holland, Prussia, Russia, &c.
N.B.—We only make one quality, the best that can be manufactured, the same as the late Saynors always made during their lifetime, with all the latest improvements.
CAUTION.—None are genuine unless marked "GEO. HALL & SON." Other marks would cause disappointment, as these blades are tempered by a process known only to the Makers.
Engravings of Patterns, with PRICE LISTS, gratis on application.
Horticultural Cutlery Works, Sheffield.

Green's Patent Noiseless Lawn Mowers.
GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every prize that has been given in all cases of competition, and in proof of their superiority upwards of 44,000 have been sold since the year 1856.
They are the simplest in construction, least liable to get out of order, and can be worked with far greater ease than any other Lawn Mower extant.

They are the only Machines in constant use at

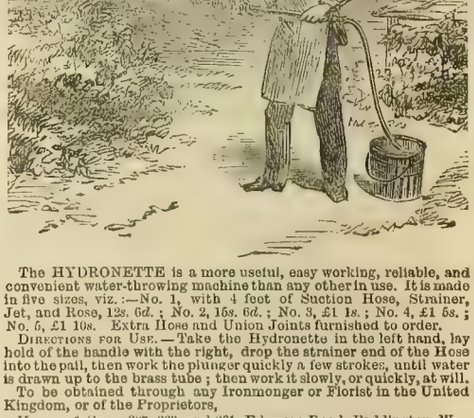
Buckingham Palace Gardens	The Winter Palace Gardens, Dublin
Marlborough House Gardens	The Dublin Botanic Gardens
Royal Horticultural Society, South Kensington	The Liverpool Botanic Gardens
The Royal Botanic Gardens, Regent's Park	The Leeds Royal Park
The Crystal Palace Company's Gardens, Sydenham	The Hull Botanic Gardens
The Hyde Park Gardens	The Botanic Gardens, Brussels
	The Sunderland Park
	The Preston Park

And in most of the principal Parks and Squares in the United Kingdom.



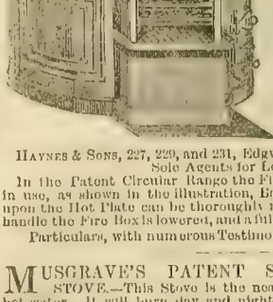
Every Machine is warranted to give entire satisfaction, and if not approved of can be returned at once unconditionally.
Illustrated Price Lists on application, which include Free Delivery to all the principal Railway Stations and Shipping Ports in England. All Orders executed on the day they are received.
T. G. & SON have ten times more Lawn Mowers in Stock at their Establishment, 54 and 55, Blackfriars Road, S., than any other firm in London, that intending Purchasers can select from.
Having very extensive premises in London, we are in a position to do all kinds of repairs there as well as at the Works at Leeds.
THOMAS GREEN & SON, Smithfield Iron Works, Leeds; and 54 and 55, Blackfriars Road, London, S.

THE HYDRONETTE, (Robins' Patent,) for Gardens, Greenhouses, Conservatories, Hotbeds, &c. Unrivalled case of action, simplicity, convenience, and force.



The HYDRONETTE is a more useful, easy working, reliable, and convenient water-throwing machine than any other in use. It is made in five sizes, viz.:—No. 1, with 4 feet of Suction Hose, Strainer, Jet, and Rose, 12s. 6d.; No. 2, 15s. 6d.; No. 3, £1 1s.; No. 4, £1 5s.; No. 5, £1 10s. Extra Hose and Union Joints furnished to order.
DIRECTIONS FOR USE.—Take the Hydronette in the left hand, lay hold of the handle with the right, drop the strainer end of the Hose into the pail, then work the plunger quickly a few strokes, until water is drawn up to the brass tube; then work it slowly, or quickly, at will.
To be obtained through any Ironmonger or Florist in the United Kingdom, or of the Proprietors,
HAYNES & SONS, 227, 229, and 231, Edgware Road, Paddington, W.

BARTON'S PATENT CIRCULAR-FRONT COOKING STOVE, with Open Chimney and Roasting Fire, that will adapt to Roast any size of Joint in Front of it.



Roasts Before the Fire.
Roasts or Bakes in the Oven.
Ventilates the Kitchen.
Carries off the Smell of Cooking.
Carries off the Dust.
Cures Smoky Chimneys.
Saves Labour.
Has an Open Chimney.
Keeps the Kitchen Cool.
Is Simple in Construction.
Has a Small Fire.
Saves the Coals.
Wastes no Heat.
Gives a Large Supply of Hot Water.

HAYNES & SONS, 227, 229, and 231, Edgware Road, Paddington, W.
Sole Agents for London.
In the Patent Circular Range the Fire is angle-shaped, and when in use, as shown in the illustration, Baking, Steaming, and Boiling upon the Hot Plate can be thoroughly maintained. By turning the handle the Fire Box is lowered, and a full size Roasting Fire obtained.
Particulars, with numerous Testimonials, free on application.

MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.—This Stove is the nearest approach to heating by hot-water. It will burn day and night for weeks with little care; is admirably suited for Conservatories, Halls, Churches, &c.; and is deserving of special attention, because of its safety, healthfulness, durability and extreme simplicity. Capacity of the apartment which these Stoves will warm:—

First Size ..	9,000 cubic feet.	Third Size ..	30,000 cubic feet.
Second Size..	15,000 cubic feet.	Fourth Size ..	45,000 cubic feet.
		Fifth Size ..	60,000 cubic feet.

London Depôt: HAYNES & SONS, 227, 229, and 231, Edgware Road, London, W.

SHAW'S TIFFANY.
For Samples and Prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

Protect your Plants from Frost.

ANDERSON'S TAGANROG MATS, No. 1, are the Heaviest, Best, and Cheapest for covering Garden Frames. Price 80s. per 100, or 8s. per bundle of 10.
ARCHANGEL, PETERSBURG, and other MATS at low prices.
JAMES T. ANDERSON, 7, Commercial Street, Shoreditch, London E.

TANNED GARDEN NETTING, for Preserving Seed Beds, Fruit, Strawberries, from Frost, Blight, Birds, &c., and as a Fence for Fowls, &c. One yard wide, 1½d.; two yards, 3d.; three yards, 4½d.; and four yards 6d. per yard in any quantity. May be had of Chas. Wright & Co., William Street, Newark-on-Trent, or their Agents, Messrs. Hooper & Co., Covent Garden Market, London, W.C.

Cloches.

J. FRYER can supply the above FRENCH BELL-GLASSES, 16 inches in diameter, 15 inches high. May be seen, and price had on application.
Clarendon Nurseries, Camberwell New Road, S.E.

Wellington Pottery.

A. C. WILLIAMSON,
601, Gallowgate, Glasgow.
FLOWER POTS of superior make, with Cut Bottoms; ORCHID POTS, HANGING ORCHID POTS, and ORCHID SLABS, of approved Patterns, as used by some of the most successful Growers; Ornamental Flower Vases, Fern Vases, and Tazzas, Round and Square Seed Pans, Crocus Pots, Rhubarb and Seakale Covers, Propagating Pots, Small Traps, &c.
Price Lists and Illustrated Catalogue on application.

Garden Ornaments.

AUSTIN'S ARTIFICIAL STONE, invented 1826.—The superiority of this material to all others for damp situations, and its durability under the most intense frost, being now indisputable, and attested by its extensive use in Scotland and Ireland, as well as the principal country seats of England, attention is invited to the following summary of the work manufactured with it, a variety unprecedented in any other Establishment of past or present times:—
VASES, about 300 different kinds, at from 10s. to £50.
FOUNTAINS, more than 200 designs, from £10 to £400.
Portefleurs, or low Flower Basins, for lawns; Statues, antique and modern; Small Figures, adapted to Balustrading, &c.; Figures of Animals and Birds, about 70 kinds; Sun-dial Pedestals, about 20 designs; Baskets, from 1 to 17 feet diameter; Garden Seats, of substantial architectural character, for the ends of terraces; Shells for water or rock plants, from 1 to 14 feet wide; Flower Boxes, for windows or pavements; Baptismal Fonts, from 2 to 15 guineas; Crests and other Terminals, for gate-piers; Balustrading, to suit all styles of architecture; a great variety of Ornamental Pedestals, Gothic Crosses, Pinnacles, and Niches; Plain and Ornamental Edging, for flower beds.
N.B.—No sand is used in "AUSTIN'S Stone," which is waterproof.
AUSTIN & SEELEY, Nos. 369 to 375, Euston Road, Regent's Park, N.W.

Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S' WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the Corporate Mark, OBTAIN WARRANTED, without which none are genuine.
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.
S. & C.'S PRUNING and BUDDING KNIVES are the best and the cheapest in the market.
Paxton Works, Sheffield. Established upwards of 125 years.

JAMES PHILLIPS AND CO.
beg to submit their prices as follows:—
GLASS for ORCHARD HOUSES,
As supplied by them to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.
Each Box contains 100 feet. The prices only apply to the sizes stated.
Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.

	16 oz. to the foot.	21 oz.
Fourth quality	15s. 0d.	19s. 6d.
Third ditto	17s. 0d.	22s. 6d.
Seconds	18s. 0d.	26s. 0d.
English	20s. 0d.	27s. 0d.

The above prices include the boxes, which are not returnable.
HORTICULTURAL GLASS.
Stock sizes, 16-oz., in 100 feet boxes, boxes included.
These prices only apply to the sizes stated.

				4ths.	3rds.	2nd.
11 by 9	12 by 9	13 by 9	14 by 9	s. d.	s. d.	s. d.
12 ,, 10	13 ,, 10	14 ,, 10	15 ,, 10	13 6	15 6	17 0
13 ,, 11	14 ,, 11	..	..			
14 ,, 12	16 ,, 12	15 ,, 11	16 ,, 11			
18 ,, 12	19 ,, 12	16 ,, 12	17 ,, 12			
16 ,, 13	17 ,, 13	20 ,, 12	..	15 0	17 0	18 6
16 ,, 14	20 ,, 13	18 ,, 13	..			
	17 ,, 14	18 ,, 14	..	16 to 17 oz. to the foot.		
	20 ,, 14					

SMALL SHEET SQUARES.
In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	12s. 6d.
8 by 6	8½ by 6½	9 by 7	9½ by 7½	
		10 by 8	10½ by 8½	13s. 6d.

Boxes 2s. each returnable at full price.
Painted and Glazed with 16-oz. Sheet Glass.
London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS.
PAINTS of various colours ground ready for use.
SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of Prices and Estimates forwarded on application to
JAMES PHILLIPS & Co., 180, Bishopsgate Street Without, E.C.

PURE-BRED SHORTHORN COWS and HEIFERS, for Private Sale; also, some fine YOUNG BULLS, at moderate prices. JOHN THORNTON, 15, Lancham Place, London, W.

ELIGIBLE HOUSE and GARDEN, for a Florist or Amateur, TO LET, near London; stock of Greenhouse Plants and Flowers to take: the Owner retiring on account of ill health and great age. COTTAGE and GARDEN WANTED, within 10 or 12 miles of London, rent £20 or £25; near good Listing preferred.
*** Several SMALL NURSERIES to LET.
G. GLENNY, Horticultural Agent, Fulham, W.

Willis's Nursery Gardens, Fulbrook, Oxfordshire.

TO BE SOLD, by AUCTION, by Messrs. BAKER AND SONS, at the Auction Mart, Tokenhouse Yard, E.C., on TUESDAY, February 2, at 1 o'Clock in the afternoon precisely, by direction of the Trustees for Sale, under the will of the late proprietor, Thomas Willis, all that substantially-built DWELLING-HOUSE, with detached Store-house and Seed-room over, Brew-house, and other Outbuildings, with the FOUR NURSERY GROUNDS or GARDENS, lying partly contiguous and partly very near thereto, and containing altogether 7a., 3r., 9p. The Property is Freehold of Inheritance, and the business of a Nurseryman and Seedsman has been successfully carried on thereupon during four successive generations. It deserves the attention of the Trade. Is disposed of solely by reason of the death of the late Proprietor. The only outgoing is a land tax of £1 13s., and possession may be had on completion of the purchase. The Purchaser is to take to the Timber and Live and Dead Stock in Trade and Fixtures at a Valuation.
The Property lies about half-a-mile from Burford, and about five miles from Shipton Station. It may be viewed by application on the Premises, and further particulars and Conditions of Sale may be obtained ten days before the Auction of Messrs. PRICE & SONS, Solicitors, Burford; or Messrs. PEACOCK & GODDARD, Solicitors, 3, South Square, Gray's Inn.

Sales by Auction.

SALE THIS DAY AT HALF-PAST 12 O'CLOCK PRECISELY.

Fruit Trees, Shrubs, Gladioli, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, January 23, at half-past 12 o'Clock precisely, choice GLADIOLI, comprising most of the newest and best varieties, from France; Hardy SHRUBS; Standard, Dwarf, and Pyramid FRUIT TREES; LILIUMS, RANUNCULI, Pot ROSES, CLEMATIS, RUSTIC SEATS, STOOLS, VASES, &c.
On view the Morning of Sale, and Catalogues had.

Extra Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, January 26, at half-past 12 o'Clock precisely, splendid SPANISH and GAME BANTAMS (from Mr. JAMES, of Peckham), bred from Birds that have taken First Prizes at all the Shows in England; LIGHT and DARK BRAHMAS, from Mr. DOWSETT; DORKINGS, from the Rev. J. F. Newton; and a variety of other choice POULTRY and PIGEONS, from well-known Breeders and Exhibitors.
On view the Morning of Sale, and Catalogues had.

Important Notice to the Trade.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, January 27, at half-past 12 o'Clock precisely, the SECOND PORTION of Messrs. YOUELL and CO.'s superb collection of GLADIOLI; many of them will consist of their finest Seedlings, which have been highly commended. Also THREE CASES of FLOWER SEEDS.
The above will be Sold without any reserve, in consequence of Dissolution of Partnership.

Stanhope Nursery, Westerham Hill, Kent.

THE WHOLE OF THE VALUABLE NURSERY STOCK OF ABOUT 18 ACRES.

MESSRS. G. B. AND T. BAXTER AND PAYNE have been instructed by Mr. A. Fairall, to SELL by AUCTION, on the Premises as above, on TUESDAY, January 26, and three following days, at 11 for 12 o'Clock each day, a large quantity of FRUIT TREES, of different sorts, and fine SPECIMEN SHRUBS; also 32,000 Common Laurels, 1000 Portugal Laurels, 150,000 Ash, and 160,000 Seedling ditto, 1500 Variegated and other Box, 600 Cotoneasters, 2000 Standard Roses, 1000 ditto Thorns, 230 Euonymus Japonica, 130 Variegated Hollies, 2000 Scarlet and other Chestnut, 50 Mountain Ash, 200 Acuba Japonica, 200 Cytissus worked on Laburnum, 50 Deutzia scabra, 50 Purple Beech, 500 Acacia, 1000 Alder, 1200 Beech, 6000 Birch, 200 Poplar, 2000 Sycamore, 2000 strong Quick, 40,000 Larch, 25,000 Spruce, 1500 Scotch and 3000 Silver Fir, 4500 Balm of Gilead, 21 Araucaria, 100 Deodara, 650 Cupressus Lawsoniana, 150 Cedar, various; 800 Pinus austriaca, 160 Pinus pinaster, 350 Weymouth Pine, 13 Wellingtonia gigantea, 500 Irish and other Yews, 1000 Arbor-vitæ, 50 Laurustinus, 250 Rhododendrons, &c.
Messrs. B. & P. beg to call the attention of Gentlemen, Nurserymen, and others, to this important Sale, the Stock being first-class, and every care and attention having been given them, therefore offers an opportunity to those planting rarely to be met with.
May be be viewed four days' preceding the Sale, and Catalogues had at the King's Arms Hotel, Westerham; Crown Inn, Sevenoaks; Lion Inn, Farningham; Black Horse Inn, Sidcup; Queen's Head Inn, Down; New Inn, Farnborough; Swan Inn, West Wickham; Greyhound Inn, Croydon; Fox and Hounds, Westerham Road; and of the Auctioneers, Valuers, and Estate Agents, Town Hall, Bromley, Kent, S.E.

Cambridge.

TO GENTLEMEN, NURSERYMEN, AND GARDENERS, &c.
THREE DAYS' SALE OF NURSERY STOCK.

MR. WM. DILLISTONE will SELL by AUCTION, on WEDNESDAY, January 27, and two following days, at the Corn Exchange, Cambridge, by order, a large quantity of Standard, Pyramid, Trained, and Dwarf FRUIT TREES of all kinds; Standard and Dwarf ROSES, Variegated HOLLIES, fine specimens of CEDRUS DEODARA, ARAUCARIAS, English and Irish YEWS, RHODODENDRONS, CAMELLIAS, AZALEAS, MAGNOLIAS, IVIES, ORNAMENTAL TREES and SHRUBS of every description, HERBACEOUS PLANTS, SEEDS, TOBACCO PAPER, &c.
To be viewed on the Morning of Sale, and full particulars are described in Catalogue, to be had at the Offices of the *Cambridge Chronicle*, the *Cambridge Independent Press*, and the *Cambridge Express*, or post free of the Auctioneer, Sible Hedingham, Essex.

MR. SAMUEL ROBINSON'S ANNUAL QUICK SALE, at Melbourne, will take place on WEDNESDAY, February 3, and will comprise 700,000 3-yr. old fine rooted transplanted QUICK; 20,000 2 to 3 feet PRIVET; a large and well-grown lot of bushy SPRUCE, 2½ to 4 feet; 14,000 LARCH, 2½ to 3½ feet; strong OAKS, ELMS, BIRCH, and ASH; a few fine HORSE-CHESTNUTS, 6 to 9 feet; 40 IRISH YEWS, 3 to 4 feet.
For particulars apply to Mr. ROBINSON, Shaw House, Melbourne, or DAVENPORT, GERMAN & ALLEN, Auctioneers, Ashby-de-la-Zouch.

Preliminary Advertisement.

IMPORTANT SALE of CONIFERÆ of every description, DECIDUOUS TREES and SHRUBS, at Belstane, in the Parish of Kirknewton and County of Edinburgh.

MR. GEORGE BROWNLEE, AUCTIONEER, Midcalder, has been instructed by the Trustees of the late Mr. Humphrey Graham, to SELL by AUCTION, towards the end of FEBRUARY or beginning of MARCH, the large Collection of CONIFERÆ, (varying from 1 to fully 15 feet, and mostly raised from seed by Mr. Graham); DECIDUOUS TREES and SHRUBS now growing at Belstane, and consisting of many thousands.
Belstane is about 12 miles west from Edinburgh, and is fully 800 feet above the level of the sea. The whole stock is in first-rate condition, and from the height above the sea at which it has been grown is particularly hardy and well adapted for transplanting.
Full particulars in future Advertisements. Catalogues in preparation, and when ready may be obtained from Mr. A. DONALD, Belstane, Kirknewton, Mr. GEORGE BROWNLEE, Midcalder, and Messrs. A. & A. CAMPBELL, W.S., 22, Dublin Street, Edinburgh.
Midcalder, 20 Jan., 1869.

MOULE'S PATENT EARTH SYSTEM.

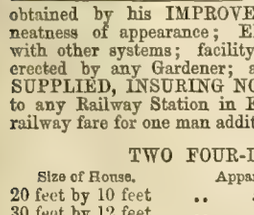
THIS INVENTION EFFECTUALLY
REMEDIES EVILS ARISING FROM COMMON CESSPOOL
PRIVIES AND WATER-CLOSETS, AND EQUALLY PREVENTS THE OFFENSIVE SMELL CONSEQUENT ON THE USE OF THE ORDINARY COMMODE IN BED-ROOMS, HOSPITAL WARDS, PRISON CELLS, &c.

It may be applied in two ways:—First, the COMMODE. This is movable and self-contained, and is adapted for Bed-rooms, Bath-rooms, Hospitals, Nurseries, &c. Secondly, the APPARATUS. This is sold separately, and may be applied to an existing closet, or fitted to a new building, in or out of doors; and may be placed over a dry cesspool, or a movable iron tank if more convenient.

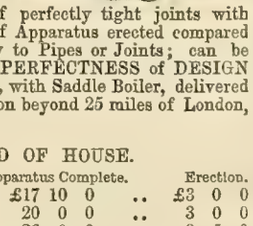
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SAVOY, finest curled	4 ditto	3 ditto	3 ditto	2 ditto	1 ditto	1 packet
CARROT, best sorts for summer and winter use	16 ounces	10 ounces	7 ounces	3 ounces	2 ounces	1 ounce
CAULIFLOWER	2 large packets	2 large packets	1 packet	1 packet	1 packet	..
CELERY, white and red	2 ditto	2 ditto	2 ditto	2 ditto	1 ditto	1 packet
COUVE TRONCHUDA, a most delicious vegetable	1 packet	1 ditto	1 ditto	1 ditto	1 ditto	1 ditto
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CRESS, plain, curled, &c.	1½ pint & 2 packets	8 ounces & 2 packets	6 ounces & 1 packet	4 ounces & 1 packet	3 ounces & 1 packet	3 ditto
CUCUMBER, the best sorts in cultivation	4 packets	3 packets	3 packets	2 packets	2 packets	1 ditto
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LETTUCE, Suttons' Superb Cos, and others	6 packets	4 ditto	3 ditto	3 ditto	2 ditto	2 ditto
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MELON, choicest sorts known	3 packets	2 packets	2 packets	1 packet	1 packet	1 packet
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PARSLEY, splendid curled kinds	3 ditto	2 ditto	1 ditto	1 ditto	1 packet	1 packet
PARSNIP, Student	6 ditto	4 ditto	3 ditto	2 ditto	1 ounce	1 ditto
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SPINACH, summer and winter kinds	3 pints	2 pints	6 ditto	4 ditto	3 ditto	2 ditto
SALSAFY	1 large packet	1 packet	1 packet	..	..	..
SCORZONERA	1 ditto	1 ditto	1 ditto	..	..	..
TURNIP, fine sorts for succession	16 ounces	8 ounces	6 ounces	3 ditto	2 ditto	2 ditto
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KAMPION	1 ditto	1 ditto	1 ditto	1 ditto	..	..
TOMATO	1 ditto	1 ditto	1 ditto	1 ditto	..	..
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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 5.—1869.] SATURDAY, JANUARY 30. {Price Fivepence. {Stamped Edition, 6d.

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SPRING SHOW, THURSDAY, May 27.
ROSE SHOW, THURSDAY, July 1.
Schedules of the above forwarded on application to the Secretary at the Gardens.

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JOHN SHARPE can offer on good terms, from highly selected Stocks, and his own growing this year.
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PARIS, 1867. SUTTONS' GRASS SEEDS for ALL SOILS. A PREMIER PRIX SILVER MEDAL for GARDEN SEEDS, GRASSES, and GRASS SEEDS, was Awarded to SUTTON AND SONS, SEEDSMEN to the QUEEN, Reading, Berks.

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GEO. MACINTOSH, AGENT to F. W. WENDEL, SEED GROWER, &c., Erfurt, Prussia, begs to announce that he can supply CATALOGUES of the above, free and post paid, on application.
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VERBENAS, of good hardy sorts, such as Purple and Crimson King, Defiance, Snowflake, Champion, Victoria, &c.; other named, in 20 varieties, good plants, that will give plenty of cuttings, at 1s. per dozen, or 7s. per 100, package included.
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A heavy discount to the Trade.
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R. S. YATES possesses the largest stock in the world of the above most lovely of all ORCHIDS ever introduced. He is prepared to dispose of a limited number, at from Three to Twenty Guineas each, nett cash price. Some of the plants have 400 or 500 bulbs, and are well set with flower-spikes. They will bloom during all this and next month.
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FISHER, HOLMES, AND CO. beg to announce that their CATALOGUES of VEGETABLE and AGRICULTURAL SEEDS, GARDEN REQUISITES and FLOWER SEEDS, are now ready, and may be had free on application. Also, CATALOGUES of Conifers, Evergreens, Flowering and Deciduous Shrubs, Fruit and Forest Trees, American Plants, &c., Fruits, with descriptions.
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RANUNCULUSES, 50 fine sorts, from 13s. 6d. to £1.
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IMPORTED GERMAN SEEDS.—Asters, Balsams, Stocks, Poppies, Larkspurs, Wallflowers, Zinnias, &c., in named assortments, 1s. to 5s.
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	Per packet.—s.	d.
BALSAM, from a prize collection	1	0
CENTAUREA CANDIDISSIMA	1	0
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CARNATION, from exhibition kinds	2	6
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Collections of 24 named varieties	5	0
PINK " (from the newest and best varieties)	2	6
PICOTEE "	2	6
PELARGONIUM, SHOW "	2	6
" FANCY "	2	6
" TRICOLOR "	2	6
" VARIEGATED "	2	6
" ZONAL	2	6
TROPÆOLUM GOLDEN KING OF TOM THUMB	1	0
GOLDEN FEATHER PYRETHRUM	2	6

VEGETABLE SEEDS.

BROCCOLI, SNOW'S WINTER WHITE	2	6
CABBAGE, BAILEY'S SUPERB	1	0
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" PREMIER, Third Crop per quart	2	0
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Bedding-out and Hardy Climbers.

JACKMAN'S HARDY HYBRID CLEMATISES,
AWARDED TWENTY FIRST-CLASS CERTIFICATES AND TWO SPECIALS.

GEORGE JACKMAN AND SON are desirous of drawing the attention of those who intend using their Clematises for a permanent display in their gardens, &c., to the fact that the present time is most favourable for planting.

OPINIONS OF THE PRESS.

"They have in their several varieties a very colour of which our [illegible] are in great measure deficient." J. F. (Chiswick), *Gardeners' Chronicle*, August 31.—"They will be of the highest value as [illegible] hardy plants—our present climbers in this way being poor [illegible] compared to these." *The Field*, September 26.—"There is no [illegible] for [illegible], to more gorgeous subject for [illegible], but for each occupying Pillar Roses; . . . while the [illegible] of such bright purple hue is [illegible] new sensation in [illegible]." The "Florist and Pomologist," November, 1867.

An ENGRAVING from a Photograph, showing the flowering [illegible], and a GENERAL CATALOGUE of PRICES, will be forwarded [illegible] by enclosing [illegible].
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CAREFULLY SAVED GARDEN SEEDS.

ARTHUR HENDERSON & CO.'S

CATALOGUE of choice VEGETABLE and FLOWER SEED NOVELTIES

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The VEGETABLE SEED SECTION contains—

Selected LISTS of the best varieties of each kind most worthy of cultivation, also some excellent new sorts of both VEGETABLE and FLOWER SEEDS of sterling merit; attention is also directed to the Pine-apple Compact-top BEET (the finest and richest flavoured variety extant), carefully saved, true from the original stock. Also the new DWARF WATERLOO BEET: top leaves rich metallic crimson; growth true, even, and regular. This beautiful foliaged variety may with advantage be cultivated in the flower garden as a border, ribbon, or edging plant; its root is a trifle larger than the Pine-apple Compact-top, flavour excellent, full of sweet saccharine juice, colour crimson, texture tender and uniform throughout.

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Imported GERMAN FLOWER SEEDS in Collections; Choice Strains of FLORISTS' FLOWER SEEDS; a careful LIST of FLOWER SEED NOVELTIES of the season; HORTICULTURAL REQUISITES of every kind, KNIVES, PROTECTING MATERIALS, HORTICULTURAL MANURES, &c., &c.

N.B. Everything in this CATALOGUE is Priced.

PINE APPLE PLACE, MAIDA VALE, LONDON, W.
All Seeds Carriage Free.

NEW HYBRID PASSION FLOWERS.

PASSIFLORA MUNROI, and PASSIFLORA LAWSONIANA

(Fully noticed and described in the *Gardeners' Chronicle* of December 12, 1868, p. 1288).

PETER LAWSON & SON

Intend to send out the above-named charming Climbers, *for the first time*, early next May; and are now prepared to book orders for

Plants at 21s. each, with the usual discount to the Trade.

EDINBURGH AND LONDON.—January, 1869.

TACSONIA ERIANTHA

(WOOLLY-FLOWERED TACSONIA).

A noble plant, resembling in habit and colour of flower the well-known T. mollissima, from which, however, it differs conspicuously in the white under-surface of the foliage and long bracts. As a Greenhouse or Conservatory Climber, it rivals the T. mollissima, and is as free a flowerer. (*Vide* "Curtis's Botanical Magazine" for January, Tab. 5750.)

PETER LAWSON AND SON have been fortunate in acquiring the Stock of this splendid Climber from Isaac Anderson Henry, Esq., F.L.H., and intend to send it out simultaneously with their new Passifloras.

Orders for Plants will now be booked at 21s. each. Trade allowance as usual.

EDINBURGH AND LONDON.—January, 1869.

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NEW GENERAL PRICED SEED CATALOGUE for 1869,

Is now ready, and will be forwarded Post Free to all customers and applicants.

It contains Lists of all New Flower Seeds of merit, Choice Strains of Florists' Flowers, imported Flower Seeds in collections, the most useful Annuals, Biennials, and Perennials for Spring and Summer Flowering; carefully selected Descriptive List of approved Varieties of each kind of Vegetable Seed, with a few Practical Hints as to Culture; also an Appendix containing Gladioli and other Summer and Autumn-flowering Bulbs; Knives, Horticultural Implements, Horticultural Manures, Insect-destroying Composition, and every article likely to be required in the Garden.

A perusal is respectfully solicited; every article is priced, and purchasers may depend on the Seeds being true to name, and everything of the best quality. Exaggerated descriptions are carefully avoided.

All Orders of more than £1 in value sent Carriage Free.

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STOCKS, STOCKS, STOCKS.

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HAS MUCH PLEASURE IN OFFERING CAREFULLY SELECTED

SEED OF THE SUPERB EAST LOTHIAN INTERMEDIATE STOCK,

Feeling sure, from personal observations of several years, that it is without question the finest strain of Intermediate Stock extant.

The colours are Purple, Scarlet, and White. The two first are remarkably brilliant, and the latter very pure. They produce immense branched spikes of large double flowers, and are admirably adapted for ribbon borders and general bedding purposes; indeed, the effect which can be produced by these three varieties in both spring and autumn gardening is not surpassed by any of the now popular plants. If sown early in March, and transplanted in May to their blooming places, the amount of double flowers produced, and the grand display they make, is truly surprising. For either flower gardening or pot culture they are unapproachable, and cannot be too strongly recommended.

An assortment of three colours (Scarlet, Purple, and White), 2s. 6d.

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FLOWER SEEDS in all cases *Delivered Free* by post or rail.

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OLD ESTABLISHED SEED & NURSERY BUSINESS,
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FRANKFORT CAULIFLOWER.

THIS variety has been severely tested during the last two years, and from its great size and extreme hardiness—it growing vigorously in every description of soil, and uninfluenced by weather or climate—it may be held as the most useful Cauliflower in cultivation.

Price per packet, containing about 1000 Seeds, 2s. 6d.

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GENUINE SEEDS OF SUPERIOR STOCKS.

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THE BEST EARLY PEA IN CULTIVATION,
DICKSON'S "FIRST AND BEST," price 1s. 6d. per quart.

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With practical Cultural Directions, will be sent Post Free on application.

Their Seeds are all of the most select character, each being saved from the best Stock known of its kind.
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COLLECTIONS of CLIMBERS, CARNATIONS, PELARGONIUMS, HOLLYHOCKS, STOCKS, ASTERS, BALSAMS, ZINNIAS, LANTANAS, EVERLASTINGS, AQUATICS, PALMS, &c. Full particulars will be found in the DESCRIPTIVE SPRING CATALOGUE, which will be sent Free to intending purchasers.

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Vegetable, Agricultural, and Flower Seeds.

MISCELLANEOUS HARDY BEDDING PLANTS, SWEET VIOLETS, &c.

ROBERT PARKER begs to announce that his CATALOGUE, containing DESCRIPTIVE LISTS of the finest kinds in cultivation of the above-named, is now published, and will be forwarded to applicants. The stocks of Seeds have all been procured from the best possible sources; all are warranted genuine, and are offered at the lowest possible prices.

Intending purchasers are requested to compare the prices with those of other houses.

Exotic Nursery, Tooting, Surrey, S.W.

Hardy Scarlet, White, Puce, Rose,

AND OTHER CHOICE NAMED RHODODENDRONS.

W. H. ROGERS, Red Lodge Nursery, Southampton, offers a large and magnificent Collection of the above. Nice bushy plants, full of Blooming Buds, well adapted for Forcing, at 7*s.* per dozen; or selected, extra fine, 3*s.* 6*d.* each. A detailed CATALOGUE may be had on application, and also of one of the finest and most extensive General Nursery Stocks in the kingdom.

RHODODENDRONS by the doz., 100, 1000, or 10,000.

	Doz.	Per 100	Per 1000
	s. d.	*£ s. d.*	*£ s. d.*
RHODODENDRON PONTICUM, fine bushy plants, well rooted .. 9 to 15 inches	3 0	0 15 0	7 0 0
" " " " " 1 to 1½ foot	4 0	1 0 0	9 10 ..
" " " " " 15 to 20 inches	4 6	1 2 6	11 0 0
" " " " " 1½ to 2 feet	5 0	1 5 0	12 0 0
" HYBRIDUM, bushy plants, 9 to 15 inches	4 0	1 5 0	..
" " " " 1 to 1½ foot	5 0	1 10 0	..
" " " " 1½ to 2 feet	6 0	2 0 0	..
" MAXIMUM ALBUM " 1 to 1½ foot	4 0	1 5 0	12 0 0
" " " " 15 to 20 inches	5 0	1 10 0	14 0 0
" " " " 1½ to 2 feet	6 0	2 0 0	..
The above sorts selected in bloom bud 2*s.* doz. ex.			
" HIRSUTUM, dwarf Alpine, nice bushy plants	3 0	0 15 0	7 0 0
" 120 named varieties, 1, 2, and 3 year, from grafts, 1*s.* 6*d.* to 3*s.* 6*d.* each.			
Hardy HEATHS, 40 varieties, nice plants, by the dozen, 100, or 1000, very cheap. See Catalogue.			
ARBOR-VITÆ, American, fine bushy well-rooted plants, fine for single plants or hedges .. .. 1½ to 2 feet	2 0	0 12 0	..
" " " " " 2 to 2½ feet	2 6	0 15 0	..
" " " " " 2½ to 3½ feet	3 0	1 0 0	..
" " " " " 3½ to 4½ feet	4 6	1 5 0	..
" " " " " 4 to 6 feet	5 0	1 10 0	..
" " " " " 6 to 6 feet	10 0	..	..
Double WHIN, FURZE or GORSE, good plants, extra transplanted 1 to 1½ foot	3 0	0 12 0	..
" " " " 15 to 20 inches	4 0	0 15 0	..
" " " " nice plants in pots	4 0	1 0 0	..
COTONEASTER MICROPHYLLA, nice bushy plants .. .. .. 1 to 1½ foot	..	0 12 0	5 0 0
" " " " 1½ to 2 feet	..	0 15 0	..

PRICED CATALOGUES and any information may be had on application to

JAMES SMITH, Darley Dale Nurseries, near Matlock.

Genuine Seeds.—Carriage Paid.

B. S. WILLIAMS,
SEED MERCHANT AND NURSERYMAN,
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COMPLETE COLLECTIONS
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KITCHEN GARDEN SEEDS,
To suit Gardens of various sizes,
10*s.* 6*d.*, 21*s.*, 42*s.*, 63*s.*, and 84*s.* each.

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WILLIAMS' IMPROVED GREEN CURLED BORECOLE..	0 6
WILLIAMS' ALEXANDRA BROCCOLI	1 6
DELL'S FINE DARK BEET	1 0
WILLIAMS' MATCHLESS RED CELERY	1 0
SHARMAN'S UNIVERSAL CUCUMBER (new)	1 6
TELEGRAPH IMPROVED (Woolley's variety)	1 6
WILLIAMS' PARADISE GEM MELON, scarlet flesh, of excellent flavour, and 12 days earlier than any other in cultivation (new)	2 6
DIGSWELL PRIZE ENDIVE..	1 0
WILLIAMS' VICTORIA COS LETTUCE (new)	1 0
MALVERN HALL MELON	1 6
GOLDEN QUEEN (New Hybrid Prize) MELON	2 0
BEDFORDSHIRE CHAMPION ONION (new)	1 0
NUNEHAM PARK ONION .. .. 1*s.* and	1 6
CULLINGFORD'S CHAMPION MARROW PEA, an excellent cropper, and fine flavour (new) .. .. per qrt.	3 6
MACLEAN'S LITTLE GEM PEA (very early) .. .. "	2 6
LEE'S GIANT ORACH	1 0
ORANGEFIELD DWARF PROLIFIC TOMATO	1 0

NEW and CHOICE FLOWER SEEDS.	Per Pkt.
WILLIAMS' SUPERB STRAIN of PRIMULA.—B. S. W. can with confidence offer his superb strain of Primula as being the finest in cultivation.	
Red, White, or Mixed .. .. .. 2*s.* 6*d.*, 3*s.* 6*d.*, and	5 0
CINERARIA (Weatherill's extra choice strain) .. 2*s.* 6*d.* and	3 6
CALCEOLARIA (Neill's extra choice strain), 2*s.* 6*d.*, 3*s.* 6*d.*, and	5 0
" (James' strain) .. .. .. 2*s.* 6*d.* and	3 6
" (Dalkeith Palace strain)	2 6
CYCLAMEN (Wiggins' prize strain) .. 1*s.* 6*d.*, 2*s.* 6*d.*, and	3 6
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GENTIANA VERNA (the best of all the species)	1 0
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VIOLA LUTEA (yellow flowered Violet) .. .. 1*s.* 6*d.* and	2 6
WALLFLOWER (Saunders' fine dark variety)	1 0
SALVIA ARGENTEA, a beautiful silvery-foliaged ornamental plant	1 0
DIANTHUS HEDDEWIGII DIADEMATUS fl.-pl., flowers very large, and colours most beautiful (new)	2 6
OXALIS VALDIVIANA, quite hardy, the flowers are bright yellow and sweet scented, and produced in bunches of large size (new)	1 0
PALAVA FLEXUOSA, very pretty annual (new)	1 0
MYOSOTIS AZORICA ALBA, the flowers are pure white, contrasting beautifully with the blue variety Coelestina (new) .	2 6
STOCK, EAST LOTHIAN.—This is a splendid variety, of dwarf and compact habit, producing immense spikes of bloom, and very double. They make a grand display in beds, and for ribbon borders. Per collection of three colours (Scarlet, Purple, and White)	2 6
TACSONIA VAN VOLXEMI (a beautiful Climber)	2 6
AMARANTHUS SPECIOSUS AUREUS (New Golden Princes Feather)	1 0
ANTIRRHINUM ASARINA, very beautiful for rockwork (new)	1 0
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MIMULUS REPENS, this is a very distinct species, the flowers are of a pale lilac-purple colour, the lower lip being prettily spotted with orange on a yellow ground (new) ..	1 0
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B. S. W.'s DESCRIPTIVE CATALOGUE of FLOWER, VEGETABLE, and AGRICULTURAL SEEDS, is now ready, post free to all applicants.

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VINES.—Eyes of MRS. PINCE'S BLACK MUSCAT, 2s. per dozen; Sample Eye for three stamps. Planting Canes, 5s. each. 200 Extra Strong Fruiting and Planting Canes of the leading sorts; names and prices on application.

GERANIUM MRS. POLLOCK.—Several thousand Autumn-struck plants to offer, very strong; 40s. per 100.

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PAUL'S NURSERIES AND SEED WAREHOUSE,

WALTHAM CROSS, LONDON, N.

GENUINE AND FIRST-CLASS SEEDS.

WILLIAM PAUL

BEGS TO ANNOUNCE THAT HIS

CATALOGUE OF SELECT VEGETABLE AND FLOWER SEEDS,

Including many Novelties, is now ready, and may be had Free by Post on application.

In proof of QUALITY he need only refer to the numerous Prizes awarded at various Horticultural Shows throughout the country, for both Vegetables and Flowers grown from his Seeds, and in regard to prices these are in all cases affixed on the lowest possible scale to be remunerative. The following Gardens in Hertfordshire, justly renowned for their Vegetables and Flowers, have long been supplied from his Seed Warehouse:—Brockett Hall, Panshanger, Danesbury, Poles, Digswell, Wyddial Hall, Woodhall, Youngsbury, Bedwell Park, Essendon Place, Campfield Place, Bayfordbury, Knebworth, Frogmore Hall, Childwickbury, Codicote Lodge, and many others of equal celebrity throughout the country.

To purchasers who are unacquainted with the best varieties of Vegetables and Flowers, or who wish to save the trouble of writing a List, the following Collections are made up on equally liberal terms with any other House in the Kingdom. All are of the best quality, and cannot fail to give the fullest satisfaction.

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NOVELTIES, OR VARIETIES OF SUPERIOR MERIT.

BEET, Paul's Superb Crimson, 1s. per packet.
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BROCCOLI, Snow's Winter White, very select stock, 1s. per packet.
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FRUIT TREES.—Standards, Pyramids, and Dwarf-trained, and a large general Nursery Stock in excellent condition.

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H. LANE & SON, The Nurseries, Great Berkhampstead, Herts.

ORDER, NOW, of CHARLES NOBLE,
MAIDEN and 2-yr. APPLES,
MAIDEN and 2-yr. PEARS,
MAIDEN and 2-yr. PLUMS,
PYRAMID and STANDARD CHERRIES.
The Stock will please every one.—Bagshot.

ARTHUR HENDERSON AND CO. can supply strong fruiting Canes, capable of carrying six to eight bunches of fine GRAPES of the undermentioned sorts, at 10s. each, excepting Black Hamburgh, which we price below.

BLACK HAMBURGH, 8s.	WHITE FRONTIGNAC
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Also those fine sorts, GOLDEN CHAMPION, MRS. PINCE'S BLACK MUSCAT, and MADRESFIELD COURT.
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CORDON APPLE TREES, on the true French Paradise Stock, as recommended by Mr. Robinson in his "Gleanings in French Gardens." All the best kinds, including CALVILLE BLANC, REINETTE DU CANADA, and other sorts. Prices upon application.
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STRONG STANDARD and DWARF TRAINED APPLES and PEARS, TULIP TREES, 7 to 8 feet; bushy LAURELS and LAURUSTINUS, strong evergreen PRIVET; a choice collection of CONIFERÆ, a large assortment of Standard and Dwarf Perpetual and Dwarf CHINA ROSES, and a general Nursery Stock. All the above have been regularly transplanted, and are well rooted. Prices on application to
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FINE ORANGE TREES for SALE.—Ten very handsome Trees, in robust health, loaded with Fruit; clean, straight stems, about 4 feet; symmetrical heads, 5 feet diameter. One CITRON, same size. In ornamental green tubs.
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SUTTONS' TOM THUMB, beautifully marked with alternate stripes of orange and claret; flesh green, and of most delicious flavour. It is so fragrant, that two or three fruits perfume a room. A valuable introduction, and great novelty, being the smallest Melon yet sent out. Price 2s. 6d. per packet, post free.
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ORDER of CHARLES NOBLE the following New FRUIT TREES, in strong Maidens, 3s. 6d. each, or the Set for 18s.:—
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Fruit the First Season.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON respectfully solicit attention to their enormous stock of FRUIT TREES in a fruit-bearing state.
PYRAMIDAL APPLES and PEARS, full of fruit buds.
Apples, 18s. per dozen; Pears, 24s. per dozen.
DWARF-TRAINED TREES, of extra size, in a fruiting state, adapted for walls or espaliers, including Apples, Pears, Plums, Cherries, &c.
STANDARD TRAINED FRUIT TREES for walls.
PRICED CATALOGUES may be had gratis on application.

THREE HUNDRED THOUSAND 2-YR. THORN, 2s. per 1000; 50,000 2-yr. ASH, 2s. per 1000; 50,000 1-yr. HORSE CHESTNUT, 4s. do.; 30,000 2-yr. HORSE-CHESTNUT, 6s. do.; 50,000 2-yr. OAK, 3s. do.; 30,000 2-yr. TURKEY OAK, 6s. do.; 30,000 2-yr. SILVER FIR, 3s. do.; Trade List on application.
FENNESSY & SON, Waterford Nursery.

Seed Catalogue, now ready.

HARRISON AND SON have pleasure in intimating that their SEED CATALOGUE (enlarged to 52 pages) for this year is now ready.

It contains choice sorts of Garden, Farm, and Flower Seeds, also Fruit Trees, Shrubs, Roses, &c., of the best quality. They will be pleased to send a copy free by post on application.

29 and 33, Market Place, Leicester.

THE NEW VEGETABLES and FLOWERS of the year are contained in HARRISON & SON'S SEED CATALOGUE, which may be had free on application to the
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29 and 33, Market Place, Leicester.

New Seeds for the Garden and Farm, 1869.

ARCHD. HENDERSON'S DESCRIPTIVE and PRICED CATALOGUE of SEEDS, containing Cultural Remarks on all the most important SEEDS,

A select list of GLADIOLUS for Spring Planting,

GRAPE VINES, in Pots, an unrivalled Collection.

Also his DESCRIPTIVE CATALOGUE of GENERAL NURSERY STOCK is now ready, and may be had gratis and post free upon application.

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FOREST TREES, &c.—500,000 LARCH, 1-yr. Seedling, strong; 40,000 do. Transplanted, 12 to 15 inches; 500,000 SCOTCH FIR, native, 2-yr. Seedling; 100,000 do. do. Transplanted, 6 to 15 inches; 30,000 NORWAY SPRUCE, 1 to 2 feet; 1000 POPLAR, of sorts, 2 to 8 feet; 3 to 4 cwt. SCOTCH FIR SEED, native. Special prices on application to
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FOREST TREES, &c.—Special offer of
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150,000 NORWAY SPRUCE, strong, transplanted.
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50,000 LAUREL BAYS, 2-yr. cuttings.
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THOMAS KENNEDY AND CO. have as usual a very large and superior stock of FOREST and ORNAMENTAL TREES and SHRUBS, which they are selling at moderate prices. The Trees and Shrubs, being of all ages and sizes, are particularly well suited for extensive planting or giving immediate effect in the formation and improving of Ornamental Parks, Pleasure Grounds, &c. CATALOGUES sent free by post on application.
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LARGE EVERGREENS, for Immediate Planting:—

Holly, common, 3 to 10 ft.	Yews, Irish, 3 to 7 ft.
,, Canadian, 3 to 8 ft.	Arbor-vitæ, American, 3 to 5 ft.
,, ,, 8 to 10 ft., specimens.	,, Siberian, 4 to 5 ft.
,, green, in variety, 3 to 7 ft.	Box, 2 to 3 ft.
,, nigrescens, 3 to 6 ft.	Laurels, common, 2 to 3 ft.
,, variegated, 3 ft.	,, Portugal, 2 to 4 ft.
,, ,, weeping, on stems.	Aucuba, 1 to 4 ft.
Rhododendrons, common, 1 to 4 ft.	Andromeda floribunda, 1 to 3 ft.
,, hydrids, 1 to 3 ft.	Azalea pontica, 3 ft.
Phillyrea, 3 ft.	Araucaria imbricata, 2 ft.
Yews, common, 3 to 5 ft.	Taxodium distichum, 5 to 7 ft.

FOREST TREES and DECIDUOUS SHRUBS of all varieties. Prices on application.
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Chichester, prize green-flesh.
Heckfield Hybrid, green-flesh, large and good.
Broonham Hall, green-flesh, excellent.
Marquis of Ailsa, green-flesh, fine.
Buckland Scarlet-flesh, excellent flavour.
Scarlet Gem, small, but first quality.
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Conqueror of Europe, green-flesh, good.
Malvern Hall, scarlet-flesh, new, and good quality.
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Hamilton's Invincible, white spine, 31 inches.
Rollisson's Telegraph, true, white spine.
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Full-grown Evergreens.

HENRY GODFREY, NURSERYMAN, Stourbridge, has a large quantity of the following Evergreens to offer, in well grown plants: Green and Variegated HOLLY, Siberian and American ARBOR-VITÆ, Common and Portugal LAUREL, English and Irish YEWS, RHODODENDRONS PONTICUM and PONTICUM VARIEGATUM; Green and Variegated BOX, AUCUBA JAPONICA, ARAUCARIA IMBRICATA, &c.

COMMON LAURELS, 3 to 4 feet, 7s. per 100; single stems, 5s. per 100; extra stout, 2 feet, bushy, 8s. per 100.
ROSES, Half Standard, 12s. per dozen; Dwarf, 9s. per dozen
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SYCAMORES and LABURNUMS, 5 feet to 7 feet, 7s. 6d. per 100
SEEDLING OAK, 12 to 20 inches, 3s. per 1000; &c., &c.
For cash only.
A. WILKIN, Tiptree, Kelvedon, Essex.

Plants for Hedges.

TWO HUNDRED THOUSAND COMMON LAURELS, from 1½ to 3 feet.
WM. WOOD & SON.

AMERICAN ARBOR-VITÆ, especially recommended for Hedges:—2 to 3 feet, 6s. per dozen, 40s. per 100; 3 to 4 feet, 9s. per dozen, 60s. per 100; 4 to 5 feet, 18s. per dozen (extra fine), 100s. per 100.
Extra fine Transplanted BEECH and HORNBEAM, 2 to 3 ft. and 3 to 4 feet; also fine EVERGREEN PRIVET, in large quantities.
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The Planting Season.

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WM. WOOD AND SON respectfully invite especial attention to their very large stock of STANDARD ORNAMENTAL TREES, of large size, suitable for planting as single specimens on Lawns or in Parks where immediate effect is desired.
WEEPING ASH, 7 to 9 feet stems.
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CATALPA SYRINGÆFOLIA, 6 to 8 feet.
ELMS, CHICHESTER and ENGLISH, 8 to 10, and 10 to 12 feet.
SILVER and SPRUCE FIRS, 6 to 7 feet.
HORSE-CHESTNUTS, 6 to 8, and 8 to 10 feet.
SCARLET HORSE-CHESTNUTS, extra fine plants, 6 to 8, and 8 to 10 feet.
LABURNUMS, Yellow and Purple, 6 to 8 feet.
POPLARS, BLACK ITALIAN and LOMBARDY, extra fine, 8 to 10, and 10 to 12 feet, and various other HARDY TREES.
See PRICED CATALOGUES, which may be had free on application.

For Lawn and Cover Planting.

BERBERIS DARWENI.—Too much cannot be said of this fine Evergreen species. It is hardy, and the profusion of its orange-coloured Blossoms, together with the quantity of Berries which it bears (of which pheasants are very fond), render it one of the most attractive and desirable Plants for Lawn as well as Cover Planting ever introduced.
Price:—9 in. to 12 in., per 100, 7s. 6d.; per 1000, 60s.; 18 in. to 2 ft. 6 in., per 100, 20s.; 12 in. to 18 in., per 100, 10s. to 15s.; 2 ft. 6 in. to 3 ft. 6 in., very bushy, each, 1s. 6d. to 2s. 6d.

COTONEASTER SIMMONSII.—This is a beautiful Hardy Evergreen Shrub, with glossy dark green leaves, and bearing a large quantity of Scarlet Berries, which ripen later than the Berberis Darweni, and will hang all winter
Price:—18 in. to 2 ft., per 100, 20s.; 3 ft. to 4 ft., per 100, 45s.; 2 ft. to 2 ft. 6 in., per 100, 30s.
DESCRIPTIVE CATALOGUE post free, on application.
WILLIAM BARRON & SON, Elvaston Nurseries, Borowash, near Derby

FOREST TREES, Transplanted, can be supplied in great quantities at moderate prices, of the following:—Ash, Elm, Birch, Chestnut (Horse), Limes (red twigged), Oak (Turkey), Weymouth Pine, Sycamore, Poplar (Abele) silver, Willows (Weeping Babylonian), Willow (Huntingdon), in sizes, 1 to 1½ ft., 1½ to 2 ft., 2to 3 ft., 3 to 4 ft., and 4 to 5 ft.; Privet (evergreen), Alder, Spruce Fir, 1½ to 2 ft. and 2 to 3 ft.; Balm of Gilead and Silver Fir, 1 to 1½ ft. and 1½ to 2 ft.; Gooseberries of sorts, 2, 3, and 4 years old; Yews, English, extra strong and splendid roots, 4 to 5 ft. and 5 to 5½ ft.; Portugal Laurel, very fine and bushy, well-rooted, 2 to 2½ ft., 2½ to 3 ft., and 3 to 4 ft.; Common Laurel, strong, 1½ to 2 ft. and 2 to 2½ ft.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

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MESSRS. PAMPLIN AND SON have a large quantity of the following, and offer them at low prices, part of their Grounds being required for building purposes:—

Cedar of Lebanon, 10 to 20 feet	Black Italian Poplar, 20 feet
Cedrus Deodara, 6 to 15 feet	Balsam ditto, 10 to 15 feet
Aucuba japonica, 2 to 6 feet	Lombardy ditto, 20 feet
Portugal Laurels, 2 to 6 feet	Horse Chestnut, 10 to 15 feet
Chinese Arbor-vitæ, 5 to 12 feet	Spanish Chestnut, 10 feet
American ,, 5 to 10 feet	Limes, 10 to 15 feet
Thuja aurea, 1 to 4 feet	Walnuts, 10 to 15 feet
Green Box, 1 to 6 feet	Ash, 10 to 20 feet
Striped ditto, 2 to 4 feet	Elm, 10 to 15 feet
Evergreen Oak, 7 to 10 feet	Acacia, 10 feet
Yew, Common, 4 to 10 feet	Mountain Ash, 10 feet
Irish Yew, 3 to 5 feet	Turkey Oak, 10 to 12 feet
Laurel, 2 to 6 feet	Sycamore, 10 to 14 feet
Araucaria imbricata, 10 feet	Weeping Willow, 10 to 15 feet
Green Hollies, 1 to 12 feet	Lilac, Common, 8 feet
Weymouth Fir, 3 to 6 feet	Persian ditto, 6 feet
Spruce ditto, 2 to 4 feet	Yellow Azalea, 3 feet
Birch, 14 feet	Privet ovalifolia, 8 feet

The Nurseries, Lea Bridge Road, Leyton; and Wood Street, Walthamstow, Essex, N.E.

To the Trade.

THOS. CRIPPS AND SON beg to announce they still hold a good stock of the following, in fine healthy stuff:—ABIES ALBERTIANA (Williamsoni), 2-yr. seedlings, to 16 feet; A. MENZIESI, 9 ins. to 12 ft.; ARAUCARIA IMBRICATA, 6 ins. to 20 ft.; Cupressus Lawsoniana (an unequalled stock), 2-yr. seedlings, to 15 feet; Picea balsamifera, 3 inches to 7 feet; P. Nordmanniana, 3 inches to 7 feet; P. Pinsapo, 6 inches to 18 feet; P. pectinata (Silver Fir), 1 to 4 feet; Pinus austriaca, 2½ to 7 feet; P. Lambertiana, 1 to 5 feet; P. muricata, 1 to 2 feet; P. Benthamiana, 2-yr. seedlings, to 7 feet; Retinospora ericoides, 5 inches to 3½ feet; R. obtusa, 6 inches to 6 feet; R. pisifera, 1 to 8 feet; Taxus cricoides, 6 inches to 2 feet; Thujopsis dolabrata, fine stuff, 3 to 15 inches; Wellingtonias, 3 ins. to 20 ft.; Horse-Chestnuts, all varieties; Aucubas, a complete collection; Berberis Bealii, japonica, intermedia, Darwinii, dulcis, stenophylla, vulgaris; Laurels, common, 3 to 5 feet; Laurels, Portugal and Myrtle-leaved do.; Daphne pontica Stocks; Deutzia crenata fl.-pl.; D. scabra, Leycesterias, Manetti and Rhododendron Stocks; Malus floribunda (handsomest of the flowering Crabs); Prunus triloba, Hardy Azaleas, Ericas, Gaultherias, Menziesias, and Pernettyas; Standard Roses, Blush and Crimson China do.; Standard Apples, Cherry Plum Stocks, Strawberries; Pinus excelsa and Picea Webbiana, 1-yr. seedlings; Alder, 2 to 5 feet; Spruce Firs; Lilium auratum and punctatum. For particulars and prices of which, see our TRADE CATALOGUE, to be had free on application,
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LONDON AND CONTINENTAL SEED COMPANY,

68, WELBECK STREET, CAVENDISH SQUARE, LONDON, W.

THE LONDON and CONTINENTAL SEED COMPANY has purchased the old and important Business of Rendle & Co., of Plymouth, which has been established for nearly 100 years.

THE LONDON and CONTINENTAL SEED COMPANY.—MR. RENDLE, the head of the old Firm, has consented to be the Managing Director of this Company.

DISCOUNT of TWOPENCE in the SHILLING will be taken off the published prices of any London or Provincial Seed Merchant.

DISCOUNT of TWOPENCE in the SHILLING will be taken off the published prices of Seeds for the Farm, the Kitchen Garden, and the Flower Garden.

DISCOUNT of TWOPENCE in the SHILLING.—This new system of supplying Seeds for cash payment is the same plan so successfully introduced by Mr. Rendle, the Managing Director of the Town and Country Book Society.

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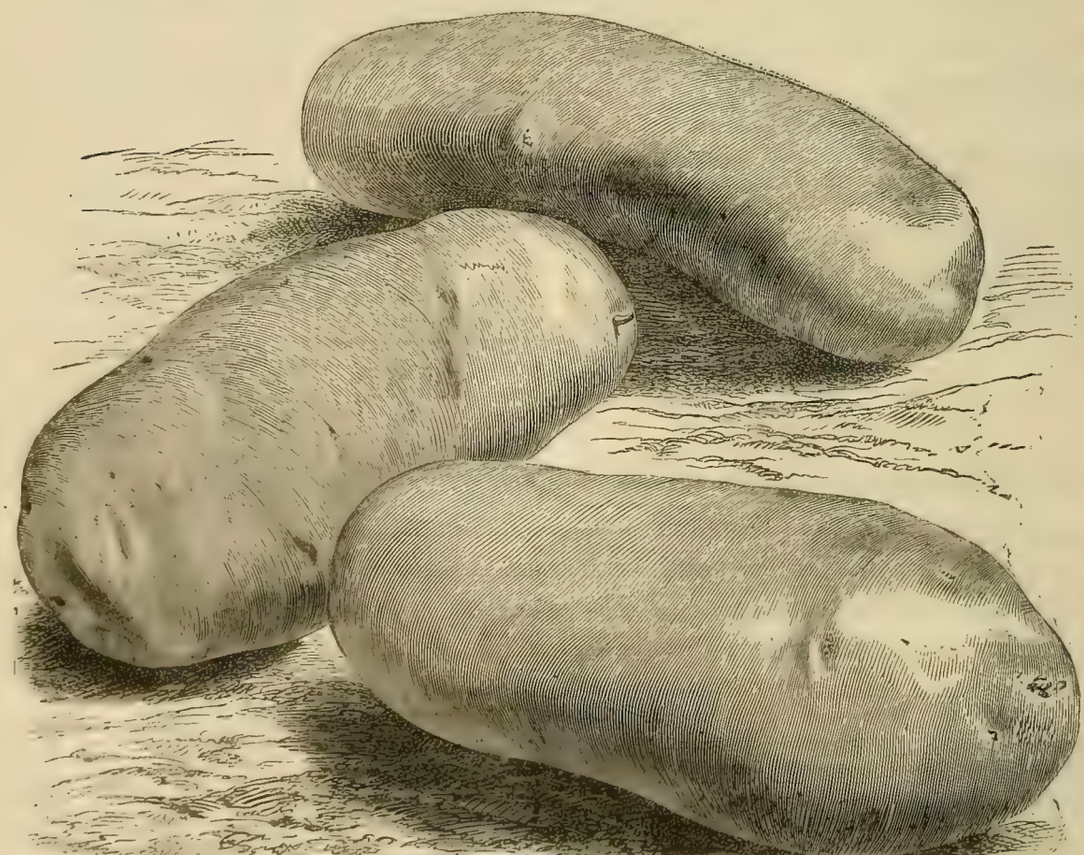
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SUTTONS' BERKSHIRE KIDNEY, price 5s. per peck; cheaper by the bushel.

This splendid Potato is a *Seedling from the Flake.* Having ourselves planted it by the side of different varieties of that class, we have found it to be *by far the best of all, and quite a fortnight earlier.* The *tubers* are of *large size, very numerous,* and have a remarkably clear skin. *It is not so much affected by disease* as other varieties, and is *exceedingly prolific.* It is by far the best variety for the main crop. *From* Mr. A. WEAVING, *Oxford.*

"You may imagine how well the Berkshire Kidney Potato has done, when I tell you that the 1 peck you sent me has produced 16 pecks of good Potatos. I had 68 to one root."

SUTTONS' GOLDEN BLOSSOM KIDNEY POTATO, price 5s. per peck; cheaper by the bushel.

A distinct and very excellent variety. The skin is very smooth, eyes shallow, flesh white, and of very fine flavour. It is exceedingly prolific.

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In assorted Collections, including only the most approved varieties, to produce a plentiful supply of the best Vegetables throughout the year.

Collection No. 1. For Cottage Gardens, 12s.6d
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BEANS, Nonpareil, 1 qt.
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,, best French, 1 pt.
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,, Tom Thumb, lrg. pkt.
,, Savoy, best curled, lrg. pkt.
CARROT, Early Horn, 1 oz.
,, James's Green-top, 1 oz.
,, selected Scarlet, 1 oz.
CAULIFLOWER, Carter's Dwf. Mammoth, lrg. pkt.
CELERY, Incomparable Dwarf White, lrg. pkt.
,, Manchester Giant Red, lrg. pkt.
CRESS, plain, 4 oz.
,, Australian, 1 oz.
CUCUMBER, Carter's Champion, pkt.
ENDIVE, French curled, lrg. pkt.
LEEK, Ayton Castle, lrg. pkt.
LETTUCE, Carter's Giant White, lrg. pkt.
,, Drumhead, lrg. pkt.
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No charge for packing.

PRIZE MEDALLISTS:

LONDON. PARIS.



1862. 1867.

NEW VARIETIES of COLEUS,

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Raised at the Gardens of the Royal Horticultural Society, and purchased by JAMES CARTER & Co. at the Public Auction on December 10:—

COLEUS HER MAJESTY.—This variety is of very free habit, and the broad leaves are of a deep bronzy red, with the narrow beaded edging somewhat less golden tinted than Princess of Wales. It is, however, very effective. Price 5s. each.

COLEUS PRINCE OF WALES.—A free-growing variety, with leaves of a deep purplish red, marked with deeper coloured blotches, and having scarcely any golden markings at the edge, so that it resembles Albert Victor, minus the golden margin. Price 3s. 6d. each.

COLEUS PRINCESS OF WALES.—This has still less yellow than either Queen Victoria or Princess Royal, but has instead a much more decided and deeper glow of purple. Price 5s. each.

COLEUS PRINCE ARTHUR.—The leaves of this variety have a yellowish ground colour, while the base, the costa, and the principal veins are heavily marked with deep purplish red, the margin also being red. These markings give the plant rather a grotesque appearance. It has the close habit and general peculiarities of Coleus Gibsoni. Price 3s. 6d. each.

The Set of Four for 14s.

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Consisting of the Choicest Varieties to produce the most effective and permanent display.

Collection A, 10s. 6d.; Post Free, 11s.
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Collection D, 42s.; Post Free, 42s. 6d.
Collection E, 63s.; Post Free, 64s.

Testimonial from Rev. JAS. BUSH, *Ousby Rectory, Penrith.*
"The seeds I had from you last year were admirable."

CARTER'S

SEEDS FOR THE FARM.

See page 115, of this day's *Gardeners' Chronicle.*

JAMES CARTER AND CO., SEED GROWERS,
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Choice Seeds, Gladioli, &c.

WM. CUTBUSH AND SON'S CATALOGUE of the above contains description and price of many very superior home-grown VEGETABLE and FLOWER SEEDS, and choice varieties of GLADIOLI, &c., all of which are highly recommended. Post free on application.
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Seeds.

AVERSE as MR. WILLIAM BULL is to publishing Testimonials, and for the reason that all good Houses must constantly receive them in some shape or other, still, so much has recently been written and said about inferior Seeds, and Mr. W. B., knowing that Seeds of such excellence as are supplied from his Establishment can scarcely be procured elsewhere, thinks it as well to quote the following extract from a letter just received from Lieut.-Col. E. Boddam, Honorary Secretary of the Agri-Horticultural Society of Mysore, Bangalore:—
"We have been sorely tried with Seeds, sent us as Novelties and best kinds; I have found the sealed packets sent us, bearing your name, are out and out the best we get."
CATALOGUE of SEEDS just published, with everything priced, can be obtained by enclosing 12 stamps.
Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

July 19th to 24th, 1869.

THE ROYAL HORTICULTURAL SOCIETY'S GRAND EXHIBITION at MANCHESTER, in connection with the SHOW of the ROYAL AGRICULTURAL SOCIETY.
Amongst various Special Prizes,
A SILVER CUP (copy of the famous Cellini Cup), **VALUE £21** will be offered by the Proprietors of the GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE for the best COLLECTION of 6 FRUITS and 8 VEGETABLES, to be made up as follows:—

	Good.	Medium.	Inferior.
Grapes	6 marks	3 marks	1 mark
Melons (2 fruits)	6 ,,	3 ,,	1 ,,
Strawberries	3 ,,	2 ,,	1 ,,
Gooseberries	3 ,,	2 ,,	1 ,,
Currants	3 ,,	2 ,,	1 ,,
Cherries	3 ,,	2 ,,	1 ,,
Raspberries	3 ,,	2 ,,	1 ,,
Apples of 1868	6 ,,	3 ,,	1 ,,
(Any 6 of the above 8 subjects).			
Peas	3 ,,	2 ,,	1 ,,
French Beans	3 ,,	2 ,,	1 ,,
Broad Beans	3 ,,	2 ,,	1 ,,
Cauliflowers	3 ,,	2 ,,	1 ,,
Cucumbers (brace)	3 ,,	2 ,,	1 ,,
Summer Cabbages	3 ,,	2 ,,	1 ,,
Early Carrots	3 ,,	2 ,,	1 ,,
Turnips	3 ,,	2 ,,	1 ,,
Globe Artichokes	3 ,,	2 ,,	1 ,,
Onions	3 ,,	2 ,,	1 ,,
Spinach	3 ,,	2 ,,	1 ,,
Rhubarb	3 ,,	2 ,,	1 ,,
Potatos	3 ,,	2 ,,	1 ,,
Mixed Salading	3 ,,	2 ,,	1 ,,
(Any 8 of the above 14 subjects).			

This Prize is open for Competition amongst Amateurs and Gardeners of private families. The Fruit and Vegetables produced must be of *the Exhibitor's own growing;* and any article otherwise obtained will disqualify the Collection. It is expected that the several articles will be neatly and effectively displayed.
In awarding the Prize, Marks will be adjudged according to the above scale, for the several subjects produced.

The Gardeners' Chronicle.

SATURDAY, JANUARY 30, 1869.

MEETINGS FOR THE ENSUING WEEK.

MONDAY, Feb. 1—Entomological .. .. 7 P.M.
THURSDAY, — 4—Linnean .. .. 8 P.M.

MANY have been the attempts to explain the ACTION OF FROST on plants. It seems, nay it is, marvellous, that while tender Mosses and juicy Fungi (or at least many of them) will resist the hardest frosts with impunity, other plants apparently more favourably organised for the purpose, succumb at a higher temperature than the lowly organisms we have mentioned. There must be a reason for this, but it is not yet forthcoming. Still we do know something of the way in which frost acts, and the knowledge we have already obtained is of a valuable character. For instance every one knows that when frost comes after the wood is well ripened by "fantastic summer's heat," its injurious effects are far less observable than when it supervenes upon a comparatively cold, wet autumn, when the tissues are "sappy" and full of moisture.

For this cause there is reason to fear that the mild, wet weather we have lately experienced, may prove injurious if frost come. After a hot summer, highly favourable to the consolidation of the tissues, came a period more like spring in its temperature, and which stimulated vegetation in no ordinary degree, as witness the records in our columns. If now frost set in, the chances are that such new growth will suffer materially. Fortunately this growth has been only partial. Another point of practical importance that has been well ascertained, alike by the gardener and the man of science, is that the disastrous effects of frost depend very much indeed on the rapidity with which thawing takes place. Some plants may be thoroughly frozen, so that their sap becomes wholly converted into ice, and yet if thawing occur gradually they may recover, and be none the worse for the congelation. On the other hand, those very plants allowed or forced by circumstances to thaw rapidly, die beyond hope of recovery. Gardeners have long recognised these facts, and, so far as they have been able, have acted on them. But the question remains, What is the cause of this diversity of action?—a question not fully to be answered, though we can do so to a considerable extent, thanks to the experiments of SACHS, GÖPPERT, VON MOHL, and others.

The general result of these experiments goes to show that frost does not, as was once imagined, split or tear the cells of which the plant is made up. They are too elastic for that; besides, if that were the case, how would recovery from frost ever be possible? On the other hand, it seems probable that frost causes some more subtle alteration in the arrangement of the atoms of which those cells consist. To put the case as simply as possible, we may state that the cells aforesaid are so many bladders of a membrane allied to starch in chemical constitution, and lined with a thick albuminous fluid which forms a sort of interior lining to the bladder, and which itself encloses a watery juice. The cells thus constituted, when in a healthy state, although they are permeable by fluids, under certain conditions, yet offer resistance to any passage of fluids into or out of them if those conditions be not complied with. Thus, we see cells containing coloured juices in juxtaposition with others with colourless juice, and yet there is no admixture of the contents of the adjacent cells. So we see starch, or gum, or oil, or poisonous matters stored up in one cell, when its next door neighbour may be quite destitute of them. But when frost comes, and is succeeded by a rapid thaw, this state of things is altered, filtration of the contents of the cells through their walls takes place, the coloured juices mingle with the colourless, the poisonous with the harmless, and so on, because the molecular structure of the cell-walls is so altered that they become porous. A kind of crystallisation takes place in the covering of the cell, its watery elements separate from its solid atoms, and these latter become aggregated into masses, leaving interspaces or pores between them, through which the liquid contents of the cell pass, and hence the flabby oozing condition of leaves and other soft parts of plants when thawed rapidly. If the thaw take place gradually and slowly, then there is a chance of the old state of things being resumed; but if the thaw be sudden, the molecular changes are too great to allow of the resumption of the old ways. This seems a plausible explanation of well-known facts, and it is borne out by experiment; still it is not the whole truth, because it affords no explanation of the case of the Mosses already alluded to, neither does it satisfactorily account for the fact that a plant which will survive one frost and one thaw, even if tolerably rapid, will nevertheless succumb shortly after to a frost of less intensity.

—— THE following particulars relating to the INTERNATIONAL HORTICULTURAL EXHIBITION at St. Petersburg will be of interest to those who propose to exhibit. The English railway companies decline to make any reduction of their fares for passengers, or in their goods tariff, but it is expected that the Belgian authorities will be more liberal in these matters. Further particulars as to the arrangements to be made in Belgium will be given hereafter. The Horticultural Society of Russia states that railway transit is the only reliable method of transport, as the sea-carriage is uncertain, on account of the block-ice from Lake Ladoga, which, even till the middle of May, often bars the Bay of St. Petersburg. At the border stations (Wirballen and Granize) of the two principal railway routes to Russia, representatives of the Society will attend, to see that all objects for exhibition are immediately transmitted, and also to advise and assist gentlemen proceeding to the Exhibition and Congress. All objects addressed to the "Internationale Ausstellung von Gegenständen des Gartenbaues in St. Petersburg," will be forwarded to the place of exhibition without being opened on the border. Objects entered for exhibition will be received after the 2d May. All plants intended for exhibition must be in St. Petersburg by the 14th of May, because the Prize Committee assembles on the 16th, the day before the opening. Plants arriving in bud will be carried to a special house to bring them into flower for the show. All foreign guests will be received at the railway stations in St. Petersburg by members of the "Commission for the Reception of Guests," by whom all necessary information respecting lodgings, &c., will be communicated. Any of the foreign visitors who may wish to secure apartments beforehand, can either address themselves to the "Commission der Internationalen Ausstellung von Gegenständen des Gartenbaues in St. Petersburg," or place themselves in communication with one of the representatives of the Society. The prices for rooms in St. Petersburg are about the same as in other large cities for the same accommodation; and the Commission for the reception of guests will take measures to ensure proper attention to the wishes of visitors. All exhibitors, and members of the Prize Committee, and Congress, will receive personal cards entitling themselves and their effects to the reduction in fares that will be conceded in their behalf. Besides the medals which are offered in the programme, the Imperial Free Economical Society of St. Petersburg has resolved to give others, bearing the

impression of its stamp, for competition at the same time, as follows:—

1. A large Gold Medal for the best model of a fruit-drying oven (or stove) with samples of fruits dried in an oven of the same construction, and directions for its use.
2. A small Gold Medal for the best collection of fruit trees, especially those adapted for the Russian climate, and which are raised in large quantities for sale.
3. A small Gold Medal for a collection of preserved Russian apples and pears.
4. A small Gold Medal for a collection of vegetables kept through the winter in a fresh state.
5. A small Gold Medal for a collection of preserves of fruits and vegetables, with instructions as to the manner in which they are preserved.
6. A large Silver Medal for a collection of North American Oaks, suitable for cultivation in Russia.
7. A large Silver Medal for a collection of vegetable seeds saved in Russia.
8. A large Silver Medal for a collection of Red Beet.
9. A large Silver Medal for living fences suitable for Southern Russia.
10. A small Silver Medal for a collection of Coniferæ for plantations in Russia.
11. A small Silver Medal for the best early Potato, not liable to disease.
12. A small Silver Medal for the model of a fruit-drying oven of improved construction.

The following questions are put forward for discussion at the Congress by the Committee of the Imperial Free Economical Society:—

1. The improvement of Russian fruits, having regard to the best foreign sorts.
2. Which are the best South-Russian varieties of Grapes by which the culture of Vines may be promoted, and what is the most rational management of Vines?
3. Up to what age may trees and shrubs be transplanted in gardens and parks?
4. What Pines of the Old and New World are best suited for forest planting in Russia?
5. The institution of horticultural statistics for Russia, and the elaboration of a plan for that purpose with the co-operation of all the Russian Horticultural Societies.

—— We extract the following particulars from the last REPORT on the condition of the ROYAL BOTANICAL GARDENS, CALCUTTA:—The arrangement of the species cultivated in the garden was completed during the year, by the planting of the plants of the natural order of Rubiaceæ, the only order which remained to be planted. The species are arranged according to the natural system, and each is distinctly labelled. A group of trees intended for the support of large tropical climbing plants has been formed. The number of large scandent species cultivated in the Botanical Gardens now exceeds 300. Before the cyclone of 1864 several of the most beautiful of these plants were trained over some of the common species of trees in the garden, especially Teak, Sissoo, and Casuarina trees; but nearly all of them, along with the trees over which they spread, were blown down by the storm of October, 1864. Above 60 species of rattan-palms (Calamus) are now cultivated in the Botanical Gardens. A portion of the eastern part of the garden was cleared in 1866 for the cultivation of these rattans, and all seedlings which were large enough, were planted there during the rains of 1867. The collection of Orchids has been greatly increased by the receipt of collections from the Khasia Hills and Sikkim, and the number of species of Ferns now cultivated in the Botanical Gardens exceeds 250 species. The cyclone of 1st November, 1867, inflicted great losses on the garden by the destruction of many fine trees. The cyclone of 1864 destroyed so many trees of all species that after it a great number of specimens of rare species existing in the gardens were unique, many of which have been uprooted by the storm of last November. Thus although the number of trees destroyed by the cyclone of last November is 751, while those blown down in October, 1864, amounted to 1010 trees, still the unique specimens destroyed in 1864 belonged to only eight species; but in the storm of last November, 30 species of trees were lost by destruction of unique specimens. Among the 751 trees blown down in the storm of last November there were five full-sized trees and four smaller trees of Mahogany, 15 large trees of Teak, and 26 of Sissoo. Palms, as in the former cyclone, suffered comparatively little damage, except in their foliage. The rare and delicate plants cultivated in flower-pots, and the seedlings of newly introduced plants, were injured by being buried under the ruins of the thatched houses in which they were cultivated. The labels attached to all of them were lost, and thus those plants which were recovered were without names and records of their origin. The glass conservatory was the only plant structure that escaped without damage; neither it nor any of the Ferns cultivated in it received the slightest injury. The Ipecacuanha plant, whose successful introduction from Kew, where it was obtained from Brazil, was reported last year, continues to thrive, and the number of plants has been increased to nine by artificial propagation; all of these will yield cuttings during the rains of 1868. It is not probable that the plant can be grown in the open air in the plains of Bengal, as it requires shade and moisture. Thus, a congenial climate for it may be found in the moist valleys of the Himalaya and the Khasia Hills. One plant of the Ipecacuanha has been sent to the Cinchona plantations at Darjeeling, where the attempt to cultivate it in the open air will be made as soon as a sufficient number of cuttings has been obtained. The price of this most valuable drug (Ipecacuanha root) in the London market is 9*s.* per lb., and the supply is very uncertain, as the plant is nowhere cultivated.

—— We have the pleasure to announce that her Majesty's Government has appointed the Rev. M. J. BERKELEY to be her Majesty's Commissioner to attend and report on the International Horticultural Exhibition at HAMBURG. Our authorities appear at last to have bestirred themselves in this matter, and to be following the wake of Continental Governments, with whom it has always been a practice to appoint such delegates. Considering the great commercial interests involved, to say nothing of considerations of science and international courtesy, we can but think this to be a wise move on the part of our Government.

—— Further illustrations of the MILDNESS OF THE SEASON up to a few days since, pour in upon us. Among them Mr. WEBSTER, gr., Gordon Castle, Banffshire, sends us a well blown flower of Noisette Augusta Rose, cut from the open air without protection. From Cirencester Messrs. JEFFERIES & Son report that they have excellent Rhubarb in the open ground, produced without any artificial means. From Enville Hall, near Stourbridge, we have specimens of Horse-Chestnut, with leaves 2 inches across, and flower buds showing, as well as Banksian Rose and common Laurel, both in bud.

—— A new gardening journal, called the *Gardeners' Record*, has just been established in Ireland, to be issued fortnightly, under the management of our correspondent, Mr. DOUGLAS, of Kilkea. We welcome the new-comer with all good wishes.

—— While rival dealers are placarding our walls with statements that theirs is the best Cocoa or Chocolate, Dr. MOORE, of Glasnevin, may, unless we are mistaken, lay claim to being the first to produce fruits of the COCOA PLANT (Theobroma Cacao), grown and ripened in Ireland. We are informed that fruits have been previously produced on the Cocoa plant in the Duke of NORTHUMBERLAND'S tropical fruit house, at Syon House, Isleworth. Be this as it may, Dr. MOORE, at the last meeting of the Royal Dublin Society, showed a fine plant of this species, some 6 feet high, and bearing on its trunk near the base a fruit. Although flowers are produced every year on the Glasnevin plant, fruit has never been seen on it till this year. The fruit at present is not fully ripe, but it is nevertheless 6 inches long, and it may be expected to increase in length, so that in point of size it will not differ materially from that grown in Demerara or Trinidad. The foliage of a well-grown plant is handsome, but the flowers, which emerge from the old wood, are inconspicuous. In a botanical point of view their structure is exceedingly curious.

—— We learn with pleasure that the office of Professor of Botany in the UNIVERSITY OF DUBLIN, vacant by the removal of Professor DICKSON to Glasgow, has been conferred on Dr. PERCEVAL WRIGHT.

—— Editors get some curious problems to solve at times: here is one of the latest:—"W. S." asks for our opinion as to the advisability of FEEDING the ROOTS of the GRAPE VINE with PORT WINE—we beg pardon, our correspondent says "the dregs of," which "he can apply copiously." Fortunate Vines, say we, to be offered such drink! yet we must confess our entire ignorance as to the effects of this new manure on the members of the vegetable kingdom. We know that it powerfully stimulates certain kinds of animals who imbibe it freely. Like produces like, they say; and probably here the produce may doubly be the producer, and "W. S.," in eating his Grapes, may enjoy the full pleasure of his old port, as "Punch" so facetiously remarked of the teetotallers of Glasgow, who, in their lingering love for the forbidden fruit, and their desire to keep the pledge, cultivated their Cabbages by the aid of Highland whiskey! Banter apart, it is not the first time we have heard of the plan, though we have no knowledge of its working; it is a refinement on the use of vine-prunings as manure for Vines.

New Plants.

× CYPRIPEDIUM HARRISIANUM (*barbato-villosum*).

(Acaulia tessellata) foliis ligulatis acutis apice argute tridentatis, dente medio setaceo, pedunculo villoso; bractea spathacea ancipiti apice tridentata quam ovarium villosum subduplo breviori; sepalo dorsali late oblongo acuto villoso et glandipili, sepalo inferiori oblongo acuto; petalis ligulato oblongis obtuse acutis, utroque limbo setiferis; labelli sacco conico oblongo antice medio descendenti angulato, utrinque triangulo cornuto, limbo minute setifero, unguis canalis limbo a basi angustata dilatato subclauso, disco interno setifero; staminodio dilatato postice emarginato trilobo, antice trifido, lacinia media triangula parva, laciniis lateralibus obtusangulis.

The leaves of this hybrid are ligulate, much narrower than those of C. barbatum, broader than those of C. villosum, tridentate, with a bristle-like middle tooth, as in C. barbatum, glossy, as in C. villosum, and marked with numerous tessellated dark green hieroglyphical markings, as in C. barbatum. The peduncle is quite that of C. villosum. The bract is that of the same, carinate, ancipitous, sheath-like, but only half of the length of the ovary, having less hairs than that of C. villosum, green and violaceous. The upper sepal has a broader base than that of the said species, and comes nearer to that of C. barbatum, but it is covered with a denser pubescence. The atroviolaceous streaks in lieu of being distinct are confluent, so that the greater part of it appears of a blackish-purple, and only whitish near the top. It is very glossy. The inferior sepal is ovate triangular, whitish-green, with green nerves, and some purplish streaks near the limb, not glossy. It is quite intermediate in this respect between its two parents. The petals are spread at a right angle, and are ligulate ovate acute, hairy on the upper and under limb, as in C. barbatum, narrower than in C. villosum, very shining, port-wine coloured, with a very dark line on the middle nerves; nerves green beneath, dark atroviolaceous above. These organs are intermediate between those of both parents, but if one overlooks the bristles on the margins they stand nearer to those of Cypripedium villosum. The lip has a conical sac, with two erect blunt lateral horns on its orifice, the limb of the unguis is involved. It is of a light port-wine colour, with a tinge of light green here and there; it has dark brown spots on both sides of the limb, bristles around the mouth of the sac, and fine dark bristles internally. It is very glossy at the base of the unguis, but elsewhere it appears nearly opaque. The staminodium is very like that of C. barbatum, transverse, emarginate at its base, and the basilar lobes descend and approximate on the back side, as in C. barbatum. The anterior part is three-lobed, with blunt side lobes (in lieu of the acute ones of C. barbatum), and has an acute middle tooth. On the disc there are some reticulate dark green veins, as in C. barbatum, and a very little hooked ancipitous callosity, instead of the large one of C. villosum. The stigmatic lamina is abruptly stipitate, as in C. barbatum. Stiff bristles stand around the base of column, as in C. villosum.

This hybrid was obtained by applying the pollen of C. barbatum to the stigma of C. villosum. The colours are much brighter and darker than those of C. villosum. The flower is smaller than that of C. villosum, and as large as those of the largest varieties of C. barbatum.

There are various opinions as to the value of hybrids. We hear there are some gentlemen who shrink from the apparition of such plants even among Orchids. No doubt, hybrids of doubtful origin, which make their appearance without certificates of birth and parentage, are most troublesome both to men of science and to amateurs. Thus the study of garden specimens of Pelargoniums, Cacti, Ericas, is very irksome and often impossible. But if the origin of all these doubtful plants were known, would it not be a grand thing for science? And so it is with Orchids.

We have to thank Messrs. Veitch for some of the showiest plants ever obtained in gardens. They have from the beginning candidly stated what kinds of plants they were. May such interesting experiments be often repeated. It is not only the desire of getting valuable novelties that we allude to. No; a higher wish is, that by such continuous experiments we may by-and-by get quite new views about the limits of both genera and species. The grand questions about the limits of species will be more and more elucidated by such cross-fertilisation. Some grave doubts about the limits of genera, apparently weakened by some so-called species, will be solved by the knowledge of the hybrid nature of the intermediate connecting links.

These splendid acquisitions are due to the unrivalled skill and sagacity of Mr. Dominy. Now, we are told it was Dr. Harris of Exeter who gave Mr. Dominy the idea of hybridising Orchids, at a time when we knew nothing about the European Orchid mules, and when there was not the least indication of the present great excitement of mind as to the limits and origin of species. The showy plant now described could not, as Mr. Dominy well observes, bear a better name than that of Cypripedium Harrisianum, in honour of the gentleman to whom we are indebted for so much.
H. G. Rchb. fil.

THE HEATING OF VINE-BORDERS.

FROM the flourish of trumpets with which Mr. Wm. Miller broke cover upon this subject, I fully expected he would have pursued his quarry with the courage of a true sportsman, but, instead of that, he at once cries *peccavi*, and seeks to shelter himself behind a series of transparent platitudes. Without a tittle of practical experience in the matter at issue, he proclaims, "I am Sir Oracle, and when I speak, let all creation hold its breath." The failure of the experiments at Yester was set to ride rough-shod "o'er the world," but now I presume Mr. Shearer does not like to have his want of success chronicled, and, hence, Mr. Miller attempts to right his ship and sail upon another tack. But, reason of reasons! (I forgot to mention it in my last) the Vines at Yester did not fail through the houses being unsuitable, for it was well known that "Mr. Shearer grew splendid Heaths and other plants in them afterwards." If Mr. Miller had lived near the metropolis when plant growing was in its zenith, he would have found that such men as Barnes, Hunt, May, Cole, Speed, and others who stood in the fore-rank of exhibitors, had to make their houses grow good fruits and good plants also; and my experience certainly tends to the conviction that the best houses do not always produce the best results, but that, on the contrary, a sound, practical gardener—such, for example, as Mr. David Thomson—place him where you may, will produce good results. In making this remark I do not wish to reflect in the slightest degree upon Mr. Miller's ability; he has been described to me as a very clever, enterprising gardener, and certainly his productions, so far as they have come under my notice, have done him great credit. At the same time I would say, Quixotic movements are not commendable, as it is possible to "run amuck" and be sorry for it afterwards.

And now, as one of the "race of animals threatened with extinction," let me say a few words in sober seriousness to our would-be teacher. First, is it wise to find fault with even an "immature plan," though it may be the most recent, without showing where and in what the deficiency consists? Mr. Miller does not do this, but because he is told he has shown no better-finished Grapes in July than Mr. Westland produced in May by the use of heated borders, he says—

> "I do not like thee, Doctor Fell;
> The reason why I cannot tell."

This is the extent of Mr. Miller's reasoning. He first cites the failure of bottom-heat at Yester, and when discomfited by its success at Kingston and Welbeck, meets us by words—words idle as the wind. When Mr. Miller produces finer Grapes in April or May without bottom-heat than I have seen at Kingston with it, I and others shall be glad to go and see them; till then he must excuse me if I tell him, he is not in a position to give an opinion.

Secondly, is it honest to swoop down upon a scheme with the fury of a scalp-hunter, and condemn it

because it is untried? This species of combativeness may flatter the self-esteem of the assailant, but it is not manly. "Knowledge was proud because he knew so much; Wisdom is humble because he knows no more." Before Mr. Miller asserts that "Mr. Ayres and his colleague are descending from their perch on the top of a chambered and heated Vine-border," he should show when I ascended it. For years before Mr. Miller's name cropped up on the surface of horticulture, I had condemned the chambering system as wrong in principle and bad in practice; and I can give no better proof of this than the fact that when, more than 20 years ago, such an oration was made about the Grapes from the aërated borders at Castle Malgwyn, as shown at the meeting of the Horticultural Society in Regent Street, I showed better finished Grapes at the next meeting of the Society from houses and borders aërated but not heated, precisely upon the plan recommended by Mr. Westland; therefore I am no theorist in the matter, and do not cry "Wolf! Wolf!" against the chambered borders, because it has become fashionable to do so. I have never advocated the isolation of Vine-borders. The incessant watering which the first chambered borders, formed at Welbeck required, convinced me, though but a youngster, that if not wrong in principle, they were bad in practice—permissible where labour was unlimited and water handy, but not to be thought of where either was scarce; and so it has proved.

Thirdly, is it just to arraign Mr. Westland for the extravagance of the Kingston arrangement when he had nothing to do with its formation, and now proposes to substitute for it a cheaper and better plan? There is rarely much magnanimity in controversy, but really I think we might observe a little honesty towards our rivals. Though the Kingston plan has been good in its results, no man knows better than Mr. Westland that those results were purchased at too great a price, and that similar or even greater successes in early forcing may be achieved at a smaller cost. Mr. Miller knew these things, and yet he continues to carp upon an exploded argument. He says that "I and Mr. Westland appear to have joined to support each other," and yet "that our arguments are conflicting." Will Mr. Miller specify any principle enunciated during the discussion in which we disagree? If he will do so, I shall be thankful for the enlightenment. The truth is, Mr. Miller draws upon his fancy for his facts, and abandons argument, and so long as he does that, no great or satisfactory truths will be elicited.

That "the heating of Vine-borders" on the old plan is a very delicate affair, only to be trusted in the most skilful hands, Mr. Miller has given us the best proof in its complete failure at Yester, and no one knows better than Mr. Westland and myself. Our object all through has been to do away with the danger, "to prevent"—to give Mr. Miller the advantage of his own words—"the complication of evils unwisely placed underneath [the border] from doing harm;" and hence our reason for removing the heating pipes from underneath. This, Mr. Miller says, "is tantamount to an acknowledgment that bottom-heat is decidedly wrong, a bad and dangerous thing." We say, "no such thing;" nor will our statements admit of any such deduction. We say, and we speak from experience, the subheating of Vine-borders for winter or spring forcing is a good, judicious, and natural practice; and staking our reputation upon that fact, we invite Mr. Miller to prove the contrary. Till then he must not be surprised if we "whistle him down the wind" as a mere talker upon a subject on which he would wish to be considered an instructor.

The tact with which Mr. Miller would fain tack himself to the coat-tails of Messrs. Fleming, Thomson, Tillery, Meredith, and others, is clever if not judicious; but surely he must know that if these great gardeners have never shown really first-rate Grapes in early spring, even though they may have employed chambered and subheated borders, it only demonstrates that there is a screw loose in our practice, and that the sooner we tighten it the better. If I and my friend Mr. Westland should happen to prove the "screwdriver" of the better practice, we shall be proud; if not, we will say with the poet:—

> "'Tis not in mortals to command success,
> But we'll * * * deserve it."

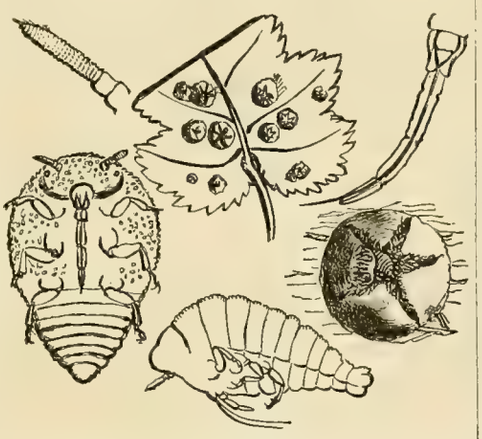
Of the condemned grapes, Lady Downe's, Alicante, and Gros Guillaume, I can only say I have never yet thought them worth planting. I grant they are handsome when well done, and I once, but once only, with Mr. Speed, at Berry Hill, tasted the Gros Guillaume fit to eat. With Mrs. Pince's and the Madresfield Court, especially the former, as it will be seen two years hence at Garston and Knowsley, Mr. Miller's pets must be sent to the right-about, and will find no abiding place in the garden except the rubbish heap. A neighbour of mine, "a fine old English gentleman," whose gardener grows Grapes as well as any man in England, recently described the Gros Guillaume as "bad the day it was ripe, and worse every day afterwards;" and if such be the fact, it must be gross folly to plant it.

Finally, let me tell Mr. Miller that all noblemen and gentlemen are not "showmen." The proprietors of some of the largest and best managed gardens in Britain stipulate that their fruit shall not be shown; and hence, though some of our exhibitions may be good, they do not always represent the best fruits in the country. This may account for Mr. Westland not showing his Grapes at the "International." Could I have prevailed upon him to do so, he would have reserved his best bunches for that exhibition, but he would not. For this I am sorry, as it is evident that, in Mr. Miller's estimation of fruit growing, there is no truth except that which is made manifest through exhibition spectacles. To such a conviction he is welcome. I am content to know that in my wanderings I sometimes see better fruits and better plants kept at home, than I meet with even at the leading shows. *William P. Ayres, Dec.* 28, 1868.

NEW VINE DISEASES.

IN the month of June, 1863, I received from Hammersmith a Vine leaf covered with minute gall-like excrescences, "each containing," in the words of my correspondent, "a multitude of eggs, and some perfect Acari, which seem to spring from them, and sometimes a curiously corrugated Coccus." A microscopical examination of these objects soon revealed the fact that the excrescences were galls of a peculiar character, caused by the irritation from the sucking of the leaf by the full-grown insect enclosed within the gall (which was partially opened on its upper surface)—that the insect itself belonged to the family Aphidæ, and not to the Coccidæ (or at least that it was intermediate in character between the types of the two families)—that the eggs were those of the perfect insect itself, which had formed the gall in which it had enclosed itself as in a living tomb, and that the perfect "Acari" were minute young, hatched from these eggs. The information thus gained was, however, zoologically incomplete, from the want of a knowledge of the male insect, which doubtless is winged, and which would have enabled me more satisfactorily to have determined the situation of the insect in the system. Hence, with multitudes of other semi-complete observations, the matter remained unpublished in my portfolio.

In the autumn of 1867, and during the past year, my attention has, however, been several times directed to the same insect, which appears to have become extensively disseminated, and has exhibited its powers of mischief in a most unlooked-for manner, since not only have I received further specimens of the Vine leaves infested in the manner above-mentioned, but have had portions of the roots of Vines sent to me from different quarters, the rootlets of which had been sucked by a wingless insect, which I cannot in any manner distinguish from those of the galls on the leaves. From Cheshire I received in September,



1867, leaves from a young Vine, growing with 25 others in a house 72 feet long, in which it was the only one attacked, having previously made 14 feet of wood since it was planted in the February preceding, the insects being only found in the young leaves within 5 feet of the top. In the following month the same correspondent sent rootlets from his Vines, attacked by the same insect, and I have since received it from other correspondents in different parts of England, as well as Ireland. In the latter mode of attack the perfect insect makes a wound in the delicate rootlet, by inserting its rostrum into the wood, and sometimes this is so firmly imbedded as to remain in its position when the insect is removed by the hand; decay is thus induced, which "penetrates in the form of little cankerous spots, and sometimes extends to the centre, cutting off the supply of nourishment."

In the spring of last year I communicated a notice of this insect to the Ashmolean Society of Oxford, accompanied by highly magnified drawings, which are reduced in the accompanying woodcut, when I proposed to name the insect Peritymbia Vitisana, in allusion to the tomb-like gall on the leaves formed by the female insect.

In France, where the culture of the Vine is of much more popular importance than in England, the disease has manifested itself with great virulence. The manner in which it appears in that country, and the various erroneous opinions which had been formed as to its origin, are noticed in one of your leading articles of the 31st of last October, together with a statement of the examination of the subject made by a Commission, at the head of which was M. Planchon, which resulted in the disease being referred to the presence of the insect now under consideration, to which the name of Rhizaphis vastatrix was applied, a name, as "M. J. B." well observes, "scarcely applicable, should it turn out, as we suspect will be the case, to be congeneric with the very similar insect which is found in the excrescences on Vine leaves."

At the meeting of the Entomological Society of France on the 12th of last August, M. Lichtenstein communicated a notice of the ravages of the insect, which was stated to destroy the Vines only on the left bank of the Rhine, from Arles to Orange, together with a notice of M. Planchon's observations, and with the remark that M. Signoret, the distinguished entomologist of Paris (whose attention has for some years past been devoted to the Coccidæ and allied insects), considered that the insect belongs to the genus Phylloxera. It does not appear, however (although the latter generic name might indicate such a connection), that the entomologists either on the Continent or in America* connect the ravages of the Vine leaf gall aphis, with that of the root insect.

The engraving represents, in the middle of its upper part, a portion of the upper side of part of a Vine leaf greatly reduced in size, with a number of the gall-like excrescences, also slightly reduced. These excrescences are thickened portions of the leaf, the underside of each being swollen into a convex shape and entire, the female insect being enclosed within the cell thus formed, the upper surface of the leaf throwing out or splitting into triangular portions, as represented in the right-hand figure, the edges of each portion emitting a number of delicate white filaments. The extremity of one of these portions is turned back in the right-hand figure, showing part of the body of the female within the gall, surrounded by its eggs. The full-grown insect itself (which is scarcely half a line, or 1-30th of an inch in length,) is represented on its ventral surface in the left-hand figure. Seen under a high-powered lens, the whole body is swollen and fleshy, and is covered with minute granulations; the eyes are distinct, minute, and ocelli-like; the antennæ are short, composed of only two very small basal joints and a longer apical one, having apparently a very minute setiferous tubercle at its extremity: the long joint appears under the microscope to be formed of a great number of very short rings. The sucker is distinct and four-jointed, varying in length according to the size of different individuals: as usual in Hemipterous insects it encloses several very slender setæ. The legs are of moderate length, with the tarsus formed of a short basal joint, which on its inner edge emits two short setæ, whilst the terminal joint is longer and slightly thickened at its extremity, which is distinctly furnished with two claws. The abdominal portion of the body is comparatively small and eight-jointed. The figure on the left-hand side of the engraving represents a female taken from the leaf-gall, whilst that in the middle of the lower part represents one of the females from the root of the Vine, seen sideways. Amongst the latter were some specimens which had a small black shining lobe on each side of the body, probably the rudimental wings of the male insect. *I. O. W.*

BUTTON-HOLE BOUQUETS.—No. I.

As there are comparatively few flowers which will live long without water, it is a great advantage to be provided with a glass tube of proper size. I have used them of various forms and sizes; that which I find to be most generally useful is 2¾ in. long, and of a flattened-round form, the greater diameter being five-sixteenths of an inch, and the lesser diameter three-sixteenths. These are the inside measurements. Tubes are often sold with a hooked pin attached to the orifice, so that the tube, with its bouquet, may be pinned or hooked on to the breast of the coat. I do not like this plan. It is unsafe, and the tube ought not to be seen; the flowers only should appear. With an overcoat, or one made of any thick material, the tube should pass through a neatly-made button-hole in the upper surface of the lappet, and go down between the two surfaces; but in a coat made of fine cloth, such as a dress-coat, it is better to have the button-hole made through both surfaces, and let the tube drop into a little fob of black silk attached to the back of the lappet.

Take a piece of Coronilla glauca in bloom, and remove all the leaves; behind the head of yellow flowers put two blooms of Neapolitan Violets, which should appear somewhat above the Coronilla; below, and rather in front of the Coronilla, place two Snowdrops, and between them one good flower of the Russian Violet, either single or double. Having tied these all together, finish the bouquet by fastening behind it one small leaf of the Rose-scented Geranium, known also as the Oak-leaved Geranium. For tying up button-hole bouquets there is nothing better than very fine copper wire. That which I use is of the size which ladies will recognise when I mention Taylor's Persian thread, No. 20. It is very strong, and wants no fastening off beyond passing the end between two of the stalks to secure it. I keep in my pocket-book a miniature hank of about a dozen pieces, each eight or nine inches long; one piece of wire has often lasted for several weeks. The double Azalea amœna is a nice thing for button-holes. It may be combined with Snowdrops, or with Neapolitan Violets, or with both, and should be backed with some Azalea foliage. *W. T.*

[Double Chinese Primroses with the natural leaf, make very neat button-hole bouquets: see p. 111. EDS.]

COOL ORCHIDS.

I HAVE personal experience of New Grenada, Peru, Guatemala, and Mexico, and other hot tropical regions. The "equator of heat," or line of highest mean annual temperature, passes close along the northern coast of New Grenada. But although these countries are, by their geographical position, subjected to a very high temperature in low and flat districts all the year round, yet their elevated regions afford a widely different climate.

Vast mountain chains, which occupy a large portion of the whole, rise far into the regions of eternal ice and snow; on the slopes of these, and on the immense tablelands that stretch for hundreds of miles from their base, a cool and genial climate is found not very unlike our own, though rarely if ever presenting the extremes of heat and cold that occur in England. In the vast

* The important article of Dr. Shimer, of Mount Carroll, Illinois, on Dactylosphæra (?) vitifoliæ will form the subject of a separate notice. *I. O. W.*

forests and humid ravines of these mountain regions orchidaceous plants of surpassing beauty abound. They have for 20 or 35 years past been imported into Europe in very limited quantities, but, as a rule, they were at once subjected to a close and stifling heat. Because they were from the tropics, whether in reality from the chilly slopes of a snowy sierra, or from a hot jungle, it was all the same—Nature rebelled, and the plants died.

They had been dragged down from their cool mountain homes, and cooped up in a box for six or eight weeks in the hot and humid climate through which they must pass to reach us, and therefore few, comparatively, survived—some of these being the very finest, and hence both rare and expensive. Others, scarcely less charming, travel well, and are now to be had at far lower prices than formerly. Some of the finest of the New Grenada Odontoglossums and Oncidiums occur in districts that are liable to extreme cold, and may yet be found hardy enough to stand the winter in some parts of England. We learn from the late Mr. H. M. Archer's work, that he met with an Orchid 800 feet above a village where the snow was lying 6 inches thick, and the thermometer indicated 8° of frost, and that Cattleya labiata and Sophronitis grandiflora have been found not unfrequently with the hoar-frost upon them, and the grand Lælia majalis, in Mexico, is said to bear several degrees of frost. I myself have seen icicles hanging abundantly within a few inches of Epidendrum vitellinum, which was placed in a nook of rockwork during the frost of the winter before last. The plant was in no way injured, and grew finely the following summer.

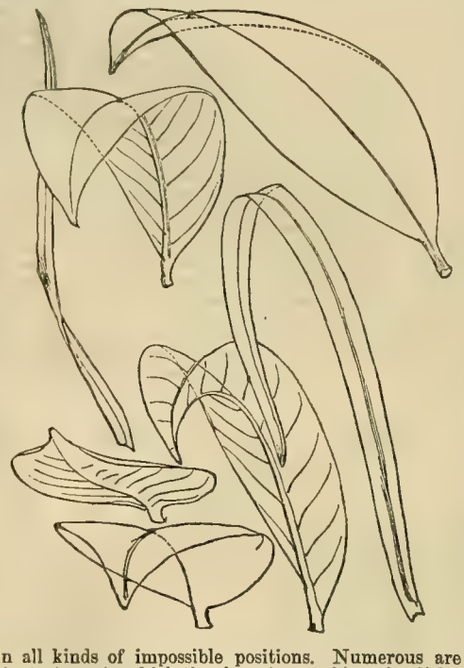
There is every reason to believe that many, and perhaps most, of the Orchids from Brazil, Mexico, Peru, New Grenada, Nepaul, Khasya, China, and Australia, will bear a temperature close upon the freezing point without injury; not that I recommend this to be tried any more than I should with a Cineraria, but I am satisfied that a greenhouse temperature, which is never allowed to fall much below 40°, is not only abundantly sufficient for them but likely to induce a far more vigorous growth and abundant bloom, than the usual warmth of Orchid-houses in winter. I have consequently placed a large portion of my collection in houses where the winter temperature falls to from 35° to 45°, associating them, in fact, with greenhouse plants. That they will bear this, and in many instances even more, is certain. Cattleya Mossiæ and Lælia purpurata continued growing out-of-doors in a deep shady recess for six weeks after the frost had cut off many things in adjacent grounds, and they were only taken in after the thermometer had registered 29½°. This temperature severely injured one of the young growths of Cattleya Mossiæ, but did not hurt three others which had been formed almost entirely out-of-doors. Seven degrees of frost the winter before last killed Odontoglossum grande; while 3½° of frost but very slightly spotted its leaves. It destroyed the leaves only of Lycaste Skinneri, and did not hurt in the slightest degree the glorious Lælia superbiens, all of which were side by side out-of-doors; and I consider if Cattleya Mossiæ will bear this, all Cattleyas will, except Cattleya superba, as with this exception they come from cooler districts than Cattleya Mossiæ. It must however be borne in mind that an Orchid wintered in a warm house (60° to 70°) will scarcely stir, if placed out-of-doors or in a greenhouse the following summer, even if the temperature be 80° in the shade during the day; they will have a second rest; the coolness of the night temperature and free circulation of air more than neutralise the high day temperature. Plants so treated will rest for months with the thermometer at 60° to 80°, and begin to grow in autumn when their sleep is over, even with the thermometer at 40° to 50°. This, I think, clearly proves that to get a free and vigorous summer growth in a greenhouse, or out-of-doors, the plants must be wintered at a proportionately lower temperature—40° to 50°. It is not easy to accommodate recently imported ones to this wholesome discipline, because the great heat of the voyage, &c., often stimulates an untimely growth, which cannot be checked severely without endangering the plant. It must, however, be aimed at as far as possible; and not till this is done shall we see on many of our finest species the short stiff leathery leaves, and rich purple-tinted stems, &c., which we find in the imported specimens, healthily developed in their fine mountain climate. We have yet to learn that mere size is not the standard of excellence in an Orchid's stem or bulb, any more than in cattle.

There are many Orchids which will bear greenhouse treatment when the growths have been well matured during the summer in a cool and airy situation, which would rot directly if placed in a greenhouse when they have been grown in a moist and close house, with a temperature of 70° to 80°. We may be able to see no difference before the two are tried, but we shall soon find that they have very different constitutions. As a rule, while these plants are growing freely, they should have abundant supplies of water. Odontoglossums should never have the soil dry, but they like air in constant motion, and a bright sunny position in winter. In summer they should be carefully shaded from direct sunshine, and a very humid atmosphere should be maintained, combined with free ventilation day and night. At that season the night temperature should be 15° to 20° lower than the day temperature, so as to cover the plants with dew. In winter, and especially when the temperature is very low, little or no water should be given, and the atmosphere should be kept as dry as possible. The pseudobulbs are the natural reservoirs for moisture, so that, if plump and well-matured, the plants will require no water for weeks, or even months; while at rest during the winter, air will be dangerous with the thermometer outside at 40°, but will be advantageous, when the sun shines and there is little wind, for an hour or so at mid-day, the thermometer being at 45° or more outside in the shade.

Where Orchids are grown on blocks of wood, the roots should be covered lightly with Sphagnum or any fresh green Moss free from insects, behind which a little fibrous peat should be sprinkled, the whole being firmly secured with zinc or copper wire. When grown in pots, the pots should be filled to two-thirds of their depth with broken crocks, above which a mixture of chopped Sphagnum and fibrous peat should be placed, with a little white sand. This compost should be firmly pressed, and raised in the form of a cone above the rim of the pot, placing the plant on the top, the roots only being buried in the Moss. *Isaac Archer, Holt, Worcester.*

BOTANICAL DRAWING.—No. III.

Leaves in Perspective.—Leaves have been subjected to more bad treatment by the draughtsman than perhaps any other portion of the vegetable kingdom; they have been represented, or rather misrepresented,



in all kinds of impossible positions. Numerous are the tortures to which they have been subjected: dislocated or broken ribs, curious twists, painful to behold—even their wretched veins have not escaped; and all these errors in perspective arise from inattention to



the simple fact, that in a curved leaf, showing the under side, the midrib should be continuous, and the veins should spring from the midrib. The simple way to avoid perpetrating such vagaries, is to treat a leaf as if it were skeletonised, and I would recommend skeletonised leaves as admirable subjects to illustrate their own perspective. A little study of them in this state would be beneficial to those who are wont to take unwarrantable liberties with them when rejoicing in their summer garment of green, which veils their curious anatomy.

In representing leaves in perspective, then, the first faint outline will be found of the greatest service, and in making it, the leaves should be treated as if they were skeletonised, *i.e.*, continue the outline through the curved portion of the leaf. Here I may impress upon the reader the importance of noting the angle formed by the veins with the midrib, their respective distances apart, their faintness or prominence. It is also useful in drawing for scientific purposes, to represent a leaf cut across, to show the thickness; but that is chiefly desirable when it is leathery or succulent. The cuts in the preceding column will illustrate these remarks.

Little more need be said about sketching leaves, save that the leaves themselves are the best teachers, for in them there are no errors in perspective. *W. H. Fitch.*

PINE-APPLE CULTURE:

CUTTING DOWN.

As the remarks of Mr. Barnes, of Bicton, are calculated to create wrong impressions, I think it well to point out the fact that he himself is labouring under false impressions when he attempts to show that I have been in the habit of growing Pine plants till they became "old, long-shanked" objects, worthy only of the days of yore; and then, and not till then, cutting them down in order to make them fruit. It would be presumption in me, or perhaps in any other grower, to presume to teach Mr. Barnes how to manage Pines, but I can state that the practice I have related for the guidance of others is not exactly the "old wind-bag of cutting over" "old long-stemmed Pine plants," as he supposes. What I have sometimes done in this way has been in the case of Pines that had been potted rootless suckers, say, for illustration, in September, 1867, and started into fruit in January, 1869, and in some cases to even younger plants. In the case of these, I have sometimes found that a few plants missed starting into fruit along with the rest, and instead of waiting and allowing these to grow on, I have cut them over at the surface of the soil and repotted them; and as often as I have done so, have found them start into fruit almost immediately, and swell very fine "pips," in time to form a rear-guard to the general stock.

I can heartily sympathise with Mr. Barnes' description of the difficulty of growing Pines in old-fashioned, drippy pits, for those in which I grew the Pines at Archerfield for 10½ years, up to last November, were erected long before Mr. Barnes was born, and were flat in the roof, drippy, several of them deficient in heating power, and behind a wall which effectually screened them from the sun for three months of the year. In the spring of 1867 one of them was reconstructed with every modern appliance, and the result was that suckers potted in August, 1867, were yielding ripe fruit last September. So that Mr. Barnes' rather invidious supposition that "old, long-shanked plants" were the order of things in my case, may be withdrawn; and I am certain the same may be said of those of Mr. Simpson, of Wortley Hall, who has recently referred to the matter in the pages of the *Gardeners' Chronicle.* I think every one who attempts to guide others, is in duty bound to defend himself from misrepresentation, and I am sure that when Mr. Barnes classed me with old-world growers he neither intended this, nor could make it good. The cutting-down and disrooting of old long-stemmed plants is of old enough date, as every Pine grower knows, but it may be said that the cutting-down of young plants should not be—that it should be reckoned as work fit only to fall to the lot of incompetents. But those who have to grow and prepare plants for fruiting in dull pits, further removed from Land's End than Mr. Barnes' lot is pitched, will find that now and then plants that have stood in a dull corner of the pit have a will of their own when fruiting time comes round, especially if that time be early; and the prompt remedy of cutting-down these few, conquers them, and brings them into fruit before they are either "old or long-shanked," and hardened in the bad habits of the time of Mr Barnes' boyhood.

I am much obliged to Mr. Barnes for this opportunity of representing the practice I have advocated in its proper light, especially as few can lay better claim to assume the place of a Gamaliel in Pine growing than he has a right to do. *David Thomson, Drumlanrig Gardens.*

Home Correspondence.

Apple Stocks. — After the platitudes that have appeared under this title, the two words seem enough to give your readers a fit of brain sickness, a sort of mental nausea often brought on by reading a trashy novel. The subject in dispute has been, whether or no we in England possessed dwarfing Apple stocks equal to those used in France, and so overpraised by Mr. Robinson. The Scientific Committee on the 19th inst. decided that the Apple trees on English Paradise stocks placed before them were robust, healthy, and fertile. To those who looked over the trees nothing was more apparent than the hardy robust habit of the one-year-old grafts on the Nonsuch English Paradise. They were studded with fine plump blossom-buds ready to burst with exuberance of health, and then, in contrast to these trees, Oak-like in their appearance, were little fellows on the same stock, not more than 15 inches high, crowded with blossom-buds. These had been removed once, and hence their preternatural fertility. I confess to a feeling of satisfaction on thus seeing a portion of the labour of a long life appreciated. In your number for January 2, under "Apple Stocks," I have given my knowledge of the stocks up to the present day. From my close observation and experience I am aware that I have a greater knowledge of fruit-tree stocks than any man in Europe (*O vanitas*—Oh!), and can therefore afford to smile at the peckings of "A," "B," and "C," reminding one of a tom-tit (titmouse) trying to make a small hole in a large Beurré Diel pear. The Scientific Committee have, however, settled the question. [Not quite. EDS.] The subject "was alive, and is dead. So there's no more to be said. I may, however, allude to some paragraphs

in p. 51, in which my name is mentioned, and my opinions questioned. No. 1, paragraph 2:—"Mr. Rivers" is quite right, and "W. R." is quite wrong; the dwarf Armenian Apple has been grown here side by side with the French Paradise, and found to be the same. My recollection of it is, that it was not quite so dwarf in its habit. As to frost, it was hardy enough, but as to our cool wet seasons it was tender and liable to canker. It was introduced many years ago by the Horticultural Society to Chiswick, and perhaps is there now. "W. R." evidently has no correct knowledge of the true French Paradise stock. The idea of giving a botanical description of an Apple stock is most erudite—most imposing. Botanical descriptions of my seedling Paradise stocks would half fill your paper, but *cui bono?* No. 2, paragraph 4 ("Mr. Rivers writes"):—Oh, what vain repetition is here about M. Decaisne saying that the French Paradise stock cannot be killed by frost; here it has failed because it is too tender to bear our wet cold weather, and this I have always stated: no frost has even injured it except in 1860-1. No. 3, paragraph 5:—Again "Mr. Rivers." "W. R." should have quoted Miller, one of the soundest English gardeners that ever lived; the Paradise he describes is doubtless the French Paradise of the present day, and still curious and interesting for pot culture and bush culture in very small gardens. Miller evidently never thought that our Apple gardens would be made gridirons of by straining wires over the surface. This is perhaps the most preposterous and ridiculous idea ever broached by any sane gardener. Only let us imagine Mr. F. Dancer's nice fruit garden at Chiswick made into a gridiron for Apple trees (!) for edgings for borders. Apple trees as double cordons on the English Paradise stock are nice eligible trees; on the true French dwarf Paradise they are useless, and only calculated to deceive those who buy them. No. 3, paragraph 7:—The Dutch Paradise, now used in Holland, is different to either our English, which may or may not be the Dutch Paradise of Miller. I am glad to think that "W. R." is about to increase his experience by planting stocks in juxtaposition. I shall be glad to give him my stocks, for I well know that his experience in stocks is, to say the least, much more recent than mine. "W. R.'s" description of the Doucin stock reminds me forcibly of the charlatanish descriptions which some of the Rose growers in France give to their seedling Roses: "Roots fibrous, thorns brown occasionally, one-hooked, branchlets sometimes small, sometimes large; bark brown—tomentose; leaves sometimes green, sometimes not; calyx, petals, &c., all variable." The fact is, these descriptions—quasi-botanical—of garden trees and flowers, are really ridiculous, and a travesty of botany. In my collection of 420 varieties of Apples, there are no two exactly alike. A few English words would convey the small differences in character, but our neighbours must make a great fuss about very small things; they go out for *la chasse*, and return with a thrush and robin in their game bags. "W. R.'s" botanical description of the Doucin stock is the robin of the French sportsman. After all this idle talk, it is most gratifying to me that the Scientific Committee of the Royal Horticultural Society have seen my English Paradise stocks, and that they now know that Apple stocks, superior in their dwarfing nature to any others known in Europe, owe their origin to *Thomas Rivers*. [We take the opportunity of correcting an error into which we fell through inadvertence, at p. 78, in stating that the French Paradise of Mr. Meston was different from that of Messrs. Rivers. That statement should apply to Mr. Scott's French Paradise only. We shall have to speak more fully on this matter on another occasion; meanwhile we must deprecate the use of offensive personalities in this controversy. EDS.]

Double Grafting (see p. 81).—Surely "W. R." and his sneering French friend could not have exercised the commonest reasoning powers when a row of old regrafted wall Pear trees was pointed out as a token that double-grafting was an old custom in France. The regrafting of old trees not bearing good fruit was practised some 2000 years ago, but double grafting of Pears, as a system, was originated here, for no one had thought of double grafting Gansel's Bergamot and the Jargonelle on Beurré d'Amanlis, or Beurré Rance and Marie Louise on other kinds of Pears adapted to make them fertile and improve their fruit. Even my old pupil, F. Jamin, would open his eyes if he saw, as he may do here, a quarter of some 4000 or 5000 fine young trees of Beurré d'Amanlis all devoted to double grafting. I repeat, that double grafting as a system originated here, and no French nurseryman has an idea of the perfection arrived at, after many years of practice; for not only is the Beurré d'Amanlis employed as an intermediate stock, but also two or three other kinds, all tending to give increased fertility and improve the fruit. I need not remind your readers how great is the difference between the regrafting of old Pear trees and double grafting as a system—a system full of science, and requiring much observation and forethought. *Thos. Rivers.* [Surely there is some mistake here. Our correspondent "W. R." cannot have fallen into the error of confounding the two things above alluded to. EDS.]

Botanical Drawing.—The excellent remarks of your contributor Mr. Fitch, on the subject of Botanical Drawing, make me wish to suggest a material which I have found very useful and effective for outline drawing for many years, but which I believe is rarely used by amateurs for their original sketches. I allude to the common lithographic chalks; these, held in an ordinary port-crayon, and cut to a fine point, give a line of great delicacy and softness, varied, at the pleasure of the artist, to the greatest depth of tint and boldness of stroke. If kept for a little while, and specially if the harder numbers be used, the chalks yield little more than the pencil in working, and a fine point may be ensured by cutting them upwards instead of downwards. The drawings made with these chalks have the advantage of not requiring setting, as in a few days the lines are as permanent as in an ordinary lithograph, and also (if on thin paper) can be used for printing from by the anastatic process, so that the artist may have the pleasure of possessing for a very small sum as many copies of his unaltered drawing as he may wish to give for the benefit of science or the enjoyment of friends. On very smooth paper this material gives a wonderful variety of depth of tint and strength of effect. I send some outline drawings made by me some years ago, as specimens. The material requires some steadiness of hand, and correctness of eye, as the lines are not easily removed, but when not intended for printing from, I have found a little soap delicately applied, and then washed off, remove a false line with great success, and if something more than a mere outline drawing be wished for, the lithographic chalk may be used with a camel's-hair pencil and water, so as to give excellent effects of shade, and inequalities of surface, without unnecessary lines, which might interfere with those showing the structure. *E. O.* [We submitted the above communication, together with the artistic and accurate drawings which accompanied it, to Mr. Fitch, who sends the following reply. EDS.]—"Lithographic chalk is doubtless a pleasant material in the hand of one who has skill and confidence enough to use it on paper; but there are several objections to its being employed as a substitute for the lead pencil—its brittleness, its defiance of india-rubber, colour cannot be worked over it, as it is a greasy composition; and, lastly, it is liable to be smeared by the slightest rub. It may produce good effects in sketches of trees or sprays, but it is not quite suitable for flower drawing. Impressions may be taken off a drawing on paper made with lithographic chalk, but it is much better, when that is desired, that the chalk should be used for its legitimate purpose, for stone is a more pleasant surface to work on than paper. 'Steadiness of hand and correctness of eye' are two qualities generally wanting in amateurs; if they venture to sketch with indelible materials their confidence is apt to be shaken, and their touches are likely to be timid and incorrect. *W. H. F.*"

Chinese Primroses.—We forward specimen blooms of our strain of Primulas, with foliage of each, and which you will see consist of at least 12 varieties. These are all fixed, and come perfectly true from seed. We also include some of the double flowers obtained from seed this season. *Windebank & Kingsbury, Bevois Valley, Southampton.* [This is by far the most varied and interesting set which has come under our observation. The doubles are mostly shades of French white, large and full, and some of them nicely flaked with rose. They have the typical foliage. Among the single forms with typical leaves are some very fine striped forms, good whites, a rich rosy-purple, and one almost wholly pink. The Fern-leaved forms vary from rosy-purple to various tints of the carminata hue, and to blush white and purplish lilac. All have a very prominent greenish-yellow star-like eye, this eye being, in some instances, nearly three-quarters of an inch across. One of these double-flowered Chinese Primroses set against a moderate-sized leaf, makes one of the prettiest button-hole bouquets imaginable; and so, indeed, would the single ones, if they were less liable to fall from the calyx. EDS.]

Aucuba japonica.—Having some very handsome plants of the above, covered with large, bright red berries, growing in the open air, I have thought that my plan of obtaining the fruit might not be uninteresting to your readers. In the spring I cover the male plant, (which is also in the open air) with a large hand-glass, to prevent the wind and rain from destroying the pollen, and as this gets ripe I remove it carefully into a large pill-box, and keep it in a cool, dry place, until the female plant is ready for fertilising, which is done with the aid of a small pencil-brush. *John Clements, Gr. to Sir Lawrence Peel, Bonchurch, Isle of Wight.*

Mossy Lawns.—Last year I noticed on my lawn patches of Moss here and there, but being of a very minor character I made no particular note of it until the winter, and to my sorrow I find it getting completely covered, in fact, since the continued wet weather, the lawn has undergone a marked change. I want to know how to remedy it. I will first give you my idea of the cause; probably this may give you some notion of the ground, &c., so you may be able to put me in the right track should I be at fault. The lawn seeds were sown some six years ago on light sandy loam. I fear that the quality of the soil is one great evil, and that this, together with the extremely hot, dry summer of last year coming upon such light ground, has had the effect of producing in a marked degree a cropping up of Moss. The Grass in the autumn was completely burnt up and brown; no doubt this must have severely injured the roots and fibres of a previously weak Grass crop, and given the Moss the "vantage ground." I think the best remedy would be to trench up the lawn this winter, cart on some better surface soil, and sow it down afresh; but, I ask, who has the heart to do it without trying a few remedies not so sweeping? I have heard something of wood ashes and various other mixtures that would give tone and vital energy to the exhausted Grass, but before touching the lawn I should be glad to have professional advice, therefore I appeal to your correspondents for information. *A. J. W.*

Cloches.—There can be no doubt that the advantage of getting them as cheaply as the French do is an immense one to the market grower, the gardener, and the propagator; for it is not merely the Parisian salad grower (who not uncommonly employs several thousands) who uses them, but they are highly appreciated by others, from the small garden where a dozen may suffice, to the large one where 1000 may be used; and they are found as useful in propagating as in the open garden, as may be observed in the houses of the best propagators. Why we should have to pay 3*s.* or 4*s.*, as your correspondent "G." points out, for an article not a whit more useful than that bought in Paris for 8*d.* when bought in quantity, is rather difficult to account for. I am convinced that, notwithstanding the difference in the price of glass in the two countries, some of our manufacturers of bottle-glass will find it worth their while to make them for us at 1*s.* each when bought by the 100; but one of my objects in writing is to say that even now there is no occasion to give such monstrous prices for bell-glasses. Several friends of mine have ordered *cloches* from the firm named in my book, and been well satisfied with them, notwithstanding the difficulties of transit. The French are obliged to take considerable care in sending the *cloches* from the glass warehouse to the gardens in the vicinity of Paris, but as the trade in them is very considerable, experience enables them to succeed with few or no breakages. To send them from Paris to London is another matter. They are packed in barrels, each containing 20, so that five large barrels are required to send 100. In consequence of the fragile nature of the goods there usually is a breakage of nearly 20 per cent. Notwithstanding these formidable hindrances, an acquaintance living to the south of London has had them *viâ* Newhaven and Dieppe, and the London, Brighton, and South Coast Railway, at a total cost of about 1*s.* 3*d.* each, and likes them so well that he has had a second hundred. In addition to its far greater cheapness the *cloche* is, from its shape, more suitable for gardening purposes than the very tall straight-sided large glasses sold with us, and under which I have lately seen an unhappy gentleman attempting the culture of Lettuces. Spreading wide at the base, and becoming narrowed towards the top they cover much more ground in proportion to size and weight of glass, and sit more firmly on the ground. The Paris market gardener can get 1200 *cloches* for about 40*l.*, each being of good clear glass, strong, 16 inches in diameter, and 16 inches high. Paris on the whole is the dearest market in the world, and it is most likely that if a large trade were carried on in the matter our own makers of coarse glass would be able to do them almost or nearly as cheaply. The price above given is of course that for quantities. They are usually ordered by the 500 or 1000. Now it would be impossible to give your readers an idea of what a Parisian market gardener with space to spread his 1200 *cloches* upon, could do with them, without seeming guilty of exaggeration. I am certain that if a few intelligent practical gardeners from each British county could see the state of the crops of salads under these *cloches* in spring, the culture would be as popular in England in the course of a dozen years as it is now in France. The fact is, the culture of Lettuces in the Paris market gardens approaches as near to scientific culture as any other that I know of. They have varieties of the Lettuce tribe for all seasons and for all tastes; at all times of the year the poorest enjoy good salads, and every variety is cultivated to perfection. To give an idea of the nicety to which the culture is carried, I have merely to point to one of the Lettuces from which Paris receives its late autumn, winter, and early spring supply. The Petite Noire has long been known not to succeed if any air be given, therefore the *cloche*, pressed firmly into the earth, suits this better than any more ambitious structure. If we are to equal the French in this respect, it must not be by employing our orchard-houses to grow our salads in. Of course those in possession of such, and with well-lighted borders to spare in them, may plant them to fill up the space, but orchard-houses such as we generally see are well stored with more important subjects. It would be far wiser to advise the gardener wanting a good supply of winter and spring salads to employ clean, light, shallow pits and frames, in which the Lettuces are benefited by plenty of light, not to speak of facilities for forwarding them when desirable. The true way to judge of the matter, is to suppose 1200 at *cloches* at 40*l.* matched against 40*l.* worth of orchard-houses, considering both as to their capacities for salad-growing, of course. *W. Robinson.*

Forest Appointments in India.—I beg to call attention to the regulations sent out by the India Board for young men who wish to compete for the situations of managers of forests in India. Proficiency is required in all those subjects which would characterise a good general education. So far this is right enough, and no one can find any fault with it. Further on it is added that the candidates are required "to undergo a regular course of training of two years and a half in the management of forests and the science of forestry, in surveying, roadmaking, and the natural sciences. For this purpose, those candidates who possess a sufficient knowledge of German will be directed to proceed to Germany, and for those who are acquainted with the French language, the course of training will be arranged in France." This sending to Germany or France to learn forestry, surveying, or road-making, the candidates who are afterwards to manage forests in India under British rule and government, seems to me a very questionable step, and one open to much comment. 1st. Although a candidate may possess a good general colloquial knowledge of the language of the foreign country into which he is sent, he will find great difficulty and lose much valuable time in attempting to master, by the help of the professors, the theoretical part of the technicalities, of the habits and growth and training of trees which he is required to study, and it will be much more difficult for him to become well acquainted with the practical part than if he pursues the same studies in England, where his native language is spoken. 2d. As I am a little acquainted with several of the large forests on the Continent, I hope I may be allowed to express my opinion, that whatever the professors may dictate from their chairs, I should not be afraid to com-

pare the English woodlands with any I have seen abroad, although I am aware that those on the Continent are much more extensive. Forestry itself in England is really quite a subordinate branch of the education of a land agent, and requires no very great amount of skill to acquire all that is known on the subject. As for roadmaking and surveying I should scarcely think any one would believe it necessary to go out of the land of Macadam to study these matters. Reverting to forest matters for a moment, I may add that it was not considered necessary a few years back, when there were serious discussions as to the management of the forests in England, to call in a German professor or "Oberförster," nor yet any one from the "Direction Générale des Forêts" in France to settle the question. And has our superiority in the profession decreased since then? And are we now to be considered as ranking in the rear in our knowledge of the science of forestry, surveying, and roadmaking? This, indeed, appears to be the opinion of those who drew up these regulations. I could understand a pupil being sent for a few months on a tour of inspection among these German and French forests, but as to learning his profession practically there I do not think anyone who has estates in England will follow the example of the Indian Board. The pupil for the Indian forests is further "required to pass some time with an approved forester in Scotland." To this part of the question I can speak with some confidence, and I must add that it is more ridiculous still. The standard of a forester's education in Scotland is a very low one indeed, which you will understand more fully when I tell you that there are probably not two in the whole country who receive a salary of 100*l.* a-year. The forester in Scotland is entirely subordinate to the agent or factor, who decides every important matter, leaving only the minor details to the forester. It would be perfectly absurd to send one of these highly educated pupils to be placed under such men I would also call attention to the fact that however well or long a young man (intending to enter for one of the appointments) may have studied and become acquainted with forest management, the science of forestry, surveying, and roadmaking, and many other such works as the pupil of a land agent in England generally acquires, yet he would not be accepted unless he went to study the same subjects in France or Germany; and thus all the knowledge he had previously obtained would be useless for his advancement. I sincerely trust that the surveyors and managers of woodlands in England will not quietly allow this slight to be passed upon them, and all their pupils practically be excluded from these appointments. I hope this matter will be taken up, and that some member of Parliament will raise the question, and endeavour to obtain an explanation of this proposed arrangement, and correct what I believe to be so great a mistake. It in fact appears to me an insult to send Englishmen abroad to learn what is, in my humble opinion, as well understood and practised in their own country as anywhere else, although it is quite true we have not professional chairs for the purpose. Such a course must also be attended with greater expense and other disadvantages to those who enter upon it. *Woodlands.*

[We gladly insert this communication from one of our foremost foresters. For our own part we see no good reason why a properly organised forest school should not be established here, but until we have such an establishment the India Board, are hardly to blame for sending their pupils abroad. The whole *status* of forestry would be improved if such a school were established amongst us. We hope our arboricultural friends will favour us with their views on the matter. EDS.]

Bouquet.—Hearing a good linguist pronounce this word the other day as if it had been spelt *bo kay*, I was induced to ask him his reason for doing so, when he gave me the following information, which may interest some of your readers. The word, as we are accustomed to see it spelt, is a French perversion of two Tartar-Arabic words, *bo*, beautiful, and *ka*, perfume; hence, the original meaning of the word bouquet is anything which possesses a beautiful perfume. In like manner, the luscious Tokay wine (of which the Austrian Emperor is reputed to be as fond as the King of Prussia was of Champagne), is indebted for its name to the two Arabic words *to*, royal or imperial, and *ka*, perfume. When, therefore, connoisseurs speak of their wines having a "beautiful bouquet," they are correctly using the word in its original sense, but they are incorrectly and unwittingly using the adjective twice, first in English, and then in Arabic. *W. T.*

Camellia Buds Dropping.—Mr. Barnes, of Bicton (p. 52), seems disposed to attribute this chief defect, that so often affects pot Camellias, to lack of water. Is that the whole truth? I think not. Apart from my own observations, I deduce from his remarks that naturally the Camellia thrives much better when grown in borders or beds either under glass or in the open air than it does in pots. The question then arises, is pot culture the proper method of growing this beautiful flower, or is it not? A sickly plant, with perfect freedom at the roots, is an exception, and healthy plants in pots are far from being the rule, even in the hands of practical men. I believe that the Camellia is excessively impatient of pot culture, and this will account for falling buds and sickly appearance. *A. Dean.*

[We can but again allude to the Messrs. Loddige's Camellias, which, though pot-grown, were healthy and floriferous to a high degree. EDS.]

Bottom-heat for Vine-borders.—I observe that while Mr. Sage admits the correctness of my statement as to the time it took to get the Vines at Woburn to break, he demurs as to the cause I assign for it, and states that "simultaneously with the starting of the Vines the border was covered with a mixture of dung and leaves to the depth of 2 or 3 feet;" and he further adds that "the test sticks proved a degree of warmth that could not but have satisfied the greatest advocate of heat for the roots of Vines." This, on a superficial view of it, sounds well enough, but a closer examination by any one experienced in such a case shows that it goes for nothing. In the first place, be it observed, the Vines at Woburn were old, and I know, from personal observation, that no special means were used to keep the roots near the surface of the borders; and reasoning from analogy, I am certain there were none of their feeding roots within a foot of the surface, if there were any of them at all, in the so-called borders to which the hot dung was applied. These test sticks to which Mr. Sage refers were in all probability run through the hot manure and to the depth of 1 foot in the soil of the border, and when pulled out would indicate considerable heat, but chiefly absorbed by that portion of them in the hot manure, and by conduction to the portion in the border, the border itself remaining as cold as ever, below a few inches on its surface, where there were no roots. The cause Mr. Sage assigns for their stubbornness is to me entirely new; what on earth can the pruning of a Vine have to do with the rise of the sap from the root? I can perfectly understand, and have often seen it take place, that Vines pruned shortly before they are started suffer serious injury from bleeding unless means are taken to prevent it; and I am forced to remark that if this was the most important lesson Mr. Sage learned in Grape growing at Woburn he has something to unlearn. In applying heat from pipes to the roots of Vines there is no reason, as Mr. Sage seems to suppose, why the same boiler should not heat the atmosphere of the vinery as well as the roots of the Vines. In the case of the vineries here, the boiler that heats the atmosphere is placed too high to heat the pipes under the border, and it was found more convenient to fix a small boiler in a cellar for the special purpose. Every one knows how easy it is to moderate or entirely to cut off heat from pipes by means of valves. Mr. Sage cannot conceive why I required a temperature of 60° when I started the vinery. Now at starting it was only 48°, but it rose in six days after the fire was applied to the bottom-heat pipes, to 60°, which the experience of years has taught me to be a safe temperature. Mr. Miller, of Combe Abbey, called here about the beginning of this month; and I showed him the underground thermometer, which marked 59°. I had previously read as I thought 58°. On this, the 25th of January, I have read it carefully, and it is still 59°. The Vines are in full vigour, with growths on them 12 inches long, and showing their bunches at every joint. Previous, and rather extensive experience, has taught me that to get Vines this length in January, with an outside border, and without the means of applying heat from beneath, it is necessary to begin forcing in the end of October; and are we to ignore a system of heating which saves so much time and labour because many may have made a bad use of it? The same argument would put an end to Grape cultivation altogether. Some men fail to grow good Grapes, therefore Grape cultivation should be discontinued, is the logic applied to this question by Mr. Sage and those who share his views. *Wm. Thomson, Dalkeith Park.*

Societies.

MANCHESTER BOTANICAL AND HORTICULTURAL: *Jan.* 25.—The 41st annual general meeting was held at the Town Hall Mr. S. P. Callender in the chair. There was a very full attendance. From the report of the Council we learn that the most noticeable feature of the year was the National Horticultural Exhibition, which was highly successful, being the finest show, in some respects, ever held. In addition to the excess of exhibition receipts over expenditure, the additional subscriptions obtained during the year 1867, and which amounted to about 400*l.*, were almost entirely maintained. The autumn exhibition was remarkable for the fine collection of fruits exhibited, but owing to a variety of causes this exhibition, like its predecessors, resulted in a pecuniary loss, and the Council, after mature consideration, recommended the discontinuance of autumn exhibitions; but, encouraged by the success of the last two years, they have determined to hold another National Horticultural Exhibition in Whit-week, 1869, which will, as heretofore, open on the Friday before Whit-Sunday, in order that such subscribers as leave town before the holidays may visit it. Mr. B. S. Williams, of London, has offered the handsome sum of 50*l.* as a special prize to be competed for at the ensuing exhibition.

The financial statement for the past year showed receipts from subscriptions, 2058*l.* After adding other items, such as the sale of plants, and the result of the autumn exhibition, the total receipts were 2404*l.* 8*s.* The total ordinary expenditure was 1654*l.* 2*s.*; extraordinary expenditure, repairing entrance, 48*l.* 8*s.* The receipts resulting from the National Horticultural Exhibition were 1820*l.* 15*s.* 11*d.*, and the expenditure 1423*l.* 12*s.* The total receipts of the year were 4225*l.* 3*s.* 11*d.*; expenditure, 3126*l.* 2*s.* 10*d.*; leaving a balance on the year's account of 1099*l.* 1*s.* 1*d.*

The meeting was afterwards made special, for the purpose of considering a proposal to amend the rules so as to give the members full admission to the gardens on Sundays, from 2 P.M. till sunset. The question was decided in the negative, two-thirds of the members not being in favour of the alteration the number of votes being 74 for opening, and 63 against.

The following are some statistics of the National Show in Whitsun-week:—

Sale of tickets for 1st and 2d days	£112	17	6
Receipts at the gates—			
1st day, admission 10*s.* 6*d.*	52	0	0
2d " " 2*s.* 6*d.*	278	18	6
3d " " 1*s.* 0*d.*	231	13	6
4th " " 1*s.* 0*d.*	175	12	6
5th " " 1*s.* 0*d.*	334	19	0
6th " " 1*s.* 0*d.*	258	8	0
7th " " 1*s.* 0*d.*	325	10	0
Miscellaneous receipts	50	17	0
	£1820	16	0

ENTOMOLOGICAL: *Jan.* 4.—Mr. H. W. Bates, President, in the chair. Mr. F. Bond exhibited some specimens of the common small Tortoiseshell Butterfly, of very small size and dark colour, which had been reared during the past summer, having remained less than a week in the chrysalis state—the extreme heat of the weather, and the consequent want of sufficient moisture in the food-plant, having probably produced this effect on the insects. Mr. E. G. Meek exhibited some specimens of Dianthoecia Barrettii, taken in Ireland by Mr. Greeson; and Mr. W. C. Boyd a second specimen of Crambus Myellus, which he had taken at Blair Athol. Mr. F. Smith exhibited an extensive series of the variously-constructed nests of different species of wasps and bees (with drawings of the same), collected in India by Mr. C. Horne, and presented by him to the British Museum. The latter gentleman was present, and gave an interesting account of the various structures, amongst which was the nest of the smallest species of honey-bee inhabiting India, Apis floralis, the male of which had been considered by Mr. Smith as a distinct species, named A. lobata. Mr. Dunning exhibited some photographs of wasps' nests, presented to the Society by J. Hogg, Esq., F.R.S., and supposed to be built by Vespa arborea and V. britannica. Mr. Horne also exhibited the earthern cocoon of a large Indian Buprestis (Sternocera chrysis). Mr. F. Smith read a paper on the affinities of the curious genus Sibyllina, Westw., which he referred to the Ichneumonidæ. Mr. A. E. Eaton sent a note on the structure of the ovipositor of female insects, with reference to the investigations of recent physiologists. Mr. E. Saunders read descriptions of some new genera and species of Buprestidæ. Professor Westwood exhibited a species of Cimicidæ (Leptocorisa bengalensis), which is extremely injurious to the rice plantations in Ceylon, communicated by Mr. Thwaites; also a species of Ichneumon, the larva of which feeds externally on the outer surface of the body of a small species of spider in Ceylon. He also read descriptions of several new exotic species of beetles, from the Hopeian Museum at Oxford.

Florists' Flowers.

LAST season was a very trying one for NEW FUCHSIAS, in consequence of the extreme and continued heat and drought, so that in spite of syringing, &c., the red spider attacked the plants with unusual vigour and success; and many of them, particularly of the dark kinds, lost their foliage long before the proper season. The more delicate varieties were consequently thrown into a diseased state, and some of the most choice kinds became very scarce. Had the season been favourable, the year 1868 would have been the most prolific I remember of really good and distinct Fuchsias, as will be seen from the subjoined descriptions. *H. Cannell, Woolwich.*

Model (Banks): This is the finest Fuchsia with a dark or black corolla ever sent out; it is entirely free from cracking in the tube, and for size and shape of its bloom, and its splendid vigorous habit, it is really the best dark single Fuchsia ever sent out.

Striata perfecta (Banks): This is the best striped Fuchsia ever sent out; the tube and sepals are scarlet, the latter well reflexed; the corolla light mauve, with a scarlet stripe, which is very attractive; a short, free, thick grower, and being an abundant bloomer, it makes a fine market variety.

Princess Beatrice (Banks): This is a small, light kind, but exceedingly pretty, the reflex being perfect; tube and sepals waxy white, with a very pleasing delicate but bright pink corolla; a very free grower, of good habit, and as an abundant bloomer, perhaps not equalled by any other Fuchsia.

Try Me, 0 (Banks): The flowers of this variety are not overlarge, but the colour of the tube and sepals is a bright coral red, and every flower is regularly and equally reflexed; the corolla is of a beautiful dark plum colour; it is a most abundant bloomer, and for a fine strong, quick growth, is not equalled by any other. It is also one of the best sorts for exhibition—much better than was expected when first sent out.

Glowworm (Banks): This is also a perfectly-shaped flower, in colour similar to Killiecrankie, but more intense, the corolla being of a peculiar and pleasing magenta satiny colour; where form of flower and rich colours are appreciated, this will be considered a gem.

Beauty of Shobden (Banks): This is of the same class as Count Cavour and Don Giovanni; tube and sepals bright red, corolla of a most attractive light mauve or peach colour. The above two are not of that strong, bushy, vigorous habit that is so desirable, neither is the bloom of that thick, leathery substance which it ought to be, but in its class it ranks quite equal to the dark sorts.

Lord Derby (Banks): This is in the way of Enoch Arden, with the shape of Lord Elcho, which is known as one of the best; the corolla is of a most intense bright blue, and as for substance and purity of colour, there is nothing to equal it; it comes occasionally striped from top to bottom of the corolla with light pink; a very fine variety.

King of the Fuchsias (Banks): This is in the same way as La Favorita, and is much the largest single Fuchsia ever sent out; the shape is perfect, and the flowers of immense substance, both in the sepals and corolla; fine grower, and for decoration one of the very best, being a very striking variety, and true to its name.

Marksman (Bull): Tube and sepals bright carmine; very full, double, finely-expanded, and peculiarly flat corolla, which is of a beautiful rich dark plum colour; fine habit, a most abundant bloomer, and really one of the very best double Fuchsias for any purpose ever sent out.

Symbol (Bull): This variety presents us with another distinct shade of colour in the corolla; the tube and sepals are of a beautiful glossy coral red, well reflexed, while the fine full double corolla is cream-coloured; a nice grower, and a very pretty and distinct kind.

Starlight (Bull): Pure waxy-white tube and sepals, the latter very broad, stout, and moderately reflexed; clear rose-lake corolla; flowers large and fine, and both novel in colour and distinct in character; an exceedingly handsome variety, of fine habit, and a good grower; altogether, one of the very best light Fuchsias ever sent out.

Lustre (Bull): A welcome addition to the white-sepaled section of Fuchsias, on account of the remarkably vivid crimson-vermilion corolla, which makes it very distinct; the sepals are beautifully reflexed; a fine strong grower, a free bloomer, and one of the best Fuchsias of the season; quite first-rate for exhibition purposes.

Favourite (Bull): Tube and sepals bright scarlet, the latter elegantly reflexed; corolla pure white, and bell-shaped; a small, neat grower, of pleasing character, and really the best cup-shaped single Fuchsia of this colour ever sent out for growing as small plants.

Giant (Bull): The blossoms of this variety are of gigantic size; sepals bright red, completely reflexed; corolla double, purple; it is of elongated habit, but a fine one for trellises and climbing purposes.

Garibaldi (E. G. Henderson): Tube and sepals scarlet, the latter beautifully reflexed, and of good substance; corolla barrel-shaped, and in almost every flower beautifully striped with red; of rather dwarf habit, but a good grower and free bloomer, and a very pleasing kind.

Master Longfield (E. G. Henderson): Very similar to Beauty of Clapham, sent out last year; white tube and sepals, moderately reflexed, with a rose-purple corolla; sometimes the petals come much too long, otherwise this would be a first-class variety for any purpose; a good grower, and an abundant bloomer.

White Perfection (E. G. Henderson): This has the finest tube and sepals of any white Fuchsia ever sent out, for they are broad and very long, pure in colour, well reflexed, and of great substance; corolla magenta-coloured, of about the ordinary quality; a good grower, and for crossing one of the very best.

Snowdrop (E. G. Henderson): Scarlet tube and sepals, the latter broad and well reflexed; corolla large, barrel-shaped, and when the petals are properly arranged it is the finest single Fuchsia of this class; a strong grower, with fine foliage. A compound of this and Favourite, half and half, would make a grand Fuchsia.

Monstrosa (B. S. Williams): An extraordinary flower, of the double section; tube and sepals carmine; corolla, light purple, of immense length, barrel-shaped, with a quantity of petals thickly arranged round the outside, or a single corolla in the middle of a double flower; a good grower and a good decorative Fuchsia.

Mrs. Ballantine (B. S. Williams): Tube and sepals bright scarlet, of good substance, broad and well reflexed; corolla large, well expanded, pure white, and very double; habit good, dwarf, freely branching, with bright glossy green leaves; a very pretty Fuchsia.

Blue Boy (Turner): Scarlet tube and sepals, the latter well reflexed; corolla smooth and compact, of a beautiful blue;

the best double variety ever sent out for market or decorative purposes; of very quick dwarf growth, producing very attractive small flowers in abundance.

Lady Sale (Felton & Holliday): White tube and sepals, the latter nicely reflexed, and of good substance; corolla pink-purple, stout; an abundant bloomer, of good habit; I think it will make a good Fuchsia for any purpose.

Jolly (Felton & Holliday): This is a welcome and long-wished-for improvement on a good old variety called Fair Oriana; pure white tube and sepals, the latter well reflexed; bright pink-scarlet corolla; a good grower, and very free.

Striped Unique (G. Smith): A very fine bold flower; tube, and broad perfectly reflexed sepals, scarlet; corolla bright purple, with most conspicuous bright scarlet stripes running three parts of their length; a quick grower, of rather heavy habit, but altogether one of the very finest double Fuchsias ever sent out.

Warrior (G. Smith): This is a fine bold flower; tube and sepals scarlet, tipped with bright green; corolla very large, thick, heavy, of immense size; a good grower, and a very fine decorative Fuchsia.

The Apiary.

FOUL BROOD: ITS CURE.—Various opinions are held by apiarians as to the causes of the origin and propagation of foul brood. Some hold that it arises in the first place from the death of the larvæ by chill, that the dead brood becomes putrid, and the contagion is communicated to any larvæ that may subsequently be bred in the adjoining cells. Some, on the other hand, contend that brood dying from chill seldom or never degenerate into virulent foul brood, but that the bees lose no time in clearing out the cells and preparing them for a fresh deposit of eggs, no evil result accruing therefrom. Others, again, believe that decomposition of pollen is the origin of the malady, and that by its fermentation in the bodies of the young larvæ it causes their death. It has been supposed by some that, however the disease might have originated, it is spread by means of extremely minute animalculæ. The latest theory is that of Dr. Preuss, who asserts that the disease is propagated throughout each affected stock, and from one hive to another, by means of microscopic Fungi. I do not believe that feeding on decomposed pollen, or the presence of it in the hive, has anything to do with the origin or spread of foul brood.

I believe that the death of considerable numbers of larvæ, whether from chill or any other cause, may, and often does, result in the hive becoming infected with foul brood, but that it does not necessarily follow under such conditions. I have seen combs, which contained brood of all ages, sealed and unsealed, left exposed until all the brood had died, and which on being placed inside a healthy colony were thoroughly cleaned out by the bees, and again filled with eggs, the brood all hatching out in the most healthy condition. On the other hand, I have had and known hives in which the brood perished from accidental causes, and in which the disease soon after made its appearance. Foul brood had not previously been known to exist in the apiary.

In the animalculæ theory I have no faith whatever. Dr. Preuss is, I believe, entitled to the credit of having discovered the true cause of the propagation or dissemination of the disease. However it may have originated in an apiary, whether by death of the larvæ from chill or any other accident, I believe it is by the multiplication of microscopic Fungi that it is spread from cell to cell, and conveyed from one colony to another.

With regard to curative means to be employed to eradicate this terrible scourge, I do not place any faith in the partial excision of affected combs. If the disease is spread by a minute Fungus, which can be carried about on the bodies of the bees, or conveyed from one part of the combs to another in the honey, it stands to reason that every portion of the interior of the hive must be more or less contaminated. Therefore I am not content, unless every portion of the contents of a hive, with the exception of the bees themselves, is utterly destroyed. When desirous of saving the bees of a diseased colony, I proceed thus. I first drive out or brush the bees off their combs into an empty hive. I then carefully cut out the combs, choose a room where no bees can gain access, at once burning any that may contain brood of any age. The remainder of the combs are either treated for the extraction of what honey they may contain, or are melted down for wax. The honey is boiled in a jar standing in a crock of water, which is supposed to destroy any contagious or infectious qualities it may possess. Even then I would not use it for feeding my colonies.

To return to the hive from which the bees were expelled. This is well scraped out with a knife, chisel, or piece of glass, the *débris* being carefully thrown away, or the bees will come after the propolis it may contain. I then wash the interior with spirits of wine, which dissolves the propolis adhering to the corners and other interstices, after which perfectly boiling water is poured in, and the hive well scrubbed out. Then a saturated solution of chloride of lime is applied all over. Diluted sulphuric acid is recommended, but I have never tried it. I believe the best remedy of all to be carbolic acid diluted with water; it is a wonderful agent in the destruction of microscopic Fungi and animalculæ. As the hives are generally put by for a time, there would be no objection on the score of the strong odour that is left by it. Some of the fungoid scourges to which corn is subject are more effectually cured by being steeped in a weak solution of carbolic acid than by any other known agent.

With respect to the bars and frames, they may possibly be subjected to the same process as already described, but I have usually made them into firewood, preferring to have entirely new ones. It is very difficult to clean them effectually, owing to their multitudinous surfaces and angles. The expelled bees will soon set to work building combs with the honey they carried away with them from the old hive. After a few days these combs are all taken away, and the bees transferred into a perfectly clean hive, where they are allowed permanently to remain, being supplied for a few days, if the weather be not propitious for honey gathering, with artificial food. The disease may reappear even after this severe treatment, but usually the twice transferred colony remains healthy, provided the bees have no access to other means of contagion. The infected hives had not been brought into use for a year, but may be used directly, provided thoroughly efficient means of cleansing and purifying have been carried out. I trust that none of my fellow bee-keepers will be made personally acquainted with the results of this terrible scourge in their apiaries, but if its presence should be discovered in a single stock, let the most energetic means of cure be adopted without any delay or compunction as to the loss of a stock or two. If this is neglected, the probability is that every hive in the apiary will be lost. *S. Bevan Fox.*

Garden Memoranda.

MANLEY HALL, THE SEAT OF SAM MENDEL, ESQ. (*concluded from p.* 1343, 1868).—Resuming our walk through the fernery, we find near the remarkable Diplazium, already mentioned, fine specimens of several Dareas, and another extraordinary plant of Begonia Marshallii, bearing 12 leaves, each averaging about 18 inches by 15, and the plant more than 5 ft. across. This plant was growing on a rocky projection, and was surrounded on all sides by rare and beautiful species of Adiantum. Here the cool fernery is terminated by a glass division. We, therefore, retrace our steps towards the door to note the plants on the southern side. The first grand object is a Seaforthia elegans standing on a projecting piece of rockery clothed with Lycopodiums, Tradescantias, &c. Near this the beautiful Passiflora elegans is seen creeping over the roof above. By the bridge we noticed the elegant Trichomanes Luschnathianum, introduced by the Messrs. Backhouse & Son, of York; it was creeping up over a sort of perforated conical pot. Near this a splendid Dicksonia antarctica was placed on a large piece of rock, which hangs over the water; and peeping up above the green groundwork of Lycopods, Begonias, &c., are various choice forms of Adiantums and Trichomanes, the background being filled out with fine-leaved Begonias, &c. Far down below these rugged undulations are various Lycopodiums, dipping their graceful fronds into the water, and near them Osmunda cinnamomea, with a large Phlebodium aureum a little beyond. On another overhanging cliff is a fine Todea (Leptopteris) superba, with here and there healthy plants of Cypripedium insigne and venustum, and fine masses of Lomaria gibba.

After repassing the rustic arch more undulating rockery is seen, beautifully covered with many creeping and other plants, and a little beyond another grand Dicksonia antarctica, fine masses of Cibotium Schiedei standing on what appears to be a tottering piece of rockery, and Lastrea Standishii, below which is a beautiful green dell, clothed with many choice Lycopodiums and Trichomanes, and in the midst of this beautiful carpet a fine healthy pan of Hymenophyllum tunbridgense. At this point the walk diverges towards a flight of rustic steps, by which we ascend to an elevated plateau, where a seat is placed, and from whence the varied scenery, with the rich foliage decking the glades and rocks, may be seen. At the back, right and left of the seat, are many Orchids growing luxuriantly, such as Odontoglossum grande, and various Lycastes and Epidendrums; to the right two magnificent plants of Cyathea medullaris are seen, one on each side of a beautiful undulating dell, their noble fronds forming a canopy over an ornamental lake, the sides of which are clothed with Adiantums of various kinds. Here also Lycopodium Willdenovii; various Aspleniums in variety, one of the latter, A. caudatum, reproducing itself on the points of its bright glossy green fronds; a specimen of Alsophila guianensis, with a stem 8 ft. long, partly covered with seedling Ferns; a fine Balantium Culcita, spreading its beautiful fronds in all directions; specimens of Pteris tricolor, Blechnum brasiliense, and Lomaria attenuata; and far up beyond these, a rugged piece of rockery, with its top surmounted by a noble Didymochlæna truncatula, standing on a pretty groundwork of Adiantum assimile and Platyloma rotundifolium. In the centre of the lake, which is overhung and surrounded by the graceful and beautiful Ferns above described, there is a fountain which sends its spray up amongst the overhanging fronds of the noble Cyathea medullaris; these fronds were from 15 to 18 ft. long, with the midribs as thick as a man's arm, and the stems clothed with thousands of rootlets, which appear to enjoy the spray which falls upon them amazingly. Near the edge of the walk, and standing on an inverted flower-pot just above the level of the water, was one of the finest specimens of the beautiful Todea (Leptopteris) superba we have ever seen; the plant was 3 ft. 6 in. across, and had about 20 fine healthy fronds. In the same vicinity, and, to all appearance, very much appreciating their position, were good examples of Todea arborea and T. pellucida. On a large piece of rock overhanging the water a splendid Asplenium Belangeri (Veitchianum) has a very singular appearance, the surface of its fronds being literally covered with young plants. There were also, standing just above the water at this point, plants of the curious and rare Trichomanes obscurum and T. Zollingeri, both very rare; also fine plants of Polybotrya Lowii. Towards the door was a fine plant of Cibotium Schiedei with a double crown, an extraordinary plant, little short of 17 ft. across, and below it various Ferns of smaller dimensions, which help to give effect to this most exquisite arrangement. Before leaving this house we must pause to note the perspective view which extends to nearly the centre of the house, each side of the vista being formed of a series of irregular rocks, richly clothed with Palms, Ferns, and many Orchids, all in the most flourishing condition.

Returning towards the glass division, which separates the cool from the tropical department, in order to witness the general effect from a different point of view, the idea that suggested itself was that it would be impossible for any one to carry out a series of natural arrangements more satisfactory than these. Yet Mr. Mendel contemplates a much grander effect, and more complete success, in the new fernery now being erected near the conservatory. Space will not permit that we should describe minutely all the grand and imposing objects to be seen in the tropical fernery and ornamental foliage house. Suffice it to say, that it is a building of similar dimensions to that we have just passed through, namely, 68 ft. by 27 ft., and 18 ft. from floor to roof. The whole of the space between the walls is tastefully arranged, and decorated with fine specimens of stove Ferns and flowering and foliage plants. In this department cascades and lakes are more freely introduced, to suit the natural habits of many of the plants; fresh scenery and an everchanging variety of foliage is met with at every turn, and not a leaf appears to be out of its proper place, so complete are the arrangements, and yet so natural. Amongst a splendid group opposite the door in the glass division we noticed beautiful plants of Sobralia macrantha—large masses, upwards of 5 ft. high; handsome Begonias, with foliage still finer than that already described; beautiful specimens of Adiantum pentadactylon: Tillandsia splendens, with its bright coloured flowers, shown off to great advantage by the surrounding masses of foliage; many fine Marantas, with their handsomely marked foliage; and dotted in here and there, fine specimens of Dracæna ferrea, D. stricta, and D. Cooperi, all beautifully coloured and intermixed with different varieties of the handsome Peperomias, Pavettas, Philodendrons, Caladiums, and various fine-leaved Alocasias.

Passing a little further into the house are seen fine plants of Phajus grandiflorus, and above these a magnificent group of plants, composed of almost every shade of colour to be found amongst tropical plants—a handsome Cyathea princeps spreading its graceful fronds, and affording a subdued light, in which the ornamental-leaved plants show off to great advantage. Here was the largest plant we have ever seen of Maranta sanguinea, forming masses of handsomely marked foliage, above which its pretty white flowers had a very pleasing effect, which was heightened by beautifully coloured specimens of Croton variegatum. Splendid examples of the following plants were seen in other parts of the house:—Allamanda Schottii, A. grandiflora, Ananassa sativa variegata; several of the strong growing kinds of Anæctochilus; many of the finest Anthuriums, Aralias, Ardisias, Arecas: in fact all the choicest gems amongst stove and ornamental plants and tropical Ferns, to enumerate which would, after all, give no adequate idea of the beauty and extraordinary richness of the collection. It is certainly the grandest and most interesting feature of Manley Hall.

We left this house at the north end, and followed a walk leading northward, in order to glance over a fine winter-bedding arrangement on the lawn on the east front of the Hall. This Mr. Petch has very successfully arranged, the colours being nicely balanced, and the materials very suitable for the purpose. Those who wish to see their gardens look gay and cheerful in the winter, as well as in the summer months, may, by adopting something of this sort serve two purposes at once. There is a quantity of shrubs wanted in most establishments of this kind every year, for the purpose of making fresh plantations, filling up gaps, and other such like purposes. These, if they are of large size, and are brought from a distance, become very expensive, and frequently refuse to grow when planted; whereas if small plants were purchased, they would not in the first place cost so much, either for plants or carriage, and much pleasure and enjoyment would be derived from planting them out in groups after the summer-bedding is cleared away; while in the spring, when the beds are required for the ordinary bedding-out plants, they might be removed to some odd corner in the kitchen garden, where they would become acclimatised, and be ready for removal to more permanent quarters whenever they might be required. The following are very suitable for this purpose, and are used by Mr. Petch with good effect:—Aucuba japonica, several varieties; round-leaved Box, Thujopsis borealis, Ilex tortuosa (the small hedge-hog leaved), small plants of Rhododendron ponticum, also the variegated form of R. ponticum, Cotton Lavender, Rhododendron hirsutum, Waterer's Golden Holly, Erica herbacea, common Thyme, Silver Thyme, Abies nana (dwarf Fir), Euonymus radicans, Thuja Wareana, Golden Queen Holly, Vaccinium Vitis idæa. Some of the beds were planted thus:—Aucuba japonica, with an edging of Vaccinium Vitis idæa; round-leaved Box, with an edging of common Thyme; Thujopsis borealis, with a margin next the grass of Golden Queen Holly, Ilex tortuosa, edged with Golden Queen Holly; White Cotton Lavender edged with Thuja Wareana; Rhododendron hirsutum, edged with Silver Thyme; Waterer's Holly, edged with Erica herbacea. Some of the beds were planted indiscriminately with several of the plants named above intermixed, and had a very pretty effect. The beds were planted in pairs, and when viewed from the terrace, looked exceedingly well. *J. Wills, F.R.H.S.*

Miscellaneous.

To Lactarius quietus, Fr.,—a well-known Mushroom whose odour sometimes resembles *bugs*,* at other times *fresh meal.*

> Fungus of sweet and peaceful *milky* name,
> How shall thy perfume best be known to fame?
> Berkeley once has *buggy* called thee; while
> Others thy scent do *mealy* style.
> Combine the two—by this my dictum go—
> And call the odour "*mealy bug*" you know! *S.*

* English Flora, vol. v., p. 27, last line.

Garden Operations.

(For the ensuing week.)

PLANT HOUSES.

THE beautiful *Anthurium Scherzerianum* will, under proper treatment, be pushing up more flowers about this time, and should therefore have the lightest and most prominent position in any suitable intermediate house. It should only have a moderate amount of water at the root at this season, though in the absence of any great supply of moisture in the atmosphere, or actual syringings, occasional moistenings would be very beneficial, and might be readily applied by running a moist sponge over the leaves. Too much attention cannot possibly be given to such a gem as this. This will be found a good season in which to sow any varieties of exotic seeds, either of home or foreign growth. A good high temperature must be constantly kept up by plunging the pots into hot fermenting material, and in the exterior surroundings if they are likely to germinate freely. Some of the harder-coated ones will germinate much more freely if they are first soaked in hot water for half an hour or so previously to being placed in the soil. Those who wish to make an early show with the new and beautiful varieties of *Hybrid Coleus* will do well to pinch back the shoots upon all young plants, and as soon as the eyes in the axils of the lower leaves push, to pot them in a mixture containing three parts of peat, one of the best fibrous loam, and one of leaf-mould and silver sand. Pot them moderately firmly, and if possible bury the base of the main stem in the fresh soil. At the same time small, or single shifts only, should be afforded. Amongst the newer varieties, Her Majesty, most happily named, continues to prove itself a most beautiful ornamental foliage plant — leaves upon young shoots of this variety, exhibited at the last meeting of the Floral Committee, being huge in size, with no falling off, either in the distinctness of their markings or the vividness of their colouring. Prepare the necessary kinds of soils for potting the many different plants that will soon need a shift. All soils intended for immediate use should be placed under a covering of some sort, as a protection against rain, as it is impossible for the most practised hand to pot a plant efficiently if too much moisture exists in the compost used in the operation. A few plants each of any new, rare, or valued varieties, of either *Fuchsias, Pelargoniums, Verbenas, Ageratums, Tropæolums, Petunias, &c.*, may now be placed into an advance of heat, if a larger quantity of cuttings are required than are likely to be supplied under the ordinary treatment. Where a large demand exists for these and similar subjects, it will be advisable to prepare a sufficiency of fermenting material to make a hotbed which is done by tossing it lightly over into one heap after another, as quickly as each becomes well heated through, for the purpose of sweetening it, so that no injury will befall the cuttings when placed theron, by the emission of gross rank steam, which would certainly be the case were the material not properly prepared.

FORCING HOUSES.

The slight frosts which we now experience will test the efficiency or otherwise of the outer protection upon *early Vine-borders*. If any neglect in this particular has taken place, let it be remedied at the earliest opportunity. With all Vines which are breaking after this date, I would repeat what I have so frequently and strenuously advised, viz., to let them break as gently as possible, so as to ensure a good strong, undrawn, and robust shoot to each bud. Pursue in all instances the old practice of bending each rod when necessary to ensure an uniform formation of shoots. *Early pot Vines* which have commenced to swell their berries should have a little manure-water often. Though Vines are habitually very gross feeders, I would not advise the manure-water, thus afforded at this early period, to be used at all strong—consideration being had for the highly forced and delicate organisation of all the parts, the roots not excepted. Where any symptoms of young roots are discernible upon the surface of the balls contained in small pots, it will aid them materially if a good surfacing of well-decomposed turfy loam be built up over and upon the rims of the pots. I have previously distinctly stated that they should be well decayed. Too frequently nearly fresh turves are used, and the fibres of which, not being decomposed, have scarcely ceased to draw nourishment therefrom. Be careful in thus packing fresh material upon the old ball to insure a thoroughly efficient road for all waterings to traverse uniformly the whole extent unimpeded, otherwise much more harm than good will be done. Where it has been necessary to add fresh tan to *Pine* pits for the purpose of strengthening the heat, great caution will be required, by a frequent examination of the test stick, &c., to ascertain that too much heat does not at any time exist; in deep close tan-pits it will be safer to plunge the pots to half their depth only for a time, and until a certainty exists that there is no risk of this sort. The heat in all forward successional houses or pits should now be increased a few degrees more or less upon sunny afternoons. At the same time, give an increase of humidity equivalent to the advance of the temperature. *Figs* which have made young growths of sufficient length should have the points pinched off, leaving about five or six eyes. They should not be overwatered at the roots at this particular time, and an excess of drought is equally to be guarded against. Successional batches of *Strawberries* should be introduced regularly, according to the demand. These should also be brought forward very gradually, in like manner to those which have preceded them. It would be much better to remove them into a temperature where they are always free from frost, yet seldom if ever exceeding 50°, for three weeks or a month previously to putting them in heat, than to push them on too quickly for the purpose of keeping up a supply. These, and all similar subjects, should not receive too much moisture at the root until a moderate leaf-surface has been formed, to turn it to a good account. *Peaches* and *Nectarines* which are swelling fruit freely should now be well syringed at least twice a day. In dull weather, a little artificial warmth should be afforded, to give a briskness to the atmosphere, and to aid in dispelling somewhat the excessive humidity which otherwise would exist in the interior, caused by syringing. Be very cautious not to advance the temperature too much or too suddenly in *Cherry* houses, but give a free and plentiful supply of air upon every possible occasion.

HARDY FRUIT GARDEN.

The weather was, some few days past, very adverse to pruning and nailing operations, much of which should have been performed during the previous unusually mild and favourable weather. But though these and many other similar operations are at a standstill during frosty weather, some progress may be made during warmer periods of the day, by giving old walls, which are badly pointed, or contain many nail-holes, a good washing over with an admixture sufficiently strong to destroy all insects which may be harboured therein. Such substances as lime, soot, sulphur, soft-soap, &c., are all useful for this purpose. A good strong, serviceable wash is readily formed by placing in about three gallons of strong soap-suds, about 1 lb. of flowers of sulphur, with a sufficient quantity of lime and soot added to make it about the thickness and consistency of paint, and of the latter to bring it to a pleasing quiet tint of colour. When well mixed up together, this wash should be well brushed into every hole and crevice of the walls, so as to thoroughly fill them with the admixture and prevent any insects escaping therefrom. Turn over the crust if moderately frozen, at the foot of wall-fruit trees, which are of moderate age, and not likely to have fibrous roots so near to the surface as to receive injury. So doing will tend to loosen the surface-trodden soil, and also to destroy any insects which may have taken refuge in it.

KITCHEN GARDEN.

Immediately a thaw succeeds a few nights of frost it would be advisable to place protecting materials upon ridges of *Celery* or other vegetables. Be particular to remove the whole from the heart or other parts of any plants which are likely to receive injury from excess of confinement, or the damp which in this case would be a necessary attendant of the former. *Potatos* may be now very generally planted in frames or pits, which have a little artificial bottom-heat to aid them in making a speedy growth. Choose at all times good, sound, medium-sized tubers, and if strong roots exist upon any do not rub them off, but place the "sets" very carefully into the soil without, if possible, injuring them in any way. Where convenience exists small sowings may now be made of Walcheren *Broccoli*, Little Pixie or other similar useful *Early Cabbages* for use as "collards," and of *Tomatos*, to insure good strong plants when the time arrives to plant out. *W. E.*

TOWN GARDENING.

SHOULD the weather be open towards the end of February, that season will be found the best for planting trees and shrubs in towns, as they are not so likely to get choked with soot as when planted earlier. I shall now give a list of those trees and shrubs which I have found from experience do well in the most confined situations, with the places indicated where some specimens may be seen in the very heart of the town. *Trees:* The common Mountain Ash, a very fine tree, in the churchyard of Allhallows the Great, growing under the smoke of the City of London Brewery. Weeping Ash, an ornamental tree when planted singly; there are some nice thriving trees in the Royal Savoy Chapel grounds. Ailantus glandulosa, a handsome tree, which does well in the most confined situation. Almonds, the sweet and the bitter, particularly the former, flower freely in Lincoln's Inn Fields. Birch, the upright and the weeping, do well for a few years. Catalpa syringæfolia: this is a low spreading, handsome, white-flowered tree, and I believe the oldest one in the country, is to be seen in the garden of Gray's Inn, said to have been planted by Sir Matthew Hale. Cherry—the double-blossomed is a prettily formed tree; I have seen it flower freely in Lincoln's Inn Fields. Elder: the common variety will grow anywhere. The English and Wych Elms do well; there are some fine trees in the Temple Gardens. Laburnum, either as a standard or trained against the wall, does well in London. Oriental Plane: this tree is quite at home in towns, growing luxuriantly in the most confined situations; there is not a spot where a tree is wanted but should be planted with this. Balsam Poplar is very quick in growth, and will do well in the most confined situation, and if kept low, as a shrub is very useful. Lombardy Poplar—its stiff formal appearance makes it a great favourite with many persons; there are some fine trees in the Tower grounds. The Sycamore does well in the neighbourhood of Bedford Square; there are remains of a tree in the Inner Temple garden, said to be 300 years old. The Mulbery will grow in any situation. The Lime tree does well for a few years. Thorns: most of the varieties do well in confined positions; there are some splendid trees in Lincoln's Inn Fields. The foregoing are all standard trees, and should be planted either at the back of a shrubbery or singly. Of evergreen and deciduous shrubs the following will be found to answer the object in view if they have the required attention in planting:—*Evergreens;* Aucuba japonica, broad-leaved Alaternus, common Box, oval-leavod Privet. *Deciduous:* Bladder Senna, Gum Cistus, all the Lilacs, but the Persian is the best bloomer; Guelder Rose, Mezereon, Ribes sanguineum, Viburnum Lantana, or "Wayfaring tree." This is a thick branching shrub, flowering in May, with heads of white bloom, similar to the Hydrangea, and only wants to be better known to be more grown in towns. The shrubby plants best adapted for covering walls, trelliswork, &c., are the following:—Irish Ivy, the only evergreen; Jasmine, the common white, also Jasminum nudiflorum; Laburnum, Virginian Creeper, Fig, and Grape Vine. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Jan. 27, 1869, as observed at the Horticultural Garden

January.	Moon's Age.	Barometer.		Temperature.					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 21	)	30.121	30.084	38	24	31.0	41	43	N.W.	.00
Friday 22	10	30.247	30.224	40	25	33.0	41	41	S.E.	.00
Satur. 23	11	30.145	29.976	32	24	28.0	40	41	S.E.	.00
Sunday 24	12	30.048	30.015	36	16	26.0	39	40	S.E.	.00
Mond. 25	13	29.997	29.869	42	23	33.0	38	39	S.	.00
Tuesd. 26	14	29.788	29.746	47	26	36.0	39	39	S.W.	.00
Wed. 27	15	29.682	29.379	45	34	39.5	40	39	S.	.00
Average		30.004	29.902	40.0	25.3	32.6	39.7	40.1		0.00

Jan. 21—Frosty; overcast; fine; dense fog.
— 22—Fine and frosty; overcast; densely overcast.
— 23—Densely overcast; cloudy and cold; frosty.
— 24—Frosty; very fine and clear; clear, sharp frost.
— 25—Sharp frost; very fine; overcast at night.
— 26—Overcast; fine; slightly overcast; cloudy.
— 27—Clear and frosty; fine, slightly overcast; densely overcast.
Mean temperature of the week, 5 8-10 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending Feb. 6, 1869.

January and February.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday .. 31	44.9	30.9	37.9	20	0.38 in.	5	6	1	2	11	4	3	
Mon. .. 1	44.4	32.0	38.2	14	0.52	5	6	1	2	4	12	7	6
Tues. .. 2	44.6	31.5	38.0	21	0.44	5	6	4	4	3	13	5	4
Wed. .. 3	45.0	30.7	37.9	20	0.42	3	5	4	1	7	13	7	3
Thurs. .. 4	45.0	32.8	38.9	20	0.35	3	4	4	2	8	13	7	2
Friday 5	45.7	33.5	39.6	20	0.39	3	3	3	2	3	16	8	5
Satur. .. 6	46.5	32.6	39.6	21	0.25	3	3	4	3	6	10	7	6

The highest temperature during the above period occurred on the 3d, 1850—therm. 57 deg.; and the lowest on the 31st, 1857—therm. 8 deg.

Notices to Correspondents.

BOOKS: *Inquisitor.* Repton's Landscape Gardening; Kemp, How to Lay Out a Garden.

CHINESE PRIMULAS: *Messrs. Veitch & Sons.* A first-rate sample of the ordinary rich rosy-purple and white strains. The whites were especially fine, upwards of 2 inches across, and so densely frilled as to appear semidouble.

COLLOMIA MONOTIFIDA.—A correspondent some time since inquired what this was, stating that many years ago he had seen a plant under that (obviously erroneous) name. We are obliged to Mr. Donald for an inspection of a specimen of the plant so named, grown at Chiswick in 1841, and are enabled to state that the proper name of the plant is Collomia (or Navarettia) heterophylla. It was figured in the "Botanical Magazine," tab. 2895, but is of no great value.

ELMS: *J S.* We cannot undertake to name your specimens from the leafless twigs.

HAZEL: *J S.* Without further evidence, we do not consider the fact of one being more forward than the other, a proof of their being distinct species. Such difference of constitution is of frequent enough.

INSECTS: *T D, South Hackney).* The objects with which your Black Currant trees are so completely covered are the bodies of females of the mussel scale insect (Coccus conchiformis), each filled with eggs, the young of which, as soon as hatched, will invade the last year's shoots. Cleansing the stems with soft soap-suds, in which lime and soot or gas-tar have been mixed, would, we fear, be too troublesome an operation. From the state of the trees it would perhaps be more advisable to burn them, and thus get rid of the evil. *W.*

LETTUCE: *Fairplay.* Messrs. Carter & Co.'s name was associated with the Tom Thumb Cabbage Lettuce in the report to which reference is made, simply to indicate that the particular sample forming the trial was received from them. It was not in any way the desire of "Quo" to rob Messrs. J. C. Wheeler & Son of the honour of having sent out this capital dwarf Cabbage Lettuce.

NAMES OF FRUIT: *B R Cant.* Bergamotte d'Esperen.—*T F. Rymer.*—*T Jones.* 1, Adams' Pearmain; 2, resembles Winter Majetin; 3, Bridgewater Pippin; 4, Grango's Pearmain.

NAMES OF PLANTS: *M D.* Thyrsacanthus rutilans: correct; apparently gathered from a weak specimen.—*W B.* A new species of Mormodes.—*J S.* 1, variety of Maxillaria marginata, 2, a very singular Epidendrum, that is quite unknown to us. We have sent it to Mr. Wilson Saunders, in whose "Refugium" for unpretending Orchids it will probably one day find a place. 3, Houlletia Brocklehurstiana. 4, Oncidium pulvinatum.

PRICE OF LABOUR, &c.—Messrs. Lawson beg us to state that the prices quoted at pp. 1293, 1316, 1368, referred to 2-yr. seedling, 1-yr. transplanted Larch, and 1-yr. seedling 2-yr. transplanted Scots Fir, instead of 2-yr. seedling, as intended by Mr. Grigor. We would certainly recommend planters to incur a little extra expense for the former, as the latter are hardly to be recommended for planting. We can insert no more on this subject.

RAINFALL.—Several correspondents have furnished us with details on this matter, which are in process of collation.

SNOW ON BRANCHES: *C.* The plan adopted by Mr. Frost, of Dropmore, is thus described in his own words:—"All we do here to prevent the snow from breaking the branches of Cedar and other trees, is to beat it off with long poles. I don't know of any means of protecting the upper branches of large trees; I have often thought the lower branches might be supported by a collar placed around the stem, and strong twisted wire fixed on like the spokes of a wheel, and fixed on the branches towards the points, then the uppermost branches would rest on the lower ones, it would not do to tie the upper branches to the lower, as all would break down together if laden with snow."

WHITE SCALE: *A Sub.* Use Fowler's Insecticide, at the strength recommended by the vendors. Wet the plant thoroughly with the liquid, and sponge all the stems and woody parts you can get at. See also Mr. Hamilton's remarks, recently published, on the Walnut-leaf wash.

WORMS ON LAWNS: *Brompton.* Water the Grass thoroughly with lime water, prepared by throwing caustic lime into a tub of water, stirring it up when it has become slacked, and then allowing it to stand till the liquid is perfectly clear. It must be used in this clarified state only.

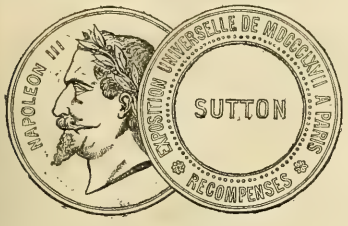
COMMUNICATIONS RECEIVED.—R. H.—J. S.—J. W.—Elce.—Brompton.—H. J. C.—G. F.—H. P.—W. F. R.—A. C.—E. C.—P. L.—Amateur.—T. W.—S. T.—W. J. J.—W. C.—D.—Duo.—F. J.—D.—W. G.—W. P. R.—C. S.—Salopian Sub.—D. M.—D, Thomson,—H, C.—W. P. A.

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HARD FESCUE	PERENNIAL WHITE CLOVER
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The NEXT SESSION commences FEBRUARY 8. For Forms of Admission apply to the Principal.



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H. M. JENKINS, Secretary.

12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, JANUARY 30, 1869.

MEETINGS FOR THE ENSUING WEEK.

FEB. 1. { London (Pauperism and Vagrancy: Mr. J. Trask, High Leaze, Yeovil).
North of England (Local Taxation).
Swindon (Local Taxation).
" 2. Central Chamber of Agriculture (National Poor Rate: Mr. H. G. Andrews, of Somersetshire).
Royal Agricultural Society of England—Noon.
" 3. Scottish Chamber.
Morpeth (Marts for Home and Foreign Stock).
Peterborough (Local Rating: Mr. John Little).
" 4. Maidstone.
Midland (Steam Cultivation: Mr. James Howard, M.P.).

OUR correspondents have once more brought THE SEWAGE QUESTION prominently before our readers. The season of growth is approaching, and the manure of the farm is again the leading agricultural subject. Is it not strange that one of the most abundant sources of fertilising matter should have been so long neglected—that the house-waste of London, which used to be imperfectly removed, with immense labour, by horse and cart a few miles outwards to the market gardens, should not, now that it is in a form to carry itself, be greedily appropriated?

Travellers by rail continually see long trains of stable-dung leaving London. It has been collected in yards, carted to the terminus, transloaded into trucks; it has yet to be steam-drawn to a distant station, transferred to the farmers' carts, horse-drawn to a distant field, thrown out in heaps, scattered with the fork and covered by the plough. Moreover, it cost a good deal to begin with. This is the waste derived from feeding merely upon hay, and straw, and Oats, and Beans, and Clover; and notwithstanding all its cost, the process pays. Look now at what becomes of the waste—more valuable, one cannot help supposing—of feeding upon beef and bread and vegetables. It is got for nothing, it carries itself, it distributes itself, it buries itself. From every house it drains through sewers, gradually collecting into one, and the labourer on the farm just lifts a slide or hutch and forthwith it spreads itself over the surface of the soil, where the hungry plants are waiting for it, and through the substance of the soil, where their roots are ready to absorb it. Of course there are costs between the outfall sewer of the town and the receiving gutter on the farm, but the tenant knows nothing of them. He merely pays a sum which in relation to the value of what he gets is pretty much the same as the two shillings or half-a-crown which he pays at the town stable for the load of dung which he collects at such expense; and the sum he is called upon to pay is quite enough to replace the costs of delivery to his land.

What does he get for his money? He gets the whole growth-waste of the best fed animals in the world. What is the principal advantage of the sheepfold as compared with ordinary farmyard dung?—simply this, that the liquid and solid excrement are put upon the land, whereas the manure of the ox or horse is wasted in yards and heaps, and drained of its liquid part before it leaves the building. Town sewage contains the whole of the liquid and the solid parts of what we call growth-waste—the growth-waste, too, of an animal that is better fed, and that is more wasteful of its food than any

other animal known to agriculture. What, again, is the great difficulty regarding the sheepfold upon the best lands of the country?—simply this, that the treading of the field is, in the case of adhesive soils, both mischievous to the land and injurious to the animal. In town sewage, properly delivered, we have a fertiliser which just quietly distributes itself among the roots, trickling without pressure or disturbance amongst particles and over surfaces of soil with no injury, with no effect, indeed, whatever upon the mechanical condition of the land. It offers itself to hungry mouths on every side, and, gradually cleansed of all, or very nearly all, that is valuable to plant and mischievous to man, it ultimately finds its way, a clear pellucid contribution, to the stream which formerly it fouled. The roots are fed with as little effort as the leaves. Currents of air above the soil, and of water underneath, carry on the processes on which the living plant depends for growth, with all the facility and quietness of unassisted Nature.

And not only is the valuable, the filthy part of town drainage thus extracted and made harmless, it is converted into wholesome food more directly and more quickly than any other fertiliser. While it is being disseminated uniformly through the substance of the soil, the sun is shining on a transformation scene above more beautiful than any known to pantomime. Leaves are spreading upwards, roots are swelling outwards, characteristic forms are being built up, characteristic juices, essences, aromas, are being secreted. Grass, Wurzel, Cabbages, Strawberries, Potatos, Wheat, Oats, Rye, &c., are hastening onwards towards maturity more rapidly than is known under any other plan of cultivation. And if we take the process one step further, by the aid of animals consuming the Grass and roots which have been thus created, we do not hesitate to say that while throughout the year we have in agriculture the great remedy for the nuisance which town sewage now creates, it presents us during the time of growth with a machinery by which the whole of the liquid waste of towns may be converted into milk, the purest and completest form of food, and returned month by month to the people to whom it properly belongs.

Is all this a mere picture of the imagination? On the contrary, it is a substantial and trustworthy matter of fact, on which commercial transactions may confidently proceed, out of which livelihoods will be made, and fortunes may be built. No doubt the great majority still are doubters, although even they must upon consideration be puzzled to justify their incredulity. Hitherto they have been able to take refuge in the reply that the thing has not yet been profitably done; but this is failing them. Both farmers and market gardeners in the East of London are at length applying to the Sewage Company for the means of irrigating their land; and another drought like that of last year would make sewage farmers of them all.

On the Lodge Farm, according to the report of the Hon. H. W. PETRE, horsekeepers are at length applying for sewage-grown Italian Rye-grass: Wheat and Oats, and Rye on gravelly soil taken after a corn crop unmanured, receiving only two floodings with sewage, yielded 5½, 8, and 6 quarters per acre respectively last year: Mangels, Parsnip, Sugar Beet, Cabbage, Potatos, have all yielded very heavy crops, fed with sewage only: Strawberries produced 4300 punnets, sold for 150*l.*, on virtually less than 1½ acre: and Italian Rye-grass, though, taken from old plots, it yielded less satisfactorily than it had done in 1867, yet had produced 892 tons of Grass off 50 acres before midsummer. At the outfall below Barking one-third of an acre of sheer sea-sand spread 30 inches thick, having produced heavy Italian Rye-grass in 1867, yielded last year 17*l.* 8*s.* worth of Potatos, and thereafter 7*l.* 10*s.* 6*d.* worth of Cabbage plants, both having been three times sewaged—the total cost of cultivation, harvesting, and disposal of the crop having been 5*l.* 13*s.* 8*d.*

And we have just heard of the results of autumnal catch crops upon the Lodge Farm, taken since the main produce of the year had been harvested. White Turnips, sown on the 22d of July after Rye and winter Oats, were sold on the ground on September 3 for 11*l.* per acre, the purchaser engaging to clear the ground before November 1; bunching Cabbage, planted September 1 after Onions, were sold on December 24 for 20*l.* an acre; Cabbage seed sown on August 6 after Potatos, yielded plants for transplanting on the farm, and the rest of the beds were sold at the end of December for 16*l.* an acre; Broccoli, planted August 8 after spring Cauliflowers, have been sold between December 24 and January 23 for 18*l.* per acre; Italian Rye-grass, ploughed up and re-sown August 24, yielded a first cutting last Tuesday, weighing 4 tons per acre. These crops have been grown with sewage only, having received two dressings of about 300 tons per acre each. The farm is well worth inspection, and visitors are welcomed.

Surely, facts like these must ultimately break the neck of that *vis inertiæ* which seems to bind the agriculturist, even more than other men, to established ways of carrying on his operations. They must at length convince us all that the existing waste of the sewage of our towns is an immense stupidity.

The letter of Mr. WILLIAM HOPE,* of Parsloes, Barking (whose signature, unfortunately, got mutilated in our printing press last Saturday), and those of our correspondents "W. B." and "H. M.," in our columns to-day, cannot fail to excite discussion on the subject; and we gladly open our columns to sceptics and opponents as well as to enthusiasts and friends. Having proved his unfailing faith in "sewage farming prospects" by efforts more persistent and laborious than those of any other man, Mr. HOPE will be amused to see that "W. B." has classed him among the laggers in the rear of this discussion. We cannot, however, now attempt to draw the line between them; but it is well to bear in mind, when listening to proposed refinements of management and administration, that there is now wasting daily into the river Thames half a million tons of fertilising matter—enough to feed the soil of more than 50,000 acres. A mass and area so great must be dealt with in the simplest way, or the cost becomes enormous.

—— THE heavy fall in the price of Wheat of 3*s.* to 4*s.*, as quoted last Monday week, was, as we intimated on Saturday last, a merely accidental occurrence. It had but little effect on provincial markets, and on Monday there was a rebound to nearly the full extent of the previous fall. Since Monday there has been a disposition in favour of a further rise. Barley continues to be actively inquired after, at high rates. —— The agricultural seed trade is not in a very active state, which arises probably from the sopped state of the land, and the indisposition of farmers generally to buy, particularly at high prices, before they really want to sow. Speculators, however, are confident of the supply being unequal to the demand when sowing time shall arrive, and every parcel is snapped up to hold for a profit. As much as 95*s.* per cwt., we are told, has been refused for a sample of new English Red Clover. In other cases, the high prices asked by holders stops further speculation.——With a larger supply of beasts on Monday, prices were altered but little, but an excess on Thursday caused a decline of 2*d.* per 8lb. The demand for good sheep has been active, and prices have risen till 5*s.* 10*d.* per stone is now quoted. Thus, on Thursday sheep were 6*d.* per stone dearer than beasts; but this would occur in some measure from the heavy fleeces which sheep now carry.

—— The proposed rating of mines, referred to by Lord GRANVILLE before the Shrewsbury Chamber of Agriculture, is occupying much of the attention of local agricultural societies, and will no doubt be brought under the attention of the House of Commons during the ensuing session. Mr. PEACOCK, jun., of Barnsley, gives the following illustration in the *Times* of the injustice of the existing exemption:—

"The district of Cleveland has risen within the last 18 years from comparative obscurity to be one of the greatest iron-making districts in the United Kingdom. The ironstone required to supply the hundred or more blast furnaces in and around Cleveland comes from about half-a-dozen mines, producing now in the aggregate about 2,000,000 tons of ironstone per annum; and since the discovery of this rich deposit, in 1850, at least 20,000,000 tons of ironstone have been extracted from the Cleveland Hills. Now, upon an average, during the above period the profit upon the working of the stone may be safely put at 1*s.* per ton; it therefore follows that the amount realised by the owners of these mines has been 1,000,000*l.*

"Around each of the mines has sprung up a large population, which I estimate at 10,000—that is, of persons connected with or entirely dependent upon the mines. It happens that all these mines are within the district of the Guisborough Union, which is constantly fed from the mining population referred to. Now, the burden of maintaining the great proportion of the poor falls, not upon the owners of the mines, who, owing to the non-rating of ironstone mines, do not contribute a fraction towards the support of those they have been the means of bringing to the district, and who from old age or illness have become unable to earn a livelihood, but upon the landlords and tenant-farmers. A gentleman of my acquaintance, living within a mile of the largest ironstone mine and farming 500 acres, informs me that the amount of poor-rate he paid prior to the discovery of the ironstone, in 1850, was, on an average, 20*l.* per annum; since then it has been steadily increasing, and the amount he now pays is 100*l.* per annum. In addition to this, he has frequently found it almost impossible to get men and boys, owing to the great demand for them in the mines, and the amount he now pays for labour is nearly 50 per cent. more than it was prior to the discovery of the ironstone. The Guisborough Union [house] had recently to be enlarged at a cost of 5000*l.*, solely in consequence of the requirements of this large mining population. The house, as originally built, was amply large enough for a thinly-peopled agricultural district. The average duration of the life of an ironstone miner is less than that of a coal miner, and in Cleveland, owing to the thickness of the seam (from 12 to 16 feet), and the consequent difficulty in ventilating the mines, and so driving off the great quantities of gunpowder smoke, the miners are peculiarly subject to chest affections, and after 10 or 15 years' mining are usually broken down in health, and are thus continually increasing the demands upon the Guisborough Union. It seems surprising that the tenant-farmers of Cleveland have borne so patiently, for the last 18 years, without a murmur, this ever-increasing poor-rate, while the owners of the mines, who have brought 80 per cent. of the poverty, escape without contributing a farthing, after having, as I have shown, cleared a million of money. There is another consideration, also of importance. Several of these mines are becoming rapidly exhausted, and when worked out the maintenance of the poor will become, as it were, a permanent charge upon the land."

* An *erratum* in Mr. Hope's letter on "Town Sewage," of last Saturday, requires correction. Among the considerations in favour of using it in the growth of Italian Rye-grass is the fact that very large crops of other kinds have been obtained, without manure of any kind, after the heaviest crops of Italian Rye-grass produced by sewage. In col. c, p. 89, therefore, in place of "1. The largest crops, with no further expense for manure the year after maximum quantities of Italian Rye-grass have been obtained by the use of sewage," read, "1. Large crops of other kinds have been obtained with no further expense for manure," &c.

OUR LIVE STOCK.

THE last issue of Thornton's Circular contains an account of the origin of the Improved Durham Cattle. The author admits the difficulty of his task by stating that the controversy as to the origin of Hubback would of itself fill a small volume. We may add that the solution of the problem by Mr. Thornton strikes us as strange, and we are at a loss to see how the superiority of the veal supplied at the Darlington ordinary should have resulted in the discovery of Hubback and the famous Ketton breed of cattle. If we remember rightly, according to Youatt, the discovery of the good properties of HUBBACK was made under different circumstances, and not as we read in Mr. Thornton's Circular—namely, that Mr. Colling," going into Darlington market weekly, used to notice some excellent veal, and upon inquiry found that the calves were by a bull belonging to Mr. Fawcett, of Haughton Hill; this bull was HUBBACK (319), who was then serving cows at 1*s.* each."

The evidence as to the introduction of Dutch blood into early Shorthorn herds is very conclusive. After telling us that cattle had been repeatedly imported into Holderness from the Continent, we are informed that Mr. Torr, when travelling in Holland, visited Utrecht Fair, and saw a large number of animals fully resembling modern Shorthorns. Further, "Culley, in 1785, remarks—'I remember Mr. Michael Dobison, of the Isle Sedgefield, who went in the early part of his life into Holland in order to buy bulls. Those he brought over, I have been told, did much service in improving the breed; and this Mr. Dobison and his neighbours, even in my day, were noted for having the best breed of Shorthorn cattle, and sold their bulls and heifers for great prices. Sir William St. Quintin and Sir James Pennyman had stock with this Dutch blood." The names just mentioned, together with those of the Dukes of Northumberland, who long maintained a good breed of cattle at Studley, the Maynards, Milbanks, and others, were well-known as the possessors of well-bred stock, in some cases with recorded pedigrees of great length, reaching back to 1745, the year of the cattle murrain. It was left, however, to the brothers Colling to astonish the world with their successful promotion of what is now the most widely distributed breed of cattle we have. We cannot forbear quoting the following episode in the history of Shorthorn cattle. Some remarks of Gabriel Thornton's (farm manager to Mr. Charles Colling) upon Mr. Maynard's stock "led Mr. and Mrs. Colling to ride over to Eryholme that same year. When they arrived, a handsome cow that Miss Maynard was milking attracted their notice, and Mr. Colling offered to buy the cow and her heifer. After some haggling on each side, the purchase was made, and *Favourite*, by Mr. R. Alcock's bull (19), and her daughter, *Young Strawberry*, went to Ketton." It was Mr. Robert Colling's opinion that the Barmpton and Ketton stock never excelled that of other people until the Eryholme blood was introduced. The subsequent history of the two females above spoken of is interesting. The cow *Favourite* was put to FOLJAMBE, and *Phœnix* was the result. This cow was the mother of the celebrated bull FAVOURITE (252), by BOLINGBROKE, an animal which left a wonderful impress upon a large section of modern Shorthorns. *Phœnix*, after giving birth to FAVOURITE, was barren for some time, and as a last resource was put to GRANDSON OF BOLINGBROKE (280), and in due time *Lady*, from whom the alloy blood is generally traced, was born. The first introduction of alloy blood was as follows:—"Mr. Coates bought two red polled Galloway cows for Colonel O'Callaghan from David Smurthwaite, and these cows were served by Charles Colling's bulls, upon condition that he had all the bull calves as payment. In 1792 one of these cows produced a red and white brindled bull, by BOLINGBROKE (86), which Mr. Colling kept until a year old. *Johanna*, a moderate red cow, by the same bull, not having bred for some time, was put to this young bull, and in due course a red and white bull, afterwards called GRANDSON OF BOLINGBROKE (280), was born. This GRANDSON OF BOLINGBROKE, as we have before stated, with *Phœnix* bred *Lady*.—The remaining portion of the Circular is occupied with similar matter to that in former numbers. A goodly list of 33 females and 144 bulls for sale by private contract is appended.

—— Lord Dunmore has purchased WATERLOO 28TH, and KIRKLEVINGTON 12TH, from Mr. Leney, at a profit. The price is not to be made public, but, as Mr. Leney paid 270 gs. and 380 gs. respectively, at Didmarton, it must have been considerable. In addition to the above excellently bred animals, Lord Dunmore has bought from Mr. Leney a bull calf from *Sultana 4th*, and a white heifer from *Sultana 5th*, both by 12TH

DUKE OF THORNDALE. The first-named cow is by WATERLOO DUKE (21,077), and the latter by BERRINGTON GRAND DUKE (21,274). The sum given for these animals is said to be very large.

—— We learn from a contemporary that the Duke of Devonshire and Mr. Brogden, M.P., have exchanged bulls for two or three months, GRAND DUKE 10TH going to Mr. Brogden's herd, and 17TH GRAND DUKE being intended for 10TH GRAND DUKE'S heifers at Holker.

SEWAGE FARMING PROSPECTS.

WITHOUT proposing to follow "W. B." through his recent paper on "Sewage Farming Prospects," I desire to make a few remarks upon some of the statements contained in it, which, if left uncorrected, will give a false impression of the position of the sewage question at the commencement of the new year."

The points to which I would particularly draw attention are those on which I am entitled, from some experience, to form an opinion; and the number of them is very much reduced, by the fact that "W. B.," whilst mentioning the doubt which exists as to whether the "liquid" or the "solid" system is to be ultimately adopted, agrees that hitherto nothing of a practical character has been done as regards the latter, whilst "progress—and rapid progress, too," is being made in favour of the former. In this I entirely agree with him; and deferring the discussion of the solid system by separation, until something practical is before us, and that of the night-soil system, which never can be practical on account of the enormous expense which every large town has gone to with a different intention, I come to the subject of "town sewage," such as may be seen flowing in ordinary weather upon the land at the Barking farm.

Had "W. B." read the published pamphlets,* which give full details of the Barking experience, very carefully set forth, I do not think that he would have committed the error into which he has unintentionally been led, nor would he, had he visited that farm and watched the sewage flowing over the land, have urged so strongly the necessity for some alteration in town arrangements to suit the "intermediate system" which he advocates. As the mode, however, of conveying the sewage in a state so little diluted, and of preventing the escape of gases (the evolvement of which may or may not be of importance) is a problem still unsolved, I am at a loss to conjecture how "W. B." has become satisfied, "that the cost of its transmission in this state will be covered, and something over," whilst he asserts that under the present circumstances the farmer can afford to give only a small price for it, although it has been proved that the water in it, of which he complains, has been the means of securing crops during drought which would otherwise have been lost, and that during rain, frost, and snow it can be still profitably applied.

Had "W. B." witnessed the Barking experiments he would have seen the sewage beneficially applied, unassisted by any artificial adjuncts, without difficulty, upon all kinds of land, including common sea-sand, in the treatment of numerous sorts of crops, including "roots, cereals, and Flax;" and although he would have shared my opinion, that the aid of artificial manure appears unnecessary, I do not say that it cannot be profitably added. He would have seen that the labour of laying out the land is very much less than is generally supposed to be necessary, and that when the expense has been once incurred the maintenance of the land is trifling. If additional expense attends, as he asserts, sewage farming, it is due to the increased weight and number of the crops which are obtained; but from this a deduction should be made for the greater cost of equal cropping with farmyard manure in the ordinary way.

The large opportunity, too, which is offered by a new system for the development of the skill of the farmer will materially secure to him that credit which has hitherto attached to agricultural success.

That the practice of growing Grass has been thrown overboard altogether I entirely dispute, either on account of its unpopularity with dairymen or for the purpose of adopting the arable or mixed system of sewage (which I take to mean the application of sewage to other than grass-land); the fact really being, that the demand last year for the Grass was greatly in excess of the supply, and town dairymen and horsekeepers have already given notice of their intention to enter into fresh contracts.

The greatest error, however, into which "W. B." has fallen, is that which leads to repeated incorrect assertions as regards the milk upon the farm. Now as this question is a very large and very important one, embracing that of Grass as well, it does not, with the view of instructing others, seem sufficient simply to deny his facts. The whole milk business is in a state requiring large correction, and unless the Legislature interferes and attaches to this, the most nourishing article of food, a penalty on adulteration (as is done in other countries), which will enforce its distribution in a pure state, it is useless to urge that the system at present followed at the Barking and other sewage farms is the only one by which the demand can be supplied without at least increasing the cost of the article.

There can be no question that the power of a farm of 200 acres, not half of it being under irrigation, to carry 300 milking cows, proves the enormous amount of milk which that area can be made to yield, but the minimum cost of obtaining it has not yet been arrived at, although there is no doubt it will be greatly in favour of the sewage farmer over the town dairyman—assuming, of course, the milk to be equal. Until the guardians of the poor, of the hospitals, unions, and other charities take such active part in the management of their trusts as to inquire how it is that the milk which cost the wholesale dealer (whose lowest tender they accepted) from 1*s.* 4*d.* to 2*s.* per barn gallon is delivered to them at 1*s.* 2*d.* per barn gallon! the present system will continue, notwithstanding the efforts of a few who are at present, and against such odds, retailing pure milk at equal rates, and who yet more than cover their expenses.

And now, before I conclude, I must be permitted to differ from "W. B." still further by saying that he has been misinformed as to the "negative answers," which he says are returned by the towns. He will find on inquiry that some are already working, and others actively preparing to follow, the system pursued at Barking, with every prospect of profit, whilst several asylums, &c., have already derived it. He will find that experience, as far as it goes, satisfactorily disproves the statement that the farmers will not receive the sewage on any terms, and shows that a fair price for it may be obtained from those whose landlords do not place a bar to its use by an exaggerated notion of its value, and a corresponding rise in the rental of their land.

I refrain from remarking upon the practical difficulty which is stated to exist in suiting "the supply to the demand," for it appears to me that it can only attach to that system named as "intermediate." In the supply of dry or of liquid manure there can be no real difficulty, although the service of the latter will require to be carefully organised.

I do not, of course, intend that my remarks should lead any one to the supposition that the system followed at Barking is not capable of improvement, and that I again differ from "W. B." when he says that the whole question is in its "infancy." On the contrary, I agree with him entirely, for does it not make pure and wholesome milk a necessity of its growth? *H. M., Norwood, Jan.* 21, 1869.

* "An Agricultural Experience of 300,000 Tons of North London Sewage, 1867." By J. Chalmers Morton. "Report for Year ending August 31, 1868, upon the Lodge Farm, Barking, addressed to the Board of Directors of the Metropolis Sewage and Essex Reclamation Company.' By the Hon. Henry W. Petre.

STEAM CULTIVATION.

"WEST INDIAN'S" remarks and questions, as well as "G. A. H.'s" communication shall be considered, and I will consider the latter first. He says:—

"Let the engine be a thorough locomotive." That is right, for if it is not so it can be of no use at all.

"Let the engine be furnished either with a driving-pulley or universal joint." That, too, is right, for in such a state it would be ready for any machinery on a farm.

"For ploughing have an iron frame (to fit on below the tubular part of the boiler), containing two drums, to take on the ropes. . . . This frame of drums should be movable, so as to be taken off or put on . . . while steam is getting up."

This may appear all very well upon paper, and I have no doubt that such an arrangement could be made even if it be put on in as short a space of time, but I also know that those things that put on and take off frequently take more time to arrange than they are said to do, and when on it is very frequently found that they cannot be kept firmly fixed long together, therefore cause hindrances at times; besides, why should they be made to fix on and take off?—when an engine with the steam up could be taken to the windlass-house, pull out the four-wheeled windlass, all ready with the ropes on it, and take it off at once to the field to be ploughed; and as soon as it had finished a field of ploughing the engine might go off to the threshing machine-house and fetch that machinery out and do a rick of threshing, and then it might go off to the mill and do some grinding, and then it might return to the windlass, and pull it to another field for ploughing. If we are to have all these things done by a locomotive engine, let us have the several machines ready framed, and ready to start without any tinkering, for it would be just as reasonable to have the threshing machine screwed to the engine as it would to fix the ploughing machine to it. If we are to do everything by a locomotive engine we must let it represent the horse fairly, by having it ready to be hooked to anything to be taken off for work. All this can be done, I have no doubt.

"I do not think it desirable to go beyond 10-horse power for an agricultural engine."

This is all right, for that is the best power that can be had. Then we are told a lot about ploughing at different depths: about which I need not trouble you, for we know all about that; and I know more—that ploughing is good for nothing, to be done by steam, unless we are to do everything by steam: then let it do the little that is needed to be done the best it can.

Stop; I have gone too fast, for he says:—"A 6-horse or an 8-horse engine would, in my opinion, be the most suitable size."

His opinion upon this point is not worth much, for I have tried the matter well out; I started off with a 7-horse engine, with which I could do only 5 acres of smashing and 3 acres of ridging and subsoiling—the smashing at a cost of 6*s.* 8*d.* an acre, and the ridging and subsoiling at a cost of 10*s.* 2*d.* an acre; but it did not get on with the work so fast as I liked, so I changed it for an 8-horse boiler with a 10-horse cylinder upon it, and thus got the right power in the least weight to be drawn about. This for 10 years has done my work well; and my accounts this year show that my average day's work is 8 acres of smashing and 5 acres of ridging and subsoiling, and the cost per acre stands thus:—Smashing, 4*s.* 9*d.* an acre; and ridging and subsoiling, 7*s.* 3*d.* an acre. This not only expedites matters, but it cheapens the thing into the bargain: and both items are acceptable. Let him tell you what he may about 6-horse engines, have nothing to do with them; the evidence is conclusive upon the point.

Then comes a lot about harrowing and rolling that I shall not trouble you about, for he knows nothing of what he is talking, beyond proving that he is one in the old horse track, going miles round in the preparation of seed beds, giving the engine 120 days' work on 400 acres, when upon the new road 70 days is all that would be needed of it.

"West Indian" will see that I have brought facts to bear against "opinions," for we have the fact daily before us, that locomotive engines can go about, therefore if people like to draw these things about with them they can, and I am speaking upon fact as to what is the best power for cultivating purposes.

Now, I will, with "West Indian," reconsider my "correct card." He first asks me to "turn over his suggestions, and tell him if they are impossible." Here is one that I must talk upon. "It can do water-carting now. Using the roundabout, the engine being stationary, cannot we dispense with water-cart by fixing on a spot to work from (or even two) as a rule, say near the water-course, a tank being dug large enough to supply engine with water? Once dug, there is an end to it." Such an arrangement as this I could carry out on my bottom land, lying upon the flat, for I could dig wells at any point of it, and could obtain a sufficient supply of water at a depth of 10 feet in the dryest summer, but on our heavy clays, where steam-power is the most needed, the case is vastly different. How to arrange on my heavy clay hill, I cannot for the life of me see, but I will try, as the hedges are all out of the way, by fixing the point for a tank, to be well cemented, to catch water enough in the winter, and retain it for a year's ploughing in the autumn, at a point at the bottom of field No. 3, at the middle of the four fields to be worked, and that is the only spot where water can be collected, it being the spot to which all the drainage of the two top fields flows. Here we are then, with the tackle set down. We must begin to work field No. 4. The length of rope needed at starting to work this would be two ropes 900 yards long each. My 4-wheeled windlass would not hold such a quantity, therefore I must have a larger, and to some extent, a more expensive one. At starting (for the first 10 acres done), with all the rope out, the implement would travel very slowly, so much so that my averages in the end would be a good bit under 8 acres a-day of smashing, therefore the cost per acre must be greater. If the point on which the engine would stand were in the middle of an 80-acre field, the whole might be done, the engine drawing its own water from the tank; therefore if two other points, somewhat similar, could be fixed upon a 240-acre farm, three tanks would be all that would be needed to supply the engine at the three several points, and the shifting would be reduced to a mere nothing. The engine could draw the ropes out, as well as deliver the anchors, &c., at their proper points, and thus do away with the need of horses for that purpose altogether, the coal having been provided when the engine had nothing else to do. The thing is "possible" on my farm.

Now, to the next point—drilling and horse-hoeing, which "West Indian" implies must be done "by the farmer's nag and an old job horse," or perhaps by hire. Well, come, although we have got our locomotive, we are allowed a nag and a job nag, and if needs be, a bit of hiring; but I want to know who is to keep these horses to be let out to hire? But be that as it may, the farmer would have to pay for them, whether he hired or kept them himself; and if we are all to be steam-power farmers, we shall all want to hire at the same time, or nearly so, for we cannot let Wheat seeding stand over. For 14 years I have managed with a nag and three horses, then by the adoption of a locomotive all I could expect to save would be about one horse—for a nag, a job horse, and some hiring are allowed; but the saving of one horse out of four is worth having, if it can be had to advantage by the adoption of the iron horse that eats nothing, only when at work, and I will save it if I can.

Now on to haymaking: I cannot see how it is to be done without two engines, for we must have one to pull the big load on when loading, while the other engine takes the load home. We might be very careful, yet I should look upon them as doubtful customers amongst a lot of dry hay under a dry, hot sun. Look at our railway banks, and see how they are burnt-up in dry weather. Look again at the number of cornfields and buildings that are burnt up by our railways in a dry summer. Two years ago a canal steamboat, when passing through this parish, threw a burning coal 20 yards to a brickmaking shed, and burnt it down, yet the men with the boat declared that the wire net was over the chimney to prevent such an occurrence. The company were satisfied that the engine did throw the coal for all that, and paid for the damage. When I look at such facts as these I still feel frightened at having an engine amongst a lot of dry hay. Fires have taken place in our stackyards, but then the engine is stationary, and in dry weather, if there is any wind blowing, care is always taken never to let the engine stand for the smoke to be blown over dry straw.

Now I must have a word about pulling my corn up hill at harvest. My four fields of heavy land are situated by the side of a public road, along which everything is carted, and along which my sheep pass and re-pass to a grass-field daily. My buildings are placed in this lane. If I make a change for the sake of carting my corn down hill at harvest, my buildings must be shifted to the bottom of the field, and this public road will be of no use to me, for I must provide another along the bottom of my fields, and thus waste my land: and then I shall be no better off, for I shall have to pull the dung up hill, and as the straw is heavier when made into manure than it is with the corn in it at harvest, I should be worse off, especially if it should happen to be a bit wet after harvest before I could get the dung on my land; indeed, if it should not, I believe the engine could not pull the dung up. "West Indian" must know that either the corn at

harvest or the dung to the land must go up hill, and that I am not making a needless case against the locomotive: indeed I am not, for if I could make use of it I would have it. I like to be busy in September. "West Indian" has never heard me grumble about that; on the other hand, he knows that I press on everybody the necessity of driving on as much as possible all that month and October. Ploughing can be done by steam, but I say that so long as we are obliged to keep some horses to cart the corn as well as drill it, and do the job work on the farm, let them do the little that is needed, for they can do it better than steam can; but if we can do all this cheaper by a locomotive let us do without horses altogether; but a review of what I have written will show that I cannot, whatever other people may do; for, according to "West Indian's" suggestions, I must keep or hire two horses, besides keeping my pony: and I do not see my way clear enough to sell my windlass and buy another larger to do a less daily work, to pull down my barn and shed for the sake of pulling my corn down hill when my dung must be pulled up hill, to say nothing about wasting my land by cutting a new road along the bottom, while I have got a public road along the top. Taking it all in all, I dare not have anything to do with it. Let others try if they like. There are plenty who have got their land better situated for the task than I have. On a flat farm it can be done, but whether it can be made to pay I know not; to my mind it is very doubtful.

Mr. Mechi does not understand land drainage at all, for as to when a drain shall run depends upon circumstances. On my flat land drains have been running four months, on my hill lands only two months, and Mr. Mechi tell us of drains that only commenced running on the 8th of January. On my flat land all through last dry summer the water was within about four feet of the surface, on my hill land we had not a drop of water, and if I had dug a well 70 feet deep I should not have found any at that depth, for the thing has been tried. How near the water was to the surface on the land to which Mr. Mechi refers, on which the drains did not run until the 8th of January I know not, but there is a good reason why my drains on the flat land should run before those did on the hill, although they are all put in at the same depth. It is this. As soon as the land on the flat is well saturated with rain it is full to the depth of the water level, and the drains begin to run, but on the hill land the water will go down 70 or more feet, and that part of the bushel must be full before the drain can run out; and besides that, the top 4 feet must be saturated before the 70 feet at bottom can fill at all. What the circumstances could be, that the under-soil could hold the water until the 8th of January in Mr. Mechi's case, I know not; but it must have gone below the 4-feet drains, or they would have run before the 8th of January. *William Smith, Woolston, Bletchley Station, Bucks, Jan.* 18.

BRITISH AGRICULTURAL STATISTICS, 1867-1868.

[We continue the publication of the official tables.]

No. 2.—TOTAL ACREAGE AND PERCENTAGE PROPORTIONS OF EACH KIND OF CORN AND GREEN CROP IN EACH DIVISION OF THE UNITED KINGDOM.

Description of Crops.	Years.	England. Acres.	England. Proportions of Each Kind of Corn and Green Crop.	Wales. Acres.	Wales. Proportions of Each Kind of Corn and Green Crop.	Scotland. Acres.	Scotland. Proportions of Each Kind of Corn and Green Crop.	Total for Great Britain. Acres.	Total for Great Britain. Proportions of Each Kind of Corn and Green Crop.	Ireland. Acres.	Ireland. Proportions of Each Kind of Corn and Green Crop.	Isle of Man. Acres.	Isle of Man. Proportions of Each Kind of Corn and Green Crop.	Channel Islands. Jersey. Acres.	Channel Islands. Jersey. Proportions of Each Kind of Corn and Green Crop.	Channel Islands. Guernsey, &c. Acres.	Channel Islands. Guernsey, &c. Proportions of Each Kind of Corn and Green Crop.	Total for United Kingdom. Acres.	Total for United Kingdom. Proportions of Each Kind of Corn and Green Crop.
Corn Crops:—																			
Wheat	1867	3,140,025	42.4	116,733	22.4	111,118	8.2	3,367,876	36.3	261,908	12.4	7,821	28.9	2,352	83.2	968	44.9	3,640,925	31.9
	1868	3,396,890	45.3	130,552	23.8	124,683	9.1	3,652,125	38.7	286,790	13.1	8,347	29.9	2,743	79.4	1,013	46.1	3,951,018	33 9
Barley or Bere	1867	1,892,338	25.6	148,340	28.4	218,486	16.0	2,259,164	24.3	172,637	8.1	7,386	27.3	137	4.8	623	28.9	2,439,947	21.3
	1868	1,780,201	23.7	151,608	27.7	219,515	15.8	2,151,324	22.8	188,252	8.5	7,563	27.1	278	8.1	651	29.6	2,348,068	20.1
Oats	1867	1,506,361	20.4	247,006	47.4	997,120	73.1	2,750,487	29.6	1,659,412	78.5	11,347	42.0	303	10.7	449	20.8	4,421,998	38 7
	1868	1,488,479	19.9	257,153	46.9	1,011,430	72.9	2,757,053	29.2	1,699,919	77.5	11,627	41.7	378	10.9	410	18.7	4,469,387	38.3
Rye	1867	42,675	.6	3,124	.6	7,066	.5	52,865	.6	7,673	.4	29	.1	21		30		60,618	.5
	1868	38,397	.5	2,110	.4	6,389	.4	46,896	.5	7,854	.4	12	.1	24		41		54,827	.5
Beans	1867	505,539	6.8	3,435	.7	27,324	2.0	536,298	5.8	11,153	.5	255	.9	12	1.3	37	5.4	547,755	4.8
	1868	503,700	6.7	3,777	.7	22,423	1.5	529,900	5.6	8,813	.4	162	.6	15	1.6	53	5.6	538,943	4.6
Peas	1867	312,409	4 2	2,766	.5	2,915	.2	318,090	3.4	2,354	.1	201	.8	2		50		320,697	2.8
	1868	291,560	3.9	2,675	.5	2,001	.3	296,234	3.2	1,157	.1	177	.6	15		29		297,612	2.6
Total of Corn Crops	1867	7,393,347	100.0	521,404	100.0	1,364 029	100.0	9,284,780	100.0	2,115,137	100 0	27,039	100.0	2,827	100.0	2,157	100.0	11,431,949	100.0
	1868	7,499,218	100.0	547,873	100.0	1,386,441	100.0	9,433,532	100.0	2,192,785	100.0	27,888	100.0	3,453	100.0	2,197	100.0	11,659,855	100.0
Green Crops:—																			
Potatos	1867	289,611	10.8	45,077	32.6	157,529	23.6	492,217	14.1	1,001,545	70.0	4,011	31.6	2,062	36.6	789	25.7	1,500,624	30.3
	1868	327,173	12.7	47,431	37.0	166,939	24.8	541,543	16.0	1,034,853	71.1	4,459	33.5	2,280	39.5	1,078	28.3	1,584,213	32.6
Turnips and Swedes	1867	1,621,123	60.2	67,927	49.1	484,800	72.6	2,173,850	62.2	335,711	23.4	8,170	64.5	1,547	27.4	142	4.6	2,519,420	50.9
	1868	1,605,980	62.1	70,350	54.8	488,812	72.7	2,165,142	63.9	320,066	21.9	8,419	63.3	1,766	30.6	143	3.7	2,495,536	51.3
Mangels	1867	253,937	9.4	3,345	2.4	844	.1	258,126	7.4	18,805	1.3	47	.4	730	13.0	244	7.9	277,952	5 6
	1868	244,363	9.4	3,955	3.1	723	.1	249,041	7.4	19.067	1.3	44	.3	443	7.7	185	4.9	268,780	5.5
Carrots	1867	14,722	.5	346	.2	855	.1	15,923	.4	3,360	.2	233	1.9	913	16.2	221	7.2	20,650	.4
	1868	11,959	.5	368	.3	938	.1	13,265	.4	3,789	.3	244	1.8	316	5.5	201	5.3	17,815	.4
Cabbages, Kohl Rabi, and Rape	1867	128,863	4.8	679	.5	4,150	.6	133,692	3.8	35,703	2.5	17	.1	159	2.8	152	4.9	169,723	3.4
	1868	111,156	4.3	769	.6	3,158	.5	115,083	3.4	42,268	2 9	45	.3	45	.8	84	2.2	157,525	3.2
Vetches, Lucerne, and any other green crop, except Clover or Grass	1867	383,478	14.3	21,013	15.2	19,864	3.0	424,355	12.1	37,128	2.6	192	1.5	225	4.0	1,527	49.7	463,427	9.4
	1868	284,388	11.0	5,419	4.2	11,985	1.8	301,792	8.9	36,264	2.5	99	.8	916	15.9	2,117	55.6	341,188	7.0
Total of Green Crops	1867	2,691,734	100.0	138,387	100.0	668,042	100.0	3,498,163	100.0	1,432,252	100.0	12,670	100.0	5,636	100.0	3,075	100.0	4,951,796	100.0
	1868	2,585,019	100.0	128,292	100.0	672,555	100.0	3,385,866	100.0	1,456,307	100.0	13,310	100.0	5,766	100 0	3,808	100.0	4,865,057	100.0

THE ROYAL AGRICULTURAL SOCIETY.

THE improvements in practical farming since 1837 have been unparalleled. No doubt during the war period, in the first 20 years of the century, the wealth of the country was greatly increased by the inclosures. We have not been able to emulate our predecessors in that respect, for the simple reason that they anticipated us, and left us only Bagshot Heath and some other very unpromising tracts that we certainly have not had the courage to attack as yet. But in all the details of husbandry we have made great progress; we have invested capital in many spirited undertakings, by means of which the revenue of the landed interest has been largely increased; and the agricultural production of the country, and the national wealth, have received a great addition. The Royal Agricultural Society, we are glad to say, has had an honourable share in these transactions. It has been closely identified with the history of farming progress. The literature that it has diffused by its Journal has, we hope, been as the seed sown upon the waters, that will bear fruit after many days. Fruition is very slow in some cases, and some seeds are wrapt in so hard a husk that germination only takes place after the lapse of several years! But the Society sagaciously adopted other means of disseminating knowledge. The meetings it has held in all parts of the country have done more in the way of practical instruction than the Journal could possibly have effected, even if its Editor for the last 30 years had been a second Arthur Young.

Our conviction of the ultimate and permanent good accomplished by well-directed literary labours is not disturbed by the rapid effects of the Society's meetings, in spreading information and intelligence of a special kind. The ablest pen, though it can do much, and its influence may endure and may even increase, cannot rouse the spirit of emulation and excite the observation and interest, so vividly, as the practical instruction which is received in the visit to the showyard. Those high pales that every year surround the scene of competition enclose the muster-ground of the agricultural forces; most English farmers, and many foreign ones, have been repeatedly present at the grand tournament. It is needless to enlarge on the advantages they must have derived from witnessing this competitive struggle, peculiar to our own times, in which the victor's prize is a reward for excellence in the results of agricultural industry.

But we are writing of the past rather than of the present and future. These exhibitions will not cease to be popular, but while equally amusing they have already become less instructive. They have, to some extent, served their purpose; they have rewarded everything that ingenuity has devised, and that enterprise and skill have produced, both in the farmyard and in the factory; they have bestowed a prize, or commendation, on all sorts of improvements, and on many novelties that were not improvements, but were regarded as such by sanguine judges and purchasers, whose ruling idea seemed to be that what was most modern must be best. We do not deny that some fingers have been burnt at shows through incaution and being "greedy of new things;" but on the whole their practical utility has been very great. Some people may have bought experience of new implements and improved stock at a dear rate, but many more have made their selections with profit to themselves, especially when they have used their own judgment, without being too much biassed by the award of those who have sometimes measured excellence by what may be called a paint-pot standard, selecting implements not adapted to the rough work of an English farm, though very suitable, perhaps, for Arcadia, or "for exportation."

The field of invention is not exhausted, though it has been well cropped, but it is no longer a virgin soil; it will produce less in future, and the public requirements will be less. The farmer may be said to have "supped full" of agricultural shows; at any rate, his first hunger is appeased. The Royal Agricultural Society, therefore, must not rest its claims to favour on a sight, however attractive, and however useful, within certain rather narrow limits, it may be. Its teaching must not be confined to that of exhibiting and placarding good models. You may look at a pig, fixedly, and in a proper frame of mind, with great advantage, but after you have distinctly made out his opposite extremities, and decided why his tail dropped off—as it always does from a prize pig—you really cannot learn much more by staring at him. In fact, there is soon an end of the knowledge that only goes in at the eye, and even that which is incidentally acquired by discussion, when people meet together from all parts of the kingdom, is not the end and aim of what an instructed mind would desire. The Royal Agricultural Society has no work to which it should devote itself more earnestly than to that of supplying the higher wants of intelligent agriculturists, and, if possible, of attracting others, and exciting in them the same desires. It has many opportunities of usefulness, but none half so important as this, and none in which it shows itself, at present, so unfitted to excel or to succeed. We have shown that we owe much to the Society; it supplied a pressing, though we might almost add, a passing need. Farmers wanted to compare notes and to try conclusions in many matters. The Society gave them the opportunity of doing this. The work of the past thirty years cannot be repeated. The engineer who now constructs the machines of agriculture, aptly represents in his own person the progress we have made; he is an educated man and a Member of Parliament. His predecessor was a mere machine, and knocked up our farming-tools at the village forge. Such rapid transmutation cannot continue.

At that rate of development we might even expect one day to see wise men ruling at Hanover Square. But by that time other people will have mounted wings, and instruction in general will, perhaps, be little called for. It is unfortunate that now, while it is needed, it cannot be forthcoming. The recent nomination, to the post of Editor of the Journal, of a gentleman who is acknowledged to be ignorant of the art he should be able to teach, must, we fear, give members a very unfavourable impression. No doubt the names of the gentlemen who have made this unhappy mistake are a guarantee of their good intentions, but the desire and the power to do good are not always combined. This unaccountable proceeding can only be attributed to a want of true earnestness among those who manage the

Society's affairs; they are, no doubt, quite in earnest about Shorthorns or sheep, each according to his taste; and possibly they take an interest in chemistry, agricultural statistics, in "progress" in all sorts of directions, each according to his notion: but they have no real sympathy with farmers, only a sort of farmyard or showyard sympathy, which never crosses the threshold and sits down by the fireside. But without this real sympathy, true earnestness and energy in working for others cannot be attained, since what we do for others depends so greatly on what we feel and think about them. Agriculture offers a wide field for the pursuit of amusement, and moreover it is an honourable and attractive calling to which we can understand that the gentlemen whose conduct we are criticising are much attached; but we fear they do not care enough for farmers, though much for farming. This is most unfortunate, because they can do nothing for agriculture except through the agriculturist. If they had believed him to be amenable to the same influences and modes of improvement as the rest of mankind, they would not have set at defiance all the rules of polity and propriety in their appointment of Editor and teacher. Much might be accomplished by a competent Editor; but one who has not been trained himself is unfitted to teach others.

The Royal Agricultural Society of England, as we observed before, was established at a period when the energy of the agricultural body, never dormant in our time, was strongly roused. Its object was the improvement of English agriculture, and as this is a permanent not a transient work, the institution would necessarily gain solidity and harmony as it grew older if it fulfilled its purpose with success. But if it fail to be useful, or when it ceases to be useful, from any cause, it ought to be modified, like any other decaying establishment. We use this term in a sense that cannot be contradicted, since the Society is less flourishing than it has been, as regards its finances and the number of its members. We do not see in the present management of the Society either the elasticity or strength of a wise government that knows how to adapt itself to changing circumstances, or the firmness that ignores all changes. We have innovation with a vengeance, but what we want is steady conduct, progress, anything that any sensible and unprejudiced person would not condemn. *H. E.*

THE TIPTREE BALANCE-SHEET.

OUR old friend, Alderman Mechi, has again favoured the public with his annual balance-sheet. As the worthy owner of Tiptree arrogates to himself the position of teacher of agriculture, and in addition to his boasted proceedings there furnishes us with an array of figures intended to back his assertions, he becomes a fair object for criticism. The effect of these on persons practically acquainted with the subject, will at best provoke a smile. Were it not for the influence which his speculations are calculated to have on the minds of others not well versed in agricultural lore, but who are interested in farming, being made to appear more profitable than they are in reality, I should allow the good man to blow his trumpet in peace.

As it is, I will make an attempt to analyse his far-famed balance sheet:—

LIVE STOCK.

DR.—1867.			
Dec. 31.—Valuation	£1066	18	0
Live stock purchased	450	1	0
Corn, hay, &c., produce of farm, for do.	181	17	0
Purchased food for do.	690	19	4
Grinding for do.	24	0	0
Sundries for do.	1	17	6
	£2415	12	10
CR.—1868.			
Dec. 31.—Valuation	£1054	17	6
Fat meat sold	1264	10	11½
Wool sold	29	10	0
Balance, loss	66	14	4½
	£2415	12	10

Thus it will be seen that there is a direct money loss on the stock account of 66*l.* 14*s.* 4½*d.* If to this be added one-fourth of the labour and beer bills for attendance, the deficiency will be increased to 192*l.* 13*s.* 4½*d.* This is greatly opposed to the advice farmers are constantly receiving from other quarters that they must not go to the barn door for all, but look to their stock as a help to pay their rents.

If we look a little closer at the balance-sheet we shall find that the Tiptree system combines with the business of farming proper those of miller and market gardener, as well as a little haggle carting.

Under the following heads we find—

Grinding for hire	£39	5	1
Peas (for picking) sold	68	0	2
House work (on hire)	19	8	0
Hay sold	145	19	6
	£272	12	9

Now, sir, if every farmer followed Mr. Mechi's advice and got a fixed engine, there would not be much grinding for him to do for his neighbours. If we all grew green Peas for the London market, I apprehend the thing would be overdone. Job-cart is not always attainable, and most of us find enough to do without it. The sale of hay and straw is forbidden to the greater portion of the tenant-farmers of England. Yet it is the four items I have just enumerated that save the credit of the balance-sheet, and enable Mr. Mechi to show a profit.

He charges rent at 2*l.* an acre for the available land only (128 acres). If he were to let his farm he would charge his tenant rent for ditches, fences, roads, and the like, and in common honesty he should charge himself with landlord's measure. Apart from his live stock which, as his own figures show, involves an absolute loss of something like 200*l.*, his chief receipts are for Wheat, for the production of which his farm is naturally well calculated.

The last two or three years on well drained land Wheat has yielded well, and the price has been remunerative. It is this, and this alone, which has enabled him to present his balance-sheets to public notice. Had Wheat remained at 4*s.* 6*d.* or 5*s.* a bushel we should have had no detailed account of the profits of Tiptree.

Mr. Mechi is by no means the only man who thinks that because he does something different to other people it must be more clever. It oftentimes happens that a thing will do as an exception which would not answer at all as a rule. He tells that he raises great crops of Wheat through feeding bullocks at a loss. It has at all events the merit of being a showy system, and this with some persons goes a great way. He tells us, moreover, that we should all go and do likewise.

If we all turned feeders, and there were no breeders, will Mr. Mechi inform us whence we are to obtain our stores. If the farmers of England were all competitors for the few bred on the Welsh mountains, or which reach us from Ireland, we should get but few apiece, and what sort of margin would be left for profit when the beef was laid on?

It would be well for Mr. Mechi to reflect, that common sense and business knowledge are not monopolised at Tiptree. There are farms in this country adapted to feeding, others to breeding purposes. When a farmer takes possession of a new occupation it is for him to consider for which purpose his land is best calculated, and adopt a system most in consonance with its natural capabilities. That man is the best farmer who manages his business on the commercial principle of obtaining the largest return he can for himself with the least expenditure of capital consistent with keeping the land in good heart and condition; and not the man who, with an overflowing purse, adopts a showy system, involving a great outlay, and then swaggers about his gain of 10 per cent., eked out by millering, market gardening, &c.

Mr. Mechi tells us that many tradesmen would be well satisfied with 10 per cent. profit on their returns; he does not tell us, though, that the capital invested in trade, aided by the credit the trader receives, is in many cases turned over perhaps 10 times in a year; thus, 10 per cent. becomes cent. per cent. I have had some insight into both trading and farming, and am not talking without book. For several years I was in the habit of passing, almost daily, Mr. Mechi's establishment in Leadenhall Street, and I would back that against Tiptree at ten to one.

Mr. Mechi is, doubtless, an amiable enthusiast. He has made farming his hobby-horse, and he rides him very hard. It amuses him to hear himself talk, and I dare say he believes all he says. Different people hold different opinions, and some, no doubt, put faith in his dogmatic teachings. I will frankly say that I do not. Had I a son whom I wished to apprentice to the business of a farmer, with a view to his getting a livelihood, Tiptree Hall would certainly not be his destination. *F. W. Bignell.*

Home Correspondence.

Will the Liberal Government Establish a Board of Agriculture, or an Agricultural Department in the Board of Trade?—I answer, yes, if it can be shown to be sufficiently necessary or advantageous. The Board of Trade now professedly undertakes the management and regulation of every department, both of trade and agriculture, and all public matters connected with either trade or agriculture go through the office of the Board of Trade. This may be all right as far as it goes, but the great bulk of agriculturists cannot rest satisfied with such a secondary order of things. They consider their interests paramount; and to be subordinate to a Board of Trade is humiliating, if not altogether wrong. It might put agriculturists in better humour, and would look more definite and trustworthy, if this Board of Trade adopted the additional words, "and Agriculture,"—*i. e.*, "the Board of Trade and Agriculture,"—with the understanding that trade was represented in one office and agriculture in another. This would suffice so long as agriculture was fully recognised, and every effort put forth to promote its security and prosperity. This in fact is what we want, and what we certainly don't get. Now this being the case, what can a separate department in the Board of Trade, or a really new Board of Agriculture, do for it? Well, this board or office would have all matters connected exclusively with agriculture brought before it, and not being encumbered with the trade department, everything would be more promptly dealt with and action immediately taken wherever required. If well conducted it would prove a great safeguard, and be a trustworthy guide to all engaged in agricultural pursuits. It would be the very place for agriculturists, generally or individually, to apply for information, or to address their complaints upon any emergency: *i. e.*, suppose an outbreak of cattle plague, small-pox in sheep, or any of the evils to which we are subject, occurs, the information is sent to the office, and without delay it is at once seen to. What a safeguard this. No awaiting the circumlocution of Privy Council meetings and Orders in Council. But what are to be the special duties, and the business to be attached to this office? The collection of agricultural statistics would be one of its most important duties. To this would be attached much business. The appointment of officers to collect the statistics, the times of collection, the mode of collection and frequency, the reception of the returns, the making them promptly up, so as to prove most beneficial to agriculturists as their future guide, and the regulation of the foreign cattle trade the importation of sheep and other foreign farm stock would be another very important department in this office. This of all others would be the most onerous—the exercise of unwearied watchfulness against imported diseases. It would be the duty of the office to seek the earliest and most authentic information from all parts of the world relative to danger from these imported diseases, and to take energetic and decisive measures to prevent their introduction. If for no other purpose, as a most important safeguard it would be right to establish an office for this special service. Far better than to trust to the veterinary office the regulation of home supplies, of modes of transit by rail or otherwise, of stock markets to prevent local infections, of infringement of orders from abroad, of prevention from dangerous stock diseases by injurious contact; and the thousand and one minor matters over which this office might hold a salutary influence by the exercise of a judicious control. Then, without adopting or seeking class legislation, the office might, in fact ought, to take an oversight of all matters connected with or pressing exclusively upon agriculture, with a view to their alteration, improvement, or removal—*i.e.*, the pressure of the Malt-tax, the pressure of local taxation, the hardships from game laws or game preserves, also the consideration of the laws between landlord and tenant, the law of hypothec, the land question of Ireland, the averages of grain as they affect the tithes, the importations of grain, of feeding stuffs, of manures, of wool, of vegetables, fruits, &c.; in fact every production of the soil should be subject to inspection or oversight and regulations from this office. Besides these matters there are many others of which a board or office of agriculture (designed as I take it to be to promote the best interests and prosperity of agriculture) ought to take especial cognisance; I mean such as county expenditure (*i.e.*, financial boards), road reforms or expenditure in highways, turnpike trusts, river reforms, or arterial drainage, sewage of towns collection, enclosures of commons and wastes, Government advances upon subsoil drainage of incumbered or life estates, and all other subjects and matters arising connected with the soil. Unquestionably there would be plenty of work found for a good and efficient office. *O. F.*

Farmer Mechi's Balance-Sheet fixes him thus:—

House, buildings, machinery, and 177 acres of land, gross profit thereon	£525	13	6
Rent, exclusive of tithes	£301	0	0
or an average of 34*s.* an acre.			
Interest on 2858*l.*, at 5 per cent. ..	142	18	0
The balance, or what Farmer Mechi gets for his year's work	81	15	6
	£525	13	6

34*s.* an acre does not appear an over high rent when we see a fixed steam-engine, irrigation pumps, millstones, and threshing-machine included, and draining all done. The balance of 81*l.* 15*s.* 6*d.* for the farmer's year's work is by no means a great one for his care and trouble of looking after 177 acres of land, as well as his 2858*l.* of tenant's capital. My carter gets better paid, and so does many an agricultural labourer, who has little or no care about anything. Here is the position of my carter. He has at home with him a wife, three sons, and a daughter. He has a house and garden free of rent. Here is his income:—

Last year I paid to the father and two boys (one 17, and the other 14 years of age)	£95	16	0
The earnings of wife and daughter are put well under the mark at	6	10	0
The younger son earns nothing.			
	£102	6	0

Now, compare a farmer's position, with a balance of 81*l.* 15*s.* 6*d.* for his year's work (with say a wife and four children), with this man. The farmer must be up and doing from day to day, from week to week, and from year's end to year's end. His children must be educated and clothed by the interest of his money, not by his earnings, for that will not do it, for his earnings will all be wanted for bread and cheese and one expense or another. Yet he must not turn his back upon charity, much as he needs it himself, for the parson will frown at him if he does, and look upon him as one of the niggardly middle class. The labourer now-a-day gets vast advantages here over him, for he gets his children educated for nothing, and he comes in for gifts at Christmas and other seasons of coals, beef, tea, as well as clothing; and he will not only frown at the parson if he gets none, but will keep away from his church. All this I know to be true, but then Farmer Mechi may tell me that his average income is 12½ per cent., which gives to him for his year's work on an average 160*l.* 6*s.* 6*d.* That looks better; yet for all that it is nothing like so good pay as my carter's is, for when the farmer's bread and cheese, the school bills and clothing, &c., are all in and paid for, I cannot see much of a balance left; and besides that, it is not every farmer who has got a Mr. Mechi's head upon his shoulders to assist him in making cheap pork and beef; and besides that we cannot all go upon his plan of buying store cattle and feeding them, for there must be some breeders, even if their "losses are much greater" in a year like the last. Taking it all in all, assisted by Mr. Mechi's evidence, I take it that the farmers of England are paid the worst for their labour of any class of men in the country, and get frowned upon the most. Mr. Mechi's average price of Wheat in 1868 stands at 63*s.* 9*d.* per quarter. I should like to know how much of that Wheat grew in 1867, and how much in 1868. *A Farmer.*

Steam Cultivation.—A copy of the *Agricultural Gazette* has just reached me, in which "Agricola" refers to my letters in the *Messenger* of November 30, and December 21, upon steam cultivation, and expresses his regret that I have closed the correspondence, but at the same time pays me the compliment of asking me to "lend him a hand," as "he is thinking of purchasing a steam apparatus for the cultivation of his farm." "Agricola's" farm of 200 acres is too small to

employ any steam cultivating apparatus; and unless he can get some neighbour or neighbours to join him who have land to cultivate, he had better content himself with good horse-power, or take more land himself. He states that "his average root crop is 35 to 45 acres." I therefore presume that his is comparatively light land; if so, he will not find steam cultivation nearly so profitable as on heavy land. Besides, "Agricola's" fields of "from 6 to 14 acres" are, like his farm, much too small for profitable steam culture, and as he would seem to entertain a sort of religious veneration for the hedges and trees which were "planted by his grandfather," he appears disinclined to interfere with them, or the "nice country appearance about the farm," hence his present idea would seem to be to allow things to remain as they are. If so, he had better leave steam cultivation alone. It will not pay him; and if he has some surplus cash, for which his bankers probably only allow him a very small interest, let it remain there until a more profitable investment can be found than that of steam cultivating machinery on a small farm of light land. Some years ago, I gave a very intimate friend similar advice, but he, being of a sanguine temperament, backed his own opinion, bought a set of cultivating tackle, worked it for years, and I have no hesitation in saying, both from my own observation and the testimony of his neighbours, that if the money expended upon it had been invested in Three per Cent. Consols, his family would now be many hundreds, and probably thousands, in pocket. Do not let me be understood as being opposed to steam cultivation: on the contrary, I am a decided advocate for it, and hope to see it extend year by year until that milennial period when, if possible, the soil of England may be made to support the population of England. *Ploughboy, Jan.* 16, 1869.

Steam Cultivation.—[The above letter on this subject appeared in last Monday's *Bell's Messenger;* and the following is "Agricola's" reply:]—"Ploughboy," in *Bell's Weekly Messenger*, has certainly "begun with the beginning and ended with the ending" of my letter; but he has not answered it. The "hope" I expressed, that he would lend me a hand must, I see, be "deferred," as he passes over the real portion of my letter without even a note of encouragement to the Editor, that the space so kindly placed at the disposal of men of such wide-spread experience will shortly be filled up. "Ploughboy" may rest assured I am really a farmer, farming 200 acres, or thereabouts, and, I may add, working for my rent, or, other words, livelihood. The question at issue, as I read it, is, not the implement that can do most work per diem, but that exhibits most economy in its application and adaptability to the farm-work generally. If I piece out my work—ploughing and cultivating to one contractor, threshing to another—my next door neighbour, a sort of "Jack of all trades," will drill and harvest for me; "West Indian" will be sending circulars to say he will take me and my 10 qr. to market for a "song"—each of these industrious individuals informing me that farming is a gentlemanly employment. Certainly, with contractors—such "Oliver Twist" contractors as your correspondent Mr. Harry Rivington (p. 1349, 1868), mentions—it would be gentlemanly employment with a vengence. Where the employment, except as paymaster? He refers to my grandfather's hedges, assuming I had a religious veneration for an inanimate thing! but the implement can be fashioned to the farm. Now, let us hear his reasons:—"Light land," to begin with, detracts from profitableness of cultivation,—my fields, like my farm, too small for steam cultivation. But the land is not too light, or fields too small, to pay at the rate of 10*s.* to 16*s.* per acre for ploughing, when it appears it can be done for six, or even less. If it can, as it does, bear the higher sum, it certainly can the latter or smaller. I attended Mr. Smith's field lecture, and he pointed out a five-acre field, on the right-hand side of the road going from the homestead, which was cultivated from the green lane, the size being not at all an inconvenience. I must not encroach on your kindness: but allow me once more to ask "Ploughboy" if the statement quoted by Mr. Smith, of Woolston, taken from the *Agricultural Gazette* of 20th January, 1866, is correct or not? Will he aid me?—will he aid "Smithonian" in finding the whereabouts of this cheaper working tackle?—and, on behalf of myself and seven more of my farming friends, will he fill up the gap in the *Messenger?* And will he also follow Mr. Mechi's example, and send a copy to each of the agricultural papers? *Agricola.*

Irish Land Management.—There is a great deal of truth in the letters of both your correspondents, "Fingal" and an "Irish Landlord." Irish land, like land in other countries, varies in different situations, and must be managed as the conditions under which it lies point out. In some cases an English arrangement is possible, in others it must be dealt with according to the peculiar habits of the people by which it is occupied. It is generally wise to give a tenant who has some capital, more industry, and a farm not under 50 statute acres, a lease. There are many judicious outlays a landlord may make, but in some counties, as Meath and Tipperary, it requires considerable tact to improve without incurring the hostility of the Ribbon society, which acts with perfect success and security. The question, however, of the Irish land has become rather political than economic. The demand for "improvements" was never perfectly honest. It meant a good deal more. Perpetuity of tenure, it does not matter how obtained, is what the Irish tenant wants; that which he demands as a right. He looks upon the connection between himself and his landlord as a copartnership. The one has a right to the head rent, the other to whatever his own industry, outlay, or the increase of value may bring. It is, therefore, useless to consider under what conditions the utmost produce can be taken from the soil, what terms are best, and what number of persons the agricultural area of Ireland can maintain, until it is understood whether or not this claim to copartnership will be granted. A settlement of this question is essential to agriculture. The tenure of land, the principles on which land should be held, require to be fully discussed; but I deny their consideration should be confined to Ireland. If the tenant in one place ought to have a share in the soil, why should it be refused to him in another? If perpetuity of tenure ought to be granted to an Irishman, why is it to be denied to a Scotchman. Are great concessions to be yielded to one class because it is poor, ignorant, and discontented, and refused to the same class elsewhere because it is, in comparison, wealthy, energetic, and respects the law? A "political remedy" is never successful unless it is founded on some principle. To concede to agitation, to satisfy one set of men at the expense of another, may suit party purposes, but will eventually ruin what it was intended to promote. The objection which will be alleged is, that in England the landlord has invested a large capital in his property, while in Ireland it is the tenant who has so done. But in Ireland, also, a considerable capital has been invested in the soil by the landlord, though over a limited extent, believing in the security of his property. The tenant does more in Ireland than in England; but, as far as my experience goes, his improvements are seldom permanent, or of much money value. The capital laid out in Ireland on the land is not one-half of that laid out in England. The social habits, tastes, and wants of the greater part of Irish farmers require much less than do those of an English farmer. The farm buildings with which the Irishman is satisfied, the house in which he lives, the condition of the land, are generally very different from that with which an Englishman or Scotchman would be content. The anxiety to possess land is so great, that every disadvantage is overlooked, and a price above its value offered. There is yet another consideration which largely influences in Ireland the national feeling; not that that system of cultivation should be employed, nor that character of agriculture adopted, which is most profitable, but that which can maintain the largest population. If the farmers are less rich, they will be in larger numbers, and the produce of the soil more equally divided. These are some of the problems which agitate Ireland, and in whatever way they are answered in that country, there will be a corresponding echo in Great Britain. They are not easy of solution; they require careful thought. If they are discussed with calmness and impartiality, it is to be hoped that the relations of landlord and tenant may be improved: at least, they will be understood. But no statement of the question fair to all will be attained if it is used by professional statesmen and political agitators for the purposes of party; and none will ensure the prosperity of the country in which the interests of agriculture, practical and scientific, are not fully considered. *Brinsley Marlay, Jan.* 26.

Over-fattened Breeding Stock.—With reference to an article in your last paper on the subject of breeding stock being shown in an over-fed state, I have to inform you that the Highland and Agricultural Society of Scotland adopted the following rule some time ago:—"Breeding stock must not be shown in an improper state of fatness, and the judges will be prohibited from awarding premiums to overfed animals. *F. N. Menzies, 3, George IV. Bridge, Edinburgh, Jan.* 25, 1869.

Scab.—I bought in the autumn some sheep infected with the scab. They were put into a field of 60 acres, and their condition was not discovered for two months, during which time they had rubbed themselves against many trees and fences. Towards the end of November they were dressed effectually with mercurial ointment, and are apparently quite cured by the first dressing. I cannot disinfect all the surfaces against which the sheep might rub in so large a pasture, and I want to know at what period I may safely put other sheep into the same field. In common with my neighbours, I have very little experience of this pest, and I shall feel much obliged to any of your correspondents who can give through the *Agricultural Gazette* the information I require. *C. Paget, Ruddington Grange, Nottingham.* [An answer is given under Notices to Correspondents.]

Moule's Earth Closets.—Nothing is now said about them. Can you obtain the experience of your correspondents who have tried them? It appears to me one of the most important questions, especially in a manufacturing district, where most of the night-soil is worse than wasted. *J. Carter, Nursery, Keighley, Yorkshire.*——I have read with great interest the article by "W. B." on Sewage, and the reply to it by Mr. Hope, Parsloes, Barking. With regard to Moule's dry-earth system, could you give an idea of the market value per cwt. of the mixture furnished (for agricultural purposes) by Moule's plan? Have gardeners ever bought it, and what have they given? I think his plan was tried at Wimbledon lately: were the deposits bought by farmers in the neighbourhood? *Amateur.* [Will any reader state his experience?]

Sewage Farming Prospects.—Thanks to Mr. Hope for his reply. The sewage practice he so ably advocates evidently requires a more thorough investigation at the hands of practical farmers like myself than it has yet received, and it affords me much pleasure to find that his paper runs parallel to mine in the main. The objections in my paper are those which have been raised during the past year in the discussion of the sewage question. He answers them one way, I another, so that the two put together give double force to the argument in favour of the Barking practice. As to apparent differences, they belong chiefly to the march of improvement, I being in the vanguard of progress, while he comes up slowly in the rear. Many of my readers, if not the majority, are familiar with the fact that I am no amateur of the Mechi school, but a practical farmer of upwards of 20 years successful experience, during which I doctored farmyard manure and sewage, and grew heavier crops than have yet been grown at Barking. But in doctoring I did not mix the guano and superphosphates, &c., either in the dung-hill, liquid manure tank, or flowing sewage. At the same time I have always found farmyard manure and sewage subject to improvement, both by preventing waste and adding fertilising matter. And instead of finding fault with my neighbours' doings, either in the field or dairy, my maxim has been to improve my own practice. In plain English, I consider the Barking practice farther behind in the march of improvement than it should be. With regard to "facts" and "deductions" Mr. Hope is very unfortunate in the disposal of them. Thus, he is only one party in the agreement at Barking, the other party, the sellers of the sewage, being at least equally interested; and if the sewage is worth, say three times the money the latter now receive for it, the time may come when they will tell him that they are more deeply interested financially than he: and the same holds good of other towns. As to the waste of flowing sewage in sewers and open mains, I took it for granted (see my paper) that my readers were familiar with the oxidation, and consequent waste, of manurial matter in flowing water—the limited space at my command preventing me from going into details under this head, so as to refute erroneous argument to the contrary. Thus, the comparison made between the smell of musk, a natural product, and a volatile oil, and of sewage, the product of decomposition, is not a sound practical one, and on that account falls to the ground. The argument of liberated ammonia in a room containing stagnant water in a basin is equally devoid of practical force. The analysis of a gallon of sewage at one place and of a gallon at another further down the sewer, as at Barking and at the Maplin Sands, does not furnish any exact or trustworthy evidence—*i. e.*, facts—as to the waste of the sewage between the two places. As to the noxious gases in the sewers they are the manifest exponents of waste, and when once liberated they cannot be confined even within cast-iron pipes, much less brick sewers. Such facts are established, and therefore cannot be overthrown by the theoretical deductions of chemical professors. The replies to the third and fourth objections have not a foot to stand upon, for profits can be increased and expenses reduced in the usual way by progressive chemical and mechanical appliances, while storm-water can be removed without the expensive process of desiccation. Sewage tanks are only required where farmers cannot get a direct supply from the mains when they require it, or but half the quantity they need, and they differ from cesspools in many other respects, and as to the application of sewage or manure of any kind, to the land in the frosty weather, the practice is out of date, and when Essex farmers use the sewage then it will be a fact. The question of supplying towns with country milk has just now received a fresh stimulus from the Society of Arts, and nothing will afford us greater gratification than to hear of farmers doubling the number of their milch cows, such being the practical way of proving an increased demand for the milk. *W. B.*

Societies.

HIGHLAND AND AGRICULTURAL: *Jan.* 20.—At a general meeting of this Society, the Duke of Buccleuch, K.G., President of the Society, occupied the chair. The most noble the Marquis Tweeddale, K.T., was elected President, and 74 new members were elected.

THE ABERDEEN SHOW—1868.

Mr. KINLOCH, yr., of Gilmerton, said he had to state, for the information of the meeting, that the last general show of the Society, held at Aberdeen in August last, was a successful one, although it cost them something like 450*l.* He could not say that the exhibition in all classes was equally successful. For instance, the exhibition of thoroughbred horses was a complete and wretched failure. The exhibition of this class of stock at Kelso was bad enough, but at Aberdeen it was ten time worse. He hoped that hereafter the directors would not allow local pressure to cause them to offer prizes for stock which they themselves did not approve of. The exhibition of Clydesdale horses and Ayrshire cattle was not such as they were accustomed to see at the shows of the Society; but there were special reasons for that in the refusal of the railway companies to make certain concessions in their regulations for the conveyance of stock. He then alluded to the opposition show held in Glasgow by those gentlemen who did not send their stock, owing to the failure to make a suitable arrangement with the railway companies. These gentlemen would have met with the sympathy of the members of the Society; but what did they do? At the last moment, they organised an opposition show in Glasgow, to be held on the same day as the Society's show. He could only wish that these exhibitors had heard the remarks that were made in the showyard at Aberdeen in regard to their conduct. When they read in the newspapers of the following day that "the show on Tuesday in Glasgow was the most successful of the kind that had been held," they knew that the animals so exhibited were the animals that should have been standing in the empty stalls at Aberdeen. He supposed, however, that bygones must be bygones. He was glad to state that, owing to the kind services of Mr. Stirling of Kippendavie, he had good hopes that the railway companies would make some concessions previous to the Edinburgh show. He trusted they would be able to announce that horses and bulls would be carried free on their return journey in horse-boxes; and also that all stock might be conveyed to and from the show in special cattle trains. That, he knew, did not fully meet the demands of the requisitionists in the south-western districts; but he hoped they would give the directors credit for having gone carefully into the matter. He might say that it was the unanimous

opinion of the directors that it would be unreasonable to ask anything more of the railway companies.

THE EDINBURGH SHOW IN 1869.

Mr. KINLOCH, yr., of Gilmerton, stated that the arrangements for the general show at Edinburgh this year were in a satisfactory state of advancement. The premium list and regulations were on the table for approval, and the prizes offered amounted to nearly 1500*l.*, irrespective of the value of the medals which might be awarded for extra stock and for the first-prize animals at former shows. The Lord Provost and the Magistrates and Council had consented to allow the show to be held in the West Meadow Park, the Society agreeing to relieve the city of all loss of rent or otherwise which may be sustained, restoring the ground to a proper state for grazing after the show, and fencing the trees in such a way as to prevent their being injured. In 1859, the city of Edinburgh contributed 100*l.* towards the general expenses of the show that year, and it was expected that the authorities would not be less liberal on the present occasion. The counties connected with the show—Edinburgh, Haddington, and Linlithgow—had all agreed to a voluntary assessment according to rental. He had only to add further, that the directors had thought it expedient to fix the days of the show for Wednesday, Thursday, and Friday, instead of Tuesday, Wednesday, and Thursday. The show would accordingly take place on the 28th, 29th, and 30th of July.

THE DUMFRIES SHOW IN 1870.

Mr. KINLOCH reported, in reference to the show of 1870, that a requisition had been received from the district of Dumfries—consisting of Dumfriesshire, the Stewartry of Kirkcudbright, and Wigtownshire—asking the directors to hold the show at Dumfries. That request had been favourably entertained, and he had been instructed to submit the following resolution for the approval of this meeting:—"That this meeting approves of the general show of the Society being held at Dumfries in 1870, and authorise the directors to make the necessary arrangements."—The resolution was adopted.

CHAIR OF AGRICULTURE.

Mr. LAWSON, of Borthwick Hall, reported that the arrangement agreed to by the general meeting in January last, in regard to the endowment of the Chair of Agriculture in the Edinburgh University, had been fully carried out. He stated that the agreement was that the sum of 150*l.* per annum should be given by the Society for ten years, on condition that Government gave an equal or a greater sum; and that it had been reported at the half-yearly meeting of the Society in June last that the Lords Commissioners of the Treasury had agreed to include 150*l.* in the estimates. The vote had since passed, and the first half-year's allowance had now been paid both by Government and by the Society. —The report was approved of.

VETERINARY DEPARTMENT.

Mr. GILLON, of Walhouse, convener of the Veterinary Committee, reported that up to the present time the attempts to get an independent Royal charter for a Veterinary College had failed; but they did not mean to give up the contest. It would be renewed on the first opportunity. They must have a Royal charter for Scotland, and the sooner they could get it the better. Mr. Gillon proceeded to report that the Society continued to take a lively interest in all that concerned the welfare of the Veterinary College. On the 2d of November last he attended the opening of the College, and listened with pleasure to a most excellent address delivered by Dr. Dalzell to the students. He was happy to notice the very numerous attendance, and he could not help remarking that they were a very superior class of young men. The College was now in a very prosperous condition, and he thought it would continue to be so under the able direction of Principal Williams and those who laboured with him.

CHEMICAL DEPARTMENT.

Professor ANDERSON reported the proceedings connected with the Chemical Department. In the course of his remarks, he said that he had arranged for the experiments for the present season, which were likely to be of a very important kind. They were but on a small scale, but such as would go over the whole rotation. He had been afraid that, owing to the drought, the experiments would have been a failure, but he was glad that they had turned out well up to this time. In regard to the work of the laboratory, he believed that the number of analyses had exceeded that of any previous year. He had been successful in detecting some important cases of adulteration, so that farmers had been able to recover from the sellers a considerable sum of money.

Mr. HARVEY, Whittinghame Mains, said he thought that this subject was connected with the most important department of the Highland Society. It was all the more important, particularly in a year like this when roots had been so very meagre. He had been reading Dr. Voelcker's account of the chemical department of the English Society, in which that gentleman said that the extent of adulteration had this year been altogether beyond precedent. An instance was given of pigs killed through having been fed on cakes containing such poisonous stuff as castor-oil beans, and the still more poisonous Curcus Bean. In more than one case bearing the press stamp "pure" the cake had been adulterated to a very great extent. He thought that the chemical department of the Highland Society might be made still more useful by perhaps appointing a committee to take steps to stop, as far as was in their power, that abominable system of adulteration. They, as agriculturists, knew what was good land and what was very bad, but few of them knew what their animals fed upon or what fertilisers to put into the land. He wished to bring the matter under the attention of the directors, so that they might take it into consideration; and also that possibly it might be connected with the Chair of Agriculture, so that the young farmers might be able to analyse these things for themselves. He made this proposal in sincerity for the use of his brother farmers, well knowing the very large sum that was annually paid for special manures and feeding stuff.

Professor ANDERSON said he would be glad to join in any additional precautions so as to enable the Society better to detect adulteration. He did not say that the question of adulteration was in so satisfactory a state as they could wish it to be; but he thought there was less adulteration than there was some years ago. He was quite sure that the number of inferior manures in the market was smaller than formerly.

PREMIUMS FOR REPORTS ON THE SCIENCE AND PRACTICE OF AGRICULTURE.

Professor BALFOUR reported that the following premiums had been awarded for reports since the general meeting in June:—

1. 15*l.* to James Black, *Courant* Office, Elgin, for a report on the Agriculture of Aberdeenshire and Banffshire.
2. The Gold Medal or 10*l.* to George Armatage, M.R.C.V.S. (late Professor of Anatomy and Physiology, Glasgow), Leighton Buzzard, Beds, for a report on Pleuro-Pneumonia.
3. The Gold Medal or 10*l.* to William Brown, junior, Edderstone, Peebles, for a report on the Best Construction and Arrangement of Byres, Sheds, and Courts for Cattle, with a view to Sanitary Arrangements.
4. The Gold Medal or 10*l.* to George Menzies, Trentham, Stoke-upon-Trent, Staffordshire, for a report on the Conditions which should Regulate the Carriage of Stock by Railway or by Sea, as well as its Transit by Road.
5. The Medium Gold Medal to Robert Hutchinson of Carlowrie, Kirkliston, for a report on the Profitable Extension of the Poultry Department in a Mixed Farm in Scotland.
6. The Silver Medal to the author of a report of Experiments and Improvements on Wire Fencing, bearing the motto—"Good Fences are Good Shepherds."

Dr. BALFOUR also stated that the following premiums would be offered in 1869:—

On Subjects connected with the Science and Practice of Agriculture:—

Agriculture of East-Lothian	£30
Agriculture of Inverness-shire	30
Farming customs and covenants of leases formerly in use in Scotland	20
Various modes of striking the fiars prices in Scotland	10
Manures produced by different kinds of feeding	20
Manures made with and without cover	20
Applying manure to the stubble in autumn or in the drills in spring	20
Cheapest, speediest, and most convenient mode of covering the grain crops in harvest	10
Improved varieties of agricultural plants	10
Comparative productiveness of Potatos	10
Comparative productiveness of Turnips	10
Cultivation of Cabbage as a field crop	10
Vegetable productions of India, China, and America	10
Best modes of housing fatting cattle	20
Different descriptions of food for stock	20
The duties of the veterinary surgeon in examining horses as to soundness	10
Disinfecting agents for stock for preventing attacks of cattle plague	20
Dipping, pouring, and smearing sheep	20
Advantages of a system of contract entered into between stockowners and veterinary surgeons	5
Improved methods of transporting butcher-meat for distances that may occupy from 24 to 48 hours	5
Improvements in the vessels used for transporting milk from country districts	5
Rural economy abroad susceptible of being introduced into Scotland	10

Land Improvements:—

General improvement of estates by proprietors	10
Reclamation of waste land by tillage by proprietor or tenant—10*l.*, 5*l.*, and Silver Medal.	
Improvement of natural pasture without tillage—10*l.* and Silver Medal.	

Agricultural Machinery:—

Invention or improvement of implements of husbandry	50

—The report was adopted by the meeting.

PREMIUMS FOR REPORTS ON WOODS AND PLANTATIONS.

Dr. BALFOUR then stated that since last general meeting the following premiums have been awarded for reports lodged in competition under this department:—

1. The Gold Medal, or 10*l.*, to C. Y. Michie, forester, Cullen House, Cullen, Banffshire, for a report on the formation and management of young plantations.
2. The Medium Gold Medal, or 5*l.*, to John E. Brown, Wass, Oswaldkirk, Yorkshire, for a report on the American and Canadian forest trees adapted for cultivation in Great Britain.
3. The Silver Medal to Robert Hutchison, of Carlowrie, Kirkliston, for a report on forest trees of recent introduction into Scotland.
4. The Silver Medal to the author of a report on planting on exposed or barren tracts, marked "Onward."

Professor BALFOUR further reported that the following subjects have been proposed for the current year:—

Extensive planting by proprietors	£10
General management of plantations	10
Planting on exposed or on barren tracts	10
Value for economical purposes of Corsican Fir	5
Forest trees of recent introduction	5
Advantages of using home-grown timber as compared with foreign	5
Effects of the very dry season of 1868 on trees and shrubs	5
Results of seedlings of Conifers, the produce of trees grown in Britain, as compared with plants from foreign seed	5

TRANSACTIONS FOR FEBRUARY, 1869.

Mr. IRVINE, of Drum, said the next number of the "Transactions," being No. 4 of the Fourth Series, would be published in February.

Farmers' Clubs.

EDINBURGH CHAMBER OF AGRICULTURE: *Jan.* 14. —*Transit of Cattle by Railway.* Mr. REID, of Granton, read a paper on this subject. He said:—Railway officials are alive to the fact that sheep and cattle are taken to the shambles from their feeding ground through a process of slow torture in trucks or steamboat holds, but from, I suppose, pecuniary interest, have turned a deaf ear to the moanings and lamentations of their innocent prisoners. No better experience could be got of their sufferings than the melancholy description of the recent wreck of the Hibernia. As most of you know, I have for many years been doing all in my power to draw public attention to the grievous and cruel wrong the country has been perpetrating ever since the transport of live stock has been principally accomplished by means of rail and steamboat. In providing the animals with neither water, food, nor shelter, during a period of, it may be, 20, 40, 60, or any other number of hours when on the journey they are made to perform, and carried through the air at the rate of from 25 to 30 miles an hour; at other times shunted into a siding for hours together, exhausted, bewildered, and half mad with fatigue, cold, thirst, and general misery, such conduct is a crime against the laws of both God and man. If the watering, feeding, and ventilating waggons which I have invented were to be introduced as the only vehicle for the transit of stock, pleuro-pneumonia, and many other diseases which afflict our stock, would be rarely if ever heard of—the population and agricultural community would be saved from serious losses, and our butchers would be able to offer us more wholesome food, and at lower price.

It is a wonder that the present mode of conveying cattle should ever at first have been commenced, without means being provided whereby they could be watered and fed. Of course, it is well known to every one that the entire business of all animals intended for human food is to eat, drink, rest, and sleep, without intermission. The first thing they do when rising from their lair—even in moist weather, when feeding on rich sweet grass—is to go to a watering-place and drink before beginning to eat; and this, on the authority of ancient and modern agricultural writers, they do 12 times during 24 hours. No wonder such lamentable results follow, when the animals are suddenly deprived of all the comforts of their existence, and sent away on a journey of 60 or 70 hours' duration, confined in a close box, which, no doubt, under present circumstances, has this good property, that, when the cattle become mad through thirst, they cannot by any mean leave their place of confinement. While the poor beasts are at home, it is the constant study of the farmer to see not only that all their wants are supplied, but also the greatest care is practised that they should be kept in perfect health till they are fit for market. What follows then? They are taken out of the fields, or the warm, well-ventilated house, and driven to the first railway station, panting from unusual exertion, reeking with perspiration. They are in this state packed into open-sided trucks, shunted and knocked about. Whoever has travelled at all must have witnessed with horror such scenes, and every human being must feel for such needless sufferings. Eventually, they reach their journey's end in anything but a fit state for market. And apart from the question of cruelty, there is the question of the health not only of the animals themselves, but also of those for whose food they are intended. Cattle or sheep arriving from a long journey, when taken from the fœtid hold or truck, will drink of the filthiest pool with relish. This is the sort of preparation for the blood of animals that will shortly after be conveyed as food to the stomachs of human beings. From my knowledge of the natural habits of animals in a healthy state, I am perfectly satisfied that a liberal supply of water should be given to them while confined in a steamboat or truck, once, at least, in every five hours. A draft Bill has been proposed by the Chamber of Agriculture, whereby they propose to give water to animals when on a journey by rail or sea every 10 hours. Now, no thought is required to tell our judgment that this would be a grave error. When I have already shown that cattle when pasturing on rich Grass require to drink at least every two hours, how can they be satisfied or kept in health if they only receive a drink every 10 hours? If we would in this matter judge them more by ourselves, we would find that in our requirements on a journey to London, even while sitting at our ease in a first-class carriage, we are almost certain to partake of liquid refreshment two or three times during the journey.

But not only in a humane point of view has the subject of transit of stock great interest and importance to a commercial country such as ours. Leaving altogether out of sight the barbarous inhumanity practised in the present mode of conducting our extensive cattle traffic, and taking a purely economical view, we arrive very nearly at a true conclusion of its evils to our prosperity and trade, and also to the well-being of the entire population. This has been proved from facts which are clear and undeniable when the matter is investigated. The statistics of the Norfolk Insurance Company, as given by Mr. Finlay Dunn lately to the Scottish Chamber of Agriculture, show that the death-rate of cattle from pleuro-pneumonia alone ranged from 43½ to 63½ per cent. in 1863, and in 1864 to 35 per cent.; under the restrictions of 1866 it fell down to 1 per cent., and never rose above that point until the unrestricted traffic was resumed about the end of 1867, when, during the first seven-and-a-half months of 1868, under the old system of cattle-transit, the death-rate reached 30 per cent. From this it is shown clearly where the loss to the country lies. Besides, we must take into consideration the large quantities of beef and mutton which are damaged from the knocking about the cattle receive while in trucks of the present construction, from the pressure of one animal upon another while being shunted, or going up and down inclines, when too many animals are packed together, so that really much meat is rendered unfit for human food from bruises received in this manner. And to meet this great loss which I have endeavoured to point

out, we require to fall back for a supply from abroad, thereby causing large sums of money to be paid out of the country for a perishable article that could with careful management be obtained at home, as this country is perfectly capable of rearing and feeding as many animals as would supply the whole population, if all the departments of the business were carefully managed. Not that I object in the least to bring foreign stock into this country from any fear of infection, if the animals are healthy when put on board, and properly and carefully attended to during the journey. To meet any expense that railway or steamboat companies would necessarily incur in effecting a change so greatly required, more money would require to be paid by the feeder and breeder for transport than is paid at present. And this, by the showing of an experienced London salesman, would be paid back to them a hundredfold. He says cattle worth from 30*l.* to 40*l.* are depreciated to the extent of 5*l.* per head during the journey from the north of Scotland to London. And there can now be no doubt that the stoppage of the cattle traffic was a very serious loss to all railway companies.

As I do not wish to exhaust your patience, I will now draw to a conclusion with a short extract from the "Story of the Truck." "For my own part, though I am no philosopher, yet I hold to this, that whatever our reason proves to be wrong or defective, it at the same time enforces the duty of change and reform; that no palpable evil is to be passively submitted to as incurable. In such spectacles as dumb beasts imprisoned for days at a stretch in steamboat holds or railway trucks, no matter whether the season be scorching from a strong sun overhead, glaring like a ball of fire, or the keen-cutting frosty wind blowing strong, accompanied with hail, sleet, or rain, intensified in bitterness from the speed of the train, enough to freeze up the very marrow—all who dispassionately look at this matter must behold an enormous wrong, a terrific evil; and in their heart of hearts cry out for a remedy to get such a wrong redressed. If railway companies were to be held responsible by law for the proper delivery of live stock in the same condition and value that they received them, a change in transit would soon be adopted; but there is little prospect of such a boon till Government comes forward with its strong arm to settle the matter. Every one remembers the erection of drinking fountains in our streets, and what an immense benefit has resulted from them to men, horses, cattle, and dogs; and no doubt they have been the means of protecting great numbers of the canine race from hydrophobia."

Reviews.

Revue des Deux Mondes, November 15, 1868. An article by L. de Lavergne on "l'Enquête Agricole" in France.

In an article at p. 370 of the *Agricultural Gazette*, 1866, we gave a statistical account of the agriculture of France. Low prices for corn had been the rule for several years. In 1865 the average price of Wheat was 38*s.* 6*d.* per qr. English farmers were not then very flourishing, but the French were actually distressed. The general complaints gave rise to a discussion in the Chambers, followed by the appointment of a Government inquiry into the condition of agriculture. This investigation has now been completed, and we are able to lay the results before our readers. We ventured to predict that the cause of complaint was beyond the reach of an "inquiry;" that it arose from the great abundance of corn, followed, in accordance with a well-known economic law, by such a disproportionate depression of price as left the farmer a loser by his increased crop. Forty shillings a quarter is not a satisfactory price for Wheat, but the English farmer can produce it at a lower price than his next neighbour, and has nothing to fear from his competition.

The central system in France gave the Government a very efficient machinery for undertaking the investigation referred to. The country was first divided into 28 districts, under presidents chosen from among the members of the Chambers, or from Government officers. These were each assisted by a Government official, and were placed in communication with the prefects. Thus about 200 Commissions, of 10 or 12 members each, were formed, and they held their sittings in all the chief towns. The numerous agricultural societies and farming clubs in France were catechised by means of printed lists of questions. This elaborate inquiry has been conducted in this way in the most systematic manner, and the result must necessarily be the collection of an immense amount of information on everything relating to farming and to rural economy generally.

The enormous mass of documents, containing all that could possibly be known on agricultural matters, or imagined by the lively French mind, had first to be condensed by official pens, as after a census or annual return of crops here. The solid and substantial matter contained in these rivers of information has been separated by a process which may perhaps afford a wrinkle to the Metropolitan Sewage Company, who have not yet succeeded in eliminating the good from the bad at Barking. There are 28 district reports in all, of which 12 have been "elaborated" and printed at the Imperial Printing Press, in a style worthy of Napoleon III. The final result is a quarto volume of 350 pages.

Of course it is the cue of the Minister of Agriculture to show that everything prospers under the Empire, or to find a good excuse for any awkward fact, but in M. Lavergne we have a critic who cannot be deceived. Our readers will recognise him as the author of works on the rural economy of England and of France, and as a very eminent agricultural statistician.

The following facts relating to agricultural affairs have been culled from the minister's quarto volume. The value of landed property has decreased in the past 20 years. The official and optimist explanation is that, the country being more prosperous, capital which formerly overflowed now finds new outlets, and is diverted from the land. Probably the true explanation is the diminution in the rural population and consequent decrease in the number of purchasers of land; the moderate-sized properties have suffered most.

There is no jealousy between the large and *petit* farmers. The little holders are famous for their laborious habits and their economy. They are considered a benefit and a necessity to the community, and a great stay to political security. It is the excess of division that is to be deplored, as when 2½ acres are divided into ten or a dozen scattered plots. This state of things is found in the West especially, where in one commune 2080 acres are divided among 270 proprietors, whose little estates are split up into 5348 plots! Lawsuits between neighbours are the consequence, and great loss of time and labour in cropping and cultivating. This evil, centuries old, and arising from the law of succession, is increasing.

The general opinion of the law of succession, as gathered by the "inquiry," is in favour of its distribution amongst the members of the family, but is opposed to the existing article in the civil code which allows any one of them to insist on his share being paid both in personal and landed property, when both are left behind. A division of the property is recommended, which will admit of as little splitting up of landed property as possible. A law is also called for to enable neighbours to make exchanges on payment of a duty of one franc.

The insufficient amount of capital invested in farming is ascribed to the following causes:—The temptation of more remunerative investments; the scarcity of manual labour; the existing system of mortgages; the delays and formalities connected with distraints and forced sales; and the general inclination of owners to buy land, instead of putting more capital in their present occupations. The investments which have drawn off capital have been, foreign securities; lotteries, which are a very attractive mode of gambling; and above all, the state loans. The sum required in the past 15 years to meet the expenses of the army and of enormous public works, has amounted to between 200,000,000*l.* and 240,000,000*l.*

The agricultural loan and credit companies have at present been of little use, in consequence of their charging a high rate of interest. It is proposed to abolish that article in the civil code which only allows an owner to give as security for a loan such property as can be actually placed in possession of the lender, or of a third person agreed upon.

The decrease in the rural population in the past 20 years, owing to the general movement of the work-people towards the towns, where they are better paid, has occasioned great alarm to farmers and an inconvenient rise in wages. The enormous standing army weighs most heavily on the resources of the country. It draws off the labourers, checks population, and increases mortality, even in time of peace, in consequence of the unhealthy conditions of barrack and garrison life. The increase of the population has always been in inverse ratio to the strength of the army. Here is the great drawback to agricultural prosperity. There is but one opinion on the subject of the annual levy of 100,000 men; it is more than the country can support. Three-fourths at least of the men are drawn from the country. The proprietor class is divided into large, moderate, and small owners; of these the last suffer most. A peasant farmer who loses his son is almost a ruined man. It shows the attractive force of towns, that in the department of the Seine their population has increased by 750,000, while the adjacent country districts are half deserted.

M. Lavergne is of opinion that the two most effective reforms for the restoration of rural prosperity and population are a reduction in the army and in the scale of public works. He recommends machinery to supply as far as possible the deficiency in labourers; and is in favour of savings banks and mutual aid societies, and of special instruction on subjects connected with horticulture and agriculture.

Farm Memoranda.

HAISBOROUGH, NORFOLK.—The following remarkable history has probably never been paralleled, and may, therefore, be recorded as a genuine agricultural maximum. It relates to a period of 15 years ago, but is authenticated by trustworthy eye-witnesses. Mr. William Cubitt, of Bacton Abbey, North Walsham, well known in Norfolk as an energetic practical agriculturist, writes as follows:—

"I now send you a short history of the extraordinary field of Wheat to which I previously alluded, as also a communication on the subject from the owner and occupier of the land, George Wilkinson, Esq., whose veracity may be relied on.

"This field, situated in the parish of Haisborough, about 4 furlongs from the sea, contains 5 A. 1 R. 38 P., and is of average fertility with the lands adjoining, being a good loamy soil resting upon a strong subsoil, but sufficiently porous not to require draining, and suitable to every kind of cropping.

"In 1843 it was sown with Peas, probably preceded by Wheat. In the autumn of that year it was again sown with 'Spalding' Wheat—about 3 bushels of seed per acre. It came up thickly, and in the following spring, and during the summer it presented an unusually luxuriant appearance, particularly when fully shot into ear, so much so as to attract the attention of all passers-by. Many bets were made by practical men as to its probable yield, some estimating the produce at 9 quarters per acre. The field was harvested separately, and on threshing yielded 11 quarters 2 bushels per acre. In the same season and upon land almost adjoining, but occupied by another, 10 quarters per acre were produced. In the parish from which I write, the same harvest produced upon land near the sea from 7½ to 9 quarters of Wheat per acre, and an equal yield of Barley. There are the largest crops on record in this neighbourhood—5 quarters of Wheat per acre, and from 5 to 6 quarters of Barley, being a full average. These heavy crops to which I have alluded cannot be in any degree owing to high or extra farming, for, although 1844 is of such recent date, yet at that period it was not the custom upon the good lands of this district, as now, to use artificial manure for roots, nor to consume them with so great an admixture of oil-cake and other artificial food as during the last few years; and yet, for all this, the produce does not perceptibly increase; on the contrary, with regard to the inferior grain, especially Barley, it has become a general complaint through this part of the county that it has of late years deteriorated both in quantity and quality; therefore I cannot but arrive at the conclusion that extra prolific crops are not so much the necessary consequences of high farming as of favourable seasons. Now, 1844 being the most prolific year ever known in this neighbourhood, the question arises, What were the peculiarities of that season? I am only in a position to assert that the summer of that year was the most genial I ever remember; the drought was not equal to the two just past, but from the month of March till the end of September we had an unusual number of sunny days, with fewer storms and atmospheric changes."

. . . . "Since writing the above I have been informed by Mr. Wilkinson that the field in question had not been treated differently from other parts of the farm. The usual four-course system was pursued; but to lessen the acreage of the root crop it is often the custom on such lands to take a crop of Peas or Beans after Wheat, and then Wheat again, as was the case in the instance referred to. With regard to the other crop of 10 quarters per acre, it was grown by a gentleman (Mr. Howes) who had occupied land in the parish for a period of 50 years, and who had been frequently heard to affirm that he never before grew anything approaching to such a crop; 7 quarters per acre being the largest crop his land ever produced previously to 1844.

"It may also be interesting to state that Mr. Wilkinson again planted Wheat on the field producing this very extraordinary crop the succeeding year, and the yield was something less than 4 quarters per acre. He farms 400 acres, and the land is all of the finest quality. His statistics, given below, refer to the coomb of 4 imperial bushels.

"The land I occupy is very similar, and I have come to the conclusion that to farm it unusually high, and stick to the usual four-course system, is occasionally attended with great loss and disappointment. My plan of late years has been to pursue no particular course, but to crop close and extend the rotation, as, for instance, thus:—1, Turnips or Mangel Wurzel; 2, Wheat or Oats; 3, Barley; 4, Clover, or other seeds, or Beans; 5, Wheat; which is a kind of five-course shift, care being taken not to lay down more land with seeds than is required for the use of my horses. After Barley, therefore, I usually grow a field or two of Beans, but always grow as large a shift of roots as possible, being generally well paid by the winter grazing of sheep and cattle, and also by the means thus afforded of getting the straw made into good manure."

Mr. Wilkinson, the owner of the field in question, writes thus to Mr. Cubitt:—

"N. Walsham, 25th Nov. 1859.

"Dear Sir,—I am unable to find the particulars of the crop grown in 1844 in the stable-close containing 5A. 1R. 38P. The produce exceeded 22 coombs an acre, landlord's measure; and I think it amounted to 22 coombs 2 bushels. The previous crop was Peas. I attribute this abundant crop to the season, and not to any particular course of husbandry. I send you my average for seven years, including 1844, both of Wheat and Barley; and am yours truly, GEORGE WILKINSON.

	Wheat. C. B. P.	Barley. C. B. P.
"Harvest 1844	13 0 2	13 0 0
,, 1845	8 3 0	11 3 0
,, 1846	10 3 0	10 1 0
,, 1847	10 0 2	12 0 0
,, 1848	9 1 2	10 0 0
,, 1849	11 2 0	11 2 0
,, 1850	9 2 3	9 3 1
	7)73 1 1	7)78 1 1
Average produce per acre for the last 7 years	10 1 3	11 0 3
	or 5 qrs. 1 bush. 3 pecks.	5½ qrs. 3 pecks."

[We give this history from a collection of agricultural maxima, published eight years ago by Mr. J. C. Morton, in the Journal of the English Agricultural Society, hoping that some of our correspondents may be induced to report to us instances of the many agricultural maxima which the harvest of 1868 has no doubt presented.]

The Poultry Yard.

THOSE who aspire to honours at the poultry shows of 1869 should now be very busy with their early chickens. We hope the exhibitors will be many, but we fancy that at present the chickens are few. The old proverb tells us not to count them before they are hatched, but we offer a few remarks on the treatment of the eggs from which they are expected, and hope by so doing we may increase their number. It is at this time of year, and for the next two or three months, that eggs for setting are sold by the principal amateurs and dealers. Many a lady whose fowls are an amusement, and many a man to whom his few fowls are a great pleasure, in his half hour's relaxation from office or shop, make the pleasure profitable by the sale of eggs for setting.

The purchase of a pen of prize or commended fowls

at a show, followed by an advertisement that some of their produce will be disposed of, generally draws forth plenty of letters from amateurs who, unwilling or unable to expend the sum necessary for the purchase of the birds themselves, do not object to risk the purchase of a setting of eggs.

The packing of eggs for travelling is a subject that has received a good deal of attention of late. Since the attempt made by the Acclimatisation Society of New Zealand to introduce some of our best known birds, by means of eggs, every sort of package has been tried. We recommend for ordinary journeys baskets something similar to those in which Stilton cheeses are packed, but stronger in make, and with an arched lid, to increase the strength of them. A layer of dry moss being put in the bottom, each egg is wrapped up in a nest and placed narrow end downwards in the basket. The moss is very elastic, and binds well, so that there is no fear of the eggs moving when well filled in. The lid should be well sewn round with string. Another mode of packing, and a favourite one, is with chaff in a box instead of a basket; the eggs are placed on a layer of chaff in the bottom of the box, and then covered and surrounded with chaff, so as to prevent the possibility of their touching one another. We do not think this mode equal to the other, for we have known eggs sent to America, Nova Scotia, and Russia, hatch out a good proportion when packed in moss and basket.

A Correspondent writes, with reference to our article on "Trimming Exhibition Fowls," in last week's Number, as follows:—"It is a pity that committees do not make examples of glaring instances of trimming, by putting in a clause in their schedules, whereby all trimmed birds should be at once returned to the exhibitor, and a card placed in the empty pen, saying why it was vacant." This suggestion may have its value, but our correspondent must bear in mind that the schedules are framed to induce exhibitors to contribute their birds; and however just and impartial may be the desire of committee-men, clauses of a positively deterrent nature are to be avoided.

Catchicus writes to ask if he can keep pheasants in a pen on his lawn and make them pay? We think he can. A little pheasantry is easily built in wire or rustic work, the birds are small consumers, and if kept in good condition the hens will lay freely during the spring.

Miscellaneous.

How the French Fatten their Poultry.—Any of our countrymen who, from rheumatic gout, or any other ailment, may be sent to Vichy, would do well, as soon as they have sufficiently recovered the use of their legs, to pay a visit to the Villa Belvedere, where a very singular mode of fattening poultry has for some time been successfully pursued. A large circular building, admirably ventilated, and with the light partially excluded, is fitted up with circular cages, in tiers rotating on a central axis, and capable of being elevated, depressed, or rotated, which are so arranged that each bird has, as it were, a separate stall, containing a perch. The birds are placed with their tails converging to a common centre, while the head of each may be brought in front by a simple rotatory movement of the central axis. Each bird is fastened to its cell by leathern fetters, which prevent movement, except of the head and wings, without occasioning pain. When the feeding time comes, the bird is enveloped in a wooden case, from which the head and neck alone appear, and which is popularly known as its *paletot*, by which means all unnecessary struggling is avoided. The attendant (a young girl) seizes the head in her left hand and gently presses the beak in order to open it; then, with her right, she introduces into the gullet a tin tube about the size of a finger. This tube is united to a flexible pipe, which communicates with the dish in which the food has been placed, and from which the desired quantity is instantaneously injected into the stomach. The feeding process is so short that 200 birds can be fed by one person in an hour. The food is a liquid paste, composed of Indian Corn and Barley saturated with milk. It is administered three times a day in quantities varying according to the condition of each bird. The food seems to be very satisfactory, for if any chances to fall they devour it all as soon as they are released from their paletots. The poultry-house is well ventilated, but of course it is impossible for any place in which 600 fowls are confined to be entirely free from smell. It takes about a fortnight to fatten a bird by this method. Before being killed the birds are left in a dark but well-ventilated chamber for 24 hours without food. Each fowl is then taken up by its feet, is wrapped up so as to prevent all struggling, and then bled so adroitly in the throat that its death seems instantaneous. The blood is then allowed to flow from it; and finally, after being plucked, washed, and cleaned, it is wrapped in a damp cloth, and is ready for sale. From 40 to 50 fowls are thus killed and sold daily. *Once a Week.*

Calendar of Operations.

FEBRUARY.—The peculiarities of seasons and the progress of practice have at all times their claims upon the farmer, and from upwards of 20 years' experience in harness we feel it almost needless to say that the ensuing spring will require a more than usually thoughtful circumspection.

Land Drainage.—The present is a favourable time for the farmer to examine the effects of thorough drainage, subsoiling, steam culture, and the liquid and sewage manure systems, so as to gain information where they have no experience, and to make comparisons if otherwise. Farmers' sons, after they have served an apprenticeship, should make a professional inspection of those farms and districts where information of the kind in question is to be obtained, taking care not to allow anything sensational to divert their attention from the main object in view, otherwise the journey will do harm rather than good.

To keep out-door work close at the heels of spring is no easy task in seasons like the present. A large area of clay soils is yet but very imperfectly drained, while a great breadth remains wholly undrained, and when we bear in mind the diversity of climate in which these are situated, between the Land's End and John o' Groats, it is more easy to imagine the details of out-door work than to say what they really are and will be. No doubt the old rule, "Work such soils between the wet and the dry," applies, but familiar as this rule is, it will be found no easy matter carrying it out to the best advantage during the current spring. If the land is frost-bound sufficiently firm to permit of carting dung, hills may be formed in fields distant from the homestead, and all other carting upon the farm advanced.

A proper seed-bed for spring crops of every kind cannot be estimated at too high a value. With the incredible harm done to land at this season by the feet of the teams in preparing it for the seed, and also in drilling in the seed, and in harrowing, all are familiar; but it is otherwise with the best mode of obviating such losses by means of steam. At the same time it must be borne in mind, that this important question is being slowly and satisfactorily solved. On clay and porous soils, and land effectually drained naturally, out-door work was generally well advanced at the commencement of the month, so that the weather is the only thing that now retards the operations of spring; and we need hardly tell our practical readers that "Early to bed and early to rise" is the rule for contending with the fickle weather of our climate—one which all understand, but which many do not practise.

The large breadth of autumn Turnips is just now giving our southern provinces no little work, of rather an exceptional character, and in the north, where the summer crop is generally allowed to remain on the fields, and to be pulled and carted home as required. The season is likewise throwing fresh experience upon the farmer. To meet both cases a twofold practice is suggested—the first, to lay in a supply of roots at the homestead, so as to provide for live stock in the event of a snow-storm or frost; and the second, to check the forward vegetation of the season, which is exhausting both the land and roots. In the north four plans have long been in use:—1. Top and tail, and stow the bulbs either in barns or pits. 2. Tail only, storing the bulbs with the tops in barns or large heaps, the latter being covered with straw, and horse-dung when severe frosts set in. 3. The third plan is technically termed "clumping" in some parts. The Turnips are thrown into the cart as they are pulled, without being either topped or tailed, but with as little earth as possible. They are next planted as close to each other as they can be placed, the roots in the ground and the green tops uppermost, on some piece of Grass or stubble-land near the homestead—the empty part of the stackyard being sometimes filled full. In this way a large field of Turnips is stored within a very small space, the tops defending them from the severe winters and springs experienced. In point of fact, a warm southern spring, with an exuberant vegetation, is more to be dreaded than frost and snow. But should the former take place, begin at one side, tail the roots and replant, taking care to cover the large bulbs with the tops as much to defend them from the sun as the frost. Set the large bulbs first, and then place the smaller ones above and between, so as to make a close thick cover of green top. 4. A double mould-board plough is run up the land, or, what is better, an out-cutting with the common plough, and into the open trench thus made the Turnips are placed. Sometimes they are topped and tailed, the tops being thrown over the roots for a covering; others prefer covering the roots with earth by the plough; sometimes they are tailed only, and set in the trenches, the green tops uppermost; others pull and set with the roots and earth on them. We have tried each of these plans, but prefer the first, when no value is put upon the tops, and the third when the tops are required for store cattle.

Artificial Manures are now got ready for spring use. Those intended for drilling or sowing broadcast along with the seed require to be thoroughly mixed with ashes or fine dry mould. Some mix beforehand, others sift, weigh, and mix as the work of sowing requires; we have tried both, but prefer the latter. The work requires to be carefully done, otherwise the manure cannot be distributed equally. It is one of those manipulations which cannot be taught by book-rule, simple as it may appear to the superficial observer—wet weather and dry having their respective requirements. The person, therefore, who does the work must comprehend what suits the machine at the time, and if he does so he should be kept at it, and we have always found it advisable, for obvious reasons, to make the same person prepare the ashes. *W. B.*

Notices to Correspondents.

GRASS: *Herba.* Your Grass arrived in too imperfect a state for identification. We have, however, saved some of the seed, and may possibly be enabled to observe it in a growing and fresh state.

SCAB: *Ruddington Grange.* It would be quite safe to introduce fresh sheep into a field three weeks after "scabby" sheep had been removed. If the weather is wet and cold, a less time (ten days) would suffice for the destruction of any acari, or their ova, which might have been left on the "rubbing places." Fresh sheep might be put in the "infected" fields at once if they were previously dipped in, or washed with, soap and water containing one part of carbolic acid to one hundred of water. We have known animals so treated resist the infection for months, although they were pastured the whole time in the same field with "scabby" sheep.

WORMS IN GREYHOUNDS: *Lancaster.* Iron filings, 1 drachm; ground glass, 1 drachm; to be made into four pills, and one to be given daily. If not successful—oil of turpentine, 3 drachms; castor oil, 3 drachms; to be well mixed together, and given once a day for several days.

RICHARD SMITH'S
FRUIT LIST



Contains a sketch of the various forms of Trees, with directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by post for three stamps.

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RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE, suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious index of their synonymes. Free by post for six stamps.

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DWARF-TRAINED TREES.—By the Thousand, Hundred, or Dozen. Apples, Pears, Plums, Cherries, Peaches, and Nectarines. Fine, flat, well-trained, of best quality, and true to name.

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ORCHARD-HOUSE TREES Fruiting in Pots.—Peaches, Nectarines, Apricots, Cherries, Plums, Pears, Apples, Vines, and Figs.

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EVERGREEN HEDGES.
AMERICAN ARBOR-VITÆ, 4 to 5 feet, at 50s. per 100; 5 to 6 feet, at 84s. per 100; 6 to 7 feet, at 100s. per 100.
SIBERIAN ARBOR-VITÆ, 2 to 2½ feet, 40s. per 100; 2½ to 3 feet, 60s. per 100; 3 to 3½ feet, 75s. per 100; 3½ to 4 feet, 100s. per 100.
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SURPLUS STOCK.—VERY CHEAP.

SPECIMEN CONIFERS and EVERGREENS, handsome and well-grown, for Lawns, Pleasure Grounds, and Parks, have been recently transplanted, and are full of health and vigour. For Descriptions, also Prices of smaller quantities and sizes, see RICHARD SMITH'S LISTS.

Trucks for 1 ton and upwards may be sent through to any Railway Station on the narrow guage lines, at a moderate cost, thereby saving delay and expense of packing.

At 12s. per dozen:—

Arbor-vitæ, American, 5 to 6 feet	Norway Spruce, extra fine, 3½ to 4 feet
„ aurea, 12 to 15 inches	Phillyrea oleafolia, 2 to 2½ feet
„ Lobbii, 2 to 3 feet	Picea balsamea, 4 to 5 feet
„ Siberian (Ware's), 3 to 3½ feet	Portugal Laurel, 2½ to 3 feet
Aucuba japonica, 18 to 21 inches	Pyracantha, scarlet berried, 1 to 1½ foot
Berberis Darwinii, 1 to 1½ foot	Pinus Laricio, 3 to 4 feet [2 feet.
„ Jamiesonii, 12 to 15 inches	Rhododendron ponticum, 1½ to
Cupressus Lawsoniana, 3 to 4 feet	Taxus japonica, 15 to 18 inches
Hemlock Spruce, 3 to 4 feet	Thujopsis borealis, 2 to 2½ feet
Hartogia capensis, 1 to 1½ foot	Thuja plicata, 2 to 3 feet
Juniperus chinensis, 1½ to 2 feet	
Mahonia japonica, 9 to 12 inches	

At 18s. per dozen:—

Abies inverta, 1½ to 2 feet	Juniperus chinensis, 2½ to 3 feet
„ Douglasii, 2 to 2½ feet	„ Leeana, 2 to 2½ feet
„ Menziesii, 4 to 5 feet	„ Schottii, 2 to 2½ feet
Arbor-vitæ, American, 6 to 7 feet	„ thurifera, 1½ to 2 feet
„ compacta, 1½ to 2 feet	„ glauca, 1½ to 2 feet
„ Lobbii, 3 to 4 feet	„ drupacea, 15 to 18 inches
„ Siberian (Ware's), 3½ to 4 feet	„ viridis pendula, 2 to 3 feet
Aucuba japonica, 2 feet	Laurel, Colchic, 5 to 6 feet
Berberis Darwinii, 1½ to 2 feet	„ Portugal, 3 to 3½ feet
„ Jamiesonii, 15 to 18 inches	Mahonia japonica, 12 to 15 inches
Cedrus argentea, 2 to 2½ feet	Pinus austriaca, 3 to 4 feet
Cryptomeria Lobbii, 5 to 6 feet	„ Laricio, 4 to 5 feet
„ viridis, 5 to 6 feet	Phillyrea oleafolia, 2½ to 3 feet
Cupressus fragrans, 3 to 4 feet	Rhododendron ponticum, 2 to 2½ feet
„ Lawsoniana, 4 to 4½ feet	Taxus elegantissima, 15 to 18 ins.
Hartogia capensis, 1½ to 2 feet	„ gold-striped, 15 to 18 inches
Hemlock Spruce, 4 to 5 feet	Thujopsis borealis, 2½ to 3 feet
Ivy, green, tree, 1½ to 2 feet	Thuja plicata, 3 to 4 feet
„ new silver-striped, tree, 15 to 18 inches [15 inches	„ incurvata, 3 to 4 feet [ins.
„ tricolor variegata, tree, 12 to	Wellingtonia gigantea, 15 to 18

At 30s. per dozen:—

Abies elegans, 2 to 2½ feet	Irish Yews, 5 to 6 feet
„ inverta, 2½ to 3 feet	Juniperus chinensis, 3 to 3½ feet
„ Menziesii, 6 feet	„ fragrans, 2 to 2½ feet
„ orientalis, 2 to 2½ feet	„ glauca, 3 to 3½ feet
Arbor-vitæ, American, 7 to 8 feet	„ Leeana, 2½ to 3 feet
„ compacta, 2 to 3 feet	„ Schottii, 3 to 3½ feet
„ Lobbii, 5 to 6 feet	„ thurifera, 3 to 4 feet
„ Siberian, 4 to 5 feet	„ virginiana, 5 to 6 feet
Arbutus unedo, 2½ to 3 feet	„ viridis pendula, 3 to 4 feet
Box, tree, 2½ feet by 2½ to 3 feet	Laurel, Colchic, 7 to 8 feet
Cedrus argentea, 3 to 4 feet	Pinus austriaca, 4 to 5 feet
Cupressus Lawsoniana, 4½ to 5 ft.	„ Laricio, 5 to 6 feet
„ fragrans, 4 to 5 feet	Taxus elegantissima, 1½ to 2 feet
„ McNabiana, 3 to 4 feet	Thujopsis borealis, 4 to 4½ feet
Garrya elliptica, 2 to 2½ feet	Thuja incurvata, 4 to 5 feet
Hemlock Spruce, 5 to 6 feet	Wellingtonia gigantea, 2½ feet

At 42s. per dozen:—

Abies Albertiana, 3½ to 4 feet	Juniperus glauca, 4 to 5 feet
„ inverta, 3 to 4 feet	„ Leeana, 3 to 4 feet
„ orientalis, 2½ to 3 feet	„ Smithiana, 3 to 4 feet
„ pyramidalis, 4 to 5 feet	„ thurifera, 5 to 6 feet
Arbor-vitæ, American, 8 to 9 feet	„ virginiana, 6 to 7 feet
„ aurea, 2 to 2½ feet	„ viridis pendula, 4 to 5 feet
„ compacta, 3 to 3½ feet	Laurel, Colchic, 8 to 10 feet
„ japonica, 2½ to 3 feet	Pinus, Cembra, 5 to 6 feet
„ Siberian, 5 to 6 feet	„ Laricio, 6 to 7 feet
Cedrus argentea, 4 to 5 feet	Quercus austriaca sempervirens, 3 to 3½ feet
Cupressus fragrans, 5 to 6 feet	„ Fordii, 3 to 3½ feet
„ Lawsoniana, 5 to 6 feet	Thujopsis borealis, 5 to 6 feet
Hemlock Spruce, 6 to 7 feet	Thuja Lobbii, 6 to 7 feet
Irish Yews, 6 to 7 feet	Wellingtonia gigantea, 3 to 4 feet
Juniperus chinensis, 3½ to 4 feet	
„ densata, 4 to 5 feet	

At 60s. per dozen:—

Abies Albertiana, 4 to 5 feet	Juniperus chinensis, 4 to 5 feet
„ inverta, 6 to 7 feet	„ thurifera, 6 to 7 feet
„ orientalis, 3½ to 4 feet	Pinus Cembra, 6 to 7 feet
„ pyramidalis, 5 to 6 feet	Quercus austriaca sempervirens, 3½ to 4 feet
Arbor-vitæ aurea, 2½ feet	„ Fordii, 3½ to 4 feet
„ compacta, 3½ to 4 feet	Thujopsis borealis, 6 to 7 feet
„ gigantea, 4 to 4½ feet	Wellingtonia gigantea, 4 to 5 feet
„ japonica, 3½ to 4 feet [ins.	
Cephalotaxus Fortunei, 21 to 24	

Each:—

Abies Albertiana, 6 to 7 ft., 7s. 6d.	Picea grandis, 5 to 6 feet, 21s.
„ „ 7 to 8 feet, 10s. 6d.	„ nobilis, 3 to 3½ feet, 31s. 6d.; 300s. per dozen
„ Douglasii, 8 to 10 ft., 7s. 6d.; 84s. per dozen	„ „ 3½ to 4 feet, 42s.
„ „ 10 to 12 feet, 10s. 6d.; 100s. per dozen	„ „ 4 to 4½ feet, 51s. 6d.
„ Menziesii, 7 to 8 feet, 5s.	„ „ 4½ to 5 feet, 63s.
„ „ 8 to 10 feet, 7s. 6d.	„ Nordmanniana, 4 to 5 ft., 21s.
„ orientalis, 5 to 6 ft., 10s. 6d.; 100s. per dozen	„ „ 5 to 6 feet, 31s. 6d.
Araucaria imbricata, 5 to 6 ft., 21s.	„ „ 6 to 7 feet, 42s.
„ „ 6 to 7 feet, 42s.	„ „ 7 to 8 feet, 50s.
„ „ 7 to 8 feet, 63s.	„ Pinsapo, 3 to 3½ feet, 10s. 6d.
„ „ 8 to 10 feet, 105s.	„ „ 3½ to 4 feet, 15s.
Arbor-vitæ japonica, 4 to 4½ feet,	„ „ 4 to 5 feet, 21s. to 31s. 6d.
„ „ 4½ to 5 ft., 10s. 6d. [7s. 6d.	Pinus Cembra, 7 to 8 feet, 7s. 6d.
Picea grandis, 4 to 5 feet, 15s.	Yews, for hedges, about 12 feet high, 45 years old, recently transplanted, 31s. 6d.

RICHARD SMITH,
NURSERYMAN AND SEED MERCHANT, WORCESTER.

The American Nursery, Bagshot, Surrey.

JOHN WATERER respectfully invites the attention of Gentlemen and others engaged in planting to the undernamed selections from his general stock. He has much satisfaction in recommending them as being symmetrically grown and really of first-rate excellence, and from frequency in removal are in an excellent state for transplanting. Having a very large stock, he is determined to treat on most liberal terms. He would, however, earnestly invite Purchasers to make a visit and chose for themselves, which is easily accomplished by South-Western Railway (Reading Branch) to Sunningdale Station, which is near the Nursery.

RHODODENDRONS (Standards).—Of all the leading choice, scarlet, and other varieties, 3 to 4 feet stems, consisting of such as Alexander Adie, Michael Waterer, The Warrior, Princess Mary of Cambridge, Quadroona, Mrs. Ino Penn, Joseph Whitworth, and all such others as have been exhibited annually at the Royal Botanic Gardens, Regent's Park.

RHODODENDRONS (Half Standards)—Of all the approved kinds; 2 to 3 feet stems.

RHODODENDRONS.—Hardy scarlet, crimson rose, white; for superior clumps or borders fine well-grown plants. An excellent assortment would be supplied at £15 per 100. Fine bushy plants can also be supplied, averaging 3 to 5 feet.

RHODODENDRONS.—Immense quantities of really good coloured seedlings, with Catawbiense and Hybrid Catawbiense, 1½ to 2 and 3 feet, £10 to £12 per 100. These varieties are very suitable for admixture with the better kinds. The plants are bushy, and mostly well set with blooming buds, and from rose to white in colour.

RHODODENDRONS (Dwarf-growing kinds).—These are very close growing varieties, and are recommended for filling winter beds. Daphnoides, Myrtifolium, and Hybridum are the best suited for such purposes. Odoratum is delightfully scented, and much used for potting and forcing.

RHODODENDRON PONTICUM.—This kind is the most common, and now generally admitted to form the best permanent cover for game. In the most severe weather it is never injured by hares or rabbits. Good plants, 21s. to 30s. per 100.

AZALEAS, HARDY, of the most popular kinds, of all colours, and in fine plants, covered with a profusion of blooming buds. These are much used for forcing. 18s. to 30s. per dozen.

ANDROMEDA FLORIBUNDA.—One of the most hardy plants used for decorating winter clumps. Of these we are large holders, and can supply beautiful specimens at 30s. per dozen, covered with blooming buds.

KALMIA LATIFOLIA and MYRTIFOLIA.—Fine grown plants, of all sizes.

HARDY HEATHS.—A very fine collection, in 20 kinds, 30s. p. 100.

ABIES NORDMANNIANA.—Of this fine kind we are very large holders, allof which are seedlings, and of all heights, from 2 to 4 to 6 to 8 and 10 feet.

ABIES MAGNIFICA.—Fine specimens, 2 to 5 feet.

ABIES NOBILIS.—All seedlings, 1½ to 3 to 5 feet.

ABIES LASIOCARPA.—From 2 to 3 to 5 to 7 feet.

ABIES GRANDIS (of Douglas).—Fine specimens, 2 to 6 feet.

ABIES DOUGLASII.—3 to 4 to 6 to 10 feet.

ABIES PINSAPO.—2 to 3 to 5 to 10 feet.

ARAUCARIA IMBRICATA.—Fine specimen, 2 to 4 to 6 to 12 feet.

THUJOPSIS BOREALIS.—2 to 3 to 4 to 6 feet.

THUJA AUREA.—All sizes, 2 to 4 to 5 feet, perfect globes.

THUJA GIGANTEA.—Immense quantities, from 3 to 4 to 6 feet.

WELLINGTONIA GIGANTEA.—Of all sizes from 2 to 12 feet.

IRISH YEW.—Selected specimens, 4 to 12 feet.

HOLLIES (Green).—Fine, 2 to 3 to 4 to 6 feet.

HOLLIES (Gold and Silver).—In the most approved kinds, of all sizes.

STANDARD GOLDEN HOLLY (WATERER'S).—The best for standards; fine plants.

STANDARD WEEPING HOLLIES (Green and Variegated).

We have likewise immense quantities of the leading kinds of EVERGREENS, of all sizes, such as Yews, Box, Bays, Aucubas, Arbutus, Phillyreas, Common and Portugal Laurels, &c., as well as fine strong transplanted FOREST TREES, 2 to 3 and 4 feet, consisting of Ash, Beech, Alder, Spanish Chestnut, Hazel, Withy, Larch, Spruce, Pinus austriaca, &c.

CATALOGUES describing the colours of all the RHODODENDRONS worthy of cultivation, with a LIST of CONIFEROUS PLANTS, with heights and prices, forwarded to all applicants.

☞ Purchasers of large quantities of goods are informed that the great expense incurred by package is now greatly diminished, as we can forward from Sunningdale, in through trucks without change, to all Stations on the Great Northern, North-Western, Easterr Counties, and Great Western (narrow gauge) Railways; also by South-Eastern and Brighton Lines by way of Blackwater.

The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway, and Blackwater Station, South-Eastern Railway, where excellent Conveyances await all Trains.

New Seeds, of Choicest Quality.

J. SCOTT'S COLLECTIONS of NEW VEGETABLE SEEDS, 10s. 6d., 21s., 42s., and 63s. each.

For sorts and carriage free, see Priced Catalogue.

BROCCOLI.—Snow's Superb Winter White, Scott's extra selected.

CAULIFLOWER.—Erfurt Early Dwarf, extra selected, the best variety in cultivation.

CUCUMBER.—Telegraph, true.

LETTUCE.—The Favourite, summer Cabbage, new and distinct, larger than the Neapolitan, superb quality, and the longest Standing Lettuce grown.

The above, each, 1s. per packet. All other new and choice Vegetable Seeds are fully described in the Catalogue.

PETUNIA, Double, extra superb, 1s. per packet.

" Single, superb large flowered, 1s.

" Single, superb striped flowered, 1s.

The above are offered with every confidence, producing a large variety of superb flowers.

J. Scott's celebrated exhibition ASTERS, STOCKS, PHLOX, MARIGOLD, and all other New and Choice Flower Seeds, are all described and priced in J. SCOTT'S NEW SEED CATALOGUE, which may be had free on application.

Very strong well ripened EYES of MRS. PINCE'S BLACK MUSCAT GRAPE, true.—A quantity offered at a very moderate price. J. SCOTT, the Seed Stores, Yeovil, Somerset.

EARLY CORNISH BROCCOLI.—"During the past fortnight there has been a good supply of Broccoli sent to Covent Garden Market, from the neighbourhood of Penzance, Cornwall."—Vide *Gardeners' Chronicle*, Jan. 23, 1869, p. 86.

The Undersigned has the pleasure of offering seed of the above desirable variety, carefully saved last summer by one of the best reputed Gardeners at Penzance. Cash price 24s. per lb., or 2s. per ounce, carriage or postage free.

JOHN MITCHINSON, Seed Merchant, Truro, Cornwall.

JOHNSON'S PROLIFIC WHITE KIDNEY POTATO.—A few tons of this excellent sort, grown in Cornwall, are offered at 16s. per cwt., delivered at Truro or Plymouth; or at 11s. per cwt., delivered in London.

JOHN MITCHINSON, Seed Stores, Truro.

POTATO ONIONS and SHALLOTS.

POTATO ONIONS, at 21s. per cwt.

SHALLOTS, at 32s. per cwt.

On Sale at MITCHINSON'S Seed Stores, Truro.

BOX EDGING and COMMON LAURELS.—
2000 yards of DWARF BOX EDGING, and
3000 LAURELS, of various sizes, in capital condition for removal, to be Sold cheap. Apply to
JOHN MITCHINSON, Nurseryman, Truro.

ELLETSON'S SURPRISE, new, large, late WHITE PROTECTING BROCCOLI.—The best late Cauliflower Broccoli extant, price 2s. 6d. per packet. May be had of the following Agents:—

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Mr. Robert Cooper, 172, Fleet Street, E.C.
Messrs. Barr & Sugden, 12, King Street, Covent Garden, W.C.
Mr. Wm. Rose, Westerton Crescent, S.
Messrs. Peter Lawson & Son, Edinburgh and London.
" Boston & Co., Ealing, London, W.
" Jas. Backhouse & Son, York.
" Stewart & Main, Kelso, N.B.
" Sutton & Sons, Reading, Berks.
" J. Slater & Sons, Malton, Yorkshire.
Mr Edward Taylor, Malton, Yorkshire.
Messrs. Brechtern & Allsen, Edinburgh, N.B.
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Additional names will be inserted as they are received.

EDMUND PUMAN DIXON, The Yorkshire Seed Establishment, 57, Queen Street, Hull.

The best Varieties of Seed Potatos.

JAMES CARTER AND CO. strongly recommend the following as being the most desirable kinds for general cultivation:—

CARTER'S CHAMPION KIDNEY (for forcing), 5s. per peck, 18s. per bushel

SODEN'S EARLY OXFORD (choice quality), 3s. p. pk., 9s. p. bush.

RIVERS' ROYAL ASHLEAF KIDNEY, 4s. per peck, 14s. p. bush.

CARTER'S ASHTOP FLUKE KIDNEY, the best second early variety, 5s. per peck, 18s. per bushel

WEBB'S IMPERIAL KIDNEY (very prolific), 3s. per peck, 10s. per bushel

MILKY WHITE (well known), 4s. per peck, 14s. per bushel

IMPROVED DALMAHOY (Round), 2s. 6d. per peck, 8s. per bushel

KING of the FLUKE (Kidney), 2s. 6d. per peck, 9s. per bushel

WALKER'S IMPROVED REGENT, 2s. 6d. per peck, 9s. per bush.

J. C. & Co.'s stocks of the above are very choice and true.

THE EARLY ROSE POTATO (American variety)—1 lb. produced in one season 100 lb.; price 3s. per lb.

JAMES CARTER & Co., 237 and 238, High Holborn, London, W.C.

Seed Potatos.

PATERSON'S VICTORIA, the best of all Paterson's varieties, £8 per ton, bags included.

GRYFE CASTLE, a superior sort, recently raised in Renfrewshire, £8 per ton, ditto.

WALKER'S REGENTS, a well-known sort in general use, £6 per ton, ditto.

RED BOGS, approved early variety, £6 per ton, ditto.

The above are true, and are specially suited for Seed, the ground on which they were grown being old natural lea trenched, and never before cropped. The tubers are clean and sound in all respects.

Apply to GEORGE WEATHERLY, Hagswood, Pollockshaws, by Glasgow.

PATERSON'S VICTORIA POTATO.—A customer of ours (N. J. Easterbrooke, Esq., of Hayle, Cornwall) says, concerning this splendid Potato—"It is the best Potato yet grown in the west of England. The 5 cwt. you sent me were at once planted in well prepared ground, and occupied a quarter of an acre. Hundreds of persons called to see their beautiful foliage and blossom. The produce was 75 cwt., out of which there was only ¼ cwt. of waste, all doing for table or prime seed. I have saved all the lot, and shall plant about 3½ acres this season. I feel certain that, had the whole piece been dressed as I dress for Flukes, there would have been a much greater produce."

HOOPER & Co., Seed Merchants, Covent Garden, London, W.C.

HOOPER & Co. are PATERSON'S agents for the distribution of his fine sorts of Seedling Potatos, and are supplied directly from his Farms. They may also add that the above testimonial is merely a specimen of what they continually receive, and was unsought and unexpected. HOOPER & Co. never ask for Testimonials.

The true PATERSON'S VICTORIA POTATOS are 10s. per single bushel; 32s. for 4 bushels (2 cwt.); and £14 per ton.

WHEELER'S MILKY-WHITE POTATO,

4s. per peck; 15s. per bushel.

WHEELER'S GLOUCESTERSHIRE KIDNEY,

3s. per peck; 12s. per bushel.

Wheeler's Tom Thumb Lettuce,

1s. per packet.

WHEELER'S COCOA-NUT CABBAGE,

1s. per packet.

Wheeler's Guinea Collection of Garden Seeds

Comprises the Finest Varieties in Cultivation. For Details see

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Wheeler's Milky-White Potato.

This is the best of all Potatos.

J. C. WHEELER & SON, beg to caution the Trade against inferior and spurious varieties.

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"WHEELER'S 'Little Book' is an agreeable and instructive companion."

"WHEELER'S 'Little Book' is now a household word in many establishments, and as regularly looked for as the Almanac."

"WHEELER'S 'Little Book' will do something to satisfy their expectations."

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SPECIAL OFFER of POTATOS, PEAS, &c.

	Per Peck of 14 lb.	Per Cwt.	Per Sack of 16 stone
	s. d.	s. d.	s. d.
RIVERS' ROYAL ASHLEAF ..	2 0	..	..
MYATT'S PROLIFIC	1 4	10 6	20 0
EARLY SHAWS	1 2	9 0	17 6
EARLY EMPERORS	1 2	9 0	17 6
DALMAHOYS	1 0	7 6	14 0
PATERSON'S VICTORIA	1 6	11 6	22 0

The above are true to name, free from disease and second growth.

PEAS.	Per Quart	Per Peck	Per Bush.
SUTTONS' RINGLEADER or CARTER'S FIRST CROP ..	1 6	10 0	..
TABOR'S EARLY PERFECTION ..	1 0	7 0	24 0
DICKSON'S EARLY FAVOURITE	1 0	6 6	22 0
DILLISTONE'S FIRST EARLY ..	0 10	6 0	20 0
M'LEAN'S PRINCESS ROYAL ..	0 10	6 0	20 0
BEDMAN'S IMPERIAL	0 9	5 0	16 0
KING of the MARROWS	1 4	10 0	36 0
NE PLUS ULTRA	1 0	7 6	28 0
BEANS.			
WINDSOR	0 8	5 0	18 0
TALOR'S LARGE do.	0 9	5 6	21
ONIONS.			
WHITE SPANISH ONION SEED, 3d. per ounce, 3s. per lb.			
NUNEHAM PARK ONIONS ..	..	5 0	..
Do. SEED, 1s. per packet.			
	Per	Per	Per
CABBAGE PLANT.	1,000	10,000	100,000
DRUMHEAD (Sheep)	2 6	20 0	180 0

Strong 4-year ASPARAGUS PLANTS, 3s. per 100, 25s. per 1000.

Strong 3-year ASPARAGUS PLANTS, 2s. per 100, 17s. 6d. per 1,000, 150s. per 10,000; price per 100,000 on application.

STRAWBERRY PLANTS (of the President and Newton's Seedling), 2s. 6d. per 100, 20s. per 1000.

TANNED GARDEN NETTING, for Wall Trees, Seed Beds, &c., 2, 3, and 6 yds. wide, at 1d. per sq. yd.; 100 yds., 7s. 6d.; 500 yds., 35s.; 1000 yds., 65s. A further deduction on larger quantities.

New 1lb. Four Bushel Sacks, 1s. 4d. each; Bushel Bags, 9d. each; Two Pecks, 7d.; One Peck, 4d. Remittance to accompany orders.

CHRISTMAS QUINCEY, Seed Grower and Seedsman, Market Place Peterborough.

[This Advertisement will not be repeated.]

Potatos.

PATERSONS' SEEDLING POTATOS.—The absence of Second Growth in their Victorias, Blues, and Economists, and their heavy crop of fine tubers, proves their great superiority over the old varieties. Prices on application to

1, Union Street, Dundee.

Agents, Messrs. HOOPER & Co., Covent Garden Market, W.C.

Seed Potatos.

GEORGE SIBBALD, Drumgeath, by Dundee, N.B., has for Sale a large Stock, of his own growing, of the following kinds of POTATOS, which he will Sell at moderate prices, delivered free in Dundee:—

Paterson Victoria; best Rocks	Fluke Kidney
Walker's Improved Regents	Mona's Pride Kidney
Early Salmahoys	Myatt's Prolific Kidney
Daintree's Early	Royal Ashleaf Kidney
Oxford Early	Wheeler's Milky White Kidney
Early Handsworth	Paterson's Early Red Kidney

Also 5 cwt. Gibson's Dwarf York CABBAGE SEED.

First Crop or Ringleader Pea.

CHARLES SHARPE AND CO., having grown largely this EXCELLENT EARLY PEA, with great care, have much confidence in offering it to the Trade. Price on application.

Farm Seeds Direct from the Grower.

CHARLES SHARPE AND CO. will be glad to send special offers of their carefully selected TURNIP, MANGEL, and other FARM SEEDS on application.

Garden Seeds.

CHARLES SHARPE AND CO.'S PRICED TRADE LIST of PEAS, BEANS, and other GARDEN SEEDS can be had on application.

Seed Potatos.

CHARLES SHARPE AND CO. are now prepared to make special offers of all the leading sorts of POTATOS.

Sleaford.

1868.—Mangel Wurzel Seed.

H. AND F. SHARPE can offer the Trade some splendid STOCKS of the above-named Seed, grown on their own Farm this season from picked Bulbs. The quality is very fine, and prices low. Samples may be obtained on application.

Seed Growing Establishment, Wisbech.

CUCUMBER, DROVER'S TELEGRAPH.—This celebrated Cucumber has obtained within four years Fifty First-class Prizes at various Shows, viz.:—Winchester, Chichester, Southampton, Portsmouth, Gosport, Fareham, Emsworth, &c. For references apply to Secretaries of above Shows. Per packet, 1s. and 2s. 6d., to be had of the Grower, W. DROVER, Fareham, Hants.

IVERY'S NONSUCH LETTUCE.—The best Summer variety in cultivation; will stand a month longer than any other kind without running to Seed. 1s. per packet, sealed with initials, "M. A. I." Price to the Trade on application.

A GENERAL SEED CATALOGUE can be had post free on application. The Trade supplied with superior MUSHROOM SPAWN. Hanover Nursery, Peckham, S.E.

The Best Onions for Exhibition.

SUTTONS' IMPROVED READING, 1s. per ounce.

The NEW BEDFORDSHIRE CHAMPION, 1s. per packet.

NUNEHAM PARK, 1s. per packet.

Free by post.

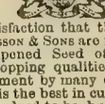
SUTTON & SONS, Seed Growers, Reading.

Henry's Hybrid Prize Leek.

DOWNIE, LAIRD, AND LAING are now sending out seed of the above celebrated LEEK, warranted true. This is the largest and finest sort in cultivation. In sealed packets, at 1s. each.

17, South Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E.

ROLLISSON'S TELEGRAPH CUCUMBER (True).

THERE ARE MANY SPURIOUS  VARIETIES IN CULTIVATION

From the universal satisfaction that their Telegraph Cucumber has given, WILLIAM ROLLISSON & SONS are much encouraged in again offering good and well ripened Seed of this most extraordinary variety. Its wonderful cropping qualities have this year been witnessed at their Establishment by many experienced judges, all of whom have agreed that it is the best in cultivation for that purpose; in fact it has been acknowledged to be, by the best authorities of the day, the most productive yet introduced for Winter and Early Spring use, in proof of which

See *Gardeners' Chronicle*, January 12, 1867.
See *Gardeners' Chronicle*, August 31, 1867.
See *Gardeners' Chronicle*, March 16, 1867.
See *Gardeners' Chronicle*, October 12, 1867.
See *Gardeners' Chronicle*, January 11, 1868.
See *Gardeners' Magazine*, January 18, 1868.
See *Journal of Horticulture*, August 20, 1868.

The above may be had, in printed and sealed packets, guaranteed true, price 2s. 6d. each, from

The Nurseries, Tooting, London, S.W.

East Lothian, White, and Purple Intermediate Stock.

THOMAS METHVEN having secured the Seed saved by Mr. D. Thomson, late of Archerfield, Mr. T. Lees, Tyninghame, and others, is happy to state that, owing to the very favourable season of 1868 for saving Seed of these very desirable STOCKS, he is enabled to supply liberal packets of them at 1s., 2s. 6d. and 5s.

EAST LOTHIAN SCARLET INTERMEDIATE STOCK at 6d., 1s., and 2s. 6d.

These Stocks ought to be grown by all who have a flower border. Price to the Trade on application.

THOMSON'S SUPERB HERBACEOUS CALCEOLARIA, saved from the Dalkeith Collection, in packets at 1s., 2s. 6d., and 5s.

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HALLETT'S PEDIGREE CHEVALIER BARLEY produced in 1868 a Crop of 62 bushels per acre, a Sample of which was awarded the First Prize at the Birmingham Show of 1868. Took the First Prize also at the same Show of 1867. Produced in 1867 nearly 9 quarters per acre.

PEDIGREE BLACK TARTARIAN OATS produced, 1868, 12 quarters per acre.

For particulars apply to Captain HALLETT, F.L.S., Brighton.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY (Limited),

CORN, SEED, MANURE, and OILCAKE MERCHANTS.

Address, 89, Seed Market, Mark Lane, E.C.; or Basingstok

Samples and prices post free on application. Prize Medals, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, and Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, Royal Gardens, Kew, &c.

The best Shading is "Frigi Domo" Netting.

White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for

PROTECTION from the COLD WINDS and MORNING FROSTS.

"FRIGI DOMO" NETTING, 2 yards wide, 1s. 6d. per yard run.

"FRIGI DOMO" CANVAS.

Two yards wide	1s. 6d. per yard run.
Four yards wide	3s. 6d. per yard.
An improved make, 2 yards wide ..	1s. 9d. per yard.
An improved make, 3 yards wide ..	2s. 8d. per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.

LAWES' MANURE for GRASS LANDS should be applied during the months of February and March. NITRATE of SODA supplied ex Ship or from Stocks at Docks at London, Liverpool, and other ports, at lowest market prices.

LAWES' MANURES are now ready for delivery for present season, 1869.
LAWES' PATENT TURNIP MANURE.
" DISSOLVED BONES.
" SUPERPHOSPHATE of LIME.
" WHEAT, BARLEY, GRASS, and MANGEL MANURE.
" CONCENTRATED CORN and GRASS MANURE.
These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom.
GENUINE PERUVIAN GUANO direct from the importers.
NITRATE of SODA, SULPHATE of AMMONIA, and other Chemical Manures.
AMERICAN and other CAKES at market prices.
Address, JOHN BENNET LAWES, 69, Mark Lane, London, E.C.; 22, Eden Quay, Dublin; and Market Street, Shrewsbury.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)
Have now ready for delivery, in fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES.
Also Genuine PERUVIAN GUANO, and NITRATE of SODA ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c.
E. PURSER, Secretary.
Offices, 110, Fenchurch Street, E.C.

GENUINE TOBACCO PAPER, of the finest quality, 10d. per lb., or 8s. per cwt.
WILLIAM RESHFORTH, Nurseryman and Seed Merchant, Leeds.

ROLL TOBACCO PAPER, finest quality, equal in strength to Tobacco, 1s. per lb.; cheaper in quantities.
SAML. MAY, Seed Merchant, 180, Wade Lane, Leeds.

The Cheapest and Best Insecticide.
DUTY-FREE TOBACCO.
BY HER MAJESTY'S ROYAL LETTERS PATENT, AND BY PERMISSION OF THE HON. BOARD OF CUSTOMS.

POOLEY'S TOBACCO POWDER, for the Prevention and Destruction of Blight and other Diseases in Plants.
Sold by Nurserymen, Seedsmen, and Florists,
In Tins at 1s., 2s. 6d., and 5s.
Powder Distributors, 2s. 6s. and 3s. 6d. each.
"I find it exceedingly useful for killing the Aphides on Roses and other Plants."—GEO. EYLES, Superintendent, Royal Horticultural Gardens, South Kensington. May 7, 1868.
Sole Manufacturer, T. A. POOLEY, Bonded Warehouse, Sussex Wharf, Wapping, E.

Tobacco Tissue,
FOR DESTROYING RED SPIDER, MEALY-BUG, THRIP, GREEN and BLACK FLY, without the aid of a Fumigator.—This article having been before the Public for the last three years, and being now used by many of the leading Horticulturists—from several of whom Testimonials have been received as to its efficacy,—the Manufacturers beg to recommend those who have not used it to give it a trial, feeling confident when they have done so they will use nothing else, as it is far superior to paper or rag, and will not injure the plants. Sold in 1lb. packets and upwards; price 3s. 6d. per lb., carriage free. A reduction in price for large quantities.
To be had of MESSRS. ROBERTS AND SONS, Tobacco Manufacturers, 112, St. John Street, Clerkenwell, E.C., of whom Samples and Testimonials may be obtained; and of all Seedsmen and Nurserymen.


Red Spider — Magnified.

GISHURST COMPOUND.
Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d.
Wholesale by
PRICE'S PATENT CANDLE COMPANY (Limited),
Battersea, London, S.W.

Health of Horses,
Stables, and Dog Kennels.
MASTERS OF HOUNDS
Will find the greatest advantage in Paving the Floors of Stables and Kennels with
PYRIMONT SEYSSEL ASPHALTE
Thirty years' experience of the durability of this material for the above and many other purposes, testifies to its value. A List of all such and other works can be had on application to
J. FARRELL, Secretary, 5, Parliament Street, S.W.

By Royal Appointment
To HER MAJESTY, by Special Warrant, dated December, 1865. To the PRINCE OF WALES, by Special Warrant dated February 10, 1866.

DAY, SON, AND HEWITT, Original and Sole Proprietors of the STOCKBREEDERS' MEDICINE CHESTS, for DISORDERS in HORSES, CATTLE, CALVES, SHEEP, and LAMBS.

No. 1 MEDICINE CHEST, Contains Sixteen different kinds of Compounds, admirably arranged, with Complete Guide to Farriery. Price £6 6s., carriage paid.

No. 2 MEDICINE CHEST, Contains the Extract, Gaseous Fluid, Red Drench, and Red Paste, with Shilling Key to Farriery. Price £2 16s. 6d., carriage paid.

☞ Every Stockowner should send for DAY, SON & HEWITT'S Work on Farriery. Large Edition, 2s. 6d., or free by post for 33 stamps. Small Edition, 1s., or free by post for 13 stamps.
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THE TANNED LEATHER COMPANY.
Armit Works, Greenfield, near Manchester.
TANNERS, CURRIERS, and MANUFACTURERS of IMPROVED TANNED LEATHER DRIVING STRAPS for MACHINERY
PRIME STRAP and SOLE BUTTS.
Price Lists sent free by post.
Warehouse: 81, Mark Lane, London, E.C.

GEORGE HALL, late Manager to the late Saynors' Firm. He was for 30 years in their employ.
GEORGE HALL AND SON'S CELEBRATED PRUNING and BUDDING KNIVES, SCISSORS, &c., may be obtained from the most respectable Nurserymen and Seed Merchants in the kingdom, also America, France, Germany, Holland, Prussia, Russia, &c.
N.B.—We only make one quality, the best that can be manufactured, the same as the late Saynors always made during their lifetime, with all the latest improvements.
CAUTION.—None are genuine unless marked "GEO. HALL & SON." Other marks would cause disappointment, as these blades are tempered by a process known only to the Makers.
Engravings of Patterns, with PRICE LISTS, gratis on application.
Horticultural Cutlery Works, Sheffield.

Caution to Gardeners.—When you ask for
SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the Corporate Mark, OBTAIN WARRANTED, without which none are genuine.
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.
S. & C.'s PRUNING and BUDDING KNIVES are the best and the cheapest in the market.
Paxton Works, Sheffield. Established upwards of 125 years.

Glass for Garden Purposes.
JAMES PHILLIPS AND CO. beg to submit their REDUCED PRICES as follows:—

PROPAGATING GLASSES.



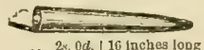
	Each.—s. d.		Each.—s. d.
2 inches in diameter	.. 0 3½	12 inches in diameter	.. 1 9
3 " "	.. 0 4½	13 " "	.. 2 3
4 " "	.. 0 5½	14 " "	.. 2 6
5 " "	.. 0 6½	15 " "	.. 3 0
6 " "	.. 0 8	16 " "	.. 3 6
7 " "	.. 0 10	17 " "	.. 4 0
8 " "	.. 1 0	18 " "	.. 5 0
9 " "	.. 1 2	19 " "	.. 6 0
10 " "	.. 1 4	20 " "	.. 7 0
11 " "	.. 1 6		

BEE GLASSES, with ventilating hole through knob.

4 inches in diameter	.. 0s. 6d.	9 inches in diameter	.. 1s. 8d.
5 " "	.. 0 8	10 " "	.. 2 0
6 " "	.. 0 10	11 " "	.. 2 6
7 " "	.. 1 1	12 " "	.. 3 0
8 " "	.. 1 4		

Either flat or conical tops.

CUCUMBER GLASSES.



24 inches long	.. .. 2s. 0d.	16 inches long	.. .. 1s. 4d.
22 "	.. .. 1 10	14 "	.. .. 1 2
20 "	.. .. 1 8	12 "	.. .. 2 6
18 "	.. .. 1 6		

HAND GLASSES, WITH OPEN TOPS.



	Each.—s. d.		Each.—s. d.
12 inches	.. .. .. 6 6	18 inches	.. .. .. 9 6
14 "	.. .. .. 7 6	20 "	.. .. .. 10 6
16 "	.. .. .. 8 6	22 "	.. .. .. 11 6
		24 "	.. .. .. 12 6

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS. PAINTS of various colours ground ready for use.
SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of Prices and Estimates forwarded on application to JAMES PHILLIPS & CO., 180, Bishopsgate Street Without, E.C.

Horticultural Glass Warehouse.
THOMAS MILLINGTON AND CO., 87, Bishopsgate Street Without, London, E.C.
NEW LIST for ORCHARD-HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.
ORCHARD-HOUSE SIZES.

in.	in.		4ths.	3rds.	2nds.	Best.
20 by 12						
20 by 13						
20 by 14	Per 100 feet	15 oz.	14s 3d	15s 6d	18s 6d	20s 0d
20 by 15		21 oz.	19s 6d	22s 2d	25s 6d	26s 6d
20 by 16						

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 6	8 by 6	9 by 7				12s 3d	13s 3d	16s 0d	18s 0d
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½							

Per 100 feet.

10 by 8	12 by 9	12½ by 10½	14½ by 10½				13s 3d	14s 6d	17s 3d	19s 0d
10½ by 8½	12½ by 9½	13 by 10	15 by 10							
11 by 9	13 by 9	13½ by 10½	13 by 11							
11½ by 9½	12 by 10	14 by 10	14 by 11							

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best
15½ by 10½	14 by 12	22 by 12	22 by 16					
16 by 10	14½ by 12½	17 by 13	24 by 16					
14½ by 11½	15 by 12	23 by 13	20 by 17					
15 by 11	15½ by 12½	18 by 14	22 by 17		14s 3d	15s 6d	18s 6d	20s 0d
15½ by 11½	16 by 12	22 by 14	24 by 17					
16 by 11	16½ by 12½	24 by 14	20 by 18					
21 by 11	17 by 12	22 by 15	22 by 18					
13 by 12	18 by 12	24 by 15	24 by 18					

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.
In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	36s.	4ths quality, per 200 feet case,	36s.
3ds " "	42s.	3ds " "	42s.
2ds " "	60s.	2ds " "	60s.
Best " "	75s.	Best " "	75s.

SHEET GLASS is made only in the following substances, 15 oz., 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.
HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.
BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.
STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.
WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a-half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.
IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4s. per gallon.

	Per cwt.—s. d.		Per gallon.—s. d.
GENUINE WHITE LEAD	30 0	LINSEED OIL	2 10
SECONDS WHITE LEAD	28 0	BOILED OIL	3 2
GROUND PATENT DRYERS, 3d. to 4½d. per lb.		TURPENTINE	2 7
" OXFORD OCHRE, 3d. to 4½d. per lb.		LINSEED OIL PUTTY, 8s. per cwt.	
" RAW UMBER, 4½d. to 6d. per lb. [per lb.		Fine OAK VARNISH, 10s. to 12	0
" BURNT do., 6d. to 9d.		" CARRIAGE do., 12s. to 14	0
GREEN PAINT, all shades,	28s. to 60 0	" PAPER do. 10s. to 12	0
BLACK PAINT,	24s. to 36 0	" COPAL	16 0
RED PAINT ..	28s. to 36 0	KNOTTING	10 0
		Patent GOLD SIZE ..	10 0
		" BLACK JAPAN ..	12 0
		GLAZIER'S DIAMONDS and TOOLS	
GROUND BRUSHES.		MILLED LEAD and PIPES	
DUSTERS. | SASH TOOLS.		OLD LEAD Bought or taken in exchange.	
DISTEMPER BRUSHES.			

The above are Net, for Cash, and as such cannot be booked.
Lists of any of the above on application.

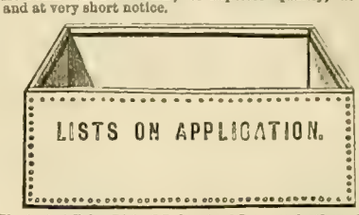
SHAW'S TIFFANY.
For Samples and Prices apply to
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(Silver Medal of the Royal Agricultural Society):
SHEEP, 3s. 3d.; CATTLE, 4s. 2d.; OX, 5s. 11d.
List by post. GATES and FENCING of every description.
St. Pancras Iron Work Company, Old St. Pancras Road, London, N.W.

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A. C. WILLIAMSON, 604, Gallowgate, Glasgow.
FLOWER POTS of superior make, with Cut Bottoms; ORCHID POTS, HANGING ORCHID POTS, and ORCHID SLABS, of approved Patterns, as used by some of the most successful Growers; Ornamental Flower Vases, Fern Vases, and Tazzas, Round and Square Seed Pans, Crocus Pots, Rhubarb and Seakale Covers, Propagating Pots, Snail Traps, &c.
Price Lists and Illustrated Catalogue on application.

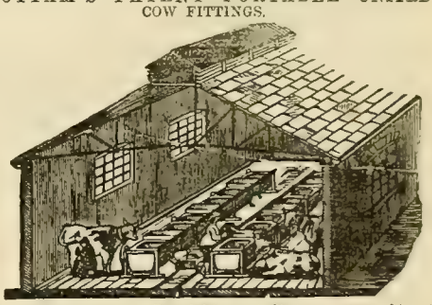
MASTIC L'HOMME-LEFORT, or COLD GRAFTING WAX, an invaluable preparation, for use in the operation of Grafting. It requires no melting, is always ready for use, and becomes perfectly hard when exposed to the air. Mastic L'Homme-Lefort is the BEST STYPTIC to PREVENT the BLEEDING of VINES. In Tins, 6d., 1s., 2s., 4s., and 6s. each. Retail of most Seedsmen; wholesale only of
HOOPER & CO., Covent Garden, London, W.C.
"Every Cottage should be provided with a Water Tank." *Duracth.*

Iron Cisterns.
F. BRABY AND CO. having laid down more extensive and Improved Machinery on their Deptford premises (IDA WHARF), are prepared to supply WROUGHT-IRON TANKS, GALVANISED or PAINTED, of superior quality, at reduced prices, and at very short notice.



An Illustrated Price List of Galvanised Iron, and other of BRABY'S special Manufactures, sent on application.
F. BRABY & Co., Limited, Fitzroy Works, Euston Road, London; or through all respectable Ironmongers.
N.B. Open Tanks of different sizes packed one in another to save carriage.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rick dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of Iron. Prices of Fittings per Cow, 55s.
Prospectuses free of COTTAM & CO., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

Established 1833.
HANCOCK'S INDIA-RUBBER HOSE and TUBING.



Trade Mark.

CARRIAGE, GIG, & DOG-CART APRONS.
HORSE SINGEING APPARATUS, with GAS BURNERS, and INDIA-RUBBER TUBING.
Improved INDIA-RUBBER DOOR STOPS.
WATERPROOF CART and WAGGON COVERS made any size.
HORSE-LOIN COVERS (Waterproof), with Straps complete.
BELTING for SAW MILLS, THRESHING MACHINES, and FLOUR MILLS.
IMPROVED INDIA-RUBBER WEDGE-SHAPED GAS BAGS, for Microscopes and Dissolving Views; anysize to order
FLANGE TUBING, for excluding Draught and Dust, and preventing the Slamming of Glass Doors. SECTION.
VULCANISED INDIA-RUBBER BILLIARD CUSHIONS.
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GARDEN BORDER EDGING TILES, in great variety of patterns and materials, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.
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Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price List free by post. The Trade supplied.

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Also TESSELATED PAVEMENTS of more enriched designs than the above.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cement, &c.
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SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.
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N.B. Orders promptly executed by Railway.

HOT-WATER APPARATUS of every description, fixed complete in any part of the country, for Warming Greenhouses, Conservatories, Forcing Pits, &c.
Plans and Estimates on application.
J. JONES & SONS, 6, Bankside, Southwark, London, S.E.

JAMES BOYD AND SONS, HORTICULTURAL BUILDERS, Paisley, N.B., Manufacturers of CONSERVATORIES, GREENHOUSES, VINERIES, and every description of HOTHOUSE in Wood or Iron; also of HOT-WATER HEATING APPARATUS for Horticultural Buildings, Churches, Mansions, Warehouses, &c.
JAMES BOYD & SONS beg to call attention to the superior facilities they possess for executing all orders entrusted to them, in a first-class style, at a moderate price, and with despatch. Their works are fitted up with the most improved machinery, specially adapted for this trade. Their system of ventilation gives the least possible trouble, each range of sashes or ventilators opening by one movement without the risk of cords breaking, as in sliding sashes, and thorough ventilation is secured during wet weather, without admitting the rain. Plans and Estimates on application.

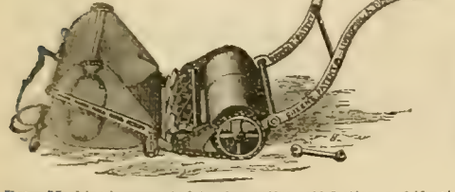
Green's Patent Noiseless Lawn Mowers.

GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every prize that has been given in all cases of competition, and in proof of their superiority upwards of 44,000 have been sold since the year 1856.
They are the simplest in construction, least liable to get out of order, and can be worked with far greater ease than any other Lawn Mower extant.

They are the only Machines in constant use at

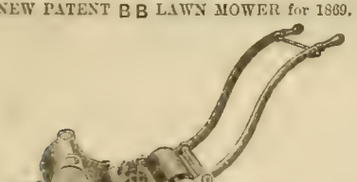
Buckingham Palace Gardens	The Winter Palace Gardens, Dublin
Marlborough House Gardens	The Dublin Botanic Gardens
Royal Horticultural Society, South Kensington	The Liverpool Botanic Gardens
The Royal Botanic Gardens, Regent's Park	The Leeds Royal Park
The Crystal Palace Company's Gardens, Sydenham	The Hull Botanic Gardens
The Hyde Park Gardens	The Botanic Gardens, Brussels
	The Sunderland Park
	The Preston Park

And in most of the principal Parks and Squares in the United Kingdom.



Every Machine is warranted to give entire satisfaction, and if not approved of can be returned at once unconditionally.
Illustrated Price Lists on application, which include Free Delivery to all the principal Railway Stations and Shipping Ports in England. All Orders executed on the day they are received.
T. G. & Son have ten times more Lawn Mowers in Stock at their Establishment, 54 and 55, Blackfriars Road, S., than any other firm in London, that intending Purchasers can select from.
Having very extensive premises in London, we are in a position to do all kinds of repairs there as well as at the Works at Leeds.
THOMAS GREEN & SON, Smithfield Iron Works, Leeds; and 54 and 55, Blackfriars Road, London, S.

J. B. BROWN AND CO.'S NEW PATENT BB LAWN MOWER for 1869.



HAND MACHINE.

The NEW PATENT B B LAWN MOWER is universally allowed to be, by the most competent practical judges, superior to any other—being the best designed, also of exceptionally best material only, all parts liable to breakage being of malleable iron, every part made to standard guage, and all accurately numbered, and the entire Machine fitted and finished in a manner incontestably superior to any other Lawn Mower manufactured.

TESTIMONIAL

From ALEX. MACKENZIE, Esq., Alexandra Park, Muswell Hill—appointed by the Metropolitan Board of Works to lay out their new Public Parks, and to plant the Thames Embankment—July 1st, 1868.

"Gentlemen,—I have pleasure in informing you that the 42-inch Horse Mowing Machine, supplied by your firm 15 months ago, does its work remarkably well. The two 42-inch Horse Machines supplied by you in May last are also most satisfactory.
"I have recommended your Lawn Mower to many of my friends, believing that the machine does its work better than any other, and combines strength superior to Shanks' machine, with the lightness of Green's. Having now had four of your Lawn Mowing Machines in constant use on our grounds, and two of these having been in work over a year, I have never had cause to alter this opinion of your machine, which I now have pleasure in giving to you.—Yours faithfully,
ALEX. MACKENZIE.
"Messrs. J. B. Brown & Co., 149, Upper Thames Street."

The B B LAWN MOWER was selected at the Paris Exhibition, in preference to all others, by the celebrated Engineer, Mons. Henry Schneider, of the well-known Engineering Works at Creusot, and President of the French Legislative Assembly. The following is a copy of a note received by Messrs. Brown & Co. from Mons. Schneider:—

"Usines de Creusot.—Schneider et Cie.,
"56, Rue de Provence, Paris, le 24 Février, 1868.

"Monsieur,—J'ai fait faire l'essai de votre Machine à tondre les gazons, et m'empresse de vous faire connaître que les résultats en ont été satisfaisants.—Recevez, Monsieur, mes sincères salutations.
"H. SCHNEIDER."

"Messrs. J. B. Brown et Cie., 99, Cannon Street, London."

PRICES—NEW PATENT B B HAND MACHINE for 1869.

10-inch	For a Boy.	£2 10 0	18-inch	A Man and Boy	£7 10 0
12-inch		3 15 0	20-inch	Two Men	8 0 0
14-inch	A Man	5 15 0	22-inch		8 10 0
16-inch	A Man and Boy	6 10 0	24-inch		9 0 0

Prices of Horse and Pony Machines on application.

*** Every Machine is warranted to give perfect satisfaction in every respect, and delivered free to any Railway Station in the kingdom.

☞ It is most important, in order to prevent disappointment, that orders for delivery during the season 1869 should be given without delay.

Messrs. J. B. Brown & Co., Offices, 99, Cannon Street, E.C.; Manufactory, 249, New Kent Road, S.E.

JAMES WATTS AND CO., HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS.
353, Old Kent Road, London, S.E.



200 CUCUMBER and MELON BOXES and LIGHTS, all sizes, Glazed and Painted complete, ready for immediate use, packed and sent to all parts of the Kingdom.
Strong ZINC HAND-GLASSES, all sizes.
References to the Nobility, Gentry, and Trade in most of the Counties in England.

CRANSTON'S PATENT BUILDINGS for HORTICULTURE.
"Dry Glazing without Putty."
"Glass without Laps."
"Ventilation without Moving Lights."
Highly Commended by the Royal Horticultural Society, South Kensington.

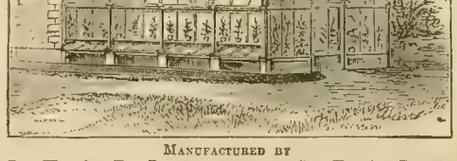


Plans and Estimates free on application. Descriptive Book fully illustrated, post free for 20 stamps, from the Author and Patentee, JAMES CRANSTON, Architect, Birmingham.
Works: Highgate Street, Birmingham.
HENRY J. GROWTAGE, Manager, 1, Temple Row West, Birmingham.

IRON GREENHOUSES CHEAPER THAN WOOD.

Beard's Patent Non-conducting and Ventilating Metallic Glass Houses.

Victoria Works, Bury St. Edmund's.



MANUFACTURED BY

CHARLES BEARD, Senior Partner in the late Firm of Sanders, Frewer, & Co., which Firm was dissolved by mutual consent.
The Patentee wishes to observe his Patent Houses obtained the First and only Prize at the Royal Horticultural Congress, South Kensington, 1866;
The First-class Certificate at the Grand Manchester Horticultural Show, 1867;
The Three First-class Certificates at the Royal Horticultural Show, at Bury St. Edmund's, 1867, viz.:—One Prize for Patent Glazing without Putty; One Prize for Best System of Patent Ventilation; One Prize for S. F. & Co.'s Improved Flower Stands.
These much-approved Patent Systems of Glazing and Ventilation are also extensively adapted for all Agricultural Buildings, Public Halls, Churches, Factories, Railway Stations, &c., &c.
Full particulars and Prices of the Patent Houses, glazed with 20 oz. Sheet Glass from 1s. 2d. per foot super and upwards. As also illustrated Catalogues for 12 postage stamps, may be obtained on application to
CHARLES BEARD, Victoria Horticultural Works, Bury St. Edmund's.
PATENT GLAZING BARS, to screw on wood, may be had separately. Full particulars for stamped envelope.

Hothouses for the Million.
SIR J. PAXTON'S PATENT.—NOTICE.

MESSRS. HEREMAN AND MORTON having taken New Premises for the Construction of Horticultural Buildings, beg to inform their Patrons and the Public that they possess the exclusive privilege of Manufacturing the above PATENT HOTHOUSES, and they are also enabled to supply ORNAMENTAL and PLAIN CONSERVATORIES at reduced prices. Country Works in Coventry, Gloucester, Lancashire, and Scotland.
Illustrated Price Lists free on application at the Office,
7, Pall Mall East, London, S.W.

JOHN WEEKS AND CO.,
HORTICULTURAL BUILDERS
AND
HOT-WATER APPARATUS MANUFACTURERS.

ILLUSTRATED CATALOGUES
Sent free on application.

The Show Establishment and Offices at the Works,
King's Road, Chelsea, S.W.

Redhill Street, Regent's Park, London, N.W.

MRS. BIRCH begs to inform the Nobility, Gentry, and the Public, that she is prepared to ERECT any style of GREENHOUSE or CONSERVATORY in any part of the Town or Country (her late husband having manufactured the Paxton Patent Hot-Houses for the last 10 years). She will erect plain Orchard Houses, Vineries, &c., with 21-ounce good sheet Glass, and any simple plan of Ventilation, at the low rate of from 1s. 7d. to 1s. 10d. per foot superficial (heating and brickwork not inclusive.) Apparatus for opening all the Ventilators at one time, from 50s. each set.
Plans and Estimates sent on application.

HOT-WATER PIPES.
CASH PRICES.

	2-inch.	3-inch.	4-inch.
PIPES .. .. per yard	1s. 0d.	1s. 6d.	2s. 0d.
ELBOWS .. .. each	1 6	2 3	3 0
TEES .. .. „	2 6	3 6	4 6
SYPHONS .. .. „	2 6	3 6	4 6
VALVES .. .. „	10 0	11 6	13 0

No credit will be given when Pipes, &c., are invoiced at the above prices.
J. JONES AND SONS,
6, Bankside, Southwark, London, S.E.
Price Lists, with terms for credit and for delivery at country stations, will be sent on application.

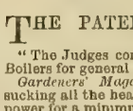
Heating by Hot Water.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, S.E.

	2-inch.	3-inch.	4-inch.
HOT-WATER PIPES, from stock—per yard	1s. 0d.	1s. 0d.	2s. 0d.
ELBOWS for ditto .. .. .. each	1 6	2 3	2 9
TEES .. .. „	2 3	3 6	4 6
SYPHONS .. .. „	2 3	3 6	4 6
THROTTLE VALVES .. .. .. „	10 0	11 6	13 0

Cash remittance with order.
N.B. All Goods of first-class manufacture. No second quality kept. Estimates given, and orders punctually attended to the same day.

W. H. LASCELLES' MACHINE-MADE MELON LIGHTS. Each



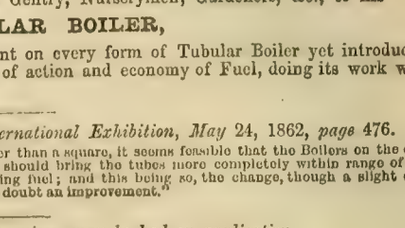
6 ft. by 4 ft. Lights, 2 ins. thick, unglazed	£0 5 0
„ „ Primed and Glazed with 16 oz. Sheet	0 11 0
„ „ with stout Portable Box, not Painted	1 8 0
„ „ Painted four coats, and Handles on..	1 8 0
„ „ Packed and Delivered in Railway Van	1 10 0
6 ft. by 8 ft., Double Lights, do.	2 15 0

GREENHOUSES. Per ft. super.

Woodwork only	Prepared and Fitted	0 0 6
„	Primed and Glazed with 16 oz. Sheet ..	0 0 9
„	Delivered, and Fixed with Ironwork ..	0 1 0
„	Painted four coats, two sides, ready for use	0 1 3

Finsbury Steam Joinery Works, 121, Bunhill Row, E.C.

Great Flower Show, Manchester, June, 1867.
FIRST-CLASS CERTIFICATE TO



THE PATENT TERMINAL SADDLE BOILER, with following note:—
"The Judges consider this one of the most powerful and useful Boilers for general purposes."
Gardeners' Magazine.—"This Boiler possesses the rare merit of sucking all the heat from the fire, so that it furnishes a maximum of power for a minimum of outlay in respect of fuel."—*S. H.*
The Gardener.—"Of Boilers, by far the best, according to our judgment, was the Terminal Saddle."—*W. Thomson.*
Gardeners Chronicle.—"I have no hesitation in pronouncing it the safest and most economical Boiler in present use, and for the future shall always adopt it."—*J. Wills.*
J. IRELAND, Edward Street, Broughton Lane, Manchester.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

MR. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

Acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in GARDENERS' CHRONICLE *of International Exhibition, May* 24, 1862, *page* 476.

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

☞ *They are made of all sizes, which, with prices, may be had on application.*

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

Indestructible Terra-Cotta Plant Markers.

MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c. Maw & Co., Benthall Works, Broseley.

BROWN'S FLORAL SHADING, for Shading Plants under Glass from the Sun, and protecting the Bloom of Wall Trees from Frost. Sold by Nurserymen and Seedsmen.

No. 1. 38 inches wide, 20 yards long, at 4s. 6d. per piece.
No. 2. 38 " " 20 " " 4s. 10d. per piece.
No. 3. 39 " " 18 " " 7s. extra stout.

Samples on application to CHARLES BROWN, Greenheys, Manchester.

Protect your Plants from Frost.

ANDERSON'S TAGANROG MATS, No. 1, are the Heaviest, Best, and Cheapest for covering Garden Frames. Price 80s. per 100, or 8s. per bundle of 10.

ARCHANGEL, PETERSBURG, and other MATS at low prices.

JAMES T. ANDERSON, 7, Commercial Street, Shoreditch, London E.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.

For particulars apply to JOHN FOWLER & Co., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

GARDEN ORNAMENTS.

AUSTIN'S ARTIFICIAL STONE,

INVENTED 1826.



THE superiority of this material to all others for damp situations and its durability under the most intense frost being now indisputable, and attested by its extensive use in Scotland and Ireland, as well as the principal country seats of England, attention is invited to the following summary of the work manufactured with it, a variety unprecedented in any other establishment of past or present times:—

VASES,
about 300 different kinds, at from 10s. to £50.

FOUNTAINS,
more than 200 designs, from £10 to £400.

PORTEFLEURS, or low FLOWER BASINS, for lawns; STATUES, antique and modern; SMALL FIGURES, adapted to Balustrading, &c.; FIGURES of ANIMALS and BIRDS, about 70 kinds; SUN-DIAL PEDESTALS, about 20 designs; BASKETS, from 1 to 17 feet diameter; GARDEN SEATS, of substantial architectural character, for the ends of terraces; SHELLS for water or rock plants, from 1 to 14 feet wide; FLOWER BOXES, for windows or pavements; BAPTISMAL FONTS, from 2 to 15 guineas; CRESTS and other TERMINALS, for gate-piers; BALUSTRADING, to suit all styles of architecture; a great variety of ORNAMENTAL PEDESTALS, GOTHIC CROSSES, PINNACLES, and NICHES; EDGING for flower-beds.

AUSTIN AND SEELEY, NOS. 369—375, EUSTON ROAD, REGENT'S PARK.

N.B. No sand is used in "Austin's Stone," which is waterproof.

AS A PROOF OF THE SUPERIORITY OF THE THRESHING MACHINERY

MANUFACTURED BY

CLAYTON, SHUTTLEWORTH & CO.,

They beg to call attention to the following statement.

	ENGINES.	MACHINES.
Engines and Machines sent out in the year 1868	812	644
Total Number sent out up to December 31, 1868	8,921	7,982

The Gold Medal was awarded them at the Paris Exhibition, 1867, for Portable Engines and Threshing Machines; and at the last trial of the Royal Agricultural Society they gained EVERY FIRST PRIZE offered for Steam Engines, also the Prize of £15 for Finishing Threshing Machines, and Silver Medal for special improvements—on which occasion the following Firms, amongst others, competed:—Messrs. Ransomes & Sims, Tuxford & Sons, Reading Ironworks Company (Limited); Brown & May, Allchin & Son, Barrows & Carmichael, Humphries; Marshall, Sons & Co. (Limited); Burrell; Ruston, Proctor & Co.; Roby & Co. (Limited); Holmes & Sons, E. R. & F. Turner, P. & H. Gibbons, Tasker & Sons, Nalder & Nalder, Riches & Watts, Wallace & Haslem, Catchpole & Thompson, &c., &c.

NOTE.—The Royal Agricultural Society will not hold another trial of Portable Steam Engines and Threshing Machines until the year 1872.

CLAYTON, SHUTTLEWORTH, AND CO., STAMP END WORKS, LINCOLN; and 78, LOMBARD STREET, LONDON, E.C.

CATALOGUES AND EVERY INFORMATION FORWARDED POST FREE.

PORTABLE AND FIXED HOT-WATER APPARATUS,

FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH

TRUSS'S PATENT UNIVERSAL FLEXIBLE AND LEAKLESS PIPE-JOINTS.



T. S. TRUSS



Begs to state that the immense number of APPARATUS annually Designed and Erected by him in all parts of the kingdom, and for the ROYAL HORTICULTURAL SOCIETY at SOUTH KENSINGTON and CHISWICK, with unrivalled satisfaction, is a guarantee for skill of design, superior materials, and good workmanship; while the great advantages obtained by his IMPROVED SYSTEM cannot be over-estimated, consisting of perfectly tight joints with neatness of appearance; EFFECTS A SAVING OF 25 PER CENT. on cost of Apparatus erected compared with other systems; facility for extensions, alterations or removals without injury to Pipes or Joints; can be erected by any Gardener; an ordinary size Apparatus erected in one day, and PERFECTNESS of DESIGN SUPPLIED, INSURING NO EXTRAS. Complete Apparatus, of the best materials, with Saddle Boiler, delivered to any Railway Station in England, and Erected at the following prices. Erection beyond 25 miles of London, railway fare for one man additional. Considerable reduction on large works.

TWO FOUR-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
20 feet by 10 feet ..	£9 0 0 ..	£2 0 0	50 feet by 15 feet ..	£17 10 0 ..	£3 0 0
30 feet by 12 feet ..	11 15 0 ..	2 10 0	75 feet by 15 feet ..	20 0 0 ..	3 0 0
40 feet by 15 feet ..	15 0 0 ..	2 15 0	100 feet by 15 feet ..	26 0 0 ..	3 5 0

Bath and Gas Work erected in town or country. The Trade Supplied.

Horticultural Buildings of every description from 1s. 6d. per foot superficial, inclusive of Brickwork.

Price Lists, Plans, and Estimates forwarded on application to

T. S. TRUSS, C.E., CONSULTING HORTICULTURAL ENGINEER, &c., SOLE MANUFACTURER, IRON MERCHANT and HORTICULTURAL BUILDER,
FRIAR STREET, BLACKFRIARS ROAD, LONDON, S.E.

To Seedsmen and Nurserymen.

A NEST of 400 solid Mahogany-fronted, dovetailed, SEED DRAWERS, French polished, for Sale, Price £10. Apply at R. GREEN'S, Bedford Conservatories, Covent Garden Market.

To Florists and Others.

TO BE SOLD, a SMALL CONCERN in the above line, in the best part of the West-end, with Greenhouses and Stock complete. In good working order.—For particulars, apply to Mr. A. GOODRUM, 20, Maida Vale, W.

TO BE LET, the NURSERY, Rainhill, with good House and Shop, two large Vineries, six Hothouses, Greenhouse, Potting Sheds, and sundry outbuildings.
D. CANNON, 62, Lancham Street, Kirkdale, Liverpool.

Seed Business

TO BE DISPOSED OF, in one of the principal Towns in Lancashire. Good Returns and Profits, and a large Manure Trade in connection.
A. B., care of Watts, Burnell & Co., Southwark Street, London, S.E.

Florist and Nursery Business.

TO BE SOLD, a compact affair in the above line, with Greenhouses and everything complete. One of the best situations in London; established over 20 years; a great bargain.
Apply on the premises, Denbigh Road Nursery, Westbourne Grove West, Bayswater.

Sales by Auction.

Hardy Plants and Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, February 3rd, at half-past twelve precisely, a Consignment of HARDY and ORNAMENTAL TREES and SHRUBS from Surrey. 700 Dwarf Standard ROSES from Bucks. 100 male and female AUCUBAS. Choice GLADIOLI and RANUNCULI for Spring Planting. RUSTIC SEATS, STOOLS, VASES, &c.

On view the Morning of Sale, and Catalogues had.

Willis's Nursery Gardens, Fulbrook, Oxfordshire.

TO BE SOLD, by AUCTION, by Mr. THOMAS STREAT AND SONS, at the Auction Mart, Tokenhouse Yard, E.C., on TUESDAY, February 2, at 1 o'Clock in the afternoon precisely, by direction of the Trustees for Sale, under the will of the late proprietor, Thomas Willis, all that substantially-built DWELLING-HOUSE, with detached Store-house and Seed-room over, Brew-house, and other Outbuildings, with the FOUR NURSERY GROUNDS or GARDENS, lying partly contiguous and partly very near thereto, and containing altogether 7a., 3r., 9p. The Property is Freehold of Inheritance, and the business of a Nurseryman and Seedsman has been successfully carried on thereupon during four successive generations. It deserves the attention of the Trade. Is disposed of solely by reason of the death of the late Proprietor. The only outgoing is a land tax of £1 13s., and possession may be had on completion of the purchase. The Purchaser is to take to the Timber and Live and Dead Stock in Trade and Fixtures at a Valuation.

The Property lies about half-a-mile from Burford, and about five miles from Shipton Station. It may be viewed by application on the Premises, and further particulars and Conditions of Sale may be obtained ten days before the Auction of Messrs. PRICE & SONS, Solicitors, Burford; or Messrs. PEACOCK & GODDARD, Solicitors, 3, South Square, Gray's Inn.

MR. SAMUEL ROBINSON'S ANNUAL QUICK SALE, at Melbourne, will take place on WEDNESDAY, February 3, and will comprise 200,000 3-yr. old fine rooted transplanted QUICK; 20,000 2 to 3 feet PRIVET; a large and well-grown lot of bushy SPRUCE, 2½ to 4 feet; 14,000 LARCH, 2½ to 3½ feet; strong OAKS, ELMS, BIRCH, and ASH; a few fine HORSE-CHESTNUTS, 6 to 9 feet; 40 IRISH YEWS, 3 to 4 feet.

For particulars apply to Mr. ROBINSON, Shaw House, Melbourne, or DAVENPORT, GERMAN & ALLEN, Auctioneers, Ashby-de-la-Zouch.

Annual Sale of Potatos.

TO BE SOLD, by PUBLIC ROUP, on SATURDAY, February 6, 1869, at half-past 1 o'Clock, P.M., at WOOLMET, situated four miles from Edinburgh on the Dalkeith Road, four miles from the Ports of Leith and Granton, three miles from Fisherrow Harbour, two miles from the Portobello Station of the North British Railway from Edinburgh to London, Manchester, &c., and near the Millerhill Station of the Edinburgh, Hawick, and Carlisle Railway, about 500 Tons of EARLY DALMAHOY, RED BOG EARLY, and WALKER'S REGENTS, all of superior quality and size. Having been grown after pasture, carefully selected, they are well adapted for Seed. The Dalmahoys were lifted expressly for Seed before being ripe, were carefully picked, are true to sort, and all are entirely free from disease. To be put up in Lots to suit intending Purchasers. Mr. ARCHD. DODS, Auctioneer.

For other particulars apply to Mr. GIBSON, Woolmet, by Dalkeith.

Claremont Gardens, Esher.

MR. NIGHTINGALE and MESSRS. PROTHEROE AND MORRIS are honoured with commands to SELL by AUCTION, on the premises, as above, on MONDAY and TUESDAY, February 22 and 23, at 12 o'Clock precisely, in Lots suited for Gentlemen and the Trade, the whole of the valuable GREENHOUSE PLANTS, comprising 3000 Azalea indica, strong and well furnished with buds; some remarkably handsome specimens of double white and other Camellias, from 4 to 7 feet; choice Ericas, of sorts; Acacia armata, Poinsettias, 400 Cytisus racemosus, very fine plants, and well set with flowers; Oleanders, Hydrangeas, Callas, 2000 Deutzias, 2000 Eparis, Tree Carnations, a variety of Stove Plants, &c. Also a very large collection of Soft-wooded and Bedding Plants, including Pelargoniums, about 1000 Scarlet and Variegated Geraniums, and others in great variety. Some very choice named Hyacinths and other Dutch Bulbs, just coming into perfection; 4000 Strawberries, in No. 32 pots, for forcing; 3000 Chrysanthemums, 2000 Mignonette, 3000 Lycopodiums; a variety of young NURSERY STOCK, including Pyramidal Pear and other Fruit Trees; Conifers and Evergreens, Shrubs, 70 bushels Myatt's Prolific Ashleaf Potatos, &c.

May be viewed on Saturday, February 20. Catalogues to be obtained one week before the Sale of Mr. MACDONALD, Claremont; of Messrs. PROTHEROE & MORRIS, Auctioneers, American Nurseries, Leytonstone, Essex; and at Mr. NIGHTINGALE'S Auction and Survey Offices, High Street, Kingston-on-Thames.

Preliminary Advertisement.

IMPORTANT SALE of CONIFERÆ of every description, DECIDUOUS TREES and SHRUBS, at Belstane, in the Parish of Kirknewton and County of Edinburgh.

MR. GEORGE BROWNLEE, AUCTIONEER, Midcalder, has been instructed by the Trustees of the late Mr. Humphrey Graham, to SELL by AUCTION, towards the end of FEBRUARY or beginning of MARCH, the large Collection of CONIFERÆ, (varying from 1 to fully 15 feet, and mostly raised from seed by Mr. Graham); DECIDUOUS TREES and SHRUBS now growing at Belstane, and consisting of many thousands.

Belstane is about 12 miles west from Edinburgh, and is fully 800 feet above the level of the sea. The whole stock is in first-rate condition, and from the height above the sea at which it has been grown is particularly hardy and well adapted for transplanting.

Full particulars in future Advertisements. Catalogues in preparation, and when ready may be obtained from Mr. A. DONALD, Belstane, Kirknewton, Mr. GEORGE BROWNLEE, Midcalder, and Messrs. A. & A. CAMPBELL, W.S., 22, Dublin Street, Edinburgh.

Midcalder, Jan. 20, 1869.

To Shorthorn Breeders.

IMPORTANT SALE OF SHORTHORNS.

MR. GEORGE LANGRIDGE has been favoured with instructions from C. Leney, Esq., to dispose of by PUBLIC AUCTION, on WEDNESDAY, April 14, at 12 for 1 o'Clock, the entire HERD of valuable SHORTHORNS, comprising about 40 Head of Bulls, Cows, Heifers, and Calves, principally bred by himself from Stock purchased from some of the best known Shorthorn Herds. Also, at the same time, about 30 Head of STORE STOCK.

Catalogues, with Particulars and Pedigrees, may be had on and after March 22 next, of C. Leney, Esq., Hadlow Place, near Tonbridge, Kent; the Salisbury Hotel, Salisbury Square, Fleet Street, E.C.; the Mitre and Star Hotels, Maidstone; and of the Auctioneer, Bourneside, Hadlow, and Mereworth, Kent.

CHOICE FLOWER SEEDS.

MESSRS. VEITCH & SONS,

ROYAL EXOTIC NURSERY, CHELSEA, LONDON, S.W.,

DESIRE TO DIRECT PARTICULAR ATTENTION TO

THE FOLLOWING SEEDS OF STERLING MERIT.

NOVELTIES OF THEIR OWN INTRODUCTION,

Offered for the first time.

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It is of a dense habit, attaining an average growth of 1 foot, and covering itself with bunches of beautiful light blue flowers, which are very sweet scented, lasting a long while in perfection.

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Per Packet, 1*s.* and 2*s.* 6*d.*

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 6.—1869.] SATURDAY, FEBRUARY 6. {Price Fivepence. {Stamped Edition, 6d.

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SUTTONS' COLLECTIONS of VEGETABLE SEEDS.
See page 106 of last week's *Gardeners' Chronicle*.

SUTTONS' COLLECTIONS of FLOWER SEEDS.
See page 106 of last week's *Gardeners' Chronicle*.

SUTTONS' GRASS SEEDS for ALL SOILS.
See page 143 of this week's *Gardeners' Chronicle*.

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BOX EDGING and COMMON LAURELS.—2000 yards of DWARF BOX EDGING, and 5000 LAURELS, of various sizes, in capital condition for removal, to be Sold cheap. Apply to
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No Foxes, no Foxes—the Covers are too Open and Cold.
PLANT NORWAY SPRUCE FIR, 2 to 3, and 3 to 4 feet, the best and cheapest for thickening Game and Fox Covers. For samples and prices of 50,000 apply to
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CARTER AND CO.,
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237 and 238, High Holborn, London, W.C.

EVERY GARDEN REQUISITE KEPT in STOCK at
CARTER'S New Seed Warehouse, 237 and 238, High Holborn, London.

THE ONLY PRIZE MEDAL for GRASS in GROWTH, PARIS, 1-67, was AWARDED to JAMES CARTER & Co., 237 and 238, High Holborn, London, W.C.

FEATHER GRASS.—FEATHER GRASS, in good condition and colour, 8*s.* per lb.
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Special prices and advantageous offers on application to
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Genuine Garden and Farm Seeds to be had of
THOMAS KENNEDY AND CO., SEEDSMEN and NURSERYMEN, Dumfries, at extremely moderate prices, and delivered, free of carriage, at nearest Railway station.
CATALOGUES sent gratis on application.

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H. AND F. SHARPE'S SPECIAL PRICED LIST of HOME-GROWN SEEDS is now ready, and may be had on application.
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Sixty-seven Pages of Nursery Stock.
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Mangel Wurzel Seed.
JOHN SHARPE can offer on good terms, from highly selected Stocks, and his own growing this year.
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MR. S. A. DAINTREE, of Fendrayton, St. Ives, Hunts, has a quantity of LONG RED and LONG YELLOW MANGEL and GREEN KOHL RABI for Sale, to the Trade, at very moderate rates, of his own growth and selection.

ASPARAGUS PLANTS, extra fine and strong, 2, 3, and 4-yr., at moderate prices.
WM. WOOD & SON, Nurseries, Maresfield, near Uckfield, Sussex.

Cucumber Plants, Wholesale and Retail.
WALKLING'S PROLIFIC, TELEGRAPH, and other sorts; a few hundred more of choice TRICOLOR and other GERANIUMS for Sale, or Exchange for Standard or Dwarf ROSES.
G. WALKLING, Nurseryman, High Road, Lewisham, S.E.

Scrymger's Brussels Sprouts.
G. SCRYMGER begs to offer Seed of the above superior variety of Brussels Sprouts, in packets, at 1*s.* each, post free 14 stamps. Price to the Trade on application to
G. SCRYMGER, Sonning, Reading, Berks.

To the Trade.
T. HANDASYDE AND DAVIDSON have to intimate that they are now executing orders for MUSSELBURGH and AYTON CASTLE LEEK SEED. Prices on application.
21, Cockburn Street, Edinburgh.—January, 1869.

POTATO ONIONS and SHALLOTS.
POTATO ONIONS, at 21*s.* per cwt.
SHALLOTS, at 32*s.* per cwt.
On Sale at MITCHINSON'S Seed Stores, Truro.

The Best New Potato for 1869 is
SUTTONS' BERKSHIRE KIDNEY, 5*s.* per peck, 18*s.* per bushel, carriage free.
SUTTON & SONS, Royal Berks Seed Establishment, Reading.

POTATOS.—Handsworth Early Round.—Price on application to
JAS. FAIRHEAD & SON, Seed Merchants, 7, Borough Market, London.

Wheeler's Milky White.
MR. MYATT has more of this than he intends planting. Price to the Trade on application.
Manor Farm, Deptford.

JOHNSON'S PROLIFIC WHITE KIDNEY POTATO.—A few tons of this excellent sort, grown in Cornwall, are offered at 10*s.* per cwt., delivered at Truro or Plymouth; or at 11*s.* per cwt., delivered in London.
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SEED POTATOS.—Rivers' Royal Ashleaf, per ton, £9. Myatt's Prolific Ashleaf, per ton, £8. Kept true expressly for seed. Carriage paid for cash to London. New sacks, 1*s.* 3*d.*
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SEED POTATOS.—Rivers' Royal Ashleaf, Early Dalmahoy, Myatt's Early Prolific, and all the finest early and late varieties, free from disease, excellent in quality, and at moderate prices. For Special Priced Lists apply to
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ISAAC DAVIES, Brook Lane Nursery, Ormskirk, Lancashire.

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THOMAS IMRIE AND SONS, NURSERYMEN and SEEDSMEN, Ayr, have a quantity of Dalmahoys, Red Bog, Regents, and Rocks, all raised before the second growth commenced, and carefully selected for seed. Prices on application.

HOOPER AND CO'S GENERAL CATALOGUE, is now published.

It INCLUDES PROBABLY MORE BONA-FIDE MATTER, and a larger variety of genuine subjects, than any other published in Great Britain.

It ENUMERATES NATIVE SEEDS from various parts of the world, several from hitherto unexplored districts, and therefore not yet described in Botanical Works.

The SEEDS OFFERED are UNADULTERATED, and as cheap as is consistent with those which ensure good articles.

The KITCHEN GARDEN SEEDS are of the very finest quality, and are sent carriage free to any part of the Kingdom.

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Genuine and First-class Seeds, Carriage Free.

WM. PAUL begs to announce that his NEW CATALOGUE of SELECT VEGETABLE and FLOWER SEEDS is just published, and will be forwarded free by post on application.

He has made enlarged arrangements, by which he believes he will be able to secure for his Customers, as usual, the best races of VEGETABLE and FLOWER SEEDS, of good germinating qualities, free from adulteration. For further particulars, see large Advertisement of last week.

Important.—All letters should be addressed WM. PAUL, Waltham Cross, London, N.

Choice Scarlet Rhododendrons.

JOHN WATERER begs to announce that his CATALOGUE of HARDY, SCARLET, and other RHODODENDRONS, as annually exhibited at the Royal Botanic Gardens, Regent's Park, is now published, and will be forwarded to all applicants. It contains faithful descriptions of all the popular kinds, and likewise a SELECT LIST of CONIFERS, with heights and prices.

The American Nursery, Bagshot, Surrey.

New Seeds for the Garden and Farm, 1869.

CROYDON. A. HENDERSON. EAST SURREY SEED WAREHOUSE. ESTABLISHED 1823

ARCHD. HENDERSON'S DESCRIPTIVE and PRICED CATALOGUE of SEEDS, containing Cultural Remarks on all the most important SEEDS,

A select list of GLADIOLUS for Spring Planting,

GRAPE VINES, in Pots, an unrivalled Collection.

Also his DESCRIPTIVE CATALOGUE of GENERAL NURSERY STOCK is now ready, and may be had gratis and post free upon application.

Sion Nursery, Thornton Heath, Surrey; and at the East Surrey Seed Warehouse, College Grounds, North End, Croydon.

Genuine Seeds.—Carriage Paid.

B. S. WILLIAMS,
SEED MERCHANT AND NURSERYMAN,
Victoria and Paradise Nursery, Upper Holloway, London, N.

COMPLETE COLLECTIONS
OF
KITCHEN GARDEN SEEDS,
To suit Gardens of various sizes,
10s. 6d., 21s., 42s., 63s., and 84s. each.

NEW and CHOICE VEGETABLE SEEDS.	Per Pkt. s. d.
WILLIAMS' IMPROVED GREEN CURLED BORECOLE..	0 6
WILLIAMS' ALEXANDRA BROCCOLI..	1 0
DELL'S FINE DARK BEET	1 0
WILLIAMS' MATCHLESS RED CELERY	1 0
SHARMAN'S UNIVERSAL CUCUMBER (new)	1 6
TELEGRAPH IMPROVED (Woolley's variety)	1 6
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WILLIAMS' VICTORIA COS LETTUCE (new)	1 0
MALVERN HALL MELON	1 6
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BEDFORDSHIRE CHAMPION ONION (new)	1 0
NUNEHAM PARK ONION .. .. 1s. and	1 6
CULLINGFORD'S CHAMPION MARROW PEA, an excellent cropper, and fine flavour (new) .. .. per qrt.	3 6
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VIOLA LUTEA (yellow flowered Violet) .. .. 1s. 6d. and	2 6
WALLFLOWER (Saunders' fine dark variety)	1 0
SALVIA ARGENTEA, a beautiful silvery-foliaged ornamental plant	1 0
DIANTHUS HEDDEWIGII DIADEMATUS fl.-pl., flowers very large, and colours most beautiful (new)	2 6
OXALIS VALDIVIANA, quite hardy, the flowers are bright yellow and sweet scented, and produced in bunches of large size (new)	1 0
PALAVA FLEXUOSA, very pretty annual (new)	1 0
MYOSOTIS AZORICA ALBA, the flowers are pure white, contrasting beautifully with the blue variety Coelestina (new) .	2 6
STOCK, EAST LOTHIAN.—This is a splendid variety, of dwarf and compact habit, producing immense spikes of flowers, and very double. They make a grand display in beds, and for ribbon borders. Per collection of three colours (scarlet, Purple, and White)	2 6
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AMARANTHUS SPECIOSUS AUREUS (New Golden Prince's Feather)	1 0
ANTIRRHINUM ASARINA, very beautiful for rockwork (new)	1 0
HELICHRYSUM APICULATUM (new)	1 0
MIMULUS REPENS, this is a very distinct species, the flowers creeping, pale blue-purple colour, the lower lip being prettily spotted with orange on a white ground (new) ..	1 0
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ZINNIA ELEGANS TAGETIFLORA fl.-pl. (new	1 0

B. S. W.'s DESCRIPTIVE CATALOGUE of FLOWER, VEGETABLE, and AGRICULTURAL SEEDS, is now ready, post free to all applicants.

Victoria and Paradise Nursery, Upper Holloway, London,

CHOICE FLOWER SEEDS.

MESSRS. VEITCH & SONS,

ROYAL EXOTIC NURSERY, CHELSEA, LONDON, S.W.,

DESIRE TO DIRECT PARTICULAR ATTENTION TO

THE FOLLOWING SEEDS OF STERLING MERIT.

NOVELTIES OF THEIR OWN INTRODUCTION,

Offered for the first time.

ASPERULA AZUREA SETOSA.

A most profuse-blooming hardy annual, a native of the Caucasian mountains.

It is of a dense habit, attaining an average growth of 1 foot, and covering itself with bunches of beautiful light blue flowers, which are very sweet scented, lasting a long while in perfection.

We recommend this beautiful annual on account of its striking colour, delightful perfume, and the profusion with which it blooms, one plant having open at the same time hundreds of heads of flowers, which are produced as well from the axil of every leaf as from the ends of the shoots.

Per Packet, 1s. and 2s. 6d.

OXALIS VALDIVIANA.

A showy hardy Oxalis, for the introduction of which we are indebted to our collector, the late Mr. R. Pearce.

It is quite hardy, the plants having already passed several winters in the open ground uninjured. Its habit is compact and good, and it throws its bloom spikes well above the foliage.

The flowers are of a bright yellow colour, sweet scented, and produced in bunches of large size.

For mixing with bedding plants of all kinds in flower gardens this plant will be found valuable, as it will form an admirable contrast to all other colours.

Per Packet, 1s. and 2s. 6d.

PALAVA FLEXUOSA.

A most beautiful annual, received from Bolivia through our collector, the late Mr. R. Pearce.

In growth it attains an average height of 15 to 18 inches, branching freely, and producing in the greatest profusion its charming flowers, which measure an inch in diameter, and are thrown well above the foliage. Its leaves are very neat and graceful.

In colour the greater portion of the flower is of a bright rosy pink, fading slightly towards the centre, whilst the base of the sepals and petals is almost black, producing a dark eye, which contrasts most beautifully with the other portions of the flowers, rendering it at once most striking and effective.

It succeeds admirably either in the open air or as a conservatory and greenhouse decorative plant.

At the Great International Horticultural Exhibition in 1866 we were awarded the 1st Prize for the best three new plants in bloom, the Palava being one of the winning set.

Per Packet, 1s. and 2s. 6d.

OTHER NOVELTIES,

Highly recommended by the raisers, from whom supplies have been obtained.

Abronia arenaria.
Per packet, 1s.

Amaranthus elegantissimus.
Per packet, 1s. 6d.

Amaranthus speciosus aureus.
New Golden Prince's Feather. Per packet, 1s.

Aster, Giant Pæony-flowered Perfection.
Per packet, 1s. 6d.

Nasturtium Golden King of Tom Thumbs.
Per packet, 1s.

Primula sinensis fimbriata punctata elegantissima.
Per packet, 2s. 6d.

Zinnia elegans pumila fl.-pl.
Per packet, 1s.

Zinnia elegans tagetiflora fl.-pl.
Per packet, 1s.

Dianthus Heddewigii diadematus fl.-pl.
Double Diadem Pink. Per packet, 1s. and 2s. 6d.

Eschscholtzia rosea.
Per packet, 1s.

Mimulus repens.
Per packet, 1s.

Modiola geranioides.
Per packet, 1s.; Tubers, per dozen, 12s.

Myosotis azorica alba.
Per packet, 1s.

Stock East Lothian.
Per Collection of 3 colours (scarlet, white, and purple), separate, 2s. 6d.

For full descriptions, see CATALOGUE, now ready.

IMPORTED COLLECTIONS OF FLOWER SEEDS,

Obtained direct from the most celebrated Continental Growers, sent out in the original papers, and strongly recommended as being of the very best quality.

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	s. d.
Dwarf Chrysanthemum-flowered, 12 distinct colours, separate	2 6
Tall Chrysanthemum-flowered, 12 do. do., do.	2 6
Truffaut's Perfection Pæony-flowered, 12 do. do., do.	3 0
" Globe Pæony-flowered, 10 do. do., do.	2 0
Pompone imbricated, 12 do. do., do.	2 6
Crown or Cocardeau, 6 do. do., do.	1 6
Reid's Improved Quilled, 10 do. do., do.	2 0
Victoria, very fine, 8 do. do., do.	2 6
Ranunculus-flowered, 6 do. do., do.	2 0
Emperor or Giant, 6 do. do., do.	2 0

For packets of the above, in finest mixed colours, see Catalogue, page 37.

Messrs. V. & Sons were awarded a Special Certificate for the excellence of their Asters, of which they exhibited a large collection at the Royal Horticultural Society's Meeting, Sept. 4, 1866.

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Dwarf German Ten-Week, in 12 distinct colours, separate ..	2 6
Large-flowering German Ten-Week, in 12 do. do., do. ..	2 6
Pyramidal Large-flowering Ten-Week, in 12 do. do., do. ..	2 6
Earliest-flowering Autumn, in 6 do. do., do.	1 6
Emperor Large-flowering, in 8 do. do., do.	2 0
Brompton, in 12 do. do., do.	2 6
Cocardeau or Giant Cape, in 6 do. do., do.	2 0

For packets of the above, in finest mixed colours, see Catalogue, page 47.

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From Mr. Cox's splendid collection, see *Gardeners' Chronicle* of 1868, page 820.

Assortment of 18 finest varieties, separate, 2s.

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Smith's Camellia-flowered, in 9 distinct colours, separate, 2s. 6d.
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Self or One-coloured, in 12 vars.	Perpetual Flake, in 12 varieties
Flake, in 12 varieties	Perpetual Bizarre, in 12 varieties
Bizarre, in 12 varieties	Perpetual Fancy, in 12 varieties
Fancy, in 12 varieties	Picotees, white ground, in 12 varieties
Yellow Flake, in 12 varieties	Picotees, yellow ground, in 12 varieties
Yellow Bizarre and Self, in 12 varieties	Picotees, Perpetual or Tree, in 12 varieties
Yellow Fancy, in 12 varieties	
Perpetual or Tree, Self, in 12 varieties	

The above superb Collections, 3s. 6d. each.

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Dwarf Varieties, in 12 distinct colours, separate, 2s. 6d.

Delphiniums.

Assortment of 12 choice varieties, separate, from our own splendid collection, 2s. 6d.

Double Helichrysums.

Assortment of 10 splendid varieties, separate, 1s. 6d.

Everlastings.

Assortment of 25 best varieties, separate, 4s.
Assortment of 12 best varieties, separate, 2s.

Hollyhocks.

Saved from a Choice Collection, in 12 named varieties, 3s. 6d.

Ipomœas.

Assortment of 12 finest varieties, separate, 3s.

Larkspurs.

Double Dwarf Hyacinth-flowered, in 10 distinct varieties, 2s. 6d.
Double Dwarf Rocket, in 10 distinct varieties, 2s. 6d.
Double Tall Stock-flowered, in 8 distinct varieties, 2s.

Marvel of Peru.

Assortment of 10 finest varieties, separate, 1s. 6d.

Ornamental Grasses.

Collections of 50 finest varieties, 6s.
Collections of 25 finest varieties, 3s. 6d.
Collections of 12 finest varieties, 2s.

Ornamental Gourds.

Collections of 24 finest varieties, 3s. 6d.
Collections of 12 finest varieties, 2s.

Giant Gourds.

Collections of 12 finest varieties, separate, 2s. 6d.

Petunias.

Assortment of 12 varieties, separate, 4s.

Phlox Drummondi.

Assortment of 12 finest varieties, separate, 2s. 6d.

Poppy.

Pæony-flowered, in 10 distinct colours, separate, 2s.
Carnation, in 12 distinct colours, separate, 2s.

Portulacas.

Double-flowered, in 6 finest varieties, separate, 2s.
Single-flowered, in 8 finest varieties, separate, 1s. 6d.

Salpiglossis.

Assortment of 10 finest varieties, separate, 2s.

Scabious.

Large-flowered, in 8 distinct colours, separate, 1s. 6d.
New Dwarf, in 6 distinct colours, separate, 1s. 6d.

Wallflower.

German, Double, in 10 splendid varieties, 3s.

Zinnia elegans.

Double-flowered, in 8 distinct colours, separate, 1s. 6d.
Single-flowered, in 6 distinct colours, separate, 1s. 6d.

SUBTROPICAL AND ORNAMENTAL FOLIAGE PLANTS.

MESSRS. VEITCH AND SONS have secured supplies of Seeds of the best and most admired Plants in this important section, full descriptions of which will be found in their "VEGETABLE and FLOWER SEED CATALOGUE for 1869," which will be forwarded Post Free on application.

Assortment of 12 best varieties of the above, 5s.
Assortment of 24 do. do. 10s.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY (Limited),
CORN, SEED, MANURE, and OILCAKE MERCHANTS.
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke
Samples and prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

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DIELYTRA SPECTABILIS, in pots ..	per 100	£1	10	0
LAURUSTINUS, in bud	per 100	1	0	0
DWARF MOSS ROSES, by name ..	per 100	1	0	0
TABLE CARNATION SOUVENIR DE LA MALMAISON	per 100	3	15	0
Do. ROSE PERFECTION, fine	per 100	3	15	0
YUCCA PENDULA, fine	per doz.	0	1	0
,, VARIEGATA, do.	per doz.	2	2	0
DRACÆNA CONGESTA, do.	per doz.	0	12	0
,, FERREA VARIEGATA, do. ..	per doz.	0	18	0
IXORA COCCINEA, 1½ foot, do.	per doz.	1	16	0
SEAKALE, 1-yr., fine	per 100	0	9	0
ASPARAGUS, GIANT, 4-yr.	per 100	0	3	0

WILLIAM RUSHFORTH, Nurseryman, Woodhouse Hill, Leeds.

Market Gardens, Biggleswade, Beds.

RICHARD WALKER can supply for cash CLOVE CARNATIONS, Old Crimson, 10s. per 100; SCARLET KING DAISIES, 5s. per 100; EAST HAM, and all the leading sorts of Cabbage Plants, 2s. 6d. per 1000; RED DUTCH, extra fine, 1s. per 1000. Seeds, home-grown: ONION, WHITE SPANISH, 2s. 3d. per lb.; PARSNIP, 6d. per lb.

ORDER, NOW, of CHARLES NOBLE,
MAIDEN and 2-yr. APPLES,
MAIDEN and 2-yr. PEARS,
MAIDEN and 2-yr. PLUMS,
PYRAMID and STANDARD CHERRIES.
The Stock will please every one.—Bagshot.

ORDER, at ONCE, of CHARLES NOBLE,
ROSES FOR FORCING,
ROSES FOR PLANTING,
ROSES FOR WORKING (MANETTI).
The Stock can scarcely be equalled.—Bagshot.

ORDER, WITHOUT DELAY, of CHARLES NOBLE,
RHODODENDRONS for FORCING,
RHODODENDRONS for PLANTING,
RHODODENDRONS for COVER.
The Stock embraces millions.—Bagshot.

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The following new FRUIT TREES, in strong Maidens, 3s. 6d. each, or the Set for 15s.:—
APPLES—Gipsey King, Lord Burghley
PEARS—British Queen, Tyson
PLUMS—Frogmore Large Late Greengage, Coe's Violet.—Bagshot.

ORDER QUICKLY of CHARLES NOBLE,
TRAINED PEACHES,
,, NECTARINES,
,, PEARS,
2 and 3-yr. Trees, and full of bloom buds.—Bagshot.

PAUL & SON,

THE "OLD" NURSERIES, CHESHUNT, HERTFORDSHIRE,

HAVE NOW READY, AND WILL SEND POST FREE,

NEW DESCRIPTIVE CATALOGUE of GARDEN and FARM SEEDS.

Each article is individually priced. By a careful and practical selection not more kinds are given than varieties of soil or situation render necessary. Growth of all Seeds is tested; and the well-known first-rate quality of their Seeds, as supplied to the leading Hertfordshire and Essex Gardens, induces MESSRS. PAUL AND SON to hope for a large extension of this branch of their Business.

PAUL AND SON can strongly recommend their own home-saved varieties of VEGETABLE SEEDS:—Pauls' Superb BEET, Snow's Winter White BROCCOLI, Improved TELEGRAPH CUCUMBER, Selected SPANISH ONION, Pauls' Hardy Broad-leaved ENDIVE.

Of FLOWER SEEDS:—Paul & Son's HOLLYHOCKS, 12 varieties, as name, 5s.; PRIMULA, finest Pyramidal variety; CINERARIAS; CALCEOLARIAS, from James' varieties. For Prices and Descriptions see List.

GLADIOLI, except the novelties home-grown, at very reasonable prices.

SELECTED
VEGETABLE & FLOWER SEEDS, POTATOS, &c.

Fully DESCRIPTIVE PRICED CATALOGUE of the above, containing all the desirable NOVELTIES of the Season, is now ready, and will be sent *Gratis* and *Post Free* on application.

All Orders for VEGETABLE SEEDS amounting to 20s. and upwards delivered *Carriage Free.*

FLOWER SEEDS in all cases *Delivered Free* by post or rail.

James Dickson & Sons

OLD ESTABLISHED SEED & NURSERY BUSINESS,
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(12, KING STREET, COVENT GARDEN, LONDON, W.C.)

NEW SEEDS READY TO SEND OUT.

NEW DESCRIPTIVE SPRING CATALOGUE of CHOICE SEEDS ready, and may be had free by intending purchasers. The Catalogue embraces every Novelty and Speciality in Flower and Vegetable Seeds worthy of notice, with a Special List of nearly 400 sorts of ALPINE and HERBACEOUS PERENNIALS, which have been saved from one of the most choice Collections in Europe; and the most extensive LIST of GLADIOLI offered, embracing all the new kinds. Also (offered for the first time in this country) a SPECIAL LIST of NEW TABLE MAIZE, the most highly esteemed varieties of those cultivated by our American Cousins, who use the green cobs as one of their most popular Vegetables: and as, in this country, they will come into use when the supply of Green Peas is becoming short, they will be found an agreeable substitute for these. The late Judge Haliburton (Sam Slick), when residing at Isleworth, used this Vegetable when in season daily. The Rev. T. C. Bréhaut, of Guernsey (Her Majesty's Commissioner at the Paris Exhibition of 1867 to report on the present state of Fruit Culture on the Continent), through the American Commissioners received the varieties of Maize referred to and enumerated in our Catalogue, and has placed the entire stock he raised last year in our hands for distribution, feeling confident that the success which has attended their cultivation in the Island of Guernsey warranted him in introducing them into England for domestic use.

BARR & SUGDEN,

THE METROPOLITAN SEED, BULB, AND PLANT WAREHOUSE,

12, KING STREET, COVENT GARDEN, LONDON, W.C.

COLLECTIONS of VEGETABLE SEEDS, 12s. 6d., 15s. 6d., 21s., 31s. 6d., 42s., 63s., 84s., and 105s.
COLLECTIONS of FLOWER SEEDS, 2s. 6d., 3s. 6d., 5s. 6d., 10s. 6d., 21s., 31s. 6d., and 42s.
COLLECTIONS of HERBACEOUS and ALPINE SEEDS, 3s. 6d., 5s. 6d., 7s. 6d., 15s., 21s., and 30s.
COLLECTIONS of GLADIOLI, 5s. 6d., 8s. 6d., 10s. 6d., 13s. 6d., 21s., 30s., 42s., and 63s.
GLADIOLI, by the Hundred, 10s. 6d., 15s., 21s., 25s., and 30s.
COLLECTIONS of TABLE MAIZE, 2s. 6d., 3s. 6d., 5s. 6d., 7s. 6d., and 10s. 6d.
COLLECTIONS of ORNAMENTAL GOURDS, 2s. 6d., 3s. 6d., 5s. 6d., 7s. 6d., 10s. 6d., 15s., and 21s.
COLLECTIONS of ORNAMENTAL GRASSES for TABLE DECORATION, &c., 2s. 6d., 3s. 6d., 5s. 6d., 7s. 6d., and 10s. 6d.
COLLECTIONS of SEEDS for SUBTROPICAL GARDENS, 3s. 6d., 5s. 6d., 7s. 6d., and 10s. 6d.
COLLECTIONS of CLIMBERS, CARNATIONS, PELARGONIUMS, HOLLYHOCKS, STOCKS, ASTERS, BALSAMS, ZINNIAS, LANTANAS, EVERLASTINGS, AQUATICS, PALMS, &c. Full particulars will be found in the DESCRIPTIVE SPRING CATALOGUE, which will be sent Free to intending purchasers.

BARR AND SUGDEN, 12, KING STREET, COVENT GARDEN, W.C.

Strong Vines from Eyes.

MESSRS. JOHN AND CHARLES LEE can supply strong well-ripened CANES of all the leading varieties of GRAPE VINES. Planting Canes, 5s. each; Fruiters, to bear nine or ten bunches, 10s. 6d. each.

DESCRIPTIVE CATALOGUES on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

Madresfield Court Black Muscat Vine.

MESSRS. JOHN AND CHARLES LEE are now executing orders for this superb new late-keeping MUSCAT GRAPE, price 2s. 6d. each. Strong fruiting Canes, £2 2s. each.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

New Roses for 1869.

MESSRS. JOHN AND CHARLES LEE have selected Twenty of the most beautiful and distinct of the new CONTINENTAL ROSES for 1869, which they intend to send out in March, and among which they particularly recommend CHARLES LEE as being first-class in every respect.

DESCRIPTIVE PRICED CATALOGUES post free on application

Royal Vineyard Nursery and Seed Establishment, Hammersmith London, W.

Superb New Late Grape.

"MRS. PINCE'S BLACK MUSCAT" may now be seen in full perfection. This is acknowledged to be the finest Grape extant. Splendid Canes are now ready for immediate planting, 7s. 6d., 10s. 6d., and 21s. each. Fine planting Canes of other kinds, a LIST of which can be sent on application.

Exeter Nursery, Exeter.

ONE THOUSAND MRS. PINCE'S BLACK MUSCAT, 7s. 6d. to 21s. each; Trade price on application. Also, ROYAL ASCOT, and a very large stock of strong, well-ripened Canes of all the leading kinds, at moderate prices. PRICED CATALOGUE on application to

H. LANE & SON, The Nurseries, Great Berkhampstead, Herts.

CORDON APPLE TREES, on the true French Paradise Stock, as recommended by Mr. Robinson in his "Gleanings from French Gardens." All the best kinds, including CALVILLE BLANC, REINETTE DU CANADA, and other sorts. Prices upon application.

B. S. WILLIAMS, Victoria and Paradise Nursery, Upper Holloway, London, N.

FINE ORANGE TREES for SALE.—Ten very handsome Trees, in robust health, loaded with Fruit; clean, straight stems, about 4 feet; symmetrical heads, 5 feet diameter. One CITRON, same size. In ornamental green tubs.

Apply to the GARDENER, Woburn Park, Weybridge, Surrey. Inquiries by post address FRANCIS R. KINGHORN, Sheen Nursery, Richmond, S.W.

H. AND G. FARNSWORTH have to offer a large quantity of transplanted QUICK; SPRUCE, 16 to 24 ins.; 2-yr. SEEDLING SPRUCE, and 3-yr. SEEDLING RHODODENDRONS. Prices low.

The Nurseries, Matlock.

Culinary and Floricultural Seeds.

WILLIAM ROLLISSON AND SONS beg respectfully to announce that their GENERAL and PRICED SEED CATALOGUE for 1869 is now published, which comprises many novelties, in the way of VEGETABLE and FLOWER SEEDS, also numerous valuable additions to their extensive List of SUBTROPICAL PLANTS which can be raised from Seed, in which is also included the following choice Flower Seeds:—

CENTAUREA RAGUSINA COMPACTA.—The foliage of this new variety has the most silvery-white gloss, while its very dwarf and compact habit makes it much more useful and effective in Ribbon-borders than any of the oldest varieties. Price, per packet, 1s. and 2s. 6d.

KENNEDYA FREDWOODII.—This extremely ornamental Greenhouse Creeper blooms in great profusion during the months of December and January. The flowers, which are as large as those of a good-sized Sweet Pea, are of a gorgeous scarlet-crimson, delicately striped in places with white and marked with green. Very young plants in 3-inch pots will bloom abundantly. Seed, price 1s. per packet. Blooming plants from 3s. 6d. to 5s. each.

PRIMULA SINENSIS FIMBRIATA.—Seed saved from the finest prize strains in cultivation. Price per packet, 2s. 6d.

PRIMULA SINENSIS KERMESINA SPLENDENS.—Seed saved from the brightest coloured variety. Price per packet, 2s. 6d.

CINERARIA.—Seed saved from named varieties, the flowers of which combined endless shades of brilliant colours with perfection of form. Price per packet, 2s. 6d.

N.B.—W. R. & SONS' GENERAL CATALOGUE of SEEDS may be had gratis, and post free, on application to

The Nurseries, Tooting, London, S.W.

HOOPER AND CO., SEED MERCHANTS, Covent Garden, London, W., furnish only Seeds of the best quality, and unadulterated. For excellence and purity of Seeds their house has for upwards of a quarter of a century been noted.

KITCHEN GARDEN SEEDS, carriage free, in Collections, as follows:—

No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.
£5	£3	£2	25s.	15s.	10s.

All sent carriage paid, except Nos. 5 and 6.

These assortments embrace the requirements of all sizes of Gardens, from the largest to the least.

FLOWER SEEDS, post free.—The Catalogue describes 2342 distinct varieties (no repetitions). The following valuable rarities have just been received from Australia, collected in their native districts and are offered as under:—

ACHRAS POHLMANIANA, fine evergreen, 4 nuts, 1s.
ARAUCARIA CUNNINGHAMI, splendid Conifer, per pkt., 1s.
ATALAYA HERNIGLAUCA, white-flowered evergreen, most profuse bloomer, per pkt. 6d.
BANKSIAS, several species, per cone 2s. 6d.
CANAVALIA OBTUSIFOLIA, purple-flowered, beautiful climber, per pkt. 6d. [1s. 6d.
CLIANTHUS DAMPIERI ALBIFLORA, white, splendid, per pkt.
CORDYLINE CANNÆFOLIA, lovely greenhouse Dracena, per pkt 1s.
CORDYLINE INDIVISA, well known, with yellow midrib, superb, per pkt. 1s.
DIPLARRHENIA MORÆA, the Tasmanian Iris, fine, per pkt. 1s.
EUCALYPTUS GLOBULUS, superb foliage plant, rapid growth, per pkt. 6d.
EUTAXIA DIFFUSA, orange-flowered, small shrub, lovely, per pkt. 1s. [1s. 6d.
HAKEA ACICULARIS, white-flowered Protead, superb, per pkt.
HOVEA, species, most charming shrub, flowers of the richest carmine purple, about 2 feet high, per pkt. 1s.
KENNEDYA COCCINEA, scarlet-flowered, superb climber, per pkt. 6d. [pkt. 1s.
NUYTSIA FLORIBUNDA (the Flame-tree), sulphur flowers, per
PTYCHOSPERMA ALEXANDRÆ, magnificent Palm, per pkt. 2s. 6d.
PITTOSPORUM BICOLOR, charming evergreen, purple and yellow, per pkt. 6d.
SEAFORTHIA ELEGANS, lovely Palm, per pkt. 2s. 6d.
TECOMA AUSTRALIS, orange, splendid hardy climber, per pkt. 6d.
XANTHORRHÆA KINGII, the Grass-tree of Australia, per cone, 1s. 6d.
ZICHYA MOLLE, scarlet climber, grand, per pkt. 1s.

List of 220 other Native Australian Seeds are Catalogued.

GLADIOLI.—A splendid Collection of English Seedlings, containing most beautiful and novel colours and great variety. So cheap a lot we never sold before, the quality being so very good. In mixture, 4s. per dozen, 30s. per 100, £12 per 1000.

LILIUM AURATUM.—Splendid bulbs, strong, and sure to bloom well, from 2s. to 7s. 6d. each, from 18s. per dozen.

THE NEW AMERICAN EARLY ROSE POTATO.—The yield from this extraordinary novelty is given at 100lb. for 1 lb. planted; and so high rated were its merits in America last year, that it was sold in New York as high as 5 dollars (21s.) per lb. Price 3s. 6d. per lb., 7 lb. for 22s. 6d.

HOOPER & CO.'S GENERAL CATALOGUE for 1869 is published at 6d. Gratis to all customers, and may be had on application.

Seeds Direct from the Growers the best means of Preventing Disappointment.

NOTICE.—PURCHASERS of LARGE QUANTITIES of FARM or GARDEN SEEDS will be supplied liberally by Sutton & Sons. For prices apply (stating quantity required) to SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Choice Seeds, Gladioli, &c.

WM. CUTBUSH AND SON'S CATALOGUE of the above contains description and price of many very superior home-grown VEGETABLE and FLOWER SEEDS, and choice varieties of GLADIOLI, &c., all of which are highly recommended. Post free on application.
Highgate Nurseries, London, N.

Genuine Seeds.

F. AND A. SMITH'S CATALOGUE of FLOWER and VEGETABLE SEEDS, of first quality, is now ready, (free on application), including their fine strains of BALSAM, CALCEOLARIA, CINERARIA, PRIMULA, TRICOLOR and other PELARGONIUMS, with every novelty of repute.
The Nurseries, Dulwich, London.

THOMAS METHVEN begs to announce that his CATALOGUES of GARDEN, FLOWER, and AGRICULTURAL SEEDS, &c., and FRENCH HYBRID GLADIOLI for 1869, is now ready, and may be had post free on application.
Seed Warehouses, 15, Princes Street, and Nursery Gate, Leith Walk, Edinburgh.

New Catalogue.

LEWIS S. WOODTHORPE will be happy to forward, post free, on application, his CATALOGUE (which will be found very reasonably priced) of NEW and CHOICE PLANTS, Beautiful SPRING FLOWERS, and GENERAL NURSERY STOCK.
A heavy discount to the Trade.
Munro Nursery, Sible Hedingham, Essex.

New Catalogues.

DOWNIE, LAIRD, AND LAING beg to intimate that their GENERAL SEED, FLORIST FLOWER, and GLADIOLUS CATALOGUES are now ready, and may be had free on application.
17, South Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E.

Show and Fancy Pansy.

DOWNIE, LAIRD, AND LAING have a few ounces of the above to spare, saved from their own collection of the best varieties in cultivation. Price on application.
17, South Frederick Street Edinburgh, and Stanstead Park, Forest Hill, London, S.E.

SINGLE BLUE HEPATICAS, HELLEBORUS NIGER, and CYPRIPEDIUM CALCEOLUS, by the 100, at LOUIS VAN HOUTTE'S Royal Nursery, Ghent, Belgium. Also, a new JAPANESE BOCCONIA, and BAMBUSA FORTUNEI, with yellow striped foliage.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.—Mr. WEBB, Calcot, Reading.

GLADIOLI SEEDLINGS (Mixed).—Beautiful Flowers equal to any collection, of all colours. Strong Flowering Bulbs, 7s. per 100; 3l. 4s. per 1000. Apply to
LEVEQUE et FILS, Nurserymen, 132 and 134, Boulevard de l'Hôpital, Paris.

GLOXINIAS, erect and drooping, 2-yr. old bulbs, free by post, in 12 choice named sorts, 8s.; 24 sorts for 16s.
ACHIMENES, good tubers, free by post, two of a sort, in 12 choice named varieties, 6s.; 18 varieties, 9s.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

CALCEOLARIAS, Herbaceous, of the choicest strains (free by post), can now be supplied, carefully shaken out of pots, and beautiful dwarf plants, at the following rates:—1 dozen 4s. 6d., 25 for 7s. 6d., 50 for 13s., 100 for 25s.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

CALCEOLARIAS.—Aurea floribunda, Amplexicaulis, Golden Mantle, Mrs. White, Sparkler, Sultan, and other 12 varieties, in well-rooted plants, free by post—25 for 3s., 50 for 5s., 100 for 8s.—H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

VERBENAS, of good hardy sorts, such as Purple and Crimson King, Defiance, Champion, Victoria, &c.; other named, in 20 varieties, good plants, that will give plenty of cuttings, at 3s. per dozen, or 20s. per 100, package included.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

VERBENAS, VERBENAS.—Fifty varieties of 1868, including 12 of the New Italian Stripes, strong healthy plants with not less than four to six cuttings on each plant, 3s. per dozen. Purple, White, Scarlet, and Pink colours, with plenty of cuttings, 3s. per dozen. Terms cash. Package included.
PHILIP LADDS, Nursery, Bexley Heath, Kent.

Superb New Plant, Gesnera Exoniensis.
NOW READY.

LUCOMBE, PINCE AND CO. beg to call attention to this magnificent new Winter-blooming Plant. For Table or other Decoration it surpasses anything ever before seen.
Plants now coming into Bloom, 15s. and 21s. each. A few fine Specimens, measuring 20 inches through, 31s. 6d. each.

British Fern Catalogue.

ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, Sidcup Hill, Kent.

HENRY GODFREY, NURSERYMAN, Stourbridge, having a large stock of FERNS and SELAGINELLAS, offers them in 12 fine varieties, at from 9s., 12s., to 15s. per dozen. These are fine healthy plants, full of fronds, grown in a cool greenhouse. Post-office orders or postage stamps must accompany all orders.

HENRY GODFREY, NURSERYMAN, Stourbridge, has to offer a large quantity of HERBACEOUS CALCEOLARIAS, raised from seed saved from a particularly fine strain; established in small pots, from 2s. 6d. to 3s. per dozen, basket and package included. When three or more dozens are taken, Post-office orders or postage stamps must accompany orders.

Choice Ranunculuses, Flower Seeds, &c.

C. TYSO, FLORIST, &c., Wallingford, Berks, offers assortments from his unrivalled collection.
RANUNCULUSES, 50 fine sorts, from 12s. 6d. to £1.
25 splendid Seedlings, £1 5s.
DOUBLE ANEMONES, 25 fine varieties, 6s. 6d.
IMPORTED GERMAN SEEDS—Asters, Balsams, Stocks, Poppies, Larkspurs, Wallflowers, Zinnias, &c., in named assortments, 1s. to 5s.
ANNUAL FLOWER SEEDS, 25 varieties, 5s.
☞ These articles can be sent by post.
CATALOGUES gratis, or sent free for one stamp.

SEEDS of some 240 species of AUSTRALIAN PLANTS, many quite rare, and yet undescribed, including Cheiranthus Dampieri albiflora (true), Corollina linifolia, Eucalyptus globosus, Xanthorrhœa Kingii, Araucaria Cunninghamii, Hovea, Mesembryanthemum, Melaleucas, Pittosporums, &c.
Special LIST for the Trade now ready.
HOOPER & Co., Covent Garden, London, W.C.

Lettuce Seed.

DIXON'S CHAMPION GREEN COS LETTUCE, the finest in cultivation, average weight 4 to 6 lb. each, crisp and fine flavoured; new seed, with instructions for growing, now ready in packets, 1s. and 1s. each. Price to the Trade on application.
A SELECT LIST of Choice, New, and Genuine VEGETABLES and FLOWER SEEDS, &c., may be had gratis on application to
S. DIXON & Co., Wholesale, Retail, and Export Seed Merchants, 42a, Moorgate Street, London (near the Bank of England).

THE LARGEST AND FINEST STOCK OF

ALL THE BEST NEW ROSES OF 1869.

SPLENDID PLANTS WILL BE READY FOR DELIVERY IN MARCH.

DESCRIPTIVE CATALOGUES will shortly appear.

W. WOOD AND SON, WOODLANDS NURSERY, MARESFIELD, near UCKFIELD, SUSSEX.

GENUINE SEEDS OF SUPERIOR STOCKS.

SEEDSMEN TO THE QUEEN.

FRANCIS & ARTHUR DICKSON & SONS,

THE "OLD" ESTABLISHED SEED WAREHOUSE, 106, EASTGATE STREET, CHESTER.

THE BEST EARLY PEA IN CULTIVATION,
DICKSON'S "FIRST AND BEST," price 1s. 6d. per quart.

CATALOGUE OF NEW AND SELECT VEGETABLE AND FLOWER SEEDS, POTATOS, &c., FOR 1869,

With practical Cultural Directions, will be sent Post Free on application.

Their Seeds are all of the most select character, each being saved from the best Stock known of its kind.
GARDEN SEEDS of £2 value delivered Carriage Free. FLOWER SEEDS Free by Post or Rail.

NEW AND GENUINE SEEDS.

JAMES & ROBERT THYNE,

SEED MERCHANTS AND NURSERYMEN,

RESPECTFULLY BEG TO ANNOUNCE THAT THEIR

COMPLETE COLLECTIONS of VEGETABLE and FLOWER SEEDS,

Embracing the choicest varieties of each respective kind, are now ready.

COLLECTIONS OF VEGETABLE SEEDS.

No. 1, £5 5s. | No. 2, £3 3s. | No. 3, £2 2s. | No. 4, £1 1s. | No. 5, 10s. 6d.

COLLECTIONS OF FLOWER SEEDS.

Containing a very splendid assortment of German and English varieties, to produce a continual display during the summer and autumn months.

No. 1, £2 2s. | No. 2, £1 10s. 6d. | No. 3, £1 1s. | No. 4, 15s. | No. 5, 10s. 6d. | No. 6, 7s. 6d.

AGRICULTURAL SEEDS OF THE CHOICEST AND MOST GENUINE DESCRIPTION.

60, BUCHANAN STREET, AND NORTH WOODSIDE NURSERIES, GLASGOW.

LONDON AND CONTINENTAL SEED COMPANY,

68, WELBECK STREET, CAVENDISH SQUARE, LONDON, W.

THE LONDON and CONTINENTAL SEED COMPANY has purchased the old and important Business of Rendle & Co., of Plymouth, which has been established for nearly 100 years.

THE LONDON and CONTINENTAL SEED COMPANY.—MR. RENDLE, the head of the old Firm, has consented to be the Managing Director of this Company.

DISCOUNT of TWOPENCE in the SHILLING will be taken off the published prices of any London or Provincial Seed Merchant.

DISCOUNT of TWOPENCE in the SHILLING will be taken off the published prices of Seeds for the Farm, the Kitchen Garden, and the Flower Garden.

DISCOUNT of TWOPENCE in the SHILLING.—This new system of supplying Seeds for cash payment is the same plan so successfully introduced by Mr. Rendle, the Managing Director of the Town and Country Book Society.

DISCOUNT of TWOPENCE in the SHILLING.—The Bookselling system, of taking off a large Discount to all cash purchasers, is now introduced into the Seed Trade by the LONDON and CONTINENTAL SEED COMPANY.

SEEDS, the NEWEST and FRESHEST, all the growth of 1868.—Another new system introduced by the London and Continental Seed Company, is to dispose of all surplus stock at the end of each season, so that the new season is commenced without an ounce of old or imperfect seed.

SEEDS, all the growth of 1868, can be obtained from the LONDON and CONTINENTAL SEED COMPANY.

THE LONDON and CONTINENTAL SEED COMPANY have made arrangements with the most important Continental Growers for the quick delivery of all New Seed. Express Parcels every week in the season from the leading Continental Cities.

THE NEW GARDEN SEED LIST is now ready, and can be had on application, Gratis. A Discount of Twopence in the Shilling off all Garden Seeds.

THE NEW FARM SEED LIST is now ready, and can be had on application, Gratis. A Discount of Twopence in the Shilling off all Farm Seeds.

THE ILLUSTRATED NEW FLOWER SEED LIST is now ready, and can be had on application, Gratis. It contains numerous Illustrations of the Choicest Novelties. Everyone who has a Flower Garden should have a Copy. A Discount of Twopence in the Shilling off the price of all Flower Seeds.

LONDON and CONTINENTAL SEED COMPANY.—Purchasers of all kinds of Seeds are strongly recommended to obtain the CATALOGUE now published by this Company.

ADDRESS,
LONDON AND CONTINENTAL SEED COMPANY,
68, WELBECK STREET, CAVENDISH SQUARE, LONDON, W.

SUTTONS' HOME-GROWN SEEDS,
CARRIAGE FREE.

SEEDS DIRECT FROM THE GROWERS THE BEST MEANS OF PREVENTING DISAPPOINTMENT.

SUTTON AND SONS,
SEED GROWERS,
ROYAL BERKS SEED ESTABLISHMENT, READING

WERE AWARDED A

FIRST PRIZE SILVER MEDAL,



PARIS, 1867,
For the SUPERIOR QUALITY of their SEEDS.

SUTTONS' COMPLETE COLLECTIONS of VEGETABLE and FLOWER SEEDS, for One Year's Supply, Carriage Free.

Collections of Vegetable Seeds.

No. 1 Collection, for a large garden, carriage free	£3	3	0
No. 2 Collection, for medium size do., carriage free	2	2	0
No. 3 Collection, for medium size do., carriage free	1	11	6
No. 4 Collection, for an ordinary size do., carriage free ..	1	1	0
No. 5 Collection, for a small do.	0	15	0
No. 6 Collection, for a very small do.	0	12	6

Collections of Flower Seeds.

No. 1 Collection, free by post or rail	£2	2	0
No. 2 Collection, free by post or rail	1	11	6
No. 3 Collection, free by post or rail	1	1	0
No. 4 Collection, free by post or rail	0	15	0
No. 5 Collection, free by post or rail	0	10	6

Particulars of the above Collections may be had on application, and any articles not required will be excluded, and others included according to the wish of the purchaser.

SUTTONS' "GUINEA" COLLECTION of VEGETABLE SEEDS, for One Year's Supply, containing the following superior varieties, forwarded, Carriage Free, to any Station in England :—

1 quart PEAS, best kind, for the 1st crop
1 quart do. do. 2d crop
1 „ do. do. 3d crop
1 „ do. do. 4th crop
1 „ do. do. 5th crop
1 „ BEANS, Minster Giant
1 „ do., two good sorts
1 pint do., Scarlet Runners
½ „ do., Longpodded Dwarf
1 ounce BEET, Suttons' Fine Dwarf Red
1 packet KALE, fine Scotch Curled
1 „ do., Cottager's
1 „ do., Miller's Winter
1 „ do. SPROUTS, Brussels
1 „ do. BROCCOLI, Superb Early White
1 packet do., Frogmore
1 „ do., Purple Sprouting
1 „ do., Basket's Late White
1 „ do., Walcheren
½ ounce CABBAGE, Suttons' Imperial
½ ounce do., Dwarf York
½ „ do., Blenheim
½ „ do., Large York
½ „ do., Pickling
1 packet COUVE TRONCHUDA
4 ounces MUSTARD, White
2 „ CRESS, plain
1 „ do., Curled
1 „ do., Australian
½ „ do., American
1 packet SAVOY, Green Curled
1 „ do., Drumhead
1 „ CAULIFLOWER, London
1 „ CELERY, Superb White
1 „ do. do., Pink
1 packet CUCUMBER, Stockwood Ridging
1 „ do., best Frame
1 ounce ONION, Improved Reading
1 „ do., Brown Globe
½ „ do., White Globe
½ „ do., Blood Red
1 packet MELON, best flavoured
1 ounce CARROT, Early Horn
1 „ do., Long Red Surrey
1 „ do., Intermediate
2 „ PARSNIP, Student
1 packet ENDIVE, Green Curled
1 „ LEEK, Musselburgh
1 „ SWEET BASIL
1 „ THYME
1 „ SAVORY, Summer
1 „ do., Winter
1 „ LETTUCE, Suttons' Superb White
1 packet do., Hammersmith
1 „ do., finest mixed
1 „ GOURD, mixed
1 „ VEGETABLE MARROW, mixed
1 ounce PARSLEY, extra curled
1 packet CORN SALAD
1 „ RAMPION
1 ounce TURNIP, Suttons' Short-top Six-weeks
1 „ do., Greentop Six-weeks
1 „ do., Orange Jelly
1 packet TOMATO, mixed
2 ounces SPINACH, round
2 „ do., prickly
1 packet ORACH [top
2 ounces RADISH, Beck's Short-
1 „ do., Scarlet Olive
1 „ do., White Olive
2 „ mixed Turnip

Post-office Orders payable to SUTTON & SONS.

SUTTONS' RINGLEADER PEA,
THE EARLIEST IN CULTIVATION.

The Royal Horticultural Society have this season tested the merits of the leading Early Peas, and their Report, *vide Gardeners' Chronicle*, June 27, 1868, contains the following emphatic statement:—

"The earliest form of all was Ringleader; several of the Peas blossomed at the same time, but Ringleader was fit to gather first."

Retail Price, 2*s.* per quart.

SPLENDID NEW POTATO for 1869.
SUTTONS' BERKSHIRE KIDNEY

Was raised and selected from among forty seedlings of the Fluke. Having planted it with different varieties of that class, we have proved it to be by far the best of them all, and fully a fortnight earlier. The Tubers are all of good size, very numerous, of fine form, and remarkably clear skin. It is most valuable for the main garden crop, and will become a favourite with Market Gardeners. It has been remarkably free from disease, while other varieties growing close by were almost destroyed. The stock of this POTATO is exclusively in our possession. Price 5*s.* per peck. (See Illustration in last week's paper.)

SUTTONS' "AMATEUR'S GUIDE for 1869" is now ready, price 1*s.*; Gratis to Customers.

SUTTONS' SHORT SELECT SEED LIST is now ready; Gratis on application.

All Goods Carriage Free, except very small parcels.

☞ Five per cent. allowed for prompt payment.

SUTTON AND SONS, SEED GROWERS, READING.

The advantages of procuring Seeds direct from the Growers cannot be over-estimated.

James Carter & Co
Seed Growers

237 and 238, HIGH HOLBORN, LONDON, W.C.

CARTER'S GARDEN SEEDS,
In assorted Collections, to suit Large or Small Gardens.

For detailed Table of Contents, see page 4, *Gardeners' Chronicle*, January 2, 1869.

No. 1.	For Cottage Gardens	12*s.* 6*d.*
No. 2.	For Small Gardens	21*s.*
No. 3.	For Medium Gardens	42*s.*
No. 4.	For Large Gardens	63*s.*

No charge for packing.

PRIZE MEDALLISTS:

LONDON. PARIS.





CARTER'S FLOWER SEEDS,
In assorted Collections, to produce the most effective display. For Table of Contents, see page 4, *Gardeners' Chronicle*, January 2, 1869.

Collection	A, 10*s.* 6*d.*;	Free by Post, 11*s.*
„	B, 15*s.*;	Free by Post, 15*s.* 6*d.*
„	C, 21*s.*;	Free by Post, 21*s.* 6*d.*
„	D, 42*s.*;	Free by Post, 42*s.* 6*d.*
„	E, 63*s.*;	Free by Post, 64*s.*

NEW DOUBLE ZONAL GERANIUM for 1869.

WILHELM PFITZER (LEMOINE).—A novelty without a rival, possessing all the desirable qualities to make it a valuable addition to every collection; dwarf, free-blooming habit, and brilliancy of colour.

Plants not higher than 5 inches had two and three trusses fully expanded, each measuring rather more than 5 inches across; the individual flowers are large, very double, of the most perfect shape, and dazzling orange-scarlet colour.

We have purchased the entire Stock for distribution in England, of the raiser, M. Lemoine, of Nancy. Plants to be ready by February 15, 1869. Price 7*s.* 6*d.* each.

LILIUM AURATUM (Golden-rayed Lily).
Fresh imported Bulbs, 2*s.* 6*d.* each, and upwards.

POTATOS.

CARTER'S CHAMPION KIDNEY (for forcing), 5*s.* per peck, 18*s.* per bushel
SODEN'S EARLY OXFORD (choice quality), 3*s.* p. pk., 9*s.* p. bush.
RIVERS' ROYAL ASHLEAF KIDNEY. 4*s.* per peck, 14*s.* p. bush.
CARTER'S ASHTOP FLUKE KIDNEY, the best second early variety, 5*s.* per peck, 18*s.* per bushel
WEBB'S IMPERIAL KIDNEY (very prolific), 3*s.* per peck, 10*s.* per bushel
MILKY WHITE (well known), 4*s.* per peck, 14*s.* per bushel
IMPROVED DALMAHOY (Round), 2*s.* 6*d.* per peck, 8*s.* per bushel
KING of the FLUKE (Kidney), 2*s.* 6*d.* per peck, 9*s.* per bushel
WALKER'S IMPROVED REGENT, 2*s.* 6*d.* per peck, 9*s.* per bush.

J. C. & Co.'s stocks of the above are very choice and true.

THE EARLY ROSE POTATO (American variety)—1 lb. produced in one season 100 lb.; price 3*s.* per lb.

CARTER'S PRIZE MEDAL LAWN GRASS
will produce a Permanent Turf of finest quality.
1*s.* per lb.; 20*s.* per bushel.

CARTER'S FERTILISER,
THE BEST MANURE FOR THE GARDEN.
In Tins, 1*s.* 9*d.* and 4*s.* 6*d.* each.
In Bags, 15*s.* and 25*s.* each.

For full descriptions, see

CARTER'S
GARDENER'S AND FARMER'S VADE MECUM FOR 1869
(Illustrated), 34th year of publication. Post Free for 12 Stamps; Gratis to Customers.

JAMES CARTER AND CO., SEED GROWERS, 237 and 238, and 261, High Holborn, London, W.C.

SUTTONS' HOME-GROWN SEEDS,
Carriage Free.

Seeds direct from the Growers the best means of preventing disappointment.

NEW SEEDS for the KITCHEN GARDEN, complete Collections from 12*s.* 6*d.* to £5 5*s.*, carriage free.
NEW SEEDS for the FLOWER GARDEN, complete Collections from 5*s.* to £2 2*s.*, carriage free.
SUTTONS' HOME-GROWN SEEDS, PRICED DESCRIPTIVE CATALOGUES gratis and post free.
SUTTON & SONS, Seedsmen to the Queen, Reading.

Seeds.

AVERSE as MR. WILLIAM BULL is to publishing Testimonials, and for the reason that all good Houses must constantly receive them in some shape or other, still, so much has recently been written and said about inferior Seeds, and Mr. W. B., knowing that Seeds of such excellence as are supplied from his Establishment can scarcely be supplied elsewhere, thinks it as well to quote the following extract from a letter just received from Lieut.-Col. E. Boddam, Honorary Secretary of the Agri-Horticultural Society of Mysore, Bangalore :—

"We have been sorely tried with Seeds, sent us as Novelties and best kinds; I have found the scarlet packets sent us, bearing your name, are out and out the best we get."

CATALOGUE of SEEDS just published, with everything priced, can be obtained by enclosing 12 stamps.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

July 19th to 24th, 1869.

THE ROYAL HORTICULTURAL SOCIETY'S GRAND EXHIBITION at MANCHESTER, in connection with the SHOW of the ROYAL AGRICULTURAL SOCIETY.

Amongst various Special Prizes,

A SILVER CUP (copy of the famous Cellini Cup), **VALUE £21** will be offered by the Proprietors of the GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE for the best COLLECTION of 5 FRUITS and 8 VEGETABLES, to be made up as follows :—

	Good.	Medium.	Inferior.
Grapes	6 marks	3 marks	1 mark
Melons (2 fruits)	6 „	3 „	1 „
Strawberries	3 „	2 „	1 „
Gooseberries	3 „	2 „	1 „
Currants	3 „	2 „	1 „
Cherries	3 „	2 „	1 „
Raspberries	3 „	2 „	1 „
Apples of 1868	6 „	3 „	1 „
(Any 5 of the above 8 subjects).			
Peas	3 „	2 „	1 „
French Beans	3 „	2 „	1 „
Broad Beans	3 „	2 „	1 „
Cauliflowers	3 „	2 „	1 „
Cucumbers (brace)	3 „	2 „	1 „
Summer Cabbages	3 „	2 „	1 „
Early Carrots	3 „	2 „	1 „
Turnips	3 „	2 „	1 „
Globe Artichokes	3 „	2 „	1 „
Onions	3 „	2 „	1 „
Spinach	3 „	2 „	1 „
Rhubarb	3 „	2 „	1 „
Potatos	3 „	2 „	1 „
Mixed Salading	3 „	2 „	1 „
(Any 8 of the above 14 subjects).			

This Prize is open for Competition amongst Amateurs and Gardeners of private families. The Fruit and Vegetables produced must be of *the Exhibitor's own growing*; and any article otherwise obtained will disqualify the Collection. It is expected that the several articles will be neatly and effectively displayed.

In awarding the Prize, Marks will be adjudged according to the above scale, for the several subjects produced.

The Gardeners' Chronicle.
SATURDAY, FEBRUARY 6, 1869.

MEETING FOR THE ENSUING WEEK.

TUESDAY, Feb. 9 { Royal Horticultural (Annual General Meeting), at South Kensington—3 P.M.

REVERTING to the Report of the Committee of the Royal Horticultural Society on the ADULTERATION of SEEDS, already treated at some length, we may say that the functions of the trade association, alluded to in that Report (see p. 27), as established by the wholesale seedsmen of London, appear to us to have been over-stated. Its chief and almost only function relates to the regulation of prices, while its other operations are confined to mere matters of detail foreign to the subject under debate. "The determination, by mutual consultation and advice, what kinds of seeds should have their average lowered, and to what extent it should be done," is not a part of its office; where this is done, it is done by the house following such practices as a part of its own internal arrangements, and altogether distinct from any united action or agreement. As all the leading wholesale houses are connected with this association, it would follow that if the statement of the Sub-Committee be correct, every house so connected must be guilty of the practices censured in the Report. It may, therefore, be the case that some of the houses who form "exceptions to the universality of the practice," are connected with the trade association. A trade association whose main object is to obtain an uniformity of prices, cannot always secure this, as special quotations are made to certain customers irrespective of the prices named in the trade lists.

A further statement of the Report appears to be much more open to objection than any we have as yet noticed. It is as follows :—"Of its extent" (the practice of adulteration) "no stronger evidence can be given than the regular quotation in certain of the seed-trade lists of the prices of 'nett seed' and 'trio' or '000'—

'nett seed' meaning good seed which has not been adulterated or mixed, 'trio' or '000' meaning seed whose vitality has been killed for the purpose of mixing with good seed." As we write there are lying before us the trade lists for 1869 of five of the leading wholesale dealers given in Dr. HOGG's "Horticultural Directory," and double the number of trade lists of 1868, from leading wholesale dealers all of whose names are given in the "Horticultural Directory," and in neither of these do we observe anything to justify such a statement as that just quoted from the report. The uniform statement of these lists is to the effect that "the samples are generally fine and good," and that they can be "confidently recommended;" but there is no statement of any kind as to any distinction between "nett seeds" or "000" seeds. Whence, the question may be pertinently asked, did the Committee obtain this information? Further, the several designations of dead seed given in the Report do not exhaust all that are in use among the wholesale houses: there is no trade uniformity in this respect; and we again repeat what we have before stated, that all such adulterating practices, where they exist, are carried out independently, and without regard to the doings of any other house whatsoever. The practice of any one or two firms does not furnish a rule by which to suppose any other firm is guided; and we fear the Sub-Committee has been drawn on to form general conclusions not warranted by the one or two isolated cases that may have come under its notice.

It should be borne in mind that all statements of this character, given as the substance of an official report, publicly issued and circulated by the Royal Horticultural Society, come before the public in the garb of duly authorised facts, and as such are accepted and made use of. It is one of the legitimate functions of the Royal Horticultural Society to take cognisance of such alleged malpractices in the seed trade; and, despite the hostility the proceeding of the Society has evoked in some quarters, it is to be hoped that it will not shrink from any such inquiries coming within its sphere of operations. On the other hand, it is the bounden duty of the Royal Horticultural Society, that all reports issued by its Council, or by a sub-committee of its body—that its statements, especially in relation to such a serious matter as that charged against the wholesale seed trade, should be founded on information capable of the most complete verification. It cannot pursue such an inquiry as this without being challenged by hostile influences, seeing how they reflect on the commercial honesty of a branch of the profession. Its aim should be to crush opposition by a temperate statement of veritable facts, leaving it to the truths announced to justify and crown with success the interposition. Some of the statements we have challenged, have no doubt been too readily credited and made public, but it must be remembered that the Sub-Committee has had to prosecute an arduous task—to tread paths which to it were previously unexplored—to deal with statements it was scarcely in a position either to credit or disprove—to be met by professional reticence on the part of those who, if they chose, could have cast much light about their difficult path; and, therefore, for the sake of the pure motives by which it is actuated, and the ultimate good it seeks to attain, it deserves the thanks of the public in general.

IN the days before our Orchid growers became as discriminative as they are now as to the varying treatment required by ORCHIDS according to the climatal conditions of the localities in which they grow naturally, and in the days, too, when the larger number of known Orchids did come from hot humid forests, it was not unnatural to suppose that the plants in question had the power, and exercised it, too, of ABSORBING WATERY VAPOUR from the ATMOSPHERE. Their peculiar air roots, with their spongy investment, seemed also at first sight to facilitate such a mode of absorption. But this notion, however plausible, did not stand the test of direct experiment. M. DUCHARTRE showed conclusively that the plants absorbed the water in the liquid state, as water, and not as vapour. Indeed, as the author we have just cited reminds us, if these Epiphytes, deriving no nourishment from the tree on which they grow, absorbed vapour only, it is clear that that vapour would be that of water without admixture, while M. DE LUCA and other chemists testify to the presence in the plants in question of potash, soda, lime, magnesia, alumina, silex, iron, manganese, chlorine, sulphuric and phosphoric acids—substances no more to be derived from aqueous vapour than sunbeams from Cucumbers, but all more or less readily procurable from the rains or dews of heaven.

Latterly, M. DUCHARTRE has been experimenting on some Bromeliads, and has published a record of his experiments in the Journal of the Imperial and Central Horticultural Society of France. As these experiments are not only interesting physiologically, but may be useful to the cultivator, we proceed to give the gist of M. DUCHARTRE's investigations. In South America some of the Tillandsias and other Bromeliads are grown by the inhabitants suspended to the balconies of their houses, and in like situations, where it appears the plants thrive and blossom freely without contact with soil or bark of tree, and without emitting a single root. In our stoves the plants exist under like circumstances, and might be supposed to absorb watery vapour direct from the saturated atmosphere. M. DUCHARTRE'S numerous experiments were directed towards the elucidation of this matter, with the result in all cases, that all the time the plants experimented on were kept in a humid atmosphere, but without actual contact with water, they lost weight in proportion to the dryness of the atmosphere, even though their growth was carried on at the expense of their own tissues. On the other hand, when the plants were immersed in water, syringed, or exposed to rain, they not only grew but gained in weight. Further, M. DUCHARTRE considers that the main absorption of water takes place at the blunt extremity of the stem. When once the water has obtained access to the plant, the hard, dry, scaly epidermis does not allow of its speedy evaporation, but favours its retention.

The practical inference of all this is to plunge the plants frequently in water (warmed as in the case of Orchids), or to ply the syringe freely, taking care, nevertheless, that the water is not allowed to remain in the heart among the leaves, but rather at the base of the stem.

—— WE are desired by the representatives of the Horticultural Society of Russia to request those gentlemen who propose to exhibit at the forthcoming INTERNATIONAL HORTICULTURAL EXHIBITION of ST. PETERSBURG, and also those who intend taking part in the BOTANICAL CONGRESS, to forward their names and a statement of what they intend to exhibit without delay, to one or other of the following gentlemen—Dr. MASTERS, *Gardeners' Chronicle* office; Dr. HOGG, office of the "Journal of Horticulture;" or Mr. H. J. VEITCH, King's Road, Chelsea. The arrangements to be made depend materially on the number of exhibitors and visitors. The English railway companies decline to make any concession, but it is expected that the Belgian railway companies will make liberal arrangements, of which British exhibitors may avail themselves. We may refer to an official announcement in our columns, p. 107, as to the means of transport, and may add that the average price of lodgings in St. Petersburg is from three francs and a half upwards, for bed-room, attendance, and coffee.

—— In the Prize List of the First Spring Show of the Royal Horticultural Society, on the 13th of March, we notice the introduction of a new class of HYACINTHS, in respect to which a word of explanation may be useful to some intending exhibitors. The class is for 18 Red Hyacinths, and its object, as explained to us, is somewhat of an experimental character, viz., to bring together, under similar conditions of cultivation, as many as can be secured of the varieties which swell the bulb lists, in order that those who are interested in the growth of Hyacinths for particular purposes, may have a good opportunity afforded them to select either the tints of colour, or the character of plant, that may best please their eye, or, irrespectively of these points, may be able to form a selection of the best or most pleasing sorts of a particular colour. In this instance the group of red varieties has been selected, by which is meant, we understand, all those varieties which are usually classified and sold as "reds," whatever the actual tint of colour. Another year, if the competition for the prizes renders it desirable, the whites or the blues, or perhaps both, will be similarly dealt with. Indeed, it is not at all improbable that the introduction of this class may eventually secure an annual opportunity of comparing, on equal terms, groups of the three principal colours of this most useful of all spring flowers.

—— The following prizes are offered for competition at the Fruit Committee of the Royal Horticultural Society to be held on Tuesday, the 16th inst., viz.:—

1. Dessert Apples, single dish (open), 1*l.*, 15*s.*, 10*s.*
2. Dessert Pears, single dish (open), 1*l.*, 15*s.*, 10*s.*
3. Dessert Apples, three dishes (open), 1*l.* 5*s.*, 15*s.*, 10*s.*
4. Apples, 6 dishes of the best kept fruits (open), 1*l.* 5*s.*, 15*s.*, 10*s.*

—— The Prize Schedule of the GREAT INTERNATIONAL FRUIT AND FLOWER SHOW, to be held in EDINBURGH on the 8th and 9th of September next, has just been issued. Among the more prominent of the prizes are 15*l.* for a collection of 20 sorts of fruit, and 10*l.* for a collection of 16 sorts; 10*l.* for eight varieties of Grapes, and 10*l.* 10*s.* for eight stove and greenhouse plants. Mrs. Pince's Muscat and Golden Champion Grapes are separately invited amongst the classes for specified varieties; and there are prizes for the best collection named, of varieties of Black Hamburgh and of White Muscat Grapes. The 2d series of the "Florist and Pomologist" (six vols.) is offered by the Proprietors of that publication as a prize for the best two bunches of Grapes, one black and one white, "Lindley's Theory and Practice of Horticulture" being added as a second prize. Collections of fruits are invited from various foreign countries, the prizes in these cases being uniformly a medal of 5*l.* value. If the former show of a similar character may be taken as a guide, this International Fruit Show in the northern capital will be one of the most interesting meetings of the year.

—— We understand that a detailed report on the various APPLE STOCKS in the Chiswick Garden, including those recently brought before the Scientific Committee, will be laid before the same body at its next meeting. We, therefore, postpone any remarks of our own for the present.

New Plants.

ERANTHEMUM ANDERSONI, *Mast.*

E. elegans, Hort. Bull, ct Mast. in *Gard. Chron.* 1868, p. 1234, nec R. Br.

Owing to an unfortunate oversight, the plant exhibited by Mr. Bull under the garden or provisional title of E. elegans was described botanically under that name, in forgetfulness that the appellation in question had been given to a very different plant by Robert Brown. We hasten to repair the error, and avail ourselves of the opportunity of associating Dr. Anderson's name with the plant, as no one has done so much towards elucidating the difficult family of Acanthaceæ as the energetic Superintendent of the Calcutta Garden. Moreover, it now appears from the appended letter from Mr. Prestoe, Superintendent of the Botanical Garden of Trinidad, which clears up the history of the plant to a great extent, that Dr. Anderson had himself recognised the plant as new, though we are not aware that he has anywhere published it. Mr. Prestoe's letter is as follows:—

"I observed in your Number of Nov. 28, 1868, a notice of an Eranthemum, lately exhibited at one of the Floral Committees at South Kensington, and as there is some doubt expressed as to the habitat there given it, I am induced to give, for general information, what knowledge of its history I possess. In the latter part of 1866 we received, by one of East Indiamen coming here annually, from the Calcutta Botanic Garden, two Ward's cases of plants, amongst which were two that have since proved very fine Eranthemums. The plants in these cases were numbered, but I did not receive the lists of them till a year or more later, the first list sent never having reached its destination. By these I found that one of the Eranthemums, the subject of this letter, was marked E. sp., by which I was induced to regard it as a distinct new species, the more so from knowing that Dr. Anderson had given the family to which it belongs special attention. Meanwhile the plant became extensively propagated here, and in June, 1867, we supplied a plant of it, amongst a general collection, to Judge Fitzgerald of this island, on the eve of his departure for England; and this plant, no doubt, is the one, or the parent of those, now in Mr. Bull's possession. On my visit to England last year I was surprised to find that this plant, so far as I could learn, had not yet found its way into home collections. I thereupon communicated with my assistant here to have it, as well as the other species mentioned above, sent to Kew, and I now have the satisfaction of knowing that a case containing, amongst other things, those two beautiful plants, arrived in Southampton about the time of my departure from England in October last. Both species make a magnificent display in our flower gardens. At this moment both species in our garden are massed over with flowers, the weather of late having been very dry, and therefore particularly favourable for their development."

NEW FRUITS.

APPLE, GOLDEN RUSSET PEARMAIN, *Donne's.*

Conical or Pearmain-shaped, smooth and regular in outline larger on one side than the other. Skin fine lemon-yellow, tinged with vermilion on the sunny side, interspersed with irregular sized dots of deeper vermilion, mixed with a few scattered blackish points, the whole covered with patches and tracings of rough russet, especially around the eye. Eye medium-sized, nearly closed, and set in a wide, regular, somewhat plaited basin. Stalk short, and deeply inserted in an even, funnel-shaped cavity, into which some tracings of russet run. Flesh yellowish-white, rich, and aromatic; juice plentiful, vinous, and sweet. Altogether, a delicious Apple for the season. 2d size, 1st qual., Dec. to March.

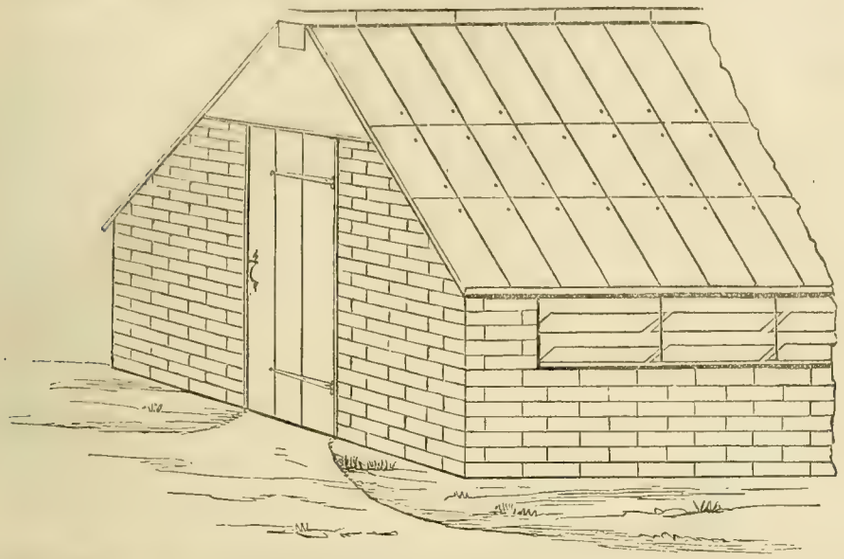
This fine Apple was raised in this neighbourhood by R. Donne, Esq. I deem it one of the best in cultivation. My collection consists of about 700 sorts, and those only out of this great number which I consider its equal in flavour, are Cox's Orange Pippin, Ribston Pippin, and Sykehouse Russet; there are several others I might specify, but the above I consider are types of the seedling I send you. I also forward two small specimens of Cockle Pippin. We have two distinct kinds here—distinct in the colour, distinct in the keeping, and distinct in their flavour; these are called the White and Brown, the last being also called Nutmeg, while the white is given as a synonym by most writers on fruit, on which point I differ from them. We have sometimes several bushels of both sorts lying in heaps, side by side, but the white one is always past long before the brown, as it will not keep nearly so long. The two specimens now sent are of the white variety; and I have sent them to show how nearly the seedling approaches them in general character, and yet differs so much in its superior quality, and finer and more handsome form, being without the angularity of the Cockle, from which, no

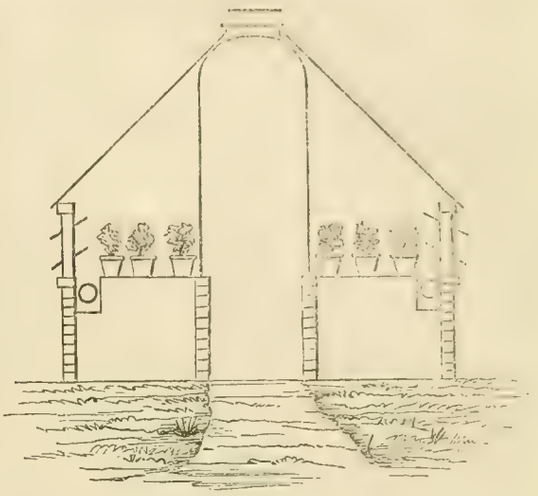
doubt, it is a seedling. Among other seedlings of Mr. Donne's, some of which are not yet sufficiently tested, I may mention a fine cider Apple, equal to the best Jersey, which is our best fruit hereabouts for the press. Mr. Donne's fruit, which I have named the Champagne, is rich in all those qualities that are requisite for producing the finest cider; its liquor, when properly treated, will vie with the wine of which it bears the name, and Mr. Donne's cellar contains liquor of this kind that would puzzle a connoisseur, for Mr. Donne is as much famed for his wine-making, as he is for his ardent pursuit of fruit raising and fruit culture. *John Scott, Merriott, Taunton, Somerset.*

[The Apple sent by Mr. Scott is of medium size, strictly Pearmain-shaped. It has a smooth even surface; skin pale yellow, considerably suffused with russet, and slightly shaded with scarlet on the sunny side. Flesh firm, moderately juicy, with a sweetly acid flavour, tolerably pleasant, but not rich. In appearance, as well as in the texture of its flesh, this Apple, with the exception of its acidity, is very similar to Adams' Pearmain. White Cockle Pippin seems much too acid for that variety. We have our doubts as to the correctness of the name given by Mr. Scott, as it is generally exceeding sweet and pleasant. Eds.]

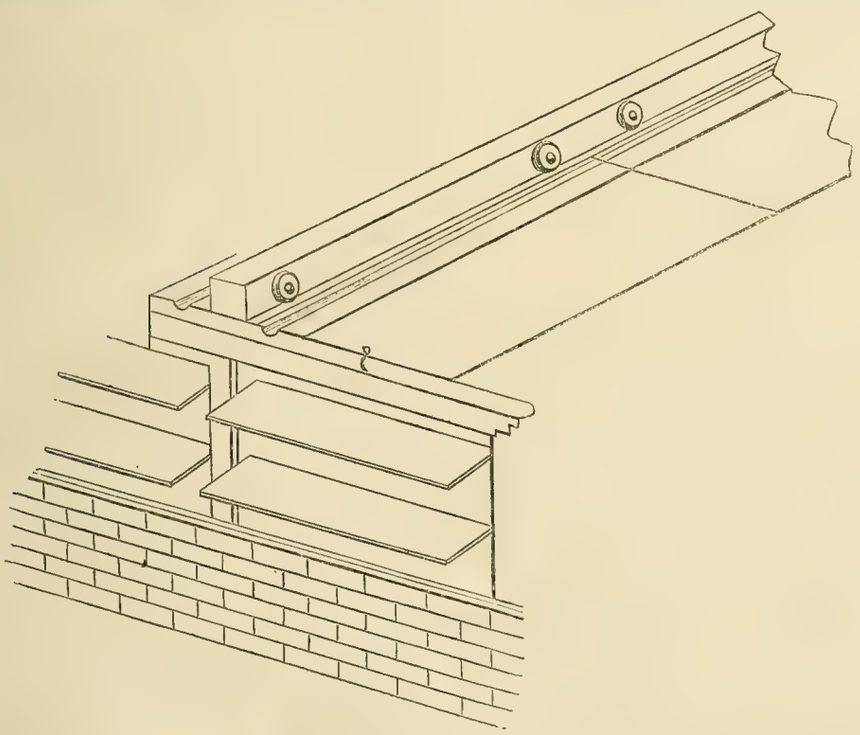
GLAZING AND GREENHOUSE BUILDING.

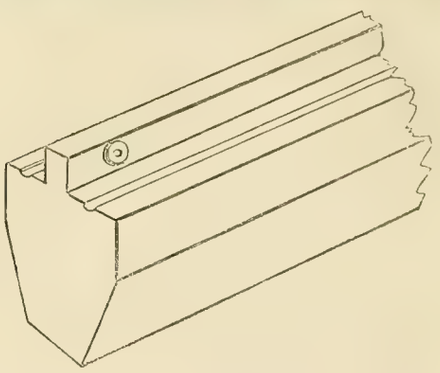
I send you a rough sketch of my new system of glazing and greenhouse building, by which putty is entirely dispensed with. Instead of putty, India-rubber rollers are fixed by the carpenter, with galvanised screws, to the side of the tongue of the sash bar, after the whole of the work is painted. The glass is then easily and quickly pushed up between the rubber and the bar, just sufficient space being left to obtain a slight pressure from the roller. A groove in the ridge receives the upper end of the square, and the lower end is fixed with a galvanised screw at bottom, just leaving a small space wherein to insert a thin ash wedge between the glass and the screw. If the rollers are fixed by gauge, there will be no difficulty in glazing a house 100 feet long by 12 feet wide, in three days, by a man and a boy; and as it requires no painting after it is done, the saving of labour is very obvious. Again, when the house requires painting, the glass may be stripped off very quickly, and placed opposite each space against the outer wall, when the painting can be





more readily, quickly, and efficiently performed, as there is no glass in the way. The squares butt against each other, consequently the glass must be cut true, and none inferior to 20 oz. should be used. There should be a little play allowed between the bars and glass, for inequality in size and imperfection in cutting square. There is also by this mode of glazing less risk of breakage, and when a square is broken it can be mended in one minute, by simply taking out the screw and pushing the new square into the place of the broken one. The India-rubber rollers can be obtained of any wholesale manufacturer by weight,





and cost but a trifle; the screws may be had of most iron merchants.

We have now used this system for three years, and are so satisfied with it that we shall never more run in the old groove. I was looking at our glazier the other day chipping out the putty of a broken square, and getting in a new one, and am certain I could have put in 20 squares on the new system in the same time which he took to put in one on the old. The bars being channelled, any wet that drives against them is carried down and discharged at the bottom. No drip occurs at the joins, and when from defective cutting the squares do not meet quite close, any water that enters runs down the inside and escapes over the plate, which slopes outwardly, and has two channels of slight depth run out in each space. I use glass 12 by 26 inches, and find no difficulty in securing panes of this size.

The plan of ventilation is very effective and simple, being composed of two folding shutters the whole length of each side; and as the ridge is double, a space of say 9 inches dividing it, there is an opening for a vertical lift of a board 11 inches wide the whole length of the house. This system affords an effective aëration of the structure even to excess, and must be modified according to the weather by the partial opening of the vents. The inner supports consist of iron arches, ¾-inch bar, and the interior view is exceedingly light, airy, and graceful.

The cost of these structures, compared with those constructed on the old system, is very economical. If desirable, I will furnish you with statistics. *F. T. Smith, The Nurseries, Dulwich, Nov.* 10. [Pray do. Eds.]

THE ESPIRAN GRAPE.

This is a very popular out-of-door Grape, better known as the Esperione. Espiran is, however, the true name (see Hogg's "Fruit Manual"). I am often astonished at the very high character which this Grape receives in your columns. I can only fancy that somehow or other your correspondents must be cultivating some other variety in its stead. I know that the Black Hamburgh and Frankenthal have been by some confounded with it; indeed, we have here in these gardens received cuttings of the Esperione (so called) several times, and they have almost always proved to be the Black Hamburgh. Although I have been present at nearly all the fruit shows for some years past, I can only remember one instance of the true Espiran having been exhibited, excepting those from the Society's Garden, Chiswick. I think we have the late Mr. D. Beaton to thank more especially for a great deal of the confusion existing in respect to this Grape. He it was who wrote and praised it up so much in his characteristically energetic style, and gave it a character for excellence to which it can lay no claim whatever. The Vine which poor Donald lavished all his high-sounding praises upon, proved to be nothing more nor less than the true Black Hamburgh. There is little doubt, from Mr. Beaton's position, and the respect in which his writings were held, that cuttings from the false Espiran Vine were distributed pretty freely throughout the country. I only, of course, advance this as an opinion; but as it coincides with what I have so often proved, I do so the more readily.

The Espiran, in my opinion, is quite a third-class Grape, judging of it by the standard of flavour. The only recommendable qualities to which, in my opinion, it can at all lay claim, are its fertility, and hardy constitution. It may also very probably be a good wine-making variety, but I cannot answer for that. I have cultivated the true Espiran Grape in heat, and on the open wall, and I must say that I am disappointed with it. Grown in heat it produces good sized bunches, and the berries colour beautifully, but they are very leathery and frequently of an astringent flavour. Grown in the open air it also bears and colours well, but I have never tasted a berry much better than a Sloe—at all events it is decidedly unpleasant to eat; while on the same wall Royal Muscadines and Black Frontignans have been of excellent flavour. I tasted some berries from a bunch that was exhibited (I think) by Mr. Dewdney, of Dorking, at the meeting of the Fruit Committee on October 20, grown in the open air. They were abominably bad, judging them in comparison with others from the same place.

The Espiran is a very distinct Grape, easily distinguished by its wood, leaves, and fruit: thus—1st. The Wood: This, when in a young and growing state is very highly coloured—a deep reddish-brown; when in a ripe state (*i. e.*, the young shoots) it has a beautifully and very distinctly striped appearance, dark brown and

light brown, which distinguishes it from all others. The wood is very firm and hard; the buds large, round, and woolly. 2d. The Leaves: These are of moderate size, deeply lobed, and sharply serrated; the petioles and midribs of the same colour as the young shoots, reddish-brown. The upper and lower surface of the leaves, as well as the leaf-stalks, are extremely bristly and rugose, and in fading change to a most beautiful reddish-purple colour. 3d. The Fruit: The bunches are long, somewhat tapering, rather loosely shouldered. The berries, which are of medium size, vary considerably in form, generally round, frequently flat, rotund, and indented on the head with the remains of the style. A groove or suture formed by the large seeds may often be observed on the sides of the berry, which decreases from the head towards the stalk; this is a marked characteristic. The skin is of a dark blackish purple, covered with a thick blue bloom. The seeds are large, and the flesh is firm, adhering to the skin, which is thick and leathery. Flavour brisk and sweetish, of third-rate quality. The fruit does not hang well, but shrivels up in the same way as the Black Prince.

The true Espiran is grown in the large Grape conservatory in the Society's Garden, Chiswick; there is also a plant in the open air on the Peach walls. It was figured and described, in the year 1818, in the "Hort. Soc. Transactions," vol. iii., p. 93. *B.*

PLANT PORTRAITS.

AGAVE DASYLIRIOIDES.—*Bot. Mag.* t. 5716. Amaryllidaceæ. A stemless greenhouse succulent plant, forming a noble tuft of narrowly ensiform attenuate recurved coriaceous leaves, which are from 3—4 feet long. From the centre rises a flower-stem, 10 feet long, the flower-bearing upper part pendulous and densely packed with small green flowers in pairs, while below these the whole of the erect basal part of the scape is clothed with crowded sickle-shaped second bracts. The plant was introduced many years since from Mexico, and has thrice flowered in the conservatory of the Royal Botanic Society.

ALOCASIA JENNINGSII.—*Veitch Cat.* 1868, with fig.; *Flor. and Pomol.* 1868, 276, with fig. Araceæ. A beautiful-leaved stove perennial, of a remarkably distinct character. The leaves are 6—8 inches in length, peltate, cordate ovate acuminate, with their blades deflexed from the top of the erect mottled stalks; their ground colour is a slightly glaucous green, but their surface is marked with large wedge-shaped blotches of dark brown, almost black, between the green veins, which are bright green. It has been introduced from India by the Messrs. Veitch & Sons.

ANTHURIUM FISSUM.—*Gartenflora*, t. 561. Orontiaceæ. A stove perennial, having an elongated rooting stem, and pedatifid leaves cut into from 4—7 elliptic oblong-acuminate segments, and attached by longish terete petioles; the peduncle is about half as long as the petiole, and supports a coriaceous, green, erect, narrowly lanceolate-acuminate spathe, situate at the base of the spadix. The plant is a native of Columbia.

ASPELANDRA SITENS.—*Bot. Mag.* t. 5741. Acanthaceæ. A soft-wooded stove shrub, of erect and sparingly branched habit, remarkable for the brilliant glossy polish of the upper surface, and the dark vinous purple of the lower surface of its strongly veined, coriaceous, ovate, subacute leaves, while the flowers, which are of a glowing vermilion scarlet, and have the large lower lip three-parted, grow in simple, erect, terminal spikes, which, after the flowers have fallen, are clothed with the imbricating, lanceolate, appressed bracts. It comes from Guayaquil, in New Grenada, and has been introduced by the Messrs. Veitch & Sons.

AZALEA SINENSIS ALBA.—*Illust. Hort.* t. 563. Ericaceæ. A beautiful, free-growing, hardy deciduous shrub, furnished with obovate-lanceolate leaves, and bearing large terminal clusters of several large, pure white, remarkably fragrant flowers. A garden variety, the exact origin of which is not stated.

BEGONIA LATIFOLIA.—*Bot. Mag.* t. 5707. Begoniaceæ. A very free-blooming and ornamental stove perennial, with erect branched stems, falcate lanceolate leaves, and short axillary panicles of pretty rosy-pink flowers. Native of Peru. Introduced by Messrs. Veitch & Sons.

CAMPANULA ISOPHYLLA.—*Bot. Mag.* t. 5745. Campanulaceæ. A beautiful hardy herbaceous perennial, with a short root-stock sending out numerous short flowering branches, so as to form a dense mass of flowers; the leaves broadly ovate, cordate, and toothed, and the flowers deeply five-lobed, lilac blue, with a grey centre. It is in the way of C. fragilis, but denser in habit and more floriferous, whence it has acquired the name of C. floribunda. It is a native of Liguria, and has been flowered at Kew, from plants sent by Mr. Moggridge.

CAMPANULA TURBINATA.—*Floral Mag.* t. 308. A beautiful dwarf-growing, hardy herbaceous perennial, producing short erect stems, furnished with ovate leaves, and terminating each in an erect bell-shaped flower of a deep purple colour, and individually as large as those of C. carpatica. The plant forms large tufts, and throws up its flowers to a height of 6 or 8 inches. It has been introduced from the mountains of Transylvania by Messrs. Backhouse & Son, of York.

CIBOTIUM REGALE.—*Illust. Hort.* t. 548. Polypodiaceæ. A grand and noble Tree Fern for a temperate house, forming a tall, thick caudex, which is densely clothed with shining tawny hairs, and crowned by a spreading head of tripinnate fronds, which are 10 or 12 feet long, having the pinnules much acuminate, deep green above and glaucescent beneath, and the ultimate segments obliquely falcate and acute, and bearing a few sori on each margin. The sterile segments are acutely dentate. It has been introduced by M. A. Verschaffelt from Mexico, and is now distributed amongst Fern cultivators.

CISSUS DAVIDIANA.—*Rev. Hort.* 1868, 29, fig. 2. Vitaceæ. A vigorous-growing hardy climbing shrub, with long red petioles and palmately-lobed leaves, having the margin of the lobes toothed. The small flowers are succeeded by violet-coloured eatable fruit. The plant is a rapid grower, and will cover a large surface speedily. Several varieties have been introduced from China to the Jardin du Muséum at Paris.

ERANTHEMUM ANDERSONII.—*Bot. Mag.* t. 5711. Acanthaceæ. A remarkably beautiful stove shrub, with slender glabrous branches, ovate-oblong leaves, and short axillary cymes, forming in the aggregate a long leafy inflorescence of elongate slender-tubed white flowers, having an expanded bilabiate limb, of five segments, of which four are slightly dotted with purple, and the fifth is heavily blotched and spotted with the same colour, like the lip of an Orchid. Messrs. Veitch & Sons introduced it from the Solomon Isles.

ERANTHEMUM ATROPURPUREUM.—*Flor. Mag.* t. 411. A charming stove shrub, of erect growth, with bold elliptic acuminate leaves, and dense terminal or axillary spikes, 8—10 inches long, of white two-lobed slender-tubed flowers thickly marked on the middle of the lower segment with crimson spots, resembling those of E. bicolor, but the spike is much more dense, and the plant has the great merit of blooming successionally. Imported from Trinidad, whence it had been sent from India. See a full account at p. 1234 of our volume for 1868, where it is described under the name of *E. elegans*, which proves to be preoccupied. The plant will shortly be figured in the "Botanical Magazine."

GALANTHUS LATIFOLIUS.—*Gartenflora*, t. 578, fig. 1. Amaryllidaceæ. A distinct-looking hardy bulb, with broad, flat, spathulate-lanceolate green leaves, and white flowers, having the petaline divisions tipped with green. The plant is most remarkable as a Snowdrop for its leaves, which resemble those of the Hyacinth, while the flowers are about the size and appearance of those of the common Snowdrop, but appear in May. It has been introduced from the Caucasus, 7000 feet elevation, to the St. Petersburg Botanic Garden.

HYDRANGEA OTAKSA.—*Flore des Serres*, t. 1732-3; *Revue Hort.* 1868, 452, with fig. Hydrangeaceæ. A fine hardy shrub, with bold, opposite, cuneate-obovate deeply serrated leaves, and large, terminal, globose leafless cymes of large showy flowers, of a pretty flesh-colour, nearly all of them being sterile, with roundish obovate, entire sepals. It is of Japanese origin.

LÆLIA PURPURATA NELSII.—*Illust. Hort.* t. 569. Orchidaceæ. A beautiful variety of one of the finest of stove epiphytes. It has all the characteristics of L. purpurata itself, but the exterior surface of the sepals is of a rich violet-rose colour, and of the petals rather paler, the interior of both being blush-white, while the lip is of a very rich crimson hue. It comes from Brazil, and has been introduced by M. A. Verschaffelt.

LYCHNIS LAGASCÆ.—*Bot. Mag.* t. 5746. Caryophyllaceæ. One of the most beautiful of dwarf rock plants. It forms a hemispherical mass, with short, dichotomously-branched, slender, tufted stems, small sessile linear-obtuse or ovate-lanceolate leaves, and numerous five-petaled rosy-pink flowers, resembling those of a Silene, whence the generic name Silenopsis has been proposed for it. It is difficult to conceive anything more sparkling, and at the same time delicate, than the rose-coloured white-eyed blossoms. It comes from the sub-alpine region of the North-west Pyrenees, and has been introduced by Mr. Niven, of Hull.

MYRICA NAGI.—*Bot. Mag.* t. 5727. Myricaceæ. This is the Yang-mae, a fruit-bearing shrub, much esteemed in China for its sub-acid fruits. It has long cuneato-lanceolate, coriaceous leaves, serrated above the middle, and insignificant flowers in distinct male and female catkins, those of the latter succeeded by deep red-purple oblong or globose drupes, as large as a cherry, studded with mamillary tubercles, so as to resemble those of the Arbutus, and with a juicy acid flesh of soft radiating fibres. It is a native of China and Japan, and was introduced by Mr. Fortune.

PARROTIA PERSICA.—*Bot. Mag.* t. 5744. Hamamelideæ. A hardy tree, whose great beauty consists in the fine autumnal tints of its leaves—brilliant orange, golden yellow, and scarlet—which on sheltered plants hang till late in winter. It is called Iron-tree from the hardness of its wood, and is of dwarf stature, with alternate obovate-oblong leaves, and early developed flowers, chiefly conspicuous for the numerous spreading stamens. It is a native of Northern Persia and the Trans-Caucasian Russian provinces, and is one of the rarest trees in cultivation. "Two small trees of it exist in the Royal Gardens, which were received as pot plants from St. Petersburg some 25 to 30 years ago." One of them, 9 feet high, in the open ground, flowered abundantly in March last.

PUYA WHYTEI.—*Bot. Mag.* t. 5732. Bromeliaceæ. The name given by Dr. Hooker to a most remarkable and almost hardy perennial Bromeliad, which produces a tuft of crowded, recurved, elongately subulate, remotely spinescent leaves, and a tall flower-stem, supporting a pyramidate panicle of very curious flowers, of a peculiar metallic greenish-blue colour, as if shot with green, while the anthers are of a bright orange colour. It was introduced from Chili by Messrs. Veitch & Sons, and has stood out during winter with them unprotected.

SOLANUM CORNIGERUM.—*Rev. Hort.* 1868, 33, with fig. Solanaceæ. A handsome, strong-growing, suffrutescent plant, armed both on the stems and leaves with yellow needle-shaped spines; the leaves are oval, subcordiform, and lobate; the flowers are violet-coloured, star-shaped, and extra axillary; and the fruits are solitary and pendent, of a pale yellow colour, ovate-conical in form, with a bluntly tapered point, and five blunt, conical, teat-like appendages at the base. It is also called S. corniculatum; and is supposed to be of African origin.

JAMES BACKHOUSE.

MR. BACKHOUSE, whose death we lately recorded, was well known to a large circle, both in this and other lands, as a botanist and horticulturist. He was from his youth an ardent lover of Nature, and a quick observer. As early as 1810 and 1811, when only 16 or 17 years old, his botanical tastes were stimulated by the rich flora of Teesdale, a region then little known, but now, largely owing to his persevering researches, recognised as almost unequalled in this land in the wealth and beauty of its floral treasures. Mainly, it is believed, through the interesting discoveries made in that district, Mr. Backhouse became introduced to the leading botanists of that day—the late Sir Jas. Edward Smith, and Sir W. J. Hooker—and this acquaintance soon increased to a lifelong personal friendship.

Many and varied were the excursions in which for more than 50 years he was engaged in connection with his favourite pursuit, and his name will be associated with the discovery of not a few of the rarities of the British flora, the latest of these being Viola arenaria, on the mountains of Teesdale, and the "Killarney Fern" (Trichomanes radicans), in Wales, in 1863. So lately as 1865, when within a few weeks of his 71st birthday, Mr. Backhouse undertook a walk of 11 hours upon the Welsh mountains (involving nearly 5000 feet of climbing), and though his steps were feeble his energy and interest in the wild scenery and alpine vegetation were keen as ever.

In 1816 he commenced business in York as a nurseryman (in partnership with his elder brother, who died in 1845), which occupation he followed, as far as health and other circumstances permitted, to the close of his life.

From his birth Mr. Backhouse was a member of the Society of Friends; and, as a minister of the Gospel in that society, he set out in 1831 on a long missionary journey to the Australian colonies, the Mauritius, and southern Africa. His labours as a Christian missionary were not confined to sect or station; and from all classes of every denomination in those regions he met with the greatest kindness and assistance in the prosecution of his object. In the same capacity (with the sanction and support of the society to which he belonged) he subsequently made extended missionary journeys in Norway, penetrating far within the arctic circle into Lapland and Finmark. His life was an eminently happy one! To help and benefit those around him, and to turn their attention to their eternal interests, and the necessity of preparation for "the life to come," as inseparable from true happiness in this life, was his constant aim and endeavour.

Home Correspondence.

Forest Appointments in India.—I am induced to trespass further on your space, in the hope of bringing about a better system than I believe that to be, which the Indian Government has proposed to adopt, by sending young men out of the kingdom to learn "forestry, road-making, and surveying." I must, however, premise that any remarks which I may have to make must probably be subject to modification, as I am not fully acquainted with the Indian Government arrangements, and must draw my conclusions from the information supplied in the printed regulations. I think that there has arisen a mistake in this matter, from the Indian Government having made some misconception of the term "forester." In Britain this name is applied to men who have, not as a body certainly, received a first-class education, and who are placed entirely under the control, and guided in all important matters by the surveyor or local agent on the estate. Both in England and Scotland some idea as to their position may be formed, when I say, as I previously stated, no man ranking as a pure "forester" receives a salary exceeding 100*l.* a year. But such a class of men as these are, would, I apprehend, be totally unfit to send to India to occupy the positions that it would appear those who are to be placed in charge of the Indian forests would be expected to hold. The young men required there would appear to be more of the character of the deputy surveyors of the Royal forests in England, and the same kind of training which these are supposed to receive in this country would appear to me to be the most likely to produce the right class of men for India. I would suggest, therefore, that instead of sending candidates for the Indian forest appointments to France or Germany to learn "forestry, road-making, and surveying," the following plan might be advantageously adopted. I propose that candidates should be permitted to compete who have served a minimum time (not less than three years) with some qualified surveyor, who has the charge of a landed estate either in England, Scotland, or Ireland. They should then be selected by the result of the examination, both as to the special knowledge they had acquired, and also by the proficiency of their general education. After which the candidates selected should be sent to Kew Gardens to be instructed by Dr. Hooker in botany, and in the theory of the habit and growth of trees. At the same time lectures should be given by experienced surveyors practised in the management of different kinds of woodlands, in order that the candidates might acquire a further good knowledge of the special management of forests and subjects connected therewith. That there are plenty of men well qualified for such a duty, no one who mixes with the surveyors of England can doubt. This might occupy six months. During the same time they might also hear lectures on other subjects connected with their future duties, such as road-making, surveying, levelling, building houses, plan-drawing, drainage of land, &c. In order that the candidates might become further acquainted with the practical part of the same subjects, and understand country matters in general, which would be most useful to them, I should recommend that they then be placed under the charge of the local surveyor of one of the forest districts in Kent, Surrey, and Sussex, or in the district in the midland counties called the "Dukeries," or probably on some of the Royal forests in England. I must be much mistaken indeed if the woodlands on these districts do not stand comparison with anything in the world; and, further, the systems followed to produce different results are so various, that I believe no other kingdom could show such a variety or such a field of study. I have every possible respect for the land-agents and factors in Scotland, and for their great knowledge of agriculture and such subjects; but I could not admit that as a body they have the opportunities for studying woodlands that are enjoyed in England, and the placing of young and otherwise highly educated men of good position under the instruction of local Scotch "foresters," appears to me not a very wise step to take. I should be sorry also if any statement in my former letter might have the appearance of disparaging the great practical skill which some of the Scotch foresters bring to bear upon the details of their duties; but they are not of sufficient position to have these young men for India placed under their tuition. After going through this course of training in England, which might occupy two years, I think the young men might be sent perhaps to Scotland, or to some of the large German, Russian, or Swedish forests on a tour of inspection, and would then, I think, have acquired in their natural tongue a far better knowledge of forestry, and the administration of a forest district, than if all their studies had been conducted in a foreign language, and obviously at greater expense and inconvenience to themselves. You may rest assured that the surveyors in Britain will not quietly remain satisfied under the stigma which has been passed upon them; and I am much mistaken if they will not gladly assist in any arrangements to put this matter on a better footing. *Woodlands.*

——"Woodlands" says:—"As I am a little acquainted with several of the large forests on the Continent, I should not be afraid to compare the English woodlands with any I have seen abroad." Is he not? I wonder which he has seen. The growth of the trees, and the extent of the forests in Germany and France, by far surpasses anything to be dreamt of in England. The sowing and treatment of the seedling plants is so very different, and a similar method will have to be adopted in India

to protect the young plants from burning. This sending to Germany or France to learn forestry, surveying, or road-making, is not to be taken so lightly; it will enable the candidates to see some good work done on a large scale; it will teach them how to work so that it may pay. Did "Woodlands" ever see a Prussian chaussée?—or highway. If so, I wonder why he says:—"As for road-making and surveying I should scarcely think anyone would believe it necessary to go out of the land of Macadam to study these matters." I have been now about 18 years looking over England and Scotland, but have not seen a roadway yet which should be as it ought to be; they are so narrow, and the ditches not properly made; they should also have a row of trees on each side. After all, when these candidates return from the Continent, they will be only apprentices as yet, and unless the Indian Government sends out to India with them some practical German or French foresters to show these gentlemen how to commence their arduous task, the whole thing will be a failure. *F. G.*——There can be no question about the soundness of your correspondent's objection to the regulations sent out by the India Board for filling the situations of managers of forests in India (p. 111), and in so far as these relate to the sending of pupils abroad for instruction, I quite agree with him in believing it to be next to useless sending pupils for these appointments to be instructed in forest matters either to Germany or to France, because, so far as I know, woods are better managed in our own country than they are anywhere on the Continent. I am safe in saying this, as this is the testimony given by a gentleman at the head of the forest department. So much for the practical part of the subject. But if it be necessary to instruct the pupils for these appointments in the German or French language, why not do so at home, where the language, as also the necessary practical training, can be acquired at one and the same time, thus saving "two years and a half" of the pupil's time? With your correspondent's objection to the pupil for the Indian forests requiring "to pass some time with an approved forester in Scotland" I do not at all agree; the India Board have good reason for making this proviso, knowing how well forestry is understood in Scotland. So far as the technical education of foresters is concerned, "the standard is a very low one indeed," but where can your correspondent find a higher standard of practical knowledge than in Scotland? Of this fact the India Board is well aware, and have acknowledged it in the handsomest manner. It is wrong to say "that there are probably not two in the whole country who receive a salary of 100*l.* a year." This is beside the question, and ought not to be mentioned, as it had no bearing on the practical part of the argument. If your correspondent is displeased with the India Board for paying a deserved compliment to Scotch forestry, he should not show it in so ungenerous a way. It is true that many foresters "in Scotland are entirely subordinate to the agent or factor." Where such is the case I can assure "Woodlands" forestry is far from being what it should be. It would not, in my opinion, be absurd to place young men under really practical foresters for instruction. Who could instruct them if not the forester, the agent, or factor? says your correspondent. Well, I can tell him this, that in a practice of 20 years, connected with some of the largest and most valuable estates, I never yet met with an agent or factor who was capable of giving instructions in forestry—I mean practically. But enough. If the young men already sent out have done well, and given satisfaction, why not select from the same field? These men were not in either Germany or France acquiring their practical knowledge. One of them received his first instructions from the writer, who is really glad to hear he is doing well, and giving satisfaction. *A Forester.*——I feel gratified that this subject is brought before the public, as I am quite of your correspondent's opinion (p. 111) that there is something wrong in the plan adopted by the India Board to get the best men for the Indian forests. I admit that, under the peculiar circumstances of the case, no doubt the Government adopted the present regulations with the best intentions, but it is, I think, just possible sometimes to draw the line of selection so fine as to make it perfectly unworkable. In the first place, the education required, according to the Government regulations, is of a standard I think rather high for the requirements of the appointments, and I fear very much that, if carried out to the letter, it will have the effect of drawing men of education, rather than men of both education and sound practical knowledge. I perfectly agree that it is most necessary that foresters ought to be thoroughly educated men, but there is a difference between that and having a classical education, which the regulation would imply. Any man to be a good wood manager must be trained to it thoroughly, and learned to do all the practical part with his own hands; and then, after being perfectly grounded in the practical part, he will be more competent to take advantage of the theoretical (which is indispensable), and suit the theory to the circumstances of every different case. The next point which I would advert to is, that the successful candidates will have to spend two years in the forests of Germany or France, and that these candidates must run the risk of spending their time and means there for nothing if they are not favourably reported on by the responsible parties; and even if they are successful in gaining honours they are obliged to keep themselves in a foreign country on the paltry income of 100*l.* per annum. This, I think, is wrong. Will men of the high standard of education required go and spend their time for two years and a half on that allowance, when the only inducement or prize to be won is 300*l.* per annum in a tropical climate, and perhaps promotion according to rotation? The next feature in this arrangement is—Are the Continental forests better conducted and forestry better taught than it is done here? I have not had the pleasure of seeing the Continental forests, but I have heard, on very good authority, that our own, according to their extent, are much superior, and that the profits accruing from the British forests on different estates is far more per acre than are the Continental. The only thing which can possibly be said in favour of the Continental forests is that there are regular schools for learning the science of arboriculture; these we have not, and the sooner we have the better. [Hear, hear.] In every other feature I think that the going to France or Germany is quite superfluous, and calculated to detract from the cause which it is intended to forward. The next part of the regulations is that after returning from France or Germany candidates may be required to spend "two or three months in Scotland under an approved forester;" this I think the most nonsensical of all, but not in the same light as your correspondent. Your correspondent seems to infer that all Scotch foresters are numskulls, and therefore not fit company for the highly-educated candidates for Indian forest honours; and the undeniable proof that he gives for his assertion is, that there are not more than two foresters in that dark and ignorant portion of Britain who enjoy more than, or even up to, 100*l.* per annum. I must decidedly contradict this assertion, and could if necessary name at least six foresters in Scotland who have a great deal more. But granting that "Woodlands" is right, I have yet to learn that a man's intelligence and practical knowledge is to be measured by the length of his purse or income. I therefore deny that the standard of a forester's education in Scotland is low. I would, in proof of what I say, ask "Woodlands"—Where do all the foresters on large estates in England come from? Where do all the foresters in Ireland come from? But to the point at issue. I think that, instead of Government sending their young nominees to the Continent, if they were sent to "an approved forester" in Scotland for two years and a-half, and then got two or three months for inspection in France and Germany, that better men would be turned out, and that there would be more candidates of real merit to select from than under the present regulation. *Sylvanus.* [We believe that the subject of Indian forests is to be discussed shortly at one of the Societies taking cognisance of such matters. EDS.]

Canadian Icehouse. — Will some correspondent kindly inform me if it is necessary to have ventilation at the apex of an icehouse on the Canadian system? The instruction I received with the plan was to allow a draught of air through the top of the door, to a corresponding opening on the opposite side of the house, when the wind was blowing from the north of an evening. My experience with an icehouse on the English system is quite the reverse, as we have always endeavoured to keep the houses as air-tight as possible. *S. W.*

Orchid Seeds.—In a former communication I mentioned having been very successful in fertilising and hybridising Orchids; I shall be happy to send ripe seed in the spring to anyone who may wish to grow it, and if any gentleman amateur Orchid-grower coming here may wish to learn the art of fertilising Orchids, if art it be, I shall be happy to show him. It appears to me a very simple process, and that Orchids are more easily fertilised than almost any other description of plants. I think they take more readily by being fertilised with their own pollen. I fertilised 13 flowers on a spike of Aerides quinquevulnera with their own pollen, and 12 have formed fine healthy seed-pods. By way of experiment I crossed Cattleyas with Dendrobiums, and Dendrobiums with Aerides, and, to my surprise, they seemed to take in the first instance, but when the seed-pods were about half formed they invariably turned yellow and withered away. *A. C., Farm Hill, Braddan, Isle of Man, Feb.* 2.

Winter versus Spring Bedding. — A variety of opinions has of late been put forward upon the above subject. I feel convinced that no gardener who has practised either winter or spring bedding will go back to the objectionable plan of leaving the beds bare half the year. I myself am greatly in favour of winter bedding where it can be carried out well, otherwise I think spring bedding the most suitable for small places, as winter bedding cannot be carried out successfully without a good deal of labour and expense. A few weeks back I had the pleasure of seeing the winter bedding at the seat of Lord Eversley, at Heckfield. If your readers can imagine a sunk panel along the front and end of the mansion (the front series of beds being 207 feet long by 54 feet wide, the end set 104 by 32 feet wide), almost entirely covered with beds and vases, they will have a good idea of the effect produced by 16,000 shrubs, Conifers, and other material which Mr. Wildsmith uses. It is impossible to do justice to the arrangement by mere verbal description; it must be seen to be fully appreciated. Not an inch of ground can be observed in the beds. Mr. Wildsmith informed me that it was all planted within a week from the time he took the bedding plants up, and of course the effect produced immediately, is no doubt in a great measure owing to the splendid stock of stuff he has at his disposal, but some of the more common shrubs may be used with very good effect. Among the many beautiful designs, I hardly know which to particularise, but I will take the following at random. In the centre of a circular bed there was one large Golden Holly, encircled with Portugal Laurel; next a groundwork of Vinca major variegata, dotted at intervals with Thuja aurea, and edged with Houseleek. Another bed, similar to the last, had a centre of Thujopsis borealis and Berberis Aquifolium for the groundwork: small circles containing standard Golden Holly, each filled up and edged with Houseleek. Then some long beds, 12 by 5 feet, each bed divided into two circles and an oval, and planted thus: lines for the division, Vinca major variegata, in the oval small plants of Cupressus Lawsoniana and Golden Hollies: the circles, Cedrus Deodara; angles, Golden Yew, edged with Silver Variegated Box. A great variety of beautiful vases and baskets are filled with a mixture of very choice stuff, and some variegated Ivy drooping over gives them a very graceful effect. After seeing these arrangements I feel sure no one must mix up spring with winter bedding, either one plan or the other must be adhered to. The shrubs and Conifers used here are the following:—Common Laurels, Berberis Aquifolium, Cotoneasters, Aucubas, Portugal Laurels, Box of sorts, Cupressus Lawsoniana, Thujopsis borealis, Cedrus Deodara, gold and silver Hollies, common and golden Yew, Euonymus radicans, Arbor-vitæ of sorts, variegated Ivy, common Houseleek, and London Pride. *J. C. Higgs, Crabwood, near Southampton.*

Remarkable Orchids.—I frequently read in the *Gardeners' Chronicle* accounts of remarkable plants, and therefore send you measurements of some of our fine Orchids. The Orchid-house is a span-roof, 40 feet long by 20 feet, west by east; the south side of this house is therefore full to the mid-day sun, and is shaded with tiffany. The house is full of these fine plants, all in the finest possible health, and grown on the cool treatment plan. Six Asiatic Cœlogynes, 8 to 9 feet in circumference, bearing at present from 60 to 84 flowers on each plant. A spike and leaf of this splendid thing is sent for you to see. Six Dendrobium densiflorum, each 9 feet in circumference; Dendrobium moniliforme, nobile, and Wallichii, 9 to 14 feet in circumference; Dendrobium chrysanthum and Paxtoni, each 15 feet in circumference; Oncidiums, 10 to 12 feet ditto; Cattleyas and Lælias, 3 feet ditto; Bletias and Cypripediums, 10 feet ditto; Vandas, 4 to 5 feet high. *David Norris, Gr. to Mr. Jackson, Cross Lanes, near Bedale, Yorkshire.*

Seedling Peaches.—I have proven two of Mr. Rivers' seedling Peach trees—the Early Alfred and the Princess of Wales—and they are first-rate in growth, hardihood, habit, and flavour. The last is now, in my estimation, the finest, handsomest, and best of the late Peaches. "D.," Deal, was here Sept. 26th, and we ate the four last Peaches of this fine sort and finished the season. We measured one, and found it measure 10 inches every way. My object is now to speak of Lord and Lady Palmerston, two late and very fine Peaches, not yet proven here. The description is that of Mr. Rivers'. It may be depended upon. Lady Palmerston—large, melting, and very good; skin, greenish yellow, marbled with crimson, very handsome; flesh, pale yellow. It was raised from a stone of the Pine-apple Nectarine, and partakes of its flavour. This Peach ripens towards the end of September, and is a most distinct variety; flowers small, glands small and kidney-shaped, or nearly so. Lord Palmerston—very large, the largest of Peaches; skin, creamy white, with a pink cheek; flesh firm, yet melting, very juicy and rich. It was raised from the Princess of Wales, and resembles in its size and beauty its grand parent, the monstrous Pavie of Pompone; flowers, very large and beautiful; glands, nearly round; season, middle to the end of September. It clings to the stone slightly unless fully ripe. Mr. Rivers has kindly sent me two plants of Mr. Radclyffe, which he says is the handsomest and best Peach he has ever raised. I thank him much. Mr. Standish has presented me with two of his seedlings, which he says are A 1, the Marquis of Downshire, and the Early Ascot. These three I will describe hereafter. The Peach and Nectarine trees here are 127, are all curtained, are one of the finest collections in the kingdom, are in first-rate condition, and promise a magnificent result. *W. F. Radclyffe.*

Mushroom Spores.—Is it true that the manure from entire horses has a greater tendency to generate the mycelium of Mushrooms than that of other horses? *W. P. R.*

Large Shrubs.—Having called at Castle Toward lately, in going over the pleasure grounds with the gardener and others I was much pleased to see so many noble specimens of shrubs which were planted by me while I was gardener there between Nov., 1823, and Nov., 1843:—a Magnolia grandifolia, about 23 feet high; and a Camellia, 27 feet in circumference, thickly studded with flower-buds; several hybrid Rhododendrons and Laurustinus finely in flower; noble specimens of Portugal Laurel, Arbubus, evergreen Oaks, Sweet Bays, &c., remarkable for health and beautiful foliage. As time did not permit me to take dimensions, perhaps Mr. M'Intosh, the intelligent head gardener, will kindly furnish these particulars. *James Sinclair, Overseer, Scotston, near Glasgow.*——The following are the dimensions of a large Holly at Tyttenhanger Park, near St. Alban's. It is growing in a light gravelly loam, with a strong clay subsoil, and is in perfect health, as I think the enclosed twig will testify:—Circumference of bole 1 ft. from the ground, 6 ft. 2 in.; at 6 ft., 5 ft. 4 in.; at 14 ft., 4 ft. 9 in.; height, 45 ft. *H. Kent.*

Gladiolus.—This superb class of plants has now become one of our greatest favourites, and none more deservedly. All who have once seen a bed of Gladiolus, of good varieties, and well grown, in full bloom, must have been struck with the grandeur of the sight. The richness, variety, and variegation of colouring in the newer varieties, is much more than pen-and-ink can express; in my opinion they rival our much cherished Orchids. I have observed for many years that planting is frequently neglected till the season is too far advanced, the bulbs in most instances having sprung, and rooted some inches. Now, it does not require much knowledge of Nature to understand that these bulbs, in their own way, demand nourishment weeks earlier; had they been planted in season they would have lost no vitality, which unquestionably they must if left to root, as these roots in place of giving strength are actually living on and consuming the bulbs, causing them to shrivel in some cases to less than half their original size, accounting very much for the complaints lodged against seedsmen of suppying bad roots. This will show at a glance the necessity of

planting at the proper season, which I consider not later than January. The fine varieties ought to be planted in 5 or 6-inch pots, in a well-prepared mixture of old turfy loam, thoroughly rotted manure, and sand, which should be of a rather dry nature to prevent decay in the bulbs. After planting they may be plunged in a cold frame, and treated similar to Dutch bulbs, keeping them there till the bedding-out season; although the foliage may show above the plunging material, it will have little chance of being injured by late frosts, being less susceptible of frost than that of the hardy-looking bulbs. Where the quantity of bedding-out and clumping varieties is very large, and there is not convenience enough to plant as above, they may be kept pretty well a few weeks in dry sand in a cold place. I may here give a few names of the very finest newer varieties, viz., Alexander, Apolon, Belle Gabrielle, Flore, Bernard de Jussieu, Bernard Pallisy, Crystal Palace, Dr. Lindley, Etendard, Eugène Scribe, Félicien David, Fulton, Isabelle, Impératrice Eugénie, John Waterer, La Favorite, Lord Byron, M. A. Brongniart, Madame Vilmorin, Maréchal Vaillant, Milton, Meyerbeer, Molière, Mozart, Newton, Prince of Wales, Princess Clothilde, Princess Mary of Cambridge, Semiramis, Shakespeare, Sir William Hooker, Stephenson, Titian, Ulysse, Uranie. *Duo.*

Quercus Ilex: a Hint to Planters.—Those who have seen the gardens of Italy must have observed how much of their beauty they owe to one particular tree. It has always been a subject of surprise and regret with me that, at a time when arboriculture is practised with zeal, the caprice of fashion should within the last century have almost banished this tree from our plantations—at least, such is the result of my observation. I allude to the Ilex. Its claims to favour are, that (excepting Conifers) it is the only evergreen tree that we possess, as distinguished from shrubs; and in beauty it is unrivalled, whether young or old. It is perfectly hardy, and even bears wind better than many of our native trees. A few years ago (in 1860, I think), my Ilexes were by the severity of the winter turned perfectly brown. An impatient man might have cut them down as entirely dead; yet by the end of summer they had quite recovered, and not a sign of the winter's effect remained. *Elce.* [Another recommendation, is that they do well by the sea. EDS.]

Cucumbers without Bottom-heat.—This winter, with a dry, plain brick flue, I have reared from seed and fruited Carter's Champion Cucumber, with six fruit swelling at one time on one plant, in a 16-inch pot. The fruit was fit to go to table whole, straight, and good as could be, and was grown without a particle of bottom-heat during any age or stage of growth, at the same time, with a very low temperature, from 55° to 75°, the latter only on occasional sunny days. My opinion is that this Cucumber deserves attention, as succeeding in a low temperature without bottom-heat in a dark, dull winter, as well as for quality of the fruit. I have grown it nearly 2 feet long in summer. It will be my main frame variety this summer, being amply long enough for regular use. *Lee Rogers, Gr. to Rowland Hunt, Esq., Kibworth Hall, Leicester.*

St. Petersburg Exhibition.—You say, the Horticultural Society of Russia states that railway transit is the only reliable method of transport, as the sea-carriage is uncertain on account of the block ice from Lake Ladoga; but how is it possible to send show plants from London to St. Petersburg by passenger trains, or *grande vitesse?*—the cost will be enormous, and packages, besides, must be only up to a certain weight and dimensions. The block ice is certainly a great hindrance, but exhibitors have to put up with it. If the weather and state of the sea look threatening as soon as the steamer enters the Gulf of Finland, she should be put about for Riga or Revel. I used to take every year one or two shiploads of plants to St. Petersburg. The plants were bought in Belgium, Holland, and England; they consisted mostly of Camellias, Azaleas, Rhododendrons, standard Bays and Jasminums, Oranges, Coniferæ, and variegated-leaved shrubs; they were sent per steamer round Denmark; but others, like Heaths, Epacris, Orchids, and Palms were sent per steamer to Hamburg, there partly or wholly unpacked, and after three days or so forwarded *viâ* Lübeck per steamer to St. Petersburg; this happened towards the end of October regularly, and I always stipulated that if St. Petersburg could not be reached, the steamer should unload at Revel. *F. G.* [Our information was from head-quarters; see also p. 134.]

Double Grafting.—Merlet, in 1667, writes as follows:—"Je ne puis finir ce Chapitre des Poiriers, sans dire un mot d'une expérience que j'ay faite depuis ces dernières années, qui me semble la plus belle et la plus utile de toutes celles que j'ay faites depuis plus de quarante ans que je m'adonne et me plais au jardinage. Touchant la greffe en ecusson sur des Poiriers en place, qui ont de beaux et de gros jets, sur lequels on greffera nos fruits rares et curieux, qui donnent souvent dès la deuxieme année, prenent la seve de l'arbre qui est en raport; je prens sur-tout plaisir d'en mettre sur la Virgouleuse la plus belle et la plus forte de nos seves, qui donne le fruit et plus gros et en plus grand abondance, . . . il est bon d'assortir les fruits, et de greffer ceux d'esté sur les fruits de la même saison, comme ceux d'hyver avec les fruits arriere saison." In a French work, called "Economie Générale de la Campagne" (1700), is the following:—"Those who are curious to have fine fruits ought carefully to gather from all sides the best sorts of Pears, and in grafting the Quince stocks in the nurseries put thereon the strongest growing kinds, such as the Pear Nateau or Bon Chrétien d'Eté, and such others as abound in sap, to be afterwards budded with rare and more delicate sorts." "One can hardly estimate the benefit gained by the fruit so worked, and this remark should not be forgotten." (Louis Liger.) Here are two old pomologists writing nearly 200 years ago upon double grafting, and the effects produced by one sort of Pear tree upon another; I will leave it to you and your readers to say who was the first who practised this mode. Your correspondent Mr. Rivers seems to me to claim an amount of knowledge of fruit-tree stocks much superior to all his brethren. Well, let him "lay the flattering unction to his soul," but let him also give us all a fair field to quietly discuss a matter that is very interesting to the gardening world at large. I do not think that any of us possess too much knowledge on the subject of stocks and their influence upon the fruits worked upon them. Stocks and grafting are two things that a man may spend a hundred years in studying, and yet leave a great deal to be learned by his successors. I have been an ardent gardener all my life, and I may say "to the manner born," yet when I look at the wide field before me, and see how little of it I have explored, I call to mind Newton's, or some other sage's, exclamation on an analogous occasion, and feel I am like a little child on the subject of pomology. Our threescore and ten years are only sufficient to give us a glimpse of our calling. Mr. Rivers is, I think, more anxious to place before us the merits of his own stocks, than to elicit the truth concerning the Pommier de Paradis. No one denies that there are hundreds of dwarfing stocks to be met with, from which may be selected Nonsuches, or any other euphoniously-named sorts. Take, for instance, a bushel of apple-pips and sow them; the strongest of the plants raised will be Crabs, with roots inclined to run deep; the second, third, and fourth cullings will respectively diminish in stature, and be all less or more surface rooting. I send you some of these to show you that they are analogous to Mr. Rivers' broad-leaved and Nonsuch stocks. Now, any one can select and possess such stocks in less than 40 years: by saying so I do not mean to underrate Mr. Rivers'—they no doubt are good of their kind; but we did not commence this discussion about any other than the true Pommier de Paradis, and I think it begging the question to introduce our nurselings, and to try through recommending them to throw the question at issue out of court. The subject was raised in one of your contemporaries by Mr. Pearson, of Chilwell, Notts. Criticising my fruit catalogue, he says, "A friend of mine has just handed me a list of fruits by a Mr. Scott, of Crewkerne, and directed my attention to the following paragraph, 'procure your Apples grafted on the Pommier de Paradis;'" and he goes on to add, "I was so astonished at seeing such advice that I could scarcely believe any nurseryman could give such directions, my own experience is so opposed to the use of this stock." And he goes on to say how he had purchased some thousands of them, planted them, and that they made "a capital growth the first season." The following winter was a severe one, and more than half the stocks were killed; some of the others got covered with aphis, and died from the heat of summer. The other portion succumbed next winter, or what survived he burnt, and never planted another stock of the kind. ("Journal of Horticulture," p. 124, 1866). No very lengthened experience of a stock this. At p. 162 the Editors make the following remarks: "Our own experience of the last (Pommier de Paradis) is that it is tender, impatient of cold and wet, and subject to canker," &c. At p. 193, Mr. Rivers (to whom the subject was referred by the Editors), says, "With regard to the Pommier de Paradis, Mr. Pearson is right, and Mr. Scott—well, decidedly wrong. After a great deal more, bringing into prominent view his own seedlings, he finishes by saying:—"Those who assert that the French, or Pommier de Paradis of Mr. Scott, has done and does well in Scotland and other places with cool, moist climates, have not planted the true sort, and probably do not know it." In continuation of the same subject, p. 194, "J. H." says:—"As to the Paradise stock, it may be as hardy as Mr. Scott says. On this point I say nothing; but I know from experience that the trees are easily injured by frost here!!" Now "J. H.'s" experience was with ten trees; five were killed by frost, and two by insects and the summer heat, &c. A rather curious stock that is both killed by heat and cold alike, and a curious cultivator that does not know whether the stock is hardy or not, yet in the same breath kills all he has got by cold or heat! "Save us from ourselves." Now, although I may be numbered amongst the tom-tits, I do not want to eat the Beurré Diel entirely, but just to pick the little maggots out of its heart, and get at the real merits of what I find to be a very serviceable and useful dwarfing stock. I have said, and say still, that with me the stock is perfectly hardy, and a free grower in damp and cold places. *John Scott, Merriott, Taunton.* [The specimens forwarded have been sent to Chiswick to be reported on, with the others. EDS.]—Mr. Rivers' description of me as confounding regrafting with double grafting, in his note at p. 111, is wholly unwarranted. As may be seen by referring to p. 81, double grafting was distinctly mentioned, and was the only kind mentioned. Regrafting is a very common and excellent practice, much employed on the Continent for the removal of old and bad varieties, and also with us, though not to such an extent as it deserves to be. Mr. Rivers repeats that double grafting originated with him, and in his book describes its origin as taking place some 15 or 20 years since. For his further information, and also for the enlightenment of the gentleman who went over to France at the Government expense for the especial instruction of the fruit-growing folks in these islands, and who not only wrote in his report that double grafting was "unknown abroad," but put these unhappy words in italics, I have simply to state a few facts. The origin of double grafting, like many other practices of fruit culture, is involved in obscurity, but it was certainly known to be practised by the nurserymen at Vitry-sur-Seine more than half a century ago. This is a village near Paris, a place famous for nurserymen; in fact, the centre of a network of nurseries large and small. Varieties of Pears, rather slow-growing and delicate when grafted on the Quince, were double worked on the variety known as Sucre Vert, *i.e.*, this variety was first grafted on the Quince, and then the refractory kinds grafted upon it in the ordinary way,—this merely to prevent any further or possible misconception. Afterwards it became a common practice to double graft varieties on the *buré*, and then the Jaminette and other varieties came into favour. Therefore, Mr. Rivers' positive statement that he has invented the system is not founded on fact; that he has made extensive experiments with it, and practised it largely, are creditable to him as a most active and intelligent worker in the cause of fruit-culture. I wish to detract nothing from his reputation, but simply to give honour where it is due. I gladly accept his promised stocks for the sake of getting them true from himself, and when they all flower and fruit, we can exchange notes and specimens. *W. Robinson.*

The Calville Blanc Apple and Belle Angevine Pear.—"When I was a child I thought as a child," &c. When I was a young traveller I was enthusiastic and green. As far as I have watched the progress of life every man is occasionally subject to delusions which, if the brain is sound, pass away and leave no injurious effect. My delusion respecting the above Apple was brought about by French gardeners and French cooks; for, seeing the grand-looking fruit grown in France, and finding its flavour, uncooked, to be sweetish and juicy, and not disagreeable, I concluded—having a firm faith in the French *cuisine*—that it must be all that they told me, and all that I have said, for, oddly enough, my faith was so strong that I never till very recently tested in cooking the Calville Blanc Apple with our Gooseberry Apple, or Rymer. I now give my recantation. I am very sorry, and truly repent of having been made the victim of a delusion quite equal to that of the single cordon mania, and to have recommended to the public an Apple quite inferior to our English Apples as a culinary fruit. My regret is much deeper owing to my having indirectly encouraged its sale at 1*s.* 6*d.* and 2*s.* 6*d.* each, when the Apple is not virtually worth more than a penny; and my regret is still further increased because I may have induced others to import the fruit, and thus pick the pockets of honest John Bull, poor old fellow! The acute French fruit growers, not content with selling him Apples at 2*s.* 6*d.* each, worth only 1*d.*, send over Pears to be sold at 18*s.* or 20*s.* each, perfectly worthless. The Apple may be eaten, as it is juicy and tender; but the Pear—our old Uvedale's St. Germain, the Belle Angevine of the Palais Royale and Covent Garden—is perfectly worthless, from its hardness and astringency, and even when baked it is most inferior to that fine old sort, the Catillac. A year or two since a Yankee, a very sharp, intelligent man, brought me one of these Pears, which he had purchased in the Palais Royale for 30 francs. He was half incensed at my incredulous looks after handling it, and said that he was assured by the seller it was a melting Pear, and highly valuable. He consequently would like some trees to take home with him. I allowed him to cut into a Pear of the same sort grown in England, and also told him that trees could be had at 1*s.* or 1*s.* 6*d.* each; his enthusiasm now cooled, and when I told him that his Pear would never melt till it rotted—no, not even when cooked—he vented some peculiar American anathemas on the Palais Royale fruit-seller. It would almost seem that a sort of protection ought to be conferred, so that fruit-sellers should not plunder the ignorant as they now do; for instance, a small placard should be pasted on to the large Apples and worthless Pears, with the following inscription—"Belle Angevine Pear—don't buy it." This would be honest. It is perhaps worth suggesting that the Fruit Committee of the Royal Horticultural Society should have authority from the police to protect the ignorant from buying showy worthless fruit. The present fashion of hiring dishes of these monstrous French Pears to "ornament the dessert," is strangely ridiculous, for if an ignorant diner-out is tempted by their appearance to share one among his friends, he is, if at all within earshot, made to understand that the dish is tabooed. They are, indeed, something like the Apples of Sodom—gold without; and although it is true they are not dust and ashes inside, yet they are almost as uneatable, owing to their harshness and astringency. Out upon such un-English ways. *T. R.*

Diseased Peach Trees.—I send for your inspection some diseased shoots of Peach and Nectarine trees similar to those alluded to at the Royal Horticultural Society's meeting, January 19, by the Rev. M. J. Berkeley. In the first place, allow me to state that in attributing the cause to the sudden change from the late excessively dry summer, to such copious moisture in autumn, Mr. Berkeley is decidedly in error, as we have suffered more or less from the same disease for seven years, but this year the least of any. Again, the time of year makes no difference to its attacks, or if there is a difference it is most prevalent in May and June, especially in mild, cloudy weather, when in a few days leaves that were healthy are spotted with small brown circular spots, generally commencing on the midrib, and in a few days they fall, although, with the exception of the spots, perfectly green; the shoot then, of course, dies. Sometimes, as in the case of what I now send, the shoots are healthy until the leaves are off, when they are attacked as you see, so that I am truly at a loss how to account for it. It is not in consequence of the roots getting into any bad subsoil, as there is no difference between trees of 10 years' or more standing and young ones only one year planted in maiden soil, as I have taken the old soil clean away, and brought in fresh turf. Again, one tree will be attacked perhaps so severely as to kill it, while the next tree is untouched. I have tried all remedies I can think of, such as winter dressing with Gishurst compound; also the old, com-

position of soft soap, sulphur, &c.; also dusting over with sulphur in summer, but without effect. It appears to me to be very similar to the Potato disease. An old man, who has done the nailing here for nearly 30 years, tells me the trees were similarly attacked some years ago, when, after a few years, the disease disappeared. I have been here rather more than 12 years, the first five of which the trees were free, and this year they are but slightly attacked. It attacks Peaches and Nectarines alike, and I have sent specimens of all stages of its development, from the first spot to the killing of the shoot. The specimens Mr. Berkeley had were forwarded from me through the kindness of the Rev. H. Dombrain, who has seen the trees, but to whom the disease is quite new. *Thos. Woodford, Eastwell Park, Ashford, Kent.*

[The Peach shoots above mentioned were submitted to two of the most experienced horticulturists in England, and they gave it as their opinion that such an effect might be produced by the causes mentioned by Mr. Berkeley at the general meeting. It must be recollected that without an opportunity of examining a particular locality it is impossible always to speak with perfect certainty: all that can be done is to state the probable cause, and even should that fail to be borne out by facts, the cultivator will at least be able to eliminate one possible element in his judgment. As the malady is not confined to the late peculiar season, but has existed for years, we cannot help thinking that the fault is to be found in the roots. We believe that the Peach trees which had suffered so much at Chatsworth were restored by removal of the old sodden soil about the roots, replacing it with a congenial compost. On examination of the specimens just received it is quite clear that the constitutional condition of the plants wants some fresh stimulus. The disease often, though not always, commences at the bud, which dies and contaminates the subjacent tissue, there not being strength enough below to throw off the young diseased shoot. We have little doubt that if the roots are inspected, and proper compost supplied, that the health of the trees will rapidly improve. At any rate, it is worth the trial. Send the leaves when first attacked, and in subsequent stages. EDS.]

Rose Budding.—I shall be very much obliged to any of your readers who will tell me the simplest and easiest way of fixing Rose buddings. I have been accustomed to tie them with worsted, but it is very troublesome to use in a crowd of Briars, from catching so frequently on the thorns. I have heard of some adhesive substance that is used, but I have never seen it, and anyone who has tried it will much oblige me, and probably others also, by a description of it and the mode of using it, with information of the success that has attended its use, and the place where it can be procured. *F.* [To this inquiry "S. R. H." obligingly answers:—If "F." will favour me with his address, I shall have pleasure in sending a specimen of the cotton which I have used for many years in budding to my entire satisfaction, which is much less liable to be entangled among the thorny branches of the Briar, and which he can procure at any "small-ware" shop. I should prefer bast to worsted. It is easier for manipulation, and, soon succumbing to the influence of the weather, gives no trouble as to the removal of ligatures; but the cotton is, in my opinion, the most pleasant and safe material to use. I have made no experiments, except in grafting, with any "adhesive substances." *S. R. H.*]

Mistleto.—Would you inform me in your Answers to Correspondents whether the Mistleto growing on a Mountain Ash is an uncommon circumstance. [Yes.] There are quantities of it here on Thorn, Lime, and Apple trees, and one very fine specimen on the Oak, which have been recorded in your columns; but though there are plenty of Mountain Ash trees about here, I have failed to discover the Mistleto on but one, and this is close to some large Lime trees, with some pieces 3 to 4 feet in diameter growing on them, which are now covered with berries; owing to the late mild weather the missel thrushes have not eaten them this winter, as they generally do ere this. *H. J. C., Hants.*

Garrya elliptica.—This plant is worthy of all the praise bestowed upon it by "Somerset," and for the south and west of England it is admirably adapted. We have scarcely anything so beautiful among plants as its drooping catkins, while its leaves resemble the evergreen Oak, and its habit is compact and bushy. But intending planters must carefully note, that "Somerset" adds—"That it is not more tender than the Myrtle." It is not quite so tender in fact, for it lives and grows out-of-doors tolerably well in East Anglia; but in the course of 20 years I have only once seen its fountain-like catkins uninjured by frost. In sheltered nooks in the south and west it is, however, among the most graceful and distinct of all shrubs, and is eminently deserving of more general cultivation. *D. T. F., January* 28.

Ivy on Trees.—Mr. Fryer, at p. 81, inquires whether Ivy injures the trunks of trees. Certainly it does, when they are growing fast, and the Ivy is allowed to twist round the stem. In such case it presents a strong mechanical barrier to the growth of the trunk, and seriously impedes the passage of the sap. But on large boles, and trained parallel along the trunks, I do not think the Ivy injurious. The Pine tree referred to is possibly suffering from the heat and drought of the past summer. It would be well to try the effect of several thorough soakings of water before destroying the Ivy, presuming that the latter is valued as an ornament. It is a good plan in the case of Pines to confine the Ivy wholly to the trunk; when it gets to run among the branches of Pines it often injures them, and fortunately it is not needed there as an ornament. *D. T. F., January* 28.

Camellia Buds Dropping.—I can fully endorse all that Mr. Barnes has said respecting the casting of buds, although it is not in a general way so much complained of amongst specimens planted out, as in those under pot-culture, the latter being more subjected to sudden changes, or conditions of heat and cold at the root, a greater or less degree of moisture, &c. These conditions being carefully guarded against, the great secret is to maintain, at the same time, a cool and comparatively moist and healthy condition of the atmosphere. I have for several years past made many and various experiments on the cultivation of the Camellia, such as potting at different seasons, in various kinds of soil, watering with various manures in a liquid state, in the various stages of growth and bud, and also by exposure to various temperatures, &c., but am not thoroughly satisfied respecting the requisite amount of light best suited to bring the flowers of this plant to the greatest perfection, but, as far as my experience has gone, I am inclined to believe that the light admitted by a modern span roof house, glazed with sheet glass, in the autumn season, has a tendency to diminish the size of the blossoms, if not positively to cause the casting of buds, especially with pot-plants. I should be glad to know if Mr. Barnes' house is glazed with sheet glass, and what shading is used, particularly in the autumn season. By far the best and finest flowers I ever saw expand under my own management were matured in a house glazed with sheet glass, in a northern aspect. I may here add that part of the same collection, for want of space, when housed (about the middle of September) was placed in a cool house with a southern aspect. This house contained at the time a number of miscellaneous New Holland plants, was paved with fancy tiles, and kept very clean. The greatest care and attention was bestowed on the Camellias, but they cast many of their buds, and the flowers that came to maturity were small compared with those in the house with the northern aspect. I have also seen many good collections of Camellias in various parts of Great Britain grown in houses with a southern aspect, but where such is the case, I have invariably found them in old-fashioned, dark structures, where drip and small glass, not over clean, is the order of day. In compliment to Mr. Barnes, I know such is not the case at Bicton. It is 14 years ago since I was there, and I shall never forget the cleanliness and order everything was in under his able management. *Anonymous.*

Pines: Cutting Down.—I am glad that Mr. Barnes has enlightened the rising generation of gardeners upon this subject, for many have already clutched at the operation as a novelty. I am not able to look through the vista of the past, for half so many years as Mr. Barnes, but I know that the cutting down was performed 20 years ago by a noted Pine grower, but this was accidental. The roots of his would-be fruiting plants were injured by excess of heat in the plunging material before he was aware of it, and the plants were taken and thrown on the rubbish heap, and remained there for some days. Such was his grievance that he went frequently, as it were, to weep over the objects of his admiration. He at last came to the conclusion to reinstate them in some form or other, finding that they would fruit sooner than the suckers, and some, after being "chopped," were placed amongst the fruiting ones, the others were arranged amongst the successions as their size demanded; and to his astonishment he found the most of them fruited, as he termed it, prematurely. Nothing short of necessity, I should say, would ever induce any one to overthrow, in such a way, the equilibrum of root and branch in such a plant as the Pine. I will relate another instance, which came under my own observation, of the effect of this cutting. At Wortley Hall, before Mr. Simpson went there, a quantity of Pines had been planted out, their age being about two years. They showed no symptoms of fruiting, and it was decided that they should be taken up and replanted, but such was the mechanical texture of the soil that scarcely a handfull would adhere to the plant, and the roots were in anything but a good state. However, the best were replanted, and the others were cut down and set amongst them. One part of the old soil was used (it was only common garden soil with some lime rubbish), and this was mixed with about three parts peat. This may seem a strange compost to some, but necessity has no choice—not a sod was allowed to be cut for garden use. However, they rooted in it well, and they showed fruit in a short time, those cut-down as well as the others. Where Pines are planted out, the mere lifting of them and placing them back will induce them to fruit. I fear Mr. Barnes has misunderstood the object the gentlemen he names had in view when they wrote. I presume that they came forward to maintain the operation as being an expedient course to pursue in an emergency, such as requiring a few Pines at a certain time, and not under the assumption that they were introducing a new system of culture. If the latter was their aim, he is quite right, as a veteran, to take them in tow. *W. P. R., Holwood.*

Iron for Garden Walls.—The ideas which I now publish may have in them nothing that is really new or original, but they may be worth the attention of those who may be making new gardens or alterations in existing ones. The large outlay required if a kitchen garden is to be walled in, often deters the proprietor from having his garden so large as is desirable, or such a space for training tender fruits as he would wish. When brick is used the wall becomes in the course of time full of innumerable nail-holes (unless wire be used on which to train the trees), and the pointing also falling away, capital hiding places are formed for destructive insects, to the endless trouble and annoyance of the gardener. I would therefore substitute iron for brick. The first cost would be less and the ultimate saving large. The walls would be made of iron plate galvanised, ⅝ inch in thickness for 3 feet from the base; above that height ⅝ inch would be found sufficiently strong. The plates might be all made 3 feet in width and of any length into which they could be rolled. The horizontal joints should be flanged, the flange being about an inch in width. This would admit of its being pierced at 7-inch intervals for the insertion of wire, running vertically as tree trainers. The width of the wall at the base should be 3 feet, for one 14 feet high, decreasing to 1 foot at the apex. The earth where the wall is to stand should be removed till a quite solid stratum was reached, or at any rate 3 feet in depth and 4 feet in width must be removed. This trench should then have 1 foot of concrete spread evenly over it, blocks of stone of a good size being buried in in, to which the bottom flange must be bolted. The top of the wall would be covered by a plate, sloping from its centre, and projecting but little, for the wall, having a sloping face, could not be protected by a coping, except of an extravagant width. I think that, as a rule, trees sheltered by wide copings are not so healthy or so generally free from red spider in summer as those that receive all the dew and rain that fall. Now, it will be seen that we have an air-tight structure, with a surface upturned to the sun, and which will therefore both receive and retain a great amount of heat. As I have no reliable data, I am not prepared to say that it will retain heat longer than a brick wall. If its retaining power be greater, so much the better for our trees on clear frosty nights during our treacherous springs, for the radiation may possibly be greater than from a perpendicular wall. In the case of walls intended to carry our tender fruits in the south of England and Ireland, and in the north and in Scotland our better kinds of Plums, Pears, and Apples, hot-water pipes could be used; then the temperature of the wall, whilst the trees run any risk from frost, would be under control, and after wet summers the hot-water apparatus would be of immense use in ripening the wood. A 3-inch flow-and-return should be ample for the heating of a high wall, and say 100 yards in length. These might be placed near the ground level. *F. Moore.*

Cheap Vineries.—Would a vinery 14 feet wide, span-roofed, with a slope of 7 inches to the foot, with Vine plants on the S.W. side, trained up that side and down the opposite one, be suitable; or could one of 16 feet be made without supporting columns under the rafters? Would 20 inches be too wide between the astragals, or would it be better to use narrower glass, say 15 inches in width, or what size of squares if none of the above are suitable? What quality of 16 ounce glass as advertised by dealers? May I ask if the Golden Champion Grape suits a cool vinery as well as the Black Hamburgh? *D.* [Roofs are always the better for being steadied by supports of some kind. 12 inches is wide enough for the glass, which should be 20 oz. The Golden Champion Grape is stated, on Mr. Thomson's authority, to ripen perfectly with the Black Hamburgh. EDS.]

Phalænopsis Schilleriana.—As comparing of notes in my opinion is next in value to open competition, a few words about a plant of this fine Orchid under my care here may be interesting to some of your readers. The plant has eight leaves, and now bears a panicle of 78 flower-buds; its length is 5 feet 4½ inches, and its greatest breadth is 4 feet; and a much more valuable stem still is bearing a fine young plant, about 15 inches from the pot, the largest leaf of which measures 13 inches long; and about a foot higher is another smaller plant, but which promises to become a very nice one in a few months. Another plant, taken from the same parent about 3½ years ago, is now bearing 90 flowers, and is nearly as large as its mother. *William Cross, Gr. to the Right Hon. Louisa Lady Ashburton, Melchet Court, Romsey.*

Dianthus hybridus striatiflorus.—I have just seen this very pretty double mule Pink blooming freely out-of-doors under the north wall of a greenhouse, at Mr. McRonald's nursery at Chichester, not any the worse for the frost of the three preceding nights. It deserves to be oftener seen in collections than it is. *W. T., Jan.* 23.

The Rainfall of 1868, and its Effects on Fruits, Vegetables and Plants.—The fall of rain during the year 1868 was about equal to the average amount for this district, but it was so irregularly distributed that the extremes of drought and humidity were experienced during the year. From February to July there was a constant deficiency of rain, and the whole amount registered for that period was 6.23 inches. So great a deficit in the supply of rain during the period of greatest activity in vegetable growth, proved injurious to some of our cereals, and generally and unfavourably affected hay and root crops. The same peculiarity of the season exhibited in a marked degree the imperfect character of our system of supplying that most essential element, pure water, to our towns and villages. The autumn months were wet. The rainfalls which occurred in August, September, and October assisted to make up the average. This was finally accomplished in December by a fall amounting to 6.07 inches, which about equalled the quantity that fell during six months in the spring and summer seasons. Owing to the drought, Potatos ripened in July. The crop was too light to take up, and as the haulm in most cases remained green and vigorous, hopes were entertained that with rain an improvement in the crop would take place. After the copious showers which fell in August a rapid growth and development of young Potatos from the first crop of tubers ensued, and a tolerably large second crop was the result. The declining heat, consequent on the season, and the increasing humidity, while it assisted the growth, tended little to give maturity to Potatos, and the second crop was in consequence inferior in that respect. White Turnips sown on the 19th August grew rapidly, and afforded a crop of medium size, quite large enough for table purposes. The Onion crop ripened early, and the tops dried, so that rain could afford no benefit to this useful crop, which is in consequence scarce. Carrots are small and somewhat hard; failures were frequent in this

district. A very heavy crop of fruit set on Apple trees, the dry, hot weather caused many of the weakest fruit to fall, and thus a good medium crop remained. Apples continued to grow until October; in general excellence the crop of last season exceeds all I have ever before grown in this locality. Margil, Cox's Orange Pippin, Blenheim Orange, Coldwell, and others, in colour, quality, and size, are pre-eminently superior to what they are grown in ordinary seasons. Wall Pears were more or less affected by drought, and few attained their ordinary size, but whatever was lost in that respect was made up in quality. I never tasted better examples of Marie Louise, British Queen, Van Mons Léon le Clerc, Winter Nelis, and Glou Morceau. Some large standard Glou Morceau have afforded fruit of excellent quality, but from whatever cause, whether from premature ripening or a flush of sap late in the year, Pears which ought to keep until March are rotting fast. The fruit often looks green and sound, and yet a touch reveals the fact of its having attained an undesirable mellowness. The survival of some of the half-hardy decorative plants of our gardens and the precocious development of the blossoms of many of our alpine and herbaceous plants, as instanced by your correspondents, must not be attributed exclusively to the influence of the mild weather, which has characterised the winter up to the present time. The unusual heat and drought of the summer season of 1868 had a marked effect on vegetation. At this place, which is only a few miles south of the Trent, the maximum records of temperature exceeded 80° on sixteen days of the months of June and July, and but little more than half an inch of rain fell in those months. Ordinary bedding plants were less luxuriant than usual, and the growth they made was perfectly matured, hence they were better able to resist the effects of frost, and in a condition to produce flowers. Verbenas and Petunias still survive, but many alpine and herbaceous plants were subjected to an enforced rest for several months, during the period of intense heat and drought, and instead of making their usual growth in May and June they remained passive until August, when sufficient rain fell to promote the long-retarded growth of such plants. This late growth has been like that usually made in spring after a winter's rest, and many plants have developed blossoms in mid-winter instead of May. It may perhaps be worth while, to take a hint from the experience of such a season, and, by sending some of our spring flowers to sleep at midsummer, persuade them to anticipate the springtide by a month or two! Early flowering shrubs have produced, and are still producing, immense quantities of bloom, due to the ripening influence of last season's sunshine, and this is significant of a heavy fruit blossom. Chimonanthus fragrans is covered, more profusely than ever I saw it, with its fragrant flowers. Jasminum nudiflorum is also blooming abundantly, but the most striking, interesting, and fragrant of all hardy winter-blooming shrubs is Lonicera fragrantissima. This most desirable Honeysucke has been in bloom for two months, and it is still covered with its delicately scented flowers, which seem to me to combine the fragrance of the Orange blossom with that of the Honeysuckle. Perfumers would do well to look after this plant, and all who keep bees should certainly cultivate it. Every warm day I have observed it alive with bees. Continuing long in blossom, and being rich in nectarous secretions, it must be valuable to the apiarian. I am more particular in calling your attention to this charming shrub, as I have not seen it noticed in the lists your correspondents have furnished of plants flowering at this season. *William Ingram, Belvoir.*

Game Cover.—The subject of game cover lately discussed in the *Gardeners' Chronicle* must have been very interesting to all those that are anxious to stock a cover with plants proof against hares and rabbits. My friend Mr. Reid's idea of blocks covered with Ivy is very good. Ivy no doubt will look well in a cover with mixed plants. I find that hares and rabbits don't nibble Rhododendron ponticum, the large-leaved Box, nor Berberis aquifolium. The last-named evergreen shrub, if planted in its young state, may be injured, but if transplanted in a nursery, annually, till the plants are four years old, and then planted in the cover, no hares or rabbits will touch it. The Berberis Darwinii will no doubt prove to be a useful plant as a game cover, when it gets more plentiful and cheaper. In planting shrubs, I have adopted a plan of sticking a few pieces of gorse round the stems, to prevent the above-named animals from peeling the bark, and I think by this simple process I shall be able to save Laurels and other evergreen shrubs that would otherwise be destroyed by hares and rabbits. The gorse does not look unsightly, and will last for two years. *John Malcolm, The Gardens, Cholmondeley Castle.*

Telegraph Cucumber.—Will you allow me to ask through your columns, what is the difference between Telegraph Rollisson, Telegraph Woolley, Telegraph Fisher and Holmes, and Telegraph Battley's Improved? I believe they are all the same. I had seed from ——— and ———, and grew the plants side by side, and the only difference I could find was, that one was charged 1*s.*, the other 2*s.* 6*d.* the packet. This Cucumber has been sent in to Solomons' for years. *H.*

Iron-ore Workings Affecting Vegetation.—Would any of your numerous correspondents who live in districts where ironstone is extracted, kindly furnish any evidence of the condition of vegetation in general, but more especially timber trees, standing on ground whence the mineral either is being or has been extracted, although not actually near the pit or "mouth" of the workings? This is a subject likely to become of general interest in course of time, as doubtless many of our rural districts, at present unexplored by the miner, will in their turn be undermined. The little evidence I have collected on this subject is very conflicting, and much information will doubtless be forthcoming in your columns. *Gleanings.*

Apple Stocks.—To the majority of your readers who have read my article of the 16th, and Mr. Rivers' "reply" to it on the 30th ult., little more need be said respecting this subject. But to the inattentive, less informed, and the indescribable persons with whom the uncalled-for personalities used instead of arguments in Mr. Rivers' last article would have any weight, a few remarks are necessary. The Scientific Committee is declared to have entirely settled the question by Mr. Rivers because they pronounced his Apple on the "English Paradise" stock, robust and healthy. This is entirely avoiding the point, and begging the question in several ways. Nobody has ever even hinted that the so-called "English Paradise," or Doucin of the French, according to Mr. Rivers' original opinions, and to the Government report of Mr. Bréhaut, was in any way delicate or tender. On the contrary, the objection to it was, that it, while an admirable stock for wall-trees, vases, strong bushes, pyramids, trellises, &c., was far too vigorous for the cordon system. That it is so I have not the least doubt, and when the experiments now inaugurated are fairly worked out, this will be patent to everybody. Mr. Samuel Weller lacked the power of seeing through deal boards, and the Scientific Committee was equally powerless to see the fruit and flowers which the trees, shown by various persons, must produce before anybody can pronounce upon their differences, or say what they really are. Thus, in the second place, it is clear that it has settled nothing, but simply noticed externally differences in the trees, and ordered them to Chiswick to be grown, and reported upon in due time. This was all it could do; it was simply what common sense dictated, and had been previously done by several persons at my suggestion, and probably by many of whom I know nothing. So that the question, instead of being dead, has but just been called to life. And, in addition to what the Scientific Committee and other persons who have planted the several kinds of stocks can decide about it, we must have accurate accounts as to the behaviour of the stocks on the several classes of soils—in a word, the scientific committee that will finally decide the question, is that of the horticulturists in the British Islands. The only stock that has been accused of being weak and worthless is the true French Paradise, and it is now beyond all danger of being kept in the background by the voice of one individual. If we only wanted to see which stock was the most vigorous and robust, why not have shown the good old Crab? The horizontal cordon is pronounced "the most preposterous and ridiculous idea ever broached by any sane gardener," and "Apple trees on the true French Paradise useless and only calculated to deceive those who buy them." These words should be italicised [we don't like italics], for they have the merit of force and simplicity, may be easily remembered, and will, if I mistake not, be often quoted in years to come. I am content that any amount of abuse be now heaped upon my favourite, but merely add—Try it fairly, and then, if it fails, your ridicule and contempt will savour of justice. "Only," says Mr. Rivers, "let us imagine Mr. F. Dancer's fruit garden at Chiswick made into a gridiron for Apple trees!" Mr. Dancer is a grower for market, in possession of excellent orchards, and I have emphatically and repeatedly stated that the cordon system would be madness in such a place; indeed I devoted a chapter at the end of my book to point this out more clearly, and to say that the system pursued by the market-gardeners was, with certain slight modifications, for their purposes, the best and wisest. The reader who does not understand the history of this discussion will, after reading the above cited passage, be astonished that the whole of these discussions arose simply, from my cautioning the readers of a contemporary against accepting the dictum of a gentleman who advised its readers to plant orchards of cordons, at so many thousand plants an acre. Facts have since showed its true and special use as a garden system, and soon after Mr. Rivers attacked me with all the bitterness he could command in the "Journal of Horticulture." So that, in reality, it was I who had to protest against our orchards being made gridirons of. It will be noted that amidst all the purely personal remarks in the article in last Saturday's paper, there is not a single word to disprove any fact stated in my article of the 16th Jan.—not a word to explain the ridiculous contradiction concerning the "English" and Dutch Paradise stocks and the Doucin that I placed face to face; but instead, an emphatic declaration from Mr. Rivers that he has "a greater knowledge of fruit-tree stocks than any man in Europe." If, as I am certain time will prove, he has not only been in error about the French Paradise, but an enemy to progress in condemning it, then those who boast of no infallible knowledge in the matter, will have good reason to see the necessity of studying it, and those who were absolutely without knowledge of the matter, boasted or possessed, may prove less harmful to fruit-tree progress than he who so boldly claims to be its Pope. *Wm. Robinson, Feb.* 1.

Heating Vine-borders.—Talleyrand once said, respecting the state of affairs of France, "that it is now the beginning of the end." It appears to be the same with the advocates of the heated Vine-borders. The least that can be said of them is, that truly they will become extinct, and that their argument, if not already dead, is rapidly undergoing the process of extermination. Mr. Tillery, one of our best gardeners, has brought the subject to the culmination point; he has relieved me of a 20 years' ramble through the files of the *Gardeners' Chronicle*, and bids me look in at p. 673, No. 29 of 1865. Readers, turn it up, and see for yourselves. The article to which we are referred is selected as one of the best resulting from the collective experience of 40 years of Vine growing on the hot chamber principle. The time of Mr. Dean's visit to Kingston Hall was the end of June—this being as nearly as possible the 1st of July; all the houses of the entire range of 120 feet, four divisions in all, were then in full bearing. Mr. Dean states that one of those houses was then ready for cutting. I am willing to admit that, by the description, the state of affairs in these vineries was creditable, but in justice to my argument I must draw attention to the fact, that those Grapes were maturing, and some of them about "ready to cut" at a time when any old woman would blush to say they had been assisted by bottom-heat. Yes, Grapes "fit to cut" by the 1st of July, grown over the heated borders of Kingston Hall. The above is what Mr. Tillery says will astonish me. If Mr. Tillery will only be pleased to pay me a visit by the end of June, or even now, he will alter his opinion as to how much in the Grape line it will require to astonish me. To give the advocates of bottom-heating a chance of proving the substantiality or utility of their cause, might not the Royal Horticultural Society be induced to offer a special prize for Grapes grown on the whole principle, fixing say the time for February, March or April, letting it be understood that each exhibitor is to "take his best." We learn from Mr. Tillery's papers that to Mr. Meredith is due the idea of bringing bottom-heat from a chamber outside through air-drains under the borders communicating with the internal atmosphere of the house. This was carried into practice at Welbeck; consequently, the hasty sketch of Mr. Westland is put *hors de combat*, and he is deprived of any claim whatever to the originality of the idea. In respect to this it must be borne in mind that Mr. Meredith uses great caution,—caution worthy of a Scotchman: he had the pipes placed, not underneath the border, but away from it, so that, like "bread-and-water pills," if they did no good, they could do but little harm. I wish it to be borne in mind that anything I have said in this controversy has not been said with the intention of disparaging the heating of Vine-borders; on the contrary, I am desirous that all praise be given to those who have spent much of their time and thought in endeavouring to prove its advantages or otherwise, and for their sake it is much to be regretted that so much labour and originality of thought should be so completely thrown away. If bottom-heat for Vines had, like the penny postage, proved a decidedly good thing, then everyone would have been pleased to embrace it without dispute; but this discussion has brought against it parties who have tried it and have given it up, and the parties who yet cling to it have shown but small proof why it should still be continued. This being the case, the plan, it must be admitted, is practically a failure; and, although being pursued by some with every good intention, is at last overtaken with the words of Burns—

"The best laid schemes o' mice an' men
Gang aft a-gley."

In conclusion allow me to add, and I say it fearlessly, that I have belted the year round with a gorgeous garland of Grapes, and this for five years successively, without the appliance of any bottom-heat whatever. Having done this, need it be wondered at that I should bring everything in my power to bear against artificially heated Vine-borders? And I maintain that artificial heat to Vines is, in these days of late Grapes, quite as unnecessary as an aërial machine would be to soar a condor, or a diving-bell for a whale. *William Miller, Combe Abbey Gardens.* [The publication of this letter has been delayed. EDS.]——In the controversy going on in your columns respecting the heating of Vine-borders, when the Vines are forced early, I see one correspondent (p. 30) alludes to the fact that at this place we have no heat to the border. It is quite true that there is no apparatus for heating the borders here, yet I always practise warming them with hot water when I force early: I apply it with a watering pot to the surface. I send the heat downwards—the natural way. When my Grapes are ripe in April and May I allow the borders to get dry during the summer months; this prevents the Vines from starting into a second growth in the autumn. In November, when I begin to force, I give the borders a thorough soaking with water heated to 85°, this raises the temperature of the soil to from 60° to 65°; if the border is in the house I never give water to it afterwards under 80°, consequently the earth is always some degrees warmer than the air in the house, unless during sunshine. If the border is outside, after applying the warm water I cover it with about a foot thick of stable manure, to prevent radiation. I repeat the hot water once or twice during the winter or spring, according to the severity of the weather, and as it has this time to pass through the mulching material, I apply it at 150°, as it loses much of its heat before it reaches the roots of the Vines. If this simple and inexpensive plan is followed, I am sure no one need go to the trouble and expense of pipes to heat Vine-borders intended to grow the earliest forced Grapes. I believe pipes to be useful when cautiously used, but even then not worth the expense they cost. *Montgomery Henderson, Cole Orton Hall Gardens.*——As a constant reader of the *Gardeners' Chronicle* I have been amused with the contention going on between those who are advocates for heating Vine-borders, and those who oppose that plan. I think if a larger number of our experienced friends would kindly state the result of their plans, it would be a fair way of proving to the less experienced which step they should take. This I think should be the aim and end of all who write upon this or any other subject. I do not wish to enter fully into this controversy, but simply to state facts resulting from my own experience with unheated Vine-borders. It may be remembered that I gave an account in the *Gardeners' Chronicle*, at p. 637, 1863, of Vine-border making, soil, and planting, as practised here. The Vines I wish to draw attention to were planted in May, 1859, on a well-prepared outside border; the house is 24 feet by 20 feet, a lean-to. Nine Hamburgh Vines were planted, and taken up the rafters, pruned on the spur system; the border is covered with leaves in November about 16 to 18 inches thick, well trodden; upon this is fixed a tarpaulin to protect the border from rain and snow. This house we commence forcing in the third week in December, and the Grapes are generally ripe by the third week in May. From these Vines I have cut upwards of 700 lb. weight of Grapes, bunches and berries large, and of a very fair colour; the Vines are still in a healthy and vigorous condition. I cut from one of these Vines on the 31st of July, 1868, a bunch of Hamburghs weighing 7 lb. 8 oz., which I had the honour of presenting to her Royal Highness the Princess of Wales on that day, and which was graciously accepted. I think with these results there is not much need of heating Vine-borders; the road to success is to make healthy Vine-borders, and to keep them in that condition. *C. Squires, Gr. to G. G. Ludlow, Esq., Heywood House, Westbury, Wilts.*

Notices of Books.

Les Cactées (*Cactaceæ, their History, Habitats, Conformation, and Culture*). Par Ch. Lemaire. Paris: Rue Jacob 26. (Williams & Norgate.)

For little more than a shilling we have a capital epitome (in French) of the present state of knowledge as regards the genus Cactus and its allies. We say this in all sincerity, while withholding entirely assent to all M. Lemaire's assertions, and protesting against the number of genera admitted by him. This is very much a matter of individual opinion, after all, and for horticultural purposes it is as well to have the sections well marked. The author gives a general account of the conformation of these strange plants, adds a classified list of the genera with their distinguishing characteristics, enumerates several of the principal species, gives a section on their culture, another on the insects which are injurious to the plants, and lastly a list of the principal works on this natural family. When we add that there are a few woodcuts, we have, we think, said enough to induce all Cactus lovers to lay out a shilling in the purchase of this little volume. The horticultural public in Belgium and France must be much larger than our own to allow of such works to be issued, even with the *concours* of the Minister of Agriculture.

Lessons in Elementary Botany for the Use of Schools. By John Hutton Balfour, M.D., &c. Black. Small 8vo, pp. 321.

Make a condensed abstract from "Balfour's Class Book," or from the "Manual," or from the "Outlines" of the same most successful teacher, popularise it as much as possible, so as to adapt it to the tender comprehension of school children, add a few questions here and there, and you will have "Balfour's Lessons in Elementary Botany." Save for some indications of the Professor's own handiwork in the systematic portion of the work, where descriptions of some of our wild plants are given by way of illustration, we should have imagined that the present work had been

abstracted, in the way we have mentioned, by some faithful pupil who had forgotten that vegetable physiology had made some progress since the publication of the works before alluded to. The book is not worthy of the author's well-earned repute.

The Rev. R. T. Lowe has published the fourth and fifth parts (concluding the first volume) of his excellent *Manual Flora of Madeira and the Adjacent Islands* (Van Voorst). The descriptions are admirably drawn up, and the dry technicalities are enlivened by the insertion of interesting remarks. The author raises his voice loudly against certain "inexcusable, intolerable, puerile, anagrammatic transformations," such as of Gnaphalon into Phagnalon. The list of *corrigenda* is wofully long. Let us hope that in succeeding parts more careful revision will take place, or a separate part will be needed to contain the *corrigenda*.

A lady who has already earned great repute for her publications in astronomy and physics, Mrs. Somerville, will add to her well-established fame by her recently-published work, entitled *Molecular and Microscopic Science*, 2 vols. 8vo (Murray). After a condensed but extremely well managed summary of the present state of our knowledge on the elementary constitution of matter, including the revelations of spectrum analysis, the author passes in review the several representative groups of plants and animals, and describes their peculiarities. The book is beautifully illustrated, and though necessarily to a large extent a compilation, it is a compilation of the best kind, undertaken by one thoroughly competent for the task she has undertaken.

CATALOGUES RECEIVED.—The following Seed Lists for 1869 are before us:—Barr & Sugden's Catalogue.—J. Carter & Co.'s Vade Mecum.—Sutton & Son's Amateur's Guide.—Wheeler & Son's Little Book.—W. Paul's Select List.—E. P. Dixon's Catalogue.—Charlwood & Cummins' List.—W. Bull's Retail List.—London and Continental Seed Co.'s Catalogue.—R. H. Poynter's Catalogue.—F. & A. Dickson & Son's Vegetable and Flower Seeds.—T. Kennedy & Co.'s Catalogue.—T. Sampson's Catalogue.—W. Drummond & Sons' Vegetable and Flower Seeds (accompanied by pamphlets entitled Directions for Sowing Vegetable Seeds, and Directions for the Culture of Flower Seeds).—S. Glendinning & Sons' List.—Hooper & Co.'s General Catalogue.—W. Thompson's Descriptive Catalogue.—Ch. Huber et Cie.'s (Hyères) Catalogue.—J. Veitch & Sons' Catalogue.—W. Cutbush & Son's Catalogue.—J. & R. Thyne's Catalogue.—R. Parker's Catalogue.—T. Lang & Co.'s (Melbourne) List.—B. S. Williams' Catalogue.—R. Dean's Catalogue.—W. Wood & Son's Catalogue.—C. Turner's Catalogue.—E. G. Henderson & Son's Catalogue.—F. & A. Smith's Catalogue.—Stuart & Mein's Catalogue.—S. Dixon & Co.'s Select List.—Vilmorin-Andrieux et Cie.'s Catalogue Général de Graines, etc., and Supplément aux Catalogues. Many of these contain very full lists, both of vegetables and flowers, and some are neatly illustrated.

Of Plant Lists we have:—J. Standish & Co.'s Catalogue of New and Rare Plants (illustrated with several coloured lithographs).—J. & C. Lee's Trade List (containing an extensive selection of hardy trees).—W. Barron and Son's Catalogue of Ornamental Plants (very full list of Conifers).—T. Kennedy & Co.'s Forest and Ornamental Trees.—J. Veitch & Sons' Descriptive Fruit Catalogue; also, Select Roses.—E. H. Krelage et Fils' Catalogue Spécial et Descriptif des Fraisiers.—R. M. Stark's Select List of Hardy Plants.—Société des Rosiéristes de Brie-Comte-Robert, Rosiers Nouveaux.—T. Lang & Co.'s (Melbourne) Catalogue of Plants; also, List of Flowering Bulbs and Tubers.—Ch. Huber et Cie.'s (Hyères) Catalogue de Végétaux.—A. Stelzner's (Gand) Prix-Courant des Plantes Nouvelles, &c. L. Van Houtte's (Gand) Catalogue of Hardy Plants (contains a very extensive and varied list of hardy trees and shrubs).—H. Cannell's Floral Guide for 1869.—J. Sieckmann's Preis-Verzeichniss neuer und neuester Georginen (Dahlias).

Florists' Flowers.

THERE are few flowers that can boast a greater variety and extent of admirers than the STOCK; it is emphatically everybody's flower, but it is none the less a fact that, if we wish to see this flower in its highest perfection, we must more often look for it amongst the poor than the rich. There are thousands of humble cottage gardens where the Stock enjoys a fixity of tenure quite marvellous in its character, but which can only be explained by noting the care and attention bestowed upon these favourites of the humble housewife. The cottager's selection has hitherto been limited chiefly to two kinds, the Brompton and the Queen, the summer Stocks not often finding a place in his garden. The easy facility with which the former can be cultivated will doubtless account for this. The proportion of double flowers to be found in cottagers' gardens is remarkable to outside observers, but to the initiated it is only a matter of course. In selecting flowers from which to save seed, it is the practice to mark only those that have five or six petals; these always produce the largest pods, and invariably the greatest proportion of double flowers. It is careful selection, and that only, that produces these desirable results.

The Brompton Stock is found in three distinct colours—scarlet (the most common), white, and purple; the latter colour is less often met with, the white somewhat more frequently though by no means common, whilst there are few cottage gardens in this neighbourhood that do not boast a few of the former. I saw a scattered few of the white during the past summer, certainly not so tall and robust as the scarlet, but still very handsome and double. The proportion of doubles to singles in this colour was small; the strain of scarlet grown about here is the Giant, reaching from 30 to 36 inches in height, branching in habit, and often producing spikes of bloom, open at once, from 9 to 10 inches in length. These are positively grand, and would excite the admiration of the greatest bedding-out epicurean. The Queen Stock has special charms for many, because of its dwarf branching habit and its adaptability for cut flowers, for which it is invaluable. Strangely enough the purple that is so scarce in the Brompton seems to be the common and most plentiful colour in the Queen: the white and scarlet are, however, frequently met with. Another characteristic of this Stock is its tendency to produce variegated flowers, thus plants bearing blooms that are white and scarlet and white and purple are very common, where the different colours have been grown adjacent to each other, but I have never met with one that contained scarlet and purple together. The purple Queen will make very effective beds for spring work, and also produce a colour that is by no means common for that purpose.

The summer varieties known as the Ten-weeks are great favourites with cottagers, but the necessity that exists in this case of procuring imported seed fresh every year, to produce good double kinds, renders the chance of their growth among the poor less possible, but they are none the less fitted to adorn the gardens of the rich. The improvement that has been made in these Stocks of late years, especially those that take the pyramidal form, would astonished many who have neglected their culture. Last spring I was supplied with seed of the following kinds:—Violet Pyramidal, Azure Blue Pyramidal, Large-flowering Pyramidal, Giant Pyramidal, Giant Ten-week, Purple and Scarlet, and German Ten-week of eight colours. These were raised under glass, and transplanted into the open field as soon as large enough. They commenced blooming about the middle of July, and continued without intermission up to the end of November, many of the pyramidal kinds holding on to Christmas, and seemingly the more they were cut the better they liked it. Beyond the soil being fresh and moderately manured, they had no other assistance, never having had a drop of water from the first, in spite of the excessive drought; their vigour of growth astonished me.

I exhibited at two of our local exhibitions—on each occasion a large box filled with a collection of these flowers, and it is not too much to say that they produced quite a sensation: their novelty as exhibition flowers, in the first place, their rich perfume, the fineness of the individual blossoms, combined with their remarkable variety of colouring, all helped to make them especial objects of attraction. In the one case I obtained a 1st prize, and in the other a First-class Certificate. Early in August I took some notes of them, which I will now give for the benefit of your readers. First of the Pyramidals. In this class the Azure-blue deserves first mention, although purplish white would more distinctly convey the true nature of its colour. This has a very dwarf robust habit, averaging 10 inches in height, 90 per cent. double, has a glossy dark green foliage, and would make a good variety for a front row. Another fine stock is the Violet Pyramidal: it is of a rich dark colour, of strong robust habit, very free bloomer, from 10 to 12 inches in height, and giving 80 per cent. double flowers. The Large-flowering Pyramidal, having a variety of colours, is of very robust habit, about 12 inches in height, giving 60 per cent. double, but the singles are also very fine and attractive. The Giant Scarlet Pyramidal Stocks resemble the previous ones in character and habit, and are very fine. Distinct from these are the Giant Ten-weeks, a somewhat taller strain, of branching habit, and which would be best in the centre of a bed; their height averaged 16 to 18 inches. These are first-rate for cutting from, and can be strongly recommended for that purpose. The two colours of these were scarlet and purple; but singularly enough, as the flowers reached the extremities of the branches in either case they assumed a variegated form, thus adding considerably to their beauty. Last but not least in attractiveness were the German Ten-weeks; these possessed a variety of colours, among which pure white, salmon, and black brown were particularly prominent; these averaged about 12 inches in height, all of them having a robust branching habit. The proportion of doubles was very large; moreover, these Stocks continued to bloom most wonderfully right into the winter. I believe the notes as given above to be truthful and not exaggerated. Horticultural Societies would do well to schedule collections of these flowers along with Dahlias, Asters, &c., at their autumn shows. Gardeners of all classes should grow them for decoration, and where possible cottagers should have them to help to maintain that succession of bloom which they so much prize. I have met with few annuals that I can more conscientiously recommend than I do these summer Stocks. *Alexander Dean.*

The Apiary.

COMPARATIVE FERTILITY OF QUEENS.—It is the opinion of some practical apiarians that artificially-raised queens are not generally so prolific as those reared in the normal manner by bees in preparation for sending out natural swarms. It is also thought to be tolerably well proved that artificial queens vary in this respect, according to the period of their larval state at which the change from the ordinary to the royal nurture commenced. It seems rational to suppose that a queen raised from a grub which had arrived at the fourth day of its existence in the larva condition before any change had been made in its nursery or in its food, could not be turned out so perfectly and fully developed, consequently so fertile or prolific, as she would be if the change in her nurture had commenced from the time of her emerging from the egg. It is also asserted that queens which have been subjected to this late process of transformation are very short-lived—that at the end of the first, or at most the second season, they are utterly worthless as breeders, and are usually deposed and exchanged by the bees if the time of the year be suitable for that purpose; if not, and they are allowed to remain, the hive gradually dwindles away.

I confess that some of my artificially raised queens have, after a brief period of abundant fertility, wofully and lamentably fallen off in this respect, and some have disappeared altogether, after a very limited existence. But I am not prepared to say that it was owing to their having been reared under the conditions previously alluded to. I can recall some cases which appear to bear out the correctness of that view, but, on the other hand, I can remember instances of queens which were apparently raised under precisely similar circumstances which were remarkable for size and beauty, fertility and longevity.

I cannot for one moment believe that a queen artificially nurtured is necessarily less prolific or durable than her sister reared in a perfectly natural manner. The finest, most prolific, and longest enduring queen in my apiary, that I have ever been able to trace the career of, was an artificial Ligurian queen raised by my friend Mr. Woodbury, from one of the two queens originally imported by him, and presented by him to me. I placed her at the head of a very small artificial swarm, gradually building up the stock until it was sufficiently strong to stand the winter. I do not know at what period of her larva state the change in her treatment may have commenced. I have had many other artificial queens, which have been almost equally remarkable for these good qualities of fertility and longevity, but as my attention had not then been drawn to the consideration of the arguments advanced by apiarians on these subjects, I had paid no attention to the exact conditions which attented their formation. It is an interesting subject, and worthy of being experimented upon, with a view of determining whether there is any foundation in truth for these arguments, and if so, of discovering the course of procedure most likely to ensure satisfactory results. *S. Bevan Fox.*

Miscellaneous.

Vegetable Products of N.W. America.—One of the Vacciniums (ovalifolium, Sm.) is well known to all north-western travellers (at least those who have been much among the northern Indians) as the *le brou* plant, being used to make a dainty of that name. The berries are gathered in the autumn, before they are quite ripe, and, after being pressed into a firm cake, it is dried and wrapped in bark and laid by. When it is to be used, a quantity is put into a vessel among cold water, and then stirred rapidly round with the hand, which must be free from grease, until it assumes a paste-like form. More water is then added, and more stirring applied, until it assumes a form not unlike soapsuds. In this frothy state it is supped with long wooden spoons, made of Pinus monticola. It is pleasant to the taste, with a slightly bitter flavour, and is often prepared in Hudson's Bay forts as an Indian dish, which no traveller ought to leave the North-west without tasting. At their high feast the Indians will sup of this until they are ready to burst, and then waddle to the water, drinking which seems to allay the distension caused by the other. The Indians (and grizzly bears) of Southern Oregon and California eat the berries of the Manzanitta (Arctostaphylos glauca, Dougl.), but I have never seen the northern tribes make the same use of the berries of the allied species (Arctostaphylos tomentosa, Pursh). The tender shoots of various plants are eaten in the spring, such as the shoots of Rubus nutkæanus (canoe loads of which can be seen, in the season, on the way to Indian villages), Rosa fraxinifolia, Bork., the green stem of Ligusticum scoticum, L., and Peucedanum leucocarpum, Nutt.; which are peeled and eaten, as well as the stem of Erodium cicutarium, L'Hér. = the alfilerilla, or "pin-grass," of the Californians, and some other plants of that sort. They seem to make use of no species of Lichen for food, but make compressed cakes of a Rhodymenia for winter use. Captain Mayne, R.N. ("British Columbia," p. 256), however, says that they boil and compress into cakes L. jubatus. I never saw them do so, though the statement is not at all improbable (see also Lauder Lindsay, Journ. Linn. Soc. Botany, vol. ix., p. 413—14). Grass and Clover the Digger Indian (little elevated in his dietary above the lower animals) looks upon as great blessings, and eagerly eats them, and grows fat on them too. The Californian White Clover is, however, very sweet, and, I dare say, to these poor people forms, either raw or boiled, a very agreeable salad to their grasshoppers. Beyond the Potato they have no cultivated plant. Some of the Indians in Oregon used to grow a little wild Tobacco, but they now buy the ordinary Nicotiana from the whites. I have seen some of them, when Tobacco was scarce, in order, as they thought, to get the full benefit of it, inhale the smoke, gulping it down until it came out at the nostrils and ears. They would repeat this once or twice, then hand the pipe to another, and lie down, almost senseless, to sleep off the stupor. *R. Brown, in "Pharmaceutical Journal."*

Californian Pine Cones.—Some time since, Mr. J. Q. A. Warren, of California, arrived in England with a magnificent collection of Pine cones. They were exhibited at his private rooms, where we had the pleasure of inspecting them. We are glad to learn that these Californian Coniferæ have been secured by Mr. Bennett, of the British Museum, for the Botanical Department. The collection comprised fourteen species—viz., Pinus Coulteri (twin cones, with the young cone of the first year's growth), also a specimen of the same variety over a foot and a half long, and an open cone, very large and beautiful, showing this species in all its perfection; Pinus Sabiniana; Pinus muricata, this

specimen was nearly three feet long, with seven distinct rows of cones, comprising over fifty perfect specimens on one branch; Pinus insignis, also very fine specimen, with cluster, containing twelve large and perfect seed-bearing cones; Pinus tuberculata, Pinus Jeffreyi, Pinus contorta, Pinus Benthamiana, Pinus Tamrac, Cupressus macrocarpa and Goveniana, Sequoia gigantea, Pinus Torreyana; and last, but not least, Picea bracteata, the most rare and beautiful of all the Coniferæ family. Mr. Warren's collection of the most complete and the finest yet brought to England, and we may well congratulate Mr. Bennett on the purchase of it for our National Museum. *Land and Water.* [An interesting collection, concerning which we shall publish further information shortly. EDS.]

Garden Operations.

(For the ensuing week.)

PLANT HOUSES.

Poinsettias, which have, through their bright scarlet bracts, become so greatly associated with our Christmas festivities, will now have done flowering, and should at once enter upon a season of rest; in which they can be assisted by being removed into a dark place, and kept entirely free from water, for two or three months. Even the lesser plants—such as autumn-struck cuttings—will stand this treatment admirably. They should not, however, be kept in a lower regular temperature than 55°. I generally prefer shortening the stems to the necessary height before stowing the plants away. By doing so, the wound becomes perfectly healed over by the time they commence growing in the spring, whilst the embryo buds form and push more readily at the lower point than when the operation is performed at the latter period, when there is so great a risk of their being injured by bleeding at the wound. Some *Orchidaceous plants* will now commence pushing forth young roots, and will therefore need a larger share of attention. Previously to such early growing plants making any active growth it is desirable that they should be thoroughly examined, to ascertain if there are any which require fresh potting. Those which do not require potting at this period should have all the old loose soil, sphagnum, or pieces of wood, removed at once, at the same time filling the vacancies up with fresh materials. Keep all such plants at the warmest end of the house, and should the weather prove favourable, occasionally sprinkle them lightly over with tepid, soft water. I lately referred to the necessity which exists in some cases of starting a few old stock plants early, for the purpose of getting a supply of cuttings for propagating, and increasing the stock of any special varieties. *Fuchsias*, which were then placed into heat, and properly attended to, will now have made nice useful shoots, which should be taken off with a sharp knife, and dibbled into open, sandy soil, around the edges of moderate sized pots, after which they should be placed into a nice brisk heat—both top and bottom if possible—and they will make roots readily. Be very careful during the process of propagation not to allow the cuttings to become drawn, as when this is permitted there is very little chance of their making dwarf bushy plants as compared with those with which such care is taken at this stage. This is a good season in which to pot the hardier and most robust varieties of *Greenhouse Ferns*. They delight and grow best in a compost consisting of good fibrous peat in lumps, charcoal, silver-sand, &c. Where sweet-scented plants, such as *Aloysia citriodora* (Sweet-scented Verbena), *Dracocephalum canariense* (Balm of Gilead), various free-growing varieties of *Diosma*, and *fragrant-leaved Pelargoniums*, are in demand for mixing with bouquets or flowers in vases, &c., for indoor decoration, it will now be necessary to shift some of the stronger plants into larger pots and good rich, open soil. Place them into 5° or 10° more heat than the ordinary greenhouse temperature, out of which they may have been taken. Be careful with such plants as *Boronias*, *Leschenaultias*, &c., not to keep them too warm, or in any way to induce a premature and unhealthy growth. From 39° to 41° of heat will be amply sufficient for them. This should be insisted upon at all times, with as much fresh air as possible. They should be moved away from near any heating medium; and it should be remembered that, whilst a moderate amount of moisture is at all times essential to their well-being, an excess of stagnant matter at their roots is sure to end in their destruction.

FORCING HOUSES.

In the earliest *Vineries* finish thinning the berries at the earliest possible moment, so that there shall be no needless loss of strength through neglecting this operation. Stop all growing laterals as frequently as they become of the necessary length, and persist in rubbing off or otherwise removing all superfluous growths as soon as they show, if a sufficiency of foliage exists. I have frequently urged upon Grape growers the necessity of a more natural system in the treatment of their outdoor Vine borders. The remarks of one of your correspondents confirm my past observations on this subject, as with a low ground temperature, comparatively speaking, his second early Vines are "breaking well." In most instances, even with the latest outdoor borders, such a mass of material is heaped upon them that the fresh and fertilising air of autumn and winter cannot reach them. And the consequences are that, through their excessive richness, they become sour to such an extent that the roots have little zest to grow as freely and robust as they should do. I affirm, that excessive superficial rains should be carried freely away, without reaching the border; and that the air, and indeed from 5° to 7° degrees of frost occasionally, if permitted free access to its surface—the former to permeate it thoroughly to any depth it is capable of—are both highly beneficial to it. Any *Pines* which are now swelling their fruit freely will, as the days lengthen and the light becomes more intense, be much benefited by an occasional watering with clear manure-water. It is always preferable to afford them such stimulants upon the morning of a bright sunny day, and if possible, with the aid of a moderate supply of fresh air previously, to give them a rather free damping over about noon with clear tepid water. Continue to introduce *Strawberries* for a succession. Do not water too freely at first, but apply it more plentifully, and with liquid manure alternately, as soon as they make young leaves, and the flowers are beginning to expand. Give as much light and air as possible to all which are swelling their fruit. It is not to be expected that true flavour comes simultaneously with the colouring. The varied phases through which the berry passes from its "setting" period onward, deserve alike our utmost study and attention if success is to be looked for in this, the main feature. *Dwarf French Beans* should have liquid manure freely applied during the whole period whilst they are forming pods.

HARDY FLOWER GARDEN.

Where it is necessary to remove or transplant such subjects as *Rhododendrons*, *Ghent Azaleas*, &c., the opportunity a mild period affords should not be overlooked. Many beds containing such subjects as these often become overgrown, or otherwise grow so irregularly the one with the other, according to the robustness or otherwise of individual sorts, that it becomes necessary to take them up and rearrange the whole every four or five years. The border should be well dug or, if necessary, trenched to the depth of the peat each time this operation is performed. In instances where peat is scarce, or where from other causes the roots may need a little extra aid over and beyond what the soil affords, much assistance may be given by adding a moderate quantity of partly decomposed leaves. Leaf-mould in any form is suitable for this class of plants, and in proper admixture with peat, &c., proves the best medium for them to flourish in. Give *Auriculas* a nice fresh surface dressing during a mild period. Examine the roots of any which do not appear to be doing well, and remove all premature bloom-buds which may show.

HARDY FRUIT GARDEN.

Proceed with the necessary nailing and pruning as opportunity offers. Already the flower-buds upon *Apricots* have become very prominent, these should therefore be now proceeded with next. Encourage all young strong and well matured shoots by every means possible, bearing in mind that the main branches should average something like 7 inches in their distances apart. In regard to pruning, with a view to secure the greatest quantity of fruit-buds, it should be understood that some few varieties, such as the very desirable Moorpark, produce their flowers upon spurs, generally of the age of two and more years. Hence it will be readily understood that spurs must be induced by cutting back too luxuriant shoots where necessary, and encouraged by perfect immunity from the pruning knife. Except it be in the removal of unnecessary wood in instances of over-crowding, and such as are ill-formed or unhealthy, the too free use of the knife is not to be advised at this season, and especially is this to be enforced regarding all varieties which flower upon the last season's young shoots, and to which, as I have already intimated, the Moorpark variety is an exception. When any individual *Apricot tree* loses its branches to such an extent as to lead to the supposition that a wound exists, beyond recovery, at the apex of the original stock, it will be far better to uproot it at once, and to plant a new tree in its place. The new tree will probably reoccupy the space in little, if any longer time than it would have taken the old one to die out in. Hence the advantage of planting at once is beyond dispute.

KITCHEN GARDEN.

Sow a pan or so of Early London, or Asiatic *Cauliflowers* to succeed the winter-standing seedlings. Transplant Cabbages into beds, or quarters which may have been prepared for them during the winter, and for which there was no space in the autumn. A row of *Spinach* should also be sown about the middle of the ensuing week. It is very probable that Lee's Giant Orach will make a useful variety for this and similar early work, and for which I am about to try it rather extensively. Earth-up the successional sowing of *Broad Beans*, so soon as they show well through the ground. An error inadvertently appeared under this head last week in regard to the removal of protecting materials from Celery ridges, &c., when a thaw succeeds a frost. For "*to place* protecting materials upon, &c.," read "*to remove*," and attach thereto the full meaning of the advice immediately following. *W. E.*

TOWN GARDENING.

I HAVE found the present month to be the best time for sowing Grass plots; and as there are greater difficulties to overcome in towns than there are in the country, where a mixture of prepared lawn Grass and rolling and mowing is all that is required to make a good lawn, some knowledge is required, not only in preparing the ground, but also in the selection of the seed; for if the usual description of seed is sown, not one plant in ten will stand the summer in towns, much less the winter, consequently the lawn will be very patchy. The following well-known old varieties I can recommend, for after all others have failed I have tried these, and they have succeeded tolerably well:—Poa trivialis, or roughish Meadow-grass, Perennial Rye-grass, and a little white Dutch Clover. The Meadow-grass I believe to be the best of all Grasses for towns, shooting early in the spring, and when the weather becomes warm it grows faster, and produces a greater crop of bottom leaves than most others. The Rye-grass is strong and early, and will protect the others a great deal from drought and friction of the feet and scythe. I prefer sowing to laying of turf, for this reason, the turf seldom stands a winter in town: it is generally composed of those Grasses that will not bear the smoke. I like to sow as early in the month as possible. The ground being previously dug, all large stones and rubbish taken out, and properly levelled, the seed should be sown rather thickly, so that when the sparrows have had their share, it may come up close. Tread it well in, rake it over, and well roll it to bury the seed. It is also best to sow on a fine day inclining to rain. The Poa annua, or Annual Meadow-grass, which is common to all quarters of the globe, and makes itself at home where nothing else will grow, is admirably suited for growing under trees, and, if the weather is not very severe, will keep green all the season. This, with a mixture of Rye-grass, is the best for confined localities and under trees. Where there is room, a grass verge makes the best edging for borders. This should be made a foot wide, and sown with Poa trivialis and Perennial Rye-grass, when it can be easily mown and kept neat. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending Feb. 3, 1869, as observed at the Horticultural Garden.

January and February	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth. 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs. 28	○	29.271	29.008	55	42	48.5	43	40	S.W.	.52
Friday 29	17	29.133	28.955	52	38	45 0	46	41	S.W.	.28
Satur. 30	18	29.441	29.010	55	40	47.5	45	42	S.W.	.12
Sunday 31	19	29.230	29.137	56	50	53.0	47	44	S.W.	.06
Mond. 1	20	29.143	28.894	54	40	47.0	49	45	S.W.	.16
Tuesd. 2	21	29.821	29 481	49	26	37.5	48	45	N.W.	.00
Wed. 3	☾	29.864	29.670	55	45	50.0	46	45	S.W.	.10
Average.		29.415	29.165	53.7	40.1	46.9	46 3	43.1		1.32

Jan. 28—Cloudy; very fine, and mild; rain at night.
— 29—Densely overcast; boisterous, with rain; heavy rain.
— 30—Heavy rain; stormy and boisterous; showery.
— 31—Boisterous, with rain; very boisterous; rain.
Feb. 1—Very boisterous; stormy and boisterous, with rain.
— 2—Overcast; fine; cloudy, very fine; clear and frosty.
— 3—Heavy rain; stormy; densely overcast.

Mean temperature of the week, 8 7-10 deg. above the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 43 years, for the ensuing Week, ending Feb 13, 1869.

February.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday.. 7	46.9	33.0	39.9	24	0.29 in.	2	4	4	1	6	14	8	4
Mon. .. 8	45.6	32.0	38.8	22	0.67	2	6	4	2	5	14	7	4
Tues. .. 9	45 3	31.6	38.4	17	0.18	1	7	4	2	3	16	5	6
Wed. ..10	44.9	30.1	37.5	16	0.52	7	8	3	2	6	11	3	3
Thurs. ..11	44.5	29.8	37.2	19	0.50	9	7	2	—	5	11	3	5
Friday ..12	44.9	29.6	37.2	16	0.26	5	8	1	—	4	12	10	3
Satur. ..13	44.3	29.6	36.9	14	0.37	3	5	6	2	5	12	8	2

The highest temperature during the above period occurred on the 10th, 1831—therm. 65 deg.; and the lowest on the 13th, 1855—therm. at zero.

Notices to Correspondents.

AUCUBA BERRIES: *W C.* They may be sown any time after they become ripe. The best plan is to allow them to remain on the plants till the majority fall off, then to gather the rest and sow in pots, pans, or boxes, in loamy soil, and place them in a cold frame, where they must be kept regularly watered. They will germinate in the autumn and following spring.

FERNS: *J. S.* If you will send a stamped envelope with your address we will go out of our usual course to answer your inquiry privately. We cannot inflict a list of 53 habitats on our readers.

FUCHSIAS: *E. G.* Wash the seeds out clean as soon as the berries are ripe, which will be in autumn; and then sow at once in free, light soil, and keep the pots in a warm propagating pit, keeping the pots near the glass as soon as germination takes place. The seeds are often imperfect, which may account for your want of success.

GARDENERS' EXAMINATIONS: *Norfolk.* Apply to James Richards, Esq., Royal Horticultural Society, South Kensington, who will furnish you with the required information

HOT WATER: *J A.* What is the object of your inquiry? Is it to know whether the water will circulate as proposed? So far as we understand your sketch we do not think the arrangement a good one, for C, being open, the water could not rise above its level without running over, therefore the pipe continued above C is useless. If D is simply a feed cistern, why place it so high? it would be more convenient on a level with C, as then it would afford some guide to prevent overfilling, whereas now, if filled up, of course the water would run over at C. If D is to afford a supply of cold to mix with the hot water in C, it would be better simply to connect C and D, letting the cold water in by a tap than to connect D with the return pipe, which would not serve the purpose. As a simple problem of circulation, D with its connecting pipe, and all above C, are useless, as C itself would serve both as an expansion and a supply cistern. Again, B cannot be put above C, or the water will flow over at C. It would, probably, be best on a level with C, having lateral communication therewith; but, after all, some one on the spot might advise you better.

IVY: *Sub.* Get the best plants of Irish Ivy you can procure from your nurseryman, and plant them tolerably thick, according to their size, training the stems over the surface of the wall, and if in good well-manured soil, they will soon cover it effectually.

METEOROLOGICAL OBSERVATIONS: *Henry Munro.* The temperature and rain are taken at 8 A.M., and put down to the day previous. The barometrical observations are put down to the day on which they are taken.

NAMES OF PLANTS: *Mrs. Levett.* Pteris cretata, not an uncommon species.

PRIMULAS.—*Mr. Bristowe* sends us samples of an excellent strain of Chinese Primroses, the blooms of which are moderately large, richly-coloured, and remarkably full and frilled at the edge.

PROTECTING FRUIT BLOSSOM: *Amateur.* Hang a little tiffany over the tops of the trees on frosty evenings; this material may be procured from any seedsman.

SCOTT'S WASP DESTROYING MIXTURE. Those who have wares to dispose of should advertise them.

THYME: *J T.* The new Thyme being, as you say, dwarfer with better foliage (and this your specimens bear out), is by so much superior to the old variety, as you get more in less space. The aromatic quality seems about equal.

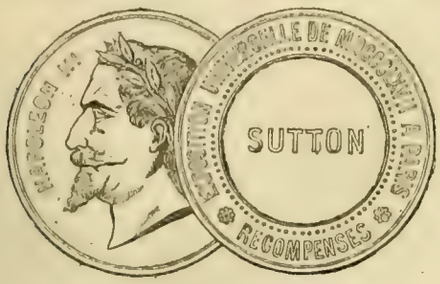
COMMUNICATIONS RECEIVED.—T. J.—Sub.—R. R.—H. M.—D.—E. S.—W. F. S.—P. M.—J. C. H.—J. E.—J. S.—G. B.—H. W.—W. E.—J. C. E.—R. J. W.—H. T.—W. T.—W. H. R.—A. S.—W. T.—Una.

SUTTONS' GRASS SEEDS

FOR ALL SOILS,

CARRIAGE FREE.

A SILVER MEDAL for EXCELLENCE of QUALITY,



PARIS, 1867.

SUTTONS'

MIXTURES of PERMANENT PASTURE GRASS and CLOVER SEEDS,

Producing abundant Crops of Hay and superior Pasturage, for the following descriptions of Soils :—

1. STIFF CLAY SOILS, to be met with in the London, Kimmeridge, Oxford, and Lias Clays.
SUTTONS' BEST MIXTURES for these Soils, 28*s.* to 32*s.* per acre.
SUTTONS' GOOD MIXTURES for these Soils, 20*s.* to 26*s.* per acre.
Carriage free.

2. HEAVY LOAMS, of the same Formations, when they have been subjected to surface admixtures and cultivation.
SUTTONS' BEST MIXTURES for these Soils, 28*s.* to 32*s.* per acre.
SUTTONS' GOOD MIXTURES for these Soils, 20*s.* to 26*s.* per acre.
Carriage free.

3. GOOD MEDIUM LOAMS, on the Marls of the Old and New Red Sandstone, the Gault, and the Greensands.
SUTTONS' BEST MIXTURES for these Soils, 28*s.* to 32*s.* per acre.
SUTTONS' GOOD MIXTURES for these Soils, 20*s.* to 26*s.* per acre.
Carriage free.

4. LIGHT SANDY SOILS, on New Red Sandstone, Sands of the Inferior Oolite, Soils visited by Sand Drifts, as at Cheltenham and Gloucester; also those covering up the Stiff Lias and the Tertiary Sands of the Dorset Heaths.
SUTTONS' BEST MIXTURES for these Soils, 28*s.* to 32*s.* per acre.
SUTTONS' GOOD MIXTURES for these Soils, 20*s.* to 26*s.* per acre
Carriage free.

5. SHARP GRAVELLY SOILS, such as the Flint Gravel Drift which overspreads so much of the Southern and Western part of England.
SUTTONS' BEST MIXTURES for these Soils, 28*s.* to 32*s.* per acre.
SUTTONS' GOOD MIXTURES for these Soils, 20*s.* to 26*s.* per acre.
Carriage free.

6. CHALKY SOILS, as the Mountain Limestone, the Oolite, and the Chalks Proper, where not too elevated.
SUTTONS' BEST MIXTURES for these Soils, 28*s.* to 32*s.* per acre.
SUTTONS' GOOD MIXTURES for these Soils, 20*s.* to 26*s.* per acre.
Carriage free.

7. SHEEP DOWNS.—The Elevated and more Exposed parts of the Oolite, such as the Wolds of Gloucestershire, the Cotswold Hills, and the Plains of Wiltshire.
SUTTONS' BEST MIXTURES for the above, 28*s.* to 32*s.* per acre.
SUTTONS' GOOD MIXTURES for the above, 20*s.* to 26*s.* per acre.
Carriage free.

8. WATER MEADOWS, and all Land under Irrigation.
SUTTONS' BEST MIXTURES for the above, 28*s.* to 32*s.* per acre.
SUTTONS' GOOD MIXTURES for the above, 20*s.* per acre.
Carriage free.

SUTTONS' "CRYSTAL PALACE" MIXTURE, for Park Grounds, as supplied to the Crystal Palace Company, to produce a beautiful evergreen sward, 18*s.* per bushel. Sow 2½ bushels per acre.

SUTTONS' MIXTURES of GRASS and CLOVER SEEDS for

1-year's Lay, best quality, 13*s.* 6*d.* per acre.
2-years' Lay ,, 17*s.* 6*d.* per acre.
3 or 4-years' Lay ,, 22*s.* to 24*s.* per acre.

Second qualities cheaper.

SUTTONS' RENOVATING MIXTURE for the above Soils should be sown early in the spring to produce a great increase in the quantity and quality of Grass. Sow 6 to 12 lb. per acre. Price 9*d.* per lb.

Special Contracts made for large quantities.

Five per cent. allowed for cash payments.

SUTTON AND SONS,
SEEDSMEN TO THE QUEEN, READING, BERKS.

The advantages of procuring Seeds direct from the Growers cannot be over-estimated.

James Carter & Co.
Seed Growers

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SEED FARMS:
EAST HOUSE FARM, DEDHAM, ESSEX;
THE SEED FARM, ST. OSYTH, ESSEX;
JUPES HILL FARM, DEDHAM, ESSEX;
GOD'S HOUSE FARM, ARDLEIGH, ESSEX.

CARTER'S GRASS SEEDS,

CAREFULLY ARRANGED TO SUIT THE VARIOUS CONDITIONS OF SOILS.

The following Table gives the sorts and proportions of Grasses and Clovers comprising Messrs. CARTER'S Mixtures for the various soils :—

FOR HEAVY SOILS.	No. 1 Fertile Clays.	No. 2 Poor Clays.	No. 3 High Lying Clay Soils.
	lbs.	lbs.	lbs.
SWEET VERNAL	1	1	1
MEADOW FOXTAIL	2½	2	2
LARGE OAT GRASS	..	1	2
CRESTED DOGSTAIL	..	2	3
COCKSFOOT	4	3	3
HARD FESCUE	2	3	3
VARIOUS-LEAVED FESCUE	2	2	3
TALL FESCUE	2	2	2
DARNEL-LEAVED FESCUE	2½	2½	1
MEADOW FESCUE	3	3	2
Best imported Italian RYE-GRASS	4	4	..
Pacey's Perennial RYE-GRASS	4	4	8
TIMOTHY	3½	2½	2
WOOD MEADOW GRASS	3	3	4
Rough-stalked MEADOW GRASS	..	2	3
PERENNIAL RED CLOVER	4½	6	3
PERENNIAL WHITE CLOVER	4	4	4
ALSIKE CLOVER	1	..	1
YELLOW TREFOIL CLOVER	2	3	4

Per Imperial Acre, best quality, 27*s.* to 32*s.*
Second Quality, 26*s.*

TESTIMONIAL *from* The Right Hon. Lady CARBERY, *Castle Freke, Clonakilty, Feb.* 1, 1869.
"Lady Carbery wishes to tell Messrs. CARTER that nothing can be better than the Meadow Land laid down with their Grass and Clover Seeds last season."

CARTER'S GRASS SEEDS FOR MEDIUM SOILS.	No. 4 Alluvial Soils.	No. 5 Limestone or Calcareous Soils.	No. 6 Loams derived from Old or New Red Sandstone.
	lbs.	lbs.	lbs.
SWEET VERNAL	1	1	1
MEADOW FOXTAIL	3	2½	2
LARGE OAT GRASS	..	2½	..
GOLDEN BRISTLE GRASS	..	2	..
COCKSFOOT	4½	3	4½
HARD FESCUE	2	2	2
SHEEP'S FESCUE	2	3	2
DARNEL-LEAVED FESCUE	1	1	1
MEADOW FESCUE	2	..	1
Best imported Italian RYE-GRASS	9	8	9
Pacey's Perennial RYE-GRASS	6	7	4
TIMOTHY	4½	2½	3½
WOOD MEADOW GRASS	1	2	1
Rough-stalked MEADOW GRASS	1	2	..
PERENNIAL RED CLOVER	6	5	4
PERENNIAL WHITE CLOVER	3	4	4
ALSIKE CLOVER	1	..	1
TREFOIL CLOVER	2	3	3

Per Imperial Acre, finest quality, 24*s.* to 32*s.*
Second Quality, 26*s.*

TESTIMONIAL *from* H. BLISSET, Esq., *Letton Court, Hereford.*
"Please send me 37 Acres Grass Seeds as last year. *I am glad to say that what you then sent has done well.*"

CARTER'S GRASS SEEDS FOR LIGHT SOILS.	No. 7 Light Chalk Soils.	No. 8 Brashy Limestone Soils.	No. 9 Sandy Soils.
	lbs.	lbs.	lbs.
SWEET VERNAL	1	1	1
MEADOW FOXTAIL	2	2	2
GOLDEN BRISTLE GRASS	2	2½	..
COCKSFOOT	2	2	..
HARD FESCUE	1	1	1
VARIOUS-LEAVED FESCUE	1	..	1
REDDISH FESCUE	1	1	1
SHEEP'S FESCUE	3	3	3
Best imported Italian RYE-GRASS	4	4	4
Pacey's Perennial RYE-GRASS	4	4	4
WOOD MEADOW GRASS	1	1	..
SANDY LYME GRASS	..	..	2
CRESTED DOGSTAIL	2	2	3
YARROW	½	½	1
YELLOW TREFOIL	3	4	5
PERENNIAL RED CLOVER	6	4	4
PERENNIAL WHITE CLOVER	2	3	2
ALSIKE CLOVER	1	1	1
BURNET	..	..	3
SAINFOIN	8	8	8

Per Imperial Acre, finest quality, 27*s.* to 32*s.*
Second Quality, 26*s.*

TESTIMONIAL *from* J. BROMWICH, Esq., *Rugby.*
"The Grass Seeds I had from you were very good indeed. A more beautiful crop could not be found."

CARTER'S PRIZE MEDAL LAWN GRASS,

As supplied for the grounds of the late Paris Exhibition, will speedily produce a carpet-like turf of the finest quality.

1*s.* per lb.; 20*s.* per bushel (sow 3 bushels per acre).

JAMES CARTER AND CO.,
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To Landowners, whether Tenants in Fee or for Life, Estate Agents, the Clergy, &c.

THE LANDS IMPROVEMENT COMPANY (Incorporated by Special Act of Parliament in 1853), advance Money, unlimited in amount, for all purposes of Agricultural Improvement—the whole outlay and expenses being liquidated by a rentcharge over 25 years.
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The NEXT SESSION commences FEBRUARY 8. For Forms of Admission apply to the Principal.



ROYAL AGRICULTURAL SOCIETY of ENGLAND.

AGRICULTURAL EDUCATION.

The EXAMINATION of CANDIDATES for the SOCIETY'S EDUCATIONAL PRIZES will take place in the week commencing MONDAY, April 12, 1869. Copies of the Form, required to be sent in by March 18, may be obtained on application to

H. M. JENKINS, Secretary.

12, Hanover Square, London, W.



ROYAL AGRICULTURAL SOCIETY of ENGLAND.

MANCHESTER MEETING, 1869.

STOCK and IMPLEMENT PRIZE SHEETS are Now Ready, and will be forwarded on application to

H. M. JENKINS, Secretary.

12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, FEBRUARY 6, 1869.

MEETINGS FOR THE ENSUING WEEK.

FEB. 8—Cirencester: at the Ram Hotel (County Financial Boards).
— 10—County of Devon: at the Town Hall, Newton Abbot (the Chemistry of Agriculture).
— 13—Staffordshire: at Swan Hotel, Stafford, 12 o'clock (Employment of Young Persons and Women in Agriculture).
— North Riding: at Malton.

ONE word more upon THE SEWAGE QUESTION. The *Mark Lane Express* laughs at our last week's "transformation scene:" and, to tell the truth, its satire is as clever as can be. The "characteristic aroma," in particular, is what it cannot stand. But the transformation here, though the most striking feature in the picture, is not at all a distinctive characteristic of "the sewage question." One is taken by the nose in the best farmyards; and never more offensively than in the market gardens around London, which have yet to learn their sewage lesson. Heaps of rotten grains and putrid distillery wash, of offal cabbage leaves, and filthy garbage of all sorts, give out the most awful stench that ever fouled the air; and you perpetually come across a whiff of something of this kind amid the Barking Cabbage gardens. But at length the stuff is spread about and covered by the plough; and the Onion seed or Kidney Beans are sown, and the Cabbages are pricked out; and the rains fall, preparing food for them, and distributing it throughout the soil; and the very same extraordinary transformation then takes place, which, when enacted in the case of sewage, tickles our contemporary. What, indeed, is agriculture throughout but a transformation scene, most wonderful and beautiful. That which, in sewage, especially justifies the epithet, is the rapidity, the immediateness of the process. The manure is poured on one week, next week the Grass is cut, and on the following day the milk is carried up to town. The changes which in ordinary farming take place during a rotation, or require at least a year, are in sewage farming crowded into a month or week; and we defy any one, even the writer in the *Mark Lane Express*, to look on without astonishment at the quickness

of the agricultural transformations on a well-managed sewage farm.

How did it use to be?—There is many a district where, within living memory, agriculture owed almost as little to artificial aid as the uninclosed moorland alongside it did. The plough, indeed, turned up the soil once in a term of years, and a crop of Oats was taken; but thereafter it was left to unassisted Nature. "Natural Grasses," including Thistles, Coltsfoot, Crowfoot, Couch-grass, Docks, and every perennial weed the farmer knows, yielded what they would for years to the starvelings grazed upon the stubble—drawing, no doubt, somewhat from the subsoil and somewhat from the air, and thus at length replenishing the surface soil after a fashion, until there was stuff enough to make a decent coat of ashes; and this, with whatever rotten straw, road scrapings, &c., had been gathered into a heap, was ploughed under, and another crop of Oats achieved.—The step from this, through Clover for a year or two, and a Turnip crop after the second crop of corn, was a very great one; but even here the manuring came once only in the rotation. By-and-by the artificial-manure manufacture enabled the farmer to put his farmyard-dung almost wholly on the Clover, and to get his Turnips by the aid of superphosphate, so that the land received a dressing every other year. The dung-cart went and the harvest cart returned, but the interval was still so great that there was nothing startling in the contrast.—At length an Agricultural Commissioner, quoting Mr. HUDSON, of Castle Acre, published through the *Times*—"It is the custom on this farm to manure for every crop;" and the practice spread; and this of course was a great stride onward. But even so, it is nothing to the practice of the sewage farm, where 300 or 500 tons per acre are put on after every cutting of the Grass; and, ready made, and self applied, and spreading in and out among the hungry roots, the food of plants, which sewage holds dissolved, is sucked up the very day and hour of its arrival, shows itself almost immediately in rapid growth, and in a week or two may be seen converted into the purest and completest human food. This, we repeat, is a true transformation scene—so much so, that we are certain a well-managed sewage farm, during the season of growth, will give its agricultural visitor as truly new a sensation as a child receives at its first pantomime.

The Lodge Farm, in the hands of the Sewage Company, is, we are told, fast becoming a bore in agricultural journals. It is, nevertheless, we confidently believe, at this moment, for the light it throws on a most important social and agricultural problem, the best worth seeing of all the farms within her Majesty's dominions. And our contemporary, instead of laughing at the statements which are made about it, would have done better to send some one down in whom its readers might have confidence to see whether these stories are not true. Moreover, in the interests of agriculture, which it professes to serve, we submit that it should have quoted our figures as well as laughed at our rhetoric. Why was the history of all those autumn crops, sold for 10*l.* to 20*l.* an acre, so carefully excluded from its record, when the very point to which its argument was directed lay in the question—Will it pay?

The fact no doubt is, that the temptation to make a thousand readers laugh was too great for it; and so an hour's enjoyment has been purchased by its witticisms, at the cost of confirming all those prejudices and that *vis inertiæ* by which alone the solution of the sewage problem is now delayed; and a column of good writing has been wasted in a clever exposition of the old rule, "How not to do it."

But what is the alternative? Surely a leading organ of the agricultural world is not content to let the whole refuse of 3,000,000 well-fed animals run to utter waste! To whomsoever the statement should be properly addressed, we do not hesitate to say once more, that to do this is immense stupidity. The maxim, "Let well alone," however safe and often wise, does not apply. It may have been "well," agriculturally, in the old days of the privy and the cesspool, when immense quantities of fertilising matter now washed into the Thames were carted to the land. But "well," if so it could be called, was not let alone; and it is impossible for any agriculturist to defend the enormous loss which now takes place.

Meanwhile we would rather be of those who are seeking anxiously for the remedy, which one day must be found—or even bear the laugh which over-sanguine enthusiasm sometimes excites—than copy the example of the writer in the *Mark Lane Express*, who sits giggling while both land and city suffer.

—— AT Mark Lane, on Monday, another effort was made to lower the price of Wheat, and buyers were the more successful. Since Monday the trade has been without alteration. —— The stock and meat markets now begin to show the effect of the sacrifices made in the form of thin animals, to which we have frequently alluded during the last six months. Oxen of good quality are now quoted at 5*s.* 6*d.* per 8 lb., and sheep ditto at from 5*s.* 8*d.* to 6*s.* per 8 lb.——The wet weather has kept the spring seed trade in an inanimate state, at previous high rates.

—— Pauperism and Poor-rates was the subject discussed on Monday last before the London Farmers' Club. An abstract of the paper read by Mr. TRASK will be found on another page. It was not long, and the points which seemed to have had more particular attention given to them were effects rather than causes. The discussion which followed was taken part in by several members. The Rev. W. CONGREVE took up emigration, education, legislation, against drunkenness, waste lands, &c., through all the "crotchets," as he termed them, which are urged by individual members of society. Mr. EVE argued that a National Rate would be attended with no good. In London it might do, but if it were extended to the whole country it would be attended with national waste. The system of giving relief cannot be better administered than by the guardians. Mr SMITHIES said industrial teaching should be extended. In his union, tailoring and shoemaking are taught to boys, and cooking and sewing to girls. The result is, that boys and girls over 14 years of age are in demand, and readily go off the hands of the guardians. Mr. CORBETT, a Poor-law Board Inspector for the metropolitan districts and home counties, said the schools ought to be separated from the workhouse, and the children kept from their mothers, who, as paupers, are the worst enemies to them. Mr. CROSSKILL said before we can expect the Government to take steps on this important subject it must be backed by public opinion. Mr. READ has expressed the same view from the chair many times. In proportion to the increase of population, there is a large increase of pauperism. To say that Trades' Unions increased pauperism is an over-statement; very little can be attributed to Trades' Unions as regards pauperism. He advocated sick-clubs, so that the men could support themselves in illness, and save themselves from pauperism. He condemned indiscriminate charity: in his own town there were many "gifts;" the proceeds were doled out once a-year, and the recipients got drunk with the money. Mr. CHARLES HOWARD said Mr. CROSSKILL knew nothing about it; but he lived in hopes of catching a little more of the profits of such townsmen as he before long. Mr. THORNHILL, of Oxfordshire, was of opinion that the Law of Settlement and the Removeability question ought both to be altered. The vagrant ought to be admitted to the workhouse on condition that he stops not less than 14 days. He might then take his wages of labour in clothes or money and go. If he stopped another 14 days he would become a resident pauper, and might be dealt with by the board of guardians, as might be expedient. A man with a "ticket-of-way,"—that is, an honest man in search of work—would have his food given him, and be passed on. Mr. READ, Mr. CADDLE, Mr. SAM SIDNEY, the Chairman, and other members having addressed the Club, the proceedings terminated in the usual manner.

—— It is proposed shortly to hold a public meeting, including landowners, labour-paying authorities, and philanthropists, probably under the auspices of the Society of Arts, to consider the question of establishing a Society for the Improvement of the Condition of the Agricultural Labourer by the promotion of the following objects:—(1.) The raising of the wages of farm labourers, where excessively low, by the removal at proper seasons of surplus labour from over-populated districts, to places where it is in greater demand. (2.) To encourage the more extensive building and improvement of cottages in accordance with the demands of health, decency, and comfort. (3.) The elementary and technical education of the children of agricultural labourers. (4.) The more extensive adoption of the system of allotment of garden grounds; and the protection of the rights of agricultural labourers under the Inclosure Act. (5.) The prosecution of sanitary reforms in villages, small communities, and dwellings of agricultural labourers. (6.) The separation of labourers' provident societies from public houses, and their establishment on safe and economical principles, and under proper management, so as to secure to those able and willing to save some means of support in times of sickness and disablement from work. (7.) The discontinuance of statute fair hiring.——There are also the questions of co-operative farming, tried by Mr. GURDON'S Assington Co-operative Agricultural Society; labourer's co-operative stores and breweries, adopted with success in some localities; the limitation of children's and women's labour, the truck system, &c.; but about some of which questions there may be too much difference of opinion existing to render their adoption desirable by a society wishing to secure general support.

—— The Central Chamber of Agriculture held its first Council meeting for the year 1869 on Tuesday last, when there were present ten M.P.'s, viz., Mr. C. S. Read, Lord George Hamilton, Sir Massey Lopes, the Hon. T. Cadogan, Mr. A. Pell, Mr. J. W. Knight, Mr. James Howard, Mr. W. W. Beach, Mr. Wheelhouse, and Mr. S. W. Clowes. Several members of provincial Chambers were also present. The original resolutions, which were adopted for discussion on the 2d of February by the Council at the annual meeting in December last, were based on the motion, made by Mr. H. GENGE ANDREWS, "to consider the proposal for a national poor-rate." To these resolutions notice had been given of amendments, one apparently from an independent member of the Chamber, and the other by a member in the confidence of the Council. As a variety of strictures had, however, been made on this avowed division in the Council, as well as among the outside members, a compromise was come to late on Monday evening, and as the members of the Central Chamber and the deputed members from provincial Chambers assembled on Tuesday morning, a copy of the single resolution referred to, divested of amendments, was distributed. This resolution was as follows:—

"That the Income-tax affords an economical means of raising from all income a contribution to the poor-rate, which may be placed to a separate account in the national exchequer to the credit of the Poor-law Commissioners. That this resolution is without prejudice to any better mode of removing that unjust incidence of the poor-rate which was affirmed by resolutions of the Council on May 3, 1868, but suggests a means of redress worthy of careful examination, should her MAJESTY be graciously pleased to grant the Royal Commission of Inquiry for which Sir MASSEY LOPES has given notice of motion."

This was proposed, according to agreement at the last annual meeting, by Mr. ANDREWS, of Somersetshire, and it was seconded by Mr. DUCKHAM, of Herefordshire. Mr. ANDREWS traced the history of the poor-rates from their beginning in the reign of Queen ELIZABETH, and he pointed out, as he went on, how the increased charges upon real property had continued down to this day, and that they were now increasing more rapidly than ever. The Union Chargeability Bill had recently been passed, and from the good effect which was resulting from it he (Mr. ANDREWS) did not see why the principle involved in this Bill should not be carried out to the end. He proposed something more than that, viz., to make the property assessed to the Income-tax the basis of collecting the charges required for supporting the poor. He did not see why three sums of 100*l.* each which came to him from different sources—viz., one from land, one from the funds, and one from profits on business, should not at least be all liable to a charge for the poor of the nation. As to centralisation, he maintained that the Poor-law Board already controls all the boards of guardians. But he would not supersede the existing bodies. In the chairmen and vice-chairmen of boards of guardians they had men of education and property, and it was well known that the chief administration of relief is governed by those ex-officio guardians and the town guardians, because they are on the spot, and attend more regularly than the more distant guardians. On the larger question the Act of ELIZABETH rendered every man liable according to his ability, and they must be wrong so long as 200,000,000*l.* of income which is as good as any other remains unassessed. After some other remarks, which had a pleasant plausibility about them, Mr. ANDREWS moved the resolution.—Mr. DUCKHAM, in seconding it, said that during the past 30 years the population of England had increased 48 per cent., while the poor-rates had increased 70 per cent. The country had augmented its wealth so largely as to arouse the jealousy of the civilised world, and it did seem strange that poverty should have advanced in so large a proportion. When they looked round the country they would see that the value of land had deteriorated in value 30 or 40 per cent. from the preservation of game, and other causes. And seeing that land is simply rated at what it will let, subject to the amount of damage done, a greatly increased burden is thrown upon the surrounding district. He thought, therefore, that the whole subject of the area and the levying of rates ought to be revised.—Mr. SMITHIES (Herefordshire) warned the tenant-farmers against entertaining any expectation of benefit from the proposed change. It might relieve them for a year or two, but after that time the rates, which now come upon real property, would fall on their stock. Sir GEORGE JENKINSON traced the rise in amount of the poor-rate, and thought the Legislature ought to consider whether, while the property liable to the rate is not increased and never can be increased, the expenditure charged to the ratepayer is not more than he ought to be called upon to bear. The question they had to consider was, how could the area be enlarged so as to include all the property of the nation. A man like Mr. CRAWSHAY, who died with 800,000*l.* in the funds, must have had a proportionate interest in the poor-rates, county-rates, and the repression of crime. It seemed hard, he thought, that the ratepayers of a district had to support men discharged from employment in large works near them. Mr. RANDALL, a Lincolnshire land-agent, reviewed the arguments of previous speakers. He said, under no circumstances ought local management to be superseded, but he thought the whole national rate might be paid to the Poor-law Board, and the county Boards might draw from that the sums required for their purposes. Upon this conclusion he suggested this rider to the resolution:—

"That the unequal pressure of the poor-rate, as at present imposed, is a grievance which renders necessary the early and most serious consideration of Parliament. That, in the opinion of this Chamber, the maintenance of the poor is a national liability, to which income from every source should contribute; that, in the disbursement of a poor-rate levied in accordance with the principle here enunciated, local administration should be recognised and guaranteed."

Captain CRAIGIE, Mr. BEACH, M.P., Mr. PELL, M.P., and several others also addressed the meeting, and the Chairman made a few pertinent remarks, which he concluded by saying,—They would hear a great deal more discussion on this matter yet. In the meantime they should take care that nothing should be added to their rates, whether for election expenses, education rate,

or turnpikes. So long as only one-third part of the kingdom contributes to these rates, they should resist to the death. Mr. ANDREWS, in reply, quoted the evidence of Sir GEORGE LEWIS, to show that that statesman saw no reason why personal property should not be taxed for the relief of the poor. The Chairman then put the resolution with the rider together, and they were affirmed by the meeting. Subsequently the following resolution was proposed by Captain CRAIGIE, of the North Riding Chamber:—

"That a deputation from the Chambers be organised to lay these views before the Premier.

On this Mr. J. MORE suggested that a committee should meet and agree as to what views they intended to advance, remembering that they had to stand before the power of criticism possessed by Mr. GLADSTONE. In support of this view Mr. FISHER, of Northamptonshire, proposed as an amendment: "That the deputation be postponed until further consideration be given to the subject," which, on being seconded by Mr. WILSON, and put to the meeting by the Chairman, was carried by a large majority. The subject of a "Government Department for Agriculture," was then raised by Mr. JASPER MORE, and he moved,—"That a deputation should wait on the President of the Board of Trade to urge the desirability of a separate Government Department for Agriculture." The consideration of this proposal was, however, ultimately postponed.

—— The Australian papers are complaining of the rabbit pest. The folly of the man who introduced the Thistle there has been almost equalled by that of the man who has been at the pains to introduce the rabbit. "The crops of all kinds in this locality," says a correspondent from Daylesford, Melbourne, "are considerably injured by wild rabbits; and, indeed, it is a pest that is spreading over a great portion of the colony, and it would be conferring a far greater boon on the colony for the Government to place a sum on the estimates for the destruction of those rabbits that are already running wild, than to assist the Acclimatisation Society to introduce any more of such pests." It is added by the Editor that the Acclimatisation Society are not responsible for the rabbit nuisance; but the Society have been actively engaged in spreading the hare over the colony, and that will be a nuisance second only in importance to the rabbit.

—— Professor VILLE has found in the volcanic lakes of Tuscany large quantities of sulphate of ammonia which are likely to prove of great commercial and agricultural value. In a communication to the *Journal d'Agriculture Pratique* he says that he devoted the whole of last October to an exploration of the Lakes of Volterra, in Tuscany, worked for 40 years past for the extraction of boracic acid. He tested on the spot the ammonia contained in the water of the lagoons, in the mother-water which remains after crystallisation of the boracic acid, and in the water proceeding from the condensation of the vapours which are disengaged from the natural crevices of the soil, and from the orifice of the artesian borings. He found that when boracic acid was present in abundance sulphate of ammonia was present in small proportion, and *vice versâ*. The sulphate of ammonia and the boracic acid are always found together; but in proportion as the percentage of the one increases, that of the other diminishes. Referring to a particular lake, for a long time neglected, as too poor in boracic acid, he says the working of this lagoon was resumed a few years since, and now, at the opening, it supplied, we may say, only sulphate of ammonia. Count LARDEREL extracted from it, for the Great Exhibition of 1867, double sulphate of ammonia and magnesia. This information is of great agricultural value.

—— In justification of the strong remarks we made last summer on the hue-and-cry that was being raised in Scotland against shepherd's dogs being included in the Dog Licensing system, we quote the following from the *Farmer*:—"A serious case of sheep worrying by dogs occurred on the farm of Strageath, Crieff, some time ago. The sheep belonged to Mr. PETER M'CALLUM, Brae of Monzievaird, and were wintering on the farm aforesaid. Thirteen were killed, and four severely torn and lacerated." If the injury to the whole flock from fright be taken into account, along with the value of the 13 killed, and the four severely torn, it is plain that Mr. M'CALLUM has sustained much damage; and he at least will not object to licenses of 5*s.* each, which should diminish the number of the mongrel brutes to which such cases as the above are usually owing.

OUR LIVE STOCK.

MR. C. LENEY will dispose of his entire herd of Shorthorns, consisting of 40 head, on April 14, Mr. Langridge officiating as auctioneer. A catalogue of this stock is not yet published, but we may state generally that it comprises some excellently bred animals, descended from the herds of Messrs. Hale, Harvey Combe, Tracy, and Betts.

— Mr. Adkins, of Milcote, has purchased, through the agency of Mr. John Thornton, *Nonsuch 5th*, a yearling heifer, recently the property of Mr. Firmstone, who purchased her last June at the Winterfold sale. *Nonsuch 5th* comes of a tribe originally bred by Mr. Robert Colling. The later crosses, for the last five generations, have been of *Duchess*, *Oxford*, and *Princess* blood. The tribe, which is now very scarce, is, so far as females are concerned, entirely in the possession of Mr. Adkins. After the Milcote sale Mr. Adkins searched the country for a heifer of unalloyed pedigree, and found the nearest approach to what he required in *Princess Royal*, bred by, and the property of, Mr. Bulmer, of Middleton St. George, Darlington. This heifer, free alike from Bates and Booth blood, is by EARL OF DERBY (12,810), and from *Princess Alice* 2*d* by BELVILLE (6778). We speak of her on the present occasion because she has just produced a red and white bull calf by GAY LAD (21,800), of promising appearance. She will in due time be served by Mr. Hayward's DUKE OF CLARO.

—— We hear from Farndish that *Miss Banks* has produced a very good red and white bull calf, by 12TH DUKE OF OXFORD. The mother is of Knightley descent, and was bred by Mr. Stanhope, of Revesby Abbey. She was afterwards sold to Mr. Robarts, who parted with her for a small price to Mr. Adcock. At that time it was not thought likely that she would again breed. *Miss Banks* is by DUKE OF BOLTON (12,738), dam *Bouquet*, by GARRICK (11,507), and is 13 years old.

—— We are sorry to announce that on the 27th ult. *Waterloo* 32*d* produced a dead heifer calf to 2D DUKE OF COLLINGHAM. This is a great loss to Mr. Rich; it is, however, satisfactory to learn that the mother will not be injuriously affected.

—— The Duke of Buccleuch's *Passion Flower*, the dam of Royal Errant, dropped a heifer calf to Mr. Barclay's BARON BOOTH on the 9th ult., at Dalkeith Park.

—— THIRD LORD OXFORD (22,200), the property of Mr. C. W. Harvey, of Walton-on-the Hill, has been slaughtered within the last few days. He had just completed his sixth year, and for some time previous to his death was useless for breeding purposes. This bull was bred by Mr. Thorne, of Thorndale, U.S., and was imported into this country by Mr. Harvey; he was by Mr. S. E. Bolden's 2D GRAND DUKE (12,961), a sire whose portrait figures in the 11th volume of the "Herd Book:" he was sold to Mr. Thorne for 1000 gs. His dam was *Oxford 13th* by 3D DUKE OF YORK (10,166), bred by the executors of Mr. Bates, of Kirklevington, and the property of Mr. Thorne. The deceased bull was own brother to Mr. M'Intosh's IMPERIAL OXFORD (18,084), and half brother to the Duke of Devonshire's LORD OXFORD and Mr. Leney's LORD OXFORD 2D.

—— The subject of "breeding in-and-in" has often been discussed, and instances both of good and evil effects resulting from it have been adduced as reasons for and against the practice. Doubtless the existing variety of opinion springs in a great measure from viewing the subject from too general a point of view. That in-and-in breeding may be carried in all cases to too great a length few will deny, but we should remember that the effects of such close alliances vary according to the kind of animal experimented upon, and the stage of refinement or high breeding which the artificial race may have attained under the care of the breeder. If we condemn in-and-in breeding generally, whether in the case of sheep, cattle, pigs, or fowls, we shall most probably find a strong and well-supported opposition to our views. To come to a truthful conclusion each must be considered separately, for while we would not deny that a general law is obeyed by all, we believe that each of the above-named animals is affected in a different degree, and that while in one case close breeding will soon prove injurious, in another it may be carried much further with benefit. In the case of cattle and sheep we see illustrations of the latter effects, and in Shorthorns and Leicesters there is no doubt that this plan of breeding has been rather beneficial than otherwise. Size and constitution may suffer if the system is too rigorously pursued, but with moderation both are preserved, while "quality," fixity of type, and aptitude to fatten, are promoted. In-and-in breeding has produced some of the best of Shorthorns, as, for instance, COMET and many splendid animals boasting descent from FAVOURITE. A well-known writer has recently calculated the amount of FAVOURITE blood in some of his immediate descendants, and has shown that after he had been matched with his own produce to the third generation, the calf thus bred contained "15-16ths, or 93·75 per cent. of the blood of FAVOURITE in her veins. This cow was matched with the bull WELLINGTON, having 62·5 per cent. of FAVOURITE blood in his veins, and produced *Clarissa; Clarissa* was matched with the bull LANCASTER, having 68·75 per cent. of the same blood, and she yielded valuable offspring." Such facts show the extent to which in-and-in breeding may be carried with Shorthorns without apparently injuring the progeny. There is, however, reason to suppose that sterility is in a measure produced; and may not the inferior milking properties observable in many high-bred Shorthorns be a direct effect of the same cause, intimately connected as the secretion of milk must be with the breeding condition of the mother? In the case of sheep, the system of breeding continuously from the same flock without the introduction of blood from extraneous sources, has often been persevered in for many years by eminent breeders. In the case of pigs, we believe the ill effects of close breeding show themselves in partial sterility, malformation, and delicacy, much sooner than in the case of cattle and sheep.

THE AREA OF LAND REQUIRED TO UTILISE SEWAGE.

THE area of land required to utilise the sewage of a town containing so many inhabitants is a question which can only be solved by considering the quality of the sewage, and the nature of the land, climate, and crops grown. No specific rule can be laid down for guidance. Were it farmyard manure, Peruvian guano, or any of the artificial manures now in use, experience could return a ready answer to the question. But so many cartloads of farmyard dung, or so many hundredweights of artificial manure, are facts which leave many things understood by practical farmers, as the quality of the manure, the nature of the soil, &c., such being taken for granted; consequently, were an uninitiated person to adopt such a rule in the manuring of his land, the chances are that disappointment would attend his practice.

But town sewage is of a more diversified quality than even farmyard manure, while experience is yet wanting from which to deduce the most distant approximation to a general rule. No doubt the quantity of sewage applied to the acre at Edinburgh, Barking, and other places might be quoted, but not as a rule of guidance to any other place, for many improvements have to be made by townspeople in the collection and conveyance of sewage, before the question as to the area of land can be satisfactorily solved, so as to supply the necessary data for a standard rule. Until then, the rule, like the question itself, must be considered one of progress; for if towns were to deliver their sewage of twice and thrice the fertilising powers, more and more land would be required to utilise it economically.

Practically considered as a work of progress, the improvement of the quality of the sewage as now supplied by towns is the first step required to be taken, in finding the area of land necessary to utilise it. At present, therefore, the solution of the question lies between two extremes, wide asunder, viz., the waste and storm-diluted sewage now applied to the land, on the one hand, and the application of sewage in its normal state, or as nearly in its normal state as practicable, on the other. It may never be within the reach of the highest advance made to collect and apply all the fertilising properties of normal sewage to the land; for in Flanders, where the nightsoil is carefully collected and removed every day, farmers are familiar with the fact that a very great loss of fertilising matter is sustained, but infinitely little as compared with the sewage systems of this country.

If we assume, for the sake of argument, that town sewage can be collected and applied to the land, as now proposed in this country, with as little loss of fertilising matter as in the more clumsy practice of the Flemish farmer, then, if we divide the inhabitants of a town by five, the quotient may be taken as a distant approximation of the area of land required to utilise the sewage of that town, the land being under arable husbandry, as at the Barking Farm, Essex. Thus, if the inhabitants of a town number 500,000, then 100,000 acres will be required to utilise its sewage. And if we further assume that a five-course shift of cropping is pursued, the sewage being applied two years in succession to Grass, there will be 50,000 acres in each shift, and hence a total of 250,000 acres under sewage farming. If, however, we assume that with greatly improved sewage, one year in Grass is found sufficient to enrich the soil for a four-course shift of cropping, then 400,000 acres would be under sewage farming, and so on, for any other hypothesis that may be assumed. Thus, according to the Flemish practice, sewage may be successfully applied to Potatos when about eight or ten inches aboveground, or just before they are "cantled up." It may also be applied to the land before the Potatos are planted. Mangel may be manured in a similar way, the sewage being applied to the land before the seed is sown, and to the drills after the leaves of the plants rise off the ground, so as to get it to the roots. Any crop, in short, requiring manure may be sewaged, if the sewage can be applied to the roots without touching the leaves, provided always that the sewage is of a quality to suit the peculiar requirements of the crop.

An American authority recommends sewaging Mangel as soon as the young plants appear aboveground. "A sprinkling of liquid manure along the rows, about the time that the plants first appear aboveground, will in general secure an abundance of them; and this may be done with much less trouble than would be imagined by those who have never practised it. It requires only a water-cart, with a large cask, and two leathern hose, kept at a proper distance from each other by a stick between them, so that they may pour the liquid manure over two rows at once. If the field be not above a mile from the tank, a man and horse will water 2 acres in a day; and if the distance is half a mile, 4 acres. The expense will be amply repaid by the crop." (Dr. Gardner's "Farmer's Dictionary:" New York, 1846.)

In the dry climate of the United States, it is generally more difficult to secure a sufficiency of young plants than with us; and if the manure in the tank has been properly fermented and diluted, so as to deprive it of the caustic character it possesses when in a fresh state, it can be then applied to young plants in the above way. And with regard to the construction of the water-cart for watering two drills at a time, Mr. James, of Cheltenham, exhibited one at the summer meeting of the Royal Agricultural Society of England, held at Leicester last year. Carts can be made to water two, four, or six drills at a time as required.

With sewage laid on to the land by means of iron pipes and hydrants, a man with a water-cart and boy to lead the horse, doing two drills at a time, would go over a greater area of land than stated in the American practice. As the cart could be filled by means of a hose in passing the hydrants, the same hydrant and hose could supply two or more carts—the one being in advance of the other—the water-cart never having to leave the drills, save in shifting at the headlands; and when halfway across to a second hydrant, the hose would be screwed on to it. In this manner field after field could be sewaged as fast as the plants required. If we assume that the seed was sown by a machine doing two drills at a time, and that in seeding the horse walked twice as fast as in manuring, or three times as fast when giving a heavy dose of sewage—then the young plants under ordinary circumstances would require in the former case two liquid manure carts, and in the latter three carts. In a wet season the young plants would require the sewage to be less diluted with water than in ordinary ones. And to meet such demands the water-cart would require to

water four or six drills at a time. In extreme years of drought the plants may require a watering of river or pond water, or, if such cannot be supplied, the soluble salts in the sewage may be precipitated, and the comparatively pure water filtered off to supply the wants of the growing crops, the solid matter thus obtained by precipitation being mixed with fresh sewage and applied to stubble land or crops which could receive it. All this can be done as the crops and land require by one and the same arrangement of sewage machinery and apparatus, and therefore at no great expense.

With regard to the proper time for applying the sewage to the land and to growing crops—the four quarters of the compass, viz., south, north, east, and west, would, no doubt, each return a different answer to the question. Few farmers require to be told when their land requires manure. The crops answer that question, and the rule will be found no exception in sewage farming. In spring the sewage may be applied, in any degree of dilution required, to Grass and Wheat, crops by means of the hydraut and hose, the liquid being evenly distributed over the surface by means of a slanting board nearly close to the ground, as in Flanders, the liquid thus falling softly upon the young plants, and about their roots, without earthing up the opening expanding leaf, or closing the pores of the soil so necessary to be kept open at this season. The sewage should flow freely from the hose, and not be discharged in the form of a jet upwards, so as to fall in a heavy shower, as by such means it is wasted, the young plants are injured, the soil is consolidated, much harm being done in these various ways. It may be applied to land before seeding if sufficiently dry to receive it. And the rule may be laid down as a general one, that when the seed is sown there should be a sufficiency of sewage sap in the ground to force up the young plants with vigour, such as Turnips into rough leaf, so as to be out of danger from fly. The small coleopterous insects that play such havoc belowground do not like sewage—ammonia kills them. In exceptionally dry seasons it may not be easy to retain sewage sap in the soil, so that the American practice of watering the young braird may be advisable. After plants are up and beginning to cover the ground they will stand a good dressing of sewage, and if mildew is not wholly averted in Swedes, &c., and aphides in Peas and Beans, the extent of harm in both cases may be greatly reduced. To stubble lands after harvest, including Grass crops, sewage may be applied by the hose in any quantity, so as to place the land in the highest state of fertility required by subsequent crops, and to such ploughed land it may be applied during open weather in winter. But when the sewage is sent to the country as the land requires it, the probability is that much of it will be stored up in tanks during winter, as in Flanders and other places, for spring and summer use, the sewage being turned off from the mains into this farmer's tank to-day, his neighbour's to-morrow, and so on, according to the demand.

The reader must bear in mind that were the sewage sent to the country in its normal state, or as the country requires it, the supply would be short of the demand, so that unless farmers got their tanks filled during winter there would be short allowance, or perhaps none at all, when the spring and summer came with their demands upon the mains. To lose sight of this is to shut the eyes to one of the most important and promising manurial resources of the country. No doubt the supply of towns is increasing with the increase of population, but placed in the balance with the manurial requirements of the soil under improved systems of culture and cropping, it amounts to nothing, comparatively speaking. For, judging from the present state of progress, the increase of population is not keeping pace with the increased demands of the land, due to improved cultivation, manuring, and cropping—hence the practical conclusion.

It will thus be seen that the area of land required to utilise the sewage of towns is influenced by so many causes, that the preceding hypothesis can only be received as a very distant approximation. Had the question been put to the agricultural public in A.D. 1800, How many acres of land will be manured with guano and other artificial fertilisers in the year 1869? there was not at that date one farmer in a hundred who would have ventured to open his mouth in reply. But at the present day the general answer to the question would be, "Tell us the price and quality of the manure with the supply," and everybody's area would be forthcoming. And if the supply is both cheap and good it will be found short of the demand. Will it be otherwise with town sewage? If town sewage proves its values, as guano and bone-manure have proved their value, and if it is brought within reach of farmers, whose lands require it, will they not use it? So long as it is sent to the country so wasted as not to be worth the expense of application, it will be viewed as quack imitation guanos are viewed, and treated accordingly. Good guanos find a ready market, but the bad, if known, are unsaleable. Indeed, such is the difference intrinsically, that intelligent successful farmers would not use the latter were they to receive it gratis, with a premium for its application.

That towns are now beginning to see the force of the old maxim, "A penny saved is two pence gained" in the case of the sewage, is manifesting itself in every province of the kingdom. The Barking farm practice in Essex has thrown a flood of new light upon economy of sewage, and also upon the means of obviating two objections to the old practice—the one relative to the health of towns, and the other to the health of the country. Thus, in the first place, they see if the fertilising properties of the sewage are economised it will find a ready market sooner or later. In the second place they see that the pestilential gases now issuing from sewers—more especially in large towns where the sewage has to flow through miles of sewers in densely populated districts, as in the metropolis—will be preserved in the sewage during its course. And, in the third place, they see that the noxious malaria arising from grass-land to which sewage is continuously applied at all seasons of the year will also be got rid of, the health of the country being thus secured.

These are great advances, and although only dimly shadowed in the Barking practice, the improvements necessary to realise them to their full extent may all be advantageously engrafted upon that practice, and also upon all the other sewage practices now in operation.

Compared with the grass-meadow systems of Edinburgh and other places, the arable husbandry system requires a larger area of land to utilise sewage; but for a given quantity of sewage, the latter returns a greater amount of produce than the former. There is a greater difference between these two systems in the manurial economy of sewage than is generally imagined. It is now a well authenticated fact in agricultural chemistry, that sewage is not a specific manure for the grasses grown by it—the food which it supplies being neither in kind, proportion, nor quantity, suitable to the demand; consequently, there must either be an accumulation going on in the soil or else it must undergo decomposition and be liberated into the atmosphere in a gaseous form, or partly both. The latter is what actually takes place, but the emanation of malarious gases, arising from the process of decomposition, is greater than is generally credited. Hence the prodigal waste of applied sewage under this system, and, what is more against this system, the richer the sewage is in fertilising matter the greater the waste and amount of malaria given off into the atmosphere. On the other hand, when the land is broken up for aëration, and it is cropped by different plants, each plant having some specific difference in its requirements and consumption of food, the manurial elements of the sewage are better utilised. In this respect the greater economy of manure is similar to what takes place under a rotation of crops when the land is manured with farmyard dung. With the economy of this latter practice farmers are familiar, and the principles involved apply with even greater force to sewage farming. And this is not all, for when the land is under aëration, more air is admitted, so that the greater proportion of the oxygen used up in the process of decomposition is obtained from the atmosphere and not from the water of the sewage. In the latter process, hydrogen along with sulphur or carbon (*i. e.*, sulphuretted hydrogen gas or carburetted hydrogen gas) is given off. In the former process nitrogen is given off, while there is strong reasons for believing that much of the nitrogen of the atmosphere thus liberated unites with the hydrogen of the water, sulphur being present, so as to form ammonia. From recent experiments made in this country, and on the Continent, ammonia has been thus made by art, and many scientific practical farmers have long looked to the healthy decomposition of organic matter in the soil, when properly aërated, as a natural source of ammonia, from the liberated hydrogen and nitrogen present. Such being the case, the ammonia thus formed enables the land to utilise a greater proportion of the other elements of the sewage than would otherwise be the case. Adding these differences together, the total in favour of the arable system of sewage husbandry, as compared with the Grass system, is greater than is generally imagined. *W. B.*

AGRICULTURAL STATISTICS.

[We continue the publication of the official tables.]

STATEMENT OF THE POPULATION, AREA, AND ACREAGE UNDER CROPS AND GRASS, IN THE UNITED KINGDOM AND IN VARIOUS FOREIGN COUNTRIES, ACCORDING TO RETURNS FURNISHED BY THE STATISTICAL DEPARTMENTS OF THE RESPECTIVE COUNTRIES.—The Area and Acreage are stated in English Statute Acres.

Description of Crops, &c.	United Kingdom, 1868.			Sweden * (in 1866).	Norway (in 1865).	Denmark Proper (in 1866).	Prussia * (in 1867).	Wurtemberg (in 1867).	Bavaria (in 1863).	Holland (in 1866).	Belgium † (in 1856).	France (in 1867).	Spain * (in 1857).	United States * (in 1867).
	Great Britain.	Ireland.	Total.**											
Population, according to Latest return	24,837,502	5,532,343	30,517,656	4,195,681	1,701,756	1,608,362	23,971,337	1,748,328	4,774,515	3,592,416	4,839,094	37,547,000	15,673,536	31,445,080
Total Area	56,964,000	20,323,000	77,513,000	98,525,000	78,248,000‖	8,562,265	85,663,000	4,814,000‖	18,776,343	8,111,475	7,241,155	132,787,000	126,759,000	1,904,679,040
Total Acreage under Crops and Grass, &c.	29,955,694	15,575,270	45,652,545	10,724,872	613,600	5,637,770	59,515,951	2,831,673	11,049,282	5,795,291¶	4 521,386	..	..	..
Corn Crops:														
Wheat and Spelt	3,652,125	286,700	3,951,018	117,242	12,080	119,845	3,573,253	535,176§	1,041,035	208,655	804,758	17,850,258	7,311,892	12,304,894
Barley or Bere	2,151,324	188,252	2,348,068	476,044	120,124	683,245	2,858,603	230,351	835,456	103,690	110,130	2,765,605	3,182,100	542,175
Oats	2,757,053	1,699,919	4,469,387	1,312,720	252,048	826,140	5,717,205	317,680	1,115,015	232,506	541,347	8,140,848	..	6,894,091
Rye	46,896	7,854	54,827	856,440	24,308	518,320	8,575,808	104,355	1,449,929	501,049	721,492	4,888,263	2,961,863	1,396,123
Beans and Peas	826,134	9,470	836,555	132,248	8,496	83,627	1,071,976	56,729	121,189	113,395	143,964	812,245	..	..
Buckwheat	..	..	..	1,220	..	44,964		102	4,449	168,758	60,517	1,857,864	..	1,057,084
Maize	..	..	..	..	..	..		4,415	..	..	..	1,605,369	1,531,687	18,990,180
Rice	..	..	..	..	..	..	714,651	..	..	..	..	..		..
Mixed Grain	..	..	..	183,000	46,492	104,355		77,452	..	..	102,285	1,332,024	..	..
Other kinds	..	..	..	..	..	..		780	9,615	2,559	..	552,174	..	..
Total under Corn Crops	9,433,532	2,192,785	11,659,855	3,078,914	464,448	2,380,496	22,511,496	1,327,040	4,576,688	1,330,612	2,484,493	39,804,630	14,987,542	41,164,547
Green and Other Crops:—Potatoes	541,543	1,034,853	1,584,213	329,400	63,720	84,800	4,287,904	168,054	644,197	270,102	369,850	3,053,812‡	509,503	964,614
Turnips, Carrots, Mangels, &c.	2,427,448	342,922	2,782,131	24,400	Not ascertained.	6,915	1,241,006	17,497	159,957	45,732	81,947	1,736,938‡ (including green bean and winter fodder).	No return.	No return.
Hops	64,488	..	64,488	..	..	..	..	11,615	..	395	..	..	..	..
Vineyards	..	..	..	..	..	..	..	43,197	..	..	..	5,384,800*	..	..
Tobacco	..	..	..	..	..	..	..	385	..	4,679	..	..	..	236,363
Flax	17,543	206,446	223,997	38,186	..	..	Included with oilseeds.	17,634	..	53,907	..	..	..	..
Hemp	..	..	..					18,919	..	3,564	..	..	..	..
Sugar Beet	..	..	..	..	..	..	188,205	40,834	..	12,547	..	271,700*	..	..
Rape and other Oil Seeds	..	..	..	..	..	..	1,403,156	27,832	..	89,942	..	..	..	..
Bare Fallow	958,221	24,017	984,246	884,500	Not ascertained.	440,452	7,848,727	246,279	1,165,050	55,208	159,112	12,869,655‡	..	..
Grass, &c., under Rotation	3,960,668	1,691,797	5,690,318	1,476,322		829,836	6,100,676	230,277	718,695	350,420	396,787	6,931,650‡	..	..
Permanent Pasture	12,136,696	10,662,918	22,164,584	4,880,000		2,337,859	15,952,313	658,728	3,578,847	2,998,353	771,870	16,365,482‡	20,689,050	16,323,852 (for hay).

* Estimate Returns. † The results of the Return taken in 1866 have not yet been published. ‡ In the year 1862.
§ Chiefly Spelt. ‖ Including lakes and rivers. ¶ Including 569,000 of forest. ** Including Isle of Man and Channel Islands.

NOTE.—For Russia, Switzerland, and Italy:—
For Russia there are no Returns of Acreage under Crops, &c.
For Switzerland there are no Returns of the Acreage under each kind of Crop. In 1855, the aggregate Acreage under Corn and Green Crops was 1,435,565 acres; and 3,527,451 acres under grass, meadows, and pasture.

For Italy there are no Returns of the Acreage under each description of Crop. The total area under cultivation is thus divided:—Arable Land (including Vineyards) 27,507,650 English acres; Natural and Artificial Meadows, 2,933,590 acres; Permanent Pastures, 13,493,620 acres; Rice-fields, 362,257 acres; Olive Gardens, 1,386,917 acres; and Chestnut Plantations, 1,462,830 acres.

THE HEREFORD BREED OF CATTLE.

[A paper by Mr. Duckham, of Baysham Court, near Ross, Herefordshire, lately read before the Hereford Chamber of Agriculture, is so full an account of the Hereford breed, and of the meat-making business generally, that we extract the substance of it here.]

The dietary habits of a rapidly-increasing and prosperous population daily extend the demand for meat on the one hand, whilst on the other hand the meat-producing area is annually reduced by the construction of railways, opening of mines, establishment of manufactories, and the extension of cities and towns. Thus it is that, notwithstanding the enormous quantity of live stock annually imported into the kingdom, and the vastly increased quantity fattened of late years by artificial means, beef has steadily increased in value, until it has nearly doubled the low price of 1849. Beyond any doubt, much of that rise is owing to the disastrous drought with which we have been visited, rendering it difficult to find food for the stock to feed upon, and consequently young and half-meated animals passed prematurely into consumption, combined with that great national calamity, the cattle plague, with which it pleased our Almighty Ruler to afflict this nation. Yet, I feel 20 per cent. at least of the rise is attributable to the before-mentioned causes. In juxtaposition to these facts, we have that of the low average price of corn; and why, it may be asked, are these things so, when free-trade is the ruling principle for all kinds of agricultural produce? The answer is obvious: the close stowage of corn, with comparatively small risk of loss in the transit, renders its importation easy and lucrative; whilst the awkward stowage and great risk with live stock in sea voyages renders its importation difficult and expensive; and, as the same argument applies to the storage and freightage of butter and cheese, it becomes apparent that the English farmer must devote his utmost exertions to the production of meat. This desideratum divides itself into two questions, viz., first, the class of animals to breed; and, secondly, their management.

The Hereford Breed.

The Herefords have been severely tried in competition with all other breeds of this kingdom for several generations past, and although in the main they have during that lengthened period been principally in the hands of the tenant-farmers of this side of the kingdom, by whom they have been regarded as their rent-payers, yet they have maintained a position of which their breeders may well be proud, when placed beside animals of other breeds in competition for showyard honours. This was particularly the case during the late national fat shows, and the result of that best of all tests, the weighing machine, which was brought into use for the first time at the Agricultural Hall by the Smithfield Club, has proved that the average weight of the Hereford steers and oxen exceeded that of any other breed exhibited. And that they have distinguished themselves as meat producers, when selected for practical trials in the feeding stalls or on the pasture, we have it on record that they have invariably produced a greater quantity of animal food from a given quantity of vegetable than those of any other breed. At the same time it must be remembered that the utmost care, skill, and attention is requisite to be exercised by their breeders in order that they may continue to merit that attention which their good qualities have hitherto commanded. Therefore it is of the greatest importance that in the selection of our breeding animals strict and sound judgment should be displayed, so that their character, form, and quality may be retained, inasmuch as without character they would lose much of that which attracts the eye. Without form they would not possess that constitution and aptitude to fatten which has hitherto distinguished them, and without quality they would fail to command that top figure which we all like when our animals are ready for the shambles. As regards the several points of perfection in form, a mellow hide, well covered with soft glossy hair, a moderately short head and wide forehead, from which the horns of the bull should spring in a straight line, whilst those of the cow have usually a wave and a slight upward tendency; a straight outline, a full, deep chest, sloping shoulder, a good springing rib, so that no hollow remain between the outside of the shoulder and the rib; a deep flank, small bone, and the whole carcase well and evenly covered with firm flesh, yielding with a pleasant elasticity to the touch, are essential qualifications. I consider that too close an affinity of blood should be carefully guarded against; for although I am fully aware that breeding in and in has been in many instances attended by very marked and successful results, yet, as a rule, I feel it is best to be guarded against, and for this simple reason. I believe that our beautiful race of animals has been greatly improved by the care, skill, and attention which have for generations past been paid to the subject by gentlemen who made it their careful study and fixed their distinctive characters by the adoption of that consanguinity which I now say should be avoided. I also believe that perfection can only be attained in a direct line once; and as the tendency of Nature is ever to revert, a continued adoption of that course would prove productive of degeneration, resulting in delicacy of constitution and lightness of flesh; further, there are few families that have not some weak points in connection with them which a change of blood may tend to correct, whereas the opposite course would probably perpetuate it for several generations. Besides, should any constitutional weakness or disease exist, that weakness or disease is much more likely to be propagated than any good qualities they may possess; therefore I consider the utmost care, skill, and close observation are essentially requisite to be exercised in the selection of our breeding animals.

Having made the selection of both male and female, the next thing to be considered is their management, and upon the first point under this head depends much of the breeder's future success, viz., at what age they should be used for breeding purposes; and I cannot help thinking that much injury is frequently done to valuable animals by adopting too early a period, inasmuch as in doing so a most powerful exhausting influence is brought to bear prematurely upon the nervous and vascular systems, which too frequently results in the animal proving sterile or being given to cast. In my opinion no bull should be used before he is 18 months old, and no heifer should calve before she is three years old.

The next point for consideration is, at what period of the year should they be brought into existence to ensure future success? And here I think we must look to nature's laws to guide us in our decision. As regards the flock, there are few of us who do not know the almost worthless, puny state in which a lamb continues, which may be dropped in May. We also know that it is possible to make fine lambs of those dropped in November or December; but the cost is something too serious for breeders generally to contemplate. Then why, I ask, should not each of the classes of animals, whose natural habits are so similar, be treated in an equally natural manner? It is clear our forefathers well understood this, when in the zodiacal signs they gave to the sheep, March, the cattle, April, and all creation May. Notwithstanding all this, the breeding year for our cattle has, during the present century, been divided into three distinct periods. Thus we have some breeders endeavouring to obtain their calves in the summer or early autumn, in order that they may meet the rules and regulations of our great national agricultural societies; others at a later date in autumn, because they have seen that by high feeding during a long and dreary winter they have a good lot of calves to turn out in the spring, but without calculating the expensive food which both dam and calf have partaken of; others, and, fortunately for the nation, by far the greater portion adhere to that period which in my opinion is more in accordance with Nature's laws. I will now endeavour to demonstrate the evils of the first two systems, and the advantages attending the latter.

1. First, then, as regards summer or early autumn calving, which has been practically forced upon breeders who aspire to Royal and other distinguished showyard honours. Under the first system I propose fixing the month of September as the period at which the heifer should drop her first calf. In order to do this she must be put to bull about December, when both bull and heifer are being kept upon dry and artificial food. Upon the arrival of spring she is turned into the pastures, there to partake of those young and succulent Grasses which are so calculated to develop her milking properties; but those properties not having been called into action, she converts that food into fat, to the injury of her lactic secretions, and oftentimes to the danger of her own life when the day of parturition has arrived, even supposing she has escaped abortion, which has been greatly hazarded by her being heavy in calf at a period when the continued torments of flies have driven her wildly about the pastures. Having calved, the puny offspring shows that it is an animal born out of due season, and, if reared, he must be treated as a hothouse plant until the following spring. When that period has arrived he will have attained a size and age at which he will prove troublesome to be set at large. Thus an animal, upon which so much of the breeder's future success is dependent, is, by the unnatural season at which he was calved, to a great extent deprived of the genial rays of the sun, and the invigorating and refreshing breeze of the atmosphere, the fond caresses of its dam, and the free exercise of the body, all of which are requisite to him in early life. Added to these evils, if intended for the showyard, he must be fed upon the best and most stimulating food possible, and too frequently even the very light of heaven is shut out from him, on account of the knowledge of darkness favouring obesity.

2. This brings me to the second system; and upon the principal of gaining a little time annually, I will suppose the heifer intended to calve in autumn should be put with the bull about the end of March. Here, again, both bull and heifer have been kept on dry dietary, and, although there is not the same chance of puerperal fever with cows calving late in the autumn, yet they too have been partaking of a summer's Grass without yielding any beneficial return, and must, like the former cows, be kept well upon expensive diet during the winter, to be again comparatively valueless the following summer. I say comparatively valueless, inasmuch as the natural tendency of the cow to produce milk is of course greatest immediately after calving; but the circumstances under which she has been kept so many months check rather than favour its production, and the lacteal organs have necessarily become much less active before she has the chance of obtaining that succulent food which is more favourable for the production of milk: this being so, that food is used by the animal for the laying on of fat instead of yielding milk. The calf, too, like the former, must be house-fed, and subject to similar unnatural treatment at a period when the foundation of the constitution should be substantially laid. But is it so laid? I feel I shall be able to show you it is not; for although as far as human foresight can aid in the selection, and although every care is taken by breeders of first-class stock to secure animals in which are apparently developed the points most essential for a sound constitution; yet how frequently do we hear of cows and heifers in our best herds becoming sterile, or being given to cast, or becoming early barren, and that they have lost the valuable milking properties of their predecessors? And Dr. Hitchman, of Derby, has thus written me:—

"I stand pledged to your first aphorism—the more natural laws are studied and aided by science the greater will be the success. The early part of March is the time in which it is best to have the calf drop. I believe abortion in high-bred stock to be the result of many errors, all of which, however, are summed up in the words, 'too much stimulating food—too little exercise—too much warmth, and too great a disregard to the milking functions and all it entails.' Autumn is the very worst time a cow can calve in, except, perhaps, it be November. It is bad for the cow and for the calf; and the latter is never so well equipped by constitutional power to battle with all the evils which the cold and damp of our winter and late spring engender. It is remarkable that societies and individuals should so long close their eyes against the teachings of fact."

3. I will now proceed to consider the advantages attending the period which is more in accordance with Nature's laws. The heifer, to calve in April or May, will have to be with the bull in July or early in August, at a period when both animals have been partaking of young and succulent vegetation, which Professor Tanner says is so "favourable to breeding." Being in calf, she can be kept in a most inexpensive way during the winter; as spring advances, and as the day of parturition draws near, her food should be improved, and she should be allowed daily a few hours in the pastures. The young, rich juicy Grasses will then purify her blood and develop her milking properties. At nights she should be placed in a roomy and well-ventilated building, some week or so before calving. Under such treatment her udder and milk-veins will become distended to the utmost; yet no anxious fears need be entertained respecting her, as her condition will be that of a healthy breeding animal; and the calf, when it makes its appearance, may fairly be expected to be a fine one, with plenty of Nature's food provided for its wants. After a few days the heifer should be turned into the pastures, where she will find that food best calculated to meet her wants, and at a time when her natural tendency to produce milk is most active. After a few weeks the calf will have gained sufficient strength to take all the milk the dam provides, and he can then be turned into the pastures with her, where he will require no further care than that which she will bestow upon him until weaning time arrives, when he should be placed in a cot with a yard to run in at his pleasure: and as far as my experience enables me to form an opinion, this is both the cheapest and most healthy way in which a bull can be reared. I have said, "he will require no further care than that which his dam can bestow upon him." Now, let us consider what that care will be and its effect. In early morn she freely yields him his natural meal, which warms his stomach and prepares it for the feed of Grass which he will presently take: and whilst he is enjoying his first meal, her rough tongue will be busily employed in washing him from top to toe. By this means, not only is his skin thoroughly cleansed, but it is stimulated by the rough action of the tongue, and a lively circulation of blood throughout the whole body is thereby promoted, as also a luxuriant growth of good hair, which is much desired by all breeders. His meal being ended, he runs and skips about in playful mirth; and thus his vital organs, as well as his every muscle, are brought into healthy action, and the foundation of a robust constitution is early laid. During each succeeding winter the cow will be inexpensively kept in the strawyard; and, whether taken to the pail for dairy use, or the offspring be continued to be reared at her foot, she will be yielding a good return for the rich Grasses she daily consumes.

(To be Continued.)

Home Correspondence.

Sewage Farming Prospects.—Your correspondent, "W. B.," in your paper of the 16th inst., having made frequent reference to this farm, I am induced to notice some of the points where his statement is calculated to mislead the inexperienced. "W. B." seems to think that there is a special difficulty in selling at a profit the milk produced at this farm, in some way connected with the expense of the sewage system of cultivation. So far, experience has proved rather the reverse, for cows can be kept cheaper on a sewage farm than on an ordinary one; the only difficulty is in the fact that pure milk is a scarce article in the trade. "W. B." tells us that the Edinburgh practice, viz., growing Rye-grass, was never very popular with the agricultural body; but he does not seem to be aware that growing Rye-grass to the extent of the demand is the most profitable application of sewage to the land. It does not appear how we learn from the Patent Office, as stated by "W. B.," that the Barking experiment "is subject to improvement:" that the experience of successive seasons may vary the present practice at Barking in details is probable, but I am not aware of any patent process for the purpose; nor do I think it likely that, so long as the sewage is used for irrigation, that any patent process is likely to be adopted in its application. However opposed to science or profitable practice "W. B." may deem the application of sewage to every crop, such a knowledge as he could have gained by visiting this farm and consulting the published reports of the proceedings here, would have, I think, satisfied him that London sewage in a liquid form contained all that was required to produce profitably large and increased crops of Wheat, Oats, Rye, Canary-seed, Mangels, Turnips, Cabbage, Sugar Beet, Onions, Potatos, Parsnips, and Rye-grass. "W. B." makes an objection to the Barking farm practice which is not in any way due to that practice; and if an objection, it is due to the drainage system of London, viz., the existence of sewage diluted with rain-water; he, however, no sooner makes the objection as against this farm than he removes it to the system. It remains to be seen how far it is really an objection at all. "W. B." takes it for granted that sewage farmers cannot grow crops on equally favourable terms as other

farmers; the experience of this farm before and after the introduction of the use of sewage provides a very decided instance of the contrary. There are many more points of a general nature in "W. B.'s" letter, that I should have wished to notice; but I am unwilling to trespass on your space beyond an endeavour to draw attention to the valuable results obtained on this farm, a better acquaintance with which would, I am sure, induce "W. B." to notice them more favourably than he has done. *Henry W. Petre, Lodge Farm, Barking, Jan.* 28. [This letter was unfortunately detained in the post-office, or elsewhere, until it was too late for our issue of the 30th ult.]

Tiptree Hall Live-stock Account for 1868.—I ask myself the question, Does it pay to feed 873*l.* of cake, corn, &c., besides and with the produce of 30 acres of green and root crops? I have long since said "Yes," and proved it by the £ *s. d.* But how do I prove it? By taking Mr. Lawes' estimate of the manurial value of each ton of food consumed, after it has been consumed, and by finding all my crops of a maximum instead of an ordinary yield.

	Food consumed.	Tons.	Manurial value per ton.			Total value of Manure.		
£.			£	*s.*	*d.*	£	*s.*	*d.*
172	Best American linseed-cake ..	14	4	12	0	64	8	0
55	Mixed cotton-cake	6	5	0	0	30	0	0
86	Best rape-cake ..	12	4	18	0	58	16	0
254	Beans (20 stones per sack) ..	25	3	13	6	91	17	6
33	Malt combs	5	4	5	0	21	5	0
69	Bran	10	3	0	0	30	0	0
49	Condimental food	2	2	0	0	4	0	0
44	Oats and Barley	4	1	14	0	6	16	0
23	Linseed	1	3	13	0	3	13	0
88	Clover and Grass hay	17	1	17	6	31	17	6
873		96				342	13	0

Manure compared with guano when it was 10*l.* per ton, equal to 34 tons of guano, which at 13*l.* per ton, its present price, would amount to 442*l.* Deduct 100*l.* for extra attendance, grinding, &c., of this extra quantity of food, and there appears a gain of 342*l.* as compared with the purchase of guano. As a general estimate, I consider this a fair and just comparison. No account is taken of the manure resulting from the 30 acres of root and green crops consumed. It appears from the foregoing that I get 442*l.* of guano for about 100*l.* Is not that a saving and a gain? Take away that amount of manure, and see how much my general crops would be diminished. I am no believer in the over-manuring of crops, especially Mangel, Beans, Clover, Grasses, and particularly Italian Rye-grass. Besides, with every extra inch of subsoil moved there are 100 tons of poor soil to be enriched. The great curse of English agriculture is, after want of drainage, deficiency of manure. My experience has taught me that land can never be too rich, even for Wheat or other cereals, provided the manure has been applied for a previous crop. It is the sowing of too much seed that causes crops to be prematurely laid in well fertilised soils. *J. J. Mechi, Feb.* 2. [It is difficult to understand the above valuation, but we suppose it is assumed that Mr. Lawes' valuations were based upon the price of guano at the time when it was sold at 10*l.* a ton.]

Carbolic Acid for Scab in Sheep.—I see in your Notices to Correspondents it is mentioned that sheep dipped in, or washed with, soap and water, containing one part of carbolic acid to 100 of water, will resist the infection of scab. In your next impression, will you kindly inform me if thus washing or dipping sheep already infected, will cure them of scab, also whether there would be any risk in allowing ewes, which have been washed, to return at once to their lambs? By complying with this request you will greatly oblige. *A Tenant-Farmer.* [Respecting the employment of carbolic acid as a remedy for scab in sheep, it is necessary for a "Tenant-Farmer" to be informed that, although the agent, if properly used, is certain to cure the disease (at least in our experiments upon several thousand scabby sheep it has never failed), there are serious practical difficulties in the way of its successful application. First, the stuff which is commonly sold as carbolic acid is merely tar oil containing a small percentage of the acid, and utterly useless for any purpose to which carbolic acid is applied. Secondly, the solution for dipping the diseased sheep must contain at least one part of acid in 50 of water, and the mixture must be perfectly uniform, or it will do mischief. A quantity of the acid rises to the surface of badly made compounds, in the form of a brown film, and the first few sheep which are dipped really get the principal part of the active ingredient on their skins, and sometimes die in a few minutes. The weak solution, which we recommended last week as a disinfectant, is quite free from this source of danger, but it is not strong enough to cure scab. Thirdly, the cure of scab, by means of carbolic acid dressings, requires that the animals be dipped twice; the second time ten days after the first, in order to destroy any young acari which may have been hatched since the first dipping; and which, if not exterminated, would soon increase and multiply. We could give directions for making a carbolic acid dip, but we doubt if a "Tenant-Farmer" would care to take the necessary trouble to make it, and there is a great probability of his failing if he did. The preparation which is advertised as "McDougall's Cure for Scab," and also the "Glycerine Dip," owe what efficacy they possess to the presence of a certain proportion of carbolic acid, and it would be better to use one of these in the way we have suggested, than to attempt the manufacture of a mixture, the preparation of which requires considerable pharmaceutical tact. There would be no danger in allowing ewes to return to their lambs after "dipping," as soon as the superfluous fluid has drained off them.]

Earth for Closets.—From the time that, in order to the development of the dry-earth system, the manufacture of earth closets, and first a firm and then a company for that manufacture became a matter of necessity, I ceased to write to you on the subject, lest my desire to publish the benefits of the system should be misconstrued into that of puffing a business. Now, however, that the discovery in its varied application has fairly emerged from a mere manufacture into a system, and as such is not only widely acknowledged, but legalised at home, and is spreading throughout India, Canada, and other colonies, I may perhaps be permitted occasionally, and without suspicion of sordid motive, to say a few words about the conduciveness of that system both to health and wealth. In this communication I would reply as briefly as I can to your correspondent "Amateur." Two or three years ago, Mr. H. Taylor, a farmer and manure dealer in Dorchester, who has for longer than that peried supplied and removed the earth from the Dorset County School of 75 or 80 boys, pronounced the manure to be worth, when dry, from 2*l.* to 3*l.* per ton. Shortly after this, two tenants of Baron Rothschild's at Hutton, whose names you will find in the Earth Closet Company's circular, gave their testimony of the experiment—that the minimum value of earth once used in a closet is 3*l.* per ton. Previous to this testimony, I had disposed of the manure from my parish school, of about 90 boys, in this way: a farmer supplied the earth and removed it, giving me 10*s.* a month for the produce. This I gave to the schoolmaster, to induce him more readily to keep the place in proper order. But on receiving the testimonials above mentioned, I proposed to two of the farmers of the parish to take a ton each, give me 3*l.* a ton for it, which should go to the schoolmaster, and carefully try an experiment. One was quite satisfied with the power of the manure, but he used it extravagantly, applying the entire ton to a single acre of Swedes. The other, R. Hayne, Esq., of Fordington, wrote thus to the manager of the Earth Closet Company:—"I used some earth that had passed twice through the earth closets in the day-school of this parish, on a piece of Rape of about three acres and a half. The land had the previous season borne a crop of Mangel, the whole of which was drawn and consumed at home. The Rape was sown on the 30th of April; and one ton of the earth, costing 60*s.*, was drilled with the seed. In June 2 cwt. of Bell's guano was sown broadcoast over the whole piece, which was horse-hoed in the drills. The reason for my applying the guano was because the land had not been dunged. The crop was a good one although the season was so dry and hot, and therefore unfavourable for Rape. If I had not used the earth I should have drilled six sacks of bones in the piece, costing 72*s.*" *Henry Moule, Fordington Vicarage, Feb.* 2.

Mr. Mechi.—I decidedly disclaim to be an agricultural teacher. On the contrary, I am always a learner, seeking for the most profitable, and therefore the best, modes of agricultural practice. 'Tis true that I make public my facts and practice, and sometimes venture an opinion, but I hold that it is good for agricultural progress that we should make known and compare, and thus derive profitable information from each other. Of course, such a system is unpalatable to those who wish to make farming a hole-and-corner business, and shade it from the light of observation, but the time for that is gone by, now that we have good roads, railways, penny post, and a rapidly growing agricultural Press, in which we may all meet, discuss, and compare. As I have already said, I am always a learner; and I assure those agriculturists who profess to be displeased with my practice, that if they will point out how I can improve the gains on my farm, I shall not only feel much obliged to them, but will at once adopt the practice they recommend, and so increase the money in my pockets. Finding fault without suggesting a remedy is both unkind and childish, and savours strongly of a conviction that our present mode of agriculture is perfect, and incapable of improvement. So long as the average yield of each acre in the United Kingdom is only a trifle over 3*l.* annually, I shall be no participator in such a conviction. I am a good deal amused by the various styles of admonition or censure bestowed upon me and my balance-sheets. May I ask these parties to produce their own balance-sheets, and thus improve and enlighten me. One calls me a market-gardener, because the railway enables me to send my Peas green in the pod to the London market instead of harvesting them and sending them dry. Another grumbles because at a leisure time I aid my neighbour with horse-work, and he in return aids me when I am over busy, each party charging the other according to the work done. A third censures me for grinding my own and my neighbour's corn, and innocently asks what is to be done if we all become millers? He might as well suggest our all becoming cotton-spinners, or tailors, or butchers and bakers. Another infers that because I don't sell lean animals I do not breed any. I do breed 100 lambs annually, and sell them as fat matton at a year old. I always used to rear 30 calves annually until the cattle plague made it dangerous. I stand fast to my axiom, that selling lean stock off the farm impoverishes it, and is inconsistent with large produce of corn and roots. It is only very rich land or dairy districts that will stand such treatment. Plenty of fat stock and plenty of corn must be our future motto. *J. J. Mechi, Tiptree Hall, Feb.* 1.

Malt for Beer.—In the *Standard*, a day or two ago, I saw an extract from the *Chamber of Agriculture Gazette*, containing mention of a brewing of three parts of barley-meal to one of malt. This proportion of meal is, I fancy, unusual; but surely the use of meal in brewing could never have been spoken of in that Gazette as being of itself a novelty. In Johnstone's "Chemistry of Common Life," this use of meal is described, and the reason of its success given. But this is a "modern instance." In a much older book of "wise saws" you have it. The "Customs of London," black letter, circa 1521, gives "The crafte to brue byer:"—"x quarters malte, ii quarters wheet, ii quarters ootos, xl lb. of hoppys—to make lx barellys of sengyl byer," the "wheet" and "ootos" must needs have been reduced to meal, and though their quantity is small, the plan is the same in principle with that spoken of in the *Standard*. It may be worth observing that this notice, both of "hoppys" and "byer," is earlier by 12 years (I think) than the time when it is said—

> "Turkeys, carps, hops, pickerel, and beer,
> Came into England all in one year."

H. J. M., Gatehouse, Scotland, Jan. 29.

Lime as a Fertilising Agent.—The remarks at p. 96, in reply to R. Smith, relative to the application of lime to land in which there exists much inert vegetable matter, I can fully endorse from my own experience. I took a piece of land five year since which 50 or 60 year ago had been reclaimed from a wood. It was undrained, and badly farmed when I got it. After producing a poor crop of Oats it had been left to Nature, and the vegetation it produced was utterly worthless. In the first place I thoroughly drained it, ploughed and summer fallowed, liming it with about 200 bushels to the Irish acre; then drilled it up for the winter, and in February sowed it with Red-chaffed White Wheat, which proved a splendid crop, both as respects quantity and quality, yielding more than 30 cwt. per acre. I should remark that a small part of the field was not limed till the time of sowing, and I noticed that the Wheat on that part was quite inferior to the other that had been earlier mixed. The following year I manured it for Potatos and Turnips, then Wheat again, sowed down with Grass seeds and Cow-grass, all of which crops were remarkably good; but the crop of hay was extraordinary for such a dry season as last summer—not less than eight tons [? green] to the acre, and it was mowed a second time, to feed the cattle in the stalls during the heat of summer. I had planted Potatos on part of the ground which had not been limed, although otherwise well manured, yet they were small and worthless; but it was quite otherwise where the land had been limed, for they were both large and good for the table. As previous to my occupation of the land it never had been either deeply ploughed or limed since it had been a wood, I attribute the great improvement in fertility to the action of the lime on the accumulation for ages of vegetable matter lying dormant, as it were, and literally useless in the soil, but which has been at once utilised by the lime and made available for the purposes of domesticated vegetation. The change in its surface where it has been laid down to Grass is almost incredible. *J. M. E.*

Tiptree Hall Farming.—It was not my intention to have written again on Tiptree Hall farming, but for two reasons I am induced to write a few lines more, and in the first place I thank the gentleman who signs the article which was inserted last week at page 119, "F. W. Bigwell." This article I take to be a valuable analysis of the hollowness of Mr. Mechi's system of managing his cattle and cultivating his land. But my other reason for again writing is this, and to the consideration of it I call the attention of Mr. Mechi himself, as well as that of other readers. I have lately been in Suffolk and on the borders of Norfolk, where I had thought Mr. Mechi was well known, and his farming doings appreciated, as I had often read of his having been there at agricultural and other meetings. I saw several farmers, and of the higher class of them, but, to my surprise, not one of them had read Mr. Mechi's balance-sheet; and on my asking why they had not read it, since Mr. Mechi took so much pains to enable them to do so, the general reply was that they did not think it worth reading, and, indeed, they all spoke of it with contemptuous disdain. On finding such to be the case I made up my mind to take my fare on my return home to Witham only, of which I knew Tiptree Hall was within a few miles, my object being to ascertain from any person I could meet with there, what was the opinion Mr. Mechi's neighbours, farmers of Essex, had of his doings; and here his farming and balance-sheet were more strongly spoken against, if possible, than I had heard them to have been in Suffolk and Norfolk: and on my asking the respectable looking farmer whom I met with at the inn what he thought of Mr. Mechi's balance-sheet? he spoke of it with sheer contempt, and added he did not believe a word of it, as Mr. Mechi, he said, could write down what figures he pleased, so as to make out what profits he pleased, but even if he had tolerable crops of Wheat, he said, he kept fat oxen at an enormous expense on purpose to make manure for the producing of those crops, and that such a system of farming, if followed by a tenant-farmer, who had no other resource for making money, would soon bring him to the union-house; and as three or four other men were in the same room, he appealed to them and asked if such were not the case, and they in as strong terms as possible confirmed all he said. Such being the opinion of thoughtful farmers in Mr. Mechi's own neighbourhood, as well as that of others in the eastern counties in which he resides, I will just show what is thought by them of his balance-sheet, and also by others in other parts of the country, and especially by those in the neighbourhood from which I write, with whom I have had the opportunity of conversing on the subject. The balance-sheet is headed thus: January 1—Valuation; and then goes on through the years 1865, 1866, 1867, and 1868, showing his stock and crops at that date of each of those four years; and then goes down to December 31 of each of those four years, showing the stock and crops he had then—exhibiting a profit for each of those years of 498*l.* 7*s.* 4*d.* for the first, 528*l.* 11*s.* 6*d.* for the second, 728*l.* 5*s.* 10*d.* for the third, and 525*l.* 13*s.* 6*d.* for the fourth, or last year. Now I will ask Mr. Mechi, and in no hostile spirit to him, who made these valuations? and how the valuer or valuers came to the exact quantities of

corn he grew each year, and their exact value to a penny on the 31st of December in each year, before he could have threshed all, or only a part of his crops—that is, before he had passed them through the bushel, or could by any possibility have known at what price they would be sold? These are but simple questions, and require but simple answers; and as Mr. Mechi has published his balance-sheet and taken extraordinary pains to have it copied into most of the newspapers, as I hear, in the three kingdoms, in behalf of the profession to which I belong I demand from him distinct and immediate answers; and that he may not mistake what I write, I will repeat my questions—namely, who made the valuations, and who ascertained the value of his crops for each year on the 31st of December of the same year, and to a single penny for each year, before the whole, or only parts of those crops, could have been threshed, and before the market price of them, by any possibility, could have been known? The same questions might be put, and with still greater force, as to the live stock; but I forbear putting them for the present, considering that for a week or two at least he will have enough to do with the task I have above set him. *T. B. S.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL: *Wednesday, February* 3, 1869.—Present: Mr. H. S. Thompson, trustee, in the chair, Viscount Bridport, Lord Chesham, Lord Tredegar, Lord Vernon, Sir Massey Lopes, Bart., M.P.; Sir T. Western, Bart.; Mr. Baldwin, Mr. Bramston, Mr. Cantrell, Colonel Challoner, Mr. Clive, M.P.; Mr. Davies, Mr. Druce, Mr. Brandreth Gibbs, Mr. Hornsby, Mr. Hoskyns, Colonel Kingscote, M.P.; Mr. Milward, Mr. Pain, Mr. Randell, Mr. Rigden, Mr. Shuttleworth, Mr. Torr, Mr. Webb, Major Wilson, Mr. Jacob Wilson, Professor Simonds, and Dr. Voelcker.

The Earl of Dunmore, Dunmore, Stirling, N.B., was elected a Governor of the Society.

The following new members were elected:—

Allison, Robert Andrew, Scaleby Hall, Carlisle.
Amos, James C., West Barnet Lodge, Herts.
Atkinson, George, Morland Hall, Penrith.
Barnes, Thomas, Bunker's Hill, Carlisle.
Bazley, Thomas Sebastian, Hatherop Castle, Fairford.
Bibby, James Jenkinson, Hardwicke Grange, Shrewsbury.
Birkett, Joseph, Foxton House, Penrith.
Blackwall, John, jun., Oaklands, Llanrwst.
Brown, Matthew, Scarbank, Longtown, Cumberland.
Carter, George John, Tatton Dale, Knutsford, Cheshire.
Clutton, J. H., 9, Whitehall Place, London, S.W.
Coleman, Samuel, Willy Hall, Attleborough, Norfolk.
Corder, Edward, Writtle, Chelmsford.
Crumpston, Joseph Hodgson, Barton Hall, Penrith.
Doyle, John A., Plâs Dulas, Abergele, Denbighshire.
Edmonds, Giles, Eastleach, Lechlade.
Elkins, John F., Yelvertoft, Rugby.
Farley, Stephen J., 4, Windsor Crescent, Newcastle-on-Tyne.
Fraser, Henry N., Hay Close, Penrith.
Gibbons, Thomas, Burnfoot, Longtown, Cumberland.
Griffith, John Robert, Brynderwen, Llanrwst.
Hampson, John, Ullen Wood, Leckhampton, Cheltenham.
Harding, John, Bicton House, Shrewsbury.
Harrison, Anthony, Penrith.
Hesketh, William, Plumpton Hall, Penrith.
Lowther, William, M.P., 122, Park Street, London, W.
Luttman-Johnson, John, Gosterwood Farm, Chiddingfold, Godalming, Surrey.
Martin, George, Hubert's Bridge, Boston, Lincolnshire.
Mellersh, T. G., 2, Southfield Villas, Cheltenham.
Mucklow, Edward, Castlehead Grange, Lancashire.
Musgrave, R. C., Edenhall, Penrith.
Oliphant-Ferguson, G. H. H., Broadfield House, Carlisle.
Parker, Thomas Holme, Warwick Hall, Carlisle.
Robinson, Henry, Hough-on-the-Hill, Grantham.
Simon, Thomas, Fern Hill, Market Drayton.
Stanley, William, Ponsonby Hall, Whitehaven.
Sterling, John, Bridekirk, Cockermouth.
Tudge, William, Adforton, Leintwardine, Herefordshire.
Tyndall, Frederick Thomas, The Hill, Egbaston, Warwick.
Varty, Thomas, Stag Stones, Penrith.
Wilson, Edward, Hayes, Bromley, Kent.

FINANCES.—Viscount Bridport presented the report, from which it appeared that the Secretary's receipts during the past two months had been examined by the committee and by Messrs. Quilter, Ball, and Co., the Society's accountants, and were found correct. The balance in the hands of the bankers on January 31st was 1837*l.* 17*s.* 4*d.* The balance-sheet for the quarter ended December 31st, 1868, and the statement of subscriptions and arrears, were laid upon the table; the amount of arrears then due being 1146*l.* One hundred and eighty-two members have given notice during the past year of their withdrawal from the Society. The country meeting account of Leicester was laid before the Council.

JOURNAL.—Mr. Thompson, chairman, reported that, at the request of the Committee, he had (during the Christmas vacation) opened the motto papers of the essays in Classes II. and IX., which were adjudged winners of the prizes of 20*l.* and 25*l.* respectively, in order that the names and addresses of the authors might be printed, and the publication of the Journal not unnecessarily delayed. The Committee recommended that tenders be invited by public advertisement for the supply of paper for the Journal, and also for the cost of printing, binding, stitching, &c. It was also recommended that the Committee be empowered to send some competent writer to inspect and report upon a few of the principal farms in different parts of England, with a view of publishing the reports in the Journal; the number of farms to be inspected to be at present limited to eight, all occupied by tenant-farmers, and the special grant from the Council for that purpose not to exceed 100*l.*, as the Committee anticipate being able to meet the remainder of the cost by the saving in prizes for essays, communicated articles, and other Journal expenses. It was announced that the judges had awarded the prize of 20*l.*, in Class II., "On the Management of Grass-land,' 'to the essay bearing the motto, "Give liberally, so that you may reap abundantly," which was written by Mr. Clement Cadle, of Gloucester; and the prize of 25*l.* in Class IX., "On the Rise and Progress of the Devon Breed of Cattle," to the essay bearing the motto "Spero," which was written by Mr. John Tanner Davy, of Rose Ash, South Molton, Devon. It was also recommended that the publication of these awards should be accompanied by that of the award of the prize of 30*l.* in Class I., "On the Farming of Middlesex," to the Rev. J. C. Clutterbuck, for his essay bearing the motto "Rus in urbe," of which decision no report has yet been published.—This report was adopted.

HOUSE.—Viscount Bridport, Chairman, reported that the Committee recommended the consideration of the question of obtaining additional committee-rooms on the north side of the house, as they can be provided at a moderate cost; and that the Committee be empowered to lay before the Council a plan and estimate to be furnished by Mr. Fowler.—This report was adopted.

GENERAL MANCHESTER COMMITTEE.—Mr. D. R. Davies reported that the Secretary of the Manchester Local Committee having called the attention of the Committee to the subject, it had been agreed to recommend the Council to appoint a Special Committee to consider whether any and what privileges at the Society's shows shall be placed at the disposal of Local Committees. A discussion then ensued, in which Mr. Torr, Major Wilson, Colonel Challoner, Mr. Randell, Lord Chesham, Colonel Kingscote, Mr. Thompson, Mr. Brandreth Gibbs, Mr. Cantrell, Mr. Milward, Mr. Jacob Wilson, and Mr. Davies took part. Ultimately the recommendation was withdrawn, Mr. Davies adopting the suggestion of several members of Council, and giving notice of his intention to bring forward a resolution on the subject at the next Council meeting.

SHOWYARD CONTRACT COMMITTEE.—Mr. Randell, chairman, presented the following report:—

In accordance with the resolution adopted at the November meeting, your Committee have to lay before the Council a statement of the cost of showyard works at Leicester.

This is all that is asked for, but as your Committee believe that the object of the proposition was to enable the Council to compare the cost of the showyard works now with the amount formerly paid, we give also the amount for the Worcester show—Worcester, from its situation, appearing more fitly to bear comparison with Leicester than any other meeting.

The cost of the Leicester showyard was	£4378	18	11
The cost of the Worcester showyard was	£4082	11	11
Add to this the works at Leicester which were in excess of those at Worcester, after deducting those which at Worcester were in excess of Leicester..	1083	2	5
	£5465	14	4
Cost of Leicester as above	4378	18	11
That is, the Leicester showyard cost	£1086	15	5

less than it would have done under the old arrangement; in other words, if the showyard works at Worcester had been of the same extent as Leicester, the cost of the former would have been 1086*l.* 15*s.* 5*d.* more than was expended upon the latter, and this without crediting anything to Leicester for the improved character of the buildings and works there, the additional measurements only being charged. Of the amount thus saved 321*l.* 18*s.* 1*d.* is upon the permanent buildings, and we think it right that the Council should be informed as to the effect of purchasing, instead of hiring, as formerly, these buildings.

The amount paid at Worcester for the hire of these buildings was	£598	9	6
And that, on the same scale of charge, the additional buildings would have cost	116	0	0
	£714	9	6
Whereas at Leicester the whole cost was	392	11	5
Showing a difference in favour of the present arrangement of	321	18	1

—after paying the cost of railway transit, repairs, re-erecting, and insurance, and charging 10 per cent. upon capital employed.

The surveyors' report had been considered, and certain suggestions were recommended to the Council.—This report was adopted.

COMMITTEE OF SELECTION.—Mr. Thompson, chairman, reported the following recommendations of the Committee:—(1) That Sir T. Hesketh, Bart., M.P., of Rufford Hall, Lancashire, be proposed to the Council, in accordance with the resolution of the last meeting of the Committee, to fill the vacancy caused by the election of the Duke of Richmond, K.G., as Vice-President; and (2), That Thomas Statter, Esq., of Stand Hall, Whitefield, Manchester, be elected to fill the vacancy caused by the resignation of Mr. Clare Sewell Read, M.P. Sir T. Hesketh having been proposed by Mr. Thompson, and seconded by Lord Bridport, was then unanimously elected a member of Council; and Mr. T. Statter having been proposed by Mr. Torr and seconded by Mr. Milward, was also unanimously elected a member of Council.

It was resolved, on the motion of Mr. Torr, to repeat the advertisement announcing the intention of the Council to hold the country meeting of 1870 at some place in the counties of Berks, Bucks, Hants, Kent, Oxfordshire, Surrey, or Sussex.

A letter from Mr. Walter Farthing, of Stowey Court, Bridgwater, was read; and it was resolved that his heifer, born July 1, 1866, is eligible to compete for the Society's prizes in Class 61 of Devon heifers not exceeding three years old.

Farmers' Clubs.

LONDON.

Pauperism and Vagrancy.—On Monday last Mr. Trask's promised paper on this subject was read before the members of this Club in their assembly room at the Salisbury Hotel. After the customary introductory remarks had been made, Mr. TRASK came to the main ground of his paper:—

Number and Increase of Paupers.—I find that the total number of paupers of all classes in England and Wales on the 1st of January, 1868, was 1,040,103; and at Michaelmas, 1868, it was 6¼ per cent. more than at Michaelmas, 1867, and 10 per cent. more than at Michaelmas, 1866; and the increase has been general throughout the kingdom. It is difficult to fully comprehend the state of things which these figures indicate: take, for instance, the borough of Tamworth, which sends two members to the House of Commons, and has a population of 10,192, according to the last census,—it will take 102 such boroughs to furnish men, women, and children enough to equal the number of our paupers south of the Tweed; or if we take another parliamentary borough—that of Richmond—we shall require the total number of its inhabitants to be multiplied just 203 times before we arrive at a number equal to the paupers of England and Wales! I think, then, that no one need be surprised, when we are told by an eminent Cabinet Minister that "This is the great problem which is now before us. It is not for statesmen only; it is not one for preachers of the Gospel only; it is one for every man in the nation to attempt to solve."

Remedies Considered and Suggested.—What I understand by solving this problem, is to apply such remedies as will, as far as possible, lead to a permanent mitigation of the evil; for no one supposes that pauperism can be entirely eradicated—it will always exist, more or less, in a great community. In proceeding then to consider the best means of permanently mitigating this great evil, it should be borne in mind that we have to deal with different classes of paupers, that require totally different treatment; and in order to discuss the question with any practical advantage, it is absolutely necessary to treat of each class separately. I shall therefore take that course, and point out where I consider the existing system has failed, and what steps should be taken to remedy it. I shall also show in what way I think the general condition of the working-classes might be improved. The class of paupers that I shall first refer to are those within the workhouse. Dr. Stallard has recently stated that "Almost the only persons found in workhouses are the aged and infirm." This, however, is not the case, for by far the largest class of inmates are children under the age of 16, and I have long since felt, after several years close observation, that no part of our poor-law system has failed nearly as much as in the case of these children. As a rule they are taught to read, write, and cipher very fairly: but as for a knowledge of any industrial occupations to enable them to get a living, to make themselves useful members of society, they are wofully deficient. When we consider that we have nearly 60,000 children in the workhouses, and of these probably more than two-thirds are orphans or deserted by their parents, it will at once be seen how important it is that these children should be brought up in such a manner as will enable them to get an honest living in the world, and not to look upon a state of pauperism and a home in the workhouse to be naturally theirs, as I fear many of them do now. At the Sherborne agricultural meeting, a short time since, Professor Buckman is reported to have spoken on this subject as follows: "As a member of a board of guardians, he had been very much struck lately with a very important question. He found that the children in our workhouses were being brought up for nothing else but paupers. He hoped that something would be done to take them out of that category. He was not prepared to suggest any scheme. But they had been told lately that foreigners were supplying their navy, and that they were enlisting foreigners for the army. He did not see why their pauper children should not be sent to some central school, to be supported by all the unions in the country, where they might be educated so as to enable them to follow some useful occupation. He had been thinking of the matter for a considerable time. To bring up children merely as paupers was highly discreditable to the nation. That was an agricultural question, and one which they would do well to consider." The first step that I think it is necessary to take, in order to bring up these children satisfactorily, is to remove them from all workhouse contamination; no doubt an improvement might be made where they are, but the expense of bringing them up in a proper manner in workhouses would be enormous, and the result almost certain to be unsatisfactory. Even in salaries alone, in small workhouse schools the cost is now from 2*l.* to 4*l.* for each child; while at Birmingham, where there are nearly 600 children taught, the total salaries of the teachers and industrial instructors amount to about 7*s.* per head. But the greater saving, in having the children brought up in institutions expressly adapted for them, apart from the workhouse, would be felt through their being taught the means of permanently keeping themselves after leaving the institution, and not to become a source of further increasing the pauperism of the country. After arguing that the cost of educating children should be borne by the national exchequer, and their maintenance only thrown upon the poor-rates, Mr. Trask described the—

Present Inefficient System of Industrial Training.—I have noticed that one of her Majesty's Inspectors of Union Schools, in his last report to the Poor-law Board, states that, "As the result of 20 years' experience the great difficulty in the education of pauper children it is the imperfect education of many of those above them, and on whom they must depend. The consequence is, that although education is seldom openly opposed, it is often thwarted and impeded indirectly, and great indifference is constantly manifested to the whole subject." I am bound to say that my own experience entirely bears out this statement; as a rule, the guardians have utterly failed in the management of workhouse children. I have received a large number of letters from different workhouses in reference to this subject, but I shall only give the substance of two or three of them. From one union the master states, "That the boys of this

establishment are not taught any industrial occupation, being too young; school instruction is all they receive. The girls are employed in scrubbing their own bed-rooms, and occasionally at knitting and sewing." The master of another workhouse says:—"The only industrial occupation of the children of this house consists of knitting and needle-work, both of which are done in school, and about six or seven of the elder girls are employed in scrubbing their rooms, &c. One or two of the boys are employed in cleaning boots and shoes and knives and forks, &c. This is about the sum total of the industrial training of this establishment."

Exceptional cases of better success.—In the Bath workhouse there are 105 boys at present in school, and 51 of them are learning either shoemaking, tailoring, gardening, or baking; but even here it is pretty certain that they cannot be made proficient in these occupations, as the guardians, as a matter of course, let them go out as soon as they can get persons to take them. Unless a trade is properly learnt, it is of very little use. But it seems they have been very successful at Bath in managing 12 acres of land which they have there. It is cultivated by four men, whose ages average 75 years, with 15 boys, and for the year ending Lady-day 1868 the debtor and creditor account, furnished to me by the master, shows a credit balance of 329*l.* 13*s.* 5*d.*, being a profit to the Union of just 27*l.* 10*s.* per acre; but in this account of course nothing is reckoned for labour. What can be done by the establishment of industrial schools apart from the workhouse, is shown by what has been done at Brighton. The industrial schools are there situated 3 miles from the town, and the following is a quotation from the chaplain's letter which is given in the last report of the Poor Law Board. He says that: "The character and history of the Brighton workhouse children for many years is frightful to think of. I can remember as many as 44 persons, inmates at the same time of the able-bodied ward, male and female, all brought up in the workhouse schools, most of them thieves and prostitutes. Thank God there is an end of this or anything approaching it. Of 50 girls we have sent out I only know of one fallen; of about the same number of boys, the great majority are justifying the hopes of their teachers and the expectation of the promoters of this important charity. In Brighton at least society has shaken off a great scandal, and the ratepayers of the parish a heavy burden. Here, for the future, pauper schools will no longer be the nursery of pauperism." Having expressed his strong conviction that "the generality of workhouse schools were 'nurseries of pauperism,'" and glanced at "sick and infirm paupers," Mr. Trask came to the more difficult question,

The Able-bodied Paupers.—How are we to treat the great class of our "able-bodied" paupers? I find that on the 1st January, 1868, there were 426,940 outdoor paupers classed as able-bodied, and 50,229 indoor, making a total of 477,169 of this class. This really does seem to indicate an appalling state of things; but if we examine this class of paupers closely, we shall, I think, be somewhat reassured. Out of the 426,940 outdoor paupers, 269,956 were children, 114,091 were females (mostly widows, with children dependent on them), and the remaining 42,893 were adult males. Now I have ascertained the cause of the able-bodied classes applying for relief in the Yeovil Union; and out of 623 paupers so classed, only 54 were men; and of these only 44 had wives living with them, widows with families being the principal recipients of relief. But widows with children dependent on them can scarcely be looked upon as sufficiently able-bodied to support themselves and their families without assistance; and the same might be said of widowers who have a number of young children to maintain. Out of these 44 men with wives, 30 were relieved in consequence of their own sickness, and the remainder on account of sickness in their families. Such a state of things as regards this class I do not consider affords any proof that we have generally an excessive supply of labour. The only adult male paupers that can, even nominally, be considered able-bodied, are those in the workhouses; and on the 1st January, 1868, they numbered 10,954; but, in reality, even these are not able-bodied, for they are mostly afflicted with a very serious complaint—that of laziness, and, whatever demand there may be for labour, hard work and such persons will never agree, and they may just as well remain in the workhouse, for all the good they would be out of it. As for making the workhouse the resort for "decent" able-bodied persons, as recommended by Dr. Stallard, I think that is the very thing to guard against, as are several other of that gentleman's recommendations. One of the primary causes which leads to the pauperism of able-bodied persons, is the lowness of wages. As regards the rate of wages, Adam Smith says that "a man must always live by his work, and his wages must at least be sufficient to maintain him." And he shows that "they must even upon most occasions be somewhat more." I feel quite certain that we have no class of labourers whose wages, as a rule, are not more than sufficient to maintain them; but whatever they are above this would naturally be governed by the supply of and demand for labour.

Trades' Unions.—But in this case (the labour market) the natural order of things is not allowed to prevail in this country. Trades' unions, for instance, impose this as a condition upon employers, that they shall not take more than a prescribed number of apprentices. The consequence is that employment in these trades is debarred to the great body of the labouring classes; in fact, these trades' unionists combine for the purpose of protecting themselves against open and fair competition, and, in this unjustifiable manner, raising their own wages at the expense of the rest of their fellow-labourers. I cannot conceive a more detestable kind of protection than this, and let us hope that the result of the inquiry by the Trades' Union Commissioners will at least induce Parliament to make such provision for the benefit of the whole of the labouring classes as will give them the advantage of a free labour market.

Emigration a Temporary Expedient.—That which is being the most persistently advocated, however, as a panacea for pauperism and the lowness of wages, is emigration. But on this point I think that what Lord Stanley said at Lynn the other day should be borne in mind, namely, that something might be done by the "judicious encouragement of emigration." If it is not carried out judiciously, I think it would do more harm than good. I am acquainted with two large parishes, the lands of which adjoin: out of a population of 3136 in one of them, there are 159 paupers, being about 1 in 20; but out of the population of 2423 in the other parish, there are 250 paupers, being, in proportion, more than double the average number of paupers throughout the kingdom! I have endeavoured to ascertain the cause of this excessive amount of pauperism in this parish, and I have no doubt but that it is, to some extent, to be attributed to a redundancy of labour in this particular place, and judicious emigration in such cases as this would doubtless be very beneficial. But if it is encouraged everywhere indiscriminately, the best and most enterprising of our labourers would, in all probability, leave the country; and from places where labour is by no means too abundant, and our highest pauperised places would consequently remain much as at present, if not worse. The letting off the purest water leaves that which remains the more polluted. But emigration—whatever might be its immediate effect—is, after all, only a temporary expedient; the same causes will again lead to the same results, and if, as Mr. Bright said at Edinburgh, "the whole fabric is rotten," emigration would prove a very inefficient remedy for so deeply seated an evil.

Mr. Trask then reviewed the subject of Friendly Societies, and suggested that a Parliamentary inquiry should be made into their working. "A careful inquiry," he said, should be made as to the best principles on which a National Institution should be established to afford support in sickness and old age, and I feel certain that the benefits of an institution of this kind might be brought within the reach of the whole of the labouring classes." Suggestions as to the way the subject should be approached were then given, when the enormous sums of money at the command of charities in London were quoted, and the effect of them analysed, the conclusion come to being not altogether favourable to their effect on the humbler classes. In concluding the first part of his subject Mr. Trask touched on the subject of—

Guardians, and their Duties and Difficulties.—Before leaving the subject of pauperism, I wish to allude to an alteration that I think may be made with advantage in the present mode of granting relief. The guardians have power to grant relief by way of loan, but the magistrate's clerk's fees, and the clumsy mode provided for recovering it, has rendered this valuable provision of the law a dead letter. Guardians ought to be enabled to recover relief granted as a loan with little trouble and no expense. If this were the case, those persons who earn good wages should be obliged to repay the amount which may be lent to them as temporary relief; such persons would then be taught to rely more on themselves, and not be encouraged to throw themselves on "the parish," as a matter of course, in consequence of every little ailment. The present cry is give, give, give, to an ever-increasing army of applicants, and the more we give the more we may give.

Vagrancy.—The increase in the number of vagrants having been first pointed out, a circular of the Poor-law Board was quoted to show the regulations laid down for a uniform system of treating vagrants, that their increasing numbers may be diminished: and this treatment having been described, and instances given of its effect in towns and counties, Mr. Trask based his concluding remarks on a decision by, and the practice of, the Macclesfield Union:—The guardians of the Macclesfield Union have therefore come to the unanimous conclusion "that it is in all respects wiser, and certainly more humane, to put an end to vagrancy at once," and I entirely agree with them. I certainly do not see why the ratepayers should be obliged to provide facilities for persons to pursue the profession of vagrancy any more than for those who pursue the calling of a pickpocket: the latter generally preys upon those who can afford to lose, and the former upon those who cannot. Both modes of living, I need hardly say, are equally dishonest. Those who would gain most by the suppression of vagrancy are the really deserving, as they will rather submit to any hardship almost than associate with the regular tramp. The superintendant of police at Yeovil declares that there is not one out of thirty who applies to him for an order for the vagrant ward who is really deserving. I have come to the conclusion, therefore, that the Poor-law ought not to recognise the vagrant as a person entitled to any relief whilst he is able, and continues to pursue such a mode of life; and the proper mode of dealing with such persons, I think, is to adopt universally the course which has been put in force with success in the counties of Cumberland and Westmoreland. The police there have had orders to arrest every one who offends against the vagrancy law, and when they have been found guilty, the justices have inflicted a severe penalty. The result has been that in these two counties there has been a decrease in one year of nearly 7000 in the number of tramps and vagrants; and the chief constable states that in no one instance has any complaint been made that the honest man, who may be driven by necessity to travel for some lawful purpose, has been apprehended by the police of these counties. If the Vagrant Acts are not sufficiently stringent they should be made so, and should be strictly put in force throughout the country.

Reviews.

Revue des Deux Mondes, Nov. 15, 1868. An article by L. de Lavergne on "l'Enquête Agricole" in France.

[Second Notice.]

Many improvements in French agriculture are suggested. Irrigation is far from being so general or beneficial as it might be. Mills, &c., on the streams interrupt it, and the excessive division of property hinders it. The proprietors are recommended to co-operate, as the small Italian farmers do in such cases, and as they have done in many instances in the north of France. All the parties interrogated agree in thinking that the State should be at the expense of constructing the main canals for irrigation. This M. Lavergne thinks should be the work of local boards in each department. French landowners did not avail themselves of the loan offered by Government 10 years ago, at a low rate of interest, except to a small extent. In consequence of the small quantity of meat made generally in France, but little manure is produced, and it might be better looked after, if farmers were more intelligent. In connection with this subject the waste of town manure is referred to. One would not expect the Minister to be particularly urgent on this subject, but in thus summing up the pros and cons of French agriculture, we believe he referred incidentally to one of the most important economic questions of the day. The system in France is as wasteful as our own, and the increasing city population occasions an enormous drain on the fertility of the fields. In France the system of exhausting the land is a very simple one, and the result is an average yield of only 15½ bushels of Wheat an acre. Here our proceedings are much more complicated: we feed a great deal of stock, we return a good deal to the land, and the drain from the fields is partly compensated by manures and cattle food.

It is estimated that no less than 2,500,000 acres of woods require planting, having been destroyed, for the most part, by those disastrous floods we have often heard of; the site of destruction being generally the mountain sides washed by torrents.

The Minister, with official optimism, affirms the great progress of French agriculture, the decrease of fallows, the intelligent modifications in the rotation of crops, the extension of green crops, the increase of live stock and manure, and the increase of a variety of crops of value to native industry, and to foreign trade. M. Lavergne qualifies this brilliant account, admitting great agricultural progress since the peace of 1816, but affirming that in the past 20 years, the period embraced by the inquiry, it has been slow, if not retrograde.

There are numerous proofs of this in the last 20, and more especially in the last 10 years; the value of land has been declining, while previously it had increased. Both hands and capital have been withdrawn from agriculture. Increase of population is the true sign of agricultural progress. The ratio of the increase of population in France has declined one-half in the last 20 years. The effects of inevitable improvements have been neutralised by these disadvantages.

The effect of division of property has been a reduction in the stock of sheep; as to any supposed increase in the stock of cattle, the Government have collected several returns in the past 10 years, but have not thought proper to publish the result. The price of meat has not diminished, however, notwithstanding an increase in the quantity imported.

Since 1827 cereal crops have increased; the growth of Wheat and Oats has extended, although that of Rye and Barley has diminished; but at what period did the extension take place? The Potato disease, formerly so virulent, is less severe, but the former growth (previous to 1846) is not yet reached.

The discovery of mineral oils has discouraged the growth of oil seeds, and fortunately so, since their too frequent repetiton exhausted the soil. The growth of Colza seed has diminished, that of Hemp and Flax remains the same. The Sugar Beet has extended, but though important in some districts, it is a comparatively insignificant crop in France.

The silkworm disease has entailed a loss on silk farmers of 2,000,000*l.* a year.

Much has been said of the extension of the wine crop; the disease (Oïdium) has proved a severe scourge; many vineyards have been grubbed up, and the actual result, so much trumpeted, has been in reality inconsiderable.

France may be divided into two portions, the north and west, where population has improved and agriculture with it; and the south and centre, where the reverse has been the case. It is from the latter district that agricultural complaint has been loudest. In the north, the increase of the town populations and of trade and wealth, and the means of communication, have produced the usual results. Paris has doubled her consumption in the last 20 years. The exportation of butter has increased five-fold. Improvement has been strongly marked in Normandy, but the agricultural productions of France are not what they ought to be; acre for acre they do not exceed the half of England, Belgium, and the greater part of Germany.

Though the population does not increase, it can only be fed and clothed by large importations; it still subsists, in some measure, on the inferior grains, and in too many instances is constrained to abstain from meat and wine.

Government resources have been brought to bear on the important question of the extension of roads, with which France is still badly provided. It is impossible for communes and departments (which correspond to parishes and counties) to undertake the making of new roads unassisted.

A somewhat unreasonable claim has been made by farmers for relief from the cost of keeping up the canals in those departments that have them. The idea

of a French farmer always is to lay his burdens on the Government. France is far behind England and Belgium in the length of its railways. A reduction of tariff for agricultural produce and manures would relieve the pocket of the French farmer, and has been duly demanded by him. On this subject the supervision exercised by the Government will sound strange to those who are unaware that the Government guaranteed the payment of interest on loans borrowed by French companies in foreign markets. It therefore exercises control over railway management. However contrary to our ideas this system may be, it has conduced greatly to the financial success of continental railways, and especially to economy in buildings and managing them. With regard to the free-trade measures lately passed, the opinions of farmers are divided; the wine-growers and some others are in favour of it, whilst corn-growers generally are opposed to it.

No serious complaint has been made against the land-tax, which amounts to 12,000,000*l.* a-year, of which the towns pay about a fourth; but a general outcry is raised against the tax imposed upon the transfer of land, which produces an amount equal to that of the land-tax. Lavergne's opinion is that the finance minister who shall repeal the transfer duty, or reduce it one-half, will deserve a place in history. It weighs hard upon landed property that the succession duty is charged on the total value, without regard to incumbrances weighing upon it.

Indirect taxation falls on sugar and liquor. The repeal of the duty on Beetroot spirit, used for fortifying wines, has been demanded by distillers and others, but the Government very properly turn a deaf ear to this unreasonable demand. It appears that the total quantity of spirit used for this purpose is only about 2,000,000 gallons, of which quantity one-half is for wine for export, and is therefore exempt, and, with regard to the other half, put into wines for home consumption, it cannot be worth while to encourage a practice which, if carried too far, would render wine far less wholesome. The manufacture of home-made alcohol, by wine growers, has been greatly interrupted by the falling off in the wine crop, since the disease, to the extent of one-half the former produce.

The present wine duty is condemned because it is complicated, unequal, and difficult to collect, and therefore discourages the sale of a wholesome, strengthening beverage. It is subject to three different imposts, viz., for its sale in public-houses, for moving it from one locality to another, and on its entry into a town. This last is the obnoxious *octroi* duty, which amounts in Paris to 4,000,000*l.* a year. It is a subject of just complaint that a vexatious impost, which has been almost entirely abandoned in other countries, becomes every year more onerous and widespread in France. New communes are continually claiming *octroi* duty. M. Lavergne thinks that the wine duty should be charged only on liquor sold in public-houses, and that the other charges just referred to might be abolished without ultimate loss to the revenue, since consumption would be increased.

There are seven and a half millions of acres of common lands in France, and it is suggested by M. Lavergne that they should be sold and the proceeds expended in the construction of new roads, or divided between the owners of common rights.

A better system of insurance of agricultural stock and produce is called for, by which the present system of mutual aid shall, to a certain extent, come under the control of the State: at present one district or another is periodically ruined by hail, flood, or cattle plague. Public opinion also calls for the repeal of certain vexatious regulations connected with fairs and markets.

The question of a due representation of landed and farming interests has been much discussed in the course of this inquiry, which is an indication that agriculturists are beginning to occupy that position in the country to which their importance as a body entitles them. A society, somewhat similar in its objects to the Royal Agricultural Society of England, has been recently formed. And although, at first, the idea of establishing such an association was received with coldness and indifference, the society now meets with support on all sides, and numbers among its promoters the most distinguished landed proprietors and farmers in the country, including some hundreds of senators and deputies, with M. Drouyn de Lhuys for president.

The agricultural report just published by the Government will no doubt suggest many subjects of discussion at the forthcoming meeting of members at Paris. Our neighbours will not be slow to avail themselves of the opportunity.

A great deal of detailed information and some useful suggestions—which cannot easily be separated from merely local opinions and prejudices—have been collected by means of this elaborate inquiry. We remarked on its appointment, that probably before it was completed the pressure of low prices which gave occasion for such an undertaking on the part of the Government would be relieved, and the "sufferings" of French agriculturists abated. The prediction was verified: the Wheat flood, and consequent extreme cheapness, which almost overwhelmed the little corn growers of France, subsided. Prices rose 60 per cent., in consequence of a crop about a fifth or a fourth deficient, and they are still 20 per cent. higher than in the year or two of distress previous to the rise. It is to be hoped, however, that the opportunity for necessary reforms will not be lost.

But, as the able reviewer we have so often quoted remarks in conclusion, the only effectual means of promoting agricultural progress are a reduction of public expenditure, by reducing the army, and abstaining from the enormous works for the embellishment of Paris. Nor is it a mere question of saving money; the army and the public works are drying up the source of rural prosperity, in the absorption of the labouring population.

Farm Memoranda.

CHADBURY AND EVESHAM.—The following account of Mr. Randell's farm is extracted and condensed from Mr. Clarke's "Report on Steam Cultivation," in the Journal of the English Agricultural Society:—

"The farm of 430 acres arable, and 220 pasture, consists for the most part of stiff blue-lias clay, some of the surface presenting very steep acclivities; while a small portion of sandy land, overlying a conglomerate gravel, reaches down into the rich valley of Evesham, under the northern edge of the Cotswold range; and from this lighter land lying next the public roads passers-by conclude the farm to be of less tenacious character than it is. The average size of the inclosures is 22 acres, bounded by the neatest of fences; and there has been no necessity for remodelling inclosures, stocking-up wasteful plantations, uprooting field-timber, or laying out new roads, to give full play to the steam-horse, as all this was done by Mr. Randell when he entered upon the farm 28 years since. One great improvement effected long since, and still in operation wherever requisite, is clay-burning. We walked (or rather climbed) up a steep-hill field of clay, which underwent this ameliorating process 25 or 26 years ago; the Rye-grass here was broken up by the steam-cultivator (able to mount any gradient or dive into any hollow) in July, 1866, and the burnt bits are still plentiful; the 'brick,' which has a tendency to sink, is continually brought up again by the deeply-burrowing and upturning tines of the cultivator, and the texture of the soil thus permanently kept milder and more free-working. This said piece has never been dunged within the memory of man: a high degree of fertility has been maintained by draining, burning, deep tillage, and feeding-off Vetches by sheep supplied with oilcake; while 3 cwt. per acre of guano are applied for Wheat. Mr. Randell keeps more stock than he formerly did, in consequence of having more produce for consumption. But then a peculiar feature in his system is, that none of the sheep are wintered on the clay-land, but in yards bottomed with burnt clay, renewed from time to time, and removed with the urine absorbed and the droppings incorporated with it into a fine manure. So that this land is not subjected to the pugging of the feet of a flock, the feeding off of Vetches being, of course, a summer or dry-time operation. On the vein of lighter land we saw (in September) the Shropshire tegs grazing a superb stock of thick-stalked leafy Rape, through iron hurdles propped leaning from the fold; the best possible plan for preventing waste, and saving the young sheep from a life of uninterrupted damp or wetness in wandering under the branching greens, or lying upon the cold half-eaten stalks.

"In 1857, Mr. Randell bought a Clayton-and-Shuttleworth 10-horse portable for 250*l.*, and a Smith tackle (with 3-tined grubber), made by Humphries, of Pershore, costing 200*l.* Since then a Howard 3-tined grubber has been added, and a Fowler 3-furrow plough lately purchased at 130*l.* more; making the whole investment 580*l.**

"Mr. Randell admits that his Wheats are neither better nor worse than when the farm was entirely under horse culture, for they have averaged 40 bushels an acre for many years. His other produce is greatly increased, because he now grows a larger breadth of roots, more Mangels and Cabbages, and a smaller acreage of Tares; and these crops are heavier in consequence of the preparation for all being completed earlier, and more of it done in dry weather, which 'is all-important,' he says, 'on such land.' More food enables him to keep more live stock, and necessarily the manual labour bill has increased rather than diminished. More Rye-grass is also now grown in place of Beans, &c., for the objection that it is a bad preparation for Wheat no longer holds good under steam culture; being now smashed up early it has time to get a solid bottom, and the Wheat plant does not suffer as it would if the lea were ploughed. We saw a striking example of directly augmented yield from steam tillage in a field of Mangels—all treated alike as respects the number of operations, in the manure applied, and in the time of sowing—and the roots after 'steam' were much better than those on the horse-ploughed part. This crop followed Rye-grass, and the sward being hollow after the ploughing, the roots did badly, suffering from drought.

"'The grand thing in steam culture,' said Mr. Randell, 'is being able to take advantage of favourable weather for tillage, and more particularly in the autumn culture for roots and Cabbage.' And the fact that the land is generally 'stirred only once' for a green crop will account for the comparatively small amount of tillage requiring to be accomplished in the course of a year. This clay soil, it should be remembered, is not very prone to mat itself with Couch, or so difficult to clean when foul, as some moist light lands are; it is principally subject to that noxious weed called the 'Onion Twitch.'

"A few of Mr. Randell's practical deductions are these:—Steam-grubbing is essentially a dry-weather operation, and though, in general, it is the fundamental process in his tillage management, he could make little use of it during the wet season of 1866, and consequently recommends the turnover plough as the implement to be resorted to in such a time. He likes the Woolston 3-tined cultivator better than the Bedford 3-tiner, because the former always works with a single tine preceding the other two, whereas the Bedford does this only one way; in every other journey the 2-tines go first, sometimes lifting the soil in one unbroken mass. But this backward and forward implement is admirable for crossing. He cultivates straight up as well as down very steep and lofty hills, as sidelong working would not do; and he does this with ease, where horses were always obliged to plough down, and go up 'empty.' He does not trench up land for winter, and has not tried the steam-drill. There has been no difficulty whatever in moving the engine about. To get over a great breadth of ground in the most precious season, the men make seven days in a week, by working two hours extra every day. Mr. Randell once tried paying by the acre, but he lost by the experiment—the work was scamped.

"The drainage is rendered more effectual by the steam tillage; Smith's grubber tearing up masses of clay much deeper than the tool is set. On one field, hollow in the middle, water used to lie for 24 hours after a heavy downfall; but this has not been the case since the engine broke up the ground below the old staple. More roots can be advantageously eaten by sheep on the land, because the preparation of autumn culture gets them sooner ready for stocking; still, the ground does not bear treading in wet weather any better than before.

"Mr. Randell does not believe in parallel drains for clay-land. He says, 'Stick to your furrows,' and if you must level ridges, take care to have the course of the drains duly marked on a plan. Where ridges are very high, it is an expensive process to flatten them, though Mr. Randell will not say that, in course of time, it may not answer. His own experience is, that laying a clay quite flat does not answer; there must be some water-furrows. Where the land is 'slightly arched' between the water-furrows, he can steam-grub for Wheat without needing to plough afterwards; but he does not like to venture his Wheat upon a surface perfectly horizontal. This testimony, it should be remarked, is applicable to a blue-lias clay in a locality having an average rainfall of probably 30 inches.

"In reference to some of the points we have just named, the following letter from Mr. Randell (January 21st, 1867) is important. He says:—

"'My practice, since I adopted steam cultivation, has been to manure the land intended for Mangels immediately after harvest; then smash it up, the rougher the better, by Smith's 3-tined cultivator. If an opportunity occurred of ploughing afterwards (by horses) during a frost, I have done so; otherwise the land has had no ploughing; it has been only scarified in the spring, to destroy surface weeds, first being looked over by men forking out all Couch-grass. This has been all the preparation for Mangels, which have been drilled on the flat with 1½ cartload of ashes from the sheep-sheds, mixed with 3 cwt. per acre of superphosphate of lime. They have been afterwards top-dressed with 5 cwt. per acre of Peruvian guano, horse-hoed in. The treatment for Cabbages has been the same, as far as manuring and smashing up the stubble-land. The plants are set by hand in October, as soon as the clods will fall to mould under a pair of harrows.

"'So far, as to clay-land. I have some lighter land on which Turnips and Swedes are grown—also on the flat, our climate not being moist enough for ridging. These crops follow Tares or early Cabbages, planted on Wheat-stubble, manured and ploughed (until last autumn) by horses. But having, last summer, purchased a 3-furrow Fowler's plough, this work was done last September by steam. Indeed, the last wet autumn quite changed my practice as to steam cultivation. In none of the nine previous years, during which I have used Smith's cultivator, have I had reason to think any other implement necessary; but in the last wet season it was entirely useless. 'Smashing up' will only do when the land is dry enough to burst up in all forms; if the tines cut, not burst, the soil only falls back to its original place, and the land becomes more wet and unkind for the operation. Without Fowler's plough I should not have moved an acre by steam last autumn; with it, we got over 87 acres very satisfactorily, at the same cost per acre as it had been done in other years by Smith's cultivator. So I come to the conclusion that there is good in all; Smith's for real hard work, Howard's for crossing Smith's work; and Fowler's for doing that which they cannot do. I have them all.—I am, my dear Sir, faithfully yours,

"'C. RANDELL.'"

* "The plough cost 60*l.* the whole investment was 530*l.* —C. R."

The Poultry Yard.

IN citing the numerous obligations under which our country is to his, a Frenchman never forgets the eggs, butter, and pigeons with which France supplies us; and if he be at all accustomed to our habits and mode of life, it is more than likely that he would tell you, that but for the French there would be no pigeon-pies on the Downs on the Derby day. Strange as it may seem, he would be speaking the truth. Were we dependent on our home produce for our supply of pigeons for the table, they would be unknown birds on the tables of many who now think them ordinary food. It is strange, and seems a pity, that we should neglect so prolific and useful a bird, and at the same time one that is so inexpensive to keep. We wish we could report progress in the matter, but with regret find the reverse to be the case. Yorkshire and Lincolnshire were formerly great assistants to the London market in furnishing young pigeons; but whether from neglect or any other cause, the supply is now barely one-fourth of what it was formerly, and we are consequently more than ever dependent on the supply from abroad.

Pigeons require very little care, very little food (if at liberty). The top of a loft or granary boarded off, with holes for ingress and egress—in fact, any place under a roof, will suit them, any waste corn will feed them; and if a small amount of care and protection be extended to them they will breed nearly all the year round. At no time of the year is the London market entirely without young French pigeons. At the dearest time they sell for 18*s.* and 20*s.* per dozen, a price which must be remunerative. In Belgium, where the Antwerp pigeon, for flying purposes, is brought to great perfection, the birds are taught to fly to the fields for their food, so that when on long journeys they may alight for food and water. They are thus enabled to make flights of four, six, and even eight hundred miles, and seldom come to grief. We mention this to show that abroad the pigeons feeding in the fields are not regarded as the deadly foes of the farmer, but are tolerated and often

encouraged. Those who have travelled between Hamburgh and Berlin must have noticed the immense flights of pigeons circling round those large red brick homesteads that are dotted about the country. In the country about Toulouse, where the fields are narrow and the farmhouses small and low, everywhere may be seen the flock of pigeons busy feeding and flying hither and thither, but unmolested, indeed well cared for as a profitable portion of the stock.

The pigeons of which we have been speaking are generally of mixed plumage of all shades, from dark slaty blue to white. They are not, as a rule, much larger than the ordinary blue roc, unless where their owner has crossed them with the French pigeon Mondain, a sort of bastard runt. Where this is done, the produce is much sought after. The little food that is given them at home is generally Tares in France, and light Barley in Germany.

In answering a correspondent, "Colchicus," in a recent Number, we said that tame pheasants might be made to pay by the sale of their eggs. We have a great many letters, inquiring all sorts of particulars as to the birds and mode of keeping them. If the pheasantry be on the lawn or in pleasure grounds, where it is an object from windows or road, it may be made attractive in appearance by being constructed in rustic work or fancy trellis. The first and principal thing to bear in mind is, that the birds want privacy and a certain amount of shelter. This last is best given to them by a little thicket of evergreen shrubs being planted in the centre of the pen, of which the size must be regulated by the space at command. It is necessary that the fence or wall be close, at least two feet or two and a half from the ground in order that the birds be not frightened by passing dogs, cats, &c., "Inquirer," in his letter, asks which varieties he should keep, having a pheasantry with three compartments. If he requires birds for beauty of plumage, he should put the golden in the centre, flank right and left by the silver and the Chinese. This latter bird is an early layer, very hardy, very handsome in plumage, and easily reared. To "Ernest," who asks the best food for pheasants in confinement, we recommend good Barley, as preferable to any other corn. Pheasants are very small eaters; and if the corn he supplemented by garden and table scraps, the cost positive of their food is very small.

We have to chronicle the close of the game season, of which it may be said that white pheasants and partridges have been unusually plentiful. The quality of them has been very low, in pheasants especially. The prices realised have been a poor average, and many who made large contracts early in the season lose considerably by them.

Calendar of Operations.

Spring Wheat not sown last month is now got in without needless delay. The propriety of increasing the breadth of this crop will no doubt give rise to some diversity of opinion, but generally the land and the weather will determine the conclusion. Wheat well got in, on some soils, and in some climates, at this season is not unfrequently as soon in the stackyard as the autumn sown, yielding as much money and straw per acre, if not more. But too many are apt to forget the fact that the spring sowing of this crop differs widely from the autumn, and in their haste to fill the ground place the seed in an improper seed-bed, thereby retarding vegetation, and producing the adverse of what they aim at accomplishing. When sown in a fine seed-bed and at a uniform depth, Wheat brairds evenly, and progresses uniformly and rapidly to maturity.

Sow Beans and Peas as soon as the weather and land will permit, is also a current rule. Of late years we have become more and more impressed with the propriety of increased attention being paid to the growth of both these crops, with the view of forcing them forward to early maturity, so as to obviate the attacks of insects both below and above ground, to which they are subject, and this imperatively demands a proper seed-bed in a rich, well-prepared soil. The insect which attacks their roots is similar to that which produces anbury in Turnips and club in Cabbages, and this affection of the roots generally precedes that of the foliage or leaf. Horsedung, guano, and lime, are obnoxious to these insects, especially when in the larva state. One of the greatest authorities of the United States, Judge Buel, in his agricultural tracts, recommends "a sprinkling of 3 or 4 bushels of gypsum" per acre along with the seed.

The Oat, although the hardiest of our cereals, requires a dry seed-bed, with properly cultivated land, to secure a favourable return. The latest varieties are sown as early in February as the weather will permit in our southern provinces; farther north sowing commences from the middle to the close of the month.

Seeds.—Seed Barley, Parsnips, Carrots, Potatos, Mangel Wurzel, Turnips, Clover, Rye-grass, and other Grass seeds are now got ready for their respective times of sowing. In our southern counties early Potatos, Parsnips, and Carrots are now planted and sown as early in February as the weather will permit. The former require a high dry soil to obviate injury from hoar-frost, and large crops of both the latter are grown on soils adapted for them. *W. B.*

Notices to Correspondents.

Manure: *Henry M.* It can be turned to a fertilising material by using it as litter in the cow house and stable, and afterwards rotting in a dung heap.

Communications Received: Mr. W. Hope (on the Sewage Question).—"Shrewsbury" (Drawings of Model Cottages).—"Leicester" (Co-operative Manure Association), next week.

Erratum. For "no statement," in line 6 from the bottom of Mr. Brinsley's letter on Irish Land Management, page 1296, read "no settlement."

KNAP HILL NURSERY, WOKING, SURREY.

ANTHONY WATERER

BEGS TO SUBMIT THE

FOLLOWING LIST to the NOTICE of INTENDING PLANTERS.

EVERYTHING IS WELL GROWN AND FINELY ROOTED.

In proof of which he gives the date of their last removal.

ABIES ORIENTALIS, 5, 6, 7, and 8 feet, 10s. 6d. to 21s. each.
" " beautiful specimens, 10, 12, and 14 feet high, 15 and 20 feet in circumference, 31s. 6d. to 63s. each, and upwards. Moved April, 1868.
" ALBERTUS, 5 to 9 feet, 30s. to 60s. per doz., moved April, 1868.
" DOUGLASSII, 5, 6, 7, and 8 feet, 5s. to 10s. 6d. each, moved August, 1868.
" CANADENSIS, 4, 5, 6, 7 feet high, 18s. to 30s. per dozen.
" PUMILA, " PYGMÆA, " CLANBRASILIANA, " GREGORII } Hundreds of these dwarf varieties of the common Spruce Fir, many are 20 and 30 years old.
" EXCELSA.—The Common Spruce, 5, 6, and 7 feet high 7 to 10 feet round, moved April, 1868, 21s. to 30s. per dozen.
PICEA NOBILIS, 4, 5, 7, 8, and 10 feet high, 8 and 15 feet in circumference, 42s. to 147s. each. Hundreds of magnificent plants of the best glaucous variety. None are grafted, and all moved since March, 1868.
" NORDMANNIANA, beautiful seedling plants, 1½ to 2 feet, 30s. and 42s. per dozen.
" " 3, 4, 5, 6, and 8 feet, 10s. 6d. to 105s. each.
" " Splendid trees, moved August, 1868, 10 and 15 feet high, 15 to 20 feet in circumference, 7 guineas each and upwards.
" MAGNIFICA or NOBILIS ROBUSTA, 2 feet, 15s. each.
" " " " 2½ to 3 feet, 6 feet in circumference, 21s. to 31s. 6d. each.
" " " " 3, 4, and 5 feet, 31s. 6d. to 63s. each and upwards. Mr. WATERER has hundreds of this handsome Fir, all seedlings.
" LASIOCARPA, 2 to 2½ feet, 60s. per dozen. [each.
" " 3 to 4 feet high, 8 and 9 feet in circumference, 21s. and 31s. 6d.
" " 5, 6, 7, and 8 feet high, 10 and 12 feet in circumference, 42s. and 63s. each; hundreds of them. [42s. each.
" PINSAPO, 3, 4, and 5 feet high, 9 and 10 feet round, 7s. 6d. to
" " 7, 8, and 10 feet high, 63s. to 147s. each, moved August, 1868.
PINUS AUSTRIACA, moved April, 1833, 3 feet, £5 per 100.
" BENTHAMIANA, moved April, 1868, 2 to 2½ feet, 30s. per doz.
" CEMBRA, 8 to 10 feet, 10 and 12 feet round, moved 1863, 10s. 6d. to 21s. each.
CEDRUS ATLANTICA, 5 to 6 feet, 42s. to 60s. per doz., moved 1833.
" " 7 to 8 feet, 84s. per dozen, moved 1868.
" " 8 to 10 feet, 7s. 6d. and 10s. 6d. each, moved 1868.
" DEODARA, 4 to 6 feet, 42s. and 60s. per dozen.
" " 7 to 8 feet, 84s. per dozen.
" " 10 to 12 feet, 120s. per dozen and upwards. Some thousands of these large Deodars, the majority moved since Jan., 1868.
" LIBANI, moved April, 1868, 5, 6, 7, and 10 feet, 5s. to 21s. each.
CUPRESSUS LAWSONIANA, 4 to 5 feet, 30s. per dozen.
" " 5 to 6 feet, 42s.; 7 to 8 feet, 60s.
" " 9 to 10 feet, 7s. 6d. to 10s. 6d. each.
" " 12 to 18 feet high, and as much round, 21s. to 63s. each. We have thousands of these large Lawsonianas, from 5 to 15 feet high, the majority moved in 1868.
JUNIPERUS CHINENSIS, 4 to 5 feet, 36s. and 42s. per dozen; 6 to 7 feet, 60s. to 84s. per dozen; 8 and 9 feet, and as much round, 21s. each; some magnificent plants, 10 to 15 feet high, 15 and 20 feet in circumference, 63s. to 105s. each and upwards. We have several thousands of this fine Juniper, 4 feet and upwards, the majority moved in 1868.
JUNIPERUS VIRGINIANA (Red Cedars), 4, 5, 6, and 7 feet, moved August, 1868, 18s. to 42s. per dozen.
YEW, ENGLISH.—Many thousands, 4, 5, 6, 7, 8, 10, 12 and 15 feet high, nearly all of which have been moved within 12 months.
" IRISH.—Handsome plants, 7 to 8 and 10 feet, 7s. 6d. to 10s. 6d. each, and upwards.
" GOLDEN and ELEGANTISSIMA. — Hundreds of fine plants, on their own bottoms and worked, from 3 to 6 and 8 feet high.
Many of these plants are 30 years old; all have been recently removed.
THUJA AUREA.—This plant originated at this Nursery. We have large numbers of fine specimens, 3, 4, 5, and 6 feet high, 8, 10, and 15 feet round.
" GIGANTEA.—Splendid plants, moved August, 1868, 10 to 15 feet high, 21s. to 42s. and upwards each.
" LOBBII, 6 to 7 feet, and as much round, 5s. to 7s. 6d. each.
" " 10 to 14 feet, do. do., 21s. to 63s. each.
All moved in 1868.
THUJOPSIS BOREALIS, 5 to 6 feet, 60s. per dozen.
Do. do., 7 to 8 feet, 10 and 12 feet in circumference, 10s. 6d. each and upwards.
Moved in 1868.
WELLINGTONIA GIGANTEA, 4 to 5 feet, 7s. 6d. to 10s. 6d. each.
Do. do., 6, 7, 8, and 9 feet, 21s. to 63s. each.
All moved August, 1868.
HOLLIES, GREEN, COMMON.—Stout, finely rooted plants, 3 feet, 18s. per dozen; £6 per 100.
Many thousands 4, 5, 6, and 7 feet high, 30s. to 84s. per dozen and upwards.
A number of splendid plants, 10 to 15 feet high, 15 and 20 feet round. All moved April, 1868.
" SCOTTICA, " LAURIFOLIA, " MYRTÆFOLIA, } Three of the finest hardy Evergreen known. Thousands of beautiful plants, 5, 6, 7, 8, and 9 ft. high, 7s. 6d. to 21s. each, and upwards.
" HODGIN'S HOLLY, 4, 5, and 6 feet.
" GOLDEN QUEEN.—Hundreds of magnificent plants, 4 to 8 feet high, and as much in circumference.
" WATERER'S.—This variety originated here, and we have them by hundreds, 3, 4, and 5 feet high, 8 to 15 feet in circumference—the admiration of everybody who sees them. There are many of them 20 and 30 years old, and have been constantly and recently removed.
" SILVER QUEEN, 3, 4, and 5 feet high.
" STANDARD, WATERER'S, and GOLDEN QUEEN HOLLIES, 5 to 6 feet stems, with heads 6 to 9 feet round, very handsome.
" STANDARD WEEPING HOLLIES.—Some of the finest plants in the kingdom, worked and on their own roots. One, probably the finest that exists in any Nursery, has a stem 10 feet high, 20 inches in circumference, perfectly straight, with a magnificent head covered with berries. This plant was moved August, 1868.
" VARIEGATED, of the ordinary kinds. — A stock of many thousands, from 4 to 5, 6 and 8 feet high. Plants in finer condition cannot be desired. The prices will be found fair and reasonable.
BOX, GREEN and VARIEGATED, 4, 5, 6, 7, and 8 feet high, 2s. 6d. to 10s. 6d. each and upwards.
" PYRAMIDS, up to 8 feet, very fine
BAYS, STANDARDS, " PYRAMIDS, } from 3 to 10 guineas a pair.
LAURUSTINUS, STANDARDS, 31s. 6d. each and upwards.
LAURELS, PORTUGAL, 4 and 5 feet high, 7 and 8 feet in circumference, 42s. and 63s. per dozen. Moved July, 1868.
RHODODENDRONS.—One of the finest stocks of all the leading kinds, nice healthy bushy plants, 1½ and 2 feet high, many of them layers (far preferable to grafted plants), from £7 10s. to £15 per 100.
" STANDARDS.—A large number of the oldest and finest specimens to be met with in any Nursery, many of them being 20 and 40 years of age, with heads measuring 15 and 20 feet in circumference, and when in bloom are objects of wonderful beauty.
" SEEDLING varieties, varying much in colour, fine plants, many of them blooming, 1½ to 2 and 3 feet, £5 to £15 per 100.
" DWARF varieties, several kinds, £6 to £7 10s. per 100.
" ODORATUM, " GOVENIANUM, " PONTICUM, for cover, good plants, £7 10s. to £15 per 1000. Nice blooming plants, beautifully scented, 12s. and 18s. per dozen.
The Exhibitions of Rhododendrons in the Horticultural Society's Gardens are supplied from Knap Hill.
AZALEAS.—A fine stock of the most beautiful varieties in cultivation, good blooming plants, carefully selected, will be supplied at 18s. to 30s. per dozen. Large plants, 3, 4, 5, and 6 feet high, of all the fine Ghent and other kinds.
KALMIA LATIFOLIA.—Nice blooming plants, 12s. and 18s. per dozen; larger, of all sizes.
ERICA HERBACEA CARNEA.—The prettiest of the Spring-flowering Heaths; fine plants, by the 100 or 1000. A large stock of the best varieties of Hardy Heaths at 30s. per 100.
DAPHNE CNEORUM MAJUS.—A grand improvement on the old variety; fine plants, 18s. per dozen.
AUCUBA JAPONICA, up to 3 feet; thousands.

THE FOLLOWING ORNAMENTAL TREES, OF LARGE SIZE,

Are well grown and well rooted, and stout.

PLANES, ORIENTAL and OCCIDENTAL, 10 to 15 feet high.
SYCAMORE, 10 to 14 feet.
WEEPING BIRCH, 8 to 12 feet.
MOUNTAIN ASH, 8 to 10 feet.
HORSE-CHESTNUTS, COMMON, 10 to 12 feet.
SCARLET HORSE-CHESTNUTS, very fine flowering Trees, 10 years, worked.
BEECH, WEEPING, 7 to 15 years, worked.
BEECH, PURPLE, 8 to 15 feet high.
DECIDUOUS CYPRESS, 8 to 12 feet.
NORWAY MAPLES, 8 to 12 feet.
LOMBARDY POPLARS, 10 to 12 feet.
THORNS, fine Standards, of the most ornamental kinds.
ASH, Gold-barked, Flowering, and other varieties; fine Standards, 8 to 10 feet.
LIMES, 10 to 12 feet.

As well as the above-mentioned articles, at Knap Hill will be found one or perhaps the most extensive Stock of all the better kinds of HARDY EVERGREENS, DECIDUOUS and FLOWERING ORNAMENTAL TREES and SHRUBS.

A PRICED AND DESCRIPTIVE CATALOGUE

Will be forwarded on application.

Purchasers are respectfully invited to inspect the Plants growing in the Nursery.
No Catalogue can adequately represent such a Stock.

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The Railways now take Goods at through rates to almost any Station, thus doing away with the expense of package.

ANTHONY WATERER, KNAP HILL NURSERY, WOKING, SURREY.

Fruit the First Season.

WOODLANDS NURSERY, MAIDSTONE, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON respectfully solicit attention to their enormous stock of FRUIT TREES in a fruit-bearing state.

PYRAMIDAL APPLES and PEARS, full of fruit buds.
Apples, 18s. per dozen; Pears, 24s. per dozen.

DWARF-TRAINED TREES, of extra size, in a fruiting state, adapted for walls or espaliers, including Apples, Pears, Plums, Cherries, &c.

STANDARD TRAINED FRUIT TREES for walls.

PRICED CATALOGUES may be had gratis on application.



NOTICE.—LORD BURGHLEY APPLE was exhibited at the Royal Horticultural Society on December 15, 1868, and pronounced "excellent." Maiden Trees, 1s. 6d. each; Fine Fruiting Trees, 2s. 6d. and 3s. 6d. each.

VINES.—Eyes of MRS. PINCE'S BLACK MUSCAT, 2s. per dozen; Sample Eye for three stamps. Planting Canes, 5s. each. 200 Extra Strong Fruiting and Planting Canes of the leading sorts; names and prices on application.

GERANIUM MRS. POLLOCK.—Several thousand Autumn-struck plants to offer, very strong; 40s. per 100.

NAMED HOLLYHOCKS.—Several hundred choice varieties, in pots, 6s., 9s., and 12s. per dozen. Seedlings, from first-class sorts, 1s. per dozen, 50s. per 100.

J. HOUSE, Eastgate Nursery, Peterborough.

Fruit Trees, Nursery Stock, Roses.

L. PAILLET, NURSERYMAN, Chatenay lez Sceaux, près Paris, offers for the present season a very large quantity of Nursery Stock, and especially FRUIT TREES and ROSES, at very low prices:— Per 1000.

PEARS, 1-yr., extra choice, 6 to 8 millimètres in diameter £1 10
Do., 1-yr., extra choice, 4 to 6 do. .. .. (per 10,000) 11 12
QUINCE, extra choice, 7 to 13 do. 1 10
Do., first choice, 6 to 7 do. 8 12
APPLES, 1-yr., extra, 6 to 8 do. 0 18
Do., transplanted 6 to 9 do. 1 0
DOUCIN, extra choice, 6 to 9 do. 1 6
Do., first choice, 4 to 6 do. 0 17
PARADISE, extra choice, 6 to 8 do. 1 2
Do., first choice, 4 to 6 do. 0 12
PLUMS (real St. Julien), extra, 1-yr., 5 to 8 do. 1 10
CHERRIES, 1-yr., extra, 6 to 8 do. 0 12
Do., transplanted, 5 to 8 do. 0 15
ST. LUCIE, 1-yr., extra, 5 to 8 do. 0 10
Do., transplanted, 5 to 8 do. .. .. .. (per 10,000) 5 0

NOTE.—The measure in diameter is taken level with the ground, near the collar of the roots; and 25 millimètres make one inch.

ROSES—Our own best selection:—
Standards, 3 feet to 3 feet 7 inches .. per 100 £3 15
Half-Standards, 2 feet to 2½ feet high .. .. do. 2 10
Low-Budded (Dwarfs) .. .. .. per 1000 17 10
On their own Roots .. .. do. 13 10
Bengals, three best varieties .. .. .. do. 6 0
Sr. Malmaison (own Roots) .. .. .. do. 14 10

CATALOGUES sent on application. Discount of 5 per cent. will be allowed on prepaid orders.

The cost of carriage, freight, and other expenses, from Chatenay to London, is from 6s. to 7s. per 100 lb. weight.

Orders must be sent to Messrs. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

The American Nursery, Bagshot, Surrey.

JOHN WATERER respectfully invites the attention of Gentlemen and others engaged in planting to the undermentioned selections from his general stock. He has much satisfaction in recommending them as being symmetrically grown and really of first-rate excellence, and from frequency in removal are in an excellent state for transplanting. Having a very large stock, he is determined to treat on most liberal terms. He would, however, earnestly invite Purchasers to make a visit and choose for themselves, which is easily accomplished by South-Western Railway (Reading Branch) to Sunningdale Station, which is near the Nursery.

RHODODENDRONS (Standards).—Of all the leading choice, scarlet, and other varieties, 3 to 4 feet stems, consisting of such as Alexander Adie, Michael Waterer, The Warrior, Princess Mary of Cambridge, Quadroona, Mrs. Ino Penn, Joseph Whitworth, and all such others as have been exhibited annually at the Royal Botanic Gardens, Regent's Park.

RHODODENDRONS (Half Standards)—Of all the approved kinds; 2 to 3 feet stems.

RHODODENDRONS.—Hardy scarlet, crimson rose, white; for superior clumps or borders fine well-grown plants. An excellent assortment would be supplied at £15 per 100. Fine bushy plants can also be supplied, averaging 3 to 5 feet.

RHODODENDRONS.—Immense quantities of really good coloured seedlings, with Catawbiense and Hybrid Catawbiense, 1½ to 2 and 3 feet, £10 to £12 10s. per 100. These varieties are very suitable for admixture with the better kinds. The plants are bushy, and mostly well set with blooming buds, and from rose to white in colour.

RHODODENDRONS (Dwarf-growing kinds).—These are very close growing varieties, and are recommended for filling winter beds. Daphnoides, Myrtifolium, and Hybridum are the best suited for such purposes. Odoratum is delightfully scented, and much used for potting and forcing.

RHODODENDRON PONTICUM.—This kind is the most common, and now generally admitted to form the best permanent cover for game. In the most severe weather it is never injured by hares or rabbits. Good plants, 21s. to 30s. per 100.

AZALEAS, HARDY, of the most popular kinds, of all colours, and in fine plants, covered with a profusion of blooming buds. These are much used for forcing. 18s. to 30s. per dozen.

ANDROMEDA FLORIBUNDA.—One of the most hardy plants used for decorating winter clumps. Of these we are large holders, and can supply beautiful specimens at 30s. per dozen, covered with blooming buds.

KALMIA LATIFOLIA and MYRTIFOLIA.—Fine grown plants, of all sizes.

HARDY HEATHS.—A very fine collection, in 20 kinds, 30s. p. 100.

ABIES NORDMANNIANA.—Of this fine kind we are very large holders, allof which are seedlings, and of all heights, from 2 to 4 to 6 to 8 and 10 feet.

ABIES MAGNIFICA.—Fine specimens, 2 to 5 feet.

ABIES NOBILIS.—All seedlings, 1½ to 3 to 5 feet.

ABIES LASIOCARPA.—From 2 to 3 to 5 to 7 feet.

ABIES GRANDIS (of Douglas).—Fine specimens, 2 to 6 feet.

ABIES DOUGLASII.—3 to 4 to 6 to 10 feet.

ABIES PINSAPO.—2 to 3 to 4 to 10 feet.

ARAUCARIA IMBRICATA.—Fine specimen, 2 to 4 to 6 to 12 feet.

THUJOPSIS BOREALIS.—2 to 3 to 4 to 6 feet.

THUJA AUREA.—All sizes, 2 to 4 to 5 feet, perfect globes.

THUJA GIGANTEA.—Immense quantities, from 3 to 4 to 6 feet.

WELLINGTONIA GIGANTEA.—Of all sizes from 2 to 12 feet.

IRISH YEW.—Selected specimens, 4 to 12 feet.

HOLLIES (Green).—Fine, 2 to 3 to 4 to 6 feet.

HOLLIES (Gold and Silver).—In the most approved kinds, of all sizes.

STANDARD GOLDEN HOLLY (WATERER'S).—The best for standards; fine plants.

STANDARD WEEPING HOLLIES (Green and Variegated).

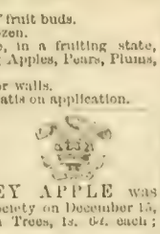
We have likewise immense quantities of the leading kinds of EVERGREENS, of all sizes, such as Yews, Box, Bays, Aucubas, Arbutus, Phillyreas, Common and Portugal Laurels, &c., as well as fine strong transplanted FOREST TREES, 2 to 3 and 4 feet, consisting of Ash, Beech, Alder, Spanish Chestnut, Hazel, Withy, Larch Spruce, Pinus austriaca, &c.

CATALOGUES describing the colours of all the RHODODENDRONS worthy of cultivation, with a LIST of CONIFEROUS PLANTS, with heights and prices, forwarded to all applicants.

☞ Purchasers of large quantities of goods are informed that the great expense incurred by package is now greatly diminished, as we can forward from Sunningdale, in through trucks without change, to all Stations on the Great Northern, North-Western, Easterr Counties, and Great Western (narrow gauge) Railways; also by South-Eastern and Brighton Lines by way of Blackwater.

The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway, and Blackwater Station, South-Eastern Railway, where excellent Conveyances await all Trains.

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FRUIT LIST



Contains a sketch of the various forms of Trees, with directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by post for three stamps.

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DWARF-TRAINED TREES.—By the Thousand, Hundred, or Dozen. Apples, Pears, Plums, Cherries, Peaches, and Nectarines. Fine, flat, well-trained, of best quality, and true to name.

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EVERGREEN HEDGES. AMERICAN ARBOR-VITÆ, 4 to 5 feet, at 50s. per 100; 5 to 6 feet, at 8s. per 100; 6 to 7 feet, at 100s. per 100.

SIBERIAN ARBOR-VIT.E, 2 to 2½ feet, 40s. per 100; 2½ to 3 feet, 50s. per 100; 3 to 3½ feet, 75s. per 100; 3½ to 4 feet, 100s. per 100.

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SURPLUS STOCK.—VERY CHEAP.

SPECIMEN CONIFERS and EVERGREENS, handsome and well-grown, for Lawns, Pleasure Grounds, and Parks, have been recently transplanted, and are full of health and vigour. For Descriptions, also Prices of smaller quantities and sizes, see RICHARD SMITH'S LISTS.

Trucks for 1 ton and upwards may be sent through to any Railway Station on the narrow guage lines, at a moderate cost, thereby saving delay and expense of packing.

At 12s. per dozen:—

Arbor-vitæ, American, 5 to 6 feet
" aurea, 12 to 15 inches
" Lobbii, 2 to 3 feet
" Siberian (Ware's), 3 to 3½ feet
Aucuba japonica, 18 to 21 inches
Berberis Darwinii, 1 to 1½ foot
" Jamiesonii, 12 to 15 inches
Cupressus Lawsoniana, 3 to 4 feet
Hemlock Spruce, 3 to 4 feet
Hartogia capensis, 1 to 1½ foot
Juniperus chinensis, 1½ to 2 feet
Mahonia japonica, 9 to 12 inches
Norway Spruce, extra fine, 3½ to 4 feet
Phillyrea oleafolia, 2 to 2½ feet
Picea balsamea, 4 to 5 feet
Portugal Laurel, 2½ to 3 feet
Pyracantha, scarlet berried, 1 to 1½ foot
Pinus Laricio, 3 to 4 feet [2 feet.
Rhododendron ponticum, 1½ to
Taxus japonica, 15 to 18 inches
Thujopsis borealis, 2 to 2½ feet
Thuja plicata, 2 to 3 feet

At 18s. per dozen:—

Abies inverta, 1½ to 2 feet
" Douglasii, 2 to 2½ feet
" Menziesii, 4 to 5 feet
Arbor-vitæ, American, 6 to 7 feet
" compacta, 1½ to 2 feet
" Lobbii, 3 to 4 feet
" Siberian (Ware's), 3½ to 4 feet
Aucuba japonica, 2 feet
Berberis Darwinii, 1½ to 2 feet
" Jamiesonii, 15 to 18 inches
Cedrus argentea, 2 to 2½ feet
Cryptomeria Lobbii, 5 to 6 feet
" viridis, 5 to 6 feet
Cupressus fragrans, 3 to 4 feet
" Lawsoniana, 4 to 4½ feet
Hartogia capensis, 1½ to 2 feet
Hemlock Spruce, 4 to 5 feet
Ivy, green, tree, 1½ to 2 feet
" new silver-striped, tree, 15 to 18 inches [15 inches
" tricolor variegata, tree, 12 to
Juniperus chinensis, 2½ to 3 feet
" Lee ana, 2 to 2½ feet
" Schottii, 2 to 2½ feet
" thurifera, 1½ to 2 feet
" glauca, 1½ to 2 feet
" drupacea, 15 to 18 inches
" viridis pendula, 2 to 3 feet
Laurel, Colchic, 5 to 6 feet
" Portugal, 3 to 3½ feet
Mahonia japonica, 12 to 15 inches
Pinus austriaca, 3 to 4 feet
" Laricio, 4 to 5 feet
Phillyrea oleafolia, 2½ to 3 feet
Rhododendron ponticum, 2 to 2½ feet
Taxus elegantissima, 15 to 18 ins.
" gold-striped, 15 to 18 inches
Thujopsis borealis, 2½ to 3 feet
Thuja plicata, 3 to 4 feet
" incurvata, 3 to 4 feet [ins.
Wellingtonia gigantea, 15 to 18

At 30s. per dozen:—

Abies elegans, 2 to 2½ feet
" inverta, 2½ to 3 feet
" Menziesii, 6 feet
" orientalis, 2 to 2½ feet
Arbor-vitæ, American, 7 to 8 feet
" compacta, 2 to 3 feet
" Lobbii, 5 to 6 feet
" Siberian, 4 to 5 feet
Arbutus unedo, 2½ to 3 feet
Box, tree, 2½ feet by 2½ to 3 feet
Cedrus argentea, 3 to 4 feet
Cupressus Lawsoniana, 4½ to 5 ft.
" fragrans, 4 to 5 feet
" McNabiana, 3 to 4 feet
Garrya elliptica, 2 to 2½ feet
Hemlock Spruce, 5 to 6 feet
Irish Yews, 5 to 6 feet
Juniperus chinensis, 3 to 3½ feet
" fragrans, 2 to 2½ feet
" glauca, 3 to 3½ feet
" Leeana, 2½ to 3 feet
" Schottii, 3 to 3½ feet
" thurifera, 3 to 4 feet
" virginiana, 5 to 6 feet
" viridis pendula, 3 to 4 feet
Laurel, Colchic, 7 to 8 feet
Pinus austriaca, 4 to 5 feet
" Laricio, 5 to 6 feet
Taxus elegantissima, 1½ to 2 feet
Thujopsis borealis, 4 to 4½ feet
Thuja incurvata, 4 to 5 feet
Wellingtonia gigantea, 2½ feet

At 42s. per dozen:—

Abies Albertiana, 3½ to 4 feet
" inverta, 3 to 4 feet
" orientalis, 2½ to 3 feet
" pyramidalis, 4 to 5 feet
Arbor-vitæ, American, 8 to 9 feet
" aurea, 2 to 2½ feet
" compacta, 3 to 3½ feet
" japonica, 2½ to 3 feet
" Siberian, 5 to 6 feet
Cedrus argentea, 4 to 5 feet
Cupressus fragrans, 5 to 6 feet
" Lawsoniana, 5 to 6 feet
Hemlock Spruce, 6 to 7 feet
Irish Yews, 6 to 7 feet
Juniperus chinensis, 3½ to 4 feet
" densata, 4 to 5 feet
Juniperus glauca, 4 to 5 feet
" Leeana, 3 to 4 feet
" Smithiana, 3 to 4 feet
" thurifera, 5 to 6 feet
" virginiana, 6 to 7 feet
" viridis pendula, 4 to 5 feet
Laurel, Colchic, 8 to 10 feet
Pinus, Cembra, 5 to 6 feet
" Laricio, 6 to 7 feet
Quercus austriaca sempervirens, 3 to 3½ feet
" Fordii, 3 to 3½ feet
Thujopsis borealis, 5 to 6 feet
Thuja Lobbii, 6 to 7 feet
Wellingtonia gigantea, 3 to 4 feet

At 60s. per dozen:—

Abies Albertiana, 4 to 5 feet
" inverta, 6 to 7 feet
" orientalis, 3½ to 4 feet
" pyramidalis, 5 to 6 feet
Arbor-vitæ aurea, 2½ feet
" compacta, 3½ to 4 feet
" gigantea, 4 to 4½ feet
" japonica, 3½ to 4 feet [ins.
Cephalotaxus Fortunei, 21 to 24
Juniperus chinensis, 4 to 5 feet
" thurifera, 6 to 7 feet
Pinus Cembra, 6 to 7 feet
Quercus austriaca sempervirens, 3½ to 4 feet
" Fordii, 3½ to 4 feet
Thujopsis borealis, 6 to 7 feet
Wellingtonia gigantea, 4 to 5 feet

Each:—

Abies Albertiana, 6 to 7 ft., 7s. 6d.
" " 7 to 8 feet, 10s. 6d.
" Douglasii, 8 to 10 ft., 7s. 6d.; 8 4s. per dozen
" " 10 to 12 feet, 10s. 6d.; 100s. per dozen
" Menziesii, 7 to 8 feet, 5s.
" " 8 to 10 feet, 7s. 6d.
" orientalis, 5 to 6 ft., 10s. 6d.; 100s. per dozen
Araucaria imbricata, 5 to 6 ft., 21s.
" " 6 to 7 feet, 42s.
" " 7 to 8 feet, 63s.
" " 8 to 10 feet, 105s.
Arbor-vitæ japonica, 4 to 4½ feet,
" " 4½ to 5 ft., 10s 6d. [7s. 6d.
Picea grandis, 4 to 5 feet, 15s.
Picea grandis, 5 to 6 feet, 21s.
" nobilis, 3 to 3½ feet, 31s. 6d.; 300s. per dozen
" " 3½ to 4 feet, 42s.
" " 4 to 4½ feet, 51s. 6d.
" " 4½ to 5 feet, 63s.
" Normanniana, 4 to 5 ft., 21s.
" " 5 to 6 feet, 31s. 6d.
" " 6 to 7 feet, 42s.
" " 7 to 8 feet, 50s.
" Pinsapo, 3 to 3½ feet, 10s. 6d.
" " 3½ to 4 feet, 15s.
" " 4 to 5 feet, 21s. to 31s. 6d.
Pinus Cembra, 7 to 8 feet, 7s. 6d.
Yews, for hedges, about 12 feet high, 45 years old, recently transplanted, 31s. 6d.

RICHARD SMITH,
NURSERYMAN AND SEED MERCHANT, WORCESTER.

FRUIT TREES, warranted true to name.—Strong Standard APPLE, PEAR, PLUM, CHERRY, and WALNUT TREES, 9s. per dozen.

Strong Dwarf and Half-Standard PLUM TREES, viz., Victoria, Green Gage, Yellow Magnum, Orleans, Cox's Emperor, Kirk's fine Plum, &c., 9s. per dozen.

SCARLET and other FILBERT NUTS, strong plants, 5s.
Apply to W. JACKSON & Co., Nurseries, Bedale, Yorkshire.

THE FOLLOWING SEEDS, true and good, by post, prepaid, 1s. per packet:—

MELONS.—Trentham Hybrid, green-flesh, first quality.
Queen Emma, green-flesh, netted, fine.
Golden Perfection, green-flesh, rich.
Cinchester, prize green-flesh.
Heckfield Hybrid, green-flesh, large and good.
Bromham Hall, green-flesh, excellent.
Marquis of Ailsa, green-flesh, fine.
Buckland Scarlet-flesh, excellent flavour.
Scarlet Gem, small, but first quality.
Rendcombe Hybrid, scarlet-flesh, excellent.
Conqueror of Europe, green-flesh, good.
Malvern Hall, scarlet-flesh, new, and good quality.

CUCUMBERS.—Berkshire Champion, white spine.
Hamilton's Invincible, white spine, 34 inches.
Rollisson's Telegraph, true, white spine.
Victoria (Scott's), black spine, excellent.
Swadling's Challenge, white spine, fine.

Home-grown Scrymger's Improved BRUSSELS SPROUTS, true, 6d. per packet.

A quantity of fine JERUSALEM ARTICHOKES, price on application to
ROBERT F. DARBY, Nurseryman and Seedsman, Cirencester.

Full-grown Evergreens.

HENRY GODFREY, NURSERYMAN, Stourbridge, has a large quantity of the following Evergreens to offer, in well grown plants: Green and Variegated HOLLY, Siberian and American ARBOR-VITÆ, Common and Portugal LAUREL, English and Irish YEWS, RHODODENDRONS PONTICUM and PONTICUM VARIEGATUM; Green and Variegated BOX, AUCUBA JAPONICA, ARAUCARIA IMBRICATA, &c.

Planting Season.

DICKSONS AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, 1, Waterloo Place, Edinburgh, are now prepared to execute orders for all kinds of FOREST TREES, ORNAMENTAL TREES and SHRUBS, FRUIT TREES, ROSES, &c.; of all of which they have an extensive and very healthy stock.

CATALOGUES with Prices may be had free on application.
Established, 1770.

The Newry Nurseries.

GEO. R. DAVIDSON begs to call attention to his very extensive stock of FOREST TREES, 1½ to 4 feet, twice transplanted; Four Million THORNS, 1 to 2-yr. old; HARDY ORNAMENTAL, EVERGREEN, and DECIDUOUS SHRUBS, TREES, &c. Samples sent. Orders delivered free in Liverpool.
GEORGE R. DAVIDSON, Nurseryman, Newry.

Trees and Shrubs.

THOMAS KENNEDY AND CO. have as usual a very large and superior stock of FOREST and ORNAMENTAL TREES and SHRUBS, which they are selling at moderate prices. The Trees and Shrubs, being of all ages and sizes, are particularly well suited for extensive planting or giving immediate effect in the formation and improving of Ornamental Parks, Pleasure Grounds, &c. CATALOGUES sent free by post on application.
The Nurseries, Dumfries, N.B.

FOREST TREES, &c.—Special offer of
150,000 2-yr. Seedling 2-yr. transplanted SCOTCH FIRS, true
150,000 NORWAY SPRUCE, strong, transplanted. [native.
30,000 SILVER FIR, strong, transplanted.
50,000 LAUREL BAYS, 2-yr. cuttings.
20,000 COMMON BERBERIS, 2-yr. Seedlings.
Samples and special prices on application to ORMISTON & RENWICK, Melrose, N.B.

FOREST TREES, Transplanted, can be supplied in great quantities at moderate prices, of the following:—Ash, Elm, Birch, Chestnut (Horse), Limes (red twigged), Oak (Turkey), Weymouth Pine, Sycamore, Poplar (Abele) silver, Willows (Weeping Babylonian), Willow (Huntingdon), in sizes, 1 to 1½ ft., 1½ to 2 ft., 2 to 3 ft., 3 to 4 ft., and 4 to 5 ft.; Privet (evergreen), Alder, Spruce Fir, 1½ to 2 ft. and 2 to 3 ft.; Balm of Gilead and Silver Fir, 1 to 1½ ft. and 1½ to 2 ft.; Gooseberries of sorts, 2, 3, and 4 years old; Yews, English, extra strong and splendid roots, 4 to 5 ft. and 5 to 5½ ft.; Portugal Laurel, very fine and bushy, well-rooted, 2 to 2½ ft., 2½ to 3 ft., and 3 to 4 ft.; Common Laurel, strong, 1½ to 2 ft. and 2 to 2½ ft.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

LARGE EVERGREENS, for Immediate Planting:—

Holly, common, 3 to 10 ft.
" Canadian, 3 to 8 ft.
" " 8 to 10 ft., specimens.
" green, in variety, 3 to 7 ft.
" nigrescens, 3 to 6 ft.
" variegated, 3 ft.
" " weeping, on stems.
Rhododendrons, common, 1 to 4 ft.
" hydrids, 1 to 3 ft.
Phillyrea, 3 ft.
Yews, common, 3 to 5 ft.
Yews, Irish, 3 to 7 ft.
Arbor-vitæ, American, 3 to 5 ft.
" Siberian, 4 to 5 ft.
Box, 2 to 3 ft.
Laurels, common, 2 to 3 ft.
" Portugal, 2 to 4 ft.
Aucuba, 1 to 4 ft.
Andromeda floribunda, 1 to 3 ft.
Azalea pontica, 3 ft.
Araucaria imbricata, 2 ft.
Taxodium distichum, 5 to 7 ft.

FOREST TREES and DECIDUOUS SHRUBS of all varieties. Prices on application.
Apply to G. H. BUNNEY, the Nursery, Stratford, Essex, E.

Large Evergreens and Forest Trees.

MESSRS. PAMPLIN AND SON have a large quantity of the following, and offer them at low prices, part of their Grounds being required for building purposes:—

Cedar of Lebanon, 10 to 20 feet
Cedrus Deodara, 6 to 15 feet
Aucuba japonica, 2 to 6 feet
Portugal Laurels, 2 to 6 feet
Chinese Arbor-vitæ, 5 to 12 feet
American " 5 to 10 feet
Thuja aurea, 1 to 4 feet
Green Box, 1 to 6 feet
Striped ditto, 2 to 4 feet
Evergreen Oak, 7 to 10 feet
Yew, Common, 4 to 10 feet
Irish Yew, 3 to 5 feet
Laurel, 2 to 6 feet
Araucaria imbricata, 10 feet
Green Hollies, 1 to 12 feet
Weymouth Fir, 3 to 6 feet
Spruce ditto, 2 to 4 feet
Birch, 14 feet
Black Italian Poplar, 20 feet
Balsam ditto, 10 to 15 feet
Lombardy ditto, 20 feet
Horse Chestnut, 10 to 15 foot
Spanish Chestnut, 10 feet
Limes, 10 to 15 feet
Walnuts, 10 to 15 feet
Ash, 10 to 20 feet
Elm, 10 to 15 feet
Acacia, 10 feet
Mountain Ash, 10 feet
Turkey Oak, 10 to 12 feet
Sycamore, 10 to 14 feet
Weeping Willow, 10 to 15 feet
Lilac, Common, 8 feet
Persian ditto, 6 feet
Yellow Azalea, 3 feet
Privet ovalifolia, 8 feet

The Nurseries, Lea Bridge Road, Leyton; and Wood Street, Walthamstow, Essex, N.E.

To the Trade.

THOS. CRIPPS AND SON beg to announce they still hold a good stock of the following, in fine healthy stuff:—ABIES ALBERTIANA (Williamsoni), 2-yr. seedlings, to 16 feet; A. MENZIESI, 9 ins. to 12 ft.; ARAUCARIA IMBRICATA, 6 ins. to 20 ft.; Cupressus Lawsoniana (an unequalled stock), 2-yr. seedlings, to 15 feet; Picea balsamifera, 3 inches to 7 feet; P. Nordmanniana, 3 inches to 7 feet; P. Pinsapo, 6 inches to 18 feet; P. pectinata (Silver Fir), 1 to 4 feet; Pinus austriaca, 2½ to 7 feet; P. Lambertiana, 1 to 5 feet; P. muricata, 1 to 2 feet; P. Benthamiana, 2-yr. seedlings, to 7 feet; Retinospora ericoides, 5 inches to 3½ feet; R. obtusa, 6 inches to 6 feet; R. pisifera, 1 to 8 feet; Taxus ericoides, 6 inches to 2 feet; Thujopsis dolabrata, fine stuff, 3 to 15 inches; Wellingtonias, 3 ins. to 20 ft.; Horse-Chestnuts, all varieties; Aucubas, a complete collection; Berberis Bealii, japonica, intermedia, Darwinii, dulcis, stenophylla, vulgaris; Laurels, common, 3 to 5 feet; Laurels, Portugal and Myrtle-leaved do.; Daphne pontica Stocks; Deutzia crenata fl.-pl.; D. scabra, Leycesterias, Manetti and Rhododendron Stocks; Malus floribunda (handsomest of the flowering Crabs); Prunus triloba, Hardy Azaleas, Ericas, Gaultherias, Menziesias, and Pernettyas; Standard Roses, Blush and Crimson China do.; Standard Apples, Cherry Plum Stocks, Strawberries; Pinus excelsa and Picea Webbiana, 1-yr. seedlings; Alder, 2 to 6 feet; Spruce Firs; Lilium auratum and punctatum. For particulars and prices of which, see our TRADE CATALOGUE, to be had free on application.
The Nurseries, Tunbridge Wells, Kent.

Plants for Hedges.

TWO HUNDRED THOUSAND COMMON LAURELS, from 1½ to 3 feet.
WM. WOOD & SON.

AMERICAN ARBOR-VITÆ, especially recommended for Hedges:—1 to 2 feet, 6s. per dozen, 25s. per 100; 3 to 4 feet, 9s. per dozen, 60s. per 100; 4 to 5 feet, 15s. per dozen (extra fine); 5 to 6 feet, 24s.
Large Plants of RED and HORNBEAM, 2 to 3 ft. and 3 to 4 feet, also the EVERGREEN PRIVET, in large quantities.
WM. WOOD & SON, Woodlands Nursery, Mayfield, near Uckfield, Sussex.

The Planting Season.

WOODLANDS NURSERY, MAYFIELD, NEAR UCKFIELD, SUSSEX.
WM. WOOD AND SON respectfully invite especial attention to their very large stock of STANDARD ORNAMENTAL TREES, of large size, suitable for planting as single specimens on Lawns or in Parks where immediate effect is desired.
WEEPING ASH, 7 to 9 feet stems.
" AMERICAN WILLOWS, 6 to 7 feet stems.
CATALPA SYRINGÆFOLIA, 6 to 8 feet.
ELMS, CHICHESTER and ENGLISH, 8 to 10, and 10 to 12 feet.
SILVER and SPRUCE FIRS, 6 to 7 feet.
HORSE-CHESTNUTS, 6 to 8, and 8 to 10 feet.
SCARLET HORSE-CHESTNUTS, extra fine plants, 6 to 8, and 8 to 10 feet.
LABURNUMS, Yellow and Purple, 6 to 8 feet.
POPLARS, BLACK ITALIAN and LOMBARDY, extra fine, 8 to 10, and 10 to 12 feet, and various other HARDY TREES.
See PRICED CATALOGUES, which may be had free on application.

Surplus Stock.

THOMAS IMRIE AND SONS, NURSERYMEN, Ayr, offer a quantity of the undernoted at very low prices:—

Alder, 1-yr. seedlings.	Elm, Scotch, transplntd., 4 to 5 ft.
" transplanted, 1 to 1½, 2 to 3, and 3½ to 4 ft.	Hazel, transplanted, 1½ to 2, and 2 to 3 ft.
Ash, common, 2 and 3-yr. seedlgs.	Oaks, 1, 2, and 3-yr. seedlings.
" " transplanted, 1½ to 2 ft.	" transplanted, 2 to 3 ft.
" Mountain, do., 1½ to 2, 2 to 3, and 3 to 4 ft.	Pinus Laricio, 2-yr., 1-yr. trans.
Chestnuts, Horse, 1 and 2-yr. seedlings.	Scots Fir, 2-yr. seedlings.
" transplanted, 1½ to 2, and 3 to 4 ft.	" transplanted, 1-yr. 2-yr. and 2-yr. 1-yr.
	Spruce Fir, transplanted, 1 to 1½, and 1½ to 2 ft.

Sulphur and Early Yellow GOOSEBERRIES, very strong.
Also a quantity of CUPRESSUS LAWSONIANA, ARBOR-VITÆ, IRISH YEWS, PORTUGAL LAURELS, &c., all sizes.
Prices on application.

1868.—Mangel Wurzel Seed.

H. AND F. SHARPE can offer the Trade some splendid STOCKS of the above-named Seed, grown on their own Farm this season from picked Bulbs. The quality is very fine, and prices low. Samples may be obtained on application.
Seed Growing Establishment, Wisbech.

IVERY'S NONSUCH LETTUCE.—The best Summer variety in cultivation; will stand a month longer than any other kind without running to Seed. 1s. per packet, sealed with initials, "M. A. I." Price to the Trade on application.
A GENERAL SEED CATALOGUE can be had post free on application. The Trade supplied with superior MUSHROOM SPAWN. Hanover Nursery, Peckham, S.E.

Henry's Hybrid Prize Leek.

DOWNIE, LAIRD, AND LAING are now sending out seed of the above celebrated LEEK, warranted true. This is the largest and finest sort in cultivation. In sealed packets, at 1s. each.
17, South Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E.

HAIRS' MAMMOTH LEEK, the largest and finest variety yet introduced. It has been exhibited, and beaten everything the London Market Gardeners could produce. Per oz., 1s. A few pound parcels for sale, wholesale, on receipt of 8s.
Selected WALCHEREN BROCCOLI or CAULIFLOWER, selected by the first grower of Covent Garden, and guaranteed superior to the generality sold, 1s. per packet.
IMPERIAL FRINGED PARSLEY, warranted exquisitely fringed, and not to be surpassed, if equalled, by any grown, 6d. per packet.
The above, or any portion, free on receipt of remittance.
DUNCAN HAIRS, 2, Albert Road, Bishop's Road, Victoria Park, N.E.

East Lothian, White, and Purple Intermediate Stock.

THOMAS METHVEN having secured the Seed saved by Mr. D. Thomson, late of Archerfield, Mr. T. Lees, Tyninghame, and others, is happy to state that, owing to the very favourable season for saving Seed of these very desirable STOCKS, he is enabled to supply liberal packets of them at 1s., 2s. 6d. and 5s.
EAST LOTHIAN SCARLET INTERMEDIATE STOCK at 6d., 1s., and 2s. 6d.
These Stocks ought to be grown by all who have a flower border.
Price to the Trade on application.
THOMSON'S SUPERB HERBACEOUS CALCEOLARIA, saved from the Dalkeith Collection, in packets at 1s., 2s. 6d., and 5s.
Seed Warehouse, 15, Princes Street, and Nursery Gate, Leith Walk, Edinburgh.

EARLY CORNISH BROCCOLI.—"During the past fortnight there has been a good supply of Broccoli sent to Covent Garden Market, from the neighbourhood of Penzance, Cornwall."—*Gardeners' Chronicle*, Jan. 23, 1869, p. 80.
The Undersigned has the pleasure of offering seed of the above desirable variety, carefully saved last summer by one of the best Market Gardeners at Penzance. Cash price 21s. per lb., or 2s. per ounce, carriage or postage free.
JOHN MITCHINSON, Seed Merchant, Truro, Cornwall.

LELLETSON'S SURPRISE, new, large, late WHITE PROTECTING BROCCOLI.—The best late Cauliflower Broccoli extant, price 2s. 6d. per packet. May be had of the following Agents:—
Messrs. Hurst & Son, 6, Leadenhall Street, London, E.C.
Mr. Robert Cooper, 152, Fleet Street, E.C.
Messrs. Barr & Sugden, 12, King Street, Covent Garden, W.C.
Mr. Wm. Peat, Windham Cross, N.
Messrs. Peter Lawson & Son, Edinburgh and London.
" Boston & Co., Ealing, London, W.
" Jas. Backhouse & Son, York.
" Stuart & Mein, Kelso, N.B.
" Sutton & Sons, Reading, Berks.
" J. Slater & Sons, Malton, Yorkshire.
Mr. Edward Taylor, Malton, Yorkshire.
Messrs. Dieghton & Aitken, Kilmarnock, N.B.
" W. F. Laird & Sinclair, Dundee, N.B.
Additional names will be inserted as they are received.
EDWARD PARKIN DIXON, The Yorkshire Seed Establishment, 57, Queen Street, Hull.

New Seeds, of Choicest Quality.

J. SCOTT'S COLLECTIONS of NEW VEGETABLE SEEDS, 10s. 6d., 21s., 42s., and 63s. each.
For sorts and carriage free, see Priced Catalogue.
BROCCOLI.—Scott's Superb Winter White, Scott's extra selected.
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CUCUMBER.—Be sure it is true.
LETTUCE.—The best variety, summer Cabbage, new and distinct, larger than the Neapolitan, superb quality, and the longest standing Lettuce grown.
The above, each, 1s. per packet. All other new and choice Vegetable Seeds are fully described in the Catalogue.
PETUNIA, Double, extra superb, 1s. per packet.
" Single, superb large flowered, 1s.
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The above are offered with every confidence, producing a large variety of superb flowers.
J. Scott's celebrated exhibition ASTERS, STOCKS, PHLOX, MARIGOLD, and all other New and Choice Flower Seeds, annual described and priced in J. Scott's NEW SEED CATALOGUE, which may be had free on application.
GLADIOLUS BRENCHLEYENSIS.—Extra fine, 2s. per dozen; 10s. and 12s. per 100; other sorts, Hybrids, equally cheap.
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CHOICE CONIFERS.—A large assortment of fine healthy Plants, of all the principal varieties, from 10 feet downwards, with good roots, and well prepared for moving, are offered on advantageous terms by the Executor of the late GEORGE BATLEY, Nursery, Rugby. A List will be sent on application.

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SUTTONS' IMPROVED READING, 1s. per ounce.
The NEW BEDFORDSHIRE CHAMPION, 1s. per packet.
NUNEHAM PARK, 1s. per packet.
Free by post.
SUTTON & SONS, Seed Growers, Reading.

To Market Gardeners and Others.

SUTTON AND SONS can offer the following excellent PEAS, of their own growth, at very low prices for large quantities:—

Suttons' Ringleader (the forwardest known)	Veitch's Perfection
Daniel O'Rourke	Ne Plus Ultra
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Lowest price, per bushel, on application to
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First Crop or Ringleader Pea.

CHARLES SHARPE AND CO., having grown largely this EXCELLENT EARLY PEA, with great care, have much confidence in offering it to the Trade. Price on application.

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CHARLES SHARPE AND CO. will be glad to send special offers of their carefully selected TURNIP, MANGEL, and other FARM SEEDS on application.

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CHARLES SHARPE AND CO.'S PRICED TRADE LIST of PEAS, BEANS, and other GARDEN SEEDS can be had on application.

Seed Potatos.

CHARLES SHARPE AND CO. are now prepared to make special offers of all the leading sorts of POTATOS.
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Potatos.

PATERSONS' SEEDLING POTATOS.—The absence of Second Growth in their Victorias, Blues, and Economists, and their heavy crop of fine tubers, proves their great superiority over the old varieties. Observe—Seed extracted from the Plums of Victorias and others of their best varieties, sent by post in packages at 5s., 10s., 15s., and 20s. each.
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SUTTONS' CHOICE and TRUE POTATOS for PLANTING, carriage free.

KIDNEY VARIETIES.	ROUND VARIETIES.
Early Walnut-leaf	Dalmahoy
Myatt's Prolific Ashleaf	Improved Shaw
Webb's Imperial	Red Regent
Fluke	Flour-ball
Baron's Perfection	Skerry Blue
Suttons' Berkshire	Walker's Regent
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Lowest price per sack or ton on application to
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GEORGE SIBBALD, Drumgeath, by Dundee, N.B., has for Sale a large Stock, of his own growing, of the following kinds of POTATOS, which he will Sell at moderate prices, delivered free in Dundee:—

Paterson Victoria; best Rocks	Fluke Kidney
Walker's Improved Regents	Mona's Pride Kidney
Early Dalmahoys	Myatt's Prolific Kidney
Dnintree's Early	Royal Ashleaf Kidney
Oxford Early	Wheeler's Milky White Kidney
Early Handsworth	Paterson's Early Red Kidney

Also 5 cwt. Gibson's Dwarf York CABBAGE SEED.

Seed Potatos.

PATERSON'S VICTORIA, the best of all Paterson's varieties, £8 per ton, bags included.
GRYFE CASTLE, a superior sort, recently raised in Renfrewshire, £8 per ton, ditto.
WALKER'S REGENTS, a well-known sort in general use, £6 per ton, ditto.
RED BOGS, approved early variety, £6 per ton, ditto.
The above are true, and are specially suited for Seed, the ground on which they were grown being old natural lea trenched, and never before cropped. The tubers are clean and sound in all respects.
Apply to GEORGE WEATHERLY, Hagswood, Pollockshaws, by Glasgow.

SPECIAL OFFER to the TRADE.

PEAS, SANGSTER'S NO. 1	Per bush.	£0	10 6
" PARADISE EARLY MARROW	"	0	11 0
" WATERLOO or VICTORIA	"	0	11 0
" SCIMITAR (selected stock)	"	0	11 0
CABBAGE, EARLY YORK	Per cwt.	5	12 0
" LARGE YORK	"	5	12 0
" DRUMHEAD (fine)	"	3	10 0
CARROT, ALTRINGHAM	"	3	5 0
" JAMES' INTERMEDIATE	"	3	5 0
" WHITE BELGIAN	"	2	15 0
RADISH, WOOD'S EARLY FRAME	Per bush.	1	7 0
SPINACH, PRICKLY	"	0	7 6
TURNIP, POMERANIAN WHITE GLOBE	"	1	0 0
" ROBERTSON'S GOLDEN BALL or ORANGE JELLY	"	1	7 6

The above are all New, True, and fine samples.
Special quotations for all other Seeds will be sent upon application.
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Red Spider — Magnifie 1.

GISHURST COMPOUND.

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d.

Wholesale by
PRICE'S PATENT CANDLE COMPANY (Limited),
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An Invaluable Discovery.

CLARKE'S INSECT-DESTROYING COMPOUND.—A Discovery made solely for private use, now offered to the Public. A Discovery which will save Gardeners endless trouble and care. The discovery of a Compound in Solution, which will destroy every Insect it comes in contact with, and this without the slightest injury to Foliage, Fruit, or Flowers. A Solution which may be used without care, similar to clear water, which will be found instant death to Green Fly, Thrip, Red Spider, Brown and White Scale, and a thorough eradicator of Mealy Bug, Ants, and the Caterpillars which infest Cabbages and Gooseberry Trees, also Blight and Mildew.
See Report of Trials, "Journal of Horticulture," July 30, p. 72.
A 2s. Box will make Six Gallons, a 5s. Box Twelve Gallons. Directions for use with each Box. Also a Solution prepared expressly for Mealy Bug, which is instant death to all it touches, in Bottles ready for use, 2s. each. May be had of most of the principal Nursery and Seedsmen, and of the Proprietor.
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LAWES' MANURE for GRASS LANDS should be applied during the months of February and March. NITRATE of SODA supplied ex Ship or from Stocks at Docks at London, Liverpool, and other ports, at lowest market prices.

LAWES' MANURES are now ready for delivery for present season, 1869.
LAWES' PATENT TURNIP MANURE.
" DISSOLVED BONES.
" SUPERPHOSPHATE of LIME.
" WHEAT, BARLEY, GRASS, and MANGEL MANURE.
" CONCENTRATED CORN and GRASS MANURE.
These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom.
GENUINE PERUVIAN GUANO direct from the importers. NITRATE of SODA, SULPHATE of AMMONIA, and other Chemical Manures.
AMERICAN and other CAKES at market prices.
Address, JOHN BENNET LAWES, 59, Mark Lane, London, E.C.; 22, Eden Quay, Dublin; and Market Street, Shrewsbury.

THE LONDON MANURE COMPANY
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Have now ready for delivery, in fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
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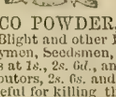
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The Cheapest and Best Insecticide.

DUTY-FREE TOBACCO.
BY HER MAJESTY'S ROYAL LETTERS PATENT, AND BY PERMISSION OF THE HON. BOARD OF CUSTOMS.



POOLEY'S TOBACCO POWDER, for the Prevention and Destruction of Blight and other Diseases in Plants.
Sold by Nurserymen, Seedsmen, and Florists,
In Tins at 1s., 2s. 6d., and 5s.
Powder Distributors, 2s. 6s. and 3s. 6d. each.
"I find it exceedingly useful for killing the Aphides on Roses and other Plants."—GEO. EYLES, Superintendent, Royal Horticultural Gardens, South Kensington. May 7, 1868.
Sole Manufacturer, T. A. POOLEY, Bonded Warehouse, Sussex Wharf, Wapping, E.

By Royal Appointment

To HER MAJESTY, by Special Warrant, dated December, 1865.



To the PRINCE OF WALES, by Special Warrant dated February 10, 1866.

DAY, SON, AND HEWITT, Original and Sole Proprietors of the STOCK-BREEDERS, MEDICINE CHEST, for Disorders in Horses, Cattle, Calves, Sheep, and Lambs. Patronised by upwards of Seventy Thousand of the principal Stock-breeders, Horse Proprietors, and Agriculturists in England, Ireland, Scotland, and Wales.
CAUTION.—The first Animal Medicines known to the world as "DAY'S," and in such universal repute under that title, are those only manufactured by us, as a Bill in Chancery, we recently filed, has established; and no one, as was there shown, knows anything of our discovery, or our mode of compounding.
The Chest contains the following matchless preparations:—
One Dozen CHEMICAL EXTRACT, at 30s. per dozen.
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One Dozen RED DRENCHES, at 13s. per dozen.
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Adapted for all ailments among Stock during the present season. Price of Chest complete, with Shilling Book on Farriery, £2 16s. 6d., carriage paid. Either preparation may be had separately in boxes.

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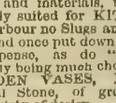
"We have found the 'Colic Drinks' (Gaseous Fluid) prepared by DAY, SON, & HEWITT, act as an invaluable remedy."—*Mark Lane Express.*

Orders sent by Post will be promptly attended to if addressed:—DAY, SON, & HEWITT, 22, Dorset Street, Baker Street, London, W.
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GARDEN BORDER EDGING TILES, in great variety of patterns and materials, the planer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.
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Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price List free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
ALSO TESSELATED PAVEMENTS of more enriched designs than the above.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cement, &c.
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	Each
6 ft. by 4 ft. Lights, 2 ins. thick, unglazed	£0 6 0
" " Primed and Glazed with 16 oz. Sheet	0 11 0
" " with stout Portable Box, not Painted	1 3 0
" " Painted four coats, and Handles on	1 8 0
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6 ft. by 8 ft., Double Lights, do.	2 15 0

GREENHOUSES. Per ft. super.

Woodwork only Prepared and Fitted	0 0 6
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200 CUCUMBER and MELON BOXES and LIGHTS, all sizes, Glazed and Painted complete, ready for immediate use, packed and sent to all parts of the Kingdom.

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Heating by Hot Water.

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	2-inch.	3-inch.	4-inch.
HOT-WATER PIPES, from stock—per yard	1s. 0d.	1s. 6d.	2s. 0d.
ELBOWS for ditto .. .. .. each	1 6	2 3	2 9
TEES .. .. "	2 3	3 6	4 6
SYPHONS .. .. "	2 3	3 6	4 6
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Cash remittance with order.

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PIPES .. .. per yard	1s. 0d.	1s. 6d.	2s. 0d.
ELBOWS .. .. each	1 6	2 3	3 0
TEES .. .. "	2 6	3 6	4 6
SYPHONS .. .. "	2 6	3 6	4 6
VALVES .. .. "	10 0	11 6	13 0

No credit will be given when Pipes, &c., are invoiced at the above prices.

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MRS. BIRCH begs to inform the Nobility, Gentry, and the Public, that she is prepared to ERECT any style of GREENHOUSE or CONSERVATORY in any part of the Town or Country (her late husband having manufactured the Paxton Patent Hot-Houses for the last 10 years). She will erect plain Orchard Houses, Vineries, &c., with 21-ounce good sheet Glass, and any simple plan of Ventilation, at the low rate of from 1s. 7d. to 1s. 10d. per foot superficial (heating and brickwork not inclusive.) Apparatus for opening all the Ventilators at one time, from 60s. each set.
Plans and Estimates sent on application.

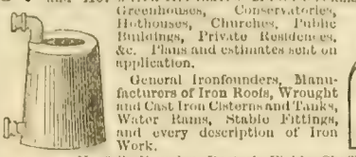
JAMES BOYD AND SONS, HORTICULTURAL BUILDERS, Paisley, N.B., Manufacturers of CONSERVATORIES, GREENHOUSES, VINERIES, and every description of HOTHOUSE in Wood or Iron; also of HOT-WATER HEATING APPARATUS for Horticultural Buildings, Churches, Mansions, Warehouses, &c.

JAMES BOYD & SONS beg to call attention to the superior facilities they possess for executing all orders entrusted to them, in a first-class style, at a moderate price, and with despatch. Their works are fitted up with the most improved machinery, specially adapted for this trade. Their system of ventilation gives the least possible trouble, each range of sashes or ventilators opening by one movement without the risk of cords breaking, as in sliding sashes, and thorough ventilation is secured during wet weather, without admitting the rain. Plans and Estimates on application.

Hothouses for the Million.
SIR J. PAXTON'S PATENT.—NOTICE.

MESSRS. HEREMAN AND MORTON having taken New Premises for the Construction of Horticultural Buildings, beg to inform their Patrons and the Public that they possess the exclusive privilege of Manufacturing the above PATENT HOTHOUSES, and they are also enabled to supply ORNAMENTAL and PLAIN CONSERVATORIES at reduced prices. Country Works in Coventry, Gloucester, Lancashire, and Scotland.
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General Ironfounders, Manufacturers of Iron Roofs, Wrought and Cast Iron Cisterns and Tanks, Water Rams, Stable Fittings, and every description of Iron Work.

Norfolk Foundry, Doctor's Fields, Sheffield.

IRON GREENHOUSES CHEAPER THAN WOOD.
Beard's Patent Non-conducting and Ventilating Metallic Glass Houses.
Victoria Works, Bury St. Edmund's.



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CHARLES BEARD,
Senior Partner in the late Firm of Sanders, Frewer, & Co., which Firm was dissolved by mutual consent.

The Patentee wishes to observe his Patent Houses obtained the First and only Prize at the Royal Horticultural Congress, South Kensington, 1866;

The First-class Certificate at the Grand Manchester Horticultural Show, 1867;

The Three First-class Certificates at the Royal Horticultural Show, at Bury St. Edmund's, 1867, viz.:—One Prize for Patent Glazing without Putty; One Prize for Best System of Patent Ventilation; One Prize for S. F. & Co.'s Improved Flower Stands.

These much-approved Patent Systems of Glazing and Ventilation are also extensively adapted for all Agricultural Buildings, Public Halls, Churches, Factories, Railway Stations, &c., &c.

Full particulars and Prices of the Patent Houses, glazed with 26 oz. Sheet Glass from 1s. 2d. per foot super and upwards. As also Illustrated Catalogues for 12 postage stamps, may be obtained on application to

CHARLES BEARD, Victoria Horticultural Works, Bury St. Edmund's.

PATENT GLAZING BARS, to screw on wood, may be had separately. Full particulars for stamped envelope.

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"Dry Glazing without Putty."
"Glass without Laps."
"Ventilation without Moving Lights."

Highly Commended by the Royal Horticultural Society, South Kensington.



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FOR DISPOSAL, long LEASE of NURSERY and SEED BUSINESS.
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TO BE DISPOSED OF, within six miles from Town, in the fashionable neighbourhood of Lewisham, a SMALL NURSERY, suitable for an Amateur, consisting of convenient Residence, Show-house, three Greenhouses, Pits, and a Two-stall Stable. Held on Lease for 21 years, at a low rental.
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Sale of the Knock and Kensington Nurseries,
NEAR BELFAST.

OWING to the death of Alexander Dickson, the late proprietor, his Executor will SELL by PRIVATE CONTRACT, all his interest in those valuable NURSERIES, situate in the Townland of Ballyclougham, within a short distance of Belfast, and known as the Knock and Kensington Nurseries, with the entire and valuable STOCK of CHOICE FRUIT, FOREST, and other TREES, SHRUBS, PLANTS, &c., all of which have been selected and grown with the greatest care.

The County Down Railway runs through the premises, and the Knock and Belmont Station being situate in the centre of the grounds, affords great facilities for the conduct of the business.

Particulars of the Premises, Trees, &c., can be obtained from, and Sealed Tenders will be received by the undersigned, up till Monday, February 15:—JOHN LYTLE, Victoria Street, Belfast, Executor of the deceased; or SAMUEL BLACK, his Solicitor, 2, Castle Buildings, Belfast.

Sales by Auction.

Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, February 15, at half-past 12 o'Clock precisely, choice Imported ORCHIDS, collected by Lieutenant W. J. Williamson in the Cossyah Hills, Assam, in the finest condition; consisting of:—

Vanda cristata	Dendrobium Williamsoni
" coerulea	" Cambridgeanum
Luisia Psyche	" heterocarpum
Renanthera bilinguis	" sulcatum
Aerides cylindricum	" devonianum
Pleione Wallichii	Cypripedium hirsutissimum

&c., &c.

On view the Morning of Sale, and Catalogues had.

4000 Lilium auratum, Magnificent Bulbs,
in splendid condition, perhaps the finest lot ever imported;
200 LILIUM SCZOWITSIANUM,
a rare and showy variety from the Caucasus;
also BLUE IRISES, SATYRIUMS, &c., from the Cape.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, February 11, at half-past 12 o'Clock precisely, a consignment of LILIUM AURATUM BULBS, fresh received, in splendid condition, many of the Bulbs being unusually large and fine; also a small consignment of rare TERRESTRIAL ORCHIDS and other Bulbs from the Cape, including a few lots of Disa graminifolia, the blue-flowering variety; Satyrium candidum and carneum, rare Terrestrial Orchids; Ornithogalum thyrsoides alba, &c.

On view the Morning of Sale, and Catalogues had.

Annual Sale of Handsome English-grown Camellias, &c., &c.

MESSRS. PROTHERO AND MORRIS will SELL at the City Auction Rooms, 38 and 39 Gracechurch Street, E.C., on FRIDAY, February 19, 1869, at half-past 12 o'Clock precisely, about 200 Choice Double CAMELLIAS, 1½ ft. to 5 ft., abundantly furnished with Bloom-buds; fine AZALEA INDICA in flower; a superb collection of Standard and Dwarf Roses, a rich assortment of American Plants; also Lilium auratum, and varieties of lanci-folium, &c., &c.

Catalogues may be had at the Rooms as above, and of the Auctioneers and Valuers, Leytonstone, Essex.

Claremont Gardens, Esher.

MR. NIGHTINGALE and MESSRS. PROTHEROE AND MORRIS are honoured with commands to SELL by AUCTION, on the premises, as above, on MONDAY and TUESDAY, February 22 and 23, at 12 o'Clock precisely, in Lots suited for Gentlemen and the Trade, the whole of the valuable GREENHOUSE PLANTS, comprising 3000 Azalea indica, strong and well furnished with buds; some remarkably handsome specimens of double white and other Camellias, from 4 to 7 feet; choice Ericas, of sorts; Acacia armata, Poinsettias, 400 Cytisus racemosus, very fine plants, and well set with flowers; Oleanders, Hydrangeas, Callas, 2000 Deutzias, 2000 Eparis, Tree Carnations, a variety of Stove Plants, &c. Also a very large collection of SOFT-WOODED and BEDDING PLANTS, including Pelargoniums, about 1000 Scarlet and Variegated Geraniums, and others in great variety. Some very choice named Hyacinths and other Dutch Bulbs, just coming into perfection; 4000 Strawberries, in No. 32 pots, for forcing; 3000 Chrysanthemums, 2000 Mignonette, 3000 Lycopodiums; a variety of young NURSERY STOCK, including Pyramidal Pear and other Fruit Trees; Conifers and Evergreens, Shrubs, 70 bushels Myatt's Prolific Ashleaf Potatos, &c.

May be viewed on Saturday, February 20. Catalogues to be obtained one week before the Sale of Mr. MACDONALD, Claremont; of Messrs. PROTHEROE & MORRIS, Auctioneers, American Nurseries, Leytonstone, Essex; and at Mr. NIGHTINGALE'S Auction and Survey Offices, High Street, Kingston-on-Thames.

Preliminary Advertisement.

IMPORTANT SALE of CONIFERÆ of every description, DECIDUOUS TREES and SHRUBS, at Belstane, in the Parish of Kirknewton and County of Edinburgh.

MR. GEORGE BROWNLEE, AUCTIONEER, Midcalder, has been instructed by the Trustees of the late Mr. Humphrey Graham, to SELL by AUCTION, towards the end of FEBRUARY or beginning of MARCH, the large Collection of CONIFERÆ, (varying from 1 to fully 15 feet, and mostly raised from seed by Mr. Graham); DECIDUOUS TREES and SHRUBS now growing at Belstane, and consisting of many thousands.

Belstane is about 12 miles west from Edinburgh, and is fully 800 feet above the level of the sea. The whole stock is in first-rate condition, and from the height above the sea at which it has been grown is particularly hardy and well adapted for transplanting.

Full particulars in future Advertisements. Catalogues in preparation, and when ready may be obtained from Mr. A. DONALD, Belstane, Kirknewton, Mr. GEORGE BROWNLEE, Midcalder, and Messrs. A. & A. CAMPBELL, W.S., 22, Dublin Street, Edinburgh.

Midcalder, Jan. 20, 1869.

Didmarton, near Chippenham.
IMPORTANT SALE of SHORTHORNED CATTLE.

MR. STRAFFORD begs to announce that he has received instructions to SELL by AUCTION, without reserve, on TUESDAY, March 23 next, at Didmarton, the remaining portion of the extensive and valuable HERD of first-class SHORTHORNS, belonging to Stiles Rich, Esq. (who is retiring from farming), that have been long and carefully bred chiefly from Cows obtained of the late Earl Ducie, at Tortworth Court, since which have been used Bulls of the famed Kirklevington blood; most of the young stock are by the 7th Duke of York (17,754), 13th Grand Duke (21,850), 2d Duke of Claro (21,576), and 2d Duke of Collingham (23,730); this splendid young Bull will be included in the Sale, and is the one by which the Cows and Heifers are chiefly served. Mr. STRAFFORD having seen the Herd, can with confidence invite the attention of Shorthorn breeders, assuring them that they will find in it a combination of symmetry, quality, and good breeding.

Catalogues, with Pedigrees and other particulars, will shortly be issued, and may be had on application to Mr STRAFFORD, 13, Euston Square, London, N.W.; or, of Mr. RICH, Didmarton, Chippenham.

Sale of the King's Fort Herd of Shorthorns.

MR. JOHN THORNTON will SELL by AUCTION, unreservedly, on EASTER TUESDAY, March 30, next, at King's Fort, Kells, Co. Meath, Ireland, the celebrated Herd of SHORTHORNS belonging to Richard Chaloner, Esq.

It has been bred from the Aylesby and Farnley Herds, and contains several fashionable tribes. Booth bulls have been used for generations. King Richard, now in use, is from an own sister to the 1st prize Cow at the last Royal and Yorkshire meetings, whilst the King's Fort animals have won similar honours at the Royal Irish and Dublin Shows.

Catalogues may be had of JOHN THORNTON, 15, Langham Place, London, W.

PORTABLE AND FIXED HOT-WATER APPARATUS,

FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH

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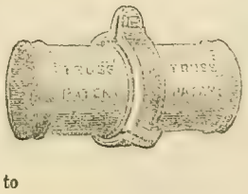
UNIVERSAL FLEXIBLE AND LEAKLESS PIPE-JOINTS.



Horticultural Buildings of every description from 1s. 6d. *per foot superficial, inclusive of Brickwork.*

Bath and Gas Work erected in town or country.

The Trade Supplied.



Price Lists, Plans, and Estimates forwarded on application to

T. S. TRUSS, C.E., CONSULTING HORTICULTURAL ENGINEER, &c., SOLE MANUFACTURER,
IRON MERCHANT and HORTICULTURAL BUILDER,
FRIAR STREET, BLACKFRIARS ROAD, LONDON, S.E.

B. S. WILLIAMS'

NEW GENERAL PRICED SEED CATALOGUE for 1869,

Is now ready, and will be forwarded Post Free to all customers and applicants.

It contains Lists of all New Flower Seeds of merit, Choice Strains of Florists' Flowers, imported Flower Seeds in collections, the most useful Annuals, Biennials, and Perennials for Spring and Summer Flowering; carefully selected Descriptive List of approved Varieties of each kind of Vegetable Seed, with a few Practical Hints as to Culture; also an Appendix containing Gladioli and other Summer and Autumn-flowering Bulbs; Knives, Horticultural Implements, Horticultural Manures, Insect-destroying Composition, and every article likely to be required in the Garden.

A perusal is respectfully solicited; every article is priced, and purchasers may depend on the Seeds being true to name, and everything of the best quality. Exaggerated descriptions are carefully avoided.

All Orders of more than £1 in value sent Carriage Free.

VICTORIA and PARADISE NURSERY, UPPER HOLLOWAY, LONDON, N.

STOCKS, STOCKS, STOCKS.

B. S. WILLIAMS

HAS MUCH PLEASURE IN OFFERING CAREFULLY SELECTED

SEED OF THE SUPERB EAST LOTHIAN INTERMEDIATE STOCK,

Feeling sure, from personal observations of several years, that it is without question the finest strain of Intermediate Stock extant.

The colours are Purple, Scarlet, and White. The two first are remarkably brilliant, and the latter very pure. They produce immense branched spikes of large double flowers, and are admirably adapted for ribbon borders and general bedding purposes; indeed, the effect which can be produced by these three varieties in both spring and autumn gardening is not surpassed by any of the now popular plants. If sown early in March, and transplanted in May to their blooming places, the amount of double flowers produced, and the grand display they make, is truly surprising. For either flower gardening or pot culture they are unapproachable, and cannot be too strongly recommended.

An assortment of three colours (Scarlet, Purple, and White), 2s. 6d.

B. S. WILLIAMS, VICTORIA and PARADISE NURSERY, UPPER HOLLOWAY, N.

NEW HYBRID PASSION FLOWERS.

PASSIFLORA MUNROI, and PASSIFLORA LAWSONIANA

(Fully noticed and described in the *Gardeners' Chronicle* of December 12, 1868, p. 1288).

PETER LAWSON & SON

Intend to send out the above-named charming Climbers, *for the first time*, early next May; and are now prepared to book orders for

Plants at 21s. each, with the usual discount to the Trade.

EDINBURGH AND LONDON.—January, 1869.

TACSONIA ERIANTHA

(WOOLLY-FLOWERED TACSONIA).

A noble plant, resembling in habit and colour of flower the well-known T. mollissima, from which, however, it differs conspicuously in the white under-surface of the foliage and long bracts. As a Greenhouse or Conservatory Climber, it rivals the T. mollissima, and is as free a flowerer. (*Vide* "Curtis's Botanical Magazine" for January, Tab. 5750.)

PETER LAWSON AND SON have been fortunate in acquiring the Stock of this splendid Climber from Isaac Anderson Henry, Esq., F.L.H., and intend to send it out simultaneously with their new Passifloras.

Orders for Plants will now be booked at 21s. each. Trade allowance as usual.

EDINBURGH AND LONDON.—January, 1869.

CAREFULLY SAVED GARDEN SEEDS.

ARTHUR HENDERSON & CO.'S

CATALOGUE of choice VEGETABLE and FLOWER SEED NOVELTIES

Is now Published, and can be forwarded Post Free on application.

The VEGETABLE SEED SECTION contains—

Selected LISTS of the best varieties of each kind most worthy of cultivation, also some excellent new sorts of both VEGETABLE and FLOWER SEEDS of sterling merit; attention is also directed to the Pine-apple Compact-top BEET (the finest and richest flavoured variety extant), carefully saved, true from the original stock. Also the new DWARF WATERLOO BEET: top leaves rich metallic crimson; growth true, even, and regular. This beautiful foliaged variety may with advantage be cultivated in the flower garden as a border, ribbon, or edging plant; its root is a trifle larger than the Pine-apple Compact-top, flavour excellent, full of sweet saccharine juice, colour crimson, texture tender and uniform throughout.

The FLOWER SEED SECTION contains—

Imported GERMAN FLOWER SEEDS in Collections; Choice Strains of FLORISTS' FLOWER SEEDS; a careful LIST of FLOWER SEED NOVELTIES of the season; HORTICULTURAL REQUISITES of every kind, KNIVES, PROTECTING MATERIALS, HORTICULTURAL MANURES, &c., &c.

N.B. Everything in this CATALOGUE is Priced.

PINE APPLE PLACE, MAIDA VALE, LONDON, W.

All Seeds Carriage Free.

Dwarf Roses for Bedding.

PAUL AND SON have a large quantity of the leading varieties, on own roots or on Manetti, from 7*5s.* per 100.
The present is a most favourable Spring for planting. PRICED LIST in ROSE CATALOGUE.
"The Old" Nurseries, Cheshunt, N.

The New Roses for 1869.

WILLIAM ROLLISSON AND SONS respectfully beg to intimate to the Nobility, Gentry, and the Trade, that their DESCRIPTIVE and PRICED LIST of 42 NEW ROSES for 1869 is now published, and may be had gratis and post free on application. The Nurseries, Tooting, London, S.W.

Roses.

JOHN CRANSTON will be happy to forward on application his DESCRIPTIVE CATALOGUE of ROSES for 1868 and 1869. For quality or quantity the stock is unsurpassed; the Manetti Roses especially are acknowledged to be the finest grown plants in the Trade.
Nurseries, King's Acre, near Hereford.

New Roses of 1869.

WILLIAM KNIGHT begs to intimate that he will commence sending out after April 1, in Strong Plants, the best of the NEW ROSES, also all the best varieties of previous years, in Standards, Half-Standards, or Dwarfs. A large stock on hand for immediate delivery: also Standard Trained PEACHES, NECTARINES, and CHERRIES, &c., splendid Trees.
CATALOGUES now ready. Free on application.
Floral Nurseries, Hailsham, Sussex.

Standard Roses, and Dwarf Maiden Peaches and Nectarines.

STANDARD ROSES, best leading sorts, 70*s.* per 100.
DWARF MAIDEN PEACHES and NECTARINES, leading sorts, 60*s.* per 100.
STANDARD PORTUGAL LAURELS, 30*s.* per doz.
EDWARD PIERCE, Yeovil Nursery, Somerset.

GLOIRE DE NANCY, Double PELARGONIUM, nice established plants, 5*s.* per dozen, or 25 for 10*s.*; MRS. POLLOCK, 4*s.* per dozen, or 26*s.* per 100; SUNSET, 6*s.* per dozen, or 45*s.* per 100, package included.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

TRICOLOR PELARGONIUMS.

LADY CULLUM, 21*s.* per doz.	ITALIA UNITA, 5*s.* p. doz.
SOPHIA DUMARESQUE, 13*s.* p. doz.	PICTURATA, 6*s.* per doz.
SUNSET, 6*s.* per dozen.	MRS. BENYON, 6*s.* per doz.

In strong plants, at the above prices, for cash, package included.
ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

VARIEGATED PELARGONIUMS.

Lucy Grieve	Lady Cullum	E. G. Henderson
Queen of Tricolors	St. Cloud	Beauty of Calderdale
Sophia Dumaresque	Rosette	Picturata
Duke of Edinburgh	Neatness	Sophia Cusack

The above for 21*s.* If any of the kinds are not required, others of equal value can be substituted. Remittances requested from unknown Correspondents.
Address, ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

Cheap, Cheap, Cheap.

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In strong plants, for cash, package included.
JOHN BARRETT, St. John Nursery, Bury St. Edmund's, Suffolk.

SUTTONS' COLLECTIONS of CHOICE GLADIOLI.

100 in 50 choice varieties	£4 0 0	12 choice varieties	£0 12 0
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25 in 25 "	1 2 6	Finest mixed, per 100	1 15 0

Fine mixed, 2*5s.* per 100.
SUTTON & SONS, Seedsmen to the Queen, Reading.

FREDERICK PERKINS has strong plants of the undermentioned to offer, at the following prices:—
VIOLETS:—The Czar, for beds, 15*s.* per 100; The Queen, double white, 2*5s.* per 100. ECHEVERIA METALLICA, 12*s.* per doz. ROSES:—Devoniensis, Tea, 12*s.* per doz.; Maréchal Niel, on own roots, 15*s.* per doz. JASMINUM GRANDIFLORA, 15*s.* per doz. GERANIUMS:—Gloire de Nancy, 9*s.* per doz.; Capt. Le Hermite, 12*s.* per doz.; Mdme. Lemoine, 5*s.* each. Allamanda Schottii Hendersoni, 3*s.* 6*d.* each; Stephanotis floribunda, 18*s.* per doz.; Clerodendron Balfourii, 12*s.* per doz.; Franciscea Lindleyana, 12*s.* per doz. Price to the Trade on application.
Seed Warehouse, 51, Regent Street, Leamington.

Vegetable, Agricultural, and Flower Seeds.

MISCELLANEOUS HARDY BEDDING PLANTS, SWEET VIOLETS, &c.

ROBERT PARKER begs to announce that his CATALOGUE, containing DESCRIPTIVE LISTS of the finest kinds in cultivation of the above-named, is now published, and will be forwarded to applicants. The stocks of Seeds have all been procured from the best possible sources; all are warranted genuine, and are offered at the lowest possible prices.
Intending purchasers are requested to compare the prices with those of other houses.
Exotic Nursery, Tooting, Surrey, S.W.

HALLETT'S PEDIGREE CHEVALIER BARLEY produced in 1868 a Crop of 62 bushels per acre, a Sample of which was awarded the First Prize at the Birmingham Show of 1868. Took the First Prize also at the same Show of 1867. Produced in 1867 nearly 9 quarters per acre.
PEDIGREE BLACK TARTARIAN OATS produced, 1868, 12 quarters per acre.
For particulars apply to Captain HALLETT, F.L.S., Brighton.

Choice New Seeds.

CHARLES TURNER can recommend the following, having been saved by himself or under his inspection.

	Per packet—*s.*	*d.*
BALSAM, from a prize collection	1	0
CENTAUREA CANDIDISSIMA	1	0
GYMNOCARPA	1	0
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HOLLYHOCK, from exhibition kinds	1	0
Collections of 24 named varieties	5	0
PINK (from the newest and best varieties)	2	6
PICOTEE "	2	6
PELARGONIUM, SHOW "	2	6
" FANCY "	2	6
" TRICOLOR "	2	6
" VARIEGATED "	2	6
" ZONAL	2	6
TROPÆOLUM GOLDEN KING OF TOM THUMB	1	0
GOLDEN FEATHER PYRETHRUM	2	6
VEGETABLE SEEDS.		
BROCCOLI, SNOW'S WINTER WHITE	2	0
CABBAGE, BAILEY'S SUPERB	1	0
CUCUMBER, BERKSHIRE CHALLENGE	1	6
" HEDSOR PROLIFIC	1	6
MELON, GOLDEN QUEEN	2	6
PEAS, LITTLE GEM, First Crop per quart	3	0
" ADVANCER, Second Crop per quart	2	0
" PREMIER, Third Crop per quart	2	0
SAVOY, NEW FRENCH	1	0

CHARLES TURNER'S NEW SEED LIST, containing all the newest and best varieties, can now be had post free on application.
The Royal Nurseries, Slough.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by JAMES MATTHEWS, at the Office of Messrs. BRADBURY, EVANS, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the Co. of Middlesex, and Published by the said JAMES MATTHEWS at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, February 6, 1869.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 7.—1869.] SATURDAY, FEBRUARY 13. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL BOTANIC SOCIETY GARDENS, Regent's Park.—EXHIBITIONS of SPRING FLOWERS, MARCH 16 and 17, APRIL 27 and 28; SUMMER EXHIBITIONS, MAY 19 and 20, JUNE 30, and JULY 1. Tickets are now being issued, and can be obtained at the Gardens by Orders from Fellows and Members of the Society. Price—Spring Exhibitions, 2s. 6d.; Summer Exhibitions, 4s. each. Schedules of Prizes for both Exhibitions can now be had.

GRAND NATIONAL HORTICULTURAL EXHIBITION, 1869, to be held at MANCHESTER, MAY 14 to 21. Schedules are now ready, and may be obtained on application to the undersigned. BRUCE FINDLAY.
Botanic Garden, Manchester.

NOTICE.—I, the undersigned JOHN FOWLE, Florist and Nurseryman, carrying on Business at Holland Street, Brixton, Surrey, as FOWLE AND SON, will for the future continue to do so under the style of JOHN FOWLE only.
February 8, 1869. JOHN FOWLE.

"Mr. Paul's Roses * * * are things to see once and dream of for ever."—*Athenæum.*

WM. PAUL begs to announce that his CATALOGUE of ROSES is now ready, and will be forwarded free on application.
Paul's Nurseries, Waltham Cross, London, N.

Standard and Dwarf Roses.
By the Dozen, Hundred, or Thousand.
WM. WOOD AND SON have to offer many thousands of fine plants of the above.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

New Roses of 1869, and Roses for Bedding.
PAUL AND SON, The Old Nurseries, Cheshunt, N., offer good plants of the above. NEW LIST for 1869 is in the press, and is of particular value to Growers, most of the kinds quoted being personally selected by George Paul at the growers.

FIELD BROTHERS, Tarvin Road Nursery, Chester, beg to offer strong Bedded Dwarf MOSS ROSES, on their own roots, at 2s. per 100; also strong healthy autumn struck plants of CALCEOLARIA AUREA FLORIBUNDA, from Pans, at 3s. per 100, 80s. per 1000, packing included.

New Roses for 1869.
JOHN FRASER, Lea Bridge Road Nurseries, London, N.E., begs to offer fine healthy Plants of the best NEW ROSES for 1869. A DESCRIPTIVE LIST may be had on application.

NEW ROSES of 1869.—All the best varieties; 2000 fine strong plants. DESCRIPTIVE LIST on application.
John Cranston, Nurseries, King's Acre, Hereford.

EXTRA STRONG ROSES, in pots.—Several thousand Tea-Scented, Noisette, and Hybrid Perpetual varieties, together with the best NEW ROSES of 1868.
DESCRIPTIVE LIST on application.
John Cranston, Nurseries, King's Acre, Hereford.

NEW ROSES for 1869.
NEW DAHLIAS for 1869.
NEW VERBENAS for 1869.
NEW BEDDING GERANIUM for 1869.
CATALOGUES now ready.
John Keynes, Salis[illegible]

Roses—Gladi[illegible]
CHARLES VERDIER, Fils, Nurseryman, 12, Rue Dumeril, Paris, still has a very large assortment of the above, at the lowest prices.

To the Trade.—Gladiolus Brenchleyensis & Tuberoses
JAMES CARTER AND Co. have a large stock of very fine Bulbs. Price on application.
237 and 238, High Holborn, London, W.C.

Sixty-seven Pages of Nursery Stock.
THOS. CRIPPS AND SON'S WHOLESALE CATALOGUE for the present season will be forwarded (to the Trade only) post free on application.
The Nurseries, Tunbridge Wells.

Price Seed Catalogue for 1869,
Post free on application to
JOHN AND CHARLES LEE, Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

B. S. WILLIAMS' DESCRIPTIVE CATALOGUE of FLOWER, VEGETABLE, and AGRICULTURAL SEEDS, &c., is now ready, post free to all applicants.
Victoria and Paradise Nursery, Upper Holloway, London, N.

RHODODENDRONS, Choice, Hybrid, and Ponticum.—Several hundred thousand, from 1½ to 3 feet high, fine bushy plants, well set with bud. Samples and price on application to B. Whitham, The Nurseries, Reddish, near Stockport.

PRIMROSES, VIOLETS, HEPATICAS, and all kinds of Spring-blooming Plants. List of prices free from L. Woodthorpe, Munro Nursery, Sible Hedingham, Essex.

JOHN STANDISH AND CO.'S ILLUSTRATED CATALOGUE of NEW and RARE PLANTS, HARDY TREES, CONIFERÆ, SHRUBS, &c., for the Spring of 1869, is now ready, and will be sent post free on application.
Royal Nurseries, Ascot, Berks.

Pines.
B. S. WILLIAMS has all the best kinds, in splendid condition, warranted clean. Prices on application.
B. S. Williams, Seed Merchant and Nurseryman, Upper Holloway, London, N.

Grape Vines.
B. S. WILLIAMS' STOCK this season is remarkably fine, and in good condition for sending out. Kinds and prices can be had on application.
B. S. Williams, Seed Merchant and Nurseryman, Upper Holloway, London, N.

GOLDEN CHAMPION GRAPE.—Plants are now being sent out of this extraordinary Grape, price 21s. and 42s. each. Osborn & Sons, Fulham Nursery, London, S.W.

GRAPES the FIRST YEAR.—8 bunches for 7s. 6d.; 12 bunches for 10s. 6d. The finest Canes ever offered.
R. Tanton, F.R.H.S., Epsom Nurseries, Surrey.

Pines.
J. SMITH has to offer a large stock of strong healthy plants, in all stages, warranted clean.
Market Gardener, Back Common, Turnham Green, Middlesex, W.

PINES.—To be Sold, a quantity of Fruiting, Succession, and Sucker PINE-APPLE PLANTS, clean and healthy, of the best old sorts.
The Gardener, Ribston Hall, Wetherby, Yorkshire.

Black Hamburgh Vines.
C. FAIRNINGTON has still on hand strong, well-ripened Canes, price 5s. to 7s. 6d. each.
4, Elm Tree Road, St. John's Wood, London, N.W.

Mrs. Pince's Black Muscat Grape.
J. MEREDITH is now prepared to execute orders for this fine Grape. CANES, fit for immediate planting, from 10s. 6d. upwards.
The Vineyard, Garston, near Liverpool.

Royal Ascot or Perpetual Vine.
MESSRS. JOHN STANDISH AND CO. are now selling fine strong plants of this extraordinarily productive VINE at 21s., 42s., and 63s. each.
Royal Nurseries, Ascot, Berks.

VINES and VERBENAS.—500 Planting and Fruiting Vines, in 11-inch pots, strong short-jointed Canes, price 3s. 6d. and 5s. each; also 3000 extra strong Verbenas, with 6 to 12 cuttings on each, many of them being varieties of 1868, price 3s. per doz., cash.
Edward Morse, Original Nursery, Epsom, Surrey.

MELON PLANTS.—Golden Perfection, strong. CUCUMBER PLANTS.—Telegraph.
Both may be depended upon.
A. Watkins, Hockerill, Bishop Stortford.

PINE APPLE PLANTS for SALE.—About 200, Fruiting and Succession, in good condition, consisting of Moscow (Ripley), and Old Queens, and a few Black Jamaica and Otaheite.—Apply to
Peter Lawson & Son, Edinburgh.

Pyramidal Cherries, extra fine, for Gardens.
WM. WOOD AND SON have a magnificent stock of the above to offer. The Pyramid Cherries are especially fine.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LIST of these varieties from Mr. Webb, Calcot, Reading.

New Catalogue of Fruits.
THE ORCHARDIST, 256 pages, describing upwards of 2000 Fruits, with Cultural Observations and Notes, free by post for 18 stamps, on application to J. Scott, Merriott, Somerset.

Lilium auratum.
SUTTON AND SONS can supply very fine BULBS of the above splendid Lily, at from 2s. 6d. to 10s. 6d. each.
Royal Berks Nurseries, Reading.

FLOWER of SPRING GERANIUM.—200 last year's [illegible]th Cuttings (out of pots), for [illegible], £1 10s.
[illegible]RWICK, Nurseryman, [illegible]

W[illegible] NENSIS.—Strong [illegible] in 48-pots.
[illegible]er dozen or 100 on app[illegible]
[illegible] Manor Farm, De[illegible]E.

Trade.—Fremontia [illegible]ica.
W[illegible] SON, Seedsman, Tav[illegible]t, Ipswich, [illegible]gs[illegible]n freshly imported SEED [illegible]dsome Shrub at 6s. per 100. Stock very limited.

Special Offer.
TRITOMA GRANDIS (true), [illegible]est winter-flowering hardy plant known, 4s. per d[illegible] per 100.
[illegible]NSLEY Tanton, F.R.H.S., Epson[illegible]ries.

QUICKS.—A[illegible] quantity, from 2 t[illegible]r. old, price [illegible] 10s. 6d. per 1000. Appl[illegible]
Alex. Green[illegible] Co., 10, Bury Street, St. M[illegible]ry Axe, City.

FINE SPECIMENS WELLINGTONIA GIGANTEA, CUPRESSUS LAWSONIANA, CHINESE ARBOR-VITÆ, YEWS, &c., at [illegible]
[illegible]NS [illegible]seryman, Tanner's End, Edmonton, N.E.

[illegible]UR[illegible] SHRUBS.—CATALOGUES of th[illegible] season may now be had, post free, upon ap[illegible]
[illegible]SON, Edinburgh and London.

SPRUCE FIRS, quantities and finely rooted, 2 to 3 feet, 4s. per 100, 25s. per 1000; 3 to 4 ft., 8s. per 100, 50s. per 1000—for cash.
Apply to Mr. John Webb, Quaker's Lane, Isleworth, W.

To the Trade.
SURPLUS NURSERY STOCK.
SPECIAL LIST upon application.
James Dickson & Sons, Newton Nurseries, Chester.

Fox or Game Covert.
WM. MAULE AND SONS can supply, at this seasonable time for planting, strong 2-yr. old ENGLISH GORSE or FURZE, at 10s. per 1000; 2-yr. old ENGLISH BROOM, at 20s. per 1000. The Nurseries, Bristol.

H. AND G. FARNSWORTH have to offer a large quantity of TRANSPLANTED QUICK, SPRUCE, 16 to 24 inches; 3-yr. SEEDLING SPRUCE, and 3-yr. SEEDLING RHODODENDRONS. Prices low.
The Nurseries, Matlock.

For Present Prices of
SUTTONS' GRASS and CLOVER SEEDS, see page 181 of this week's *Gardeners' Chronicle.*

For Present Prices of
SUTTONS' PRIZE MANGEL SEED, see page 181 of this week's *Gardeners' Chronicle.*

For Present Prices of
SUTTONS' PRIZE SWEDE and TURNIP SEED, see page 181 of this week's *Gardeners' Chronicle.*

SUTTONS' HOME-GROWN FARM SEEDS, NEW and UNADULTERATED, carriage free.
For present prices, see page 181 of this week's *Gardeners' Chronicle.*

Genuine Garden and Farm Seeds to be had of
THOMAS KENNEDY AND CO., Seedsmen and Nurserymen, Dumfries, at extremely moderate prices, and delivered, free of carriage, at nearest Railway Station.
CATALOGUES sent gratis on application.

NEW and GENUINE AGRICULTURAL and GARDEN SEEDS.
Special prices and advantageous offers on application to
Jas. Fairhead & Son, Seed Merchants, 7, Borough Market, London.

Agricultural and Garden Seeds.
H. AND F. SHARPE'S SPECIAL PRICED LIST of HOME-GROWN SEEDS is now ready, and may be had on application.
Seed Growing Establishment Wisbech.

Genuine Garden and Agricultural Seeds.
CARTER AND CO.,
Seed Farmers, Merchants, and Nurserymen.
237 and 238, High Holborn, London, W.C.

EVERY GARDEN REQUISITE KEPT in STOCK at
Carter's New Seed Warehouse, 237 and 238, High Holborn, London.

THE ONLY PRIZE MEDAL for GRASS in GROWTH, PARIS, 1867, was AWARDED to James Carter & Co., 237 and 238, High Holborn, London, W.C.

Mangel Wurzel Seed.
JOHN SHARPE can offer on good terms, from highly selected Stocks, and his own growing this year.
Bardney Manor, Lincoln.

Mangel and Kohl Rabi Seed.
MR. S. A. DAINTREE, of Fendrayton, St. Ives, Hunts, has a quantity of LONG RED and LONG YELLOW MANGEL and GREEN KOHL RABI for Sale, to the Trade, at very moderate rates, of his own growth and selection.

The Best New Potato for 1869 is
SUTTONS' BERKSHIRE KIDNEY, 5s. per peck, 18s. per bushel, carriage free.
Sutton & Sons, Royal Berks Seed Establishment, Reading.

Wheeler's Milky White.
MR. MYATT has more of this than he intends planting. Price to the Trade on application.
Manor Farm, Deptford.

LAPSTONE KIDNEY POTATOS (True) WANTED. Apply, stating quantity and price, to
Dickson's & Brown, Seed Merchants, Manchester.

POTATOS.—Handsworth Early Round.—Price on application to
Jas. Fairhead & Son, Seed Merchants, 7, Borough Market, London.

SEED POTATOS for SALE.—A few tons of Dawe's Matchless Kidney, also some Early Kings. Apply to the Grower, A. Styles, Stone Court, Greenhithe.

SEED POTATOS.—Rivers' Royal Ashleaf, per ton, £9. Myatt's Prolific Ashleaf, per ton, £8. Kept true expressly for seed. Carriage paid for cash to London. New sacks, 1s. 3d.
Herbert H. Nicholson, Great Clacton, Colchester, Essex.

MONA'S PRIDE, Isle of Man.—The remainder of this Season's large Stock of TRUE Seed, in splendid condition, will be sold at a reduced price by the Original Introducer and Grower, Mr. R. W. O. Rutledge, Hague House.

Potatos.
THOMAS IMRIE AND SONS, Nurserymen and Seedsmen, Ayr, have a quantity of Dalmahoys, Red Bog, Regents, and Rocks, all raised before the second growth commenced, and carefully selected for seed. Prices on application.

SEED POTATOS.—Rivers' Royal Ashleaf, Early Dalmahoy, Myatt's Early Prolific, and all the finest early and late varieties, free from disease, excellent in quality, and at moderate prices. For Special Priced Lists apply to
H. & F. Sharpe, Seed Growers, Wisbech.

ASPARAGUS PLANTS, extra fine and strong, 2, 3, and 4-yr., at moderate prices.
Wm. Wood & Son, Nurseries, Maresfield, near Uckfield, Sussex.

Scrymger's Brussels Sprouts.
G. SCRYMGER begs to offer Seed of the above superior variety of Brussels Sprouts, in packets, at 1s. each, post free 14 stamps. Price to the Trade on application to
G. Scrymger, Sonning, Reading, Berks.

To the Trade.
T. HANDASYDE AND DAVIDSON have to intimate that they are now executing orders for MUSSELBURGH and AYTON CASTLE LEEK SEED. Prices on application.
24, Cockburn Street, Edinburgh.—January, 1869.

DAHLIA POT ROOTS.—Over 100 varieties, at 6s. per doz., including Mrs. Boston, Paradise (Williams), Valentine, Vice-President, Flambeau, &c.
George Rawlings, Romford, Essex.

CALCEOLARIAS and VERBENAS—KAYII and AUREA FLORIBUNDA, at 5s. per 100. Good strong Verbenas at 6s. per 100, cheaper by the 1000. Terms cash, package included.
Isaac Solomon, Dovecote Park Nursery, Wood Green, London, N.

CALCEOLARIAS.—Aurea floribunda, amplexicaulis, Golden Mantle, Mrs. White, Sparkler, Sultan, and other 12 varieties, in well-rooted plants, free by post—25 for 3s., 50 for 5s., 100 for 8s.—H. & R. Stirzaker, Skerton Nurseries, Lancaster.

CALCEOLARIAS, Herbaceous, of the choicest strains (free by post), can now be supplied, carefully shaken out of pots, and beautiful dwarf plants, at the following rates:—1 dozen 4s. 6d., 25 for 7s. 6d., 50 for 13s., 100 for 25s.
H. & R. Stirzaker, Skerton Nurseries, Lancaster.

GARDENERS' CHRONICLE NEWSPAPER PENNY

DOBSON AND SONS' Prize and Celebrated Strain of HYBRIDISED CALCEOLARIAS may be had of the leading Seedsmen in Great Britain. Sealed packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s. each; and of
John Dobson & Sons, Woodlands Nursery, Isleworth, W.

DOBSON AND SONS' Prize and Celebrated Strain of CINERARIAS, which took Fifty First Prizes in six years, may be had of the leading Seed Merchants in England, Ireland, and Scotland. Sealed packets, 1s., 2s. 6d., and 5s.; and of
John Dobson & Sons, Woodlands Nursery, Isleworth, W.

DOBSON AND SONS' Celebrated and Prize Strain of PRIMULAS may be had of the leading Seedsmen in Great Britain and Abroad. Sealed packets, 1s., 2s. 6d., and 5s.
☞ Took First Prize, Open Class, Kensington, 1868.
Special Prize, 1868.
John Dobson & Sons, Woodlands Nursery, Isleworth, W.

Culinary and Floricultural Seeds.

WILLIAM ROLLISSON AND SONS beg respectfully to announce that their GENERAL and PRICED SEED CATALOGUE for 1869 is now published, which comprises many novelties, in the way of VEGETABLE and FLOWER SEEDS, also numerous valuable additions to their extensive List of SUB-TROPICAL PLANTS which can be raised from Seed, in which is ascertained the following choice Flower Seeds:—
CENTAUREA RAGUSINA COMPACTA.—The foliage of this new variety has the most silvery-white gloss, while its very dwarf and compact habit makes it much more useful and effective in Ribbon-borders than any of the oldest varieties. Price, per packet, 1s. and 2s. 6d.
KENNEDYA PRIDEWOODII.—This extremely ornamental Green-house Creeper flowers in great profusion during the months of December and January. The flowers, which are as large as those of a good-sized Sweet Pea, are of a gorgeous scarlet-crimson, delicately striped in places with white and marked with green. Very strong plants in 5-inch pots will bloom abundantly. Seed, 10s. 6d. per packet. Blooming plants from 3s. 6d. to 5s. each.
PRIMULA SINENSIS FIMBRIATA.—Seed saved from the finest fringed strains in cultivation. Price per packet, 2s. 6d.
PRIMULA SINENSIS KERMESINA SPLENDENS.—Seed saved from the brightest coloured variety. Price per packet, 2s. 6d.
CINERARIA.—Seed saved from named varieties, the flowers of which combined endless shades of brilliant colours with perfection of form. Price per packet, 2s. 6d.
N.B.—W. R. & SONS' GENERAL CATALOGUE of SEEDS may be had gratis, and post free, on application to
The Nurseries, Tooting, London, S.W.

New Seeds for the Garden and Farm, 1869.

CROYDON. A. HENDERSON EAST SURREY SEED WAREHOUSE ESTABLISHED 1828

ARCHD. HENDERSON'S DESCRIPTIVE and PRICED CATALOGUE of SEEDS, containing Cultural Remarks on all the most important SEEDS,

A select list of GLADIOLUS for Spring Planting,

GRAPE VINES, in Pots, an unrivalled Collection.

Also his DESCRIPTIVE CATALOGUE of GENERAL NURSERY STOCK is now ready, and may be had gratis and post free upon application.

Sion Nursery, Thornton Heath, Surrey; and at the East Surrey Seed Warehouse, College Grounds, North End, Croydon.

From the Edinburgh Gazette of February 5, 1869.

NOTICE.—The COPARTNERY carried on by the Subscribers as NURSERYMEN and SEEDSMEN at the Dean, near Edinburgh, and at Hanover Street, Edinburgh, has this day been DISSOLVED by MUTUAL CONSENT. The subscriber, DAVID MITCHELL, will continue to carry on the Business, and will Discharge all the Obligations of, and Collect all the Accounts due to, the Late Firm. (Signed) JOHN LAMONT.
DAVID MITCHELL.
(Signed) JOHN ORD MACKENZIE, W.S., *Witness.*
WM. FISHAY, S.S.C., *Witness.*
Edinburgh, Feb. 1, 1869.

With Reference to the Above Notice

DAVID MITCHELL takes this opportunity of thanking his Friends and the Supporters of the late Firm for the Patronage hitherto bestowed, and begs to intimate that he will continue to carry on the Business in all its Branches at the Dean, and at Hanover Street, Edinburgh, and trusts by strict attention to merit a continuance of the favours so kindly solicited during the last twenty-one years for the late Firm.
Seed Warehouse, 3, Hanover Street, Edinburgh.—February 5, 1869.

Island of Jersey.

CHARLES B. SAUNDERS, NURSERYMAN and SEEDSMAN, can supply, of fine growth and at moderate prices—
Transplanted PINUS AUSTRIACA and SILVER FIRS, 2 to 3 ft.
EVERGREEN OAKS of sorts, 2, 3, 4, and 5 to 6 ft.
CAMELLIA STOCKS, fine healthy stuff, fit for immediate working.
Strong BLACK HAMBURGH, BLACK VICTORIA, and MUSCAT VINES.
Fruiting, trained, and pyramidal PEAR TREES (on Quince), of best varieties.
Dwarf-trained BIGARREAU, MAYDUKE, and MORELLO CHERRY TREES.
Espaliered and Standard PLUM, PEACH, and NECTARINE TREES.
Standard, pyramidal, and Cordon APPLE TREES, of best sorts.
GOLDEN-LEAF ELMS, of different sizes, a tree of handsome, upright growth.
Transplanted ASPARAGUS ROOTS, in large or small quantities.
GYMNOGRAMMA LEPTOPHYLLA, or Annual Maidenhair Fern.
Gigantic and BELLADONNA LILIES, BULBS, &c.

NEW SEEDS of EXTRA CHOICE QUALITY, for EXHIBITION.

	Per packet.—s. d.
ASTERS, twelve Quilled Royal Exhibition, 10 vars., separate ..	1 6
.. Dwarf Quilled, 12 vars., separate	2 0
.. 24 superb varieties, mixed	1 0
.. Truffaut's French Perfection, 18 vars., separate ..	4 0
.. do. do. 12 do.	3 0
.. do. do. 8 do.	2 0
.. do. do. 24 vars., mixed	1 0
.. Dwarf Cut-and-come-again-flowered, 12 vars., mixed ..	1 0
.. Superb Intermediate-flowered, 6 vars., mixed .. 6d. and	1 0
.. Extra Giant Emperor, 12 vars., mixed	1 0
.. Superb Imperial	1 0
STOCKS, Dwarf Intermediate, 24 vars., mixed	1 0
.. Superb Large-flowered Ten-weeks, 12 vars., mixed ..	1 0
.. German Dwarf Emperor, extra	1 0
PETUNIA, fringed, striped, and blotched double	1 0
BALSAM, extra double	1 0
PHLOX DRUMMONDII, superb .. .. .. mixed	1 0
LOBELIA, New Compact .. .. 6d. and	1 0
MARIGOLD, ... 6d. and	1 0
ZINNIA, ... 6d. and	1 0
.. ..	1 0

Also Flower Seeds, also Vegetable and [illegible] Seeds.
PRICED CATALOGUE free on application to
J. Scott, Seed Stores, Devil, Somerset.

NEW AND GENUINE

GARDEN, FLOWER and FARM SEEDS, POTATOS, &c.,

SELECTED FROM THE BEST STOCKS, AND GROWN BY

HARRISON & SON.

HARRISON & SON, MIDLAND SEED WAREHOUSE, LEICESTER.

ESPECIALLY RECOMMENDED FOR TRIAL—

	Per packet.—s. d.
HARRISON'S FAVOURITE CUCUMBER, white spine ..	1s. and 2 6
HARRISON'S LEICESTER RED CELERY	1 0
HARRISON'S LEICESTER DWARF CAULIFLOWER	2 6
HARRISON'S EXCELSIOR MELON, green flesh	1 0
HARRISON'S DEFIANCE MELON, scarlet flesh	1 0
HARRISON'S EXHIBITION TURNIP	1 0

CATALOGUE Post Free on application.
All Orders value £1 and upwards carriage paid.

MIDLAND SEED WAREHOUSE, LEICESTER.

B. S. WILLIAMS,

NURSERYMAN AND SEEDSMAN,

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.,

Respectfully invites the Nobility and Gentry about to furnish their Conservatories, Greenhouses, Stoves, or Orchid-houses, to an inspection of his

STOCK OF MAGNIFICENT SPECIMEN PLANTS,

MANY OF WHICH ARE UNEQUALLED IN THIS COUNTRY.

THEY CONSIST OF—

The Choicest and Rarest Exotics, such as TREE-FERNS, PALMS, BEAUCARNEAS, AGAVES, YUCCAS, CYCADS, ARALIAS, CAMELLIAS, AZALEAS, and all other kinds of STOVE and GREENHOUSE FLOWERING and ORNAMENTAL FOLIAGE PLANTS, proved to be worthy of cultivation.

The Large CONSERVATORY, at all times of the year well worth a visit, is now unusually gay with flowers of Camellias, Azaleas, Ericas, Epacris, the magnificent varieties of Cyclamen persicum, obtained from Wiggins' strain of seed: Williams' superb Chinese Primulas; the beautiful improved Hybrid Solanums, now laden with their large and highly ornamental berries; Hyacinths, and many other Spring Flowering Plants, also helping to make a grand floral display.

The STOVES and ORCHID-HOUSES are also very attractive and interesting just now, with blooms of Odontoglossums, Cypripediums, Cœlogynes, Lycaste Skinneri, Phalænopsis, and many other kinds.

The COLLECTION of MEXICAN PLANTS is surpassed only by that of Kew Gardens.

All NEW PLANTS of sterling merit are added to the Collection as soon as procurable, and may be seen here, the inspection of which would alone repay a visit.

In May will be published,

A CATALOGUE OF NEW AND RARE PLANTS FOR 1869,

Post Free to all Applicants.

The "Favourite" Omnibuses leave Victoria Nursery every seven minutes for the City and London Bridge, the Strand and Victoria Station, and for Regent Street, the West End, and Brompton.

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

BARR & SUGDEN'S

(12, KING STREET, COVENT GARDEN, LONDON, W.C.)

NEW SEEDS READY TO SEND OUT.

NEW DESCRIPTIVE SPRING CATALOGUE of CHOICE SEEDS ready, and may be had free by intending purchasers. The Catalogue embraces every Novelty and Speciality in Flower and Vegetable Seeds worthy of notice, with a Special List of nearly 400 sorts of ALPINE and HERBACEOUS PERENNIALS, which have been saved from one of the most choice Collections in Europe; and the most extensive LIST of GLADIOLI offered, embracing all the new kinds. Also (offered for the first time in this country) a SPECIAL LIST of NEW TABLE MAIZE, the most highly esteemed varieties of those cultivated by our American Cousins, who use the green cobs as one of their most popular Vegetables: and as, in this country, they will come into use when the supply of Green Peas is becoming short, they will be found an agreeable substitute for these. The late Judge Haliburton (Sam Slick), when residing at Isleworth, used this Vegetable when in season daily. The Rev. T. C. Bréhaut, of Guernsey (Her Majesty's Commissioner at the Paris Exhibition of 1867 to report on the present state of Fruit Culture on the Continent), through the American Commissioners received the varieties of Maize referred to and enumerated in our Catalogue, and has placed the entire stock he raised last year in our hands for distribution, feeling confident that the success which has attended their cultivation in the Island of Guernsey warranted him in introducing them into England for domestic use.

BARR & SUGDEN,

THE METROPOLITAN SEED, BULB, AND PLANT WAREHOUSE,

12, KING STREET, COVENT GARDEN, LONDON, W.C.

COLLECTIONS of VEGETABLE SEEDS, 12*s.* 6*d.*, 15*s.* 6*d.*, 21*s.*, 31*s.* 6*d.*, 42*s.*, 63*s.*, 84*s.*, and 105*s.*
COLLECTIONS of FLOWER SEEDS, 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 10*s.* 6*d.*, 21*s.*, 31*s.* 6*d.*, and 42*s.*
COLLECTIONS of HERBACEOUS and ALPINE SEEDS, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, 15*s.*, 21*s.*, and 30*s.*
COLLECTIONS of GLADIOLI, 5*s.* 6*d.*, 8*s.* 6*d.*, 10*s.* 6*d.*, 13*s.* 6*d.*, 21*s.*, 30*s.*, 42*s.*, and 63*s.*
GLADIOLI, by the Hundred, 10*s.* 6*d.*, 15*s.*, 21*s.*, 25*s.*, and 30*s.*
COLLECTIONS of TABLE MAIZE, 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, and 10*s.* 6*d.*
COLLECTIONS of ORNAMENTAL GOURDS, 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, 10*s.* 6*d.*, 15*s.*, and 21*s.*
COLLECTIONS of ORNAMENTAL GRASSES for TABLE DECORATION, &c., 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, and 10*s.* 6*d.*
COLLECTIONS of SEEDS for SUBTROPICAL GARDENS, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, and 10*s.* 6*d.*
COLLECTIONS of CLIMBERS, CARNATIONS, PELARGONIUMS, HOLLYHOCKS, STOCKS, ASTERS, BALSAMS, ZINNIAS, LANTANAS, EVERLASTINGS, AQUATICS, PALMS, &c. Full particulars will be found in the DESCRIPTIVE SPRING CATALOGUE, which will be sent Free to intending purchasers.

BARR AND SUGDEN, 12, KING STREET, COVENT GARDEN, W.C.

ALLAMANDA WARDLEIANA.

This magnificent Plant will be sent out on the 1st of March next, at

21s. each.

A Coloured Plate, by Andrews, taken in December, Post Free for 13 stamps.

R. TANTON, F.R.H.S., EPSOM NURSERIES, SURREY.

DIPLADENIA AMŒNA.

J. W. WIMSETT

HAS GREAT PLEASURE IN ANNOUNCING THAT HE HAS PURCHASED

THE WHOLE STOCK OF THE ABOVE BEAUTIFUL PLANT,

Raised by Mr. Tuke, of Bramley, near Leeds, who also raised the lovely Dipladenia amabilis. A figure of the beautiful D. amœna is given in the "Florist" for April, 1868. Plants will be ready for distribution the first week in May.

Price, 1½ Guinea each.

Strong Half Specimens, 5 and 7 Guineas each.

ASHBURNHAM PARK NURSERY, KING'S ROAD, CHELSEA, LONDON, S.W.

Feb. 10, 1869. J. WILLS, F.R.H.S., Manager.

GENUINE SEEDS OF SUPERIOR STOCKS.

SEEDSMEN TO THE QUEEN.

FRANCIS & ARTHUR DICKSON & SONS,

THE "OLD" ESTABLISHED SEED WAREHOUSE, 106, EASTGATE STREET, CHESTER.

THE BEST EARLY PEA IN CULTIVATION,

DICKSON'S "FIRST AND BEST," price 1s. 6d. per quart.

CATALOGUE OF NEW AND SELECT VEGETABLE AND FLOWER SEEDS, POTATOS, &c., FOR 1869,

With practical Cultural Directions, will be sent Post Free on application.

Their Seeds are all of the most select character, each being saved from the best Stock known of its kind.

GARDEN SEEDS of £2 value delivered Carriage Free. FLOWER SEEDS Free by Post or Rail.

LONDON AND CONTINENTAL SEED COMPANY.

CHIEF OFFICE—68, WELBECK STREET, CAVENDISH SQUARE, LONDON, W.

BRIGHTON BRANCH—80, KING'S ROAD.

SOUTHAMPTON BRANCH—178, HIGH STREET.

PLYMOUTH BRANCH—15, DEVONSHIRE TERRACE.

THE LONDON and CONTINENTAL SEED COMPANY has purchased the old and important Business of Rendle & Co., of Plymouth, which has been established for nearly 100 years.

THE LONDON and CONTINENTAL SEED COMPANY.—MR. RENDLE, the head of the old Firm, has consented to be the Managing Director of this Company.

DISCOUNT of TWOPENCE in the SHILLING will be taken off the published prices of any London or Provincial Seed Merchant.

DISCOUNT of TWOPENCE in the SHILLING will be taken off the published prices of Seeds for the Farm, the Kitchen Garden, and the Flower Garden.

THE NEW GARDEN SEED LIST is now ready, and can be had on application, Gratis. A Discount of Twopence in the Shilling off all Garden Seeds.

THE NEW FARM SEED LIST is now ready, and can be had on application, Gratis. A Discount of Twopence in the Shilling off all Farm Seeds.

THE ILLUSTRATED NEW FLOWER SEED LIST is now ready, and can be had on application, Gratis. It contains numerous Illustrations of the Choicest Novelties. Everyone who has a Flower Garden should have a Copy. A Discount of Twopence in the Shilling off the price of all Flower Seeds.

COLLECTIONS OF KITCHEN GARDEN SEEDS.

1.	A COMPLETE COLLECTION, for ONE WHOLE YEAR'S SUPPLY	£3	3 0
2.	A COMPLETE COLLECTION, in quantities proportionately reduced	2	2 0
3.	A COMPLETE COLLECTION ditto ditto	1	11 6
4.	A COMPLETE COLLECTION ditto ditto	1	1 0
5.	A COMPLETE COLLECTION ditto ditto	0	15 0
6.	A COMPLETE COLLECTION, for a SMALL GARDEN	0	12 6
7.	A COMPLETE COLLECTION, extra quantities, for a large Establishment	5	5 0

A Discount of Twopence in the Shilling allowed off all Orders above Twenty Shillings.

ALL PARCELS CARRIAGE FREE.

All Parcels above the value of 20s. will be sent Carriage Free to every Railway Station in England, and to all the Steam Ports in Ireland.

Flower Seeds Free by Post. All Flower Seeds are sent by Post.

ADDRESS,

LONDON AND CONTINENTAL SEED COMPANY,

68, WELBECK STREET, CAVENDISH SQUARE, LONDON, W.

NOTICE.—LORD BURGHLEY APPLE was exhibited at the Royal Horticultural Society on December 15, 1868, and pronounced "excellent." Maiden Trees, 1s. 6d. each; Fine Fruiting Trees, 2s. 6d. and 3s. 6d. each.

VINES.—Eyes of MRS. PINCE'S BLACK MUSCAT, 2s. per dozen; Sample Eye for three stamps. Planting Canes, 5s. each. 200 Extra Strong Fruiting and Planting Canes of the leading sorts; names and prices on application.

GERANIUM MRS. POLLOCK.—Several thousand Autumn-struck plants to offer, very strong; 40s. per 100.

NAMED HOLLYHOCKS.—Several hundred choice varieties, in pots, 6s., 9s., and 12s. per dozen. Seedlings, from first-class sorts, 1s. per dozen, 30s. per 100.

J. HOUSE, Eastgate Nursery, Peterborough.

RHODODENDRONS by the doz., 100, 1000, or 10,000.

	Doz.	Per 100	Per 1000
	s. d.	£ s. d.	£ s. d.
RHODODENDRON PONTICUM, fine bushy plants, well rooted .. 9 to 15 inches	3 0	1 5 0	7 0 0
" " " " " 1 to 1½ foot	4 0	1 0 0	9 10 0
" " " " " 15 to 20 inches	4 6	1 2 6	11 0 0
" " " " " 1½ to 2 feet	5 0	1 5 0	12 0 0
" HYBRIDUM, bushy plants, 9 to 15 inches	1 0	1 5 0	..
" " " " 1 to 1½ foot	5 0	1 10 0	..
" " " " 1½ to 2 feet	6 0	2 0 0	..
" MAXIMUM ALBUM " 1 to 1½ foot	4 0	1 5 0	12 0 0
" " " " 15 to 20 inches	5 0	1 10 0	14 0 0
" " " " 1½ to 2 feet	6 0	2 0 0	..
The above sorts selected in bloom bud 2s. doz. ex.			
" HIRSUTUM, dwarf Alpine, nice bushy plants	3 0	1 5 0	7 0 0
" 120 named varieties, 1, 2, and 3 year, from grafts, 1s. 6d. to 3s. 6d. each.			
Hardy HEATHS, 40 varieties, nice plants, by the dozen, 100, or 1000, very cheap. See Catalogue.			
ARBOR-VITÆ, American, fine bushy well-rooted plants, fine for single plants or hedges .. .. 1½ to 2 feet	2 0	0 12 0	..
" " " " " 2 to 2½ feet	2 6	0 15 0	..
" " " " " 2½ to 3 feet	3 0	0 16 0	..
" " " " " 3½ to 4½ feet	4 0	1 5 0	..
" " " " " 4 to 5 feet	5 0	1 10 0	..
" " " " " 5 to 6 feet	10 0	..	..
Double WHIN," FURZE or "GORSE, good plants, extra transplanted 1 to 1½ foot	3 0	0 12 0	..
" " " " 15 to 20 inches	4 0	0 15 0	..
" " " " nice plants in pots	4 0	1 0 0	..
COTONEASTER MICROPHYLLA, nice bushy plants .. .. .. 1 to 1½ foot	..	0 12 0	5 0 0
" " " " 1½ to 2 feet	..	0 15 0	..

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A quantity of fine JERUSALEM ARTICHOKES, price on application to
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„ Sang & Sons, Kirkcaldy
„ Samson & Co., Kilmarnock
Mr. Scott, Yeovil
„ Sibbald, Bishop Auckland
„ J. Thompson, Newcastle-on-Tyne
„ R. J. Veitch, Exeter
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STUART & MEIN, Seedsmen, Kelso, N.B.

PAUL'S NURSERIES AND SEED WAREHOUSE,

WALTHAM CROSS, LONDON, N.

GENUINE AND FIRST-CLASS SEEDS.

WILLIAM PAUL

BEGS TO ANNOUNCE THAT HIS

CATALOGUE OF SELECT VEGETABLE AND FLOWER SEEDS,

Including many Novelties, is now ready, and may be had Free by Post on application.

In proof of QUALITY he need only refer to the numerous Prizes awarded at various Horticultural Shows throughout the country, for both Vegetables and Flowers grown from his Seeds, and in regard to prices these are in all cases affixed on the lowest possible scale to be remunerative. The following Gardens in Hertfordshire, justly renowned for their Vegetables and Flowers, have long been supplied from his Seed Warehouse :—Brockett Hall, Panshanger, Danesbury, Poles, Digswell, Wyddial Hall, Woodhall, Youngsbury, Bedwell Park, Essendon Place, Campfield Place, Bayfordbury, Knebworth, Frogmore Hall, Childwickbury, Codicote Lodge, and many others of equal celebrity throughout the country.

To purchasers who are unacquainted with the best varieties of Vegetables and Flowers, or who wish to save the trouble of writing a List, the following Collections are made up on equally liberal terms with any other House in the Kingdom. All are of the best quality, and cannot fail to give the fullest satisfaction.

VEGETABLE SEEDS.

No. 1. The WALTHAM COLLECTION of VEGETABLE SEEDS,
FOR A LARGE GARDEN,
Price £3 3s.

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IN TWELVE DISTINCT NAMED SORTS,
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NOVELTIES, OR VARIETIES OF SUPERIOR MERIT.

BEET, Paul's Superb Crimson, 1*s.* per packet.
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BRUSSELS SPROUTS, Paul's Waltham, 1*s.* per packet.
CAULIFLOWER, Hill's Dwarf, 1*s.* 6*d.* per packet.
CAULIFLOWER, Superb Dwarf Hertfordshire, 1*s.* per packet.
CUCUMBER, Paul's Improved Telegraph (true), 2*s.* per packet.
*** This Variety was first sent out by me in 1861, and is distinct from many varieties of Telegraph, and acknowledged to be the most prolific and best flavoured of all Cucumbers.
ENDIVE, Waltham Green Curled, 1*s.* per packet.
LETTUCE, Brockett Hall Brown Cos, 1*s.* per packet.
LETTUCE, Hill's Compact Brown Cos, 1*s.* 6*d.* per packet.
PARSLEY, Paul's Selected Extra Curled, 6*d.* per packet.

FOR MORE PARTICULAR INFORMATION, SEE SEED CATALOGUE.

All Seeds, except very small parcels, Carriage or Post Free.

LILIUM AURATUM.—Flowering bulbs, 2*s.* to 7*s.* 6*d.* each ; 18*s.* to 72*s.* per dozen.

GLADIOLI.—A very fine assortment to name, 6*s.* to 24*s.* per dozen.

ROSES.—A fine stock still on hand, Standards, Dwarf-standards, Dwarfs, and in pots for forcing.

FRUIT TREES.—Standards, Pyramids, and Dwarf-trained, and a large general Nursery Stock in excellent condition.

PRICED CATALOGUES, FREE BY POST.

☞ IMPORTANT.—To prevent confusion, all Letters should be addressed WILLIAM PAUL—the Christian name in full, as above.

No Foxes, no Foxes—the Covers are too Open and Cold.
PLANT NORWAY SPRUCE FIR, 2 to 3, and 3 to 4 feet, the best and cheapest for thickening Game and Fox Covers. For samples and prices of 50,000 apply to
W. Jackson & Co., Nurseries, Bedale, Yorkshire.

STRONG TRANSPLANTED QUICK, 10*s.*, 20*s.*, and 30*s.* per 1000 ; £10, £8, and £12 per 100,000. Samples containing 100 may be had on receipt of a remittance for the same.
JOHN CATTELL, Nursery and Seed Establishment, Westerham, Kent.

LARCH FIR TREES for SALE.—Several thousands, from 4 to 7 feet, finely rooted and in excellent condition for planting, suitable to any one forming new plantations where immediate effect is required.
Apply to D. S. THOMSON, Nurseries, Wimbledon, Surrey, S.W.

CHOICE CONIFERS.—A large assortment of fine healthy Plants, of all the principal varieties, from 10 feet downwards, with good roots, and well prepared for moving, are offered on advantageous terms by the Executor of the late GEORGE BATLEY, Nursery, Rugby. A List will be sent on application.

TO the TRADE and PLANTERS and OTHERS.—A large quantity of LAURELS, fine bushy plants, from 2 to 6 ft.; FOREST and FRUIT TREES, &c.
Apply to Messrs. A. FAIRALL or G. DALTON, Stanhope Nursery, Westerham Hill, Kent.

WANTED to PURCHASE, about Five Dozen EVERGREENS, consisting of Laurels, Bay Trees, &c., including a few young Forest Trees. Send particulars of sorts, height, and price, including carriage and package to the Hornsey Station, Great Northern Railway Company, Hornsey, to
Mr. PLATER, Grove House Road, Hornsey, N.

Full-grown Evergreens.
HENRY GODFREY, NURSERYMAN, Stourbridge, has a large quantity of the following Evergreens to offer, in well grown plants: Green and Variegated HOLLY, Siberian and American ARBOR-VITÆ, Common and Portugal LAUREL, English and Irish YEWS, RHODODENDRONS PONTICUM and PONTICUM VARIEGATUM ; Green and Variegated BOX, AUCUBA JAPONICA, ARAUCARIA IMBRICATA, &c.

Trees and Shrubs.
THOMAS KENNEDY AND CO. have as usual a very large and superior stock of FOREST and ORNAMENTAL TREES and SHRUBS, which they are selling at moderate prices. The Trees and Shrubs, being of all ages and sizes, are particularly well suited for extensive planting or giving immediate effect in the formation and improving of Ornamental Parks, Pleasure Grounds, &c. CATALOGUES sent free by post on application.
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FREDERICK PERKINS has strong plants of the undermentioned to offer, at the following prices :—
VIOLETS :—The Czar, for beds, 15*s.* per 100 ; The Queen, double white, 25*s.* per 100. ECHEVERIA METALLICA, 12*s.* per doz. ROSES :—Devoniensis, Tea, 12*s.* per doz. ; Maréchal Niel, on own roots, 15*s.* per doz. JASMINUM GRANDIFLORA, 15*s.* per doz. GERANIUMS :—Gloire de Nancy, 9*s.* per doz. ; Capt. Le Hermite, 12*s.* per doz. ; Mdme. Lemoine, 5*s.* each. Allamanda Schottii Hendersoni, 3*s.* 6*d.* each ; Stephanotis floribunda, 18*s.* per doz. ; Clerodendron Balfourii, 12*s.* per doz. ; Franciscea Lindleyana, 12*s* per doz. Price to the Trade on application.
Seed Warehouse, 51, Regent Street, Leamington.

To the Trade.
THOS. CRIPPS AND SON beg to announce they still hold a good stock of the following, in fine healthy stuff :—ABIES ALBERTIANA (Williamsoni), 2-yr. seedlings, to 10 feet ; A. MENZIESI, 9 ins. to 12 ft. ; ARAUCARIA IMBRICATA, 6 ins. to 20 ft. ; Cupressus Lawsoniana (an unequalled stock), 2-yr. seedlings, to 15 feet ; Picea balsamifera, 3 inches to 7 feet ; P. Nordmanniana, 3 inches to 7 feet ; P. Pinsapo, 6 inches to 18 feet ; P. pectinata (Silver Fir), 1 to 4 feet ; Pinus austriaca, 2½ to 7 feet ; P. Lambertiana, 1 to 5 feet ; P. muricata, 1 to 2 feet ; P. Benthamiana, 2-yr. seedlings, to 7 feet ; Retinospora ericoides, 5 inches to 3½ feet ; R. obtusa, 6 inches to 6 feet ; R. pisifera, 1 to 8 feet ; Taxus ericoides, 6 inches to 2 feet ; Thujopsis dolabrata, fine stuff, 3 to 15 inches ; Wellingtonias, 3 ins. to 20 ft. ; Horse-Chestnuts, all varieties ; Aucubas, a complete collection ; Berberis Bealii, japonica, intermedia, Darwinii, dulcis, stenophylla, vulgaris ; Laurels, common, 3 to 5 feet ; Laurels, Portugal and Myrtle-leaved do. ; Daphne pontica Stocks ; Deutzia crenata fl.-pl. ; D. scabra, Leycesterias, Manetti and Rhododendron Stocks ; Malus floribunda (handsomest of the flowering Crabs) ; Prunus triloba, Hardy Azaleas, Ericas, Gaultherias, Menziesias, and Pernettyas ; Standard Roses, Blush and Crimson China do. ; Standard Apples, Cherry Plum Stocks, Strawberries ; Pinus excelsa and Picea Webbiana, 1-yr. seedlings ; Alder, 2 to 5 feet ; Spruce Firs ; Lilium auratum and punctatum. For particulars and prices of which, see our TRADE CATALOGUE, to be had free on application.
The Nurseries, Tunbridge Wells, Kent.

BOX EDGING and COMMON LAURELS.—2000 yards of DWARF BOX EDGING, and 5000 LAURELS, of various sizes, in capital condition for removal, to be Sold cheap. Apply to
JOHN MITCHINSON, Nurseryman, Truro.

POTATO ONIONS.
POTATO ONIONS, at 21*s.* per cwt.
On Sale at MITCHINSON'S Seed Stores, Truro.

JOHNSON'S PROLIFIC WHITE KIDNEY POTATO.—A few tons of this excellent sort, grown in Cornwall, are offered at 10*s.* per cwt., delivered at Truro or Plymouth ; or at 11*s.* per cwt., delivered in London.
JOHN MITCHINSON, Seed Stores, Truro.

EARLY CORNISH BROCCOLI.—"During the past fortnight there has been a good supply of Broccoli sent to Covent Garden Market, from the neighbourhood of Penzance, Cornwall."—Vide *Gardeners' Chronicle*, Jan. 23, 1869, p. 86.
The Undersigned has the pleasure of offering seed of the above desirable variety, carefully saved last summer by one of the best reputed Gardeners at Penzance. Cash price 24*s.* per lb., or 2*s.* per ounce, carriage or postage free.
JOHN MITCHINSON, Seed Merchant, Truro, Cornwall.

RICHARD WALKER has to offer the finest sort of ROUND POTATO out (AMERICAN RED).—It boils as white as snow, and is the heaviest cropper in this country. R. W. imported it direct in 1865. As the Stock is limited, apply early. Price per cwt., 30*s.* SEAKALE, for planting, 3*s.* 6*d.* per 100. LACED PINKS, 20*s.* per 100.
Biggleswade Market Gardens.

NEW TRIPLE CURLED VARIEGATED PERENNIAL BORECOLE, as exhibited by Mr. Melville at the Royal Horticultural Society's Meeting on December 15, 1868. See *Gardeners' Chronicle*, page 1317 (1868), and page 50 (1869).
Invaluable as a Hardy Winter Decorative Plant.
Sealed packets, 2*s.* 6*d.* each.
The following Firms, having received supplies direct from STUART & MEIN (to whom Mr. Melville, the raiser, has handed over his entire stock of Seed for distribution), can supply the above, true :—

Messrs. Barr & Sugden, Covent Garden, London
„ Bunyard & Son, Maidstone
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Messrs. Chivas & Weaver, Chester
Mr. Cooper, Fleet Street, London
„ E. Cooling, Derby
Messrs. A. Dickson & Son, Newtonards, Ireland
„ Dreghorn & Aitken, Kilmarnock
Mr. Fraser, Lee Bridge Road, London
Messrs. Gartshire, Sons & Co., Falkirk
„ Dickson & Brown, Manchester
„ Hooper & Co., Covent Garden, London
Messrs. A. Henderson & Co., Pineapple Place, London
„ Garraway & Co., Bristol
„ Hogg & Roberston, Dublin
„ Hurst & Son, London
„ Krelage & Son, Haarlem, Holland
„ J. & C. Lee, Hammersmith London [Thames
Mr. McMillan, Kingston-on-
„ J. W. Mackey, Dublin
Messrs. Osborn & Sons, Fulham, London [London
„ Rollisson & Sons, Tooting,
„ Sutton & Sons, Reading
„ Sang & Sons, Kirkcaldy
Mr. Edward Taylor, Malton
„ J. W. Watson, Newcastle-on,

STUART & MEIN, Seedsmen, Kelso, N.B.

The New Roses for 1869.

WILLIAM ROLLISSON AND SONS respectfully beg to intimate to the Nobility, Gentry, and the Trade, that their DESCRIPTIVE and PRICED LIST of 42 NEW ROSES for 1869 is now published, and may be had gratis and post free on application. The Nurseries, Tooting, London, S.W.

Dwarf Roses for Bedding.

PAUL AND SON have a large quantity of the leading varieties, on own roots or on Manetti, from 7*s.* per 100.
The present is a most favourable Spring for planting. PRICED LIST in ROSE CATALOGUE.
"The Old" Nurseries, Cheshunt, N.

Roses.

JOHN CRANSTON will be happy to forward on application his DESCRIPTIVE CATALOGUE of ROSES for 1868 and 1869. For quality or quantity the stock is unsurpassed; the Manetti Roses especially are acknowledged to be the finest grown plants in the Trade.
Nurseries, King's Acre, near Hereford.

New Roses of 1869.

WILLIAM KNIGHT begs to intimate that he will commence sending out after April 1, in Strong Plants, the best of the NEW ROSES, also all the best varieties of previous years, in Standards, Half-Standards, or Dwarfs. A large stock on hand for immediate delivery; also Standard Trained PEACHES, NECTARINES, and CHERRIES, &c., splendid Trees.
CATALOGUES now ready. Free on application.
Floral Nurseries, Hailsham, Sussex.

New Catalogue.

LEWIS S. WOODTHORPE will be happy to forward, post free, on application, his CATALOGUE (which will be found very reasonably priced) of NEW and CHOICE PLANTS, beautiful SPRING FLOWERS, and GENERAL NURSERY STOCK.
A heavy discount to the Trade.
Munro Nursery, Sible Hedingham, Essex.

Superb New Plant, Gesnera Exoniensis.

NOW READY.

LUCOMBE, PINCE AND CO. beg to call attention to this magnificent new Winter-blooming Plant. For Table or other Decoration it surpasses anything ever before seen.
Plants now coming into Bloom, 15*s.* and 21*s.* each. A few fine Specimens, measuring 20 inches through, 31*s.* 6*d.* each.

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DOWNIE, LAIRD, AND LAING beg to intimate that their GENERAL SEED, FLORIST FLOWER, and GLADIOLUS CATALOGUES are now ready, and may be had free on application.
17, South Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E.

Genuine Seeds.

F. AND A. SMITH'S CATALOGUE of FLOWER and VEGETABLE SEEDS, of first quality, is now ready, (free on application), including their fine strains of BALSAM, CALCEOLARIA, CINERARIA, PRIMULA, TRICOLOR and other PELARGONIUMS, with every novelty of repute
The Nurseries, Dulwich, London.

Vegetable, Agricultural, and Flower Seeds.

MISCELLANEOUS HARDY BEDDING PLANTS, SWEET VIOLETS, &c.

ROBERT PARKER begs to announce that his CATALOGUE, containing DESCRIPTIVE LISTS of the finest kinds in cultivation of the above-named, is now published, and will be forwarded to applicants. The stocks of Seeds have all been procured from the best reliable sources; all are warranted genuine, and are offered at the lowest possible prices.
Intending Purchasers are requested to compare the prices with those of other houses.
Exotic Nursery, Tooting, Surrey, S.W.

Choice Scarlet Rhododendrons.

JOHN WATERER begs to announce that his CATALOGUE of HARDY, SCARLET, and other RHODODENDRONS, as annually exhibited at the Royal Botanic Gardens, Regent's Park, is now published, and will be forwarded to all applicants. It contains faithful descriptions of all the popular kinds, and likewise a SELECT LIST of CONIFERS, with heights and prices.
The American Nursery, Bagshot, Surrey.

SEEDS of some 240 species of AUSTRALIAN PLANTS, many quite rare, and yet undescribed, including Chanthus Dampieri albiflora (true), Coryphæ humilis, Eucalyptus globulus, Xanthorrhœa Kingii, Araucaria Cunninghami, Hoveas, Melaleucas, Pittosporums, &c.
Special LIST for the Trade now ready.
HOOPER & Co., Covent Garden, London, W.C.

VERBENAS, VERBENAS.—Fifty new varieties of 1868, including 12 of the New Italian Stripes, with plenty of cuttings, at 3*s.* per dozen. Purple, White, Scarlet, and Pink colours, with plenty of cuttings, 2*s.* per dozen. Strong young plants, at 6*s.* per 100, or £2 10*s.* per 1000; 40 New Verbenas, 1868, free by post, 6*s.*
PHILIP LADDS, Nursery, Bexley Heath, Kent.

Primulas, Primulas.

G. UZZELL has now in Bloom, for Seeding, first-class varieties of Bright Red, Carmine, and White; also Fern-leaved Bright Red and White, all of which are beautifully fringed Flowers, and can be seen on application.
G. UZZELL, Florist, Mill Road, New Hampton, Middlesex.

CALCEOLARIAS, new Strain, best in cultivation, dwarf, bushy, covered with a dense mass of beautifully marked flowers; admired by all who have seen them; require no sticks for support; should be grown by everybody. Strong plants, in 60-pots, 6*s.* per dozen, prepaid. Post Office orders or stamps.
JOHN KER, Bristol Road Nursery, Birmingham.

Market Gardens, Biggleswade, Beds.

RICHARD WALKER can supply for cash CLOVE CARNATIONS, Old Crimson, 10*s.* per 100; SCARLET KING DAISIES, 6*s.* per 100; EAST HAM, and all the leading sorts of Cabbage Plants, 2*s.* 6*d.* per 1000; RED DUTCH, extra fine, 4*s.* per 1000. Seeds, home-grown: ONION, WHITE SPANISH, 2*s.* 3*d.* per lb.; PARSNIP, 6*d.* per lb.

British Fern Catalogue.

ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, Sidcup Hill, Kent.

GLOIRE DE NANCY, Double PELARGONIUM, nice established plants, 5*s.* per dozen, or 25 for 10*s.*; MRS. POLLOCK, 4*s.* per dozen, or 26*s.* per 100; SUNSET, 6*s.* per dozen, or 45*s.* per 100, package included.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

TRICOLOR PELARGONIUMS.

LADY CULLUM, 21*s.* per doz.	ITALIA UNITA, 5*s.* p. doz.
SOPHIA DUMARESQUE, 13*s.* p. doz.	PICTURATA, 6*s.* per doz.
SUNSET, 6*s.* per dozen.	MRS. BENYON, 6*s.* per doz.

In strong plants, at the above prices, for cash, package included.
ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

VARIEGATED PELARGONIUMS.

Lucy Grieve	Lady Cullum	E. G. Henderson
Queen of Tricolors	St. Cloud	Beauty of Calderdale
Sophia Dumaresque	Rosette	Picturata
Duke of Edinburgh	Neatness	Sophia Cusack

The above for 21*s.* If any of the kinds are not required, others of equal value can be substituted. Remittances requested from unknown Correspondents.
Address, ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

Cheap, Cheap, Cheap.

TRICOLOR and other PELARGONIUMS.

	Per dozen.
LADY CULLUM	£0 18 0
SOPHIA DUMARESQUE	0 12 0
ITALIA UNITA	0 4 0
CRYSTAL PALACE GEM	0 4 0
LEONIDAS	0 6 0
MRS. POLLOCK	(per 100) 1 8 0

In strong plants, for cash, package included.
JOHN BARRETT, St. John Nursery, Bury St. Edmund's, Suffolk.

SUTTONS' HOME-GROWN SEEDS,
Carriage Free.

Seeds direct from the Growers the best means of preventing disappointment.

NEW SEEDS for the KITCHEN GARDEN, complete Collections from 12*s.* 6*d.* to £5 5*s.*, carriage free.
NEW SEEDS for the FLOWER GARDEN, complete Collections from 5*s.* to £2 2*s.*, carriage free.
SUTTONS' HOME-GROWN SEEDS, PRICED DESCRIPTIVE CATALOGUES gratis and post free.
SUTTON & SONS, Seedsmen to the Queen, Reading.

TRUFFAUT'S REINE MARGUERITE, FRENCH PÆONY-FLOWERING ASTER, direct from the Continent, the most beautiful Aster grown, in packets containing 24 splendid double colours, separate, for 9*s.* 6*d.*
New large VICTORIA ASTER, petals finely imbricated, 10 double colours, mixed. 500 seeds for 1*s.* These and other imported Seeds of the finest quality supplied by
ALFRED HAMMOND, Bedwin Street, Salisbury.

SUTTONS' HOME-GROWN SEEDS,

CARRIAGE FREE.

SEEDS DIRECT FROM THE GROWERS THE BEST MEANS OF PREVENTING DISAPPOINTMENT.

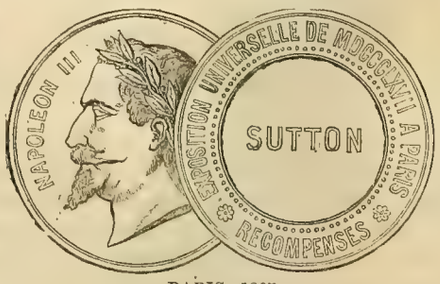
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SEED GROWERS,

ROYAL BERKS SEED ESTABLISHMENT, READING

WERE AWARDED A

FIRST PRIZE SILVER MEDAL,



PARIS, 1867,
For the SUPERIOR QUALITY of their SEEDS.

SUTTONS' COMPLETE COLLECTIONS of VEGETABLE and FLOWER SEEDS, for One Year's Supply, Carriage Free.

Collections of Vegetable Seeds.

No. 1 Collection, for a large garden, carriage free	£3 3 0
No. 2 Collection, for medium size do., carriage free	2 2 0
No. 3 Collection, for medium size do., carriage free	1 11 6
No. 4 Collection, for an ordinary size do., carriage free	1 1 0
No. 5 Collection, for a small do.	0 15 0
No. 6 Collection, for a very small do.	0 12 6

Collections of Flower Seeds.

No. 1 Collection, free by post or rail	£2 2 0
No. 2 Collection, free by post or rail	1 11 6
No. 3 Collection, free by post or rail	1 1 0
No. 4 Collection, free by post or rail	0 15 0
No. 5 Collection, free by post or rail	0 10 6

Particulars of the above Collections may be had on application, and any articles not required will be excluded, and others included according to the wish of the purchaser.

SUTTONS' CHOICE AND TRUE

POTATOS FOR PLANTING,

CARRIAGE FREE.

SPLENDID NEW POTATO for 1869.

SUTTONS' BERKSHIRE KIDNEY

Was raised and selected from among forty seedlings of the Fluke. Having planted it with different varieties of that class, we have proved it to be by far the best of them all, and fully a fortnight earlier. The Tubers are all of good size, very numerous, of fine form, and remarkably clear skin. It is most valuable for the main garden crop, and will become a favourite with Market Gardeners. It has been remarkably free from disease, while other varieties growing close by were almost destroyed. The stock of this POTATO is exclusively in our possession. Price 5*s.* per peck. (See Illustration in *Gardeners' Chronicle* for Jan. 30, p. 106.)

KIDNEY VARIETIES.	ROUND VARIETIES.
Early Walnut-leaf	Dalmahoy
Myatt's Prolific Ashleaf	Improved Shaw
Webb's Imperial	Red Regent
Fluke	Flour-ball
Barron's Perfection	Skerry Blue
Suttons' Berkshire	Walker's Regent
King of Potatos	York Regent

Lowest price per sack or ton on application.

SUTTONS' RINGLEADER PEA,

THE EARLIEST IN CULTIVATION.

The Royal Horticultural Society have this season tested the merits of the leading Early Peas, and their Report, *vide Gardeners' Chronicle*, June 27, 1868, contains the following emphatic statement:—
"The earliest form of all was Ringleader; several of the Peas blossomed at the same time, but Ringleader was fit to gather first."
Retail Price, 2*s.* per quart.

SUTTONS' FINE LAWN GRASS

(As supplied to the leading Gardens in the Kingdom),

For MAKING NEW or IMPROVING OLD LAWNS or CROQUET GROUNDS.

This Mixture consists only of the finest growing Grasses and Clovers, and will produce a beautiful velvety Turf in a very short time. February, March, April, and May are excellent months to sow.

For Making New Grounds, 3 bushels or 60 lb. should be sown per acre.

For Improving Old Grounds, 15 lb. per acre.

Price 1*s.* per lb., 2*s.* 6*d.* per gallon, 20*s.* per bushel.

"Hints on the Formation and Improvement of Lawns, Croquet Grounds, &c.," see SUTTONS' AMATEUR'S GUIDE, p. 67, price 1*s.*; Gratis to Customers.

SUTTONS' SHORT SELECT SEED LIST is now ready; Gratis on application.

All Goods Carriage Free, except very small parcels.

☞ Five per cent. allowed for prompt payment.

SUTTON AND SONS, SEED GROWERS, READING.

THE LARGEST AND FINEST STOCK OF

ALL THE BEST NEW ROSES OF 1869.

SPLENDID PLANTS WILL BE READY FOR DELIVERY IN MARCH.

DESCRIPTIVE CATALOGUES will shortly appear.

W. WOOD AND SON, WOODLANDS NURSERY, MARESFIELD, near UCKFIELD, SUSSEX.

TO THE TRADE ONLY.

STUART & CO., SEED GROWERS, NICE.

Warehouse and Offices, where Stock is kept for the supply of the English Trade,
5, TAVISTOCK ROW, COVENT GARDEN, W.C.
(Late of 85, Southampton Row.)

WHOLESALE CATALOGUE ON APPLICATION.

THE FOLLOWING SPECIALITIES SUPPLIED AT THE CATALOGUE PRICE,

OR SPECIAL OFFER FOR LARGE QUANTITIES.

CARNATION SEED, from Florists' Flowers, in Mixture or in Collections.
PICOTEE SEED, from Florists' Flowers, in Mixture or in Collections. This Carnation and Picotee Seed is noted for the large proportion it gives of fine double flowers.
PELARGONIUM SEED.—Large-flowered, Spotted, Fancy, and Decorative, in Mixture or in Collections. The Seed we offer produces Flowers of great beauty.
PELARGONIUM ZONAL SEED.—Saved from the newest Variegated Tricolor and Bronze Varieties, and from these crossed with the finest Zonals.
PRIMULA SEED.—Saved from the largest and brightest-coloured fimbriated flowers, from Fern-leaved and Double Varieties.
ECHEVERIA METALLICA.—Fresh seed-pods now ready to send out, each pod containing from 20 to 50 seeds.
PINK SEED.—Saved from the choicest Border varieties.
HOLLYHOCK.—Saved from Extra Exhibition varieties.
LOBELIA LITTLE GEM.—The prettiest of all our annuals, flowers pure white, with clear well-defined blue eye, compact, and blooming throughout the season.
PETUNIA SEED, of exquisite quality.
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The Gardeners' Chronicle.

SATURDAY, FEBRUARY 13, 1869.

MEETINGS FOR THE ENSUING WEEK.

MONDAY, Feb. 15—Entomological .. .. .. 7 P.M.
TUESDAY, — 16—Royal Horticultural (Fruit and Floral Committees), at South Kensington .. 11 A.M.
Ditto (Scientific Committee) .. .. 1.30 P.M.
Ditto (General Meeting) .. .. .. 3 P.M.
THURSDAY, — 18—Linnean .. .. 8 P.M.

THE report of the ROYAL HORTICULTURAL SOCIETY, an abstract of which we publish in another place, contains little that has not been at various times commented on in these columns during the past year. The establishment of the Scientific Committee we have ever held to be a judicious step, serving to give increased weight and authority to the Society, and bringing it, as the acknowledged centre of horticultural skill and horticultural knowledge, into closer connection with those collateral branches of science which have so important a bearing on gardening pursuits. As this Committee and its deeds have often formed the subject of comment, we need not dwell on them now further than to hail with pleasure the announcement vaguely made in the report, and afterwards more fully explained by Mr. WILSON SAUNDERS, that arrangements are being made to amend and accelerate the issue of the publications of the Society. At present these documents are a laughing-stock and a reproach to the Society. Even the Journal, the contents of which are satisfactory so far as they go, loses all its value from the excessively long intervals between its appearances: a circumstance which must be even more annoying to the learned and deservedly respected Editor than to the other Fellows of the Society. For our own part, we think that the beneficial operations of all the Committees, and especially of the Scientific Committee, are very materially impaired by the irregular and imperfect way in which their proceedings are recorded. In the case of the Scientific Committee, or of the Journal which should serve as the "Transactions" of that Committee, what hope is there of inducing either practical horticulturists who have information to communicate, or scientific men who have experiments to record, explanations to offer or suggestions to make, to come forward and contribute of their abundance? How different would it be were it once known that the Society afforded means for the diffusion of rigidly selected horticultural lore of a high-class character, not mere reports of exhibitions which have little or no value beyond the year in which they are issued—not mere lists of gainers of certificates and prizes—lists so numerous that the laity might well be excused for supposing the greater honour to pertain to those not mentioned in the Society's records, but information of a character not of ephemeral interest only, but likely to be useful to coming generations of horticulturists. The objection hitherto raised on the score of deficient funds strikes us as of no great weight, because the money spent on the present numerous but most unsatisfactory and fragmentary publications must be almost as large as would be necessary to cover the expenses of a quarterly or monthly digest, so prepared as to be of value to the Fellows, and a credit to the Society. Such a publication, for which the Society has already a most efficient editorial staff, would, in our opinion, tend, if not directly, at least indirectly to replenish its coffers. It is a fair question to put in reference to the not very favourable balance-sheet laid before the general meeting, whether the comparatively small sum required for putting the publications of the Society on an improved footing would not be much more profitably spent, both as regards the advancement of horticulture and the prosperity of the Society, by so doing, than is the relatively large sum now disbursed in prizes and medals. It is admitted that Exhibitions do not pay—and when we look at the monies expended in prizes this statement is not at all a marvellous one. Of course a good deal may be said in favour of giving prizes of substantial value, either in money or otherwise, to gardeners, but to well-to-do amateurs the "crown of wild olives" would be ample recognition, while in the case of nurserymen it certainly seems entirely unnecessary to subsidise them, and at the same time give them the best possible means of advertising and displaying their productions. Surely with this class of exhibitors a less costly form of prize would answer all the purpose, or they might extend the system already carried out on a small scale with reference to certain specialities, and subscribe for prizes among themselves, and so liberate funds, to our thinking, now urgently needed in other departments of the Society's work.

How well laid out are the sums disbursed at Chiswick, the report of the board of directors shows. To horticulturists this document will be the most satisfactory portion of the Society's annual report, and now that facilities of access by railway to Chiswick from most parts of the metropolis are afforded, we may hope that the Society's most useful work carried on in the now time-honoured garden, will be appreciated by a larger number of visitors than heretofore.

—— AT the recent Annual Meeting of the ROYAL HORTICULTURAL SOCIETY, in the discussion which ensued as to the PUBLICATIONS issued by the Society, Mr. BATEMAN took occasion to compliment the *Gardeners' Chronicle*, and, he might have added, the horticultural Press in general, on the manner in which matters of interest to the horticultural public were reported; and he urged that this circumstance rendered it of the less importance to amend the official publications of the Society. While duly appreciating the compliment, we cannot assent to Mr. BATEMAN'S reasoning, because the official publications alluded to would necessarily be of a different character, and the subjects treated of would be differently handled than they are in the columns of a newspaper. Besides, we are not sure, after Mr. BATEMAN'S statement, that it would not be to the advantage of the Society if its proceedings were less efficiently reported!

—— We have just received specimens of two LICHENS which are said to be spreading with extraordinary rapidity in some parts of IRELAND. They are the common Evernia Prunastri and Ramalina farinacea, which abound in woods and orchards where the ground is badly drained. On a small scale it is easy to get rid of them by scraping, but they will soon grow again, and the most effectual remedy is to drain the land thoroughly. We have seen the most extraordinary effects produced in Apple trees by removing the Lichens, new vigorous adventitious shoots being developed, the growth of which was before at once arrested by the choking of the Lichens, which prevented the access both of air and light, and the same evil effect was produced on the fruitful spurs. One correspondent remarks that he cannot conceive why this plague should occur now and not in former years. It is of course impossible for us to answer this without inspecting the locality. Drains may have been stopped, particular local circumstances may have made a change in the distribution of moisture, or the matter after all may not have been before called into especial notice. Nothing can be more common than the profusion of these Lichens, especially on Larch and Hawthorn, in damp situations, and when they are once established they do not very readily disappear. *M. J. B.*

—— The following statement respecting the BERRYING OF AUCUBAS, which may be thoroughly relied on,

will be reassuring to those who fear their plants will not bear fruit without artificial aid:—A gentleman living in the Bayswater Road, opposite Kensington Gardens, has some very large Aucubas growing in his garden. During his tour in the autumn of 1867 he purchased a male plant, and plunged the pot in the border near to his large plants. In the flowering season he noticed that the bushes were almost covered with bluebottle flies, of which he then took no particular notice, nor had he at that time the least idea of what they were doing; but the other day he was agreeably surprised to find his large Aucuba bushes covered with berries, which were fast turning red, thus abundantly proving that, in this case, artificial impregnation was not necessary. Other cases wherein a single male bush has sufficed for the abundant fertilisation of the females, have been observed.

—— We have bad coin to nail, unfortunately, to our own counter. Some little time since an article appeared in our columns, signed by Mr. ISAAC ARCHER, on COOL ORCHIDS. The publication of this article revealed, to say the least, very cool practice on the part of the person just named, inasmuch as it brought a protest from Messrs. BACKHOUSE, of York, who pointed out that the whole of the article, with the exception of a few words altered by ourselves, and a "quotation from the work of a relative," was copied *verbatim et literatim* from the Introduction to Messrs. BACKHOUSE'S Catalogue of a few years back, without the slightest intimation being given of the source whence the article was taken. Mr. ARCHER'S explanation to ourselves and to Messrs. BACKHOUSE is so exceedingly unsatisfactory, that we have no other course left to us than to hold up Mr. ARCHER to public reprobation for his perfectly unjustifiable conduct, and to tender an apology to Messrs. BACKHOUSE for having unwittingly been made the medium of infringing on their property.

—— M. DURIEU describes, under the name of GERRARDANTHUS PORTENTOSUS, a curious Cucurbitaceous plant growing in the Botanical Garden of Bordeaux. It produces at its base a large napiform swelling, which is said to attain 2¼ yards, sometimes more, in diameter. The Bordeaux plant has, in the space of two years, produced a tuber of about 18 inches in diameter. It is, however, remarkable that the young ones which have been propagated from it have not produced the tuberosity to which the seedling individuals give rise. The plant referred to in the above extract from the "Revue Horticole," must surely be the same as Gerrardanthus megarrhiza, of which the following account is given in HARVEY'S "Genera of South African Plants:"—"*G. megarrhiza*, Dcne. and Harv., the only species grown in the Natal colony. It has a large placentiform, tuberous root, lying on the surface of the soil, 3 to 4 feet in diameter, 1 to 2 feet thick, slightly acrid and bitter, and used, as Mr. GERRARD informs me, 'by the Kaffirs for various medicinal purposes; among others they give it to heifers, after the first calf, to increase the quantity of milk; but it appears to deteriorate the quality, for it is said that cows give no butter during the time they are taking the root.'"

New Plants.

DENDROBIUM CRASSINODE, *Benson and Rchb. f.*

Caulibus reteribus erectis porrectisve annulato nodato incrassatis, nodis strictorisque sulcatis, vestigiis vaginarum vestitis; foliis ——; floribus (solitariis?) ebraceis, bracteis oblongis scariosis quam ovaria pedicellata multo brevioribus, mento obtusangulo; sepalis ligulatis obtuse acutis; petalis oblongis obtusis subtilissime ac microscopice hinc ciliatis; labello unguiculato transverse ovato emarginato limbo minutissime ciliolato, disco minutissime velutino, linea callosa a basi versus discum; columna basi inornata; anthera vertice velutina.

This is the famous "Knotted Dendrobium," known for some time in English gardens, a very singular plant, the flowers of which have been looked for with no little curiosity. We are informed by Mr. Harry Veitch that at length the plant has flowered simultaneously at the Royal Gardens, Kew, and at the Royal Exotic Nursery, Chelsea. The stems are very curious, from 4 to 10 inches high, bearing knotty rings, alternating with the simply constricted parts. The knobs are by far more developed than in the well-known Dendrobium Aphrodite (Rchb. f., Aug. 1, 1862; nodatum, Lind., Aug. 2, 1862). The stems remind one much of those of Dendrobium crystallinum. They are of very thick texture, and are glossy, milk-white, the petals much broader than the sepals, and all tipped with beautiful violet purple. The lip has a very dark orange expanded disc and unguis. The anterior limb is white. The column is greenish white, with some dark purple marking below the stigmatic hollow and on the sides. All the surface of the lip is velvety.

This is one of Colonel Benson's best discoveries. Such Orchids, which by their peculiar appearance give a character to the scene even when out of flower, must be very welcome. We obtained a specimen from the Royal Exotic Nursery, where we admired the plant last autumn, as also at Kew. May we allude to the fact that there are still some other great Bensonian surprises to be expected?—but we will not speak before time. *H. G. Rchb. fil.*

HARDY FRUIT GROWING.

I THINK the best arguments in confirmation of Mr. Saul's views of fruit-growing (p. 1261, 1868) are to be found, not in any particular division of the kingdom, north or south, but in numbers of places in every county where thoroughly good crops of fruit are obtained six years out of seven at least. I am not speaking of particular places that may happen to be specially favoured by soil, situation, or other accidental circumstances, but of places similarly situated to others where failing crops are more the rule than the exception. Any man who has any pretensions to fruit growing is aware that Apricots, Nectarines, and Peaches require careful summer management to ripen the wood, with attention in retarding the bloom before opening, and also sufficient protection when in bloom. Plums are also more susceptible of injury from spring frosts, on account of their blooming earlier than Apples and Pears. It is more particularly to the best varieties of these that I allude, and in which I endorse all that Mr. Saul has advanced. And I may here observe that from the length of time in which a good selection is available for dessert, that they are of more consequence to the gardener than any other fruits, with the single exception of Grapes. If even with skilful culture it be a lottery, in which the blanks stand to the prizes in the proportion of two or three to one, how is it that we so often see splendid walls and trellises covered with trees that, under one system of management seldom bear satisfactory crops, but when differently treated produce satisfactory results? Your correspondent "Pari Passu" asks Mr. Saul how by any method of pruning we are to raise our spring temperature? I submit that such a tone of writing may be all very well where there is a disposition to win an argument, but in a very important subject, such as the one in question, it is neither commendable nor calculated to elicit facts. Although we cannot alter the temperature by any system of pruning, we can attain the same end—that is, we can prune our trees so as to make the blooming independent of a considerable amount of frost.

Close observers will have noticed that a tree that makes too much strong wood always produces small weak bloom, not half the size, nor able to stand anything near so low a temperature, as the bloom produced by a tree in a good fruitful state, and which state can with something like certainty be secured by a thorough system of root pruning. I find that in our humid climate root pruning, when carried out with judgment, is better calculated to produce a strong fruitful condition than the summer pinching so much practised by our Continental neighbours, however attentively followed up. And in addition to the robust condition of the bloom secured under this system of culture, there is generally four times as much of it, and hence the duration of blooming is lengthened. It most commonly happens that it is a single night's frost that does the mischief, consequently a tree that has its blooming period extended, stands a much better chance of setting a crop than the one that flowers in a comparatively shorter space of time. I have observed for years that the time occupied in the blooming process is fully one-third longer in the case of a tree that makes a profusion of bloom, as compared with others that bloom but sparingly: and it rarely happens that the unexpanded bloom is killed. During the last 12 years we have had four seasons in which, during the time of blooming, we had here 10° or 12° of frost, which killed all the expanded blossom; but there has always either been enough set previous to the occurrence of the frost, or sufficient unexpanded bloom to open afterwards for a crop.

We are here at Bowdon situated 10 miles south of Manchester, and within the county of Cheshire. On coming to the place 12 years ago I found a good selection of fruit trees, especially Apples and Pears, about 10 years planted, but most of them much too strong to be fruitful. The first week in September we set to work and root-pruned all, with the exception of some half-dozen that were reserved for an experiment. The Pears are nearly all on walls, or on trellises over some of the walks; the Apples on trellises down the sides of other portions of walks. This enabled us to operate much more effectually than could have been done upon standard trees. The following summer they made very little wood, but set bloom in the greatest profusion, and from that time to the present have borne most abundantly, without failing a single season, excepting in 1861, when most of the bloom was killed in the bud by the intense frost on the 24th of December, a circumstance that was almost general throughout the kingdom. The demand for vegetables is such as to compel me to crop every inch of ground over the roots of the trees. The soil was naturally light, but has had marl applied at the rate of 200 loads per acre. I apply it in the shape of a good surface dressing in the autumn, so as to get it well pulverised by the frost previous to forking it in. I manure quite as heavily as the London market gardeners; and this, especially in dry seasons, has the effect of improving the fruit. As will be easily understood, with soil so heavily manured, it would be useless to expect fruit unless the roots were regularly attended to; every two or three years, as soon as the fruit is off in the autumn, we go half round each tree and cut the roots within about 6 or 8 inches of where they have been cut at the previous operation. By this means they are kept completely under control; they make very little wood, but are thickly studded with bloom-buds, which, when open, would almost lead us to wonder where the leaves were to come from.

In a mild spring they set a great deal more than they can bring to maturity, but it is an easy matter to thin them. The fruit gets every ray of sun, and is almost as russety and high-coloured as if grown in France or the Channel Islands—a tolerably certain evidence of good flavour. I admit we cannot reach the size of those that the Continental growers produce, but our best Marie Louise, Beurré Diel, Van Mons Léon le Clerc, &c., will reach 16 and 20 ounces respectively; and Ribston Pippin Apples 8 or 9 ounces, which are quite large enough for general use. One of the greatest mistakes made in fruit culture is the planting of sorts unsuited to soil and locality; this arises from insufficient data as to the kinds that will succeed. There is no means so well calculated to afford this most essential information, as the establishing throughout the country of late autumn fruit shows. Such exhibitions in two or three years furnish positive evidence of the kinds which are best suited to each locality.

Seven years ago there was a society of this kind formed in this immediate neighbourhood; it originated with and is carried on by the market gardeners, gentlemen's gardeners, and amateurs conjointly, and all exhibit together. The show is held at the end of October or beginning of November, in a large room in Timperley. The prizes are not large, neither is it necessary that they should be, as the principal object is to give all interested in those pursuits an opportunity of comparing notes, and as a practical illustration of the varieties best suited to this part of the country. The subjects are almost exclusively confined to hardy fruits and culinary vegetables; there are classes made to suit the means of those who may only grow a few varieties, and of those who grow a number, both in fruit and vegetables. There are two principal classes, one for hardy fruit, the other for vegetables, in each case number of varieties not limited. I have been fortunate in taking the 1st in the fruit class with 40 dishes, distinct kinds, six years out of the seven. As an exhibition of hardy fruits and vegetables, I have seen nothing to equal it. If those gentlemen who draw such a gloomy picture of the fruit-growing capabilities of the kingdom, especially the northern portion, were to see this exhibition, or the hardy fruit shown at St. George's Hall, Liverpool, at the November shows, I feel certain we should hear fewer complaints afterwards. Two things especially struck me at the St. George's Hall show—the general excellence of the hardy fruit, and the almost uniform similarity as to varieties in the different competing collections; showing at once that the Liverpool gardeners have become thoroughly conversant with the varieties suited to the locality. I submit that if each person who writes on these matters would state the varieties which succeed in his particular locality, it would be of the greatest use, as it would prevent much of that indiscriminate planting which ends in disappointment.

I append a list of the kinds which are grown here. The past season has had a strange effect on both Apples and Pears: some varieties have been much larger than usual; others, again, much smaller, and most sorts have ripened before their usual time. With us, Knight's Monarch, Glou Morceau, Eyewood, Passe Colmar, Winter Nelis, and Van Mons, &c., sorts that are generally coming in at Christmas, are all over (Dec. 30); and I have no doubt that Beurré Rance, Easter Beurré, Jean de Witte, and Ne Plus Meuris, will be ripe and over long before their usual time.

PEARS ON TRELLIS.

Jargonelle
Winter Nelis
Marie Louise
Easter Beurré
Napoléon
Gansel's Bergamot
Dunmore
Summer Franc Réal
Forelle
Louise Bonne
Ne Plus Meuris
Glou Morceau
Beurré Diel
Aston Town
Althorp Crasanne
Knight's Monarch
Duchesse d'Angoulême
Seckle
Williams' Bon Chrétien
Jean de Witte
Verulam
Catillac
Van Mons Léon le Clerc

PEARS ON WALLS.

Jargonelle
Marie Louise
Beurré d'Aremberg
Easter Beurré
Spanish Bon Chrétien
Eyewood
Passe Colmar
Old Colmar

STANDARD PEARS.

Beurré de Capiaumont
Marie Louise
Louise Bonne
Passe Colmar
Beurré Rance
Brown Beurré
Jargonelle

APPLES ON TRELLISES.

Reinette du Canada
Court of Wick
Blenheim Pippin
Alfriston
Lamb Abbey Pearmain
Bedfordshire Foundling
Hawthornden
Margil
Sam Young
Gravenstein
Yorkshire Greening
Mank's Codlin
Court-pendu Plat
Ribston Pippin
Newtown Pippin
Keswick Codlin
Golden Pippin
King of the Pippins
Old Nonpareil
Boston Russet
Alexander
Dumelow's Seedling

Amongst the Pears, Gansel's Bergamot, Williams' Bon Chrétien, and Duchesse d'Angoulême, do not do so well as the others. The Apples all appear to bear equally well, with the exception of Sam Young, Gravenstein, and Dumelow's Seedling. *T. Baines, Summerfield, Bowdon, Cheshire.*

KARL FRIEDRICH PHILLIP VON MARTIUS.

[We have been favoured by Dr. Eichler with the following biography of the historian of the Palms, whose death we have already alluded to.]

K. F. P. VON MARTIUS was born at Erlangen on April 17, 1794. The family of Martius came originally from Umbria. His ancestor, Galeottus Martius, born at Narni, 1497, and Professor at Padua, 1450, fled from thence, accused of reformation predilections, to the court of King Matthias Corvinus of Hungary, where he found a post as counsellor and librarian. From Hungary the family spread throughout Germany, with an almost uninterrupted line of able ministers and men of letters, while some of the later members manifested a decided inclination to the study of natural history, and botany especially—for instance: Heinrich von Martius, the publisher of a "Flora of Moscow," Karl Friedrich Phillips' great uncle; and his father, Ernst Wilhelm, likewise a botanical author, and one of the three founders of the Royal Bavarian Botanical Society of Regensburg; and his only brother, Theodor, the well-known Professor of Pharmacy at Erlangen. Even as an infant in the cradle, K. F. P. von Martius was made free of the Academy, for at his baptism he received a present of the university roll! His earliest instruction was received under the parental roof, imparted chiefly by his talented and excellent mother, to whom he owed many of the most prominent traits of

his mind and character, and for whom he retained to the last a truly touching remembrance. He attended afterwards the upper school and "Gymnasium" at Erlangen, where, under Professor Richter and Rector Besenbeck, he acquired that reverence and love for, and profound knowledge of, classic antiquity which accompanied him through the whole course of his life, and bore such rich fruit in his writings, which are mostly in Latin.

At Easter, in 1810, when barely 16 years old, he entered the university of his native town. He devoted himself to the study of medicine, cherishing, however, a partiality for the natural sciences, more particularly for botany, with the elements of which he was already acquainted. At that time Schreber, a direct pupil of Linnæus, was professor at Erlangen, and through his influence, as well as being the then generally prevailing, nay almost the first existing system as regards descriptive botany, young Martius became enamoured of it. This taste was even more strengthened and fostered by the friendly intercourse which sprang up between him and the brothers Nees von Esenbeck at the "Gymnasium." It was precisely this fellowship that brought Martius in contact with the so-called "natural philosophy" which then encroached even upon botany. True, he did not enter so deeply into it as the elder Nees, and at a later period liberated himself from it entirely; nevertheless, traces of it are clearly observable in several of his writings. Besides Schreber, amongst his university tutors, of whom Martius spoke, with special gratitude, were Goldfuss the geologist, Hildebrand the chemist, Harless the doctor and philologist, and Wendt the physician, not to forget the university gardener, Rümlein, from whose practical knowledge of plants Martius boasted having learnt more than from the pedantic teachings of Schreber.

It was in 1812 that he first conceived the idea of entirely giving up medicine for botany, when, in consequence of the death of Schreber, the academicians, Schrank and Spix, from Munich, came to Erlangen to secure the Schreberian collections for the Academy of Sciences, and expressed a wish that Martius should become an academical pupil, and assist Schrank, who was growing old, in the curatorship of the newly established botanic garden at Munich. For that purpose Martius underwent the requisite examinations, and was admitted a pupil on the 14th of March, 1814, and was inducted by Schrank and Moll, the general conservators, into the business of the garden, and drew the first part of his annual salary of 500 florins on the 17th of April, 1814, his 20th birthday. A short time previously, while yet in Erlangen, he had gained the academical degree of doctor, for his book entitled "Plantarum Horti Academici Erlangensis Enumeratio." This very important dissertation, comprising 210 pages 8vo, was arranged strictly according to the Linnean method, in all else it resembles a modern garden catalogue. The next two years were passed amidst the duties of the garden, zealous study, and occasional botanical trips, upon one of which (in Salzburg and Carinthia) he formed the acquaintance of Hoppe the botanist, and took part in his excursions. One product of his literary activity at that period is the "Flora Cryptogamia Erlangensis". (Nürnberg, 1817)—a book that even now is looked upon as an authority, and, on account of the characteristic plates it contains, is a capital volume to put into the hands of a beginner to aid him in identifying those little plants. While it was yet in the printer's hands the author was appointed to go to Brazil, and he then turned it over to his friend, Nees von Esenbeck the elder, for completion.

Amongst the men, besides Schrank, who at this time exercised an important influence on the development of Martius' faculties, was General Conservator Moll, above referred to, who, although no botanical writer, still possessed an extensive knowledge of the vegetable kingdom: and then there were the Academicians Schlichtegrall and Sömmering. And it was even in these early years that Martius first attracted the notice of King Maximilian Joseph I., who was an ardent lover of plants, and in his frequent visits to the botanic garden was usually escorted round by Von Martius. In the sequel we shall see what important consequences in Martius' career are traceable to this intimacy.

Through the traveller Baron Von Karwinski, the King of Bavaria favoured, as early as 1815, the idea of fitting out a scientific expedition to America. True, the original plan discussed by the Academy of Sciences was never carried out. When, however, at the Congress of Vienna in 1816, a matrimonial alliance was settled between the Austrian Archduchess Leopoldina and the Crown Prince, subsequently Don Pedro I. of Brazil, and Austria set about equipping a scientific expedition in the retinue of the bride, the old wish revived in King Maximilian Joseph, and he resolved, with the concurrence of the Austrian Court, to delegate two Bavarian naturalists to accompany the Austrians. The choice fell upon the academicians Spix, as zoologist, and Martius, as botanist—the latter having been selected by the king himself.

(To be Continued.)

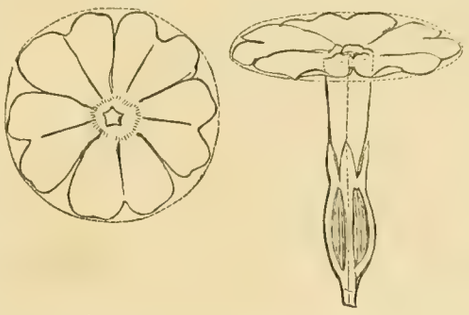
BOTANICAL DRAWING.—No. IV.

Flowers are often considered the most difficult parts of a plant to sketch; but such, I think, is not really the case, their perspective being more evident and less varied than that of leaves whose positions are almost infinite.

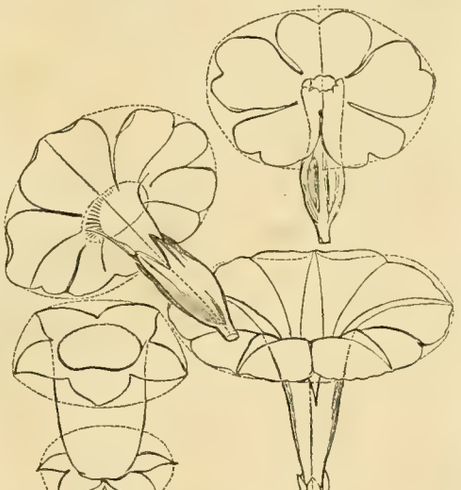
The most common error perpetrated is that of not placing the flower correctly on its stalk or peduncle, but with its neck dislocated as it were, thus imparting to the sufferer an air of conscious comicality. To avoid this infliction, in making the first faint sketch prolong the stalk or axis through the flower to the centre, whence the petals or divisions may be made to radiate correctly beyond a doubt. Another common fault is to represent them all pointing in one direction: sometimes this may occur in Nature, but it is not artistic to copy it in every case.

For scientific purposes it is desirable that positions should be as varied as possible, so that at least a front side and back of a flower be exhibited. A third error I may also allude to, and it is one very common in drawings made from dried specimens for scientific purposes—I have often seen otherwise correct and beautiful plates marred by it—viz., the representing all or most of the flowers in a panicle or mass, with one particular division of the corolla directed towards the spectator; such uniformity is too mechanical to be natural. As good a flower as any to commence with is a Primrose, and for a mass of flowers the Polyanthus or Oxlip, as in these cases they are presented to the eye in various positions.

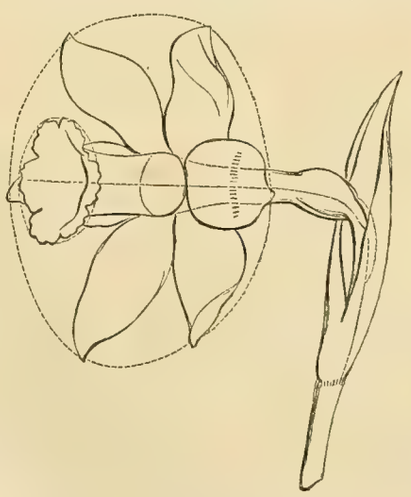
For the front view a faint circle should be pencilled, the centre and the divisions of the corolla indicated, and then sketched in as firmly as is desirable. If the drawing is to be coloured, the outline and veins, if any, should be strong enough not to be quite obliterated by dark colour.



In a side view the tube should be properly adjusted to correspond with the throat or eye; the simplest way to do so is to carry the outline of the tube faintly through to the centre of the flower, as in the foregoing cut. In a position showing the tube foreshortened, or in a back view, the same method should be adopted as shown in the following illustrations. Tubular flowers



are often sadly treated by draughtsmen; take, for instance, the common Daffodil, in which, if lines were drawn round each centre, they ought to be in the same plane. The next sketch will better explain my meaning.



It is one of the most difficult flowers to sketch correctly in its natural position, and the best way to test correctness is to turn the paper, so that the flower be erect, when the bad drawing, if any, will be obvious. *W. H. Fitch.*

Home Correspondence.

Vine Roots Diseased.—Can you inform me what is the cause of the roots of my young Vines being destroyed? They were planted at the beginning of April, 1867, in an inside border, composed of three-fourths of soil, as per samples, in equal quantities, the other one part being composed of lime rubble, stable manure, and bones. Last season they made a tolerable growth. Vines of my own growing, although much the weakest when planted, made by far the best canes, but on examining them I found the roots in a very unsatisfactory condition. I top-dressed the border with turfy loam and lime, and they have made a quantity of young roots in it, but the old ones are quite destroyed. The strongest of the two Vines sent is of my own growing, the other is one of a quantity I purchased from one of our best cultivators, and I am afraid the mischief came with them. I have three vineries that are doing well; one of these has been planted 50 years, and the other two seven years. The house in which these diseased Vines are planted is 60 feet long, and is intended for a late house. I shall be glad to know what remedy there is, if any, or if I must clear all out, and make a fresh border. *J. S. R.* [From the specimens of roots and soil sent we are of opinion that the mischief is due to Fungi at the roots. This is very apparent on those of the stronger Vine; apparently it has been introduced in planting the Vines—leaf-mould, or some such material, having been used in growing the young plants in the pots. There is no remedy for the evil, but a complete removal of the soil and plants. *B.*]

Pine-apple Culture: Cutting Down.—Had Mr. Barnes confined himself simply to an account of his own early experience of the cutting-down system, I should not have felt called upon to notice his remarks, seeing that I never either claimed to be the originator of the system, or said that anybody else was. But since he has brought my name forward, with remarks on my practice, I cannot pass over his statements in silence, so far as they refer to me. Whatever half a century of experience may have done for Mr. Barnes, it has evidently not taught him charity towards his unoffending, though younger brethren. Although he is at great pains to make it appear that the cutting-down process is not creditable to the cultivator, it is evident from the way he brings up recollections of 50 years back, that he is terribly concerned lest he should lose repute in the matter. When I first recorded my experience on the subject, I was careful not to claim priority in that respect, but accorded that to Mr. Thomson, who at least was the first to recommend the plan under certain circumstances; and but for his doing so, and the discussion which has taken place recently, it seems we should never have heard of Mr. Barnes' claims to the honour of carrying the bell—as he puts it—as the originator of the system. Mr. Barnes magnifies the difficulties he had to contend with in his youth to the utmost, taking care always that his own success does not suffer by the contrast. I beg to inform him, however, that some of the Pine stoves here remain nearly as they were about 50 years ago. Some of them have been heated with hot water, but they are by no means modern structures, and our early fruiting house still retains the flues. Yet we manage to supply fruit in quantity, and of good quality, without having to cut-over the plants, unless on an exceptional occasion—though I would not hesitate to adopt the plan if necessary, nor think there was aught discreditable about it, knowing well that not even the best cultivators can reckon upon every plant showing when wanted. On occasions when I have made the experiment with a few plants which had missed fruiting at the proper time, they showed fruit directly, and swelled off in close succession to the others, and were out of the way before the young plants required the room. Mr. Barnes is quite wrong in supposing that plants so treated have to be kept till the following year, thereby losing a season, nor could he draw such an inference from any former statements of mine, though he says as much. I do not make these remarks in order to justify my own practice. I am only a beginner, and cannot claim a quarter of the experience of Mr. Barnes, nevertheless I am willing to be judged by my success, and I think I may say that the Pines here will bear comparison with anything at Bicton. Cutting-over Pines with the object of making them fruit as has been recommended, and chopping off their stumps, as used to be done in Mr. Barnes' young days, are two different things. In the former case it is done with good healthy plants, to hurry maturity; in the latter it was a necessity entailed by bad cultivation, according to Mr. Barnes' own showing, and was done, not to induce fruitfulness, but to encourage fresh roots in place of those which had been destroyed, as any one may find who will take the trouble to look into some of the old authors on gardening. It is a well-known fact that the gardener is not always successful in his undertakings: it is not in the nature of things for him to be so, and it would be well if we were a little more willing to acknowledge this. You have at different times invited your readers to relate their failures as well as their successes, but the remarks of your correspondent at p. 79 is an example of how they may expect their statements to be taken, by those whose experience might be supposed to have taught them toleration—if they state anything which savours in the most remote degree of failure or mistake. *J. Simpson.*—Give honour to whom honour is due. I am very much pleased with Mr. Barnes' entertaining article on the Pine-apple, made up from the "scraps of the systems." As a 50-year-old cultivator, and a jubilant Pine grower, he appears to have had his full share of difficulties to contend with in order to bring that noble fruit to early maturation. As I am set down for one

of your correspondents on this subject, and as a know-nothing, I can scarcely refrain from giving Mr. Barnes' "bell" a toll, or he may think that he has made nothing by the job, unless that he gets a word in season. Without claiming any priority respecting the cutting-down system, largely adopted in years gone by, I am of opinion that cutting-over a few old plants now, with our improved structures, and being obliged through necessity to adopt such a system 50 years ago, in order to bring them into a state of fruitfulness, from the insufficiency of bottom-heat and other causes, are very different matters. At the same time, in these modern days and with modern structures, in different localities, disappointment apparently occurs through premature and uncertain fruiting. I apprehend the causes run thus: in the former too much heat without moisture, and in the latter too much moisture without a good command of bottom-heat. Now, not to take any glory from Mr. Barnes, I cannot quite understand how he can twit your correspondents with not yet being up to the mark through their not being able to fruit the Pine-apple to a certainty, or rather expeditiously. I beg to refer Mr. Barnes to p. 1187, 1868, where I give examples of expeditious fruiting, but not extraordinary weights—only early maturity, and quick returns. My Pine-apple cultivation at present is only on a limited scale. The bed for the plants runs about 20 ft. long, and about 11 ft. wide, and the house has not been two years erected until about the middle of March next, when the suckers were planted; and I find that since then I have cut from the above bed upwards of 120 lb. weight of useful fruit, varying in weight from 2 lb. to 5 lb. each, the majority of them being about 3¾ lb. I am well aware that length of time, and plenty of room, will give individually heavier weights, but I question if they would yield more useful fruit for the given space. The plants in the bed were re-arranged about a month ago, and I shall consider them successions for the next two months; after that time fruiters. Then, plenty of light, and a steady bottom-heat, with a humid atmosphere, will give a quick growth and early maturity, without any assistance from the nostrums adopted in former years. Mr. Barnes, I find, has succeeded in growing excellent fruit, marvellously swelled, from the plants which he trimmed with the bill-hook. I have no hesitation in saying that if I had bought a lot of plants at a distance, I would have served them the same to save carriage; and with a nice bottom-heat and a humid atmosphere they would, in the course of a week or two, have scarcely appeared as though they had been shifted. Now who carries the bell? *J. Miller, Worksop Manor.*

Rhododendron Nobleanum.—There now is, and has been for the last four weeks on my lawn, a magnificent specimen of this variety, covered with hundreds of its beautiful scarlet blossoms. It is about 7 feet high and 24 in circumference. The variety is worthy of more extensive cultivation, as from its extreme earliness, being frequently in blossom on Christmas Day, it often-times escapes frost, and is a great acquisition to a lawn or American bed during the dullest time of the year. There is also in my nursery a specimen of another old variety of Rhododendron, arboreum album, probably the finest in the kingdom, as it measures about 12 feet high and 60 in circumference. It is perfectly round and symmetrical, and is covered with blooming buds. What is rather remarkable, too, is that it is growing in a stiff clay soil. Growing very near this Rhododendron is a fine specimen of Ilex latifolia, about 15 feet high, which might easily be mistaken for a Magnolia grandiflora were it not for a profusion of coral berries with which each shoot is laden. *W. H. Rogers, Red Lodge Nursery, Southampton.*

East Lothian Stocks.—Seeing these so highly extolled in the "Gardener," I was induced last year to give them a trial in my parterre. The seed, consisting of three varieties, separate—namely, purple, scarlet, and white—was obtained direct from an Edinburgh seedsman, and warranted to be genuine. It was sown in pans about the middle of March; these were placed in a moderate hotbed, and the whole vegetated well. When the plants had acquired their first leaves they were pricked out into 6-inch pots, each pot containing three plants. They were then returned to the hotbed, and allowed to remain there until the latter end of April, by which time the heat had quite subsided, the sashes of the frame having been taken off on all favourable occasions, in order to give plenty of air. The pots were then removed to "ground vineries" (a capital contrivance, I find, for protecting half-hardy plants), and the Stocks planted out the first week in June, in three rows, 16 inches apart, and a foot from plant to plant, along a border of considerable extent, prepared purposely for their reception, the back row with the purple, the middle scarlet, and the front white. The plants were then in a fine, robust condition, and afterwards increased rapidly in size. From towards the end of August, till checked by frost on the 10th of November, the display they made was truly magnificent, they being literally covered with bloom, and the contrast of colour was exceedingly pleasing to the eye. The number of double flowers produced quite surprised me, and as the few single ones among them were all rooted out and replaced by doubles from a batch in reserve, their appearance was much improved thereby. Others beds, containing German Intermediate Stocks, which I also had in my garden, though very fine, were not to be compared to the East Lothian, therefore floriculturists ought to be greatly obliged to Mr. Thomson for having brought the latter into general notice. I would, however, advise those who may wish to have the real sort, to get the seed from parties who can be fully depended upon for supplying it pure, as mixing no doubt will occur in many instances, and may occasion disappointment. *Amateur.*

Seedling Potatos: American and English.—American: The Editors of the *Gardeners' Chronicle* having kindly forwarded to me four American seedling Potatos, as packed up in America, the following is my account of them, as far as I could form an opinion of them by eyesight only. The Potatos arrived perfectly fresh. The four sorts sent were the Early Rose, Climax, Breeze's No. 4, and Breeze's Prolific. The Early Rose is quite distinct from any European variety that I have ever seen. It is not the same as my Peach Potato, as suggested in my former article (p. 81). The Peach, the Early Emperor, and Napoleon are the same Potato. In passing I may observe how inconvenient are local names, ending in innumerable synonyms. The Early Rose looks more like the Salmon Kidneys than any other of our varieties, but the eyes (small, like mole's eyes) are fixed on promontories, whereas the Salmon Kidneys have deep eyes, and are not so well formed. It appears to be an early Potato, and I should say a great cropper, sure to be a favourite with poor people, and probably may obtain with the "upper ten." It is of a dull rose colour; its flesh is white, with a purple streak, which portends quality. More I cannot say at present, but all that I can say conscientiously in its favour after trial I shall be pleased to do. I say the same of the others. I never allow prejudices to have the least ascendancy over me. It is unworthy of noble Englishmen to run down "externs" when they are deserving of our praise. Climax is like the former, many-eyed, but deep-eyed, a long round Potato, somewhat yellow in its flesh, and occasionally hollow; it will, at least, make a good cottager's Potato. Soil makes a great difference in the colour of the skins and flesh of Potatos. Breeze's No. 4: This, so far as appearance goes, is a tuber "to see once, and dream of for ever." It is a squarish oblong flattened round, or flattened square with the edges rounded off. The eyes are but little depressed, the skin is white and smooth, and the flesh is white and firm. If the flavour is good it will take the highest place among nonkidneys. It obtained a certificate from the Massachusetts Horticultural Society, as did also the next. The tubers have been sold at a fabulous price in the United States. Breeze's Prolific is a most perfect Potato: I think it is one of the best that I ever saw. Its eyes are less depressed than those of the former. I could not find a fault with it, except that, in a friendly way, its skin might be a little whiter. Its flesh is white and firm. It looks like an earlier sort than the former. As far as appearance goes, they do immense credit to America. In a word, I never saw nicer Potatos. It is difficult to describe the shapes of Potatos exactly. I should call Prolific an oblong flattened round. Till I see whether the crops of these Potatos and of those I am about to describe are uniform, I must pause before I can fully praise! English seedlings: These were sent by Mr. Charles Turner, to whom I owe so much gratitude. I have spoken of the Early Emperor; I therefore pass to Barron's Perfection. The formation is oblong round, a little flattened; the skins are not good, owing to the Potatos having been grown in strong wet ground. I shall alter this. It looks like a superior Potato, and, in my mind, the contest for supremacy will be between this Potato, Breeze's No. 4, and Prolific. I will not anticipate, for anticipation is not realisation. The other two seedlings are Thorneycroft's and Wossett's seedlings, very nice looking and apparently of the old Ashleaf family. I have now done—but I suppose you all know when a clergyman says "finally," and to "conclude," he sometimes surprises the audience by "one more word at parting!" Here, then, is the parting word, addressed to grafters and hybridisers: don't marry round Potatos with kidneys. You will produce abnormal shapes, which is the only fault I can find with the Lapstone and Yorkshire Hero. The last, bating occasional abnormity, is one of the best flavoured and most valuable Potatos in the world; it is an early ripener, and one of the latest keepers. The same may be said of Taylor's Yorkshire Hybrid. You could only improve them by regularity or uniformity in shape. They have respectively white and blue flowers. Brother Jonathan, I believe, appreciates croppers, but the English will not put up with anything that is not of good quality, and good flavour. *W. F. Radclyffe, Okeford Fitzpaine.*

Mistleto.—In reply to the inquiry of "H. J. C., Hants," respecting the above growing on the Mountain Ash as being of unfrequent occurrence, I beg to state, for his information, that it grows (or, at least, did grow some 15 years ago) very freely on the above-named tree at Dudmaston Hall, Shropshire; also on the common Ash, but not so freely. *E. Welsh, Palace Gardens, Armagh, Ireland.* [Mountain Ash is not mentioned in Dr. Harley's paper on the subject in the Linnean Transactions. EDS.]

Camellias.—I send you some branches, also some buds and flowers, of Camellias, taken from 10 large plants we have growing in tubs. These plants are about 8 feet high and the same in diameter; the largest stem is 10 inches in circumference, and some of them are 50 years old. They produce annually hundreds of flowers, from November to the end of April: bud-dropping is almost unknown with us. I say almost unknown; the old white drops a few in some seasons, probably through a deficiency of water. They are top-dressed every year with deer's dung, and stand in the greenhouse till June; by that time the wood and some of the buds are formed, and they are then stood in the open air till October. The leaves are washed quite clean with the rain, and by the time they are taken into their winter quarters assume a dark and healthy appearance. The buds are thinned as soon as they are large enough to be removed, as a great many more are formed than is required. *J. Tickhurst, Gr. Dynevor Castle, Carmarthenshire.* [All that could be desired—foliage clean, healthy, well-ripened; flowers numerous and good—10 on one spray. EDS.]

Iron for Garden Walls.—Does your correspondent F. Moore write ironically or in ignorance? Has he any idea of the cost of the structure he proposes? Iron sheets ⅝ of an inch thick would weigh 25 lb. per square foot, and ⅜ of an inch thick, 15 lb. per square foot. He proposes a double iron wall 14 feet high and 2 feet of iron below the ground, or 32 feet of iron altogether in each lineal foot of wall. The lower 5 feet of this structure would weigh 25 lb. per foot each side, or 50 lb. the two sides, say 250 lb., and the upper 11 feet would weigh 15 lb. per foot each side, or 30 lb. the two sides, say 330 lb.; so that, omitting altogether the cost of concrete and solid stone blocks for foundation, we have 580 lb. of galvanised iron sheets to each lineal foot of wall, or 1740 lb. to each lineal yard. Now, these galvanised iron sheets would unquestionably cost about 3*d.* per pound, or 21*l.* 15*s.*; so that his 100 yards of wall would cost the moderate amount of 2175*l.*, exclusive of the foundations and the modest 3-inch flow and return pipe he proposes to put in the bottom. I am afraid your correspondent wrote in ignorance, and not in joke, for he talks of not knowing whether iron walls would retain heat longer than a brick wall. Iron is an excellent conductor of heat, brick a very bad one. I fear if F. M. were to put his hand on his iron wall on a sunshiny day in July he would have to go to the hospital to get his burns dressed, and if he touched it on a frosty night in January he might get frost-bitten. *G. A. H.* [We thoroughly agree with our correspondent. The use of iron for the purpose proposed is simply preposterous. EDS.]

Ten-week Stocks.—As an answer to Mr. Dean's statement as to the necessity of procuring imported seed, I beg to observe that for several years I have harvested seed of the above in my garden near the north coast of Cornwall, and that I have invariably found that that seed has produced in proportion to the single ones as many good double kinds as any packets of imported seeds I have ever purchased have done. *G. W. Manning, Towcester.*——In my paper under this heading (see p. 141) I omitted to state, that the violet and azure-blue Pyramidal, and the purple and scarlet Giant Ten-week Stocks were raised from English-saved seeds, and have been so produced for some years past. I wish to state this—firstly, because my remarks may have led to the inference that they were from imported seeds; and secondly, to show that it is not so necessary, as some have been led to suppose, to go to Germany for seeds of these fine Stocks to obtain superior quality. I have made some selections from the foregoing of great promise, and hope ere long to have strains of Stocks that will prove first-rate for exhibition purposes, both as to quality and distinctness of colour. *Alexander Dean.*

Elm Timber.—Will some of your contributors kindly instruct me as to the best management of Elm timber after it is felled? How long should it lie whole before being sawn up? How long should it be sawn before being used? Is it a good plan to soak it in water after being cut up and before being finally dried for use? If so, for how long? What is the especial benefit of so doing? Some information upon these particulars will be very serviceable to, and thankfully received by, *A Country Proprietor.*

Rose Budding.—A correspondent of yours inquires whether any "adhesive substance" can be used as a substitute for tying with bast or cotton, &c. I have tried glycerine and solutions of gummy substances, but found them of no avail. They look very well for a day or two, and then the bark shrivels back in spite of them. Worsted is very unfit for the purpose, and bast is apt to cut the bark. Coarse knitting cotton seems to me as good as anything. *Germen.*

Mahonia Bealii.—I am often surprised to meet with so small a quantity of this highly ornamental hardy shrub. Its early blooming renders it a desirable object to plant in warm positions, where it will bloom most profusely early in January should the weather prove not too severe. A plant at this place in bloom stood 14° of frost with very little injury to the blossom. *John Edlington, Wrotham Park, Barnet.*

Mildness of the Season.—Having read in your pages several interesting accounts of the unusually mild season, I beg to state that there is here a large Camellia, double red, growing in a southern aspect, that measures 15 feet in height and 16 feet through. I commenced cutting blooms from this plant on December 23, and up to this date (January 29) I have cut 29 fully expanded blooms, and there are now over 40 buds just bursting, besides a great many more not yet opened. One circumstance in connection with these blooms I cannot exactly understand. It is this:—Some of the fully-expanded blooms come quite a pure red, whilst others have a portion of the petals striped with white. Some blooms of the Banksian Rose are just upon the point of opening; Peach and Pear trees are very forward, and the green-fly is almost as numerous as in the summer. The Quercus glabra has fruited here very well this season. Is it usual for it to do so in this country? *J. Sharp, Gr. to A. Barton, Esq., Longmead, Hants.* [The Camellia is probably the old Double Striped, which often produces self-coloured flowers. EDS.]

Green's Patent Boiler.—I would like to ask Mr. Wills a few questions relative to his remarks on the above at p. 79. Will he kindly state what boiler it was that he took out (to make way for Green's patent), after having worked it only four months, though it cost, as he says, over 50*l.*? This information may be valuable in preventing others committing a similar mistake. In the advantages which he says the patent boiler possesses, will he state how it differs from other boilers in regard to the 2d, 4th, and 5th points mentioned? The question of fuel must in a great measure depend upon the quantity of heat required. *Z.*

Reeds.—Is Arundo conspicua suitable to plant in or near water? and what height will it grow? [5 to 8 feet] or is there any kind of Reed that will grow well in about 2 feet of mud and just covered with water that is ornamental, so as to form cover for fowl. *T. N. F.* [Our correspondent does not state the locality whence

he writes. He might, in addition to Arundo conspicua, try Pampas Grass, Arundo Phragmites, or Arundo Donax. EDS.]

Quercus Ilex: a Caution to Planters.—This tree has all the beauty that "Elce" claims for it, it also stands well near the sea, as you point out, but it is not hardy. Quantities of trees from 12 to 20 years of age were killed here in the memorable winter of 1858-60. All the old trees that I know in East Anglia, however, passed through with a browning such as pointed out by your correspondent. One of the finest trees in the country, of this Ilex, stands in the pleasure-grounds at Orwell Park, the fine seat of George Tomline, Esq., near Ipswich. There is also a good specimen on the lawn at Hardwicke House, near Bury St. Edmund's. It has this fault as a lawn tree, that when all else is in summer trim and beauty, it goes on most persistently for about two months to shed its flowers and leaves. The latter being hard and sharp-pointed, stick in the Grass, and altogether this habit of midsummer defoliation makes a most provoking litter, requiring attention twice a day. Few of those responsible for the scrupulous cleanliness of lawns would consider the green leaves in winter a sufficient compensation for their summer trouble. Nevertheless the tree is a grand thing, and it makes capital cover, giving a warmth and cosiness to a plantation in winter that scarcely any other tree can equal and in all localities where it will endure the cold it ought to be extensively planted, in belts, and as foregrounds to large woods. *Quercus, Feb.* 8.

Pruning Fruit Trees.—The Rev. George Musgrave, in his interesting book entitled "Ten Days in a French Parsonage," describes M. de Préfontaine's gardens at Varennes, and Chopin's system of growing fruit as there practised. It is so opposite to Hooibrenck's, and the mode I have generally seen adopted, that I should be glad to have the opinion of English gardeners upon the two different plans:—"The fruit, of almost countless varieties, was the finest I ever saw growing in France. My attention was chiefly drawn to the standard trees, which were under cultivation on the system introduced so successfully by Chopin, of Bar-sur-Ornain. It is to draw the boughs continually upwards, to confine these with ligatures, as we do by Lettuces, and to lop the branches when grown to the length of 8 feet, so as to permit them to be trained towards the top of the stem, and cause the tree to resemble a Poplar rather than a Pear or an Apple tree. This training is effected by strong cords, which are not loosed till the young and tender wood has manifestly adopted the perpendicular growth. The sap courses freely throughout the tree, which is pruned most scientifically, the gardener's care being to check superfluous wood, and to make every single bough bear fine fruit. I saw Nectarines (a rare fruit in France), Peaches (the commonest in that country), Pears and Apples, Orleans and Gage Plums, growing in this manner; and more delicious of their kind I never ate. This is the very reverse of Hooibrenck's new notion, as illustrated in M. Jacqueson's grounds, which all travellers ought to visit in summer or September at Chalons. In the all-important department of Vine growth, this ingenious arboriculturist bends down in March one or two shoots of the preceding year upon each stock, so as to lie below the horizontal at an angle of 112°, counted from the vertical. All the other shoots are pruned away. In consequence of this inclination the sap lingers under the bark, and favours the development of a great number of buds, which in due time become branches laden with Grapes." *Anne Chovy.*

Mossy Lawns.—I have just read in the *Gardeners' Chronicle*, at p. 111, an inquiry respecting the above. I have no hesitation in saying that on no account should the lawn be broken up. I have found soot and wood ashes, equal parts, sown tolerably thick, acting as food for the Clovers, entirely exterminate the Moss. Your correspondent, "A. J. W.," is doubtless right, that the hot and dry summer injured the Grass, and the subsequent wet has encouraged the Moss. Let him apply the manure I have suggested in moist weather, as soon as he likes, and use a mowing machine, not a scythe, and the Moss will disappear. If he cannot get wood ashes, let him use fine-sifted mould with the soot. Superphosphate of lime will answer as well, but it is more costly. *J. Farnaby Lennard, Wickham Court, Bromley, Kent.*

Action of Frost on Plants.—Allow me to supplement your remarks (p. 107) on this subject with a few thoughts which have arisen from time to time on observing the effects of frost. I think it more likely when a plant is killed by frost, that it is owing to the transformation of the various fluids in the plant—which become perhaps altogether putrid, and are made instead of a supply of life a cause of death—than that the cells or their coatings are injured. Why tender Mosses and other plants resist frost, when plants of a harder texture succumb, even in a higher temperature, will be left unexplained until the properties of the fluids of the various plants are understood. Is it not possible that the sap of the larger organisms contains matter which the smaller ones do not? and that that is the reason of such diversity of results. The extra moisture imbibed in wet seasons is also a help to speedy decomposition. Perhaps the sudden thawing of frosted plants causes a more virulent corruption of the sap. How could the cells of a tree, whose trunk is 8 or 10 inches through, be injured so far down as to kill it, even at its roots? Is not the cause rather in the lodgment of poisonous or putrid sap in the tree, caused by the frost acting on the smaller branches? Again, how is it that plants die down below the point which has been exposed to the action of the frost, if the cause is not in the sap? It cannot be that those cells, or the atoms of which those cells consist, are at all injured, unless injured by the sap. Another question arises: are the properties of the sap always alike all the year round? [Certainly not.] If not, may not that circumstance explain why a plant which survives one frost and one thaw, succumb afterwards to a frost of less intensity. Where do the various matters which go to form the plant come from? Are they brought up with the sap? Do they appear altogether, or has each a particular season of its own? When those questions are answered, or even if more information on these matters were forthcoming, we might live in hopes of one day having an explanation of the action of frost on plants. *H. M., Enys, Penryn, February* 4. [No doubt the qualities of the sap are altered by frost, as well as the more solid matter of the cells. The chemical constitution of the sap varies greatly at different seasons, as also its physical qualities. EDS.]

Californian Coniferæ.—In answer to some inquiries while in London regarding the Californian Coniferæ, I beg leave to enclose the following, which may, perhaps, interest some of your readers who may at present be unaware of the true reason why some of the species are more tender than others, and will not prove hardy in your climate. The Californian Coniferæ proper are divided as follows—Sea-coast, Coast Range, and Sierra Nevada Pines. Those species found on the Sierra Nevada are Pinus ponderosa, Pinus Lambertiana, P. Sabiniana, monophylla, monticola, Balfouriana, flexilis, Tamrac, and contorta; also, Picea grandis, amabilis, and nobilis. Coast Range: Pinus Coulteri, Sabiniana, Lambertiana, ponderosa, &c. Sea-coast: Pinus insignis, tuberculata, and muricata, with Cupressus macrocarpa and Goveniana, &c. Thus it will be seen that the species found on the sierras and coast range, growing at such elevations, are all naturally hardy, and will stand cold climates. Of those species you will observe some which are found both on the coast range and the Sierra Nevada. The Coulteri and Sabiniana are most generally found growing together in the same locality; they are also found to perfection on Mount Diable, where no other species exist. The insignis and tuberculata exist near each other on the sea-coast in Santa Cruz County. P. muricata, or dwarf Pine, is found only in one locality, by itself, in Monterey County. Those varieties found on the sea-coast, as mentioned above are tender in all cold localities, as snow seldom or ever falls where these species exist; this fully explains the true reason of the repeated disappointments experienced by nurserymen and others to bring them to perfection. *J. Q. A. Warren, Paris, Feb.* 8. [We shall shortly publish a description of a new species of Pinus, introduced to this country for the first time by Mr. Warren. EDS.]

Mistleto.—In your issue of the 26th of December last a list is given of plants on which the Loranthi grow, as observed in the Botanical Gardens of Melbourne by Dr. Mueller. I have for some years past noticed the habits of various species of these parasites on the Neilgherry mountains in India, and the presence of five species of Eucalyptus in Dr. Mueller's list struck me as being peculiar, as I have never seen this in India, although several species of Eucalyptus. are extensively planted in and around Ootacamund, nor have I noticed a single species of Loranthus or Viscum on any introduced plants of the order Myrtaceæ, and but a small proportion on the indigenous species. It is possible they may be found, yet the paucity of instances would lead one to infer that there is something unfavourable, at least on the Neilgherries, to their development on plants of this order. On the other hand, Leguminosæ offer a most favourable field for the development of Loranthi, and none more so than introduced plants belonging to this order, especially the Australian "Blackwood," Acacia Melanoxylon, large trees of which are frequently covered with these plants to their ultimate destruction. No native forest tree seems to suit the habits of Loranthi so well as the Acacia; if such were the case, these parasites would, undoubtedly, soon destroy whole forests. They also occur plentifully on the Weeping Willow, though I do not recollect having seen any on the indigenous species of Willow, Salix tetrasperma. The garden varieties of the Fig, notwithstanding their milky juice, afford suitable nourishment for Loranthi, which grow vigorously thereon, though their juice does not partake of the milky nature of the supporting plant. Peach trees also become frequently overgrown by them. When a plant of Loranthus establishes itself on a branch of any tree, the outer portion of the branch becomes stunted, and ultimately dies back to the point of attachment; here a woody protuberance forms, which, if the entire plant of Loranthus is broken off, or in a manner rooted out, throws out innumerable buds, which grow rapidly, and soon form a dense bush. Rootlets are generally thrown out where the young plants first attach themselves; these run along the bark of the supporting trees for 6 or 8 feet or more, and become attached at intervals to the trees, which points of attachment swell into the protuberances above mentioned, and ultimately throw out shoots. A microscopic examination of their leaves reveals small but perfect stomata, thickly studded over both the upper and under side. The berries of Loranthi are quite harmless, and are eaten by birds as well as children; they are insipid in taste, and resemble Yew berries. The genus Viscum is more restricted in its habits, the species most common being V. moniliforme, which occurs principally on the indigenous Ilex Wightiana. Annexed is a list of plants in and around the Botanical Gardens of Ootacamund, both introduced and indigenous, on which various species of Loranthus and Viscum grow:—Acacia Melanoxylon, A. dealbata, A. dodonæfolia, A. stricta, Virgilia capensis, Gleditschia triacanthos, Cytisus racemosus, Quercus pedunculata, Salix babylonica, Casuarina quadrivalvis, Aloysia citriodora, Fuchsias, Fig (garden varieties), Peach, Rhododendron arboreum, Viburnum Wightianum, Cassia mollissima, Dodonæa Burmanni, Millingtonia simplicifolia, Ilex Wightiana. *G. B.*

Heating Vine-borders.—My statement that Yester was the place where hot-water pipes were first placed beneath Vine-borders is correct, and this originality of idea is to be credited to Mr. Sheaver, but as much cannot be granted in the case of the immatured plan of Mr. Westland, for subsequent correspondence has brought to light that at Welbeck there has been in operation for some years a plan so nearly akin, that the difference between the one plan and the other is something like that between six and half-a-dozen. Respecting the plan of Mr. Westland, Mr. Ayres finds fault with me for condemning it because it was untried. Surely no one can justly complain that in a discussion of this kind I have endeavoured to write down a hypothetical argument. It would have spoken volumes in favour of the proposed plan had it first been tried and found successful. "He that can set up hypothetical possibility against acknowledged certainty is not to be admitted amongst reasonable beings. If that which is known may be overruled by that which is unknown, no being not omniscient can arrive at certainty." Of the correctness of this philosophy there can be little doubt. I have taken up this controversy purely in order to ascertain to what extent Vines are benefited by sub-heating, and surely no one can fairly say that I have been "Quixotic" in my argument, or even assumed the position of "Sir Oracle:" these expressions are surely not applicable to me. How can I support my argument without bringing forward facts to strengthen it? and if these facts prove distasteful to my opponents, am I on that account to yield to them the discussion? We look to controversy for the elucidation of truth, and there is no reason why it should not be carried on, and the ends of science worked out, without giving vent to unnecessary expressions. Having in my previous articles drawn sufficient attention to the conflicting statements of Mr. Ayres and his colleague, suffice it now to say that I am surprised he should draw further attention to it. We were never told who constructed the chambers at Kingston, until the criticism became so warm that the responsibility for their construction was shifted on to the shoulders of some person who had been there long prior to the time of Mr. Westland. Mr. Ayres has now arrived exactly at the point from which he started—like a man in a mist—and the time necessary for him to complete the course has been exactly 40 years. Seeing that so much has been advanced by the opposition in favour of bottom-heat, some individuals advocating the heat to be applied through the medium of chambers, others from hot-water pipes buried in rubble, others from hot-air drains fed from an outside heated chamber, and others from cold-air drains fed from the naturally warmed atmosphere—from all which systems we have had results more or less successful—let us now examine carefully what effect either of the above schemes, in which heat is applied underneath, has in producing a constant supply of Grapes throughout the year, and also see what effect bottom-heat has had on the production of Grapes for the supply of our Grape markets. Let us look into Covent Garden, and see how things are going on there. "Covent Garden Market, February, 1869. Grapes: these consist of Alicante, Lady Downe's, and Gros Guillaume, from 6*s.* to 10*s.* per lb., and going up." How comes it, then, in face of all which has been said in favour of chambering and other appliances of bottom-heat for the production of thin-skinned Grapes, that the London market is at this very moment chiefly supplied with "thick-skinned" Grapes, and that the London buyer, from the Prince to the squire, must be content to buy and eat those thick-skinned Grapes or go without? Supposing we were to drop the discussion, and agree with our opponents that bottom-heat was a "wise and a good thing," in what position would it find us? Just in the same position in which we find them at this present moment—in front of a yawning chasm between the last cut Hamburghs and the first ripe bunches of the same. When Mr. Ayres succeeds in substituting the present bridge of Lady Downe's by a thin-skinned bridge of Black Hamburgh, he will be deserving the thanks and all the honours the horticultural world can bestow upon him, but until then let us by all means preserve in its entirety the "bridge" of Lady Downe's which carries us safely over. Several of the writers who have taken part in this discussion in favour of bottom-heating, have their late houses of Lady Downe's, Alicante, and other "tasteless varieties," in their respective establishments? To what does this point, but to a confession of the deficiency for practical purposes of bottom-heat in the production of thin-skinned Grapes at a season when they would be of immense value? How is it that Lady Downe's, with her thick skin, cropped up years after the era of heated borders, and is now at this season the principal Grape in the London market? The answer is obvious—because bottom-heat was practically a failure, and Lady Downe's was allowed to establish her "flag." When Mr. Ayres turns the tide of these circumstances, we shall be all too pleased to subscribe for him a handsome testimonial. I dwell reluctantly on that part of Mr. Ayres' article where he appears to begrudge my having tacked myself to the coat-tails of some of our celebrated gardeners, this being a point of the argument which I honestly won, and when a point is honourably won it ought to be as manfully ceded. Some years ago, when I was an under-gardener at Trentham, I was selected by Mr. Fleming to go with his fruit to the London exhibitions, and that was the year the late Mr. McEwen opposed Mr. Fleming in collections of fruit. At that time the reputation of those exhibitors was very great, and it so wrought upon me, that for long after it was my earnest desire to be able some day to take a 1st prize for a collection of fruit at a London show. Nothing wonderfully ambitious in this, certainly; but if it was meritorious in those gentlemen, it could be no less so in me, and I lived to do it. Several of the gentlemen mentioned in my list told me that, "to my credit be it said, they had never seen a better or cleaner collection of fruit from any one, or on any exhibition table." This is kinder than the remarks from the *Notts Guardian* (see *Gardeners' Chronicle*, Aug. 8, 1868, p. 848), where it is said that the collections of fruits and plants are not now equal to those exhibited in the days of Fleming, M'Ewen, Speed, Dodd, &c. The gentlemen who told me of the superiority of my collection, saw those of Fleming and McEwen, and were also exhibitors at that time. Finally, I am told that all "noblemen and gentlemen are not showmen," and this is made to account for Mr. Westland not showing his Grapes at the International. This is one way of accounting for the non-appearance of those "boasted" Grapes; but I have before me a letter from Mr. W. Dean, who described ripe Grapes at Kingston in the last week in June, and who adds, "I was so struck with the fine Grapes I saw there, that I induced Mr. Westland to send a superb collection of Grapes to the Leeds Exhibition." Who is it, then, that draws upon fancy for facts? *Wm. Miller, Combe Abbey Gardens.*——Mr. Thomson states (p. 112), that to have Vines with a growth of 12 inches of young wood on them in January it is necessary to have the borders heated, or to start the house in October, which statement appears to me to be questionable. I started my early Vines this year as usual on the 1st of January, having pruned the Vines on the 23d of December. I have never yet had the thermometer inside the house higher than 65°. I give air back and front all day. The Black Hamburghs were all stopped and tied-in a week ago, and they will be in blossom in a few days. Muscat Hamburgh has had its laterals stopped to-day, and to prove how little fire-heat I have used, I may state that Lady Downe's has not yet burst a bud, it requiring a higher temperature. My borders are not only not heated but they are not covered with leaves or dung, simply having a tarpaulin over them to keep off the rain. The

Vines have had the same treatment for the last three years, and any persons who have visited my houses can testify to the excellence of the crops and large size of the bunches and berries. Mr. Thomson, in his book on the Vine, gives a most elaborate recipe for making Vine-borders. Mine were made simply of the top spit of an old pasture, the soil being very strong: it was placed in the borders the day it was taken off the field, and mixed with some crushed bones and lime rubbish. My garden is 450 feet above the sea level, 40 miles inland, and 160 miles north of London. As I am within an hour's ride by rail from Dalkeith, Mr. Thomson, if he chooses, can come and judge for himself. I began to gather Peaches last year on the 24th of April, grown in a house the outside border of which was never covered. I started the same house this year on the same date, but have covered the border with 18 inches of leaves, to see if it makes any difference. One word more, and I have finished. I saw in your Paper the other day some great gardener abusing Lady Downe's Seedling. I have heard many people abuse it, and why?—because it is almost always cut before it is fit to eat, or grown in a house with too low a temperature. To have this fine Grape in perfection it must be fully coloured in July, and not cut till November. No one who eats it thus treated will abuse it. *D., February* 3.

Societies.

ROYAL HORTICULTURAL: *Feb.* 9 (*Anniversary*).—On this occasion the Council room was very tastefully decorated with a fine collection of stove and greenhouse plants from the Society's garden, Chiswick, a very pleasant innovation on the usual practice at the annual meeting. James Bateman, Esq., F.R.S., occupied the chair, in consequence of the unavoidable absence of the President, his Grace the Duke of Buccleuch. Mr. Fortune and Mr. Booth were appointed scrutineers of the ballot for the election of Council and officers for the ensuing year, and reported that the proposed members had been unanimously elected. The minutes of the last annual meeting having been read and signed, the Assistant-Secretary read the Report of the Council,, from which we make the following extracts:—

"Like their predecessors, the present Council have felt that there were two prominent objects which it was essential that they should keep steadily in view,—1. The advancement of the science of horticulture; and, 2. The improvement of the practical gardener.

"For the improvement of the gardener, they have established a course of practical teaching at Chiswick, where, in addition to the ordinary and higher branches of gardening, the students or pupils are instructed in the elements of drawing, land surveying, and chemistry. In conjunction with the Society of Arts, the Council have also instituted examinations for gardeners in botany and horticulture. The certificates gained at these examinations are highly prized, and are eagerly contested for by gardeners from the best establishments in the country, including the Royal Gardens at Kew; and it is gratifying to the Council to observe that the students in the garden at Chiswick have generally taken a creditable position in these examinations.

"The advancement of horticultural science, although still more important, is a less tangible object. The best means which exist for the purpose, and are available to the Society, seem to be the encouragement of free intercommunication of ideas between men interested in horticulture or in kindred subjects. Hitherto the efforts of the Society in this direction have been chiefly limited to facilitating such communication between those who are specially devoted to horticulture. It appeared to the Council that a committee of a mixed character might possibly be of service to the other committees, and to horticulturists generally—by eliciting information and suggestions from men who, with a common love of plants, were yet more specially devoted to some other branch of science which had either a direct or indirect bearing on horticulture. With this view they organised a committee consisting of men of science generally, and they have to report with satisfaction that many men of the highest scientific eminence attend its meetings. The Society has thus now, in addition to the special Horticultural Committees and staff, a Scientific Committee, in which systematic botany, vegetable physiology, agriculture, chemistry, geology, meteorology, and entomology are ably represented.

"This Scientific Committee sits on the same days as the Fruit and Floral Committees; and, besides giving advice or opinions upon subjects referred to it by them, it has discussed a number of important questions, and suggested experiments for the elucidation of various difficulties experienced by practical men. These experiments are now in course of being carried out at Chiswick, and it is anticipated that the Fellows will find interest in observing their progress. They relate to the effect of certain manures on different grasses or vegetables, under various conditions; the influence of the stock on the scion, and the nature and degree of this influence in different stocks; the effect of pruning upon the growth of forest trees; the influence of coloured glass upon flowers and plants grown under it; various points in hybridisation; the cause and cure of the black spot in Orchids; and a number of other matters of a similar nature.

"The Council are now making arrangements by which reports of the experiments conducted at Chiswick, and of the transactions at the various committees, can be obtained by the Fellows without the delay which the present form of the publications of the Society has hitherto necessitated.

"In addition to the 20 minor shows on Tuesdays, five principal shows have been held at Kensington during the past year; and the Council think that they can discern the beneficial influence of the Society's operations in the improvement of the cultivation of more than one class of plants. Those who remember, for example, the meagre response to the Society's first efforts to encourage the growth of Roses in pots in 1862, must have seen that great progress has been made in the treatment of that favourite flower; and the Council venture to think that this and some other improvements are mainly due to the well-directed encouragement given by the Society.

"The experiment of a Country Show, which had been tried with such success at Bury St. Edmund's, was successfully repeated last year at Leicester. Manchester has been selected for this year. Requests have been made from several other places that the Society will hold an exhibition in them, but at present the Council do not see their way to comply with these wishes, thinking it more prudent to hold one country show only in the year, and that in connection with the Royal Agricultural Society. In every case the Council insist on a preliminary *sine qua non* that the locality which desires the presence of the Society from the chance of loss, by providing a guarantee for such a sum as the Council think sufficient for the purpose.

"The increasing frequency and amount of donations of special prizes by private individuals or associations in supplement of the prizes offered by the Society, is a feature in its progress which seems to call for particular notice and thanks, and the Council are sure that the Fellows will see with pleasure that the exhibitors themselves are now contributing to the prizes offered for competition.

"The Rose show of last year is deserving of record, not only from its extraordinary beauty, but from the alteration and remodelling of the ground under the tent.

"A subject having an important bearing on Horticulture, viz., the injury done by insects to vegetation, has been under the consideration of the Council, and they have taken some steps towards making a collection relating to it, for which it is scarcely necessary to say that their connection with so many horticulturists should give them unusual advantages. It would, probably, have been attempted before now but for the want of any fitting place in which to display the collection when made. The assistance of the authorities of the South Kensington Museum has relieved them from this difficulty. The Council would therefore beg such of the Fellows as have the power, to aid them in making this collection as complete as possible. The labours of the State Entomologist at New York are reported in American documents to have saved the State thousands of dollars; and it is undoubted that here also much good may be done by encouraging similar observations and inquiries.

"Another incidental matter which has been brought under the notice of the Council is, the adulteration of seeds. They have embodied the results of their inquiries in two reports, which will be found in the Society's Journal. The Council believe that these inquiries have already been productive of good.

"From previous reports the Fellows are aware that the shows have ceased to be a source of revenue, the expenditure on them considerably exceeding the receipts. The Council have, however, refrained from diminishing the amount of prizes offered, from a desire not to lessen one of the favourite enjoyments of the Fellows; for although the Society still suffers from the effects of the commercial calamities of 1866, the Council regard this depression as temporary.

"The Royal Albert Hall of Arts and Sciences is rapidly advancing to completion. When finished, there will be a direct communication from the gardens through the conservatory to the hall, affording to Fellows of the Society, who are also seat-holders, a quiet and private access to the attractions which will from time to time be offered in the new building.

"The Council have learnt with satisfaction that her Majesty's Commissioners for 1851 are now considering a plan, embracing the completion of the gardens, for annual international exhibitions of objects of industry and fine art, to be placed in the so-called east and west annexes."

The following is the Report of the Chiswick Board of Directors:—

"The Directors report that—besides the work performed by the Fruit Committee at its ordinary meetings held at South Kensington—several experiments have been conducted at Chiswick under its immediate supervision. All the new Peas that were introduced last season were sown, and compared with the previously existing varieties; a collection of 30 sorts of Runner Beans was also sown and proved; and a test of the various kinds of Lettuce, as to their utility in standing the winter in the open air. Reports upon all of these subjects have been prepared.

"Among Fruits, Figs and Strawberries have received special attention. The house which was transferred from South Kensington for the accommodation of the former, has proved in every way well adapted for the purpose, and has enabled the Committee to investigate the rich collection which the Society now possesses in a way for which there was no previous provision. Several new and valuable varieties of Figs have thus been ascertained, and are now in the course of distribution to the Fellows: and it may be gratifying to the Council to know that, by the assistance thus afforded, a great impulse has been given to Fig culture in this country, which is evidenced by the unusually numerous applications which have been made for cuttings.

"An immense collection of Strawberries now exists in the garden, and during the past season many new varieties have fruited, and have been compared with the others, their various qualities and merits ascertained, and a report has been prepared.

"Arrangements have this season been made for carrying out experiments on the influence of the stock on the scion, and *vice versâ*. These experiments will not be confined to the scions and stocks at present in ordinary use, but will embrace subjects the union of which with each other have never before been attempted.

"The cultivation of Oranges has recently received some attention, and promises to become general in all gardens where glass-houses exist. The success which has already attended those who have made the experiment of growing Oranges, not for ornament as formerly, but for the dessert, has been so great, that the Board of Directors would recommend to the Council to institute a system of Orange culture at Chiswick.

"The new orchard-house, to the erection of which the Council gave their sanction last year, is now completed, and will speedily be furnished with complete collections of Peaches, Nectarines, Apricots, and Cherries. Mr. Rivers, of Sawbridgeworth, has offered a large number of his fruiting Peaches and Nectarines, most of which are newly-raised seedlings of his own, on terms so liberal as to amount almost to a gift. The Rev. W. Kingsley, of South Kilvington, has most liberally presented a large collection of carefully hybridised seedlings of Peaches and Nectarines, which have not yet fruited, but from which there is every reason to expect varieties of great excellence. Mr. Pearson, of Chilwell, near Nottingham, has also intimated his intention to send some of the handsome orchard-house trees for which his establishment is noted.

"From the Pomological Department the distributions have been very numerous, 1,700 packets of fruit-tree cuttings, of Apples, Pears, Vines, Figs, &c., and 75,000 packets of vegetable seeds, having been distributed among the Fellows in the past season.

"The number of flowering and other plants which have been supplied during the past year to the garden at South Kensington amounts to 53,000. In addition to these, there has also been reared at Chiswick a fine stock of stove and greenhouse foliage and flowering plants, which prove exceedingly useful both for the purpose of conservatory decoration, and for supplementing the display at the Tuesday and other meetings, when required.

"The distributions of plants, seeds, &c., which have been made to Fellows, and to societies in union, absorb a considerable proportion of the grant for Chiswick. In the present instance 5,572 plants, which have been allotted by ballot, have been sent out during the season, in addition to 1,000 packets of cuttings, and 75,000 packets of flower seeds.

"The trial plants have consisted mainly of Pelargoniums, Fuchsias, and Petunias, with some annuals. Of these the collections which have been subjected to pot culture were very successfully tested, taking the extraordinary character of the past summer into account. The hot, dry weather, however, on the other hand, was very unfavourable to the much larger outdoor stock, notwithstanding which, in this department, some very satisfactory results have been obtained.

"In carrying on the trials of new varieties of popular flowers, the collections of which, grown for contrast, continue to prove of much interest and value to persons residing in distant parts of the country, and who have but few opportunities of seeing the novelties annually produced, the Directors hope to receive, as hitherto, the hearty support of the raisers and distributors of novel varieties. They would take this occasion to point out how desirable it is that well-established plants should be furnished early in the season, so that the experiments may not fail, as they too often do, from the weakly condition of the materials with which the Garden Superintendent is supplied.

"Last year occasion was taken to ask the assistance of Fellows residing in the country in making up a collection of the most interesting, but greatly neglected, class of hardy herbaceous plants. Contributions were, in consequence, received from W. W. Saunders, Esq., Messrs. Backhouse & Son, Mr. W. Masters, Mr. Ware, the Royal Gardens, Kew, and from some other sources, so that a collection of upwards of 400 species and varieties has been made. Fewer of the old-fashioned ornamental species, which it was thought might still exist in gardens in remote parts of the country, have been received than was expected; but the Directors are not without hope that more of these may yet be obtained. Among other specialities, a complete collection of Liliums has been projected, and the Directors are glad to be able to report that 102 kinds, including species and varieties, have already been secured. Any further contributions to either of the foregoing collections would be gladly received.

"Under the head of improvements, the Directors have to report the erection of a new spacious propagating pit, and the alteration and more convenient arrangement of some of the other structures used for stove plants. Besides these, the old curvilinear iron stove has been rendered very much more useful for cultural purposes, by having a glass division fixed in the centre.

"Very satisfactory progress has been made in the raising of new plants by cross-breeding. The Directors, last year, had to report that some Golden Caladiums had been obtained, the first that were known to exist. These have proved to be very ornamental plants for spring and autumn growth, and will probably be distributed in the ensuing season. The Coleuses mentioned last year have also occupied a prominent position, and it is a source of satisfaction to add that a set of Golden Coleuses, much more beautiful than the first series, has since been obtained. Other hybrid acquisitions of the year are a new spotted Dieffenbachia (a hybrid between D. picta and D. Weiri), a very fine Golden Fuchsia, and several choice variegated zonal and gold and bronze zonal Pelargoniums."

After Mr. E. S. Dale had moved the adoption of the report, which was seconded by Mr. R. Plumbe, Dr. Masters, alluding to the paragraph in the report relating to the publications of the Society, put a question to the Council as to what plans were proposed by them for the amelioration and more regular issue of the Society's publications, which were at present of a most unsatisfactory character.

In reply to this, Mr. Wilson Saunders acknowledged the deficiencies complained of, and stated that means were being taken by a sub-committee to improve them, though the plan was not yet sufficiently matured to bring under the notice of the Council. It was proposed to issue a report of the proceeding of the several committees, under the Editorship of Mr. Berkeley, at regular intervals, so that, if possible, the record of one meeting should be in the hands of the Fellows at the meeting next ensuing.

Mr. S. H. Godson expressed his dissatisfaction with those paragraphs in the report relating to the financial condition of the Society, and entered into some detailed criticism on the unfavourable state of the balance-sheet, and the laxity with which arrears of subscription were collected.

Colonel Scott defended the Council from the aspersions of Mr. Godson, and stated that the information required by that gentleman was to be found in the report, and that the arrears of uncollected subscriptions bore favourable contrast with those of other societies, one of which was 3000*l.* in arrears. On the whole, the financial position was as good as could be expected, taking into consideration the many drawbacks of the past year.

Mr. J. B. Kinnear made some observations as to the disproportionate advantages in the matter of transferable tickets given to four-guinea subscribers, as contrasted with the privileges accorded to two-guinea Fellows, and considered that the Society thereby lost many two-guinea subscribers.

In reply, Mr. Wilson remarked that the subject had been frequently considered by the Council, and that they had come to the conclusion that the plan proposed by Mr. Kinnear would result in the extremely undesirable transformation of four-guinea Fellows into two-guinea Fellows.

The Chairman, in putting the resolution to the meeting, alluded briefly to the objections raised by Mr. Godson and Dr. Masters, and stated that the two objections neutralised one another, as while the one advocated a bolder financial outlay, the other censured the Council for want of sufficient care in reducing the expenditure of the Society. The general result of the discussion he took to mean, that the Society was making steady progress in the main. The publications of the Society were now of the less importance from the excellent way in which the reports of all matters of horticultural interest were given in the *Gardeners' Chronicle*. He (Mr. Bateman) congratulated the Society on an accession of strength in the election of H. S. H. Prince Teck and Lord Londesborough.

The resolution having been put and carried, Mr. Wilson alluded to the orchard-house at Chiswick, and to the great facilities which existed now for reaching both the gardens at South Kensington and those at Chiswick, by railway.

Mr. Edgar Bowring, M.P., proposed a vote of thanks to the Chairman and Council in complimentary terms, which having been duly seconded and carried, the meeting adjourned.

Florists' Flowers.

THE raising of NEW BEDDING PELARGONIUMS is by no means confined to a few persons, for in almost every part of the country there are to be found some enterprising horticulturists who, with varying success, are seeking something new and good, if haply they may find it. There is thus no lack of new varieties produced each succeeding year, and among a great mass of novelty of not more than average excellence it is not difficult to find here and there a flower with some property or other so distinctly set forth that a decided gain is thereby achieved, and another step is taken forward in the path leading to perfection. It must not, however, be assumed that all "acquisitions" come from the acknowledged centres of floricultural enterprise, and are in every instance the productions of those who are in the van of such an interesting work. From some by-path or out-of-the-way nook or corner, there frequently comes forth a new and startling kind, to be a thing of beauty as long as its career shall last.

At one of the meetings of the Floral Committee in the early part of last summer there came to South Kensington, from Mr. Sampson, of Yeovil, a collection of New Bedding Pelargoniums, containing representatives of several of the somewhat numerous sections into which these are divided. The plants were small, not in good condition, and had suffered in the course of a journey of some 200 miles. They were not without indications of promise, though not in the best character, and somewhat travel-stained. The Floral Committee could only do what it has to do in so many other cases—report that the plants "were not in condition to judge of their merits." The sender—who

necessarily knew more of the true character of his plants than the Committee could be expected to know, it having, with rare exceptions, to judge of plants and flowers entirely according to the character in which they are presented to it at the meetings—thought in his haste, as others do, that justice had not been done to him, and that had they been exhibited by some privileged person, they would have received Certificates. Probably by this time the Floral Committee is pretty well seasoned to expressions of feeling of this kind, and estimates them at their real worth.

In the early part of September I had an opportunity to inspect the varieties above referred to, bedded-out at home, under circumstances much more favourable to a proper appreciation of their value. They were planted with others from different raisers, undergoing trial, and all that situation and soil could do was enlisted on their behalf, though these advantages were necessarily somewhat counteracted by a hot, dry summer. The Yeovil batch of new kinds consisted of the following varieties in the Zonal section:—Baron Prevost, orange-cerise; flowers large, stout and smooth, with capital zonate foliage. Hector, deep pink, a striking hue; flowers large, stout, and finely formed, dark zonate foliage, and fine habit. Houndstone Pet, a free-blooming variety, with well-marked foliage, and flowers in the way of Indian Yellow; a capital bedder. Rosa Weber, lively rose, of an unusually bright and rich hue; fine bold trusses, and faintly zonate foliage. Rose Superb, a pale-coloured form of Beauté de Suresnes, cheerful and showy, capital habit, and good bedder; foliage slightly zonate. The Prince, lively cerise-salmon; flowers stout and well formed, with dark zonate foliage. Of new Nosegay varieties—Lord Stanley, orange-crimson; flowers produced in well formed and showy trusses, habit good, leaves with a kind of blotch of pale green, an edging of dark green, and a slight zone. Profusion, a free-blooming bright orange-coloured hybrid variety, with slightly zonate foliage. Of Gold and Bronze Zonals—St. Ninian's, very promising, appearing to be a capital bedder, the leaf-ground well coloured and marked with a faint bronze zone; good habit, and producing bright orange-scarlet flowers. A few days later than this period the Floral Committee, when at Chiswick, awarded a Second-class Certificate to a gold and bronze bedding Pelargonium, unnamed, which was said to be St. Ninian's. Beauty of Preston was another of this section, having good yellow leaves and a lively chestnut zone, and promising in appearance. Of golden-leaved kinds—Andrew Murray, a most promising kind, with well-coloured leaves and excellent habit, and producing cerise-violet flowers. Golden Dwarf, very dwarf and promising. Sir Thomas de Loviguesille, also a capital golden-leaved variety, and so good in character as to deserve a less unpronounceable name. Constance Van Weber appeared to be a useful miniature-growing, silver-edged variety, having pretty pale rosy-pink flowers. Some small circular beds, in the full glare of the sun, were planted with golden-leaved kinds, St. Ninian's among them. Here, too, it was quite deserving of what has been said in its favour. Each of these beds was edged with a pale blue form of Lobelia speciosa, called here Drummondi grandiflora, a good close grower, very free-blooming, and an effective bedding kind. Mr. Sampson should send plants of these new Pelargoniums to Chiswick, to be planted out there—a process of trial far more satisfactory, to him as well as to others, than sending small plants in ill-condition, a tedious journey by rail, to one of the Committee meetings.

Of Mr. Wills' set, Beauty of Calderdale, Compactum and Model had done remarkably well, the leaves were nicely marked, the golden ground and bronze zone being well defined. Especially was the Beauty of Calderdale good, having all the characters of a first-class bedding kind. Among ordinary zonal Pelargoniums Venus (Hally), a lively scarlet with showy white eye, dark green leaves, and dark bronzy zone, was all that could be desired in habit of growth. This is a variety deserving the attention of bedders-out, the foliage having a peculiar dark shade which can be made good use of either in affording a contrast or securing relief. In a cool and shady corner some plants of Beauté de Suresnes were gloriously fine, suggesting that a little shade might be given to this variety without loss of effectiveness. Drummond's Stella, a supposed sport from the old variety of that name, was noticeable as a valuable bedder; the flowers are cerise-red, the foliage darkly zonate, and the plant is dwarf-growing and free-blooming, and thoroughly useful.

The foregoing testimony may have some interest, as showing what is being attempted in the West of England. The taste for these new kinds of Pelargoniums is beginning to be as much exhibited there as nearer home, in the great metropolitan centres of horticultural enterprise. *R. D.*

The Apiary.

The Present Season.—During the exceptionally mild weather which has prevailed for the last few months our bees have been very active, doubtless enjoying the opportunities of the balmy air afforded them for exercise and foraging in search of food. I have not examined the interior of any of my hives, but I fancy that the consumption of stores has been very large, still with regard to my own I have no fear, as when put up for the winter they were very heavy. Bees after exercise usually consume food, so that more is required than when they are at rest, except it may be in periods of great cold, when a large consumption is necessary to provide fuel for keeping up the proper degree of internal temperature. Pollen has been for some time largely carried in, so that it is probable that breeding is extensive in all strong hives. If so, there will be an additional drain on their stored resources, which may prove very injurious if a protracted, cold ungenial spring should follow this present very mild winter. The danger exists not only as regards the food necessary to the adult bees, but with respect to the brood, which may perish both from an insufficient supply of food and from cold and neglect owing to a deficiency of nurses in proportion to their numbers. In mild weather this disproportion between the nurses and the brood would not be of much importance, but in cold weather the bees, for the purpose of concentrating warmth, would pack together in closer proximity, so that many of the sealed and unsealed larvæ would be exposed to the perils of cold and starvation. It is at such a time that a little judicious feeding is so important. A very small quantity given daily, or every other day, not only ensures the preservation of the bees themselves, but by the gentle excitement thus afforded, the temperature is increased, the bees spread more over the surface of the combs, the wants of the larvæ in the way of food are administered to, and they receive the benefit of the warmth so necessary to their existence. The hive itself may already have as much stored food as will carry it through until the early summer, but it may happen to be in combs away from the chief centre of the quarters occupied by the community, the cold rendering the bees unwilling to disperse in order to avail themselves of it. Even if quite within their reach, its gradual consumption does not cause any wholesome excitement, does not raise the temperature of the interior, or stimulate the nurses to administer to the requirements of their charges. It is not advisable to give large supplies of food: it is injurious to the future prosperity of the colony to give so much that the greater portion of the chief or central breeding space is filled up with artificial food or with honey. An ounce of syrup daily, or two ounces three times a week, is usually sufficient, unless the stock is totally without stores, in which case a larger quantity may be given at first, to be reduced afterwards to just sufficient to keep the bees in health. *Apiator.*

Garden Memoranda.

Broomfield, the Residence of Robert Warner, Esq.—The collection of Orchids at this place is so well known, that it is quite unnecessary to describe its general features; I shall therefore confine my remarks to the plants in bloom. First in rank stands the collection of Phalænopsis, not only on account of the rarity of the plants, but also from the magnificent display which just now they afford. Some of the specimens are of very fine growth, and they are arranged so as to produce a most remarkable effect, the opposite sides of the house devoted to East Indian Orchids consisting of an unbroken bank of these plants, extending the whole length of the house, and forming a gorgeous floral avenue nearly 100 feet long—the greatest display, probably, of these plants to be found in Europe. There are upwards of 1100 flowers now open, consisting of P. Schilleriana in variety, some of them being very superior forms; P. grandiflora, and its splendid variety, aurea, figured in Mr. Warner's "Select Orchids," but not done half justice to in the plate in question; P. amabilis, of which there are also several varieties, one in particular having far more colour than is usually seen in this species; and finally, the rare P. intermedia Portei, with its lovely rose and white flowers. These plants must be seen to be appreciated; they are beautifully set off by the rich dark green leaves of some fine Vandas and Aerides, which are arranged in rows behind them, and thus form a most efficient background for their large white, or rosy, moth-like flowers.

In the same house is a fine specimen of Angræcum eburneum, or superbum as it is sometimes called, with its large ivory-white flowers; Cypripedium barbatum Warneri, a variety characterised by its small and sharp-pointed leaves, and large and brightly-coloured flowers; and Cypripedium insigne Maulei, which was also beautifully in bloom, and is thoroughly distinct from the old C. insigne—being distinguished by its smaller and less robust growth, its longer and narrower leaves, and its large flowers, the dorsal sepal of which for fully two-thirds of its length being of a pure white, spotted with bright purple, and at the base green, spotted with brown, as in ordinary forms of the species. Some well-bloomed Vandas and a few others make up the rest of the flowering plants in this house.

Beyond is the Cattleya house, and here again a most beautiful sight meets the eye. The lovely C. Warscewiczii is flowering in abundance, and of many shades of colour, from the chaste-looking faint mauve-coloured delicata to others in which the labellum is of the richest crimson. In this house are some fine examples of Lælia anceps, Lælia albida, and Zygopetalum crinitum, also a magnificent specimen of Cœlogyne cristata, with some twenty or more smaller plants, covered with their snow-white flowers. The house adjoining this is nearly filled with Lycaste Skinneri just beginning to make a grand display, and showing many superb varieties. Still further on, in the Fern and fine-foliage house, which has a tank in the centre, occurs a fine specimen of Cyathea princeps, standing just above the water, and spreading its noble fronds over the many beautiful plants which are arranged round the edge of the tank, above the water, such as Adiantums, Lomaria gibba, and many others. To this house, which is kept cool, many Orchids are brought in the summer during their flowering season, and are thus kept for a longer period in bloom. In the Odontoglossum house are some good varieties of O. Alexandræ and Bluntii, in full beauty, also O. Cervantesii and O. Warneri. A fine specimen of O. pulchellum was not quite open. Here I saw the handsome and curious Oncidium serratum, with its long spikes of rich brown and yellow flowers, which are peculiarly twisted and curled; also a fine specimen of the pretty Australian Dendrobium Kingianum, beautifully flowered, and two other species from the antipodes, viz., Dendrobium Hillii and the old D. speciosum, together with various Oncidiums, and many other kinds, which impart variety to this gay and interesting scene. Independent of anything else, however, the show of Phalænopsis is something to be remembered for a lifetime, and would amply repay a journey of any length. *W. B.*

Miscellaneous.

SONG OF THE TOM-TIT.

I'm a little tom-tit, and I gaily flit
From Pear tree to Pear tree, when I think fit,
To partake of the very daintiest fare
To be found near the stalk in a ripening Pear.
Some birds of low tastes may make a meal
On a hard skinned Catillac or Beurré Diel;
But Doyenné du Comice, or Madame Treyve,
Are the sorts for which I mostly crave.

I'm a little tom-tit, and I gaily sit
In some hole or corner before I commit,
As gardeners well know, the pecking small holes
In their choicest wall Pears, to bother their souls.
I may pick some grubs when I feel inclined,
But to live on them wholly is not to my mind,
And while Pears are in season I'll have my bit,—
Oh, a dainty bird is the little tom-tit. *Thoth.*

Royal Forests and Woodlands.—The receipts from the New Forest, by sales of produce, rents, license to sport, &c., in the year ending March 31, 1868, amounted to 17,546*l.*, and the expenditure, maintenance, management, planting, &c., amounted to 13,285*l.*, leaving the net income 4261*l.* The receipts from Dean Forest amounted to 11,038*l.*, the expenditure was 6294*l.*, leaving the net receipts 4744*l.* From Highmeadow Woods, Gloucester, the receipt was 1376*l.*; but the expenditure was 1700*l.*, though only 103*l.* of it was for planting; the result was a deficiency of 324*l.* The receipt from Alice Holt Woods, Hants, was 4246*l.*, and the expenditure being 1560*l.*, left a surplus of 2686*l.* The Woolmer Estate, Hants, produced 745*l.*, the expenditure was 98*l.*, and the net income 647*l.* From Bere Woods, Hants, the receipt was 1981*l.*, the expenditure being 897*l.*; net receipts, 1084*l.* Parkhurst Woods: receipt, 363*l.*; expenditure, 336*l.*; net receipts, 27*l.* Hazleborough Wood, Northampton: receipts, 490*l.*; expenditure, 269*l.*; net receipts, 221*l.* Salcey Wood, Northampton: receipt, 1659*l.*; expenditure, 818*l.*; net receipts, 841*l.* Delamere Woods, Chester: receipt, 5641*l.*; expenditure, 2328*l.*; net receipts, 3313*l.* Sums amounting to 1090*l.* were allowed to tenants on this last estate for losses by the cattle plague. Chopwell Woods, Durham, produced only 25*l.*, and the expenditure being 414*l.*, there was a deficiency of 389*l.* The result shows, for the 11 woods and forests, a net receipt of only 17,111*l.* on the year. Windsor parks and woods are maintained for other objects than pecuniary profit; the receipts from sales of produce, rents, venison fees, &c., amounted to 7199*l.*, and the expenditure was 21,123*l.*, viz., nearly 13,000*l.* in maintenance and general management, 4000*l.* in salaries, above 2000*l.* in preparation of produce for sale, and above 2000*l.* upon buildings, fences, &c.

Covent Garden Notes.—During the past week a considerable quantity of new Peas arrived in the market from Algeria, and were sold at 2*s.* to 2*s.* 6*d.* per punnet. Cos Lettuces appeared for the first time this season during the week. These arrived in fine condition from the neighbourhood of Marseilles, and command a good price. Turnip Radishes, grown near Paris, are also getting more plentiful. Large quantities of Broccoli still continue to arrive from Penzance, and are sold at from 1*s.* to 4*s.* per doz.

Truffle Hunting.—The pig was formerly employed in all parts of France in hunting for this precious tuber, which has just appeared in the Paris markets, and in an abundance which has not been equalled for the last 60 years. There is a celebrated caricature of Gavarni's, in which two women of the people are represented as discussing the vintage. "They say there will be plenty of wine this year," says the first lady; and the other replies, "How we shall get trounced!" Looking at the plentiful supply of Truffles, *gourmet* and *gourmand* will probably exclaim, "How we shall suffer from indigestion!" In Provence, the ancient country of the troubadour and ballad, the pig is still employed in searching for the Truffle. It is a lean sort of animal, very clever in its way, and is called a *porc de course*, or racing pig, who is duly trained to his business, and for every tuber he discovers he is rewarded with an acorn—he finds a fish, and is offered a serpent. In the department of the Haute-Marne the pig has been replaced by the dog; the ordinary cur of the country is trained for the pursuit, and readily masters his craft; his training is neither long nor costly, and his education consists in being kept for a certain time without food, and then set to discover a Truffle placed with a piece of bacon in a *sabot* filled with earth. As soon as the dog has found the Truffle he is rewarded with a small bit of bread, and the manœuvre recommences. After a few days of this exercise the dog is generally found to be sufficiently trained, and his value reaches as high as 4*l.* at times. There are peasants who make this system of education their trade. A curious fact has lately come to light, which proves that the dog and the pig have not the entire monopoly of finding Truffles. The Truffle poachers trust to a certain fly to guide them to the beloved tuber. A paper on the subject of this fly has been addressed to the Botanical Society of France by M. Gubler, who reports that the insect is large, that he ever returns to the same spot, and, after numerous circuits, settles, and where he settles a Truffle is sure to be found. *Land and Water, Nov. 7.* [See also *Gardeners' Chronicle* (1868), p. 212.]

Garden Operations.

(For the ensuing week.)

PLANT HOUSES.

Caladiums may now be started into active growth. In view of extending their beauty to the utmost possible limit, it would be advisable to start a portion of the general stock only at this date. It is customary to fresh pot them previous to their commencing to grow, which is a very desirable practice, as each separate tuber can then be placed into a much smaller sized pot than that in which it had been previously growing. At this early starting period a more open and porous soil should be provided, with the usual admixture of peat, loam, leaf-mould, and a double share of silver sand. A thoroughly efficient drainage should be insured to each pot, and the tubers should be potted so that the tip or apex of each will be just perceptible through the soil when the operation is completed. Pot them moderately firm, and do not water them for a week or two from that time. Where convenience exists, plunge the pots partly into a moderate bottom-heat, and so induce a free and ready growth. Give particular attention to all good specimen Alocasias, and to *Alocasia metallica* especially, as it will be found that the younger leaves enveloped in their dense protective spathes are very prone to rot, damp, or "fog off," to use a garden term, and so the whole beauty of certain specimens becomes destroyed. The beautiful *Ardisias* should, now that their bright scarlet berries have attained their full colour, be removed to an intermediate house, for the purpose of prolonging their beauty. When thus removed into moderate heat, less water should be given them at the root than when they were in active growth. A few small pot-bounds plants of *Bougainvilleas* may now be induced to make a start, in a little bottom-heat. This they will readily do, if the pots are plunged to about half their depth and a moderate supply of tepid water is regularly afforded. It should be remembered, that their peculiarly tinted and pleasing floral bracts are produced plentifully upon young shoots, which emanate from old, hard, well ripened wood, and not through any robustness or freedom of growth otherwise attained. Some varieties of *Franciscea*, such as eximia, confertiflora, &c., will now be showing flower-buds freely, and making a certain amount of growth; hence these will also require a little direct attention. A neat surface dressing of fresh soil should be given them, and also a weak watering of liquid manure occasionally. A slight sprinkling of the leaves with a fine syringe, and more especially a little gentle bottom-heat, will also tend to increase both the size and beauty of the bloom.

FORCING HOUSES.

Vines in flower should have as warm, free and buoyant an atmosphere as possible, during such time as the pollen is actively at work. In very dull weather it will be necessary to carefully jerk the flower-stalk with the hand to cause a most equal and plentiful distribution of the pollen. Where Vines are swelling their berries a moist genial atmosphere should be kept up, the necessary humidity being maintained by keeping the walks and other similar cool surfaces constantly moistened. I have frequently urged that resort should but seldom be had to actual steaming, by pouring water directly on to the heating medium. There is decidedly a certain amount of benefit attending the occasional use of this practice, but it can only be gained by those who have had experience, and who have brought direct personal observation and tact to bear thereon. Continue the pinching back, stopping, or rubbing off, of the shoots in their various stages, and by careful tying endeavour to bring alternate shoots, with somewhat workman-like ease, right and left of the rods, to fill the necessary spaces, without such an amount of straining as will cause many of the finest breaks to snap off; this is too frequently a fault of young practitioners, who go to work hurriedly. Re-pot forthwith all *Pine plants*, the roots or soil around which have become at all soured. In some instances the roots, even of larger stock, will have to be considerably cut back, and the plants need to be again potted into very small pots, and require treating precisely like suckers, or young cuttings, placed to strike or form roots. Any forward batch of successions required to "show" at an early date in the forthcoming spring, should have their final shift without delay. Give to all Pine plants, having the pots moderately filled with roots, a greater abundance of moisture now that the days increase and with them the solar rays become more powerful; and have an especial eye upon those in the immediate vicinity of hot-water pipes or flues. *Peaches* and *Nectarines* which have now set their fruit should again be syringed more freely. Dash the fresh tepid water into and amongst the branches and young growths freely, to dislodge the cast-off *débris* of floral appendages, which often continue tenaciously attached to the young growing fruits. Do not delay the commencement of the necessary thinning operations, as soon as the young fruits become large enough to afford some certainty that they will continue to thrive. So soon as the beds formed of fermenting materials to grow *Cucumbers* or *Melons* upon, become sufficiently sweet, it will be necessary to place thereon the ridges of soil in which they are to be planted out. To ascertain when they are sweetened sufficiently, and in proper condition for this purpose, it is only necessary to place the nose at the opened light at the back early in the day, and after they have been closed down throughout the night. If any rank, unwholesome smell is detected, it will be necessary to turn the surface well over within the frame with a fork, to afford rather more air again both by night and by day, and to let them remain for two or three days longer. Sometimes, even after the beds are sufficiently sweetened, there will be an immoderate degree of heat in the bed. When this is the case, or it is anticipated such may eventually occur, it is an excellent plan to place a large square turf immediately under the mound or ridge of soil. This will tend greatly to neutralise the excess of heat which at any future time may arise, and will afford at a later date excellent material in which the roots will ramify and find pasturage. About a bushel of good soil will be ample to commence with. It should be placed lightly on the bed, in an abrupt conical-shape, so as to afford ample play to the heat arising from below, and as an additional security to the roots against being scorched. Afford a little air constantly; and should excess of steam arise, which it often will do in such quantities as to depress the weakly foliage by its weight in the earlier part of the day, it should be thoroughly dispelled again by night, and if possible the whole exterior surface of the plants be made dry. To aid this, the heavier drops should be lightly shaken off with the hand at opening each morning.

HARDY FLOWER GARDEN.

Plant out finally into their blooming quarters all spring flowering plants, such as *Pansies* of the Cliveden section, *Silenes*, *Myosotis*, *Saponaria*, &c. All *Bulbs* should also be planted without further delay. To these I have so frequently referred previously, and urged the benefit accruing through early planting, that little remains now for me to add.

HARDY FRUIT GARDEN.

Proceed with the necessary pruning of *Peaches*, *Nectarines*, &c., upon every favourable opportunity, for already the flower-buds are exceedingly prominent. Remove where practicable all strong over-robust branches formed during the past summer, and retain in all instances the fine kindly developed bearing wood. In nailing them in, endeavour always to have the shoots as near to 3 inches apart from each other as possible. Encourage young growths at the base of the trees, in preference to long naked branches, which reach to the top of the wall, however encouraging they may look otherwise. Proceed now with all pruning operations with as little delay as possible. *Raspberries* of the Belle de Fontenay and other strictly autumnal varieties may now have all the matured growths of last summer cut away at the ground line; the future young shoots will thereby be much more robust, and bear a far better crop.

KITCHEN GARDEN.

Some arrangement should now be made regarding the distribution of crops in this department, and the preliminary work should be entered on accordingly. For instance, *Onions* delight in a rich, deeply manured and pulverised soil, but they do not thrive well when grown successively upon the same plot of ground. Where the portion which is intended for them in the ensuing summer has been trenched, or in any case the soil has been packed up ridge-and-furrow fashion, it should be now levelled down, that time may be afforded it to become firm before sowing. Onions delight in a firm soil, and the richer it is, the more solidified it becomes, the better. Those who have delayed sowing successional crops of *Peas* or *Beans* (Broad) should now get in a sowing. In the majority of instances the November or December-sown ones are getting very forward, so much so that something must be allowed for injury by severe weather. It will now be advisable to pull up and store away the main supply of *Turnips*, for use between now and the coming in of the early spring crop. To let them remain upon the ground until they start or push up a flower-spike is, to say the least, injurious as regards good flavour and firmness, irrespective of a deterioration of their keeping qualities.

TOWN GARDENING.

I NOW propose to offer a few remarks respecting Chrysanthemums, with select lists of sorts. And first of the large-flowered varieties:—

White.	Average Height.
Defiance	4 ft.
Empress of India	5 ft.
Formosum	5 ft.
Mrs. Haliburton	5 ft.
Marchioness	6 ft.
Queen of the Isles	4 ft.
Vesta	5 ft.
Yellow.	
Temple of Solomon	5 ft.
Aurea multiflora	4 ft.
Annie Salter	4 ft.
Chevalier Domage	4 ft.
Delight	5 ft.
Changeable Yellow	3 ft.
Golden Queen	5 ft.

Peach and Rose.	Average Height.
Christine	5 ft.
Alfred Salter	5 ft.
King of Denmark	4 ft.
Princess Marie	4 ft.
Ariadne	4 ft.
Queen of England	5 ft.
Webb's Queen	4 ft.
Crimson and Red.	
Julia Lagravère	3 ft. 6 in.
Jewess	3 ft. 6 in.
Count de Rantzeau	4 ft.
Oliver Cromwell	5 ft.
Nil Desperandum	5 ft.
Anaxo	6 ft.
Amaranth and Carmine.	
Progne	4 ft. 6 in.
Dr. Rozas	5 ft. 6 in.

There are no plants within my knowledge that do so well in towns as these; but as there is so much disappointment occurring to persons unacquainted with their individual habits, in choosing a collection for their borders, arising from their not knowing the varieties suited for outdoor culture, I have given a list of such as I am sure will give general satisfaction. I will at the same time state the mode of cultivation that I have followed with great success for upwards of 20 years in the Middle Temple Gardens. The borders intended for their reception should be well trenched, and a good dressing of rotten manure forked in. The planting should commence about the end of this month. If the stock is somewhat scarce, cuttings should be immediately put in, in a cold frame, that can be shut down for a few days: they will strike readily, and make good flowering plants for the autumn. Three offsets planted in a cluster will be sufficient, and the clusters, 2 feet apart in the borders, will produce a good effect if attention be paid to judicious arrangement with respect to the colour of the flowers, and their average height. Until the plants are well established, they require to be occasionally watered and tied loosely to sticks as they progress in growth. They should not on any account be topped; but if they are required to make stout bushy plants they should be pegged down as they commence to grow, for topping them is very apt to retard their flowering at least a fortnight, and thus to bring their blooming season too near to winter for any chance of success. There are many beautiful varieties not included in the foregoing list which require protection to develop their blooms, but those which are named are all early and free bloomers, and are well adapted for open culture in towns. The interesting class of Pompons, from the smallness and abundance of their flowers, is admirably adapted for planting in the front rows of borders or for bedding-out on lawns, in which position they make the showiest bed of flowers in their season. The plan I adopt is to divide the beds into sections, planting each section with a different colour, paying particular attention to the contrast of the colours. The directions for the cultivation of the large varieties are equally applicable to these miniature Chrysanthemums when cultivated in the borders; but with this difference—when grown for beds offsets or cuttings should be planted in June, 9 inches apart, in any back border; when well rooted they should be topped, and removed to their flowering beds in September; it will therefore be unnecessary to give more than a list of the best varieties, selected upon the same principles as the large ones:—

White.	Cedo Nulli.	Brilliant.
Cedo Nulli.	Adonis.	Dr. Boisduval.
Miss Talfourd.	*Yellow.*	La Liliputienne.
Modèle.	Drin Drin.	Mustapha.
Princess Matilda.	Berrol.	Madame Jupin.
Argentine.	Canrobert.	Cedo Nulli.
Rose.	Gerbe d'Or.	*Pink.*
Duruflet.	Golden Cedo Nulli.	Attila.
Ranuncula.	*Brown.*	Surprise.
Salamon.	Autumna.	Adèle Prisette.
		Geralda. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Feb. 10, 1869, as observed at the Horticultural Garden.

February	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind	Rain.
Thurs. 4	23	30.108	30.010	58	41	49.5	49	45	S.W.	.10
Friday 5	24	30.177	30.162	62	33	47.5	49	46	S.	.00
Satur. 6	25	30.032	29.936	58	30	44.0	46	46	S.	.00
Sunday 7	26	29.861	29.776	51	48	51.0	47	46	W.	.00
Mond. 8	27	29.603	29.401	54	46	50.0	50	46	S.W.	.02
Tuesd. 9	28	29.894	29.606	52	44	47.0	50	47	W.	.04
Wed. 10	29	29.864	29.842	55	42	48.5	49	48	S.W.	.02
Average		29.934	29.819	56.1	40.3	48.2	48.5	46.3		0.18

Feb. 4—Overcast; cloudy, but fine; very mild; starlight.
— 5—Fine, and very mild; very fine; clear and fine.
— 6—Clear and fine; exceedingly fine; fine and clear.
— 7—Exceedingly boisterous; overcast; boisterous and stormy.
— 8—Clear, brisk wind; boisterous; showery and boisterous.
— 9—Overcast, showery; brisk wind; clear and fine
— 10—Overcast; fine, cold wind; densely overcast.

Mean temperature of the week, 9 2-10 deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending Feb 20, 1869.

February.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..14	45.6	30.9	39.3	15	0.50 in.	1	6	5	3	4	14	8	2
Mon. ..15	47.0	31.3	39.2	17	0.35	5	5	5	1	5	11	8	3
Tues. ..16	47.0	30.6	38.8	11	0.38	6	6	5	3	1	12	7	3
Wed. ..17	46.6	30.6	38.6	17	0.44	4	5	5	3	5	8	10	3
Thurs. ..18	45.2	31.1	38.2	17	0.30	6	4	5	2	5	10	7	4
Friday ..19	44.9	31.0	37.9	15	0.50	6	3	5	7	1	10	5	6
Satur. ..20	45.5	30.7	38.1	20	0.51	2	6	3	5	4	10	8	5

The highest temperature during the above period occurred on the 16th, 1867—therm. 59 deg.; and the lowest on the 17th, 1855—therm. 2 deg.

Notices to Correspondents.

FLOWER SEEDS FOR WINDOW BOXES: *T H F.* Sow Mignonette, Ten-week Stock, Indian Pinks, Tropæolums, Tagetes signata pumila, Silene pendula, and Malcomia maritima, towards the end of March, or early in April; and Balsams a month later. Convolvulus major, and Tropæolum aduncum may be introduced at the sides as climbers.

TREE FERNS: *E B.* Keep them in a close, moist, cool greenhouse till they start. A greenhouse temperature, and moist climate will suit them all. Alsophila Macarthuri, more correctly A. Leichardtiana, is the rarest of those named. The Kennedya may be cut back as far as seriously injured by the steam, and if its roots are sound, it will push out again shortly. No treatment will recover the parts injured.

INSECTS: *W T.* The small objects on the Orange peel are females of the mussel-scale insect, Coccus conchiformis, each with a mass of eggs beneath the scaly part, which is an exudation from the surface of the small fleshy body of the creature. *W.*

LONICERA FRAGRANTISSIMA: *C.* Both this and L. Standishii are in bloom now out-of-doors, indeed have been for some time about London and in Kent to our knowledge.

NAMES OF FRUITS: *G W.* 1, Adams' Pearmain; 2, Rymer; 3, Holland Pippin; 6, Winter Quecning; 8, Mère de Ménage.

NAMES OF PLANTS: *H D, Epping.* Helleborus atrorubens.—*H T K.* 1, Euphorbia jacquiniflora; 2, Rhipsalis salicornioides; 3, Goldfussia isophylla; 4, Gesnera elongata; 5, Begonia argyrostigma; 6, Begonia Daviesii.—*Mrs. Vivian, Swansea.* Antholyza æthiopica.—*A J.* 3, Rivina humilis (often known as R. tinctoria). The remainder next week.—*P M.* Kennedya monophylla var.—*T H G.* Odontoglossum retusum.—*D.* Utterly smashed in transit.—*P C.* Senecio Ghiesbreghtii.

PRIMULAS: *J C H.* The blooms are not so fine as many we have had sent to us; some of the colours, however, are marked, and a very pretty rosy-pink form we have not previously seen.

PROPAGATING SHRUBS: *G T.* The shrubs named—Deutzia, Leycesteria, Forsythia, and Weigela—strike freely from cuttings of the young wood taken when about half ripened. Mezereon is raised from its berries.

PROTOPLASM: *Urtica.* The Professor spoke correctly: the chief vital properties are manifested by the protoplasm; the cell wall is, as it were, dead matter, and manifests purely physical qualities—that is, on the assumption that vital and physical properties are two different things, which is open to doubt.

MISTLETO: *G T.* No: more next week.

COMMUNICATIONS RECEIVED:—Y. C.—W. M.—R. P. D.—A. B.—W. F. R.—G. W. M.—E. B.—S. C.—T. S.—G. T.—Middlesex.—J. R.—T. W.—R. H. G.—J. W.—C. D.—T. S.—T. W.—J. M.—Chownes.—D. L. L.—D. B.—J. D.—A. D.—A. F.

HALLETT'S PEDIGREE CHEVALIER BARLEY produced in 1868 a Crop of 62 bushels per acre, a Sample of which was awarded the First Prize at the Birmingham Show of 1868. Took the First Prize also at the same Show of 1867. Produced in 1867 nearly 9 quarters per acre.

PEDIGREE BLACK TARTARIAN OATS produced, 1868, 12 quarters per acre.

For particulars apply to Captain HALLETT, F.L.S., Brighton.

1868.—Mangel Wurzel Seed.

H. AND F. SHARPE can offer the Trade some splendid STOCKS of the above-named Seed, grown on their own Farm this season from picked Bulbs. The quality is very fine, and prices low. Samples may be obtained on application.
Seed Growing Establishment, Wisbech.

J. C. WHEELER AND SON.

WHEELER'S GUINEA COLLECTION of GARDEN SEEDS comprises the finest varieties in cultivation; for details see "WHEELER'S LITTLE BOOK for 1869," price 6d., post free.
J. C. WHEELER & SON, Seed Growers, Gloucester, and 59, Mark Lane, London, E.C.

"WHEELER'S TOM THUMB LETTUCE is a wonderful favourite with my family and friends; for a Summer Lettuce I have never seen its equal."—G. F. A. FLOWER, Stafford Farm. 1s. per packet, post free.

"WHEELER'S MILKY WHITE is the best of all Potatos, and those who do not grow it may consider themselves rather behind the age."—SHIRLEY HIBBERD, F.R.S. 4s. per peck, 15s. per bushel.

MILKY WHITE.—"This I received from the well-known firm of Messrs. Wheeler & Son, Gloucester. It is one of the handsomest Potatos grown, and well deserves its name, for it is most beautifully white, very floury, and one that I do not hesitate to regard as first-rate. It is also a very free bearer." D. DEAL. 4s. per peck, 15s. per bushel.

ONE PECK of WHEELER'S MILKY WHITE and ONE GUINEA COLLECTION of GARDEN SEEDS sent carriage free by rail on receipt of cheque or Post-office order for 25s.
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WHEELER'S GRASS SEEDS for CROQUET GROUNDS should now be sown at the rate of 10lb. per acre, a good dressing of soot applied, and the ground well rolled. Price 1s. per lb., 20s. per bushel, carriage free.
J. C. WHEELER & SON, Seed Growers, Gloucester, and 59, Mark Lane, London, E.C.

Seed Potatos.

GEORGE SIBBALD, Drumgeath, by Dundee, N.B., has for Sale a large Stock, of his own growing, of the following kinds of POTATOS, which he will Sell at moderate prices, delivered free in Dundee:—

Paterson Victoria; best Rocks	Fluke Kidney
Walker's Improved Regents	Moon's Pride Kidney
Early Dalmahoys	Myatt's Prolific Kidney
Daintree's Early	Royal Ashleaf Kidney
Oxford Early	Wheeler's Milky White Kidney
Early Handsworth	Paterson's Early Red Kidney

Also 5 cwt. Gibson's Dwarf York CABBAGE SEED.

To Market Gardeners and Others.

SUTTON AND SONS can offer the following excellent PEAS, of their own growth, at very low prices for large quantities:—

Suttons' Ringleader (the forwardest known)	Veitch's Perfection
Daniel O'Rourke	No Plus Ultra
Prizetaker Green Marrow	Champion of England

Lowest price, per bushel, on application to
SUTTON & SONS, Seed Growers, Reading.

Henry's Hybrid Prize Leek.

DOWNIE, LAIRD, AND LAING are now sending out seed of the above celebrated LEEK, warranted true. This is the largest and finest sort in cultivation. In sealed packets, at 1s. each.
17, South Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E.

IVERY'S NONSUCH LETTUCE.—The best Summer variety in cultivation; will stand a month longer than any other kind without running to Seed. 1s. per packet, sealed with initials, "M. A. I." Price to the Trade on application.
A GENERAL SEED CATALOGUE can be had post free on application. The Trade supplied with superior MUSHROOM SPAWN. Hanover Nursery, Peckham, S.E.

HOOLEY'S CONQUEROR PRIZE CELERY Gained Five First Prizes in 1868, competing against 129 Exhibitors; and Four First Prizes in 1867, competing against 126 Exhibitors. With the Nottingham Prize System of Growing Celery. By Mr. W. P. Ayres. Price 2s. 6d. per packet. May be had from the following Nurserymen and Seedsmen:—

London:—	Messrs. Cole & Sons, Withington, Manchester
Messrs. Barr & Sugden, King Street, Covent Garden	Mr. Keir, Liverpool
,, Carter & Co., High Holborn	Messrs. J. Dickson & Sons, Chester
,, Osborn & Son, Fulham	,, Fisher & Holmes, Sheffield
,, J. & C. Lee, Hammersmith	,, Backhouse & Son, York
,, B. S. Williams, Holloway	,, Auston & McAslan, Glasgow
,, E. G. Henderson & Son, St. John's Wood	,, Downie & Laird, Edinburgh
,, Cutbush & Son, Highgate	Mr. Methven, Edinburgh
Messrs. Sutton & Sons, Reading	Messrs. Lucombe, Pince & Co. Exeter [Herts.
,, Wheeler & Sons, Gloucester	Mr. W. Paul, Waltham Cross,
Mr. Smith, Worcester	

And Wholesale and Retail from SAMUEL HOOLEY, Wollaton, Nottingham.
This Celery was highly recommended in the *Gardeners' Chronicle*, in Oct., 1857; and Mr. Ayres, who has grown it for several years, considers it the finest Celery in cultivation. Weight, 5 to 8 lb. each stick.—Wollaton, Feb. 12.

SPECIAL OFFER to the TRADE.

PEAS, SANGSTER'S NO. 1 .. .. .. Per bush.	£0	10 6
,, PARADISE EARLY MARROW .. .. .. ,,	0	11 0
,, WATERLOO or VICTORIA .. .. .. ,,	0	11 0
,, SCIMITAR (selected stock) .. .. .. ,,	0	11 0
CABBAGE, EARLY YORK .. .. .. Per cwt.	5	12 0
,, LARGE YORK .. .. ,,	5	12 0
,, DRUMHEAD (fine) .. .. ,,	3	10 0
CARROT, ALTRINGHAM .. .. .. ,,	3	5 0
,, JAMES' INTERMEDIATE .. .. .. ,,	3	5 0
,, WHITE BELGIAN .. .. ,,	2	15 0
RADISH, WOOD'S EARLY FRAME .. Per bush.	1	7 0
SPINACH, PRICKLY .. .. ,,	0	7 6
TURNIP, POMERANIAN WHITE GLOBE .. ,,	1	0 0
,, ROBERTSON'S GOLDEN BALL or ORANGE JELLY .. .. .. ,,	1	7 6

The above are all New, True, and fine samples.
Special quotations for all other Seeds will be sent upon application.
ALFRED LEGERTON, Seed Merchant, 5, Aldgate, London, E.

CHOICE HOME-GROWN GARDEN SEEDS, forwarded free by post at the prices annexed:—
CATTELL'S PURPLE-TOP BEET, per oz., 1s.
CATTELL'S BRONZE-LEAVED BEET, per oz., 1s.
CATTELL'S ECLIPSE BROCCOLI, the latest in cultivation, per ½ oz. packet, 1s. 6d.
CATTELL'S RELIANCE CABBAGE, per oz., 1s.
CATTELL'S WHITE SOLID CELERY, per oz., 1s.
CATTELL'S GLADIATEUR CUCUMBER, per packet, 1s.
CATTELL'S FINE-FEATHERED KAIL, per packet, 6d.
CATTELL'S KENT FLAG LEEK, per packet, 6d.
CATTELL'S EXQUISITE PARSLEY, per packet, 6d.
CATTELL'S GREEN CURLED SAVOY, per packet, 6d.
CATTELL'S PURPLE-TOP TURNIP, per oz., 6d.
CATTELL'S SILVER-BALL TURNIP, per oz., 6d.
A Trial Packet of each of the above may be had on receipt of 5s. in postage stamps. The Trade can still be supplied.
SPRING SEED CATALOGUE now ready, and may be had on application.
JOHN CATTELL, Nursery and Seed Establishment, Westerham, Kent.

The advantages of procuring Seeds direct from the Growers cannot be over-estimated.

James Carter & Co. Seed Growers

237, 238, AND 261, HIGH HOLBORN, LONDON, W.C.

SEED FARMS:
EAST HOUSE FARM, DEDHAM, ESSEX;
THE SEED FARM, ST. OSYTH, ESSEX;
JUPES HILL FARM, DEDHAM, ESSEX;
GOD'S HOUSE FARM, ARDLEIGH, ESSEX.

CARTER'S GRASS SEEDS,

CAREFULLY ARRANGED TO SUIT THE VARIOUS CONDITIONS OF SOILS.

The following Tables give the sorts and proportions of Grasses and Clovers comprising Messrs. CARTER'S Mixtures for the various soils:—

FOR HEAVY SOILS.	No. 1 Fertile Clays.	No. 2 Poor Clays.	No. 3 High-lying Clay Soils.
	lbs.	lbs.	lbs.
SWEET VERNAL	1	1	1
MEADOW FOXTAIL	2½	2	2
LARGE OAT GRASS	..	1	2
CRESTED DOGSTAIL	..	2	3
COCKSFOOT	4	3	3
HARD FESCUE	2	3	3
VARIOUS-LEAVED FESCUE ..	2	2	3
TALL FESCUE	2	2	2
DARNEL-LEAVED FESCUE ..	2½	2½	1
MEADOW FESCUE	3	3	2
Best imported Italian RYE-GRASS	4	4	..
Pacey's Perennial RYE-GRASS ..	4	4	8
TIMOTHY	3½	2½	2
WOOD MEADOW GRASS ..	3	3	4
Rough-stalked MEADOW GRASS	..	2	3
PERENNIAL RED CLOVER ..	4½	5	3
PERENNIAL WHITE CLOVER	4	4	4
ALSIKE CLOVER	1	..	1
YELLOW TREFOIL CLOVER ..	2	3	4

Per Imperial Acre, best quality, 28s. to 32s.
Second Quality, 20s. to 26s.

TESTIMONIAL *from* The Right Hon. Lady CARBERY, *Castle Freke, Clonakilty, Feb.* 1, 1869.
"Lady Carbery wishes to tell Messrs. CARTER that nothing can be better than the Meadow Land laid down with their Grass and Clover Seeds last season."

CARTER'S GRASS SEEDS

FOR MEDIUM SOILS.	No. 4 Alluvial Soils.	No. 5 Limestone or Calcareous Soils.	No. 6 Loams derived from Old or New Red Sandstone.
	lbs.	lbs.	lbs.
SWEET VERNAL	1	1	1
MEADOW FOXTAIL	3	2½	2
LARGE OAT GRASS	..	2½	..
GOLDEN BRISTLE GRASS ..	..	2	..
COCKSFOOT	4½	3	4½
HARD FESCUE	2	2	2
SHEEP'S FESCUE	2	3	2
DARNEL-LEAVED FESCUE ..	1	1	1
MEADOW FESCUE	2	..	1
Best imported Italian RYE-GRASS	9	8	9
Pacey's Perennial RYE-GRASS ..	5	7	4
TIMOTHY	4½	2½	3½
WOOD MEADOW GRASS ..	1	2	1
Rough-stalked MEADOW GRASS	1	2	..
PERENNIAL RED CLOVER ..	6	5	4
PERENNIAL WHITE CLOVER	3	4	4
ALSIKE CLOVER	1	..	1
TREFOIL CLOVER	2	3	3

Per Imperial Acre, finest quality, 28s. to 32s.
Second Quality, 20s. to 26s.

TESTIMONIAL *from* H. BLISSET, Esq., *Letton Court, Hereford.*
"Please send me 37 Acres Grass Seeds as last year. *I am glad to say that what you then sent has done well.*"

CARTER'S GRASS SEEDS

FOR LIGHT SOILS.	No. 7 Light Chalk Soils.	No. 8 Brashy Limestone Soils.	No. 9 Sandy Soils.
	lbs.	lbs.	lbs.
SWEET VERNAL	1	1	1
MEADOW FOXTAIL	2	2	2
GOLDEN BRISTLE GRASS ..	2	2½	..
COCKSFOOT	2	2	..
HARD FESCUE	1	1	1
VARIOUS-LEAVED FESCUE ..	1	..	1
REDDISH FESCUE	1	1	1
SHEEP'S FESCUE	3	3	3
Best imported Italian RYE-GRASS	4	4	4
Pacey's Perennial RYE-GRASS ..	4	4	4
WOOD MEADOW GRASS ..	1	1	..
SANDY LYME GRASS	..	..	2
CRESTED DOGSTAIL	2	2	3
YARROW	½	½	1
YELLOW TREFOIL	3	4	5
PERENNIAL RED CLOVER ..	6	4	4
PERENNIAL WHITE CLOVER	2	3	2
ALSIKE CLOVER	1	1	1
BURNET	..	..	3
SAINFOIN	8	8	8

Per Imperial Acre, finest quality, 28s. to 32s.
Second Quality, 20s. to 26s.

TESTIMONIAL *from* J. BROMWICH, Esq., *Rugby.*
"The Grass Seeds I had from you were very good indeed. A more beautiful crop could not be found."

CARTER'S PRIZE MEDAL LAWN GRASS,

As supplied for the grounds of the late Paris Exhibition, will speedily produce a carpet-like turf of the finest quality.
1s. per lb. 20s. per bushel (sow 3 bushels per acre).

237 and 238, and 261, High Holborn, London, W.C.

First Crop or Ringleader Pea.

CHARLES SHARPE AND CO., having grown largely this EXCELLENT EARLY PEA, with great care, have much confidence in offering it to the Trade. Price on application.

Farm Seeds Direct from the Grower.

CHARLES SHARPE AND CO. will be glad to send special offers of their carefully selected TURNIP, MANGEL, and other FARM SEEDS on application.

Garden Seeds.

CHARLES SHARPE AND CO.'S PRICED TRADE LIST of PEAS, BEANS, and other GARDEN SEEDS can be had on application.

Seed Potatos.

CHARLES SHARPE AND CO. are now prepared to make special offers of all the leading sorts of POTATOS.
Sleaford.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY (Limited),
CORN, SEED, MANURE, and OILCAKE MERCHANTS.
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstok
Samples and prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

HIGHLAND and AGRICULTURAL SOCIETY.
AGRICULTURAL EDUCATION.
The EXAMINATION of CANDIDATES for the SOCIETY'S AGRICULTURAL CERTIFICATE and DIPLOMA will take place in the HALL, No. 3, George IV. Bridge, Edinburgh, on MONDAY, TUESDAY, and WEDNESDAY, March, 29, 30, and 31.
Candidates must lodge intimation, on or before March 15, with the SECRETARY, from whom further information may be obtained.
F. N. MENZIES, Secretary.
Edinburgh, February 10, 1869.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.

AGRICULTURAL EDUCATION.

The EXAMINATION of CANDIDATES for the SOCIETY'S EDUCATIONAL PRIZES will take place in the week commencing MONDAY, April 12, 1869. Copies of the Form, required to be sent in by March 18, may be obtained on application to

H. M. JENKINS, Secretary.
12, Hanover Square, London, W.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.

MANCHESTER MEETING, 1869.

STOCK and IMPLEMENT PRIZE SHEETS are Now Ready, and will be forwarded on application to

H. M. JENKINS, Secretary.
12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, FEBRUARY 13, 1869.

MEETINGS FOR THE ENSUING WEEK.

FEB. 13 { Northamptonshire (Separate Markets for Foreign Cattle).
North Riding, at Malton.
— 17—Warwickshire, at Rugby.

CHAMBERS OF AGRICULTURE throughout the kingdom are industriously engaged in debating important questions connected with the interests of farming. Among the subjects of their deliberation there is no more prominent one than the regulation of cattle traffic, mainly in respect of imported stock.

Since the abortive attempt at legislation during the last session of Parliament there have been great accessions to the previously existing facts and opinions upon the subject, and it may be assumed that after the evidence which was obtained on the Foreign Cattle Markets Bill, both from the supporters of the measure and its opponents, has been carefully analysed, the next effort at legislation will be more comprehensive in its provisions, and less open to attack. Hitherto, however, the discussion appears to have been too restricted in its character; it seems absurd to remain content with demanding the adoption of means to prevent the introduction of foreign diseases, and allow infectious maladies which are now naturalised in this country to continue their ravages unchecked. Intense alarm was, of course, excited by the devastations of the cattle plague, which ceased after sweeping away the third of a million of cattle; but the less obtrusive pleuro-pneumonia and foot-and-mouth complaint, which exact a regular toll of 30,000 head of stock yearly in this kingdom at the very least, are generally contemplated with the calmness of complete indifference,—as if the slow stealing of the pestilence through the land were not infinitely more serious than the sudden irruption of a rapidly destructive pest, the very violence of which is certain to arouse the energy that insures its quick extinction.

So long as the unrestricted movement of contagiously-diseased animals, whether English or foreign, is permitted, extensive losses must of necessity be sustained, and it is essentially illogical as well as unjust to devote exclusive attention to the protection of our herds from

foreign diseases, while a known evil is allowed to exist in their midst.

Taking the form of an investigation into the sanitary condition of the whole stock of the kingdom, the inquiry would cease to be invidious, and means of prevention might be applied indiscriminately to home-bred and foreign stock; differences in detail to some extent would inevitably be required, while uniformity of principle might still be maintained. It is not probable that any proposition will be universally acceptable, because when opposition is pre-determined it is impossible to conciliate; but the assertion of certain fundamental positions as the basis on which legislation should be conducted would much facilitate the attainment of the desired object, whereas if the minutiæ of the subject are primarily considered, dissension is unavoidable, because of the want of some common ground of agreement.

It is not disputed by either side that a re-adjustment of the regulations affecting the cattle trade is necessary; both foreign importers and home breeders complain of vexatious and obstructive restrictions. These deprecate the continuance of prohibition of the movement of native cattle, those ask greater freedom for foreign stock. Both see the advantages of liberty, neither appear to appreciate the benefits of restraint. One of the most influential of the opponents of the Foreign Cattle Markets Bill stated, on behalf of the importers, that they would not complain of any system of regulations which should deal with all stock, native and foreign, in the same way. We accept this statement as a principle of action, and will endeavour to ascertain what extent of satisfactory development it is capable of; but first as to the present state of the questions between the importer and the breeder of home stock.

If we appreciate the agricultural view of the matter correctly, it amounts to this:—Free movement of healthy stock is a desirable thing, and it is, of course, moreover, a most unreasonable thing to restrict. But in order to maintain this freedom harmlessly, it is absolutely essential that all animals or things which contain within themselves the elements of danger, no matter how ill-defined the peril may be, shall be subjected to such restrictions as will effectually protect the sound animals from contamination. It is scarcely possible to find anything objectionable in this general statement. In every sense the proposition is just: even in the importers' view of the subject no exception is taken to the reasonableness of these requirements, but in their answer they in effect beg the whole question. By all means, they say, admit none but healthy animals from abroad; and in giving evidence before the Select Committee they explained how immunity from imported diseases might be, indeed already is, secured. Their argument, if we rightly understand it, amounts to this:—Prussia interposes a practically impassable barrier to the entrance of cattle from infected countries. Cattle from those countries can only reach England, overland, by crossing the Prussian frontier, which is kept inviolable by the aid of thousands of soldiers if necessary. Prevent, therefore, the importation of seaborne cattle from Russia, or slaughter them at the landing places: you may conclude that all other foreign cattle are healthy, and let them have the run of the country accordingly. This style of argument, however, has not the necessary basis of fact. In spite of all precautions, cattle plague has often crossed the Prussian frontier, and committed considerable havoc in the eastern provinces before it could be "stamped out" even by military aid. We are willing to give Prussian owners of cattle credit for an anxious desire to preserve their extensive herds from destruction; and we do not question the foreign importers' intention to import none but healthy stock. We only doubt their power to ensure these desirable results; indeed, we have our recent experience to prove that the precautions which are adopted on the other side of the water are insufficient to prevent the importation of infectiously diseased animals into our ports; therefore we must depend for security upon our own efforts, and that we are not disposed to ignore or neglect this duty, the attitude of the farming community affords sufficient evidence.

Irrespective of the imperfection of the means which are employed to prevent the passage of cattle from infected countries over the Prussian frontier, there is the further fact of the existence of another route, thanks to the development of the railway system, by which cattle from Bohemia, Moravia, Gallicia, Hungary, and Austria may travel to Antwerp by way of Bavaria and the Palatinate, avoiding the Prussian frontier altogether. It is quite true that this line is not the one ordinarily in use, but circumstances may arise to render it more convenient than the direct course; and we have no doubt of the extent of the power which the foreign trader has already manifested of adapting his proceedings to meet altered conditions. A striking illustration of the action of commercial enterprize under difficulties was afforded by the introduction some time since of a cargo of cattle from the coast of Africa. The animals arrived in a sorry plight, covered with parasites, and only realised, on an average, between 5*l.* and 6*l.* each in the Metropolitan Market. The speculation was a failure, and that circumstance alone decided whether the trade in African cattle should be abandoned or continued. Ample proof has been given that no considerations but those of profit and loss will, in general, limit the growth of commerce.

Admitting the truth of the principle which the foreign traders and the home breeders alike assert, viz., freedom of movement for healthy animals, we must incur the risk of differing from both in our estimate of the best means of carrying the principle into practice, and we accept at once all the consequences of a desperate plunge into the statement that all infectiously-diseased animals and all suspected animals should be rigidly kept from places where they might come in contact with healthy stock. But a discussion of the conclusions to which this principle would lead us must be postponed.

—— At Mark Lane on Monday, with a very small supply of Wheat, the trade was dull and irregular, except for fine dry samples. Barley, Beans, Peas and Oats were cheaper. No further alteration has occurred throughout the week.—— The supply of beasts is small: well fed oxen have risen to 5*s.* 8*d.*, and inferior qualities remain at 3*s.* 4*d.* per stone. Sheep range from 5*s.* 6*d.* to 6*s.* 2*d.* With a supply of 17,970 sheep on Monday, and 4,570 on Thursday, the trade was brisk on the former day, and previous prices were maintained on the latter.—— The excessively wet weather has caused the agricultural seed trade to be in a state of stagnation for home consumption. In America the trade in Clover seeds is firm at high prices.

—— Yesterday afternoon a deputation from the Central Chamber of Agriculture, headed by Lord BRIDPORT, Mr. C. S. READ, and other members of Parliament, waited on the Right Hon. W. E. GLADSTONE, to lay before him the recently adopted resolutions of the Chamber on the injustice of the existing incidence of local taxation.—Mr. READ, M.P., in introducing the deputation, stated that what they desired was the issue of a Royal Commission of Inquiry into the whole subject, this being a better agency than a Committee of the House of Commons, not only because party feeling was excluded, but because the area of selection was larger. Both Houses of Parliament might contribute members to it; and from the legal profession, as well as from the body of practical farmers, selections might be made. The subject of this inquiry they desired to keep entirely separate from other questions, such as those of County Financial Boards and a Ministry of Agriculture, which had been a good deal discussed of late by agriculturists; indeed, the limits within which they desired to keep the subject made it no longer an exclusively agricultural affair. It was a matter affecting town quite as much as county interests.—The Secretary, Mr. J. A. CLARKE, then read the resolution adopted unanimously at a meeting attended by many members of Parliament, and by the deputies of 36 local Chambers. They declared the unequal pressure of the poor-rate to be a subject proper for early inquiry on the part of the Government—that the maintenance of the poor is a national obligation to which everybody should contribute—that, however this be carried out, the principle of local administration should be maintained—and that the Income-tax assessment afforded a probable basis on which the contributions of income to the support of the general burden might be levied.—Mr. RANDELL, of Lincolnshire, in support of the first of these resolutions, declared that at present 2*l.* out of every 3*l.* of the income of the country contribute nothing to the poor-rates—the burden escaped by so many falling the heavier on the few. England no doubt expected every man to do his duty, and England's laws should not enable any man to shirk it.—Mr. HODSON spoke of the liability established by the law of ELIZABETH having originally rested, not on the land, but on the people of the parish, and, moreover, not only poverty, but a dozen other charges clustering around it were borne by the land alone and fixtures on it, while the general population avoid their obligations altogether.—Mr. HODSON also spoke of the special injustice of certain exemptions, such as that of mines, around which large bodies of pauperism often gathered, the maintenance of which rested wholly on the agricultural interest.—Mr. CRAIGIE, of the deputation from Yorkshire, alluded especially to the difficulties put in the way of increasing cottage accommodation by the excessive burden of the rates on house property, as a matter which made the subject one of interest to towns as well as villages, and through the influence of good houses on character, to the whole community. He, too, asked for a Royal Commission of Inquiry, in order that the details might be determined of a method for the maintenance of local administration, for which he contended, while the national obligation of contributing to some central fund was observed.—Mr. DUCKHAM, in speaking of the fourth resolution, said that while the Income-tax assessment was suggested by the Chambers as possibly affording a method by which the central fund could be collected, declared that they did not wish it to be supposed that the Income-tax as at present levied was necessarily the source recommended: and, on inquiry from Mr. GLADSTONE, he said that he thought all incomes above 52*l.* a-year should be made to contribute. At present, thousands of people who are on the very verge of pauperism themselves have to bear the burden of the rates. He referred to the many other burdens now classed along with poor-rates, which they also have to bear. Even foreigners have to be supported if they become destitute. He did not object to the law; it was a glorious law that the relief of the poor should be a first charge on property; all he contended for was, that all property should be made to bear its share.—Mr. GLADSTONE, in reply, thanked the deputation for the considerate way in which the subject had been laid before him. He was anxious to confer at all times with those interested in this great subject. Among the points to which his attention had been drawn and would be directed were the exceptions of certain kinds of fixed property from taxation, and the whole relation of fixed property on the one side to movable and invisible property on the other, in connection with the burden of local taxation. Besides these, there were questions arising between town and country, and between owner and occupier, and, above all, between the three kingdoms—for not a step could be taken in general legislation as to this matter without special difficulties starting up, which hinged on differences in the laws and customs of England, Scotland, and Ireland. The Chambers themselves no doubt desired to approach this difficult subject practically and with patience; they had, indeed, proved this by asking in the first place for inquiry, and he understood that a Commission was desired, not only to inquire, but to recommend a course of action to the Government. He presumed they had well considered the subject, and that they thought that on both these divisions of the subject a specially constituted Commission would have advantages which are not open to the Executive Government through its ordinary channels of action and communication. He promised the most careful consideration of their representations, on the part not only of the Cabinet generally, but of himself and Mr. GOSCHEN, the President of the Poor-Law Board, who was present, and to whom the subject more properly belonged.

—— The Royal Agricultural Society of Denmark has announced its intention of holding a show at Copenhagen, in connection with its centenary anniversary, from July 6 to 11 inclusive. Prizes will be given for:—(1), Breeding stock (including horses, cattle, sheep, pigs, and poultry; (2), Fat stock (cattle, sheep, and pigs); (3), Machines and implements used in agriculture, husbandry, forest culture, hunting, fishing, horticulture, and bee-keeping; (4), Agricultural products, woods, honey, and wax, and products connected with fisheries, also manures, cements, tiles, &c.; and (5), Horticultural productions, including flowers, plants, trees, and both raw and preserved fruits. The prizes are open to the competition of agriculturists and others of all nations. Applications for space for exhibiting machines and implements must be made before April 1; for exhibiting live stock and agricultural products before May 15; and for space in the horticultural show before June 15. All articles for exhibition will be admitted into Denmark free of import duty, unless they remain in the country. Further particulars may be obtained on application at the Danish Consulate-General, 42, Great Tower Street, where samples, models, drawings, and other articles not too bulky, will be received for free transmission.

—— A yearling Shorthorn Bull Show was decided upon last week, by the Council of the Midland Counties Cattle and Poultry Exhibition Association. This show will be held in Bingley Hall, on the 1st of April. In character it will be, the Secretary informs us, similar to the Dublin show. The prizes are to be of a liberal amount, but the list will not be issued officially for a few days.

—— The drought of 1868 having killed much of the young Clover plant, no doubt large quantities of old Clover have been kept over, and the Wheat which should have been taken there has been sown on the bare fallow, where the Turnips failed. The Barley, therefore, which would naturally have been sown after the sheep food, has to be taken elsewhere, and much, no doubt, will be taken on corn stubbles (Wheat or Barley) where the Clover seed has failed. Under these circumstances, Mr. LAWES' advice, founded on an experience of 16 years of repeated Barley growing on the same land must be valuable. He has just published a letter on this subject, from which we take the following extract:—

"It will be readily admitted that there can seldom be any difficulty in getting one essential requisite for Barley, a fine tilth, on a Wheat stubble. With regard to the next requisite manure, extensive experience in the ordinary practice on my own farm, and the results of long continued direct experiments, enable me to say with confidence, that no crop can be more certainly or more profitably grown by means of artificial manures than Barley. Barley has now been grown in one field at Rothamsted for 17 years in succession, and on the plots where suitable manures have been employed there has been not only no falling off in either the quantity or the quality of the produce, but there has been even a considerable increase

in the quantity during the latter half of the period. The summary of results given below will show this so far as quantity is concerned; and in regard to quality it may be stated that in the 13th year the weight per bushel was nearly 57 lb., and in the last, or 17th year, it was in some cases nearly 56 lb. The following is a summary of results on the growth of Barley year after year on the same land—the manure being about 3½ cwt. superphosphate of lime and 1½ cwt. ammonia salts every year:—

AVERAGE ANNUAL PRODUCE PER ACRE.

	First 8 yrs., 1852—1859.	Second 8 yrs., 1860—1867	Sixteen yrs., 1852—1867.
Dressed corn .. bush.	44¼	51¼	48¼
Total straw .. cwt.	28	29	28½

"It is thus seen that although the total corn and straw were removed from the land each year, the use of a mixture of superphosphate of lime and ammonia salts every year gave not only a large produce, but a produce which averaged in corn very considerably, and in straw appreciably, more over the second than over the first eight years of the continuous growth of the crop on the same land. When Barley is grown after another corn crop it should be sown early. If the weather be favourable, the beginning of March is probably the best time. The artificial manure employed should consist of superphosphate of lime with Peruvian guano, or sulphate of ammonia or nitrate of soda in addition. The following quantities per acre are recommended:—I. 2 cwt. superphosphate of lime and 2 cwt. Peruvian guano. II. 2 cwt. superphosphate of lime and 1½ cwt. sulphate of ammonia. III. 3 cwt. superphosphate of lime and 1½ cwt. nitrate of soda. The selection of the one or the other of these mixtures should depend in some degree upon the price of the different manures at the time. The mixture of superphosphate of lime and nitrate of soda is however the most suitable when the Barley is sown late, as that combination induces much more rapid growth than either of the others. The mixture of superphosphate and Peruvian guano, or of superphosphate and sulphate of ammonia, should be sown broadcast and harrowed in when the seed is sown; and, if sown late, the mixture of superphosphate and nitrate of soda may be sown in the same way, otherwise the superphosphate may be sown at the time the seed is put in, and the nitrate top-dressed soon after the plant appears aboveground."

—— We were heartily glad to read the favourable and encouraging review of Mr. JEMMETT'S Farm Account Book* which appeared in the *Times* of Tuesday last. It will, we hope, bring a very useful and elaborate work into notice and into general use. Mr. JEMMETT has now published a Pocket Book adapted to his Farm Account Book. An almanac is slipped in on one of the bands; half a quire of note paper hangs upon another, for memoranda of all kinds; and lastly is the "form" for receiving the daily work of the farm, stitched for four weeks. Each of these parts may be renewed as required, and the "forms" being used the Account Book can be filled in weekly. In the pocket is a copy of the bailiff's weekly return form. We may add that the Pocket Book, with 52 sheets for labour notes, stitched in fours, is sold at 2*s.* 8*d.* per post.

—— No one embracing the opportunities open to him of observing the daily habits of his agricultural labourers and their families can fail of being strongly impressed with their limited knowledge of articles of food, the comparative nutritiveness of them, and the best mode of treating them. Mr. LAWRENCE, of Cirencester, thinking it might be permanently useful to give his labourers such information as he thus saw they needed in print, published a tract some time ago on the subject. He called to his aid his neighbour, Dr. VOELCKER, then of the Royal Agricultural College, who added a few tables, illustrative of composition, in confirmation of the text, thus enabling the better informed to explain to the working man the grounds for the excellent advice which is given to them in the tract. This tract is advertised in another column, and we strongly advise those who are interested in the well-being of agricultural labourers to procure copies for distribution.

—— Mr. MECHI wishes to state that, as he will be frequently at his place of business, 112, Regent Street, he hopes that gentlemen desiring to ask him questions on agriculture will call there, and thus spare him a heavy correspondence.

OUR LIVE STOCK.

—— THE lambing season will be general shortly, and if the present moist weather continues we may anticipate an easy time for the ewes. Yeaning will not fairly commence in the district from which we write (the Cotswold) until towards the end of the month, although in the case of some Down flocks we have heard of the arrival of a considerable number of lambs. Without pretending to teach practical farmers how to manage their breeding ewes, we would point out the advisability of attention to the welfare of the flock during the coming trying season. With reference to ewes, if they are in a sheltered and properly-formed lambing shed, it is an excellent principle to leave them alone as much as possible during labour and parturition. Although they should be closely watched, the less they are handled the better, until the lapse of time or some characteristic symptom convinces the shepherd that all is not right. Any loose wool should be gently removed from the region of the ewe's udder before the young lamb is allowed to suck, as if this is neglected, lambs are apt to swallow portions of wool, which eventually prove fatal to them. When a ewe from any reason is not kindly disposed towards her lamb, we have noticed a contrivance to oblige her to patiently submit while her offspring draws from her its natural nutriment. It consists of two net stakes driven into the ground within a few inches of each other. The refractory mother's head is placed between these two upright bars, the tops of which are then drawn close enough together to imprison her. The stakes are held in this position by means of a band. This simple apparatus is inside a cell or small enclosure devoted to the ewe, and it may be rendered more perfect by placing a third hurdle stake horizontally under the ewe, across her belly, and resting the ends of this stake on a hurdle on either side. This prevents her from lying down upon her lamb, as she otherwise might, to its great peril. Another point which apparently requires clearing up is the condition of the cow's milk with which it is occasionally necessary to supplement the amount yielded by the mother. Mr. Wilson, of Edington Mains, says:—"To give the milk of a recently-calved cow to a young lamb is equivalent to knocking it on the head," and that a farrow cow or one which has calved six months will be the best for the purpose. It is therefore a somewhat strange contradiction to this teaching to be assured, as we have often been by a practical shepherd who has yeaned 600 Southdown ewes for many years, that milk from a new-calved cow is to be preferred to that from a cow old in milk. It will be as well also to remember that puerperal, or milk fever, is considered by many authorities as highly contagious.

Mr. C. H. Dawson's *Grand Duchess 19th*, purchased from Mr. Betts for 700 gs., has given birth to a red bull calf, the colour being broken with a little white. This young animal is by THORNDALE LAD (23,066), a first-rate and thoroughly well-bred bull, also bred at Preston Hall, whose portrait is to be seen in the 16th volume of the Herd Book. *Duchess 19th* is by IMPERIAL OXFORD, own brother to 3D LORD OXFORD, the bull we mentioned in our impression of last week as having been recently slaughtered, and through him she is the grand-daughter of the well-known Bates cow, *Oxford 13th*, which was sold by Mr. Thorne, of Thorndale, United States. Her dam was Mr. S. E. Bolden's *Grand Duchess 9th* by GRAND DUKE 3D, the property of Mr. F. Leney. No pedigree could be better, and we hope this addition to the Weston Hall herd will prove as excellent as many of his famous ancestry.

—— Mr. Willoughby Wood has lately disposed of two young bulls. The first, EARL OF BARRINGTON, has become the property of Mr. J. Hardy, M.P. He was bred by Mr. Sheldon, of Brailes, and was by Colonel Pennant's DUKE OF DARLINGTON (21,586), of Mr. Sainsbury's Darlington tribe. His dam is *Countess of Barrington 2d*, by 9TH DUKE OF OXFORD, a cow whose pedigree shows many first-rate crosses, among which may be mentioned, as immediately preceding that last mentioned, two with Mr. S. E. Bolden's stock, and three excellent Bates' alliances, full of Duchess and Wild Eyes blood, carrying us back to a cow by BELVIDERE (1706). The other bull alluded to is LORD FOPPINGTON, 11 months old, by NORTHERN LIGHT, and bred by Mr. T. Bell, of Brockton House. His dam is *Pink of Fashion*, by CHERRY DUKE 4TH (19,752), g.d. by GENERAL CANROBERT (12,927), of York and Oxford descent, g.g.d. by EARL OF DERBY. This well-bred animal has been sold to Mr. C. Lambert, of Sunk Island, Hull.

—— Captain Oliver's bull, FESTIVAL, rising two years old, has become the property of Mr. T. Harris, of Stony Lane. FESTIVAL is by GRAND DUKE 7TH (19,877), and from *Festoon*, by KIRKLEVINGTON 4TH (14,775), the descendants of a family long bred by Mr. Adkins, of Milcote, and originally in the possession of Sir C. R. Tempest, of Broughton Hall.

—— We have to report a rapid increase of the West Dereham Abbey herd during the last two months. In that period no less than three (and, including a somewhat longer time, four) pairs of twins have been dropped to PRINCE CHRISTIAN, the pure Booth bull, which has for a considerable time been in use in Mr. Aylmer's herd. The register of births is as follows: Dec. 24, *Belle Etoile*, a roan bull calf; Jan. 8, *Phillis 4th*, a white cow calf; Jan. 31, *Easthorpe Strawberry*, twins; Feb. 4, *Windsor Strawberry*, twin cow calves; Feb. 5, *Queen of Gems*, twin bull calves. All the above calves are by PRINCE CHRISTIAN, who took his departure for Ireland a fortnight since, while RAVENSPUR takes his place at West Dereham.

SEWAGE FARMING PROSPECTS.

I WAS, I confess, somewhat surprised to learn from "W. B.'s" remarks lately that I was coming up "slowly in the rear in the march of improvement;" but still I am always open to correction on every subject, and if "W. B." can satisfy me that he has any experience whatever in the use of town sewage, I shall be quite willing to be taught by him, as although not perhaps so old a hand as "W. B.," I have lived long enough to appreciate the ignorance of even the most learned men, and the constant errors which that ignorance leads them into. Witness the confident assertions of Baron Liebig that none of the Craigentinny meadows at Edinburgh were pure sea sand.

"W. B." states that he is a practical farmer of upwards of 20 years' successful experience. This I do not wish to dispute, and all his articles show an intimate acquaintance with the practice and results of ordinary farming; but when he asks us to believe that during those 20 years he has "doctored farmyard manure and sewage," and has grown "heavier crops than have yet been grown at Barking," I confess that, with all possible respect for his own belief and honesty of intention in making the statement, I cannot and do not believe it. The sewage of no town has been used in the careful and scientific way which he talks of for "upwards of 20 years." I challenge him, not only to name the town whose sewage he has thus used, but to name any town in the country whose liquid sewage has been carefully and economically utilised for "upwards of 20 years." I fear he has tumbled into the same mistake as another gentleman, with whom I had a controversy some four or five years ago, but for whom, nevertheless, I entertain a very great and sincere respect, namely, Mr. Alderman Mechi. This gentleman hazarded a great number of positive statements with regard to town sewage, and he honestly believed that he had had a *bonâ fide* experience of sewage, whereas it turned out on examination before a committee of the House of Commons, that he had had no experience in the utilisation of town sewage at all. His experience was limited to the sewage of his own house, which was mixed with and lost in the liquid manure, or as he improperly called it "sewage" of his farmyard, assisted with an occasional dead horse. What the precise manurial or pecuniary value of this brew was, of course no human being can pretend to say, for it was probably never the same on any two occasions. Sometimes it may have been stronger, sometimes weaker than town sewage, but in no case probably was it at all as multifarious, and therefore complete, as the sewage of a large town.

I fear it is pretty evident that "W. B." has fallen into the same error, notwithstanding his belief that he is not an "amateur of the Mechi school." I also fear that, like the vast majority of writers, and the still greater majority of human beings in general, "W. B." is not always strictly logical; for he says, "instead of finding fault with my neighbours' doings either in the field or dairy, my maxim has been to improve my own practice." And then he goes on to translate this excellent maxim into simpler language for the benefit of his more obtuse readers, and he states "in plain English, I consider the Barking practice further behind in the march of improvement that it should be." How this latter sentence can be a translation into plain English of the former, I confess is beyond my capacity to understand; but then, as I said before, I have lived long enough to appreciate my own ignorance.

But "W. B." seems to me to argue in ignorance, not only of my connection with the sewage of London, but also of the price put upon it in relation to its theoretical value, for he states, "thus he (Mr. Hope) is only one party in the agreement at Barking, the other party, the sellers of the sewage, being at least equally interested; and if the sewage is worth say three times the money the latter now receive for it, the time may come when they will tell him that they are more deeply interested financially than he."

I do not know what this means. I buy the sewage that I consume myself from the Metropolis Sewage Company, but the Metropolis Sewage Company is a child of my own creation. It was incorporated by a special Act of Parliament, for which I applied to the Legislature, to take over a concession of the sewage of London for the next 50 years, granted to myself and partner by the Metropolitan Board of Works. Therefore I am not only as much interested in the sale as in the purchase of the sewage, but infinitely more so. The standard price of the Company for the sewage is 1*d.* per ton; the theoretical price fixed by careful analysis is 2.2*d.* per ton, that is to say, fractionally more than twice the price asked by the Company, and not three times as "W. B." imagines. But if its value were 30 times as much as it is now sold for, the total quantity that I am ever likely to purchase would be as nothing in comparison with my interest in that which is sold.

With regard to "W. B.'s" chemical remarks, I will simply state that I have not pretended to base any arguments in favour of the utilisation of the London sewage by surface irrigation in the county of Essex upon any superficial chemical knowledge of my own, but have preferred to rely on the opinions of the best professional men of the day; and perhaps when I enumerate them, not only my readers, but even "W. B." himself, may think that I am as likely to be right in my views on the question of a possible waste of manure by the system I advocate as he is. Among the gentlemen who supported my Bill before Parliament were Professors Way, Voelcker, and Miller, and Drs. Gilbert, Odling, Ogston, and Abel; and for divers very good reasons, which perhaps "W. B." does not see, I am of opinion that Prof. Way's comparison between the grains of musk and sewage was a "sound practical one," and does not "fall to the ground." And with all possible deference to the opinion of "W. B.," I should imagine that the "analysis of a gallon of sewage at one place, and of a gallon at another farther down the sewer at Barking, or at the Maplin Sands," would furnish very "exact and trustworthy evidence," although the sewer is not yet finished, as "W. B." supposes, down to the Maplin Sands.

Why "W. B." should state that my replies to his third and fourth objections to the utilisation of town sewage by surface irrigation "have not a foot to stand upon," because "profits can be increased and expenses reduced in the usual way by progressive chemical and mechanical appliances," I confess I do not understand. He seems to argue against his own objections, and not against my replies. However, as I began so I will end. If "W. B." will quote the name of the town whose sewage he has successfully doctored for "upwards of 20 years," I shall be most happy to learn my business as a sewage-farmer from him; and if, as I believe, it turns out that he never used a drop of genuine town sewage in all his life, I will venture a few further remarks on a future occasion as to the use of town sewage in connection with market gardening. *W. Hope, Parsloes, Barking, February 3.*

P.S. Since writing the above, which was perhaps fortunately delayed in transmission, "W. B." has practically answered the question that I have put: for it is quite plain by his article, headed "The Area of Land required to Utilise Sewage," that his personal experience relates wholly and exclusively to liquid manure carried about in carts. Now, I think any practical farmer will support me when I say that it is impossible to put anything, whether liquid or not, into a cart, and take it any distance, and empty its contents

* Farm Account Book. Edited and arranged by Alexander Jemmett, Murrell Hill Farm, Binfield, Berks. Simpkin, Marshall & Co.

in any manner, and then bring back the cart, for an expenditure of less than 6*d.* in horse keep, wages, and wear and tear. The total theoretical value of London sewage (which is, as I have said before, stronger and better than any other sewage) being a little over 2*d.* a ton, "W. B." therefore proposes to spend 8*d.* in order to obtain 2*d.* I am not, therefore, inclined, in this branch of farming, to admit, either that "W. B." leads the van, or that I bring up the rear.

MR. MECHI'S BALANCE-SHEET.

[Mr. Mechi's reply to "T. B. S." will be found among our Home Correspondence.]

PERHAPS "A Farmer" in last week's *Agricultural Gazette* will look over his figures again. He says, "34*s.* per acre does not appear an over-high rent when we see a fixed steam-engine, irrigation pumps, millstones, and threshing-machine included, and draining all done." Does he allow the 45*l.* charged in balance-sheet for rent of chapel land?—if not, that would bring the rent of the farm, without the private dwelling and 3 acres of land, to 39*s.* 10*s.* Mr. Mechi does not, in the accounts, tell us what he pays his bailiff; but I suppose he (the bailiff) does just such work as the majority of farmers would do, that is, looking after the work in general, lending a hand now and then when required, marketing, &c. Let us accept for the instant "A Farmer's" figures, with the above correction, adding the 45*l.*, debited in balance-sheet for rent of chapel lands, to the gross profit, bringing that sum up to—

House building, machinery, and 174 acres land ..	£570	13	6
Rent, exclusive of tithes, at 39*s.* 9½*d.* ..	£346	0	0
Interest on 2858*l.*, at 5 per cent... ..	142	18	0
Balance, or Farmer Mechi for his work	81	15	6
	£570	13	6

Now, the ordinary farmer will save the bailiff's wages. Perhaps "A Farmer" will oblige by adding the amount for me, as I have never employed one, and strike the account. The second portion of his letter gives the income of his carter (will the daily papers copy it?); it is not plain enough; let him oblige us with a little more "detail," the "nightmare" of the farming community. "Now compare," says he, "a farmer's position, with a balance of 81*l.* 15*s.* 6*d.* for his year's work (with, say, a wife and four children), with this man," that is, his carter. I will pluck up courage, and try:—

The father and two sons, 17 and 14 years of age, earn	£95	16	0
The earnings of wife and daughter are set at ..	6	10	0
Observe, five out of a family of six earn ..	£102	6	0
—"with no care about anything."			
Then "Farmer Jones" gets for his year's work, as shown above	£81	15	6
"Farmer Jones" does his own work—not requiring bailiff, will save somewhere about	60	0	0
Interest of his money, which has, as per above account, made 5 per cent. after paying a rent of 39*s.* 9½*d.*	142	18	0
	£284	13	6

This would, "errors excepted," show that a farmer with 2858*l.* capital, on a 174-acre holding, would make a profit on tenant's capital of 10 per cent., looking after his own work. His "wife and four children" I will not allude to; let each estimate the assistance he receives from wife and a son of 17 years according to his own ideas. "A Farmer" will excuse my adverting to a correspondent on the same subject and on the same page—Mr. F. W. Bignell. He has made the same error as to rent, but in his communication he writes of "arrogance," "common honesty," "monopolising common sense and business knowledge," so that I fear he will "bristle up," if I say he is in error; but, if he will just keep his assurance within bounds, and condescend to tell me the value of "Tiptree" lands, with the farmhouse and buildings as they stand, we shall get at the root of the matter. "A Farmer" remarks, "34*s.* does not appear to me over-high rent;" at the same time W. F. Bignell says the land on Mr. Mechi's farm is naturally well calculated for Wheat; if so, 34*s.*, or, as I have shown, 39*s.* 10*d.*, is not a proportionate rent for good Wheat land—engine, drainage, covered yards, mill, threshing-machine, irrigation pumps, &c., included. A satisfactory and impartial answer to this will go more to show the system of farming Mr. Mechi advocates in its proper light, than cavilling at Mr. Mechi's writings. *Another Farmer.*

Until F. W. Bignell's letter in the *Agricultural Gazette* of the 30th ult., I was not aware that the unalterable laws of the Medes and Persians were applicable to farming, for it appears the worthy owner of Tiptree has committed the unpardonable offence of "improper farming." He took a fancy to grow some white Peas, such as grown by market gardeners, to be picked green for table use, thereby getting on the land sooner, for a second crop, white Turnips—a crop appreciated by feeders of sheep. Had the ordinary farm Pea been grown, he would not have perhaps been called "over the coals." It is childish to write about grinding; had I employment for my mill, either for myself or neighbour, it should work night and day. Horse hire is offensive to him, heedless of your horses being idle or not; but hay and straw! here again our worthy friend Mr. Mechi has gone sadly out of the way. He has touched the "forbidden fruit," "it is forbidden to the greater portion of the tenant-farmers of England:" that this is so we cannot deny, but there are few landlords of ordinary understanding who would put this in force with a "good farmer." But let me ask F. W. Bignell what he would advise in the following case. Farming well, hay accumulates, also straw. It would be most wasteful, I am sure he will say, to use Wheat-straw to litter our yards when it is selling readily around me from 34*s.* to 44*s.* per load of 36 trusses of 36 lb. Will he refresh my memory as to the relative value of Barley, Oats, and other feeding stuffs when Wheat was at 4*s.* 6*d.* to 5*s.* per bushel? The natural adaptability of the soil of Tiptree for Wheat being referred to, perhaps he will kindly give me an idea of the rent of such land in that neighbourhood, with the usual farm buildings only, minus covered yards, engine, pumps, &c. *Tenant Farmer.*

"T. B. S." thinks he has hit Mr. Mechi a knock-down blow; but he is evidently not a book-keeper. He suspects Mr. Mechi of overvaluing his crops and his stock, and thereby showing a fictitious profit. If Mr. Mechi had only given one year's account such a suspicion might hold, but when he gives us four succeeding years it falls to the ground. Supposing he overvalued his stock the first year, it would swell that year's profit, but unless the overvalue was continued the following year, it would show up as a loss; and even if continued the following year it would not go to show an increase of profit, unless the overvalue was greater the second year than the first year. For instance, if he overvalued 500*l.* the first year, it would undoubtedly increase that year's profit, but if the following year he valued truly, then the second year's profit would be decreased 500*l.*; and, in order to prevent the decrease, he must continue the overvalue of 500*l.*: and if, again, he wished to increase the apparent profit the second year he must go beyond that figure, and put in, say, 1000*l.*, in order to show a profit of 500*l.*, and so on in the third and the fourth years. Now, Mr. Mechi shows profits in four years of 498*l.*, 528*l.*, 728*l.*, and 527*l.* or, say, in all, 2281*l.* If then these profits were made up, as "T. B. S." insinuates, by an overvalue of stocks in hand, then his stocks in hand at 31st December, 1868, must be 2281*l.* overvalued; which is quite impossible, for the total stocks in hand are only valued at 2858*l.* in 1868, and they were 2165*l.* in 1865, four years before. I think that "T. B. S." owes Mr. Mechi an apology. *G. A. H.*

Mr. Mechi has written a letter chiefly of generalisations. In this he is wise, as, unless his figures and statements represent facts, it were far better that they should be withheld. He tells us that he disclaims to be an agricultural teacher. Now, Sir, I appeal to you and your readers, whether that gentleman has not in almost every article he has published for years been constantly reiterating what "I," "I" am doing, and what everybody else ought to do. If this is not teaching or preaching, perhaps he will kindly tell us what it is. Mr. Mechi says he is much amused by the various styles of admonition and censure bestowed on him and his balance-sheets. I neither admonish nor censure him, nor am I displeased with his practice; at the same time, if he parades his private affairs before the public he challenges criticism. I have carefully examined his balance-sheets over and over again, and I have no faith either in his system or his figures. My own balance-sheet I am not prepared to show, for the sufficient reason that I keep only a debtor and creditor account of purchases and sales in a memorandum book. I am quite satisfied if I can see enough about me in stock and crop, and can keep clear of the sweating-room at the bank, without an elaborate system of accounts. Mr. Mechi does not among his other accounts favour us with a cash account. Why? I stated above that his letter only dealt in generalisations. He does, however, hazard one assertion. He says that the average yield of each acre in the United Kingdom is only a trifle over 3*l.* annually. I challenge him to prove the truth of his allegation, calculated on the same principle, of course, as he adopts in the case of his own farm. I also ask him to be good enough to explain how he makes the tillages, over the whole of his farm, worth 3*l.* 15*s.* 6*d.* per acre. When I wrote my first letter I stated that it was only in consequence of the effect which Mr. Mechi's writings and figures were calculated to have in misleading landlords, and inducing them to think that their own estates were only half farmed. I can truly say that in some cases they have done so. Let me tell him that it is confidence more than capital that is required by the farmers of England. I know men who have farmed quite as liberally and with more judgment than he has shown, where the improved rent has gone, not into their pockets, but into those of their landlords. Mr. Mechi is, owing to being his own landlord, free from this drawback. If he is really anxious to develop more and more the spirit of agricultural enterprise, he would do it more effectively by dinning it into the ears of the landowners that leases ought to prevail, or some system of tenant-right be devised, to protect the interest of the tenant-farmers who are plucky enough to risk their capital in the improvement of other men's property, subject at any time to a six months' notice to quit. If, instead of showing us how fast he gets money, he will do this, he will do something toward improving the soil of England, putting more money into the farmer's pockets, and a bigger loaf into the working man's cupboard. *F. W. Bignell.*

AGRICULTURE AND RAILWAYS.

[An extract from a paper on the Future Extension of the Railway System, read before the Institution of Surveyors, by J. Bailey Denton, Member.]

EARNESTLY as I advocate the internal improvement of landed estates, I may at once state that, in a commercial sense, I consider there is no improvement so economical to the landowner as that which railways secure. Whether we regard them as a means of raising the rental or income from cultivated land or woodland, or from minerals, upon which the fee simple value may be calculated by pure arithmetic, or view them as a means of enhancing the residential enjoyment, or developing the capabilities of estates, the return from which is neither so positive nor simple, it cannot be denied that the selling value of rural property, when brought within the full influence of railway communication, is raised at least 10 per cent. above what it was in its former state, supposing all other things to be equal; and viewing this rise in connection with the means by which it has been hitherto obtained, the advantage stands in bold relief above all other estate improvements. . . . . Authorities in the country have, however, always qualified their opinions by explanations pointing to the differences which necessarily regulate results.

Mr. Trist, of the firm of Norton, Trist & Co., states that—

"Residential estates, for instance, brought by railway facilities within easy access of the metropolis, or other large cities and important manufacturing towns, may be increased in value probably 20 per cent.; in agricultural estates, taken simply as investments, an increase of from 5 to 10 per cent. in value would be nearer the mark; whilst in speculative properties in favoured districts, with building capabilities, the advantages are almost incalculable, and in numerous instances they could be proved to have been increased in value at least 50 per cent., and at times to have been more than doubled in value by the close proximity of a railway station."

Mr. Oakley, of the firm of Daniel Smith, Son & Oakley, writes that—

"There are two elements to be considered in agricultural districts, viz., the increase in the annual rental value, and also the increase in the selling value, in years' purchase, of the whole. I think 5 per cent. increase in rent value a moderate estimate, and two years' purchase in selling value, which together would produce an increase of three-and-a-half years' purchase, or 13 per cent. In my opinion 10 per cent. may be taken as a moderate estimate of the difference in value of agricultural estates when they have good railway facilities and when they have none. In residential estates, and in suburban districts, the increase in value is much larger; in many cases it may range from 25 to 50 per cent."

Mr. Driver, after pointing out the different influences which regulate improved value, says:—

"Taking one property with another, I should say that the years' purchase of estates generally where served by railways has increased to the extent of certainly three years, and which is in some instances independent of the possibly increased rental value also given by the railway accommodation. This is my general experience, but there are special cases, within my knowledge, where farms have increased in renting value at least 25 per cent. by the facilities given for transit. Where the property is residential it has not only given the same result but it has been the means of enabling the owner to realise for the mansion a large sum in addition; in some instances quite equal to two years' purchase on a large estate."

Mr. F. J. Clark, of the firm of Farebrother, Clark & Co., says that—

"In an agricultural point of view the farms in the immediate vicinity of railway stations are no doubt increased in both rental and fee-simple value, arising from the facilities of exporting produce and importing manures, in rental from 2*s.* 6*d.* to 5*s.* per acre, and in fee-simple about three years' purchase. In a residential point of view the increase in the value of the land possessing railway accommodation is far more enhanced, though it is extremely difficult to say to what extent; but this is certain, that the chances of realising an estate with, as against one without, are, in my experience, as about three to one."

The late Mr. Chinnock, in a letter to me written just before his death, speaking in the name of his firm, said that—

"Residential properties on direct main lines of railway, within easy access, are, in my opinion, raised in value fully five or six years' purchase; and purely agricultural estates two, three, or even four years' purchase, according to the accommodation afforded. It is not often that this increase is realised directly by selling estates, but it is so indirectly by first increasing the rental and ultimately the capital value."

Mr. William J. Beadel, of Gresham Street, says:—

"With respect to agricultural properties, if railway accommodation can be supplied so as to bring them within easy reach of manufacturing towns, or towns of large magnitude, their value is unquestionably increased, but, I think, more in annual value than in the number of years' purchase. The difference in value reduced to years' purchase would apply to the residential and not to the purely agricultural properties. That railways confer more or less value upon all districts through which they pass cannot be disputed, and that it is to the interest of the landowner to promote facilities of railway accommodation cannot be doubted."

Mr. Vigers, of Old Jewry, states that—

"Railway accommodation is a primary consideration with all purchasers of estates, and also with occupiers; but the difference between an estate well served by railway and one deficient in railway accommodation is shown in the rental value, not in the number of years' purchase."

Mr. Jeremiah Mathews, of Birmingham, writes that—

"In the southern and midland counties of England the letting value is increased to an extent equal to two years purchase upon the original selling value, and that very generally. In Wales, however, and that in almost every county north and south, the increase, so far as I am able to form a practical judgment, cannot be measured at less than five years' purchase, combining the improved value to let and the additional number of years' purchase to sell. So far, I am speaking of purely agricultural land. As regards mineral property, it is quite impossible to form any adequate notion of the increase in value by improved transit. It can indeed scarcely be said that railways have increased the value, for, in truth, they have created it."

Mr. Sturge, of Bristol, says:—

"Other things being equal, I have no doubt that the difference in market value of estates, with and without railway accommodation, is at least two years' purchase."

Mr. Drew, of Exeter, writes:—

"I might, however, state generally that, according to different circumstances, from 5 to 20 per cent. may be calculated as the increase in the renting value, and from two to five years' purchase in the selling value, by the advantages of railway accommodation. In districts well situated for railway accommodation, I have no difficulty in letting farms to good tenants at very good rents, or in selling land at from 28 to 32 years' purchase. I, of course, refer to agricultural property; but in the badly situated districts, my choice of good tenants is much limited, and the rent obtainable is likewise low in proportion, and from 23 to 26 years' purchase the most that can be obtained in selling; whilst, in many instances, if a sale has to be forced, 20 years' purchase is more likely to be got, if you can sell at all."

Many other authorities, including several of the members of this Institution, have kindly supplied me with corroborative evidence, showing that the improvement which landowners gain from railways, in one way

or another, varies from 5 to 20 per cent., or from one and a half to six years' purchase, according to the proximity of station and the character and amount of accommodation afforded.

It is difficult to say how the increased realisable value arise; whether from an advanced rental upon which the fee-simple value can be calculated, by the number of years' purchase which rules or has been recognised in different districts, or whether, the rental being advanced, the number of years' purchase which the estate will command in the market is increased also, or whether, as in some residential cases, the number of years' purchase is increased without any advance of rent whatever. Let it arise, however, from what cause it may, I think we are justified in concluding that 10 per cent., or three years' purchase, on an average, represents the increased value of rural estates where they fully command railway accommodation.

It is no figure of speech to say that railways, where they exist, have been brought to the very door of the landowner, and the increased value stated to be the result conferred, without any contribution on his part, and wherever any considerable property has been crossed or any part of it taken for a railway, the lucky owner has not only gained all the benefits which that undertaking has secured to himself and his neighbours while receiving payment for the land taken from him, but he has received, in addition, compensation for compulsory sale and for the severance of that which remains, without suffering any equivalent reduction in renting or selling value. Thus the railways have not only conferred a benefit which is enjoyed by such owners in common with others, but the companies have actually, and in many cases most extravagantly, paid the recipients for the privilege of conferring it upon them; and until the tide of adversity set in, this condition of things may be said to have been the rule and not the exception.

No estate improvements with which I am acquainted can be compared to this; for if a landowner desires to drain his wet lands, or to make estate roads, or to build farmhouses, or to supply homes for the labourers upon his estate, he can do neither one nor the other without an outlay of capital varying from 5*l.* to 10*l.* an acre, and sometimes more, the ordinary return for which, at 4 or 5 per cent. interest, he has, in many instances, a difficulty in recovering from his tenants. The intelligence of the country, speaking through the Legislature, determined, as you aware, that the cost of such improvements might be borrowed by owners under disability, and charged upon the improved land, if repaid within a given number of years, by an annual charge of from 6 to 7 per cent.; and it is within the cognisance of many land agents present that proprietors of estates who have thus borrowed money and undertaken to repay the amount by instalments, have, in some instances—I refer to cottages—been obliged to take upon themselves a part of the annual payment, whereby they have suffered a loss of income instead of enjoying a gain. How different is this state of things to that where a railway, by affording accommodation to the owner and tenants of an estate, raises its renting and selling value without payment of any kind, or to those cases where land is taken for the undertaking, whereby the owner gains compensation, from which he derives an increased income over and above the advantage his neighbours gain? Leaving out of consideration building and suburban lands, of which the value has been frequently doubled and trebled, and mineral properties, the true capabilities of which railways have in many cases developed for the first time, and reverting to the value of agricultural land, with which we have now most to do, it may be stated that from 1*s.* an acre where the accommodation afforded by railways has been only partial, to 4*s.* an acre where the means of transporting produce, obtaining manure, and affording personal conveniences have been perfect, represents the limits of the farmer's benefit; and it was to secure this gain, with other advantages, to estates not yet accommodated by railways, that the Legislature, by the "Improvement of Land Act, 1864," enabled landowners under disability or otherwise, with the sanction of the Inclosure Commissioners, to subscribe to railways and to charge their estates with the amounts subscribed, and by that Act the several land improvement companies were empowered, for the first time, to advance the amount and pay it over to the railway company authorised to receive it. (See 78th and following sections of 27 & 28 Vict., cap. 114.) Up to this time the powers thus given have not become generally known. Still it will be to the full recognition of the principles upon which these provisions were based, that we must look to the extension of railways in agricultural districts; in fact, railways must be recognised as estate improvements if they are to be extended at all in future, now that all the principal towns have been brought into communication with each other, and rural districts only remain to be provided for.

To appreciate, however, the full benefit which railways confer upon agriculturists, we must have reference to Mr. Fonblanque's recent agricultural statistics, published by the Board of Trade, by which it appears that the total number of live stock in England and Wales was, in the year 1867, as follows:—Cattle, 4,013,564; sheep, 22,025,498; pigs, 2,778,672. By comparing these figures with those given in the returns furnished by the railway companies to the Board of Trade of the same year (1867), representing the number of live stock that travelled by railways in England and Wales, we find the following results, which would almost lead us to question the accuracy of the figures I quote. First, it appears that the total number of neat cattle that, in spite of the restrictive influence of the cattle disease, travelled by railway was 2,310,368, which is equal to more than half the total quantity possessed by the farmers of England and Wales; second, that of sheep, 7,171,412 travelled, which is equal to one-third of the whole number of sheep they possessed; and, third, that of pigs, there were 1,389,582, which is as nearly as possible equal to half the number that belonged to the farmers when the returns were made to the Board of Trade.

Of course it should be understood, that in these railway returns are included all the animals imported from foreign countries, as well as the native stock which move from one part of the country to the other, and sometimes make two or three movements in a year. It would further serve to convey a true idea of the value of railways to agriculture, if the quantities of milk, Potatos, vegetables, corn, and malt brought into the metropolis, before they are dispersed or sent out again, were shown; and perhaps this could not be better done than in the words of a writer in the "Quarterly Review," in the October (1868) number of which there appeared one of the most able and interesting articles yet written on our railway system.

"The Great Eastern exceeds all others in the quantity of live cattle which it brings into the London markets. During the 12 months ending the 30th June last, it brought 300,000 sheep from Eastern counties, 9145 from Antwerp, and 35,970 from Rotterdam; 61,452 beasts; 41,900 pigs, of which 9020 were from Rotterdam; and 3276 calves. The same line brought, during the same period, 610,330 sacks of flour, 266,740 quarters of Wheat and other cereals, and 620,551 quarters of malt, besides 38,729 tons of beer. Of Potatos it brought to London 21,531 tons, besides immense quantities of poultry, fruit, and vegetables.

"All the other metropolitan lines add more or less to the food supply of London. In 1867, the total number of live beasts brought by railway was 172,300, and 1,147,609 sheep. Besides these, the dead meat brought by the same lines was equivalent to 112,000 more cattle, and 1,267,000 more sheep—a legion of live stock which, ranged in close columns of 12 deep, would extend from London to beyond Aberdeen. Of Wheat and other cereals, the same railways brought to London, in 1867, half a million quarters, besides a million and a quarter sacks of flour and 771,034 sacks of malt.

"Of milk, the railway companies delivered 6,309,000 gallons; of Potatos, fruit, and vegetables, more than 155,000 tons, the Great Northern Company alone bringing 78,505 tons of Potatos, principally from the east of Scotland!"

I regret to be obliged to admit my inability to give any figures showing the traffic in several items of estate economy, which would display the utility of railways to the owners of land in nearly as great a degree as that afforded by the transport of human food. I refer to the carriage of minerals and timber, which are not purely agricultural, as well as to artificial foods for cattle, seeds, manures, and implements, which are so. These are included in the railway returns with minerals and general merchandise of all sorts, so as not to admit of dissection. The information, if it could be collected, would be extremely interesting, particularly with regard to the transport of machinery for steam cultivation, which, without railways, could never have advanced in use so rapidly as it has done, and which will be the means of altering and enhancing the character of those lands which hitherto have taken the lowest place, but which are destined to become the best Wheat-growing lands in the country. I refer to the heavy clay lands. But, perhaps, the beneficial influence of railways in connection with agriculture has not been more signally proved, than by diverting, from water and valleys to steam and high grounds, those milling trades which had been peculiar to rivers, and which were the cause of so much injury to fertile valley land. Up to the introduction of railways the most valuable land was sacrificed to mills, on the plea that water-power was inexpensive, and the value of land was small compared to the advantage derived from motive power gained by the use of upheld water. Railways have changed this view, and, although the value of water-power, as a constant and natural one, must not be disregarded, it is equally certain that this abuse of rivers must be modified if it be not discontinued where the sacrifice of valuable land is the consequence.

As a set-off to these advantages from railways we often hear of the loss of land to agriculturists, which results from the absorption of the quantity taken up by them. According to the most recent returns, the number of acres already purchased by railway companies for authorised lines open and not yet open, in England and Wales, is 121,120 acres and 37 poles. This quantity does not, however, include all the lands in the country which railways have absorbed, but only those of which the directors have made returns to the Government. The omissions form but a very small proportion. It is probable, therefore, that the total acreage in England and Wales, when the omissions are supplied, may reach 130,000 acres. This quantity includes the land in towns and suburbs. It would not be far wrong to assume that 100,000 acres have been absorbed by the railways made and making, through rural districts alone. Now, if we compare these 100,000 acres with the waste of land which exists all over the country we shall see how insignificant it is. It is not many years since it was the practice with surveyors to allow 1 acre in 16 as a loss in cultivated farms of average condition, arising from waste in hedgerows, farm roads, balks, &c., and what we now consider slovenly farming. This loss, however, is now yearly becoming less, and may average 1 acre in 20, instead of 1 in 16.

The total quantity of land under crops, bare fallow, and Grass, in 1867, was, according to Mr. Fonblanque:—In England, 22,932,356; in Wales, 2,415,139; making a total of 25,347,495 acres.

Now, if one-twentieth part of this quantity, which is 1,267,375 acres, is still wasted, or lost to cultivation, it follows that there is 12½ times the space occupied by railways, a great part of which it is within the power of the farmer to recover and make productive, though, at the present moment, it is producing nothing. Thus the agriculturists of England and Wales have only to save from waste less than two-fifths of an acre in every 100 acres they occupy, to make up the quantity which railways, so essential to the commerce and comfort of our common country, have taken from them.

Having disposed of this drawback, there can remain but one general acknowledgment of the vast benefits which railways have conferred upon all branches of industry; yet, in spite of this, there seems to have been no limit to the demands which have been made upon railway shareholders, whereby the amount of money actually applicable to works has been reduced to a minimum.

[Mr. Denton proceeded, after this introduction, which has been somewhat abridged, to trace the causes of the present stagnant condition of railway enterprise.]

THE HEREFORD BREED OF CATTLE.

[The following is the remainder of Mr. Duckham's lecture:—]

The General Management of the Herd will greatly depend upon situation and climate, and also whether the practice pursued is for dairy or for meat. The necessity of cows in calf being treated gently by those in charge of them should be strictly enjoined, and, on no account should dogs be used in driving them. I fear much evil frequently arises in this way, as a nervous excitement is created at a period when quietude is essentially requisite to ensure success. As regards the milking properties of cows, I believe they can be greatly improved or lessened according to management, at the same time my opinion is that an animal yielding an excessive quantity of milk does so at the sacrifice of flesh. To obtain a race or breed of cattle that will give a fair amount of milk, and when put up to feed will rapidly lay on fat, must ever form a subject for the grave consideration of the English farmer. I have frequently heard a stigma cast upon the Herefords that they are bad milkers, that "they do not yield sufficient to rear their own calves." But I have yet to learn that this is more generally the case with the Hereford cows than with those of other breeds where early maturity, flesh, and aptitude to fatten have been the sole objects in view for several generations; and as I have often heard the same stigma cast upon the "Improved Shorthorns" and the "Devons," it goes far to confirm my opinion, viz., that the milking properties of cows can be greatly improved or lessened according to management; thus it is that, where the breeder's attention has been wholly turned to the production of flesh, to the utter disregard of milk, he has succeeded at the sacrifice of the latter. On the milking properties of the Herefords, Mr. James, of Mappowder, Blandford, Dorset, has written me that his herd of Herefords has been established 30 years; that Hereford dairies are becoming very general in that county, and adds, "In proof that they are good for milk with us I let 100 cows to dairy people, and if I buy one of any other breed to fill up a deficiency the dairymen always grumble, and would rather have one of my own bred heifers." Mr. Olver, Penhallow, Cornwall, says:—"Hereford cows are generally said to be bad milkers. That is contrary to my experience, and I feel persuaded that when such is the case it does not arise from any constitutional defect, but rather from mismanagement in rearing or a deficiency of the constituents essential to the production of milk in their food;" and adds: "My cow, *Patience*, bred by Mr. J. Y. Cooke, Moreton House, Hereford, has yielded 14 lb. of butter per week, and *Blossom*, bred by the late Mr. Longmore, Buckton, Salop, gave 22 quarts of milk, yielding 2½ lb. of butter per day." As regards the hand rearing of calves, Mr. James says:—"My system is to let the cows at so much per year to a dairyman, finding him in land and making the hay; the calves being reared by hand with skim-milk and linseed-tea until three months old, when I take to them, and allow a quarter's rent of the cow for the calf at that age, they are then turned into the pasture;" and that gentleman assured me that the beautiful pair of yearling heifers, winners of a 1st prize at the Hereford meeting of the Bath and West of England Society in 1865, were reared in this manner; so was Mr. Read's *Theora*, winner of a 1st prize at Battersea; and my bull COMMODORE (2472), winner of two 1st Royal and numerous other 1st prizes, was hand-reared after a week old in consequence of his dam having taken foot-and-mouth disease; therefore it by no means follows that the hand-rearing of calves cannot be successfully carried out and early maturity obtained. But there is a great amount of care and attention requisite in carrying out the system, and, unless both are bestowed, great losses will inevitably follow from scour, husk, blackleg, &c., and the growth of the animals will be greatly retarded. Where the calves are hand-reared, some advocate their immediate removal from their dams. That is, I think, a cruel system, and in many other respects wrong. In the first place, the medicinal properties of the milk, and the rough action of the cow's tongue, are each as beneficial to the health of the calf as the medicinal nature of the fluid with which the calf is invested is to its dam. After removal, the calf should have a supply of pure, warm new milk three times per diem, commencing at 4 quarts per diem, and increasing the quantity with its age up to 7 quarts; when too long a period is allowed to elapse between its meals, the food is taken too eagerly, and consequently it passes undigested, and thus scour is promoted. At the end of the month the new milk may be reduced in quantity, and skim-milk substituted, and with increasing size the further substitute of a mucilage of Irish Moss. Two pints of linseed-meal and one of Wheat flour, boiled in 5 quarts of water, and then mixed with the mucilage, will be found a valuable feed. I have seen much evil arise from an excessive quantity of skim-milk being given at a time and at irregular intervals. Those tender animals, when hand-reared, require a small quantity of food at a meal and often, and to be kept with clean, warm beds, plenty of light, and ventilation. Classification of cattle according to age and sex is highly desirable, both in the pastures and the foldyard.

As a rule, I think, a cow having had three calves

should be turned off to feed, inasmuch as each year she is kept beyond that period she will become of less value in the eyes of the grazier and butcher, and, as we may fairly calculate upon an average number of each sex being produced, there would be one-third of the heifers to draft annually to be fed with them; for howsoever skilfully they may be bred, and howsoever correct the law of breeding may be that like begets like, yet it rarely happens that there are not some in a rear inferior to others. When turned to grass in spring I send them out full of food, and prefer a rather scanty herbage for a few days, and only allow them to be out for a short period for the first day, increasing the time daily. By this precautionary measure I escape any sickness arising from overfeeding or disarrangement of the body from too sudden a change of diet. The calves intended for steers should be made so from six to eight weeks old, and howsoever they may be reared, the object in view with them should never be lost sight of, *i.e.*, they should be kept in a good thriving condition and never allowed to sink in flesh, as they will lose more in one week under bad treatment than they will regain in two; therefore, should a scarcity of food at any time arise, oilcake should be resorted to as a substitute. A little cake given them early in the morning upon the pastures will be well bestowed alike for the improvement of the animal and the herbage of the succeeding year. The removal of the herd from the pastures by night should not be too long delayed in the autumn, particularly in low damp situations where the early hoarfrosts are liable to create abortion with the cows, and quarter evil with the calves. They will all appreciate the comfort of a dry lair during the night and dry food in the morning, even it be simply Wheat straw to pick over. Rock-salt should be freely supplied to the whole of the herd, wherever they may be situated, whether in the pastures, the foldyards, or feeding stalls; and a supply of clay or charcoal in the mangers will not be without its use as an anti-acid. That successful breeder and feeder of polled Angus cattle, Mr. McCombie, of Tillyfour, Aberdeenshire, has told me that his practice is to allow the calves to run with their dams from six to ten months (he does not hand-rear any); that when his cattle have not a full bite of Grass he gives the feeding animals oilcake on the pastures, and he always gives his calves from 1½ lb. to 2½ lb. per day of oilcake during their first winter; that he draws a strong cord through the dewlap as a preventive for blackleg, and under that treatment he has never lost any from that fatal complaint. He generally gives his feeding animals about 4 lb. of cake and the same of crushed Oats or Barley per diem during the last six or eight weeks; and adds—

"I most distinctly consider that all cattle intended to be reared, more especially calves, ought to be kept in open yards, with plenty of shelter to protect them from the inclemency of the weather, and plenty of dry litter. No doubt whatever their confinement is against all natural laws, and must be very prejudicial to the constitution. Cattle that have been confined in the stalls or enclosed yards lose condition at Grass for at least two months, whilst those from the open yards improve the very day they are put out. What more proof is required?'

Mr. Lumsden, of Auchrey House, Aberdeenshire, whose herd I had the pleasure of seeing a few years ago when his feeding cattle were eating oat-straw and Turnips, informed me that he adopted a similar practice to Mr. McCombie, *i.e.*, in giving his young cattle oilcake, but he does not use the seton in dewlap, and that he commences a month earlier with the cake, &c.; that he usually fed out his Hereford steers for the London market at two years to two years and three months old, varying from 9 to 10 cwt. each; he does not give them any hay. Upon this point I can only say I wish the oat-straw and Turnips in my part of the kingdom would produce a similar result. In Scotland the Oats are cut in a much greener state that we cut them, and placed in small ricks they are not harvested so long. These facts I think have something to do with the nutritive properties of the straw.

General Health.—When a dryness of the hair over the shoulders and withers is displayed, I consider it indicates an inactivity of the liver, and a little medicine is sure to be attended with a good result. My remedy is 8 oz. of Epsom salts, 3 oz. sulphur, ½ oz. nitre, ¼ oz. ginger, in 2 quarts of warm water, given in the morning upon an empty stomach. A few days subsequently, 2 oz. of common salt, 2 oz. sulphur, 1 oz. gentian, 1 oz. aniseed, and some Fenugreek mixed with the food. These remedies have at all times had the desired effect, and the little expense and trouble are amply repaid in the proper digestion and assimilation of food—to say nothing of their escaping an attack of yellows, or, in other words, yellow jaundice, which is too apt to follow neglect in this respect. Of epidemics, I am thankful to say, I have had very little experience; but after the Royal Agricultural Society of England's meeting at Battersea, foot-and-mouth disease raged throughout my county, and about a third of mine sickened. I immediately removed the healthy from the unhealthy, and administered the above drench, and no more fell ill. Upon the breaking out of that direful malady, the cattle plague, in the country, from the belief that prevention is better than cure, and also feeling that the better the state of the blood the greater chance of saving animals attacked, I gave the same drench, and occasionally gave the powders. I cannot leave the question of health of the herd without making some remarks upon the subject of water, as it is, I believe, highly essential that an ample supply of pure water should be at the command of every animal. But how rarely is this the case at the buildings and yards in which they are kept during winter? Rather is it not too generally the case that a pond on a lower elevation than the yards, receiving the wash from the unspouted buildings, after passing through the manure, forms the only supply? To that reservoir of "brown stout" they are usually driven twice a day, where, after several hours of thirst, they frequently drink an excessive quantity, which is demonstrated by the staring coat, the arched back, and shivering state of the animal. Such liquid can scarcely be considered healthy for the animals compelled to drink it; and, beyond any question, it forms a most fruitful source of typhoid, not only to those who live near and are engaged at the homesteads where it is situated, but also to those who pass near it.

The food for fattening stock should, I think, be occasionally changed. My system is an allowance of best quality linseed-cake, from 2 to 4 lb., given the first thing in the morning. This is followed by three feeds during the day of hay, chaff, meal, and pulped roots, and a little hay in the rack at night. It will be observed I do not give the excessive quantities of cake we have sometimes heard of, as my belief is that no animal can derive the full amount of benefit it is calculated to produce when supplied beyond the assimilating powers of the animal, and that, therefore, when extremes are resorted to, much valuable matter passes into the manure, which, I think, should be turned to a better account. I like to reduce all corn to a fine meal, and mix it with the chaff and pulped roots some 12 hours before using, when a slight saccharine fermentation will take place. Under this arrangement I consider the digestive organs of the animal will derive the full benefit of the food it partakes of. At the same time I am of opinion that an occasional change of the kinds of corn and also the manner of giving the roots will be attended with advantage. That animals, like ourselves, are fond of a change may readily be conceived by the eager manner in which they will frequently eat their litter when fresh. The year 1864 was one of great trial to the stockowner: the short supply of hay and failing crop of roots rendered it impossible to carry out my usual system of winter feeding, but the prospect of a high price for beef and the certain low price for corn induced me to substitute straw-chaff for hay-chaff, and, in the absence of roots, to make linseed-tea, which was applied boiling hot upon the chaff, with a little salt, and the meal added thereto. This, with a little hay in the rack by night, constituted their feed. I applied the linseed-tea boiling hot, as I considered it would soften the straw and render it more digestible, and I never saw my steers and cows feed faster than they did under that system. Two years eight months old steers went out at at 30*l.*; and the last I sold was only two years and three months, and he sold for 28*l.* I have for several years past used large quantities of straw-chaff and pulped roots with my store cattle; and the experiment of that winter proved to me that much more meat can be made than is usually the case by economonising that coarse food (straw), and making it the vehicle of conveying the more nutritious and fat-forming diet. Much has been said and written respecting the feeding properties of malt and sprouted Barley. I have tried both, and am fully convinced of the value of each as an auxiliary, but not as the base for fattening animals. I cannot close my remarks without expressing the opinion that we must look forward to covered homesteads to aid in the production of meat. I believe they are calculated to greatly economise food—which means, keep more stock—to greatly enrich the soil of the farm by a vastly improved quality of manure compared with that of the wetted and washed straw of the open yards, surrounded by unspouted buildings; therefore I anticipate much national benefits from their general adoption. But their construction must be upon a good principle, *i.e.*, they should be lofty and well ventilated, open on the one end to the south-east, so that when the sun shines the animals may benefit by its genial rays. There are, I know, many who object to the system, and consider that their use will make the animals delicate and subject to disease; but I cannot help thinking that the old-fashioned cow-houses, where frequently 7 or 8 or more animals are tied across the building, and only 3 feet in width allowed for each animal, with some 6 or 8 feet in height, under a hayloft, and no further provision for light or ventilation than that supplied through the crevices of a badly-made and ill-fitting door, must be much more trying to the constitution when they are turned into the yard, after being confined in such a place the whole night.

Home Correspondence.

Mr. Mechi's Reply to "T. B. S."—If I am asked a civil question I always answer it urbanely, but even if the question is, as in this case, put uncivilly and unkindly, I, in the interest of agriculture, respond to it. Your correspondent "T. B. S." (why not give us his name?) seems to be greatly excited and irritated by my successful balance-sheets, and he has used hard words, even to the imputing to me inveracity, but I cheerfully forgive him. A great many "thoughtful" farmers have been made angry and uncomfortable by the publication of my balance-sheets. But need I wonder at this? Do I not know that I have (and pay increased rent for) all the numerous advantages of modern improvements, while they are, in too many instances, suffering from an antiquated and unaltered system? How can they expect to arrive at such profitable results, with undrained land, shallow-ploughed, and hemmed in with immense fences, and numerous robbers called trees — their small and irregular fields, their well-washed home-made guano in the open yards surrounded by untroughed buildings—bad roads, no steam-power, and a generally unimproved mode of stock treatment, to say nothing of waste and loss by over-seeding? Of course, farmers so situated cannot realise or believe in my monetary results—and it would be unreasonable to expect that they could. I feel for them, and when they abuse and disbelieve me, I am, like the Ghost in "Hamlet," "more in sorrow than in anger." A farming friend, writing to me the other day, said: "If your balance-sheet showed a loss of 200*l.* or 300*l.*, instead of a profit, most of our farmers would have believed it, and some would rejoice." After having written all he could to blacken my agricultural character, "T. B. S." coolly says: "In no hostile spirit I demand from him distinct and immediate answers. Who made the valuation, and who ascertained the value of the unthreshed corn," &c.? And then he concludes—"The same questions might be put, and with still greater force, as to the live stock, but I forbear putting them for the present, considering that for a week or two at least he will have enough to do with the task I have above set him." It appears, "from the profession to which he belongs," that "T. B. S." is a land-valuer, with a strong conviction that a farmer can be no proper judge of the value of what he buys, sells, and lives by, and that a land-valuer is the only person fit to estimate these matters for him. Now I hold, as a principle, that a farmer who does not himself, or by his bailiff and his men, know the true value of his live or dead produce, can never be a successful buyer or seller, but will fall a victim to better judges than himself. I assure "T. B. S." that I and my bailiff value our produce, and fix the price at which it shall be bought or sold, according to the state of the market. It would be very odd if we could not value a bullock or a corn crop, for we have plenty of sharp-eyed visitors who criticise and estimate both, and we have also the opinion of our men who harvest the corn, and can tell whether the sheaves are "as heavy as lead" or "as light as feathers." It would be absurd for me to do as "T. B. S." insinuates that I do, "write down what figures I please," for as I am the incoming tenant every 1st of January, I should, by an over-valuation, diminish the profit of the following year, and show a bad balance-sheet. Having to realise the unthreshed produce, we can ascertain the correctness of the valuation. Professional valuers, like other people, differ a good deal in their estimates, and it often becomes necessary to call in a third man to settle their differences. If "T. B. S." had honestly wished to test the truth of my statements, he might have run across to my farm, and valued the animals and crops himself, for he knew that the farm is open to public inspection; this would have been more useful and creditable than cultivating scandal in the neighbouring publichouse. Having now devoted one hour (not a fortnight) to "T. B. S.," he may rest assured I shall never waste another minute upon him, and shall balance against his unfounded charges the approbation showered upon me by honest well-wishers to agricultural progress. The latter sends up to "kick the beam" all flimsy and unfounded censures. *J. J. Mechi, February* 11.

Failure of Clover.—Can any of your numerous readers inform me what is the cause of repeated failures of the Clover crop on my land? I invariably obtain the very best of seeds, which I thoroughly prove before sowing, but the result is almost a complete failure, though the Rye-grass grows most luxuriantly. Some of my neighbours attribute the cause of failure to the exhaustion of certain essential properties of the soil indispensable to the growth of the Clover plant, and recommend my top-dressing the land with gypsum, which I am informed is used with effect in America. I shall be much obliged by any information on this subject. *A Farmer.*

Co-operative Manure Association.—In answer to the queries by your correspondent "Leisurely," p. 152, relative to the supply of superphosphates to the South Lincolnshire Farmers' Association, I beg to inform you that I have sold them some 1800 tons of 26 per cent. soluble, delivered free at any railway station on the Great Northern line, at 3*l.* 18*s.* per ton, in any lots of not less than two tons. The analysis is guaranteed. The secretary sending me the order to deliver afterwards receives from the purchaser a sample, which he forwards to the chemist of the Association to be tested. When he has ascertained that it is all right, the secretary hands me the money on the 1st of the following month. The price is not more than 3*l.* 11*s.* at the works, which of course is a great reduction in price, besides securing to the farmer the absolute certainty as regards quality. Any further information I can give I shall be happy to communicate. Mr. W. Little's (the chairman's) address is Heckington. *E. Toynbee, Lincoln, Feb.* 10.

Earth for Closets.—Will you allow me, in reply to the inquiries of Mr. Carter, in the *Agricultural Gazette*, January 30th, to state the experience in the use of the dry-earth system in the institution referred to in my reply to "Amateur." The temporary buildings of that institution (the Dorset County School for the Middle Classes) are situated in the High Street of the town of Dorchester, a position which to many would appear to present a great obstacle to the supply and removal of the earth, and to render the council of the schools very slow to substitute the dry-earth system for the water system. For this is a case of substitution of the one for the other, and that in a small town which at great cost has very recently been subjected to the water system. At the close of 1865, during which year the school had been twice dispersed by scarlatina, the change was effected, and the dry-earth system continues to give satisfaction to the master and all the establishment. How frequent the supply of earth I know not, but the removal took place only once in three months, and with ordinary care this is done without the slightest offence, even in the open day, to the public. Now, that for which from the first I have contended is,—if this can be done for one house in the midst of a town, the same, by the increase of appliances for supply and removal, may be done for 10, 20, or 100 houses, for a village, for a small town, or for portions of a large town; and, what is more, the poorer classes can on this system, and

without an increase of the burden of taxation, have the same attention shown to their health, their comfort, and decency, as is now almost limited to the upper and middle classes, for popular delusion and prejudice is being dispelled by the light which the discussion of this question, of the comparative efficiency of the two systems, has thrown upon it. It has been commonly supposed that the water system enters the courts and alleys of the metropolis, and other large towns; and that the dry-earth system cannot; whereas the truth is the very contrary of this. The latter can enter the lowest court; and still more, it can afford full relief in the chamber of sickness. The water system does not pretend to enter the sick room, or the ward of a hospital; and as to courts and alleys, its application is a bare apology: for let any one go into the back parts of the large workshops of London, or into any of the slums—let him go into towns in the North or in the South—and he will see a single place erected, and often with an insufficient supply of water, for 30 men, women, and children, or for 28 families, or for 50, 100, or 200 men. Ask almost any public officer who is still bent on applying the water system to small towns and villages, what he will do with cottages of 2*s.* or 2*s.* 6*d.* a week rent, and he will tell you they cannot touch them. But can the dry-earth system do anything? Yes: the humblest cottage may on this system be freed from all offensive exhalations in the bedrooms as well as elsewhere; and decency be as fully secured there as in the dwellings of the rich. If the cottage be not worth the expenditure of 50*s.* on the additional comfort of mechanism, or if the owner cannot, or will not, afford it, I doubt not that the Earth Closet Company would at a moderate cost for a plan for a town, or district, or village, show how, at the cost of a few shillings, with the use of an ordinary scoop, that cottage might, both upstairs and downstairs, be rendered salubrious and free from offensive smells. *Henry Moule, Fordington Vicarage, Feb.* 9.

Farmers' Clubs.

MIDLAND.

FEB. 4: *Steam Cultivation.*—Mr. HOWARD, M.P., read a paper on this subject:—Although the question of tilling land by steam-power had engaged the attention of scientific and sanguine minds ever since the discovery of that wonderful prime-mover, it was not until the successful and general introduction of the portable engine and threshing-machine into our rick-yards and homesteads that the practical farmers of England manifested an interest in the subject. As soon as they became familiarised with the quick process and profitable results of threshing their crops by steam-power, no wonder the desire was awakened to avoid the slow and costly process of horse tillage, and to avail themselves of the same power in field operations. The interest in this subject had grown year by year, and nearly all doubts as to the profitable employment of steam-power in tillage had now been removed. The two great questions to be solved were:—1st. How to apply the power of the engine to the best advantage. 2d. The best form of implement to yoke to that power. At the commencement there were not only many difficulties of a mechanical nature to be overcome, but also a vast amount of prejudice to contend with. Farmers had become so accustomed to have their land turned over in neat regular slices that the idea of a rude, rough, deep smashing, was regarded as a retrograde movement. At the same time, the public mind had been so much impressed with the idea of rotatory cultivation, which notion had been greatly fostered by the ingenious and interesting writings of Mr. Wren Hoskyns, that for many years all attempts at steam tillage by any other mode were regarded with comparative indifference, and it was not until vast sums of money had been spent in proving the thorough inutility and impracticability of engines moving over the surface of the soil that many of our engineers, as well as the public, settled down to the conviction that haulage by a wire rope was the true solution of the problem. It was clearly deduced from the experiments of Mr. Romaine, Mr. Usher, Mr. Boydell, and others, that the moving of their engines over the land absorbed so much of the power that but little remained to be exerted upon the tillage implement. There were also difficulties on hilly fields where steam-power was even more economical than on flat land; and further, the impossibility of moving at all when the soil became wet or greasy on the surface. He believed, however, that but for the introduction of steel wire instead of iron in their manufacture we should have been as far off as ever in solving the problem of the economical tillage of the soil. He had himself since broken up thousands of acres, and from experience he found that the cost for rope amounted to a fraction over 7*d.* per acre. As a large portion had been rough or pioneer work, and as a much higher quality of steel was now used, he believed that the item might be put down at something like 4*d.* per acre. He would here observe that light ropes wear longer than heavy ones, the abrasion being much less; and, owing to their greater pliability, they sustain less damage from coiling and being passed round the pulleys, to say nothing of the smaller expenditure of power in keeping in motion a light rope as compared to a heavy one. Besides, a light rope, made of a high quality of steel, is far more durable than a heavy rope made of inferior steel. In noticing the different systems of applying the power to steam-hauled implements, he would observe that each of the methods had its advantages, as well as its disadvantages, and that no one system was applicable to the varied requirements and circumstances of the farmer. Mr. Howard, by the aid of diagrams, explained the chief methods of steam ploughing.

No. 1 apparatus consisted of two engines drawing two implements simultaneously, by which 40 to 50, or, in a long summer's day, even 60 acres might be broken up; but from the cost of this apparatus (1800*l.*), the use of it would be almost exclusively confined to public companies, or those who bought engines to let out on hire. It could be worked at a daily cost of 4*l.* 2*s.* 6*d.*, or (taking 40 acres as the quantity of work per day) 2*s.* 1*d.* per acre. No. 2 was a similar arrangement of an engine on each headland, with a single implement hauled backwards and forwards between the two, one engine remaining idle whilst the other was in action. By this arrangement not much more than half the amount of work can be done as upon the "twin" or "double-double" system, and the cost might be put down at about 3*s.* 3*d.* per acre. The cost of such an apparatus is about 1500*l.*; and the same remarks would in great measure apply to this system as the one already alluded to. He never could bring his mind to rest satisfied with the double-engine system until both engines were kept continuously at work. In the first arrangement this is done in a very simple manner, requiring only an extra rope and winding-drum on each engine, with, of course, a second implement and ploughman. No. 3 was Mr. Fowler's well-known plan of a clip-drum engine on one headland, and a travelling disc anchor on the opposite one; a single implement being drawn between the engine and anchor. The price is about 900*l.*, and the cost of working it might be calculated from the abundant materials in the voluminous report of the Royal Agricultural Society's Commissioners. A large number of farmers have borne testimony to its efficiency and economy. No. 4 was the well-known stationary, or as it was called "round-about" system. The cost of this apparatus, including a 10-horse power portable engine, was 520*l.* The daily working cost, deducting the maintenance of and interest upon the engine, assuming that a portable engine was indispensable for other purposes upon such a farm, was 2*l.* 2*s.* 10*d.* Taking eight acres as an average day's work, it brought the cost per acre of cultivation upon this system to something like 5*s.* 4*d.* He was aware that many who had adopted the "roundabout" system brought the cost to much less; but then their coals were taken at a smaller cost, the water-carting was saved by setting down the engine near a pond, and they made no charges for removals or shiftings. Although a direct pull upon the implement was mechanically more correct, the "stationary engine" or "round-about" system was not without its advantages, amongst which might be enumerated the convenience of having the fuel and water brought to one point; the greater elasticity of the tackle when an obstacle is met with by the plough, the anchors drawing or yielding by the concussion, and thus a serious breakage is often prevented, which is not so where the pull is direct, as in this case there is no yielding. The poaching of the headlands in coal and water carting, and by the passage of the engine, is also avoided. The headlands can also be more readily broken up, and the crossing of the fields in the spring, that were broken up in the autumn, is attended with no difficulty; and, lastly, the smaller cost and greater simplicity of the machinery, which farm labourers are capable of managing, are no light recommendations. He believed that if a farmer had a moderate-sized occupation of, say from 500 to 600 acres, and it lay tolerably well together, so that he had not long distances to move his apparatus, he would do better to purchase one of the various stationary engine apparatus before the public than to invest in the more costly form of machinery, particularly if it were his intention to cultivate only his own land. This expression of opinion, that the less costly form of apparatus can be economically adopted on farms of a moderate size, was confirmed not only by the results and awards of the late trials of the Royal Agricultural Society of England, at Leicester, but by the reports of the Commissioners of the Royal Agricultural Society of England of their visits to the farms of a large number of practical agriculturists in various parts of England, who have for years cultivated their land successfully by this method. No. 5 was a combination of the "roundabout" and direct systems. This arrangement which they (Messrs. Howard) have for some time past been successfully working upon their own farm, consists of a single engine with a winding drum upon it at each end. At the opposite sides are two ordinary anchors; the engine and anchors being shifted forward as the work proceeds, the engine moving itself. In the event of the land being too soft for the engine to move along the headland, or when cultivating very hilly or difficult-shaped fields, the engine may be stationed, and worked on the "roundabout" system. This form of engine had also the further advantage that two neighbours, possessing one each, might join together, and during the autumn months work their engine on the "twin" or "double-double" system, and when the work was over the same engines might be used for the ordinary work of the farm. Although more expensive, he preferred double-cylinder engines, as they work more steadily, and are stopped and started more easily, and, what is of more consequence, when moving less strain is thrown upon the gearing.

He now came to consider the best form of implement to be yoked to the power. Judging from the application of steam-power to other purposes, mechanics and others were naturally led to believe that a rotatory motion was the correct principle on which to construct an implement for dealing with the comminution of the soil. But if the question were examined minutely it would be seen that a rotatory implement for breaking up the soil was wrong in principle. At every revolution of the tines or shares the hard surface or crust of the land has to be broken through, causing a constant and unnecessary waste of power; and wherever the resistance at the points became greater than the driving power, which is frequently the case when the implement meets with hard and difficult spots, the rotation ceases. Mr. Wren Hoskyns stated that the objects to be attained by steam tillage were "comminution, aëration, and inversion." In plain terms, he should say the economical question to be solved was this—How to break up and loosen the greatest weight of soil with the smallest amount of power.

Now, though the ancient form of plough, arranged and adapted for haulage by steam, may be, and is undoubtedly, useful for the turning over land under certain circumstances, it has, in nine cases out of ten, to give way to its more modern and less graceful rival, the steam cultivator, or "smasher." The latter implement is at once more expeditious, requires less skilful handling, and, if used at the proper season, produces better results than the plough. Such an implement is nevertheless almost useless when applied by horse-power; and this for two reasons—that a great depth is unattainable, and the slow pace of the horses leaves the land in a very different and less shattered condition than is produced by the deeply set and quickly moving steam implement. Whenever steam-power is introduced upon a farm deeper tillage is invariably, or, at all events, ought to be the result. If the soil be inverted by the plough the farmer has to contend with a much larger crop of weeds than if broken up by the cultivator. This fact was brought forcibly under his notice some 10 years ago, through having broken up a piece of land after roots intended for Barley. Part of it was steam ploughed and the other portion steam cultivated. He was much surprised, in the spring, to find that on the ploughed portion Charlock and Scratch-burr came up as though they had been thickly sown, whilst the cultivated portion was comparatively free. The fact was, the cultivator lets down the seeds of the annuals deeper into the soil, whilst the ploughing, in inverting the deeply-moved soils, brings the seeds to the surface, and thus causes them to germinate. One of the most efficient and satisfactory implements which could be attached to a steam apparatus was the harrow. After a field has been broken up it can be crossed by the steam harrow at about three times the rate at which it has been cultivated. The depth of penetration and the effect of the steam harrow is as superior to that of the common drag harrow as the steam cultivator is to that of the horse scarifier. Another implement, the use of which by steam apparatus might be most beneficially extended, was the mole draining plough. On hundreds of farms in this country, belonging to owners who cannot afford the cost, or do not see the advantage of under-draining, the tenants might, at a very small cost, by the use of such a drainage plough, relieve their land of stagnant water.

Mr. Howard next stated the practice adopted upon the Britannia Farms in the use of steam cultivators. Those farms were thus described in the Royal Agricultural Society's report:—

"The extent of arable is 445 acres, all heavy land. The 'Hoo' Farm presents a deep staple 10 to 14 inches in thickness upon homogeneous clay; yet, before steam culture was practised, there were but few inches of staple soil. The difference on digging in a field and upon the headland edge, where the deep work has not reached, was remarkable—the raw, tenacious, gaulty clay having been obviously changed by cultivation into a brown unctuous earth, at once perceptibly better to the feel. Although the old high-backed lands have been everywhere levelled over a 4-feet deep drainage, the whole of the fields are declared to drain well in the wettest of seasons; and we found nothing like sloppiness or sponginess, though we entered almost every field in wretchedly wet weather." He might observe that, although many of the fields were very hilly, and although he had no open furrows or water gutters, he had never yet seen any water stand upon the surface. If such land were broken up deep enough, and furrows were avoided, the water would sink into the ground where it falls, and not run down and flood the lower portion. In June or July he broke up the Clover or Grass layers, making a bastard fallow of them; this was no new practice. It had been pursued by the best farmers of strong land in the county of Bedford for very many years. In addition to the advantage of cleaning the land, and it was estimated that it added at least eight bushels an acre to the produce. The next work for the steam cultivator is found as soon as ever a field is cleared at harvest. The staff of men is at once ready to commence operations; his great object being to break up as much land before the end of September as possible. He kept the steam cultivator going every day, weather permitting, until all the stubbles were broken up. Any that then required crossing were next dealt with. After this, the tackle was packed up until the spring, for he believed that in short days and wet weather, apart from the unfitness of the soil for tillage operations, the employment of steam ceased to be economical. The land intended for roots was, after Wheat seeding, trenched up into ridges, or bouts, 27 inches wide. This was done by horses, a pair or three horses ridging about three acres a day he found more economical than employing steam-power. An objection had been raised to this plan on the ground that the treading of the horses was injurious, but he held that treading a deeply-moved tilth was a very different matter to putting three or four horses in a line up a furrow. With such a team something like two or three hundred thousand hoof-tracks per acre batter down the hard subsoil, and render it all but impervious. In the case of ridging, the horses walk upon a tilth, and the winter frosts obliterate any injurious effects. In some seasons, when, from wet weather, he had been late with his work, instead of using the cultivator he had used a combined ridging and subsoil-plough, the ridging-plough throwing up the soil 9 inches deep, in bouts of 27 inches wide, and the subsoil tine penetrating and loosening the open furrow some 6 or 7 inches deeper. This was a capital operation, and he preferred the work to that made either by the cultivator or plough, if it had to be done late in the year. As soon as the weather permits the dung or artificial manure is put on, and the ridges split. In the spring, before the Mangel or other seed is sown, a set of harrows are sent along the line of the ridges to destroy the weeds, exposing a fresh surface, whilst the winter moisture is retained. After the seed is sown, the double-breast ploughs are used to make up or mould the ridges. In some seasons, when rain has washed down the tilths intended for Beans, he had ridged them in the same way as though in the form for roots. He liked this plan, for a large surface was exposed throughout the winter to the action of the atmosphere, and the land was ready to work sooner in the spring, once or twice harrowing being all the preparation required for the drill. One of the chief, if not the greatest, advantages of the application of steam-power to the cultivation of the soil was increased depth of tillage. Many who had gone to the expense of purchasing a steam cultivator, from overlooking this fact, had not only failed to derive any advantages from its use, but had lowered steam tillage in the estimation of their neighbours—their great object being to get over a great breadth. The working of an implement by steam-power at 5 inches deep will not render the land more productive than if drawn at the same breadth by horse-power—of course excepting the treading of the subsoil previously alluded to, for the "pan" caused by the practice pursued for generations is not broken up by such shallow cultivation. To increase the fertility, especially of our strong soils, the cultivation must not only be deep, but the owner of steam-power must not be content with one deep stirring—it must be continuous. He might say, in his own case, that the effect of continuous deep tillage every year attaining to a greater depth, has been to increase the produce fully one-third per acre. We could not in this little island of ours extend the area of cultivation as is done in America, but we could increase the productive powers by deeper and more thorough tillage.

With regard to the results of steam cultivation, Mr. Howard read a number of questions, and the answers thereto which had been supplied by his bailiff, as follows:—

1. How the land should be cropped under the four-course system, giving the proportion of each crop on a farm, 400 acres of which are under the plough? *Answer.*—(1), roots and Tares; (2), Barley; (3), Clover and Beans; (4), Wheat; 100 acres of roots and green crops; 100 acres of Barley and Spring Wheat; 100 acres of Clover and Beans, being 50 acres of each, so that the Clover does not come but once in eight years; 100 acres of Wheat.

2. What portion would have to be tilled annually? *Answer.*—350 acres to be tilled annually, assuming the Clover to take root and stand. The 100 acres for roots and green crops would probably require during the year going over several times by either steam or horse-power.

3. What number of horses would have to be kept to do the work without the aid of steam? What number with the aid of the steam-power? *Answer.*—Without the aid of steam, 18 or 20 horses would be required, according to the state of the farm being quite clean or rather foul. With the aid of steam 10 or 12 horses quite sufficient.

4. Assume that 8 bushels more corn can be grown per acre by steam-power? *Answer.*—Wheat, average price, 6*s.* per

bushel, being 2*l.* 8*s.* for the 8 bushels per acre; total on the 100 acres of Wheat, 240*l.* Barley, average price, 5*s.* per bushel, being 2*l.* for the 8 bushels per acre; total increase on the 100 acres, 200*l.*

5. Assume that one-fifth more root crops and green crops, inclusive of Tares and Grasses, can be grown, state the annual worth? *Answer.*—The roots, in consequence of the deep stirring, would be about 5 tons more per acre for weight, at 6*s.* per ton, would be 30*s.* per acre, which, on the 70 acres, leaving 30 acres of land for green crops, would be 105*l.* increased value on the roots.

6. The saving to the farms in the keep of the horses? *Answer.*—Keep of 8 horses saved, at 25*l.* each: 200*l.*

Assume that a farmer occupies 500 acres of strong land, 400 of which are under the plough.

1. How the land should be cropped, giving the proportion of each crop? *Answer.*—Strong land, best cropped on the eight-course system, viz.:—(1), Roots or fallow; (2), Barley; (3), Clover; (4), Wheat; (5), Beans; (6), Wheat—Tares or other; (7), summer feed, Cabbages, Rape, &c.; (8), Wheat, coming to roots again. 150 acres of Wheat, 50 acres of Barley; one year's course of cereals. 50 acres of roots, 50 acres of Clover, 50 acres of Beans, 50 acres of summer and autumn feed; sheep feed and preparation for cereals next year.

2. What portion would have to be tilled annually? *Answer.*—350 acres to be tilled annually, assuming that the Clover is to take root and stand.

3. What number of horses would have to be kept to do the work without the aid of steam, and what number with the aid of steam? *Answer.*—Without the aid of steam 16 or 18 horses, according to the state of the farm being quite clean or rather foul. With the aid of steam, 10 horses quite sufficient if the homestead is comparatively central; 12 horses if the farm is wide.

4. Assume that 8 bushels more corn can be grown per acre by steam power. *Answer.*—Wheat, average price 6*s.* per bushel, to increase of 2*l.* 8*s.* per acre; total on the 350 acres, 360*l.* Barley, increase on the 50 acres at 5*s.* per bushel, 100*l.*

5. Assume that one-fifth more root crops and green crops, inclusive of Tares and Grasses, can be grown, state the annual worth. *Answer.*—I do not think that the use of steam-power exerts any noticeable difference in the growth of Tares and Grasses. But the roots, in consequence of the deep stirring, would generally be worth from 30*s.* to 40*s.* per acre more, being from 7*l.* to 10*l.* on the 50 acres increased value.

6. The saving to the farms in the keep of the horses? *Answer.*—Keep of 6 horses saved, at 25*l.* each, 150*l.*

"The fact is," said Mr. Howard, in conclusion, "in farming, as well as in other pursuits, 'Time is money:' and those who would in cultivation obtain the greatest results with the utmost certainty and at the least cost, must avail themselves of the 'iron sinews of the never-tiring steam-engine.'"

Reviews.

The Agricultural Labourer: No. 2. A series of Letters, reprinted from the *Daily News*. By J. Bailey Denton, Mem. Inst. C.E. E. Stanford.

There are six letters here on Village Water Supply—Village Drainage—Earth Closets and Cottage Gardens—the Cottage—Wages, Beer and Cyder—Education (School Teaching)—and Education (Technical Instruction). They are written by a man who has employed agricultural labourers in every county in the kingdom, who has done perhaps as much as any man in the direct provision of cottage accommodation in every county, and who, by lectures, publications, personal investigation, and the offer of prizes to invite the investigations and efforts of others, has done as much as any for the interests of the agricultural labourer, who is the subject of these letters. There is now a multitude (employers, public men, philanthropists) interested in the subject of Mr. Denton's letters, and we can strongly recommend this pamphlet to their attention. It is full of information, argument, suggestions bearing directly on topics of the very highest social importance, and we cannot doubt that they will be widely read. The following is an extract on a most important subject:—

Technical Education for Agricultural Labourers.—"Returning to the simple agricultural labourer; there is not a farmer in the country who, be he engaged in sheep farming, in dairying, in tillage, or in mixed farming, does not know the superior value of a labourer well acquainted with special duties, and I assert that there is not any branch of work connected with either description of farming that does not require learning before it can be practised profitably, and which would not be better learnt by a regular apprenticeship in youth, than by the irregular system which now prevails. A shepherd, for instance, whose wages are 16*s.* a-week, besides perquisites, is an essential labourer on most farms, and I venture to say that at this moment there is hardly any other description of agricultural service in which there are fewer capable men. A good shepherd, in fact, is one of the most difficult men to obtain, and the loss for want of them is very great. Again, good horsekeepers are almost as difficult to obtain as good shepherds. From my own experience, I can say that the difference between a good horse-keeper and a bad one is not to be measured by the simple difference between scanty and liberal wages. Any one accustomed to horses knows immediately, by the appearance or touch of their skins, whether the man in charge of them knows his business, and he will confirm my opinion that any difference in wages will be more than counterbalanced by the saving in the corn which horses consume when well attended to, and the better service to be gained from them, compared with that gained when they are indifferently treated. The same remark will apply to the tending of neat stock. Speaking again from my own experience, I have found that cattle under the charge of a man who thoroughly understands them, will fatten quicker, and in every respect do much better, with less food than under a man who, from attempting indiscriminately all the duties of the farm, is master of none. In the minor matter of poultry, I have known many pounds lost by the want of proper treatment.

"If this be admitted to be the case with live stock, it will be unnecessary for me to point out the advantages of employing men in the use of implements who have taken pains to understand them. The loss sustained by farmers from careless treatment is great. Few labourers know how to adjust farm machinery if it gets out of order; and one who thoroughly understands the steam-engine, so as to take charge of it when ploughing land or threshing corn, is indeed a prodigy in his parish. And why should we dread the purchase and use of steam-engines on our farms, on the ground that we have not a labourer who could take care of them, when tuition in youth would supply the omission without difficulty? It is true that the implement makers now and then undertake to tutor a farm labourer in the management of the engine, if previously assured of his intelligence. This circumstance, while it shows how an individual difficulty may be overcome, must go some way to prove that technical education is to be attained in the lowest grade of agriculturists, as in the more refined artizan class.

"It would be tedious to pass through all the branches of a farmer's business, to show how technical knowledge in the labourer would apply. There is hardly an operation in tillage that would not be done better if the operator had thoroughly understood it in early life. Take the simple operations of ploughing, drilling, and sowing. Is not a good workman worth 1*s.* or 2*s.* more per week than a bad one? The same question may be asked as to hedging, ditching, draining, and thatching, in which there is no comparison between an expert man and an unpractised one. How, then, are these practices to be taught in youth? What I would suggest is, that those children who are sent out to earn their food by labour, should be placed in a situation on the farm to obtain fundamental technical knowledge, not by being set one day to do one thing and the next another, but by putting them for a sufficient time under the shepherd, or the horsekeeper, or the stockkeeper, or the engineer, the hedger, or the ditcher, the thatcher, or the drainer, so that they may learn, as far as such labourers can teach them their respective duties. There is no practical difficulty, though there may be some slight inconvenience, in the adoption of this plan. By it a youth employed on the farm would be systematically engaged, or I would rather say apprenticed, in one occupation until he has learned it thoroughly; and in order to encourage his tutor for the time being—that is, the shepherd, the dairyman, or the engineman—to teach him what he knows, a bonus or prize should be given to such as do that duty properly, the boys themselves receiving prizes, too, according to the knowledge they have acquired. It would not be long before the farmers took an interest in the system; for it would be the same with farm teachers as it is with many other teachers, that they themselves would learn much while they were in the act of teaching, and then the farmers themselves would derive advantage from what would be going on. At the present moment the daughters of the agricultural labourer are far better taught, as they grow into womanhood, than are the sons in their approach to manhood; for, as soon as they can go into service, the farmers' wives, for their own sakes, teach them the duties of the cook or the housemaid. The difficulty, in the case of farm tuition, would be in finding qualified examiners. Already throughout the country, in the autumn, we have matches in ploughing, ditching, and draining; and the interest the labourers take in the competitions may be accepted as some proof that, under proper control, competitive trials may be extended to farming youths learning their various agricultural duties. Assuming that, with the demand for examiners, the supply was found, what is to prevent the examination of young shepherds in the practice of shearing sheep, or in the mode of treatment for foot-rot, fly, or tick, on the proper management of the ewe during the lambing time, the effects of different foods, and the best means of diversifying food so as to secure health, and so forth? Why should not a ploughboy practically demonstrate the best way in which he would dress a horse, give him a ball, and treat him under certain ailments, prepare his food, drive a team, &c.? The same I would ask of all live stock, from a fowl to a bullock; and when we approach the matter of implements and their uses, the examination would ramify to almost an unlimited extent. And the like might be said with regard to all field operations, commencing with the preparation of the land for seed, and ending with the threshing of the corn and the consumption of fodder. I believe it cannot be denied that technical farm knowledge obtained in youth will not only prepare the labourer to earn higher wages, but will give him an interest in his calling which he will never lose, and which will keep him at home to gain prolonged life, instead of his leaving home for the manufacturing towns to shorten it.

Farm Memoranda.

MOORLAND NEAR MANCHESTER.—"The barren moorland, whose cultivation I am about to describe, lies at an elevation of some 750 feet; and is therefore not in the most favourable climate for agricultural purposes. The soil of this tract is extremely barren, and in its natural state not worth a rental of 1*s.* per acre. It consists of a mixture of numerous earthy ingredients, every one of which is totally infertile; coarse red sand, alternating with a light grey sand, coming up quite to the surface. In some places a black earth, an inch or two deep, is found, whilst running through the whole are many gritstones, some of enormous dimensions. Over the whole is spread a short, stunted growth of Heath, though in some places the land is too poor to grow even Heath or Moss. Such is the unpromising nature of the soil to be worked upon.

"First. It is desirable that, in accordance with the practice usually adopted in North Staffordshire, but close to Cheshire, the moorland intended to be cultivated should be divided into square fields of four or five acres each, though fields of eight or nine acres in extent may be found where nothing but Heath or Gorse once grew. As stones are close at hand and plentiful, and the cost of conveyance little or nothing, the cheapest and most effectual method for enclosing the fields is by a stone wall; which, if well built to commence with, will continue good for generations without further expenditure or care; the original cost being 6*d.* per lineal yard, more or less, according to the way in which the work is done.

"When the land is properly enclosed, the next process commences with digging or trenching, and clearing it of stones, a work generally designated by the term 'ridding.' This 'ridding' is effected in two or three ways. The usual method is, after making a trench twelve inches in depth, to put the surface soil with the Heath attached at the bottom of the trench, and then to cover it up by the still more barren subsoil. The surface heath-clod is thus buried to the depth of 8 to 12 inches, and left there for years to rot. The cost of 'ridding' to the depth of 12 inches is usually from 2*s.* to 2*s.* 6*d.* per Cheshire rood of 64 square yards (8 × 8), which would be equivalent to 8*l.* or 9*l.* per statute acre; if less than 12 inches deep the cost will be less, but never under 1*s.* per 64 square yards. This method of ridding, however, I do not approve.

"Experience has taught me, that instead of burying the surface heath-soil it is far better to retain it on the surface. At the same time the subsoil should be effectively stirred and cleared of stones to the depth o 12 inches. This is a process readily understood and easily taught to a workman by an experienced person.

"In a four-acre field, where formerly nothing but Heath grew, I tried the experiment, on one acre, of mixing too much of the lower with the upper soil, and the consequence was a diminution of 50 per cent. at least in the value of the subsequent crop, as compared with that on other parts in the same field. In opposition, therefore, to the usual practice, and to what is now being done (February, 1868) not a mile from where I am writing, I consider it to be extremely desirable, in 'ridding' heath-land, to keep the surface soil on the surface, and to stir the subsoil to the depth of 12 inches. Indeed, I have found that by pursuing this plan the corn and root crops are greater in after years, the grass is greener, and far less manure is required to bring the land into profitable condition.

"Moreover, it is highly important that the stirring and ridding should not only be of the required depth, but done effectually, and the moorland thoroughly broken, otherwise the subsequent crops will seriously suffer.

"Experience has demonstrated most satisfactorily to myself, that where the ridding has been conscientiously performed, no land will pay better as arable land, and that where the ridding has been incomplete no land, as arable land, will pay worse; in fact, the plough cannot enter it at all without certain loss.

"The rotation most profitable to be adopted will depend upon the length of time that has elapsed since the ridding was completed. But for ten or twelve years after the heath-ground has been cleared I would follow the four-course shift, for the following reasons: First, because in the newly covered heath-ground there is hardly any such thing as 'Clover sickness,' and the crops of Clover are enormous; and secondly, because frequent cultivation and aëration seem to be beneficial, the air exerting a wonderful influence upon the newly broken-up heath-ground.

"It may be worthy of mention that last year I had the curiosity to weigh a crop of Turnips, the growth of 1867. I weighed three drills of Swedes, 100 yards in length. The first drill gave 6 cwt. 3 qr. 2 lb., the second exactly the same, and the third 7 cwt. From this it may be readily calculated that the crop of Swedes of 1867 was over 21 tons per imperial acre, while the Yellow Tankard Turnips, grown in the same field, were over 28 tons per acre. Surely these will be considered satisfactory crops, more especially when it is remembered that they were grown with artificial manure alone, and that, too, on land where nothing but Heath formerly grew. The crop of Potatos of 1867 was not equal to that in former years, but those sold before Christmas last realised upwards of 20*l.* per acre.

"In 1864 I attempted to grow a crop of Potatos that might be considered a maximum, at least upon heath-land. This experiment I tried upon two acres, and the yield appears almost incredible; the first acre giving 10 tons and the second over 11 tons, or 99 loads, of 252 lb. to the load. These results, however, were only obtained by extra preparation and by incurring extra expense.

"Where a field has been imperfectly cleared or not ridded to the required depth, the corn on it will grow in patches, one part of the field giving a full crop, whilst another will yield little or nothing. This consideration subtracts considerably from the value of the land, and from the desirability of devoting it to arable culture.

"But it is not to crops of corn that one looks for much profit; it is rather to the Turnips and Potatos, the Clover and Grass, which are cultivated as well as corn. Last year (1867) in a four-acre field I grew upwards of 3 tons of Clover-hay per acre—the result of two cuttings. This, at the present price of Clover-hay, is equivalent to 14*l.* or 15*l.* per acre, whereas last April the price in this neighbourhood was 6*l.* per ton. This result must be considered very satisfactory as regards the Clover crop in a field which formerly produced nothing but Heath. The Clover crop, however, is not so much affected by imperfect ridding as the corn crops are,—a fact which is manifestly indicated by the less uneven appearance of the growing Clover.

"In these high districts, lying at an elevation of almost 800 feet above the level of the sea, it is very advantageous to have belts of planting on the north and east of the estate under cultivation. Larch and Scotch Firs planted in alternate rows, some 20 to 30 yards in width, are an effectual protection against the cold and fierce winds that otherwise would sometimes blow very injuriously. On the south side of one of

these plantings in heath-ground, at an elevation of 800 feet above the sea-level, I have grown Mangels 14 lb. each, eight of them weighing 1 cwt. Indeed, plantations judiciously arranged, besides giving indispensable shelter to cattle when the fields are in Grass, afford an advantage equal to at least 2° or 3° of latitude in their effects on the growing crops. These mountain-sides are much exposed to cruel winds, which sometimes inflict serious injury on the ripening corn. I once had a field of ripe Barley half-threshed by the fury of the winds; but with the protection afforded by plantations this calamity can never occur.

"Where the ground is very uneven, irregular, and worked with difficulty, by far the most profitable plan is to lay it down in Grass, and let it remain in meadow or permanent pasture." *J. A. Slater, in Royal Agricultural Society's Journal.*

The Poultry Yard.

A FRENCH writer on poultry, M. Letrône, gives the following as the best mode of fattening poultry. He has a high reputation as an authority, and writes as follows:—

"The treatment for fattening the poultry is no secret in the department whence we get those *poulardes* so celebrated as those called Poularde du Mans. This branch of industry, singular in its results, so much appreciated by the greatest *gourmands*, is confined to the following districts:—Mézeray, formerly the best place, but now a little in its decadence; Malicorne, Arthézé, Courcelles, Bousse, and Vilaines. This last-mentioned place stands now first for the quality of its productions and the number of *engraisseurs*. The districts also of Crosniere Veron, Bailleul, Saint Germain-du-Val, Saint Colombe, Cré-sur-Loire, and Bazonges, are all tributaries; and their productions are concentrated in the town of La Flèche, the *chef-lieu* of the *arrondissement* of that name, where, on the market days, may be found the feeders with their produce. Some of them will bring more than a hundred good well-fed birds to market at a time.

"There seems to be no information as to the period at which this branch of industry was introduced, or by whom; perhaps some erudite *gourmet* may be able to furnish the date and name or names of he or they to whom the district in particular, and poultry keepers in general, owe so much.

"The special work of fattening is carried on by dealers or small landholders, who are called *poulaillers*. They buy in the markets and of their neighbours the young fowls which promise the best development. These are called by them *gelines*. It is towards the end of seven or eight months that they are considered sufficiently grown to be put up really to fatten. The choicest *poulardes* attain the weight of 4 kilogrammes, or 8 lb., and the young cocks not caponised reach 12 lb., and sometimes even exceed it.

"The *poulaillers* feed 50 and even 100 birds at a time. The time at which the fattening season begins is October. The floor of a room or house on purpose is surrounded by little hutches roughly made, with movable partitions; the height of them is from 18 to 24 inches; the length of them depends on the number of birds to be put in, but it is not advisable to put more than six in a coop, which should allow each bird to be at its ease, but not move about."

(*To be Continued.*)

Calendar of Operations.

FEBRUARY: *Grass Lands.*—The top-dressing of meadows intended for hay and early depasturing should be done, and finished as fast as circumstances will permit; and Grass seeds may be bush-harrowed in where the finer Grasses have died out. The demands of the arable land not unfrequently engross attention to such a degree that work of this kind is done too hurriedly, especially in seasons like the present; but however difficult it may be to divide the labours of the farm, it is a shortsighted economy to neglect the meadows and pastures, especially when they require renovation. As to the best kind of compost, that will be determined by the weeds and inferior Grasses which have taken possession of the land, and by the land itself. In examples where lime is naturally deficient in the soil, a suitable dose should be applied either in the form of chalk, marl, quicklime, or some of the artificial superphosphate preparations of the day.

Water meadows especially, if intended for indoor cattle food, are laid dry in our southern provinces, and northward as the season advances. The same rule applies to land irrigated with the liquid manure of the homestead, where it is applied to a few acres of meadow adjoining, of which there are innumerable examples, the liquid thus turned off one part being turned on to another. The temperature of the liquid is generally sufficiently high to supply heat to the land in frosty weather, so as to permit of its continuous application in our southern provinces, and thereby keep up vegetation, and we have seen it thus applied as far north as Easter Ross. But in frosty weather there is a heavy sacrifice of fertilising matter, while in the severe frosts of the north we have seen the mains down the middle of the ridges frozen up, and the whole ground covered 2 feet deep by snow in the short space of 24 hours. Much snow dissolved in the water is also objectionable, so that when frost and snowstorms set in we have always found it more economical to utilise the waste either in a liquid manure tank for subsequent irrigation or in the manufacture of compost in a pit under a low roof.

Live Stock of every kind now require the most vigilant attention. The increase of temperature and light is giving fresh life to the animal as well as the vegetable kingdom, and if solar heat is not increasing so fast in the north as in the south, the increase rule holds good as to light—the day in the north lengthening now faster than in the south. Such facts speak for themselves, in a language readily understood by cattlemen and shepherds. Pigs and poultry also enjoy the invigorating influence of the sun—indeed, none of our domesticated animals enjoy it more; a proof that they are the creatures of a higher temperature than is generally credited, judging from the manner they are housed during the winter season. Pigs are gifted with the instinct of providing shelter for themselves, and if they can get at straw they never fail to do so; but poultry suffer much indoors and outdoors at this season in bad weather.

In the southern counties shepherds are now entering upon the more important period of their labours. Ewes and lambs require the most unwearied attention almost night and day. Our improved breeds are not the best nurses, and when their followers begin to demand more than they have to give, they are liable to eat greedily and voraciously more Mangels and green food than they are able to digest and convert into milk—and hence to scour. The old nostrums to cure scouring are out of date, and many of the modern ones are hardly in keeping with the progress of things. The medical maxim, "Prevention is better than cure," applies. Delicate stomachs and bowels are easily known, and when a ewe begins to eat greedily more than she can convert into milk to supply the demands of her offspring, she should be separated from the flock, and placed upon a different diet. In other words, divide the flock, and feed each division according to their respective constitutional requirements. Keep the fattening pens dry and clean, and as they are ready for the butcher draft out and send to market, and to those in the field eating off Turnips give an increase of cake, corn, and chaff as they require it.

In the feeding stalls and boxes grooming is often of value, and the currycomb and brush apply with equal effect to milch cows and young store cattle, more especially if highly fed.

Farm Work.—During the whole months of January and February, 1838, a great part of the north was covered with snow, and March was well advanced before field operations were resumed; it was a trying season for cattle, more especially sheep, on farms devoid of Furze and Broom. We had abundance of both, so that, with the exception of a few mornings, when the blackfaced flock in the hurdles or "flakes" were drifted up, and had to be dug out of the snow, the shepherd required no assistance. For a day or two at the commencement of the storm the sheep were confined in the strawyard on straw, but when the weather began to settle they were turned out all day to the hill to provide for themselves amongst the Furze and Broom, and the long half-withered herbage amongst the bushes and long Heather, receiving straw in the racks when they returned to their night quarters in the hurdles. The Turnips in the field were safe below the snow—fresher and freer from frost than those in the houses and pits at the homestead, but the difficulty was to get them out from below the snow and home. In short, almost the whole labour of the farm during the current month that year was the management of live stock and the carting out of manure.

With the current year the above forms an interesting contrast. During 1838 there were no doubt certain districts comparatively free from snow during this month, but the snowstorm of that year was very general and of long duration, and for these two reasons we put it in contrast with the present, during which the unusually mild weather is likewise very general.

Steam Cultivation.—In seasons like the present the great difficulty is to avoid going into the field with the scarifier and seed and manure drill too soon. With the temperature of the earth and atmosphere more resembling April than February—when the mid-day sun breaks out on the surface, and when everything else is ready for action, including the steam-engine and tackle, there is certainly something more than usually tempting to get up steam, pay out the wire rope and fix the anchors. But in most farm operations second thoughts follow hard on the heels of first intentions, and so is it in the case in question, for although steam-culture can be proceeded with long before horse-culture can with propriety enter the field, yet the rapidity with which the work can be done by the former is one important practical reason for not entering the field until the land is in the best working condition. In other words, with steam-power at command the farmer need not be afraid of spring work falling behind. And although the old rule, "Early seed-time, early harvest," continues to be applicable, it is balanced by another old maxim equally familiar, "A good seed-bed is equivalent to fourteen days in harvest to the farmer, and twice that time to the miller." In short, it will take the lifetime of many a farmer to appreciate half the advantages of steam-power at this season; and until this lesson is practically taught and understood, the counter question of loss by the trampling of horses' feet, and so on, will not be credited, let the sun shine and the winds blow as they may. *W. B.*

Notices to Correspondents.

ADDRESS: *Cor.* Mr. McGlashan's address is not known.

FEEDING STUFFS: *Inquirer* asks if any of our readers can inform him of their experience in using cotton-seed, as imported, for feeding sheep? [Cake from properly decorticated cotton-seed is a capital and well-known sheep and cattle food.]

HORSE-POWER *versus* TRACTION-ENGINE. We are requested to make the following correction (see p. 63). "February: Coal carting, shifting itself and tackle: it can do water-carting now. Using the roundabout tackle," &c.: should read, "February: Coal-carting, shifting itself and tackle it can do. Water-carting; now, using the roundabout tackle, &c."

SUSSEX FARMING: *Inquirer.* Mr. Farncombe's report on Sussex Farming was published (1850) in the 11th Vol. of the English Agricultural Society's Journal.

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Contains a sketch of the various forms of Trees, with directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by post for three stamps.

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Arbor-vitæ, American, 5 to 6 feet
" aurea, 12 to 15 inches
" Lobbii, 2 to 3 feet
" Siberian (Waro's), 3 to 3½ feet
Aucuba japonica, 18 to 21 inches
Berberis Darwinii, 1 to 1½ foot
" Jamiesonii, 12 to 15 inches
Cupressus Lawsoniana, 3 to 4 feet
Hemlock Spruce, 3 to 4 feet
Hartogia capensis, 1 to 1½ foot
Juniperus chinensis, 1½ to 2 feet
Mahonia japonica, 9 to 12 inches
Norway Spruce, extra fine, 3½ to 4 feet
Phillyrea oleafolia, 2 to 2½ feet
Picea balsamea, 4 to 5 feet
Portugal Laurel, 2½ to 3 feet
Pyracantha, scarlet berried, 1 to 1½ foot
Pinus Laricio, 3 to 4 feet [2 feet.
Rhododendron ponticum, 1½ to
Taxus japonica, 15 to 18 inches
Thujopsis borealis, 2 to 2½ feet
Thuja plicata, 2 to 3 feet

At 18s. per dozen:—

Abies inverta, 1½ to 2 feet
" Douglasii, 2 to 2½ feet
" Menziesii, 4 to 5 feet
Arbor-vitæ, American, 6 to 7 feet
" compacta, 1½ to 2 feet
" Lobbii, 3 to 4 feet
" Siberian (Waro's), 2½ to 4 feet
Aucuba japonica, 2 feet
Berberis Darwinii, 1½ to 2 feet
" Jamiesonii, 15 to 18 inches
Cedrus argentea, 2 to 2½ feet
Cryptomeria Lobbii, 5 to 6 feet
" viridis, 5 to 6 feet
Cupressus fragrans, 3 to 4 feet
" Lawsoniana, 4 to 4½ feet
Hartogia capensis, 1½ to 2 feet
Hemlock Spruce, 4 to 5 feet
Ivy, green, tree, 1½ to 2 feet
" new silver-striped, tree, 15 to 18 inches [15 inches
" tricolor variegata, tree, 12 to
Juniperus chinensis, 2½ to 3 feet
" Leeana, 2 to 2½ feet
" Schottii, 2 to 2½ feet
" thurifera, 1½ to 2 feet
" glauca, 1½ to 2 feet
" drupacea, 15 to 18 inches
" viridis pendula, 2 to 3 feet
Laurel, Colchic, 5 to 6 feet
" Portugal, 3 to 3½ feet
Mahonia japonica, 12 to 15 inches
Pinus austriaca, 3 to 4 feet
" Laricio, 4 to 5 feet
Phillyrea oleafolia, 2½ to 3 feet
Rhododendron ponticum, 2 to 2½ feet
Taxus elegantissima, 15 to 18 ins.
" gold-striped, 15 to 18 inches
Thujopsis borealis, 2½ to 3 feet
Thuja plicata, 3 to 4 feet
" incurvata, 3 to 4 feet [ins.
Wellingtonia gigantea, 15 to 18

At 30s. per dozen:—

Abies elegans, 2 to 2½ feet
" inverta, 2½ to 3 feet
" Menziesii, 6 feet
" orientalis, 2 to 2½ feet
Arbor-vitæ, American, 7 to 8 feet
" compacta, 2 to 3 feet
" Lobbii, 5 to 6 feet
" Siberian, 4 to 5 feet
Arbutus unedo, 2½ to 3 feet
Box, tree, 2½ feet by 2½ to 3 feet
Cedrus argentea, 3 to 4 feet
Cupressus Lawsoniana, 4½ to 5 ft.
" fragrans, 4 to 5 feet
" McNabiana, 3 to 4 feet
Garrya elliptica, 2 to 2½ feet
Hemlock Spruce, 5 to 6 feet
Irish Yews, 5 to 6 feet
Juniperus chinensis, 3 to 3½ feet
" fragrans, 2 to 2½ feet
" glauca, 3 to 3½ feet
" Leeana, 2½ to 3 feet
" Schottii, 3 to 3½ feet
" thurifera, 3 to 4 feet
" virginiana, 5 to 6 feet
" viridis pendula, 3 to 4 feet
Laurel, Colchic, 7 to 8 feet
Pinus austriaca, 4 to 5 feet
" Laricio, 5 to 6 feet
Taxus elegantissima, 1½ to 2 feet
Thujopsis borealis, 4 to 4½ feet
Thuja incurvata, 4 to 5 feet
Wellingtonia gigantea, 2½ feet

At 42s. per dozen:—

Abies Albertiana, 3½ to 4 feet
" inverta, 3 to 4 feet
" orientalis, 2½ to 3 feet
" pyramidalis, 4 to 5 feet
Arbor-vitæ, American, 8 to 9 feet
" aurea, 2 to 2½ feet
" compacta, 3 to 3½ feet
" japonica, 2½ to 3 feet
" Siberian, 5 to 6 feet
Cedrus argentea, 4 to 5 feet
Cupressus fragrans, 5 to 6 feet
" Lawsoniana, 5 to 6 feet
Hemlock Spruce, 6 to 7 feet
Irish Yews, 6 to 7 feet
Juniperus chinensis, 3½ to 4 feet
" densata, 4 to 5 feet
Juniperus glauca, 4 to 5 feet
" Leeana, 3 to 4 feet
" Smithiana, 3 to 4 feet
" thurifera, 5 to 6 feet
" virginiana, 6 to 7 feet
" viridis pendula, 4 to 5 feet
Laurel, Colchic, 8 to 10 feet
Pinus, Cembra, 5 to 6 feet
" Laricio, 6 to 7 feet
Quercus austriaca sempervirens, 3 to 3½ feet
" Fordii, 3 to 3½ feet
Thujopsis borealis, 5 to 6 feet
Thuja Lobbii, 6 to 7 feet
Wellingtonia gigantea, 3 to 4 feet

At 60s. per dozen:—

Abies Albertiana, 4 to 5 feet
" inverta, 6 to 7 feet
" orientalis, 3½ to 4 feet
" pyramidalis, 5 to 6 feet
Arbor-vitæ aurea, 2½ feet
" compacta, 3½ to 4 feet
" gigantea, 4 to 4½ feet
" japonica, 3½ to 4 feet [ins.
Cephalotaxus Fortunei, 21 to 24
Juniperus chinensis, 4 to 5 feet
" thurifera, 6 to 7 feet
Pinus Cembra, 6 to 7 feet
Quercus austriaca sempervirens, 3½ to 4 feet
" Fordii, 3½ to 4 feet
Thujopsis borealis, 6 to 7 feet
Wellingtonia gigantea, 4 to 5 feet

Each:—

Abies Albertiana, 6 to 7 ft., 7s. 6d.
" " 7 to 8 feet, 10s. 6d.
" Douglasii, 8 to 10 ft., 7s. 6d.; 84s. per dozen
" " 10 to 12 feet, 10s. 6d.; 100s. per dozen
" Menziesii, 7 to 8 feet, 5s.
" " 8 to 10 feet, 7s. 6d.
" orientalis, 5 to 6 ft., 10s. 6d.; 100s. per dozen
Araucaria imbricata, 5 to 6 ft., 21s.
" " 6 to 7 feet, 42s.
" " 7 to 8 feet, 63s.
" " 8 to 10 feet, 105s.
Arbor-vitæ japonica, 4 to 4½ feet,
" " 4½ to 5 ft., 10s 6d. [7s. 6d.
Picea grandis, 4 to 5 feet, 15s.
Picea grandis, 5 to 6 feet, 21s.
" nobilis, 3 to 3½ feet, 31s. 6d.; 300s. per dozen
" " 3½ to 4 feet, 42s.
" " 4 to 4½ feet, 51s. 6d.
" " 4½ to 5 feet, 63s.
" Nordmanniana, 4 to 5 ft., 21s.
" " 5 to 6 feet, 31s. 6d.
" " 6 to 7 feet, 42s.
" " 7 to 8 feet, 50s.
" Pinsapo, 3 to 3½ feet, 10s. 6d.
" " 3½ to 4 feet, 15s.
" " 4 to 5 feet, 21s. to 31s. 6d.
Pinus Cembra, 7 to 8 feet, 7s. 6d.
Yews, for hedges, about 12 feet high, 45 years old, recently transplanted, 31s. 6d.

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" Felton & Co., Ealing, London, W.
" Jas. Backhouse & Son, York.
" Stuart & Mein, Kelso, N.B.
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See *Gardeners' Chronicle*, August 31, 1867.
See *Gardeners' Chronicle*, March 16, 1867.
See *Gardeners' Chronicle*, October 12, 1867.
See *Gardeners' Chronicle*, January 11, 1868.
See *Gardeners' Chronicle*, January 6, 1869.
See "Gardeners' Magazine," January 18, 1868.
See "Gardeners' Magazine," January 30, 1869.
See "Journal of Horticulture," August 20, 1868.
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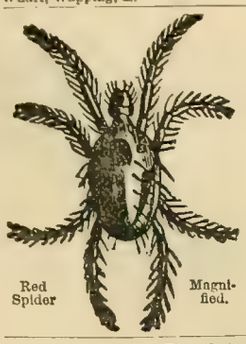


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Caution to Gardeners.—When you ask for

SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the Corporate Mark, OBTAIN WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.

S. & C.'s PRUNING and BUDDING KNIVES are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their REDUCED PRICES as follows:—

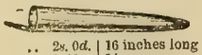
PROPAGATING  GLASSES.

Each.—s. d.		Each.—s. d.	
2 inches in diameter	.. 0 3½	12 inches in diameter	.. 1 9
3 " "	.. 0 4½	13 " "	.. 2 0
4 " "	.. 0 5½	14 " "	.. 2 6
5 " "	.. 0 6½	15 " "	.. 3 0
6 " "	.. 0 8	16 " "	.. 3 6
7 " "	.. 0 10	17 " "	.. 4 0
8 " "	.. 1 0	18 " "	.. 5 0
9 " "	.. 1 2	19 " "	.. 6 0
10 " "	.. 1 4	20 " "	.. 7 0
11 " "	.. 1 6		

BEE GLASSES, with ventilating hole through knob.

4 inches in diameter	.. 0s. 6d.	9 inches in diameter	.. 1s. 8d.
5 " "	.. 0 8	10 " "	.. 2 0
6 " "	.. 0 10	11 " "	.. 2 6
7 " "	.. 1 1	12 " "	.. 3 0
8 " "	.. 1 4		

Either flat or conical tops.

CUCUMBER  GLASSES.

24 inches long	.. .. 2s. 0d.	16 inches long	.. .. 1s. 4d.
22 "	.. .. 1 10	14 "	.. .. 1 2
20 "	.. .. 1 8	12 "	.. .. 2 6
18 "	.. .. 1 6		

HAND GLASSES,  WITH OPEN TOPS.

Each.—s. d.		Each.—s. d.	
12 inches	.. .. .. 6 6	18 inches	.. .. .. 9 6
14 "	.. .. .. 7 6	20 "	.. .. .. 10 6
16 "	.. .. .. 8 6	22 "	.. .. .. 11 6
		24 "	.. .. .. 12 6

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS. PAINTS of various colours ground ready for use.

SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of Prices and Estimates forwarded on application to

JAMES PHILLIPS & Co., 180, Bishopsgate Street Without, E.C.

Horticultural Glass Warehouse.

THOMAS MILLINGTON AND CO., 87, Bishopsgate Street Without, London, E.C.

NEW LIST for ORCHARD-HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD-HOUSE SIZES.

in. in.		4ths.	3rds.	2nds.	Best.
20 by 12 20 by 13 20 by 14 20 by 15 20 by 16	Per 100 feet { 15 oz.	14s 3d	15s 6d	18s 6d	20s 0d
	Per 100 feet { 21 oz.	19s 6d	22s 2d	25s 6d	26s 6d

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in. in.	in. in.	in. in.	in. in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7	12s 3d	13s 3d	16s 0d	18s 0d
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½				

Per 100 feet.

10 by 8	12 by 9	12½ by 10½	14½ by 10½	13s 3d	14s 6d	17s 3d	19s 0d
10½ by 8½	12½ by 9½	13 by 10	15 by 10				
11 by 9	13 by 9	13½ by 10½	13 by 11				
11½ by 9½	12 by 10	14 by 10	14 by 11				

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in. in.	in. in.	in. in.	in. in.	4ths.	3ds.	2nds.	Best
15½ by 10½	14 by 12	22 by 12	22 by 16	14s 3d	15s 6d	18s 6d	20s 0d
16 by 10	14½ by 12½	17 by 13	24 by 16				
14½ by 11½	15 by 12	23 by 13	20 by 17				
15 by 11	15½ by 12½	18 by 14	22 by 17				
15½ by 11½	16 by 12	22 by 14	24 by 17				
16 by 11	16½ by 12½	24 by 14	20 by 18				
21 by 11	17 by 12	22 by 15	22 by 18				
13 by 12	18 by 12	24 by 15	24 by 18				

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.

In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	36s.	4ths quality, per 200 feet case,	36s.
3ds " "	42s.	3ds " "	42s.
2ds " "	60s.	2ds " "	60s.
Best " "	75s.	Best " "	75s.

SHEET GLASS is made only in the following substances, 15 oz., 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.

HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.

BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses. Coloured Glass Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.

STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a-half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.

IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4s. per gallon.

Per cwt.—s. d.		Per gallon.—s. d.	
GENUINE WHITE LEAD	30 0	LINSEED OIL	.. .. 2 10
SECONDS WHITE LEAD	28 0	BOILED OIL	.. .. 3 2
GROUND PATENT DRYERS, 3d. to 4½d. per lb.		TURPENTINE	.. .. 2 7
" OXFORD OCHRE, 3d. to 4½d. per lb.		LINSEED OIL PUTTY, 8s. per cwt.	
" RAW UMBER, 4½d. to 6d. per lb.		Fine OAK VARNISH, 10s. to 12	0
" BURNT do., 6d. to 9d.		" CARRIAGE do., 12s. to 14	0
GREEN PAINT, all shades,	28s. to 60 0	" PAPER do. 10s. to 12	0
BLACK PAINT,	24s. to 36 0	" COPAL 16	0
RED PAINT ..	28s. to 36 0	KNOTTING 10	0
		Patent GOLD SIZE .. 10	0
		" BLACK JAPAN .. 12	0
GROUND BRUSHES.		GLAZIER'S DIAMONDS and TOOLS	
DUSTERS. | SASH TOOLS.		MILLED LEAD and PIPES	
DISTEMPER BRUSHES.		OLD LEAD Bought or taken in exchange.	

The above are Net, for Cash, and as such cannot be booked.
Lists of any of the above on application.

ESTABLISHED OVER QUARTER OF A CENTURY.]

FRANCIS MORTON & CO., LIMITED.

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ENGINEERS,
GOVERNMENT CONTRACTORS,
AND
GALVANISED IRON
MANUFACTURERS,

In addition to other Medals and the highest Commendations of all the principal Agricultural Societies, F. M. & Co. were awarded the Dublin International Exhibition Medal, 1865; the only Medal given solely for Wire Fencing.

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WIRE AND IRON FENCING
MANUFACTURERS,
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&c., &c., &c.





THE ORIGINAL INTRODUCERS, PATENTEES, and SOLE MANUFACTURERS of "FRANCIS MORTON'S" SYSTEM of CABLE WIRE FENCING,
which during the past few years has come into use over

"SEVERAL THOUSAND MILES OF FENCING,"

And has received a large and distinguished preference over every other description of Park and Farm Fencing. The great success attending the introduction of our Patented Improvements has led to numerous worthless imitations being offered for sale by dealers and others. It is necessary for us therefore to note that this Fencing is EXCLUSIVELY MANUFACTURED at our Liverpool Works.

Full Illustrated and Priced Catalogues on application.

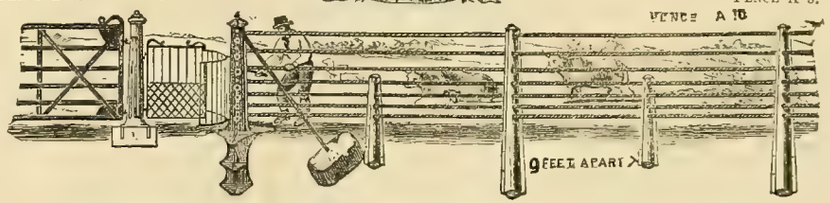
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HEAD OFFICES AND WORKS,
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SOLE CONTRACTORS for THESE FENCES to the WAR DEPARTMENT OF THE BRITISH GOVERNMENT.

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AS SELECTED FOR THE NEW PUBLIC SEFTON PARK, LIVERPOOL.

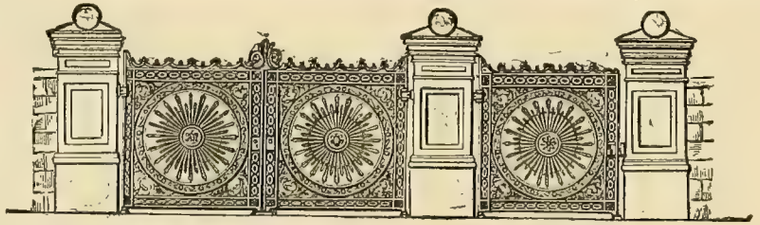
OUR PATENT WIRE FENCING IS CHEAPER, STRONGER, MORE DURABLE, MORE EFFICIENT, AND BETTER IN APPEARANCE THAN BAR IRON FENCING, HURDLES, &c., AT TWICE THE COST.

Thoroughly efficient Workmen sent to erect in any part of the Kingdom. Special Estimates prepared for considerable quantities.

CAST AND WROUGHT-IRON PARK, ENTRANCE, AND FIELD GATES, PLAIN OR ORNAMENTAL,

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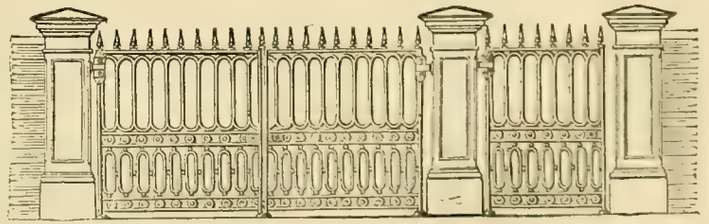
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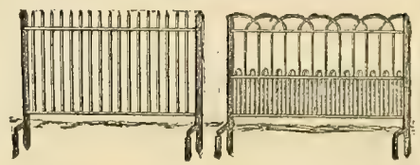


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Solid Wire Drawn and Rolled, of every description, at the lowest prices.

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By far the cheapest and most efficient Fence exported.



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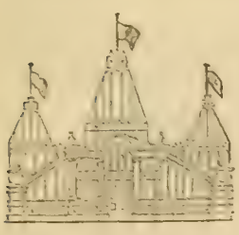
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FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH

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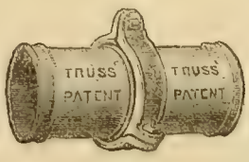
UNIVERSAL FLEXIBLE AND LEAKLESS PIPE-JOINTS.



Horticultural Buildings of every description from 1*s.* 6*d. per foot superficial, inclusive of Brickwork.*

Bath and Gas Work erected in town or country.

The Trade Supplied.



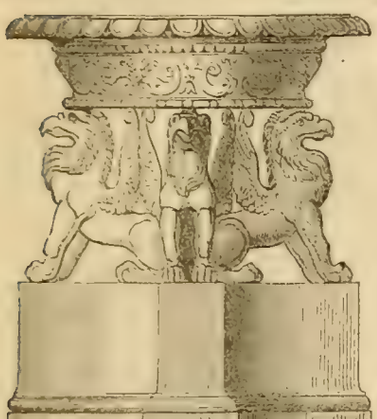
Price Lists, Plans, and Estimates forwarded on application to

T. S. TRUSS, C.E., CONSULTING HORTICULTURAL ENGINEER, &c., SOLE MANUFACTURER, IRON MERCHANT and HORTICULTURAL BUILDER,

FRIAR STREET, BLACKFRIARS ROAD, LONDON, S.E.

AUSTIN'S ARTIFICIAL STONE,

INVENTED 1826.



THE superiority of this material to all others for damp situations and its durability under the most intense frost being now indisputable, and attested by its extensive use in Scotland and Ireland, as well as the principal country seats of England, attention is invited to the following summary of the work manufactured with it, a variety unprecedented in any other establishment of past or present times:—

VASES,
about 300 different kinds, at from 10s. to £50.

FOUNTAINS,
more than 200 designs, from £10 to £400.

PORTEFLEURS, or low FLOWER BASINS, for lawns; STATUES, antique and modern; SMALL FIGURES, adapted to Balustrading, &c.; FIGURES of ANIMALS and BIRDS, about 70 kinds; SUN-DIAL PEDESTALS, about 20 designs; BASKETS, from 1 to 17 feet diameter; GARDEN SEATS, of substantial architectural character, for the ends of terraces; SHELLS for water or rock plants, from 1 to 14 feet wide; FLOWER BOXES, for windows or pavements; BAPTISMAL FONTS, from 2 to 15 guineas; CRESTS and other TERMINALS, for gate-piers; BALUSTRADING, to suit all styles of architecture; a great variety of ORNAMENTAL PEDESTALS, GOTHIC CROSSES, PINNACLES, and NICHES; EDGING for flower-beds.

AUSTIN AND SEELEY, NOS. 369—375, EUSTON ROAD, REGENT'S PARK.

N.B. No sand is used in "Austin's Stone," which is waterproof.

MOULE'S PATENT EARTH SYSTEM.

VALUE OF THE MANURE.

Mr. JAMES, of Halton, has furnished the following particulars. He says:—"Mr. J. Gadsden, who holds upwards of 600 acres of land in this and an adjoining parish, has applied earth passed once through the closet to a Turnip crop, and has produced some of the finest roots I ever saw, although it was sown broadcast, and not, as it should have been, by drill. He has no hesitation at all in estimating its minimum value at £5 per ton. Mr. Gamble, who holds land here to the same extent, has arrived, by an independent trial and calculation, at the same conclusion."

Mr. HAYNE, of Fordington, Dorchester, writes:—"I used some earth that had passed twice through the earth-closets in the day school of this parish on a piece of Rape of about 3½ acres. The land had, the previous season, borne a crop of Mangolds, the whole of which was drawn and consumed at home. The Rape was sown on the 30th April, and 1 ton of the earth, costing 6*s.*, was drilled with the seed. In June, 2 cwt. of Bell's guano was sown broadcast over the whole piece, which was horse-hoed in the drills. The reason for my applying the guano was because the land had not been dunged. The crop was a good one, although the season was so dry and hot, and, therefore, unfavourable for Rape. If I had not used the earth I should have drilled six sacks of bones in the piece, costing 72*s.*"

"Mr. HENRY TAYLOR, Manufacturer of Agricultural Implements, at Dorchester, who is also a manure dealer, and holds a small farm, supplies the earth for the closets and urinals of the Dorset County School. The contents of the vault are removed by him once in three months. He has tried the manure so manufactured on various crops, and he has informed us that he considers the deposit of three months, after one use of the earth, to be worth, when dry, from £2 to £3 per ton. He has tried the repeated use of the same earth, and he considers the value of the manure to increase in proportion to the number of uses."

For Prospectuses and Testimonials apply at the Office, 29, BEDFORD STREET, COVENT GARDEN, W.C., where the Closets are on view and in operation. T. M. EVANS, Manager. Engineers, MESSRS. H. J. AND J. W. GIRDLESTONE, 37, Norfolk Street, Strand, W.C., where they may be consulted with reference to MOULE'S PATENT SYSTEM for WARMING CHURCHES, SCHOOLS, &c.

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AS A PROOF OF THE SUPERIORITY OF THE THRESHING MACHINERY

MANUFACTURED BY

CLAYTON, SHUTTLEWORTH & CO.,

They beg to call attention to the following statement.

	ENGINES.	MACHINES.
Engines and Machines sent out in the year 1868	812	644
Total Number sent out up to December 31, 1868	8,921	7,982

The Gold Medal was awarded them at the Paris Exhibition, 1867, for Portable Engines and Threshing Machines; and at the last trial of the Royal Agricultural Society they gained EVERY FIRST PRIZE offered for Steam Engines, also the Prize of £15 for Finishing Threshing Machines, and Silver Medal for special improvements—on which occasion the following Firms, amongst others, competed:—Messrs. Ransomes & Sims, Tuxford & Sons, Reading Ironworks Company (Limited); Brown & May, Allchin & Son, Barrows & Carmichael, Humphries; Marshall, Sons & Co. (Limited); Burrell; Ruston, Proctor & Co.; Roby & Co. (Limited); Holmes & Sons, E. R. & F. Turner, P. & H. Gibbons, Tasker & Sons, Nalder & Nalder, Riches & Watts, Wallace & Haslem, Catchpole & Thompson, &c., &c.

NOTE.—The Royal Agricultural Society will not hold another trial of Portable Steam Engines and Threshing Machines until the year 1872.

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CATALOGUES AND EVERY INFORMATION FORWARDED POST FREE.

SHAW'S TIFFANY.

For Samples and Prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

Protect your Plants from Frost.

ANDERSON'S TAGANROG MATS, No. 1, are the Heaviest, Best, and Cheapest for covering Garden Frames. Price 80*s.* per 100, or 8*s.* per bundle of 10.

ARCHANGEL, PETERSBURG, and other MATS at low prices.
JAMES T. ANDERSON, 7, Commercial Street, Shoreditch, London, E.

BROWN'S FLORAL SHADING, for Shading Plants under Glass from the Sun, and protecting the Bloom of Wall, Trees from Frost. Sold by Nurserymen and Seedsmen.

No. 1. 38 inches wide, 20 yards long, at 4*s.* 6*d.* per piece.
No. 2. 38 " " 20 " " 4*s.* 10*d.* per piece.
No. 3. 39 " " 18 " " 7*s.* extra stout.

Samples on application to CHARLES BROWN, Greenheys, Manchester.

Preserve your Trees from Frost.

TANNED NETTING for FRUIT TREES.
COTTON NETTING and BUNTING, FRIGI DOMO, SCRIMS for GREENHOUSE BLINDS, &c.
Samples and Price List free on application to

BENJAMIN EDGINGTON, TENT and RICK CLOTH MAKER to the Queen and Prince of Wales, 2, Duke Street, Southwark, S.E. A large stock of NEW and REPAIRED NETTING, and other material for the Protection of Fruit Trees, Strawberry Beds, &c. MARQUEES and TENTS of all dimensions on Sale or Hire.
Address, BENJAMIN EDGINGTON, (only), 2, Duke Street, London Bridge, S.E. No other Establishment.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, and Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, Royal Gardens, Kew, &c.

The best Shading is "Frigi Domo" Netting.

White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for

PROTECTION from the COLD WINDS and MORNING FROSTS.

"FRIGI DOMO" NETTING, 2 yards wide, 1*s.* 6*d.* per yard run.
"FRIGI DOMO" CANVAS.
Two yards wide .. .. 1*s.* 9*d.* per yard run.
Four yards wide .. .. 3*s.* 6*d.* per yard.
An improved make, 2 yards wide .. 1*s.* 9*d.* per yard.
An improved make, 3 yards wide .. 2*s.* 8*d.* per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.

RALPH WALLER AND CO., 45, Dale Street, Manchester, Manufacturers of all kinds of GARDEN NETTING, &c.—The serious injury done every spring to fruit crops by frost has proved to every Gardener the absolute necessity of providing some protection to the trees early in the year. If the blossom, in its earliest development, be but slightly weakened by frost, the vitality of the fruit germ is destroyed, and the fruit lost. In this climate, on the average of a century, there is not more than one year in 10 when the protection is unnecessary. Many fabrics have been tried for this purpose of protection, with more or less success; and we may now say, without fear of contradiction, that we have succeeded in manufacturing the only fabric which is altogether unobjectionable for this purpose. Without unduly nursing, it effectually protects the young germ, and does not impede the action of light and due circulation of air. Some other fabrics do this, and thus weaken the vitality of the tree altogether. Almost every large grower in the three kingdoms can testify to these facts.

The Nettings also make a beautiful shading for Hothouses in summer, and are cheaper than other fabrics on account of their great durability.

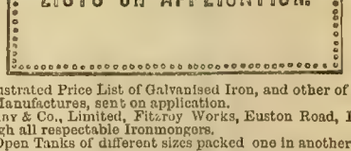
Netting (qualities): Nos. 1, 2, 3, in pieces of 30 yards long, 1½ yard wide. Tiffany: in pieces 20 yards long, 30 inches wide.

For prices, &c., apply to the above address—45, Dale Street, Manchester.

"Every Cottage should be provided with a Water Tank." *Disraeli.*

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F. BRABY AND CO. having laid down more extensive and Improved Machinery on their Deptford premises (IDA WHARF), are prepared to supply WROUGHT-IRON TANKS, GALVANISED or PAINTED, of superior quality, at reduced prices, and at very short notice.



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F. BRABY & Co., Limited, Fitzroy Works, Euston Road, London; or through all respectable Ironmongers.

N.B. Open Tanks of different sizes packed one in another to save carriage.

Green's Patent Noiseless Lawn Mowers.

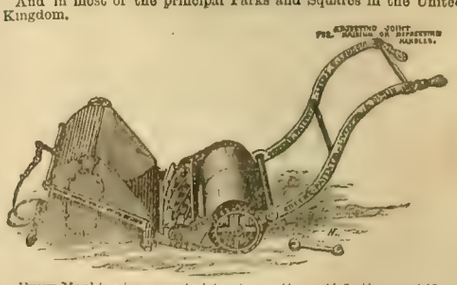
GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every prize that has been given in all cases of competition, and in proof of their superiority upwards of 44,000 have been sold since the year 1856.

They are the simplest in construction, least liable to get out of order, and can be worked with far greater ease than any other Lawn Mower extant.

They are the only Machines in constant use at

Buckingham Palace Gardens	The Winter Palace Gardens, Dublin
Marlborough House Gardens	The Dublin Botanic Gardens
Royal Horticultural Society, South Kensington	The Liverpool Botanic Gardens
The Royal Botanic Gardens, Regent's Park	The Leeds Royal Park
The Crystal Palace Company's Gardens, Sydenham	The Hull Botanic Gardens
The Hyde Park Gardens	The Botanic Gardens, Brussels
	The Sunderland Park
	The Preston Park

And in most of the principal Parks and Squares in the United Kingdom.



Every Machine is warranted to give entire satisfaction, and if not approved of can be returned at once unconditionally.

Illustrated Price Lists on application, which include Free Delivery to all the principal Railway Stations and Shipping Ports in England. All Orders executed on the day they are received.

T. G. & Son have ten times more Lawn Mowers in Stock at their Establishment, 54 and 55, Blackfriars Road, S., than any other firm in London, that intending Purchasers can select from.

Having very extensive premises in London, we are in a position to do all kinds of repairs there as well as at the Works at Leeds.

THOMAS GREEN & SON, Smithfield Iron Works, Leeds; and 54 and 55, Blackfriars Road, London, S.

HOT-WATER APPARATUS of every description, fixed complete in any part of the country, for Warming Greenhouses, Conservatories, Forcing Pits, &c.
Plans and Estimates on application.
J. JONES & SONS, 6, Bankside, Southwark, London, S.E.

JOHN WEEKS AND CO.,
HORTICULTURAL BUILDERS
AND
HOT-WATER APPARATUS MANUFACTURERS.
ILLUSTRATED CATALOGUES
Sent free on application.
The Show Establishment and Offices at the Works, King's Road, Chelsea, S.W.

W. H. LASCELLES' MACHINE-MADE MELON LIGHTS. Each.

6 ft. by 4 ft. Lights, 24ins. thick, unglazed £0 5 0
" " Primed and Glazed with 10 oz. Sheet 0 11 0
" " with stout Portable Box, not Painted.. .. .. .. 1 3 0
" " Painted four coats, and Handles on 1 8 0
" " Packed and Delivered in Railway Van.. .. .. 1 10 0
6 ft. by 8 ft., Double Lights, do. 2 15 0
GREENHOUSES. Per ft. super.
Woodwork only Prepared and Fitted 0 0 6
" Primed and Glazed with 16 oz. Sheet .. 0 0 9
" Delivered, and Fixed with Ironwork .. 0 1 0
" Painted four coats, two sides, ready for use 0 1 3
Finsbury Steam Joinery Works, 121, Bunhill Row, E.C.

Hothouses for the Million.
SIR J. PAXTON'S PATENT.—NOTICE.
MESSRS. HEREMAN AND MORTON having taken New Premises for the Construction of Horticultural Buildings, beg to inform their Patrons and the Public that they possess the exclusive privilege of Manufacturing the above PATENT HOTHOUSES, and they are also enabled to supply ORNAMENTAL and PLAIN CONSERVATORIES at reduced prices. Country Works in Coventry, Gloucester, Lancashire, and Scotland.
Illustrated Price Lists free on application at the Office, 7, Pall Mall East, London, S.W.

HOT-WATER PIPES.
CASH PRICES.

	2-inch.	3-inch.	4-inch.
PIPES .. .. per yard	1s. 0d.	1s. 6d.	2s. 0d.
ELBOWS .. .. each	1 6	2 3	3 0
TEES .. .. "	2 6	3 6	4 6
SYPHONS .. .. "	2 6	3 6	4 6
VALVES .. .. "	10 0	11 6	13 0

No credit will be given when Pipes, &c., are invoiced at the above prices.
J. JONES AND SONS,
6, Bankside, Southwark, London, S.E.
Price Lists, with terms for credit and for delivery at country stations, will be sent on application.

Heating by Hot Water.
W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, S.E.

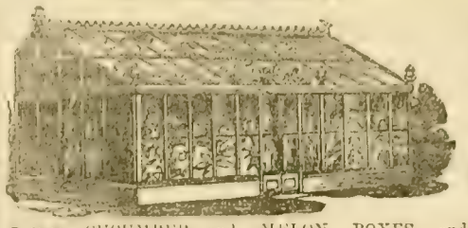
	2-inch.	3-inch.	4-inch.
HOT-WATER PIPES, from stock—p. yard	1s. 0d.	1s. 6d.	2s. 0d.
ELBOWS for ditto .. .. .. each	1 6	2 3	2 9
TEES .. .. "	2 3	3 6	4 6
SYPHONS .. .. "	2 3	3 6	4 6
THROTTLE VALVES .. .. .. "	10 0	11 6	13 0

Cash remittance with order.
N.B. All Goods of first-class manufacture. No second quality kept. Estimates given, and orders punctually attended to the same day.

Redhill Street, Regent's Park, London, N.W.
MRS. BIRCH begs to inform the Nobility, Gentry, and the Public, that she is prepared to ERECT any style of GREENHOUSE or CONSERVATORY in any part of the Town or Country (her late husband having manufactured the Paxton Patent Hot-Houses for the last 10 years). She will erect plain Orchard-Houses, Vineries, &c., with 21-ounce good sheet Glass, and any simple plan of Ventilation, at the low rate of from 1s. 7d. to 1s. 10d. per foot superficial (heating and brickwork not inclusive). Apparatus for opening all the Ventilators at one time, from 60s. each set.
Plans and Estimates sent on application.

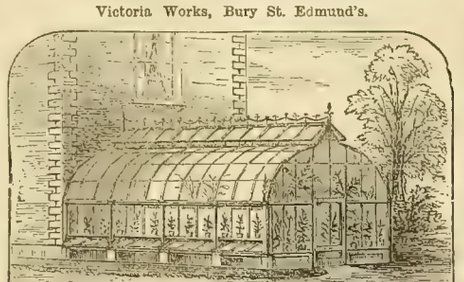
JAMES BOYD AND SONS, HORTICULTURAL BUILDERS, Paisley, N.B., Manufacturers of CONSERVATORIES, GREENHOUSES, VINERIES, and every description of HOTHOUSE in Wood or Iron; also of HOT-WATER HEATING APPARATUS for Horticultural Buildings, Churches, Mansions, Warehouses, &c.
JAMES BOYD & SONS beg to call attention to the superior facilities they possess for executing all orders entrusted to them, in a first-class style, at a moderate price, and with despatch. Their works are fitted up with the most improved machinery, specially adapted for this trade. Their system of ventilation gives the least possible trouble, each range of sashes or ventilators opening by one movement without the risk of cords breaking, as in sliding sashes, and thorough ventilation is secured during wet weather, without admitting the rain. Plans and Estimates on application.

F. A. HAAGE'S WOOD GARDEN STICKS and TALLIES, commended by the Royal Horticultural Society, acknowledged to be the neatest, cheapest, and best Training Sticks and Tallies made.
The above can now be had, of all sizes, Wholesale, of BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London, E.C.; and Retail of the principal Seedsmen and Florists.
Price Lists on application.

JAMES WATTS AND CO., HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, 353, Old Kent Road, London, S.E.

200 CUCUMBER and MELON BOXES and LIGHTS, all sizes, Glazed and Painted complete, ready for immediate use, packed and sent to all parts of the Kingdom.
Strong ZINC HAND-GLASSES, all sizes.
References to the Nobility, Gentry, and Trade in most of the Counties in England.

CRANSTON'S PATENT BUILDINGS for HORTICULTURE.
"Dry Glazing without Putty."
"Glass without Laps."
"Ventilation without Moving Lights."
Highly Commended by the Royal Horticultural Society, South Kensington.

Plans and Estimates free on application. Descriptive Book fully illustrated, post free for 20 stamps, from the Author and Patentee, JAMES CRANSTON, Architect, Birmingham.
Works: Highgate Street, Birmingham.
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IRON GREENHOUSES CHEAPER THAN WOOD.
Beard's Patent Non-conducting and Ventilating Metallic Glass Houses.
Victoria Works, Bury St. Edmund's.

MANUFACTURED BY
CHARLES BEARD,
Senior Partner in the late Firm of Sanders, Frewer, & Co., which Firm was dissolved by mutual consent.
The Patentee wishes to observe his Patent Houses obtained the First and only Prize at the Royal Horticultural Congress, South Kensington, 1866;
The First-class Certificate at the Grand Manchester Horticultural Show, 1867;
The Three First-class Certificates at the Royal Horticultural Show, at Bury St. Edmund's, 1867, viz.:—One Prize for Patent Glazing without Putty; One Prize for Best System of Patent Ventilation; One Prize for S. F. & Co.'s Improved Flower Stands.
These much-approved Patent Systems of Glazing and Ventilation are also extensively adapted for all Agricultural Buildings, Public Halls, Churches, Factories, Railway Stations, &c., &c.
Full particulars and Prices of the Patent Houses, glazed with 26 oz. Sheet Glass from 1s. 2d. per foot super and upwards. As also Illustrated Catalogues for 12 postage stamps, may be obtained on application to
CHARLES BEARD, Victoria Horticultural Works, Bury St. Edmund's.
PATENT GLAZING BARS, to screw on wood, may be had separately. Full particulars for stamped envelope.

FOR DISPOSAL, long LEASE of NURSERY and SEED BUSINESS.
JAS. OVER, 110, High Street, Clapham, S.

To Graziers, Cattle Dealers, and Others.
TO BE LET, the TOLLS of SOUTHALL CATTLE MARKET (held under Royal Charter), with the Accommodation Lands attached. The Market adjoins the Southall Station of the Great Western Railway, and is within 20 minutes of London.
Apply to Mr. MURRAY, 24, New St., Spring Gardens, Charing Cross.

TO BE LET, a SMALL NURSERY, in high condition, with SEED BUSINESS, &c.—A quantity of Glass, well stocked indoors and out. This place stands well for a Public Inn, with many good chances. It will be found first-rate. Stands where it is wanted, commanding everything. Advantageous for a large and extensive business, and in very many ways.
Apply to J. K., High Beech, Essex.

Sales by Auction.

Annual Sale of Handsome English-grown Camellias, &c., &c.

MESSRS. PROTHERO AND MORRIS will SELL at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on FRIDAY, February 19, at half-past 12 o'Clock precisely, about 200 Choice Double CAMELLIAS, 1½ ft. to 3 ft., abundantly furnished with bloom-buds; fine AZALEA INDICA in flower; a superb collection of Standard and DWARF ROSES, a rich assortment of AMERICAN PLANTS; also LILIUM AURATUM, and varieties of LANCIFOLIUM, &c.
Catalogues may be had at the Rooms as above, and of the Auctioneers and Valuers, Leytonstone, Essex.

Claremont Gardens, Esher.

MR. NIGHTINGALE and MESSRS. PROTHEROE AND MORRIS are honoured with commands to SELL by AUCTION, on the premises, as above, on MONDAY and TUESDAY, February 22 and 23, at 12 o'Clock precisely, in Lots suited for Gentlemen and the Trade, the whole of the valuable GREENHOUSE PLANTS, comprising 3000 Azalea indica, strong and well furnished with buds; some remarkably handsome specimens of double white and other Camellias, from 4 to 7 feet; choice Ericas, of sorts; Acacia armata, Poinsettias, 400 Cytisus racemosus, very fine plants, and well set with flowers; Oleanders, Hydrangeas, Calias, 2000 Deutzias, 2000 Epacris, Tree Carnations, a variety of Stove Plants, &c. Also a very large collection of SOFT-WOODED and BEDDING PLANTS, including Pelargoniums, about 1000 Scarlet and Variegated Geraniums, and others in great variety. Some very choice named Hyacinths and other Dutch Bulbs, just coming into perfection; 4000 Strawberries, in No. 32 pots, for forcing; 3000 Chrysanthemums, 2000 Mignonette, 3000 Lycopodiums; a variety of young NURSERY STOCK, including Pyramidal Pear and other Fruit Trees; Conifers and Evergreens, Shrubs, 70 bushels Myatt's Prolific Ashleaf Potatos, &c.
May be viewed on Saturday, February 20. Catalogues to be obtained one week before the Sale of Mr. MACDONALD, Claremont; of Messrs. PROTHEROE & MORRIS, Auctioneers, American Nurseries, Leytonstone, Essex; and at Mr. NIGHTINGALE'S Auction and Survey Offices, High Street, Kingston-on-Thames.

Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, February 15, at half-past 12 o'Clock precisely, choice Imported ORCHIDS, collected by Lieutenant W. J. Williamson in the Cossyah Hills, Assam, in the finest condition; consisting of:—

Vanda cristata	Dendrobium Williamsoni
" cœrulea	" Cambridgeanum
Luisia Psyche	" heterocarpum
Renanthera bilinguis	" sulcatum
Aeridos cylindricum	" devonianum
Pleione Wallichii	Cypripedium hirsutissimum

&c., &c.
On view the Morning of Sale, and Catalogues had.

Consignment of Plants from Ghent.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, February 17, at half-past 12 o'Clock precisely, choice CAMELLIAS, INDIAN AZALEAS, LAPAGERIAS, CHAMÆROPS, DRACÆNAS, ARALIAS, AUCUBAS, YUCCAS, RHODODENDRONS, ARAUCARIAS, CARNATIONS, ROSES, Standard and Dwarf FRUIT TREES, Hardy SHRUBS, Choice GLADIOLI, LILIUMS, and RANUNCULI for Spring planting.
On view the Morning of Sale, and Catalogues had.

Consignment of Plants from Ghent.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, February 19, at half-past 12 o'Clock precisely, 200 CAMELLIAS, 200 INDIAN AZALEAS, 200 HARDY RHODODENDRONS, ROSES, YUCCAS, MAGNOLIAS, LILIUMS, GLADIOLI, RANUNCULI, and a variety of other Trees and Shrubs.
On view the Morning of Sale and Catalogues had.

Seedling Gladioli, Carnations, Picotees, and Pinks, FROM YARMOUTH.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, February 25, at half-past 12 o'Clock precisely, the second portion of Messrs. Youell's choice collection of Seedling and other named GLADIOLI, from Yarmouth; also their well-known collection of CARNATIONS, PICOTEES, and PINKS.
On view the morning of Sale, and Catalogues had.

Consignment of Plants from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, February 20, at half-past 12 o'Clock precisely, splendid Variegated and Green HOLLIES, fine specimens for lawns; Standard, Pyramidal, and Trained FRUIT TREES, CONIFERS, Standard, Dwarf, and Weeping RHODODENDRONS, KALMIAS, AUCUBAS, YEWS, Hardy AZALEAS, and other Plants from Holland; choice GLADIOLI and RANUNCULI for spring planting.
On view the Morning of Sale, and Catalogues had.

Seeds.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, February 22, at half-past 12 o'Clock precisely, an importation of valuable CONIFEROUS SEEDS from California and other parts. Fully detailed particulars in the Catalogues.
On view the Morning of Sale.

205, King Street, and Albion Road, Hammersmith.

GREENHOUSE BUILDERS' STOCKS: CLEARANCE SALE, IN CONSEQUENCE OF RE-BUILDING WORKSHOPS AND PREMISES.
MR. JAMES H. GREEN is instructed by Mr. James Smith to SELL by AUCTION, on the premises as above, on TUESDAY, March 2, at 12 for 1 o'Clock, the entire STOCK—1500 square feet of Glass in 13 Span and Lean-to Greenhouses, in various sizes; 180 Pit Lights and Frames, Spring Van and Cart, Dog-cart, Phaeton, a useful Black Cob, and numerous effects.
On view Three Days prior to Day of Sale. Catalogues on the Premises, and of the Auctioneers, 72, King Street, Hammersmith.

Preliminary Advertisement.

IMPORTANT SALE of CONIFERÆ of every description, DECIDUOUS TREES and SHRUBS, at Belstane, in the Parish of Kirknewton and County of Edinburgh.
MR. GEORGE BROWNLEE, AUCTIONEER, Midcalder, has been instructed by the Trustees of the late Mr. Humphrey Graham, to SELL by AUCTION, towards the end of FEBRUARY or beginning of MARCH, the large Collection of CONIFERÆ, (varying from 1 to fully 15 feet, and mostly raised from seed by Mr. Graham); DECIDUOUS TREES and SHRUBS now growing at Belstane, and consisting of many thousands.
Belstane is about 12 miles west from Edinburgh, and is fully 800 feet above the level of the sea. The whole stock is in first-rate condition, and from the height above the sea at which it has been grown is particularly hardy and well adapted for transplanting.
Full particulars in future Advertisements. Catalogues in preparation, and when ready may be obtained from Mr. A. DONALD, Belstane, Kirknewton, Mr. GEORGE BROWNLEE, Midcalder, and Messrs. A. & A. CAMPBELL, W.S., 22, Dublin Street, Edinburgh.
Midcalder, Jan. 20, 1869.

GRAY'S OVAL TUBULAR BOILER.
INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.
MR. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his
NEW OVAL TUBULAR BOILER,
Acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in GARDENERS' CHRONICLE *of International Exhibition, May* 24, 1862, *page* 476.
"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY'S variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

☞ *They are made of all sizes, which, with prices, may be had on application.*

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

SUTTON'S HOME-GROWN SEEDS A FIRST PRIZE SILVER MEDAL, PARIS, 1862

SUTTONS' HOME-GROWN FARM SEEDS,

NEW AND UNADULTERATED, CARRIAGE FREE.

SEEDS DIRECT FROM THE GROWERS THE BEST MEANS OF PREVENTING DISAPPOINTMENT.

SUTTON'S HOME-GROWN SEEDS A FIRST PRIZE SILVER MEDAL, PARIS, 1862

SUTTONS' PRESENT PRICES FOR FARM SEEDS,

OF GENUINE AND SUPERIOR QUALITY, GROWN AND OFFERED BY

SUTTON & SONS, SEEDSMEN TO THE QUEEN, READING, BERKS.

MESSRS. SUTTONS' FARM SEEDS ARE SAVED FROM CHOICE SELECTED AND FULLY DEVELOPED ROOTS.

PURCHASERS OF LARGE QUANTITIES LIBERALLY TREATED WITH. SAMPLES ON APPLICATION.

MANGEL WURZEL.

Lowest price per cwt. on application.

	Per lb.—s.	d.
GOOD YELLOW GLOBE	0	10
GOOD ORANGE GLOBE	0	10
GOOD RED GLOBE	1	0
GOOD LONG RED	0	10
GOOD LONG YELLOW	1	0
SUTTONS' SELECTED YELLOW GLOBE	1	0
SUTTONS' SELECTED ORANGE GLOBE (was awarded First Prize, Birmingham, 1868)	1	0
SUTTONS' YELLOW INTERMEDIATE	1	6
SUTTONS' MAMMOTH LONG RED (was awarded First Prize, Birmingham, 1868)	1	6
SUTTONS' MAMMOTH LONG YELLOW	1	6
SUTTONS' BERKSHIRE PRIZE	1	6
FISHER HOBBS' ORANGE GLOBE	1	0
ELVETHAM LONG RED	1	0
YELLOW OVAL	1	0

KOHL RABI.

SUTTONS' IMPROVED LARGE GREEN	2	6
LARGE PURPLE	3	0
NEW LARGE GERMAN	3	6

COW CABBAGE.

LARGE DRUMHEAD	2	6
ROBINSON'S CHAMPION	3	0
OXHEART, NEW EARLY	4	0
LONDON MARKET	4	0
EARLY BATTERSEA	4	0
THOUSAND HEADED	3	0
FLAT DUTCH	3	0

FIELD CARROT.

WHITE BELGIAN	1	6
YELLOW BELGIAN	1	6
LARGE GREEN-TOP ORANGE BELGIAN	1	9
RED INTERMEDIATE	2	0
ALTRINGHAM	2	0
LONG RED CATTLE	1	6

TURNIP SEEDS.

Lowest price per bushel on application.

SWEDISH. Per lb.—s.	d.
SUTTONS' CHAMPION.—The best Swede in cultivation. Very hardy; has gained numerous prizes again this season	1 0
PURPLE-TOP	0 9
SKIRVING'S	0 9
HARDY WHITE	1 3
RIVERS' STUBBLE	1 0
KING of SWEDES	0 10
HALL'S WESTBURY	0 10
GIANT TANKARD	1 0
MARSHALL'S PURPLE-TOP	0 10
SHEPPARD'S GOLDEN GLOBE	0 10
GREEN-TOP GOLDEN MELON	0 10
EAST LOTHIAN	0 10

YELLOW-FLESHED TURNIPS.

SUTTONS' GREEN-TOP YELLOW HYBRID	1	3
SUTTONS' PURPLE-TOP YELLOW HYBRID	1	3
YELLOW SCOTCH PURPLE-TOP	1	0
YELLOW SCOTCH GREEN-TOP	1	0
YELLOW TANKARD	1	0
ORANGE JELLY	1	3
DALE'S HYBRID	1	0
FOSTERTON HYBRID	1	0
WAITE'S ECLIPSE	1	3

WHITE-FLESHED TURNIPS.

SUTTONS' RED PARAGON	0	10
SUTTONS' IMPERIAL GREEN GLOBE	0	9
HARDY GREEN ROUND	0	10
SUTTONS' PURPLE-TOP MAMMOTH	1	6
POMERANIAN WHITE GLOBE	0	10
TANKARDS, of sorts	1	0
WHITE GLOBE	0	10
GREY STONE, or MOTTLED GLOBE	0	10
SUTTONS' EARLY SIX WEEKS	1	0

SUGAR BEET.

WHITE SILESIAN GREEN-TOP	0	10
WHITE SILESIAN RED-TOP	0	10
NEW IMPERIAL	1	0

CLOVER SEEDS.

Samples and lowest price per cwt. on application.

Per lb.—s.	d.
COMMON RED, or BROAD. 7½d. to	0 11
YELLOW TREFOIL, or HOP, 3½d. to	0 5
WHITE, or DUTCH 10d. to	1 1
ALSIKE, or HYBRID 11d. to	1 4
COW GRASS (true perennial) 11d. to	1 1
GIANT PERENNIAL WHITE	1 4
MIXED PERENNIAL, for Permanent Pasture	1 0
MIXED CLOVERS, for Alternate Husbandry	0 10½
Ditto, for Lawns	1 4
ITALIAN CRIMSON (Trifolium incarnatum)	0 6
YELLOW SUCKLING (Trifolium minus)	1 6
LOTUS CORNICULATUS (Bird's-foot Trefoil)	2 6
RIB GRASS, or PLANTAIN, 6d. to	0 8
BOKHARA	2 0
MALDON'S NEW WONDER CLOVER	1 0

POTATOS FOR FIELD CULTURE.

WALKER'S REGENT	WHITE ROCK
EARLY SHAW	YORK REGENT
WELLINGTON	SKERRY BLUE
FLUKE KIDNEY	FLOUR-BALL
DALMAHOY	RED REGENT

Lowest price per sack or ton on application.

MISCELLANEOUS.

Per lb.—s.	d.
BEET, New Large Purple	2 6
BROMUS SCHRÆDERI	1 0
BROOM, for Cover	1 0
BUCKWHEAT, per bushel, 7s. 6d.	
FENUGREEK	0 9
FURZE, or GORSE	1 9
HOLCUS SACCHARATUS	1 0
LUCERNE, fresh imported	1 2
LUPINS, Yellow and Blue (price fluctuating).	
MUSTARD, 16s. per bushel; 2s. 3d. per gallon	0 4
PARSNIP, Common Cattle	1 9
Ditto, Large Guernsey	2 6
PEA, Early Racehorse, p. bush., 12s. 6d.	

MISCELLANEOUS.

	s.	d.
RAPE, or COLE, 14s. per bushel; 2s. per gallon	0	4
SAINFOIN (price fluctuating).		
SERRADELLA	1	0
SHEEP'S PARSLEY	1	0
YARROW, or MILFOIL	3	0

RYE-GRASSES.

Lowest price per quarter on application.

Per bushel.—s.	d.
PERENNIAL RYE-GRASS, best quality	6 6
Ditto ditto, second quality	4s. to 5 0
PACEY'S PERENNIAL RYE-GRASS	7 0
EVERGREEN RYE-GRASS, or Perennial Devon Eaver	7 6
SUTTONS' DWARF PERENNIAL RYE-GRASS, 50s. per cwt.	
ANNUAL, or COMMON, best quality	6 0
Ditto ditto, lighter seed, 4s. 6d. to	5 0
ITALIAN RYE-GRASS, good English Seed	6 6
SUTTONS' IMPROVED ITALIAN RYE-GRASS, as supplied to the Metropolis Sewage Company	7 0
FRESH IMPORTED SEED, cleaned	7 6

MIXTURES OF CLOVERS AND RYE-GRASS.

Per acre.—s.	d.
CLOVERS and COMMON RYE-GRASS, for 1 year's Clover Hay	12 6
CLOVERS and ITALIAN RYE-GRASS, for 1 year's Clover Hay	13 6
MIXED CLOVER SEEDS ONLY, for 1 year's Clover Hay, 10s. 6d. to	12 6

MIXTURES For 1, 2, 3, or 4 Years' Lay.

Per acre.—s.	d.
CLOVERS and GRASSES, for 1 year's lay, best quality	13 6
GRASS and CLOVER SEEDS, for 2 years' Pasture, Hay, or Soiling, best quality	17 6
GRASS and CLOVER SEEDS, for 3 or 4 years' Pasture, Hay, or Soiling, best quality	22 0

Second quality Mixtures cheaper.

SUTTONS' MIXTURES OF PERMANENT PASTURE GRASSES AND CLOVERS.

SEEDSMEN BY APPOINTMENT Sutton AND Sons.

PRODUCING ABUNDANT CROPS OF HAY AND SUPERIOR PASTURAGE.

For best quality Mixtures, 2 bushels of Grass Seeds, and 12 lb. of Clovers; and other Small Seeds are supplied per acre, either separately or mixed.

Per acre.	
STIFF CLAY SOIL, best quality	28s. to 32s.
Ditto, second ditto	20s. to 26s.
HEAVY LOAM SOIL, best quality	28s. to 32s.
Ditto, second ditto	20s. to 26s.
GOOD LOAMY SOIL, of medium texture, best quality	28s. to 32s.
Ditto, second ditto	20s. to 26s.
LIGHT SANDY SOIL, best quality	28s. to 32s.
Ditto, second ditto	20s. to 26s.
SHARP GRAVELLY SOIL, best quality	28s. to 32s.
Ditto, second ditto	20s. to 26s.

Per acre.	
CHALKY UPLANDS, best quality	28s. to 32s.
Ditto, second ditto	20s. to 26s.
SHEEP DOWNS, best quality	28s. to 32s.
Ditto, second ditto	20s. to 26s.
WATER MEADOWS, best quality	28s. to 32s.
Ditto, second ditto	20s. to 26s.
ORCHARDS and PASTURES overshadowed with Trees, best quality	28s. to 32s.
Ditto, second quality	20s. to 26s.
GOOD BLACK PEATY SOIL, best quality	28s. to 32s.
Ditto, second ditto	20s. to 26s.

Per acre.	
RECLAIMED MARSH LANDS	20s.
POOR HEATH LANDS	20s.
For Cultivation with SEWAGE and other LIQUID MANURE	20s.
For WASTE PLACES, &c.	20s.
Per bushel.—s.	d.
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COARSE GRASS SEEDS for GAME COVERS, &c.	3 6
Ditto for RAILWAY EMBANKMENTS, &c.	3 6

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Per bushel.	
SUTTONS' CRYSTAL PALACE MIXTURES for PARK GROUNDS, as supplied to the Crystal Palace	18s.
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SEPARATE NATURAL GRASS SEEDS IN GREAT VARIETY, CAREFULLY CLEANED, AND FREE FROM WEEDS.

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SUTTON AND SONS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 8.—1869.] SATURDAY, FEBRUARY 20. {Price Fivepence. {Stamped Edition, 6d.

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GRAND NATIONAL HORTICULTURAL EXHIBITION, 1869, to be held at MANCHESTER, MAY 14 to 21. Schedules are now ready, and may be obtained on application to the undersigned. BRUCE FINDLAY.
Botanic Garden, Manchester.

BISHOP AUCKLAND FLORAL and HORTICULTURAL SOCIETY.
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Royal Ascot or Perpetual Vine.
MESSRS. JOHN STANDISH AND CO. are now selling fine strong plants of this extraordinarily productive VINE at 21s., 42s., and 63s. each.
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J. MEREDITH is now prepared to execute orders for this fine Grape. CANES, fit for immediate planting, from 10s. 6d. upwards.
The Vineyard, Garston, near Liverpool.

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R. TANTON, F.R.H.S., Epsom Nurseries, Surrey.

VINES, from Eyes, 2-yr. old, strong Fruiting Canes, 10s. 6d.; choice of 15 varieties, warranted to fruit this season. Do. do. do., smaller, 7s. 6d. each.
Do. for planting, 5s. each; do. smaller, 3s. 6d. each.
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PAUL AND SON offer strong RED, WHITE, and BLACK CURRANTS, 16s. per 100. They have a few hundreds yet left of their splendid STANDARD APPLES.
The Old Nurseries, Cheshunt, N.

MELON PLANTS.—Golden Perfection, strong. CUCUMBER PLANTS.—Telegraph.
Both may be depended upon.
A. WATKINS, Hockerill, Bishop Stortford.

Pyramidal Cherries, extra fine, for Gardens.
WM. WOOD AND SON have a magnificent stock of the above to offer. The Pyramid Cherries are especially fine.
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NEW and GENUINE AGRICULTURAL and GARDEN SEEDS.
Special prices and advantageous offers on application to
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TRITOMA GRANDIS (true), the [illegible]est winter-flowering hardy plant known, 4s. per dozen, [illegible] per 100.
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A Coloured Plate by Andrews, taken in December, post free for 13 stamps.—R. TANTON, F.R.H.S., Epsom Nurseries, Surrey.

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L. T. DAVIS has a large stock of these, which he offers at low prices, carriage free to Belfast.
Ogle's Grove Nursery, Hillsborough, Co. Down.

To the Trade.
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SPECIAL LIST upon application.
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DAVID GOLD MCKAY begs to offer SEED of this first-class sort. It is beautifully white, crisp, compact in growth, and distinct from any other Lettuce. A very desirable variety. Per packet, 1s.
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To the Trade.
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Price per cwt. or per ton on application to
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GARDENERS' CHRONICLE NEWSPAPER DIRECT-EMONT-DROIT PENNY

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NEW DAHLIAS for 1869.
NEW VERBENAS for 1869.
NEW BEDDING GERANIUM for 1869.
CATALOGUES now ready.
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A heavy discount to the Trade.

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Choice Scarlet Rhododendrons.

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Hardy Scarlet, White, Puce, Rose, Salmon,
AND OTHER CHOICE NAMED RHODODENDRONS.

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TRICOLOR PELARGONIUMS.

LADY CULLUM, 21s. per doz. | ITALIA UNITA, 5s. p. doz.
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In strong plants, at the above prices, for cash, package included.

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VARIEGATED PELARGONIUMS.

Lucy Grieve	Lady Cullum	E. G. Henderson
Queen of Tricolors	St. Cloud	Beauty of Calderdale
Sophia Dumaresque	Rosette	Picturata
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The above for 21s. If any of the kinds are not required, others of equal value can be substituted. Remittances requested from unknown Correspondents.

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Cheap, Cheap, Cheap.

TRICOLOR and other PELARGONIUMS.

	Per dozen.
LADY CULLUM	£0 18 0
SOPHIA DUMARESQUE	0 12 0
ITALIA UNITA	0 4 0
CRYSTAL PALACE GEM	0 4 0
LEONIDAS	0 6 0
MRS. POLLOCK (per 100)	1 8 0

In strong plants, for cash, package included.

JOHN BARRATT, St. John Nursery, Bury St. Edmund's, Suffolk.

CHOICE VARIEGATED GERANIUMS.

[illegible]	Lady Cullum	Princess Alice
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[illegible]	Little Gem	Christine Silver Star
[illegible]	" Spread Eagle	Sophia Cusack
[illegible]	Louisa Smith	Sophia Dumaresque
Crystal Palace Gem	Mazeli	Sunset
Her Majesty	Perrina	The Sultan
Isabella	Princess Alexandra	Viceroy

The above for 24s., good plants, in 3-inch pots, package included; or may be supplied by dozens, 6s. or 10s., at low prices. A LIST, with prices, of all the best and new Variegated and other Geraniums may be had on application to

WM. PATTEN, Sandhurst, Staplehurst, Kent.

The Trade supplied.

The Gem of the Season.

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[illegible] Nurseries, Lewisham Road, Greenwich, has the honour to announce that he has received the stock of this valuable plant, and [illegible] in stating that it will give the best satisfaction. It has been tested two years, and its qualities [illegible] Gardener to H.R.H. having selected it [illegible] to guarantee its beauty and [illegible]

[illegible] of a rich and free flowering habit. Medium, of bright [illegible] with a deep [illegible] blotch on the upper petals, and a deep [illegible] centre to leaf. [illegible] Awarded [illegible] Certificates, &c.

[illegible] Nurseries, Lewisham Road, Greenwich, S.E.

To the Trade.

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ALFRED HAMMOND, Bedwin Street, Salisbury.

New Seeds for the Garden and Farm, 1869.

CROYDON. A. HENDERSON & CO. EAST SURREY SEED WAREHOUSE. ESTABLISHED 1828.

ARCHD. HENDERSON'S DESCRIPTIVE and PRICED CATALOGUE of SEEDS, containing Cultural Remarks on all the most important SEEDS,

A select list of GLADIOLUS for Spring Planting,

GRAPE VINES, in Pots, an unrivalled Collection.

Also his DESCRIPTIVE CATALOGUE of GENERAL NURSERY STOCK is now ready, and may be had gratis and post free upon application.

Sion Nursery, Thornton Heath, Surrey; and at the East Surrey Seed Warehouse, College Grounds, North End, Croydon.

Beautiful Coloured Drawings of

GEO. SMITH'S THREE SPLENDID SEEDLINGS, that have taken First-class Certificates at the Royal Horticultural Society, viz., MASTERPIECE and LIZZIE, two distinct Nosegays, and one double, VICTOR, the most brilliant double yet offered. The Drawings are faithfully represented. Free by post in exchange for 18 postage stamps each.

Tollington Nursery, Hornsey Road, Islington, London, N.

Choice Flower Seeds for 1869.

LEE'S CHOICE CINERARIA, saved from named flowers, 2s. 6d. per packet.

LEE'S CHOICE CALCEOLARIA, from a choice strain, 2s. 6d. per packet.

LEE'S CHOICE PRIMULA FIMBRIATA, beautifully fringed, 2s. 6d. per packet.

LEE'S CAMELLIA-FLOWERED BALSAMS, saved from fine double flowers, in nine choice varieties, 2s. 6d. per packet.

GOLDEN PYRETHRUM (GOLDEN FEATHER). This beautiful bedding plant comes perfectly true from seed. Per packet, 1s. and 2s. 6d.

AMARANTHUS ELEGANTISSIMUS, the Gem of the Garden; per packet, 1s. 6d.

LEE'S SUPERB HOLLYHOCKS, In nine choice varieties, per packet, 3s. 6d.

JOHN & CHARLES LEE, Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

IBERIS GIBRALTARICA VERA,

NEW HARDY PERENNIAL.

This fine and very distinct Candytuft can now be supplied. It is perfectly distinct from all other species in cultivation (including I. coriacea, which is often erroneously sold as "I. Gibraltarica.") The true plant, now offered we believe for the first time in the trade, is *more than double the size* of I. coriacea in all its parts: the heads being 2 to 3 inches across, and the individual flowers nearly three times the size. They are white, or pale shaded rosy-lilac. Habit very robust and free.

1s. 6d. each, 15s. per dozen.

JAMES BACKHOUSE AND SON, YORK NURSERIES.

NEW AND GENUINE
GARDEN, FLOWER and FARM SEEDS, POTATOS, &c.,
SELECTED FROM THE BEST STOCKS, AND GROWN BY

HARRISON & SON.

HARRISON & SON, LEICESTER.

ESPECIALLY RECOMMENDED FOR TRIAL—

	Per packet.—s.	d.
HARRISON'S FAVOURITE CUCUMBER, white spine ..	1s. and 2	6
HARRISON'S LEICESTER RED CELERY	1	0
HARRISON'S LEICESTER DWARF CAULIFLOWER	2	6
HARRISON'S EXCELSIOR MELON, green flesh	1	0
HARRISON'S DEFIANCE MELON, scarlet flesh	1	0
HARRISON'S EXHIBITION TURNIP	1	0

CATALOGUE Post Free on application.

All Orders value £1 *and upwards carriage paid.*

MIDLAND SEED WAREHOUSE, LEICESTER.

BARR & SUGDEN'S

(12, KING STREET, COVENT GARDEN, LONDON, W.C.)

NEW SEEDS READY TO SEND OUT.

NEW DESCRIPTIVE SPRING CATALOGUE of CHOICE SEEDS ready, and may be had free by intending purchasers. The Catalogue embraces every Novelty and Speciality in Flower and Vegetable Seeds worthy of notice, with a Special List of nearly 400 sorts of ALPINE and HERBACEOUS PERENNIALS, which have been saved from one of the most choice Collections in Europe; and the most extensive LIST of GLADIOLI offered, embracing all the new kinds. Also (offered for the first time in this country) a SPECIAL LIST of NEW TABLE MAIZE, the most highly esteemed varieties of those cultivated by our American Cousins, who use the green cobs as one of their most popular Vegetables: and as, in this country, they will come into use when the supply of Green Peas is becoming short, they will be found an agreeable substitute for these. The late Judge Haliburton (Sam Slick), when residing at Isleworth, used this Vegetable when in season daily. The Rev. T. C. Bréhaut, of Guernsey (Her Majesty's Commissioner at the Paris Exhibition of 1867 to report on the present state of Fruit Culture on the Continent), through the American Commissioners received the varieties of Maize referred to and enumerated in our Catalogue, and has placed the entire stock he raised last year in our hands for distribution, feeling confident that the success which has attended their cultivation in the Island of Guernsey warranted him in introducing them into England for domestic use.

BARR & SUGDEN,

THE METROPOLITAN SEED, BULB, AND PLANT WAREHOUSE,

12, KING STREET, COVENT GARDEN, LONDON, W.C.

COLLECTIONS of VEGETABLE SEEDS, 12s. 6d., 15s. 6d., 21s., 31s. 6d., 42s., 63s., 84s., and 105s.
COLLECTIONS of FLOWER SEEDS, 2s. 6d., 3s. 6d., 5s. 6d., 10s. 6d., 21s., 31s. 6d., and 42s.
COLLECTIONS of HERBACEOUS and ALPINE SEEDS, 3s. 6d., 5s. 6d., 7s. 6d., 15s., 21s., and 30s.
COLLECTIONS of GLADIOLI, 5s. 6d., 8s. 6d., 10s. 6d., 13s. 6d., 21s., 30s., 42s., and 63s.
GLADIOLI, by the Hundred, 10s. 6d., 15s., 21s., 25s., and 30s.
COLLECTIONS of TABLE MAIZE, 2s. 6d., 3s. 6d., 5s. 6d., 7s. 6d., and 10s. 6d.
COLLECTIONS of ORNAMENTAL GOURDS, 2s. 6d., 3s. 6d., 5s. 6d., 7s. 6d., 10s. 6d., 15s., and 21s.
COLLECTIONS of ORNAMENTAL GRASSES for TABLE DECORATION, &c., 2s. 6d., 3s. 6d., 5s. 6d., 7s. 6d., and 10s. 6d.
COLLECTIONS of SEEDS for SUBTROPICAL GARDENS, 3s. 6d., 5s. 6d., 7s. 6d., and 10s. 6d.
COLLECTIONS of CLIMBERS, CARNATIONS, PELARGONIUMS, HOLLYHOCKS, STOCKS, ASTERS, BALSAMS, ZINNIAS, LANTANAS, EVERLASTINGS, AQUATICS, PALMS, &c. Full particulars will be found in the DESCRIPTIVE SPRING CATALOGUE, which will be sent Free to intending purchasers.

BARR AND SUGDEN, 12, KING STREET, COVENT GARDEN, W.C.

Genuine and First-class Seeds, Carriage Free.

WM. PAUL begs to announce that his NEW CATALOGUE of SELECT VEGETABLE and FLOWER SEEDS is just published, and will be forwarded free by post on application.

He has made enlarged arrangements, by which he believes he will be able to secure for his Customers, as usual, the best races of VEGETABLE and FLOWER SEEDS, of good germinating qualities, free from adulteration. For further particulars, see large Advertisement of last week.

Important.—All letters should be addressed WM. PAUL, Waltham Cross, London, N.

Vegetable, Agricultural, and Flower Seeds.

MISCELLANEOUS HARDY BEDDING PLANTS, SWEET VIOLETS, &c.

ROBERT PARKER begs to announce that his CATALOGUE, containing DESCRIPTIVE LISTS of the finest kinds in cultivation of the above named, is now published, and will be forwarded to applicants. The stocks of Seeds have all been procured from the best possible sources; all are warranted genuine, and are offered at the lowest possible prices.

Interesting purchasers are requested to compare the prices with those of other houses.

Exotic Nursery, Tooting, Surrey, S.W.

Primulas, Primulas.

G. UZZELL has now in Bloom, for Seeding, first-class varieties of Bright Red, Carmine, and White; also Fern-leaved Bright Red and White, all of which are beautifully fringed Flowers, and can be seen on application.

G. UZZELL, Florist, Mill Road, New Hampton, Middlesex.

Market Gardens, Biggleswade, Beds.

RICHARD WALKER can supply for cash CLOVE CARNATIONS, old Crimson, 10s. per 100; SCARLET KING DAISIES, 5s. per 100; EARLY HAM, and all the leading sorts of Cabbage Plants, 2s. 6d. per 1000; RED DUTCH, extra fine, 4s. per 1000. Sets of home-grown ONION, WHITE SPANISH, 2s. 3d. per lb.; PARSNIP, 6d. per lb.

HOOPER AND CO'S GENERAL CATALOGUE, is now published.

It INCLUDES PROBABLY MORE BONA-FIDE MATTER, and a larger variety of genuine subjects, than any other published in Great Britain.

It ENUMERATES NATIVE SEEDS from various parts of the world, several from hitherto unexplored districts, and therefore not yet described in Botanical Works.

The SEEDS OFFERED are UNADULTERATED, and as cheap as the second any House which sends out good articles.

The KITCHEN GARDEN SEEDS are of the very finest quality, and sent carriage free to any part of the Kingdom.

All FLOWER SEEDS are sent free.

HOOPER & Co.'s GENERAL CATALOGUE for 1869 (referred to above) is published at 6d., and gratis to all Customers.

Hooper & Co. have *no connection whatever* with any other Seedsman of the same name, and the ONLY PLACE where their genuine Seeds can be obtained, is at their Retail Seed Warehouse in Covent Garden Market, London, W.C.

Stocks, Stocks, Stocks.

B. S. WILLIAMS has much pleasure in offering carefully selected SEED of the SUPERB EAST LOTHIAN INTERMEDIATE STOCK, feeling sure, from personal observations of several years, that it is with out question the finest Strain of Intermediate Stock extant. The colours are Purple, Scarlet, and White. The two first are remarkably brilliant, and the latter very pure. They produce immense branched spikes of large double flowers, and are admirably adapted for ribbon borders and general bedding purposes; indeed, the effect which can be produced by these three varieties in both spring and autumn gardening is not surpassed by any of the now popular plants. If sown early in March, and transplanted in May to their blooming places, the amount of double flowers produced, and the grand display they make, is truly surprising. For either flower gardening or pot culture they are unapproachable, and cannot be too strongly recommended. An assortment of three colours (Scarlet, Purple, and White), 2s. 6d.

B. S. WILLIAMS, Victoria and Paradise Nursery, Upper Holloway, N.

New Golden Coleus.

DOWNIE, LAIRD AND LAING, have much pleasure in offering the following beautiful and distinct novelties, which they feel assured will give every satisfaction. Each has received First-class Certificates, and will be sent out on March 16 next, at 7s. 6d. each:—

ALBERT VICTOR, a very distinct tricolored variety, the centre of the leaves being bronzy-red, stained with large blotches of deep purplish-carmine, and the golden margin is very broad, much more so than in any other of the new golden sorts; the marginal teeth are also marked out by rich carmine lines. It has a very free habit of growth.

BARONESS ROTHSCHILD, an exquisitely beautiful variety, the centre of the leaves being of a bright bronzy-crimson, without stains or blotches, margin bright golden, and the teeth beautifully marked with light carmine. In habit of growth it resembles Albert Victor.

PRINCESS BEATRICE, a charming variety, of a beautiful light golden hue, the main veins being slightly marked, and the margin entirely defined by dark crimson lines, dwarf, and fine.

PRINCESS ROYAL.—The centre of the leaves are a rich bronzy-crimson, with a narrow bright yellow margin, a handsome and most effective pot plant, and a most desirable variety for bedding, being very bright, and nearly an entire colour, a free grower.

Stanstead Park, Forest Hill, London; and Edinburgh.

Island of Jersey.

CHARLES B. SAUNDERS, NURSERYMAN and FLORIST, can supply, of fine growth and at moderate prices—
Transplanted PINUS AUSTRIACA, and SILVER FIRS, 2 to 3 ft.
EVERGREEN OAKS (in pots), 2, 3, 4, and 5 to 6 ft.
CAMELLIA STOCKS, fine healthy stuff, fit for immediate working.
Strong BLACK HAMBURGH, BLACK VICTORIA, and MUSCAT VINES.
Fruiting, trained, and pyramidal PEAR TREES (on Quince), of best varieties.
Dwarf-trained BIGARREAU, MAYDUKE, and MORELLO CHERRY TREES.
Dwarf-trained NECTARINE, PEACH, and PLUM TREES.
Standard, Pyramidal, and Cordon APPLE TREES, of best sorts.
GUERNSEY ELMS, of different sizes, a tree of handsome, upright growth.
Three-year-old ASPARAGUS ROOTS, in large or small quantities.
GYMNOGRAMMA LEPTOPHYLLA, or Annual Maiden-hair Fern.
GUERNSEY and BELLADONNA LILIES, BULBS, &c.

The Planting Season.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON respectfully invite especial attention to their very large stock of STANDARD ORNAMENTAL TREES, of large size, suitable for planting as single specimens on Lawns or in Parks where immediate effect is desired.
WEEPING ASH, 7 to 9 feet stems.
" AMERICAN WILLOWS, 6 to 7 feet stems.
CATALPA SYRINGÆFOLIA, 6 to 8 feet.
ELMS, CHICHESTER and ENGLISH, 8 to 10, and 10 to 12 feet.
SILVER and SPRUCE FIRS, 6 to 7 feet.
HORSE-CHESTNUTS, 6 to 8, and 8 to 10 feet.
SCARLET HORSE-CHESTNUTS, extra fine plants, 6 to 8, and 8 to 10 feet.
LABURNUMS, Yellow and Purple, 6 to 8 feet.
POPLARS, BLACK ITALIAN and LOMBARDY, extra fine, 8 to 10, and 10 to 12 feet, and various other HARDY TREES.
See PRICED CATALOGUES, which may be had free on application.

Evergreens, Shrubs, and Fruit Trees.

ROBERT CORNWELL AND CO. have to offer SPRUCE, SCOTCH LARCH, AUSTRIAN FIRS, 3 to 5 feet; Privet, 4 to 5 feet; Variegated and Green Box, 2 to 4 feet; Irish and English Yews, 3 feet; Aucubas, American and Chinese Arbor-vitæ, 2 to 5 feet; Scarlet and White double Thorns, 8 feet; Pinus excelsa, 6 to 9 feet; strong 3 and 4-yr. Asparagus; strong Fruiting Gooseberries—Whitesmiths, Warringtons, Crown Bobs; Currants, Raspberries; Laurels, 3 to 8 feet; Laurustinus, 2 to 3 feet; 50 extra very handsome ones, 4 by 4 feet; 1000 yards Box Edging. Cheap, to clear the ground.—Opposite Red Lion, Barnet.

NEW SEEDS of EXTRA CHOICE QUALITY, for EXHIBITION.

	Per Packet—	s.	d.
ASTERS, new quilled Roots Exhibition, 10 vars., separate	..	1	6
" in 6 to 12 vars., separate	..	2	0
" 24 vars., mixed	..	1	0
" Truffaut's French Perfection, 12 vars., separate	..	1	6
" do. do. 12 do.	..	2	0
" do. do. 8 do.	..	2	0
" do. do. 24 vars., mixed	..	2	0
" Lord Chrysanthemum-flowered, 12 vars., mixed	..	1	0
" Superb Cr. ssi-flowered, 6 vars., mixed	6d. and	1	0
" French Giant Emperor, 12 vars., mixed	..	1	0
" Newest Victoria	..	1	0
STOCKS, Dwarf German Ten-week, 24 vars., mixed	..	1	0
" Newest Large-flowered Tchewess, 12 vars., mixed	..	1	0
" Crimson Dwarf Bouquet, extra	..	1	0
PETUNIA fl.-pl., extra superb, choicest mixed double	..	1	0
" single, extra superb, choicest mixed	..	1	0
BALSAM, extra superb, choicest mixed double	..	1	0
PHLOX DRUMMONDII, 10 superb varieties, mixed	..	1	0
LOBELIA SPECIOSA, true Crystal Palace var.	6d. and	1	0
MARIGOLD, French, superb, 6 vars., mixed	6d. and	1	0
ZINNIA fl.-pl., superb double, 6 vars., mixed	6d. and	1	0

for all other varieties of new and choicest Flower Seeds, also new varieties and collections of Vegetable Seeds, see J. SCOTT'S "convenient" PRICED CATALOGUE, free on application to J. SCOTT, the Seed Stores, Yeovil, Somerset.

Spring Flowers.

LEWIS S. WOODTHORPE offers the following, cheap:—

	Per dozen—	s.	d.
Violets, Queen of Violets, double white	..	4	0
" King of Violets, indigo blue	..	4	0
" double red, large and attractive	..	4	0
" " Neapolitan, very fine lilac	..	3	0
" " " Bicudyana, striped, each	..	1	0
" single, the Czar, very large and fine	..	4	0
" " Devoniensis, fine	..	3	0
" " oblique striata, purple, striped white		6	0
Hepaticas, double red, single pink, single red and blue	..	2	6
" single mauve, new, each		1	0
Daisies, Bacchus, Magpie, Pink Beauty, Queen of Whites, Red Rover, Rosy Gem, and others		3	0
" gold blotched, aucubæfolia	..	3	0
Auriculas, finest mixed Alpines	..	2	6
" Perrin's, red and single blue	..	3	0
" fine named varieties	..	12	0

	Per dozen—	s.	d.
Dianthus, choice double named kinds	..	3	0
Calceolaria aurea floribunda	..	1	0
" Prince of Orange	..	1	0
Hollianthemum, or dwarf Rock Cistus	..	3	0
Picotees, crimson Clove, blush Bouquet Clove, and new early improved Anna Boleyn Pink	..	4	0
Phlox, Pentstemons, Chrysanthemums, all the best kinds of 1867	..	4	0
Nierembergia rivularis	..	6	0
Œnothera missouriensis	..	3	0
Primroses, double white and lilac	..	3	0
" double crimson purple and yellow	..	12	0
Rockets, double white and purple	..	3	0
Ivies, golden and silver variegated	..	9	0
Clematis in variety	..	12	0
Roses, dwarfs, in pots, strong	..	8	0
Hollyhocks, fine new named varieties	..	5	0
Vines, strong fruiting canes, each	..	3	6

DESCRIPTIVE CATALOGUES of NEW and CHOICE PLANTS free. Munro Nursery, Sible Hedingham, Essex.

Genuine Seeds.—Carriage Paid.

B. S. WILLIAMS, SEED MERCHANT AND NURSERYMAN, Victoria and Paradise Nursery, Upper Holloway, London, N.

COMPLETE COLLECTIONS OF KITCHEN GARDEN SEEDS

To suit Gardens of various sizes, 10s. 6d., 21s., 42s., 63s., and 84s. each.

NEW and CHOICE VEGETABLE SEEDS.	Per Pkt. s.	d.
WILLIAMS' IMPROVED GREEN CURLED BORECOLE	0	6
WILLIAMS' ALEXANDRA BROCCOLI	1	6
DELL'S FINE DARK BEET	1	0
WILLIAMS' MATCHLESS RED CELERY	1	0
SHARMAN'S UNIVERSAL CUCUMBER (new)	1	6
TELEGRAPH IMPROVED (Woolley's variety)	1	6
WILLIAMS' PARADISE GEM MELON, scarlet flesh, of excellent flavour, and 12 days earlier than any other in cultivation (new)	2	6
DIGSWELL PRIZE ENDIVE	1	0
WILLIAMS' VICTORIA COS LETTUCE (new)	1	0
MALVERN HALL MELON	1	6
GOLDEN QUEEN (New Hybrid Prize) MELON	2	0
BEDFORDSHIRE CHAMPION ONION (new)	1	0
NUNEHAM PARK ONION	1s. and	6
CULLINGFORD'S CHAMPION MARROW PEA, an excellent cropper, and fine flavour (new) per qrt.	3	6
MACLEAN'S LITTLE GEM PEA (very early) "	2	6
LEE'S GIANT ORACH	1	0
ORANGEFIELD DWARF PROLIFIC TOMATO	1	0

NEW and CHOICE FLOWER SEEDS.	Per Pkt.
WILLIAMS' SUPERB STRAIN of PRIMULA.—B. S. W. can with confidence offer his superb strain of Primula as being the finest in cultivation. Red, White, or Mixed 2s. 6d., 3s. 6d., and	5 0
CINERARIA (Weatherill's extra choice strain) 2s. 6d. and	3 6
CALCEOLARIA (Neill's extra choice strain), 2s. 6d., 3s. 6d., and	5 0
" (James' strain) 2s. 6d. and	3 6
" (Dalkeith Palace strain)	2 6
CYCLAMEN (Wiggins' prize strain) 1s. 6d., 2s. 6d., and	3 6
POLYANTHUS (Wiggins' prize strain) 1s. 6d. and	2 6
BALSAM (Williams' superb strain) 1s. 6d. and	2 6
GERANIUM LE GRAND 1s. 6d. and	2 6
SOLANUM (Weatherhill's hybrids) 2s. 6d., 3s. 6d., and	5 0
VIOLA LUTEA (yellow flowered Violet) 1s. 6d. and	2 6
WALLFLOWER (Saunders' fine dark variety)	1 0
SALVIA ARGENTEA, a beautiful silvery-foliaged ornamental plant	1 0
DIANTHUS HEDDEWIGII DIADEMATUS fl.-pl., flowers very large, and colours most beautiful (new)	2 6
OXALIS VALDIVIANA, quite hardy, the flowers are bright yellow and sweet scented, and produced in bunches of large size (new)	1 0
PALAVA FLEXUOSA, very pretty annual (new)	1 0
MYOSOTIS AZORICA ALBA, the flowers are pure white, contrasting beautifully with the blue variety Coelestina (new)	2 6
STOCK, EAST LOTHIAN.—This is a splendid variety, of dwarf and compact habit, producing immense spikes of bloom, and very double. They make a grand display in beds, and for ribbon borders. Per collection of three colours (Scarlet, Purple, and White)	2 6
TACSONIA VAN VOLXEMI (a beautiful Climber)	2 6
AMARANTHUS SPECIOSUS AUREUS (New Golden Princes Feather)	1 0
ANTIRRHINUM ASARINA, very beautiful for rockwork (new)	1 0
HELICHRYSUM APICULATUM (new)	1 0
MIMULUS REPENS, this is a very distinct species, the flowers are of a pale lilac-purple colour, the lower lip being prettily spotted with orange on a yellow ground (new)	1 0
ABRONIA ARENARIA, the flowers are of a pure waxy yellow, deliciously scented, and produced in long succession (new)	1 0
ZINNIA ELEGANS TAGETIFLORA fl.-pl. (new	1 0

B. S. W.'s DESCRIPTIVE CATALOGUE of FLOWER, VEGETABLE, and AGRICULTURAL SEEDS, is now ready; post free to all applicants.

Victoria and Paradise Nursery, Upper Holloway, London, N.

Pines.

B. S. WILLIAMS has all the best kinds, in splendid condition, warranted clean. Prices on application.

B. S. WILLIAMS, Seed Merchant and Nurseryman, Upper Holloway, London, N.

Grape Vines.

B. S. WILLIAMS' STOCK this season is remarkably fine, and in good condition for sending out. Kinds and prices can be had on application.

B. S. WILLIAMS, Seed Merchant and Nurseryman, Upper Holloway, London, N.

VINES and VERBENAS.—500 extra strong Planting and Fruiting Vines, very short-jointed Canes, price 2s. 6d. and 5s. each; also 1000 Verbenas, in pots, a fine collection, many of them being varieties of last, three a penny per doz., cash.

EDWARD MORSE, Original Nursery, Epsom, Surrey.

Must be Sold to make room.

L. WOODTHORPE offers the following, to effect a clearance:—Strong Fruiting VINES, 10 to 12 feet in length and thick in proportion, 3s. 6d. each. Extra strong, will carry 8 to 10 bunches, 5s. each.

Munro Nursery, Sible Hedingham, Essex.

BLACK HAMBURGH, and other VINES, in No. 12 pots, 8s. to 12s. per doz. Fine ASPARAGUS, 2s. to 3s. per 100. SEAKALE, 6s. per 100. HAWKE'S CHAMPAGNE RHUBARB roots, 20s. per 100. WEEPING WILLOWS, 6 ft. and upwards, 9s. to 12s. per doz.

B. MALLER, The Nurseries, North Ash Lane, Lewisham, Kent.

Strong Vines from Eyes.

MESSRS. JOHN AND CHARLES LEE can supply strong well-ripened CANES of all the leading varieties of GRAPE VINES. Planting Canes, 3s. each; Fruiters, to bear nine or ten bunches, 10s. 6d. each.

DESCRIPTIVE CATALOGUES on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

Madresfield Court Black Muscat Vine.

MESSRS. JOHN AND CHARLES LEE are now executing orders for this superb new late-keeping MUSCAT GRAPE, price £2 2s. each. Strong Fruiting Canes, £3 3s. each.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

New Roses for 1869.

MESSRS. JOHN AND CHARLES LEE have selected Twenty of the most beautiful and distinct of the new CONTINENTAL ROSES for 1869, which they intend to send out in March, and among which they particularly recommend CHARLES LEE as being first-class in every respect.

DESCRIPTIVE PRICED CATALOGUES post free on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

ONE THOUSAND MRS. PINCE'S BLACK MUSCAT, 7s. 6d. to 21s. each; Trade price on application. Also, ROYAL ASCOT, and a very large stock of strong, well-ripened Canes of all the leading kinds, at moderate prices. PRICED CATALOGUE on application to

H. LANE & SON, The Nurseries, Great Berkhampstead, Herts.

CORDON APPLE TREES, on the true French Paradise Stock, as recommended by Mr. Robinson in his "Gleanings from French Gardens." All the best kinds, including CALVILLE BLANC, RAINEITE DU CANADA, and other sorts. Prices upon application.

B. S. WILLIAMS, Victoria and Paradise Nursery, Upper Holloway, London, N.

FINE ORANGE TREES for SALE.—Ten very handsome Trees, in robust health, loaded with Fruit; clean, straight stems, about 4 feet; symmetrical heads, 5 feet diameter. One CITRON, same size. In ornamental green tubs.

Apply to the GARDENER, Woburn Park, Weybridge, Surrey. Inquiries by post address FRANCIS R. KINGHORN, Sheen Nursery, Richmond, S.W.

Fruit the First Season.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON respectfully solicit attention to their enormous stock of FRUIT TREES in a fruit-bearing state.

PYRAMIDAL APPLES and PEARS, full of fruit buds.
Apples, 18s. per dozen; Pears, 24s. per dozen.
DWARF-TRAINED TREES, of extra size, in a fruiting state, adapted for walls or espaliers, including Apples, Pears, Plums, Cherries, &c.
STANDARD TRAINED FRUIT TREES for walls.
PRICED CATALOGUES may be had gratis on application.

To the Trade.

H. AND G. FARNSWORTH have to offer a quantity of Transplanted QUICK, SCOTCH FIR, 1½ to 2 feet; SPRUCE, 16 inches to 2 feet; 3-yr. Seedling SPRUCE, 3-yr. Seedling RHODODENDRONS, 1-yr. BERBERIS AQUIFOLIA, 1 and 2-yr. COMMON LAUREL CUTTINGS. Prices on application at

The Nurseries, Matlock.

Planting Season.

DICKSONS AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, 1, Waterloo Place, Edinburgh, are now prepared to execute orders for all kinds of FOREST TREES, ORNAMENTAL TREES and SHRUBS, FRUIT TREES, ROSES, &c.; of all of which they have an extensive and very healthy stock.

CATALOGUES with Prices may be had free on application.

Established, 1770.

ABIES DOUGLASII.—1½ to 2 feet, 80s. per 100; 2 to 3 feet, 100s. per 100; 3 to 4 feet, 20s. per dozen; 4 to 5 feet, 30s. per dozen; 5 to 6 feet, 40s. per dozen. They are all fine plants, and have been transplanted three and four times, all having been transplanted last spring, and will lift with excellent balls. Trade price on application.

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THOMAS KENNEDY AND CO. have as usual a very large and superior stock of FOREST and ORNAMENTAL TREES and SHRUBS, which they are selling at moderate prices. The Trees and Shrubs, being of all ages and sizes, are particularly well suited for extensive planting or giving immediate effect in the formation and improving of Ornamental Parks, Pleasure Grounds, &c. CATALOGUES sent free by post on application.

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Plants for Hedges.

TWO HUNDRED THOUSAND COMMON LAURELS, from 1½ to 3 feet.

WM. WOOD & SON.

AMERICAN ARBOR-VITÆ, especially recommended for Hedges:—2 to 3 feet, 6s. per dozen, 40s. per 100; 3 to 4 feet, 9s. per dozen, 60s. per 100; 4 to 5 feet, 18s. per dozen (extra fine), 100s. per 100.

Extra fine Transplanted BEECH and HORNBEAM, 2 to 3 ft. and 3 to 4 feet; also fine EVERGREEN PRIVET, in large quantities.

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FOREST TREES, Transplanted, can be supplied in great quantities at moderate prices, of the following:—Ash, Elm, Birch, Chestnut (Horse), Limes (red twigged), Oak (Turkey), Weymouth Pine, Sycamore, Poplar (Abele) silver, Willows (Weeping Babylonian), Willow (Hunt ngdon), in sizes, 1 to 1½ ft., 1½ to 2 ft., 2 to 3 ft., 3 to 4 ft., and 4 to 5 ft.; Privet (evergreen), Alder, Spruce Fir, 1½ to 2 ft. and 2 to 3 ft.; Balm of Gilead and Silver Fir, 1 to 1½ ft. and 1½ to 2 ft.; Gooseberries of sorts, 2, 3, and 4 years old; Yews, English, extra strong and splendid roots, 4 to 5 ft. and 5 to 5½ ft.; Portugal Laurel, very fine and bushy, well-rooted, 2 to 2½ ft., 2½ to 3 ft., and 3 to 4 ft.; Common Laurel, strong, 1½ to 2 ft. and 2 to 2½ ft.

H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

CYCLAMEN PERSICUM (HYBRIDS).

B. S. WILLIAMS

HAS GREAT PLEASURE IN OFFERING

SEEDS OF HIS SUPERB VARIETIES OF CYCLAMENS,

Which are much superior to those sent out by him last season, being saved from the plants exhibited by Mr. Wiggins, at the Meeting of the Royal Horticultural Society, at Kensington, on Tuesday last (Feb. 16), when they were pronounced far in advance of any ever before raised, both in point of size of flower and richness of colour, which varies from pure white to mauve and deep red; many of them in addition being beautifully striped and spotted, and deliciously fragrant. Seeds sown in heat from the present time until the end of March, can be grown to produce flowers within 12 months.

B. S. W. having made arrangements for the supply of all Mr. Wiggins' Seed, it can only be had genuine in sealed packets bearing his name and address.

In Sealed Packets, 1s. 6d., 2s. 6d., and 3s. 6d. each.

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DIPLADENIA AMŒNA.

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HAS GREAT PLEASURE IN ANNOUNCING THAT HE HAS PURCHASED

THE WHOLE STOCK OF THE ABOVE BEAUTIFUL PLANT,

Raised by Mr. Tuke, of Bramley, near Leeds, who also raised the lovely Dipladenia amabilis. A figure of the beautiful D. amœna is given in the "Florist" for April, 1868. Plants will be ready for distribution the first week in May.

Price, 1½ Guinea each.

Strong Half Specimens, 5 and 7 Guineas each.

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Feb. 10, 1869. J. WILLS, F.R.H.S., Manager.

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CATALOGUE of choice VEGETABLE and FLOWER SEED NOVELTIES

Is now Published, and can be forwarded Post Free on application.

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Selected LISTS of the best varieties of each kind most worthy of cultivation, also some excellent new sorts of both VEGETABLE and FLOWER SEEDS of sterling merit; attention is also directed to the Pine-apple Compact-top BEET (the finest and richest flavoured variety extant), carefully saved, true from the original stock. Also the new DWARF WATERLOO BEET: top leaves rich metallic crimson; growth true, even, and regular. This beautiful foliaged variety may with advantage be cultivated in the flower garden as a border, ribbon, or edging plant; its root is a trifle larger than the Pine-apple Compact-top, flavour excellent, full of sweet saccharine juice, colour crimson, texture tender and uniform throughout.

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N.B. Everything in this CATALOGUE is Priced.

PINE APPLE PLACE, MAIDA VALE, LONDON, W.

All Seeds Carriage Free.

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ECHEVERIA METALLICA.—Fresh Seed now ready to send out, in pods containing from 20 to 50 seeds, with full directions as to culture. Few plants equal this grand House-Leek for subtropical or alpine succulent gardening, or for the decoration of the Conservatory; its large massive leaves, shaded with a purplish glaucous hue, are unique.

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PETUNIA SEED, of exquisite quality.
CINERARIA SEED.—Saved from the choicest Florists' Flowers.
ZINNIA SEED, from magnificent double varieties.
CENTAUREA CANDIDISSIMA (RAGUSINA), warranted true, plump, well-ripened seeds.
CENTAUREA GYMNOCARPA SEED, true.
BALSAM SEED, finest double varieties.
VIOLA CORNUTA SEED, PURPLE QUEEN.—The earliest, the darkest coloured, and most profuse blooming variety.
MYOSOTIS SYLVATICA SEED, the finest Forget-me-Not for spring gardening.
ORNAMENTAL GRASSES.
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MELONS.—Choice hybrid, our own raising; unequalled for their exquisite luscious flavour, fine shape, and beautiful lacing.
MELONS.—All the usual sorts in cultivation; seed saved from selected fruits only.
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RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE, suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious index of their synonymes. Free by post for six stamps.
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DWARF-TRAINED TREES.—By the Thousand, Hundred, or Dozen. Apples, Pears, Plums, Cherries, Peaches, and Nectarines. Fine, flat, well-trained, of best quality, and true to name.
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AMERICAN ARBOR-VITÆ, 4 to 5 feet, at 50s. per 100; 5 to 6 feet, at 84s. per 100; 6 to 7 feet, at 100s. per 100.
SIBERIAN ARBOR-VITÆ, 2 to 2½ feet, 40s. per 100; 2½ to 3 feet, 50s. per 100; 3 to 3½ feet, 75s. per 100; 3½ to 4 feet, 100s. per 100.
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SURPLUS STOCK.—VERY CHEAP.

SPECIMEN CONIFERS and EVERGREENS, handsome and well-grown, for Lawns, Pleasure Grounds, and Parks, have been recently transplanted, and are full of health and vigour. For Descriptions, also Prices of smaller quantities and sizes, see RICHARD SMITH'S LISTS.

Trucks for 1 ton and upwards may be sent through to any Railway Station on the narrow guage lines, at a moderate cost, thereby saving delay and expense of packing.

At 12s. per dozen :—

Arbor-vitæ, American, 5 to 6 feet
" aurea, 12 to 15 inches
" Lobbii, 2 to 3 feet
" Siberian (Ware's), 3 to 3½ feet
Aucuba japonica, 18 to 21 inches
Berberis Darwinii, 1 to 1½ foot
" Jamiesonii, 12 to 15 inches
Cupressus Lawsonians, 3 to 4 feet
Hemlock Spruce, 3 to 4 feet
Hartogia capensis, 1 to 1½ foot
Juniperus chinensis, 1½ to 2 feet
Mahonia japonica, 9 to 12 inches
Norway Spruce, extra fine, 3½ to 4 feet
Phillyrea oleafolia, 2 to 2½ feet
Picea balsamea, 4 to 5 feet
Portugal Laurel, 2½ to 3 feet
Pyracantha, scarlet berried, 1 to 1½ foot
Pinus Laricio, 3 to 4 feet [2 feet.
Rhododendron ponticum, 1½ to
Taxus japonica, 15 to 18 inches
Thujopsis borealis, 2 to 2½ feet
Thuja plicata, 2 to 3 feet

At 18s. per dozen :—

Abies inverta, 1½ to 2 feet
" Douglasii, 2 to 2½ feet
" Menziesii, 4 to 5 feet
Arbor-vitæ, American, 6 to 7 feet
" compacta, 1½ to 2 feet
" Lobbii, 3 to 4 feet
" Siberian (Ware's), 3½ to 4 feet
Aucuba japonica, 2 feet
Berberis Darwinii, 1½ to 2 feet
" Jamiesonii, 15 to 18 inches
Cedrus argentea, 2 to 2½ feet
Cryptomeria Lobbii, 5 to 6 feet
" viridis, 5 to 6 feet
Cupressus fragrans, 3 to 4 feet
" Lawsoniana, 4 to 4½ feet
Hartogia capensis, 1½ to 2 feet
Hemlock Spruce, 4 to 5 feet
Ivy, green, tree, 1½ to 2 feet
" new silver-striped, tree, 15 to 18 inches [15 inches
" tricolor variegata, tree, 12 to
Juniperus chinensis, 2½ to 3 feet
" Lecana, 2 to 2½ feet
" Schottii, 2 to 2½ feet
" thurifera, 1½ to 2 feet
" glauca, 1½ to 2 feet
" drupacea, 15 to 18 inches
" viridis pendula, 2 to 3 feet
Laurel, Colchic, 5 to 6 feet
" Portugal, 3 to 3½ feet
Mahonia japonica, 12 to 15 inches
Pinus austriaca, 3 to 4 feet
" Laricio, 4 to 5 feet
Phillyrea oleafolia, 2½ to 3 feet
Rhododendron ponticum, 2 to 2½ feet
Taxus elegantissima, 15 to 18 ins.
" gold-striped, 15 to 18 inches
Thujopsis borealis, 2½ to 3 feet
Thuja plicata, 3 to 4 feet
" incurvata, 3 to 4 feet [ins.
Wellingtonia gigantea, 15 to 18

At 30s. per dozen :—

Abies elegans, 2 to 2½ feet
" inverta, 2½ to 3 feet
" Menziesii, 6 feet
" orientalis, 2 to 2½ feet
Arbor-vitæ, American, 7 to 8 feet
" compacta, 2 to 3 feet
" Lobbii, 5 to 6 feet
" Siberian, 4 to 5 feet
Arbutus unedo, 2½ to 3 feet
Box, tree, 2½ feet by 2½ to 3 feet
Cedrus argentea, 3 to 4 feet
Cupressus Lawsoniana, 4½ to 5 ft.
" fragrans, 4 to 5 feet
" McNabiana, 3 to 4 feet
Garrya elliptica, 2 to 2½ feet
Hemlock Spruce, 5 to 6 feet
Irish Yews, 5 to 6 feet
Juniperus chinensis, 3 to 3½ feet
" fragrans, 2 to 2½ feet
" glauca, 3 to 3½ feet
" Lecana, 2½ to 3 feet
" Schottii, 3 to 3½ feet
" thurifera, 3 to 4 feet
" virginiana, 5 to 6 feet
" viridis pendula, 3 to 4 feet
Laurel, Colchic, 7 to 8 feet
Pinus austriaca, 4 to 5 feet
" Laricio, 5 to 6 feet
Taxus elegantissima, 1½ to 2 feet
Thujopsis borealis, 4 to 4½ feet
Thuja incurvata, 4 to 5 feet
Wellingtonia gigantea, 2½ feet

At 42s. per dozen :—

Abies Albertiana, 3½ to 4 feet
" inverta, 3 to 4 feet
" orientalis, 2½ to 3 feet
" pyramidalis, 4 to 5 feet
Arbor-vitæ, American, 8 to 9 feet
" aurea, 2 to 2½ feet
" compacta, 3 to 3½ feet
" japonica, 2½ to 3 feet
" Siberian, 5 to 6 feet
Cedrus argentea, 4 to 5 feet
Cupressus fragrans, 5 to 6 feet
" Lawsoniana, 5 to 6 feet
Hemlock Spruce, 6 to 7 feet
Irish Yews, 6 to 7 feet
Juniperus chinensis, 3½ to 4 feet
" densata, 4 to 5 feet
Juniperus glauca, 4 to 5 feet
" Lecana, 3 to 4 feet
" Smithiana, 3 to 4 feet
" thurifera, 5 to 6 feet
" virginiana, 6 to 7 feet
" viridis pendula, 4 to 5 feet
Laurel, Colchic, 8 to 10 feet
Pinus, Cembra, 5 to 6 feet
" Laricio, 6 to 7 feet
Quercus austriaca sempervirens, 3 to 3½ feet
" Fordii, 3 to 3½ feet
Thujopsis borealis, 5 to 6 feet
Thuja Lobbii, 6 to 7 feet
Wellingtonia gigantea, 3 to 4 feet

At 60s. per dozen :—

Abies Albertiana, 4 to 5 feet
" inverta, 6 to 7 feet
" orientalis, 3½ to 4 feet
" pyramidalis, 5 to 6 feet
Arbor-vitæ aurea, 2½ feet
" compacta, 3½ to 4 feet
" gigantea, 4 to 4½ feet
" japonica, 3½ to 4 feet [ins.
Cephalotaxus Fortunei, 21 to 24
Juniperus chinensis, 4 to 5 feet
" thurifera, 6 to 7 feet
Pinus Cembra, 6 to 7 feet
Quercus austriaca sempervirens, 3½ to 4 feet
" Fordii, 3½ to 4 feet
Thujopsis borealis, 6 to 7 feet
Wellingtonia gigantea, 4 to 5 feet

Each :—

Abies Albertiana, 6 to 7 ft., 7s. 6d.
" " 7 to 8 feet, 10s. 6d.
" Douglasii, 8 to 10 ft., 7s. 6d.; 84s. per dozen
" " 10 to 12 feet, 10s. 6d.; 100s. per dozen
" Menziesii, 7 to 8 feet, 5s.
" " 8 to 10 feet, 7s. 6d.
" orientalis, 5 to 6 ft., 10s. 6d.; 100s. per dozen
Araucaria imbricata, 5 to 6 ft., 21s.
" " 6 to 7 feet, 42s.
" " 7 to 8 feet, 63s.
" " 8 to 10 feet, 105s.
Arbor-vitæ japonica, 4 to 4½ feet, " " 4½ to 5 ft., 10s 6d. [7s. 6d.
Picea grandis, 4 to 5 feet, 15s.
Picea grandis, 5 to 6 feet, 21s.
" nobilis, 3 to 3½ feet, 31s. 6d.; 300s. per dozen
" " 3½ to 4 feet, 42s.
" " 4 to 4½ feet, 51s. 6d.
" " 4½ to 5 feet, 63s.
" Nordmanniana, 4 to 5 ft., 21s.
" " 5 to 6 feet, 31s. 6d.
" " 6 to 7 feet, 42s.
" " 7 to 8 feet, 50s.
" Pinsapo, 3 to 3½ feet, 10s. 6d.
" " 3½ to 4 feet, 15s.
" " 4 to 5 feet, 21s. to 31s. 6d.
Pinus Cembra, 7 to 8 feet, 7s. 6d.
Yews, for hedges, about 12 feet high, 45 years old, recently transplanted, 31s. 6d.

RICHARD SMITH,
NURSERYMAN AND SEED MERCHANT, WORCESTER.

SUTTONS' HOME-GROWN SEEDS,

CARRIAGE FREE.

SEEDS DIRECT FROM THE GROWERS THE BEST MEANS OF PREVENTING DISAPPOINTMENT.

SUTTON AND SONS,

SEED GROWERS,

ROYAL BERKS SEED ESTABLISHMENT, READING

WERE AWARDED A

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For the SUPERIOR QUALITY of their SEEDS.

SUTTONS' COMPLETE COLLECTIONS of VEGETABLE and FLOWER SEEDS, for One Year's Supply, Carriage Free.

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No. 1 Collection, for a large garden, carriage free	£3	3	0
No. 2 Collection, for medium size do., carriage free	2	2	0
No. 3 Collection, for medium size do., carriage free	1	11	6
No. 4 Collection, for an ordinary size do., carriage free ..	1	1	0
No. 5 Collection, for a small do.	0	15	0
No. 6 Collection, for a very small do.	0	12	6

Collections of Flower Seeds.

No. 1 Collection, free by post or rail	£2	2	0
No. 2 Collection, free by post or rail	1	11	6
No. 3 Collection, free by post or rail	1	1	0
No. 4 Collection, free by post or rail	0	15	0
No. 5 Collection, free by post or rail	0	10	6

Particulars of the above Collections may be had on application, and any articles not required will be excluded, and others included according to the wish of the purchaser.

SUTTONS' CHOICE AND TRUE

POTATOS FOR PLANTING,

CARRIAGE FREE.

SPLENDID NEW POTATO for 1869.

SUTTONS' BERKSHIRE KIDNEY

Was raised and selected from among forty seedlings of the Fluke. Having planted it with different varieties of that class, we have proved it to be by far the best of them all, and fully a fortnight earlier. The Tubers are all of good size, very numerous, of fine form, and remarkably clear skin. It is most valuable for the main garden crop, and will become a favourite with Market Gardeners. It has been remarkably free from disease, while other varieties growing close by were almost destroyed. The stock of this POTATO is exclusively in our possession. Price 5*s.* per peck. (See Illustration in *Gardeners' Chronicle* for Jan. 30, p. 106.)

KIDNEY VARIETIES.	ROUND VARIETIES.
Early Walnut-leaf	Dalmahoy
Myatt's Prolific Ashleaf	Improved Shaw
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Barron's Perfection	Skerry Blue
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King of Potatos	York Regent

Lowest price per sack or ton on application.

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THE EARLIEST IN CULTIVATION.

The Royal Horticultural Society have this season tested the merits of the leading Early Peas, and their Report, *vide Gardeners' Chronicle*, June 27, 1868, contains the following emphatic statement:—

"The earliest form of all was Ringleader; several of the Peas blossomed at the same time, but Ringleader was fit to gather first."

Retail price, 2s. per quart.

SUTTONS' FINE LAWN GRASS

(As supplied to the leading Gardens in the Kingdom),

For MAKING NEW or IMPROVING OLD LAWNS or CROQUET GROUNDS.

This Mixture consists only of the finest growing Grasses and Clovers, and will produce a beautiful velvety Turf in a very short time. February, March, April, and May are excellent months to sow.

For Making New Grounds, 3 bushels or 60 lb. should be sown per acre.

For Improving Old Grounds, 15 lb. per acre.

Price 1*s.* per lb., 2*s.* 6*d.* per gallon, 20*s.* per bushel.

"Hints on the Formation and Improvement of Lawns, Croquet Grounds, &c.," see SUTTONS' AMATEUR'S GUIDE, p. 67, price 1*s.*; Gratis to Customers.

SUTTONS' SHORT SELECT SEED LIST is now ready; Gratis on application.

All Goods Carriage Free, except very small parcels.

☞ Five per cent. allowed for prompt payment.

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The advantages of procuring Seeds direct from the Growers cannot be over-estimated.

James Carter & Co. Seed Growers

237 and 238, HIGH HOLBORN, LONDON, W.C.

CARTER'S GARDEN SEEDS,

GENUINE AS HARVESTED,

In assorted Collections, to suit Large or Small Gardens.

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No charge for packing.



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In assorted Collections, to produce the most effective display. For Table of Contents, see page 4, *Gardeners' Chronicle*, January 2, 1869.

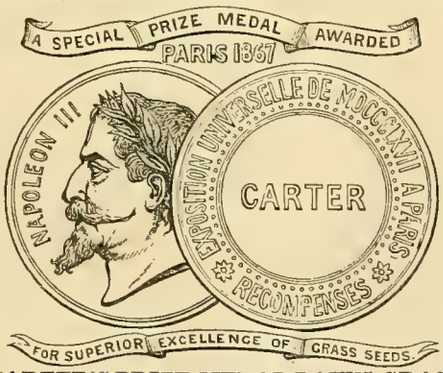
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NEW DOUBLE ZONAL GERANIUM for 1869,

WILHELM PFITZER (LEMOINE).—A novelty without a rival, possessing all the desirable qualities to make it a valuable addition to every collection; dwarf, free-blooming habit, and brilliancy of colour.

Plants not higher than 5 inches had two and three trusses fully expanded, each measuring rather more than 5 inches across; the individual flowers are large, very double, of the most perfect shape, and dazzling orange-scarlet colour.

We have purchased the entire Stock for distribution in England, of the raiser, M. Lemoine, of Nancy. Plants now ready. Price 7*s.* 6*d.* each.



CARTER'S PRIZE MEDAL LAWN GRASS

AS SUPPLIED TO
H.I.M. THE EMPEROR OF THE FRENCH,
H.R.H. THE CROWN PRINCESS OF PRUSSIA,
THE PARIS EXHIBITION, 1867, &c.

On Lawns, Terraces, &c., that have suffered through the drought of last season, occasional sowings of CARTER'S fine Lawn Grass will produce a speedy renovation.

Sow 3 bushels per acre for a New Lawn,
Or 1 bushel per acre to Renovate.

Price 1s. per lb.; 20s. per bushel.

CARTER'S FERTILISER,

THE BEST MANURE FOR THE GARDEN.
In Tins, 1*s.* 9*d.* and 4*s.* 6*d.* each.
In Bags, 15*s.* and 25*s.* each.

For full descriptions, see

CARTER'S

GARDENER'S AND FARMER'S VADE MECUM FOR 1869

(Illustrated), 34th year of publication. Post Free for 12 Stamps; Gratis to Customers.

JAMES CARTER AND CO., SEED GROWERS, 237 and 238, and 261, High Holborn, London, W.C.

Seeds Direct from the Growers the best means of Preventing Disappointment.

NOTICE.—PURCHASERS of LARGE QUANTITIES of FARM or GARDEN SEEDS will be supplied liberally by SUTTON & SONS. For prices apply (stating quantity required) to SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

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Carriage Free.



Seeds direct from the Growers the best means of preventing disappointment.



NEW SEEDS for the KITCHEN GARDEN, complete Collections from 12*s.* 6*d.* to £5 5*s.*, carriage free.
NEW SEEDS for the FLOWER GARDEN, complete Collections from 5*s.* to £2 2*s.*, carriage free.
SUTTONS' HOME-GROWN SEEDS, PRICED DESCRIPTIVE CATALOGUES gratis and post free.
SUTTON & SONS, Seedsmen to the Queen, Reading.

British Fern Catalogue.

ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, Sidcup Hill, Kent.

HENRY GODFREY, NURSERYMAN, Stourbridge, having a large stock of FERNS and SELAGINELLAS, offers them in 12 fine varieties, at from 9*s.*, 12*s.*, to 18*s.* per dozen. These are fine healthy plants, full of fronds, grown in a cool greenhouse. Post-office orders or postage stamps must accompany all orders

HENRY GODFREY, NURSERYMAN, Stourbridge, has to offer a large quantity of HERBACEOUS CALCEOLARIAS, raised from seed saved from a particularly fine strain; established in small pots, from 2*s.* 6*d.* to 3*s.* per dozen, basket and package included. When three or more dozens are taken, Post-office orders or postage stamps must accompany orders.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.—Mr. WEBB, Calcot, Reading.

Sixty-seven Pages of Nursery Stock.

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The Nurseries, Tunbridge Wells.

To the Seed Trade.

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The Gardeners' Chronicle.

SATURDAY, FEBRUARY 20, 1869.

THE CENSORSHIP AT HORTICULTURAL SHOWS, especially those held in remote country districts, often presents difficulties which go far to mar the working of the Societies under whose auspices they are held. It is a wide and important question, upon which we do not now propose to enter fully; but we may, in passing to our immediate subject, lay down just one golden rule for the guidance of each of the parties respectively concerned in meetings of this character. To the managers of shows, then, we say, adopt this plan—Appoint only known competent and honest men. To the censors themselves we say—Be just, and fear not. To the exhibitors we say—Since no person can be a competent judge in his own cause, accept at once, and without cavil, the awards given in by honourable men.

The immediate object of our remarks will be made apparent by the following letter, which we print *verbatim*, omitting names:—

"We have a very fair local Horticultural Society in this district, that is, a few villages within five miles of C——, which is the centre. One great feature in our Show, which takes place either the last Monday in August or the first Monday in September, is 'trays of vegetables.' The Society is divided into three classes

—gentlemen's gardeners, tradesmen, and cottagers, the first two classes showing eight varieties, the third six varieties (excluding Cucumbers). The judges are generally selected from the gentlemen's gardeners and nurserymen in the neighbourhood, and great difference of opinion appears to exist amongst them as to which is to be considered the best class of vegetables on the trays. We should like to have some rule laid down as to what kinds of vegetables should be allowed the highest number of marks—the quality being good. I have been secretary for the last ten years, and have often been asked to have the best kinds indicated in the schedule of prizes. I should, therefore, feel greatly obliged if you would tell me, in your Paper, at an early date, which of the following you would give the preference to, stating the number of marks you would give to each, viz.:—

Potatoes	Peas	Cabbages
Celery	Beans	Red Cabbages
Cucumbers	French Beans	Turnips
Cauliflowers	Scarlet Runners	Lettuces
Carrots	Vegetable Marrows	Mushrooms
Beet	Onions	Spinach
Parsnips	Tomatoes	

Be kind enough to say which you consider stand first, second, or third in merit, and the number of marks which should be given when they are really good."

The plan of awarding prizes by a fixed scale of marks is the most precise and equitable that can be adopted; and when fairly carried out it has this advantage, that even though the scale be defective, the award must be substantially just. In the case specially brought before us, having regard to the fact that it is collections of various objects which are in question, and taking note also of the season of the year (late summer) when the competition takes place, we opine that there is so little difference in point of merit between good samples of the articles named, that even if practicable it is by no means expedient to classify the subjects themselves as first, second, and third in merit. Neither is it necessary to do so in order to arrive at an honest award; for it will be found quite sufficient for the purpose, to vary the number of marks to meet the difference of quality, leaving out of view all differences of kind. To take the latter into account in the case of collections of summer growth, so nearly equal in importance as these, would only tend to complicate a question which otherwise is quite plain and simple, and which is far better kept so.

What we advise, then, in this and in similar cases, is to place the kinds of articles shown on an equality, and then to award marks according to the individual quality of each sample—say 3 for first-rate samples (and they should really be first-rate to gain this number), 2 for those of medium quality, 1 if the quality is inferior, and 0 if the quality is bad. Under this rule, judging from our own experience, there will be no difficulty in finding out the best collections. Where the competition is confined to one kind of object—a stand of Dahlias, for instance—another principle comes into operation, and the quality of the kind, as well as that of the particular example of it produced, needs to be taken into account. Whatever rule is adopted, it should be stated in the prize schedule, so that there may be no misapprehension.

In as far as we have observed, a love of any variety in flowers, fruits, or vegetables is rather an exception than the rule in our VILLAGE GARDENS. It is true that the squire and the clergyman, in places fortunate enough to have them as residents, usually set an example, but still the scanty fare that the villagers put up with in the shape of vegetable food, is not a little remarkable. In our own parish there is a liberal allowance of allotment ground, and besides, most of the cottages have useful gardens attached to them, but still, as we felt bound to tell them at a recent meeting of our Cottage Garden Society, they trust far too much to the Potato. The same bit of ground has been planted with Potatos since the memory of man, and so one is not surprised to find that the crops are not so good as they used to be, and disease is rather the rule than the exception. Still the cottager holds on to the Potato: fail as it may, the same bit of ground gets its annual cropping of this esculent, and want of change of soil or a dressing of manure, is to some extent made up for by a change of sort or of seed.

Usually, however, the coarser sorts are grown, as they yield larger crops; and as poor people never boil their Potatos with their jackets on, there will be in a common lumper a loss, as ascertained by experiment, of as much as 22 per cent., by paring, and the loss of starch from the cut cells. Well, supposing the ground occupied with Potatos, there will perhaps be a disposition to try a "few Broad Beans and a bit of Cabbage," and it will scarcely be believed that these two useful vegetable are not grown by themselves. No, the cottager goes to the nearest market and buys from half a hundred to a hundred Cabbage plants, and a few Broad Beans. The former are stuck in at the edges of the Potato plot, and the latter scattered here and there in the Potato rows. Now it was, if possible, to remedy this style of thing that we established a "Cottage Garden Society," which held a show once a year of vegetables, fruits, and flowers. To this the gentry and farmers were asked to send specimens by way of example as to what might be done, but beyond a gratuity to the gardener there was no prize given to this class. Next the smaller tradesmen competed by themselves. The, in this case, more important class, the cottagers, had to compete wholly amongst themselves.

At the first show, the vegetables from the gentry and the farmers were varied and good. The smaller tradesmen added Parsnips, Carrots, Onions, and Kidney Beans to the Potato list. Little, however, came from the cottagers in the way of vegetables except Potatos, and it must be said that the show of these was excellent, nearly 100 samples, consisting of about 40 different sorts. This class, however, did well in window flowers, for, as the female part of the population are mostly engaged in gloving, they cheer up their dwellings with window favourites, so healthily kept and so well attended as frequently to beat our own gardener with all his appliances of greenhouse and pits. In this state of affairs we had some talk with the men about the uses and advantages of a variety of vegetable food, but if we recommended any unusual plant we were met with the remark, "Theasum beant for such as we; thease be for quality folk:" and another objection was, "thay want so much to meake 'em good." However, we determined to see if a gratuitous distribution of seeds might induce the cultivation of a greater variety of vegetables among the poor, to which end we procured packets of Peas, Beans, Carrot, Parsnip, Onion, and Cabbage seed, for which we soon found so many applicants that some of our leading seed firms most generously presented the Society with a large selection not only of most useful vegetable, but also some very acceptable flower seeds.

Aided then by the kindness of these gentlemen some hundreds of packets of seeds were distributed among the cottagers and the smaller tradesmen; the latter made something of them, and our show was improved as a result of their cultivation, but so little would the cottager spare of his "tatur ground" for anything else, that few among them had a good dish of Beans to their bit of bacon, and the refinement of a Radish with the "muncheon" of bread and cheese was not even heard of. We fear then that much has to be done in the country before even a gratuitous distribution of garden seeds will wean the poor man from his "filling at the price" Potato, especially as this affords him a wider margin for drink; and hence with cheap but by no means highly nourishing food, aided by stimulants, the poor are unfortunately so satisfied that it will take some time to wean them from the system, though it is quite evident that where it prevails something akin to *cretinism* and other signs of degeneracy of the race are going on.

How, as employing much country labour, have we wished we could give our men a taste for meat and a variety of vegetables; how much rather had we pay them extra money to this end than find them in cider: but, alas, alas! they mistake stimulation for strength, and so, unless they get their usual amount of hard stimulating cider, they are indisposed to work; hence it is that in country parishes a man's work is soon over—he has been living on his capital, strength, and must succumb early in life.

Viewed in this light, then, we look upon gardening not only as in itself a most powerful civiliser of the human race,* but as affording evidence of the advance its votaries had made in civilisation; and looking at the matter in this light, we fear that there is little chance of the labouring man getting all the good he might from his garden until some improvement is made in his dwelling, as well as in his mental, moral, and physical development. How this is to be effected is the problem of the day; but sure we are, it never will be so long as he is content with only his three crops—"Tatees, Taturs, and Potatos." *J. B.*

* While treating of this subject we may make passing allusion to some sensible remarks on Cottage Gardening, made in terse idiomatic English, by Sir Lawrence Peel, at a "Penny Reading" at Ventnor, and printed in the form of a small pamphlet. EDS.

—— In the Proceedings of the Academy of Natural Sciences of Philadelphia for July, 1868, is a communication from Mr. THOMAS MEEHAN on the LEAVES of CONIFERS. The author considers that the so-called leaves in these plants are but a part, and frequently the least important part, of the true leaves, which are "either mostly adherent or mostly free according to the vigour of the branch or individual plant, and not according to any specifically constitutional character." In confirmation of his view, Mr. MEEHAN alludes to the leaves of the European Larch, which occur, as is well-known, either in tufts from the contracted state of the branch, or scattered along the side of an elongated shoot. In the latter instance, the leaves are adnate to the shoot for some distance, while in the former case they are free. From this and similar facts, in Cryptomeria, Juniperus, Thuja, &c., he infers that adnation "is a characteristic of vigour, free leaves a condition of weakness or arrested growth." Cuttings of Thujopsis borealis, made from branches with adnate leaves will, says Mr. MEEHAN, "throw out shoots with free leaves until they are very well rooted, and able to throw out vigorous shoots."

"A test of vigour was the power to branch. Only on vigorous maturity did the branching age of trees commence. Arbor-vitæs, when mature, pushed out branches from the axils of every other pair of leaves. This gave them their fan-like appearance. When young they branched little, and this stage was always marked by more or less free leaves. Thuja ericoides of gardens, with its Heath-like foliage, was a weakly constituted form, which retained its childhood foliage, and had little disposition to branch. Thuja meldensis of LINDLEY, which from its peculiar appearance that learned author supposed to be a hybrid between the Red Cedar and Chinese Arbor-vitæ, was a form of intermediate vigour, branching moderately, and leaves intermediately adnate. Retinispora ericoides of ZUCCARINI, was also a weak form with free leaves, the well developed form of which he had had no opportunity to trace with certainty. Taxodium distichum, RICHARD, and Glyptostrobus sinensis, ENDL., were no doubt the same thing. He showed, by the vigorous branching character of the latter, the necessity for the arrested foliation it presented, and exhibited specimens of vigorous (more branching) Taxodium distichum in which the leaves were abbreviated and twisted around the stem, exactly as in Glyptostrobus, except that the free parts were rather longer. This form did not branch quite as much as the typical Glyptostrobus, but more so than in the typical Taxodium. He remarked that the two genera Pinus and Sciadopitys had their true leaves adpressed almost entirely to their branches, and illustrated this by specimens of Pinus austriaca. Instead, however, of these genera developing green free points on the apices, they pushed out rather abortive branches from the axils of the true leaves. The fascicles of leaves on these plants were not true leaves, but were intimately connected with the axial system of the plants. The adpressed true leaves on the Pine were annual, although as dead epidermis they remained often on the bark until the regular excorticating period arrived; but these so-called leaves, or rather metamorphosed branchlets, remained often several years. He had known some remain eight years. Their connection with the axial system could be seen by raising the bark of a three or four year old branch on the Austrian Pine."

Mr. MEEHAN'S facts, of course, are some of them obvious enough; not so others. For instance, Thuja ericoides branches freely enough, and so does Retinispora ericoides, even though it does not attain to large dimensions. The large specimen of Glyptostrobus sinensis at Kew is less branched than trees of the same size of Taxodium distichum, though in both instances the curious shedding of the branchlets must be taken into account. Again, what Mr. MEEHAN calls adnation, is really imperfect separation; there is no growing of the leaf to the stem, but the detachment of the former from the latter does not take place so abruptly in the case of the rapidly elongating shoot as in the shortened one. The rapid growth of the shoot may be looked on as a sign of vigour, but we should be disposed to look on the incomplete detachment of the leaf as an imperfection consequent on, and as it were compensating, the comparatively excessive development of the shoot.

—— We have just received another specimen of the DISEASED ROOT of TELEGRAPH CUCUMBER in a more advanced state than that which a short time since was submitted to the Scientific Committee of the Horticultural Society. It appears that the whole of the soil has now been removed, and that every plant is affected. Indeed all the plants had either died or were in such a state as to leave no hope of their being of any further use. The tubers on the main root were quite decayed, while those on the smaller were merely in an incipient stage, arising either laterally or surrounding the thin root. There was no difficulty, in those of intermediate growth, in detecting Vibrios, accompanied by their eggs, but the animals themselves were no longer alive. In the advanced stage they even more closely resembled Truffles than in that in which we had previously an opportunity of examining them. It is obvious that as the eggs are numerous, great care should be taken to char the soil which has been removed, and to obtain fresh soil from an entirely new source, thoroughly cleansing the sides of the pit, that no eggs may be left behind. *M. J. B.*

—— We learn that the KING of PORTUGAL has conferred on Mr. EDMOND GOEZE the cross of the Order of Christ, in recognition of the services of that gentleman as Inspector of the BOTANIC GARDEN at COIMBRA. Mr. GOEZE will be known to our readers for his contributions on the gardens of the Azores, and other communications.

—— Mr. BRISTOWE, of Lalcham, has forwarded to us, through Messrs. BARR & SUGDEN, some DOUBLE CAMELLIAS, which are so full as to give the impression as though three or four flowers were fused together. It is not quite so, however, the appearance resulting from the branching of the receptacle of the flower within the calyx, each branch serving as a centre around which petals are arranged. A similar occurrence is now and then met with in

Anemones, as a result of over-luxuriant growth from the application of large quantities of manure; and we understand that the production of the Camellias in question may be accounted for in a similar manner.

—— Information of an unofficial character, but which we believe to be perfectly authentic, has just reached us with reference to the TRANSPORT of PLANTS from ANTWERP to ST. PETERSBURG, for the great Show in the latter city. Messrs. SMYERS, of Antwerp, undertake to despatch a steamer from Antwerp on the 1st of May, to reach St. Petersburg on the 10th of the same month, five days before the Show. Should any impediment prevent the steamer getting up to St. Petersburg, the packages will be despatched by rail, at the cost of Messrs. SMYERS, from Revel or Cronstadt.

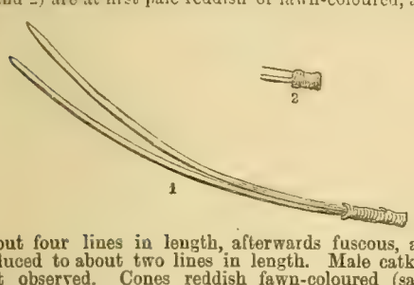
—— We have been favoured by Mr. MEREDITH, of Garston, with photographs of some remarkable bunches of GRAPES grown at the Garston Vineyard, consisting of Muscats, Alicante, Gros Guillaume, &c., which he had the honour of personally presenting to the QUEEN at Osborne last Christmas. HER MAJESTY expressed her warm admiration of the fruit, and was graciously pleased to command that it should be photographed before being put on the Royal table. In a note accompanying the photographs, Mr. MEREDITH remarks:—"I think it my duty to make this known, not only on account of the great honour done to me, but also to show the interest which HER MAJESTY and the Royal family take in horticulture."

New Plants.

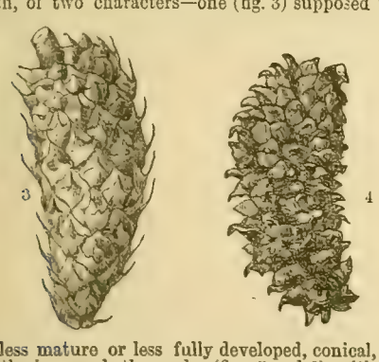
PINUS TAMRAC, *sp. nov.*

Arbor pyramidalis; foliis geminis breviusculis rigidis margine scabris, glaucescentibus, et supra et subtus 16—18 lineis stomatum instructis; vaginis mollicis strictis persistentibus, primo pallide rubescentibus postea fuscescentibus; amentis masculis ignotis; strobilis nutantibus conico oblongis parum incurvatis, squamarum apophysi subrhombea subopaca junioribus vel minus auctis depressa vel parum subrotundatim elevata, carina transversa parum elevata, umbone ad basin lata et compressa versus basin aspiciente apice subulata et longe spicata, adultis vel magis auctis apophysi fortiter uncinata, unco curvato aut plus minusve sinuato vel recto vel versus apicem aspiciente; nuculis parvis ovali-oblongis utrinque convexiusculis ala duplo brevioribus. —In Sierra Nevada in California.

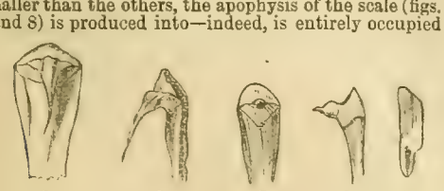
A tree of moderate height and pyramidal form; the leaves (fig. 1) in pairs, stiff, glaucous green, with about 16 to 18 lines of stomata on the back, and nearly the same number on the front, the stomata coarse, the sides of the leaves slightly serrated. The sheaths (figs. 1 and 2) are at first pale reddish or fawn-coloured, and



about four lines in length, afterwards fuscous, and reduced to about two lines in length. Male catkins not observed. Cones reddish fawn-coloured (same colour as those of P. Sabiniana), pendent, unequal, one side larger than the other, from 1½ to 1¾ inch in length, of two characters—one (fig. 3) supposed to be



the less mature or less fully developed, conical, oval, slightly incurved, the scales (figs. 5 and 6), with their apophyses subrhomboidal, flat, except those near the base of the cone, which are somewhat raised into a roundish knob, scooped out on each side next the base, furnished with a flat umbo, which extends into a long, awl-shaped spine, not thicker than a thread, pointing backwards to the base; in the older, harder, and more developed specimens (fig. 4), which, however, are smaller than the others, the apophysis of the scale (figs. 7 and 8) is produced into—indeed, is entirely occupied



by, a curved subsinuate thickish hook, which is either directed straight outward, or is slightly turned bodily towards the base, the tip, however, being turned slightly up towards the apex. The seeds (fig. 9) are small, oval, convex on both sides, slightly mottled; and the wing is twice as long as the seed, which is pale, with reddish streaks, especially along the back.

At first sight the two kinds of cones are so distinct in appearance, that one would scarcely take them to belong to the same tree; it is only on being assured that they do, that a closer search gives indications of identity. Near the apex of the hooked kind (fig. 4) some slight remains of the long, flat, awl-shaped spine may be detected. At the same time, the two look so different, that I should feel no surprise were future investigation to show that there were two kinds of similar trees growing together, which have been confounded as one.

I owe specimens of this species to the kindness of Mr. J. Q. A. Warren, of California, who has lately brought some interesting collections of natural history, especially botanical, from California and the Sandwich Islands, to this country. A fine set of his cones has been secured for the British Museum. The tree is found in the Sierra Nevada Mountains, near Cisco, about 92 miles from Sacramento, and has been largely used for ties in the construction of the Pacific Railroad, its timber having been found very hard and durable. It is there known by the workmen and settlers as the Tamrac, which name I have preserved to it.

I remember when I was secretary to the Oregon Botanical Association of Edinburgh, that the Association received some cones of this Pine from Jeffrey. If I recollect rightly, there were no seeds, and the committee was puzzled to determine whether it was a new species or not, but, in the absence of any other particulars, they rather inclined to think it might be a stunted specimen of the dwarf Pine, P. muricata. There is no mistaking the cone when one has once seen it—their small size, coupled with the long, slender, thread-like reversed mucro, are so easily recognised. I therefore speak with perfect assurance of accuracy when I say that Jeffrey got it in 1853, and if any seeds came, they would be issued either as Pinus sp. or Pinus muricata. Jeffrey may have found it in the same part of the Sierra Nevada as Mr. Warren has, but I think it more probable that he got it more to the north, most of his explorations having been conducted there. *Andrew Murray.*

KARL FRIEDRICH PHILLIP VON MARTIUS.

(*Continued from p.* 165.)

IN December, 1816, Spix and Martius received their instructions, and they had to join the expedition on the 6th February, 1817; there was, therefore, scarcely time to make even the most necessary preparations, and a special equipment was out of the question, which Martius often regretted, though, after all, it did not materially affect the efficiency of the expedition. On the 2d of April, 1817, the squadron which was intended to convey the Imperial bride and her suite, and the travellers to the New World, sailed from Trieste, and after several stoppages at Malta, Gibraltar, &c., reached Rio de Janeiro on the 15th of July. Here the Bavarian and Austrian naturalists separated,* and each party entered on its own particular journey. The plan projected by the Academy of Sciences for the Bavarians was on a far larger scale, and more comprehensive, not only than that sketched out at Vienna for the Austrians, but also than that followed by any former naturalists travelling in Brazil. It embraced the exploration and investigation of that vast territory, then almost wholly unknown to science; their commission was a general one, to penetrate the principal provinces without preference for certain districts, and by taking the most circuitous routes to collect, and in a measure unfold, their treasures. Both travellers betook themselves at once to the interior, towards the province of St. Paul, as far as the town of Jundiahy, where they organised a convoy for the further prosecution of their researches. Then, taking a north-easterly direction, with occasional digressions, they continued their way to the Botokundians and other Indian tribes, to the province of Minas-Geraës, and, by a somewhat extended *détour*, to the province of Goyaz; and, after repeatedly fording the Rio São Francisco, and meeting with frequent difficulties, they arrived in the province of Bahia, and entered its capital, Bahia de todos os Santos, on the 10th of November, 1818.

After two months' rest—during which, however, they undertook a five weeks' trip to the fertile districts of Ilheos—they resumed their journeyings. Amidst the innumerable dangers and troubles that beset them, and under which many of their followers succumbed, the travellers crossed the desert (Sertão) of Bahia, again forded the San Francisco, passed through the province of Pernambuco, and surmounting the border mountains, Dous Irmãos, descended into the hot valleys of Piauhy and Maranão. Starting from the sea-port town of San Luiz de Maranão, they entered, on the 20th of June, 1819, on the third and chief part of their travels, thenceforward by water. Conveyed by sea to Pará, they there embarked on board a river boat, and ascended the Amazon, and by the end of November reached the town of Ega, at the mouth of the tributary stream Hyapurá. Here they parted company: Spix continued his explorations on the main waters, as far as Tabatinga, a town on the confines of Peru; and Martius sailed up the Hyapurá, as far as the frontier of New Granada, where the cataracts of Araracoara put an end to further progress in that direction. In the Barra do Rio Negro, now Villa de Manãos, they both met again, and after an excursion up the Madeira to the Mundrucú and Mauhé Indians, sailed together down the river back to Pará. On the 16th of April, 1820, they came into Pará, which they left on the 14th of June, returning by a Portuguese three-decker to Lisbon, where they arrived after a passage of 67 days, reaching Munich on the 8th of December, 1820.

This expedition, irrespective of the sea voyage, extended over nearly 1400 geographical miles, and for months led through the most inhospitable and dangerous regions of the New World. Both explorers, however, escaped without any important disaster on the road, and they had the rare good fortune to preserve and bring home their collections, complete and uninjured, through all the perils to which they were exposed. These collections, finer and richer than all previous and most subsequent ones from Brazil, were made over to the Academy. The whole cost of the expedition did not exceed 30,000 florins.

The result of the expedition consisted of about 6500 species of plants, the majority dried; but several living species, as well as seeds, were also brought home. The zoological collections (to which Martius contributed also on his solitary voyage up the Hyapurá) numbered 85 species of mammals, 130 amphibia, 350 birds, 116 fishes, 2700 insects, 80 arachnoids, and 50 crustaceæ. The species, specially the plants, are represented by many, often numerous, and always well-preserved specimens.

The first greeting which met the travellers on their return home, and on the very day of their arrival, was the news that the King had nominated them Knights of the Order for Civil Merits. A few days afterwards, Martius received the appointment of ordinary member of the Academy of Sciences, and second conservator of the Botanic Garden. He was then only 26 years of age, and possessed already of a well-established name, full of hopes founded upon a basis which, as a rule, destiny does not assign, even to the most able, before they have spent many weary years of their prime in a toilsome struggle against all sorts of obstacles.

The impressions received by the youthful traveller from the marvellous nature of the strange land, is nowhere more conspicuous than in his own descriptions of it. When he conducts us into the majestic splendour of the virgin forest, or into the airy halls of the Palm grove, when he unfolds the enchantment of a night on the broad waters of the Amazon, or describes the terrors of a tropical tempest, when he bids us enter the tent of the wild Indian and view his savage feasts and outlandish dances, then his language becomes lofty and animated, and rises not seldom to a poetical strain. Powerful and full of colour, faithful and full of life, his images rise up before us, and, as if by some magical power, we feel ourselves transferred to that strange country, and hear and admire with the artist. Such pictures can only be drawn by one who has gazed with enthusiasm upon the original. And this fervour, this plasticity of illustration, is not only met with in the works written by Martius immediately after his return from his travels, when the impressions were yet fresh and active; we also find it in his last work, published in 1867, by the old man of 74, on the "Language and Life of Brazilian Indians," a work which attests an unbroken capacity for labour.

In consequence of this expedition Martius' future scientific activity was decided. Brazil was thenceforward the country to which he devoted the greater part of it. His suggestive writings are great in number and exceedingly varied, for he not only enriched botany, but likewise geography, ethnology, and other branches of science. Scarcely another botanist has occupied himself so exclusively with one country. But Brazil was not a strange country for Martius, for he knew it as no other person does, and loved it like a second home, and kept up a wide-spread communication with it until his death. Before everything else his energy was centred on the flora of Brazil.

It would be a mistake, however, to consider this a one-sided view, for the flora is so exceedingly rich that its investigation forms a gigantic task in itself. Moreover, the consequence is that it is necessary to look further. Most of the principal types of vegetation are represented in this flora, and many of the so-called natural orders find their head-quarters within its limits. The student cannot neglect the study of those types in their extra-Brazilian forms; and, secondly, the groups in question must be monographically investigated. Thereby, on the one hand, his knowledge is enlarged, and on the other hand it is deepened. Such, therefore, was the course of Martius' development. The Brazilian flora in hand, he attained gradually that comprehensive knowledge of forms in which few rivalled him, and in that wide sphere of action gained a large and discriminating method of contemplating the vegetable kingdom as a whole. Now, we are often inclined to consider the careful prosecution of one branch of study as the more scientific course to be followed—with what truth, it is not the purpose of the present article to discuss. When Martius first began his career the contrary opinion was universally held, and Martius' botanical proficiency must be criticised with this circumstance in view.

The first work made public relative to the Brazilian expedition was the Narrative of the Journey. It appeared in 1823-31, in three quarto volumes, accompanied by an atlas. The compilation of this work was originally entrusted conjointly to both travellers by Maximilian Joseph I.; but Spix did not long survive the compilation of the first volume, and so it happened that by far the greater portion of the work proceeded from Martius' unaided pen. This work was recognised as of equal importance as regards a knowledge of Brazil with Humboldt's writings on the other parts of tropical America; and, indeed, the copiousness of its information on geography, ethnology, statistical and natural history, cannot fail to excite our warmest admiration. The beauty of its diction and the attractiveness of its subject-matter alike met with high and universal approbation; and Goethe's commendation (the passages in Eckermann on Goethe's intercourse with Martius are numerous and interesting), coupled with the admission of several sketches in German selections of prose, are eloquent testimonies of its excellence. Of course in the Narrative of Travels natural products are treated of more or less in detail, but it could not be occupied with the special

* The members of the Austrian party, now all dead, were Mikan, Pohl, Schott, Natterer, and Ender, the artist.

discussion and elaboration of scientific subjects. This was reserved for a separate work, which appeared contemporaneously in a magnificent series of volumes. In the first place, Martius undertook only the botanical section, and Spix the zoological; but, on account of the death of the latter in 1826, when he had only worked up the mammals, the birds, and a part of the amphibia, the continuation of the work fell upon Martius. He acquitted himself of the obligation in the most satisfactory manner, having secured the assistance of Agassiz, Andreas Wagner, and Pertz, for the actual work, whilst he conducted the editing of it. This itself, however, was no small labour, involving, as it did, the superintendence of the publication of four large folio volumes. The collaboration of the botanical treasures was effected similarly to the collections of Humboldt and Bonpland by Kunth, in the form of a selection of the most interesting novelties. The Phanerogamia, or flowering plants, were illustrated in the "Nova Genera et Species Plantarum Brasiliensium" (3 vols. fol., Munich, 1823-32), and Cryptogamia in the "Icones Selectæ Plantarum Cryptogamicarum Brasiliensium" (1 vol. fol., 1827).

The first volume of the former work was prepared by Martius' colleague, Zuccarini, the remainder entirely by Martius, except the chapter in the "Icones Selectæ" on the internal structure of Tree Fern stems, from the pen of Hugo Von Mohl—a chapter that served to enhance the value of the work in the highest degree. In both works not only were many new and highly remarkable plants made known (more than 400 species and more than 70 genera), but they were also so fully and lucidly described that botany received an essential enrichment. For every new plant is a new fact, which is not without influence on others, and at all events it is quite as important that each plant should be published and referred to its proper place in the system, as that any new observation in the province of histology should be recorded. And the art of correctly describing a plant and ascertaining its affinities so that nothing shall have to be changed in future researches, is a much more difficult task than those will admit who affect to despise it. A practised and quick sight for natural affinities, a happy gift of combination—in short, an essentially "systematic tact"—which is by no means what half-botanists are pleased to denominate "skill in guessing," but the result of an exact and extensive knowledge of the vegetable kingdom; this, and a comprehensive acquaintance with forms, placed Martius in the rank of the first botanists of his time.

Indeed, so great was the esteem in which his works were held that he received the highest scientific distinction that can be conferred upon a botanist, namely, election as a member of the Institute of France.

It may be mentioned here, in passing, that the above-named works were subsidised so long as Maximilian Joseph I. lived, after whose death they were left and remained entirely dependent on their own resources.

(To be Continued.)

FRUIT PROTECTION.

FEW, I believe, are the gardeners who do not think some protection necessary for the blossoms of Pears, Apricots, Peaches, and Nectarines. The protection usually afforded, if not altogether vain, is often defective. The dews fall perpendicularly; unless, therefore, the protection is over the blossoms, and sufficient to keep off the dews, which give the frost power, the protection is more or less useless. You may wrap a Pear tree, whether pyramid or bush, with covering like a "mummy," but, if you do not put the covering over the head of the tree, you will probably lose all your fruit. I am, however, about to speak of the protection of wall-fruit out of doors, and explain how it is done here. The S.W. wind here blows furiously into the trees; hence a light and less expensive covering than the one used would be of no use. In protected situations lighter materials would do very well. To give an idea of the fury of the wind, I must inform the reader that the S.W. wind tumbled one 9-inch wall, before the bricks were set, into the next garden, and moved another 2 inches out of the perpendicular, so that I was obliged to take it down and put it up again. Add to this 14 miles or more of N. wind at the back of the wall with nothing to stop it, the reader will see with what difficulties I have to contend. Yet a thing which is difficult is not necessarily "impossible"—a word that ought to be rubbed out of our dictionaries! The following is the way the trees are protected, and I may observe that they have been thus protected since November. In my opinion it is as necessary to shield these Persians (Peaches and Nectarines) from the violations of winter as from the attacks of spring frosts on the blossoms and expanding leaves, which are more tender than the blossoms. For lack of this you see the leaves blistered all over, and looking as if a mole had been heaving between the outer and inner cuticle—a disgrace to science. Unless the foliage can be kept healthy and free from frost and red-spider and other pests—the gardener's curses—it must be deteriorated. The leaf is the first lung, and the skin is the second lung: if the first suffers the second must suffer. But to proceed with the description of the protection:—Battens, 3½ inches every way, are let into the ground at 10 feet apart. One foot is tarred and planted, and the upper part is painted white. Iron rods (⅝ths of an inch in diameter) reach from batten to batten, and run into iron staples. Under the copings a rod of similar length is fixed with iron loops, with a supporting iron lip in the centre, which is necessary here on account of the violence of the winds, which else would tear the rods down and also draw the loops. The curtains are No. 2 sailcloth, at 1*s.* 3*d.* per yard, bought of Mr. Brown, of Tolpuddle; they are 22 inches wide, and run top and bottom, with rings affixed to the sheets, at present with tar twine, but after the season is over they will be affixed to the rings and sheets with strong copper wire. In ordinary situations the tar twine would suffice; but here the rings saw them off in a gale of wind. These curtains have not been undrawn all the winter, but when the blossoming time comes they will be undrawn after bed fashion. This, then, is the way it is done here, and it has been approved by many of my friends and acquaintances, and as several of them have already promised me the pleasure of their visit in the Rose season, I doubt not I shall be able to show them as fine—perhaps a finer—display of Peaches and Nectarines grown out-of-doors without glass as could be seen at Frogmore or Trentham. It is ridiculous to think of growing the above fruits without adequate protection. You will not get a full crop once in seven years, and your foliage will be miserably blistered. The excuses generally made are worthless; they are mainly, "It is impossible," and "The soil don't suit 'em." N.B.—Turn him away! Insist upon having them, and you will have them; but then you must allow materials and a freer access to water than is generally to be found even in our great gardens. After the fruit is secured the next thing to be done—twice or three times a week—is to syringe the foliage (the under side), or red-spider, scale, thrip, and green-fly will spoil your wood and foliage. Scale destroys the tender skin of the next year's bearing wood. In order to stop them I am about to dissolve some aloes in water, and sponge my trees. No creature likes aloes. A gentleman had a monkey that gnawed his tail. Every remedy was tried in vain. At last he rubbed his tail with aloes; after the first taste pug gnawed no more. It is worth a trial. When red spiders have made your leaves look yellow spotted on the outer side, and silvery on the under side, the mischief is done, and the leaves will not recover. Defective foliage produces defective flavour and unhealthy wood for the next year. Peaches in strong soils do best on the Plum stock, but in very light soils they flourish best on the almond stock. I want some frosts, as the Peach and Nectarine blossoms are beginning to expand. *W. F. Radclyffe.*

VEGETABLE GROWING: NORTH *v.* SOUTH.

THIS discussion, which owes its origin to some remarks on a few late Peas at Bothwell (see p. 1063, 1868), like a snowball, increases in dimensions as it is rolled along. I had intended, after my remarks at p. 1234, 1868, to have withdrawn from the contest, and to have left an open field to other and abler hands for the discussion of this important question; but fate and Mr. Fish have decreed otherwise. For here am I, repeating my assertion, which has formed the backbone of the discussion, that, "as a rule Scotch gardeners pay more attention to, and take a greater pride in cultivating vegetables than their English brethren." While making this statement, I wish all those whom it may concern, distinctly to understand, that I have no feeling in the matter—I mean, in the way of holding up the gardeners of one country, at the expense of the other. Such is far, very far from my intention. My feelings are entirely with the vegetables. My desires are for their improvement, and having found the vegetables in Scotland, not only last year, but in many other years, more plentiful, and of better quality, and having seen that a deeper interest is taken in their cultivation by the professional gardeners, than I have found in the same class of gardens (gentlemen's gardens) in the South of England, I have fearlessly stated the case, and again call the attention of our Southern cultivator to the fact, hoping that discussion may cause a little more attention to be bestowed on this, the most important branch of a gardener's duties.

It is no answer to my argument for one or two writers to blow the trumpet of their own success, which is not the least called in question, or to lavish any amount of praise on the general excellence of English gardeners. No one is more ready to acknowledge their merits as a body than myself. Neither will it do to vilify the climate by way of justification for our own shortcomings. The simple facts remain the same, and cannot be slurred over in that manner. The subject is worthy of a deeper consideration.

I am certainly obliged to Mr. Fish for his generous contribution (p. 1286, 1868); although he ranges himself on the opposition, he has, *nolens volens*, advanced a good deal in support of my argument, and much besides which I can by no means endorse, to wit, in giving it as his opinion that English gardeners display greater skill in the management of their kitchen gardens than do those of Scotland, in as far as they produce early salads and forced vegetables, while those of Scotland do not. Mr. Fish proceeds on the assumption that horticulture in Scotland has made no advance since he was an apprentice in the neighbourhood of Perth 30 years ago, than which there can be no greater fallacy. Ample evidence of this may be seen by anyone paying a visit to either the Edinburgh or Glasgow March and April spring shows, where as good (if not better) vegetables may be seen as have ever been exhibited at any show of the same season in London. There collections of vegetables are exhibited by the dozen, containing Sea-kale, Asparagus, Mushrooms, French Beans, Potatos, Carrots, Cucumbers, Rhubarb of gigantic size, besides the ordinary hardy vegetables of the season, including fine Celery, Leeks 3 inches in diameter and 9 inches blanched, and always an ample display of small salading. This does not imply want of skill, or show a scarcity of vegetables in spring. The same may be said of their June shows; and the autumnal displays are simply grand. I think it would be a good thing for me here to invite Mr. Fish and those who think with him that vegetable culture is not what I have represented it to be in the North, to take note of the collections of vegetables they will see at the great International Exhibition in Edinburgh next September; or perhaps some of them, including Mr. Fish, may break a lance with them in a friendly way on that occasion.

I am forgetting, however; for how can we expect any good vegetables in autumn in such an awful climate as that so graphically described by Mr. Fish? I am forgetting about the English climate with its "scorching summers" and "withering autumns," with "the dry beating air which drinks up the life-blood" of every green thing, and is "dead against the gardener." The past summer I grant may almost merit such a description, but it is equally applicable to the whole country, North and South, and by no means the general character of an English climate, as Mr. Fish tries to make out. This theory of Mr. Fish's about the aridity of the English climate as compared with that of Scotland is sheer nonsense when carried to such exaggerated extremes. It may serve Mr. Fish's purpose in writing as an apology for his bare quarters in East Anglia. But what are the facts? Passing by 1868 as exceptional, let us take 1867. On reference to Symons' British Rainfall (the best authority on the subject) I find that the amount of rain which fell at Chiswick, Kelso, and in the East Lothians, was as nearly as possible equal to about 21½ inches, while at Bury St. Edmund's, Bothwell Castle, and Scone Palace, Perth, the fall was equal to about 27½ inches; thus showing that Mr. Fish had the benefit of six inches more rain in 1867 than the inhabitants of the three first-named places, but exactly the same as at Bothwell, and Scone, Perth, which may be noted as nearly the centre of Scotland. Going a little further North, at Aberdeen the average reaches 28 inches, but this is a long way short of being doubled, as Mr. Fish states; and it must further be borne in mind that sloping surfaces and light shallow soils, such as exist there, require more moisture than flat lands. Further, the South-west of England is more humid than any part of Scotland, if we except Argyleshire and the Hebrides. Last year both Grass and corn were as thoroughly parched for want of rain in Forfar, Moray, Aberdeen, and Banffshire as in any part of England, and much more so than in Lancashire, Lincolnshire, Derbyshire, and Cumberland, not to speak of the south-western counties. I might advance much more on this point, but I do not think it necessary. I must have said enough to convince Mr. Fish that in this instance he has laid the burden on the wrong shoulders, and that climate (moisture) has but very little to do with it.

I have already stated that the coolness of the atmosphere may exert a little influence with such things as the autumn Peas; but in other respects, what little differences there may exist, tell more to the advantage of the South than to the North. However, "somebody must be whipped for this," says Mr. Fish, something must be made to account for this charge, to exonerate the gardeners; and so the climate is found guilty, and pictured so vividly that we might almost fancy we were in Arabia, or some other burning land. Who that believes in Mr. Fish will ever dare to speak of the soft, balmy breezes of our English clime again, about which our poets have so nobly sung? Our poor climate has a deal to answer for. We lay to the charge of our sunless climate and dripping skies our inability to compete with our Continental friends in the culture of many kinds of fruits. The Frenchman shrugs his shoulders and ejaculates, *Il pleut toujours en Angleterre.* Mr. Fish takes up his pen and writes—— but I will spare him the repetition, and recommend him instead to take an occasional peep at the vegetables in Covent Garden, and also those growing in the market gardens round London, and see if he will thus find any evidences of his climatal defects. I think not. There are finer vegetables cultivated by the London market gardeners, at all seasons of the year, than by any other class throughout the country. The climate suits them, and they pay attention to it, and study it as well as their crops. Then why should professional men like Mr. Fish find so much fault with it?—if good crops can be grown by one class, why not by the other, who, as a rule, profess more? *B.*

(To be Continued.)

NOTES ON FRUITS.

Pear, Doyenné du Comice.—This is a new Pear, of the greatest excellence. It has, further, the rare merit of being always good, which is a great recommendation. The old Pomological Society was the first to bring this Pear into prominent notice, and the present Fruit Committee has in three successive seasons awarded it the 1st prize as the finest-flavoured Pear exhibited at the November meetings. It is of large size, as large as the Glou Morceau; the flesh melting and buttery—somewhat resembling that of the Marie Louise and Glou Morceau. It is of vigorous and robust constitution, and forms naturally a nice pyramid on the Quince, on which it succeeds best, the fruit becoming of a beautiful russetty colour; whereas on the Pear stock the fruits are nearly destitute of russet, but generally streaked and shaded with crimson. It is but a moderate bearer. Season: November, December.

Pear, Winter Nelis.—A small, but most excellent variety, and one that is always good and to be depended on—for it is very rarely indeed that a Winter Nelis can be found of indifferent quality. It is of roundish, obovate shape. The skin is of a dull yellowish green colour, sometimes entirely covered with russet. It is frequently easily distinguished by the eye, which is naturally small, being entirely wanting, as in the Beurré d'Aremberg. The flesh is yellowish, buttery, and melting. The tree forms a handsome pyramid. It is of slender growth. Leaves very small, deep green. Fruits most abundantly, and succeeds best on the Quince stock; when worked on the Pear it is frequently a very shy bearer. By planting this fine Pear in different aspects and situations, a succession of ripe

fruit may be secured from November to February, and even later.

Pear, Belmont.—This is, in ordinary seasons, but of second-class quality. It is generally used for stewing, for which purpose it is very good. During this past summer it has proved of excellent quality, the warm season evidently suiting its requirements. It is of medium size, of obovate form; skin of a yellowish green colour, covered with russetty dots. Flesh yellowish, sweet, and juicy. A hardy and free-fruiting sort, but not to be recommended for general cultivation. Season: October, November.

Pear, La Juive (Jewess).—In some seasons this turns out first-class in quality, juicy, buttery, and rich; but it is not constant: the next year it may be pasty and bad. It is of medium size, roundish obovate in form, sometimes pyramidal. Skin pale yellow, mottled with spots of brown russet. Stalk about an inch long, thick, and obliquely inserted. Succeeds best on the Quince. Moderate bearer. Season: November, December.

Pear, Huyshe's Victoria.—This is one of the Rev. Mr. Huyshe's first seedlings, from a cross between Marie Louise and Gansel's Bergamot. It is a Pear that has received a very high character—higher than it really deserves. I have never tasted a fruit of it to equal a good Marie Louise or Gansel's Bergamot. It is generally (near London at least) pasty, and frequently gritty. The fruit is of medium size, somewhat oval in form, flattened at the two ends; skin pale yellow, covered with numerous spots and patches of russet; stalk short, thick—in some cases it is inserted quite in the centre of the fruit, in others obliquely, as in the Beurré d'Aremberg; moderate bearer, succeeding best on the Quince. Season: November and December.

Pear, Zephirin Grégoire.—This has proved quite equal to the high character it received on its introduction. It is scarcely so well known as its merits deserve. In flavour it is delicious; the flesh yellowish, buttery, and melting, with a powerful aroma. Fruit about medium size, roundish in form; skin pale greenish yellow, spotted and speckled all over with brownish russet; stalk about an inch long. Succeeds well on the Quince as a pyramid. An excellent Pear for mid-winter use. Season: December and January.

Pear, Baronne de Mello.—This has proved of very excellent quality; frequently very rich and sugary, with a fine aroma. In dry seasons, however, it is at times slightly astringent. The fruit is large, of rather irregular pyriform shape, and the skin always entirely covered with a warm cinnamon coat of russet; the eye small, stalk slender; flesh greenish yellow, juicy melting, and buttery. A splendid variety for pot culture. I have tasted some of them really superb, which have been grown in pots; the flesh exceedingly tender, rich, and melting. It will succeed on either the Pear or the Quince, forming a handsome tree naturally. The young wood is very distinct in character, being rather stout, and of a very pale cinnamon colour, almost like the fruit itself; a moderate bearer. Beurré Van Mons is a synonyme of it. Season: October, November. *Pomologist.*

TRADE MEMORANDUM.

Messrs. Adams & Adams, 25, Piccadilly, Manchester, Auctioneers, Valuers, Estate and Horticultural Agents.

Home Correspondence.

Adulteration of Seeds.—My attention has been called to your leader in the *Gardeners' Chronicle*, p. 133, in which you dispute the accuracy of two of the statements made in the second report of the Society's Sub-Committee on the adulteration of seeds,—1st, that prices of "nett" seeds, and of "trio" (or "000") or killed seeds, are regularly quoted in some of the trade circulars; and 2d, that the association of seedsmen settle among themselves the amount of adulteration (if any) which each kind of seed is to undergo. Considering the interest which the *Gardeners' Chronicle* has always taken in this Society, and in the advancement of horticulture, I feel sure that the Council will not think that I am stepping beyond my proper functions if I give you the grounds on which these two statements were made. Before doing so, however, I may be permitted to observe that they are both "side issues;" and if I suffer you to lead me away from the main point, you must understand that I do so with my eyes open, and merely that the accuracy of the carefully considered report of the Sub-Committee may not be impugned. The real question before the Committee and the public is, "whether seedsmen generally are in the habit of designedly adulterating their seeds or not;" everything else is merely accessory. If you admit the truth of this charge, it cannot matter what the machinery is by which it is done, or whether the different ingredients are recognised by the trade names of "nett" seed, "trio," or by any other. You mention that you have looked over the trade circulars of various houses for 1868-9, and that no quotations of "nett" seed or "trio" occur in any that you have seen. The terms in which you speak of these shows me plainly that you and the Committee, in using the words "trade circulars," are not speaking of the same thing. You speak of the "public circulars of the trade," meant for all customers, whether of the trade or not, and I am not surprised that you have not found any acknowledgment of "trio" blazoned there. But there is another kind of trade circular of whose existence you do not seem to be aware, one issued by some seedsmen, only to the trade itself, and intended only for its use—little more than a printed letter or sheet of quotations, like a share list: this is what the Committee speak of. If you will direct your inquiries to this class of circular, your search after quotations of "trio" (or "000") will be more successful. How is it, too, that in more than one trade circular the term "nett seed" occurs, or "all seed nett." What does this mean, if there is no practice to the contrary? The grounds on which the Sub-Committee arrived at the conviction that the association of seedsmen regulated the extent to which seeds should be tampered with were, simply:—1st, positive assurance from trustworthy informants that this was the case; and 2d, the ascertained fact (by actual trial) that there was combined action among the members of the association to the effect alleged. Of course, how the decision is arrived at, whether by regular propositions formally entered on the minutes, or more discreetly by a little quiet talk among themselves, none but members can tell. I candidly confess I should not expect to gain much information by inspecting the minute book. But the fact once resolved on does somehow "leak out;" and if the Sub-Committee learned that the association had resolved that certain seeds should be reduced to a certain percentage, and if, on trying the seed of most of the chief seedsmen, all are found to be reduced, or lowered (except one or two houses, who proclaim that they are not members of the association), it seems to me that the Committee should have no choice but to come to the conclusion at which they arrived. This, too, is no imaginary hypothesis, it is exactly what took place. The Sub-Committee made their first trials in entire ignorance upon the point; they were then told of the action of the seedsmen's association, and incidentally the illustration was given that last year, *inter alia*, Cauliflower seed has been condemned not to exceed 50 or 60 per cent. of good seed. They then referred to their trials, and found the results as follows—76, 72, 70, 62, 60, 59, 52, 50, 47, 45, 44, 44, 43, 37, 37, 37, 33, 31, and 24 per cent.!—and although they have no personal knowledge on the subject, they are told that those standing highest are not members of the association. If you think that the matter wants more "clearing up" before action be taken on the Committee's report, I have no doubt that the Sub-Committee will be willing to resume their inquiry on any points you may have the kindness to suggest. *James Richards, Assistant Secretary.* [We shall revert to this subject on another occasion. The circulars mentioned by our correspondent are private "written" communications, certainly not known to the generality of the trade, and hence not fairly to be compared with ordinary "trade circulars." Eds.]

Mealy-Bug.—Mr. Hamilton (p. 1292, 1868) gives, as a recipe for certainly destroying mealy-bug on Pines, the application of dried Walnut leaves, dusted and sprinkled into the plants. Will Mr. Hamilton kindly state through these pages if he has tried this, or any other remedy, on flowering plants or Vines, more particularly the latter, and in what way it would be best applied to Vines (just before the Grapes are beginning to colour) that are infested with mealy-bug? All Grape growers are fully aware how unsatisfactory it would be, under such circumstances, to apply any liquid in which there is the least sediment, which is my reason for asking Mr. Hamilton to give some further instructions as to the use of dried Walnut leaves, or the solution from boiled leaves: of what strength it is safe to be used, &c. It is surely simple enough, if the fumes or solution from them can be made powerful enough to destroy the bug without injury to the Vines. Last year I tried Collyer and Roberts' tobacco tissue, seeing it so strongly recommended to kill mealy-bug, but failed to find one dead after three successive very strong smokings, which almost spoilt the flavour of the Grapes. I have also tried many other things, but cannot thoroughly destroy them. I have found them make an appearance months after the interior of a house had been thoroughly painted, whitewashed, and cleaned down, the Vines scraped, cleaned, and painted with a strong solution of soft soap, sulphur, &c., the soil of the border scraped off 3 inches deep or more and taken away; in fact, every place cleared and cleaned where it was thought possible one could be found, yet three or four months after I have found them—only in small number at first, but they soon increase prodigiously. I do not despair of getting rid of this detestable pest, but am anxious to do it as soon as possible, and with the cheapest remedy. *J. A. M.*

Pinus muricata.—In the interesting description of a collection of Californian Pine cones at p. 141 there is specially noted a branch of Pinus muricata, nearly 3 feet long, with seven distinct rows of cones, comprising over 50 perfect specimens on one branch. There is a Pinus muricata growing here, upon which are several branches with seven rows of cones; but there is one branch with eight (and if the newly-formed cones of last year be reckoned, with nine) distinct rows of cones. In the number of cones this branch must yield to that from California, as it comprises but 49 perfect specimens. This tree is about 20 feet high, and perhaps as many years old. Its branches hang close to the ground, and measure 52 feet in circumference. It is growing in a stiff loamy soil, upon a limestone bottom, and both soil and climate seem to suit it perfectly. The air around it is fragrant, as if a Cedar drawer had just been opened. It grows in a tolerably sheltered position, but with its heavy top, its hundreds of cones, and luxuriant foliage, one cannot help being somewhat nervous lest the fierce south-westerly blasts, which so frequently sweep across this island, should injure or destroy an object so striking and so beautiful. *Robert Moulton, Gr. to Lord Athlumney, Somerville, Navan, Ireland.*

Surface Cropping Vine-borders.—It is to be regretted that in an admirably written paper in the *Gardeners' Chronicle*, by "A.," upon Vine culture at Archerfield (p. 1139, 1868), the following sentences should have occurred:—"What is probably the most astounding fact in Mr. Thomson's practice, is the way his outside borders are clad with bedding plants. The only portion of the soil that is not so robed is the walk over which you tread, which separates the Vine-border from the flower garden," &c. Observing, truly, that most Vine growers would unceremoniously despatch the subjects of Flora as intolerable intruders, the writer goes on to remark, that Mr. T. observes that these flowers and foliage were acting well their part as conservators of moisture, and that the little pabulum [?] the plants required to feed upon, could be introduced on the return of the season. Now, having had the privilege of recommending through your columns, that on every fruit-tree border the inscription, "Sacred to the roots," should be written, I protest against this teaching, even by such an authority. I fearlessly assert that it seems something akin to sacrilege to break through the divinity that should hedge round such a kingly feaster as the Grape Vine, and convert the royal grounds consecrated by the wisdom of science, and general consent of practice, to its sole and exclusive use, into a general feeding ground for the common herd of bedding plants. It is little less than sheer poetical licence to write of the useful functions discharged by such a living mulching. For every grain of water or food that they preserve from dissipation in the air, they take and appropriate to their own use a hundred grains out of the ground. Compared with the activity of their exhaustive energies, their conservative power may be pronounced utterly null and absolutely void. Bedding plants are by no means delicate or dainty feeders, on the contrary, they are ravenous and insatiable; their cry is ever that of the horse-leech species—give, give—more and more. They are about the last plants to content themselves with skimming over the surface merely, they go boldly down to depths varying from 2 to 4 feet; and wherever there is a drop of water or a morsel of food they will be sure to find it. It is positive cruelty to Vine roots to send down such hosts of ravening wolves among them. And indeed the Vine roots are no match for them, either in number or in capacity for rapid consumption. But it is not only that bedding plants exhaust the food of Vine-borders and eat out their heart, lapping up their life-sustaining power as with a tongue of consuming fire, but it is highly probable that they contaminate the ground by their presence. The roots of most flowering plants are probably obnoxious to those of most fruit trees. Many of their secretions are bitter, acrid, or astringent, and contact with them is probably injurious. [An old notion, hotly discussed; verdict, Not proven. Eds.] To plant Vine-borders with bedding plants may therefore not only be creating a needless contest for food. This would appear unwise; but it might be remedied, as the above correspondent indeed says it has been at Archerfield, by an annual nourishment of the ground. But supposing the Vine roots refuse to feed at the same table as the common herd—and such a result is quite possible, nay probable, in fact, I think I can add, certain. And even if the roots agree while they live, who can tell what may be the result of a great variety of dead roots in a Vineborder. Nothing so likely to breed Fungi; and what so fatal as Fungi at the roots of Vines and other fruit trees? No malady so difficult to reach, none so hard to eradicate; and if for no other reason, than the risk of fungoid growths from the decomposing roots of bedding or other plants, I would write in letters of gold over every Vine-border, "Sacred to the Vine roots alone." Doubtless, I shall be told that all this is theoretical; that the results justify the practice adopted at Archerfield; and we shall hear for the thousandth time that an ounce of practice is worth a ton of theory. Well, I rejoice as much as any one in Mr. Thomson's success. No one deserves it more—few, if any, know how to command it better. But I wish your readers carefully to note how it has been reached in this instance—chiefly by getting the Vine roots beyond the region of the bedding plants as speedily as possible. The roots are tempted onwards and outwards with fresh supplies of matter in front. Under this treatment they have travelled 50 feet in search of food, and, like the negros in their favourite song, they are still marching on. The roots within the border are less cared for than those at its extremity. This fact explains the whole. The Vine-borders at Archerfield are exceptional. They have a run of 50 or more feet for the roots of their Vines—with fresh maiden matter added yearly—like the hay dangling in front of the donkeys nose, to tempt him still further forward. Those who can command these conditions may surface crop, but no others. The Archerfield case, then, cannot be quoted in favour of the general cropping of Vine-borders. Taking the exceptional circumstances into account, it is rather an argument against the practice. I do not presume to object to what has been done in this case, I only protest against its being cited as a precedent for general adoption on ordinary Vine-borders of limited extent. I have no hesitation in emphatically condemning the surface cropping of Vine-borders with bedding plants, or any other, as a practice only and wholly evil, and that continually, and everywhere, unless when the roots are tempted to break into new ground every year, as at Archerfield. There, they can feed and be satisfied, beyond reach of the robbers. *D. T. Fish, F.R.H.S.*

Mossy Lawns.—The expense "A. J. W." proposes to go to is needless, and, moreover, would not be effectual. Let him put some good drains 4 feet deep wherever the Moss prevails, and if the soil is retentive fill the drains over the pipes half full of burnt ballast or rubble of any kind, and the lawn will be all sweet herbage and Daisies, and no Moss in a year or two. *Experience.*

Calville Blanc Apple.—I think Mr. Rivers has been "piling the horrors" rather too high, and like a disappointed lover seems intent upon anathematising his first enslaver now that her charms have faded. Extreme opinions are rarely worth much, and so it will prove in the present case. Here we gathered several bushels of the Calville—fine handsome specimens—last

season from pot trees, and as the proof of the pudding is said to be in the eating, I may say that, served at our large dinner parties here during the autumn with such esteemed old favourites, as Ribston Pippin, Bess Pool, Old Nonpareil, &c., the Calville was nightly eaten, while the others were left. I make no remark, but leave the fact to speak for itself. I like the Apple myself so much that I intend in future to grow all I can of it, and therefore it will be seen I pay no heed to Mr. Rivers' anathemas. My motto is, "Try everything, and hold fast that which is good," unswayed by prejudice; and certainly until I meet with a better dessert Apple, at least one that pleases better at table, I shall hold fast to the Calville Blanc. *T. Speed, Chatsworth.*

Action of Frost on Plants (see pp. 107, 167).—The action of external agents upon organic nature resembles in kind, though it differs in degree, in vegetable and animal life, and their actions may be examined with advantage so as to explain each other. The tender Mosses and juicy Fungi will resist the hardest frosts, because they are usually under cover of trees and rocks, which prevents the radiation of caloric, and they are not exposed to the frost, that would quickly destroy their inferior organism [What of Mosses on rocks or walls? EDS.]; whereas other plants of higher organism perish because they are exposed to the sky, and the influence of radiation from their leaves and from the foliage that surrounds them, by which they are exposed to many degrees of cold. I have placed a thermometer upon some straw exposed to the sky, and found that the temperature was 26°, while the air 4 feet from the ground was 50°. This was in Bengal; but allow a difference of 10° in this country in their different positions, it makes an immense difference in the effects of cold on vegetation, and these effects will vary with the season. When the wood is well ripened, the effect of frost is less marked than in a cold wet autumn when the tissues are full of moisture, because in the former case vitality is stonger, and resists more powerfully the influence of cold than in the latter case, where the organism is weaker. The late mild season will develop the tissues or new growth, which will be able to resist frost better than a weaker sort of the plant. If, however, the growth advances, and the fructification is exposed to the frost, its delicate organism is too often destroyed. This destructive influence of frost depends much on the rapidity with which the thaw takes place. By a bountiful provision the night frost cools down the surface of the ground and its covering, and the air above it has a stratum of cold and moist air or fog, which hovers over the ground, interrupts the rays of the rising unclouded sun, which imparts its heat slowly, and the plants recover. When this shield does not exist, the tender plants frozen during the night are suddenly thawed by the rising sun, and are destroyed. When examined, they are found brown or black in colour, and friable. To explain this effect we must examine the influence of frost upon the human body. In it we find the extremities, from containing a weaker organism, are more liable to be influenced by cold than the parts of the body containing more vital power, which longer resist the influence of cold. To remedy the effects of such cold on the body you must apply heat slowly, as by rubbing snow upon a frost-bitten part; a stronger heat produces an action more powerful than required for the restoration of the injured part, which dies, and an action commences in the sound parts to throw off the now sphacelated portion. The same reasoning applies to the action of frost on plants. Perhaps we shall never arrive at exploring first principles, for how are you to explain why the flavour of claret wine is temporarily destroyed by being cooled too much, or frozen, when the fine aroma is completely destroyed, and then if the bottle be heated gradually the flavour returns, but if heated quickly it is completely destroyed? *J. W., County Cork, Feb.* 9.

Royal Horticultural Society's Publications.—In reference to your remarks (p. 163), I may say that I have not had a copy of the Journal lately; but really the Proceedings are things to make any Fellow blush. Among the hundreds of plant and seed lists received during the year, there is not one to vie in meanness and poverty of appearance with the Proceedings of the Royal Horticultural Society,—wretched paper, slovenly stitched, carelessly folded, irregular in size, and the printing crowded together, at first sight one takes it for an old shopkeeper of a dozen years back, from some of the nurserymen whose advertisements plaster the outside, and which has got forwarded by mistake in lieu of one of the modern, admirably got-up catalogues. On this assumption several of my first Proceedings found their way into the waste basket. Since then I have adopted the precaution of opening any extraordinarily shabby-looking list that may arrive, and if it is found to contain a list of awards a good many months after date, of course it proves to be the Proceedings of the Royal Horticultural Society. It would be instructive to learn why these Proceedings are published. It cannot be for information; for all who are interested in the matter have read all about it long before, either in the pages of the horticultural Press, or in the advertisements of the *Gardeners' Chronicle* and other papers immediately after the shows. Neither can it be for filing; fancy carefully storing away such rubbishy-looking materials. I question whether the flimsy paper would keep above a year or two. These Proceedings can hardly be held out as a bait to catch new members. If so, I know of no better means of illustrating the modern art of how not to do it. To those ignorant of the past history, present claims, and future power for good of this Society, a number of its Proceedings would prove utterly fatal to a closer acquaintance. In this age the literature of societies is not merely held to be representative, but to most it is the only accessible test of their claims and worth. Now, seriously, would any well-wisher of the Royal Horticultural Society agree to have its value or usefulness assessed by its Proceedings, or even by its Journal? Assuredly not. And yet the outside public can only know it through its published organs. The Society can no longer live upon the intermittent excitement of monster shows. These now fail to replenish its coffers or sustain its fame. In all such matters there are many societies throughout the country that can equal, if not excel it. The facts of its shows resulting in loss is suggestive. Possibly the Society has done its best work in this direction. And this work has been so well done that the sturdy children now threaten to eclipse the parent. Well, let it be so. Is there not other work of even more importance for the Society to accomplish? I think there is; and the progress of events seems to point out the character of that work. What is to hinder the Royal Horticultural Society from putting itself at the head of our horticultural literature? Do its present publications stand in the way? Then let them cease and be determined at once. Is money needed? Would it not be well to abolish one show, if necessary, to provide the funds? Besides, I thoroughly agree with you that if the Society were to issue one good series of Proceedings or Transactions promptly and regularly, and give full reports of the Scientific Committee, and of the subjects brought before the other committees, and occasionally paying for first-class papers, that such a work would speedily pay. The credit and usefulness of the Society would likewise be maintained, and possibly it might assume that weight and importance in literature which its wealth, character, and ability alike entitle it to exert. The question resolves itself into one of no literature or good literature. Either may be advocated upon broad, tangible, and forcible grounds, but I am totally at a loss to conceive upon what principle such trashy things as the Society's Proceedings can continue to be issued. They are, as you remark, a laughing-stock for the public and a disgrace to the Society; and I humbly pray the Council that their issue may cease and be determined forthwith. After the question of quality, which should be of the very highest, comes that of time, and I believe a quarterly journal, issued regularly to the day, and well got up, would prove satisfactory to everyone. *F.R.H.S., February*, 1869.—[We believe that arrangements are in progress to remedy the state of things complained of. EDS.]

Fruit Growing.—A letter in your last impression from Mr. Baines calls for some reply from me, although it contains little which every gardener does not know, except indeed the statement that Plums bloom before Pears. Plums do not bloom before Pears, but later than many sorts of Pears, and more simultaneously among themselves. What I said before, and what I still say is, that no pruning (whether of root or branch) can fortify a Pear tree against the April and May frosts. Root-pruning does not retard the blooming; this is a pure fallacy; branch-pruning simply admits the frost more into the centre of the branch circuit. To cite against me results attained upon walls, or under protection, is nothing to the purpose. I spoke (as must have been clear to all who can take a simple issue) of standard and unprotected trees. As to the prolongation of the blooming period by any mode of pruning, I assert that it is impossible. It is a mere truism to say that the more bloom there is upon a tree the longer the blooming time will last; the greater the number of lives in a lease the longer the time is likely to be, but by taking out lives (as in pruning) you scarcely add to the number. But, in the case of a standard Pear, the best and healthiest blooms comes first, and in most varieties there is not a week's difference between the full development of the first bloom and that of the last bloom. Some kinds bloom in slower succession, after the manner of the Apricot; but remembering that the spring frosts do not leave us till the end of May, and that the fruit is every whit as tender as the bloom, how can we elude our fate, unless our retardation is not of days but of months? I think Mr. Baines must be wrong in saying that any December frost killed Pear bloom in the bud. At any rate no winter frost has ever injured Pear bloom here, although, on the 4th January, 1867, we had 2° below zero—6° more of frost than on December 25, 1860, the date to which he refers. If Mr. Baines can grow Marie Louise to the weight of 16 or 20 oz., I wonder not at his prizes; to grow Beurré Diel to that size is not very difficult. The fact that good fruit is to be seen at provincial exhibitions proves nothing as to the general loss occasioned by spring frosts; neither does it tell in any way the true tale of the standards. The fruit so exhibited comes, in nine cases out of ten, from wall trees and protected trees. I would beg Mr. Baines, who clearly wishes for nothing but the truth, to believe me when I say, that in the last ten years I have not known one season when the Pear crop upon standard trees has not suffered more or less from frost—fatally eight years out of the ten, and considerably in the other two. And this has happened throughout the valley of the Thames. It cannot be supposed, without arrogance, that we fruit-growers round London know nothing of our business, and do not know how to prune a tree; but allowing him to suppose so, will he extend his supposition to the case of Mr. Rivers, who plants thousands of standard Pears, for the sale of fruit as well as of trees, and who has asserted and proved from his books that the Pear crop on his own premises failed (solely through spring frosts) for six or seven successive years; and to whom I again attribute the perfectly true *dictum*, that "fruit growing is a lottery," at any rate around London. Every Pear tree at Sawbridgeworth is root-pruned each alternate year: hundreds of my trees have been root-pruned; it never made the smallest difference as to their power of resisting frost. I am sorry to be condemned by Mr. Baines for the question I put to Mr. Saul; but it contains the gist of the whole—unless by pruning you can raise (or prevent the fall of) the temperature round the bloom on set fruit, during the April and May frosts, you cannot by pruning add one jot to the fruit's security. You may increase its size and quality (when the danger is over): that is a wholly different thing. I prune as much as any one; but Jack Frost is the gardener who prunes the fruit for *Pari Passu.*

Elm Timber.—In reply to your correspondent's inquiries as to the best management of Elm timber, I would beg to recommend him the following method. The first consideration is, for what use the timber is required. If it is required for underground work, or where it will be always in water, it is best to use it green—the greener the better. In fact it is usual here, if Elm timber is required for such a use as before mentioned, to cut down a tree, and use it as soon after as possible. But where the wood is required to be seasoned a much longer process has to be gone through, as Elm is very troublesome. In the first place the trees should be cut down in the winter, when there is as little sap in them as possible. They should then remain in the timber-yard for two months, and then be sawn up; after which the planks should be laid out in the open air, lying rather sloping, to allow the rain to run off on other pieces of wood so as not to touch the ground. They should remain here exposed to a few good soaking rains to wash the sap out, but shaded from the sun as much as possible; indeed this process must be gone through when there is little or no sun, for if much sun gets to the planks they will be warped and spoilt. When the planks have lain thus for six weeks or two months, being occasionally turned over in order to well wash both sides; they should be piled up flat ways close together in the open air for another six weeks, when they must be carefully stacked in the wood-house, with small fillets of wood about 1 inch square between each plank. Here they should remain for eight or nine months, or longer if possible, and at the expiration of that time it will be found to be well seasoned. It is generally understood, indeed, that Elm timber cut in winter will be ready for use, after these processes have been gone through, the following winter. With reference to whether it is advisable to soak Elm timber in water, I beg to state that the before-mentioned way of seasoning is far preferable. Soaking is sometimes resorted to when the timber is out in summer, by throwing it into a pond to extract the sap, and allowing it to remain there for three weeks or a month; after which the process is similar to the other, with the exception of omitting to lay it out to be washed by the rain. *A. T. Draper, Parkside, Windsor Park.*

The Mild Season.—We have had extraordinary mild weather: from 48° to 54° at night, and up to from 61° to 75° at mid-day, with much rain. The gales during the last two months have been terrific; they have altered property and things so much on this coast that in some cases those who saw it last summer would not know it now. Trees and shrubs are making new growth, some having long shoots and new foliage. Some of our hedges are quite green, and the trees in full leaf. Several varieties of Cratægus are in full leaf, some in full bloom; five or six varieties of Magnolia in full bloom, with Banksian Roses and others. Rhododendrons of the scarlet, crimson, pink, and other intermediate colours, and all the arboreum family, are grand all over the place; and the immense Camellias, 30 or 40 varieties, outdoors, are beyond any calculation as to the number of noble flowers, clear in colour, splendid in shape, and large in size. All kinds of spring flowers are very clear and good in every direction; our meadows and orchards, covered with the Snowdrop in December and January, are now covered with the Daffodil, in full flower, and Primroses of all colours. Grass is most abundant and good; stock does well on it, and it is as good in quality as we usually have it in April and May. Our lambing season has been the best I ever saw; the lambs strong, healthy, and with but few casualties of any kind; so that, with so much good Grass, the few Turnips that were about have been left in store to grow up green, till they don't seem to be cared for. How strange are Nature's ways!—how beautiful, how grand! In autumn hay and artificial food was expected to be high, but neither is wanted to any extent; all in store. *James Barnes, Bicton, Devon.*

Camellia Buds Dropping.—I observe at p. 112 that Mr. Dean is of opinion that the falling off of Camellia buds, and the very sickly appearance we so often have to complain of in this plant, arises from its being excessively impatient of pot culture. My own experience has led me to the conclusion that in most cases it arises from the plants being half starved for want of water, at a time when they most need it. It is the practice of many gardeners, when their Camellias have finished their growth, to turn them out-of-doors, often choosing the most exposed situation, and giving them very little water. This is to mature the young growth. When this ripening process is over, they are removed to their winter quarters, and allowed to get quite dry before they are watered again, and so on, until they are wanted to flower, when they get it more abundantly. The Camellia should never be allowed to become thoroughly dry, or be exposed to hot sunshine. I hold that water must be more sparingly given just after they have formed their buds until the young growth becomes matured, after which they ought to have sufficient to enable them to swell their buds, and by no means be allowed to become dry after this; occasional waterings with sheep manure, given in a clear liquid state, will greatly benefit them until they are about to flower, when no more should be given. Some contend that by keeping them moist at this season it will cause them to start into fresh growth, or flower too early, but there need be no fear of that if they are kept cool. I have often noticed that the plants that are kept the moistest flower the latest; by carefully attending to

these two points, with plenty of ventilation, we should not meet with so many sickly plants, or have to complain of the buds falling off. Perhaps some may ask, "Then why do Camellias that are planted out look so much better and live longer than plants grown in pots?" I answer, "Not because they are turned out-of-doors to get the wood well ripened, or 'dried at the roots,' but for the reasons above stated—because the roots are constantly moist." Neither do I think it is because they require so much root room to develop good flowers and foliage, for the best plants I ever met with were grown in pots under Vines that bear annually fine crops of fruit. These plants are never moved from the place they stand in on the first day of January to the last of December, except for convenience to get at the Vines. I allude to the Camellias grown by Mr. Hensmon, at Claremont, near Cheshunt. I had the pleasure of looking over them the other day, when I saw a plant of the Double Striped from 10 to 12 feet high, with foliage of intense green and highly floriferous, grown in a No. 1 pot; Picturata, 5 feet high and nearly as much through, with foliage resembling Laurel leaves for substance, and of a dark luxuriant colour and blooms from 5 to 6 inches across, grown in a No. 4 pot. The same might be said of Triumphans, Caryophylloides, Monarch, and others; and Mr. Hensmon informs me the future blooms will be much finer than the blooms I saw. *J. Mowbray, Burleigh.*

Diseased Peach Trees.—The cause of the disease in the Peach and Nectarine trees here, remains, in my opinion, as much a mystery as ever. That such a disease might be caused by the sudden change from excessive drought to excessive moisture, as was the case last season, I quite agree, but the fact of its having existed for several years previously at once puts aside that view, as applied in the present instance. You state you think the fault must be in the roots, and "if they were inspected, and proper compost supplied, the health of the trees would improve, or, at any rate, it is worth a trial." I distinctly state that I have had the old soil taken completely out, and fresh soil put in, and still the trees are attacked as before, so that cannot be the reason. The compost I use is four-fifths of good fibrous loam, the top spit of an old pasture, and one-fifth old rotten manure, taking great care to remove any pieces of stick, or anything that might cause any Fungus to attack the roots. As to the trees requiring fresh stimulus, with that I cannot agree; on the contrary they are exceedingly luxuriant; indeed I sometimes lift and root-prune to check too much vigour. I have a fine young tree, three years planted, of Rivers' Victoria Nectarine, which has as yet been completely free, while on either side, at 20 feet distant, are other Nectarines—one Rivers' White, one Elruge—planted in November, 1867, both of which were slightly touched. In November, 1865, I planted in another part of the garden, on a south-west aspect, an Elruge Nectarine; it grew beautifully, but was so fearfully attacked with the disease in 1866 that I had to cut it close "home." It is still in the same place and in the same soil, but has not been touched by the disease since, and is now 10 feet in diameter and as healthy a tree as possible. I have repeatedly sent diseased portions to some of our best gardeners, but no one can throw any light on the subject. I am sending some to-day (by request) to the Rev. W. F. Radclyffe, and should it attack us in the summer, I will certainly forward you leaves, for it is highly important it should be thoroughly investigated. I believe the disease to be peculiar to the south-eastern districts. It is not confined to Eastwell. At Surrenden Dering, the seat of Sir Edward Dering, Bart., about six miles west from here, the trees on a wall, about 300 feet in length, were so severely attacked, about the same time the trees here were attacked, as to kill all but three; part has been replanted, and covered with glass since which the trees have been healthy. Does not that appear as though atmospheric agency had something to do with it? At Chilton, near Lenham, the seat of —Douglas, Esq., the trees are similarly attacked. At neither place can the gardeners assign any cause. On the 9th inst., I and several gardeners were discussing the subject in Ashford. A gentleman from Romney Marsh was present, and said his trees were attacked in the same way; and I have heard of several other cases around here, on very different soils, but the disease is evidently the same. The cause is unknown, but the disease is widely spread in this district, and very destructive, and a remedy or preventive would indeed be a boon. *Thomas Woodford, Eastwell Park, Ashford, Kent, Feb.* 11. [We should be obliged for any expression of opinion on this mysterious scourge. EDS.]

Diseased Pines.—Can you inform me what is the cause of Pines turning black in the middle when ripe, so much so as not to be eatable? When I took charge of them last October, the plunging material—tan—was cold, and had been so for a long time; the plants had at that time just shown the fruits, which have ripened black, and, strange to say, very few of them have been perfectly good. *Middlesex.* [We submitted the question to Mr. David Thomson, who obligingly answers:—"The absence of heat in the plunging material has caused a sluggish action in the whole system of the Pine plants, and decay of course has commenced in that part most subject thereto, namely, the fruit. This would especially be the result if they were at all freely watered at the root during so sunless a season, and with no bottom-heat." EDS.]

Hollyhocks.—Can you explain to us the following peculiarity in the raising of Hollyhocks from seed? We have saved seed of all colours, and sown the seed as soon as it was ripe, in order to flower them the following season. This we always accomplished with all the sorts but the pure yellows, the latter we could never flower till the second season, and in many instances two-thirds of them showed no appearance of throwing up a flower-stem. *Downie, Laird & Laing.* [The wild plant is, we believe, a biennial. EDS.]

Grafting.—Whilst fully agreeing with an "English Grafter" (p. 80), as to the superiority of good bast for grafting ligatures, I prefer the Bertemboise graft as being the best and strongest union. I forward a Thorn worked last spring. Bark grafting I seldom use except for Willows, &c., having fine wiry scions. In grafting rather difficult subjects, as Oak, I am more successful with the Bertemboise than any other. *F. F.* [There seems very little difference between what our correspondent calls the Bertemboise graft and whip grafting, with the exception that we consider whip grafting the neatest. EDS.]

The Weather.—As the present year is affording another illustration of the remarkable law pointed out by Mr. Brumham (Proc. Met. Soc., vol. iv., p. 89) it may be worth while to direct the attention of your readers to it. It is as follows:—"When the mean temperature of December is more than 2° above that of November, the remainder of the winter, or rather the winter quarter (consisting of January, February, and March) will always have a mean temperature considerably above the average. The following are all the instances in the last 97 years relative to this rule:—

Year.	Mean temperature of November.	Mean temperature of December.	Year of Winter.	Difference of Mean of Jan. to March, from the Mean of 97 years, which is 38.5°.
	Deg.	Deg.		Deg.
1789	38.7	41.6	1789–90	+2.5
1795	40.7	44.8	1795–96	+2.8*
1827	41.5	44.1	1827–28	+2.7†
1842	42.8	45.0	1842–43	+1.1‡
1851	37.9	40.4	1851–52	+2.9
1862	39.8	43.6	1862–63	+4.1§

R. C. C. L.

Mistleto.—I am in the habit of smearing a few berries every season, and find they take most readily on the Thorn and Mountain Ash; there are nice tufts on both these trees here. I have as yet failed in getting it to grow on the Poplar, Lime, or common Ash. *T. J. Hope, Wardie Lodge, Edinburgh.*

Heating Vine-borders.—Mr. Thomson is wrong in thinking the Vines at Woburn had no surface-roots, and that no especial means were taken to entice them there. The fact is, the Vines in question, the year previous to their stubbornness of starting into growth, had from 8 inches to 1 foot of the soil removed from their roots, and this was replaced by good turfy loam; and in doing this, some of the small roots were removed by accident, and many of the larger ones were exposed—so much so, that I feared the consequence for the next crop. The results were not unfavourable, for the quality of the Grapes was such that Mr. Forbes took the 2d prize for Hamburghs, and the 2d for Muscats, at the Regent's Park July Show. Mr. Forbes was induced to change the surface soil of the Vine-borders by the advice of his son, who had been several years at Trentham, under Mr. Fleming, where he had seen the operation carried out with beneficial results. I have not seen Mr. Forbes' son for the last 14 years, but I believe he is still at Dropmore as bailiff. I am sure that he will corroborate all that I have said respecting the Vine-border in question. My remarks on pruning the Vine, I feel, deserve better treatment at Mr. Thomson's hands, because his remarks will lead the inexperienced to infer that it is immaterial how soon forcing is commenced after the Vine is pruned, providing the Vine does not bleed. If Mr. Thompson has acted upon that principle, I am not surprised at his not having been able to produce shoots 12 inches long in January without commencing to force in October, or by the means of heating from beneath by hot-water pipes. In our second vinery here we have a Barbarossa Vine: when the Hamburgh Vines were pruned at the end of October, this Vine had not shed one single leaf, and very few had turned yellow, and, but for cold and frost setting in, possibly would not have shed its leaves for three months. I prune this Vine upon what I will term the rational system, that is, I leave three or four eyes, so that pruning does not remove half of the leaves, but I make it a practice to cut them all off, because I believe I thereby remove every possible means of its growing for that year. The Hamburgh Vines are just coming in leaf, while the Barbarossa has some shoots about an inch long. I do not advise this pruning of Vines with green leaves on them except as a necessity to gain time, which I certainly think is done. On some future occasion I will try what pruning this Vine three weeks before and three weeks after will do in comparison with its starting with the Hamburghs. The results of the present system of pruning when in full leaf are not unfavourable to production, for the bunches are so numerous and large that when in bloom they could be made to meet at any part of the Vine. We are told by the advocates of bottom-heating that it is necessary only for early forcing or to ripen Grapes in April and May, but not June and July. How do they reconcile this fact, that the Vines to ripen Grapes in June and July will have to start into growth the two months in which the natural heat of the earth is the lowest, and therefore will require more artificial heat from some source to raise it to 60° than it will in November, when you would start to produce Grapes in April? I have a strong suspicion they exclude June and July because of the evidence that would be shown that the best Grapes could be produced without the necessity of bottom-heat for the Vine. Few will differ with Mr. Thomson on the average amount of bottom-heat recommended by him, only with regard to the expense of production and the liability of the system to produce evil results. I think those who advocate cultivating the Vine upon the bottom-heat principle should exhibit their productions; it will be far more satisfactory than any amount of writing on the subject, and certainly more graceful than saying what they could have done had they exhibited. I will yield to none in love of the cultivation of the Vine, and would hail any system that would be the means of raising the standard of quality, and simplifying the means of production, but because I could not see this in bottom-heating I wrote in opposition to it, and for no other reason. *Emanuel Sage, Gopsall, Atherstone.*

Societies.

ROYAL HORTICULTURAL: *Feb.* 16.—W. W. Saunders, Esq., F.R.S., in the chair. The routine business having been transacted, the Rev. J. Dix, after reading the awards of the Floral Committee, called the attention of those present to a new form of garden label, that was made of the same material as that of which the face of clocks and watches was composed. G. F. Wilson, Esq., announced the awards of the Fruit Committee, and stated that the exhibition before them was a very noble one, the collection of Apples from Mr. Rivers, and the very fine Mushrooms and salading from Mr. Gilbert, being particularly interesting. The Chairman begged to ask Mr. Wilson if any mention had been made as to the manner in which the very fine fruit had been kept. Mr. Wilson stated in reply, that on a former occasion it had been found that fruit kept best on dry boards, but that he would bring the subject before the Fruit Committee.

The Rev. M. J. Berkeley then addressed the meeting, and stated that the branches of Prunus Myrobalanus and Pyrus sinensis, which he held in his hand, were taken from plants in bloom in the Chiswick garden; and, as another remarkable illustration of the forwardness of the season, he mentioned that Mr. Bateman, who was in the south of France about this period last year, saw the same two species in bloom there then. Mr. Berkeley then referred to Cypripedium Harrisianum, a hybrid raised by Mr. Dominy, and described in our columns at p. 108; and to Spiræa Thunbergii, which he stated was quite hardy and very useful for spring decoration, as it would force well. Referring to the specimen of Pelargonium fulgidum exhibited by Major Clarke, he remarked that it was interesting as being one of the original parents of the now numerous progeny of cultivated Pelargoniums. He stated that he had tasted the fruit of the Solanum called Solanos guisados (literally cooking Solanum), sent by Mr. Miles, gr. to Lord Carrington. The plant was described as growing to about 7 feet high, and bearing fruit plentifully; this was of a decidedly sub-acid flavour, and would no doubt be quite as useful as the Cape Gooseberry for making tarts, &c. In referring to the specimens of wild Cabbage brought by Major Clarke from Llandudno, he (Mr. Berkeley) would state that he had grown it from seed derived from plants growing at Abergele for five years in succession, and had not seen the least variation in it. The plant more nearly resembled Kale than Cabbage. Mr. Berkeley then stated that he had great pleasure in noticing the very fine Mushrooms sent by Mr. Gilbert, as they were grown in the county in which he was born. He had examined them, and was glad to state that they were entirely free from the parasitical Fungus to which he had at various times had occasion to allude. Mr. Berkeley then stated that at the last meeting he had offered some remarks about some diseased Peach shoots (see pp. 83, 138); he had since received further specimens, with a communication expressing dissent from the opinion he then expressed. He would refer his hearers to the *Gardeners' Chronicle* for June 13, 1857, wherein there is a notice of a pamphlet on canker, by Mr. John Pearson, of Bewdley, whose notion was that the buds of the half-ripened wood are affected by the alternations of wet and cold weather, with heat and drought, during the summer, and this Mr. Pearson attempted to prove by causing a stream of water to pass over denuded buds with intervals of rest, and thus he induced canker or gum; and the remedy recommended was to protect the trees, especially when young, with screens. He had found that in many cases the disease starts from the bud, and it would be quite reasonable to suppose that the origin of the disease was owing to constitutional peculiarities, but from the imperfect evidence in the case before him it was impossible to arrive at any certain conclusion. Mr. Berkeley then stated that he was sorry that a young Vine was inadvertently left at Chiswick that morning, and which he had intended to exhibit. It was a very interesting case, in reference to which he might mention that the late Mr. Henderson, the most scientific gardener he ever met with, used at one time, in potting, to mix with the compost a quantity of little sticks; these in time got covered with mycelium, which destroyed the plants. The case under notice was somewhat similar. A young Vine had been planted, the roots of which had become covered with mycelium or spawn, and were greatly injured by it; the border had been fresh surface-dressed, which had caused new roots to be made near the surface, but it was found that the old roots were not quite dead, though the plant was seriously injured. Mr. Berkeley, in conclusion, called the attention of the audience to a hybrid Begonia of unprepossessing appearance.

The Chairman, after thanking Mr. Berkeley for his observations, stated, in reference to Phormium, there were at least two or three distinct forms. One variety had much shorter and thicker red-edged leaves, and was much more tender than the other; whether these were all varieties or different species he could not say, but, as Mr. Berkeley had stated, they were very interesting, as producing what was known in this country as the New Zealand Flax. With regard to the Pelargoniums before the meeting (P. triste, P. flavum, and P. filipendulifolium), the Chairman stated that he had formerly tried to grow them in pots, but without success; but having ascertained that the natural habit of the plants was to grow on rocks with the leaves hanging down, he had since cultivated them in baskets packed in with Moss, and in that way they formed very ornamental objects, from the delicacy of their finely cut leaves; the flowers, moreover, were deliciously sweet in the evening, while the leaves, unlike those of many others, had no smell. Mr. Saunders then stated that if there were any Fellows desirous of undertaking the culture of these plants, he should be happy to give them specimens for that purpose. With regard to florists' Pelargoniums he thought it was necessary to start afresh, as little advance was now being made upon what had been already done. With reference to the wild Cabbage exhibited, the Chairman stated that the plant found wild on the Kentish coast might probably be an escape from cultivation; it differed from the Welsh variety in having thicker, more glaucous leaves, not so much

* The warmest January on record occurred this winter.
† A mild winter. ‡ A mild and stormy January.
§ A remarkably mild winter.

lobed; he must, however, caution those who were inclined to make experiments upon it, not to grow it in the vicinity of other Cabbages, as its pollen would contaminate the whole race. Mr. Saunders then alluded to the specimens of Sonchus exhibited, S. laciniatus and S. gummifer, and stated that he had raised an intermediate form between the two, which was now exhibited, and found to be most useful for dinner-table decorations, from its elegant form and peculiarly transparent leaves.

Mr. Berkeley then, alluding to what the Chairman had said respecting the wild Cabbage, stated that his remarks had been suggested by a statement that had been made to the effect that numerous varieties approaching to the cultivated forms had been raised by seed from the wild plant, which was quite contrary to his own experience.

Major Trevor Clarke stated, in reference to the Chairman's remarks as to the necessity of diffusing new blood into the Pelargonium, that immense perseverance and patience were required by those who wished to experiment in this direction. He himself had tried the effect of using the pollen of Pelargonium fulgidum on the garden Pelargoniums, with the result at first of utterly annihilating beauty of form, though the colour was to some extent reproduced, and became deepened as time went on; and in due time the form improved also, but the plants were apt to become sterile. Major Clarke then exhibited a branch of Holly, the young leaves of which at the extremity of the older branches were of a bright golden hue. He stated that seedlings from the plant reproduced themselves in this respect.

Scientific Committee.—W. W. Saunders, F.R.S., in the chair. After the minutes had been read and confirmed, the Rev. M. J. Berkeley alluded to the excrescences on the roots of the Telegraph Cucumber mentioned at the last meeting, and of which he had since obtained other specimens in which Vibrios were readily detected (see *ante*, p. 190).

Mr. Berkeley then read a report from Mr. Barron, the superintendent of the Chiswick garden, containing an account of the various Apple stocks previously exhibited to the Committee (see p. 83), and a comparison of them with others growing in the Society's garden. Mr. Barron's able report will be published in full in the Society's Journal at an early date, in pursuance of the new arrangements for accelerating the publication of that periodical. We are, however, enabled, by the courtesy of the Secretary to the Committee, to give its substance as follows:—

In an old list of the orchard-trees in the Society's garden, Chiswick, in Dr. Lindley's handwriting, dated 1822, the stocks on which the various Apples are worked are stated—viz., the Crab, the Doucin, the English Paradise, and the French Paradise. Many of the identical examples given still exist in the garden, and all have formed large orchard-trees. Those on the Crab and Doucin have made considerably larger heads and trunks than those grafted on the English and French Paradise, which are as nearly as possible equal. Some of the trunks on the latter are however fully 6 inches in diameter. All of them are about of equal fertility, but in the case of those on the French Paradise there is apparently a greater tendency to canker than on either of the others.

The suckers of the French Paradise appear to me identical with those exhibited by Mr. Rivers and Mr. Meston, which are decidedly the same as each other. I have compared each example with specimens of the Pommier de Paradis, as received from Messrs. André Leroy, of Angers, which we have been using in the gardens for the last eight or ten years, and am prepared to state that they are all identical. The French Paradise, when it grows at all vigorous, is easily recognised by its reddish-brown bark, and the peculiar bulging at the base of the buds on the stem. In weak examples this is not so apparent.

The Pommier de Paradis of Mr. Scott, of Crewkerne, appears distinct from all the others, the shoots being of a lightish brown colour, and downy. The climate of Somersetshire may have, however, altered them considerably.

A tree—the identical tree noticed in the Horticultural Society's Transactions (as I am informed by Mr. Thompson)—of the Dwarf Apple of Armenia, which was sent home to the Society by the late Mr. Barker, who was for many years British Consul in the East, and to whom also we are indebted for the Stanwick Nectarine and many other fruits, still exists in the garden. It is in a very healthy state, and will this season produce blossoms, if not fruits. It is growing in very poor soil, and until last spring was much neglected and smothered up with other trees, so that it has not had so fair a chance of developing itself as it should have had. The stem is almost the thickness of one's arm, and the top about 10 or 12 feet high and as much in diameter. Mr. Thompson always considered it identical with the French Paradise, and no man has had a better opportunity of examining them and arriving at a conclusion. It appears to me slightly different from the French Paradise of Leroy, and more nearly resembles that of Mr. Scott. They have been grown under very dissimilar conditions, however, so that that point cannot be settled.

None of the stocks used in the Society's garden have ever suffered and been injured by frost in the manner of those of the English Paradise exhibited by Mr. Scott, which were very much cankered. And the French Paradise seems to succeed best in wet, clayey soils. I have never seen the slightest tendency to canker, excepting with the trees now nearly 50 years of age.

The pigmy and miniature Paradise stocks of Mr. Rivers cannot be distinguished from weak examples of the true French Paradise.

The grafted examples exhibited by Mr. Rivers on the Nonsuch English Paradise, and the Broad-leaved English Paradise, are excellent, about similar in vigour to those on the French Paradise exhibited by Mr. Meston, and also in their rooting properties. Those on the French Doucin in both lots are stronger and not so fibry rooted as the three former. Mr. Rivers' examples on the French Paradise are weak and wanting in vigour.

All of the examples exhibited supported the statements made by the parties interested. It is however an easy matter with such things as Apple stocks, in which there is so much variation in respect to health, vigour, &c., and even of the different growths of the Apples worked upon them, to select examples to uphold any opinion that may be advanced respecting them. A true knowledge of their respective merits can only be obtained by direct comparison, and now that all these may be seen growing side by side in the Society's garden, any one may examine them for himself, and draw his own conclusions.

Mr. Wilson Saunders exhibited a Hyacinth of the variety called Robert Steiger, in which the flowers, instead of being of their usual carmine colour, were all green. The difference in colour was associated with still more important variations in form and direction, the flowers having all of them an elongated tubular form and an erect direction. It was stated that the anthers were of a pink colour and somewhat deformed. The Hyacinth in question had been grown under precisely the same conditions as others which were unaffected.—Mr. Berkeley alluded to similar instances of virescence or phyllomorphy in Colchicum autumnale, and Dr. Masters to the like phenomena in Convallaria majalis.

Mr. Berkeley exhibited a small grafted plant of the variegated Abutilon Thompsoni, forwarded by Messrs. E. G. Henderson & Son. The variegated scion had been grafted on a green stock of A. striatum, and from the latter had proceeded a variegated shoot precisely of the character of the scion, thus furnishing an analogous instance to the well-known case of the variegated Jasmine in the Chelsea garden, the stock of which produced variegated shoots like those of the graft, showing the influence of the latter on the former.—Dr. Masters stated, on the authority of Mr. Fortune, that the usually green-leaved Abutilon striatum occasionally produced variegated shoots, without having been grafted, and hence it was not certain that the production of a variegated shoot from the stock in the plant exhibited, was in any way due to grafting.—It was suggested that experiments on this curious subject should be carried out at Chiswick.

Mr. Saunders exhibited leaves of Cyclamen europæum from a plant brought from Corfu. The leaves varied greatly in size, while their forms varied from cordate-oblong, or nearly kidney-shaped, and entire or only slightly toothed, to angular, almost as in the Colts-foot. Mr. Saunders exhibited the specimens to show how little reliance could be placed on the leaves for the purpose of distinguishing species of this genus one from the other.—Mr. Munby considered the leaves to belong to Cyclamen hederæfolium.

Professor Westwood exhibited some insects which he had obtained from the bud of an imported Orchid. The specimens were fragmentary, but sufficient to show that there had been two distinct hymenopterous insects at work. One of them belonged to the genus Eurytoma, the species of which generally deposit their eggs in the bodies of other insects; but Dr. Thaddeus Harris, an American entomologist, had ascertained that one species at least of this genus was not parasitic in its habits, and Professor Westwood was understood to say that this was the case with the insect in the Orchid bud, which, so far from being parasitic, was itself preyed on by the second species of insect he had discovered in the Orchid, so that the one kept the other in check. As the evidence was as yet very imperfect, it was requested that the further consideration of the matter be deferred till additional evidence was forthcoming.

Dr. Masters exhibited a specimen of a monœcious Mistleto, sent by Mr. George Thomson, gr. at Stansted Park, Sussex. The same main trunk bore short, stiff, compact shoots, with small leaves of a dark green colour, and ripe berries, and at the same time long slender pendulous whip-like shoots, with larger yellow-coloured leaves, and perfect male flowers in full bloom. Dr. Masters stated that he had never before seen or heard of a similar instance in the Mistleto, though analogous cases in other ordinarily dioecious plants were not unfrequent. Professor Oliver, who had paid much attention to the Loranthaceæ, had also informed him, that he had not seen any record of monoicism in the Mistleto, though such a condition was common in some of the other genera of the order. Professor Oliver also remarked that the present case was the more remarkable from the fact that the sexual characteristics of Mistleto are usually so well marked that it is possible to distinguish the male from the female plants at a distance by their colour or general aspect.—It was suggested by some members of the Committee that this might be a case of natural grafting owing to a seed having fallen on the male plant, and there germinated—a parasite on a parasite!—but this view of the case was not borne out by a section of the branch.—Major Clarke alluded to the well-known instance of the Hautbois Strawberry, which was sometimes hermaphrodite, but was apt under cultivation to become unisexual.—Dr. Masters then read the substance of a communication from Mr. Taylor, of Bedale, with reference to the very curious subject of Potato grafting, the possibility of which had been denied by many practical men. Mr. Taylor's paper, which we hope to publish in our next issue, gives details, some of which seem open to considerable doubt, while others are not so readily to be impugned.—Major Clarke called attention to the fact of the excessive variability of some Potatos under natural circumstances, and suggested that some of Mr. Taylor's results might be attributable to this cause. The general opinion of the Committee seemed adverse to the notion that the forms obtained by Mr. Taylor and other experimenters were really graft hybrids. Dr. Masters also expressed doubts on the subject, but considered that in face of the accumulated evidence supplied by Dr. Hildebrand, of Bonn; Mr. Trail, of Edinburgh; Mr. Darwin, and now on a large scale by Mr. Taylor, whose views were shared by Mr. Radclyffe, the case was worthy of the attentive consideration of practical men. It was suggested that experiments on the subject be carried out at Chiswick.

The meeting then adjourned.

Floral Committee.—The Rev. Joshua Dix in the chair.—There was on this occasion a very extensive and gay display of the choicest spring flowers, amongst which Cyclamens, Primulas, and orchidaceous plants were especially prominent. There were also a few high-class novelties, one of the most interesting of which was perhaps the Cypripedium Harrisianum recently described in our columns by Prof. Reichenbach (p. 108). This plant, which is of healthy, vigorous growth, has the green leaves mottled with blotches of deeper green, and the flowers olive-green, with a streaked pale-edged dorsal sepal, brownish purple-stained petals, and a dark purple lip. It came from Messrs. Veitch & Sons, as did also Dendrobium crassinode and D. lasioglossum, both described in our pages, the former with peculiar short, knotty stems, and pairs of white flowers tipped with pale rose, the base of the cordate lip deep orange; the latter with slender, erect stems, and white flowers, also in pairs, having a rosy-tinted, woolly lip. Under the name of Phormium Cookianum variegatum, Mr. Bull exhibited two plants of the striped-leaved form of what is believed to be P. Colensoi, an elegant plant, with slender white-edged leaves. He had also a fine Camellia called La Maëstosa, a variety with remarkably short, rounded leaves, and bold, stout-looking, cupped, very broad-petaled flowers of a carmine-crimson, slightly blotched with white. Messrs. Downie, Laird & Laing produced a fine Coleus, one of the Chiswick golden-leaved batch purchased at Stevens' sale, and subsequently named Baroness Rothschild. It is a fine sort, of vigorous growth, with bronzy-crimson centre and broad golden margin to its leaves. A remarkably fine strain of Primula sinensis fimbriata, named rubra magnifica, was shown in some quantity by Mr. Williams, of Holloway. It is a splendid variety, chiefly remarkable for the intense rosy-purple colour of its large flowers. All the foregoing gained First-class Certificates, as did also the two following double-flowered Chinese Primroses, shown by Messrs. Windebank & Kingsbury of Southampton, namely, Snowflake, a large pure white, remarkably full, the leaf-stalks tinted red; and Miss Kingsbury, a bold habited sort, having the large flowers white, flaked with carmine. Three remarkably well-grown plants, 1½ foot in diameter, of the old double white Primula sinensis, were shown by Mr. Boyce, Clapham Road Nursery, and received a Special Certificate. Messrs. F. & A. Smith, Dulwich, staged a collection of Primulas, which received a similar award. This included The Fairy, delicata, and candidissima, double-flowered blush-whites; carminata plena, a fine double light red; rubra grandiflora, a double rosy purple; the double white fern-leaved variety, very fine; a curious rosy variety margined with white, and the singular crumpled variety called plicata. Messrs. Windebank & Kingsbury sent a group of 50 Primula sinensis, showing great variety of colour and character, many of them being double-flowered. Amongst these one, called Her Majesty, had full double blush-coloured flowers. Mr. William Paul, Waltham Cross, also had a new Primula, called Waltham White, a fine strain of flower, remarkable for the decided red colour of its leaf-stalks, while the flowers, which are of the largest size and firmest substance, are also of the purest white; this variety is remarkable for its vigorous habit of growth. With it came a group of cut Camellias, to which a Special Certificate was given. Two Special Certificates were awarded to Mr. Wiggins, gr. to W. Beck, Esq., Isleworth, one for a group of fern-leaved and other Primulas, and the other for some remarkably well-grown Cyclamens in great variety. Mr. Bull had three other kinds of Camellia besides that already named: Bonomiana, blush-white with carmine flakes; Theresa Negri, blush-white, slightly flaked with red; and quercifolia, a dwarf-growing variety, with very peculiar narrow serrated leaves, and double white flowers exactly like those of fimbriata, of which it is probably a sport. In a collection of Orchids and ornamental plants, for which a Special Certificate was given, were plants of Cypripedium villosum, hirsutissimum, and barbatum purpureum; some Vandas; the exquisitely beautiful Adiantum farleyense, and elegant examples of Areca lutescens and Baueri. Mr. T. Charles, gr. to R. Bennett, Esq., Blackheath, sent Cattleya Alicia. Messrs. Veitch & Sons, exhibited Dendrobium Devonianum rhodoneurum, a variety which was considered to be inferior to the older form, and not sufficiently distinct from it; D. macrophyllum Huttoni, a very pale variety, with the petals and sepals scarcely coloured; the true D. moniliforme from Japan, of a dwarf, tufted habit, with pure white flowers; a small-flowered species of Epidendrum; and a Cattleya from Choco, which was considered to be a form of Wallisii; it was one-leaved, with connivent blush white flowers, having the lip richly coloured with an orange-coloured disc, a purple tip, and paler purple margin. They had also plants of so-called Phormium Cookii and Cookii variegatum, with corresponding forms of P. tenax. As there is some uncertainty respecting the application of the former name, Mr. Berkeley was requested to investigate the matter, and in the interim the award was suspended. Prunus sinensis flore-pleno, and Spiræa Thunbergii, the latter a small, bushy, hardy shrub, introduced by Mr. Fortune, but unaccountably neglected, though pretty on account of its numerous small white blossoms, were exhibited by Messrs. Veitch as very useful subjects for early forcing. Special Certificates were given to a group of spring-flowering plants, and to a box of cut Camellias, also from Messrs. Veitch & Son. Among the former were the two pretty hybrid Rhododendrons Princess Royal, rosy-pink, and Princess Alexandra, white; two forms of Hippeastrum pardinum, quite dissimilar, and unlike any of those figured; and a small plant, with a very finely developed spathe, of Anthurium Scherzerianum. From Mr. Parsons, Acton Green, came cut specimens of the beautiful greenhouse climber, Clematis indivisa lobata, forming garlands of flowers. Mr. Williams received a Special Certificate for a collection comprising some very creditable Cyclamens of Wiggins' strain, several of Weatherill's hybrid Solanums, and a few Orchids, including Odontoglossum Alexandræ and luteo-purpureum, Oncidium leopardinum, and Dendrochilum glumaceum. Messrs. J. & C. Lee, Hammersmith, sent some double Primulas, and a box of cut Camellias, which was awarded a Special Certificate. From Messrs. E. G. Henderson & Son came a beautiful group of Trichopilia suavis, showing considerable variation in the marking of the lip. This received a Special Certificate; as did also some plants of a hybrid Sonchus (laciniatus × gummifer), shown by Mr. Green, gr. to W. Wilson Saunders, Esq. These Sonchuses were grown to a single stem, and furnished down to the pot with their elegantly cut drooping leaves, which being almost transparent under artificial light, render them admirable objects for table decoration. Mr. Green also exhibited some examples of the tuberous rooted scented-flowered species of Pelargonium, in order to show their adaptability for basket culture. From Mr. Fairbairn, Syon House

Gardens, came a specimen of Dendrobium speciosum, which was awarded a Special Certificate. Messrs. Downie & Co., in addition to the new Coleus noticed above, sent the variety called Albert Victor, one of the finest of the series sent under names from Chiswick.

Fruit Committee.—G. F. Wilson, Esq., F.R.S., in the chair. On this occasion there was an unusually fine display of fruit, the whole of which was in splendid condition. Prizes of 1*l*., 15*s*., and 10*s*., were offered for the 1st, 2d, and 3d best single dish of dessert Apples. There were no less than 28 dishes entered for the prizes, Mr. Saul, Stourton Park, Yorkshire, taking the 1st place with a very fine dish of Ribston Pippin, perfect in flavour; Mr. S. Wells, Hurst Lodge, securing the 2d with Braddick's Nonpareil—a fine dish; and Mr. Whiting, gr., the Deepdene, the 3d, with a nice dish of Cox's Orange Pippin. Mr. Whiting also exhibited Sudbury Beauty. Mr. Barley sent Cockle Pippin, Sturmer Pippin, Cox's Orange Pippin, and Sam Young. Mr. Lynn, gr. to Lord Boston, sent Cockle Pippin, very fine. Cox's Orange Pippin was exhibited by Mr. A. Ingram, gr. to his Grace the Duke of Northumberland, Alnwick Castle; and Mr. Ruffett, gr. to the Viscountess Palmerston, Brocket Hall, Herts; the latter also exhibited a dish of Formosa; Mr. Parsons, gr. to R. Attenborough, Esq., Fairlawn, Acton Green, furnished Court pendu Plat; Mr. Beach, gr. to C. J. Herries, Esq., sent Ribston Pippin; Mr. Chaff, gr. to A. Smee, Esq., Carshalton, contributed Braddick's Nonpareil; and Mr. Sydney Ford, Leonardslee, Horsham, sent Pearn's Pippin, very fine. In Class 2 three prizes for Pears were offered under the same conditions as in Class 1. The 1st prize was awarded to Mr. Sorley, gr. to Mrs. Zwilchenbart, Aigburth, Liverpool, for an excellent dish of Beurré Rance, stated to have been taken from trees worked on Napoléon; the 2d to Mr. Parsons, gr. to W. Blake, Esq., Danesbury, Welwyn, for Ne plus Meuris; and the 3d, to Mr. Gardiner, gr. to E. P. Shirley, Esq., Eatington Park, for a well kept dish of Knight's Monarch. Mr. Barley contributed Glou Morceau in a fine state of preservation, but of poor flavour; Mr. Ford sent Uvedale's St. Germain, very fine, but not at any time fit for the dessert table; and Mr. Wells, and Mr. Park, Grove Hall Gardens, Retford, were also exhibitors in this class. In Class 3, for the best three dishes of dessert Apples, the prizes, of 1*l*. 5*s*., 15*s*., and 10*s*., were awarded, the first to Mr. Whiting for fine specimens of Mickleham Pearmain, Ashmead's Kernel, and Cox's Orange Pippin, all very fine in quality. Mr. Cox, Redleaf, gained the 2d prize with very fine examples of Pitmaston Nonpareil, Sam Young, and Golden Harvey, also of excellent quality. Mr. Saul, Stourton, took the 3rd prize with Claygate Pearmain, Scarlet Nonpareil, and fine Ribston Pippin. Mr. Gilbert, gr. to the Marquis of Exeter, Mr. Barley, Mr. Tillery, Mr. Ruffett, and Mr. Parsons were also contributors. Prizes similar to those in the preceding class were offered in Class 4, for 6 dishes of the best kept fruits. For these, as in the other classes, the competition was very keen, owing to the quantity and general excellence of the exhibitions. After a minute examination the 1st prize was awarded to Mr. Lynn, gr. to Lord Boston, Hedsor, for 6 dishes of Apples, consisting of very finely coloured Bess Pool, Dumelow's Seedling, Beaufin, Scarlet Nonpareil, Kentish Fillbasket, and French Crab. The 2d prize was taken by Mr. Ford, Leonardslee, Horsham, for Norfolk Beefing, Alfriston, Blenheim Orange, Lewis' Incomparable, Yorkshire Greening, and Pearmain, all in an excellent state of preservation. To Mr. Cox, of Redleaf, the 3d prize was awarded, for very fine Bedfordshire Foundling, Blenheim Orange, Northern Greening, Bellefleur, Royal Pearmain, and a variety not named. Mr. Chaff, Mr. Parsons, Mr. Gardiner, Mr. Earley, Mr. Saul, Mr. Gilbert, Mr. Ingram, Belvoir Castle Gardens; Mr. Ingram, Alnwick Castle Gardens, and Mr. Tillery, sent very fine specimens of good cultivation and excellent keeping qualities. A Special Certificate was awarded to Mr. Gilbert, for a collection of materials for early spring salads, consisting of Chervil, Corn Salad, Cos Lettuces, young Onions, Radishes, Mustard and Cress, Celery, Beet, Endive, Chicory, and a nice useful Cucumber. Also a large dish of very fine Mushrooms (alluded to above), Asparagus, Sea-kale; and a bottle of preserve made from the Cherry Plum, for the opinion of the Committee; this was found to be bad in flavour and quite sour. Mr. W. Davies, Friern, Barnet, exhibited a large basket of Lady Downe's Grapes, to which a Special Certificate was awarded. Mr. Rivers, Sawbridgeworth, sent a very interesting collection of Apples, amongst which the Melon Apple may be specially noticed. A Special Certificate was also awarded to this collection. Malta Blood Oranges were sent by Mr. Gooding, gr. to Sir John Neeld, Grittleton; Chasselas Napoléon Grapes from Mr. C. Allen, gr. to Capt. Clegg, Withington Hall, were also said to have been exhibited, but they had disappeared before the arrival of our reporter! Messrs. Stuart & Mein, Kelso, sent a large collection of triple and other Variegated Kales, cultivated by them, of which some were exceedingly handsome, but scarcely equal to those exhibited on former occasions. A Special Certificate was awarded to them.

Notices of Books.

Monographia Generis Osmundæ. Auctore Dr. J. Milde. Cum octo tabulis. Vindobonæ. 1868. 8vo, pp. 140.

Index Botrychiorum. Auctore Dr. J. Milde (Aus den Verhandlungen d. k. k. Zoologisch-botanischen Gesellschaft in Wien). 1868. pp. 10.

We have here two pamphlets of the highest value to Fern students. Dr. Milde, as we have mentioned on former occasions, has taken up the study of Ferns with a degree of energy that deserves to be applauded, and with evidences of patient study, discrimination, and sound judgment which are worthy of all praise. The first of the two little works whose titles are noted above, is exhaustive of its subject—the genus Osmunda. An historical sketch, citing the views as to structure and classification of all authors, from Lobel in 1576, to Bommer in 1867, extends over thirty pages; twenty more are devoted to an examination of the characteristics of the plant, which are closely traced through the several organs; and then, after two or three shorter chapters, one of which shows the classification of the species adopted by the author, we come to a much longer one, giving in full detail descriptions of the adopted species, with their synonomy, distribution, &c., This latter, which forms the main part of the book, is succeeded by a very ample Index Osmundarum. The plates are chiefly anatomical, but are otherwise useful as showing fragments of the various kinds. The plants admitted to specific rank are:—1. O. regalis, L., with 12 varieties; 2. O. bipinnata, Hook.; 3. O. lancea, Thunb., forming the section Euosmunda; 4. O. cinnamomea, L., with 2 varieties; 5. O. Claytoniana, L., with 1 variety, forming the section Osmundastrum; 6. O. javanica, Bl., with 2 varieties; and O. Presliana, J. Sm., with 2 varieties, forming the section Plenasium.

The second pamphlet named above, though little more than a synonymical index of the genus Botrychium, is a very useful book of reference. The index portion is preceded by a conspectus of the species, from which we learn that the author adopts the following:—1. B. Lunaria, L.; 2. B. boreale, Milde; 3. B. crassinervium, Rupr.; 4. B. matricariæfolium, A. Br.; 5. B. lanceolatum, Angstr., forming the first group Affinia; 6. B. ternatum, Sw.; 7. B. simplex, Hitch., forming the group Ternata; 8. B. lanuginosum, Wall; 9. B. daucifolium, Wall, forming the group Elata, these together making up the section Eubotrychium; and, 10. B. virginianum, Sw., forming the section Osmundopteris. Eight of these are found in Europe, eight in Asia, seven in America, and three in Australia. No African species has yet been observed.

Florists' Flowers.

THE record of new CHRYSANTHEMUMS is one of the last to be completed each season, as they may be said to gild the departure of the old, and even to bedeck the advent of the new year. Pre-eminently do we look to Mr. Salter, of Hammersmith, for the annual additions to the flowers already in cultivation. There are no doubt other raisers at work, but as their productions do not make their appearance at those meetings to which most new things find their way, it is left to Mr. Salter to make public the new flowers before sending them out. During the autumn of 1868 some very fine seedling flowers opened at Hammersmith, and of these Pink Perfection and Princess Teck received First-class Certificates. Quite a new, and certainly a most beautiful and pleasing shade of colour is furnished in Pink Perfection, delicately soft and yet striking, while the qualities of size, shape, and fulness are in keeping with its fine colour. Princess Teck opens white, but when at its best has a delicate blush tint; it is a very fine and full incurved flower, and like all the white flowers dies off to a rosy tint. This tint is most perceptible in dark weather, and never so marked in fine sunny weather. Another new white flower is Miss Marechaux, a very beautiful pure white variety, of great size, and very full, and a good addition to the largest of the white flowers. White Eve is a small pure white flower, full and good, and very clean and pure; it furnishes another illustration of the sportive character of the Chrysanthemum, as it is a sport from Smith's Eve, a handsome pale primrose flower, of medium size. Beethoven is a bronzy lilac flower, lit up with slight golden tips when fully incurved. Rival Little Harry is a seedling raised from Smith's Little Harry, and is in the same way, but with more red on the back of the petals, and so when the flowers are fully recurved, they have a much redder tint than in the case of the old kind; there is the presence of a much better habit, the flowers also stand up better on the stalks. The sportive character of the Chrysanthemum is further illustrated in the case of Lilac Beverley, a sport from the old white Beverley, a medium-sized but very compact flower, which when incurved has a bright lilac surface, showy and good. Stellaris has the appearance of being a very great improvement on Smith's Cherub, a golden amber-tinted flower; being fuller, it does not open at the centre when incurved, or become so "cross-eyed," as it is termed, as Cherub does, while the hue of colour is redder.

There are three new Anemone-flowered kinds belonging to the large-flowering section, namely, Princess Charlotte, the guard petals rosy blush, with a light tufted centre, a medium-sized, but good close flower; Firette, which opens blush, but changes to pale lilac, fine and showy, and of dwarf growth; and White Empress, a sport from the well-known lilac flower under that name, pure white, with a showy golden centre, a handsome and bold-looking flower.

Mr. Salter has this season made some grand additions to his new Japanese kinds, which, their singular appearance notwithstanding, prove most attractive objects in the greenhouse and conservatory during the dull months of winter. That the Floral Committee should award First-class Certificates to any of these new kinds appears to be regarded by some as a kind of sin, judged by the floricultural code of "points," "qualities," &c.; but the Committee may safely look for a general endorsement of their action in this respect. Of the new kinds, Dr. Masters stands pre-eminent for its distinct and showy character, having a centre of bright yellow, with an exterior of showy reddish-brown florets; but as the flowers age a curious transformation scene occurs, as the gold becomes transferred from the centre, which changes to red, to the tips of the florets. Hero of Magdala has very full and curious bunch-like flowers, composed of a mass of pale, dullish, blood-red florets, apparently squeezed together, and is thoroughly novel in character. James Salter has pale bright lilac-pink, rosette-like flowers; and is probably one of the most curious of the Japanese varieties when fully expanded. George F. Wilson is another new variety, with very fine and remarkably showy flowers, of the colour of Jardin des Plantes. Jupiter has bronzy buff flowers, with a bright orange centre, the flowers full and showy, and with a good upright habit of growth. Regalia is a fine new variety, appearing to have something of a hybrid in its character, the habit of growth and foliage being identical with the large flowering kinds; the flowers have a golden ground, with bright red stripes, and as they become incurved have a very showy bright buff appearance. *R. D.*

The Apiary.

BEE DISEASE (from the American "Bee Journal").—W. F. Cunningham, writing from Middletown, Kentucky, says:—"Bees in this section have done poorly all the season. About the 20th of August I noticed a great number of dead bees on the bottom board and in front of a hive. On examination I discovered that about the half of them were still alive, crawling about among the dead, and when I placed a handful of them by themselves, I found some four days pass before life was extinct. But in ten days from the first attack every stock of mine (21 in number) was dead.

"The bees of some hives did not all get sick or diseased at the same time, and the well ones cleaned out the dead. In some cases there were not a dozen bees left in a hive. So it has been with our friend Broil, who once rejoiced in 40 stands, and awoke to see, as he thought, that his bees had fled to parts unknown.

"My yard and garden were strewed with the dead and dying, many having gone out to get relief from the dead at home. All the honey made this season is very dark and bad flavoured.

"We have but few individuals in this part of the State who have as high as 100 stocks. I know in Oldham, Shelby, and Jefferson counties, four men with 100 stocks each, 20 with 60, 50 with 30, 100 with 15, and 150 with from 1 to 10: now, I am satisfied that of all these not one stock in a hundred is alive to-day. Yet nearly all I have examined have plenty of honey left. The strongest stocks in numbers and surplus honey were as liable to go as any."

T. Hullman, sen., Indiana, bears the following testimony:—"In September last, when the first cold weather set in, my bees began to die. First, I found in one of my best stands, with all the frames full of sealed honey, and some in boxes, the bees all dead. After that, the bees began to die in all my stands, mostly pure Italians, and some hybrids. First, about one-third of the bees would be dead; next, I would find the queen lying dead before the hive; and in about a week more the whole colony lay dead in and around the hive. Sometimes the queen would live with a handful of bees. The hives were full of honey, gathered the latter part of the season; and the least ones had enough to winter on. In this way I have lost 40 stands, and have now only 15 skeleton colonies, which I think will also perish before spring. I first thought I was the only victim in this way, but I have now ascertained that all the bees have died in this neighbourhood, and as far as 30 miles north, and 18 miles south. Yesterday I saw a letter from Kentucky in the *Country Gentleman*, where a man thought his bees had stampeded. I suppose they stampeded in the same manner as mine, from the hive to the mother earth.

"In looking over my German books, I find that bees sometimes die for want of bee-bread; and on examining the frames of the dead stands, I find pollen very scarce. Some had none, while others have died with some of it in the combs. Have any of the old bee-fathers any idea of the nature of this ailment? I do not find anything relating to it in Mr. Quinby's book. There was no foul brood in the hives. Last year I lost some stands, probably from the same cause. We have had now two or three late springs, the time when bee-bread ought to have come in. If any bee friend should come this way he will please stop and see the condition of the hives and combs in which the bees died. It is my opinion that the bees died for want of pollen."

Mr. Nesbit, Kentucky, writes:—"I see from an article in the 'Journal,' by C. E. Thorne, of Selina, Ohio, that there is some disease among his bees. The same disease (if it be a disease) is prevalent here to a great extent. In this and the adjoining counties I have heard of half-a-dozen more men who have lost whole apiaries of from 30 to 40 stands each. The bees die, leaving the hives full of honey. Some have bee-bread or pollen, and some have none. All I have heard of dying are black bees."

From the pen of John T. Rose, Michigan, we have the following:—"I see in the December number of the 'Bee Journal' an account of a new disease among bees. On the 8th of October last my strongest Italian stock was taken in a similar manner, and although the disease did not last three days, it reduced the stock from a powerful swarm to a mere nucleus. The bees seemed to drop in a stupefied state on the bottom board and crawled slowly to the entrance, then out on the alighting board, from which they dropped on the grass. They seemed to want to get as far from the hive as possible before dying.

"I supposed my bees had been poisoned, as I knew they had been rather mischievous, having even entered the hives of my neighbours, carrying off the winter stores without permission. Now some of the knowing ones claim that they can poison bees, when they attempt to rob others. How that is I do not pretend to know. I have come to the conclusion that my bees were not poisoned intentionally. I have tried various experiments with the dead and dying bees, but with no satisfactory result. I yet believe my bees had been working on some poisonous substance, but that it was so far from my apiary that, as the weather came off cold, the bees could not keep up the line of communication, and that those that found the forbidden fruit died before they could lead others into fatal temptation. Now, I do not believe that bees naturally would forage on poisonous substances, but that in some cases, as in the extreme excitement of robbing, they may partake of substances which, under other circumstances, they would not notice. May not some such disease as Mr. Thorne describes be the cause of the sudden disappearance of the bees in the neighbourhood of Lexington, Kentucky, the bee-keepers not noticing the hives till the bees were all gone?"

Obituary.

WE have to record, with sincere regret, the death of Mr. GEORGE JACKMAN, sen., of the Woking Nursery, which took place somewhat suddenly, on the morning of the 12th inst., from syncope, following an attack of gout. The establishment of Messrs. G. Jackman & Son, known as the Woking Nursery, has long occupied a prominent position in the nursery trade, for which this part of Surrey is somewhat famous, and we have

ourselves had frequent occasion to refer to it, in connection with the superb hybrid varieties of Clematis which have been originated there. The nursery was founded about 60 years ago by Mr. William Jackman; it came into the hands of his son, the late Mr. G. Jackman, in 1830; and by him, latterly associated with his son, Mr. George Jackman (to whom we are more especially indebted for hybridising the Clematis), it has since been most successfully brought to its present high position. Mr. Jackman, who was in his 68th year, was as universally respected in the trade, as he was beloved and esteemed for his kind-hearted genial Christian character by his personal friends and workmen (several of whom had been on the establishment for 20, 30, or 40 years), and by whom his remains were on Thursday last followed to the adjacent churchyard of the district church of St. John, of which he had been chapelwarden under the former vicar, for a quarter of a century.

Garden Operations.

(For the ensuing week.)

PLANT HOUSES.

To all who are accustomed to watch the march of the seasons, and their influence upon the vegetable kingdom, this is an especially interesting period within doors. Already plant houses are assuming their spring garb. Individual plants, which a few weeks since required our utmost skill and attention to keep in health, are starting into growth, and blooming away with a vigour perfectly wonderful. With the greater duration of the sun's light, and its concomitant warmth diffused abroad, it will not be difficult to afford to the inmates of artificial structures the necessary treatment in this stage of activity. Every degree more of light—and especially now that it is daily increasing—and all advances of natural warmth, should be met by a relative increase of internal humidity, and by the admission of as much air in mild weather as possibly can be afforded. The soft mellow or balmy air, which we have had so plentifully lately, becomes the mainspring of all vigour, if it be but admitted judiciously. With proper judgment it should be admitted into the front of all cool structures, and be permitted to pervade them to their whole extent. Many plants grown upon side shelves will be much benefited by being turned round occasionally, now that actual growth is being made. *Eranthemum pulchellum*, though introduced nearly two-thirds of a century ago, is nevertheless one of the prettiest and brightest of blue-flowering stove plants at the present time. To flower it well and neatly, however, it requires to be propagated triennially, and should be flowered and made the most of whilst young. Cuttings formed of the young shoots when they have become moderately firm, placed firmly into open sandy loam under a bell-glass, and plunged into bottom-heat, strike readily, and with a good moist and warm summer temperature may be induced to form young stuff quickly. *Begonias* will now in a very general way begin flowering, and some of the older varieties are worthy of a place in any cool stove or similar plant-house, and especially such ones as B. odorata, B. nitida, and B. fuchsioides. The new ones, such as B. Veitchii, B. Clarkei, and a few others, tend at this the flowering season to make any house very gay. Weak, clear liquid manure will aid them materially at this stage. *Orange Trees* and the different kinds of *Citrus*, such as C. medica (the true Citron), the *Shaddock*, *Lime*, and *Lemon*, should now have all loose or soured soil removed from off the surface of the balls, whether they are grown in pots or boxes, or turned out into borders, or such situations, at the base of walls. They should afterwards have a proper surfacing with a rich open soil, composed of one part each of rich sandy loam and cowdung, with a good sprinkling of small pieces of charcoal intermixed; this latter for the double purpose of giving the air the fullest possible access to the lower soil, and of aiding all subsequent waterings to percolate it. Some few of the early-flowering *Ericas* and *Epacris* will have now ceased flowering. They should, therefore, be cut down immediately they become past their best. Any delay which occurs in this matter will assuredly be at the expense of the general strength of future growth. *Cape Pelargoniums* which are required in flower the first week in June or earlier, should now have a temperature averaging by day a mean of 58° or 59°, and by night some 4° or 5° less. Give every attention to training the moment it is required, and so carefully that no injury accrue to any of the stronger and stiffer shoots by abruptly snapping off, &c. Particularly attend to keeping them as near the glass as possible; allow no symptom of insect pests to exist, and by occasionally sousing them well over and throughout with clear tepid water, induce them to make a quick strong growth.

FORCING HOUSES.

Pot Vines, which have finally set their crops, should be syringed freely with clear, soft, tepid water. Attend to the bottom-heat, and by no means permit it to decrease perceptibly, as any check at this period is sure to tell injuriously in regard to such plants. Afford manure water from this time onward more freely, and so induce the formation of large and well-developed berries. Let the heat advance both in the house containing these and all other Vines in a similar stage, some 5° to 10° upon bright sunny afternoons. Persist in rubbing off all superfluous growths which form upon Vines, and, what is of importance, do not overcrop any; doing so is generally at the expense of size both of berry and bunch, and what is of equal, if not greater importance, it injures the ripening powers of all Vines, giving rise to ill-coloured berries and shanking. Where the necessary operations connected with stirring, or, if needful, turning over the tan-beds, into which fruiting and early successional *Pines* are plunged, have, in consequence of the exceeding mildness of the weather, been delayed so long, it will be necessary to attend to them without any further delay. Some of the earliest successions will in all probability be now showing, and it is of the utmost importance, therefore, that they have a firmly established and undeviating bottom-heat commensurate with their wants at this period. Where a moderate heat exists, of say 60° or so, a good surface stirring, and the addition of a little fresh tan, and the damping with tepid water any portions which have become husky and dry, will be all that is likely to be required. When, however, it is known that the bed is old, and the heat nearly spent, and its fermentative capability nearly worn out, resort should immediately be had to turning it over from the very bottom. First, remove the pots carefully, after having secured the foliage from injury by tying it round, take out a trench at one end, at least 2 feet wide, and to the bottom; throw the surface of the next trench into this bottom, and so proceed until another trench exists alongside. Add, as required, fresh tan at intervals, and damp any of the old which may require it throughout each trench until the operation is complete. According to the size of the pit, and the likelihood of a moderate or an excessive heat, so must depend the depth to which the pots are then to be re-plunged. The deeper they are plunged of course the more heat will there be at the base of and around each. At the time of forming, and especially during the period when young fruits are swelling freely, a good brisk heat should be kept up, but at no period should it exceed 88°, whilst 85° is a good mean to work upon. Give more water with proper care and moderation along with increased heat, whether of top or bottom. Rely at all times more upon small waterings, even if required more frequently, than upon deep heavy soakings, which at this season are likely to somewhat sour the soil, especially if it be at all of a close or too consistent texture. Upon bright sunny afternoons cause the heat to rise to a good warmth by shutting up early, &c., and give uniform dewings over with the syringe immediately all is closed. Early *Figs*, which have made some progress in the growth, and especially when a good leaf-surface has been formed, should have a moderate watering at the root. This I advise in properly made and drained borders only, as in a very general way where such borders have not been properly prepared, there is at this early season ample latent moisture in the natural soil for the requirement of the Figs.

HARDY FLOWER GARDEN.

Stir and thereby freshen up the soil somewhat between bulbs or other plants, whether annuals, biennials, or perennials, and other similar subjects, which have pushed through the soil, or have existed throughout the winter. This is the more necessary, inasmuch as we have had heavy delugings of rain, which have beaten and bound the surface crust together to an unusual degree, and far beyond what even a heavy fall of snow would do. Choose a fine drying day for this operation, and effect it if possible during a dry period. During the first fine dry period *Ranunculi* may be safely planted. Place them from 3 to 4 inches apart, and not less than 2 or 2½ inches deep, according to the openness or otherwise of the soil. Good or valued beds of *Tulips* should, now that they issue pretty freely through the ground, have some sort of awning or other form of protection placed over them during frosty nights. Push forward the propagation of all cuttings of which large supplies are likely to be wanted at the now not very distant "bedding-out" period. *Shrubby Calceolarias* may now be removed from any form of structure possessing artificial warmth, and which may be required for other more important purposes. These last will do well in any cold frame where immunity from excessive rains and frost, should it visit us, is afforded. Give them plenty of air at all times. Those who have no other convenience in which to strike their spring cuttings must continue to toss over and to sweeten successional lots of fermenting materials for such a purpose. To hasten such work, many having made their bed up rather prematurely, place within the box or frame about a foot thick of sweet sawdust, into which the pots or pans of cuttings, when duly prepared, are plunged. Spent Hops is another very excellent material for this and like purposes, when it can be obtained.

HARDY FRUIT GARDEN.

No delay should now take place in procuring all necessary materials for the proper protection of all wall-fruit trees which require such aid, against the onslaught of spring frost. The season is an exceedingly early one, for already here (Herts) in the third week of February, many of the flower-buds upon choicer fruits are commencing to expand fully. A variety of material, and of plans for fixing it, so as to protect the blossoms, are in use. A practical and an excellent gardener, lately informed me that he used nothing but hay-bands secured to poles placed aslant against the walls. The hay-bands are slightly twisted, and sufficient room exists between each for the full play of light. Hay-bands thus loosely twisted, absorb a quantity of natural heat during the day, by retaining which they are fully able to combat the antagonistic influences of frosts by night. Other materials are scrim, canvas, Hessian cloth, Frizi Dono, netting, &c., from amongst which no little choice exists. Of the many I would recommend the third, fourth, and fifth, but I hope to have something more to say on this matter next week.

KITCHEN GARDEN.

Place small spray sticks closely and thickly to the earliest rows of *Peas*: this will not only protect them from cold winds and snow, &c., but will tend, once their tendrils have taken hold, to increase their strength and growing capabilities wonderfully. Sow *Early Carrots* upon a southern sunny aspect, and also *Celery*, placing this latter on a hot-bed, so as to induce ready germination. Williams' Matchless is the best red, and Veitch's Crystal White the best of its colour. Sow also *Turnips* for an early supply, *Spinach*, *Turnip Radishes*, and, if necessary, *Mustard*, *Cress*, and *Lamb's Lettuce*. *W. E.*

TOWN GARDENING.

WE have to thank Mr. Salter, of Hammersmith, for the introduction of a splendid collection of the beautiful spring flowering *Iris Germanica*, which I believe will become as useful for the town garden in spring, as the Chrysanthemum is in autumn. The plants should now be divided, and planted where they are intended to flower, in two-thirds loam, one-third rotten dung, and a little old brick rubbish. The following varieties have flowered freely with me, and are such as, I believe, will give general satisfaction if not too much confined:—Alboni, violet-purple and white striped; Angustissima, bronzed orange; Anne Jane, ivory white; Bosmillion, white and purple; Calypso, white, veined violet; Delecta, delicate blush: Diadem, yellow, veined brown; Duchess of Sutherland, pale lilac-peach; Emma Dale, lemon, veined and blotched lilac; Fairy Queen, white, veined lilac, and feathered; Victorine, white and violet, feathered; Formosa, fawn, pencilled claret; Mr. Broome, white, veined lavender; Queen Victoria, delicate rose-lilac; Walner, blue, lilac shaded; Pallida, sky blue. *Tulips* and *Hyacinths* will now be appearing aboveground. The soil between the rows should be carefully stirred with a Dutch hoe. To bloom them in perfection in beds, it will be necessary to throw hoops over them, in order to cover in frosty and rough weather with mats or canvas. If in clusters in the borders they may be covered with large pots or glasses, when requisite. With fresh soil, and by this attention, a beautiful show may be had in the most confined situation. Complete the digging of all beds and borders, that they may be ready for the reception of seeds, &c. Lightly loosen with a Dutch hoe on a dry day those beds and borders which were dug early in the season, to give them a neat appearance. *Crocuses* are now coming into bloom; and to have them flower out, it will be necessary to protect them from the impudent town sparrows, who appear delighted to tear them to pieces as fast as they show colour. This I do by placing sticks about them, and twisting a piece of grey worsted round, and they then seldom approach them. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Feb. 17, 1869, as observed at the Horticultural Garden.

February	Moon's Age.	Barometer.		Temperature. Of the Air.			Of the Earth		Wind	Rain.
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 11	●	30.007	29.957	57	40	48.5	50	48	W.	.52
Friday 12	1	29.924	29.558	52	25	38.5	49	48	S.	.26
Satur. 13	2	30.268	30.129	50	34	42.0	46	47	N.	.00
Sunday 14	3	30.238	30.180	51	45	48.0	47	46	S.W.	.00
Mond. 15	4	30.229	30.204	49	44	46.5	48	46	W.	.00
Tuesd. 16	5	30.040	29.841	53	41	48.5	48	46	S.W.	.00
Wed. 17	6	29.709	29.608	54	40	47.0	49	46	S.W.	.20
Average .		30.069	29.925	52.3	38.8	45.5	48.1	46.7		0.98

Feb. 11—Cloudy, very mild; densely overcast; rain.
— 12—Rain; heavy rain; exceedingly boisterous at 5 P.M.; fine.
— 13—Sharp frost, fine; very fine; cloudy at night.
— 14—Overcast, brisk wind, densely overcast; fine.
— 15—Densely overcast; overcast, fine, cloudy.
— 16—Densely overcast; fine, overcast; boisterous.
— 17—Overcast; densely overcast, rain; heavy rain.
Mean temperature of the week, 8½ deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending Feb 27, 1869.

February.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..21	46.7	32.3	39.5	20	0.20 in.	3	9	4	6	1	11	6	3
Mon. ..22	46.8	31.9	39.3	19	0.29	4	3	7	3	1	15	6	4
Tues. ..23	47.4	31.5	39.4	14	0.41	4	5	7	2	1	13	7	4
Wed. ..24	47.1	32.8	39.9	20	0.60	1	6	6	3	7	8	5	7
Thurs. ..25	47.7	31.7	40.2	22	0.92	2	6	7	—	6	11	7	4
Friday ..26	47.2	33.6	40.4	23	0.18	4	7	5	1	5	9	9	3
Satur. ..27	47.7	33.5	40.6	20	0.10	3	8	5	2	7	9	6	3

The highest temperature during the above period occurred on the 25th, 1868—therm. 62 deg.; and the lowest on the 21st, 1855—therm. 10 deg.

Notices to Correspondents.

ASHES: *J P M.* If the soil is stiff, coal ashes may be applied beneficially in moderate quantities, to improve its mechanical texture. They should be applied with caution; a very good plan is to scatter them over ground that has been ridge-trenched, and then, when the winter's frost has rendered the heavy soil friable, they can be forked up with it. They should not be used on light soils.

BOOKS: *J P M.* Yes; London's "Arboretum Britannicum," or its abridgement, the "Encyclopædia of Trees and Shrubs."

NAMES OF FRUITS: *J C & Co.* Not known from the sample sent, which was much shrivelled and out of condition.

NAMES OF PLANTS: *J D.* 1, Teucrium Polium; 2, Radiola Millegrana.—*G W.* 1, Common Double Yellow Daffodil, Narcissus Pseudo-Narcissus: 2, Acacia Drummondii; 3, Genista canariensis.—*A J.* 1, Erica caffra; 2, Senecio Petasites.—*G W.* Lælia superbiens.

PLANTING VINES: *A B.* It is too late in the season now to begin to renew your Vine-borders and remove your Vines. The roots are now on the move, and would be severely checked thereby. Defer it until the autumn, say the month of September. *B.*

PRUNING FRUIT TREES: *Subscriber.* You may now prune the shoots on your Pear trees back to within about 1 foot of the stem; if very robust they may be left a trifle longer.

SAMPLE OF PEAS: *N S J.* The sample of Peas sent is decidedly inferior in quality. A large proportion of them is much discoloured, so much so as to have the appearance of being old, or else having been saved during a very wet season. No sample of Peas harvested in 1868 that we have yet seen is so discoloured as the sample under notice, and we can scarcely think they are of last year's growth. They are also somewhat mixed with "rogues."

COMMUNICATIONS RECEIVED.—J. T.—W. M.—E. W.—T. B. W.—D.—J. S.—Inquirer.—E. A. O.—J. C. M'A.—G. T.—T. F.—W. D. F.—F.—H. P.—C. W.—J. K.—W. C.—Y.—C. R.—Ex.—S. & S.—J. W. W.—Ordorix.—E. Morren.—Celery.—J. Rothschild.—W. P. A.—J. Wills.—D. T. F.—J. Barnes.

SUTTONS' GRASS SEEDS

FOR ALL SOILS,

PRODUCING ABUNDANT CROPS OF HAY AND SUPERIOR PASTURAGE, CARRIAGE FREE.

A SILVER MEDAL for EXCELLENCE of QUALITY,



PARIS, 1867.

MESSRS. SUTTONS'

MIXTURES for PERMANENT PASTURE

CONTAINS THE FOLLOWING

FINEST CLEANED GRASSES AND CLOVERS.

Alopecurus pratensis	Meadow Foxtail
Anthoxanthum odoratum	Sweet Vernal
Agrostis stolonifera	Creeping Bent
Avena flavescens	Yellow Oat Grass
Cynosurus cristatus	Crested Dogstail
Dactylis glomerata	Round Cocksfoot
Festuca duriuscula	Hard Fescue
Festuca elatior	Tall Fescue
Festuca heterophylla	Various-leaved Fescue
Festuca pratensis	Meadow Fescue
Festuca ovina	Sheep's Fescue
Festuca rubra	Reddish Fescue
Festuca tenuifolia	Fine-leaved Fescue
Festuca loliacea	Darnel-leaved Fescue
Lolium perenne Suttoni	Suttons' Perennial Rye-grass
Lolium perenne Paceyanum	Pacey's Perennial Rye-grass
Lolium perenne sempervirens	Evergreen Rye-grass
Phleum pratense	Timothy
Poa pratensis	Smooth-stalked Meadow Grass
Poa trivialis	Rough-stalked Meadow Grass
Poa nemoralis	Woodside Meadow Grass
Poa sempervirens	Evergreen Meadow Grass
Trifolium repens perenne	Perennial White Clover
Trifolium pratense perenne	Perennial Red Clover
Trifolium hybridum	Alsike Clover
Medicago lupulina	Yellow Trefoil

SUTTONS' BEST MIXTURES

FOR THE FOLLOWING SOILS:—

1. STIFF CLAY SOILS, to be met with in the London, Kimmeridge, Oxford, and Lias Clays.
2. HEAVY LOAMS, of the same Formations, when they have been subjected to surface admixtures and cultivation.
3. GOOD MEDIUM LOAMS, on the Marls of the Old and New Red Sandstone, the Gault, and the Greensands.
4. LIGHT SANDY SOILS, on New Red Sandstone, Sands of the Inferior Oolite, Soils visited by Sand Drifts, as at Cheltenham and Gloucester; also those covering up the Stiff Lias and the Tertiary Sands of the Dorset Heaths.
5. SHARP GRAVELLY SOILS, such as the Flint Gravel Drift which overspreads so much of the Southern and Western part of England.
6. CHALKY SOILS, as the Mountain Limestone, the Oolite, and the Chalks Proper, where not too elevated.
7. SHEEP DOWNS.—The Elevated and more Exposed parts of the Oolite, such as the Wolds of Gloucestershire, the Cotswold Hills, and the Plains of Wiltshire.
8. WATER MEADOWS, and all Land under Irrigation.

Containing 2 bushels of Grass Seeds, and 12 lb. Clovers and other Small Seed per acre.

28*s.* to 32*s.* per acre. Carriage Free.

SUTTONS' CHEAPER MIXTURES,

20*s.* to 26*s.* per acre. Carriage Free.

SUTTONS' "CRYSTAL PALACE" MIXTURE, for Park Grounds, as supplied to the Crystal Palace Company, to produce a beautiful evergreen sward, 18*s.* per bushel. Sow 2½ bushels per acre.

SUTTONS' MIXTURES of GRASS and CLOVER SEEDS for

1-year's Lay, best quality, 13*s.* 6*d.* per acre.
2-years' Lay ,, 17*s.* 6*d.* per acre.
3 or 4-years' Lay ,, 22*s.* to 24*s.* per acre.

Second qualities cheaper.

SUTTONS' RENOVATING MIXTURE for the above Soils should be sown early in the spring to produce a great increase in the quantity and quality of Grass. Sow 6 to 12 lb. per acre. Price 9*d.* per lb.

Special Contracts made for large quantities.

Five per cent. allowed for cash payments.

SUTTON AND SONS,
SEEDSMEN TO THE QUEEN, READING, BERKS.

The advantages of procuring Seeds direct from the Growers cannot be over-estimated.

James Carter & Co. Seed Growers

237, 238, AND 261, HIGH HOLBORN, LONDON, W.C.



CARTER'S GRASS SEEDS.

SPECIALLY PREPARED FOR ANY DESCRIPTION OF SOIL.

No. 1. For FERTILE CLAY SOILS.
No. 2. For POOR CLAY SOILS.
No. 3. For HIGH-LYING CLAY SOILS.
No. 4. For ALLUVIAL SOILS.
No. 5. For LIMESTONE SOILS.
No. 6. For NEW or OLD SANDSTONE SOILS.
No. 7. For LIGHT CHALK SOILS.
No. 8. For BRASHY LIMESTONE SOILS.
No. 9. For SANDY SOILS.

J. C. & Co. hold one of the largest and best stocks of Grasses and Clovers in the country, and are now prepared to supply their Mixtures as above, for the formation of first-rate Permanent Pastures.

Finest Quality, per acre, 28*s.* to 32*s.*
Second Quality, per acre, 20*s.* to 26*s.*



LOOK TO YOUR GRASS LANDS.

CARTER'S RENOVATING MIXTURE should be sown on Meadows that have suffered from the past dry summer. The Mixture includes the most desirable Grasses and Clovers for hay crop, and succeeding green feeding, and will soon restore a first-rate permanent pasture.

Sow 8 to 12 lb. per acre.

Price 9d. per lb., 80s. per cwt.

CARTER'S PRIZE MEDAL LAWN GRASS,

As supplied for the grounds of the late Paris Exhibition, will speedily produce a carpet-like turf of the finest quality.

1*s.* per lb. 20*s.* per bushel (sow 3 bushels per acre).

For full information on the Laying Down and after-treatment of Grass Lands, see

CARTER'S
FARMER'S CALENDAR FOR 1869

(ILLUSTRATED),

Post Free 6*d.*; Gratis to Customers.

JAMES CARTER AND CO.,
237 and 238, and 261, High Holborn, London, W.C.

First Crop or Ringleader Pea.

CHARLES SHARPE AND CO., having grown largely this EXCELLENT EARLY PEA, with great care, have much confidence in offering it to the Trade. Price on application.

Farm Seeds Direct from the Grower.

CHARLES SHARPE AND CO. will be glad to send special offers of their carefully selected TURNIP, MANGEL, and other FARM SEEDS on application.

Garden Seeds.

CHARLES SHARPE AND CO.'S PRICED TRADE LIST of PEAS, BEANS, and other GARDEN SEEDS can be had on application.

Seed Potatos.

CHARLES SHARPE AND CO. are now prepared to make special offers of all the leading sorts of POTATOS. Sleaford.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY (Limited),
CORN, SEED, MANURE, and OILCAKE MERCHANTS.
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke
Samples and prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

1868.—Mangel Wurzel Seed.

H. AND F. SHARPE can offer the Trade some splendid STOCKS of the above named Seed, grown on their own Farm this season from picked Bulbs. The quality is very fine, and prices low. Samples may be obtained on application.
Seed Growing Establishment, Wisbech.

SUTTONS' PRIZE MANGEL SEED, 1869.
SUTTONS' BERKS PRIZE YELLOW GLOBE,
SUTTONS' NEW YELLOW INTERMEDIATE,
SUTTONS' MAMMOTH LONG RED.
SUTTON & SONS are now prepared to quote the lowest price per cwt. for the above superior varieties of Mangel Wurzel, which have given such great satisfaction during the past year.
SUTTON & SONS, Seed Growers, Reading, Berks.

Early Feed for Sheep and Cattle.

SUTTONS' IMPROVED ITALIAN RYE-GRASS, the earliest and most productive in cultivation. Should be sown in February and March to produce a succession of valuable cuttings during the year. If sown alone, 3 bushels are required per acre.
Price 7*s.* per bushel, cheaper by the quarter. Carriage free.
SUTTON & SONS, Seedsmen to the Queen, Reading, Berks.

HALLETT'S PEDIGREE CHEVALIER BARLEY produced in 1868 a Crop of 62 bushels per acre, a Sample of which was awarded the First Prize at the Birmingham Show of 1868. Took the First Prize also at the same Show of 1867. Produced in 1867 nearly 9 quarters per acre.
PEDIGREE BLACK TARTARIAN OATS produced, 1868, 12 quarters per acre.
For particulars apply to Captain HALLETT, F.L.S., Brighton.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.

AGRICULTURAL EDUCATION.

The EXAMINATION of CANDIDATES for the SOCIETY'S EDUCATIONAL PRIZES will take place in the week commencing MONDAY, April 12, 1869. Copies of the Form, required to be sent in by March 18, may be obtained on application to

H. M. JENKINS, Secretary.

12, Hanover Square, London, W.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.

MANCHESTER MEETING, 1869.

STOCK and IMPLEMENT PRIZE SHEETS are Now Ready, and will be forwarded on application to HENRY WHITWORTH, Esq., Local Secretary, 06, King Street, Manchester; or

H. M. JENKINS, Secretary.

12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, FEBRUARY 20, 1869.

MEETINGS FOR THE ENSUING WEEK.

FEB. 23—Penrith (Local Taxation).
— 24—Highland Society (Mr. Melvin on New Zealand).
— 27—Canterbury (The Present System of Licensing Beer Houses).

A SYSTEM of traffic which allows of the free movement of sound animals all over the kingdom does not necessarily exclude foreign stock from the privileged classes, but it admits them only on the guarantee being given of their sanitary condition; and this can only be asserted after the animals have undergone a period of detention, or quarantine, equivalent in duration to the longest time of incubation of any infectious disease to which they are liable. With the remembrance of cattle plague and sheep pox, not to speak of other infectious maladies of foreign stock fresh in our minds, we cannot conceive that this condition will be deemed harsh or unnecessary; and yet it is evident that under its operation foreign stock would be virtually excluded, from the circumstances of their position. Quarantine, except in the case of a few valuable animals, does not, to accept the importers' estimate of the system, answer in a pecuniary point of view. Equally, from our point of view, it would not be judicious, using the mildest term, to allow imported animals, the previous history of which is quite unknown, to come in contact with home stock, we being, at the same time, per-

fectly aware of the fact, that in their apparently healthy bodies there may lurk the germs of a disease which will become manifest only when it is too late to prevent disastrous consequences. Hence, failing to give the necessary evidence of freedom from infectious maladies, imported animals—which may possibly introduce disease, and which undeniably have, more often, perhaps, than can be now proved to demonstration, sown death broadcast among our herds and flocks—must not be admitted into a class composed only of those which are ascertainably free from a suspicion of infection.

The question that arises out of all this is, What shall be done with animals which fail to furnish the required evidence of perfect health? And the answer involves the consideration of the whole system of regulations applicable to the cattle trade. According to the view which the breeders of home stock adopt, the most ready and simple way out of the difficulty is to slaughter all imported animals by the water-side; in fact, to universally establish the system which now obtains at all the ports except the port of London. It is quite worth careful consideration whether those cattle only which come from infected countries, or countries of transit like Austria and Prussia, should all be slaughtered at one depot, or at several; and also whether the exemptions in favour of cattle from France and Spain should be extended to animals from other countries which are not countries of transit, and where cattle plague is not naturally existent. We are met here, however, by the awkward possibility of other infectious diseases than cattle plague being introduced. Foot-and-mouth complaint, lung disease, and sheep pox, are among the contingencies which farmers wish to avoid; and hence it can hardly be expected that they will abandon the idea of slaughter of all imported fat stock at the landing places, or the plan of quarantine, which practically means exclusion, of store stock. There are many objections to the system of slaughter on the wharves. Temporarily at least it would lessen importation and derange trade; it would not absolutely prevent communication of infection by indirect means; and if cattle plague should break out in so limited and populous an area as a crowded foreign cattle market, with daily arrivals of fresh stock taking place, a very pretty mess the business would amount to.

The plan, however, has the merit of being free from complexity, and it is besides the only one which will satisfy the demands of the home breeder: any other arrangement, presumably, must involve complicated machinery, which is always liable to get out of order.

In some way which shall be decided upon, as open to the least objection, contact between imported and home-bred stock is, we will assume, to be effectually prevented; the second consideration, then, presents itself, viz., the unrestricted movement of all stock which can be certified to be free from infectious disease. At this point the essential difference in the position of home-bred stock, as compared with that of imported animals, becomes apparent. Foreign cattle reach our shores tainted with a suspicion which can only be removed by their residence here for a time, while cattle bred and fed in the country are constantly under observation. In respect of every homestead in the country it is, or can be, easily known whether or no the animals on the farm are free from infectious disease, and this being the case, no danger can possibly arise from the unrestricted movement of all healthy stock being permitted. No distinction beyond what is absolutely demanded by difference of circumstances need therefore be established between foreign and English animals. In both cases let those which are infected or even suspected be safely restrained. While we take means to prevent contact between home-bred cattle and newly imported foreign stock on the legitimate plea of danger, let us consistently put a veto upon the admixture of cattle affected or infected with pleuro-pneumonia or foot-and-mouth disease with healthy animals in lairs, markets, or on the public roads. And to do this effectually the removal of live cattle from farms and premises where these diseases exist must be unconditionally prohibited, so long as there remains a risk of propagating the infection.

Such an arrangement would do what is demanded—place imported and home-bred animals on precisely the same level, by according to each the privilege of freedom when they are ascertained to be capable of exercising it without injury to the sanitary condition of their fellows, and by shutting up either or both within secure limits, when they are known to be dangerous or when their condition prevents the owner from giving the necessary guarantee of their exemption from infection. A vast number of circumstances will have to be considered in arranging the details of a measure which shall embody the principle for which we contend, but the difficulties, so far as we can understand them, are not insurmountable, and the object sought is of sufficient importance to justify the expenditure of time and trouble in view even of its possible attainment.

THE great and increasing dependence of this country on foreign supplies of corn makes the capability of other countries more than a mere matter of curiosity. The narrative of foreign travel is entertaining to most people; perhaps it may gain additional zest from the fact that we are constantly going further and further abroad for our "daily food." And we must look to new countries, since the old ones, sooner or later, cease to contribute to our wants, and indeed become our competitors in the markets of the world.

Nearer to us than New York is a country of great average capability, of almost unparalleled fertility in some parts, and with a splendid climate. Turkey in Asia is four times as large as Great Britain and Ireland, is very thinly peopled, and produces a mere handful compared to what its soil would produce, if it were well cultivated. It is, therefore, a new country in the sense of being undeveloped and of being capable of producing an immense quantity of corn for foreign consumers. It was once the seat of ancient empires; a great population was once supported on its soil. JOSEPHUS tells us that many of the villages of Syria contained 15,000 inhabitants! The account is probably exaggerated; or it is a difference of designation: we should call them towns. The present population, however, of 12,000,000 or 13,000,000, does not approach what it once was in the famous countries now under Turkish rule, in Asia. This dominion, unhappily, is fatal to industry of every kind. The agricultural productions of the country are, or would be, too varied and rich ever to include corn for exportation, but at present the land lies absolutely waste. All around the modern town of Hillah, which stands on the site of ancient Babylon, the marks of the ancient channels and canals of irrigation may still be seen. The waters of the Euphrates and Tigris were led over the rich alluvial plains, and they were thus made to produce the grain that fed a population that is unknown, and which has been variously estimated at from one to five millions for the capital alone. The waters of the Jordan and Orontes, and other rivers of Syria, were utilised by similar means; and much of the country that is now called "desert," because it is uninhabited, was, by irrigation and by industry, made productive.

All these countries are within the region of summer droughts, and water is there the "soul of agriculture," as manure is here. Much, however, may be grown without it over a wide extent—just as much corn is grown in the old corn countries of Europe, though the yield is small; but with it the production is enormous. All the grains of our temperate region are produced in perfection, besides a rich variety of subtropical fruits and produce. Silk, not now suited to the English market on account of careless management, has been a Syrian product from remote antiquity; Cotton finds in many parts of the empire the climate and soil that suit it best, yet much of the homespun worn by the country people comes from Persia. The Vine grows abundantly everywhere; it yields wines for local consumption, and the Sultanas of Smyrna and other raisins. The Olive and Orange ripen even in the mountain districts, in the sheltered valleys that are so frequent and so productive. Other plants, used in medicine and the arts, grow in various parts of Turkey; opium is produced; the Palm is indigenous; and Dates are exported in considerable quantities, because they grow wild and need no care or labour. Peaches and Nectarines, Persian fruits, find a home in the adjoining countries of Kurdistan and Armenia. Here, too, and throughout the dry uplands of the north and east, the sheep finds his native habitat, and at Erzeroum, the emporium for the trade of that part of Turkey, great numbers are assembled every year for exportation to Egypt, Persia, and the Russian territories. The price on the hills is 11*s.* each. This is further north than the rich southern plains where the Patriarchs were flock-masters of old, and where JACOB fed the flocks and herds of LABAN; it is a hill country, where the snow lies in winter, and the Orange requires the shelter of a hill: it is, or would be if the country were occupied, the great breeding district of Turkey. The sheepwalks of Australia, where several acres feed only one sheep, are a poor possession compared with the wasted pastures of Mesopotamia and the hill country to the north.

This splendid country, which our space will not allow us to describe more fully, is depopulated and ruined by a Government which has become decrepit. Tribes of Bedouins, whose Sheiks are but half subjugated, wander over the whole country with their flocks, and effectually prevent its cultivation. They levy black mail on the inhabitants, resist any encroachment on the desert, and effectually restrict cultivation to the neighbourhood of towns and villages, where alone security is to be found. But the custom of land tenure would prevent progress even without these "thieves of the desert." Much of the land belongs to the Crown; it is every year let in large blocks for one year only, including the farming of the obnoxious tax—the tithe. The farmer sublets to the fellahs or cultivators. Exaction is the order of the day; it is practisedon the fellah by his landlord, and on the latter by the Governor or Pasha of the district.

In some respects the "Eastern question" is a farmer's question. When enterprise and capital find their way into these rich, undeveloped countries—Spain is in the same category—how will their increased production affect us? Will they send us corn, or intercept our supplies? What will be the future balance of the industries of the world, and what the character of its agriculture? The answers to our questions would comprise the future history of the countries of the Mediterranean. Possibly these subtropical countries may supply the world with the more valuable products of agriculture—wine, oil, fruits, silk, &c.—and may themselves become buyers rather than sellers of corn.

—— AT Mark Lane on Monday the corn trade was in a state of inaction, and to affect sales a slight decline in prices had to be submitted to. Throughout the week little or no revival has taken place in the demand, but Monday's prices have been maintained. —— At the cattle market there has been quite another state of things, for the supplies of beasts and sheep have been small, the number of the former during the week having been 4,410, and of the latter, 19,660—only a fair Monday's reckoning. Prices are still ranging from 3*s.* 4*d.* to 5*s.* 8*d.* for beasts, and from 5*s.* 8*d.* to 6*s.* 6*d.* for sheep. These high rates are stimulating foreign dealers, and a deputation is appointed for to-day to wait on the President of the Board of Trade, to represent that the present high price of mutton is owing to Privy Council restrictions! Meanwhile butchers are coming from the country, and buying truck-loads of sheep at the wharves in Essex, and taking them into the manufacturing districts. On Thursday, a Staffordshire butcher intercepted 120, as many as he wanted, which he took direct to Walsall. Bavarian and Prussian sheep have gone to Paris for some months past, but as prices in London now exceed Parisian values, the stream is being diverted across the British Channel and the North Sea. Calves of fine quality and full condition are scarce and dear.——The agricultural seed trade has had a return of activity, notwithstanding that the superabundance of wet has completely stopped any attempt at sowing. Tares are scarce and dear, and Rye-grass and Clovers are held for high prices, in anticipation of the demand next month.

—— In the House of Commons on Wednesday, Lord ROBERT MONTAGUE introduced his Bill to amend the Acts relating to the prevention of infectious diseases of cattle. On the previous day, Sir GEORGE JENKINSON gave notice of his intention to move on a future day for a Committee on the subject of local taxation; and on Thursday, Mr. CARNEGIE re-introduced his Bill of the previous Parliament, to abolish the law of hypothec in Scotland.

—— The following letter from Messrs. SUTTON, of Reading, needs no introduction:—"In justice to the numerous gardeners, bailiffs, and others who seek situations through your Paper, we deem it right to call your attention to the enclosed. The writer of it, under the assumption of being known to us and other leading houses, requires persons wanting places to send him stamps (5*s.*) for 'introduction' to a place near Windsor. We know nothing of the man, but fear, from the many inquiries we have had, that he has been successful in taking money from many a gardener and bailiff. We may also mention that the person appears to be a 'migratory' agent, as he dates from a different address in almost every letter, probably to avoid detection."

—— The delusion that agricultural labourers are everywhere the worst paid class of HER MAJESTY'S

subjects—everywhere poorest in the comforts and decencies of life—receives every now and then a contradiction by the published statements of actual wages received. A capital instance of this occurred some time ago in our columns, when our correspondent, "O. F.," writing from South Lincolnshire, gave a list of his well-paid farm servants. The following is a similar list from Sussex. The farm is 600 acres, about half arable and half pasture, and we have received an account of the earnings of eight labourers on this farm for the year ended December 31, 1868:—

R. A. Carter, married, one child, for one year ..	£19	12	0
R. L. Day labourer, also married (parish clerk, which takes up part of his time—laid up by sickness three weeks), no family ..	32	17	8
C. S. Carter, one year, married, no family ..	45	6	0
S. Foreman, single	54	0	0
H. G. Day labourer, married, family grown up (laid up by sickness five weeks; one boy, 14 years old, works on the farm)	51	10	0
H. T. Married, wife and family, day labourer (one small boy, 11 years old, bird keeping, &c.)	48	18	6
E. H. Shepherd, with wife and family (one small boy, 12 years old, cow boy; wife occasionally employed)	58	17	7
T. W. Day labourer, wife and family (two small boys work on the farm, age 12 and 13) ..	67	10	10

These, it must be remarked, are money receipts as wages. The advantages of a garden and allotment of land, and of cheap cottage accommodation, have still to be reckoned before the case of these men can be fairly compared with that of labourers in town.

—— During the discussion which followed Mr. SIMMONDS' excellent paper on the utilisation of waste products, last week, before the Society of Arts, Mr. YATES referred to Mr. MILBURN'S machine for drying brewer's grains, which had been found very useful. Hitherto grains had been chiefly used for the feeding of cows, and in the wet state, but in this way they were sometimes injurious to the animal, and always more or less so to the milk. On being dried, however, they were perfectly wholesome, and a friend of his who had kept cows, told him that "by giving 6 lb. a day of the dry material, an additional 5 quarts of milk were obtained, and an increased quantity of butter." The subject was of some importance, since about seven millions of quarters of grain were annually used in brewing and distilling in the United Kingdom, of which one-third was recoverable.—Mr. MILBURN said his attention had first been drawn to the subject at the time of the cattle plague, when brewers were paying to have their grains taken away. On trying several experiments it was found that there were considerable quantities of carbonaceous and albuminous products in the grains, and it was evident, therefore, that they would be useful for feeding if they could be properly dried, not only for cows, but also for horses, sheep, and pigs. His firm introduced the machine, of which a rough model was before the meeting. Heated air was driven by a fan into a revolving chamber, consisting of several floats or trays, in which the grains were placed, the whole being either partially or wholly surrounded by a steam-jacket, and the result was a product which resisted all fermentation, which would keep any length of time, and was readily transported. The same process was now being applied to spent Hops, which, when dried, were found to make capital litter for horses, and so produce in this way manure more valuable than straw litter, inasmuch as it was more absorbent. He believed that Messrs. ALLSOP had introduced it, and found the health of their horses was considerably improved in consequence. The same system was also applicable to the drying of corn. —To this we add: Dried grains are just wet grains *minus* water; and the latter are a most valuable agent in the production of town-shed milk. Mr. YATES' testimony to the value of the same article when dry needs some explanation. As it at present stands, one learns from it that 6 lb. of grains produced 5 quarts of milk!!

—— At a meeting, on Monday, of the Society for Improving the Dwellings of the Working Classes in the Metropolis, a dividend of 5 per cent. per annum was declared for the previous half year on the share capital of the Company, which now amounts to close on 100,000*l.*, enabling them to borrow another 100,000*l.* from the Government, at 4 per cent. The property of the Company now includes 778 tenements, affording accommodation to 3890 persons. It was mentioned that "an enormous increase has occurred in the local taxation imposed on the working classes by recent legislation," amounting to 37½ per cent. on the former amounts paid by them. The rates now amount to 8*d.*, 9*d.*, and 10*d.* a week in different parishes on a 5*s.* tenement. If the system of compounding be not again revived and strengthened by a more defined system of assessment, it is feared that the operations of the Company will be materially retarded.

—— At the Bedford Petty Sessions the other day, a farmer was charged with having unlawfully erected a steam-engine within 25 yards of the road at Kempston. This was a steam-engine engaged in ploughing. The case was, after inquiry, dismissed, on the ground that the Act infringed is a recent enactment, not generally known, and that a man had been employed to give the engine-driver notice of horses approaching on the road, though he was not always on the road for that purpose, as he should have been.

OUR LIVE STOCK.

MR. F. LENEY'S sale of young stock will take place in May. The Wateringbury herd has recently been enriched by the birth of four calves. *Garland 5th* on the 20th ult. gave birth to a red heifer, and *Waterloo Duchess 2d*, of the late Earl Ducie's Chaff family, produced a rich roan heifer. Both young animals are by 12TH DUKE OF THORNDALE. Shorthorn breeders may well congratulate themselves on the early maturity of their cattle, for here we have two cases of heifers bringing calves before they are two years old, the first-named female not completing her second year until April 18, while the last only attained to this age on the 9th of the present month. How far such policy is wise is nevertheless questionable. *Sall ina 2d*, of a good old stock, originally bred by Mr. Charge, but reared in Kent for 40 years, brought a roan bull on the 25th ult., and *Columbine*, by LORD OF THE HAREM, also a descendant of Earl Ducie's *Chaff*, by CORNWALL, dropped a roan bull on the 3rd of the present month. Both calves are by LORD OXFORD 2D (20,215).

—— Captain Barker and Captain Aveling have lately purchased some well-bred animals, and are founding a herd of Shorthorns on the good land near Holbeach, in South Lincolnshire, adjoining the Wash. With this object in view they have secured YOUNG OXFORD (24,707), bred by Mr. Harward, of Winterfold, but in the possession previous to his last sale of Mr. Upson, Rivenhall; also BYRON, a fine red bull by OXFORD (20,150), dam *Wild Rose* by ORTHODOX 11TH (16,662), g.d. *Woodbine* by LINCOLN (10,422), a stock long bred by Mr. J. G. Dixon, of Caistor, and previously traceable to Mr. Robert Colling's *Dimsdale*. Mr. Upson has also sold to the same purchasers *The Beauty*, who has since added a red cow calf to their herd by SORCERER (25,199), and *Moreen* by TOM SAYERS, with her daughters *Camlet* by ECONOMIST (21,669) and *Cashmere* by THE YEOMAN (25,305).

—— Colonel Kingscote has just published a new catalogue of his herd, containing the pedigrees of 89 females and 27 bulls. These numbers show that the Kingscote Shorthorns have increased in numbers slightly since the issue of the catalogue for 1868. The herd comprises about 20 families, in all of which Bates blood predominates. Many of these tribes are only represented by two or three individuals. Among the larger families we may mention the Ceritos, descended from *Cerito* by MASTER CHARLEY (7215). *Cerito 2d*, the produce of this cow by EARNEST (9091), was purchased from Mr. Parkinson, of Leyfields, Newark, by the late Col. Kingscote. There are at present eight females and three bulls (Duke Carlos) of this family at Kingscote, the result of three to four splendid crosses on the old stock, from the herds of Mr. H. Combe, Captain Gunter, and Mr. Harvey. *Chaff*, by DUKE OF CORNWALL, is the well-known foundress of another tribe numbering eight females, comprising *Chaffs* 9 to 13. The old cow *Red Eyes*, by Mr. Bates' DUKE OF RICHMOND (7996), dam *Wild Eyes 23d*, by 2D CLEVELAND LAD, again appears. She was calved in 1852, and bred by A. L. Maynard. This aged animal seems to carry us back to the early Shorthorn days, she being g.g.g.d. to BELVEDERE (1706). The Honey family is the most numerous, comprising 19 cows and heifers and two bulls. They trace their pedigree to Mr. R. Colling's STYFORD (103), and more immediately from *Honeysuckle*, by PREMIER, dam *Eglantine*, by BELLEROPHON (3119), bred by Mr. McIntosh, of Marshalls, and sold to Colonel Kingscote. The young stock in this, as in other families of the herd, are by Captain Gunter's or Mr. Harvey Combe's bulls. Next we find 12 descendants of *Young Kelstern*, by MOUZAIN (6222), dam *Kelstern*, by STUDLEY (628), a cow bred by Mr. R. Burgess, of Cotgrave, and afterwards sold to Colonel Kingscote. There is a goodly list of young bulls by 3D DUKE OF CLARENCE (23,727) and 2D DUKE OF WHARFEDALE (19,649), both bred at Wetherby, and both Duchess bulls. The sires now being used in the herd are 3D DUKE OF CLARENCE, 2D EARL OF WALTON (19,672), by 4TH DUKE OF OXFORD, dam *Kirklevington 8th*, and LORD RED EYES 3D, by 7TH DUKE OF YORK, dam *Roguish Eyes*, by 2D EARL OF WALTON.

—— The Didmarton catalogue is at last issued. Forty females and 15 males of first-rate blood will no doubt attract breeders from all parts of the United Kingdom. Mr. Rich is fortunate in being able to present in this second portion of his herd animals as choice, and in every way as good, as he sent into the ring last October. Looking into the list we notice 14 of the well-known Florentia tribe, 6 of which are by 7TH DUKE OF YORK, and the rest by 13TH GRAND DUKE, 2D DUKE OF CLARO (21,576), and 2D DUKE OF COLLINGHAM. This is a first-class strain, from Earl Ducie's *Flourish* by USURER (9763), and will no doubt create much competition. Next we find 10 Ursulas, male and female, the representatives of a family allied to the last, both being descended from the famous bull USURER. The heifers of the Ursula tribes are by the above-mentioned bulls. The "P" family numbers at present five females and three young bulls, all of whom are the descendants of Captain Gunter's cow *Phantom*, by 6TH DUKE OF OXFORD, and further back from *Chance* by DANIEL (3554). There is one member of the *Chaff* family, viz., *Chaplet 11th* by ROYAL ARCH (18,749); one *Waterloo* cow, and two bulls, 3D DUKE OF WATERLOO (23,801), by 7TH DUKE OF YORK, and 4TH DUKE OF WATERLOO by 13TH GRAND DUKE; two *Carolinas* of Mr. Bates' Craggs family; *Wild Eyes 25th*, by EARL OF WALTON (17,787); and several other well-bred cows and heifers. We must not close this review of the catalogue without mentioning DUKE OF KIRKLEVINGTON by 7TH DUKE OF YORK, and from *Kirklevington 12th*.

—— The Rev. W. F. Radclyffe, of Okeford Fitzpaine, writes thus of the Mappowder Herefords:—Old men sometimes remember things better than young men. This herd has been established more than 30 years. I was curate of Mappowder when the first bull arrived. He was bought of Mr. Turner, of Noake, Herefordshire. If you can remember the date of the "machine breaking," you can fix the date. I went to Mappowder the year after it ceased, and the bull arrived that year. I was at Mappowder three years, and during that time another bull arrived, which was bought of Mr. Price, of Tenbridge, Herefordshire. They were both good bulls, but the second was better behind his shoulders, and more meaty in his gaskins. You must date the herd one year from the advent of the first bull. The best animal—bull, cow, or heifer—I ever saw was a bull of Mr. Levi Groves, of Binghams, Melcombe. I believe his name was SIR CHRISTOPHER; at any rate he was a baronet! He was bought of Mr. Price. I never saw such a level animal—good everywhere. He is now dead. I intend soon to visit Mr. James, and review his herds; perhaps I may say a word about "our live stock." Mr. Levi Groves is also a breeder of capital Herefords.

INCIDENCE OF LOCAL TAXATION.

[We give in full the reply of Mr. Gladstone to the deputation from the Central Chamber of Agriculture, whose interview with the Premier on Friday last we shortly reported last Saturday.]

Mr. GLADSTONE said: Mr. Read and gentlemen, I am very sensible of the considerate manner in which you have brought the subject before us. I can assure you, on my part, that I was very desirous to avail myself of the first opportunity of meeting you, not so much because I think that in a meeting of this kind, or, indeed, at any first meeting, we could make a very great progress on this question—on so vast a question—as that I was very anxious you should feel assured we were very sensible of an imperative obligation to give our best attention to a matter of such importance. There are one or two points that have come out in the conversation on which I have endeavoured to make myself sure that I do not misapprehend your meaning. With regard to the vastness of this subject, I may appeal to your indulgence. I do not believe it is one which it is in the power of man to embrace the whole of at once. You have entered into many parts of the subject. This is a question which, as you have said, involves a discussion between fixed property generally now taxed, and certain portions of fixed property exempt. And perhaps that is the easiest branch of the whole subject, and it is one in which considerable progress has been made towards settlement. Then comes the question between the position of town and country. It would have to be considered in the relations between one another, and the diversities and irregular method of managing those matters, which is, perhaps, our custom. It often happens that we allow things to grow up haphazard till we find great inconvenience arises. Then comes a most important question—and one which it is our duty to consider more than for you; at any rate it is more certain to fall within our consideration than yours—the relation of the three kingdoms. When once you get beyond the limits of local taxation there is not a single step you take that, whatever is done for England, does not raise a corresponding set of questions as regards both Scotland and Ireland. The administration of the funds raises the question you have very truly suggested. What is commonly called County Financial Boards is separated to a great extent from the rest of the subject; at the same time, it has a material bearing on the rest. There is another important branch of this complex question—the relation between owner and occupier, and the manner in which the present system of taxation affects the two. If once the whole is under review, it involves the interests of the three kingdoms. Attention could not fail to be directed to the difference of the system prevailing in England on the one side, and in Scotland and Ireland on the other. Then, lastly, comes the question (and though I said lastly, there are probably many other points not embraced in reference to this great question which are of the greatest importance) which has reference to the relations between fixed property and movable and invisible property generally. That is a question of enormous magnitude. One may say that the question of local taxation, as you seek to raise it, is a larger question than the readjustment of imperial taxation. It requires and renders necessary an examination of the relations between the different kinds of fixed and personal property as a whole, and between capital and labour as a whole. Therefore, interested as you are in this matter, I am quite sure you will approach it in a practical way, and in a spirit of patience, and making full allowance for the difficulties it presents. I think you acknowledge that in a practical form in making your demand for inquiry. And I would here desire to know whether I am in possession of your views as to the subject of inquiry? I understand you to have arrived in your minds at the conclusion that the matter connot be dealt with, even in the most careful manner, and with a due separation of parts, by any executive Government, and that some extra machinery must be put in action to get at the root of this. You have stated—Mr. Read did so with the clearness he always uses in expressing his views—the difference between a Commission and a Committee. Now, the class of cases commonly referred to Commissions are those where a very minute management of property has to be examined. I am not giving any opinion. I am merely endeavouring to ascertain your views. How does the matter stand? Do you consider that, for the purposes of inquiry, for bringing out facts, a Commission is necessary, independently of the Commission being authorised to suggest a plan? Am I right in supposing that a Commission would be the best for the recommendation of a plan?

Mr. READ, M.P.: For both purposes.

Mr. GLADSTONE: Is that the general sense of the bodies with which you are connected? (Several gentlemen: "Yes.") Then distinctly, in the first place, you think that the facts cannot be adequately brought out without the use of some special machinery for inquiry beyond that possessed by the Executive Government, and on that account you ask for a Commission? You wish that the Commission, which you think is the proper mode, should embrace the

further object of considering the whole matter, and making a recommendation to Parliament? I am correctly in possession of your views? ("Yes.") I can only assure you that the matter shall have the most careful consideration. A portion of the subject, that relating to the poor, is specially interesting to my right hon. friend Mr. Goschen, who is with me, as well as to my friend Mr. Knatchbull Hugessen. And, indeed, the matter is particularly interesting to all other members of the Government, whether they have special interests in the question or not. They have a great interest in it, which arises out of their general duties to the public on a question of so much national importance. I can only say that, at all times in the progress of this matter, I shall be very happy to confer with you. I shall be glad to be put in possession of the information you have. I fully agree with Mr. Read that it is a question which is entitled to the gravest consideration, apart from political parties.

Mr. READ, M.P., thanked the right hon. gentleman for his courtesy in granting the interview.

FARMING AT TIPTREE HALL.

Look to your Drains and Watercourses. — This ought to form a prominent clause in every lease. After a 24-hours rain, such as we have just had, it is interesting to examine every outlet, and, reflecting on the pump-like stream from every drain, wonder what is to be the fate of those numerous but unfortunate individuals who farm heavy or wet undrained lands, where the water is retained as in a plugged flower pot, and from which the only escape for it is upwards by evaporation, robbing the earth and plants of the sun's invigorating rays, and employing them to convert the unescaped water into steam, which, full of latent heat, rises into and is wasted on the air. As a rule our watercourses and outlets of drains require frequent watching; bunches of rushes and water plants increase so rapidly during the growing season that they soon choke the channel and hinder or stop the flow of water, and conceal the outlets of the drains—bushes, broken sticks, and other matters get blown or thrown into the ditches, and cause injurious obstruction. I make a point of having a periodical examination of the watercourses and outlets, and the removal of all obstructions in preparation for the winter floods. This is much too often neglected, and requires the firm resolve of the principal. I am sorry to see it stated in the Society's Journal and elsewhere, that on some large estates it has become necessary to appoint a regular examiner of drains, owing to the suicidal neglect of some of the tenants. Roads, drains, and fences are, to my certain knowledge, very much too often neglected. This is decidedly a most unprofitable omission, to say nothing of neatness.

I fear that these frequent over-supplies of rain, combined with the rapid growth of weeds as well as of Wheat, owing to the unusual mildness of the winter, will, on the undrained soils, act most injuriously, especially when we get our usual supply of cold spring nights and cutting easterly winds. The light moon at Christmas may, after all, not be so ridiculously wrong as some of our friends suppose, although I wish it may be. A great many people believe in the moon's influence, and even Shakespeare himself was not free from this weakness, if weakness it be. A farmer with drained lands will be able to hoe his Wheat and drill his spring corn 10 days earlier than his undrained neighbour.

My Preparation for a Crop of Mangel Wurzel.— The previous crops were—1866, Red Clover; 1867, White Wheat: 1868, Rivett Wheat. Soon after harvest the land is broadshared, and the rubbish and stubble burned. In November manure is put on at the rate of 20 or more loads per acre, and ploughed in by two ploughs, the first drawn by three horses, the second plough following in the same track, drawn by four horses. The second plough is without the mould-boards, or breast; we thus get very deep cultivation, the upper and under soil and the manure being all intermixed. The lands are 7 feet 2 inches wide, so as to allow of three rows of Mangel on each land or stetch. The land remains in this condition until April, when 3 cwt. of Peruvian guano and 2 cwt. of common salt are mixed together, and sown broadcast. The land is then broadshared once or twice according to circumstances, the seed drilled (having been first kept in wet sand some days), and the land harrowed. It is important never to plough this heavy land in spring, for by so doing it loses its moisture, and the plant fails. I never miss a plant or crop of Mangel. With friable soil a different treatment may be necessary, but I only speak of our stiff clays suited for Mangel. To give some idea of the quality of our manure—which is all made under cover, on paved floors, or on spars, free from any rain—there is this year on each of the acres the consumption of 25*l.* worth of cake, corn, bran, malt combs, hay, and other feeding stuffs, independent of roots and straw. We only give a small portion of roots to each bullock, especially in a dry season like the last. Although the manure from 40 fattening bullocks for about three months is placed on 9 acres, we find it profitable to add in the spring 3 cwt. of Peruvian guano per acre, and 2 cwt. of salt. This we have proved by omitting the guano on one acre, and could see its absence not only in the Mangel crop, but in the Oat or Wheat crop that followed. In fact, the land can never be too richly manured or too deeply autumn cultivated for Mangel. It is more profitable to grow 40 tons per acre on one acre than on two, for there is thus only half the rent, rates, tithes, seed, labour, &c. Three years ago, in a good season, we averaged 40 tons per acre on 18 acres, and we have grown 7 quarters of Wheat per acre after Mangel. We always put on 2 cwt. of Peruvian guano with some salt for the corn crop following Mangel or other roots drawn off the land. Our Mangel crop of 1868 is scarcely less than 30 tons per acre. I need hardly say that the Mangel are kept free from weeds by two or three horse-hoeings, by Garrett's horse-hoe, and several hand-hoeings, bringing the land quite flat. Of course, in order to farm thus highly for Mangel, plenty of fattening stock must be kept. By this system the Mangel costs the farmer much less per ton than by spreading the crop over a larger area of half-manured soil. A long experience has confirmed my original opinion that high farming, producing maximum crops, is the true way of obtaining a good profit. Maximum crops depend mainly on plenty of good manure, and the latter can be much more cheaply obtained by judicious stock fattening than by artificial manures. There may be exceptions, but I speak particularly of my own farm, which consist of both light and heavy land.

MANGEL CROP FOR 1869—9¾ ACRES.

Autumn Preparation.

2 broadsharings, 26*s.*; 2 harrowings, 15*s.* 10*d.*	..	£2	1 10
120 loads of manure (three-quarter carts) at 5*s.*	..	45	0 0
Filling do.	..	1	3 0
Spreading do.	..	0	18 0
Carting do.	..	4	16 0
Double or trench ploughing with two ploughs and 7 horses	..	14	0 0
		£67	18 10

Usual Spring and Summer Charges.

27 cwt. of Peruvian guano	..	17	11 0
1 ton of common salt	..	1	10 0
Mixing and sowing guano and salt	..	0	6 9
2 broadsharings, 26*s.*; 3 harrowings, 23*s.* 9*d.*	..	2	9 9
47¼ lb. seed	..	2	7 6
Rolling and drilling	..	0	15 0
3 horse-hoeings with Garrett's horse-hoe	..	2	2 6
3 hand-hoeings	..	4	12 6
Pulling and filling into carts	..	2	17 0
Carting Mangel from field	..	9	10 0
Clumping, earthing, and thatching	..	*2	7 6
Rent at 40*s.* per acre	..	19	0 0
Tithes, rates, and taxes	..	4	15 0
		£138	2 4

These are the regular charges that would be allowed in a transfer valuation. To these must be added the cost of carting to the homestead, cleaning, cutting up or pulping, 2*s.* per ton 28 10 0

On 30 tons—the usual average crop—17*l.* 11*s.* per acre .. .. } £166 12 4

Or 11*s.* 8*d.* per ton on a crop of 30 tons per acre.

My Wheat Crop for 1868.—I have just threshed the remaining portion of my last field of Wheat, and find that the whole field has produced a fraction over 64 bushels (8 quarters) per acre, of fine marketable Club-headed Rough Chaff White Wheat, weighing 63½ lb. per bushel. Thirty quarters of it were sold on the 12th inst. at Chelmsford market, at 56*s.* per quarter. The other portions, sold much earlier, brought 61*s.* and 62*s.*, making the average of the field 57*s.* 6*d.* per quarter, — thus producing a money return of 23*l.* per acre, besides the straw, which, at present price here, is worth about 3*l.* 10*s.* per acre; in fact we are selling our surplus straw at that rate. The field was of 6¼ acres, actual measure, and the quantity of seed drilled a fraction over 4 pecks per acre, put in on the 20th November, 1867, after Clover, cut for hay, and then fed. I mention actual acres because what are called "farmer's" acres are sometimes 5 roods, and many labourers are well aware that what the field "goes for" is often a good percentage more than its actual measure. By piecework the labourer would, in such cases, be a loser, unless he took that matter into his account.

My men had always an opinion that my Oak field, which produced 7 qr. 2 bush. per acre (sold at 60*s.*), would yield more than this Willow field (near the pond), but I, Mr. Hallett, and others thought differently. It turns out that I was right. My 73 acres of Wheat have thus yielded an average of over 6 qr. per acre—20 acres, which were of Rivett Wheat (after White Wheat), did not yield so well as the White Wheat, nor did the Red Wheat. The fine, warm, dry season was evidently more suited to the fine White Wheats than to those of coarser quality. Most of our Wheat was of fine white quality. The Rivett sold at 48*s.* and 46*s.* per quarter, while the White was sold at 56*s.* to 62*s.* Beans and Barley were a very light crop. When I purchased this farm in 1841 I gave 23*l.* per acre for it; now some of my Wheat crops realize that amount per acre, and exceed it by the value of the straw 3*l.* per acre. This is encouraging to agricultural improvers. A good deal has been said about my land being good Wheat land. I know of two large farms not far from mine, of very much better natural quality than mine, that let for about 12*s.* 6*d.* per acre, one of them having superior buildings and a good house. There would be plenty more good Wheat lands if landlords drained them and if the tenants consumed plenty of purchased food, and made, as I do, 6*l.* worth of meat per acre. I do not expect everybody to believe my statement of growth, especially those who farm unimproved land, make little manure, put in too much seed, and trust too much to Nature. *J. J. Mechi, February*, 1869.

THE PURE SHORTHORN BREED.

[This was the subject of the following Paper, read by Mr. Butler at a recent meeting of the Kingscote Association. —Colonel Kingscote, C.B., M.P., the President of the Association, in the chair.]

IN introducing this subject, I think it will simplify the matter and facilitate discussion if we consider the advantages derived from pure-bred herds under the following heads, viz.:—1st, the advantages to the breeder; 2d, the advantages to the grazier; 3d, the advantages to the dairy farm; 4th, the advantages to the country at large.

(1). *The Advantages of a pure-bred Herd of Shorthorns to the Breeder.*—Before we can properly discuss this question, it seems to me to be necessary that we should arrive at some intelligible guide as to what constitutes a pure-bred herd. The great comparative want of attention paid in former times to the breeding and rearing of stock by men of intelligence is possibly one of the principal causes of our singular ignorance in these days of the sources from which almost any one of our recognised English breeds of cattle originally sprung. Whether the Shorthorns were originally imported from Shetland, as some writers suppose, or were descended from some of our national breeds, is no doubt a knotty point. We have, however, ample proof from Culley, Youatt, and others, that there were Shorthorns (then commonly called the Holderness or Teeswater breed) in the counties of Durham and York, principally on the banks of the Tees, as early as the middle of the 18th century, which were considered superior cattle at that time, as regards size, aptitude to fatten, and general symmetry, the cows being considered the best milkers in the kingdom; but as regards the modern breed called Durham, or improved Shorthorns, we cannot go back with any degree of certainty beyond the sire and dam of HUBBACK, the famous bull, calved in 1777, which first brought Mr. C. Colling's name before the public as a breeder of improved Shorthorns. That his meeting with the bull was an accident all the best authorities agree. As to how he became possessed of HUBBACK is very interesting. Mr. John Hunter, the breeder, seems to have been only in a small way of business, having some common or roadside land, where the bull and his dam were frequently noticed by a Mr. Waistell, who, seeing the calf possessed much of the kindly feeding character of the dam, felt inclined to buy him; but the price being 8*l.*, which he thought very high for a calf not a year old, he consulted Mr. R. Colling about it, and thought he detected an underfeeling of approval in Mr. Colling more than his language expressed. On the next morning he concluded the bargain, and had scarcely done so before Mr. Colling arrived for the same purpose; and as the two farmers rode home together, they agreed that it should be a joint speculation. This arrangement, however, does not seem to have lasted long, for we find the calf became the property of Mr. C. Colling only a few months afterwards.

Regarding the pedigree of HUBBACK'S dam, there are different opinions; some maintaining that she was a true specimen of the Teeswater breed, others alleging that she was a cross (if not the first, at all events not far removed) between the Teeswater and the West Highland Kyloe breed. The strongest testimony we have against the latter assumption, is a statement made by Mr. John Hunter, in 1822, which we find in "Coates' Herd Book," who says, "I remember the cow which my father bred, and that was the dam of HUBBACK; there was no idea then that she had any mixed or Kyloe blood in her. Much has been lately said that she descended from a Kyloe; but I have no reason to believe, nor do I believe, that she had any mixture of Kyloe blood in her." This statement having been written 45 years after the birth of HUBBACK, we must not rely too implicitly on the retentiveness of Mr. Hunter's memory, as conclusive evidence against the Kyloe element; and whatever doubt may exist on that point, there is no question about the cross which Mr. Charles Colling introduced some years afterwards, with the Polled Galloway Scot.

Having been fortunate, whether by accident or not, in producing animals of very superior quality and character, he had the good sense to make the most of a good thing when he had it; for we find him breeding exclusively from the same tribe, and never parting with any of the females for breeding purposes, up to the time of his sale in 1810. It seems quite marvellous that the same man who bought the calf which had been picked up on the roadside in 1777, should have established a herd of animals which realised such enormous prices in 1810—47 animals of all ages having been sold for 7115*l.* 17*s.*, being an average of 151*l.* 8*s.* Although Mr. Colling had many very celebrated contemporaries, yet there is no doubt it was his sale that was the first grand advertisement of the improved Shorthorns, and had the effect of calling the attention of noblemen and gentlemen in all parts of the country to the merits of the breed and its adoption, for we find at Mr. R. Colling's sale eight years afterwards the competition was not confined exclusively (as at his brother's sale) to the counties of Durham and York, there being purchasers from many distant parts of the country. A great deal might be said of several other eminent men, who were breeders, contemporary with the Messrs. Colling, but I have thought it best to confine my remarks to their herds from their having been bred more exclusively from one tribe; and more especially as there is no doubt it is the pride of all breeders of the present day to be able to trace the pedigrees of their animals back to Messrs. Colling's celebrated herds, and he is a fortunate man who can do so without any broken link in the descent.

Having thus briefly noticed the origin of what are now termed pure Shorthorns, we now come to an important era in their history—the establishment of a register, "Coates' Herd Book," which no doubt has been of the utmost importance in furthering the adoption of the breed, and has now become indispensable to all breeders. The first volume appeared in 1822, which showed how much the improved Shorthorns had at that date spread over the country, 140 breeders having entered their cattle. During the succeeding 14 years (only two more volumes appeared, at intervals of seven years) many controversies arose as to the proper standard of qualification for entry in the book, Mr. Bates and others contending that it would not be a true register of the pure Shorthorns if animals with only three or four crosses of the blood were admitted, whilst, on the other hand, it was universally demanded that a fixed number of crosses should be the standard; so that the breed, if not in its purest form, might be diffused more rapidly throughout the country, it being manifest that had the descent been only through the

females it would have been a very exclusive and slow way of increasing the breed. Four crosses were at last fixed as the standard, consequently there is a very great difference in the pedigrees that are registered; still, in considering this question, I think it will be sufficient if we include all registered animals in the category of pure-bred herds. From the commencement of the "Herd Book" to the present time the breed has gradually increased in popularity and numbers, and I believe Shorthorns may now be found in every county of England, Scotland, and Ireland, besides large numbers which have been exported.

While we have such facts before us it would be idle to deny the great advantages the breeders must have derived from such an increasing and almost universal demand for the breed. No doubt there are some who have been much more fortunate than others, and if I may venture to give an opinion on the subject it is this:—That those who have bred most exclusively from the same tribes have succeeded the best. It no doubt requires a large capital, and is a work of many years, to establish a good herd of Shorthorns, but we need not go beyond our own county, or indeed, our own neighbourhood, for examples to show what can be done by a judicious outlay of capital, combined with good management; for I believe there are very few better herds in the kingdom than two we can boast of in our own neighbourhood, which were I believe commenced, contemporaneously, about a quarter of a century ago—a moiety of the one has been brought to the test of the auctioneer's hammer, and every one must admit that the result was most satisfactory, and redounds greatly to the credit of the breeder.

For the credit of our county, and the benefit of this neighbourhood, I have no wish to see the other herd put to the same test, but have no doubt it would be equally satisfactory in proving the great judgment and attention that has been paid by our gallant President and his late father, as well as by those who have had the important duty of carrying out their wishes.

(2). *The Advantages to the Grazier.*—The advantages of a well-bred beast to the grazier are so manifest that I do not suppose there can be much diversity of opinion on this head. The breed of Shorthorns have been famed, for their richness of quality and aptitude to fatten, as far back as their history can be traced, and for early maturity they stand unrivalled. I think I may safely say that a well-bred Shorthorn will leave more profit from a given quantity of food than any other breed in the kingdom—at all events, I have not the least doubt of their making as much beef in two months as a mongrel would do in three. We have a few extraordinary results of the fattening properties of the breed in its early days, handed down to us by several writers, the most remarkable being Mr. Charge's ox, and the celebrated Durham ox bred by Mr. C. Colling, which travelled about the country for show; the former, when slaughtered, weighed 168 imperial stone 10 lb., besides tallow 13 stone, or 29 score 10½ lb. per quarter; the latter weighing a little over 29 score per quarter, besides 11 stone 2 lb. of tallow. Mr. Wright also tells us (in the 7th Volume of the Royal Agricultural Society) that Mr. Brown, of Aldborough, in 1803, sold eight steers at Darlington fair under three years old, the average weight being 84 stone of 14 lb., or a little over 14½ score per quarter; and it is stated that they were fed in open yards, and had not been kept in any yards or houses during the previous winter.

Many other instances of great weight at an early age might be adduced, especially were I to quote the numerous examples that have been exhibited at the Smithfield Club shows, from its commencement to the present time, but you must bear in mind that the figures I have quoted go back to a period when Turnips and Mangel Wurzel were not much grown, and such things as turnip and chaff cutters never heard of.

The proper size and weight to bring out fat animals, in order to ensure the greatest profit to the grazier, is a subject on which we find a difference of opinion amongst men whose judgment and experience entitles them to great deference.

As regards steers and heifers, our Scotch neighbours seem to have come to the conclusion that 60 stones, or 10½ score per quarter, is the most paying weight. They never used to think of bringing them out under three years old; but since they have been able to get a supply of well-bred Shorthorns (if not quite pure, at all events well-bred), they find no difficulty in bringing out their 2-year-olds at the weight I have mentioned; and I don't know of a stronger argument in favour of pure-bred herds than the fact that they can be brought out as heavy at two years old as they used to be at three. Of course the oxen and cows when fatted come out at much greater weights.

Pure-bred Shorthorns have also been of immense importance to the grazier in producing crosses of superior quality with other breeds, especially with some of the Scotch cattle. Statistics might be adduced, if time allowed, to show the extraordinary increase in the numbers and quality of the animals sent from the north of Scotland to the Metropolitan market, especially from the counties of Aberdeen, Banff, and Murray, since the introduction of pure-bred Shorthorns into that part of the country, the graziers of that district generally getting the credit of sending the best beef into the market, which is produced by the Shorthorns either in their pure form, or by crosses with the native Polled breed. All these improvements could not take place without producing great advantages to the graziers, and we hear of men becoming very eminent in the business; but whether they will get on any better since they have got the Grazier King of the North into Parliament we must leave the future to decide.

(3). *The Advantages to the Dairy Farmer.*—We have now to combat some very deeply-seated and wide-spread prejudices against pure-bred Shorthorns for dairy purposes; but I cannot help thinking that the dislike of the dairyman to pure-bred animals is one of the greatest fallacies of the present day, and does more mischief than anything else in retarding improvement amongst the general herds of the country, and consequently the supply of beef for the wants of our large and increasing population. The calves produced on our dairy farms, being chiefly brought up by those whose farms are more adapted to the rearing of young stock than for dairy purposes, the consequence is that they are obliged to keep them until they are three years old to get them as large and marketable as a well-bred beast would be at two years old. On the other hand, I am bound to admit that there is a vast difference in the milking properties of pure-bred Shorthorns, and it is a question which I think has been very much neglected by Shorthorn breeders generally; but I firmly believe that if proper care be taken in selecting bulls from good milking families and the produce kept well, but not artificially fed, they will bear comparison as milkers with any breed of animals in the kingdom. No doubt early forcing has been one of the principal causes why so many of the pure-bred Shorthorns of the present day are bad milkers; for there is no doubt that if you artificially force the heifer you spoil the cow for dairy purposes—for the rich kindly quality and great aptitude to fatten, which are the great characteristics of the breed, render it less difficult to spoil a pure-bred animal in that way than in any other.

The improved Shorthorns had an excellent character for their milking properties in the early days of the breed, which seems to have been inherited by the Duchess tribe, which you all know is the most valuable tribe of cattle in the kingdom at the present day. Mr. Bates left on record that the first Duchess gave 14 lb. of butter (21 oz. to the lb.) per week for six weeks after calving. I don't know whether any of her descendants which are in existence at the present time give as much butter as the first Duchess did, but if not, I have no doubt it is attributable in a great measure to the fact that while the owners of them can get 500 guineas for each calf, milk becomes a very secondary consideration. I feel sure the dairy farmers would do well to pay a little more attention to this point; even if they lost a little in the cheese tub it would be more than compensated for by the increased value of their calves, as well as of their annual draft of cows, besides the great advantage they would confer on the grazier.

(4). *The Advantages of pure-bred Herds to the Country at Large.*—It has been said that the man who can produce two blades of corn where only one grew before is a benefactor to his country. I think it may also be said that the man who can breed an animal that will produce 3 lb. of beef from the same quantity of food upon which an ordinary animal will produce 2 lb., is no less a benefactor to his country. If it can be shown that pure-bred herds are advantageous to the breeder, the grazier, and the dairy farmer, they must be of the utmost importance to a country with a large and increasing population, which is dependent in a great measure for the supply of its daily food upon foreign sources, and I believe every year will show us more clearly the importance of paying attention to our herds and flocks, the experience of late years having shown us that the importation of butchers' meat, whether in a live or dead state, is attended with a great deal of risk, and cannot compete with our native produce, while, on the other hand, we can procure cereals from all parts of the world as good, if not better, than our own.

Several countries can also send us cheese which, if not superior to, will always come into strong competition with, our dairy produce. I therefore think it cannot fail to be of great advantage to us all, as well as to the country at large, if we look well to the roast beef of old England.

DISCUSSION.

The Chairman, Col. KINGSCOTE, C.B., M.P., said:—The common stock of the country had been improving ever since he could remember, not only in appearance and quality, but he believed they were much more profitable, as they came into the market at a much earlier age, and at much heavier weights. He was much interested in the breeding of pure-bred stock. When he came into possession of his herd he made up his mind to have nothing that was not pure-bred; and if the opinion of those gentlemen of experience present was the same as Mr. Butler's, it would confirm that which he had formed, and stimulate him to persevere, not only to have pure-bred animals, but to have that strain or strains of blood which are calculated to be of the greatest benefit to the public at large.

Mr. H. HOLBOROW said there was no doubt that Shorthorn breeding was a source of profit to the breeder, but it was only a few, comparatively speaking, that were in a position to carry it out with much success. As regarded the second head to which Mr. Butler alluded, there could be no doubt whatever; they had only to watch the movements in a market and see how readily grazing animals were sought after by the men who were to make them fit for the butcher. The third head, "the dairy farmer," was rather a ticklish point. He should like a calf from such and such an animal; she appeared to have plenty of milk, and to be well-bred. Well, so far, that was all right. He was a little of a breeder himself, and he found it very difficult when those men came to look after a calf to get them to have the one which he considered the most likely animal to suit their purpose; every good-looking animal was not a great milker, and invariably if there were two calves, one from a good-looking cow and the other from a great milker, and rather spare of flesh, ten to one they chose the one from the good-looking cow, independent of the milking properties; this was not the way to get really good milkers. He believed if one really wanted milk they could get it by judicious breeding, but he did not mean to say that the animal which gave the largest quantity of milk was the most profitable; for often when those animals had done milking they were worth very little; whilst one who gave a fair quantity of milk, with a little extra keep for a month or two, was worth 20*l.*, and this he was sure anyone could do by carefully selecting their bulls; therefore he was of opinion that pure breeding had been most advantageous to the breeder, grazier, and dairyman.

Mr. ROBINSON, as a grazier, could say without any hesitation he found no animal pay so well as a well-bred one; at the present time well-bred steers were worth 3*l.* a head in a market more than those which showed no pretensions of breeding.

Mr. BURNETT thought the impression that a good many dairymen had, as regarded the Shorthorns not being good milkers, was erroneous. The fact, as they had just heard, that many, if not most, Shorthorns were descended from the Teeswater and Holderness breed, which were extraordinary milkers, was a sufficient proof that many of them, if not more than any other breed, had had their milking properties partly, if not altogether, destroyed by over feeding; and for this he thought the breeder ought to be blamed, and not the animal. He could refer to cow after cow in the Kingscote herd nearer approaching to the most fashionable blood than any of the others who were the best milkers, and if it was the case that well bred animals were a great advantage to the country at large, it was a shame to see so many good-looking heifers as there were in this neighbourhood, sold every year, and in calf to a mongrel-bred bull. Many of these calves went for veal, but he had no doubt many of them were reared for breeding purposes.

Mr. B. DREW said he reared rather a large number of calves every year for his farm, and when he did happen to buy a calf pretty well bred, although he gave a little more for it as a calf, he could remember but very few instances in which these animals had not paid better than the others.

After a very animated discussion the following resolution was proposed and carried unanimously:—"That this meeting is of opinion that pure-bred herds are a source of profit to the breeder, and have proved a great advantage to the grazier and dairyman, and of immense benefit to the country at large."

THE TIPTREE BALANCE-SHEET.

YOUR last impression contains two letters on the subject of the Tiptree balance-sheet, in which the writers refer distinctly to me. I will not "bristle up," but endeavour to reply as courteously as possible to both; in fact, my good humour is, I believe, quite equal to the Alderman's, whose equanimity and self-satisfaction it would seem impossible to disturb.

To "Another Farmer," then, I give an impartial but to him, I am afraid, an unsatisfactory answer. If I am in error on the subject of Mr. Mechi's rent, that gentleman is responsible for it, as I simply took his own figures. I regret that I am utterly unable to tell him the value of the Tiptree lands, &c., as they stand, never having had the pleasure to see them. I, however, quite agree with the writer that, in consequence of the great outlay on the place, 39*s.* 10*d.* does not seem too great a rent. But in this he kindly gives me a point, for if Mr. Mechi has not placed the value high enough, in proportion as the rent was increased the tenant's profits would diminish. "Another Farmer's" logic is somewhat dubious.

"Tenant Farmer" may rest assured that I am not one of those who think the laws of the Medes and Persians applicable to farming. At all times I feel personally obliged to any one who goes out of the common track, and I am at all times ready to follow when I see my way clearly. So far from calling Mr. Mechi "over the coals" for growing White Peas, and selling them green, I would advise him to grow Cucumbers or Melons if he thought it would answer his purpose. The gist of my argument was, that that gentleman's style of farming was an exception, which, under a different set of circumstances, it would not do to make the rule.

The advantages or disadvantages of selling straw is a question of circumstances, dependent in a great measure on the proximity to a good market, railway accommodation, and the like. At the same time, if Mr. Mechi buys 300*l.* of feeding stuffs for his farm, and sells something like half of the amount off it in the shape of hay and straw, it is equivalent only to bringing on it half the amount he claims, and considerably less weight; and, judging from the fact that he finds it necessary to lodge his cattle on sparred floors, one would imagine he had not much to spare. As regards the rent of land in the neighbourhood of Tiptree, I at once confess my ignorance. I know nothing beyond a general impression I have received from those who know the country, that it is good Wheat and Bean land. The fact that Mr. Mechi grows chiefly Wheat confirms this opinion.

In conclusion, I am almost afraid, but I hope in order, in hazarding a guess. My impression is, that both thel etters to which I have endeavoured to reply were written by Mr. Mechi himself, or that he had a hand in their concoction. I have read his letters so often and so long that I generally know who is the author before I get to the signature. In these I think I recognise the true Tiptree twang. Whether right or wrong in my supposition, I like to know with whom I am doing battle, and I hope that, if I am in error, my correspondents will, in justice to Mr. Mechi, set me right by declaring themselves. I do not mind being held responsible for my opinions, but I do not like being shot at from an ambush. If Mr. Mechi's champions will fight under their proper colours I am quite ready to meet them in friendly discussion. *F. W. Bignell.*

P.S. Since writing the above I have come across the following paragraph in your paper:—"Mr. Mechi wishes to state that, as he will be frequently at his place of business, 112, Regent Street, he hopes that gentlemen desiring to ask him questions on agriculture will call there, and thus spare him a heavy correspondence." For my own part, Sir, I have so little faith in that gentleman's agricultural knowledge, that I am not likely to take a journey to London to consult him professionally, but I must observe that it appears to me anything but a modest announcement from one who allows hardly a week to pass without obtruding his name and opinions before the public in several letters or articles which are entirely uncalled for. My opinion is that if the establishment at 112, Regent Street needs advertising, it should be in the columns set aside for that purpose. *F. W. B.*

[Mr. Bignell is entirely in error as to the authority of the letters to which he replies. And as regards the paragraph in question, it was no doubt written, and it

was certainly inserted, in the simplest good faith, and without the least idea of its being in any sense a trade advertisement.]

The balance-sheet of our friend Farmer Mechi has brought the good gentleman into a poor way; being unable to appear personally, he appears by the aid of a walking-stick, signed "Another Farmer." ["Another Farmer" is a known correspondent.]

"Another Farmer," in his haste to correct me, has committed a blunder himself in an attempt to puff up rent. I detected my mistake before he showed it, but waited patiently for correction. "Another Farmer" has corrected me by adding 45*l.* for chapel-land to Mr. Mechi's gross profit, yet he has not made the rent to appear right. Look to Mr. Mechi's balance-sheet: his improved rent is fixed at 40*s.* an acre on 128 acres of land, and he fixes 45*l.* as the rent of his 45 acres of chapel-land. Now let us add these two items together:

128 acres, at 40*s.* per acre	£256	0	0
45 acres of chapel-land	45	0	0
Total rent, as shown by me ..	£301	0	0

"Another Farmer" is all wrong when he fixes the rental at 346*l.* Now, divide this correct sum of 301*l.* for rent by 177 acres, the total of his occupation, and we get 34*s.* and a fraction an acre as his rent, and that is all—let "Another Farmer" say what he likes—which does not appear a high rent when a "fixed steam-engine, irrigation pumps, millstones, and threshing-machine are included, and drainage all done."

Now, "Another Farmer" will have it that Mr. Mechi's occupation is only 174 acres. How he makes that I cannot understand, not even by the help of the balance-sheet; for, if I take the "balance for rent of 128 acres," I take it to mean 128 acres, to which I must add the 45 acres of chapel land, which makes a total of 173 acres, leaving 4 acres and the house unnoticed. Now he will have it that it is only 3 acres, whereas it is, in fact, 4 acres, according to the balance-sheet.

In the next place, another farmer fixes the rent on 174 acres at 346*l.*, having blundered by adding the chapel-land rent of 45*l.* to my 301*l.*, in which the chapel-land rent was included. I will hereafter put the case plain, but before doing so I must look a bit into Mr. Mechi's 63*s.* 9*d.* a quarter Wheat, and also into his tenant's capital, to which my attention has been called.

Mr. Mechi has told me nothing about his Wheat, although I asked for information. Then I shall infer that it was all grown in 1868: his balance-sheet supports this. In the valuation Dec. 31, 1868, 379*l.* represents all the "corn and hay, &c. (unsold)." Then look again at his last table, showing the sums he made of his Wheat grown in 1867 and 1868 separately. These are positive evidences that I am right in my inference. Well, 63*s.* 9*d.* a quarter is a very high figure for Wheat in 1868. Let us look to the imperial averages:—

Aug. 22, they stood at	57*s.* 1*d.*		
Sept 26, they had run down to	53	7	
Oct. 31, " "	52	11	
Nov. 28, " "	51	0	
Dec. 19, " "	49	5	
Dec. 26, " "	50	7	

The average from the 22d August to the end of December is 53*s.* 4*d.* per quarter, 10*s.* 5*d.* a quarter less than Mr. Mechi's figures show, the highest point being only 57*s.* 1*d.* This would imply that Mr. Mechi's Wheat must have been very superior in quality, or sold at an excellent market, but when we are shown by the balance-sheet that over 120 quarters of it was Rivett's, the very worst quality that is grown, we are not supported in the first inference; indeed, it would appear that his quality was by no means over an average, and as to his having an excellent market we know nothing. Then he must be brought in his settlement to the general average. 1235*l.* 5*s.* 9*d.* is the sum that he made off his Wheat, that divided by 63*s.* 9*d.* shows that he had 387½ quarters; this at 10*s.* 5*d.* a quarter will pull 201*l.* 16*s.* from his gross profit.

Now let us look at Mr. Mechi's tenant's capital. He fixes it at the total of his valuation on the 1st January in each year. On the 1st January, 1868, it stood at 2858*l.* 6*s.*; on the 31st December, 1868, it stood at 2707*l.* 19*s.* 4*d.*, so that upon that point he was worth in December 150*l.* 6*s.* 8*d.* less than he was in January, therefore that sum must be deducted from his gross profit. Now I will put the case plain:—

Tiptree Hall, buildings, machinery, and 177 acres of land, rent..	£301	0	0
Gross profit thereon, according to Mr. Mechi's balance-sheet	525	13	6
To which must be added for 45 acres of chapel-land	45	0	0
	£570	13	6
Pull from this Mr. Mechi's over-charge for Wheat £201 16 0			
And his pull from his tenant's capital 150 6 8			
	£352	2	8
The gross profit	218	10	10
Needing	82	9	2
To make enough to pay his rent at	£301	0	0
Or at 34*s.* an acre.			

There is nothing for interest of money, and there is nothing for the farmer's year's work. A more miserable show I never saw. How he could get to that capital market to sell his Wheat at 10*s.* 5*d.* a quarter more than an average I cannot understand. And the people of England will be heartily glad that this is an exceptional case, for if it had not been so they would have been obliged to eat higher-priced bread; but I can understand how he could draw upon his tenant's capital upon the quiet, by threshing hard and sending the corn to market.

Mr. Mechi fixes his tenant's capital at the total of the valuation on the first of January. My attention has been drawn to the fact that he must sell a something and take money before the first Saturday night in every January to pay his men. Does he do so? If he does not, that total does not represent his tenant's capital needed: tenants' capital on ploughed land generally goes the highest in August. His may be an exception.

"Another Farmer" asks, "Will the daily papers copy" my statement about my carter, and then answers the question himself. "It is not plain enough." Then I ask, "Will the daily papers copy" Mr. Mechi's balance-sheet? My statement is quite as "plain" as that is, and quite as full of detail. If "Another Farmer" wishes to have the details, let him give his name and address, and I will give it with my own name and address; for I can tell him that it is no sham statement, whether the daily papers copy it or not.

"Another Farmer" says that the ordinary farmer will save a bailiff's wages. Mr. Mechi calls his a "working bailiff;" I might call my carter a "working bailiff." "Another Farmer's" case is a very poor one to have to resort to such a "nightmare" as this to show up gross profits.

"Another Farmer" is in a mess about charging Mr. Bignell with making the same error about rent that I did, for "Another Farmer," is now the blunderer upon that point himself, and Mr. Bignell will have no trouble in taking care of himself.

"Another Farmer" talks about "cavilling at Mr. Mechi's writings;" I have never cavilled at them, but I have shown that they are not worth owning, inasmuch as they show to the farmers of England the road to ruin. It would be of no use publishing them if they are not to be remarked upon, and if "Another Farmer's" feelings are so tender that he cannot stand that, he had better shut up at once. *A Farmer, February* 16.

Home Correspondence.

The Discussion on Fat Cattle.—In your Paper of 30th January last "W. W. G." very ably exposes a fallacy which has crept into the judging of breeding stock. He refers to that fashionable sort of animal which some fanciful breeders have succeeded in pushing into eminence, regardless of the fact, that they are a departure from the pure and true type of the particular class or breed to which they are meant to belong. With such animals it cannot be expected that "the like will produce the like." "W. W. G." describes them as those blubbery, flabby brutes, by their nature fat, all fat, without that due proportion of lean meat which is the great desideratum of the consumer. This is all true and quite correct, but Mr. Menzies, the Secretary of the Highland Society, Edinburgh, in your issue of Feb. 6, replied to "W. W. G." by saying we are to put an end to this in future, because the Society has resolved that no overfed animal shall be allowed to compete; nor do I apprehend, although I may be wrong, that Mr. Menzies misunderstands what "W. W. G." means. It is not the overfeeding that he complains of. It is the particular kind and description of the animal which he thinks should not be allowed to carry off the honours. I thus doubt whether the resolution of the Highland Society is one in the right direction. I rather fear it will give rise to much doubt and difficulty, as many people will not know in what state to forward their animals to the show. I see no objection whatever to a pure beast, however fat, being allowed to compete. To the experienced eye of a proper judge the purity will still be obvious; and for breeding purposes, allow the bull, cow, or heifer to run for some weeks on a bare pasture field, and all is again right. How many first-class prize bulls, though overfed, have been treated in this, or some such similar way, and have thereafter left the most excellent progeny our country can boast of? Would it therefore be well that our Highland Society exclude all such animals from competition? Surely no. Would it not be better that they should be allowed to enter the lists, but that the judges be strictly directed not to award necessarily a prize to an overfed beast because it happens to be so, but, at the same time, to take into particular account also a leaner competitor; and supposing that both were equally fat, or both equally lean, adjudge the prize accordingly? A competent judge, a man of due experience, is quite able to accomplish this. May it, therefore, be hoped that the rule of the Highland Society shall not in every case become imperative? *S. G., Kincardine, Feb.* 15.

Female Labour and Education.—Having read your report of the paper by the Principal of Cirencester College, and the discussion which followed it, I beg to adduce a few facts to show that females acting as farm labourers is no obstacle to marriage,—"the goal of woman's ambition. During the two years I was employed in Kelso, from March, 1866, my employer there accommodated a few of his customers with my services, which furnished me with excellent opportunities of observing the state of matters on several farms in all directions from Kelso. As a practical illustration: on one farm with 11 cottages, the housemaid and the shepherd, in the course of conversation, counted over 11 of the female labourers on that farm who were married during the short period of four years. As a practical proof that young men in search of a wife do not give a preference to domestic servants, the farmer's wife on that farm, who is the mother of nine children, has not yet had the pleasure of seeing a domestic leave her service to get married. I fancy that farm has furnished facts that ought to stagger a little those who are so anxious to impose restrictions upon the employment of females in farming operations. Nevertheless I beg to remind reformers of rural economics, that it is employment of so many men in drapers' and milliners' shops that is one of the main obstacles to woman occupying her proper position in the hives of industry. If I possessed the power to reduce my theories to practice, I would drum-out the drapers' male assistants and the men who handle the needle to out-of-door work, to give scope for the employment of females in dependent circumstances at work which would not expose them to the inclemency of pelting snow and rain. I know that many ploughmen's sons are employed in the sale of such articles as gloves and ladies' clothing and baby-linen, whilst these drapers' assistants' sisters, and even mothers, are slaving in the Turnip fields, in barns, and in the cattleyards. I should rejoice to see the employment of women on farms as rare as it is now common; but women must submit to be made beasts of burden until public tastes materially alter. For example, a good many tailors earn from 24*s.* to 30*s.* for 57 hours' work. A master-tailor told me that the employment of the requisite proportion of females would greatly reduce the present prices of men's clothing. For instance, how it would alter the present state of matters were two-thirds of the needlework on men's clothing done by females, instead of nearly the whole of it being done, as at present, by men. What is barely sufficient for supporting a tailor with a wife and family would support three needlewomen, say each 8*s.* a week for 57 or 60 hours' work. I hope the foregoing will show objectors to field-work for women that, what is first wanted to be done is to increase the number of women employed in shops as saleswomen; but that is a reform which women must themselves settle. It is a general complaint in England and Scotland that saleswomen scan lady purchasers from head to foot before attending to their orders. Since it is the rule in Continental towns for women to do in shops what men do in Great Britain, the improving the manners of saleswomen ought to be the first step of those who wish to impose restrictions upon females being employed in farming operations. It is the employment of children during the summer months that has enabled so many farmers to rid their farms of Couch and other noxious weeds. And when going to and returning from Maxton parish school, I remember how I used to envy the boys who were taken from school to pick Couch; but I soon found out my mistaken ideas of the difference between attending school and manual labour. This boyish feeling is beautifully described in Hugh Miller's "Schools and Schoolmasters." Since there is an inclination on the part of the rural population to rush to towns, I beg to caution the upper and middle classes about attempting to puff up rural labourers with too exalted ideas. When sitting alone in my room, the miseries of bachelorhood often induce me to recall the associations connected with my paternal home on farms in Roxburghshire. I often cultivate the wish that I were now as contented as I was when residing in those one-room cottages, which you have so often allowed me to denounce. It ought to be borne in mind that farm labourers' daughters must be allowed to support themselves by some means. Squeamish sentimentalism ought to be laid aside in discussing such a question, but great reforms have been made of late years. For example, there is in almost every rural parish on Tweedside at least one female teacher associated with the parochial schoolmaster; thus girls who are neglected under the parental roof are taught sewing while attending the day schools for intellectual training. Too many speak and write as if the aristocracy were solely responsible for the changes that have occurred in connection with the withdrawing of the spinning of yarn and the weaving of woollen and linen cloth from the villages into those large manufacturing centres known as Hawick, Galashiels, &c. Females in rural districts were thus deprived of this chance of eking out a scanty subsistence; but, after ample observation in London, Edinburgh, and elsewhere, I venture the statement that the female field-labour question, as it exists in the bondager district on both sides of the Tweed, will stand a comparison with the condition of the several classes of domestic servants in town and country. Of course I am confining my remarks to the supposed demoralising influences inseparably associated with women, boys, and girls being closely superintended by stewards, though many of these are much respected elders of the Presbyterian churches in their respective districts. The promiscuous employment of women in field-work, and the compulsory obligation of providing field labourers, known as the "bondager" system, are two different things. Although I rejoice in the fact that I have repeatedly denounced this monstrous excrescence associated with high farming, it has been repeatedly shown that the bondager system is not a necessary part of the agricultural system where it is in force. The ploughmen's grievances furnish me with powerful arguments for opposing the proposed compulsory attendance of farm labourers' children at school during the summer months, but having reached my limit I must stop my scrawl. *T. W. Rutherford*, 12, *Drumdryan Street, Edinburgh.*

Mr. Mechi's Farming not a "Private" Affair.—Mr. Bignell says, "If he (Mr. Mechi) parades his private affairs before the public, he challenges criticism." Now, I maintain that my farming never was intended to be a private affair, for 25 years ago, when I first wrote a letter in your columns, I distinctly stated that my object was to test the value of agricultural improvements, especially as a means of providing more food and more employment for my fellow countrymen, and that I should publish my balance-sheets as an evidence. It would be absurd to parade my "private" affairs before the public. I by no means object to criticism on my public affairs. *J. J. Mechi, February.* 1869.

Earth for Closets.—I use a much simpler plan than Moule's earth closets. In each closet a box, 2½ feet long, and 9 or 10 inches wide, and the height of the seat, is placed for holding the earth. A common scoop

is added, made partly of wood partly of sheet iron, such as is used in shops where salt is sold, and costing 8*d*. The box is filled with any ordinary earth, neither dried nor even sifted, and each time the closet is used, a scoopful of earth is thrown in. No change has been made in the closets. The box is filled with earth, and the closet emptied, when needed. Rather more earth is no doubt used than if it was dried and sifted, and of course rather more has to be barrowed along when the closet is emptied, but this is nothing; on the contrary, much less trouble than drying and sifting. The result is perfect. *W. R.*

The Incidence of Local Taxation, its Injustice, and its Equitable Remedy.—By local taxation I mean the poor-rate and the highway-rate. From these rates, *i. e.*, taxes, I enumerate the following charges. By the poor-rate the indigent poor are provided for by all that expensive organisation comprising out-door relief, union-houses, lunatic asylums, infirmaries, schools, &c. These are managed by boards of guardians and other officers, *i.e.*, clerks, overseers, chaplains, relieving officers, medical officers, masters, matrons, schoolmasters and mistresses, porters, registrars, &c. Then next we have the county police, the courts of law and their officers; the county courts, gaols, asylums, and police stations, and county costs in variety, including the county militia. From the highway rates the parochial roads are repaired, and contributions are exacted for county purposes. The injustice is in taxing localities solely for what should be borne by the general public, and that tax is laid upon one kind of property solely, *i.e.*, "real property," consisting of the land only, and buildings erected thereon, whilst all other property is exempt; so that in fact 110,000,000*l.* only is assessed—taxed, for the above purposes, and 330,000,000*l.* assessed to Income-tax escape the impost, although equally and equitably liable. The poor are taken care of for the comfort and benefit of the whole commonwealth, not for landowners merely, and so with the other causes for expenditure. All are equally bound to contribute according "to their ability," as the 43d of Elizabeth has it. There can scarcely be found such an incongruity in any other part of the world. It is a most palpable injustice, a gross wrong, to put the burthens accruing to all upon one-third of the community. This can no longer be borne, and the public are now discussing the best modes of removing the injustice, and distributing the burthens equitably, so that every description of income shall bear a fair share for the good of the people of our fair country. I will presume to give my views as to the best and most equitable mode of doing this. First, I would continue the organisation as respects the relief and maintenance of the poor under the Poor-law Commissioners, as at present; the rates to be laid to the amount of the third of the present charges, and the management retained by boards of guardians and all their staff as heretofore. I would tax the incomes of all persons liable to pay poor-rates to the extent of the other two-thirds required. The amount thus raised should be paid by the collectors into the Treasury to the account of the Poor-law Commissioners, to whom boards of guardians shall transmit quarterly or otherwise an abstract of their accounts, together with an estimate of their requirements for the ensuing quarter or period, as may be determined upon. This being satisfactory to the Poor-law Commissioners, they shall at once advance the sum required out of the funds at their disposal to the use of the guardians of every union so applying. To check any careless expenditure by boards of guardians the Commissioners shall on no account advance more than two-thirds of the amount required for each periodical expenditure, whether it be quarterly or otherwise; besides, the Commissioners will retain their power of controlling such expenditure as they have hitherto done. I have said I would tax all incomes of persons liable to poor-rates. I know there is a difficulty here, but I would tide over it thus: The collectors shall be empowered to demand of persons not charged with Income-tax thrice the amount of the rate laid, one-third thereof to be paid to the local account, the two-thirds to the account of the Poor-law Commissioners, *i.e.*, to the general fund. I assume throughout that in the alteration of this taxation one-third will in future come from real property, and two-thirds from incomes. I also admit that real property upon my plan will still pay in excess, inasmuch as the local rate is in addition to the Income-tax which real property has to bear equally with personal property. This may be thought in some measure unjust and impolitic, but it must be remembered that the proposed change is a very important and extensive one—that by asking too much we risk losing the whole; besides, we know not how the new course would work: better to move cautiously. It can without doubt be carried out fully if it works well. There are other payments made from the present poor-rates which are really and truly imperial charges—I mean the police force, the militia, the maintenance of county courts, criminals, gaols, asylums, with all their officers and staff. These I would charge upon the Consolidated Fund. In this way all classes are made to contribute for their protection and domestic security. The labourer or artisan who consumes his pot of beer, or his ounce of tea, &c., becomes a contributor; and in this way I would distribute the burthens and the duty of bearing them throughout the community, so that every man, according to his ability, shall bear his share, and no man be unduly taxed for the good of his fellow men. I am well aware that much may be and is said against entrusting local bodies with the expenditure of public money: but according to my plan they are at the same time expending their own. My plan is a local rating supplemented by advances from the Poor-law Commissioners, who should at all times have sufficient evidence of economical expenditure and good management. If this evidence failed, such advances would be withheld, and the guardians compelled to recur to another rate in their respective Unions, where such expenditure had been deemed reckless or extravagant. Such a proviso would ensure a wise selection of guardians by the rate-paying public, and also the strongest inducements for guardians to fulfil their duty. Although I would adopt such a proviso, I believe guardians would do their duty manfully. *O. F.*

Steam Cultivation.—I see by Mr. J. Howard's paper on steam cultivation that he is a great advocate for the "cultivator or smasher"—the Woolston plan of working stubbles. He then tells us that the "land intended for roots was * * * trenched up into ridges or bouts 27 inches wide. This was done by horses * * * he found it more economical than employing steam-power." This is the Bedford plan, that we have heard of before. I have told you long ago that I have tried it, and I have told you my reasons for not continuing to use it: one is, that it is not economical. But let us read on:—"In some seasons, when from wet weather he had been late with his work, instead of using the cultivator, he had used a combined ridging and subsoil plough, the ridging plough throwing up the soil 9 inches deep in bouts of 27 inches wide, and the subsoil tine penetrating and loosening the open furrow, some 6 or 7 inches deeper. This was a capital operation, and he preferred the work to that made either by the cultivator or plough." This is a description of the Woolston implement, that I gave to the public last July. Now I ask Mr. J. Howard to tell me when he used that implement. I submit that the quotation above proves that he has never used it at all. He has read what I have written about it, but he does not know enough about it to write correctly; proving again that he has had no practice. He tells us that this "ridging plough throws up the soil 9 inches deep into bouts 27 inches in width." Now, if that implement is set to throw up the soil 9 inches deep, it would throw up a bout from 36 to 40 inches in width, and it could not be worked at a less width. Mr. James Howard is trying to run away with my right as inventor of the implement, by withholding the fact that I am the inventor of it. The implement can beat the Bedford plan into fits. There is my Mangel land ready for planting at one operation, at a cost of 7*s.* 3*d.* an acre, to be looked at, worked by it. The Bedford plan is a smashing and ridging with horses, a splitting with horses, and what else I cannot tell you; but I know that it is vastly more costly than mine, that Mr. Howard is now trying to run away with. *William Smith, Woolston, Bletchley Station, Bucks, February* 16.

Societies.

HIGHLAND AND AGRICULTURAL.

AT the last monthly meeting of this Society the Secretary stated that the experiments with Turnips last year, on the large scale, had proved unsatisfactory, owing to the extreme drought in summer; that in consequence of this it had been suggested that a second set of experiments should be begun, commencing with Turnips, to extend, like the first, over a four-years' rotation; and that the experiments commenced last year should be continued, the crop in the rotation this year being Barley.—This minute was approved of.

Dr. ANDERSON reported that the experiments with Turnips on the small scale had extended over a period of three years; and it was agreed that Potatos should now take their place.

On Wednesday, February 24, Mr. Melvin, Bonnington, will deliver a lecture on the origin of soils, with special reference to those of New Zealand, and an account of the district from which they are taken.

A memorial of the Scottish Meteorological Society was read. The description of the Society's proceedings, in its earlier years' work, was to a great extent confined to the collecting of facts. In the year 1859 papers began to appear from time to time in the Society's Proceedings, illustrative of different points in the climate of Scotland. The following may be mentioned as a few of the questions which have been discussed, and to which approximate answers have been given:—1. The mean temperature of the different districts of the country for each month and for the year. 2. The mean temperature of the days and of the nights separately, in which discussion the importance of day temperatures, in relation to the ripening of cereals, has been pointed out and illustrated by the weather and crops of different years. 3. The temperature required in our Scottish climate for the ripening of Wheat and Barley has been ascertained; and those districts have been indicated where, on account of the low temperature, the cultivation of cereals must be attended with considerable risk. 4. The extreme temperatures likely to occur in different localities have been ascertained for each week in the year, including, specially, the likelihood of the occurrence of frost and the high temperatures which are necessary for the successful growth and ripening of the crops at the critical periods of the year. 5. The rainfall, cloud, and sunshine have been similarly inquired into. From these discussions more accurate information may now be had regarding the crops each district is best suited to produce. 6. The weather which has prevailed in seasons that were remarkable for crops either unusually large or unusually defective has been particularly examined, and a beginning has thus been made towards forming an early and trustworthy estimate of the productiveness of the coming harvest. 7. The subject of underground temperature has occupied a considerable space of the Society's attention, and some important results have been arrived at regarding the extent to which keen frosts and other extreme temperatures penetrate different soils. Observations have been made on the effect of drainage on the temperature of the soil, from which it has been shown that the temperature of hill pasture and arable land is raised by drainage; that drainage protects the soil more effectually from the effects of sudden falls of temperature and of protracted colds; and that drained land receives more benefit during the continuance of high temperature than undrained land. The observations also show that much yet remains to be done with regard to the difficult question of drainage. 8. Great labour has been bestowed in the examination of weather changes and prognostics, by which there is reason to believe that much has been done in the way of dispelling absurd and crude notions prevalent on this important subject, and something towards forming juster opinions, which future investigation may be expected still further to develop and improve. Other important elements of climate in its bearing on agriculture remain to be examined, and it is most desirable that several of the results and conclusions already deduced should be tested by observations which have been collected by the Society since these results were published in its Proceedings. One of the most important of these inquiries would be the preparing and publishing of 12 charts, showing, by isothermal lines, the mean temperature of the British Islands for each month. While the observations are the more valuable as they accumulate, the discussion of them becomes the more tedious and laborious. On this account the Society cannot with the limited funds at its disposal discuss them with the fulness and promptitude which is desirable. The Board resolved to increase the annual subscription to the Meteorological Society to 20*l.*

ROMSEY.

Benefit Societies and Agricultural Labourers.—At the annual meeting of the Labourers' Friend Society here the other day, after the award of prizes to shepherds for skill, to teamsmen for long servitude and sobriety; to ploughmen, drillmen, rick-makers, and thatchers, for skill; to domestic servants for long service; to cottagers for neat premises and garden; and to "special cases" for respectability and good character—one special prize, viz., "the Bishop's Bible," being awarded to John Glasspool, of Timsbury, who produced a satisfactory certificate as to the regularity of his attendance at church and the Holy Communion, and also to the consistency of his character—the Chairman, the Right Hon. W. COWPER, addressed the recipients, remarking that all present were glad to see them receive the results of their good conduct and skill, awarded by competent judges. The cards which they received to hang up in their houses were proofs, not only of the sympathy felt towards them, but that they had deserved well, and they would act as certificates of character. Everybody present might do something towards the formation of his character, which grew gradually though imperceptibly; and if a man wanted to get a character for good work he must be conscientious and earnest, exerting himself just the same, whether any one happened to be watching him or not. Character was not merely that which people might think or say of them, but that which a man made for himself. It grew up with him, and it would go with him into the other world. All those present were engaged in agriculture, one of the most important occupations of life, because it provided food for the country and developed the resources and fruitfulness of the land; and everybody employed in agriculture had a share in the general success of the farm on which he was engaged. Those more immediately connected with agriculture might be divided into three classes—the landlord, the farmer, and the labourer. Supposing the landlord to have done all that could be required of him—that he had erected suitable premises, comfortable dwellings, both for the labourers and farmer; and supposing that the farmer had displayed the utmost skill and attention in the discharge of his duties, by studying the nature of the soil and the proper manure required for it, still all would end in failure if the labourers did not realise their proper share of the undertaking, and be attentive to their work. The prize and other ploughmen whose merits had been publicly recognised that day would, by-and-by, when the fields were filled with waving corn, glistening in the summer sun, be able to feel that they had taken a most important share in bringing about that gratifying result; and even those who followed so humble a task as that of hoeing the weeds might feel that they had had a share in producing the crop of roots. They all knew, too, how much depended upon the skill and attention of the men employed to look after the animals—how much the success of the flock depended upon the patience and interest which the shepherd brought to bear on the sheep committed to his care. Thus, although their different duties might vary in degree, they all shared in the general success of farming. They must also remember the wages were fixed mainly according to the value of the work a man does. The man who did better work than others was entitled to higher wages, but if the work was not valuable, and did not produce an adequate result, the farmer would be unable to afford out of his profits an increase of wages. Independently of this question of wages, every one employed in agriculture ought to feel that they have a general share with all the rest in the success of the farm on which they are engaged, and he hoped that year by year they would see their labourers more skilful and more inclined to do their best in the discharge of their duties.

Mr. Cowper then expressed the great pleasure those present felt in recognising the excellence of the prize winners, and added a hope that they would prove examples to those who might follow them. The allotment gardens were a clear proof of skill and attention, and were in themselves a reward to those who had taken pains with them. After referring to several prizeholders by name, the Chairman went on to say that there were, of course, many people possessing good and valuable qualities whom they had not been able to include in their list of prizes. They could

not presume upon determining which was the best wife in a parish. To get proper evidence of that would be difficult, because the husband, who really knows most about her, might possibly be somewhat partial. Still, there was no more important member of the community than the wife, who makes her husband happy, and his home comfortable and cheerful. Such a woman is a prize in herself, and a daily witness of the thankfulness and gratitude of her husband and family. Some parents would never beat their children, or be at all cruel to them, and yet at the same time were, unconsciously, perhaps, as cruel as they might be by reason of their neglect in seeing that they obtained education, without which their progress was hopeless. He also dwelt upon the importance of a knowledge of cookery among the wives of working men. Women who did not know how to make a home comfortable for a husband on Sundays ought to be ashamed of themselves. Their great object should be to spend their money in the things most nourishing. Some would have bread made out of the very whitest flour, which cost more than the other, and was not so nutritious. Others thought the most nourishing thing was beer, than which there was no greater mistake, for beer or spirits only give a fillip to the system. They stimulated and made a man feel stronger for a time, when it was in reality no such thing. The difference between a good solid loaf of bread and a glass of brandy or gin was just like the difference between giving a horse a feed of Oats and a good deal of whipcord. This had been proved in some instances in the hayfield, where teetotallers who slaked their thirst with water did not require to drink so often as those who took beer, whilst of course, those who drank water had more to spend on good solid food than their comrades, and in the end were stronger and better able to do their work. Lord Ashley had told him his experiences this year to the same effect, fully bearing out these remarks. The unfortunate use of beer and spirits in this country had done more harm than perhaps any single thing else. In conclusion, he expressed a hope that all present would be examples to those around them, and especially to the younger men, and that they would continue to meet in this way for years to come in order that their neighbours might see that the prizeholders were worthy of respect, and that their merits were acknowledged, the object of the Society being the encouragement of the labourers in that neighbourhood, in whatever tended to elevate them, and to lead those among whom they dealt to respect them.

Condition of the Labourer.—At the annual dinner Mr. Cowper gave the toast of the day—"Success to the Romsey Labourers' Encouragement Association." He could not say that the condition of the agricultural labourer was satisfactory; for he saw that practically their labourers did not lay by money enough to keep them in their old age, and that if they were not blessed with able and kind children they were very apt to find their way to parish relief in some form or other, and their old age was consequently one of pauperism. This was a matter that must be distressing to all who felt warmly for that class of our fellow creatures. But, on the other hand, if they contrasted the present condition of the agricultural labourer with what it had been at previous periods, there could be no doubt that a very marked improvement was exhibited in many respects. Their wages had increased, speaking generally, throughout England, in about as great a proportion as the wages of persons labouring in other walks of life. It had been calculated that if they took the period of a generation the wages of agricultural labourers had increased 20 per cent., and certainly during that period the ordinary expenses of life had diminished; so that, in this respect, there was something satisfactory to think of. If, too, they compared the dwellings of the agricultural labourer with those of labourers in other occupations, he thought they would see that there was much advantage on the side of the agriculturists. They get their dwellings very cheap. In that neighbourhood it was a common thing for a labourer to pay only 1*s.* a-week for a very good cottage, and in addition to that cottage he had a garden from which he was able to get a considerable amount of produce—perhaps equal to the rent he paid, so that in many instances the labourer was really living rent free. Besides, the labourer did not pay any rates, which were paid by the owners of houses; and he had other advantages which other people might envy. He lived in fresh and pure air; he lived a healthy life, and followed an agreeable occupation. The inhabitants of crowded cities would gladly go out and live in the fresh and beautiful country if they could. But while considerable improvements had been made in the sanitary conditions that surrounded the life of the labourer—such cottages as were built in the olden time being now never erected, and the standard of comfort being admittedly much greater—still there was a great deal to be done to help on that class of the community; and he thought that this Society was well adapted to supply just the deficiencies which existed among the labourers. Many people complained that it was very difficult to find skilled labourers who, either in thatching, or hedging, or ditching, or even in ploughing, could compete with those of a past time; and it was here that this Society came in and established a sort of public opinion among the labourers, so that they might see who were worthy of respect, and who were or were not fitted to be examples. A great object had been attained when the public opinion of any class was rightly directed; and he thought that the operations of this Society in bringing to bear the opinions of the classes above the labourer, and in informing them which labourer had done well, who had been most skilful in his work, and who most blameless in his conduct, did an immense amount of good by creating a mutual feeling and co-operation between different classes of the community. Much might be done where tenant-farmers, for instance, took an interest in the affairs and in the conduct of the people they employed, and it was far easier for a man to know a little more about his labourers where there existed these associations which entered into details, and brought to bear independent judges to decide without bias and without prejudice upon the qualities and upon the conduct of the labourer. He was glad to observe that there was an increasing amount of cordiality between employers and labourers in the county. Farmers were taking more interest in the men, and he thought the men were feeling more respect and contentment in regard to their employers. There were many little things which the farmer could do to win the affections of the people whom he employed, and he should like to mention one, which though very slight was, he thought, a matter of some importance. He referred to the importance of labourers being able to obtain a supply of milk for their children, which in rural districts they could often not do, and he was glad that in this district some farmers allowed the labourers around them to obtain milk in such small quantities as they wanted it for their several families. No one could doubt that this Society had been productive of very considerable results in inducing the labourers to take more interest in their work, and in enabling them to see that any good conduct they exhibited, and every special pains they took, were carefully observed and duly made known. He trusted that this Society would continue to receive the support which it had hitherto. He believed that this year there had been as many applicants as on former occasions; year after year the Society retained its friends and acquired more; and he fully expected that the example thus set would be followed in other parts of the county, being satisfied that those who took part in the establishment of such societies would find that their advantages were not fanciful, but real—that their operations specially contributed to knitting together the hearts and feelings of the employers and the employed, and enabling an amount of sympathy to be testified towards the labourers which must increase their contentment, and at the same time be a source of satisfaction to all who were placed in positions in which they might be useful to those around them.

Tea in the Hayfield.—Lord ASHLEY, referring to Mr. Cowper's mention of his name, said he was a very small farmer indeed, as they would all admit when he told them that his hayfield was only 12 acres. However, last summer, which they would remember was very hot, he did test the question respecting beer and tea. He told his men they could do as they liked, but he would rather that they agreed to have no beer in the hayfield, and at the end of the week he gave them the money's worth of a gallon a day. They readily accepted this, and as the weather was so very warm he thought it only fair that they should have something to drink, and therefore provided them with tea, as much as they could drink, hot or cold, and with or without sugar or milk. The end of it was that he found the men liked it better, nobody had a headache or anything of the sort, and at the end of four days, in which he cut, carried, and stacked his hay, they were delighted and pleased at the amount of money they had to take in lieu of the ale. Whether those present would think it worth while to follow this example he did not know, but he believed if they once tried it they would never follow any other system.

Mr. HUNT responded to the "Health of the Judges," observing that every subject had been so completely exhausted that there was hardly a crevice left for him to get into. As one of the original members of the Society he had stuck to it ever since, because he knew that it was doing good, and this was shown in the superiority observable every year in the work of the neighbourhood. When they first started with the ploughing they mustered some 15 or 16 ploughs, which hardly knew their way from end to end, but now there was not a mechanic in Hampshire who could draw a straighter line than their ploughmen. He really thought that he ought to have lived in the time of William Cobbett, for he liked his ways so much, and was very much inclined to follow his advice when he said if they wanted work done, bacon, bread, and beer were the things for an English labourer. As for a fellow running about with a tin kettle on his back to serve them with tea, that wouldn't do for him. It put him in mind of a lot of Irishmen camping on the road, who always had their tin kettle, and got it filled with something at every stage of their journey. Now he didn't want to see the English labourer up to that game. He wanted to see him come in as an honest man at breakfast time, and then have his meat and bread and a drop of good ale. But, taking into consideration the price of malt, with Barley at 50*s.* a quarter, he would ask whether there could be any put into the poor man's beer? The present system unduly encouraged the sugar plantations. It sent the money out of the country to Jamaica or somewhere else where they grew sugar, and when the money was gone they didn't see it return again for a very long time; while they imported a lot of "blubber" into the country that half poisoned us. With regard to the agriculture of the neighbourhood, the show of roots at Christmas spoke well for the good management of the farmers. A good deal had been said about steam-ploughs, and steam threshing-machines, and things of that sort, but he should never get out of the old system of threshing Barley with the flail so long as he could get men to use it—or until he could see something better, and that he could not see in the steam threshing-machine. When threshed by the flail the fodder would go out into the yard, making the manure regular, and the Barley went genuine to the brewer. The steam threshing-machine did very well at certain times—just after Michaelmas for instance—to make up the money to pay the landlord; and at other times, when money was wanted urgently and in bulk, it was exceedingly useful; but as to doing the threshing wholly by steam, and dispensing entirely with the flail, he hoped that he should never see it. He hoped they would excuse the liberty he had taken in making these remarks; and he trusted he had given no offence.

Reviews.

The Quarterly Journal of Science. No. 21. January, 1869. Longmans.

This periodical, which we have every quarter the pleasure of recommending to our readers as a wholesome and most interesting relaxation from the engrossments of their business and profession, does nevertheless in every issue contain a few pages which chronicle the progress of agriculture. The astronomical section will probably in this number of the work possess the greatest interest for general readers, the great solar eclipse of August 18 last year being elaborately described. From the agricultural ection we extract the following passages:—

"A good example of the serviceableness of the chemist, rather as the critic and commentator than as the guide of the agriculturist, occurs in the recently published volume of the English Agricultural Society's Journal. The Clover plant removes from the soil large quantities of those substances on which its fertility is generally supposed to depend. It takes, indeed, according to Dr. Voelcker, in the paper to which we refer, more potash, phosphoric acid, lime, and other mineral matters which enter into the composition of our cultivated plants, than any other crop usually grown in this country. How obviously, then, must it be for the interest of the Wheat crop, that the Clover which precedes it on the land should be consumed where it grows, grazed and depastured by sheep or other animals, so that the substance of the crop may be returned to the soil from whence it came, instead of being cut for forage and taken green to the feeding-house or stable, or mown for hay, or harvested when its seed has ripened—being in all these cases altogether taken from the land. The ash constituents of the plant would thus be ready for the crop succeeding it, instead of merely enriching the general dung-heap of the farm, to be applied elsewhere. It is, however, the fact, not only that the Clover plant, which takes so much nutriment from the land, is the best possible preparation for Wheat, but that the Wheat crop is better after a Clover crop cut and carried of the land than after Clover fed upon the field where it has grown. This, of course, was not at all to have been expected, but Dr. Voelcker, modestly taking his facts from the actual experience of the farmer, instead of enforcing a necessarily imperfect theory as the corrective of mistaken practice, finds on investigation a sufficient explanation of them in the following circumstances, by which, of course, the theory of the subject must for the future be limited and modified. During the growth of Clover a large amount of nitrogenous matter accumulates in the soil. This is due partly to the decaying leaves, dropped during the growth of the crop, and partly to an abundance of roots, which are stronger and more numerous when Clover is grown for seed than when it is mown for hay, and also when it is mown for hay than when it is fed off by sheep. The nitrogenous matters in the Clover-remains are, on their gradual decay, finally transformed into nitrates, thus affording a continuous source of food on which cereal crops especially delight to grow. That the Clover plant which robs the soil is, nevertheless, a fertiliser of it, is illustrated in every example of a failing Clover crop. We remember seeing on the Wheat field of a farm near Oxford deficient strips stretching parallel across the land, which were explained by the fact that the Clover seed barrow had here and there missed; so that, whereas elsewhere the contents both of subsoil and of atmosphere had, by a vigorous plant of Clover, been accumulated within the surface soil for the benefit of next year's Wheat crop, here the subsoil and the air, robbed by no Clover plant, had contributed nothing of their abundance, and the surface soil was proportionally the worse. The same truth tells to some extent on the comparison of a Clover crop fed off with one allowed to ripen; for the development of roots being checked when the produce in a green state is fed off by sheep, in all probability then leaves less nitrogenous matter in the soil than when Clover is allowed to get riper, and is mown for hay. And this, no doubt, accounts for the observation made by practical men, that, notwithstanding the return of the produce in the sheep excrements, when the Clover is fed off green by sheep, Wheat is generally stronger, and yields better after Clover mown for hay. We are quoting Dr. Voelcker's words as well as his conclusions; and the whole research appears to us a notable example of the way in which the scientific man can most serviceably discuss farm practice for the benefit of the farmer.

"Among the other papers in the current number of the English Agricultural Society's Journal is one by Messrs. Lawes and Gilbert, on the 'Home Produce, Imports, and Consumption of Wheat,' to which attention should be directed. It shows that the average produce of small experimental plots of Wheat upon the Rothamsted Farm, under the three several circumstances of 'no manure,' 'continuous dressings of farmyard dung,' and 'continuous dressings of various artificial manures,' is a perfectly trustworthy guide to the character of the crops generally throughout the kingdom. It illustrates the fact that the growth of Wheat has of late years gradually diminished in this country, having fallen in England from 3,400,000 acres in 1850 to 3,140,000 acres in 1867, and in Scotland from 210,000 acres in 1854-57 to 110,000 in 1866-67. The average produce of this crop per acre is the subject of

detailed discussion, and the following are the figures arrived at as true of the last 16 years:—

Average Available Produce of Wheat.

England and Wales	.. ..	28½ bushels per acre.
Scotland	.. ..	27½ ,,
Great Britain	.. ..	28⅜ ,,
Ireland	.. ..	23½ ,,
United Kingdom	.. ..	28¼ ,,

"Among the other facts to which this elaborate paper leads, we may quote the following:—That the average annual consumption of Wheat per head of the population is about 6½ bushels in England and Wales, scarcely 4½ bushels in Scotland, and only about 3½ bushels in Ireland; or for the whole of Great Britain about 6 bushels, and for the whole of the United Kingdom about 5½ bushels per head. Taking the population of the United Kingdom to be about 30,800,000, and the average consumption of Wheat to be 5½ bushels per head, this gives a present requirement of rather more than 21,000,000 quarters annually. And with a reasonable theory both of the increase in population and of the gradual increase of consumption per head, the requirements of the country may be no less than 23,000,000 quarters annually five years hence. Unless, then, the home produce of the country shall largely increase, there will be required over the next five years an average importation of between 9 and 10 million quarters of Wheat per annum.

"We may mention, as illustrative of that change of cropping to which Mr. Lawes in his discussion of this subject had adverted, that the practice of taking Barley in immediate succession to Wheat upon the land is gradually increasing; being justified, first, of course, by the fact that good crops are thus obtainable, but also, as compared with what was thought good practice years ago, by the increased facilities both of efficient tillage and liberal manuring which English farmers now possess. By the aid of steam cultivation, thorough autumn tillage is now of easy accomplishment; whilst, though the Wheat crop taken after Beans, and still more after Clover, which itself succeeds a grain crop, very often leaves a stubble foul and needing fallowing, yet in ordinary seasons there is ample opportunity for a thorough cleansing of the land before the winter; and as regards manuring, our guanos and superphosphates enable the farmer to keep the land stocked with fertilising substances, however it be cropped. Thus Mr. C. S. Read, M.P., at the Norwich meeting of the British Association for the Advancement of Science, declared:—'I have this year, with a dressing of 1 cwt. of guano and 2 cwt. of superphosphate per acre, grown on a Wheat stubble that had been dug 12 inches deep with the steam cultivator in the autumn, the best crop of Barley I ever produced, the land being now perfectly clean, and in the best possible condition for next year's root crop. And I see no reason why this extra white straw crop need frighten any land agent, provided always the farm be in a high state of cultivation.' During the coming year there will, no doubt, be a good deal of what is thus called cross-cropping; owing to the need of keeping Clovers for another year, for the young Clovers have very generally failed, owing to the drought of 1868. But we may say with Mr. Read that there is no need of any fear that the fertility of the land must suffer on their account. In fact, it is now well understood that a farmer may crop the land very nearly as he pleases without injuring the owner of it, provided he uses the means of tillage and manuring which he now possesses, and which his own best interests would lead him to employ.

The cheapening of the superphosphate manufacture, owing to the abundance of mineral phosphate in England, Spain, and Germany, and other countries, is one of the most important facts in the recent history of English agriculture. That which a few years ago cost 6*l.* or 7*l.* a ton, containing only 15 to 18 per cent. of soluble phosphate of lime, is now sold at a price which is virtually one-half less. And it quite deserves a record in an agricultural chronicle that the chairman of the South Lincolnshire Tillage Association was able the other day to inform the members that he had completed a contract for the delivery of 1000 tons, containing 26 per cent. of soluble phosphate, at 4*l.* 2*s.* 6*d.* per ton, to be delivered free in bags at any of the Great Northern Railway stations within 80 miles of Lincoln. It must, however, be added on the other side, that in consequence of the large exports of sulphate of ammonia to the sugar-growing districts of Germany and the colonies, all ammoniacal manures are rising in price, guano is commanding its full market value, and sulphate of ammonia in particular has advanced from 12*l.* to 17*l.* 10*s.* per ton."

Farm Memoranda.

BANFFSHIRE, BOYNE DISTRICT: *Feb.* 15.—Some weather prophets in the fall of last year prophesied that we were to have an early and severe winter, but as yet we have not seen the smallest trace of it. But for our high gales of wind and heavy falls of rain it might have passed for summer weather, and now that we have the lark's carolling over head, and the Grass fields clothed in their early green, it is more pleasant than a good part of our last summer was when the hot scorching winds had burned up everything. The mild weather has been very beneficial to many, not only for the work of the farm being got fairly under hand, but also for the economising of the provender for our cattle. We know of some cattle in this district that have not tasted a Turnip this season, but have had the unlimited range of the pastures through the day, with a wisp of straw for supper, and look wonderfully well for store stock. Stackyards are growing very diminutive, and straw and hay are selling at extra high prices, and any parties who may have a few loads of Turnips to sell hardly know what to ask for them, 1*l.* being about the common thing, whereas in ordinary years 5*s.* would be about the run; some of our older crofters and small farmers have been using Whins and Heather where they could be got to eke out the scanty supply, and cattle are said to thrive remarkably well on them. The common remark made at kirk and market, after the usual salutations and ecomiums on the fine weather, is "Fu are you for fodder?" "Well, if the fine weather continue we winna be so ill aff as we ance thocht we wud be, but we have not spoiled muckle o't this sisson, and the muck middens is terrible sma'." The farm work is in a more forward state than we have seen it in some years in the beginning of April, many farmers not having a rig to plough, and the small bit in most cases covered with Turnips would not be many yokings. Some of our farmers in this district are preparing to sow Beans, and some of them, if the weather should continue, will make a beginning of Barley and Oats. The winter Wheat is looking remarkably well, and very strong where it was put in early. Our cattle markets are good for good fat stock, and lean stock is advanced a little. Work is plentiful for our labouring classes, and, with the open winter, many a heart is now rejoicing that some time ago had gloomy forebodings. *W. J.*

HAMPSHIRE: *February* 6.—The last report at the conclusion of the year 1868 alluded to the peculiar and spring-like mildness of the weather, and our present report must again repeat that the same mild, although stormy, weather has prevailed throughout the month of January. This record, in an agricultural point of view, is somewhat interesting, because it induces us to look back to former years and speculate as to the probable results of such an unusually open and wet winter. It must be noted that the late-sown Turnips on the warm and dry soils have continued to grow up to the present time, and the anticipated scarcity of cattle food has not been realised with serious severity. Large numbers of cattle and sheep have, however, been prematurely slaughtered, which circumstance is beginning to tell in the prices of fat and lean stock, both of which have risen in price since our last report, and as the consumption is great and the importations of stock are not very large, we may expect meat to realise a good price all through the spring months. There is, however, some reason to hope that extreme prices will not prevail, if our statistical returns of live stock in the country are to be relied on (which is doubtful, for the returns are not made compulsory), as they show a large increase as compared with the previous year; and when we find that two very prolific seasons with great absence of disease has occurred as regards both cattle and sheep, there is no doubt we should have considered, in the absence of any statistical return, that we had added largely to our live stock. It is not easy to understand the reason why farmers offer opposition to making returns of stock, corn, and the various productions of the land, when everybody knows that it is not a money-making business, and that positively they have no secrets to keep. There is, however, one just and fair reason for the farmer's objection to the return, because it is not made at a proper time. If all stock was returned up to May 1 in each year, and the printed returns issued on July 1, which is before all the chief stock fairs commence for the sale of either sheep or bullocks, both buyer and seller would have, under a compulsory return, a fair statement before them of the stock to be offered during that year; but even in that case, unless the returns were county statistics, they would be of little avail. For instance, Hants and Wilts have a breed of sheep required for particular purposes; so has Dorset and Somerset; the same with the midland and eastern counties. They have their long-woolled and other breeds peculiar to their soil and climate, and therefore buyers and sellers both ought to know from the returns whether the quantity of stock available in the various districts is above or below the average. The same argument applies to horned cattle in the different counties, many of which have a distinct breed. Statistical returns of land under crops of various kinds is quite another mattter, yet probably the 1st of May would be a good time to make the return, because all the land is appropriated or set out for crop at that period, and these returns should be before the public by the first of July also at the latest; in fact, if it were not for hindrance through the Board of Trade, there is no reason why the returns should not be to hand at one month from the time of making the return. Let us therefore hope that through the influence of our Chambers of Agriculture we may be enabled to obtain a Board of Agriculture connected with Government, similar to the Board of Trade, in order that the interests of agriculture may be represented and cared for. Unless a change of weather takes place very soon the work of the farm will be in arrear. The Wheat plant is generally good, and looks vigorous, and a large breadth has been sown. The meadows and pastures look fresh and green, and the water meadows are very promising, which is fortunate, for on many stock farms on the chalk hills the sheep have little but hay and straw to live upon. The irrigated meadows will, therefore, be required for stock before the usual period. The price of corn and pulse fluctuates a little, caused chiefly by the wet and stormy weather preventing a regularity of the supply, as nearly all corn threshing is now done by steam in the open air. Clover seeds of the different kinds are likely to be very dear this season, as very little was saved in this country. *Joseph Blundell, Southampton.*

Obituary.

WE announce with regret the death of Mr. SAMUEL MEIRE, which occurred suddenly last week, from disease of the heart, at his residence, Castle Hill, near Harley, Shropshire. Mr. Meire was one of the earliest breeders of Shropshire sheep—a successful exhibitor of them at the meetings of the English Agricultural Society before the time when a separate class was allotted to them. His successful sheep at the Salisbury and Gloucester meetings thus competed with the "Shortwoolled breeds other than Southdown." Mr. Meire was also a breeder of Hereford cattle, and well known as a leading agriculturist beyond the limits of his county.

Miscellaneous.

Stones in the Subsoil.—I pity the farmer who does not feel and know that the earth was made for man, and that when his plough strikes a stone it is evidence that that stone was put there to be got out. It was not put there to knock a guard off the reaper, or break a plough point, or batter the harrow teeth, or smash a cultivator; it was put there to be got out. Let this idea once enter a man's mind and grow there, let it be strengthened by his own growth, and by his experience and observation, and it will be of no use to tell such a man that "that stone can't be got out." He knows better. He knows it was put there on purpose to be got out, and he can do it. For 40 years the knolls of my farm have been scratched over. You cannot plough a rod without striking a stone, consequently the land is not half worked, and does not produce half a crop. Of course everything cannot be done at once, and the early settlers had enough other work to do without getting out stones. But now the old rail fences are decaying, and it is time to get up the stones and lay wall. I have done only a little of this work, and feel all the enthusiasm of a beginner. *An American Farmer, quoted in the "Mark Lane Express."*

Calendar of Operations.

FEBRUARY.—Farmers who keep a detailed record of the daily work upon their farms will find, on comparing it with the entries of former years, that the current season has more peculiarities than is generally imagined. This arises probably from the great heat of the last summer, and the consequent high temperature of the earth at the close of autumn. The facts thus involved are both instructive and interesting, but it requires close observation to distinguish the exceptions thus created of ordinary practice in the various operations of the farm, the drainage of land, the progress of vegetation, the health, growth, and proceeds of live stock; and the pests of the farm, animal and vegetable.

The Drainage of Land.—This subject involves a twofold consideration,—1st, the putting in of drains, cutting of open ditches, and the straightening and embanking of rivers; and 2d, the respective functions of drains, ditches, and embankments, or the drainage powers of drains, ditches, and rivers.

Of the former, comparatively little requires to be said. Mild, open weather at this season is favourable for the different drainage operations, there being generally a command of labourers to do the work. The work also can be better and easier done in mild than in frosty weather—the carting of tiles for underdrains or earth for embanking excepted. If the undrained land is in meadow or old pasture, no difficulty will be experienced in laying down the tiles, and if under the plough it is only an additional trace-horse in the field; and when the land has a considerable inclination, and the carts enter at the upper headland, the additional horse will not be required. There is yet much undrained land in the kingdom, and the season continues to be more than usually encouraging for prosecuting its drainage. As to open ditches, rivers, and embankments, the heavy floods everywhere prove how inadequate they are at present to perform their respective functions, and how much remains to be done before they are placed in an effective state.

The season is peculiarly favourable for the investigation of the drainage powers of lands, ditches, and rivers. There ever has been a proneness on the part of professional men to lay down rules to work by. Thus we have the draining tiles placed at the depth of 4 feet, and at a given distance apart for this or that quality of land; and were we to go into this person's rule and the other's, we should involve our readers in a wide sea of opinions, apparently without a shore. But when we enter one field, and see the whole of the rain-water during the heaviest shower wholly filtered through to the drains as fast as it falls, and then compare the drainage powers thus exemplified with those of another field of a different quality of land where something short of only half the rain-water is filtered through to the drains—the remainder flowing in the open furrows between the stetches or ridges there—we find a subject inviting practical investigation. And if farmers will look around them just now they will find many more subjects of this kind than is generally credited. And this, too, is not all, for besides the filtrative powers of different qualities of soils, farmers have long been familiar with the powers of different soils to retain manure; and the present season is also peculiarly favourable for examining the water discharged by the drains, and that by the open furrows, so as to ascertain what fertilising matter is being withdrawn from the land. We are aware that some entertain the extravagant idea that all soils retain every atom of manure, giving up none to rain-water! and that wet seasons and dry, warm and cold, are all alike? But close clay lands care little for enthusiastic opinions, and open gravelly soils still less. The practice of applying manure to land as crops require it for immediate use, is becoming more and more general. As to the capacity of ditches and rivers to discharge water, the heavy floods so generally experienced this season render the investigation of the subject just now in the highest degree appropriate. Practically the question may be

put thus—How much higher would this or that embankment (as the case may be) require to be made to prevent flooding? And as rivers have generally an embankment on each side, the raising of one involves the raising of the other, and so on. Again, there are narrow places where both embankments may require to be set back; so that every individual case needs to be seen in its own light in order to determine what should be done. Now, we repeat, the present time is highly favourable for landowners, tenants, and all interested investigating this important branch of drainage.

Vegetation continues to be more than usually interesting. Thus the land and the weather are in favour of filling up blanks in Wheat, either by transplanting or dibbling in seed; and where such works have not been concluded, as will be the case in late districts, they should now be prosecuted. Extremely mild as the season has been, the work of checking vegetation, and the problem how best to do it, is not engrossing more than an average attention, generally speaking. As to young Grasses, water meadows, sewage meadows, and early forage crops of every kind, it may not inaptly be said the season is a month ahead of the average. At all events the progress of vegetation merits special notice, for in several places the scythe is in active operation, and in early seasons like this it is better to begin in time, as the Grass and forced forage plants of every kind are liable to etiolate and suffer injury at the root. "Mow early and often" is the safe rule to avoid harm, and at the same time to secure the greatest amount of produce. *W. B.*

Notices to Correspondents.

ASSIZE OF BREAD, 1739: *Mr. J. Richards, of Exeter*, in a second part or Supplement to his "Gentleman's Steward Instructed," published in London, 1739, in a note at p. 126, speaking of 200 years before that time, says: "A penny loaf, formerly bread for a week, is now scarce sufficient for a day." In London, in 1739, by the assize of bread, the price of a quarter peck loaf of 4 lb. 5½ oz., was fixed at 6*d.*; *vide* "Middleton's Survey of Middlesex." But will some of our West country correspondents kindly tell us what were, at Exeter, in 1739, the price of the quarter peck loaf, and the weight of the 1*d.* loaf, as fixed by the magistrates there?

BOOK FOR SMALL FARM: *Amateur*. We do not know of any such book. But "Our Farm of Four Acres," "Farming for the Million," and other such little books, might answer your purpose. Apply to Mr. Allnutt, Agricultural Library, 200, Fleet Street.

SOOT: *J E*. Your analysis is certainly a mistake. The line, "salts of ammonia, 426," should probably be read, "organic matter containing salts of ammonia." Dr. Voelcker's analysis gives 461 of organic matter in 1000, containing, however, only 12 of ammonia.

TOBACCO FOR SICK POULTRY: *J N, Colchester*. Next week.

TURNIP FIELD: *Querist* says:—"We have a Turnip field which we expected would have been cleared of roots before the end of the present month, so as to admit of seeding the land with spring Wheat. The ground will not, however, be entirely cleared of its present crop before the end of March. Will it then be too late to sow Wheat?" [Not too late for "April" Wheat.] He adds:—"We have a field ploughed from Grass in the beginning of January from which we had intended to take a crop of Oats. Should the Turnip field not answer for Wheat, would you advise to crop the latter with Wheat instead of Oats, taking Oats after the Turnip crop? The soil is very heavy, and in low condition. We intend, of course, a top-dressing for both Oats and Wheat.' [You will run risk of wireworm sowing Wheat now on old Grass ploughed up in January. We would rather advise Potatos, which will probably answer very well under the circumstances you describe.]

WATFORD SEWAGE FARM: *Amateur*. Thanks: we believe that the statement truly represents the fact, but it ignores this other fact, that it is only by the application of large quantities of sewage—quantities too large to be squirted through pipe and hose by steam-power, as at Watford—that the great results of sewage dressings can be obtained

YARD AND BOX MANURE: *F T T*. says, "We have a large quantity of good bullock manure made in boxes, should you advise throwing it out into the yards to get trodden down, or carting it out and making a heap in the field, plastering the outsides with mud in order to keep the winds out, and turning it about a fortnight before using? It seems to me that this last would be the wiser plan, as in the former case the rains in the uncovered yards would wash away a great many of the good properties of the manure." [When questions of this kind are asked, the crop for which the manure is intended, and the time when it will be used, should be mentioned, also the quality of the soil to which it will be applied. As regards the manure itself, it would decidedly be better to heap the manure than to spread it in a yard. As it was made in boxes, we conclude it contains a large portion of droppings to the quantity of straw used. In heaping it, therefore, the more it is trodden down by horses and wheels, by its being drawn up load upon load, the better. For manure so charged with ammoniacal salts will ferment quite rapidly enough for rotting when so compressed, and there will be very little loss by the dissipation of gases from over-heating. It may happen, however, that a stirring will be desirable, as the crop to which it may be applied may require nursing when young, and the manure therefore ought to be as short, or as nearly in a soluble condition, as possible. More direct loss would necessarily accrue from this plan, but then if the crop to which it is applied be Turnips, Mangel, Beet, or other green crop, it might be far more benefited by having its young leaves forced for collecting food, than would be the value of the additional loss of quality and weight by the greater fermentation and the longer or more rapid process of decomposition. The plan in Norfolk and other Turnip counties, where much of their manure is now applied for Beans, Peas, or Wheat, or to Clover, is to empty their yards and sheds in April, May, and June, heap and tread the manure down, as above advised, cover top and sides with soil or ashes, and turn it merely for the purpose of mixing a few days before its application. But then it is used some months before the crop which will have it to feed on begins to grow fast enough to require much food. It will also have to lie in the soil through the winter, therefore does not need to be at once in a soluble condition. It may be right to apply manures to clay or loamy soils four or six months before the next crop requires its influences, but it is not right to do this on light soils. The Norfolk men find that Turnips fed off light land before Christmas are less fertilising to the soil for the next crop of Barley by quite two cwt. of Peruvian guano. Our correspondent will probably be able to apply these data to his own case.]

COMMUNICATIONS RECEIVED.—T. B. S.—E. West.—An Irish Landlord.

KNAP HILL NURSERY, WOKING, SURREY.

ANTHONY WATERER

BEGS TO SUBMIT THE

FOLLOWING LIST to the NOTICE of INTENDING PLANTERS.

EVERYTHING IS WELL GROWN AND FINELY ROOTED.

In proof of which he gives the date of their last removal.

ABIES ORIENTALIS, 5, 6, 7, and 8 feet, 10*s.* 6*d.* to 21*s.* each.
" " beautiful specimens, 10, 12, and 14 feet high, 15 and 20 feet in circumference, 31*s.* 6*d.* to 63*s.* each, and upwards. Moved April, 1868.
" ALBERTUS, 5 to 9 feet, 30*s.* to 60*s.* per doz, moved April, 1868.
" DOUGLASSII, 5, 6, 7, and 8 feet, 5*s.* to 10*s.* 6*d.* each, moved August, 1868.
" CANADENSIS, 4, 5, 6, 7 feet high, 18*s.* to 30*s.* per dozen.
" PUMILA, " PYGMÆA, " CLANBRASILIANA, " GREGORII, " EXCELSA.—The Common Spruce, 5, 6, and 7 feet high 7 to 10 feet round, moved April, 1868, 21*s.* to 30*s.* per dozen. } Hundreds of these dwarf varieties of the common Spruce Fir, many are 20 and 30 years old.
PICEA NOBILIS, 4, 5, 7, 8, and 10 feet high, 8 and 15 feet in circumference, 42*s.* to 147*s.* each. Hundreds of magnificent plants of the best glaucous variety. None are grafted, and all moved since March, 1868.
" NORDMANNIANA, beautiful seedling plants, 1½ to 2 feet, 30*s.* and 42*s.* per dozen.
" " 3, 4, 5, 6, and 8 feet, 10*s.* 6*d.* to 105*s.* each.
" " Splendid trees, moved August, 1868, 10 and 15 feet high, 15 to 20 feet in circumference, 7 guineas each and upwards.
" MAGNIFICA or NOBILIS ROBUSTA, 2 feet, 15*s.* each.
" " " " 2½ to 3 feet, 6 feet in circumference, 21*s* to 31*s.* 6*d.* each.
" " " " 3, 4, and 5 feet, 31*s.* 6*d.* to 63*s.* each and upwards. Mr. WATERER has hundreds of this handsome Fir, all seedlings.
" LASIOCARPA, 2 to 2½ feet, 60*s.* per dozen. [each.
" " 3 to 4 feet high, 8 and 9 feet in circumference, 21*s.* and 31*s.* 6*d.*
" " 5, 6, 7, and 8 feet high, 10 and 12 feet in circumference, 42*s.* and 63*s.* each; hundreds of them. [42*s.* each.
" PINSAPO, 3, 4, and 5 feet high, 9 and 10 feet round, 7*s.* 6*d.* to " " 7, 8, and 10 feet high, 63*s.* to 147*s.* each, moved August, 1868.
PINUS AUSTRIACA, moved April, 1868, 3 feet, £5 per 100.
" BENTHAMIANA, moved April, 1868, 2 to 2½ feet, 30*s.* per doz.
" CEMBRA, 8 to 10 feet, 10 and 12 feet round, moved 1863, 10*s.* 6*d.* to 21*s.* each.
CEDRUS ATLANTICA, 5 to 6 feet, 42*s.* to 60*s.* per doz., moved 1868.
" " 7 to 8 feet, 84*s.* per dozen, moved 1868.
" " 8 to 10 feet, 7*s.* 6*d.* and 10*s.* 6*d.* each, moved 1868.
" DEODARA, 4 to 6 feet, 42*s.* and 60*s.* per dozen.
" " 7 to 8 feet, 84*s.* per dozen.
" " 10 to 12 feet, 120*s.* per dozen and upwards. Some thousands of these large Deodars, the majority moved since Jan., 1868.
" LIBANI, moved April, 1868, 5, 6, 7, and 10 feet, 5*s.* to 21*s.* each.
CUPRESSUS LAWSONIANA, 4 to 5 feet, 30*s.* per dozen.
" " 5 to 6 feet, 42*s.*; 7 to 8 feet, 60*s.*
" " 9 to 10 feet, 7*s.* 6*d.* to 10*s.* 6*d.* each.
" " 12 to 18 feet high, and as much round, 21*s.* to 63*s.* each. We have thousands of these large Lawsonianas, from 5 to 15 feet high, the majority moved in 1868.
JUNIPERUS CHINENSIS, 4 to 5 feet, 36*s.* and 42*s.* per dozen; 6 to 7 feet, 60*s.* to 84*s.* per dozen; 8 and 9 feet, and as much round, 21*s.* each; some magnificent plants, 10 to 15 feet high, 15 and 20 feet in circumference, 63*s.* to 105*s.* each and upwards. We have several thousands of this fine Juniper, 4 feet and upwards, the majority moved in 1868.
JUNIPERUS VIRGINIANA (Red Cedars), 4, 5, 6, and 7 feet, moved August, 1868, 18*s.* to 42*s.* per dozen.
YEW, ENGLISH.—Many thousands, 4, 5, 6, 7, 8, 10, 12 and 15 feet high, nearly all of which have been moved within 12 months.
" IRISH.—Handsome plants, 7 to 8 and 10 feet, 7*s.* 6*d.* to 10*s.* 6*d.* each, and upwards.
" GOLDEN and ELEGANTISSIMA.—Hundreds of fine plants, on their own bottoms and worked, from 3 to 6 and 8 feet high.
Many of these plants are 30 years old; all have been recently removed.
THUJA AUREA.—This plant originated at this Nursery. We have large numbers of fine specimens, 3, 4, 5, and 6 feet high, 8, 10, and 15 feet round.
" GIGANTEA.—Splendid plants, moved August, 1868, 10 to 15 feet high, 21*s.* to 42*s.* and upwards each.
" LOBBII, 6 to 7 feet, and as much round, 5*s.* to 7*s.* 6*d.* each. " 10 to 14 feet, do. do., 21*s.* to 63*s.* each.
All moved in 1868.
THUJOPSIS BOREALIS, 5 to 6 feet, 60*s.* per dozen.
Do. do., 7 to 8 feet, 10 and 12 feet in circumference, 10*s.* 6*d.* each and upwards. Moved in 1868.
WELLINGTONIA GIGANTEA, 4 to 5 feet, 7*s.* 6*d.* to 10*s.* 6*d.* each.
Do. do., 6, 7, 8, and 9 feet, 21*s.* to 63*s.* each. All moved August, 1868.
HOLLIES, GREEN, COMMON.—Stout, finely rooted plants, 3 feet, 18*s.* per dozen; £6 per 100.
Many thousands 4, 5, 6, and 7 feet high, 30*s.* to 84*s.* per dozen and upwards.
A number of splendid plants, 10 to 15 feet high, 15 and 20 feet round. All moved April, 1868.
" SCOTTICA, " LAURIFOLIA, " MYRTÆFOLIA, " HODGIN'S HOLLY, 4, 5, and 6 feet. } Three of the finest hardy Evergreen known. Thousands of beautiful plants, 5, 6, 7, 8, and 9 ft. high, 7*s.* 6*d.* to 21*s.* each, and upwards.
" GOLDEN QUEEN.—Hundreds of magnificent plants, 4 to 8 feet high, and as much in circumference.
" WATERER'S.—This variety originated here, and we have them by hundreds. 3, 4, and 5 feet high, 8 to 15 feet in circumference—the admiration of everybody who sees them. There are many of them 20 and 30 years old, and have been constantly and recently removed.
" SILVER QUEEN, 3, 4, and 5 feet high.
" STANDARD, WATERER'S, and GOLDEN QUEEN HOLLIES, 5 to 6 feet stems, with heads 6 to 9 feet round, very handsome.
" STANDARD WEEPING HOLLIES.—Some of the finest plants in the kingdom, worked and on their own roots. One, probably the finest that exists in any Nursery, has a stem 10 feet high, 20 inches in circumference, perfectly straight, with a magnificent head covered with berries. This plant was moved August, 1868.
" VARIEGATED, of the ordinary kinds.—A stock of many thousands, from 4 to 5, 6 and 8 feet high. Plants in finer condition cannot be desired. The prices will be found fair and reasonable.
BOX, GREEN and VARIEGATED, 4, 5, 6, 7, and 8 feet high, 2*s.* 6*d.* to 10*s.* 6*d.* each and upwards.
" PYRAMIDS, up to 8 feet, very fine
BAYS, STANDARDS, " PYRAMIDS. } from 3 to 10 guineas a pair.
LAURUSTINUS, STANDARDS, 31*s.* 6*d.* each and upwards.
LAURELS, PORTUGAL, 4 and 5 feet high, 7 and 8 feet in circumference, 42*s.* and 63*s.* per dozen. Moved July, 1868.
RHODODENDRONS.—One of the finest stocks of all the leading kinds, nice healthy bushy plants, 1½ and 2 feet high, many of them layers (far preferable to grafted plants), from £7 10*s.* to £15 per 100.
" STANDARDS.—A large number of the oldest and finest specimens to be met with in any Nursery, many of them being 20 and 40 years of age, with heads measuring 15 and 30 feet in circumference, and when in bloom are objects of wonderful beauty.
" SEEDLING varieties, varying much in colour, fine plants, many of them blooming, 1½ to 2 and 3 feet, £5 to £15 per 100.
" DWARF varieties, several kinds, £5 to £7 10*s.* per 100.
" ODORATUM, " GOVENIANUM, } Nice blooming plants, beautifully scented, 12*s.* and 18*s.* per dozen.
" PONTICUM, for cover, good plants, £7 10*s.* to £15 per 1000.
The Exhibitions of Rhododendrons in the Horticultural Society's Gardens are supplied from Knap Hill.
AZALEAS.—A fine stock of the most beautiful varieties in cultivation, good blooming plants, carefully selected, will be supplied at 18*s.* to 30*s.* per dozen. Large plants, 3, 4, 5, and 6 feet high, of all the fine Ghent and other kinds.
KALMIA LATIFOLIA.—Nice blooming plants, 12*s.* and 18*s.* per dozen; larger, of all sizes.
ERICA HERBACEA CARNEA.—The prettiest of the Spring-flowering Heaths; fine plants, by the 100 or 1000. A large stock of the best varieties of Hardy Heaths at 30*s.* per 100.
DAPHNE CNEORUM MAJUS.—A grand improvement on the old variety; fine plants, 18*s.* per dozen.
AUCUBA JAPONICA, up to 3 feet; thousands.

THE FOLLOWING ORNAMENTAL TREES, OF LARGE SIZE,

Are well grown and well rooted, and stout.

PLANES, ORIENTAL and OCCIDENTAL, 10 to 15 feet high.
SYCAMORE, 10 to 14 feet.
WEEPING BIRCH, 8 to 12 feet.
MOUNTAIN ASH, 8 to 10 feet.
HORSE-CHESTNUTS, COMMON, 10 to 12 feet.
SCARLET HORSE-CHESTNUTS, very fine flowering Trees, 10 years, worked.
BEECH, WEEPING, 7 to 15 years, worked.
BEECH, PURPLE, 8 to 15 feet high.
DECIDUOUS CYPRESS, 8 to 12 feet.
NORWAY MAPLES, 8 to 12 feet.
LOMBARDY POPLARS, 10 to 12 feet.
THORNS, fine Standards, of the most ornamental kinds.
ASH, Gold-barked, Flowering, and other varieties; fine Standards, 8 to 10 feet.
LIMES, 10 to 12 feet.

As well as the above-mentioned articles, at Knap Hill will be found one or perhaps the most extensive Stock of all the better kinds of HARDY EVERGREENS, DECIDUOUS and FLOWERING ORNAMENTAL TREES and SHRUBS.

A PRICED AND DESCRIPTIVE CATALOGUE

Will be forwarded on application.

Purchasers are respectfully invited to inspect the Plants growing in the Nursery.
No Catalogue can adequately represent such a Stock.

The Nursery is readily reached by Train from Waterloo to Woking Station, where conveyances may at all times be depended on.

The Railways now take Goods at through rates to almost any Station, thus doing away with the expense of package.

ANTHONY WATERER, KNAP HILL NURSERY, WOKING, SURREY.

Full-grown Evergreens.

HENRY GODFREY, NURSERYMAN, Stourbridge, has a large quantity of the following Evergreens to offer, in well grown plants: Green and Variegated HOLLY, Siberian and American ARBOR-VITÆ, Common and Portugal LAUREL, English and Irish YEWS, RHODODENDRONS PONTICUM and PONTICUM VARIEGATUM; Green and Variegated BOX, AUCUBA JAPONICA, ARAUCARIA IMBRICATA, &c.

Large Evergreens and Forest Trees.

MESSRS. PAMPLIN AND SON have a large quantity of the following, and offer them at low prices, part of their Grounds being required for building purposes:—

Cedar of Lebanon, 10 to 20 feet	Black Italian Poplar, 20 feet
Cedrus Deodara, 6 to 15 feet	Balsam ditto, 10 to 15 feet
Aucuba japonica, 2 to 6 feet	Lombardy ditto, 20 feet
Portugal Laurels, 2 to 6 feet	Horse Chestnut, 10 to 15 feet
Chinese Arbor-vitæ, 5 to 12 feet	Spanish Chestnut, 10 feet
American ,, 5 to 10 feet	Limes, 10 to 15 feet
Thuja aurea; 1 to 4 feet	Walnuts, 10 to 15 feet
Green Box, 1 to 6 feet	Ash, 10 to 20 feet
Striped ditto, 2 to 4 feet	Elm, 10 to 15 feet
Evergreen Oak, 7 to 10 feet	Acacia, 10 feet
Yew, Common, 4 to 10 feet	Mountain Ash, 10 feet
Irish Yew, 3 to 5 feet	Turkey Oak, 10 to 12 feet
Laurel, 2 to 6 feet	Sycamore, 10 to 14 feet
Araucaria imbricata, 10 feet	Weeping Willow, 10 to 15 feet
Green Hollies, 1 to 12 feet	Lilac, Common, 8 feet
Weymouth Fir, 3 to 6 feet	Persian ditto, 6 feet
Spruce ditto, 2 to 4 feet	Yellow Azalea, 3 feet
Birch, 14 feet	Privet ovalifolia, 8 feet

The Nurseries, Lea Bridge Road, Leyton; and Wood Street, Walthamstow, Essex, N.E.

Fruit Trees, Nursery Stock, Roses.

L. PAILLET, NURSERYMAN, Chatenay lez Sceaux, près Paris, offers for the present season a very large quantity of NURSERY STOCK, and especially FRUIT TREES and ROSES, at very low prices:—

	Per 1000.
PEARS, 1-yr., extra choice, 6 to 8 millimètres in diametor	£1 10
,, 1-yr., extra choice, 4 to 6 do. .. .. (per 10,000)	11 12
QUINCE, extra choice, 7 to 13 do.	1 10
,, first choice, 6 to 7 do.	8 12
APPLES, 1-yr., extra, 6 to 8 do.	0 18
,, transplanted, 6 to 9 do.	1 0
DOUCIN, extra choice, 6 to 9 do...	1 6
,, first choice, 4 to 6 do.	0 17
PARADISE, extra choice, 6 to 8 do.	1 2
,, first choice, 4 to 6 do.	0 12
PLUMS (real St. Julien), extra, 1-yr., 5 to 8 do.	1 10
CHERRIES, 1-yr., extra, 6 to 8 do.	0 12
,, transplanted, 5 to 8 do.	0 15
ST. LUCIE, 1-yr., extra, 5 to 8 do.	0 10
,, transplanted, 5 to 8 do. .. .. (per 10,000)	5 0

NOTE.—The measure in diameter is taken level with the ground, near the collar of the roots; and 25 millimètres make 1 inch.

ROSES—Our own best selection:—

Standards, 3 feet to 3 feet 7 inches ..	per 100 £3 15
Half Standards, 2 feet to 2½ feet high	2 10
Low-budded Dwarfs	per 1000 17 10
On their own Roots .. .. ,,	13 10
Bengals, three best varieties .. .. .. ,,	6 0
Sr. Malmaison (own Roots) .. .. .. ,,	14 10

CATALOGUES sent on application.

Discount of 5 per cent. will be allowed on prepaid orders.

The cost of carriage, freight, and other expenses, from Chatenay to London, is from 6s. to 7s. per 100 lb. weight.

Orders must be sent to Messrs. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

The American Nursery, Bagshot, Surrey.

JOHN WATERER respectfully invites the attention of Gentlemen and others engaged in planting to the undernamed selections from his general stock. He has much satisfaction in recommending them as being symmetrically grown and really of first-rate excellence, and from frequency in removal are in an excellent state for transplanting. Having a very large stock, he is determined to treat on most liberal terms. He would, however, earnestly invite Purchasers to make a visit and choose for themselves, which is easily accomplished by South-Western Railway (Reading Branch) to Sunningdale Station, which is near the Nursery.

RHODODENDRONS (Standards) — Of all the leading choice, scarlet, and other varieties, 3 to 4 feet stems, consisting of such as Alexander Adie, Michael Waterer, The Warrior, Princess Mary of Cambridge, Quadroona, Mrs. Ino Penn, Joseph Whitworth, and all such others as have been exhibited annually at the Royal Botanic Gardens, Regent's Park.

RHODODENDRONS (Half Standards)—Of all the approved kinds; 2 to 3 feet stems.

RHODODENDRONS.—Hardy scarlet, crimson rose, white; for superior clumps or borders fine well-grown plants. An excellent assortment would be supplied at £15 per 100. Fine bushy plants can also be supplied, averaging 3 to 5 feet.

RHODODENDRONS.—Immense quantities of really good coloured seedlings, with Catawbiense and Hybrid Catawbiense, 1½ to 2 and 3 feet, £10 to £12 10s. per 100. These varieties are very suitable for admixture with the better kinds. The plants are bushy, and mostly well set with blooming buds, and from rose to white in colour.

RHODODENDRONS (Dwarf-growing kinds).—These are very close growing varieties, and are recommended for filling winter beds. Daphnoides, Myrtifolium, and Hybridum are the best suited for such purposes. Odoratum is delightfully scented, and much used for potting and forcing.

RHODODENDRON PONTICUM.—This kind is the most common, and now generally admitted to form the best permanent cover for game. In the most severe weather it is never injured by hares or rabbits. Good plants, 21s. to 30s. per 100.

AZALEAS, HARDY, of the most popular kinds, of all colours, and in fine plants, covered with a profusion of blooming buds. These are much used for forcing. 18s. to 30s. per dozen.

ANDROMEDA FLORIBUNDA.—One of the most hardy plants used for decorating winter clumps. Of these we are large holders, and can supply beautiful specimens at 30s. per dozen, covered with blooming buds.

KALMIA LATIFOLIA and MYRTIFOLIA.—Fine grown plants, of all sizes.

HARDY HEATHS.—A very fine collection, in 20 kinds, 30s. per 100.

ABIES NORDMANNIANA.—Of this fine kind we are very large holders, all of which are seedlings, and of all heights, from 2 to 4 to 6 to 8 and 10 feet.

ABIES MAGNIFICA.—Fine specimens, 2 to 5 feet.

ABIES NOBILIS.—All seedlings, 1½ to 3 to 5 feet.

ABIES LASIOCARPA.—From 2 to 3 to 5 to 7 feet.

ABIES GRANDIS (of Douglas).—Fine specimens, 2 to 6 feet.

ABIES DOUGLASII.—3 to 4 to 6 to 10 feet.

ABIES PINSAPO.—2 to 3 to 5 to 10 feet.

ARAUCARIA IMBRICATA.—Fine specimen, 2 to 4 to 6 to 12 feet.

THUJOPSIS BOREALIS.—2 to 3 to 4 to 6 feet.

THUJA AUREA.—All sizes, 2 to 4 to 6 feet, perfect globes.

THUJA GIGANTEA.—Immense quantities, from 3 to 4 to 6 feet.

WELLINGTONIA GIGANTEA.—Of all sizes from 2 to 12 feet.

IRISH YEW.—Selected specimens, 4 to 12 feet.

HOLLIES (Green).—Fine, 2 to 3 to 4 to 6 feet.

HOLLIES (Gold and Silver).—In the most approved kinds, of all sizes.

STANDARD GOLDEN HOLLY (WATERER'S).—The best for standards; fine plants.

STANDARD WEEPING HOLLIES (Green and Variegated).

We have likewise immense quantities of the leading kinds of EVERGREENS, of all sizes, such as Yews, Box, Bays, Aucubas, Arbutus, Phillyreas, Common and Portugal Laurels, &c., as well as fine strong transplanted FOREST TREES, 2 to 3 and 4 feet, consisting of Ash, Beech, Alder, Spanish Chestnut, Hazel, Withy, Larch, Spruce, Pinus austriaca, &c.

CATALOGUES describing the colours of all the RHODODENDRONS worthy of cultivation, with a LIST of CONIFEROUS PLANTS, with heights and prices, forwarded to all applicants.

☞ Purchasers of large quantities of goods are informed that the great expense incurred by package is now greatly diminished, as we can forward from Sunningdale, in through trucks without change, to all Stations on the Great Northern, North-Western, Eastern Counties, and Great Western (narrow gauge) Railways; also by South-Eastern and Brighton Lines by way of Blackwater.

The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway, and Blackwater Station, South-Eastern Railway, where excellent Conveyances await all Trains.

FIFTY THOUSAND ASH to be SOLD, 2 to 3 feet, transplanted, and well rooted.
Apply to Mr. G. CHORLEY, Midhurst, Sussex.

Camellia fimbriata.

WANTED to PURCHASE, one or two PLANTS, from 4 to 8 feet high.—Address, with particulars and price, to F. H., at Grugeon's, 75, Old Broad Street, E.C.

To the Trade.

THOS. CRIPPS AND SON beg to announce they still hold a good stock of the following, in fine healthy stuff:—ABIES ALBERTIANA (William-soni), 2-yr. seedlings, to 10 feet; A. MENZIESI, 9 ins. to 12 ft.; ARAUCARIA IMBRICATA, 6 ins. to 20 ft.; Cupressus Lawsoniana (an unequalled stock), 2-yr. seedlings, to 15 feet; Picea balsamifera, 3 inches to 7 feet; P. Nordmanniana, 3 inches to 7 feet; P. Pinsapo, 6 inches to 18 feet; P. pectinata (Silver Fir), 1 to 4 feet; Pinus austriaca, 2½ to 7 feet; P. Lambertiana, 1 to 5 feet; P. muricata, 1 to 2 feet; P. Benthamiana, 2-yr. seedlings, to 7 feet; Retinospora ericoides, 6 inches to 3½ feet; R. obtusa, 6 inches to 6 feet; R. pisifera, 1 to 8 feet; Taxus ericoides, 6 inches to 2 feet; Thujopsis dolabrata, fine stuff, 3 to 15 inches; Wellingtonias, 3 ins. to 20 ft.; Horse-Chestnuts, all varieties; Aucubas, a complete collection; Berberis Bealii, japonica, intermedia, Darwinii, dulcis, stenophylla, vulgaris; Laurels, common, 3 to 5 feet; Laurels, Portugal and Myrtle-leaved do.; Daphne pontica Stocks; Deutzia crenata fl.-pl.; D. scabra, Leycesterias, Manetti and Rhododendron Stocks; Malus floribunda (handsomest of the flowering Crabs); Prunus triloba, Hardy Azaleas, Ericas, Gaultherias, Menziesias, and Pernettyas; Standard Roses, Blush and Crimson China do.; Standard Apples, Cherry Plum Stocks, Strawberries; Pinus excelsa and Picea Webbiana, 1-yr. seedlings; Alder, 2 to 6 feet; Spruce Firs; Lilium auratum and punctatum. For particulars and prices of which, see our TRADE CATALOGUE, to be had free on application.
The Nurseries, Tunbridge Wells, Kent.

J. C. WHEELER AND SON.

WHEELER'S GUINEA COLLECTION of GARDEN SEEDS comprises the finest varieties in cultivation; for details see "WHEELER'S LITTLE BOOK for 1869," price 6d., post free.
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"WHEELER'S TOM THUMB LETTUCE is a wonderful favourite with my family and friends; for a Summer Lettuce I have never seen its equal."—G. F. A. FLOWER, Stafford Farm. 1s. per packet, post free.

"WHEELER'S MILKY WHITE is the best of all Potatos, and those who do not grow it may consider themselves rather behind the age."—SHIRLEY HIBBERD, F.R.S. 4s. per peck, 16s. per bushel.
MILKY WHITE.—"This I received from the well-known firm of Messrs. Wheeler & Son, Gloucester. It is one of the handsomest Potatos grown, and well deserves its name, for it is most beautifully white, very floury, and one that I do not hesitate to regard as first-rate. It is also a very free bearer." D. DEAL. 4s. per peck, 16s. p. bush.

ONE PACK of WHEELER'S MILKY WHITE and ONE GUINEA COLLECTION of GARDEN SEEDS sent carriage free by rail on receipt of cheque or Post-office order for 25s.
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WHEELER'S GRASS SEEDS for CROQUET GROUNDS should now be sown at the rate of 10 lb. per acre, a good dressing of soot applied, and the ground well rolled. Price 1s. per lb., 20s. per bushel, carriage free.
J. C. WHEELER & SON, Seed Growers, Gloucester, and 59, Mark Lane, London, E.C.

New and Choice Vegetable and Flower Seeds.

STUART AND MEIN, NURSERYMEN and SEEDSMEN, Kelso, N.B., beg to offer the following, selected from their GENERAL SEED CATALOGUE for 1869, which may be had post free on application:—

BORECOLE, Improved Triple Curled Variegated, varying in colour from rich creamy white to the darkest purple. 1s. per packet.
BORECOLE, new Triple Curled Variegated Perennial (Melville), as exhibited by Mr. Melville at the Royal Horticultural Society's meeting on December 15, 1868 (see *Gardeners' Chronicle*, p. 1317, 1868, and p. 50, 1869). Will prove invaluable as a hardy winter decorative plant. 2s. 6d. per packet.
CABBAGE, Sandringham Sprouting (P. Lawson & Son).—It "hearts" in the autumn, and, whether cut or not, the stalk is densely covered with compact little Cabbages during the winter. It is quite hardy, and most delicious in flavour. 1s. per packet.
LEEK, Dobbie's Champion.—This variety has carried off all the prizes in the open class at the Glasgow shows for the last five years. 1s. per packet.
ONION, Santa Anna Madeira, described by the Editor of the *Gardeners' Chronicle* as "handsome Onions, the largest of which measured 14 inches in circumference." 2s. per oz.
ONION, Red Sallon.—In shape and size this new variety resembles the Madeira Onion; but its colour is a dark red, has a stronger Onion flavour, and keeps much better. A very fine variety. 2s. per oz.
LETTUCE, Glory of England, an extraordinarily large variety, and very hardy. 1s. per packet.
DANDELION, Improved Thick-leaved.—It produces a numerous quantity of leaves, which are thickly set, forming in the centre almost a bunch. It is one of the best winter and spring salads, and is in great demand on the Continent, from whence S. & M. have imported it. 6d. per packet.
MELON, Asten's Persian.—A free setter, a great bearer, and first-class in flavour. S. & M. received the seed of this Melon from a well-known gardener, who writes—"Wherever it goes to table it is well eaten up"—a convincing proof of its excellence. It has gained many prizes. 1s. per packet.
MELON, Golden Queen, New Hybrid Prize (Stuart & Mein).—The finest green-fleshed Melon in cultivation (see *Gardeners' Chronicle* of October 17, 1868, and January 16, 1869, in leading article on "The Acquisitions of the Past Year in Fruits"; also "Journal of Horticulture" of November 19, 1868). 2s. per packet.
MELON, Prince of Wales, flesh pink, beautifully netted, skin thin, and of delicious flavour. 1s. per packet.
MELON, Victoria (Stuart & Mein), green flesh, most delicious flavour, very hardy, a free setter, and great bearer. 1s. per packet.

ANTIRRHINUM, New Pigmy.—These grow from 6 to 9 inches in height. By cutting off the seed stems they will continue to flower on till winter. "A capital strain of dwarf-growing Antirrhinums has come to be grown. Messrs. Stuart & Mein, of Kelso, have a good strain of these dwarf kinds, and they can be highly recommended for flower garden decoration." From article on "Florists' Flowers" in *Gardeners' Chronicle*, August 1, 1868. Six distinct varieties, mixed, 1s. per packet.
LOBELIA, Little Gem, pure white, with a clear, well defined blue margin, very compact in habit; was awarded a First-class Certificate. 1s. per packet.
STOCK, New Striped.—This variety originated between the Scarlet Brompton and the White Intermediate. The flowers are red and white striped, like a flaked Carnation; in habit it is compact and bushy. Sown in May or June, will flower the following summer. Extract from *Gardeners' Chronicle*:—"Stuart & Mein: Your striped Stock is an interesting variety, and if constant will doubtless prove an acquisition." The seed now offered was saved from 50 plants, and not one was self-coloured, a proof of its constancy. 1s. 6d. per packet.
STOCK, Anderson's Rose East Lothian Intermediate, a very dwarf free-flowering [variety (flowering in Scotland from July till Christmas when sown in February); well adapted for beds, masses, or ribanding; the habit is fine and compact. Selected seed, saved by Mr. Lees, of Tynninghame, East Lothian.
STOCK, Prize Giant Brompton or Autumn, sown in June, will flower the following summer till Christmas. The display produced by the profusion of bloom is truly magnificent, some of the flower-stems measuring 2½ to 3 feet. In three distinct colours, each 1s. per packet.
WALLFLOWER, Dark, a very choice dark variety. Extract from the *Gardeners' Chronicle*:—"Stuart & Mein: Your Wallflower is the darkest we have seen." 1s. per packet.
NASTURTIUM, Scarlet Compactum superbum (S. & M.)—The finest dwarf grown for habit and colour. Continues to flower till destroyed by frost. 1s. per packet.
NASTURTIUM, New Rose Coloured, beautifully splashed with orange. 6d. per packet.
HOLLYHOCK, Double, from 12 distinct show flowers, mixed. 1s. 6d. per packet.
The above free by post; postage stamps received in payment.

BOX EDGING and COMMON LAURELS.—2000 yards of DWARF BOX EDGING, and 5000 LAURELS, of various sizes, in capital condition for removal, to be Sold cheap. Apply to JOHN MITCHINSON, Nurseryman, Truro.

JOHNSON'S PROLIFIC WHITE KIDNEY POTATO.—A few tons of this excellent sort, grown in Cornwall, are offered at 10s. per cwt., delivered at Truro or Plymouth; or at 11s. per cwt., delivered in London.
JOHN MITCHINSON, Seed Stores, Truro.

EARLY CORNISH BROCCOLI.—"During the past fortnight there has been a good supply of Broccoli sent to Covent Garden Market, from the neighbourhood of Penzance, Cornwall."—Vide *Gardeners' Chronicle*, Jan. 23, 1869, p. 86.
The Undersigned has the pleasure of offering seed of the above desirable variety, carefully saved last summer by one of the best reputed Gardeners at Penzance. Cash price 24s. per lb., or 2s. per ounce, carriage or postage free.
JOHN MITCHINSON, Seed Merchant, Truro, Cornwall.

CHOICE NEW SEEDS.
Trade Price on application.
BROCCOLI, Ne Plus Ultra (NAIRN'S).—Heads very large, Conical, pure white, self-protecting, extremely hardy, the finest Broccoli extant. 3s. per oz.
CABBAGE, Cook's dwarf Imperial.—The finest Cabbage known; retains its fine green colour when boiled; very tender and buttery flavour. 2s. per oz.
CELERY, Sandringham White (true).—The best Celery in cultivation. 1s. per packet.
S. NAIRN & SONS, Seedsmen, 62, Pilgrim Street, Newcastle-on-Tyne.

IVERY'S NONSUCH LETTUCE.—The best Summer variety in cultivation; will stand a month longer than any other kind without running to Seed. 1s. per packet, sealed with initials, "M. A. I." Price to the Trade on application.
A GENERAL SEED CATALOGUE can be had post free on application. The Trade supplied with superior MUSHROOM SPAWN. Hanover Nursery, Peckham, S.E.

RICHARD WALKER has to offer the finest sort of ROUND POTATO out (AMERICAN RED).—It boils as white as snow, and is the heaviest cropper in this country. R. W. imported it direct in 1865. As the Stock is limited, apply early. Price per cwt., 30s. SEAKALE, for planting, 3s. 6d. per 100. LACED PINKS, 20s. per 100.
Biggleswade Market Gardens.

Seed Potatos.

PATERSON'S VICTORIA, the best of all Paterson's varieties, £8 per ton, bags included.
GRYFE CASTLE, a superior sort, recently raised in Renfrewshire, £8 per ton, ditto.
The above are true, and are specially suited for Seed, the ground on which they were grown being old natural lea trenched, and never before cropped. The tubers are clean and sound in all respects.
Apply to GEO. WEATHERLY, Hagswood, Pollockshaws, by Glasgow.

Seed Potatos.

GEORGE SIBBALD, Drumgeath, by Dundee, N.B., has for Sale a large Stock, of his own growing, of the following kinds of POTATOS, which he will Sell at moderate prices, delivered free in Dundee:—

Paterson Victoria; best Rocks	Fluke Kidney
Walker's Improved Regents	Mona's Pride Kidney
Early Dalmahoys	Myatt's Prolific Kidney
Daintree's Early	Royal Ashleaf Kidney
Oxford Early	Wheeler's Milky White Kidney
Early Handsworth	Paterson's Early Red Kidney

Also 5 cwt. Gibson's Dwarf York CABBAGE SEED.

ELLETSON'S SURPRISE, new, large, late WHITE PROTECTING BROCCOLI.—The best late Cauliflower Broccoli extant, price 2s. 6d. per packet. May be had of the following Agents:—
Messrs. Hurst & Son, 6, Leadenhall Street, London, E.C.
Mr. Robert Cooper, 152, Fleet Street, E.C.
Messrs. Barr & Sugden, 12, King Street, Covent Garden, W.C.
Mr. Wm. Paul, Waltham Cross, N.
Messrs. Peter Lawson & Son, Edinburgh and London.
,, Bolton & Co., Ealing, London, W.
,, Jas. Backhouse & Son, York.
,, Stuart & Mein, Kelso, N.B.
,, Sutton & Sons, Reading, Berks.
,, J. Slater & Sons, Malton, Yorkshire.
Mr. Edward Taylor, Malton, Yorkshire.
Messrs. Dreghorn & Aitken, Kilmarnock, N.B.
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Additional names will be inserted as they are received.
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,, B. S. Williams, Holloway	Mr. Methven, Edinburgh
,, E. G. Henderson & Son, St. John's Wood	Messrs. Lucombe, Pince & Co. Exeter [Herts.
,, Cutbush & Son, Highgate	Mr. W. Paul, Waltham Cross, Futtingham, Derby
Mr. Smith, Worcester	Messrs. Harrison & Son, Leicester
Messrs. Cole & Sons, Withington, Manchester	,, Hutchinson & Armitage, Nottingham
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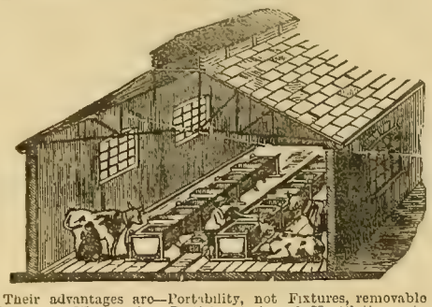
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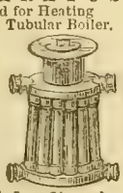
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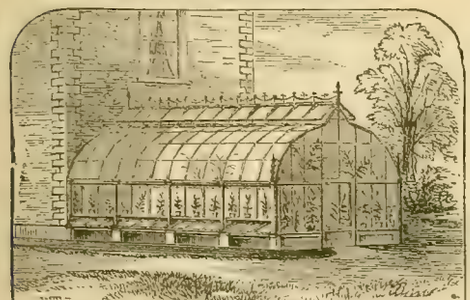
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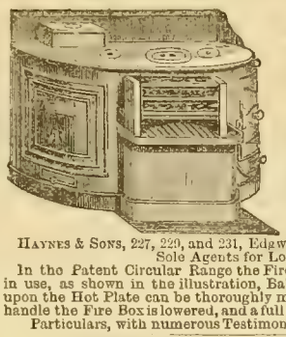
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WANTED, to HIRE, about ONE ACRE of good GARDEN LAND, to be used as a "Trial Ground." Must be within an easy reach of the City. The neighbourhood of Clapham or Brixton preferred. An extraordinary good price would be given for the accommodation. Apply to

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NURSERY to LET, near London, in full trade, first-rate locality. Stock adapted for the trade of the neighbourhood. With Good-will and Lease, £2000.

For particulars apply to G. GLENNY, Horticultural Agent, Fulham.

To Nurserymen, Florists, and Others.

TO BE LET, REGENT'S NURSERY, Park Village East, Regent's Park. It has been in the present Occupant's hands upwards of 20 years, and has a good connection attached thereto. STOCK, &c., to be taken at a Valuation.

For terms, apply to Mr. TAYLOR, on the premises.

To Market Gardeners.

TO BE LET, a KITCHEN GARDEN, more than an acre in extent, Walled on the south, fenced in on the other side. Thoroughly furnished with all kinds of Fruit Trees, Vegetables, &c. The soil is on gravel, and unusually deep and productive; an unfailing supply of water. Two-and-a-half miles from Beckenham, in a neighbourhood rapidly filling with first-class houses. A small Cottage can be had with it if required.

Apply by letter to E. H., Post Office, Bromley, S.

Sales by Auction.

205, King Street, and Albion Road, Hammersmith.

GREENHOUSE BUILDERS' STOCKS: CLEARANCE SALE, IN CONSEQUENCE OF RE-BUILDING WORKSHOPS AND PREMISES.

MR. JAMES H. GREEN is instructed by Mr. James Smith to SELL by AUCTION, on the premises as above, on TUESDAY, March 2, at 12 for 1 o'Clock, the entire STOCK—1500 square feet of Glass in 13 Span and Lean-to Greenhouses, in various sizes; 180 Pit Lights and Frames, Spring Van and Cart, Dog-cart, Phaeton, a useful Black Cob, and numerous effects.

On view Three Days prior to Day of Sale. Catalogues on the Premises, and of the Auctioneers, 72, King Street, Hammersmith.

Seedling Gladioli, Carnations, Picotees, and Pinks, FROM YARMOUTH.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, February 25, at half-past 12 o'Clock precisely, the second portion of Messrs. Youell's choice collection of Seedling and other named GLADIOLI, from Yarmouth; also their well-known collection of CARNATIONS, PICOTEES, and PINKS.

On view the morning of Sale, and Catalogues had.

Roses from France, and Hardy Plants from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, February 24, at Half-past 12 o'Clock precisely, 2,000 First-class Standard and Dwarf ROSES, choice named sorts, from one of the most renowned Nurseries in France. A Consignment of specimen CONIFERS, FRUIT TREES, and other Hardy TREES and SHRUBS from Holland. GLADIOLI, RANUNCULI, and other Bulbs, for spring planting.

On view the Morning of Sale and Catalogues had.

Important Sale of Orchids.

MR. J. C. STEVENS begs to announce that he has received instructions from John Day, Esq., of Tottenham, to offer for SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., during the month of April, a large proportion of his extensive and well-known COLLECTION of ORCHIDS, which will include many fine Specimen Plants, and some of the finest varieties in cultivation.

Mr. DAY being overstocked, this Sale will afford an excellent opportunity, for those desirous of making a collection, of securing well-established Plants of all the best kinds; and buyers may depend upon the plants being correctly named.

More detailed particulars in future advertisements.

Annual Sale of Handsome English-grown Camellias, &c., &c.

MESSRS. PROTHERO AND MORRIS will SELL, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on SATURDAY, February 27, at half-past 12 o'Clock precisely, about 200 Choice Double CAMELLIAS, 1½ ft. to 5 ft., abundantly furnished with Bloom-buds; fine AZALEA INDICA, in flower; a superb collection of Standard and Dwarf ROSES, a rich assortment of AMERICAN PLANTS, FRUIT TREES, and LILIUMS of sorts.

Catalogues may be had at the Rooms as above, and of the Auctioneers and Valuers, Leytonstone, Essex.

Claremont Gardens, Esher.

MR. NIGHTINGALE and MESSRS. PROTHEROE AND MORRIS are honoured with commands to SELL by AUCTION, on the premises, as above, on MONDAY and TUESDAY, February 22 and 23, at 12 o'Clock precisely, in Lots suited for Gentlemen and the Trade, the whole of the valuable GREENHOUSE PLANTS, comprising 3000 Azalea indica, strong and well furnished with buds; some remarkably handsome specimens of double white and other Camellias, from 4 to 7 feet; choice Ericas, of sorts; Acacia armata, Poinsettias, 400 Cytisus racemosus, very fine plants, and well set with flowers; Oleanders, Hydrangeas, Callas, 2000 Deutzias, 2000 Epacris, Tree Carnations, a variety of Stove Plants, &c. Also a very large collection of SOFT-WOODED and BEDDING PLANTS, including Pelargoniums, about 1000 Scarlet and Variegated Geraniums, and others in great variety. Some very choice named Hyacinths and other Dutch Bulbs, just coming into perfection; 4000 Strawberries, in No. 32 pots, for forcing; 3000 Chrysanthemums, 2000 Mignonette, 3000 Lycopodiums; a variety of young NURSERY STOCK, including Pyramidal Pear and other Fruit Trees; Conifers and Evergreens, Shrubs, 70 bushels Myatt's Prolific Ashleaf Potatos, &c.

May be viewed on Saturday, February 20. Catalogues to be obtained one week before the Sale of Mr. MACDONALD, Claremont; of Messrs. PROTHEROE & MORRIS, Auctioneers, American Nurseries, Leytonstone, Essex; and at Mr. NIGHTINGALE'S Auction and Survey Offices, High Street, Kingston-on-Thames.

Bury St. Edmund's.

IMPORTANT TO GENTLEMEN, NURSERYMEN, GARDENERS, &c.

TWO DAYS' SALE OF NURSERY STOCK.

MR. W. DILLISTONE will SELL by AUCTION, on WEDNESDAY and THURSDAY, February 24 and 25, at 10 for 11 o'Clock each day precisely, in a Marquee, in the Field, near the Railway Station, Bury St. Edmund's, a large quantity of SPECIMEN CONIFERÆ, including Cedrus Deodara and atlantica, ARAUCARIAS, PICEAS, English and Irish YEW, ABIES, CUPRESSUS, WELLINGTONIAS, &c.; Standard and Dwarf ROSES; FRUIT TREES of all sorts; Choice named CAMELLIAS, AZALEAS, RHODODENDRONS, MAGNOLIAS, Variegated and other HOLLIES, Choice CARNATIONS, PICOTEES, &c., and other Hardy Border Plants. New Russian Matz. Royal Ashleaf Potatos, Asparagus Plants, Seeds, Tobacco Paper, &c.

To be Viewed on the Mornings of the Sale, and full particulars will be described in Catalogues, to be had at the offices of the *Bury and Norwich Post* and *Bury Free Press*, or post free of the Auctioneer, Sible Hedingham, Essex.

Didmarton, near Chippenham.

IMPORTANT SALE of SHORTHORNED CATTLE.

MR. STRAFFORD begs to announce that he has received instructions to SELL by AUCTION, without reserve, on TUESDAY, March 23 next, at Didmarton, the remaining portion of the extensive and valuable HERD of first-class SHORTHORNS, belonging to Stiles Rich, Esq. (who is retiring from farming), that have been long and carefully bred chiefly from Cows obtained of the late Earl Ducie, at Tortworth Court, since which have been used Bulls of the famed Kirklevington blood; most of the young stock are by the 7th Duke of York (17,754), 13th Grand Duke (21,850), 2d Duke of Claro (21,576), and 2d Duke of Collingham (23,730); this splendid young Bull will be included in the Sale, and is the one by which the Cows and Heifers are chiefly served. Mr. STRAFFORD having seen the Herd, can with confidence invite the attention of Shorthorn breeders, assuring them that they will find in it a combination of symmetry, quality, and good breeding.

Catalogues, with Pedigrees and other particulars, may be had on application to Mr STRAFFORD, 13, Euston Square, London, N.W.; or of Mr. RICH, Didmarton, Chippenham.

Extensive Sale of Coniferæ

AND OTHER RARE TREES AND SHRUBS,

At Belstane, in the Parish of Kirknewton and County of Edinburgh.

MR. GEORGE BROWNLEE, AUCTIONEER, Mid-Calder, has been instructed by the Trustees of the late Mr. Humphrey Graham, to SELL by AUCTION, on THURSDAY and FRIDAY, March 4 and 5, the extensive COLLECTION of CONIFERÆ and other TREES and SHRUBS, now growing at Belstane, in the Home Nursery and Plantations.

These consist of many thousands of fine symmetrical specimens of all sizes from 1 to about 20 feet in height, comprising most of the recently-introduced and other rare kinds; and, having been reared in an exposed altitude, averaging about 800 feet above the level of the sea, their hardiness is fully tested, and their adaptation for Transplanting insured, so that unprecedented facilities are offered by this Sale to parties proposing to add to their Collections, or to such as may be desirous of producing immediate effect in the embellishment of their Grounds.

Belstane is about 12 Miles west from Edinburgh and 2 Miles from the Mid-Calder Station, on the Caledonian Railway, and to which Station Trains now run—From Glasgow at 6 and 7.30 A.M.; returning 4.5, 4.36, and 5.25 P.M. From Edinburgh, 10.10, 10.20 A.M., and 1 P.M.; returning 3, 4.21, and 5.50 P.M.

Sale to commence on arrival, at Belstane, of Passengers by 10.20 Train from Edinburgh.

An Omnibus will be in waiting at the Mid-Calder Station on the arrival of the 7.30 Train from Glasgow, and 10.20 Train from Edinburgh, to take parties proposing to attend the Sale to Belstane. The Omnibus will return from Belstane in time for 5.25 Train for Glasgow, and 5.50 Train for Edinburgh.

Arrangements are being made for supplying Matting and other materials to enable purchasers to pack the plants at Belstane, and to have these conveyed to the Mid-Calder Station at moderate rates of charge. From the Mid-Calder Station there is communication by Railway all over the kingdom.

Catalogues containing full particulars are now ready, and may be obtained from Mr. A. DONALD, Belstane, Kirknewton; Mr. GEORGE BROWNLEE, Mid-Calder; Messrs. A. & A. CAMPBELL, W.S., 22, Dublin Street, Edinburgh; at the Offices of *The Farmer* Newspaper, 150, Fleet Street, London, and India Buildings, Edinburgh; and at the Office of the *Glasgow Herald*, Glasgow.—Mid-Calder, Feb. 15.

NOTICE.

ROYAL HORTICULTURAL SOCIETY, London.
ROYAL ZOOLOGICAL SOCIETY, London.
ROYAL BOTANIC SOCIETY, London.
ROYAL BOTANIC GARDENS, Dublin.

ROYAL BOTANIC GARDENS, Liverpool.
ROYAL BOTANIC GARDENS, Cambridge.
ROYAL WINTER GARDEN, Dublin.
ROYAL DEPARTMENT OF SCIENCE AND ART, London.

It is with great gratification that we announce our permission to refer upon any occasion to the various Heating Apparatuses at the above, where our "ONE BOILER SYSTEM" has for years been subjected to the most critical tests with every satisfactory result. It is matchless for efficiency, and is working the largest Apparatus on record. These are no theoretical statements, but positive facts, and it is not too much to add, that no boiler can boast a parallel.

For List of Details, see "ILLUSTRATED BOOK of DESIGNS" (12th Edition), which can be obtained by addressing a note to

JOHN WEEKS AND COMPANY, HORTICULTURAL ENGINEERS, &c., KING'S ROAD, CHELSEA, S.W.

John Weeks & Co.ys

MASTIC L'HOMME LEFORT,

OR COLD GRAFTING WAX.

THIS PREPARATION IS KNOWN AS THE BEST WHICH CAN BE USED IN THE OPERATION OF GRAFTING TREES, SHRUBS, AND PLANTS OF ANY DESCRIPTION, BUDDING ROSES, &c.

It requires no previous melting; it is always ready for use; it grows hard in the open air as well as in water, and once hardened is not liquified under a high temperature.

IT RAPIDLY HEALS ALL WOUNDS IN TREES, &c., ARISING FROM ACCIDENT OR DISEASE.

IT IS THE BEST STYPTIC TO PREVENT THE BLEEDING OF VINES AFTER PRUNING.

For the above and other purposes, which can best be illustrated in its use, it is indispensable. MASTIC L'HOMME LEFORT is strongly recommended by the most illustrious Professors of Horticulture and Arboriculture in Paris, such as MM. DU BREUIL, DECAISNE, CARRIERE, RIVIERRE, CAPPE, ALEXIS LEPERE, TROUILLET, and many others.

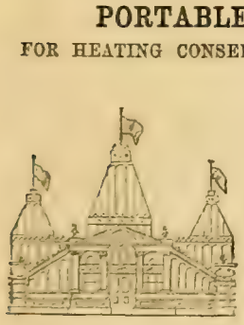
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FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH



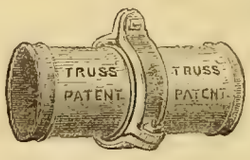
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AUSTIN'S ARTIFICIAL STONE,

INVENTED 1826.



THE superiority of this material to all others for damp situations and its durability under the most intense frost being now indisputable, and attested by its extensive use in Scotland and Ireland, as well as the principal country seats of England, attention is invited to the following summary of the work manufactured with it, a variety unprecedented in any other establishment of past or present times:—

VASES,
about 300 different kinds, at from 10s. to £50.

FOUNTAINS,
more than 200 designs, from £10 to £400.

PORTEFLEURS, or low FLOWER BASINS, for lawns; STATUES, antique and modern; SMALL FIGURES, adapted to Balustrading, &c.; FIGURES of ANIMALS and BIRDS, about 70 kinds; SUN-DIAL PEDESTALS, about 20 designs; BASKETS, from 1 to 17 feet diameter; GARDEN SEATS, of substantial architectural character, for the ends of terraces; SHELLS for water or rock plants, from 1 to 14 feet wide; FLOWER BOXES, for windows or pavements; BAPTISMAL FONTS, from 2 to 15 guineas; CRESTS and other TERMINALS, for gate-piers; BALUSTRADING, to suit all styles of architecture; a great variety of ORNAMENTAL PEDESTALS, GOTHIC CROSSES, PINNACLES, and NICHES; EDGING for flower-beds.

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HOT-WATER APPARATUS of every description, fixed complete in any part of the country, for Warming Greenhouses, Conservatories, Forcing Pits, &c:
Plans and Estimates on application.
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	2-inch.	3-inch.	4-inch.
PIPES .. .. per yard	1s. 0d.	1s. 6d.	2s. 0d.
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SYPHONS .. .. „	2 6	3 6	4 6
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TEES .. .. „	2 3	3 6	4 6
SYPHONS .. .. „	2 3	3 6	4 6
THROTTLE VALVES .. .. „	10 0	11 6	13 0

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JAMES BOYD & SONS beg to call attention to the superior facilities they possess for executing all orders entrusted to them, in a first-class style, at a moderate price, and with despatch. Their works are fitted up with the most improved machinery, specially adapted for this trade. Their system of ventilation gives the least possible trouble, each range of sashes or ventilators opening by one movement without the risk of cords breaking, as in sliding sashes, and thorough ventilation is secured during wet weather, without admitting the rain. Plans and Estimates on application.

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TANNERS, CURRIERS, and MANUFACTURERS of IMPROVED TANNED LEATHER DRIVING STRAPS for MACHINERY PRIME STRAP and SOLE BUTTS.
Price Lists sent free by post.
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Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by JAMES MATTHEWS, at the Office of MESSRS. BRADBURY, EVANS, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the Co. of Middlesex, and Published by the said JAMES MATTHEWS at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, February 20, 1869.

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 9.—1869.] SATURDAY, FEBRUARY 27. {Price Fivepence. {STAMPED EDITION, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.
FIRST SHOW of HYACINTHS and SPRING FLOWERS, on SATURDAY, March 13. Doors open at Two. Band of Royal Horse Guards from Three. Tickets of all principal Musicsellers, and at the Gardens (bought before 13th). Fellows' Friends, 2s. 6d.; Public, 3s. 6d.; or on the day, 5s. Mr. WM. PAUL'S HYACINTHS, &c., will remain on Exhibition daily from March 13 to 20.

ROYAL BOTANIC SOCIETY GARDENS, Regent's Park.—EXHIBITIONS of SPRING FLOWERS, MARCH 16 and 17, APRIL 27 and 28; SUMMER EXHIBITIONS, MAY 19 and 20, JUNE 30, and JULY 1. Tickets: price—Spring Exhibitions, 2s. 6d; Summer Exhibitions, 4s. each. To be had on the Orders of Fellows of the Society. Schedules of Prizes for both Exhibitions can now be had.

CENTRAL HORTICULTURAL SOCIETY of LONDON.—President, Mr. GEORGE GORDON, A.L.S. The MEETINGS of this Society will be HELD on the SECOND and FOURTH TUESDAYS in each month during the present year, at the Society's Rooms, 40, Essex Street, Strand. Chair taken each evening at 8 o'clock. Programme of the Papers to read and Prizes offered by the Society, can be had on application to the Hon. Secretary. E. HUTCHINS, Hon. Sec.

CRYSTAL PALACE, SEASON 1869.
FLOWER SHOW ARRANGEMENTS.
The FIRST GREAT FLOWER SHOW, SATURDAY, May 15.
The SECOND GREAT FLOWER SHOW, SATURDAY, June 5.
The GREAT ROSE SHOW, SATURDAY, June 19.
By order, I. WILKINSON, Superintendent.

GRAND NATIONAL HORTICULTURAL EXHIBITION, 1869, to be held at MANCHESTER, MAY 14 to 21. Schedules are now ready, and may be obtained on application to the undersigned. BRUCE FINDLAY.
Botanic Garden, Manchester.

BISHOP AUCKLAND FLORAL and HORTICULTURAL SOCIETY.
The ANNUAL EXHIBITION is fixed to be held at Bishop Auckland, FRIDAY, September 3. Schedules of Prizes ready in a few days. J. C. HENDY, Secretary.

New Roses for 1869.
JOHN FRASER, Lea Bridge Road Nurseries, London, N.E., begs to offer fine healthy Plants of the best NEW ROSES for 1869. A DESCRIPTIVE LIST may be had on application.

NEW ROSES of 1869.—All the best varieties; 2000 fine strong plants. DESCRIPTIVE LIST on applicat on.
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To the Trade.—Dwarf Roses.
HUSSEY AND SON beg to offer the above, all HYBRID PERPETUALS on Manetti, at 40s. per 100.
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EXTRA STRONG ROSES, in pots.—Several thousand Tea-Scented, Noisette, and Hybrid Perpetual varieties, together with the best NEW ROSES of 1868.
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FIVE THOUSAND PLANTS of the best NEW ROSES of 1869. Stronger or finer plants cannot be produced in the Trade. DESCRIPTIVE CATALOGUES are now ready.
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JAMES CARTER AND CO. have a large stock of very fine Bulbs. Price on application.
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Pelargoniums for the Million.
JAMES HOLDER can supply strong Plants of the above. Forty plants, distinct sorts, for 25s.; 30 sorts for 20s., or 20 sorts for 15s., hamper and package included.
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B. S. WILLIAMS has all the best kinds, in splendid condition, warranted clean. Prices on application.
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Grape Vines.
B. S. WILLIAMS' STOCK this season is remarkably fine, and in good condition for sending out. Kinds and prices can be had on application.
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Mrs. Pince's Black Muscat Grape.
J. MEREDITH is now prepared to execute orders for this fine Grape. CANES, fit for immediate planting, from 10s. 6d. upwards.
The Vineyard, Garston, near Liverpool.

GOLDEN CHAMPION GRAPE.—Plants are now being sent out of this extraordinary Grape, price 21s. and 42s. each. OSBORN & SONS, Fulham Nursery, London, S.W.

GRAPES the FIRST YEAR.—8 bunches for 7s. 6d.; 12 bunches for 10s. 6d. The finest Canes ever offered.
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VINES, from Eyes, 2-yr. old, strong Fruiting Canes, 10s. 6d.; choice of 15 varieties, warranted to fruit this season.
Do. do. do., smaller, 7s. 6d. each.
Do. for planting, 5s. each; do. smaller, 3s. 6d. each.
J. PEED, Effra Nursery, Brixton, S.

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MESSRS. JOHN STANDISH AND CO. are now selling fine strong plants of this extraordinarily productive VINE at 21s., 42s., and 63s. each.
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MELON PLANTS.—Golden Perfection, strong.
CUCUMBER PLANTS.—Telegraph.
Both may be depended upon.
A. WATKINS, Hockerill, Bishop Stortford.

Pyramidal Cherries, extra fine, for Gardens.
WM. WOOD AND SON have a magnificent stock of the above to offer. The Pyramid Cherries are especially fine.
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L. T. DAVIS offers the above, in various colours, at very moderate prices, carriage free to Belfast.
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Price per cwt. or per ton on application to
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RHODODENDRONS by the doz., 100, 1000, or 10,000.

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RHODODENDRON PONTICUM, bushy plants, well furnished	2 to 2½ feet	3	0	1	5	0	7	0	0
" " " " "	1½ to 2 feet	1	0	1	0	0	9	10	0
" " " " "	1 to 1½ feet	1	6	1	2	0	11	0	0
" HYBRIDUM, bushy plants, well furnished	2 to 2½ feet	1	0	1	5	0	..	..	..
" " " " "	1½ to 2 feet	0	1	0	10	0	..	..	..
" MAXIMUM ALBUM	1½ to 2 feet	1	0	1	5	0	12	0	0
" " " "	1 to 1½ feet	1	6	1	5	0	12	0	0
" " " "	15 to 20 inches	5	6	1	10	0	11	0	0
" " " "	1½ to 2 feet	6	0	2	0	0	..	..	..
The above are also kept in smaller sizes at equally low prices.									
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" Named varieties, 1, 2, and 3 year, from grafts, 1s. to 3s. each.									
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" " " " "	2½ to 3 feet	2	6	0	15	0	..	..	..
" " " " "	3 to 3½ feet	3	0	0	18	0	..	..	..
" " " " "	3½ to 4 feet	4	0	1	5	0	..	..	..
" " " " "	4 to 5 feet	5	0	1	10	0	..	..	..
" " " " "	5 to 6 feet	10	0	..	..	..	..	..	..
DOUGLASII, WHITE, PUREE, GLAUCA, and other Conifers, in variety; 1 to 1½ feet		3	0	0	12	0	..	..	..
" " " " "	1½ to 2 feet	4	0	0	15	0	..	..	..
" " " " "	2 to 2½ feet	4	0	1	0	0	..	..	..
COTONEASTER MICROPHYLLA, bushy plants	1 to 1½ feet	..		0	12	0	5	0	0
" " " " "	1½ to 2 feet	..		0	15	0	..	..	..

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He can with confidence offer it as being unequalled in cultivation.

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Which are much superior to those sent out by him last season, being saved from the plants exhibited by Mr. Wiggins, at the Meeting of the Royal Horticultural Society, at Kensington, on Tuesday last (Feb. 16), when they were pronounced far in advance of any ever before raised, both in point of size of flower and richness of colour, which varies from pure white to mauve and deep red; many of them in addition being beautifully striped and spotted, and deliciously fragrant. Seeds sown in heat from the present time until the end of March, can be grown to produce flowers within 12 months.

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STOCK OF MAGNIFICENT SPECIMEN PLANTS,

MANY OF WHICH ARE UNEQUALLED IN THIS COUNTRY.

THEY CONSIST OF—

The Choicest and rarest Exotics, such as TREE-FERNS, PALMS, BEAUCARNEAS, AGAVES, YUCCAS, CYCADS, ARALIAS, CAMELLIAS, AZALEAS, and all other kinds of STOVE and GREENHOUSE FLOWERING and ORNAMENTAL FOLIAGE PLANTS, proved to be worthy of cultivation.

The Large CONSERVATORY, at all times of the year well worth a visit, is now unusually gay with flowers of Camellias, Azaleas, Ericas, Epacris, the magnificent varieties of Cyclamen persicum, obtained from Wiggins' strain of seed; Williams' superb Chinese Primulas; the beautiful improved Hybrid Solanums, now laden with their large and highly ornamental berries; Hyacinths, and many other Spring Flowering Plants, also helping to make a grand floral display.

The STOVES and ORCHID-HOUSES are also very attractive and interesting just now, with blooms of Odontoglossums, Cypripediums, Cœlogynes, Lycaste Skinneri, Phalænopsis, and many other kinds.

The COLLECTION of MEXICAN PLANTS is surpassed only by that of Kew Gardens.

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NEW DESCRIPTIVE SPRING CATALOGUE of CHOICE SEEDS ready, and may be had free by intending purchasers. The Catalogue embraces every Novelty and Speciality in Flower and Vegetable Seeds worthy of notice, with a Special List of nearly 400 sorts of ALPINE and HERBACEOUS PERENNIALS, which have been saved from one of the most choice Collections in Europe; and the most extensive LIST of GLADIOLI offered, embracing all the new kinds. Also (offered for the first time in this country) a SPECIAL LIST of NEW TABLE MAIZE, the most highly esteemed varieties of those cultivated by our American Cousins, who use the green cobs as one of their most popular Vegetables: and as, in this country, they will come into use when the supply of Green Peas is becoming short, they will be found an agreeable substitute for these. The late Judge Haliburton (Sam Slick), when residing at Isleworth, used this Vegetable when in season daily. The Rev. T. C. Bréhaut, of Guernsey (Her Majesty's Commissioner at the Paris Exhibition of 1867 to report on the present state of Fruit Culture on the Continent), through the American Commissioners received the varieties of Maize referred to and enumerated in our Catalogue, and has placed the entire stock he raised last year in our hands for distribution, feeling confident that the success which has attended their cultivation in the Island of Guernsey warranted him in introducing them into England for domestic use.

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COLLECTIONS of VEGETABLE SEEDS, 12*s.* 6*d.*, 15*s.* 6*d.*, 21*s.*, 31*s.* 6*d.*, 42*s.*, 63*s.*, 84*s.*, and 105*s.*
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COLLECTIONS of ORNAMENTAL GRASSES for TABLE DECORATION, &c., 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, and 10*s.* 6*d.*
COLLECTIONS of SEEDS for SUBTROPICAL GARDENS, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, and 10*s.* 6*d.*
COLLECTIONS of CLIMBERS, CARNATIONS, PELARGONIUMS, HOLLYHOCKS, STOCKS, ASTERS, BALSAMS, ZINNIAS, LANTANAS, EVERLASTINGS, AQUATICS, PALMS, &c. Full particulars will be found in the DESCRIPTIVE SPRING CATALOGUE, which will be sent Free to intending purchasers.

BARR AND SUGDEN, 12, KING STREET, COVENT GARDEN, W.C.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.—Mr. Webb, Calcot, Reading.

SUTTONS' COLLECTIONS of CHOICE GLADIOLI.

100 in 50 choice varieties	£1 0 0	12 choice varieties..	.. £0	12 0
50 in 50 ,,	2 2 0	12 good varieties ..	.. 0	9 0
25 in 25 ,,	1 1 6	Finest mixed, per 100	.. 1	15 0

Fine mixed, 25*s.* per 100.

SUTTON & SONS, Seedsmen to the Queen, Reading.

NEW and CHOICE FLOWER SEEDS, sent free by post.—The following collections of Flower Seeds embrace all the most showy and beautiful varieties:—

No. 1.—100 best varieties, hardy and half hardy ..	.. £1	0 0
No. 2.—50 ,, ,, ...	.. 0	10 0
No. 3.—25 ,, ,, ...	.. 0	5 0
No. 4.—12 ,, ,, ...	.. 0	2 6
No. 5.—12 ,, ,, small packets	0	1 0

J. Ellerman & Son, Nursery and Seed Establishment, Romsey, Hants.

NEW IMPORTED FLOWER SEEDS.—20 varieties TRUFFAUT'S PÆONY ASTER; 12 do. Dwarf CHRYSANTHEMUM do.; 6 do. ROSE do.; 6 do. CROWN do.; 24 do. Dwarf GERMAN TEN-WEEK STOCKS; 20 do. Large Flowering do. do.; 6 do. BROMPTON or WINTER do.; 10 do. Double WALLFLOWER. The above, or any less number of varieties, at 2*d.* each, or in mixed packets, 4*d.* and 6*d.* each. The seeds are of the very highest quality, as testified by numbers of growers in all parts of Great Britain, during many past seasons. All flower seeds in packets post free. CATALOGUES free on application.

JAMES TYSON, Importer of Continental Seeds, 68, Great George Street, Liverpool.

NEW SEEDS of EXTRA CHOICE QUALITY, for EXHIBITION.

	Per packet.—s.	d.
ASTERS, new Quilled Red's Exhibition, 10 vars., separate ..	1	6
,, new Globe Quilled, 12 vars., separate	2	0
,, 24 superb varieties, mixed	1	0
,, Truffaut's French Perfection, 18 vars., separate ..	4	0
,, do. do. 12 do.	3	0
,, do. do. 8 do.	2	0
,, do. do. 24 vars., mixed	1	0
,, Dwarf Chrysanthemum-flowered, 12 vars., mixed ..	1	0
,, Superb Crown-flowered, 6 vars., mixed 6*d.* and	1	0
,, French Giant Emperor, 12 vars., mixed	1	0
,, Newest Victoria	1	0
STOCKS, Dwarf German Ten-week, 24 vars., mixed	1	0
,, Newest Large-flowered Ten-week, 12 vars., mixed ..	1	0
,, Crimson Dwarf Bouquet, extra	1	0
PETUNIA fl.-pl., extra superb, choicest mixed double ..	1	0
,, single, extra superb, choicest mixed	1	0
BALSAM, extra superb, choicest mixed double	1	0
PHLOX DRUMMONDII, 10 superb varieties, mixed	1	0
LOBELIA SPECIOSA, true Crystal Palace var. 6*d.* and	1	0
MARIGOLD, French, superb, 6 vars., mixed .. 6*d.* and	1	0
ZINNIA fl.-pl., superb double, 6 vars., mixed .. 6*d.* and	1	0

For all other varieties of new and choicest Flower Seeds, also new varieties and collections of Vegetable Seeds, see J. SCOTT'S "convenient" PRICED CATALOGUE, free on application to

J. SCOTT, the Seed Stores, Yeovil, Somerset.

Genuine Seeds.—Carriage Paid.

B. S. WILLIAMS, SEED MERCHANT AND NURSERYMAN,

Victoria and Paradise Nursery, Upper Holloway, London, N.

COMPLETE COLLECTIONS OF KITCHEN GARDEN SEEDS

To suit Gardens of various sizes,
10*s.* 6*d.*, 21*s.*, 42*s.*, 63*s.*, and 84*s.* each.

NEW and CHOICE VEGETABLE SEEDS.	Per Pkt. s.	d.
WILLIAMS' IMPROVED GREEN CURLED BORECOLE..	0	6
WILLIAMS' ALEXANDRA BROCCOLI	1	6
DELL'S FINE DARK BEET	1	0
WILLIAMS' MATCHLESS RED CELERY	1	0
SHARMAN'S UNIVERSAL CUCUMBER (new)	1	6
TELEGRAPH IMPROVED (Woolley's variety)	1	6
WILLIAMS' PARADISE GEM MELON, scarlet flesh, of excellent flavour, and 12 days earlier than any other in cultivation (new)	2	6
DIGSWELL PRIZE ENDIVE..	1	0
WILLIAMS' VICTORIA COS LETTUCE (new)	1	0
MALVERN HALL MELON	1	6
GOLDEN QUEEN (New Hybrid Prize) MELON	2	0
BEDFORDSHIRE CHAMPION ONION (new)	1	0
NUNEHAM PARK ONION .. .. 1*s.* and	1	6
CULLINGFORD'S CHAMPION MARROW PEA, an excellent cropper, and fine flavour (new) .. .. per qrt.	3	6
MACLEAN'S LITTLE GEM PEA (very early) .. .. ,,	2	6
LEE'S GIANT ORACH	1	0
ORANGEFIELD DWARF PROLIFIC TOMATO	1	0

NEW and CHOICE FLOWER SEEDS.	Per Pkt.
WILLIAMS' SUPERB STRAIN of PRIMULA.—B. S. W. can with confidence offer his superb strain of Primula as being the finest in cultivation.	
Red, White, or Mixed .. .. .. 2*s.* 6*d.*, 3*s.* 6*d.*, and	5 0
CINERARIA (Weatherill's extra choice strain) .. 2*s.* 6*d.* and	3 6
CALCEOLARIA (Neill's extra choice strain), 2*s.* 6*d.*, 3*s.* 6*d.*, and	5 0
,, (James' strain) .. .. .. 2*s.* 6*d.* and	3 6
,, (Dalkeith Palace strain)	2 6
CYCLAMEN (Wiggins' prize strain) .. 1*s.* 6*d.*, 2*s.* 6*d.*, and	3 6
POLYANTHUS (Wiggins' prize strain) .. .. .. 1*s.* 6*d.* and	2 6
BALSAM (Williams' superb strain) .. .. .. 1*s.* 6*d.* and	2 6
GERANIUM LE GRAND .. .. 1*s.* 6*d.* and	2 6
SOLANUM (Weatherhill's hybrids) .. 2*s.* 6*d.*, 3*s.* 6*d.*, and	5 0
VIOLA LUTEA (yellow flowered Violet) .. .. 1*s.* 6*d.* and	2 6
WALLFLOWER (Saunders' fine dark variety)	1 0
SALVIA ARGENTEA, a beautiful silvery-foliaged ornamental plant	1 0
DIANTHUS HEDDEWIGII DIADEMATUS fl.-pl., flowers very large, and colours most beautiful (new)	2 6
OXALIS VALDIVIANA, quite hardy, the flowers are bright yellow and sweet scented, and produced in bunches of large size (new)	1 0
PALAVA FLEXUOSA, very pretty annual (new)	1 0
MYOSOTIS AZORICA ALBA, the flowers are pure white, contrasting beautifully with the blue variety Cœlestina (new) .	2 6
STOCK, EAST LOTHIAN.—This is a splendid variety, of dwarf and compact habit, producing immense spikes of bloom, and very double. They make a grand display in beds, and for ribbon borders. Per collection of three colours (Scarlet, Purple, and White)	2 6
TACSONIA VAN VOLXEMI (a beautiful Climber)	2 6
AMARANTHUS SPECIOSUS AUREUS (New Golden Princes Feather)	1 0
ANTIRRHINUM ASARINA, very beautiful for rockwork (new)	1 0
HELICHRYSUM APICULATUM (new)	1 0
MIMULUS REPENS, this is a very distinct species, the flowers are of a pale lilac-purple colour, the lower lip being prettily spotted with orange on a yellow ground (new) ..	1 0
ABRONIA ARENARIA, the flowers are of a pure waxy yellow, deliciously scented, and produced in long succession (new)	1 0
ZINNIA ELEGANS TAGETIFLORA fl.-pl. (new	1 0

B. S. W.'s DESCRIPTIVE CATALOGUE of FLOWER, VEGETABLE, and AGRICULTURAL SEEDS, is now ready; post free to all applicants.

Victoria and Paradise Nursery, Upper Holloway, London, N.

TRICOLORED GERANIUM, SOPHIA DUMARESQUE, can be supplied—good strong plants, with a cutting on each, in 4-inch pots, at 12s. per dozen, package included. Healthy plants struck this Spring, after the middle of May 8s. per dozen, or 60s. per 100. Strong plants of SUNSET, a cutting on each, 6s. per dozen. Very fine IRISH YEWS, 5 feet high, very healthy, 60s. per dozen; a few fine plants of PICEA PINSAPO, from 6 to 8 feet high, will be Sold a Bargain, price on application. A remittance requested from unknown correspondents.

JOHN SCOTT, Nurseryman and Florist, Bathford, near Bath.

PELARGONIUMS.—Gloire de Nancy, double, nice established plants, 12 for 5s., 25 for 10s.; Mrs. Pollock, 12 for 4s., 25 for 7s., 50 for 13s. 6d., 100 for 26s., package free. Geraniums of Scarlet, Nosegay, and Zonal, out of cutting pots, well rooted plants, in 50 sorts, including Little David, Tom Thumb, Adonis, Aurora, Christine, Helen Lindsay, Junon, Meteor, Napoleon, Rose Queen, Scarlet Globe, Cobster, Firebrand, Ratazzi, Rival Nosegay and Stella, Indian Yellow, Donald Beaton, Lord Palmerston, &c., our selection, from 6s. to 8s. per 100, package included. Special prices for quantities, as the stock is very large.

H. & R. STIRZAKER, Skerton Nurseries, Leicester.

VARIEGATED PELARGONIUMS.

Lucy Grieve	Lady Cullum	Sophia Dumaresque
Lavinia	Lurline	Queen of Tricolors
St. Cloud	Picturata	E. G. Henderson
Canary-bird	Neatness	Duke of Edinburgh

The 12 for 2ls.; if any varieties are not required, others of equal value will be substituted. The following kinds at per dozen: Lady Cullum, 21s.; Sophia Dumaresque, 13s.; Mrs. Benyon, 6s.; Sunset, 6s; Mrs. Pollock, 3s. 6d. to 6s.; Italia Unita, 5s.; Beauty of Oulton, 6s.; Luna, 5s., all in strong plants, package included, at the above prices for cash. Remittances requested from unknown correspondents.

ALFRED FEYER, Nurseries, Chatteris, Cambridgeshire.

CHOICE VARIEGATED GERANIUMS.

Admiration	Lady Cullum	Princess Alice
Arthur H. Wills	L'Elegante	Refulgens
Beauty of Caulderdale	LittleGoldenChristine	Silver Star
Beauty of Ribblesdale	,, Spread Eagle	Sophia Cusack
Compactum	Louisa Smith	Sophia Dumaresque
Crystal Palace Gem	Model	Sunset
Her Majesty	Perilla	The Sultan
Italia Unita	Princess Alexandra	Viceroy

The above for 24s., good plants, in 3-inch pots, package included; or may be had by the dozen, 100, or 1000, at low prices. A LIST, with prices, of all the best and new Variegated and other Geraniums may be had on application to

WM. POTTEN, Sissinghurst, Staplehurst, Kent.
The Trade supplied.

HENRY CANNELL'S AMATEUR'S and NURSERYMEN'S FLORAL GUIDE gives every particular of all the newest and best Zonal, Tricolor, Bicolor, Variegated, and Double Pelargoniums, Fuchsias, Verbenas, Petunias, Chrysanthemums, Dahlias, Calceolarias, Pentstemons, Antirrhinums, Lobelias, Phloxes, and Bedding Plants, &c., in cultivation, their improved qualities being correctly described, and a great deal of other valuable information given, including the Second Chapter on the "Art of Gardening, and the Natural Requirements of Plants," and how to Grow them to the highest perfection. Free for Six Stamps.

First Prize at the Pelargonium Show at Kensington, last June, for the best Six Bicolors.

H. CANNELL is now sending out SEED from the above in 2s. packets. It is particularly fine this season, and cannot fail in producing some valuable new kinds, for it is saved with great care from 350 of the very best in cultivation; both Tricolors, Bicolors, Zonals, &c., mixed, including some picked from this year's kinds, such as Lord Derby, Richard Headly, Duke of Edinburgh, &c. Now is the best time to sow it. GOLDEN FEATHER PYRETHRUM, the best yellow bedding plant ever sent out, 1s. per packet. The following Seeds are purchased from enthusiastic amateurs, who are quite as particular as those that wish to purchase the same. For further particulars as to purity of quality, price, &c., see H. C.'s Floral Guide, free for six stamps.

	Per pkt.—s.	d.		Per pkt.—s.	d.
Antirrhinum	1	0	Pansy	2	0
Balsam	2	6	Polyanthus	2	0
Calceolaria, herbaceous	2	6	Stocks, Brompton	1	0
Cineraria	2	6	Cockscomb, tall	2	6
Egg Plants	1	6	Marigold, African	0	6
Delphinium formosum	0	6	Stocks, Covent Garden Intermediate	1	0
Hollyhock	2	6	Primula sinensis	2	6
Humea elegans			,, carminata	2	6
Lobelia speciosa	0	6	,, Fern-leaved	2	6
Pentstemons	1	6	Verbena	2	0
Tagetes signata pumila	0	6	Lantana	2	0
Maurandya Barclayana	0	6	Sweet Williams	1	0
Mimulus	0	6			

UNSOLICITED TESTIMONIAL.

"Bute House, Hammersmith, London.

"DEAR SIR,—I have 27 Pelargoniums up from your packet of seed, and one of them is as red as a garden Beet. Only fancy, if it keeps to its colour, it will be very odd. I will let you know how I get on with it, if I am spared to do so.—Yours truly, "D. LEGOOD."

H. CANNELL, Florist Flower and Florist Flower Seed Merchant, Woolwich.

Spring Flowers.

LEWIS S. WOODTHORPE offers the following, cheap:—

	Per dozen.—s.	d.		Per dozen.—s.	d.
Violets, Queen of Violets, double white	4	0	Dianthus, choice double named kinds	9	0
,, King of Violets, indigo blue	4	0	Calceolaria aurea floribunda	1	0
,, double red, large and attractive	4	0	,, Prince of Orange	1	0
,, ,, Neapolitan, very fine lilac	3	0	Helianthemum, or dwarf Rock Cistus	3	0
,, ,, tree, true	4	0	Picotees, crimson Clove, blush Bouquet Clove, and new early improved Anna Boleyn Pink	4	0
,, ,, Blandyana, striped, each	1	6	Phlox, Pentstemons, Chrysanthemum, all the best kinds of 1867	4	0
,, single, the Czar, very large and fine	4	6	Nierembergia rivularis	6	0
,, ,, Devoniensis, fine	3	0	Œnothera missouriensis	3	0
,, ,, obliquestriata, purple, striped white	6	0	Primroses, double white and lilac	3	0
Hepaticas, double red, single pink, single red and blue	2	6	,, double crimson purple and yellow	12	0
,, single mauve, new, each	1	0	Rockets, double white and purple	3	0
Daisies, Bachus, Maggie, Pink Beauty, Queen of Whites, Red Rover, Ruby Gem, and others	3	0	Ivies, golden and silver variegated	9	0
,, gold blotched, aucubæfolia	3	0	Clematis in variety	12	0
Auriculas, finest mixed Alpines	2	6	Roses, dwarfs, in pots, strong	8	0
,, Pervils, red and single blue	2	6	Hollyhocks, fine new named varieties	5	0
,, fine named varieties	12	6	Vines, strong fruiting canes, each	3	0

DESCRIPTIVE CATALOGUES of NEW and CHOICE PLANTS free. Manor Nursery, Sible Hedingham, Essex.

Stocks, Stocks, Stocks.

B. S. WILLIAMS has much pleasure in offering carefully selected SEED of the SUPERB EAST LOTHIAN INTERMEDIATE STOCK, feeling sure, from personal observations of several years, that it is without question the finest Strain of Intermediate Stock extant. The colours are Purple, Scarlet, and White. The two first are remarkably brilliant, and the latter very pure. They produce immense branched spikes of large double flowers, and are admirably adapted for ribbon borders and general bedding purposes; indeed, the effect which can be produced by these three varieties in both spring and autumn gardening is not surpassed by any of the now popular plants. If sown early in March, and transplanted in May to their blooming places, the amount of double flowers produced, and the grand display they make, is truly surprising. For either flower gardening or pot culture they are unapproachable, and cannot be too strongly recommended. An assortment of three colours (Scarlet, Purple, and White), 2s. 6d.

B. S. WILLIAMS, Victoria and Paradise Nursery, Upper Holloway, N.

W. RUSHFORTH, NURSERYMAN, Leeds, offers as under, very fine:—

DOUBLE WHITE PRIMROSES, per 100, 25s.
DOUBLE LILAC PRIMROSES, per 100, 30s.
DIELYTRA SPECTABILIS, per 100, 21s.
LAURUSTINUS, in Bud, per 100, 20s.
ASPARAGUS, 3-yr., per 1000, 25s.
SEAKALE, 4-yr., per 1000, 60s.

Bedding-out and Hardy Climbers.

JACKMAN'S HARDY HYBRID CLEMATISES,

AWARDED TWENTY FIRST-CLASS CERTIFICATES AND TWO SPECIALS.

GEORGE JACKMAN AND SON are desirous of drawing the attention of those who intend using their Clematises for a permanent bedding plant, &c., to the fact that the present time is most favourable for planting.

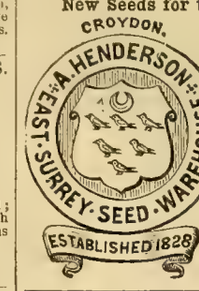
OPINIONS OF THE PRESS.

"They have in their several varieties the very colour of which our summer gardens are in a great measure deficient." J. F. (Cliveden), *Gardeners' Chronicle*, August 31.—"They will be of the highest value as purple bedding plants—our present colours in this way being poor indeed compared to these." *The Field*, September 28.—"There is no finer flowering plant for lawn decoration, no more gorgeous subject for garden avenues, not even excepting Pillar Roses; . . . while the glorious mass of rich violet purple furnishes quite a new sensation in bedding out." The "Florist and Pomologist," November, 1867.

An ENGRAVING from a Photograph, showing the flowering qualities, and a GENERAL CATALOGUE of PRICES, will be forwarded gratis by enclosing a stamp.

Woking Nursery, Surrey.

New Seeds for the Garden and Farm, 1869.



ARCHD. HENDERSON'S DESCRIPTIVE and PRICED CATALOGUE of SEEDS, containing Cultural Remarks on all the most important SEEDS,

A select list of GLADIOLUS for Spring Planting,

GRAPE VINES, in Pots, an unrivalled Collection.

Also his DESCRIPTIVE CATALOGUE of GENERAL NURSERY STOCK is now ready, and may be had gratis and post free upon application.

Sion Nursery, Thornton Heath, Surrey; and at the East Surrey Seed Warehouse, College Grounds, North End, Croydon.

NEW ROSES for 1869.
NEW DAHLIAS for 1869.
NEW VERBENAS for 1869.
NEW BEDDING GERANIUM for 1869.
CATALOGUES now ready.
JOHN KEYNES, Salisbury.

Roses.

JOHN CRANSTON will be happy to forward on application his DESCRIPTIVE CATALOGUE of ROSES for 1868 and 1869. For quality or quantity the stock is unsurpassed; the Manetti Roses especially are acknowledged to be the finest grown plants in the Trade.

Nurseries, King's Acre, near Hereford.

New Roses, &c., 1869.

WM. KNIGHT begs to offer the following Plants:—

12 NEW ROSES, Strong Plants	30s.
12 Finest NEW FUCHSIAS, Strong Plants	6s.
12 Finest NEW VERBENAS, Strong Plants	4s.
12 Finest COLEUS, Strong Plants	5s.
6 NEW PETUNIAS, Strong Plants	4s.

Or the above Collection, package included, for 2l. 10s.
CATALOGUE free.
Floral Nursery, Hailsham, Sussex.

New Golden Coleus.

DOWNIE, LAIRD AND LAING, have much pleasure in offering the following beautiful and distinct novelties, which they feel assured will give every satisfaction. Each has received First-class Certificates, and will be sent out on March 16 next, at 7s. 6d. each:—

ALBERT VICTOR, a very distinct tricolored variety, the centre of the leaves being bronzy-red, stained with large blotches of deep purplish-carmine, and the golden margin is very broad, much more so than in any other of the new golden sorts; the marginal teeth are also marked out by rich carmine lines. It has a very free habit of growth.

BARONESS ROTHSCHILD, an exquisitely beautiful variety, the centre of the leaves being of a bright bronzy-crimson, without stains or blotches, margin bright golden, and the teeth beautifully marked with light carmine. In habit of growth it resembles Albert Victor.

PRINCESS BEATRICE, a charming variety, of a beautiful light golden hue, the main veins being slightly marked, and the margin entirely defined by dark crimson lines, dwarf, and fine.

PRINCESS ROYAL.—The centre of the leaves are a rich bronzy-crimson, with a narrow bright yellow margin, a handsome and most effective pot plant, and a most desirable variety for bedding, being very bright, and nearly an entire colour, a free grower.

Stanstead Park, Forest Hill, London; and Edinburgh.

IBERIS GIBRALTARICA VERA,

NEW HARDY PERENNIAL.

This fine and very distinct Candytuft can now be supplied. It is perfectly distinct from all other species in cultivation (including I. coriacea, which is often erroneously sold as "I. Gibraltarica.") The true plant, now offered we believe for the first time in the trade, is *more than double the size* of I. coriacea in all its parts: the heads being 2 to 3 inches across, and the individual flowers nearly three times the size. They are white, or pale shaded rosy-lilac. Habit very robust and free.

1s. 6d. each, 15s. per dozen.

JAMES BACKHOUSE AND SON, YORK NURSERIES.

DIPLADENIA AMŒNA.

J. W. WIMSETT

HAS GREAT PLEASURE IN ANNOUNCING THAT HE HAS PURCHASED

THE WHOLE STOCK OF THE ABOVE BEAUTIFUL PLANT,

Raised by Mr. Tuke, Gardener to E. Nicholls, Esq., of Bramley, near Leeds, who also raised the lovely Dipladenia amabilis. A figure of the beautiful D. amœna is given in the "Florist" for April, 1868. Plants will be ready for distribution the first week in May.

Price, 1½ Guinea each.
Strong Half Specimens, 5 and 7 Guineas each.

ASHBURNHAM PARK NURSERY, KING'S ROAD, CHELSEA, LONDON, S.W.

Feb. 10, 1869. J. WILLS, F.R.H.S., Manager.

TO THE TRADE ONLY.

STUART & CO., SEED GROWERS, NICE.

Warehouse and Offices, where Stock is kept for the supply of the English Trade,
5, TAVISTOCK ROW, COVENT GARDEN, W.C.
(Late of 85, Southampton Row.)

WHOLESALE CATALOGUE ON APPLICATION.

THE FOLLOWING SPECIALITIES SUPPLIED AT THE CATALOGUE PRICE,
OR SPECIAL OFFER FOR LARGE QUANTITIES.

ECHEVERIA METALLICA.—Fresh Seed now ready to send out, in pods containing from 20 to 50 seeds, with full directions as to culture. Few plants equal this grand House-Leek for subtropical or alpine succulent gardening, or for the decoration of the Conservatory; its large massive leaves, shaded with a purplish glaucous hue, are unique.

PYRETHRUM GOLDEN FEATHER.—A valuable plant for ribands, beds, edgings, &c. Raised from seed, it retains its beautiful golden hue longer than if propagated by cuttings or divisions.

CARNATION SEED, from Florists' Flowers, in Mixture or in Collections.

PICOTEE SEED, from Florists' Flowers, in Mixture or in Collections. STUART & Co.'s Carnation and Picotee Seeds have long been noted for their large yield of fine double flowers.

PELARGONIUM SEED.—Large-flowered, Spotted, Fancy, and Diadematum, in Mixture or in Collections. The Seed we offer produces Flowers of great beauty.

PELARGONIUM (ZONAL) SEED.—Saved from the newest Variegated Tricolor and Bicolor Varieties, and from these crossed with the finest Zonals.

PRIMULA SEED.—Saved from the largest and brightest-coloured fimbriated flowers, from Fern-leaved and Double Varieties.

PINK SEED.—Saved from the choicest English varieties.

HOLLYHOCK.—Saved from English Exhibition varieties.

LOBELIA LITTLE GEM.—The prettiest of last year's novelties, flowers pure white, with clear well-defined blue margin, compact, and blooming throughout the season.

PETUNIA SEED, of exquisite quality.

CINERARIA SEED.—Saved from the choicest Florists' Flowers.

ZINNIA SEED, from magnificent double varieties.

CENTAUREA CANDIDISSIMA (RAGUSINA), warranted true, plump, well-ripened seeds.

CENTAUREA GYMNOCARPA SEED, true.

BALSAM SEED, finest double varieties.

VIOLA CORNUTA SEED, PURPLE QUEEN.—The earliest, the darkest coloured, and most profuse blooming variety.

MYOSOTIS SYLVATICA SEED, the finest Forget-me-Not for spring gardening.

ORNAMENTAL GRASSES.

SUBTROPICAL PLANT SEEDS.

MELONS.—Choice hybrid, our own raising; unequalled for their exquisite luscious flavour, fine shape, and beautiful lacing.

MELONS.—All the usual sorts in cultivation; seed saved from selected fruits only.

CUCUMBERS.—All the finest varieties in cultivation.

STUART AND CO., 5, TAVISTOCK ROW, COVENT GARDEN, W.C.

Choice Flower Seeds for 1869.

LEE'S CHOICE CINERARIA, saved from named flowers, 2s. 6d. per packet.

LEE'S CHOICE CALCEOLARIA, from a choice strain, 2s. 6d. per packet.

LEE'S CHOICE PRIMULA FIMBRIATA, beautifully fringed, 2s. 6d. per packet.

LEE'S CAMELLIA-FLOWERED BALSAMS, saved from fine double flowers, in nine choice varieties, 2s. 6d. per packet.

GOLDEN PYRETHRUM (GOLDEN FEATHER). This beautiful bedding plant comes perfectly true from seed. Per packet, 1s. and 2s. 6d.

AMARANTHUS ELEGANTISSIMUS, the Gem of the Garden ; per packet, 1s. 6d.

LEE'S SUPERB HOLLYHOCKS, in nine choice varieties, per packet, 3s. 6d.

JOHN & CHARLES LEE, Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

TRUFFAUT'S REINE MARGUERITE, FRENCH PEONY-FLOWERING ASTER, direct from the Continent, the most beautiful Aster grown, in packets containing 21 splendid double colours, separate, for 2s. 6d.

New large VICTORIA ASTER, petals finely imbricated, 10 double colours, mixed. 500 seeds for 1s. These and other imported Seeds of the finest quality supplied by

ALFRED HAMMOND, Bodwin Street, Salisbury.

From the Edinburgh Gazette of February 5, 1869.

NOTICE.—The COPARTNERY carried on by the Subscribers as NURSERYMEN and SEEDSMEN at the Dean, near Edinburgh, and at Hanover Street, Edinburgh, has this day been DISSOLVED by MUTUAL CONSENT. The subscriber, DAVID MITCHELL, will continue to carry on the Business, and will Discharge all the Obligations of, and Collect all the Accounts due to, the Late Firm. (Signed) JOHN LAMONT.

DAVID MITCHELL.

(Signed) JOHN ORD MACKENZIE, W.S., *Witness.*
ROB. FINLAY, S.S.C., *Witness.*
Edinburgh, Feb. 4, 1869.

With Reference to the above Notice

DAVID MITCHELL takes this opportunity of thanking his Friends and the Supporters of the late Firm for the Patronage hitherto bestowed, and begs to intimate that he will continue to carry on the Business in all its Branches at the Dean, and at Hanover Street, Edinburgh, and trusts by strict attention he will continue to merit a continuance of the favours so kindly and liberally bestowed on his late Firm.

Seed Warehouse, 3, Hanover Street, Edinburgh.—Feb. 5, 1869.

EDWARD SANG AND SONS, NURSERYMEN and SEED MERCHANTS, Kirkcaldy.

CALCEOLARIA AMBASSADOR (SANG'S).—Autumn-struck plants of this now well-known beautiful Calceolaria, 3s. per dozen.

SANG'S DEEP CRIMSON BEET.—Most beautiful in colour, and finely flavoured. Per packet, 3d., or 6d. per oz.

TRUE SCOTCH LEEK.—A very superior large hardy Leek, capable of withstanding the severest winters. Per pkt., 3d., or 1s. per oz.

PRINCE OF WALES' GREENS.—Dwarf, and most beautifully curled. Per oz., 4d.

PRICED CATALOGUES of Forest, Fruit, and Ornamental Trees and Shrubs, Vegetable and Flower Seeds, Ferns, &c., may be had free on application.

E. S. & S. deal liberally with respect to the carriage of their packages.

Vegetable, Agricultural, and Flower Seeds.

MISCELLANEOUS HARDY BEDDING PLANTS, SWEET VIOLETS, &c.

ROBERT PARKER begs to announce that his CATALOGUE, containing DESCRIPTIVE LISTS of the finest kinds in cultivation of the above-named, is now published, and will be forwarded to applicants. The stocks of Seeds have all been procured from the best possible sources ; all are warranted genuine, and are offered at the lowest possible prices.

Intending purchasers are requested to compare the prices with those of other houses.

Exotic Nursery, Tooting, Surrey, S.W.

ROLLISSONS' TELEGRAPH CUCUMBER (True).

THERE ARE MANY SPURIOUS VARIETIES IN CULTIVATION.

From the universal satisfaction that their Telegraph Cucumber has given, WILLIAM ROLLISSON & SONS are much encouraged in again offering good and well ripened Seed of this most extraordinary variety. Its wonderful cropping qualities have this year been witnessed at their Establishment by many experienced judges, all of whom have agreed that it is the best in cultivation for that purpose ; in fact it has been acknowledged to be, by the best authorities of the day, the most productive yet introduced for Winter and Early Spring use, in proof of which

See *Gardeners' Chronicle*, January 12, 1867.
See *Gardeners' Chronicle*, August 31, 1867.
See *Gardeners' Chronicle*, March 16, 1867.
See *Gardeners' Chronicle*, October 12, 1867.
See *Gardeners' Chronicle*, January 11, 1868.
See *Gardeners' Chronicle*, January 6, 1869.
See "Gardeners' Magazine," January 18, 1868.
See "Gardeners' Magazine," January 30, 1869.
See "Journal of Horticulture," August 20, 1868.
See "Journal of Horticulture," January 28, 1869.

The above may be had, in printed and sealed packets, guaranteed true, price 2s. 6d. each, from

The Nurseries, Tooting, London, S.W.

WILLIAM ROLLISSON AND SONS also beg respectfully to announce that their GENERAL and PRICED SEED CATALOGUE for 1869 is now published, which comprises many novelties, in the way of VEGETABLE and FLOWER SEEDS, also numerous valuable additions to their extensive List of SUB-TROPICAL PLANTS which can be raised from Seed, in which is also included the following choice Flower Seeds :—

CENTAUREA RAGUSINA COMPACTA.—The foliage of this new variety has the most silvery-white gloss, while its very dwarf and compact habit makes it much more useful and effective in Ribbon-borders than any of the oldest varieties. Price, per packet, 1s. and 2s. 6d.

KENNEDYA FREDWOODII.—This extremely ornamental Greenhouse Creeper blooms in great profusion during the months of December and January. The flowers, which are as large as those of a good-sized Sweet Pea, are of a gorgeous scarlet-crimson, delicately striped in places with white and marked with green. Very young plants in 3-inch pots will bloom abundantly. Seed, price 1s. per packet. Blooming plants from 3s. 6d. to 5s. each.

PRIMULA SINENSIS FIMBRIATA.—Seed saved from the finest prize strains in cultivation. Price per packet, 2s. 6d.

PRIMULA SINENSIS KERMESINA SPLENDENS.—Seed saved from the brightest coloured variety. Price per packet, 2s. 6d.

CINERARIA.—Seed saved from named varieties, the flowers of which combined endless shades of brilliant colours with perfection of form. Price per packet, 2s. 6d.

CYCLAMEN PERSICUM.—The seed which W. R. & Sons possess of this splendid greenhouse plant was saved from one of the finest collections in the country, their flowers being of the brightest crimson-lake and purest white, also combining all the intermediate delicate shades of colour. Some are most beautifully spotted and striped on white and light grounds, while many of a crimson hue are starred and mottled with colours of a deeper shade. To give an idea of the size of the flowers of this strain, many of them had from 10 to 12 petals last season, and were really beautiful objects. Price, in printed and sealed packets only, 1s. 6d., 2s. 6d., and 5s. per packet.

N.B.—W. R. & SONS' GENERAL CATALOGUE of SEEDS may be had gratis, and post free, on application to

The Nurseries, Tooting, London, S.W.

ONE THOUSAND MRS. PINCE'S BLACK MUSCAT, 7s. 6d. to 21s. each ; Trade price on application. Also, ROYAL ASCOT, and a very large stock of strong, well-ripened Canes of all the leading kinds, at moderate prices. PRICED CATALOGUE on application to

H. LANE & SON, The Nurseries, Great Berkhampstead, Herts.

Must be Sold, to make room.

L. WOODTHORPE offers the following, to effect a clearance :—Strong Fruiting VINES, 10 to 12 feet in length and thick in proportion, 3s. 6d. each. Extra strong, will carry 8 to 10 bunches, 5s. each.

Munro Nursery, Sible Hedingham, Essex.

ARTHUR HENDERSON AND CO. can supply strong fruiting Canes, capable of carrying six to eight bunches of fine GRAPES of the undermentioned sorts, at 10s. each, excepting Black Hamburgh, which we price below.

BLACK HAMBURGH, 8s. | WHITE FRONTIGNAC
MUSCAT HAMBURGH | BUCKLAND SWEETWATER
LADY DOWNE'S

Also those fine sorts, GOLDEN CHAMPION, MRS. PINCE'S BLACK MUSCAT, and MADRESFIELD COURT.

Pine-apple Place, Maida Vale, London, W.

Strong Vines from Eyes.

MESSRS. JOHN AND CHARLES LEE can supply strong well-ripened CANES of all the leading varieties of GRAPE VINES. Planting Canes, 5s. each ; Fruiters, to bear nine or ten bunches, 10s. 6d. each.

DESCRIPTIVE CATALOGUES on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

Madresfield Court Black Muscat Vine.

MESSRS. JOHN AND CHARLES LEE are now executing orders for this superb new late-keeping MUSCAT GRAPE, price £2 2s. each. Strong Fruiting Canes, £3 3s. each.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

New Roses for 1869.

MESSRS. JOHN AND CHARLES LEE have selected Twenty of the most beautiful and distinct of the new CONTINENTAL ROSES for 1869, which they intend to send out in March, and among which they particularly recommend CHARLES LEE as being first-class in every respect.

DESCRIPTIVE PRICED CATALOGUES post free on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

CORDON APPLE TREES, on the true French Paradise Stock, as recommended by Mr. Robinson in his "Gleanings from French Gardens." All the best kinds, including CALVILLE BLANC, REINETTE DU CANADA, and other sorts. Prices upon application.

B. S. WILLIAMS, Victoria and Paradise Nursery, Upper Holloway, London, N.

FINE ORANGE TREES for SALE.—Ten very handsome Trees, in robust health, loaded with Fruit ; clean, straight stems, about 4 feet ; symmetrical heads, 5 feet diameter. One CITRON, same size. In ornamental green tubs.

Apply to the GARDENER, Woburn Park, Weybridge, Surrey. Inquiries by post address FRANCIS R. KINGHORN, Sheen Nursery, Richmond, S.W.

Fruit the First Season.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON respectfully solicit attention to their enormous stock of FRUIT TREES in a fruit-bearing state.

PYRAMIDAL APPLES and PEARS, full of fruit buds.
Apples, 18s. per dozen ; Pears, 24s. per dozen.
DWARF-TRAINED TREES, of extra size, in a fruiting state, adapted for walls or espaliers, including Apples, Pears, Plums, Cherries, &c.
STANDARD TRAINED FRUIT TREES for walls.
PRICED CATALOGUES may be had gratis on application.

STRONG STANDARD and DWARF TRAINED APPLES and PEARS, TULIP TREES, 7 to 8 feet ; bushy LAURELS and LAURUSTINUS, strong evergreen PRIVET ; a choice collection of CONIFERÆ, a large assortment of Standard and Dwarf Perpetual and Dwarf CHINA ROSES, and a general Nursery Stock. All the above have been regularly transplanted, and are well rooted. Prices on application to

CHARLES BURGESS, the Nurseries, London Road, Cheltenham.

SPECIAL OFFER to the TRADE.
STANDARD TRAINED APRICOTS, PEACHES, and NECTARINES
PYRAMIDAL and FRUITING APPLES, in 100 sorts
Large-flowering LAURUSTINUS, 3 to 4 feet
Ditto bushy COMMON LAURELS, 6 to 7 feet
Ditto ENGLISH YEWS, 4 feet [1½ to 4 ft.
Ditto RHODODENDRON PONTICUM, fine flowering plants,
EVERGREEN PRIVET, 3 to 4 feet
BERBERIS DARWINII, 2 to 3 feet

The above are as good plants as were ever offered, and prices will be moderate and terms cash.

WM. KNIGHT, Floral Nursery, Hailsham, Sussex.

ONE MILLION FOREST TREES, transplanted, well rooted stuff, &c., at very moderate prices, of Ash, Elm, Birch, Sycamore ; Poplar (Abele), Ontario, &c. ; Willow, Babylonian, Weeping and Huntingdon, in sizes, from 2 to 3, 3 to 4, 4 to 5, and 6 to 6 feet ; Privet, Alder, Spruce, and Scotch Fir, 1½ to 2, and 2 to 3 feet ; Silver Fir, 1 to 1½, and 1½ to 2 feet ; Yew, English, extra strong, and well rooted and bushy, 4 to 6 ft. ; Laurel, Common, 1½ to 2, and 2 to 2½ ft., bushy, and well rooted.

GOOSEBERRIES—Ashton Seedling and others, fine, can be supplied by the 1000.

H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

The Planting Season.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON respectfully invite especial attention to their very large stock of STANDARD ORNAMENTAL TREES, of large size, suitable for planting as single specimens on Lawns or in Parks where immediate effect is desired.

WEEPING ASH, 7 to 9 feet stems.
" AMERICAN WILLOWS, 6 to 7 feet stems.
CATALPA STRINGIFOLIA, 6 to 8 feet.
ELMS, CHICHESTER and ENGLISH, 8 to 10, and 10 to 12 feet.
SILVER and SPRUCE FIRS, 6 to 7 feet.
HORSE-CHESTNUTS, 6 to 8, and 8 to 10 feet.
SCARLET HORSE-CHESTNUTS, extra fine plants, 6 to 8, and 8 to 10 feet.
LABURNUMS, Yellow and Purple, 6 to 8 feet.
POPLARS, BLACK ITALIAN and LOMBARDY, extra fine, 8 to 10, and 10 to 12 feet, and various other HARDY TREES.

See PRICED CATALOGUES, which may be had free on application.

To the Trade.

THOS. CRIPPS AND SON beg to announce they still hold a good stock of the following, in fine healthy stuff :—

ABIES ALBERTIANA (Williamsoni), 2-yr. seedlings, to 16 feet ; A. MENZIESI, 9 ins. to 12 ft. ; ARAUCARIA IMBRICATA, 6 ins. to 20 ft. ; Cupressus Lawsoniana (an unequalled stock), 2-yr. seedlings, to 15 feet ; Picea balsamifera, 3 inches to 7 feet ; P. Nordmanniana, 3 inches to 7 feet ; P. Pinsapo, 6 inches to 18 feet ; P. pectinata (Silver Fir), 1 to 4 feet ; Pinus austriaca, 2½ to 7 feet ; P. Lambertiana, 1 to 5 feet ; P. muricata, 1 to 2 feet ; P. Benthamiana, 2-yr. seedlings, to 7 feet ; Retinospora ericoides, 5 inches to 3½ feet ; R. obtusa, 6 inches to 6 feet ; R. pisifera, 1 to 8 feet ; Taxus erecoides, 6 inches to 2 feet ; Thujopsis dolabrata, fine stuff, 3 to 15 inches ; Wellingtonias, 3ins. to 20ft. ; Horse-Chestnuts, all varieties ; Aucubas, a complete collection ; Berberis Bealii, japonica, intermedia, Darwinii, dulcis, stenophylla, vulgaris ; Laurels, common, 3 to 5 feet ; Laurels, Portugal and Myrtle-leaved do. ; Daphne pontica Stocks ; Deutzia crenata fl.-pl. ; D. scabra, Leycesterias, Manetti and Rhododendron Stocks ; Malus floribunda (handsomest of the flowering Crabs) ; Prunus triloba, Hardy Azaleas, Ericas, Gaultherias, Menziesias, and Pernettyas ; Standard Roses, Blush and Crimson China do. ; Standard Apples, Cherry Plum Stocks, Strawberries ; Pinus excelsa and Picea Webbiana, 1-yr. seedlings ; Alder, 2 to 5 feet ; Spruce Firs ; Lilium auratum and punctatum. For particulars and prices of which, see our TRADE CATALOGUE, to be had free on application.

The Nurseries, Tunbridge Wells, Kent.

ABIES DOUGLASII.—1½ to 2 feet, 80s. per 100 ; 2 to 3 feet, 100s. per 100 ; 3 to 4 feet, 20s. per dozen ; 4 to 5 feet, 30s. per dozen ; 5 to 6 feet, 40s. per dozen. They are all fine plants, and have been transplanted three and four times, all having been transplanted last spring, and will lift with excellent balls. Trade price on application.

DICKSON & TURNBULL, Nurserymen, Perth.

Full-grown Evergreens.

HENRY GODFREY, NURSERYMAN, Stourbridge, has a large quantity of the following Evergreens to offer, in well grown plants : Green and Variegated HOLLY, S berian and American ARBOR-VITÆ, Common and Portugal LAUREL, English and Irish YEWS, RHODODENDRONS PONTICUM and PONTICUM VARIEGATUM ; Green and Variegated BOX, AUCUBA JAPONICA, ARAUCARIA IMBRICATA, &c.

Evergreens, Shrubs, and Fruit Trees.

ROBERT CORNWELL AND CO. have to offer SPRUCE, SCOTCH LARCH, AUSTRIAN FIRS, 3 to 5 feet ; Privet, 4 to 5 feet ; Variegated and Green Box, 2 to 4 feet ; Irish and English Yews, 3 feet ; Aucubas, American and Chinese Arborvitæ, 2 to 5 feet ; Scarlet and White double Thorns, 8 feet ; Pinus excelsa, 6 to 8 feet ; strong 3 and 4-yr. Asparagus ; strong Fruiting Gooseberries—Whitesmiths, Warringtons, Crown Bobs ; Currants, Raspberries ; Laurels, 3 to 8 feet ; Laurustinus, 2 to 3 feet ; 50 extra very handsome ones, 4 by 4 feet ; 1000 yards Box Edging. Cheap, to clear the ground.—Opposite Red Lion, Barnet.

Plants for Hedges.

TWO HUNDRED THOUSAND COMMON LAURELS, from 1½ to 3 feet.

WM. WOOD & SON.

AMERICAN ARBOR-VITÆ, especially recommended for Hedges :—2 to 3 feet, 6s. per dozen, 40s. per 100 ; 3 to 4 feet, 9s. per dozen, 60s. per 100 ; 4 to 5 feet, 18s. per dozen (extra fine), 100s. per 100.

Extra fine Transplanted BEECH and HORNBEAM, 2 to 3 ft. and 3 to 4 feet ; also fine EVERGREEN PRIVET, in large quantities.

WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

Island of Jersey.

CHARLES B. SAUNDERS, NURSERYMAN and FLORIST, can supply, of fine growth and at moderate prices—

Transplanted PINUS AUSTRIACA and SILVER FIRS, 2 to 3 ft.
EVERGREEN OAKS (in pots), 2, 3, 4, and 5 to 6 ft.
CAMELLIA STOCKS, fine healthy stuff, fit for immediate working.
Strong BLACK HAMBURGH, BLACK VICTORIA, and MUSCAT VINES.
Fruiting, trained, and pyramidal PEAR TREES (on Quince), of best varieties.
Dwarf-trained BIGARREAU, MAYDUKE, and MORELLO CHERRY TREES.
Dwarf-trained NECTARINE, PEACH, and PLUM TREES.
Standard, Pyramidal, and Cordon APPLE TREES, of best sorts.
GUERNSEY ELMS, of different sizes, a tree of handsome, upright growth.
Three-year-old ASPARAGUS ROOTS, in large or small quantities.
GYMNOGRAMMA LEPTOPHYLLA, or Annual Maiden-hair Fern.
GUERNSEY and BELLADONNA LILIES, BULBS, &c.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY (Limited),
CORN, SEED, MANURE, AND OILCAKE MERCHANTS.

Address, 89, Seed Market, Mark Lane, E.C. ; or Basingstok

Samples and prices post free on application. Prize Medals, 1851, for Wheat ; 1862, for "Excellent Seed Corn and Seeds."

The American Nursery, Bagshot, Surrey.

JOHN WATERER respectfully invites the attention of Gentlemen and others engaged in planting to the undernamed selections from his general stock. He has much satisfaction in recommending them as being symmetrically grown and really of first-rate excellence, and from frequency in removal are in an excellent state for transplanting. Having a very large stock, he is determined to treat on most liberal terms. He would, however, earnestly invite Purchasers to make a visit and choose for themselves, which is easily accomplished by South-Western Railway (Reading Branch) to Sunningdale Station, which is near the Nursery.

RHODODENDRONS (Standards)—Of all the leading choice, scarlet, and other varieties, 3 to 4 feet stems, consisting of such as Alexander Adie, Michael Waterer, The Warrior, Princess Mary of Cambridge, Quadroona, Mrs. Ino Penn, Joseph Whitworth, and all such others as have been exhibited annually at the Royal Botanic Gardens, Regent's Park.

RHODODENDRONS (Half Standards)—Of all the approved kinds ; 2 to 3 feet stems.

RHODODENDRONS.—Hardy scarlet, crimson rose, white ; for superior clumps or borders fine well-grown plants. An excellent assortment would be supplied at £15 per 100. Fine bushy plants can also be supplied, averaging 3 to 5 feet.

RHODODENDRONS.—Immense quantities of really good coloured seedlings, with Catawbiense and Hybrid Catawbiense, 1½ to 2 and 3 feet, £10 to £12 10s. per 100. These varieties are very suitable for admixture with the better kinds. The plants are bushy, and mostly well set with blooming buds, and from rose to white in colour.

RHODODENDRONS (Dwarf-growing kinds).—These are very close growing varieties, and are recommended for filling winter beds. Daphnoides, Myrtifolium, and Hybridum are the best suited for such purposes. Odoratum is delightfully scented, and much used for potting and forcing.

RHODODENDRON PONTICUM.—This kind is the most common, and now generally admitted to form the best permanent cover for game. In the most severe weather it is never injured by hares or rabbits. Good plants, 21s. to 30s. per 100.

AZALEAS, HARDY, of the most popular kinds, of all colours, and in fine plants, covered with a profusion of blooming buds. These are much used for forcing. 18s. to 30s. per dozen.

ANDROMEDA FLORIBUNDA.—One of the most hardy plants used for decorating winter clumps. Of these we are large holders, and can supply beautiful specimens at 30s. per dozen, covered with blooming buds.

KALMIA LATIFOLIA and MYRTIFOLIA.—Fine grown plants, of all sizes.

HARDY HEATHS.—A very fine collection, in 20 kinds, 30s. per 100.

ABIES NORDMANNIANA.—Of this fine kind we are very large holders, all of which are seedlings, and of all heights, from 2 to 4 to 6 to 8 and 10 feet.

ABIES MAGNIFICA.—Fine specimens, 2 to 5 feet.

ABIES NOBILIS.—All seedlings, 1½ to 3 to 5 feet.

ABIES LASIOCARPA.—From 2 to 3 to 5 to 7 feet.

ABIES GRANDIS (of Douglas).—Fine specimens, 2 to 6 feet.

ABIES DOUGLASII.—3 to 4 to 6 to 10 feet.

ABIES PINSAPO.—2 to 3 to 5 to 10 feet.

ARAUCARIA IMBRICATA.—Fine specimen, 2 to 4 to 6 to 12 feet.

THUJOPSIS BOREALIS.—2 to 3 to 4 to 6 feet.

THUJA AUREA.—All sizes, 2 to 4 to 5 feet, perfect globes.

THUJA GIGANTEA.—Immense quantities, from 3 to 4 to 6 feet.

WELLINGTONIA GIGANTEA.—Of all sizes from 2 to 12 feet.

IRISH YEW.—Selected specimens, 4 to 12 feet.

HOLLIES (Green).—Fine, 2 to 3 to 4 to 6 feet.

HOLLIES (Gold and Silver).—In the most approved kinds, of all sizes.

STANDARD GOLDEN HOLLY (WATERER'S).—The best for standards ; fine plants.

STANDARD WEEPING HOLLIES (Green and Variegated).

We have likewise immense quantities of the leading kinds of EVERGREENS, of all sizes, such as Yews, Box, Bays, Aucubas, Arbutus, Phillyreas, Common and Portugal Laurels, &c., as well as fine strong transplanted FOREST TREES, 2 to 3 and 4 feet, consisting of Ash, Beech, Alder, Spanish Chestnut, Hazel, Withy, Larch, Spruce, Pinus austriaca, &c.

CATALOGUES describing the colours of all the RHODODENDRONS worthy of cultivation, with a LIST of CONIFEROUS PLANTS, with heights and prices, forwarded to all applicants.

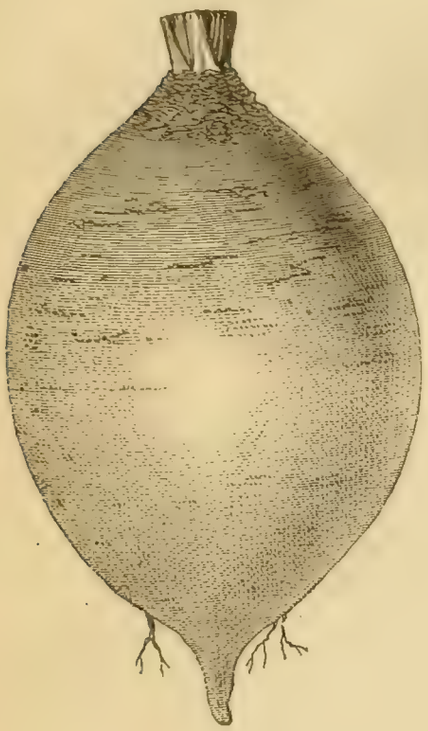
☞ Purchasers of large quantities of goods are informed that the great expense incurred by package is now greatly diminished, as we can forward from Sunningdale, in through trucks without change, to all Stations on the Great Northern, North-Western, Eastern Counties, and Great Western (narrow gauge) Railways ; also by South-Eastern and Brighton Lines by way of Blackwater.

The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway, and Blackwater Station, South-Eastern Railway, where excellent Conveyances await all Trains.

SUTTONS' HOME-GROWN FARM SEEDS,

NEW AND UNADULTERATED, CARRIAGE FREE.

SEEDS DIRECT FROM THE GROWERS THE BEST MEANS OF PREVENTING DISAPPOINTMENT.



SUTTONS'

YELLOW INTERMEDIATE MANGEL.

This is, without exception, the best Mangel in cultivation, and very free from rootlets. From the symmetrical form of the roots, and the leaves being very small, this variety may be allowed to stand closer in the rows than other Mangels; hence it produces a greater weight per acre. It may be pulled with half the labour of other kinds.

Price 1s. 6d. per lb.; cheaper by the cwt.

1869.

SUTTONS' HOME-GROWN

FARM SEEDS

ARE SAVED FROM FULLY DEVELOPED AND WELL SELECTED ROOTS.

Now Ready, 6d. Post Free; Gratis to Customers,

SUTTONS'

FARMER'S YEAR BOOK,

AND

SELECT LIST OF FARM SEEDS,

Containing Original Notes on Cultivation, and numerous Illustrations, with

COMPLETE LIST OF PRICES

FOR THE

PRESENT SEASON.

SUTTON & SONS

POSSESS A MOST COMPLETE STOCK OF

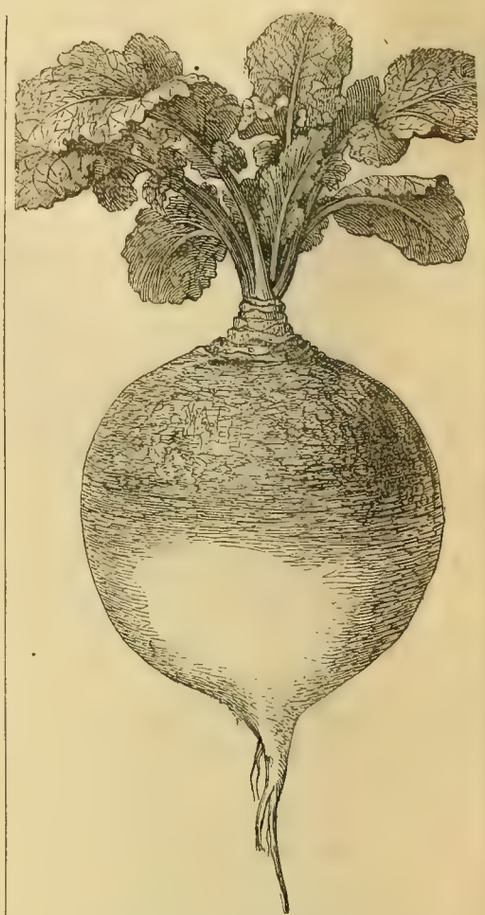
GRASS, CLOVER,

AND ALL OTHER

AGRICULTURAL SEEDS

(THE PRODUCE OF SOME THOUSANDS OF ACRES),

Of superior quality and moderate in price, for which they solicit early orders.



SUTTONS' CHAMPION SWEDE

MAINTAINS ITS CHARACTER AS

THE BEST SWEDE IN CULTIVATION.

It is a very heavy cropper, perfectly hardy, and stores well; of fine globular shape, small neck, and generally only one tap-root. Specimens of this Swede, upwards of 16 lb. in weight, attracted universal attention at the Smithfield Club Show last December.

Price 1s. per lb.; cheaper by the cwt.

SPECIAL ESTIMATES GIVEN FOR LARGE QUANTITIES.

SUTTONS' GRASS AND CLOVER SEED MIXTURES,

CONSISTING OF THE BEST KINDS OF

PERMANENT NATURAL GRASSES

AND

CLOVERS,

CAREFULLY CLEANED,

AND

PREPARED FOR VARIOUS DESCRIPTIONS OF SOILS.

A FIRST PRIZE SILVER MEDAL.



PARIS, 1867.

PRODUCING ABUNDANT CROPS

OF

MOST EXCELLENT HAY,

AND

FORMING A RICH PASTURE

OF

THOROUGHLY PERMANENT CHARACTER.

SUTTONS' BEST MIXTURES OF PERMANENT PASTURE GRASSES AND CLOVERS.

Two Bushels Grass Seeds, and 12 lb. Clover Seeds supplied per acre, **28s. to 32s. per acre, Carriage Free.**

SUTTONS' CHEAPER MIXTURES, 20s. to 26s. per acre, Carriage Free.

SUTTONS' MIXED GRASSES AND CLOVERS.

For ONE YEAR'S LAY, best quality, **13s. 6d. per acre, Carriage Free.**

For TWO YEARS' LAY, best quality, **17s. 6d. per acre, Carriage Free.**

For THREE or FOUR YEARS' LAY, best quality, **22s. per acre, Carriage Free.**

Second Quality Mixtures Cheaper.

SUTTONS' FINER GRASS SEED MIXTURES.

"CRYSTAL PALACE" MIXTURE, for Park Grounds, as supplied to the Crystal Palace Company. 18s. per bushel. Sow 2½ bushels per acre.

"GARDEN LAWN" and "CROQUET GROUND" MIXTURE, to produce a beautiful close Turf in a very short time. 20s. per bushel. Sow 3 bushels per acre.

"CRICKET GROUND" MIXTURE, as supplied to "Lord's" and other principal Cricket Grounds, 18s. per bushel. Sow 2½ bushels per acre.

N.B. In ordering Grass Seeds it is only necessary to state the general character and situation of the Land, as we know well the Soils in almost every part of the Kingdom.

All Goods Carriage Free, except very small parcels. *Five per cent. allowed for cash payment.*

SUTTON AND SONS, SEEDSMEN TO THE QUEEN, READING, BERKS.

RICHARD SMITH'S
FRUIT LIST



Contains a sketch of the various forms of Trees, with directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by post for three stamps.

RICHARD SMITH, Nurseryman and Seedsman, Worcester.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE, suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious index of their synonymes. Free by post for six stamps.

RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

DWARF-TRAINED TREES.—By the Thousand, Hundred, or Dozen. Apples, Pears, Plums, Cherries, Peaches, and Nectarines. Fine, flat, well-trained, of best quality, and true to name.

RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

ORCHARD-HOUSE TREES Fruiting in Pots.—Peaches, Nectarines, Apricots, Cherries, Plums, Pears, Apples, Vines, and Figs.

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EVERGREEN HEDGES. AMERICAN ARBOR-VITÆ, 4 to 5 feet, at 50s. per 100; 5 to 6 feet, at 8s. per 100; 6 to 7 feet, at 100s. per 100.
SIBERIAN ARBOR-VITÆ, 2 to 2½ feet, 40s. per 100; 2½ to 3 feet, 50s. per 100; 3 to 3½ feet, 75s. per 100; 3½ to 4 feet, 100s. per 100.

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SURPLUS STOCK.—VERY CHEAP.

SPECIMEN CONIFERS and EVERGREENS, handsome and well-grown, for Lawns, Pleasure Grounds, and Parks, have been recently transplanted, and are full of health and vigour. For Descriptions, also Prices of smaller quantities and sizes, see RICHARD SMITH'S LISTS.

Trucks for 1 ton and upwards may be sent through to any Railway Station on the narrow gauge lines, at a moderate cost, thereby saving delay and expense of packing.

At 12s. per dozen :—

Arbor-vitæ, American, 5 to 6 feet
„ aurea, 12 to 15 inches
„ Lobbii, 2 to 3 feet
„ Siberian (Ware's), 3 to 3½ feet
Aucuba japonica, 18 to 24 inches
Berberis Darwinii, 1 to 1½ foot
„ Jamesonii, 12 to 15 inches
Cupressus Lawsoniana, 3 to 4 feet
Hemlock Spruce, 3 to 4 feet
Hartogia capensis, 1 to 1½ foot
Juniperus chinensis, 1½ to 2 feet
Mahonia japonica, 9 to 12 inches
Norway Spruce, extra fine, 3½ to 4 feet
Phillyrea oleafolia, 2 to 2½ feet
Picea balsamea, 4 to 5 feet
Portugal Laurel, 2½ to 3 feet
Pyracantha, scarlet berried, 1 to 1½ foot
Pinus Laricio, 3 to 4 feet [2 feet.
Rhododendron ponticum, 1½ to
Taxus japonica, 15 to 18 inches
Thujopsis borealis, 2 to 2½ feet
Thuja plicata, 2 to 3 feet

At 18s. per dozen :—

Abies inverta, 1½ to 2 feet
„ Douglasii, 2 to 2½ feet
„ Menziesii, 4 to 5 feet
Arbor-vitæ, American, 6 to 7 feet
„ compacta, 1½ to 2 feet
„ Lobbii, 3 to 4 feet
„ Siberian (Ware's), 3½ to 4 feet
Aucuba japonica, 2 feet
Berberis Darwinii, 1½ to 2 feet
„ Jamesonii, 15 to 18 inches
Cedrus argentea, 2 to 2½ feet
Cryptomeria Lobbii, 5 to 6 feet
„ viridis, 5 to 6 feet
Cupressus fragrans, 3 to 4 feet
„ Lawsoniana, 4 to 4½ feet
Hartogia capensis, 1½ to 2 feet
Hemlock Spruce, 4 to 5 feet
Ivy, green, tree, 1½ to 2 feet
„ new silver-striped, tree, 15 to 18 inches [15 inches
„ tricolor variegata, tree, 12 to
Juniperus chinensis, 2½ to 3 feet
„ Leeana, 2 to 2½ feet
„ Schottii, 2 to 2½ feet
„ thurifera, 1½ to 2 feet
„ glauca, 1½ to 2 feet
„ drupacea, 15 to 18 inches
„ viridis pendula, 2 to 3 feet
Laurel, Colchic, 5 to 6 feet
„ Portugal, 3 to 3½ feet
Mahonia japonica, 12 to 15 inches
Pinus austriaca, 3 to 4 feet
„ Laricio, 4 to 5 feet
Phillyrea oleafolia, 2½ to 3 feet
Rhododendron ponticum, 2 to 2½ feet
Taxus elegantissima, 15 to 18 ins.
„ gold-striped, 15 to 18 inches
Thujopsis borealis, 2½ to 3 feet
Thuja plicata, 3 to 4 feet
„ incurvata, 3 to 4 feet [ins.
Wellingtonia gigantea, 15 to 18

At 30s. per dozen :—

Abies elegans, 2 to 2½ feet
„ inverta, 2½ to 3 feet
„ Menziesii, 6 feet
„ orientalis, 2 to 2½ feet
Arbor-vitæ, American, 7 to 8 feet
„ compacta, 2 to 3 feet
„ Lobbii, 5 to 6 feet
„ Siberian, 4 to 5 feet
Arbutus unedo, 2½ to 3 feet
Box, tree, 2½ feet by 2½ to 3 feet
Cedrus argentea, 3 to 4 feet
Cupressus Lawsoniana, 4½ to 5 ft.
„ fragrans, 4 to 5 feet
„ McNabiana, 3 to 4 feet
Garrya elliptica, 2 to 2½ feet
Hemlock Spruce, 5 to 6 feet
Irish Yews, 5 to 6 feet
Juniperus chinensis, 3 to 3½ feet
„ fragrans, 2 to 2½ feet
„ glauca, 3 to 3½ feet
„ Leeana, 2½ to 3 feet
„ Schottii, 3 to 3½ feet
„ thurifera, 3 to 4 feet
„ virginiana, 5 to 6 feet
„ viridis pendula, 3 to 4 feet
Laurel, Colchic, 7 to 8 feet
Pinus austriaca, 4 to 5 feet
„ Laricio, 5 to 6 feet
Taxus elegantissima, 1½ to 2 feet
Thujopsis borealis, 4 to 4½ feet
Thuja incurvata, 4 to 5 feet
Wellingtonia gigantea, 2½ feet

At 42s. per dozen :—

Abies Albertiana, 3½ to 4 feet
„ inverta, 3 to 4 feet
„ orientalis, 2½ to 3 feet
„ pyramidalis, 4 to 5 feet
Arbor-vitæ, American, 8 to 9 feet
„ aurea, 2 to 2½ feet
„ compacta, 3 to 3½ feet
„ japonica, 2½ to 3 feet
„ Siberian, 5 to 6 feet
Cedrus argentea, 4 to 5 feet
Cupressus fragrans, 5 to 6 feet
„ Lawsoniana, 5 to 6 feet
Hemlock Spruce, 6 to 7 feet
Irish Yews, 6 to 7 feet
Juniperus chinensis, 3½ to 4 feet
„ densata, 4 to 5 feet
Juniperus glauca, 4 to 5 feet
„ Leeana, 3 to 4 feet
„ Smithiana, 3 to 4 feet
„ thurifera, 5 to 6 feet
„ virginiana, 6 to 7 feet
„ viridis pendula, 4 to 5 feet
Laurel, Colchic, 8 to 10 feet
Pinus, Cembra, 5 to 6 feet
„ Laricio, 6 to 7 feet
Quercus austriaca sempervirens, 3 to 3½ feet
„ Fordii, 3 to 3½ feet
Thujopsis borealis, 5 to 6 feet
Thuja Lobbii, 6 to 7 feet
Wellingtonia gigantea, 3 to 4 feet

At 60s. per dozen :—

Abies Albertiana, 4 to 5 feet
„ inverta, 6 to 7 feet
„ orientalis, 3½ to 4 feet
„ pyramidalis, 5 to 6 feet
Arbor-vitæ aurea, 2½ feet
„ compacta, 3½ to 4 feet
„ gigantea, 4 to 4½ feet
„ japonica, 3½ to 4 feet [ins.
Cephalotaxus Fortunei, 21 to 24
Juniperus chinensis, 4 to 5 feet
„ thurifera, 6 to 7 feet
Pinus Cembra, 6 to 7 feet
Quercus austriaca sempervirens, 3½ to 4 feet
„ Fordii, 3½ to 4 feet
Thujopsis borealis, 6 to 7 feet
Wellingtonia gigantea, 4 to 5 feet

Each :—

Abies Albertiana, 6 to 7 ft., 7s. 6d.
„ „ 7 to 8 feet, 10s. 6d.
„ Douglasii, 8 to 10 ft., 7s. 6d.; 8s. per dozen
„ „ 10 to 12 feet, 10s. 6d.; 100s. per dozen
„ Menziesii, 7 to 8 feet, 5s.
„ „ 8 to 10 feet, 7s. 6d.
„ orientalis, 5 to 6 ft., 10s. 6d.; 100s. per dozen
Araucaria imbricata, 5 to 6 ft., 21s.
„ „ 6 to 7 feet, 42s.
„ „ 7 to 8 feet, 63s.
„ „ 8 to 10 feet, 105s.
Arbor-vitæ japonica, 4 to 4½ feet,
„ „ 4½ to 5 ft., 10s 6d. [7s. 6d.
Picea grandis, 4 to 5 feet, 15s.
Picea grandis, 5 to 6 feet, 21s.
„ nobilis, 3 to 3½ feet, 31s. 6d.; 300s. per dozen
„ „ 3½ to 4 feet, 42s.
„ „ 4 to 4½ feet, 51s. 6d.
„ „ 4½ to 5 feet, 63s.
„ Nordmanniana, 4 to 5 ft., 21s.
„ „ 5 to 6 feet, 31s. 6d.
„ „ 6 to 7 feet, 42s.
„ „ 7 to 8 feet, 50s.
„ Pinsapo, 3 to 3½ feet, 10s. 6d.
„ „ 3½ to 4 feet, 15s.
„ „ 4 to 5 feet, 21s. to 31s. 6d.
Pinus Cembra, 7 to 8 feet, 7s. 6d.
Yews, for hedges, about 12 feet high, 45 years old, recently transplanted, 31s. 6d.

RICHARD SMITH,
NURSERYMAN AND SEED MERCHANT, WORCESTER.

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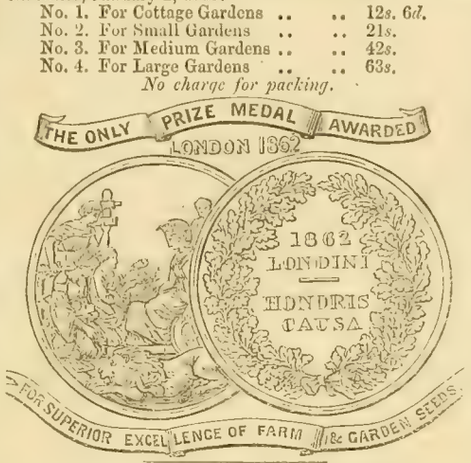
CARTER'S GARDEN SEEDS,
Genuine as Harvested on their own Seed Farms.

In assorted Collections, to suit Large or Small Gardens.

For detailed Table of Contents, see page 4, *Gardeners' Chronicle*, January 2, 1869.

No. 1. For Cottage Gardens .. .. 12s. 6d.
No. 2. For Small Gardens .. .. 21s.
No. 3. For Medium Gardens .. .. 42s.
No. 4. For Large Gardens .. .. 63s.

No charge for packing.



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As Harvested on their own Seed Farms.

In assorted Collections, to produce the most effective display. For Table of Contents, see page 4, *Gardeners' Chronicle*, January 2, 1869.

Collection A, 10s. 6d.; Free by Post, 11s.
„ B, 15s.; Free by Post, 15s. 6d.
„ C, 21s.; Free by Post, 21s. 6d.
„ D, 42s.; Free by Post, 42s. 6d.
„ E, 63s.; Free by Post, 64s.

CUCUMBERS ALL THE YEAR ROUND.
THE BEST VARIETY FOR THIS PURPOSE IS
CARTER'S CHAMPION CUCUMBER.

See Correspondence, page 138 of the *Gardeners' Chronicle*, Feb. 6, 1869.

Price 1s. per packet.

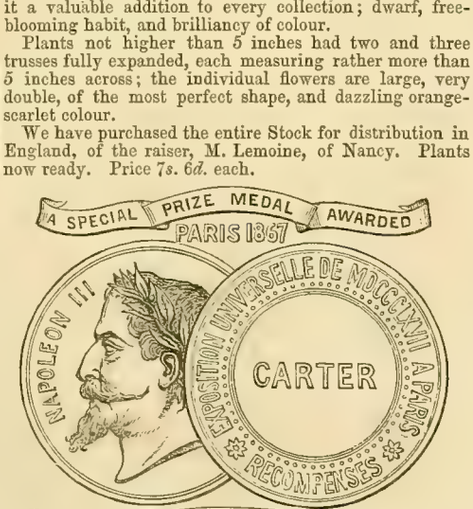
TELEGRAPH, the true variety, } Cucumbers { 1s. 6d. pkt.
ALL THE YEAR ROUND, } { 1s. 6d. pkt.
THE COLESHILL, very good, } { 1s. p. pkt.

NEW DOUBLE ZONAL GERANIUM for 1869,

WILHELM PFITZER (LEMOINE).—A novelty without a rival, possessing all the desirable qualities to make it a valuable addition to every collection; dwarf, free-blooming habit, and brilliancy of colour.

Plants not higher than 5 inches had two and three trusses fully expanded, each measuring rather more than 5 inches across; the individual flowers are large, very double, of the most perfect shape, and dazzling orange-scarlet colour.

We have purchased the entire Stock for distribution in England, of the raiser, M. Lemoine, of Nancy. Plants now ready. Price 7s. 6d. each.



CARTER'S FERTILISER,
THE BEST MANURE FOR THE GARDEN.
In Tins, 1s. 9d. and 4s. 6d. each.
In Bags, 15s. and 25s. each.

For full descriptions, see
CARTER'S
GARDENER'S AND FARMER'S VADE MECUM FOR 1869
(Illustrated), 34th year of publication. Post Free for 12 Stamps; Gratis to Customers.

JAMES CARTER AND CO., SEED GROWERS,
237 and 238, and 261, High Holborn, London, W.C.

SUTTONS' HOME-GROWN SEEDS,
Carriage Free.



See Lists, &c., in the Gardeners' Chronicle, Journal of Horticulture, Cottage Gardener, and Farmer.

NEW SEEDS for the KITCHEN GARDEN, Collections from 1s. 6d. to £5 5s. each.
NEW SEEDS for the FLOWER GARDEN, Collections from 5s. to £5 5s.
SUTTONS' HOME-GROWN SEEDS, PRICED DESCRIPTIVE CATALOGUES sent free by post.
SUTTON & SONS, Seedsmen to the Queen, Reading.

Genuine Seeds.

F. AND A. SMITH'S CATALOGUE of FLOWER and VEGETABLE SEEDS, for 1869, is now ready, (free on application), and contains the best strains of BALSAM, CALCEOLARIA, CINERARIA, PRIMULA, TRICOLOR and other PELARGONIUMS, with every novelty of repute.
The Nurseries, Lowestoft, London.

Choice Seeds, Gladioli, &c.

WM. CUTBUSH AND SON'S CATALOGUE of the above contains a description and price of many very superior home-grown VEGETABLE and FLOWER SEEDS, and choice varieties of GLADIOLI, &c., all of which are highly recommended. Post free on application.
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Gladioli, the most Extensive Collection.

BARR AND SUGDEN, 12, King Street, Covent Garden, W.C., have the finest and largest collection of GLADIOLI ever offered, prices varying from 2d. to 15s. per root. For particulars see pp. 68, 69, 70, and 71 of B. & S.'s SPRING SEED CATALOGUE.
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LONDON and CONTINENTAL SEED COMPANY.
CHIEF OFFICE—
68, WELBECK STREET, CAVENDISH SQUARE, LONDON, W.
Brighton Branch—89, King's Road. Southampton Branch—178, High Street. Plymouth Branch—15, Devonshire Terrace.

THE LONDON and CONTINENTAL SEED COMPANY has purchased the old and valuable Business of Rendle & Co., of Plymouth, which has been established for nearly 100 years.

THE LONDON and CONTINENTAL SEED COMPANY.—Mr RENDLE, the head of the old Firm, has consented to be the Managing Director of this Company.

DISCOUNT of TWOPENCE in the SHILLING will be taken off the published prices of any London or Provincial Seed Merchant.

DISCOUNT of TWOPENCE in the SHILLING will be taken off the published prices of Seeds for the Farm, the Kitchen Garden, and the Flower Garden.

THE NEW GARDEN SEED LIST is now ready, and can be had on application, gratis. A Discount of Twopence in the Shilling off all Garden Seeds.

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THE ILLUSTRATED NEW FLOWER SEED LIST is now ready, and can be had on application, gratis. It contains numerous Illustrations of the choicest Novelties. Everyone who has a Flower Garden should have a copy. A Discount of Twopence in the Shilling off the price of all Flower Seeds.

SEEDS CARRIAGE FREE.—All Orders Carriage Free to any Railway Station in England, or Steam Port in Ireland.

ALL FLOWER SEEDS POSTAGE FREE.—All Flower Seeds are sent Postage Free.

EXTRACT *from the* "LEADER," *February* 20, 1869.

"The London and Continental Seed Company, of 68, Welbeck Street, having purchased the old and valuable business of Rendle & Co., of Plymouth, have introduced with considerable ingenuity and originality of conception the system which seems to have been hitherto exclusively confined to books; we mean a reduction in the Shilling on the published prices of Seeds for the Farm, the Kitchen Garden and Flower Garden. A highly meritorious characteristic of this Company is to dispose of all their surplus stock at the end of the season, and to commence each new season with an entirely fresh stock of seed. The horticulturist especially will recognise the value of this plan. The Company, having made arrangements with the most important Continental growers, are in a position to receive every week from leading Continental cities express parcels throughout the season. The London and Continental Seed Company may be warmly commended, to the Public, not only for the reasons above named, but because of the guarantee suggested of its supplying at a rate cheaper than it is to be found amongst any other seed sellers, at once the choicest and freshest kinds of seeds."

Address,
LONDON and CONTINENTAL SEED COMPANY,
68, WELBECK STREET, CAVENDISH SQUARE,
LONDON, W.

The Gardeners' Chronicle.
SATURDAY, FEBRUARY 27, 1869.

MEETINGS FOR THE ENSUING WEEK.

MONDAY, March 1—Entomological .. .. 7 P.M.
TUESDAY, — 2 { Royal Horticultural (Fruit and Floral Committees), at South Kensington .. 11 A.M.
{ Ditto (Scientific Committee) .. .. 1.30 P.M.
{ Ditto (General Meeting) .. .. .. 3 P.M.
THURSDAY, — 4—Linnean .. .. 8 P.M.

WE, of course, hold that all gardeners should be reading men, reading being one of the great HELPS TO PROGRESS which the present age has brought very near to us all. With the advantages now enjoyed in this respect by almost every one who cares to avail himself thereof, we ought to see an immense improvement in the intellectual condition of the various classes of society, improvement of a far more solid and decided character than is very generally apparent. In the case of gardeners, and especially of young gardeners, the mental food, though plentiful enough, is in some instances unattainable by them, not, indeed, on account of its costly character, or from any difficulty in discovering where it is to be found, but from the limited means at their command, and the economy which it is necessary for them to practise. To all such, the plan indicated in the annexed letter will so far commend itself, that it needs not at our hands the hearty commendation which it deserves :—

"To the gardening fraternity the horticultural Press affords one of the readiest and most useful means of obtaining instruction and improvement; but whilst the mind is often craving, the pocket is as often stubborn

in its denial. The great mass of gardeners are unable to afford the cost of the best papers for themselves, consequently they have to do without! or else, as I will now show has been done in this neighbourhood, secure them by united action and association. Last Michaelmas the 'Bitterne and West-End Gardeners' and Amateurs' Mutual Improvement Society' was started by a few earnest men, in the hope that by the use of papers, books, lectures, and discussions on matters relating to horticulture, a greatly improved tone would be given to the gardeners and amateurs in the locality. Their first object was to put into circulation amongst the members, who numbered about 20, the popular gardening publications. For this purpose three copies of the 'Journal of Horticulture,' and the same number of the 'Gardeners' Magazine,' were purchased weekly and circulated, one number of each to an equal proportion of members. This was all the funds would admit of, as the subscription was only one penny per week. Naturally enough, however, a demand for the *Gardeners' Chronicle*, and other high-class publications, was created, and to supply this, application was made to some of the local gentry for aid, among others to J. H. FORBES, Esq., of Merry Oak, Bitterne, who very kindly responded to the request made of him, by instructing the secretary to obtain and charge to him for a year three copies of the *Gardeners' Chronicle* per week, and also one each per month of the 'Florist,' 'Gardener,' 'Floral Magazine,' and 'Botanical Magazine.' This munificent gift deserves to be made known, in order that others desirous of promoting the spread of horticultural knowledge in their several localities may be induced to 'go and do likewise.' But gardeners who desire to obtain these favours should initiate societies of a similar character themselves, and thus show to their richer neighbours that they are anxious to promote their mental and professional welfare. The circulation of the papers is thus managed:—The members are divided into districts, according to residence, and one member in each district undertakes the charge of circulation. To each paper a list of the members in the district is appended, with dates affixed to each name, showing how long it is to be retained, the lists being arranged so that they always work back to the superintendent, who retains them finally. The means are simple, the expense reasonable, and the results cannot fail to be of the best." *Alexander Dean, Old Shirley.*

A CORRESPONDENT writes for information as to the best mode of setting about the ACCLIMATISATION of TRUFFLES in AUSTRALIA. "If," says he, "there were any reasonable prospect of success, I would gladly make an effort to present the colony with this very favourite edible. Not but that we have got on very well thus far without it, and with good appetites and plenty of cheap and excellent food, we are as independent as most people of this kind of delicacy; but as I see it is very much run upon by those who are the best judges of good eating and drinking—and it has certainly a special and excellent flavour—it seems well worth while to have it, if it can be done. I believe that there is some uncertainty about its mode of fructification, and it might be difficult to get it such a distance in so moist a condition as to preserve its fertility; but more difficult things than this have got out safely, and there should be no insuperable difficulty, one would think, about the Truffle. It has been suggested to me to send out fresh Truffles, surrounded with a few hundredweight of the earth in which they are found, placing the whole in as nearly a corresponding site as possible on arrival."

We should feel extremely glad if we could hold out any fair prospect of success as regards the subject of the above letter on the acclimatisation of Truffles. Though, however, every trial has failed in this country, and we may almost say the same of the Continent, there is no reason why attempts at the propagation of Truffles should be as unsuccessful in Australia. The method suggested is a good one, and well worthy of adoption, but there is no chance of success unless the experiment be made in a calcareous soil, which seems to be a *sine quâ non* in Europe. It is getting rather late for Truffles, and we should be inclined to wait till the end of the year, when they have just arrived at maturity. Specimens obtained at this season would probably rot before they reached their destination. We should moreover recommend that the experiment should not be confined to English Truffles. It is possible that the French Truffle, Tuber melanospermum, which might be procured in any quantity in France, might succeed better than our Tuber æstivum, and its aroma is far more powerful. If French Truffles are employed it would be well not only to import with them a quantity of their native soil, but some ripe acorns, as they seem to be fond of Oak roots, though they are certainly not parasites upon them. It is very true that a common practice in Touraine is simply to inclose a piece of ground and sow it with acorns, and in the course of a few years there is sure to be an abundant crop of Truffles. It is often said that the acorns must be obtained from Truffle grounds, but we believe that there is not the slightest foundation for this opinion. Beech seems more favourable to the growth of Tuber æstivum, and it would be easy to put some Beech mast amongst the soil, which might possibly retain its vegetative powers.

The fructification of Truffles is well known, but what is not well understood is the circumstances under which their sporidia vegetate, and the exact nature of the spawn. It is this circumstance, perhaps, which at present baffles all attempts at cultivation. If, however, Truffles arrived in Australia in good condition, accompanied by a quantity of soil, and were planted in some bare spot in the scrub, always supposing the soil to be calcareous, it is very possible, if the ground could be protected from animals, that they might succeed. Squirrels are great enemies to Truffles in this country; they are attracted by the powerful scent, and we should fear that they might not prove altogether distasteful to some of the Australian animals. *M. J. B.*

—— IN spite of the numerous CAUTIONS to ADVERTISERS that we have felt obliged to insert, we regret to find it still requisite to warn persons seeking situations as gardeners, bailiffs, &c., against the devices of a so-called GARDENERS' and HORTICULTURAL AGENT. We give a sample of this worthy's letters, and would give his name and address but that he finds it convenient to change them so often, that the publication of one only would be insufficient. The subjoined letter is almost a verbatim copy of several that have at various times been forwarded. The fellow is too lazy to alter his phraseology; he cannot alter his handwriting apparently, but he has learnt to spell the name of Messrs. DICKSON, of Chester, properly at last. Here is the letter referred to:—

"Sir,—I am commissioned to engage an 'head gardener,' to fill a vacancy in the establishment of a lady residing near Windsor, 22 miles from London. It will be requisite to understand the management of the hothouse, vinery, flower and kitchen gardens, which, from your advertisement, I conclude you would be quite competent to undertake. Board and residence at the Hall, with office, and 18*s.* per week, is what the lady allowed her last man (recently dead), and now offers the same, with prospects of an early advance, to one that suits and is obliging. My fees will be 5*s.* for introduction, and 25*s.* for bonus, payable at end of second month after engagement. If you are still disengaged and would like to take the place, be good enough to write by an early post, enclosing introduction fee, 5*s.*, in stamps, when I will at once place you in treaty with the lady, and ensure the situation.

"I am in constant communication with most of the leading firms in the trade—Messrs. SUTTON, of Reading; DICKSONS, of Chester, &c.; and will keep your address before me for a week or two, in case you decline this.

"P.S.—Please write by return, if possible (provided you comply with the above terms and offer), as my instructions are, 'to engage an efficient person with all reasonable despatch.'"

—— We have been favoured by Mr. BULL with the following extract from a letter received from Dr. SEEMANN, respecting a new remarkable AROIDEOUS PLANT, that he, Dr. SEEMANN, met with in Nicaragua, and of which he has sent home living specimens:—"I have just procured for you a truly wonderful Aroideous plant, which has—so far as my knowledge goes—the largest flowers (say rather spathes) known in the natural order to which it belongs. Just imagine a peduncle rising from a rhizome larger than a man's head, and being itself 4 feet high, and 4 inches in diameter, bearing an upright spathe, which measures 2 feet in length, and 1 foot 8 inches across, and enclosing a spadix, 4 inches long, and 9 inches across. Like my Sapranthus nicaraguensis, it emits a powerful carrion-like odour, and has also on the outside the same dark purplish blue colour as the beautiful Anonacea just mentioned. The spathe is reddish brown, with the exception of the part surrounding the spadix, which is yellowish white. The plant has only one leaf, which also rises from the rhizome, and after fully developing, dies off. The whole length of the leaf is 13 feet 8 inches, the petiole alone measures 10 feet (all the measurements are English). I cannot tell without books whether it belongs to any known genus, but it is near Amorphophallus. I will forward the plant by the next mail." The plant is evidently a "big brother" to the Indian Amorphophallus, at least in point of size and general appearance.

—— At the great show of the Société Royale d'Horticulture of Namur, to be held on the 4th and 5th of July next, the Federation of the Horticultural Societies of Belgium offers a GRAND PRIZE of 500 francs (20*l.* 16*s.* 8*d.*) for a collection of 30 plants, in or out of flower, and combining the highest degree of merit as regards novelty and culture. The competition is open to all cultivators, amateur or professional, including foreigners. The Namur Society gives a second prize of 100 francs. Those who intend to compete are to give notice to the secretary, M. KEGELJAN, before the 25th of June. It is announced that every possible care will be taken as regards the reception, preservation, and return of the plants which may be exhibited.

POTATO GRAFTING.

[The following communication is a reply to some questions put to the Rev. W. F. Radclyffe, and by him referred to Mr. Taylor. The subject is one of very great interest practically, as well as a matter of science. The substance of this communication was read to the Scientific Committee on the 16th inst. EDS.]

A SCOTCH gardener some years ago informed Richard Boddy, shoemaker, of Catterick, of a method of raising new varieties of Potatos by grafting two distinct kinds together, and the said Richard Boddy told me he had successfully tried the system. He likewise told several other persons his secret. I was very doubtful about the method succeeding, but determined to try the experiment, as I had heard other persons had produced hybrids in this way. That year I grafted 12 sets, taking 24 Potatos. I made the following notes:—No. 1, an Ash-top Kidney, grafted into a Fortyfold; No. 2, an Ash-top grafted into a Lapstone, and so on up to No. 12. When I lifted them, I made the following note, stating what was produced—from No. 1, kidneys and rounds, No. 2, round, mottled, and kidneys, as the case might be. I forwarded these notes to the Rev. W. F. Radclyffe, who, I believe, handed them over to Mr. Fenn, of Woodstock.

I raised in that year from these 12 grafted sets more varieties than I knew what to do with. I picked out from amongst the lot a few handsome, smooth-looking tubers for further trial; some I gave away, and the remainder went to the pigs. One of these hybrids, which I had picked out for trial, proved to be extra good in quality and flavour. I propagated it, and when I had a small stock of seed I sent some to my esteemed friend, the Rev. W. F. Radclyffe; the remainder of the seed was lost by frost—I had foolishly placed the seed tubers in a flower-pot, and stowed it away in an outhouse, under some tiles, where the frost spoiled them. The breed, however, was fortunately preserved by Mr. Radclyffe, who named it Taylor's Yorkshire Hybrid. Thomas Almond had been grafting Potatos about the same time as myself, and he raised a good variety, which was sent by me to Mr. Radclyffe, and after being proved good and tried another season, was named by Mr. Radclyffe the Yorkshire Hero. About two years ago Mr. Almond had many applications for seed of the Hero, in consequence of the excellent character given to it by Mr. Radclyffe in the gardening periodicals. Mr. Almond, then, as at present, had only a limited quantity of seed, and I find from a book which he has shown me, that a long list of gentlemen, too numerous to mention here, were supplied with seed in the spring of 1866.

With regard to Potato grafting as a means of raising new varieties, there is an amount of certainty about this method of crossing two distinct Potatos which there is not in raising new varieties from seed. If it is wished to combine flavour with earliness, it can be done by cutting out all the eyes from an Ash-top Kidney, and grafting into it an eye or two from the Lapstone Kidney, which is allowed to be of superior flavour. The Yorkshire Hero was obtained by grafting these together. The process may be pursued with other varieties. It is quite essential to remove entirely all the eyes very cleanly from one of the two sorts to be grafted: unless this be done the operation cannot succeed.

The following is my mode of operation:—Take any two sound Potatos of different varieties whose good qualities you wish to retain: cut out all the eyes of one of them entirely with a common pocket-knife, then cut a piece out of this Potato in the form of a wedge, or of any other shape, and substitute for the bit so removed a piece having a good eye or two, nicely sprouted, about half an inch long; then tie firmly together with a piece of bast matting or string, having first run a couple of lady's hair-pins clean through both Potatos. These hair-pins will prevent the tie from slipping off the Potatos, as well as assist in holding both parts together. The fit must be a good one, and the bark or rinds of each must meet, as in any other mode of grafting. The operation must be performed quickly, and the grafted set must be planted as soon as possible, as the sap would dry up if exposed for any length of time to the air. I have my trench opened and manured ready to receive the grafted tubers, and they are placed therein and covered up level with soil as quickly as I can get them ready. As some of the grafts may fail, it is best to graft at least a dozen or more sets, which will produce round ones and kidneys from the same root. Pink-eyed and mottled ones, purples and reds, are also produced of various shapes and sizes. Some are early, some late, some large, and some small. All the produce, both large and small, must be kept in bags and planted out the following year, for until they have been planted it cannot be told whether the varieties are early or late. The early ones can easily be discovered by the early decay of the foliage: these should be marked with a stick. The produce of each, or such of them as look promising by their shape and general appearance, should be put into separate bags or boxes, and numbered in the usual way. I have illustrated my process with kidneys, but rounds may be grafted with kidneys, or kidneys with rounds, or rounds with rounds; but I find the greatest number of varieties are produced from a kidney and a round, or a round with a kidney. As many of your readers may have some doubt about Potato grafting, and may possibly fail in their attempts, let it be perfectly understood that not every one can graft Potatos successfully. The operation should be performed by a person who thoroughly understands grafting fruit trees; then there is a chance of success. Early in April is the best time.

Mr. Almond tells me that during his grafting experiments he once grafted two red Potatos together, of distinct varieties, and never was so much astonished at anything in his life, for when the produce from this set was taken up, the whole lot consisted of white round Potatos. If any of your dubious readers had seen this, they would probably have believed in the grafting system.

The following curious experiments with Potatos I have copied from the "Gardeners' Magazine," for Nov. 9, 1867, p. 481:—

"Dr. Hexamer, of Newcastle, New York, furnishes us with an account of some experiments of his with Potatos. We should preface the specifications of these results by stating that Dr. Hexamer is an accurate and

scientific experimenter and observer, and a good farmer.

"1. Out of 70 hills of Potatos, peeled so that no eyes were visible, 35 grew. Some produced very large Potatos. The planted Potatos remained, mostly hard and firm till digging time.

"2. Out of 80 hills, pieces cut without eyes, 13 hills grew. All these sprouted on the cut surface, none through the skin. One large Potato cut in two lengthwise, sprouted on the cut side near but below the skin, and there was no sprout proceeding from the visible eye.

"4. Out of 100 whole Potatos 98 grew from the small end, and two at the side. With more than half the number of Potatos planted whole, only one eye grew, the rest remaining dormant.

"4. A Potato does not always expend all its germinating power in one year.

"5. Wet rot and dry rot are one and the same disease. Potatos affected with the rot will rot dry when they are kept dry, and the same will rot wet when they are kept in a moist place." *American Agriculturist.*

One of the Editors of the *Gardeners' Chronicle*, in a letter to the Rev. W. F. Radclyffe, dated Jan. 21, 1869, says: "In a notice kindly forwarded by you as to Potatos, you say Yorkshire Hero is a graft hybrid. Now, this is a very important matter in many ways. It has been denied *in toto* for plants in general, *et in totissimo* for Potatos. I believe that it may occur in plants, but am doubtful about the tubers. I have from Mr. Fenn a half purple half white Potato, and I believe there are many such. Dr. Hildebrand has stated (1868, p. 598) that he got them by inoculating a white with eyes of a purple variety; but that reads oddly, and I don't suppose Mr. Fenn got his piebald that way; and yet I was surprised to read that you upheld the idea of graft hybrids in Potatos. Can such things be? Truly, there are more things beneath ground than can be recognised or accounted for by our philosophy."

The opinion of Potato grafters varies a little; my opinion is that hybrids are produced by inoculation of the juices of one Potato with those of another; that grafting is the proper term applied to the process, and not inoculation. After taking up a grafted Potato to examine what was going on underground, I found that a union of the rinds or barks of the Potatos had actually taken place, and a 2 lb. weight would not separate them. If the two grafts are not firmly united, no hybrids can be expected. I recommend a young beginner to practise fitting two Potatos together with any common varieties, and when he thinks he can manage to fit them neatly together, he may commence grafting the varieties he means to experiment upon.

In order to strengthen my case about Potato grafting being true as a means of producing hybrids, I append a few certificates signed by men whose veracity can be depended upon. Mr. Jameson's statement about his piebald Potato is both curious and interesting. Can his piebald be a sport? Can a Potato throw out a sport? This is a nut to crack for the scientific agriculturist.

"I do hereby certify that I saw about 2 pecks of Potatos which Mr. Taylor, of Fencote, near Bedale, had taken up, being the produce of his grafted Potatos. They were such a mixed lot as I have never before or since seen. They were of all colours and shapes, some very ugly, and some very handsome. He gave me some of them for trial. I am quite a believer in the grafting system. Being a farmer and large dealer in Potatos, I have seen some strange freaks, which quite convince me that the Potato possesses many singularities, some of which perhaps are yet unknown. The following incident came under my notice. Having bought a field of Potatos, I went with a force of workpeople to take them up. They were of a kind grown much in Yorkshire, called Snowball, a round winter-eating Potato. Amongst the lot they were taking up, I observed at one root a large piebald Potato, all the rest being white; it was red or purple on one side and white on the other. I took it home as a curiosity. The following spring I cut it up into five sets, and manured and planted the same in my garden. When ripe I took them up in the presence of two or three friends. Now for the curious part. Two of the roots had produced white round Potatos, like their parent the Snow-ball. Two other roots had produced all piebald Potatos, and one root had produced all red Potatos. How to account for this I am quite at a loss, and leave it to the philosophic horticulturist to account for. Both I and my friends who were witnesses are ready at any time to make oath of the above facts if necessary." *William Jameson, Farmer, Scruton, Bedale.*

"I do hereby certify that I saw Mr. Taylor's crop of grafted Potatos after they were taken up, and that the produce consisted of scores of hybrid Potatos, some of which were round, some kidney, pink-eyed kidney, piebald, and mottled, red, and purple, of all shapes and sizes—some handsome, some ugly shaped. I also watched the progress of one Potato which he picked out and propagated; the one now named Taylor's Yorkshire Hybrid, was raised by grafting by Mr. Taylor, and was one out of the above-mentioned lot. I have grafted Potatos myself, and succeeded in raising hybrids, but did not follow it up on account of the trouble it entailed. There is no doubt about the system of grafting answering as a method of producing hybrids. I know many persons who have practised it, and succeeded. If necessary to substantiate the truth of the system of grafting Potatos as a means of producing hybrids, I can procure a certificate signed by a score of persons who have either grafted Potatos themselves, or seen their neighbours practise it. A Scotch gardener told the secret of grafting to old Richard Boddy, a shoemaker, residing at Catterick, in Yorkshire. The old man, who is now nearly 80 years of age, grafts Potatos every year, and has succeeded wonderfully, having raised some very good varieties. Grafting Potatos and growing Fuchsias are the old man's favourite hobbies." *Wm. Burton, Market Gardener, Kirkby Fleetham, near Bedale, Yorkshire.*

Here is Mr. Thomas Almond's certificate about Potato grafting:—

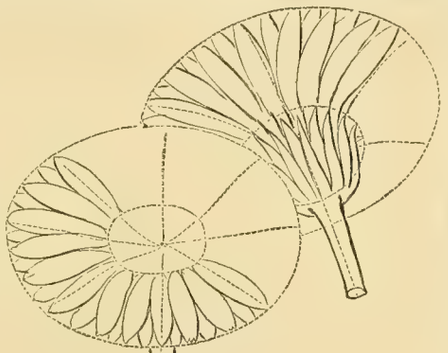
"I have been a Potato grafter for a number of years, and beg to certify that both Mr. Taylor, myself, and my brother-in-law, Mr. Wm. Burton, have succeeded in raising hybrids by the process of grafting. I have seen Mr. Taylor's varieties raised by this process, and he has seen mine. We were both greatly interested in the process, and looked anxiously for something wonderful. I raised the Yorkshire Hero by grafting an Ash-top Kidney into a Lapstone. Mr. Taylor raised the Yorkshire Hybrid by grafting. He sent both varieties to the Rev. W. F. Radclyffe for trial; that gentleman approved of them, and gave them the names by which they are now known. I have another variety, called Almond's Spring Kidney, which I raised by grafting; it is very early and more prolific than any of the Ash tops that I have yet met with. I sent this variety out two years ago. It ought to be better known. Mr. Taylor has read me his article on Potato grafting. He has described the process correctly, and I think any person who has practised grafting fruit trees may succeed in grafting Potatos, so as to produce hybrids. The operation, as Mr. Taylor rightly observes, must be neatly performed, a good fit must be made, and I recommend the young beginner to graft a good number of sets, as we do; then success is certain, and hybrids are produced of all shapes and sizes. *Thomas Almond, Gardener, Fencote, Bedale, Jan. 27.*

I have endeavoured to explain my mode of grafting and raising new varieties of hybrid Potatos, and I think, after what I have advanced in favour of the system, your readers will believe me, and try the experiment, which is a very interesting one, especially for the amateur who has time and inclination to follow it up.

I am quite of opinion that the system is sound, and that persons with a knowledge of grafting can operate successfully. I hope many of your readers will give the system a fair trial, and at digging time report progress. I intend grafting again this spring, and hope to produce something good. I shall try for both early and late varieties of improved flavour, and am collecting choice varieties to operate upon. I hope to satisfy the Rev. W. F. Radclyffe in due time by producing a very late-keeping variety. He speaks highly of Haigh's Seedling — a Lapstone variety. It is now 25 years since the original Lapstone was raised; I brought it out of Lancashire to this village 21 years ago. Haigh's Seedling, I believe, has not been out more than 10 or 12 years. If my memory serves me truly, I believe Mr. Haigh, the raiser of the seedling under his name, resides either at Burnley or Bury in Lancashire. *Henry Taylor, Fencote, near Bedale.*

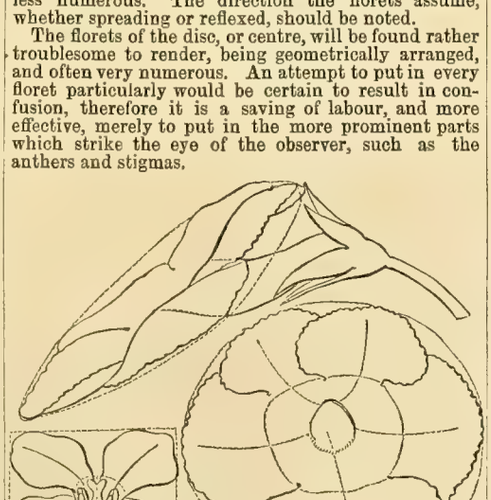
BOTANICAL DRAWING.—No. V.

COMPOSITE flowers, such as the Daisy, after being faintly defined, should be subdivided by lines radiating from the centre, as a guide for the direction of the outer florets. Inattention to this precaution is apt to result in the said florets being all endowed with a twist or curve to one side or the other, an arrangement unknown, I believe, to botanists, in this natural order.



In drawings for scientific purposes, it is proper to mark the number of outer florets, also the number of teeth at the tips, as in some plants they are more or less numerous. The direction the florets assume, whether spreading or reflexed, should be noted.

The florets of the disc, or centre, will be found rather troublesome to render, being geometrically arranged, and often very numerous. An attempt to put in every floret particularly would be certain to result in confusion, therefore it is a saving of labour, and more effective, merely to put in the more prominent parts which strike the eye of the observer, such as the anthers and stigmas.



Four-petaled flowers, such as the Wallflower, should be treated somewhat similarly when they are large enough to be worthy of that trouble; a square or circle should be first drawn round the petals, then divide it into four parts—great assistance will be derived from it in insuring the relative size of the petals.

Pendulous flowers, such as the Fuchsia, may be treated likewise, but in such flowers there is one thing that should be particularly attended to—the curve formed by the peduncle or flower-stalk, owing to its slenderness or the weight of the flower. To make sure of the proper curve, it is useful to indicate the flower-stalk by a faint line carried through the flower as its axis in sketching, which will be found of great service, and the errors frequently visible in drawings of such things would be of less common occurrence, not to speak of the protruding filaments pointing in various singular though impossible directions. I shall not attempt to furnish more than hints as to sketching oblique or irregular flowers.

The foregoing cut will show how to fit the corolla on its tube with some degree of certainty, but the amount of obliquity must be given by observation. To flowers such as those of the Aconitum or Monkshood, the Larkspur, and labiate flowers generally, often very varied in form, many of the previous remarks will hardly apply; and the best way to proceed is to measure one part by another; thus the tube may be rather longer than the calyx, the upper lip may be shorter or longer than the lower one, &c.

Be careful to represent the teeth of the calyx in their proper place in relation to the divisions of the corolla, viz., alternate with them, or intermediate. And as a general fact, however irregular the flower may be, the teeth of the calyx point betwixt the petals or divisions. The want of observation of this fact is an error very common in slovenly drawings, but in the estimation of a botanist its exhibition would be quite enough to shake his faith in the trustworthiness of any artist, however beautiful his works might otherwise be, as it betrays carelessness, which is worse than ignorance.

Botanical artists require to possess a certain amount of philosophical equanimity to enable them to endure criticism, for as no two flowers are exactly alike, it is hardly to be expected that a drawing should keep pace with their variations in size or colour, and I may add that I never yet ventured to exaggerate a little in that way but I have found that adverse criticism has been nullified by Nature excelling itself, as it were, under the fostering care of the many able cultivators of the present day. *W. H. Fitch.*

CARL FRIEDRICH PHILLIP VON MARTIUS.

(*Continued from p.* 192.)

A THIRD work was taken in hand by Martius in 1823, and indeed the one with which his name will be most closely and endurably connected. We allude to the monograph of Palms, "Historia Naturalis Palmarum" (3 vols, imp. fol., Munich, 1823-50). The peculiar richness of Brazil in Palms, the beauty of Brazilian forms, and the honour likely to accrue from a new and comprehensive work on this group of plants, induced Martius to concentrate his attention upon them immediately after his arrival in Berlin. Thus he was enabled, in 1823, to publish one volume (the second of the monograph), containing figures and descriptions of the Palms he had discovered in Brazil. The remaining volumes, which treat of the family in its entirety, were not so rapidly accomplished. They cost 28 years of labour and research, and not the least of the difficulties encountered arose from the necessity of procuring the rare and costly materials necessary for examination.

For the matters with which he was less conversant Martius obtained the co-operation of distinguished colleagues. Thus, for instance, the chapter on the anatomy of Palms was written by H. Von Mohl, the fossil Palms were worked up by F. Unger, and Sendtner and A. Braun contributed to the morphology. But by far the greater part proceeded from the pen of Martius himself — notably, the chapter on the geographical distribution of the family, in which Martius enunciated his views on phyto-geography in general; and the whole of the third volume, containing descriptions of all known Palms, systematically arranged, and forming in itself an almost complete monograph of the family. The scientific merit of this work was universally conceded by his colleagues. Not only was the special knowledge of Palms thereby in a great measure extended, but botany in general was likewise considerably promoted; and it may be said, in the words of a celebrated naturalist, that, "so long as Palms are known and Palms are grown, so long will the name of Martius endure."

The last great work by Martius, to which we can refer in this short retrospect, is the "Flora Brasiliensis." Martius, in conjunction with Nees von Esenbeck, had made an attempt to publish such a work on a small scale, but soon abandoned the idea; but in 1839, encouraged by Prince Metternich, he planned a far more pretentious work, in conjunction with the celebrated Viennese botanist Endlicher. The project exceeded in grandeur all that had hitherto been accomplished in a botanical work. The groundwork of it was to consist of an entirely new and scientific elaboration of all the accessible materials brought together from Brazil, accompanied with numerous plates, thus forming a splendid systematic whole. It is difficult for a non-scientific man to understand the magnitude of such an undertaking; but it must be remembered that the flora of Brazil numbers almost five times as many species as the entire area of Central Europe; and the latter, if worked up in a similar manner, would require several volumes. The carrying out such a work could naturally only be done by the joint labours of a great number of scientific men, and Martius was fortunate enough to obtain the services of the most eminent German and foreign botanists for this purpose. The Emperor Ferdinand I. of Austria, and the Emperor Don Pedro II. of Brazil, and also King Louis of Bavaria, took the work under their special patronage. After Endlicher's death in 1849, Fenzl, his successor in office, supplied his place,

with Martius as co-editor. At first the work progressed slowly, on account of the novelty and costliness of the undertaking; but since the year 1850, in consequence of the increased interest taken in it by the Brazilian Government, it has proceeded much faster, and has now reached the 40th part. The completion, which Martius so longed to see, has been intrusted to other hands (those of Dr. Eichler). It was one of Martius' last cares to take the needful steps to ensure its continuance, in pursuance of which we may reasonably hope to see this noble monument of German industry brought to a close. Even now the parts that have appeared form the most comprehensive work in botanical literature yet published. Nearly 10,000 species are described, and these are illustrated by more than 1100 folio plates. It is evident that the editing and publication alone of so enormous a mass of matter is a performance worthy of the highest acknowledgment, but Martius' share in the work was by no means limited to that portion. True, out of all the monographs published, two only were by Martius; but then he supplemented nearly all the others by valuable explanations on the geographical distribution, the medicinal, technical and economical importance of the several plants. He also contributed a series of characteristic plates representing the vegetation ("Tabulæ Physiognomicæ"), accompanied by masterly definitions, and in the most elegant Latin. He also contributed maps of the floral districts, and routes of travel, &c. Several of the monographs in the "Flora Brasiliensis" are esteemed as masterpieces; for in many cases the men who wrote them had previously devoted years of study to the respective groups. The mere enumeration of Martius' other writings would fill several columns, for there are more than 150 separate works; but it is unnecessary to dilate on them, because Martius' scientific eminence does not depend on them.

There are, however, many valuable treatises amongst them. What botanist is not familiar with his researches in the Eriocauloneæ, Amarantaceæ, Xyrideæ, Erythroxyleæ, &c. They afford evidence at once of the extraordinary versatility and observation of the writer, to whom no branch of botany was unknown. Nevertheless many of them have already accomplished their service to science, and are now out of date. But the larger works will endure, and centuries hence will be consulted and esteemed, just as we now keep and use the works of a Sloane, a Jacquin, or a Rheede, &c.

Martius was not only a botanist in the widest acceptation of the word, he was also a general naturalist. He worked with the industry of the bee, collecting and utilising every fact and scrap of information possible, and remained to the end an ardent lover of classic literature, delivering Latin lectures to the last.

Reverting to the main facts of Martius' life, we left him in 1820, just after his return from Brazil, when he was nominated ordinary member of the Academy, and second conservator of the Botanic Garden. For some years his position remained unchanged. When, however, in 1826, King Ludwig I. ascended the throne, and the University of Landshut was removed to Munich, he was appointed professor of botany in that institution, and six years later, upon the retirement of the aged Schrank, he received the post of first conservator. With the exception of occasional journeys to England, France, Holland, &c., he discharged almost uninterruptedly the duties of both until 1854. When it is considered that interchange of thoughts and ideas formed a prominent feature of Martius' temperament, it will be readily understood that he was eminently qualified for a teacher, especially of science. He, who had seen and investigated the tropical flora, and assiduously cultivated the study of native plants, and had excellent examples from the botanic garden before his pupils, was equally at home, whether in a purely scientific disquisition on systematic botany, or in the diffusion of general principles, by means of illustrative examples.

A ready perception of the beautiful rendered his lectures no less instructive than graceful. Hosts of youths flocked to his lecture room, and as eagerly accompanied the affable and wonder-loving guide through field and glade.

A real students' feat was the long-observed annual excursion to Linnæus' Oak, at Ebenhausen, on the Isar, about two miles and a half (German) distant from Munich, where are the steep and rapid mountain-falls of the Halden. Undeniably botany was there pursued with enthusiasm and exhilaration of spirit, and certainly without any detriment to science. More than one of Martius' pupils have become ornaments of their profession. Al. Braun, Mohl, K. Schimper, Sendtner, Spring, and others sat under him.

With a budget of only 4500 gulden (not a third of the present sum) Martius succeeded, with the assistance of the highly meritorious gardener Weinkauff, in making the botanic garden a model establishment. The garden had just been remodelled with great care, and partially replanted, when in 1854, through the erection of a glass palace for an industrial exhibition, the beautiful plan was marred. Martius, who had vainly remonstrated against this intrusion, ceased to interest himself in the garden, and his principal occupation thereafter was the publication of the "Flora Brasiliensis."

(To be Continued.)

PEAR PROTECTION.

I DID not like to mix this article with the one on the protection of Peach and Nectarine trees. I see that "Pari Passu" has taken up the subject, and I can endorse every word he says. To grow first-class Pears away from walls would be labour in vain, unless they were protected from spring frosts (hoar frosts) from February till the 14th of May. Doyenné d' Alençon, a bush Pear on the Quince stock, and first-class, is now (February 23) coming into full bloom. What would become of it if not protected? I grew great crops of culinary Pears last year on the Pear stock, on espaliers, in the open, without any protection. Some of the trees had 100, some 150 Pears; but you cannot secure first-class dessert Pears, such as Beurré Superfin, Josephine de Malines, Marie Louise, Doyenné du Comice, and Dana's Hovey, without strong protection for many weeks. So satisfied am I of its absolute necessity, that I have just bought 80 yards of "forfar," at 4½*d.* per yard, for the purpose. Even when Pears are set, and large as a hazel-nut, they are liable to be destroyed by sharp hoar-frosts; though the frosts may not affect the Pear, they will destroy the stems, which turn yellow, and then the Pear drops off! I do not doubt the truth of Mr. Saul's (Stourton, Yorkshire) statement, namely, that he can grow Pears, Peaches, Nectarines, and such-like fruits without protection. It can be accounted for by the blooms being kept back by the climate till the danger is over. At Rushton I had a Marie Louise on a north wall; it never needed protection. The espalier towards the south wall never filled my hands till I sheeted it; and then I grew from 100 to 140 Pears on the tree! The warmer the climate and the warmer the position in the garden are, the greater is the danger by reason of radiation. I lost no Roses under my north wall in 1860, but I lost several under my south wall from the above reason. Some writers on this subject must be either lucky fellows or lunatics! They are not, I imagine, practical and experienced men, but theorists, metaphysicians, or mathematicians (signally deficient in Kepler's three laws, upon which astronomy is founded), who are always mistaking figures for facts!

Shakspeare uses the word metaphysical for supernatural! Well, they are supernatural "chaps," who think it beneath their lofty flights of imagination to study Nature. The French fight for "an idea," but the English go crazy on "an idea," often a French idea! Cordon Pears 1 foot from the ground! Why, the spring frosts will destroy them; and if any are left they will be demolished by the blackbirds, if the season is torrid. The birds nearly demolished my low Quince bush Pears, Beurré Bachelier and Doyenné Gris. Then we are told by these happy theorists that Pears can be grown remuneratively for the million—for the masses. Pooh! the masses will expect from three to six a penny! We must not judge by the London markets, where Pears sell at a high price—often fabulous, and worthy of a dessert described in the "Arabian Nights"—the dessert, shall I say, of Aladdin, or Sinbad the Sailor? So difficult are first-class Pears to be secured against spring demolitions, that, though I have had Madame Millet six years, I have never yet seen the shape of the fruit, although she blooms annually like Mr. Turner's Modestum.

The Pyramids on the Quince stock, about 5 feet 5 inches high on an average, beat the bush Pears thoroughly. They were as exposed to the south-west wind as the Eddystone Lighthouse, and had only a 14-inch board about 5 inches over their heads as a fixed protection. They cropped nobly, and drew all eyes. They were Doyenné du Comice, the best Pear of the year, and equal to Beurré Superfin, and Josephine de Malines, and Dana's Hovey, the sweetest of all Pears. It is of the Seckel line, and honey itself. The others were good, viz., Summer Beurré d'Aremberg, Gratioli, La Sœur Grégoire, Bergamotte Hestrick, and Beurré Clairgeau. The last is very handsome. It has, however, though good in flesh and musky, three faults,—it is comma-formed (curvo-pyriform); it lacks juice and sprightliness of flavour; still you must have it. I expect from horticultural writers of the theoretical school a witty or crazy reproof—there is not much difference; for

> "True wit to madness is so near allied,
> That thin partitions do their bounds divide."

W. F. Radcliffe.

SURFACE CROPPING VINE-BORDERS AT ARCHERFIELD.

As Mr. D. T. Fish assumes that I have taught the surface cropping of Vine-borders as a correct theory, I beg to state that I am not aware that I have ever done so. But, setting this aside, Mr. F. writes very incorrectly of the position, material, and extent of the Vine-borders at Archerfield, and will not be surprised when I presume that, on these points at least, I am more learned than he. I will state the facts of the case, and if they do not prove instructive to any reader who may be placed, at any time, as I was when dealing with the borders in question, they may furnish Mr. Fish with another topic for his fertile pen.

As is usual, a walk runs parallel with the main range of glass in which the vineries are situated at Archerfield, but in this instance the walk is much closer to the houses than is consistent with good planning; so close, as in some instances not to afford more room for outside borders than about 3 feet, and in others about 5 feet, while in some cases the Vine roots are entirely excluded from the inside border, and in others the inside borders are not more than 10 feet wide. Between the winter of 1858-9 and that of 1866-7, I made borders to about 300 feet of vineries, and as soon as I found the Vine roots crowding into the walk it was torn up, a border made under it, and laid down hard and fast in the same position. When the roots arrived at the extremity of this fresh soil, the border on the south side of the walk was turned upside down, the subsoil removed, the border being made up to the old level, not with "fresh maiden matter," as Mr. Fish states, but with common old kitchen garden soil. This border on the south side of the walk was bounded by an espalier for Pears and Apples, not more in some instances than 24 feet from the front of the vineries; and the greatest width to which I carried any of the borders from the front of the houses did not exceed 22 feet instead of 50 feet as Mr. Fish states. It is quite correct that the borders on each side of the walk were draped with the "common herd of bedding plants." The plan adopted was not to probe deeply into the Vine-borders, for they were full of Vine roots, but to lay over them from 3 to 4 inches of well decayed manure, and over the manure a layer of light rich soil, and in this to plant the bedding things. And if ever Mr. Fish tries this method, he will find that the roots of bedding plants are wonderfully, though not singularly, fond of being near the commissariat.

The theory of this practice I will leave Mr. Fish to deal with, and will be content to sit at his feet as a theorist. The results of the practice Mr. Fish is already versed in, and I think if he had inspected these flower-borders and the Vines along with them last season, after an almost unparalleled drought, and with no artificial watering, he would have concluded that it would have been a pity to have meddled with either the flower-borders, or the Vines. Vines from which Grapes were cut in June, carried their foliage without a spider far into November, while the wood was as ripe as ever I saw Vine wood before.

I have no idea of establishing either a theory or a precedent by the relation of these facts. Mr. Fish and all gardeners who can carry out their ideals may be considered fortunate. In this matter I did the best I could for a display of flowers and a supply of Grapes under the circumstances. What I would have done had I carried out my ideal of Vine-borders is a very different question. As it was, I left a set of Vines at Archerfield of which, I think, even Mr. Fish need not to have been ashamed—Vines which were too heavily cropped in their early days, but which, under more favourable circumstances, had improved every year for the last three or four years. *D. Thomson, Drumlanrig Gardens.*

Home Correspondence.

Indian Forest Appointments.—Having bestowed some further consideration on this subject, I beg leave again to trouble you, in the hope of pointing out what may be taken as the best course to be followed in the selection and training of young men for these appointments. In these days of free trade and open competition, I think it would be far preferable if the India Board were to allow the candidates to acquire their knowledge where and how they please, and not patronise any special line of education, resting contented with the result of examinations of the candidates in their various stages of education. The plan which I would, therefore, suggest is, that candidates, who are intending to compete for one of the forest appointments, should, as a preliminary measure, pass the examination already proposed by the India Board to test their general education; after which, for the next two years, they should be placed on a sort of probation, somewhat similar to young men qualifying for staff appointments in the army, and should receive, during that time, the same amount as the India Board at first proposed towards the expense of their maintenance, only stipulating that the candidates pass another special examination at the end of two years in all the particular branches of knowledge which they will eventually require, with a further stipulation that they must pass a minimum standard before being finally appointed. They should then rank according to the results of their examinations. It might further be suggested that members of the Institute of Surveyors or of the Horticultural Society should, in justice, form part of the examining Board. In order to facilitate the education of the candidates, and also for the benefit of young men intending to practise in this country as agents on estates, or in woodland districts, and even for the benefit of country gentlemen who might wish to attend, the Council of Surveyors and the Council of the Horticultural Society might arrange a course of lectures to be given in some central place, say the rooms of the Horticultural Society in London, on all the special subjects necessary, such as the following:—Geology in Relation to Agriculture and the Growth of Trees; the Classification of Plants and Theoretical Botany; Habits of Indian Trees compared with English Trees; Forestry, Land Surveying, Roadmaking, Levelling, Arterial and Land Drainage, &c. These lectures should be open to all comers on payment of certain moderate fees, which would go to pay those who gave the lectures, and the lecturers might be selected by the Council of the two Societies I have named. The lectures should all be given consecutively, in April or May of each year, for the accommodation of those who wished to attend them. The Institute of Surveyors should then ask different surveyors in England, Scotland, or Ireland, to send in their names to them as willing to take young men, and especially these Indian ones, under their charge for a certain time, specifying their terms, and stating whether as in or outdoor pupils; each pupil to remain at least six months in each place. After the candidates are finally appointed, arrangements might be made by which the young men might go for a tour of inspection to Germany or France, if thought advisable, in order to acquire additional information. I believe that by these means very superior young men would be trained for India, and also for England itself; and they would better acquire all the technicalities of their education if it were pursued in England than on the Continent, while facilities would be given to many in this country for studying systematically many matters relating to the business of a land agent, and especially the science of forest management. You will observe that I have made no stipulation about it being compulsory on the young men to go to France or Germany. They may do so if they think proper. All that could be wished is, that the competition at all times be fair, and open to all. *Woodlands.*

Arboricultural Education.—I have read the articles on the Indian forest question with much interest, and

cordially go along with you in holding, that whenever the information required to qualify a candidate for a forest appointment can be obtained in this country, it is absurd to send him abroad to acquire it, while on the other hand, if it can only be obtained on the Continent, and is worth possessing, it is equally clear that he must then go there to get it. These are generalities which no one will dispute, but which at the same time, like all generalities, leave us very much in the dark. Until we come to close quarters, and learn the actual details, which it is thought cannot be had here, and which we must send our lads to the Continent to learn, we can make no progress in discussing the question. Can you tell us what they are, or if the recommendations by which they must have been guided have also been mere generalities? If the latter, the whole question is a muddle of obscurity, which nothing will clarify but a regular inquiry and examination into the facts. If, on the other hand, details have been condescended on, we can, when we once know what they are, take them to pieces and come to some opinion as to their value. There are undoubtedly some things which cannot be learned here for want of a sufficiently warm climate, but so far as any occur to me on the spur of the moment, none of these are of sufficient value to call for special education elsewhere. There are others which cannot be learned here on account of our political constitution—such as arbitrary restrictions, extreme severity to trespassers, military system of administration, &c., but these again seem to us not to be likely to be of much use to Englishmen anywhere, at any rate not to be of those which it is imperatively necessary for them to acquire. There are other peculiarities in the Continental forest management, which are only not to be learned here because we have no need of them, but which could be as easily taught here as in France, were it considered desirable to teach them—for example, the loppings of our trees when they are felled are often left to rot on the ground. The expense of carriage to a market would be greater than the price they would bring. Not so in France, for the scarcity of wood makes them valuable, and they have arrived at great perfection in the neatness and care with which every scrap is preserved for use. A few hours' practice will teach the rudest labourer to make a gabion, so I incline to think that unless there be greater matters to be taught on the Continent than such details, the reason for sending our arboriculturists abroad to learn is somewhat of the weakest. There may be other things which it is desirable that they should learn. I do not say no, but until we know what they are, no one can give an opinion upon them. Perhaps we shall be told it is their organisation which we are to learn. Has it, then, been settled that the French or German organisation is to be adopted in India? If not, what is the use of sending men to learn an organisation which they are not to use? When we get the desiderated information as to the details in the Continental system which it is desirable for our foresters to acquire, the first point to be considered is, whether they cannot be equally well learned in England now? 2. Whether, supposing them not to be acquirable in England now, they might not, by proper arrangements, be specially taught here in future? And 3, Whether they are worth acquiring at all? There remains another question which does not seem to have occurred to our Executive or their advisers: What are our students to do with regard to the flaws and blunders of the Continental system? It seems to have been taken for granted that there are none. The idea seems to have been, that because the system is elaborate, and the machinery carefully adjusted and supervised, it must necessarily be perfect. Now, I can only say, that notwithstanding all their systems, notwithstanding their admirable arboricultural schools, their excellent arboricultural gardens, which in Prussia especially they are carrying out to a still more magnificent extent—in fact, in everything that Government can do (in all which I am willing to admit that they beat us to sticks); notwithstanding all this, their practice is decidedly inferior to ours in every branch of arboriculture, using the word in its literal sense, of the culture and growth of trees. I ask any man in Britain with a particle of arboricultural knowledge what he would think of a forester who should make his plantations by allowing the young trees, when about to be felled, to shed their seed, and then allow the young plants to grow up together into a thicket not to be touched by knife or hatchet for 20 years? Is that the forestry that our young men are sent to learn? I have not the information nor the means of knowing how far this system prevails all over the Continent, but I can vouch for it being that followed in some parts of Germany; and I may add, that a similar want of early thinning dwells in my memory as characteristic of the Crown forests in some parts of France. But there ought to be full information on this and all other points somewhere. The Executive would never surely resolve on requiring the young Indian foresters to make their studies abroad, without first ascertaining what was the system followed in the schools they were going to; and if it turns out that what I have above described is a part of the system, it would be most desirable to know whether it is considered an improvement upon that followed in Britain or not, and whether it is intended to be adopted in our own Royal forests. As for me, I shall stick by the old plan, not because it is old, for in that respect I give every precedence to that I have described, but because on the whole I think it is better. *C.*

The Horizontal Cordon.—As Mr. Robinson's writings induced me to see for myself the horizontal cordons on the true Paradise stock, my opinion may be as useful on this question as that of some who have never seen them at all, or have not got beyond the erroneous idea that they are espaliers with one branch, being ignorant of, or ignoring the fact, that the stock is entirely different. I have seen a good many espaliers in my time, but never one that bore a crop like those little cordons that I saw at Ferrieres, Versailles, and amongst the French fruit growers. The espalier on the Crab stock, no matter how big and ugly was the trellis you put it upon, was always with difficulty kept within bounds, always pushing its vigour to the top branch, whereas the little trees I saw in France growing on very stiff moist loams, were in the stubbiest and neatest condition that could be desired; and everywhere I was told that they were scarcely any trouble, a little pinching now and then, and some attention to see that the spurs were equally distributed along the line, being all that was required. Why, the trouble is worth incurring for the sake of having such a pretty garniture to our walks in spring and autumn, even if the great Apples were of wood, and not of the finest flavour. The pinching and training would be pleasant employment for ladies and young folks, in their few hours garden rambles, affording both profitable and amusing exercise. So many tortured forms of trees have been presented to the public that I do not wonder at those rejecting them who cannot see the undeniable merits which have been claimed for these cordons; but when once they are seen well done, and in working order (we cannot expect they will be in England for a year or two), everybody interested in a garden will be charmed, and the plan will, I venture to say, be adopted in the largest as well as the smallest gardens in the land. Every operation connected with the culture of these trees will be agreeable in consequence of its simplicity; and it will be pleasure to have the little trees under the eye, from the unfolding of the rosy buds in spring, to the gathering of the fine fruit in autumn. It is to me very surprising that none of our great fruit growers, pomologists, and others, who are, I believe, in the habit of travelling in France every year, and some of them for the past 30 years, did not spy out and introduce this system long ago, and more surprising still, that it is but recently that we have learned from Mr. Robinson the real value and nature of the stock (others who have mentioned it have always recommended the Doucin or English Paradise), and no doubt but for his exposition of the matter, we might have gone on for many years without knowing anything of value about it, as we have already lived without such knowledge for many years, notwithstanding the proximity of the fruit gardens of northern France and southern England, and the abundant intercourse between the two countries. We have brick and tile edgings in all sorts of fancy forms, pebble, stone, slate, and wooden edgings, also Grass, Box, Thrift, and many other living edgings; but when once fairly understood, the little edging of choice Apple trees will prove the most popular, profitable, and useful of them all for the fruit or kitchen garden. Apart from edgings, the plan of planting the cordon on the ends, fronts, and low walls of plant pits, and other houses, low walls and fences, small vacancies or spaces between fruit trees on walls of any aspect—indeed, on any kind of blank space on walls is another distinct improvement; and, when we have it in full operation, the specimens of the finer and tenderer fruits grown on this method will be such as we have not yet had the pleasure of producing in this country. I looked in vain in Mr. Rivers' letter in the *Gardeners' Chronicle* of January 30th for any reply to a single statement in Mr. Robinson's article of the 16th. That article conveyed to me the first distinct account of these most interesting stocks that I have ever met with in our language, and I am astonished that Mr. Rivers, who talks of having studied the subject for so many years before Mr. Robinson was born, has not even made an attempt to account for the extraordinary contradiction and confusion so clearly pointed out. If I mistake not, something more than personalities are required to make us take any one's *ipse dixit* for gospel, after this revelation. *James Barnes, Bicton Gardens.*

The Quercus Ilex, as an ornamental tree, certainly stands unrivalled, and I have often felt surprised at its not being more extensively planted at places where it is found to thrive well. Here it has been planted largely, and I think I may say my worthy employer has some of the handsomest, if not the largest specimens in this country. A large belt planted here on the north side of the kitchen garden affords excellent shelter, and also forms a grand feature in the place when viewed from almost any point. For blocking out buildings and other objects from view, for giving shelter, and as an ornament withal, the Ilex Oak, in my opinion, is unsurpassed. When planted out in groups or singly in the park, it gives the locality during the dull months of winter a clothed and warm appearance. Notwithstanding, it does not receive that amount of attention from arboriculturists to which it is justly entitled. The handsomest specimen growing in the park here stands 49 feet in height; its branches extend over an area of 190 feet. Its stock girths, close to the ground, 14 feet 9 inches, and at 6 feet from the ground, 12 feet. There are many other noble specimens growing here, and of a larger size, but the above is by far the handsomest specimen. One, for instance, girths, close to the ground, 20 feet; another, 12 feet, has attained the height of 70 feet. *Thomas Foote, Gr., Haldon House, near Exeter, February* 16.

Green's Patent Hot-water Boilers. — Mr. Wills having spoken so highly (p. 79) of Green's boilers, I should like to know whether, in his opinion, if this boiler were bricked in it would not be even more powerful than he represents. It surely must lose a great amount of heat exposed to the action of atmospheric air. Again, was the boiler at work the whole of the three months, or only a few nights? as the amount of coke used is so trifling compared to the consumption of other boilers. I have one at work, which certainly has four times as much work to do as the one spoken of at Kensington; but it burns about 7 chaldrons in the fortnight. I hope he will state if the boiler was at work the whole of the 12 weeks, or was only used at nights. We have had such mild weather that it may not have been required much. *R. J. W.*

[I do not consider any very great advantage would be gained by encasing the boiler in brickwork; if placed in a covered shed or stoke-hole, this is all that is necessary. In this boiler the circulation of the water is very rapid and is easily maintained, for, so long as a moderate amount of fuel is kept in a state of combustion in the fire-box, this quick circulation continues. The great object I consider is to keep the water constantly circulating through the area to be heated. This being accomplished, the quantity of heat lost from the outer surface of the boiler being exposed to the action of the air becomes of little consequence, the object being to cause a quick circulation and not to heat a mass of brickwork. The boiler I referred to was at work the greater part, if not the whole of the period, as stated at p. 79. Since my remarks appeared I have seen two more of the boilers at work. One, about 3 feet 6 inches high and 15 inches diameter, at Harrogate, was heating about 300 feet of 4-inch piping. When I saw it, the fire had been lighted but a little over an hour, yet the whole of the pipes were so hot that it was impossible to keep one's hand on them, thus showing that the boiler was capable of heating three or four times the quantity of pipes attached to it, for no practical man would allow any heating medium to remain for any length of time so hot as these pipes were, if he expected to keep up healthy vegetation near them. In this case I found there was very little fire inside the firebox, and on asking how long the fire would last when made up, I was told that it had been banked up at 5 P.M., and found all right at 8 o'clock the following morning. The other boiler I have seen is of the same size as that at the Royal Horticultural Gardens (4 feet 6 inches by 2 feet 8 inches). This is heating 1312 feet of 4-inch piping at the Royal Park, Leeds. I found the pipes in each house at 10 A.M. as hot as any one could wish for horticultural purposes, and Mr. Murray told me that the fire was made up at 6 o'clock the evening before, and that it was simply stirred up the first thing in the morning, a little fuel added, and the damper put in at 8 o'clock. The desired amount of heat can now be obtained at less than one-half of the former cost in fuel. I had, as stated at p. 79, ordered one of Green's boilers, intending it to heat about 3000 feet of 4-inch pipe, but it was sent back to have a slight alteration made, by which I have no doubt it will heat upwards of 7000 feet, and enable us to dispense with two fires, which will be a very considerable saving. The boiler will be fixed in a few days, and I will hereafter give a faithful report of what it really can do, and if I find any faults I will name them. I trust the explanation given above will be deemed sufficient by your correspondent "Z." (see p. 166). Further, I trust that all who are wishful of imparting any information, or asking for particulars respecting this important matter, will give their names in order that the subject may be dealt with in a straightforward and proper manner, and without fear or favour. *J. Wills, F.R.H.S.*]——With less commendable patience than your correspondent "Z." (p. 166), and instead of asking as he has for further particulars respecting the operations of this boiler, whose untried capablities have been painted in such glowing colours, I, perhaps more anxious than wise, resolved to visit the establishments referred to, in order if possible to witness a genuine economy of heating by hot water adaptable to my own hothouses, but I regret to say I was sorely disappointed, not to mention the loss of time and expense. It is just probable that had not the name of our esteemed friend, Mr. Eyles, figured so prominently, I might have hesitated and been more content to wait, but finding his name so freely handled, and knowing the entire disinterestedness and impartiality he uniformly evinces, I ventured to undertake a tour of inspection, which has enabled me to give a reply to "Z." by stating the facts *seriatim*. Arriving at Kensington I made for the boiler, which, in itself, as stated, measures 4 feet 8 inches high; but I may add that when fixed, including the ashpit and flowpipe connection, it exceeds 6 feet. Now I cannot quite reconcile the idea of a boiler requiring a depth exceeding 6 feet claiming for itself the possibility of being fixed in places "inaccessible to other boilers." Again, it is stated that this said boiler is heating "upwards of 1000 feet of 4-inch piping." Allow me to correct this assertion by stating that the quantity of piping is only 750 feet, a good portion of which is only 2-inch, and the furnace is so reduced that it holds (so I was informed) only sufficient fuel to last three hours or four at the longest. Notwithstanding having here met with the reverse of what I had been led to expect, I wended my way to the Ashburnham Park Nurseries, where these boilers were to be seen, but, to my utter astonishment, there was no patent boiler "at work or otherwise;" certainly I was informed that one of the boilers had been upon the premises for the purpose of a trial, but had to be removed, and on examination it was found necessary to return it to the maker. Under the circumstances, therefore, I may be excused from giving any opinion respecting the merits of this said boiler, preferring as I do to remain silent, until every opportunity has been given for a fair trial. I cannot, however, conclude without again referring to the disappointment I experienced at having seen so little after having read so much; it would be well if newspaper correspondents, instead of jumping at premature conclusions, would simply state facts. *Y.*

Air in Vineries.—I have several young Vines in a house with other plants which can be treated well with the Vines, but I am repeatedly told by my employer that although the plants do not require air, yet the Vines, having broken weakly, need it to

strengthen them. I wish to know whether admitting air, regardless of weather, will strengthen them, or if air at all on fine days is beneficial? *S. Crombie.*

[Vines cannot be grown successfully in a house where no air is admitted. The air is required to give strength and substance to the leaves and shoots. This should be regulated according to the weather: on the forenoons of fine sunny days a good deal of air may be given, shutting up early in the afternoon. In cold, dull, or windy days of course this cannot be done, as the temperature would thereby be lowered in too great a degree; it should never be lower than 60° during the day. We have seen very good stove plants indeed grown in houses along with the Vines, which produced good crops also, and ripened well; the practice, however, is not recommendable, as the proper treatment of the Vines, at the time of the ripening of the fruit, is injurious to the plants; at other times the treatment as to giving air, &c., is equally beneficial to both. *B.*]

Seakale.—Is it not unusual, even in this mild winter, to cut well-grown Seakale from the open ground on February 20, which I did on that date? Bluebottle flies appeared in the garden on the 21st inst. *A. B., Nantyglo, S. Wales.*

Tatees, Taturs, and Potatos!—The writer of the article signed "J. B.," at p. 190, states that he finds it difficult to persuade the labouring poor to cultivate any vegetable except the Potato. About 30 years ago I let 5 acres of land as garden ground, in plots of 1 chain, or one-tenth of an acre each. These were let as gardens, and one of the rules was, that not more than half should be cropped with Potatos. As a rule, the gardens are divided into two equal portions, and though in some cases there is occasionally an attempt to infringe this rule, yet during the whole period, calling attention to the fact has been sufficient to restrain the offender. It is true that most of the labourers have a small plot of Potato ground given by their employer, but of small extent, and to be held only for the season. I feel that the rule under which I let the garden ground is morally beneficial to the holder, as it is physically advantageous to the soil. *J. C. C.*

Hardy Fruit Growing.—Had your correspondent "Pari Passu" attentively read my communication he would have been in a position to have commented thereon correctly; such evidently not having been the case, I am under the necessity of reverting to the subject. 1st, "Pari Passu" reiterates "that no system of pruning can fortify a tree against frost." I repeat that it does do so to the extent that I have already shown. 2d, he says that root-pruning does not retard the blooming. If he will refer to my letter, he will see that there is not a single sentence in it to lead him to suppose that I entertained an idea so opposed to common sense. Neither have I cited against him a single instance of protected trees, nor of trees on walls, except so far as they bear upon the subject from a general point of view. If "Pari Passu" will refer to my communication, he will see that the whole of my trees, excepting eight, are standards or on trellises, and six out of the eight are on low east or west walls. He admits that the greater quantity of bloom there is on a tree, the longer is its duration in bloom. This is one of the principal advantages the system I advocate possesses. He says "that there is not a week's difference between the development of the first bloom and the last in most varieties;" I maintain that in a well-managed tree there will be sufficient for a crop unopened at the end of double that time. As to "Pari Passu's" assertion, that the fruit when set is "as tender as the bloom," such a conclusion, I opine, is diametrically opposed to established facts. I should say that it will stand at least one-third more frost. I can assure "Pari Passu" that I am not mistaken as to the frost on the 25th December, 1860, killing almost all the Pear blooms in this locality. I cut scores of the buds open a week after the thaw, and found them quite black, and the crop was a complete failure. Apples were also very light. We had 2° below zero, but after the previous sunless summer the wood was imperfectly ripened, and the bloom in the worst possible condition to stand so low a temperature. If "Pari Passu's" communication had referred to any particular locality unfavourably situated, it would have been unnecessary to have noticed it, as it is well known that in low damp situations the frost is more intense, and the trees are less calculated to withstand it. All that I have advanced on the subject I have proved by personal experience, supported by the evidence of similar practice in scores of places throughout the country that can boast of no exceptional advantages as to situation. I simply place such positive facts as opposed to the assertions of "Pari Passu," whose gloomy picture may possibly reflect the results of fruit growing in his own immediate locality, but which I maintain is not applicable to the country at large. To say that there are not many places in the country unsuited to successful fruit culture, by their liability to frost and other causes, would be equally untrue as to say that the country collectively is unfit. I simply wrote to refute such a sweeping charge. "Pari Passu" has shot completely wide of the mark in instancing his own failures and those at a few other places, and then joining in a cry of despondency. *T. Baines, Summerfield, Bowdon, Cheshire.*

Seasoning Elm Timber.—Referring to the inquiries of a "Country Proprietor" (p. 166), one year is sufficient to keep the timber in log; after that period the sooner it is converted, the quicker it will season. Lying for a lengthened period in log, it is liable to surface flaws from unequal contraction in shrinkage, and the seasoning is very slow. The sooner timber is converted into material of sizes required for use, the sooner it will dry. Its time of drying is governed by its thickness, and its state of dryness on the description of work for which it is to be used. A 1-inch freshly cut board will take a year to dry thoroughly; add a year for every inch in thickness. For all purposes for which Elm is employed, this period of seasoning may be conveniently reduced one-half. Some kinds of timber are said to benefit by being placed for three to six months in running water, but no satisfactory proof of its efficacy has been established. It is supposed to act in some way on the watery or vegetable portion of the sap, and to harden the fibre, and that the wood so treated stands better afterwards. The process does not expedite seasoning. No better method of seasoning has yet been discovered than the old-fashioned one of natural drying; it's slow but it's sure. Cut the timber up into the required dimensions, stack it clear of the ground, with a free circulation of air all round each piece. Time will do the rest. *W. C.*

Bottom-heat for Vines.—As there seems to be no satisfactory end to the controversy about bottom-heat for Vines, I would suggest a plan by which the matter may be settled so that the gardening world, amateurs especially, may have some data to go by. I recommend that the question shall be decided by four shows at the Royal Horticultural Society. As the question turns upon early forcing, the first show should take place from the 20th to the 30th April, for such Grapes as will bear forcing for that early season of the year, such as the Black Hamburgh, all the Frontignans, and any other black or white Grape, except Muscadines or Sweetwaters, which I consider are not worth forcing, compared with the fine white Grapes we now have. The second show to be in the last week in May, or the beginning of June, for Muscats of all the large kinds. At the first show there should be 1st, 2d, and 3d prizes for Hamburghs; 1st, 2d, and 3d for Frontignans; 1st, 2d, and 3d for any other white Grape; and 1st, 2d, and 3d prizes for any other black Grape. At the second show, 1st, 2d, and 3d, for Muscat of Alexandria; 1st, 2d, and 3d for Canon Hall; 1st, 2d, and 3d for Madresfield Court, or any other black Muscat of a good size. This for the spring of 1870. In case any growers on either side should not be ready in 1870, I recommend the same thing to be gone over again in 1871. These shows should form a sort of sweepstakes, the entries for each class to be, say 10*s.* 6*d.* each, to be paid the first week in January of each year, or the grower not to show. As the controversy has taken place in the *Gardeners' Chronicle*, I should recommend that the Editors should be asked to act as treasurers, and for such an important affair we should be able to get a good sum, besides the entries, in the shape of contributions, so as to make the prizes worthy of being contested for. I think after the four shows we should be able to tell a little more about the matter. *A Lover of Bottom-heat.*

Grafting Oaks.—My employer has an Oak that he wishes to increase by grafting on the common Oak. Will you kindly inform me which is the best sort of graft for the purpose? It has been tried several times, but unsuccessfully, except by inarching, which is inconvenient. *Ex.* [The method of grafting Oaks in the nurseries near London, and that which is considered the best, is by approach—*i. e.*, inarching. At Exeter the Lucombe Oak is usually grafted in the common or "whip" manner, with clay, and earthed up to exclude air. Sometimes this is very successful, but at other times quite the reverse. Three varieties of Oak are used for grafting on—viz., the evergreen (Quercus Ilex), for evergreen species; the Turkey (Quercus Cerris), for that section most nearly allied to it; and others on the common English Oak (Quercus Robur), which is found to be the most preferable for all kinds that it is known will unite with it. EDS.]

Horticultural Shows.—I read with much interest the article of last week on village shows. I think the managers of such societies ought to be more particular from what source exhibitors obtain their productions. There are several small shows in this neighbourhood, which are all more or less tainted with corruption. A respectable nurseryman in the neighbourhood informed me that a few days previous to the shows he had been pestered with customers who wanted his productions to exhibit, and was obliged to put a stop to it. I am sorry to say that many gardeners have resort to the same unfair practice at the large shows. The result is, that honest exhibitors get disgusted with shows, and this is one of the principal causes of their extinction. *R. S.*

Societies.

EDINBURGH BOTANICAL: *Jan.* 14.—Dr. Cleghorn, president, in the chair. Letters from J. J. Bennett, Esq., and Professor Crepin, were read, thanking the Society for their election as honorary and foreign members. The following communications were read:—I. *Biographical Notices of Carl Friedrich Philip von Martius, M.D., and Adalbert Schnizlein, Ph.D., late members of the Society.* By Dr. Cleghorn.——II. *The Lichen Flora of Greenland.* By Dr. Lauder Lindsay. The list included 268 species and varieties. —— III. *Notes on Diatomaceæ from Danish Greenland, collected by Mr. Robert Brown.* By Professor Dickie ——IV. *Mosses collected by Mr. Jenner and Mr. Howie in Roxeshire, in July*, 1868. By Mr. Charles Howie.——V. *On the Staining of Microscopical Preparations.* By Dr W. R. M'Nab. The author enumerated a large series of experiments he had made by staining certain microscopical structures with acetate of mauvine and Beale's carmine solution. He showed that by means of staining, the high powers of the microscope can be used to bring out points of structure not easily demonstrated without being so treated. The process of staining does not seem to be attended with any great difficulty, and the author believes that very important results may be obtained by careful study of its action on germinating plants.——VI. *Letter from Dr. R. O. Cunningham to Professor Balfour.* "H.M.S. Nassau, Valparaiso, Nov. 3, 1868. We entered the Strait on November 17, 1867, and reached Sandy Point two days later, on a lovely spring morning, recalling the month of April at home. The fresh green foliage of Fagus antarctica was really refreshing to the eye after our sea cruise, and a considerable number of flowering plants were in bloom. The Berberis empetrifolia covered the ground in many places with its prostrate stems, thickly covered with blossoms, which diffused a faint perfume, and the Primula magellanica was abundant, some specimens possessing white, and others beautiful purple flowers. Ribes magellanicum was also in full flower, and so were two or three Cruciferæ, and a pretty little Saxifrage (S. exarata), bearing a close general resemblance to our S. tridactylites. At Cape Negro I procured Oxalis enneaphylla, Arabis Macleaniana, Embothrium coccineum, Geum magellanicum, and a variety of other plants. Towards the end of December we visited the Gallegos River, about 30 miles to the north of Cape Virgins, in search of a deposit of fossil bones of mammalia, but were unsuccessful in our quest, and about the middle of January we went across to the Falkland Islands to provision and coal. We remained in Stanley Harbour about 10 days, and I was more favourably impressed with the surrounding country than I was on my first visit. Callixene marginata, Chabræa suaveolens, Drosera uniflora, Pratia repens, Empetrum rubrum, Gentiana sp., Serraria magellanica, S. alpina, and Aspidium mohrioides, and various other plants were procured. On our way back to the Strait we passed through Falkland Sound, visiting the Tyssan group of islands, where I saw the Tussac (Dactylis cæspitosa) in great luxuriance, and found the ripe fruit of Rubus geoides. We also spent a day at Fox Bay (West Falkland Islands), and there I obtained two Orchids which I had not previously met with. I spent a week during that time tented-out in Patagonia, but got very little in the way of specimens for my trouble, the most interesting 'find' being Crantzia lineata, which does not appear to have been previous recorded from the Strait, though it is recorded in the 'Flora Antarctica' as occurring in the Falkland Islands. I forget whether I mentioned in my former letter that Apium graveolens is extremely abundant on both sides of the eastern portion of the Strait, wherever the land is at all damp, and, as Dr. Hooker has observed, is perfectly wholesome. At Playa Parda Cove, in the western part of the Strait, I obtained, among other plants, Philesia buxifolia, Desfontainea spinosa, Escallonia macrantha, and a myrtaceous plant, which seems to be Metrosideros stipularis, and which does not seem to have been previously met with to the north of the Chonos Archipelago. It is, however, abundant in the channels, and constitutes a well-marked feature in the vegetation, frequently forming a distinct belt where the precipitous land dips into the water. At Poll Bay, where we spent two or three days, I found Gaultheria antarctica, generally growing along with Myrtus nummularia, and easily mistaken for it at first sight, and Tetroncium magellanicum. Here, as in most places in the channels where there was any open ground, a solid turf was formed of plants of Gaimardia, Astelia, and Caltha dionefolia; and a species of Prestonia was plentiful in the shallow pools of fresh water. At Eden Harbour, in the Messier Channel, I met with Podocarpus nubigenus, forming handsome trees, and a curious little dwarf Conifer, which also occurs on the mountains of Valdivia (and which Philippi has described under the name of Lepidothamnium), as well as Mitraria coccinea, not before obtained to the south of the Chonos Archipelago. We arrived at the fort of San Carlos, Chiloe, at the close of March, and remained there about a fortnight, and I was greatly interested in the striking character of the vegetation. Here I saw for the first time thickets of an arboreous Grass of the genus Chusqua; Myrtaceæ, Bromeliaceæ, Escallonias, and Fuchsias constituted a very prominent feature. The trunks of many of the trees were covered with Sarmienta repens, and their branches with a scarlet Loranthus; and Gunnera scabra covered many of the sandstone cliffs with its large rhubarb-like leaves. Other conspicuous plants were a yellow-flowered Loasa, and Berberis Darwinii, and last, but not least, our common Digitalis, which has completely naturalised itself. We left the bay of San Carlos on the 12th of April, to return to the channels, passing between Chiloe and the mainland, and calling at two forts in the island on our way. At the first of these (Cava Oscura) I found Tricuspidaria in flower, and was considerably puzzled as to its affinities: Dr. Hooker has since set me right with regard to it. The drooping crimson flowers give the tree a most remarkable appearance. Our next halting place was Port Otway (Cape Tres Montes). I spent an afternoon on shore there, and found Veronica decussata growing 6 to 8 feet high, and a beautiful Gesneraceous creeper, which I took for a species of Drymonia, but which I am inclined to suppose to be a Columnea. We entered the Messier Channel on the 17th of April, and remained there for about a month, surveying the harbours, during which we had almost perpetual rain. I was interested by procuring in several localities specimens of a handsome bignoniaceous creeper with rose-coloured flowers, and was in hopes that it might prove new, but have since found that it has been previously procured from Valdivia, being Philippi's Tecoma valdiviana. It does not appear to have been met before to the south of Valdivia, so this discovery of it in the channels extends its distribution several hundred miles. I have not said anything yet about the cryptogamic plants of the channels. There are some very beautiful Ferns (chiefly Hymenophyllæ), Musci, and Lichens; but the greater number of them occur also in Chiloe and the south parts of Chili, and I did not meet with such a great number of species as I was led to expect. One, a species of Hypopterygium, greatly delighted me by the beauty of its growth, resembling that of a miniature Palm tree. We left the channels in the middle of May, as the weather was so inveterately bad that surveying operations were rendered impossible, and, after a short stay at Chiloe, set out for Valparaiso, calling at Lota and Conception on the way. At Lota I saw for the first time that splendid creeper, the Copigne (Lapageria rosea). It was in great glory, flourishing even in the vicinity of the copper smelting works, where almost all other plants were killed by the sulphurous smoke. We reached Valparaiso on the 12th of June, and remained till the end of July, having an extensive experience of northerly gales, accompanied by rain. As it was winter when we arrived, but few plants were in flower. A little yellow Oxalis, known to the Chilians by the title of "Flor de Perding," formed bright-coloured patches on the hills, and a Fuchsia with small pink flowers was blooming abundantly. I made a short excursion to the small town of Santa Rosa de los Andes, at the foot of the Cordillera. There the lower hills bristle with tall Cacti, usurping the place of all other vegetation, and in many cases covered with a parasitic leafless Loranthus, with bright scarlet flowers. We spent the month of August very agreeably at Coquimbo, and there I made the acquaintance of the Nolanaceæ for the first time—Alona cœlestis covering the lower slopes of the hills, and two species of Sorema being abundant on the lower ground. There, also, I saw for the first time the Aristolochia chilensis, the beautiful little Schizopetalon, Carica pyriformis, Llagunoa glandulosa, Schizanthus fimbriatus, two species of Caladenia, a Trichopetalum, &c. We returned to Valparaiso in the beginning of September, and here we have been since. There is now a wonderful variety of plants in flower on the hills and intersecting quenadas. Tropæolum tricolorum, two yellow Calceolarias, a yellow and a deep purple Oxalis, a scarlet Alonsoa, several species of Œnothera, Pasithea cœrulea, Puya coarctata, a Verbena, species of Adesmia Salpiglossis, Argemone, Tupa, Schizanthus, Anemone, Polygala, &c., being specially plentiful."——VII. *Report on the Open Air Vegetation at the Royal Botanic Garden.* By Mr. M'Nab. The past portion of this winter has been in every respect similar to the corresponding portion of last winter, there having been little or no frost or snow about Edinburgh. The lowest thermometer readings since the 1st of December were on the mornings of the 12th, 13th, 30th, and 31st of December, being respectively 29°, 30°, 23°, and 28°; also on the 1st of January, 21°, and on the 11th, 30°. Notwithstanding the general mildness, none of the ordinary spring-flowering plants and bulbs (with the exception of the Snowdrop, which showed its first flower on the 9th), are yet in bloom, although the leaves of many are now pushing rapidly through the ground. Many of the summer and autumn plants are still flowering abundantly, such as Stocks,

Wallflowers, Blue Gentian, Viola odorata and tricolor, Primula, Auricula vulgaris and elatior, Potentilla alba; likewise all the species of Helleborus or Christmas Roses. A few plants are now in bloom which generally come under the head of spring flowering ones, but which have been in flower since the middle of December; these are Tussilago fragrans and alba, also Phlox verna and Doronicum caucasicum. Of shrubby plants, the Hazel, the Garrya elliptica, and Jasminum nudiflorum are now in full bloom. The warm summer experienced last year has been very beneficial for the ripening of the shoots of many shrubby plants, such as Leonotisses, which are this season covered with flower buds to such an extent as we have not observed here for many years. The same remark holds good with the early hybrid Rhododendrons, which, although well budded, are not yet in bloom in the open air. The Rhododendron atrovirens, which is frequently in full flower long before this time, has only a few scattered blooms. As a proof of the mildness of the season, many of the Scarlet Tom Thumb Pelargoniums are now quite green in the open borders, the freshest being those which stood unprotected during the winter of 1867-68.

ENTOMOLOGICAL SOCIETY: *Feb.* 1.—Mr. H. W. Bates, President, in the chair. The President returned thanks for his re-election at the anniversary meeting on the 25th ult., and nominated as Vice-Presidents for the ensuing year Messrs. Stainton, Smith, and R. Wallace. The President's anniversary address having been printed, was distributed among the members. The Secretary read a letter from Mr. Butterfield of Indianapolis, desiring to enter into correspondence with English lepidopterists. Mr. E. Saunders exhibited a specimen of the rare moth Pachetra leucophæa, taken by Mr. Brown at Redhill, near Reigate. Mr. Butler read the description of a new Indian species of Hesteria, and Mr. Pascoe made some observations on the generic distinctions of the exotic coleopterous genera Aprostoma, Mecedanum and Gemphylodes. He also exhibited a new species of Cimicidæ, from the vicinity of Toulon, allied to Odontoscelis. Professor Westwood gave an account of the habits of the new Vine-destroying aphis recently described in the *Gardeners' Chronicle*. Mr. F. Smith (in allusion to the supposition of its being not only a root-sucker, but also a pseudo-gall maker on the leaves) stated that he had on one occasion found a mass of barnacle-shaped galls on the bole of an Oak in Bishop's Wood, Hampstead, from which a number of specimens of a wingless Cynips had been produced, which could not be distinguished from C. aptera reared from the currant-like galls on the rootlets of the same tree. Mr. Horne exhibited the stings of two scorpions which he had seen a rat kill in India, having been confined with them under a glass, where, after considerable fencing the rat suddenly bit the stings through the middle, and then leisurely began to pull the scorpions in pieces, and devour them.

Notices of Books.

Dendrologie.—Bäume, Sträucher, und Halbsträucher, welche in Mittel und Nord-Europa im Freien kultivirt werden. Kritisch beleuchtet von Karl Koch, M. and Ph.D., Professor der Botanik zu Berlin. 1str. thiel. Erlangen, 1869. (Williams & Norgate.) Trees, Shrubs, and Undershrubs, cultivated in the Open Air in Central and Northern Europe, &c.

When one has a mind to say or do anything against which "Don Worm his conscience" is likely to rebel, he will find it very convenient to provide himself with an approbatory *dictum* of some great man sanctioning and giving a benediction as it were to the questionable proceeding. We have got ours. We are about to be so ungrateful as to point out some of the imperfections of "Loudon's Arboretum," and we therefore preface our remarks with the *dictum* of Dr. Samuel Johnson, that the famous *de mortuis nil nisi bonum* always appeared to him to savour more of female weakness than manly reason. On our present occasion we say with Danton, "no weakness." The truth is, we are getting tired of being grateful for the "Arboretum," and are rendered impatient and fretful by its blemishes and deficiencies. We may, however, yield to the feeling without doing any harm. Although the Athenians got tired of hearing Aristides called "the just," he was not the less just on that account; and although we are tired of praising and admiring "Loudon's Arboretum," it is not a whit the less a great work, and a perfect marvel of industry, labour, and learning. Its great fault is its prolixity. The very index and contents are made to spin over more than the space of an ordinary volume, and after all they fail to serve their purpose. The index contains no references to species (only to genera), and it is almost as difficult to find a species in the elaborate contents as by turning to the body of the work. The excessive care, too, with which each trifling variety (often no more than an instance of individual idiosyncracy) is recorded, instead of being an advantage to the student, is really a source of confusion and embarrassment, and the author of such a work (especially when a man of the calibre and reputation of Loudon) has a serious responsibility for the hours misspent, and the time wasted by future readers in poring over and trying to make out these once seen, but never-again occurring, exceptions.

The result of all this, and much more of the same sort of thing, has been that the book is twice as big, and twice as dear as it ought to be, and its usefulness is grievously impaired by the obstruction which the irrelevant (or, at all events, only faintly collateral) matter interposes to the studies of the real student.

Another of its imperfections is the execution of its botanical details. Loudon was more of a horticulturist than a botanist, and whether as regards arrangement, discrimination of species, determination of synonymy or technical description, the Arboretum shows evident marks of his being so. In fact, it is not ranked by scientific men as a botanical book at all. It is a horticultural work, and has the defects incidental to that class of works. Indeed, all works on Dendrology must to a certain extent be open to this objection, for trees being only a part of a botanical subject, they cannot be fully or adequately treated botanically without going into the whole subject of which they form a part, while the very purpose for which they are treated separately is to avoid doing so. Still the botanical inferiority of the Arboretum is greater than it needed to have been, or than it ought to have been.

The above mentioned defects were blemishes at the time the book was published, and it is unnecessary to say that the lapse of 30 years has not softened or rendered them less conspicuous; and, in addition, the number of species known or introduced into Europe or Britain has gone on increasing, until now their number is actually double that which was known to Loudon.

It is a remarkable tribute to the sterling excellence and value of his work that notwithstanding this, and notwithstanding the blemishes we have touched on, it still remains the standard work on the subject—we may say the only work of importance on the subject, for the few that were in existence prior to the appearance of the Arboretum, such as Wildenow's Baumzucht, or Hayne's "Dendrologischer Flora," were superseded by it, and since its publication no serious effort has hitherto been made by any one to supply a work more suited to the present state of the science. This unchallenged monopoly is not, however, wholly to be credited to the excellence of Loudon's matter; it is also, and we believe mainly, due to the general excellence and number of the cuts contained in the Arboretum. Knowing the weakness in our nature for pictures, publishers have felt that the possession of Loudon's cuts and plates (whoever might hold them) would enable the holder to swamp any rival work by bringing out a new edition of Loudon, brought up to the state of knowledge of the present day, and illustrated by the old cuts, added to or not, as the case might be. The veto which these considerations have put upon any attempt at supplying an improved work on trees and shrubs in England has happily been at last disregarded in Germany, and the question of cuts boldly met by giving none. Professor Karl Koch, by general consent the fittest and most learned of living men for the purpose, has commenced a work which will supply Loudon's deficiencies and correct his errors, and which, moreover, is entirely free from all the nebulous accumulation of foreign matter which is so great a blemish in the Arboretum.

(To be Continued.)

The Apiary.

THINNESS AND WATERINESS IN HONEY.—Can you tell me the cause of this? That which I obtained from my bees last summer is singularly thin and watery. *J. P. M.* [It is not easy to account for variation in the quality and consistency of honey. While honey is being stored in the cells, and prior to its being sealed over, a large amount of evaporation, it is believed, goes on, which reduces it to the degree of consistency best suited to its preservation. Owing to the peculiar season of last year, it is probable that much of the honey that was collected was so watery that a sufficient amount of evaporation did not take place. When this is the case, fermentation to a greater or less degree usually sets in, whether the honey be left unbroken in the combs or drained out into jars. Such honey, after being drained, never properly solidifies, and will not bear keeping. But in ordinary seasons it is strange how the quality, consistency, and appearance of honey, stored by different hives in the same garden, may vary. We have often had hives whose produce differed exceedingly in this respect. From some the honey would be of a beautiful amber colour, of normal consistency, and delicious taste. From others standing only a few feet distant, and collected during the same time of the year, the honey would be of a dark treacle colour, very thick, and of a strong, pungent taste. Some years ago, in another district, we had taken off a side-box of a collateral hive, which contained about 25 lb. of what appeared to be delicious honey, but which when tasted had such an exceedingly disagreeable acrid taste, that no one would eat it, and it had to be thrown away. As to colour of both honey and combs, it was all that could be desired, but the consistency of the honey was somewhat less than usual. In the same garden a small bell-glass of about 12 lb. in weight was taken off an adjoining hive, the honey of which was perfect in consistency and flavour. At that time we accounted for the difference by supposing that the bees of the first hive had foraged chiefly among the flowering water-plants of a very large tract of bog-land, while the bees of the second hive had sought their food in another direction; but whether this was the true cause, we have never been able to ascertain. For many years we had two apiaries, one in a garden within three minutes' walk of the centre of a large town, and the other in the country, at about three miles distance. From the former a large quantity of honey was frequently obtained, sometimes as much as from 50 lb. to 60 lb. per hive. The quality of this honey was very fair, but, while of a very different description from the dark, treacly honey which was stored in some of the hives in the country apiary, it never equalled in appearance the amber-coloured honey collected by the other hives in the same garden.]

ARTIFICIAL QUEENS.—Do you consider queens "raised artificially" which are raised by the bees in hives emptied by driving swarms? *A. B.* [We consider queens which are raised in a hive subsequently to the bees being driven out, to be artificial queens, provided there were no royal cells previously existing in the hive, and that such queens are raised from worker eggs or larvæ in cells on worker comb, altered for the purpose by the bees. It frequently happens, when swarms are forced out of hives, that preparations for swarming had been made, and that royal cells had been already constructed and tenanted; in such cases the queens would be considered as natural ones, though the swarms made by forcing might appropriately be termed artificial. "Bee-keeping for the Many" may be obtained at 171, Fleet Street, or through any bookseller.]

Miscellaneous.

Covent Garden Notes.—The market is now particularly gay with spring flowers, and these are increasing in quantity daily. Cut blooms of Orchids have been specially plentiful during the past week or two. These, with cut blooms of Camellias, Azaleas, Lily of the Valley, &c., are much in demand for making the bouquets for which Covent Garden is celebrated. Beautiful dwarf, bushy plants of Primulas, Cinerarias, Tulips, and Hyacinths, in 48-sized pots, can now be obtained for from 10*s.* to 12*s.* per dozen. Cyclamens, very fine healthy plants, in 48-sized pots, and with an abundance of bloom, are sold from 1*s.* 6*d.* to 2*s.* 6*d.* each; Mignonette, beautiful dwarf stuff, at 1*s.* upwards. Fuchsias and Fairy Roses are now being introduced, and are sold at 2*s.* 6*d.* and upwards; and the beautiful Erica gracilis is supplied in moderate quantities. Forced Azaleas, and the graceful Dielytra spectabilis are getting more plentiful, as also are very fine bushy plants of Cytisus racemosus and Pelargoniums of various kinds. Crocuses, Narcissi, wild Primroses, and Violets, are very plentiful.

Garden Operations.

(For the ensuing week.)

PLANT HOUSES.

ANY duplicate plants of *Stephanotis*, *Clerodendrons* (the variety Thomsoniæ especially), *Combretums*, *Dipladenias*, *Ipomœa Leari*, *Rondeletias*, *Russellia juncea*—an old and much neglected plant, though a very beautiful one—*Torenias*, and evergreen varieties of *Thunbergia* not already in flower, with many other similar subjects, may, by the aid of a little extra heat and other favourable circumstances, be induced to flower earlier than the general stock, and so, by extending the length of their flowering period, materially enhance their value. *Gloxinias* should now be repotted, whether they are required to flower early or late; to put off this operation until they have made some growth will be at the risk of injuring the delicate roots which emanate from the bulbs when once they commence growing. In process of re-potting, the greater part of the old soil composing the ball should be carefully removed, and they should afterwards be potted with moderate firmness into small pots, of such a size as will admit the ball freely without undue pressure. The compost in which they delight is good fibrous peat, open loam, and moderately decayed leaf-mould, in about equal parts, to which may be added a good sprinkling of silver sand. They require a good brisk heat to start them well, which, with proper humidity in the atmosphere, may average from 75° to 80°. Increase the artificial temperature by some few degrees in stoves, now that the sun gains more power. It should not range below a minimum of 65° now. Use the syringe more freely, and induce a further activity of all the inmates by a moderate supply of atmospheric moisture at all times during the early part of the day and forenoon. *Fuchsias* should also be started into growth, where a display of fine plants is required at the blooming time. Continue to "propagate all plants used for bedding out," and where abundance of room exists commence potting off those that require such help most. Remove the lights entirely from off all pits or frames containing these and similar subjects which are not being pushed on in heat, or have been repotted, and are still in want of shelter and assistance. By doing this at all times on warm sunny days they will be greatly benefited.

FORCING HOUSES.

Now that the sun's warmth has gained such an amount of power as to make itself felt, let a gentle but decided advance of temperature be given in all forcing houses, excepting such as are only now in the first stages, or have but recently been started. It cannot be too frequently urged, in regard to forcing houses, that a steady advance is a sure and safe road to success, in all the early phases of forcing operations. To unduly excite the branches of any plants and so push them on at a quicker rate than it is likely the roots can afford a sufficient supply to keep up, or, the roots being active, to force a growth more quickly or more constantly than can be matured by the delicate organisation of the leaves at this season, is certain to result in ill-success. A mean of 58° is at all times safe, and this should seldom be exceeded at the earlier stages of forcing by artificial heat alone. Of course, with an advance of natural heat an abundance of air is always desirable. Continue the disbudding of all superfluous and unnecessary shoots, bearing in mind, however, that a good leaf surface is of the first importance; tying the branches as they extend should not be unduly neglected, as they quickly become firm and stiff, and are apt to snap off, if any great delay is permitted in this respect. In thinning the earlier berries, it should be remembered that a good crop does not always mean a heavy one. Thin out the bunches pretty liberally, and before the berries have attained to any great size, and it will be found that the plants will assert their powers by the production of size and weight, with no risk of their not colouring well or shanking, &c., disasters which too frequently arise from over-cropping and like circumstances. *Pines* will now want active attention, and the necessary spring potting, top-dressing of the pots, &c., should be hurried on during fine and favourable intervals. Successionals which are in their fruiting pots should receive a nice top-dressing with good decaying pieces of rich loamy turf, afterwards giving them a good soaking with strong clear liquid manure. Pot any further batch of successionals which have moderately filled the pots with roots in which they are now growing, into their fruiting pots Shut up the house early at all times, and on bright sunny afternoons especially. At such times the thermometer may with great advantage be forced up to

from 88° to 90° by sun-heat alone. Give at such a time a pretty copious syringing with tepid water, not below the actual temperature of the house itself. Strawberry plants, as soon as the bloom is fairly set, should have copious syringings, and strong manure waterings may be safely applied with tolerable frequency. Another sowing of *Dwarf French Beans* should be made about this time.

HARDY FLOWER GARDEN.

The lovely varieties of *Scilla* will now have done flowering. It will be of great advantage to the bulbs if all the old seed-vessels attached to them are picked off. Those who have delayed thus long to prune their *Roses*—and it may be rightly, for much sharp cutting weather may yet be experienced—may now proceed safely with the operation. Scotch Roses, or other similar rambling Briar-like sorts, simply need thinning out; the Provence or Moss varieties should be pruned to four or five eyes, the Damask to six or eight, the Hybrid Provence and Hybrid China to seven or ten. Hybrid and Damask Perpetuals must be shortened after being properly thinned, to three or four eyes, according to the strength of individual plants. Tea-scented and Noisettes may this season, as the wood is tolerably well ripened, be permitted to retain rather a liberal supply of last year's growth, as they are likely to flower pretty freely.

HARDY FRUIT GARDEN.

Of the protecting materials to which I drew especial attention last week, the best form is the Frigi Domo. It is composed of such a thick substantial material, however, that it is absolutely necessary that it should be removed from off the trees daily, otherwise a sickly and overdrawn growth is certain to be the result of fixing it thereto for even a limited period. I have this material fixed to the wall, upon iron rods, with rings in precisely the same manner as curtains are hung, and a great amount of protection is thus afforded, with a very handy means of daily removal. By means of strings placed at the top ends, and tenter or stretch-hooks fixed in the walls at the base, the whole may be drawn for the night, or refolded each morning, in a very short space of time as compared with the less tidy way of tacking to the walls, or to poles, &c., which are often employed. The next best material I take to be ordinary protective fish netting. The best way to apply this is to fix it firmly to a properly secured coping-board, which is formed so as to project from 6 to 12 inches beyond the wall surface—poles being placed perpendicularly in such a manner as to secure a uniform distance from the wall's surface to the base, and to these the netting is to be firmly tied or otherwise fixed. Placed so, the netting need not be kept very thick. The board above will ward off moisture, whether collected in the form of dew, or the result of superficial rains; and as the spring frosts we fear so greatly, generally fall perpendicularly also, the meshes, when thus arranged, show a dense surface in opposition to it. For cheapness only, scrim canvas, 72 inches wide, and Hessian canvas, 74 inches wide, are to be taken into consideration. These were advertised in last week's *Gardeners' Chronicle*, and to which I refer those who require such, and are each only 7½*d.* the yard run. This material—of which the latter has the double merit of extra width and lightness—must, however, as with the Frigi Domo, be regularly removed from the trees during the day. There is another material for protection much in use, viz., "Brown floral shading," as will also be seen by a reference to the advertisements. Many growers tack this on to the wall against the trees, and so let it remain during the whole period in which injury is likely to accrue from frost. This is objectionable, however, in that it keeps up so uniform a temperature, and indeed so warm a one during mild sunny weather, as to furnish the very conditions necessary for the formation and the quick growth of insect pests—so much so, that where it is removed these are found safely ensconced within what foliage has been formed, and upon what fruit has "set" and is swelling, and it is often a very difficult matter to dislodge them. The risk thus run will therefore guard many against permanently fixing any such materials against their trees.

KITCHEN GARDEN.

Little can be added in this department to what was advised last week. Whilst I write (the 22d inst.) snow is falling freely here in Herts, and all symptoms prognosticate that the operations then alluded to will have to be deferred. So soon as the ground will permit, however, prepare the necessary plots upon which to sow successional crops of *Peas*, *Beans*, and the main crop of *Parsnips*, also a few rows of *Onions* and *Carrots* to succeed those already in the ground. *W. E.*

TOWN GARDENING.

If the ground has been prepared as previously directed, this is the proper time to divide and plant out any of the following herbaceous, perennial, and biennial plants, which I have found to do well. *Angelica*: this is one of the best plants for confined gardens, growing from 2 to 3 feet high, its beautiful leaves appearing early in the spring, and continuing all the summer. *Carnations*: the old Spice Clove still surpasses all, as it can be easily flowered, and may be propagated to any extent. *Christmas Roses* do exceedingly well in the Temple Gardens; I usually protect them with a hand-glass about Christmas, which keeps them clean and in good condition. *Perennial Candytuft*, a showy white spring flower. *Catananche cærulea*, a very pretty plant, about 18 inches high, having very showy bright blue flowers. *Centaurea Cyanus*, very pretty in July and August, and of various colours. *Day Lily* grows well in the most confined places. *Chrysanthemums*: no plants do better than these in towns. The *Alpine Auricula* thrives well if not often disturbed. *Calystegia pubescens*: this is a species of perennial Convolvulus, of easy culture, and does well when planted in boxes for training around windows. *Evening Primroses* are useful plants for town gardens; from 3 to 4 feet high. *Everlasting Pea*: very showy, and does well when trained to trellis-work, but is too large and rampant for borders. *Fraxinella*: this plant will thrive well in any open space, throwing up pyramids of flowers from 2 to 3 feet in height. *French Willow*, showy purple, from 3 to 4 feet high, thriving under the drip of trees. *Galega*, or Goat's Rue, 2 feet high; there are two varieties—pink and white, both very showy border-flowers for towns. *Golden Rod*, about 3 feet high, will thrive anywhere. *Double Pyrethrum*: this is a useful plant for towns; from 1 foot to 18 inches high, flowering from June till November. *Lupinus polpyhyllus*, the blue and white, will do well if not planted under trees. *Lily of the Valley*: this universal favourite flowers abundantly in the Temple Gardens, and I believe will do in any town garden if care is taken not to disturb it. *Marvel of Peru* flowers freely, and is very pleasing, with the various colours on the same plant; from 2 to 3 feet high. *Pinks*: the most hardy sorts do well in towns. *Rockets*: the double varieties do well in open spaces, but require keeping in a cold frame through the winter. *Spiderwort*, a charming border-plant, about 18 inches high. *Tansy* will in spring grow in most places; its leaves are very ornamental. *Thrift*: the pink and white varieties are well adapted for edging, particularly by the side of tiles. *Veronica*: the white and blue flowers freely; about 18 inches high. *Garden Valerian* will thrive anywhere; from 1 to 2 feet high. *Yarrow*: the double variety is very pretty, and does well, flowering nearly all the summer. *Wallflowers, Sweet Williams, Canterbury Bells, Scabious, &c.*, if planted now will flower freely, but they will not stand the winter in town. The Orange and Turk's-Cap *Lilies* make a very handsome appearance, but they ought only to be moved when wanted for propagation, which should be done in September. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Feb. 24, 1869, as observed at the Horticultural Garden.

February	Moon's Age.	Barometer.		Temperature. Of the Air.			Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
		Max.	Min.	Max.	Min.	Mean				
Thurs. 18	7	29.712	29.597	52	26	39.0	49	46	S.W.	.00
Friday 19	D	29.927	29.877	54	32	43.0	45	46	W.	.00
Satur. 20	9	29.877	29.815	52	26	39.0	46	46	S.	.00
Sunday 21	10	29.942	29.909	48	35	41.5	45	45	E.	.18
Mond. 22	11	29.937	29.832	46	32	39.0	44	44	N.E.	.18
Tuesd. 23	12	30.235	30.080	43	24	33.5	43	44	N.	.00
Wed. 24	13	30.190	29.818	50	31	40.0	42	43	S.W.	.08
Average.		29.974	29.858	49.4	29.4	39.4	44.8	44.8		0.44

Feb. 18—Rain; showery; clear and fine; frosty.
— 19—Dense fog, frosty; very fine; cloudy, but fine.
— 20—Cloudy; fine, heavy clouds; clear and fine.
— 21—Dense fog; fine, rather foggy; heavy rain.
— 22—Overcast fine; cold wind, snow; rain, densely overcast.
— 23—Overcast, cloudy; fine; clear and fine; frosty.
— 24—Densely overcast; rain; clear and fine.
Mean temperature of the week, 4 10-deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending March 6, 1869.

February and March.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..28	49.1	32.8	40.9	15	0.81 in.	1	9	6	—	3	11	5	3
Mon. .. 1	47.4	33.6	40.5	16	0.45	2	7	7	1	3	13	6	4
Tues. .. 2	48.7	31.7	41.7	17	0.22	3	9	6	2	3	9	7	4
Wed. .. 3	49.9	32.2	41.0	14	0.48	4	10	3	4	3	8	6	5
Thurs. .. 4	49.7	31.5	40.6	11	0.40	2	8	4	4	5	11	6	3
Friday .. 5	48.9	31.8	40.3	16	0.47	4	7	6	3	4	9	6	4
Satur. .. 6	48.6	32.2	40.4	18	0.26	4	7	4	3	4	11	5	5

The highest temperature during the above period occurred on the 4th, 1860—therm. 70 deg.; and the lowest on the 3d, 1864—therm. 14 deg.

Notices to Correspondents.

*** Messrs. Adams & Adams, 25, Piccadilly, Manchester, "wish it to be distinctly understood that they can pay, not only twenty shillings in the pound, but five hundred thousand shillings on all they owe, and are further prepaired (*sic*) to advance any amount up to £1000 on goods consigned for bonafied (*sic*) sale."

Adam and Eve: *G M.* The plant so called in North America is Aplectrum hyemale.

Alocasia metallica: *H P.* You should use a light turfy peat, in a lumpy state, and let that preponderate in the compost. The plant delights in a nice genial bottom-heat, which is much better for it than to stand the pot over a pan of water. To grow it finely, it must have a hot moist atmosphere.

Arums: *Amateur.* We presume you mean the white-flowered Richardia æthiopica. If so, the offshoots may, in case you wish to increase the number of your plants, be separated when the tubers are dormant; but if this is not an object, they need not be removed, and if grown on, by shifting and proper feeding, the plants will become large masses, and flower abundantly. If they are growing, and you wish to separate them, the sooner you do it the better.

Books: *W. Meekins.* Our copy of "Roa's Flora," a very good one, bears the bookseller's mark of 5*s.*

Canker: *Omega.* The canker in your case is evidently caused through some deleterious ingredient in the soil or subsoil. As your trees are not very old, we would recommend you to take them up, drain your ground, and trench the soil over, and by other means try to ameliorate it, then replant, and we have little doubt but your trees will fast recover. There are other causes, of course, such as lopping off large limbs late in spring, which so far disarranges the flow of sap that canker ensues; and some sorts, the Ribston itself and the Golden Pippin, are more liable to the evil than others.

Celery: *An Occasional Victim.* The rotting of your Celery is, of course, the effect of too much moisture received by the plants in a way, or when, they were unable to resist it. Celery plants which have been grown very luxuriantly—what gardeners term proud, are very liable to rot, and seldom stand the winter well. It may also be caused, and frequently is so, by loosely and over earthing-up of the plants. Those to stand the winter should not be earthed-up very high; the practice of earthing them up closely as a final touch, is almost sure to draw moisture to the hearts of the plants and rot them. Celery which has been planted late, and received but little earthing-up, stands the winter the best.

Chasselas Napoléon: *Justitia* complains that we were guilty of "dishonourable suggestiveness" when we stated as a fact that the Grapes in question had disappeared before the advent of our reporter. Perhaps our reporter was late in the field; at any rate, it was no use asking for more; for we learn from "Justitia" that "the bunch had only 12 or 15 berries on it, and there were 21 members to adjudicate upon their merits!" If all tasted, some must have had a smaller share than he who has second bite at a Cherry. We fear "Justitia," like our reporter, was left out in the cold, and didn't get a bite, he seems so sore. Better luck next time.

Clematis: *C P.* C. montana may be readily propagated by layers; so may C. Jackmanni. The latter being rarer may, if desired, be increased by grafting.

Dari Seed: *Manchester.* Seeds of some Millet, Sorghum, we cannot tell which, without a specimen of the plant.

Deficient Crop of Grapes: *W R G.* We can assign no other reason for the want of Grapes on the north side of your house than that of their being so much shaded from the sun's influence by the others that the wood never gets thoroughly ripened, and is in consequence unable to produce the fruits. True, we have seen very good Grapes grown in a house with a north aspect, and we have ourselves a very lofty house, similarly situated to yours, in which we grow good Grapes on both sides of the house—the south side, however, rather better than the north; and the house being very spacious, the air is not so confined as in your case. We do not see how you are to improve your position. All you can do is to grow them well, and see to get the wood thoroughly ripened.

Dropping of Apricot Buds: *D.* We attribute the cause of the dropping of the flower-buds of your Apricot trees before they expand to over-excitement—to excitement before the wood was sufficiently ripened or sufficiently rested to bear it. Analogous cases often occur with Peach trees in houses which are what is called "hard forced." The trees being against the stable wall, which is of course warm, with the great mildness of the past winter, sufficiently account for it.

Forced Strawberries: *J C.* We can scarcely account for your failure. It may possibly be owing to the runners having been obtained late, and not getting well established in the pots—not sufficiently firm, in fact—so that they have been unable to stand the excitement which you have subjected them to. Those which you do not force at all will most probably flower better.

Fungus: *The Rev. H D.* The specimen you have sent is very curious. We presume it came from an Oak beam, and that it is a state of Dædalea quercina, very like a Fungus figured in "Ray's Synopsis." If not on Oak, be so good as to write a line to say on what kind of wood it occurred. *M J B.*

Hibiscus esculentus: *Kilmartin.* We are not aware where seeds of this plant can be obtained.

Names of Fruits: *F.* Bess Pool.

Names of Plants: *J W W.* Abies excelsa, Norway Spruce.—*C W S.* The seedling appears to be Diplazium lasiopteris; it is a common stove plant.—*H M.* 1, too young; 2, Lastrea Shepherdi; 3, Dendrobium nobile.—*H Webb.* Ochro pod, used for thickening soups. Hibiscus, or Abelmoschus esculentus, requires heat in this country.—*W B.* Oplismenus imbecillis, Kunth, fol. var.—*D.* Pitcairnea staminea.

Out-door Grapes: *Ordovix.* We give you the names of those which we have tasted tolerably good in the neighbourhood of London. We are not going to express an opinion, however, as to whether they have all been properly ripe or not—at least in the sense in which we generally speak of ripe Grapes; the seeds may have been ripe while the berry itself remained quite sour. Those marked * have come up to our standard the most often—the others less frequently: *Royal Muscadine and its varieties; *Dutch Sweetwater, *Pitmaston White Cluster, *White Sweetwater, *Miller's Burgundy, *Black Cluster, *Port Wine, *Espiran, *Black Prince, Black Hamburgh, White and Black Frontignan, &c.

Preservation of Pollen: *Geranos.* Take it from a flower that is on the point of opening, and keep it in a dry place in a little box.

Soil for Potatos: *Y Clay.* Superphosphate of lime is one of the very best manures that you can use. We prefer it in general to guano, although it may not be so strong a stimulant. It is difficult, however, to recommend these artificial manures without knowing the constitution of your soil. There may already be enough of phosphates present to render further additions not only unnecessary, but positively injurious.

Verbena Disease; *Y Z.* A few years ago a disease occurred in Verbenas somewhat similar to yours, though not exactly identical. We had then an opportunity of examining the stock, and though everything as regarded cultivation seemed admirable, almost every plant failed. Your Verbenas are evidently attacked by Thrips, but this has nothing to do with the white spots with which the leaves are sprinkled. These white spots occur in plants in a wild as well as cultivated state, and doubtless depend upon some peculiar climatic condition which we are unable to appreciate; and if this is the case in free nature, we fear that there is little chance of remedying it in cultivation. The difference of climatic condition may be also infinitesimal. *M. J. B.*

Verbenas for Exhibition: *Thos. Battersby.* The following varieties are good exhibition kinds, varied in colour, and to be depended on:—Annie (Cooling), Géant des Batailles, Harry Law (Perry), J. C. Ward (Perry), James Birbeck (Perry), John Wilson (Perry), King of Lilacs (Perry), Leah (Perry), L'Avenir de Ballant, Le Grande Boule de Neige (Dobree), Lord Leigh, Madame Hermann Stenger, Mazeppa (Perry), Mrs. Hole (Perry), Miss Turner (Perry), Startler (Perry), Thomas Harris (Perry), and William Dean (Perry). Verbenas, like every other flower, to be brought to perfection for exhibition purposes, require constant and patient attention. Generally they are cultivated for this purpose in a house, or in a cold frame, the pots being placed on some suitable material. Our correspondent should start with healthy young plants, having three or four main shoots, if cut trusses of flowers are to be exhibited, but more if specimen plants are to be shown. It is but rarely the latter are seen now-a-days. So we will suppose our correspondent contemplates exhibiting cut flowers. As plants grown in the open ground cannot be depended on, they should be grown in a house or pit, where they are more under control. Use a rich soil, and put the plants in pots from 6 to 8 inches in diameter. Always allow plenty of air in fine weather, so as to prevent the plants from becoming drawn, as it should be the object of the exhibitor to get a limited number of shoots as strong and stout as possible. Allow but one truss to a shoot, and half-a-dozen shoots to a plant will be enough. When coming into flower shade the plants in hot weather, allowing the sun to act on them a little in the morning and evening, for if shaded too much the plants will become drawn, and the blooms poor; and be careful not to allow a single drop of water to touch the bloom.

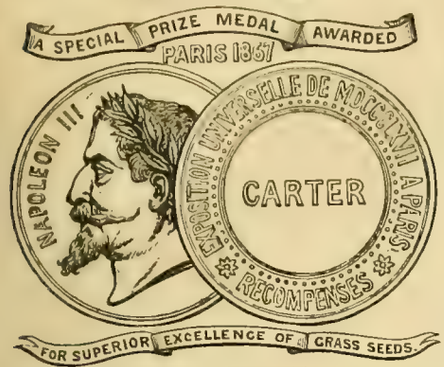
Water Cress: *W D.* There is a French book, by M. Chatin, "Le Cresson," noticed in our columns in 1866 see also 1866, p. 416.

Communications Received.—The Vicar of Woking (anticipated).—Adulteration of Seeds (next week).—J. G.—G. M.—O. R.—J. D.—J. H.—J. S.—D. T. F.—H. D.—R. R. R.—T. L. E.—Somerset.—J. S.—A. B.—R. D.—Cheshire.—Shropshire.

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Second Quality, per acre, 20s. to 26s.

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Sow 8 to 12 lb. per acre.

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BINGLEY HALL, BIRMINGHAM.—The FIRST EXHIBITION of YOUNG BULLS and other SHORTHORN STOCK will be HELD on THURSDAY, April 1, 1869. Liberal Prizes are offered for Yearling Bulls and Bull Calves. ENTRIES CLOSE on MARCH 13.
For Prize Lists and Forms of Entry, apply at the Cattle Show Offices, 39, New Street, Birmingham.
By order of the Council. JOHN B. LYTHALL, Secretary.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.

AGRICULTURAL EDUCATION.

The EXAMINATION of CANDIDATES for the SOCIETY'S EDUCATIONAL PRIZES will take place in the week commencing MONDAY, April 12, 1869. Copies of the Form, required to be sent in by March 18, may be obtained on application to

H. M. JENKINS, Secretary.

12, Hanover Square, London, W.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.

MANCHESTER MEETING, 1869.

STOCK and IMPLEMENT PRIZE SHEETS are Now Ready, and will be forwarded on application to HENRY WHITWORTH, Esq., Local Secretary, 98, King Street, Manchester; or

H. M. JENKINS, Secretary.

12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, FEBRUARY 27, 1869.

MEETINGS FOR THE ENSUING WEEK.

MARCH 1—London Farmers' Club (Adulteration of Foods and Manure, by Dr. Voelcker)—6 P.M.
— 2—Central Chamber of Agriculture (Ministry of Agriculture—Legislation on Safety Markets)—11 A.M.
— 3—Agricultural Society of England (Council Meeting)—Noon.

MR. CAIRD has done good service by again calling attention to the BEET SUGAR MANUFACTURE. Having last year succeeded in re-arousing English agriculturists to the value of the Silesian Beet as a crop to be cultivated for its sugar, he has now, in a letter which we have reproduced in another column, informed us that Mr. DUNCAN, a sugar refiner, has erected a sugar factory at Lavenham, in Suffolk, and has passed about 800 tons of roots through his machinery this winter. Contracts were entered into with the farmers around Lavenham for the supply of Beets at 20*s.* per ton, and if the weather had been ordinarily propitious, 6000 or 8000, instead of 600 or 800 tons would have been provided. We reported some time ago about the Suffolk Beet crops of 1868. Of course nowhere last year was there anything like half a crop. Nevertheless the result, both to cultivator and to manufacturer, has been so far satisfactory at Lavenham that the roots grown have proved quite equal to the Continental average in point of saccharine productiveness, and larger extents of land are this year ready, so that next autumn Mr. DUNCAN will have his raw material ready for him in good time, enabling him to get it all ground up and converted before it gets spoiled by drying.

The analyses which have been published of the English and Scotch Beet roots, have this year exceeded those of Dutch growth in quality, and Dr. VOELCKER finds that the Sugar-Beet grown on Lodge Farm, Barking, by the use of town sewage, contains nearly one-half more sugar than any other. The following are the analyses:—

Where grown.	Percentage of sugar.
Holland	9.00
Suffolk	9.61
Scotland	9.73
Lodge Farm	13.19

Whether the roots analysed were in other respects equal—equally dry for example, and of equal size (for small roots always contain more sugar than large ones)—we do not know, but if these things have been equal, this is another encouraging fact for the Sewage Company, who, having already shown how to convert London drainage into Strawberries and cream, can now provide us with sugar for them from the same source. Mr. CAIRD'S caution as to the avoidance of reckless speculation, and the need of experience and care in order to the Beet sugar manufacture being profitable, extends also to the cultivation of the crop, for profits here depend of course on profits there. And if it does not pay to grow Flax before a rettery has been established close at hand, much more would it be folly to start Beetroot cultivation with the intention of sending so heavy a crop any long distance to the manufactory. In the hope, however, that Mr. DUNCAN'S success may be the harbinger of many similar attempts elsewhere, we may add some further particulars on the cultivation of the crop. The following is Mr. FISH'S report on last year's crop as a guide to this year's cultivation:—

"Broadly stated, no green crops can be said to have been very profitable last season. But the Sugar-Beet crops around Lavenham were about the best green crops in the neighbourhood, or, indeed, throughout the country. I was called upon to award some silver cups offered by Mr. DUNCAN for prizes, and therefore had every facility for observing the crops. The best crops yielded 29 tons per acre, and the two next best yielded 15 tons and 14 tons per acre respectively. Some others that were weighed reached 12 tons per acre. Although the seed was all supplied by Mr. DUNCAN, and was all alike—viz., a mixture of white Silesian, green-top, and red Sugar-Beets—there was a great difference in the crops. Nineteen farmers grew the Sugar-Beet, and, of course, in so many hands and scattered over several parishes, soil, tilth, and culture varied considerably. On strong soils the first difficulty was to secure a plant, and in several instances the drought of the past summer rendered this impossible: but in every instance where a full plant was secured the yield was satisfactory, considering the season, and in comparison with other green crops.

"Fifteen or 20 tons an acre, at 18*s.* or 1*l.* per ton, can hardly be called an unprofitable green crop. In ordinary seasons, however, this return may readily be doubled. The sugar makers do not like large roots. They prefer an average of 3 lb. each. The farmers at first shook their heads at those light weights. Accustomed to grow monster Mangels, varying from 12 lb. to 30 lb. each, they thought that such small roots must mean light crops. The experience of this year has exploded this fallacy. Mr. HAWKINS' roots do not average 1½ lb. each. Had they reached Mr. DUNCAN'S standard, his returns would have exceeded 42 tons per acre. I believe that this is quite within the reach of liberal farming and skilful cultivation.

"Mr. CAIRD says that this is not work to be entered on by a novice. Most true as regards the sugar manufacturer, but not in regard to the Beet grower. Any one who can grow Turnips or Mangels can grow Sugar-Beet. Of course the best farmers will grow it best, but it is just as easy to grow as common Mangels. It seems to do best planted thickly—say, 15 inches by 9 inches on the flat, and earthed up to the leaves early in the autumn.

"Most of the Lavenham crops were grown on Wheat stubble. They were broken up as soon as possible, and dressed with from 12 to 18 loads of farmyard manure. In addition to this, several of the fields had a dressing of from 3 to 5 cwt. of guano, superphosphate of lime, or nitrate of soda. The seeds were mostly sown in April, although some were not got in until nearly the end of June. An impression seems to prevail that the Sugar-Beet is an exhausting crop. The farmers think that all its extra sweetness is drawn up out of the earth. This is, however, a mistake. Nearly the whole of the sugar is collected from the air, from its inexhaustible storehouse of carbon.

"The stock lose but little by the growth of Sugar-Beet. The sugar maker expels the water, collects the sugar, and returns the feeding substance of the Beet to the farmer, at something like a drawback of 1*s.* 6*d.* a ton on the original price of the Beet. Sugar-Beet pulp is, indeed, sold for 12*s.* per ton, but as it takes about 8 tons of Beet to make one of pulp, the actual price to the farmer is 1*s.* 6*d.*

"A writer in the *Times* last year opposed sugar growing, on the ground that every hundredweight of sugar would displace a fat bullock or a quarter of Wheat; but I believe, on the contrary, that the money received from the sugar maker would enable the farmer to buy and feed more stock, and grow more corn than before—that, in fine, the three industries of corn, beef, and sugar-growing would work in harmony to develop the wealth and increase the food of the nation."

We add one word more on the sort of Beet—red, green, or white Silesian—which should be chosen for cultivation. Chemical analysis will determine which has in general the maximum percentage of sugar. But apart from that, and presuming the white Silesian is at least as rich in saccharine matter as the other two, Mr. FISH considers that it is likely to yield the largest return.

He grew rows of three sorts, 17 yards long, last season, side by side. They suffered much from drought, and had no extra care in any way. On weighing the roots, he found the

green weighed 94 lb., the white Silesian 98 lb., and the red-top 80 lb. The number of his roots was—green 49, white 52, and red-top 53. There were several blanks in all the rows, but the seed of each sort came up about equally, and the general appearance of the rows was alike. They were sown on the 5th of May, and had not garden but merely farm culture. In fact they were only thinned and then hoed twice, the object being, not to foster a heavy crop, but simply to see what they would yield with ordinary care on a dry piece of soil in such a trying season. The tops of the green and white weighed alike, 33 lb., the tops of the red 31 lb. The return from about 5-6ths of a pole was 18½ stone, or at the rate of 21 tons an acre without the tops; adding these, it would make about 28 tons per acre. But, from the results of this experiment of the three sorts, he recommends the white Silesian. Its top is equal in bulk to the green; the root weighs as well or better, and it seems a finer quality than the green-top. Both the green and white seemed stronger and more robust than the red. We need not refer at any greater length to the details of cultivation. The Sugar-Beet resembles in this respect the Mangel Wurzel, differing from it mainly in the closer rows—and the closer plants in the rows—and the advantage of growing the crop on the flat, so as to enable an earthing-up at midsummer.

SINCE last August foreign sheep landed in this country have been slaughtered at the place of landing in consequence of the extensive prevalence of small-pox, or rather sheep-pox, on the Continent, particularly in those countries from which our supplies are obtained.

The Order of Council imposing restrictions upon the movement of foreign sheep is now, however, no longer in operation; and farmers are asking why it was so suddenly suspended while the disease still exists, according to published reports, in Holland, Friesland, and other parts of the Continent. Mr. WALLER, the Secretary of the Home Cattle Defence Association, in a letter to the *Times* on Monday last, remarks upon the prevalence of the sheep-pox in countries whence sheep are imported to England, and suggests that the revocation of the protection order, under such circumstances, could only be excused on the plea of "the falling off in the amount of mutton brought into the metropolis," and in refutation of this imagined justification of the course which has been adopted, he states that for the fortnight ended the 14th inst., the number of sheep imported into London was 7000, as compared with 2500 in the corresponding fortnight of last year. Taking these figures as correct, they prove nothing, as the question of average importation is not to be decided by reference to a particular week or fortnight in one year as compared with the same period in another. There is no doubt that in general the importation of foreign sheep has recently fallen off considerably, as reasonably might be expected under a system of restricted movement. Mr. W. E. FOSTER, in answer to a question in the House on Monday night, referred to a deficiency of between 70,000 and 80,000.

Importers and salesmen have made the most of this deficiency in their representations to the Government, and their perseverance has been rewarded by the obtainment of the concession which they have so persistently demanded. Meanwhile another argument is added to the already long list in favour of permanent legislation upon the whole subject of cattle traffic, and the final abandonment of the elastic system of law making, which, however convenient in some respects, has the essentially serious drawback of perpetual uncertainty attached to it. Respecting the risk of introduction of sheep-pox into this country, we entertain no very grave apprehension. Farmers may take courage, as their safety depends very much upon themselves; it is only necessary to refrain from buying foreign sheep for stores, and the danger is at once reduced to a minimum. The only fear is that some enterprising speculators may buy odd lots of foreign sheep at a low price, and perchance, in their zeal to dispose of them to the best advantage, do a vast amount of mischief unwittingly. This thing has happened in our experience more than once, and it therefore behoves flock-owners to keep a sharp look-out for the present.

—— AT Mark Lane on Monday and throughout the week the corn trade has been a hand-to-mouth business, but prices have not been lowered. The only grain which has received any particular attention has been fine qualities of foreign Wheat, which is required for mixing, to give "strength" to the large crops grown under our high cultivation at home.——The live-stock market and meat trade have been in a very active state, prime qualities having advanced 2*d.* per stone for both beef and mutton, 5*s.* 8*d.* and 6*s.* 8*d.* being the present top quotations. As, however, many beasts are still sold at 3*s.* 4*d.* per stone, the number of forced sales, through want of food, are considerable. The deputation to the President of the Board of Trade, to which we referred last week, was superseded by an order appearing in the *London Gazette* at the time we went to press, full particulars of which will be found in another column.——The agricultural seed trade is in a state of stagnation, in consequence of the weather. Confidence, however, in short stocks keeps prices firm.

—— Lord ROBERT MONTAGU'S Bill relating to the importation of foreign cattle provides that such animals shall be landed only at ports and according to regulations prescribed by the Privy Council; that they shall be taken to "places" near the point of disembarkation, and not removed thence alive; and in the meantime they shall be kept separate from all other animals. The Privy Council is to have power to suspend this enactment as to separation during the next three years—not longer; also to exempt from the Act certain classes of foreign animals, or animals from specified countries. Moreover, nothing in the Act is to interfere with the powers of the Privy Council to make regulations for subjecting foreign animals to quarantine, and for allowing animals subject to quarantine to be removed alive beyond the limit of the port of landing. The "local authority" may be required to provide the "places" for receiving, selling, slaughtering; and failing it, the Board of Trade shall have all the powers for that purpose vested in the local authority by the Contagious Diseases (Animals) Act.

—— The desire of the Chambers of Agriculture for the appointment of a Royal Commission to inquire into the incidence of local taxation and suggest remedies for the existing inequality and injustice to be thus discovered, which was laid before the Premier by a deputation some days ago, found expression on Tuesday evening in the House of Commons. Sir M. LOPES, in moving for such a Commission, declared that local taxation now exceeded 20,000,000*l.* a-year—one half the whole national expenditure, putting aside the payment of the debt; and this he showed was levied exclusively on 93,000,000*l.*, or one-seventh only of the income of the country. He urged the injustice of placing all the charges amounting to this enormous sum on the land, and recommended that a contribution to local expenses should be made from Imperial funds. The effect of a Commission, he expected, would be to prove the greviance and provide a remedy. Mr. C. S. READ, in seconding the motion, declared that it was by no means a merely agricultural question, but one affecting town and country alike. Although the motion was ultimately withdrawn and no Royal Commission is to be issued, yet we have every reason to be satisfied with the result of the efforts of our Chambers of Agriculture to bring their influence to bear on the Government, for Mr. GLADSTONE, while refusing the issue of a Commission, did so expressly because that would have the effect of shelving the question for half-a-dozen years, whereas they felt that the question stood early on the list for settlement, and as soon as the Irish Church question was settled, it would be one of the first duties of the Government to deal with it.

—— In Cheshire, which, during the ravages of the cattle plague, suffered more grievously than any other county in England, the people will pay a heavy rate for 30 years, to balance the losses which were then caused by the "stamping out" process, sanctioned by Parliament. The population of Cheshire, through their representatives in Parliament and their local authorities, on Wednesday brought the matter before the CHANCELLOR of the EXCHEQUER, with the view of obtaining some relief. Mr. LOWE admitted the hardship of the case, and it was intimated that the PRIME MINISTER should be consulted.

—— The Home Cattle Defence Association unanimously passed the following resolutions at a special meeting held on Monday last:—

"1. That this Association has observed with surprise and alarm that the regulations enforced by the Privy Council in order to prevent the introduction of sheep-pox into this country have been rescinded. 2. That this Association is of opinion the experience of the last six months has abundantly proved the necessity for the retention of such precautions; this country, under those regulations, having continued exempt from that disease, notwithstanding its prevalence in those countries upon the Continent of Europe from whence our main supplies are drawn, and the increasing number of sheep which are being imported thence as compared with the quantity brought over in the corresponding period of last year when the trade was free. 3. That this Association, representing as it does the various parties in Great Britain and Ireland whom this question concerns, feels imperatively called upon, in the interest of consumers as well as producers, to urge upon members of Parliament the necessity either of immediate legislation by the Government upon the subject, or their support of the Bill now in progress through the House of Commons."

—— On Monday evening, before the Social Science Association, Mr. P. HOLLAND read a paper conveying an indignant protest against the statement of Dr. RUMSEY at the Birmingham meeting of the Association, condemning on sanitary and utilitarian grounds the invention of the water-closet and the modern system of town sewerage. Mr. CHADWICK and Mr. RAWLINSON protested that any loss was better than that organic filth, the origin of all kinds of disease, should be retained in the neighbourhood of habitations, as in the old days of the cesspool it used to be. To wash the house and town completely out was better, even though it involved the loss of fertilising matter. This loss was, however, no necessary feature of town sewerage, for in town sewage fertilising matter was not lost, it was merely loaded on a vehicle which would, if permitted and directed, convey its load in undiminished value not only to the farm, but to the growing plant, without cost or labour.—The experience of Croydon as to the sanitarian and the utilitarian results of sewering a town and utilising its drainage-water, was laid before the meeting by Dr. CARPENTER, and constituted a complete answer to the Birmingham misrepresentation.

—— The *Mark Lane Express* has published its annual report of the harvest of 1868, and the following are the results, so far as the grain crops are concerned, of its elaborate Tables, containing returns from upwards of 500 correspondents:—

THE CEREAL CROPS OF 1868.

Classification.	Wheat.	Barley.	Oats.	Beans.	Peas.
Failure	—	—	13	23	6
2-thirds under average	—	4	5	22	2
1-half ditto ..	—	29	36	43	16
1-third ditto ..	1	32	66	71	20
1-fourth ditto ..	—	11	18	36	18
1-fifth ditto ..	—	4	8	1	1
Under average	12	252	241	142	166
Average	134	135	93	68	150
Over average	288	25	5	4	18
1-fifth over average ..	7	4	—	—	—
1-fourth ditto ..	38	3	2	1	6
1-third ditto ..	18	1	—	—	—
1-half ditto ..	20	3	2	—	—
2-thirds ditto ..	9	—	1	—	—
Double ditto ..	1	—	—	—	—
Total	528	503	490	411	403

Classifying them, as we did our own returns in August last, under the heads "average," "under average," and "over average," we obtain the following figures:—

	Wheat.	Barley.	Oats.	Beans.	Peas.
Average	134	135	93	68	150
Under average ..	13	332	387	336	229
Over average ..	381	36	10	5	24

And now, if we reduce these to their percentage results, and compare them with those of the *Agricultural Gazette*, we find the following very near concurrence:—

PERCENTAGE OF RETURNS OF HARVEST, 1868.

	Agricultural Gazette, Aug., 1868.			*Mark Lane Express*, Feb., 1869.		
	Average	Under average.	Over average.	Average	Under average.	Over average.
Wheat ..	32	7	61	24	2	74
Barley ..	27	70	3	27	66	7
Oats ..	19	80	1	19	79	2
Beans ..	17	83	0	16	83	1
Peas ..	58	36	6	37	57	6

The returns given to our contemporary, after the threshing of a large portion of the crop, may be taken to represent the fact; and it must be admitted that our own returns, published during the harvest time, are thus proved to have been wonderfully accurate. Only in the case of the Pea crop is there any considerable difference between the two sets of replies, the threshing of the crop having proved it to have been worse than was anticipated.

OUR LIVE STOCK.

WE have just received a copy of Mr. Chaloner's sale catalogue. The auction, according to Mr. Thornton's advertisement, will take place on March 30 (Easter Tuesday). We have before spoken of the excellent origin of this herd, which has been bred chiefly from Aylesby, Farnley, and Babraham stock for the last eight years. Most of the animals are by BRITISH FLAG (19,351), RAVENSPUR (20,628), and ROYAL SOVEREIGN (22,802), half-brother to the first-named bull. All these animals were bred by Mr. R. Booth. The catalogue contains a list of 34 females and 11 males. These may be divided into groups according to the tribes which they represent. Thus, *Lady Pigot* by CHELTENHAM (12,588) is the eldest member of the well-known family descended from the Hon. Mr. C. Arbuthnot's *Sylph*, by SIR WALTER (2637). This is a somewhat plain cow, but a good breeder. She is now in calf to SOVEREIGN, a very perfect, level, and large-sized bull, by ROYAL SOVEREIGN. Mr. Chaloner will also offer four heifers, the offspring of *Lady Pigot*, and the bulls above-mentioned: two of these animals are very good and deep in carcase; a third, *Lady Alice*, by RAVENSPUR, is somewhat flat-sided. *Village Rose* (lot 2) is the ancestress of a numerous progeny, comprising five heifers and cows and four bulls. This cow was bred by Mr. Torr, of Aylesby. She is by BLOOD ROYAL (14,169), and from *Village Maid* by CROWN PRINCE (10,087). On further tracing the pedigree we find that *Village Rose* is a representative of the "Wharfedale" family, which has recently been so successful in the showyard. She has produced seven calves, four of whom—*British Maid*, and three bulls—are at present at Kingsfort. *British Maid* is a sweet-looking animal, now seven years old, the mother of three excellent heifers. Perhaps the best cow in the catalogue is *Bagatelle*, by SULTAN (17,053). She is truly grand in appearance, rich in colour, and splendidly haired. This cow was bred by Mr. F. H. Fawkes, of Farnley Hall, and is descended from an own sister to *Isabella*, the ancestress of Mr. Booth's well-known family of that name. Her daughter, *Bopeep*, is

a large short-legged cow, with a nice head, who, again, is the mother and grandmother of some capital young stock.

The Victoria tribe were long bred by Mr. Holmes, of Moycashel, and are well represented at Kingsfort by four females descended from *Victoria 36th* by BURNLEY HOPEWELL (15,710) bred by Mr. Ellison, of Loughglyn. *Victoria 38th*, by BRITISH FLAG, may be described as a real good Shorthorn, and *Victoria 39th* is an exceedingly nice animal. VICEROY is own brother to *Victoria 38th*, and is a good calf with a wonderful coat. *Rosalea*, by BRITISH FLAG, a level good animal, is the oldest member of the *Anna* by PILOT family, which has many representatives at Kingsfort, among which may be mentioned *Redbreast*, a very sweet-looking heifer, by RAVENSPUR, and her sister *Redleaf*, also an excellent animal. We have not quite exhausted the catalogue, but must bring our notice to a close with a general remark on the character of the herd. The animals are strong in constitution, and are out-of-doors day and night. They have no glaring defects, but on the contrary are very level, fresh-looking, and well coated.

—— We hear from Stanwick Park that Mr. Wood's herd has been recently enriched by the birth of a white bull calf from *Coquette*, by LORD ALBERT (20,113). Mr. Wood has lately sold a very useful bull, LORD CECIL, to his Grace the Duke of Buccleuch. This bull is out of an own sister of RED ERRANT (24,912), also bred at Stanwick Park.

—— We learn from Wetherby that *Duchess 84th*, in Captain Gunter's herd, the cow that Mr. Betts offered 1000 guineas for, produced, on the 15th ult., a red heifer calf, with a "Bates" thigh mark. *Duchess 86th*, from *Duchess 70th*, the full sister to the 4TH DUKE OF THORNEDALE, produced a white bull on the same day. Additions have also been made to the herd from less important sources. *Ceres 4th* has produced a roan bull, and *Violet*, a white heifer, a few days ago, and two others of less pretensions also, all by the 4TH DUKE OF THORNEDALE.

—— We must correct an error which inadvertently found its way into our text last week. In the review of Col. Kingscote's catalogue we are made to state that *Red Eyes* is g.g.g.d. of BELVIDERE (1706). To make it right the last g.d. should be read "grand-daughter."

—— Photography is being brought to bear upon transactions in the cattle market. We extract the following from a clever column in the *Mark Lane Express*:—"Honour, too, to another device. Shorthorn breeders will remember my mentioning once a set of clever oil-sketches of my pet animals that were done for me by Mr. Edward Corbet. A few weeks since I was applied to from a distance for a young bull. I sent pedigree and pictures of sire and dam. The animal was purchased, and gives most thorough satisfaction. How simple the process!"

Sheep.—We hear good accounts from the Ravenstone flock of Leicesters. One who knows them well says, "I never saw the flock of ewes look better, so full of flesh and heavy in lamb; although they have not tasted a root or a corn all the winter, the hogs never looked healthier or more promising." Mr. Creswell's sheep stand high in the estimation of judges, and are peculiar for length and largeness of frame. A French party has lately been both at Ravenstone and Holme-pierrepoint purchasing sheep. They have secured two rams and eight ewes from the former flock, at high figures. Lambing does not become general in Leicestershire until next month.

North Lincolnshire is very dependent upon its sheep, without which farming could scarcely be carried on profitably, and great pains and expense have been incurred in forming one of the finest and most rent-paying breeds in England—the improved Lincoln. It is not an uncommon thing for a spirited breeder to give 100*l.* for the use of a ram for the season. "Volunteer," a celebrated sheep, bred by Mr. Kirkham, was hired for 160*l.*, and has left first-rate stock behind him. We have now before us, through the kindness of Captain Catlin, of Needham Hall, Wisbeach, two photographs of a haunch of mutton cut from a sheep by the abovenamed ram, bred by Captain Catlin, and fed by Captain Aveling. From an artist's point of view this picture is not perhaps to be called beautiful, but as showing the effect of careful breeding and skilful feeding it is exceedingly interesting. The weight of this sheep is stated to have been 190 lb. Within the last 30 years rapid strides have been made in perfecting the improved Lincolns, which at one time were only in requisition for their wool. Now, they possess a form almost equal to the Leicester, and have a heavy fleece in addition. One of the best breeders assures us that at 12 months old these sheep will make as much as 5*l.* each, and that at the present time a good Lincoln hog is worth 1*s.* per lb., wool and mutton. We are informed by Mr. Kirkham, of Audleby, that, despite the want of Turnips, the sheep have done well on Grass; and this, together with the favourable turn in the markets since autumn, will cause sheep to have paid well for wintering. The lambing season is only just commencing. We hope to say more upon Lincoln sheep on a future occasion. It is reported that during the late wet weather large number of sheep have died around Beddgelert, North Wales. The immediate cause is said to be the rapid and unseasonable growth of Grass.

BEET SUGAR FARMING.

[The following letter has appeared in the *Times*.]

ABOUT this time last year you allowed me to say a word in your columns in favour of home-grown Beet Sugar as well worthy further experiment. Mr. Duncan, of 9, Mincing Lane, the gentleman who then undertook to make the trial, has thoroughly carried it out. He was worthily seconded in this by a body of intelligent Suffolk farmers, who engaged to grow and supply him with the white Silesian Beet, the kind most approved on the Continent for its sugar-producing qualities. At a cost exceeding 6000*l.* he has erected the works and machinery for the extraction of the sugar, within a few yards of the railway station at Lavenham, where the whole process is at this moment in full operation and open to inspection.

The late period at which, with every exertion, it was found possible to complete the works and machinery has necessarily postponed the commencement of the working to the time when, in ordinary circumstances, it should have come to a conclusion. The roots have thus become more dry and fibrous, and the extraction of the sugar consequently proves more difficult. The yield of sugar is thus less than it should be, while the squeezed pulp, which is returned to the farmer for feeding his cattle, is richer in sugar. The extraordinary drought of the season diminished the weight which the crop would otherwise have yielded. As a matter of profit the result this season is not profitable. But enough has been done to satisfy the parties immediately interested in the experiment that there is nothing in the soil and climate of that part of England to prevent Sugar-Beet culture and manufacture being carried out with the same success as on the sugar farms of Belgium and the north of France. Mr. Duncan has received 800 tons of Sugar-Beet from the farmers, the growth of 1868, for which he has paid at the rate of 20*s.* a ton. He has entered into engagement to pay the same price this year, and with a favourable season expects to receive 4000 tons. His works, when fully employed, are capable of using up 60 tons a day, and at this rate would complete 6000 tons in 100 days working from the end of September, within which time, before the roots become dry, the largest yield of sugar is most easily obtained.

But here I would offer a word of caution. This is not a work to be entered on by a novice. The last season was an exceptional one, both for heat and dryness. Whether that may have favourably or otherwise influenced the yield of sugar has yet to be seen. Its effect on the Continent has much diminished the yield of sugar there. Very considerable outlay must be incurred; great chemical and engineering skill must be employed in the processes and machinery. The possession of all these qualities, in combination with thorough business knowledge of the sugar market, is rarely to be found, as in this instance, in the same individual. And in a matter involving the preliminary outlay of large capital it may be prudent to wait the test of a second year's trial on roots produced in a season of less exceptional character.

Besides the experiments at Lavenham, Mr. Duncan last spring distributed seed in various parts of the country with the view of testing by analysis the sugar-yielding qualities of different districts and soils. Forty-two specimens, all from different farms in England, and nine from Scotland, have been analysed by Dr. Voelcker, in comparison with some roots from a Dutch sugar farm, also grown last year. The result shows in the English roots an average percentage of 9·61 of sugar, in the Scotch 9·73, and in the Dutch 9·0. The variation is very great, clearly showing that some soils are much more suitable for sugar growing than others, and in certain cases the results would seem to be much influenced by the manure and treatment of the crop. One remarkable result of this experiment demands special notice. Of all the specimens analysed, that grown on the London sewage at Barking proved the highest in sugar-producing quality. Of this specimen Dr. Voelcker states, "Fearing a mistake might have been made, I repeated the analysis with closely agreeing results. The root marked 'Lodge,' taking all in all, was the best of all the roots you sent me. The larger white root from the same farm contained not quite half the amount of sugar which I found in the red. It was decayed in the centre, and probably overripe." It may well be asked, what are they doing with London sewage? At an enormous cost to the ratepayers of metropolis it has been carried to certain outfalls. Near one of these its fertilising effects have been for some years exhibited to wondering visitors. The most luxuriant crops of milk-producing Grass, splendid fields of Wheat, the rosiest and most gigantic Strawberries, and now, last of all, the greatest sugar-yielding Beet. Will none of these tempt the investment on our own fields of a small portion of that English capital which flows with such abundance to fertilise foreign lands?

To return to Sugar Beet. The analyses already given seem to prove that the general average of the specimens grown in this country can compete on equal terms with the roots of France, Holland, and Belgium. In these countries sugar farming is every year extending. In France last year the increase was 10 per cent. The home-grown sugar has no protection against colonial or foreign. Its extending culture is a proof that it is an agricultural success; and if we consider the possible diminution in the production of cane-sugar which would certainly for a time follow the gradual early abolition of slavery in Cuba, the introduction of sugar farming into this country may become an object of national importance, both as regards consumer and producer. When the price of sugar is low and that of corn high, as has been the case during the last three years, there is no inducement to either to take much interest in the subject. But if we are entering on a period of higher prices for sugar and lower prices for corn, as seems very probable, the case will assume an altogether different aspect. In the 10 years from 1857 to 1866 the consumption of sugar per head in the United Kingdom increased from 28 lb. to 38 lb. Any serious change in the supply would now be at once felt by all classes of the community. The substitution in our agriculture of Sugar-Beet for Mangel or Peas to such an extent as would furnish one-fourth of our present supply of sugar, would affect only one-fourth of the acreage now under these crops. And, inasmuch as every constituent in the Sugar-Beet, except the sugar, is returned to the farm as cattle food, the actual loss could be easily replaced by cake or manure. And, if we are really on the eve of the introduction of a new agricultural industry, it will have this great recommendation, that in country districts it will provide a new rural manufacture that will afford employment to a large body of people during three months of the slackest period of the year.

I must plead the importance which this subject may yet assume as an excuse for requesting the insertion of this letter. *James Caird, Feb.* 13.

THE DISCUSSION ON FAT CATTLE.

YOUR correspondent of last week has clearly apprehended the views which I wished to convey in regard to this most important subject. It was simply because I anticipated support similar to that given by "S. G., Kincardine," that I did not reply at once to Mr. Menzies' note, containing a resolution of the Highland Society. I am pleased this approval, as given by "S. G.," comes from Scotland, the country in which the question was so recently and so ably revived. This shows how strongly the opinions of sound practical men are in favour of my views, and also how widely they are spread. In England these opinions are generally looked upon and accepted by practical men as a matter of course. So much is this the case, that many of the best breeders of both sheep and cattle—by which I mean the breeders of the most profitable animals—will not show at all at Royal and county meetings. These men know that their flocks and herds have got a character to lose, and they very properly refuse to submit specimens of either one or the other to the fancy or "fashionable" judges who are selected by a "packed Council," or "close borough," as Mr. Read, M.P., aptly remarked on a recent occasion in regard to one of these bodies.

It is not necessary to mention the names of flocks and herds in support of these views, but I may say, that the men who refuse to submit their animals to the test of fashionable judges, as a rule continue to make the highest prices and the greatest amount of money value, according to the size of the flock or herd, for their annual produce of male stock animals. There are exceptions, of course, to this general view, for a sort of passion for farming, and particularly for breeding certain kinds of domestic animals, has been developed during the last generation. As men of independent fortune have occasionally become possessed of this passion, and have been spirited rivals in the auction ring, out-of-the-way prices, so far as future profits are concerned, have been realised for particular animals or a whole flock or herd. But in many cases the pursuit of this fashionable system has been carried on at a considerable, if not at an enormous loss. This practice, therefore, partakes more of the character of "turf" speculations, than of breeding for the pleasure and profit which belong to improving the common domestic animals of the kingdom.

Influences, and results, too, are similar, for while good judges of sound and stout saddle horses have been talking and writing for years about thoroughbreds degenerating into "weeds" under the light weights 2-year-olds were allowed to carry, and the conditions under which "herring-barrelled critters" were allowed to run for Queen's Plates, it was only recently that the Legislature and the Jockey Club took means to discourage the production of animals which are good for nothing, except to "fly" over courses at a "sensational" rate, and gratify the weaknesses or follies of gambling or "plunging" spirits.

It seems to be astonishing to reflecting men that it should take so long to convince the proper authorities that so great and palpable an evil was being committed. It may appear to be equally strange that breeders of stock, who may be at the same time the authorities of Royal and other Societies, should need so much tuition or "educating" before they become convinced of the wrong line of treatment to which they have subjected animals shown to compete for prizes. But here we are in a worse position than the judges of sound and stout riding horses were. For in respect to agricultural animals there are no Queen's "plates" or prizes, and therefore the Legislature cannot control the condition under which prizes shall be offered for competition. We have, indeed, less authoritative power—putting all our agricultural societies together—than the Jockey Club had and has, for although its members have no real power off its own ground at Newmarket, the authorities of the Club are generally looked upon as a court of arbitration, and the decisions are accepted as final, and a precedent for future observance.

The authorities of agricultural societies or clubs have, however, only their own rules to guide them, and these are interpreted, perhaps, and most likely, according to the fancy of some fashionable breeders who are possessed and guided by the passion for sensational productions, to which I have above referred. The only resources, therefore, which we have left for our use in regard to this question are,—the public discussion to which I referred in my first article; the adoption of resolutions for the purpose of bringing public opinion to bear on the authorities of societies who are in the wrong; and the circulation of the conclusions so arrived at in the agricultural Press.

Let us now briefly see how matters at present stand. Our forefathers knew that beans, peas, tares, lentils, and so on, would make pork hard, and cattle and horses hidebound, unless a suitable salad or other corrective was given. They also knew that wheat, barley, and oats—particularly if they were soaked and "speared" or "chicked"—if given with the green food which would be suitable with the beans, peas, tares, or lentils, would make the same animals soft to the

touch, and oily on the spit or in the boiler. Some other matters they knew from practical observation and instruction from father to son. We have a more scientific knowledge of these matters now-a-days. We divide and classify our feeding stuff into nitrogenous, starch and gluten-yielding, and other qualities, which I need not here specify. We are also constantly receiving instruction from the chemist to this or that society on the way in which these particular kinds of foods will form bone, muscle, or fat, or all three, either in due proportion or in a predominating degree. Practical men know too that, however correct this data may be in the laboratory, or when applied to particular animals, general results will not be the same. That which would make a good, hardy, and otherwise serviceable Berkshire or Yorkshire pig, for example, hard and "crumpy" in the mouth, would only be suitable for preventing an in-and-in bred Suffolk, Essex, or Dorsetshire hog from running to lard when it was being roasted, boiled, or fried. The same views apply to Leicester or Hants sheep, and to animals of an intermediate quality: also to "pure" bred cattle, and the ordinary cattle which farmers keep for profit.

All this, however, proves that the real philosophers in animal and vegetable physiology, or agricultural chemists as they are commonly termed, are quite right in their data. But it must be admitted that more is, at the same time, proved; viz., that however trustworthy the philosophy of the laboratory may be, much must necessarily be left to the skill and judgment of practical men when they have mastered this simple elementary knowledge. More than this even is proved. It is shown in theory, as it is known by many practical men, that the fine touch which first-class butchers think indispensable, may be developed in animals which are unkindly "handlers" when they are taking their chance as growers, and that the finest or "purest" bred animals may be surpassed by a more common or "coarser" tribe, if the former be in the hand of a skilled feeder, and the others be not. These views answer, we think, "S. G's" question:—"May it, therefore, be hoped that the rule of the Highland Society shall not in every case become imperative?" If I may be permitted to give a direct reply, I should say, in the future pay more attention to the practical knowledge of judges, than to enforcing this or any other similar rule.

A word or two more on fashionable or "pure" breeds. We know where the Leicester sheep have fallen to in the estimation of men who have to look largely or partly to their flock for their rent or balance at their banker's. If we refer, too, to the prize takers of 20 years ago, we can learn how few there are of their flocks or herds which have not degenerated, or as regards their owner's interest, come even to a worse termination. Where are A.'s, or B.'s, or C.'s bulls, rams, or boars? But we need not ask any more of these common questions.

Looking to the above data, however, for our general answer, I may say these fashionable animals could not be made to prove any one of the conditions embodied in the rules laid down by modern scientific men and animal physiologists. The young of the animals in question had become so degenerated that when born they were only half the size and weight of other animals of the same kind, which had been subjected to more natural treatment. And, although no expense whatever was spared in nourishing their debilitated frames and constitutions, they would not grow to the same size, weight, and specific value that others of the same genus would do when only fairly nursed and fed, the difference in the cost of which would vary from 5 to 10 to 1. While the "pure," or "fashionable," or in-and-in bred animals had a mixture of various cereals, linseed and steamed chaff, dusted too perhaps with a "condiment," in addition to the choicest roots and green crops of the farm, they would seldom exceed the common stature and frame of their genus and tribe, but the animals which have not had their nature weakened, but possessed the vigour of their ancestors in their constitution, would "shoot out and grow," in response to a little extra attention as regards shelter and food, and produce double the weight of meat in half the time at the above less rate of cost. In the one case, too, the nitrogenous, or lean or muscle-forming substance, would have been both digested and assimilated, and the result would have been a full development of eatable and nutritious meat. But in the other, the nitrogenous elements would either not have told at all, or cracked heels, scaly legs, and hairless backs would have been the effect of a degenerated nature making an effort to utilise that which should have been to it the most "feeding" of foods. We need not say which kind of animal would have been growing and thriving under this treatment, and which would have been out of sorts and unprofitable.

These data and the arguments I have based on them, will, I trust, further interest "S. G." and the numerous intelligent farmers in this country who are rapidly coming up to the speaking and writing point in regard to this most important subject. Although we have only the freedom of discussion to rely upon, let us not sit idly by and see our flocks and herds degenerate in the next few years, from errors of selection and pampering, in the same way as the noble and once "sound and stout" blood-horse has done within the memory of the present generation. *W. W. G.*

AGRICULTURAL STATISTICS, 1868.

[We continue the publication of the official returns.]

STATEMENT OF THE NUMBER OF LIVE STOCK IN THE UNITED KINGDOM AND IN VARIOUS FOREIGN COUNTRIES, ACCORDING TO RETURNS FURNISHED BY THE STATISTICAL DEPARTMENTS OF THE RESPECTIVE COUNTRIES.

Countries.	Date of Returns.	Cattle.			Sheep and Lambs.	Pigs.
		Cows.	Other kinds.	Total.		
		No.	No.	No.	No.	No.
Great Britain	1868	2,143,895	3,280,086	5,423,981	30,711,396	2,308,539
Ireland	1868	1,463,058	2,157,294	3,620,352	4,822,444	862,443
Total United Kingdom (including Isle of Man and Channel Islands)	1868	3,625,137	5,458,279	9,083,416	35,607,812	3,189,167
Russia in Europe (exclusive of Poland and Finland)	Average of 1859 to 1863	..	..	22,816,000	39,315,000	9,517,000
Russia in Asia				2,628,000	5,815,000	580,000
Sweden*	1866	1,235,000	750,000	1,985,000	1,650,000	390,000
Norway	1865	..	..	953,036	1,705,394	96,166
Denmark Proper	1866	811,831	382,030	1,193,861	1,874,052	381,512
Prussia	1867	4,865,898	3,130,920	7,996,818	22,262,087	4,875,114
Wurtemberg	1867	465,943	445,070	911,013	655,856	254,888
Bavaria	1863	1,521,113	1,641,274	3,162,387	2,039,983	921,456
Saxony	1867	413,755	211,505	625,260	304,087	325,564
Holland	1866	..	..	1,271,563	1,076,374	321,534
Belgium†	1856	..	..	1,257,649	583,485	458,418
France	1862	5,781,465	8,415,895	14,197,360	33,281,592	5,246,403
Spain	1867	..	..	2,904,598	22,054,467	4,264,817
Italy*	1867	..	..	3,708,635	11,040,339	3,886,731
Austria	1864	6,094,865	7,567,457	13,660,322	16,573,459	7,914,855
Switzerland	1866	627,116	365,779	992,895	445,400	304,191
United States*	1867	..	..	12,674,968	32,795,797	13,616,876

* Estimate returns. † Results of Census of 1866 not yet known.

Home Correspondence.

Steam Cultivation.—Like the general public, I have long ceased to pay any attention to what Mr. Smith, of Woolston, thinks proper to write, but as he has gone even beyond himself in asserting that a deliberate statement of mine, made before the Midland Farmers' Club at Birmingham, is not founded in fact, I feel compelled to break silence. If this silly, egotistical, conceited man will refer to page 11 of our catalogue, he will there find an illustration and description of the implement I stated that I had used for ridging and subsoiling; and moreover, he will find that to this implement was awarded a 1st prize at the Newcastle meeting of the Royal Agricultural Society. Again, if he will take the trouble to ask his neighbour, Mr. Pike, he will find that Mr. Pike does not forget, and perhaps never will forget, walking over some fallows when coursing with me, broken up with this very implement. I know advice would be thrown away upon Mr. Smith, but I submit that the respectability of your Journal ought not to be lowered by admitting into its columns such a libel as Mr. Smith penned last week. *James Howard, Britannia Ironworks, Bedford, Feb. 24.* [Mr. Smith, like many other energetic, useful men, must, no doubt, plead guilty to the possession of a quick, impulsive temper; and if, in this instance, as we suppose, from Mr. Howard's explanation, his temper has been excited under a mistaken impression of personal injustice, he will probably, like other warm-tempered men, be ready enough to apologise for hasty words. The complimentary adjectives which Mr. Howard has clustered around his name are not, however, very likely to molify an opponent. We could have selected others quite as true, and much less likely to aggravate a dispute. Let us add, that if Mr. Smith is egotistical, it is a great mistake; for we shall always be happy to take up the cudgels for him. We are ready at any time to defend the opinion that there is not now among us any man who has done so much as he for the promotion of the leading agricultural improvements of the present century. Add up all upon the list—manufacturers, inventors, farmers—who have had any hand in the promotion of steam cultivation in this country, he stands clearly at the head of it. No one has done more work with less encouragement and pay. ED.]

The Lambing Season.—Success now depends upon the prior management of the ewe flock—for which if it has been properly grazed through the winter, no great danger need be apprehended, from abortion, fevers, colds, &c. They cannot be kept too quietly, and they must be regularly fed; not profusely, but just so much as will keep them in fair, ordinary condition. There is as much danger in keeping them too well, as in permitting them to shrink from bad keeping; nor ought they to have any change of keeping immediately prior to the lambing season. If a change is necessary, it ought to be made several weeks before the season arrives. The writer of these lines is tolerably successful in the management of his breeding flock. They are winter grazed upon fair Grass pastures, and as they become heavy with lamb, and it is required by their condition, they are supplied with Mangels, at first very sparingly upon the pastures, and this is increased gradually; failing Mangels, corn, cut Oat chaff, and even cake is resorted to—the aim being to keep them healthy and strong, not fat. When their "times are up" they are gathered into two rather large, contiguous, well sheltered fields. In the corner of one field are two lambing paddocks, into which they are brought at night for convenience and safety. We, however, avoid as much as possible confining them in these paddocks, gangrene arising from foul contact. Mangels and chaff are now their chief food, but as they lamb they are drawn off to reserved pastures, being still supplied with chaff and Mangels. In the paddocks and the two fields are plenty of artificial shelters, warm and dry, into which the dam and lamb are taken when desirable. In this way we average good lambing seasons. Just a word or two for shepherds. Always be provided with a crook, a bottle of warm milk at hand, a phial of laudanum, do. of gin, do. of sweet nitre, a small hook, a short cord, a little lard—the crook to catch the ewe, the milk for a hungry lamb, the laudanum, a tablespoonful for the ewe after a protracted labour, the gin to moisten the tongue of a starving lamb, the sweet nitre for a feverish ewe, the cord and hook and lard for rare use at yeaning time. Never trouble the ewe till requisite; in most cases it is wise to let Nature take its course. *O. F.*

Malt and Barley for Beer.—The brewing of beer from Barley was originally proposed by Mr. John Ham, of near Yeovil, who published a sealed pamphlet of about 16 pages, price 7*s.*, on that subject in February, 1821. The writer was then near Yeovil, and had frequent conversation with Mr. Ham on the subject, and at his request one of them resolved on a fair trial of the plan, which was made a few days afterwards with 3 bushels of bruised Barley and 1 bushel of bruised malt. By Mr. Ham's advice the material was wetted at about 3° lower temperature of water than they had commonly applied all malt to, but in other respects the brewing was conducted on their usual system. The writer well remembers that the "wort" wanted the usual sweetness which there is in that from malt only, and it was about the flavour and as pale as pearl Barley water (possibly 3 or 4 lb. per bushel of sugar might have supplied that deficiency), and he was subsequently informed that the trial had not been so successful as was expected of it. *E. West.*

Small Farms.—I observe in the Notices to Correspondents, in your Paper of the 20th inst., "Book for Small Farms." You do not mention an "Essay on Small Farms; by William Blackie, Esq.: Dublin, 1837; W. Curry, Jun. & Co., Sackville Street." Allow me to recommend this as better than any I have seen. [A very good pamphlet.] You advise sowing Wheat; "April" is not too late. This no doubt would do; but "on very heavy and low conditioned land" would not Oats be safer? and on the broken-up land you advise Potatos. I would, with all submission, also advise Oats, as Potatos on my heavy poor land would not suit, nor could the cultivator get such land into a proper state for a food crop without a good deal of frost and pulverising, either by means of the weather or by mechanical means. The safest crop in both cases is Oats; but why does your correspondent wait till the whole of his Turnip crop is cleared off? Why not plough and sow as soon as each portion is cleared? —I see also a paragraph about "Earth for Closets" by "W. R." Whether he has long made use of earth closets, or only since the Rev. Mr. Moule made such a work about his, he ("W. R.") takes the plain, simple, practical view of the case, which can be adopted by any cottager, viz., that any dry earth suits for disinfecting quite as well as burnt or sifted earth, saves time, and remunerates as well. That these earth-closets are no new thing you will see from a quotation I give from a paper of mine, written in 1845:—"I have two closets on the premises, having boxes which slip out and in beneath the seat. A box of dry earth stands in each closet with a scoop in it, and after the closet has been used a scoopful of the earth is poured into the box, which prevents any scent from arising." I have discomfited several people who were in raptures about Moule's closets by telling them that I had had them for 20 years. *Geo. W. Hay, Derby, Feb. 22.*

Mr. Mechi's Reply to "T. B. S."—In his reply Mr. Mechi adroitly avoids answering the questions I put to him, but goes at once to his well-practised plan of denouncing all as antiquated dolts who do not follow in the wake of troubled waters which he himself in his dangerous craft has marked out for them. Mr. Mechi charges me with having written all I could to blacken his agricultural character; and then I state that in no hostile spirit I demand from him distinct and immediate answers to these questions—"Who made his valuations?—and who ascertained the value of the unthreshed corn?" &c. I here repeat that these questions, which naturally arise in every respectable farmer's mind and every land agent's of known practice, were put by me in no hostile spirit, but in behalf of the agricultural profession, to ascertain the truth. I had, however, a shrewd guess, from the character of the balance-sheet, by whose agency the various items were written down, and the figures placed to them. But to give an example or two, viz., "horse food purchased from farm" for last year (1868), 100*l.*; ditto, purchased elsewhere, 131*l.* 11*s.* 10½*d.*" Will Mr. Mechi state that these entries are anything more than guessed, to say the very best for them? Could Mr. Mechi and

his "bailiff and men" keep such minute accounts of the horse corn for his "horses and donkey" as these? in one case to a halfpenny; and all the items are of the same nature. The two entries for horse corn from the commencement of January, 1868, to the end of December of the same year, being 232*l.* 11*s.* 10½*d.* Is it in the power of any farmer, or of a pedlar who keeps a donkey only, to know to a halfpenny what the horses or the donkey eat during the year? I here state that it is not possible for Mr. Mechi to have known this, not even when aided by those marvellous dealers in moonshine, who, it appears from some former letters of his, he has always on his farm ready to predict, and be ready to record whatever is required of them. But here is another article:—Fat meat sold, 1261*l.* 10*s.* 11½*d.*! The very minuteness, the halfpennies and pennies, show that the balance-sheet is an impossibility. But, here again, I refer to one year only, but either of the four would do equally as well. January 1, 1868:—Expenditure, 5527*l.* 10*s.* 0½*d.*; income, 6053*l.* 3*s.* 6½*d.*; giving a profit, from the imaginary time when 1868 commenced to its termination, of 525*l.* 13*s.* 6*d.* I ask, again, is it possible for unaided human power to make out farming accounts to the extreme accuracy of a couple of farthings, as are here set forth in this balance-sheet manufactured by Mr. Mechi and his bailiff and men, or, as he states, "my bailiff and my men?" But Mr. Mechi accuses me of having stated that "a farmer can be no proper judge of the value of what he buys, sells, and lives by, and that a valuer is the only person fit to estimate these mattters for him." I said no such thing; but still, had I so stated I should not have been far wrong, for why do farmers generally employ a farrier to examine horses for them before they purchase them? and employ dealers to purchase their stock for them, as 99 out of every 100 of them very wisely do? But, "I and my bailiff," continues Mr. Mechi, "value our produce and fix the price at which it shall be bought or sold. It would be very odd if we could not value a bullock or a corn crop." But odd as it is, I am satisfied, and so must every man of business be, that they do not know the value of either, except for the purpose of manufacturing a balance-sheet: for this I give them all credit; yet even here they have gone too far, or they would have left out the pennies and farthings. As to valuing a corn crop, I appeal to all the land-agents and valuers in England collectively and individually, and ask if it be possible to value a stack or a mow of any kind of grain to a halfpenny or a penny whilst the corn is in the field or in the stack or mow, and before it is threshed and the quantity ascertained; and this Mr. Mechi himself admits as to professional valuers, as he states that they often differ one with another, and are compelled to call in a third man to settle their differences for them—such as himself, for example, or his bailiff, which twain seem to be but one flesh, or, if two, the ligatures that hold them together are full of nerves, making it perilous to cut them asunder. Mr. Mechi writes in another letter, that he is always a learner and never a teacher of agriculture; but, if this be the case, what mean such passages as these—and Mr. Mechi is always full of such, both in writing and speechifying?—"Do I not know that I have all the numerous advantages of modern improvements while they (the farmers) are in too many instances suffering from an antiquated and unaltered system? How can they expect to arrive at such profitable results with undrained land, shallow-ploughed, and hemmed in with immense fences, and numerous robbers called trees? * * * * bad roads, no steam-power, and in general an unimproved mode of stock treatment, to say nothing of waste and loss by over-feeding. Of course farmers so situated cannot realise and believe in my monetary results. I feel for them"—poor creatures, I feel for them—"and when they abuse and disbelieve me, I am like the Ghost in Hamlet, 'more in sorrow than in anger.'" Is this the language of a learner? Is not the pedagogue, proud of his superiority over his pupils, visible in every word of it? He has all the advantages of modern improvements, &c. But who admits that they are improvements, and not retrograde movements into the antiquated barbarism which he condemns? For my own part, I have no doubt whatever but my own cultivation is infinitely better than is Mr. Mechi's; my draining also, from all I have read and heard of Mr. Mechi's, is deeper on an average, and does its work better than his; and I have no doubt but were a respectable man to value my stock and crop it would be found to be superior to his; but then I have no Twitch-grass, and as for weeds, as I stated before, a man would remove all I have off my land in a wheelbarrow; whereas Mr. Mechi informed us some time since that his stock of horses were not able to remove his Couch and weeds off his land, and so he was compelled to burn them where they were,—and yet he further informs us that he is able to job his horses out to a neighbour, and of course improve his income thereby. Mr. Mechi asks why I do not give my name. I reply that his defenders, of whom he has many, with the pen, but few or none with their tongue, withhold their names, and hence I do the same. But another reason is this, though I do not approve of anonymous writings where names are referred to, yet it struck me that were I to give mine it might be considered as a counter-kind of puffing, which I by no means like. Mr. Mechi boasts of his steam-engine, but what does he do with it? Why not send it into his fields, and make it cultivate his land as other improvers do, and not keep it fixed, as he writes, covered up like a sick horse in a stable. As an improver he ought to make his engine do all kinds of work, both at the homestead and in the fields, as is done by many people. Mr. Mechi further asks why I did not run across to his farm, &c. To this I reply that when I took my fare to Witham, it was my intention to have done so; but I found the distance to Tiptree from that town three or four times greater than I had been led to believe it was, and hence, as I had business to do in London with the gentleman for whom I went into Norfolk, and the same evening, I had no alternative but to move on as fast as I could. In conclusion, I inform Mr. Mechi again that I have a more friendly feeling towards him than a hostile one; but I write these letters because it is my conviction that his papers and figures are much impeding agricultural progress and greatly misleading the public. Let Mr. Mechi get an honest and well-known land-agent to make the valuations for him, or some respectable farmers, and not his Siamese brother and weather prophet, who may be well up to moonshine valuing, but as for making a rational and honest balance-sheet they must be altogether at fault since hitherto they have had no practice. *T. B. S.*

An Essay on Permanent Pasture.—About 1797 my father, William West, who then occupied the small farm but excellent land of Allans in Malbury Abbas, Dorsetshire, laid down a field of arable land for permanent pasture. In 1798 or 1799, the Royal Board of Agriculture, which was under Government or Royal patronage, offered a silver medal for "the best essay on laying arable land for permanent pasture." This my father competed for, taking as his basis the system adopted in laying down the above-mentioned field, and the medal was awarded to him, and it is still in my possession. The tenant who succeeded my father in the farm, said, in 1817, that "that field was then equal to the best pasture land in the parish." I have never seen that essay, but as my father was an intelligent, practical farmer, who would plough his land, sow all his seed, milk his cows, and himself take the week's make of butter, or the sample of corn, three miles to market, and was also a good scholar, who could translate Virgil, or talk fluently with French emigrants, priests, or French prisoners of war, in their own language; and, as the then Duke of Bedford was much interested as president, Lord Somerville as vice-chairman, and Sir John Lincoln as secretary, of the Board of Agriculture; the inference is, that to be satisfactory to them that essay must have described its subject well and might be available in the present improved state of agriculture. The "Board of Agriculture" was discontinued about 1812, in consequence of the hopeless mental aberration of the King (George the Third) and the decease of the Duke of Bedford, both of whom had warmly supported it. Can any of your readers supply a copy of that essay on laying land to permanent pasture? *E. West, Saltford, near Bristol.*

Irish Estate Improvement.—I am far from saying there is not danger in improving an estate in Meath, Tipperary, or any part of Ireland where Ribbonism prevails, but so there is in dealing with an estate there in any way, even in collecting rents. Happily these bad parts are only a small portion, comparatively, of the country, and even in the bad parts there are numerous instances of resolute men, with good sense, and fair, considerate dealing, having carried out the improvement of estates thoroughly. I think too much is made of the inclination of Irish tenants to regard the land as their own. No doubt they would like it to be their own, which is natural enough; and when agitators and their newspapers assure them it ought to be so, ignorant men can hardly escape some feeling on the subject. I often wonder what the effect would be if the same stimulants were applied persistently for a few years to the lodgers in the poor parts of a great town—in London, for example. I am mistaken if fixity of tenure would not become a good deal more popular and harder to manage there, than it now is in Ireland. I believe that, at the bottom of their minds, Irish tenants are just as well aware that the land is not their own as anybody else is; and the whole thing is nothing else than the common and almost universal course in all their money dealings, of trying to get the most they can for themselves, without any care for honesty or dishonesty. In the part of the country that I know best, on any estates that are managed in a business-like manner there is no more difficulty in the matter than there is in England, except that, as the tenants are poorer, some small money concession is unavoidable in the settlement when they fail. I cannot at all agree in the view that rents in Ireland are above the value of the land, or are unduly forced up by competition. I believe the contrary is the fact. I hold 600 acres, the rent of which was 17*s.* per acre English. All was taken up from tenants who failed. I could get no one to give me the old rent for it, though making every exertion for the purpose. For the last three years it has cleared me 35*s.* per acre for rent and interest over every expense. It has been a steady rise from the first, when it only cleared 6*s.* or 8*s.*, and it will yet go higher. Three years ago I tried to let 140 acres, all in good order, with capital house and buildings of all sorts; I asked 28*s.* per acre, when in the opinion of the neighbours the value was 25*s.* I had many offers at 25*s.*, but could not get the 28*s.* Small farmers with little means do badly often, but my experience is, that when farms are from 50 to 100 acres, and the estate is managed in a business-like way, the tenants almost all are doing well. I know that my tenants are, though I charge higher rents than many. There is no resisting the evidence of the fortunes they give their children on marriage; 100*l.*, 150*l.*, or 200*l.* apiece to two or three children cannot be paid by tenants who are seriously oppressed by rent, even after making all allowances for a low manner of living. In truth, the class of better farmers is yearly increasing, and I believe much of the talk about tenant-right arises from the knowledge that the land is worth more rent, and the consequent fear of its being raised. It is quite certain the smaller resident landowners are more and more taking land into their own hands. I hold other farms besides the 600 acres mentioned above, and continue to do so only because I make so much out of them that I cannot afford to let them at what would be considered a moderate rent, and I hear the same story from my neighbours. I am convinced any unfair Landlord and Tenant Bill could not help greatly adding to this disposition of landlords to farm their own land. The truth is, the common Irish tenant farms so badly that any one who knows his business and the country can make a good profit on his place. *An Irish Landlord.*

Sewage Farming Prospects.—With regard to Mr. Hope's question in the second paragraph of his recent letter on "Sewage Prospects," relative to my own experience—which he submits in his postscript I answered it under "Calendar of Operations," on February 13, by anticipation, for I there show that sewage was applied at Easter Ross in 1838 as at Barking in 1868—to this I may add that on the farm occupied by my late father there were four fields, or shifts, irrigated with sewage, as at Barking, before my day. It was withdrawn from the four fields, but applied in a more concentrated form to a small field, and that also was given up, the sewage being otherwise utilised. On my own farm I had a small paddock for the sewage of the farmhouse and a dozen cottages, most of the liquid from the strawyard being used up in the manufacture of farmyard manure—the most economical plan of utilising it. During 1836 and 1837, when examining the chief counties of Scotland, including of course "the Lothians three," I had no fewer than three offers of farms, on each of which the sewage was applied to the land by irrigation, and to one of them (a large dairy farm) the sewage of a village belonged. I might go on quoting other examples I examined of farms in the hands of tenants and landowners—in some of them the sewage of the farm and of villages being applied wholly to land in Grass, but in others on the old outfall mode of sewaging under various rotations of cropping. In short, the principle of the Barking practice is old. Mr. Hope will find very few counties, if one, between the Land's End and John o' Groats, where sewage arable farming has not been practised. With regard to quantity of produce, I have grown 60 tons of Turnips per acre—nothing to boast of—in Ireland; and if Mr. Hope will consult Stephens' "Book of the Farm," he will see that others have grown 60 tons in the

"Land o' Cakes and brither Scots."

I never grew Mangels to any extent in Scotland, but I have grown upwards of 52 tons of Turnips and an equal weight of Mangels in England. The average, however, of the whole crop was under 52 tons. But to deal fairly with my readers, the doctored sewage to which I referred was an experimental plot in imitation of the Flemish and American practices, with both of which I had made myself familiar, and the weight of the crops grown justifies me in saying that 80 tons of Mangels may be grown in favourable seasons with doctored sewage manure in Essex. The sewage was taken chiefly from the house sewer, there being almost nothing from the strawyard sewer at the time, and the crops grown were Turnips, Mangels, Cabbages, and Potatos, also Grass. *W. B.*

Co-operative Manure Association.—I am very much obliged for the information given by Mr. Toynbee upon the subject of the South Lincolnshire Farmers' Manure Association. There is, however, nothing stated as to how the Association is formed—what are its rules for admission as member, &c. Does the Association give one large order, or bind itself to take a certain quantity? The price, 3*l.* 11*s.* per ton for superphosphate seems very low, for here, in the south, we pay 6*l.* 10*s.* per ton, retail, put on rail in London. But I imagine our quality is superior. The superphosphate supplied by Mr. Toynbee is, I suppose, what is called "Dissolved Coprolite," and contains a large percentage of soluble phosphate. If such a superphosphate produces good results, it would seem we pay too much. It would, therefore, be interesting to know before the season comes on for putting in our green crops, whether it is safe to use such a much lower quality of superphosphate, and to put on the same quantity per acre as we do of the higher-priced article, which we always suppose contains a good proportion of bones or bone-ash. My practice is to use 4 cwt. per acre for Swedes, &c., without any other manure, and we generally have a very fair crop. I have always understood that a manure containing a large percentage of soluble phosphate was nearly certain to produce a crop of Turnips or Swedes that would soon become rotten. Is this so? *Leisurely.* [Mr. Toynbee gave the name and address of the chairman of the Company referred to. The secretary of the West Herts Co-operative Society is Mr. Brown, of Tring.]

Bignell v. Mechi.—I have taken great interest in reading the correspondence between Mr. Mechi, "the calm," and Mr. Bignell, "the impulsive," and am somewhat amused at the manner in which the latter's professed equanimity breaks its bounds. I refer to the last letter. The change is gradual: he begins logically, gets warmer as he goes on, and ends illogically, or, I should rather say, spitefully. I should like to know from what generous corner of his heart his postscript emanated. Can it be possible that Mr. B. has an unhappy knack of applying a bad motive to every man's acts? If not, may I ask Mr. Bignell, whether he considers Mr. Mechi's motives other than those of a man who wishes to be of benefit to his fellow creatures? I hope not, and for my own part I think Mr. M. deserving of thanks and congratulation for the exceedingly temperate manner in which he has met the somewhat waspish insinuations of some (I am happy to find a small number) of your correspondents. By way of ending, I would suggest that since Mr. B. does not agree with Mr. M.'s theories, he should start some of his own, instead of wasting his words in uncharitably imputing bad motive to the words of a gentleman, who, as I take it, does not wish what light has been given him to be hid under a bushel. *Charity, Staines, Feb.* 23.

Foreign Correspondence.

PARIS: *Agricultural Progress in France.*—French agriculturists complain sadly of two things,—the conversion of their labourers into conscripts, and the application to the embellishment of great towns of capital which should be spent in the country, but they admit at the same time that more has been done in aid of agriculture during the last few years than for a long period.

A Commission was appointed some time since to examine and take evidence on the state of the rural districts, and a special committee has been for some time at work on the results obtained; but it is understood that no action can be taken in the Corps Legislatif on the subject this session, in consequence of the approaching elections. This does not mean, however, that nothing will be done; on the contrary, the Government seems to have taken the subject up in an energetic manner. In the Imperial speech at the opening of the session the other day, occurs the following passage:—"If then, as I firmly hope, nothing should occur to interfere with the general harmony, we shall be able to realise many projected ameliorations, and we shall try to resolve all the practical questions raised by the agricultural inquiry.

The "Annual Exposé of the Situation of the Empire" also dwells at considerable length on agricultural subjects. Referring to the report of the Minister of Agriculture, which contains the resolutions adopted by the special committee, or superior Commission of the agricultural inquiry, the *exposé* says, that one of the great wants is the development of agricultural instruction in all its forms, and in every degree; this is one of the points in which the depositions taken by the Commission show the greatest persistence and unanimity, and the Government is engaged in introducing all the improvements necessary to raise that instruction to a level with the necessities of the position. One proposition, connected with this subject, is the restoration of the system of superior scientific education in the case of agriculture, analogous to that which exists in other cases. This question is now before the superior Commission. The Imperial Schools of Agriculture are designated as forming the second degree of education organised by the law of October, 1868, uniting theory with practice, each with a special view to the wants and the capabilities of the region in which they are situated. The school of Grignon, after a short interruption, has been enlarged, and its means of scientific instruction extended; those of Grandjouan and La Saulsaie were also extended last year, both as regards their schools and farms, by means of a grant from the State. Below the Imperial Schools of Agriculture are the farm schools, which form the primary degree of this education; these were founded on the principle, which has not been departed from, of leaving the farms entirely in private hands, while the State paid the salaries of the teachers and the board and lodging of the apprentices, who carry on the work of the farm like ordinary labourers, their education consisting simply of demonstrations and explanations in the field, the stable, or the cattle shed, which are afterwards written down by the lads and examined by the masters. The object of these farm schools is the provision of intelligent farm labourers, overseers, or small farmers. The number of these schools was 70 in 1850, at present there are but 51 in operation; but they are said to have generally answered the purpose for which they were established, and therefore the Government has of late increased their number by six, and introduced some improvements in their arrangements.

Attention has also been given of late to the increase of professorships of agriculture in the provincial colleges, and of primary agricultural instruction, in order to place the elementary notions of agriculture as much as possible within the reach of all the children of the soil. In addition to the support and assistance above referred to, the Government aids, as far as its means permit, the agricultural colonies, orphan asylums, and other establishments which promise to be useful to the country.

A fresh addition was made the other day to the means of education, in the foundation by the Minister of Agriculture and Commerce, at the suggestion of M. Lefebvre Sainte-Marie, the successor of the lamented M. Morny de Mornay as director of the agricultural department, of a school for shepherds. It appears from the report accompanying the Imperial decree that there is a serious falling off in the number of sheep in France, which diminished from 32,150,000 in the year 1840, to 29,529,000 in 1862. One of the chief causes of this is believed to be the scarcity of good shepherds. The school is to be established at the Imperial sheep farm at Haut Tingry, where there are about 250 acres of ground and all the necessary buidings for the purpose. The new school will be arranged on the plan of the farm schools mentioned above, and will be open to all France. The lads will be apprenticed for two years, live at the school, be instructed in all that is necessary for the good management of flocks, and on leaving the school will receive a certificate with a sum of money equal to 12*l.*, which is as much as they would have earned if employed as farmers' boys. The director of the school will give lessons on the economy of sheep farming, and examine the boys as to their acquirements, and the work will be carried on under him by a head shepherd and a teacher of writing, arithmetic, and sheep-farm accounts. M. Dutertre, the director of the Imperial sheep farm of Haut Tingry, and Deputy Inspector-General of Agriculture, is also director of the new school.

In the year 1857 a grand agricultural prize was established, and has since been awarded annually; it consisted of a splendid cup, of the value of about 150*l.*, with a sum of 200*l.* in cash: a change has been made in the arrangements, the great prize has been modified, and others added. Next year the following list of prizes will be open to competition:—1st class, Proprietors farming their own land personally or by agents: an object of art of the value of 20*l.*, with 80*l.* in cash; a sum of 20*l.* and medal to be awarded to the agents. 2d class, Farmers paying rent in cash or in kind at a fixed rate, and cultivating upwards of 50 acres: prizes of the same kind and value. 3d class, Proprietors farming several parcels of land by means of *métayers*, that is to say, farmers who give the owner a certain proportion of the produce as agreed: an object of art of the value of 20*l.* for the proprietor, and 80*l.* to be divided amongst the tenants. 4th class, Small farmers, or *métayers*, having the consent of the proprietors, cultivating between 12½ and 50 acres of land: an object of art of the value of 8*l.*, with 24*l.* in cash; a sum of 8*l.* and medals to persons employed on the farm. The great prize cup will be substituted for the smaller cup in either of the above classes, should any competitor show that he has introduced improvements of a peculiarly useful and valuable kind. Medals of gold and silver will be awarded, as formerly, for partial improvements. The competition extends to only a portion of the country in each year, thus 12 departments are admitted to try for any of the above prizes for the year 1870, the plans and all details to be furnished by the 1st April, 1869, so that the jury may have time to visit the farms of all the candidates.

The annual metropolitan show of fat animals is announced to take place at the new cattle market at Villette, from the 15th to the 24th of March. Additional interest will be given to this meeting by the addition, for the first time, of implements, live and dead poultry, &c., seeds and roots. There will be no competition or prizes in connection with the implements, nothing but four days' exhibition.

The poultry show has before been held at Christmas time, together with that of butter and cheese, but these exhibitions did not include live birds. At Villette the show is to be confined to poultry and rabbits, alive as well as killed and prepared for market, and money prizes and medals will be awarded.

The show of seeds, roots, &c., is to include cereals, Broad Beans, Peas, Vetches, Beetroot, Carrots, Turnips, Cabbage for feeding animals, Potatos, and green crops; and a gold, a silver, and a bronze medal will be awarded, if deserved, in each class.

The Society of the Agriculturists of France has determined upon holding a congress this year in each of the towns where a regional exhibition takes place, where a fair promise of success shall appear. The same Society offers a prize of 1000 fr., to be awarded in 1870, for the best treatise on the application of night-soil. *G. W. Y.*

Societies.

BATH AND WEST OF ENGLAND.

Feb. 23.—At a meeting of the Council of this Society, at Yeovil, it was reported that the Journal is in type, but delayed for a short time, by the necessity of perfecting some official documents relating to the Southern Counties Association recently amalgamated with the Bath and West of England Society. It is fully expected that by the middle of the month of March it will have been distributed amongst all members entitled to receive it.

Southampton Meeting.—Local Prizes.—A list of prizes offered by the Southampton local committee was provisionally accepted by the Council, for Jersey, Guernsey, and Channel Islands cattle; Hampshire Down sheep, classified according to a new and special arrangement; and Forest ponies. The Council also, in deference to the views expressed in a letter from the hon. secretary to the Royal Jersey Agricultural Society, resolved to give a bonus of 10*l.* to the owner of the best animal exhibited in the classes for heifers, of the Channel Islands breeds, not exceeding 2½ years old, on the 1st of June next.

WEST CUMBERLAND.

Deep Cultivation.—Mr. CLARKE, of Barwickstead, opened a discussion on deep-land culture. He said he had been long convinced that deep cultivation was one of the main elements of successful farming. Near large towns they would find the market gardens absolutely teeming with the products of the earth, and that arose in great part from deep and effectual cultivation of the soil. He referred to Mr. Stephens' book on "The Yester Deep-land Culture," which is a detailed account of the method of cultivation that has been successfully practised for several years by the Marquis of Tweeddale at Yester. If there was a book in the English language which afforded information on deep-land culture, it was "The Yester Deep-land Culture," and he would advise every one to get it and read it for himself. Instead of giving the meeting his own crude notions he proposed to lay before them the matured opinions of one of the first agriculturists of the day. The Marquis of Tweeddale had reduced deep-land culture to a system, and to that system he proposed to direct the attention of the meeting. The Yester farms are in East Lothian, and are three in number. They are respectively 400, 500, and 750 feet above the level of the sea, so that the climate is not one of the best. The greater part of the soil on one farm (Yester Mains) was naturally a poor, thin, wet, moorish substance, resting on a stiff, retentive, sandy, clay subsoil. The soil of one-half of Broadwoodside Farm, consisted of poor, stiff, sandy clay, and the other poor, stiff, tenacious clay. The subsoil was also of very poor, stiffe lay. The soil of one part of Danskine Farm was poor, stiff, sandy clay, and the other poor, stiff, hard clay. The surface was generally from 5 to 6 inches deep. The subsoil was poor hungry clay, containing many stones. The greater part of Yester Mains, and the whole of Broadwoodside Farm has been thoroughly drained and subsoil-trench ploughed. Danskino Farm has all been drained. In 1841 Broadwoodside was valued at 7*s.* and Danskine at 10*s.* per acre. His lordship invented the Tweeddale plough, which, with four horses yoked to it, was capable of ploughing 14 or 15 inches deep. He next invented the Tweeddale subsoil-trench plough, the peculiarity of which is that it loosens the subsoil without mixing it too abundantly with the surface soil. With these two implements, the one following the other, he has carried his ploughing operations to a depth of from 19 to 22 inches. He afterwards substituted for the Tweeddale plough an implement of easier draught, which can be yoked with either two or three horses, and is capable of reaching a depth of 12 or 13 inches, with a breadth of land of equal extent. After referring to the thorough draining and deep cultivation of the Yester farms, the book goes on to prove that the soil is thereby rendered drier and warmer, that there is less evaporation of moisture into the atmosphere, and that thereby moisture is supplied to the vegetation at a period when it would be otherwise wanting. If those benefits could be obtained at a reasonable outlay, it was obvious that deep cultivation was one of the most effective means of advancing the interests of agriculture, and in suitable soils and situations should invariably be practised. As showing the infertile condition of Danskine Farm before thorough draining and deep cultivation, it was mentioned that Wheat was attempted to be grown after bare fallow, but in some seasons it was not worth the cost of reaping. Turnips were only raised on the driest and best parts of a field, but neither they nor the pasture in the best seasons were fitted to fatten stock. Mr. Clarke then read extracts from Mr. Stephens' book to show the results that had been obtained from deep-land culture. In 1854 (a year before the publication of the book) the second rotation was being pursued on Yester Mains. One field, with 13 loads of farmyard dung and 2½ cwt. of guano per acre, yielded 32½ tons per acre of purple-top yellow Turnips, rooted and shawed. Another field (sandy clay soil and subsoil), was in Oats in 1848, and produced 37 bushels per acre. In 1853 (after subsoil-trench ploughing and deep ploughing), it was in Oats, and produced 61¼ bushels per acre. Another field, originally a stiff hard clay, was in Oats, in an undrained state, and gave 31½ bushels per acre. After being thorough drained, deep ploughed, and manured with 180 cubic yards per acre of vegetable matter obtained from the bottom of a loch after the water had been drained off, the same field was in Wheat in 1852, and produced 41¾ bushels per acre, realising 12*l.* 18*s.* 9*d.* per acre. After mentioning other instances of increased fertility, Mr. Clarke referred his hearers for further information to the book itself, and concluded by maintaining that deep-land culture was profitable to the farmer.

DISCUSSION.

Mr. R. JEFFERSON (Preston Hows) said he hoped the Chairman and he would agree to differ with regard to deep culture. He had been an advocate for it since he commenced farming, but he had not found it that "universal good" he expected. He had several fields at Preston Hows which he cultivated deeply—say, to 11 or 12 inches—with four horses, and which he had fancied for several years were not so fruitful as if he had worked them in the ordinary way. He believed that a great many of them ploughed the seed-furrow too deep. He believed that in ploughing for seed deep ploughing was not required; they should have that for the furrow, and do it in the autumn. The deep ploughing of his fields which he had referred to was done some 10 or a dozen years ago. They had now regained their fruitfulness, and were perhaps better than ever, though he could not tell, not having taken means to test them.

Mr. ROSS (Muncaster Castle) said it was very little use to tell a farmer what a marquis or a retired professional gentleman could do. Farming was a queerish plant, and it would not do to transplant it. What would do for one plant would not do for another. What, for example, would Mr. Ritson, of Wasdalehead, do if he were taken to Tiptree Hall? The Chairman found that when he was in practice that, although all men and women were apparently much alike, yet they could not all swallow medicine alike—he had to consider them in detail, and prescribe one thing for one man and another thing for another. Mr. Jefferson's experience very much agreed with his (the speaker's). He was in favour of deep stirring, but that, he maintained, was very different from deep cultivation. He thought the rich surface should not be mixed with the poor subsoil. The soil of the Carse of Gowrie was only about 4½ inches thick, yet it gave enormous crops; but if a farmer put his plough lower than the surface-soil he was certain to have a light crop. He thought the subsoil should be simply stirred up with the skeleton plough, and not intermixed with the surface-soil.

Mr. GRAINGER (Abbey Town), who attended as a deputation from the Wigton Farmers' Club, said there were no doubt exceptions, but he believed that, generally speaking, deep cultivation was profitable, and that farmers failed in that more than in any other respect. He differed from Mr. Stephens in his statement that after deep ploughing a soil would require less manure. He believed that to derive any permanent benefit from deep cultivation a farmer should use an extraordinary quantity of manure. As to the results derived from the Marquis of Tweeddale's operations, it should be remembered that there was no balance-sheet produced. He should like to know, for example, what it cost to cover the clay soil of Danskine with black vegetable matter. That was an important question in judging of the benefits alleged to have resulted.

Mr. STANLEY said that Mr. Stephens began his education as a farmer at Mr. Robertson's farm at Edenmouth, where he (Mr. Stanley) also endeavoured to obtain some knowledge of farming. The soil on the farm was 3 or 4 feet thick, and in other places still deeper. On that farm the mode adopted was this—the common plough went in front, and the subsoil plough, drawn by four horses, followed, turning over the soil from the bottom to the top.

Mr. R. JEFFERSON: That is what we call trench-ploughing.

Mr. TURNER remarked that the Chairman did not say at what time of the year the farms were subsoil trench-ploughed. He was in favour of keeping the good soil on the top. If you have a good soil, don't waste it.

Mr. HUTCHINSON (Braystones) thought it was as well to keep the good stuff at the top. In his locality, at a depth of 4 or 5 inches, they came to what an old neighbour of his called "brown sugar," and he did not think that would be very useful on the top. He had no experience in clay soils.

Mr. MUSGRAVE, having been called upon by the Chairman, was sorry the discussion had not yet advanced to the main point: they had failed to get any information as to the cost

of this deep-land culture. He believed that with an unlimited purse it would be possible to convert the solid rock into fruitful soil, but he also believed it would not be profitable to do so.

Mr. WILLIAMSON believed in deep cultivation. After land had been thoroughly drained, he would bring up a small portion of the subsoil annually in the autumn. He thought it injudicious to bring up a great mass of unfruitful subsoil at one time.

Mr. BORTHWICK reviewed what previous speakers had said, and remarked that, as the result of several years' practice, he believed the deeper soil was stirred the greater advantages were likely to accrue. Perhaps subsoiling could be done at from 7*s.* to 10*s.* an acre. Whether subsoiling paid or not, it would neither break nor enrich a man.

Mr. RAWLINSON remarked that here they were a long way from Yester. Subsoiling clay soils might be beneficial; but he did not think there was much clay soil hereabouts.

The CHAIRMAN then replied: The gentlemen present seemed to have misunderstood the question. The question was, "Is deep-land culture, properly, carefully, and judiciously carried out, in proper soils, and under proper circumstances, of advantage to the farmer?" Neither he nor Mr. Stephens ever said that gravelly soil or moorland pan should be turned up. Then, it had been remarked that he had never said when this subsoil and trench ploughing should be done. All should know the season when such work should be done. It was to be done in autumn, after the crop had been got off the ground.

Mr. GIBBONS (Burnfoot) impressed upon the meeting the fact that circumstances alter cases; there were different soils and different climates, and as no doctor would treat all his patients alike, farms were not to be treated all in the same way.

PENRITH.

The Over-preservation of Game.—At a recent meeting of this Club Mr. FRASER spoke from personal observation of the condition of certain fields of Turnips he was called upon to examine and report upon in connection with the Agricultural Society in the district not far from Penrith. They were swarming with rabbits, and he was given to understand that the tenants had got notice to quit simply because of a misunderstanding with regard to the rabbits, and the farmer stated that the loss he sustained through these animals did not amount to less than 100*l.* a-year; and in two other farms he was credibly informed that the tenants had lost nearly one-half of their crops through the rabbits. On a farm not a hundred miles from Southwaite station he had seen the damage done by rabbits, and the tenants were hardly allowed to look at them, much less to destroy them. He had always found that where rabbits abound bad farming was the rule, and he was not surprised at the fact where landlords allowed the rabbits to become so numerous. In some of the best-managed farms he had seen in the Lothians of Scotland there was scarcely a rabbit to be found. He next described some other farms in Scotland that were overrun with rabbits, and added that he always found the best understanding to prevail between landlord and tenant where the tenant was allowed to destroy the rabbits, or the keepers were instructed to do so. He next gave an instance to show the rapidity with which the breed of rabbits increased, and said he had always found that an overstock of rabbits and bad fences go together. Another objection was that sheep and cattle would not feed on land adjoining plantations where rabbits had their burrows. Over-preservation of ground game occasioned destruction to crops and fences; and, instead of there being good farming, ill-feeling was engendered between landlord and tenant, and pasture-land was rendered unfit for grazing purposes. He did not approve of leaving this matter to gamekeepers. On one estate not far from where they were now sitting, the gamekeeper caused his master to believe that the tenants were complaining unnecessarily about the rabbits, while at the same time he was doing all he could to increase the number, as may be gathered from the fact that in five years the gamekeeper cleared as much as 3000*l.* from the sale of rabbits alone. He disapproved of the system of landlords giving the rabbits as a perquisite to the gamekeepers, as in most instances they deceived their masters. The remedy he suggested was a very simple one. When a tenant went to take a farm, he should stipulate with the proprietors that the vermin (which the law termed hares and rabbits) were to be his property. If the landlord inserts a clause in the lease (which is almost invariably the case) that the tenant is bound to preserve all game, hares, and rabbits, for the use of the landlord and his friend, the tenant should refuse to sign the document, unless the landlord drew his pen through the words hares and rabbits. This, however, could only be done by the combined action of the farmers. Since 1863 his landlord in Dumfriesshire gave him permission not only to destroy rabbits, but also allowed him the shooting over the whole estate—something like 1500 acres—and he was not in the least troubled with rabbits. He would like to see all kinds of game the property of the farmers, and the Game Laws done away with, but he was not at present prepared to advocate such a measure. He would always like to have a fair stock of game upon his farm, for the amusement of the proprietor and his friends, but there was a difference between a reasonable and an unreasonable thing—between sport and what may be called regular slaughter, or what is usually called *battue* shooting. There was no manly sport in that; but a fair head of game on an estate encouraged the landlord to go amongst his tenantry. He believed that the late elections in Scotland were decided more by the Game Laws than by the Irish Church question, farmers in that country being determined to have the evils attending an over-preservation of ground game either mitigated or abolished. He was told, when in that country, that Sir John Stirling Maxwell, late M.P. for Perthshire—the scholar, the historian, the statesman—lost his seat simply on account of his over-preservation of rabbits and hares. In the same way Major Walker was beaten in the neighbouring county of Dumfriesshire by a London alderman, who could scarcely so much as pronounce the name when he came down. Mr. Fraser concluded by moving the following resolution:—

"That in the opinion of this club, the over-preservation of ground game should at once be discontinued, as exerting a prejudicial influence on agriculture generally; and that farmers should object to signing a lease in which hares and rabbits were reserved to the proprietor."

FETTERCAIRN.

The Advantages of Steam Cultivation.—Mr. ALEXANDER read a paper on this subject. He said:—

It is generally admitted that a deep tilth is better than a shallow, and the more the subsoil is broken the better. We all know that subsoiling with horses is very expensive and very difficult to do, if done efficiently. Suppose a pair of horses in a plough taking an 8-inch deep furrow, and suppose a subsoil plough following with four horses, and loosening the subsoil other 5 inches, and suppose that they go over an acre a day, what will be the cost of this operation per acre? Ten shillings a day for each pair of horses, you will all agree, is a very moderate charge, and if you take 2*s.* 6*d.* for tear and wear of implements, you will find the cost per acre to be 1*l.* 12*s.* 6*d.* I will now contrast this with steam-power doing the same work. In the autumn of 1866, I had 70 acres of stubble dug with the Kincardineshire Steam Company's tackle to a depth of 13 inches—the same depth I have supposed being done by horses—and the cost of this at that time, including coals and a man and a horse to drive the water, was 15*s.* per acre. You will thus see that there is an actual saving by using steam rather than horses of 17*s.* 6*d.* per acre, keeping out of view the superior manner the steam did the work. Those of you who have not seen the steam tackle at work will be apt to think that the subsoil would be thrown to the surface—but such is not the case; the peculiar construction of the digging breasts keeps the bulk of the surface soil on the surface, the share breaking up the subsoil and leaving it there. There is another advantage which I had clearly demonstrated on this field. A corner of about four acres I had ploughed in the ordinary way with two horses, and on this piece the whole of the Turnips were destroyed with finger-and-toe, while scarcely a diseased one was to be found over the whole 70 acres that were dug by steam. I ought not to forget to mention that I applied a larger quantity of artificial manure than I had been in the practice of doing, and, notwithstanding, the crop was not a very heavy one; but although the Turnips were not what I expected, I was compensated by an excellent crop of both Barley and Oats this last peculiarly dry season. I have now gone over nearly 230 acres of my farm in this way, and I have reason to be satisfied with the general result. I think there is a mistake in going too deep at once, particularly on clay land, for be it observed that on clay the digger-breasts turn up a considerable portion of the subsoil, whereas on gravelly or porous subsoil almost none will be brought to the surface; hence, on clay-bottomed land I think it is a mistake to dig deeper than 10 or 11 inches for the first time. Last year I had dug about 20 acres of stubborn clay to the depth of 12 or 13 inches; and there being comparatively little frost last winter to pulverise the ponderous lumps of clay turned up, I attribute to the too deep digging the comparative failure of my Turnip crop this season on that portion of my Turnip land. You are all aware that very neat ploughing of lea does not always produce the best crop. Those of us who have frequently had ploughing matches on our farms in connection with this club will bear me out when I say that generally the deep-ploughed roughly put together work produced the best crop, and I instance this in favour of lea ploughing by steam. Last year I ploughed one-half of a lea field with steam, the other half with horses. That done with steam was rough in the extreme, while that done with horses was an average of what is termed "good work." The whole field was sown with a 4-inch drill after being harrowed; but I have this to say in favour of horse-ploughing, that three strakes of the harrows produced a sufficient mould for the drill, while that done by steam required three double tines and once dragging with a two-horse drag before sowing, and I am convinced that it should have got as much more to have produced satisfactory results; but as it was, the crop immediately where the steam ploughing commenced, was several inches longer in the straw, and altogether bulkier, although not so thick on the ground, but the thinness I attribute to my not bringing the mould to a finer tilth before sowing. Perhaps the most efficient work by steam is the cultivating for green crop. For land that has either been well dug by steam or ploughed with horses in autumn there is no implement I have seen can compare with the steam cultivator. It has this advantage over the grubber, that it can be driven over the land at a speed double that of horses, thereby smashing the soil to pieces, and on moderately friable land, making it at once ready for drilling and sowing. In my opinion, the good effects of grubbing with horses are in a measure destroyed by so much necessary treading of the feet, notwithstanding Mr. Smith's theory that they are good clod-crushers.

Mr. GREIG, Harvieston, said—The main obstacles to the introduction of steam cultivation consisted very much in the varied circumstances which presented themselves in the operation of steam field machinery. In other steam machinery they had fixed purposes and fixed circumstances, but in the case of land they often found that the steam-plough altered these circumstances every bout of the land. Another great difficulty was the education of the labourers to the work, and this Mr. Greig recommended to the consideration of the club. He was satisfied that there was no better upward ladder at the present moment to the agricultural labourer than a determination on his part to get acquainted with steam cultivation. Mr. Alexander, in his paper, had said that the advantages of steam cultivation over horse-ploughing were great in regard to expenses, but Mr. Greig held that these were nothing as compared to the superior work. The angle at which the steam ploughshare stood to the land was much greater than that of the horse-plough, and the effect of this was, that instead of the base scouring along the surface of the subsoil, it was continually tearing it up and scarifying, and doing the work, not only of the ordinary plough, but breaking up the path that had been trodden by the horses for such a long period, and opening up communication between the soil and the subsoil, thus allowing the proper chemical action to take place. The subsoil had lately had an able advocate in the shape of the Kincardineshire Steam Ploughing Company, and he hoped to live to see the day when that company would have induced the subsoil of the county to regard the soil in a better manner. In explaining the action of the digger from the horse-plough a very important explanation might be made. The fault of the latter generally was that the furrow was made proportionally wider to the depth than was necessary; and that instead of breaking up the soil and pulverising it, it merely inverted it, without bringing it up. The steam-plough, on the other hand, took a proportionally narrow furrow to the depth. It did not displace the subsoil, but broke it in pieces, and thoroughly loosened it. The action of the cultivator, in Mr. Greig's opinion, was very much to remedy the evil which was gradually growing into the soil from the concentration of manure, a system which they would soon learn to fear. Nothing could be better to prevent this than the use of the steam-cultivator. It also prevented finger-and-toe disease. Mr. Greig concluded an able address by remarking that Pirie's plough was the greatest improvement that had been effected in ploughing implements for the last 50 or 60 years.

Reviews.

The Means of Increasing the Home Production of Animal Food. A Paper read before the Midland Farmers' Club, by W. Wood, Esq. Martin Billing & Co., Livery Street, Birmingham.

Exclusion of foreign disease—extended growth of food crops for cattle—increased use of purchased cattle foods to consume with them—improved management of grass-lands—proper management of live stock—and attention to the rules of good breeding,—these are the maxims on which Mr. Wood insists. The following is his recapitulation:—

"The Legislature must give us security against the introduction of contagion from abroad.

"Farmers must (1st) neglect none of the means of increasing the produce of their land which modern science places at their disposal. Above all, they must improve their grass-land by returning to it a portion of those valuable constituents of which the sale of dairy stock annually deprives it.

"2dly. They must feed their store stock with such reasonable liberality as to keep them in a constantly growing state. This will furnish one important means of improving the land.

"Landlords must co-operate in the good work by improving buildings, and by affording to liberal tenants security for the outlay of their capital."

Many readers of the imperfect report given some weeks ago in our columns, will be glad to have the full and accurate report of Mr Wood's valuable lecture which this pamphlet contains.

Manures, Feeding Stuffs, Seed Corn, and Implements. Trade Circular. T. Bowick & Co., Bedford.

Apart from its trade catalogue Mr. Bowick's annual contains serviceable memoranda on the several subjects in which he deals; the relative values of phospho-guano and other manures are discussed; linseed-cake and other feeding stuffs, and seed corn and other farm seeds are also considered; while as to implements, his own description of Messrs. Howard's factory, printed long ago in these columns, is reproduced.

Farm Memoranda.

NORTH RIDING OF YORKSHIRE: *Feb.* 18.—The weather has been unseasonably mild—so much so, that many of our dry warm-lying Grass fields possess a hue that in ordinary seasons is rarely seen before April. Vegetation during the last six weeks has scarcely been stagnant, and the gradual growth of Grass has been such that, with the extraneous aid of half a pint of Oats per head per day, the sheep scattered over our pastures at the rate of two per acre have done well; if not making much mutton, they have not been losing any. Those who have been fortunate enough to have Turnips to sell have got long prices; as much as 1*s.* per head per week has been paid for hoggets kept on Turnips; and even at this price a profit on the sheep is anticipated by the purchaser, good hoggets now making as much as 10*d.* per lb., and it is believed that higher prices will yet be obtained.

Our markets keep tolerably well supplied with beef. A liberal use of purchased foods has increased the production to a much greater extent than at one time was thought possible. Whether this has been done with a profit is extremely doubtful, for though the prices obtained for beef have been good, yet cake has been commensurately high, and we fear that in too many instances a per contra to balance will have to be credited with the increased value of the dungheap.

The rainfall for the month has again been much in excess. Since the commencement of the year (1869) our gauge registers upwards of 6 inches, 3 inches of this having fallen in February, but for the last week we have had dry weather, and the land is getting into tolerable order for ploughing, and we hope in the course of another week it will do for Bean sowing.

On all naturally dry and well-drained land the

young Wheat is very forward, almost too luxuriant; but on the whole, on the aforesaid lands, it is promising well. On the wet and badly drained land its appearance is very indifferent, and dry weather is much needed.

Notwithstanding the open winter, farm-work is by no means forward; ploughing has been much retarded by the excessive wet, and the same cause has operated prejudicially against the cartage out of farmyard manure.

Our great horse fair was held at Northallerton last week: good horses of all grades were speedily bought up, the supply of such, however, being scanty. A good trade was done with young mares possessing stamina, which were much sought after and purchased for exportation at prices tolerably remunerative. *W. J. M., February* 18.

WEST SUSSEX: *Feb.* 22.—We have now, as we think, passed through one of the mildest winters that any one remembers. Hardly any frost, but growing weather since the first autumn rains. This has been very fortunate for live stock; hay has carted out well, and at a moderate price (about 5*l.* to 5*l.* 10*s.* per ton). Roots, though yet small, have not stopped growing, and are now sound, but beginning to run to seed. Those who were fortunate enough to get a crop from the first sowing have not had any advantage from it, as they have not kept sound. As a consequence of more food than we expected, lean stock has risen in price, but still there is a large supply in our market. Mutton has gone up in price to a rather high figure. There has not been much beef fatted, and it comes to market in rather rough condition. We get some very rough lean cattle brought from the west at this season, principally the weeding of dairies; they are mostly very poor, and hardly look healthy.

Though we have had the weather so mild, it has been very wet, and work is rather behind. We have been waiting for getting Peas sown, and we like to get them in as soon after Christmas as possible; the earlier they are put in they less liable they are to blight, and if the work is a little heavy at the time of sowing, they do as well. But upon the whole they are not a very profitable crop, especially if repeated at short intervals. We may set down one year in three as in great measure a failure, and we have rarely got more than from seven to nine sacks per acre in fair years. But they do not make a bad preparation for Wheat. The sample is not so good after them; the quantity, however, is about an average.

There is still more than the usual quantity of corn to thresh, as the weather has been against the work, and the price has not been at all tempting. The Wheat on the ground looks well; not so forward as, from the mildness of the weather, we might have expected. It lies close and well spread on the ground, and has escaped the slugs and other dangers to which it is liable. A more even plant we have never seen.

The lambing season is nearly over among the forward ewes, and has been a good one. All are healthy and will probably do well for another month, until the Turnips get too much to seed; but then with the few Mangels that we have, and Italian Rye-grass, which is very good, with Vetches, &c., we may get on to the young Clovers without any check to their improvement. *G. S.*

A COTSWOLD FARM.—The farm I occupy is, as you are aware, like this district, chiefly the light land, or oolite, which characterise the tablelands of the Cotswold hills, partly arable and pasture, but some fields have thin layers of clay, alternating with rock, and such in part requires draining.

As regards the effects of draining during the past dry season, opinions differ, and probably the good effects of such, after the great drought of 1868, will be felt more this year.

Steam cultivation has scarcely been adopted at all in this district, the soil being thin, but I think, with care, it could be done, particularly for lightly scarifying the stubbles in the autumn as a preparation for roots, as at that season it is imperative to do a large amount of fieldwork which the ordinary farm teams can hardly cope with.

The yield of Wheat per acre was last year above an average, the quality, too, was extremely good, and most of it was harvested in fine condition and fit to thresh.

Barley was generally well harvested, but the yield has been deficient, and quality rather hard and steely, yet very bright and dry.

Oats very deficient in corn and straw, weight light; Peas fair, Beans middling, not much grown here. On the whole, Wheat was by far the best crop of last season.

Every farmer, more or less, did something to supplement the bad early root crop, sowing stubble Turnips, and Rape, Mustard, Trifolium, Clover, Vetches, Rye, &c., all of which, to some extent, are now useful for spring food. As many of the young Clovers failed they were ploughed up and sown, some to green crops for spring feed, and some are to be sown to corn, with Grass seeds again this spring. The regular rotation of crops has therefore been disturbed, and some of the old Clover leas will be mowed again this year.

The roots having failed, some substitute has been found to winter the live stock, but as all artificial food is dear, many cattle and sheep which should have been sold fat in spring have been only treated as stores. The straw being sweet, and the hay good, although deficient, much has been cut into chaff—Oat straw, if cut green at harvest, being particularly valuable; and where roots could not be spared, a little cake or ground corn or linseed has been mixed and given, the food in some instances being cooked or steamed, and with such provender and good water, cattle will do fairly. In the case of store sheep, chaff mixed with malt-combs, bran, oats, cake, or maize has been used, the sheep having water, and perhaps the run of some pasture. By such means, much live stock has been wintered, at least as stores, and will now recover their natural value.

The Poultry Yard.

POULTRY AS FATTED ABROAD (*continued from p.* 179).—To accustom the fowls to the new life of forced seclusion and change of nourishment to which they are destined, they are allowed, during the first eight days of their confinement, to eat and drink at discretion, that is, of the diet provided for them. The food is a soft dough composed of one-half or two-thirds meal, and the remainder bran; it is generally barley or bran meal. After this preparatory week the regular food is made up into pellets, or, as we call them, "crams," which are composed of one-half rye-meal, one-third barley-meal, and one-sixth of oat-meal, the coarse bran having been sifted out of the whole of it. Each day enough of this is mixed up with new milk or butter-milk to serve for two meals. Sometimes a little lard is added to the dough; this is generally towards the end of the treatment. When made the dough is rolled out and divided into crams of about the shape and size of an olive.

Feeding time arrived, the operator takes three birds, ties all their legs together, and places them on his lap. The room, or feeding house, is only half lighted, so that the birds do not struggle so much as they would in full daylight. He administers to each bird a small ladleful of skim-milk or water, then into the mouth of each he puts a cram (*paton*), and to facilitate its descent to the crop he, with the thumb and finger, gently presses the exterior of the gullet from the throat to the crop, forcing the *paton* downwards. By having three fowls on his lap at once, each is allowed sufficient time to fairly swallow each morsel, and much time is saved. For the first few days of the process the crop is simply filled, but afterwards, as the time goes on, the number of *patons* is increased, and the capacity of the crop becomes greater. Each cram is moistened in milk or water before it is given to the bird. Different feeders allot different periods for the completion of the process, but the natural aptitude and disposition of the individual bird determines it. Some *poulardes* fatten well to a certain stage, and then the experienced say that any further feeding would be unsatisfactory, and kill them accordingly; the liability to failure is always present with them, and the most dexterous men frequently have considerable losses for which they cannot account. Some *poulardes* will fatten in six weeks, others require two months. Sometimes a bird seems disposed to fatten and make progress for a still longer time, then the treatment is continued, in the hope of making a specimen of unusual quality and size. It is calculated that a *poulardes* while attaining perfection, will consume 20 litres, or about 40 quarts; some will take 30 litres, but this latter quantity is unusual. These birds, closely shut up as they are, have no litter in the bottom of their boxes, and their dung remains during the whole time. However the exhalations may assist the fattening of the fowls, certain it is that they are very hurtful to the health of the men employed in the process, who suffer terribly when they have a large number fattening, because when they have from 80 to 100 birds to manipulate it necessitates their passing almost the entire day and a portion of the night in their hotbeds. The first feeding, begun at 4 A.M., is hardly over by midday; and the second, begun at 3 P.M., is only completed at 11 P.M.

The fattening, killing, and picking are all done by the same hand, and when killed they are placed, before they have had time to stiffen, on a bench or shelf, with the feet or wings turned back, and with blocks of wood or stone to keep them in their places. The body is then covered with a fine damp or rather wet cloth, which adds to the fine appearance of the skin. The feeders give themselves 10 rules to follow in fattening the birds, and from these they do not depart:—1. In selecting birds for fattening, invariably take those that are the biggest and best grown birds, and, above all, well bred. 2. Do not mutilate or castrate them. 3. Have a place ready for them, without much current of air, and the boxes as before described. 4. The cage should not be cleaned nor the dung removed during the whole time the birds are shut up. 5. The birds should be fed in the coops for a week or ten days before the cramming process is commenced. 6. The *patons* must be administered with care and address, so as not to scratch or wound the bird. 7. The birds must be crammed at fixed times twice in the 24 hours. 8. It is not necessary that the number of crams be always alike, as on some days the capacity of the crop will be greater than others. The crop should be moderately filled, but not to excess. 9. The dough or paste must be the only food made use of. 10. Give a constant and careful supervision to the birds, so that the precise stage of progress of each one may be known, in order to withdraw them for killing in the proper sequence.

TOBACCO FOR SICK POULTRY.—A correspondent writes as follows:—"Speaking with the wife of a working bailiff who had been a successful raiser of fowls, I asked what plan she adopted when they were sickly; she quickly made answer—'I give them a "quid" of tobacco.' This reply so acted on my risible faculties that I could not follow up the conversation, but she further stated—'I have adopted the plan with success for 10 years.' I then inquired why she gave it, and the quantity administered? to which she replied—'I had noticed that when my husband was mopish and out of sorts that if he took a large "quid" of tobacco he soon came round, and the thought occurred to me that it might relieve my fowls, which it always does; so whenever I see any of them out of sorts, I give them a piece of tobacco as large as from the end of my thumb to the first joint.' You can judge my surprise as a medical man, when I state that I have seen a like quantity destroy life in a human being. Now for the sequel. In the autumn of last year I purchased some prize fowls, and one of them a month since became sickly. I gave the old woman's remedy—a piece of tobacco the size of the first joint of my thumb (*i.e.*, 30 grains). It had a most speedy and singular effect upon it; in two minutes there was a little staggering, accompanied by a peculiar twitching of the tail, which gradually became straight with the back, and ultimately trailed on the ground; in 20 minutes the fowl appeared quite well, and has continued so. This morning my servant, as usual, let the fowls out and gave them some Barley, but the cock bird appeared very sickly and disinclined to eat. He stood with his mouth slightly opened, and wings hanging down; in fact, what the old woman termed 'out of sorts.' I offered him some pieces of bread, my constant practice, but he took little notice, or of the hens, whilst eating it. As this state had lasted three or four hours, I looked down his throat, which appeared healthy, and he had nothing in his crop. I then gave him the 'quid' of tobacco, *i. e.*, 35 grains. In two or three minutes he appeared very weak, and his tail began to drop slightly; he then sat down under a tree and remained quiet about five minutes. I then walked to him, when he got up, and in a few minutes commenced pecking some corn, and in a quarter of an hour from the first taking of the tobacco he appeared quite well, and began to crow most lustily, although he had not made the slightest effort before during the morning, which was very unusual, as he frequently crows when well. To see him now, 24 hours after the dose of tobacco, performing his accustomed duties, no one would scarcely believe that he had taken so potent a remedy. I do not profess to give the *modus operandi*, but as it acts like a charm it is worth knowing." *J. N., Colchester, Feb.* 15.

Obituary.

WE sincerely regret to announce the death of Sir JOHN JOHNSTONE, M.P. He died on Wednesday morning from injuries he received while hunting with Mr. Selby Lowndes' hounds on Saturday last. His horse, on leaping an ordinary fence, rather overjumped himself, and, lighting on broken ground, threw Sir John with great force. He broke his collar-bone, and is supposed to have fractured one of his ribs, the latter injury producing inflammation of the lungs. Great hopes were entertained on Tuesday for his recovery, the inflammation having ceased; but on Wednesday morning an unfavourable change ensued, and he expired without a struggle. Sir John Johnstone was in his 70th year. He was one of the earliest students of the relations of geology and agriculture, and had long been an active member of the Council of the Royal Agricultural Society of England.

Miscellaneous.

Where are we?—"Man is a microcosm—a world in himself," I have heard an acquaintance exclaim. "Only to think," he continued, one day, "what impostors we are! Here am I, Will Morton, deluding myself and other people into the belief that I have lived in the world five-and-thirty years. No such thing. Where was I last year at this time? My dear friend, don't let us deceive ourselves. Your chum, Will Morton, as he now exists, was scattered all over the world twelve months ago. That part of his body which he owes to Wheat was growing ripe for the sickle in America or Russia; that part of him which is due to Tea was flourishing in a vegetable state upon the slopes of the Himalayas or in China. The beef packed upon his bones was munching Grass in Lincolnshire, the mutton wandering over the South Downs, the pork wallowing in a stye after its kind; and who shall say whence came the fish that he has eaten, or what he owes in personal appearance to the Indies and to Africa in the matter of sugar and Christmas puddings! I tell you, sir, the Will Morton of to-day was at that time non-existent, and only lives, moves, and has his being now, in virtue of having been gathered together from the four winds of heaven. He has been pieced up out of an oyster here, a codfish there, a bullock yonder; and who knows how much of him lay hidden in old clothes, ground bones, and whatever else is thrown upon the earth to make it productive!" *Thoughts in the Twilight, in "Cassell's Magazine."*

Increase of Gold, and "Price."—While the value of money is said in the French report to have greatly fallen relatively to land, labour, and the cost of living in many parts of Germany—the change being attributed by M. de Mornay, as also by the French consul at Cologne and the local authorities at Saxe Coburg, to the increase of the precious metals—in Belgium, the rise in the case of land is traced back to 1830. But in Germany itself, for two centuries before 1830, a rise in some of the most important commodities was in progress. The following figures, for example, showing the rate of advance in corn and wood at Baden and Würtemburg, have been furnished to me by an eminent professor of agriculture:—

	Wheat.	Barley.	Beech.	Fir.
1640–1680	1.00	1.00	1.00	1.00
1680–1730	1.49	1.46	1.54	1.10
1740–1780	1.54	1.25	3.62	3.93
1790–1830	2.00	1.72	9.19	14.27

The prices of Wheat appears by these figures to have doubled, that of wood to have risen on the average 1,100 per cent. in the 200 years, and in all the four articles named the greatest rise was from 1780 to 1830. *E. T. Cliffe Leslie, in the "Economist."*

Calendar of Operations.

FEBRUARY.—*Live stock* indoors continue to feel the mildness of the weather, and so do those on the Turnips and in the pastures. The season, however, is favourable on the whole, but it requires special management to control its peculiarities. Indoors, for example, cleanliness and ventilation require to be as closely attended to as the quality of the food. The old maxim, "A bullock should be seen before he is fed," we need hardly say, means that a farmer should be the first to see his bullock in the morning, and see his orders how he is to be fed, &c., attended to during the day, and the last to see him at night, so as to ascertain two very important things, viz., the first, whether his orders have been properly carried into effect; and the second, whether his orders were what his bullock required; and those who comprehend the importance of both, will generally make it a point to see their bullocks just now about mid-day. Early Grass is, in the language of practice, "strong," and liable to purge; so that when cut for racking it should be well mixed with chaff or some dry food, otherwise, if given to milch cows, it will purge both them and their calves. The same remark applies to ewes and their followers on the young Grasses or meadows, and even hill and down pastures, if they had been eaten bare. In a few meadows there may be plenty of old withered, aftermath, stubble herbage, mixed with the young Grasses, but owing to the absence of frost this year there is much less old forage than usual, while the proportion of young succulent herbage is greater. Hence the difference, and increase of dry food required to keep the flock in health. There is perhaps no ailment so ruinous to sheep at this season as purging, for it not only "eats the flesh off the bones," but lays the foundation of maladies that eventually undermine the constitution. On the Turnips in the field it is not enough to give extra hay, or even corn, in a season like this, especially if the Turnips are not pulled, for we have been obliged to send the scythe on the fresh plots a day or two beforehand, cutting the green tops clean off, so as to allow them to dry before shifting the roots, and to clean stored roots of young shoots. In one or two instances the Turnips tops were carted home and given to the store cattle.

Calving and Lambing now engross a large amount of the labours of the cattleman and shepherd in perhaps the majority of counties. The management of springing cows depends much upon breed and the ordinary diet of the herd, so that no general rule can be laid down. The common one, viz., "Avoid the two extremes of poverty and fatness"—*i.e.*, aim at the golden mean—no doubt applies to all breeds, but it is no easy matter to carry it out in the case of our improved Shorthorns, Herefords, and Devons; and this applies with equal force to our improved breeds of sheep: and in mild weather the fat extreme is perhaps more to be dreaded than the opposite. In other words, the best course for the cowherd and shepherd is to keep on the safe or poverty side of the golden mean. Calves and lambs will require a dry bed, with plenty of scope for air and exercise.

Pests of the Farm.—This is a favourable season for studying the habits of this motley brood, with the view of getting rid of them if possible. How best to get rid of rats and mice at the homestead and moles in the field is an old puzzler; and lice upon cattle is a sure sign they are not in so thriving and cleanly a state as they should be. But there are other pests more difficult to get rid of than these, and not a few are apprehensive that of late years they have been on the increase—others say the microscope is making us more familiar with them. But, whichever of these opinions is right, all are agreed that to get rid of them is the grand desideratum. We allude to parasites that attack the roots of Turnips, Cabbages, &c., and to tape and fluke-worms, that prey upon the entrails of our cattle and sheep, and even spoil our beef, mutton, and pork; also the pigmy race of vegetables, alike ruinous to our cultivated crops and domesticated animals. Now, if we mistake not, this and the next month is the time to lay the axe to the root of the evil; and, owing to the mildness of the season just now, we may count every week a fortnight gained or lost in their destruction, as the case may be, and the means of destruction are simple and effective if properly applied. *W. B.* [Will our correspondent describe them?]

Notices to Correspondents.

DESTRUCTION OF GRUBS: *B S.* says:—"A customer of ours is anxious to know how he can best eradicate grubs. He says he has a field of 1½ acre which has been meadow land for many years, and it is very much infested with these grubs, and the meadow has in consequence got into very bad condition, and he intends to plough it up, and would be glad to know what would be the best crop to put on it, and the best ingredients to use for the destruction of the grubs. He remarks that three years ago a lot of mortar was spread over a portion of the land, and this is most infested with the grub." [You cannot kill grubs by any poison which would not be also fatal to plants. Any fallow crop involving frequent stirrings and horse-hoeings during its growth may be taken. Probably Beans planted in rows far enough apart to admit of frequent horse-hoeings would be a suitable crop to take.]

DISSOLVING COPROLITES: *J W.* Next week.

GREAT GROWTH OF GRASS LAST YEAR: *J M E.* says:—"As thou expressed a doubt of the truth of my statement (see p. 148) relative to the quantity of hay produced on my field, I have taken the trouble of measuring it, and I find we took off a load of hay (not Grass) off every 8 perches on the average, and these loads were not less than 8 cwt., whatever more. I never but once before saw such a crop of hay."

LIVE STOCK INSURANCE: *Subscriber, Chipping Norton.* We believe that Lord Granville's herd at Hendon is insured, and you might apply to Mr. C. Panter, Golden Green, Hendon, Middlesex, for particulars of the Society.

LUNG DISEASE: *J S.* It is impossible that your cow, suffering from lung disease, could have caught it from the fact of having grazed on a pasture which had received a dressing of crushed bones.

PAUL'S NURSERIES AND SEED WAREHOUSE,

WALTHAM CROSS, LONDON, N.

GENUINE AND FIRST-CLASS SEEDS.

WILLIAM PAUL

BEGS TO ANNOUNCE THAT HIS

CATALOGUE OF SELECT VEGETABLE AND FLOWER SEEDS,

Including many Novelties, is now ready, and may be had Free by Post on application.

In proof of QUALITY he need only refer to the numerous Prizes awarded at various Horticultural Shows throughout the country, for both Vegetables and Flowers grown from his Seeds, and in regard to prices these are in all cases affixed on the lowest possible scale to be remunerative. The following Gardens in Hertfordshire, justly renowned for their Vegetables and Flowers, have long been supplied from his Seed Warehouse:—Brocket Hall, Panshanger, Danesbury, Poles, Digswell, Wyddial Hall, Woodhall, Youngsbury, Bedwell Park, Essendon Place, Campfield Place, Bayfordbury, Knebworth, Frogmore Hall, Childwickbury, Codicote Lodge, and many others of equal celebrity throughout the country.

To purchasers who are unacquainted with the best varieties of Vegetables and Flowers, or who wish to save the trouble of writing a List, the following Collections are made up on equally liberal terms with any other House in the Kingdom. All are of the best quality, and cannot fail to give the fullest satisfaction.

VEGETABLE SEEDS.

No. 1. The WALTHAM COLLECTION of VEGETABLE SEEDS,
FOR A LARGE GARDEN,
Price £3 3s.

No. 2. The WALTHAM COLLECTION of VEGETABLE SEEDS,
FOR A MEDIUM-SIZED GARDEN,
Price £2 2s.

No. 3. The WALTHAM COLLECTION of VEGETABLE SEEDS,
FOR A SMALL GARDEN,
Price £1 1s.

Smaller Collections for Small Gardens or Cottagers, 15*s.*, 10*s.* 6*d.*, or 5*s.* each.

FLOWER SEEDS.

No. 1. The WALTHAM COLLECTION of FLOWER SEEDS,
INCLUDING THE FINEST IMPORTED ASTERS, STOCKS, &c.,
Price £2 2s.

No. 2. The WALTHAM COLLECTION of FLOWER SEEDS,
INCLUDING CHOICE IMPORTED ASTERS, STOCKS, &c.,
Price £1 1s.

No. 3. The WALTHAM COLLECTION of FLOWER SEEDS,
INCLUDING THE MOST EFFECTIVE FOR A SMALL GARDEN,
Price 10s. 6d.

No. 4. PAUL'S CHOICE COLLECTION of HOLLYHOCKS,
IN TWELVE DISTINCT NAMED SORTS,
Price 5s.

NOVELTIES, OR VARIETIES OF SUPERIOR MERIT.

BEET, Paul's Superb Crimson, 1*s.* per packet.
BROCCOLI, Lauder's Superb Protecting Late White, 2*s.* 6*d.* per pkt.
BROCCOLI, Snow's Winter White, very select stock, 1*s.* per packet.
BRUSSELS SPROUTS, Paul's Waltham, 1*s.* per packet.
CAULIFLOWER, Hill's Dwarf, 1*s.* 6*d.* per packet.
CAULIFLOWER, Superb Dwarf Hertfordshire, 1*s.* per packet.
CUCUMBER, Paul's Improved Telegraph (true), 2*s.* per packet.
*** This Variety was first sent out by me in 1861, and is distinct from many varieties of Telegraph, and acknowledged to be the most prolific and best flavoured of all Cucumbers.
ENDIVE, Waltham Green Curled, 1*s.* per packet.
LETTUCE, Brockett Hall Brown Cos, 1*s.* per packet.
LETTUCE, Hill's Compact Brown Cos, 1*s.* 6*d.* per packet.
PARSLEY, Paul's Selected Extra Curled, 6*d.* per packet.

FOR MORE PARTICULAR INFORMATION, SEE SEED CATALOGUE.

All Seeds, except very small parcels, Carriage or Post Free.

LILIUM AURATUM.—Flowering bulbs, 2*s.* to 7*s.* 6*d.* each; 18*s.* to 72*s.* per dozen.

GLADIOLI.—A very fine assortment to name, 6*s.* to 24*s.* per dozen.

ROSES.—A fine stock still on hand, Standards, Dwarf-standards, Dwarfs, and in pots for forcing.

FRUIT TREES.—Standards, Pyramids, and Dwarf-trained, and a large general Nursery Stock in excellent condition.

PRICED CATALOGUES, FREE BY POST.

☞ IMPORTANT.—To prevent confusion, all Letters should be addressed WILLIAM PAUL—the Christian name in full, as above.

SUTTONS' FARMER'S YEAR BOOK for 1869 is NOW READY.
For Original Articles on the Cultivation of Root Crops, see "Suttons' Farmers' Year Book for 1869."
For present prices of Home-grown Seeds, see "Suttons' Farmer's Year Book for 1869." Sixpence, post free; gratis to Customers.
SUTTON & SONS, Seedsmen to the Queen, Reading, Berks.

Early Feed for Sheep and Cattle.
SUTTONS' IMPROVED ITALIAN RYE-GRASS, the earliest and most productive in cultivation. Should be sown in February and March to produce a succession of valuable cuttings during the year. If sown alone, 3 bushels are required per acre.
Price 7s. per bushel, cheaper by the quarter. Carriage free.
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SUTTONS' PRIZE MANGEL SEED, 1869.
SUTTONS' BERKS PRIZE YELLOW GLOBE,
SUTTONS' NEW YELLOW INTERMEDIATE,
SUTTONS' MAMMOTH LONG RED.
SUTTON & SONS are now prepared to quote the lowest price per cwt. for the above superior varieties of Mangel Wurzel, which have given such great satisfaction during the past year.
SUTTON & SONS, Seed Growers, Reading, Berks.

1868.—Mangel Wurzel Seed.
H. AND F. SHARPE can offer the Trade some splendid STOCKS of the above-named Seed, grown on their own Farm this season from picked Bulbs. The quality is very fine, and prices low. Samples may be obtained on application.
Seed Growing Establishment, Wisbech.

HALLETT'S PEDIGREE CHEVALIER BARLEY produced in 1868 a Crop of 62 bushels per acre, a Sample of which was awarded the First Prize at the Birmingham Show of 1868. Took the First Prize also at the same Show of 1867. Produced in 1867 nearly 9 quarters per acre.
PEDIGREE BLACK TARTARIAN OATS produced, 1868, 12 quarters per acre.
For particulars apply to Captain HALLETT, F.L.S., Brighton.

The Longstander Lettuce.
DAVID GOLD McKAY begs to offer SEED of this first-class sort. It is beautifully white, crisp, compact in growth, and distinct from any other Lettuce. A very desirable variety. Per packet, 1s.
Seed Establishment, Sudbury, Suffolk.

IVERY'S NONSUCH LETTUCE.—The best Summer variety in cultivation; will stand a month longer than any other kind without running to Seed. 1s. per packet, sealed with initials, "M. A. I." Price to the Trade on application.
A GENERAL SEED CATALOGUE can be had post free on application. The Trade supplied with superior MUSHROOM SPAWN. Hanover Nursery, Peckham, S.E.

Squire's Wiltshire Cos Lettuce.
GEO. WHEELER, NURSERYMAN and SEEDSMAN, Warminster, Wilts, having secured the Stock of this long-standing BROWN COS LETTUCE, now offers it in 1s. sealed packets.
Mr. SQUIRES has grown it for some years, and highly recommends it as a first-class Spring, Summer, Autumn, and Winter Lettuce later in running to seed than any other sort he is acquainted with, attains to a large size, is self-protecting, solid, crisp, juicy, and of excellent flavour. Free by post from Warminster.
May be obtained of Messrs. HURST & SON, Seedsmen, 6, Leadenhall Street, E.C., and other London Seedsmen.

J. C. WHEELER AND SON.

WHEELER'S GUINEA COLLECTION of GARDEN SEEDS comprises the finest varieties in cultivation; for details see "WHEELER'S LITTLE BOOK for 1869," price 6d., post free.
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"WHEELER'S TOM THUMB LETTUCE is a wonderful favourite with my family and friends; for a Summer Lettuce I have never seen its equal."—G. F. A. FLOWER, Stafford Farm. 1s. per packet, post free.
J. C. WHEELER & SON, Gloucester.

"WHEELER'S MILKY WHITE is the best of all Potatos, and those who do not grow it may consider themselves rather behind the age."—SHIRLEY HIBBERD, F.R.S. 4s. per peck, 15s. per bushel.
MILKY WHITE.—"This I received from the well-known firm of Messrs. Wheeler & Son, Gloucester. It is one of the handsomest Potatos grown, and well deserves its name, for it is most beautifully white, very floury, and one that I do not hesitate to regard as first-rate. It is also a very free bearer." D. DEAL. 4s. per peck, 15s. p. bush.

ONE PECK of WHEELER'S MILKY WHITE and ONE GUINEA COLLECTION of GARDEN SEEDS sent carriage free by rail on receipt of cheque or Post-office order for 25s.
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LEE'S GIANT ORACH or SUMMER SPINACH has, during the late parching summer, fully maintained our description of its productive powers, and has satisfied our numerous clients that its delicious piquant flavour is unrivalled by that of any other Spinach. Its utility in such a prolonged drought as we have lately passed through is attested by the following testimonials, selected from among a host of others:—

From Mr. THOMAS WOODROOF, *Gardener to the* Earl of Winchilsea, *Eastwell Park, Ashford.*
September, 1868.—"I have much pleasure in giving my testimony in favour of your Giant Orach: but for that, I should not have had a bite of Spinach for use. The plants are 8 feet high, and as green as possible, despite the dry weather. They have never been watered; it is invaluable."

From Mr. JOHN PERRY, *Gardener to the* Rev. Basil Beridge, *Aylsrkirk Rectory, Spalding.*
October, 1868.—"This has been a most trying season for garden produce. I could get nothing to grow but your Giant Orach, which has continued to supply me plentifully all through the season, when all other vegetables have failed."
Price per packet, 1s. Free by post.
JOHN & CHARLES LEE, Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

HOOLEY'S CONQUEROR PRIZE CELERY gained Five First Prizes in 1868, competing against 129 Exhibitors; and Four First Prizes in 1867, competing against 126 Exhibitors. With the Nottingham Prize System of Growing Celery. By Mr. W. P. Ayres. Price 2s. 6d. per packet. May be had from the following Nurserymen and Seedsmen:—

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" Osborn & Son, Fulham
" J. & C. Lee, Hammersmith
" B. S. Williams, Holloway
" E. G. Henderson & Son, St. John's Wood
" Cuthbush & Son, Highgate
Mr. Smith, Worcester
Messrs. Cole & Sons, Withington, Manchester
Mr. Kerr, Bassett St., Liverpool
Messrs. J. Dickson & Sons, Chester
" Fisher & Holmes, Sheffield
" Backhouse & Son, York
" Downie & Laird, Edinburgh
Mr. Methven, Edinburgh
Messrs. Lucombe, Pince & Co. Exeter
Mr. W. Paul, Waltham Cross, Herts.
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And Wholesale and Retail from SAMUEL HOOLEY, Wollaton, Nottingham.

This Celery was highly recommended in the *Gardeners' Chronicle*, in Oct., 1867; and Mr. Ayres, who has grown it for several years, considers it the finest Celery in cultivation. Weight, 6 to 8 lb. each stick.—Wollaton, Feb. 12.

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CHARLES SHARPE AND CO., having grown largely this EXCELLENT EARLY PEA, with great care, have much confidence in offering it to the Trade. Price on application.

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CHARLES SHARPE AND CO.'S PRICED TRADE LIST of PEAS, BEANS, and other GARDEN SEEDS can be had on application.

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CHARLES SHARPE AND CO. are now prepared to make special offers of all the leading sorts of POTATOS.
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SEED POTATOS.—Paterson's Victoria, 10s. 6d. per cwt.; Royal Ashleaf, 12s.; King of Potatos, 8s.; Ashtop Fluke, 18s.; Red Regents, 7s.; Chardons, 6s. 6d. The above are all true, and of good quality. Terms cash; a remittance or reference requested from unknown correspondents.
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RICHARD WALKER has to offer the finest sort of ROUND POTATO out (AMERICAN RED).—It boils as white as snow, and is the heaviest cropper in this country. R. W. imported it direct in 1865. As the Stock is limited, apply early. Price per cwt., 30s. Smaller quantities at the same rate. SEAKALE, for planting, 3s. 6d. per 100. LACED PINKS, 20s. per 100.
Biggleswade Market Gardens.

Seed Potatos.
PATERSON'S VICTORIA, the best of all Paterson's varieties, £8 per ton, bags included.
GRYFE CASTLE, a superior sort, recently raised in Renfrewshire, £8 per ton, ditto.
The above are true, and are specially suited for Seed, the ground on which they were grown being old natural lea trenched, and never before cropped. The tubers are clean and sound in all respects.
Apply to GEO. WEATHERLY, Hagswood, Pollockshaws, by Glasgow.

SPECIALITIES, DISTINCT and GOOD.

	Per packet.—s. d.
GIBBS' MATCHLESS BORECOLE	0 6
MARSHALL'S PRIZE PARSLEY	1 0
ST. MUNGO (very hardy white) BROCCOLI	1 0
HENRY'S PRIZE LEEK	1 0
INTERMEDIATE STOCK, new deep crimson	1 0
CALCEOLARIA, herbaceous (from the Dalkeith collection) .	1 0

Sent post free. The Trade supplied.
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CHOICE NEW SEEDS.
Trade Price on application.
BROCCOLI, Ne Plus Ultra (NAIRN'S).—Heads very large, conical, pure white, self-protecting, extremely hardy, the finest Broccoli extant. 3s. per oz.
CABBAGE, Cook's dwarf Imperial.—The finest Cabbage known; retains its fine green colour when boiled; very tender and buttery flavour. 2s. per oz.
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S. NAIRN & SONS, Seedsmen, 62, Filgrim Street, Newcastle-on-Tyne.

ELLETSON'S SURPRISE, new, large, late WHITE PROTECTING BROCCOLI.—The best late Cauliflower Broccoli extant, price 2s. 6d. per packet. May be had of the following Agents:—
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Messrs. Barr & Sugden, 12, King Street, Covent Garden, W.C.
Mr. Wm. Paul, Waltham Cross, N.
Messrs. Peter Lawson & Son, Edinburgh and London.
" Bolton & Co., Ealing, London, W.
" Jas. Backhouse & Son, York.
" Stuart & Mein, Kelso, N.B.
" Sutton & Sons, Reading, Berks.
" J. Slater & Sons, Malton, Yorkshire.
Mr. Edward Taylor, Malton, Yorkshire.
Messrs. Dreghorn & Aitken, Kilmarnock, N.B.
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Additional names will be inserted as they are received.
EDMUND PHILIP DIXON, The Yorkshire Seed Establishment, 57, Queen Street, Hull.

New and Superior Farm Seeds.
SEEDSMEN TO THE QUEEN.
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PRICED DESCRIPTIVE CATALOGUE of FARM SEEDS post free, on application.
MIXTURES of GRASS SEEDS for Permanent Turf and Rotation Crops, to suit every description of Soil and Climate, of very superior quality.
Finest clean Samples of CLOVERS, RYE GRASSES, and NATURAL GRASSES, at Market rates. Samples and prices on application.
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Special Estimates for large quantities. Orders amounting to £2 value (Grain, Potatos, &c., excepted) will be delivered carriage free, at the principal Railway Stations in the Kingdom.

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SHELL GRAVEL for London Gardens, Conservatories, and Terraces, clean, dry, and neat in appearance, used in the Parks and the Horticultural and Botanic Gardens.
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N.B. Open Tanks of different sizes packed one in another to save carriage.

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(ESTABLISHED 1840)
Have now ready for delivery, in fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
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Also Genuine PERUVIAN GUANO, and NITRATE of SODA ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c.
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LAWES' MANURE for GRASS LANDS should be applied during the months of February and March. NITRATE of SODA supplied ex Ship or from Stocks at Docks at London, Liverpool, and other ports, at lowest market prices.

LAWES' MANURES are now ready for delivery for present season, 1869.
LAWES' PATENT TURNIP MANURE.
" DISSOLVED BONES.
" SUPERPHOSPHATE of LIME.
" WHEAT, BARLEY, GRASS, and MANGEL MANURE.
" CONCENTRATED CORN and GRASS MANURE.
These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom.
GENUINE PERUVIAN GUANO direct from the importers.
NITRATE of SODA, SULPHATE of AMMONIA, and other Chemical Manures.
AMERICAN and other CAKES at market prices.
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This Company was originally formed by, and is under the direction of, Agriculturists, circumstances that have justly earned for it another title, viz.:—
THE TENANT FARMER'S MANURE COMPANY.
Its Members are Cultivators of upwards of 50,000 Acres of Land, which has been for years under Management with Manures of their own Manufacture, consequently the consumer has the best guarantee for the genuineness and efficacy of the Manures manufactured by this Company.
Particulars will be forwarded on application to the Secretary; or may be had of the Local Agents.
C. T. MACADAM, Secretary.
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GENUINE TOBACCO PAPER, of the finest quality, 10d. per lb., or 84s. per cwt.
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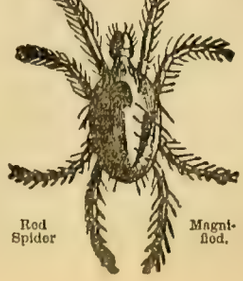
ROLL TOBACCO PAPER, finest quality, equal in strength to Tobacco, 1s. per lb.; cheaper in quantities.
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To Nurserymen and Florists.
H. PERKINS, 16, Cambridge Circus, Hackney Road, has on hand a large quantity of superior ROLL TOBACCO PAPER and CLOTHS. Paper, 1s. per lb.; Cloth, 10d. per lb. Post Office orders to be made payable at Cambridge Heath, London.

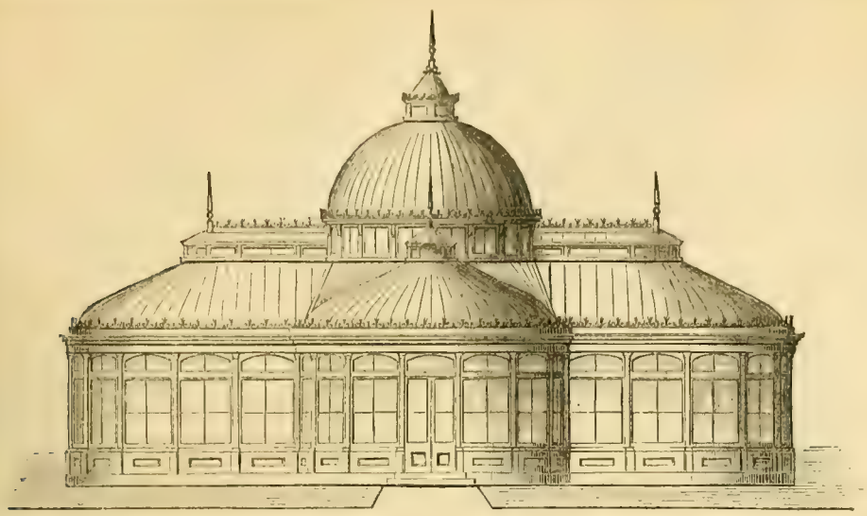
The Cheapest and Best Insecticide.
DUTY-FREE TOBACCO.
BY HER MAJESTY'S ROYAL LETTERS PATENT, AND BY PERMISSION OF THE HON. BOARD OF CUSTOMS.
POOLEY'S TOBACCO POWDER, for the Prevention and Destruction of Blight and other Diseases in Plants.
Sold by Nurserymen, Seedsmen, and Florists,
In Tins at 1s., 2s. 6d., and 5s.
Powder Distributors, 2s. 6d., and 3s. 6d. each.
"I find it exceedingly useful for killing the Aphides on Roses and other Plants."—GEO. EYLES, Superintendent, Royal Horticultural Gardens, South Kensington. May 7, 1868.
Sole Manufacturer, T. A. POOLEY, Bonded Warehouse, Sussex Wharf, Wapping, E.

Tobacco Tissue,
FOR DESTROYING RED SPIDER, MEALY-BUG, THRIP, GREEN and BLACK FLY, without the aid of a Fumigator.—This article having been before the Public for the last three years, and being now used by many of the leading Horticulturists—from several of whom Testimonials have been received as to its efficacy,—the Manufacturers beg to recommend those who have not used it to give it a trial, feeling confident when they have done so they will use nothing else, as it is far superior to paper or rag, and will not injure the plants. Sold in 1lb. packets and upwards; price 3s. 6d. per lb., carriage free. A reduction in price for large quantities.
To be had of MESSRS. ROBERTS AND SONS, Tobacco Manufacturers, 112, St. John Street, Clerkenwell, E.C., of whom Samples and Testimonials may be obtained; and of all Seedsmen and Nurserymen.


Red Spider

Magnified.

GISHURST COMPOUND.
Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d.
Wholesale by
PRICE'S PATENT CANDLE COMPANY (Limited),
Battersea, London, S.W.



"KEW GREEN GLASS."

HENRY ORMSON

BEING EMPLOYED BY THE GOVERNMENT

TO ERECT NEW PLANT HOUSES IN THE ROYAL GARDENS, KEW,

BEGS TO NOTIFY THAT HE HAS GLAZED THEM WITH GLASS OF AN APPROVED GREEN TINT,

Samples of which were made to his order, and submitted to analysis by a scientific gentleman, and found to possess the requisite component parts for producing the desired tint.

This TINTED GREEN GLASS is highly approved of by the Director and Curator of the Royal Gardens, Kew, on account of its excellence in subduing the scorching rays of the sun, and thereby producing a luxuriant and healthy growth of the plants.

H. O. has made arrangements with an eminent Manufacturer for a supply of this particular description of Glass, and those who may entrust their Orders for New Structures to him, may fully rely on getting the same description as that used by him at Kew.

☞ H. O. *is desirous of cautioning Horticulturists against spurious imitations of this Glass.*

H. ORMSON'S PATENT IMPROVED WELDED WROUGHT-IRON BOILERS,

AS USED IN CARRYING OUT THE IMPROVEMENTS IN THE HEATING APPARATUSES AT THE ROYAL GARDENS, KEW,

Are now being extensively used in preference to Cast-Iron ones, on account of their great security against cracking.

CONSERVATORIES, IN THE HIGHEST STYLE OF ART,

SPECIALLY DESIGNED TO SUIT ANY STYLE OF ARCHITECTURE.

COMPLETE ARRANGEMENTS OF

FIRST-CLASS HORTICULTURAL STRUCTURES

TO SUIT ANY GARDEN, LARGE OR SMALL.

ORMSON'S PARADIGM FRUIT AND PLANT HOUSES,

FOR EVERY PURPOSE, WILL BE FOUND THE BEST CHEAP STRUCTURES OF THE PRESENT TIME.

PLANS, SPECIFICATIONS, AND ESTIMATES ON APPLICATION.

CONSERVATORIES, HOTHOUSES, MANSIONS, CHURCHES, PUBLIC BUILDINGS, &c.,

HEATED ON THE MOST APPROVED AND SCIENTIFIC PRINCIPLES.

HENRY ORMSON, HORTICULTURAL BUILDER TO HER MAJESTY,

AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

MASTIC L'HOMME-LEFORT, or COLD GRAFTING WAX, an invaluable preparation, for use in the operation of Grafting. It requires no melting, is always ready for use, and becomes perfectly hard when exposed to the air. Mastic L'Homme-Lefort is the BEST STYPTIC to PREVENT the BLEEDING of VINES. In Tins, 6*d*., 1*s*., 2*s*., 4*s*., and 6*s*. each. Retail of most Seedsmen; wholesale only of

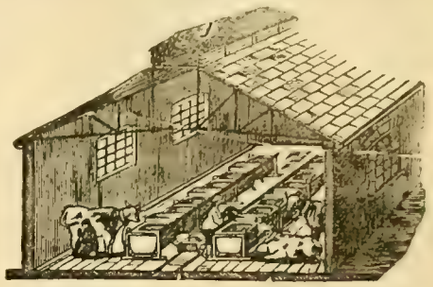
Hooper & Co., Covent Garden, London, W.C.

F. A. HAAGE'S WOOD GARDEN STICKS and TALLIES, commended by the Royal Horticultural Society, acknowledged to be the neatest, cheapest, and best Training Sticks and Tallies made.

The above can now be had, of all sizes, Wholesale, of BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London, E.C.; and Retail of the principal Seedsmen and Florists.

Price Lists on application.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rick dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of Iron. Prices of Fittings per Cow 55*s*.

Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.



GARDEN BORDER EDGING TILES, in great variety of patterns and materials, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price List free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cement, &c.

To be obtained of F. & G. ROSHER, at their premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14*s*. per Ton, or 1*s*. 3*d*. per Bushel; 2*s*. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1*s*. per Ton less.

FLINTS, BRICK BURRS or CLINKERS for Rockeries or Grotto Work. F. & G. ROSHER.—Addresses see above.

N.B. Orders promptly executed by Railway.

Health of Horses, Stables, and Dog Kennels.

MASTERS OF HOUNDS

Will find the greatest advantage in Paving the Floors of Stables and Kennels with

PYRIMONT SEYSSEL ASPHALTE.

Thirty years' experience of the durability of this material, for the above and many other purposes, testifies to its value A List of all such and other works can be had on application to J. FARRELL, Secretary, 5, Parliament Street, S.W.

By Royal Appointment

TO HER MAJESTY, by Special Warrant, dated December, 1865.



To the PRINCE OF WALES, by Special Warrant dated February 10, 1866.

DAY, SON, AND HEWITT, Original and Sole Proprietors of the STOCK-BREEDERS, MEDICINE CHEST, for Disorders in Horses, Cattle, Calves, Sheep, and Lambs. Patronised by upwards of Seventy Thousand of the principal Stock-breeders, Horse Proprietors, and Agriculturists in England, Ireland, Scotland, and Wales.

CAUTION.—The first Animal Medicines known to the world as "DAY'S," and in such universal repute under that title, are those only manufactured by us, as a Bill in Chancery, we recently filed, has established; and no one, as was there shown, knows anything of our discovery, or our mode of compounding.

The Chest contains the following matchless preparations:—

Half-a-Dozen CHEMICAL EXTRACT, at 30*s*. per dozen.
One Dozen GASEOUS FLUID, at 20*s*. per dozen.
One Dozen RED DRENCHES, at 18*s*. per dozen.
One Dozen RED PASTE BALLS, at 7*s*. 6*d*. per dozen.

Adapted for all ailments among Stock during the present season. Price of Chest complete, with Shilling Book on Farriery, £2 16*s*. 6*d*., carriage paid. Either preparation may be had separately in boxes.

TESTIMONIALS.

"DAY, SON, & HEWITT'S Six-Guinea 'Stock-breeders' Medicine Chest' is the handiest and completest we know of—in fact, it lets a Farmer see a whole Pharmacy—not exactly in a nut-shell, but in a neat little box."—*Mark Lane Express*, 16*th Dec.*, 1867."

"The 'Gaseous Fluid' is sufficient for all the ills that Calfhood is liable to."—*T. Bowick, Author of the Prize Essay on Calves.*

"My Shepherd declares the 'Chemical Extract' to be worth a guinea a bottle."—*H. Woods, Lecture on Breeding and Management of Sheep.*

"The 'Gaseous Fluid' is the best corrective of Scour in Sheep I have ever tried."—*T. Rigby, Lecture on Summer Grazing of Sheep.*

"DAY, SON, & HEWITT, supply most excellent remedies for Scour, Gripes, and other diseases, and we have used their Medicines for some years with success."—*Sporting Gazette.*

"We have found the 'Colic Drinks' (Gaseous Fluid) prepared by DAY, SON, & HEWITT, act as an invaluable remedy."—*Mark Lane Express.*

Orders sent by Post will be promptly attended to if addressed:—DAY, SON, & HEWITT, 22, Dorset Street, Baker Street, London, W. Branch Depôt at Wantage, Berks.

PUBLICATIONS.

The "Shilling Key to Farriery," free by post for 13 stamps.
The "Rearing of Calves," free by post for Three stamps.
The "Breeding and Management of Sheep," by H. Woods (Lord Walsingham's Agent), free by post for Five Stamps.

Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the Corporate Mark, OBTAIN WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.

S. & C.'s PRUNING and BUDDING KNIVES are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

Horticultural Glass Warehouse.

THOMAS MILLINGTON AND CO., 87, Bishopsgate Street Without, London, E.C.

NEW LIST for ORCHARD-HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD-HOUSE SIZES.

in. in.	4ths.	3rds.	2nds.	Best.
20 by 12, 20 by 13, 20 by 14, 20 by 15, 20 by 16 — Per 100 feet	15 oz.	14s 3d	15s 6d	18s 6d	20s 0d
	21 oz.	19s 6d	22s 3d	25s 6d	26s 6d

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in. in. in. in	in. in. in. in.	4ths.	3ds.	2nds.	Best.
6 by 4 7 by 5 8 by 6 9 by 7 6½ by 4½ 7½ by 5½ 8½ by 6½ 9½ by 7½ — Per 100 feet.		12s 3d	13s 3d	16s 0d	18s 0d
10 by 8 12 by 9 12½ by 10½ 14½ by 10½ 10½ by 8½ 12½ by 9½ 13 by 10 15 by 10 11 by 9 13 by 9 13½ by 10½ 13 by 11 11½ by 9½ 13 by 10 14 by 10 14 by 11		13s 3d	14s 6d	17s 3d	19s 0d

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in. in. in. in. in. in. in. in.	4ths.	3ds.	2nds.	Best
12½ by 10½ 14 by 12 22 by 12 22 by 16 16 by 10 14½ by 12½ 17 by 13 24 by 16 14½ by 11½ 15 by 12 23 by 13 20 by 17 15 by 11 15½ by 12½ 18 by 14 22 by 17 15½ by 11½ 16 by 12 22 by 14 24 by 17 16 by 11 16½ by 12½ 24 by 14 20 by 18 21 by 11 17 by 12 22 by 15 22 by 18 13 by 12 18 by 12 24 by 15 24 by 18		14s 3d	15s 6d	18s 6d	20s 0d

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.

In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	36s.	4ths quality, per 200 feet case,	36s.
3ds " "	42s.	3ds " "	42s.
2ds " "	60s.	2ds " "	60s
Best " "	75s.	Best " "	75s.

SHEET GLASS is made only in the following substances, 15 oz. 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.

HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.

BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.

STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a-half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.

IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4s. per gallon.

Per cwt.—s. d.		Per gallon.—s. d.	
GENUINE WHITE LEAD	30 0	LINSEED OIL	2 10
SECONDS WHITE LEAD	28 0	BOILED OIL	3 2
GROUND PATENT DRYERS, 3d. to 4½d. per lb.		TURPENTINE	2 7
„ OXFORD OCHRE, 3d. to 4½d. per lb.		LINSEED OIL PUTTY, 8s. per cwt.	
„ RAW UMBER, 4½d. to 6d. per lb. [per lb.		Fine OAK VARNISH, 10s. to	12 0
„ BURNT do., 6d. to 9d.		„ CARRIAGE do., 12s. to	14 0
GREEN PAINT, all shades, 28s. to	60 0	„ PAPER do. 10s. to	12 0
BLACK PAINT, 24s. to	36 0	„ COPAL	16 0
RED PAINT .. 28s. to	36 0	KNOTTING	10 0
		Patent GOLD SIZE ..	10 0
		„ BLACK JAPAN ..	12 0
		GLAZIER'S DIAMONDS and TOOLS	
		MILLED LEAD and PIPES	
		OLD LEAD Bought or taken in exchange.	

GROUND BRUSHES.
DUSTERS. | SASH TOOLS.
DISTEMPER BRUSHES.

The above are Net, for Cash, and as such cannot be booked.
Lists of any of the above on application.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their REDUCED PRICES as follows:—

PROPAGATING GLASSES.



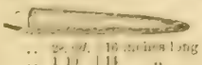
Each.—s. d.		Each.—s. d.	
2 inches in diameter ..	0 3½	12 inches in diameter ..	1 9
3 „ „ ..	0 4½	13 „ „ ..	2 2
4 „ „ ..	0 6½	14 „ „ ..	2 6
5 „ „ ..	0 6½	15 „ „ ..	3 0
6 „ „ ..	0 8	16 „ „ ..	3 6
7 „ „ ..	0 10	17 „ „ ..	4 0
8 „ „ ..	1 0	18 „ „ ..	5 0
9 „ „ ..	1 2	19 „ „ ..	6 0
10 „ „ ..	1 4	20 „ „ ..	7 0
11 „ „ ..	1 6		

BELL GLASSES, with ventilating hole through knob.

4 inches in diameter ..	0 6d.	9 inches in diameter ..	1s. 6d.
5 „ „ ..	0 8	10 „ „ ..	2 0
6 „ „ ..	0 10	11 „ „ ..	2 6
7 „ „ ..	1 1	12 „ „ ..	3 0
8 „ „ ..	1 4		

Either flat or conical tops.

CUCUMBER GLASSES.



24 inches long ..	2s. 6d.	16 inches long ..	1s. 4d.
22 „ ..	1 10	14 „ ..	1 2
20 „ ..	1 8	12 „ ..	2 0
18 „ ..	1 6		

HAND GLASSES, WITH OPEN TOPS.



Each.—s. d.		Each.—s. d.	
12 inches ..	6 6	18 inches ..	9 6
14 „ ..	7 6	20 „ ..	10 6
16 „ ..	8 6	24 „ ..	12 6

Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, GENUINE WHITE LEAD, CARSON'S PAINTS, PAINTS of every description ground and ready for use.
SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, BOTTLE GREEN, MILLED LEAD, ORNAMENTAL, COLOURED, and every description of GLASS, at the lowest Manufacturers' prices.
Lists of Prices and Dimensions may be had on application to JAMES PHILLIPS & CO., 150, Bishopsgate Street Without, E.C.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

MR. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

Acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in GARDENERS' CHRONICLE *of International Exhibition, May* 24, 1862, *page* 476.

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY'S variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

☞ *They are made of all sizes, which, with prices, may be had on application.*

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

PORTABLE AND FIXED HOT-WATER APPARATUS,

FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH

TRUSS'S PATENT

UNIVERSAL FLEXIBLE AND LEAKLESS PIPE-JOINTS.



Horticultural Buildings of every description from 1*s.* 6*d. per foot superficial, inclusive of Brickwork.*

Bath and Gas Work erected in town or country.

The Trade Supplied.



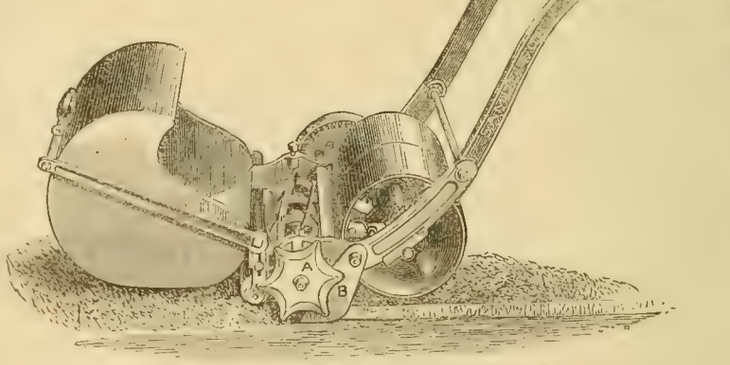
Price Lists, Plans, and Estimates forwarded on application to

T. S. TRUSS, C.E., CONSULTING HORTICULTURAL ENGINEER, &c., SOLE MANUFACTURER, IRON MERCHANT and HORTICULTURAL BUILDER,
FRIAR STREET, BLACKFRIARS ROAD, LONDON, S.E.

SAMUELSON & CO.'S

NEWLY PATENTED EDGE-CLIPPING SILENT LAWN MOWERS

THE MOST IMPORTANT IMPROVEMENT EVER INTRODUCED.



MESSRS. SAMUELSON AND CO. BEG TO DRAW SPECIAL ATTENTION TO THEIR NEW

LAWN MOWERS, for 1869,

Which are fitted, when required, with a new Patent EDGE-CLIPPING arrangement, entirely superseding the old and tedious operation of Edge-Clipping by hand.

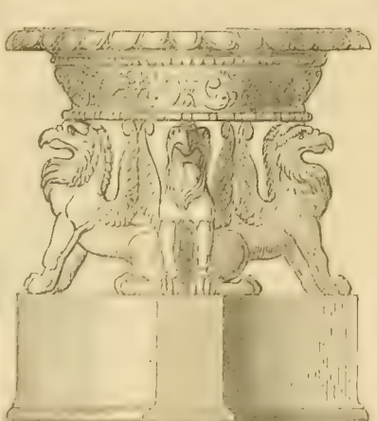
All Machines fitted with new Silent Gearing, ensuring perfect freedom from noise when at work.

Catalogues, with full descriptions and prices of the new Patent Edge-Clipping Silent Lawn Mower, on application to

SAMUELSON AND CO., BRITANNIA WORKS, BANBURY.

AUSTIN'S ARTIFICIAL STONE,

INVENTED 1826.



THE superiority of this material to all others for damp situations and its durability under the most intense frost being now indisputable, and attested by its extensive use in Scotland and Ireland, as well as the principal country seats of England, attention is invited to the following summary of the work manufactured with it, a variety unprecedented in any other establishment of past or present times:—

VASES,
about 300 different kinds, at from 10s. to £50.

FOUNTAINS,
more than 200 designs, from £10 to £400.

PORTEFLEURS, or low FLOWER BASINS, for lawns; STATUES, antique and modern; SMALL FIGURES, adapted to Balustrading, &c.; FIGURES of ANIMALS and BIRDS, about 70 kinds; SUN-DIAL PEDESTALS, about 20 designs; BASKETS, from 1 to 17 feet diameter; GARDEN SEATS, of substantial architectural character, for the ends of terraces; SHELLS for water or rock plants, from 1 to 14 feet wide; FLOWER BOXES, for windows or pavements; BAPTISMAL FONTS, from 2 to 15 guineas; CRESTS and other TERMINALS, for gate-piers; BALUSTRADING, to suit all styles of architecture; a great variety of ORNAMENTAL PEDESTALS, GOTHIC CROSSES, PINNACLES, and NICHES; EDGING for flower-beds.

AUSTIN AND SEELEY, NOS. 369—375, EUSTON ROAD, REGENT'S PARK.

N.B. No sand is used in "Austin's Stone," which is waterproof.

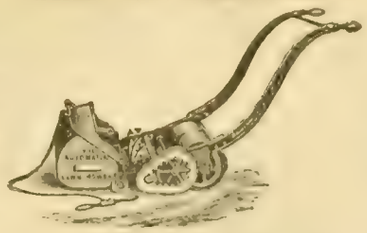
DESCRIPTION.

THE "AUTOMATONS"

Are guaranteed to perform their work perfectly, and if not approved may be returned within a month. They are *easy to work, light in draught, almost noiseless;* and being driven by machine-made gearing *are not liable to get out of order.*

Illustrated Lists and Testimonials sent post free.

THE "AUTOMATON"



LAWN MOWER.

2400 Sold since 1867.

PRICES.

THE "AUTOMATONS."			
10 inch	£3	10	0
12 inch	4	10	0
14 inch	5	10	0
16 inch	6	10	0
18 inch	7	10	0
20 inch	8	0	0
GARDEN ROLLERS.			
16 inch	£1	15	0
18 inch	2	0	0
20 inch	2	10	0
22 inch	3	0	0
24 inch	3	10	0

Delivered Free to all the principal Stations in England.

RANSOMES, SIMS, AND HEAD, ORWELL WORKS, IPSWICH.

AS A PROOF OF THE SUPERIORITY OF THE THRESHING MACHINERY

MANUFACTURED BY

CLAYTON, SHUTTLEWORTH & CO.,

They beg to call attention to the following statement.

	ENGINES.	MACHINES.
Engines and Machines sent out in the year 1868	812	644
Total Number sent out up to December 31, 1868	8,921	7,982

The Gold Medal was awarded them at the Paris Exhibition, 1867, for Portable Engines and Threshing Machines; and at the last trial of the Royal Agricultural Society they gained EVERY FIRST PRIZE offered for Steam Engines, also the Prize of £15 for Finishing Threshing Machines, and Silver Medal for special improvements—on which occasion the following Firms, amongst others, competed:—Messrs. Ransomes & Sims, Tuxford & Sons, Reading Ironworks Company (Limited); Brown & May, Allchin & Son, Barrows & Carmichael, Humphries; Marshall, Sons & Co. (Limited); Burrell; Ruston, Proctor & Co.; Roby & Co. (Limited); Holmes & Sons, E. R. & F. Turner, P. & H. Gibbons, Tasker & Sons, Nalder & Nalder, Riches & Watts, Wallace & Haslem, Catchpole & Thompson, &c., &c.

NOTE.—The Royal Agricultural Society will not hold another trial of Portable Steam Engines and Threshing Machines until the year 1872.

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For particulars apply to JOHN FOWLER & Co., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

IRON HURDLES
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SHEEP, 3s. 5d.; CATTLE, 4s. 2d; OX, 5s. 11d.
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TANNERS, CURRIERS, and MANUFACTURERS of IMPROVED TANNED LEATHER DRIVING STRAPS for MACHINERY
PRIME STRAP and SOLE BUTTS.
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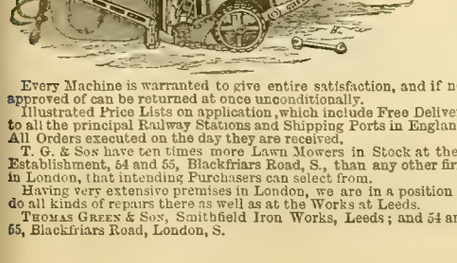
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"SIR,—Please send me at once, by Midland Railway, 50 yards of Frigi Domo 2 yards wide, same as you sent me about this time last year, and which answered its purpose admirably.—Yours respectfully, "G. H. STRUTT.
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FOR SALE, by Private Contract, DUKE of SUTHERLAND, rich roan, calved January 7, 1868; got by Lord Liverpool (22,165); dam, Tryphena, by 4th Duke of Oxford (11,387), &c. Duke of Sutherland is of first-rate blood, and fit for immediate work.
For further particulars, apply to the Bailiff, Mr. RAWLING, Holly Bank, Burton-on-Trent.

WANTED, near London, a FLORIST and SEED BUSINESS, or would not object to a PARTNERSHIP doing a good Trade.—Address,
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TO BE LET, or the LEASES to be SOLD, an Old-established NURSERY and SEED BUSINESS. Stock at valuation. JAMES OVER, 116, High Street, Clapham.

To Nurserymen, Florists, and Others.

TO BE LET, on Lease, REGENT'S NURSERY, Park Village East, Regent's Park, N.W., which has been in the present Occupant's hands many years, and has a good Connection attached thereto. Stock and Plant to be taken at a valuation.
For terms, apply to Mr. TAYLOR, on the premises.

SURREY.—TO BE LET, about 26 ACRES of very good LAND, adjoining a Railway Station, 30 miles from London, suitable for a Nursery or Market Garden. The Railway Trucks may, by means of a Siding, be run on to the premises. Possession at Michaelmas next. Further particulars of
Mr. TIDD, 59, King William Street, London, E.C.

TO BE LET, and may be entered upon at Lady Day next, a very useful NURSERY and GARDEN GROUND, of about 20 Acres, with Vinery and other Houses thereon, in full operation; also a DWELLING HOUSE and SHOP belonging thereto, at which a good Retail Business and Seed Trade is carried on. It is situated in one of the Midland Counties, and near to a first-class Railway Station. Address for particulars to
A. B., care of E. Marlborough & Co., Ave Maria Lane, London, E.C.

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TO BE SOLD, for an unexpired Term of 14 Years, at the Rent of £45 per annum, the LEASE and TENANT'S INTEREST in improvements of a pleasantly situated DWELLING-HOUSE, with Stable, Coach-house, and Outbuildings; large Vinery, and Garden well stocked with Fruit Trees, and about 15 Statute Acres of Land, situate at Thornton Hough, Cheshire, within six miles of the Liverpool Exchange. About 8 Acres of the Land are planted with the best varieties of Strawberries, which will be in full bearing this season.
For particulars apply to Mr. JOHN TURNER, 5, Goree Piazzas, Liverpool; or to TOULMIN & CARRUTHERS, Solicitors, 13, Harrington Street, Liverpool.

Sales by Auction.

Annual Sale of Handsome English-grown Camellias, &c., &c.

MESSRS. PROTHERO AND MORRIS will SELL, at the City Auction Rooms, 54 and 55, Gracechurch Street, E.C., on SATURDAY, March 6, at half-past 12 o'Clock precisely, about 200 Choice Double CAMELLIAS, 4 ft. to 5 ft., abundantly furnished with Bloom-buds; fine AZALEA INDICA, in flower; a superb collection of Standard and Dwarf ROSES, a rich assortment of AMERICAN PLANTS, FRUIT TREES, and LILIUMS of sorts.

Catalogues may be had at the Rooms as above, and of the Auctioneers and Valuers, Leytonstone, Essex.

Periodical Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, March 2, at half-past 12 o'Clock precisely, choice POULTRY from well-known Breeders; CARRIERS from Mr. Potter; the whole of Mr. Esquilant's well-known stud of SHORT-FACED PIGEONS; surplus stock of TUMBLERS, CARRIERS, POUTERS, and DRAGONS from Mr. Lufkin; 50 Lots of choice PIGEONS from Mr. Merck, and a variety of other first-class Poultry and Pigeons.

On view the Morning of Sale and Catalogues had.

Plants and Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, March 3, at half-past 12 o'Clock precisely, First-class Standard, Dwarf, and Climbing ROSES, from several well known English growers; Hardy and Ornamental TREES and SHRUBS, FRUIT TREES, RHODODENDRONS, VINES, IVIES, and a great variety of other Plants; choice GLADIOLI and RANUNCULI, for present planting, Rustic Seats, Stools, Vases Baskets, &c.

On view the Morning of Sale, and Catalogues had.

Consignment of Plants from Ghent.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, March 4, at half-past 12 o'Clock precisely, Double CAMELLIAS, INDIAN AZALEAS, TREE PÆONIES, LATANIAS, RHODODENDRONS, CONIFERS, BERBERIS, COTONEASTERS, EUONYMUS, SPIRÆAS, WEIGELIAS, DEUTZIAS, Standard and Dwarf ROSES, Trained FRUIT TREES, choice GLADIOLI and RANUNCULI; Rustic Seats, Stools, Vases, &c.

On view the Morning of Sale, and Catalogues had.

Important Sale of Orchids.

MR. J. C. STEVENS begs to announce that he has received instructions from John Day, Esq., of Tottenham, to offer for SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., during the month of April, a large proportion of his extensive and well-known COLLECTION of ORCHIDS, which will include many fine Specimen Plants, and some of the finest varieties in cultivation.
Mr. DAY being overstocked, this Sale will afford an excellent opportunity, for those desirous of making a collection, of securing well-established Plants of all the best kinds; and buyers may depend upon the plants being correctly named.
More detailed particulars in furture advertisements.

205, King Street, and Albion Road, Hammersmith.

GREENHOUSE BUILDERS' STOCKS: CLEARANCE SALE,
IN CONSEQUENCE OF RE-BUILDING WORKSHOPS AND PREMISES.

MR. JAMES H. GREEN is instructed by Mr. James Smith to SELL by AUCTION, on the premises as above, on TUESDAY, March 2, at 12 for 1 o'Clock, the entire STOCK—1600 square feet of Glass in 13 Span and Lean-to Greenhouses, in various sizes; 180 Pit Lights and Frames, Spring Van and Cart, Dog-cart, Phaeton, a useful Black Cob, and numerous effects.

On view Three Days prior to Day of Sale. Catalogues on the Premises, and of the Auctioneers, 72, King Street, Hammersmith.

BIRMINGHAM PERIODICAL POULTRY and PIGEON SALES.—The LAST SALE this season will be held at BINGLEY HALL, on WEDNESDAY NEXT, March 3, at 11 o'Clock, and will comprise 400 LOTS of GAME, SPANISH, DORKING, COCHIN, BRAHMA, POLISH, CRÈVE-CŒUR, HAMBURGH, and other Fowls; DUCKS, TURKEYS, SILVER PHEASANTS, PIGEONS in nearly every variety, from the most eminent Fanciers, including Prize Birds at Birmingham, Manchester, Rochdale, Newport, &c.; also a valuable Lot of imported Houdans, including the Gold Medal Cock at Houdan Show, 1868, and an assortment of Patent Incubators, Poultry and Pigeon Fountains, &c.

For Catalogues, apply to J. B. LYTHALL, Auctioneer, 39, New Street, Birmingham.

Extensive Sale of Coniferæ

AND OTHER RARE TREES AND SHRUBS,
At Belstane, in the Parish of Kirknewton and County of Edinburgh

MR. GEORGE BROWNLEE, AUCTIONEER, Mid-Calder, has been instructed by the Trustees of the late Mr. Humphrey Graham, to SELL by AUCTION, on THURSDAY and FRIDAY, March 4 and 5, the extensive COLLECTION of CONIFERÆ and other TREES and SHRUBS, now growing at Belstane, in the Home Nursery and Plantations.
These consist of many thousands of fine symmetrical specimens of all sizes from 1 to about 20 feet in height, comprising most of the recently-introduced and other rare kinds; and, having been reared in an exposed altitude, averaging about 800 feet above the level of the sea, their hardiness is fully tested, and their adaptation for Transplanting insured, so that unprecedented facilities are offered by this Sale to parties proposing to add to their Collections, or to such as may be desirous of producing immediate effect in the embellishment of their Grounds.
Belstane is about 12 Miles west from Edinburgh and 2 Miles from the Mid-Calder Station, on the Caledonian Railway, and to which Station Trains now run—From Glasgow at 6 and 7.30 A.M.; returning 4.5, 4.36, and 5.25 P.M. From Edinburgh, 10.10, 10.20 A.M., and 1 P.M.; returning 3, 4.21, and 5.50 P.M.
Sale to commence on arrival, at Belstane, of Passengers by 10.20 Train from Edinburgh.
An Omnibus will be in waiting at the Mid-Calder Station on the arrival of the 7.30 Train from Glasgow, and 10.20 Train from Edinburgh, to take parties proposing to attend the Sale to Belstane. The Omnibus will return from Belstane in time for 5.25 Train for Glasgow, and 5.50 Train for Edinburgh.
Arrangements are being made for supplying Matting and other materials to enable purchasers to pack the plants at Belstane, and to have these conveyed to the Mid-Calder Station at moderate rates of charge. From the Mid-Calder Station there is communication by Railway all over the kingdom.
Catalogues containing full particulars are now ready, and may be obtained from Mr. A. DONALD, Belstane, Kirknewton; Mr. GEORGE BROWNLEE, Mid-Calder; Messrs. A. & A. CAMPBELL, W.S., 22, Dublin Street, Edinburgh; at the Offices of *The Farmer* Newspaper, 150, Fleet Street, London, and India Buildings, Edinburgh; and at the Office of the *Glasgow Herald*, Glasgow.—Mid-Calder, Feb. 15.

Siddington House, Cirencester.

IMPORTANT SALE OF FIRST-CLASS SHORTHORNS.

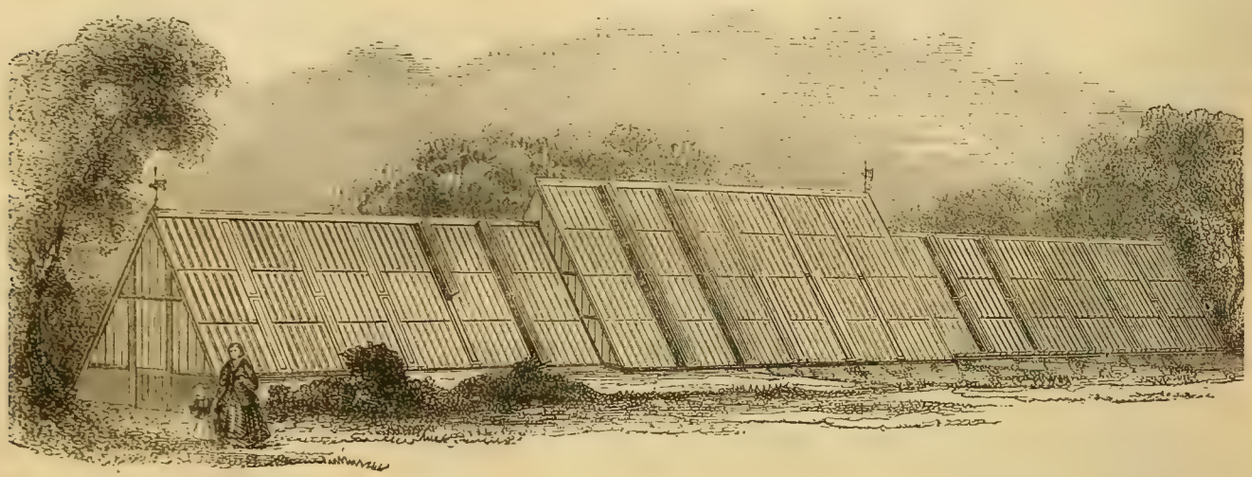
MR. STRAFFORD is favoured with instructions to announce for SALE by AUCTION, without reserve, on THURSDAY, the 22d of April next, about FORTY HEAD of FIRST-CLASS SHORTHORNS, belonging to Edward Bowly, Esq., of Siddington House, Cirencester, which have been long and carefully bred from the most fashionable strains, and include the "Musical" family, as well as part of the "Siddingtons" and other good sorts, with ten very superior young Bulls. Prominent amongst the sires is the 7th Duke of York (17,754), and from dams by 4th Duke of Oxford (11,387), long used at Siddington, as well as other famed Bulls of Kirklevington blood. The Cows and Heifers are chiefly served by 2d Duke of Caro (21,576), and 3d Duke of Waterloo (23,801). The whole will be found in fine health, and well worthy the attention of purchasers.
Catalogues with Pedigrees will shortly be issued, and further particulars given in future advertisements.
London: 13, Euston Square, February 27.

SIR J. PAXTON'S HOTHOUSES FOR THE MILLION

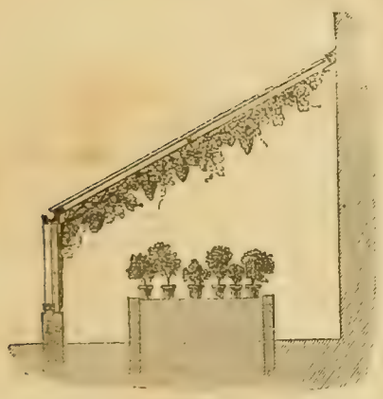
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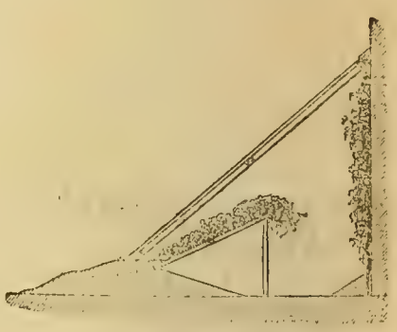
VIEW OF SPAN-ROOF RANGE,
100 feet long, centre 25 feet wide, and wings 22 feet, as Orchard-House, Vineries, &c.



SECTION OF
ORDINARY OLD-FASHIONED LEAN-TO GREENHOUSE.



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CHEAP PATENT SPAN-ROOF,
as Greenhouse or small Orchard-House.
10 to 16 feet wide, at 16*s.* to 24*s.* per foot run.



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for covering Peach Walls, &c.

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Estimates given to ARCHITECT'S PLANS and SPECIFICATIONS; also for HEATING APPARATUS fixed complete anywhere in the United Kingdom.

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PLAIN HIPPED CONSERVATORY,
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Free on application, and Views of Ornamental Conservatories, Winter Garden, &c.

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"A HANDBOOK of VINE and FRUIT TREE CULTIVATION," by S. HEREMAN, Chatsworth. Third Edition. Post Free, 1*s.* 1*d.*

Editorial Communications should be addressed to "The Editor," Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by JAMES MATTHEWS, at the Office of Messrs. HARRISON, EVANS, & Co., Lombard Street, Precinct of White friars, City of London, in the Co. of Middlesex, and Published by the said JAMES MATTHEWS, at the Office, No. 41, Wellington street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, February 27, 1869.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 10.—1869.] SATURDAY, MARCH 6. {Price Fivepence. {STAMPED EDITION, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.
FIRST SHOW of HYACINTHS and SPRING FLOWERS, on SATURDAY, March 13. Doors open at Two. Band of Royal Horse Guards from Three. Tickets of all principal Musicsellers, and at the Gardens (bought before 13th). Fellows' Friends, 2*s.* 6*d.*; Public, 3*s.* 6*d.*; or on the day, 5*s.* Mr. WM. PAUL'S HYACINTHS, &c., will remain on Exhibition daily from March 13 to 20.

ROYAL BOTANIC SOCIETY GARDENS, Regent's Park.—EXHIBITIONS of SPRING FLOWERS, MARCH 16 and 17, APRIL 27 and 28; SUMMER EXHIBITIONS, MAY 19 and 20, JUNE 30, and JULY 1. Tickets: price—Spring Exhibitions, 2*s.* 6*d.*; Summer Exhibitions, 4*s.* each. To be had on the Orders of Fellows of the Society. Schedules of Prizes for both Exhibitions can now be had.

CRYSTAL PALACE, SEASON 1869.
FLOWER SHOW ARRANGEMENTS.
The FIRST GREAT FLOWER SHOW, SATURDAY, May 15.
The SECOND GREAT FLOWER SHOW, SATURDAY, June 5.
The GREAT ROSE SHOW, SATURDAY, June 19.
By order, I. WILKINSON, Superintendent.

Crystal Palace Spring Flowers.
MESSRS. CUTBUSH AND SON'S GREAT SHOW of HYACINTHS and other SPRING FLOWERS will commence THIS DAY (SATURDAY), and will be continued DAILY until March 19.

HORTICULTURAL SOCIETY of LIVERPOOL.—The SEVENTH GREAT ANNUAL EXHIBITION will be held in ST. GEORGE'S HALL on WEDNESDAY, March 17. ENTRIES CLOSE MARCH 13. For Schedules, &c., apply to R. WILSON KER, Hon. Sec., 6, Bassett Street.

GRAND NATIONAL HORTICULTURAL EXHIBITION, 1869, to be held at MANCHESTER, MAY 14 to 21. Schedules are now ready, and may be obtained on application to the undersigned. BRUCE FINDLAY.
Botanic Garden, Manchester.

ADAM FORSYTH'S CATALOGUE of New and Choice CHRYSANTHEMUMS for 1869 is now ready; containing also a practical Treatise on their Cultivation. Forwarded to all applicants for one stamp.
Brunswick Nursery, Stoke Newington, N.

GOLDEN CHAMPION GRAPE.—Plants are now being sent out of this extraordinary Grape, price 21*s.* and 42*s.* each. OSBORN & SONS, Fulham Nursery, London, S.W.

GRAPES the FIRST YEAR.—8 bunches for 7*s.* 6*d.*; 12 bunches for 10*s.* 6*d.* The finest Canes ever offered.
R. TANTON, F.R.H.S., Epsom Nurseries, Surrey.

Pines.
B. S. WILLIAMS has all the best kinds, in splendid condition, warranted clean. Prices on application.
B. S. WILLIAMS, Seed Merchant and Nurseryman, Upper Holloway, London, N.

Grape Vines.
B. S. WILLIAMS' STOCK this season is remarkably fine, and in good condition for sending out. Kinds and prices can be had on application.
B. S. WILLIAMS, Seed Merchant and Nurseryman, Upper Holloway, London, N.

Mrs. Pince's Black Muscat Grape.
J. MEREDITH is now prepared to execute orders for this fine Grape. CANES, fit for immediate planting, from 10*s.* 6*d.* upwards.
The Vineyard, Garston, near Liverpool.

Royal Ascot or Perpetual Vine.
MESSRS. JOHN STANDISH AND CO. are now selling fine strong plants of this extraordinarily productive VINE at 21*s.*, 42*s.*, and 63*s.* each.
Royal Nurseries, Ascot, Berks.

VINES, from Eyes, 2-yr. old, strong Fruiting Canes, 10*s.* 6*d.*; choice of 15 varieties, warranted to fruit this season. Do. do. do., smaller, 7*s.* 6*d.* each.
Do. for planting, 5*s.* each; do. smaller, 3*s.* 6*d.* each.
J. PEED, Effra Nursery, Brixton, S.

MELON PLANTS.—Golden Perfection, strong. CUCUMBER PLANTS.—Telegraph.
Both may be depended upon.
A. WATKINS, Hockerill, Bishop Stortford.

Pyramidal Cherries, extra fine, for Gardens.
WM. WOOD AND SON have a magnificent stock of the above to offer. The Pyramid Cherries are especially fine.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LIST of these varieties from Mr. WEBB, Calcot, Reading.

New Catalogue of Fruits.
THE ORCHARDIST, 256 pages, describing upwards of 2000 Fruits, with Cultural Observations and Notes, free by post for 18 stamps, on application to J. SCOTT, Merriott, Somerset.

JOHN STANDISH AND CO.'S ILLUSTRATED CATALOGUE of NEW and RARE PLANTS, HARDY TREES, CONIFERÆ, SHRUBS, &c., for the Spring of 1869, is now ready, and will be sent post free on application.
Royal Nurseries, Ascot, Berks.

NEW ROSES of 1869.—All the best varieties; 2000 fine strong plants. DESCRIPTIVE LIST on application.
JOHN CRANSTON, Nurseries, King's Acre, Hereford.

EXTRA STRONG ROSES, in pots.—Several thousand Tea-Scented, Noisette, and Hybrid Perpetual varieties, together with the best NEW ROSES of 1868.
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To the Trade.—Dwarf Roses.
HUSSEY AND SON beg to offer the above, all HYBRID PERPETUALS on Manetti, at 40*s.* per 100.
Mile End Nursery, Eaton, Norwich.

"Mr. PAUL'S Roses * * * are things to see once and dream of for ever."—*Athenæum.*
WM. PAUL begs to announce that his CATALOGUE of ROSES is now ready, and will be forwarded free on application.
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New Roses for 1869.
JOHN FRASER, Lea Bridge Road Nurseries, London, N.E., begs to offer fine healthy Plants of the best NEW ROSES for 1869. A DESCRIPTIVE LIST may be had on application.

FIVE THOUSAND PLANTS of the best NEW ROSES of 1869. Stronger or finer plants cannot be produced in the Trade. DESCRIPTIVE CATALOGUES are now ready.
WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

Roses—Gladioli.
CHARLES VERDIER, Fils, NURSERYMAN, 12, Rue Dumeril, Paris, still has a very large assortment of the above, at the lowest prices.

To the Trade.—Gladiolus Brenchleyensis & Tuberoses
JAMES CARTER AND CO. have a large stock of very fine Bulbs. Price on application.
237 and 238, High Holborn, London, W.C.

GLADIOLI SEEDLINGS (Mixed).—Beautiful Flowers equal to any collection, of all colours. Strong Flowering Bulbs, 7*s.* per 100; 3*l.* 4*s.* per 1000.—Apply to LEVEQUE ET FILS, Nurserymen, 132 and 134, Boulevard de l'Hôpital, Paris.

VERBENAS.—Strong well-rooted plants, of all the leading varieties, 6*s.* per 100, or £2 10*s.* per 1000.
HENRY SURMAN, Florist, High Street, Witney, Oxon.

Verbenas, Verbenas.
ALL the LEADING VARIETIES of 1868, also Purple, White, Scarlet, and Pink, with plenty of Cuttings, at 2*s.* per doz.; Small Plants, 6*s.* per 100, or £2 10*s.* per 1000.
PHILIP LADDS, Nursery, Bexley Heath, Kent.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.—Mr. WEBB, Calcot, Reading.

WANTED, a good Collection of POLYANTHUS roots, Double Lilac PRIMROSES, and Double POLYANTHUS, PANSIES, and the Yellow AURICULA. State price per dozen.—Address A. Z., Post Office, Ampthill, Beds.

DAHLIA ROOTS, 1-yr. old, in 36 good varieties, for 12*s.*, package free. Prunus albo-pleno, well set with bloom, 9*s.* per dozen, package free.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

Lilium auratum.
SUTTON AND SONS can supply very fine BULBS of the above splendid Lily, at from 2*s.* 6*d.* to 10*s.* 6*d.* each.
Royal Berks Nurseries, Reading.

Pelargoniums for the Million.
JAMES HOLDER can supply strong Plants of the above. Forty plants, distinct sorts, [illegible] 25*s.*; 30 sorts for 20*s.*, or 20 sorts for 15*s.*, hamper and package included.
Crown Nursery, Reading.

CAMELLIAS WANTED.—Large [illegible] Hume's Blush, and Fimbriata, 3 feet high, and well furnished.
J. & R. THYNE, Glasgow.

TREE PÆONIA, fine plants, with [illegible] 4 bloom-buds, 1½ to 2 feet, 24*s.* per dozen; 2 to 2½ [illegible] 4 to 6 buds, 36*s.* package free.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

Extra Stock.—Beautiful Specimens.
THUJA AUREA, 3½ feet high, [illegible] et diameter.—F. ALLMAN, The Nurseries, Horsham, Sussex.

THE GOLDEN ARBOR-VITÆ, THUJA AUREA.—Fine specimen plants, 2½ feet high, and [illegible] through, will be offered at very reduced prices. Apply to
WM. WOOD & SON, Maresfield, near Uckfield, Sussex.

SUBTROPICAL GARDENS.—The [illegible] st superb plant for Bedding arrangements is ECHEVERIA METALLICA. Stock plants, 2*s.* 6*d.* each; seed, per packet, [illegible].
R. TANTON, F.R.H.S., Epsom Nurseries, Surrey.

ALLAMANDA WARDLEIANA.—[illegible] is magnificent plant will be sent out on the 1st of March next, at 21*s.* each.
A Coloured Plate by Andrews, taken in [illegible] mber, post free for 13 stamps.—R. TANTON, F.R.H.S., Epsom Nurseries, Surrey.

To the Trade and Others.
PALMS.—Orders now booked. Sorts and prices on application to
HOOPER & Co., Covent Garden, London, W.C.

SCOTCH FIR, native [illegible]-yr. Seedlings. Cheap to the Trade
WILLIAM SMITH & SON, Seedsmen, Aberdeen.

NATIVE SCOTCH FIR, Transplanted and Seedling. For trade prices, apply
HOWDEN BROTHERS, Inverness, N.B.

STRONG 2-yr. SEEDLING THORNS.—Special low prices upon application.
JAMES DICKSON & SONS, Newton Nurseries, Chester.

FOREST TREES and SHRUBS.—CATALOGUES of the above for the present season [illegible] ow be had, post free, upon application.
PETER LAWSON & SON, Edinburgh and London.

STRONG TRANSPLANTED QUICK, 10*s.*, 20*s.*, and 30*s.* per 1000; £40, £80, and £120 per 100,000. Samples containing 100 may be had on receipt of a remittance.
JOHN CATTELL, Nursery and Seed Establishment, Westerham, Kent.

CARTER'S FARM SEEDS.—See large Advertisement, p. 246 of this day's *Gardeners' Chronicle.*
SEED GROWERS, MERCHANTS, and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

EVERY GARDEN REQUISITE KEPT in STOCK at
CARTER'S New Seed Warehouse, 237 and 238, High Holborn, London.

A SPECIAL PRIZE MEDAL, PARIS, 1867, was AWARDED to JAMES CARTER & Co., 237 & 238, High Holborn, London, W.C., for GRASS SEEDS, supplied for the Exhibition Grounds.

PARIS, 1867. SUTTONS' GRASS SEEDS for ALL SOILS. A PREMIER PRIX SILVER MEDAL for GARDEN SEEDS, GRASSES, and GRASS SEEDS, was Awarded to SUTTON AND SONS, SEEDSMEN to the QUEEN, Reading, Berks.

GLOXINIAS, erect and drooping, 2-yr. old bulbs, free by post, in 12 choice named sorts, 8*s.*; 24 sorts for 15*s.*
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

B. S. WILLIAMS' DESCRIPTIVE CATALOGUE of FLOWER, VEGETABLE, and AGRICULTURAL SEEDS, &c., is now ready, post free to all applicants.
Victoria and Paradise Nursery, Upper Holloway, London, N.

NEW and GENUINE AGRICULTURAL and GARDEN SEEDS.—Special prices and advantageous offers of above on application to
ALFRED LEGERTON, Seed Merchant, 5, Aldgate, London, E.

NEW and GENUINE AGRICULTURAL and GARDEN SEEDS.
Special prices and advantageous offers on application to
JAS. FAIRHEAD & SON, Seed Merchants, 7, Borough Market, London.

Agricultural and Garden Seeds.
H. AND F. SHARPE'S SPECIAL PRICED LIST of HOME-GROWN SEEDS is now ready, and may be had on application.
Seed Growing Establishment, Wisbech.

New Seed Establishment,
4, RED LION STREET, ST. STEPHEN'S, NORWICH.
D. McEWEN, 22 years Managing Assistant to the late Mr. J. W. Ewing.

SEEDS, SEEDS, SEEDS. — Genuine unadulterated and first quality for the Kitchen Garden, Farm, and Flower Garden. Imported Collections in the original wrappers.
DICK RADCLYFFE & Co., Florists' Seedsmen, &c., 129, High Holborn, W.C.
CATALOGUES post free on application.

Mangel Wurzel Seed.
JOHN SHARPE can offer on good terms, from highly selected Stocks, and his own growing this year.
Bardney Manor, Lincoln.

Mangel and Kohl Rabi Seed.
MR. S. A. DAINTREE, of Fendrayton, St. Ives, Hunts, has a quantity of LONG RED and LONG YELLOW MANGEL and GREEN KOHL RABI for Sale, to the Trade, at very moderate rates; of his own growth and selection.

ASPARAGUS PLANTS, extra fine and strong, 2, 3, and 4-yr., at moderate prices.
WM. WOOD & SON, Nurseries, Maresfield, near Uckfield, Sussex.

CUCUMBER PLANTS, Wholesale and Retail.—Walkling's Prolific, Telegraph, and other sorts.
Choice TRICOLOR GERANIUMS, by the dozen or 100.
G. WALKLING, Nurseryman, High Road, Lewisham, S.E.

JERUSALEM ARTICHOKES.
Price per cwt. or per ton on application to
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THOMAS AYRES, SEEDSMAN, Biggleswade, Beds, has to offer GARDEN and CATTLE CABBAGE PLANTS. Price on application.
N.B. Also One Ton and a-Half of EARLY GIANT KING POTATO.

POTATOS.—Coldstream Early, Wheeler's Milky White, Fraser's Early, and Walker's Regents, at moderate prices per ton or cwt.
WILLIAM SMITH & SON, Seedsmen, Aberdeen.

SUTTONS' POTATOS for PLANTING, carriage free.

POTATOS for the EARLY CROP.

POTATOS for the MAIN CROP.

POTATOS for the LATE CROP.
Royal Berks Seed Establishment, Reading.

The Best New Potato for 1869 is
SUTTONS' BERKSHIRE KIDNEY, 5*s.* per peck, 18*s.* per bushel, carriage free.
SUTTON & SONS, Royal Berks Seed Establishment, Reading.

POTATOS.—Handsworth Early Round.—Price on application to
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POTATOS. — Early Dalmahoy and Fluke, nice selected Seed, about 50 tons, to offer on reasonable terms.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

PATERSON'S VICTORIA POTATOS, the best eaters, the best keepers, and very prolific, raised before the rains. Price on application to
Mr. PEARCE, Measham, Atherstone.

SEED POTATOS.—Rivers' Royal Ashleaf, Early Dalmahoy, Myatt's Early Prolific, and all the finest early and late varieties, free from disease, excellent in quality, and at moderate prices. For Special Priced Lists apply to
H. & F. SHARPE, Seed Growers, Wisbech.

CATTELL'S ECLIPSE BROCCOLI, the hardiest and latest White Broccoli in cultivation, obtained the First Prize at the International Horticultural Exhibition, South Kensington, May, 1866. Price per half-ounce packet, 1*s.* 6*d.*, free by post.
JOHN CATTELL, Nursery and Seed Establishment, Westerham, Kent.

The Longstander Lettuce.
DAVID GOLD McKAY begs to offer SEED of this first-class sort. It is beautifully white, crisp, compact in growth, and distinct from any other Lettuce. A very desirable variety. Per packet, 1*s.*
Seed Establishment, Sudbury, Suffolk.

GARDENERS' CHRONICLE NEWSPAPER PENNY

Stocks, Stocks, Stocks.

B. S. WILLIAMS has much pleasure in offering carefully selected SEED of the SUPERB EAST LOTHIAN INTERMEDIATE STOCK, feeling sure, from personal observations of several years, that it is without question the finest Strain of Intermediate Stock extant. The colours are Purple, Scarlet, and White. The two first are remarkably brilliant, and the latter very pure. They produce immense branched spikes of large double flowers, and are admirably adapted for ribbon borders and general bedding purposes; indeed, the effect which can be produced by these three varieties in both spring and autumn gardening is not surpassed by any of the new popular plants. If sown early in March, and transplanted in May to their blooming places, the amount of double flowers produced, and the grand display they make, is truly surprising. For either flower gardening or pot culture they are unapproachable, and cannot be too strongly recommended. An assortment of three colours (Scarlet, Purple, and White), 2s. 6d.

B. S. WILLIAMS, Victoria and Paradise Nursery, Upper Holloway, N.

LUCOMBE, PINCE, AND CO. call special attention to the magnificent display of rare and choice FLOWERING PLANTS in their SHOW and CAMELLIA HOUSES, and respectfully invite an early inspection of them, and also of their unrivalled stock of HARDY TREES and SHRUBS.

CUT FLOWERS for decoration carefully packed and sent to any distance. WEDDING and other BOUQUETS.

A carefully selected stock of VEGETABLE and FLOWER SEEDS, at extremely low prices.

Exeter Nursery, near Exeter. Established 1720.

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GEORGE EDWARDS' COLLECTION of the above flowers contains all the best varieties in cultivation, and he is now sending out, in good plants,

Selections of 12 Pairs, 6 of each, for 20s.
" " " " 16s.
" " " " 12s.

Reference or remittance from unknown correspondents.
Clarence Nurseries, Haxby Road, York.

NEW IMPORTED FLOWER SEEDS.—20 varieties TRUFFAUT'S PÆONY ASTER; 12 do. Dwarf CHRYSANTHEMUM do.; 6 do. ROSE do.; 6 do. CROWN do.; 24 do. Dwarf GERMAN TEN-WEEK STOCKS; 20 do. Large Flowering do. do.; 6 do. BROMPTON or WINTER do.; 10 do. Double WALLFLOWER. The above, or any less number of varieties, at 2d. each, or in mixed packets, 3d. and 6d. each. The seeds are of the very highest quality, as testified by numbers of growers in all parts of Great Britain, during many past seasons. All flower seeds in packets post free. CATALOGUES free on application.

JAMES TYNAN, Importer of Continental Seeds, 68, Great George Street, Liverpool.

W. GROVE has to offer a few thousand strong LARCH, also GERANIUMS—Tom Thumb and Punch at 8s. per 100; do. Bijou and Rebecca, at 11s. per 100. CALCEOLARIA—Aurea floribunda, Yellow Gem, Kayll, and Prince of Orange. The above are strong autumn-struck plants.

Tupsley Nursery, Hereford.—March 4.

VARIEGATED PELARGONIUMS.

Louisa Smith	Miss Watson	Caroline Longfield
Countess Tyrconnel	Spanish Beauty	Lady of Shallot
Madeline Schiller	Dawn	Princess of Wales
Italian Beauty	Queen Victoria	Glen Eyre Beauty

21s.

CASHON & SON, Gravel Walk Nursery, Peterborough.

Cheap Tricolor Geraniums.

ALFRED FRYER offers 50,000 fine Plants, at the following low prices for cash. Package free.

LADY CULLUM, 13s., 18s., and 21s. per dozen.
SOPHIA DUMARESQUE, 7s., 10s., and 13s. per dozen.
SUNSET, 5s., 6s., and 7s. per dozen.
MRS. POLLOCK, 3s. 6d., 5s., and 6s. per dozen.
MRS. BENYON, 5s., 6s., and 7s. per dozen.

Remittance requested from unknown correspondents.
Address, ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

PELARGONIUMS.—Gloire de Nancy, double, nice established plants, 12 for 5s., 25 for 10s.; Mrs. Pollock, 12 for 4s., 25 for 7s., 50 for 13s. 6d., 100 for 20s., package free. Geraniums of Scarlet, Nosegay, and Zonal, out of cutting pots, well rooted plants, in 60 sorts, including Tom Thumb, David, Tom Thumb, Adonis, Aurora, Christine, Helen Lindsay, Junon, Meteor, Napoleon, Rose Queen, Scarlet Globe, Cybister, Firebrand, Ratazzi, Rival Nosegay and Stella, Indian Yellow, Donald Beaton, Lord Palmerston, &c., our selection, from 6s. to 8s. per 100, package included. Special prices for quantities, as the stock is very large.

H. & R. STIBBARD, Skerton Nurseries, Leicester.

CHOICE VARIEGATED GERANIUMS.

Admiration	Lady Cullum	Princess Alice
Arthur H. Wills	L'Elegante	Refulgens
Beauty of Cauldendale	LittleGoldenChristine	Silver Star
Beauty of Ribbledale	" Spread Eagle	Sophia Cusack
Compactum	Louisa Smith	Sophia Dumaresque
Crystal Palace Gem	Model	Sunset
Her Majesty	Perilla	The Sultan
Italia Unita	Princess Alexandra	Viceroy

The above for 24s., good plants, in 3-inch pots, package included; or may be had by the dozen, 100, or 1000, at low prices. A LIST, with prices, of all the best and new Variegated and other Geraniums may be had on application to

WM. POTTER, Sissinghurst, Staplehurst, Kent.
The Trade supplied.

F. AND A. SMITH invite the attention of intending purchasers of TRICOLOR and BICOLOR GERANIUMS to their very extensive collections in each class. The plants are now in fine colour, and will well repay a personal visit. They would especially mention the following attractive varieties:—

GOLDEN TRICOLORS.—Earl of Derby, Jetty Lacy, King Marvelous, Preeminent, Refulgens, Sunray, &c.

SILVER TRICOLORS.—Andromeda, Duchess of Sutherland, Mrs. Dombrain, Perl, Queen Mab, &c.

BICOLORS.—Bullion, Compacta, Combatant, Gladiator, Golden Rule, Puritan, Standard, &c.

ZONALS.—Beauty of Dulwich, Circle, Crimson Perfection, Favourite, Hebe, Little Excellent, Sunnyside, &c.

CATALOGUES, containing full descriptions of these and other beautiful novelties, may be had on application.

The Nurseries are within a few minutes' walk of the Lower Norwood Station (Crystal Palace line) and the Dulwich Station (London, Chatham, and Dover Railway).

The Nurseries, West Dulwich, S.E.

GEO. SMITH begs to call the attention of the Readers of the *Gardeners' Chronicle* to his splendid SEEDLING PELARGONIUMS, which have taken First-class Certificates. G. S. offers them with the greatest confidence as first-class additions, viz.:—

NOSEGAY GERANIUMS.

LIZZIE (G. S.).—A novel-coloured and desirable variety, having salmon-coloured flowers, suffused with orange in the centre, dashed with ... at the tips. Quite new in colour, and a fine acquisition to the Nosegay class. Fine habit; foliage heavily zoned. Awarded First-class Certificate at the Royal Horticultural Society. Plants 7s. 6d. each. Where six are ordered seven will be sent, and where 12 are ordered 15 will be forwarded.

MASTERPIECE (G. S.).—This noble flower is of novel colour, the pips large, with broad crimson round the centre; the edges of the young flowers are paler pink; trusses large, and globular; habit excellent; zoned, extra fine habit. Awarded a First-class Certificate at the Royal Horticultural Society. Plants 7s. 6d. each. Where six are ordered seven will be sent, and where 12 are ordered 15 will be forwarded.

VICTOR (G. S.).—Bright orange-scarlet flowers, large, and very double; free-blooming, and the most compact and beautiful dwarf variety yet raised. Awarded a First-class Certificate by the Royal Horticultural Society. Plants 7s. 6d. each.

*** Set of Coloured Drawings of Lizzie, Masterpiece, and Victor, faithfully represented by measurement of full size, and without any exaggeration of flower and foliage. 1s. 6d. each.

The above novelties, in good plants, to be sent out the first week in May. Usual discount to the Trade. Cash to accompany orders, payable, 226 Hornsey Road, N., from unknown correspondents.

Tollington Nursery, Hornsey Road, Islington, London, N.

CYCLAMEN PERSICUM (HYBRIDS).

B. S. WILLIAMS

HAS GREAT PLEASURE IN OFFERING

SEEDS OF HIS SUPERB VARIETIES OF CYCLAMENS,

Which are much superior to those sent out by him last season, being saved from the plants exhibited by Mr. Wiggins, at the Meeting of the Royal Horticultural Society, at Kensington, on Tuesday last (Feb. 16), when they were pronounced far in advance of any ever before raised, both in point of size of flower and richness of colour, which varies from pure white to mauve and deep red; many of them in addition being beautifully striped and spotted, and deliciously fragrant. Seeds sown in heat from the present time until the end of March, can be grown to produce flowers within 12 months.

B. S. W. having made arrangements for the supply of all Mr. Wiggins' Seed, it can only be had genuine in sealed packets bearing his name and address.

In Sealed Packets, 1s. 6d., 2s. 6d., and 3s. 6d. each.

B. S. WILLIAMS, VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, N.

B. S. WILLIAMS,

NURSERYMAN AND SEEDSMAN,

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.,

Respectfully invites the Nobility and Gentry about to furnish their Conservatories, Greenhouses, Stoves, or Orchid-houses, to an inspection of his

STOCK OF MAGNIFICENT SPECIMEN PLANTS,

MANY OF WHICH ARE UNEQUALLED IN THIS COUNTRY.

THEY CONSIST OF—

The Choicest and rarest Exotics, such as TREE-FERNS, PALMS, BEAUCARNEAS, AGAVES, YUCCAS, CYCADS, ARALIAS, CAMELLIAS, AZALEAS, and all other kinds of STOVE and GREENHOUSE FLOWERING and ORNAMENTAL FOLIAGE PLANTS, proved to be worthy of cultivation.

The Large CONSERVATORY, at all times of the year well worth a visit, is now unusually gay with flowers of Camellias, Azaleas, Ericas, Epacris, the magnificent varieties of Cyclamen persicum, obtained from Wiggins' strain of seed; Williams' superb Chinese Primulas; the beautiful improved Hybrid Solanums, now laden with their large and highly ornamental berries; Hyacinths, and many other Spring Flowering Plants, also helping to make a grand floral display.

The STOVES and ORCHID-HOUSES are also very attractive and interesting just now, with blooms of Odontoglossums, Cypripediums, Cœlogynes, Lycaste Skinneri, Phalænopsis, and many other kinds.

The COLLECTION of MEXICAN PLANTS is surpassed only by that of Kew Gardens.

All NEW PLANTS of sterling merit are added to the Collection as soon as procurable, and may be seen here, the inspection of which would alone repay a visit.

In May will be published,

A CATALOGUE OF NEW AND RARE PLANTS FOR 1869

POST FREE TO ALL APPLICANTS.

The "Favourite" Omnibuses leave Victoria Nursery every seven minutes for the City and London Bridge, the Strand and Victoria Station, and for Regent Street, the West End, and Brompton.

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

BARR & SUGDEN'S

(12, KING STREET, COVENT GARDEN, LONDON, W.C.)

NEW SEEDS READY TO SEND OUT.

NEW DESCRIPTIVE SPRING CATALOGUE of CHOICE SEEDS ready, and may be had free by intending purchasers. The Catalogue embraces every Novelty and Speciality in Flower and Vegetable Seeds worthy of notice, with a Special List of nearly 400 sorts of ALPINE and HERBACEOUS PERENNIALS, which have been saved from one of the most choice Collections in Europe; and the most extensive LIST of GLADIOLI offered, embracing all the new kinds. Also (offered for the first time in this country) a SPECIAL LIST of NEW TABLE MAIZE, the most highly esteemed varieties of those cultivated by our American Cousins, who use the green cobs as one of their most popular Vegetables: and as, in this country, they will come into use when the supply of Green Peas is becoming short, they will be found an agreeable substitute for these. The late Judge Haliburton (Sam Slick), when residing at Isleworth, used this Vegetable when in season daily. The Rev. T. C. Bréhaut, of Guernsey (Her Majesty's Commissioner at the Paris Exhibition of 1867 to report on the present state of Fruit Culture on the Continent), through the American Commissioners received the varieties of Maize referred to and enumerated in our Catalogue, and has placed the entire stock he raised last year in our hands for distribution, feeling confident that the success which has attended their cultivation in the Island of Guernsey warranted him in introducing them into England for domestic use.

BARR & SUGDEN,

THE METROPOLITAN SEED, BULB, AND PLANT WAREHOUSE,

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COLLECTIONS of VEGETABLE SEEDS, 12*s.* 6*d.*, 15*s.* 6*d.*, 21*s.*, 31*s.* 6*d.*, 42*s.*, 63*s.*, 84*s.*, and 105*s.*
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COLLECTIONS of HERBACEOUS and ALPINE SEEDS, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, 15*s.*, 21*s.*, and 30*s.*
COLLECTIONS of GLADIOLI, 5*s.* 6*d.*, 8*s.* 6*d.*, 10*s.* 6*d.*, 13*s.* 6*d.*, 21*s.*, 30*s.*, 42*s.*, and 63*s.*
GLADIOLI, by the Hundred, 10*s.* 6*d.*, 15*s.*, 21*s.*, 25*s.*, and 30*s.*
COLLECTIONS of TABLE MAIZE, 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, and 10*s.* 6*d.*
COLLECTIONS of ORNAMENTAL GOURDS, 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, 10*s.* 6*d.*, 15*s.*, and 21*s.*
COLLECTIONS of ORNAMENTAL GRASSES for TABLE DECORATION, &c., 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, and 10*s.* 6*d.*
COLLECTIONS of SEEDS for SUBTROPICAL GARDENS, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, and 10*s.* 6*d.* [and 10*s.* 6*d.*
COLLECTIONS of CLIMBERS, CARNATIONS, PELARGONIUMS, HOLLYHOCKS, STOCKS, ASTERS, BALSAMS, ZINNIAS, LANTANAS, EVERLASTINGS, AQUATICS, PALMS, &c. Full particulars will be found in the DESCRIPTIVE SPRING CATALOGUE, which will be sent Free to intending purchasers.

BARR AND SUGDEN, 12, KING STREET, COVENT GARDEN, W.C.

ALPINE AND HERBACEOUS PLANTS.

JAS. BACKHOUSE & SON'S

NEW CATALOGUE (34 pp.) IS NOW READY,

AND WILL BE SENT FOR SIX STAMPS, AND FREE TO PURCHASERS.

It contains brief instructions respecting Culture, and describes many fine additions of great interest and beauty. Amongst these may be named CENTAUREA UNIFLORA, DIANTHUS NEGLECTUS, ADONIS PYRENAICA, IBERIS GIBRALTARICA VERA, LITHOSPERMUM GASTONI, IRIS TENAX, PRIMULA GLUTINOSA and GLAUCESCENS, SENECIO ARGENTEUS, SILENE VIRGINICA, &c.

YORK NURSERIES.—March 6.

CHOICE PRIMULA SEEDS.

B. S. WILLIAMS

BEGS TO CALL SPECIAL ATTENTION TO HIS SUPERB STRAIN OF THIS

UNIVERSALLY ADMIRED WINTER AND SPRING FLOWERING PLANT.

He can with confidence offer it as being unequalled in cultivation.

Plants from this Seed have always been awarded First Prizes wherever exhibited. B. S. W.'s strain of Primula is so well known to all the principal gardeners in the three kingdoms that testimonials are unnecessary.

In sealed packets, Red, White, or Mixed, 2s. 6d., 3s. 6d., and 5s. each.

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

DIPLADENIA AMŒNA.

J. W. WIMSETT

HAS GREAT PLEASURE IN ANNOUNCING THAT HE HAS PURCHASED

THE WHOLE STOCK OF THE ABOVE BEAUTIFUL PLANT,

Raised by Mr. Tuke, Gardener to E. Nicholls, Esq., of Bramley, near Leeds, who also raised the lovely Dipladenia amabilis. A figure of the beautiful D. amœna is given in the "Florist" for April, 1868. Plants will be ready for distribution the first week in May.

Price, 1½ Guinea each.

Strong Half Specimens, 5 and 7 Guineas each.

ASHBURNHAM PARK NURSERY, KING'S ROAD, CHELSEA, LONDON, S.W.

Feb. 10, 1869. J. WILLS, F.R.H.S., Manager.

SEED POTATOS.

RIVERS' ROYAL ASHLEAF KIDNEY	EARLY OXFORD
MYATT'S EARLY PROLIFIC KIDNEY	,, ROUND FRAME
DAINTREE'S EARLIEST ROUND	,, GOLDEN GLOBE
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,, FOXE'S SEEDLING	PATERSON'S VICTORIA
,, FORTY-FOLD	WALKER'S EARLY REGENT

FLUKE KIDNEY.

All fine stocks, free from disease, and low in price.

APPLY TO

H. AND F. SHARPE, SEED GROWING ESTABLISHMENT, WISBECH.

TO THE TRADE ONLY.

STUART & CO., SEED GROWERS, NICE.

Warehouse and Offices, where Stock is kept for the supply of the English Trade,

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(Late of 85, Southampton Row.)

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THE FOLLOWING SPECIALITIES SUPPLIED AT THE CATALOGUE PRICE,

OR SPECIAL OFFER FOR LARGE QUANTITIES.

ECHEVERIA METALLICA.—Fresh Seed now ready to send out, in pods containing from 20 to 50 seeds, with full directions as to culture. Few plants equal this grand House-Leek for subtropical or alpine succulent gardening, or for the decoration of the Conservatory; its large massive leaves, shaded with a purplish glaucous hue, are unique.

PYRETHRUM GOLDEN FEATHER.—A valuable plant for ribands, beds, edgings, &c. Raised from seed, it retains its beautiful golden hue longer than if propagated by cuttings or divisions.

CARNATION SEED, from Florists' Flowers, in Mixture or in Collections.

PICOTEE SEED, from Florists' Flowers, in Mixture or in Collections. STUART & Co.'s Carnation and Picotee Seeds have long been noted for their large yield of fine double flowers.

PELARGONIUM SEED.—Large-flowered, Spotted, Fancy, and Diadematum, in Mixture or in Collections. The Seed we offer produces Flowers of great beauty.

PELARGONIUM (ZONAL) SEED.—Saved from the newest Variegated Tricolor and Bicolor Varieties, and from these crossed with the finest Zonals.

PRIMULA SEED.—Saved from the largest and brightest-coloured fimbriated flowers, from Fern-leaved and Double Varieties.

PINK SEED.—Saved from the choicest English varieties.

HOLLYHOCK.—Saved from English Exhibition varieties.

LOBELIA LITTLE GEM.—The prettiest of last year's novelties, flowers pure white, with clear well-defined blue margin, compact, and blooming throughout the season.

PETUNIA SEED, of exquisite quality.

CINERARIA SEED.—Saved from the choicest Florists' Flowers.

ZINNIA SEED, from magnificent double varieties.

CENTAUREA CANDIDISSIMA (RAGUSINA), warranted true, plump, well-ripened seeds.

CENTAUREA GYMNOCARPA SEED, true.

BALSAM SEED, finest double varieties.

VIOLA CORNUTA SEED, PURPLE QUEEN.—The earliest, the darkest coloured, and most profuse blooming variety.

MYOSOTIS SYLVATICA SEED, the finest Forget-me-Not for spring gardening.

ORNAMENTAL GRASSES.

SUBTROPICAL PLANT SEEDS.

MELONS.—Choice hybrid, our own raising; unequalled for their exquisite luscious flavour, fine shape, and beautiful lacing.

MELONS.—All the usual sorts in cultivation; seed saved from selected fruits only.

CUCUMBERS.—All the finest varieties in cultivation.

STUART AND CO., 5, TAVISTOCK ROW, COVENT GARDEN, W.C.

New Golden Coleus.

DOWNIE, LAIRD, AND LAING can supply the whole series raised at the Royal Horticultural Society's Gardens, Chiswick, at advertised prices, after March 16.

CATALOGUES free on application.

Stanstead Park, Forest Hill, S.E.; and at Edinburgh.

Beautiful New Coleus.

CHARLES TURNER begs to offer the following:—

PRINCESS ROYAL.—The centre of the leaves of a rich bronzy crimson, with a narrow bright yellow margin; a handsome and most effective pot plant, and a most desirable variety for bedding, being very bright and nearly an entire colour: a free grower. 7s. 6d.

ALBERT VICTOR.—Centre of the leaves browny red shaded with purplish maroon, red lines and golden margin, very distinct, and strong grower. 7s. 6d.

The above splendid varieties were selected from the large batch of Seedlings raised at the Royal Horticultural Gardens, and were considered the best of them. They obtained the highest price at the Sale, and each has received First-class Certificates. Will be sent out on March 16.

The Royal Nurseries, Slough.

New Golden Coleus.

DOWNIE, LAIRD, AND LAING, have much pleasure in offering the following beautiful and distinct novelties, which they feel assured will give every satisfaction. Each has received First-class Certificates, and will be sent out on March 16 next, at 7s. 6d. each:—

ALBERT VICTOR, a very distinct tricolored variety, the centre of the leaves being bronzy-red, stained with large blotches of deep purplish-carmine, and the golden margin is very broad, much more so than in any other of the new golden sorts; the marginal teeth are also marked out by rich carmine lines. It has a very free habit of growth.

BARONESS ROTHSCHILD, an exquisitely beautiful variety, the centre of the leaves being of a bright bronzy-crimson, without stains or blotches, margin bright golden, and the teeth beautifully marked with light carmine. In habit of growth it resembles Albert Victor.

PRINCESS BEATRICE, a charming variety, of a beautiful light golden hue, the main veins being slightly marked, and the margin entirely defined by dark crimson lines, dwarf, and fine.

PRINCESS ROYAL.—The centre of the leaves are a rich bronzy-crimson, with a narrow bright yellow margin, a handsome and most effective pot plant, and a most desirable variety for bedding, being very bright, and nearly an entire colour, a free grower.

Stanstead Park, Forest Hill, London; and Edinburgh.

New Seeds for the Garden and Farm, 1869.



ARCHD. HENDERSON'S DESCRIPTIVE and PRICED CATALOGUE of SEEDS, containing Cultural Remarks on all the most important SEEDS,

A select list of GLADIOLUS for Spring Planting,

GRAPE VINES, in Pots, an unrivalled Collection.

Also his DESCRIPTIVE CATALOGUE of GENERAL NURSERY STOCK is now ready, and may be had gratis and post free upon application.

Sion Nursery, Thornton Heath, Surrey; and at the East Surrey Seed Warehouse, College Grounds, North End, Croydon.

Hardy Scarlet, White, Puce, Rose, Salmon,

AND OTHER CHOICE NAMED RHODODENDRONS.



W. H. ROGERS, Red Lodge Nursery, Southampton, offers a large and magnificent collection of the above, nice bushy plants, full of blooming buds, £10 per 100, 30s. per dozen, or selected extra fine 3s. 6d. each. A detailed CATALOGUE may be had on application, and also of one of the finest and most extensive General Nursery Stocks in the kingdom.



DOBSONS' PRIZE and CELEBRATED FLOWER SEEDS, second to none in quality, in packets.

DOBSONS' PRIZE CALCEOLARIA, unequalled for beauty, variety, and brilliancy of colour, 1s. 6d., 2s. 6d., 3s. 6d., 5s., with directions for sowing and growing.

DOBSONS' PRIZE CINERARIA, 1s., 2s. 6d., 5s. Received 60 First Prizes in six years.

DOBSONS' PRIZE PRIMULA SINENSIS FIMBRIATA.—The rubra variety is very brilliant in colour, with double fringe. The alba is pure white, and fine fringe. Awarded First Prize and a Special Prize at Newington in 1868. Each colour separate, 2s. 6d., 5s.; mixed, 1s., 2s. 6d., 5s.

DOBSONS' PRIZE BALSAMS are a splendid strain of this fine autumn flower. 1s., 2s.

DOBSONS' CHOICE HOLLYHOCK, 1s., 2s. 6d.

DOBSONS' PRIZE POLYANTHUS, 1s., 2s. 6d.

DOBSONS' CHOICE CYCLAMEN, 1s., 2s. 6d.

DOBSONS' DOUBLE SCARLET INTERMEDIATE STOCK, 6d. and 1s. The above seeds may be had post free of

DOBSON & SONS, Seedsmen, Isleworth, London, W.

Suttons' Home-grown Seeds.

SEEDS DIRECT FROM THE GROWERS



THE BEST MEANS OF PREVENTING DISAPPOINTMENT.

SEEDSMEN TO THE QUEEN.

SUTTONS' COMPLETE COLLECTIONS for the FLOWER and KITCHEN GARDEN, carriage free.

FOR THE KITCHEN GARDEN.

No. 1 Collection, for a large garden, carriage free	£3 3 0
No. 2 Collection, for medium size do., carriage free	2 2 0
No. 3 Collection, for medium size do., carriage free	1 11 6
No. 4 Collection, for an ordinary size do., carriage free	1 1 0
No. 5 Collection, for a small do.	0 15 0
No. 6 Collection, for a very small do.	0 12 6

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No. 1 Collection, free by post or rail	£2 2 0
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Particulars of the above Collections may be had on application, and any articles not required will be excluded, and others included according to the wish of the purchaser.

PRICED LISTS of GARDEN SEEDS, GRASS SEEDS, and FARM SEEDS, post free on application.

SUTTON & SONS, Seedsmen to the Queen, Reading, Berks.

To the Trade and Others.

WANTED, a large number of the following:—HEPATICAS (Double), Angulosa, blue and red; Single, blue, mauve, red, and white. VIOLETS (Double), Blandyana, red and white; Single, Devoniensis, London, Lutes, Mauve Queen. PRIMROSES (Double), white, lilac, purple, and crimson. POLYANTHUS, florist flower, Golden Chain, Silver Chain, scarlet flower, and double dark. DAISIES, crimson, red, white, rose, and pink. AUBRIETIA GRANDIFLORA, ALYSSUM SAXATILE, IBERIS SEMPERVIRENS. Apply, stating lowest price per 100 for cash, to T. L. MAYOS, Seedsman and Florist, Lugwardine, near Hereford.

Genuine Seeds.—Carriage Paid.

B. S. WILLIAMS,
SEED MERCHANT AND NURSERYMAN,
Victoria and Paradise Nursery, Upper Holloway, London, N.

COMPLETE COLLECTIONS
OF
KITCHEN GARDEN SEEDS
To suit Gardens of various sizes,
10s. 6d., 21s., 42s., 63s., and 84s. each.

NEW and CHOICE VEGETABLE SEEDS.	Per Pkt. s. d.
WILLIAMS' IMPROVED GREEN CURLED BORECOLE..	0 6
WILLIAMS' ALEXANDRA BROCCOLI..	1 6
DELL'S FINE DARK BEET..	1 0
WILLIAMS' MATCHLESS RED CELERY	1 0
SHARMAN'S UNIVERSAL CUCUMBER (new)	1 6
TELEGRAPH IMPROVED (Woolley's variety)	1 0
WILLIAMS' PARADISE GEM MELON, scarlet flesh, of excellent flavour, and 12 days earlier than any other in cultivation (new)	2 6
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WILLIAMS' VICTORIA COS LETTUCE (new)	1 0
MALVERN HALL MELON	1 6
GOLDEN QUEEN (New Hybrid Prize) MELON	2 0
BEDFORDSHIRE CHAMPION ONION (new)	1 0
NUNEHAM PARK ONION .. .. 1s. and	1 6
CULLINGFORD'S CHAMPION MARROW PEA, an excellent cropper, and fine flavour (new) .. .. per qrt.	3 6
MACLEAN'S LITTLE GEM PEA (very early) .. .. „	2 6
LEE'S GIANT ORACH	1 0
ORANGEFIELD DWARF PROLIFIC TOMATO	1 0

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WILLIAMS' SUPERB STRAIN of PRIMULA.—B. S. W. can with confidence offer his superb strain of Primula as being the finest in cultivation.	
Red, White, or Mixed .. .. .. 2s. 6d., 3s. 6d., and	5 0
CINERARIA (Weatherill's extra choice strain) .. 2s. 6d. and	3 6
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CYCLAMEN (Wiggins' prize strain) .. 1s. 6d., 2s. 6d., and	3 6
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GERANIUM LE GRAND .. .. 1s. 6d. and	2 6
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VIOLA LUTEA (yellow flowered Violet) .. .. 1s. 6d. and	2 6
WALLFLOWER (Saunders' fine dark variety)	1 0
SALVIA ARGENTEA, a beautiful silvery-foliaged ornamental plant	1 0
DIANTHUS HEDDEWIGII DIADEMATUS fl.-pl., flowers very large, and colours most beautiful (new)	2 6
OXALIS VALDIVIANA, quite hardy, the flowers are bright yellow and sweet scented, and produced in bunches of large size (new)	1 0
PALAVA FLEXUOSA, very pretty annual (new)	1 0
MYOSOTIS AZORICA ALBA, the flowers are pure white, contrasting beautifully with the blue variety Coelestina (new) .	2 6
STOCK, EAST LOTHIAN.—This is a splendid variety, of dwarf and compact habit, producing immense spikes of bloom, and very double. They make a grand display in beds, and for ribbon borders. Per collection of three colours (Scarlet, Purple, and White)	2 6
TACSONIA VAN VOLXEMI (a beautiful Climber)	2 6
AMARANTHUS SPECIOSUS AUREUS (New Golden Princes Feather)	1 0
ANTIRRHINUM ASARINA, very beautiful for rockwork (new)	1 0
HELICHRYSUM APICULATUM (new)	1 0
MIMULUS REPENS, this is a very distinct species, the flowers are of a pale lilac-purple colour, the lower lip being prettily spotted with orange on a yellow ground (new) ..	1 0
ABRONIA ARENARIA, the flowers are of a pure waxy yellow, deliciously scented, and produced in long succession (new)	1 0
ZINNIA ELEGANS TAGETIFLORA fl.-pl. (new	1 0

B. S. W.'s DESCRIPTIVE CATALOGUE of FLOWER, VEGETABLE, and AGRICULTURAL SEEDS, is now ready; post free to all applicants.

Victoria and Paradise Nursery, Upper Holloway, London, N.

STUART MACDONALD AND CO.'S sealed collections of CARNATIONS and PICOTEES are the finest in cultivation. WHOLESALE LIST of all the new and choice Flower Seeds which S. M. & Co. alone profess to supply.
Seed Grounds—South of France.
Seed Stores—85, Southampton Row, Holborn, London, W.C.

Spring Flowers.

LEWIS S. WOODTHORPE
offers the following, cheap :—

	Per dozen.—s. d.		Per dozen.—s. d.
Violets, Queen of Violets, double white	4 0	Auriculas, finest mixed Alpines	2 6
„ King of Violets, indigo blue ..	4 0	„ Perrin's, red and single blue	3 0
„ double red, large and attractive	4 0	„ fine named varieties .	12 0
„ „ Neapolitan, very fine lilac	3 0	Calceolaria aurea floribunda	1 0
„ „ tree, true	4 0	„ Prince of Orange ..	1 0
„ single, the Czar, very large and fine	4 0	Helianthemum, or dwarf Rock Cistus	3 0
„ „ Devoniensis, fine ..	3 0	Picotees, crimson Clove, blush Bouquet Clove, and new early improved Anna Boleyn Pink	4 0
Hepaticas, double red, single pink, single red and blue	2 0	Phlox, Pentstemons, Chrysanthemus, all the best kinds of 1867	4 0
„ single mauve, new, each	1 0	Nierembergia rivularis ..	0 0
Daisies, Bacchus, Magpie, Pink Beauty, Queen of Whites, Red Rover, Rosy Gem, and others	3 0	Primroses, double white and lilac	3 0
„ gold blotched, aucubifolia	3 0	Rockets, double white and purple	3 0
Œnothera missouriensis ..	3 0	Hollyhocks, fine new named varieties	5 0

Munro Nursery, Sible Hedingham, Essex.

Scott's New Garden and Farm Seeds.

VEGETABLE SEEDS.—J. SCOTT'S stock of Vegetable Seeds is of the purest and best quality. Customers and friends who daily visit "The Seed Stores" (which have been altered and much enlarged) express their highest admiration of the appearance of the Seeds.

FLOWER SEEDS.—This department receives very special care. The seeds are saved by growers of the highest respectability, who have a world-wide reputation at stake, and are received by J. S. direct from Germany, France, all parts of England, &c., &c. The Astera which took nearly every First Prize last season at all the neighbouring and many other Shows were supplied by J. SCOTT, and large quantities of various kinds of Flower Seeds are sent to all parts of the British Isles by correspondents who speak in the most flattering terms of their choice quality. For sorts, prices, and descriptions, see J. SCOTT'S VEGETABLE and FLOWER SEED CATALOGUE.

AGRICULTURAL SEEDS.—For a full description, prices, mode of sowing, and every other particular, J. S. begs to refer all purchasers of Farm Seeds to his LIST of AGRICULTURAL SEEDS, MANGEL WURZEL, SWEDE and TURNIP of Extra Selected Stock, saved by J. SCOTT from twice-selected, transplanted roots. Large buyers liberally treated with.

POTATOS.—J. S. has for planting a large stock of Early Kidneys of sorts, Early Fortyfold, Early Dalmahoy, Milky White, Ashtop Peake, Somerset Red, Paterson's Economist, and that best of all Potatos, Paterson's Victoria. Special prices per peck, bushel, or sack, on application. See previous Advertisements.

J. SCOTT, The Seed Stores, Yeovil, Somerset.

ARTHUR HENDERSON & CO.'S

FLOWER SEED NOVELTIES FOR 1869.

Abronia arenaria.

This very pretty novelty agrees in its general habit of growth with the well-known A. umbellata, having, like that species, trailing stems, oval, entire, and somewhat fleshy foliage, and flowers in stalked umbels from the axils, but differs in the colour of its blossoms, which are of a pure waxy yellow, deliciously scented, and produced in long succession. It blooms easily first year from seed, and may therefore be treated as a half-hardy annual, but is perennial in dry soils. Per packet, 1s.

Agrostemma cœli rosea, dwarf-fringed Lilac.

A very beautiful novelty; it produces large, compact bushes 8 to 9 inches high, exceedingly floriferous, bright, violet lilac, very fresh, and so numerous as to resemble a large bouquet. Per packet, 1s.

Agrostemma, dwarf-fringed Rose.

Very pretty hardy annual, showy, and keeping in flower a long time. Per packet, 4d.

Amaranthus bicolor ruber.

Fine vigorous variegated-leaved plant, with abundant foliage, green, striped, and shaded with purplish red at the foot of the stems and branches; bright carminate scarlet, sometimes pointed yellow, and thickly set at the top. We consider this variety as one of the best variegated-leaved plants, very different from, and far more showy than an old Amaranthus bicolor. Per packet, 1s.

Amaranthus speciosus aureus

(NEW GOLDEN PRINCE'S FEATHER).

This is a seedling from the well-known purple Prince's Feather; it agrees in almost every point with the variety hitherto cultivated; but differs in a striking degree in its tint, which is of a rich golden yellow; from its distinct colour, for massing in beds or as a line in a ribbon border, it will be found invaluable. Per packet, 1s.

Arabis arenosa.

This is one of the finest spring flowers; the reason of its being so rarely cultivated is through improper treatment; sown in June, July, and August, and transplanted in September and October, about 18 inches high, it will produce in spring a very dwarf bush, about 16 inches wide, covered with a large number of flower spikes, varying from rosy white to bright rose. Per packet, 6d.

Aster Bouquet Perfection (Schilla Aster).

Exceedingly beautiful, excels all other varieties by the regularity of its habit; every plant, with its numerous full double deep flowers, forms a perfect bouquet in the shape of a pyramid. Foliage very distinct; height about 15 inches. White variety. Dark carmine with white. Per packet, 1s.

Asperula azurea setosa.

Hardy annual, most profuse blooming; it is of a dense habit, attaining an average growth of 1 foot, and covering itself with bunches of beautiful light blue flowers, which are very sweet scented, lasting a long while in perfection. Per packet, 1s.

Cheiranthus Cheiri albus plenus.

White flowered double Wallflower, very striking and beautiful, in two varieties.
I. White double branching, 1s. 6d. per packet.
II. White double branching Rocket, 1s. 6d. per packet.

Datura fastuosa Huberiana.

New varieties, mixed.

These charming novelties comprise the most beautiful variations in colours, such as white and yellow, violet and sulphur. They are most distinct and highly desirable additions. Per packet, 6d.

Delphinium formosum cœlestinum.

A soft, light sky-blue of this fine hardy variety, very beautiful. Per packet, 6d.

Dianthus barbatus nigricans

(SWEET WILLIAM).

An elegant novelty, which by its very dark character differs widely from all the other varieties yet offered. It has deep violet leaves and dark blood-red velvety flowers. Per packet, 6d.

Heartsease or Pansy.

	per pkt.	1s. 0d.
KING of the BLACKS ..		
GOLDEN BELT	„	1 6
PURE WHITE	„	1 0
VIOLET, with white edge	„	1 0
COPPER-COLOURED	„	1 0
SKY-BLUE	„	1 0

The above splendid varieties are now completely fixed, and reproduced from seed almost without sporting.

Heracleum eminens.

Hardy perennial herbaceous plant. A most beautiful ornamental foliaged plant, attaining a large size; of exquisite beauty as a single plant on lawns or in groups in parks. The beautifully delineated foliage is of great substance, densely covered with a greenish white tomentose down; very ornamental throughout the season. The flower-stems bear very umbraceous nobly-formed umbels of flowers. A rare and altogether magnificent species. 1s. per packet.

Ipomœa hederacea atrocarminea grandiflora alba marginata.

Handsome variety, with brilliant carmine flowers, edged pure white. Six Seeds, 1s. 6d.

Ipomœa hederacea grandiflora alba picta carminea.

With silver marbled leaves, heart-shaped, largely marbled with silver grey, flowers white, clotted with brilliant carmine. Six Seeds, 1s. 6d.

Ipomœa hederacea alba grandiflora.

Ipomœa hederacea grandiflora alba picta liliacea.

With silver marbled leaves, heart-shaped, largely marbled with silvery grey, white flowers, spotted with clear lilac. Six Seeds, 1s. 6d.

Ipomœa hederacea grandiflora atrocarminea intus alba.

With silvery marbled leaves, tri-lobed leaves, largely marbled silver grey, flowers dark carmine, with large white throat. Six Seeds, 1s. 6d.

Marigold, Dwarf French New Golden.

A pure golden dwarf French Marigold, very double and constant. Per packet, 6d.

Mimulus repens.

This very distinct species presents a marked contrast in its habit and foliage, as well as in the colour of its flowers, to most of the other members of this popular genus. It produces slender trailing stems, clothed with very small ovate entire foliage, and flowers of a pale lilac-purple colour, the lower lip being prettily spotted with orange on a yellow ground. It is best suited to pot culture, being a cool greenhouse plant, and produces its flowers during the summer months. Per packet, 1s.

Modiola geranioides.

An elegant little tuberous-rooted Malvaceous plant, of trailing habit, with pretty incised foliage, and light crimson flowers, each rather more than an inch in diameter, produced from the axles. Though an abundant bloomer, it is unfortunately a shy seeder in England. It has proved quite hardy in well-drained light soil, and is of the easiest culture. Per packet, 1s.

Nierembergia frutescens.

Soft-wooded shrub, from Chili, 2½ feet high, branching habit, with white lilac flowers; abundant bloomer. Per packet, 6d.

Oxalis valdiviana.

It is quite hardy, its habit is compact and good, and it throws its bloom spikes well above the foliage. The flowers are of a bright yellow, sweet scented, and produced in bunches of large size; the plant thus continuing a considerable time in bloom. Per packet, 1s.

Palava flexuosa.

This most beautiful annual is one of the finest introductions of late years, average height 15 to 18 inches, branching freely, producing in the greatest profusion its charming flowers, which are thrown well above the foliage. Its leaves are very neat and graceful, colour bright rosy pink, fading towards the centre, while the base of the sepals and petals is almost black, producing a fine contrast. Per packet, 1s.

Perilla nankinensis foliis variegatis.

The dark leaves are beautifully variegated with silvery white. Reproduced well from seed. Per packet, 1s. 6d.

Polafoxia Hookeriana.

A beautiful rose-flowering everlasting. Per packet, 6d.

Portulaca grandiflora flore-pleno

(DOUBLE PORTULACA).

Mixed seed, consisting of the finest double varieties, of the most brilliant colours, in scarlet, crimson, yellow striped, &c.; will produce two-thirds double flowers. Per packet, 1s.

Potentilla.

Fine double varieties, mixed, containing rich crimson, golden yellow, and finely mottled varieties of this fine perennial. Per packet, 1s.

Pyrethrum (Golden Feather).

This new and beautiful bedding, edging and decorative plant comes true from seed. One of the most effective and telling plants of the season. Per packet, 6d.

Solanum capsicastrum Hendersonii.

A fine seedling between Capsicastrum and Pseudo-Capsicum; a neat and beautiful plant, covered with berries of scarlet fruit, for pot culture and winter decoration; height 1½ to 2 feet. Per packet, 6d.

Stock, Anderson's Rose Intermediate.

A very dwarf free flowering variety, well adapted for growing in pots, beds, masses, or ribbonding; the habit is fine and compact. Per packet, 1s. 6d.

Tacsonia Van Volxemi.

This splendid and beautiful Climber we can offer seed of; it is one of the finest of this tribe, free to flower, of many months' continuance in bloom; colour very brilliant. Per packet, 6d.

Trachelium canescens, flesh-coloured flowers
„ „ lilac-coloured flowers.

Two pretty new varieties of this very useful autumnal garden flowering plant. Per packet, 1s.

Viola lutea.

A neat new bedding and edging plant, quite hardy, of a very compact habit, and produces its beautiful canary-coloured flowers throughout the season (rain or sunshine) in the greatest profusion. This plant has qualities adapted for bedding purposes, which when known will render it as popular and as much sought after as its lovely compeer the Viola cornuta. Per packet, 6d.

Viscaria oculata, Dwarf Perfection.

This is a remarkable fine novelty, very dwarf, 6 to 8 inches high, very bushy and compact, exceedingly floriferous; flowers rosy white, slightly shaded lilac, with a purplish stain in the centre. Per packet, 1s.

Viscaria elegans picta.

The centre of the flower is dark crimson, gradually merging into a bright scarlet, belted with a pure white margin, profusion of flowers and brilliant appearance. Per packet, 6d.

Waitzia Steetziana.

A very pretty miniature species, suitable for pots, but succeeding well in the open ground, not apt to die off as some of the other species; about 6 inches high, with comparatively large corymbs of yellow flowers. Per packet, 1s.

Wigandia vigieri.

This is one of our best large ornamental-leaved plants, equal, if not superior, in size to W. caracassana, from which it is easily distinguished by the silvery tinge of its immense leaves. Per pkt., 1s.

Zamesia americana.

This is a neat, dwarf, deciduous shrub, belonging to the Hydrangea section of the Saxifrage tribe, and attaining a height of about 3 feet. It produces opposite-ovate, serrated foliage, whitish beneath, with terminal cymes of neat white Saxifrage-like flowers. A very rare plant, being found apparently in only one locality in New Mexico, in the vicinity of the Rocky Mountains. It is perfectly hardy, and of easy culture in light soil. The seeds are small, like those of many species of Saxifrage. Per packet, 1s.

PINE APPLE PLACE, MAIDA VALE, LONDON, W.

KNAP HILL NURSERY, WOKING, SURREY.

ANTHONY WATERER

BEGS TO SUBMIT THE

FOLLOWING LIST to the NOTICE of INTENDING PLANTERS.

EVERYTHING IS WELL GROWN AND FINELY ROOTED.

In proof of which he gives the date of their last removal.

ABIES ORIENTALIS, 5, 6, 7, and 8 feet, 10*s.* 6*d.* to 21*s.* each.
" " beautiful specimens, 10, 12, and 14 feet high, 15 and 20 feet in circumference, 31*s.* 6*d.* to 63*s.* each, and upwards. Moved April, 1868.
" ALBERTUS, 5 to 9 feet, 30*s.* to 60*s.* per doz., moved April, 1868.
" DOUGLASII, 5, 6, 7, and 8 feet, 5*s.* to 10*s.* 6*d.* each, moved August, 1868.
" CANADENSIS, 4, 5, 6, 7 feet high, 18*s.* to 30*s.* per dozen.
" PUMILA
" PYGMÆA
" CLANBRASILIANA } Hundreds of these dwarf varieties of the common Spruce Fir, many are 20 and 30 years old.
" GREGORII
" EXCELSA.—The Common Spruce, 5, 6, and 7 feet high 7 to 10 feet round, moved April, 1868, 21*s.* to 30*s.* per dozen.
PICEA NOBILIS, 4, 5, 7, 8, and 10 feet high, 8 and 15 feet in circumference, 42*s.* to 147*s.* each. Hundreds of magnificent plants of the best glaucous variety. None are grafted, and all moved since March, 1868.
" NORDMANNIANA, beautiful seedling plants, 1½ to 2 feet, 30*s.* and 42*s.* per dozen.
" " 3, 4, 5, 6, and 8 feet, 10*s.* 6*d.* to 105*s.* each.
" " Splendid trees, moved August, 1868, 10 and 15 feet high, 15 to 20 feet in circumference, 7 guineas each and upwards.
" MAGNIFICA or NOBILIS ROBUSTA, 2 feet, 15*s.* each.
" " " " 2½ to 3 feet, 6 feet in circumference, 21*s* to 31*s.* 6*d.* each.
" " " " 3, 4, and 5 feet, 31*s.* 6*d.* to 63*s.* each and upwards. Mr. Waterer has hundreds of this handsome Fir, all seedlings.
" LASIOCARPA, 2 to 2½ feet, 60*s.* per dozen. {each.
" " 3 to 4 feet high, 8 and 9 feet in circumference, 21*s.* and 31*s.* 6*d.*
" " 6, 6, 7, and 8 feet high, 10 and 12 feet in circumference, 42*s.* and 63*s.* each; hundreds of them. [42*s.* each.
" PINSAPO, 3, 4, and 5 feet high, 9 and 10 feet round, 7*s.* 6*d.* to
" " 7, 8, and 10 feet high, 63*s.* to 147*s.* each, moved August, 1868.
PINUS AUSTRIACA, moved April, 1868, 3 feet, £5 per 100.
" BENTHAMIANA, moved April, 1868, 2 to 2½ feet, 30*s.* per doz.
" CEMBRA, 8 to 10 feet, 10 and 12 feet round, moved 1863, 10*s.* 6*d.* to 21*s.* each.
CEDRUS ATLANTICA, 5 to 6 feet, 42*s.* to 60*s.* per doz., moved 1868.
" " 7 to 8 feet, 84*s.* per dozen, moved 1868.
" " 8 to 10 feet, 7*s.* 6*d.* and 10*s.* 6*d.* each, moved 1868.
" DEODARA, 4 to 6 feet, 42*s* and 60*s.* per dozen.
" " 7 to 8 feet, 84*s.* per dozen.
" " 10 to 12 feet, 120*s.* per dozen and upwards. Some thousands of these large Deodars, the majority moved since Jan., 1868.
" LIBANI, moved April, 1868, 5, 6, 7, and 10 feet, 5*s.* to 21*s.* each.
CUPRESSUS LAWSONIANA, 4 to 5 feet, 30*s.* per dozen.
" " 5 to 6 feet, 42*s.*; 7 to 8 feet, 6*s.*
" " 9 to 10 feet, 7*s.* 6*d.* to 10*s.* 6*d.* each.
" " 12 to 18 feet high, and as much round, 21*s.* to 63*s.* each. We have thousands of these large Lawsonianas, from 5 to 15 feet high, the majority moved in 1868.
JUNIPERUS CHINENSIS, 4 to 5 feet, 36*s.* and 42*s.* per dozen; 6 to 7 feet, 60*s.* to 84*s.* per dozen; 8 and 9 feet, and as much round, 21*s.* each; some magnificent plants, 10 to 15 feet high, 15 and 20 feet in circumference, 63*s.* to 105*s.* each and upwards. We have several thousands of this fine Juniper, 4 feet and upwards, the majority moved in 1868.
JUNIPERUS VIRGINIANA (Red Cedars), 4, 5, 6, and 7 feet, moved August, 1868, 18*s.* to 42*s.* per dozen.
YEW, ENGLISH.—Many thousands, 4, 5, 6, 7, 8, 10, 12 and 15 feet high, nearly all of which have been moved within 12 months.
" IRISH.—Handsome plants, 7 to 8 and 10 feet, 7*s.* 6*d.* to 10*s.* 6*d.* each, and upwards.
" GOLDEN and ELEGANTISSIMA.—Hundreds of fine plants, on their own bottoms and worked, from 3 to 6 and 8 feet high.
Many of these plants are 30 years old; all have been recently removed.
THUJA AUREA.—This plant originated at this Nursery. We have large numbers of fine specimens, 3, 4, 5, and 6 feet high, 8, 10, and 15 feet round.
" GIGANTEA.—Splendid plants, moved August, 1868, 10 to 15 feet high, 21*s.* to 42*s.* and upwards each.
" LOBBII, 6 to 7 feet, and as much round, 5*s.* to 7*s.* 6*d.* each.
" 10 to 14 feet, do. do., 21*s.* to 63*s.* each.
All moved in 1868.

THUJOPSIS BOREALIS, 5 to 6 feet, 60*s.* per dozen.
Do. do., 7 to 8 feet, 10 and 12 feet in circumference, 10*s.* 6*d.* each and upwards.
Moved in 1868.
WELLINGTONIA GIGANTEA, 4 to 5 feet, 7*s.* 6*d.* to 10*s.* 6*d.* each.
Do. do., 6, 7, 8, and 9 feet, 21*s.* to 63*s.* each.
All moved August, 1868.
HOLLIES, GREEN, COMMON.—Stout, finely rooted plants, 3 feet, 18*s.* per dozen; £6 per 100.
Many thousands 4, 5, 6, and 7 feet high, 30*s.* to 84*s.* per dozen and upwards.
A number of splendid plants, 10 to 15 feet high, 15 and 20 feet round. All moved April, 1868.
" SCOTTICA,
" LAURIFOLIA,
" MYRTÆFOLIA, } Three of the finest hardy Evergreen known. Thousands of beautiful plants, 5, 6, 7, 8, and 9 ft. high, 7*s.* 6*d.* to 21*s.* each, and upwards.
" HODGIN'S HOLLY, 4, 5, and 6 feet.
" GOLDEN QUEEN.—Hundreds of magnificent plants, 4 to 8 feet high, and as much in circumference.
" WATERER'S.—This variety originated here, and we have them by hundreds, 3, 4, and 5 feet high, 8 to 15 feet in circumference—the admiration of everybody who sees them. There are many of them 20 and 30 years old, and have been constantly and recently removed.
" SILVER QUEEN, 3, 4, and 5 feet high.
" STANDARD, WATERER'S, and GOLDEN QUEEN HOLLIES, 5 to 6 feet stems, with heads 6 to 9 feet round, very handsome.
" STANDARD WEEPING HOLLIES.—Some of the finest plants in the kingdom, worked and on their own roots. One, probably the finest that exists in any Nursery, has a stem 10 feet high, 20 inches in circumference, perfectly straight, with a magnificent head covered with berries. This plant was moved August, 1868.
" VARIEGATED, of the ordinary kinds.—A stock of many thousands, from 4 to 5, 6 and 8 feet high. Plants in finer condition cannot be desired. The prices will be found fair and reasonable.
BOX, GREEN and VARIEGATED, 4, 5, 6, 7, and 8 feet high, 2*s.* 6*d.* to 10*s.* 6*d.* each and upwards.
" PYRAMIDS, up to 8 feet, very fine
BAYS, STANDARDS, } from 3 to 10 guineas a pair.
" PYRAMIDS. }
LAURUSTINUS, STANDARDS, 31*s.* 6*d.* each and upwards.
LAURELS, PORTUGAL, 4 and 5 feet high, 7 and 8 feet in circumference, 42*s.* and 63*s.* per dozen. Moved July, 1868.
RHODODENDRONS.—One of the finest stocks of all the leading kinds, nice healthy bushy plants, 1½ and 2 feet high, many of them layers (far preferable to grafted plants), from £7 10*s.* to £15 per 100.
" STANDARDS.—A large number of the oldest and finest specimens to be met with in any Nursery, many of them being 20 and 40 years of age, with heads measuring 15 and 30 feet in circumference, and when in bloom are objects of wonderful beauty.
" SEEDLING varieties, varying much in colour, fine plants, many of them blooming, 1½ to 2 and 3 feet, £5 to £15 per 100.
" DWARF varieties, several kinds, £5 to £7 10*s.* per 100.
" ODORATUM, } Nice blooming plants, beautifully scented,
" GOVENIANUM, } 12*s.* and 18*s.* per dozen.
" PONTICUM, for cover, good plants, £7 10*s.* to £15 per 1000.
The Exhibitions of Rhododendrons in the Horticultural Society's Gardens are supplied from Knap Hill.
AZALEAS.—A fine stock of the most beautiful varieties in cultivation, good blooming plants, carefully selected, will be supplied at 18*s.* to 30*s.* per dozen. Large plants, 3, 4, 5, and 6 feet high, of all the fine Ghent and other kinds.
KALMIA LATIFOLIA.—Nice blooming plants, 12*s.* and 18*s.* per dozen; larger, of all sizes.
ERICA HERBACEA CARNEA.—The prettiest of the Spring-flowering Heaths; fine plants, by the 100 or 1000. A large stock of the best varieties of Hardy Heaths at 30*s.* per 100.
DAPHNE CNEORUM MAJUS.—A grand improvement on the old variety; fine plants, 18*s.* per dozen.
AUCUBA JAPONICA, up to 3 feet; thousands.

THE FOLLOWING ORNAMENTAL TREES, OF LARGE SIZE,

Are well grown and well rooted, and stout.

PLANES, ORIENTAL and OCCIDENTAL, 10 to 15 feet high.
SYCAMORE, 10 to 14 feet.
WEEPING BIRCH, 8 to 12 feet.
MOUNTAIN ASH, 8 to 10 feet.
HORSE-CHESTNUTS, COMMON, 10 to 12 feet.
SCARLET HORSE-CHESTNUTS, very fine flowering Trees, 10 years, worked.
BEECH, WEEPING, 7 to 15 years, worked.
BEECH, PURPLE, 8 to 15 feet high.
DECIDUOUS CYPRESS, 8 to 12 feet.
NORWAY MAPLES, 8 to 12 feet.
LOMBARDY POPLARS, 10 to 12 feet.
THORNS, fine Standards, of the most ornamental kinds.
ASH, Gold-barked, Flowering, and other varieties; fine Standards, 8 to 10 feet.
LIMES, 10 to 12 feet.

As well as the above-mentioned articles, at Knap Hill will be found one or perhaps the most extensive Stock of all the better kinds of HARDY EVERGREENS, DECIDUOUS and FLOWERING ORNAMENTAL TREES and SHRUBS.

A PRICED AND DESCRIPTIVE CATALOGUE

Will be forwarded on application.

Purchasers are respectfully invited to inspect the Plants growing in the Nursery.
No Catalogue can adequately represent such a Stock.

The Nursery is readily reached by Train from Waterloo to Woking Station, where conveyances may at all times be depended on.

The Railways now take Goods at through rates to almost any Station, thus doing away with the expense of package.

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ONE THOUSAND MRS. PINCE'S BLACK MUSCAT, 7*s.* 6*d.* to 21*s.* each; Trade price on application. Also, ROYAL ASCOT, and a very large stock of strong, well-ripened Canes of all the leading kinds, at moderate prices. PRICED CATALOGUE on application to
H. Lane & Son, The Nurseries, Great Berkhampstead, Herts.

PINES and VINES.—PINES, very fine, in all stages, from a stock that never had scale. VINES: Hamburgh, Champion do., Lady Downe, and Buckland's Sweetwater, in 11-inch pots, very strong and short jointed; also a few Muscats, extra strong, in 13-inch pots.
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L. WOODTHORPE offers the following, to effect a clearance:—Strong Fruiting VINES, 10 to 12 feet in length, and thick in proportion, 3*s.* 6*d.* each. Extra strong, will carry 8 to 10 bunches, 5*s.* each.
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GORDON APPLE TREES, on the true French Paradise Stock, as recommended by Mr. Robinson in his "Gleanings from French Gardens." All the best kinds, including CALVILLE BLANC, REINETTE DU CANADA, and other sorts. Prices upon application.
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FINE ORANGE TREES for SALE.—Ten very handsome Trees, in robust health, loaded with Fruit; clean, straight stems, about 4 feet; symmetrical heads, 5 feet diameter. One CITRON, same size. In ornamental green tubs.
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Fruit the First Season.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

WM. WOOD AND SON respectfully solicit attention to their enormous stock of FRUIT TREES in a fruit-bearing state.
PYRAMIDAL APPLES and PEARS, full of fruit buds.
Apples, 18*s.* per dozen; Pears, 24*s.* per dozen.
DWARF-TRAINED TREES, of extra size, in a fruiting state, adapted for walls or espaliers, including Apples, Pears, Plums, Cherries, &c.
STANDARD TRAINED FRUIT TREES for walls.
PRICED CATALOGUES may be had gratis on application.

SPECIAL OFFER to the TRADE.
STANDARD TRAINED APRICOTS, PEACHES, and NECTARINES
PYRAMIDAL and FRUITING APPLES, in 100 sorts
Large-flowering LAURUSTINUS, 3 to 4 feet
Ditto bushy COMMON LAURELS, 6 to 7 feet
Ditto ENGLISH YEWS, 4 feet [1½ to 4 ft.
Ditto RHODODENDRON PONTICUM, fine flowering plants,
EVERGREEN PRIVET, 3 to 4 feet
BERBERIS DARWINII, 2 to 3 feet
The above are as good plants as were ever offered, and prices will be moderate and terms cash.
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MESSRS. JOHN AND CHARLES LEE can supply strong well-ripened CANES of all the leading varieties of GRAPE VINES. Planting Canes, 5*s.* each; Fruiters, to bear nine or ten bunches, 10*s.* 6*d.* each.
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MESSRS. JOHN AND CHARLES LEE have selected Twenty of the most beautiful and distinct of the new CONTINENTAL ROSES for 1869, which they intend to send out in March, and among which they particularly recommend CHARLES LEE as being first-class in every respect.
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GOLDEN FEATHER PYRETHRUM, (Pyrethrum parthenifolium aurea), new Golden-leaved Bedding Plant.—A dwarf hardy perennial, 6 to 9 inches in height, with beautiful golden leaves, of densely compact growth, unequalled for riband-rows or belts for the Flower Garden. It is perfectly hardy, and simply requires its flower-buds pinching off during the summer months, and stands through winter as a permanent gold edging plant. Produces its golden foliage true from seed. Sold in packets free by post, 1000 seeds, 1*s.* per packet. Any number of packets free by post. Seed our own saving of 1868. Trade supplied.
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Market Gardens, Biggleswade, Beds.

RICHARD WALKER can supply for cash CLOVE CARNATIONS; SCARLET KING DAISIES, 5*s.* per 100; EAST HAM, and all the leading sorts of Cabbage Plants, 2*s.* 6*d.* per 1000; RED DUTCH, extra fine, 4*s.* per 1000.
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GIANT ASPARAGUS, 3-yr. old, 3*s.* per 100.

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WM. SKIRVING begs to offer to the Trade, or Gentlemen planting extensively, at very low prices, a few Thousands of fine well-grown ARAUCARIA IMBRICATA, averaging from 2½ to 6 feet high, all of which have been removed within two years. Having many acres of his Nursery to clear for building, a very low price will be accepted.

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DICKSONS AND CO., Nurserymen, Seedsmen, and Florists, 1, Waterloo Place, Edinburgh, are now prepared to execute orders for all kinds of FOREST TREES, ORNAMENTAL TREES and SHRUBS, FRUIT TREES, ROSES, &c.; of all of which they have an extensive and very healthy stock.
CATALOGUES with Prices may be had free on application.
Established, 1770.

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ONE MILLION FOREST TREES, transplanted, well rooted stuff, &c., at very moderate prices, of Ash, Elm, Birch, Sycamore; Poplar (Abele), Ontario, &c.; Willow, Babylonian, Weeping and Huntingdon, in sizes, from 2 to 3, 3 to 4, 4 to 5, and 5 to 6 feet; Privet, Alder, Spruce, and Scotch Fir, 1½ to 2, and 2 to 3 feet; Silver Fir, 1 to 1½, and 1½ to 2 feet; Yew, English, extra strong, and well rooted and bushy, 4 to 6 ft.; Laurel, Common, 1½ to 2, and 2 to 2½ ft., bushy, and well rooted.
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TWO HUNDRED THOUSAND COMMON LAURELS, from 1½ to 3 feet.
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AMERICAN ARBOR-VITÆ, especially recommended for Hedges:—2 to 3 feet, 6*s.* per dozen, 40*s.* per 100; 3 to 4 feet, 9*s.* per dozen, 60*s.* per 100; 4 to 5 feet, 18*s.* per dozen (extra fine), 100*s.* per 100.
Extra fine Transplanted BEECH and HORNBEAM, 2 to 3 ft. and 3 to 4 feet; also fine EVERGREEN PRIVET, in large quantities.
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FOR LAWNS and CROQUET GROUNDS.

MIXTURES of the FINEST PERMANENT GRASSES, to produce an even and carpet-like turf. As supplied to

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Finest Quality, 1*s.* per lb., 20*s.* per bushel.
Second Quality, 18*s.* per bushel.

Sow 3 bushels per acre for a new lawn, or 1 bushel per acre (more or less) to renovate.

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Consisting of the most desirable Natural Hay-producing GRASSES and CLOVERS, to produce a permanent turf of the best quality. As supplied to

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For ONE YEAR'S LAY, best quality, 13*s.* 6*d.* p. acre.
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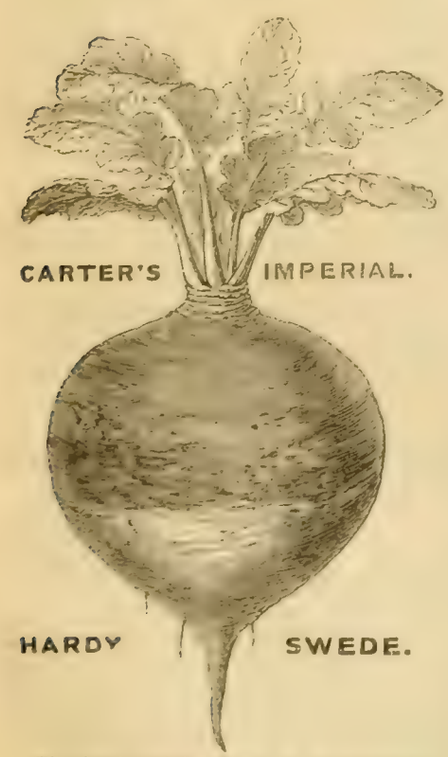
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Cheaper samples from 4*s.* 6*d.* to 7*s.* per bushel.
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Sow 3 bushels per acre for a new ground, or 1 bushel per acre to renovate.

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BROAD-LEAVED RED,
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The best and hardiest in cultivation, 1s. per lb.
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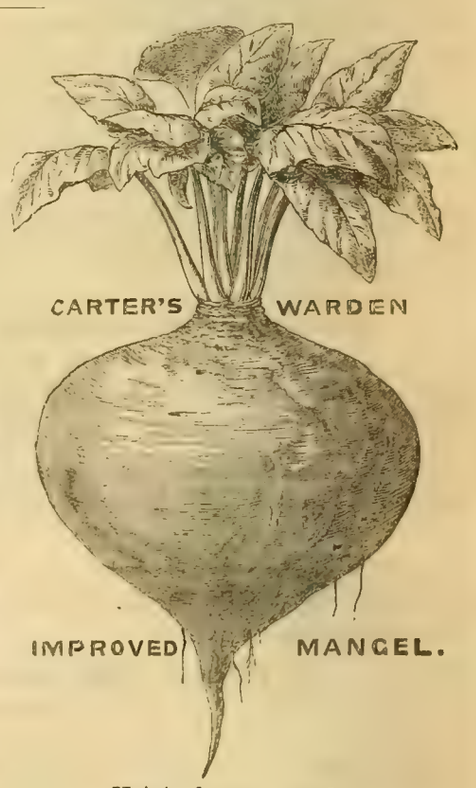
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100 in 70 choice varieties	£4	0	0	12 choice varieties.. ..	£0 12 0
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GOLD and SILVER FERNS.—Gymnogramma chrysophylla Martensii, and Pteris cretica albo-lineata, good plants, 12 for 10*s.* ; 25 for 18*s.* Package free. Trade price per 100 on application.

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CALCEOLARIAS, Herbaceous, of the choicest strains (free by post), out of pans, 12*s.* 6*d.* per 100 ; out of single pots, very fine plants, 25*s.* per 100 ; less quantities at the same rate ; also supplied in 3-inch pots, and extra strong in 4-inch pots, splendid plants, 7 months old and grown on, at per 100 or 1000 on application.

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CALCEOLARIAS, in 18 choice sorts, including Sparkler, Golden Mantle, King of Sardinia, Californica, Victor Emmanuel, Beauty of Herts, Aurea floribunda, Sultan, Gold Cap, &c. These are good plants, established in single pots, and can be sent free by post, carefully shaken out, at 25 plants in variety, 3*s.* 6*d.* ; 50 do., 6*s.* ; 100 do., 10*s.* 6*d.* Can be had also in pots ; for price per 100 or 1000 apply to

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W. RUSHFORTH, NURSERYMAN, Leeds, offers as under, very fine :—

DOUBLE WHITE PRIMROSES, per 100, 25*s.*
DOUBLE LILAC PRIMROSES, per 100, 30*s.*
DIELYTRA SPECTABILIS, per 100, 21*s.*
LAURUSTINUS, in Bud, per 100, 20*s.*
ASPARAGUS, 3-yr., per 1000, 25*s.*
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Vegetable, Agricultural, and Flower Seeds.

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New Roses, &c., 1869.

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LEEDS HORTICULTURAL SOCIETY.—The GREAT EXHIBITION of PLANTS, FLOWERS, FRUITS, and VEGETABLES, will be held in the LEEDS ROYAL PARK, on WEDNESDAY, THURSDAY, and FRIDAY, June 9, 10, and 11. PRIZES, upwards of £500. Schedules now ready, and may by had on application to JAMES BIRBECK, Secretary.

Crossgates, near Leeds.

NOTE.—The North-Eastern, Great Northern, Midland, Lancashire and Yorkshire, and London and North-Western Railway Companies will convey Plants, Flowers, Fruits, &c., at ordinary rates to the Show, and return them free if they remain the property of the Exhibitor. The Committee provide Assistants and Horses for exhibition vans coming by rail, also Covered Spring Vans to convey Plants, &c., between the Railway Station and the Exhibition Grounds, close at hand.

The Gardeners' Chronicle.

SATURDAY, MARCH 6, 1869.

MEETING FOR THE ENSUING WEEK.

SATURDAY, March 13 { Royal Horticultural (First Show of Hyacinths and Spring Flowers) at S. Kensington—2 P.M.

IN the discussion which has taken place in our columns on the ADULTERATION OF SEEDS, we have endeavoured, as far as we have been concerned, to hold the balance as evenly as possible. While we have freely opened our columns to all comers, and allowed holders of various shades of opinion to express their views, we have not hesitated, while strongly condemning the practice of adulteration, to point out sundry fallacies and misconceptions which the Committee of the Royal Horticultural Society appear to us to have unwittingly fallen into. We think the public, nay, the seed trade itself, are under great obligations to the Society for bringing the matter forward; because, as it appears to us, the members of the trade itself have hitherto been so little agreed among themselves as to the proper course to pursue that, though as individuals they have had a strong desire to rid themselves of what they felt to be a disgrace and a scandal, yet, owing to jarring personal interests, trade jealousies, and the like, they have never been able to agree on a common course of action. Many of them, we are assured, would have gladly co-operated with the Society in its endeavours to do away with the evil, had not the Society unfortunately, by its method of procedure, and specially by making certain charges which cannot be substantiated, given, very unintentionally it may be, grave offence. However, with this part of the case we have nothing to do, further than as it furnishes one reason for a matter that has been much commented on—the reticence of the trade under the imputations made upon its commercial morality. We come now to the "Trade Association." Trades unions are in bad odour just now, and we cannot but think the particular association in question has lost a fine opportunity of showing that associations for the common benefit of the members are not necessarily injurious to the public, often the reverse. We know that this question of the adulteration of seeds has at various times been under the consideration of the Association, and that proposals have been made to check the evils complained of, and they have all fallen through. Why? Simply because it has been an association in name rather than in fact. It has assumed the function of regulating prices, but it has left individual members open to make what terms they pleased in particular cases. A common course of action has been resolved on, and then each individual member has done what seemed to him best. As to the regulation of what amount of admixture—to use a smooth phrase—should take place, we believe we are right in saying no such topic ever came formally before the Association. Still, indirectly, the regulation of prices involves the adulteration question; and it is a matter of profound regret that the Association should not have joined with the outsiders and the provincial houses, and made a vigorous effort years ago to wipe off this stain.

It will be gleaned from what we have said that various members of the trade, in London and in the provinces, have from time to time endeavoured to discontinue the practice. Some there are that loudly protest their innocence, and declare that they have never been defiled with the touch of immoral pitch. Others, more modest, admit the fact; and while they writhe under the admission, they assert that they have never been enabled to free themselves from it, owing to the lack of unity of purpose among their fellow sinners. One cannot reject what his soul abhors, because his pocket won't let him—he can't afford to be undersold by others; another won't take the beam out of his own eye till he sees the mote taken out of his brother's; another won't stir in the matter for fear of giving offence. BROWN will have nothing to do with the concern because it is mooted by GREEN; JONES scorns to make common cause with that fellow ROBINSON; Cheapside repudiates the yokels, the yokels despise the Cockneys in return; and so we go on. There is the sore place, and the ulcer is not only not suffered to heal, but it is year after year deliberately kept open.

Now, once more, there is a chance of excising this plague-spot. Parliament is to be invoked to enforce virtuous conduct on the practitioners of easy virtue. We rejoice to hear it. We know it is not possible to make every one virtuous by Act of Parliament, but it is possible to restrain many from doing ill; and when, as in this case, the general principles, at least, of the measure to be proposed have the assent of members of the trade in London and in the provinces, of adherents of the London Association, and of outsiders, we may hope to see the Bill carried. It is premature to give the details of this measure, as they are subject to amendment and alteration, but the fact that it is promoted by members of the trade, of various views and of different sections, gives us hope of the successful issue of the scheme. We have reason to believe that the wish to be rid of the pest is general among the members of the trade: we implore them to sink all petty differences, all personal dislikes, to discountenance strongly any attempt on the part of individuals to make capital out of the movement, and for once to combine together to support this, or any other measure which will put an end to a system which one and all decry. The matter is now in their own hands, and if they fail to do their duty in this instance, when the path is plain before them, they must take the consequences which damaged faith and loss of honour necessarily entail.

IT has been a matter of great astonishment to us that so little movement has been taken by the foresters, surveyors, and land agents of this country on the subject of the Government plans for the education of youths to serve the higher offices in the INDIAN FORESTS. Although the arrangements at present are of an experimental character only, yet they have been before the public for many months, but it is only quite recently that they seem to have attracted much attention on the part of those most concerned. Latterly, as will have been seen from our columns, our easy-going friends have bestirred themselves a little more in the matter, and, rubbing their eyes, begin wonderingly to ask why the whole, or nearly the whole, of the proposed scheme of education, should be carried out in Germany or France? — why the preliminary education in general subjects and the more special instruction in surveying, measuring, road-making, and the like, as well as the principles of Geology, Chemistry, and Natural History, cannot, to omit

for the moment more practical matters, be at least as well taught here as abroad? The reply of the officials would, we imagine, be this, that there are well organised schools on the Continent, where the subject is thoroughly well taught; and failing such establishments here, it is necessary to have recourse to those beyond the seas. The only means of acquiring a knowledge of their profession open to students in this country is by going through an apprenticeship, as it were, with the deputy-surveyors of the Royal forests, or with the foresters in charge of private gentlemen's estates. Their competency to teach is a matter of chance. How different on the Continent, where the subject is taught as a branch of science—where there are regular arboricultural professors, schools, gardens, forests, and employments, all for qualifying men to manage and make the most of their woods. Look how every straw is taken advantage of there. In Prussia Professor Koch's book appears (see p. 225), and already, and by anticipation, he has been authorised to form a complete new arboricultural garden, in which every species of tree or shrub that will grow in it is to be grown in its different stages. There will be always a succession of young plants, to show them in their young state; and as they grow there will also be old ones preserved, to show them in their age. They will all be arranged and named in accordance with the nomenclature of the work in question, which will be also adopted in all the other Government arboricultural and botanical gardens, so that in this work we have what will in future be recognised as the nomenclature throughout Germany; and, as it is sound and correct, we have no doubt that it will also be that followed in France and Britain.

Why should we not in this country have a similar arboricultural garden? Why should we not have teachers of arboriculture? Why must our public action always be lagging in the rearward of other nations? The time is coming that we shall be compelled to pay more attention to our supply of wood at home, as we have already discovered that we must do abroad. We ought to be able to supply competent men to do this wherever they are wanted, without having to send to France or Germany to pick up the details that (we say it advisedly), without much trouble or expense, could be equally well taught at home.

In any case we are glad to learn that the matter is under the consideration of the Institute of Surveyors, and that they have before them a plan, the leading features of which, as we are told, are very similar to those contained in the letter of our correspondent, "Woodlands," p. 136. The principal features of this plan are that the candidates should serve a sort of apprenticeship to some qualified surveyor in this country, and then, after showing their general proficiency, they should be sent to Kew, to be instructed by Dr. Hooker in botany, &c., and at the same time attend lectures on various subjects, and subsequently study their practical duties in some of the well-managed woods or Royal forests. Finally, it is suggested that they should go on a tour of inspection among the German or French forests. As we intend shortly to consider the whole subject of Indian forests and their requirements, we shall not stop now to criticise the details of the above scheme. They are clearly open to amendment, and we trust that the Institute of Surveyors will reserve direct action upon them till further discussion has taken place.

At present we do not think the members of the Institute are sufficiently well aware what are the special requirements expected of those who are to take service in India, still less of the peculiarities which render Indian forest management so different in many ways from that practised at home. On these points we beg to call the attention of our readers to the letter of "Forest Ranger" in our present issue.

—— We may remind our readers that the Exhibition Season opens on Saturday next, at South Kensington, when the first of the Spring Shows of the Royal Horticultural Society is to take place. The Royal Botanic Society's first Show commences on the Tuesday following. Messrs. Cutbush's display of Spring Flowers opens to-day at the Crystal Palace, as does that of Mr. W. Paul at South Kensington on Saturday next. In connection with the subject of Exhibitions, we may mention that we hear the schedule of the Manchester Show of the Royal Horticultural Society is being delayed by the slow progress which has yet been made with the special prize list. Surely so rich and important a town as Manchester will not suffer itself to be outdone in this particular by Bury St. Edmund's and Leicester. What is to be done, must, however, be done quickly.

VEGETABLE GROWING: NORTH *v.* SOUTH.

(*Concluded from p.* 192.)

In Scotland, the finest vegetables are produced by the professional men, the market produce being worthless in comparison. I think this tells well for the superior care and skill bestowed on the cultivation of vegetables by gentlemen's gardeners in Scotland over the same class in the South of England where the reverse is the case. Mr. Fish indeed admits that in some respects the Scotch surpass us in vegetable culture; but since all the advantages in the way of their production belong to them also, not only in the climate, but in the extent of their gardens and the little requirements therefrom, the more numerous and superior quality of the labour employed, &c., according to Mr. Fish's theory, he draws the conclusions that the English are entitled to the greater credit. Let us see, however, how the case stands. "Northern gardens are more fully manned than those in the South." This I dispute. My experience is to the contrary a long way. The labour is of a different quality decidedly—in some respects superior, in others inferior, to the English. In most gardens in the North the one-half the labour is done by beginners—apprentices, who know next to nothing about the work, and are frequently nearly as much trouble as they are worth—the other half by journeymen, who are ever on the move, seldom staying two years in one place, so that no sooner are they acquainted with the place and its requirements than they leave it, and fresh hands take their place. Now, take an example of a large establishment in England, like that over which Mr. Fish so worthily presides. Mr. Fish's right-hand man in the kitchen garden most likely has acted in the same capacity for years, so that were Mr. F. to resign his charge, and another take his place, the work of vegetable growing, like summer and winter, would go on much the same. This tends materially to lighten the labours of the gardener, and gives him a decided advantage over his brother in the North. If I cared to be invidious I could instance places where gardeners, by the exercise of a little tact, without the slightest knowledge of vegetable culture or the working of land, have got on pretty well by trusting entirely (while seeming not to) to the old workmen of the place, and making a great fuss about some ribbon border, Vine-border, or other hobby of their own. But this is not as it should be, nor does it even exist under the Scotch system, or in Scotland. Need we wonder, however, at the general results? not only bad vegetables are produced, but bad gardeners also, who get appointed to fill the second and third-rate places where two or three hands are kept—where most likely the family takes as much interest in the crops of Peas and Turnips as others do in their Orchids, &c. It is here that the defects are to be seen. It is that they receive the bad vegetables, who desire good ones most, of which I complain. And I submit that my complaint is too well founded.

To remedy this, I should like to see Mr. Fish, and others holding similar positions, adopt a little more of the Scotch system of educating gardeners, teaching them how to use the spade and rake, how to grow vegetables, and to take an interest in their production, as well as how to thin a bunch of Grapes or pot an Orchid. There is a tendency in the modern school of gardening to look down upon everything, excepting it be associated with glass,—no glass, "no nothink." I should rather like to see Mr. Fish, instead of writing an apology for this state of things, assist in remedying matters by the aid of his prolific pen. There is ample room for improvement in the matter of vegetable culture, and in England we have one of the finest climates in the world for that purpose, despite Mr. Fish's condemnation.

I fancy, although it may seem strange, taking all Mr. Fish's previous writings into consideration, that I look for a higher standard of ability in vegetable culture than Mr. Fish's. I should not be inclined to praise any one who would be content with what the seasons, as they come and go, bring almost naturally to their hands. Gardeners should also be something better than mere creatures of the cook, as Mr. Fish would have them—to grow and supply just what the cook requires, and nothing more. "Prejudices" must unfortunately be borne up against by all of us, but it is our duty, none the less, to try to overcome and vanquish them. On the same principle as that which makes "stolen fruit the sweetest" and "unexpected favours the most pleasant," I think it will be found, barring prejudices, that a dish of some nice fresh vegetables "out of season," or unexpected—say a dish of green Peas in the end of September—would give more pleasure at an employer's table than half-a-dozen in the height of the season. There is nothing more pleasing to an employer than little surprises of this sort, while at the same time all the other duties required are fulfilled. This may be accomplished by things late as well as things early; and although Mr. Fish says we are all so "emphatically to the swift," and craving for the first of everything, we do not always get it. At all events, our northern friends enjoy their green Peas from the open air just as early as we do. I have already stated that I have gathered Peas in the end of May in Aberdeenshire, which "R. M." seems inclined to doubt. No credit belongs to me for their production. I have, however, received a letter from the grower of them—one of the best vegetable gardeners who ever held a spade in the north of Scotland—confirming my statement, and further informing me, that once he had gathered them on the 20th of the month. Many times have the blooms had to be protected from the severe frosts and snow in the end of March and April. Is there anything better than this down in the South? and is there not some credit due to our brethren in the North for their early productions? Mr. Fish, however, will not give his countrymen credit for much. They are not able to arrange a bouquet, or even a parterre. True, he makes Archerfield an exception. My knowledge of Scotland is not very extensive; but I could refer him to other places that it might be even worth his while to take a good look at. Mr. Fish should also bear in mind that Scotland is but a "wee" place compared to England, and that the number of fine gardens is very limited, so that instead of pitting all England against Scotland he should have confined himself to a couple of English counties, such as Kent and Yorkshire, in which there are as many as in all Scotland. But to the point: will Mr. Fish give an example of a gardener who has gone to Scotland with a purely English education and experience, who has made himself either a name or a position there as a kitchen gardener? On the other hand, we know of Englishmen who, having had a Scotch training, are amongst the best kitchen gardeners in the world—all going to prove my assertion, that greater attention is paid to the growth of vegetables in Scotland than in England.

I observe "C.," on December 19, says that the Scotch cannot hope to cope with their English brethren in the growth of plants for exhibition. I believe this to be true in the main, simply because there are not the inducements to grow plants purely for exhibition that there are in England. There are no men there who are notoriously exhibitors, such as the great awards made at our English shows have called into existence. But what of many of their places when the show plants are on their travels, or preparing for the contest? I have also noticed what "C." says about the neglect of their gardens by the Scotch cottagers, which, applied to some districts, is tolerably true. As far as I have seen, they lack the taste for flowers about their doors, and the showier parts of cottage gardening; but visit some of the country shows—take that of Peebles for instance, which is on a high-lying and not very favourable part of the country—and mark the splendid Potatos, Cauliflowers, Carrots, Turnips, Parsnips, Onions, Leeks, Peas, and Broad Beans, &c., and compare them with the produce of gardens of the same class in England, and for that which is solid and substantial I know where the palm will go. You may, indeed, miss Pumpkins, Vegetable Marrows, French Beans, Scarlet Beans, and salading, because the taste is not much for these things, and they can well be spared from such collections of vegetables of higher worth, as far as feeding properties are concerned, which is the chief object of the class who exhibits them. I believe it would astonish the members of the Royal Horticultural Society, were they to offer prizes for collections of vegetables, say from Hampshire and Peebleshire, to see what is produced amongst the hills that surround the latter district: their authenticity could easily be substantiated, and it would do good to both parties, as well as dispel a vast amount of delusion.

Scotland has advanced more in gardening (proportionately) during the last 15 years than any other part of the United Kingdom; so that those who have received their early education in that country, which they are now so ready to traduce, should bear that in mind, and not be puffed up with the idea that only they themselves have progressed, believing, as they seem to do, that those they have left behind have stuck fast where they left them. *B.*

CARL FRIEDRICH PHILLIP VON MARTIUS.

(*Concluded from p.* 222.)

The Academy of Sciences, with which Martius was connected for more than 50 years, is chiefly indebted to him for the wide intercourse it has attained, and by which means it has obtained no inconsiderable number of rare and beautiful works. Martius served the interests of the Academy, in whose physico-mathematical classes he long exercised the functions of honorary secretary, with true love and zeal. Only two years ago he presented the Academy with a complete collection of the numerous orations he had made at their sittings in memory of deceased members—speeches no less remarkable for the genuine spirit of humanity that pervades them, than for the variety of their contents, and perfection of their oratorical style. His prominent exertions, too, in behalf of the Bavarian Horticultural Society of Munich, which was founded in 1859, are also deserving of lasting gratitude. From its establishment till his death he was a most industrious, active, and judicious president.

Whatever the world could offer in acknowledgment Martius received. He was elected member of nearly all the academies and learned bodies in Europe, and Kings and Emperors honoured him with the most distinguishing marks of favour. He rejoiced in the esteem and friendship of his most distinguished contemporaries; and plants and animals, and even a mountain (Mount Martius in New Zealand), were named in his honour. But the most beautiful expression of homage and veneration was presented to him on the 30th March, 1864, the 50th and jubilee anniversary of the day on which he was invested with the degree of Doctor of the Academy, and we might call it an offering of the whole educated world. His friends caused a medal to be struck, with the inscription—"Palmarum patri dant lustra decem tibi palmam. In Palmis resurges." And on the 15th December, 1868, the bier of the departed was lowered into its last resting-place, bedecked with Palm leaves. *In Palmis resurget.*

So far we have depicted Martius the scholar, though only from one point of view, and that the most significant with regard to his future renown. Yet to make the picture complete, there are several features to add, which, according as they stamp his profounder intellectual being, more fully exhibit the peculiarities of this wise man. Martius combined the acute under-

standing, which betokens the scientific man, with the keenest powers of observation, a retentive memory, and those intellectual talents that belong to a lofty nature, and without which the most comprehensive learning remains but an inharmonious whole. He possessed a rich, warm, and sympathising disposition, ever open to the noblest and best feelings, and an easily excited, not merely susceptible, but also unfettered imagination, which very often impelled him to poetical effusions. But this was always subservient to his scientific labours, and served more as a recreation and relaxation from severer studies.

Inseparably bound up with his intellectual bent was his pure and fervent religion, testified by numerous annotations he has left, well worthy of publicity. For years, during his connection with the university, his hospitable house was the rendezvous for persevering youths, and the most distinguished scholars and artists. And every passing scientific traveller found a welcome in this social circle. The centre of this little band was always Martius himself, for his well-stored mind, his eloquence, his rich experience of life, and, above all, his benevolence and communicativeness rendered him more capable to enliven such a circle without constraint or affectation than many others.

This, too, was his most cherished evening recreation after the fatiguing labours of the day, for his was an incessant untiring activity, and idle repose was contrary to his nature; and even in the midst of his own multifarious occupations, he was always ready to further the projects and aspirations of others, to encourage and aid young inquirers—in short, a great part of his wide-spread correspondence and research was directed to this noble end.*

BUTTON-HOLE BOUQUETS.—No. II.

Your Editorial commendation (p. 109) of the pure white flowers of the Double Chinese Primrose has my hearty approval. Each flower should, however, be removed from the truss with as long a stalk as possible; a piece of the finest copper-wire, 4 inches long, should be passed horizontally through the tubes of the calyx and corolla, so that the latter should not fall out, as it is very liable to do. When half the length of the wire has been passed through, bend down the two ends, and twist them gently round the stalk of the flowers. Three of these blooms, grouped with four Neapolitan Violets, make up a pretty bouquet. One of the Violets should be in the middle, and the other three at the margin. In place of Violets, you may use the Double Blue or the Double Pink Hepaticas with good effect. With three of the Double Primulas, a single bloom of one of the double-flowered Scarlet Pelargoniums looks very well. For background to these combinations, a small but well-developed leaf of either the Primula or the Oak-leaf Geranium associates pleasingly, the latter having the advantage of an agreeable perfume; but if the stalks of such leaves should be objectionable from their thickness, use a small mature frond of Lastrea pubescens.

Such bouquets as these may be wonderfully improved by introducing amongst the flowers some tiny sprays of Moss. These must be trimmed of their side branches below, or the bouquet will not go into its tube. This care is, however, not necessary where a tube is not used, in which case it is always desirable to bind up a little Moss with the flowers, whether it is to be seen or not, as Moss holds water like a sponge, and helps to keep the flowers fresh for a longer time. When the tips of the Moss are to be visible, discrimination must be used in selecting it of a suitable shade of green. Thus a yellowish Moss would not look well with Double White Primulas and Violets. The foliage of both these plants is dull dark green. This must be the cue for selecting the Moss; for, as a rule, flowers group better with their own foliage than with any other leaves; and where that is not practicable, the first consideration should be to choose other foliage of the same shade of green. Ferns afford ample scope for doing this.

Take a spike of Goodyera discolor with 9 to 11 blooms on it, and by removing one or more from that side of the spike which has the fewest blooms, make it lie flat upon a piece of Adiantum cuneatum, about 2 inches long, exclusive of its stalk. Place in front of the spike another but smaller piece of the same Fern, so that the fructification can be seen; and, having tied the three together by the stalks, work the pinnules of the Fern prettily in amongst the blooms of the Orchid. Then place in front, and similarly work in, from three to six blooms, some open and some in bud, of Scilla sibirica; if you can get two blooms on each stem so much the better. This combination, backed with two little terminal pieces of Gleichenia dichotoma, or some other delicate dark-green Fern, makes a most elegant bouquet for afternoon wear; the little yellow lip of the Orchid blooms contrasts so prettily with the pale blue of this Squill. By candlelight, however, these colours are scarcely visible; so for evening wear it would be better to substitute the deeper blue flowers of Scilla bifolia; the contrast between this colour and the pure white which prevails in the Orchid blooms is sure to be much admired. *W. T.*

THE POMOLOGICAL CONGRESS OF FRANCE.

We glean the following particulars of the labours of the Pomological Congress of France, which held its 13th session at Bordeaux in September last, from an account recently published in our contemporary, the *Revue Horticole*. The session occupied five days of constant work, and 172 kinds of fruits, returned for further study at the preceding sitting, together with 23 new kinds, were examined, first by the special committees appointed for that purpose, and afterwards by the general meeting. About 150 of these have been retained, 27 rejected, and 15 admitted for further investigation, seven of the latter being Strawberries. To be thus admitted for study a new fruit must be accompanied by a favourable report, with particulars as to its identity and value from the Horticultural Society of its locality; but for its definite reception favourable reports from different localities must be laid before the Congress, since a variety may be good in one locality because of particular circumstances, and bad everywhere else, while in exceptional years certain fruits will also be found to possess good qualities which they would not have in ordinary years. The Congress thus provides itself with evidence as complete as possible.

Three Pears only out of 49 were deemed good enough to be admitted definitely; they were, Brune Grasseline, Chaigneau and Fortunée Boisselot. Eight have been struck off the list: some provisionally, not being sufficiently well known or appreciated; others definitely, for want of good qualities. These were:—Alexandre Lambré, Bonne Charlotte, Colmar Bonnet, Léon Grégoire, Beurré d'Hiver nouveau, Clapp's Favourite, Prince Impérial de France, Rousselet Decaster. Seven new varieties have been admitted for study—namely, Beurré Ladé, a seedling from M. Grégoire, presented by MM. Baltet frères; Auguste Mignard, same origin and presenters; Professeur Hortolès, obtained and presented by M. Morel of Lyons; Marie Jalois, presented by a Nantese gardener; Souvenir de Goëde, a seedling, from M. Bouillé de Beauchamps; Président Lesant, raised by M. Boisselot; and Prince Napoléon, a seedling, from M. Boisbunel, presented by M. Mauduit.

Apples were not more fortunate, three only out of 34 having been adopted: they were—Ménagère, admitted as an ornament of table; Chailleux, and an English variety. These were ranked among the good fruits. Three were rejected, namely, Reinette à Côtes, Reinette Clochard, and the Pepin d'Or. Eight new varieties were admitted for study; they were—Coing, and Champs Gaillard, presented by the Society of Bergerac; Transparente de Croncels, a seedling, from M. Baltet, ripe in August; Stewner [? Sturmer] Pippin, ripe in April and May; Reinette Tardive, and Pomme de Bailleul, presented by M. Mauduit; Pomme d'Eclat, and Balwine, which very fertile, and whose fruit ripens in May.

No new Peaches were admitted, but among those presented Grosse Jaune, Impératrice Eugénie, and Belle Impériale remain for further study. The Vineuse de Fromentin of M. Graindorge was considered synonymous with the old variety bearing that name. Of three Plums, none were admitted; the Imperial Gage was rejected. All varieties of Apricots were rejected, except two, Liabaud, and Mexico, which remain for study. The Bigarreau Papal Cherry was rejected. The Figs have been more fortunate, thanks to a special study of them made by the Society of Montpellier. Out of 10 varieties, three were adopted.

The varieties of Strawberries admitted were:—Frogmore Late Pine, Duc de Malakoff, Empress Eugénie, La Châlonnaise, Napoléon III., Sir Joseph Paxton, and Victoria. According to the Horticultural Society of Beauvais, the two varieties called Princess of Wales and Wonderful have been rejected, the latter as being synonymous with Myatt's Prolific.

The jury was very severe in the case of Grapes, for out of 28 varieties, only one, the Aleatica nera, has been admitted. Six new varieties have been admitted for study, namely, Lady Downe's Seedling, presented by the Imperial Society of Paris, and five others, presented by the Horticultural Society of Gironde. This latter Society had selected from among the best Vines cultivated in the vineyards of Bordelais and Médoc, not yet admitted by the Congress, the following sorts:—Gros Verdot, Petit Verdot, two of the sorts most extensively grown at Canteuac; and Verdot Collonges, giving an ordinary wine; Grosse Vuidure, which produces fine wines of first quality; and Pignan, a variety of an exceptional fertility.

Home Correspondence.

Winter Bedding.—In the course of a few weeks it will be time to prepare for the winter garden of 1870, and I should like to make a few remarks on the various articles on winter and spring bedding which have appeared in the *Gardeners' Chronicle* since October last, and which I have read with much interest, although I have regretted to see there is no mention of variegated Borecole, as the only certain colour plant for winter. Far be it from me to insist on the use of Kales, or any other plant to which the owner of the garden has a dislike; in a garden, of all places, one should take one's own way and one's own pleasure; the true enjoyment of a garden is lost to amateurs if they go slavishly by the opinion of others, or by the fashion of the day. There is so much learnt by one's own experience, although sometimes it is too dearly paid for. It is only fair to suggest all plans and plants, with the *pros* and *cons* for each, and then let people judge and experiment for themselves. So many have had a prejudice against the Kales, one is tempted to believe for once Shakspeare is wrong, and that everything is "in a name." It is wonderful to see the strength of prejudice, and the weakness of perseverance. Still it is encouraging to know that the numerous visitors, of various opinions, who see the Kale beds here every year are all unanimous in declaring that the sight is far above description, or their expectations. Even the two last remarkably open winters (the present is more than three weeks in advance of the average) do not make me retract the least from what I have always laid down, that without variegated Kales you can have no colour from November to February; also the necessity of keeping the winter and spring gardens separate, to do justice to both or either, and at p. 1290, 1868, and p. 137, 1869, this is agreed to. At p. 1114, 1868, the colouring matter of that winter plan is derived from berries; a list is given, and no warning of birds, which would clear off the whole between afternoon and morning. We have had little green and variegated Hollies, red with fruit, plunged into the beds, but the birds devoured the berries in a night. Then in certain seasons there is a scarcity of berries, even when the shrubs are left to themselves; and if they are permanent in the flower garden, they must some years undergo such needful clipping that we are saved from disappointment: there can be no fruit. Cotoneaster and Cratægus, Pyracantha, beautiful for a wall or bank, possibly, also, as pyramids, are unmanageable shrubs for a formal position; and to grow Pernettyas or Gaultherias without peat is quite unsatisfactory: the berries of the Gaultheria, also growing below the leaves, make no show. It is the exception, not the general rule, for gardens to be within easy reach of peat; thus the soil comes to be more valuable than the plants, and it is administered with such a careful hand that it is practically wasted. Skimmia japonica has a sickly tinge of foliage when grown in a sunny exposed bed or border, and is apt to drop its berries. At p. 1167, 1868, we read: "The great desiderata for winter gardening are a white and a red plant, something like Centaurea candidissima and Coleus Verschaffeltii." Now, in the Kales we surpass the Coleus, and it seems to me a hoary plant for winter is an anomaly. We are likely to have snow and frost at that season, sure to have rain, and must have too short sunlight and dryness to permit such plants taking on their true character. Here, in addition to the usual winter damp, we enjoy (!) at times sea fogs, which are worst of all for hoary leaves. In spite of all drawbacks we use, or have tried, more than 18 varieties of grey plants for winter (a list can be given if wished), from Artichokes and Thistles to Sedum glaucum and Antennaria hyperborea; but Cerastium tomentosum has been long discarded. Useful in June as "snow in summer," it makes too poor a "winter green" for January. The eye even in our dry soil and situation is not caught by the grey plants (Stachys lanata does the best of them here); the different shades of white Kale and variegated evergreens and herbaceous plants are the edgings and centres that attract in winter. Then, as to grafted plants, as advised at p. 1188, 1868, when it is thought how comparatively rare, even in nursery establishments, is a good hand at grafting, and how the best part of the batch of grafts is often lost from ignorant hands, it would be very unfair to expect worked shrubs to be cheap enough for the many who would like a winter garden. As for expecting your own gardener or his men (no matter how large the staff) to do your grafting, why it is not practicable. Looking fairly in the face the want of patience and perseverance there is in the majority of amateur gardeners, it is unwise to strain these qualities at first by suggesting difficult or expensive plans or plants. Give all encouragement and suggest certainties, thus avoiding disappointment. I maintain that a winter garden is more valuable than a spring one (both are best of course), and that it is not more "expense and trouble," because the plants necessary to make winter beds look well are, I was almost going to write, worthless, because so common; they must be removed in safe time for themselves, to make ready the beds for summer plants. In one suitable April day, three hands at work will tear up, and plant in lines, a sufficient number of hundreds of the Thymes (six varieties used here), Sedums, Saxifrages, Sempervivums (15 varieties used in quantity here), Cardamine rotundifolia, Galeobdolon luteum fol. var., Lamium fol. var., Vincas, Veronica incana, Grasses, and such like plants (Carex japonica fol. var., Festuca glauca, Dactylis glomerata fol. var., Luzula sylvestris, ditto fol. striata, Iris fœtidissima fol. var.), Feverfews, Hypericum barbatum, &c. In summer, to clip off the flowers of the Thyme and run the hoe through the lines some scorching day, once or twice in the season, is all the work they require until winter bedding comes on. Two afternoons, in June or July, two hands at work, easily selected and planted more than 3000 Kales from the seed-bed to their growing ground. There are more than 2300 in our beds this year. Now, in a spring garden, composed of course of flowering plants, you cannot use the same freedom; they will not be safe to lift at so convenient a season for you and them; and if not done fair justice to, you may save the plants but not have the bloom you count upon the next season. Another point in favour of the winter garden is, you can be later in planting it than you ought to be with the spring beds, thus getting all the good of your summer plants, which are certainly not over by the end of September—than which one is wise not to be later with the short-rooted spring plants, so likely to be thrown out by the first frost unless they have got hold of the ground. The difficult and expensive part of the Kales is, that it takes a large piece of ground to grow them during the summer, but early crops may have been taken off the ground first, and of course it is a matter of choice, as to the number of Kale required. In large country places a piece of land might be given up for the purpose, at far less cost than a range of pits and frames, for growing summer bedding stuff; and in the neighbourhood of towns the nurserymen would, I believe, readily supply them, from 3*s.* to 6*s.* per dozen, according to quality and size. However, if people want the best Kale, let them select according to their own taste, and save seed for themselves. Objections I have heard made to the waste of time in picking off the decaying leaves on the Kales; it is absolutely necessary, however, and I cannot see it is a greater drawback than the cutting off the dead blooms of Roses or Dahlias. Gardeners talk as if they had no trouble in picking over summer beds, and as if they never had thunder-showers, which will cover the ground with the Calceolaria flowers, and leave not a decent truss on the Geranium or Verbena beds. The summer beds look ill after the thunderstorm, and

* Erratum.—P. 164 *c*, line 21 from bottom, for 1497 read 1427.

require two or three days of sun to expand their blooms again. The odour of the winter garden, I acknowledge, is not good after frost or much rain: but it has this advantage over flowering-beds, that it is all right again the moment the decaying leaves are conscientiously removed, and not merely those leaves in sight. From the remarks I have heard visitors make here, amateurs as well as gardeners, I am led to believe that the gardeners themselves are at the root of the slow progress the Kales or winter gardens make. They almost all seem afraid of the extra trouble; talk of requiring more hands; and some frankly hope their employers will not take to winter bedding—enough to do already with the summer turning out, and so on. Certainly, seed that I have sent myself has been reported to come up green and coarse; or plants were grown so tall they were useless: how could it be otherwise when they were grown one-sided, near a hedge, or under the shade of the boundary plantation? My friends have sent and brought their gardeners here, and yet the Kales have been planted out to look as like Brussels Sprouts as possible, and of course the Kale beds are given up. Now, much of the general effect of the Kales depends on the way they are actually planted, and this must rest with the gardener—the execution of the work at all times, and in many places the planning of the arrangement as well. Our rule here is, that the stalk of the Kales is to be hidden either by deep planting, or, where high-packed beds are required, by graduating the plants (be it either with shorter Kales or other plants), so that all stem is hidden and merely the fine leaves and coloured heads of the Kale are seen. I am glad here to bear testimony to the efficient and willing aid my gardeners have always given me in carrying my plans into execution. Things cannot be on the right footing where the master's wish is not considered and entered heartily into; there should be a mutual interest and pleasure in the success of any department of the garden. I do not mean to say that the fault lies all on the gardener's side. There are places where it is the habit of the family to come into the garden, pass over the state of general perfection in all points as a matter of course, and pitch upon some slight temporary oversight for their discouraging criticisms. This must be disheartening to the gardener, and is most unfair. In closing these remarks on winter gardening, I am aware it may be said all has been brought forward by others or by myself in the previous notices written on the subject, and there may not be much new, but I find each year adds something to my experience in winter gardens, and being more and more impressed with the real value of the variegated Borecoles for giving colour and variety in the winter months, I wish to give others the benefit of that experience by keeping the subject before them. *F. J. H., Wardie Lodge, Edinburgh.*

Potato Grafting.—About three years ago I was speaking to Robert Rimmer, Esq., late of Crow Hall, Ipswich (a Scotch gentleman), on this subject, when that gentleman assured me that it had been practised in Scotland, to his knowledge, several years ago. Mr. Rimmer informed me that he became aware of the fact through visiting an asylum, where one of the inmates, an old man, began to relate his experience of the matter in a seemingly perfectly rational manner. Mr. R. went home very much amused, and resolved to put the matter into practice, which he did; and when the Potatos operated on were dug up in the autumn, he was very much surprised and interested at the result. Such is the substance of what passed between myself and Mr. R. on the subject, which is sufficient to show that the idea and practice are not new. Your correspondent states, that not every one can graft Potatos successfully. Well, that may be true, but my *modus operandi*, which is this, can be successfully performed by any ignoramus: Select the Potatos to be operated upon—say rounds and kidneys; next cut out all the eyes but one in both kinds of Potato; then take a small cheese-taster, perfectly sharp, and extract the eye from the round, to the depth of three-quarters of an inch; serve the kidney the same, and then insert the round eye into the kidney, and *vice versâ*, and then you secure a perfect fit. Take care that both the rinds meet, and then it would puzzle a casual observer to find the wound. By this method I have succeeded in raising some very curious Potatos, though as yet nothing valuable. I purpose this year grafting the Potato into the Jerusalem Artichoke, and *vice versâ*. What do you think of the idea? [As plausible as the extraction of sunbeams from Cucumbers. EDS.] I will let you know the result. The above allusion to my cheese-taster may seem a little amusing, but such was the instrument I had to operate with for want of a better, and three-fourths of the Potatos so operated on grew. In Nottinghamshire the cottagers frequently insert a Pea into the Potato at planting time, but I don't know why. *Thos. Simpson, The Gardens, Broomfield Lodge, Chelmsford.*—Mr. Taylor is usually most correct, and one of the very shrewdest of my correspondents. He is, however, mistaken in supposing that I confound Haig's (or Haigh's) Kidney with the Lapstone. My article (see p. 81) will show this. I there said—"I have just finished the supertubers of the Lapstones. I never ate a better Potato—it is my best. This Potato, though called Haig's Kidney, was raised by an old shoemaker in Lancashire—so Mr. H. Taylor informed me." Mr. Taylor, in a letter just received, informs me that there are 50 kinds each of Lapstones, Flukes, and York Regents, but only one true sort of each. I received all three kinds from "Upwards and Onwards," who had them *ab initio*. The true York Regent has a rough scorbutic skin—I shall not keep it; Gryffe Castle Regent is better. One word about the Royal Ashleaf. People are mistaken in calling it Rivers' Royal Ashleaf. He brought it out, and always disclaimed his being the raiser, but salesmen were determined to attribute it to him for their own purposes. Mr. Rivers gave me its history, as follows:—"Many years ago I was at my friend's, the late Mr. Ashwen, in Yorkshire. He said to me, 'Are you a raiser of Potatos?' I said 'No.' He said, 'Here are three seedlings of mine, marked A. B. C.; take them home and try them.' I did so; and in the course of time, I and Mr. John Spencer (now Lord Lansdowne's steward) tasted them, and we pronounced B., or Royal Ashleaf, to be the best Potato we ever ate. I gave its history when I sent it out; but the salesmen were determined to attribute it to me." He added, "A Bath gardener has been here, and says it is making their fortunes." This Potato is one of the few kidneys uniform in shape. It was A 1 in the chalky land of Rushton, here it is rather close and yellowish, still a valuable early Potato. In my opinion the Early Uprights are better, and will supersede it, though not so uniform in shape. No doubt the name is merely a local one. I wish I could find out its true name. *W. F. Radclyffe.*

Indian Forest Appointments.—Since writing on the above subject (p. 137), I have had occasion to travel through a very large extent of England towards Wales, and I took advantage of the opportunity to compare the system of forestry as pursued in England with that carried on in Scotland, and my impression was more than confirmed, that forestry as practised in the latter country is far superior to anything I had seen. I do not refer to what I could see from a railway carriage, but to what I have seen in various directions, and examined in the most careful manner; the result is, that I have no hesitation in affirming that Scotland holds the first rank in its forest operations. I am not surprised at the India Board desiring pupils for Indian forest appointments being sent to Scotland for practical instruction; but I am astonished at any one defending a system of wood management which would allow such waste of land and time to grow the timber, as I have seen on many estates, which, under proper management, could not fail to be first-class. As far as I had an opportunity of examining plantations, I have not seen half-a-dozen acres over the whole extent of country travelled through, which could possibly be called well managed. To many this charge will appear too sweeping: it is, nevertheless, strictly true, and can be verified on the spot. It has been often said that English proprietors are so excessively fond of game, they won't allow their woods to be thinned. This idea I found to be quite illusory, having met with more than one gentleman who very fully understood the wisdom of timely thinning, and, as one expressed, thinning the woods gave him better cover for his game. If the management of woods in other parts of England is not better than I have seen, it is really surprising to me how any man claiming to know much of forest management should find fault with the wisdom shown by the India Board requiring pupils for Indian forest appointments "passing some time in Scotland" for instruction. In making these observations, I wish it to be distinctly understood that I am quite free from a feeling of supposed superior knowledge in forest matters; my desire is to see forestry everywhere improved, so as to prevent the possibility of requiring to send pupils to foreign countries for instruction. And if the necessary practical instruction, at all events, can be acquired at home, even in Scotland, why find fault with others, if they possess the knowledge which may be denied to one's self? *A Forester.*—With reference to the various communications in your recent issues regarding the teaching of young men who are to be trained for the forest service in India, it appears to me that your correspondents have, with one exception, misapprehended the object of the present arrangement for instructing the junior assistants. I have visited the forests of Scotland and England, as well as many on the Continent, and I am of opinion that the whole system of forest science and management, both theoretical and practical (*Förstwissenschaft*), is more elaborate and carefully arranged in Germany than in any other country in Europe. The publications of Hartig, Burckhardt, and many others, show the importance attached to forestry in a country where the population depends entirely on wood for fuel. France, also, has large and well-regulated establishments for the conservancy of State forests. The chief training-school is the "Ecole Impèriale Forestière," at Nancy,—an excellent institution, where all the necessary branches are taught; and in the immediate neighbourhood are very extensive tracts of natural forest, where all the operations connected with forest science are methodically carried out. In Britain, on the other hand, while arboriculture is conducted with the greatest skill and success, and the finest specimens of trees and artificial planting may be seen, there is comparatively a small area of indigenous wood, and no school of forestry exists where the different branches of study can be mastered. It is not to be supposed that the experimental scheme now being carried out is without defect, but it will be admitted that the youths would be very imperfectly equipped for their duty in India if they had not an opportunity of witnessing the general management of forests on the Rhine, the timber slides in the Alps, valuation surveys, the division of natural forests into compartments, the economical manufacture of charcoal, and the collection of forest produce. All these details prepare the young officer for the kind of work which lies before him in the larger forests of the East, more than any teaching which he could receive in Britain, where by the force of circumstances the artificial forests are so small, and the operations on a scale less adapted for India. *Forest Ranger.*

Arboricultural Education.—In the note which I sent you last week, and which you did me the honour to insert, there is a trifling blunder, and which I would like to put right. I asked what we should think of a forester here who, instead of making his plantation by planting out young seedlings, should do it by allowing the old trees to shed their seed, and the plantation to grow up from that seed? The blunder is, that I or the printer have said "*young* trees to shed their seed." On this point, perhaps you will allow me to quote a *pièce justificatif* from your own pages. It is a description of the management of the Pomeranian Beech forests, which you will find in your columns of October 3, 1863. After describing the forests, and telling how they are subjected to a rotation of cutting, which is so arranged that each part is only cut once in 100 or 120 years, you explain that when the time draws near for any portion to be cut the right of pasturage is interdicted, and the Beech-mast allowed to lie undisturbed on the ground. This continues for three years, when the trees are cut. You then say, "The young crop has now sprouted, and the ground is covered as close as a nurseryman's bed with young Beech trees. These are allowed to grow untouched for about 20 years: no knife or axe comes near them. At that stage they are impenetrable to aught but the squirrel and the martin, or their like. After having been once thinned, the operation is periodically repeated, but the effect of thin, close growth during the early part of their life is never lost." If it is good forestry to grow the new crop by sowing the seed on the spot where it is to spend its life, then by all means send our young men to Germany to learn it. I hope they will never be taught it in England. But if this is not thought high forestry, why send them where such a retrograde system is practised? *C.*

Foliage Plants.—In the *Gardeners' Chronicle* of Oct. 31, 1868, p. 1141, Mr. Bennett gives a very interesting, as also instructive account of his success in the culture of Sanchezia nobilis variegata and Acalypha tricolor, which, he observes, are the two most beautiful and striking foliage plants of recent introduction, and probably two such specimens as those at Osberton Hall are rarely to be met with. After reading the account alluded to, I must confess I felt greatly disappointed that no reference was made in any way to Maranta Veitchii, which to my mind is not only one of the best of recent introductions, but decidedly the best of the three; and if Mr. Bennett has not already got it I can strongly recommend it to him and every cultivator of fine foliage plants, as not only being an excellent decorative plant, but unrivalled for exhibition. I have used it for the latter purpose two successive years in a collection of six, on each occasion my opponent being one of the most successful plant exhibitors of the present day, and although obtaining first and equal first prizes respectively, it was remarked to me each time by *connoisseurs*, "That Maranta Veitchii of yours has been the means of placing you in the position you have gained to-day." Since we have of late read of some extraordinary specimens of various kinds of plants, &c., I have thought the following description of the specimen of Maranta Veitchii at Raby would not be out of place. The plant referred to was purchased of Messrs. Veitch just two years ago, and was then in a 5-inch pot, with four small leaves; it is now in a 20-inch pot, has 50 fully developed leaves, and many others far advanced. The average size of leaves produced last year was 10 inches wide and 18 inches long (one of which I send for your inspection), the length of the leaf and stem together being close upon 4 feet. *Richard Westcott, The Gardens, Raby Castle.* [Our correspondent has rather understated the measurement of this splendid leaf. EDS.]

Red Currants.—In looking over the pages of some back numbers of the *Gardeners' Chronicle*, I find at p. 1259, 1868, a paragraph respecting some Red Currants sent to you by Mr. M'Lachland, gr. to J. B. Houston, Esq., Belfast, the name of which does not seem to be known. From the description given, I have little doubt but that it is the Woolly-leaved Red, one of the best late Currants known. It originated in Scotland, and is mostly grown there, being cultivated in large quantities for the northern markets. The variety was propagated for many years in the nurseries of Messrs. Dickson & Sons, Hawick, N.B. *J. Grant, Hanworth Park Gardens, Hounslow.*

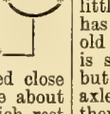
Orchid Buds Dropping Off.—Will any of your numerous correspondents be kind enough to inform me, what is the cause of the flower-buds of Phalænopsis dropping off? We have P. amabilis and P. Schilleriana. The former produced a spike about one foot in height, but instead of its flowering, the top of the spike died. It threw out side shoots below the dead part, and these flowered; but more than half of the buds fell off before they opened. Some time after P. Schilleriana threw up a flower-spike about 2 feet in height, with 12 lateral shoots, and had about 90 flower-buds upon it, two-thirds of which fell off. The temperature of the house is kept from 65° to 70° with fire-heat, allowing it to rise a little by sun-heat. The plants are healthy, and are always kept moist at the roots. *J. D.* [We have submitted your question to Mr. C. Pilcher, gr. to S. Rucker, Esq., who states that he finds that the dropping off of the buds of Phalænopsis is of frequent occurrence during winter, and attributes the cause to too much fire-heat. He adds: "I have found that, after a sharp night's frost, when more fire-heat has been applied, more buds have dropped immediately after than from any other cause. I scarcely ever hear of buds dropping off after February; but if the plants stand or hang anywhere near the heating media, I feel certain they will drop off in the winter months, whether the plants are healthy or not. It may be want of light in part, but I think excessive fire-heat the principal cause. I would advise that the points of the spike should be pinched out in the winter, if the flowers are not particularly wanted, as they would start again and bloom later, without any fear of their dropping off." EDS.]

Standard Pears in Frost.—Mr. Baines accuses me of misrepresenting his statements. I can only reply that if I have done so, it was quite against my wish, and I think any one but himself would conclude (from his letter in p. 164) that he proposed root-pruning as a panacea against frost. At any rate, "good management" is supposed by him to be a cure for the evils of season,

without artificial protection. Upon this point I join issue with him, and contend that no management, save actual defence, can save the bloom and the nascent fruit from the shafts of radiant cold. I quoted no "few instances" (as he, misquoting, makes me do), but spoke of general results throughout the valley of the Thames—some hundreds of square miles—and I might even say throughout the south of England. With the north I have not such acquaintance as would warrant me in forming any general conclusion. All I said was that local shows of fruit (however good) were not conclusive as to the plenteous growth of fruit on standards. With regard to his own trees, how could I know from his list of "kinds," the number of his individual trees, as he seems to have expected me to do? It now appears that he has only seven standard Pears to judge by, while I judge from some 7000. His "trellis-trees" (whatever they may be) are quite distinct from standards; whether he means by that expression espaliers, or trees against palings, or trained any otherwise. Mr. Baines also speaks of his "positive facts" in contrast with my mere "assertions;" I leave it to any one whether my facts, though not stated quite so positively, are less numerous than his own. Moreover, he says that set Pears will endure "one-third more frost" than the blossom will, *i. e.* (I presume), that if bloom is safe at 3° below freezing-point, the fruit will be safe at 4°. It may be so; I will not pretend to have gauged their powers so closely; but from long observation my belief is, that the Pear's footstalk is quite as vulnerable as its anthers, only having this advantage—that the grown leaves shade it more. On the 24th May, 1867, I could have sent Mr. Baines some bushels of Pears frozen through and through, black at the core, and only hanging until the stalk should wither. Fruit of every other kind upon standard trees, or ground plants, was killed, most impartially. This, as I admit at once, was an exceptional thing; but it is not such to see the ground under a tree (of any tender kind) carpeted with young Pears in May, showing yellow stalks. But if set Pears will bear one-third more of frost than unset, how can this avail them, when the frost is three times as much as any bloom could put up with? For the last 20 years I have known no May (except that of 1868) without 6° of frost: 4° hurts Pear-bloom, if there be damp with it; 6° is largely fatal, 8° kills everything. Once for all, let Mr. Barnes understand that I do not speak in any view of despondency. Such a charge should not be made; it is too much *ad captandum*. I live in hopes that we may find a remedy for these evils, and the object of my writing (when I ought to be grafting more Pear trees) is to have the whole matter sifted in true gardener's manner. For it seems to me, that true observation cannot abide with petulance. The one must oust the other, as the wild stock and the graft must have, one or other, the victory. If any man can tell me aught—and there is none who cannot tell me something—I am a fool not to take his knowledge, and work it into my own stock. In conclusion, let me say, that I hope these little discussions may lead us on to some improvement, some more accurate knowledge (such as I do not pretend to have, and cannot have without science) of the wondrously complicated subject of what I may call carpo-genesis. Can any man tell me why some Pears—or any fruit of other kind—swell right away, when once they are set, and come to a lumping size, and then stop, and then go on again, and then swell at a wrong angle (as Beurré Clairgeau does) without any care for the seeding time, and then take colour (without any sun), or lose colour in the brightest sun? Not to speak of the ripening process, which is most mysterious, and I could write pages about it, utterly unworth reading [? Eds], it seems to me that few things are of more perplexing simplicity than the growth of fruit. Although I have been too long by far—except for the sake of extracting more valuable opinions—I cannot cease without expressing my delight at finding that so close an observer, and so thoroughly sound a gardener as Mr. Radclyffe is, kindly expresses his concurrence with my vague opinions. *Pari Passu.* P.S. For "bloom *on* set fruit," in my letter at p. 194 *c*, read "bloom *or* set fruit."

Note on Indian Corn.—Having last summer succeeded in ripening Indian Corn on a plant from which the male flowers had been removed some time before flowering, according to the plan suggested in the *Gardeners' Chronicle* of the 6th of June last (and commented on at p. 626, 1868), I will, with pleasure, send seed, with instructions how I believe it may be ripened any year in this country, to any botanist who would like to carry on the experiment in the ensuing summer. For this purpose it should be planted early in March. With it will be sent, also gratis, some seeds of the Six-weeks' Maize, recently obtained from the Continent, which I hope, by a peculiar mode of treatment described,* may be grown to a limited extent as a garden, if not a farm crop, in the south of England, at least after a few years' cultivation. It is stated in Bouillet's "Dictionnaire des Sciences," that two successive crops of early Maize, or Two-months' Maize (*Maïs quarantain* and *Maïs à poulet*), can be produced in one season. Supposing the experiment should prove a failure, or that the male flowers should, if reduced in number, be insufficient for the fertilisation of the female, or be in any other way defective, yet it appears to me useful results may be arrived at. It may, for instance, turn out that if the male flowers (together with the two or three uppermost leaves which have no flowers in their axils) of every other plant in a Maize field are removed before flowering, the plants so mutilated will produce one cob more than the unmutilated ones do, and if so, one or two more quarters of seed per acre would be produced.* And as it is stated in the work referred to, that when green it makes a most substantial food for cattle, particularly cows, as also do the leaves which are stripped off to permit the ears to ripen, it will scarcely be doubted that the male inflorescence, with the two or three uppermost leaves, would be equally good food, and perhaps, especially in France, pay or more than pay the expense of removing them. A question naturally suggests itself as to whether all the female flowers of the mutilated plants would be fertilised. To this I can only reply that, from my experiment last summer, I suppose that might be the case, as the male flowers remained in flower, I should think, nearly a month before pollen ceased to be produced; besides which, I should expect some male flowers would be produced by the mutilated plants, at the upper part of one or two of the spikes of females, and these coming later, might make up any deficiency that might occur. Both the plants experimented on produced males in this way, though in one of them no anthers could be found. A plant from which the male flowers have been removed produces, as might be expected, an increased number of cobs, *i. e.*, spikes of females,—mine last summer having produced nearly double the number, or what is more important, I suppose nearly double the number of female flowers. And, what is remarkable, instead of the cobs being nearly sessile, they were elevated in long stalks. In another plant raised from the same sample of seed, from which the male flowers were not removed, the two cobs, one of which ripened seed, were as nearly sessile as usual. The estimated crop of Indian Corn in the United States in 1867 (the estimate being that of the Agricultural Department) was 800,000,000 bushels; and supposing by this process the produce were to be increased by only one-eighth, the amount of increase would be surprising. As the plant is grown in rows, so far apart that a horse and plough can pass between them, there would be no difficulty in the workmen getting at the plants. *B. Clarke, F.L.S., Mount Vernon, Hampstead.*

Fruit Protection.—Will Mr. Radclyffe supplement his description of fruit protection by answering the following questions for me, and probably many others interested in the matter? 1. "Under the copings a rod of similar length is fixed with iron loops, with a supporting lip in the centre," &c. At what distance from the wall is the rod? Is the loop just a bent iron, with the two sharp ends driven into the wall? What is the supporting lip? and in the centre of what? 2. Is it meant that the curtains of sail-cloth form only a roof 22 inches wide from the line of battens to the wall, or is there any perpendicular curtain besides? and should I understand that the "sheets" mentioned are the identical top or roof "curtains?" I wish to form some protection for wall-fruit trees, and if I understood Mr. Radclyffe's construction at all, it seems good, but I am in doubt if he means only a sail-cloth sloping cover or roof, or a roof and perpendicular curtain; also whether a certain space between the rod and wall is left open. For if so, it would seem, from all the discussions in the *Gardeners' Chronicle*, that radiation through that open space (though small) would tend much to neutralise the protection. The suggestion to use aloes-water to prevent scale and other pests seems a good one, and I mean to try it. *A. S.* [We have submitted the above to Mr. Radclyffe, who kindly answers as follows:—How difficult it is to make oneself understood in writing. One-half hour's "chat," with the trees before one, to illustrate, is worth a volume. The lip under the centre of the rod under the coping is like this—



* goes into the wall, ** is where the rod rests; the rod can be lifted up to let the rings pass, or you may fold up the sheets both ways to the lip. There is no need of the lip for the rod which rests on the battens. The rod is placed close to the wall under the coping. The sheets are about 22 inches wide, inclined to the iron rods which rest on the battens. There is no perpendicular curtain. I dare not put one up, as a gale might come on in the night and tear up the sheets and bruise my blossoms. If trees are in a valley, 22 inches protection would not be enough. The sheets, in such case, should be, as I had them in the hoar-frosty valley at Rushton, 6 feet wide. "Idstone," of the *Field* comes on Saturday: he will see a glorious sight. Rivers' Early Alfred was last year the masterpiece in fruit, as it is this year the masterpiece in blossom. Every triple bud has a leaf. I wish I could say the same of Noblesse, which on the whole is, I think, the best of all Peaches. Buy (or rather bespeak—for I doubt whether you could get them as trained trees now) trained trees of the Early Alfred and the Princess of Wales Peaches. The Early Alfred, 22 inches high and 48 inches in expanse, had last year 17 fine Peaches, blood-red, which looks like the broad glare that foreruns the simoom. All comers here stood opposite to royalty, and beheld, wondered, and admired. The Eddystone lighthouse is not more exposed than this place. There is no need of a lip in protected situations. *W. F. Radclyffe.*]

* The number of cobs on a plant is variable, but three may be considered as about the average.

Foreign Correspondence.

Gardening Notes from Russia: *Koorsk.*—I am at last on my way to the north, and staying a few days with a friend here to look about me a little. This town is about 250 versts from Harkoff, with a population, I should suppose, of from 30,000 to 40,000 inhabitants, chiefly occupied in trade and agriculture. It is situated on a hill, near 200 feet above the general level, and from almost any part of it a view of the surrounding country, to a distance of about 30 versts, may be obtained. As usual there are a great many churches, including one or two convents. The environs are exceedingly beautiful, being characterised by a profusion of that wood and water scenery which is the delight of some landscape painters.

There is an immense number of cottage gardens in the valley on the east and north sides, and of course kitchen vegetables are the principal productions. But even the highest parts of the town are studded with gardens: almost every house has a plot of ground to it, and fruit trees, especially, are in great abundance. The gentleman with whom I am staying has a large house of two floors in a central part of the town, with about 6 acres of ground attached to it, and he pays only 300 roubles a year (about 45*l.*). There are a great many large fruit trees, chiefly Apples; but his position does not permit him to cultivate the garden on his own account. He sells the right to the fruit in summer to the highest bidder, and the ground affords pasture to a few cows. This is the general custom all over the country. I have seen extensive orchards, the trees loaded with fruit, sold in summer for 3*l.* or 4*l.* When the bargain is struck, the purchaser, usually some poor man who sells the produce to the dealers in town, erects a temporary hut, and lives on the ground gipsy-fashion, having a good dog for a companion, not so much for his own safety as for keeping off thieves. Those who have orchards here have no other resource, for otherwise long before the fruit was ripe the trees would be stripped, for it generally happens that the landowner's watchers go to sleep; it is only the poor man who manages to keep thieves away, and gather his fruit as it ripens.

The authorities have lately been at considerable pains and expense to make a square in the most central part of the town, but whoever has had the laying out of the ground and the planting of the trees does not appear to have been a master in his art. The situation is so high and open that it is almost always swept by currents of wind, and only the very hardiest trees can stand the winter here without shelter, where the thermometer is at—35° Reaumur nearly two months at a time. Such trees as Tilia, Betula, and Acacia, are not likely to thrive in such a place.

There is in another part of the town a public promenading garden, which I consider quite a gem of sylvan beauty, though only about 6 or 7 acres in extent. In this direction the trees everywhere are in the greatest luxuriance, for not only is the climate not so dry, but the soil is not so sandy as in the district of Harkoff. Here the ground is heavier and stiffer, it is also plentifully mixed with stones, which seem to have had their origin in volcanic action. These stones are used for the roads, and they are sometimes large enough to serve as pavement. By-the-by I ought to tell you that in Little Russia you may travel several hundred versts and not find a stone as large as a pebble. The town of Harkoff is paved with stone brought from a distance of nearly 200 versts, and at considerable cost.

Between Harkoff and Koorsk there are almost no woods or forests by the way, nothing but the vast open plain, called in Russian *steppe*, with here and there a lonely hut, or a lonely tree, or bush, or barn; or a solitary crow picking at the dead carcase of a horse or ox that has fallen by the way. Sometimes, indeed, even the station for the diligence is quite alone, and hardly affords anything better than a jug of water. There are houses and peasants somewhere, no doubt, though they are seldom seen from the road, for all those vast steppes are covered with luxuriant crops in summer; and now, near the end of September, the fields of young Wheat are quite green.

It must be owned that the post road is kept in excellent condition, and in fine weather, as at present, the diligence runs along easily and rapidly. But in a year or two or more this spacious highway will be very little used. It is strange that the system of Macadam has never been adopted in any of the towns here. The old mode of paving the streets with large round stones is still followed, and not only is the noise intolerable but the holes are so numerous that the wheels and axle-trees of carriages are frequently broken, and then there is the damage to the feet of the horses, and the jostling and shaking to the riders. I have myself seen some serious accidents from this cause, for it is the fashion in Russia to drive at full speed, only those who ought to keep the streets in repair are never in a hurry. The diligence from Harkoff to Koorsk contains four passengers inside. It happened on this occasion that three of them were loyal subjects of Queen Victoria.

After having experienced the discomforts of travelling in the interior, by the ordinary conveyances, such as the small cramped-up diligence, and the open post-cart, called in Russian *periclodnoy*, which I think might be correctly translated "clod-crusher," it is no ordinary treat for me to see a railway carriage once more. But the station is about three versts off, and the road to it, as well as all the roads and streets communicating with this town, is straight down the hill. But it is a road which baffles description. It is always the same story. The road-makers here must always go straight to work, none of your winding and turning for them. Then there are the magnificent stones, just large enough to upset a carriage; and the nice little holes, just the very size to hold it, horse and all, and here and there the narrow passage between two ravines; *Ax Batooshka! eta procta tshooda!* But with a careful driver I manage to get to the level ground without accident; and then, crossing the bridge which spans the river, very soon arrive at the station of the Koorsk and Moscow Railway, happy that I am again within the pale of civilisation. *K.*

Societies.

Royal Horticultural.—James Bateman, Esq., F.R.S., in the chair. The usual preliminary business of the meeting being concluded, the Rev. J. Dix announced the awards of the Floral Committee. G. F. Wilson, Esq., in commenting on the meagre exhibition brought before the notice of the Fruit Committee on this occasion, as contrasted with the profusion at the last meeting, referred to the fruit of the Citrus japonica, or Kumquat of the Chinese, sent by Mr. Sherratt, gr. to James Bateman, Esq., and requested Mr. Fortune, who

had had the honour of introducing the plant into this country, to give them his experience of the Kumquat. Mr. Fortune stated, in reply, that he would prepare a short paper on the subject, which could be read at the next meeting. Mr. Wilson then remarked that at the last meeting, the chairman (W. W. Saunders, Esq.) had asked if it had been ascertained in what manner the fruit then exhibited had been kept? In reply, the following gentlemen (being, in most instances, the prize-takers on that occasion)—Mr. Whiting, the Deepdene; Mr. Cox, Redleaf; Mr. Saul, Stourton; Mr. Wells, Holme Lacy; Mr. Lynn, Hedsor Gardens; Mr. Gilbert, Burghley Park Gardens; Mr. Ford, Leonard's Lee, Horsham; and the Messrs. Rivers & Son, Sawbridgeworth—had favoured the Committee with particulars respecting their various methods of preserving fruit. From these returns it had been ascertained that the largest proportion had been kept by placing the fruit thinly upon dry boards, and by careful and unfrequent handling. Some had also been kept in good condition in cork-dust, and in saw-dust. It was also stated that an abstract from the communications of the above-named gentlemen would be given in an early number of the Society's Journal. Major Trevor Clarke then said that he had heard, that to keep fruit well it was necessary to exclude the light from the room in which it was kept, and that he had had wooden shutters made for the windows of his fruit-room for that purpose; but he had found that those exposed to light kept as well as those in the dark. It was also said that when fruit had become frozen, if kept in the dark until the frost had disappeared it was not materially injured thereby. He (Major Clarke) hoped that the Society would be favoured with further information on these points.

The Rev. M. J. Berkeley then alluded to the fruit exhibited at the last meeting under the name of Solanos guisados. He had found on referring to a Spanish dictionary that the word guisados meant cooked, and that he had no doubt but that the fruit would be found as serviceable as that of the Egg plant. The plant furnishing the Solanos guisados he had ascertained to be the Solanum betaceum, a plant of which there was a coarsely executed figure in Cavanilles' "Icones." Owing to some trifling difference in the anther, some botanists had placed the plant in the genus Cyphomandra, but the distinction from Solanum was so very minute that it was not worth while to make two genera. Mr. Berkeley then said, in reference to the specimens of Phormium brought before the meeting, that since the last meeting he had examined the specimens of this plant at Kew, and found from the specimens there that P. Cookianum and P. Colensoi were the same, and that by the rule of priority the former name must be abandoned. He then alluded to the excessive variability of the species of Phormium, even the capsules varied enormously in size, and to a less extent in form. P. Colensoi was stated to have a narrow twisted capsule, but the only characters relied on by Dr. Hooker in his "Flora of New Zealand" were these: that in P. tenax the leaves were split at the tip, while in P. Colensoi they were not. Now in the plants exhibited by Mr. Bull the leaves were not split at the tip, while in those from Messrs. Veitch the leaves were split as in P. tenax. There was one variety described with globose capsules, and it was possible that some of the specimens exhibited belonged to that form. Mr. Berkeley then exhibited a small branch of an Elm that was covered with gnaurs, and which was found in the park adjoining Ketton Hall, in Rutlandshire, and stated that these knots were studded with adventitious buds, which in some instances had developed themselves into shoots. He (Mr. Berkeley) exhibited the Vine roots mentioned at p. 195, and after making some comments thereon, produced a branch of Cupressus Lawsoniana, brought from the Society's Garden, Chiswick; this plant was at all times very ornamental, but especially so at present, the branches being covered with the male inflorescence, which gave to the plant an elegant appearance, much resembling C. fragrans. The seeds from which these plants were raised was purchased some years ago at Messrs. Stevens' saleroom, and it was found, among the specimens raised from that seed, that there were as many plants of C. fragrans as of C. Lawsoniana amongst them, and therefore probably C. fragrans and C. Lawsoniana were mere varieties one of the other. Mr. Berkeley then referred to a blue-flowered Anemone from Messrs. Backhouse, called A. blanda, which was like A. apennina, but whereas the latter was only now coming into bloom, A. blanda had been in bloom all the winter. In Mr. Ware's collection of plants, to which Mr. Berkeley next alluded, there were three species of Primula, one of which were thickly powdered over, whereas the others were not, and Mr. Berkeley stated that there was no doubt but that the species not powdered were the true P. denticulata and P. amœna, and that the powdered species was properly named P. erosa or P. Fortunei. Among the plants shown by Mr. Green, gr. to W. W. Saunders, Esq., were two very interesting specimens of Lopezia superba, which was considered by some to be a mere form of L. coronata, a well-known annual; but it would be seen, from the specimens before the meeting, that the present plant was a perennial, and that it was very useful for conservatory decoration at this season. Mr. Berkeley, in continuation, stated that at the last meeting specimens of Spiræa Thunbergii were exhibited, and he had since ascertained from Mr. Standish that it was capable of being worked on all the varieties of Plum stocks. Allusion was also made to a variety of Tulip hymenophyllæ, [illegible] in Mr. Standish's [illegible] and it was stated that specimens had been given in evidence to the [illegible]. Mr. Berkeley then stated that, [illegible] to the Society's publications having been considered by the Council, it was resolved that the [illegible] and future Society's Journal should be conveyed to the Fellows at once, and in a more regular manner, and that No. 6 of the present series would be in the hands of the Fellows in the course of a week or ten days. The Journal would in future be divided into two parts, one of which would contain original matter, and the other would be allotted to the reports of the business conducted at the general meetings, and the subjects brought before the Scientific, Fruit, and Floral Committees respectively. These latter reports would be made immediately after the meetings of these bodies, and would be sent out piecemeal in the form of sheets, which sheets would be sent to those Fellows who cared to have them at the time, and they would ultimately be incorporated in the Society's Journal as heretofore, so that it would not be necessary to retain the sheets longer than the time necessitated for the appearance of the next number of the Journal. Mr. Berkeley then stated that those Fellows who lived at a distance could have the sheets forwarded to them on application to Mr. Richards, the assistant-secretary, by forwarding him 12 stamps to defray the cost of postage. The publication of the present Proceedings will be stopped forthwith, and notices to Fellows and information of that character will be circulated in the form of slips.

The Chairman then, alluding to a remarkable branch of Elm, studded over at regular intervals with knots like those on Mr. Berkeley's specimen, stated that he had procured his stick last Christmas from a garden near Pau, in the south of France. The whole tree was affected, the nodes on the trunk being as large as a man's head, those on the larger boughs as large as the fist, while on the smaller twigs they were no larger than Peas. He thought these nodes might be used by Fauns and Dryads as a substitute for rosaries. Anxious that so curious a tree should not be wanting in England, he had fortunately procured some scions which had been sent down to Chiswick, so that the Fellows might in future be able to grow their own knotted sticks. He stated that these curious productions were analogous to the protuberances of the Olive trees in the south of Europe, and which were used for the purposes of propagation. Alluding to the Orchids exhibited, Mr. Bateman mentioned in terms of disparagement the curious, and, when well grown, not inelegant Orchid, Oncidium abortivum. A pure white-flowered variety of Lycaste Skinneri, with a golden tinge in the lip, from Mr. Williams, was then alluded to as one of the best of the bridal Orchids. Allusion was then made to Orchids sent by various exhibitors, including fine specimens of Dendrobium macrophyllum, from Mr. Forsyth, gr. to Baron Rothschild, and to Dendrobium luteolum, which was at first thought to be a worthless species, but which, when well grown, proves to be very desirable, from its primrose-coloured flowers, which remain in perfection for as long a time as three months. The rare yellow-flowered Ipsea speciosa, from Ceylon then came under notice, and it was incidentally remarked, in connection with this plant, that the Government had recently erected a new Orchid-house at Kew, and that no doubt Mr. Smith, the able curator of that establishment, would in future be among the first to flower novelties among Orchids. Dendrochilum glumaceum was stated to be one of a group, of which several other representatives were not yet introduced, and which were remarkable for the grace and elegance of their flowers, which rendered them desirable ornaments for ladies' head-dresses in place of the feathers, for the sake of which so many birds were cruelly and ruthlessly slaughtered. With reference to the Kumquat, the Chairman requested to know if anybody to whom cuttings had been sent last year had succeeded in grafting it. The most suitable stock for it was Limonia trifoliata. Major Clarke had succeeded in raising a seedling of it; it was a plant in every way worthy of being increased, as, though worthless when grown in pots, yet when planted in a conservatory border it forms a very ornamental shrub. Mr. Bateman stated that he should be happy to supply any of the Fellows with grafts who might require them. Allusion was then made to the Pakington plant trainer, as an ingenious contrivance, adapted to any-size pot, and readily shifted from one to the other. In conclusion, Mr. Bateman remarked that Primula denticulata seeds freely in North Staffordshire.

Scientific Committee: *March* 2.—W. W. Saunders, Esq., F.R.S., in the chair. After the transaction of the formal business of the Committee, Mr. Berkeley exhibited the Fungus alluded to in our last number (p. 226). The specimens in question had been forwarded by the Rev. H. Dombrain, and was considered to be a form of Dædalea quercina. Mr. Berkeley next called attention to some buds of the black Currant, sent from Bedale, Yorkshire, and which were curiously deformed, similarly to those described in our columns by Mr. Berkeley in 1861 (p. 363). Professor Westwood, on examining the buds referred to, gave it as his opinion that the growth in question was due to the attacks of a peculiar species of Acarus, differing considerably from other species in its tapering form, and in its having four legs instead of six.

Mr. D. T. Fish, of Bury St. Edmund's, sent a communication relating to the Lady's Kidney potato, which had not produced a second growth by "supertuberation" as other varieties did last season, and he propounded sundry recondite questions as to the cause of this exemption, which the Committee felt it beyond their power to answer. Mr. Fish also sent a communication on the Sugar-Beet, but the illustrative specimens had not reached their destination. The peculiarities of the Beet in question were stated to be that the whole of the crop buried itself up to the leaves in the soil instead of a portion of the "stock" remaining aboveground. The seed was sown late in the season, and the land was highly manured. Mr. Fish was anxious to know the reason of this phenomenon, but the Committee, in the absence of the specimens, and without a full knowledge of all the circumstances, could arrive at no certain conclusion. Mr. Berkeley remarked that it was well known that the portion of the root stock aboveground contained less sugar than the subterranean portion. Mr. Saunders, on the other hand, observed that he had seen in Belgium a particular variety of Beet with long snake-like stocks aboveground, and which nevertheless was stated to be the best adapted for sugar-making. Dr. Voelcker remarked that nitrogenous manures tended specially to the formation of tap-roots, while farmyard manure, on the other hand, favoured the production of bulbous stocks. In allusion to a remark of Mr. Berkeley, that it was not customary or desirable to grow two crops of Beet on the same land in succession, Dr. Gilbert remarked, that in Germany and elsewhere—where, owing to certain fiscal regulations, it was desirable to obtain a high percentage of sugar—a crop of Beet was first grown for feeding purposes, and afterwards a crop for sugar. Dr. Voelcker remarked that the conditions necessary for growing Beet for sugar were precisely the reverse of those required for the cultivation of Beet as food for cattle.

Dr. Masters exhibited a remarkable instance of fasciation in a Rose, Madame André Leroy, forwarded by Mr. Laxton, who states that this variety is particularly liable to this change, as it has regularly shown itself during the last three years.

Dr. Masters also read the following communication from Mr. W. Tillery of Welbeck, on the acclimatisation of Truffles in Australia. Mr. Tillery expressed his belief that there was a probability of successfully introducing Truffles into Australia, by the method proposed by a correspondent of the *Gardeners' Chronicle* (p. 220). Mr. Tillery based his opinion on the following facts:—

"When I first came to Welbeck in 1837 no Truffles were ever found or heard of in the locality, but they afterwards appeared in a young Oak wood near the pleasure-ground, and close by the lake. The Oaks in this wood had a growth of about 20 years, and I thought from the nature of the soil that Truffles were likely to grow in it, if I could manage to introduce them. I had therefore the over-ripe Truffles and the parings of the skins of others from the kitchen planted there for a series of years, and was agreeably surprised one autumn by one of the men bringing me a fine Truffle that he had found when mowing the Grass near the verge of the plantation. This tuber had grown near the surface, for he had cut a small portion of the top off with the scythe. This discovery was amply rewarded by the then Duke of Portland, for the man got a gratuity, and was ordered to point out the place, which was not disturbed afterwards for a year or two. The Oak leaves were likewise not raked off, but allowed to rot on the surface, and afterwards I found plenty of Truffles every autumn, not by a dozen or two, but sometimes as many as 6 lb. at a time when wanted for particular purposes. I sent once a fine large tuber of the weight of 6 oz. to the late Dr. Lindley, who wrote me back that it was a very fine specimen of the true Truffle, Tuber æstivum. From not having Truffle dogs to scent out the ripe ones, a great many young or only half-grown tubers were taken up every autumn, which was of course against the supply. The squirrels were the best purveyors for finding the ripe tubers, for as soon as they began to ripen Mr. Squirrel scented them out, and if not disturbed scratched down to the Truffle, and had a good feast on it. The soil of the Oak wood which produced these Truffles was of a calcareous nature, and had evidently been originally excavated from the bottom of the lake, for it was full of small fresh-water shells. This plantation produced Truffles every year till some alterations in the pleasure-grounds were planned, when all the young Oaks were cut down, and the ground raised 4 feet higher, which of course settled all the interesting colony. Some years before this took place I had planted some ripe Truffles (taken from the same plantation) below some large Beech trees on the opposite side of the lake in the park, but there the soil was of a light sandy nature. The way I planted them was by taking up a large spadeful of the soil, with a ripe tuber in it, and not disturbing it in any way. A few being thus planted, I had a cartload of the original soil from the Truffle plantation put over them, and the bed covered with Beech leaves. This bed, in two years after planting yielded Truffles sparingly, but they never spread from the original spot, and being open to the deer and cattle in the park they were soon lost sight off. In trying to introduce the Truffle into Australia with a prospect of success, I should advise the following method to be tried, namely, to pack in barrels some of the soil in which Truffles had been grown, and then in the middle of the barrels to plant a few ripe tubers in patches of the original soil without disturbing them. The tops of the barrels could be made movable, so that the soil could receive a slight sprinkling of water at times, to prevent it from getting too dry and cracking. As the autumn would be the best time, when ripe Truffles could be had, both the Tuber æstivum and the French variety, melanosporum, might be tried, in order to give the best chance of success. Another great point in their culture in Australia would be to select a suitable soil, of a calcareous nature if possible, and if that could not be found to mix in the soil selected, chalk, lime rubbish, or pounded shells. The site chosen also should be shaded slightly with the scrub bushes, and if acorns and beech-mast were sent out in the soil in the barrels, they would vegetate on the voyage, and be ready to plant out when the Truffle beds were made. There is no doubt but that Truffles naturally grow best in calcareous soils, and near the roots of young Oaks or Beech trees, and rarely under Firs; the best way therefore to succeed in their artificial production is to plant them under such trees and in a suitable soil. Our ingenious neighbours the French have started many fanciful theories about the growing of Truffles, and notably one about a Truffle fly, which they say always abounds in the woods where they grow, and propagates them. This insect, may, I think, as far as regards the truth of its propagating Truffles, be placed in the same category as Aphis vastator, when it was believed by some to cause the Potato disease."

Mr. Andrew Murray doubted the possibility of successfully cultivating Truffles in Australia, owing to the absence of chalk. He advised that soil from a Truffle-infected district should be sent out, and also acorns from a similar situation.

Mr. Berkeley mentioned, in substantiation of the latter part of this statement, that some few years since some berries of Pyracantha affected with Fungus were introduced into this country from Russia, and that every plant raised from these berries was afterwards found to be affected with Fungus.

Professor Westwood alluded to the grub of some coleopterous insect, probably nearly allied to Hispa or Chrysomela, which was found on a Saccolabium, and which it was considered served as the "host" in which the eggs of the hymenopterous parasitical insect alluded to at the last meeting of the Scientific Committee (p. 196), were deposited.

Major Trevor Clarke then drew attention to the efficacy of Condy's Fluid (permanganate of potash), in the cure of ulcers in tender bulbs, Aloes, &c., caused by drip.

Mr. Horne exhibited photographs of the beetles and other insects injurious to timber in India. The photographs were beautiful specimens of the art, and displayed the insect in its various stages, from the grub to the mature state.

Floral Committee.—The Rev. Joshua Dix in the chair. The Messrs. Veitch & Son exhibited on this occasion the plants of Phormium produced at the last meeting, and respecting the correct names of which a question had been raised. They consisted of the green and variegated forms of the typical Phormium tenax, with broad flaccid or drooping leaves; and green and variegated forms of a narrower and more rigid leaved plant, the green state of which had been received by them from the Botanic Garden of Hamburgh, as P. Cookianum. This had been determined by Mr. Berkeley to belong to P. tenax, one of the distinguishing characters of which was to be found in the splitting of the apex of the leaves, and it was now distinguished by the name P. tenax Veitchianum. The P. Cookianum, found to be synonymous with P. Colensoi, as already stated by us, is a smaller and narrower leaved species, of which plants were exhibited both at this and the previous meeting. The variegated form of the rigid variety of P. tenax, which was that which on this occasion came before the Committee for adjudication, received a First-class Certificate. Messrs. J. & C. Lee obtained a similar award for Thuja gigantea variegata, a handsomely variegated hardy Conifer, in which patches of the young twigs attain a clear yellow tint, thus producing a most effective variegation of the plant, similar to that which occurs in one of the forms of Cupressus Lawsoniana. A very richly-coloured English seedling Rose, called Duke of Edinburgh, from Messrs. Paul & Son, of Cheshunt, received a First-class Certificate. It was a cupped flower, of a rich shaded crimson scarlet, remarkable for its brilliancy. From Messrs. Standish & Co., of Ascot, came a dwarf form of Todea hymenophylloides, to which the name of compacta was given; it had appeared in considerable numbers amongst self-sown seedlings, and though some six or seven years old, with a dense tuft of small fronds and a thick caudex, was not more than 2 or 3 inches high. A First-class Certificate was awarded. Mr. Wilson, gr. to W. Marshall, Esq., Enfield, received First-class Certificates for two very beautiful varieties of Odontoglossum triumphans. One of these, named Marshallii, had the yellow sepals and petals thickly blotched with patches of cinnamon-brown, the petals somewhat toothed, and the lip white, with frilled yellow margin and brown tip. The other, named Wilsoni, was very distinct-looking, having polished pseudobulbs, and smoother flowers, with the lateral teeth of the crest of the lip obliterated; on this the sepals and petals were marked with fewer but larger blotches of brown, and the lip was much less frilled. They were both very handsome forms. Mr. Sherratt, gr. to J. Bateman, Esq., also received First-class Certificates for cut blooms of two rare and beautiful Orchids, Bletia Sherrattiana, with rich rosy-purple flowers, and Ipsea speciosa, with flowers of the purest and brightest yellow. In addition to the foregoing, Messrs. Veitch & Sons exhibited a solitary-flowered Trichopilia, closely resembling Pilumna fragrans, with pure white large-lipped flowers, bearing a yellow spot, and converging sepals and petals, and having flat pseudobulbs, with a single oblong leaf; the old Arum Dracunculus; and very interesting collections of Orchids and spring flowers, to which Special Certificates were given. In the former were good plants of Odontoglossum niveum, Trichopilia suavis, Dendrobium lasioglossum, and some nicely-bloomed plants of Lycaste Skinneri. Among the latter were the beautiful Anthurium Scherzerianum, and the pure yellow Azalea altaclerense, Mr. Forsyth, gr. to the Baron Rothschild, Gunnersbury, had a Special Certificate for two plants of Dendrobium macrophyllum, and an Epidendrum macrochilum album: cut specimens of which latter were also sent by Mr. Warren, gr. to J. L. Lovetty, Esq., Burton-on-Trent. Mr. Lorimer, gr. to E. Salt, Esq., Leeds, received a Special Certificate for a finely-grown spike of Odontoglossum Hallii. From Mr. Williams came a nice group of Orchids, including Gongora truncata, Odontoglossum Cervantesii roseum, Dendrobium nobile; two varieties of Calanthe vestita—the one, nivalis, pure white, the other, Turneri, with red eye; and a lovely pure white Lycaste Skinneri named alba. These had a Special Certificate. Mr. Williams also sent a crispy and crested form of Adiantum Capillus-Veneris, and Thrinax nobilis, a smooth-stalked slender Palm, but they were not sufficiently developed. Mr. Stone, gr. to J. Day, Esq., Tottenham, sent Dendrobium Williamsoni, from Assam, just blooming, in a weakly state, on the imported plants; its flowers were of a dull straw colour, with a dense orange-coloured spot on the lip. Mr. Ware sent an interesting group of spring flowers, in which were the charming Iris reticulata and I. persica; also a basket of Primulas of the denticulata section, comprising three distinct forms—P. denticulata, with weak scapes, and small lilac pale-eyed flowers; P. amœna, with narrower, less toothed leaves, and stouter scapes, and larger pale-eyed lilac flowers; and P. erosa, or Fortunei, with powdered stems and deeper lilac flowers, with a yellow eye. These are charming hardy perennials. From Mr. Bull came a Java plant, named Amorphophallus picturatus, but which was supposed to be Sauromatum asperum; it bore a narrow, elongated, half-closed, incurved, chocolate-coloured spathe. Mr. Green, gr. to W. W. Saunders, Esq., exhibited a mixed group, in which was the graceful habited Lopezia superba, with curious small red flowers, and the seldom seen rosy-pink long-tubed Fuchsia macrantha. Mr. Wilson had, besides his Odontoglossum triumphans, two plants of O. Alexandræ, one prettily spotted, the other pure white, with a yellow red-lined crest. Mr. Turner produced a small plant of the beautiful Coleus Princess Royal, with yellow-edged leaves of a rich bronzy tint, finely shot with purple. These new golden Coleuses are, with the increased light of returning spring, assuming the most exquisite tints. Mr. Turner also had some berries of Aucuba japonica, of a remarkably elongated form, which had been produced by some of Mr. Standish's seedlings A group of Orchids from the Society's collection received a Special Certificate. The Pakington plant trainer was exhibited by Messrs. Matterson Huxley & Watson, of Coventry. It consisted of a skeleton cone of galvanised wire with a flat circular hoop at the base, and was fixed to the pot by two flat transverse curved iron bars pressed against the pot just beneath the rim by means of nuts and screws. Permanent trellises of this kind are of little practical utility except in the case of plants grown to full size, as the plants cannot be detached with facility, but the mode of fitting them to the pot was ingenious and easy of application, and might perhaps be found useful in the case of plants like Pelargoniums, in which the training is an annually renewed process.

Fruit Committee.—There was a very scanty display of subjects brought before the Committee on this occasion. Mr. Thomson, Dalkeith, sent two bunches of the White Lady Downe's Grape, a cross between the Lady Downe's Seedling and Bowood Muscat, together with one bunch of the original Lady Downe's Seedling for comparison. On tasting the white variety it was found to be insipid in flavour, and much inferior to the black variety. Mr. Thomson accounts for this by the sap having risen in the Vine, and dissipated the flavour. Mr. Sherratt, gr. to James Bateman, Esq., sent fruit of the Citrus japonica (Kumquat of the Chinese) referred to at the general meeting. Messrs. Stuart & Mein again contributed a fine and interesting collection of Variegated Boreoole, amongst which were some exceedingly pretty proliferous varieties.

Notices of Books.

Dendrologie.— Bäume, Sträucher, und Halbsträucher, welche in Mittel und Nord-Europa im Freien kultivirt werden. Kritisch beleuchtet von Karl Koch, M. and Ph.D., Professor der Botanik zu Berlin. 1str. thiel. Erlangen, 1869. (Williams & Norgate.) Trees, Shrubs, and Under-shrubs, cultivated in the Open Air in Central and Northern Europe, &c.

[Second Notice.]

Professor Koch, as our readers know, is one of the ablest systematic botanists in Germany; has for long held the office of Professor of Botany in the University of Berlin, conducts the *Wochenschrift* (the *Gardeners' Chronicle* of Germany)—is, in fact, the Lindley of Prussia so far as learning and knowledge of plants is concerned; he has for years had the direction of the Royal Arboricultural School at Potsdam and Sansouci, and has possessed peculiar and unusual advantages for undertaking such a work, from his travels in the East, and from a constant succession of periodical inspections and visitations of the great botanical gardens throughout Europe—visits partly imposed on him by his official duties, and partly undertaken by himself for the sake of the present work. In his preface he mentions some of these advantages, as well as the sources from which his materials have been taken; and among these we are especially pleased to see the hearty and genial recognition of the merits of the "Genera Plantarum" of our own great botanists, Bentham and Hooker. Professor Koch has for the most part followed the distribution of genera and families adopted by them; although he adds, in a tone of apologetic modesty, very characteristic of the single-minded author, that it cannot be supposed that a man should have studied a subject for 40 years without having arrived at convictions of his own on many points, and when those run counter to the opinions of other authors, however eminent, he has felt bound to follow his own.

We have heard it said that it is expected that the work will be completed in two volumes, of which the first has just appeared. But this volume says nothing to that effect; and looking to the amount of matter that has still to be gone over, we should have some doubts of two volumes being sufficient: but time will show. The present volume contains the Polypetalæ—beginning with the Leguminosæ; the old genus Genista is treated as a sub-family, and is broken into several genera or sub-genera, one of which (Enantiosparton), made for the old species Spartium radiatum, is new, and proposed by the Professor himself. This we think is the only instance in the volume where he has added to the number of existing genera, although an occasional alteration or modification of the characters of some of the known genera has sometimes caused a redistribution of some of the species composing them. Following the Leguminosæ come the Rosales, or, as he prefers to call them, the Rosifloræ; and here the Professor's work will be especially valuable to pomologists. What was grievously wanted was the authoritative dictum of some one in whom all had confidence on many disputed points relating to the origin and affinity of our cultivated fruit trees. Loudon had not the necessary weight as a botanist, besides being behind date. Koch's opinion will be generally accepted, not only as that of a great botanist, but as that of a singularly shrewd and clear-headed man. Strong on every point in arboriculture, he is especially strong on all relating to cultivated trees; and under the Rosales we have of course his opinion on the cultivated species of Roses, Apples, Pears, Peaches, Plums, Almonds, Currants, Raspberries, *et hoc genus omne.*

Whether Professor Koch be right or not in the opinions he gives regarding them, will of course be matter of opinion and discussion, but it is a great thing to have got put on record the opinions of so competent an authority. In them we have a new basis to study from, with the advantage generally not only of his *obiter dictum*, but also of the reasons on which he has based it. We have always thought that a great deal of the difficulty of referring species either of fruit trees or any other cultivated plant to their wild original, was owing to the length of time during which they have been cultivated, which has given opportunity for new conditions to produce an alteration in their characters, or perhaps to confirm some accidental variation which has first led man to appropriate to his use some exceptionally fine or useful plant. The Professor's confession of inability to trace such species, at once indicated by the frequent recurrence of "Vaterland unbekannt" confirms our views of the subject; but there is another explanation of some of these, in the use of which (so far as we are able to judge) we think that Koch has been happy, viz., that they are hybrids; when he arrives at this conclusion he of course specifies the supposed parents. At the best, however, this is a branch of the subject upon which more mystery may always be expected to lodge than on any other part of Dendrology. The Polycarpeæ, equivalent to the old Ranunculaceæ, follow the Rosifloræ, and contain the Berberries, the Magnolias, Clematis, &c. Next come the small group of Parietales (Cruciferæ—Alyssum, Iberis, Tamarix, &c.); the Valvatæ (Limes, &c.) follow; then Imbricatæ (St. John's Worts, &c.), which do not occupy much space; the Lobocarpæ (Horse-Chestnuts, Maples, Vines, &c.) form the sixth class; the seventh, Aphananthæ, contains the Walnuts; the eighth, the Bacciferæ, the Currants; and the last, the Umbellifloræ, the Ivy, Cornel, and Aukuba—regarding which latter, by the way, he points out that botanists have fallen into a wrong spelling, Thunberg's original name being spelt with a "k" instead of with a "c."

From the above enumeration the reader will see the amount of work done in this first volume. The descriptions are wonderfully short, clear, and distinct, and the only digressive excursions which the author has allowed himself are brief notices of the eminent men after whom genera or species have been named, printed in small type, after the information about the species bearing them. It is undeniable that these are digressions, and if we meet the same measure to Koch which we have given to Loudon, we should perhaps in strictness object to them, but kept within proper limits there is a good reason for them. Every one must admit that the derivation of generic or specific names is proper and useful information in botanical or arboricultural works—a short history of the man whose name is thus embalmed is only an expanded derivation. How foolish a man would look if, when asked what is the meaning of Abies Alcoquiana, he could give no better reply than "botanical pedantry for a man's name." We therefore take no exception to the Professor's interesting little notices of the eminent men after whom plants have been named.

Perhaps the point in the execution of the work most open to difference of opinion will be, how far it contains all the species which ought to be in it. This, of course, will mainly depend upon the limits which may be assigned to the subject Koch has undertaken. The subject is the trees, shrubs, and under-shrubs which will grow in the open air in North or Mid-Europe. Here the question at once arises, What is the southern boundary of Mid-Europe—does it include the South of France or Lombardy, and if the former, should plants be included which grow in Spain or Portugal, and which if they were tried, would, without doubt, also grow in the south of France? Again, if the South of France is not in Mid-Europe, where are we to draw the line? The proper answer we think is, that the line must be left indefinite, and that we must trust to the discretion of the author—allowing him when he chooses to go a little beyond the limit we would select, but not to omit anything that ought to find a place in a truly temperate or coldish country. This is what Professor Koch has done: we see a number of species from the Himalayahs and elsewhere which we look upon as very doubtfully hardy, and we see no mention of others which we are sure would be at least as hardy; but we are bound to say that we have not stumbled on any omission of any genuinely and undoubtedly truly hardy species. It is right to add, that when Koch includes the doubtful species he always adduces the evidence of some place in Mid-Europe where he has seen them growing.

We trust that the advantages of this work will soon be extended to the English public generally. At present it is locked up from most of them by its German dress. Surely there is some English publisher sufficiently enterprising to disregard the deterrent shade of Loudon's great tree, and by a moderate expenditure on woodcuts plant a translation, or better still, a new edition, adapted to England, of this valuable work, which might grow up a worthy neighbour to it. There is no need of cuts for every species—well executed characteristic figures of the genera would be all that would be required.

The Apiary.

Notes for March.—Bees, in the South of Devon, have been carrying in pollen very freely on most days during the last week or more, notwithstanding the unsettled state of the weather. On one day in particular I could not help devoting a considerable time to watching them; they were flying off from the hives and returning with that settled appearance of determined working which is not usually seen until later in the spring. Almost without exception every returning forager was heavily laden with pollen of two or three different colours, showing that the supply was not only plentiful but was obtainable from various sources. Laurustinus has been most abundantly in flower here this spring; now, many of the fruit trees are blossoming freely, so that while the weather remains mild there will be no lack of pollen gathering. I do not much like this very forward work, for should we have a change to cold cutting winds, or, it may be, frost, most of the fruit trees will have blossomed or be in blossom, while the bees will be unable to sally forth to avail themselves of it. Under such circumstances, although breeding may have commenced early, and have been carried on to a larger extent than usual in the ordinary run of seasons, yet hives will not, as a rule, be so populous in May, or at the time of the first real honey harvest. The breeding of the queen will have been checked, to say nothing of the probability of much of the early brood falling a sacrifice to cold and the want of food; whereas in later springs, when breeding and pollen-gathering are once freely established, there is usually less interruption or check, and the population increases steadily and rapidly; earlier swarms, and an abundant supply of labourers to reap the full benefit of the first real time of honey-gathering, being the natural consequence. I would again impress upon all apiarian beginners, should an unpropitious time, such as that I have described, set in, the importance of furnishing the bees with a small supply of artificial food two or three times a week, as long as it may last, that the destruction of a large number of larvæ may be prevented, and that a moderate amount of breeding may still be continued in lieu of a total cessation, as might otherwise be the case.

Towards the middle or close of this month I generally make a change of all the floor-boards and covers of my hives. Having a few spare clean ones, I commence by removing the cover from the first hive to be operated on; this, if dirty or soaked with condensed moisture, is laid aside; the tops of the frames,

if dirty, are scraped, and a clean cover substituted. The bottom-board is next changed in the same manner. The removed board and cover is then well scraped, and, if necessary, scrubbed with boiling water; they are then set on edge to dry, and after a day or two are ready to be again substituted for foul boards of other stocks. As many hives may be operated on in one day as there may be at hand spare clean boards or covers. As these are all in my apiary of the same forms and sizes, and as I have a good supply of them always ready, the task is quickly accomplished. I generally take the same opportunity to lift out the frames to ascertain, by actual inspection, the state of the stock as to population, brood, supply of sealed stores, condition of combs, and dryness of comb or otherwise; taking accurate notes of all these particulars, as I find it helps me considerably with regard to the subsequent management of the respective hives.

I have now no straw hives, but when I had, the bottom boards were always changed in the spring. It is not, however, usually quite so necessary in respect to such hives, there being less condensation of moisture, and consequently less fouling of the bottom boards. But I think a change is always advisable, and while effecting it I used to look for and destroy any of the larvæ of the wax-moth that might be secreted between the lower bands of straw and the boards. Sometimes several of these would be found. The weight of the contents of the hive may be ascertained by actual measurement, or guessed by the hand, and food supplied if necessary. It is also well on some fine sunny days to remove covers and expose the hives to a good drying sun-heat; of course they must be securely wrapped up before evening. *S. Bevan Fox.*

Garden Operations.

(For the ensuing week.)

PLANT HOUSES.

Herbaceous Calceolarias are now growing very freely, and many will require a larger amount of pot-room. Autumn-struck cuttings will also need potting off into single pots. Choose small pots for this purpose, and let the soil be composed of the following:—To three parts of rich, friable yellow loam add two parts of moderately decayed leaf-mould, and a good sprinkling of thoroughly decomposed cow-dung and coarse, gritty and well-washed river sand. A good drainage is of the first importance, upon which coarse pieces of yellow turfy loam should be carefully laid. So arrange the potting of these cuttings that there may be time for two more shifts, the last being into the blooming pots. They delight in a cool, humid atmosphere, and where abundance of light and air can be readily given them. Spring-struck cuttings often, with proper culture, furnish very neat plants, which flower shortly after, and thus afford longer continuity of bloom. If really fine plants are desired, it is of importance that from the first potting they should be kept as near to the glass as possible. They are rather subject to green-fly, the attacks of which must be constantly guarded against by occasionally fumigating the structure as a preventive, &c. The old and useful stove plant, *Pentas carnea*, if propagated about this time, by means of the young shoots plunged into a hot-bed, and potted as soon as roots have been formed, and pushed along briskly, will make nice neat stuff, suitable for blooming in any greenhouse during the whole of the ensuing summer. This group of plants delights in a compost formed of equal parts of sandy loam and fibrous peat, well beaten up together. They should not be over-potted, as small sized pots are more inducive of flower than larger ones, which tend to increase the growth at the expense of the bloom. The beautiful *Tabernæmontanas*, some of which are now showing flower, may be induced to push forward more freely by the aid of 5° or 10° more heat both top and bottom. To do these well, however, it is of the first importance that a thorough good drainage should exist at their base, and that the leaves should be kept perfectly clean by an occasional use of the sponge, and when activity of growth is observable, frequent sprinklings overhead with the syringe should be given. As the days increase in length afford gradually more and more humidity to all stoves, and during mild periods endeavour, by shutting up early, to secure such an amount of sun-heat as will enable you to dispense with at least some few degrees of artificial warmth. Much benefit will accrue to the inmates generally of such structures by a strict observance of these simple facts. Be particular to allow at all times, now that Camellias are expanding freely, such an amount of fresh air as will prevent any excessive moisture which may collect during the night.

FORCING HOUSES.

It will be safe to allow a moderate advance of heat in all *Vineries*, the Vines in which are in a moderately advanced state: this however by day only, and more especially in bright sunny weather. Do not, therefore, sanction any perceptible advance by means of forced heat alone by night. *Fruiting Pines* should have fresh air afforded them as early in the morning as possible, after the sun's warmth is somewhat felt. Shut up early in the day, and so induce the thermometer to run up to a fair maximum; at such times it may be permitted to reach a mean of 80° or 85°. The highest heat permissible by artificial means alone should not in any way exceed 62° or 65° by night, and from 69° to 71° by day. Successionals, and, indeed, all which do not appear to stand well the effects of sudden sunny weather, should have some slight amount of shading placed over them for a short time, until it is surmised they are able to withstand its effects in such a manner as that more good is likely to accrue than harm. In regard to *Figs*, avoid by every possible means all atmospheric extremes. Do not permit any to suffer through the want of root-moisture, and yet a casual and ill-considered supply is equally to be guarded against. The fairer the leaf surface is upon any, so much the more moisture may be afforded with less risk. Stop all successional growths upon any which are showing fruit prominently so soon as they are two, three, or four joints in length, and, indeed, sooner if ill-placed and they are not needed. *French Beans* which are coming into flower should have the points of all growing shoots pinched in, and a good sousing with strong liquid-manure. Afford the same to all *Strawberries*, and remove from them also any runners which may push from the base of the crowns. *Peach* and *Nectarine houses* having fruit swelling may now be shut up close early in the afternoon, when moderate syringing may be successfully applied to all internal surfaces. Give slight egress to any excess of moisture at even, and by affording a moderate supply of air during the whole night, if the external weather permits, insure a nice fresh minimum temperature of about 53°.

HARDY FLOWER GARDEN AND FRAMES.

Continue the necessary potting-off of all *Bedding Stuff* which is sufficiently advanced, and for which a sufficiency of room exists. Many varieties used for this purpose will now want especial attention in this wise. They include such plants as Lobelias, Calceolarias, Bedding Pelargoniums, Violas, &c. Autumn-struck cuttings of Centaureas, I do not advise should be now potted; as I have always found them do better if planted, even by division, from the cutting pots, immediately into their permanent summer quarters, than when potted off and coddled up in pits and frames to their certain injury. This plant does admirably turned out into the open border after the middle of April, with the merest show of root; whilst all the coaxing possible tends only to decrease its vigour, and often to kill it outright. Should but moderately severe weather visit us, it will be necessary to afford protection to *Banksian Roses* where their flowers are valued, so very prominently have their bloom-buds already pushed forth. Sweep, roll, and otherwise attend to lawns upon every possible opportunity, as it is only by an efficient system of rolling, &c., at this the advent of the active-growing season, that a good sward is to be insured during the in-coming summer. Proceed with all necessary pruning operations in connection with pleasure-grounds and shrubberies. In anticipation of future severe winters, of the 1860-61 class, I would suggest to all the desirability of affording encouragement to all the hardier varieties of evergreens, at the expense of the more tender ones. This, of course, I would suggest in regard to the component parts of any well-formed shrubbery, or other screen formed of these plants. For instance, Hollies are far more hardy than either Common or Portugal Laurels, and perhaps more so than most other forms of evergreen. At least our experience here (Herts) very forcibly illustrates the fact.

HARDY FRUIT GARDEN.

The process of *Grafting* any new or improved variety of Plum, Cherry, Pear, or Apple, upon any old tree or stock that consists of an inferior variety, may now be proceeded with. The process commonly known as "whip-grafting" is doubtless the simplest and best for the amateur to follow. Rather old trees may by this means have improved sorts united to them very readily. First of all lop or saw the branches neatly off down to the required height. Now cut a slip or slice off the upper side of these neatly pared limbs, making the wound as smooth as possible, and about three inches in length, but not more. This done, procure the "scion" or portion to be grafted thereto, and upon it make a cut as exactly a counterpart of the former as is possible. When they are thus made to fit nicely both in regard to length and finish of the wound, a cleft must be made in each in such a manner that they will fit into each other, the tongue-like cleft of one holding within its grasp that of the other. An essential particular remains to be enforced. When the final binding of these two together takes place, it is of the utmost consequence that at least one side of the bark upon each should meet, and be fitted as closely as if they were actually growing; thus the rinds of each become joined together, without which it is not possible that any permanent union can take place. The scion should not exceed 4 inches in length. A good adhesive clay well beaten up together, and so thoroughly softened as to adhere closely around the juncture, should then be added in such a form and of such a quantity as will be likely to remain uncracked and to last throughout the earlier summer months.

KITCHEN GARDEN.

Some of the larger plants of *Cauliflowers* and autumn-sown *Lettuces*, which have hitherto enjoyed the protection of a frame or other warm and sheltered corner, may now be transplanted into the open quarters. They all delight in a good rich well pulverised soil. Where hand-lights are to hand it will be as well to transplant them into such, in quantities of four or five in each. Small sowings may now be made of Walcheren or Snow's *Broccoli*, to come in for early autumn use, and after Cauliflowers are past. Do not delay any longer to forward any further transplanting of *Cabbages* which may be necessary. Sow also *Spinach* for a succession should mild weather ensue. Make a part sowing of *Beet* to come in for early autumn salads. The main crop should not be sown yet. Earth up the successional sowings of *Peas* and *Broad Beans*, and place what sticks may be necessary to support the earlier ones, and to ward off excessive winds, hail and snow-storms, &c. Look to your supply of early Mint; we have had lamb in use here for some time. *W. E.*

TOWN GARDENING.

I now propose to offer a few remarks respecting the management of plants in windows and balconies, as much may be done by the lovers of flowers in this department. If large boxes can be obtained, these should be perforated at the bottom, and raised on legs so as to stand about 2 inches high. They should then have the bottoms covered over with broken pots, and be filled in with good mould and placed on the balcony, and fine wire-work fastened to the rails, after which creepers, such as *Ivy*, *Virginian Creeper*, or *Calystegia*, may be planted and trained to the wire. *Mignonette*, *Virginian Stock*, or any hardy annual, can be at once sown, and also at each end a corn or two of *Forty-days' Maize*, which is a very ornamental and graceful plant; or Scarlet *Pelargoniums*, *Calceolarias*, and *Lobelias*, may be turned in out of pots in May; after which *Pompon Chrysanthemums* can be put in; and in November, *Hyacinths*, *Tulips*, and *Crocuses*—so that it is possible to keep up a good display of flowers nearly all the season. The window inside can be kept cheerful with a tolerable display of plants likewise. The drooping *Saxifrage*, or "Mother of Thousands," makes a very pleasing plant suspended from the centre of the window, and the Floreten holder (a very simple and useful invention) can be hung on a hook on each side, and a vase or pot of flowers can be steadily and firmly placed therein. On a stand placed in the window, a Wardian case, filled with *Ferns*, will do well if shaded from the mid-day sun. *Hyacinths* will do well in the case if planted among the Ferns at the proper season, and without injury to them, if removed as soon as flowering is over. Or an aquarium filled with water-plants, such as *Anacharis*, *Water Lily*, and *Flowering Rush*, and enlivened by gold and silver fish, may be used. The *India Rubber* is a plant that does well in towns, if the leaves are occasionally sponged. The *Coleus*, or what is commonly called the *Nettle Geranium*, will do well in the most confined neighbourhoods. *Pelargoniums*, *Fuchsias*, and such plants, that have been kept through the winter indoors, should now be seen to; half an inch of the mould at the top and bottom should be removed and replaced with fresh compost, and all straggling shoots should be shortened. The plants should now be watered, and should be placed in the sun as much as possible. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending March 3, 1869, as observed at the Horticultural Garden.

February and March.	Moon's Age.	Barometer.		Temperature. Of the Air.			Of the Earth		Wind	Rain.
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 25	14	30.062	29.824	51	36	43.5	43	43	S.W.	.00
Friday 26	O	30.090	30.016	53	42	47.5	46	43	W.	.00
Satur. 27	16	30.012	29.951	53	33	43.0	48	44	N.W.	.00
Sunday 28	17	29.773	29.675	46	37	41.5	46	44	N.W.	.12
Mond. 1	18	29.672	29.340	51	36	43.5	45	44	N.	.12
Tuesd. 2	19	29.574	29.084	50	27	38.5	45	44	N.W.	.08
Wed. 3	20	30.049	29.924	43	21	32.0	44	43	N.	.00
Average.		29.830	29.689	49.5	33.1	41.3	45.3	43.5		0.32

Feb. 25—Fine, cold wind; overcast; boisterous and overcast.
— 26—Fine, cloudy; densely overcast; clear and fine.
— 27—Clear and very fine; cloudy; very fine and clear.
— 28—Clear and fine; very fine, snow and hail; rain.
March 1—Cloudy but fine; stormy; heavy rain, boisterous.
— 2—Stormy and boisterous; very fine; rain, clear and fine.
— 3—Fine and frosty; very fine; densely overcast.
Mean temperature of the week, ½ deg. above the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 43 years, for the ensuing Week, ending March 13, 1869.

March.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday.. 7	49.1	32.4	40.7	18	0.22 in.	4	7	4	1	6	12	5	4
Mon. .. 8	49.1	31.5	40.3	18	0.18	4	8	3	3	5	7	5	7
Tues. .. 9	49.2	31.1	40.1	12	0.47	4	7	3	2	6	10	6	5
Wed. ..10	49.6	31.6	40.6	16	0.60	4	6	1	4	6	12	4	7
Thurs. ..11	49.1	32.2	40.7	19	0.33	2	6	3	5	4	16	4	3
Friday ..12	50.4	32.2	41.3	21	0.24	1	6	3	4	4	12	7	3
Satur. ..13	50.4	34.0	42.2	15	0.36	4	2	7	3	3	12	6	5

The highest temperature during the above period occurred on the 10th, 1826—therm. 67 deg.; and the lowest on the 10th, 1847—therm. 7 deg.

Notices to Correspondents.

*** Messrs. Adams & Adams, 25, Piccadilly Manchester, request us to state that we misquoted them last week, and send us the following correction:—"Messrs. Adams & Adams can pay not only Twenty shillings in pound, but five Hundered or one Thousand shillings in pound on all the owe." We can only state that we gave the extract verbatim on that occasion, as on this. Eds.

Books: *N. E.* There is a new edition of the "Gardeners' Dictionary," and also of "Paxton's Botanical Dictionary." The latter is the more costly, but is more complete.—*F. E.* "Lindley and Moore's Treasury of Botany."—*S. G.* "Smith's Ferns, British and Foreign," is at present the best cheap book for obtaining the information you seek.

Cherries: *R B.* Mayduke is the proper name; but according to "Downing" the original is supposed to be Médoc, from the province of France where the variety is believed to have originated.

Currant Disease: *A F.* The disease in Currant trees which you have submitted to us was very prevalent some years since at Chiswick, in the fine collection of Gooseberries. It appears to be one of those curious changes in the buds which are so interesting to the students of vegetable metamorphoses, the cause of which is altogether unknown. When the buds are a little more expanded—if indeed they ever expand, for they seem to die from the apex downwards—we should be glad if you would send specimens in some box which cannot be crushed in the post. The buds in your specimens are so crushed that we cannot make a satisfactory analysis. *M. J. B.*

Insect: *Inquirer.* The little flies sent, which have appeared in thousands in your Pine stoves, are a little gnat (Sciara fucata), the larvæ of which feed upon decaying vegetable matter. We consider they would not attack the healthy roots of your plants.—*W.—A. Y.* The twigs and leaves of Acacia sent are fearfully infested with scale. If this be a sample of the general state of the plant, the best thing will be to burn it. *W.*

Names of Plants: *Shropshire.* 1, Nephrolepis davalliioides; 2, a small form of Blechnum occidentale; 3, Lastrea quinquangulare.—*R R R.* 1, Linium maculatum; 2, Pulmonaria officinalis; 3, Omphalodes verna—*P H G.* Cattleya Trianæ.

Trapping Mice: *J B W.* Sink a pot or pitcher greased with good lard, and half-filled with water, into the earth, up to the brim, as soon as the seeds are sown; this will trap all mice.

Communications Received.—H. C.—Somerset.—A. F.—R. C.—J. C. L.—W. C.—A. R. M.—A Reader.—J. E.—H. R.—J. H. M.—J. J.—H. C.—H. Cannell.

SUTTONS' GRASS SEEDS

FOR ALL SOILS,

PRODUCING ABUNDANT CROPS OF HAY AND SUPERIOR PASTURAGE, CARRIAGE FREE.

A SILVER MEDAL for EXCELLENCE of QUALITY,



PARIS, 1867.

MESSRS. SUTTONS'

MIXTURES for PERMANENT PASTURE

CONTAINS THE FOLLOWING

FINEST CLEANED GRASSES AND CLOVERS.

Alopecurus pratensis	Meadow Foxtail
Anthoxanthum odoratum ..	Sweet Vernal
Agrostis stolonifera	Creeping Bent
Avena flavescens	Yellow Oat Grass
Cynosurus cristatus	Crested Dogstail
Dactylis glomerata	Round Cocksfoot
Festuca duriuscula	Hard Fescue
Festuca elatior	Tall Fescue
Festuca heterophylla	Various-leaved Fescue
Festuca pratensis	Meadow Fescue
Festuca ovina	Sheep's Fescue
Festuca rubra	Reddish Fescue
Festuca tenuifolia	Fine-leaved Fescue
Festuca loliacea	Darnel-leaved Fescue
Lolium perenne Suttoni	Suttons' Perennial Rye-grass
Lolium perenne Pacoyanum ..	Pacey's Perennial Rye-grass
Lolium perenne sempervirens ..	Evergreen Rye-grass
Phleum pratense	Timothy
Poa pratensis	Smooth-stalked Meadow Grass
Poa trivialis	Rough-stalked Meadow Grass
Poa [illegible]oralis	Woodside Meadow Grass
Poa sempervirens	Evergreen Meadow Grass
Trifolium repens perenne ..	Perennial White Clover
Trifolium pratense perenne ..	Perennial Red Clover
Trifolium hybridum	Alsike Clover
Medicago lupulina	Yellow Trefoil

SUTTONS' BEST MIXTURES

FOR THE FOLLOWING SOILS:—

1. STIFF CLAY SOILS, to be met with in the London, Kimmeridge, Oxford, and Lias Clays.
2. HEAVY LOAMS, of the same Formations, when they have been subjected to surface admixtures and cultivation.
3. GOOD MEDIUM LOAMS, on the Marls of the Old and New Red Sandstone, the Gault, and the Greensands.
4. LIGHT SANDY SOILS, on New Red Sandstone, Sands of the Inferior Oolite, Soils visited by Sand Drifts, as at Cheltenham and Gloucester; also those covering up the Stiff Lias and the Tertiary Sands of the Dorset Heaths.
5. SHARP GRAVELLY SOILS, such as the Flint Gravel Drift which overspreads so much of the Southern and Western part of England.
6. CHALKY SOILS, as the Mountain Limestone, the Oolite, and the Chalks Proper, where not too elevated.
7. SHEEP DOWNS.—The Elevated and more Exposed parts of the Oolite, such as the Wolds of Gloucestershire, the Cotswold Hills, and the Plains of Wiltshire.
8. WATER MEADOWS, and all Land under Irrigation.

Containing 2 bushels of Grass Seeds, and 12 lb. Clovers and other Small Seed per acre.

28*s.* to 32*s.* per acre. Carriage Free.

SUTTONS' CHEAPER MIXTURES,

20*s.* to 26*s.* per acre. Carriage Free.

SUTTONS' "CRYSTAL PALACE" MIXTURE, for Park Grounds, as supplied to the Crystal Palace Company, to produce a beautiful evergreen sward, 18*s.* per bushel. Sow 2½ bushels per acre.

SUTTONS' MIXTURES of GRASS and CLOVER SEEDS for

1-year's Lay, best quality, 13*s.* 6*d.* per acre.
2-years' Lay ,, 17*s.* 6*d.* per acre.
3 or 4-years' Lay ,, 22*s.* to 24*s.* per acre.

Second qualities cheaper.

SUTTONS' RENOVATING MIXTURE for the above Soils should be sown early in the spring to produce a great increase in the quantity and quality of Grass. Sow 6 to 12 lb. per acre. Price 9*d.* per lb.

Special Contracts made for large quantities.

Five per cent. allowed for cash payments.

SUTTON AND SONS,
SEEDSMEN TO THE QUEEN, READING, BERKS.

The advantages of procuring Seeds direct from the Growers cannot be over-estimated.

James Carter & Co
Seed Growers

237, 238, and 261, HIGH HOLBORN, LONDON, W.C.

SEED FARMS:

JUPES HILL FARM, DEDHAM, ESSEX;
GOD'S HOUSE FARM, ST. OSYTH, ESSEX;
EAST HOUSE FARM, DEDHAM, ESSEX;
THE SEED FARM, ST. OSYTH, ESSEX.

CARTER'S GENUINE SEEDS,

HARVESTED ON THEIR OWN SEED FARMS,

AND

SUPPLIED DIRECT TO THE CONSUMER.

CARTER'S GRASS SEEDS,

Specially prepared for any description of Soil.

No. 1. For FERTILE CLAY SOILS.
No. 2. For POOR CLAY SOILS.
No. 3. For HIGH-LYING CLAY SOILS.
No. 4. For ALLUVIAL SOILS.
No. 5. For LIMESTONE SOILS.
No. 6. For NEW or OLD SANDSTONE SOILS.
No. 7. For LIGHT CHALK SOILS.
No. 8. For BRASHY LIMESTONE SOILS.
No. 9. For SANDY SOILS.

J. C. & Co. hold one of the largest and best stocks of Grasses and Clovers in the country, and are now prepared to supply their Mixtures as above, for the formation of first-rate Permanent Pastures.

Finest Quality, per acre, 28s. to 32s.
Second Quality, per acre, 20s. to 26s.

DESPATCH OF ORDERS.

J. C. AND CO. having now completed their arrangements for the season, are prepared to execute orders the day after being received.

CARTER'S IMPERIAL SWEDE.

(See Illustration, page 246 of this day's *Gardeners' Chronicle*.)

THE HARDIEST AND BEST IN CULTIVATION.

1s. per lb.; cheaper per bushel.

CARTER'S "PRIZE" TURNIPS and SWEDES.
CARTER'S "PRIZE" MANGEL WURZEL.
CARTER'S FINE CLOVER SEEDS.
CARTER'S IMPERIAL GREEN KOHL RABI.

For particulars of the above choice stocks, see CARTER'S "Illustrated Farmer's Calendar for 1869."

LOOK TO YOUR GRASS LANDS.

CARTER'S RENOVATING MIXTURE should be sown on Meadows that have suffered from the past dry summer. The Mixture includes the most desirable Grasses and Clovers for hay crop, and succeeding green feeding, and will soon restore a first-rate permanent pasture.

Sow 8 to 12 lb. per acre.

Price 9d. per lb.; 80s. per cwt.

CARTER'S PRIZE MEDAL LAWN GRASS,

AS SUPPLIED to the PRINCIPAL EUROPEAN COURTS, and for the GROUNDS of the late PARIS EXHIBITION,

Will speedily produce a carpet-like Turf of the finest quality.

1s. per lb.; 20s. per bushel.

Sow 3 bushels per acre.

For full information on the Laying Down and after-treatment of Grass Lands, see

CARTER'S

FARMER'S CALENDAR FOR 1869

(ILLUSTRATED),

Post Free 6*d.*; Gratis to Customers.

JAMES CARTER AND CO.,
237 and 238, and 261, High Holborn, London, W.C.

HALLETT'S PEDIGREE CHEVALIER BARLEY produced in 1868 a Crop of 62 bushels per acre, a Sample of which was awarded the First Prize at the Birmingham Show of 1868. Took the First Prize also at the same Show of 1867. Produced in 1867 nearly 9 quarters per acre.
PEDIGREE BLACK TARTARIAN OATS produced, 1868, 12 quarters per acre.
For particulars apply to Captain HALLETT, F.L.S., Brighton.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY (Limited),
CORN, SEED, MANURE, and OILCAKE MERCHANTS.
Address, 80, Seed Market, Mark Lane, E.C.; or Basingstok
Samples and prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

GRASS SEEDS: WHEN and WHAT to SOW.—For the fullest information on this subject, see CARTER'S ILLUSTRATED FARMER'S CALENDAR for 1869; post free, 6*d.*
JAMES CARTER & Co., Seed Growers, 237 and 238, High Holborn, London, W.C.

SUTTONS' FARMER'S YEAR BOOK for 1869 is NOW READY.
For Original Articles on the Cultivation of Root Crops, see "SUTTONS' Farmers' Year Book for 1869."
For present prices of Home-grown Seeds, see "SUTTONS' Farmer's Year Book for 1869." Sixpence, post free; gratis to Customers.
SUTTON & SONS, Seedsmen to the Queen, Reading, Berks.

Early Feed for Sheep and Cattle.

SUTTONS' IMPROVED ITALIAN RYE-GRASS, the earliest and most productive in cultivation. Should be sown in February and March to produce a succession of valuable cuttings during the year. If sown alone, 3 bushels are required per acre.
Price 7*s.* per bushel, cheaper by the quarter. Carriage free.
SUTTON & SONS, Seedsmen to the Queen, Reading, Berks.

New and Superior Farm Seeds.

SEEDSMEN TO THE QUEEN.

FRANCIS & ARTHUR DICKSON & SONS, The "Old Established" Seed Warehouse, 100, Eastgate Street, and The "Upton" Nurseries, Chester.
PRICED DESCRIPTIVE CATALOGUE of FARM SEEDS post free, on application.
MIXTURES of GRASS SEEDS for Permanent Turf and Rotation Crops, to suit every description of Soil and Climate, of very superior quality.
Finest clean Samples of CLOVERS, RYE GRASSES, and NATURAL GRASSES, at Market rates. Samples and prices on application.
Their TURNIPS, MANGELS, and other ROOT-CROP SEEDS are saved with great care, and are of very superior and high-class character.
Special Estimates for large quantities. Orders amounting to £2 value (Grain, Potatos, &c., excepted) will be delivered carriage free, at the principal Railway Stations in the Kingdom.

BINGLEY HALL, BIRMINGHAM.—The FIRST EXHIBITION of YOUNG BULLS and other SHORTHORN STOCK will be HELD on THURSDAY, April 1, 1869. Liberal Prizes are offered for Yearling Bulls and Bull Calves. ENTRIES CLOSE on MARCH 13.
For Prize Lists and Forms of Entry, apply at the Cattle Show Offices, 39, New Street, Birmingham.
By order of the Council. JOHN B. LYTHALL, Secretary.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.

MANCHESTER MEETING, 1869.

STOCK and IMPLEMENT PRIZE SHEETS are Now Ready, and will be forwarded on application to HENRY WHITWORTH, Esq., Local Secretary, 96, King Street, Manchester; or

H. M. JENKINS, Secretary.
12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, MARCH 6, 1869.

MEETING FOR THE ENSUING WEEK.

MARCH 10—County of Devon Chamber of Agriculture, at Newton.

A CALENDAR of Farm Operations in March begins thus:—"It is of importance that we sow (*a*) only those seeds which we want to grow, and that (*b*) they be alive when we sow them." To the other conditions of success in plant growing, viz., the preparation of the bed for these seeds, and their proper position on and under its surface, we do not now refer. It is with their purity and vitality that we have now to do.

No one has done more than Professor BUCKMAN to awaken the attention of farmers to the importance of this subject. He has shown them how they suffer from both carelessness and roguery in the seed trade. How often has he not reported from 10,000 to 50,000 weed seeds in a single pint of Clover—in a pint of Rye-grass seed several thousand seeds of Crowfoot and of Holcus, and in a pint of Linseed 10,000 to 15,000 seeds of Charlock, Mustard, Cress, &c. He has taught us also, by careful analyses, not only of seeds, but of pasture lands, how this mass of weeds is not only sown, but grown. Ten years ago, in a field of "seeds" at Cirencester, he dug up a square yard of Clover ground, and found 46 plants on it neither Rye-grass nor Clovers, which alone the farmer believed he had sown. There were 7 plants of Plantain, 8 of Crowfoot, 2 Hardheads, 2 Dandelions, 1 Hawkbit, 6 of Ground Ivy, 4 of Selfheal, 1 small Bindweed, 1 Fool's Parsley, 2 Mouse-ear, 6 Field Madder, 2 of Couch, 4 of Creeping Bent. Several of these are flat-growing weeds, occupying the surface—such are Bindweed, Plantains, Crowfoot, Dandelion, &c. Many of them are

strong-rooted, and some of them creeping-rooted plants, robbing the substance of the soil—such are Couch, Hardheads, Crowfoot, &c. All of them are interlopers, displacing useful plants whose seed nominally alone was sown, and whose growth alone was desired. How came they there? In the seed-box when the field was sown, the seeds (nominally Clover seed and Rye-grass) with which it was filled were not "only of the kinds desired," and probably many of them were dead. The farmer does indeed himself sow most of his weed pests, and they come up with his sown crops. Take the case of the Clover crop,—each weed seed sown (1) subtracts from the sum of the Clover seeds in the measure,—(2) very many of the weeds grow so fast as to smother and kill many of the Clovers in their neighbourhood; and then (3), many of these weeds, seeding in the first year, are succeeded in the following year by an immense increase. These three circumstances, says Professor BUCKMAN, are often of themselves enough to account for so-called Clover sickness.

In the case of the Turnip, again, the farmer suffers by the admixture of Charlock, bought at 2*s.* 6*d.* a bushel, to mix with the Turnip seed for which he pays 9*d.* to 1*s.* a lb. And not only home-grown but foreign rubbish, Indian Rape, and other similar seeds, first killed, are offered in large quantities to the trade for mixing with Turnip seed.

Farmers themselves often grow and sell foul seed, and thus suffer for their own or their neighbour's carelessness. And as there are rogues in all trades and occupations, so in the seed trade there is an annual manufacture of dead seed for the dilution of that which is alive, so as to produce a marketable compound which can be sold at an extra profit.

Although it is known that there is injury of this kind from which the plant-grower suffers—yet it is by no means desired to imply that the seed-trade generally is tainted in this way. On the contrary, seed-sellers suffer as well as their customers. It is impossible, except when a man sows only seeds which he has himself grown, to avoid the risk of disposing of a worthless article. Any one who buys, whether wholesale or retail, may suffer. And we are glad, in the interest both of the farmer and the seedsman, that many of the leading men in the trade have joined to urge the passing of a law which shall inflict penalties on wrongdoers in this particular department of rascaldom. The Bill, which it is intended to introduce, enacts that—

Whoever shall destroy or kill, or cause to be destroyed or killed, by any process of steaming, scalding, kiln-drying, baking, fumigating, or other artificial means of any kind, the vitality or germinating power or principle of any seeds, or shall give or impart, or cause to be given or imparted, to any seeds of any kind by any process of colouring, dyeing, sulphur-smoking, or any other artificial means, the appearance or likeness of any seeds of any other kind, or a false or deceptive appearance, shall be guilty of an offence against this Act, and shall for every such offence, on summary conviction thereof before the Court, be liable to and shall forfeit and pay such penalty and costs as hereinafter in that behalf provided.

Selling or possessing for sale dead or artificial seed, and selling mixed seeds as neat, are also declared to be offences under the Act.

It is proposed that the penalties for offences under the Act be as follows:—

First offence 50*l.*, and costs; second offence, 50*l.*, and costs, and the offender's name, occupation, place of abode, and place of business, and particulars of his convictions and punishments under this Act, to be published by the informant or prosecutor, and at the expense of such offender, in such newspaper or newspapers, or in such other manner as the Court shall think fit to prescribe; the informant or prosecutor to be allowed as part of his costs such sum of money, not exceeding 5*l.*, as to the Court shall seem a reasonable sum.

We cannot doubt that good agricultural service will be done by the strict execution of some such enactment as this; and it will be a capital point if such penalties shall be enacted by the resolute urgency of the leading men in the seed trade.

A VERY influential meeting of noblemen and gentlemen interested in the condition of the Agricultural Labourer, met on Thursday afternoon in the great room of the Society of Arts, to consider whether it were advisable to establish a society, having the improvement of the circumstances of agricultural labourers for its object. The circular inviting attendance at the meeting was signed by Lords BEAUCHAMP, CORK, COWPER, DUCIE, GROSVENOR, LICHFIELD, ROMNEY, SHAFTESBURY, CUMBERMERE, LYTTELTON, NORTHBROOK, S. G. OSBORNE, RAYLEIGH, VERNON, many members of Parliament, and others—and most of those noblemen and gentlemen were present.—The chair was taken by Earl DUCIE, who stated it to be a fact sufficiently well established by historians that the condition of the country labourer was better long ago than it is at present. The question was whether a society, if formed, could do anything towards the improvement of his present condition, which individuals unassociated could not do quite as well; and to that question he desired to confine the discussion, disregarding the many points, such as promotion of migration, or emigration, of good cottage-building, of elementary and technical education, of the allotment system, of sanitary reform in villages, of temperance, and so on, which were enumerated in the paper that had summoned them together.

Lord LICHFIELD opened the discussion by expressing a great indisposition to establish another society. Its funds would go largely to the payment of salaries rather than to the promotion of the objects contemplated by its members. He referred to the failure of the similar meeting of last year, and accounted for that failure because of its entering upon the discussion of a multitude of questions connected with the rights of the labourer, instead of confining itself to definite purposes. He alluded especially to the promotion of better education as, after all, the foundation of all other improvements. Dwelling-houses, mutual improvement societies, wages, all would benefit by improved education. If a number of gentlemen, without a paid secretary, would unite, taking each his share of the labour of arousing the attention of the country and of Government to the importance of promoting a better education of the families of working men, more good would be done than by any formal organisation with paid officers.

Canon GIRDLESTONE, while fully sympathising with the objects specified in the invitation he had received, had also doubted the possibility of doing anything by means of a society; but if gentlemen would unite and subscribe a sum of money to pay a travelling agent, who should make it his business to find out masters wanting servants and servants wanting masters all over the country—and thus, as well as by distributing information about the price of labour everywhere, do his utmost to promote the migration of labourers from poorly-paid to well-paid districts—then, if he should be able at the end of the year to come before them declaring the accomplishment of a good and useful year's work, they might possibly be able to agree upon the formation of a society. As to education, he protested that landowners and farmers were disgracefully negligent of their duty—that his own case, in which out of a parish rental of 15,000*l.* a-year, he could only "screw" contributions to the amount of 25*l.* a-year to the village school, was the case of thousands.

Mr. BAILEY DENTON, who had taken an active part in organising the meeting, believed that a society might be serviceable in bringing to light an immense quantity of useful matter now lying hid in the pigeon-holes of Government offices, which would tend to promote many of the objects which the letter of invitation enumerated. In particular the question of cottages was one which would be thus most usefully ventilated. He could speak with the utmost confidence of the importance of technical education in order to the attainment of good wages.

Archdeacon SANDFORD spoke of what Convocation was doing to expose the evils, especially of drunkenness, which, after all, lay at the bottom of half the misery which the labourer suffered. Mr. A. PELL, M.P., seeing that "Lords" and "Gentlemen" had been proposed as members of the desired society, claimed a place upon their council for "the labourer" himself. He could bring a labouring man as able to address that meeting as any there, whose services in such a society would be most useful and desirable. Mr. DENT, M.P., doubted, with others, the serviceableness of such a society. He was suffering as an employer of labour from that very migration which in many places was desirable. And as to the distribution of information, it already exists in ample store, the great difficulty being in the character of the people; and to improve that was a gradual process. He defended the landowners from the attacks which Canon GIRDLESTONE had, "as usual," been making. There would be a great deal more cordiality in supporting the clergy if they were less dogmatical, exclusive, and proselytising.

Mr. C. S. READ, M.P., in reference to the influence of education on pauperism, said it was once imagined impossible to find an educated pauper, but now they swarmed. And the children of the Unions, going out educated as they were, soon found themselves uselessly equipped, and they went to swell the pauper lists again. Education of a kind to fit them for work was what was wanted. He thought that an agency for informing the labourer thoroughly on the wages question would be very useful. They ought to be told that wages might be better, and that work would be harder. In Northumberland wages were one-third higher, but the labour bill per acre was one-third lower than it was in the south.—Captain MAXSE had no faith in a society. He believed the remedy must be political, and that a Society of Radicals for enforcing compulsory education would be more serviceable than a company of philanthropists for advocating the several topics mentioned in the letter of invitation.

Other gentlemen followed, pointing out that the existing political machinery, if properly used, would suffice—that the removal of the law of settlement would do more to promote migration than paid migration agency could effect—that the great business was to teach the labourer self-respect, and let him take care of himself.

Mr. HOLLAND at length, after pointing out that the evils complained were being corrected by the progress of civilisation and education—by the gradually increasing employment of capital in agriculture—and by the increase and improvement of agricultural machinery, moved that it is not expedient that the contemplated society be established. This was seconded by Mr. WELLS, M.P., and carried. Before the close of the proceedings, Lord NORTHBROOK, observing that on a former occasion Canon GIRDLESTONE having repeated charges on the ground that nobody having denied them they ought to be taken to be true, he desired to guard himself from the inference that because of his silence he acquiesced in any of the views or assertions to which the Canon at that meeting directed their attention.——A vote of thanks to Mr. BAILEY DENTON, to whom the meeting was mainly due, and to Lord DUCIE for presiding over it, concluded the proceedings.

—— THE corn trade at Mark Lane and throughout the country has been in a state of inactivity, and prices have remained without alteration from the rates of last week.——At the Copenhagen Market the trade has been active, notwithstanding the removal of the restrictions of August last. Beasts have been rather more numerous, but previous prices have not given way, except for some of the older foreigners. The sheep appear to be largely on the increase, but this is because foreign sheep are now allowed to pass from the wharves to this live market. Prices on Monday were, however, even higher than they had been; and although a large supply of English and foreign sheep were in the market on Thursday, prices did not give way. London consumers will not profit by the removal of these restrictions, but the midland counties and Lancashire may, as butchers from those parts may now come up and buy, and afterwards freely circulate their purchases. This will not tend to lower metropolitan prices, and it may increase them.——The seed trade has begun to show the activity which was expected as sowing time approached.

—— The Home Cattle Defence Association may congratulate themselves on the prospect they now have of their labours, which they have pursued with so much perseverance, being speedily rewarded. On Thursday evening Mr. E. FORSTER, Vice-President to the Treasury, brought in a Bill which proposes to grapple with the whole of the Acts which bear on home and imported stock, and to consolidate into one measure the whole of the points which belong to this great question. Its title is, "A Bill to consolidate, amend, and make perpetual the Acts for preventing the introduction or spreading of contagious or infectious diseases among cattle and other animals in Great Britain." In his explanation, Mr. FORSTER said there were at present seven Acts, if not eight, relating to trade in live stock. It was proposed to re-enact almost precisely as they stood the present regulations for stamping out the cattle plague, should it unfortunately break out again, for giving the power of declaring certain places infected, for inspection, for preventing the removal of animals, and for compulsory slaughter; and the Bill also contained the same provisions in regard to compensation. They also proposed to take power to check lung disease and foot-and-mouth disease—any contagious disease, in short, among sheep, cattle, or horses. Facts had proved that pleuro-pneumonia was almost as dangerous and destructive as the cattle plague, and they (the Government) had every reason to believe that the agriculturists generally were much more willing than they were formerly to submit to interference on the part of the Government. Diseased animals, after the passing of the Bill, are not to be moved alive out of an infected area, be it "any premises, field, stable, or cowshed," and no healthy animal shall be moved out of an infected district, except for immediate slaughter, unless a license has been granted by the properly appointed authorities. They proposed to make it penal to exhibit infected animals for sale in

any market, or to turn them on a common, and also to take power to prevent animals being moved, when diseased, by road, rail, or steam-boat. The power sought is to be placed solely in the Privy Council, instead of its being vested in the Queen in Council as at present. This proposal is intended to prevent unnecessary delay in cases of sudden danger. In regard to foreign animals, power would be reserved to the Government through the Privy Council, to, in the first place, mark out certain defined areas into which the animals could be brought on their importation, but out of which they could not be taken alive. Animals from infected countries will be prohibited. After naming some other proposed powers, the hon. gentleman said, "The Government are anxious to receive assistance in respect of details. The question is not one to be regarded as in any way a party question." Upon this we may express a hope that this important and much-vexed question will soon be satisfactorily settled. Lord Robert Montagu objected to the second part of the Bill, which he said neutralised the first part. His lordship ultimately proposed that the two Bills should be referred together to a Committee of the whole House, and the best parts taken out of both. This suggestion was not, however, adopted, and leave was subsequently given to bring in the Bill, when it was read a first time.

—— Dr. Voelcker read on Monday last, before the London Farmers' Club, a highly valuable paper on "The Adulteration of Foods and Manures," of which a full report must be postponed till another week. We may here mention, however, that Dr. Voelcker is clearly of opinion that less than 10 per cent. of the oil-cakes made in England are a pure article, and that many of the "artificial" manures sold at 6*l.* and 7*l.* per ton do not contain fertilising materials to the value of more than 2*l.* to 3*l.* per ton, and some of these mixtures are so made up that they are positively and largely injurious to the soils to which they are applied. Of the discussion which ensued we give the following summary:—Mr. Purser confirmed Dr. Voelcker's statement that guano sold by auction was sure to be bad by instancing a case where a quantity was recently sent from the eastern counties and sold by auction in the southern counties, on the ground that there was so much in the east that it was not wanted there. He added, it would be a good plan to sell soluble superphosphates at so much per unit. Chemists, however, differed; therefore, in addition to this plan, it would be a good thing if chemists could fix on a test whereby a uniform estimate could be guaranteed. Mr. Coussmaker said if a dishonest man in any way of business made a deceptive or adulterated article, he could always find some one to buy it. Guano was not an artificial manure, but the compositions made up by chemists were, and they were good for nothing. He contended that where artificial manures were relied on, and the tenant was allowed to sell his straw, the farm would be beggared, as the best of them only acted as a stimulant, and left nothing behind. The year before last, when there was much diseased cereals, his corn was healthy. This he attributed to the fact that he used no artificial manures. Mr. Harper, Loughborough, asked Dr. Voelcker the value of Linseed as compared with pure cake. Mr. Williams instanced cases where artificial manure was highly successful, and elsewhere under the same treatment a complete failure; but whether the difference arose from the season or not he could not positively say. Mr. Traske asked whether the moulding of oilcakes was not more owing to the mixing of bran with the linseed-meal than to the condition of the place in which they were stored. Mr. Traske also asked Dr. Voelcker a number of other questions on feeding materials and manures, in excuse for and justification of which long list of inquiries he explained that he was a large consumer of bought food for stock and of manures. The Chairman regretted that Dr. Voelcker was obliged to say that only 10 per cent. of cake-makers made pure linseed-cakes. He also spoke of leather dust being used in his neighbourhood (Woodstock), and with the best results, by cottagers and cultivators of allotments, who found it better than anything else for Potatos. He himself had also used it, and found it to be an excellent fertiliser. Mr. Robert Leamon, of Norfolk, a tanner and farmer, said that he had had ample opportunity of testing the value of leather, and he found that while the tanned parts were perfectly valueless, the fresh trimmings and the alkaline dust which adhered to them were of considerable value as a manure. There was a wide difference, however, between the character of the two substances, and he had no doubt the Chairman had misapprehended Dr. Voelcker's meaning. Dr. Voelcker said, as to the value of Linseed, the value of oil as compared with cake was too great to admit of its being largely used as food for stock. As to the differences in the results of applied manures, it might be that the manure applied during the season when it failed was not so good as when it met with so much success. It was very easy for a manufacturer of manure to alter the quality, and it was not at all an uncommon thing for the quality to be lowered after a good connection had been established The American cakes kept better, because, after pressing, they were stored in a room or warehouse, the temperature of which was kept tolerably high. This was necessary for the safety of cakes which had to be exported to this country; for the long voyage across the Atlantic would otherwise render them, not only worthless to a large extent, but positively injurious as a whole, from the poisonous Fungi which would be generated and appear as a blue mould. Guano with a little less ammonia would still be the cheapest auxiliary manure that could be bought, even if the price remained about the same as it now is. In reply to Mr. Harper, Dr. Voelcker said linseed-oil was generally of more value for commercial purposes than it was for making meat; therefore it would be futile to enter into elaborate calculations and experiments to determine the value between Linseed, with its natural amount of oil, and the residual meal, as it is sold for agricultural purposes in the form of oilcake.

—— At the usual monthly meeting of the Central Chamber of Agriculture on Tuesday last, it was moved by Mr. R. Jasper More, and seconded by Sir Herbert Croft, M.P., that this Chamber considers it desirable that there should be a separate Government Department for Agriculture, presided over by a permanent officer. Mr. Neville-Grenville, M.P., Major Wilson, and Mr. Whitaker spoke in opposition to the appointment of such an officer. Agriculture did not require to be nursed or fostered; all it required was fair play and the opportunity of expanding and developing such agencies as the Chambers of Agriculture opened up to it. It was urged, on the other hand, by Mr. Acland, M.P., that if agriculture was a subject for the interference and the interest of Parliament, it was a subject of interest to the Administration of the country. The question was whether agricultural interests should be rescued from the accidental and secondary position which they occupied in so many different offices, and be made subordinate to a staff of persons who would bring the advantage of technical skill and experience to their consideration. The Chairman, Mr. S. Read, M.P., believed that by a revision of departments the incidence of additional expense might be avoided. The true object of the agriculturists was to have a permanent secretary, and not a party man, who would probably have to go out of office as soon as he had learnt his duties, and who might never again in his whole life return to undertake them. The motion was at length adopted. The proposal (adjourned from the last meeting) for a deputation to the President of the Board of Trade on the subject of a separate Government Department for Agriculture was postponed for a month. Mr. Duckham moved, and Mr. Rigby seconded, a series of four resolutions, which, after considerable discussion and verbal alterations, assumed form as follows:—

"1. This Chamber considers that a consolidated Act applicable to the United Kingdom for the sanitary regulations of the home trade and traffic in animals, and for the establishment of safeguards against the introduction of foreign diseases, is indispensable for the preventing of enormous losses of live stock by contagious and infectious disorders.

"2. This Chamber considers that strict regulations should be imposed as to the accommodation, feeding, watering, and security from contagion of animals on transit by ship, public highroad, or railway; that it should be made penal to remove by road, railway, or water, or to exhibit in any fair, market, or public sale, arrivals suffering from cattle plague, pleuro-pneumonia, sheep-pox, foot-and-mouth complaint, scab or glanders; and that all fairs, markets, and public sales, should be subject to efficient inspection.

"3. This Chamber considers that owners of animals suffering from contagious diseases should be required to give immediate notice of the existence of such disease to any authority appointed for the purpose; and that it should be made illegal to remove animals for a specified period from any infected places or premises.

"4. This Chamber considers that the introduction of foreign diseases can be prevented only by slaughter, or by quarantine of imported animals at the place of debarkation; and that, for the accommodation of importers and the interest of the public, licensed markets or lairs and abattoirs attached should be provided at the seaports where arrivals from foreign countries are landed."

These resolutions were passed unanimously.

—— It was stated at the Chamber of Agriculture on Tuesday, and repeated in the House of Commons during the discussion on Mr. Acland's motion for an agricultural department among the various Government offices, that the agricultural returns, instead of being published soon after harvest, were deferred till they had become useless. Mr. Caird accordingly wrote to the *Times* to defend the existing conduct of the agricultural statistical inquiry. He says:—

"In justice to the Inland Revenue and the statistical department of the Board of Trade, by whom the returns are collected and classified, I think this statement should not remain uncontradicted. A summary of the facts was published on the 20th of September, and appeared in all the newspapers. Every one interested—consumers, producers, and the corn trade alike—had equal opportunities of studying and calculating the probable results indicated by the returns. The farmers, warned by the large increase in the breadth of Wheat and the fine quality of the crop, had the opportunity, if they chose to avail themselves of it, of being the first in the market; the consumers soon participated in the consequent gradual reduction in price, and the corn trade no doubt acted with that amount of caution which discouraged excessive importation at prices which might otherwise have proved disastrous to themselves and their correspondents. The full returns in detail were not ready for publication till the close of the year. But the summary contained all that was necessary for the guidance of those interested in the national supply of bread, and its publication so early as the 20th of September was, in my judgment, most creditable to the department concerned."

—— A memorial is in course of signature among the breeders of sheep requesting the Council of the Royal Agricultural Society of England to abolish the inspectors of wool and shearing, in consequence of the dissatisfaction which they are alleged to have given at Leicester. Mr. Horton, on behalf of the breeders of "Shrops;" Mr. Robert Garne, for the Cotswold breeders; Mr. Brown, for the Norfolk; and Mr. John Tredwell, for the Oxford Downs, are taking a leading part in the movement. The memorial begs the Council to invest the judges with full power to decide upon the eligibility of the animals for competition, and asserts that "the practice of inspecting the wool and disqualifying sheep by private parties, whose names are not published as inspectors, is most objectionable, as being at variance with the rules of the Society, subversive of the privileges and power that should alone be exercised by the judges, and a system which fails fairly to prevent the evil it is intended to remedy, by its having been known to permit the competition of animals which could not have been fairly shorn, and having disqualified others which could have been proved to have been shorn in conformity with the rules of the Society."

—— The Corporation of the City of Lincoln, in response to a deputation, agreed last week to give 100*l.* towards the expenses of the North Lincolnshire Agricultural Society's Show, to be held in Lincoln on the last three days of July next.

OUR LIVE STOCK.

We have received a communication from Mr. Thomas Bell, of Brockton House, in which he complains of some remarks made by us in reviewing his Catalogue on the 23*d* of January. It was certainly not our intention to speak otherwise than handsomely of the Brocton House herd, and reference to the impression above alluded to will show that we mentioned the Catalogue in a friendly spirit. The offending passage comes last, and is as follows:—"Too frequently the pedigrees are short; thus, in six cases there are only three crosses, and in 11 only four crosses of pure blood. The period of time thus indicated is too short to ensure true-bred stock that may be relied upon to transmit their good qualities to their progeny." We plead guilty at once to the inaccuracy of the statement, and are glad that Mr. Bell, by calling our attention to it, has enabled us to correct the error. The six cases above mentioned boast *four*, and the 11 cases *five*, crosses of pure blood. Mr. Bell proceeds as follows:—"As to the period of time being too short to ensure true-bred stock that may be relied upon to transmit their good qualities to their progeny, that is a question neither you nor I can solve. Speaking from experience, I would rather commence breeding from a cow with only two good crosses, and be sure of success, than upon half-a-dozen miscellaneous ones of which I knew nothing. I can give several instances of this. When I bought the Matchem cow, which I afterwards sold to Mr. Bates, she had only two crosses. As to the 'good qualities of her progeny' there can be no dispute, as the tribe is increasing in popularity every day; neither is the period of time too short here. She bred the 'Oxford Premium Cow,' one of the best cows in her day; Cleveland Lad, one of the best bulls in his day, and the sire of *Duchess* 51, which was the dam of the Grand Duchesses; Cleveland Lad 2d, another first-class bull, and sire of the 1000 gs. Grand Duke; and last, *Oxford* 2*d*. From the 'Oxford Premium Cow' came Locomotive, which was sold to America for 250 gs., and his brothers, Duke of Wellington and Locomotive 2d, were also sold to America for large prices. The descendants of Oxford 2d, both males and females, were all of a superior cast, and remain so to this moment. I will next allude to the Kirklevingtons. When my father bought the Northallerton white cow, she had no pedigree, but he was told that she was descended from Mr. Maynard's stock. The prices her progeny are selling for proves more than I can say for them. Then there is the Waterloo cow. When she came to Kirklevington she had only two crosses by Waterloo to begin upon. When my brothers and I bought *Acomb* of Mr. Bates she had only one cross, by Belvedere, and one of her descendants, *Annette* 2*d*, bred by me, was sold last month for 200 gs., while several of the tribe, both male and female, have been sold for 50 and up to 100 gs. *Fletcher*, the great-grand-dam of *Fuchsia*, when she became ours, had only one cross, by son of Young Wynyard, and descended from Mr. James Brown's Old Red Bull. The last tribe I will name is that which originated in *Place*. She had *no* pedigree when I got her, yet many a good animal has been descended from her. Among the number was the celebrated cow *Playful*, bought by Mr. Douglas, of Athelstane. Her produce sold as high as 300 gs. each, and *Princess*, another descendant, by 4th Duke of Oxford, and other two of the same family, were also all sold last month for 200 gs. each. These instances are sufficient to prove that it is not the length of pedigree that should be our guide when making a purchase, but the goodness of it."

We have given Mr. Bell's vindication of the high character of his herd at length, and so far as his remarks apply to the Brocton House stock, we entirely concur with him. The precise time or number of crosses required to give fixity of type to a breed cannot of course be specified, and in some cases it may take much longer than in others. Mr. Bell says he had "rather commence breeding from a cow with only two good crosses, than upon half-a-dozen miscellaneous ones," of which he knew nothing. This is a mere truism. The question is, whether he had rather begin breeding from a cow with two good crosses or half-a-dozen good crosses. We confess to a leaning towards the last case.

We should also like to ask whether Mr. Bell would put his cow with two good crosses to a bull with the same number of crosses? Why should such a proposition seem unpractical? It is because we are all convinced of the importance of long and pure lineage. We know that if we do begin with an ordinary cow we must work the ordinary blood out by repeated alliances, and that our best plan is to begin with good blood on both sides. We also believe that the effects of one bad cross—and every animal of unknown pedigree is liable to have sprung from such a cross—may reappear after many generations.

—— The following record of Shorthorn births has been received from Holly Bank:—*Grenadine* by Rob Roy (20,694), produced on the 21st of January a roan c.c. (*Geneva*) by Geneva's Duke (24,030). *Grenadine* 2*d*, by Lord Wild Eyes 2d (22,234), d. *Grenadine* above mentioned, calved a red with little white heifer, by Earl of Barrington, on January 30. *Fidelity* 5*th* by 10th Duke of Oxford (17,739), and descended from Mr. Bell of Kirklevington's *Fidget* family, calved a white bull (Fidelity 7th) to Prince

OF OXFORD, on February 12th. All are good calves, the last extraordinarily so, doing great credit to his sire, a son of LORD OXFORD 2D (20,215), and *Pink of Fashion*, of Mr. Bell of Brocton House's "Place" family.

A MINISTER OF AGRICULTURE.

[On Tuesday evening Mr. Acland moved in the House of Commons for a Select Committee to inquire into the action with reference to agriculture of various public authorities, with a view to consider the expediency of recommending that some one department be made responsible for dealing with administrative and legislative questions affecting agriculture. The following is an abridged report of his speech, and of the debate which ensued.]

WHAT was desired was that there should be a department generally accessible to those interested in agriculture, and that it ought to be represented in Parliament by some responsible minister. He did not on that occasion appear as the representative of an aggrieved interest, nor to plead for a readjustment of burdens as between different descriptions of property; but he asked the House gravely to consider this question—were there or were there not, in the laws of England as they now stood, or in the relations of those who in different ways were connected with landed property, causes which tended to impede the application of capital to the cultivation of the soil? Agriculture in these days was mainly a question of capital; and he asked whether the laws of holding and the tenure of land, the administration of the law, and the powers of various authorities, local or Imperial, tended to hinder the free and secure use of capital in agriculture? He thought he should not be accused of unduly promoting centralisation if he said that the following were legitimate functions for a central authority, viz., first, to remove obstacles to the employment of capital arising from obsolete customs or bad legislation; secondly, to endeavour to protect the weak from having their money spent for them on imprudent outlays, and to prevent the cost of improvident works from being cast upon posterity; thirdly, to collect, test, systematise, and diffuse correct information on agricultural subjects. Only that morning he heard some practical farmers talking of the agricultural statistics laid before the House by the statistical branch of the Board of Trade. They spoke warmly of the use of those statistics, but thought they ought to be more rapidly collected, and brought out as soon as possible after the harvest to be of service to the farmers, whereas, at the time they were now published they only enabled them to guess at what other people were doing with the Wheat they had grown. In the fourth place, in cases where they had to struggle against obsolete customs and petty local interests, and where they could not make progress without the concurrence of those locally interested, he thought it was legitimate for the State to take the initiative, supersedes local action, and guard against improvident expenditure. Lastly, he thought it a legitimate function for the Executive Government, under the sanction of Parliament, to raise a standard of professional competence for persons entrusted by law with responsible public duties affecting the interests of others. We plume ourselves on being essentially a practical people, who thought that scientific knowledge was likely to mislead them rather than to be a safe guide to them in the management of their affairs; but those who had reflected upon the sufferings of the lower orders, and had examined into the misery existing among the crowded population of towns and the scattered population of villages, must feel convinced that it was of the utmost importance that men charged with public responsibility should give some proof of sound education and scientific knowledge. But, supposing an agricultural department to have been appointed, it might be asked, what on earth was there for it to do—and what did they want with a department to help people who knew how to manage their own business to do that which they could do better for themselves? He would answer by enumerating five of the subjects which, in his opinion, required the intervention of the best knowledge, guided by the best experience which the country could produce. Some of these were already in action in various branches of the Executive, while others were in their infancy, though, he thought, it would be admitted that they were all subjects which were growing daily in importance. The first related to the exchange and transfer of land and the improvement of land and cottages. Those who had watched the proceedings of the Commission appointed to inquire into the employment of women and children, and who were aware of the disclosures which would probably result from that investigation as to the condition of cottages in this country, would admit that he was not now speaking of a subject which was unimportant in itself, or of one which had not been carefully attended to by many proprietors of the soil. It was, however, also true that a very large proportion of the land in this country was in a most fearfully neglected state, and in need of the most careful attention on the part of the Legislature. Many of the duties connected with this subject were already discharged by the Copyhold and Enclosure Commissioners. In the next place, there was the whole question of internal communication in the country. What he thought called for early legislation was this—to bring under some combined system of management the whole of the roads and bridges in the rural districts. In every county there were a number of bridges, with 100 yards of turnpike road on either side of them, under the management of irresponsible justices of the peace; then there were the highways, under the supervision of the Highway Board, and then roads under the Turnpike Commissioners. With regard to the bridges, he believed a fearful indictment might be made out against our ancestors by simply printing a map indicating the positions of the county bridges with reference to the county histories, showing what families were connected with the districts where the bridges had been erected. He understood that the late Secretary of State for the Home Department had contemplated introducing a Bill to establish a uniform system of county management for roads, and he hoped the idea would be carried out by the present Government. There was obviously a great waste of money in consequence of there being three or four systems for the management of roads and bridges, and the aid of Parliament and of a wise and vigorous Executive was required in order to bring about a change in the existing state of things. The third subject to which he would draw attention was the regulation of the cattle traffic. Of course that subject came under two heads, but he referred not so much to the importation of cattle from abroad as to internal traffic. Cattle were frequently sent very long distances, and as a matter of common humanity to the animals themselves this was a subject which ought to be no longer neglected. The fourth subject he would refer to was the management of watercourses or river basins on a large scale, with a view to drainage, irrigation, sewage, and the water supply of towns. The latter question, of course, could not be separated from that of the proper use of water in agricultural districts. Fifthly, there was a subject which of itself would have justified him in considering the question he had brought forward; and in regard to this subject he could appeal to the high authority of the right hon. gentleman who now occupied the chair, and who in 1847 was associated with himself in supporting the Bill introduced by Mr. Pusey, member for Berkshire. For fear of provoking controversy, he would not state by what influences the progress of that measure was impeded. However, it reached a Select Committee, and came out of it with several important provisions, one of which was that the compensation of outgoing tenants should be arranged by two valuers and a third person to be appointed by them; but in the event of their being unable to agree the third person or umpire was to be appointed by the Enclosure Commissioners. Sanctioned by so high an authority, he would suggest as a fifth subject, which might be safely and usefully delegated to a public authority connected with agriculture, the appointment, when called upon by the parties interested, of an independent umpire to secure fair play to both parties in regard to the compensation of outgoing tenants. This was a somewhat delicate subject to touch upon, as the tenant-farmers were not directly represented in that House to any great extent. Many county members must know very well that the great hindrance to the increase of the production of food in this country was that farmers could not always farm with confidence. He hoped that the principles which he sought to recommend would not be looked upon as being at variance with ordinary economic action; and now came the question, What were the arrangements which would be likely to work best in carrying into effect the objects to which his motion related? He had very little experience as to the discharge of official duties, but he would mention a plan which had been suggested to him by a gentleman who was intimately acquainted with the subject which he had ventured to bring under the notice of the House. That plan was to unite all that related to health and agriculture under one new department, to be called the Ministry of Health and Agriculture. Such, as a scheme, was, however, in his opinion, open to the objection of being much too large and too novel to be projected full grown at once before the public mind. He thought it therefore better, on the whole, to look in another direction. A gentleman of very great practical knowledge had informed him that he thought the best thing which could be done was to build on the Inclosure Commission, to expand the duties of that Commission, to concentrate the offices under one head, to bring that head under one of the higher departments of the Government, and to place in such hands all the duties which might grow up. There were, in his opinion, very strong reasons why the Board of Trade instead of the Privy Council should be looked to, to deal with the new duties, and his right hon. friend the President of the Board of Trade would have felt gratified if he had been behind the scenes that morning and witnessed the proceedings of a sort of farmer's Parliament which had been held at the Salisbury Hotel for the purpose of expressing their views on the subject. Among the practical men thus assembled a general disposition had been manifested to look to the right hon. gentleman and his department as likely to do for them that which they required. After a very searching discussion the meeting had, he might add, come to the resolution that there should be a separate Government department for agriculture, presided over by a permanent officer. As to whether the subject could be best dealt with by a Committee or a Commission, he would only say that that was a question with respect to which he did not desire to force his own views upon the House. The hon. gentleman said he would not offer any general observations on the subject, beyond saying that whatever tended to hinder the application of capital inevitably tended to depress the labouring class, and ultimately to injure the interests of the great landed proprietors of this country. In conclusion, he moved that a Select Committee be appointed to inquire into the action with reference to agriculture of various public authorities, with a view to consider the expediency of recommending that some one department be made responsible for dealing with administrative and legislative questions affecting agriculture.

Mr. GOLDNEY ridiculed the immense range of multifarious subjects which Mr. Acland had suggested for a Committee, and preferred that each case of agricultural grievance should be dealt with as it was proved; but, on the other hand, Sir S. NORTHCOTE, while guarding himself carefully against many of the views expressed by Mr. Acland, thought he had made out a good *primâ facie* case for an inquiry whether one department of the State should not be charged with all matters relating to agriculture.

Mr. PELL would not enter into the discussion of matters which might be more conveniently considered in a committee-room, but said that all who were connected with the ownership or occupation of land must be aware that many inconveniences arose from the arrangements at present existing. At a time of which the House must be sick of hearing, though to agriculturists it was one of terrible trial and suffering, it was with the greatest difficulty that the owners or occupiers of land could ascertain to what department they were to go for information and relief. They went to a variety of offices, and eventually found themselves among pens, ink, and paper, in some office not far distant from the House of Commons, and connected with the Stationary Department. But, although they were thus shifted from office to office, they did not find that any greater consolation was given to them. There were agricultural questions in which the whole community were concerned, and among them was that which involved at once the health of the people and the fertility of the soil. If it had not been the object, at all events it was the result, of much legislation to get rid of a vast quantity of matter from the towns, without any regard whatever to its application to any useful purpose. With this subject a department of State might deal most efficiently, but no private member could deal with it. If there were, as alleged, tracts of land we should have difficulty in cultivating, there were large tracts of land, well situated with regard to climate and elevation, which remained sterile, because there was no statesmanlike arrangement for utilising upon them the waste of great cities. In this matter alone there was a greater field of usefulness for a statesman than there was in attempting to interfere in the relations between landlord and tenant.

Mr. NEWDEGATE said that the remarks of the hon. member for North Devon pointed directly to the appointment of a central authority to investigate everything that related to the ownership and tenure of land. In 1848 he moved for a Committee which investigated the tenure upon which land was held throughout England and Wales, and found such a variety of customs to prevail in different localities that it would be impossible to frame a general law to regulate them all, but it urged that facilities should be given for carrying out voluntary agreements made in writing between landlords and tenants, and he was happy to say that a system of written agreements, stamped, and therefore evidence in a court of law, was rapidly extending. These agreements embraced compensation to the tenant for permanent improvements, for buildings, for roads, for drainage, for manuring, and for cultivation. The hon. member complained that there were impediments to the application of capital to agriculture, but he admitted that our agriculture was in advance of that of almost every country in the world; and, although there might remain something to be done, surely the process by which we had been advancing so rapidly ought not to be interrupted, unless there was direct proof of retrogression in the agriculture of the United Kingdom. The regulation of the water supply, so as to secure at once the freedom of the main arterial outfall and the due preservation of water, was being investigated by Sir William Denison, than whom a more competent authority could not be found; the sewage of Birmingham was being conveyed by railway and canal to surrounding estates, including his own; and in all this he saw no call for the interference of a central office. Agriculture was congratulated upon having been liberated from the swaddling clothes of Protection; but there are some who would envelop agriculture in the swaddling clothes of official interference. Having watched the progress of improvement, he could not accept the maternal care of the hon. member for South Devon. Let tenant-farmers be warned by what happened in the course of the last Parliament, when the Poor-Law Board was armed with powers of taxation and of interference with the discretion of guardians in the appointment of officers such as virtually abrogated the principle of self-government and of local taxation, and let them avoid subjecting themselves to uncontrolled official interference.

Mr. BRIGHT said that Mr. Acland's proposition at first looks not unreasonable, but if we look at the constitution of the different departments, and what is the practice, and perhaps the inevitable practice, I think we shall find that what the committee is to inquire into and advance is not, perhaps, attainable. Agriculture in this matter is exactly in the same position at present as any other interest in the country. What Mr. Acland appeared to think was, that if there was one department of the Government to which persons connected with land and agriculture might apply, there would be occasions on which, with regard to nearly all those questions, application might be made to that department, and advice and assistance, in some way or other, might probably be rendered. That is a very fair proposition, but he included in his statement matters which, if I were at the head of the department, I do not think I should like to come before me. I listened to the string of subjects which he referred to, and after dealing at length with the question of the transfer, and exchange, and improvement of land and cottages; with the question of internal communication; with the question of the cattle traffic, and the cause of humanity as connected with that traffic; with the questions of sheds, drainage, and irrigation, and after speaking at some length on what, in the presence of hon. gentlemen opposite, he evidently felt to be very delicate ground—tenant-right and confidence of tenants in their landlords—I listened for a moment and expected him to turn to the Board of Trade and ask them to propose some regulation on the subject of game. It would, no doubt, be of advantage

to have some plan by which any one coming from the country would have to ask for only one office instead of running the risk of losing his way as he passed down Whitehall. But trade and agriculture are in this matter precisely on the same footing. It is not, therefore, a question for the farmers to take an especial interest in. My own advice to them would be to come as little as possible to any Government office. My hon. friend said in his speech what was very gratifying for me to hear, that the gentlemen with whom he has been holding a small Parliament this morning—indeed, I would venture to call it a matter of great importance—had great confidence in me, and hinted that they regarded my present position as a very satisfactory one. Well, I take hon. gentlemen to witness, looking at past times, that, as far as I was able, to the best of my ability I tried to do that which was highly advantageous to agriculture. A late county member, not now in this House I am sorry to say, told me he thought I had been the best friend to agriculture that he knew of in this House, although during the time that I was engaged in those labours he was one of my staunchest opponents. I think that agriculture never had less to complain of; that landlords never had better rents; that those rents were never more punctually paid; and that the prospects of agriculture as regards the farmers were never more satisfactory. When I found my hon. friend putting this notice on the paper, and saw also a notice put down the other night by an hon. gentleman opposite, on the subject of local burdens, I could not help thinking of a story which an eminent physician once told me. He said that he had been hastily summoned that morning to attend a lady of rank, who wished instantly to consult him. When he found her at her home she said she felt very well, she had never been so well in her life; certainly not so well for many years, and she had sent for him because she felt satisfied that something was going to happen to her. Now, that is just the condition which agriculture is in at present. She was never so well in her life, and she is therefore about to call in the House of Commons and the Board of Trade, and I know not what, under the apprehension that something is going to happen to her. My advice to hon. gentlemen who profess to be the friends of farming and farmers is to allow those concerned in agriculture to consider that sun and shower and industry are far better for them than anything that the House of Commons or any Government department can do. But with regard to the particular point of this notice, I think when I tell my hon. friend that the Home Secretary is at this moment considering whether it is not possible to make some, I will not say very considerable, but some changes, which are not unimportant, in the direction to which his notice refers—that it will be attempted to bring things that are in some degree alike and connected into one office in order that there may not be that running about to two or three offices that the hon. gentleman opposite spoke of—I think he will consider that is not necessary to press this motion for the appointment of a committee. There is no disposition on my part, and there is none on the part of the Government, to resist an inquiry which would be probably attended with useful results, and least of all is there any disposition to resist such an inquiry in the case of an interest which is so powerfully represented on both sides of this House. For myself and for my right hon. friend the Secretary for the Home Department, I can say that the question, so far as I have indicated, shall be considered; and if it appears that we can discover anything that bids fair to secure this result—and I think there are things that may be discovered in the direction of the motion of my right hon. friend—it shall as far as possible be carried out, and probably the objects of his notice and of his speech may be accomplished without the appointment of the committee for which he has asked.

Mr. Acland felt much obliged to the right hon. gentleman for the clear view with which he had favoured the House, and after the statement just made thought it unnecessary to press his motion.

The motion was then withdrawn.

STEAM CULTIVATION.

The Combined Ridger and Subsoiler.

I sent a letter to you last week, informing you that Mr. Howard had referred at Birmingham to my combined ridging and subsoiling plough; and now I must give you another letter giving some results from the working of this implement, and I do so to-day because on this day I finish my Bean seeding for the year upon such work; and you know that I always give data at the time, so that all the world may come and test my doings if they like. In October last, in a letter that you published, I wrote thus:—

"On the 5th October I started on No. 4 heavy land 10 acres, ridging and subsoiling it for Beans. It was finished on the 6th at 4.10 P.M. We then shifted the tackle half a mile to No. 1 heavy land 8 acres, and we finished that field at 12.15 P.M. on the 8th. After 11.50 A.M. on the 14th we shifted the tackle to No. 4 light land (where a number of people saw it at work), and we finished the 12 acres at 3.10 P.M. on the 15th."

Now, all this land lay just as the implement left it until the 2d of February, on which day I began setting the Beans by hand on No. 1 heavy land; after finishing it we went on to No. 4 heavy land, and planted that in the same way. These two fields were finished on the 9th, so that in seven working days the whole was done—18 acres in all. The most important part of the matter is that we could do this planting without the aid of a horse on this dirty, sticky land, in the wet state in which it has been ever since the beginning of last December. Yet the Beans kicked in well, the mould falling from the ridges like ashes, so that the seed-bed on this dirty land, as I stated in my letter in October last, cost me only 7*s*. 0½*d*. an acre, and the Beans are gone in well.

Now, let us go to the light land. On October 10, I found this land in a nice dry mellow state, so I set the men to dib in the Beans, and I set my three horses and pony to pull my subsoiler along every ridge, splitting the ridges 15 inches deep, and covering in the Beans at the same time, and it made excellent work—the best I ever saw done. On the 10th and 11th we did 8 acres, the 12th was a regular wet day, which brought a flood down upon us quickly. To-day is the first day that we could get on well again, so we set to and finished the 12 acres.

Now, I will give some other facts upon this point, for I have threshed all my Beans that were planted and grown on land similarly worked a year ago; they were grown upon my heavy-land fields, Nos. 2 and 3, and No. 1 light land, and I will talk about the heavy land fields first.

The produce on Nos. 2 and 3, heavy land, was 28 bushels per acre. These fields since harvest (as I have before shown) have been smashed and planted with Wheat, at a cost for seed-bed of 6*s*. 9*d*. per acre; and the plant is a most excellent one, although drilled with but a trifle over 1 bushel of seed per acre. It has thickened vastly, and it looks very strong.

The produce on these poor heavy clay fields under horse culture used to be—a dead fallow, with Wheat after it; from 25 to 30 bushels used to be the average—30 bushels was always considered a capital crop. The Beans, the third year, would be about the same as to quantity as the Wheat; but the Wheat crop for the fourth crop must not be fixed at over 25 bushels. Taking the dead fallow and the three crops, the average of the four could not be fixed at over 80 bushels.

You see that even in this bad Bean year I have got an average crop of Beans on this poor land when compared with horse culture; and my Wheat was an excellent crop, and although not threshed, I am quite certain that it will give quite 40 bushels per acre. The summing up of all this is:—

Wheat on No. 1	40 bushels.
Beans on No. 2	28 ,,
Beans on No. 3	28 ,,
Wheat on No. 4	40 ,,
	136 ,,

56 bushels over an average under horse culture, or 14 bushels per acre.

Now to field No. 1, light land. It was by far the best field of Beans in this neighbourhood. A neighbour of mine told me that it was the best field of Beans in England. I did not see one so good anywhere, neither did I read of one so good. I had 37 bushels per acre. The Beans were plump and good, no hollowside ones, and I have sold nearly all of them to my neighbours for seed at a good price. Can Mr. Howard produce such facts as these in support of his statement at Birmingham? If he can, let us have them.

You know that I offered to do all my work last autumn before a Commission of the Royal Agricultural Society, if they would send one. Now, as soon as I had completed my autumn work I informed the Council of that Society, by giving all the particulars, and asking them to send a Commission down to inspect and report upon the work. The Secretary wrote to me that my communication would be laid before the Council at its meeting in February. The meeting is over, and neither you nor I have heard a word about the communication. They are quite welcome, as far as I am concerned, to do what they please with my communication; it cannot hurt me, for I have given all my inventions away, and the testimony that I give is given with a good will: but Mr. Howard, of Bedford, tells them, "I have used a combined ridging and subsoiling plough . . that makes capital work,"—and this is the implement that the judges would not look at at Chelmsford, that they would not see at work by the aid of a Commission last autumn, or even its work since offered. "In Autumn," says Mr. Howard, "if we have some farmyard manure made early in the year, it would be put on the stubble before it was broken up. The ridging would be done in favourable weather." But Mr. Browick, the manager of the Britannia Farm, said on the 13th of last August, "The plan Mr. Smith recommends of putting on the manure for roots before breaking up the stubble with the ridger and subsoiler is hardly desirable. . . Take Messrs. Howards' own case. When they entered on their Clapham Park property there was nearly one year's straw in hand, and hardly a load of dung could be scraped up. . . Mr. Smith's system would not meet a case of this kind. . . Messrs. Howards' plan I regard as the more generally useful one . . the stubbles are up as soon as the crop is removed. In December the land is ridged with the common double-mould plough, each pair of horses managing from 2½ to 3 acres a day. The ridges lie till after Christmas, when the dung is carted from the yard and spread in the furrows, the ridges being split at convenience." Let Mr. Howard read this; I can bring other evidence of the inconsistency of his own writing.

One word more, and I have done. The Agricultural Society may try to smother me as long as they like, and Mr. Howard may try to swallow me up if he can; but so long as I continue to work out my own plans and give facts to the public, which I mean to do, the former will never get on with their task, and the latter will find me a regular hedgehog to get down.
William Smith, Woolston, Bletchley Station, Bucks, Feb. 16, 1869.

[The above was written and in type before we received Mr. Howard's letter published in last week's *Agricultural Gazette*. A long communication has been since received from Woolston discussing Mr. Howard's letter clause by clause. But we do not publish it, for the public are not interested in a personal discussion of this kind. We may, however, say that it proves, by reference to Mr. Smith's private correspondence, that the public *are* interested in the Woolston writings on steam cultivation; and it argues, as indeed is done above, by a reference to Mr. Browick's writings, that the practice of stirring the stubbles deeply, having first spread the manure on them in the autumn, is a practice new to Mr. Howard, to which he may have been led by the Woolston practice and the Woolston writings. As to the implement figured on p. 11 of the Bedford catalogue, not having a copy of the catalogue, Mr. Smith is unable to refer to it, but a copy has been sent for, and further criticism, we presume, may be expected. Meanwhile we extract one passage from his letter, relating to the power of tillage and manure combined to maintain the constant cropping of the land with Barley:—"I will give you a bit of fact—Mr. James Howard may call it "silly egotism" if he likes. It is a fact that I had a heavy crop of Wheat on my No. 6 light land field (14 acres) in 1867, instead of a crop of roots; that I had upon this same field a crop of Barley in 1868 that gave me a produce of 54 bushels per acre, and that it is now nearly ready to be planted with Barley for 1869. For the Barley crop in 1868 it was smashed once by steam and horse-cultivator, twice, at a cost of 10*s*. 8*d*. an acre; and it had a dressing of superphosphate of 3 cwt. per acre. For the Barley to be grown in 1869 it was ridged and subsoiled by steam-power 11 inches deep, last autumn, at a cost of 7*s*. 0½*d*. per acre, and the operation to bring it upon the flat is a subsoiling, splitting the ridges 15 inches deep, at a cost of 3*s*. per acre, making a total of 10*s*. 0½*d*. per acre for the seed-bed; 6 cwt. per acre of superphosphate was thrown upon it last autumn and ridged in. The field is fen land in character, rich in vegetable mould, and very poor in lime. It can stand having all the straw taken from it every year if it is well limed; therefore I have made up my mind to grow Barley upon it, and nothing else, with the aid of superphosphates. Mr. Lawes gave us the fact the other day, that he had grown Barley on the same land for 16 years with the aid of artificial manures, taking all the corn and straw off during the whole period; and I thank him heartily for it, for it cheers me on in the road that I had cut out for myself. He has proved that the thing can be done—and I mean to prove that it can be done—practically, to any extent. 10*s*. an acre will work my land a foot deep, and keep it clean for ever without the aid of any Twitch burning. I state this openly and fairly, so that people may all come and see what I am at, at any time."]

Home Correspondence.

"T. B. S." v. Mechi.—Your correspondent "T. B. S." is disposed to despise small things, and taunts Mr. Mechi with having added such insignificant figures to his balance-sheet as farthings and halfpence. When asking—"Will Mr. Mechi state that these entries are anything more than guessed, to say the very best for them?" he adduces instances, which he does not seem to observe, that tell very ludicrously against himself. The sum of 131*l*. 11*s*. 10½*d*., amount of horse-food purchased by Mr. Mechi in 1868, is unaccountably minute to "T. B. S." In fact, he says—"The very minuteness — the halfpennies and pennies — show that the balance-sheet is an impossibility." Is it really beyond his comprehension to understand how Mr. Mechi can tell to a "couple of farthings" what he has paid out for a certain item? and, again, as minutely, how much he received for certain items sold? It is very evident that the good old rule, "Take care of the pence, and the pounds will take care of themselves," is not one of "T. B. S.'s" maxims; and that has, doubtless, something to do with his sceptical allusions to Mr. Mechi's balance-sheet. The theory which "T. B. S." seeks to propound is really a new feature in business, and it would no doubt be interesting to the general public if he would kindly inform them as to how his theory works in practice. Let us suppose that "T. B. S." is a land-agent, and that he is conducting transactions on some gentleman's account, in which fractions figure more or less prominently. Were he to produce a voucher for a single item of 131*l*. 11*s*. 10½*d*., would that gentleman tell him that his voucher was necessarily false, since it went to the minuteness of halfpence? I think not. But then this is the theory of "T. B. S.," and according to it, in order to prevent the gentleman preferring such a charge against him, he must do something to obviate the possibility of such a result. If it is not his practice to observe detailed accuracy in accounts, will he tell us what efficient method he adopts in order to satisfy himself as to the profit or loss per annum on his own farm, since he does not go to the minuteness of pence and halfpence? I can hardly believe that a man like "T. B. S." will be altogether without accuracy on some points. I humbly submit that Mr. Mechi and his bailiff are quite as likely, apart from local reasons, to be able to form a correct estimate of farming substances and stock-in-trade as "T. B. S." or, perhaps, any land-agent in the kingdom is. Moreover, if 99 out of every 100 farmers have to employ dealers to purchase their stock for them, as "T. B. S." says they "very wisely do," the farming interest and intelligence must be fast losing ground, for it does not require the unfounded assertion of "T. B. S." to prove that. Where a farmer does not possess sufficient judgment to enable him to select his own stock, he cannot by any means be able to turn that stock to the best advantage after it has been purchased for him. We dare say it would appease the wrath of "T. B. S." were Mr. Mechi to get that gentleman to make his future valuations for him. We should not then be troubled with the carping of this spiteful individual. Most likely, indeed, that he would be calling upon the farmers of England to follow Mr. Mechi's example in every respect, even to employing "T. B. S.," not only

to make their annual valuations, but also to select for them whatever stock they might happen to require. This "post" the superior talents and great experience of "T. B. S." admirably qualify him to fill, and it is to be hoped that the British farmers will not be so slow to avail themselves of the hints, which he has graciously condescended to throw out, as they are to act upon some of Mr. Mechi's theories. I trust that Mr. Mechi will be long spared to show to the agricultural world his useful balance-sheets, notwithstanding the conviction of "T. B. S." that "his papers and figures are much impeding agricultural progress, and greatly misleading the public." Let me ask wherein Mr. Mechi's papers and figures are likely to impede agricultural progress? I have always entertained the opinion, and ever shall, that both Mr. Mechi's writings and speechifyings are worthy the careful consideration of every practical farmer; and it will doubtless require more substantial arguments than those advanced by "T. B. S." to prove to the world and posterity that Mr. Mechi has not been a true benefactor of his country, and a distinguished agricultural pioneer. I do not say that I agree with all the theories supported by Mr. Mechi, nor yet with the manner in which all these theories are carried out, but this I do say, that the opinions of Mr. Mechi are very far from being untenable, although they seem to have been far, very far, in advance of his own generation. Will not such a fact tend rather to add than detract from his future renown? It may not suit "T. B. S." and a few others, to have Mr. Mechi's farming profit displayed before all and sundry, but that will not conceal the fact that the agricultural resources of this country are but very imperfectly developed, and that one of the best incentives to further exertions are the frequent papers and the annual balance-sheet of Alderman Mechi. *J. Scott, March* 1.

Co-operative Manure Association.—In answer to queries contained in your Paper of February 27, I beg to forward you a copy of the rules of the Lincoln Tillage Association. We supply nothing but 26 per cent. soluble phosphates, made from coprolites and acid. The same article is generally sold in the retail trade from 5*l.* to 6*l.* per ton, and often more. There is no doubt that on fair land from 3 to 4 cwt. per acre of this manure is quite sufficient for any crop of Turnips; where the land is very light some sulphate of potash would do good—say, 2 cwt. per acre, with 3 cwt. of superphosphate. *E. Toynbee, Lincoln, March* 1.

The Tiptree Balance-Sheet.—Mr. Mechi does vouchsafe to notice me, but at present has not accepted my challenge, and proved that the average yield of each acre in the United Kingdom (calculated on the Tiptree system) is only a trifle over 3*l.* annually. Neither does he answer my question as to how he makes the tillages over the whole of his farm worth 3*l.* 15*s.* 6*d.* per acre. Instead of enlightening us on these points, he occupies a couple of columns of your valuable space chiefly in telling us that after a flood we ought to look to our drains, how to grow Mangel, &c. We all knew these things before. Knowledge of this kind is possessed by every one at all practically acquainted with agriculture, and is by no means restricted to Tiptree. I again hope that he will be so obliging as to answer the questions I have put, as my poor understanding is incapable of solving the difficulty. It would be far better that he should clear up the old instead of every week breaking fresh ground. Furthermore, in your impression of Feb. 6, Mr. Mechi says, "I make public my facts and practice, and sometimes venture an opinion; but I hold that it is good for agricultural progress that we should make known and compare, and thus derive profitable information from each other. Of course such a system is unpalatable to those who wish to make farming a hole-and-corner business, and shade it from the light of observation, but the time for that has gone by now that we have good roads, railways, penny post, and a rapidly growing agricultural Press." After expressing such sentiments, surely he cannot refuse to enlighten me on the points to which I have adverted. By a parity of reasoning I may also say that now when we happily possess all the advantages he enumerates why should trading more than farming be a hole-and-corner business? As he has been so ready to benefit the farming interest by throwing the light of day upon it, how can he refuse a similar advantage to his neighbours, the West-end traders? Will he kindly inform us through your columns what is the profit on a six-guinea bagatelle table, or a ten-guinea dressing case, or will he publish a balance-sheet of his Regent Street concern. I have no doubt but that the trading community generally would applaud such public-spirited conduct, and it might be of service to many of his agricultural friends as affording a clue to an opening for some of their big boys when they are too thick on the ground. *F. W. Bignell.* —— As farmers we are glad to hear the thoughts of anyone on subjects in which we are deeply interested; and although we do not all agree with Mr. Mechi, at the same time he may rest assured that there are very many who will be sorry to think that he should relax his useful communications on account of such allusions as those of F. W. Bignell in his last letter. I believe that many who not only possess knowledge and experience which would be of great value to the farming community, but are capable of imparting such knowledge, are deterred from doing so, not caring to "cross pens" with angry and unscrupulous assailants. I think of F. W. Bignell as "G. A. H." (p. 171) does of "J. B. S."—that he owes Mr. Mechi an apology. To that portion of the letter, however, which is not merely personal: I regret equally with himself that from want of local knowledge he cannot satisfy me as to the value of Tiptree lands, &c., having never seen them, but I concluded he had, for at p. 119 he says, "his chief receipts are for Wheat, for the production of which his farm is well calculated." He says, "I have kindly given him a point; for 'if' Mr. Mechi has not placed the value high enough, &c.;" but this is the question he cannot, nor can I, answer. I wish to know the general run of land for agricultural purposes in that neighbourhood. Is it "39*s.* 10*d.* or 40*s.*?" I will now add a word or two to "A Farmer." Let him consider the first portion of this communication as intended for him also; but I must say in a minor degree. Three-fourths of his letter will not require any observation: it speaks for itself. I will only notice his correction as to rent. He says:—"Now I will put the case plain:—

Tiptree Hall, buildings, machinery, and 177 acres of land, rent	£301	0	0
Gross profit theron, according to Mr. Mechi's balance-sheet	£525	13	6
"Correction," 45 acres of chapel land	45	0	0
	£570	13	6

Here we must part company, each following the bent of his own mind. I now take

Tiptree Hall, and 132 acres of land at 40*s.* ..	£264	0	0
Rent of chapel land	45	0	0
	£309	0	0
Interest of tenant's capital of 2858*l.* at 5 per cent.	142	18	0
Balance for Farmer Mechi for his work ..	118	15	6
	£570	13	6

I will not take up your space by repeating the latter portion of my last letter, but anyone can add 38*l.* to "Farmer Jones" for his year's work, and sum up interest of capital; or, in other words, he has allowed me 37*l.* for my carter, and I will not even now call him a working bailiff. *Another Farmer.* P.S.—Imperial averages are useless in this matter. I sold Red Wheat, Golden Drop, on September 25, for 60*s.*, the third week following for 55*s.* The *Mark Lane Express* of the 15th inst. quotes "Devizes" market: Red Wheat from 45*s.* to 57*s.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Monthly Council: *Wednesday, March* 3, 1869.—Present: Mr. H. S. Thompson, Trustee, in the chair; Viscount Bridport, Lord Chesham, Lord Kesteven, Lord Walsingham, Hon. H. G. Liddell, M.P.; Mr. Acland, Mr. Baldwin, Mr. Barnett, Mr. Barthropp, Mr. Booth, Mr. Bowley, Mr. Bramston, Mr. Cantrell, Colonel Challoner, Mr. Clive, M.P.; Mr. Davies, Mr. Druce, Mr. Edmonds, Mr. Brandreth Gibbs, Mr. Holland, Mr. Hornsby, Mr. Hoskyns, Mr. Milward, Mr. Pain, Mr. Ransome, Mr. Statter, Mr. Torr, Mr. Turner, Mr. Wells, M.P.; Major Wilson, Mr. Jacob Wilson, Professor Simonds, and Dr. Voelcker.

The following new members were elected:—

Allen, George, Knightley Hall, Eccleshall, Staffordshire.
Aveland, Lord, Normanton Park, Oakham.
Bartram, William, Harrogate, Yorkshire.
Bland, Henry Wainwright, Barlow, Chesterfield.
Brady, W. Hollinshed, Chestergate, Stockport.
Brierley, C. William, Rhodes House, Middleton.
Brown, Pereira, Glentworth Hall, Lincoln.
Cannon, Joseph C., Oxford.
Dalzell, John, Stainburn Hall, Wokington.
Dobbs, Samuel P., Huntly, Gloucester.
Gadsby, Alfred, 10, Crane Court, London, E.C.
Graham, James, Parcelstown, Westlinton, Carlisle.
Greenfield, George, Belle Eau Park, Ollerton.
Groucock, Charles, Stanfield Hall, Wymondham.
Haig, George E., Goodworth Clatford, Andover.
Hart, John, Strangeways, Manchester.
Hill, John, Crookes House, Newent.
Hunt, George, Evesham.
Ingledew, John, Sewborwens, Penrith.
Jenkinson, Francis Marston, Stafford.
Johnson, Daniel J., Kensall Green, Harrow Road, Middlesex.
Knight, Edward, Smallrise, Sandon, Stone, Staffordshire.
Laurie, Reginald N., Pax Hill Park, Cuckfield.
Leech, George, Hunden Great Lodge, Haverhill.
Loveridge, Charles, Ivetsey Bank, Penkridge.
Lucas, Rev. Charles H., The Rectory, Edith Weston, Stamford.
M'Gregor, John, Acton Weaverham, Northwich.
Mitchell, J. Jackson, Wigton.
Monckton, Frederick, Hadlow, Tonbridge.
Nelson, Thomas, Catgill Hall, Egremont, Cumberland.
Nicks, William, Greville House, Gloucester.
O'Neil, William, Athy, Kildare.
Purdon, Edward, Bachelor's Walk, Dublin.
Rogers, Henry, Wolgarstone, Penkridge.
Rogers, Thomas, Coxall, Brampton Bryan, Staffordshire.
Rothwell, W. Talbot, Foxholes, Ellel, Lancaster.
Simpkin, Joseph, Narborough, Leicester.
Simpson, Samuel, 33, South King Street, Manchester.
Smith, Henry, Eaton Constantine, Wellington, Salop.
Spedding, John J., Greta Bank, Keswick.
Strickland, George, Low Abbey, Kirkby Thore, Penrith.
Thornton, John, 15, Langham Place, London, W.
Tomlinson, Bruce, Asgarby, Sleaford.
Valpy, Richard, Heathlands, Wimbledon, Surrey.
Wall, Thomas, The Ford, Droitwich.
Wartnaby, Mrs., Market Harborough.
Welchman, Thomas, Malshanger Farm, Basingstoke.
Wigram, John, Harlow, Essex.
Wilkinson, S. W., Apsley Cottage, Stockport.
Wood, James, Haigh, Wigan.

Finances.—Lord Bridport (Chairman) presented the report, from which it appeared that the Secretary's receipts during the past month had been examined by the Committee, and by Messrs. Quilter, Ball & Co., the Society's accountants, and were found correct. The balance in the hands of the bankers on Feb. 28 was 1993*l.* 18*s.* 5*d.* The deed of security given by the Secretary and his sureties had been received, duly signed, and ordered to be placed in the custody of the London and Westminster Bank.—This report was adopted.

Journal.—Mr. Thompson (Chairman) reported that Messrs. Clowes & Son having agreed to accept a reduction in the price of printing, paper, and other expenses connected with the publication of the Journal, whereby a saving will be effected, fully as great as the Committee anticipated from advertising for public tenders, the Committee recommend the Council to accept this offer. In pursuance of the authority given them by the Council, the Committee had settled the plan to be pursued in inspecting the selected farms, and had made the requisite arrangements with Mr. H. H. Dixon, both for visiting the farms and preparing the reports for publication in the Journal. In accordance with a suggestion of Mr. Willson, of Knaptoft Hall, Rugby, the Committee recommend that in the first number of the Journal of every year those members of the Council who retire by rotation in the following May shall be indicated by an asterisk being placed against their names With regard to Essay prizes, it was reported that in Class IV., "On the Domestic Economy of the Agricultural Labourer," the judges have recommended that the prize be withheld.—This report was adopted.

House.—Viscount Bridport (Chairman) reported that the Committee had consulted Mr. Fowler, the architect, with reference to alterations in order to obtain additional rooms for the use of committees; and that as the cost will not exceed 75*l.*, according to the plan submitted, the expenditure of that sum for the purpose was now recommended.—This report was adopted.

Chemical.—Mr. Wells (Chairman) reported that the following papers had been contributed by Dr. Voelcker to Part 2 of the Journal for 1868, viz.:—

1. On the Composition and Nutritive Value of Trifolium striatum—a new kind of Clover.
2. On the Causes of the Benefits of Clover as a preparatory crop for Wheat.
3. The Annual Chemical Report.

It was also stated that the forthcoming number of the Journal will contain Dr. Voelcker's report (now in type) on field-experiments on Clover seeds and permanent pasture; and that Dr. Voelcker had reported that experiments on drainage-waters from fields in various states of cultivation as regards manure are now in progress.

The Committee recommended that Dr. Voelcker be requested to investigate the subject of the admixture of night-soil and dried earth, with a view of ascertaining its value to agriculturists. It was also recommended that the usual annual grant for investigations be awarded to Dr. Voelcker. In conclusion the Committee expressed their regret that the lectures delivered in former years had been discontinued.—This report was ultimately adopted after a discussion, in the course of which Colonel Challoner regretted that no particular day had been fixed for the lectures. Mr. Wilson stated that it had been found that farmers would not attend. Mr. Thompson remarked that although every possible scheme had been tried, the result was always the same—bad attendance. It was then proposed by Lord Bridport, seconded by Colonel Challoner, and carried unanimously, "That Dr. Voelcker be invited to lecture on the general results of his investigations during the past year, on some day hereafter to be named by the Chemical Committee."

Manchester Meeting.—Lord Bridport presented the report, and stated that the Committee recommend the formation of a sub-committee to take into consideration the question of refreshments, to draw up forms of tender and of advertisements, and to instruct the Secretary to issue those advertisements, inviting tenders—the committee to consist of Mr. Brandreth Gibbs, Mr. Cantrell, Colonel Challoner, Mr. Davies, Mr. Statter, Mr. Torr, and Mr. Whitworth. It was also recommended that the contractor be instructed to provide a floored and waterproof marquee, to be erected in the showyard, for the accommodation of his Royal Highness the Prince of Wales (President). A list of additional prizes, proposed to be given by local tenant-farmers for additional descriptions of stock having been laid before this Committee by the Secretary of the Local Committee, it was recommended that this proposal be declined, as being inconsistent with the rules and objects of the Society. It was recommended that the name of Sir Thomas Hesketh, Bart., M.P., be added to the list of this Committee. With reference to the question of placing the Local Committee in a position to offer some privilege or compliment to the subscribers to its local fund, to its executive, or otherwise, it was recommended that the Council place at the disposal of the Local Committee—(1) 500 non-transferable weekly tickets, and (2) 250 non-transferable tickets for distribution on the second day of the show.—This report was adopted.

Showyard Contract.—Mr. Milward reported that the Committee recommended that the tent usually erected for the general meetings in the showyard be put up at the commencement of the show, so as to be available for the use of the members of the Society during the week; and that it be furnished with a table, chairs, and writing materials. The Committee having considered a series of suggestions, made by Mr. Willson, of Knaptoft Hall, Rugby, recommended that the regulations of the Society be enforced at the entrance-gates, and that wire-netting be provided to protect the cheese and butter exhibited from injury by visitors.—This report was adopted.

The question of the supply of chairs for the use of the Council and officers of the Society, and of those to be let for hire to the public, having been investigated by the Committee, the facts were reported to the Council, and on the motion of Mr. Milward, seconded by Mr. Thompson, it was unanimously resolved that the contractor be the only person allowed to let chairs in the showyard, on his undertaking to supply not less than 1000 chairs, at a charge of 1*d.* each time a chair is used, or 6*d.* for a day-ticket.

Agricultural Education.—Mr. Holland (Chairman) reported that the arrangements for the Society's examinations were proceeding satisfactorily, but that the Committee recommend the commencement of the

examination on Tuesday, April 13th, instead of Monday the 12th, in order to allow of candidates from a distance reaching London on Monday instead of Saturday. This report was adopted, after a conversation, in the course of which Mr. Acland expressed doubts whether the results obtained were proportionate to the expenditure entailed. Mr. Holland stated that the whole of the grant was not spent last year, and not necessarily spent without an equivalent result; and Mr. Thompson mentioned his desire to have the question of future examinations discussed in the latter part of the year. It was also announced that the following gentlemen had consented to act as examiners at the ensuing examination in April:—Agriculture: Mr. Jas. Vallentine, of Burcott Lodge, Leighton-Buzzard. Chemistry: Drs. Voelcker and Liveing. Botany: Professor Bentley. Geology: Professor Morris. Land-Surveying and Mechanics: Professor Twisden and Mr. Amos. Book-keeping: Messrs. Quilter & Ball.

Printing Awards.—Mr. B. T. Brandreth Gibbs (Chairman) reported the recommendation of the Committee that Messrs. Gadsby and Arnold be allotted space in the showyard to put up at their own expense a printing press for the purpose of printing the implement and stock awards, and such notices and other work as the Society may wish them to undertake during the show-week, provided that Messrs. Gadsby & Arnold's tender be satisfactory to the Committee with regard to price.

Announcement of the death of Sir J. V. B. Johnstone, Bart., M.P., having been made, notice was given that the election of a Governor to fill the vacancy thus created in the list of Vice-Presidents would take place at the next monthly Council.

On the motion of Mr. Torr it was resolved that the Stock Prizes Committee be authorised to prepare a new list of judges, in the manner they may deem best, after communication with the leading county agricultural societies. A letter was read from Mr. Horton, of Harnage Grange, Shropshire, requesting the Council to receive a deputation of the Shropshire and other sheep breeders, to present a memorial on the subject of inspection of wool and shearing, and it was resolved to receive and consider the memorial, but to decline an interview with the deputation.

It was proposed by Mr. Wells, M.P. (Senior Steward), seconded by Mr. C. Barnett, and carried unanimously, that Mr. Jacob Wilson be elected Junior Steward of Stock.

It was then proposed by Mr. Torr, seconded by Mr D. R. Davies, and carried unanimously, that Mr. Wren Hoskyns be nominated as Steward Elect of Implements.

On the motion of Mr. Torr, it was resolved that the Stewards of Departments at Manchester be authorised to obtain the assistance of any other Members of Council, as temporary Stewards, whenever required.

A letter was read from M. Fleury, Consul-General of France, announcing the formation of the "Société des Agriculteurs de France," under the presidency of M. Drouyn de Lhuys, and inviting members of the Society to join it as foreign members.

A letter was read from the secretary of the Society of Arts, stating that a number of articles, especially milk-cans, had been sent in to compete for certain prizes offered by its Council, and were now on view at John Street, Adelphi; those members of the Royal Agricultural Society who are interested in the conveyance of milk, or who have special knowledge of the subject, were particularly invited to inspect the collection.

SMITHFIELD.

At a meeting of the Council, held March 2—present His Grace the Duke of Marlborough, President, in the chair; the Right Hon. Lord Bridport, Vice-President; Mr. Samuel Druce, Trustee; Stewards: Messrs. C. Howard, T. Twitchell, H. Overman, J. S. Turner; J. Painter, H. Aylmer, J. Baldwin, J. Clayden, Josh. Druce, J. B. Downing, R. Hornsby, R. Leeds, E. W. Moore, J. T. Senior, H. Thurnall, Brandreth Gibbs Hon. Secretary—the minutes of the last Council meeting were read and confirmed. The Stewards of Live Stock presented the following reports, which were received and adopted, and ordered to be published in the proceedings of this day's meeting, viz.:—

Report of the Stewards of Live Stock upon the protest entered by Mr. W. Smith, of Higher Hoopern, Exeter, against the entry No. 43 of Mr. R. Burton, of Broadclyst, Devon:—"We have given the above protest our most earnest and careful consideration. We examined several witnesses in London, since which one of our number (Mr. Duckham) has visited Broadclyst to inspect the private herd or breeding books of Mr. Burton, and to make further inquiries which we deemed necessary. After the fullest investigation we have arrived at the conclusion that Mr. Smith's objection must be dismissed.

"(Signed) Dec. 21, 1868.

Charles Howard, Thomas Twitchell,
Thomas Duckham, Henry Overman,
John Painter, J. S. Turner."

Agricultural Hall, March 2, 1869.

Report of the Stewards upon the investigation of the ages of the following animals, Nos. 47, 82, 212:—"We consider that Mr. Wortley has failed to prove the correctness of his certificate as to animal No. 47, and we would advise Mr. Wortley for the future to prosecute more rigid inquiries as to the ages of his animals. We received a letter only this morning from the breeder of the animal of a most conclusive character, and regret that he should have seen fit to give such tardy information. It is to the following effect:—

"'Whitton, March 1st, 1869.

"'Sir,—In reply to yours of the 23d, I find the steer, No. 47, shown by Mr. Wortley, was not the one I sold Mr. Towers, and that I gave the certificate for. I have seen Mr. Towers, the dealer, who tells me his wife, in error, asked for age of steer he purchased of me. I believe the steer shown was bred by myself, but Mr. Towers got him through another party, and his wife was not aware of that when she wrote me for certificate.

"'I have written Mr. Duckham, and should have written you earlier, but was some time before I could meet with the dealer.—I am yours respectfully,

"'B. Gibbs, Esq.' (Signed) 'Edward Taylor.'

"Class 11, No. 82.—We consider Mr. Morley has furnished evidence proving the correctness of his certificate.

"Class 32, No. 212.—We consider Mr. Durrant has proved to our satisfaction the correctness of his certificate.

"(Signed) John Painter,
Charles Howard, J. S. Turner,
Thomas Twitchell, Henry Overman."

[Further business was transacted, which we will report next week.]

Farmers' Clubs.

BURY ST. EDMUND'S.

The Beet-sugar Manufacture.—Mr. Duncan, the proprietor of the beet-sugar factory at Lavenham, exhibited samples of sugar of his manufacture, the syrup made at Lavenham, Sugar-Beet grown at Lavenham, and the pulp in various states, fresh from the press, dried, and three weeks old. He said:—I believe the first attempt to manufacture sugar from Beetroot was at Maldon, in Essex, about the year 1828. A gentleman who saw the factory there told me it was well managed, but they could not carry it on on account of the duty. It was again tried at Chelmsford, but I cannot find the exact date, and more recently near Dublin. The information collected in Ireland at this time clearly proved the possibility of successfully carrying on the manufacture in Ireland. However, at that time the prejudice against the use of beet-sugar was so strong, it would have been difficult to find a market for their produce. The real cause of this failure was, I believe, entirely through mismanagement. It is generally believed the Beetroot industry is protected in France. This is quite a mistake. French colonial sugar is admitted at a reduction of one franc per cwt. under Beet. The import of beet-sugar into this country until 1860 was very small. Now we receive large supplies, and no difficulty is found in selling it. The cultivation of Sugar-Beet on the Continent is steadily increasing—last year France had an increase of 10 per cent. on the acreage. The amount of sugar grown on the Continent during the last two seasons is equal to a yearly average of 630,000 tons, nearly equal in value to 14½ millions sterling. In 1840 France produced 22,000 tons; in 1865, 274,000. Last year the Island of Cuba had a crop of over 700,000 tons. This immense production we have every reason to believe will soon be seriously interfered with on the abolition of slavery, and of course it is not difficult to foresee the effect it will have on the manufacture of beet-sugar. There could not, therefore, be a more opportune time for commencing the cultivation of beet-sugar than the present. Before troubling you with any remarks on the cultivation of Sugar-Beet, I may as well state that I have not yet seen anything to alter my opinion as to the practicability of carrying out the process in England. A large farmer from Germany gave his opinion that the land at Lavenham was quite suitable for Beet cultivation. He said all that is required is deep cultivation. The cost of labour, coal, rent, taxes, &c., are, I think, not more here than on the Continent. The question now arises, "Is it a desirable crop, and will it pay?" I am assured that Sugar-Beet does not exhaust the land like Mangel, if well cultivated. The farmers in the North of France now grow Wheat and Beet alternately, and they all affirm that they never got better crops of Wheat: this they do for several years together. If you take two roots—one of moderate size, which has been carefully cultivated, the other a large forced root—you will find the percentage of water in the large root very high, the percentage of sugar small, and the percentage of mineral matters (commonly called ash) high. In fact it will be noticed that if there is a large percentage of water, there is invariably a large percentage of ash. Now, where does the ash come from? The soil. Where does the sugar come from? The air. I think you will therefore see, if we can take a crop off the land which contains little ash, it must be a benefit to the soil. Now to make good sugar we wish roots with a minimum of ash; and before leaving this subject I would like to call your attention to the composition of large roots, as I think the analysis of these roots, if more generally known, would make you, as farmers producing food for your cattle, look more to the quality than, as at present, the quantity. If you can get a crop of Beet, say 15 tons per acre, containing 16 per cent. of solid matter, I think it stands to reason it would be a far better result than a crop of Beet of 30 tons per acre, containing only 8 per cent. of solid matter. This is a question well worth sifting, as it is no uncommon thing to find Mangels containing 92 per cent. of water. As far as I can learn, the cost of cultivating an acre of Sugar-Beet at Lavenham, including all expenses, rent, taxes, and delivery, would amount to from 10*l.* to 11*l.* per acre, and I believe an average crop of 16 to 17 tons may be expected. The price I now pay is 20*s.* per ton. Owing to the railway carriage being so high, I could not pay more than 17*s.* here; but if a factory was established here I believe 18*s.* could be obtained, and if sugar was dear, 1*s.* or 2*s.* more. A few months ago I could have bought Beet for next season, at Dunkirk, at 16*s.* per ton. The present price in France ranges from 16*s.* to 18*s.* per ton for the next crop. Of course a great deal depends on the amount of saccharine in valuing Beet, and I intended to pay according to the saccharine value, but at present I have not been able to devise a plan by which I can fairly find this out. Two roots grown side by side and of the same appearance often vary 5 per cent. I hope, however, to be able to arrive at an average value when I have got a little more experience. Few farmers on the Continent will agree to grow Sugar-Beet unless they are permitted to receive back the pulp. It is generally sold at about 12*s.* to 16*s.* per ton; last year 20*s.* was paid in some cases. It generally contains 20 to 25 per cent. of solid matter, as manufactured in France, Holland, and Belgium by the hydraulic press system. The pulp at Lavenham, owing to the drought in the summer and the very late period at which the manufacture was commenced, is too good a specimen. It contains nearly 30 per cent. of solid matter. In Germany it is usual to give the cattle which are being prepared for the butcher 60 lb. or 70 lb. of pulp, 3 lb. oilcake, 4 lb. bran, and 6 lb. of hay. Pulp is not considered suitable for horses or dairy cattle, as it has a tendency to make dairy cattle too fat, and although it does not spoil the milk it is apt to flavour the butter. Sheep are very often fed on pulp. One great advantage pulp has over roots is the fact that it can be kept for two years. The usual plan adopted for keeping it is to dig a trench in the ground, fill it quite full of pulp well rammed down; it is then covered with a layer of straw and earthed over the top. Although it becomes acid it does not hurt its feeding qualities; in fact, new pulp is not considered good. The old pulp, owing to the acid it contains, is much more soluble in the stomach of the animal. The Lavenham farmers complain that the pulp does not keep. I will have a quantity buried and tried. Dr. Voelcker has made the following report on the pulp:—

"Analytical Laboratory, 11, Salisbury Square, Fleet Street,
"London, E.C., March 27th, 1868.

"James Duncan, Esq., 9, Mincing Lane, E.C.

"Dear Sir,—I have much pleasure in enclosing a copy of an analysis of the Mangel pulp which you sent to me for examination, and beg to direct your attention to a few points of interest brought out by the analysis.

"1. In the first place you will notice that the sample of pulp analysed by me and received by me in a well-corked stone jar, contains, in round numbers, 23 per cent. of solid feeding matter. Mangels themselves, on an average, contain 88.89 per cent. of water, and therefore yield only about half the amount of solid matter which I found in the pulp.

"2. Beetroot pulp contains a considerable amount of nitrogenous or flesh-forming constituents.

"3. Although most of the sugar and other soluble substances present in Sugar-Beet passes into the juice, the pressed pulp, nevertheless, contains an appreciable amount of matters which are perfectly soluble in water, and so readily assimilated by animals as sugar or starch.

"The large proportion of crude vegetable fibre which constitutes the bulk of Beetroot pulps for the greater part is so tender and so readily transformed into gum and grape sugar, on boiling with dilute sulphuric acid, that I do not doubt for a moment that the larger proportions of the fibre of Beetroot pulp is digestible, and applied in the animal economy for the same purposes for which starch or sugar are used,—*i.e.*, for the production of fat, and for supporting respiration and keeping up animal heat.

"5. Mangel pulp I find contains a small amount of lactic acid. This acid is very useful, for it materially assists the ready conversion of Beetroot pulp into butchers' meat, and at the same time prevents the pulp entering into decomposition, and becoming unfit for the feeding of stock.

"6. Beetroot pulp, as might have been anticipated, contains nothing injurious to animal life, even after keeping for six months and longer.

"You are no doubt aware that Beetroot pulp is highly esteemed as a feeding material, both in France and Germany. In the opinion of many continental feeders of stock Beetroot pulp, weight for weight, is superior in nutritive properties to Mangels.

"Some years ago I tried myself some practical feeding experiments upon two lots of sheep, with a view of testing the relative merits of Beetroot pulp and the roots from which it was obtained, and published the results of my trials in the 'Journal of the Royal Agricultural Society' for 1860.

"The pulp which I employed in these experiments, to which I beg to direct your attention, however, was not obtained from a beetroot-sugar manufactory, but was the refuse produced in a distillery of Beetroot spirit. This pulp, on analysis, yielded the following results:—

Water	90.78
Mucilage gum and free sulphuric acid	2 21
*Albuminous compounds (flesh-forming matters)	1.37
Mineral matters	1.11
Crude cellular fibre	4.53
	100.00

"In a second sample of the same kind of pulp I found 91.84 per cent. of water.

"You will observe that one sample of the pulp from the Beetroot spirit distillery contained only 9½ per cent. of dry feeding matters, and the other little more than 8 per cent.

"Notwithstanding the large amount of water in this pulp, which rendered it less nutritious than Beetroot, it was given to the experimental sheep with considerable advantage, and the experiments with a pulp greatly inferior to that produced in the manufacture of Beetroot, induced me to express the opinion that Mangel pulp was a very useful feeding material.

"Remembering the useful practical effect of this inferior pulp, and bearing in mind that the sample which you sent to me, and which I imagine fairly represents the average composition of the pulp of the sugar manufactory, contains nearly three times as much solid feeding matter as the pulp used in my feeding experiments—I have no hesitation in saying that pulp, such as the sample you sent to me, weight for weight, is more nutritious than Mangel, and therefore well worth 12*s.* per ton.

"Composition of a sample of Beetroot produced at Mr. J. Duncan's works, Lavenham, Suffolk:—

Water	70.11
†Albuminous compounds (flesh-forming matters)	2.25
Sugar	3.39
Mucilage, pectur and alter substances soluble in water	1.93
Digestible fibre	15.13
Woody fibre (cellulose)	5.32
Mineral matter (ash) soluble in water	1.95
" " insoluble in water	92
	100.00

"11, Salisbury Square, "Augustus Voelcker.
"Fleet Street, E.C., Feb. 16th, 1869."

I might here allude to the advantage of starting sugar factories in villages. The work should commence in October and finish in January. The amount spent for wages will run from 50*l.* to 200*l.* per week, according to the size of the factory. This would therefore give full employment when the days are shortest and when work is scarce. A great deal has been said and written about the proper soil and manure suitable for Sugar-Beet, and how it should be cultivated. Here a point arises which you would not likely think of. How is the duty to be charged? In Germany and in Austria the duty is payable on the roots; in France, on the sugar; in Belgium, Holland, and as yet in England, on

* Containing nitrogen 21. † Containing nitrogen 361.

the juice. If the Germans can by any possible means increase the quantity of sugar it is a great gain. Instead therefore of applying manure to the Beet they generally manure the Wheat and take a small crop, 10 to 12 tons per acre off after Wheat. This enables them to get a crop very rich in sugar. Of course such a crop would be worth more than 20*s.* per ton, in fact, about 26*s.* 6*d.* would be about the comparative value. In France, Holland, and Belgium, manure is applied in the autumn, and although the roots are not so rich, yet it is there considered the best plan, and the plan which I should advise to be adopted in England. I believe to try to force roots too much is a mistake, and to dwarf roots too much is also a mistake. The properties of soil best suited for Beet, and the most suitable manures, are well described in a report by the directors of the Museum of Irish Industry, which is as follows:—

"The soil should be a rich loam, inclining rather to clayey than to sandy, but should not partake in the slightest degree of a peaty character—that is, the organic matter should be fully decomposed and thoroughly well distributed through it. It should be exceedingly well cultivated, and free from all clumps of hard clay, or from stones. The subsoil should neither be a stiff cold clay, nor an open stony gravel. The soil should be deep, and drained as thoroughly as possible. Newly reclaimed land is unfitted for the cultivation of Beet for the manufacture of sugar. No labour should be spared upon the pulverising of the soil, not only before the sowing of the seed, but during every period of the growth of the plant. Rich nitrogenous manures, such as farmyard manure, guano, &c., should never be applied to land intended for the cultivation of Beet, immediately before sowing, but should either be applied with the previous crop, or applied during the preceding autumn, or at least should be put on as a winter compost. This rule applies equally well to all crops. Soluble saline manures should be applied very sparingly, and never during the growth. Salt should never be applied except with the greatest care, or any substance containing nitrates, or capable of forming them. Ashes, such as those of wood, peat, coal, &c., may be employed, and bone earth in any form apparently without any injury. Lime is also good, and calcareous soils seem to be the best adapted for the growth of all the varieties of the Beet, and of most of the other root crops. Green manuring has always been attended with success, and crops of Rape or of other plants having the general composition of the Beet may be grown upon land heavily manured in the autumn, with fresh farmyard manure, and then ploughed in early in spring. That the whole of the sugar in the Irish Beet is crystallisable cane-sugar. That the percentage of sugar in Irish-grown roots is not inferior to that of continental roots grown under the same circumstances."

To produce Beet the land must be cultivated deep; in Germany the land is ploughed to the depth of 18 inches. If the roots rise above the surface they are always poor in sugar and difficult to work. Dr. Voelcker states this is the case with the common Mangel, as well as with the Sugar-Beet. Repeated hoeing increases the sugar, but whenever the leaves are fully developed, the hoeing must be stopped. The roots should be pulled when they are ripe, as if the leaves begin to grow a second time the roots lose the sugar. I myself noticed this very plainly last season. I planted a quantity of seed, and early in August the roots looked well and tasted very sweet; a little later all the leaves were eaten off by caterpillars, and after they had finished rain came on and started fresh leaves, and when the roots were pulled they were not worth working. When the roots are lifted in October the top should be carefully cut off, for if it is left, the roots are sure to bud in the clamp, and then the sugar goes. The roots ought to be kept cool and well ventilated in the clamp. The process of making sugar from the Beet has been so often explained, it would only take up your time to go over it again. The plan I have adopted at Lavenham, of merely making a thick syrup, will simplify the process very much; it will also take less capital to carry on the manufacture, and I believe will give a much better and more economical result. If, after a few years' experience, the cultivation and manufacture should prove profitable, I have no doubt farmers will club together, as on the Continent, agree to grow the roots, and subscribe the capital required. In Germany and Austria the farms are so large that farming, sugar-making, and distilling are all carried on on the same farm. One farm which I visited near Halle has an area of 10,000 acres; they publish their results, and a more systematic plan of farming I never saw before.

Mr. Duncan then explained the samples which he had brought with him. Alluding to the sugar, which had a slight yellow tinge, he said it would have been perfectly white if the process of manufacture had been commenced earlier. Some "cake" which he produced he described as the pressed scum, which was found to be a mixture of animal charcoal, lime, and coagulated albumen, and worth about 1*l.* a ton as manure. The average of the roots grown at Lavenham, he said, gave 9¼ per cent. of sugar. A quantity grown in Scotland gave 9¾. The richest was that grown from the London sewage at Barking, which gave 13 per cent. A large root, weighing 11 lb. was found to contain 92½ per cent. of water, 1½ albumen, fibre 1¾, sugar only 2.22, and mineral matter 1.60. In well grown roots the mineral matter is not more than 1 per cent., which showed that they took up very little from the earth compared with badly grown roots. The average quantity of sugar in French roots is 9 or 10 per cent. In Germany and Russia they get 10 or 12 per cent. of pure white sugar. The duty in those countries being laid upon the roots they therefore try to produce as much sugar in as little weight as possible, though they may lose in other ways. Roots about ¾ lb. weight will produce the most sugar, and they would be the best to grow. The pear-shaped root was considered the best.

In answer to questions Mr. Duncan said we get about 50,000 tons of raw and 20,000 tons of refined sugar from France every year, about 10 per cent. of our entire consumption. About 16 or 18 tons of Sugar Beet per acre he thought might be expected. That was the average they got in France. It would be worth 20*s.* a ton at his works. In France it paid the farmers to grow it for 16*s.* a ton, and they had to cart it there, just the same as here. Lately it was a question with him whether he should not put on a steamer to run from France to London to bring the roots over to his manufactory, which he could do for 4*s.* or 5*s.* a ton. If he did so he should start a Beetroot factory in London, and get a better result than even he did now. The prices in France ranged from 16*s.* to 19*s.*, in Holland it often got to 20*s.* Sugar-Beet would stand dry weather better than any other root, as it went down such a depth. Mr. Hawkins cultivated his land well at Milden, and he did not see any field in any part of England so good as it was. Mr. Hawkins took more weight off his field of Sugar-Beet than he (Mr. Duncan) saw on any field this year.

Mr. Hitchcock said at Lavenham the best crop that was grown was by Mr. Hawkins, and he had a little over 20 tons per acre, weighed by the judges. The quantity per acre was affected very much by the intense drought. If they had had rain when they might fairly have expected it, they would have had a larger crop. In one field he grew Sugar-Beet along with ordinary Beet, both cultivated in exactly the same way, and the yield of Sugar-Beet was quite as much as that of the ordinary Beet. He was quite convinced that, with proper care and attention, more could be grown per acre than Mr. Duncan had ventured to suppose. He hoped to have nearer 30 tons next year than 20. He intended to plant them very closely. They would find that these roots were very much heavier in proportion to their size than the ordinary Beetroot. Dr. Voelcker's theory was that the Sugar-Beet did not impoverish the earth so much as the ordinary Mangel, the reason being that it took up less mineral matter. A gentleman who was in Lavenham said that he had 1,200 acres in Belgium, and they grew Beetroot every alternate year. They had 600 acres Beet, 300 acres Wheat, and 300 acres Barley each year, and they alternated between the Wheat and the Barley, so that one year Wheat followed Beet, and the next time Barley followed Beet. He went over all the expenses, as to labour and everything, and he was sanguine of success here. Labour was quite as dear in Belgium as in this part of England.

Mr. D. T. Fish had seen all the Lavenham crops this season, and he had had the opportunity of travelling over a large part of the midland and southern counties of England. He noticed the green crops in all these parts, and the best he saw were the Lavenham crops of Sugar-Beet. It was not fair to take this year as a test of the quantity that might be grown. Nevertheless Mr. Hawkins had grown 21 tons, Mr. Hitchcock 15½, Mr. Edgar 14½, Mr. Hustler 12¾, and Mr. Mumford 12½. Mr. Duncan had made rather the worst of this matter for the farmers, and no one could accuse him of over-estimating the yield. Many farmers thought that if they had small roots, they must have a small gross return. But Mr. Hawkins had 21 tons per acre from roots that did not average more than 1¼ lb. each; so that if they had weighed 3 lb., the weight named by Mr. Duncan, he would have had 42 tons per acre. If they had averaged 4lb., the crop would have actually reached 56 tons per acre, and that at 1*l.* per ton would surely pay. They had been accustomed to grow immense Mangels, and many of them thought that if they had small roots they got small weight, but it was not so, for they might get extraordinary crops from these small roots. He looked upon this as an important matter, to the country at large as well as to the farmers. They were much indebted to Mr. Duncan for coming into this neighbourhood and endeavouring to establish this new industry. They had heard for years that green crops would not pay, but if the farmers refused to grow this they must not say that for the future. They would not only get a good price for their roots, but they would get food for their bullocks. A great many farmers appeared to think that because this Beet contained so much sugar, it therefore of necessity exhausted the earth. But sugar was only another form of carbon, and there was any quantity to be got out of the air. It therefore did not exhaust the soil more than any other kind of Mangel. There was an impression abroad that Sugar-Beet was very tender, but this arose from confounding the Sugar-Beet with the Sugar-cane. The truth was the Sugar-Beet was as hardy as the common Mangel, and he was not sure that it was not hardier, for when he was a lad they grew it in the north of Scotland for the sake of the leaves. Another objection that was raised to the introduction of the Sugar-Beet culture was, that it would interfere with the growth of Wheat and beef, which could not be imported so easily as sugar. But he believed that by admitting a triangular mode of husbandry, they might grow all three. The proper rotation of crops was a question which was now exciting a great deal of attention. Mr. Bass said that his best malting Barleys were grown on a Wheat stubble; and it was becoming common to take a Barley crop after a Wheat crop, and then going on with a crop of Beet. He believed that something of that sort would be the system in future. They would grow this Sugar-Beet and perhaps two white crops. They would thus grow more corn, and more food, and more meat, than they had ever done. With the money they received for their Beet they could buy more cake and cattle food, and thus they would be able to feed more beef.

Mr. W. Biddell said that, so far as he was concerned, his experience was very favourable. Not that he was sanguine they were going to nett 30*l.* per acre, as Mr. Fish had suggested, but he thought they had a good prospect of making 15*l.* or 20*l.* Comparing this Beet with the common Mangel he thought they would be able to grow about two-thirds or three-fourths of the quantity. He did not think they would be able to grow an equal quantity, although they had done so this year. He felt sure, however, they would be able to grow twice as much next year as they did this year. They had nothing like half a crop of common Beet this year, and he did not know why they should not give the Sugar-Beet the benefit of the season too. Speaking of the Sugar-Beet being less exhaustive to the soil, Mr. Biddell remarked that things did not always work out according to analysis, and he had little doubt that with equal weights they would find them equally exhaustive. When Mr. Duncan was reading the description of soil that would suit them best he could not but think that that was exactly what he should describe as a very good soil, and he was not surprised to find that Sugar-Beet, like anything else that they grew, liked remarkably good land. They might be grown on poor land, but he doubted if they could get a good crop. After the experience he had had he should certainly grow them again, and he believed they would certainly be grown more largely. It was very convenient for some gentlemen to realise a lot of money for their roots about Michaelmas time. They would not want to have the machines quite so soon if they could realise 15*l.* or 20*l.* an acre for their roots. He hoped gentlemen would grow the Sugar-Beet and send it to the factory—if it were only an acre—to try it. It might be, if they were satisfied, that they would be able to come to terms with this Belgian gentleman. He seemed a very intelligent gentleman, so far as he could judge of a person who spoke a language that he did not understand a word of. He believed that it would be a very successful speculation to dot these factories all over the country. At any rate he was convinced that if they grew Sugar-Beet alongside the common Beet, they would come to the conclusion he had—that it would be a profitable crop to grow.

Mr. G. King raised the question, whether landlords would not object to their tenants selling their crops off the land. Some discussion took place on this point, the general opinion being that if it were found to be profitable, and not injurious to the land, fresh agreements could be made with the landlords.

Mr. Duncan said if they grew Wheat or Barley and Beet alternately, they would have to keep more cattle, and they could feed them on the pulp. They would then be able to put more manure on the land, and there really would not be as much taken off as there is now. In France, instead of the land being impoverished, it was better in every way. It had been better worked, and they had applied more manure. There was this one fact, which was very much in favour of the landlord and against the tenant. Land had nearly doubled its value in the North of France since they began to grow Sugar-Beet.

In answer to questions, Mr. Duncan said he could give 17*s.* a ton at Bury, and proportionate prices at other stations, according to the carriage, which he thought would be about 3*d.* per ton per mile. The quantity he wanted was 6000 tons, but he did not expect to get more than 4000 tons this year, as farmers were naturally very cautious about growing it. The roots must not be above 4 lb. weight. Seed would be willingly supplied by Mr. Hitchcock.

Reviews.

Sewage, and its General Application to Grass, Cereal, and Root Crops—showing the Results obtained by Actual Experience down to the Present Date. By Thomas Cargill, C.E. Robertson, Brooman & Co., 166, Fleet Street, E.C.

The author is right in contending for the agricultural remedy as the only thoroughly trustworthy cure or abatement of the nuisance which the invention of the water-closet has created below every considerable collection of houses in this country. He is, however, not altogether trustworthy as to some of the illustrative details which he has here collected. For example, at Barking he declares that the average price obtained for sewage-grown Italian Rye-grass has been 40*l.* per acre! No doubt 60 tons of Grass were there obtained per acre, but it was not all converted into money at the rate of 15*s.* a ton. Mr. Cargill is evidently a man of sanguine temperament, and willing to believe the utmost of what is undoubtedly a fertilizer of extraordinary power. We extract his concluding sentences:—

"An objection has been taken to the application of sewage to Rye-grass, that it caused the crop to be very rank. This is not the fault of the sewage, but of the farmer. If Rye-grass be cut immediately before it begins to form seed, it will never be either coarse or rank. It should be ploughed up every second year, a root crop taken out of the ground, and then it may be resown. One acre of Italian Rye-grass, irrigated with 5,000 tons of sewage, will yield 1,000 gallons of milk per annum, equal to a money value of over 33*l.* There is an advantage in applying sewage to cereal crops, which is not always taken account of, more particularly if the land be tolerably fertile. After applying the sewage in large doses for two or three years on grass-lands, intermediate grain crops may be grown in great perfection, from the manure, or residue of the sewage constituents, left in the land. Clayey soils in particular, possess a remarkable power of retaining or storing up food for plants. Were Rye-grass to be cut every two years, or even eighteen months, it would allow of a very judicious and profitable combination of sewage farming, as intermediate crops of Mangels, Potatos, and Cabbages, could be got out of the land with great success. Viewing the question of the application of sewage to crops upon a broad basis, there is but little doubt that through its means land which is now impoverished and exhausted, or rendered barren by natural or artificial causes, will be restored to its original fertility. Not by simply applying sewage to Grass crops, or by continuing the application for two or three years, but by a regular, scientific, systematic, course of sewage farming and sewage engineering for the future. Can it be expected that a period of a few years can repair the evils which it has taken ages to create, or that a brief application of the remedy can cure a disease that has been aggravated by the lapse of centuries? Most fortunately, at the present time, by one of those coincidencies which invariably attend cause and effect, land is wanted for the application of sewage, and sewage is needed, urgently needed, by the land. It is from the union of the two that national wealth and prosperity will result, but we shall never carry out the union in its integrity, never avail ourselves to the full degree of the advantages at our disposal, or do justice to the resources in our power, until sewage pipes are laid on to the land for the use of the farmer and agriculturist, in the same manner as water and gas pipes are laid on for the supply of our cities and towns."

Well!—it may be so. We have hardly ever refused assent to the confident prophecy of an enthusiastic sewage farmer, restrained by the knowledge of what land and plant can do under ordinary circumstances, without having to yield, in the long run, to the victorious "I told you so!" of our opponent. Nevertheless, it is well, in the first instance, to remember that surface gutters will carry dirty water quite as well as iron pipes; and that, although 3,000 tons per acre of the drainage water of towns is a fertilizing power of which ordinary farmers have little idea, yet it is, taking it ton by ton, the poorest "tackle" as manure that is known to agriculture. We must be careful, therefore, how we expend money in conveying it. Let it convey itself, spread itself, and bury itself, and it will pay a handsome profit; but if you have spent even 1*d.* a ton in conveying it to the plant, its profits will have disappeared.

Farm Memoranda.

South Staffordshire, *Feb.* 27.—"February free dyke; be it black or be it white," such is the old saying. But this year she has been less of a hydropathist than her predecessors. To be sure she has filled the ditches more than once, but upon the whole we have had a very fine month. We hope soon for the "peck o' dust," for strong land ploughs tough, and where it has been trodden with sheep will need care.

Steam is here our best friend, as there is not only no horse treading, but the pace breaks the slice much more than the plough. Last week I saw Fowler's patent Pirie's plough at work on light land. It has three wheels

and no stilts. It cut a good clean furrow, and with three horses abreast was doing its two acres a-day apparently as easily as four in an old-fashioned double-plough alongside, or 2-pair horse ones.

How providentially the winter has passed. Keep is plentiful; Rape is 2 feet high, and white Turnips are running to seed. The meadows are as green as in April, and Rye-grass wants eating. Lambs are literally dropping in Clover, and they are strong and healthy, though one hears of losses among the white faces. Mutton has jumped up to 10*d.* a lb., and people are asking themselves whether 60*s.* or 70*s.* is not a selling price for half fat hogs. Beef and pork, too, are dear. Stores are in proportion.

The soil is rather too cold for Barley, but spring Wheat, Oats, and Beans are being sown and planted. I see the Scotch folks are debating which is best, drilling or dibbling Beans. I prefer the latter. The less amount of seed needed will this year pay for the trouble, and there can be no doubt that the seed is more regularly placed and less liable to injury from birds, &c.

Good seed Oats are scarce and dear; one hears of "winter proud Wheat," but I know of none in this neighbourhood: as a rule autumn sown Wheat looks well. General work is forward. *G. A. M.*

Calendar of Operations.

March.—*Labour* is now abundant. The season must be a bad one when the close of February and beginning of March do not find full employment to all the agricultural labourers; while in favourable ones like the present, it requires a careful circumspection in the organisation of horse-power, steam-power, and manual labour, so as to suit the supply to the demand. The abridgment of manual labour by the increased use of machinery is more and more giving rise to the propriety, if not necessity, of keeping a regular staff of well-trained hands, so that to do the whole work with this force is a question of economy second to none, for to let the labour fall out of order, and thus be obliged to call in strange hands, incurs a two-fold loss, viz., extra expense and the less perfectly performed work.

Oat-sowing will be completed earlier than usual in some districts. To what extent the open season may encourage wireworm is a common question—one that is receiving a very diversified answer. But a warm moist summer is more productive of this pest than the extra solar heat and drought of last summer, so that it is to be hoped the apprehensions of many will not be realised. At the same time it is a wise rule to use every precaution in the getting in of the seed in a fine, deep, well pulverised seed-bed, so as to get an early established plant, and to pick off any small sods or roots of Grass which the harrows have brought to the surface. Also roll early with a heavy roller loose porous soils, so as to consolidate them about the seed and rootlets. This prevents the easy locomotion of the insect, as well as promotes rapid growth; and it is preferable to prepare the seed-bed, and then drill in the seed with a machine, than to sow broad-cast in the lea furrow; for in this latter plan the seed, by falling in between the furrow-slices, braids in the very places infested by the wireworms. On the other hand, when the green sod is well covered over with fine mould, the rapid decomposition which takes place at this season kills many of the insects in the first and tender stage of life, more especially if the decomposition is stimulated by a sprinkling of artificial manure along with the seed.

Barley requires a fine seed-bed. All cereals do so, but Barley in a higher degree. Hence the old proverb, "A peck of March dust is worth a peck of gold," applies with double force to the getting in of this crop. At the same time it requires an abundance of sap in the ground,—sap free from any sourness or the like. Upon these two conditions hinges the whole *rationale* of a successful seed time. There is no want of natural sap in the land this year, so that smashing up early ploughed fields will let in fresh air to sweeten the staple below. Indeed, where land is properly under-drained there is little danger to be apprehended from bottom acidity. Still, as this crop requires plenty of fresh air at the roots, a turn or two of the scarifier will be advisable on many soils, so as to retain the required supply both of air and sap. On the stiffer class of soils recently ploughed, or now being ploughed, after being fed off with sheep, something like sharp practice will be required to get in the seed with promise. Before such soils were thoroughly drained two or three "middle furrows," *i. e.*, ploughing the land twice or thrice before the seed furrow, was no uncommon practice; and when seeding was followed by heavy rain, we have seen the whole again ploughed up and resown. Even now that the land is comparatively dry below, it will require careful cultivation this year to produce a seed-bed suitable for this crop; to this we may add an old maxim, "A fine seed-bed for Barley at the end of March is better than a bad one at the beginning of the month." At the same time, another standing rule must be borne in mind—"Never trust to-morrow in seed time." In difficult refractory cases steam-power implements will be found invaluable auxiliaries in preparing the land for the seed.

Spring fallowing for Mangels and other root crops continue to engross more and more attention annually. About the commencement of the present century there was not perhaps one farmer in five hundred who would have dreamt of the practice in a season like this. But now the work must be prosecuted, let the season be what it may. The practice, therefore, is a modern one, and of all the modern practices now in use, that of spring allowing by steam-power will this season claim special attention. In point of fact, a true estimate of the value of steam smashing up the land for Mangels and Turnips cannot yet be given, even upon those farms where steam culture has been the most extensively and successfully carried out. But although definite conclusions or exceptionary details, due to the peculiar nature of the season, cannot practically be deduced from experience, yet the general success of steam smashing, as compared with horse smashing, will this year convince many of the great superiority of the former. One of the peculiarities of the season that calls for special notice, is the absence of surface pulverisation by frost; and a second is not unworthy of attention, viz., the state of drainage arising from the great drought of last year, the deep fissuring and oxidation of the subsoil, and the effects produced by such processes on the drainage powers of the land, especially where deeply steam-subsoil-ploughed in autumn. Apart from other considerations, these two conditions will require special practice, more particularly that arising from the absence of frost in the spring fallowing of the heavier description of soils for Mangels. Thus, instead of a few inches of finely pulverised soil on the surface, the land to this depth is less or more consolidated by the heavy rains. The rule, "Pay out the steam tackle and smash up between the wet and the dry," is no doubt simple to those who have such means at their command; but to those who only have horse-power, it may be another and another week's mortification, waiting for a suitable season. But even in this latter case the superior drainage is in favour of the rapid drying of the surface, so that where a proper season has not already been produced, a watchful eye will be necessary to yoke the team to the smasher at the proper nick of time, otherwise the consequences may be serious, should a continuance of drought set in; for if you lose the fine seed-bed requisite to ensure a plant, you lose at the same time sap so essentially necessary in such soils for the growth of seeds. These two conditions of success and failure go together, viz., a fine mould and sap, or clods and a parched soil under bad management.

Notices to Correspondents.

Cattle Insurance: *Cor.* The County Cattle Insurance Company, of whose Board of Directors the Marquis of Salisbury is Chairman, insure farm dairy cows, feeding and young stock, and working oxen, not over 20*l.* in value, at the premium of 4 per cent. per annum; feeding sheep, not over 3*l.* each in value, 3 ditto; ewes, not over 3*l.* each in value, 5 ditto. The above rates of insurance apply only to districts where no infectious or contagious diseases exist. The compensation is three-fourths of the insured value of the stock, and one-fourth of the salvage, provided the office share of such salvage shall in no case be less than 5 per cent. of the insured value. Mr. C. Panter, Golders Green, Hendon, is the agent in Middlesex.

Dissolving Coprolites: *J W.* The following is taken from a useful paper by Mr. A. S. Maxwell, in the "Journal of the Royal Agricultural Society of England:"—"Costly machinery is not required for home manufacture, all that is requisite being simply a pit or two of the following dimensions and materials, with sufficient storage accommodation:—Having dug out a space large enough for a pit 10 ft. long, 6 ft. wide, and 2½ ft. deep, inside measurement, level the bottom, and lay down 3 in. of mill-wrought puddle, upon which place fire-brick flue-covers to form the sole of the pit; build the sides and ends with common bricks (a brick and a half thick), using no cement or plaster; puddle outside and pack with fine sand. After the pit has been once used for dissolving, the interstices between the bricks will be filled up. A pit of this size is capable of holding two tons of ground bones. Pits may, of course, be made of smaller dimensions if preferred. Strong wooden vats or tubs will suit equally well. In preparing superphosphate, first throw into the pit the substance it is intended to dissolve; pour over this one-fourth its weight of water, stirring and mixing well with a wooden rake or pole; then add sulphuric acid, which may be twice the weight of the water, or half the weight of the substance to dissolve; stir and mix the mass as before. Take, for example, 2 tons of bone-ash, containing 75 per cent. of phosphates, 10 cwt. or 112 gallons water, 1 ton sulphuric acid, and allow to remain 48 hours in the pit. The above would yield 46 per cent. of phosphates, of which there would be 24 per cent. soluble, at an average cost of 5*l.* 5*s.* to 5*l.* 10*s.* per ton. Superphosphate made by dissolving coprolites, apatite, or bone-ash, contains no ammonia, of which there is an appreciable quantity in superphosphate made from fresh (unboiled) bones. Ammonia, when wanted, is generally supplied by the addition of sulphate of ammonia. Ground bones and coprolites require more acid to make the phosphates soluble than bone-ash. The finer bones are reduced the less acid will be required, and their division being more minute, more soluble phosphates will be obtained. When superphosphate of lime is removed from the pits, it is unnecessary to employ any drying substance to take up the redundant moisture: for if allowed to remain in a heap for a sufficient time, the moisture will evaporate by the heat generated in the mass, and although losing in weight according to the time it remains in the heap (under cover), there will be an increase in the percentage of soluble phosphates. If required for application shortly after preparation, care must be taken that calcareous matters (chalk or lime) are not used as drying materials, which would to a certain extent neutralize the acid, and consequently reduce the solubility of the phosphates. Dry bone-ash or bone-meal will suit the purpose well.

Insects: *B & S.* The grubs sent were of two kinds,—the larvæ of one of the Melolonthæ (probably the young ones of the common cockchafer), and those of the Daddy Long-legs (Tipula sp.), both of which feed on the roots of Grass, &c.

Sheep Farming in Spain: *North Briton* inquires if the north of Spain, say within 30 or 40 miles back from the seaboard, is suitable in soil and climate for sheep farming, and if any large extent of land in one locality can be obtained to rent? He is aware there are large flocks of Merinos in some parts, but he believes they are kept more inland. He asks what species of sheep have been found to cross best with the Merino, if any?—with an eye to good meat as well as wool, rather sacrificing the latter a little it may be, to obtain the former. Large quantities of cattle are exported from Gallicia; he wishes to know about the country further eastward, about Santander to St. Sebastian.

Subsoil Ploughing: *X B.* It is, or was, common in Gloucestershire to do the so-called mole draining by means of a windlass on the headland, and the same plan might no doubt be adopted for your subsoiling. But you should inquire for a steam plough or steam cultivator.

Turnips and Swedes.—The Purple-top Turnip has soft white flesh and a rough leaf, and may be sown to the end of June or beginning of July. The Purple-top Swede has hard yellow flesh and a smooth leaf, and should be sown early in June. We care nothing for your postscript, and have entirely disregarded it.

RICHARD SMITH'S
FRUIT LIST



Contains a sketch of the various forms of Trees, with directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by post for three stamps.

Richard Smith,
Nurseryman and Seedsman,
Worcester.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE, suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious index of their synonymes. Free by post for six stamps.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

DWARF-TRAINED TREES.—By the Thousand, Hundred, or Dozen. Apples, Pears, Plums, Cherries, Peaches, and Nectarines. Fine, flat, well-trained, of best quality, and true to name.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

ORCHARD-HOUSE TREES Fruiting in Pots.—Peaches, Nectarines, Apricots, Cherries, Plums, Pears, Apples, Vines, and Figs.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

EVERGREEN HEDGES.
AMERICAN ARBOR-VITÆ, 4 to 5 feet, at 50*s.* per 100; 5 to 6 feet, at 84*s.* per 100; 6 to 7 feet, at 100*s.* per 100.
SIBERIAN ARBOR-VITÆ, 2 to 2½ feet, 40*s.* per 100; 2½ to 3 feet, 50*s.* per 100; 3 to 3½ feet, 75*s.* per 100; 3½ to 4 feet, 100*s.* per 100.
Richard Smith, Nurseryman, Worcester.

SURPLUS STOCK.—VERY CHEAP.

SPECIMEN CONIFERS and EVERGREENS, handsome and well-grown, for Lawns, Pleasure Grounds, and Parks, have been recently transplanted, and are full of health and vigour. For Descriptions, also Prices of smaller quantities and sizes, see RICHARD SMITH'S LISTS.

Trucks for 1 ton and upwards may be sent through to any Railway Station on the narrow guage lines, at a moderate cost, thereby saving delay and expense of packing.

At 12*s.* per dozen:—

Arbor-vitæ, American, 5 to 6 feet
" aurea, 12 to 15 inches
" Lobbii, 2 to 3 feet
" Siberian (Ware's), 3 to 3½ feet
Aucuba japonica, 18 to 24 inches
Berberis Darwinii, 1 to 1½ foot
" Jamiesonii, 12 to 15 inches
Cupressus Lawsoniana, 3 to 4 feet
Hemlock Spruce, 3 to 4 feet
Hartogia capensis, 1 to 1½ foot
Juniperus chinensis, 1½ to 2 feet
Mahonia japonica, 9 to 12 inches
Norway Spruce, extra fine, 3½ to 4 feet
Phillyrea oleafolia, 2 to 2½ feet
Picea balsamea, 4 to 5 feet
Portugal Laurel, 2½ to 3 feet
Pyracantha, scarlet berried, 1 to 1½ foot
Pinus Laricio, 3 to 4 feet [2 feet.
Rhododendron ponticum, 1½ to
Taxus japonica, 15 to 18 inches
Thujopsis borealis, 2 to 2½ feet
Thuja plicata, 2 to 3 feet

At 18*s.* per dozen:—

Abies inverta, 1½ to 2 feet
" Douglasii, 2 to 2½ feet
" Menziesii, 4 to 5 feet
Arbor-vitæ, American, 6 to 7 feet
" compacta, 1½ to 2 feet
" Lobbii, 3 to 4 feet
" Siberian (Ware's), 2½ to 4 feet
Aucuba japonica, 2 feet
Berberis Darwinii, 1½ to 2 feet
" Jamiesonii, 15 to 18 inches
Cedrus argentea, 2 to 2½ feet
Cryptomeria Lobbii, 5 to 6 feet
" viridis, 5 to 6 feet
Cupressus fragrans, 3 to 4 feet
" Lawsoniana, 4 to 4½ feet
Hartogia capensis, 1½ to 2 feet
Hemlock Spruce, 4 to 5 feet
Ivy, green, tree, 1½ to 2 feet
" new silver-striped, tree, 15 to 18 inches [15 inches
" tricolor variegata, tree, 12 to
Juniperus chinensis, 2½ to 3 feet
" Leeana, 2 to 2½ feet
" Schottii, 2 to 2½ feet
" thurifera, 1½ to 2 feet
" glauca, 1½ to 2 feet
" drupacea, 15 to 18 inches
" viridis pendula, 2 to 3 feet
Laurel, Colchic, 5 to 6 feet
" Portugal, 3 to 3½ feet
Mahonia japonica, 12 to 15 inches
Pinus austriaca, 3 to 4 feet
" Laricio, 4 to 5 feet
Phillyrea oleafolia, 2½ to 3 feet
Rhododendron ponticum, 2 to 2½ feet
Taxus elegantissima, 15 to 18 ins.
" gold-striped, 15 to 18 inches
Thujopsis borealis, 2½ to 3 feet
Thuja plicata, 3 to 4 feet
" incurvata, 3 to 4 feet [ins.
Wellingtonia gigantea, 15 to 18

At 30*s.* per dozen:—

Abies elegans, 2 to 2½ feet
" inverta, 2½ to 3 feet
" Menziesii, 6 feet
" orientalis, 2 to 2½ feet
Arbor-vitæ, American, 7 to 8 feet
" compacta, 2 to 3 feet
" Lobbii, 5 to 6 feet
" Siberian, 4 to 5 feet
Arbutus unedo, 2½ to 3 feet
Box, tree, 2½ feet by 2½ to 3 feet
Cedrus argentea, 3 to 4 feet
Cupressus Lawsoniana, 4½ to 5 ft.
" fragrans, 4 to 5 feet
" McNabiana, 3 to 4 feet
Garrya elliptica, 2 to 2½ feet
Hemlock Spruce, 5 to 6 feet
Irish Yews, 5 to 6 feet
Juniperus chinensis, 3 to 3½ feet
" fragrans, 2 to 2½ feet
" glauca, 3 to 3½ feet
" Leeana, 2½ to 3 feet
" Schottii, 3 to 3½ feet
" thurifera, 3 to 4 feet
" virginiana, 5 to 6 feet
" viridis pendula, 3 to 4 feet
Laurel, Colchic, 7 to 8 feet
Pinus austriaca, 4 to 5 feet
" Laricio, 5 to 6 feet
Taxus elegantissima, 1½ to 2 feet
Thujopsis borealis, 4 to 4½ feet
Thuja incurvata, 4 to 5 feet
Wellingtonia gigantea, 2½ feet

At 42*s.* per dozen:—

Abies Albertiana, 3½ to 4 feet
" inverta, 3 to 4 feet
" orientalis, 2½ to 3 feet
" pyramidalis, 4 to 5 feet
Arbor-vitæ, American, 8 to 9 feet
" aurea, 2 to 2½ feet
" compacta, 3 to 3½ feet
" japonica, 2½ to 3 feet
" Siberian, 5 to 6 feet
Cedrus argentea, 4 to 5 feet
Cupressus fragrans, 5 to 6 feet
" Lawsoniana, 5 to 6 feet
Hemlock Spruce, 6 to 7 feet
Irish Yews, 6 to 7 feet
Juniperus chinensis, 3½ to 4 feet
" densata, 4 to 5 feet
Juniperus glauca, 4 to 5 feet
" Leeana, 3 to 4 feet
" Smithiana, 3 to 4 feet
" thurifera, 5 to 6 feet
" virginiana, 6 to 7 feet
" viridis pendula, 4 to 5 feet
Laurel, Colchic, 8 to 10 feet
Pinus, Cembra, 5 to 6 feet
" Laricio, 6 to 7 feet
Quercus austriaca sempervirens, 3 to 3½ feet
" Fordii, 3 to 3½ feet
Thujopsis borealis, 5 to 6 feet
Thuja Lobbii, 6 to 7 feet
Wellingtonia gigantea, 3 to 4 feet

At 60*s.* per dozen:—

Abies Albertiana, 4 to 5 feet
" inverta, 6 to 7 feet
" orientalis, 3½ to 4 feet
" pyramidalis, 5 to 6 feet
Arbor-vitæ aurea, 2½ feet
" compacta, 3½ to 4 feet
" gigantea, 4 to 4½ feet
" japonica, 3½ to 4 feet [ins.
Cephalotaxus Fortunei, 21 to 24
Juniperus chinensis, 4 to 5 feet
" thurifera, 6 to 7 feet
Pinus Cembra, 6 to 7 feet
Quercus austriaca sempervirens, 3½ to 4 feet
" Fordii, 3½ to 4 feet
Thujopsis borealis, 6 to 7 feet
Wellingtonia gigantea, 4 to 5 feet

Each:—

Abies Albertiana, 6 to 7 ft., 7*s.* 6*d.*
" " 7 to 8 feet, 10*s.* 6*d.*
" Douglasii, 8 to 10 ft., 7*s.* 6*d.*; 84*s.* per dozen
" " 10 to 12 feet, 10*s.* 6*d.*; 100*s.* per dozen
" Menziesii, 7 to 8 feet, 5*s.*
" " 8 to 10 feet, 7*s.* 6*d.*
" orientalis, 5 to 6 ft., 10*s.* 6*d.*; 100*s.* per dozen
Araucaria imbricata, 5 to 6 ft., 21*s.*
" " 6 to 7 feet, 42*s.*
" " 7 to 8 feet, 63*s.*
" " 8 to 10 feet, 105*s.*
Arbor-vitæ japonica, 4 to 4½ feet,
" " 4½ to 5 ft., 10*s* 6*d.* [7*s.* 6*d.*
Picea grandis, 4 to 5 feet, 15*s.*
Picea grandis, 5 to 6 feet, 21*s.*
" nobilis, 3 to 3½ feet, 31*s.* 6*d.*; 300*s.* per dozen
" " 3½ to 4 feet, 42*s.*
" " 4 to 4½ feet, 51*s.* 6*d.*
" " 4½ to 5 feet, 63*s.*
" Nordmanniana, 4 to 5 ft., 21*s.*
" " 5 to 6 feet, 31*s.* 6*d.*
" " 6 to 7 feet, 42*s.*
" " 7 to 8 feet, 50*s.*
" Pinsapo, 3 to 3½ feet, 10*s.* 6*d.*
" " 3½ to 4 feet, 15*s.*
" " 4 to 5 feet, 21*s.* to 31*s.* 6*d.*
Pinus Cembra, 7 to 8 feet, 7*s.* 6*d.*
Yews, for hedges, about 12 feet high, 45 years old, recently transplanted, 31*s.* 6*d.*

RICHARD SMITH,
NURSERYMAN AND SEED MERCHANT, WORCESTER.

The Planting Season.

WOODLANDS NURSERY, MARSHFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON respectfully invite especial attention to their very large stock of STANDARD ORNAMENTAL TREES, of large size, suitable for planting as single specimens on Lawns or in Parks where immediate effect is desired.
WEEPING ASH, 7 to 9 feet stems.
AMERICAN WILLOWS, 6 to 7 feet stems.
CATALPA SYRINGÆFOLIA, 6 to 8 feet.
ELMS CHICHESTER and ENGLISH, 8 to 10, and 10 to 12 feet.
SILVER and SPRUCE FIRS, 6 to 7 feet.
HORSE-CHESTNUTS, 6 to 8, and 8 to 10 feet.
SCARLET HORSE-CHESTNUTS, extra fine plants, 6 to 8, and 8 to 10 feet.
LABURNUMS, Yellow and Purple, 6 to 8 feet.
POPLARS, BLACK ITALIAN and LOMBARDY, extra fine, 8 to 10, and 10 to 12 feet, and various other HARDY TREES.
See PRICED CATALOGUES, which may be had free on application.

Island of Jersey.

CHARLES B. SAUNDERS, NURSERYMAN and FLORIST, can supply, of fine growth and at moderate prices—
Transplanted PINUS AUSTRIACA and SILVER FIRS, 2 to 3 ft.
EVERGREEN OAKS (in pots), 2, 3, 4, and 5 to 6 ft.
CAMELLIA STOCKS, fine healthy stuff, fit for immediate working.
Strong BLACK HAMBURGH, BLACK VICTORIA, and MUSCAT VINES.
Fruiting, trained, and pyramidal PEAR TREES (on Quince), of best varieties.
Dwarf-trained BIGARREAU, MAYDUKE, and MORELLO CHERRY TREES.
Dwarf-trained NECTARINE, PEACH, and PLUM TREES.
Standard, Pyramidal, and Cordon APPLE TREES, of best sorts.
GUERNSEY ELMS, of different sizes, a tree of handsome, upright growth.
Three-year-old ASPARAGUS ROOTS, in large or small quantities.
GYMNOGRAMMA LEPTOPHYLLA, or Annual Maiden-hair Fern.
GUERNSEY and BELLADONNA LILIES, BULBS, &c.

Ground Wanted for Building.

FOR LARGE EVERGREEN and FOREST TREES try PAMPLIN AND SON. For Height see Advertisements in former *Gardeners' Chronicles* of this year.
The Nurseries, Lea Bridge Road, Leyton; and Wood Street, Walthamstow, Essex, N.E.

To the Trade.

THOS. CRIPPS AND SON beg to announce they still hold a good stock of the following, in fine healthy stuff:—
ABIES ALBERTIANA (Williamsoni), 2-yr. seedlings, to 16 feet; A. MENZIESI, 9 ins. to 12 ft.; ARAUCARIA IMBRICATA, 6 ins. to 20 ft.; Cupressus Lawsoniana (in unequalled stock), 2-yr. seedlings, to 15 feet; Picea balsamifera, 3 inches to 7 feet; P. Nordmanniana, 3 inches to 7 feet; P. Pinsapo, 6 inches to 18 feet; P. pectinata (Silver Fir), 1 to 4 feet; Pinus austriaca, 2½ to 7 feet; P. Lambertiana, 1 to 5 feet; P. muricata, 1 to 2 feet; P. Benthamiana, 2-yr. seedlings, to 7 feet; Retinospora ericoides, 5 inches to 3½ feet; R. obtusa, 6 inches to 6 feet; R. pisifera, 1 to 8 feet; Taxus ericoides, 6 inches to 2 feet; Thujopsis dolabrata, fine stuff, 3 to 15 inches; Wellingtonias, 3 ins. to 20 ft.; Horse-Chestnuts, all varieties; Aucubas, a complete collection; Berberis Bealii, japonica, intermedia, Darwinii, dulcis, stenophylla, vulgaris; Laurels, common, 3 to 5 feet; Laurels, Portugal and Myrtle-leaved do.; Daphne pontica Stocks; Deutzia crenata fl.-pl.; D. scabra, Leycesterias, Manetti and Rhododendron Stocks; Malus floribunda (handsomest of the flowering Crabs); Prunus triloba, Hardy Azaleas, Ericas, Gaultherias, Menziesias, and Pernettyas; Standard Roses, Blush and Crimson China do.; Standard Apples, Cherry Plum Stocks, Strawberries; Pinus excelsa and Picea Webbiana, 1-yr. seedlings; Alder, 2 to 5 feet; Spruce Firs; Lilium auratum and punctatum. For particulars and prices of which, see our TRADE CATALOGUE, to be had free on application.
The Nurseries, Tunbridge Wells, Kent.

GIANT ASPARAGUS PLANTS, the best that money can procure, 2s. 6d. per 100. This delicious Vegetable does not require half the expense usually incurred in planting it.
See RICHARD SMITH'S SEED LIST for 1868.
Extra strong SEAKALE, 2s. per dozen.
RICHARD SMITH, Nurseryman, Worcester.

RICHARD WALKER has to offer the finest sort of ROUND POTATO out (AMERICAN RED).—It boils as white as snow, and is the heaviest cropper in this country. R. W. imported it direct in 1865. As the Stock is limited, apply early. Price per cwt., 30s. Smaller quantities at the same rate. SEAKALE, for planting, 3s. 6d. per 100. LACED PINKS, 20s. per 100.
Biggleswade Market Gardens.

J. C. WHEELER AND SON.

WHEELER'S GUINEA COLLECTION of GARDEN SEEDS comprises the finest varieties in cultivation; for details see "WHEELER'S LITTLE BOOK for 1869," price 6d., post free.
J. C. WHEELER & SON, Seed Growers, Gloucester, and 59, Mark Lane, London, E.C.

"WHEELER'S TOM THUMB LETTUCE is a wonderful favourite with my family and friends; for a Summer Lettuce I have never seen its equal."—G. F. A. FLOWER, Stafford Farm. 1s. per packet, post free.
J. C. WHEELER & SON, Gloucester.

"WHEELER'S MILKY WHITE is the best of all Potatos, and those who do not grow it may consider themselves rather behind the age."—SHIRLEY HIBBERD, F.R.S. 4s. per peck, 15s. per bushel.
MILKY WHITE.—"This I received from the well-known firm of Messrs. Wheeler & Son, Gloucester. It is one of the handsomest Potatos grown, and well deserves its name, for it is most beautifully white, very floury, and one that I do not hesitate to regard as first-rate. It is also a very free bearer." D. DEAL. 4s. per peck, 15s. p. bush.

ONE PECK of WHEELER'S MILKY WHITE and ONE GUINEA COLLECTION of GARDEN SEEDS sent carriage free by rail on receipt of cheque or Post-office order for 25s.
J. C. WHEELER & SON, Seed Growers, Gloucester, and 59, Mark Lane, London, E.C.

WHEELER'S GRASS SEEDS for CROQUET GROUNDS should now be sown at the rate of 10 lb. per acre, a good dressing of soot applied, and the ground well rolled. Price 1s. per lb., 20s. per bushel, carriage free.
J. C. WHEELER & SON, Seed Growers, Gloucester, and 59, Mark Lane, London, E.C.

EDWARDS' ECLIPSE CUCUMBER, pronounced by all who have seen it to be the best in cultivation. It is a most prolific bearer, possessing every quality of a first-rate Cucumber, and produces fruit 24 to 26 inches in length at every joint. Orders have been given by all who have seen it growing.
A brace of the above was SENT to the Editor of the *Gardeners' Chronicle*. The following was his opinion, on the 19th December:—"A handsome smooth-skinned variety, of crisp flavour, and having the recommendation you mention, it is a desirable variety."
One trial packet of six seeds, 2s. 6d. each, of GEORGE EDWARDS, King Street, Cottingham, York; and of Messrs. HURST & SON, Seedsmen, 6, Londenhall Street, London, E.C.

LEE'S GIANT ORACH or SUMMER SPINACH has, during the late parching summer, fully maintained our description of its productive powers, and has satisfied our numerous friends that its delicious pungent flavour is unrivalled by that of any other Spinach. Its utility in such a prolonged drought as we have lately passed through, is attested by the following testimonials, selected from among a host of others:—
From Mr. THOMAS WOOLDRIDGE, *Gardener to the* Earl of Winchilsea, *Eastwell Park, Ashford.*
September, 1868.—"I have much pleasure in giving my testimony in favour of your Giant Orach; but for that, I should not have had a bit of Spinach for use. The plants are 5 feet high, and as green as possible, despite the dry weather. They have never been watered; it is invaluable."
From Mr. JOHN PERRY, *Gardener to the* Rev. Basil Beridge, *Moorlark Rectory, Spalding.*
October, 1868.—"This has been a most trying season for garden produce. I could get nothing to grow but your Giant Orach, which has not failed to supply me plentifully all through the season, when all other vegetables have failed."
Price per packet, 1s. Free by post.
JOHN & CHARLES LEE, Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

First Crop or Ringleader Pea.

CHARLES SHARPE AND CO., having grown largely this EXCELLENT EARLY PEA, with great care, have much confidence in offering it to the Trade. Price on application.

Farm Seeds Direct from the Grower.

CHARLES SHARPE AND CO. will be glad to send special offers of their carefully selected TURNIP, MANGEL, and other FARM SEEDS on application.

Garden Seeds.

CHARLES SHARPE AND CO.'S PRICED TRADE LIST of PEAS, BEANS, and other GARDEN SEEDS can be had on application.

Seed Potatos.

CHARLES SHARPE AND CO. are now prepared to make special offers of all the leading sorts of POTATOS.
Sleaford.

Plants, to be Sold, Cheap.

G. GAINES begs to offer to Nurserymen and Seedsmen, fine GREEN GLOBE ARTICHOKE plants, stock imported direct from France; also fine strong TARRAGON plants. For prices, apply to GEORGE GAINES, Herbalist and Seedsman, Covent Garden Market, London, W.C.

Squire's Wiltshire Cos Lettuce.

GEO. WHEELER, NURSERYMAN and SEEDSMAN, Warminster, Wilts, having secured the Stock of this long-standing BROWN COS LETTUCE, now offers it in 1s. sealed packets.
Mr. SQUIRES has grown it for some years, and highly recommends, it as a first-class Spring, Summer, Autumn, and Winter Lettuce later in running to seed than any other sort he is acquainted with, attains to a large size, is self-protecting, solid, crisp, juicy, and of excellent flavour. Free by post from Warminster.
May be obtained of Messrs. HURST & SON, Seedsmen, 6, Leadenhall Street, E.C., and other London Seedsmen.

CARROT and CABBAGE SEEDS.

	Per cwt.—s. d.
CARROT, WHITE BELGIAN	56 0
,, JAMES' SCARLET INTERMEDIATE	65 0
CABBAGE, DRUMHEAD (fine stock)	70 0
,, EARLY YORK	112 0
,, LARGE YORK	112 0

The above are all new, fine samples, and good Stocks. Special quotations for all other kinds of Seeds will be forwarded on application.
ALFRED LEGERTON, Seed Merchant, 5, Aldgate, London, E.

SPECIALITIES, DISTINCT and GOOD.

	Per packet.—s. d.
GIBBS' MATCHLESS BORECOLE	0 6
MARSHALL'S PRIZE PARSLEY	1 0
ST. MUNGO (very hardy white) BROCCOLI	1 0
HENRY'S PRIZE LEEK	1 0
INTERMEDIATE STOCK, new deep crimson	1 0
CALCEOLARIA, herbaceous (from the Dalkeith collection) .	1 0

Sent post free. The Trade supplied.
SMITH & SIMONS, 1, Buchanan Street, Glasgow.

HOOLEY'S CONQUEROR PRIZE CELERY gained Five First Prizes in 1866, competing against 129 Exhibitors; and Four First Prizes in 1867, competing against 126 Exhibitors. With the Nottingham Prize System of Growing Celery. By Mr. W. P. Ayres. Price 2s. 6d. per packet. May be had from the following Nurserymen and Seedsmen:—

London:—
Messrs. Barr & Sugden, King Street, Covent Garden
,, Osborn & Son, Fulham
,, J. & C. Lee, Hammersmith
,, B. S. Williams, Holloway
,, E. G. Henderson & Son, St. John's Wood
,, Cutbush & Son, Highgate
Mr. Smith, Worcester
Messrs. Cole & Sons, Withington, Manchester
Mr. Keir, Basnett St., Liverpool
Messrs. J. Dickson & Sons, Chester
,, Fisher & Holmes, Sheffield
,, Backhouse & Son, York
,, Downie & Laird, Edinburgh
Mr. Methven, Edinburgh
Messrs. Lucombe, Pince & Co. Exeter [Herts.
Mr. W. Paul, Waltham Cross, Hertford
Messrs. Hutchinson & Armitage, Nottingham
,, Felton & Son, Birmingham

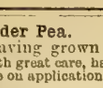
And Wholesale and Retail from SAMUEL HOOLEY, Wollaton, Nottingham.
This Celery was highly recommended in the *Gardeners' Chronicle*, in Oct., 1867; and Mr. Ayres, who has grown it for several years, considers it the finest Celery in cultivation. Weight, 5 to 8 lb. each stick.—Wollaton, Feb. 12.

Mangel, Turnip, and other Agricultural Seeds.

ALFRED LEGERTON, WHOLESALE SEED MERCHANT, 5, Aldgate, London, E., begs to inform the Trade that his ANNUAL SPRING LIST of the above is now ready, and can be had on application.
Prices the lowest, and stocks the best in London.

CHOICE NEW SEEDS.
Trade Price on application.
BROCCOLI, Ne Plus Ultra (NAIRN'S).—Heads very large, conical, pure white, self-protecting, extremely hardy, the finest Broccoli extant. 3s. per oz.
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See *Gardeners' Chronicle*, January 12, 1867.
See *Gardeners' Chronicle*, August 31, 1867.
See *Gardeners' Chronicle*, March 16, 1867.
See *Gardeners' Chronicle*, October 12, 1867.
See *Gardeners' Chronicle*, January 11, 1868.
See *Gardeners' Chronicle*, January 6, 1869.
See "Gardeners' Magazine," January 18, 1868.
See "Gardeners' Magazine," January 30, 1869.
See "Journal of Horticulture," August 20, 1868.
See "Journal of Horticulture," January 28, 1869.
The above may be had, in printed and sealed packets, guaranteed true, price 2s. 6d. each, from
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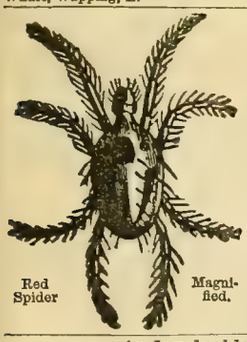
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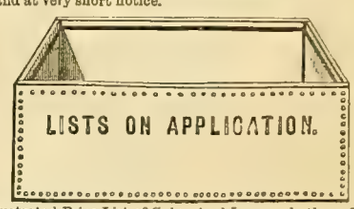

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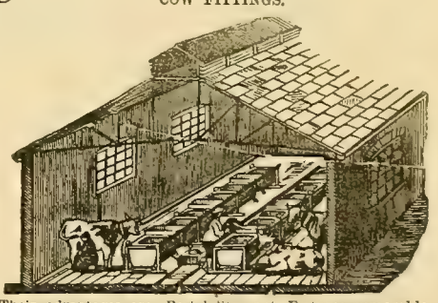
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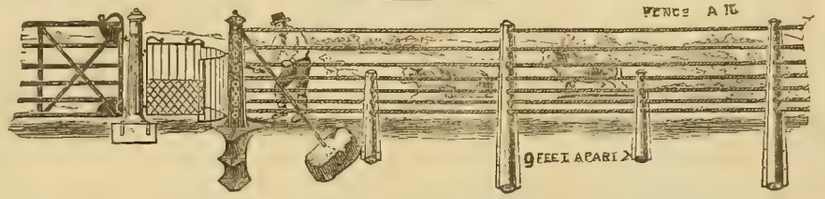
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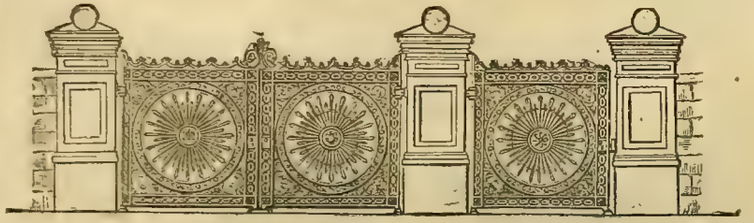
AS SELECTED FOR THE NEW PUBLIC SEFTON PARK, LIVERPOOL.

OUR PATENT WIRE FENCING IS CHEAPER, STRONGER, MORE DURABLE, MORE EFFICIENT, AND BETTER IN APPEARANCE THAN BAR IRON FENCING, HURDLES, &c., AT TWICE THE COST.
Thoroughly efficient Workmen sent to erect in any part of the Kingdom. Special Estimates prepared for considerable quantities.

CAST AND WROUGHT-IRON PARK, ENTRANCE, AND FIELD GATES, PLAIN OR ORNAMENTAL,

OF THE BEST DESIGNS. ALSO,

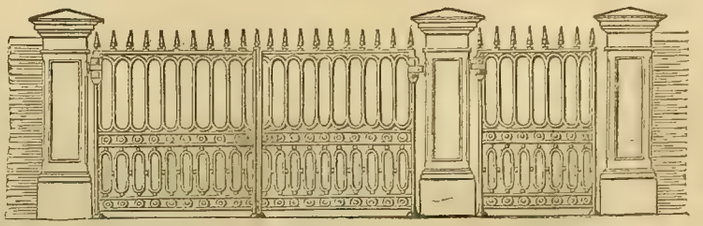
CONTINUOUS BAR IRON FENCES, HURDLES, TREE GUARDS, RABBIT NETTING, WICKETS, POULTRY FENCING, PALISADING, &c.



With all similar Manufactures required for the Embellishment or Improvement of Landed Property.

Solid Wire Drawn and Rolled, of every description, at the lowest prices.

Deer Fences of the most approved Designs.





COLONIAL
WIRE FENCING
FOR
SHEEP and CATTLE
RUNS.
By far the cheapest and most efficient Fence exported.



LARGE CONSUMERS PLACED ON MOST FAVOURABLE TERMS.

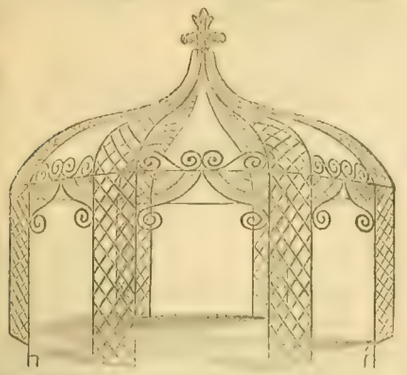


FOR AGRICULTURAL IRON ROOFING, SHEDDING, &c., SEE ADVERTISEMENT IN NEXT MONTH'S ISSUE.

ESTABLISHED OVER QUARTER OF A CENTURY.]
FRANCIS MORTON & CO., LIMITED.
HEAD OFFICES AND WORKS, LIVERPOOL.

ESTABLISHED OVER QUARTER OF A CENTURY.]
FRANCIS MORTON & CO., LIMITED.
HEAD OFFICES AND WORKS, LIVERPOOL.

Horticultural Wirework.—Garden Rosary.



WIREWORK for ROSARIES, continuous or circular, for Pleasure Grounds, made in different designs, suitable for Garden adornment; Wirework for Summer-houses, Wirework for Garden Bordering, Flower Trainers, &c; Wirework for Screens or Partitions, for hiding unsightly walls, buildings, &c., made in various patterns; Plain and Ornamental Garden Arches for Walks; Ornamental Arches for Cross-walks, Wirework Temples, Arbors, &c.; Diamond Wirework Trellis for Creepers, Ornamental Wirework Fencing, for dividing Gardens, Lawns, &c.

WIREWORK FLOWER STANDS. SUSPENDING BASKETS.

All kinds of WIREWORK for GARDENS and CONSERVATORIES, &c.

AVIARIES, PHEASANTRIES, &c., in various designs.

Sir J. Paxton's Registered STRAWBERRY CRINOLINES, for keeping your Strawberries clean, free from dirt, slugs, contact with the soil, superfluous moisture, and other nuisances. These have already proved a great success, in answering the purpose for which they were intended, ripening the fruit regular, &c.

For particulars see Illustrations, Testimonials, &c.

Illustrated Catalogues of WIREWORK, &c., on application to R. Holliday, Practical Wirework Manufacturer, 2A, Portobello Terrace, Notting Hill Gate, London, W.

THE HYDRONETTE,
(Robins' Patent,) for Gardens, Greenhouses, Conservatories, Hotbeds, &c. Unrivalled ease of action, simplicity, convenience, and force.



The HYDRONETTE is a more useful, easy working, reliable, and convenient water-throwing machine than any other in use. It is made in five sizes, viz.:—No. 1, with 4 feet of Suction Hose, Strainer, Jet, and Rose, 12s. 6d.; No. 2, 16s. 6d.; No. 3, £1 1s.; No. 4, £1 6s.; No. 5, £1 10s. Extra Hose and Union Joints furnished to order.

Directions for Use.—Take the Hydronette in the left hand, lay hold of the handle with the right, drop the strainer end of the Hose into the pail, then work the plunger quickly a few strokes, until water is drawn up to the brass tube; then work it slowly, or quickly, at will.

To be obtained through any Ironmonger or Florist in the United Kingdom, or of the Proprietors,

Haynes & Sons, 227, 229, and 231, Edgware Road, Paddington, W.

JAMES BOYD AND SONS, Horticultural Builders, Paisley, N.B., Manufacturers of CONSERVATORIES, GREENHOUSES, VINERIES, and every description of HOTHOUSE in Wood or Iron; also of HOT-WATER HEATING APPARATUS for Horticultural Buildings, Churches, Mansions, Warehouses, &c.

James Boyd & Sons beg to call attention to the superior facilities they possess for executing all orders entrusted to them, in a first-class style, at a moderate price, and with despatch. Their works are fitted up with the most improved machinery, specially adapted for this trade. Their system of ventilation gives the least possible trouble, each range of sashes or ventilators opening by one movement without the risk of cords breaking, as in sliding sashes, and thorough ventilation is secured during wet weather, without admitting the rain. Plans and Estimates on application.

Hothouses for the Million.

SIR J. PAXTON'S PATENT.—NOTICE.

MESSRS. HEREMAN AND MORTON having taken New Premises for the Construction of Horticultural Buildings, beg to inform their Patrons and the Public that they possess the exclusive privilege of Manufacturing the above PATENT HOTHOUSES, and they are also enabled to supply ORNAMENTAL and PLAIN CONSERVATORIES at reduced prices. Country Works in Coventry, Gloucester, Lancashire, and Scotland.

Illustrated Price Lists free on application at the Office, 7, Pall Mall East, London, S.W.

Heating Apparatus.

J. MEREDITH continues to supply and fix HOT-WATER APPARATUS in VINERIES, and every description of HOTHOUSE BUILDINGS, &c.

The Vineyard, Garston, near Liverpool.

HOT-WATER APPARATUS of every description, fixed complete in any part of the country, for Warming Greenhouses, Conservatories, Forcing Pits, &c.

Plans and Estimates on application.

J. Jones & Sons, 6, Bankside, Southwark, London, S.E.

JAMES WATTS AND CO., Hothouse Builders and Hot-Water Apparatus Manufacturers, 353, Old Kent Road, London, S.E.



200 CUCUMBER and MELON BOXES and LIGHTS, all sizes, Glazed and Painted complete, ready for immediate use, packed and sent to all parts of the Kingdom.

Strong ZINC HAND-GLASSES, all sizes.

References to the Nobility, Gentry, and Trade in most of the Counties in England.

W. H. LASCELLES' MACHINE-MADE MELON LIGHTS.



		Each.
6 ft. by 4 ft.	Lights, 2 ins. thick, unglazed	£0 5 0
" "	Primed and Glazed with 10 oz. Sheet	0 11 0
" "	with stout Portable Box, not Painted	1 3 0
" "	Painted four coats, and Handles on	1 8 0
" "	Packed and Delivered in Railway Van	1 10 0
6 ft. by 8 ft., Double Lights, do.		2 15 0

GREENHOUSES.	Per ft. super.
Woodwork only Prepared and Fitted	0 0 6
" Primed and Glazed with 16 oz. Sheet	0 0 9
" Delivered, and Fixed with Ironwork	0 1 0
" Painted four coats, two sides, ready for use	0 1 3

Finsbury Steam Joinery Works, 121, Bunhill Row, E.C.

J. C. AND J. S. ELLIS, Horticultural Builders and Hot-water Apparatus Manufacturers, for Heating Greenhouses, Conservatories, Hothouses, Churches, Public Buildings, Private Residences, &c. Plans and estimates sent on application.





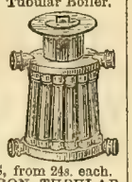
General Ironfounders, Manufacturers of Iron Roofs, Wrought and Cast Iron Cisterns and Tanks, Water Rams, Stable Fittings, and every description of Iron Work.

Norfolk Foundry, Doctor's Fields, Sheffield.

HOT-WATER APPARATUS Erected Complete, or the Materials Supplied for Heating GREENHOUSES, HOTHOUSES, CONSERVATORIES, CHURCHES, PUBLIC BUILDINGS, &c.

Peill's Conical. Tubular Boiler.





HOT-WATER PIPES at wholesale prices, Elbows, T Pieces, Syphons, and every other connection kept in stock.

WROUGHT and CAST IRON CONICAL, SADDLE, and IMPROVED PEILL'S and ELLIPTIC BOILERS, from 24s. each.

IMPROVED and EXTRA STRONG CAST IRON TUBULAR BOILERS, with or without Water Bars, from 52s. 6d. each.

CAST and WROUGHT IRON PORTABLE BOILERS on STAND, for use without brickwork, from 60s. each.

PATENT and IMPROVED THROTTLE and other VALVES, FURNACE DOORS, BARS, and FURNACE WORK of every description and size.

LYNCH WHITE,
Old Barge Iron Wharf, Upper Ground Street, London, S.E.
(Surrey side Blackfriars Bridge).
Price List on application.

New Silkworms.

EGGS, of different Mulberry varieties, producing Yellow, White, or Green Silk, 1s. per 100; Oak-leaf kinds, 1s. for 16; Ailantus sorts, 1s. for 20. MULBERRY and AILANTUS seedling plants, &c. See CIRCULAR, &c., 3d.

L. Harman, Jr., Old Catton, Norwich.

To Gardeners and Others.

WANTED to HIRE, about ONE ACRE of good GARDEN LAND, to be used as a "Trial Ground." Must be within an easy reach of the City. The neighbourhood of Clapham or Brixton preferred. A good price would be given for the accommodation. Apply to

Alfred Leggeton, Seed Merchant, 5, Aldgate, London, E.

COTTAGE to LET, with an Acre of good Meadow Land, and Three-quarters of an Acre of Garden Ground. Close to a road. Supply of water good. A mile and a half from Witley Station, direct Portsmouth line. The cottage is old fashioned, detached, and contains only six rooms (three on ground floor and three above). There are Sheds for Pony and Cow. Rent £20, free from all rates and taxes. Can be seen any day by applying at The Lodge, Combe Court, near Witley.

TO BE LET, or the LEASES to be SOLD, an Old-established NURSERY and SEED BUSINESS. Stock at valuation. James Over, 116, High Street, Clapham.

To Market Gardeners.

TO BE LET, near a Town and Two Railway Stations, 20 miles from London, FIFTEEN ACRES of very productive LAND, suitable for the above purpose.

For rent and particulars apply to Messrs. White & Sons, Land Agents, Auctioneers, and Valuers, Dorking, Surrey.

TO BE LET, and may be entered upon at Lady Day next, a very useful NURSERY and GARDEN GROUND, of about 20 Acres, with Vinery and other Houses thereon, in full operation; also a DWELLING HOUSE and SHOP belonging thereto, at which a good Retail Business and Seed Trade is carried on. It is situated in one of the Midland Counties, and near to a first-class Railway Station. Address for particulars to A. B., care of E. Marlborough & Co., Ave Maria Lane, London, E.C.

Reydon's Farm, Barking, and Dagenham, Essex, TO MARKET GARDENERS AND OTHERS.

TO BE LET, in Small Plots or otherwise, for the convenience of Occupants, with Possession at Michaelmas next, REYDON'S FARM, containing nearly 300 Acres of very superior Land, admirably adapted for Market-Garden Culture and Supply of the London Vegetable Markets. Surrounded by excellent roads. Contiguous to the Metropolis Sewage and Essex Reclamation Company's Works for Sewage Irrigation. Within an easy distance of Barking and Chadwell Heath Stations on the London and Tilbury and the Great Eastern Railways, and only nine miles from London.

Apply to Mr. Henry Thompson, Dagenham, Essex.

Sales by Auction.

Consignment of Plants and Bulbs from Holland and Ghent.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, March 10, at half-past 12 o'Clock precisely, CAMELLIAS, INDIAN AZALEAS, RHODODENDRONS, Standard and Dwarf-Trained FRUIT TREES, Standard and Dwarf ROSES, LAURELS, AUCUBAS, HOLLIES, Specimen CONIFERS, PINKS, ALOES, LILIUMS, GLADIOLI, RANUNCULI; Rustic Seats, Stools, Vases, Baskets.

On view the Morning of Sale, and Catalogues had.

A very Important Sale of Imported Indian Orchids, IN FINE HEALTH.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, March 15, at half-past 12 o'Clock precisely, IMPORTED ORCHIDS, comprising:—

Saccolabium præmorsum, true	Dendrobium crassinode, new and
" giganteum	" Bensoniæ [rare
A new white Vanda	" crystallinum
Cymbidium Hookerii, very rare	" heterocarpum
Pleione Reichenbachii	" Bullerianum
Thunia Bensoniæ	" Parishii
Aerides affine roseum	" Dalhousianum
Dendrobium Farmeri roseum	" formosum

&c., &c., &c.

Also a small Box of JAPAN ORCHIDS, including:—

Angræcum falcatum	Dendrobium japonicum

Dendrobium species.

On view the Morning of Sale and Catalogues had.

Importation of Valuable Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, March 18, at half-past 12 o'Clock precisely, splendid masses of the following:—

Dendrobium cambridgeanum	Dendrobium Williamsoni
" heterocarpum	Vanda cristata
" Devonianum	" cærulea
" transparens	Cypripedium hirsutissimum
" formosum	Eria clavicaulis

&c., &c, &c.

Including some of the finest masses ever imported, collected in the Cossyah Hills by Lieutenant Williamson.

On view the Morning of Sale, and Catalogues had.

Sale of First-class Carnations and Picotees, STANDARD and DWARF ROSES, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, City, E.C., on THURSDAY, March 11, at half-past 12 o'Clock precisely, a first-class Collection of CARNATIONS and PICOTEES (the surplus stock of an eminent grower), also a superb assortment of Standard and Dwarf ROSES, selected AMERICAN PLANTS, clean-grown FRUIT TREES, CAMELLIAS, AZALEA INDICA, GLADIOLI, &c.

On view Morning of Sale, Catalogues had at the Rooms, as above, and of the Auctioneers and Valuers, Leytonstone, N.E.

Didmarton, near Chippenham. IMPORTANT SALE of SHORTHORNED CATTLE.

MR. STRAFFORD begs to announce that he has received instructions to SELL by AUCTION, without reserve, on TUESDAY, March 23 next, at Didmarton, the remaining portion of the extensive and valuable HERD of first-class SHORTHORNS, belonging to Stiles Rich, Esq. (who is retiring from farming), that have been long and carefully bred chiefly from Cows obtained of the late Earl Ducie, at Tortworth Court, since which have been used Bulls of the famed Kirklevington blood; most of the young stock are by the 7th Duke of York (17,754), 13th Grand Duke (21,850), 2d Duke of Claro (21,576), and 2d Duke of Collingham (23,730); this splendid young Bull will be included in the Sale, and is the one by which the Cows and Heifers are chiefly served. Mr. Strafford having seen the Herd, can with confidence invite the attention of Shorthorn breeders, assuring them that they will find in it a combination of symmetry, quality, and good breeding.

Catalogues, with Pedigrees and other particulars, may be had on application to Mr Strafford, 13, Euston Square, London, N.W.; or of Mr. Rich, Didmarton, Chippenham.

Orpines, Wateringbury, Kent. IMPORTANT SALE OF FIRST-CLASS SHORTHORNS.

MR. STRAFFORD begs to announce that the SALE by AUCTION of the FIRST-CLASS SHORTHORNS belonging to Messrs. F. Leney & Son, Wateringbury, Kent, is fixed for THURSDAY, the 8th of May next, and will consist of about 20 very choice YOUNG HEIFERS, and the same number of YOUNG BULLS from this famed herd, which has been bred with great spirit and judgment from the most fashionable sources, and by sires of the highest breeding and repute, such as 12th Duke of Thorndale, 15th Grand Duke, Knightley, Lord Oxford 2d, and others of Fawsley and Kirklevington blood.

Catalogues with Pedigrees are now in preparation, and will be announced with further particulars in future Advertisements.

London: 13, Euston Square, March 4.

AUSTIN'S ARTIFICIAL STONE,

INVENTED 1826.



The superiority of this material to all others for damp situations and its durability under the most intense frost being now indisputable, and attested by its extensive use in Scotland and Ireland, as well as the principal country seats of England, attention is invited to the following summary of the work manufactured with it, a variety unprecedented in any other establishment of past or present times:—

VASES,
about 300 different kinds, at from 10s. to £50.

FOUNTAINS,
more than 200 designs, from £10 to £400.

PORTEFLEURS, or low FLOWER BASINS, for lawns; STATUES, antique and modern; SMALL FIGURES, adapted to Balustrading, &c.; FIGURES of ANIMALS and BIRDS, about 70 kinds; SUNDIAL PEDESTALS, about 20 designs; BASKETS, from 1 to 17 feet diameter; GARDEN SEATS, of substantial architectural character, for the ends of terraces; SHELLS for water or rock plants, from 1 to 14 feet wide; FLOWER BOXES, for windows or pavements; BAPTISMAL FONTS, from 2 to 15 guineas; CRESTS and other TERMINALS, for gate-piers; BALUSTRADING, to suit all styles of architecture; a great variety of ORNAMENTAL PEDESTALS, GOTHIC CROSSES, PINNACLES, and NICHES; EDGING for flower-beds.

AUSTIN AND SEELEY, Nos. 369—375, EUSTON ROAD, REGENT'S PARK.

N.B. No sand is used in "Austin's Stone," which is waterproof.



WILLIAM S. BURTON,

GENERAL FURNISHING IRONMONGER,

BY APPOINTMENT TO H.R.H. THE PRINCE OF WALES,

SENDS A CATALOGUE GRATIS AND POST PAID.

It contains upwards of 700 Illustrations of his unrivalled Stock of

STERLING SILVER AND ELECTRO PLATE,
NICKEL SILVER AND
BRITANNIA METAL GOODS,
DISH-COVERS, HOT-WATER DISHES,
STOVES AND FENDERS,
MARBLE CHIMNEY-PIECES,

KITCHEN RANGES,
LAMP GASELIERS,
TEA TRAYS,
URNS AND KETTLES,
TABLE CUTLERY,
CLOCKS AND CANDELABRA,

BATHS AND TOILET WARE,
IRON AND BRASS BEDSTEADS,
BEDDING AND BED HANGINGS,
BEDROOM CABINET FURNITURE,
TURNERY GOODS, &c.

With Lists of Prices, and Plans of the

TWENTY LARGE SHOW-ROOMS,

AT 39, OXFORD STREET; 1, 1A, 2, 3, AND 4, NEWMAN STREET; 4, 5, AND 6, PERRY'S PLACE, AND 1, NEWMAN YARD, LONDON, W.

THE PERFECT SUBSTITUTE for SILVER.—The real NICKEL SILVER, introduced more than 30 years ago by WILLIAM S. BURTON, when Plated by the Patent Process of Messrs. Elkington & Co., is beyond all comparison the very best article next to sterling silver that can be employed as such, either usefully or ornamentally, as by no possible test can it be distinguished from real silver.

A small, useful Set, guaranteed of First Quality for finish and durability, as follows:

	Fiddle or Old Silver Pattern.	Bead Pattern.	Thread Pattern.	King's or Shell and Thread.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
12 Table Forks	1 10 0	2 1 0	2 2 0	2 5 0
12 Table Spoons	1 10 0	2 1 0	2 2 0	2 5 0
12 Dessert Forks	1 2 0	1 7 0	1 10 0	1 11 0
12 Dessert Spoons	1 2 0	1 7 0	1 10 0	1 11 0
12 Tea Spoons	0 14 0	0 19 0	1 1 0	1 2 0
6 Egg Spoons, gt. bowls..	0 9 0	0 12 0	0 12 0	0 13 6
2 Sauce Ladles	0 6 0	0 8 0	0 8 0	0 8 0
1 Gravy Spoon	0 6 0	0 8 6	0 9 0	0 9 6
2 Salt Spoons, gt. bowls..	0 3 0	0 4 0	0 4 0	0 4 6
1 Mustard Spoon, gt. bwl.	0 1 6	0 2 0	0 2 0	0 2 3
1 Pair of Sugar Tongs ..	0 2 6	0 3 6	0 3 6	0 4 0
1 Pair of Fish Carvers ..	0 19 6	1 3 0	1 3 0	1 3 0
1 Butter Knife	0 3 0	0 4 0	0 4 0	0 4 3
1 Soup Ladle	0 10 0	0 12 0	0 14 0	0 15 0
1 Sugar Sifter	0 3 0	0 4 0	0 4 0	0 4 6
Total	0 1 6	11 16 0	12 8 6	13 2 6

Any article to be had singly at the same prices. An Oak Chest, to contain the above, and a relative number of Knives, &c., £2 15*s.*

A Second Quality of Fiddle Pattern

Table Spoons and Forks	.. £1 2 0	per doz.
Dessert Spoons and Forks	.. 0 16 0	,,
Tea Spoons	.. 0 10 0	,,

Tea and Coffee Sets, Dish Covers and Corner Dishes, Cruet and Liqueur Frames, &c., at proportionate prices.

All kinds of Re-plating done by the Patent Process.

FENDERS, STOVES, FIRE-IRONS, and CHIMNEY-PIECES.—Buyers of the above are requested, before finally deciding, to visit WILLIAM S. BURTON'S SHOW-ROOMS. They contain such an assortment of Fenders, Stoves, Ranges, Chimney-pieces, Fire-irons, and General Ironmongery, as cannot be approached elsewhere, either for variety, novelty, beauty of design, or exquisiteness of workmanship. Bright Stoves, with ormolu ornaments, £3 8*s.* to £33 10*s.*; Bronze Fenders, with standards, 7*s.* to £5 12*s.*; Steel Fenders, £2 3*s.* to £11; ditto, with rich ormolu ornaments, from £3 3*s.* to £18; Chimney-pieces, from £1 8*s.* to £100; Fire-irons, from 3*s.* 3*d.* the set to £4 4*s.* The Burton and all other Patent Stoves with radiating hearth-plates.

LAMPS of ALL SORTS and PATTERNS.—WILLIAM S. BURTON invites inspection of this Season's SHOW of LAMPS. The collection of French Moderateur Lamps, carefully selected at Paris, defies competition. The prices vary from 7*s.* to £7 7*s.* Each Lamp is guaranteed perfect, but to ensure their proper action, WILLIAM S. BURTON supplies Pure Colza Oil at the Wholesale Price, 3*s.* 4*d.* per gallon. Lamps of all other descriptions are on Show in great variety.

BEDDING MANUFACTURED on the Premises, and guaranteed by WILLIAM S. BURTON.

For Bedsteads, Wide	3 Feet 6 Inches.	4 Feet 6 Inches.	5 Feet.
	£ s. d.	£ s. d.	£ s. d.
Best Straw Paillasses	0 13 0	0 15 0	0 18 0
Best French Alva Mattresses	0 13 0	0 16 0	0 18 0
Best Cotton Flock Mattresses	0 18 6	1 2 6	1 6 6
Coloured Wool Mattresses	1 0 0	1 5 0	1 8 6
Best Brown Wool Mattresses	1 5 6	1 11 6	1 14 6
Best Brown Do., extra thick	1 8 6	1 16 0	1 19 0
Good White Wool Mattresses	1 14 0	2 3 0	2 7 0
Extra Super Do. Do.	3 0 0	3 13 0	4 1 0
Good Horse Hair Do.	2 5 0	2 18 0	3 6 6
Extra Super Do.	3 1 0	3 18 0	4 10 0
German Spring Hair Stuffing	3 12 6	4 7 6	4 15 0
Extra Super Do.	4 10 0	5 10 0	6 0 0
French Wool and Hair Mattress for use over spring	2 17 0	3 15 0	4 4 0
Extra Super Do. Do.	3 17 0	5 0 0	5 11 0
Feather Beds, Poultry, in Good Tick..	1 16 0	2 7 0	..
Do. Do. Grey Goose, in Bordered Linen Ticks	3 10 0	5 0 0	5 13 6
Do. Do. Best White Do. in best Linen	4 17 0	6 17 6	7 12 0

Feather Pillows, 3*s.* 6*d.* to 14*s.*; Bolsters from 6*s.* to 29*s.* 6*d.*
Down Pillows from 10*s.* 6*d.* to 17*s.* 6*d.*
Blankets, Counterpanes, and Sheets in every variety.

FURNITURE, in complete suites for Bedroom, of Mahogany, Birch, Fancy Woods, Polished and Japanned Deal, always on show. These are made by WILLIAM S. BURTON, at his Manufactory, 84, Newman Street, and every article is guaranteed. China Toilet Ware in great variety, from 4*s.* Set of Five Pieces.

THE BEST SHOW of IRON BEDSTEADS in the KINGDOM is WILLIAM S. BURTON'S. He has FOUR LARGE ROOMS devoted to the exclusive show of Iron and Brass Bedsteads and Children's Cots, with appropriate Bedding and Bedhangings. Portable Folding Bedsteads, from 11*s.*; Patent Iron Bedsteads, fitted with dovetail joints and patent sacking, from 14*s.* 6*d.*; and cots, from 15*s.* 6*d.*; handsome Ornamental Iron and Brass Bedsteads, in great variety, from £2 13*s.* 6*d.* to £20.

GASELIERS in GLASS or METAL.—The increased and increasing use of Gas in private houses has induced WILLIAM S. BURTON to collect from the various Manufacturers in Metal and Glass all that is new and choice in Brackets, Pendants, and Chandeliers, adapted to Offices, Passages, and Dwelling Rooms, as well as to have some designed expressly for him; these are ON SHOW over his TWENTY LARGE ROOMS, and present, for novelty, variety, and purity of taste, an unequalled assortment. They are marked in plain figures, at prices proportionate with those which have tended to make his Establishment the largest and most remarkable in the Kingdom, viz., from 12*s.* 6*d.* (two-light) to £23.

DISH COVERS and HOT-WATER DISHES, in every variety, and of the newest and most recherché patterns, are ON SHOW at WILLIAM S. BURTON'S. Block Tin, 19*s.* the Set of Six; elegant Modern Patterns, 35*s.* 6*d.* to 49*s.* 6*d.* the Set; Britannia Metal, with or without Silver-plated Handles, £3 2*s.* to £6 8*s.* the Set of Five; Electro-plated, £9 to £26 the Set of Four; Block Tin Hot-water Dishes, with Wells for Gravy, 12*s.* to 30*s.*; Britannia Metal, 22*s.* to 80*s.*; Electro-plated, on Nickel, full size, £9.

CUTLERY WARRANTED.—The most varied assortment of TABLE CUTLERY in the world, all warranted, is on Sale at WILLIAM S. BURTON'S, at prices that are remunerative only because of the largeness of the Sales.

Ivory Handles.	Table Knives per Dozen.	Dessert Knives per Dozen.	Carvers per Pair.
	s. d.	s. d.	s. d.
3¼-inch ivory handles	13 0	10 6	5 0
3¾-inch fine ivory balance handles	18 0	14 0	5 9
4-inch ivory balance handles	21 0	16 0	5 9
4-inch fine ivory handles	28 0	21 0	8 0
4-inch finest African ivory handles	34 0	27 0	12 0
Ditto, with silver ferules	42 0	35 0	13 6
Ditto, carved handles, silver ferules ..	55 0	45 0	18 6
Nickel electro-silver handles	25 0	19 0	7 6
Silver handles, of any pattern	84 0	54 0	21 0
Bone and Horn Handles—Knives and Forks per dozen.			
White bone handles	13 6	11 0	3 0
Ditto, balance handles	23 0	17 0	4 6
Black horn rimmed shoulders	18 0	15 6	4 6
Ditto, very strong riveted handles ..	12 6	9 6	3 0

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Candelabra	from 13*s.* 6*d.* to £16 10*s.* per pair.
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Pure Colza Oil, 3*s.* 4*d.* per Gallon.

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THE GARDENERS' CHRONICLE

AND

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A Newspaper of Rural Economy and General News.

No. 11.—1869.] SATURDAY, MARCH 13. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.
FIRST SHOW of HYACINTHS and SPRING FLOWERS, THIS DAY, SATURDAY, March 13. Doors open at Two. Band of Royal Horse Guards from Three. Admission 5s.

Royal Horticultural Society, South Kensington, W.
MR. WILLIAM PAUL'S SHOW of SPRING FLOWERS from THIS DAY, MARCH 13th, to the 20th.

ROYAL BOTANIC SOCIETY GARDENS, Regent's Park.—TUESDAY and WEDNESDAY NEXT, March 16 and 17. EXHIBITION of SPRING FLOWERS, HYACINTHS, CAMELLIAS, PRIMROSES, &c. Tickets, price 2s. 6d. each, to be had on the Orders from Fellows of the Society. Gates open at 2 o'clock. Band will play from 2.30 to 5.30. Schedules of Prizes may be had on application.

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JAMES CARTER AND CO. have a large stock of very fine Bulbs. Price on application.
237 and 238, High Holborn, London, W.C.

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Do. do. do., smaller, 7s. 6d. each.
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GARDENERS' CHRONICLE PUBLISHING OFFICE PENNY
NEWSPAPER

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Florence (Wills')	5 0	Defiance	5 0
Meteor (Smith's)	2 6	Memnon	2 6
Mrs. Dix	5 0	Queen Victoria (Perkins')	2 0
Antagonist	3 6	Sophia Dumaresque ..	1 6
Edwina Fitzpatrick ..	1 6	Lady Palmerston	1 6
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The above novelties, in good pots, to be sent out the first week in May. Usual discount to the Trade. Cash to accompany orders, payable at Hornsey Road, N., from unknown correspondents.

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NEW SEEDS of EXTRA CHOICE QUALITY, for EXHIBITION. Per packet.—s. d.

ASTERS, new Quilled Rose, Exhibition, 10 vars., separate .. 1 6
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For all other varieties of new and choice Flower Seeds, also new Vegetables and the choicest of Vegetable Seeds, see J. SCOTT'S "CATALOGUE," free on application to J. SCOTT, the Seed Stores, Yeovil, Somerset.

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THE WHOLE STOCK OF THE ABOVE BEAUTIFUL PLANT,

Raised by Mr. Tuke, Gardener to E. Nicholls, Esq., of Bramley, near Leeds, who also raised the lovely Dipladenia amabilis. A figure of the beautiful D. amœna is given in the "Florist" for April, 1868. Plants will be ready for distribution the first week in May.

Price, 1½ Guinea each.

Strong Half Specimens, 5 and 7 Guineas each.

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THOS. GIBBS & Co. Corner of HALF-MOON St PICCADILLY, London. ROYAL AGRICULTURAL SOCIETY OF ENGLAND. APPOINTED APR. 3, 1844. THE SEEDSMEN

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None genuine except in Sealed Bags, price 2s. per lb.

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"Mr. Lancaster informs Messrs. Barr and Sugden that he cut last year from one plant of Barr's International Cucumber 20 yards 15 inches of Cucumbers, the largest being 35½ inches long."—*Midlands, Southampton, Jan.* 8, 1869.

"The Rev. J. W. Brown has heard from Mrs. Todd, of Winchester, and she expressed herself as very much pleased with the satisfactory execution of the order for bulbs. Other friends of Mr. Brown, to whom he has recommended the firm of Barr and Sugden, have also expressed the same. Mr. Brown himself has always found the seeds, bulbs, &c., from their establishment to be of first-rate quality."—*Much Hadham, Nov.* 26, 1868.

If the readers of the *Gardeners' Chronicle* feel any interest in reading testimonials, they will find abundance of them in the trade circulars of our coadjutors. If the Editor of the *Gardeners' Chronicle* will give us the use of his valuable paper for one week, we will undertake to fill it with *bona fide* matter similar to the above; but our opinion has always been that "good wine requires no bush," and good seeds no Acts of Parliament.

B. & S.'s DESCRIPTIVE SPRING CATALOGUE of CHOICE SEEDS may be had free by intending purchasers. The Catalogue embraces every Novelty and Speciality in Flower and Vegetable Seeds worthy of notice, including a Special List of nearly 400 sorts of ALPINE and HERBACEOUS PERENNIALS, which have been saved from one of the most choice and extensive Collections in Europe; also a LIST of GLADIOLI, embracing the new kinds and all the older varieties worthy of cultivation. Also (offered for the first time in this country) a SPECIAL LIST of NEW TABLE MAIZE, from the Rev. T. C. Bréhaut, of Guernsey (Her Majesty's Commissioner at the Paris Exhibition of 1867 to report on the present state of Fruit Culture on the Continent, and author of "Cordon Training," "The Modern Peach Pruner," &c., &c.) The varieties embrace those most esteemed by our American Cousins, who use the green cobs as one of their popular Vegetables: in this country, they will come into use when the supply of Green Peas is becoming short, and will be found an agreeable substitute for Green Peas. For further particulars, see B. & S.'s SPRING SEED CATALOGUE, page 55.

BARR & SUGDEN'S COLLECTIONS of SEEDS and GLADIOLI,

Pure and Genuine, Home-grown when advisable, and direct from the Growers, &c., &c.

VEGETABLE SEEDS, 12*s.* 6*d.*, 15*s.* 6*d.*, 21*s.*, 31*s.* 6*d.*, 42*s.*, 63*s.*, 84*s.*, and 105*s.*
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ORNAMENTAL GRASSES for TABLE DECORATION, &c., 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, and 10*s.* 6*d.*
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CLIMBERS, CARNATIONS, PELARGONIUMS, HOLLYHOCKS, STOCKS, ASTERS, BALSAMS, ZINNIAS, LANTANAS, EVERLASTINGS, AQUATICS, PALMS, &c. Full particulars will be found in B. & S.'s DESCRIPTIVE SPRING CATALOGUE, which will be sent Free to intending purchasers.

BARR AND SUGDEN, 12, KING STREET, COVENT GARDEN, W.C.

WILLIAM ROLLISSON & SONS'

BRILLIANT NEW TRICOLOR GERANIUM, THE MOONSTONE,

WILL BE SENT OUT ON AND AFTER THE 30TH OF APRIL NEXT.

THE habit of the above most beautiful Tricolor is compact and exceedingly free; the leaves, which are of good substance and moderately large, are almost round, and from the slight convexity of their shape they exhibit to great advantage the rich and varied colourings with which they are adorned; the centre of the leaf is of a bright and lively green surrounded by a dark chocolate zone, which is much intercepted by the most intense blood-red. This bright colour shades off, towards the edge of the leaf, to a soft crimson-lake, which entirely encircles the whole zone, edged with a bright lemon-yellow belt. It is somewhat in the way of Lucie Grieve in its colourings, but is rather brighter, and, unlike the shy habit and slow growth of that variety, "The Moonstone" is almost as free in habit as a Tom Thumb, while it remains constant in character. This, without exception, is the finest Tricolor hitherto offered to the public.

THE FOLLOWING NINE SPLENDID NEW DOUBLE GERANIUMS FOR 1869,

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Together with many other Novelties of sterling merit, will be distributed on and after the 30th of April next.

For Descriptions and Prices of the above, see SPRING CATALOGUE of NEW and CHOICE SOFT-WOODED PLANTS for 1869, which will be sent Gratis and Post Free on application to

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RIVERS' ROYAL ASHLEAF KIDNEY	EARLY OXFORD
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FLUKE KIDNEY.

All fine stocks, free from disease, and low in price.

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SELECT AND GENUINE FARM SEEDS,

CARRIAGE FREE.

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OLD ESTABLISHED NURSERY AND SEED BUSINESS,

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THE FOLLOWING SPECIALITIES SUPPLIED AT THE CATALOGUE PRICE,

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ECHEVERIA METALLICA.—Fresh Seed now ready to send out, in pods containing from 20 to 50 seeds, with full directions as to culture. Few plants equal this grand House-Leek for subtropical or alpine succulent gardening, or for the decoration of the Conservatory; its large massive leaves, shaded with a purplish glaucous hue, are unique.

PYRETHRUM GOLDEN FEATHER.—A valuable plant for ribands, beds, edgings, &c. Raised from seed, it retains its beautiful golden hue longer than if propagated by cuttings or divisions.

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ORNAMENTAL GRASSES.
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MELONS.—Choice hybrid, our own raising; unequalled for their exquisite luscious flavour, fine shape, and beautiful lacing.
MELONS.—All the usual sorts in cultivation; seed saved from selected fruits only.
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Now Ready,

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SEEDS DIRECT FROM THE GROWERS — THE BEST MEANS OF PREVENTING DISAPPOINTMENT.

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No. 1 Collection, for a large garden, carriage free	£3 3 0
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DOBSONS' PRIZE and CELEBRATED FLOWER SEEDS, second to none in quality, in packets.
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GOLDEN FEATHER PYRETHRUM, (Pyrethrum parthenifolium aurea), new Golden-leaved Bedding Plant.—A dwarf hardy perennial, 6 to 9 inches in height, with beautiful golden leaves, of densely compact growth, unequalled for riband-rows or belts for the Flower Garden. It is perfectly hardy, and simply requires its flower-buds pinching off during the summer months, and stands through winter as a permanent gold edging plant. Produces its golden foliage true from seed. Sold in packets free by post, 1000 seeds, 1s. per packet. Any number of packets free by post. Seed our own saving of 1868. Trade supplied.
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NEW IMPORTED FLOWER SEEDS.—20 varieties TRUFFAUT'S PÆONY ASTER; 12 do. Dwarf CHRYSANTHEMUM do.; 6 do. ROSE do.; 6 do. CROWN do.; 24 do. Dwarf GERMAN TEN-WEEK STOCKS; 20 do. Large Flowering do. do.; 6 do. BROMPTON or WINTER do.; 10 do. Double WALLFLOWER. The above, or any less number of varieties, at 2d. each, or in mixed packets, 3d. and 6d. each. The seeds are of the very highest quality, as testified by numbers of growers in all parts of Great Britain, during many past seasons. All flower seeds in packets post free. CATALOGUES free on application.
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BEAUTIFUL NOVELTIES in the NEW ZEALAND FLAX (PHORMIUM TENAX).

Seeds of the following are offered, in fine condition:—
PHORMIUM TENAX, mixed, including these very fine and distinct sorts, viz.:—the Brown-edged, Black-edged, Red-edged, Variegated-leaved, and the superb new Scarlet-edged one, so justly praised in a recent Number of the *Gardeners' Chronicle*. Packets, 3s. 6d. and 5s.
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Also fine samples of
CORDYLINE INDIVISA (true), per packet, 1s.
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Prices to the Trade on application.
HOOPER & Co., Covent Garden, London, W.C.

Vegetable, Agricultural, and Flower Seeds.

MISCELLANEOUS HARDY BEDDING PLANTS, SWEET VIOLETS, &c.

ROBERT PARKER begs to announce that his CATALOGUE, containing DESCRIPTIVE LISTS of the finest kinds in cultivation of the above-named, is now published, and will be forwarded to applicants. The stocks of Seeds have all been procured from the best possible sources; all are warranted genuine, and are offered at the lowest possible prices.
Intending purchasers are requested to compare the prices with those of other houses.
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WALTHAM CROSS, LONDON, N.

GENUINE AND FIRST-CLASS SEEDS.

WILLIAM PAUL

BEGS TO ANNOUNCE THAT HIS

CATALOGUE OF SELECT VEGETABLE AND FLOWER SEEDS,

Including many Novelties, is now ready, and may be had Free by Post on application.

In proof of QUALITY he need only refer to the numerous Prizes awarded at various Horticultural Shows throughout the country, for both Vegetables and Flowers grown from his Seeds, and in regard to prices these are in all cases affixed on the lowest possible scale to be remunerative. The following Gardens in Hertfordshire, justly renowned for their Vegetables and Flowers, have long been supplied from his Seed Warehouse:—Brockett Hall, Panshanger, Danesbury, Poles, Digswell, Wyddial Hall, Woodhall, Youngsbury, Bedwell Park, Essendon Place, Campfield Place, Bayfordbury, Knebworth, Frogmore Hall, Childwickbury, Codicote Lodge, and many others of equal celebrity throughout the country.

To purchasers who are unacquainted with the best varieties of Vegetables and Flowers, or who wish to save the trouble of writing a List, the following Collections are made up on equally liberal terms with any other House in the Kingdom. All are of the best quality, and cannot fail to give the fullest satisfaction.

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No. 1. The WALTHAM COLLECTION of VEGETABLE SEEDS,
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Price £3 3s.

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Price £1 1s.

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INCLUDING THE FINEST IMPORTED ASTERS, STOCKS, &c.,
Price £2 2s.

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INCLUDING THE MOST EFFECTIVE FOR A SMALL GARDEN,
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No. 4. PAUL'S CHOICE COLLECTION of HOLLYHOCKS,
IN TWELVE DISTINCT NAMED SORTS,
Price 5s.

NOVELTIES, OR VARIETIES OF SUPERIOR MERIT.

BEET, Paul's Superb Crimson, 1*s.* per packet.
BROCCOLI, Lauder's Superb Protecting Late White, 2*s.* 6*d.* per pkt.
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BRUSSELS SPROUTS, Paul's Waltham, 1*s.* per packet.
CAULIFLOWER, Hill's Dwarf, 1*s.* 6*d.* per packet.
CAULIFLOWER, Superb Dwarf Hertfordshire, 1*s.* per packet.
CUCUMBER, Paul's Improved Telegraph (true), 2*s.* per packet.
*** This Variety was first sent out by me in 1861, and is distinct from many varieties of Telegraph, and acknowledged to be the most prolific and best flavoured of all Cucumbers.
ENDIVE, Waltham Green Curled, 1*s.* per packet.
LETTUCE, Brockett Hall Brown Cos, 1*s.* per packe .
LETTUCE, Hill's Compact Brown Cos, 1*s.* 6*d.* per packet.
PARSLEY, Paul's Selected Extra Curled, 6*d.* per packet.

FOR MORE PARTICULAR INFORMATION, SEE SEED CATALOGUE.

All Seeds, except very small parcels, Carriage or Post Free.

LILIUM AURATUM.—Flowering bulbs, 2*s.* to 7*s.* 6*d.* each; 18*s.* to 72*s.* per dozen.

GLADIOLI.—A very fine assortment to name, 6*s.* to 24*s.* per dozen.

ROSES.—A fine stock still on hand, Standards, Dwarf-standards, Dwarfs, and in pots for forcing.

FRUIT TREES.—Standards, Pyramids, and Dwarf-trained, and a large general Nursery Stock in excellent condition.

PRICED CATALOGUES, FREE BY POST.

☞ IMPORTANT.—To prevent confusion, all Letters should be addressed WILLIAM PAUL—the Christian name in full, as above.

Golden Coleus, Queen Victoria.

MESSRS. JOHN AND CHARLES LEE are now sending out this most beautiful and most brilliant of all Coleuses. The centres of the leaves are superb bronze, light crimson edged, with a double row of golden beads, richly broken with crimson veinings. QUEEN VICTORIA is of free growth and good habit, and has a truly regal appearance. First-class Certificate. Price 7*s.* 6*d.*

Messrs. LEE also offer COLEUS PRINCESS ROYAL.—Colour and habit the same as Queen Victoria, except that the golden margin is much narrower. A superb variety. First-class Certificate. Price 7*s.* 6*d.*

COLEUS ALBERT VICTOR.—Centre of leaves brownish-red, shaded with purplish maroon; golden margin very broad. Very distinct and effective. A strong grower. First-class Certificate. Price 7*s.* 6*d.*

The Set of Three for 20*s.* Usual allowance to the Trade.
Royal Vineyard Nursery and Seed Establishment, Hammersmith.

New Golden Coleus.

DOWNIE, LAIRD, AND LAING can supply the whole series raised at the Royal Horticultural Society's Gardens, Chiswick, at advertised prices, after March 16.
CATALOGUES free on application.
Stanstead Park, Forest Hill, S.E.; and at Edinburgh.

New Golden Coleus.

DOWNIE, LAIRD, AND LAING, have much pleasure in offering the following beautiful and distinct novelties, which they feel assured will give every satisfaction. Each has received First-class Certificates, and will be sent out on March 16 next, at 7*s.* 6*d.* each:—

ALBERT VICTOR, a very distinct tricolored variety, the centre of the leaves being bronzy-red, stained with large blotches of deep purplish-carmine, and the golden margin is very broad, much more so than in any other of the new golden sorts; the marginal teeth are also marked out by rich carmine lines. It has a very free habit of growth.

BARONESS ROTHSCHILD, an exquisitely beautiful variety, the centre of the leaves being of a bright bronzy-crimson, without stains or blotches, margin bright golden, and the teeth beautifully marked with light carmine. In habit of growth it resembles Albert Victor.

PRINCESS BEATRICE, a charming variety, of a beautiful light golden hue, the main veins being slightly marked, and the margin entirely defined by dark crimson lines, dwarf, and fine.

PRINCESS ROYAL.—The centre of the leaves are a rich bronzy-crimson, with a narrow bright yellow margin, a handsome and most effective pot plant, and a most desirable variety for bedding, being very bright, and nearly an entire colour, a free grower.

Stanstead Park, Forest Hill, London; and Edinburgh.

New List of Biennials.

THOMAS S. WARE has much pleasure in announcing that his new CATALOGUE of BIENNIALS, including Herbaceous, Alpine, and Tuberous-rooted Plants, is now ready, and will be forwarded on application.
Hale Farm Nursery, adjoining the Tottenham Station, Great Eastern Railway, Cambridge Branch.

Spring Flowers.

LEWIS S. WOODTHORPE offers the following, cheap:—

	Per dozen.—*s.*	*d.*
Violets, Queen of Violets, double white	4	0
,, King of Violets, indigo blue	4	0
,, double red, large and attractive	4	0
,, ,, Neapolitan, very fine lilac	3	0
,, ,, tree, true	4	0
,, single, the Czar, very large and fine	4	0
,, ,, Devoniensis, fine	3	0
Hepaticas, double red, single pink, single red and blue	2	6
,, single mauve, new, each	1	0
Daisies, Bacchus, Magpie, Pink Beauty, Queen of Whites, Red Rover, Rosy Gem, and others	3	0
,, gold blotched, aucubæfolia	3	0
Œnothera missouriensis	3	0

	Per dozen.—*s.*	*d.*
Auriculas, finest mixed Alpines	2	6
,, Perrin's, red and single blue	3	0
,, fine named varieties	12	0
Calceolaria aurea floribunda	1	0
,, Prince of Orange	1	0
Helianthemum, or dwarf Rock Cistus	3	0
Picotees, crimson Clove, blush Bouquet Clove, and new early improved Anna Boleyn Pink	4	0
Phlox, Pentstemons, Chrysanthemus, all the best kinds of 1867	4	0
Nierembergia rivularis	6	0
Primroses, double white and lilac	3	0
Rockets, double white and purple	3	0
Hollyhocks, fine new named varieties	5	0

Munro Nursery, Sible Hedingham, Essex.

Must be Sold, to make room.

L. WOODTHORPE offers the following, to effect a clearance:—Strong Fruiting VINES, 10 to 12 feet in length, and thick in proportion, 3*s.* 6*d.* each. Extra strong, will carry 8 to 10 bunches, 5*s.* each.
Munro Nursery, Sible Hedingham, Essex.

Strong Vines from Eyes.

MESSRS. JOHN AND CHARLES LEE can supply strong well-ripened CANES of all the leading varieties of GRAPE VINES. Planting Canes, 5*s.* each; Fruiters, to bear nine or ten bunches, 10*s.* 6*d.* each.
DESCRIPTIVE CATALOGUES on application.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

Madresfield Court Black Muscat Vine.

MESSRS. JOHN AND CHARLES LEE are now executing orders for this superb new late-keeping MUSCAT GRAPE, price £2 2*s.* each. Strong Fruiting Canes, £3 3*s.* each.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

New Roses for 1869.

MESSRS. JOHN AND CHARLES LEE have selected Twenty of the most beautiful and distinct of the new CONTINENTAL ROSES for 1869, which they intend to send out in March, and among which they particularly recommend CHARLES LEE as being first-class in every respect.
DESCRIPTIVE PRICED CATALOGUES post free on application.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

CORDON APPLE TREES, on the true French Paradise Stock, as recommended by Mr. Robinson in his "Gleanings from French Gardens." All the best kinds, including CALVILLE BLANC, REINETTE DU CANADA, and other sorts. Prices upon application.
B. S. WILLIAMS, Victoria and Paradise Nursery, Upper Holloway London, N.

ORANGE TREES for SALE.—Two trees in Pots, clear stems, 5 feet; Six others about 4 feet, bushy plants; Three larger, in Tubs, fruiting; and Twenty others from 6 to 10 feet high,—large plants, fit for immediate Tubbing, their roots having been pruned in the last two seasons. For price, &c., apply to Mr. J. GILBERT, Nurseryman, Ipswich.

FINE ORANGE TREES for SALE.—Ten very handsome Trees, in robust health, loaded with Fruit; clean, straight stems, about 4 feet; symmetrical heads, 5 feet diameter. One CITRON, same size. In ornamental green tubs.
Apply to the GARDENER, Woburn Park, Weybridge, Surrey. Inquiries by post address FRANCIS R. KINGHORN, Sheen Nursery, Richmond, S.W.

SPECIAL OFFER to the TRADE.
STANDARD TRAINED APRICOTS, PEACHES, and NECTARINES
PYRAMIDAL and FRUITING APPLES, in 100 sorts
Large-flowering LAURUSTINUS, 3 to 4 feet
Ditto bushy COMMON LAURELS, 6 to 7 feet
Ditto ENGLISH YEWS, 4 feet [1½ to 4 ft.
Ditto RHODODENDRON PONTICUM, fine flowering plants,
EVERGREEN PRIVET, 3 to 4 feet
BERBERIS DARWINII, 2 to 3 feet
The above are as good plants as were ever offered, and prices will be moderate and terms cash.
WM. KNIGHT, Floral Nursery, Hailsham, Sussex.

GOLD and SILVER FERNS.—Gymnogramma chrysophylla Martensii, and Pteris cretica albo-lineata, good plants, 12 for 10s.; 25 for 18s. Package free. Trade price per 100 on application.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

To Railway and Enclosure and Cover Planters.

S. ROBINSON has to offer from 70,000 to 100,000 Bedding and Transplanted QUICKS; also about 1200 fine 3-yr. CORSE PLANTS, from 1½ to 2½ feet, and a quantity of PRIVET, different sizes. Samples sent on application.
Shaw House, Melbourne.

RHODODENDRONS by the doz., 100, 1000, or 10,000

	Per 100	Per 1000
RHODODENDRON PONTICUM, fine bushy plants, well rooted .. 9 to 15 inches	s. d. £ s. d. 3 0 0 15 0	£ s. d. 7 0 0
" " " " 1 to 1½ foot	4 0 1 0 0	9 10 0
" " " " 15 to 20 inches	4 0 1 2 6	11 0 0
" HYBRIDUM, bushy plants, 9 to 15 inches	4 0 1 5 0	..
" " " " 1 to 1½ foot	5 0 1 10 0	..
" " " " 1½ to 2 feet	6 0 2 0 0	..
" MAXIMUM ALBUM " 1 to 1½ foot	4 0 1 5 0	12 0 0
" " " " 15 to 20 inches	5 0 1 10 0	14 0 0
" " " " 1½ to 2 feet	6 0 2 0 0	..
The above sorts selected in bloom bud 2s. doz. ex.		
" HIRSUTUM, dwart Alpine, nice bushy plants	3 0 0 15 0	7 0 0
" 120 named varieties, 1, 2, and 3 year, from grafts, 1s. 6d. to 3s. 6d. each.		
Hardy HEATHS, 40 varieties, nice plants, by the dozen, 100, or 1000, very cheap. See Catalogue.		
ARBOR-VITÆ, American, fine bushy well-rooted plants, fine for single plants or hedges .. .. 1½ to 2 feet	2 0 0 12 0	..
" " " " " 2 to 2½ feet	2 6 0 15 0	..
" " " " " 2½ to 3½ feet	3 0 0 18 0	..
" " " " " 3½ to 4½ feet	4 0 1 5 0	..
" " " " " 4 to 5 feet	5 0 1 10 0	..
" " " " " 5 to 6 feet	10 0 ..	..
Double "WHIN," FURZE or "GORSE," good plants, extra transplanted 1 to 1½ foot	3 0 0 12 0	..
" " " " 15 to 20 inches	4 0 0 15 0	..
" " " " nice plants in pots	4 0 1 0 0	..
COTONEASTER MICROPHYLLA, nice bushy plants .. .. .. 1 to 1½ foot	.. 0 12 0	5 0 0
" " " " 1½ to 2 feet	.. 0 15 0	..

PRICED CATALOGUES and any information may be had on application to
JAMES SMITH, Darley Dale Nurseries, near Matlock.

Genuine Seeds.—Carriage Paid.

B. S. WILLIAMS,
NURSERYMAN AND SEEDSMAN,
Victoria and Paradise Nursery, Upper Holloway, London, N.

COMPLETE COLLECTIONS
OF
KITCHEN GARDEN SEEDS
To suit Gardens of various sizes,
10s. 6d., 21s., 42s., 63s., and 84s. each.

NEW and CHOICE VEGETABLE SEEDS.	Per Pkt. s. d.
WILLIAMS' IMPROVED GREEN CURLED BORECOLE..	0 6
WILLIAMS' ALEXANDRA BROCCOLI	1 6
DELL'S FINE DARK BEET	1 0
WILLIAMS' MATCHLESS RED CELERY	1 0
SHARMAN'S UNIVERSAL CUCUMBER (new)	1 6
TELEGRAPH IMPROVED (Woolley's variety)	1 6
WILLIAMS' PARADISE GEM MELON, scarlet flesh, of excellent flavour, and 12 days earlier than any other in cultivation (new)	2 6
WHEELERS' TOM THUMB LETTUCE	0 6
DIGSWELL PRIZE ENDIVE..	1 0
WILLIAMS' VICTORIA COS LETTUCE (new)	1 0
MALVERN HALL MELON	1 6
GOLDEN QUEEN (New Hybrid Prize) MELON	2 0
BEDFORDSHIRE CHAMPION ONION (new)	1 0
NUNEHAM PARK ONION .. .. 1s. and	1 6
CULLINGFORD'S CHAMPION MARROW PEA, an excellent cropper, and fine flavour (new) .. .. per qrt.	3 6
MACLEAN'S LITTLE GEM PEA (very early) .. .. "	2 6
LEE'S GIANT ORACH .. .. per pkt.	0 6
ORANGEFIELD DWARF PROLIFIC TOMATO "	1 0

NEW and CHOICE FLOWER SEEDS.	Per Pkt.
WILLIAMS' SUPERB STRAIN of PRIMULA.—B. S. W. can with confidence offer his superb strain of Primula as being the finest in cultivation.	
Red, White, or Mixed .. .. .. 2s. 6d., 3s. 6d., and	5 0
CINERARIA (Weatherill's extra choice strain) .. 2s. 6d. and	3 6
CALCEOLARIA (Neill's extra choice strain), 2s. 6d., 3s. 6d., and	5 0
" (James' strain) .. .. .. 2s. 6d. and	3 6
" (Dalkeith Palace strain)	2 6
CYCLAMEN (Wiggins' prize strain) .. 1s. 6d., 2s. 6d., and	3 6
POLYANTHUS (Wiggins' prize strain) .. .. 1s. 6d. and	2 6
BALSAM (Williams' superb strain) .. .. .. 1s. 6d. and	2 6
CLIANTHUS DAMPIERI (fresh imported seed)	1 6
GERANIUM LE GRAND .. .. 1s. 6d. and	2 6
SOLANUM (Weatherill's hybrids) .. 2s. 6d., 3s. 6d., and	5 0
VIOLA LUTEA (yellow flowered Violet) .. .. 1s. 6d. and	2 6
WALLFLOWER (Saunders' fine dark variety)	1 0
SALVIA ARGENTEA, a beautiful silvery-foliaged ornamental plant	1 0
DIANTHUS HEDDEWIGII DIADEMATUS fl.-pl., flowers very large, and colours most beautiful (new)	2 6
ECHEVERIA METALLICA (new Bedding plant).	
OXALIS VALDIVIANA, quite hardy, the flowers are bright yellow and sweet scented, and produced in bunches of large size (new)	1 0
PALAVA FLEXUOSA, very pretty annual (new)	1 0
MYOSOTIS AZORICA ALBA, the flowers are pure white, contrasting beautifully with the blue variety Coelestina (new) .	2 6
STOCK, EAST LOTHIAN.—This is a splendid variety, of dwarf and compact habit, producing immense spikes of bloom, and very double. They make a grand display in beds, and for ribbon borders. Per collection of three colours (Scarlet, Purple, and White)	2 6
TACSONIA VAN VOLXEMI (a beautiful Climber	2 6
AMARANTHUS SPECIOSUS AUREUS (New Golden Princes Feather)	1 0
ANTIRRHINUM ASARINA, very beautiful for rockwork (new)	1 0
HELICHRYSUM APICULATUM (new)	1 0
MIMULUS REPENS, this is a very distinct species, the flowers are of a pale lilac-purple colour, the lower lip being prettily spotted with orange on a yellow ground (new) ..	1 0
ABRONIA ARENARIA, the flowers are of a pure waxy yellow, deliciously scented, and produced in long succession (new)	1 0
ZINNIA ELEGANS TAGETIFLORA fl.-pl. (new)	1 0

Imported GERMAN ASTERS, STOCKS, WALLFLOWERS, ZINNIAS, &c., in Collections, as imported.

GLADIOLI ROOTS, named kinds, per doz., 4s., 6s., 8s., 10s., and 12s. BRENCHLEYENSIS, fine large roots, 3s. per doz., 20s. per 100.

ENGLISH-GROWN SEEDLING GLADIOLI.

B. S. WILLIAMS can strongly recommend these SEEDLING GLADIOLI. Being all Seedling Roots, they can be warranted to flower strongly, and will produce blooms possessing colour and qualities, perhaps, entirely new. For Masses and Borders these were much used last season, and gave great satisfaction. Price, per doz., 4s.; per 100, 30s.

Victoria and Paradise Nursery, Upper Holloway, London, N.

Fruit the First Season.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON respectfully solicit attention to their enormous stock of FRUIT TREES in a fruit-bearing state.

PYRAMIDAL APPLES and PEARS, full of fruit buds.
Apples, 18s. per dozen; Pears, 24s. per dozen.
DWARF-TRAINED TREES, of extra size, in a fruiting state, adapted for walls or espaliers, including Apples, Pears, Plums, Cherries, &c.
STANDARD TRAINED FRUIT TREES for walls.
PRICED CATALOGUES may be had gratis on application.

Walton Nursery, Liverpool.

WM. SKIRVING begs to offer to the Trade, or Gentlemen planting extensively, at very low prices, a few Thousands of fine well-grown ARAUCARIA IMBRICATA, averaging from 2½ to 6 feet high, all of which have been removed within two years. Having many acres of his Nursery to clear for building, a very low price will be accepted.

TO CLEAR the GROUND, the following Offer is made:—
BERBERIS DARWINII, 9 to 15 inches, 25s. per 100.
" DULCIS, 12 to 18 inches, 10s. 6d. per 100.
" AQUIFOLIA, 9 to 12 inches, 10s. 6d. per 100.
LIGUSTRUM OVALIFOLIUM, 18 to 24 inches, 5s per 100.
COTONEASTER SIMMONSII, 36 to 48 inches, 25s. per 100.

To Clear the Ground,
The finest varieties of DWARF ROSES are offered at HALF PRICE.

To Clear the Ground,
A large quantity of Hybrid Seedling RHODODENDRONS, from 1 foot to 3 feet high (very bushy), will be Sold at HALF PRICE.

To Clear the Ground,
Some very fine 2 and 3-yr. Dwarf-trained PEACHES and NECTARINES will be Sold at HALF PRICE.

To Clear the Ground,
Some magnificent TEA ROSES, in Pots, will be Sold at HALF PRICE.
Apply to CHARLES NOBLE, Bagshot.
Send for a CATALOGUE.

Gratis and Post Free on application.

DICK RADCLYFFE AND CO.'S SEED CATALOGUE.

129, High Holborn.

DICK RADCLYFFE & Co.'s
AGRICULTURAL SEEDS,
VEGETABLE SEEDS,
FLOWER SEEDS,
GARDENING REQUISITES, &c. &c.

DICK RADCLYFFE & Co.
Seedsmen, Florists, &c.,
129, High Holborn.

The American Nursery, Bagshot, Surrey.

JOHN WATERER respectfully invites the attention of Gentlemen and others engaged in planting to the undernamed selections from his general stock. He has much satisfaction in recommending them as being symmetrically grown and really of first-rate excellence, and from frequency in removal are in an excellent state for transplanting. Having a very large stock, he is determined to treat on most liberal terms. He would, however, earnestly invite Growers to make a visit and choose for themselves, which is easily accomplished by South-Western Railway (Reading Branch) to Sunningdale Station, which is near the Nursery.

RHODODENDRONS (Standards).—Of all the leading choice, scarlet, and other varieties, 3 to 4 feet stems, consisting of such as Alexander Adie, Michael Waterer, The Warrior, Princess Mary of Cambridge, Quadrona, Mrs. Ino Penn, Joseph Whitworth, and all such others as have been exhibited annually at the Royal Botanic Gardens, Regent's Park.
RHODODENDRONS (Half Standards)—Of all the approved kinds; 2 to 3 feet stems.
RHODODENDRONS.—Hardy scarlet, crimson rose, white; for superior clumps or borders fine well-grown plants. An excellent assortment would be supplied at £15 per 100. Fine bushy plants can also be supplied, averaging 3 to 5 feet.
RHODODENDRONS.—Immense quantities of really good coloured seedlings, with Catawbiense and Hybrid Catawbiense, 1½ to 2 and 3 feet, £10 to £12 10s. per 100. These varieties are very suitable for admixture with the better kinds. The plants are bushy, and mostly well set with blooming buds, and from rose to white in colour.
RHODODENDRONS (Dwarf-growing kinds).—These are very close growing varieties, and are recommended for filling winter beds. Daphnoides, Myrtifolium, and Hybridum are the best suited for such purposes. Odoratum is delightfully scented, and much used for potting and forcing.
RHODODENDRON PONTICUM.—This kind is the most common, and now generally admitted to form the best permanent cover for game. In the most severe weather it is never injured by hares or rabbits. Good plants, 21s. to 30s. per 100.
AZALEAS, HARDY, of the most popular kinds, of all colours, and in fine plants, covered with a profusion of blooming buds. These are much used for forcing. 18s. to 30s. per dozen.
ANDROMEDA FLORIBUNDA.—One of the most hardy plants used for decorating winter clumps. Of these we are large holders, and can supply beautiful specimens at 30s. per dozen, covered with blooming buds.
KALMIA LATIFOLIA and MYRTIFOLIA.—Fine grown plants, of all sizes.
HARDY HEATHS.—A very fine collection, in 20 kinds, 30s. per 100.
ABIES NORDMANNIANA.—Of this fine kind we are very large holders, all of which are seedlings, and of all heights, from 2 to 4 to 6 to 8 and 10 feet.
ABIES MAGNIFICA.—Fine specimens, 2 to 5 feet.
ABIES NOBILIS.—All seedlings, 1½ to 3 to 5 feet.
ABIES LASIOCARPA.—From 2 to 3 to 5 to 7 feet.
ABIES GRANDIS (of Douglas).—Fine specimens, 2 to 6 feet.
ABIES DOUGLASII.—3 to 4 to 6 to 10 feet.
ABIES PINSAPO.—2 to 3 to 5 to 10 feet.
ARAUCARIA IMBRICATA.—Fine specimen, 2 to 4 to 6 to 12 feet
THUJOPSIS BOREALIS.—2 to 3 to 4 to 6 feet.
THUJA AUREA.—All sizes, 2 to 4 to 6 feet, perfect globes.
THUJA GIGANTEA.—Immense quantities, from 3 to 4 to 6 feet.
WELLINGTONIA GIGANTEA.—Of all sizes from 2 to 12 feet.
IRISH YEW.—Selected specimens, 4 to 12 feet.
HOLLIES (Green).—Fine, 2 to 3 to 4 to 6 feet.
HOLLIES (Gold and Silver).—In the most approved kinds, of all sizes.
STANDARD GOLDEN HOLLY (WATERER'S).—The best for standards; fine plants.
STANDARD WEEPING HOLLIES (Green and Variegated).
We have likewise immense quantities of the leading kinds of EVERGREENS, of all sizes, such as Yews, Box, Bays, Aucubas, Arbutus, Phillyreas, Common and Portugal Laurels, &c., as well as fine strong transplanted FOREST TREES, 2 to 3 and 4 feet, consisting of Ash, Beech, Alder, Spanish Chestnut, Hazel, Withy, Larch, Spruce, Pinus austriaca, &c.
CATALOGUES describing the colours of all the RHODODENDRONS worthy of cultivation, with a LIST of CONIFEROUS PLANTS, with heights and prices, forwarded to all applicants.
☞ Purchasers of large quantities of goods are informed that the great expense incurred by package is now greatly diminished, as we can forward from Sunningdale, in through trucks without change, to all Stations on the Great Northern, North-Western, Eastern Counties, and Great Western (narrow gauge) Railways; also by South-Eastern and Brighton Lines by way of Blackwater.
The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway, and Blackwater Station, South-Eastern Railway, where excellent Conveyances await all Trains.

Green Hollies.

CHIVAS AND WEAVER have a large stock of the above specially handsome plants, up to 8 feet high; also SPRUCE FIRS, from 2½ to 3 feet, and 3 to 3½ feet, which they are offering at very low prices, which may be had on application.
Chester.—March, 1869.

ABIES DOUGLASII.—1½ to 2 feet, 80s. per 100; 2 to 3 feet, 100s. per 100; 3 to 4 feet, 20s per dozen; 4 to 5 feet, 30s. per dozen; 5 to 6 feet, 40s. per dozen. They are all fine plants, and have been transplanted three and four times, all having been transplanted last spring, and well lift with excellent balls. Trade price on application.
DICKSON & TURNBULL, Nurserymen, Perth.

ONE MILLION FOREST TREES, transplanted, well rooted stuff, &c., at very moderate prices, of Ash, Elm, Birch, Sycamore; Poplar (Abele), Ontario, &c.; Willow, Babylonian, Weeping and Huntingdon, in sizes, from 2 to 3, 3 to 4, 4 to 5, and 6 to 6 feet; Privet, Alder, Spruce, and Scotch Fir, 1½ to 2, and 2 to 3 feet; Silver Fir, 1 to 1½, and 1½ to 2 feet; Yew, English, extra strong, and well rooted and bushy, 4 to 6 ft.; Laurel, Common, 1½ to 2, and 2 to 2½ ft., bushy, and well rooted.
GOOSEBERRIES—Ashton Seedling and others, fine, can be supplied by the 1000
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

The Planting Season.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON respectfully invite especial attention to their very large stock of STANDARD ORNAMENTAL TREES, of large size, suitable for planting as single specimens on Lawns or in Parks where immediate effect is desired.
WEEPING ASH, 7 to 9 feet stems.
" AMERICAN WILLOWS, 6 to 7 feet stems.
CATALPA SYRINGÆFOLIA, 6 to 8 feet.
ELMS, CHICHESTER and ENGLISH, 8 to 10, and 10 to 12 feet.
SILVER and SPRUCE FIRS, 6 to 7 feet.
HORSE-CHESTNUTS, 6 to 8, and 8 to 10 feet.
SCARLET HORSE-CHESTNUTS, extra fine plants, 6 to 8, and 8 to 10 feet.
LABURNUMS, Yellow and Purple, 6 to 8 feet.
POPLARS, BLACK ITALIAN and LOMBARDY, extra fine, 8 to 10, and 10 to 12 feet, and various other HARDY TREES.
See PRICED CATALOGUES, which may be had free on application.

Plants for Hedges.

TWO HUNDRED THOUSAND COMMON LAURELS, from 1½ to 3 feet.
WM. WOOD & SON.

AMERICAN ARBOR-VITÆ, especially recommended for Hedges:—2 to 3 feet, 6s. per dozen, 40s. per 100; 3 to 4 feet, 9s. per dozen, 60s. per 100; 4 to 5 feet, 18s. per dozen (extra fine), 100s. per 100.
Extra fine Transplanted BEECH and HORNBEAM, 2 to 3 ft. and 3 to 4 feet; also fine EVERGREEN PRIVET, in large quantities.
WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

CHOICE SEEDS.

FLESH-COLOURED MEXICAN KIDNEY BEAN.—We consider this variety as the earliest in cultivation. It is likewise very prolific, and of excellent quality. 3s. per quart.
LAUDER'S SUPERB LATE WHITE BROCCOLI.—Recommended by Mr. Thomson, Dalkeith, as a splendid variety, very large, beautifully white, and heading till the middle of June "like enormous Cauliflowers." 2s. 6d. per packet.
SMITH'S SUPERB PROTECTING BROCCOLI.—An excellent hardy Spring Broccoli, of dwarf growth, with large compact head, abundantly protected. Well adapted for cold soils and exposed situations. 1s. per packet.
MITCHELL'S GREEN-CURLED KOHL RABI.—A very beautiful variety, well adapted for garnishing, the edges being crisply curled, and well-formed for dishing fruit, &c. 1s. per packet.
LEE'S GIANT ORACH, or SUMMER SPINACH. 1s. per packet

SELECT FLOWER SEEDS.

AMARANTHUS ELEGANTISSIMUS.—A great acquisition for bedding and ribbon borders, being of dwarf compact habit, and producing a brilliant effect with its rich scarlet-tinted bronzy-purple leaves. 1s. per packet.
ASPERULA AZUREA SETOSA.—A profuse-blooming hardy Annual, of dense habit, growing about one foot, and covering itself with bunches of light blue flowers. Very sweet-scented, and lasting a long while in perfection. 1s. per packet.
BEET, VARIEGATED.—Highly ornamental for border decorations, the stem and midribs being brightly coloured scarlet, yellow, or white. Each variety, per packet, 6d.; the three colours mixed, 1s.
LINARIA ALPINA.—A very pretty rock or border plant, blooming continuously for several months; of dwarf growth, with an abundance of bright purple orange-centred flowers. 6d. per packet.
MALCOMIA INCRASSATA.—A distinct species of Virgin Stock, resembling in general appearance the well-known M. maritima, but is of more robust habit, with larger, brighter coloured and more enduring flowers—points of much importance in an Annua so extensively cultivated. 6d. per packet.
MATTHIOLA BICORNIS.—This night-scented Stock has proved itself a worthy addition to the number of our hardy Annuals. 6d. per packet.
MATTHIOLA TRICUSPIDATA.—This choice new species is quite distinct from the preceding. It forms branching masses, covered with a profusion of mauve-lilac flowers. These continue long in bloom, remain expanded during the day as well as in the evening, and constantly exhale a delicate and delicious fragrance. Growth free and even, producing a fine effect in a bed or mass. 1s. 6d. per packet.
OXALIS VALDIVIANA.—Flowers bright yellow, sweet-scented, and produced in bunches of large size, which continue long in bloom. Reported as quite hardy and of good habit. 1s. p. packet.
PALAVA FLEXUOSA.—Described as a beautiful new Annual, growing to an average height of 15 or 18 inches, and producing in the greatest profusion flowers of a bright rosy-pink, fading slightly towards the centre, with a dark eye. 1s. per packet.
VIOLA CORNUTA, MAUVE QUEEN.—6d. per packet.
A Collection of Six ORNAMENTAL VARIETIES of FLOWER SEEDS suitable for ROCKERIES, 3s.
DESCRIPTIVE CATALOGUE of FLOWER SEEDS sent free on application. JAS. BACKHOUSE & SON, York.

J. C. WHEELER AND SON.

WHEELERS' GUINEA COLLECTION of GARDEN SEEDS comprises the finest varieties in cultivation; for details see "WHEELER'S LITTLE BOOK for 1869," price 6d., post free.
J. C. WHEELER & SON, Seed Growers, Gloucester, and 59, Mark Lane, London, E.C.

"WHEELERS' TOM THUMB LETTUCE is a wonderful favourite with my family and friends; for a Summer Lettuce I have never seen its equal."—G. F. A. FLOWER, Stafford Farm. 1s. per packet, post free.
J. C. WHEELER & SON, Gloucester.

"WHEELERS' MILKY WHITE is the best of all Potatos, and those who do not grow it may consider themselves rather behind the age."—SHIRLEY HIBBERD, F.R.S. 4s. per peck, 15s. per bushel.
MILKY WHITE.—"This I received from the well-known firm of Messrs. Wheeler & Son, Gloucester. It is one of the handsomest Potatos grown, and well deserves its name, for it is most beautifully white, very floury, and one that I do not hesitate to regard as first-rate. It is also a very free bearer." D. DEAL. 4s. per peck, 15s. p. bush.

ONE PECK of WHEELERS' MILKY WHITE and ONE GUINEA COLLECTION of GARDEN SEEDS sent carriage free by rail on receipt of cheque or Post-office order for 25s.
J. C. WHEELER & SON, Seed Growers, Gloucester, and 59, Mark Lane, London, E.C.

WHEELERS' GRASS SEEDS for CROQUET GROUNDS should now be sown at the rate of 10lb. per acre, a good dressing of soot applied, and the ground well rolled. Price 1s. per lb., 20s. per bushel, carriage free.
J. C. WHEELER & SON, Seed Growers, Gloucester, and 59, Mark Lane, London, E.C.

SPECIMEN PELARGONIUMS.

JOHN FRASER,

LEA BRIDGE ROAD NURSERIES, LONDON, N.E.,

BEGS TO ANNOUNCE THAT HE WISHES TO MEET WITH A PURCHASER FOR A PORTION OR THE WHOLE OF HIS

SPLENDID SPECIMEN PELARGONIUMS.

THESE PELARGONIUMS CONSIST OF THREE CLASSES, VIZ., CHOICE LARGE FLOWERING, ZONAL, AND FANCY.

It may be distinctly and positively said that such Collections of Fine Plants were never yet offered for Sale.

The quality of the kinds, the health, vigour, size, and symmetry of the specimens is quite extraordinary; and such a display of floral beauty, combined with grandeur and elegance, as the plants will give from May till July, cannot be met with in any other class of cultivated plants.

These Pelargoniums are not offered for Sale because they are worn-out and declining; on the contrary, they were never in such fine condition as they are at the present time: and as the Collection has been enriched from year to year with the best of the latest improvements, there is no doubt that Purchasers will be abundantly satisfied with what they may buy.

The object of the Proprietor in parting with these Specimens, is solely with a view to have more room to cultivate a larger quantity of young stock.

It is perhaps unnecessary to bring to the recollection of the Gardening world the numerous FIRST PRIZES with which these Plants have been honoured, and they are still in condition to take the first position in competition with any collection in this country, or it may be fairly said in the world.

The Prices, which are very moderate, particularly for the Collections entire, may be had on application.

CHOICE PRIMULA SEEDS.

B. S. WILLIAMS

BEGS TO CALL SPECIAL ATTENTION TO HIS SUPERB STRAIN OF THIS

UNIVERSALLY ADMIRED WINTER AND SPRING FLOWERING PLANT.

He can with confidence offer it as being unequalled in cultivation.

Plants from this Seed have always been awarded First Prizes wherever exhibited. B. S. W.'s strain of Primula is so well known to all the principal gardeners in the three kingdoms that testimonials are unnecessary.

In sealed packets, Red, White, or Mixed, 2s. 6d., 3s. 6d., and 5s. each.

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

CYCLAMEN PERSICUM (HYBRIDS).

B. S. WILLIAMS

HAS GREAT PLEASURE IN OFFERING

SEEDS OF HIS SUPERB VARIETIES OF CYCLAMENS,

Which are much superior to those sent out by him last season, being saved from the plants exhibited by Mr. Wiggins, at the Meeting of the Royal Horticultural Society, at Kensington, on Tuesday last (Feb. 16), when they were pronounced far in advance of any ever before raised, both in point of size of flower and richness of colour, which varies from pure white to mauve and deep red; many of them in addition being beautifully striped and spotted, and deliciously fragrant. Seeds sown in heat from the present time until the end of March, can be grown to produce flowers within 12 months.

B. S. W. having made arrangements for the supply of all Mr. Wiggins' Seed, it can only be had genuine in sealed packets bearing his name and address.

In Sealed Packets, 1s. 6d., 2s. 6d., and 3s. 6d. each.

B. S. WILLIAMS, VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, N.

B. S. WILLIAMS,

NURSERYMAN AND SEEDSMAN,

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.,

Respectfully invites the Nobility and Gentry about to furnish their Conservatories, Greenhouses, Stoves, or Orchid-houses, to an inspection of his

STOCK OF MAGNIFICENT SPECIMEN PLANTS,

MANY OF WHICH ARE UNEQUALLED IN THIS COUNTRY.

THEY CONSIST OF—

The Choicest and rarest Exotics, such as TREE-FERNS, PALMS, BEAUCARNEAS, AGAVES, YUCCAS, CYCADS, ARALIAS, CAMELLIAS, AZALEAS, and all other kinds of STOVE and GREENHOUSE FLOWERING and ORNAMENTAL FOLIAGE PLANTS, proved to be worthy of cultivation.

The Large CONSERVATORY, at all times of the year well worth a visit, is now unusually gay with flowers of Camellias, Azaleas, Ericas, Epacris, the magnificent varieties of Cyclamen persicum, obtained from Wiggins' strain of seed, Williams' superb Chinese Primulas; the beautiful improved Hybrid Solanums, now laden with their large and highly ornamental berries; Hyacinths, and many other Spring Flowering Plants, also helping to make a grand floral display.

The STOVES and ORCHID-HOUSES are also very attractive and interesting just now, with blooms of Odontoglossums, Cypripediums, Cœlogynes, Lycaste Skinneri, Phalænopsis, and many other kinds.

The COLLECTION of MEXICAN PLANTS is surpassed only by that of Kew Gardens.

All NEW PLANTS of sterling merit are added to the Collection as soon as procurable, and may be seen here, the inspection of which would alone repay a visit.

In May will be published,

A CATALOGUE OF NEW AND RARE PLANTS FOR 1869,

POST FREE TO ALL APPLICANTS.

The "Favourite" Omnibuses leave Victoria Nursery every seven minutes for the City and London Bridge, the Strand and Victoria Station, and for Regent Street, the West End, and Brompton.

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

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FRUIT LIST



Contains a sketch of the various forms of Trees, with directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by post for three stamps.

RICHARD SMITH,
Nurseryman and Seedsman,
Worcester.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE, suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious index of their synonymes. Free by post for six stamps.

RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

DWARF-TRAINED TREES.—By the Thousand, Hundred, or Dozen. Apples, Pears, Plums, Cherries, Peaches, and Nectarines. Fine, flat, well-trained, of best quality, and true to name.

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ORCHARD-HOUSE TREES Fruiting in Pots.—Peaches, Nectarines, Apricots, Cherries, Plums, Pears, Apples, Vines, and Figs.

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EVERGREEN HEDGES.

AMERICAN ARBOR-VITÆ, 4 to 5 feet, at 50s. per 100; 5 to 6 feet, at 84s. per 100; 6 to 7 feet, at 100s. per 100.

SIBERIAN ARBOR-VITÆ, 2 to 2½ feet, 40s. per 100; 2½ to 3 feet, 50s. per 100; 3 to 3½ feet, 75s. per 100; 3½ to 4 feet, 100s. per 100.

RICHARD SMITH, Nurseryman, Worcester.

SURPLUS STOCK.—VERY CHEAP.

SPECIMEN CONIFERS and EVERGREENS, handsome and well-grown, for Lawns, Pleasure Grounds, and Parks, have been recently transplanted, and are full of health and vigour. For Descriptions, also Prices of smaller quantities and sizes, see RICHARD SMITH'S LISTS.

Trucks for 1 ton and upwards may be sent through to any Railway Station on the narrow guage lines, at a moderate cost, thereby saving delay and expense of packing.

At 12s. per dozen :—

Arbor-vitæ, American, 5 to 6 feet
„ aurea, 12 to 15 inches
„ Lobbii, 2 to 3 feet
„ Siberian (Ware's), 3 to 3½ feet
Aucuba japonica, 18 to 21 inches
Berberis Darwinii, 1 to 1½ foot
„ Jamiesonii, 12 to 15 inches
Cupressus Lawsoniana, 3 to 4 feet
Hemlock Spruce, 3 to 4 feet
Hartogia capensis, 1 to 1½ foot
Juniperus chinensis, 1½ to 2 feet
Mahonia japonica, 9 to 12 inches
Norway Spruce, extra fine, 3½ to 4 feet
Phillyrea oleafolia, 2 to 2½ feet
Picea balsamea, 4 to 5 feet
Portugal Laurel, 2½ to 3 feet
Pyracantha, scarlet berried, 1 to 1½ foot
Pinus Laricio, 3 to 4 feet [2 feet.
Rhododendron ponticum, 1½ to
Taxus japonica, 15 to 18 inches
Thujopsis borealis, 2 to 2½ feet
Thuja plicata, 2 to 3 feet

At 18s. per dozen :—

Abies inverta, 1½ to 2 feet
„ Douglasii, 2 to 2½ feet
„ Menziesii, 4 to 5 feet
Arbor-vitæ, American, 6 to 7 feet
„ compacta, 1½ to 2 feet
„ Lobbii, 3 to 4 feet
„ Siberian (Ware's), 2½ to 4 feet
Aucuba japonica, 2 feet
Berberis Darwinii, 1½ to 2 feet
„ Jamiesonii, 15 to 18 inches
Cedrus argentea, 2 to 2½ feet
Cryptomeria Lobbii, 5 to 6 feet
„ viridis, 5 to 6 feet
Cupressus fragrans, 3 to 4 feet
„ Lawsoniana, 4 to 4½ feet
Hartogia capensis, 1½ to 2 feet
Hemlock Spruce, 4 to 5 feet
Ivy, green, tree, 1½ to 2 feet
„ new silver-striped, tree, 15 to 18 inches [15 inches
„ tricolor variegata, tree, 12 to
Juniperus chinensis, 2½ to 3 feet
„ Leeana, 2 to 2½ feet
„ Schottii, 2 to 2½ feet
„ thurifera, 1½ to 2 feet
„ glauca, 1½ to 2 feet
„ drupacea, 15 to 18 inches
„ viridis pendula, 2 to 3 feet
Laurel, Colchic, 5 to 6 feet
„ Portugal, 3 to 3½ feet
Mahonia japonica, 12 to 15 inches
Pinus austriaca, 3 to 4 feet
„ Laricio, 4 to 5 feet
Phillyrea oleafolia, 2½ to 3 feet
Rhododendron ponticum, 2 to 2½ feet
Taxus elegantissima, 15 to 18 ins.
„ gold-striped, 15 to 18 inches
Thujopsis borealis, 2½ to 3 feet
Thuja plicata, 3 to 4 feet
„ incurvata, 3 to 4 feet [ins.
Wellingtonia gigantea, 15 to 18

At 30s. per dozen :—

Abies elegans, 2 to 2½ feet
„ inverta, 2½ to 3 feet
„ Menziesii, 6 feet
„ orientalis, 2 to 2½ feet
Arbor-vitæ, American, 7 to 8 feet
„ compacta, 2 to 3 feet
„ Lobbii, 5 to 6 feet
„ Siberian, 4 to 5 feet
Arbutus unedo, 2½ to 3 feet
Box, tree, 2½ feet by 2½ to 3 feet
Cedrus argentea, 3 to 4 feet
Cupressus Lawsoniana, 4½ to 5 ft.
„ fragrans, 4 to 5 feet
„ McNaniana, 3 to 4 feet
Garrya elliptica, 2 to 2½ feet
Hemlock Spruce, 5 to 6 feet
Irish Yews, 5 to 6 feet
Juniperus chinensis, 3 to 3½ feet
„ fragrans, 2 to 2½ feet
„ glauca, 3 to 3½ feet
„ Leeana, 2½ to 3 feet
„ Schottii, 3 to 3½ feet
„ thurifera, 3 to 4 feet
„ virginiana, 5 to 6 feet
„ viridis pendula, 3 to 4 foot
Laurel, Colchic, 7 to 8 feet
Pinus austriaca, 4 to 5 feet
„ Laricio, 5 to 6 feet
Taxus elegantissima, 1½ to 2 feet
Thujopsis borealis, 4 to 4½ feet
Thuja incurvata, 4 to 6 feet
Wellingtonia gigantea, 2½ feet

At 42s. per dozen :—

Abies Albertiana, 3½ to 4 feet
„ inverta, 3 to 4 feet
„ orientalis, 2½ to 3 feet
„ pyramidalis, 4 to 5 feet
Arbor-vitæ, American, 8 to 9 feet
„ aurea, 2 to 2½ feet
„ compacta, 3 to 3½ feet
„ japonica, 2½ to 3 feet
„ Siberian, 5 to 6 feet
Cedrus argentea, 4 to 5 feet
Cupressus fragrans, 5 to 6 feet
„ Lawsoniana, 5 to 6 feet
Hemlock Spruce, 6 to 7 feet
Irish Yews, 6 to 7 feet
Juniperus chinensis, 3½ to 4 feet
„ densata, 4 to 5 feet
Juniperus glauca, 4 to 5 feet
„ Leeana, 3 to 4 feet
„ Smithiana, 3 to 4 feet
„ thurifera, 5 to 6 feet
„ virginiana, 6 to 7 feet
„ viridis pendula, 4 to 5 feet
Laurel, Colchic, 8 to 10 feet
Pinus, Cembra, 5 to 6 feet
„ Laricio, 6 to 7 feet
Quercus austriaca sempervirens, 3 to 3½ feet
„ Fordii, 3 to 3½ feet
Thujopsis borealis, 5 to 6 feet
Thuja Lobbii, 6 to 7 feet
Wellingtonia gigantea, 3 to 4 feet

At 60s. per dozen :—

Abies Albertiana, 4 to 5 feet
„ inverta, 6 to 7 feet
„ orientalis, 3½ to 4 feet
„ pyramidalis, 5 to 6 feet
Arbor-vitæ aurea, 2½ feet
„ compacta, 3½ to 4 feet
„ gigantea, 4 to 4½ feet
„ japonica, 3½ to 4 feet [ins.
Cephalotaxus Fortunei, 21 to 24
Juniperus chinensis, 4 to 5 feet
„ thurifera, 6 to 7 feet
Pinus Cembra, 6 to 7 feet
Quercus austriaca sempervirens, 3½ to 4 feet
„ Fordii, 3½ to 4 feet
Thujopsis borealis, 6 to 7 feet
Wellingtonia gigantea, 4 to 5 feet

Each :—

Abies Albertiana, 6 to 7 ft., 7s. 6d.
„ „ 7 to 8 feet, 10s. 6d.
„ Douglasii, 8 to 10 ft., 7s. 6d.; 84s. per dozen
„ „ 10 to 12 feet, 10s. 6d.; 100s. per dozen
„ Menziesii, 7 to 8 feet, 5s.
„ „ 8 to 10 feet, 7s. 6d.
„ orientalis, 5 to 6 ft., 10s. 6d.; 100s. per dozen
Araucaria imbricata, 5 to 6 ft., 21s.
„ „ 6 to 7 feet, 42s.
„ „ 7 to 8 feet, 63s.
„ „ 8 to 10 feet, 105s.
Arbor-vitæ japonica, 4 to 4½ feet,
„ „ 4½ to 5 ft., 10s 6d. [7s. 6d.
Picea grandis, 4 to 6 feet, 15s.
Picea grandis, 5 to 6 feet, 21s.
„ nobilis, 3 to 3½ feet, 31s. 6d.; 300s. per dozen
„ „ 3½ to 4 feet, 42s.
„ „ 4 to 4½ feet, 51s. 6d.
„ „ 4½ to 5 feet, 63s.
Normanniana, 4 to 5 ft., 21s.
„ „ 5 to 6 feet, 31s. 6d.
„ „ 6 to 7 feet, 42s.
„ „ 7 to 8 feet, 50s.
Pinsapo, 3 to 3½ feet, 10s. 6d.
„ „ 3½ to 4 feet, 15s.
„ „ 4 to 6 feet, 21s. to 31s. 6d.
Pinus Cembra, 7 to 8 feet, 7s. 6d.
Yews, for hedges, about 12 feet high, 45 years old, recently transplanted, 31s. 6d.

RICHARD SMITH,
NURSERYMAN AND SEED MERCHANT, WORCESTER.

Gladioli, the most Extensive Collection.

BARR AND SUGDEN, 12, King Street, Covent Garden, W.C., have the finest and largest collection of GLADIOLI ever offered, prices varying from 2*d.* to 15*s.* per root. For particulars see pp. 68, 69, 70, and 71 of B. & S.'s SPRING SEED CATALOGUE.

BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

Choice Seeds, Gladioli, &c.

WM. CUTBUSH AND SON'S CATALOGUE of the above contains description and price of many very superior home-grown VEGETABLE and FLOWER SEEDS, and choice varieties of GLADIOLI, &c., all of which are highly recommended. Post free on application.

Highgate Nurseries, London, N.

VERBENAS.—Purple, White, Scarlet, Rose, Crimson, &c., strong healthy plants, from store pots, *6s.* per 100, *40s.* per 1000. Purple and White Verbenas, in thumb pots, plenty of cuttings, *2s.* per dozen, *15s.* per 100.

LOBELIA SPECIOSA, strong plants from cuttings, *6s.* per 100, *40s.* per 1000. Terms cash. Package included.

W. BADMAN, Cemetery Nursery, Gravesend.

CALCEOLARIAS, Herbaceous, of the choicest strains (free by post), out of pans, *12s. 6d.* per 100; out of single pots, very fine plants, *25s.* per 100; less quantities at the same rate; also supplied in 3-inch pots, and extra strong in 4-inch pots, splendid plants, 7 months old and grown on, at per 100 or 1000 on application.

H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

CALCEOLARIAS, in 18 choice sorts, including Sparkler, Golden Mantle, King of Sardinia, Californica, Victor Emmanuel, Beauty of Herts, Aurea floribunda, Sultan, Gold Cap, &c. These are good plants, established in single pots, and can be sent free by post, carefully shaken out, at 25 plants in variety, *3s 6d.*; 50 do., *6s.*; 100 do., *10s 6d.* Can be had also in pots; for price per 100 or 1000 apply to

H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

W. RUSHFORTH, NURSERYMAN, Leeds, offers as under, very fine:—

DOUBLE WHITE PRIMROSES, per 100, *25s.*
DOUBLE LILAC PRIMROSES, per 100, *30s.*
DIELYTRA SPECTABILIS, per 100, *21s.*
LAURUSTINUS, in Bud, per 100, *20s.*
ASPARAGUS, 3-yr., per 1000, *25s.*
SEAKALE, 4-yr., per 1000, *60s.*

Genuine Seeds.

F. AND A. SMITH'S CATALOGUE of FLOWER and VEGETABLE SEEDS, of first quality, is now ready, (free on application), including their fine strains of BALSAM, CALCEOLARIA, CINERARIA, PRIMULA, TRICOLOR and other PELARGONIUMS, with every novelty of repute.

The Nurseries, Dulwich, London.

New Catalogue.

LEWIS S. WOODTHORPE will be happy to forward, post free, on application, his CATALOGUE (which will be found very reasonably priced) of NEW and CHOICE PLANTS, beautiful SPRING FLOWERS, and GENERAL NURSERY STOCK.

A heavy discount to the Trade.

Munro Nursery, Sible Hedingham, Essex.

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RICHARD WALKER can supply for cash CLOVE CARNATIONS; SCARLET KING DAISIES, *5s.* per 100; EAST HAM, and all the leading sorts of Cabbage Plants, *2s. 6d.* per 1000; RED DUTCH, extra fine, *4s.* per 1000.

Seeds, home-grown: ONION, WHITE SPANISH, *2s. 3d.* per lb. GIANT ASPARAGUS, 3-yr old, *3s.* per 100.

Carnations and Picotees.

GEORGE EDWARDS' COLLECTION of the above flowers contains all the best varieties in cultivation, and he is now sending out, in good plants,

Selections of 12 Pairs, 6 of each, for *20s.*
" " " " *16s.*
" " " " *12s.*

Reference or remittance from unknown correspondents.

Clarence Nurseries, Haxby Road, York.

NEW ROSES for 1869.
NEW DAHLIAS for 1869.
NEW VERBENAS for 1869.
NEW BEDDING GERANIUM for 1869.
CATALOGUES now ready.

JOHN KEYNES, Salisbury.

Roses.

JOHN CRANSTON will be happy to forward on application his DESCRIPTIVE CATALOGUE of ROSES for 1868 and 1869. For quality or quantity the stock is unsurpassed; the Manetti Roses especially are acknowledged to be the finest grown plants in the Trade.

Nurseries, King's Acre, near Hereford.

Roses.

H. LANE AND SON have still 17,000 Standard and Dwarf ROSES to dispose of; also, a large stock of very fine Plants in pots; Hybrid Perpetuals, in 6, 8, and 10-inch pots, *24s.* to *60s.* per dozen; Teas, in 60 and 48-pots, *15s.* to *24s.* per dozen; 8 and 10-inch pots, *5s.* to *7s. 6d.* each. The above are well worthy of inspection. Nurseries, Great Berkhampstead, Herts.

Established 1806.

T. HANDASYDE AND DAVIDSON have a large stock of all the leading sorts of ROSES, in pots. Prices to the Trade on application.

Seed Warehouse, 24, Cockburn Street, Edinburgh.
Nurseries, Brunstain Glen, Musselburgh.

New Roses, &c., 1869.

WM. KNIGHT begs to offer the following Plants:—

12 NEW ROSES, Strong Plants .. .. .. *36s.*
12 Finest NEW FUCHSIAS, Strong Plants .. *6s.*
12 Finest NEW VERBENAS, Strong Plants .. *4s.*
12 Finest COLEUS, Strong Plants .. .. .. *5s.*
6 NEW PETUNIAS, Strong Plants .. .. *4s.*

Or the above Collection, package included, for *2l. 10s.*

CATALOGUE free.

Floral Nursery, Hailsham, Sussex.

Choice Flower Seeds for 1869.

LEE'S CHOICE CINERARIA, saved from named flowers, *2s. 6d.* per packet.

LEE'S CHOICE CALCEOLARIA, from a choice strain, *2s. 6d.* per packet.

LEE'S CHOICE PRIMULA FIMBRIATA, beautifully fringed, *2s. 6d.* per packet.

LEE'S CAMELLIA-FLOWERED BALSAMS, saved from fine double flowers, in nine choice varieties, *2s. 6d.* per packet.

GOLDEN PYRETHRUM (GOLDEN FEATHER). This beautiful bedding plant comes perfectly true from seed. Per packet, *1s.* and *2s. 6d.*

AMARANTHUS ELEGANTISSIMUS, the Gem of the Garden; per packet, *1s. 6d.*

LEE'S SUPERB HOLLYHOCKS, In nine choice varieties, per packet, *3s. 6d.*

JOHN & CHARLES LEE, Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

New Bedding Plant—Echeveria metallica.

B. S. WILLIAMS is now enabled to offer for the first time SEEDS of this very Ornamental Bedding Plant, which during the past season produced such a splendid effect in the Grounds at Battersea Park. For edging, and various other purposes, the broad bronzy leaves afford a very striking and beautiful contrast, quite distinct from any other plant yet used for Bedding purposes. In sealed Packets, *2s. 6d.* each.

B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, N.

The advantages of procuring NEW *and* UNADULTERATED SEEDS *direct from the* GROWERS *cannot be over-estimated.*

James Carter & Co.
Seed Growers

237 and 238, HIGH HOLBORN, LONDON, W.C.

SEED FARMS:
EAST HOUSE FARM, DEDHAM, ESSEX;
THE SEED FARM, ST. OSYTH, ESSEX;
JUPE'S HILL FARM, DEDHAM, ESSEX;
GOD'S HOUSE FARM, ARDLEIGH, ESSEX.

A CROP OF THE BEST VEGETABLES
SECURED
ALL THE YEAR ROUND,
BY SOWING
JAMES CARTER & CO.'S
ASSORTMENTS OF
GENUINE GARDEN SEEDS

No. 1 COLLECTION, price 12*s. 6d.* (suitable for a Cottage Garden).
No. 2 COLLECTION, price 21*s.* (suitable for a Small Garden).
No. 3 COLLECTION, price 42*s.* (suitable for Medium-sized Gardens).
No. 4 COLLECTION, price 63*s.* (suitable for a Large Garden).

No Charge for Packing any of the above Collections.

Any article not required will be omitted, and the value made up with other kinds.

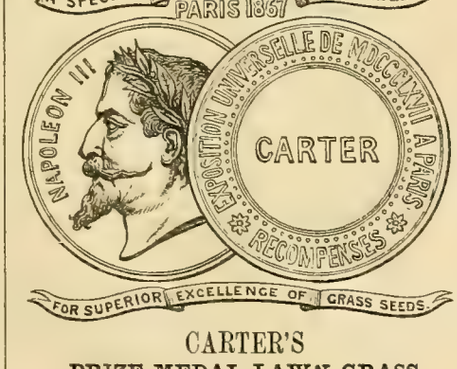


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SEEDS FOR THE FLOWER GARDEN,

In assorted Collections, to produce the most effective and permanent display in Greenhouse and Garden throughout the year.

A. Collection, including 50 varieties, 10*s. 6d.* (by post 11*s. 0d.*)
B. Collection " 64 " 15*s. 0d.* (by post 15*s. 6d.*)
C. Collection " 83 " 21*s. 0d.* (by post 21*s. 6d.*)
D. Collection " 149 " 42*s. 0d.* (by post 42*s. 6d.*)
E. Collection " 235 " 63*s. 0d.* (by post 64*s. 0d.*)

For full particulars of Contents, see CARTER'S "Gardener's and Farmer's Vade Mecum for 1869." Post Free 1*s.*; Gratis to Customers.



CARTER'S
PRIZE MEDAL LAWN GRASS,

AS SUPPLIED TO
H.I.M. THE EMPEROR OF THE FRENCH,
H.R.H. THE CROWN PRINCESS OF PRUSSIA,
THE LATE PARIS EXHIBITION, &c.

J. C. & Co.'s Mixture of Fine Grasses will speedily restore a beautiful Turf and good appearance on Lawns, Terraces, &c., injured by the drought of last summer.

Sow Three Bushels per Acre to form New Lawns, or One Bushel to renovate (more or less, as required).

Price 1s. per lb.; 20s. per bushel.

JAMES CARTER AND CO.,
GROWERS AND DISTRIBUTORS OF GENUINE SEEDS,
237 AND 238, HIGH HOLBORN, LONDON, W.C.

Seeds Direct from the Growers the best means of Preventing Disappointment.

NOTICE.—PURCHASERS of LARGE QUANTITIES of FARM or GARDEN SEEDS will be supplied liberally by SUTTON & SONS. For prices apply (stating quantities required) to SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Chrysanthemums.

NOTICE.—In answer to numerous applications, ADAM FORSYTH begs to inform the Trade and the Public that his New CHRYSANTHEMUMS will be sent out the first week in April. For description, see CATALOGUE, now ready. All orders executed in rotation.

Brunswick Nursery, Stoke Newington, N.

New Chrysanthemums.

JOHN SALTER AND SON beg to announce that their CATALOGUE of NEW JAPANESE and other CHRYSANTHEMUMS is now ready, and may be had on receipt of two stamps.

Versailles Nursery, William Street, Vale Place, Hammersmith, near Kensington Railway.

British Fern Catalogue.

ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

Foot's Cray Nursery, Sidcup Hill, Kent.

LEEDS HORTICULTURAL SOCIETY.—The GREAT EXHIBITION of PLANTS, FLOWERS, FRUITS, and VEGETABLES, will be held in the LEEDS ROYAL PARK, on WEDNESDAY, THURSDAY, and FRIDAY, June 9, 10, and 11. PRIZES, upwards of £500. Schedules now ready, and may by had on application to JAMES BIRBECK, Secretary.

Crossgates, near Leeds.

NOTE.—The North-Eastern, Great Northern, Midland, Lancashire and Yorkshire, and London and North-Western Railway Companies will convey Plants, Flowers, Fruits, &c., at ordinary rates to the Show, and return them free if they remain the property of the Exhibitor. The Committee provide Assistants and Horses for exhibition vans coming by rail, also Covered Spring Vans to convey Plants, &c., between the Railway Station and the Exhibition Grounds, close at hand.

GRAND NATIONAL HORTICULTURAL EXHIBITION, 1869, to be held in the BOTANIC GARDEN, MANCHESTER, MAY 14 to 21. Nearly ONE THOUSAND POUNDS in PRIZES. The following are among the number of First Prizes offered:—

SPECIAL PRIZES, PRESENTED.

The best Group of 50 Plants	£50.	Collection of Bedding Plants	£5.
10 Cape Heaths	£20.	6 Pine-apples	£5.
12 Roses	£20.	12 Hardy Shrubs	£5.
8 Cycads	£10.	Brace of Cucumbers ..	£3.
4 Bunches of Grapes ..	£5.		

THE MANCHESTER BOTANIC SOCIETY'S PRIZES.

16 Exotic Orchids	£15.	10 Fine-foliaged Plants ..	£10.
12 Stove and Greenhouse Plants	£15.	12 Miscellaneous Plants ..	£10.
10 Azaleas	£15.	12 New and Rare Plants ..	£10.
10 Roses	£12.	20 Hardy Conifers	£10.
10 Show Pelargoniums ..	£10.	12 Hardy Rhododendrons .	£9.
10 Fancy Pelargoniums ..	£10.	Miscellaneous Collection of Fruit	£7.

ENTRIES CLOSE on MAY 1. Schedules, &c., may be obtained on application to the undersigned,

Botanic Garden, Manchester. BRUCE FINDLAY.

The Gardeners' Chronicle.

SATURDAY, MARCH 13, 1869.

MEETINGS FOR THE ENSUING WEEK.

MONDAY, March 15—Entomological .. .. 7 P.M.
TUESDAY, — 16—Royal Horticultural (Fruit and Floral Committees), at South Kensington .. 11 A.M.
Ditto (Scientific Committee) .. .. 1.30 P.M.
Ditto (General Meeting) .. .. .. 3 P.M.
THURSDAY, — 18—Linnean .. .. 8 P.M.

THE Anglo-Saxon race has been slow to apprehend the value of the forests with which Nature has so liberally clothed the earth; and wherever British rule has been established the existing forests have disappeared, and no care has been bestowed on planting others. In all our colonies there has been the same improvidence, and it is only of late years that attention has been drawn to the importance of CONSERVING THE FORESTS OF INDIA. Advancing civilisation, the progress of agriculture, and the rapid extension of railways, have, however, rendered it imperative that means should be taken to organise a system of forest administration to control the clearing of indigenous forests, and to economise public property for the public good.

About 12 years ago the first attempts at organisation were made. Drs. BRANDIS in Burma, CLEGHORN in Madras, and GIBSON in Bombay, endeavoured to lay the foundation of a system. They started, as it were, single-handed in the different Presidencies, without skilled assistance, and depending on such help as could be found in the local services. The events of the Mutiny quickly followed, and the small establishments which had been formed, were crippled, and in some cases broken up. On the restoration of tranquillity steady progress ensued; a staff of five or six assistants was sanctioned in each of the larger provinces of the empire, and the more valuable forests were mapped out into separate ranges, and exact information was obtained regarding their resources.

In 1862 the Government of India resolved to introduce a general system into all the provinces under their control, and the office of Inspector-General was created. A Forest Act was passed by the Legislative Council in 1864, giving power to local administrations to demarcate the limits of State forests, to reserve certain trees for State purposes, and notifying the mode of procedure in cases of trespass, conflagration, &c.

With these greatly extended operations the want of trained assistants was much felt by the principal forest officers, and during a furlough to

Europe in 1866, Dr. BRANDIS, Inspector-General of Forests, proposed the selection of a small number of young men to be trained in forestry, preparatory to their employment in India. Dr. BRANDIS visited the principal wooded tracts of Scotland, and also the forest schools of France and Germany, and recommended that the main part of the training should be received abroad, because the forests are much more extensive on the Continent than in Britain. He arrived at the conclusion that an intimate acquaintance with the Continental system of forestry is of the first importance to candidates for Indian service.* The administration abroad is conducted by officers of large experience and scientific education, while the training of foresters in Britain is not of the same character, and bears particularly upon planting and wood-craft.

The object of the Continental system is to secure natural reproduction by a crop of self-sown seedlings rather than by artificial planting, while the general system followed in Britain, on the contrary, is to cut down mature forests and to plant afresh. The Oak woods of the Weald of Kent, Surrey, and Sussex, the Beech groves of Buckinghamshire and the South Downs, and the Fir woods of Bagshot Heath, as well as others that might be mentioned, form, however, no unimportant exceptions to the rule. The same system was formerly practised in the greater part of the Royal forests in England till, from the uncertainty of the result, the plan of self-sowing was given up, and planting adopted as surer in its results. The expense was very great, still the result has justified the expenditure. Dr. BRANDIS, nevertheless, considered the Continental plan more suited to India, and his views appear to have been adopted by the Secretary of State.

It is not surprising that the plan of Continental instruction should excite hostile criticism in Britain, and as the matter has been much discussed in our columns, we desire to give an honest and independent judgment in the matter. Considering ourselves as in some sense the protectors and allies of native foresters, we would *à priori* much prefer the establishment of a forest school in Britain, to the necessity of being dependent upon the training furnished in Germany or France.

The object is to get a higher class of officers and subordinates, and to that end we would not deter any British subject from the competition. We would endeavour to secure the largest amount of theoretical knowledge combined with practical training, and this may be best attained by personally studying the systems both of Britain and the Continent. A man, well-grounded in Scotland or England, with practical experience in wood-craft, who finishes his training in Germany, and becomes acquainted with the Continental system, would probably be the most useful of assistants.

Too much stress must not be laid on the advantages of training in Scotland, as compared with that in the southern half of the kingdom. As good wood-management is to be found in the one as in the other country. This is shown, *inter alia*, by the fact that Oak bark fetches a higher price in England than it does in Scotland, while, during the residence of the Court at Balmoral, it is, we are assured, the constant practice to send charcoal from Windsor forest for the use of the highland palace.

The experiment now being made is of great importace, and we doubt not the progress of the youths under training will be carefully watched, and such alterations made in the course of study as may appear expedient. A modification might be made as to so much of the instruction being given abroad, which would contribute to remove the objection of British Colleges and British foresters to the scheme as it now stands. After carefully studying the paper of particulars regarding these appointments, it appears to us that the standard of mathematics is unnecessarily high, and that some knowlege of botany should be made obligatory in the preliminary examination, as indicating a taste for Natural History.

The apprentice system in Germany and the superintendence of the Ecole Impériale at Nancy, where the students are under strict supervision, seem to us greatly superior to the training available in this country, where the *practical* and the *higher* branches of education are unconnected, and pursued in different localities.

Apart from the immediate wants of the Indian Government which have drawn attention to the subject, we should be glad to see an opportunity afforded to men of education and position to acquire practical knowledge of forest science. It seems worthy of consideration whether a complete course of forestry might not be given under the auspices of establishments like the Highland Society of Scotland, the Institute of Surveyors, the Royal Horticultural Society, or at such institutions as the Agricultural Colleges of Cirencester and Glasnevin,—a plan similar to that adopted in Saxony and Wurtemberg.

We hope that the ventilation of the subject will prove useful, and that our national requirements in regard to the training of forest officers, and the education of country gentlemen, may be fully discovered and supplied.

* The opinion of the Hon. Mr. MARSH, American Plenipotentiary at Herence, a distinguished physicist, may be usefully quoted. "In France, the relation of woods to the regular drainage of the soil, and especially to the permanence of the natural configuration of terrestrial surface, have been most thoroughly investigated. On the other hand, the purely economical aspects of sylviculture have been most satisfactorily expounded, and that art has been most philosophically discussed, and most skilfully and successfully practised in Germany." *Man and Nature*, 1864, p. 217.

—— WE are informed that a deputation from the Council of the Royal Horticultural Society waited on the Right Hon. JOHN BRIGHT on Tuesday last at the Board of Trade, on the question of the ADULTERATION OF SEEDS; and we understand that Mr. BRIGHT, without pledging himself to carry out the views of the Council, received the deputation favourably. We have also to announce that Mr. WELBY, M.P. for South Lincolnshire, gave notice on Thursday night in the House of Commons of his intention "in Committee of the whole House to move for leave to bring in a Bill to prevent the adulteration of seed." The Bill is backed by the Right Hon. H. BRAND, Sir MICHAEL HICKS BEACH, Bart., and Mr. C. SEWELL READ; and as the necessity for the step is so urgent, we trust soon to be able to announce that the Bill has become law.

—— We are informed that his Grace the Duke of ARGYLL, K.T., has consented to take the chair at the anniversary dinner of the Gardeners' Royal Benevolent Institution, on Wednesday, June 23; also that the Right Hon. Lord STANLEY, M.P., has promised to succeed his Grace as chairman of the dinner to be held in 1870.

—— We are requested to announce that the Managing Committee of the HAMBURGH INTERNATIONAL HORTICULTURAL EXHIBITION has nominated the following gentlemen to form a Committee for Great Britain and Ireland, for the purpose of furthering the objects of the Exhibition—namely, Rev. M. J. Berkeley, the Commissioner appointed by the Government; Sir Wentworth Dilke, Bart.; Mr. G. Eyles, South Kensington; Mr. Fleming, Cliveden; Mr. Gibson, Battersea Park; Mr. A. Henderson, Wellington Road; Dr. Hogg; Mr. C. Lee, Hammersmith; Mr. T. Moore, Chelsea; Mr. T. Osborn, Fulham; S. Rucker, Esq., Wandsworth; Mr. J. Smith, Kew; Mr. Tyler, Leadenhall Street; Mr. H. J. Veitch, Chelsea; E. Warner, Esq., Chelmsford: Mr. J. McNab, Edinburgh, and Mr. W. Thomson, Dalkeith, for Scotland, and Dr. Moore, Glasnevin, for Ireland. The Committee will hold a preliminary meeting at the offices of the Royal Horticultural Society, South Kensington, on Tuesday next, the 16th inst., at 10 A.M.

—— Since the notice to our correspondent was written respecting the disease in BLACK CURRANT SHOOTS, and the light which was thrown upon it by Professor WESTWOOD at the last meeting of the Scientific Committee of the Horticultural Society, we have received an abundant supply of fresh specimens, not crushed as before, but in such a state as to enable us to study the matter satisfactorily. We had no difficulty in finding the little Acari, though they are extremely minute, for they are in such abundance as to present the appearance of a thin coating of white powder. Under a lens of tolerable power they appear like a number of inactive worms or maggots, and would certainly at first sight be supposed to be the larvæ of some insect. On submission, however, to a high power, they are found to be accompanied by eggs; and, if we mistake not, we see very frequently within the body of the mite an egg just ready to be protruded, accompanied by one or two others in a state of progression; and if this be the case, we have before us an Acarus of the same type as that figured by DUGÈS as found in the papillæform galls which are so common on the leaves of the Lime, and which he seemed inclined to consider as the young of Tetranychus, or some other Acarus. Very similar mites occur also in the galls of Willow leaves. The minute Acari of the Black Currant vary somewhat in size, the smallest being about 1-250th of an inch in length, while the largest scarcely exceed 1-140th. There are two setæ at the end of the abdomen, and one on each side, four legs, and a pair of palpi. What gives the little animals a peculiar vermiform aspect in addition to their entire freedom from colour, is that the abdomen is closely striated with granular lines, which are frequently far more visible in the dead skins than in the living insect. The eggs are mostly obovate or broadly elliptic, and about 1-500th of an inch in diameter. The disease was first observed by our correspondent in Yorkshire about four years since, and has increased rapidly, and seems likely to make the cultivation of the Black Currant very precarious. He is naturally desirous to get rid of the plague; but with such very minute bodies it is very difficult to deal; and, if widespread, they could only be driven away by a general determination to stamp them out. The only method we can recommend is to prune in the trees very closely in autumn, and wash them with the mixture which is generally employed in houses as a remedy against Fungus and red spider. The insects seem to have little power of locomotion, but they could doubtless be wafted to any distance by the air, and though they themselves would probably not be able to resist exposure, their eggs, which are as small as the spores of many Fungi, would not perish. M. DUGÈS states that for a long time he was unable to find the little Acari in the galls of the Lime, and our experience is the same, but the circumstance is mentioned here because of its possible analogy with what takes place in the little excrescences which are so common on the leaves, and even the young fruit of Pears. A little hole is uniformly found beneath the excrescence, but we have hunted in vain for any Acari, though we are inclined to think that they owe their origin to some minute species. Once indeed we found a large Acarus accompanying them, but we have never been able to find it a second time. We may however suggest, that it is very possible that the gall on the Lime tree and Willow may in the first instance be caused by a single individual; and if so it is very possible that so minute a body might very easily escape notice though really present, while at a later period, when there had been time for propagation, the Acari might be found in considerable numbers. Should this notice meet the eye of the person who forwarded diseased shoots of Black Currant in 1864, we should be greatly obliged by having an opportunity of examining the disease again, should it still exist. We would request at the same time that correspondents who send specimens would always send them in some little box which can resist the stamping of the Post-office. It is often quite impossible to do anything with specimens which have been both dried and crushed. In the present instance, there could be no difficulty in ascertaining the cause of disease from such specimens as are now before us, though such minute insects were quite indistinguishable in the specimens which were first simply transmitted in an envelope. *M. J. B.*

—— A prize of 1000 francs, or a work of art of equivalent value, is offered by the "Association Libre des Cultivateurs" of Ghistelles, for a new perennial HYBRID CEREAL of sufficient value for alimentary purposes, between any of the Grasses growing wild on the sandy sea-shores of Europe, and any of the ordinary cereals. The object seems to be to attempt to utilise the seaside Grasses that grow in such abundance in sandy dunes, by making them bear a grain of sufficient size and of sufficient economic value, to become an article of commerce. It is suggested that the trial should be made by reciprocally fertilising and intercrossing such species as Elymus arenarius, E. giganteus, E. philadelphicus, Triticum acutum, T. pungens, Ammophila arenaria, and other seaside Grasses, and one or other of the following cereals—Wheat, Barley, Oats, Rye. Five years are allowed for the trials, dating from last October, but experimenters are at liberty to record the result of their experiments as soon as a successful result has been obtained, and the prize may also be awarded as soon as the experiment has been proved to be satisfactory.

—— A short time since we recorded the case of a variegated shoot proceeding from the green-leaved stock on which Abutilon Thomsoni had been grafted. Objection was raised at the time to the inference that this was a case in which the STOCK was affected by the SCION, because it was stated that A. striatum, which species furnished the stock in question, occasionally throws out a variegated shoot without being grafted. This may be so, but it is worth while alluding to a precisely similar occurrence which is recorded in the recently-issued number of the "Journal de la Société Impériale et Centrale d'Horticulture de France" (vol. iii., 1869, p. 47), and from which it appears that M. LEMOINE, the well-known nurseryman of Nancy, wishing to propagate this brightly variegated plant, grafted it on Abutilon megapotamicum, the A. vexillarium of some gardens, and also on a variety of A. venosum. In the autumn, says M. LEMOINE, both these stocks threw out, at varying distances of 2—15 centimetres, say 1 to 5 inches, below the graft, several shoots completely variegated. We trust some of our friends will make further experiments on this matter.

—— Messrs. LANE, of Berkhampstead, forward us the following letter on the ASSESSMENT OF NURSERY GARDENS, &c.:—"For the benefit of the trade will you kindly publish the Act of Parliament which I attach to this, for I well remember when the Property and Income Tax was before the House of Commons, at its passing it was argued by the members that land being already so highly taxed with rates, &c., ought not to be on the same footing as profits on trade, which was assessed under Schedule D (paying 7*d.* in the pound), but that it should pay half the price (3½*d.* in the pound) under Schedule B, on the amount of rent, and all who rented under 150*l.* per annum were exempt. Now, if nurserymen and market gardeners had to pay on their rent (very few rent 150*l.* a-year), consequently they would not be assessed at all, unless, as the Act of Parliament says, they shall be estimated under Schedule D, and charged under B."* The Income-

* Copy from the Property and Income Tax, by TIDD PRATT, p. 11:—"The profits arising from lands occupied as nurseries or gardens for the sale of the produce, and lands occupied for the growth of Hops, shall be estimated according to the rules contained in Schedule D, and the duty shall be charged at the rate contained in that schedule; and when the said duty shall have been so ascertained, the same shall be charged under Schedule B as profits arising from the occupation of lands. Where the lands occupied for the growth of Hops shall be part of a farm held under one demise, or by the same person as owner, and shall not exceed one-tenth part of such farm, the duty shall be charged together as for a farm by the general rule."

tax now is 6*d.* in the pound under D and 3*d.* under B, which latter price nurserymen and market-gardeners ought to pay."

—— M. Cailletet, as cited in a recent number of the Bulletin of the Botanical Society of France (vol. xv., Rev. Bibl., p. 238), has arrived at some remarkable conclusions as to the Effect of Green Light on Plants. It will be remembered that it is a well-established fact, that in bright sunlight, the leaves and other green parts decompose carbonic acid gas, retaining the carbon and emitting the oxygen; and that in darkness the process is in a measure reversed, carbonic acid gas being emitted, and oxygen gas absorbed. Now, if M. Cailletet's experiments are to be accepted as conclusive, it would seem that leaves exposed to green light comport themselves precisely as they do in darkness. In this way M. Cailletet accounts for the weakly vegetation under trees, where the amount of obscurity is, after all, but little. The general result of M. Cailletet's experiments goes to show, that the property of decomposing carbonic acid gas is completely independent of the action of the chemical rays, and of the obscure heating rays. It is clear if these researches are to be depended on, that the consequences as regards vegetable physiology and plant culture are most important. We see at once why timber is deficient alike in bulk and quality in crowded plantations, but how are we to account for the luxuriance of Orchids and other plants in dense tropical forests, submitted as they must be to green light? Are the respiratory functions of these plants different from those of others? It may be so; at any rate the experiment of growing such things as the various species of Anæctochilus under green glass has proved very successful at Kew and elsewhere. When we get a physiological laboratory, directed by a competent physicist and chemist, we may be able to arrive at the why and wherefore of such facts as those recorded, and thus lay up a store of knowledge which could not fail to be ultimately of the greatest service to the cultivator.

—— We learn from headquarters that the "Grande Société des Chemins de Fer Russes" has accorded a reduction of 50 per cent. in the fares of all persons travelling over the Russian Railways to take part in the Exhibition at St. Petersburg. The French, Belgian, and German railways have also for the most part accorded similar concessions.

New Plants.

Miltonia Warscewiczii,
Rchb. fil. Xenia Orchidacea, i., p. 132.

Racemo stricto, vaginis scariosis acuminatis, superne fractiflexo, racemoso (6—8 floro); bracteis scariosis acuminatis ovaria pedicellata dimidio æquantibus; sepalis tepalisque cuneato-ligulatis obtusis undulato-crispulis; labello cuneato oblongo flabellato bilobo, basi velutino, obscurissime triusque septem carinata; columna brevissima, tabula infrastigmatica superne bidentata.

This is a very curious plant. The specimen before us is simply racemose, but Warscewicz's specimens give evidence of its getting panicled. Imagine a zigzag rachis, with spathaceous acute bracts, and flowers as large as those of Odontoglossum Karwinskii. Take both sepals and petals of Schomburgkia undulata, the two pairs spreading, cinnamon, with white tip; and the lip of Miltonia Regnelli, but make the anterior part white, the base on both sides violet, a yellow basilar centre, the middle part brownish with a violet hue, and the column very short, purplish and white, bearing a two-toothed tabula infrastigmatica. Would not this form a very curious and totally new combination?

The plant was originally discovered by Pöppig, the justly lamented Saxon traveller, in Chili and Peru. He found it in February, 1830, near Cuchero, once, in the time of Ruiz, Pavon, and Dombey, a wealthy place—in 1830 a crowd of ruins and a single hacienda, and in 1869 what? Much later Warscewicz found it in Peru. The same plant may exist in the Hookerian herbarium, there being a species from Purdie, but sent in a very damaged state, so that we have often been very perplexed at it. Now, judging from memory only, we believe it to be this plant. At length M Linden has been fortunate enough to flower the plant sent by Mr. Wallis, who had been so good as to dry some flowers of his pet.

Dendrobium lasioglossum, *Rchb. f.*

We have at hand a single stem of this species, bearing at its top, by the side of fresh leaves, a dozen fully-developed flowers, of milk-white colour, with rosy veins and ochre-yellow tufts of hairs on the lip. We think it our duty to acquaint amateurs that this is one of the finest things they can imagine. A well-grown specimen, with tufts of such stems bearing such flower clusters, must produce the prettiest effect. We have to express our thanks for a splendid specimen (2½ feet high) to Messrs. Veitch, Royal Exotic Nursery. *H. G. Rchb. f.*

FRUIT BY RAIL!

[While we have been talking about utilising our railway banks, our Belgian friends have been carrying the scheme into execution. The accompanying woodcuts, for the use of which we are indebted to the kindness of Professor E. Morren, will show how this is done, while the following free translation from the "Belgique Horticole" will, we hope, furnish valuable hints to those who may be inclined to try the experiment here. Eds.]

Travellers in Belgium may have remarked that the railway from Brussels to Louvain is bounded on each side by a hedge of fruit trees, consisting of Pears and Apples trained espalier-wise. The planting was accomplished on the opening of the line three years since, and the trees are reported to be doing well; already they have formed the first "palmette," and last spring the majority of them bore flowers. The planting has been effected thus:—Posts 7—8 centimetres in diameter (3 inches), about 6 feet long, sunk in the ground to nearly half the length, and placed 9 feet apart. Trellis work of laths between the posts, the laths being about an inch wide and a quarter of an inch thick. Two (galvanised) wires stretched from post to post horizontally, one about 8 inches above the soil, the other just below the top of the posts. Between any two posts two trees are planted, at 3 feet distance from each other. The trees may be grafted by approach, so that ultimately it may be said that one tree stretches from Brussels to Louvain! Railway banks in Belgium are planted generally with Osiers, Alders, or other shrubs that may be useful. The hedges are sometimes quickset

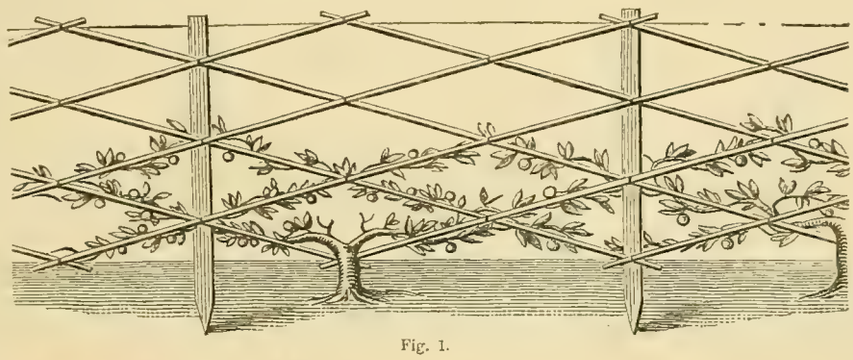


Fig. 1.

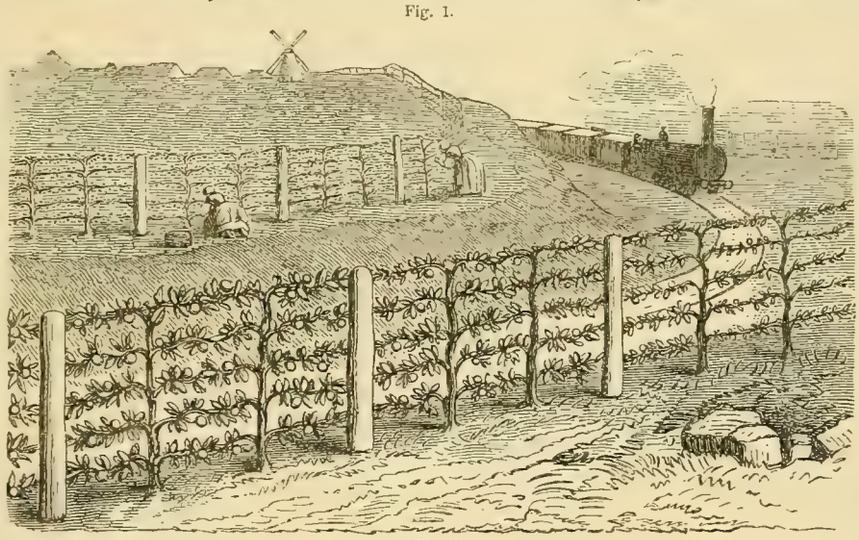


Fig. 2.

(*en épines*,) sometimes of clipped Hornbeam (*en charmilles*), the persistent leaves of which in winter time are advantageous, by preventing the line being blocked by snow in deep cuttings. The espaliers of Apple and Pears above alluded to have been planted at a cost of 1f. per mètre (say 10*d.* per yard!) The average annual yield under favourable circumstances is estimated at 1000f. the kilomètre (about the same amount as the cost of plantation). This estimate appear to us ("Belgique Horticole") too high.

Loss by theft is not to be feared. Everywhere in the country fruit is more or less wholly left to the public honour to protect. The railways are the objects of constant supervision; it would only be necessary to give a little extra surveillance during the time the fruit was ripening. The railway *employés*, gate-keepers, &c., might be allowed an interest in the trees, or the crop might be sold standing. The cost of maintenance is calculated at 10 centimes a mètre (1*d.* per yard) per year. Under certain circumstances, the Vine might be planted with advantage. This innovation appears to us to be desirable in all ways. The hedges are beautiful in spring, and productive in autumn; they serve to utilise waste land, they disseminate good fruit throughout the country, and, from the estimates above given, they should prove a source of revenue to the railway companies.

Home Correspondence.

Heating Vine Borders.—As my name has been introduced into the discussion on this subject, I hope to be excused for making the following remarks. I must say that I have been surprised at certain most absurd remarks from some of our greatest Grape growers and horticultural writers. How greatly their notions and practices are at variance with what Providence clearly points out to us every spring and summer! Let one imagine the fine, hot weather of last May and June, both night and day, with a good soaking of warm rain every week, eliciting from gardeners such expressions as "What splendid growing weather! you can almost see things grow;" the rejoinder being, "Oh yes! they must grow; the ground is like a hotbed!" There can be no doubt that it was weather of this kind, aided by other natural advantages, which produced that enormous cluster at the Brook Eschol; and nothing appears to me more simple, or to point more clearly to success, than that we should imitate as nearly as possible this kind of weather when Grapes are required very early in our uneven climate. Whoever adopts the most natural treatment, in growing Grapes by artificial heat, will certainly be the most successful. I know from experience that heated Vine-borders are very dangerous things, and where they are covered, and the rain is excluded, the lower roots often become dry and parched at the very time they ought to have an abundance of water. Instead of their having about the average depth of 24 inches of rain each season, it often happens that not more that 6 or 10 inches are doled out, and even this is considered to be a great quantity. I believe many heated Vine-borders have been condemned simply for the want of due consideration in this particular. A thick layer of heated leaves and dung has been found most successful throughout the country. I am looking forward to see in the advertising columns of the *Gardeners' Chronicle* some such announcement as this: "Patent artificial Vine-borders on the most natural system!" After a few years' competition, we might then perhaps see early Grapes in a condition to supersede everything that we have been accustomed to in this country. *H. Cannell, Woolwich.*

Upright Boilers.—In answer to "R. J. W." as to whether the upright boilers Mr. Wills speaks of would be better for horticultural purposes if they were surrounded with brickwork, I will give him my four-and-a-half years' experience with one very similar to Green's, of which latter a figure is given in the "Florist and Pomologist" for February. About 15 years ago there was a similar excitement about a boiler constructed on the same principle as that of the Messrs. Green. After estimating the merits and faults of the two, that of Green's seems to me to lack several of the good qualities which the boiler referred to possessed. In the first place, Green's boiler has two doors, just where the action of the fire has the first and most direct effect as regards heating the water, and one of those doors has to be shut when the fire is banked up, consequently the fuel is lying against the door, which, when the fire is burning rather briskly, must become red hot. Again, the grate bars are solid, and there does not appear to be a second casing to the boiler; therefore the whole outer surface is exposed to the external atmosphere, which must be a serious fault. At the time above referred to, my employer was having a large conservatory built adjoining the mansion, and from the recommendations of persons ignorant as regards the requirement of a boiler for horticultural purposes, he was induced to have one of these popular cheap boilers, requiring no bricks and mortar, manufactured by Mr. Knight (I think) of Norfolk Street, Southwark. It was about 3 feet 10 inches high and about 18 inches by 16 inches square, fed from a kind of hopper, and it had about 800 feet of 3-inch pipe attached. This boiler, if attended to about every hour, did its work (considering the small amount of fuel) very satisfactorily; but it convinced me, that for horticultural purposes, particularly in sharp weather and during the long nights, these brickless and almost fuelless boilers are highly dangerous, and give gardeners an immense amount of extra trouble. I have therefore come to the conclusion that boilers constructed with such a small space for fuel, are totally unfit for garden use. *H. Cannell, Woolwich.*

Spring Gardens.—Everyone cannot have a garden like Cliveden, but most persons, with two or three gardeners, can have a very pretty spring garden, such as mine, without detriment to their summer one, of bedding-out plants. Mine is in two oblong beds, surrounded by double rows of yellow Crocus, which also mark out each bed into three parts, in which are respectively, first, Myosotis, blue; secondly, Crocus, large deep purple, which being in the centre is wider than the Myosotis, and complementarily with the yellow Crocus; and thirdly, Myosotis (a mauve coloured one). Interspersed with all are Hyacinths, red, pink, white, and purple, forming a central row from end to end. From 12 o'clock till 3 P.M. this is a feast to a gardener, much brighter than any summer one, from the absence of green leaves. *Somerset.* [This is practically carrying out the principle we have often urged for the planting of winter and spring gardens in connection with summer ones, namely, the arrangement of the ground and of the plants according to a double design, which,

by alternation of planting, may be made attractive at each of the four seasons. It is only a question of forethought and of means. EDS.]

Red Currants.—I have this day forwarded you two small portions of Red Currants; both have been taken from one branch. The forward part of the branch has been in flower 10 days, with shoots 6 inches long, the rest of the branch and tree is only just expanding its buds. There is no outward visible cause why this should be the case; the bush is growing in the open quarter, thoroughly exposed, the most forward branch being on the north side of the bush. Several gentlemen and gardeners have seen this bush, and all say they have not seen anything like it before. *William Connell, Hull, March* 3. [The facts are as stated, but without a knowledge of all the circumstances, we cannot explain the anomaly. EDS.]

Mildness of the Season.—The following plants were found in bloom in the neighbourhood of Taunton, Somersetshire, on the dates given:—Feb. 15: Ranunculus Ficaria, Capsella bursa-pastoris, Cardamine hirsuta, Draba verna, Viola odorata, V. odorata alba, V. hirta, Stellaria media, S. Holostea, Prunus spinosa, Geum urbanum, Potentilla Fragaria, Viscum album, Taraxacum officinale, Senecio vulgaris, Bellis perennis, Tussilago Farfara, Vinca minor, V. major, Lamium purpureum, Veronica arvensis, V. agrestis, Primula vulgaris, P. veris, P. elatior (?), Mercurialis perennis, Ulmus montana, Alnus glutinosa, Salix sp., Narcissus Pseudo-Narcissus, Galanthus nivalis. Feb. 18: Fumaria officinalis, Lychnis dioica, Ulex europæus, Fragaria vesca, Chrysosplenium oppositifolium, Angelica sylvestris, Daphne Laureola. Feb. 21: Tussilago Petasites, Adoxa Moschatellina. Feb. 26: Sinapis arvensis, Cheiranthus Cheiri, Erysimum, Heracleum Sphondylium. March 4: Taxus baccata. March 6: Pimpinella Saxifraga, Anthriscus sylvestris, Veronica polita. *G. W. R.*

Paint for Labels.—Some time ago I wrote to a leading periodical connected with building about the saponaceous and consequently soluble nature of white-lead, and of almost any kind of lead oil-paint. I adduced the instance of an old notice board bearing still perfect black letters, on what had once been a white-lead ground. Not only had the white ground entirely departed, but the wood itself was so weather eaten as to leave the black letters in very distinct "relievo." I was yesterday examining the stove plants of a friend who called my attention to the fact of the white-lead oil-paint on his plant labels being dissolved by the watering. No colouring material possessing the saponifying property of lead should ever be used on plant labels or on anything where this chemical power of lead compounds is so greatly augmented by the combined aid of heat and moisture as in a plant stove. Indeed, on all surfaces exposed to atmospheric influences, zinc or barytes white will be found far more protective and durable than white-lead. But for durability there is nothing like lamp-black on external work. One coat of it on wood or iron will outlast many coats of white-lead. I do not think white-lead has any material saponifying or solvent power over copal. Provide then a phial of copal varnish and a small box of white-lead, or other white pigment in powder. For use mix the two together on a bit of glass or on an oyster-shell, and apply to the labels, then write at once with a hard black-lead pencil. *J. H. M.*

Fruit-tree Protection: Diseased Peaches, Apricots, and Nectarines.—The Rev. W. F. Radclyffe, in again calling the attention of fruit-growers to his excellent mode of protecting Peaches and Nectarines, ought to have included Apricots. So far as curtains are concerned, I beg to join with him in recommending them for the purpose, having had something like a 10 years' experience in the use of them, and seldom failed to secure the crop where the bloom was of a sufficiently healthy character. My object is not to say so much of curtains, as where they are tried they will speak for themselves. I would direct attention to the protection of a more important part of the tree than the young wood, viz., the old wood, not only from the effects of winter but from the burning sun in summer, together with the mulching of the collar roots in spring. In 1859 and 1860 it devolved on me to rearrange, and in many respects to plant afresh, the whole of the wall-trees of a large garden, and amongst the number a score of Peach and Nectarine trees in a bearing state; this as a rule was done in the months of September and October, and immediately each tree was mulched with a large barrowful of half-rotted hotbed manure, and as the object was fruit the year after removal, the stems of many were covered as far up as the union of scion and stock. Out of the number treated so in 1860, only one refused to grow in 1861, that year succeeding the ever-to-be-remembered Christmas-eve that made such havoc amongst fruit trees on walls in all parts. The failure of that one was easily accounted for, as it had a very long stem, and had moreover been much mutilated by the pruning-knife, and had no protection at the union, which had swelled by repeatedly being cut back, so that it was as large as a man's fist. That tree had carried a fine crop of fruit in the season 1858, and many of the fruit were scorched upon it, so hot was the situation. The thermometer against the wall, facing the sun, was frequently as high as 116°—"poor old wood." Well, the result was death in 1861, and on making a cross section of a piece of the wood it was found similar to the pieces enclosed. No. 1, Plum tree, dead from pith to bark, side next the sun; No. 2, branch of Nectarine, the same; No. 3, Peach, partially so. In nine cases out of ten this is seen on all kinds of stone fruit, but particularly Apricots; and doubtless it will be seen in 1869, in many places where the thermometer registered as high as 120° in the sun. This will be a great year for observations, and particularly on trees that have been much cut about while in a young state. The shortening in of the shoots of young trees so frequently, is where the mischief lays. There is not a bud left, even of the most latent character; all have been forced into action, hence the bare centres in almost all kinds of stone fruits, so often to be seen; these, together with the collar roots, are the parts that require protection the most, as the young wood on bearing trees, if well ripened, even on such naked stems, will endure a great amount of exposure up to the blooming season. It has been my uniform practice for a number of years to disengage all such from the walls every winter, and I rarely find them injured by frost. If Peaches, Nectarines, or Apricots, are planted in light soils resting on a gravelly or chalky subsoil, mulching of the collar roots, and partially shading the old wood, ought to be considered as imperative, not only as protection from frost, but from the opposite extremes—the parching sun against a south wall, and the cutting east winds of the months of March, April, and May, lapping up at noonday the very life's blood of the tender leaves, which in less than 10 hours may be stiff with frost. So in a season like the present, with an early vegetation, in addition to curtains, I would recommend a thin spray of Holly twigs (the leaves wither and hang on), which admit plenty of light and air when the curtains are drawn off. I give the results of an observation made here to-day (March 6) with two trees side by side, the one partially covered with Holly twigs, the other quite exposed—the thermometers hung to the wall 3 feet from the ground, and facing the sun:—

1 P.M. :	partially covered tree	60°
,,	exposed tree	75°
,,	north aspect	45°
10 P.M. :	covered tree	38°
,,	exposed tree	32°
,,	north aspect	27°

Thus, it will be seen, the exposed tree had to endure a declension in temperature of 43°, the partially protected one only 22°. Is it consistent, then, under such circumstances—nay, it is impossible—to expect that reciprocity of action between root and branch in the exposed tree that would otherwise take place under the more uniform state of keeping? The action of frost and other extremes of temperature on the old wood, together with that of an inordinate use of the pruning-knife, do not always manifest themselves until after many years, but gradually and assuredly bring about a derangement of the cellular tissue. Then gum, canker, blister, insects, and all manner of diseases are engendered, and premature decay succeeds. *W. Muir.*

The Cedar of Lebanon.—Permit me to direct the attention of all those who are interested in arboriculture to the splendid crop of cones which these trees are now bearing. All Cedars do not bear fruitful ones, but many contain excellent and numerous seeds. The cone of the Cedar is remarkably tough, and will not discharge its seeds by exposure to heat like those of other Firs. I have tried various methods of extracting the seeds, and find the following the most effectual:—Fix the cone in a vice and saw off about ¾ inch top and bottom, then with a mallet and cold chisel divide the cone into quarters, which must be separated into smaller portions. Place these in the kitchen screen for say 24 hours, and they can then be separated without much difficulty. If very tough, use a pair of wire-nippers to open them. A good cone contains from 40 to 60 seeds. It is remarkable that though the Cedar is so prolific this year, the Pinus austriaca has no cones, but it bore so heavily the two previous years that I have not only young trees of this species growing from trees of my own planting, but have sent considerable quantities of seed to friends and some nurserymen. *Higford Burr, Aldermaston, Feb.* 25.

Hardy Broccoli.—Permit me to ask your practical readers and correspondents which of the winter white Broccolis has proved the best this fine open winter. My own experience in the growth of this vegetable has hitherto been very limited; and as I intend to grow it in future on a more extensive scale, I am anxious to know which of the recently-introduced sorts—early winter white Broccolis I mean—is most worthy of cultivation. *Colo.*

Mistleto.—Your correspondent T. J. Hope (p. 195) says "I am in the habit of smearing a few berries," meaning Mistleto, "every season, and find they take most readily on the Thorn and Mountain Ash." Would he, or any other of your correspondents, be kind enough to tell me how and when to "smear" them, as my employer is desirous to make a present of a few young trees with Mistleto growing upon them? *Escob.* [Rub the berry against the underside of a young branch, at the present time; they will adhere by their natural viscidity. Afterwards keep the birds off. EDS.]

Colour of the Backs of Rose Petals.—The colour of the reverse side of Rose petals is a subject, I think, of some importance, and one to which more attention should be directed, especially in the selection of new Roses from description. How is it that many of our finest shaped Roses are dull and unattractive? Simply because certain forms of the flower exhibit the backs of the petals much more than others of a flat or rosette character; and the finer the shape—that is, the more globular and deeper the cup of the petal—the more its reverse is shown. In nearly all red Roses this is of a dull, purplish tint, which tones down very sensibly whatever brilliancy of colour the face of the petals may possess. This is evident when we consider that fully one-third of the back is exposed in our finest models of shape, cupped, high centred, and globular flowers, such as Lælia, Alfred Colomb, Chabrilland, Pierre Notting, Prince Henri de Pays Bas, &c. Neither the beautiful old Jules Margottin, with its shell-like petals, nor the brilliant Senateur Vaisse, would have held our hearts so long had they not shown us bright backs as well as faces. May I venture to give our Continental neighbours a hint, not to send us any new red Roses less bright in the reverse of their petals than our old favourite, Senateur Vaisse. *Henry Curtis, Torquay.*

Pyrethrum Tchihatchewii.—This is very likely to prove a useful turf-plant on dry soils, sloping banks, and other positions where it is difficult to make turf grow. It is one of M. Boissier's plants, and was probably first noticed as a subject likely to form a lawn plant in the Botanic Garden at Geneva, but since then M. Verlot, of the Jardin des Plantes, has given it a fair trial, and recommended it strongly in the "Revue Horticole." The position in which it was tried in the Jardin des Plantes was a sloping one, and the soil very bad. Notwithstanding these drawbacks, the little carpet of this Pyrethrum with the dreadful name looked quite fresh and green. It is a very dwarf-spreading species, the leaves are much dissected, and of a dark shining green at all seasons. It is perfectly hardy, and runs about the surface of the ground in a very rapid manner. The flowers are white, rise a little higher than those of the daisy, and may be removed like those of that plant. If left on to decay, they do so without becoming an eyesore. It is not, like the Spergula, a miffy thing that dies off in flakes, and becomes discoloured, but takes firm hold of the ground. As in these islands our turf is generally the most delightful of all carpets for the earth, this plant is more likely to be useful on a large scale in countries where Grass cannot be kept in good condition without a great deal of trouble. Nevertheless, from the inquiries made from time to time for materials to cover hot, arid, sloping and other surfaces which people find a difficulty in keeping green, there can be little doubt that it will meet the wants of some, even should it never be honoured with a position on the lawn. On chalky banks, &c., in the southern counties it could not fail to be useful. Till recently it has not been obtainable in the trade, or in botanic gardens in this country, but I see plants of it now offered at a cheap rate. *W. R.* [Will our correspondent kindly suggest an English name for this plant. EDS.]

Fixing Rose Buds.—Your correspondent "F.," in *Gardeners' Chronicle* of Feb. 6, inquires what is the best adhesive material for fixing rose buds. Moistened bladder, not made too soft, the surface-wet wiped off, and passed round like a surgical bandage, which will straighten it, and a little practice, make it a very easy process. It will remain fixed long enough to tie it down (the end) with thread. I use bladder alone to prevent my Carnations from bursting. *Q.*

Oranges.—Having seen a notice (at p. 197) of the Maltese Blood Oranges exhibited by Mr. Gooding, gr. to Sir John Neeld, Bart., of Grittleton, I took advantage of calling on Mr. Gooding (being in the neighbourhood), to see the trees from which they were gathered, and I was highly gratified to notice the successful manner in which not only the Oranges, but Shaddock, Lemons, and Limes were cultivated. Most growers of these handsome and delicious fruits labour under the disadvantage of having to grow them in tubs, and in many establishments, such as Gunnersbury Park, Wycombe Abbey, Wilton Abbey, &c., are fine specimens, and in perfect health. The trees at Grittleton are planted out in a large and lofty conservatory, in the centre being a Shaddock and a Lemon with quantities of fruit of very large size; these are flanked with Maltese Blood Oranges and Limes, covered with fine fruit, most of which is at the present time quite ripe or approaching maturity. The two first named (the Shaddock and Lemon) must be 16 to 20 feet in height, and the healthy vigorous growth, combined with plentiful foliage, of the darkest green, show that they enjoy the place allotted to them. Where there is sufficient space at command, the appearance of such specimens as these at once convinces cultivators, that keeping them in tubs does not give any of the genus Citrus the chance of being seen to advantage. The trees were all perfectly clean, and free from the insects usually found upon them, and must have considerable labour and skill bestowed upon them. This same attention was evident throughout the establishment; and, although the residence lies on a plain, it is in the summer months a very beautiful country seat. Another conservatory, of the same size as the one in which the Oranges, &c., are planted, was filled with Azaleas, Roses, Hyacinths, and other forced bulbs, &c., usual at this season, presenting a very gay appearance. *H. W. H.*

Lonicera fragrantissima.—For a sunny nook on a low wall this is a most desirable evergreen shrub, and worthy a position in all gardens, whether large or small. A plant here on a south-west wall this winter (perhaps an exceptional one), has been in bloom since November; several who have seen it have been led to ask why such a glorious shrub is so seldom met. Being evergreen this characteristic enhances its cheerfulness, independent of its most fragrant blossoms. Like all the Loniceras, I presume it strikes readily from cuttings. The plant here we spur in pretty freely, finding by such treatment it blooms more profusely. *John Edlington, Wrotham Park, Barnet.*

Root Pruning.—I should be greatly obliged to Mr. Baines, whose name appears at the end of the article on "Hardy Fruit Growing," at p. 164, if he will kindly tell us how he avoids the evil of taproots, or perpendicular roots, from the others just beneath the trunk, by "going half round each tree, and cutting the roots within about 6 or 8 inches of where they have been out at the previous operation." Pears on the Pear stock make all their strongest roots perpendicularly; Apples will even do so to a large extent when on the Crab stock; and it is only when this can be guarded against that efficient root-pruning is performed. *A. B.*

Garden Fountains.—English gardens are the best cultivated, but rarely show the best taste in laying-out. One thing is generally neglected which abroad is much more considered—I allude to water, especially water in motion. All this means that we have not fountains. All architectural or formal gardens are incomplete without them. Any small place may have one at a very little cost if the proper plan is adopted, which is to have a plain draught pump, with about 18 feet of pipe, on a trellised tower of four larch poles; or, where

stone is cheap, a tower 6 feet square. On this place a tub, and pump into it what water you require for the day's supply. A pipe from this to your fountain is the chief expense, as the tower, or trellis, should be some distance from one another. *Somerset.*

Mistleto on Black Poplar.—Not far from Winchester a few weeks since I noticed at some distance a quantity of a bunchy-looking substance hanging from two large black Italian Poplars. On closer observation I found it to be Mistleto. This was over-running the trees and ramifying to such an extent that in a few years the trees will be one mass of it. Never having seen or heard before that Mistleto grew on this tree, I thought it might be of interest to some of your readers. *H. W. H.* [Not uncommon on this tree. Eds.]

Is Pear-bud Killed by Mid-Winter Frost?—This question is so distinct from the other which has been debated between Mr. Baines and myself, that I prefer to put the query separately. Mr. Baines says that a week after the thaw succeeding the great frost of Christmas Day, 1860, he cut open scores of buds. Now, with us the thaw, or at least the re-action, began December 26, and by December 31 the ice was broken everywhere. The frost set in again upon New Year's Day, 1861, and lasted (off and on) throughout January. The frost by that time had entered the ground to the depth of 18 inches, as I happened to notice when planting Peach trees in February, and which had arrived before Christmas. Yet, I can answer for it, that here no Pear-bud suffered from the frost. Bloom was scanty everywhere, after so cold and wet a summer, but all the well-formed bloom appeared to come out all right. As for the buds being black when cut, what other colour could they be in the depth of winter? A snuffy brown is about the brightest symptom of vitality which the cut buds show ere the sap awakens. I submit that if the blossom-bud had been killed by frost, it would have shown some signs of bursting, as the bark of a tree does when the frost has entered it. I also submit that the wood-bud must have been killed by the same severity. And while these are mere submissions (upon which I ask for evidence), one thing I can say for certain—although not by any means conclusive as to the other question—and that is, that the frost of January, 1867, burst open the bark of some score of my trees (both Peach and Pear) splitting them like an explosion, but never hurt the blossom-bud. The trees are as healthy as ever now, but have certainly "gained a wrinkle." I know that the cold dark summer of 1860 left all trees in a most unfavourable condition to meet extremes of frost, that much of the wood was unripe, and so on, and that most of that unripe wood was killed; but that fact establishes nothing as to the effect of cold upon blossom-buds. No blossom-bud would be formed, except where the cambium at its base was hardened (at least according to present theory), and what I want to know is, whether being once secreted it may not defy the elements up to the time of expansion? *Pari Passu.*

Foliage Plants.—In reply to Mr. Westcott (see p. 250), I beg to state that I have a fine plant of Maranta Veitchii, although not so large as the one at Raby; it is truly a gem; but I give the preference to Acalypha tricolor. My plant of this has been cut down, and is now breaking well, having upwards of 100 young shoots about an inch in length; it will, I have no doubt, be a magnificent plant by the autumn. Sanchezia nobilis variegata improves in colour every day, and is without doubt the most striking foliage plant known. *Edw. Bennett, Osberton.*

Peach Prospects.—I fear the Peach crop will prove a failure out of doors here. Before the frost came there seemed a flaw in the centre of the blooms, as if they might have suffered from a want of power to form the embryo. It is a bad prospect. *Great Eastern.*

Hardy Fruit Culture.—In discussing any subject wherein the object is to get at the best practice, it is essentially necessary to keep to the ground first taken up. In "Pari Passu's" first communication p. 1289, 1868, he takes his stand upon the assertion that "fruit-growing is a lottery," and that "the fruit-grower draws a blank two years out of every three." In replying to that statement, I simply narrated a system of culture which I have found successful, and which seems to me evidently calculated to induce a robust, fruitful habit, which enables the trees to withstand to a certain extent the effects of spring frosts. I am aware that the Valley of the Thames and all other similar situations would be more liable to suffer from frost than drier situations. I have never found anything under 6° of frost injure Pear bloom, unless it was wet. Small pyramidal Pears, whose fruit can be reckoned by the dozen, can be protected, if we do not calculate the cost of material and labour, but for the regular supply of a large family we require trees that will produce fruit by the bushel, and which cannot be protected in any considerable numbers. What is wanted amongst Pears is a class whose blooming period would be relatively as late as the variety Court-pendu Plat is amongst Apples. If the greater part of "Pari Passu's" 7000 trees are small nursery stock, they are outside the question. But if they are all in a bearing state, and the result is no better than described, he must be possessed of a great amount of persistence and patience. In reference to what I have already advanced on the subject, I beg to add that I have not formed any hasty conclusions. I have always been passionately fond of fruit culture. During 25 years' experience, I have at all events satisfied myself that root-pruning, when fully carried out, had the effect of enabling the bloom to withstand a much lower temperature than in the case of trees not so treated. I do not mean the cutting of a few strong roots, but keeping the whole under as much control comparatively as if the trees were confined in a pot: this in addition to keeping the branches sufficiently thin and open to allow every ray of light and sun to act upon the trees. The Pear trellises here cover the walls, and are 8 feet high by 8 feet wide, and flat at the top. The branches are trained horizontally, 1 foot apart. The branches on the sides of the trellis naturally protect each other, and it might be supposd that they would be more independent of frost than those on the top of the trellis, but such is not the case, for in some of the worst spring seasons we have had, the side branches have suffered severely, whilst the top, fully exposed, has carried a full crop. This I submit is strong evidence that the full exposure to sun and air thoroughly ripens the bloom-buds, and renders the expanded bloom capable of resisting a lower temperature. If the views apparently entertained by "Pari Passu" are correct, that a given amount of frost is certain death under any system of culture, I should have expected the result to have been the reverse. Again, look at the neglected trees we sometimes see against the walls of buildings, the top running half over the roof, yet many of the branches so far above it as not to be under the influence of radiation on a frosty night, and still those branches withstand the frost that kills every bloom on that part of the tree against the wall. These and many other incidents of a similar character go to convince me that a thorough system of culture, which places the tree under the best possible conditions, has a considerable influence in its capabilities in resisting frost. Much having been stated about the trees, might I add a few words about the fruit? With me, as with others, most of the autumn kinds ripened earlier than usual. Many were smaller than they generally are, but were excellent in quality. The later sorts are not ripening before their usual time. Beurré Rance is now in, and richer in quality than I have ever previously seen it. Easter Beurré is just beginning to ripen, but Ne Plus Meuris, I think, will not be ripe before the middle or end of April. Thus we shall have a continuous supply for nine months—a result not attainable after a sunless summer. The varieties of Pears in season in February, March, and April should not be treated, as to storing the same, as the autumn and early winter varieties, which are generally placed thinly on the fruit-room shelves. If these later sorts are so treated after a sunless season, they sometimes will not ripen; this I attribute to excessive evaporation, which leaves an insufficiency of the watery portion of the juice necessary to combine with the saccharine matter to effect the ripening process—to prevent which I always place those late kinds several layers deep in boxes, and cover them over with the Peach blinds four or five thicknesses, which prevents them from shrivelling so much. Since adopting the above plan I have been enabled to ripen those late sorts which previously shrivelled up instead of ripening at their proper season, unless the preceding summer had been a warm one. *T. Baines, Summerfield, Bowden, Cheshire.* P.S. Allow me to correct an error at p. 164. The phrase in col. *b*, seven lines from the top, "on account of their blooming earlier than Apples and Pears," should be read after "Peaches," three lines from the top.

Foreign Correspondence.

Gardening Notes from Russia: *Moscow.*—The journey from Koorsk to Moscow takes about 20 hours by the new railway, which I should think is one of the best in the country. The carriages, as usual in Russia, are constructed after the American fashion, that is, they are very long, with a passage in the middle and a door at each end. On the whole they are very commodious and comfortable. The principal stations are constructed on the most extensive scale, and afford everything likely to be required by travellers, whether rich or poor.

Except the forest of Toola, which we passed in the night, and which I therefore did not see on this occasion, there is but little to notice by the way. The trees for the most part are Betula alba, Pinus sylvestris, and other common sorts. Betula alba predominates, but in general all the trees are of very moderate size. In the forests of the south they are generally much larger; sometimes, indeed, gigantic in their proportions. Near the towns along the line some beautiful villas and gardens are to be seen here and there, for as yet (October) there is nothing to indicate that the winter here is extremely cold. The leaves are only beginning to fall, though they are more or less tinted with yellow: some of them, however, are still quite green, for here rain falls more frequently than in the south, and sustains the activity of the sap much longer. At present the weather is exceedingly fine, and sometimes quite warm during the day.

An hour or two after my arrival I went out on an exploring excursion, but I was not able to go far the first day, for it happened to be a *fête*, and as usual on such occasions—which, by-the-by, are extremely frequent—the people (that is, the working classes) were in jubilee, and went about in great numbers, more or less intoxicated, so that the police had a good deal to do in trying to keep them from blocking up the way: if they were chased from one point they gathered again at another. But I must say that the Russian people in general are not rude or quarrelsome; on the contrary, they are very civil and inoffensive.

When I came to Russia some years ago, I stayed here a few days on my way to the south, but as it rained without ceasing all the time I could not leave my hotel to go anywhere or see anything. Now I am surprised to find that Moscow is an immense town, almost as large, I should think, as Paris or Berlin. What I think will interest you particularly is that it abounds with beautiful gardens, promenading grounds like parks, and lakes large enough to give employment to a considerable number of pleasure-boats in summer. There is a first-rate botanic garden, and a zoological garden of great extent, and when I mention that there are, as I am told, at least 11 seedsmen in the town, that there is besides an influential Society, and a well-conducted horticultural journal, which is issued monthly, you will perceive that there is, in this part of the country at least, an immense field of horticultural activity.

As I had only a few days to stay, I tried to make the most of my time, but could only pay a hasty visit to one or two of the gardens in the immediate vicinity. Being quite a stranger, I set out as soon as possible in search of a map, but did not succeed in finding one of a size convenient enough for easy reference, but as I was driving along one of the most bustling streets I noticed a seed shop. In Russia every shop is a magazine or depôt, if not a bazaar. This happened to be the central depôt of the Horticultural Society, and here I was kindly furnished with such information as I required. I shall have more to say of it by-and-by; at present I wish to speak of the gardens, though I must repeat I cannot attempt anything like detail.

The Botanic Garden, situated at a convenient distance from the more populous quarters, may be about 10 or 12 acres in extent, having a large and beautiful lake near the middle. It contains a good number of large stately trees, and, as a pleasure ground, must be, I should think, a favourite resort in fine weather. In general, the more interesting trees and plants are neatly labelled. The stoves and greenhouses are extensive, and contain very fine collections—the tropical plants especially are in excellent condition, most of them being large and admirably grown.

The Professor of Botany at the University is M. Haufmann. He has his house in the garden, but he was not at home when I called. The head gardener is an intelligent young man, and I must say that the plant-houses in particular do him much credit.

The Zoological Garden.—I called here only to see the grounds, which are very extensive and well laid out, having also a beautiful lake in the middle. There are a good number of statues and ornamental aviaries here and there, and no doubt in summer this is a charming place of resort.

Connected with this garden there is another, called the botanical department. It is on the other side of the public road, under which there is a tunnel of communication. Here there is another lake. This part of the establishment seems to be occupied as a kind of nursery, but it is no doubt chiefly frequented as a promenade. The ground here is altogether much lower than in the zoological part, and it is necessary to go down steps to pass through the tunnel.

The Horticultural Society's Garden is about two versts further on, and quite out of the town. It is about 10 or 12 acres in extent, and is laid out, as might be supposed, in the style of a nursery. There are several large plant-houses (five, I think), which are mostly constructed on the lean-to principle. They are kept in the very best order, and the tropical plants especially are generally large and well grown. There is, however, nothing which requires particular mention, either here or at the Botanic Garden, and it would only be useless repetition to speak of the size of such plants as Phœnix dactylifera, Cycas revoluta, Chamærops excelsa, Musas, Latanias, and a great many more in the same way, which in the hands of a good cultivator are sure to attain large proportions. It often happens, too, if I mistake not, that there is less difficulty in growing them large, than in keeping them within bounds. But as I could only take a hasty glance, and did not call for the purpose of taking notes, I cannot send you any details. Only I may mention that those stove and greenhouse plants which are so popular in England as exhibition specimens, rarely attain more than a very ordinary development here. Whatever the flower shows may be in Moscow or St. Petersburg, I cannot say, but I have not yet seen any Ericas, Epacris, Clerodendrons, Allamandas, Boronias, Ixoras, and other such kinds, likely to attract much attention. Of Ericas there are almost none, and perhaps the soil here is not suited to these beautiful plants; but it is open to doubt whether their cultivation has ever been fairly tried. Of Orchids there are also exceedingly few, but as they require special cultivation, and a house to themselves, they do not abound in every garden, even in countries more favoured than this; and it would be unfair to expect to see them plentiful here, where there are perhaps too few amateurs of such expensive plants. I make these observations without particular reference to the collections here; for the same may be said of other places in the south. The Horticultural Society's Garden at Moscow, as a nursery and a school for the training of competent gardeners, seems to me to be an excellent establishment, and I regret that my time was too short to enable me to stay longer or call again. The head gardener is M. Myouler, a man of great experience, and as polite and gentlemanly in his manner, as he is modest and unassuming. *K.*

(To be Continued.)

Societies.

Edinburgh Botanical: *Feb.* 11.—Charles Jenner, Esq., V.P., in the chair. The following communications were read:—I. *Experiments on Colour-Reaction as a Specific Character in Lichens.* By Dr. Lauder Lindsay. The most important conclusion arrived at was that colour-reaction, though interesting in itself in connection with the general subject of Lichen colorific or colouring matters, affords no aid that can be depended on, either to the systematist in defining species, or to the dye manufacturer in determining the value of his "orchella weed."——II. *Notice of a Journey from Deyrah Dhoon to Jumnotri.* Part I. By Mr. William Bell. "Accompanied by Mr. Nelson, of the Saharunpore Botanic Garden, I left the Deyrah Dhoon about the 1st October, and reached Jumnotri in 10 or 11 days. In every village that we passed through, however, we found one or two men who made a living by the gun. Collecting pheasants (chiefly Monaul), skins, and musk, gives employment to a great many. We heard of a Mr. Wilson who has amassed a splendid fortune from the proceeds of the skins and musk which he sends to the London market. For the purpose of collecting these, he is said to employ no fewer than 80 men. Mussoorie is also tolerably well supplied with game during the summer season, but it has to be brought from a great distance, as it is not to be had at hand. Some of the fine Himalayan pheasants in that district are fast becoming extinct from the reckless slaughter in the breeding season. The same class of men who are thus destroying the game, both on the hills and on the plains, have not a little to do with that pernicious system of forest burning which has already done so much towards ruining the Indian forests. The northern slopes of the first, second, and third ranges are pretty well covered with Oak and Rhododendron, while the southern slopes of the second and third ranges are extremely bare, with only here and there a few starved-looking Euphorbias, Viburnums, &c. In some of the large ravines there are a few stunted trees and scrub. These ranges have all seemingly, at one time, been cultivated to their very summits, by a system of terracing; but these are generally so badly constructed that the soil gets washed down. Many of the fields now in cultivation have exactly the appearance of a newly metalled road, the soil having all been washed away and only the stones left, the whole presenting an appearance very similar to that of a mixture of sharp gravel and road-metal. Land in such a state seems quite unfitted for rice or Wheat, which is generally cultivated on land close to the villages, better levelled and better manured. For Rice cultivation, the villagers seem much more careful in terracing, levelling, and constructing watercourses, than for cultivation of any other kind. On those fields where the soil has been partially—in some cases it might be said wholly—washed off, Panicum, Phaseolus, and Amaranthus (several varieties or species), thrive most surprisingly. All of them are remarkably handsome, but particularly so is one of a deep purplish

colour, with long pendent spikes 1½ to 2 feet in length. On the third and fourth ranges, patches of forest of considerable size are cleared for its cultivation. Its peculiar colour attracts notice at a considerable distance, contrasting markedly with the green all around. Still further back, and at higher altitudes, the common Buckwheat, and also a Chenopodium, are extensively cultivated. The leaves as well as the seed of the latter are used. What its specific name is, I have no means of ascertaining. There has lately been a great deal of writing and talking about the great advantages likely to be derived from the introduction of Chenopodium Quinoa, a South American species. Is the introduction of C. Quinoa, as some already suspect, only another case of shipping coals to Newcastle? It seems a little curious that the Indian one should be extensively cultivated on the ranges just under the snow, and no notice whatever taken of it by those who cry up so loudly the supposed advantages to the hill districts of the American plant. If it be all that it is said to be, its introduction would be a great advantage, if for nothing else than cattle feeding. In many of the villages they have nothing during snowstorms for that purpose except Oak and Mulberry twigs, and the leaves of a Ferula. A stem of the latter, that had been broken about the middle of the internodes, presented a rather remarkable appearance. The break was about 5 inches above a leaf, and as much beneath one, and from the broken surface (not from the axil of the leaf beneath) arose a great number of buds, some having two or three minute leaves on them. It looked exactly as if they had sprung from the ends of the broken vessels. It is not until after crossing the third and fourth ranges that the Deodar, Abies Morinda, and Pinus excelsa are observed. Pinus longifolia covers some of the slopes exclusively. It also occurs on the Sewalick range, and does well on the plains. In those districts where it occurs, the collecting of resin from the growing trees, by barking and charring them, seems to form no inconsiderable branch of industry. On most of them the foliage gets a yellow colour after the bark has been stripped off at the base, for about one-half the circumference of the tree, and a fire applied. Judging from the great number of fine trees on the ground, such a practice seems to be little injurious to their health and longevity. At one place, on the banks of the Jumna, a considerable deal of felling had been done, and, judging from the great length of the stumps left standing, that must be rather difficult work. Neither do the fellers seem to have troubled themselves much about the direction in which the trees came down. Like most else that natives do, it seems entirely left to fate; whether they smash other trees in their fall, or get smashed themselves, it is equally a matter of indifference to them. If a tree will fall in one direction rather than in another, it is not in their power to prevent that, even if over a precipice, and the trunks get cracked and splintered: there are plenty more equally good, why trouble themselves about such a trivial matter as that? On account of the steepness of the slopes where terraces were badly constructed, the soil soon gets washed away. In many places terraces are not constructed at all, and where such is the case cultivation is carried on for two or three years, and then a fresh piece of forest cleared. The system of clearing practised is to girdle the trees, lop off the branches, and allow the trunks to remain standing. These operations are generally performed the year previous to breaking up. Oak seems to stand such hard usage much better than Pines. The former sometimes recovers from such treatment, while the Pines never do. After the Oaks have been headed over and girdled, an insect—I cannot say whether a beetle or a grub—attacks them most vigorously. Handfuls of gnawed wood, resembling sawdust, may be gathered up round the roots of the tree. Under such a vicious system, it is not a matter for surprise that large tracts of forest are fast disappearing. Did seedlings come up and occupy their place, the case would be quite different, but such is not the case. Only scrub succeeds cultivation; indeed the very cause—want of soil—that rendered these cleared tracts unfit for cultivation also renders them unfit for again supporting forest trees. There is something melancholy in the appearance that these headless, branchless trunks present to the stranger. What had lately been fine symmetrical trees of Abies Morinda, 100 to 150 feet high, and as straight as an arrow, are seen standing without a branch, partly denuded of bark, and as dry as tinder, there to remain until the roots become so rotten that they will no longer support the trunk, and then these princes of the forest, that have withstood so many blasts, fall, and lie until they crumble to dust. From many of these localities now alluded to the timber could not be floated, as the streams are very rapid, and their courses crooked and rocky; from others it perhaps might, although only with great difficulty; but until timber sells at a much higher price than it now does, it would not pay to transport it by coolies. However, prices seem to be still rising, and good timber year by year becoming scarcer. As to whether or not the trees in any way affect the rainfall of a district, there is some difference of opinion, but none regarding the influence the vegetation exercises over the regularity and abundance of the flow of the springs in a district. The upper waters of both the Ganges and Jumna are taken up every drop during the hot season for irrigation purposes, and with all, still far too little for the wants of the districts through which the canals pass. Until the minimum supply be increased, general irrigation cannot be extended. That system of wholesale destruction of forests now in operation, only for the purpose of keeping alive a wretched system of cultivation—of which laziness is the parent, and, if report be true, misrule the supporter—is fast making the districts in which it is practised treeless wastes, or, at best, only partially covered with useless scrub, such as Prinsepia, Berberis, Indigofera, &c., and it will tend to diminish, not to increase, the water supply for hot-weather irrigation. I may remark for the benefit of those who are not well up in their Indian geography, that those forest tracts now spoken of lie in western Ghurwal, which is under the benign rule of the Teera Rajah; but whether they are under the supervision of the Government forest officers or not, I cannot say. I have heard that some of them are. Near Byratt, where there seems to be a considerable deal of timber felled, and under the supervision of qualified forest officers, felling seems to be done promiscuously. The young trees are taken as well as the old—at least I infer so, from the fact that no young trees worth speaking of are to be seen on tracts that had lately been cleared of old timber. There may have been none to leave in that district: still, as a rule, where there are old trees there are also young ones. Perhaps the idea may have occurred that it was better to make a clean sweep at once, and thus save the cultivators the trouble of clearing."——III. *Remarks on some Deep Sea Dredgings: transmitted by Captain William Chimmo.* By Professor Dickie.——IV. *Notice of the Occurrence of Arabis stipata confounded of Bruch and Schimper, in Westmoreland: by Mr. J. M. Barnes*: communicated by Mr. P. N. Fraser.——V. *Report on the Open Air Vegetation at the Royal Botanic Garden.* By Mr. M'Nab. Since the last meeting of the Botanical Society, Jan. 11th, the weather has been unusually mild, the lowest thermometer readings being on the mornings of Jan. 18, 24, 25, 26, and 27; also on Feb. 5, being respectively 28°, 29°, 31°, 28°, 29°, and 28°. The highest morning temperatures were on Jan. 31, Feb. 4, 6, 6, and 7, marking 50°, 52°, 53°, 47°, and 46°. This excess of temperature has brought vegetation very rapidly forward, both foliage and flowers being in advance of former years. In continuation of my former list, the following shrubs and herbaceous plants came into flower by rotation:—Jan. 16, Eranthis hyemalis; 16, Rhododendrum Nobleanum; 17, Andromeda floribunda; 17, Leucojum vernum; 18, Erica herbacea; 20, Juniperus chinensis; 21, Nordmannia cordifolia; 21, Populus tremula; 22, Crocus Susianus; 23, Hepatica triloba; 25, Orobus vernus; 26, Galanthus plicatus; 29, Daphne Mezereum; 30, Cydonia japonica; 30, Mahonia Aquifolium; 30, Crocus vernus, and vars.; Feb. 1, Sisyrinchium grandiflorum; 2, S. album; 3, Scilla bifolia; 7, Nuttallia cerasiformis; 10, Aubrietia grandiflora; 10, Symphytum caucasicum; 10, Omphalodes verna; 11, Symplocarpus fœtidus. Mr. M'Nab remarked that the "Bunch-grass" growing in the Botanic Garden had, on the 5th Feb., a growth of 18 inches, which proved it to be by far the earliest and strongest Grass in cultivation. Mr. Robert Brown, who introduced the plant from British Columbia, made a few remarks on its value as a pasture Grass in that country.

Messrs. Cutbush's Exhibition of Spring Flowers is now being held at the Crystal Palace, and will continue open until this day week (March 19). It occupies a considerable length of staging, divided down the centre, and is arranged similarly to the exhibitions of former years—one side being chiefly occupied with Hyacinths and Tulips, and the other with a miscellaneous collection of spring-flowering plants. At one end is a glass case containing some of the new and beautiful varieties of Coleus, amongst which we observed Princess Royal (Turner), Princess Beatrice, Albert Victor, and Baroness Rothschild (Downie, Laird & Laing). Of the Hyacinths, amongst single flowers, blues are well represented by Charles Dickens, Baron Von Tuyll, Orondates, Grand Lilas, and others; reds by Macaulay, Duke of Wellington, &c.; whites by Alba maxima, Princess Helena, Queen of the Netherlands, Grandeur à Merveille, and Gigantea. Of double flowers, Duke of Wellington, pale rose; Anna Maria, blush, with purple eye; Bloksberg, fine marbled blue; and Van Speyk, pale blue, are excellent. The varieties having claim to novelty are Leonidas, a very fine dark purplish-violet; Pieneman, a huge belled variety, the bright violet flowers being edged with grey; and Marie, fine deep violet-blue, among the blue flowers: Victoria Alexandrina, crimson-magenta; Howard, deep red, extra fine; Princess Charlotte, a beautiful pale pink flower; Lady Sale, deep magenta; and Prince of Orange, deep pink, among the reds; and Princess Helena and Queen of Netherlands among the pure whites. L'Honneur d'Overveen and Haydn are fine in the mauve class, and La Citronniere and Alida Jacoba among the yellows. Of Narcissi, a pure white variety named Wit Van Rhyn is a decided acquisition, as hitherto, excepting the old single Italian or Paper White, the pure white flowers have been very limited in number. Other good kinds are Musat orientalis, large white flowers, with a cup edged like the eye of Narcissus poeticus; La Plus Belle Jaune, bright yellow, with deep orange cup, fine and showy; Rodrigo, yellow, with deep golden cup, fine and striking; and Cleopatra, white, with deep yellow cup, flowers large, and immense trusses. The whole is effectively and tastefully arranged.

Entomological: *February* 15.—H. W. Bates, Esq. (President) in the chair. Mr. Butler exhibited a living specimen of a grasshopper with long antennæ (Conocephalus sp.), of which a large swarm had alighted upon a vessel at sea, near Whidah, West Africa, several of which arrived alive in London; the species is remarkable for having a sharp spine in front of the head, and a black face, the remainder of the insect being green, which colour after exposure to a heavy sea subsequently changed to a dull light brown. Professor Westwood exhibited specimens of bat parasites of the genera Nycteribia and Strebla, mounted in Canada Balsam by Mr. Staniforth Green, of Colombo, Ceylon, as affording a most satisfactory mode of preserving such insects for specific examination. Mr. F. Smith exhibited an interesting series of honey bees of the genus Apis from various parts of the world, with a view of determining the specific distinctions, geographical range, and modifications dependent thereon; amongst these was an apparently new species from Japan, of which, singularly, he had only seen a queen and not a single worker. Mr. H. Druce exhibited a series of butterflies collected in Nicaragua by Mr. Belt, containing at least 10 new species, as well as an interesting group of individuals, belonging to the family Heliconidæ, which, although at first sight apparently of the same species, was found to contain four different species belonging to as many genera, and to two different sub-families. Mr. E. T. Higgins exhibited and read a paper on a remarkable new genus of Prionidæ, which was described as connecting the Acanthophorus group of the Old World with the Derobrachys group of the New World. It was characterised under the name of Ommatomenus sericatus, and was captured at the mouth of the River Niger, West Africa, by Mr. Simpson. With reference to the collection of Nicaraguan butterflies of Mr. Belt and the Derobrachys group of Longicorns, the President stated that whilst the butterflies of the equator were as splendid in colour as those of any other part of the world, the beetles from the same region could not contrast in brilliancy with the allied species from Nicaragua and Brazil; and Mr. Wallace made the same remark on the beetles of Borneo as contrasted with those of Penang and Java. A discussion on mimetic resemblances among insects also took place with reference to Mr. Butler's newly described species of Hestina.

Notices of Books.

Les Conifères—indigènes, exotiques. Par C. de Kirwan, Sous-Inspecteur des Forêts. Introduction par M. le Vicomte de Courval. Ornée de 106 Vignettes. 2 tomes, 18mo. Paris: J. Rothschild, 1868. Pp. 623, Xylog. 106. (Conifers, &c).

Monsieur C. de Kirwan, the author of this little book, is a sub-inspector of forests in France, and from some laudatory remarks, made on the mutual admiration principle, by M. le Vicomte de Courval, who writes the preface, we rather gather that he is to be looked upon as a favourable specimen of the officers of the French forest establishment. As the attainments and knowledge of these gentlemen are matter of interest or curiosity at the present time, when a detachment of the successful candidates for the Indian forest appointments have been sent to receive instruction from them on the principles of forestry, we have thought that our readers might like a short notice of a work by one of them, so as to be able to form some idea of their calibre. But for that we should scarcely have thought it deserving of notice. It is to his position as sub-inspector of forests that M. de Kirwan owes the distinction, not to the merits of his book.

So far as regards the botanical or scientific side of the subject, M. de Kirwan is not competent to write a book upon Conifers. He does not even know the elements of his subject, and he is equally ignorant of its literature. He has obviously never looked beyond half-a-dozen of the most recent and cheapest works, and of these the two on which he chiefly leans are "Gordon's Pinetum" and "Senilis' Handbook of Pinaceæ." As ignorant as the latter author of all botanical knowledge, he adopts his crudities and absurdities as if they were the dicta of a great authority. He obviously has not the most distant idea but that "l'auteur Anglais du 'Pinaceæ,'" "l'auteur humoristique du 'Handbook,'" ranks with Lambert, Loudon, or Hooker. We wonder how Dr. Hooker will like being coupled on terms of equality with Senilis. "Dr. Hooker named this genus after Capt. FitzRoy—the author of 'Pinaceæ' calls it Cuprestellata, which signifies, &c." This is not the only instance by a long list where the ridiculous new names proposed by Senilis have been adopted in good faith and simplicity by M. de Kirwan. We thought that "Gigantabies," as a substitute for Wellingtonia, had been knocked on the head, but here is its ghost again. M. de Kirwan accepts it as a "denomination heureuse." It is plain that he stands on the same literary level as Mrs. Partington and Mrs. Nickleby. Whatever finds its way into type is alike sacred and venerated by all three. That they have read a thing in a book is irrefragable proof that it must be true. It is pitiable to see a moderately intelligent man, in his self-abasement, blindly quoting all sorts of rubbish, without ever asking himself the question whether what he quotes is trustworthy or not; and seeing that he is so diffident of his own knowledge, it is a misfortune that, having only half-a-dozen books to compile from, he should have had no one to tell him which were reliable and which were not. Ignorant on these more important points, it is a matter of course that he should be equally so on minor matters. It scarcely excites a smile to read of the doings of "Sir William Lobb." We pass, without dreaming of correcting him, such blunders as that Cupressus Lambertiana "was discovered in 1838 by the explorer whose name it bears." We hear with indifference that the bark of the Mammoth tree is still at present (*actuellement*) standing in the Crystal Palace at Sydenham. His blunders are equally rampant in everything else not falling within his own observation, but we should as soon think of hunting the common-places of a school-boy to their sources, as of tracing M. de Kirwan's *errata* to the authors from whom he has taken them: Gordon and Senilis have supplied the main stock. But let us be just. In what we have said we speak of the information which M. de Kirwan has derived from these or other authors. Where he speaks of matters relating to common species, such as the Scots Fir, the Norway Spruce, or the Common Silver, which have fallen under his own observation, our remarks do not apply. He does not say much, but what he does say seems all right. But we are sure that the man who has so little knowledge of his subject as to take Senilis as a botanist *pur sang*, and although so incompetent, yet thinks himself qualified to write upon Conifers, is not the kind of man that our India Board would have sent our young foresters to acquire a knowledge of Conifers from, had they been previously aware of the extent of his qualifications.

As regards the forestral or arboricultural side, again, there is less scope for criticism. The points on which we differ from him apply not so much to his own individual practice, as to the French system. Not that he is entitled to walk off scot-free even here—one who (in speaking of the Silver Fir) can recommend that if in removing it the tap-root should be cut or bruised, it should have a strong ligature applied above the cut or bruise, to stop the bleeding (vol. i., p. 80) will, we suspect, stand a strong chance of being classed by our foresters among the old ladies to whom we have already likened him on behalf of the botanists. So far as precept or theory goes, there is not much difference between the French and the English system of arboriculture. Two countries so near to each other, and of which the literature is mutually so well known, cannot be in ignorance of any important principle or system advocated or practised by the other. Therefore, in the works of French arboriculturists, as in this of M. de Kirwan, the different modes of cultivating trees under different circumstances are generally fairly expounded. Notwithstanding this, when it comes to actual practice, we find that each country has condensed its practice, virtually, into one of the different plans recommended, and applied it indifferently to all cases and all circumstances. Thus, in England all plantations, almost without exception, are made by planting out young seedlings which have been reared in a seed-bed. In France, on the other hand, it is quite the exception to do this. In forest land of any considerable extent the new plantations are made by sowing on the ground where the trees are to grow. According to our notions the English plan is the best in all circumstances. M. de Kirwan tells us it is the best only when the ground is covered with turf, which might prevent the seeds germinating. We shall not discuss this question here, but we wish to point out that here is a broad difference in practice between the English and French on a very important point, and that it is very desirable that it should be decided that the French really is the best, before we commit ourselves to adopting it for our forests in India.

The details of planting and management during the life of the tree furnish other points of difference of opinion—where, too, we think our own practice is the best. Thus we do not think it a good plan to plant our young seedlings so close that they can touch; we say they should never be nearer than 3 feet apart, M. de Kirwan says they should never be further away than that distance. His maximum is our minimum. So in the thinning. We should think we terribly neglected our trees if we allowed 10 or 15 years to pass between the first and second thinning, which is the time, M. de Kirwan tells us, that it will commence anew to be too close, from the growth of its branches (vol. i., p. 7).

Altogether the perusal of the book before us has tended to strengthen the doubts we were beginning to entertain of the wisdom of the plan of making the Continent our school for arboriculture. *C.*

[We insert this communication from one of our most competent authorities, in order that justice may be done to the views of all parties, but we do not hold ourselves responsible for all the opinions above expressed as to the qualifications of French foresters; neither do we imagine that the writer intends to found a charge against the French forest system in general, upon the imperfections of the book whose title stands at the head of this notice. Eds.]

Florists' Flowers.

Among florists' flowers the Chinese Primrose is one that is very popular: so much so, that in the early spring time every greenhouse and conservatory is to some extent enlivened with its charming blossoms. Within the last few years this flower has been much improved. The old red and white forms have given place to fine and massive flowers, of large size, and superbly fringed; and to these, in later times, have been added other flowers more agreeably varied, and presenting not only new types of flower, but new aspects of foliage and habit. Most of these improvements—for all these new forms of variation are most unquestionably real improvements—have been duly chronicled from time to time, but the present year has yielded some very fine new types, quite distinct from anything that has gone before.

It would no doubt be somewhat difficult to trace correctly from its earliest dawn the tendency of the Chinese Primrose to break away from the old red and white types. What is known as P. s. kermesina, a variety of Continental origin, was possibly the first decided advance in that direction; but this much is certain that that Messrs. Windebank & Kingsbury, of Southampton, were among the very first to obtain some variation by artificial fertilisation. Some 10 or 12 years of patient labour has been abundantly rewarded, and as many as 10 or 12 distinct types can be seen at their Bevois Mount Nursery, at Southampton, where about 50 feet of a long span-roofed house is occupied by these Primulas, methodically arranged on a stage 4 feet in width, in groups according to the type of flower and the character of the foliage—for the fern-leaved Primulas have proved as prolific of new forms as those of the older type of leaf. Such a sight as this is perhaps unprecedented, while it is of a most interesting and instructive character. Most noticeable is a very bright rosy-carmine flower, of a deeper and yet brighter hue than is generally observed in the kermesina type, the flowers having larger lemon eyes, and being finely fringed on the edges; on opening, the flowers show a dark ring round the lemon eye, reminding one of the Narcissus poeticus, but not so dark in colour. This form of flower is seen in connection with the old type of foliage, as well as in the fern-leaved strain. Another very fine form, occurring in connection with both types of foliage, is a large stout white flower, suffused with a kind of deep flesh-colour round the eye, and having in addition a distinct ring of a darker shade clearly perceptible. This is a very fine variety, and produces its flowers well above the foliage. Very fine forms of the fringed white Primula are to be seen in plants of each type of foliage; and in one of these is distinguishable the presence of a pink flake, the trusses of bloom being very fine and erect. Quite a new form occurs among the purple flowers, also in both types of foliage; in this there is a distinct orange and dark ring round a bright lemon eye, the flowers very fine, and the trusses large and bold. A very pleasing form found in plants with normal foliage bears a large white flower having a pale orange eye and a light rosy ring round it, and a distinct edging of pale lavender reaching halfway down the petals. The charming distinctness and novelty of this form of flower becomes lost to some extent with age, but experience suggests the hope that it will be thoroughly fixed in the course of a year or two.

Turning to the flaked flowers, there is much reason for congratulation in respect to the decided advance made in this direction. Size and substance have been obtained in addition to the flaking, and many of the flowers are as finely fringed as among the other forms. Hitherto the colour of the flake has been a kind of pale violet or lilac hue, but now a bright carmine flake appears, almost approaching scarlet. There is also a flake of a kind of lavender-pink hue seen on fine flowers borne on plants having unusually dark leaf-stems and undersides of the leaves; these flowers are prettily spotted and flaked, the flower-stalks are tall and erect, and the strain very fine and good. The flake of bright carmine is seen on white flowers borne on plants with the old type of foliage. Some of these are only faintly spotted with this colour; others spotted and flaked. In a few flowers the colour appears deepening even to crimson, but as yet only partially so. This result has been gained by a persistent fertilisation of the white flowers, with the brightest and deepest of the red ones.

For the first time appears a flaked flower on a pale flower-stalk. Hitherto all flaked flowers have been found on plants with red flower-stalks and leaf-stalks. This is a curious circumstance, and one perhaps not generally known. One of the first effects of the break away in the direction of variation, was the consequent confusion in regard to the colour of flower produced in conjunction with pale or red leaf-stalks. This, which had hitherto been certain, became uncertain in relation to the new kinds. One would naturally look for red flowers flaked with white on a plant with red leaf and flower-stalks, but, strange to say, the reverse actually holds good.

Messrs. Windebank & Kingsbury have a span-roofed house, 60 feet long, and from 10 to 11 feet across, completely filled with Primulas, including a large number of double varieties. Of the single section, the bright rose flaked form is noticeable, and some shades of carmine are very fine indeed. The double flowers show a marked advance, some very fine pale blush flowers, some of great size and very full. Particularly noticeable is a deep pink flaked flower on a white ground, the leaf and flower-stalks being red, and the individual flowers fully 1½ inch across. The production of such a fine example as this is very satisfactory to the raisers, who have done more than any other growers towards improving the double varieties.

All these fine variations among the single flowers are perpetuated by artificial fertilisation of the blooms. This process is necessary, perhaps, in order to perpetuate the various forms, but it is not absolutely necessary to produce them in the first instance, as breaks have been observed among flowers raised from seed saved from flowers not subjected to such an artificial aid. *R. D.*

The Apiary.

Would the present time be suitable for transferring the bees and combs of a frame hive into a larger one? My bees carry in pollen, ought I to feed them now? if not now, when would be the proper time, and what is the best method of supplying them with artificial food? *T. G.*

[There is no objection to transferring bees and combs from a frame hive into a box of similar construction at the present time, but we should prefer leaving it until the end of the month. A fine, warm day must be chosen. We do not hesitate to transfer bees and combs at any time if desirable, but take care that they are not exposed to the outer air, with the temperature under 56° or 60° Fahrenheit. If below this, and the operation is urgent, a warm room is chosen for the purpose, otherwise the bees become paralysed, and the brood stands a great chance of becoming chilled, at a time when a loss in these respects, however trifling it may appear, is a serious matter, and likely to have a very prejudicial influence on their prosperity during the succeeding summer.

With regard to feeding your bees, there is no difficulty in ascertaining, with your frame hive, whether food is absolutely required; but if you do not wish to disturb them now, or are, as yet, hardly up to the mark in removal and inspection of frames, there will be no harm in giving your bees a moderate supply of food. See what Mr. S. Bevan Fox says on the subject of spring feeding in our last, p. 253. The best method of supplying bees with food is by an inverted bottle, having a tolerably wide mouth, which is covered with fine muslin net, placed over the central hole in the cover. Not more than two or three ounces should be given at a time, at intervals of two or three days.]

Garden Memoranda.

Lupton, the Seat of Lord Churston, is situated in a lovely valley near to Brixham and Torquay. It is approached by two carriage roads, one about a mile in length, from the Torquay and Dartmouth turnpike, from which magnificent views are obtained of Torbay, Torquay, with its undulating streets and beautiful bay, and in the far distance the English Channel, and a long sweep of the Devonshire coast, and the Dartmoor Hills. This road is used chiefly as a drive. The great feature of the other carriage-road is that it is not only an approach, but part, as it were, of the pleasure-grounds. No sooner do we pass through the lodge gates than we seem to enter the garden. The road is moreover bounded by delightful banks of closely-shaven elastic turf, for all the Grass is kept as lawn or pleasure-ground. The surface is likewise diversified with choice trees and evergreen shrubs, and the result of the arrangement is a dressiness which is seldom or never seen in connection with carriage roads. Of course the style of keeping involves heavy penalties in the shape of labour, the mowing being excessive; and with a pleasure-ground on each side of it, kept in faultless condition, the road itself has the high finish of a garden walk.

One of the chief features among the shrubs at the time of my visit was the large masses of Hydrangea, covered with great crowns of pink and lilac, the latter colour coming naturally in the Lupton soil. In the spring time the road is livened up with Rhododendrons and other shrubs and trees; and even in winter the huge masses of Laurustinus flowers, and the beauty of the different Arbutus fruits adorn it with great loveliness. I understood that this road was designed and planted by Mr. James Veitch, of the Exotic Nursery, Chelsea, London, and it certainly does great credit to his taste and judgment in this rather rare department of art.

On arriving at the mansion the first feeling is one of disappointment. The grandeur of the entrance is scarcely sustained by the dignity of the house, or the size of the gardens. Passing along an enchanting roadway, one is pulled suddenly up by a hard and terribly sharp line drawn sternly across between the garden and the park, within a few yards of the house. Landscape taste rebels against the barrier, and cries out for its removal. But we pass at once into the flower garden, which furnishes a good illustration, on a limited scale, of a garden base to a mansion. It occupies only one—the southern—side of the house; the other sides have the front door upon one, the offices at the back, and well-stocked conservatory and rising wood upon the fourth. The garden is bounded and likewise partially divided round the centre with a strong balustraded wall furnished with iron supports and chains drooping between the uprights. These chains prove capital training places for creepers, and are well covered.

The whole garden is carried out on a level with the base of the mansion. It is laid out on a solid basis of gravel and granite walks, the chief paths being edged with stone. The figure is very simple—a square, cut into two by the centre walk, which converges upon a fountain, the fountain itself being picked out upon the inner line of the semicircle that completes the boundary of the garden. The secondary arrangements, as they may be termed, or the dividing of these spaces into beds, harmonise well with the general outline, architectural position, and character of the garden. The garden is mostly subdivided into beds by a few straight lines. The fountain naturally describes some curves, and a slight divergence from the sharp angle is introduced into four of the beds in each of the square groups or series of beds.

The planting is in harmony with this simplicity of form. There is no attempt at working out an elaborate theory of colour—either on the principles of contrast, harmony, or neutrality. A few distinct well chosen colours are repeated again and again throughout the garden. A good many very old favourites were growing side by side with those that are newer, though perhaps not better. It would be difficult to overpraise the soft quiet beauty of such beds as those filled with the old Pelargoniums Diadematum erubescens and the white Ivy-leaved, while the old Tom Thumb formed a vivid glow of brightness which few modern scarlets can equal and none excel. The whole of the diamonded beds in the semicircle were formed alike, thus:—The lines of Cerastium, the centre diamonds scarlet Pelargonium; side halves do., Lobelia speciosa. The sharp angular beds were furnished as follows:—Mangles' Pelargonium, Prince of Orange Calceolaria, Christine Pelargonium, P. Diadematum erubescens, Aurea floribunda Calceolaria, St. Margaret Verbena. It will be observed that the diamonded beds formed a sort of reticulated edging to these masses, and the effect was admirable. The narrow beds around the fountain were filled thus:—Nos. 1 and 4, Iresine and Flower of the Day Pelargonium; 2 and 3, St. Margaret Verbena. The 12 divisions into which the outer rim of this portion of the garden was divided were each filled with one narrow block or pigment of colour:—1, White Alyssum; 2, Viola cornuta; 3, Pelargonium Harkaway; 4, Ageratum mexicanum (dwarf); 5, Phlox Drummondii; 6, Pelargonium Golden Chain; 7, Pelargonium Harkaway; 8, Ageratum; 9, Pink Ivy-leaved Pelargonium; 10, Phlox Drummondii; 11, Viola cornuta; 12, White Alyssum. Standard Roses here and there, together with the character and furnishing of the retaining walls, and the elevation of the fountain, relieve the garden of any tendency to flatness. The same regard to simplicity of colouring and arrangement controlled the bedding-out of the square portions of the flower garden. Here, also, the whole of the diamonded beds on each side were alike. The lines are formed of Perilla, the centre filled with scarlet Pelargonium, and the sides with yellow Calceolaria. The corresponding beds in each half of the garden are also the same, the plants used being the following:—Pelargonium Alma, Pink Beauty Verbena, masses of Purple King Verbena, edged with Mrs. Pollock. These were the gems of this portion of the garden. The two colours brought each other out to the highest perfection. At each corner of the squares a handsome vase was placed, filled—no, that does not give the idea—running over with magnificent single plants of Tom Thumb Pelargonium.

The filling of the centre garden seemed perfect. There was no trace of the great drought on its surface—no failures, and no weakness—every bed was a picture of health, and a perfect bouquet of flowers. The beds were not only full, but threatening to overflow into the walks, and, size for size, this was the most successful piece of bedding-out that we saw last season. *F.*

(To be Continued.)

Miscellaneous.

Emblements (14 & 15 Vict. c. 25, s. 1)—*Haines* v. *Welch and Another*, C. P., 17).—At common law a tenant holding of a landlord who has only a life estate or other uncertain interest in the land is entitled, on the determination of his tenancy by his landlord's death, or by any other cesser of his landlord's estate, to emblements, *i. e.*, to the crops then growing on his land, such as corn, Potatos, &c. This is an old common law right in favour of agriculture, and does not depend upon any statute. The 14 and 15 Vict. c. 25, s. 1, made a very beneficial change in the law in this respect, and provided that under such circumstances "the tenant shall continue to hold and occupy such farm or lands until the expiration of the then current year of his tenancy, and shall then quit upon the term of his lease or holding," as if such lease were determined during the continuance of his landlord's estate; and the succeeding landlord shall be entitled to recover from the tenant a fair proportion of the rent from the day of his predecessor's death. The effect of this section seems never, before *Haines* v. *Welch*, to have been judicially considered. The facts of the case were: the plaintiff held as tenant from year to year of A., who was tenant for life, a small labourer's cottage, with an acre of land partly used as a garden and partly planted with corn and Potatos. A. died, and the reversion then vested in the second defendant, who subsequently, by Welch, his broker, distrained for rent which would have been due if the statute applied in this case. There had been no agreement between the plaintiff and the second defendant which would create a tenancy after the death of A. The question was whether the defendant was entitled to distrain, and this turned entirely upon the meaning of section 1 of 14 & 15 Vict. c. 25. It was argued for the plaintiff that the Act did not apply to a small holding like this, but that the wording showed that it was meant to apply to what might properly be called farms. It was held that the "true line is to be drawn at the point where you can claim emblements, however small they may be, so long as they are not frivolous," and that therefore the Act applied to this case, as there might at common law have been a substantial claim to emblements. The Court exclude from the operation of the Act those cases where the claim to emblements would be merely frivolous or where the

land is a mere appendage of the house. They also held that the right to "recover" given by section 1 extended to a recovery by distress. This is a very intelligible rule by which to ascertain the application of the statute, and it is not likely that any difficulty will be experienced in deciding what cases fall within the rule. *Solicitors' Journal.*

Vegetable Products of N.W. America.—In times of scarcity the Indians in Oregon smoke the twigs of Thuja gigantea, Nutt.; and the bark of Cornus sericea, L. (the *bois rouge* of the Canadian *voyageurs*), is usually mixed with Tobacco even in times of plenty,—a habit the fur traders have learned from them. The leaves of Arctostaphylos Uva-ursi, L., are also extensively used among the Indians and frontier men all over the American continent, either alone or (more usually) mixed with Tobacco under the Ojibway name of Kinikennick. Luckily for them, although passionately fond of intoxicating liquors, they have not acquired the art of preparing any. The stem of Acer macrophyllum, Pursh., contains much juice, but the North-west Indians have never attempted to make sugar from it as in the case of A. saccharinum, L., in the eastern provinces; indeed, neither have the whites. The Crees, however, made a sugar from Negundo fraxinifolium, Nutt., which probably extends over the Rocky Mountains. *R. Brown, in "Pharmaceutical Journal."*

Attar of Roses.—At Umritsur I first found myself in the true East, the East of Myrtles, Roses, and veiled figures with flashing eyes—the East of the "Arabian Nights" and "Lalla Rookh." The city itself is Persian rather than Indian in its character, and is overgrown with Date-Palms, Pomegranates, and the Roses from which the precious attar is distilled. Umritsur has the making of the attar for the world, and it is made from a Rose which blossoms only once a year. Ten tons of petals of the ordinary country Rose (Rosa centifolia) are used annually in attar-making at Umritsur, and are worth from 20*l.* to 30*l.* a ton in the raw state. The petals are placed in the retort with a small quantity of water, and heat is applied until the water is distilled through a hollow Bamboo into a second vessel, which contains sandal-wood oil. A small quantity of pure attar passes with the water into the receiver. The contents of the receiver are then poured out, and allowed to stand till the attar rises to the surface, in small globules, and is skimmed off. The pure attar sells for its weight in silver. *Greater Britain.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

THE beautiful *Kalosanthes coccinea* will now require attention. Cuttings that were struck in the autumn, and potted off into small-sized pots, will by this time, if proper care has been bestowed upon them during the dull winter months, have become nice stiff and bushy plants, averaging from 5 to 7 inches in height. The points of these should now be stopped by pinching them back, but not too severely. To aid them in forming a greater number of young shoots it will be advisable also to remove about four or five pairs of leaves from the top, without which assistance they do not break readily. After being stopped they should be allowed to remain thus about one week to mature the buds, when they will require potting. They have a great dislike to large shifts. The soil in which they thrive best is that composed of about one part of good yellow loam, three parts of good fibrous peat, with a plentiful supply of broken crocks, charcoal, or sharp gritty sand, &c. The plants of this genus delight in a thoroughly exposed sunny aspect. Care must at all times be taken not to overwater them, and they should be supplied with an abundance of air upon all proper occasions, and also a mean temperature as near 57° as possible. *Orchidaceous* plants should have especial attention, now that their full starting period is at hand. And here I would enforce the fact, that the treatment which different collections should receive depends greatly upon the manner in which they are to be grown. Those who have at their command an Orchid-house proper, will find little if any difficulty in growing the greater part, if a sufficiency of humidity is maintained at the full growing period, together with shading and a judicious amount of air. It is those who have to grow and to flower this beautiful class of plants under adverse circumstances—*i. e.*, amongst miscellaneous collections, with an insufficiency of heat, and such an amount of air, necessary at all times, as will not permit the necessary quantity of moisture to be maintained—that have need of an especial code of rules. In such instances as these, species which do well upon blocks of wood, and with Sphagnum attached, should not be attempted. They consist of such sorts as Comparettias, Lælia majalis, and L. autumnalis; many Oncidiums, such as crispum and Forbesii, with Sophronitis, &c. As a dense atmospheric moisture cannot be maintained under such circumstances, it will be obvious that these and kindred sorts should be dispensed with. The potting of all others to be grown in open structures, must be such that the greatest amount of moisture possible shall be maintained around the roots without souring the soil in any great degree. The peat used cannot be too fibrous, and however freely vacua may be formed within the mass of soil in the pots, the upper surface must be potted or finished off in such a manner that the internal moisture thus formed and held shall not have a too free mode of escape. Upon the necessary supply of crocks small thumb pots may be introduced with advantage, in combination with rather large pieces of porous charcoal, Sphagnum, and lumps of fibry peat, from which the smaller particles have been well beaten and sifted out. Endeavour to arrange all the large grower-feeding roots of such as Aerides, Vandas, Saccolabiums, &c., in such a manner that they will grow into, and so feed and extend within, the space of this compost.

FORCING HOUSES.

In regard to *Vineries*, I can add little for the present to the suggestions offered in the last Calendars. Be very careful, I repeat, not to unduly increase the artificial temperature, as this is too frequently done at the expense of both berry and bunch. Keep up, in all *Pineries* containing forward or thriving successionals, a moderately brisk artificial heat, both morning and afternoon; as, though the days increase in length materially in this month, yet should we be visited with its characteristic cold and penetrating winds, there will be much need of this aid. Fruiting plants will now be showing very generally, hence the greater necessity for such attention as we have pointed out above. Particularly bear in mind that when once they start for fruit, no check must by any means be permitted, or fine fruit, creditable to the grower, will not be forthcoming. Water may now be dashed frequently on to all cool surfaces within such structures with impunity. Be very careful, however, not to overload the crowns or hearts with moisture at this time, or a great amount of risk will be run of causing decay, by which means of course the anticipated fruit will be lost. Young suckers which have lately been potted should be kept close for a time; shade them upon bright sunny days, and cause a moderate amount of moisture to pervade whatever form of structure they may be in. Keep those which are intended to produce fruit for next autumn and winter moderately dry; ensure to these also a nice uniform root temperature of about 84° to 86°. Procure the necessary amount of fresh tan to renovate the old waning beds with, or to form fresh ones, according as these are required. It will be necessary, now that the fruit in second-early *Peach* and *Nectarine houses* is swelling fast, to shut up moderately early in the afternoon, and so by the aid of humidity to induce a free growth. It is equally important that by affording a little air again towards the evening some of this closed-up heat be permitted to escape. By such means alone can the night temperature be reduced to the necessary minimum. An average mean of 53° to 55° will be ample for these during the night.

HARDY FLOWER GARDEN.

Give a full and free supply of air during fine weather to *Auriculas*. These beautiful plants will now be showing their flowers at the centre of the crowns, and may therefore, as decided activity is commencing, receive waterings more frequently and rather more copiously than heretofore. The first or second batch of *Chrysanthemum* cuttings, according to their earliness or otherwise, will now be struck, and will therefore require potting off. I have before suggested that these plants are far better if not struck so early, unless large specimen plants are in request, and they are potted on, and attended to constantly and with proper regularity. This cannot be done in many small places, and where an attempt is made to grow a little of everything popular according to means. Thoroughly good plants and blooms, second only to the very early-struck ones, are attainable by placing the cuttings into the necessary pots or pans about the commencement or middle of April, and are then potted and pushed along quickly, so soon as they are struck. This is a good time—during a mild and moderately dry period—to plant out *Hollyhocks* into their intended blooming quarters. They, it is almost needless to say, delight in a deep, good, and rich soil.

HARDY FRUIT GARDEN.

In some instances it is necessary to remind the possessor of wall-fruit trees that it is full time all pruning and nailing operations were completed. I have lately seen trees in a garden of some little pretension still unnailed and unpruned. The injurious effects of such a state of negligence is not easily judged. Top-dress any *Strawberry beds* which require any further attention in this respect. Fill up all vacancies which may have occurred in any of the beds. I much fear, from what I have seen, that the incoming season will be a very adverse one for Strawberry plants, excepting perhaps a few of the hardier kinds upon more favoured soils—the late drought, followed by this excessively moist winter, having left its mark too plainly on all.

KITCHEN GARDEN.

Make forthwith another good sowing of *Celery*, upon a slight hotbed, or in pans or boxes. Green and White Cos *Lettuces* may also now be sown to a limited extent upon good rich borders. The Paris and Brighton Cos are each good for such a purpose. A variety of Lettuce called "Can't Run to Seed," or a similar variety, named Holme Park, are both excellent long-standing, drought and heat resisting varieties, and should be in the hands of all who wish to have a solid, crisp Lettuce at such a season. Do not delay longer to make the necessary sowing of *Leeks* for early transplanting. Sow also *Parsley* for a large crop, if such will be needed eventually. Earth up the main crops of young spring *Cabbages*, or, where this has been done previously, let the surface soil be occasionally stirred with the hoe. Celery, it will be observed, will at this time, mainly in consequence of the late excessively hot summer, be starting to seed, or "bolting," as gardeners term it. Where this is the case, it will materially check the evil by taking the stock up that is going so, and placing it to a proper depth under a north wall. *W. E.*

TOWN GARDENING.

THE roots of *Dahlias* and *Marvel of Peru* should now be transferred from their winter quarters on to a gentle hotbed, where they can be placed thickly together, and covered with a frame; or, instead of using a frame, the beds may be arched over with hoops, which can be readily covered with mats, &c., at night, and during unfavourable weather. Half-hardy annuals can be sown at once on a bed such as the former. The sorts that do well in towns, and which succeed admirably under the above conditions, are the following:—German and Ten-week *Stocks*, French and African *Marigolds*, *Hibiscus africanus*, *Indian Corn*, *Palma-Christi*, *Senecio Jacobæa*, and *Portulaca Gilliesii*: the latter is a perennial, about 4 inches high, bearing rich rosy-crimson flowers; it is well adapted for beds, and if sown now will bloom nearly all the summer. The best method of sowing seeds of this class is to draw shallow drills about 3 inches apart, sowing each sort separately, but not too thickly, then to cover the smallest seeds slightly over, and the others in proportion to their size. When they have commenced to grow, and have attained a little strength, they may be watered, and should be supplied with plenty of air on fine days—finally planting them out at the latter end of May. New gravel walks in process of formation should now be completed, and old ones which have become dirty and rough should be turned by loosening the gravel with a pick, and then turning it over with a spade, so that the gravel from below may be brought to the top. In thus turning the gravel, it must be laid with regularity and precision, or it will be a constant eyesore; it should then be trodden firmly down, levelled with a rake, and be well rolled. It is needless to state that it will then make a very enjoyable walk. Grass seeds, if not sown as previously directed, should be sown at once, for if dry winds should set in there will be little chance of success. The planting of evergreens should now be completed with the exception of *Hollies*, as I consider about Midsummer to be the best time for removing them. Rock-work should now be planted with any of the hardy varieties of *British Ferns*, *Sedums*, *Periwinkle*, and the small-leaved *Ivy*, which all thrive well in towns. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending Mar. 10, 1869, as observed at the Horticultural Garden.

March.	Moon's Age.	Barometer. Max	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 4	21	30.131	30.089	41	26	33.5	43	43	N.W.	.00
Friday 5	(	29.895	29.799	54	39	46.5	43	42	W.	.00
Satur. 6	23	0.230	30.076	47	21	34.0	44	42	N.E.	.00
Sunday 7	24	30.173	30.059	46	21	33.5	41	42	E.	.00
Mond. 8	25	29.881	29.616	41	24	32.5	42	42	S.W.	.00
Tuesd. 9	26	29.490	29.410	44	33	38.5	42	41	N.	.00
Wed. 10	27	29.466	29.354	39	28	33.5	42	41	E.	.00
Average		29.836	29.772	44.6	27.4	36.0	42.4	41.8		0.00

March 4—Overcast; densely overcast; clear and fine.
— 5—Fine, overcast; cloudy, but fine; boisterous.
— 6—Cloudy, but fine; cold wind; clear and frosty.
— 7—Fine and frosty; very fine and clear; overcast.
— 8—Snowing; snow showers; overcast, fine.
— 9—Foggy; overcast; very dark in afternoon; foggy.
— 10—Densely overcast; cold wind; clear and cold.
Mean temperature of the week, 4½ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 43 years, for the ensuing Week, ending March 20, 1869.

March.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..14	50.8	34.4	42.6	20	0.70 in.	3	7	6	—	6	14	7	2
Mon. ..15	50.6	33.6	42.1	21	0.37	3	10	4	1	4	7	9	3
Tues. ..16	51.0	34.0	42.5	14	0.68	—	12	8	1	2	12	5	3
Wed. ..17	52.0	32.5	42.3	13	0.37	5	8	6	1	6	7	8	3
Thurs. ..18	49.9	33.0	41.5	13	0.24	3	9	5	2	2	6	12	5
Friday ..19	50.9	33.0	41.9	15	0.33	5	7	4	4	2	11	7	3
Satur. ..20	51.1	33.8	42.5	17	1.11	3	7	4	2	1	14	6	6

The highest temperature during the above period occurred on the 18th, and 20th, 1836—therm. 69 deg.; and the lowest on the 20th, 1845, therm. 16 deg.

Notices to Correspondents.

FRUIT TREES: *O R.* The orchard evidently wants a thorough draining, and without this no appliance would be of much use. We advise you to drain at once, and then dust the trees well when damp with wood ashes.

FUNGUS IN TIMBER: *Scotus.* A strong solution of corrosive sublimate will destroy Fungus spawn for a time, but the effect wears off after a few years. Creosote is more permanent, but in a house would be objectionable from its disagreeable smell. Where wood has been used green, and painted before it is dry, decay is almost sure to take place, but not always from Fungus, more frequently from decomposition due to pent-up moisture. Corrosive sublimate would suit you best in all probability, but it must be remembered that it is a most virulent poison. *M J B.*

GRAFTING THE POTATO ON THE JERUSALEM ARTICHOKE: *T S. When* you succeed we shall gladly chronicle your success.

GYMNOGRAMMA: *F G.* The treatment adopted was judicious; do not give water too freely, either at the root or overhead. You had better sow some spores, however, in case the plant should not recover.

INSECTS: *J C L.* The objects on the Vine shoots are the great Vine scale insect, Coccus Vitis. They are females, not yet distended with eggs, but as it is very injurious, it should be at once cleared off and killed by hand-picking, and the shoots well washed over with Gishurst Compound mixed with lime and sulphur.—*R C.* The object found in the lock of your orchard-house is the nest of one of the leaf-cutter bees (Megachile centuncularis). *J. O. W.*

NAMES OF PLANTS: *W C.* Phrynium sanguineum.—*H Knight.* Acacia Riccana. — *J J.* Cheilanthes elegans, a South American species, which may be increased by sowing the spores. It must not be over-watered, and does not like an excessively high temperature.—*S R.* 1, Doodia media; 2, Gymnogramma lanata; 3, Campyloneurum Phyllitidis; 4, Doodia caudata. Grisellinia belongs to the Cornaceæ. Pteridophyllum (now called Filicium) is referred to the Burseraceæ.—*Inquirer.* The Cinerarias were much crushed, but appear to be good. The Orchid is probably Maxillaria punctata.—*G S.* 1, One of the forms of the ubiquitous Oncidium Baueri, or altissimum; 2, O. pumilum.—*A F R.* Cupressus Lawsoniana. *A M.*—*J H.* Pernettya mucronata.

WINTER BEDDING: *John Campion.*—The correspondent to whom you refer is not in the Trade. Apply to any respectable nurseryman.

ERRATUM.—In our report of the last meeting of the Floral Committee at p. 253, for Thuja *gigantea* aurea variegata, read Thuja *Lobbii* aurea variegata.

COMMUNICATIONS RECEIVED.—Escob.—E. W.—F. F.—W. G.—J. A. W.—J. H.—W. W. L.—G. F.—O.—A. Forsyth.—D. T. Fish.—B. S. W.



J. C. WHEELER & SON

RESPECTFULLY DEDICATE THEIR

ILLUSTRATED BOOK ON GRASSES,

Firstly,—To their numerous and highly valued Customers throughout the Kingdom.

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Thirdly,—To the Members of the Royal Agricultural Society of England, to each of whom a Copy will be sent gratis.

Fourthly,—To Scientific Agriculturists generally.

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2 lb. Timothy Grass, Phleum pratense
2 lb. Red Clover, Trifolium pratense
3 lb. Cow Grass, Trifolium pratense perenne
3 lb. White Dutch, Trifolium repens
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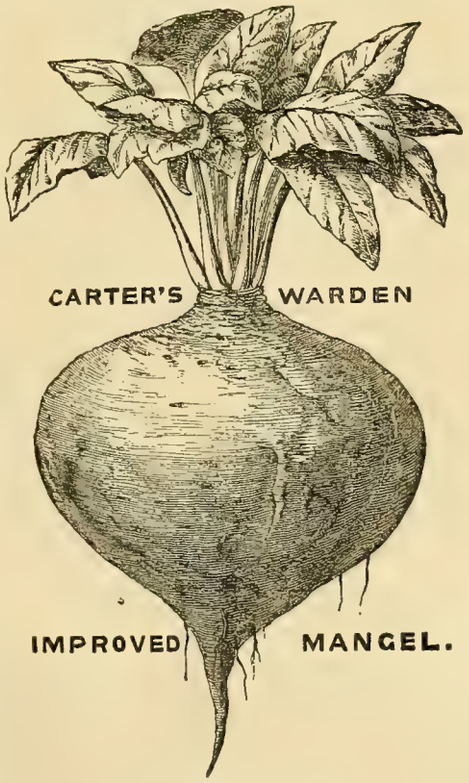
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1868.—Mangel Wurzel Seed.

H. and F. SHARPE can offer the Trade some splendid STOCKS of the above-named Seed, grown on their own Farm this season from picked Bulbs. The quality is very fine, and prices low. Samples may be obtained on application.
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Patron—
H.R.H. The Prince of Wales, K.G.
SOUTHAMPTON MEETING, 1869.
President—
The Right Hon. The Earl of Carnarvon.
The ANNUAL MEETING will be HELD at SOUTHAMPTON on MAY 31, and JUNE 1, 2, 3, and 4.
Prize Sheets and Regulation Papers for Stock, Poultry, Implements, and Horticulture, may now be obtained from the Secretary, Bath.
For Oil Paintings, Water Colour Drawings, and Art Manufacture, from R. R. M. Daw, Exeter.
All Entries must be made and Fees paid on or before April 12.
By order of the Council,
4, Terrace Walk, Bath. Josiah Goodwin, Secretary.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.

AGRICULTURAL EDUCATION.

The EXAMINATION of CANDIDATES for the SOCIETY'S EDUCATIONAL PRIZES will COMMENCE on TUESDAY, April 13.
Copies of the Form, required to be sent in by March 18, may be obtained on application to
H. M. JENKINS, Secretary.
12, Hanover Square, London, W.
N.B.—There is no stipulation this year as to the age of Candidates.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.

MANCHESTER MEETING, 1869.

STOCK and IMPLEMENT PRIZE SHEETS are Now Ready, and will be forwarded on application to HENRY WHITWORTH, Esq., Local Secretary, 95, King Street, Manchester; or

H. M. JENKINS, Secretary.
12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, MARCH 13, 1869.

If from 20 to 30 tons of Sugar-Beet can be grown per acre, and disposed of on the spot at 1*l.* per ton, there is no question but that sugar farming will prove profitable. Doubtless during the past season as much or more could be got for common Mangel, but then the season was wholly exceptional. The sugar-maker allows a maximum weight of 4 lb. per root. Last season Mr. Hawkins, of Lavenham, grew 21 tons per acre, with roots averaging 1½ lb. a-piece. Had they reached 3 lb. he would have had 42 tons per acre; at 4 lb. they would have brought his crop up to 56 tons per acre. His roots numbered 32,000 to the acre, or 1524 roots to the ton.

The mode of culture must steer clear of two extremes—gross feeding and starvation. The former is apt to produce water rather than sugar, and yet the root must have weight enough to pay. Apart from the question of sugar growing it is worthy of inquiry, how far farmers are wise in growing those Mangels that are almost wholly aboveground, and whether, even for feeding purposes alone, the Sugar-Beet would not prove the more profitable? The chief feeding value of Mangel is derived from its sugar. The question may be asked with great pertinence—whether more food might not be grown by choosing a low-growing Sugar-Beet than a high-growing Mangel? For it seems that the part aboveground yields scouring salts rather than nourishing and fattening sugar. In looking through the analyses of the Lavenham crop we were much struck with the wide range of the sugar percentage, the lowest being 3 and the highest 12 per cent, while the sewage-fed root from Barking reached over 13 per cent. Mr. Fish pointed out at the meeting of the West Suffolk Chamber the other day that heat

in any great quantity was not needed to develop sugar. He found a strong confirmation of this on looking over a number of analyses by Professor VOELCKER. Two samples from Devonshire yielded 5.46 and 3.62 per cent. respectively, while the average yield of the Lavenham roots was 9½ per cent.; and roots from the colder climes of Germany and Russia produced from 10 to 12 per cent. of pure white sugar.

But how will the new industry affect the feeding of stock and the agricultural interest generally? The stock will suffer much less than is generally supposed. It is difficult to convince many farmers that as much as 90 per cent. of their large Mangels is sheer water. This item can at least be readily supplemented from the nearest pump or pond. We lose nothing by allowing the hydraulic presses to disperse the water of our Beet. In addition to this the sugar-maker takes the sugar, that is, as much as he can get of it, for it is still a disputed point whether Beetroot pulp or the common Mangel (whole root) contains the largest percentage of sugar. But admitting that we lose a certain amount of saccharine matter, we must remember we get 20*s.* a ton for this loss alone. And there is no other, unless it be the water. The sugar-maker destroys nothing,—every particle of the Beet is returned to the farmer, except a certain amount of its sugar and water. A brief outline of the *modus operandi* of production will render this apparent to every intelligent reader. The sugar-maker is intent upon extracting the sugar, not wasting or destroying the roots; hence every part of the root not convertible into sugar is used for cattle food or manure.

The first process consists of the trimming of the Beets. Along the centre of an open shed a row of women sit, armed with knives, between two long rows of Sugar-Beet; those on the outside are untrimmed, those on the inside being dressed. The dressing consists of scraping the rough soil off, removing the fibres and the part of the top that has been aboveground. These chippings are then sold for stock food, at 1*d.* per bushel. The cleaned roots are then caught up by boys, and emptied into a long cylindrical iron cradle or washer; they are delivered at the further end of the washer clean, seized by active hands lying in wait for them, and delivered to the raspers. These convert the roots into a soft homogeneous mass, resembling Potato soup or rotten Turnips, and deposit it in a small well. Into this well a scoop or basket constantly dips, hung with such nicety that the least touch tips it over and empties its contents. On each side of this spot women are stationed with flannel bags that just hold the contents of this measure, and their business is to empty the measure of Beet soup into these bags, and place each bag flat between two plates of iron; these are piled one above the other until they reach a sufficient height, when they are placed under powerful hydraulic presses. The pressure is not completed at once, but they go through a series of six or eight presses in succession, arranged in a semicircular line, around an open gutter that conveys the juice into a large tank. After every separate squeeze the plates and bags are rearranged, made up to the requisite height, and re-pressed. And thus a great many are employed, and a number of presses are at work together.

From the last press the bags are carried back to one end of the cleaning shed, whence the pulp is emptied into the pulp store, and the bags are passed into the washing-house. Here a number of women are engaged constantly cleaning the bags and passing them on again to the fillers. Thus far, then, nothing has been added to the Beet; it has simply been separated, by enormous pressure, into liquid and solid. The liquid has been passed forward one step nearer to sugar, the solid has been sent back ready for conversion into beef. The pulp, as it is called, might with great propriety be called Beet bread. It is the flesh-forming matter of the Beet, not baked, but pressed almost dry. It is greedily eaten by all kinds of stocks, and is doubtless a most wholesome and nutritious food.

From the well near the hydraulic presses the beet-juice is speedily lifted up to the top of the factory. Following it as quickly as possible, we find three large copper vessels full of beet-juice. Here, also, we are confronted with the Excise officers, and are reminded for the first time of a duty of 8*s.* per cwt. on British-grown sugar. Singularly enough the duty is levied on the beet-juice, and before one step further can be taken towards converting the raw juice into sugar, its temperature and specific gravity must be duly and carefully noted. As soon as this is done, the process of conversion into sugar is resumed. This mode of levying the duty is important to agriculturists, as it has been suggested to Mr. DUNCAN that it might form the basis of the fairest mode of payment for the roots. The samples analysed range from 3 to 13 per cent. in their sugar. The former samples of roots are not worth more than 10*s.* per ton, while the latter would be worth 30*s.* per ton. Now it would be easy to keep the roots of each grower by themselves, and test the specific gravity of the respective juices separately. This would afford a powerful stimulus to the discovery of the best means of increasing the percentage of sugar, and it is just possible that the amount will be still further increased.

But beet-juice is readily decomposed. No sooner does it leave the presses than it begins to change colour. From a bright pinkish it at once assumes a dark hue. This chiefly affects the quality of the sugar, and must be prevented as much as possible by hurrying forward the process of manufacture. The instant, therefore, that the Excise is satisfied, a quantity of lime is cast into the juice, which destroys certain impurities, and casts them up to the surface as a dirty froth or scum. After boiling by steam, the clear liquor is drained off in one direction and the scum in another. The juice is then saturated with carbonic acid gas (which throws down the lime), filtered through animal charcoal, and otherwise purified, and another residuum is thrown off. The scum is sent through a filter-press, all that is useful for sugar-making preserved, and the refuse converted into cakes for manure, and offered at the works for 1*l.* per ton. As nothing more of the Beet comes back to the farmer, it is unnecessary to follow the process of sugar-making further here. Suffice it to say, that from this stage most of the processes aim at getting rid of the water, and changing the sweet liquid into solid sugar: hence it is evaporated while in vacuum, and after being reduced as much as considered desirable, it is run into barrels and dispatched to London, to be finally converted into sugar. It is hardly needful to observe that the whole of the machinery is driven by steam-power. The entire works are of Belgian manufacture, and are under the superintendence of M. VICTOR ORTMAN, civil engineer, from Belgium. Three steam-engines of about 50-horse power (collective) are on the premises, and the works are capable of working up from 4000 to 5000 tons of Sugar-Beet in about three months.

It is one of the necessities of the manufacture that the work should be continuous. Fresh relays of workmen and women therefore succeed each other night and day. Over 100 hands are employed, and the result upon an agricultural community of so much money earned, wages spent, and such an active industry excited just at the dead season of the year, can hardly be over-estimated. All around the factory there is an air of bustle and of business. Visitors are flocking to see the sugar-making from far and near, and the Lavenham experiment will doubtless become the birthplace of many others throughout England and other countries. From different countries of Europe, from Canada, and from all parts of Great Britain and Ireland, gentlemen have been to see and judge for themselves; and there seems no reason, in the nature of our climate, circumstances, or laws, why sugar growing should not speedily become almost as important a branch of British agriculture as the production of beef, beer, and corn.

M. GEORGE VILLE, of Paris, has recently directed attention to the enormous quantities of sulphate of ammonia existing in certain of the Tuscan lagoons. This salt is of such agricultural importance, and the demand for it is so rapidly increasing, that the discovery of any new source whence it may easily and cheaply be derived would be most welcome. But the fact is, that M. VILLE has made no new discovery at all. What credit there is attaching to the detection of sulphate and other salts of ammonia under the circumstances named above, is due, not to M. VILLE, but to a distinguished Italian chemist and mineralogist, Professor BECHI. One of M. BECHI'S first discoveries of a native ammonia compound in Tuscany was made, not in 1868, but in 1853. He then found and described a mineral known as *Larderelleti* (named after the proprietor of the estate), and containing several per cents. of ammonia. A large block of this mineral (which is a borate of ammonia), weighing some pounds, was shown, with sulphate of ammonia, &c., in the International Exhibition of 1862. In this latter year M. BECHI continued his researches, and obtained by one recrystallisation of the residual salts left when some water from a lagoon at Travale was evaporated, a sample of sulphate of ammonia, containing no less than 80 per cent. of the pure salt. At the same time M. BECHI, both privately and publicly, drew attention to the agricultural importance of his discovery, speaking on one occasion (June, 1862) to the following effect:—"Quite close to us, in these lagoons of Travale, we have a most abundant source of ammonia, and one from which agriculture ought to derive great benefit. * * * * In the working of the lagoon waters we have met with great difficulties in attempting to separate the boracic acid from the sulphate of ammonia, but these difficulties have at last been overcome, and we now obtain both boracic acid and sulphate of ammonia in a state of great purity, and by means of an economical process." M. BECHI also alluded to the vast stores of ammonia which could be extracted from these lagoons, and made available for the arts. In April of the next year (1863) M. BECHI published the continuation of his researches, giving an account of the various peculiar salts of the lagoons and their probable modes of production. Meanwhile, at his suggestion, many distinguished agriculturists began experimenting with the sulphate of the lagoons on their farms, and with the most favourable results.

We may add that in the Paris Exhibition of 1867, M. COPPI, the director of the works at the lagoons of Travale, showed several specimens of agricultural and pure sulphate of ammonia from the sources pointed out by M. BECHI. That the importance of this manufacture is considerable may be gathered from an experiment made by M. BECHI in 1862. He found that four *soffioni* (or jets) in the neighbourhood of Travale yielded in 24 hours more than 3000 lb. of sulphate of ammonia! He also observed that the very earth, in some places about the lagoons, is saturated with sulphate of ammonia, and that this salt occurs in combination with sulphate of magnesia in the same neighbourhood.

The above narrative will, we trust, have shown that we are indebted to M. BECHI, not only for the detection, some years ago, of abundant sources of native ammonia, but for pointing the agricultural bearings and importance of the discovery, and likewise for experimental help towards its practical realisation. *A. H. C.*

—— AT Mark Lane the corn trade has had a downward tendency throughout the week, in consequence of intelligence that large shipments of grain from the Baltic, Black Sea, Australia, California, and other parts, were near at hand. —— At the Metropolitan live stock market on Monday there was a short supply, and former high prices were fully maintained, a large arrival of foreign animals on Thursday, however, caused the trade in inferior qualities to be less active. Fine calves are making 6*s.* 4*d.* per stone, and choice porkers 5*s.* 4*d.* per stone.——The seed trade is undergoing some novel changes. Messages for a return of American Clover seed to New York have been received, and as these orders refer to large quantities, it is expected that even higher prices than have been anticipated will be asked for our small stocks.

—— On Wednesday evening Lord ROBERT MONTAGU'S Contagious Diseases (Animals) Bill was refused a second reading in the House of Commons, and is therefore lost. In moving the second reading, Lord R. MONTAGU referred to the amount of capital invested in English agriculture, and the consideration which it deserved at the hands of legislators. The only way in which that large portion of this capital which is invested in the live stock of the farm can be saved is to keep foreign stock from all contact with it. If the restrictions necessary to this end should result in higher priced meat throughout the country, he confessed that they could not be defended. But he believed that such a result would not follow. It had not followed in 1867 at Liverpool, and it would not follow in the country generally, because the English cattle saved by these restrictions would be more than the foreign cattle introduced. At present about 1,200,000 tons of live and dead meat are sent into the market by the home producer, and only 64,000 tons are imported from abroad. If the foreign trade were stopped what would be gained by the absence of contagious diseases would more than compensate for any loss. In the two years during which the cattle plague existed 290,527 cattle died or were slaughtered. So that in two years the country lost about one-eighth of the whole number of cattle imported during 25 years. Mr. HEADLAM objected to the Bill, as it perpetuated all the existing Acts of Parliament—nine in number, and dating from the middle of the reign of George III. —and also that it was antagonistic to the Government

measure, which allowed as the normal state of things free importation from all parts of the world, but created power to stamp out disease wherever it manifested itself, and to prohibit the importation of cattle to and from particular places. He strongly objected to the system of separate markets, on the ground that it was, to all intents and purposes, a return to the old exploded system of protection. Mr. Read supported the principle of the Bill, which was the establishment of separate markets for foreign cattle. He thought it would be impossible to prevent the spread of contagious diseases until some effort was made to eradicate the disease itself at the fountain head. Many of the diseases which had latterly manifested themselves among English cattle were unknown in this country until foreign cattle were allowed to be imported without restriction. He denied that high prices were attributable to the regulations requiring foreign cattle to be slaughtered at the outports. The real cause was the drought of last year, which had been most disastrous to the summer graziers. There was no Grass, very little hay, the root crop was almost entirely destroyed, and the result was that, instead of two sheep killed in an ordinary year, it required three to furnish the same amount of mutton. Mr. W. E. Forster, on the part of the Government, opposed the second reading of the Bill. His three main objections to it were, that it made consolidation of the existing Acts difficult, that it did not lay down to what extent discretion in the admission of foreign stock was permitted, and lastly, because it would land Parliament in a difficulty as to making provision for markets. After some further discussion the House divided, and the numbers were—For the second reading, 197; against, 253; majority, 56. The Bill was accordingly rejected.

—— The Government Contagious Diseases (Cattle) Bill was set down for its second reading on Thursday last, but, owing to the pressure of other public business, Mr. W. E. Forster announced that he did not intend to proceed with the Bill till after Easter.

—— The Hog Crop, as the produce of pork is termed in the Far West, has been gathered, and forwarded to its several destinations. At Chicago, the great outlet for the agricultural productions of the Western States of America, hog-buying, killing, packing, and dispatching by water and rail, is an enormous business. The "crop" for the year 1868-9 has, however, fallen considerably short of previous yields. In a summary of the published returns there are mentioned totals of 546,527 live hogs, and 51,427 dressed swine, making together 597,954. Large as this number is, it is a decrease, as compared with 1867-8, of 200,000 hogs.

—— The seed trade will shortly receive legislative attention. Mr. Welby, M.P. for South Lincolnshire, gave notice on Thursday of his intention, "in Committee of the whole House, to move for leave to bring in a Bill to prevent the adulteration of seeds." All respectable seed growers, as well as every farmer throughout the country, will receive this announcement with satisfaction, and they should urge their representatives to assist as much as possible in producing a really practicable and serviceable measure for regulating and preventing deliberate and systematical dishonesty in this important trade.

—— The *Mark Lane Express* thus tabulates the returns of its correspondents, on the character of the root and hay crop for 1868:—

Classification.	Turnips.	Mangels.	Potatos.	Hay.
Failures	246	37	6	8
2-3ds to 4-5ths under an average	138	38	6	48
½ ditto	74	83	23	135
½ ditto	22	61	65	128
¼ ditto	1	7	8	42
Under average ..	94	109	109	88
An average	51	110	310	91
Over average ..	—	4	42	9
Totals	626	449	569	549

Perhaps there has been this season a larger destruction of the Turnip crop than the present generation of farmers can remember. There are only 51 an average against 575 under. Of the latter, 458 are from one-half deficient to entire failures, of which there were the great number of 246, whilst 138 more were from two-thirds to four-fifths deficient. Had not the farmers availed themselves of the rain that fell in August to sow the land again, and thus received the full benefit of the extraordinary mildness of the autumn and winter, the case would have been still more serious. The classes of the Mangel plant exhibit a rather better appearance than those of the Turnip, there being 114 "averages" against 335 below. Amongst the latter there are 37 failures and 121 from half to four-fifths deficient. "On a review of the entire agricultural produce of the season," says the *Mark Lane Express*, "we cannot but consider it as disastrous to the farmer, both in its immediate result of the loss of crop (with one exception), and its remote consequences in the loss of profit in grazing and manufacturing manure for future crops. With regard to the cereal crops, the large produce of Wheat, and the high price obtained for it in the first few months after harvest, and the still higher proportionate price of inferior grain, will to some extent make amends for the otherwise extensive deficiency. The harvest of '68 will always be a memorable one to the farmer, as full of experience, if dearly bought."

—— In the *North China Herald* of December 12, 1868, Dr. Henderson, of Shanghai, has written an account of a malignant disease of cattle. The malady appears to have been rapidly fatal, and Dr. Henderson thinks highly contagious, but he states that his observations have only extended to three cases. These three consecutive attacks induced him to suggest the exposure of a healthy animal to contact with one of the diseased beasts, with a view to determine the question of infection, but a subject for experiment could not be obtained until four days after the death of the animal last attacked. The healthy beast was, however, stalled upon the litter which had been occupied by the diseased buffalo, but without positive result. Under the circumstances Dr. Henderson does not consider the experiment conclusive.

"The symptoms in all the three examples were similar, presenting only such slight variations as one expects to find in the same disease manifested by different individuals. 1. An appearance of great lassitude and increasing weakness, evidenced by listless movements, low carriage of the head, and depression of the ears. 2. A staring condition of the coat. 3. Refusal to take food, and chewing of the cud discontinued. 4. An accelerated pulse. 5. Diarrhœa. 6. As the disease progressed, an uneasy restlessness indicative of pain, probably abdominal; and laboured breathing."

These indications are those of several fatal diseases of cattle, and in themselves present nothing of a distinctive character. The *post mortem* appearances included distension of the rumen with food, softening of the spleen, and the presence of a brownish yellow bile in the gall bladder. A peculiar morbid condition was detected in the rectum and large intestines, consisting of minute raised points of a dark blue colour on the mucous membrane, of the size of a pin's head. In some instances the summits of the points were ulcerated. The third case was remarkable for the presence of intense congestion of the digestive membrane, but the minute blue points were absent. Following Dr. Henderson's example, we do not pledge ourselves to a positive opinion; but, judging entirely from the description of the malady, we should class it among those sporadic affections which occur in the kingdom at certain seasons, and of which "malignant apthous fever," "splenic apoplexy," and "black leg," are familiar examples. At present we fail to perceive any evidence of the China cattle disease being of an infectious character.

—— On the vitality of Wheat and its duration, our valued correspondent, the Rev. G. Wilkins, writing to the Bury paper, says:—Sir William Hooker, the Director of the Kew Royal Gardens, informed me that he, in conjunction with Dr. Lindley, made experiments on the vitality of seeds, chiefly cereals, with the view to their being sent to our remote colonies, and that they failed to cause Wheat to germinate after it had been kept for five years. I will also inform my agricultural friends that they declared the very best known method of preserving life in Wheat was to keep it in the centre of a full-ripe, well-harvested, and well-preserved stack; and, consequently, Mr. Mumford, of Cornard (he will excuse my giving his name), having some stacks of such Wheat four years old, I asked him to be so kind as to send me a sample, and he willingly complied, but first kindly tried the Wheat in his own hothouse and in his field, and here again vitality, as he informed me, had become extinct: not a seed grew, though the Wheat was only four years old. The sample also sent to me was among the 10 I sowed in the front of my lawn, vitality in the whole, as I have stated, having died away.

—— At Marlborough Street Police Court, on Saturday, Mr. James Halls, a Colchester farmer, and his son, were charged with having cruelly illtreated a quantity of poultry, which had been consigned to them from Ireland. The prosecution was undertaken at the instance of the Society for the Prevention of Cruelty to Animals. The fact that the poultry were closely packed during transit was not denied, and the defence set up was the custom of the trade. Witnesses were called, who gave the elder defendant an excellent character for humanity, and who stated that on such a journey the birds were better without food than with it, and that if packed loosely injury would be more likely to arise than if they were packed closely. Mr. Knox took time to consider his decision, and on the case being again brought on he fined the defendants 5*l*. in each instance. The method in which poultry are confined during transit from Ireland, Holland, and other places to the neighbourhood of London is certainly a most barbarous practice. It is to be hoped this decision will lead to a less inhuman arrangement than keeping ducks and geese in latticed boxes, in which they cannot stand up, and several days without food or water. Self-interest, we should have thought, would have suggested less cruelty. Meanwhile a summons has been applied for and obtained against the goods manager of the London and North-Western Railway.

OUR LIVE STOCK.

We have just received a copy of Mr. Bowly's catalogue, which announces the sale of 25 cows and heifers and 13 bulls, on Thursday, April 22.

It is not long since we called the attention of our readers to the Siddington herd, a full account of which will be found in our impressions of the 7th and 14th of last November. It is, we believe, generally known that the cause of Mr. Bowly's sale is want of room for his wonderfully prolific herd, and he has adopted the wise course of offering two entire families for sale, instead of a made-up lot, which might have been looked upon as the less favoured portion of his stock. The whole of the Musical family, with the exception of *Musical 7th*, will be disposed of. This exception would not have been made but for the fact that owing to an injury she received when a calf, but which we are glad to hear has not prevented her from breeding, this heifer is hardly in a condition to realise her value in the sale ring. The Musical family are all descended from *La Polka*, by Mouzani (6222), bred by Mr. H. Tucker, of Bourton House, and afterwards purchased by Mr. Bowly. Since this tribe has resided at Siddington, it has been improved by many splendid crosses, as may be seen by examining the pedigree of the younger members. Thus *Musical 15th* (lot 25) is by 15th Grand Duke, her dam, *Musical 7th*, is by 7th Duke of York, her g.d. by Earl of Walton, her g.g.d. by 4th Duke of Oxford, and her g.g.g.d. by that excellent sire Snowball (8602). Altogether there will be 15 females and 6 bulls of this tribe offered for sale. The Violet family number eight individuals, including one bull calf, born January 20 of the present year, by 13th Grand Duke, out of *Geyser*, by Earl of Walton (17,787). "At the earnest suggestion of friends," Mr. Bowly has consented to offer three of his Siddingtons for sale, namely, *Siddington 2d* and her daughters, *Siddington 4th*, by 7th Duke of York, and *Siddington 6th*, by 4th Duke of Oxford (11,387). *Siddington 2d* is own sister to *Kirklevington 12th*, and this alone will be sufficient to indicate the value of the opportunity allowed to purchasers of first-rate stock at the approaching sale.

We cannot close this necessarily short notice without mentioning that Lord Wild Eyes 5th, a roan 2-year-old, by 3d Lord Oxford, dam *Wild Eyes 24th* by 4th Duke of Oxford, will also be sold. The pedigree of this animal, commencing with *Wild Eyes 2d*, by Belvedere (1706), numbers seven crosses of a first-class character. Altogether the catalogue may be pronounced a most inviting one, and from personal observation we can say that the Siddington heifers will fully keep up the standard which their progenitors have raised.

—— Since the last catalogue of the Kingscote herd, 4th Lord of the Lilacs, from *Lady Walton* by 3d Duke of Clarence (23,727), has been sold to Mr Pilgrim, Outwood, Leicestershire; and Duke of Hazlecote 4th, from *Honeybourne*, by 3d Duke of Clarence (23,727), has been sold to Sir John Hartop, Bart. He is a good-looking bull, of rare quality, and shows a great deal of the Bates character. Lord Red Eyes 3d, from *Roguish Eyes* by 7th Duke of York (17,754), has been sold to Mr. Thornton, to go to Queensland; he is a pure Bates bull, of large size for his age, deep forequarters, heavy flanks, very fine hair and quality. Lord Red Eyes 2d, from *Red Eyes* by 2d Duke of Wetherby (21,618), has also left Kingscote for the Rev. C. W. Holbeach's herd; and Lord Red Eyes, his own brother, has arrived at Kingscote from R. S. Davies' herd, where he has done good service for the last 12 months. The births at Kingscote within the last week are a roan heifer calf from *Clarissa*, a cow by Oxford Duke (18,508), and a grand-daughter of *Chaff* by Duke of Cornwall (5947), a red heifer calf from *Honeymoon* by Caleb (15,718), a red bull calf from *Honeybell* by Grand Duke of Oxford (16,184), a roan bull calf from *Caroline*, and a dark roan bull calf from *Cerito 12th* by Duke of Wharfdale (19,648). All these calves are by 3d Duke of Clarence, and are really large, good-looking calves, even superior to the last year's produce from this excellent sire.

—— We are favoured with a short report on the present condition and prospects of the Nocton Heath flock. Mr. Wright has taken more prizes at the North Lincolnshire show than any other breeder, and has been a very successful exhibitor at the Royal Agricultural Society's show. Thus, at Newcastle he gained 1st and 2d prizes for shearling rams, and at Leicester he was awarded the 1st prize for Lincoln and other shearling rams; and a 3d prize for a pen of five shearling ewes. Subsequently, at Wetherby, the ewes shown at Leicester took the first place in competing with the 1st prize Leicester pen. These facts sufficiently attest the quality of Mr. Wright's stock. With regard to the present state of the flock, it numbers about 230 ewes, in very fine breeding condition. The lambing season was not at its height when we heard from Nocton Heath (March 2); but at that time it was going on satisfactorily, without the loss of a single ewe. Sixty ewes had yeaned, and 80 lambs been dropped. "They fall," writes our informant, "strong and good; the season has been wonderfully fine and mild; if it had not been so, the stock would have suffered awfully." We understand that fat sheep are exceedingly scarce in this locality, as indeed must be the case all over the country.

ON BREEDING AND FEEDING SHEEP.

The following lecture was recently delivered to the members of the East Penwith Agricultural Exchange, Camborne, by by Mr. J. Sydney Davey, the largest and most enterprising agriculturist in the district.]

The breeds of sheep cultivated in this country may be divided according to the character of the fleece, viz., into three classes, "long-wool," "intermediate," and "short-wool." The "long-wool" comprise the Leicester, Border Leicester, Lincoln, Cotswold, Romney Marsh, black-face Scotch, Exmoors, Dartmoor, South Hams, and the Bampton breeds, also the Herdwick. The "intermediate" class includes the Dorset, the Cheviots, and the Welsh: in addition we have the recently formed Oxford Down, a cross between the Hampshire Down and the Cotswold, and the hybrid from the Hampshire Down and the Leicester. The "short-wool" comprise several very important breeds, as the Shropshire Down, Hampshire Down, South Down, Ryeland and Shetland. It is probable that all sheep sprang from a common type, the great variety we see resulting from food and climate.

It is most important that we select our sheep suitable to our soil and climate, and when we have decided on the breed we intend to produce, the next business is to get the same, without advising the outlay of extravagant sums, such as are often paid for particular families. I most strongly advise you to purchase well-bred stock, and not to pick up the first sheep that are offered for sale, without a knowledge of how they are bred. We run the risk, by such a

practice, of starting our flock with a lot of mongrels. There is not the least doubt that we ought to be most particular in regard to blood; for instance, if we have a pure-bred flock, we can cross the breed for ourselves if we wish it, and know what we are about; but if we have a mongrel flock they will breed back, and we can never have an even crop of lambs: then we ask ourselves, How is this? what is the reason my flock is not so good as Mr. So-and-so's?—I treat them just the same as he does.

My idea is that the Leicesters go under the same category as the Shorthorn cattle, viz., that they require rich land, good victuals, and dry climate, and at the same time they come to maturity early, and, when slaughtered, weigh well, but their "fat is fat" and "lean lean." The Oxford Down and cross-breds are, to a certain extent, similar to the Hereford cattle, viz., that they must have land of fair quality, and not too much wet. Then, again, I place the Downs with Devon cattle, viz, that you can keep three instead of two of the former breeds just mentioned on the same food, but they do not come to maturity so early. Some (especially the Shropshires) can stand a wet climate, will thrive well on a poorer soil, and when fit for the butcher, will weigh well, having much internal fat; the fat and lean mottled and intermixed. The next point is, which breed is most suitable for our county? In the first place, I prefer short-wools to long-wools, for this reason—that our climate being so humid, a long-wool sheep lags about with an immense quantity of water, and his coat is like a sponge; and after hard rain you go into the field and see him stuck up in a corner with his coat parted in the middle like a woman's hair, and of course the wet penetrates to the skin, the poor animal gets a cold, a chill, inflammation, and dies. A short-wool sheep does not care the least for wet weather, but goes on feeding just the same, gives a shake and he is dry.

I will now tell you the treatment of my sheep. I can only talk of what I have done, and not what I am going to do. I have certainly decided that short-wool sheep are more suitable to this county (Cornwall) than long-wools, and of the short-wool breeds I prefer the Shropshire Downs. The principal reasons leading to this choice are, first and foremost, the greater suitability to a damp climate; their hardy, thriving, and prolific character; heavier weight both of fleece and carcase, and equally valuable meat. They are, in my opinion, the best short-wool breed for a rent-paying farmer. Probably some of you know "Tywarnhayle Farm," and are aware that, 30 years since, it was a common, growing only Heather. The quality of the soil, although grateful for improvement, is by no means first-rate; here there are 200 acres arable and 100 acres grass, and I keep 200 breeding ewes. Now I am most particular in regard to blood, symmetry, character, and constitution. I draft every sheep myself, and those reserved for breeding are numbered from one consecutively up to 200, and as each sheep is numbered it is entered in the stock book, with her particular blood and character. We always know their blood by certain marks. For 200 ewes I keep four rams, and put one ram to a flock of 50. The rams are selected with a view to correct the defects in the flock, and the ewes are drawn accordingly; the result is, if we have exercised good judgment that we every year render our flock more even and matchy. I prefer for the rams not to have more than 50 ewes, as there is such a thing as overwork, hence the reason of weak lambs. If, however, we happen to hire a valuable ram he may do more work provided he is kept up, and the ewes stocked. As the ewes are served, their numbers are entered into the book, so that the shepherd knows, when the yeaning time advances, what ewes to pick out to receive a little extra food and further attention. I prefer during the tupping season to change the ewes daily; for instance, Grass one day and Rape another, &c., and by the change of food and the flush of blood they come in use earlier, and with more regularity. I put the rams with the ewes on the first of September, so as to get the crop of lambs in February. After all the ewes are served, they are put together into one flock and allowed to live on the stubbles and eat down stale Grass up to Christmas. If any of the ewes seem to be in a lower condition than the rest, they should be drafted and have a little better food, as it is a great item to have them regular in condition, especially for lambing. They are then removed to a grass-field by night, and allowed during the day to run behind the folded sheep, and have some pulped food twice a day.

As the ewes drop their lambs in February, about a fortnight before their times are out they are brought to another grass-field near the homestead, and there have some pulped food twice a day, with rock salt (which none of the stock on the farm are ever without, except pigs). This improved diet puts them in good heart, gives strength, and flushes the milk. A small paddock, or "lambing-pen," of 2 acres, is provided, with a number of sheds 6 feet square; the ewes are usually placed in their pens a few nights before they lamb, so as to get them accustomed to their new abode. The period of gestation is generally uniform, and averages about 22 weeks. After lambing, which I leave entirely to Nature, without using any artificial assistance, unless in a case of very great need, she is penned in her house with a small trough of pulped food, and ½ lb. oilcake, with a little bran and malt screenings daily. As soon as the ewe has lambed, the shepherd trims any wool that may be around her teats, otherwise a young lamb is apt to make a mistake and suck the wool instead of the teat; if it does happen to swallow any, it will immediately cause a stoppage, hence the death of the lamb. The lambs, when 10 days old, have their tails amputated at the first joint. Some gentlemen, probably, think that I am wrong in this, especially in so humid a county; very likely some may say that they like long tails for shelter, but as my lambs have their tails cut when so young, they are brought up in the way they should go, and with their short tails are always neat and clean. After the amputation of their tails, the ewes and lambs are then placed in a fresh grass-field, with a temporary lean-to shed from the hedge, for shelter in case of heavy rain. The ewes still have their ½ lb. of cake per day, from which the lambs benefit, and also the land. As the lambs advance to eat the cake themselves, lamb hurdles are fixed in one corner of the field, where they can reach the cake without the ewes. The ewes and lambs are then folded on Rye-grass, and remain on Grass, &c., until weaning time.

I omitted to make a remark respecting my shepherd. I think that all good men ought to be encouraged, and I consider a good shepherd one of the most, if not the most important man a farmer can have on his farm, as he has so much capital intrusted to his care. My plan is this, viz., that if I keep 200 breeding ewes, and get 300 lambs, my shepherd receives 5*l.*; in fact, he gets 1*s.* for every lamb he rears above the number of ewes up to weaning time; and as all operations, such as tailing, castration, ear-marking, &c., take place before the lambs are weaned, they are at the shepherd's risk, which makes him give further attention and have a greater interest. As soon as the lambs are weaned they are all bled in the nose, which I find very beneficial; they lick and swallow the blood, which acts as an aperient. They are then placed in sheds, with an allowance of cake, commencing with from 2 to 4 ounces a day, and gradually increasing the quantity as they grow. I think it preferable to amputate the lambs' tails at 10 days old, ear-mark at two months, and castrate at three months, doing the operations by degrees, so as not to torture the poor animal too much at once, nor risk the loss of blood. The ewes, of course, after the lambs are weaned, are dried off, and milked down once now and then to keep back any hardness or inflammation of the udder; they, the ewes, are allowed a fortnight or three weeks after weaning to recruit their strength before shearing time, when they are again drafted.

The lambs in the beginning of October commence their winter career of folding on arable land and pulped food, consisting of Turnips, straw, and a little hay chaff. I will now endeavour to explain to you the nature of the pulped food. In the first instance, we will take the reason of folding. In folding, instead of carting all our roots to the homestead to be consumed by beasts, and then carted back again in the shape of manure, which is a deal of manual and horse labour, we consume our crop where it grew; and, in order thereto, have a house of about 10 feet long and 6 feet wide, on wheels which will lock under. This house, which costs about 15*l.*, contains one of Hornsby's pulpers, precedes the fold, and is removed daily, or every second day, according to circumstances. The roots are pulled, say a month's stock at a time, topped, and placed in convenient heaps, covered with a little straw, and then re-covered with earth to keep them dry, leaving an air-hole at the top to allow any superfluous gas to escape. The heaps are placed in rows across the field, so as to allow the fold to be shifted at convenient intervals. I prefer pulping to slicing, for the following reasons: the roots are so intermixed with the chaff that the sheep cannot separate them, and must, therefore, consume a considerable quantity of chaff; hence we can feed with a much smaller quantity of roots, and make the animal eat a much larger quantity of chaff. The crop lasts longer, much more manure is left, and the object for which we grow the crop—viz., the enriching of the land—carried to the greatest advantage. It is well known that a ewe will consume, if allowed to feed *ad libitum*, at least a fourth part of its own live weight of Turnips per diem—say nearly 30 lb. of roots per day, of which 9-10ths are water; this food, during winter, is often very little above freezing point, and it follows that much heat will be absorbed, and, consequently, food wasted, in raising this volume of water to the temperature of the animal's body. By water within and often water without the temperature of the body must be greatly reduced, and we are not surprised that, with such an unscientific mode of feeding, the animal cannot maintain its condition; therefore, as the order of the day is also that "time is money," we must not delay further, but take the common-sense view, and add the dry with the liquid, as in the pulping system.

The method pursued is as follows:—The sheep are folded according to sex, the wethers and draft hoggs in one pen, and the hoggs for breeding purposes adjoining, surrounded by netting, which is cheaper than hurdles in this county. The house on wheels is drawn near the heaps of roots, as before mentioned, and for 300 folded sheep, two girls, one at 8*d.* and the other at 6*d.* per day, commence pulping the roots in the morning, and store it back with a layer of chaff (consisting of two-thirds straw and one-third hay), and then a layer of pulped roots, with a little malt screenings intermixed; the next morning, when this food is required, instead of giving the sheep a cold, frosty Turnip, in a frosty morning, on an empty stomach, which is certainly contrary to Nature, they have their pulped food, with the juices of the formerly cold Turnip absorbed by the naturally dry chaff; and this mixture produces a suitable warm food for the animal, which is readily eaten, evidently with a relish. The sheep fill their bellies quickly, lie down and rest contentedly. They are fed three times a day, viz., 7 A.M., 12 noon, and 5 P.M., during the winter. The last season (we all know it was not the most favourable we have had), having had great difficulty in getting sheep up to weight, I had the pleasure of trying different quantities of artificial food. Well, I divided my wethers into two pens, all feeding on the same quantity and quality of pulped food. To one pen I gave ½ lb. each of artificial food per day, and to the other ¾ lb. per day. The former I had the gratification of selling at 15 months old, 24 lb. per quarter, at 6½*d.* per lb., without their coats, or 52*s.* per head; the other lot, at the same time, which had ¾ lb. of cake per day, came in at 31 lb. per quarter, which, at 6½*d.* per lb., would be 67*s.* per head. So it shows that the extra ¼ lb. of cake per day will pay well, not only by the increase of weight, but the saving of time and the addition to the quality of the manure. My idea is to allow the feeding sheep ¾ lb. of cake or artificial food per day, and sell them off in March or April, at about 12 months old, without their coats, at 21 lb. per quarter, or with their coats, according to choice, which can be easily accomplished, but of course it requires care and attention, the same as any other business. Probably some gentleman present will think this system a great bother and trouble, independently of the expense, as it has not been much practised in Cornwall. We chiefly graze our sheep on Grass, with a few Turnips, and sell them off about Christmas, at from 20 to 22 lb. per quarter; therefore time and manure, to a certain extent, are lost. We all know that it is a very important matter to get such suitable artificial food as will assimilate in the animal's stomach. If we give too much of one sort of food it causes a surfeit, and does more harm than good.

The great secret in feeding is the occasional change of food, and also cleanliness; for instance, it has been found by experiment that 6 lb. of good linseed-cake will produce 1 lb. of flesh, and 8 lb. of bean-meal will produce 1 lb. of flesh; but by a proper mixture of these two foods it will be seen that 1¾ lb. of linseed-cake and 2¼ lb. of bean-meal, well mixed, making 4 lb., will produce 1 lb. of flesh; and also, 2¾ lb. of linseed-cake, and a ¼ lb. of bean-meal, making 3 lb., will produce 1 lb. of flesh; and again, ½ lb. of linseed-cake and 3¼ lb. of bean-meal, making 3¾ lb., will produce 1 lb. of flesh; hence, you see the advantage of the mixture of the cake and bean-meal. I will now endeavour to give you the cost of the folding on pulped food, charging the roots, labour, artificial food, and the hay and straw chaff. In the first place, we take the lambs at the market value, and commence our winter fold:—

Dr.			
To 300 lambs, at 25*s.*	£375	0	0
,, Artificial food, ¾ lb. a day for 180 days, at 1*d.* a lb.—11*s.* 3*d.* a head	168	15	0
,, Labour, including one shepherd, two girls, and donkey and cart, at 1*s.* 6*d.* per head for six months	22	10	0
,, 1½ cwt. of hay chaff, at 3*l.* per ton—4*s.* 6*d.* a head	67	10	0
,, 1½ cwt. of straw chaff, at 1*l.* per ton—1*s.* 6*d.* a head	22	10	0
	£656	5	0
Balance for Turnips	146	5	0
	£802	10	0

Cr.			
By 300 sheep, 21 lb. per quarter, at 6½*d.* per lb.—45*s.* 6*d.*	£682	10	0
,, 300 fleeces, at 8*s.*	120	0	0
	£802	10	0

Besides the advantage of the sheeps' manure to pay for the Turnip crop—supposing we allow 12 lb. per head daily, we have consumed 300 tons of roots, which have paid us, independently of the manure, 9*s.* 9*d.* per ton; we deduct 9*d.* per head, or per ton, for casualties, as sheep consume 1 ton per head in the six months, we have then 9*s.* per ton for our Turnips. Could we have made as much by carting them to the homestead and taking back manures? There is not the least doubt that if we studied a little more the mixture of foods, we should be thoroughly repaid for our labour. I think that the pulping system is especially valuable this season, owing to the scarcity of the root crops, and as we have had an unusually dry summer, we must not be surprised if we have a very wet and difficult time to contend with, thereby requiring a liberal allowance of chaff to absorb the additional moisture of the roots, so as to prevent scour; we ought, therefore, to be prepared in case of scour. If they have it, I am given to understand that a mixture of acorn-meal, mixed with their food, is a sure cure.

THE BEDFORD RIDGER AND SUBSOILER.

The Messrs. Howard, of Bedford, have very kindly forwarded to me a copy of their catalogue, to enable me to refer to p. 11, where I find an engraving of "Howard's combined steam-ridging and subsoil plough," and the sight of it well repays me for all the trouble of hunting it up, especially as it is a prize-winning implement; and with your permission I will give your readers a description of it, to aid the Messrs. Howard in letting the world know what a fine thing they have got.

The implement is framed like their cultivator, with a pair of wheels in front and another pair behind. The framing extending the length of the implement, connects the two pairs of wheels together at the centre of the framing; between the two pairs of wheels on each side of the implement there is a double-action tine, like their cultivator tine, to enable the implement to work both ways. There is a kind of prong hanging between these two tines to block the earth after it is smashed, to cause it to roll sideways to form a ridge. The fact is, it is a two-tined cultivator upon the Howard principle, with a burst-earth fixed between the two tines, and not a ridging and subsoil plough at all, in the sense in which we all understand those words. Mr. James Howard's words—"In some seasons when, from wet weather, he had been late with his work, instead of using the cultivator he had used a combined ridging and subsoiling plough, throwing up the soil 9 in. deep, in bouts of 27 in. wide, and the subsoil tine penetrating and loosening the open furrow some 6 or 7 in. deeper," do not faithfully describe its work, for there are no two depths of working at all. If the land is to be worked 15 inches deep, the tines must be set to work at that depth at once, and there is nothing but a burst-earth hanging between the two tines to drive the soil into a ridge. The draught of the implement set to work at a depth of 15 inches, must be very great

indeed, and it is very questionable to me whether a single man's weight, sitting upon the implement to guide it, would be enough to keep those short working tines down to a depth of 15 inches, especially in "wet weather;" and besides all that, the dirty, clogged wheels, rolling over the work as soon as it is done, must tend to keep the implement from its depth of 15 inches, to say nothing about the height of ridge over which the back wheels must pass. The fact is, it is a complete makeshift, just the sort of thing that the Royal Agricultural Society would be certain to give a prize to, for their prizes are the guide to lumber.

James Howard need not have been angry with me, for the description he gave in his paper was a faithful description of the working of my ridger and subsoiler, but not of his own; and I now tell him confidently that he cannot throw up the soil 9 inches deep into bouts 27 inches in width, loosening the soil in the open furrow 6 or 7 inches deeper in wet weather, with his implement; besides, how will he shift his implement from bout to bout at land's end? He must have a crane at land's end to lift the implement out of the ground and pass it sideways; or at 15 inches deep he must cut his work all to bits. A worse makeshift I never saw, and I am not at all surprised to find that he cannot get anybody but Mr. Pike to refer to; and Mr. Bowick's condemning ridging and subsoiling last autumn is well accounted for.

From this catalogue that the Messrs. Howard have kindly sent to me, I get another bit of information. At p. 28 I find a "list of purchasers in Great Britain of steam cultivating implements manufactured by J. & F. Howard," including every purchaser (from her Majesty the Queen downwards) to whom the Messrs. Howard supplied tackle upon my principle during the time they were agents and manufacturers for me. What recommendation these names can be to tackle constructed upon the Howard principle I cannot understand, but one thing is certain from it, that the firm will stick to me as though they were nailed to me with nails a yard long driven through and clenched. I cannot get away from them, they will have me, although James Howard says that he has "ceased to pay any attention to me." Another part of Mr. Howard's paper shows what a loadstone I have all along been to him, although we have long since cast one another adrift. Here are his words: "At the Carlisle meeting of the Royal Agricultural Society in 1855, the late lamented John Fowler, two or three others, and myself, went to spend a day at Derwentwater. I remember as our boat drifted along the surface of the lake, he said to me, laughingly, 'Well, Howard, we really are going to commence ploughing by steam in earnest. A farmer from Buckinghamshire ordered from me yesterday a set of my drawing apparatus to work a plough.' Some six months after this I was invited by our old friend Mr. Smith, to go to Woolston and see his steam cultivator at work. I at once perceived we were not far from a great revolution in farm practice, and from that period to the present much of my thought and time have been given to the subject, feeling convinced that the general adoption of steam tillage was a mere matter of time." Mr. James Howard, when acting for me, frequently told me about Fowler's laugh at my notion of ploughing the land by steam-power, although he knew nothing as to how I meant to do it, except that of using rope traction, for I never hinted to him at Carlisle what kind of implement I intended to use.

The evidence of Mr. James Howard thus given stamps upon me what I vastly prize, the honour of being the originator and starter of practical steam cultivation. My only business at Carlisle was to find a manufacturer to make for me a two-drummed windlass to work my implement with—I did not care who, but I meant to find one before I left; and with Mr. R. Ransome's assistance I did find one, and the world now knows the result. The Royal Agricultural Society have played with me from the beginning to the end, but for all that I have won my prize—honour; the thing that their prizes do not carry.

Mr. James Howard may hold me up over his ridger and subsoiler as long as he likes, but that will not help the thing on a bit, and I hope he will never be angry with me again for sticking to nothing but my right—my ridger and subsoiler and my smasher. He is welcome to things made upon his own notion, but let us have things stated squarely and fairly, and let real truth shine upon the surface of everything we say or do. *William Smith, Woolston, Bletchley Station, Bucks, March* 6.

ADULTERATION OF FOODS AND MANURES.

[The following is a somewhat abridged report of Dr. Voelcker's lecture on this subject last week, before the London Farmers' Club.]

It is patent to all who have given any attention to the subject, that both feeding materials and artificial manures are adulterated to a very enormous extent; and though it be quite true, as the Chairman has observed, that the fraudulent dealing on the part of the unprincipled man is encouraged in a measure by a certain class of agriculturists, who will beat down the honest manufacturer to a price at which it is impossible to furnish the genuine article, yet it is, nevertheless, the case that there are expensive feeding materials as well as manures sold now in some market towns which are much adulterated. I shall confine myself strictly to the question on the programme, and my aim now will be to point out to you how some of the chief feeding materials are adulterated, and how the adulterations can be detected. I shall refer afterwards to the adulterations of artificial manures, and point out in general terms their composition and effect; and, lastly, I shall endeavour to throw out a few hints which I trust will be useful to you in becoming purchasers of either of the articles of which I have to speak. I need hardly say that one of the very best safeguards against imposition is a thorough acquaintance with the character and properties of the materials with which you have to deal.

Oilcakes.

Beginning, then, with the most important of all purchased feeding material—linseed cake—let me point out briefly its characteristic properties. Good linseed-cake should have a pleasant taste; it should have no mouldy appearance; when mixed in the proportion of 100 grains to 4 ounces of water, it should form a thick jelly, which one might almost taste with pleasure. In a bad cake you never get a good taste—never get a jelly if you take the powdered linseed-cake in the proportions just indicated. Here is a specimen which requires no microscope nor chemist to show that is adulterated. A decent pair of eyes and a sufficient amount of common sense will convince you that the cake is frightfully mixed up with foreign materials, and you will wonder that there are agriculturists to be found to buy such rubbish. Mixed with water, as I have done here, in the same proportion as I have followed with the genuine article, the result is not a wholesome-looking jelly, but a thin, unwholesome-looking liquid. Pure linseed-cake should be made with pure seed—not only good, genuine seed, but pure seed.

You will ask me at once what is the difference between genuine and pure? Pure Linseed contains nothing but the seed of that name. Linseeds in this country vary very much in quality, and it is held to be an excuse for the manufacture of impure cake that the makers cannot always obtain the genuine seed. But no such excuse should be allowed. Most of the foreign seeds, such as Canary-seed, found in Linseed, are smaller, and can be readily removed by sifting, and the maker of linseed-cake who is determined to use a pure article can do so with really very little trouble. The seeds which are sifted out from the Linseed as it is imported are frequently again mixed with fresh portions of Linseed, which goes back under some assumed name, perhaps as Maltese, Petersburgs, &c. I have heard of seeds sifted out of the siftings being carried out to sea, where a ship comes alongside, and an interchange is made of this seed which has more than its proper share of weed seeds. The cake made from this kind of material is made to no larger extent than in Hull. I have examined many, and have here a specimen where it is very difficult to find any Linseed at all. The sample in this bottle contains more than 80 per cent. of foreign seeds or siftings. These siftings, let me add, are not by any means useless, because they fetch a fair price in the market when they are pressed into cake, which is sold, under the name of siftings-cake, to makers who regularly deal in mixed feeding-stuffs. In buying Linseed, then, you ought to be careful that you get a guarantee that the cake is pure, and not merely genuine.

The farmer in buying these cakes runs considerable risk of doing positive injury to his stock unless he exercises care, and on this ground I would strongly recommend you to use a pure Linseed, and give encouragement to those companies or private firms who make nothing but pure linseed-cake. I am happy to say there are at the present time - and I wish I could say a good many—some of these: I know some eight or 10, but not more I think in all the country. If it be remembered that in Hull there are at least 40 oil-men, and if it be borne in mind that I have had excellent opportunities of forming a fair estimate of the proportions of pure and mixed cake makers, you will all agree with me it is a matter of deep regret to have to arrive at the conclusion at which I have arrived, viz., that there are scarcely 10 per cent. of the oil-mills of England that turn out a pure article. One remark I might make that would be useful to you; it is, that hard cakes, though they require a little manipulation on the part of the farmer sometimes, are the very best cakes that can be obtained. I have here one which I had some time ago the pleasure of analysing for one of the members of our Club; it is, as you see, extremely hard, but examination proved that it was also extremely nutritious and pure. It is made of a genuine Linseed, which comes from Hungary. The cake is very dry, and requires to be broken up fine and soaked in water before it can be given to stock. After all, this hardness is a positive advantage, for it preserves the cake, and protects it against the pernicious influences of our damp atmosphere. In a moderately well ventilated barn this kind of cake can be kept for years and years without deterioration. Some of the softer cakes very rapidly become mouldy; and I need hardly say that mouldiness spoils the cake, and to such an extent that some follow the practice of mixing the spoiled cake again with a little fresh Linseed or bran, and then sending it out as mixed, or professedly bran cakes. Many of the bran cakes have the germs of Fungus in them, and if you put them in damp places the natural consequence is rapid mouldiness, and great injury to the stock which feed upon it. If you want to keep your cake well, it is desirable to put it in a barn edgeways, so that the current of air may pass through, and preserve it by the sheer force of ventilation, else the cakes become sooner spoiled.

I have upon the table various kinds of adulterated cake, which you may examine. I must content myself by speaking of the ordinary adulterations. Here you have a cake which is adulterated, not with one, but a variety of things—with cotton-cake, with bran-cake, with earthnut-cake, with cocoa-nut-cake, in addition to the adulterating materials I have before mentioned. The following are frequently used in the manufacture of mixed cakes:—Palm-dust, oat-dust, and barley-dust (in other words, the refuse of the manufacture of the oatmeal and pearl Barley), rice-dust (obtained in gleaning Rice for the market, and generally known as rice-meal), beechnut-cake, Hemp-seed and the cake manufactured from it, and Locust-beans. There is another ingredient which has but lately come under my notice, and that is Indigo-seed. I should not have discovered the presence of Indigo-seed in oilcake but for the fact that the seed pressed into cake had been sent to me by a manufacturer, with an inquiry whether it might be safely mixed with feeding cakes. I believe this Indigo-seed is not poisonous, but it has a very disagreeable taste, and possesses very little nutritious value. I ought, perhaps, here to say that most of these adulterating materials are harmless in themselves, while some of them, like Locust-beans, possess undoubted feeding value. The proportion of sugar in the Carob-bean is very large; Locust-beans have considerable feeding qualities, and also bran, which is a good material in its place. Still, in comparison with good linseed-cake, these things do not possess what we might designate a high feeding value, because they contain more of the woody fibre than Linseed, while the proportion of oil in pure linseed-cake is considerable, and much greater than in bran. As compared with linseed-cake, the same comparison will apply to cakes composed of gum, mucilage, sugar, &c. Although bran is one of the useful articles that a farmer cannot dispense with, and I am not sure that it would not often be profitable to mix it with linseed-cake, I would strongly recommend you to make your own mixture at home. In that case you can use your own pure Linseed, and mix the materials in the proportions which experience tells you will best suit your stock.

But whilst many of these adulterating materials are comparatively harmless, or, in a few cases, positively nutritious, there are many, on the other hand, which are highly poisonous. Not long ago there was a case tried in the Court of Common Pleas where an importer of cake claimed heavy damages for having been supplied by a Bombay house with cake which, to all appearance, was a first-rate article, full of oil, and fine in every respect. The cake was sold in the provinces; and it was not long before it was found out that it was doing considerable harm to the cattle that had been feeding upon it; and I am not sure whether some of the stock did not die. Well, upon examining the cake, I found a mixture of castor-oil beans. An ordinary analysis would not bring this fact to light; but a strict microscopic examination left no doubt whatever that a considerable quantity of castor-oil beans had been mixed with the Indian Linseed. Another material I found last winter for the first time in linseed-cake was still more poisonous. It was a bean—a specimen of which I will pass round to you—known as the Kirkus Bean. A single bean is quite enough to make a man very sick, for it is very drastic in its effects. This kind of cake is made, I believe, chiefly at Bristol, and can only be used for manuring purposes. The smallest admixture in feeding cake renders the whole poisonous.

Now for a few observations on rape-cake. It should be made from good, clean Rape-seed, that is to say, from seed which does not contain, like some of the Indian Rape-seeds, quantities of wild Mustard. Some of the Indian Rapes are so full of this that the cake, when it gets into the stomachs of the cattle, becomes so pungent that it blisters the intestinal canal, and, of course, causes serious injury, if it does not kill them. The only descriptions of rape-cake which are safe to use are the French and German green cake. I should not like to say that Mustard is purposely mixed with Rape-seed, because it is known that they grow together in the fields in India, where the agriculturists do not weed so carefully as we are in the habit of doing, and where the wild Mustard spreads with wonderful rapidity upon ill-managed farms. It often happens that the seeds from which Indian rape-cake is made is so filled with Mustard that, on mixing the powdered cake with water, you get a paste which you might use with your beef without doing yourselves much injury. I have a specimen of cake here which even now smells and tastes palpably of Mustard. Never forget that there are ready means of detecting adulteration. All you have to do is to pound the cake into coarse powder, and mix it with water. Leave it to stand for 24 hours before you attempt to examine it; for it is well to remember that the pungent oil of Mustard does not exist ready formed in the seed, but is produced by a certan fermentation in the ingredients of which the cake is made.

Cotton-cake requires our attention next. There are two kinds, and neither of them is much adulterated, although occasionally both are sold to the farmer of a very inferior quality. The cake is made of the Cotton-seed, after the shell is carefully removed, without which the husk would unduly preponderate. I have here some really excellent specimens of decorticated cotton-cake. When pure, it is of a bright yellow colour, and tastes as sweet as a nut. Indeed, I do not see why we should not call it a nut, since it is the kernel of the Cotton-seed. When stale, the cake alters its colour, becomes darker, and is very apt to get mouldy in damp localities. Here is a specimen which I have labelled poisonous to cattle when mouldy. In its pure state it is not so, but mouldiness developes a poisonous fungus. Ordinary cotton-cake, which is made from the whole seed, should be well ground in the mill, and the husk should be reduced to as fine a powder as possible. Coarse ground seed becomes injurious by being indigestible. Occasionally an extra quantity of the husk is added to the ordinary whole-seed cotton-cake, which then becomes, as a matter of course, inferior in feeding quality. It is difficult to recognise this species of adulteration by ordinary inspection; but chemical analysis will discover it. From a table of comparative statistics, which I have prepared here, you perceive that there is a great difference in the feeding quality of the whole-seed cotton-cake. The amount of husk is nearly 48 to 50 per cent. of the whole cake, and I believe, at its present price of from 8*l.* to 8*l.* 10*s.* per ton, it is the dearest cake you can possibly buy. I would not recommend the use of cotton-cake when the price rises above 7*l.* per ton.

Manures.

I must now hasten on to the second division of my subject—the adulteration of artificial manures. If the loss which the farmer sustains by buying inferior feeding materials is to be lamented, the loss which he incurs by the use of adulterated manures is much more to be deplored, because the injury done by the application of adulterated or inferior manures is not at once perceptible, and many a man goes on for a long time without being aware of the real cause of the small crop at which he wonders, and repines. Therefore am I very anxious to be much more severe on the dealers in adulterated guanos, or very grossly adulterated manures of other kinds. In a certain measure, as our chairman observed, the farmer can protect himself in buying feeding materials, but he has not the same facility of protection in the purchase of artificial manures. You cannot by any inspection recognise whether guano is adulterated or not. I defy even an adept in guano to tell me whether this specimen before me is genuine or otherwise, it is so like the genuine article. Chemical skill is required to affect a detection, but chemical skill can do it. Hence it is that these fraudulent transactions are so much more common and extensive than the dealings in adulterated feeding materials can possibly be. There are, however, one or two things which it may be useful for you to remember, inasmuch as they will enable you to detect pure Peruvian guano from the adulterated kinds.

The best Peruvian guano always has a lighter specific gravity than adulterated kinds. If you weigh a bushel of the genuine stuff, you will find its weight per bushel does not exceed 69 lb. It is usually from 68 lb. to 69 lb. per bushel measure filled, and struck off. Adulterated guano always weighs more. This surely is a simple way of testing the value of guano. Another equally simple way is to burn a small quantity—if you have the appliances to do it—by careful weight, say 100 grains. Should the guano be genuine, it will leave one-third of its weight in ash, which is perfectly white; in other words, 66 grains will burn away, and 34 will remain in the form I have stated. If the guano be adulterated, it will leave perhaps more than one-half of its weight in ash, and the ash will invariably be coloured, since the earthy matters which are usually employed contain oxide of iron, and that compound causes the ash to be of a brownish or yellow-brown colour. Genuine Peruvian guano yields—or perhaps I ought to say yielded—from 17 to 19 per cent. of ammonia. At the present time, however, you must be satisfied if you can get 16 per cent. I very much fear the supply of guano will come to an end within no very remote period, for certainly the average cargos are not so good as they were some eight or 10 years ago. The materials that are mixed with guano are gypsum, chalk, and certain yellowish loams which abound in the mouths of the Mersey, Liverpool being one of the chief depots of mixed guanos. Liverpool, indeed, is famous in one respect for the mixing of guanos, in the same way as Hull is famous for the mixing of feeding-cakes; neither of them can be said to enjoy an enviable notoriety. Let me here add a word of warning while speaking of Peruvian guano: Never buy guano which is offered at auction. Follow my advice; ask no questions, but when anybody offers guano by auction, have

nothing to do with it. If you do, blame yourselves if you are taken in. I have never yet seen Peruvian guano sold in such a way in small lots to the consumer.

Will you also permit me to make another remark, by way of caution? Never put dependence upon any analysis of mine, or that of an equally respectable chemist—for I suppose at the Farmers' Club I may venture so to describe myself. Remember, the analysis only proves the composition of the sample which is submitted to you at the time; it offers no guarantee that what you get shall be the same. These analyses, I am sorry to say, are frequently made for mere gain; they enable the unprincipled dealer to sell spurious articles to ignorant men. It frequently happens that when guanos are offered for sale an analysis is shown with them of a highly recommendatory character, whereas the bulk which is sold to the unwary purchaser is totally different from the sample which was submitted to the analyst's hands. Within the last few weeks I have had no less than four distinct cases of the grossest fraud of this description brought under my notice, in which guanos have been sold by auction, and I fear in one case I have been unwittingly the instrument of inducing farmers to buy adulterated compounds. A sample was sent to me, and analysed according to request, and I know positively it was afterwards mixed with a large quantity of yellow sandy loam, and sold by auction as genuine material on the strength of my analysis. It was sold at prices varying from 7*l.* to 9*l.* per ton, and yet it was not worth more than from 2*l.* to 3*l.* Was it likely that so valuable a material as Peruvian guano could be sold at a price considerably lower than what you would give were you to buy a whole cargo? Notwithstanding this, purchased it was when offered for sale; and the surprising thing is, that farmers will persist in buying guano (as they think) at 9*l.* or 10*l.*, or sometimes at a lower rate per ton than that.

Nitrate of soda I fear will this year be very frequently mixed with common salt, because the high price of the former offers a strong inducement to unprincipled persons to use the latter. Only the day before yesterday a person came into my laboratory with a sample of nitrate of soda. He complained of its high price, and said, "What are we to do this year? Farmers won't pay more than 15*l.* We are obliged, you see, to mix common salt with it, or we should not be able to sell any." I give you these words as I received them, and without any comment of my own. Sulphate of ammonia is another valuable manure which is occasionally adulterated, the chief adulterating principles being sulphate of magnesia, Epsom salts, sulphate of soda, and Glauber salt. During last week I had several samples adulterated with these things. Bone-dust is not often adulterated, unless you buy it in a very fine powder, and then you run the risk of getting gypsum mixed with it, or you may possibly get with it vegetable ivory, which resembles fine bone-dust very closely. From a manurial point of view, this is not worth anything; but it is good as an adulterating principle, and the manufacturers of Birmingham will not take less than 2*l.* 10*s.* or 3*l.* a ton for it. Dissolved bones and superphosphates are sold in the market at high prices, and the prices which you ought to give for this description of artificial manures should be regulated entirely by their quality. You cannot fix one uniform price for superphosphates; everything depends upon their composition. You cannot look into the composition of the sample which is shown to you. I am often amazed at men who look very knowingly as they smell and look at superphosphates, as if they could smell out the percentage of a soluble phosphate of ammonia it contains. In a fixed or combined condition there is only one way, and that is by analysis.

The constituents which chiefly regulate the value of superphosphates as a fertilising agent are—soluble phosphate, insoluble phosphate, and nitrogen, or ammonia. The more you have of soluble phosphate, and bone phosphate, and of nitrogen, the better the class of artificial manure, and of course the more you will have to pay for it. There are some mixed artificial manures the names of which do not exactly indicate their true character. For instance, there are a good many kinds of manure sold under the name of blood manures. As a fact, there is very little blood used in the manufacture of manures. Where is all the blood to come from that would make all the manures sold under the name? Some of the manures, nevertheless, are very good—not on account of the blood, but other good things of which they are made. Whilst some reuse materials, as blood, or even woollen refuse, are useful in furnishing nitrogen to the growing plant with sufficient readiness, there are other refuse matters which do not decompose, and which are only added with the view of deceiving both the consumer and the chemist who advises him. There is a description of nitrogenous manure which contains a good deal of leather. People say "There is nothing like leather." I say leather is out of place in manure, even after it is steamed and subject to the action of sulphuric acid. Leather is still leather, do what you will with it.

SUGGESTIONS.

And now to sum up briefly the various points upon which I have spoken in detail during the course of this address, and to throw out a few suggestions which may be useful to intending purchasers of artificial feeding stuffs or manures.

In buying linseed-cakes get a guarantee from the dealer that it is pure, and be not satisfied with a guarantee of its being merely genuine. If you have any doubt of the genuineness of the cake, send a sample for examination to a competent chemist. Those of you who are members of the Royal Agricultural Society can be informed by myself at a mere nominal fee. I would advise you not to encourage the manufacture of mixed cakes at all. Become your own mixers: buy the raw materials, and make your cake as you please. You don't want to get a mixed cotton and linseed and earth-nut cake. If you buy earthnut-cake of good quality, you will find it very useful. Buy the cakes separate, and mix them with Linseed or a certain proportion of bran, which you will find answer extremely well. In buying guano it suffices to have the guarantee of the dealer that the article is Peruvian Government guano of the best quality. You require no analysis—the guarantee is sufficient. In buying nitrate of soda, buy according to the percentage of pure nitrate; in good samples you should get from 94 to 97 per cent. With sulphate of ammonia, buy according to the percentage of ammonia; in good commercial samples you have from 22 to 24 per cent. A guarantee that bone-dust is genuine will be quite sufficient. In buying superphosphates the first thing you have to do is to make up your mind as to what you want. Do you require mineral superphosphate or bone manure? According to your requirements let the guarantee be shaped. Mineral superphosphates are useful when your land is in first rate order; when it is not too light, or has been manured previously in autumn, they are very useful, and in buying them all you require is to have the percentage of soluble phosphate guaranteed. If you on the other hand buy bone manures, you not only require the percentage of soluble phosphates guaranteed, but also that of the insoluble phosphates, and, moreover, a distinct understanding that the insoluble phosphates are present really as bone, and not in the shape of coprolite powder, Estremadura phosphate, or any other description of mineral phosphate. May I add a few remarks upon the advantages or disadvantages of those associations which have lately sprung up in several quarters, and which under proper guidance may prove extremely useful to the agricultural community? In some localities manure associations have been established—associations of farmers who buy artificial manures in considerable quantities, and then supply their members at wholesale prices with the manure, which is guaranteed in the first place to be of a certain strength and quality. Much good may be done by this co-operative system, provided you exercise sufficient supervision and judgment over those who supply your contracts. A manufacturer who guarantees to supply a manure association of farmers with superphosphates containing 24 or 25 per cent. of soluble phosphate may have the best intentions of fulfilling his contracts literally, but may not always be able to do it. It is not, therefore, superfluous for me to caution those who are supplied from these associations with superphosphate of guaranteed strength to take care that they get from their own officers what they are supposed to obtain. I cannot see how it is possible to secure to the individual consumer that he gets the real article if the manure is delivered to him in small quantities. The manufacturer should deliver it in bulk at one time; or, if it be delivered at different times, with each delivery a fair sample should be drawn from the bulk and afterwards tested. If small parcels are sent direct from the manure works to the individual farmers I cannot see how you can control the quality of the article. I would therefore urge every caution in managing these manure associations, else the very object you have in view, namely, self-protection, may be defeated altogether.

Home Correspondence.

Steam Cultivation: the Combined Ridger and Subsoiler.—In reference to your Editorial remarks as to the practice of spreading the manure on stubbles in the autumn, before being broken up by the steam cultivator, being "a practice new to Mr. Howard," I have to remark that Mr. Bowick has ceased to have anything to do with the management of Messrs. Howards' farms for some three years past, since which it has been the invariable practice before breaking up the stubbles by the cultivator to spread the manure on the surface. Last autumn upwards of 100 acres were so manured. *Walter J. Henman, Manager of Messrs. Howards' Britannia Farms, Bedford, March* 8. 1869.

Last Words on the Tiptree Balance-sheet.—"Another Farmer" thinks I owe Mr. Mechi an apology. I will cheerfully make one, and humble myself in sackcloth and ashes to his satisfaction, if Mr. M. will give a satisfactory answer to my questions, and clear up the points on which I confess I am hazy. Possibly this is not convenient or agreeable, and it is more easy to treat me with silent contempt. But that plan has in these days exploded, and Mr. Mechi would do well to learn, what even the Legislature itself has been obliged to learn, that now, when "we have good road, railways, penny post, and a rapidly growing Press," we must all give the "reason why," for the faith which is in us. It will be time enough for "Another Farmer" to charge me with unscrupulousness, when I give figures which do not represent facts. When he proves his case, I shall, indeed, be humbled. It would, however, be better, if, instead of bandying words about the matter, he would meet me at Tiptree Hall for the purpose of overhauling the books and making out a balance-sheet on strictly commercial principles. I expect that the accounts are there kept on a system which would render this by no means a difficult task; and I am sure that Mr. Mechi, in his anxiety to throw light on the subject, will not refuse the necessary permission. I am quite ready to make arrangements for the purpose, and it may be in some measure reassuring to "Another Farmer" and Mr. Mechi, to say that I am not entirely unqualified for the task, having in former years held the position of book-keeper to a firm in the City of London, from whom I have from time to time received substantial reasons for thinking that my services were considered satisfactory. *F. W. Bignell.*——It is of no use for "Another Farmer" to quibble about 4 acres of land and 8*l.* for rent, for we have Mr. Mechi's statement upon that point; neither is it of any use for him to say a word about the price of Mr. Mechi's Wheat or the Imperial averages, for Mr. Mechi has since told us that he did not make 63*s.* 9*d.* of his Wheat, inasmuch as he says that 62*s.* was the highest, and 46*s.* was the lowest price per quarter. I have now done with the matter. *A Farmer.*

The Tiptree Balance-sheet is not a shadowy matter of idea or imagination, for I draw out in hard cash the available balance, and use it for my private purposes, not connected with the farm. This fact disposes of many critical discussions and opinions. *J. J. Mechi, March.*

The Importation of Sheep has received a good deal of attention during the last fortnight, and some erroneous impressions have been made on the minds of many members of the House of Commons, and through them and the Press these errors have been conveyed to the large seats of consumption throughout the kingdom. In reply to Mr. Headlam the other day, Mr. W. E. Foster, on behalf of the President of the Board of Trade, made use of the following facts, and the delusive suggestions which accompany them:—

"Taking into consideration also the fact that the importation of sheep had very much diminished during the existence of the order of August last, and that the price of mutton was rising, it was felt that the restriction ought no longer to be maintained. On comparing the importation of sheep from the 1st of September of last year up to the present date, compared with the same period from 1867, there had been a falling off of from 175,421 to 97,927. They were informed that that was owing to the restrictions, and the price of mutton was rising." Now, it will be remembered, or, if a reference be made, it will be seen, that in your market notes for some months past, you were anticipating the present high price of both beef and mutton. You almost continuously, week by week, pointed out the large number of half-fed bullocks and sheep and lambs that were being crowded into the metropolitan, Manchester, Liverpool, and other large markets, because the drought of last year had reduced pastures and Clover and Grass fields to a condition of bare, parched soil. Turnips, Mangel, and such crops as Tares, Mustard, and Rape, were, as a rule, in nearly as bad a condition. As farmers were, besides, not in a position to keep their sheep and beasts on hay, straw, and corn, the large sacrifices which were made last autumn were unavoidable. It was, therefore, only one of the commonest deductions to conclude on this data that at about this time the rise in the value of beasts and sheep fit for the butcher would be considerable. "You cannot eat your cake and have it." The present dearness of meat is owing to the cheapness at which it was sold last autumn. In regard to the trade in foreign animals, one fact will of itself substantiate these views. For several years previous to last year one salesman of foreign stock had a train and packet-load of sheep, about 4000 in number, from Baden Baden per week. The supply was regularly kept up for about six months, beginning with the shearing season; last year, however, this salesman did not receive a single sheep from Baden Baden, for the dealers in that country sent them to Paris, because mutton was dearer in Paris than in London. This we relate on the authority of a German salesman in London who was thus deprived of his commission on 4000 sheep per week. This fact alone is a complete answer to Mr. W. E. Foster's inferences and insinuations, that the present high price of mutton is due to the Privy Council restrictions of August last. As animals were killed off last year in a young and half-fat state, it is superfluous to say they cannot come to market now in a much heavier condition. Carcases of lamb last autumn were frequently cheaper in the market than any other meat. Thousands of lambs were sold to kill last autumn at from 5*s.* to 10*s.* per head. Two years before they would have been worth from 30*s.* to 45*s.* per head for keeping till the following spring and summer. All through last August and September, and down as late in the year as November, cook-shop and dining-room windows in the city of London, and in such leading streets as the Strand and Holborn, were placarded with "Lamb and Mint sauce" as the leading dish to be had within. I noted these signs at the time. On November 7 you said:—

"The metropolitan stock and meat markets have been without much variation. As an indication of the excess of thin and the scarcity of well-fed meat, quotations vary from 2*s.* 8*d.* to 5*s.* 4*d.* per stone!"

I have no objection whatever to the restoration of "free trade" in sheep, if it be clearly for the good of the country; but in the face of the pending discussion on the traffic in home and foreign stock, I must take exception to the present dearness of mutton being placed on a false or unsound basis. *W. W. G.*

Drilling or Dibbling Beans.—Having tried both ways (the dibbling being a general plan on our heavy land), I have come to the conclusion that in every way drilling is to be preferred. The plants do not come up so thick and showy as the dibbled, but at harvest the drilled show a better result. Drilling has many advantages: it is quicker, cheaper, and the horse-hoe can be worked freely after the drill, but not after the dibble. It is also a saving in seed. We always plough deeply for Beans, and pressing the coulters of the drill so as to cut through the ploughed land, and deposit the Beans on the solid substratum. Our Beans go in in February, if possible, or very early in March. As soon as the Beans are well aboveground we harrow them with heavy iron harrows. *J. J. Mechi, Tiptree, March* 9.

Foreign Correspondence.

TORONTO: *Emigration to Canada.*—Are the farmers in England and Britain generally all successful, or how is it that we see so few newcomers to Canada? Have Australia and New Zealand absorbed the emigrating population, or has your farming population ceased to emigrate? I trust most sincerely that it is "success" which keeps them from our shores; but whilst human nature continues constituted as it is, we can scarcely look for permanent success amongst all classes in any line of life.

Surely those looking for a new home can scarcely be aware, that within 10 days' ocean travel of their present residence those who wish to change their location can find a new home, with land of their own, instead of being renters; and they can become freeholders at the small rate of from one dollar per acre on the Government lands, to 10 dollars per acre for wild land in good settlements; and for 20 to 30 dollars per acre (about 4*l.* to 6*l.* sterling) they can obtain good cleared farms, with comfortable buildings on them, and all the advantages of civilisation in their immediate neighbourhood—stores, or shops, schools, churches, good roads, towns, and villages, where good markets can be had for their farm and stock produce, and every other advantage which a man requires in a fresh location; the grand foundation of all, however, is "cheap land." The emigrating farmer can, for three years' rent of his old-country farm, in Canada acquire a farm of his own.

The general soil of Canada West, now "Ontario," consists of rich loamy clay, verging from sand to the stiffest possible clay, but the great mass of the land is an easily worked loamy clay interspersed with limestone gravel; this kind of soil is easily worked, and readily responds to any of the ordinary modes of fertilisation. The soil is deep, and the subsoil when exposed little by little to the atmospheric influences, rapidly absorbs the elements of fertility from the atmosphere, and affords good results to naked fallows.

If you were to take an English farmer, put him down in the Canadian forest, and say, Go to work, clear the land of timber, sow, and plant, and fence, and make a farm—supposing that that man had never seen land cleared—he would at once succumb, and feel broken-hearted; and yet this is the very situation that the native Canadian or American craves, and one without which, in a greater or less degree, he is never satisfied. To cut down the timber, cut it into logs of such a size that they can be easily moved by a yoke of oxen, haul the timber together, pile it, burn it, clear up the chips,

split some of the timber into rails, enough to fence the land, with 5 feet high fences, into 10 acre fields, and leave all ready for harrowing, or rather dragging in a crop, is worth only in the most expensive neighbourhood 18 dollars, or about 3*l.* 15*s.* sterling per acre; and your chance of a crop on such newly-formed land (when the right kind of soil has been chosen) is better or quite as good as on the most elaborately prepared and manured naked fallow, and every one knows that to prepare a good summer fallow and manure it well is worth fully as much as 3*l.* 15*s.* sterling per acre. The result on our best lands, in ordinary seasons, has generally been from 35 to 40 bushels of the finest white fall Wheat per acre. To get that kind of land now, however, the settler must go far back into the forest. Land so cleared should always be sown thickly with Timothy and Clover, and then allowed to lie in pasture until the stumps are rotten, and can be removed. It is only the hardwood stumps, however, that rot, Pine stumps never decay, but are allowed to remain till they can be extracted by the screw, or other stump extracting machine.

English farmers, however, who have the skill to work cleared land in the best possible manner, should never go on to new forest land,—the life is so different to what they have been used to, and the privations so great, that no one who values the well doing of an English emigrant farmer will recommend him to encounter them.

And there is no reason for his doing so; there is no difficulty in renting cleared land with reasonable good buildings; people who emigrate with means sufficient to stock a farm can always rent one on good terms, and a few years' success will enable them to purchase the farm they have rented, or another. There is always plenty of cleared land which can be purchased, provided the emigrant has the means.

Many will fear to come on account of the supposed cold of the Canadian winters; the cold of ordinary Canadian winters is not felt by the inhabitants. Fuel in the country is cheap: every one is prepared for the cold when it comes; and all look forward to it with longing and expectation. Cold brings snow, and snow brings good roads and sleighing, and sleighing every kind of enjoyment—easy travel for both man and beast, and from the absence of set employments it makes winter the season of enjoyment.

Let not then dread of winter influence the intending emigrant. If you are unsuccessful in Britain, muster your means at once, do not sink in the social scale where you are known, but emigrate to Canada, and you will never repent it.

From a tenant become a landholder; from having no voice in the public affairs come to where your better education and wider intelligence and information will ensure you a voice in the township or county council, or possibly in a few years in Parliament. If with diminished means you remain in the old country you go down, lower and lower. In Canada the possessor of reasonable means, if he is also sober, industrious, and intelligent, cannot but rise; if he does not, it is simply his own fault, or from some unavoidable misfortune.
E. L. C.

Societies.

SMITHFIELD.

At the late Council meeting, which we partially reported last week, the following were duly elected stewards of live stock for the ensuing three years, in place of the two who retire by rotation, viz., Mr. Joseph Noble Beasley, of Chapel Brampton, Northampton; Mr. W. B. Canning, of Elstone Hill, Devizes.

Mr. Joseph Druce and Mr. Robert Leeds were duly re-elected stewards of implements for the present year.

The Council revised the prize sheet for the present year, and made the following alterations, viz.:—

In Devons, Hereford, and Shorthorn divisions, the Class for 2 years 6 months old steers, the 2d prize to be increased to 15*l.*, and 3d prize to be added, 10*l.*

In Sussex division, a 3d prize of 5*l.* to be added in the Class for 3-year-old steers.

In the Irish cattle division the following to be the wording: "The Irish breed of cattle—All animals in these classes must be bred in Ireland."

In the divisions for Hampshire or Wiltshire sheep, and also the division for Oxfordshire, new classes for old sheep to be established, with the following prizes, viz.:—

Fat Wether sheep, 2-year-old (above 23 and under 35 months).—To the exhibitor of the best pen of three, 1st prize, 15*l.*; to the breeder of the same, a Silver Medal; to the exhibitor of the second best, 2d prize, 5*l.*

In the division for Ryeland, Cheviot, Dorset, &c., a 3d prize of 5*l.* to be added.

It was resolved to offer a piece of Plate, value 100*l.*, for the best beast in the yard, including extra stock.

Also a piece of Plate, value 50*l.*, for the best pen of sheep in the yard.

Also a piece of Plate, value 10*l.*, for the best single sheep in extra stock.

In the extra-stock Shortwools, not Southdowns, two Silver Medals to be offered, viz., one for the best wether, and one for the best ewe.

It was resolved, that in place of the disqualification of pigs being final when the state of the dentition is not satisfactory, the last clause of Rule 21 shall in future be as follows:—"If the dentition shall indicate that the age of any of the pigs has been incorrectly returned in the certificate, the stewards shall call upon the exhibitor to prove to their satisfaction the correctness of his certificate."

It was resolved that the fee to be paid by non-members for the privilege of exhibiting be two guineas instead of one as heretofore.

The Council determined that the date of the show be regulated by the same rule as heretofore. It will commence December 6 next.

It was resolved that the Judges' Selection Committee shall consist of the President and the stewards of live stock.

It was resolved to recommend to the general meeting that the date of the Council meeting, which is now fixed by the bye-laws to be held in March, shall be altered to February.

The Improvement Committee were re-appointed, with the same power as heretofore.

It was ordered that the Club's advertisements be inserted in the *Field* and the *Chamber of Agriculture Journal*, as well as the other agricultural papers, as before.

The honorary secretary was requested to communicate with the Agricultural Hall Company in reference to the accommodation in the new pig hall, and also as to the sheep and pig pens,—the subject to be then referred to the committee appointed at the last Council to confer with the Agricultural Company thereon.

The thanks of the meeting were voted to his Grace the Duke of Marlborough, President, and also to the Right Hon. Lord Bridport (who took the chair on his Grace having to leave), for their able conduct in the chair.

STIRLING.

Substitutes for Turnips in Wintering Cattle.—At a recent meeting to discuss the question, "What are the most economical substitutes for Turnips (consequent on the scanty crops of that root for 1868), to eke out provender for cattle during winter?" Mr. Alexander, of Taylorton, said:—I am old enough to remember when Turnips were not cultivated at all in Carse land—at least in the neighbourhood of Stirling. I think I was amongst the first to try a few ridges. This was immediately followed by growing a field, and from that to have the whole fallow-break in green crop, and I have not had any naked fallow for upwards of 20 years. With regard to the deficiency of the Turnip crop this year, my practice is to economise what I have. This can best be done by grating the whole Turnip into a pulp, and then mixing it with cut straw or chaff, and when the cattle fattening are intended for the butcher, to add a portion of the best quality of cake along with a small portion of hashed grain—the mixture to be made up at feeding time. I consider it a great waste of Turnips to give an animal as many as it can eat; acting upon this belief, I have adopted the pulping system, which is not only economical for rearing and feeding stock, but also very beneficial for a dairy stock, the milk and butter having a much better taste and flavour than when the Turnips are used unpulped. The best substitute for Turnips for wintering cattle is rape-cake of the best quality, or a mixture of other cakes. There is, however, some difficulty in getting cattle to eat rape-cake: this can be obviated by mixing it with chaff, and steaming it with hot water. Last year I wintered half a score of 3-year-old cattle very well by giving them a supply of fresh straw and water, with an addition of about 3 lb. a day of a mixture of cakes. A plentiful supply of fresh water should always be in the cattle-yard. One great drawback in the purchase of cake is the adulteration which is practised when cake rises to its present price. The only safeguard is to purchase from respectable traders. In my opinion, Carse farmers, at least with a limited supply of Turnips, should not fatten cattle for the butcher. I consider it more profitable to winter cattle well. One very important feature in the saving of food for cattle is proper shelter. This, in many wintering yards, is still a very great drawback. I have myself experienced for some years very great loss from that cause. One of my cattleyards I have covered over altogether. This, when properly done, is of very great benefit for the saving of food and the comfort of the cattle, as well as the rich quality of the manure. The other yards I have roofed on all sides of the square, thereby securing a comfortable dry bed. This may be considered by many as an indirect way of saving food for cattle, but my experience has taught me the above statement to be the fact. Proper housing and comfortable cattleyards have hitherto in many farms been far too little attended to in this locality. Another very important feature in the saving of farm provender is the proper storing of straw when threshed. No farmstead should want a large straw barn or shed: this I have found to be of great advantage; besides, using straw out of a stack causes great loss and waste, and it is often in a very damaged condition. The cultivation of the Turnip crop is one of the most important features of modern husbandry. To grow Turnips successfully in clay land, the land must be thoroughly drained, well wrought, and well manured. The substance of the above few remarks is—first, to economise what Turnip is on the farm by pulping and mixing with chaff or cut straw, with the addition of a mixture of cake; or, in the want of Turnips altogether, to use rape-cake, or a mixture for wintering purposes; good housing and comfortable cattleyards, and the straw the cattle are using not to be exposed to the weather; good attention being at all times necessary for the proper cultivation of the Turnip crop.

Mr. M'Lachlan said he could never get his cows to take kindly to pulped Turnips. He was in the habit of steaming or slightly cooking them first. And by this way he found them to be more nutritious, a less quantity of Turnips, when other stuffs were mixed with them, were required, and the quality of the milk was much better. For dairy cows he advised the use of lentil meal and bean meal, along with pulped Turnips; for wintering cattle, an extra allowance of oilcake, and, for feeding cattle, pulped Turnips and a little rapecake. He also advised the use of spent distillery grains.

Mr. Buchanan, of Whitehouse—Fortunately, this season, those farmers who are worst off for Turnips are in a great measure better off than their light-land farming neighbours for straw, &c. I have no doubt that the first impulse will be the consumption of cake to supply the deficiency, which is one of our best substitutes for Turnips, but the recent advance in the prices of cakes brings me to the point whether we have not a cheaper and more economical substitute, and more suitable to our circumstances. Before going farther, allow me to compare the price of cake with the price of our own good home-grown grain, and in particular Beans and Oats. Taking linseed-cake as the standard and leading sort of its kind, we find the price at 13*l.* per ton, while we have Beans at 11*l.* 10*s.* per ton, and Oats at about 9*l.* 10*s.*; and the two mixed in equal quantities will cost about 10*l.* 10*s.* per ton, being about 2*l.* 10*s.* per ton cheaper than linseed-cake. Some may consider that even at these quotations cake is the best bargain, but it must be remembered that we have the grain pure, and run the risk of the other being adulterated. Without saying that this adulteration takes place, we cannot conceal the fact that there is great temptation to do so at the present high price of cake. Be it observed, however, that I do not by any means undervalue the use of oilcake; and for particular and special purposes genuine cake is all-important; but on this allow me to read from the report of the chemist of the English Society:—"With respect to feeding substances, I would observe that the great scarcity of green food and the failure of the root crops have compelled farmers to become purchasers of oilcakes and corn to a much larger extent than in ordinary years. In consequence of the increased demand for purchased food, the sophistication of oilcakes, I regret to say, has received a great impetus. I hardly remember any season in which I had to examine so many inferior and adulterated linseed-cakes than in the past. The subject deserves the most serious consideration of the agriculturist, for the buyer of adulterated oilcakes generally is not only defrauded by paying high prices for inferior feeding materials, but occasionally he runs the risk of endangering the health of his stock by giving them adulterated oilcakes, inasmuch as those who deal in such cakes, from want of knowledge and cupidity, occasionally incorporate with feeding cakes substances which are positively poisonous to animals." Under our present circumstances, however, I would prefer using for our cattle, in addition to straw, a supply at least once or twice a day of mixed chaff, or broken or cut straw (which is so generally abundant on Carse farms) with a certain proportion of the meal of the grain alluded to above spread on and mixed with it, and which they consume greedily, and without loss; and with a plentiful supply of water the cattle will thrive and do well. In regard to feeding dairy stock, I have in former years, when Turnips got scarce, steeped or boiled in water, with chaff, a few cakes of Rape, adding a portion of bean-meal, and fed my cows principally on this mixture—the boiling taking away the rancid, bitter, and unpalatable taste which these cakes have in their hard state. Those farmers who are fortunate enough to be near a distillery or brewery will find the refuse of these added to the above mixture to be of great service to this class of stock. In regard to the other department of the wintering—viz., fodder—I think we need not be at any loss with the present price of hay at about five guineas or so, two tons of which is, I am sure, better than 1 ton of any oilcake; but the best substitute for Turnips and straw combined is certainly hay. With these imperfect and hurried remarks, I leave the discussion in abler hands than mine.

Mr. Carrick, of Baad, had tried rape-cake, oilcake, Indian Corn-meal, and other things, but amongst the whole of these things he had found nothing so beneficial and so economical for feeding cattle as bean-meal. He admitted that bean-meal was dangerous when too much was given to the cattle, but when it was properly and carefully used, there was nothing better for them. When mixed with a little chaff it far outstripped anything else that had been mentioned. For instance, what is cake? It is only refuse; it is only the shadow of good feeding stuffs, the substance is gone. Where there was no Turnips, he would advise farmers to make a mixture of bean-meal, crushed Oats, and a little oilcake, and they would find it would be an excellent feed. The sum and substance of his argument was, that nothing could beat bean-meal when judiciously applied.

Mr. Lucas, of Cornton, differed from several of the speakers which had preceded him with regard to the pulping of Turnips. He was of opinion there was not much profit by it, especially on a moderate-sized farm. He had wintered cattle on 4 lb. of rape-cake and straw. He thought it was the most profitable for wintering purposes to give cattle rape-cake and straw, and, for feeding purposes, oilcake. Oilcake produced a nice bloom on cattle, tending to raise their value in the market. He thoroughly believed in good housing for cattle. There was a great deal more in good housing than people imagined, and it was certainly a great advantage to those tenant-farmers whose lairds had provided them with efficient housing for their cattle.

Sir Alexander Gibson Maitland understood, from the discussion, one reason in favour of pulping, and that was, that the animals fed quickly, so that they rested largely. With regard to the scanty Turnip crop of last year, he thought one way whereby they might augment their stock was by taking more care in lifting and housing the crop. If they looked around the neighbourhood of Stirling, they would find that the Turnip crop was removed from the fields in the most careless manner possible. He had seen Turnips lifted, and left in the field exposed to all the rains of heaven, and all the frosts, and then removed after the rain. Now, it was well known that Turnips were never so good after rain and frost—that they were best fresh.

Reviews.

First Book of Practical Agriculture (for the use of Agricultural Classes in Primary Schools). By Thomas Baldwin, Superintendent of the Agricultural Department of National Education. Simpkin, Marshall & Co.

We quote from the preface:—"This little work differs from its precursor (of which upwards of 35,000 copies have been disposed of since its issue in October, 1867) in several particulars.

"In the Class Book an attempt was made to supply an Agricultural Reading Book that would be intelligible to third-class boys in rural National Schools, and also make a Text Book for the young men who are undergoing professional agricultural training in the larger Agricultural Establishments of the Commissioners. Considering the disparity in the age and intelligencee of these two classes, the task was not an easy one. How far the author has succeeded he leaves it to others to say. His own view from the outset was that there should be two books: one, like this little volume, for the use of agricultural classes in ordinary National Schools, and a more comprehensive work for the regular student of agriculture, and for the teachers.

"In the First Book of Practical Agriculture are retained every fact of practical utility to the small farmer, and every principle capable of being understood by young lads and by small farmers who possess no knowledge of science.

"The section on soils and manures in the old book was found to be rather difficult for beginners; it has, therefore, been simplified.

"The part devoted to farm implements and machines was also too comprehensive for the rural schools of this country; in it were figured several implements that are not required for the skilful and profitable cultivation of small farms. In the present book all the woodcuts of implements are new, and no implement is described which may not be required on a farm large enough to employ one horse.

"The subject-matter of the old book is here abridged and simplified, and new chapters are added on cheese-making, poultry, drainage, the reclamation of land, and farm buildings.

"The author has had ample opportunity of knowing the defects of Irish husbandry, and the wants of Irish farmers; he has studied both in every county in Ireland; he has been for nearly a score of years actively engaged in the agricultural education of the people, and from the knowledge and experience thus acquired, he fully believes that if the small farmers could be induced, henceforward, to become continuous in the efforts at applying all that is laid down in this unpretending little book, their wealth would rapidly increase, their condition would rapidly improve, and the aspect of the country would soon undergo a gratifying and much needed change."

A work of which, in what may be called the first edition of it, 35,000 copies has been sold, needs no commendation from a critic. It contains, closely packed, an immense quantity of useful agricultural information, conveyed in good simple English, and illustrated, not only by woodcuts where necessary, but by telling examples of the profit and loss account.

The following are pregnant with suggestions which will no doubt be duly considered by farmers whose observation and practice have not been of a similar order:—

Tillage.—"The three great objects of tillage are—first, to enable the roots of plants to force their way through the soil as freely as possible in search of food; secondly, to produce this food in the soil; and, third, to keep down weeds.

"It is found that of every one hundred parts of a soil of average fertility, not more than one part is in a fit state to nourish plants. This explains why a manure containing, in an available state for plants, only a small quantity of the constituents of the soil, produces a great effect; it also shows the importance of deep, early, and good tillage."

Manure.—"The manure made in the 'bawns' of thousands of the small farmers of Ireland, is not what is here called farmyard manure at all, but compost of clay. They cart a quantity of clay from the headlands or old ditches, or from trenches cut in the fields, throw it into the yards in front of their doors; on this is poured kitchen refuse, soap suds, &c. By being kept in the yard for some time, the clay 'sours,' and a little of the mineral constituents becomes liberated.

"The labour expended on these composts by small farmers is very great: the quantity of mineral matter liberated is very small; and, as the same object would be effected in the soil itself by good tillage, the system is a very bad one. Except the small supply of vegetable matter added in kitchen refuse, this sort of compost does not at all enrich the soil in organic matter.

"When these composts sour in front of the door, as they invariably do, bad smells are generated, which are most injurious to the health of the people. A manure or compost heap of any kind should never be placed in front of the dwelling."

A Cheese Dairy.—"Every gallon of whole milk produces 1 lb. of cheese. The average yield of milk from a good dairy cow being not less than 500 gallons per annum, the annual return per annum may be estimated thus:—

500 lb. cheese, worth, if well made, at least 6d. per lb.	.. .. ..	£12	10 0
30 lb. whey butter at 9d.*	.. .. ..	1	2 6
Value of whey for feeding pigs	.. ..	1	5 0
Value of calf, 10s. to £1, say..	.. ..	0	10 0
		£15	7 6

Sheep.—"The average value of the sheep in Ireland could be increased 10s. a head in a short time by bestowing proper attention on their breeding, feeding, and general management; and as there are about 4,800,000 sheep in the country, this would increase our wealth to the amount of 2,400,000*l.*"

* Whey butter is worth 2*d.* or 3*d.* per lb. less than butter made from whole milk.

Farm Memoranda.

WESTER ROSS: *March* 1.—The winter that succeeded the peculiarly dry and warm summer of last year has been unusually mild and open. Indeed, we have scarcely had any severe weather until within these few days, and this for us has been particularly fortunate, as our Turnips were only about half a crop, and the straw very scarce. The weather has been so mild that the Grass was ever growing, and the young sheep on Turnips were allowed a run on the Grass daily, which saved the Turnips materially. On the last days of February we had very rough and boisterous weather, and yesterday there was a good covering of snow, which has been heaped together by the continued gales. This storm has come at a time somewhat unsuitable, as the portion of the Turnips given to sheep is almost consumed, and they were about to leave for their hill grazings. There is no likelihood, however, that this storm will be long continued. Turnips and straw for cattle, also, are running quickly to their finish, and well it is that there is such a good demand for cattle at very satisfactory prices. Never before, perhaps, did we see an equal demand for cattle at the February Muir-of-Ord market. The stock was too few to supply the demands of the purchasers, and a large proportion of the stock was bought before they reached the market stance. Outdoor labour is everywhere well advanced. A large breadth of Wheat has been sown in excellent condition, and all the earlier sowings have come closely and beautifully aboveground. The weather has been so favourable that land, whether wet or dry, is closely brairded. The leas have been all seed-furrowed for Oats, and Turnip land has been well ploughed up for Barley. From the want of frost there has been difficulty in having the manure carted over the fields. Oats and Barley have threshed out badly—not more perhaps than 3 qrs. per acre. Wheat has yielded well, exceeding considerably the yield of either of the other kinds of grain. Barley and Oats have well maintained their prices, but Wheat has fallen prodigiously. It is fetching now only from 42*s.* to 44*s.* per quarter. The fall from last year's price of Wheat is so great, that on large Wheat-growing farms the income is a full rent less than it would have been last year. On examining Mr. Mechi's balance-sheet I was astonished at his average price of Wheat being nearly 1*l.* per quarter more than our Fiars. No wonder then that his profit exceeds ours in the north. Last year I expressed the opinion that Mr. Mechi's mode of farming not only is, and in present circumstances must necessarily be exceptional, but is dangerous as it is exceptional. Should his mode be generally adopted, the increased cost of labour would eat up the whole produce, and had he disposed of his whole crop of Wheat at our average price his profit would have been nowhere, but his loss would have been pretty palpable. The expenses are so great that any material fall in the price of grain or stock would be certain to make the profits evaporate. I also ventured to say that I laboured a small piece of ground, nearly half the size of Mr. Mechi's farm, on a principle the very opposite of his, which I was certain would be more profitable. There is no standing on the farm; consequently, I sell off its produce in its raw state. I labour it from the farm on which I reside, and charge it with the cost of labour. This mode of farming is also exceptional, and is only practicable in the neighbourhood of a town, or where abundant supplies of manure can be had. The profit this year is somewhat more than double that of Mr. Mechi's. The following are the accounts roughly but correctly given. The whole produce is already disposed of.

Paid.		
Seed Wheat	£19	1 0
Cutting hedges	0	10 6
Assessments and rates	11	0 0
Seed oats	19	11 0
Grass and clover seeds	7	0 0
Manures	7	14 0
Labour of horses, at 1*s.* per hour per pair ..	60	0 0
Rent of 62 acres at 60*s.*	186	0 0
	£310	16 6
Received.		
Potato ground	£96	0 0
Grass	36	0 0
Oats, corn, and straw	178	2 6
Wheat, corn, and straw	221	14 0
Rent of houses	8	0 0
	£538	16 6
Less paid	310	16 6
Profit	£228	0 0

—or 3*l.* 13*s.* 6½*d.* per acre.

The Poultry Yard.

WE tender an apology, if one be needed, for a discursive paragraph. A roundabout paper on birds, we think, may be admissible, seeing that the Legislature is asked to occupy itself in making laws for the preservation of some varieties, and to abrogate those that already exist for the protection of others. The difficulty of legislating on the subject of game is, and most always be, very great. Every one knows how great is the division of opinion on the subject in every rural parish—the bitterness of spirit, the open hostility, and old family friendships of many generations broken up—only because one man prefers foxes to pheasants, or *vice versâ*. How few parties are there in the country, where the host does not shudder when the after-dinner conversation merges into the political aspect of sporting in general. Men who sit quietly by, and listen to the vivid description of an unchecked and successful run, in which the speaker's horse astonished every one—rider included, are apt to have ideas of their own as to galloping over other people's crops, unasked; while the fox-hunter may think as strongly on the destruction of the crops by winged and ground game. The collective wisdom of the country is asked to amend the laws anent game, and every one will admit there is room for the proposed improvement. It is a general opinion that rabbits should not be counted as game, but should be at any one's mercy, and add the general public to the already heavy list of their enemies. The hares have not many more friends, and the feeling against them may be traced to the heavy stocking on the part of some proprietors, who, for the sake of figuring now and then in a paragraph of the *Times* and sporting papers as having made an enormous bag, breed and foster a sufficient number of hares to render dissatisfied those who farm under them. The enormous extent to which game has been encouraged during the last few years has had its effect on the quality. There is more disease among hares and partridges, and the rabbits are inferior in quality. Pheasants have been kept up to the standard, and in some districts improved, by importations of all varieties from every part of the world in which the bird is known.

TOBACCO FOR SICK POULTRY.—

"Good King James, who saith
Tobacco is the devil's breath."—*Old Poem.*

Among labouring men in the country it is a general practice to apply tobacco to a cut or flesh wound, and we have heard say that when on the tramp for work and the exchequer runs low, that a quid of tobacco helps much to keep up the stomach when breakfast or dinner is not forthcoming.

As outward applications, tobacco dust and tobacco water are in general use as insect killers, not only in poultry, but in plants and quadrupeds; but to find it used for internal complaints in fowls is certainly new to us. The effects, too, appear just the opposite from those that one would expect in a fowl. Instead of being an opiate or narcotic, it is just the reverse. We shall be glad to hear that others have tried the experiment, and with what results.

Upon this subject "G. W. H.," of Derby, writes as follows:—"Your correspondent, 'J. N., Colchester,' does not seem to be aware that the radical cure for Scotch poultry diseases, as administered by the old Scotch henwives, has ever been snuff and butter."

THE NEW YORK STATE POULTRY SHOW.—It is with great pleasure that we are enabled to offer particulars of a Poultry Show, to be held under the auspices of the New York Poultry Club, at the Empire City Skating Rink, Third Avenue, New York City. The show commences on the 22d inst., and is to continue for a week. The notice we received was so short that we have little hope, however great may be the ardour of our English fanciers, that any of them have gone ever on purpose. But we hope to be able to furnish a report of the Show from the pen of an amateur of great repute, and we believe that the weights of some of the birds to be exhibited will show us that the Americans are "go-ahead" even in poultry. Quoting from the prospectus, we may say, "The Society has made such arrangements that it can predict that this *fête* will prove one of the most brilliant, reputable, and satisfactory of any in the specialty yet held in this country. Besides all the varieties of domestic and fancy fowls, the exhibition will include pigeons, cage birds, rabbits, fawns, fine dogs, cats, and small pet animals of various classes; preserved specimens, coops, cages, artificial fowl-producing apparatus, plans for yards and buildings, fences, devices for feeding, art specimens, &c. The premium lists will be full beyond precedent. The building selected is the most spacious and suitable for a display of this description of any on this continent. It will be apportioned, decorated, and fitted up in the most effective and elegant, yet convenient manner. The corresponding secretary is Mr. Daniel E. Gavit, No. 229, Broadway, New York City." The society promises much, and from the names on the committee-list, we believe they will fully carry it out. Many of them are men well known among the principal breeders both of England and France as buyers of some of our best stock. The society has its branches in all parts of the States and Canada, in which latter country the resident Honorary Secretary is Colonel Hassard, who will be remembered as having been an enthusiastic and successful breeder of cochins and carriers.

It is proposed to make the exhibition annual. We hope such may be the case, and would suggest that, as an encouragement to the British exhibitors, that some of the more advanced fanciers do with poultry as Mr. Tenbroeck did with his horses, and send to our great meetings of the Bath and West of England and Midland Counties Associations.

Calendar of Operations.

MARCH: *Potato Planting* for the main crop generally takes place this month throughout the southern provinces, the work being continued northward up to middle of April. There is a considerable diversity of spring practice according as to whether the land was manured in drills, or on the flat in autumn, or has to be manured at the time of planting. If in 30-inch ridges, then they are split with a double-mouldboard plough, and in the case of the heavy land the ridges may require a stroke of the harrows both before and after splitting, so as to get a proper tilth for covering the sets. Light land seldom requires harrowing, or horse-hoeing, unless to kill weeds or bring Twitch or Couch to the surface, which is carefully picked off. The sets are planted along the openings from 9 to 12 inches apart, and covered by splitting the drills. The work should not be done in rainy weather, when the land poaches, as the crop is partial to a good working season. In ordinary seasons the drills receive a stroke of the harrows

some three weeks after planting. This is done to "let the plants out." But in very dry weather it is a common practice to roll the drills down flat, more especially in the lighter description of soils.

The greater breadth of the Potato crop is manured in drills at the time of planting. In some cases the drills are set up in autumn, when the manure in March is spread in the stale or winter furrows. But the more common practice now is to trench-plough in autumn, so as to get a proper tilth for drilling. Some open the drills with a double-mouldboard plough, others with a double bouting of the common plough. The former is the more expeditious, but the latter generally makes the best work. Some diversity of opinion exists as to the degree of putrefaction farmyard dung should undergo for Potatos. The general practice is to apply it less rotten than to Turnips. Much depends upon the nature of the soil and the expedition with which the manure is properly broken and covered. It is carted and spread into three or four drills at a time, some farmers preferring three, others five. Artificial manure, if used, is sown broadcast over the dung, and the sets planted and covered with a double-mouldboard plough. When grown on the flat the land is prepared as before, and the manure either spread upon the whole surface and ploughed in, or else it is spread only over the sets when planted.

The sets are either dropped into every third furrow, or else dibbled in afterwards; if the former, the length of the land has to be apportioned to the planters; the three ploughs follow each other close, the leading team walking on the unploughed land, so as not to trample the sets. In dry weather the land is slightly harrowed and rolled, but in moist seasons the former only is done. Some manure on the flat, and plough in early in the month; and towards the close, or early in April, form into drills with the view of getting the manure better distributed through the soil, so as the more readily to supply nourishment to the roots. In the former practice, if the land has to be limed, the lime is generally spread and well harrowed into the surface before the drills are opened for the manure; in the latter practice, to spread and harrow in the lime before applying the manure, which is sometimes done, is objectionable, as the ploughs turn the lime down to the bottom. The more common and advisable practice is to spread the newly-slaked lime from the carts as soon as the plants are aboveground, and then work it in by the horse-hoe and hand-hoe.

An exceptional practice is to grow Potatos with compost—made of farmyard dung, with cleanings of ditches, or with peat earth, adding soot, sea-weed, or of whatever may be at command suitable for the crop. The compost is spread upon the surface of the land, and the sets are then planted along the edge of the outcast furrow of the double-mouldboard plough, so as to be in the middle of the ridgelet thus formed. In Ireland, when old grass-land is broken up, it is frequently done by a crop of Potatos on the "lazy-bed" plan. The land is laid out into beds, the sets are planted upon the surface, and lightly covered with earth dug from the alley on each side, the grassy turf being the only manure. Heavy crops are thus raised; but no doubt heavier would be got by a sprinkling of 2 cwt. of guano and an equal dose of superphosphate over the Grass before planting, with salt and potash if wanting in the soil.

Seed Potatos require to be carefully examined at the time of planting, in order to avoid disease, degeneracy, and mixture of kinds. This is best done during the operation of cutting, and those showing any symptoms of rottenness or mouldiness should be thrown aside for the pigs, and none but sound healthy sets used. As to size and form, the sets should be equal, each having sufficient substance to supply nourishment to the young plant in starting, and this can only be cut from a medium-sized Potato. Thin slices are objectionable, and should be thrown aside if inadvertently made; and in the selection, if not done in autumn, the small Potatos that have not attained apparently full maturity of growth, and the large ones that are overgrown, so to speak, should never be used for seed. Some plant the sets when newly cut, but the more common practice is to allow the fresh surface to indurate, *i. e.*, become covered with a skin, which soon takes place if the sets are spread thinly over the floor, and turned once a day. Newly cut sets should never be put into sacks or heaps, as they are very liable to heat, and become diseased; and more harm is sustained from this source than is perhaps generally credited. *W. B.*

Notices to Correspondents.

BITTER BUTTER: *Beginner.* Put a bit of saltpetre, about the size of a nut, to every quart of cream, as soon as it is taken off the milk; and then, the day before you churn, put the whole crock to stand in boiling water for half an hour, stirring it frequently while it is in the hot water, and afterwards till it is cold. There are many other recipes. A good deal depends on the hot water and steaming to get rid of the aroma.

HOPS: *Emigrant.* Brown Hops, if better than green, are only so from having arrived at fuller maturity, and even then they must be of sound and healthy growth, and not have lost colour from blight or disease. The finer colour must, in any case, be used for delicate ales.

WIND ENGINES: *J. D.* The "mill" our correspondent refers to is a self-acting and perfectly safe apparatus. Its sails are held to the wind by springs, so that when subjected to gusts and squalls, they feather to a degree on which the wind has less effect. Under extraordinary pressure of wind they would stand edgewise to the wind, and accordingly stop revolving. In this lies their perfect safety. As our correspondent surmises, the wind-engine was introduced by an American, but the patent is now in the hands of Messrs. Warner & Sons, Cripplegate Crescent, London. The American horse-gearing referred to has been exhibited on several occasions, but it has not been approved.

ERRATUM: *J. Scott.*—Read "Mr. Mechi's balance-sheets," in place of "Mr. Mechi's farming profits," in col. *a*, p. 260, line 33 from top.

SUTTONS' GRASS SEEDS

FOR ALL SOILS,

CARRIAGE FREE,

PRODUCING ABUNDANT CROPS OF HAY AND SUPERIOR PASTURAGE.

A SILVER MEDAL for EXCELLENCE of QUALITY,



PARIS, 1867.

MESSRS. SUTTONS'

MIXTURES for PERMANENT PASTURE

CONTAIN THE FOLLOWING

FINEST CLEANED GRASSES AND CLOVERS.

Alopecurus pratensis	Meadow Foxtail
Anthoxanthum odoratum ..	Sweet Vernal
Agrostis stolonifera	Creeping Bent
Avena flavescens	Yellow Oat Grass
Cynosurus cristatus	Crested Dogstail
Dactylis glomerata	Round Cocksfoot
Festuca duriuscula	Hard Fescue
Festuca elatior	Tall Fescue
Festuca heterophylla	Various-leaved Fescue
Festuca pratensis	Meadow Fescue
Festuca ovina	Sheep's Fescue
Festuca rubra	Reddish Fescue
Festuca tenuifolia	Fine-leaved Fescue
Festuca loliacea	Darnel-leaved Fescue
Lolium perenne Suttoni	Suttons' Perennial Rye-grass
Lolium perenne Paceyanum ..	Pacey's Perennial Rye-grass
Lolium perenne sempervirens ..	Evergreen Rye-grass
Phleum pratense	Timothy
Poa pratensis	Smooth-stalked Meadow Grass
Poa trivialis	Rough-stalked Meadow Grass
Poa nemoralis	Woodside Meadow Grass
Poa sempervirens	Evergreen Meadow Grass
Trifolium repens perenne ..	Perennial White Clover
Trifolium pratense perenne ..	Perennial Red Clover
Trifolium hybridum	Alsike Clover
Medicago lupulina	Yellow Trefoil

SUTTONS' BEST MIXTURES

FOR THE FOLLOWING SOILS:—

1. STIFF CLAY SOILS, to be met with in the London, Kimmeridge, Oxford, and Lias Clays.
2. HEAVY LOAMS, of the same Formations, when they have been subjected to surface admixtures and cultivation.
3. GOOD MEDIUM LOAMS, on the Marls of the Old and New Red Sandstone, the Gault, and the Greensands.
4. LIGHT SANDY SOILS, on New Red Sandstone, Sands of the Inferior Oolite, Soils visited by Sand Drifts, as at Cheltenham and Gloucester; also those covering up the Stiff Lias and the Tertiary Sands of the Dorset Heaths.
5. SHARP GRAVELLY SOILS, such as the Flint Gravel Drift which overspreads so much of the Southern and Western part of England.
6. CHALKY SOILS, as the Mountain Limestone, the Oolite, and the Chalks Proper, where not too elevated.
7. SHEEP DOWNS.—The Elevated and more Exposed parts of the Oolite, such as the Wolds of Gloucestershire, the Cotswold Hills, and the Plains of Wiltshire.
8. WATER MEADOWS, and all Land under Irrigation.

Containing 2 bushels of Grass Seeds, and 12 lb. Clovers and other Small Seed per acre.

28*s.* to 32*s.* per acre. Carriage Free.

SUTTONS' CHEAPER MIXTURES,

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SUTTONS' "CRYSTAL PALACE" MIXTURE, for Park Grounds, as supplied to the Crystal Palace Company, to produce a beautiful evergreen sward, 18*s.* per bushel. Sow 2½ bushels per acre.

SUTTONS' MIXTURES of GRASS and CLOVER SEEDS for

1-year's Lay, best quality, 13*s.* 6*d.* per acre.
2-years' Lay ,, 17*s.* 6*d.* per acre.
3 or 4-years' Lay ,, 22*s.* to 24*s.* per acre.

Second qualities cheaper.

SUTTONS' RENOVATING MIXTURE for the above Soils should be sown early in the spring to produce a great increase in the quantity and quality of Grass. Sow 6 to 12 lb. per acre. Price 9*d.* per lb.

Special Contracts made for large quantities.

Five per cent. allowed for cash payments.

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SEEDSMEN TO THE QUEEN, READING, BERKS.

First Crop or Ringleader Pea.

CHARLES SHARPE AND CO., having grown largely this EXCELLENT EARLY PEA, with great care, have much confidence in offering it to the Trade. Price on application.

Farm Seeds Direct from the Grower.

CHARLES SHARPE AND CO. will be glad to send special offers of their carefully selected TURNIP, MANGEL, and other FARM SEEDS on application.

Garden Seeds.

CHARLES SHARPE AND CO.'S PRICED TRADE LIST of PEAS, BEANS, and other GARDEN SEEDS can be had on application.

Seed Potatos.

CHARLES SHARPE AND CO. are now prepared to make special offers of all the leading sorts of POTATOS. Sleaford.

Plants, to be Sold, Cheap.

G. GAINES begs to offer to Nurserymen and Seedsmen, fine GREEN GLOBE ARTICHOKE plants, stock imported direct from France; also fine strong TARRAGON plants. For prices, apply to GEORGE GAINES, Herbalist and Seedsman, Covent Garden Market, London, W.C.

GIANT ASPARAGUS PLANTS, the best that money can procure, 2*s.* 6*d.* per 100. This delicious Vegetable does not require half the expense usually incurred in planting it. See RICHARD SMITH'S SEED LIST for 1869. Extra strong SEAKALE, 2*s.* per dozen. RICHARD SMITH, Nurseryman, Worcester.

Choice Potatos for Planting.

SUTTON & SONS can supply the following excellent POTATOS at very moderate prices:—

Myatt's Early Ashleaf	Skerry Blue
Dalmahoy	Flake Kidney
Flour Ball	Walker's Regent

Lowest price per Sack or Ton on application.
SUTTON & SONS, Seed Growers, Reading.

RICHARD WALKER has to offer the finest sort of ROUND POTATO out (AMERICAN RED).—It boils as white as snow, and is the heaviest cropper in this country. It W. imported it direct in 1865. As the Stock is limited, apply early. Price per cwt., 30*s.* Smaller quantities at the same rate. SEAKALE, for planting, 3*s.* 6*d.* per 100. LACED PINKS, 20*s.* per 100. Bingleswade Market Gardens.

New and Superior Farm Seeds.



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FRANCIS & ARTHUR DICKSON & SONS, The "Old Established" Seed Warehouse, 106, Eastgate Street, and The "Upton" Nurseries, Chester.

PRICED DESCRIPTIVE CATALOGUE of FARM SEEDS post free, on application.

MIXTURES of GRASS SEEDS for Permanent Turf and Rotation Crops, to suit every description of Soil and Climate, of very superior quality.

Finest clean Samples of CLOVERS, RYE GRASSES, and NATURAL GRASSES, at Market rates. Samples and prices on application.

Their TURNIPS, MANGELS, and other ROOT-CROP SEEDS are saved with great care, and are of very superior and high-class character.

Special Estimates for large quantities. Orders amounting to £2 value (Grain, Potatos, &c., excepted) will be delivered carriage free, at the principal Railway Stations in the Kingdom.

EDWARDS' ECLIPSE CUCUMBER, pronounced by all who have seen it to be the best in cultivation. It is a most prolific bearer, possessing every quality of a first-rate Cucumber, and produces fruit 21 to 36 inches in length at every joint. Orders have been given by all who have seen it growing.

A brace of the above was sent to the Editor of the *Gardeners' Chronicle*. The following was his opinion, on the 19th December:—"A handsome white-spined variety, of crisp flavour, and having the recommendation you mention, it is a desirable variety."

Can be had in packets of SIX seeds, 2*s.* 6*d.* each, of GEORGE EDWARDS, King Street, Castlegate, York; and of Messrs. HURST & SON, Seedsmen, 6, Leadenhall Street, London, E.C.

ROLLISSONS' TELEGRAPH CUCUMBER (True).

THERE ARE MANY SPURIOUS  VARIETIES IN CULTIVATION.

From the universal satisfaction that their Telegraph Cucumber has given, WILLIAM ROLLISSON & SONS are much encouraged in again offering good and well ripened Seed of this most extraordinary variety. Its wonderful cropping qualities have this year been witnessed at their Establishment by many experienced judges, all of whom have agreed that it is the best in cultivation for that purpose; in fact it has been acknowledged to be, by the best authorities of the day, the most productive yet introduced for Winter and Early Spring use, in proof of which

See *Gardeners' Chronicle*, January 12, 1867.
See *Gardeners' Chronicle*, August 31, 1867.
See *Gardeners' Chronicle*, March 16, 1867.
See *Gardeners' Chronicle*, October 12, 1867.
See *Gardeners' Chronicle*, January 11, 1868.
See *Gardeners' Chronicle*, January 6, 1869.
See "Gardeners' Magazine," January 18, 1868.
See "Gardeners' Magazine," January 30, 1869.
See "Journal of Horticulture," August 20, 1868.
See "Journal of Horticulture," January 28, 1869.

The above may be had, in printed and sealed packets, guaranteed true, price 2*s.* 6*d.* each, from
The Nurseries, Tooting, London, S.W.

WILLIAM ROLLISSON AND SONS also beg respectfully to announce that their GENERAL and PRICED SEED CATALOGUE for 1869 is now published, which comprises many novelties, in the way of VEGETABLE and FLOWER SEEDS, also numerous valuable additions to their extensive List of SUB-TROPICAL PLANTS which can be raised from Seed, in which is also included the following choice Flower Seeds:—

CENTAUREA RAGUSINA COMPACTA.—The foliage of this new variety has the most silvery-white gloss, while its very dwarf and compact habit makes it much more useful and effective in Ribbon-borders than any of the oldest varieties. Price, per packet, 1*s.* and 2*s.* 6*d.*

KENNEDYA FREDWOODII.—This extremely ornamental Greenhouse Creeper blooms in great profusion during the months of December and January. The flowers, which are as large as those of a good-sized Sweet Pea, are of a gorgeous scarlet-crimson, delicately striped in places with white and marked with green. Very young plants in 3-inch pots will bloom abundantly. Seed, price 1*s.* per packet. Blooming plants from 3*s.* 6*d.* to 5*s.* each.

PRIMULA SINENSIS FIMBRIATA.—Seed saved from the finest prize strains in cultivation. Price per packet, 2*s.* 6*d.*

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CINERARIA.—Seed saved from named varieties, the flowers of which combined endless shades of brilliant colours with perfection of form. Price per packet, 2*s.* 6*d.*

CYCLAMEN PERSICUM.—The seed which W. R. & Sons possess of this splendid greenhouse plant was saved from one of the finest collections in the country, their flowers being of the brightest crimson-lake and purest white, also combining all the intermediate delicate shades of colour. Some are most beautifully spotted and striped on white and light grounds, while many of a crimson hue are starred and mottled with colours of a deeper shade. To give an idea of the size of the flowers of this strain, many of them had from 10 to 12 petals last season, and were really beautiful objects. Price, in printed and sealed packets only, 1*s.* 6*d.*, 2*s.* 6*d.*, and 5*s.* per packet.

N.B.—W. R. & SONS' GENERAL CATALOGUE of SEEDS may be had gratis, and post free, on application to
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CATTELL'S ECLIPSE BROCCOLI, the hardiest and latest White Broccoli in cultivation, obtained the First Prize at the International Horticultural Exhibition, South Kensington, May, 1866. Price per half-ounce packet, 1s. 6d., free by post.
JOHN CATTELL, Nursery and Seed Establishment, Westerham, Kent.

CHOICE NEW SEEDS.
Trade Price on application.
BROCCOLI, Ne Plus Ultra (NAIRN'S).—Heads very large, conical, pure white, self-protecting, extremely hardy, the finest Broccoli extant. 5s. per ½.
CABBAGE, Cook's Dwarf Imperial.—The finest Cabbage known; retains its fine green colour when boiled; very tender and buttery flavour. 2s. per oz.
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Squire's Wiltshire Cos Lettuce.
GEO. WHEELER, NURSERYMAN and SEEDSMAN, Warminster, Wilts, having secured the Stock of this long-standing BROWN COS LETTUCE, now offers it in 1s. sealed packets. Mr. SQUIRE has grown it for some years, and highly recommends, it as a first-class Spring, Summer, Autumn, and Winter Lettuce later in running to seed than any other sort he is acquainted with, attains to a large size, is self-protecting, solid, crisp, juicy, and of excellent flavour. Free by post from Warminster.
May be obtained of Messrs. HURST & SON, Seedsmen, 6, Leadenhall Street, E.C., and other London Seedsmen.

LEE'S GIANT ORACH or SUMMER SPINACH has, during the late parching summer, fully maintained our description of its productive powers, and has satisfied our numerous clients that its delicious piquant flavour is unrivalled by that of any other Spinach. Its utility in such a prolonged drought as we have lately passed through is attested by the following testimonials, selected from among a host of others:—
From Mr. THOMAS WOODROW, *Gardener to the* Earl of Winchilsea, *Eastwell Park, Ashford.*
September, 1868.—"I have much pleasure in giving my testimony in favour of your Giant Orach: but for that, I should not have had a bit of spinach for use. The plants are 5 feet high, and as green as possible, despite the dry weather. They have never been watered; it is invaluable."
From Mr. JOHN PERRY, *Gardener to the* Rev. Basil Beridge, *Aylsarkirk Rectory, Spalding.*
October, 1868.—"This has been a most trying season for garden produce. I could get nothing to grow but your Giant Orach, which has continued to supply me plentifully all through the season, when all other vegetables have failed."
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GRASS SEEDS: WHEN and WHAT to SOW.—For the fullest information on this subject, see CARTER'S ILLUSTRATED FARMER'S CALENDAR for 1869; post free, 6d.
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SUTTONS' FARMER'S YEAR BOOK for 1869 is NOW READY.
For Original Articles on the Cultivation of Root Crops, see "SUTTONS' Farmers' Year Book for 1869."
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SUTTON & SONS, Seedsmen to the Queen, Reading, Berks.

SUTTONS' PRIZE MANGEL SEED, 1869.
SUTTONS' BERKS PRIZE YELLOW GLOBE,
SUTTONS' NEW YELLOW INTERMEDIATE,
SUTTONS' MAMMOTH LONG RED.
SUTTON & SONS are now prepared to quote the lowest price per cwt. for the Stocks of any crop of Mangel Wurzel, which have given such great satisfaction during the past year.
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SUTTONS' CLEANED CLOVER SEEDS,
NEW and UNADULTERATED.

Broad Red	Trefoil
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Alsike	Giant White

Lowest prices, with samples if desired, per cwt., on application.
SUTTON & SONS, Reading, Berks.

Early Feed for Sheep and Cattle.
SUTTONS' IMPROVED ITALIAN RYE-GRASS, the earliest and most productive in cultivation. Should be sown in February and March to produce a succession of valuable cuttings during the year. If sown alone, 3 bushels are required per acre.
Price 7s. per bushel, cheaper by the quarter. Carriage free.
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Fine Lawns and Croquet Grounds by Sowing
SUTTONS' LAWN GRASS MIXTURE, which forms a close, velvety turf in a very short time. For making New Lawns or Croquet Grounds 20 gallons or 60 lb. is required per acre, or 1 gallon to every six roods (or perches) of ground. For improving those already in turf, 10 lb. should be sown per acre. March, April, and May are the best months to sow. Price 1s. per lb., 2s. 6d. per gallon, 20s. per bushel. Carriage free.
From Mr. J. MERRICK, *Gardener to* S. Foster, Esq., *Le Court, Petersfield.*
January 21, 1868.—"The seed you sent me last year turned out uncommonly well. Several gentlemen who came to Le Court could scarcely credit, from the appearance of the lawn, that it was only sown in May. In August it was as fine and thick as I have seen some lawns that have been laid down for three years."
From Mr. H. REYNOLDS, *Gardener to* Lady Emily Foley, *Stoke Edith Park.*
March 9, 1868.—"The fine lawn grass seed purchased of you last year has given the greatest satisfaction."
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Instructions on the Formation and Improvement of Garden Lawns, Croquet Grounds, &c., gratis and post free.
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REIGATE SILVER SAND, 12s. per ton, at Swan Place. Dewarred four miles, or to any London Wharf or Railway, 14s. per ton; or 1s. 6d. per bushel. Sacks at cost price, or on hire. PEAT, LOAM, LEAF MOULD, SPHAGNUM, and COCOA-FIBRE REFUSE.
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FIBROUS PEAT, of first-class quality, for Orchids, Heaths, American Plants, and all Potting purposes, may be obtained on application to Mr. THOMAS JESSE, Farningham Wood, near Sevenoaks Station, Kent. Price 5s. per cubic yard, when delivered to London, Chatham, and Dover Railway, in trucks of 16 yards, for most stations in the kingdom; or 4s. per cubic yard when fetched in carts from the Wood. It is extensively used and appreciated in the principal Nurseries, and in the Royal Parks and Gardens.


Red Spider

Magnified.

GISHURST COMPOUND.
Used by many of the leading Gardeners since 1860, against Red Spider, Mildew, Thrips, Green Fly, and other Blight. In solution of from 1 to 200 ounces to the gallon of soft water, and of from 1 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has destroyed more preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1s., 2s., and 10s. 6d.
Wholesale by
PRICE'S PATENT CANDLE COMPANY (Limited),
Battersea, London, S.W.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)
Have now ready for delivery, in fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES.
Also Genuine PERUVIAN GUANO, and NITRATE of SODA ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c.
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Offices, 116, Fenchurch Street, E.C.

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MANUFACTURED BY

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THE TENANT FARMER'S MANURE COMPANY.
Its Members are Cultivators of upwards of 50,000 Acres of Land, which has been for years under Management with Manures of their own Manufacture, consequently the consumer has the best guarantee for the genuineness and efficacy of the Manures manufactured by this Company.
Particulars will be forwarded on application to the Secretary; or may be had of the Local Agents.
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LAWES' MANURE for GRASS LANDS should be applied during the months of February and March. NITRATE of SODA supplied ex Ship or from Stocks at Docks at London, Liverpool, and other ports, at lowest market prices.

LAWES' MANURES are now ready for delivery for present season, 1869.
LAWES' PATENT TURNIP MANURE.
" DISSOLVED BONES.
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" WHEAT, BARLEY, GRASS, and MANGEL MANURE.
" CONCENTRATED CORN and GRASS MANURE.
These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom.
GENUINE PERUVIAN GUANO direct from the importers. NITRATE of SODA, SULPHATE of AMMONIA, and other Chemical Manures.
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Address, JOHN BENNET LAWES, 59, Mark Lane, London, E.C.; 22, Eden Quay, Dublin; and Market Street, Shrewsbury.

GENUINE TOBACCO PAPER, of the finest quality, 10*d.* per lb., or 84*s.* per cwt.
WILLIAM RUSHFORTH, Nurseryman and Seed Merchant, Leeds.

ROLL TOBACCO CLOTH.—The cheapest and best article for Smoking Greenhouses and destroying the Fly: equal to Tobacco in strength, 1*s.* 4*d.* per lb.: over 10 lb., 1*s.* 1*d.*
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Post Office Orders payable Fleet Street.

STEVENSON'S ABYSSINIAN MIXTURE, the most effectual remedy for preventing and destroying Plant Insects yet introduced, especially Mealy-Bug, Brown and White Scale, Thrip, Red Spider, Green and Black Fly, &c., without injuring the most tender foliage.
This new and invaluable Mixture for the destruction of Plant Pests cannot be too highly recommended; it has already received the very highest commendations from some of the leading Horticulturists in this district, who have given it a fair trial. May be had of most Nurserymen and Seedsmen. Sold in Bottles, 1*s.* 6*d.*, 3*s.*, 4*s.* 6*d.*, and 5*s.* 6*d.* each. Full directions for use on each bottle.
Manufactured by F. STEVENSON, Lark Hill, Timperley, Cheshire.

The Cheapest and Best Insecticide.
DUTY-FREE TOBACCO.
BY HER MAJESTY'S ROYAL LETTERS PATENT, AND BY PERMISSION OF THE HON. BOARD OF CUSTOMS.

POOLEY'S TOBACCO POWDER, for the Prevention and Destruction of Blight and other Diseases in Plants.
Sold by Nurserymen, Seedsmen, and Florists,
In Tins at 1*s.*, 2*s.* 6*d.*, and 5*s.*
Powder Distributors, 2*s.* 6*s.* and 3*s.* 6*d.* each.
"I find it exceedingly useful for killing the Aphides on Roses and other Plants."—GEO. EYLES, Superintendent, Royal Horticultural Gardens, South Kensington. May 7, 1868.
Sole Manufacturer, T. A. POOLEY, Bonded Warehouse, Sussex Wharf, Wapping, E.

Tobacco Tissue,
FOR DESTROYING RED SPIDER, MEALY-BUG, THRIP, GREEN and BLACK FLY, without the aid of a Fumigator.—This article having been before the Public for the last three years, and being now used by many of the leading Horticulturists—from several of whom Testimonials have been received as to its efficacy,—the Manufacturers beg to recommend those who have not used it to give it a trial, feeling confident when they have done so they will use nothing else, as it is far superior to paper or rag, and will not injure the plants. Sold in 1lb. packets and upwards; price 3*s.* 6*d.* per lb., carriage free. A reduction in price for large quantities.
To be had of MESSRS. ROBERTS and SONS, Tobacco Manufacturers, 112, St. John Street, Clerkenwell, E.C., of whom Samples and Testimonials may be obtained; and of all Seedsmen and Nurserymen.

By Royal Appointment
To HER MAJESTY, by Special Warrant, dated December, 1865.
To the PRINCE OF WALES, by Special Warrant dated February 10, 1866.

DAY, SON, AND HEWITT, Original and Sole Proprietors of the STOCKBREEDERS' MEDICINE CHESTS, for DISORDERS in HORSES, CATTLE, CALVES, SHEEP, and LAMBS.

No. 1 MEDICINE CHEST, Contains Sixteen different kinds of Compounds, admirably arranged, with Complete Guide to Farriery. Price £6 6*s.*, carriage paid.

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☞ Every Stockowner should send for DAY, SON & HEWITT'S Work on Farriery. Large Edition, 2*s.* 6*d.*, or free by post for 33 stamps. Small Edition, 1*s.*, or free by post for 13 stamps.
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Caution to Gardeners.—When you ask for
SAYNOR AND COOKE'S WARRANTED PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the Corporate Mark, OBTAIN WARRANTED, without which none are genuine.
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.
S. & C.'s PRUNING and BUDDING KNIVES are the best and the cheapest in the market.
Paxton Works, Sheffield. Established upwards of 125 years.

Horticultural Glass Warehouse.
THOMAS MILLINGTON AND CO., 87, Bishopsgate Street Without, London, E.C.
NEW LIST for ORCHARD-HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD-HOUSE SIZES.

in.	in.		4ths.	3rds.	2nds.	Best.
20 by 12						
20 by 13						
20 by 14	Per 100 feet	15 oz.	14*s* 3*d*	15*s* 6*d*	18*s* 6*d*	20*s* 0*d*
20 by 15						
20 by 16		21 oz.	19*s* 6*d*	22*s* 2*d*	26*s* 6*d*	26*s* 6*d*

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7								
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½					12*s* 3*d*	13*s* 3*d*	16*s* 0*d*	18*s* 0*d*

Per 100 feet.

10 by 8	12 by 9	12½ by 10½	14½ by 10½								
10½ by 8½	12½ by 9½	13 by 10	15 by 10					13*s* 3*d*	14*s* 6*d*	17*s* 3*d*	19*s* 0*d*
11 by 9	13 by 9	13½ by 10½	13 by 11								
11½ by 9½	12 by 10	14 by 10	14 by 11								

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best
15½ by 10½	14 by 12	22 by 12	22 by 16						
16 by 10	14½ by 12½	17 by 13	24 by 16						
14½ by 11½	15 by 12	23 by 13	20 by 17						
15 by 11	15½ by 12½	18 by 14	22 by 17						
15½ by 11½	16 by 12	22 by 14	24 by 17			14*s* 3*d*	15*s* 6*d*	18*s* 6*d*	20*s* 0*d*
16 by 11	16½ by 12½	24 by 14	20 by 18						
21 by 11	17 by 12	22 by 15	22 by 18						
13 by 12	18 by 12	24 by 15	24 by 18						

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.
In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case, 30*s.*		4ths quality, per 200 feet case, 36*s.*	
3ds "	" 42*s.*	3ds "	" 42*s.*
2ds "	" 60*s.*	2ds "	" 60*s.*
Best "	" 75*s.*	Best "	" 75*s*

SHEET GLASS is made only in the following substances, 15 oz. 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.
HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.
BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass Glass Shades, Striking Glasses, &c., &c.

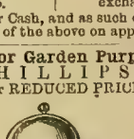
PAINTS, COLOURS, VARNISHES, &c.
STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.
WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a-half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.
IMPROVED ANTI-CORROSION PAINT, 28*s.* to 34*s.* per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4*s.* per gallon.

	Per cwt.—*s. d.*		Per gallon.—*s. d.*
GENUINE WHITE LEAD	30 0	LINSEED OIL	2 10
SECONDS WHITE LEAD	28 0	BOILED OIL	3 2
GROUND PATENT DRYERS, 3*d.* to 4½*d.* per lb.		TURPENTINE	2 7
" OXFORD OCHRE, 3*d.* to 4½*d.* per lb.		LINSEED OIL PUTTY, 8*s.* per cwt.	
" RAW UMBER, 4½*d.* to 6*d.* per lb.		Fine OAK VARNISH, 10*s.* to 12	0
" BURNT do., 6*d.* to 9*d.*		" CARRIAGE do., 12*s.* to 14	0
GREEN PAINT, all shades,	per lb.	" PAPER do. 10*s.* to 12	0
28*s.* to 60	0	" COPAL	16 0
BLACK PAINT, 24*s.* to 36	0	KNOTTING	10 0
RED PAINT .. 28*s.* to 36	0	Patent GOLD SIZE ..	10 0
		" BLACK JAPAN ..	12 0
GROUND BRUSHES.		GLAZIER'S DIAMONDS and TOOLS	
DUSTERS. | SASH TOOLS.		MILLED LEAD and PIPES	
DISTEMPER BRUSHES.		OLD LEAD Bought or taken in exchange.	

The above are Net, for Cash, and as such cannot be booked.
Lists of any of the above on application.

Glass for Garden Purposes.
JAMES PHILLIPS AND CO. beg to submit their REDUCED PRICES as follows:—

PROPAGATING GLASSES.



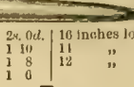
	Each.—*s. d.*		Each.—*s. d.*
2 inches in diameter ..	0 3½	12 inches in diameter ..	1 9
3 " " ..	0 4½	13 " " ..	2 0
4 " " ..	0 5½	14 " " ..	2 6
5 " " ..	0 6½	15 " " ..	3 0
6 " " ..	0 8	16 " " ..	3 6
7 " " ..	0 10	17 " " ..	4 0
8 " " ..	1 0	18 " " ..	5 0
9 " " ..	1 2	19 " " ..	6 0
10 " " ..	1 4	20 " " ..	7 0
11 " " ..	1 6		

BEE GLASSES, with ventilating hole through knob.

4 inches in diameter ..	0*s.* 6*d.*	9 inches in diameter ..	1*s.* 8*d.*
5 " " ..	0 8	10 " " ..	2 0
6 " " ..	0 10	11 " " ..	2 6
7 " " ..	1 1	12 " " ..	3 0
8 " " ..	1 4		

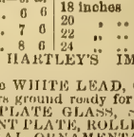
Either flat or conical tops.

CUCUMBER GLASSES.



24 inches long ..	2*s.* 0*d.*	16 inches long ..	1*s.* 4*d.*
22 " ..	1 10	14 " ..	1 2
20 " ..	1 8	12 " ..	2 6
18 " ..	1 6		

HAND GLASSES, WITH OPEN TOPS.



	Each.—*s. d.*		Each.—*s. d.*
12 inches	0 6	18 inches	9 6
14 "	7 6	20 "	10 6
16 "	8 6	22 "	11 6
		24 "	12 6

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS. PAINTS of various colours ground ready for use.
SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of Prices and Estimates forwarded on application to
JAMES PHILLIPS & Co., 180, Bishopsgate Street Without, E.C.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

MR. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

Acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in GARDENERS' CHRONICLE *of International Exhibition, May* 24, 1862, *page* 476.

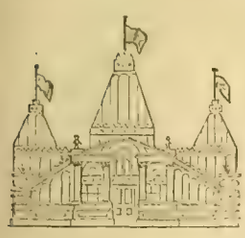
"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

☞ *They are made of all sizes, which, with prices, may be had on application.*

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

PORTABLE AND FIXED HOT-WATER APPARATUS,

FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH



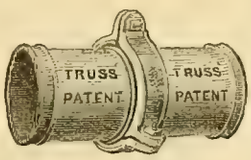
TRUSS'S PATENT

UNIVERSAL FLEXIBLE AND LEAKLESS PIPE-JOINTS.

Horticultural Buildings of every description from 1*s.* 6*d. per foot superficial, inclusive of Brickwork.*

Bath and Gas Work erected in town or country.

The Trade Supplied.



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FRIAR STREET, BLACKFRIARS ROAD, LONDON, S.E.

AUSTIN'S ARTIFICIAL STONE,

INVENTED 1826.



THE superiority of this material to all others for damp situations and its durability under the most intense frost being now indisputable, and attested by its extensive use in Scotland and Ireland, as well as the principal country seats of England, attention is invited to the following summary of the work manufactured with it, a variety unprecedented in any other establishment of past or present times :—

VASES,
about 300 different kinds, at from 10s. to £50.

FOUNTAINS,
more than 200 designs, from £10 to £400.

PORTEFLEURS, or low FLOWER BASINS, for lawns; STATUES, antique and modern; SMALL FIGURES, adapted to Balustrading, &c.; FIGURES of ANIMALS and BIRDS, about 70 kinds; SUN-DIAL PEDESTALS, about 20 designs; BASKETS, from 1 to 17 feet diameter; GARDEN SEATS, of substantial architectural character, for the ends of terraces; SHELLS for water or rock plants, from 1 to 14 feet wide; FLOWER BOXES, for windows or pavements; BAPTISMAL FONTS, from 2 to 15 guineas; CRESTS and other TERMINALS, for gate-piers; BALUSTRADING, to suit all styles of architecture; a great variety of ORNAMENTAL PEDESTALS, GOTHIC CROSSES, PINNACLES, and NICHES; EDGING for flower-beds.

AUSTIN AND SEELEY, NOS. 369—375, EUSTON ROAD, REGENT'S PARK.

N.B. No sand is used in "Austin's Stone," which is waterproof.

AS A PROOF OF THE SUPERIORITY OF THE THRESHING MACHINERY

MANUFACTURED BY

CLAYTON, SHUTTLEWORTH & CO.,

They beg to call attention to the following statement.

	ENGINES.	MACHINES.
Engines and Machines sent out in the year 1868	812	644
Total Number sent out up to December 31, 1868	8,921	7,982

The Gold Medal was awarded them at the Paris Exhibition, 1867, for Portable Engines and Threshing Machines; and at the last trial of the Royal Agricultural Society they gained EVERY FIRST PRIZE offered for Steam Engines, also the Prize of £15 for Finishing Threshing Machines, and Silver Medal for special improvements—on which occasion the following Firms, amongst others, competed :—Messrs. Ransomes & Sims, Tuxford & Sons, Reading Ironworks Company (Limited); Brown & May, Allchin & Son, Barrows & Carmichael, Humphries; Marshall, Sons & Co. (Limited); Burrell; Ruston, Proctor & Co.; Roby & Co. (Limited); Holmes & Sons, E. R. & F. Turner, P. & H. Gibbons, Tasker & Sons, Nalder & Nalder, Riches & Watts, Wallace & Haslem, Catchpole & Thompson, &c., &c.

NOTE.—The Royal Agricultural Society will not hold another trial of Portable Steam Engines and Threshing Machines until the year 1872.

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Hothouses for the Million.
SIR J. PAXTON'S PATENT.—NOTICE.

MESSRS. HEREMAN AND MORTON having taken New Premises for the Construction of Horticultural Buildings, beg to inform their Patrons and the Public that they possess the exclusive privilege of Manufacturing the above PATENT HOTHOUSES, and they are also enabled to supply ORNAMENTAL and PLAIN CONSERVATORIES at reduced prices. Country Works in Coventry, Gloucester, Lancashire, and Scotland.
Illustrated Price Lists free on application at the Office,
7, Pall Mall East, London, S.W.

HOT-WATER APPARATUS of every description, fixed complete in any part of the country, for Warming Greenhouses, Conservatories, Forcing Pits, &c.
Plans and Estimates on application.
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CRANSTON'S PATENT GLASS BUILDINGS for HORTICULTURE. Plans and best rates free.
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LIGHT GREENHOUSES for SALE, various sizes, Span and Lean-to; and a quantity of PIT LIGHTS and GARDEN FRAMES. Apply to
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200 CUCUMBER and MELON BOXES and LIGHTS, all sizes, Glazed and Painted complete, ready for immediate use, packed and sent to all parts of the Kingdom.
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	Each.
6 ft. by 4 ft. Lights, 21ns. thick, unglazed	£0 5 0
" " Primed and Glazed with 10 oz.	
Sheet	0 11 0
" " with stout Portable Box, not	
Painted..	1 3 0
" " Painted four coats, and	
Handles on	1 8 0
" " Packed and Delivered in	
Railway Van..	1 10 0
6 ft. by 8 ft., Double Lights, do.	2 15 0

GREENHOUSES.	Per ft. super.
Woodwork only Prepared and Fitted	0 0 6
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" Delivered, and Fixed with Ironwork ..	0 1 0
" Painted four coats, two sides, ready for use	0 1 3

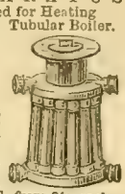
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	2-inch.	3-inch.	4-inch.
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No credit will be given when Pipes, &c., are invoiced at the above prices.
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HOT-WATER PIPES, from stock—p. yard	1s. 0d.	1s. 6d.	2s. 0d.
ELBOWS for ditto .. .. .. each	1 6	2 3	2 9
TEES .. .. "	2 3	3 6	4 6
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Cash remittance with order.
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PATENT MOULDED INDIA RUBBER CLUMPS for BOOTS and SHOES.—A new invention, unsurpassed for durability, economy, and comfort. These Clumps wear twice as long as Leather, are impervious to Damp, not affected by Heat or Cold, and any handy man can easily attach them. Full printed instructions are sent with the Clumps.

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The HYDRONETTE is a more useful, easy working, reliable, and convenient water-throwing machine than any other in use. It is made in five sizes, viz.:—No. 1, with 4 feet of Suction Hose, Strainer, Jet, and Rose, 12s. 6d.; No. 2, 15s. 6d.; No. 3, £1 1s.; No. 4, £1 5s.; No. 5, £1 10s. Extra Hose and Union Joints furnished to order.
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To be obtained through any Ironmonger or Florist in the United Kingdom, or of the Proprietors,
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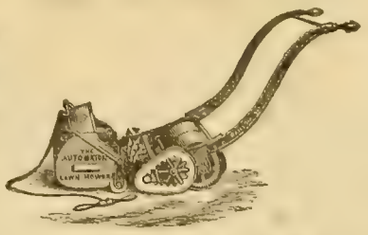
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Are guaranteed to perform their work perfectly, and if not approved may be returned within a month. They are *easy to work, light in draught, almost noiseless;* and being driven by machine-made gearing *are not liable to get out of order.*

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16 inch	£1 15 0
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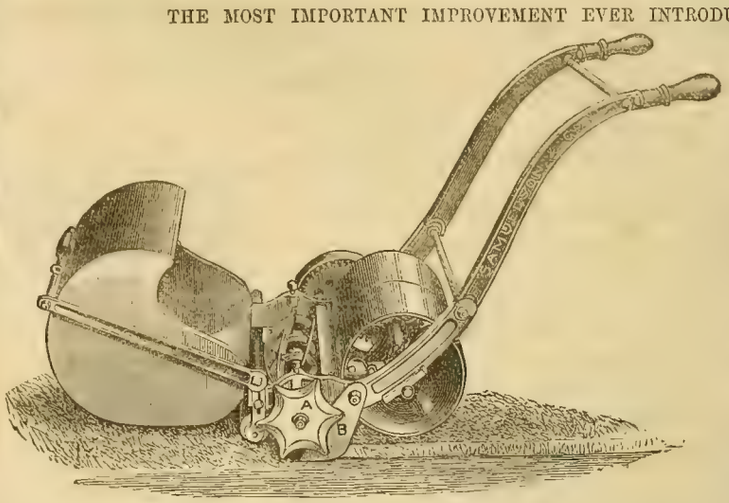
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THE MOST IMPORTANT IMPROVEMENT EVER INTRODUCED.



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Which are fitted, when required, with a new Patent EDGE-CLIPPING arrangement, entirely superseding the old and tedious operation of Edge-Clipping by hand.

All Machines fitted with new Silent Gearing, ensuring perfect freedom from noise when at work.

Catalogues, with full descriptions and prices of the new Patent Edge-Clipping Silent Lawn Mower, on application to

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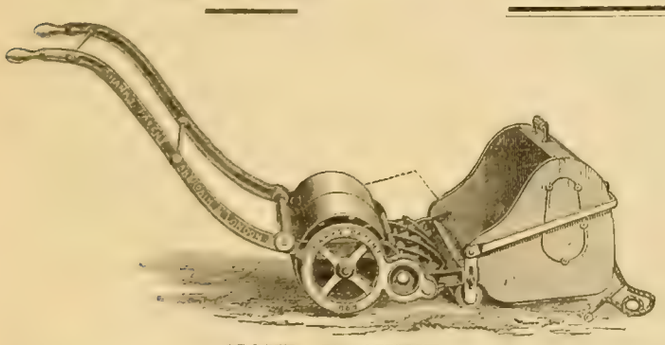
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		Easily Worked
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Every Machine warranted to give ample satisfaction, and, if not approved of, can be at once returned without any expense to the buyer.

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27, Leadenhall Street is the only place in London where intending purchasers of Lawn Mowers can choose from a Stock of from 150 *to* 200 *Machines. All sizes kept there, whether for Horse, Pony, or Hand Power.*

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For Samples and Prices apply to
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SHAW'S TIFFANY, from 5s. per piece; ARCHANGEL MATS, TANNED NETTING, SPADES, FORKS, and every Garden Requisite, at
The Garden Repository, 32, James Street, Covent Garden, W.C.
N.B.—The Trade supplied at wholesale prices.

BROWN'S FLORAL SHADING, for Shading Plants under Glass from the Sun, and protecting the Bloom of Wall, Trees from Frost. Sold by Nurserymen and Seedsmen.
No. 1. 38 inches wide, 20 yards long, at 1s. 6d. per piece.
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SCRIM CANVAS, 72 inches wide, 7½d. per yard; and 74 inch HESSIAN, 7½d. per yard; the cheapest Protection of Wall-Fruit Trees from Frost. Striped Sun Blind, Forfar Sheeting, and every description of Canvas at the lowest prices. Tarpaulins, Rick Cloths, Horse Cloths, Knee Aprons, Nose Bags, Seed Bags and Sacks, Ropes, Lines, and Twines; Archangel, Tarantog, Petersburg, and Dutch Mats; Cocoa Matting, and Door Mats, at the lowest prices in the trade. Price List and Samples sent post free on application.
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Preserve your Trees from Frost.
TANNED NETTING for FRUIT TREES.
COTTON NETTING and BUNTING, FRIGI DOMO, SCRIMS for GREENHOUSE BLINDS, &c.
Samples and Price List free on application to
BENJAMIN EDGINGTON, TENT and RICK CLOTH MAKER to the Queen and Prince of Wales, 2, Duke Street, Southwark, S.E. A large stock of NEW and REPAIRED NETTING, and other material for the Protection of Fruit Trees, Strawberry Beds, &c. MARQUEES and TENTS of all dimensions on Sale or Hire.
Address, BENJAMIN EDGINGTON, (only), 2, Duke Street, London Bridge, S.E. No other Establishment.

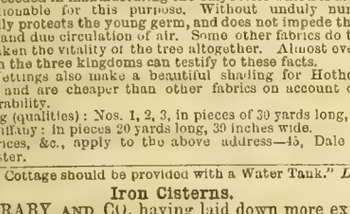
NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.—TANNED NETTING for Protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3d. per yard, or 100 yards, 20s.; 4 yards wide, 6d. per yard, or 50 yards, 20s. NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls: 2 yards wide, 6d. per yard; 4 yards wide, 1s. per yard: 4-inch mesh, 4 yards wide, 1s. 6d. per yard. Can be had in any quantity of
EATON & DELLER, 6 and 7, Crooked Lane, London Bridge, E.C.

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SCRIM CANVAS, for Wall Fruit, Greenhouse Shades, Tulip Covers.
HAYTHORN'S and WALLER'S NETTINGS, sample of material free on application.
PERUVIAN GUANO, and every other kind of ARTIFICIAL MANURE in Stock. Be particular.
FREDERICK EDGINGTON & Co., Marquee, Tent, Flag, and Rick Cloth Manufacturers, 60 and 62, Old Kent Road, London, S.E.
SECOND-HAND TENTS from ABYSSINIA, Cheap.

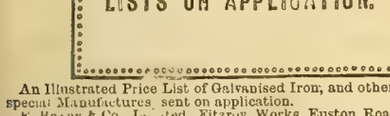
RALPH WALLER AND CO., 45, Dale Street, Manchester, Manufacturers of all kinds of GARDEN NETTING, &c.—The serious injury done every spring to fruit crops by frost has proved to every Gardener the absolute necessity of providing some protection to the trees early in the year. If the blossom, in its earliest development, be but slightly weakened by frost, the vitality of the fruit germ is destroyed, and the fruit lost. In this climate, on the average of a century, there is not more than one year in 19 when the protection is unnecessary. Many fabrics have been tried for this purpose of protection, with more or less success; and we may now say, without fear of contradiction, that we have succeeded in manufacturing the only fabric which is altogether unobjectionable for this purpose. Without unduly nursing, it effectually protects the young germ, and does not impede the action of light and due circulation of air. Some other fabrics do this, and thus weaken the vitality of the tree altogether. Almost every large grower in the three kingdoms can testify to these facts.
The Nettings also make a beautiful shading for Hothouses in summer, and are cheaper than other fabrics on account of their great durability.
Netting (qualities): Nos. 1, 2, 3, in pieces of 30 yards long, 1¼ yard wide. Tiffany: in pieces 20 yards long, 30 inches wide.
For prices, &c., apply to the above address—45, Dale Street, Manchester.

"Every Cottage should be provided with a Water Tank." *Disraeli.*

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F. BRABY AND CO. having laid down more extensive and Improved Machinery on their Deptford premises (IDA WHARF), are prepared to supply WROUGHT-IRON TANKS, GALVANISED or PAINTED, of superior quality, at reduced prices, and at very short notice.



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N.B. Open Tanks of different sizes packed one in another to save carriage.



GARDEN BORDER EDGING TILES, in great variety of patterns and materials, the planer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



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Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price List free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also TESSELATED PAVEMENTS of more enriched designs than the above.
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F. A. HAAGE'S WOOD GARDEN STICKS and TALLIES, commended by the Royal Horticultural Society, acknowledged to be the neatest, cheapest, and best Training Sticks and Tallies made.
The above can now be had, of all sizes, Wholesale, of BATHAM & BLACKITH, Cox's Quay, Lower Thames Street, London, E.C.; and Retail of the principal Seedsmen and Florists.
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FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.
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COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rick dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of Iron. Prices of Fittings per Cow 65s.
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N.B.—Valuations made of Nursery Stock, Private Collections of Plants, and everything connected with Horticulture.

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FOR TRANSFER, in one of the best positions in London, W., an EXCELLENT BUSINESS. Rent £30. Long Lease. Cash for Glass-houses and everything, £300.
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Sale of First-class Carnations and Picotees, STANDARD and DWARF ROSES, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, City, E.C., on WEDNESDAY, March 17, at half-past 12 o'Clock precisely, a first-class Collection of CARNATIONS and PICOTEES (the surplus stock of an eminent grower), also a superb assortment of Standard and Dwarf ROSES, selected AMERICAN PLANTS, clean-grown FRUIT TREES, CAMELLIAS, AZALEA INDICA, GLADIOLI, &c.
On view Morning of Sale, Catalogues had at the Rooms, as above, and of the Auctioneers and Valuers, Leytonstone, N.E.

Cheltenham.
HIGHLY IMPORTANT SALE of EXHIBITION SPECIMENS of GREENHOUSE and STOVE PLANTS and AZALEAS.

MESSRS. PROTHEROE AND MORRIS are instructed, by T. P. Walter Butt, Esq., to offer for UNRESERVED SALE by AUCTION on the premises, Arle Court, Cheltenham, on WEDNESDAY, April 14, the whole of the EXHIBITION SPECIMENS, enumerating many unrivalled plants of Ixoras, Rondeletias, Stephanotis, Crotons, Ericas, Phœnocoma, Aphelexis, Pimeleas, Genetyllis, Dracophyllum, &c.; amongst the Azaleas are gorgeous specimens of Etoile de Gand, Madame Miellez, Iveryana, Juliana, Duc de Nassau, Extranei, and others equal in merit.
N.B. This matchless collection has attained its present development under the skilful treatment of Mr. May, formerly Gardener at Ealing Park, which fact will be a sufficient assurance to all connoisseurs that the plants are in the finest state of cultivation.
Catalogues are being prepared, and when ready may be obtained of Mr. MAY on the premises; and of the Auctioneers and Valuers, Leytonstone.

Cambridge.
IMPORTANT TO GENTLEMEN, GARDENERS, &c.

MR. W. DILLISTONE has received instructions to SELL by AUCTION at the Corn Exchange, Cambridge, on WEDNESDAY, March 17, at 10 for 11 o'Clock precisely, a large collection of CHOICE PLANTS, TREES, &c., consisting of valuable Conifers, variegated and other Hollies, and other Shrubs, Roses, various choice Greenhouse Plants, including specimen Camellias and Azaleas, Agaves, Ferns, choice named and other Rhododendrons, &c. Fine Hollyhocks, collections of Seed of ditto, hardy Herbaceous Plants, Climbers, Carnations, Pinks, Picotees; New Russian Mats, Royal Ashleaf Potatos, Asparagus Plants, Tobacco Paper, &c.
To be viewed on the Morning of the Sale, and full particulars are described in Catalogues, to be had at the Office of the *Cambridge Chronicle* and *Cambridge Independent Press*, or post free of the Auctioneer, Sible Hedingham, Essex.

SALE of CONIFERÆ at BELSTANE.—The above Sale, which was advertised for the 4th and 5th inst., but which, owing to the weather, had to be postponed, will now take place upon THURSDAY and FRIDAY, the 25th and 26th inst.
Parties proposing to attend the Sale are referred to the previous Advertisements, and to the Catalogues for Conditions of Sale and other particulars.—22, Dublin Street, Edinburgh, March 8.

Surplus Stock of Agricultural Machinery.

TO BE SOLD by AUCTION, at Banbury, by Messrs. CLARKE AND BARROWS, on EASTER TUESDAY, March 30, at 11 o'Clock, about Forty High-class New and Second-hand PORTABLE STEAM-ENGINES, from 3 to 25-horse power; a Number of very Superior New and Second-hand THRESHING-MACHINES, STEAM CULTIVATORS, Ploughing Windlasses, Anchors, Rope-Porters, Saw-Tables, Mortar-Mills, Agricultural Implements, &c.
The above must be cleared off, to admit of necessary alterations to the Premises and Works.
For Catalogues of Sale, apply to Messrs. BARROWS & STEWART, Engineers, Banbury; or to the Auctioneers, 38, Cannon Street, Birmingham.

Sale of the King's Fort Herd of Shorthorns.

MR. JOHN THORNTON will SELL by AUCTION, unreservedly, on EASTER TUESDAY, March 30, at King's Fort, Kells, Co. Meath, Ireland, the celebrated HERD of SHORTHORNS belonging to Richard Chaloner, Esq.
It has been bred from the Aylesby, Farnley, and other first-class Herds, and contains several fashionable tribes. Booth Bulls have been used for generations. King Richard, now in use, is from an own Sister to the First Prize Cow at the last Royal and Yorkshire Meetings, whilst the King's Fort animals have won similar honours at the Royal Irish and Dublin Shows.
Catalogues with Pedigrees may be had of JOHN THORNTON, 15, Langham Pace, London, W.; or at King's Fort, Ireland.

A very Important Sale of Imported Indian Orchids, IN FINE HEALTH.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, March 15, at half-past 12 o'Clock precisely, IMPORTED ORCHIDS, comprising:—

Saccolabium papillosum, true	Dendrobium crassinode, new and
" giganteum	" Bensoniæ [rare
A new white Vanda	" crystallinum
Cymbidium Hookeri, very rare	" heterocarpum
Phajus Reichenbachii	" Bullerianum
Thunia Bensoniæ	" Parishii
Aerides affine roseum	" Dalhousianum
Dendrobium Farmeri roseum	" formosum

&c., &c., &c.
Also a small Box of JAPAN ORCHIDS, including:—

Angræcum falcatum	Dendrobium japonicum

Dendrobium species.
On view the Morning of Sale and Catalogues had.

Periodical Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, March 16, at half-past 12 o'Clock precisely, first-class Light and Dark BRAHMAS, from Mr. Dowsett, of Chelmsford; COCHINS, from Rev. G. Gilbert; BANTAMS, from Mr Jessop; POUTERS, from Mr. Heath; and other choice POULTRY and PIGEONS from well known breeders and exhibitors.
On view the Morning of Sale, and Catalogues had.

Importation of Valuable Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, March 18, at half-past 12 o'Clock precisely, splendid masses of the following:—

Dendrobium cambridgeanum	Dendrobium Williamsoni
" heterocarpum	Vanda cristata
" Devonianum	" cœrnea
" transparens	Cypripedium hirsutissimum
" formosum	Eria clavicaulis

&c., &c, &c.
Including some of the finest masses ever imported, collected in the Cossyah Hills by Lieutenant Williamson.
On view the Morning of Sale, and Catalogues had.

Plants and Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, March 20, at half-past 12 o'Clock precisely, TREE PÆONIES, Standard and Dwarf ROSES, VINES, RHODODENDRONS, FRUIT TREES, LILIUMS, DAHLIAS, RANUNCULI, GLADIOLI, Rustic Seats, Stools, Vases, &c.
On view the Morning of Sale, and Catalogues had.

Seeds.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, March 22, at half-past 12 o'Clock precisely, valuable CONFIEROUS SEEDS, comprising Abies Douglasii, Wellingtonia gigantea, Thuja Lobbii, Pinus Benthamiana, P. Sabiniana, P. insignis, Cupressus Lawsoniana, &c., from California; Pinus Massoniana and P. densiflora from Japan; Abies orientalis, Cedrus atlantica, Picea Pinsapo, several Palm Tree Seeds, and sundry others.
On view the Morning of Sale, and Catalogues had.

Hardy Plants from Surrey.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, March 23, at half-past 12 o'Clock precisely, HARDY and ORNAMENTAL PLANTS from a well-known Nursery in Surrey, consisting of specimen Conifers, Laurels, Hollies, Fruit Trees, Roses, Rhododendrons, Aucubas, Forest Trees, &c., choice Gladioli, Ranunculi, Rustic Seats, Stools, Vases, Baskets, &c.

Consignment of Plants from Belgium.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, March 24, at half-past 12 o'Clock precisely, CAMELLIAS, INDIAN AZALEAS, RHODODENDRONS, ROSES, DRACÆNAS, ORANGE TREES, AUCUBAS, PIMELEAS, Trained FRUIT TREES, CONIFERS, ALOES, LAURUSTINUS, YUCCAS, LILIUMS, GLADIOLI, RANUNCULI, Rustic Seats, Stools, Vases, &c.
On view the Morning of Sale and Catalogues had.

MR. J. C. STEVENS, HORTICULTURAL AUCTIONEER and VALUER, 38, King Street, Covent Garden, W.C., begs to announce that the FIRST SALE of MR. DAY'S COLLECTION is fixed for THURSDAY, April 1, and will comprise many fine SPECIMEN PLANTS in perfect health, and some of the finest and rarest species and varieties in cultivation, amongst which are the following:—

Ada aurantiaca	Odontoglossum nævium
Aerides Schroederi	" Alexandræ
" affine	Cattleya Dowiana
Angræcum sesquipedale	" Exoniensis
Burlingtonia candida	" labiata
Saccolabium guttatum	" Walkeriana
" curvifolium	Lælia elegans
" ampullaceum	" Bluntii
Phalænopsis amabilis	" Dayana
" Schilleriana	" Wolstenholmæ
Vanda Batemanni	" purpuracea splendens
Oncidium macranthum	(Mr. Rucker's variety.)
" serratum	Sobralia macrantha
" Forbesii	Trichopilia crispa,
" Kramerianum	&c., &c., &c.

On view the Morning of Sale, and Catalogues had.

Important Sale of Orchids.

MR. J. C. STEVENS begs to announce that he has received instructions from John Day, Esq., of Tottenham, to offer for SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., during the month of April, a large proportion of his extensive and well-known COLLECTION of ORCHIDS, which will include many fine Specimen Plants, and some of the finest varieties in cultivation.
Mr. Day being overstocked, this Sale will afford an excellent opportunity, for those desirous of making a collection, of securing well-established Plants of all the best kinds; and buyers may depend upon the plants being correctly named.
More detailed particulars in future advertisements.

Selling off Nursery Stock.

JOHN HARRISON begs to inform his Friends and the Public that his SALE will commence on MONDAY, March 22, when some of the finest Specimen CEDAR DEODARS, WELLINGTONIA GIGANTEA, loaded with Cones, various CONIFERS, ROSES, Evergreen SHRUBS, Weeping and other Ornamental TREES, Greenhouse and Stove PLANTS, several Thousands of HOLLYHOCKS, Pot ROSES (Manettii), Seedling LARCH, SPRUCE, and Austrian PINES, &c; Catalogues of which will be ready in a few days previous to the Sale, and may be had at 6d. each, returnable to purchasers.—Darlington, March 10, 1869.

Siddington House, Cirencester.
IMPORTANT SALE OF FIRST-CLASS SHORTHORNS.

MR. STRAFFORD is favoured with instructions to announce for SALE by AUCTION, without reserve, on THURSDAY, the 22d of April next, about FORTY HEAD of FIRST-CLASS SHORTHORNS, belonging to Edward Bowly, Esq., of Siddington House, Cirencester, which have been long and carefully bred from the most fashionable strains, and include the "Musical" family, as well as part of the "Siddingtons" and other good sorts, with twelve very superior young Bulls. Prominent amongst the sires is the 7th Duke of York (17,754), and from dams by 4th Duke of Oxford (11,387), long used at Siddington, as well as other famed Bulls of Kirklevington blood. The Cows and Heifers are chiefly served by 2d Duke of Claro (21,576), and 3d Duke of Waterloo (23,801). The whole will be found in fine health, and well worthy the attention of purchasers.
Catalogues, with Pedigrees and other particulars, may be had on application to Mr. STRAFFORD, 13, Euston Square, London; or of Mr. BOWLY, Siddington House, Cirencester.

NO IMPROVEMENTS OR ALTERATIONS FOR THE PRESENT SEASON, 1869,

IN

GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

THE Extraordinary Success of GREEN'S PATENT LAWN MOWERS is an established fact. During the last five years the demand has been unprecedented, which alone is a proof of their superiority over all others. The following are their characteristic features:—

1st. Simplicity of Construction, every part being free of access.
2d. They are worked with far greater ease than any other Lawn Mower.
3d. They are the least liable to get out of order.

From the fact that these MACHINES are so well known in Great Britain and Ireland, also on the Continent of Europe, T. GREEN AND SON do not deem it necessary to trouble the Public with a list of the numerous Testimonials that they have received from time to time, but would simply add,

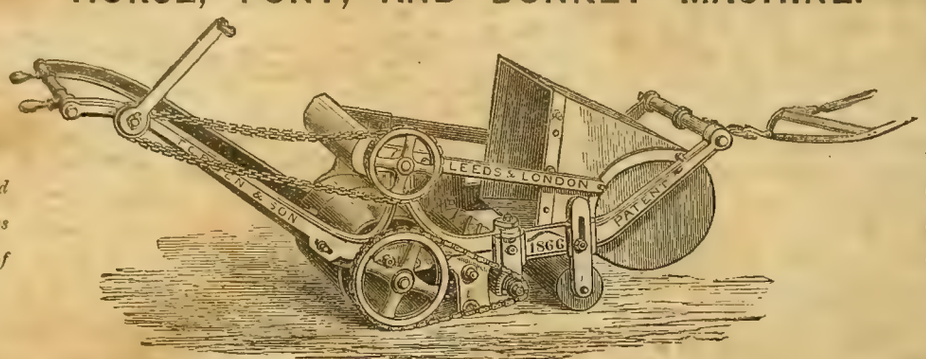
THEY ARE THE ONLY MACHINES IN CONSTANT USE AT

THE ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON
THE ROYAL BOTANIC GARDENS, REGENT'S PARK
THE CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM
BUCKINGHAM PALACE GARDENS
MARLBOROUGH HOUSE
THE HYDE PARK GARDENS
THE WINTER PALACE GARDENS, DUBLIN
THE DUBLIN BOTANIC GARDENS
THE LIVERPOOL BOTANIC GARDENS
THE LEEDS ROYAL PARK
THE HULL BOTANIC GARDENS
THE BOTANIC GARDENS, BRUSSELS
THE SUNDERLAND PARK
THE PRESTON PARK

AND IN MOST OF THE PRINCIPAL PARKS, SQUARES, ETC., IN THE UNITED KINGDOM.

HORSE, PONY, AND DONKEY MACHINE.

GREEN'S PATENT **LAWN MOWERS** *have proved to be the best, and carried off every Prize that has been given in all cases of competition.*



T. GREEN & SON *warrant every Machine to give entire satisfaction, and if not approved of can be returned unconditionally.*

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

PONY AND DONKEY MACHINES.

To Cut 26 inches	..	..	.. £13 0 0	*Leather Boots for Donkey*, 18*s*. *Leather Boots for Pony*, 22*s*.
„ 28 „	..	..	.. 15 0 0	
„ 30 „	..	..	.. 17 0 0	

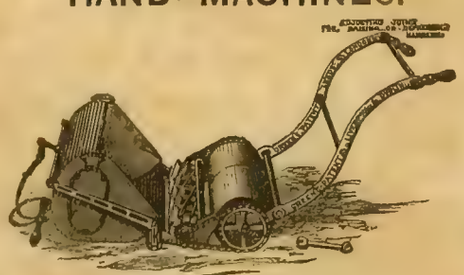
HORSE MACHINES.

To Cut 30 inches	..	..	.. £21 0 0	*Leather Boots for Horse*, 26*s*.
„ 36 „	..	..	.. 24 0 0	
„ 42 „	..	..	.. 27 0 0	
„ 48 „	..	..	.. 30 0 0	

Both the Horse, Pony, Donkey, and Hand Machines possess (over all other Makers) the advantage of Self-sharpening. The cutters being steel on each side, when they become dull or blunt by running one way round, the cylinder can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the Machine will cut equal to new. Arrangements are made that the cylinder can be reversed, by any inexperienced person, in two or three minutes.

HAND MACHINES.

To Cut 10 inches	..	.. £3 10 0	*Suitable for a Lady*	
„ 12 „	..	4 10 0	„	„
„ 14 „	..	5 10 0	*Suitable for One Person*	
„ 16 „	..	6 10 0	„	„



To Cut 18 inches	..	.. £7 10 0	*Suitable for One Person.*	
„ 20 „	..	8 0 0	*Suitable for Two Persons.*	
„ 22 „	..	8 10 0	„	„
„ 24 „	..	9 0 0	„	„

Packing Cases are charged at the following low rates, viz.:—for the 10 and 12-inch Machine, 3*s*.; 14 and 16-inch, 4*s*.; 18 and 20-inch, 5*s*.; 22 and 24-inch, 6*s*. Parties providing themselves with Lawn Mowers are recommended to purchase the cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

Every Machine is warranted to give entire satisfaction, and if not approved of, can be returned unconditionally.

T. G. AND SON have a large quantity of LAWN MOWERS in stock at their Leeds and London Establishments; also various other kinds of HORTICULTURAL and AGRICULTURAL IMPLEMENTS, GARDEN SEATS and CHAIRS, FOUNTAINS, VASES, PLAIN and GALVANISED WIRE NETTING, and ORNAMENTAL WIRE WORK of every description.

Having very extensive Premises in London, we are in a position to do all kinds of Repairs there, as well as at our Leeds Establishment.

Having a large quantity of MACHINES in stock at our Leeds and London Establishments, we are in a position to execute Orders on the day they are received.

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;
and 54 & 55, BLACKFRIARS ROAD, LONDON, S.

Editorial Communications should be addressed to "The Editor." Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by James Matthews, at the Office of Messrs. Bradbury, Evans & Co., Lombard Street, Precinct of Whitefriars, City of London, in the Co. of Middlesex, and Published by the said James Matthews, at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—Saturday, March 13, 1869.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 12.—1869.] SATURDAY, MARCH 20. {Price Fivepence. {Stamped Edition, 6d.

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ERRATUM.—In Mr. Thos. S. Ware's Advertisement last week, p. 272, "New List of *Biennials*" should be *Perennials*.

Royal Horticultural Society, South Kensington, W.
MR. WILLIAM PAUL'S EXHIBITION of SPRING FLOWERS OPEN THIS DAY. Band of Royal Horse Guards. Admission 2s. 6d.

NOTICE.—Mr. WILLIAM PAUL'S SHOW of HYACINTHS, &c., in the Royal Horticultural Society's Gardens, will be CONTINUED until SATURDAY, March 27. All Tickets unused available till that date.

ROYAL BOTANIC SOCIETY'S GARDENS, Regent's Park.—SUMMER EXHIBITIONS of PLANTS, FLOWERS and FRUIT, MAY 19 and 20, JUNE 30 and JULY 1. Tickets are now ready, price 4s. each, to be had on the orders from Fellows of the Society.—SPRING FLOWERS.—NEXT EXHIBITION, APRIL 27 and 28. Tickets: price 2s. 6d. each. Next Meeting for the Election of New Fellows, Saturday next, March 27, at 3·45.

SPALDING HORTICULTURAL FETE, FLOWER, FRUIT, &c. SHOW.—The ANNUAL EXHIBITION will be held in the GROUNDS of AYSCOUGHFEE HALL, on THURSDAY, June 24. Schedules may be had on application. Band of the Royal Horse Guards,
GEO. F. BARRELL, Hon. Sec.

TAUNTON DEANE HORTICULTURAL and FLORICULTURAL SOCIETY. EXHIBITION and FETE, AUGUST 12 next. MONEY PRIZES amounting to TWO HUNDRED POUNDS, and Four Valuable SILVER CUPS, will be offered for competition. Schedules are now ready, and may be had on application. J. B. SAUNDERS, Hon. Sec.
Offices, Railway Station, Taunton.

Pines.
B. S. WILLIAMS has all the best kinds, in splendid condition, warranted clean. Prices on application.
B. S. WILLIAMS, Seed Merchant and Nurseryman, Upper Holloway, London, N.

Grape Vines.
B. S. WILLIAMS' STOCK this season is remarkably fine, and in good condition for sending out. Kinds and prices can be had on application.
B. S. WILLIAMS, Seed Merchant and Nurseryman, Upper Holloway, London, N.

GRAPES for the MILLION. Fine Canes, will bear from 3 bunches this year, 5s. to 7s. 6d. each.
R. TANTON, F.R.H.S., The Nurseries, Epsom.

Pines.
TWO HUNDRED PINE PLANTS for SALE; chiefly Queens. Warranted clean. In all stages.
FRANCIS R. KINGHORN, Sheen Nursery, Richmond, S.W.

PINES.—To be Sold, 6 Fruiting, 24 Succession, and 24 Sucker PINE PLANTS, all clean, healthy, and strong. An offer is wanted for the lot.
The GARDENER, Ribston Hall, Weatherby, Yorkshire.

Mrs. Pince's Black Muscat Grape.
J. MEREDITH is now prepared to execute orders for this fine Grape. CANES, fit for immediate planting, from 10s. 6d. upwards.
The Vineyard, Garston, near Liverpool.

Royal Ascot or Perpetual Vine.
MESSRS. JOHN STANDISH AND CO. are now selling fine strong plants of this extraordinarily productive VINE at 21s., 42s., and 63s. each.
Royal Nurseries, Ascot, Berks.

MELON PLANTS.—Golden Perfection, strong. CUCUMBER PLANTS.—Telegraph.
Both may be depended upon.
A. WATKINS, Hockerill, Bishop Stortford.

Pyramidal Cherries, extra fine, for Gardens.
WM. WOOD AND SON have a magnificent stock of the above to offer. The Pyramid Cherries are especially fine.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

GOOSEBERRIES.—Ashton Seedling and others, fine, can be supplied by the 1000.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LIST of these varieties from Mr. WEBB, Calcot, Reading.

REQUIRED, 2-yr. Seedling HORNBEAM, SLOE, and SYCAMORE, PYRAMID PLUMS, PEARS, and FIGS for pots.
JOSEPH TREMBLE & SONS, Penrith.

WANTED, HEPATICAS, DOUBLE PRIMROSES, HELLEBORE, ROCKETS, and any other kind of Spring-blooming plant, in all their varieties. For cash.
LEWIS S. WOODTHORPE, Munro Nursery, Sible Hedingham, Essex.

Kalmia latifolia.
W. H. ROGERS, Red Lodge Nursery, Southampton, can offer nice bushy plants of the above, from 1 to 2 feet, full of blooming-buds, at 40s. per 100; or selected, 6s. per dozen. Also, ANDROMEDA FORMOSA (true), 1 to 2 feet, at same price.

Princess Royal is the Brightest of the New Coleus.
CHARLES TURNER purchased this beautiful variety, and is now executing orders with strong Plants, 7s. 6d. each.
The Royal Nurseries, Slough.

NEW COLEUS.—The 12 new Coleus of the Royal Horticultural Society, sent out in 1868, with other fine varieties, sent post free—12 fine varieties for 2s. 6d.; 12 cuttings, in 12 fine varieties, for 1s. 2d.; from
B. W. KNIGHT, Florist, Battle, Sussex.

To the Trade.—Dwarf Roses.
HUSSEY AND SON beg to offer the above, all Hybrid Perpetuals on Manetti, at 40s. per 100.
Mile End Nursery, Eaton, Norwich.

"Mr. PAUL'S ROSES * * * are things to see once and dream of for ever."—*Athenæum*.
WM. PAUL begs to announce that his CATALOGUE of ROSES is now ready, and will be forwarded free on application.
PAUL'S Nurseries, Waltham Cross, London, N.

FIVE THOUSAND PLANTS of the best NEW ROSES of 1869. Stronger or finer plants cannot be produced in the Trade. DESCRIPTIVE CATALOGUES are now ready.
WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

NEW ROSES of 1869.—All the best varieties; 2000 fine strong plants. DESCRIPTIVE LIST on application.
JOHN CRANSTON, Nurseries, King's Acre, Hereford.

EXTRA STRONG ROSES, in pots.—Several thousand Tea-Scented, Noisette, and Hybrid Perpetual varieties, together with the best NEW ROSES of 1868.
DESCRIPTIVE LIST on application.
JOHN CRANSTON, Nurseries, King's Acre, Hereford.

MANETTI and RHODODENDRON STOCKS.—Several thousands of the above, fit for immediate working, still to offer at our Catalogue prices.
THOS. CRIPPS & SON, Nurserymen, Tunbridge Wells.

GLOXINIAS, erect and drooping, 2-yr. old bulbs, free by post, in 12 choice named sorts, 3s.; 24 sorts for 15s.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

GLADIOLI SEEDLINGS (Mixed).—Beautiful Flowers equal to any collection, of all colours. Strong Flowering Bulbs, 7s. per 100; 3l. 4s. per 1000.—Apply to LEVEQUE et FILS, Nurserymen, 132 and 134, Boulevard de l'Hôpital, Paris.

ADAM FORSYTH'S CATALOGUE of New and Choice CHRYSANTHEMUMS for 1869 is now ready; containing also a practical Treatise on their Cultivation. Forwarded to all applicants for one stamp.
Brunswick Nursery, Stoke Newington, N.

B. S. WILLIAMS' DESCRIPTIVE CATALOGUE of FLOWER, VEGETABLE, and AGRICULTURAL SEEDS, &c., is now ready; post free to all applicants.
Victoria and Paradise Nursery, Upper Holloway, London, N.

NEW and GENUINE AGRICULTURAL and GARDEN SEEDS.—Special prices and advantageous offers of above on application to
ALFRED LEGERTON, Seed Merchant, 5, Aldgate, London, E.

NEW and GENUINE AGRICULTURAL and GARDEN SEEDS.
Special prices and advantageous offers on application to
JAS. FAIRHEAD & SON, Seed Merchants, 7, Borough Market, London.

To Persons Building Large Conservatories.
A NUMBER of LARGE CAMELLIAS, some 20 feet high, ORANGE TREES, and other Plants, to be SOLD. Apply, by letter, to P., Mr. David Walter, Bell Yard, E.C.

Athyrium Filix-fœmina Frizelli.
HUSSEY AND SON beg to offer extra strong plants of the above beautiful hardy Fern at 6s. per dozen.
Mile End Nursery, Eaton, Norwich.

ALLAMANDA WARDLEIANA.
This magnificent Plant is now being sent out, 21s. each.
A Coloured Plate by Andrews for 13 stamps.
R. TANTON, F.R.H.S., The Nurseries, Epsom.

ECHEVERIA METALLICA.—A fine stock of this lovely Bedding Plant now ready, 1s. 6d. and 2s. 6d. each. 100 well ripened Seeds for 2s. 6d.
R. TANTON, F.R.H.S., The Nurseries, Epsom.

AUCUBA POLLEN.—One dozen Flowers for 1s., Four dozen for 3s. Sent post free on receipt of stamps by
JOHN STANDISH & Co., Royal Nurseries, Ascot.

Extra Stock.—Beautiful Specimens.
THUJA AUREA, 3½ feet high, 3 feet diameter.—
F. ALLMAN, The Nurseries, Horsham, Sussex.

THE GOLDEN ARBOR-VITÆ, THUJA AUREA.—Fine specimen plants, 2½ feet high, and 2 feet through, will be offered at very reduced prices. Apply to
WM. WOOD & SON, Maresfield, near Uckfield, Sussex.

To the Trade and Others.
PALMS.—Orders now booked. Sorts and prices on application to
HOOPER & Co., Covent Garden, London, W.C.

FOX COVER.—Our Patrons requiring strong NORWAY SPRUCE FIR, can be supplied at a very nominal price. Extensive Nursery Stock for spring planting.
JOSEPH TREMBLE & SONS, Penrith.

ASH, 2-yr. Seedling, 1-yr. bedded, 3s. 6d. per 1000, or £15 per 100,000; 1-yr. Seedling, 1-yr. bedded, 2s. 6d. per 1000, or £10 per 100,000.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

FOREST TREES and SHRUBS.—CATALOGUES of the above for the present season may now be had, post free, upon application.
PETER LAWSON & SON, Edinburgh and London.

STRONG TRANSPLANTED QUICK, 10s., 20s., and 30s. per 1000; £40, £80, and £120 per 100,000. Samples containing 100 may be had on receipt of a remittance.
JOHN CATTELL, Nursery and Seed Establishment, Westerham, Kent.

NATIVE SCOTCH FIR, Transplanted and Seedling. For trade prices, apply to
HOWDEN BROTHERS, Inverness, N.B.

DAVID MITCHELL (late Lamont & Mitchell) has to offer to the Trade fine 2-yr. seedling NATIVE SCOTCH FIR. Price £5 per 100,000.
Seed Warehouse, 3, Hanover Street, Edinburgh.

SUTTONS' GRASS SEEDS for ALL SOILS.
See page 318 of this day's *Gardeners' Chronicle*.

SUTTONS' GRASS SEEDS for VARIOUS PURPOSES.
See page 318 of this day's *Gardeners' Chronicle*.

SUTTONS' HOME-GROWN FARM SEEDS.
See page 311 of this day's *Gardeners' Chronicle*.

SUTTONS' FARMER'S YEAR-BOOK for 1869 is now Ready, price 6d., gratis to customers.
Royal Berks Seed Establishment, Reading.

PARIS, 1867. SUTTONS' GRASS SEEDS for ALL SOILS. A PREMIER PRIX SILVER MEDAL for GARDEN SEEDS, GRASSES, and GRASS SEEDS, was Awarded to SUTTON AND SONS, SEEDSMEN to the QUEEN, Reading, Berks.

A SPECIAL PRIZE MEDAL, PARIS, 1867, was AWARDED to JAMES CARTER & Co., 237 & 238, High Holborn, London, W.C., for GRASS SEEDS, supplied for the Exhibition Grounds.

CARTER'S FARM SEEDS.—See large Advertisement, March 6, page 246, *Gardeners' Chronicle*.
SEED GROWERS, MERCHANTS, and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

EVERY GARDEN REQUISITE KEPT in STOCK at
CARTER'S New Seed Warehouse, 237 and 238, High Holborn, London.

Agricultural and Garden Seeds.
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JAMES HOLDER can supply strong Plants of the above. Forty plants, distinct sorts, for 25s.; 30 sorts for 20s., or 20 sorts for 15s., hamper and package included, consisting of French, Fancy, and Show varieties.—Crown Nursery, Reading.

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To suit Gardens of various sizes,
10s. 6d., 21s., 42s., 63s., and 84s. each.

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EVERYTHING IS WELL GROWN AND FINELY ROOTED.

In proof of which he gives the date of their last removal.

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,, ,, beautiful specimens, 10, 12, and 14 feet high, 15 and 20 feet in circumference, 31s. 6d. to 63s. each, and upwards. Moved April, 1868.
,, ALBERTUS, 5 to 9 feet, 30s. to 60s. per doz., moved April, 1868.
,, DOUGLASSII, 5, 6, 7, and 8 feet, 5s. to 10s. 6d. each, moved August, 1868.
,, CANADENSIS, 4, 5, 6, 7 feet high, 18s. to 30s. per dozen.
,, PUMILA, ,, PYGMÆA, ,, CLANBRASILIANA, ,, GREGORII } Hundreds of these dwarf varieties of the common Spruce Fir, many are 20 and 30 years old.
,, EXCELSA.—The Common Spruce, 5, 6, and 7 feet high 7 to 10 feet round, moved April, 1868, 21s. to 30s. per dozen.
PICEA NOBILIS, 4, 5, 7, 8, and 10 feet high, 8 and 15 feet in circumference, 42s. to 147s. each. Hundreds of magnificent plants of the best glaucous variety. None are grafted, and all moved since March, 1868.
,, NORDMANNIANA, beautiful seedling plants, 1½ to 2 feet, 30s. and 42s. per dozen.
,, ,, 3, 4, 5, 6, and 8 feet, 10s. 6d. to 105s. each.
,, ,, Splendid trees, moved August, 1868, 10 and 15 feet high, 15 to 20 feet in circumference, 7 guineas each and upwards.
,, MAGNIFICA or NOBILIS ROBUSTA, 2 feet, 15s. each.
,, ,, ,, 2½ to 3 feet, 6 feet in circumference, 21s. to 31s. 6d. each.
,, ,, ,, 3, 4, and 5 feet, 31s. 6d. to 63s. each and upwards. Mr. WATERER has hundreds of this handsome Fir, all seedlings.
,, LASIOCARPA, 2 to 2½ feet, 60s. per dozen. [each.
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,, ,, 5, 6, 7, and 8 feet high, 10 and 12 feet in circumference, 42s. and 63s. each; hundreds of them. [42s. each.
,, PINSAPO, 3, 4, and 5 feet high, 9 and 10 feet round, 7s. 6d. to
,, ,, 7, 8, and 10 feet high, 63s. to 147s. each, moved August, 1868.
PINUS AUSTRIACA, moved April, 1868, 3 feet, £5 per 100.
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,, CEMBRA, 8 to 10 feet, 10 and 12 feet round, moved 1868, 10s. 6d. to 21s. each.
CEDRUS ATLANTICA, 5 to 6 feet, 42s. to 60s. per doz., moved 1868.
,, ,, 7 to 8 feet, 84s. per dozen, moved 1868.
,, ,, 8 to 10 feet, 7s. 6d. and 10s. 6d. each, moved 1868.
,, DEODARA, 4 to 6 feet, 42s. and 60s. per dozen.
,, ,, 7 to 8 feet, 84s. per dozen.
,, ,, 10 to 12 feet, 126s. per dozen and upwards. Some thousands of these large Deodars, the majority moved since Jan., 1868.
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CUPRESSUS LAWSONIANA, 4 to 5 feet, 30s. per dozen.
,, ,, 5 to 6 feet, 42s.; 7 to 8 feet, 60s.
,, ,, 9 to 10 feet, 7s. 6d. to 10s. 6d. each.
,, ,, 12 to 18 feet high, and as much round, 21s. to 63s. each. We have thousands of these large Lawsonianas, from 5 to 15 feet high, the majority moved in 1868.
JUNIPERUS CHINENSIS, 4 to 5 feet, 36s. and 42s. per dozen; 6 to 7 feet, 60s. to 84s. per dozen; 8 and 9 feet, and as much round, 21s. each; some magnificent plants, 10 to 15 feet high, 15 and 20 feet in circumference, 63s. to 105s. each and upwards. We have several thousands of this fine Juniper, 4 feet and upwards, the majority moved in 1868.
JUNIPERUS VIRGINIANA (Red Cedars), 4, 5, 6, and 7 feet, moved August, 1868, 18s. to 42s. per dozen.
YEW, ENGLISH.—Many thousands, 4, 5, 6, 7, 8, 10, 12 and 15 feet high, nearly all of which have been moved within 12 months.
,, IRISH.—Handsome plants, 7 to 8 and 10 feet, 7s. 6d. to 10s. 6d. each, and upwards.
,, GOLDEN and ELEGANTISSIMA.—Hundreds of fine plants, on their own bottoms and worked, from 3 to 6 and 8 feet high. Many of these plants are 30 years old; all have been recently removed.
THUJA AUREA.—This plant originated at this Nursery. We have large numbers of fine specimens, 3, 4, 5, and 6 feet high, 8, 10, and 15 feet round.
,, GIGANTEA.—Splendid plants, moved August, 1868, 10 to 15 feet high, 21s. to 42s. and upwards each.
,, LOBBII, 6 to 7 feet, and as much round, 5s. to 7s. 6d. each.
,, ,, 10 to 14 feet, do. do., 21s. to 63s. each.
All moved in 1868.

THUJOPSIS BOREALIS, 5 to 6 feet, 60s. per dozen.
Do. do., 7 to 8 feet, 10 and 12 feet in circumference, 10s. 6d. each and upwards. Moved in 1868.
WELLINGTONIA GIGANTEA, 4 to 5 feet, 7s. 6d. to 10s. 6d. each.
Do. do., 6, 7, 8, and 9 feet, 21s. to 63s. each. All moved August, 1868.
HOLLIES, GREEN, COMMON.—Stout, finely rooted plants, 3 feet, 18s. per dozen; £6 per 100.
Many thousands 4, 5, 6, and 7 feet high, 30s. to 84s. per dozen and upwards.
A number of splendid plants, 10 to 15 feet high, 15 and 20 feet round. All moved April, 1868.
,, SCOTTICA, ,, LAURIFOLIA, ,, MYRTÆFOLIA, } Three of the finest hardy Evergreen known. Thousands of beautiful plants, 5, 6, 7, 8, and 9 ft. high, 7s. 6d. to 21s. each, and upwards.
,, HODGIN'S HOLLY, 4, 5, and 6 feet.
,, GOLDEN QUEEN.—Hundreds of magnificent plants, 4 to 8 feet high, and as much in circumference.
,, WATERER'S.—This variety originated here, and we have them by hundreds. 3, 4, and 5 feet high, 8 to 15 feet in circumference—the admiration of everybody who sees them. There are many of them 20 and 30 years old, and have been constantly and recently removed.
,, SILVER QUEEN, 3, 4, and 5 feet high.
,, STANDARD, WATERER'S, and GOLDEN QUEEN HOLLIES, 5 to 6 feet stems, with heads 6 to 9 feet round, very handsome.
,, STANDARD WEEPING HOLLIES.—Some of the finest plants in the kingdom, worked and on their own roots. One, probably the finest that exists in any Nursery, has a stem 10 feet high, 20 inches in circumference, perfectly straight, with a magnificent head covered with berries. This plant was moved August, 1868.
,, VARIEGATED, of the ordinary kinds.—A stock of many thousands, from 4 to 5, 6 and 8 feet high. Plants in finer condition cannot be desired. The prices will be found fair and reasonable.
BOX, GREEN and VARIEGATED, 4, 5, 6, 7, and 8 feet high, 2s. 6d. to 10s. 6d. each and upwards.
,, PYRAMIDS, up to 8 feet, very fine
BAYS, STANDARDS, ,, PYRAMIDS, } from 3 to 10 guineas a pair.
LAURUSTINUS, STANDARDS, 31s. 6d. each and upwards.
LAURELS, PORTUGAL, 4 and 5 feet high, 7 and 8 feet in circumference, 42s. and 60s. per dozen. Moved July, 1868.
RHODODENDRONS.—One of the finest stocks of all the leading kinds, nice healthy bushy plants, 1½ and 2 feet high, many of them layers (far preferable to grafted plants), from £7 10s. to £15 per 100.
,, STANDARDS.—A large number of the oldest and finest specimens to be met with in any Nursery, many of them being 20 and 40 years of age, with heads measuring 15 and 30 feet in circumference, and when in bloom are objects of wonderful beauty.
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,, PONTICUM, for cover, good plants, £7 10s. to £15 per 1000.
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AUCUBA JAPONICA, up to 3 feet; thousands.

THE FOLLOWING ORNAMENTAL TREES, OF LARGE SIZE,

Are well grown and well rooted, and stout.

PLANES, ORIENTAL and OCCIDENTAL, 10 to 15 feet high.
SYCAMORE, 10 to 14 feet.
WEEPING BIRCH, 8 to 12 feet.
MOUNTAIN ASH, 8 to 10 feet.
HORSE-CHESTNUTS, COMMON, 10 to 12 feet.
SCARLET HORSE-CHESTNUTS, very fine flowering Trees, 10 years, worked.
BEECH, WEEPING, 7 to 15 years, worked.
BEECH, PURPLE, 8 to 15 feet high.
DECIDUOUS CYPRESS, 8 to 12 feet.
NORWAY MAPLES, 8 to 12 feet.
LOMBARDY POPLARS, 10 to 12 feet.
THORNS, fine Standards, of the most ornamental kinds.
ASH, Gold-barked, Flowering, and other varieties; fine Standards, 8 to 10 feet.
LIMES, 10 to 12 feet.

As well as the above-mentioned articles, at Knap Hill will be found one or perhaps the most extensive Stock of all the better kinds of HARDY EVERGREENS, DECIDUOUS and FLOWERING ORNAMENTAL TREES and SHRUBS.

A PRICED AND DESCRIPTIVE CATALOGUE

Will be forwarded on application.

Purchasers are respectfully invited to inspect the Plants growing in the Nursery.
No Catalogue can adequately represent such a Stock.

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The Railways now take Goods at through rates to almost any Station, thus doing away with the expense of package.

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FLOWER SEED NOVELTIES FOR 1869.

Abronia arenaria.

This very pretty novelty agrees in its general habit of growth with the well-known A. umbellata, having, like that species, trailing stems, oval, entire, and somewhat fleshy foliage, and flowers in stalked umbels from the axils, but differs in the colour of its blossoms, which are of a pure waxy yellow, deliciously scented, and produced in long succession. It blooms easily first year from seed, and may therefore be treated as a half-hardy annual, but is perennial in dry soils. Per packet, 1s.

Agrostemma cœli rosea, dwarf-fringed Lilac.

A very beautiful novelty; it produces large, compact bushes, 8 to 9 inches high, exceedingly floriferous, bright, violet lilac, very fresh, and so numerous as to resemble a large bouquet.
Per packet, 1s.

Agrostemma, dwarf-fringed Rose.

Very pretty hardy annual, showy, and keeping in flower a long time. Per packet, 4d.

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Fine vigorous variegated-leaved plant, with abundant foliage, green, striped, and shaded with purplish red at the foot of the stems and branches; bright carminate scarlet, sometimes pointed yellow, and thickly set at the top. We consider this variety as one of the best variegated-leaved plants, very different from, and far more showy than an old Amaranthus bicolor. Per packet, 1s.

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(NEW GOLDEN PRINCE'S FEATHER).

This is a seedling from the well-known purple Prince's Feather; it agrees in almost every point with the variety hitherto cultivated; but differs in a striking degree in its tint, which is of a rich golden yellow; from its distinct colour, for massing in beds or as a line in a ribbon border, it will be found invaluable. Per packet, 1s.

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This is one of the finest spring flowers; the reason of its being so rarely cultivated is through improper treatment; sown in June, July, and August, and transplanted in September and October, about 18 inches high, it will produce in spring a very dwarf bush, about 16 inches wide, covered with a large number of flower spikes, varying from rosy white to bright rose. Per packet, 6d.

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Exceedingly beautiful, excels all other varieties by the regularity of its habit; every plant, with its numerous full double deep flowers, forms a perfect bouquet in the shape of a pyramid. Foliage very distinct; height about 15 inches. White variety. Dark carmine with white. Per packet, 1s.

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Hardy annual, most profuse blooming; it is of a dense habit, attaining an average growth of 1 foot, and covering itself with bunches of beautiful light blue flowers, which are very sweet scented, lasting a long while in perfection. Per packet, 1s.

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White flowered double Wallflower, very striking and beautiful, in two varieties.
I. White double branching, 1s. 6d. per packet.
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New varieties, mixed.

These charming novelties comprise the most beautiful variations in colours, such as white and yellow, violet and sulphur. They are most distinct and highly desirable additions. Per packet, 6d.

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A soft, light sky-blue of this fine hardy variety, very beautiful.
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(SWEET WILLIAM).

An elegant novelty, which by its very dark character differs widely from all the other varieties yet offered. It has deep violet leaves and dark blood-red velvety flowers. Per packet, 6d.

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KING of the BLACKS ..	per pkt.	1s. 0d.
GOLDEN BELT	,,	1 6
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VIOLET, with white edge	,,	1 0
COPPER-COLOURED	,,	1 0
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The above splendid varieties are now completely fixed, and reproduced from seed almost without sporting.

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Hardy perennial herbaceous plant. A most beautiful ornamental foliaged plant, attaining a large size; of exquisite beauty as a single plant on lawns or in groups in parks. The beautifully delineated foliage is of great substance, densely covered with a greenish white tomentose down; very ornamental throughout the season. The flower-stems bear very umbraceous nobly-formed umbels of flowers. A rare and altogether magnificent species. 1s. per packet.

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Handsome variety, with brilliant carmine flowers, edged pure white.
Six Seeds, 1s. 6d.

Ipomœa hederacea grandiflora alba picta carminea.

With silver marbled leaves, heart-shaped, largely marbled with silver grey, flowers white, clotted with brilliant carmine.
Six Seeds, 1s. 6d.

Ipomœa hederacea alba grandiflora.

Ipomœa hederacea grandiflora alba picta liliacea.

With silver marbled leaves, heart-shaped, largely marbled with silvery grey, white flowers, spotted with clear lilac. Six Seeds, 1s. 6d.

Ipomœa hederacea grandiflora atrocarminea intus alba.

With silvery marbled leaves, tri-lobed leaves, largely marbled silver grey, flowers dark carmine, with large white throat. Six Seeds, 1s. 6d.

Marigold, Dwarf French New Golden.

A pure golden dwarf French Marigold, very double and constant.
Per packet, 6d.

Mimulus repens.

This very distinct species presents a marked contrast in its habit and foliage, as well as in the colour of its flowers, to most of the other members of this popular genus. It produces slender trailing stems, clothed with very small ovate entire foliage, and flowers of a pale lilac-purple colour, the lower lip being prettily spotted with orange on a yellow ground. It is best suited to pot culture, being a cool greenhouse plant, and produces its flowers during the summer months. Per packet, 1s.

Modiola geranioides.

An elegant little tuberous-rooted Malvaceous plant, of trailing habit, with pretty incised foliage, and light crimson flowers, each rather more than an inch in diameter, produced from the axles. Though an abundant bloomer, it is unfortunately a shy seeder in England. It has proved quite hardy in well-drained light soil, and is of the easiest culture. Per packet, 1s.

Nierembergia frutescens.

Soft-wooded shrub, from Chili, 2½ feet high, branching habit, with white lilac flowers; abundant bloomer. Per packet, 6d.

Oxalis valdiviana.

It is quite hardy, its habit is compact and good, and it throws its bloom spikes well above the foliage. The flowers are of a bright yellow, sweet scented, and produced in bunches of large size; the plant thus continuing a considerable time in bloom. Per packet, 1s.

Palava flexuosa.

This most beautiful annual is one of the finest introductions of late years, average height 15 to 18 inches, branching freely, producing in the greatest profusion its charming flowers, which are thrown well above the foliage. Its leaves are very neat and graceful, colour bright rosy pink, fading towards the centre, while the base of the sepals and petals is almost black, producing a fine contrast. Per packet, 1s.

Perilla nankinensis foliis variegatis.

The dark leaves are beautifully variegated with silvery white. Reproduced well from seed. Per packet, 1s. 6d.

Polafoxia Hookeriana.

A beautiful rose-flowering everlasting. Per packet, 6d.

Portulaca grandiflora flore-pleno

(DOUBLE PORTULACA).

Mixed seed, consisting of the finest double varieties, of the most brilliant colours, in scarlet, crimson, yellow striped, &c.; will produce two-thirds double flowers. Per packet, 1s.

Potentilla.

Fine double varieties, mixed, containing rich crimson, golden yellow, and finely mottled varieties of this fine perennial.
Per packet, 1s.

Pyrethrum (Golden Feather).

This new and beautiful bedding, edging and decorative plant comes true from seed. One of the most effective and telling plants of the season. Per packet, 6d.

Solanum capsicastrum Hendersonii.

A fine seedling between Capsicastrum and Pseudo-Capsicum; a neat and beautiful plant, covered with berries of scarlet fruit, for pot culture and winter decoration; height 1½ to 2 feet. Per packet, 6d.

Stock, Anderson's Rose Intermediate.

A very dwarf free flowering variety, well adapted for growing in pots, beds, masses, or ribbonding; the habit is fine and compact.
Per packet, 1s. 6d.

Tacsonia Van Volxemi.

This splendid and beautiful Climber we can offer seed of; it is one of the finest of this tribe, free to flower, of many months' continuance in bloom; colour very brilliant. Per packet, 6d.

Trachelium canescens, flesh-coloured flowers
,, ,, lilac-coloured flowers.

Two pretty new varieties of this very useful autumnal garden flowering plant. Per packet, 1s.

Viola lutea.

A neat new bedding and edging plant, quite hardy, of a very compact habit, and produces its beautiful canary-coloured flowers throughout the season (rain or sunshine) in the greatest profusion. This plant has qualities adapted for bedding purposes, which when known will render it as popular and as much sought after as its lovely compeer the Viola cornuta. Per packet, 6d.

Viscaria oculata, Dwarf Perfection.

This is a remarkable fine novelty, very dwarf, 6 to 8 inches high, very bushy and compact, exceedingly floriferous; flowers rosy white, slightly shaded lilac, with a purplish stain in the centre.
Per packet, 1s.

Viscaria elegans picta.

The centre of the flower is dark crimson, gradually merging into a bright scarlet, belted with a pure white margin, profusion of flowers and brilliant appearance. Per packet, 6d.

Waitzia Steetziana.

A very pretty miniature species, suitable for pots, but succeeding well in the open ground, not apt to die off as some of the other species; about 6 inches high, with comparatively large corymbs of yellow flowers. Per packet, 1s.

Wigandia vigieri.

This is one of our best large ornamental-leaved plants, equal, if not superior, in size to W. caracassana, from which it is easily distinguished by the silvery tinge of its immense leaves. Per pkt., 1s.

Zamesia americana.

This is a neat, dwarf, deciduous shrub, belonging to the Hydrangea section of the Saxifrage tribe, and attaining a height of about 3 feet. It produces opposite-ovate, serrated foliage, whitish beneath, with terminal cymes of neat white Saxifrage-like flowers. A very rare plant, being found apparently in only one locality in New Mexico, in the vicinity of the Rocky Mountains. It is perfectly hardy, and of easy culture in light soil. The seeds are small, like those of many species of Saxifrage. Per packet, 1s.

PINE APPLE PLACE, MAIDA VALE, LONDON, W.

Cheap Tricolor Geraniums.

ALFRED FRYER offers 50,000 fine Plants, at the following low prices for cash. Package free.
LADY CULLUM, 12s., 15s., and 24s. per dozen.
SOPHIA DUMARESQUE, 7s., 10s., and 13s. per dozen.
SUNSET, 5s., 6s., and 7s. per dozen.
MRS. POLLOCK, 3s. 6d., 5s., and 6s. per dozen.
MRS. BENYON, 5s., 6s., and 7s. per dozen.
Remittance requested from unknown correspondents.
Address, ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

VARIEGATED PELARGONIUMS.

Louisa Smith	Miss Watson	Caroline Longfield
Countess Tyrconnel	Spanish Beauty	Lady of Shallot
Madeline Schiller	Dawn	Princess of Wales
Italian Beauty	Queen Victoria	Glen Eyre Beauty

21s.
CARSON & SON, Gravel Walk Nursery, Peterborough.

Cheap, Cheap, Cheap.

FINE HEALTHY TRICOLOR and other PELARGONIUMS.
Lady Cullum, 12s., 15s., and 18s. per dozen.
Sophia Dumaresque, 6s., 10s., and 12s. per dozen.
Italia Unita, 4s. per dozen.
Crystal Palace Gem, 4s. per dozen.
Leonidas (splendid), 6s. per dozen.
Mrs. Pollock, 3s. 6d. per dozen, 24s. per 100.
Beauty of Oulton, 4s. per dozen.
Mrs. Longfield, 4s. per dozen.
Luna, 3s. per dozen.
In strong plants, for cash, package included. CATALOGUES free on application.
JOHN BARRETT, St. John's Nursery, Bury St. Edmund's, Suffolk.

GEO. SMITH begs to call the attention of the Readers of the *Gardeners' Chronicle* to his splendid SEEDLING PELARGONIUMS, which have taken First-class Certificates. G. S. offers them with the greatest confidence as first-class additions, viz.:—
NOSEGAY GERANIUMS
LIZZIE (G. S.).—A novel-coloured and desirable variety, having salmon-coloured flowers, suffused with orange in the centre, dashed with violet at the tips. Quite new in colour, and a fine acquisition to the Nosegay class. Fine habit; foliage heavily zoned. Awarded First-class Certificate at the Royal Horticultural Society. Plants 7s. 6d. each. Where six are ordered seven will be sent, and where 12 are ordered 15 will be forwarded.
MASTERPIECE (G. S.).—This noble flower is of novel colour, the pips large, salmon-crimson round the centre; the edges of the young blooms orange-crimson; immense trusses, and globular; foliage slightly zoned, extra fine habit. Awarded a First-class Certificate at the Royal Horticultural Society. Plants 7s. 6d. each. Where six are ordered seven will be sent, and where 12 are ordered 15 will be forwarded.
VICTOR (G. S.)—Bright orange-scarlet flowers, large, and very double; free-blooming, and the most compact and beautiful double variety yet raised. Awarded a First-class Certificate by the Royal Horticultural Society. Plants 7s. 6d. each.
*** Notice.—Coloured drawings of Lizzie, Masterpiece, and Victor, faithfully represented by measurement of full size, and without any exaggeration of flower and foliage. 1s. 6d. each.
The above novelties, in good plants, to be sent out the first week in May. Usual discount to the Trade. Cash to accompany orders, payable at Hornsey Road, N., from unknown correspondents.
Tollington Nursery, Hornsey Road, Islington, London, N.

Gold and Silver Tricolor and Bicolor Geraniums.

WOOD AND INGRAM offer fine plants of the following:—

TRICOLORS.

	Each.—s. d.		Each.—s. d.
Eastern Beauty	1 0	Gold Pheasant	0 6
Lady Cullum	2 0	Mrs. Benyon	0 6
Sophia Cusack	2 6	Sophia Dumaresque ..	1 0
Sunset	0 6	Glowworm	0 6
Italia Unita	0 6	Silver Star	1 6
Countess	1 0	Queen's Favourite	1 0

Or the 12 varieties for 12s., package included.

EXTRA CHOICE VARIETIES.

	Each.—s. d.		Each.—s. d.
Countess of Craven ..	2 6	Lucy Grieve	5 0
Miss Watson	5 0	Mrs. Dix	5 0
Star of India	3 6	Queen Victoria	2 0

Or the six varieties for £1, package included.

BICOLORS.

	Each.—s. d.		Each.—s. d.
Artemus Ward	1 6	Luna	0 6
Beauty of Oulton	0 6	Circlet	0 6
,, Ribblesdale ..	1 0	President Lincoln	0 6
Gaiety	0 6	Neatness	0 6
Sceptre d'Or	0 6	Her Majesty	2 6
Perilla	1 6	Kentish Hero	2 6

Or the 12 varieties for 12s., package included.
Nurseries, Huntingdon.

Variegated Geraniums.—To the Trade.

WOOD AND INGRAM offer the following:—

	Per doz.—s. d.		Per doz.—s. d.
Mrs. Pollock	3 0	Gold Pheasant	4 0
Lady Cullum	18 0	Mrs. Benyon	4 0
Sophia Dumaresque ..	9 0	Sunset	4 0
Glowworm	4 0	Italia Unita	6 0
Silver Star	12 0	Queen's Favourite	8 0
Beauty of Oulton	4 0	Circlet	4 0
,, Ribblesdale ..	12 0	Gaiety	4 0
Neatness	6 0	Perilla	12 0
President Lincoln	6 0	Duke of Edinburgh ..	6 0
Brilliantissima	4 0		

Nurseries, Huntingdon.

CHOICE FERNS.—Lomaria gibba, Cyrtomium falcatum, Blechnum brasiliense, Blechnum corcovadense, Davallia dissecta, Pteris nemoralis variegata, Adiantum setulosum, Adiantum hispidulum, Gymnogramma Mertensii (Gold Fern), Gymnogramma hybrida (Silver Fern), Asplenium polymorphum Pleopeltis stigmatica.
WOOD & INGRAM offer the above at 1s. 6d. each, or the 12 for 15s., package included.
Nurseries, Huntingdon.

To the Trade.

WOOD AND INGRAM beg to offer—
LOMARIA GIBBA, fine established plants, in 4-inch pots per doz. 6s.
BLECHNUM BRASILIENSE, do. do., per doz. 6s.
,, CORCOVADENSE, do. do., per doz. 6s.
CYTISUS RACEMOSUS, flowering in 4-inch pots, per doz., 4s.
YUCCA ALŒFOLIA, strong, in 3-inch pots, per doz. 12s.
ISOLEPIS GRACILIS, strong, in 4-inch pots, per doz. 4s.
STATICE MACROPHYLLA, fine plants, will bloom this season per doz. 30s.
LOBELIA TRENTHAM BLUE, per doz. 2s. 6d.
LASTRÆA FILIX-MAS CRISPA, established in small pots, per doz., 6s.; per 100, 40s.
CALCEOLARIA AUREA FLORIBUNDA, fine autumn-struck plants, not potted, 8s. per 100.
Nurseries, Huntingdon.

New Zonal Geraniums of 1868, and Double Varieties.

WOOD AND INGRAM offer the following fine varieties, in strong plants, at 1s. each, or 10s. per doz., package included:—Eclat, First Favourite, Grand Duke, Glow, Countess of Rosslyn, Emmeline, Rose Stella, Countess of Strathmore, Comet, Nosegay floribunda, The Sultan, Hon. G. Hardy, Miss Edith, The Seraph, Baron, Christabel (Mann).

DOUBLE-FLOWERING VARIETIES.

	Each.—s. d.		Each.—s. d.
Madame Lemoine	5 0	Gloire de Nancy	0 6
,, Rose Charmeux .	2 6	Auguste Ferrier	0 6
Maréchal de Chanflourd ..	0 6	Triomphe de Gergovat ..	0 6

Or the six varieties for 9s., package included.
Nurseries, Huntingdon.

F. AND A. SMITH invite the attention of intending purchasers of TRICOLOR and BICOLOR GERANIUMS to their very extensive collections in each class. The plants are now in fine colour, and will well repay a personal visit. They would especially mention the following attractive varieties:—
GOLDEN TRICOLORS.—Earl of Derby, Jetty Lacy, King Marvellous, Pre-eminent, Refulgens, Sunray, &c.
SILVER TRICOLORS.—Andromeda, Duchess of Sutherland, Mrs. Dombrain, Peri, Queen Mab, &c.
BICOLORS.—Bullion, Compacta, Combatant, Gladiator, Golden Rule, Plutus, Standard, &c.
ZONALS.—Beauty of Dulwich, Circle, Crimson Perfection, Favourite, Hebe, Little Excellent, Sunnyside, &c.
CATALOGUES, containing full descriptions of these and other beautiful novelties, may be had on application.
The Nurseries are within a few minutes' walk of the Lower Norwood Station (Crystal Palace line) and the Dulwich Station (London, Chatham, and Dover Railway).
The Nurseries, West Dulwich, S.E.

PELARGONIUMS.—Gloire de Nancy, double, nice established plants, 12 for 5s., 25 for 10s.; Geraniums of Scarlet, Nosegay, and Zonal, out of cutting pots, well rooted plants, in 50 sorts, including Little David, Tom Thumb, Adonis, Helen Lindsay, Junon, Napoleon, Rose Queen, Scarlet Globe, Ratazzi, Rival Nosegay, Indian Yellow, Donald Beaton, Lord Palmerston, &c., our selection, from 6s. to 8s. per 100, package included.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

SEND for ABBOTT'S NEW CATALOGUES of CHOICE SEEDS, ZONAL GERANIUMS, FERNS, FUCHSIAS, BEDDING PLANTS, FRUIT TREES, ROSES, post free on application.
Also, Cheap, for cash, GLADIOLUS BRENCHLEYENSIS, fine roots, 1s. 6d. per dozen, or 10s. 6d. per 100. Also, CALCEOLARIA AUREA FLORIBUNDA, 8s. per 100.
Fifty packets choice FLOWER SEEDS, post free, for 6s.
Also, ABBOTT'S splendid CUCUMBER, the Early Prolific, post free for 13 stamps.
E. ABBOTT, jun., Railway Nursery, Ardleigh, near Colchester, Essex.

Calceolaria aurea floribunda.

WANTED, a quantity of Autumn-struck Plants. State price per 1000, &c.
CALCEOLARIA, *Gardeners' Chronicle* Office, W.C.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.—Mr. WEBB, Calcot, Reading.

Finest Prize Hollyhock Seed.

HENRY MAY begs to offer Seed from his renowned Collection of HOLLYHOCKS, which has for years been awarded all the First Prizes at all the great Exhibitions in the North of England. The Seed is saved from the newest and finest varieties only, and he will supply 500 Seeds for 5s.; 1000 for 9s.; 2000 for 15s. Post-office Orders payable at Bedale.
HENRY MAY, The Hope Nurseries, Bedale.

Superb Double Hollyhocks.

NOW IS THE TIME FOR PLANTING TO ENSURE GOOD SPIKES AND BLOOMS THIS SEASON.

WILLIAM CHATER'S CATALOGUE of his unrivalled Collection may be had upon forwarding one postage stamp. Choice Bloomed Seedlings, with colours attached, 40s. per 100. Unbloomed Seedlings, from finest named varieties, 25s. per 100. SEEDS, saved only from first-class flowers, in packets and collections, from 1s. to 10s. 6d.
Special prices for quantities to the Trade on application.
WILLIAM CHATER, The Nurseries, Saffron Walden.

New Catalogue.

LEWIS S. WOODTHORPE will be happy to forward, post free, on application, his CATALOGUE (which will be found very reasonably priced) of NEW and CHOICE PLANTS, beautiful SPRING FLOWERS, and GENERAL NURSERY STOCK.
A heavy discount to the Trade.
Munro Nursery, Sible Hedingham, Essex.

SUTTONS' HOME-GROWN SEEDS,
Carriage Free.



Seeds direct from the Growers the best means of preventing disappointment.



SUTTONS' COMPLETE COLLECTIONS for the FLOWER GARDEN, to produce a beautiful display during the year.

No. 1 Collection, free by post or rail	..	..	..	£2 2 0
No. 2 Collection, free by post or rail	..	..	..	1 11 6
No. 3 Collection, free by post or rail	..	..	..	1 1 0
No. 4 Collection, free by post or rail	..	..	..	0 15 0
No. 5 Collection, free by post or rail	..	..	..	0 10 6

SUTTON & SONS, Seedsmen to the Queen, Reading.

F. AND A. SMITH beg to announce that their splendid Collection of CINERARIAS is now in full bloom, and will well repay a visit. They would call the attention of purchasers to the following varieties, which are now being sent out, each of which has obtained Certificates at the Royal Horticultural Society, and pronounced far in advance of anything hitherto offered:—
INO.—Large white flowers, with tip of light crimson; extra fine.
PANDORA.—White, with heavy tip of claret crimson; very large head, and good habit.
ROYAL PURPLE.—Shaded purple and puce, with ring of rich crimson, and inner circle of pure white; undoubtedly one of the finest habited and the most richly coloured variety yet sent out.
Lists of other varieties on application.
The Nurseries, West Dulwich, S.E.

New Seeds for the Garden and Farm, 1869.



ARCHD. HENDERSON'S DESCRIPTIVE and PRICED CATALOGUE of SEEDS, containing Cultural Remarks on all the most important SEEDS,
A select list of GLADIOLUS for Spring Planting,
GRAPE VINES, in Pots, an unrivalled Collection.
Also his DESCRIPTIVE CATALOGUE of GENERAL NURSERY STOCK is now ready, and may be had gratis and post free upon application.

Sion Nursery, Thornton Heath, Surrey; and at the East Surrey Seed Warehouse, College Grounds, North End, Croydon.

Vegetable, Agricultural, and Flower Seeds.

MISCELLANEOUS HARDY BEDDING PLANTS, SWEET VIOLETS, &c.

ROBERT PARKER begs to announce that his CATALOGUE, containing DESCRIPTIVE LISTS of the finest kinds in cultivation of the above-named, is now published, and will be forwarded to applicants. The stocks of Seeds have all been procured from the best possible sources; all are warranted genuine, and are offered at the lowest possible prices.
Intending purchasers are requested to compare the prices with those of other houses.
Exotic Nursery, Tooting, Surrey, S.W.

Genuine and First-class Seeds, Carriage Free.

WM. PAUL begs to announce that his NEW CATALOGUE of SELECT VEGETABLE and FLOWER SEEDS is just published, and will be forwarded free by post on application.
He has made enlarged arrangements, by which he believes he will be able to secure for his Customers, as usual, the best races of VEGETABLE and FLOWER SEEDS, of good germinating qualities, free from adulteration. For further particulars, see large Advertisement of last week.
Important.—All letters should be addressed WM. PAUL, Waltham Cross, London, N.

CHOICE PRIMULA SEEDS.

B. S. WILLIAMS

BEGS TO CALL SPECIAL ATTENTION TO HIS SUPERB STRAIN OF THIS

UNIVERSALLY ADMIRED WINTER AND SPRING FLOWERING PLANT.

He can with confidence offer it as being unequalled in cultivation.

Plants from this Seed have always been awarded First Prizes wherever exhibited. B. S. W.'s strain of Primula is so well known to all the principal gardeners in the three kingdoms that testimonials are unnecessary.

In sealed packets, Red, White, or Mixed, 2s. 6d., 3s. 6d., and 5s. each.

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

CYCLAMEN PERSICUM (HYBRIDS).

B. S. WILLIAMS

HAS GREAT PLEASURE IN OFFERING

SEEDS OF HIS SUPERB VARIETIES OF CYCLAMENS,

Which are much superior to those sent out by him last season, being saved from the plants exhibited by Mr. Wiggins, at the Meeting of the Royal Horticultural Society, at Kensington, on Tuesday last (Feb. 16), when they were pronounced far in advance of any ever before raised, both in point of size of flower and richness of colour, which varies from pure white to mauve and deep red; many of them in addition being beautifully striped and spotted, and deliciously fragrant. Seeds sown in heat from the present time until the end of March, can be grown to produce flowers within 12 months.

B. S. W. having made arrangements for the supply of all Mr. Wiggins' Seed, it can only be had genuine in sealed packets bearing his name and address.

In Sealed Packets, 1s. 6d., 2s. 6d., and 3s. 6d. each.

B. S. WILLIAMS, VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, N.

WILLIAM ROLLISSON & SONS'

BRILLIANT NEW TRICOLOR GERANIUM, THE MOONSTONE,

WILL BE SENT OUT ON AND AFTER THE 30TH OF APRIL NEXT.

THE habit of the above most beautiful Tricolor is compact and exceedingly free; the leaves, which are of good substance and moderately large, are almost round, and from the slight convexity of their shape they exhibit to great advantage the rich and varied colourings with which they are adorned; the centre of the leaf is of a bright and lively green surrounded by a dark chocolate zone, which is much intercepted by the most intense blood-red. This bright colour shades off, towards the edge of the leaf, to a soft crimson-lake, which entirely encircles the whole zone, edged with a bright lemon-yellow belt. It is somewhat in the way of Lucie Grieve in its colourings, but is rather brighter, and, unlike the shy habit and slow growth of that variety, "The Moonstone" is almost as free in habit as a Tom Thumb, while it remains constant in character. This, without exception, is the finest Tricolor hitherto offered to the public.

THE FOLLOWING NINE SPLENDID NEW DOUBLE GERANIUMS FOR 1869,

MADAME BONDET	MDLLE. LOUISE DELESALLE	M. FROEBEL
MADAME DEBRAY	M. DE ST. JEAN	MARIE LEMOINE
MARIE CROUSSE	M. DE ST. PAUL	WILHELM PFITZER

Together with many other Novelties of sterling merit, will be distributed on and after the 30th of April next.

For Descriptions and Prices of the above, see SPRING CATALOGUE of NEW and CHOICE SOFT-WOODED PLANTS for 1869, which will be sent Gratis and Post Free on application to

THE NURSERIES, TOOTING, LONDON, S.W.

TO THE TRADE ONLY.

STUART & CO., SEED GROWERS, NICE.

Warehouse and Offices, where Stock is kept for the supply of the English Trade,
5, TAVISTOCK ROW, COVENT GARDEN, W.C.
(Late of 85, Southampton Row.)

WHOLESALE CATALOGUE ON APPLICATION.

THE FOLLOWING SPECIALITIES SUPPLIED AT THE CATALOGUE PRICE,
OR SPECIAL OFFER FOR LARGE QUANTITIES.

ECHEVERIA METALLICA.—Fresh Seed now ready to send out, in pods containing from 20 to 50 seeds, with full directions as to culture. Few plants equal this grand House-Leek for subtropical or alpine succulent gardening, or for the decoration of the Conservatory; its large massive leaves, shaded with a purplish glaucous hue, are unique.

PYRETHRUM GOLDEN FEATHER.—A valuable plant for ribands, beds, edgings, &c. Raised from seed, it retains its beautiful golden hue longer than if propagated by cuttings or divisions.

CARNATION SEED, from Florists' Flowers, in Mixture or in Collections.
PICOTEE SEED, from Florists' Flowers, in Mixture or in Collections. STUART & Co.'s Carnation and Picotee Seeds have long been noted for their large yield of fine double flowers.
PELARGONIUM SEED.—Large-flowered, Spotted, Fancy, and Diadematum, in Mixture or in Collections. The Seed we offer produces Flowers of great beauty.
PELARGONIUM (ZONAL) SEED.—Saved from the newest Variegated Tricolor and Bicolor Varieties, and from these crossed with the finest Zonals.
PRIMULA SEED.—Saved from the largest and brightest-coloured fimbriated flowers, from Fern-leaved and Double Varieties.
PINK SEED.—Saved from the choicest English varieties.
HOLLYHOCK.—Saved from English Exhibition varieties.
LOBELIA LITTLE GEM.—The prettiest of last year's novelties, flowers pure white, with clear well-defined blue margin, compact, and blooming throughout the season.
PETUNIA SEED, of exquisite quality.
CINERARIA SEED.—Saved from the choicest Florists' Flowers.
ZINNIA SEED, from magnificent double varieties.
CENTAUREA CANDIDISSIMA (RAGUSINA), warranted true, plump, well-ripened seeds.
CENTAUREA GYMNOCARPA SEED, true.
BALSAM SEED, finest double varieties.
VIOLA CORNUTA SEED, PURPLE QUEEN.—The earliest, the darkest coloured, and most profuse blooming variety.
MYOSOTIS SYLVATICA SEED, the finest Forget-me-Not for spring gardening.
ORNAMENTAL GRASSES.
SUBTROPICAL PLANT SEEDS.
MELONS.—Choice hybrid, our own raising; unequalled for their exquisite luscious flavour, fine shape, and beautiful lacing.
MELONS.—All the usual sorts in cultivation; seed saved from selected fruits only.
CUCUMBERS.—All the finest varieties in cultivation.

STUART AND CO., 5, TAVISTOCK ROW, COVENT GARDEN, W.C.

NEW ROSES OF 1869.

PAUL & SON, The "Old" Nurseries, Cheshunt, N.,

HAVE NOW FIT AND READY FOR DELIVERY

STRONG PLANTS of the NEW ROSES of the YEAR .. .. 42*s.* per doz.
H.P. DUKE of EDINBURGH ROSE.—Their Seedling of last season. First-class Certificate, Royal Horticultural Society .. .. 2*s.* 6*d.* to 3*s.* 6*d.* each.

THEY ALSO OFFER, FOR EFFECT THIS SEASON,

STRONG BLOOMING DWARF-STANDARD and DWARF PLANTS of the leading kinds .. .. 9*s.* to 12*s.* per doz.
STRONG PLANTS on OWN ROOTS, their selection, in 48's .. .. £5 per 100
" " " in 60's .. .. .. £3 15*s.* per 100

PRICED LISTS ON APPLICATION.

PAUL AND SON have now a charming Show at the "Old" Nurseries, of FORCED ROSES and other Spring Flowers. One mile from Cheshunt Station, Great Eastern Railway.

BARR & SUGDEN,

12, KING STREET, COVENT GARDEN, LONDON, W.C.

ADULTERATION OF SEEDS.

"The law is a terror to evil doers, and a praise to them that do well."

"Mr. Welby's proposed Bill imposes a penalty not exceeding £50 for killing Seeds or destroying the germinating power by steaming or other artificial means, or for giving Seeds a false or deceptive appearance by colouring, dyeing, or other artificial means; or for knowingly selling or having for sale any killed or dyed Seed."—*Vide* "*Times*," *March* 18, 1869.

UNSOLICITED TESTIMONIALS, SUCH AS B. & S. ARE CONSTANTLY RECEIVING.

"Mr. Lancaster informs Messrs. Barr and Sugden that he cut last year from one plant of Barr's International Cucumber 20 yards 15 inches of Cucumbers, the largest being 35½ inches long."—*Midlands, Southampton, Jan.* 8, 1869.

"The Rev. J. W. Brown has heard from Mrs. Todd, of Winchester, and she expressed herself as very much pleased with the satisfactory execution of the order for bulbs. Other friends of Mr. Brown, to whom he has recommended the firm of Barr and Sugden, have also expressed the same. Mr. Brown himself has always found the seeds, bulbs, &c., from their establishment to be of first-rate quality."—*Much Hadham, Nov.* 26, 1868.

The above will suffice to show that while B. & S. hail with satisfaction Mr. Welby's proposed measure for the public protection, their customers must have always felt satisfied that the Seeds received from their house had not been tampered with.

FOUR HUNDRED sorts of ALPINE and HERBACEOUS PERENNIAL SEEDS, from one of the most choice and extensive Collections in Europe; GLADIOLI, embracing the new kinds and all the older varieties worthy of cultivation. Offered for the first time in this country, a SPECIAL LIST of NEW TABLE MAIZE, from the Rev. T. C. Bréhaut, of Guernsey (Her Majesty's Commissioner at the Paris Exhibition of 1867 to report on the present state of Fruit Culture on the Continent, and author of "Cordon Training," "The Modern Peach Pruner," &c., &c.) The varieties embrace those most esteemed by our American Cousins, who use the green cobs as one of their popular Vegetables: in this country, they will come into use when the supply of Green Peas is becoming short, and will be found an agreeable substitute for Green Peas. (See Leading Article on Maize, "Journal of Horticulture," March 4, page 155.) For further particulars, see B. & S.'s SPRING SEED CATALOGUE, page 56.

BARR & SUGDEN'S COLLECTIONS of SEEDS and GLADIOLI,

Pure and Genuine, Home-grown when advisable, and direct from the Growers, &c., &c.

VEGETABLE SEEDS, 12*s.* 6*d.*, 15*s.* 6*d.*, 21*s.*, 31*s.* 6*d.*, 42*s.*, 63*s.*, 84*s.*, and 105*s.*
FLOWER SEEDS, 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 10*s.* 6*d.*, 21*s.*, 31*s.* 6*d.*, and 42*s.*
HERBACEOUS and ALPINE SEEDS, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, 15*s.*, 21*s.*, and 30*s.*
TABLE MAIZE, 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, and 10*s.* 6*d.*
ORNAMENTAL GOURDS, 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, 10*s.* 6*d.*, 15*s.*, and 21*s.*
ORNAMENTAL GRASSES for TABLE DECORATION, &c., 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, and 10*s.* 6*d.*
SEEDS for SUBTROPICAL GARDENS, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, and 10*s.* 6*d.*
GLADIOLI, 5*s.* 6*d.*, 8*s.* 6*d.*, 10*s.* 6*d.*, 13*s.* 6*d.*, 21*s.*, 30*s.*, 42*s.*, and 63*s.*
GLADIOLI, by the Hundred, 10*s.* 6*d.*, 15*s.*, 21*s.*, 25*s.*, and 30*s.*
CLIMBERS, CARNATIONS, PELARGONIUMS, HOLLYHOCKS, STOCKS, ASTERS, BALSAMS, ZINNIAS, LANTANAS, EVERLASTINGS, AQUATICS, PALMS, &c. Full particulars will be found in B. & S.'s DESCRIPTIVE SPRING CATALOGUE, which will be sent Free to intending purchasers.

BARR AND SUGDEN, 12, KING STREET, COVENT GARDEN, W.C.

B. S. WILLIAMS,

NURSERYMAN AND SEEDSMAN,

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.,

Respectfully invites the Nobility and Gentry about to furnish their Conservatories, Greenhouses, Stoves, or Orchid-houses, to an inspection of his

STOCK OF MAGNIFICENT SPECIMEN PLANTS,

MANY OF WHICH ARE UNEQUALLED IN THIS COUNTRY.

THEY CONSIST OF—

The Choicest and rarest Exotics, such as TREE-FERNS, PALMS, BEAUCARNEAS, AGAVES, YUCCAS, CYCADS, ARALIAS, CAMELLIAS, AZALEAS, and all other kinds of STOVE and GREENHOUSE FLOWERING and ORNAMENTAL FOLIAGE PLANTS, proved to be worthy of cultivation.

The Large CONSERVATORY, at all times of the year well worth a visit, is now unusually gay with flowers of Camellias, Azaleas, Ericas, Epacris, the magnificent varieties of Cyclamen persicum, obtained from Wiggins' strain of seed; Williams' superb Chinese Primulas; the beautiful improved Hybrid Solanums, now laden with their large and highly ornamental berries; Hyacinths, and many other Spring Flowering Plants, also helping to make a grand floral display.

The STOVES and ORCHID-HOUSES are also very attractive and interesting just now, with blooms of Odontoglossums, Cypripediums, Cœlogynes, Lycaste Skinneri, Phalænopsis, and many other kinds.

The COLLECTION of MEXICAN PLANTS is surpassed only by that of Kew Gardens.

All NEW PLANTS of sterling merit are added to the Collection as soon as procurable, and may be seen here, the inspection of which would alone repay a visit.

In May will be published,

A CATALOGUE OF NEW AND RARE PLANTS FOR 1869,

POST FREE TO ALL APPLICANTS.

The "Favourite" Omnibuses leave Victoria Nursery every seven minutes for the City and London Bridge, the Strand and Victoria Station, and for Regent Street, the West End, and Brompton.

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

New Bedding Plant—Echeveria metallica.

B. S. WILLIAMS is now enabled to offer for the first time SEEDS of this very Ornamental Bedding Plant, which during the past season produced such a splendid effect in the Grounds at Battersea Park. For edging, and various other purposes, the broad bronzy leaves afford a very striking and beautiful contrast, quite distinct from any other plant yet used for Bedding purposes. In sealed Packets, 2*s.* 6*d.* each.
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Gladioli, the most Extensive Collection.

Barr and Sugden, 12, King Street, Covent Garden, W.C., have the finest and largest collection of GLADIOLI ever offered, prices varying from 2*d.* to 15*s.* per root. For particulars see pp. 68, 69, 70, and 71 of B. & S.'s SPRING SEED CATALOGUE.
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Choice Seeds, Gladioli, &c.

WM. CUTBUSH AND SON'S CATALOGUE of the above contains description and price of many very superior home-grown VEGETABLE and FLOWER SEEDS, and choice varieties of GLADIOLI, &c., all of which are highly recommended. Post free on application.
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Verbenas, 5s. per 100, 40s. per 1000.

WILLIAM BADMAN offers Purple, White, Scarlet, Crimson, Rose, &c., strong plants, from store pots, 5*s.* per 100, 40*s.* per 1000. LOBELIA SPECIOSA (true), strong, from cuttings, 5*s.* per 100, 40*s.* per 1000. Terms cash, package included.
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NEW IMPORTED FLOWER SEEDS.—20 varieties TRUFFAUT'S PÆONY ASTER; 12 do. Dwarf CHRYSANTHEMUM do.; 6 do. ROSE do.; 6 do. CROWN do.; 24 do. Dwarf GERMAN TEN-WEEK STOCKS; 20 do. Large Flowering do. do.; 6 do. BROMPTON or WINTER do.; 10 do. Double WALLFLOWER. The above, or any less number of varieties, at 2*d.* each, or in mixed packets, 3*d.* and 6*d.* each. The seeds are of the very highest quality, as testified by numbers of growers in all parts of Great Britain, during many past seasons. All flower seeds in packets post free. CATALOGUES free on application.
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Established 1806.

T. HANDASYDE AND DAVIDSON have a large stock of all the leading sorts of ROSES, in pots. Prices to the Trade on application.
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JOHN CRANSTON will be happy to forward on application his DESCRIPTIVE CATALOGUE of ROSES for 1868 and 1869. For quality or quantity the stock is unsurpassed; the Manetti Roses especially are acknowledged to be the finest grown plants in the Trade.
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H. LANE AND SON have still 17,000 Standard and Dwarf ROSES to dispose of; also, a large stock of very fine Plants in pots; Hybrid Perpetuals, in 6, 8, and 10-inch pots, 24*s.* to 60*s.* per dozen; Teas, in 60 and 48-pots, 15*s.* to 24*s.* per dozen; 8 and 10-inch pots, 5*s.* to 7*s.* 6*d.* each. The above are well worthy of inspection. Nurseries, Great Berkhampstead, Herts.

NEW ROSES for 1869.
NEW DAHLIAS for 1869.
NEW VERBENAS for 1869.
NEW BEDDING GERANIUM for 1869.
CATALOGUES now ready.
John Keynes, Salisbury.

New Roses, &c., 1869.

WM. KNIGHT begs to offer the following Plants:—
12 NEW ROSES, Strong Plants .. .. .. 36*s.*
12 Finest NEW FUCHSIAS, Strong Plants .. 6*s.*
12 Finest NEW VERBENAS, Strong Plants .. 4*s.*
12 Finest COLEUS, Strong Plants .. .. .. 5*s.*
6 NEW PETUNIAS, Strong Plants .. .. 4*s.*
Or the above Collection, package included, for 2*l.* 10*s.*
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GEORGE EDWARDS' COLLECTION of the above flowers contains all the best varieties in cultivation, and he is now sending out, in good plants,
Selections of 12 Pairs, 6 of each, for 20*s.*
" " " " 16*s.*
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GOLDEN FEATHER PYRETHRUM, (Pyrethrum parthenifolium aurea), new Golden-leaved Bedding Plant.—A dwarf hardy perennial, 6 to 9 inches in height, with beautiful golden leaves, of densely compact growth, unequalled for riband-rows or belts for the Flower Garden. It is perfectly hardy, and simply requires its flower-buds pinching off during the summer months, and stands through winter as a permanent gold edging plant. Produces its golden foliage true from seed. Sold in packets free by post, 1000 seeds, 1*s.* per packet. Any number of packets free by post. Seed our own saving of 1868. Trade supplied.
London Agents: Messrs. Hurst & Son, 6, Leadenhall Street, E.C.
J. Slater & Sons, The Nurseries, Malton, Yorkshire.

Golden Coleus, Queen Victoria.

MESSRS. JOHN AND CHARLES LEE are now sending out this most beautiful and most brilliant of all Coleuses. The centres of the leaves are superb bronze, light crimson edged, with a double row of golden beads, richly broken with crimson veinings. QUEEN VICTORIA is of free growth and good habit, and has a truly regal appearance. First-class Certificate. Price 7*s.* 6*d.*
Messrs. Lee also offer COLEUS PRINCESS ROYAL.—Colour and habit the same as Queen Victoria, except that the golden margin is much narrower. A superb variety. First-class Certificate. Price 7*s.* 6*d.*
COLEUS ALBERT VICTOR.—Centre of leaves brownish-red, shaded with purplish maroon; golden margin very broad. Very distinct and effective. A strong grower. First-class Certificate. Price 7*s.* 6*d.*
The Set of Three for 20*s.* Usual allowance to the Trade.
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New Golden Coleus.

DOWNIE, LAIRD, AND LAING can supply the whole series raised at the Royal Horticultural Society's Gardens, Chiswick, at advertised prices, after March 16.
CATALOGUES free on application.
Stanstead Park, Forest Hill, S.E.; and at Edinburgh.

New Golden Coleus.

DOWNIE, LAIRD, AND LAING, have much pleasure in offering the following beautiful and distinct novelties, which they feel assured will give every satisfaction. Each has received First-class Certificates, and will be sent out on March 16 next, at 7*s.* 6*d.* each:—
ALBERT VICTOR, a very distinct tricolored variety, the centre of the leaves being bronzy-red, stained with large blotches of deep purplish-carmine, and the golden margin is very broad, much more so than in any other of the new golden sorts; the marginal teeth are also marked out by rich carmine lines. It has a very free habit of growth.
BARONESS ROTHSCHILD, an exquisitely beautiful variety, the centre of the leaves being of a bright bronzy-crimson, without stains or blotches, margin bright golden, and the teeth beautifully marked with light carmine. In habit of growth it resembles Albert Victor.
PRINCESS BEATRICE, a charming variety, of a beautiful light golden hue, the main veins being slightly marked, and the margin entirely defined by dark crimson lines, dwarf, and fine.
PRINCESS ROYAL.—The centre of the leaves are a rich bronzy-crimson, with a narrow bright yellow margin, a handsome and most effective pot plant, and a most desirable variety for bedding, being very bright, and nearly an entire colour, a free grower.
Stanstead Park, Forest Hill, London; and Edinburgh.

By the Hundred or Thousand.

VERBENAS, CALCEOLARIAS, GERANIUMS, HELIOTROPES, LOBELIAS, &c., out of store pots. List of prices on application.

SAMUEL COX, Nurseryman, Ludlow, Salop.

Verbenas, Verbenas.

ALL the LEADING VARIETIES of 1868, also Purple, White, Scarlet, and Pink, with plenty of Cuttings, at 2s. per doz.; Small Plants, 6s. per 100, or £2 10 per 1000.

Twenty new varieties of ZONAL GERANIUMS of 1868 for 10s.

PHILIP LADDS, Nursery, Bexley Heath, Kent.

Now Ready.

GEO. SMITH'S PRICED and DESCRIPTIVE CATALOGUE, containing Select Lists of all the leading kinds of choice Show, Spotted, French, Fancy, Variegated, Zonal, Gold and Bronze, Ivyleaf, and Double-flowering PELARGONIUMS, VERBENAS, FUCHSIAS, PETUNIAS, CHRYSANTHEMUMS, DAHLIAS, BEDDING PLANTS, &c., in exchange for one postage stamp.

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ALPINE AND HERBACEOUS PLANTS.

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NEW CATALOGUE (34 pp.) IS NOW READY,

AND WILL BE SENT FOR SIX STAMPS, AND FREE TO PURCHASERS.

It contains brief instructions respecting Culture, and describes many fine additions of great interest and beauty. Amongst these may be named CENTAUREA UNIFLORA, DIANTHUS NEGLECTUS, ADONIS PYRENAICA, IBERIS GIBRALTARICA VERA, LITHOSPERMUM GASTONI, IRIS TENAX, PRIMULA GLUTINOSA and GLAUCESCENS, SENECIO ARGENTEUS, SILENE VIRGINICA, &c.

YORK NURSERIES.—March 6.

CHOICE



SEEDS.

MESSRS. VEITCH & SONS,

ROYAL EXOTIC NURSERY, CHELSEA, S.W.,

HAVE MUCH PLEASURE IN ANNOUNCING THAT THEY HAVE SECURED SEEDS OF THE BEST AND MOST ADMIRED

SUBTROPICAL AND ORNAMENTAL FOLIAGE PLANTS,

Now so much used for the Summer Decoration of the Flower Garden, which they beg to offer at the following prices:—

NAME.	Hardiness and Duration.	Height in Feet.	Price per Packet. s. d.
ABUTILON DUC DE MALAKOFF, very ornamental foliage, with cream-coloured flowers veined and striped with crimson	h h s	6	1 0
„ choice mixed	..	var.	1 0
ACACIA LOPHANTHA, very elegant and graceful foliage, habit close and erect	..	6	0 6
ACANTHUS MOLLIS, a showy ornamental foliage plant	h p	2	0 6
AMARANTHUS BICOLOR, crimson and green foliage	h h a	2	0 3
„ TRICOLOR, foliage scarlet and yellow, very pretty	..	2	0 3
„ MELANCHOLICUS RUBER, rich dark red foliage; excellent either for massing or riband bordering	..	1½	0 6
„ ELEGANTISSIMUS, a new variety, of dwarf and compact habit, very effective for riband borders or bedding purposes, the base of the leaves deep scarlet, and the terminal half rich bronzy purple, producing a brilliant effect	..	1½	1 6
ANDROPOGON BOMBYCINUS, a fine ornamental Grass, with beautiful silvery white pendant flower-heads	h h p	1	1 0
„ SORGHUM (rubens), large and effective ornamental Grass	h a	4	0 3
ARALIA AUSTRALIS } two new varieties from Australia, large handsome	g s	5	1 0
„ ELEGANS } foliage	..	5	1 0
ARGEMONE HUNNEMANNI, very pretty glaucous foliage, 9 to 12 inches long, with white spines and veins	h a	2	0 3
ARTEMISIA JUDAICA, very compact-growing, with foliage the colour of Centaurea; graceful and fine	h s	4	1 0
ARUNDO CONSPICUA, resembling in style or growth and bloom the well-known Pampas Grass, but blooming two months earlier, very ornamental	h p	8	1 0
ATRIPLEX HORTENSIS RUBRA, a striking red-foliaged plant	h a	5	0 3
BEET DELL'S CRIMSON, splendid dark crimson foliage; the root is also one of the best varieties grown for table	h b	1	1 0
„ BRAZILIAN, large foliage, with bright golden, crimson, and white ribs; exceedingly showy	..	1½	0 6
BOCCONIA CORDATA ROTUNDIFOLIA } very ornamental and striking foliage plants, of robust and vigorous growth, with large grey-silvery leaves; highly recommended for their good habit.	h h s	3	1 0
„ FRUTESCENS	..	3	1 0
„ JAPONICA	..	5	1 0
CARDUUS BENEDICTUS, white variegated foliage	h a	4	0 3
CERASTIUM BIEBERSTEINII, silvery foliage } excellent for edgings	h p	½	0 6
„ TOMENTOSUM, silvery foliage } excellent for edgings	..	½	0 6
CENTAUREA BABYLONICA, a handsome plant, with large silvery foliage and golden-yellow flowers, fine	h h p	4	1 0
CENTAUREA CANDIDISSIMA, a splendid silvery-foliaged plant	h h p	1	1 0
„ FENZLII, leaves large, of a glaucous green colour, flower-stem 3 feet high, producing a large and fine canary-coloured flower	..	3	1 0
„ GYMNOCARPA, silvery foliage, very graceful and fine	..	1½	1 0
CHAMÆPEUCE CASSABONÆ, very beautiful, spiny, bright green foliage	h h b	1	1 0
„ DIACANTHA, spiny, white foliage. Plants of very striking appearance, with handsome spiny foliage, well suited for subtropical garden.	..	1	1 0
CHENOPODIUM ATRIPLICIS, purplish crimson foliage	h a	3	0 3
CINERARIA MARITIMA, a very elegant silvery-foliaged plant	h p	2	0 6
„ PLATANIFOLIA, large and very handsome glossy green foliage	h h p	3	1 0
CRAMBE CORDIFOLIA, one of the finest large-leaved herbaceous plants, perfectly hardy	h p	1½	1 0
DAHLIA IMPERIALIS, a magnificent foliage plant, of noble appearance, attaining a height of 12 feet. See *Gardeners' Chronicle* of April 11, 1868, page 380	h h p	12	1 0
DATURA FASTUOSA HUBERIANA fl.-pl., a splendid plant, growing 3 to 5 feet high, stem and branches dark purple, flowers size and form of Datura arborea, very double, drooping, deep lilac outside and white inside	h h a	4	1 0
DAUBENTONIA TRIPETIANA, a most beautiful flowering plant, of the growth and habit of Clianthus magnificus, the racemes of flowers being bright crimson; requires a warm and sheltered position	t p	4	1 0
ELYMUS ARENARIUS, a large and effective ornamental Grass	h p	4	0 3
ERYTHRINA CRISTA-GALLI (the Coral tree), a splendid shrub, having beautiful bunches of crimson-scarlet flowers	h h p	3	0 6
FERDINANDIA EMINENS, one of the tallest and noblest of subtropical plants, sometimes attaining a height of 12 feet, fine large foliage	h h a	8	1 0
FERULA COMMUNIS (Giant Fennel), very ornamental	h p	8	0 3
GOURDS, Ornamental, in collections of 12 varieties, 2s.	..	..	3 6
GIANT do. do. in 12 varieties	..	..	2 6
GYNERIUM ARGENTEUM, a well-known large and very effective Ornamental Grass	..	10	1 0
HELIANTHUS ARGOPHYLLUS STRIATIFOLIUS fl.-pl., fine glossy foliage, and bright yellow flowers, sometimes striped	h a	4	0 3
„ MACROPHYLLUS GIGANTEUS, a magnificent variety of Sunflower, growing in a pyramidal form, sometimes attaining a height of 20 feet, with large yellow flowers	..	15	0 3
HERACLEUM GIGANTEUM, a gigantic plant of commanding appearance, with large cut foliage; suitable for backgrounds or shrubberies, &c.	h p	8	0 3
HUMEA ELEGANS, dark rose flowers, very graceful and ornamental	h h a	5	0 6
MARVEL OF PERU, variegated, gold variegated-foliaged	..	2	0 3
MELIANTHUS MAJOR, fine large cut glaucous foliage, a very handsome and ornamental subtropical plant	h h p	3	0 6
NICOTIANA GLAUCA } Magnificent varieties of Tobacco, with large foliage and ornamental flowers; excellent plants for subtropical work.	h h a	8	0 6
„ GRANDIFLORA PURPUREA	..	8	0 6
„ MACROPHYLLA GIGANTEA	..	10	0 6
„ WIGANDIOIDES	..	12	0 6
OXALIS TROPÆOLOIDES, dark bronze foliage and golden flowers, suitable for edgings	h a	¼	0 3
PERILLA NANKINENSIS, a well-known purple-foliaged plant	..	1½	0 3
PYRETHRUM GOLDEN FEATHER, a superb dwarf bedding plant, of close compact habit, with beautiful yellow foliage; excellent for groups or lines	h p	1	1 0
RUDBECKIA NEWMANNI, resembling a Helianthus, with fine showy foliage	h p	3	0 6
„ SPECIOSA, fine variety, having very bright yellow flowers, with a striking black eye	..	3	0 3
SALVIA ARGENTEA, beautiful large silvery foliage	..	2	0 6

Assortment of 12 best varieties of the above, 5s.

NAME.	Hardiness and Duration.	Height in Feet.	Price per Packet. s. d.
SALVIA CHIONANTHA, a fine variety, with lanceolate glaucous woolly leaves, 9 to 12 inches long, and large white flowers; fine, recommended	h p	2	1 0
„ PRATENSIS LUPINOIDES, large green foliage, very showy	..	2	1 0
SORGHUM TATARICUM, large and elegant plant, resembling Maize	h h a	6	0 6
STACHYS LANATA, a white-foliaged plant, suitable for edgings	h p	1	0 6
STIPA SPLENDENS, fine ornamental Grass, large and showy	..	4	0 6
„ ELEGANTISSIMA, after the style of S. pennata, with whitish feathered flower-heads, an excellent variety, distinct	..	2	1 0
SYLIBUM EBURNEUM, a very distinct plant, leaves dark glossy green, with white mid-rib, spiny and blotched with white	..	3	0 6
WIGANDIA CARACASANA (macrophylla), a noble plant with magnificent leaves; one of the best and most effective of subtropical subjects, and fully entitled to hold a place among the finest plants of the flower garden	h h p	4	1 0
„ URENS } Two excellent varieties of great beauty, resembling the	..	..	1 0
„ VIGIERI } above in style of growth, but not of such robust habit	..	..	1 0
ZEA JAPONICA VARIEGATA (Striped Japanese Maize), with variegated foliage per oz., 1s.	h h a	6	0 3

CANNAS.

The following are selected as the best and most distinct varieties of which seed can be procured:—

CANNA ANNEI ORANGE, glaucous foliage, deep orange flowers	h h p	6	0 3
„ „ SUPERBA, dark purple foliage, salmon flowers	..	5	0 6
„ BIHORELLI, dark foliage, orange-red flowers; fine	..	3	1 0
„ CHATEI SANGUINEA, dark foliage, dark red flowers	..	6	0 3
„ COMMUTATA, large green foliage, with showy red flowers	..	4	0 3
„ DISCOLOR FLORIBUNDA, green foliage, veined purple	..	6	0 6
„ HYBRIDA WARSCEWICZOIDES, beautifully veined foliage, with red flowers	..	4	0 6
„ KETELEERI, a superb new variety	..	7	1 0
„ KRELAGEI DISCOLOR, fine purple foliage and bright red flowers	..	5	0 6
„ LEMONEI, red flowers, a splendid new variety	..	6	1 0
„ MUSÆFOLIA, splendid large green foliage, red flowers	..	6	0 6
„ PERUVIANA, bright green foliage, vermilion flowers	..	7	0 3
„ PURPUREA HYBRIDA, dark foliage, veined crimson	..	5	1 0
„ RENDATLERI, fine bronzy foliage, orange flowers	..	5	0 6
„ RODEZII, excellent large-leaved variety	..	5	0 3
„ ROTUNDIFOLIA RUBRA, dark purple foliage and scarlet flowers	..	6	1 0
„ SELLOWII, green foliage, scarlet flowers	..	4	0 3
„ WARSCEWICZII SANGUINEA, blood-red flowers; fine	..	3	0 3
„ ROSEA, handsome green foliage, rose flowers	..	3	0 6
„ WARSCEWICZOIDES GRANDIFLORA, dark red flowers; fine	..	3	0 6
„ „ NOVA, a magnificent variety, with bright crimson flowers	..	6	0 3
„ finest mixed, various per oz., 2s.	..	var.	0 6
„ Collections of 12 and 18 finest varieties	..	..	5s. & 7 6

RICINUS.

These are splendid plants for making bold and noble beds, when well grown attaining a height of 12 feet, with leaves nearly a yard in width; very ornamental and easily grown.

RICINUS AFRICANUS, large green foliage	h h a	6	0 3
„ „ ALBIDUS, silvery stems and veins	..	6	0 3
„ BELOT DE FOUGERES, excellent variety, large glaucous foliage, and dark green fruit	..	8	0 6
„ BOURBONENSIS, superb large ornamental foliage	..	8	0 3
„ BRAZILIENSIS VIRIDIS, fine large foliage, with green fruit	..	8	0 3
„ COMPACTUS, very elegant, leaves bright green	..	6	0 6
„ INSIGNIS, foliage and fruit dark glaucous green	..	8	0 3
„ MACROCARPUS, mulberry stems and foliage	..	6	0 3
„ OBERMANNI, large, dark foliage, one of the best	..	10	0 3
„ PURPUREUS CINARESCENS, dark foliage, splendid variety	..	6	0 6
„ SANGUINEUS TRICOLOR, fine red foliage and fruit	..	8	0 3
„ Species from the Philippine Islands, splendid foliage, tinged with purple	..	10	0 6

SOLANUMS.

The following comprise the more beautiful of the class remarkable for their fine foliage, which, in most instances, is covered with various coloured spines formed on both sides of the leaves. They are all very suitable for subtropical work, and the flowers of some of the sorts are very attractive.

SOLANUM BALBISI, large white flowers, showy foliage	h h p	3	0 3
„ BETACEUM, large bright green leaves, veined purple	..	6	0 6
„ LACINIATUM, beautifully cut green foliage	..	5	0 3
„ MACROCARPUM, large dark blue flowers and fine foliage	..	6	0 6
„ ROBUSTUM, large bronzy foliage, with yellow spines	..	4	0 6
„ VERBASCIFOLIUM, dark blue flowers, large lanceolate whitish foliage	..	3	0 6
The following have very pretty fruit, and are suitable for growing in pots for table or greenhouse decoration:—			
„ ACANTHOCARPUM, a new variety, of excellent habit. The branches are whitish, and armed with strong spines, the leaves being silvery and tomentose on the under surface, and green on the upper. The fruit, which is produced in abundance, is of the size of small oranges	..	6	0 6
„ CAPSICASTRUM, orange-scarlet fruit	..	1	0 6
„ CORNULICULUM, very large showy fruit, bright yellow, like small Custard Marrows in shape	..	2	0 6
„ SODOMÆUM, very handsome fruit	..	2	0 6
„ TEXANUM, fine scarlet fruit	..	2	0 3
„ WEATHERILL'S NEW HYBRID, an exceedingly fine variety, growing to a height of 18 to 20 inches, dense and compact, with free branching habit, and producing a great abundance of beautiful berries, which vary in size and shape, some being perfectly round, others cordate, with many other intermediate forms	..	1½	2 6

Assortment of 24 best varieties of the above, 10s.

ROYAL HORTICULTURAL SOCIETY.—SHOW of HYACINTHS and SPRING FLOWERS, SATURDAY, March 13, 1869.

AWARDS of the JUDGES.

CLASS 1.—18 HYACINTHS, distinct. (Nurserymen.)
1st Prize, Mr. Wm. Paul, Paul's Nurseries, Waltham Cross, N., £3.
2d, Messrs. W. Cutbush & Son, Nurserymen, Highgate, N., £2.
3d, Mr. G. Davies, Green Lane Nursery, Old Swan, Liverpool, £1.

CLASS 2.—18 RED HYACINTHS, distinct kinds. (Open.)
1st, Messrs. W. Cutbush & Son, £2.

CLASS 3.—6 HYACINTHS, distinct. (Amateurs.)
1st, Mr. J. Weir, Gr. to Messrs. Hodgson, The Elms, Hampstead, £1.
2d, Mr. T. Potter, Gr. to B. Noakes, Esq., North Hill, Highgate, 15s.
3d, Mr. G. Wheeler, Gr. to Sir F. H. Goldsmid, Bt., M.P., St. John's Lodge, Regent's Park, 10s.

CLASS 4.—6 HYACINTHS, distinct, grown in Windows in Pots. (Amateurs.)
1st, Mrs. B. Noakes, North Hill, Highgate, £1.
2d, Miss Wilding, 2, Chesterfield Street, Euston Road, 15s.
3d, Mr. J. Janes, North Road, Highgate, 10s.

CLASS 5.—6 HYACINTHS, new kinds, never before exhibited.
1st, Mr. W. Paul, £1. (Open.)

CLASS 6.—6 Pots of NARCISSI, distinct. (Open.)
1st, Mr. W. Paul, £1.
2d, Mr. C. Turner, Royal Nursery, Slough, 15s.
3d, Mr. W. Cutbush, Jun., Nurseryman, Barnet, Herts, 10s.

CLASS 7.—12 Pots of TULIPS, 6 kinds. (Nurserymen.)
1st, Messrs. W. Cutbush & Son, £1 10s.
2d, Mr. W. Cutbush, Jun., £1. | 3d, Mr. W. Paul, 15s.

CLASS 8.—12 Pots of TULIPS, 4 kinds. (Amateurs.)
1st, Mr. J. A. Steel, Marlesford Lodge, Hammersmith, W., £1 10s.

CLASS 9.—CROCUSES, Collection of. (Nurserymen.)
1st, Mr. W. Paul, 15s. | 2d, Messrs. W. Cutbush & Son, 10s.

CLASS 10.—CROCUSES, 12 Pots of. (Amateurs.)
1st, Mr. J. A. Steel, 15s.

CLASS 11.—12 CAMELLIAS, Cut Blooms, 6 kinds. (Open.)
1st, Mr. A. Wilkie, Gr., Addison Road, Kensington, £1 10s.
2d, Mr J. A. Steel, £1. | 3d, Mr. G. Wheeler, 10s.

CLASS 13.—6 Pots of LILY of the VALLEY. (Open.)
1st, Mr. W. Cutbush, Jun., £1.
2d, Mr. W. Paul, 15s. | 3d, Mr. G. Wheeler, 10s.

CLASS 14.—Collection of CYCLAMENS. (Open.)
1st, Mr. J. Wiggins, Gr. to W. Beck, Esq., Worton Cottage, Isleworth,
2d, Mr. C. Edmonds, Hayes Nursery, Hayes, Middlesex, £1. [£1 10s.
3d, Mr. J. James, Gr. to W. F. Watson, Esq., Isleworth, 10s.

CLASS 15.—6 CHINESE PRIMULAS, various colours. (Open.)
1st, Mr. J. Wiggins, £1. | 2d, Mr. J. James, 15s.
3d, Mr. T. Hawkins, Oaklands Nursery, Shepherd's Bush, 10s.

SPECIAL PRIZES FOR HYACINTHS, SUBSCRIBED BY THE FOLLOWING BULB-GROWERS IN HOLLAND:
Per T. F. WILDING, F.R.H.S.

Byvoet Brothers	Roozen, L.
De Boom, V.	Rosenkrantz, J., & Son
Krelage, E. H., & Son	Schertzer, P., & Son
Kruyff, H.	Van Eden, A. C., & Co.
Mol, J. P., & Co.	Van der Schoot, R., & Son
Mooy, H. Polman	Van Velsen, P., & Sons
Roozen, Ant.	Van Waveren, M., & Sons

CLASS 16.—36 HYACINTHS, distinct sorts. (Open to all Growers.)
1st, Messrs. W. Cutbush & Son, 12 guineas.
2d, Mr. William Paul, 8 guineas.
3d, Mr. G. Davies, 5 guineas. | 4th, Mr. C. Turner, 3 guineas.
Extra, Messrs. M. Van Waveren & Son, Nurserymen, Hillegom, Haarlem, Holland, for superior Culture of Hyacinths Grown in Glasses, £1 5s.

SPECIAL PRIZES SUBSCRIBED BY
Veen, J. H., of Haarlem
Van Velsen, Francis, Jun., Overveen, near Haarlem
Kersten & Co., Haarlem
Per WILLIAM PAUL, F.R.H.S.

CLASS 17.—36 HYACINTHS, in 12 sorts, 3 of a sort. (Open.)
1st, Messrs. W. Cutbush & Son, 10 guineas.
2d, Mr. W. Paul, 5 guineas.

MISCELLANEOUS.
Mr. W. Bull, Nurseryman, Chelsea, for Miscellaneous Collection of Plants, extra prize, £2 10s.
Mr. B. S. Williams, Nurseryman, Holloway, for Miscellaneous Collection of Plants, extra prize, £2.
Messrs. Paul & Son, Old Nurseries, Cheshunt, for Collection of Roses, &c., extra prize, £2.

ROYAL BOTANIC SOCIETY.—EXHIBITION of SPRING FLOWERS, HYACINTHS, CAMELLIAS, PRIMROSES, &c., on MARCH 16 and 17.

LIST OF AWARDS.

12 HYACINTHS. (Amateurs.)
1st Prize, Mr. T. Potter, Gr. to B. Noakes, Esq., Hope Cottage, North Hill, Highgate.
2d, Mr. J. James, Gr., North Road, Highgate.
3d, Mr. J. A. Steel, Marlesford Lodge, Hammersmith.

12 HYACINTHS. (Nurserymen.)
1st, Messrs. W. Cutbush & Son, Highgate.
2d, Mr. W. Cutbush, Nurseryman, Barnet, Herts.

12 TULIPS, 6 kinds. (Open.)
1st, Mr. J. A. Steel, Marlesford Lodge.
2d, Messrs. W. Cutbush & Son, Highgate.
3d, Mr. W. Cutbush, Nurseryman, Barnet.

12 CYCLAMENS. (Open.) [worth
1st, Mr. J. Wiggins, Gr. to W. Beck, Esq., Warton Cottage, Isle-
2d, Mr. J. James, Gr. to W. F. Watson, Esq., Isleworth.
3d, Mr. C. Edmonds, Nurseryman, Hayes, Middlesex.

3 CAMELLIAS. (Open.)
1st, Mr. G. Wheeler, Gr. to Sir F. H. Goldsmid, Bart., Regent's
2d, Mr. A. Wilkie, Gr., Oak Lodge, Kensington. [Park.

12 CAMELLIAS, Cut Blooms. (Amateurs.)
1st, Mr. T. Todman, Gr. to R. Hudson, Esq., Clapham Common.
2d, Mr. G. Wheeler, Gr. to Sir F. H. Goldsmid, Bart.
3d, Mr. A. Wilkie, Gr., Oak Lodge, Kensington.

12 CAMELLIAS, Cut Blooms. (Nurserymen.)
1st, Mr. H. Boyce, Clapham Road, Stockwell.
2d, Mr. C. Edmonds, Hayes, Middlesex.

6 CINERARIAS. (Open).
1st, Mr. J. Wiggins, Gr. to W. Beck, Esq., 10s.
2d, Mr. B. S. Williams, Nurseryman, 10s.

6 CHINESE PRIMULAS. (Open.)
1st, Mr. J. Wiggins, Gr. to W. Beck, Esq.
2d, Mr. G. Wheeler, Gr. to Sir F. H. Goldsmid, Bart.
3d, Mr. J. James, Gr. to W. F. Watson, Esq.

6 AZALEAS. (Open.)
1st, Messrs. H. Lane & Son, Nurserymen, Great Berkhampsted.
2d, Mr. T. Todman, Gr. to R. Hudson, Esq.
3d, Mr. G. Wheeler, Gr. to Sir F. H. Goldsmid, Bart.

9 LILIES of the VALLEY. (Open.)
1st, Mr. W. Cutbush, Nurseryman, Barnet.
2d, Mr. A. Wilkie, Gr., Oak Lodge, Kensington.
4th, Mr. G. Wheeler, Gr. to Sir F. H. Goldsmid, Bart.

6 FOLIAGE and FLOWERING PLANTS. (Open.)
1st, Mr. G. Wheeler, Gr. to Sir F. H. Goldsmid, Bart.
2d, Mr. A. Wilkie, Gr., Oak Lodge, Kensington.

MISCELLANEOUS.
Messrs. Paul & Son, for Collection of Roses in Pots, £2.
Mr. B. S. Williams, for Collection of Miscellaneous Plants, £2.
Messrs. H. Lane & Son, for Collection of Miscellaneous Plants, £1 15s.
Messrs. Paul & Son, for Collection of Roses, cut blooms, £1 5s.
Mr. T. S. Ware, for Collection of Alpine Plants, £1.
Mr. H. Boyce, for 2 Double Primulas, 10s.
Mr. J. Wiggins, Gr., for Collection of Cyclamens, 10s.
Messrs. H. Lane & Son, for Collection of Roses, cut blooms, 10s.
Messrs. Paul & Son, for Collection of Miscellaneous Plants, 10s.

NEW PLANTS.
First-class Certificate, Mr. B. S. Williams, Chamærops gracilis.
First-class Certificate, Mr. B. S. Williams, Cionidium Moorei.
First-class Certificate, Mr. B. S. Williams, Dendrobium lasioglossum.
First-class Certificate, Mr. B. S. Williams, Lycaste Skinneri virginalis.
First-class Certificate, Messrs. Downie & Co., Coleus Albert Victor.
First-class Certificate, Mr. C. Turner, Coleus Princess Royal.
Second-class Certificate, Mr. B. S. Williams, Dracæna punctata.
Second-class Certificate, Mr. B. S. Williams, Solanum rigidum.
Second-class Certificate, Mr. B. S. Williams, Passiflora trifasciata.

The advantages of procuring NEW *and* UNADULTERATED SEEDS *direct from the* GROWERS *cannot be over-estimated.*

James Carter & Co. Seed Growers

237, 238, and 261, HIGH HOLBORN, LONDON, W.C.

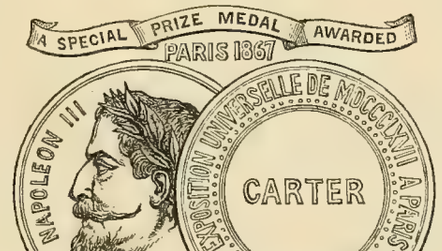


CARTER'S
CHOICE FLOWER SEEDS

Consisting of showy varieties of easy growth, which will impart a gay appearance to the Flower Garden at a moderate cost.

COLLECTION A.,
Price 10s. 6d. (post free for 11s.), contains

An Assortment of 12 choicest var. FRENCH ASTER.
" " 16 " " GERMAN STOCK.
12 showy HARDY DWARF ANNUALS, including Tom Thumb Nasturtium, Saponaria, Blue Nemophila, &c., &c.
12 showy TENDER ANNUALS (to be sown in frames, and then transplanted, or sown in the open borders at the end of April) for Summer and Autumn blooming, including choice Phlox Drummondi, Balsam, Celosia, new Amaranthus ruber, Perilla nankinensis, Zinnia, &c., &c.



COLLECTION C.,
Price 21s. (post free for 21s. 6d.), contains

An Assortment of 12 choicest var. FRENCH ASTER.
" " 16 " " GERMAN STOCK.
" " 10 " " Dwarf Stock-flowered LARKSPUR.
6 choicest EVERLASTING FLOWERS and ORNAMENTAL GRASSES for Winter Bouquets.
6 showy NEW ANNUALS for Bedding.
12 showy HARDY DWARF ANNUALS, including Tom Thumb Nasturtium, Saponaria, Blue Nemophila, &c., &c.
15 showy TENDER ANNUALS (to be sown in frames, and then transplanted, or sown in the open borders at the end of April) for Summer and Autumn blooming, including choice Phlox Drummondi, Balsam, Celosia, the new Amaranthus ruber, Perilla nankinensis, Zinnia, &c., &c.
6 HARDY PERENNIALS for Autumn and Spring Blooming, including Hollyhock, Wallflower, Gaillardia, Alyssum saxatile, &c.

12 choice var. Hardy Annuals, 2s. 6d.; post free, 2s. 8d.
25 " " Hardy Annuals, 5s.; post free, 5s. 4d.
Any of the above forwarded on receipt of Post-office Order.

PRICE LISTS Gratis and Post Free.

JAMES CARTER AND CO.,
237 AND 238, HIGH HOLBORN, LONDON, W.C.

Chrysanthemums.

NOTICE.—In answer to numerous applications, ADAM FORSYTH begs to inform the Trade and the Public that his New CHRYSANTHEMUMS will be sent out the first week in April. For description, see CATALOGUE, now ready. All orders executed in rotation.
Brunswick Nursery, Stoke Newington, N.

New Chrysanthemums.

JOHN SALTER AND SON beg to announce that their CATALOGUE of NEW JAPANESE and other CHRYSANTHEMUMS is now ready, and may be had on receipt of two stamps.
Versailles Nursery, William Street, Vale Place, Hammersmith, near Kensington Railway.

British Fern Catalogue.

ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, Sidcup Hill, Kent.

Unadulterated Seeds.

DICK RADCLYFFE AND CO. beg to state that they DO NOT ADULTERATE their SEEDS, and therefore can supply them PURE and GENUINE.
CATALOGUES gratis and post free.
DICK RADCLYFFE & Co., Seedsmen, &c., 129, High Holborn, W.C.

Prize of Five Pounds.

MESSRS. JOHN AND CHARLES LEE will give a PRIZE of FIVE POUNDS for the best THREE BUNCHES of MADRESFIELD COURT BLACK MUSCAT GRAPES, on October 5, 1869, to be awarded by the Fruit Committee of the Royal Horticultural Society at South Kensington. Mr. Cox will not compete.
Messrs. LEE can still supply a few extra strong Fruiting Canes at 63s. each.—Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

GRAND NATIONAL HORTICULTURAL EXHIBITION, 1869, to be held in the BOTANIC GARDEN, MANCHESTER, MAY 14 to 21. Nearly ONE THOUSAND POUNDS in PRIZES. The following are among the number of First Prizes offered:—

SPECIAL PRIZES, PRESENTED.

The best Group of 50 Plants £50.	Collection of Bedding Plants £5.
10 Cape Heaths .. .. £20.	6 Pine-apples .. .. .. £5.
12 Roses .. .. .. £20.	12 Hardy Shrubs .. .. £5.
8 Cycads .. .. .. £10.	Brace of Cucumbers .. £3.
4 Bunches of Grapes .. £5.	

THE MANCHESTER BOTANIC SOCIETY'S PRIZES.

16 Exotic Orchids .. .. £15.	10 Fine-foliaged Plants .. £10.
12 Stove and Greenhouse Plants .. .. .. £15.	12 Miscellaneous Plants .. £10.
10 Azaleas .. .. .. £15.	12 New and Rare Plants .. £10.
10 Roses .. .. .. £12.	20 Hardy Conifers .. .. £10.
10 Show Pelargoniums .. £10.	12 Hardy Rhododendrons . £9.
10 Fancy Pelargoniums .. £10.	Miscellaneous Collection of Fruit .. .. .. £7.

ENTRIES CLOSE on MAY 1. Schedules, &c., may be obtained on application to the undersigned,
Botanic Garden, Manchester. BRUCE FINDLAY.

The Gardeners' Chronicle.

SATURDAY, MARCH 20, 1869.

NEVER, except in the bulb-fields of Haarlem, has there been such a brilliant display of HYACINTHS as that which greeted the visitors to the first spring show at Kensington on Saturday last. Even in that favoured bulb-growing region, as we learn from the Dutch growers who came over to witness the competition here, such splendid cultivation, and such noble specimens as those displayed by our champion growers, PAUL and CUTBUSH, are not to be expected; indeed, for the chief honours it was, with them, a neck and neck race throughout, and it must have been no easy task to decide between the merits of the rival collections. We were also glad to see that the window-grown plants showed signs of improvement, though we are further bound to remark that this class requires, if possible, to be hedged round with greater security for the protection of those who show plants really grown in windows. We are by no means certain that it would not be better to confine the competition in this class to ladies.

Our principal object, however, in commenting on this wonderful display, is to notice a very successful feature, introduced by the bulb-growers of Holland themselves. A number of these gentlemen, at the instance of Mr. WILDING and Mr. W. PAUL, subscribed a prize fund of some 43 guineas, which was allotted in six handsome prizes, of which four were offered for collections of 36 kinds of Hyacinths, and two for collections of 36 Hyacinths in 12 kinds. For the latter set of prizes there were four competitors, and for the former no fewer than eight—a fact going far to confirm an opinion we have always held, that the introduction of several prizes in a class has a most stimulating effect on the competition. Thus these Dutch prizes were the means of bringing to the show no fewer than 36 dozen (432) well grown Hyacinths, adding greatly to its beauty, and at the same time, it cannot be doubted, stimulating to a very great extent the growth of bulbs in this country, and the consequent demand for them from Holland.

Now, we see no reason why something of the same plan might not be carried out in the case of Camellias, with equal advantage to the producers of these plants. Suppose that in Belgium, which is doubtless the head-quarters of the manufacture of Camellias, the growers of these plants were to subscribe, as the Dutch bulb-growers have done, in order to raise a few handsome prizes for Camellias of a marketable size, can it be doubted that they would at one and the

same time organise a powerful stimulus to the Camellia trade, and add a most desirable feature to our early shows? Somehow or other, while Camellias are shown so freely and so well at the Belgian spring shows, we here fail to get them in any considerable numbers, or of superior quality. We should gladly see any stimulus brought to bear on their production, since it would be not only a direct advantage to us, but would also be certain to work beneficial results in respect to those who produce these plants for the market. May we suggest that an attempt should be made to get up such a feature for the spring shows of 1870?

While on the subject of suggestions for the future, let us add that our own Rose growers would, we have no doubt, find their account in getting up, for one of these most enjoyable spring meetings, some handsome subscription prizes for pot Roses. Roses, though ever charming, are never *so* charming as during the earlier months of the year when produced under glass, and before the summer heats have come on to distress them. That a grand display of spring pot Roses would tell handsomely on the Rose trade, even as a grand display of Camellias and Hyacinths must do on the trade in those plants respectively, cannot reasonably be doubted.

—— THE annexed Circular has been issued by the ROYAL HORTICULTURAL SOCIETY in reference to the proposed MANCHESTER MEETINGS, to which frequent allusion has already been made in our columns:—

"Contemporaneously with the Society's Provincial Show, to be held in the Botanic Garden at Manchester, it is proposed that the following meetings shall take place in the exhibition grounds:—

"On Tuesday, July 20, at 2 P.M., a general meeting of the Society, at which, in addition to routine business, election of Fellows, &c., the principal novelties brought to the Show will be commented on; prize cards will be presented to the winning exhibitors; reports on matters of interest will be offered by the horticultural directors, &c.

On Wednesday and Thursday, July 21 and 22, opportunity will be afforded to practical horticulturists to assemble for the purpose of reading papers, and holding discussions thereon, after the manner of a Congress. On each of these days a member of the Council will take the chair at noon. The following regulations in respect to these discussion meetings will be observed:—1. The subjects to be confined to those of a purely horticultural character. 2. Any person present may join in the discussion, 15 minutes only being allowed to each speaker. The papers to be kept as nearly as possible within the same limits. 3. A programme, announcing the titles and the sequence of the papers to be read, will be issued early in July. 4. The papers will remain in the hands of the Society, to be dealt with as the Council may think best.

"The gardeners and horticulturists of the United Kingdom are invited to attend these meetings, to contribute for reading papers on any subject of general horticultural interest, and to join in the discussion thereupon. It is requested that notice of the intention to read a paper, together with its title, should be sent in at once. The papers themselves are to be sent in not later than the 30th of June next, in order to facilitate the arrangement of the programme. Communications relating to the Wednesday and Thursday meetings to be addressed to Mr. THOS. MOORE, Botanic Gardens, Chelsea, S.W."

To this announcement we would add, that employers would do well to take measures to facilitate the attendance of their gardeners at these meetings, since the interchange of ideas amongst members of the profession, cannot but have a beneficial influence on their daily practice.

—— We notice with pleasure that the promise held out at a recent meeting of the ROYAL HORTICULTURAL SOCIETY, as to the acceleration and general improvement of the Society's PUBLICATIONS, has been fulfilled. Not only a new number of the Journal, but also a sheet containing the latest intelligence in a condensed form, was laid on the table on Tuesday last. We trust the highly respected Editor will receive from the Fellows every encouragement and support in the conduct of the Journal, so that, both in its contents and its manner of publication, it may reflect credit on the Society, and promote the interests of horticulture.

—— We are requested to inform intending exhibitors at the INTERNATIONAL HORTICULTURAL EXHIBITION at ST. PETERSBURGH, that they will do well to avail themselves of the facilities afforded by MM. SMYERS, of Antwerp. A steamer, fitted for the transport of plants and other goods, will leave Antwerp on May 1, under the direction of those gentlemen. Immediate information should be given of the probable nature and bulk of the objects to be forwarded, to either of the following gentlemen—Dr. HOGG, Office of the Journal of Horticulture, Fleet Street, E.C.; Dr. MASTERS, Office of the *Gardeners' Chronicle*; or Mr. H. J. VEITCH, King's Road, Chelsea.

—— At the last annual general meeting of the GEOLOGICAL SOCIETY OF LONDON, the balance of the proceeds of the Wollaston Donation Fund was presented to Mr. W. CARRUTHERS, of the Botanical Department of the British Museum, in aid of his researches in FOSSIL BOTANY. Mr. CARRUTHERS' papers on fossil Cycads, and on plants allied to existing Lycopods and Equisetums, both intrinsically and also in relation to the current theories of geology and cosmogony, are of great value and importance, and bearing in mind the immense field for future research, we cannot but congratulate the Society on the wisdom of this recognition of Mr. CARRUTHERS' services.

—— The proposed Bill for the suppression of the ADULTERATION OF SEEDS, to which allusion was made last week, passed the first reading in the House of Commons on Saturday morning last. The second reading is fixed to take place early in June.

—— Owing to the pressure on our space from numerous exhibitions held during the past week, we are compelled to defer till next week our notice of Mr. W. PAUL's show of spring-flowering plants, which opened in the Royal Horticultural Society's Garden, South Kensington, on the 16th inst., and which will remain on view till this day week, March 27.

—— Good news for lovers of the Gladiolus! We are authorised to state that an INTERNATIONAL EXHIBITION of GLADIOLI will be held at the Crystal Palace during the last week in August. Some of the principal growers, professional and amateur, have announced their intention of subscribing to it, and the Crystal Palace Company have contributed 50*l.* towards the undertaking. In addition to these promising signs of success, we may state that some of the French growers have already intimated their intention of exhibiting. Further subscriptions should be forwarded to the Rev. H. H. DOMBRAIN, Westwell, near Ashford, Kent.

SURFACE CROPPING VINE BORDERS.

IT is highly gratifying to me to find that such a distinguished fruit-grower as Mr. D. Thomson has not taught the theory of surface cropping, as a correct theory; neither am I aware of ever having accused him of doing so. What I have adverted to at p. 193 is not a theory at all, but the practice of surface cropping as illustrated at Archerfield, and described and commended by "A." in the *Gardeners' Chronicle*, p. 1139, 1868. Unfortunately, I have never seen Archerfield, and my facts concerning the character and extent of the borders were derived wholly from the writer referred to; consequently if I have written so very incorrectly of the position, material, and extent of the Vine-borders, as Mr. Thomson affirms, I can only plead guilty of quoting it *verbatim*.

At p. 222 of the *Gardeners' Chronicle* two instances of inaccuracy are cited—one relating to the width, the other to the quality of the borders. Mr. Thomson says that "the greatest width to which I carried any of the borders from the front of the houses was 22 feet, instead of 50 feet, as Mr. Fish states." Of course I accept this correction, but what says "A."? Turning back to p. 1139, 1868, we read that Mr. Thomson quietly observes that that field of flowers and foliage is acting well its part as a conservator of moisture, and that the little *pabulum* the plants require to feed upon (that is, 4 inches thick of rotten dung) can be introduced on the return of the season. He has provided no stop for root ramification, electing rather to add to the borders year by year, even up to the espalier trees, which must be at least 50 feet from the walls of the houses. "I am more careful and anxious," it is added, "concerning a provision for the spongioles, which are ramifying in all directions towards the front; the rear rank are only limited in number, and of necessity do not require such large supplies." Every season, therefore, I have been in the habit (continues Mr. Thomson) of adding to the borders as much fresh compost as was necessary. So much for the width of the borders, and the mode adopted to entice the roots forwards and onwards. Let us now advert to their quality. At p. 222 Mr. Thomson writes—"the borders being made up to the old level, not 'with fresh maiden matter,' as Mr. Fish states, but with common old kitchen garden soil." I can only again appeal to p. 1139, 1868, where "A." represents Mr. Thomson as answering the query put to him—What about the compost?—thus: "I get the soil from a rocky crag, with much difficulty; it is very light, and full of fibre. To correct that, I have introduced some of the best staple from the garden brakes, intermixed, with the addition of mortar rubbish and a few bones to keep it open." Now, I leave it to your readers, with perfect confidence, to determine whether the combination of fibry mixture from a crag, best staple from the kitchen garden to give it coherency, with bones and lime rubblish to keep it open, is not at least as truthfully described as "fresh maiden matter" as "common old kitchen garden soil." It almost seems that there must be a mistake somewhere.

Having thus vindicated the accuracy of my quotations, a point that is daily becoming of more importance in critical and controversial literature, I hasten to the more congenial duty of adverting to the general cropping of Vine-borders, as affected by these particular instances at Archerfield. I ventured at p. 193 to describe the Archerfield borders as exceptional. I am glad that Mr. Thomson confirms this view. The disclaimer at p. 222 is most valuable—it secures the object I had in view in writing,—for there certainly seemed great danger that the case of Archerfield would be generally quoted as a precedent; the success seemed so perfect, as well nigh to convert this danger into a certainty. The quality, position, and treatment of Vine-borders are seldom under complete control. Their contiguity and relation to the ornamental grounds become powerful temptations to clothe their surface with beauty in many instances, and I know as a matter of fact that many gardeners have great difficulty in maintaining their surfaces clear. Neither is this difficulty wholly confined to such cases. For let it once go forth that a flower covering is advocated by cultivators of the highest standing, and the utilitarians would instantly insist upon surface clothings of vegetables; and, in fact, it would be impossible to urge any good reasons against the latter that would not prove equally valid against the former. Hence the importance of this carpet of flowers at Archerfield; it seemed like the introduction of the thin edge of the wedge—the beginning of the end of a general system of surface cropping; and it was for this reason that I hastened to indicate its true significance, and to point out its exceptional character. But it was, as I have already indicated, exceptional in another sense besides being a successful compromise between the roots of Vines and a display of bedding plants. The borders as well as the roots were kept growing. The majority of Vine-borders may be called stationary: these Archerfield borders were movable. They extended annually in two directions, outwards and upwards. To avoid controversy, we will say nothing about the extent of their annual progress outwards, but they grew upwards through 4 inches of well-decayed manure, and a layer, we know not how thick, of light rich soil. We can hardly be wrong in presuming that the borders rose 6 inches a year. Probably part of this fresh stuff would be removed in the autumn, but with the Vine roots near the surface, many of them would rise up to feed upon the bedding-plant food, and thus prevent the reduction of the borders to the old level. It is most important to bear the condition of these borders in mind; they explain the causes of success. The spongioles of the Vines, upwards and forwards, where these feeders most do congregate, were provided with fresh food; they were thus enabled to maintain their struggle with their rivals, the bedding plants. But suppose the borders had been bounded by a hard-and-fast line—a brick or stone wall namely—and that they could not have been raised annually, the Vines must speedily have suffered. No one doubts the completeness of the success at Archerfield.

The case is also interesting as proving what can be done by skill and judgment to harmonise antagonisms, and to make Vine roots and bedding plants dwell together with little or no suffering to either. And even then I believe most of our best Grape growers, including Mr. Thomson himself, would elect to give the Vine roots the benefit of all such extension alone, instead of sharing them with bedding or any other plants. Doubtless living mulchings bear off the palm of beauty, but that beauty is the strength of the earth overspreading its surface, and in the cultivation of first-class fruits it is surely unwise to sacrifice, as far as the borders are concerned, utility to beauty. Dead mulchings are as efficient conservators of moisture as living ones, while they have the additional merit of preserving within the soil its entire feeding stamina or growing force, and of taking nothing out for their own use. While, therefore, those who are compelled to crop their Vine-borders cannot do better than follow Mr. Thomson's successful example in every particular, I desire to thank him for the weight of his authority against the practice of surface cropping as one unworthy of general adoption. *D. T. Fish, F.R.H.S.*

WORMS.

WHERE will you find one person out of a hundred who, unless he be a fisherman, will say a good word for a worm? And yet surely worms were created for some better purpose than to wriggle upon a hook. Anglers seem to know more about worms than most people. You hear them speak learnedly about lob-worms, lean-worms, dew-worms, cockspurs, dyke-worms, red-worms, garden-worms, dung-worms; and if you happen to be of a zoological turn of mind, it is natural for you to ask which is the true Lumbricus terrestris? And what are all the others? Are they different species? or are they varieties of only one species? or are they all the same worm in different stages of growth? To these questions neither gardeners nor fishermen seem to be able to furnish any satisfactory answers. Zoologists generally incline to the opinion that there is but one English species, but do not speak very positively about it. In confirmation of this view I may just mention that I never remember to have noticed instances of copulation, except amongst the largest of the garden-worms.

To the gardener, however, their actions are of more importance than either their names or their titles to variety or specific distinctions. For him a worm is a worm, and that is enough. To him a worm is a tiresome creature, that makes dirty little pyramids of blackish earth on his smooth green lawn, and that eats the roots of his plants; for which reasons it ought to be killed. And so gardeners are apt to think of worms and lime-water, or salt, or corrosive sublimate, as naturally as they would of onion sauce if a shoulder of mutton were mentioned. But what are these black pyramids? In olden times the earthworm used to be cited as a remarkable exception to the rule, that either animal or vegetable food is necessary to support animal life, it being supposed that worms fed upon earth. There is no doubt that worms do eat soil, but at the same time there is no reason for imagining that they derive any nourishment from the mineral constituents of it. All soils near the surface contain a certain quantity of decayed vegetable matter, and as people, who indulge in cocoa-nuts and Brazil-nuts, do not, if they are sensible, swallow what they have had so much pleasure in chewing, so the worm, having in its muscular stomach thoroughly digested the earth it has devoured, and having thus appropriated to itself the organic constituents, exudes the inorganic portions in the form of finely comminuted earth. This earth, having passed through the alimentary canal of an animal, must of necessity contain a certain quantity of manure, although doubtless the quantity is small. I am not aware whether any one has ever been curious enough to analyse these worm-casts; but whatever might be the actual result of such an investigation, it cannot be questioned that, if these earth pyramids are, when dry, rolled and distributed over the lawn by using a broom, the Grass must be benefited by the operation, however slight the manuring effect may be. The conclusion, then, to which these observations tend is, that worms should be encouraged, rather than destroyed, under a grass-plot, so far as these worm-casts are concerned. But what about their eating the roots of plants?

There is a story that Cuvier on his death-bed was summoned by the Devil to accompany him to parts unknown, and upon his expressing an objection both to the journey and to the companion, that the owner

of the forked tail threatened to eat him up; whereupon the veteran naturalist, calmly eyeing him, quietly observed, "Horns and hoofs—decidedly herbivorous—you can't." Now, these are very much my sentiments upon the matter of worms eating the roots of plants; any one who will examine the structure of that minute orifice near the head of a worm, which is dignified with the name of a mouth, will be much troubled to find there any apparatus that could do any direct injury to a plant. In short, I do not believe a word of it. Why, then, it may be asked, are gardeners so inveterate against a worm in a flower-pot, if the worm does no harm to the roots? This question assumes that I have asserted that worms do no harm; but I have made no such assertion. I freely admit that, indirectly, they do much injury to pot plants. They make canals in the soil, which expose the roots, and allow water to run through without soaking into the soil; in both of which ways serious injury is done to the plant. The same thing may occasionally occur in the open ground to a plant here and there; but I doubt very much if worms have ever been known to tunnel a piece of cultivated ground to the extent that one worm will work in a flower-pot of earth. In some soils used in flower-pots these worm-canals cause a different kind of injury to the plant: the water being able to rush through these tubes, carries with it the finer particles of soil, which thus accumulate over the crocks at the bottom of the pot, and eventually stop the drainage; and then the roots find themselves in a pudding of stagnant mud, which is a state of affairs such as no plant but an aquatic will submit to long without giving some evidence of its objection thereto.

Having thus defended worms from the charges brought against them, I will conclude these remarks with a notice of some points in their favour. That very aëration which is so objectionable in a flower-pot is a valuable aid to cultivation in the open ground. It operates to a small extent in the same way as digging does—by exposing fresh surfaces to the action of the atmosphere. These little tunnels also act beneficially by establishing a natural drainage, and by conveying to the roots of plants in stiff soils a supply of rain-water, which would otherwise not find its way so far down. To revert once more to the worm-casts. These notes will probably be read by some gardeners who have laid down turf upon a clay soil, and whose grass-plot is full of cracks in dry weather, and is a wet, sappy bog after heavy rain. Let them meditate upon the following recorded doings of earth-worms, before taking any further action for their destruction.

Some 30 years ago Mr. Charles Darwin read a paper before the Geological Society upon "The Formation of Mould," in the course of which he cited, amongst others, the following interesting example:—A certain field was known 15 years previously to be waste land, but at that time was drained, ploughed, harrowed, and well covered with burnt marl and cinders. It had not since been disturbed, and had become a tolerably good pasture. A section of the soil showed—turf half an inch, mould 2½ inches, a layer of marl and cinders 1½ inch thick, and below that the original peaty earth. Thus the layer which had been spread over the surface was found after 15 years to be from 3 to 4½ inches below the surface. The appearance in all cases was as if the fragments had, as the farmers believed, worked themselves down; but it is not possible that they could sink some inches through the soil, and still remain in a continuous layer; nor is it probable that the decay of the Grass, although adding to the surface some of the constituent parts of the mould, should separate in so short a time the fine from the coarse earth, and accumulate the former above those objects which were strewed on the surface 15 years before. The author goes on to explain that this, trivial as the agency may appear, has been mainly caused by earth-worms. On carefully examining between the blades of Grass in this field, there was scarcely a space of 2 inches square in which he did not find a little heap of worm-casts. As the worm can only swallow the finer portions of earthy matter, so it is only of fine earth that the worm-casts are composed, and thus by slow degrees the marl and cinders had become buried beneath an accumulation of worm-casts.

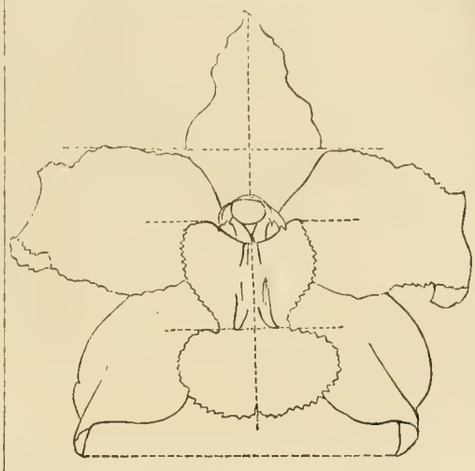
It is quite unnecessary to quote any of the other instances recorded, since they all tell the same tale. Enough has been adduced to show that the much-despised worm "is not only of great service in loosening the earth and rendering it permeable by air and water, but is also a most active and powerful agent in adding to the depth of the soil." *W. T.*

BOTANICAL DRAWING.—No. VI.

Perhaps there are no flowers more varied in size form, and colour, than those of Orchids, and I think I may add more difficult to sketch, if the artist has not some general knowledge of their normal structure. Dr. Lindley remarked, upon seeing the representatives of three different genera flourishing on the same spike, that after that they were capable of any eccentricity. Indeed they almost seem to have been created to puzzle botanists, or to test an artist's abilities, and consequently they are all the more worthy of a skilful pencil in endeavouring to do justice to them.

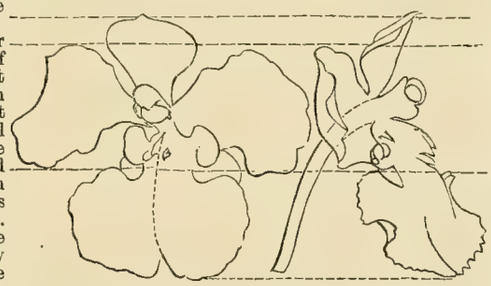
Owing to the great variation in form presented by some species, if the artist render correctly any specimen put in his hands, he is liable to have his veracity called into question, and, if any abnormal growth come in his way, he had better not be rash enough to represent what may be regarded as impossible by some authority who has made Orchids his specialty. It might tend to upset some favourite theory, or possibly to destroy a pet genus—an act of wanton impertinence which no artist endowed with a proper respect for the dicta of men of science would ever wilfully be guilty of!

It is impossible to lay down any rules for sketching these protean plants, but if the structure is not correctly rendered in a drawing it is worse than useless, as no colouring will redeem it. At the risk of saying what I presume is well known, I may state that the parts of the flower consist of a germen, or ovary, surmounted by three sepals, two petals, a lip, and a column, as in the following cut.



As Orchid flowers are so very irregular in the relative size of their parts, and especially so as regards the lip, the best way is to measure one part by another, and, if a front view of a large flower be given, a perpendicular line should be made, or imagined, through the centre, and also transverse ones, as guides for the pose of the petals, &c.

In the following sketch I suggest a means of testing the relative size of a front and side view. The artist should be guided by the front flowers in his drawing, for there is a liability to make the side views too large. Another matter to be noted, and which is often neglected, is the junction of the flower-stalk and column; the way to prevent any hitch in this respect is to carry the outline of the germen and flower-stalk through to the back of the column, as in the right-hand figure.



Drawings of the smaller species of Orchids are of little scientific value without a flower and magnified representations of its parts, as the smaller they are the more curious is often their structure.

In magnified portions of simple flowered species, it is generally enough to give a side and front view of the lip and column, but in some cases it is necessary to pull the flower asunder, in order to represent parts otherwise hidden. If the flower or its parts be just large enough to be comprehended by the naked eye without a lens, it would be as well for the artist to regard it with one eye only, or he will find if he sketches it as seen with both eyes, that he sees round the corners, and is apt to commit an error similar to that of representing both ends of a drum as visible from the same point of view.

In the next cut I offer a sketch of an Orchid, to show how to fill a sheet of paper as tastefully as the plant will allow, so as to leave no unnecessary vacant space. Some Orchids are very unmanageable in this respect.



If the pseudobulbs are compressed, it is as well to show the flowering one edgewise, so as to have variety in the position of the leaves, viz., a front and back view of them; the same may be said also of the spikes of flowers. After deciding whence the spike should spring, and the curve, if any, to be given to it, I would recommend that the attachment of the flower-stalks should be ticked off, and that a line continuous with the stalks be carried through the flower faintly to the column, which should be put in first as the axis, then the lip and other petals can be correctly placed with reference to it. By following this simple plan, the flowers, though they may hide the flower-stalk, will be certain to be correctly placed. *W. H. Fitch.*

PLANT PORTRAITS.

Acrocomia sclerocarpa.—*L'Illust. Hort.* t. 547. Palmeæ. An elegant stove-plant, attaining in age a considerable height, and bearing a head of spreading pinnate leaves, with the rachides and petioles aculeate, and the leaflets linear, taper-pointed, subglaucescent, and nearly a foot in length. It is one of the many Brazilian species of this noble family.

Allamanda nobilis.—*Flor. and Pomol.* 1869, 25, with fig. Apocynaceæ. A fine-coloured representative of this, one of the finest of all gay-flowered, stove, woody climbers. It has smooth, scandent branches, oblong, abruptly acuminate, membranaceous leaves, and a profusion of immense, clear, bright yellow, agreeably fragrant flowers, pubescent outside, and remarkable for their broad, round, prominent segments. It was introduced from the Rio Branco, Brazil, by Mr. Bull.

Areca aurea.—*Flore des Serres*, t. 1738. Palmeæ. A fine ornamental stove Palm, of erect habit, with gracefully spreading leaves, remarkable for the yellow colour acquired by the stipes when grown in a temperate house. It is of light and elegant character, with pinnate leaves, having long, narrow, distant leaflets. The plant comes from the Seychelles Islands.

Areca Bauері.—*Bot. Mag.* t. 5735. A remarkably beautiful Palm, closely allied to A. sapida, and long confounded with it, but distinguished by its greater size, its larger and broader pinnæ, and more globose scarlet berries. It has a tall, clean, ringed stem, and a crown of elegant pinnate leaves, 6—9 feet long. A native of Norfolk Island.

Berberis Wallichiana.—*L'Hort. Fyanc.* 1868, 269, t. 8. Berberidaceæ. A pretty, bushy-habited, evergreen, hardy shrub, 6 to 8 feet high, with spiny branches, bearing in the axil of the spines a rosette of persistent, oblong, coriaceous, spiny-toothed leaves, and from the centre of the tuft a fascicle of clear pale yellow flowers. It is known in gardens as B. Hookerii, and B. macrophylla, and is a native of Nepal.

Caryota Cumingii.—*Bot. Mag.* t. 5762. Palmeæ. A beautiful stove Palm, with an erect trunk 10 feet high, and large, spreading, bipinnate leaves of a dark green, with the pinnules 8—10 inches long, subfalcate, obliquely wedge-shaped below, and erosely toothed upwards. The spadices hang in drooping tassel-like tufts from the axils of the leaves, those in the upper axil flowering first. Introduced from Singapore by the late Mr. Hugh Cuming.

Cobœa penduliflora.—*Bot. Mag.* t. 5757. Polemoniaceæ. A graceful, slender, glabrous climber, requiring a cool stove, the leaves formed of two pairs of small oblong acute leaflets, and terminating in a branched, tortuous tendril, and the flowers axillary, solitary, and pendulous, on long peduncles, with a green campanulate corolla, having the tube an inch long, divided at the edge into five strap-shaped, pendulous, wavy lobes, 3—4 inches long, which give the flowers a remarkably distinct appearance; the filaments are red, and the anthers yellow. It comes from the mountains of Caraccas, at about 6000 feet elevation, and has flowered in the cool end of the Palm stove at Kew.

Cœlogyne Reichenbachiana.—*Bot. Mag.* t. 5753. Orchidaceæ. A beautiful dwarf, orchidaceous plant, with large flask-shaped, beautifully reticulated pseudobulbs, and large, pale rosy-tinted, white-lipped flowers, which are marked with a few distinct red bars and spots. A full account is given at p. 1210 of our last volume.

Delostoma dentatum.—*Bot. Mag.* t. 5754. Bignoniaceæ. A somewhat robust habited and handsome stove shrub, with large, opposite, oblong, bluntly-serrated leaves, and erect racemes of three or four subcampanulate blush-white flowers, having a limb nearly 2 inches across of spreading orbicular lobes. It is a native of Gualesca, near Cuenca, in Ecuador, and was sent by Prof. Jameson to Isaac Anderson-Henry, Esq., of Edinburgh.

Erythronium giganteum.—*Bot. Mag.* t. 5714. Liliaceæ. A beautiful dwarf hardy perennial, producing a pair of obovate oblong leaves, blotched with dark brown, and a tall scape, supporting two or three large flowers, of which the petals are ovate lanceolate, recurved, white, yellow at the base, and marked with a transverse orange band. It is an old plant reintroduced from North West America.

Hydrangea Impératrice Eugénie.—*Rev. Hort.* 1868, 469, with fig. Hydrangeaceæ. A hardy floriferous branching deciduous shrub, forming a bush, bearing leaves like those of H. Hortensia, and flowers of two forms, disposed in umbels, the external ones about an inch broad, its segments of a lively rose colour, the internal numerous ones small, and of the same bright rosy colour. It is a native of Japan, whence it was introduced to the French gardens by Siebold, by whom it was dedicated to the Empress Eugénie.

Hypericum patulum.—*Bot. Mag.* t. 5693. Hypericaceæ. A fine showy hardy shrubby perennial, of dwarf stature, with red stems, bearing opposite oblong-ovate leaves, and terminal cymes of large bright yellow cup-shaped flowers. It is a native of Japan, and has been flowered at Kew.

Iberidella rotundifolia.—*Bot. Mag.* t. 5749. Cruciferæ. A lovely little rock plant, as Dr. Hooker well remarks. It is a densely tufted hardy herbaceous tap-rooted perennial, with short stems, opposite fleshy broadly ovate leaves, and rosy-lilac yellow-eyed flowers, half an inch in diameter, arranged in erect cylindrical crowded racemes. It comes from the European Alps, and has been introduced both by Messrs. Backhouse & Son, and the Kew Gardens.

Ipsea speciosa.—*Bot. Mag.* t. 5701. Orchidaceæ. A remarkable terrestrial stove perennial, with tuberous rhizomes, narrow lanceolate plaited leaves, and a tall erect slender one or two-flowered scape, bearing large yellow flowers. A native of Ceylon, and first flowered by J. Bateman, Esq.

Home Correspondence.

The Vines at Combe Abbey.—During the hot summer of 1868 it was very remarkable that the leaves on the Vines here were unusually healthy, strong, and free from spider. When the most shady walk in the shrubbery was too hot to be comfortable, an agreeable promenade could be found from one end of the vinery range to the other. A rule we observed and strictly adhered to was to give an abundance of front and back air, and keep damp all surfaces, but never to wet the leaves of the Vines whilst the fruit was upon them. We had not the slightest application of sulphur on the hot-water pipes. This I believe to be an antidote to red spider, but in its application I consider it to be injurious to vegetable life. Our Vine-borders are fully 4 feet deep, resting on about 18 inches of brick and lime rubbish. A main drain runs along the front, from which lateral drains 8 feet apart are run along the bottom of the borders to the back wall

I did not give these drains special communication either with the external or internal atmosphere, fearing lest by too much aëration red spider might be invited. The substratum, I should mention, is a formation of red clay, resting on marl, and perfectly dry. The stoke-holes, in which Gray's oval tubular boilers are fixed, are 14 feet deep, and the arrangement for bottom-heat is the same as that adopted by Mr. Thomson at Dalkeith, only, as we had depth enough, and all our work was done at one time, both the pipes for bottom and top-heating were attached to the same boiler. These boilers have been at work seven years, and have done their work most efficiently. When I, not long since, visited Dalkeith, Mr. Thomson showed me his heated borders, and explained their principle of working. I find we differ slightly, not as to the principle of heating the borders, for these are identical, but in the action of the heat thus applied—nevertheless, there is no man in the gardening community for whom I entertain greater respect than for Mr. Thomson. We have hydrants in front of our Vine-borders here, and these are fed from a soft-water reservoir 80 feet above the level of the gardens. This water was let loose freely and frequently over the borders, and as freely over the early borders as over the late ones, and applied to those inside as well as to those outside. Manure-water from top-dressings of cow-dung which had been placed on the borders prior to those waterings, was thus supplied. After these deluges of water, and when the borders were in a state "between the wet and the dry," they were pricked over with a fork, and about 3 or 4 inches of litter laid over them—this was done with a view to retain moisture, and, at the same time, to prevent the sun from caking and cracking the surface. The surface of one border we had covered with a thin layer of broken brick—an old plan, but not so generally followed as it deserves to be. Unless naked borders are similarly treated, I believe it would be better if the borders were planted with "a herd of bedding things," for then the plants would cover the surface moisture would arise, and the sun's rays would have less power than when beating directly on the naked earth. A beautiful illustration of this was last year to be seen at Archerfield, and proved that in cultivation, as well as in Nature, promiscuous growth is not inimical to success: of this more at another time. My borders were uncovered early last spring, and got all the rain which fell previous to the commencement of the great drought. I must state that I am not an advocate for much covering; all I use is a thin straw hurdle, with a view only to keep off snow, for a little frost we are not much afraid of. I was pleased with a remark in the *Gardeners' Chronicle* by "W. E.," in the "Garden Operations," that he did not object to "pulverise a Vine-border with the aid of a little frost." With the exception of the period when late Grapes are hanging, I would prefer that all the coverings were removed, replacing them only at such times (if we knew) when snow was about to fall, and thus to let the rains from the heavens fall freely and naturally on the borders; and were it possible to turn the inside borders out, it would gladden my heart to see them get as fair a share of Nature's provision as we can let fall upon the outside borders. To cover an outside border with 2 or 3 feet of fermenting material, is, to say the least of it, very bad practice. True, it will keep the trial sticks warm and comfortable; and if any gardener when he feels the nice warmth of those sticks, believes that the roots of the Vines are equally comfortable, then let him rest in his happy delusion. Fatal mistake! No better plan could be adopted to banish the roots from the surface, and if there is a heating medium underneath, oh! the poor Vines. Would it be credited that in these boasted days of civilisation, there could be found men who would cramp the roots of the unoffending Vine between two fires—the one above and the other below, with a belief that this punishment will compel the plant to give forth better fruit and more of it, than by more natural treatment! Let us hope that this torturing of the roots of a plant, a native of regions where winter rains, frosts, and snows abound, is not to be attributed so much to bad intentions as to "mistaken kindness." The practice I have described above resulted in such productions as were shown by me on various occasions during the past hot season, and though it was admitted by all to be "hot," yet we never had occasion, for want of foliage, to put over the bunches "tissue paper, either to shade from the sun or to frighten mice;"* and if we are to judge from the wood cut from the Vines, the breaking and showing of the early houses, and general appearance of all, it is sufficient to show that this practice, though simple, is not much at fault. And I am of opinion that in the climate of England, aided by the ordinarily constructed lean-to vinery, ornate houses and "nostrums" are not necessary. A sensibly prepared border is all that is required for the production of Grapes of such exquisite flavour and unrivalled general finish, as to secure for them a place on the table of any prince, either of this or any other country. *Wm. Miller, Combe Abbey Gardens.*

Vegetable Culture: North v. South.—I wish to say a few words in reference to the above discussion (see p. 1063, 1868). "B." very unfavourably comments upon the shortcomings of the English gardener in the production of late Peas, and quotes an instance of fine Peas in the middle of September at Bothwell Castle. Now, I do not consider that any great feat, as the weather we had last autumn was such as would, with ordinary treatment, produce fine Peas to the latest period. I gathered mine in good condition all through October, and an occasional dish up to the 6th November. "B." then asks why we cannot have as fine Peas in autumn in London? He certainly alludes to Covent Garden market, and not to private establishments. I can assure "B." that they are to be found in the latter in abundance at the period he mentions. If "B.'s" ideas are correct as regards the inability of English gardeners to produce really first-class vegetables at all seasons, taking means and conveniences into consideration, I think, they would soon cease to exist as such. I think that had "B." travelled more in England than he seems to have done, his verdict would not have been so severe. My knowledge of English vegetable-growing enables me to speak impartially, and I know from experience that the colder and moister climate of Scotland and Ireland is a great advantage in favour of this very essential branch of gardening not enjoyed by our less fortunate brethren in the south. Were they to exchange places with our northern friends, your correspondent would I am sure see proofs that his assertions would not bear practical tests. "B." says he could mention places where the gardeners get on very well by letting the workmen take the lead, and further informs your readers that this state of things does not exist in Scotland. I presume therefore that "B." (if a gardener) must have gone through this routine, as he is so well acquainted with its details. I have seen some of the shows he speaks of in Scotland, but never saw anything in the way of vegetables that would make a man shrug up his shoulders, and exclaim with astonishment, Where did these grow! I have certainly seen as good both in England and Ireland; and I assert that it is an impossibility for the same person to produce vegetables in the south and east of England, as good as he could grow them in the north of Ireland, and Scotland. *E. Welsh, Palace Gardens, Armagh, Ireland.*

The Horticultural Congress.—Many practical men are longing to hear something more of this. [See p. 304.] Time is passing, and a profound silence is observed. As far as the secretaryship, at least, is concerned, we know it is in good hands, and the work done may be all the better because we hear nothing of it; but silence so profound will bear a different interpretation, and, in common with many others, I think it is time it was broken. There is abroad among us a sturdy spirit of independence, and a sensitive fear of being taken in and done for, that renders it somewhat difficult to give us cohesion enough to stick together for any general object. There is a danger of such an excellent proposal as this Horticultural Congress being split upon the rock of individual isolation. If every one is determined to do only what is right in the sight of his own eyes, without any regard to the wisdom of other minds, or the interests of others, such a meeting can hardly be held, or accomplish much good if it is. There must be a recognition of, and a certain yielding to authority. As to the source of authority, a salutary rule in such cases is that the payee shall govern. At first sight this seems arbitrary; but in practice it works well, and common sense proclaims it to be just that they who pay should have rule. The question, then, of who is to arrange, resolves itself into the other, of who is to pay for the holding this Congress. I am not quite sure whether the question has yet been answered. My own impression is that the Royal Horticultural Society, in undertaking its management and appointing a secretary, became responsible for the expense of the undertaking. I may be wrong, and am in no way anxious to bind the Society to such a course; but this I say plainly, that if we accept the Society's money we become morally bound to accept and cheerfully to submit to its supervision. Apart from the question of money, I advocate that the Congress be held under the auspices of the Royal Horticultural Society. It forms such a trysting place between science and practice as we could hardly expect to find elsewhere; and while the Society could not lose anything by such cordial fraternisation as would be indulged in, in the genial atmosphere of the Congress, it could hardly fail to raise practical men socially and mentally, by so public and hearty recognition of their intimate relations to itself, and its graceful tribute to their wisdom and skill as the true foundations of horticultural progress. So much for the exercise of authority by the Royal Horticultural Society. Now one word concerning its extent. The least amount of government consistent with order, should be the rule. But a prior question arises, and it has been put to me again and again: Is the authority of the Society, or its committee, to be confined simply to the conduct of the Congress, or is it to be extended to its substance? is it to be confined to the order of business, or is it to select what business is to come before it? Who is to choose or reject the papers that are to be read, or is there to be any preliminary choice or rejection? These are ticklish questions, and upon the wisdom or otherwise of the answers to them much depends. I elect at present to leave them unanswered. It may be well to hear the collective wisdom of your readers upon these points, and I trust this will be forthcoming. [We do not see how the Society could undertake the management without having all such matters left to its good sense and good feeling. It must have a veto. Eds.] It is time that this Congress was looked at seriously. It may probably prove a somewhat severe test of the wisdom and reputation of the craft; and my chief hope of its success consists in wise and timely preparation, and the culture of an heroic spirit of individual self-sacrifice for the common good. There are, no doubt, difficulties in the way; some arising from its being the first meeting of the kind; others regarding time and place; others arising from a lack of perfect sympathy between the different parties engaged in a common enterprise. Let it be the part of practical men to lessen difficulties where they can, and to vanquish those that cannot be lessened. Our conduct should be such as to convince all that we have not simply acquired the art of moulding matter into beauty, or bending it into usefulness, but that we have learned the higher faculty of fusing units into oneness, resolving the strife of contending interests into harmony for the common good, and hushing the discords of mental and social antagonisms by a self-mastery so complete, that shall challenge the admiration and secure the adhesion of all, to every proposal that is calculated to elevate horticulturists, as well as to advance the art of gardening as a profession. *D. T. Fish, F.R.H.S.*

Euphorbia amygdaloides.—Do you think it is possible that deer would be poisoned by eating Euphorbia amygdaloides, Wood-spurge, in the winter? A friend of mine, in whose park this plant abounds, loses a good many of his deer each winter, and I cannot help thinking that their death may be due to eating this poisonous plant, as they certainly do? Are there any such cases on record? The rabbits and hares certainly crop it in the coverts, but whether with impunity I do not know. I should be much obliged for any information on this subject. *W. W. S.* [Perhaps some correspondent would kindly state his experience. Eds.]

Acacia Riceana.—This is a most beautiful pendulous habited species, and covers part of the roof of our temperate corridor. It extends right and left to upwards of 70 feet in length. I find it very useful for decoration in any shape. During Christmas I employed pieces of it (for it was even then very beautiful in its unexpanded form) to crown miniature portraits, mixed with variegated Holly, in the boudoir. I consider it one of the most beautiful of Acacias. *H. Knight, Floors Castle, Kelso.*

Arrangement of Vineries.—Will some of your Grape growing correspondents kindly favour me with their opinion as to the judiciousness of the arrangement carried out at the planting of two very fine vineries which we have here. They were built about two years ago, and planted directly afterwards by my predecessor, so that they have made two growths and are now making their third. They are lean-to houses, in one range, with short north lights at back. In the front of No. 1, which was intended for the early house, are four canes of Black Hamburghs and four of Muscat of Alexandria; on the back wall are two Black Alicantes, three Lady Downe's, one Royal Vineyard, and two West's St. Peter's, in all 16. In the later house there are also, in front, four Hamburghs and four Muscats of Alexandria; at the back, one Black Prince, four Black Alicantes, and three Lady Downe's. I have my own notion of the above arrangements, but I wish to elicit the opinion of practical Grape growers. *Escob.*

The Cordon.—I perfectly agree with Mr. Radclyffe about spring protection. Fruit trees when in flower (and for some weeks after) must have some protection, or the result may be very problematical. Mr. Radclyffe says: "The French fight for 'an idea,' but the English go crazy on 'an idea,'—often a French idea! Cordon Pears, 1 foot from the ground! why, the spring frosts will destroy them, and if any are left they will be demolished by the blackbirds." May I ask your correspondent if he has ever seen a well-managed kitchen garden edged with cordons? If he has, he has a right, like others, to tell your readers what he has seen. If he has never seen one, I think it is hardly fair on his part to pronounce his dictum on the cordon. Mr. Radclyffe has also done all in his power to blacken the character of the blackbird. Doubtless the blackbird and thrush, and many more of our cheering feathered songsters, help themselves to a Strawberry or two to clear their throats, but the songs they sing at sunrise and "dewy eve" are surely worth a Strawberry or a Cherry. I never allow one to be destroyed, and I get as much fruit as my neighbours. Mr. Radclyffe speaks about the happy "theorists," who think of producing Pears for the million by the cordon training, and says "all the bloom will be destroyed by spring frosts," and if a lucky one or two escape, the blackbirds will have the benefit. How stand the facts? I know of no system of training that can compare with the cordon for easy protection against spring frosts and autumn birds, wasps, hornets, &c. I send you a rough sketch of the ordinary cordon covering of straw and thin strips of wood. They are made by the garden boys in bad weather, and with care last seven or eight years. They cost about 1*d.* per yard run; any handy boy can make them. Proceed thus:—Lay down two laths, of any length you please (about 9 feet is the best), and on these two lay about half an inch of straw, either Rye or Wheat, then put on two more laths, and nail both together with small nails, and you have a capital cheap cordon covering, which with care will last for years, and when all danger from frost is over they come in very handy for shading Melon and Cucumber frames. If Mr. Radclyffe will try this very simple, cheap mode of covering, and give the cordon system a fair trial, he will have first-class Pears in abundance for his own table, and a dish or two at Christmas for his friends. *John A. Watson, Campagne Lammermoor, Geneva, Switzerland.*

Indian Forest Appointments.—I have read with much pleasure your leading article on this subject, and venture to trouble you once more with my views. It appears to me that the course you have laid down would, if carried out, be most advantageous in every way for the country generally, and one to the success of which many will contribute. Having, since I wrote my first letters to you, seen some of the documents upon which the India Board seem to have sanctioned this scheme of sending young men intended for India to Germany and France to learn forestry, I am much surprised to find that the authors of these papers never appear to have inquired into the vast amount of evidence and information of all kinds to be found in the history of the Royal forests of England, and upon which any one may lay his hands in a few minutes. In fact the Indian Government seems to be exactly in the position in which our own home Government was 60 years ago. At that time in England the keeping up a supply of Oak timber for the navy was considered of the first importance, and as it was evident in those days that every one was cutting down and selling, the future had to be thought

* See the "Florist and Pomologist" for December, 1868, p. 284.

of. The only certain course of obtaining a future supply was by the Government taking the matter into its own hands, and disafforesting the commons to grow timber to be specially saved till it was wanted. Commission after Commission was issued, reports published, calculations made, and by about the year 1815 all was settled. A reference to all these papers would have shown the principles which guided the Government of England in these days, and which should guide the India Board to a great extent at present. An examination of these documents will clear up the question of the propriety of leaving forests to reproduce themselves, or of going to the expense of planting—a matter which seems to have influenced the India Board to a great extent, and on which they seem to have great difficulty in forming an opinion, and which they thought better understood in Germany than in England. The system adopted for replanting is entirely a question of local consideration. In the Weald of Kent the Oak woods have been managed for generations on the self-sowing principle. Pigs and cattle are not allowed to graze in the woods, and the crop upon the ground is left standing in groups of perhaps 10 or 15 trees together, all the trees of the group being of one age, and are being felled when they arrive at maturity at once, so that a gap is cleared. This gap is never made too large—say, from 30 to 50 yards across, and the acorns from the surrounding trees produce the new crop, while, as the ground is open overhead, the young trees grow up freely. The whole area is thus always covered, and a constant succession of timber trees is kept up. Such a system, however, would not do for a country in which the parent trees were widely scattered, and it was seen at once that it was inapplicable to the Royal forests in those days, and to many others besides. The best land in all those cases which was to be planted for navy timber had been pastured for ages, and all the young trees eaten off, so that unless the seeds sown naturally were protected by a thicket of Brambles, Hollies, or something of that sort, a tree had no chance of getting up. The consequence was, the crop was like the Teak in the Indian forests, very scattered and exceedingly irregular, and had the Government waited for these trees to sow their seed naturally there would have been but a very small portion of an irregular crop instead of the 50,000 or 60,000 acres of fine young Oak woods, ranging at the present time from 50 years of age to one year old. Attempts were made to get a crop cheaply by sowing acorns, but mice, pigeons, and other vermin, came in such numbers that it was seen no system but planting could be relied upon to produce a certain crop, and an expense of not less than 10*l.* an acre was incurred in the work. Instead, therefore, of this being quoted to the disparagement of the British school of forestry, it in reality showed great foresight and determination to succeed far a-head of any other country. If the system in Germany and France is to leave Nature to do it all, it is obvious that a young man intending to go to the Indian forests will have greater advantages by studying in England both the self-sowing and planting systems, than one who studies in Germany the self-sowing system only. Another great argument used in favour of sending these young men to Germany and France, is that the forests in these countries are more extensive than in England; so are the armies, but we do not send our military cadets to study abroad, and I believe the same reasoning holds good as to the forests. All we ask is a fair field. *Woodlands.*

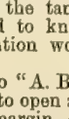
Hardy Broccoli.—In reply to "Colo" (see p. 278), who asks which is the best winter Broccoli, I may say that this is rather a difficult question to answer, as there are so many good kinds in cultivation; all good, but not all ready for table at the same time. With me here, this extraordinarily mild season, the first to cut was Veitch's fine Early Spring White. Knight's Protecting, and the true Wilcove, are both excellent hardy Broccoli, but later than Veitch's. I have grown them for some years, and find them to be amongst the best late Broccoli. *John Edlington.*——I find that Backhouse's Winter White Protecting Broccoli comes in earlier than any other sort cultivated here, and for early use (as far as my own experience goes) it stands unrivalled. *Robert Sowerby, Jun., The Gardens, Newburgh Park, Yorkshire.*

Rhamnus Frangula.—Being desirous of making a plantation of this shrub, and having failed for the present season in procuring plants, I shall be much obliged by your informing me how I may best provide for a future season by increasing the plants which I already have, by cuttings, layers, cuttings of the root, or seeds: and if by layers or cuttings, the best time of year for the operation? *Diss.* [By cuttings taken off in the autumn, and inserted in good sandy soil, in a shady situation, covering them with handlights. Eds.]

Rabbit Fencing.—What height of fencing would be sufficient to keep out rabbits, and what sized mesh would you recommend? *Correspondent.* [We have been favoured with the following reply to these questions:—No fence under 4 feet high is of any use to keep rabbits back, as they will jump over anything below that height, indeed, when pressed by hunger, they will go over fences nearly 6 feet high. And if they do not jump over the fence they will burrow underneath it: this, however, can be prevented to a great extent by a "ground plank" sunk in the ground. But as the rabbits are not likely in this case to be driven to such extremities, I would recommend the following description of wire netting to be used:—First, let a 2 feet width of 1½-inch mesh be put in the ground about 6 inches, and the rest of the width fastened to the fence; above this a width of 1½-inch mesh, 2 feet 6 inches wide, should be made to cover the remainder of the 4 feet. If the mesh is much larger than this, the young rabbits will get through, and the old ones will climb over without any difficulty, on account of the easy foot-hold they will have. Sometimes they have been known to go over 4-inch wire netting as quickly as squirrels, without being driven by hunger. *A. T. Draper, Parkside, Windsor Park.*]

Flies in Pine Stoves.—I am troubled with a large quantity of gnat-like flies in two Pine stoves, the larvæ of which feed on the tan, and multiply with great rapidity. Can any of your readers inform me how to destroy them? I have tried fumigating with tobacco, and poured boiling water on the tan, but without avail. I should also be glad to know from what source they come, as prevention would be better than cure. *Inquirer.*

Root Pruning.—In answer to "A. B.," I beg to say that the way we root-prune is to open a trench round each tree, as in the margin, completing the circle at the succeeding operation, going sufficiently deep to cut all the roots that spread horizontally. As to tap-roots, I find that the character of the subsoil has much to do with the disposition that any kind of stock has to make them. All our Pears are on the Pear stock, and I do not find one in a score that ever makes them, and on some soils I have found this just reversed. Where they do exist they are easily detected, as no amount of pruning the roots that run horizontally will correct over-luxuriance. So, whenever we find that there is any symptom of their existence, we tunnel under the tree until we find the delinquent. *T. Baines, Summerfield, Bowden, Cheshire.*



Societies.

Royal Horticultural: (*First Spring Show*) *March* 13.—This was pre-eminently a show of Hyacinths—perhaps one of the finest as well as the most extensive ever held in the metropolis. The fact that several of the leading houses engaged in the Bulb trade in Holland had contributed towards some handsome special prizes to be given at this meeting, tended materially to augment the quantity of Hyacinths staged. Representatives from several of the Dutch houses were also present to witness the competition for the prizes they had assisted to provide. Scarcely could finer Hyacinths have been produced than many of those staged on this occasion; and judging from the results, it appeared as if Messrs. W. Cutbush & Son, and Mr. W. Paul, had spared no exertion to bring their flowers to the highest state of perfection. In regard to size of spike probably Mr. Paul's flowers had an advantage, but this was more than counterbalanced by the exquisite finish and superb symmetry of his opponent's spikes. In point of novelty and variety Mr. Paul had the advantage, this being specially noticeable in the clases for 18 red Hyacinths. In the matter of foliage—dwarf, stiff, and erect—Messrs. Cutbush & Sons had decidedly the best of it. It was the occasion of a fine encounter, worthy the name and reputation of the two firms who were mainly engaged in it.

The special prizes, offered by the Dutch growers, were ranged in two classes, one for 36 Hyacinths, distinct sorts, in which four prizes were awarded; the second for the same number of Hyacinths, but confined to 12 sorts. The 1st prizes in each case were taken by Messrs. W. Cutbush & Son, who had in the former collection very fine examples of the following:—Blues—Baron von Tuyll, Feruk Khan, Leonidas, Garrick (double), Charles Dickens, Couronne de Celle, very fine; General Havelock, very fine; Marie, a grand spike; Orondates, Grand Lilas, Lord Palmerston, pale blue with white throat, a splendid flower; La Nuit, and Mimosa. Reds—La Jeune, Anne, pale bright pink; Emmeline, Howard, fine dark; Macaulay, very fine; Florence Nightingale, Gigantea, Solfaterre, very fine, probably one of the finest spikes of this splendid variety ever seen; Ornement de la Nature, Von Schiller, Princess Helena, very pretty; Princess Beatrice, Lady Sale, and Lord Wellington and Prince of Orange, both fine double flowers. Whites—Mont Blanc, Paix de l'Europe, Alba maxima, Queen of the Netherlands, Mirandoline, and Alba superbissima. Yellows—Duc de Malakoff and Ida; and Haydn, mauve. In the class for 12 kinds, 3 of a sort, they had splendid examples of the following:—Grand Lilas, Marie, very fine; Feruk Khan, General Havelock, and Baron Von Tuyll, shades of blue; Gigantea, very fine; Macaulay and Florence Nightingale, very fine, reds; Snowball and Queen of the Netherlands, white, the spikes of the former not so large as those shown by Mr. Paul, but more finished; and Duc de Malakoff and Ida, yellows. Mr. William Paul, Waltham Cross, was 2d in each case, exhibiting in the class for 36 distinct kinds the following sorts:—Blues—Garrick, very fine; Sir John Lawrence, a fine dark variety; Grande Monarque, Baron Von Tuyll, Charles Dickens, Bloksberg (double), General Havelock, Feruk Khan, Laurens Koster (double), Couronne des Bleus, Grand Lilas, King of the Blues, very fine; and Princess Mary of Cambridge. Reds—Princesse Clotilde, La Joyeuse, clear pale rose, very fine and striking; Macaulay, Koh-i-Noor (double), Vuurbaak, bright red, very fine; Tubiflora, Princess Helena, Le Prophète, Garibaldi, very fine and showy; Von Schiller, Prince Albert Victor, Florence Nightingale (Fabiola), and Gigantea. Whites—Alba maxima, very fine; La Grandesse, a splendid variety, very fine and distinct; L'Innocence, Snowball, and Grandeur à Merveille. Yellows—Duc de Malakoff, Ida, and Bird of Paradise; and Sir Henry Havelock and Haydn, mauve. In the class for 12 kinds, 3 of a sort, Mr. Paul had the following:—Blues—Garrick, Feruk Khan, Princess Mary of Cambridge, and Grand Lilas. Reds—Florence Nightingale, very fine; Gigantea, Von Schiller, and Garibaldi. Whites—La Grandesse, very fine indeed; Snowball, very fine; and Grandeur à Merveille. Yellow—Ida. In this class Messrs. W. Cutbush, Barnet, and T. Hawkins, Shepherd's Bush, also exhibited. In the former class Mr. G. Davies, Old Swan, Liverpool, was 3d, with, among others, fine spikes of Von Schiller, General Pelissier, fine dark red; Groot Voorst (double), reds; Van Speyk (double), Nimrod, and Marie, blue; and Alba maxima, white. Mr. C. Turner was 4th. In this class Messrs. Van Waveren & Sons, of Haarlem, contributed a capital group of 36 varieties grown in glasses, which the judges recommended for special recognition; and Messrs. T. Hawkins, Oaklands Nursery, Shepherd's Bush, and Thos. Porter, gr. to B. Noakes, Esq., North Hill, Highgate, also exhibited.

The prizes offered by the Society led to fair competition. With 18 distinct kinds Mr. William Paul was well ahead, with good specimens of Baron von Tuyll, Grande Monarque, Garrick, Charles Dickens, King of the Blues, Prince Albert, very fine, and Grand Lilas, blues; Vuurbaak, Koh-i-Noor, Florence Nightingale, Von Schiller, very fine; and Ornement de la Nature, reds: La Grandesse, L'Innocence, very fine, and Seraphine, white; Charles Dickens, mauve; Bird of Paradise, fine, and Ida, yellows. 2d, Messrs. Cutbush & Son, with the following:—Blues—Charles Dickens, Baron van Tuyll, General Havelock, Grand Lilas, and Marie. Reds—Emmeline, Mrs. B. Stowe, Macaulay, Florence Nightingale, Ornement de la Nature, and Gigantea. Whites—Mirandoline, Alba maxima, Grandeur à Merveille, and Queen of the Netherlands. Mauve—Hadyn. Yellows—Duc de Malakoff and Ida. 3d, Mr. Geo. Davies, Liverpool. Messrs. C. Turner and W. Cutbush also exhibited. In the class for 18 red kinds, distinct, Mr. W. Paul staged a fine lot, but was put out of court by an oversight in staging, the sorts being: Darks—Linnæus, very fine; Prince Albert Victor, very fine; Reine des Jacinthes, Annie Lisle, and Solfaterre. Medium Shades—Von Schiller, Princesse Clotilde, Macaulay, Mrs. B. Stowe, Princess Helena, and Koh-i-Noor. Pale flowers—Noble par Mérite (double), fine; Géant des Roses, pale rose; Florence Nightingale, Ornement de la Nature, Lord Wellington (double), and Cavaignac. Messrs. W. Cutbush & Son, who were in consequence placed 1st, produced a collection having less of light and shade in the colours, and therefore more sameness in the general appearance. Of dark reds—Solfaterre, Lady Sale, and Cynthia. Medium shades—Macaulay, Mrs. B. Stowe, Princesse Clotilde, Milton, Duchess of Richmond, and Von Schiller. Pale flowers—Le Prophète, Cavaignac, Susannah Maria (double); Ornement de la Nature, Gigantea, Lord Wellington (double), very fine; Prince of Orange, Florence Nightingale, and Hogarth.

The class for 6 new kinds never before exhibited, brought but one group—from Mr. W. Paul, and only one of these varieties indicated much merit. The sorts were Hector, in the style of Grand Lilas, but pleasingly tinted with mauve, a promising flower; White Swan, single, and poor; Double Diebitsch Sabalkausky, a semi-double form of this old single red variety; Dante, single, dark blue, in the of way of Mimosa; Purple Queen, single, a poor dark purple-blue kind; and Andromache, single, pale red, in the way of Von Schiller. The competition in the amateurs' classes was more spirited than usual, and the flowers generally very good. With 6 kinds, Mr. Weir, gr. to Mrs. Hodgson, The Elms, Hampstead, was placed 1st; Mr. J. Potter, 2d; and Mr. Geo. Wheeler, gr. to Sir F. H. Goldsmid, Bart., M.P., Regent's Park, 3d. With 6 kinds, grown in windows in pots, Mrs. B. Noakes, North Hill, Highgate, was 1st; Miss Wilding, Chesterfield Street, 2d; Mr. Janes, Highgate, 3d.

With 6 pots of Polyanthus Narcissus, Mr. W. Paul was 1st, with finely-grown Gloriosa, Soleil d'Or, Queen of the Netherlands, Queen of Yellows, Her Majesty, a grand sort, and Lord Canning; 2d, Mr. C. Turner, with Belle Princesse, Medio Luteo de France, Grande Monarque, Gloriosa Superba, Bathurst, and Bazelman major. Tulips and Crocuses were not so good as is generally seen on this occasion; the former were somewhat poor and drawn, probably owing to the mild winter the latter were past their best. With 12 pots of Tulips, in six kinds, Messrs. W. Cutbush & Son were 1st, with Proserpine, broken, the flowers flaked white; Keizer Kroon, Vermillon Brillant, Buttercup, Yellow Pottebakker, Couleur Cardinal, and Vander Néer; 2d, Mr. W. Cutbush, Barnet, with Keizer Kroon, Proserpine, White Pottebakker, Thomas Moore, Vermillon Brillant, and Duchesse de Parma. In the amateurs' class for 12 pots, in four kinds, Mr. T. A. Steel, Hammersmith, was 1st with some indifferently-grown specimens. Mr. W. Paul was 1st in the large collection of Crocuses, and Messrs. W. Cutbush & Son 2d. Cut blooms of Camellias were exhibited by Mr. Wilkie, Oak Lodge, Kensington; Mr. T. A. Steel, Marlesford Lodge, Hammersmith; and Mr. G. Wheeler. The blooms were not remarkably striking, while in the class for 6 Camellias in flower, the only exhibition was a very poor one. Of Lily of the Valley some exceedingly well-grown examples were shown by Mr. W. Cutbush, jun.,—these well merited the 1st prize; Mr. W. Paul was 2d with smaller specimens, full of flowers; and Mr. Wheeler was 3d with well-flowered, but much smaller examples. Of Cyclamen persicum there were some remarkable collections shown. Mr. Wiggins, gr. to W. Beck, Esq., Isleworth, received the 1st prize; Mr. C. Edmonds, Hayes Nursery, Hayes, the 2d; and Mr. James, gr. to W. F. Watson, Esq., Isleworth, the 3d. Mr. C. Turner and Messrs. Dobson, Woodlands Nursery, Isleworth, also contributed. Six well-flowered specimens of Chinese Primulas were shown by Mr. Wiggins and Mr. James; and Mr. T. Hawkins, Oaklands Nursery, Shepherd's Bush, contributed some inferior samples of the double white.

The miscellaneous subjects, which always form an important part of these spring shows, comprised a fair collection of Pot Roses from Messrs. Paul & Son, of Cheshunt, together with several boxes of cut blooms, among which was their new deep crimson seedling, Duke of Edinburgh. Messrs. Paul & Son also exhibited a group of miscellaneous plants, including Amaryllis vittata rubra, the beautiful double crimson Thorn, and some small standard berried Aucuba japonica. Mr. B. S. Williams, Holloway, had a fine group of ornamental foliage and flowering plants, comprising Francisceas, a well-flowered Dendrobium nobile, Dendrochilum glumaceum, Odontoglossum luteo-purpureum, a fine plant of Ananassa sativa variegata, bearing fruit; Spiræa japonica, and the rare, though not new, Magnolia Lennè, the deepest coloured of all the varieties of this useful hardy shrub. Mr. Bull, Chelsea, exhibited an extensive and highly interesting collection of plants, in which we noted Ananassa sativa variegata and A. Porteana, a fine pair of Agave filifera, Imantophyllum miniatum superbum, Adiantum farleyense, Lomaria gibba Bellii, several showy Orchids, and the beautiful new Coleus Duke of Edinburgh. From Mr. C. Turner, of Slough, came a collection of Primula denticulata and P. erosa, and a fine batch of Coleus Princess Royal. Messrs. Downie, Laird & Laing also exhibited the following new forms of hybrid golden Coleus—Albert Victor, Baroness Rothschild, and Princess Beatrice. Mr. H. Cannell, Woolwich, contributed a collection of Bronze Zonal Pelargoniums. Mr. T. Ware, Hale Farm Nurseries, Tottenham, contributed alpines and spring flowering plants, comprising double purple Viola odorata, the beautiful and interesting Primula, referred to at a former meeting as amœna, but here named P. concolor (Baker); Orobus vernus, Narcissus minor, Anemone fulgens, Aubrietia grandiflora, Iris persica, Scilla sibirica, and Omphalodes verna. Mr. G. W. Buck, florist, Covent Garden, exhibited an extraordinarily fine symmetrical specimen of Cyclamen persicum, with white and red blossoms intermingled, grown by Mr. Clark, Whitton.

General Meeting: March 16.—James Bateman, Esq., F.R.S., in the chair. The preliminary business of the meeting being concluded, the Rev. J. Dix announced the awards of the Floral Committee, G. F. Wilson, Esq., in referring to the paucity of subjects brought before the Fruit Committee on this occasion, took the opportuuity of referring to the White Spanish Onions exhibited by Mr. Whiting. Mr. Wilson stated that he had been asked if anything were brought before the Committee that showed good cultivation, or excellent preserving qualities, to obtain some information respecting the method of cultivation or keeping. In this instance, he was informed that the plan followed in the culture of these Onions was, heavy manuring, deep trenching, February sowing and keeping them dry after taking them up. He (Mr. Wilson) then stated that the hybrid variegated Borecoles exhibited by Mr. Melville, and referred to at p. 309, were highly commended by the Committee. In conclusion, he begged to call upon Mr. Fortune to redeem his promise made at the last meeting, by reading his paper on the Kumquat, of which Mr. Bateman's gardener had kindly furnished examples.

Mr. Fortune then read a very interesting statement of the history, habitat, and cultivation of the Kumquat,

of which, through the kindness of the Rev. M. J. Berkeley, we are enabled to give an abstract:—

Amongst other plants which I discovered and introduced into this country while on the mission to China in 1842, was the Citrus japonica, or Kumquat, the plant whose fruit was exhibited by Mr. Bateman at our last meeting. I found it cultivated over a large tract of country in China, but it was evidently most at home in the more temperate parts—for example, in the Islands of the Chusan Archipelago, and on the mainland in the same latitude. Here large plantations were met with on the lower slopes of the hills, and very beautiful they appeared in autumn, winter, and spring, when the plants were covered with their golden-coloured fruit and deep green leaves. The fruit is much liked by the natives, who eat the skin as well as the pulp. Its chief value, however, is when used as a preserve. A large quantity is exported annually to Europe and America in China jars, preserved and sent home in nearly the same way as the better known China ginger is sent. In a horticultural point of view, however, in this country, we must look at the Kumquat as an ornamental plant only; and I really think that if our gardeners would set about its cultivation in the right way, they would find its cultivation easy, and it would amply repay them by being one of the most ornamental plants for winter decoration. I believe that a knowledge of climate and other circumstances relating to a plant's natural habitat is of the first importance, if a gardener would be successful in its cultivation in this country. Here is a wide field for study, in which our practical horticulturists would do well to labour. For what do we really find if we enter an ordinary hothouse in some of our English gardens? We find plants of most of the countries to which I have alluded, which have been formed for, and which occupy situations on the earth's surface so widely different, crowded together in one house, where they are treated much in the same manner as if their nature and requirements were all of a like character. Need we wonder at the results of such treatment? I may mention, as an illustration of this subject, a circumstance relating to the cultivation of the Tree Pæony in China. This beautiful plant is a native of the more northerly parts of the Chinese Empire, where the winters are extremely cold. Large quantities of it are brought south to Canton, and the other southern towns every autumn, where it blooms well the first year, but the first year only. The winter is too warm for its constitution, and if its cultivation is further attempted in the new climate, it only dwindles away, and eventually dies. In practice the Chinese simply throw the plants to the rubbish heap when the blooms fade, and order from the north a fresh consignment every autumn. In no country in the world is the artificial cultivation of the Vine more successful than it is in England. The reason of this is, that its natural requirements are thoroughly understood and supplied. When we can say the same regarding many of the tropical and other fruits which we now see so seldom, although the plants themselves have been long in our possession, those fruits will soon be common enough. In addition to the Pine and the Grape, we shall have the Mangosteen from Singapore, the Bombay Mango, the Leechee, Longan, and Yangmae of China, and a number of other fruits from various parts of the world, which will add to the enjoyment and interest of the dinner-table. But first of all we ought to be successful with the Kumquat and some small Oranges from the temperate parts of China, as they come from a climate more nearly resembling our own than does that of the other plants to which I have just alluded. From what I have stated of its native country it will naturally be concluded that it is a much hardier plant than the common Orange. In the country where the Kumquat is found in the highest perfection, the common Orange will not survive the winters; and, on the other hand, the Kumquat, when cultivated in the south of China, does not succeed, although the common Orange is found there in the greatest perfection. The cold winters of the North, which kill the Orange, are favourable to the constitution of the Kumquat. Both plants require warm summers; indeed, the northern summer is frequently hotter than the southern one. A hot summer temperature, varying from 80 to 100° (Fahr.), is necessary to enable the Kumquat to form its growth and ripen its new wood. In winter it will bear without injury from 10° to 15° of frost, and perhaps even a lower temperature than this. Keeping in full view the principles I have endeavoured to illustrate, and taking our lesson in cultivation from Nature, there ought to be no difficulty in cultivating the Kumquat in England. If we wish to have it in high health and vigour we must keep it cold and rather dry in winter. During its season of growth in summer it ought to have a liberal supply of water, and a temperature of from 80° to 100°, and this heat should be kept well up even in autumn, in order that the young wood may be well ripened.

The Rev. M. J. Berkeley then stated that at a former meeting a plant of a variegated form of Abutilon Thompsoni, grafted on A. striatum, was brought before them (see p. 196), and of which other instances had been noticed in France (see p. 276). On this occasion Messrs. E. G. Henderson & Son had sent a collection of Abutilon Thompsoni, grafted on plants of A. Alphonse Karr, A. Humboldt, and A. vexillarium, which showed a uniform tendency in the scion to communicate its variegated growth to each stock; Abutilon venosum argenteum striatum, which occasionally shows self white, flaked, or mottled leaves; and the remains of a grafted stock of an Abutilon, showing its tendency to retain a variegated leaf growth after losing the scion. He then informed the meeting that experiments on this subject would be made in the Society's Garden at Chiswick. In reference to the flowers before them, sent by Mr. James Atkins, of Painswick, under the name of Leucocoryne alliacea, and the bulbs of which were stated to have been found by Mr. Rae growing on the sides of the mountains between St. Jago and Valparaiso, in places that a few days previously had been covered with snow, Mr. Berkeley said that on first seeing them he had thought that it might be a variety of Triteleia uniflora, which is now so freely in bloom, but found, on closer examination, that the colour was of a more decided blue tint, and the petals more acuminate. The genus Leucocoryne was distinguished from Triteleia by means of its stamens, and which organs showed that the plant in question belonged to the last mentioned genus, and that it would prove valuable for spring gardens. Mr. Berkeley then remarked that the past extraordinarily warm and dry season had induced the Rhamnus alpinus and R. Alaternus to flower at this early date, being nearly two months before the usual time; and that Mr. Standish, of Ascot, had forwarded small branches of four species of Retinospora, including R. obtusa and R. pisifera; three forms of Cupressus Lawsoniana, with male flowers; and another specimen of the same plant, producing both male and female flowers, thus showing the plant to be occasionally monœcious, as well as dioecious. There were also flowering specimens of Fitz-Roya patagonica and Libocedrus chilensis. [We lately received from Mr. Earley, gr., Digswell Park, Herts, a small twig of Picea Pinsapo in flower. EDS.] In reference to a beautiful flower of Narcissus Sibthorpii, which he (Mr. Berkeley) had received from Mrs. Lloyd Wynne, and which was well adapted for ornamenting our gardens at this season, he informed the meeting that Mrs. Lloyd Wynne had offered to give a prize, to be competed for at the first Tuesday meeting in April, 1870, for the best collection of species, not mere garden varieties, of Narcissus. Alluding to an article which appeared in the *Gardeners' Chronicle*, at p. 278, from Mr. Muir, gr. to Sir P. De M. G. Egerton, Bart., calling attention to the effects of heat as well as frost, on fruit trees, he (Mr. Berkeley) had obtained six specimens of wood of the various fruit trees from Chiswick, where the trees had also been observed to have suffered from the effects of heat, the collar of the trees in question being protected with tiles. Trees so affected were remarkable for showing transverse fissures in the bark. Mr. Berkeley then alluded to the curious appearance presented by Mr. Muir's specimens, and which will be more fully described in our next issue. Mr. Berkeley expressed a wish for any additional examples that might throw light on the subject of disease in fruit trees. In conclusion he advocated the necessity of protecting fruit trees in summer time from the effects of excessive scorching.

Mr. Bateman first called attention to a beautiful plant of Rhododendron Falconeri, which was in bloom in the western approach; this was one of the species introduced by Dr. Hooker from the Sikkim Himalaya. Mr. Bateman said that the Sikkim Rhododendrons were perfectly hardy in our gardens, but they were always in such a hurry to commence growth in the spring, that they were invariably seriously damaged by such weather as we are now experiencing. Mr. Bateman then said that there was in the same approach, growing near to the plant of R. Falconeri, which is now in bloom, a young plant of R. Nuttallii, which was starting into rapid growth, and which produced young shoots of a remarkably rich reddish-bronze colour, and he considered that the Society had been fortunate in planting Rhododendrons in the above-named place. He (Mr. Bateman) trusted, now that they had found out that this lovely genus would thrive there, that the number would be increased, so that the Fellows might have the pleasure of seeing one or other of the varieties in bloom from the beginning of February to the middle or end of May. The planting of Rhododendrons in these conservatories, Mr. Bateman stated, was the more fortunate, as the fruit trees, Tree Pæonies, and other plants planted in those situations, had not succeeded. Mr. Bateman, in conclusion, alluded in a eulogistic manner to the remarks made by Mr. Fortune on the Kumquat; to the Orchids and various other plants brought before the meeting; and said that the thanks of the Society were due to Mrs. Lloyd Wynne, for her kindness in offering a prize for the best collection of species of Narcissus.

Scientific Committee: *March* 16.—A. Murray, Esq., in the chair. After the formal business had been transacted, Mr. Berkeley laid on the table the sixth part of the Journal of the Society, and also the sheet containing extracts from the proceedings of the Society, and the several committees, up to the last meeting.

Professor Westwood then stated that he had ascertained that the larva of the insect in the Orchid shoot referred to at the last meeting (see p. 252) was a Curculio of some kind, and not as Chrysomelid.

Mr. Berkeley stated that he had ascertained that the Pelargonium which was exhibited at one of the previous meetings of the Committee, and which was remarkable for the profusion of long hair-like roots which were emitted from its stem, had not been in any way covered with moss or cocoa-nut fibre. The formation of the adventitious roots in such abundance, was therefore not attributable to that cause. Further specimens of the Black Currant buds, deformed by the presence of myriads of a peculiar form of Acarus, were laid on the table. Mr. Berkeley remarked that the Acarus in question was very prettily marked with transverse striations. Mr. Wilson Saunders sent a drawing of a gall on the nut, of a similar character in some respects to those on the Black Currant, and produced by the larvæ of a Cecidomya. Some specimens of a species of cockroach (Blatta) were exhibited, and which had been observed to multiply rapidly in an Orchid-house. The specimens were referred to Professor Westwood, to report on more fully at another meeting of the Committee. Mr. Berkeley exhibited specimens of a very prettily cut-leaved plant, supposed to be a form of Capsella Bursa pastoris, from Sibbertoft, but as flowers had not been observed, it was not certain that the plant was a form of Shepherd's Purse, though this appeared probable.

Mr. Horne exhibited specimens and drawings of a species of Æcidium on leaves of a species of Amaryllis, to which it proved very destructive. Mr. Berkeley stated that it was very similar in appearance to the Æcidium which grows on Allium ursinum.

A letter was read, which had been forwarded by the Right Hon. G. J. Goschen, relating to a peculiar disease in the Tobacco plant, as grown in New Grenada. The letter entered at some length into the description of the locality in which the plants grew, and from which it appeared that the plants were chiefly cultivated in rich alluvial soil, in valleys, between spurs of the Andes, and near to the Magdalena river. It was remarked that the leaves shrivelled, became discoloured and perfectly useless, often in one night. On an inspection of the specimens sent no very obvious cause for the disease was detected, though there were plenty of traces of insects. Mr. Horne had seen a similar disease in some parts of India, where the natives used wood ashes to check the progress of the disease. Mr. Horne also alluded, as did other speakers, to the necessity for supplying abundance of the strongest manure to Tobacco while growing. Dr. Thomson stated that if Tobacco plants are left without proper irrigation the leaves become covered with black spots, and ultimately shrivel up. The general opinion of the Committee seemed to be, that the disease in question was the result of deficient irrigation at a time of excessive heat.

Mr. Horne exhibited a curious gnaur-like excrescence on a branch cut from a plant of Albizzia Lebek or "Sirrus" in north-western India. Mr. Berkeley alluded to the specimens of Beechwood sent by Mr. Muir (see p. 278). Dr. Voelcker read the minutes of the last meeting of the Sub-Committee appointed to conduct experiments at Chiswick on the growth of seeds.

Mr. Moore exhibited specimens of Cyclamen from Mr. Atkins, of Painswick, and read the following communication relating to them, which had been forwarded by Mr. Atkins:—

"In the report of the Scientific Committee (see p. 196), I observed with pleasure that Mr. Wilson Saunders, alluding to some variously-shaped leaves of Cyclamen from Corfu, expressed the opinion that the form of the leaf was quite insufficient to furnish specific characters. This quite coincides with the opinion I have arrived at, after many years of careful observation of the genus Cyclamen. I believe that the form and colouring of both the upper and under surfaces of the leaves are wholly unreliable as specific distinctions. Plants of the same species in their native habitats vary greatly in these respects, some having the leaves plain, others marbled; some wholly green, others purplish beneath. Seedlings from carefully selected plants manifest great variety in these respects. In some instances, however, they become permanent or fixed varieties, and reproduce themselves by seed. One principal cause of the confusion existing in this genus, and of the undue multiplication of species, is attributable to the undue importance which has been assigned to these variable characters. There are two characters I have never found to vary much in the same species, viz., the form of the mouth, or "faux" of the corolla, and the mode of sending out root fibres from the tuber. The latter point especially has been almost entirely overlooked in botanical descriptions. The varieties from Corfu, called by Mr. Saunders C. europæum, and by Mr. Munby C. hederifolium, I have cultivated for many years, having obtained my specimens from Corfu and other Greek islands. I believe there is no doubt but that they belong to C. hederifolium of Aiton and others, but *not* the plant figured under that name in the "Botanical Magazine," tab. 1001. It is the C. europæum of the first edition of "English Botany," the C. hederifolium of the second edition. Tenore figures the same plant as C. neapolitanum in his "Flora Neapolitana," and alludes to the great diversities in the foliage, and to the peculiarities of the tuber. It is the *Cyclamen folio hederæ of* L'Obel, the *Cyclamen inodorum purpurascente flore* of Clusius. Both the last mentioned authors give excellent figures (apparently from the same block) representing the peculiarities of the tuber and of the mouth of the corolla. C. europæum has the tuber knotted, irregular in shape, often considerably lengthened, while the root fibres and the underground branches which bear the leaves and flowers, issue from all parts of the tuber, and are frequently very long, sometimes attaining the length of 6–9 inches, or even more. This portion of the stem may be broken into pieces, and each piece is capable of growing and producing leaves, flowers, and roots. C. europæum is the C. anemonoides of some botanists, and of the Dutch bulb-growers. C. hederifolium has a depressed or rounded tuber, and the root fibres issue chiefly from the outer edge of the tuber, and but to a slight extent from the base. The leaves and flowers usually spring direct from the tuber, but under some circumstances they proceed from an underground branch. Other species of Cyclamen have likewise their peculiarities of tuber and mode of emitting fibres. The presence or absence of a subterranean stalk springing from the tuber, and bearing the leaves and flowers has been over-estimated as a differential character by authors. It is not to be depended on. All the species under certain circumstances produce this branch, whilst under other conditions it is absent. Thus the C. vernum of De Candolle, Reichenbach, and others, which is the C. repandum of Sibthorp, under cultivation seldom assumes this peculiarity, but in its native habitat when buried in mountain *debris* or accumulations of vegetable soil, an underground branch of considerable length is formed. C. persicum is generally cultivated with its tuber placed unnaturally on the surface of the soil. Under these circumstances the tuber itself and the mode of emission of the leaves and flowers are different from what they are in the wild state, when buried beneath the surface. The tuber is then irregular in shape; root fibres issue from all parts of it, and numerous stalks bearing the leaves and flowers emerge from the greater extent of the upper surface." Mr. Atkins' communication ended with a recommendation that the hardy varieties should be more cultivated, their beautiful foliage, hardiness, and easy culture rendering them very desirable for winter or spring gardening. "They should be planted tolerably deep, and do better if not removed annually. They may be planted over with dwarf summer bedding plants. The varieties from Corfu and others of the Greek islands are distinct and valuable varieties, with finely marked foliage, blooming somewhat later than the common form of C. hederifolium, and continuing much longer in flower, even till Christmas or the commencement of the new year. Some of them are deliciously fragrant. I find them perfectly hardy, but as the later flowers are apt to be injured by the weather, they richly repay a cold frame or hand-glass."

Floral Committee.—The Rev. Joshua Dix in the chair. The principal novelties — those which received First-class Certificates—were an Azalea, a Spiræa, a Hyacinth, and a Cineraria. The Azalea was named La Superbe, and came from Mr. Turner. It was remarkable for substance and smoothness, and for its expanded form, the colour being a deep bright fiery red, with a blotch of violet-coloured spots, in the way of Stella. The Spiræa (or Hoteia) was a variegated form of S. japonica, of a most beautiful appearance, the red-stalked leaves having all the main veins marked out with creamy white, producing a pale golden reticulated variegation. This came from Japan, whence it had been imported by the exhibitors, Messrs. E. G. Henderson & Son. The Hyacinth was shown by Mr. W. Paul, and was named Hector. It was a bold flower, single, with stout and smooth pips, of a very pale lavender-mauve tint, the tube being grey. The Cineraria, a free-blooming and showy variety, of good habit, from Messrs. F. & A. Smith, was named Royal Purple. The pips were of a deep violet purple, having a narrow white zone around the disc, and next to this, intervening between it and the purple, a zone of bright crimson, which gave it a very lively appearance. A Second-class Certificate was given to the same exhibitors for Cineraria Ino, a variety in which the florets were broad, pure white, with a slight rosy crimson tip. Messrs. Veitch & Sons received two Special Certificates; one for three varieties of Amaryllis, of the vittata section, named respec-

tively Vondel, Madame Goldsmidt, and Van Lennep; the other for a fine group of flowering plants, among which the rare and distinct Lycaste gigantea, with three of its remarkable tawny-coloured flowers, stood conspicuous. Mr. Turner sent a group of Coleus Princess Royal, one of the best of the new golden varieties raised at Chiswick. Mr. Williams, of Holloway, sent a beautiful group of Orchids in flower, which obtained a Special Certificate; as also did a group of mixed flowering plants, Cinerarias, &c., from Messrs. F. & A. Smith; and a neat collection from Messrs. E. G. Henderson & Son, containing a fine Phormium tenax variegatum, three forms of Phormium Colensoi, green and variegated, one or two beautifully coloured varieties of Trichopilia suavis, and several plants of Abutilon Thompsoni, worked on different stocks, and all showing a tendency to induce variegation in the stock, as manifested in the plant referred to at a former meeting (see p. 308). From Mr. W. Paul came two variegated Tulips, and some additional new Hyacinths,—Dante, a very dark purple, but at present wanting in breadth of spike; Andromache, a handsome deep striped pink, in the way of Von Schiller; and a double form of the bright red Diebitz Sabalkausky. Mr. Atkins, of Painswick, sent a pan of a pretty bluish-tinted form of a Triteleia allied to uniflora. A handsome and well-flowered little specimen of Trichopilia suavis, from Mr. Woodward, gr. to Mrs. Torr, of Ewell, obtained a Special Certificate. Mr. Weston, gr. to D. Martineau, Esq., Clapham Park, sent two seedling Azaleas, Enoch Arden and Lucius, with washy pinkish rose flowers. From Mr. Ivery, of Dorking, came a very promising Azalea, Emma Ivery, with deep rosy tinted flowers, having the upper segments thickly spotted, a flower of nice outline and good substance, but somewhat crumpled. Mr. Cannell, of Woolwich, showed four baskets of Gold and Bronze Pelargoniums. In the collection of flowers sent by Messrs. Veitch, the double-flowered Peaches introduced from China were prominent objects; and we noticed a Polyanthus Narcissus, named Bathurst, which on account of its fine dwarf habit, is well suited for purposes of decoration.

Fruit Committee.—Mr. J. B. Whiting, gr. to Mrs. Hope, The Deepdene, exhibited some White Spanish Onions, which were of very large size, and exceedingly well kept. These were brought to show that this variety would keep quite as well as the Nuneham Park Onion, shown at these meetings in 1867. The latter indeed is merely considered as a fine strain of the White Spanish. Mr. Calver, gr. to Sir H. G. Cotterill, Bart., Garnons, Hereford, sent the Garnons Apple, a well-known variety, but which is synonymous with Court-pendu Plat, and which much resembles Fearn's Pippin; also a seedling Apple, which has a striking resemblance to Flower of Kent. Mr. Melville, gr. to the Earl of Roseberry, Dalmeny Park, Edinburgh, contributed samples of hybrid variegated Borecoles; some of these were highly coloured, and very curious, more especially the proliferous varieties, in which young leaf-like excrescences were produced along the midrib of the matured leaves; these Kales are hybrids between the variegated Borecoles and the common Ragged Jack. Another variety in the same collection was a hybrid between the variegated Borecoles and the Red Dutch Cabbage.

Royal Botanic: (*First Spring Show*) *March* 16 *and* 17.—This meeting unfortunately clashed with that of the Royal Horticultural on the same day; but notwithstanding, the tent was completely filled with groups of gay spring-flowering and other plants. Hyacinths formed the chief feature of the show, though they were not nearly so numerous as at South Kensington on Saturday last. The best 12 shown by Nurserymen were from Messrs. W. Cutbush & Son, Highgate, and consisted of Ornement de la Nature, Macaulay, Gigantea, Howard, and Florence Nightingale, reds; Garrick (double), General Havelock, Marie, and Grand Lilas, blues; Princess Helena and Queen of the Netherlands, whites; and Ida, yellow. Mr. W. Cutbush, Barnet, was 2d. The best 12 in the amateurs' classes came from Mr. B. Potter, gr. to B. Noakes, Esq., Highgate, who had Lord Wellington (double), Macaulay, and Von Schiller, reds; Queen of the Netherlands, Snowball, Mont Blanc, Grandeur à Merveille and Paix de l'Europe, whites; Grand Lilas, Baron Von Tuyll, and General Havelock, blues; and Duc de Malakoff, yellow. 2d, Mr. J. Janes, Highgate, having, differing from the foregoing, Garrick (double), blue; Gigantea, red; and Princess Helena and Elfrida, white. There were several other exhibitors in each class. The class for 6 new kinds did not fill.

Tulips, as at South Kensington, were somewhat indifferent. With 12 pots in 6 kinds the 1st prize was taken by Mr. J. A. Steel, Hammersmith; Messrs. W. Cutbush & Son were 2d. Mr. W. Cutbush, Barnet, also exhibited.

A nice group of Lily of the Valley was staged; the best and second-best plants were from Mr. W. Cutbush, Barnet; Mr. A. Wilkie, Addison Road, Kensington, being 3d.

Mr. Wiggins sent the best Primulas and Cyclamens, as well as a large batch of the latter in the miscellaneous class. Mr. George Wheeler, gr. to Sir F. H. Goldsmid, Bart., M.P., Regent's Park, was 2d with Primulas, having some large plants with fern-leaved foliage; 3d, Mr. J. James, Isleworth. Mr. James was 2d with Cyclamens, and Mr. C. Edmonds, Hayes, 3d.

Some capital plants of Azaleas were staged by Messrs. Lane & Son, Berkhamstead, who were placed 1st in the class for 6 kinds. The sorts were—President Humann, pure bright rose; Reine des Blanches, Perfection, President Claëys, Princess Alice, and Duke of Cambridge. Mr. Todman, gr. to R. Hudson, Esq., Clapham, was 2d.

Only one lot of 3 plants of Camellias were staged, that by Mr. G. Wheeler, gr. to Sir F. H. Goldsmid, Bart.; they were Colvillei, Valteverado, and Imbricata alba. There were, however, plenty of cut blooms, the best 12 in the nurserymen's class being from Mr. H. Boyce, Clapham Road, who had Imbricata, Elegans, Leeana superba, Mathotiana, Beali, Jenny Lind, Reine des Fleurs, and others not so good. Mr. C. Edmonds, Hayes, was 2d. Mr. Todman was 1st, with a similar number of blooms, in the amateurs' class. Mr. G. Wheeler came next, having Colvillei, Caryophylloides, Alba plena, Lowii, Saccoi nova, Cup of Beauty, Princess Bacciochi, Valteverado, &c. Equal 1st prizes were awarded to Messrs. B. S. Williams and Wiggins, for 6 Cinerarias; the plants were small, but well bloomed.

In the Miscellaneous Class a large and valuable group of stove ornamental-foliaged and flowering plants was contributed by Mr. B. S. Williams, and a similar group came from Messrs. H. Lane & Son. An excellent collection of Roses in pots was furnished by Messrs. Paul & Son, some of the flowers being of fine quality. The same firm contributed some boxes of beautiful young flowers, that formed the most charming feature of the exhibition. A collection of cut Roses was also furnished by Messrs. Lane & Son. In addition Messrs. Paul & Son had a collection of showy forms of Amaryllis, some well-berried standard Aucubas and small standard Oranges. Mr. W. Cutbush had some capital plants of Mignonette, grown in the form of pyramids. Mr. Thomas Ware, Tottenham, furnished a charming collection of variegated and flowering spring plants, nicely arranged, and quite filling one end of the tent.

First-class Certificates were awarded to the following new plants:—Lycaste Skinneri virginalis, a beautiful fine white form; Passiflora trifasciata, Dendrobium lasioglossum, Chamærops gracilis, Cionidium Moorei, a curious Fern, the upper surface of the leaves studded with sori; Solanum rigidum, with short rigid foliage, and large dark orange berries, one of a batch of new seedlings raised by Mr. Weatherill; Dracæna punctata, having long spiral green leaves punctured with cream. Mr. Williams also contributed the handsome new Palm, Geonoma Seemanni, and some promising new Aspleniums. The same award was made to Coleus Albert Victor, a very showy golden-edged variety, exhibited by Messrs. Downie, Laird & Laing, of Edinburgh and London, who also had plants of Baroness Rothschild and Princess Beatrice, two other handsome golden-foliaged kinds. The same award was made to Mr. C. Turner for Coleus Princess Royal, belonging, like the foregoing, to the last batch of new golden-leaved kinds raised at the Royal Horticultural Society's Gardens, at Chiswick. Messrs. Paul & Son exhibited a plant of Diervilla oheshuntiensis, with pale claret-coloured blossoms.

The Apiary.

Meeting of German Apiarians.—Early in September of last year there was held at Darmstadt a conference of German bee-masters, which was largely attended, many of the names so well known among British apiarians being present. We need mention only those of Dzierzon, Professor Leuckhart, of Giessen, who has done so much to advance the knowledge of the natural history of bees; Herr Vogel, who succeeded in introducing into Germany the Egyptian bee; Koehler, Von Hruschka, Dathe, and Marchesi Crevelli from Milan, to demonstrate the influential character of the gathering. This conference is held periodically, but not always in the same locality, and is attended by enthusiastic apiarians from all parts of Germany, and from Austria and France. Bee-keepers and articles for exhibition were conveyed by nearly all the German and Austrian railways at a very considerable reduction from the usual fares. The Grand Duke very handsomely placed his orangery and adjoining grounds at the disposal of the meeting. The President, Herr von Berchthold, having opened the proceedings by welcoming the visitors in the name of the Grand Duke, addressed them briefly, followed by the Mayors of Darmstadt and Bessungen. The President having read the rules prescribed for the proper conduct of the meeting, Professor Leuckhart addressed the assembly in an interesting speech, advocating the importance of studying the theory as well as the practice of bee-keeping, in order to attain success in the art. He then gave interesting illustrations of various points of similarity and difference between hive bees, wasps, and various species of hymenoptera, dwelling more particularly upon the extraordinary fertility of the queen bee.

There were upon the programme several subjects for discussion, the first of which had been proposed by Dzierzon, who ascended the platform amidst immense applause, and having read out the following questions, proceeded to give his own views on them.

1. What is the cause of the difference in the size of queen bees?

2. Are large queens to be preferred to small ones, and if so, why?

3. Can the bee-master insure the production of large queens?

In reply to the first of these queries, he stated that difference in size is the result of difference in food during development, depending much on a greater or lesser supply of pollen, which is the most important element in their food.

With regard to the second question, he said that the smaller queens are often as fruitful as the larger ones, but that large queens possessed various advantages, such as being more easily caught when required, and because that large queens are usually fertilised in a much shorter time than small ones, the difference being often as much as 10 days.

To the third query he replied by alluding to his answer to the first, and advising that too many queens should not be reared at once by the same stock.

Dr. Pollmaun considered that the difference in size of queens bred artificially depends greatly on the age of the grubs when first selected by the bees for the purpose of transformation from worker into royal larvæ, for if previously fed for several days on common food they could not develop to the same size and excellence as if they had from the commencement been reared on royal jelly. He also alluded to the fact that the egg which is destined from the first to be reared up into a queen, is kept warmer than the eggs in worker cells from the very beginning.

The next subject for discussion was—"What is the result of all that has appeared in the 'Bienenzeitung' during the last year upon foul brood?"

Baron Von Berlepsch, who proposed this question, being absent from serious illness, the discussion was of a rather desultory character. Dr. Preuss, the discoverer and propounder of the theory of microscopic Fungi being the cause of the origin and spread of foul brood, stated his views, and was supported by Professor Leuckhart and others. It was believed by some that foul brood had been much increased since the introduction into Germany of the Italian bee.

A discussion followed as to the best method of treating foul brood, with a view to its eradication. Many advised the destruction of the stocks, others of the hives as well as the stocks, while some advocated resorting to a curative process recommended by the Rev. Mr. Schieberle, of Moravia, at a meeting held in Brunn in 1865.

To a question proposed, as to "Whether foul brood is a result of using hives with movable combs?" Mr. Dzierzon, while admitting that, in the hands of careless and incompetent bee-keepers, the system of movable comb-hives was attended with some risks and disadvantges, asserted that it possessed the very great recommendation of being the easiest, if not the only, means of discovering the existence of foul brood, and of taking effectual means for its eradication.

A great many other interesting questions were propounded by different members, but we have not space to go through them all, and can only allude to one or two of the most important. Dzierzon, speaking to one of his own suggesting—"At what age do young bees first leave the hive and first gather honey?" remarked that he had been induced to suggest this question in consequence of statements in the Baron Von Berlepsch's new edition of his bee-book, in which it is stated that young bees begin first to gather honey in about 35 days, and that consequently it is advisable to prevent the increase of brood from about 35 days before the end of the honey season. Dzierzon stated that a young bee may leave the hive when three days old, or remain at home for as many months. When there are plenty of workers, young bees remain longer at home; if there are few old bees, as when a hive has been removed from its accustomed place, the young bees would gather sooner.

Mr. Vogel considered that, as a rule, the eighth or ninth day would be the earliest time of their leaving the hive, and that they "do not gather honey until they are at least 16 days old, as is proved by the fact that they starve under that age, if left in a hive without honey or older workers."

The subject of the possibility of preventing bees from rearing drone brood in hives with movable combs without cutting out drone combs, elicited much discussion, the speakers advocating the preventing of the bees constructing drone combs at all, by filling up any empty spaces in the breeding room of the hives with worker combs, so soon as the bees begun to build drone cells. The importance of preserving every particle of worker comb, and using it again, and also of securing a good supply of worker comb from artificial swarms, was dwelt upon; soon after which the first day's proceedings terminated.

Garden Memoranda.

Lupton, the Seat of Lord Churston *(Concluded from p. 281).*—Mounting a short flight of steps we arrive at a terrace walk that commands a view of the whole garden, the valley in the park, and a wood on the opposite side of the hill, in the direction of the kitchen garden. The garden, and, indeed, the entire surrounding scenery, is charming from the terrace. A few choice trees and shrubs are found on the opposite side of the terrace, and a walk leaves the further end of it, and meanders away through a rather extensive wood on rising ground, until we suddenly come within sound and sight of the sea and fine bay and town of Torquay. Few scenes can exceed this in richness. There is also a charm about the sea breeze here, which can hardly be experienced elsewhere; its softness seems to influence matter as well as mind.

Returning by the same walk, and crossing the flower garden, we proceed by a walk through another wood on the opposite side of the valley, in search of the kitchen garden. This, we understood, was likewise laid out by Mr. Veitch; and if the carriage road told favourably of his taste in that line, this garden cannot fail to commend the soundness of his judgment in laying a good foundation for the utilities of horticulture. The situation is good, the preparation has been most elaborate, and, under the skilful culture of Mr. Erskine, who furnished and planted the garden, the results were all that could be desired. The produce of all kinds was abundant and plentiful in spite of the great drought; and the crops of fruit, both in the houses, on the walls, and in the open, might safely be pronounced prodigious. The garden is divided into two portions—the fruit garden and the vegetable garden; good wide slips of ground are also carried all round outside the walls, for cultural purposes, and a nice young orchard of thriving trees occupies a space between the garden and a public road. The ground in the fruit garden has been made almost, if not quite level, that in the vegetable garden has a regular and even fall. Immense quantities of earth had to be moved to secure these forms of surface, and it was turned to account thus:—At the boundary of the fruit garden a thick retaining wall was built; in front of this the back wall for a range of glass, running right across the garden, was built, leaving room for fruit-rooms, sheds, stoke-holes, &c., between the two walls. All the spare earth was thus used to fill up the space between the two walls, and to carry a terrace walk right across the garden, 8 or 10 feet probably above the vegetable ground.

Entering the kitchen garden from the mansion, we come first to the fruit garden, which extends on a level, or almost so, up to the range of glass. The ground line of all the houses is on the level of the fruit garden; but passing through from either of these houses, the visitor is landed on to a high terrace overlooking the vegetable grounds, as already described. This arrangement is admirably adapted for cultural purposes. It has provided a great depth of soil, doubled the area of wall space, and from the different levels prevailing outside and inside, the garden has secured walls of a great height for the growth of the largest trees. The retaining wall that supports the terrace is surmounted in the centre by an Arbor-vitæ hedge about 5 feet high and a foot through, and at each end by a Yew hedge of the same width and height. This gives it a verdant finish, and imparts to the terrace walk a warm cosy appearance. The fruit garden is well furnished with pyramidal Apple and Pear trees, and all the choicer sorts of Currants, Gooseberries, Raspberries, and Strawberries. The walls were admirably furnished with Plums, Cherries, Peaches, Nectarines, and even Apples and Pears. Some of the best varieties of Apples were very fine on these walls, while the crops of Plums, Peaches, and Nectarines were marvellous. All the trees were in the highest health. Cherry and other walls were covered from end to end, with hardly a brick to be seen between the branches. Doubtless the climate of Devonshire is most favourable for fruit culture, but skill in culture and training had also been forthcoming to obtain such satisfactory results. Certain it is that the gardens of Lupton are not more distinguished by the number and

excellence of the walls, than by the health and fruitfulness of all the trees upon them.

Entering the vineries, Peach and orchard houses, the same success in fruit growing is at once apparent. The Peaches and Nectarines in the latest orchard-house were wonderful examples of the highest culture. The trees are all planted out and trained on the back wall and low fruit trellises. The Grapes were fine in bunch and large in berry, as sweet as need be, and as black as Sloes. That somewhat capricious Grape, the Golden Hamburgh, was in the highest perfection, with immense amber-coloured berries, no mean rivals of the Golden Champion itself. Having frequently found just reason to condemn the Golden Hamburgh Grape, we hastened on the spot to make the *amende honorable* due to it, upon the first occasion that we had found it perfect, while we likewise complimented Mr. Erskine on his success in its culture.

The Melon and compost grounds are conveniently situated out of the way, in a corner of the orchard. Here there were four very handy small houses or pits filled with thriving crops of Cucumbers and Melons, while another was occupied with useful plants for furnishing the conservatory.

The gardener's house stands near the centre of the glass range. The glass is cut asunder in the middle, so that the warm sunlight and free pure air may be enjoyed by the inmates of the house. It is a substantial dwelling, the inside being as replete with comfort and convenience as the outside is ornamental. How often is the gardener's house huddled out of sight, hidden away among dense masses of sombre Yews or stifling Laurels, because it is unfit to be seen. At Lupton it is the most conspicuous feature—the crowning ornament of the kitchen garden. Surrounded with the products of horticultural skill, it affords a standing proof that that skill is appreciated, and that the comfort and happiness of the gardener gives the finishing charm to the enjoyment of the garden itself and its productions. A school in the neighbourhood is furnished with an annual supply of flowering plants from Lupton gardens,—the children having, however, to attend to their future growth, and to keep the gardens clean. They are provided with tools for this purpose, and doubtless the lessons they learn of attention, cleanliness, and gentleness to living things in the garden, are quite as valuable as those they learn in school, and open up sources of purest pleasure throughout the whole of their future lives. The child culture and cares of the garden introduced so happily and usefully in the Churston school, are practices that might be generally adopted throughout the country. *F.*

Obituary.

We have to announce with regret the death of Mr. Seward Snow, in his 76th year, and which took place on the 10th inst., at Wrest Park, Bedfordshire. Mr. Snow was for many years a very successful exhibitor at the metropolitan and other shows, and will be well known to most of our readers as the raiser of several new and excellent varieties of Lettuces; but perhaps his best production was the now well-known "Snow's Superb Winter White Broccoli," a variety which is highly esteemed throughout Great Britain. To Mr. Snow we are also indebted for re-introducing, under the name of Snow's Muscat Hamburgh, that fine Grape, the Black Muscat of Alexandria, which had become very scarce, and the reappearance of which was received with great satisfaction. In 1835 Mr. Snow commenced to lay out and remodel the now extensive gardens and pleasure-grounds at Wrest Park, for the late Earl de Grey, and, we need scarcely add, with great success.

Garden Operations.

(For the ensuing week.)

PLANT HOUSES.

Those who are in possession of the singular *Anthurium Scherzerianum*, should now attend to the potting or shifting on of any plants which require such aid. It is wonderful how it adapts itself to an artificial mode of culture. As a rule it does not thrive well if over-potted, but prefers a small pot, and one which in process of growth it can fill tolerably well with roots. This plant succeeds well in the following compost, viz., two parts peat to one of pure fibrous loam, well chopped Sphagnum, silver sand, and potsherds, broken very small. With such a compost well incorporated together, and with a thoroughly efficient drainage, it should be potted pretty firmly, and in such a manner that water, which should be freely supplied during the active growing season, may percolate without hindrance throughout the ball, so that there will be no risk of the soil getting sour. It may be useful to mention that this plant will grow and thrive remarkably well in a cool stove. Indeed in such a structure it appears to be perfectly at home, both in regard to growth, and to the size and beauty of individual spathes, which last much longer in such a house. Potting should be the order of the day for the next few weeks, where plants are in want of such a change. The necessary quantity of the various soils should be prepared for the purpose, according to the stock on hand, and should be allowed to become tolerably dry before using. I hope to return to this subject next week. Careful attention should at this time be given to early *Cape Pelargoniums* and *Forced Roses*, with respect to the onslaught of insects, which gain a lodgement in an incredibly short space of time, and increase rapidly, if not observed; periodical fumigations should be frequently resorted to, rather as a preventive than a remedy. These, and similar plants, should now be syringed pretty regularly. Be very careful not to allow Pelargoniums to suffer through over-dryness. The tax upon their capabilities will now be constantly on the increase, hence the need of unremitting attention to their many wants. *Conservatories* or *Show-houses* will now need constant attention, if they are as well filled with blooming plants as they should be. No decayed matter should on any account be tolerated, whether it may consist of leaves, or flowers, or both. Immediately a plant is past its best it should be removed to make room for fresh objects. The fact should always be borne in mind, that a healthy green-foliaged plant, even if devoid of bloom, is far more pleasing to the eye than one having flowers that are withered or decayed. Few things give greater finish to a good house of bloom than clean floors; in fact, the most scrupulous attention should be given to this point, as the beauty of the flowers is enhanced by it.

FORCING HOUSES.

Vineries which are retained to produce autumn Grapes may now be started, after the necessary attention has been given to the rods, the interior of the house, and to the borders, as has been frequently suggested in connection with the earlier houses. Attend to the inside borders of early vineries where the roots are confined within certain limits, and where the plants may be in an advanced stage of fruit bearing. Individual borders can only be successfully treated by those who have a full knowledge of their condition as to depth, drainage, and of the state which the roots are likely to be in. Clear, strong liquid manure, in proper admixture with tepid water, may be applied with tolerable freedom. Endeavour at all times, when water is given, to supply sufficient to reach the whole of the roots. To attain this end a larger quantity of water will be required than persons who are not accustomed to such things can surmise. The same remarks apply equally to the borders of *Peach* and *Nectarine houses*. From five to eight large potfuls are considered by many to be sufficient to give a good soaking. This, however, is not the case. To those who are not experienced in such practices, I might suggest the contrast between the above quantity and that which falls in the form of rain upon the roofs of such houses. This latter amount should be taken as a guide to the quantity to be given to the roots, as the space occupied by these latter is very little less than that covered by the roof. This comparison will show what is the necessary quantity better than I could describe by writing, as Nature cannot be too closely observed and imitated. In regard to *Pines*, young successionals, or rooted suckers, which have not yet been shifted on, may have an occasional syringing over-head early upon sunny afternoons, and care should be taken to shut up early; large fruiting plants having a brisk bottom-heat, and especially such as have been potted into rather open porous materials, will require watering more freely, and occasionally with clear liquid manure of moderate strength. Where a good manure-tub is not in use, such ingredients as guano or other artificial manures may be resorted to. *Cherries* which have set their fruit too heavily should now be thinned out. Attend to the fumigation in all *Peach* or other similar houses that are liable to become infested with insects. Continue to force such plants as are required to keep up a good successional display in the conservatory. Such subjects as the old *Dielytra spectabilis*, *Weigelas*, in variety; *Deutzias*, especially crenata and gracilis; *Kalmia latifolia* (of which I have fine specimens fully in bloom, and which for beauty is not to be surpassed), and *Cypripedium spectabile* will also force freely. Then there are such desirable subjects as *Astilbe japonica*, *Leucojums*, *Galanthus*, *Solomon's Seal*, &c., all of which, if to hand, will tend to make this house of winter and early spring resort more lovely; and, what is of equal, if not even greater importance, more interesting than if only the ordinary Azaleas, Camellias, Cytisus, and the like, are grown.

HARDY FLOWER GARDEN.

I have already suggested that *Climbing Plants* attached to walls and trellis-work, &c., should have been previously pruned and fastened in. Where this has been delayed, I again tender a reminder that it should be done quickly; every day's delay in the matter of pruning these and similar subjects will tend to decrease their strength.

HARDY FRUIT GARDEN.

Now that *Gooseberries* are pushing prominently the operation of pruning these, as also *Currants*, should be quickly brought to a close. The above remarks upon the consequences of delay in pruning operations, have equal force in regard to this department.

KITCHEN GARDEN.

Seedling Cauliflowers which have been pushed along in gentle heat should be pricked out into a cold frame, or under hand-lights, or *cloches*, upon a warm sunny aspect. Make a sowing of Dwarf French or *Kidney Beans* in pots, placing them in such a position that perfect immunity from frost may be insured. These will be ready for turning out on to the open south borders when all danger of injurious spring frosts is past. They will come in some weeks before those which are sown out in the open ground. Small sowings should also now be made of the early yellow *Savoys* and *Cabbage* seeds to insure a supply of early Collards. Those who have sown and forwarded their early *Peas* under glass, or any other makeshift and temporary shelter, should plant them out where they are to be grown, immediately the present cold, harsh weather, with its keen, penetrating winds, gives way to a milder temperature. Be particular in transplanting them, not to loosen the soil from the roots too much, and mould them up immediately they are out, placing thick twigs or sprays around them, for the double purpose of protection and support. *Carrots*, *Leeks*, *Spinach*, *Lettuces*, and *Turnips*, should be sown for a good supply as soon as the ground is fit for the purpose. *W. E.*

TOWN GARDENING.

Hardy annuals should now be sown, to facilitate which process all beds and borders intended for their reception should be loosened with the Dutch hoe, and afterwards raked level, but not too fine, as the sparrows are very fond of revelling in fine mould, which is detrimental to the well-being of the seed. The following varieties all succeed well with me, and I have no doubt of their succeeding equally well in any open space in town gardens:—*Ageratum mexicanum*, blue, 2 feet high. *Sweet Alyssum*, a dwarf plant, well adapted for edging. *Candytuft*, white and purple, very showy, 1 foot high. *Collinsia bicolor*, a very pretty annual, 6 inches in height. *Convolvulus minor*, very showy, and will grow anywhere. *Convolvulus major*, a very beautiful autumn-flowering climber. *Cape Marigold*, a very showy flower when seen during sunshine. *Erysimum Perofskianum*, orange, 2 feet high,—lasts a long time in flower. *Clarkia, pulchella* and *alba*. *Larkspur*, the branching variety will do well under trees. The *Amaranthus caudatus*, or *Love-lies-bleeding*, is a beautiful old annual. *Lupinus nanus*, a neat little plant, 6 inches high; and the old blue and yellow sweet-scented *Lupinus*, 12 inches. *Nemophila, insignis* and *maculata*. The French *Poppy* makes a fine show when grown in beds. *Prince's Feather* should be cultivated in every garden. German and Ten-week *Stocks*, to succeed those sown in heat. The *Sweet Sultan*, in its various colours, makes a beautiful bed, 1 foot high. *Virginian Stock*, red, white, and yellow: this is the best annual for beds, sown to form a design—*i.e.*, white in the centre, and the yellow and red radiating from it. It lasts a long time in flower, and makes a fine edging. *Zinnia elegans*, very showy for autumn. *Mignonette* will thrive well anywhere, even between paving stones, if the joints are raked out, and the seed covered with a little fresh mould—in fact, it gives out more perfume, grown in this way, than when grown in good borders. Annuals in borders should be sown in the form of rings, as the plants do not get so crowded, and many may be sown around the Tulips, Crocuses, and other bulbs, which will economise the ground, as well as save time. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Mar. 17, 1869, as observed at the Horticultural Garden.

March.	Moon's Age.	Barometer.		Temperature.					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 11	28	29.449	29.331	42	30	36.0	40	41	N.	.00
Friday 12	29	29.595	29.566	44	25	34.5	40	41	N.	.00
Satur. 13	●	29.581	29.528	41	27	34.0	40	41	N.E.	.00
Sunday 14	1	29.755	29.634	40	32	36.0	40	40	N.E.	.00
Mond. 15	2	29.783	29.772	40	32	36.0	40	40	E.	.00
Tuesd. 16	3	29.729	29.576	44	36	40.0	40	40	N.	.00
Wed. 17	4	29.672	29.456	49	25	32.5	41	40	S.E.	.02
Average.		29.652	29.552	41.5	29.5	35.5	40.1	40.4		0.02

March 11—Densely overcast; snow; overcast; clear and frosty.
— 12—Cloudy and cold; heavy clouds; overcast showery.
— 13—Clear and frosty; cloudy, cold wind; snowing.
— 14—Clear and fine; cloudy; overcast and cold.
— 15—Densely overcast; cloudy and overcast; densely overcast.
— 16—Densely overcast; overcast; clear and fine.
— 17—Showery; slight showers; fine, starlight.
Mean temperature of the week, 6 4-10 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending March 27, 1869.

March.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..21	50.7	32.5	41.6	19	0.21 in.	9	11	4	3	5	2	7	2
Mon. ..22	50.4	34.3	42.3	20	0.44	9	4	5	3	4	8	5	6
Tues. ..23	50.7	33.1	41.9	18	0.60	7	8	1	2	3	12	5	5
Wed. ..24	48.7	31.7	40.2	16	0.30	5	6	4	—	5	8	8	7
Thurs. ..25	50.9	32.8	41.9	16	0.50	3	11	5	—	3	6	7	8
Friday ..26	51.8	32.6	42.2	16	0.17	2	7	4	2	6	7	7	8
Satur. ..27	54.1	34.1	44.1	14	0.37	3	8	4	2	3	8	12	3

The highest temperature during the above period occurred on the 27th, 1830—therm. 75 deg.; and the lowest on the 25th, 1850,—therm. 14 deg.

Notices to Correspondents.

Adulteration of Seeds: *R.* Our attention has been called to the catalogue you refer to. We have already deprecated the manœuvre of making capital out of the matter, and we think with you that the paragraph in question is as offensive as it is uncalled for. We believe that no trials were made of seeds procured from the source you indicate, and assuredly there is nothing in the report of the Society to warrant such an assumption.

Fruit Growing: *A R M.* Your having failed to secure a crop of fruit on your Peach trees, &c., may have arisen from various causes. In the first place, your trees have been greatly weakened by the vigorous root pruning they have been subjected to, as evidenced by their flowering more profusely than usual, which itself will cause many flowers to drop; or your borders may have been too dry—a very frequent cause of the dropping of flowers. Another cause may have been too close and high a temperature while in flower. Peach trees require abundance of air night and day to set the flowers properly, and a rather low temperature. We can only recommend you to have the soil about the roots of the trees made as firm as possible, and keep it so. Get the wood well ripened, and not too strong; have the borders thoroughly soaked in winter; keep a low bracing temperature when in flower; and with such practice you will have abundance of fruit.

Gigantic Plant: *W W S.* The gigantic Aroid was mentioned in our columns, at p. 220, before the account was published in the *Builder*.

Names of Camellias: *G W T, D H.* We cannot undertake to name florists' flowers.

Names of Plants: *W T.* Narcissus moschatus.—*Essex.* Anemone hortensis fl.-pleno.—*C R.* Cattleya Trianæi.—*A Reader.* The Carob tree, Ceratonia siliqua.—*A Y.* Probably Pleopeltis Phymatodes, but the specimen is too imperfect.—*R Fraser.* 1, Nephrolepis tuberosa; 2, Littæa geminiflora; 3, Asplenium cicutarium; 4, insufficient.

Erratum. At p. 279 read *walks* in place of *walls*, in col. *a*, 12 lines from the bottom.

Communications Received.—J. C. McA.—W. F. R.—T. B.—T. S. P.—T. C. S.—A. F.—G. F.—S. T.—B. M.—W. M.—Vitis.—J. B.—G. Munby.—T. B.—J. D.—A Dean.—J. Wills (too late).—G. E.—W. M.

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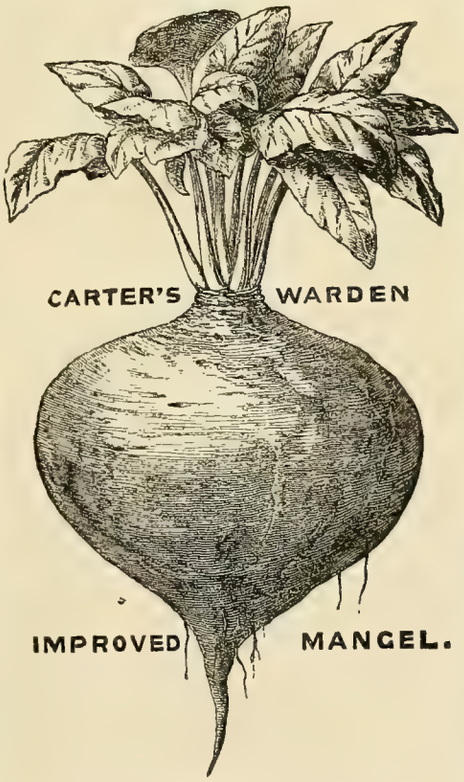
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SOUTHAMPTON MEETING, 1869.
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The ANNUAL MEETING will be HELD at SOUTHAMPTON on MAY 31, and JUNE 1, 2, 3, and 4.
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MANCHESTER MEETING, 1869.

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The Agricultural Gazette.
SATURDAY, MARCH 20, 1869.

MEETINGS FOR THE ENSUING WEEK.
MARCH 24 { Cheshire Chamber of Agriculture, at Crew.
Highland Society—The Comparative Advantage and Cost of Steam and Horse-power to Hand Labour.
— 25 { Newbury Farmers' Club—Artificial Manures, and The Malt-tax Question.

A Paper on the Food Statistics of the Country in 1868 was read on Tuesday evening before the Statistical Society, by Mr. Caird. The subject in all its bearings includes, of course, the whole field open to the writers and readers of the *Agricultural Gazette*, and we have therefore given the whole of Mr. Caird's discussion of it in the following pages. The tabular statements issued by the Board of Trade on this and other departments of British industry need some annual exposition of the kind which Mr. Caird has given us during the past two years, in order to the full appreciation of their lessons.

Figures, like pictures, are of course the tersest of all writings; and nouns substantive being their only part of speech, the verbs and adjectives by which their lessons can alone be *told* have to be supplied by their expounder. The story as listened to is thus much longer than the story seen, and it was therefore to only a few of the points illustrated by Mr. Fonblanque's Blue Book that Mr. Caird could direct our attention. His paper first referred to the justification which his previous estimates, founded on the Agricultural Statistics of 1867, have received during 1868. The foreign supply which we needed that year for the provision of sufficient bread during the harvest year, had been calculated at 9,600,000 qrs.—the actual receipts were 9,609,000 qrs., if the year were taken from August to August; 9,293,000 if it were taken from September to September—thus justifying the estimate, not only of the crop, but of another very important element in all such calculations—the possible saving in the consumption of the bread of a country during a period of high prices. This is much less than has been generally imagined. Bread is the last item of consumption that yields to the pinch of poverty; and Mr. Caird's opinion, that it can be calculated at only 1 per cent. for every 10 per cent. in its increased cost, has been well borne out.

The contrast between the harvests of 1867 and 1868, was another of the facts well

illustrated by these returns. Taking the quality as well as quantity of the Wheat into account, the difference was as 9 to 16. Seven millions of quarters of Wheat, or one-third of our whole bread consumption, was grown in 1868 more than in 1867; and the contrast in price between May of 1868, when the food of the former year was all our stay, and that of December, when the full abundance of the previous harvest had been realised, was just as great. It was 73*s.* 8*d.* in the former month, 50*s.* 1*d.* in the latter—a difference here, also, of about one-third. Any forecast of prices and of imports during the remainder of the present harvest year must depend on accuracy in estimating, not only home produce, but foreign abundance. In France alone a difference of only one bushel per acre in the crop amounts to 2,000,000 qrs. per annum. Her neighbourhood thus affects our markets enormously. And a scarcity in France immensely aggravates any difficulty of our own. The quantity already imported is, however, after a higher rate than that of the average of the past 10 years; and the probability would be that prices will yet fall, were it not that the exceptional character of the past year, as regards the other productions of the farm, complicates the problem.

Mr. CAIRD then proceeded to discuss our food consumption; and it appears that this is gradually increasing, and has now risen from 311 lb. to 335 lb. of Wheat per annum individually; while the proportion of it which is imported from abroad has risen from 79 lb. to 134 lb. per head. The naturally falling price of Wheat during the last 20 years in this country has diminished home production. The price was 6*s.* a quarter less during the past eight years than during the eight years immediately preceding. And Mr. CAIRD'S explanation of the singular fact, that Wheat alone, of all our grain crops, is thus affected by free trade, throws a great deal of light upon the subject. The peculiarity is explained by him on the ground that Wheat, of all our cereals, has the largest area of production within our reach.

Passing from the bread part of our food, we come to the meat question, and the relations of home and foreign supply were elaborately discussed in the paper last Tuesday. Of course this, as affecting impending legislation on live stock importation, received full discussion.

The light thrown by the returns on the differences in the agriculture of the three kingdoms, and on certain differences among our own counties, was well exhibited. As regards the former, it appears that there is more stock, and a larger proportion of "restorative" cropping, in Ireland, than in any other part of the United Kingdom; and barring the extremely small farms, which really do not constitute so large a part of that island as supposed, it seems to be Mr. CAIRD'S opinion that Irish farmers contribute per acre as largely to the food supply of the country as any others in the United Kingdom.

The question of large or small farms generally received also some illustrative treatment, less, however, with the view of exhibiting any special result attributable to this difference alone, than in order to present a general picture of the differences in the industry of coal and chalk counties, as Mr. CAIRD termed them, respectively—in the former of which small farms, and in the latter larger farms, are found to prevail. The effect is that higher wages and higher rents do as a matter of fact prevail in the districts where the average size of the farms is smallest. Mr. CAIRD concluded with a hopeful reference to the prospects of the new beet-sugar industry.

Of the discussion our report must be brief.

MR. C. S. READ, M.P., defended the value of agricultural statistics on general grounds, and expressed a desire that their collection and publication should be continued, though, as farmers are not speculators, they may have no special agricultural serviceableness. He referred to the estimate which Mr. CAIRD had given of our proportional dependence on the foreigner for meat, and expressed his belief that our imported supply did not exceed one-twentieth of our consumption. He defended agriculturists from the charge of indifference to the condition of the agricultural labourer, this having been a subject which had been oftener than any other discussed in Farmers' Clubs and Chambers of Agriculture.—Dr. GILBERT, in a speech which we must give fuller next week, referred to the methods by which his estimate of the annual consumption of Wheat had been arrived at, and to the conclusions at which he had arrived. The poorer the people, the larger the consumption of Wheat by them!—Mr. GLOVER spoke of the very partial degree in which alone such estimates as had been discussed could with any safety be used to regulate the proceedings of either importers or commercial men.—The Rev. Canon GIRDLESTONE spoke at length on the condition of the agricultural labourer, contrasting his plight in the northern counties with what he found to be the state of things in the South.—Mr. CUNNINGHAM supported the rev. gentleman by facts within his own knowledge from observations he had made in the midland counties.—Mr. DUDLEY BAXTER supported Mr. READ in his estimate of the quantity of imported meat as compared with that of home-grown produce.—The Chairman, Mr. NEWMARCH, addressed the meeting at considerable length. "It is not our business," he said, "to speculate in corn. Nor are we responsible for inferences that may be drawn from our facts. But what we are responsible for, is the accuracy of our statements." He was sorry to find there was so much difference of opinion on the consumption of Wheat. There ought to be Governmental inquiry into the truth on this subject, and this he hoped, with the advice and assistance of Mr. CAIRD, would yet be undertaken. There were differences, too, on the influence of large and small farms as regards labour and rent, and he thought it highly desirable that some one should go through different counties to gather information on the relations of rent, wages, and produce. As regards the condition of the labourer, he thought when the Rev. Canon GIRDLESTONE entered into generalities, and found fault with classes, he travelled out of the province of this Society. The remedy for the present evils would be found in giving children and youths more of a technical education, and less of a theological and literary one.

Mr. CAIRD, in reply, expressed regret that the discussion had wandered from his subject. He was prepared to maintain the correctness of his last year's figures regarding the proportions of foreign and home meat supplies, and believed that he had rather erred on the side of under statement as to the former. His table of large and small farms was made out without any other consideration than to exhibit the results which followed the respective systems, and to give a full statement of the circumstances which influenced those results. He had endeavoured to open up, and to throw what light he could on, large questions affecting the progress of agriculture and the future supply of food; and he trusted that the labour he had bestowed on the subject might bear useful fruit.

We hope to give a fuller report of the discussion next week.

—— THE corn trade is in a heavy state, at the decline of Monday. A short home supply was counteracted by large foreign stocks, in granaries and afloat.——The meat trade has been over-done this week, from previous high prices having induced excessive consignments.——The seed trade has, generally, become very active.

—— It is announced that Mr. WREN HOSKYNS is a candidate for one of the Parliamentary seats for the City of Hereford, which have just been declared vacant by the Court. We do not know if there be any gardeners or farmers among the citizens of Hereford, or any readers of the *Agricultural Gazette* who hold the franchise there; but in case there be, we venture to express to them the hope that they will send up Mr. HOSKYNS as their representative. They could hardly do a greater agricultural service. What his politics on party questions may be, we do not know. But on whichever side of the Speaker he may sit, it is certainly desirable that one so intimately acquainted with the influence of the Land Laws of the country throughout the whole structure of society, whether in town or country, should have a seat in Parliament. No one could speak with more authority than Mr HOSKYNS on these and kindred subjects; and it will certainly be a circumstance as fit as it is fortunate if the chief town of so purely an agricultural county as Herefordshire should return a country gentleman so well qualified to do justice to the interests of both town and country.

—— Mr. ALLNATT reports to the *Times*, regarding the present cold weather, that during the first 14 days of March the mean temperature has been exceeded thrice only, and that by a very small amount. On the remaining days the deficiency ranged from 1° to 8° below the average. On the 14th the ground was covered deeply with snow, and mean temperature sank 8.3° below the average value. On the 3d, 4th, 7th, 8th, 12th, 13th, 14th, and 15th the range of night temperature was from 28° to 29°, but, notwithstanding this unwonted frigidity, the frost had comparatively little influence upon the earth, and penetrated but superficially; the preceding high rate of temperature, combined with the sun's power during the day, had so heated the ground as to enable it to resist to a considerable extent the penetration of cold. Candlemas Day (February 2) fails us this season. The forecast has not been fulfilled. An equatorial hurricane brought up a succession of heavy mountain masses of cumulus, and the mean rose to 43.2°. There was nothing to indicate the accession of the present wintry weather.

OUR LIVE STOCK.

OUR readers will not be in much danger of forgetting the Didmarton sale, which is likely to be one of the great events in the Shorthorn chronicle for 1869. We expect to see a large concourse around the ring on Wednesday next, and to hear some bold bidding. We have already on former occasions referred to the breeding and quality of this famous herd, so well known to all breeders of Bates cattle. It seems hardly necessary for us, therefore, to do more than simply to call attention to the fact that the coming week will witness the dispersion of the remainder of Mr. Stiles Rich's Shorthorns.

—— On the 1st of April an important exhibition and sale of Shorthorn stock will be held at Bingley Hall, Birmingham, under the auspices of the Council of the Birmingham and Midland Counties Cattle Show Society. A liberal prize list has been issued, in which 50*l.* is offered for the best Shorthorn bull above 12 and under 21 months old. Second and third prizes of 15*l.* and 5*l.* will also be awarded in this class, as well as handsome prizes for Shorthorn bull calves between 6 and 12 months old. Pure-bred Shorthorn cattle of all descriptions may be sent as extra stock, and a silver cup has been offered by a few gentlemen in Birmingham as a prize for the best animal of this class. Cattle duly entered must be at the Hall at or before 9 o'clock on the morning of the show, and the whole of the animals will be offered for sale at 12 o'clock of the same day by Mr. Lythall, who has been appointed by the Council. The cattle will be sold for cash only. The amounts, less the commission, will be forwarded to the owners of stock as soon as possible after the sale. The idea is an excellent one, suggested by the support which has been given to the spring show of the Royal Dublin Society. We trust that the similar exhibition and mart in England may be equally successful; and of that there is sufficient promise in the announcement just made, that the entries for the exhibition and sale of Shorthorns in Birmingham, on April 1, have closed with the following results, which we think must be successful, in point of numbers, beyond the ideas of the most sanguine members of the Council:—

CLASS 1.—Bulls exceeding 12 and not exceeding 21 months old	36
CLASS 2.—Bull calves exceeding 6 and not exceeding 12 months old	38
EXTRA STOCK.—Cows and heifers	22
Bulls, principally yearlings	44
Total	140

SHEEP.—We hear from Panton House that a smaller sheep stock than usual has been held over the winter, on account of the failure of the Turnip crop. Mr. Dudding is a well-known breeder of Improved Lincolns, and annually disposes of 100 rams: at his last sale the average was nearly 16*l.* each. The flock at present comprises a total of 1250, of which 800 are breeding ewes: 150 ewes have already (March 10) yeaned, and a large "fall" of lambs is expected, the ewes being in very nice condition. Mr. Dudding's 3-shear ram PROFESSOR, which took the 1st prize in his class at the Peterborough and North Lincolnshire shows last season, was so injured on his way to Wetherby that it was considered advisable to slaughter him: his dead weight was 80 lb. per quarter!

—— Mr. Willoughby Wood, of Holly Bank, has kindly favoured us with the following valuable notes on the present state of his excellent flock of Shropshire sheep:—"Swedes having been an entire failure last year, and Mangel barely half a crop, I deemed it prudent to have my lambing later than usual. Instead of commencing about the middle of February, my first arrivals were this year not until the first week in March. An auspicious start has now been made, and at the present time (March 15) 50 ewes have dropped 85 strong lambs, which are more likely to do well than if they had arrived while the ground was saturated with wet. Hitherto the proportion of pairs has been over an average. My flock consists of pure Shropshires, which have been carefully bred by me for 20 years, and during that time they have steadily increased in size, weight, and wool. Yet my land is so unfavourable for sheep, that when first I entered upon it I was told that it would be madness to attempt a breeding flock. I began with the purest ewes that could be obtained, and my present flock is almost entirely descended from them. With the exception of some 15 or 20 ewes, which were purchased for 6 gs. each at the time when the flock of Mr. Claridge was broken up, and a pen from Mr. Forster's last sale, no fresh blood has ever been introduced on the female side. The former amalgamated well with the original flock; the latter being too small were speedily drafted, with the exception of one ewe, which bred, among other good animals, LORD KINVER, which took the 1st prize for aged rams at Derby in 1867. The pedigrees of many of my ewes can be traced back from 12 to 16 generations. My lambs of this year are by the NUGGET, a very compact heavy-woolled ram, bred by Mr. Keeling, and by STOCKWELL, bred by Mr. Masfen, which won the 2d prize at Derby in 1867. The ram hogs are principally by LORD KINVER and the NUGGET, and promise to equal in size, masculine appearance, and weight of wool, the shearlings brought forward at my last year's sale. When they were weaned last summer, at an earlier period than usual, they looked so small that I was afraid they would never attain their usual size. Being put, however, into the best pasture which could be found, they grew in a manner perfectly surprising, nor do they appear to have felt the want of the usual allowance of Swedes. Fortunately the

pastures have been fresh during the winter, and the Vetches promise well—always an important matter for spring and summer feed.

I believe that no sheep are more profitable than Shropshires on land which is not calculated to grow the lustre wool. In addition to their hardihood, the ewes are prolific mothers and excellent nurses. Last year I reared 160 lambs from 90 ewes. Granting that this was more than usual, the ratio of lambs to ewes averages about 1¼, whereas I am informed that in Wiltshire it is rare for the Southdown ewes to bring up one lamb each, and I believe that in Lincolnshire about the same proportion holds. There is no perceptible diminution in the milking properties of my ewes, any deficiency on this point is considered to be an adequate reason for drafting a ewe, even although she may be good in other respects. Hence the virtue of Shropshire ewes in producing fat lambs by a Leicester sire. With regard to the liability to foot-rot, sometimes alleged against Shropshires, it is many years since I have been troubled by it. In addition to the care exercised by a good shepherd, I always draft every sheep whose lameness does not speedily yield to treatment, and consequently seldom have a lame sheep. The practice of allowing some 30 per cent. of lame animals to remain among the rest cannot be too severely censured, as the others are liable to take it from the land. The immunity of my flock from this complaint, on cold strong land, proves that it must be easy indeed to banish it from farms naturally adapted to sheep.

THE AGRICULTURAL STATISTICS OF 1868.

[The following is the Paper read by Mr. James Caird, on Tuesday evening, before the Statistical Society.]

Having been invited by the Council to continue the subject of the agricultural statistics of the United Kingdom, on which I read a paper in March last year, I propose first, to consider the result of the estimates then offered of the previous crop, the probable yield of the last crop (1868), and the great public advantage which followed the early announcement contained in the summary of the returns.

It will be remembered that I then offered an estimate of the result of the bad Wheat crop of 1867, in which, after making deductions for the diminished consumption caused by high prices, I computed the foreign supply required within the harvest year at 9,600,000 qrs. The actual receipts have been 9,609,000 qrs., between August, 1867, and August, 1868, the date at which the new crop was ready.

But the harvest was a very early one, and the condition of the corn so good that it was available for immediate use. The harvest year, as generally and properly understood, and within which it is very desirable that the statistical tables should be framed, is from 1st September to 1st September. Between these dates last year the total imports of Wheat and Flour were 9,293,000 qrs.

On either basis it will appear that my estimate was not very wide of the mark, though it was severely handled at the time, and figures were put forth to show that considerably less than two million quarters was all we could possibly receive between that time and harvest. The price, which had begun to drop, was thus again strengthened, and maintained during April, May, and part of June, when the final fall began, and steadily continued till the beginning of September, by which time the drop from the highest point had reached 20*s.* a quarter. But in the meantime the pressure on the poor, as was fully shown by the statistics of outdoor relief, was unnecessarily prolonged, while it was found that the foreign supply, which had been represented to have been exhausted by the enormous imports of the first six months of the harvest year, continued with very little diminution to its close. Instead of the 1,000,000 or 2,000,000 qrs. which was the utmost we were led to expect from all sources, we actually received 4,500,000 qrs. in the second half of the harvest year.

The economy in the use of bread caused by the high price of last year has proved very close to the estimate I ventured to put forth. It will, perhaps, be remembered that I assumed every 10 per cent. of additional price on the crop would diminish the consumption by 1 per cent.; and as bread had risen 50 per cent., I reckoned the saving at 5 per cent., or a little over 1,000,000 qrs. on the total consumption. The actual saving is shown by the following figures:—

	Qrs.	Qrs.
Average annual consumption since 1862, inclusive of seed		20,800,000
Seed, 2¼ bushels per acre	1,100,000	
Foreign Wheat imported	9,300,000	
Home crop, 9,700,000 qrs. of 59 lb. quality, equal to 61 lb. quality ..	9,380,000	
		19,780,000
Saving by economy in the use of bread		1,020,000

This bears out the opinion of eminent statisticians, that the consumption of bread is very constant: that whatever the price may be, everything must be given up before bread,—for the very severe pinch of an increase of price of fully one-half, diminished the use of it by only 1-20th.

The bountiful harvest of 1868, and the splendid condition in which it was saved rendering it fit for immediate consumption, was a great relief to the country after the pinching caused by two bad harvests and diminished trade. If there had been only the greater acreable produce to rely on much would have been gained; but a great deal more than that was revealed by the publication of a summary of the agricultural returns on Sept. 19. The beneficent season had added 2,000,000 qrs. to the produce of an average crop, while the increased acreage under Wheat swelled that addition by 1,200,000 qrs. more. Nor was this all; for the fine and heavy sample will improve the yield and quality of the flour by 2 or 3 lb. a bushel, or equal to 1-25th part of the total produce.

The contrast between the yield of the two last harvests, 1867 and 1868, is shown in a very striking manner when all the figures are placed together.

Years.	Acres under Wheat.	Quality. Weight per bushel.	Total produce at 480 lb. per qr.
1867	3,640,000	59 lb.	9,380,000 qrs.
1868	3,951,000	63 lb.	16,436,000 qrs.
Increase in 1868.	.. .. ..	.. .. ..	7,056,000 qrs.

Here is a difference in a single year, exceeding four months', or one-third, of the total consumption. The home crop will give us within 5,100,000 qrs. of our average consumption, and if to that we add one month in consequence of the unusually early harvest, and reckon on 13 months' consumption before the next harvest may be available, we shall need 6,800,000 qrs. of foreign Wheat and flour. In the six months since September last we have imported about two-thirds of that quantity, so that, even if imports should for the current six months materially decrease, we are likely to receive quite enough to carry us on with moderate prices till next harvest.

The price is a question of great delicacy, though of first importance. In the course of the year 1868 the highest average Gazette price was in May, 73*s.* 8*d.*, and the lowest in December, 50*s.* 1*d.*: the difference, 23*s.* 7*d.* There is thus a fall of one-third from the highest point, which corresponds in most remarkable exactness with the increased produce of 1868 over 1867. So far as our own crop is concerned, the consumer would thus appear to have got the full benefit of the good Wheat harvest.

Till next harvest the price will very much depend on the rate of foreign imports. These come to us not so much in relation to price in this country as to the productiveness of the harvest abroad. A scarcity here, and high prices, will draw the surplus corn from every quarter of the globe to us, but it will not cease to flow when the source of supply is abundant, however low the price may fall in this country. It is an axiom in political economy that no article can remain long below the cost of production. But that cost is very different in different countries. In this country the cost of producing Wheat may be taken at the maximum. In other countries where rent, rates, or wages are greatly lower than ours, and especially where, as in Southern Russia and the valley of the Mississippi, there are boundless tracts of most fertile soil, they can continue to produce Wheat at prices which would entail loss on the grower in England. Moreover the vast machinery of production, once set in motion, will maintain its momentum for a considerable period after the stimulus has been withdrawn. Thus in 1860, in consequence of two deficient harvests, the price rose 10*s.* a quarter, and the imports increased one-third over those of 1859. They continued to swell in volume until 1863, the year of abundance, when the price fell 10*s.* a quarter. The imports did not then decline in the same proportion; indeed but for the disturbance of the American trade, caused by the war, there would have been no decline. And if we exclude America for that reason, and limit ourselves to Russia and Germany, which between them have furnished us with 40 per cent. of our imports since the Crimean war, I find that during 1863, '64, and '65, when the average varied between 40*s.* and 44*s.*, the imports continued at much the same rate as in 1861 and '62, when the price was 55*s.*

A very productive harvest in France will exercise an immediate influence on prices in this country. Not only does her demand for foreign corn cease, but from the small average yield and the vast acreage under Wheat a slight increase in the produce tells quickly up. Last year I computed an increase of one bushel on the acre in France at upwards of 2,000,000 qrs. If her increase has been in anything like the same ratio as ours, France will have a large surplus for export, probably quite enough to meet any decline caused by the deficient crop in Southern Russia.

The effect of free trade in corn has been to lower the price of Wheat in this country, notwithstanding the increase of the population and consequent increased consumption. The average price of the 20 years preceding 1848 was 57*s.* 4*d.*, and of the 20 years of free trade, 52*s.* 3*d.* But if the disturbing influences of the cessation of supplies from Russia during the Crimean war, and from America during the later years and since the close of the American war, be eliminated, the average price of the last 20 years would have stood 10*s.* lower than that of the 20 years preceding free trade.

This is a fact of great importance when we come to consider the increasing population of the country, and the means we have of meeting their annually growing demands upon our resources. The popular estimate of the Wheat annually consumed by each person of the community in England used to be 8 bushels. In 1850 I ventured to question that opinion. My estimates then showed that it did not probably exceed 6 bushels. Mr. Lawes has lately entered on an investigation of this subject, the first part of which he has embodied in a very able paper in the last number of the Royal Agricultural Society's Journal. He divides the last 16 years into two periods of eight years each, and his results are embraced in the following summary:—

Estimated Consumption of Wheat per Head per Annum.

During the last 16 years.	England and Wales.	Scotland.	Great Britain.	Ireland.	United Kingdom.
	Bush.	Bush.	Bush.	Bush.	Bush.
First eight years ..	5 9	4.2	5.7	2.7	5.1
Second eight years ..	6.3	4.2	6.0	3.3	5.5
Average of whole period	6.1	4.2	5.9	3.0	5.3

Converting these figures into pounds it appears that during the first eight years each person consumed at the rate of 311 lb. of wheat, and during the last period, 335 lb. But the proportions in which that was afforded by foreign supply had also altered from 79 lb. per head in the first, to 134 lb. in the second. Here two very important results are shown; first, that the people are able to buy, and do consume more bread; and second, that we must depend wholly on foreign countries for the increased supply necessary to meet the growing consumption.

An immense impetus seems to have been given to consumption by the general increase of wages consequent on the Crimean war and the Indian mutiny, and the great exertions put forth by this country on these occasions. The foreign imports of Wheat, which up to 1860 had not exceeded an annual average of 4,500,000 qrs., then rose to 10,000,000, and during the last eight years have maintained an annual average of 8,000,000 qrs.

But we have not only to provide for an increased consumption by each individual, but for an annual increase of 240,000 in the population. This, at 5½ bushels per head, is 165,000 qrs. at the same rate of progress. In 10 years that will have swollen to nearly 2,000,000 qrs., and in 10 years more to 4,000,000. This would indicate the need of a gradual rise in our foreign imports in 10 years, from the present average of 8,000,000 qrs. a-year to 10,000,000, and in 20 years to 12,000,000 qrs. a-year. In one generation more, say 30 years hence, the imports will at this rate be more than the home growth, if that should remain at its present point. Our past experience of the readiness with which the volume of foreign Wheat has increased with the demand would lead to the conclusion that we need entertain no apprehension on that score.

Wheat, which forms the great staple of the food of civilised man outside the tropics, occupies of all cereals the widest region suited to its cultivation. California promises us next year more than 2,000,000 qrs. And when we consider the extent of rich countries within the Wheat region, which are scarcely begun to be tapped by the railway system, we must feel that we are yet far from having reached the limit at which a moderate rate of price will bring us sufficient supplies.

The natural tendency of the gradually falling price of Wheat in this country since 1848, has been to diminish the breadth of our own Wheat. And the force of that tendency, in spite of the great increase of gold, shows the steadiness of its operation. There has been a yearly increase of consumers, with an increased power and capacity to obtain bread, an increasing ratio in the supply of gold, the representative of its money value; and yet, in spite of all that, the price has declined, and the average breadth of Wheat grown in the United Kingdom has diminished. But the figures in the statistical returns show how quickly the price of Wheat affects the home supply. The two fine crops of 1863 and 1864 reduced the average price to little more than 40*s.*, and the breadth sown immediately declined. In 1867 the price had risen to 64*s.*, and in one year there was an addition of 300,000 acres to our breadth of Wheat.

I have already in a previous paper shown that the rate of increased productiveness of the land under Wheat is very slow. From that source, therefore, there is little hope of any material increase in our home produce, in the face of larger foreign supplies at low prices. When the price of Wheat falls below 50*s.*, the farmer begins to turn his attention to other crops. The value of Barley has been rising in nearly the same proportion as that of Wheat has declined in recent years, and Oats have also fully maintained their price. While the farmer, in these, and in the increasing value of his live stock and its produce, will be obliged to compensate himself against the steady decline in the value of Wheat, the people, that vast and increasing body of consumers, have the prospect of abundant supplies of bread at a moderate price, from the yearly extension of the means of foreign transport.

Having thus endeavoured to discuss the main question answered by the agricultural returns, viz., in how far the home crop is available for the national supply of bread, I proceed to extract from the returns certain other points affecting our food and clothing. Beyond a slight increase in the breadth of Potatos, and a nearly similar decrease in Barley, and the large increase of Wheat already referred to, there has been no material change in the general crops of the country during the last two years. The table showing the percentage proportions of corn and green crop in each division of the United Kingdom is very interesting. In round numbers it appears that England supplies nine-tenths of all the home-grown Wheat, Scotland and Ireland together only one-tenth. And the increased breadth, sown under the stimulus of the high prices of the past year in England, is equal to the whole acreage under Wheat in Ireland. England produces more than three-fourths of all the Barley grown in the British Islands, nearly all the Beans and Peas, and one-third of the Oats. Ireland grows one-half more Oats than Scotland, and two-thirds of the entire Potato crop of the United Kingdom. The three kingdoms, as compared with France and Prussia, grew the following proportions of acres of corn to their respective populations:—

England	1	acre for every	2¾	persons.
Scotland	1	,, ,,	2¼	,,
Ireland	1	,, ,,	2½	,,
France	1	,, ,,	1	,,
Prussia	1	,, ,,	1	,,

And of Potatos—

England grows ..	1	acre for every	62	persons.
Scotland ,, ..	1	,, ,,	20	,,
France ,, ..	1	,, ,,	12	,,
Ireland ,, ..	1	,, ,,	5	,,
Prussia ,, ..	1	,, ,,	5	,,

With regard to live stock, these countries stand in the following proportions:—

	Cattle.		Sheep.	
England,	1 for every 5 persons;		1 for every 1 of population	
Scotland,	1 ,,	3 ,,	2 ,,	1 ,,
Ireland,	1 ,,	1½ ,,	1 ,,	1 ,,
France,	1 ,,	2⅝ ,,	1 ,,	1 ,,
Prussia,	1 ,,	3 ,,	1 ,,	1 ,,

Of all these countries Ireland has thus the largest proportion of cattle, and Scotland the largest of sheep.

The entire loss sustained by the cattle plague up to October, 1867, when it had quite ceased, was 190,000 head. The increase in the two years, since the disease began to decline, exceeds 500,000, so that the effects of that calamity, so far as the national supply of food is concerned, have been fully recovered. The increase of sheep has been very rapid, the joint effect of high price of mutton and the panic which in some counties followed the cattle plague, and led to a substitution of sheep. The total increase of the year has been 1,790,000. The sheep stock of the United Kingdom is upwards of 35,000,000, which is almost the same number as that of the Australian colonies and Tasmania, according to the latest returns. The total number in the United Kingdom and the British colonies cannot now be much under 100,000,000. The import of Continental wool is on the decline, while that of colonial is largely increasing. At the late rate of progress, our vast woollen industry in this country will ere long be sufficiently supplied by the home and colonial produce.

Whilst the increase of sheep at home has been rapid and great, there has been a very large decrease in the supply of foreign sheep. These, which in a single year (1865) had risen from 496,000 to 914,000, began to decline in 1867, and fell back very greatly in 1868.

This was caused in some measure by the restrictions imposed on the import of sheep by the Privy Council Orders, but was partly also due to the considerable fall in the price of mutton during 1868, arising from the large supply of sheep forced into the home market by the prospect of a dearth in the green crops. But the Agricultural Returns have revealed to us the gratifying fact, in relation to this important branch of the national food, that there is an immense elasticity in the production and supply of sheep, both at home and abroad, and that may be largely and quickly increased by a moderate rise in price.

The foreign supply of butter and cheese has continued very steady during the last eight years. It made a sudden rise in 1861, and had nearly doubled itself in 1862, but from that year the average supply has not materially altered. As the prices of these articles are still highly remunerative to the home producer, he has every inducement to develop yet further that branch of agricultural industry on which the small and middle-class farmers are chiefly engaged.

The Returns afford some indication of the results of large corn farms as compared with the more mixed husbandry and interests of small or moderate-sized farms. I have taken 10 of the largest farm counties in England, and compared them with 10 of the smallest farm counties, the total area in both cases being nearly equal.* The Table on the wall shows the figures in detail, but the general results may be broadly summarised thus. The large farm system produces nearly twice the proportion of corn and half the proportion of green crops and Grass. In other words, it is doubly dependent on the price of corn as compared with the small farm system, which relies to a far greater extent on its dairy produce, its fat cattle, its vegetables, and its hay. The result is, that the latter pays one-third more rent or surplus for the use of the land, and a higher rate of wages to the labourer.

There can be no doubt that circumstances of soil and position are the chief cause of the distinctive modes of husbandry which have continued to characterise different counties, notwithstanding the obvious change in the relative values of agricultural produce. The average price of Wheat is not so high now as it was 100 years ago. Barley and Oats have risen 40 per cent., and animal produce more than 100 per cent. in that time. But Wheat maintains its prominence on the heavier soils where a bare fallow is still found the most perfect and economical preparation for that crop, and in the eastern, south midland, and southern counties, where a dry climate and somewhat thin soil is less favourable to cattle feeding and Grass. It is worthy of notice that in every one of the ten counties where the large farm system prevails the chalk formation predominates, and there is no coal; while in all the ten counties of the smaller farm system coal is present, and there is no chalk.

The extent of land in England under bare fallow every year is nearly 800,000 acres, which is more than one-tenth of the whole breadth of corn. The proportion in Scotland is about a twentieth, and in Ireland less than the ninetieth part. In France and Prussia an extent equal to one-third of all the cereals is annually left to lie fallow. This undoubtedly indicates the great prevalence of a poor and low state of husbandry in these countries, due in a large degree also to the dryness of the spring and summer climates. But of the three kingdoms it is very remarkable that Ireland should stand so pre-eminently above the others in her comparative freedom from the direct loss occasioned by the necessity of leaving the land to lie fallow, which cannot be wholly accounted for by the comparatively small proportion of clay soils in that country.

There is a much greater similarity than will be generally imagined in the agriculture of England and Scotland, and a distinctive principle of difference between them and Ireland in a very important point. This will be clearly seen by the proportions of the whole area of the three countries, exclusive of heath and mountain land, thus divided:—

England has in corn and Potatos 33 per cent., in green crops and Grass 66 per cent.

Scotland has in corn and Potatos 33 per cent., in green crops and Grass 66 per cent.

Ireland has in corn and Potatos 20 per cent., in green crops and Grass 80 per cent.

The agriculture of England and Scotland seems thus alike in its principle of one-third exhaustive and two-thirds restorative crops, while that of Ireland has only one-fifth exhaustive to four-fifths restorative. I have included Potatos in the exhaustive crops, so that Ireland, which has by far the largest proportion in Potatos, suffers some disadvantage by this mode of comparison. But the result is very startling, as it places the agricultural system of Ireland, as an ameliorating and reproductive self-supporting system, far above that of England and Scotland. To this I will return. But as some illustration of the effect of this exhaustive system of corn husbandry as compared with its proportion of the restorative green crops and Grass, the following figures gathered from the Returns are deserving of notice:—

	Percentage of corn and Potatos.	Percentage of green crop, fallow, and Grass.	Average produce of Wheat per acre.
			Bushels.
England	33	66	28
Prussia	45	55	17
France	54	46	14

This would seem clearly to show that deterioration rapidly follows the loss of a due balance between the exhaustive and restorative crops, where there are no extraneous means of supplying the loss.

The state of agriculture in France is of much importance to the consumer of bread in this country. In some recent years she has contributed one-third of our whole foreign supply of Wheat, considerably more than the entire produce of Scotland and Ireland. A good crop in France, therefore, at once tells on our prices, whilst a failure brings her large population into competition with us in the general market of the world. She has a vast breadth annually under Wheat, but the yield is very small. This has been attributed, and would appear partly due, to the poverty and want of skill of her small occupiers; and many arguments have been founded upon it against the small farm system and the minute subdivision of land. But it had often struck me in passing through that part of France which lies between us and Paris, that the general cultivation of the land and the appearance of the growing crops was quite equal to our own, and the very low average rate of the yield of Wheat officially stated seemed to me therefore unaccountable. The explanation has been afforded to me by the distinguished French economist, M. De Lavergne, in the following letter, dated 25th February last:—"The official returns give a mean yield of 14½ hectolitres per hectare, the actual yield being more above than below the estimate. Eight departments, Le Nord, l'Oise, l'Aisne, Somme, Seine-et-Oise Seine-et-Marne, Seine, and Eure-et-Loire, have a yield equal to the English average; but the 45 departments which form the southern part of the territory, do not yield more than 10 hectolitres to the hectare. This feeble yield is caused in many of the departments by bad cultivation, and in the South by the dryness of the climate in spring. The statistical returns also show 5,148,000 hectares of fallow, which is in fact the third of the surface sown with cereals." There is no help for that part of the country which suffers from great dryness of spring climate, but there would seem much room for improvement in the yield of Wheat over the remainder, which comprises probably more than one-half of the surface of France. As increasing importers and consumers we are nearly as much interested in that improvement as the French people themselves. The state of agriculture must be low, indeed, where it is possible to be carried on with an average produce of 10 to 12 bushels of Wheat an acre. The costs and profits of cultivation must be at the very minimum to yield any surplus for rent, and the condition of the cultivator must be a hard one. He has other sources, no doubt, which may help him—his Vines and oil, but in the nature of things it is impossible that he can get any profit from his Wheat crop, until by such a change of system as will increase its yield. Towards this object the French Government have for some years been unremitting in their attention by contributing largely from the public resources to improve the internal communication of the country and facilitate the interchange of products. The increase of a few bushels an acre over so large a surface as one-half the Wheat crop in France, would give her a regular surplus for exportation.

It was my intention to have instituted a comparison between the large farm system of England, and the small farm system of Ireland, and I had prepared detailed statements for the purpose; but there are too many elements of conjecture to warrant their publication as a statistical deduction. If we confine our attention to Ireland alone, some remarkable anomalies present themselves. The province with the highest valuation—Leinster, at 20*s.* an acre—has the smallest population on the square mile of land under the plough; while Connaught, with a valuation of 6*s.* 8*d.* an acre—the lowest of the four provinces, has the largest population in proportion to its arable land. The poorest part of the country is thus also the most populous. But that does not seem to arise from an excess of small farms, for Leinster has a larger proportion of holdings under 5 acres than Connaught.

A great reduction took place in the number of small holdings in Ireland during the years of the Potato famine—1845 to 1850, but since 1850 there has been very little alteration. The comparison one constantly meets with is between the years 1841 and 1861, the small farms being stated to have fallen in that time one-half in number, and the larger sized increased in an equal ratio. But that has not been progressive. It had all taken place before 1851, and there has been no marked change in this direction during the last 18 years. In 1867 the number of holdings was 607,000, divided thus: 307,000 farmers holding farms of 15 acres and under, and 300,000 farmers of 15 acres and upwards. But the first-class or small farmers hold not more than one-eighth of the cultivated land, the second-class or larger farmers holding seven-eighths of the whole.

We have already seen that the counties in England where the system of moderate-sized farms prevail give the largest surplus as rent, and the highest remuneration to the labourer. They have the smallest proportion of corn, and the highest of cattle and of dairy stock. They have a greater rainfall, a deeper soil, and are more productive of Grass and green crops. Now, if we exclude from consideration for a moment the 307,000 small farmers, that is exactly the state of Ireland. Her climate and soil are very favourable to green crops and Grass and to dairy farming, and she has the further great advantage, which I have already shown, of having the smallest proportion of such land as it is necessary to lay fallow; and her system shows the largest proportion in the three kingdoms of restorative to exhaustive crops. Her only disadvantage as an agricultural country is the occasional visitation of seasons of too much rain. That has several times imperilled the Wheat crop. But the Wheat crop is less than one-tenth of the cereals of Ireland, and her agriculture is but little dependent upon it. Oats are her chief reliance as a corn crop, and from Flax she derives an annual return of between two and three millions sterling—an article which may be said to be now unknown to the agriculture of England and Scotland. If we sum all up, we find that, as compared with the sister kingdoms, Ireland has on the whole a more productive soil, and her produce is chiefly of that kind which in the last 20 years has risen most in value. I am very much disposed to think that the seven-eighths of Ireland which are in the hands of the larger farmers yield a greater produce per cultivated acre than the average of England and Scotland. I am not in a position to submit this to any accurate test of proof, but this is the impression left on my mind, the result of a careful investigation of the question.

But the position of the 307,000 small farmers who occupy the remaining eighth of Ireland is probably very different. It is among that body that real distress is found, though the class of larger farmers, not much separated from them, have helped to swell the general complaint. Experience has shown that it is only in climates and upon soils the most favourable that an entire dependence for his subsistence can be placed by the cultivator of a few acres of land. Even in Belgium, where circumstances are favourable, the small cultivator has but a hard lot of poverty and toil. He thrives where, in addition to his land, himself and his family find regular employment in some other industry. It is the same with the English peasant. A man who has regular employment at wages finds an immense advantage in a good garden allotment beside his cottage, and that is vastly increased when that cottage is on the farm, away from the temptation of the beer-shop, and where, as part of his wages, he receives the keep of a cow. This is the system in the border counties, where agriculture is in the most prosperous state, and the agricultural labourer the best fed and clothed, the most educated and intelligent of his class in any part of the three kingdoms. But the Irish farmer of a few acres of inferior land must be in a position of chronic distress. The witnesses most favourable to him examined before Mr. Maguire's Committee in 1865 held, that 15 to 20 acres and upwards was the least extent on which a man with his family could be expected to thrive. On land of good quality, and near a large population, a much smaller extent might no doubt be found sufficient. But taking the land of Ireland as it is, and the circumstances of the country, and its mode of agriculture, there is a general consent of the most competent judges in that country, that farms below 15 or 20 acres are too small to afford a due return for the entire labour of a man and his family. It would therefore follow that 130,000 of the small farmers, with their families, are as many as the remaining eighth of the surface of Ireland can profitably maintain as farmers, and that there will then remain a surplus of 170,000 and their families. These figures represent the whole number of holdings; but several holdings are believed to be in many cases in the hands of one farmer, and the total number of occupiers is therefore reckoned by Lord Dufferin not to exceed 441,000. If that be so, the surplus to be otherwise provided for will not exceed 100,000.

That seems no impossible achievement. A wise measure for settling the long agitated question of the tenure of land will give a great impetus to improved agriculture, and the consequent demand for labour will rapidly absorb that surplus. It is, after all, little more than one additional family for every 160 acres of cultivated land. I have no doubt that the Legislature which shall pass the great measure of pacification for Ireland, which is now under its consideration, will in due time complete the work by a just land law, which will give greater security to the employment of capital in the cultivation of the land, and call into action that surplus labour, without which its latent fertility cannot be fully developed.

But, though the state of the Irish peasant has been more forced upon public attention, the condition of the agricultural labourer in England is very far from satisfactory. The agricultural returns afford no guide to its consideration. He indeed is now the only class of the community who has no representative. In Ireland he has, directly in many cases, by his vote as a small

* The number of occupiers does not correspond with the number of farmers shown by the Census Returns of 1861. This may arise from several occupations being sometimes in the possession of the same farmer, but the difference will not affect this comparison, as it applies to both classes of counties. The Table will be given and discussed hereafter.

farmer, and indirectly through his church, which brings the aggregate feeling of the people to bear upon their Parliamentary representatives. By one means or another they do make themselves heard in Parliament. But so little is known of the English agricultural labourer, that when his actual condition is set forth in the report of a Royal Commission, the public are struck with astonishment, and even the landowners are surprised to find a state of things at their doors which many of them little suspected. The condition of the labourers' dwellings is in some counties deplorable. It is not my province, however, on this occasion to enter further on that subject. I attempted to introduce a clause in the last Census Act, in 1860, which would have thrown much light on the state of our cottage accommodation, but it was rejected in the English Bill. It was adopted, however, in the Scotch census, and has shown that one-third of the population of Scotland lived, each family, in houses of one room only, another third in houses of two rooms; two-thirds of the whole of the people being thus found to be lodged in a manner incompatible with comfort and decency as now understood. The same returns in the next census will show the progress that has been made in the 10 years; and the public advantage of this will, I trust, lead to the adoption of a similar system in the next English census.

In the same year I moved for returns of the wages of agricultural labourers in England and Wales, which was subsequently followed for Scotland and Ireland. Upon these returns Mr. Purdy read to this Society an able and interesting paper in 1861. These form very important branches of the statistics of agriculture, and though it is not necessary that they should be included in the annual returns, I trust their importance will not be overlooked in preparing the next Census Act.

It has been found in Ireland, and is the case to a less extent in some parts of England, that it is not so much the low rate of wages as the irregularity of employment which depresses the condition of the agricultural labourers. That is mitigated by emigration from the agricultural to the mining and manufacturing districts, or to foreign countries. Mere farming will not take up profitably the natural increase of population in a thickly-peopled country like ours, and the purely agricultural districts in each of the three countries are constantly parting with their surplus. The proportion between the producers and consumers of food is thus undergoing a marked change. In 1831, 28 per cent. of the population of England and Wales was occupied in the business of agriculture. In 1841 it was 22 per cent. In 1851 it had fallen to 16 per cent., not so much from an actual decrease of the numbers employed in agriculture as from the far greater proportional increase of trade. In 1861 the proportion was 10 per cent., and then not only had the proportion diminished, but the actual numbers had decreased by nearly one-fifth. It is a very remarkable fact that, in the course of a single generation, the proportion of the people of England employed in, and dependent on agriculture, had diminished from a third to a tenth. The only means of arresting this is by providing better-paid and more regular employment in country work, and thus diminishing the temptation of the higher wages of the mines, the factory, and the towns.

Last year I touched on this subject, and mentioned the intention of trying the beetroot-sugar growth and manufacture in this country. The experiment was made in Suffolk, and with so much promise of success, that in the same locality this season a sufficient breadth of Beet will be planted to keep an extensive sugar factory in full work for the four slack months from October to February. The matter, then, will be beyond experiment, for if it proves, as is anticipated, the suitability of our climate and soil to the profitable production of Sugar-Beet, it will be the dawn of a new agricultural industry, which may rapidly be developed, to the great benefit both of England and Ireland. The possible magnitude of the result will be readily appreciated by the fact that in this country the consumption of sugar is equal to nearly one-third of all the sugar annually produced in the tropics and on the Continent, and that any disturbance which would seriously alter the state of property or labour in Cuba, must give an immense stimulus to the demand for beetroot-sugar. And the reduction of price which will follow the "free breakfast table" promised to us by Mr. Bright, as one of the early results of economy in our public expenditure, will rapidly augment that demand.

In a national point of view the introduction of a new manufacture connected with agriculture, such as beetroot-sugar, will both enlarge the field of remunerative labour in the country and provide an absolute addition to agricultural produce and wealth. For the pulp after the sugar is extracted has lost little of its value as cattle food, and therefore the substitution of Sugar-Beet for some of the present cattle crops will displace to a very small extent the means of feeding cattle. And even that will soon be made good by the more generous farming which the profits of sugar growing will enable the farmer to practise on the other crops of his farm.

I have here a specimen of the first English-grown sugar produced as a matter of business. I find, from a French paper sent to me this morning, that the northern departments of France now produce about 200,000 tons of sugar a year, or nearly two-thirds of the sugar consumed in France. We use twice as much sugar in this country as the French do, and its consumption is always increasing. At a reduction of price equal to the present duty that increase would rapidly extend. I may be over sanguine on the subject, but I should not be greatly surprised if in ten years hence many thousand acres in the United Kingdom should be profitably employed in the production of home-grown sugar.

The last topic on which I will touch is one of omission. The returns of live stock do not include horses, the most interesting and, individually, the most valuable of all. As every man knows the number of his horses, the return can be given without occasioning a particle of trouble, and I hope therefore that the schedule for the present year will include a column for horses.

In conclusion, I think it will be generally admitted that the agricultural returns have proved most useful and most instructive, and considering the ever increasing demands of our population on the resources of agriculture, I trust that nothing will be permitted to interfere with their continuance, and with that greater development which further experience may render it desirable to introduce.

Home Correspondence.

Smithfield Club.—I beg to inform you that in consequence of the animal to which the 1st prize was awarded in Class 6, at the last Smithfield Club Show, having been disqualified, the prizes will be paid as follows:—1st, 20*l.*, to Richard Shirley, of Bawcott, Munslow, Church Stretton, Salop; Silver Medal to the breeder, Mr. Shirley; 2d, 10*l.*, to her Majesty the Queen. *B. F. Brandreth Gibbs, Hon. Secretary.*

Farming Profits.—Your last number contained a communication from Wester Ross, in which the writer states that he had realised a profit of 3*l.* 13*s.* 6½*d.* per acre from the produce of 62 acres of land—more than double the profit shown by Mr. Mechi. He states that "he labours it from the farm on which he resides, and charges it with the cost of labour." There is no mention made in his balance-sheet of manual labour, but simply the labour of horses at 1*s.* per hour per pair, amounting to 60*l.* Admitting that all the crops had been sold off standing, I cannot for a moment suppose that no expense had been incurred for manual labour, although no item appears under that head in the accounts. The sowing, hoeing, and weeding of the crops, and the distribution of the manure, although administered in homœopathic doses—viz., the value of 7*l.* 14*s.* over 62 acres!—could not have been accomplished without some expense for manual labour. On the credit side of the account there appears 96*l.* for Potato ground; was this amount the profit of the crop of Potatos, or was the Potato land sublet? This balance-sheet, which shows such large profits, is to me the most puzzling and perplexing, as well as the most unsatisfactory one which I have ever perused; and I should feel much obliged if the writer would give intelligible details of the mode by which he arrives at the conclusion that his profits have been 3*l.* 13*s.* 6½*d.* per acre for the past year. *T. J., March* 15.——Will the writer of the article under the heading of Farm Memoranda, in your issue of March 13, kindly give me answers to the following questions:—1. How does he manage to manure his land for the small sum of 7*l.* 14*s.* (or 2*s.* 5¾*d.* per acre over the whole acreage), when by his own account all the crops, including Grass, corn, and straw, are sold off the farm? or was the year alluded to exceptional in this respect? 2. Is the manual labour included in the sum of 60*l.* for "labour of horses, at 1*s.* per hour per pair?" As far as my experience extends, I find that 1*l.* per acre is a very moderate charge for horse-labour, even on a light-land farm. 3. With regard to the item "Potato ground:" does he let this land for Potato growing? and if so, what price per acre does he obtain, and who pays for the manuring?—or, if he grows the Potatos himself, why is there no charge for seed Potatos? 4. Does he mean that he sells the crops as they stand, when he mentions selling them in a "raw state?" I also presume that no Turnips are grown, and no stock kept, as none are mentioned. Am I right in this?—and if such is the case, does he find that the Potato fallow will keep the land clean? *A. H.*

Co-operative Farming and Technical Education.—Allow me to call the attention of your readers to the following extract from an account in the *Daily News*, describing the ways in which Parisians spend Lent:—"The third association is also one worth ministering to. Its object is to found agricultural colonies in every department of France. The principle is that of co-operation. A landlord takes a farm of his own, and gets it farmed by 20 or 30 colonists, between the ages of 12 and 21, under the direction of an able agriculturist—the farm is found to prosper in an unbelievable degree, and in four years to have paid all its expenses, and be worth per annum more than double its worth before the trial was made. The principle is a moral one, and is founded on the quality as well as quantity of the labour furnished. At the end of the year, the profits being divided, each youth finds himself possessed of his labour's gains, and he quickly learns that every delve of his spade means money. But if he leaves the colony before he is 21, he forfeits his "purse," and here is the landlord's guarantee. The experiment has been tried individually, and succeeds thoroughly, and what I am stating on this head is from my own knowledge. I have examined the accounts of a farm in the district of Blois, and found that at the end of four years' work of 19 colonists, not one boy had less than 10*l.* laid by. One lad, approaching 21, had 28*l.*, and has been taken as sub-director of another group. The landlord, five years ago, was unable to let this farm at all, because it yielded nothing. He can let it now, if he chooses, for 300*l.* a-year. This institution counts among its patrons the highest names in France, and M. Drouyn de Lhuys is its president, but again it needs funds." It seems to me that this plan might be advantageously followed in England. It would be a means of making good farm servants and improving the condition of our agricultural labourers, by giving them a practical education; and the evenings might be spent in learning to read, write, and sum. I hope you will kindly insert the above. *Mary, March* 15.

Local Taxation.—Farmers as a class do not give themselves much trouble to inquire into the facts and bearings of public questions, hence their groundless, not to say unreasonable, fears relative to the present agitation upon the subject of local taxation. Oh! say these timid ones, you are going to make it worse for farmers; it is quite a landlord's question. We shall have to pay in rent whatever you save in rates; and if landlords are always tampering with us we shall never know how to farm, our confidence will be shaken, and we dare not launch into any liberal expenditure to stimulate our farms. Such remarks are continually made, and there is difficulty in allaying the fears that prompt them. To do so we must come to the broad question, Are you willing to bear the exclusive local burthens which are continually increasing upon you? They are rated upon "real property," *i. e.*, land, or buildings standing thereon, and they amount to about 21,000,000*l.* annually. The Income-tax is also charged upon this property, and it is valued at an income of about 110,000,000*l.*, so that it bears all local charges, and the Income-tax too. Now, the last return I have of the total income charged to Income-tax is up to April 5, 1866, and amounts to 364,430,553*l.*, therefore incomes amounting to above 254,000,000*l.* escape the local tax altogether. You are truly broad-shouldered and good-humoured if you still submit to bear your load without much murmuring. "Well, but we shall pay in rent, if not in rates," say you. This is in some measure true, probably, and in one sense right. Your farms have been long unjustly rated, to save others' pockets. Should an equitable distribution of local burthens take place throughout the whole community, your farms will be worth more rent, and as your landlord will have more to pay on account of the charge upon his income, and you so much less; he is entitled to an increase, but by no means equal to the whole saving, inasmuch as he divides his payment, which now comes chiefly out of the 110,000,000*l.*, with the remaining payers of Income-tax, amounting to 254,000,000*l.* additional; so that in strict justice a tenant cannot be charged a third of what he now pays in rates as rent. Now take the 364,000,000*l.* charged to Income-tax, and capitalise it, and what an enormous sum it makes—*i. e.*, 7,280,000,000*l.*, the capital of the country, exclusive of all below 100*l.* income. Now what is your share of this wondrous sum? You pay on Schedule B.—*i.e.*, half rental—some 35,564,275*l.*, say 35,000,000*l.*; capitalise this in the same way, and it only amounts to 700,000,000*l.*, or less than one-tenth of the whole. In the equitable distribution, then, of the local taxation, the tenant-farmers would be rated upon property represented by 700,000,000*l.* capital, the public upon property represented by 6,580,000,000*l.* capital—or the above sum minus 700,000,000*l.* Now to assess this immense sum (and with slight exceptions it ought all to be assessed) the rate required to meet the 21,000,000*l.* would not exceed three farthings in the pound, whereas the present assessment upon the 110,000,000*l.*, assessed exceeds 5*s.* 4¾*d.* in the pound. I think, then, I have shown enough to set aside these absurd fears, and I trust every farmer will be led to use his best endeavours for the future till an equitable adjustment is attained *O. F.*

Foreign Correspondence.

Canada: *Toronto, Jan.* 24.—*Butter.*—The object of the present communication is to give you the earliest possible notice of a most dangerous agricultural fraud, which has just made its appearance here; it has come from the United States, where it has been making a great stir; it may be known in England, but I have seen no notice of it in any agricultural journal. It is an adulteration of butter, and so good (or bad) a one, as to be likely to seriously affect the trade in exported butter if it cannot be stopped.

It is called the "butter secret," and has been patented. They will patent anything in Canada for the sake of the fees—a most disgraceful state of things—leaving the patentee to make good his patent if he can before the courts of law, and the public quite unprotected against the fraud of sales of such patent "rights;" and by this means the ignorant and unwary suffer. In the present case the parties introducing the so-called "patent" into Canada, sold county rights to the amount of thousands of dollars before the matter was exploded.

The plan is to take a pound of good fresh butter, a pint of milk, new and sweet, and the secret powder (several things will have the same effect); these are churned or kneaded together, the butter takes up the whole of the milk, and the result is a mass weighing over 2 lb. weight, of a substance so closely resembling fresh butter as to pass for it with those who are unsuspicious of such a fraud. The hotels and boarding-houses in New York, where fresh butter is 60 cents a pound, are using the discovery extensively. The mass of course requires immediate use, although in winter it has been kept for three weeks without change; yet American winters are so cold that anything, no matter how easily it may putrify naturally, will keep for very long periods. The thing is now thoroughly exposed in the papers, and I trust the public may be guarded against it. Whilst on the subject of butter, I may mention a few facts with respect to that product, which may be generally known in the dairy districts in England, but which certainly are not generally made known in agricultural journals; and as what I say is the result of actual experience, it may prove useful, at all events it may be relied on.

The first is with respect to winter made butter. We all know what a trouble this is, and how unreliable as to flavour, besides the everlasting labour of churning when the butter wont come. All this may be avoided by properly scalding the milk, and then churning the scalded cream. The way we discovered it was this. We had an English servant, a Devonshire woman, who often asked us why we did not scald the milk. She had heard of it, but did not know how to do it; but she

said the rule she had heard was that the milk should be set on the stove until the size of the bottom of the pan was seen as a ring on the surface. As we had been greatly troubled with the usual results of winter churning we tried it, but failed a number of times. We finally succeeded, however, and the following is the result after some 50 trials.

Set the milk when fresh milked in a place where the thermometer will stand at from 60° to 62°; let it stand 24 hours; don't have the milk more than 2½ inches deep; the cream will rise well; then move the pans carefully to the stove (we all use stoves in our kitchens in Canada), and let it heat until the thermometer shows 180°, or until the first smell of boiled milk appears. If you can keep it at this heat from half an hour to an hour so much the better, though less time will do; then move the pans back to the place they came from, and let them stand at least 12 hours until the cream is cold and solid; it will then come off in a single cake (so to speak) and leave the milk without adhering to it at all; the result is cream ready to make butter, and it may be made in large or small quantities. If in large quantities no doubt some kind of churn would be necessary; but as we made butter every second day, we used a large wooden bowl; in this bowl the cream is stirred with the hand all one way for a few minutes, generally under 10 minutes, and the butter comes at once. If it is a poor colour, the true Grass tint may be given by grating a Carrot, putting the grated pulp into a muslin, and squeezing it with and amongst the scalded cream, until the right colour is obtained. The colour adheres to the butter, leaving the butter-milk pure and white; this is a most extraordinary fact, and we never could account for it.

The great point to be attained is the right heat. If the milk is not heated hot enough, the butter will be bitter and will leave a sort of sting on the palate. If it is too hot it will be very good, but will be full of white flakes, and will be less in quantity than it ought to be, but if the milk is of the right heat, so as just to develop the smell of boiled milk (or at 180°), the result will be a pure hard butter, not of the fine summer flavour, but never bad, or such as can be found fault with by the most fastidious; it keeps well as fresh butter, but it was always too scarce to make salt butter of. Of course a proper quantity of salt was used in the usual way.

We were always very careful that the milk should be good, and that if any of the cows were out of order, their milk was not mixed with the rest. When we sold this butter we always got the very highest price that was going, and customers who once took it always wanted it again. We used tin pans, and would recommend those that are stamped and not soldered.

The resulting butter-milk was very sweet and good, and was used by those who liked that article. The skimmed milk was nearly as pleasant to use as new fresh milk, but of course was poor from the absence of cream; it was in great demand by the poor families in the neighbourhood, and is infinitely superior to ordinary skimmed-milk.

In feeding our cows in winter we give them a proportion of ground peas, also bran, and distillery slop, besides hay; and we always found that the quantity of butter was in proportion to the quantity of grain used —the more grain the more butter.

(To be Continued.)

Farmers' Clubs.

LAVENHAM.

Feb. 26: *Comparative Profits of Different Crops.*—In response to a call from the Chairman, Mr. BIDDELL read the following highly interesting paper:—

The subject which I have undertaken to bring forward this evening is one that had I given much thought to beforehand I should not have selected, as I have found it much more difficult to deal with than I anticipated. Both the outgoings and receipts will, to a very great degree, rest on estimate rather than fact, hence not unlikely my calculations may contain many errors, and, if so, I hope the practical gentlemen of this Club will correct them. The chief reason I had in selecting it for discussion was the remark made at this Club to the effect that if we obtained from 15*l.* to 20*l.* per acre for Sugar-Beet, still the growing of them would be unprofitable. My ideas being somewhat different, I shall conclude this paper by instituting a comparison between the profits of this crop and others. I am quite aware that in discussing profits I am going into a somewhat delicate question, but being fully impressed that farmers' profits are nearly always much over-rated, the endeavouring to throw light upon the subject can do no harm. As the most simple way of placing the subject before you I shall take the case of a 400-acre farm of good heavy land, farmed on the somewhat old-fashioned and now generally condemned plan, but which, in its balance-sheet, is frequently as successful as the modern and more showy farming, under which there is no doubt a laudable pride in producing large crops of corn and meat, very often at an expense which is not followed by an adequate return. Large crops incur large outlays. The receipts are large, but the heavy bills for oilcake and other feeding stuffs, with those for the more direct manures, must seriously diminish them. With the present object it will probably matter but little whether our calculations are founded upon high or low farming. As they are most easily made under the latter, I shall adhere to it,—assuming that the farm dresses itself; that is, that neither manure nor feeding stuffs are purchased and consumed upon it, and that no extra crops are indulged in.

Of the 400 acres we may assume 80 are pasture, the remaining 320 acres being arable; deducting 20 acres for waste, we have 300 acres net arable land; that is, 75 acres in each shift. The Wheat crop being generally assumed to be the most profitable, I will take that first.

WHEAT CROP.

75 acres, at 8 coombs per acre, 600 coombs, and including dross at 23*s.* 6*d.* per coomb		£705	0 0
Straw and chaff at 30*s.*		112	10 0
		£817	10 0
Deductions per acre.			
Annual charges—Rent, 30*s.*; tithe, 7*s.*; rates, 3*s.* 6*d.*; drainage and fences, 5*s.*; superintendence, 3*s.*; interest on capital, 10*s.*; in all about 58*s.* 6*d.* on gross acre, or 62*s.* net acre £3 2 0			
Seed—7 pecks 0 11 0			
Ploughing on an average 1¼ time at 9*s.* .. 0 11 3			
Drilling, harrowing, rolling, water-furrowing, &c. 0 7 6			
Manure, 10 loads per acre, at 5*s.* 2 10 0			
Hoeing and cleaning 0 6 0			
Harvesting, including horse labour, thatching, straw, &c. 0 18 0			
Threshing and marketing at 1*s.* 6*d.* 0 12 0			
Total expense per acre .. £8 17 9			
75 acres at 8*l.* 17*s.* 9*d.*		666	11 3
Apparent profit		£150	18 9

We have now one of the most difficult elements to deal with, and that is the depreciation of the land in consequence of the growth of this Wheat. The allowance must be made, not on the basis of its effects the immediate year following, but how far it is depreciated to the farmer who may have the land for the next four or five years; deducting it as equal to 31*s.* per acre, we have 150*l.* 18*s.* 9*d.*, less 116*l.* 5*s.*, leaving the clear profit of this crop at 34*l.* 13*s.* 9*d.*

BARLEY CROP.

75 acres nett at 10 coombs per acre, 750 coombs at 17*s.* per coomb, including dross		£637	10 0
Add for straw and chaff at 30*s.*		112	10 0
		£750	0 0
Deductions per acre.			
Annual charges as for Wheat.. .. £3 2 0			
Barley Seed—9 pecks 0 10 0			
1¼ ploughing on an average at 9*s.* 0 11 3			
Drilling, harrowing, and rolling 0 6 0			
Cleaning 0 5 0			
Harvesting and thatching 0 18 0			
Threshing and marketing 0 15 0			
Total expense per acre .. £6 7 3			
75 acres at 6*l.* 7*s.* 3*d.*		477	3 9
Apparent profit		£272	16 3
There can be no doubt that land after being cropped with a white-straw crop like Barley, and unmanured for, is left in a very depreciated state, and 50*s.* per acre will not probably be found too much to deduct for this		187	10 0
Leaving a clear profit of		£85	6 3

LAYER.

30 acres—10 acres fed at 45*s.*		£22	10 0
12 acres Red Clover, 1st and 2d crop ..		72	0 0
8 acres seeds, including straw, average 9*l.* 10*s.*		76	0 0
		£170	10 0
Deductions per acre.			
Annual charges as before, 62*s.*; seeding, 14*s.* (including failures) .. £114 0 0			
Manuring 12 acres with 10 loads at 5*s.* ..30 0 0			
Making 12 acres into stover, thatching, &c., at 14*s.* 8 8 0			
Cost of harvesting and marketing 8 acres of seeds at 35*s.* £14 0 0			
		166	8 0
Apparent gain		£4	2 0
Add for improved condition of land 30 acres at 35*s.*		52	10 0
Leaving a profit of		£56	12 0

45 acres Beans and Peas, 8 coombs per acre at 17*s.* 6*d.*		£315	0 0
Straw at 30*s.*		67	10 0
		£382	10 0
Deductions per acre.			
Annual charge as before £3 2 0			
Seed—3 bushels 0 13 0			
Ploughing 1¼ time at 9*s.* 0 11 3			
Cleaning 0 9 0			
Harvesting, &c. 0 16 0			
Threshing and marketing 0 10 0			
	£6 1 3		
45 acres at 6*l.* 1*s.* 3*d.* per acre		£272	16 3
Manuring 35 acres at 10 loads, 350 loads at 4*s.* (raw manure)		70	0 0
		£342	16 3
Apparent profit		£39	13 9
Add for improved condition of land at 25*s.* ..		56	5 0
Leaving a profit of		£95	18 9

FALLOW SHIFT.

20 acres Beet at 7*l.*		£140	0 0
10 ,, Swedes at 5*l.*		50	0 0
15 ,, White Turnips to be fed off at 50*s.*.. ..		37	10 0
10 ,, Colesced or Mustard at 20*s.*..		10	0 0
20 ,, Tares and green food at 70*s.*		70	0 0
		£307	10 0
Deductions per acre.			
Annual charges as before at 62*s.*		£232	10 0
45 acres ploughed for roots equal to 4 times	£1 16 0		
Odd tillage 0 10 0			
Seed.. .. .. 0 3 0			
Cleaning and hoeing 0 10 0			
Manuring, 15 loads at 5*s.* 3 15 0			
	£6 14 0		
45 acres at 6*l.* 14*s.* per acre		301	10 0
Harvesting, clamping, &c., 30 acres roots at 17*s.* 6*d.*		26	5 0
Seed for 15 acres Tares, 20*l.*; tillage, 12*l.*; and part manured at 50*s.*		37	10 0
5 acres Rye-grass, seed and sowing at 10*s.*.. ..		2	10 0
		£600	5 0
Apparent loss		292	15 0
		£600	5 0
Deduct for improved state of land 52*s.* 6*d.* per acre, 196*l.* 17*s.* 6*d.* from 292*l.* 15*s.*, leaves, loss.. ..		£95	17 6

In instituting a comparison between the profits of growing common Mangel and Sugar-Beet I do not think we shall be at all favouring the case of the latter by assuming that we can grow two-thirds of the weight of those that we do of the common Beets. Taking the average weight per acre of our Mangel (when cleaned) to be 24 tons, we then should calculate the Sugar-Beet at 16 tons, which at 1*l.* per ton, will give 16*l.* per acre. The consuming value of our Beet I take to be 7*l.* per acre—I do not at all think that in an average of years we make more than this—to it must be added something for the benefit in manure-making we derive from consuming them on the farm, this gain would be fairly met by adding 35*s.* per acre, and 7*s.* for value of tops—alike in both cases. We have then 9*l.* 2*s.* as their total value per acre, their cost as shown being 10*l.* 13*s.* 6*d.*, leaving a loss of 1*l.* 11*s.* 6*d.*

The point then we now arrive at is, how much more expensive are the Sugar-Beet to grow and convert into money than the common Beet.

What I have termed the annual charges, also the seeding and manuring, will be the same—10*l.* 13*s.* 6*d.* Additional cost of hoeing and singling, the plants having to be left thicker, say 4*s.* per acre. The additional trouble and cost in taking up and cleaning is quite balanced by the additional labour and cartage of the 8 tons more grown of the common sort than of these. Add for additional length of cartage, say two miles, at 2*s.* 9*d.* per ton on the 16 tons, 2*l.* 4*s.*; making a total cost of 13*l.* 1*s.* 6*d.* Value of the crop, including tops, 7*s.*, 16*l.* 7*s.*; leaving a net profit, 3*l.* 5*s.* 6*d.*, against a loss of 31*s.* 6*d.* in growing other Beet; making a total balance of 4*l.* 17*s.* 6*d.* in favour of growing Sugar-Beet; in neither case do I take into consideration the improved state that the land may be left in. If I compared the return with that of the Bean crop, the balance would be still more in favour of the Sugar-Beet.

I trust that I may not have been altogether unsuccessful in showing two things, viz., that our corn crops are not so profitable as they appear to be, and that Sugar-Beet growing may not be so bad a spec. after all. My remarks on them are of course founded upon a very limited experience, but I am very strongly persuaded that if on 100-acre farms, situate within three miles or so of a factory, the farmers were to grow some 5 or 10 acres (so in proportion on larger farms) the crop would be found profitable.

Mr. Biddell, in concluding his remarks, said in his opinion the percentage which a farmer generally realised upon his crops was 10 per cent. If any of his figures were wrong, he should be happy to be corrected, and as it would be difficult for them to remember all the figures he had quoted, if any gentleman wished he should be happy to refer again to his paper with reference to any particular item.

DISCUSSION.

Mr. HAWKINS said he thought, on the whole, Mr. Biddell had made a very fair and just estimate of the value of their crops; no one could have gone through these figures without very great trouble, and he must say that with the great majority of the remarks he (Mr. Hawkins) entirely coincided. The white-straw crops he thought were estimated very fairly, and then they came to Clover. The members were aware that on a great many farms Clover was grown now for hay or seed, but in his opinion it very rarely answered—at any rate, on heavy lands. They were so influenced by seasons, that from his own observation he knew that his Clover crop had rarely paid him a penny piece. Last year he had a piece of Red Clover which failed him, and on that he grew Beans and Sugar-Beet. He got four coombs of Beans, and 21 tons of Sugar-Beet. Now, if he had grown all Sugar-Beet, he should have done right. In a heavy land district like Lavenham they all knew the uncertainty of Bean and Pea crops, taking them as a rule. They were the most uncertain crop they could produce —he always called Pulse a gentleman's crop—for it must grow on first-rate soil, and it must not matter whether there was a crop or not. He grew a field of Peas a few years ago, which was the finest he ever set eyes on. A friend of his, Mr. Nunn, after looking at it, told him it would stand him 12 coombs an acre. However, he went out for a week to the Northampton show, and when he came back he happened to look at the field, and it was perfectly covered with lice. He took five loads of straw and 6 bushels of Peas off that field. But now they would be able to produce a crop which was almost a certainty. Last year was one of the worst they had ever had for root crops, and if they could grow anything like 15 to 20 tons of roots per acre, that would beat four or even ten coombs of Peas, and he was persuaded that the Beet crop did not take more out of the soil than Beans or Peas. He had seen Beans with the sow thistle half a foot above them, and quite yellow, while the ground could not be seen for the weeds, while after Beet the land was left in much better condition than after either Beans or Peas. As to 10 per cent. he was afraid it was rather a visionary idea. They might make it one year, but then another they would make none at all—but still Mr. Biddell had put things fairly before them, and there was something consistent in the way he had done it. He considered Sugar-Beet a very paying crop, for every gentleman had the opportunity of growing it. He (Mr. Hawkins) was certain every man could grow 20 tons per acre. Mr. Duncan was ready to give them 1*l.* a ton for all they could grow, and where were they to get 20*l.* an acre for their Wheat? As Mr. Caird said, Wheat was getting cheaper and sugar dearer; therefore, let them give up Wheat and grow Sugar-Beet. Mr. Biddell had stated that they could grow one-half more of the common Mangel than of the Sugar-Beet, and with reference to that he would say that they had near them a locality famed for growing Beetroot, the Hadleigh district, and although he had not the figures with him, he could tell them that the heaviest weight grown at the Hadleigh Farmers' Club this year was not 20 tons, and they knew what good farmers they were out there. There were exhibitors who were different from that, as in the case of Mr. Rand and Mr. Kersey, who grew Mangels upon bog land, and they grew more. He, as they knew, grew 21 tons of the Sugar-Beet, but he only grew about 18 tons of the other. When he saw that their county court judge had only 17 tons per acre, and several first-class farmers only 14 or 15, his impression was that he could grow as heavy a weight of Sugar-Beet as he could of any other sort. If Mr. Duncan failed to take them, or had to shut up his works in consequence of their not answering, he should not have the slightest reluctance to consume them on his own farm, as the stock throve remarkably well upon them. It was a most valuable Beet for feeding purposes.

Dr. WHITE said that when a season came with an average amount of moisture, they would find that their Beetroot

would not contain so large a percentage of sugar as they did this year, for this had been an exceptional season. The average on the Continent was only 8 per cent., and they had been growing 9.7 per cent. at Lavenham. If they got a wet season they would grow 20 or 30 tons per acre, but they would not be worth so much. As to the price, he had never sold his common Mangels for less than 1*l.* per ton.

Mr. Biddell said he thought the doctor was wrong in his theory. If they had tasted a Turnip grown in a wet season and a Turnip grown in a dry one, did not the wet-season Turnip taste the best? They also found the west-country Turnips, where they had more wet, much sweeter than those from the east, so that it seemed clear to him these crops might have an excess of drought. Holland, too, was much more moist than this country.

Mr. Byford said he thought Mr. Hawkins had put the damper rather too strongly upon the Bean and Pea crops. If they sold the Beet off the farm, had no Bean or Pea crop, and bought no artificial manure, he thought they would get the worst of it—the farm would not dress itself, and at any rate it could not be done on a mixed or a heavy land farm. Besides, would not their landlords object to it? He knew perfectly well that many people had not grown 3 coombs an acre of Beans that year, but it was an exceptional season, and he himself had grown 12. The last year had been all in favour of the Sugar-Beet, but if experience was to teach he did not think that experience would carry out the sanguine idea of Mr. Hawkins.

Mr. Hawkins said Mr. Byford must not suppose that when he spoke of selling his Sugar-Beet off the farm, he was going to bring nothing back. When he took his Beet to the factory he brought back a certain quantity of pulp, and there was also the tops, and he consumed a great quantity of cake and guano besides. His landlord was a most liberal man, and said "As long as you pay your rent and keep the farm in the condition it now is I shall be satisfied." But he did not take advantage of this latitude, although when he had the opportunity of selling a certain crop at a profit, he did not see why he should not do so. He could assure Mr. Byford that he was not selling his crop without returning something to the farm. The question for discussion that evening had narrowed from the comparative values of different crops, to the comparative value of sugar and other Beet. Mr. Biddell said they only grew about two-thirds of the ordinary crop of Beet with the Sugar-Beet. But he would ask them, which was the more valuable—30 tons of coarse White Turnips, or 20 tons of Swedes? Would not they prefer the Swedes?—and so he was sure that the Sugar-Beet was the more valuable. Even if they did sell the Beet off the farm, they got it back in another shape, for the money was spent in buying cake and other feeding stuffs. Mr. Byford had said not one landlord in 20 would allow the root to be sold off the farm in this way, but had not one in 20 had experience of it?—and if the test of experience was right, would not the 19 who were wrong come round to the one who was right? This Sugar-Beet was no new thing, although it had not been tried in their district before. A gentleman from Belgium had said that the labour was quite as expensive there as it was here, and if the farmers on an average of years found it answered their purpose to grow it and extend its cultivation, why should it not answer theirs also. Dr. White had said they would not get so large a percentage of sugar another year, but then Dr. Voelcker had said they grew as large a percentage here as in other countries, so that was no reason against their trying it. In his opinion the Sugar-Beet would not supplant their Swede, or Mangel, or Turnip crop, but the Pea and Bean crops.

Mr. Talbot said, so far as his experience went, the Sugar-Beet was a more profitable crop than the Peas or Beans, but they must not entirely discard the growth of Peas and Beans, but take the average of several years, and then see which paid best. It certainly appeared to him that Sugar-Beet was more profitable than a white-straw crop in that neighbourhood, for Mr. Hawkins had grown something like 21 tons, at 1*l.* per ton; and when would Wheat or Barley ever make that? He thought there might be something in what Dr. White had advanced in reference to the Beet producing less sugar in a wet season. Mr. Edgar said that Mr. Hawkins' land was good, but he (Mr. Edgar) got a crop where he never expected a plant. If they took the average crop of Beet at 15 tons per acre, no one would have cause to say it was unprofitable. He himself lived at too great a distance—being 7 or 8 miles off—to grow the Beet, unless he got an extra supply of horse-power to cart them.

Mr. Baker said he considered 7 coombs per acre a fair average for Beans, and the average Sugar-Beet crop would not be more than 16 or 18 tons. If they took the expense of extra manuring, and also carting to the factory, he thought the Beet would cost them 30*s.* per acre more. If the same money was expended in cleaning the Beans that there was for the Mangel, one would not be more foul than the other, while if Beans and Beet were manured alike, there would be 2 or 3 coombs more Wheat or Barley next year, and if the Beans were got off early, and a good coat of manure put on, they would get a double crop of what they would on the Mangel. Still he thought the Beet the better crop, and if they had some 10 or 20 acres which they had not intended to use for roots, and put Sugar-Beet on them, it would pay.

The Chairman said, in his opinion, it would be almost impossible to come to any definite conclusion on the question, looking at the different varieties of land, &c.; but could they not have a five, instead of a four-course system, and have Barley after Wheat, getting three corn crops out of five? His experience was that he could grow Barley as well on a Wheat stubble as on a fallow, unless the latter were cleared and ploughed up before Michaelmas. They had not spent an unprofitable evening: one gentleman's ideas had been toned down by another's, and so they could arrive at some reasonable conclusion. It was quite impossible that Sugar-Beet should upset the old system of farming, but gentlemen were quite right to avail themselves of any fair and legitimate means of adding to their profits. The Chairman concluded by proposing a vote of thanks to Mr. Biddell.

Mr. Biddell thanked them for their vote. He did not go so far as Mr. Hawkins, and think that Sugar-Beet would take the place of everything. As to landlords not allowing their tenants to grow Sugar-Beet, he thought Mr. Byford had overdrawn himself, as that was more orthodox than growing two white crops in succession; but he hoped that the time would come when farmers would be allowed to farm as they pleased, except in the last four years of their lease.

Reviews.

Results of Wheat Culture in Australia during the last Ten Years.

A comprehensive and otherwise valuable paper on this subject was read in the first week in December last, before the Royal Agricultural Society of Australia, by Mr. Christopher Rolleston. After going over the tables of the southern, western, northern and midland divisions, he came to the pastoral districts, under which heading he made some suggestive remarks in regard to the treatment of the "virgin" soils of "new" countries:—

"We will turn now," said Mr. Rolleston, "to an examination of the returns from the comparatively virgin soils of the pastoral districts. Here we find 13,020 acres sown in Wheat in 1858, increasing up to 19,566 acres in 1862; the average of the five years being 16,458 acres.

"The yield commenced with 19.2 bushels in 1858, and gradually dropped to 12.3 bushels in 1862—the average being a little over 15 bushels per acre, that is 3 bushels in excess of the average of the old settled counties in the same period.

"The second quinquennial period commences with 17,909 acres under Wheat, increased to 43,344 acres in 1865, and drops again to 34,832 acres in 1867; the average being 31,965 acres, an increase of 91 per cent. upon the acreage of the previous five years.

"The yield ranged from 11.1 bushels per acre in 1863 up to 17.2 in 1866, and fell again to 12.6 in 1867—the average of the five years being rather under 12½ bushels; that is, about 2½ bushels below the average of the earlier quinquennial period, and about 3½ bushels over the average of the old settled counties in the corresponding period.

"Looking to the results of the 10 years over the whole colony, we find that in the first five years there was an average annual breadth of land laid down in Wheat for grain of 114,204 acres, with an average yield of 1,482,998 bushels, being at the rate of 13 bushels per acre; whilst in the second five years the average annual breadth of land sown in Wheat for grain was 132,864 acres, with an average yield of 1,345,814 bushels, being at the rate of 10 bushels to the acre.

"Such are the results of an investigation into the statistics of Wheat-growing in New South Wales since the year 1857. They are not encouraging to the prosecution of this branch of agriculture, and yet the farmers of South Australia set us an example of industry and perseverance in this very branch of husbandry, under circumstances but little, if at all, more encouraging; for I find that in a corresponding period to that which we have been reviewing, their average yield has very slightly exceeded 10 bushels per acre. It has been as low as 4 bushels per acre, and as high as 14, and they are glad to sell their Wheat on the ground at 3*s.* 6*d.* per bushel.

Elaborate tables of the returns of the above divisions and districts are then given. These are given separately, and divided into quinquennial periods. The following is a summary table. We do not give the details:—

Grand Totals.	1858.	1859.	1860.	1861.	1862.	Average.
Acres ..	94,678	115,924	128,822	123,464	108,134	..
Bushels ..	1,564,056	1,605,353	1,584,597	1,606,034	1,054,954	..
Yield per Acre	16.5	13.8	12.2	13.0	9.7	13.0

Grand Totals.	1863.	1864.	1865.	1866.	1867.	Average.
Acres ..	103,939	104,564	131,650	175,029	149,139	..
Bushels ..	808,919	1,246,458	1,013,863	2,226,027	1,433,807	..
Yield per Acre	7.7	11.9	7.7	12.7	9.5	9.9

Upon the above returns the *Sydney Morning Herald* makes the following remarks and calculations:—"Looking at the average yield and price that has reigned during this period, the following appears to be the money result per acre to the Wheat grower:—

	Bushels per acre.	Price per acre.	Money result per acre.
Southern District	12	£7 10 0	£4 14 0
Western ,, ...	12½	7 10 0	4 17 11
Northern ,, ...	9½	7 10 0	3 6 4
Midland ,, ...	9	..	..
Pastoral (5 years)	12½	..	..

To these figures the *Herald* adds:—

"Such are the results of an investigation of the statistics of Wheat growing in New South Wales since 1857. And in South Australia the farmers can show little or nothing better. The question is, whether so unprofitable a crop should be continued. This would appear to be the conclusive question on reading these facts; but do not let us run away with the impression that this is the result of good husbandry—these are the bad returns of shiftless, unscientific, reckless husbandry. It may be that good husbandry applied to Wheat growing may prove a bad investment in New South Wales as compared with its application to other crops; but until our Wheat growers have manured freely and ploughed deep, let us not rush to the conclusion that, of necessity, Wheat growing has proved a failure here."

Farm Memoranda.

West Gloucester: *March* 6.—As the spring advances one can form something like an accurate opinion as to the prospect of the seed crop. It is anything but satisfactory in this neighbourhood, notwithstanding all the efforts used early in the autumn to patch it up by sowing Rye-grass seed and Trefoil over the land immediately after the corn crops were cleared. Many acres are already ploughed up, and will be sown with Peas; consequently a short cut of seed hay is now but too manifest. Owing to the extreme mildness of the winter, a vast quantity of green food has been produced in the shape of Turnips, Rape, Mustard, &c., sown in the autumn, and this has been pretty well enough for store sheep without much hay, so as regards hay a great saving has thus been effected. There is a quantity of shed corn growing amongst the young seed, which (if we do not get frost to cut it down) will help to make the ricks larger. Our practice for the last few years has been to sow the Giant Sainfoin (milled) with our mixture of seeds instead of broad Clover, and of this we have a useful plant amongst the Rye-grass. Our reason for doing so is that the broad Clover used to die out between November and March—the leaves became covered with black spots, and the plant gradually withered away; but we shall again try the Clover seed after the land has had a rest of eight years, and had time to recover its Clover sickness.

Very little has been done at present to spring sowing, neither can it be proceeded with till the weather becomes more settled. The heavy land in the vale is so soddened with the tremendous rainfall that it has become almost mudded over the surface, especially where it only received an ordinary ploughing (where it received deeper ploughing it is more manageable), and as we cannot now expect frost enough to pulverise it, the furrows must be turned back when dry enough to bear the horses, and dried by the March winds and pulverised by its showers before it can be brought into a state fit for cultivation. Many acres of good Bean land will in consequence have either to lie fallow or to be sown with roots, though the latter plan is not very advisable upon very heavy land.

The lambing season has now become general in this neighbourhood, and the ewes appear to be very healthy and to have plenty of milk; a good average of lambs may justly be expected. We have up to the present time 135 ewes which have yeaned, and out of these we have had 61 doubles and two trebles, and from other quarters the results are equally satisfactory. Sheep, both fat and store, have greatly advanced in price during the last six weeks. Some fat tegs were recently sold at the Kingscote sale at 60*s.* per head out of the wool, not a bad price for February sales in a season when roots have been more plentiful than they have been this year. *J. W.*

Merse of Berwickshire: *March* 13.—It happens rather awkwardly that winter comes to us at the close of February, and continues to maintain its sway well into the seed month. At no time has the snow exceeded an inch or two in depth, nor has the frost been sufficient to prevent its melting after noon; and if we get out of this without heavy rains, the seed-bed will be the better for what it has got. So wet a "winter" we have not seen since 1852; at least the rain was so frequent as to make the land most unsuitable for any work but lea-ploughing. Even the muck (in very little bulk, no doubt) had to be carted out over wet roads, in despair of frost; and now that it has come, there is little or nothing to do. One advantage there was in having a small root crop—that it took little storing. Cake and corn are easier to carry, but worse to pay for, after losing the manures applied towards growing Turnips, and but little of the high price of meat will find its final resting place in the farmer's pocket. The quality of Swedes is inferior, neither Potatos nor cake can quite make it up. Yet feeding stock have done pretty well on an allowance of from two-thirds to three-fourths of Swedes, with the addition of cake and meal for cattle, and Peas and Oats for hogs. Winter Grass does little good. Between that and artificial food, we never saw our flock do worse. Lambs are coming now, neither numerous nor strong. Spring corn is well sold out, at capital prices. Waiting for proper weather for threshing Wheat, we have lost the price on part of the crop. It makes good meal for cattle at 1*s.* 4*d.* a stone, used along with an equal weight of cake at 1*s.* 8*d.*

They say Wheat was extensively sown in autumn on clay lands, where Turnips were an absolute failure. Many of us, however, had a sprinkling of plants over our fields, and were unwilling to destroy them early; and so it came about that we never had less Wheat sown. Turnips sown or brairded after the August rains came to naught; Rape and Mustard invisible to the naked eye. *J. T.*

The Poultry Yard.

"West Cheshire," who deserves ample apology for delay in reply to queries, relates as follows:—"I shall be very much obliged if your correspondent on poultry management would inform me, through the medium of your columns, which is the best kind of poultry to keep for own use and general profit in a small farmyard, capable of taking, say, about 30 hens. The range for these is not as good as it might be, as there is a village close by. I have thought of Dorking hens and game cocks, or Dorking hens and Brahma cocks."

We think that by answering *in extenso* the letter of "West Cheshire," we may be of some use to others who are similarly situated, and to such we offer our best help. There are many situated as is our correspondent, who, with ample run at their command, fear, as he does, the proximity of a village. We think it a groundless fear, and hope there are few villages in England where a bird, the known property of a resident, straying into the road, would not be driven back home. At all events we like to think so; but to a man who differs from us we would recall the anecdote of the timid sub. in a marching regiment years ago, who, dreading an assault from a brother officer, took counsel of the regimental Galen before the fray, rather than after. "Doctor," said he, "Captain S. threatens to pull my nose: what would you do?" "Why," said the doctor, looking hard at him, "do? why, grease it." If our correspondent's run for 30 hens be a good one, he may easily wean them from the village road by feeding them home, or by enlisting one of the powers belligerent, in the shape of a small boy, to watch them when they come on to the road, and agreeing with him to drive them back. The present week has been divided in an amicable hostility as to the relative merits of a dark or light blue riband. We think men get more particular and selfish as questions touch themselves individually; for instance, in running their horses for the Derby, they run for what they call the "Blue Riband of the Turf;" but when they row their own boat, the difference is so fine, that it is drawn out to Light Blue and Dark Blue. One must admire the pluck and endurance of the crews, and wish that both could win. Some of them have been, are, or may be, poultry fanciers, and may have read in the archives of the poultry world the battles of the Brahmas—how that, on their arrival here, they were looked on as intruders, bastards, interlopers, bringing no credentials whatever, and giving direful offence to the holders of the vested interests in Cochin China stock; abused as half-breds, Yankee notions, and many other *soubriquets*, all of them more or less expressive. The Brahma Poutras have gone steadily on improving in public estimation, until the cry must now be—"Save us from our friends."

This becomes necessary, because latterly admirers, more zealous than prudent, in their zeal attribute to the Brahmas qualities that neither they nor any fowls are endowed with. We think "West Cheshire" should start with a score or 30 Dorking pullets of pure breed; with them we would put four choice Brahma cocks, clean-shaped, good in head and comb, and free from vulture hocks. From the produce of this crop should be selected the best score or two of pullets, and some few of the best young cockerels. These should be divided into two yards, the young half-bred cockerels being put with the old pure-bred hens, and the half-bred pullets with the pure-bred cocks. The produce of these two yards may be placed together for breeding, and the result will astonish those who give it a fair trial, from the immense development of the birds and their strength of constitution. They take very much the appearance of Dorkings, and many of them would deceive a casual observer, who would be inclined to consider them a pure breed. The above cross carefully carried out would, we think, bring a fowl of a frame and growth superior to anything ever seen, because we have already seen young birds so bred, fatted for the table, bring a large price in the London market, and showing a quality of meat, with kindliness of growth, smallness of bone, and absence of waste not often met with.

THE NEW YORK STATE POULTRY SHOW.—The following are extracts from the circular accompanying the notice of the New York Poultry Show, to which we referred last week:—

"The flesh and eggs of domestic fowls have ever been considered as among the most nutritious as well as luxurious of alimentary substances, and their use as articles of human food is, probably, throughout the habitable globe, more general than any other two elements employed for that purpose.

"Experience has demonstrated beyond question that poultry-culture, besides being one of the most agreeable, is, when skilfully and judiciously managed, among the most profitable branches of domestic industry. How materially it adds to the wealth of a nation can be appreciated from the fact that in France, for several years past, the total value of products of this description has never been less than 250,000,000 f. per annum; and from trustworthy estimates it is found that in this country the total value considerably exceeds 100,000,000 dols. per annum.

"Almost every individual of ordinary capacity and intelligence must have observed the marked improvement, both in size and quality, of the products in this speciality during the decade just passed. Indeed, in eggs alone the average gain in weight is not less than one-third, while the increased weight in dressed poultry is quite as significant. These valuable results are solely attributable to those spirited persons who, by the importation of fine stock from other countries, and painstaking observation, have concentrated in our midst examples of all the most reputable and desirable varieties of domestic fowl from every portion of the world.

"The benefits of care and experience in breeding animals of every description, are universally acknowledged. The changes thus effected are hereditary, and in no class of vertebrates is the characteristic more observable than in domestic fowls. By great care in selection, experience, and indomitable perseverance, colour, form, and other distinctive qualifications are materially changed, and the varieties which are produced by so much forethought and labour require like attention for their continued perfection. In fact, without this they degenerate into comparatively worthless mongrels, destitute of those good endowments which always prove profitable and satisfactory in thoroughbreds. With pure stock as a basis, we are enabled to bring forth a variety desired, whether it is intended to be for the particularly estimable quality of the flesh, the abundance and rich flavour of the eggs, the disposition to incubate, or purely for ornamental purposes.

"In England and France, men of high scientific attainments, as well as those of reputable social standing, have, and are devoting much attention to poultry-culture, thus it has been most successful in those countries. In the former, much good has been effected by the Poultry Societies, which have long been established institutions there. The ratio in which this branch of economy has been held among our farmers can be significantly estimated by the prizes offered by the New York State Agricultural Society, the oldest and leading organization of this character in the nation. From its published transactions, it will be found that since premiums have been offered for distinctive varieties of blood fowls, which has not been during its whole existence, the value of the award for the best trio has been equivalent to that given for a few heads of celery or cauliflower.

"To establish and promulgate, from the best approved sources and authorities, a standard scale of points for each variety—to gather and recommend the matured experience of the most successful breeders—to have a means of and to designate by awards, those examples which are found to possess the finest points of excellence—to prevent fraud and imposition, as well as to adopt and enforce all efforts which will aid in promoting and generalizing improved poultry-culture—these were the main influences which led to the formation of the New York State Poultry Society, an organisation which, from the fact of its seeking incorporation from the Legislature of this State, is local only in name; and one which it is expected, ere long, will not only be quite as useful and general in its sphere, but also in its standing will successfully rival the best of similar associations in Europe.

"This society is now completing the arrangements for its first annual poultry show, which will take place in this city, commencing on Monday, March 22, and continue during the week."

Calendar of Operations.

MARCH: *Vetches* are sown this month, as in the preceding one, either for sheep feed, or for a succession of cuttings for soiling. The operation depends very much upon the previous crop, and consequent state of the land, and also upon the crop to follow. For forcing forward a heavy crop for soiling a liberal dose of farmyard manure is ploughed into the land properly prepared for it, and the seed either sown broadcast or drilled in 3 bushels per acre alone, or with from 1 to 3 pecks of Oats or Rye to keep up the crop. And for successive mowings during summer two or three sowings may be required in March.

Sainfoin is successfully grown on some poor calcareous and sandy soils, worthless almost for any other crop. It grows freely in a few inches of soil over a chalky rock or dry limestone, into the fissures of which it sends its roots, but it dislikes spring or stagnant water in the subsoil. It requires a clean seed-bed free from weeds, and therefore the seed, 4 to 5 bushels (of the rough unshelled seed) per acre is generally drilled in after a fallow crop on arable land as Turnips, along with Barley or Oats, 8 or 9 inches between the drills, the Sainfoin being drilled across the Barley or Oats. It may also be drilled in across winter or spring Wheat or Rye. When intended for permanency or a period of years the corn crop should be sown thin, only to nurse the young plants. On the richer class of soils adapted for it it is sown instead of Clover; fresh sound seed only should be sown, otherwise the braird will not come up equally, and the common sort is generally preferred to the French and giant varieties.

The Common Whin Furze or Gorse seed should be sown this month in our southern provinces, so that the plants may be established before the drought of summer sets in. It grows freely on a great variety of poor gravelly and hilly soils, not adapted for Sainfoin, Lucerne, and Clover. It is grown both for soiling and pasturage by sheep; in the former case the land should be ploughed, or, if the plough cannot be yoked, it may be dug with the spade, and the surface reduced to a fine mould. Ten pounds of seed may be sown broadcast, and rather less if drilled in. Sheep crop Gorse greedily in the winter time, and it is sometimes sown in narrow stripes of a yard wide, at intervals of from 10 to 100 yards in various ways, the seed being sometimes put in two or three behind the spade; or when the plough can be yoked. The seed is sown on the top of three or four furrows, and then harrowed in with a single harrow.

Manuring for Turnips is sometimes done this month on light soils liable to suffer from drought in May and June, when the seed is sown. Such soils work freely at this early period, the drills being easily formed, and the farmyard manure and superphosphate got in with plenty of sap, the latter being best applied in a liquid form with a liquid-manure drill, to secure its rapid incorporation with the soil; and if the drills are rolled down, should the weather require it, the Turnip seed brairds and grows more equally and strongly than when manured at the time of sowing; and the plan is to fallow and form the drills at this time, and to dibble in the bone-dust and seed in May and June, or apply both by means of a liquid-manure drop-drill. The same practice may be followed with Mangels when grown on light land, and even on heavy land, if the manure can be got in early in March with a proper tilth, for the seed will then also braird more equally, and the young plants start more vigorously in dry seasons than when manured at the time of sowing; and should wet weather be experienced at the time of sowing, the seed can be got in with a better tilth than when newly manured, as horse-hoeing and setting up with a double-mouldboard plough destroy weeds and insure a fine seed-time. But the success of the after practice depends mainly upon getting in the manure in March or early spring with a good season, for if this cannot be done it is better to defer the work to next month, more especially the manuring of heavy land for Mangels. But this latter objection is obviated by applying farmyard dung in Autumn to heavy soils adapted for Mangels. The land in March may then be worked as for Potatos, the artificial manure being applied in a liquid form (but greatly more diluted in dry weather than at present), by means of a liquid-manuer drill, and the seed sown next month.

Live Stock continue to do well, above an average generally speakng. Throughout this month, and perhaps April also, increased attention will require to be paid to economy of food. In all cases where the liquid manure of the farm can be applied to a small plot of Grass, on the principle of irrigation, it should not be neglected, as by a small quantity of artificial manure, a large supply of green food may thus be provided for next month. The grass-land thus irrigated requires to be divided into several plots, as in the old out-field method, the liquid manure when turned off one plot being applied to another, and so on. It must, however, be borne in mind that with artificial manure no more liquid must be applied than is necessary to wash in the manure effectually to the roots, viz., fill the land and no more. In this manner the sewage of the farm may rapidly be converted into green forage for live stock. The same data apply to water meadows, for sheep eat with five mouths in the meadow, but only with one when soiled.

Notices to Correspondents.

MOSS IN PASTURES: *G S.* It is generally an indication of exhaustion. If suitable manure for making the Grass grow be applied, the Moss will be smothered. If short stable or farmyard manure can be got, nothing will be better. If artificial manure be used, the ammoniacal kinds are the best to apply. Gas-water, sulphate of ammonia, or nitrate of soda, will kill Moss by growing Grass. And even if artificial manure be used, it is a good plan to cover mossy Grass with long stable manure early in the spring. This covering affords shelter as well as a small quantity of fertilising matter for being washed in. When the Grass has grown an inch or two high, it will require no further nursing, and the long straw may then be raked off, and again used in the yard or stable. If the Grass be well fed, the Moss will soon be reduced or made to disappear altogether; and if not quite so, it will be harmless.

NAMES OF GRASS: *J B.* No. 1, Cynosurus cristatus (Crested Dogstail); No. 2, next week.

SALT AND LIME: *Landlord.* When the action of the one upon the other is completed, the salt is converted into a much more active substance—carbonate of soda; and of that it would not be advisable to apply more than 1 cwt., or 1½ cwt. per acre, a quantity which would be produced by rather more than its weight of common salt. But the process is not completed; only a small portion of the salt becomes thus decomposed, and therefore you may apply 2 cwt. or 3 cwt. of salt per acre, along with as much lime (within 80 or 100 bushels) as you like. Our plan would be to slake the lime with brine on a covered floor, and turn over for two or three months before use.

SUTTONS' GRASS SEEDS

FOR ALL SOILS,

CARRIAGE FREE,

PRODUCING ABUNDANT CROPS OF HAY AND SUPERIOR PASTURAGE, AS SUPPLIED TO

HER MAJESTY THE QUEEN,
H.R.H. THE PRINCE OF WALES,
H.M. THE KING OF PORTUGAL,
THE NEW ZEALAND GOVERNMENT,
THE CRYSTAL PALACE, SYDENHAM,
And the principal Estates in the Three Kingdoms,
WERE AWARDED A FIRST PRIZE SILVER MEDAL



FOR EXCELLENCE OF QUALITY, PARIS, 1867.

MESSRS. SUTTONS'

MIXTURES for PERMANENT PASTURE AND OTHER PURPOSES,

CONTAIN THE FOLLOWING

FINEST CLEANED GRASSES AND CLOVERS,

In their proper proportions according to the nature of the soil to be sown.

Alopecurus pratensis	Meadow Foxtail
Anthoxanthum odoratum	Sweet Vernal
Agrostis stolonifera	Creeping Bent
Achillea millefolium	Yarrow
Avena flavescens	Yellow Oat Grass
Cynosurus cristatus	Crested Dogstail
Dactylis glomerata	Round Cocksfoot
Festuca duriuscula	Hard Fescue
Festuca elatior	Tall Fescue
Festuca heterophylla	Various-leaved Fescue
Festuca pratensis	Meadow Fescue
Festuca ovina	Sheep's Fescue
Festuca rubra	Reddish Fescue
Festuca tenuifolia	Fine-leaved Fescue
Festuca loliacea	Darnel-leaved Fescue
Lolium italicum	Italian Rye-grass
Lolium perenne Suttoni	Suttons' Perennial Rye-grass
Lolium perenne Paceyanum	Pacey's Perennial Rye-grass
Lolium perenne sempervirens	Evergreen Rye-grass
Onobrychis sativa	Sainfoin
Phleum pratense	Timothy
Poa pratensis	Smooth-stalked Meadow Grass
Poa trivialis	Rough-stalked Meadow Grass
Poa nemoralis	Woodside Meadow Grass
Poa sempervirens	Evergreen Meadow Grass
Trifolium repens perenne	Perennial White Clover
Trifolium pratense perenne	Perennial Red Clover
Trifolium pratense	Broad Red Clover
Trifolium hybridum	Alsike Clover
Medicago lupulina	Yellow Trefoil

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SUTTONS' "SEEDS" for ONE YEAR'S LAY.—Best quality, 13*s.* 6*d.* per acre, Carriage Free; second quality cheaper.

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BY SOWING

SUTTONS' RENOVATING MIXTURE during the present month.—8 to 12 lb. per acre; price 9*d.* per lb., cheaper by the cwt.

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Fourthly,—To Scientific Agriculturists generally.

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2 lb. Cocksfoot Grass, Dactylis glomerata
1 lb. Timothy, Phleum pratense
6 lb. Red Clover, Trifolium pratense
6 lb. Trefoil, Medicago lupulina

This admirable Mixture, all of the finest quality, will (weather permitting) produce a luxuriant crop. We sell Hundreds of Acres. We deliver it carriage free, and allow 5 per cent. Discount for Cash.

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2 lb. Cocksfoot, Dactylis glomerata
2 lb. Timothy Grass, Phleum pratense
2 lb. Red Clover, Trifolium pratense
3 lb. Cow Grass, Trifolium pratense perenne
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RYE GRASSES.

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ITALIAN RYE-GRASS, fine new imported Seed, in original bales (of about 2 cwt.), 60*s*. each	7 6
„ „ extra cleaned	8 0
„ „ extra fine home-grown	5 6
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PACEY'S PERENNIAL RYE-GRASS, extra fine	6*s*. to 6 6
EVERGREEN RYE-GRASS	6 6
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ANNUAL RYE-GRASS	3*s*. 6*d*. to 4 6

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ALSIKE or HYBRID CLOVER, TRIFOLIUM HYBRIDUM	11*d*. to 1 4
WHITE DUTCH, or HONEYSUCKLE CLOVER, extra,	11*d*. to 1 0
RED or BROAD	8*d*., 9*d*., to 0 10
„ „ extra fine	0 11
YELLOW TREFOIL	3*d*., 4*d*., to 0 5
COW GRASS or PERENNIAL RED CLOVER, extra fine	11*d*. to 1 0
SCARLET CLOVER, TRIFOLIUM INCARNATUM	0 6
FINE MIXED CLOVER, for renovating old pasture	0 9
„ „ for permanent pasture	1*s*. to 1 3
„ „ for lawns	1 0

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LONG RED	0 10
„ „ ELVETHAM	1 0
„ YELLOW	1 0
GLOBE ORANGE	0 10
„ RED	0 10
„ YELLOW	0 10
YELLOW INTERMEDIATE, fine stock	1 0
FISHER HOBB'S YELLOW GLOBE	1 0
RED INTERMEDIATE or OVAL	1 0
YELLOW INTERMEDIATE or OVAL	1 0

TURNIPS.

DALE'S HYBRID GREEN-TOP	1 0
„ „ PURPLE-TOP	1 0
FOSTERTON YELLOW	1 0
GLOBE, sorts	0 9
GREEN BARREL	1 0
GREYSTONE	1 3
ORANGE JELLY	1 3
ROUND or NORFOLK, sorts	0 9
STONE or STUBBLE	1 0
„ EARLY GREEN-TOP	1 0

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SWEDISH, ASHCROFT'S	1 0
„ GIANT TANKARD	1 0
„ GREEN-TOP	0 9
„ HALL'S WESTBURY	1 3
„ KING OF	0 10
„ LAING'S PURPLE-TOP	1 0
„ MARSHALL'S	1 0
„ MATSON'S	1 0
„ PURPLE-TOP	0 9
„ „ EAST LOTHIAN	0 10
„ SHEPHERD'S GOLDEN GLOBE	1 0
„ SKIRVING'S PURPLE-TOP	0 9
„ SUTTONS' CHAMPION	1 0
„ PLYMOUTH	1 0
TANKARD, sorts	1 0
WAITE'S ECLIPSE	1 0
YELLOW ALTRINGHAM	1 0
„ SCOTCH, GREEN-TOP	1 0
„ „ PURPLE-TOP	1 0
„ „ „ SKIRVING'S	1 0

SUGAR BEET.

WHITE SILESIAN GREEN-TOP	0 10
„ RED-TOP	0 10
NEW IMPERIAL	1 0

CARROT.

WHITE BELGIAN	1 6
YELLOW	1 6
ALTRINGHAM LONG RED	2 0
JAMES' SCARLET	2 0
SURREY LONG RED	1 6
PARSNIP, Large Cattle	1 6
KOHL RABI, Fine Green	2 6
„ „ Purple	2 6
LUCERNE, Finest Imported	1 2
FRENCH FURZE or GORSE	1 9
WHITE MUSTARD	per bushel 16 0; per gallon 2 3
SHEEP PARSLEY	1 0
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CABBAGE, Large Drumhead Cabbage	2 6
„ Robinson's Champion	3 0
DWARF ESSEX RAPE	per bushel 14 0; per gallon 2 0

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BY THE 100,000.

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100 CAMELLIAS, best sorts, £3, £4, £5, £6, and £8.
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100 RHODODENDRONS, best hardy sorts, 2-yr. grafted, £6.
100 AZALEA INDICA, Stocks, 12s
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A large quantity of Hybrid Seedling RHODODENDRONS, from 1 foot to 3 feet high (very bushy), will be Sold at HALF PRICE.

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Apples, 18s. per dozen; Pears, 24s. per dozen.
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CORDON APPLE TREES, on the true French Paradise Stock, as recommended by Mr. Robinson in his "Gleanings from French Gardens." All the best kinds, including CALVILLE BLANC, REINETTE DU CANADA, and other sorts. Prices upon application.
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ORANGE TREES for SALE.—Two trees in Pots, clear stems, 5 feet; Six others about 4 feet, bushy plants; Three larger, in Tubs, fruiting; and Twenty others from 6 to 10 feet high,—large plants, fit for immediate Tubbing, their roots having been pruned-in the last two seasons. For price, &c., apply to
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FINE ORANGE TREES for SALE.—Ten very handsome Trees, in robust health, loaded with Fruit; clean, straight stems, about 4 feet; symmetrical heads, 5 feet diameter. One CITRON, same size. In ornamental green tubs.
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WELLINGTONIA GIGANTEA, very handsome, well-furnished specimens, frequently transplanted, 2 to 2½ feet high, at 24s. per dozen; 2½ to 3 feet, 30s. per dozen; and 3 to 3½ feet, 36s. per dozen.
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TWO HUNDRED THOUSAND COMMON LAURELS, from 1½ to 3 feet.
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Extra fine Transplanted BEECH and HORNBEAM, 2 to 3 ft. and 3 to 4 feet; also fine EVERGREEN PRIVET, in large quantities.
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The Planting Season.

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WM. WOOD AND SON respectfully invite especial attention to their very large stock of STANDARD ORNAMENTAL TREES, of large size, suitable for planting as single specimens on Lawns or in Parks where immediate effect is desired.
WEEPING ASH, 7 to 9 feet stems.
AMERICAN WILLOWS, 6 to 7 feet stems.
CATALPA SYRINGÆFOLIA, 6 to 8 feet.
ELMS, CHICHESTER and ENGLISH, 8 to 10, and 10 to 12 feet.
SILVER and SPRUCE FIRS, 6 to 7 feet.
HORSE-CHESTNUTS, 6 to 8, and 8 to 10 feet.
SCARLET HORSE-CHESTNUTS, extra fine plants, 6 to 8, and 8 to 10 feet.
LABURNUMS, Yellow and Purple, 6 to 8 feet.
POPLARS, BLACK ITALIAN and LOMBARDY, extra fine, 8 to 10, and 10 to 12 feet, and various other HARDY TREES.
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GRAPE VINES.—Extra strong Fruiting Canes, four for 20s. Some of the same size can be seen in heat at the Nursery, showing 15 and 20 bunches each. Good Canes for planting or fruiting, will bear from six to eight bunches, four for 12s.
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EVERGREEN HEDGES.
AMERICAN ARBOR-VITÆ, 4 to 5 feet, at 50s. per 100; 5 to 6 feet, at 84s. per 100; 6 to 7 feet, at 100s. per 100.
SIBERIAN ARBOR-VITÆ, 2 to 2½ feet, 40s. per 100; 2½ to 3 feet, 50s. per 100; 3 to 3½ feet, 75s. per 100; 3½ to 4 feet, 100s. per 100.
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CHIVAS AND WEAVER have a large stock of the above specially handsome plants, up to 8 feet high; also SPRUCE FIRS, from 2½ to 3 feet, and 3 to 3½ feet, which they are offering at very low prices, which may be had on application.
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Extra strong SEAKALE, 2s. per dozen.
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CATALOGUE on application.
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CATTELL'S ECLIPSE BROCCOLI, the hardiest and latest White Broccoli in cultivation, obtained the First Prize at the International Horticultural Exhibition, South Kensington, May, 1866. Price per half-ounce packet, 1s. 6d., free by post.
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EDWARDS' ECLIPSE CUCUMBER, pronounced by all who have seen it to be the best in cultivation. It is a most prolific bearer, possessing every quality of a first-rate Cucumber, and produces fruit 24 to 36 inches in length at every joint. Orders have been given by all who have seen it growing.
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Can be had in packets of six seeds, 2s. 6d. each, of GEORGE EDWARDS, King Street, Castlegate, York; and of Messrs. HURST & SON, Seedsmen, 6, Leadenhall Street, London, E.C.

Squire's Wiltshire Cos Lettuce.

GEO. WHEELER, NURSERYMAN and SEEDSMAN, Warminster, Wilts, having secured the Stock of this long-standing BROWN COS LETTUCE, now offers it in 1s. sealed packets.
Mr. SQUIRES has grown it for some years, and highly recommends, it as a first-class Spring, Summer, Autumn, and Winter Lettuce later in running to seed than any other sort he is acquainted with, attains to a large size, is self-protecting, solid, crisp, juicy, and of excellent flavour. Free by post from Warminster.
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Biggleswade Market Gardens.

SEED POTATOS, SKERRY BLUES.—Several Tons of the above fine sort on Sale. It is a great cropper, excellent in quality, and resists the blight better than any other sort. Price, delivered at Rye Station, South Eastern line, 40s. per ton, or 4s. per sack. New Sacks 1s. 6d. each. Apply to
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SUTTON AND SONS can supply the following excellent POTATOS at very moderate prices:—

Myatt's Early Ashleaf	Flour Ball	Skerry Blue
Barron's Perfection	Milky White	Fluke Kidney
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Lowest price per Sack or Ton on application.
SUTTON & SONS, Seed Growers, Reading.

A SURPLUS STOCK of POTATOS, &c., to be Sold Cheap, viz., Early Shaws, 12s. per sack of 16 stones; Dalmahoys, 12s.; Walker's Regents, 10s.; Flukes, 12s.; Regents (old sort), 8s. Strong 3-yr. ASPARAGUS PLANTS, in any quantity. New 4 lb. Sacks, 1s. 4d. Remittances to accompany orders.
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HARTLEY'S SHORT-TOP, grown last year by the Seller. Warranted from carefully-selected, transplanted Turnips. For cash only, £3 16s. per cwt., for not less than 2 cwt., put upon the rails at Selby, near York.
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Prices the lowest, and Stocks the best in London.

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ONE PECK of WHEELERS' MILKY WHITE and ONE GUINEA COLLECTION of GARDEN SEEDS sent carriage free by rail on receipt of cheque or Post-office order for 25s.
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The above may be relied upon as Pure Stocks, having been selected with the utmost care, and the Seed is of good growing quality.

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LEA BRIDGE ROAD NURSERIES, LONDON, N.E.,

BEGS TO ANNOUNCE THAT HE WISHES TO MEET WITH A PURCHASER FOR A PORTION OR THE WHOLE OF HIS

SPLENDID SPECIMEN PELARGONIUMS.

THESE PELARGONIUMS CONSIST OF THREE CLASSES, VIZ., CHOICE LARGE FLOWERING, ZONAL, AND FANCY.

It may be distinctly and positively said that such Collections of Fine Plants were never yet offered for Sale.

The quality of the kinds, the health, vigour, size, and symmetry of the specimens is quite extraordinary; and such a display of floral beauty, combined with grandeur and elegance, as the plants will give from May till July, cannot be met with in any other class of cultivated plants.

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The object of the Proprietor in parting with these Specimens, is solely with a view to have more room to cultivate a larger quantity of young stock.

It is perhaps unnecessary to bring to the recollection of the Gardening world the numerous FIRST PRIZES with which these Plants have been honoured, and they are still in condition to take the first position in competition with any collection in this country, or it may be fairly said in the world.

The Prices, which are very moderate, particularly for the Collections entire, may be had on application.

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MIXTURES of GRASS SEEDS for Permanent Turf and Rotation Crops, to suit every description of Soil and Climate, of very superior quality.

Finest clean Samples of CLOVERS, RYE GRASSES, and NATURAL GRASSES, at Market rates. Samples and prices on application.

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Special Estimates for large quantities. Orders amounting to £2 value (Grain, Potatos, &c., excepted) will be delivered carriage free, at the principal Railway Stations in the Kingdom.

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SUTTONS' LAWN GRASS MIXTURE, which forms a close, velvety turf in a very short time. For making New Lawns or Croquet Grounds 30 gallons or 60 lb. is required per acre, or 1 gallon to every six roods (or perches) of ground. For improving those already in turf, 10 lb. should be sown per acre. March, April, and May are the best months to sow. Price 1s. per lb., 2s. 6d. per gallon, 20s. per bushel. Carriage free.

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To HER MAJESTY, by Special Warrant, dated December, 1866.

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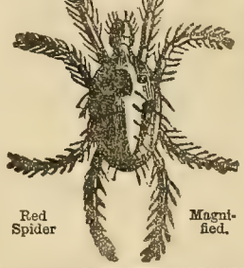
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Sold by Nurserymen, Seedsmen, and Florists,
In Tins at 1s., 2s. 6d., and 5s.
Powder Distributors, 2s. 6s. and 3s. 6d. each.
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GISHURST COMPOUND.

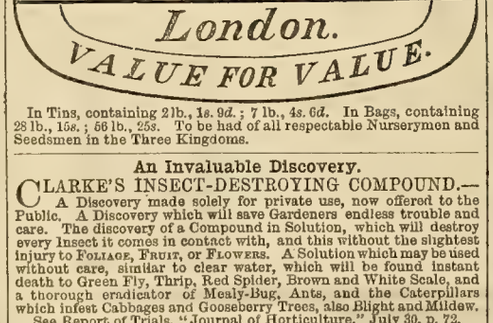
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CARTER'S FERTILIZER.
Portable, Effective, and Economic.
Directions for Use accompany each Package.



In Tins, containing 2 lb., 1s. 9d.; 7 lb., 4s. 6d. In Bags, containing 28 lb., 15s.; 56 lb., 25s. To be had of all respectable Nurserymen and Seedsmen in the Three Kingdoms.

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CLARKE'S INSECT-DESTROYING COMPOUND.—A Discovery made solely for private use, now offered to the Public. A Discovery which will save Gardeners endless trouble and care. The discovery of a Compound in Solution, which will destroy every Insect it comes in contact with, and this without the slightest injury to FOLIAGE, FRUIT, or FLOWERS. A Solution which may be used without care, similar to clear water, which will be found instant death to Green Fly, Thrip, Red Spider, Brown and White Scale, and a thorough eradicator of Mealy-Bug, Ants, and the Caterpillars which infest Cabbages and Gooseberry Trees, also Blight and Mildew.

See Report of Trials, "Journal of Horticulture," July 30, p. 72.

A 2s. Box will make Six Gallons, a 4s. Box Twelve Gallons. Directions for use with each BOX. Also a Solution prepared expressly for Mealy Bug, which is instant death to all it touches, in Bottles ready for use, 2s. each. May be had of most of the principal Nursery and Seedsmen, and of the Proprietor.

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RATS, RATS, RATS.—Hundreds of Farmers and Merchants testify to the wonderful success of the RUSSIAN VERMIN MIXTURE, which will destroy 100 Rats, Mice, and all other destructive animals, in half-an-hour. Effect warranted. Sent post free for 13 penny stamps by the Sole Agent,
GEORGE M'DONALD, 34, Wilson Street, Finsbury, London, E.C.
*** Farmers, send for this at once; it will save you pounds.

IRON HURDLES
(Silver Medal of the Royal Agricultural Society):
SHEEP, 3s. 5d.; CATTLE, 4s. 2d.; OX, 5s. 11d.
List by post. GATES and FENCING of every description.
St. Pancras Iron Work Company, Old St. Pancras Road, London, N.W.

THE TANNED LEATHER COMPANY,
Armit Works, Greenfield, near Manchester.
TANNERS, CURRIERS, and MANUFACTURERS of IMPROVED TANNED LEATHER DRIVING STRAPS for MACHINERY
PRIME STRAP and SOLE BUTTS.
Price Lists sent free by post.
Warehouse: 81, Mark Lane, London, E.C.

Caution to Gardeners.—When you ask for

SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the Corporate Mark, OBTAIN WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.

S. & C.'s PRUNING and BUDDING KNIVES are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

Horticultural Wirework.—Garden Rosary.



WIREWORK for ROSARIES, continuous or circular, for Pleasure Grounds, made in different designs, suitable for Garden adornment; Wirework for Summer-houses, Wirework for Garden Bordering, Flower Trainers, &c.; Wirework for Screens or Partitions, for hiding unsightly walls, buildings, &c., made in various patterns; Plain and Ornamental Garden Arches for Walks; Ornamental Arches for Cross-walks, Wirework Temples, Arbors, &c.; Diamond Wirework Trellis for Creepers, Ornamental Wirework Fencing, for dividing Gardens, Lawns, &c.

WIREWORK FLOWER STANDS. SUSPENDING BASKETS.

All kinds of WIREWORK for GARDENS and CONSERVATORIES, &c.

AVIARIES, PHEASANTRIES, &c., in various designs.

Sir J. Paxton's Registered STRAWBERRY CRINOLINES, for keeping your Strawberries clean, free from dirt, slugs, contact with the soil, superfluous moisture, and other nuisances. These have already proved a great success, in answering the purpose for which they were intended, ripening the fruit regular, &c.

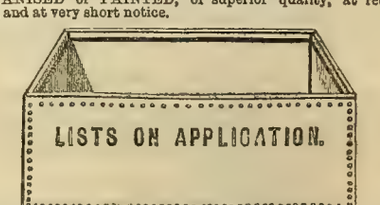
For particulars see Illustrations, Testimonials, &c.

Illustrated Catalogues of WIREWORK, &c., on application to R. HOLLIDAY, Practical Wirework Manufacturer, 2A, Portobello Terrace, Notting Hill Gate, London, W.

"Every Cottage should be provided with a Water Tank." *Disraeli.*

Iron Cisterns.

FBRABY AND CO. having laid down more extensive and Improved Machinery on their Deptford premises (IDA WHARF), are prepared to supply WROUGHT-IRON TANKS, GALVANISED or PAINTED, of superior quality, at reduced prices, and at very short notice.

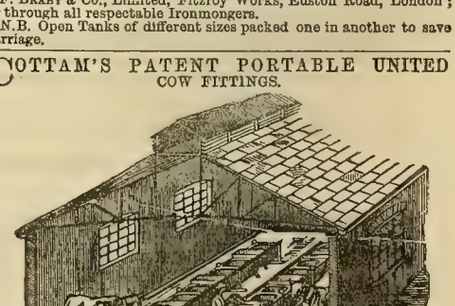


An Illustrated Price List of Galvanised Iron, and other of BRABY'S special Manufactures, sent on application.

F. BRABY & Co., Limited, Fitzroy Works, Euston Road, London; or through all respectable Ironmongers.

N.B. Open Tanks of different sizes packed one in another to save carriage.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rick dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of Iron. Prices of Fittings per Cow 55s.

Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

THE HYDRONETTE, (Robins' Patent,) for Gardens, Greenhouses, Conservatories, Hotbeds, &c. Unrivalled ease of action, simplicity, convenience, and force.



The HYDRONETTE is a more useful, easy working, reliable, and convenient water-throwing machine than any other in use. It is made in five sizes, viz.:—No. 1, with 4 feet of Suction Hose, Strainer, Jet, and Rose, 12s. 6d.; No. 2, 15s. 6d.; No. 3, £1 1s.; No. 4, £1 5s.; No. 5, £1 10s. Extra Hose and Union Joints furnished to order.

DIRECTIONS FOR USE.—Take the Hydronette in the left hand, lay hold of the handle with the right, drop the strainer end of the Hose into the pail, then work the plunger quickly a few strokes, until water is drawn up to the brass tube; then work it slowly, or quickly, at will.

To be obtained through any Ironmonger or Florist in the United Kingdom, or of the Proprietors,

HAYNES & SONS, 227, 229, and 231, Edgware Road, Paddington, W.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, and Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, Royal Gardens, Kew, &c.

The best Shading is "Frigi Domo" Netting.

White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for

PROTECTION from the COLD WINDS and MORNING FROSTS.

"FRIGI DOMO" NETTING, 2 yards wide, 1s. 6d. per yard run.

"FRIGI DOMO" CANVAS.

Two yards wide .. .. 1s. 9d. per yard run.
Four yards wide .. .. 3s. 6d. per yard.
An improved make, 2 yards wide .. 1s. 9d. per yard.
An improved make, 3 yards wide .. 2s. 8d. per yard run.

"Bridgehill, Bolper, Feb. 13, 1869.

"Sir,—Please send me at once, by Midland Railway, 50 yards of Frigi Domo 2 yards wide, same as you sent me about this time last year, and which answered its purpose admirably.—Yours respectfully, "G. H. Strutt.

"P.S.—We had 300 dozen Apricots last year on walls protected solely by Frigi Domo."

Elisha Thomas Archer, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

GLASS for ORCHARD HOUSES,

As supplied by them to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.

Each Box contains 100 feet. The prices only apply to the sizes stated.

Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.

	16 oz. to the foot.	21 oz.
Fourth quality	15s. 0d.	19s. 6d.
Third ditto	16s. 0d.	22s. 6d.
Seconds	18s. 6d.	26s. 0d.
English	20s. 0d.	27s. 0d.

The above prices include the boxes, which are not returnable.

HORTICULTURAL GLASS.

Stock sizes, 16-oz., in 100 feet boxes, boxes included.

These prices only apply to the sizes stated.

				4ths.	3rds.	2nd.
11 by 9	12 by 9	13 by 9	14 by 9	s. d.	s. d.	s. d.
12 „ 10	13 „ 10	14 „ 10	15 „ 10	13 6	15 6	17 0
13 „ 11	14 „ 11	..	..			
14 „ 12	15 „ 12	15 „ 11	16 „ 11			
18 „ 12	10 „ 12	16 „ 12	17 „ 12			
16 „ 13	17 „ 13	20 „ 12	..	15 0	16 0	18 6
16 „ 14	20 „ 13	18 „ 13	..			
	17 „ 14	18 „ 14	..	16 to 17 oz. to the foot.		
	20 „ 14					

SMALL SHEET SQUARES.

In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	12s. 6d.
8 by 6	8½ by 6½	9 by 7	9½ by 7½	
		10 by 8	10½ by 8½	13s. 6d.

Boxes 2s. each returnable at full price.

Painted and Glazed with 16-oz. Sheet Glass.

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS. PAINTS of various colours ground ready for use.

SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of Prices and Estimates forwarded on application to

James Phillips & Co., 180, Bishopsgate Street Without, E.C.

Horticultural Glass Warehouse.

THOMAS MILLINGTON AND CO., 87, Bishopsgate Street Without, London, E.C.

NEW LIST for ORCHARD-HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD-HOUSE SIZES.

in.	in.		4ths.	3rds.	2nds.	Best.
20 by 12						
20 by 13		15 oz.	14s 3d	15s 6d	18s 6d	20s 0d
20 by 14	Per 100 feet					
20 by 15		21 oz.	19s 6d	22s 2d	25s 6d	26s 6d
20 by 16						

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7								
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½					12s 3d	13s 3d	16s 0d	18s 0d

Per 100 feet.

10 by 8	12 by 9	12½ by 10½	14½ by 10½								
10½ by 8½	12½ by 9½	13 by 10	15 by 10								
11 by 9	13 by 9	13½ by 10½	13 by 11					13s 3d	14s 6d	17s 3d	19s 0d
11½ by 9½	12 by 10	14 by 10	14 by 11								

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best
15½ by 10½	14 by 12	22 by 12	22 by 16						
16 by 10	14½ by 12½	17 by 13	24 by 16						
14½ by 11½	15 by 12	23 by 13	20 by 17						
15 by 11	15½ by 13½	18 by 14	22 by 17						
15½ by 11½	16 by 12	22 by 14	24 by 17			14s 3d	16s 6d	18s 6d	20s 0d
16 by 11	16½ by 12½	24 by 14	20 by 18						
21 by 11	17 by 12	22 by 15	22 by 18						
13 by 12	18 by 12	24 by 15	24 by 18						

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.

In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	36s.	4ths quality, per 200 feet case,	36s.
3ds „ „	42s.	3ds „ „	42s.
2ds „ „	60s.	2ds „ „	60s.
Best „ „	75s.	Best „ „	75s.

SHEET GLASS is made only in the following substances, 15 oz. 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.

HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.

BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.

STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a-half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.

IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4s. per gallon.

	Per cwt.—s. d.		Per gallon.—s. d.
GENUINE WHITE LEAD	30 0	LINSEED OIL	2 9
SECONDS WHITE LEAD	28 0	BOILED OIL	3 2
GROUND PATENT DRYERS, 3d. to 4½d. per lb.		TURPENTINE	2 9
„ OXFORD OCHRE, 3d. to 4½d. per lb.		LINSEED OIL PUTTY, 8s. per cwt.	
„ RAW UMBER, 4½d. to 6d. per lb. [per lb.		Fine OAK VARNISH, 10s. to 12	0
„ BURNT do., 6d. to 9d.		„ CARRIAGE do., 12s. to 14	0
GREEN PAINT, all shades, 28s. to 60	0	„ PAPER do. 10s. to 12	0
BLACK PAINT, 24s. to 36	0	„ COPAL 16	0
RED PAINT .. 28s. to 36	0	KNOTTING 10	0
		Patent GOLD SIZE .. 10	0
		„ BLACK JAPAN .. 12	0
GROUND BRUSHES.		GLAZIER'S DIAMONDS and TOOLS	
DUSTERS. SASH TOOLS.		MILLED LEAD and PIPES	
DISTEMPER BRUSHES.		OLD LEAD Bought or taken in exchange.	

The above are Net, for Cash, and as such cannot be booked.

Lists of any of the above on application.

Established 1833.



HANCOCK'S INDIA-RUBBER HOSE and TUBING.

CARRIAGE, GIG, & DOG-CART APRONS.

HORSE SINGEING APPARATUS, with GAS BURNERS, and INDIA-RUBBER TUBING.

Improved INDIA-RUBBER DOOR STOPS.

WATERPROOF CART and WAGGON COVERS made any size.

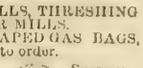
HORSE-LOIN COVERS (Waterproof), with Straps complete.

BELTING for SAW MILLS, THRESHING MACHINES, and FLOUR MILLS.

Trade Mark.

IMPROVED INDIA-RUBBER WEDGE-SHAPED GAS BAGS, for Microscopes and Dissolving Views; any size to order.

FLANGE TUBING, for excluding Draught and Dust, and preventing the Slamming of Glass Doors.


Section.

VULCANISED INDIA-RUBBER BILLIARD CUSHIONS.

WATERPROOF BILLIARD TABLE COVERS.

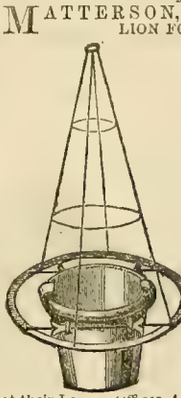
Illustrated Price Lists on application.

James Lyne Hancock, Vulcanised India-Rubber Works, 206, Goswell Road, London, E.C.

The Packington Plant Trainer,

Manufactured by

MATTERSON, HUXLEY, AND WATSON, LION FOUNDRY, COVENTRY.



The Packington Plant Trainer is intended to facilitate the training of plants, to do away with the necessity of putting sticks into the soil of the flower-pot (which to a certain extent injure the root of the plant), and also saves time and trouble when it is necessary to re-pot the plant.

The base of the frame is fitted with two horizontal rods, screwed the whole length, and upon these slide two bands, which, by means of the fly-nuts, can be extended or contracted at pleasure, so that in repotting a plant all that is required is to slacken the nuts, draw away the bands; the pot can then be taken away and replaced by a larger one—the bands tightened to the large pot by means of the nuts—the plant remaining attached to the frame as before.

The Trainers are made either in Copper or Galvanised Iron, and to any size and pattern required, from 7s. 6d. to 21s. each.

Patterns and prices forwarded on application to the makers, Coventry, or at their London Offices, 4, Dowgate Hill, Cannon Street, E.C.

The Packington Plant Trainer is an exceedingly ingenious contrivance, adapted to any size pot, and readily shifted from one to the other. See report of address of J. Bateman, Esq., at the Royal Horticultural Society's Meeting, *Gardeners' Chronicle*, March 6, 1869.

Galvanised GARDEN EYES, for Wall Trees, made in four sizes, price 6d. per lb.

The ELASTIC TREE BAND, for securing newly-planted Trees, price 1s. each.

To Florists, &c.

FOR TRANSFER, an excellent BUSINESS, in a capital Western position of Town. Rent £30, long Lease. Cash for Glasshouses, Goodwill, and everything, £300.

Apply to Mr. Kross, 17, Great Portland Street, W.

TO BE LET or SOLD, a Piece of GROUND, of about ONE ACRE and A-HALF, situate near Notting Hill Station. The above has Three Fine Frontages, surrounded by a First-class Neighbourhood, and is a capital opening for a Nurseryman and Florist.—Apply, Acacia Villa, Ladbroke Road, Notting Hill.

To Florists, Gardeners and Nurserymen.

TO BE DISPOSED OF, one of the largest and best BUSINESSES in the West End; has been carried on successfully for more than 50 years. Capital required for Stock, Conservatory, Fixtures, and everything, only £350. This is an opportunity seldom to be met with.

Address, Y. Z., *Gardeners' Chronicle* Office, W.C.

To Gardeners and Others.

FOR DISPOSAL, a very desirable SEED, FLORIST, FRUITERER'S, and JOBBING GARDENER'S BUSINESS, situate in a most healthy and improving neighbourhood, only 12 miles from London.

Alpha, Post Office, Bexley Heath, S.E.

Sales by Auction.

Sale of First-class Carnations and Picotees,

STANDARD and DWARF ROSES, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, City, E.C., on THURSDAY, March 25, at half-past 12 o'Clock precisely, a first-class Collection of CARNATIONS and PICOTEES (the surplus stock of an eminent grower), also a superb assortment of Standard and Dwarf ROSES, selected AMERICAN PLANTS, clean-grown FRUIT TREES, CAMELLIAS, AZALEA INDICA, GLADIOLI, &c.

On view Morning of Sale, Catalogues had at the Rooms, as above, and of the Auctioneers and Valuers, Leytonstone, N.E.

Cheltenham.

HIGHLY IMPORTANT SALE of EXHIBITION SPECIMENS of GREENHOUSE and STOVE PLANTS and AZALEAS.

MESSRS. PROTHEROE AND MORRIS are instructed, by T. P. Walter Butt, Esq., to offer for UNRESERVED SALE by AUCTION on the premises, Arle Court, Cheltenham, on WEDNESDAY, April 14, the whole of the EXHIBITION SPECIMENS, enumerating many unrivalled plants of Ixoras, Rondeletias, Stephanotis, Crotons, Ericas, Phœnocoma, Aphelexis, Pimeleas, Genetyllis, Dracophyllum, &c.; amongst the Azaleas are gorgeous specimens of Etoile de Gand, Madame Miellez, Iveryana, Juliana, Duc de Nassau, Extranei, and others equal in merit.

N.B. This matchless collection has attained its present development under the skilful treatment of Mr. May, formerly Gardener at Ealing Park, which fact will be a sufficient assurance to all connoisseurs that the plants are in the finest state of cultivation.

Catalogues are being prepared, and when ready may be obtained of Mr. May on the premises; and of the Auctioneers and Valuers, Leytonstone.

Selling off Nursery Stock.

JOHN HARRISON begs to inform his Friends and the Public that his SALE will commence on MONDAY, March 22, and be continued on TUESDAY 23d, WEDNESDAY 24th, and THURSDAY, 25th, when some of the finest Specimen CEDAR DEODARS, WELLINGTONIA GIGANTEA, loaded with Cones, various CONIFERS, ROSES, Evergreen SHRUBS, Weeping and other Ornamental TREES, Greenhouse and Stove PLANTS, several Thousands of HOLLYHOCKS, Pot ROSES (Manettis), Seedling LARCH, SPRUCE, and Austrian PINES, &c.; Catalogues of which will be ready a few days previous to the Sale, and may be had at 6d. each, returnable to purchasers.—Darlington, March 10, 1869.

Postponement of Sale.

IMPORTANT SALE OF SHORTHORNS AND STORE STOCK.

MR. GEORGE LANGRIDGE begs to announce that the SALE of the above First-class Herd of SHORTHORNS, the property of Charles Leney, Esq., of Hadlow Place, near Tonbridge, previously advertised to take place on the 14th April, is postponed until WEDNESDAY, June 23.

Catalogues, with particulars and Pedigrees, will not be issued before June 1, of which due notice will be given in future advertisements.

SALE THIS DAY AT HALF-PAST 12 O'CLOCK PRECISELY.

Plants and Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, March 20, at half-past 12 o'Clock precisely, TREE PÆONIES, Standard and Dwarf ROSES, VINES, RHODODENDRONS, FRUIT TREES, LILIUMS, DAHLIAS, RANUNCULI, GLADIOLI, Rustic Seats, Stools, Vases, &c.

On view the Morning of Sale, and Catalogues had.

Seeds.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, March 22, at half-past 12 o'Clock precisely, valuable CONIFEROUS SEEDS, comprising Abies Douglasii, Wellingtonia gigantea, Thuja Lobbii, Pinus Benthamiana, P. Sabiniana, P. insignis, Cupressus Lawsoniana, &c., from California; Pinus Massoniana and P. densiflora from Japan; Abies orientalis, Cedrus atlantica, Picea Pinsapo, several Palm Tree Seeds, and sundry others.

On view the Morning of Sale, and Catalogues had.

Hardy Plants from Surrey.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, March 23, at half-past 12 o'Clock precisely, HARDY and ORNAMENTAL PLANTS from a well-known Nursery in Surrey, consisting of specimen Conifers, Laurels, Hollies, Fruit Trees, Roses, Rhododendrons, Aucubas, Forest Trees, &c., choice Gladioli, Ranunculi, Rustic Seats, Stools, Vases, Baskets, &c.

Consignment of Plants from Belgium.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, March 24, at half-past 12 o'Clock precisely, CAMELLIAS, INDIAN AZALEAS, RHODODENDRONS, ROSES, DRACÆNAS, ORANGE TREES, AUCUBAS, PIMELEAS, Trained FRUIT TREES, CONIFERS, ALOES, LAURUSTINUS, YUCCAS, LILIUMS, GLADIOLI, RANUNCULI, Rustic Seats, Stools, Vases, &c.

On view the Morning of Sale and Catalogues had.

MR. J. C. STEVENS, Horticultural Auctioneer and Valuer, 38, King Street, Covent Garden, W.C., begs to announce that the FIRST SALE of MR. DAY'S COLLECTION is fixed for THURSDAY, April 1, and will comprise many fine SPECIMEN PLANTS in perfect health, and some of the finest and rarest species and varieties in cultivation, amongst which are the following:—

Ada aurantiaca	Odontoglossum roseum
Aerides Schroederi	„ Alexandræ
„ affine	Cattleya Dowiana
Angræcum sesquipedale	„ Exoniensis
Burlingtonia candida	„ labiata
Saccolabium guttatum	„ Walkeriana
„ curvifolium	Lælia elegans
„ ampullaceum	„ Bluntii
Phalænopsis amabilis	„ Dayana
„ Schilleriana	„ Wolstenholmæ
Vanda Batemanni	„ purpuracea splendens
Oncidium macranthum	(Mr. Rucker's variety.)
„ serratum	Sobralia macrantha
„ Forbesii	Trichopilia crispa,
„ Kramerianum	&c., &c., &c.

On view the Morning of Sale, and Catalogues had.

Important Sale of Orchids.

MR. J. C. STEVENS begs to announce that he has received instructions from John Day, Esq., of Tottenham, to offer for SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., during the month of April, a large proportion of his extensive and well-known COLLECTION of ORCHIDS, which will include many fine Specimen Plants, and some of the finest varieties in cultivation.

Mr. Day being overstocked, this Sale will afford an excellent opportunity, for those desirous of making a collection, of securing well-established Plants of all the best kinds; and buyers may depend upon the plants being correctly named.

More detailed particulars in future advertisements.

SALE of CONIFERÆ at BELSTANE.—The above Sale, which was advertised for the 4th and 5th inst., but which, owing to the weather, had to be postponed, will now take place upon THURSDAY and FRIDAY, the 25th and 26th inst.

Parties proposing to attend the Sale are referred to the previous Advertisements, and to the Catalogues for Conditions of Sale and other particulars.—22, Dublin Street, Edinburgh, March 8.

FORTY PORTABLE STEAM ENGINES (new and second-hand), THRESHING MACHINES, STEAM CULTIVATING APPARATUS, SAW TABLES, MORTAR MILLS, &c., by eminent Makers, will be SOLD by AUCTION, by Messrs. Clarke & Barrows, at Banbury, on EASTER TUESDAY, March 30, at 11 o'Clock. For Catalogues, apply to the Auctioneers, 38, Cannon Street, Birmingham.

BINGLEY HALL, BIRMINGHAM.—The GREAT CENTRAL EXHIBITION and SALE of YOUNG BULLS and other PURE BRED SHORTHORNS, will be held on THURSDAY, April 1.

140 head of highly-descended COWS, HEIFERS, and BULLS, from many of the leading Herds of the kingdom, are entered.

Admission to the Public, from 9 o'clock until 4, One Shilling.

The whole of the ANIMALS EXHIBITED will be OFFERED for SALE by AUCTION, the same day, without any further reserve than entering them at not more than Twenty Guineas each.

In consequence of the numerous Entries, the Judging will commence at 9 o'clock, instead of at 10, as previously announced; and the Auction will take place at 10·30, or as soon as the Judges have completed their awards.

Catalogues, with full Pedigrees, will be ready on the 23rd instant, and will be sent by the Secretary, on receipt of seven stamps.

JOHN B. LYTHALL, Secretary.

Offices, 39, New Street, Birmingham, March 18.

Didmarton, near Chippenham.

IMPORTANT SALE of SHORTHORNED CATTLE.

MR. STRAFFORD begs to announce that he has received instructions to SELL by AUCTION, without reserve, on TUESDAY next, March 23, at Didmarton, the remaining portion of the extensive and valuable HERD of first-class SHORTHORNS, belonging to Stiles Rich, Esq. (who is retiring from farming), that have been long and carefully bred chiefly from Cows obtained of the late Earl Ducie, at Tortworth Court, since which have been used Bulls of the famed Kirklevington blood; most of the young stock are by the 7th Duke of York (17,754), 13th Grand Duke (21,850), 2d Duke of Claro (21,576), and 2d Duke of Colingham (23,730); this splendid young Bull will be included in the Sale, and is the one by which the Cows and Heifers are chiefly served. Mr. Strafford having seen the Herd, can with confidence invite the attention of Shorthorn breeders, assuring them that they will find in it a combination of symmetry, quality, and good breeding.

Catalogues, with Pedigrees and other particulars, may be had on application to Mr Strafford, 13, Euston Square, London, N.W.; or of Mr. Rice, Didmarton, Chippenham.

Important Sale of First-class Shorthorns.

MR. STRAFFORD begs to announce that the SALE by AUCTION of the FIRST-CLASS SHORTHORNS belonging to Messrs. F. Leney & Son, Wateringbury, Kent, is fixed for THURSDAY, the 6th of May next, and will consist of 23 very choice YOUNG HEIFERS, and the same number of YOUNG BULLS from this famed herd, which has been bred with great spirit and judgment from the most fashionable sources, and by sires of the highest breeding and repute, such as 12th Duke of Thorndale, 15th Grand Duke, Knightley, Lord Oxford 2d, and others of Fawsley and Kirklevington blood.

Catalogues with Pedigrees are now in preparation, and will be announced with further particulars in future Advertisements.

London: 13, Euston Square, March 18.

Sale of First-class Shorthorns and Prize Leicesters.

MR. JOHN THORNTON will SELL by AUCTION, without Reserve, on TUESDAY, May 18, at Costerton, Blackshiels, near Edinburgh, the Choice HERD of PURE-BRED SHORTHORNS and FLOCK of Celebrated BORDER LEICESTER SHEEP belonging to David Ainslie, Esq.

This Herd and Flock are bred from some of the best strains of fashionable blood; for the last seven years their success as Prize animals at the Highland Society and Border Union Shows has been unequalled, the Sheep having won in that period 57 Prizes.

Catalogues with full particulars will soon be ready, and may be had of John Thornton, 15, Langham Place, London; or at Costerton.

SHANKS'S PATENT LAWN MOWERS FOR 1869.

UNDER THE PATRONAGE
OF
HER MOST GRACIOUS MAJESTY
THE QUEEN,



AND MOST OF THE
PRINCIPAL NOBILITY
OF
GREAT BRITAIN.

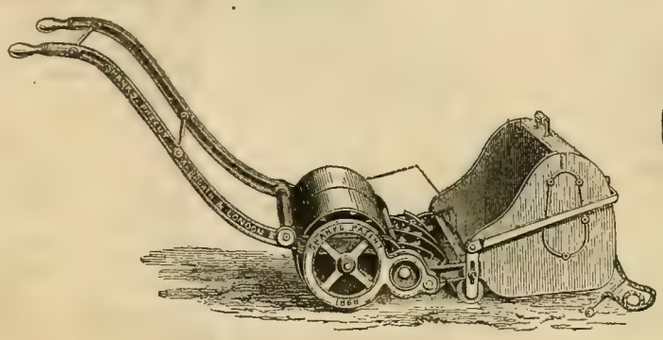
The Patent Improvements recently introduced give Shanks's Machine several important advantages possessed by no other Lawn Mower.

PATENT DOUBLE-EDGED SOLE PLATE, WIND GUARD, &c., &c.

THE UNPRECEDENTED SALE FOR 1868 BEARS TESTIMONY HOW MUCH THESE ADVANTAGES HAVE BEEN APPRECIATED.



THE FIRST PRIZE MEDAL
OF THE
INTERNATIONAL EXHIBITION,
LONDON, 1862.



HAND MACHINE.



THE FIRST PRIZE SILVER MEDAL
OF THE
UNIVERSAL EXHIBITION,
PARIS, 1867.

ALEXANDER SHANKS AND SON, in presenting their "PRICE LIST of LAWN MOWERS for 1869," have much satisfaction in intimating that among all the Exhibitors of Lawn Mowers at the Universal Exhibition of 1867, they are the only Firm to whom the Jury have awarded a Medal.

A. S. AND SON have, in addition to the PATENT DOUBLE-EDGED SOLE PLATE and WIND GUARD, made very great Alterations and Improvements in their Machine. These alterations, which were introduced last Season, have now undergone an effectual trial, and the result has been so successful as to enable A. S. AND SON to offer a Machine which far excels any other that has ever yet been offered, *whether for ease in working, certainty of action, or durability.* It has only to be compared with other Machines, when its superiority will be at once seen and understood.

PRICES—INCLUDING CARRIAGE TO ANY RAILWAY STATION OR SHIPPING PORT IN THE KINGDOM.

SHANKS'S NEW PATENT HAND MACHINE.

10-inch Machine	£3 10 0	Easily Worked	*By a Lady*
12-inch Machine	4 10 0		
14-inch Machine	5 10 0		*By a Boy*
16-inch Machine	£6 10 0	Easily Worked	*By a Man*
19-inch Machine	7 15 0		*By a Man and a Boy*
22-inch Machine	8 10 0		*By Two Men*
24-inch Machine	9 0 0		

The Hand Machines are all with Silent Movement.

SHANKS'S NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* ,,
30-inch Machine	15 15 0	30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra.
Boots for Pony, 22*s.* per set.; Ditto for Donkey, 18*s.* per set.

SHANKS'S NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* ,,
42-inch Machine	26 0 0	40*s.* ,,
48-inch Machine	28 0 0	40*s.* ,,

Silent Movement, 20*s.* extra. Boots for Horse, 26*s.* per set.

SHANKS'S PATENT LAWN MOWERS

ARE THE ONLY ONES IN DAILY USE IN THE

ROYAL GARDENS AT KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, AND BALMORAL;
IN THE GARDENS OF THE ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON;
IN THE GROUNDS OF THE CRYSTAL PALACE COMPANY, AT SYDENHAM;
IN HYDE PARK, IN VICTORIA PARK, IN BATTERSEA PARK;

And in many hundreds of the principal Gardens in the Kingdom, as well as abroad, where their merits have been fully proved and their success firmly established.

Every Machine warranted to give ample satisfaction, and, if not approved of, can be at once returned.

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH,
AND
27, LEADENHALL STREET, LONDON.

27. *Leadenhall Street is the only place in London where intending purchasers of Lawn Mowers can choose from a Stock of from* 150 *to* 200 *Machines. All sizes kept there, whether for Horse, Pony, or Hand Power.*

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by JAMES MATTHEWS, at the Office of Messrs BRADBURY, EVANS & Co., Lombard Street, Precinct of Whitefriars, City of London, in the Co. of Middlesex, and Published by the said JAMES MATTHEWS, at the Office, No. 41 Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, March 20, 1869.

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 13.—1869.] SATURDAY, MARCH 27. {Price Fivepence. {STAMPED EDITION, 6*d*.

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ROYAL BOTANIC SOCIETY'S GARDENS, Regent's Park.—SUMMER EXHIBITIONS of PLANTS, FLOWERS and FRUIT, MAY 19 and 20, JUNE 30 and JULY 1. Tickets 4*s*. each, to be had on the orders from Fellows of the Society. SPRING FLOWERS.—NEXT EXHIBITION, APRIL 27 and 28. Tickets 2*s*. 6*d*. each.

GRAND NATIONAL HORTICULTURAL EXHIBITION, 1869.—Nearly ONE THOUSAND POUNDS in PRIZES. To be held in the BOTANIC GARDEN, MANCHESTER, MAY 14 to 21. ENTRIES CLOSE on MAY 1. Schedules, &c., may be obtained from the undersigned,
Botanic Garden, Manchester. BRUCE FINDLAY.

TAUNTON DEANE HORTICULTURAL and FLORICULTURAL SOCIETY. EXHIBITION and FETE, AUGUST 12 next. MONEY PRIZES amounting to TWO HUNDRED POUNDS, and Four Valuable SILVER CUPS, will be offered for competition. Schedules are now ready, and may be had on application. J. B. SAUNDERS, Hon. Sec.
Offices, Railway Station, Taunton.

TWELVE of the VERY BEST NEW ROSES of 1869 for THIRTY-SIX SHILLINGS.
Address, WM. WOOD & SON, Maresfield, near Uckfield, Sussex.

"Mr. PAUL's Roses * * * are things to see once and dream of for ever."—*Athenæum*.

WM. PAUL begs to announce that his CATALOGUE of ROSES is now ready, and will be forwarded free on application.
PAUL's Nurseries, Waltham Cross, London, N.

NEW ROSES of 1869.—All the best varieties; 2000 fine strong plants. DESCRIPTIVE LIST on application.
JOHN CRANSTON, Nurseries, King's Acre, Hereford.

EXTRA STRONG ROSES, in pots.—Several thousand Tea-Scented, Noisette, and Hybrid Perpetual varieties, together with the best NEW ROSES of 1868.
DESCRIPTIVE LIST on application.
JOHN CRANSTON, Nurseries, King's Acre, Hereford.

Established 1806.

T. HANDASYDE AND DAVIDSON have a large stock of all the leading sorts of ROSES, in pots. Prices to the Trade on application.
Seed Warehouse, 24, Cockburn Street, Edinburgh.
Nurseries, Brunstain Glen, Musselburgh.

MANETTI and RHODODENDRON STOCKS.—Several thousands of the above, fit for immediate working, still to offer at our Catalogue prices.
THOS CRIPPS & SON, Nurserymen, Tunbridge Wells.

EVERY GARDEN REQUISITE KEPT in STOCK at
CARTER's New Seed Warehouse, 237 and 238, High Holborn, London.

Carnations, Picotees, and Pinks.

WOOD AND INGRAM will supply 20 Pairs fine named CARNATIONS and PICOTEES for £1; and 12 pairs fine named PINKS for 7*s*. 6*d*., package included. Selection left to W. & I. Nurseries, Huntingdon.

GLOXINIAS, erect and drooping, 2-yr. old bulbs, free by post, in 12 choice named sorts, 8*s*.; 24 sorts for 16*s*.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

GLADIOLI SEEDLINGS (Mixed).—Beautiful Flowers equal to any collection, of all colours. Strong Flowering Bulbs, 7*s*. per 100; 3*l*. 4*s*. per 1000.—Apply to LEVEQUE et FILS, Nurserymen, 132 and 134, Boulevard de l'Hôpital, Paris.

ADAM FORSYTH'S CATALOGUE of New and Choice CHRYSANTHEMUMS for 1869 is now ready; containing also a practical Treatise on their Cultivation. Forwarded to all applicants for one stamp.
Brunswick Nursery, Stoke Newington, N.

PELARGONIUMS, Show, Spotted, and Fancy, in 50 named sorts, our selection, choice, nice established plants, in 3½-inch pots, for 15*s*.; extra fine 2-yr.-old, fine heads, 50 for 25*s*.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

Pelargoniums for the Million.

JAMES HOLDER can supply strong Plants of the above. Forty plants, distinct sorts, for 25*s*.; 30 sorts for 20*s*., or 20 sorts for 15*s*., hamper and package included, consisting of French, Fancy, and Show varieties.—Crown Nursery, Reading.

NEW DOUBLE GERANIUMS.—12 fine varieties Double Zonal Geraniums, including Madame Lemoine, for 20*s*.; 12 best New Zonal Geraniums of 1868 for 6*s*.; 12 fine varieties Gold and Golden Bicoloured Geraniums for 6*s*. Package included.
From B. W. KNIGHT, Florist, Battle, Sussex.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.—Mr. WEBB, Calcot, Reading.

GOLD and SILVER FERNS.—Gymnogramma chrysophylla Mertensii, and Pteris cretica albo-lineata, good plants, 12 for 10*s*.; 25 for 18*s*. Package free. Trade price per 100 on application.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

Pines.

B. S. WILLIAMS has all the best kinds, in splendid condition, warranted clean. Prices on application.
B. S. WILLIAMS, Seed Merchant and Nurseryman, Upper Holloway, London, N.

Grape Vines.

B. S. WILLIAMS' STOCK this season is remarkably fine, and in good condition for sending out. Kinds and prices can be had on application.
B. S. WILLIAMS, Seed Merchant and Nurseryman, Upper Holloway, London, N.

Pines.

TWO HUNDRED PINE PLANTS for SALE; chiefly Queens. Warranted clean. In all stages.
FRANCIS R. KINGHORN, Sheen Nursery, Richmond, S.W.

Mrs. Pince's Black Muscat Grape.

J. MEREDITH is now prepared to execute orders for this fine Grape. CANES, fit for immediate planting, from 10*s*. 6*d*. upwards.
The Vineyard, Garston, near Liverpool.

Royal Ascot or Perpetual Vine.

MESSRS. JOHN STANDISH AND CO. are now selling fine strong plants of this extraordinarily productive VINE at 21*s*., 42*s*., and 63*s*. each.
Royal Nurseries, Ascot, Berks.

Must be Sold, to make room.

L. WOODTHORPE offers the following, to effect a clearance:—Strong Fruiting VINES, 10 to 12 feet in length, and thick in proportion, 3*s*. 6*d*. each. Extra strong, will carry 8 to 10 bunches, 5*s*. each.
Munro Nursery, Sible Hedingham, Essex.

Pyramidal Cherries, extra fine, for Gardens.

WM. WOOD AND SON have a magnificent stock of the above to offer. The Pyramid Cherries are especially fine.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LIST of these varieties from Mr. WEBB, Calcot, Reading.

Gratis and Post Free.

DICK RADCLYFFE AND CO.'S SEED CATALOGUE,
129, High Holborn, W.C.

B. S. WILLIAMS' DESCRIPTIVE CATALOGUE of FLOWER, VEGETABLE, and AGRICULTURAL SEEDS, &c., is now ready; post free to all applicants.
Victoria and Paradise Nursery, Upper Holloway, London, N.

DAHLIAS, DAHLIAS, DAHLIAS: strong plants now ready.—Selection left to JOHN J. HASLAM, Chadderton, Manchester, for cash, in 12 good kinds, 4*s*.; 24, 8*s*.; or per 100, 25*s*. Fancy PICOTEE (Countess of Ellesmere), strong plants, 70*s*. per 100 pairs.

Princess Royal is the Brightest of the New Coleus.

CHARLES TURNER purchased this beautiful variety, and is now executing orders with strong Plants, 7*s*. 6*d*. each.
The Royal Nurseries, Slough.

NEW COLEUS.—The 12 new Coleus of the Royal Horticultural Society, sent out in 1868, with other fine varieties, sent post free—12 fine varieties for 2*s*. 6*d*.; 12 cuttings, in 12 fine varieties, for 1*s*. 2*d*.; from
B. W. KNIGHT, Florist, Battle, Sussex.

To Persons Building Large Conservatories.

A NUMBER of LARGE CAMELLIAS, some 20 feet high, ORANGE TREES, and other Plants, to be SOLD. Apply, by letter, to P., Mr. David Walter, Bell Yard, E.C.

THE MOST BEAUTIFUL FRENCH ASTER grown is Truffaut's REINE MARGUERITE PÆONY-FLOWERING. 500 Seeds for 1*s*., in 16 fine double colours, mixed. Quality guaranteed. Free by post.
ALFRED HAMMOND, Bedwin Street, Salisbury.

HOLLYHOCK SEED, from finest named sorts in cultivation (post free):—12 packets in 12 distinct kinds, 5*s*.
24 packets in 12 distinct kinds 8*s*. 6*d*.
36 " " 10*s*. 6*d*.
W. DILLISTONE, Sible Hedingham, Essex.

WANTED, a quantity of PLANTS in BLOOM, various sorts, for next month.—Address with prices for cash to W. DILLISTONE, Sible Hedingham, Essex.

WANTED, MEZEREONS, 1 to 2 feet.
Send price and particulars to
THOS. BUNYARD & SONS, The Old Established Nurseries, Maidstone.

TO THE TRADE.—A few lbs. of ARBUTUS SEED, fresh and well saved, at 5*s*. per lb. cash.
Apply, P. EDWARDS, Newtown Park, Black Rock, Dublin.

AUCUBA POLLEN.—One dozen flowers for 1*s*., Four dozen for 3*s*. Sent post free on receipt of stamps by
JOHN STANDISH & Co., Royal Nurseries, Ascot.

THE GOLDEN ARBOR-VITÆ, THUJA AUREA.—Fine specimen plants, 2½ feet high, and 2 feet through, will be offered at very reduced prices. Apply to
WM. WOOD & SON, Maresfield, near Uckfield, Sussex.

OSIERS.—A quantity for SALE. A Sample of Five Bolts may be seen, and the price obtained, at
Messrs. WHITE's, Kennett Wharf, Thames Street, London, E.C.

FOREST TREES and SHRUBS.—CATALOGUES of the above for the present season may now be had, post free, upon application.
PETER LAWSON & SON, Edinburgh and London.

NATIVE SCOTCH FIR, Transplanted and Seedling.
For trade prices, apply to
HOWDEN BROTHERS, Inverness, N.B.

WANTED, BEECH, SYCAMORE, and SERVICE, 2 to 3 feet, or 3 to 4 feet; also WEEPING BIRCH, 3 to 4 ft. State price per 1000.
GEORGE J. WOOLLETT, Nurseries, Caterham, Surrey.

STRONG TRANSPLANTED QUICK, 10*s*., 20*s*., and 30*s*. per 1000; £40, £80, and £120 per 100,000. Samples containing 100 may be had on receipt of a remittance.
JOHN CATTELL, Nursery and Seed Establishment, Westerham, Kent.

CATTELL'S ECLIPSE BROCCOLI, the hardiest and latest White Broccoli in cultivation, obtained the First Prize at the International Horticultural Exhibition, South Kensington, May, 1866. Price per half-ounce packet, 1*s*. 6*d*., free by post.
JOHN CATTELL, Nursery and Seed Establishment, Westerham, Kent.

CARTER'S FARM SEEDS.—See large Advertisement at page 330 of this day's *Gardeners' Chronicle*.
SEED GROWERS, MERCHANTS, and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

A SPECIAL PRIZE MEDAL, PARIS, 1867, was AWARDED to JAMES CARTER & Co., 237 & 238, High Holborn, London, W.C., for GRASS SEEDS, supplied for the Exhibition Grounds.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c.
Free for one postage stamp.
RICHARD SMITH, Seed Merchant, Worcester.

PARIS, 1867. SUTTONS' GRASS SEEDS for ALL SOILS. A PREMIER PRIX SILVER MEDAL for GARDEN SEEDS, GRASSES, and GRASS SEEDS, was Awarded to SUTTON AND SONS, SEEDSMEN to the QUEEN, Reading, Berks.

SUTTONS' GRASS SEEDS for ALL SOILS.
See page 347 of this day's *Gardeners' Chronicle*.

SUTTONS' GRASS SEEDS for VARIOUS PURPOSES.
See page 347 of this day's *Gardeners' Chronicle*.

SUTTONS' HOME-GROWN FARM SEEDS.
See page 339 of this day's *Gardeners' Chronicle*.

SUTTONS' FARMER'S YEAR-BOOK for 1869 is now Ready, price 6*d*., gratis to customers.
Royal Berks Seed Establishment, Reading.

NEW and GENUINE AGRICULTURAL and GARDEN SEEDS.
Special prices and advantageous offers on application to
JAS. FAIRHEAD & SON, Seed Merchants, 7, Borough Market, London.

NEW and GENUINE AGRICULTURAL and GARDEN SEEDS.—Special prices and advantageous offers of above on application to
ALFRED LEGERTON, Seed Merchant, 5, Aldgate, London, E.

Agricultural and Garden Seeds.

H. AND F. SHARPE'S SPECIAL PRICED LIST of HOME-GROWN SEEDS is now ready, and may be had on application.
Seed Growing Establishment, Wisbech.

Mangel Wurzel Seed.

JOHN SHARPE can offer on good terms, from highly selected Stocks, and his own growing this year.
Bardney Manor, Lincoln.

To the Trade.

HALL'S WESTBURY SWEDE TURNIP SEED, true, nett. Grown last season from transplanted roots. For samples and prices, apply to
WILLIAM COOKE, Seed Grower, Donington, near Spalding.

Swede Turnip Seed.

HARTLEY'S SHORT-TOP, grown last year by the Seller. Warranted from carefully-selected, transplanted Turnips. For cash only, £3 16*s*. per cwt., for not less than 2 cwt., put upon the rails at Selby, near York.
Mr. S. WORMALD, Cawood Castle.

White Belgian Carrot Seed.

ALFRED LEGERTON, SEED MERCHANT, 5, Aldgate, London, E., offers the above at 54*s*. per cwt., warranted all new and nett seed.
Special quotations for all other Agricultural Seeds on application.

The Sugar-Beet Question.

For INSTRUCTIONS on CULTIVATION, see
SUTTONS' FARMER'S YEAR-BOOK for 1869. 6*d*. post free, gratis to customers.
SUTTON & SONS, Seedsmen to the Queen, Reading.

ASPARAGUS PLANTS, extra fine and strong, 2, 3, and 4-yr., at moderate prices.
WM. WOOD & SON, Nurseries, Maresfield, near Uckfield, Sussex.

EDWARD TAYLER, NURSERYMAN, Malton, Yorkshire, offers, as under, GIANT ASPARAGUS ROOTS, 2-yr., 1*s*. 3*d*. per 100, 10*s*. per 1000; do., 3-yr., 2*s*. per 100, 15*s*. per 1000; do., 4-yr. transplanted, extra fine, 3*s*. per 100, 25*s*. per 1000. TRITOMA UVARIA, fine strong roots, 25*s*. per 100.

GIANT ASPARAGUS PLANTS, the best that money can procure, 2*s*. 6*d*. per 100. This delicious Vegetable does not require half the expense usually incurred in planting it.
See RICHARD SMITH'S SEED LIST for 1868.
Extra strong SEAKALE, 2*s*. per dozen.
RICHARD SMITH, Nurseryman, Worcester.

SCARLET RUNNER SEED for SALE.—Apply to Mr. ALFRED MILLS, Holbeach, Lincolnshire.—March 23.

ARTICHOKES, JERUSALEM, of fine quality, for planting or for present use, 5*s*. per bushel.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

FOR SALE, extra fine GLOBE ARTICHOKES.
Price per dozen or 100 on application to
JOSH. COOPER, Balfour Cottage, Fulham Fields, S.W.
Also 2, 3, and 4-yr. old ASPARAGUS.

A Great Advantage to Marrow Growers.

A DWARF MARROW, good bearer; six will not require the space of one of the Common. 12 Seeds for 13 stamps.
J. COOPER, Balfour Cottage, Fulham Fields, S.W.

The Best New Potato for 1869 is

SUTTONS' BERKSHIRE KIDNEY, 5*s*. per peck, 18*s*. per bushel, carriage free.
SUTTON & SONS, Royal Berks Seed Establishment, Reading.

POTATOS.—Handsworth Early Round.—Price on application to
JAS. FAIRHEAD & SON, Seed Merchants, 7, Borough Market, London.

POTATOS.—Early Dalmahoy and Fluke, nice selected Seed, about 50 tons, to offer on reasonable terms.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

Seed Potato.

GEO. SIBBALD, Drumgeith, by Dundee, begs to intimate that he has still on hand a few tons best ROCKS, FLUKES, REGENTS, and PATERSON'S VICTORIA POTATO, which he will sell cheap. Prices on application.

SEED POTATOS.—Rivers' Royal Ashleaf, Early Dalmahoy, Myatt's Early Prolific, and all the finest early and late varieties, free from disease, excellent in quality, and at moderate prices. For Special Priced Lists apply to
H. & F. SHARPE, Seed Growers, Wisbech.

Verbenas, Verbenas.

ALL the LEADING VARIETIES of 1868, also Purple, White, Scarlet, and Pink, with plenty of Cuttings, at 2s. per doz.; Small Plants, 6s. per 100, or £2 10 per 1000.
Twenty new varieties of ZONAL GERANIUMS of 1868 for 10s.
PHILIP LADDS, Nursery, Bexley Heath, Kent.

F. AND A. SMITH beg to announce that their splendid Collection of CINERARIAS is now in full bloom, and will well repay a visit. They would call the attention of purchasers to the following varieties, which are now being sent out, each of which has obtained Certificates at the Royal Horticultural Society, and pronounced far in advance of anything hitherto offered:—
INO.—Large white flowers, with tip of light crimson; extra fine.
PANDORA.—White, with heavy tip of claret crimson; very large head, and good habit.
ROYAL PURPLE.—Shaded purple and puce, with ring of rich crimson, and inner circle of pure white; undoubtedly one of the finest habited and the most richly coloured variety yet sent out.
Lists of other varieties on application.
The Nurseries, West Dulwich, S.E.

Cineraria Seed.

NOW IS THE TIME TO SOW FOR AN EARLY CROP.

F. AND A. SMITH beg to offer Seed of the above, from their splendid collection. As a proof of its general excellence, they append the following Testimonials, samples of which they are receiving daily.
F. & A. SMITH would here mention that they received last year the only Certificate awarded for Cinerarias, and they have already received two during the present season.

"March 20, 1869.
"SIR,—I enclose 2s. 6d. in stamps for a packet of your Cineraria Seed. I hope it will be as good as last year; the packet I had then turned out first-rate, and so did the Balsam Seed you supplied me with. I obtained 1st Prize with a Collection of six at Wolverhampton.
"JOSEPH BUCKNALL, Finchfield, Wolverhampton."

"The Nurseries, Birkenhead, March 20, 1869.
"GENTLEMEN,—Please send me per return, 2 dozen packets (or about the same quantity in bulk) of your choicest Cineraria. That you sent me last year gave the greatest satisfaction.—Yours truly,
"W. HENDERSON."

"The Nurseries, Cambridge, March 20, 1869.
"DEAR SIRS,—Please send me a 2s. 6d. packet of your best mixed Balsam, and a 2s. 6d. packet of Cineraria for own growth. Last year's were very good.—Yours truly,
"J. SANDERS."

The Nurseries, West Dulwich, S.E.

Genuine Seeds.—Carriage Paid.

B. S. WILLIAMS,
NURSERYMAN AND SEEDSMAN,
Victoria and Paradise Nursery, Upper Holloway, London, N.

COMPLETE COLLECTIONS
OF
KITCHEN GARDEN SEEDS
To suit Gardens of various sizes,
10s. 6d., 21s., 42s., 63s., and 84s. each.

NEW and CHOICE VEGETABLE SEEDS.	Per Pkt. s. d.
WILLIAMS' IMPROVED GREEN CURLED BORECOLE..	0 6
WILLIAMS' ALEXANDRA BROCCOLI..	1 6
DELL'S FINE DARK BEET..	1 0
WILLIAMS' MATCHLESS RED CELERY	1 0
SHARMAN'S UNIVERSAL CUCUMBER (new)	1 6
TELEGRAPH IMPROVED (Woolley's variety)	1 6
WILLIAMS' PARADISE GEM MELON, scarlet flesh, of excellent flavour, and 12 days earlier than any other in cultivation (new)	2 6
WHEELERS' TOM THUMB LETTUCE	0 6
DIGSWELL PRIZE ENDIVE..	1 0
WILLIAMS' VICTORIA COS LETTUCE (new)	1 0
MALVERN HALL MELON	1 6
GOLDEN QUEEN (New Hybrid Prize) MELON	2 0
BEDFORDSHIRE CHAMPION ONION (new)	1 0
NUNEHAM PARK ONION .. .. 1s. and	1 6
CULLINGFORD'S CHAMPION MARROW PEA, an excellent cropper, and fine flavour (new) .. .. per qrt.	3 6
MACLEAN'S LITTLE GEM PEA (very early) .. .. „	2 6
LEE'S GIANT ORACH .. .. per pkt.	0 6
ORANGEFIELD DWARF PROLIFIC TOMATO „	1 0

NEW and CHOICE FLOWER SEEDS.	Per Pkt.
WILLIAMS' SUPERB STRAIN of PRIMULA.—B. S. W. can with confidence offer his superb strain of Primula as being the finest in cultivation. Red, White, or Mixed .. .. .. 2s. 6d., 3s. 6d., and	5 0
CINERARIA (Weatherill's extra choice strain) .. 2s. 6d. and	3 6
CALCEOLARIA (Neill's extra choice strain), 2s. 6d., 3s. 6d., and	5 0
„ (James' strain) .. .. .. 2s. 6d. and	3 6
„ (Dalkeith Palace strain)	2 6
CYCLAMEN Wiggins' prize strain) .. 1s. 6d., 2s. 6d., and	3 0
POLYANTHUS (Wiggins' prize strain) .. .. 1s. 6d. and	2 6
BALSAM (Williams' superb strain) .. .. .. 1s. 6d. and	2 6
CLIANTHUS DAMPIERI (fresh imported seed)	1 6
GERANIUM LE GRAND .. .. 1s. 6d. and	2 6
SOLANUM (Weatherill's hybrids) .. 2s. 6d., 3s. 6d., and	5 0
VIOLA LUTEA (yellow flowered Violet) .. .. 1s. 6d. and	2 6
WALLFLOWER Saunders' fine dark variety)	1 0
SALVIA ARGENTEA, a beautiful silvery-foliaged ornamental plant	1 0
DIANTHUS HEDDEWIGII DIADEMATUS fl.-pl., flowers very large, and colours most beautiful (new)	2 6
ECHEVERIA METALLICA (new Bedding plant).	
OXALIS VALDIVIANA, quite hardy, the flowers are bright yellow and sweet scented, and produced in bunches of large size (new)	1 0
PALAVA FLEXUOSA, very pretty annual (new)	1 0
MYOSOTIS AZORICA ALBA, the flowers are pure white, contrasting beautifully with the blue variety Coelestina (new) .	2 6
STOCK, EAST LOTHIAN.—This is a splendid variety, of dwarf and compact habit, producing immense spikes of bloom, and very double. They make a grand display in beds, and for ribbon borders. Per collection of three colours (Scarlet, Purple, and White)	2 6
TACSONIA VAN VOLXEMI (a beautiful Climber	2 6
AMARANTHUS SPECIOSUS AUREUS (New Golden Prince's Feather)	1 0
ANTIRRHINUM ASARINA, very beautiful for rockwork (new)	1 0
HELICHRYSUM APICULATUM (new)	1 0
MIMULUS REPENS, this is a very distinct species, the flowers are of a pale lilac-purple colour, the lower lip being prettily spotted with orange on a yellow ground (new) ..	1 0
ABRONIA ARENARIA, the flowers are of a pure waxy yellow, deliciously scented, and produced in long succession (new)	1 0
ZINNIA ELEGANS TAGETIFLORA fl.-pl. (new)	1 0

Imported GERMAN ASTERS, STOCKS, WALLFLOWERS, ZINNIAS, &c., in Collections, as imported.

GLADIOLI ROOTS, named kinds, per doz., 4s., 6s., 8s., 10s., and 12s.
BRENCHLEYENSIS, fine large roots, 3s. per doz., 20s. per 100.

ENGLISH-GROWN SEEDLING GLADIOLI.
B. S. WILLIAMS can strongly recommend these SEEDLING GLADIOLI. Being all Seedling Roots, they can be warranted to flower strongly, and will produce blooms possessing colour and quantities, perhaps, entirely new. For Masses and Borders these were much used last season, and gave great satisfaction. Price, per doz., 4s.; per 100, 20s.
Victoria and Paradise Nursery, Upper Holloway, London, N.

THE BEST NEW ROSES OF 1869.

THE LARGEST, BEST, AND FINEST PLANTS THAT CAN BE PROCURED IN THE TRADE.

WM. WOOD & SON

HAVE NO HESITATION IN STATING THAT

THEIR STOCK OF NEW ROSES CANNOT BE SURPASSED.

THE PLANTS ARE NOW READY FOR IMMEDIATE DELIVERY.

CATALOGUES ON APPLICATION.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

NEW ROSES OF 1869.

PAUL & SON, THE "OLD" NURSERIES, CHESHUNT, N.,

HAVE NOW FIT AND READY FOR DELIVERY

STRONG PLANTS of the NEW ROSES of the YEAR	42s. per doz.
H.P. DUKE of EDINBURGH ROSE.—Their Seedling of last season. First-class Certificate, Royal Horticultural Society	2s. 6d. to 3s. 6d. each.

THEY ALSO OFFER, FOR EFFECT THIS SEASON,

STRONG BLOOMING DWARF-STANDARD and DWARF PLANTS of the leading kinds	9s. to 12s. per doz.
STRONG PLANTS on OWN ROOTS, their selection, in 48's	£5 per 100
„ „ „ in 60's	£3 15s. per 100

PRICED LISTS ON APPLICATION.

PAUL AND SON have now a charming Show, at the "Old" Nurseries, of FORCED ROSES and other Spring Flowers. One mile from Cheshunt Station, Great Eastern Railway.

WILLIAM ROLLISSON & SONS'

BRILLIANT NEW TRICOLOR GERANIUM, THE MOONSTONE,

WILL BE SENT OUT ON AND AFTER THE 30TH OF APRIL NEXT.

The habit of the above most beautiful Tricolor is compact and exceedingly free; the leaves, which are of good substance and moderately large, are almost round, and from the slight convexity of their shape they exhibit to great advantage the rich and varied colourings with which they are adorned; the centre of the leaf is of a bright and lively green surrounded by a dark chocolate zone, which is much intercepted by the most intense blood-red. This bright colour shades off, towards the edge of the leaf, to a soft crimson-lake, which entirely encircles the whole zone, edged with a bright lemon-yellow belt. It is somewhat in the way of Lucie Grieve in its colourings, but is rather brighter, and, unlike the shy habit and slow growth of that variety, "The Moonstone" is almost as free in habit as a Tom Thumb, while it remains constant in character. This, without exception, is the finest Tricolor hitherto offered to the public.

THE FOLLOWING NINE SPLENDID NEW DOUBLE GERANIUMS FOR 1869,

MADAME BONDET	MDLLE. LOUISE DELESALLE	M. FROEBEL
MADAME DEBRAY	M. DE ST. JEAN	MARIE LEMOINE
MARIE CROUSSE	M. DE ST. PAUL	WILHELM PFITZER

Together with many other Novelties of sterling merit, will be distributed on and after the 30th of April next.

For Descriptions and Prices of the above, see SPRING CATALOGUE of NEW and CHOICE SOFT-WOODED PLANTS for 1869, which will be sent Gratis and Post Free on application to
THE NURSERIES, TOOTING, LONDON, S.W.

B. S. WILLIAMS,

NURSERYMAN AND SEEDSMAN,

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.,

Respectfully invites the Nobility and Gentry about to furnish their Conservatories, Greenhouses, Stoves, r Orchid-houses, to an inspection of his

STOCK OF MAGNIFICENT SPECIMEN PLANTS,

MANY OF WHICH ARE UNEQUALLED IN THIS COUNTRY.

THEY CONSIST OF—

The Choicest and rarest Exotics, such as TREE-FERNS, PALMS, BEAUCARNEAS, AGAVES, YUCCAS, CYCADS, ARALIAS, CAMELLIAS, AZALEAS, and all other kinds of STOVE and GREENHOUSE FLOWERING and ORNAMENTAL FOLIAGE PLANTS, proved to be worthy of cultivation.

The Large CONSERVATORY, at all times of the year well worth a visit, is now unusually gay with flowers of Camellias, Azaleas, Ericas, Epacris, the magnificent varieties of Cyclamen persicum, obtained from Wiggins' strain of seed; Williams' superb Chinese Primulas; the beautiful improved Hybrid Solanums, now laden with their large and highly ornamental berries; Hyacinths, and many other Spring Flowering Plants, also helping to make a grand floral display.

The STOVES and ORCHID-HOUSES are also very attractive and interesting just now, with blooms o Odontoglossums, Cypripediums, Cœlogynes, Lycaste Skinneri, Phalænopsis, and many other kinds.

The COLLECTION of MEXICAN PLANTS is surpassed only by that of Kew Gardens.

All NEW PLANTS of sterling merit are added to the Collection as soon as procurable, and may be seen here the inspection of which would alone repay a visit.

In May will be published,

A CATALOGUE OF NEW AND RARE PLANTS FOR 1869,

POST FREE TO ALL APPLICANTS.

The "Favourite" Omnibuses leave Victoria Nursery every seven minutes for the City and London Bridge, th Strand and Victoria Station, and for Regent Street, the West End, and Brompton.

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

CYCLAMEN PERSICUM (HYBRIDS).

B. S. WILLIAMS

HAS GREAT PLEASURE IN OFFERING

SEEDS OF HIS SUPERB VARIETIES OF CYCLAMENS,

Which are much superior to those sent out by him last season, being saved from the plants exhibited by Mr. Wiggins, at the Meeting of the Royal Horticultural Society, at Kensington, on Tuesday last (Feb. 16), when they were pronounced far in advance of any ever before raised, both in point of size of flower and richness of colour, which varies from pure white to mauve and deep red; many of them in addition being beautifully striped and spotted, and deliciously fragrant. Seeds sown in heat from the present time until the end of March, can be grown to produce flowers within 12 months.

B. S. W. having made arrangements for the supply of all Mr. Wiggins' Seed, it can only be had genuine in sealed packets bearing his name and address.

In Sealed Packets, 1s. 6d., 2s. 6d., and 3s. 6d. each.

B. S. WILLIAMS, VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, N.

TO THE TRADE ONLY.

STUART & CO., SEED GROWERS, NICE.

Warehouse and Offices, where Stock is kept for the supply of the English Trade,
5, TAVISTOCK ROW, COVENT GARDEN, W.C.
(Late of 85, Southampton Row.)

WHOLESALE CATALOGUE ON APPLICATION.

THE FOLLOWING SPECIALITIES SUPPLIED AT THE CATALOGUE PRICE,
OR SPECIAL OFFER FOR LARGE QUANTITIES.

ECHEVERIA METALLICA.—Fresh Seed now ready to send out, in pods containing from 20 to 50 seeds, with full directions as to culture. Few plants equal this grand House-Leek for subtropical or alpine succulent gardening, or for the decoration of the Conservatory; its large massive leaves, shaded with a purplish glaucous hue, are unique.

PYRETHRUM GOLDEN FEATHER.—A valuable plant for ribands, beds, edgings, &c. Raised from seed, it retains its beautiful golden hue longer than if propagated by cuttings or divisions.

CARNATION SEED, from Florists' Flowers, in Mixture or in Collections.
PICOTEE SEED, from Florists' Flowers, in Mixture or in Collections. STUART & Co.'s Carnation and Picotee Seeds have long been noted for their large yield of fine double flowers.
PELARGONIUM SEED.—Large-flowered, Spotted, Fancy, and Diadematum, in Mixture or in Collections. The Seed we offer produces Flowers of great beauty.
PELARGONIUM (ZONAL) SEED.—Saved from the newest Variegated Tricolor and Bicolor Varieties, and from these crossed with the finest Zonals.
PRIMULA SEED.—Saved from the largest and brightest-coloured fimbriated flowers, from Fern-leaved and Double Varieties.
PINK SEED.—Saved from the choicest English varieties.
HOLLYHOCK.—Saved from English Exhibition varieties.
LOBELIA LITTLE GEM.—The prettiest of last year's novelties, flowers pure white, with clear well-defined blue margin, compact, and blooming throughout the season.
PETUNIA SEED, of exquisite quality.
CINERARIA SEED.—Saved from the choicest Florists' Flowers.
ZINNIA SEED, from magnificent double varieties.
CENTAUREA CANDIDISSIMA (RAGUSINA), warranted true, plump, well-ripened seeds.
CENTAUREA GYMNOCARPA SEED, true.
BALSAM SEED, finest double varieties.
VIOLA CORNUTA SEED, PURPLE QUEEN.—The earliest, the darkest coloured, and most profuse blooming variety.
MYOSOTIS SYLVATICA SEED, the finest Forget-me-Not for spring gardening.
ORNAMENTAL GRASSES.
SUBTROPICAL PLANT SEEDS.
MELONS.—Choice hybrid, our own raising; unequalled for their exquisite luscious flavour, fine shape, and beautiful lacing.
MELONS.—All the usual sorts in cultivation; seed saved from selected fruits only.
CUCUMBERS.—All the finest varieties in cultivation.

STUART AND CO., 5, TAVISTOCK ROW, COVENT GARDEN, W.C.

BARR & SUGDEN,

12, KING STREET, COVENT GARDEN, LONDON, W.C.

ADULTERATION OF SEEDS.

"The law is a terror to evil doers, and a praise to them that do well."

"Mr. Welby's proposed Bill imposes a penalty not exceeding £50 for killing Seeds or destroying the germinating power by steaming or other artificial means, or for giving Seeds a false or deceptive appearance by colouring, dyeing, or other artificial means; or for knowingly selling or having for sale any killed or dyed Seed."—*Vide "Times," March* 18, 1869.

UNSOLICITED TESTIMONIALS, SUCH AS B. & S. ARE CONSTANTLY RECEIVING.

"Mr. Lancaster informs Messrs. Barr and Sugden that he cut last year from one plant of Barr's International Cucumber 20 yards 15 inches of Cucumbers, the largest being 35½ inches long."—*Midlands, Southampton, Jan.* 8, 1869.

"The Rev. J. W. Brown has heard from Mrs. Todd, of Winchester, and she expressed herself as very much pleased with the satisfactory execution of the order for bulbs. Other friends of Mr. Brown, to whom he has recommended the firm of Barr and Sugden, have also expressed the same. Mr. Brown himself has always found the seeds, bulbs, &c., from their establishment to be of first-rate quality."—*Much Hadham, Nov.* 26, 1868.

The above will suffice to show that while B. & S. hail with satisfaction Mr. Welby's proposed measure for the public protection, their customers must have always felt satisfied that the Seeds received from their house had not been tampered with.

FOUR HUNDRED sorts of ALPINE and HERBACEOUS PERENNIAL SEEDS, from one of the most choice and extensive Collections in Europe; GLADIOLI, embracing the new kinds and all the older varieties worthy of cultivation. Offered for the first time in this country, a SPECIAL LIST of NEW TABLE MAIZE, from the Rev. T. C. Bréhaut, of Guernsey (Her Majesty's Commissioner at the Paris Exhibition of 1867 to report on the present state of Fruit Culture on the Continent, and author of "Cordon Training," "The Modern Peach Pruner," &c., &c.) The varieties embrace those most esteemed by our American Cousins, who use the green cobs as one of their popular Vegetables: in this country, they will come into use when the supply of Green Peas is becoming short, and will be found an agreeable substitute for Green Peas. (See Leading Article on Maize, "Journal of Horticulture," March 4, page 155.) For further particulars, see B. & S.'s SPRING SEED CATALOGUE, page 56.

BARR & SUGDEN'S COLLECTIONS of SEEDS and GLADIOLI,

Pure and Genuine, Home-grown when advisable, and direct from the Growers, &c., &c.

VEGETABLE SEEDS, 12*s.* 6*d.*, 15*s.* 6*d.*, 21*s.*, 31*s.* 6*d.*, 42*s.*, 63*s.*, 84*s.*, and 105*s.*
FLOWER SEEDS, 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 10*s.* 6*d.*, 21*s.*, 31*s.* 6*d.*, and 42*s.*
HERBACEOUS and ALPINE SEEDS, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, 15*s.*, 21*s.*, and 30*s.*
TABLE MAIZE, 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, and 10*s.* 6*d.*
ORNAMENTAL GOURDS, 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, 10*s.* 6*d.*, 15*s.*, and 21*s.*
ORNAMENTAL GRASSES for TABLE DECORATION, &c., 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, and 10*s.* 6*d.*
SEEDS for SUBTROPICAL GARDENS, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, and 10*s.* 6*d.*
GLADIOLI, 5*s.* 6*d.*, 8*s.* 6*d.*, 10*s.* 6*d.*, 13*s.* 6*d.*, 21*s.*, 30*s.*, 42*s.*, and 63*s.*
GLADIOLI, by the Hundred, 10*s.* 6*d.*, 15*s.*, 21*s.*, 25*s.*, and 30*s.*

CLIMBERS, CARNATIONS, PELARGONIUMS, HOLLYHOCKS, STOCKS, ASTERS, BALSAMS, ZINNIAS, LANTANAS, EVERLASTINGS, AQUATICS, PALMS, &c. Full particulars will be found in B. & S.'s DESCRIPTIVE SPRING CATALOGUE, which will be sent Free to intending purchasers.

BARR AND SUGDEN, 12, KING STREET, COVENT GARDEN, W.C.

F. AND A. SMITH invite the attention of intending purchasers of TRICOLOR and BICOLOR GERANIUMS to their very extensive collections in each class. The plants are now in fine colour, and will well repay a personal visit. They would especially mention the following attractive varieties:—
GOLDEN TRICOLORS.—Earl of Derby, Jetty Lacy, King Marvellous, Pre-eminent, Refulgens, Sunray, &c.
SILVER TRICOLORS.—Andromeda, Duchess of Sutherland, Mrs. Dombrain, Peri, Queen Mab, &c.
BICOLORS.—Bullion, Compacta, Combatant, Gladiator, Golden Rule, Plutus, Standard, &c.
ZONALS.—Beauty of Dulwich, Circle, Crimson Perfection, Favourite, Hebe, Little Excellent, Sunnyside, &c.
CATALOGUES, containing full descriptions of these and other beautiful novelties, may be had on application.
The Nurseries are within a few minutes' walk of the Lower Norwood Station (Crystal Palace line) and the Dulwich Station (London, Chatham, and Dover Railway).
The Nurseries, West Dulwich, S.E.

Cheap Tricolor Geraniums.

ALFRED FRYER offers 50,000 fine Plants, at the following low prices for cash. Package free.
LADY CULLUM, 13*s.*, 18*s.*, and 21*s.* per dozen.
SOPHIA DUMARESQUE, 7*s.*, 10*s.*, and 13*s.* per dozen.
SUNSET, 5*s.*, 6*s.*, and 7*s.* per dozen.
MRS. POLLOCK, 3*s.* 6*d.*, 5*s.*, and 6*s.* per dozen.
MRS. BENYON, 5*s.*, 6*s.*, and 7*s.* per dozen.
Remittance requested from unknown correspondents.
Address, ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

GERANIUMS, Gold, Bronze, and Tricolored, &c.—Beauty, Beauty of Calderdale, Beauty of Rivesdale, Compactum, Glowworm, Model, Princess Alice, Perilla, Little Golden Christine, Little Golden Spread Eagle, Countess of Tyrconnel, Gipsey Chief, Firebrand (Gill), Edwinia Fitzpatrick, Sophia Dumaresque. The above, 1*s.* 6*d.* each, or 12*s.* per dozen, hamper and packing included; cheaper by the 100.
NEW GOLDEN and BRONZE GERANIUMS:—Admiration Arthur H. Wills, Egyptian Queen, Empress Eugénie, Fascination, Her Majesty, Ebor, Viceroy, Painted Lady, Refulgens, Rosalind, The Sultan. The above 12 for 21*s.*, hamper and packing included.
PELARGONIUMS, New Show Varieties of 1868:—Captain John, Empress, Firefly, Grandee, Heirloom, Hermit, Keepsake, King of Trumps, Magician, Needle Gun, Prince of Orange, Rob Roy, Victor, Woman in White. 2*s.* 6*d.* each, 24*s.* per dozen, or the set for 26*s.*
PELARGONIUMS, Show Varieties of 1867.—Beauty of Windsor Betrothed, Congress, Favourite, Gold Button, International King of Flowers, Lord Lyon, Milton, Mongini, Perfection' Prince of Orange. The above set for 18*s.*
FANCY PELARGONIUMS of 1867.—Duchess of Buccleuch, Marguerite, Memnon, Neatness, Princess Helena, Silver Mantle. 1*s.* 6*d.* each, or the set for 8*s.*
12 New FUCHSIAS of 1868, strong plants. 10*s.* to 12*s.* per dozen.
12 New PETUNIAS of 1868. 9*s.* to 12*s.* per dozen.
12 New VERBENAS of 1868. 3*s.* to 4*s.* per dozen.
12 Splendid New EPACRIS, covered with bloom. 12*s.* to 18*s.* p. doz.
12 Grand AZALEAS, well set with bud. 18*s.*, 24*s.* and 36*s.* per doz.
CATALOGUES of the above and all the New Tricolored and Golden Bronze Geraniums, New and Rare Plants, &c., can be had on application to
HENRY WALTON, Edge End, Marsden, near Burnley, Lancashire.

Gold and Silver Tricolor and Bicolor Geraniums.

WOOD AND INGRAM offer fine plants of the following:—

TRICOLORS.

	Each.—*s.* *d.*		Each.—*s.* *d.*
Eastern Beauty	1 0	Gold Pheasant	0 6
Lady Cullum	2 0	Mrs. Benyon	0 6
Sophia Cusack	2 6	Sophia Dumaresque	1 0
Sunset	0 6	Glowworm	0 6
Italia Unita	0 6	Silver Star	1 6
Countess	1 0	Queen's Favourite	1 0

Or the 12 varieties for 12*s.*, package included.

EXTRA CHOICE VARIETIES.

	Each.—*s.* *d.*		Each.—*s.* *d.*
Countess of Craven	2 6	Lucy Grieve	5 0
Miss Watson	5 0	Mrs. Dix	5 0
Star of India	3 6	Queen Victoria	2 0

Or the six varieties for £1, package included.

BICOLORS.

	Each.—*s.* *d.*		Each.—*s.* *d.*
Artemus Ward	1 6	Luna	0 6
Beauty of Oulton	0 6	Circlet	0 6
Ribblesdale	1 0	President Lincoln	0 6
" Gaiety	0 6	Neatness	0 6
Sceptre d'Or	0 6	Her Majesty	2 6
Perilla	1 6	Kentish Hero	2 6

Or the 12 varieties for 12*s.*, package included.
Nurseries, Huntingdon.

Variegated Geraniums.—To the Trade.

WOOD AND INGRAM offer the following:—

	Per doz.—*s.* *d.*		Per doz.—*s.* *d.*
Mrs. Pollock	3 0	Gold Pheasant	4 0
Lady Cullum	18 0	Mrs. Benyon	4 0
Sophia Dumaresque	9 0	Sunset	4 0
Glowworm	4 0	Italia Unita	6 0
Silver Star	12 0	Queen's Favourite	8 0
Beauty of Oulton	4 0	Circlet	4 0
" Ribblesdale	12 0	Gaiety	4 0
Neatness	6 0	Perilla	12 0
President Lincoln	5 0	Duke of Edinburgh	6 0
Brilliantissima	4 0		

Nurseries, Huntingdon.

CHOICE FERNS.—Lomaria gibba, Cyrtomium falcatum, Blechnum brasiliense, Blechnum corcovadense Davallia dissecta, Pteris nemoralis variegata, Adiantum setulosum, Adiantum hispidulum, Gymnogramma Mertensii (Gold Fern), Gymnogramma hybrida (Silver Fern), Asplenium polymorphum, Pleopeltis stigmatica.
WOOD & INGRAM offer the above at 1*s.* 6*d.* each, or the 12 for 15*s.*, package included.
Nurseries, Huntingdon.

To the Trade.

WOOD AND INGRAM beg to offer—
LOMARIA GIBBA, fine established plants, in 4-inch pots per doz. 6*s.*
BLECHNUM BRASILIENSE, do. do., per doz. 6*s.*
" CORCOVADENSE, do. do., per doz. 6*s.*
YUCCA ALOEFOLIA, strong, in 3-inch pots, per doz. 12*s.*
ISOLEPIS GRACILIS, strong, in 4-inch pots, per doz. 4*s.*
STATICE MACROPHYLLA, fine plants, will bloom this season, per doz. 30*s.*
LOBELIA TRENTHAM BLUE, per doz. 2*s.* 6*d.*
LASTRÆA FILIX-MAS CRISPA, established in small pots, per doz., 6*s.*; per 100, 40*s.*
CALCEOLARIA AUREA FLORIBUNDA, fine autumn-struck plants, not potted, 8*s.* per 100.
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New Zonal Geraniums of 1868, and Double Varieties.

WOOD AND INGRAM offer the following fine varieties, in strong plants, at 1*s.* each, or 10*s.* per doz., package included:—Eclat, First Favourite, Grand Duke, Glow, Countess of Rosslyn, Emmeline, Rose Stella, Countess of Strathmore, Comet, Nosegay floribunda, The Sultan, Hon. G. Hardy, Miss Edith, The Seraph, Baron, Christabel (Mann).

DOUBLE-FLOWERING VARIETIES.

	Each.—*s.* *d.*		Each.—*s.* *d.*
Madame Lemoine	5 0	Gloire de Nancy	0 6
Rose Charmeux	2 6	Auguste Ferrier	0 6
" Maréchal de Chanflourd	0 6	Triomphe de Gergoviat	0 6

Or the six varieties for 9*s.*, package included.
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VARIEGATED PELARGONIUMS.

Louisa Smith	Miss Watson	Caroline Longfield
Countess Tyrconnel	Spanish Beauty	Lady of Shallot
Madeline Schiller	Dawn	Princess of Wales
Italian Beauty	Queen Victoria	Glen Eyre Beauty

21s.

CASBON & SON, Gravel Walk Nursery, Peterborough

Cheap, Cheap, Cheap.

FINE HEALTHY TRICOLOR and other PELARGONIUMS.

Lady Cullum, 12s., 15s., and 18s. per dozen.
Sophia Dumaresque, 6s., 10s., and 12s. per dozen.
Italia Unita, 4s. per dozen.
Crystal Palace Gem, 4s. per dozen.
Leonidas (splendid), 6s. per dozen.
Mrs. Pollock, 3s. 6d. per dozen, 24s. per 100.
Beauty of Oulton, 4s. per dozen.
Mrs. Longfield, 4s. per dozen.
Luna, 3s. per dozen.

In strong plants, for cash, package included. CATALOGUES free on application.
JOHN BARRETT, St. John's Nursery, Bury St. Edmund's, Suffolk.

GEO. SMITH begs to call the attention of the Readers of the *Gardeners' Chronicle* to his splendid SEEDLING PELARGONIUMS, which have taken First-class Certificates. G. S. offers them with the greatest confidence as first-class additions, viz.:—

NOSEGAY GERANIUMS

LIZZIE (G. S.).—A novel-coloured and desirable variety, having salmon-coloured flowers, suffused with orange in the centre, dashed with violet at the tips. Quite new in colour, and a fine acquisition to the Nosegay class. Fine habit; foliage heavily zoned. Awarded First-class Certificate at the Royal Horticultural Society. Plants 7s. 6d. each. Where six are ordered seven will be sent, and where 12 are ordered 15 will be forwarded.

MASTERPIECE (G. S.).—This noble flower is of novel colour, the pips large, salmon-crimson round the centre; the edges of the young blooms orange-crimson; immense trusses, and globular; foliage slightly zoned, extra fine habit. Awarded a First-class Certificate at the Royal Horticultural Society. Plants 7s. 6d. each. Where six are ordered seven will be sent, and where 12 are ordered 15 will be forwarded.

VICTOR (G. S.).—Bright orange-scarlet flowers, large, and very double; free-blooming, and the most compact and beautiful double variety yet raised. Awarded a First-class Certificate by the Royal Horticultural Society. Plants 7s. 6d. each.

*** Notice.—Coloured drawings of Lizzie, Masterpiece, and Victor, faithfully represented by measurement of full size, and without any exaggeration of flower and foliage. 1s. 6d. each.

The above novelties, in good plants, to be sent out the first week in May. Usual discount to the Trade. Cash to accompany orders, payable at Hornsey Road, N., from unknown correspondents.
Tollington Nursery, Hornsey Road, Islington, London, N.

Market Gardens, Biggleswade, Beds.

RICHARD WALKER can supply for cash the old Crimson CLOVES, 10s. per 100; SCARLET KING DAISIES, 5s. per 100; EAST HAM and all the leading sorts of CABBAGE PLANTS, 2s. 6d. per 1000; RED DUTCH, extra fine, 4s. per 1000; WHITE SPANISH ONION SEED, 2s. 3d. per lb.; GIANT ASPARAGUS, 3-yr., 3s. per 100.

A GENTLEMAN is desirous of DISPOSING OF his STOVE PLANTS (a small choice collection), and of a Portion of his GREENHOUSE and BEDDING-OUT PLANTS. They are all admirably grown, and in healthy, hardy condition.

The plants may be seen at Crowhurst Park, Battle, Sussex (South-Eastern Railway), on reference to CHARLES RANN, Head Gardener; and some particulars respecting them obtained by personal application at 5 Stanhope Place, Connaught Square, W.

The American Nursery, Bagshot, Surrey.

JOHN WATERER respectfully invites the attention of Gentlemen and others engaged in planting to the undernamed selections from his general stock. He has much satisfaction in recommending them as being symmetrically grown and really of first-rate excellence, and from frequency in removal are in an excellent state for transplanting. Having a very large stock, he is determined to treat on most liberal terms. He would, however, earnestly invite Purchasers to make a visit and choose for themselves, which is easily accomplished by South-Western Railway (Reading Branch) to Sunningdale Station, which is near the Nursery.

RHODODENDRONS (Standards).—Of all the leading choice, scarlet, and other varieties, 3 to 4 feet stems, consisting of such as Alexander Adie, Michael Waterer, The Warrior, Princess Mary of Cambridge, Quadroona, Mrs. Ino Penn, Joseph Whitworth, and all such others as have been exhibited annually at the Royal Botanic Gardens, Regent's Park.

RHODODENDRONS (Half Standards).—Of all the approved kinds; 2 to 3 feet stems.

RHODODENDRONS.—Hardy scarlet, crimson rose, white; for superior clumps or borders fine well-grown plants. An excellent assortment would be supplied at £15 per 100. Fine bushy plants can also be supplied, averaging 3 to 5 feet.

RHODODENDRONS.—Immense quantities of really good coloured seedlings, with Catawbiense and Hybrid Catawbiense, 1½ to 2 and 3 feet, £10 to £12 10s. per 100. These varieties are very suitable for admixture with the better kinds. The plants are bushy, and mostly well set with blooming buds, and from rose to white in colour.

RHODODENDRONS (Dwarf-growing kinds).—These are very close growing varieties, and are recommended for filling winter beds. Daphnoides, Myrtifolium, and Hybridum are the best suited for such purposes. Odoratum is delightfully scented, and much used for potting and forcing.

RHODODENDRON PONTICUM.—This kind is the most common, and now generally admitted to form the best permanent cover for game. In the most severe weather it is never injured by hares or rabbits. Good plants, 21s. to 30s. per 100.

AZALEAS, HARDY, of the most popular kinds, of all colours, and in fine plants, covered with a profusion of blooming buds. These are much used for forcing. 18s. to 30s. per dozen.

ANDROMEDA FLORIBUNDA.—One of the most hardy plants used for decorating winter clumps. Of these we are large holders, and can supply beautiful specimens at 30s. per dozen, covered with blooming buds.

KALMIA LATIFOLIA and MYRTIFOLIA.—Fine grown plants, of all sizes.

HARDY HEATHS.—A very fine collection, in 20 kinds, 30s. per 100.

ABIES NORDMANNIANA.—Of this fine kind we are very large holders, about which are seedlings, and of all heights, from 2 to 4 to 5 and 10 feet.

ABIES MAGNIFICA.—Fine specimens, 2 to 5 feet.

ABIES NOBILIS.—All seedlings, 1½ to 3 to 5 feet.

ABIES LASIOCARPA.—From 2 to 3 to 5 to 7 feet.

ABIES GRANDIS (of Douglas).—Fine specimens, 2 to 6 feet.

ABIES DOUGLASII.—3 to 4 to 6 to 10 feet.

ABIES PINSAPO.—2 to 3 to 5 to 10 feet.

ARAUCARIA IMBRICATA.—Fine specimen, 2 to 4 to 6 to 12 feet

THUJOPSIS BOREALIS.—2 to 3 to 4 to 6 feet.

THUJA AUREA.—All sizes, 2 to 4 to 6 feet, perfect globes.

THUJA DOUGLASII.—Immense quantities, from 3 to 4 to 6 feet.

WELLINGTONIA GIGANTEA.—Of all sizes from 2 to 12 feet.

IRISH YEW.—Selected specimens, 1 to 12 feet.

HOLLIES (Green).—Fine, 2 to 3 to 4 to 6 feet.

HOLLIES (Gold and Silver).—In the most approved kinds, of all sizes.

STANDARD GOLDEN HOLLY (WATERER'S).—The best for standards; fine plants.

STANDARD WEEPING HOLLIES (Green and Variegated).

We have likewise immense quantities of the leading kinds of EVERGREENS, of all sizes, such as Yews, Box, Bays, Aucubas, Arbutus, Phillyreas, Common and Portugal Laurels, &c., as well as fine strong transplanted FOREST TREES, 2 to 3 and 4 feet, consisting of Ash, Beech, Alder, Spanish Chestnut, Hazel, Withy, Larch, Spruce, Pinus austriaca, &c.

CATALOGUES describing the colours of all the RHODODENDRONS worthy of cultivation, with a LIST of CONIFEROUS PLANTS, with heights and prices, forwarded to all applicants.

☞ Purchasers of large quantities of goods are informed that the great expense incurred by package is now greatly diminished, as we can forward from Sunningdale, in through trucks without change, to all Stations on the Great Northern, North-Western, Eastern Counties, and Great Western (narrow gauge) Railways; also by South-Eastern and Brighton Lines by way of Blackwater.

The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway, and Blackwater Station, South-Eastern Railway, where excellent Conveyances await all Trains.

GOLDEN FEATHER PYRETHRUM. (Pyrethrum parthenifolium aureo), new Golden-leaved Bedding Plant.—A dwarf hardy perennial, 6 to 9 inches in height, with beautiful golden leaves, of densely compact growth, unequalled for riband-rows or belts for the Flower Garden. It is perfectly hardy, and simply requires its flower-buds pinching off during the summer months, and stands through winter as a permanent gold edging plant. Produces its golden foliage true from seed. Sold in packets free by post, 1000 seeds, 1s. per packet. Any number of packets free by post. Seed our own saving of 1868. Trade supplied.

London Agents: Messrs. HURST & SON, 6, Leadenhall Street, E.C.
J. SLATER & SONS, The Nurseries, Malton, Yorkshire.

NEW IMPORTED FLOWER SEEDS.—20 varieties TRUFFAUT'S PÆONY ASTER; 12 do. Dwarf CHRYSANTHEMUM do.; 6 do. ROSE do.; 6 do. CROWN do.; 24 do. Dwarf GERMAN TEN-WEEK STOCKS; 20 do. Large Flowering do. do.; 6 do. BROMPTON or WINTER do.; 10 do. Double WALLFLOWER. The above, or any less number of varieties, at 2d. each, or in mixed packets, 3d. and 6d. each. The seeds are of the very highest quality, as testified by numbers of growers in all parts of Great Britain, during many past seasons. All flower seeds in packets post free. CATALOGUES free on application.

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Carriage Free.



Seeds direct from the Growers the best means of preventing disappointment.



SUTTONS' COMPLETE COLLECTIONS for the FLOWER GARDEN, to produce a beautiful display during the year.

No. 1 Collection, free by post or rail	£2	2	0
No. 2 Collection, free by post or rail	1	11	6
No. 3 Collection, free by post or rail	1	1	0
No. 4 Collection, free by post or rail	0	15	0
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Seeds of New and Beautiful Plants.

SOW NOW SEEDS OF

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	Per Packet—s. d.
PETUNIA	1 0
TROPÆOLUM	1 0
PELARGONIUM, ZONAL	1 0
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MIMULUS	1 0
HOLLYHOCK	1 0

"The flowers, as a whole, equal any that have hitherto come under our notice." Vide *Gardeners' Chronicle*, Sept. 19, 1868.
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ROBERT PARKER begs to offer the undernamed, all of which can be supplied in strong healthy plants:—

	Per dozen—s. d.
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HESPERIS MATRONALIS ALBA-PLENO (Double White Rocket)	4 0
LITHOSPERMUM PROSTRATUM (fruticosum)	9 0
PANSY CLIVEDEN BLUE	4 0
" PURPLE	4 0
" YELLOW	4 0
" GREAT EASTERN	4 0
" IMPERIAL BLUE	18 0
SEMPERVIVUM CALIFORNICUM	6 0
TRITOMA GRANDIS	18 0
" UVARIA GLAUCESCENS	12 0
VIOLA LUTEA SEMPERFLORENS	4 0

Special quotations may be had, if required, for the above, and many other kinds, by the 100, or in larger quantities.
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ACACIA ARMATA.—Per dozen	9s.	0d.
ACACIA DRUMMONDII	12	0
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CORONILLA GLAUCA	6	0
ERICAS, in variety	12	0
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MONOCHÆTUM SERICEUM GRANDIFLORUM	9	0
GARDENIAS or CAPE JESSAMINE	12	0
RHYNCHOSPERMUM JASMINOIDES	12	0
JASMINUM LIGUSTRIFOLIUM	12	0
CHOROZEMA, in variety	9	0

The above are good healthy blooming Plants, and are well worthy of attention.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

Vegetable, Agricultural, and Flower Seeds.

MISCELLANEOUS HARDY BEDDING PLANTS, SWEET VIOLETS, &c.

ROBERT PARKER begs to announce that his CATALOGUE, containing DESCRIPTIVE LISTS of the finest kinds in cultivation of the above-named, is now published, and will be forwarded to applicants. The stocks of Seeds have all been procured from the best possible sources; all are warranted genuine, and are offered at the lowest possible prices.

Intending purchasers are requested to compare the prices with those of other houses.
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New Seeds for the Garden and Farm, 1869.



ARCHD. HENDERSON'S DESCRIPTIVE and PRICED CATALOGUE of SEEDS, containing Cultural Remarks on all the most important SEEDS,

A select list of GLADIOLUS for Spring Planting,

GRAPE VINES, in Pots, an unrivalled Collection.

Also his DESCRIPTIVE CATALOGUE of GENERAL NURSERY STOCK is now ready, and may be had gratis and post free upon application.

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VEGETABLE SEEDS.—J. SCOTT'S stock of Vegetable Seeds is of the purest and best quality. Customers and friends who daily visit "The Seed Stores" (which have been altered and much enlarged) express their highest admiration of the appearance of the Seeds.

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AGRICULTURAL SEEDS.—For a full description, prices, mode of sowing, and every other particular, J. S. begs to refer all purchasers of Farm Seeds to his LIST of AGRICULTURAL SEEDS, MANGEL WURZEL, SWEDE and TURNIP of Extra Selected Stock, saved by J. SCOTT from twice-selected, transplanted roots. Large buyers liberally treated with.

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FINE ORANGE TREES for SALE.—Ten very handsome Trees, in robust health, loaded with Fruit; clean, straight stems, about 4 feet; symmetrical heads, 5 feet diameter. One CITRON, same size. In ornamental green tubs.

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PYRAMIDAL APPLES and PEARS, full of fruit buds.

Apples, 18s. per dozen; Pears, 24s. per dozen.

DWARF-TRAINED TREES, of extra size, in a fruiting state, adapted for walls or espaliers, including Apples, Pears, Plums, Cherries, &c.

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LORD BURGHLEY APPLE.—Maiden Trees, 1s. 6d. each; Fruiting Trees, 2s. 6d. each; Grafts, 2s. per dozen.

GRAPE VINES.—Extra strong Fruiting Canes, four for 20s. Some of the same size can be seen in heat at the Nursery, showing 15 and 20 bunches each. Good Canes for planting or fruiting, will bear from six to eight bunches, four for 12s.

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contains a sketch of the various forms of Trees, with directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by post for three stamps.

RICHARD SMITH,
Nurseryman and Seedsman,
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RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE, suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious index of their synonymes. Free by post for six stamps.

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AMERICAN ARBOR-VITÆ, 4 to 5 feet, at 50s. per 100; 5 to 6 feet, at 84s. per 100; 6 to 7 feet, at 100s. per 100.

SIBERIAN ARBOR-VITÆ, 2 to 2½ feet, 40s. per 100; 2½ to 3 feet, 50s. per 100; 3 to 3½ feet, 75s. per 100; 3½ to 4 feet, 100s. per 100.

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WELLINGTONIA GIGANTEA, very handsome, well-furnished specimens, frequently transplanted, 2 to 2½ feet high, at 24s. per dozen; 2½ to 3 feet, 30s. per dozen; and 3 to 3½ feet, 36s. per dozen.

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Green Hollies.

CHIVAS AND WEAVER have a large stock of the above specially handsome plants, up to 8 feet high; also SPRUCE FIRS, from 2½ to 3 feet, and 3 to 3½ feet, which they are offering at very low prices, which may be had on application.

Chester.—March, 1869.

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BERBERIS DARWINII, 9 to 15 inches, 25s. per 100.			
" DULCIS, 12 to 18 inches, 10s. 6d. per 100.			
" AQUIFOLIA, 9 to 12 inches, 10s. 6d. per 100.			
LIGUSTRUM OVALIFOLIUM, 18 to 24 inches, 5s per 100.			
COTONEASTER SIMMONSII, 36 to 48 inches, 25s. per 100.			

To Clear the Ground,

The finest varieties of DWARF ROSES are offered at HALF PRICE.

To Clear the Ground,

A large quantity of Hybrid Seedling RHODODENDRONS, from 1 foot to 3 feet high (very bushy), will be Sold at HALF PRICE.

To Clear the Ground,

Some magnificent HYBRID PERPETUALS, in Pots, will be Sold at HALF PRICE.

Apply to CHARLES NOBLE, Bagshot.
Send for a CATALOGUE.

Plants for Hedges.

TWO HUNDRED THOUSAND COMMON LAURELS, from 1½ to 3 feet.

WM. WOOD & SON.

AMERICAN ARBOR-VITÆ, especially recommended for Hedges:—2 to 3 feet, 6s. per dozen, 40s. per 100; 3 to 4 feet, 9s. per dozen, 60s. per 100; 4 to 5 feet, 18s. per dozen (extra fine), 100s. per 100.

Extra fine Transplanted BEECH and HORNBEAM, 2 to 3 ft. and 3 to 4 feet; also fine EVERGREEN PRIVET, in large quantities.

WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, SUSSEX.

The Planting Season.

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WM. WOOD AND SON respectfully invite especial attention to their very large stock of STANDARD ORNAMENTAL TREES, of large size, suitable for planting as single specimens on Lawns or in Parks where immediate effect is desired.

WEEPING ASH, 7 to 9 feet stems.
AMERICAN WILLOWS, 6 to 7 feet stems.
CATALPA SYRINGÆFOLIA, 6 to 8 feet.
ELMS, CHICHESTER and ENGLISH, 8 to 10, and 10 to 12 feet.
SILVER and SPRUCE FIRS, 6 to 7 feet.
HORSE-CHESTNUTS, 6 to 8, and 8 to 10 feet.
SCARLET HORSE-CHESTNUTS, extra fine plants, 6 to 8, and 8 to 10 feet.
LABURNUMS, Yellow and Purple, 6 to 8 feet.
POPLARS, BLACK ITALIAN and LOMBARDY, extra fine, 8 to 10, and 10 to 12 feet, and various other HARDY TREES.

See PRICED CATALOGUES, which may be had free on application

First Crop or Ringleader Pea.

CHARLES SHARPE AND CO., having grown largely this EXCELLENT EARLY PEA, with great care, have much confidence in offering it to the Trade. Price on application.

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CHARLES SHARPE AND CO. will be glad to send special offers of their carefully selected TURNIP, MANGEL, and other FARM SEEDS on application.

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CHARLES SHARPE AND CO. are now prepared to make special offers of all the leading sorts of POTATOS. Sleaford.

SEED POTATOS, SKERRY BLUES.—Several Tons of the above fine sort on Sale. It is a great cropper, excellent in quality, and resists the blight better than any other sort. Price, delivered at Rye Station, South Eastern line, 40s. per ton, or 4s. per sack. New Sacks 1s. 6d. each. Apply to Mr. CASEY, the Gardener, Flackley Ash, Pease Marsh, Sussex.

Choice Potatos for Planting.

SUTTON AND SONS can supply the following excellent POTATOS at very moderate prices:—

Myatt's Early Ashleaf	Flour Ball	Skerry Blue
Barron's Perfection	Milky White	Fluke Kidney
Dalmahoy	Paterson's Early Regent	Walker's Regent

Lowest price per Sack or Ton on application.
SUTTON & SONS, Seed Growers, Reading.

EDWARDS' ECLIPSE CUCUMBER, pronounced by all who have seen it to be the best in cultivation. It is a most prolific bearer, possessing every quality of a first-rate Cucumber, and produces fruit 24 to 30 inches in length at every joint. Orders have been given by all who have seen it growing.

A brace of the above was sent to the Editor of the *Gardeners' Chronicle*. The following was his opinion, on the 19th December:—"A handsome white-spine variety, of crisp flavour, and having the recommendation you mention, it is a desirable variety."

Can be had in packets of six seeds, 2s. 6d each, of GEORGE EDWARDS, King Street, Castlegate, York; and of Messrs. HURST & SON, Seedsmen, 6, Leadenhall Street, London, E.C.

Improvement of Grass Lands.

SEEDSMEN BY APPOINTMENT TO H.M. Sutton AND Sons.

SUTTONS'
RENOVATING MIXTURE
FOR
IMPROVING PASTURES

Deficient of Herbage, should be Sown in the early Spring.

Cost, from 4s. 6d. to 9s. per acre.
Sow 6 to 12 lb. per acre.

Price 9d. per lb.; cheaper by the cwt.
Carriage free.

SUTTON & SONS, Reading, Berks.



J. C. WHEELER & SON

RESPECTFULLY DEDICATE THEIR

ILLUSTRATED BOOK ON GRASSES,

Firstly,—To their numerous and highly valued Customers throughout the Kingdom.

Secondly,—To the Members of the Gloucestershire Agricultural Society, to whom they have had the honour of being appointed Seedsmen.

Thirdly,—To the Members of the Royal Agricultural Society o England, to each of whom a Copy will be sent gratis.

Fourthly,—To Scientific Agriculturists generally.

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Price Sixpence, post free.

J. C. WHEELER & SON, Grass-Seed Merchants, Gloucester, and 59, Mark Lane, London, E.C.

WHEELERS' CLOVER and GRASS "SEEDS" for ONE YEAR'S LAY, of the finest quality, at 13s. 6d. per acre, arranged in accordance with the following Table:—

4 lb. Evergreen Rye-grass, Lolium perenne
3 lb. Italian Rye-grass, Lolium italicum
2 lb. Cocksfoot Grass, Dactylis glomerata
1 lb. Timothy, Phleum pratense
6 lb. Red Clover, Trifolium pratense
6 lb. Trefoil, Medicago lupulina

This admirable Mixture, all of the finest quality, will (weather permitting) produce a luxuriant crop. We sell Hundreds of Acres. We deliver it carriage free, and allow 5 per cent. Discount for Cash.

J. C. WHEELER & SON, Grass-Seed Merchants, Gloucester, and 59, Mark Lane, London, E.C.

WHEELERS' CLOVER and GRASS "SEEDS" for TWO YEARS' LAY, of the finest quality, at 17s. 6d. per acre, arranged in accordance with the following Table:—

4 lb. Evergreen Rye-grass, Lolium perenne
4 lb. Italian Rye-grass, Lolium italicum
2 lb. Cocksfoot, Dactylis glomerata
2 lb. Timothy Grass, Phleum pratense
2 lb. Red Clover, Trifolium pratense
3 lb. Cow Grass, Trifolium pratense perenne
3 lb. White Dutch, Trifolium repens
4 lb. Trefoil, Medicago lupulina

Of this admirable Mixture we also sell Hundreds of Acres every year. We deliver it carriage free, and allow 5 per cent. Discount or Cash.

J. C. WHEELER & SON, Grass-Seed Merchants, Gloucester; and 59, Mark Lane, London, E.C.

WHEELERS' GRASS SEEDS for PERMANENT PASTURE on the OLD RED SANDSTONE, of the finest quality, carriage free. For Light Soil, 28s. per acre; Medium, 30s.; Heavy, 32s.

For Table containing quantities, sorts, &c., see WHEELERS' "Illustrated Book on Grasses."

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WHEELERS' GRASS SEEDS for PERMANENT PASTURE on the Oolite, of the finest quality, carriage free. For Light Soil, 26s. per acre; Medium, 28s.; Heavy, 30s.

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WHEELERS' GRASS SEEDS for PERMANENT PASTURE on the different Geological Formations, of finest qualities and lowest prices, delivered carriage free, less 5 per cent. Discount for Cash. See WHEELERS' "Illustrated Book on Grasses," 6d., post free.

J. C. WHEELER AND SON,
GRASS SEED MERCHANTS, GLOUCESTER and
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CHOICE PRIMULA SEEDS.

B. S. WILLIAMS

BEGS TO CALL SPECIAL ATTENTION TO HIS SUPERB STRAIN OF THIS

UNIVERSALLY ADMIRED WINTER AND SPRING FLOWERING PLANT.

He can with confidence offer it as being unequalled in cultivation.

Plants from this Seed have always been awarded First Prizes wherever exhibited. B. S. W.'s strain of Primula is so well known to all the principal gardeners in the three kingdoms that testimonials are unnecessary.

In sealed packets, Red, White, or Mixed, 2s. 6d., 3s. 6d., and 5s. each.

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SELECT AND GENUINE FARM SEEDS,

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JAMES DICKSON AND SONS can confidently recommend their DICKSONS' PRIZE PURPLE-TOP SWEDE, as being superior to any other, also their ROOT-CROP SEEDS of every description; their CLOVERS, GRASS, SEEDS, &c., are all extra clean, much more so than those generally offered.

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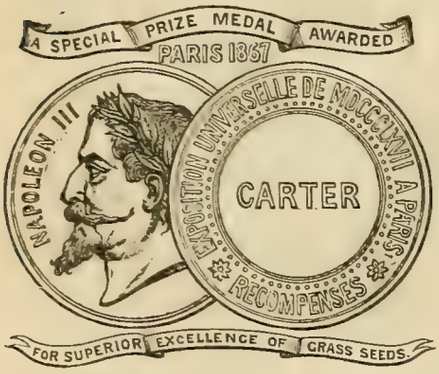
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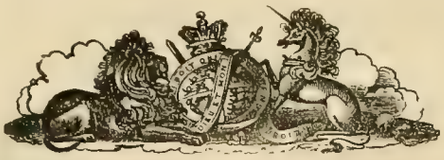
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CARTER'S PRIZE MEDAL FARM SEEDS.

HARVESTED ON THEIR OWN SEED FARMS, AND SUPPLIED DIRECT TO THE CONSUMER.







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THE ROYAL SEEDSMEN,

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SPECIALLY PREPARED TO SUIT EVERY DESCRIPTION OF SOIL,

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FINEST QUALITY, 28*s.* to 32*s.* per acre.
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CARTER'S GRASS SEEDS FOR ALTERNATE HUSBANDRY.

Including the greatest food and hay producing Grasses and Clovers, in such proportions as the particular rotation may require.

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For THREE or FOUR YEARS' LAY, 22*s.* per acre.

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7*s.* 6*d.* per bushel; cheaper samples from 4*s.* 6*d.* to 7*s.* per bushel.

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AS SUPPLIED TO

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20*s.* per bushel; second quality, 18*s.*

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Free from weeds and dirt.

BROAD-LEAVED RED, PERENNIAL RED or COW GRASS, | WHITE DUTCH, ALSIKE HYBRID, [HOP. YELLOW TREFOIL or

Lowest price on application.

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OF FINE GRASS SEEDS FOR CRICKET GROUNDS.
18*s.* per bushel. (3 bushels per acre).

LOOK TO YOUR GRASS LANDS.

CARTER'S RENOVATING MIXTURE

Should be sown on meadows that have suffered from the past dry summer. The Mixture includes the most desirable Grasses and Clovers for hay crop, and succeeding green feeding, and will soon restore a first-rate permanent pasture.

Sow 8 to 12 lb. per acre. Price 9*d.* per lb.; 80*s.* per cwt.

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GRASS SEEDS.

From The Right Hon. Lady CARBERY, *Castle Freke.*

"Lady Carbery wishes to tell Messrs. CARTER *nothing can be better than the Meadow Land laid down with their Grass and Clover Seeds last season.*"

From J. EDWARDS, Esq., *Her Majesty's Defences.*

"The whole of the Grass and other Seeds *gave great satisfaction.*"

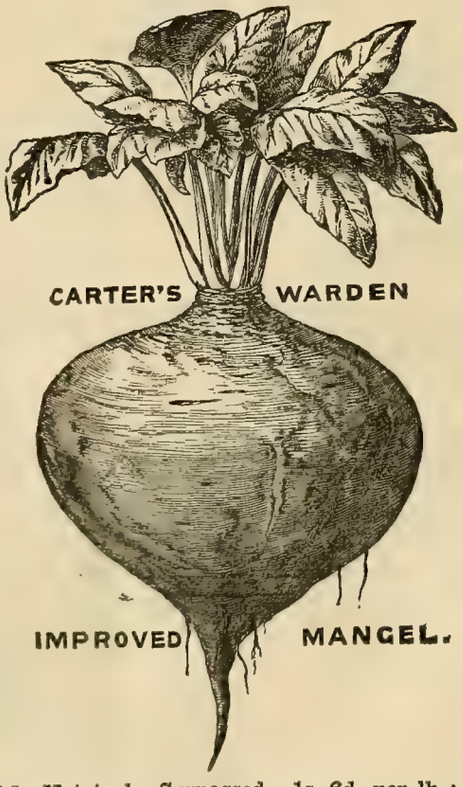
From M. BARILLET, *Chief Superintendent of the Gardens of* H. I. M. Napoleon III.

"The Grass which we have laid down with your Seeds has come up well, and is magnificent."

CARTER'S PRIZE MANGEL WURZEL.

The following are five of the finest varieties in cultivation: —

CARTER'S CHAMPION ORANGE GLOBE, an immense cropper, 1*s.* per lb.
CARTER'S YELLOW INTERMEDIATE, fine top, large oval root, 1*s.* 6*d.* per lb.
CARTER'S MAMMOTH LONG RED, a new variety, (see Testimonial), 1*s.* 6*d.* per lb.
CARTER'S ELVETHAM LONG YELLOW, very superior, 1*s.* 6*d.* per lb.
CARTER'S IMPROVED RED GLOBE, 1*s.* per lb.



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From F. DEACON, Esq., *South Tawton.*

"I have a splendid crop of CARTER'S Warden Mangel from your seed. I consider it the best I have ever grown."

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"I took the First Prize Silver Cup at the Taunton Show with CARTER'S Mammoth Long Red Mangel, and my crop averages 50 tons per acre."

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"The Swede Turnips (from your Seed) were the best in the neighbourhood."

CARTER'S PRIZE SWEDE AND TURNIP.

CARTER'S IMPERIAL HARDY SWEDE. — The hardiest and best variety in cultivation. See p. 339. 1*s.* per lb., cheaper per cwt.

CARTER'S DEVONSHIRE GREY-STONE TURNIP, very hardy. 1*s.* 6*d.* per lb.

[See Testimonial.] Not to be Surpassed. 1s. 6d. per lb.; cheaper per cwt.

5 per cent. discount for cash. Special estimates for quantities.

For full descriptions of CARTER'S PRIZE STOCKS of MANGEL, TURNIPS, GRASSES, and other FARM SEEDS, harvested on their own Seed Farms, see

CARTER'S ILLUSTRATED FARMER'S CALENDAR FOR 1869.

Post Free 6*d.* (gratis to purchasers).

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Prize of Five Pounds.

MESSRS. JOHN AND CHARLES LEE will give a PRIZE of FIVE POUNDS for the best THREE BUNCHES of MADRESFIELD COURT BLACK MUSCAT GRAPES, on October 5, 1869, to be awarded by the Fruit Committee of the Royal Horticultural Society at South Kensington. Mr. Cox will not compete.

Messrs. LEE can still supply a few extra strong Fruiting Canes at 63s. each.—Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

Gladioli, the most Extensive Collection.

BARR AND SUGDEN, 12, King Street, Covent Garden, W.C., have the finest and largest collection of GLADIOLI ever offered, prices varying from 2d. to 15s per root. For particulars see pp. 68, 69, 70, and 71 of B. & S.'s SPRING SEED CATALOGUE.

BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

Choice Seeds, Gladioli, &c.

WM. CUTBUSH AND SON'S CATALOGUE of the above contains description and price of many very superior home-grown VEGETABLE and FLOWER SEEDS, and choice varieties of GLADIOLI, &c., all of which are highly recommended. Post free on application.

Highgate Nurseries, London, N.

British Fern Catalogue.

ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

Foot's Cray Nursery, Sidcup Hill, Kent.

Chrysanthemums.

NOTICE.—In answer to numerous applications, ADAM FORSYTH begs to inform the Trade and the Public that his New CHRYSANTHEMUMS will be sent out the first week in April. For description, see CATALOGUE, now ready. All orders executed in rotation.

Brunswick Nursery, Stoke Newington, N.

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JOHN SALTER AND SON beg to announce that their CATALOGUE of NEW JAPANESE and other CHRYSANTHEMUMS is now ready, and may be had on receipt of two stamps.

Versailles Nursery, William Street, Vale Place, Hammersmith, near Kensington Railway.

MAGNIFICENT NEW PLANT, GESNERA EXONIENSIS.

This is acknowledged by all who have seen it to be the finest winter-blooming plant ever yet offered.

The colour of the flowers is an intense orange-scarlet, the leaf is of a new dark velvety texture, studded with minute red hairs like plush. Nothing can be imagined more brilliant than the mass of bloom, which when well-grown is quite 20 inches through.

The value of the plant may be gathered from the fact of our having now one in particular that has been in perfection for the last five months, the admiration of all who see it.

Fine tubers sent free by post that will bloom this year at 5s. and 7s. 6d. each. Early orders are respectfully solicited.

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CALCEOLARIAS, Herbaceous, of the choicest strains (free by post), out of pans, 12s. 6d. per 100; out of single pots, very fine plants, 25s. per 100; less quantities at the same rate; also supplied in 3-inch pots, and extra strong in 4-inch pots, splendid plants, 7 months old and grown on, at per 100 or 1000 on application.

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CALCEOLARIA AMBASSADOR (SANG'S).—Autumn-struck plants of this now well-known beautiful Calceolaria, 9s. per dozen.

SANG'S DEEP CRIMSON BEET.—Most beautiful in colour, and finely flavoured. Per packet, 3d., or 6d. per oz.

TRUE SCOTCH LEEK.—A very superior large hardy Leek, capable of withstanding the severest winters. Per pkt., 3d., or 1s. per oz.

PRINCE of WALES' GREENS.—Dwarf, and most beautifully curled. Per oz., 4d.

PRICED CATALOGUES of Forest, Fruit, and Ornamental Trees and Shrubs, Vegetable and Flower Seeds, Ferns, &c., may be had free on application.

E. S. & SONS deal liberally with respect to the carriage of their packages.

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SCARLET PERPETUAL WINTER-FLOWERING TREE CARNATIONS.—Strong plants of this most favourite flower for cutting blooms for market, &c., 2 to 3 feet in height, in 32-size pots, £6 per 100, or 18s. per dozen; in 48-size pots, £4 per 100, or 14s. per dozen.

T. W. BEACH, Ealing Lane Gardens, Old Brentford, W.

STUART MACDONALD AND CO.'S Sealed Collections of CARNATIONS and PICOTEES are the finest in cultivation. WHOLESALE LIST of all the NEW and CHOICE FLOWER SEEDS which S. M. & Co. alone profess to supply.

Seed Grounds—South of France.

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Carnations and Picotees.

GEORGE EDWARDS' COLLECTION of the above flowers contains all the best varieties in cultivation, and he is now sending out, in good plants,

Selections of 12 Pairs, 6 of each, for 20s.
" " " " 16s.
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Reference or remittance from unknown correspondents.

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SEND for ABBOTT'S NEW CATALOGUES of CHOICE SEEDS, ZONAL GERANIUMS, FERNS, FUCHSIAS, BEDDING PLANTS, FRUIT TREES, ROSES, post free on application. Also, Cheap, for cash, GLADIOLUS BRENCHLEYENSIS, fine roots, 1s. 6d. per dozen, or 10s. 6d. per 100. Also, CALCEOLARIA AUREA FLORIBUNDA, 8s. per 100. Fifty packets choice FLOWER SEEDS, post free, for 6s. Also, ABBOTT'S splendid CUCUMBER, the Early Prolific, post free for 13 stamps.

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Finest Prize Hollyhock Seed.

HENRY MAY begs to offer Seed from his renowned Collection of HOLLYHOCKS, which has for years been awarded all the First Prizes at all the great Exhibitions in the North of England. The Seed is saved from the newest and finest varieties only, and he will supply 500 Seeds for 5s., 1000 for 9s., 2000 for 15s. Post-office Orders payable at Bedale.

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Superb Double Hollyhocks.

NOW IS THE TIME FOR PLANTING TO ENSURE GOOD SPIKES AND BLOOMS THIS SEASON.

WILLIAM CHATER'S CATALOGUE of his unrivalled Collection may be had upon forwarding one postage stamp. Choice Bloomed Seedlings, with colours attached, 40s. per 100. Unbloomed Seedlings, from finest named varieties, 25s. per 100. SEEDS, saved only from first-class flowers, in packets and collections, from 1s. to 10s. 6d.

Special prices for quantities to the Trade on application.

WILLIAM CHATER, The Nurseries, Saffron Walden.

Camellias, Azalea indica, and Rhododendrons BY THE 100,000.

JOSEPH BAUMANN, NURSERYMAN, Ghent, Belgium, begs to offer the following Plants, without Flower-buds:—

100 CAMELLIAS, best sorts, £3, £4, £5, £6, and £8.
100 AZALEA INDICA, best sorts, good plants, £3 10s.
100 RHODODENDRONS, best hardy sorts, 2-yr. grafted, £6.
100 AZALEA INDICA, Stocks, 12s
100 " PONTICA, small Stocks, 5s.
100 THUJA ELLWANGERIANA (or Tom Thumb Arbor-vitæ, new), £2
1 PÆONIA MOUTAN GLORIA BELGARUM, £1.
1 " SOUVENIR DE GAND, £1.
3 New AZALEA INDICA, 1st prize at Ghent:—ALFRED DELIMON, COMTE BISMARCK, TRIOMPHE D'EVERGEM; the three, with or without flower-buds, 15s.

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LEWIS S. WOODTHORPE will be happy to forward, post free, on application, his CATALOGUE (which will be found very reasonably priced) of NEW and CHOICE PLANTS, beautiful SPRING FLOWERS, and GENERAL NURSERY STOCK.

A heavy discount to the Trade.

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GEO. SMITH'S PRICED and DESCRIPTIVE CATALOGUE, containing Select Lists of all the leading kinds of choice Show, Spotted, French, Fancy, Variegated, Zonal, Gold and Bronze, Ivyleaf, and Double-flowering PELARGONIUMS, VERBENAS, FUCHSIAS, PETUNIAS, CHRYSANTHEMUMS, DAHLIAS, BEDDING PLANTS, &c., in exchange for one postage stamp.

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THOMAS S. WARE has much pleasure in announcing that his new CATALOGUE of PERENNIALS, including Herbaceous, Alpine, and Tuberous-rooted Plants, is now ready, and will be forwarded free on application.

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Verbenas, 5s. per 100, 40s. per 1000.

WILLIAM BADMAN offers Purple, White, Scarlet, Crimson, Rose, &c., strong plants, from store pots, 5s. per 100, 40s. per 1000. LOBELIA SPECIOSA (true), strong, from cuttings, 5s. per 100, 40s. per 1000. Terms cash, package included.

Cemetery Nursery, Gravesend.

Roses.

JOHN CRANSTON will be happy to forward on application his DESCRIPTIVE CATALOGUE of ROSES for 1868 and 1869. For quality or quantity the stock is unsurpassed; the Manetti Roses especially are acknowledged to be the finest grown plants in the Trade.

Nurseries, King's Acre, near Hereford.

New Roses, &c., 1869.

WM. KNIGHT begs to offer the following Plants:—

12 NEW ROSES, Strong Plants .. .. .. 36s.
12 Finest NEW FUCHSIAS, Strong Plants .. 6s.
12 Finest NEW VERBENAS, Strong Plants .. 4s.
12 Finest COLEUS, Strong Plants .. .. .. 5s.
6 NEW PETUNIAS, Strong Plants .. .. 4s.

Or the above Collection, package included, for 2l. 10s.

CATALOGUE free.

Floral Nursery, Hailsham, Sussex.

New Bedding Plant—Echeveria metallica.

B. S. WILLIAMS is now enabled to offer for the first time SEEDS of this very Ornamental Bedding Plant, which during the past season produced such a splendid effect in the Grounds at Battersea Park. For edging, and various other purposes, the broad bronzy leaves afford a very striking and beautiful contrast, quite distinct from any other plant yet used for Bedding purposes. In sealed Packets, 2s. 6d. each.

B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, N.

Golden Coleus, Queen Victoria.

MESSRS. JOHN AND CHARLES LEE are now sending out this most beautiful and most brilliant of all Coleuses. The centres of the leaves are superb bronze, light crimson edged, with a double row of golden beads, richly broken with crimson veinings. QUEEN VICTORIA is of free growth and good habit, and has a truly regal appearance. First-class Certificate. Price 7s. 6d.

Messrs. LEE also offer COLEUS PRINCESS ROYAL.—Colour and habit the same as Queen Victoria, except that the golden margin is much narrower. A superb variety. First-class Certificate. Price 7s. 6d.

COLEUS ALBERT VICTOR.—Centre of leaves brownish-red, shaded with purplish maroon; golden margin very broad. Very distinct and effective. A strong grower. First-class Certificate. Price 7s. 6d.

The Set of Three for 20s. Usual allowance to the Trade.

Royal Vineyard Nursery and Seed Establishment, Hammersmith.

RHODODENDRONS by the doz., 100, 1000, or 10,000.

	Doz.	Per 100	Per 1000
	s. d.	£ s. d.	£ s. d.
RHODODENDRON PONTICUM, fine bushy plants, well rooted .. 9 to 15 inches	3 0	0 15 0	7 0 0
" " " " 1 to 1½ foot	4 0	1 0 0	9 10 0
" " " " 15 to 20 inches	4 6	1 2 6	11 0 0
" HYBRIDUM, bushy plants, 9 to 15 inches	4 0	1 5 0	..
" " " " 1 to 1½ foot	5 0	1 10 0	..
" " " " 1½ to 2 feet	6 0	2 0 0	..
" MAXIMUM ALBUM " 1 to 1½ foot	4 0	1 5 0	12 0 0
" " " " 15 to 20 inches	5 0	1 10 0	14 0 0
" " " " 1½ to 2 feet	6 0	2 0 0	..
The above sorts selected in bloom bud 2s. doz. ex.			
" HIRSUTUM, dwarf Alpine, nice bushy plants	3 0	0 15 0	7 0 0
" 120 named varieties, 1, 2, and 3 year, from grafts, 1s. 6d. to 3s. 6d. each.			
Hardy HEATHS, 40 varieties, nice plants, by the dozen, 100, or 1000, very cheap. See Catalogue.			
ARBOR-VITÆ, American, fine bushy well-rooted plants, fine for single plants or hedges .. .. 1½ to 2 feet	2 0	0 12 0	..
" " " " " 2 to 2½ feet	2 6	0 15 0	..
" " " " " 2½ to 3½ feet	3 0	0 16 0	..
" " " " " 3½ to 4½ feet	4 6	1 5 0	..
" " " " " 4 to 5 feet	5 0	1 10 0	..
" " " " " 5 to 6 feet	10 0	..	..
Double WHIN, FURZE or GORSE, good plants, extra transplanted 1 to 1½ foot	3 0	0 12 0	..
" " " " 15 to 20 inches	4 0	0 15 0	..
" " " " nice plants in pots	4 0	1 0 0	..
COTONEASTER MICROPHYLLA, nice bushy plants .. .. .. 1 to 1½ foot	..	0 12 0	5 0 0
" " " " " 1½ to 2 feet	..	0 15 0	..

PRICED CATALOGUES and any information may be had on application to

JAMES SMITH, Darley Dale Nurseries, near Matlock.

New Fuchsias—Primulas.

FELTON AND SONS (late Felton & Holiday) will send out their four unrivalled NEW DOUBLE FUCHSIAS in the last week of April, 1869. They have been selected from many thousands, are quite distinct, and cannot fail to give satisfaction.

LORD CALTHORPE.—Bright scarlet tube and sepals, very thick and waxy, of great length, and most beautifully reflexed; corolla large and full, deep purple, slightly veined at the base. This is a noble Fuchsia, free grower and profuse bloomer, and makes very fine specimens.

HARRY FELTON.—Bright crimson tube and sepals, the latter reflexing with a graceful and remarkably regular curl; corolla bright mauve, very large and full, and being well expanded, makes the flower of great size and remarkably showy; the habit excellent, and bloom abundant.

CONQUEROR.—Light crimson tube and sepals, tube short, sepals very long and broad, elegantly recurved; corolla dark purple, flamed crimson—a very pretty variety.

EXQUISITE.—Large tube and sepals, elegantly reflexed, colour bright crimson; corolla large and full, purple and rose, flamed and flaked; novel in colour, and very compact.

Price 7s. 6d. each; the set for 25s. If more than one set ordered, 21s., with usual discount to the Trade.

We have also a good stock of our two new White Fuchsias, which we sent out last spring, and of which the following are the descriptions, copied from *Gardeners' Chronicle*, January 30, 1869.

LADY SALE (FELTON & SONS).—White tube and sepals, the latter nicely reflexed, and of good substance; corolla pink-purple, stout; an abundant bloomer, of good habit. I think it will make a good Fuchsia for any purpose.

JOLLY (FELTON & SONS).—This is a welcome and long wished-for improvement on a good old variety called Fair Oriana; pure white tube and sepals, the latter well reflexed; bright pink-scarlet corolla; a good grower, and very free.

Price 2s. 6d. each. Orders booked now, and executed in strict rotation.

PRIMULA, from one of the choicest strains in cultivation, 2s. 6d., 3s. 6d., and 5s. per pkt.

Birmingham Nursery, 58, Harborne Road, Edgbaston, Birmingham.

July 19th to 24th, 1869.

THE ROYAL HORTICULTURAL SOCIETY'S GRAND EXHIBITION at MANCHESTER, in connection with the SHOW of the ROYAL AGRICULTURAL SOCIETY.

Amongst various Special Prizes,

A SILVER CUP (copy of the famous Cellini Cup), **VALUE £21** will be offered by the Proprietors of the GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE for the best COLLECTION of 6 FRUITS and 8 VEGETABLES, to be made up as follows.

In awarding the Prize, Marks will be adjudged according to the following scale, for the several subjects produced.

	Good.	Medium.	Inferior.
Grapes	6 marks	3 marks	1 mark
Melons (2 fruits)	6 "	3 "	1 "
Strawberries	3 "	2 "	1 "
Gooseberries	3 "	2 "	1 "
Currants	3 "	2 "	1 "
Cherries	3 "	2 "	1 "
Raspberries	3 "	2 "	1 "
Apples of 1868	6 "	3 "	1 "
(Any 6 of the above 8 subjects).			
Peas	3 "	2 "	1 "
French Beans	3 "	2 "	1 "
Broad Beans	3 "	2 "	1 "
Cauliflowers	3 "	2 "	1 "
Cucumbers (brace)	3 "	2 "	1 "
Summer Cabbages	3 "	2 "	1 "
Early Carrots	3 "	2 "	1 "
Turnips	3 "	2 "	1 "
Globe Artichokes	3 "	2 "	1 "
Onions	3 "	2 "	1 "
Spinach	3 "	2 "	1 "
Rhubarb	3 "	2 "	1 "
Potatos	3 "	2 "	1 "
Mixed Salading	3 "	2 "	1 "
(Any 8 of the above 14 subjects).			

This Prize is open for Competition amongst Amateurs and Gardeners of private families. The Fruit and Vegetables produced must be of *the Exhibitor's own growing*; and any article otherwise obtained will disqualify the Collection. It is expected that the several articles will be neatly and effectively displayed.

The Gardeners' Chronicle.

SATURDAY, MARCH 27, 1869.

MEETING FOR THE ENSUING WEEK.

THURSDAY, April 1—Linnean .. .. 8 P.M.

THE future of FLOWER SHOWS is one of the difficult questions of our time. As a rule they do not pay, and the problem to be solved is this—Why not? They were in former days a source of profit: now too often they end in loss. What can make this difference? Certainly not that horticulture and floriculture have retrograded, or even that the skill of cultivators has stood still. Certainly not, we think, that fewer persons than formerly take an interest in matters connected with gardening.

The reasons for this state of things may probably have had their origin in the very successes of former days. Thus, one step in advance has led to another until the shows have actually outgrown themselves, for by little and little the size of the objects produced has been increased, till now everything is carried out on so gigantic a scale that the prizes have necessarily become overwhelming. In the next place, the very beauty of the objects shown may have led the managers to rest satisfied with the routine arrangements adopted from the beginning, until they have become so formal and stereotyped, that the shows fail to attract outside paying visitors in numbers sufficient to be remunerative. New classes of objects of a minor character, have indeed been, from time to time, introduced here and there, but, in a general sense, there has been little change in our shows, except as to the gradual increase of the size of individual plants, and as to the necessary limitation of numbers, which have led to a most appreciable curtailment of variety. The large collections of mixed plants, which once numbered 40 or 50 specimens, have dwindled down to tens or twelves, many of them easily grown, and serving for two or three successive shows. Then the collections of different growers are mostly mere repetitions of each other, seldom showing any material change, seldom containing any unfamiliar object. As to the overgrown plants themselves, these monsters might well be replaced by smaller plants in 12-inch or 15-inch pots. For 16 or 20 plants, such as these, the growers were formerly proud to get Knightian and Banksian Medals. Now, as much as 20*l.* is given for 12 plants, certainly larger, but not more meritorious as objects of cultivation. A prize of 20*l.* for 30 or 40 plants, in pots not to exceed 15 inches in diameter, has been suggested as likely to open up an entirely new field for competition; and certainly since we have gone as far as is practicable with large pots, it might now be wise to try how far success might be attained in smaller ones. Besides the more varied character of the plants exhibited in years gone by, we miss another feature of interest, namely, the collections of fruits, which, while they excited much interest at the May meetings, became grand features in the months of June and July.

The extension of the duration of the shows, which was the saving feature in the great Inter-

national of 1866, in a financial point of view, has been tried, but in relation to the annually recurring ordinary summer shows, not with such successful results as to warrant its being regarded as a panacea.

In Belgium, at the grand show of the "Société Royale d'Horticulture de Liége," to be held on the 4th and 5th of April next, some new features are proposed in order to throw fresh life into the exhibitions of that country, for there, as here, the shows are pronounced to be in a declining state, notwithstanding that horticulture itself is spreading and improving, numbering more ardent disciples than ever. It is the opinion of the managers of the Liége Society, uttered through its secretary, M. Morren, that the arrangements inaugurated at the establishment of exhibitions in the early part of the century have been followed too long and too closely without having been modified to meet the progress of the age; and, moreover, that rewards well adapted to excite emulation and encourage progress half a century since, have not now the same influence. These rewards, instead of being successively ameliorated, says M. Morren, have only been multiplied till they have become unremunerative. Hence, one novel feature of the Liége show consists in substituting for a large number of small prizes for limited groups, a smaller number of larger prizes, according to a plan which throws them open to a greater number of competitors. Besides this, the Belgians have adopted the excellent plan of "special prizes" provided by individuals, as followed out with such good results at our own shows. A third novel feature is that of instituting "matches" between growers of certain specialities; while still another feature, analogous to that of "selling races," is the institution of certain classes in which the competing collections, having a maximum value set upon them beforehand, are bound to be sold to any person who may put in a claim for them, and be willing to pay the price fixed.

The principle of the first proposition, that of widening the area of competition, needs some further explanation. It may be thus illustrated from the Liége Prize Schedule. In the 6th group, headed *Prix du Feuillage*, we find that in the 1er Concours, six medals are offered. This "Concours" embraces Ferns, Lycopods, Marants, Aroids, Begonias, Nepenthes, Anæctochiluses, &c.; but instead of separate classes for these several subjects, they form one combined class, so that collections of 40 Stove Ferns, 12 Lycopods, 12 Marantas, 20 Aroids, 15 Caladiums, 30 Begonias, 10 Nepenthes, 20 Climbing Plants, and 8 Anæctochiluses, any one of which, of course, may bring forward several competitors, compete together for a share of the six medals. The principle of the "matches" is exemplified by the 13th group, headed *Défi des Agave*, in which those growers of these plants who wish to compete, subscribe a sum of 20f., which forms the prize fund. The competition between "sale" collections is exemplified in Group 2—*Prix des Horticulteurs*—confined exclusively to cultivators of Liége, wherein the exhibition consists of 50 stove plants remarkable for good culture; the entrance fee is 5f., the premium 100f., and the price at which the winning collection (or any of the others) may be claimed is fixed at 500f., the premium being in any case retained by the winner, who would thus net 600f., if his plants were sold.

As to the adaptability of some of these proposals to our modes of conducting shows, we are very doubtful. Thus, in the first case cited, the six medals which are to be distributed amongst exhibitors of nine distinct groups of plants, with one or more exhibitors in each group, would not, we believe, afford a sufficient stimulus to induce competition on a scale which would serve to furnish a show; and we therefore dismiss this suggestion as not applicable here. "Matches" might very well be made to form interesting features of a show, and would moreover create a great deal of individual interest, which is one of the things required to ensure success. They are in reality a modification of our special prize system, and both these and exhibitions for sweepstakes would no doubt answer well. The exhibition of collections for "sale," on being claimed, at a fixed price, would not be unlikely to meet the views of nurserymen and florists, on the one hand, and on the other with those of amateurs whose fancy might have undergone some change as to its direction. We think, however, that to improve our own ordinary shows, one of the first things to be done is to discourage—by cautious steps, of course—the present system of showing monster specimens; to encourage groups composed of larger numbers of more varied plants in smaller pots; to make the exhibitions more horticultural and less exclusively floricultural, by inviting a larger proportion of fruits, and by devising some neat mode of exhibiting vegetables; and to introduce new objects of competition wherever possible. In addition to all this, we hold, as we have ever held, that the materials brought together must be staged and arranged for effect, before exhibitions can be considered to have reached the perfection of which they are capable. We should like to hear what exhibitors themselves have to say on these various points, since no changes can be expected to work well, which have not the concurrence of all the parties interested.

We of course are not unaware that increase of membership in the case of societies conducting shows, may be said to cut off to a great extent the sources of a direct remunerative return; but we would ask, having regard to the crowd of sightseers in every great centre of population, whether, if the shows themselves created the interest they ought to do, these more numerous members would not practically become so many advertising agents, working each in their several circles to swell up the grand total of visitors?

— We have more than once stated our opinion that though Canker or Gumming in the Apricot arises frequently from the action of cold, and may be induced artificially by allowing a continuous stream of cold water to pass round a branch, it arises not unfrequently from the action of partial heat. We have before us sections of branches which have just been removed in consequence of their sickly appearance, where the decay is in every case on the side nearest the sun. The materials before us consist of two sections only, and though we should have been glad to have had an opportunity of examining truncheons of the branches, we can form some opinion from the scanty specimens. In one section the evil is at present confined to one side of the branch, and to the first ring, the branch being of four years' growth, the growth of the last year being far less than that of the foregoing years. In the other specimen the annual rings are extremely obscure, and the dead wood occupies about three-fourths of the substance, on one side extending to the bark, which is dead, the portion affected exactly corresponding with the subjacent wood. What is, however, very remarkable,—and at present we have never met with a similar instance,—is that a new growth of bark has taken place, entirely independent of the normal growth, the medullary rays not being continued into it, while, on the contrary, a sort of epidermal [peridermal?] layer separates each growth from that which precedes it. This process has taken place three times, and if we mistake not, the new cortical tissue is formed in the middle of the epidermal layer. It is obvious that it would have been more satisfactory to have made a vertical section through the branch, as we could then have ascertained whether the canker began in the centre, or was communicated from above to the centre from a superficial lesion. The subject is so interesting that we hope our correspondent will send complete specimens to South Kensington, to be laid before the Scientific Committee. *M. J. B.*

— Our desire to have some further information respecting the Disease in Black Currants, which was noticed in this Journal in 1864, has been kindly met by Mr. Doig, who informs us that we may be very glad that the shoots we planted did not grow, as the pest when once established is scarcely to be eradicated, except by a ruthless process of "stamping out." All sorts of remedies have been employed, but without the slightest success. The insect was described by Mr. Bowman in the "Glasgow Horticultural Magazine" in April, 1864, but the notion that it is the larva of some Acarus, much less of some insect of another group, is, we conceive, untenable. Indeed, the sketch originally made, confirms our notion as to the insect being accompanied by its own eggs. The disease was first observed in 1853. There was a peculiar flattening in the base of the buds in the specimens we received in 1864, which does not appear in those which have been submitted to us more recently. *M. J. B.*

— We are extremely sorry to find that the Root-Aphis of the Vine seems to be spreading through the country. We have just received some Vine roots in a dreadful state of disease, for though the wood is still living, the whole of the bark is decomposed, and turned into a state of shapeless brown powdery matter, mixed with insect dung. Our correspondent informs us that he has found the root-aphis upon the bark, and we can confirm his observation, having found a living individual which accords both in structure and dimensions with the insect as figured by Professor Westwood in the *Gardeners' Chronicle*, p. 109. Here, at least, we have the same insect as that which produces galls on the leaves, but it is possible that a second species belonging to the same genus may exist, as we have found such a great difference in the comparative size of the eggs. We are promised a fresh supply of specimens, which we shall hope to examine carefully at some future time, as the matter is really of great importance, inasmuch as it is clear that where the insect gains ground, cultivation of Vines will become extremely precarious, and should it be found that the insect of the leaf-gall travels down to the roots, it will be absolutely necessary that every affected leaf should at once be burnt. There can be no difficulty in recognising the pest as far as the leaves are concerned, as the galls are very remarkable, and it is merely necessary to cut one open to see the mother brooding amongst a mass of eggs and active young. Anything more deplorable in Vine cultivation than the condition of the roots before us, cannot be imagined. *M. J. B.*

— The French correspondent of the *Daily Telegraph*, inditing from Paris on Sunday last, writes:—"Under the influence of an icy north-east wind, Provence has lost its Almond Crop, as it did last year. The Vineyards of Languedoc, which were forward, seem to be menaced. The fruit trees are despoiled of their blossoms, which came too early."

— The following Prizes for Cucumbers are offered for competition at the Fruit Committee of the Royal Horticultural Society, to be held on Tuesday, April 6, viz.:—1. White-spined Cucumber, one brace, of one sort only (open), 1*l.*, 10*s.* 2. Black-spined Cucumber, one brace, of one sort only (open), 1*l.*, 10*s.* 3. Smooth Cucumber, one brace, of one sort only (open), 1*l.*, 10*s.* 4. Six Cucumbers, not confined to one sort (open), 2*l.*, 1*l.* Cucumber growers being as particular as florists in regard to points of merit, it may be well to state that the Committee has decided that the terms above used are to be interpreted strictly; pure white-spined or black-spined sorts must be shown, and no mongrels or fruit with black-tipped spines will be admitted to the competition. We have had no Cucumber show in London for a long time, and look to see an interesting competition on the occasion in question.

— We trust that the letters on the very curious subject of Potato Grafting, which have appeared in our columns from correspondents whose veracity and good faith are beyond question, will induce many of our readers to try the experiment for themselves. The mere fact of union taking place is intelligible enough, though even that has been denied, possibly by those who never made the trial; but the point to be cleared up is as to the progeny. Are these varied and misshapen tubers, of which Mr. Taylor, "Upwards and Onwards," and other well-known Potato growers speak, actual cross productions resulting from the commingling of the two saps, or are they, as it were, "sports" or variations not directly dependent on the grafting process? Has anyone noticed similar results in grafting Dahlias or Pæonies?

— We are informed that a new List of the Fellows, Associaties, Honorary and Corresponding Members, and Botanical, Horticultural and Floral Societies, in union, &c., of the Royal Horticultural Society, has just been published, and may be obtained on application at the offices, price 1*s.*, or by letter addressed to the Secretary, Royal Horticultural Society, South Kensington, W., accompanied by 14 postage stamps. We may also remind those who are desirous of receiving the sheets of the Journal, so as to obviate the necessity of waiting till a Part is completed, that they may obtain them by forwarding stamps to cover the expense of postage.

VEGETABLE GROWING: NORTH *v.* SOUTH.

The majority of mankind interpret silence to mean consent, or construe it into inability to answer an antagonist. In the long run they who assert the loudest, and reiterate the longest, will have the largest following. Unless, therefore, we are content to allow judgment to go by default, we must often repeat ourselves. This, in fact, is one of the heaviest penalties exacted from public writers. The last two papers by "B." have added little or nothing to the controversy respecting vegetable growing North or South, unless it be a goodly amount of Fish sauce; but they have imposed upon me the necessity of reiterating myself—and this is irksome. There seems, however, no avoiding it, for "B." again asserts the superiority of the Scotch to the English in the matter of vegetable growing. Perched on the pinnacle of this giddy assertion, "B." sees, or thinks he sees, a number of writers "blowing their own trumpets, apologising for their own imaginary bare quarters, whipping the climate for all failures, and in the full windbaggy puffiness of their own progress accusing all others of having stuck fast a long way behind themselves." It is difficult to account for these wholly fanciful sketches: they certainly have no relation to writers in this controversy.

What I have written upon this subject I have written, and I mean to abide by it. Fortunately for me, too, it will be found printed at p. 1286, 1868. To chapter and verse, as there set forth, I refer your readers; and upon one point at least I anticipate their verdict with confidence—that my statements are free from assumptions. My aim was to give a plain record of what mine eyes had seen and my hands had handled of vegetable growing in both countries.

A true Scotchman never underrates either his country or his countrymen. I can number among my best friends about an equal number of eminent gardeners on both sides of the Tweed; my paper likewise professed to be almost semi-judicial. I collected evidence on both sides, and pronounced sentence accordingly. In doing so, I may have exposed myself to the taunt—"Who made thee a judge?" Well, I am not careful to answer that question. What is certain is, that I am not a partisan; neither am I a purblind Scotchman, that cannot see any good thing out of Scotland. For instance, I am heretical enough to deny that the British Lion was whelped in Edinburgh Castle, and to admit that there are first-class gardeners who are not Scotchmen; neither do I believe that Scotch gardeners drop all their skill in Leek and Kale growing into the Tweed as they pass over into England; but, unless they do so, it is not easy to see how, at least, Scotchmen in England do not grow as good vegetables as those who remain at home. According to "B." they ought to grow better; and, singularly enough, he is found admitting that the

South beats the North—"The finest vegetables in the country are grown around London." This is as much as, or more than, most of us have said. "Oh! but these are grown for sale." What of that? Is not this true of all vegetables? The only difference is, that one class of vegetables is sold for a price in the open market, and the other is sold for wages at home. But the question is, not how or where they are sold, but where they are produced—North or South? Around London, "B." says. Then we claim them, and debit to our credit the skill that produces them. Possibly they were grown by Scotchmen, perhaps by English or Irishmen. All honour to the growers of the finest vegetables in the kingdom, albeit the credit in this case redounds to the South.

But I deny that vegetable growing is in any sense a failure in private gardens in the South. It would be monstrous if it were so. The destination of vegetables is no measure of the skill that produces them. The vegetables themselves can know nothing of their destiny; and surely the man who knows for certain that he is growing Cabbages for a duke or a king, is rather more likely to bring superior skill to bear upon them than the grower, who may indeed grow a few for the nobility, but who must grow the majority for the commonality. Market gardening *per se* is not likely to be of a higher character than private gardening, neither is it upon the whole. Beginning with such classifications as growers for sale and private growers, we should have to descend through an endless series of gradations of area to place the same classes on an equality in the two countries. We should have, for instance, 10-pole men, 20-pole men, and so on up to 4 or 6-acre men. Such distinctions afford no criterion of skill, and are wholly beside the question. We have not to do with the different classes of growers, but with broad geographical boundaries, so wide as to cover two countries under the designation of North *v.* South. Thus stated, all littleness of class, personalities, &c., vanish, and the question resolves itself into one of climate, land, labour, and skill.

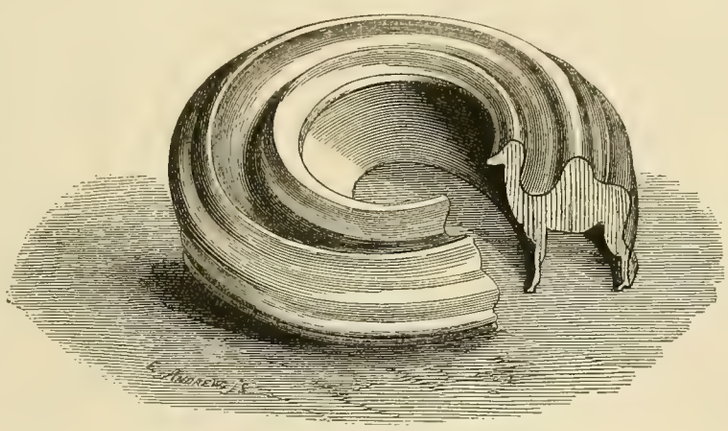
I adhere to all I have advanced upon the importance of climate. Rainfall is one of the important factors of climate; another might be defined as the rain rise. Now the rain lies much longer on the ground, and remains much longer suspended near the earth, in the air, as aqueous vapour, in Scotland, than over most portions of England. Hence the greater humidity. That the climate of Scotland is more humid all will admit, neither can any one deny the importance of a humid earth and air to vegetable growing. Enthusiasts, old and young, may laugh at the climate, but the laugh will be turned against them. Climate is too strong for most of us, and that we all find out in good time. I challenge "B." to the Turnip test. Let him grow 40 tons per acre of white Turnips in East Anglia, and I will admit that he may grow as good vegetables here, without any more care, than he could in, say Perthshire. Until he so does, I remain a doubter.

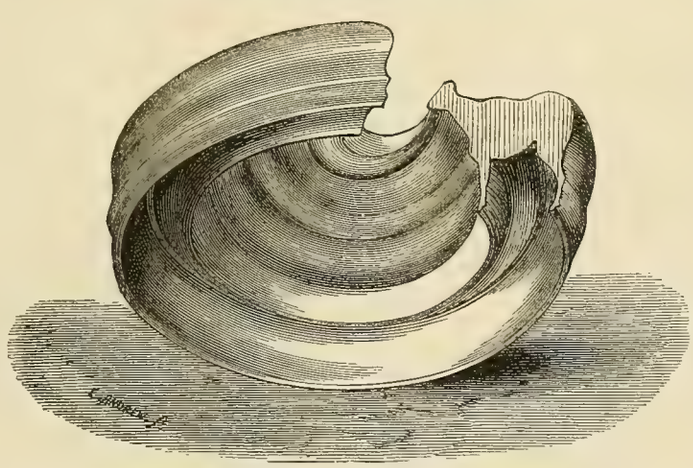
The question of land resolves itself into one of extent and quality. No one has denied that, as a rule, the kitchen gardens are proportionably larger in Scotland than in England. I think the land is mostly deeper and richer. The bottom is likewise generally cooler, partly from differences of geological base, but chiefly from the sun exerting less power. The labour question is important, and I think here the balance is largely in favour in Scotland, not only in quantity but in quality. "B." draws a dismal picture of apprentices, which is not a true photograph. Apprentices are generally intelligent, anxious to get on, and fired with a noble ambition to handle tools as well as journeymen; and they soon become very handy, and have a strong motive for pleasing their masters. And as to journeymen, although they are often on the move, they may be said to be always at home. A good journeyman can never feel strange in any good garden. He is master of his work, and that work is about the same in the different gardens into which he goes. Hence the moment he arrives he finds skilled labour waiting to be done, and he brings with him the skilled hand and head that can do it. Contrast this with the order of the day that "B." is so enamoured of in England, and the advantage is wholly with the North. Our right-hand men have mostly been taken from the plough-tail, and scarcely are they made useful ere they wish to better themselves; they desire to rise, from 12*s.* or 13*s.* a-week, to 16*s.* or 18*s.* a-week; and then we have to begin at the plough-tail again. I only wish "B." a taste of such experiences as some of us have had; he would speedily find that these right-hand men were by no means the prodigies or the permanent institutions he dreams of. The mode of working gardens by labourers is also a great difficulty in the way of thoroughly initiating young men in kitchen gardening; and the mania for glass arises, not always from choice, but sometimes from necessity. Possibly "B.'s" hints may do some good in this direction.

Finally, as to skill—next to climate the most important factor in the art of production. Fortunately, this is confined to no country, arrested by no river, bounded by no mountain range; it is free as the air, and accessible as the sunlight to all; and it is equally essential in every branch of our profession. Without skill we can neither build nor heat nor furnish hothouses, clothe the naked landscape with grandeur, make the earth groan with plenty, nor smile beneath its robe of beauty. The surest way to command wisdom is to woo it constantly, and use it worthily. To have and to use skill is the only royal road to get more: that road generally lies through the valley of self-abasement; and skill is most commonly found and most charmingly illustrated, both in the North and in the South, in many of those quiet nooks and corners of which we seldom hear, and in those characters that shrink from observation. *D. T. Fish, F.R.H.S.*

THE CHILD'S MENAGERIE.

That economic botany has a wide range of application the varied contents of the museum at Kew clearly illustrates. One of the most peculiar, and at the same time amusing of recent additions to that collection, is a series showing the mode of manufacture of children's toys as carried on in Saxony, and presented by Dr. Reichenbach. Every one knows what a child's Noah's Ark is, and every one is more or less acquainted with the orthodox forms of the representations of the beasts which it contains, and further than this we believe most of us have at some time asked ourselves the question, "How is it possible for these toys to be made, brought into this country, and sold at so low a price as they usually are?" but this question is partly solved by a glance at the collection at Kew. The wood used is the common white deal of carpenters, and the mode of manufacture is so ingenious that a description of it cannot fail to be of interest. The wood is first turned in a lathe in circular pieces, which look when entire very like circular picture frames. Cross sections of the proper width required are then cut out of these "frames" in the direction of the grain of the wood, where a horse, a cow, a lamb, or a dog, or whatever animal has been designed in the lathe, presents itself. This will be more clearly understood from the accompanying figures. The section now has to be finished by hand; all it requires, however, is to have the angles rounded and smoothed, and the tail, horns, &c., which are turned in separate pieces, attached; after which the whole is painted, and the animal is complete. In the case of an elephant the ears, tusks, and trunk are all turned in distinct circular pieces, and sections are cut out in a similar manner to those intended for the body. This mode of manufacture is very ingenious, and in some degree explains the possibility of the production and importation of such large quantities of these toys for sale at such cheap rates. Since these specimens have been exhibited at Kew, they have attracted a large share of the attention of the numerous visitors who flock there. *John R. Jackson, Kew.*





HIMALAYAN FORESTRY.

In the Himalayan forests, and those at the base and on the spurs of the hills, those trees thrive best for which the soil and situation are suitable. This appears a truism, yet it results from it that if not wantonly destroyed the said forests, whether of Sal (Vateria robusta), Sissoo (Dalbergia), Deodar, Fir, or other trees perpetuate themselves, and are in no degree injured, but rather improved by the careful and systematic felling of such trees as are fit for timber. Planting out seedlings is in many places almost impossible, and where possible extremely difficult, to say nothing of the difficulty of establishing nurseries in accessible situations. Again, the trees, if planted out, would never have the same chance of growth as those self-sown in the very spot most suitable to them.

In illustration I would beg to adduce (1) the Sal (Vateria robusta), one of the most valuable timber trees of India. This tree sheds abundance of seed, which germinates freely, the strongest plants of course rising above the others. The trees are most abundant, and when one is cut down hundreds spring up in its place. No planting could be half as effectual, and thinning is not needed for some years. Its habitat is on the spurs, running at right angles into the Terai, as also in Terarie itself, under the shadow of the hills.

(2). The Fir, Pinus longifolia, is another instance. If the ground remain unmolested these trees will always spring up abundantly, provided the whole hillside on which they grow be not entirely denuded of the parent trees, and thus rendered dry and barren.

(3). Again, the Sissoo (Dalbergia Sissoo) springs up in amazing profusion in the beds and around many of the torrents which descend from the hills, and run between the ravines. No sowing or planting could do this; although unfortunately the trees are often injured and altogether washed away, by the incessant changing of these beds.

(4). The remarks on the Pines apply also to the stately Deodar, and other trees having affinity to it; but I think that sowing seed might be usefully adopted, due regard being had to the exact spots where such seed was sown. I might expand these illustrations, but I have said enough to show that self-sowing is not to be deprecated in vast tracts of forest land in India.

The great enemies of the Himalayan forests are (1) cattle, and (2) fire.

(1). The pasturing of cattle utterly destroys millions of trees; and, excepting when a forest is well grown, should be utterly prohibited.

(2). Fire is still worse, for when the Grass is at its driest it is fired, and it is needless to point out the destruction which ensues. The most effectual means known and adopted against firing is the clearing of broad roads, over which the fire finds it difficult to pass. This is now generally done, I believe, in the North-west of India.

The reckless cutting of sapling trees—the choicest Sal trees, for instance—was formerly productive of much injury to the forests. The natives used to wattle their sheds with these saplings, but this practice has been in a great measure stopped. I have perused all the reports I could lay hands on for some years, and I have been perfectly astounded at the number of acquirements pointed out as requisite by Dr. Brandis as necessary for a forester.

Doubtless a little time spent amongst the forests of Britain, and a run about to all the seats of general European management will not be undesirable; whilst, of course, a generally sound education, including surveying, levelling, and ordinary draining, is indispensable. A fondness for natural history would add an interesting recreation whilst at work; but the requisites are—a sound constitution, good common sense, and indomitable courage. The forester should be ready to face a wild beast if he met him, as is often the case in the Terai. He should be temperate in his habits, and be a good walker and rider. If he be a good shot so much the better for his fare, whilst a little angling will enable him at times to vary his diet, fish abounding in many forest streams, as yet innocent of the fly.

The rest will come fast enough, for of course the general system of forestry to be adopted in any particular locality, will be clearly laid down at headquarters. In these days of difficulty of providing for the honest, willing sons of middle-class men in England, we do not need one single foreigner in this department, whether for higher or lower appointments; nor do I see that any necessity exists for any lengthened period of study out of the United Kingdom. *An Old Rohilla.*

PEACHES AND NECTARINES: DISEASED SHOOTS.

I do not know any two things in physiology that have puzzled me more than the Potato disease, and the diseased shoots of Peaches and Nectarines kindly sent at my request (accompanied by an intelligent letter), by Mr. Woodford, gr. to the Earl of Winchelsea, Eastwell Park, Ashford, Kent. I cry with Milton, who was blind—

"O dark, dark, dark!"

Before "guessing," I may observe that, in answer to my questions, Mr. Woodford says, "that he disbuds moderately; that the trees are not starved, on the contrary they are most luxuriant [The shoots sent showed this. W. F. R.]; that if there is any difference the most luxuriant shoots suffer most; that there is no difference between trees 20 years old and new trees; that some of each will escape, and some of each will suffer, both being treated alike; that the land is fine soil, and,

though variable, well-drained; that the new soil makes no difference; that the trees did not suffer from frost, even in 1860; that it has existed, more or less, for years in his vicinity; and that the gardeners are at their wit's end."

I confess this is just my case. I am, therefore, only a "guesser." I cannot say that I never saw anything analogous to it. I observed, after I received the twigs from Mr. Woodford, two shoots of my Roses very like those sent. Still, not one specimen on my Peach and Nectarine trees could I find. I must now speak of the shoots sent: they were quite luxuriant specimens. They appeared to be affected generally from the top bud but one downwards, wholly or in part, to the next bud. Where the rind was not dead all round the shoot, it was affected primarily on the sun-side. This quite upset my first idea, that it proceeded from an over-heated wall. I cut one or two of the shoots longitudinally through the pith, and found a dark concreted gummy *residuum* in the pith, which was darker than the woody fibre, which showed that the sap had diverged from its proper channels, and no doubt was occasioned by stoppage, probably at the bud. At present I come to these conclusions (perhaps all erroneous):—that it is a form of canker, accompanied by a certain amount of gum—the two worst diseases of Peach and Nectarine trees; and that it was occasioned either by sudden atmospheric changes, affecting some twigs more than others, according to their status at the time; or by extreme evaporation, not met by an adequate supply of moisture from the roots, whereby the tender parts of the shoot suffered contraction of the vessels, specially at the buds, and thus stoppage of the sap was occasioned. The sap vessels at the buds are divergent vessels, and probably would be affected before the space between two buds. The sap, being estopped and suppressed, would poison the shoot, and the sun, by its scorching or its attractive power, would affect the fore-part of the shoot first.

However occasioned, I believe the malady to be twig-canker, accompanied by suppressed gum, which is by no means a new disease. It is more likely to occur in fine soils and on luxuriant trees than on the converse. I must now turn attention to hypothetical remedies. If the disease proceeds from atmospheric causes, glass casing is the remedy; if it proceeds from extreme evaporation, shading, syringing, and watering the roots, are the remedies; if it proceeds from suddenly shortening these luxuriant shoots all over the tree at one time, gradual shortening the shoot is the remedy. Abundant roots in strong ground, accompanied by much disbudding, or a sudden shortening of luxuriant shoots all over the tree simultaneously, will produce gum and canker, especially if the branches or shoots are strained, and the ligatures are too tight.

I must not forget to mention that in summer I rise often at 4 A.M., and seldom later than 6, and I remember last summer, in the midst of extreme heat, a very tremendous hoar frost. Such may produce chill and estoppel of sap at the buds, where there is always greater difficulty of sap-passage than at other parts of the shoots.

If such a thing should occur here, I should at once cut the twig back to a good bud: if the malady proceeded from suppressed gum it would enable it to pass out at the end of the shoot, and so relieve the shoot. The trees here are apt to "gum:" I have seen the gum stand out on the top of the Peaches. Hence I root-prune, remove my trees often, and see that they never want for water at their roots, or upon their stems and foliage. The walls here were so hot last summer that I was obliged to cool them. I hope some one more experienced than myself will give us the advantage of his experience. One thing is very curious—that in the specimens sent, the base of the shoots was not affected. I am, and have been for many years, a sparing disbudder, and an alternate pruner; that is, instead of having long shoots at greater distances, I pinch the shoots, according to circumstances—2, 4, 6, or 8 inches. By this means the atmosphere can enter the tree at shorter intervals. Where a large vacancy occurs, I let the shoot grow longer for a breeder. I have now done; but still cry—

"Oh, dark, dark, dark!"

W. F. Radclyffe.

PLANT PORTRAITS.

MAGNOLIA CAMPBELLII.—*Flore des Serres*, t. 1282-3. Magnoliaceæ. A splendid deciduous hardy tree, with oval or ovate leaves, silky beneath, and immense flowers produced before the leaves, of a brilliant crimson externally, and a pale delicate tint of rose within. It is a native of the Sikkim Himalaya, at 8,000 to 10,000 feet elevation, and has been introduced by Mr. Bull.

MARANTA BARAQUINII.—*L'Illust. Hort.* t. 542. Marantaceæ. A charming dwarf stove perennial, with broadly ovate-lanceolate acuminate leaves, of a bright pea-green colour, beautifully marked by two broad silvery white striated bands, one on each side the costa, and occupying the greater portion of their breadth. Introduced by M. A. Verschaffelt from Brazil.

MARANTA VIRGINALIS.—*L'Illust. Hort.* t. 550. A handsome dwarf growing stove herbaceous perennial, with broad roundish-oval leaves, having the upper surface of a lively green, marked along the course of the mid-vein, and also half-way between that and the margin on each side, by a broadish distinct grey band with erose margins, while the under surface is pale coloured from the presence of a close covering of whitish hairs. It is found in the Amazon country, whence it has been obtained by M. Linden.

ODONTOGLOSSUM XANTHOTES.—*Bot. Mag.* t. 5756. Orchidaceæ. A rather striking-looking epiphyte, with narrow ovoid smooth compressed pseudobulbs, 5 inches long, long linear-oblong acute leaves, and a much branched twining slender scape 6—8 feet long, bearing chocolate-brown flowers, the segments of which are golden coloured and wavy, almost crisped, at the edge. It was imported from Ecuador by Messrs. Backhouse & Son, and was described at p. 1358 of our last volume.

PANDANUS HOOKERII.—*Rev. Hort.* 1868, 210, fig. 23. Pandanaceæ. An elegant stove perennial, of dwarfish habit, and flowering while young. The leaves are 4—5 feet long, 3 inches wide, carinate, spinescent on the margin and keel, contracted rather suddenly at the summit into a triangular cuspidate point 6—8 inches long, and of a greenish red above and deep coppery red beneath; the inflorescence is of a pale coppery rose colour, and consists of terminal and pendent cylindrical catkins. A native of Singapore, and grown in the Jardin du Muséum at Paris.

PASSIFLORA TRIFASCIATA.—*L'Illust. Hort.* t. 544. Passifloraceæ. A rather interesting stove climber, of which the flowers are, we believe, not yet known, but which has the dark green trilobate leaves marked down the centre of each lobe by a broad band of reddish purple, the back of the leaf being of a deep sanguineous hue. Introduced by M. A. Verschaffelt, from Parà.

PRIONIUM PALMITA.—*Bot. Mag.* t. 5722. Juncaceæ. A curious and not inelegant greenhouse subaquatic plant, with the habit of a Pine-apple and the flowers of a Rush. It has an erect shrubby stem, elongate ensiform keeled spinulose leaves, and a terminal erect panicle of glumaceous flowers. The Palmita grows in running streams in such masses as to form a sort of floating bridge, and the fibrous matter at the base of its leaves is used for brush making. A native of South Africa.

RHODODENDRON CAUCASICUM FLAVIDUM.—*Gartenflora*, t. 560. Ericaceæ. A handsome hardy evergreen shrub, bearing obtuse elliptic-ovate coriaceous leaves, and heads of several largish broad-lobed straw-coloured flowers, thickly spotted on the upper segments with deep green dots. It will add a new and interesting feature to our showy hardy Rhododendrons. Native of the Caucasus, and introduced to the St. Petersburgh Botanic Garden.

SPIRÆA PALMATA.—*Bot. Mag.* t. 5726. Rosaceæ. A beautiful hardy perennial, with bright red furrowed stems, palmately 5—7 lobed leaves, having ovate lanceolate sharply serrated lobes, and numerous corymbs forming a large broad head of deep crimson remarkably attractive flowers. A Japanese plant, recently distributed by Mr. C. Noble.

STAPELIA HYSTRIX.—*Bot. Mag.* t. 5751. Asclepiadaceæ. A small-growing curious greenhouse succulent, with pentangular tuberculately-toothed branches, and remarkably bristly pale sulphur-coloured flowers, from two or three together near the base of the branches. The inner face of the corolla is marked with short transverse purple bars, and studded with awl-shaped processes tipped with purple. It is a native of South-Eastern Africa, and was sent to Kew by Mr. McKen, the superintendent of the Natal Botanic Gardens.

STYRAX JAPONICA.—*Gartenflora*, t. 583. Styracaceæ. A pretty hardy shrub, growing 4 to 6 feet high, with elegantly spreading branches, bearing bright green elliptic-lanceolate leaves, and a profusion of white flowers, resembling Snowdrops, from the points of the young branchlets. It should be a pretty object for forcing with such plants as Deutzia gracilis and its allies. A native of Japan, and introduced to our gardens by way of St. Petersburgh.

TYDÆA LINDENIANA.—*Gartenflora*, 1868, t. 582. Gesneraceæ A handsome stove perennial, with erect hairy stems, and olive-green ovate hairy leaves, having the costa and principal veins marked by broad silvery stripes, bright green veins intervening. The short-tubed flowers are white, with the throat marked on the lower side by a deep violet band, while the upper lip has a dash of yellow and a narrow zone of purple. Introduced by M. Linden from Tropical America.

VANDA INSIGNIS.—*Bot. Mag.* t. 5759. Orchidaceæ. Of this charming stove epiphyte an account was given at p. 1259 of our last volume. The V. insignis of gardens proves to be only a form of V. tricolor. The present, which is the true plant, has erect stems, distichous deeply bilobed leaves, and cinnabar-brown chequered flowers, having the front lobe of the lip extended and hollowed out like a scallop shell, and of a pretty lilac-pink colour. Messrs. Veitch & Sons were the fortunate introducers of this plant from the Moluccas, through their collector, the late lamented Mr. Hutton.

Home Correspondence.

Potato Grafting.—Three years ago your excellent correspondent—king of our beautiful queen of flowers, the Rose—the Rev. W. F. Radclyffe, sent me hybrid Potatos of Mr. Almond's and Mr. Taylor's raising from grafts, and also some notes of Mr. Taylor's relative to the subject, which I have carefully preserved, and now transmit to you for your perusal. They are too genuine on the very face of them to admit of doubt or question, and so I thought, and so I have proved: and now that Mr. Taylor has been given precedence, as was his due, in the pages of the *Gardeners' Chronicle*, I feel I ought to give my testimony, so far as I have by actual experience progressed, in the development of this very curious and by no means unimportant branch of horticultural science. I am glad to find the system is to be experimented on at the Royal Horticultural Gardens at Chiswick, and perhaps a few hints may be gathered up from these notes. The experiments I made in 1867 were by no means convincing to my mind. The eyes of Heros and Ashleafs, which I grafted into Flukes and Negros, and *vice versâ*, germinated and produced small uneven tubers, and although I thought I could distinguish a difference in the growth of the haulm, and in the features of the diminutives, I jumped to the conclusion that they were not sufficiently marked, but merely the results of abortive growth, so I tossed the produce away with a sceptical jerk! I wrote and told Mr. Radclyffe of my enterprise, and soon learnt that his experiments had ended after the manner of mine; and shortly after that he sent Mr. Taylor's letter, explaining that I ought to have grown the produce again before forming an opinion as to the merits of the grafted progeny. But I had destroyed them, and cast myself two years backwards on the dial of time, and had to begin again. In March, 1868, I cut out with a penknife every distinguishable eye from a Fluke, Yorkshire Hero, Milky White, and Fenn's Onwards, and grafted the eye of an Almond's Yorkshire Hero into the Fluke, an eye of Hero into Wheeler's Milky White, an eye of Onwards into Hero, and *vice versâ* all round. The plan I adopted in fitting the grafts into the graftees was to cut a wedge-shaped piece from the Potato or stock, in preference to scooping out a circular piece, then to cut out the graft containing the eye, so as to exactly fit into the notch, binding all over, excepting the eye of course, with a long piece of fine Cuba bast. In preference to planting them out in the cold soil, I buried the sets in 4-inch pots, properly drained, and placed them near a warm flue in the greenhouse till the eye had shot from the earth to the extent of 3 to 4 inches; then about the middle of April I turned them carefully out of the flower-pot and planted them in a fruit border in the garden having a westerly aspect, following up with after mouldings in the common way. Let me impress upon the operator that the wedged-shaped eye to be grafted in should fit exactly, so as to form a junction with the cut to the greatest nicety—inner bark to inner bark. The operation must be performed with a steady even hand, and with an undeviating farewell cut, made with dexterity, as the less time allowed for the air to dry the moisture on the incisions the better, and so much the more likely are the two portions to be made to unite. On the 7th July as Mr. James Morris, of this borough, was conning over my various sorts of growing Potatos, I led him by the button-hole to be a witness with myself as to how the grafted sets were operating beneath ground. This is what we saw:—No. 1, Hero grafted into a Fluke, showed a very stunted haulm. I carefully scraped the soil away from one side of the set, when we found the bast quite rotted, and the wedge, or graft, "not taken;" it came easily away from its cavity in the Potato without any symptoms of its ever intending to unite, so I tossed the graft away, for unless unions take place so as to allow reciprocal action of sap from the stock to the graft, of course there can be no hybridising effects produced. I did not disturb the stock, as I perceived a small shoot germinating from it which had escaped my notice when cutting out its eyes. I expressed myself in a dubious manner to my friend, who shook his head—a fine Burleigh achievement—which is often the way with him, and I never could make out what he means when he does shake his head! He may have thought, like Mr. Squeers, that "Natur's a rum un," but where the fates lead let us follow. The haulm in all the other experiments looked more promising than in the first, and there was evidently a difference in the appearance of their foliage from that which pertained to that of their several patronymics. On laying bare No. 2, an eye of Milky White grafted into Yorkshire Hero, we saw—*mirabile dictu!*—as perfect a cicatrisation of skins as is witnessed between a well-taken graft and stock of an Apple tree. I pulled at the scion by its haulm to the unsettlement of the roots, which I had not previously disturbed, even to the displacement of the stock, but it did not effect a disjunction. Morris spoke out boldly now—"Let well alone!" So, with great satisfaction, I counted five small tubers clinging to the shoot, which I carefully covered over with their mother-earth, and said, "There is one proof of Mr. Taylor's Potato grafting, if we never get another." "Yes, yes," answered my friend, giving his double affirmation. So to No. 3—an eye of Onwards into Hero. Skins of this graft were only partly cicatrised, and that we found to be the case with all the *vice versâ* experiments; nevertheless, the scions had sufficient hold of the stocks to allow of their saps mingling. No. 3 stock was pushing an eye, which had also escaped my notice at disbudding; and I left it alone, for which I afterwards felt glad, as will be seen. On September 14, Mr. James Cutbush, of Highgate, arrived at the rectory to officiate as a judge at our Woodstock Horticultural Show next day, and as he was obliged to return home as soon as possible, I hurried him as a juror to be present at an immediate lifting, and to witness the results of the trial of my grafted Potatos. The haulm of all was ripe, and beginning to wither. No. 1—the failure—produced from its lateral shoot a crop of one finely formed Fluke tuber. No. 2—the grand success—had perfected the five tubers above mentioned, and they were the ugliest odd-looking lot imaginable: mongrels indeed! Mr. Cutbush confessed that "he could not make it out." Well, on to No. 3—of the partial cohesion—where Park's patent fork turned out tubers representing bottle gourds in miniature, and other comical nondescripts; whilst at the same time were revealed, proceeding from the *natural* eye of the set, even, handsome Yorkshire Heros, such as are seldom met with, for the only vice this excellent kind is endowed with, is its proneness to run out of shape. The *vice versâ* remainders had all produced uneven tubers—lost character—which forced the remark from Mr. Cutbush, that "if such were to be the results of grafting Potatos, he thought we had better continue to produce varieties from seed." Personally I augur for all grafted Potatos that nondescript appearance and running out, which we find in Almond's Yorkshire Hero, and Taylor's Yorkshire Hybrid. Flavour we may improve and make sure of, but to a certainty by spoiling the best models operated upon. I intend to plant the above results of grafting, to try and get at proofs this season concerning them; but if they do not improve in good looks, then they are "gons coons" for me, as I must have shape in perpetuity, and flavour combined with earliness and long keeping and white flesh; and, please Providence, I mean to get at those qualities in "the wonderful record of time." *Upwards and Onwards.* —— Some time since, in discussing with Mr. Jones, the able steward to Lord Dunally, the probably origin of the Potato disease, I incidentally mentioned some experiments which I had made, with a view to ascertain if two different varieties of the Potato could be hybridised. I have just received from him an extract from your Journal of the 27th February (in which a mode of grafting is described by Mr. Taylor), with a request that I would communicate to you the process adopted by me, and its results. Having frequently observed that the vitality of the Potato plant was very great—that when broken, and having only a very slight attachment to the stock, it continued to live and grow—it struck me that it was possible to conjoin two plants, so as to have their juices intermixed and so to modify the quality of each. I determined thus to make a trial, and, not wishing to wait for a test as to quality, I chose subjects that were calculated to give visible results. I had three varieties sown at the time, one entirely white, of mild flavour, and very prolific, but bearing very small tubers; another, thoroughly black, very prolific, and growing to a large size, but ill-flavoured; and a third, completely red, of large size, but yielding only one or two tubers to each stalk or plant. My object was to

give the black Potato a milder flavour, and to render the red one more prolific, by crossing them with the white. In the first week of May, when they were well aboveground, I took up several sets of each of the above varieties, and disturbing as little as possible the clay attached to the roots, I joined them by cutting a slice out of the clean part of the shoots without injuring the roots or leaves, placing the cut surfaces (which were made to fit each other as nearly as possible) together, tying them with strips of linen, and covering the parts with tenacious clay, in which state I put them, each doubled plant having two sets of leaves and two sets of roots, down again, and carefully drew up the clay about them without covering the leaves. No. 1. Black and white; No. 2. Red and white; No. 3. Black and red. I put down about half-a-dozen of each of these doubled sets, all of which appeared to thrive as well as the single sets in the rows from whence they were taken. In the month of August, on stripping the clay from some of the plants, I found I had succeeded in hybridising, so far as colour was concerned. When taken up in October the following were the results:—No. 1. All the produce were most curiously coloured, one side being thoroughly black and the other perfectly white, the dividing line running from the roots to the tops of the tubers, nearly dividing them into equal portions. Some persons to whom I showed them imagined at first sight that I had slit white and black Potatos and attached the parts. No. 2. All the tubers were coloured, the red showing in circular and crescent-shaped patches, except a few which were coloured in nearly equal proportions, the colours taking opposite sides. The smaller tubers had the colours most intermixed. No. 3. Produce irregularly spotted and striated, the red colour predominating. On seeing the changes produced on the Potato by the process described, I determined to attempt to hybridise the White Belgian and the Red Altringham Carrot, and some varieties of the Turnip. The way I purposed to proceed was to plant the bulbs to be operated on close together, and conjoin the seed stems in the same manner as the Potatos when sufficiently high to be drawn together, and before the blossoms would begin to form. The depressed state of agriculture at the time (now several years since) obliged me to turn my attention to other matters, and I had not the time or opportunity to make further experiments. *Edward Fitzpatrick, Deputy County Surveyor, Tipperary Town, Ireland.* [It will be seen that our correspondent's mode of action is different from that of Mr. Taylor, and is more akin to herbaceous grafting. The reader will also remember the curious case of the adhesion of a red and a white Carrot figured in this Journal, p. 53, 1851. Eds.]

Hardy Broccoli.—In reply to "Colo" (see p. 278), who asks for information as to the best hardy Broccoli, I beg to say that I consider Snow's Superb Winter White Broccoli to be the earliest and best. It comes into use in the beginning of January, but was rather earlier this season than usual. I also cultivate the following varieties, which succeed the above in rotation:—Backhouse's Winter White Protecting, an excellent Broccoli, ready for use a few days after Snow's; Adams' Early White, a very useful sort about the middle of February; Veitch's fine Spring White is another useful variety, its beautiful white heads being fit for cutting in the beginning of March; Dilcock's Bride, a large and fine sort, fit for use in the middle of March. I have grown Osborn's Early White, but with me it is too tender, and will not stand frost or too much wet. I have grown many of the new varieties, but have not found any to surpass those named, which in my estimation are the best winter Broccolis in cultivation. *David Lumsden, Bloxholm Hall Gardens, Sleaford.*

Common Broom for Forcing. — Being strongly impressed with the idea that this plant would be an acquisition to our limited stock of hardy shrubs available for forcing purposes for conservatory decoration, I lifted an ordinary sized plant carefully, and potted it in a suitable sized pot, and at once, without further preparation, introduced it into a moderate heat. In three weeks' time I was rewarded with a show of fine yellow blossoms of this, the commonest of all leguminous plants. Within the reach of all, the colour enhances its value, yellow flowers being scarce in the early spring months. *J. Edlington.*

Surface Cropping Vine-borders.—Were it not that Mr. Fish's last remarks on this subject apparently set the report of "A.," from which he quotes, and the facts which I stated, at direct variance, I certainly would not seek to encroach on your columns again to treat of it. The width to which the borders in question could have been extended must have been what "A." referred to: not that such had then taken place. I have not any recollection of having stated to him exactly how far the borders had then in any case been made up, nor could I possibly have stated it at 50 feet except by mistake. The light turfy soil from the crag referred to entered into the composition of the borders from the back of the vineries to the walk in front—not a spadeful into the borders under or beyond the walk. Mr. Fish is in error in supposing that the borders were deepened or raised annually to the extent of 6 inches. The old mulching was removed annually, and the borders in the course of 10 years were not raised 6 inches altogether. The natural decay of the turfy soil, and the removal of the mulching, prevented any increase to the depth or height of the borders. I think we are often too apt to lay a great deal more stress on a mere crotchet in cultivation, than on general good cultivation; and many may be as apt to run away with the idea that if the surface of the border is attended to rigidly by any given rule—Mr. Fish's, for instance, "Sacred to the Vine roots"—they have the most important point right, as they are to believe that because in one or two cases Vines have done well with their roots under a drapery of bedding plants, therefore it is right to "bed-out" on the Vine borders: all this may be imbibed by inexperienced minds. For my own part, I would apprehend a thousand times more danger from one season's severe attack of red spider on the foliage than from 10 years' surface-cropping after the manner I have practised it; and if Mr. Fish would write "Sacred to the roots" on the border, I would write "No quarter to red spider" on the inside of the vinery, as a vastly more important inscription. Mendelssohn once said to his critics, "Stick your claws into me! Don't tell me what you like, but what you don't like;" and so it would be well if gardening writers would tell what they don't like, as well as what they like. Mr. Fish has told us that he dislikes cropping Vine-borders with anything; and now I beg to state that there are things in Vine management I like much worse than surface cropping, and worst of all do I like red spider. *D. Thomson, Drumlanrig Gardens.*

Oranges of Home Growth.—Having cultivated the Orange and Citron family to some extent for upwards of 12 years at Eardiston, in Worcestershire, I beg to offer the following remarks for the encouragement of those who may be contemplating the culture of these delicious fruits either for ornament or utility. The collection at Eardiston consisted of Shaddocks, Lemons, Limes, Citrons, Maltese, Blood, and other Oranges. These being of easy cultivation, were grown principally for ornament, but in some instances the fruit ripened exceedingly well, more especially the Lemons, which were particularly fine. In 1856 I exhibited a collection of them at one of the meetings of the Horticultural Society, then held at 21, Regent Street, for which I received a Certificate of Merit, the fruit having been found, in point of cultivation, to be of superior excellence. Some little time after the meeting in question, I received a letter from the late Dr. Lindley, asking if I would oblige him with the details of my method of cultivation; which I did at the time, and which he did me the honour of publishing at p. 4, 1857. The following winter I sent another collection to one of the Society's meetings, but unfortunately, through some delay in transit, they arrived too late for exhibition. Dr. Lindley immediately informed me of the circumstance, and stated that he had placed them on his side-table, and had shown them to his friends, who greatly admired them. The trees from which the above-mentioned fruit was derived were grown on the planting out system, in the borders of a large conservatory; where they grew with great vigour, and bore an abundance of fruit, which made them very ornamental in summer and winter. In regard to pruning they were merely kept thin, and allowed to grow as naturally as possible. During their growing season the borders were well soaked with liquid manure. *J. Miller, Worksop Manor.*

The Horticultural Congress.—Now that the Royal Horticultural Society has announced the plan for the Congress, some estimate of its value may be formed. The Society has acted wisely in making the proceedings as simple as possible, and so that they can be carried out at little cost. The circumstances attending the experiment may serve as a guide to the Society in giving the Congress a broader basis in future years. Papers and discussions on them should be solicited, and all horticulturists should be invited to send specimens of diseased growths of plants, of soils suitable for the cultivation of different plants, and, in fact, should communicate anything connected with the profession which may be of interest, or which requires general elucidation. [Hear, hear!] All objects should be sent some time previous to the Congress, so that they could be arranged, and descriptive labels affixed, and, when the meeting assembled, discussion upon the most prominent should ensue. More good would result from this than from the mere reading and discussion of papers. Whatever is done, let no spirit of "sturdy independence" hold the profession aloof from acting in concert with the Society in making the experiment successful. I fully endorse your sentiments regarding employers facilitating the attendance of their gardeners at the meeting. I would also add that there are many head gardeners throughout the land, a word from whom to their respective employers would be all that would be required in order to let their subs have a peep at the exhibition. *Brassica, Read Hall, Whalley.*

Flies in Pine Stoves.—I beg to inform your correspondent "Inquirer" (see p. 307), who is troubled with gnat-like flies in his Pine pits, that he can get rid of his tormentors by fumigating with tobacco tissue, or by mixing the tissue with ordinary tobacco paper, and using the syringe thoroughly the next morning. We had the pests in our Pine pits last January, and could not get rid of them by smoking in the usual way with tobacco paper, and the syringe seemed to have no effect on them; I therefore tried the tobacco tissue, and have now got quite rid of them: for the last three weeks not the slightest vestige of the living insect has been seen, but it required much syringing to free the dead flies from the plants. *D. Cuningham, The Gardens, Moor Park, Rickmansworth, Herts.*

Pear Buds Killed by Frost.—In describing the conditions of the bloom-buds on the Pears after the severe frost of Dec. 25, 1860, I perhaps was not sufficiently clear in stating that the buds when cut open were quite black—I ought to have added, in the centre; still, I cannot see how any one acquainted with the subject under discussion could mistake my meaning, as the fact of their having been cut open implied it was not the outside of the bud that was meant, the colour of which in the depth of winter is sufficiently well known. The greater part of the incipient blossoms in each bud appeared never to have moved afterwards, as was evident at blooming time, each bunch of bloom being composed of a portion only of its original number, the others being visible like dry dust. In the greater part of the blooms which did expand the pistil was dead, and in some others the anthers also. I cannot agree with "Pari Passu," that, where buds are killed by the action of frost, we may expect to find them burst, inasmuch as the external portion of a bud is composed of a number of parts, that in all probability would admit of a degree of expansion, not possible in the bark or wood of a tree, and in that way bursting would be prevented. The pistil and anthers, from the great difference in their structure, would in all probability burst if frozen, to their certain destruction. But we are now verging on a most abstruse subject—the manner in which frost destroys vegetable life. *T. Baines, Summerfield, Bowden, Cheshire.*

Vitality of Bulbs. — Having had occasion to-day (March 15) to consult my herbarium concerning the genus Narcissus, I was surprised on finding two bulbs of Corbularia monophylla with living leaves about an inch long. One of these bulbs I gathered at Oran (Algeria) in January, 1848, and the other at Tlemcen, on the frontiers of Morocco, on the 23d March, 1857! I immediately planted the bulbs, and put them in my greenhouse, where I have no doubt they will flourish, and in all probability flower next spring, after (for one of them) a rest of 22 years! *Giles Munby, Alice Holt, Farnham.*

Cedar of Lebanon Seeds.—I have read with much pleasure the remarks of your correspondent (p. 278), who kindly explains the manner in which he extracts the seeds from the cones of the Cedar. However good this method may be, it is not quick enough to adopt, where a large quantity of cones have to be opened; and it has the disadvantage of causing a great many of the seeds to be crushed by the operation described. The following is the method which we adopt to remove the scales from the thousands of cones we require annually in raising our nursery seedlings:—About the month of February a hole is made in the ground, about 2 feet deep, in which we bury all the cones in sand. In one or two months' time—having taken care that the sand does not become too dry—the cones scale easily without force, the seeds are then picked out and are sown immediately. It might be thought that this plan would injure the quality of the seeds, through moisture, &c., but it does not; as the seeds are taken from the cones, in a fresh condition, and are swelled ready to germinate at once. Formerly the nurserymen in this country (France) used to bore through the apex of the cones with a gimlet, but it was a long and tedious operation. During the last 20 years the above plan has been followed by all our *confrères* with great success. It was found out by one of the nurserymen finding in the ground some cones, which had been buried by rats, and which scaled easily of themselves, and by ascertaining that the seeds of these would grow freely. *Delépine Ainé, Horticulteur-pépiniériste, Angers.*

The Court-pendu Plat Apple.—In reading a notice of this Apple on p. 309 as the Garnous Apple, and Mr. Watson's mention of it at p. 53, I am reminded of years gone by, for in 1834 I happened to be dining at the *table d'hôte* of the Hôtel de Vienne—I think that was the name of the hotel—at Ghent. It was in the month of June, when Strawberries and Cherries were ripe. At the dessert I was surprised to see numerous dishes of Apples, plump, bright, and beautiful, as if just gathered; and finding them preferred by the diners, I inquired of my table neighbour how it was that such an early kind of Apple existed in Belgium, unknown in England. He soon enlightened me by telling me that the Apples in question were those of the preceding year, and that they were of the kind called Court-pendu. I had some faint recollection of having seen the same kind of Apple in the gardens of the Horticultural Society at Chiswick, but the fruit under my eye was different in all respects. I therefore thought I had made a grand discovery, and, like all credulous young travellers, was proud enough of having done so, for I anticipated the pleasure of making the English people acquainted with plump, bright, and fairly good Apples in May and June, for those on the table at Ghent were large, flat, with fine bright crimson coats, and sweet, juicy, and nice in flavour. Acting on my impressions I at once set about importing some trees of my newly discovered Apple. When they came into bearing I found the sort well known by my old friend Mr. Pearson, as the Wollaton Pippin, and also at Chiswick, and so my dream ended. The Court-pendu Apple is now largely cultivated in our gardens, and in warm seasons, like the last, its fruit are fair, and they keep well till March, but they are so inferior to those grown under the brighter skies of the Continent as scarcely to be recognised as of the same kind. *T. R.*

Green's Hot-water Boiler.—May I take the liberty of asking "Y." (see p. 223) if he is simply in search of truth?—for, if so, it is reasonable to suppose he would have come here openly, and have told some one the nature of the business he had come upon. I should not now care to reply to him, not wishing to waste your valuable space, but that I am anxious the truth should be known respecting this boiler, which I fearlessly assert is all that I have described it to be. I will go further, and say it is the best, most effective, and most economical boiler for horticultural purposes in present use. If "Y.," or any one else, doubts this, let him come and judge for himself. Beyond this I do not intend to reply to any one who takes shelter under a *nom de plume*. I will shortly give a description of the boiler now at work here; for the present, suffice it to say that it is doing much more efficiently the work previously performed by two boilers (one of them a very large one), with less than half the fuel and labour. *J. Wills, F.R.H.S., Ashburnham Park Nursery, Chelsea.*

Hardy Spring Flowers.—I saw a few days ago at Mr. R. Parker's, Exotic Nursery, Tooting, a very rich deep-coloured herbaceous Anemone, named dichotoma fulgens. The hue of colour was of a brilliant deep crimson, and it was nearly as showy as the well-known Vermillon Brillant early single Tulip. Mr. Parker said it was quite hardy, though occupying a warm and

sheltered position under the dwelling-house. In the open ground, away from all friendly shelter, battling with a biting north wind, was a clump of the charming Sisyrinchium grandiflorum album. The flowers were white, with yellow anthers, borne on stalks from 6 to 8 inches in height. Both of these would be good ornaments in the spring garden or the herbaceous ground at this season of the year. *R. D.* [The fine purple-flowered Sisyrinchium grandiflorum deserves equal commendation with its white variety noted above. Eds.]

Camellias Out-of-Doors.—If not too late to add anything further to what has been said under this heading, it is due to the fine Camellias out-of-doors at Glen Eyre, the residence of Mrs. Colonel Crabbe, near Southampton, that they should be instanced as worthy of notice for their undoubted excellence. I saw them a few weeks ago, when they were covered with loads of flowers, that made them most pleasant to look upon. Standing against a wall open to the north-east was a splendid plant of the old double white, some 10 feet in height and fully 7 feet in width, having a thousand flower-buds, according to the computation of Mr. Stewart, the gardener, who really has much reason to be proud of this and other splendid plants. Occupying similar positions were fine bushes of the old double striped variety, one in particular, standing in a cold and draughty position close to the conservatory, where it scarcely gets any sun during four months of the year, and fully exposed to the north and north-eastern blasts. This is as fine an example of outdoor cultivation as could well be looked upon, as it was about 9 feet in height and very nearly the same in width, and literally covered with just expanding flower-buds. This plant had occupied this position for the past 10 years, has stood 20° of frost without injury, and never received any protection; it has stood unscathed when the Laurels around it have been much cut by the frost; in fact, Mr. Stewart has found it to be hardier than the common Laurel. So profusely does this plant bloom, that the flowers can be cut from it by the bushel. A rose-coloured variety of C. pæoniflora was also noticeable, and blooming most profusely. In another part of the ground, and occupying a bleak and exposed spot, was a large bed of Camellias, growing luxuriantly and blooming freely; and so well do Camellias thrive at Glen Eyre, that they are gradually being introduced into all the shrubbery borders. The soil at Glen Eyre is composed of a mixture of bog, peat, and loamy clay, and had to be made for the reception of the trees. It is retentive of moisture, though a good deal of gravel is found in the subsoil, and gives a fair drainage. A plant of Lonicera fragrantissima on the lawn was in full bloom, and had great attractions for the bees, for the day of my visit was fine, and the sun warm. The scented white blosoms, with primrose anthers, made a charming feature amid the sombre surroundings of the Conifers, and the plant deserves all that Mr. Ingram, of Belvoir, said in praise of it a few weeks ago. In the borders, plants of Daphne indica alba were full of blooming buds; they stand here without any protection, and so does Aloysia citriodora, a big plant, which must have weathered the vicissitudes of the past three or four years, judging from its size. *Richard Dean, Ealing, W.*

Foreign Correspondence.

Gardening Notes from Russia: *Moscow.—Nayskootchny Sad.*—This establishment is not so much a public garden as it is what we should call a wood or a park, though the word *sad*, in Russian, means garden. It is about three versts out of town, and much frequented in summer by pleasure-seekers. It is certainly a most beautiful place, or at least must be so in the months of May and June; and yet though it has many natural advantages and attractions, it might be very greatly improved. It contains some fine trees, chiefly Betula alba; but in general they grow in long lines up and down, like the letter M. This park has evidently been laid out by some gardener of the old French school. There are several long alleys or avenues; in one, composed of Elms and Birch, the trees to some extent almost touch each other at their base, and the branches on both sides, as well as overhead, are so interlaced, that the walk underneath is nearly dark. This of course is only a curiosity, and one which might be changed for something better. There are, however, some beautiful views here and there; one in particular would make a pretty picture—that is, a small pond having a good many fine, large, and fantastic Betulas growing round it, and mostly reflected in the water. Betula alba is a great favourite with the Russians. There are also several points from which a good view of the town may be obtained, with its hundreds of spires, domes, and cupolas. In some places the walk, or rather road, descends considerably, and the ground on both sides rises nearly perpendicularly. These banks contain a good many Ferns, but only one species—Lastrea Filix-mas—of which I gathered one or two fronds, as it is probable you have none in your collection from this distant quarter. By-the-by, in all the woods I have gone through in this country I have never seen more than two species of Ferns, namely, the Lastrea above-named, and Pteris aquilina.

I was at no small trouble to get to this park, staying, as I was, at the very opposite extremity of the town; and yet from want of full information and directions, I did not succeed in seeing more than a part of what is to be seen in the neighbourhood. In particular I regret not having seen the director, M. Enke, who, as I have since learned from the horticultural journal published here, was a delegate from the Moscow Society to the great International Exhibition held in London two years ago. His report of what he saw there is exceedingly interesting.

I cannot say more from my own observation about the gardens in the environs of Moscow, but as I find some accounts of them in the horticultural journal here, I shall send you a few extracts by-and-by.

Of course the central parts of Moscow are all business and bustle; everybody is occupied in buying or selling. The magazines, the "lavkas," the "depôts," the "bazaars" are full of every description of goods the produce of all countries. Is it because I have lived so long in the lonely, silent steppes of the south, that all this noisy activity attracts my attention, and makes me fancy that I am again in the City, or Fleet Street, or the Strand? I don't want to buy anything, but only to look at everything and see everything, and yet in some thoroughfares it is impossible to move a step without being continually importuned by the tradesmen, to "Say what it is my pleasure to be seeking," "Would I not condescend to look at their stock?" "Would I not be pleased to try this?" "Would I not do them the distinguished favour to inspect that?" and so on. In some places, indeed, I am obliged to turn back and seek some more congenial atmosphere. I sometimes ask myself, Do these people imagine that they obtain more custom by screaming so much, and annoying everybody that passes? or is it the habit of dealing that makes vulgar minds more eager in the strife for money?

Moscow is a city of merchants—of merchant princes, living in palaces—of shopkeepers, of tradesmen, of petty dealers of all kinds and gradations, down to the poorest vendor of lucifer matches. I did not once notice a single shop to let, or a single corner that was not occupied by some one with a stand, or a box, or a basket of small wares. Even the very court entrances of the houses are let, and lined on both sides with *bric-à-brac* of one sort or another.

And yet almost in the very vicinity of this tumult and bustle there are some beautiful gardens, walks, and pleasure-grounds, where people may breathe freely, or rest in quiet contemplation. These grounds are generally in the form of long broad avenues in the middle of still more spacious streets. Sometimes you come to a vast square with a lake. At another place you enter a charming park, with fine old shady trees. The *Alexandrafsky Sad*, round one side of the Kremlin, is almost in the very centre of the town. It is about a mile long, and about 100 yards wide. This beautiful garden is much frequented, and it is also used as a walk between one part of the town and another. In general these public gardens have three parallel avenues, the central one being much broader than the other two, and the trees are large enough to afford plenty of shade in summer. Then you must remember that for the most part they are in the middle of the street; so you can imagine what sort of streets there are here. There are, however, in some quarters streets or roads in which the carriage way is in the middle, and the gardens immediately in front of the houses, as in the outskirts of London. Our gardens are certainly prettier, and kept in better trim, but they are only a third part the size of those you see here.

On the whole I have not seen any large commercial town with so many horticultural embellishments as Moscow. *K.*

Canada.—*American Grapes.*—A writer in the *Gardeners' Chronicle*, in a late article, was very severe on native American Grapes. It was only because he had never seen good ones. It is true that most of the native American Grapes have a peculiar flavour, and some have a very strong one, but there are plenty perfectly sweet and good. Throughout the American continent, including Canada, they are consumed by thousands of tons; they come to market in 5 lb. boxes, and their names are legion and their qualities various, but from the quantities used it is proved that they are wholesome, and supply an acknowledged want. The 5 lb. box generally costs about half a dollar to 3*s.* currency, equal to 2*s.* or 2*s.* 6*d.* sterling; these prices are retail. *E. L. C., Toronto.*

United States.—*Paradise and Doucin Stocks.*—I have read various discussions in your pages as to the hardiness of the Paradise stock, and have wondered that there could be any doubt on the subject. In my garden I have on this stock many little bush-like Apple trees that have endured the greatest extremes of heat and of cold. About four winters ago the thermometer fell to 20° below zero, and last summer the heat was intense, reaching 106° to 108° in the shade. In spite of this my little trees are in perfect health. The Doucin stock is also thoroughly hardy. There is near here a small orchard of Apples on this stock, planted more than 15 years ago, all of which are in full vigour. My trees on the Paradise are like very large Currant bushes; those on the Doucin are from 10 to 15 feet through. *George Such, South Amboy, New Jersey, U.S.A.*

Societies.

Mr. W. Paul's Show of Spring Flowers was opened on March 13th, and terminates this day. It was held as usual in the Royal Horticultural Society's Gardens, South Kensington, in the north-eastern arcade, and notwithstanding the difficulties which the situation presents in the way of effective arrangements, Mr. Paul succeeded, with his well-known skill and ability, in producing a very pleasing floral picture. Along the front of the arcade an extensive and varied collection of dwarf flowering plants, consisting of Hyacinths, Tulips, Crocuses, Cyclamens, &c., was arranged, so as to form a continuous irregular line, broken at intervals by projecting groups of taller plants, such as Acacias, Camellias, Azaleas, Pelargoniums, &c. Between these prominent groups the line consisted of Hyacinths, sometimes with mixed colours, at others in rows of red, white, and blue, and edged with Primulas, Cyclamens, &c.; these in turn being divided by plants like Centaurea *gymnocarpa*, and edged with *Sempervivum californicum*. Large masses of showy Bronze Zonal Pelargoniums were edged with Sedum glaucum, and rows of dwarf plants of Narcissus, which have this season been very fine. At intervals were masses of Cinerarias, edged with Primulas, &c. These variations of colour and setting produced a very gay and lively picture. At the back were some fine banks of Hyacinths, which on the whole were much superior to those produced at Mr. Paul's previous shows. Amongst the subjects most worthy of special notice were the following:—Prunus triloba, fine plants, studded over with pink button-like blooms; this shrub is quite hardy, and exceedingly well adapted for early forcing. Some beautiful standard pyramidal plants of the double crimson Thorn, a sport from the old double pink, well adapted for forcing, and a plant which is really worth obtaining for that purpose. Roses, some of them particularly fine, especially Horace Vernet, Madame Alfred de Rougemont, and Madame Hoste. In the masses of Bicolor and Tricolor Pelargoniums, which were very bright in colour for the season, were some seedlings of Mr. Paul's own raising, and amongst them Red Admiral was conspicuous. Amongst Hyacinths, the best were:—Reds—Gigantea, Grandeur à Merveille, Macaulay, Prince Albert Victor, Florence Nightingale, and Garibaldi; whites—La Grandesse and Snowball; blues—Charles Dickens, Laurens Koster, Princess Mary of Cambridge, Grand Lilas, and Van Speyk. Of the Narcissi, Newton was the best amongst the yellows, whilst the new dwarf and free-flowering variety, Her Majesty, was the best white, with a yellow cup.

Linnean: *Jan.* 21.—G. Bentham, Esq., President, in the chair. Dr. R. F. Ainsworth, T. H. Farrer, Esq., M. A. Lawson, Esq., J. T. Moggridge, Esq., H. Ramsden, Esq., S. Saywell, Esq., F. Stratton, Esq., Dr. S. T. Taylor, J. H. Wheatley, Esq., and H. S. Worsley-Benison, Esq., were elected Fellows. Dr. Masters exhibited a spray of Holly which had been received from Mr. D. T. Fish, Hardwicke, Bury St. Edmund's, and which bore orange-coloured berries; it had been produced from a scion of a yellow-fruited variety, grafted on a red-berried stock (see p. 83). The following papers were read:—I. *Palmæ Amazonicæ; sive Enumeratio Palmarum in itinere suo per regiones Americæ æquatoriales lectarum, auctore Ricardo Spruce, Ph.D.*——II. *The Lichens of Ceylon, collected by Dr. Thwaites:* III. *Notes on the Lichens of the Island of St. Helena:* and IV. *On Sphæria tartaricola, a New British Fungus,*—all by the Rev. W. A. Leighton.

Feb. 4.—G. Bentham, Esq., President, in the chair. W. Carruthers, Esq., exhibited, from the collection of James Yates, Esq., of Lauderdale House, Highgate, a male cone of Encephalartos latifrons, which showed characters by which it might be distinguished from the cones of E. horridus, to which species it had been referred as a variety both by Miquel and De Candolle. The following papers were read:—I. *On the Stone-Grasshopper of Graham's Town, South Africa;* by Mrs. Barber.——II. *Catalogue of Ceylon Spiders, Part I.;* and, III. *Descriptions of Two New Species of Araneidea, with Characters of a new Genus;* by the Rev. O. P. Cambridge.——IV. *List of Spiders Captured by Dr. Wright in the Neighbourhood of Lucca, with Characters of New or Little-known Species;* by Mr. J. Blackwall.——V. *Remarks on Several Genera of Annelides, belonging to the Group Eunicea;* by Dr. W. Baird.——VI. *Observations on Lichens collected by R. Brown, Esq., in West Greenland;* by Dr. W. Lauder Lindsay.

Feb. 18.—G. Bentham, Esq., President, in the chair. Dr. Rogers and G. H. Lewes, Esq., were elected Fellows. The following paper was read:—I. *A Contribution to the Anatomy, Physiology, and Distribution of the Firolidæ;* by A. Rattray, M.D.

March 4.—G. Bentham, Esq., President, in the chair. J. C. Galton, Esq., and R. Mestayer, Esq., were elected Fellows. The following communications were read:—I. *On the Similarity between the Genus Draparnaldia and the Confervoid Filaments of Mosses;* by J. B. Hicks, M.D.——II. *Remarks on the Generic Name, Cascarilla;* by H. A. Weddell, M.D. The author regarded Cascarilla as a genus of Cinchonaceous plants, distinct from, though closely allied to Cinchona. As to the expediency of maintaining or rejecting the name Cascarilla, Dr. Weddell had arrived at the conclusion that it must give way to Pohl's name, Buena, and not, as many have thought, to Klotzsch's Ladenbergia. Were the disputed point merely between Cascarilla and Ladenbergia, the first name would needs have to be maintained in accordance with art. 58 and 59 of "Laws of Nomenclature." (58. When a tribe is made into an order, when a sub-genus or a section becomes a genus, or a division of a species becomes a species, or *vice versâ*, the old names are maintained, provided the result be not the existence of two genera of the same name in the vegetable kingdom. 59. Nobody is authorised to change a name because it is badly chosen or disagreeable, or another is preferable or better known, or for any other motive.) The name of Buena was given by Pohl to a Brazilian tree, B. hexandra, which is the only species he has described. Klotzsch applied the name Buena to the first section of his Ladenbergia, and that of Cascarilla to the second. The reason why he did not adopt Buena as a generic name was probably the same which led Dr. Weddell himself to set it aside for that of Cascarilla, namely, the confusion existing between it and Cosmibuena of Ruiz and Pavon. On reflection, however, such an error, even when countenanced by Pohl himself, could not be allowed to stand against fact; and the fact is that Buena and Cosmibuena are widely distinct. According to him, then, the name of Buena must supersede that of Cascarilla, and the author proposed that all the species he had described under the head of Cascarilla, of which a list was furnished, should henceforward be ranked as species of Buena, while the name Ladenbergia was retained for Cinchona dichotoma, and its congeners.——III. *Revision of the Genus Cassia,* by G. Bentham, Esq. The genus Cassia has been frequently the subject of special research, owing to the medical importance of its principal products, Senna leaves, and Fistula fruits. The great beauty of many of its species, moreover, is well appreciated, not only in tropical plantations and gardens, but also in those of southern Europe, and indeed as far north as Paris, where a few species, chiefly C. corymbosa and its allies, are amongst the most conspicuous of the autumn-flowering shrubs; and although we rarely see them in this country, it is probable that when our subtropical gardens become more general, Cassias will assume their appropriate place in them. To botanists the genus was held up as presenting an excellent instance of a large, widely distributed, much varied, but well defined group. After a careful study of the materials deposited at Kew, in the Linnean and Banksian herbaria, and in collections received from the Continent, the author stated the total number of known species, estimated, according to the views he has usually adopted, to be 320, besides about a dozen published ones which are dubious. These he proposed to arrange in three large groups—Fistula, Senna, and Lasiorhegma, so well defined in flower and fruit as to have a right to the designation of subgenera. As regards geographical distribution the author regarded Cassia, like the majority of large natural tropical genera, common to the New and Old world—*e. g.*, Hibiscus, Crotalaria, Bauhinia, Mimosa, Eugenioid Myrteæ, Hedyotis, Psychotria, Solanum, &c.—as presenting "phenomena which may be shortly summed up as a general diffusion of uniform primary type, with more or less of divergence into secondary types in different directions, in different countries, the smaller groups becoming, generally speaking, more and more local, diverging in different directions and with different combinations of characters in different countries, and the number of identical species over the whole range very few beyond those which as weeds of cultivation are liable to frequent interchange by existing means of transport." Further: "In all considerations of geographical distribution of species or other groups, it seems necessary to consider as an established fact, the great principle that natural affinity results from com-

munity of descent. The admission of a separate arbitrary creation of species, unmeaningly modified from an imaginary type, not only reduces the science to a dry statistical enumeration, but entails the preliminary exact determination of what is a species, which no one has yet succeeded in giving; whereas in adopting the doctrine of descent, natural genera, sections, species, races, and varieties, become superior and subordinate groups, similar in nature, and differing only in degree. Under this aspect, when treating of the area occupied by a group, it matters little whether you call it a section, a species, or a variety, provided only you make yourself clearly intelligible as to what is the grade of subordination you have in view, and, following the terminology which you believe to be the most generally received, you keep to the same term for what you consider as the same grade throughout the genus or order you are considering." Of the original seat or birthplace of the genus Cassia we have no evidence whatever, nor does the author put forward even a conjecture. The fossil Cassias are far too recent to afford any clue. All that the available data suggests is, that at least the three primary groups already named were differentiated at a time when the configuration of land and water was very different from what it now is, and had become well fixed before the disruption of the areas they occupied, by the intervention of apparently insurmountable obstacles, for all three show the same combination of general characters in America, in Asia, in Africa, and in Australia. The group Fistula comprises 19 species, of which 8 are American, 5 Asiatic, 5 African, and 1 Australian. Senna yields 160 species, of which about 120 are American, and only 40 occur in the Old World, besides a few, such as C. occidentalis and C. Tora, which are now ubiquitous weeds of tropical regions. Lasioregma yields about 191 species of the New and 17 of the Old World. Referring to the affinities of C. Sophora, it was remarked, that if further observation should lead to the conclusion that it is a divergence from the Oncolobium type, originating in Australia or Asia, and that C. ligustrum is a corresponding divergence of American origin, the two being connected by C. occidentalis, this would only be another instance of the diversity of divergence in distant countries, which has frequently been brought under notice in working up the Australian flora—*e. g.*, Pelargonium and Nicotiana. "Pelargonium is essentially a South African genus, but one species (only one according to Mueller), P. australe, has probably at some far distant epoch found its way into Australia, become there very abundant, and diverging into a great variety of forms, of which one only, and that not a common one, appears to be identical with one of the rarer varieties of the South African P. grossularioides, a species which in South Africa is also very variable, but diverging from the form common to the two countries in a totally different direction, and with different combinations of character, from what is observed in Australia. So also in the case of the Australian representative of the South American genus Nicotiana, N. suaveolens, Lehm., one of its numerous forms has remained undistinguishable from the Chilian N. acuminata, Grah. (apparently one of the several varieties of N. angustifolia, R. and P.), whilst the great mass of them has diverged in one direction in Australia, in another in America, so as to give a generally distinct character to each geographical type." As a general result, "the genus Cassia appears to have its great centre in Tropical America, specially luxuriating in diversity of form in the rocky ridges of Central Brazil, becoming more rare in the more temperate regions of North and South America, and unknown in the cooler Andine elevations; more sparingly domiciled in Australia and Africa, although still with a considerable degree of idiosyncracy; but represented only by very few species in Asia."

Entomological: *March* 1.—H. W. Bates, Esq., President, in the chair. The Secretary announced the formation of a new Entomological Society in Italy, the first part of whose Transactions was laid on the table. Mr. F. Bond exhibited Heliothis armigera from Australia, Java, Brazil, and the Isle of Wight. Mr. M'Lachlan exhibited a curious Neuropterous insect, with pectinated antennæ, collected in North-western India by Mr. Horne, belonging to the genus Dilar. Mr. Horne exhibited some slabs of the inner bark of Pinus longifolia, which grows abundantly, and covers the lower portions of the hills of Northern India, as a substitute for cork for insect boxes. Mr. Davis exhibited some very dwarf specimens of Vanessa Urticæ, Saturnia Carpini, Pygæra bucephala, and Smerinthus Populi, all bred during the preceding very hot summer. Dr. Wallace exhibited specimens of the Japanese silkmoth, Saturnia Yamamai, bred in this country during the last summer, together with their beautiful green cocoons; also, specimens of several other exotic species of silkmoths and their cocoons, including S. pyretorum, Westw., reared from a cocoon received from China as being that of the larva which is used by the Chinese in the manufacture of the silkworm gut, so much used by fishermen, and S. Pernyi, from the extreme North of China, where its caterpillar also feeds on Oaks. Mr. Weir exhibited the larvæ of the common Daddy Longlegs, which at the present time is found in immense profusion on the surface of the ground in Greenwich Park, Blackheath, &c. Professor Westwood mentioned that during the month of February a full-grown larva of the common glowworm, which emitted a considerable amount of light, had been taken in Bagley Wood, near Oxford. A paper was read by Mr. Charles Waterhouse, containing descriptions of a new genus and several new exotic species of Lucanidæ. Two other papers were also read—"On insects and insectivorous birds, and especially on the relation between the colour and edibility of Lepidoptera and their caterpillars," by Mr. J. Weir, and "Remarks upon certain caterpillars, &c., which are unpalatable to their enemies," by Mr. A. G. Butler. The object of both these papers was to ascertain how far the colours and peculiar forms of caterpillars and moths were useful in the "struggle for existence" in protecting them from insectivorous birds and other animals. As a general rule, Mr. Weir considered that hairy or spined caterpillars, as well as such as are gaily coloured, and which do not conceal themselves, are rejected by insectivorous birds; whereas dull-coloured larvæ, which generally conceal themselves during the day, or which assimilate in their colours to the plants on which they subsist, are greedily devoured. Mr. Butler's observations referred to the rejection by lizards, frogs, and spiders, of various kinds of caterpillars, especially those of the exceedingly common moths Abraxas grossulariata, Halias vascaria, and Zygæna filipendulæ, which consequently, notwithstanding their very conspicuous character, both in the caterpillar and perfect states, succeed in maintaining their great abundance.

Notices of Books.

The Monthly Microscopical Journal (Hardwicke), under the editorship of Dr. Lawson, constitutes the Journal of the Royal Microscopical Society, and which is now dissociated from the "Quarterly Journal of Microscopical Science." Three numbers of the new journal have already been issued, containing some valuable papers, but most of them treating on subjects not within the scope of this Journal. In the March number, however, is a paper "On the Composite Structure of Simple Leaves," by Mr. John Gorham, who, with much labour and ingenuity, lays down certain propositions, the value of which is unfortunately nullified by their being based on false premises; *e. g.*, he says, "the internal structure, so far as relates to its form, is to be found in the distribution of the veins of the leaf." If it be intended to convey to the reader that the form of the leaf depends on the arrangement of the veins, the statement may be questioned, as the form of the leaf is sketched out before the formation of the veins. The same sort of fallacy runs through the whole paper—the cart is invariably put before the horse; thus—leaflets are said to be joined together, or anastomosed, which certainly were never separate at any time; the phenomenon is one of imperfect partition, not one of junction. Mr. Gorham cleverly works out the fact that a leaf, as a whole, is built up of a great number of segments identical in aspect, form, variation, and so on; but he falls into the error of supposing, at least it appears to us to be so from a perusal of his paper, that all these segments have been fused together to form the leaf—to quote the author's own words, "junction of leaflets into one entire blade" takes place. Of course such union does occasionally take place, but the ordinary mode of formation of lobed or compound leaves is precisely the reverse of what Mr. Gorham says. We have the simple structure first, and from the edges of this bud out, as it were, the lobes and leaflets, and according to the extent of the separation is the depth of the lobes or the degree of composition. This simple fact, which is established beyond dispute by the investigation of the manner in which leaves grow from infancy to maturity, vitiates the whole of Mr. Gorham's otherwise carefully elaborated deductions.

Practical Floriculture; a Guide to the Successful Cultivation of Florists' Plants, &c. By Peter Henderson. New York: Orange Judd & Co. (Trübner.) Small 8vo. Pp. 249.

A thoroughly practical little book, devoted to the consideration of the best means of laying out and cultivating a flower garden. Special chapters are devoted to the Rose, Verbena, Tuberose, Cape Bulbs, and many other favourite classes of plants. To a certain extent the directions given do not apply to this country, nevertheless the English gardener with sense enough in his head to make the requisite allowance for difference of climate, will find a great deal of valuable information in the book, some of it none the worse for having been derived originally, like the practitioners themselves, from British sources. Even those chapters to whose teachings we should ourselves demur, are nevertheless well worth perusal. For instance, the chapter on bouquet making, written by J. H. Park, of Brooklyn, forms an interesting feature of the work, though we must be unfashionable enough to enter a protest against the particularly ugly illustrations of his art which Mr. Park gives us. We fancy Mr. Park, from his writing, must be competent to initiate a more natural and elegant style of bouquet making than he appears to advocate. There is this great disadvantage, however, that though the artist—or, shall we call him, or her, *bouquetiste?*—may be able to arrange flowers so as to satisfy the most refined taste, yet he or she may be quite unable to teach others; while the formal clumsy style so much in vogue, as it would seem, on both sides of the Atlantic, demands no special taste on the part of the arranger, and can in consequence be as easily learnt as taught. Some idea of the immense demand for flowers in New York may be given by the following extracts:—"Funeral flowers are now a very important part of the florist's trade. Ten years ago 10 dols. worth of flowers were more rare at a funeral in New York than 100 now, and sometimes one funeral demands 1000 dols. worth." Here is another extract, which will give some idea of how things are done in New York:—

"In New York during winter 25 cents is a common price for a handsome Rosebud, the same per dozen for Violets. White Camellias vary from 1 dollar each, when scarce, to 25 cents when plentiful. At Christmas and New Year's (day), Camellias are frequently sold from 2 to 3 dollars each. The price of hand bouquets varies from 50 cents upwards. What florists call good hand bouquets sell at about 5 dols., extra fine from 5 to 10; occasionally they bring still higher figures; this writer has sold not a few at 15, and on rare occasions has received 20 dols. for a hand bouquet, and that from men who knew well the usual prices of flowers. To give the uninitiated some idea how these things are used, we may mention having seen a belle, at an evening party in New York, carrying a bouquet in each hand, while three others were strung from each arm as trophies of her prowess among the simpler, if not the softer sex. Of course this display could not last long. The very weight of her attractions would speedily compel her to surrender, for be it remembered those eight bouquets certainly contained about 60 Camellias alone. We have known rich and fashionable belles even more favoured than this, and have heard of one having 15 splendid hand bouquets sent for one occasion. We have never, however, heard of another showing such muscular prowess in their display. Baskets of flowers commonly sell from 5 to 25 dols., stands from 15 to 20 dols., extra large stands from 50 to 100 dols. We have heard of 200, and even 300 dols. being paid for one. Bouquets for refreshment and dinner tables range from 5 to 50 dols. each; we have ourselves made one at 100 dols.! The prices of wreaths, crosses, &c., vary from 5 to 20 or 30 dols., from 5 to 15 is a common range. On one occasion a New York florist is said to have supplied 3000 dols. worth of flowers for a private entertainment, but two or three hundred is more common, and esteemed a very good order. A business, which in New York alone amounts to hundreds of thousands of dollars annually, will soon assert its own position, and it is for those engaged in it to make or mar it, as they conduct it more or less respectably. As Americans assuredly pay better prices for their bouquets than any other people, let the florists see to it that they get the finest and best arranged flowers."

Then follows a description of the best method of stemming, wiring, and other devices of the *bouquetiste*, for which, so far as we recollect, there are few or no directions given in any easily accessible English book. The writer plumes himself, with what justice let our florists judge, upon the superior economy with which American businesses are managed, as compared with the corresponding establishments here:—

"One fact, very flattering to our American florists, is, that although our plants on an average are sold lower than they are in England, and our new plants at less than one-fourth of the prices obtained there, the business is more profitable here than there. Why is this? the reader may doubtingly ask. Simply that our necessities with regard to labour compel us to apply our common sense to the work, and we cut loose from many of the established rules with which English florists are yet stupidly trammelled. In two of the leading London establishments, having each about 50,000 feet of glass, the average number of hands employed during the year is 50. The same quantity of glass would be worked here in a style quite equal to theirs, as far as the quality of the plants goes, with less than one-third of that number. [?] I am informed by a gentleman who was for many years connected with one of those English establishments, that the profits did not exceed 10 per cent. of the sales. I am afraid that the smallest operator of us all here would soon quit the work if it gave no better result."

Similar remarks are made with regard to the nursery trade. Whether or no there is not a little of the Yankee tendency to "whip all creation" in these extracts, we are not able to say, but we "guess" there is a little unconscious exaggeration here. At any rate the book is a very useful and interesting compendium, and we have no hesitation in recommending it to the favourable notice of our readers.

American Horticultural Annual, 1869. New York: Orange Judd & Co. (Trübner.) Small 8vo. Pp. 152.

Though specially intended for American gardeners, this capital publication may be cordially recommended to British gardeners. In addition to the usual Calendar adapted to the several States of the Union, there is a series of articles on the new flowers, fruits, and vegetables of the year, with several illustrative woodcuts. So far as flowers are concerned, our American cousins seem mainly dependent on European supplies for their novelties; but it is far otherwise with fruits and vegetables. Some of the newer varieties of Potatos raised in America seem particularly worthy of notice.

Florists' Flowers.

Among those who are entitled to stand in the front rank of enterprising florists, as a raiser of Variegated Zonal Pelargoniums, as well as some fine kinds in the gold and bronze and other sections, is Mr. C. W. Morris, of Deptford, an enthusiastic amateur, and, what is frequently found associated with it, a successful cultivator. Specialities appear to come more in Mr. Morris' way than a wide range of subjects, and the Variegated Zonal Pelargonium is the chief among them. As a raiser Mr. Morris has taken high honours, having sent out several fine new varieties; and notably that splendid kind, Prince of Wales, came from the Deptford seed-pans, while other sections of bedding Pelargoniums have been reinforced from Mr. Morris' resources.

A visit to Deptford a short time ago afforded an opportunity of inspecting a couple of span-roofed houses, in which Mr. Morris cultivates his Pelargoniums. His practice at this season of the year agrees in the main with that followed by Mr. Turner, and the same happy results follow. While Mr. Turner keeps his house entirely for Variegated and Gold and Bronze Zonal Pelargoniums, Mr. Morris has plants of the ordinary zonal type arranged with his more garish-looking plants, and takes some pains to effect what he certainly secures—a tasteful and effective arrangement, not too severely formal in character. Each house has a level stage on either side, and on these stages variegated and green-leaved plants are arranged in diamond angles, a lot of Christine (the foliage of which at this season of the year is of a dark green hue) being used to form a kind of series of angular links, which enclose the brighter-looking variegated kinds. Here and there angles of Christine relieve the larger diamond-shaped masses of the showy vandyked and golden leaves.

All the leading new kinds were on trial; some, now in good condition, evidently suitable for winter and early spring decoration; others were in a transition state, the dull season of comparative repose giving way to the on-coming of the glorious leaf apparel. Others were yet in a kind of slumber, with colourless, ill-defined leaves; kinds promising to do good service by-and-by, when they, too, should be called forth in the economy of Nature to don their gayest leaf-robes of red and gold. The most lively in appearance (and to this evidence of their worth can be added Mr. Morris' high commendation) were Sophia Cusack, very good indeed; Crown Jewel, a variety very showy at times, and when in good condition thoroughly fine, but yet uncertain; Louisa Smith, very good, a fine free grower, bright looking and well coloured; Grandis, a variety with a remarkably good habit, though in regard to character of leaf marking out of condition at this time; and Prince of Wales, of which there were some fine free-growing plants, though the leaves were out of character. Lady Cullum does not please Mr. Morris, because it is too dull-looking—a feeling not exactly of dislike, but of dissatisfaction experienced by other growers from the same cause; the dark marking of the zone not only overshadows, but positively overpowers any life in the colouring matter blended with it.

Mr. W. Paul's Variegated Nosegay Prince Silver Wings was a pretty and striking thing, and promises well as a bedder, close and compact in growth, wiry-looking, and having a bright leaf-marking. Mabel Morris, raised by Mr. Morris, and shortly to be distributed by Messrs. Carter & Co., is a capital silver-edged variety, of excellent habit, and very attractive. Empress Eugénie, another kind of a similar character, Mr. Morris finds so delicate that he can't grow it. Ebor, a Gold and Bronze Pelargonium, though almost green in the leaves on this occasion, is yet described by Mr. Morris as a fine and good bedder, and is commended by him as such. Southern Belle, a new gold and bronze variety is full of promise, and will no doubt be heard of during the summer.

There is no "coddling" of the plants at Deptford;

Mr. Morris may be said to hold this in abhorrence, and there is no doubt much truth in his remark, that a little wholesome neglect on the part of some amateur growers would no doubt result in these plants doing better, and being much more satisfactorily cultivated. "Coddling" is no doubt the bane of many amateur growers—hot, ill-ventilated, close houses will not, and cannot be made to grow healthy specimens of these Variegated Pelargoniums. When requisite—and during the winter and early spring months, it will be found necessary almost daily,—some artificial heat is given to the house, and a free circulation of the air allowed by plentiful ventilation. There was no evidence of damp, all was healthy, vigorous, and, if the season for being in true character, well coloured.

In regard to soil, Mr. Morris uses a fine yellow loam, known as the Dartford loam—sweet, and full of fibry lumps, and of a sandy nature. It is in this alone that Mr. Morris grows the plants, and then it is not sifted, but simply broken up into small lumps, and so used for potting purposes. Aëration of the roots is a special feature of Mr. Morris's method of cultivation, and accordingly lumps of turf, large enough to astonish some growers, are incorporated with the soil, so that it may be thoroughly open and porous, and in addition narrow earthenware pipes are placed in the soil, with the openings just above the surface, and this is done to obtain a free circulation of air through the body of the soil. This process was being applied to a certain number of pots, and it was noticeable that the plants, the roots of which were so aërated, were in a very healthy condition.

There is no doubt much both of truth and force in the remark often made, that of all plants the Variegated Zonal Pelargonium is most likely to suffer from over-propagation. In the general race to get new things distributed, especially at a time when so many new varieties of the tribe are being produced, over-propagation is almost an inevitable result, and debilitated plants succumb to a rigorous mode of treatment, or pine away to a state in which life and death are held, as it were, in a balance. Amateur growers, without proper appliances for growing the plants, have to fight against the effects of debilitation, in addition to other accidents common to plant life. It is the evils incident to the misfortune of over-propagation that Mr. Morris essays to lessen by his somewhat novel mode of cultivation; certain it is, that as far as the results could be ascertained on this occasion, it appeared to be conclusive in favour of the method of aëration of the roots adopted by that gentleman. *R. D.*

Miscellaneous.

Covent Garden Notes. — The supply of Broccoli (Cornish heads) is now on the decline, as the season for these is nearly over. In consequence of the late mild autumn and mid-winter, the supply sent from Cornwall to the market was very large, the enormous quantity of 10,000 crates (1,000 tons) having arrived between December 20 and February 28. As will be seen from the Market Reports, the Potato trade is somewhat dull, and has been so for some weeks past; notwithstanding this, we learn that the average weekly quantity brought to King's Cross by the Great Northern Railway alone since December, has been at the rate of 4,000 tons per week; and that a short time back 7,000 tons were delivered at the same place in one week. New Ashleaf Potatos, grown in frames, have appeared during the last few days, but in very limited quantities. Cucumbers, which are principally of the Syon House breed, are now getting more plentiful, and are sold at from 1*s.* each and upwards. There is a small supply of the highly-coloured Lady Apple (the Api of Hogg's Fruit Manual), in excellent condition, and which are sold at 1*s.* 6*d.* per dozen.

Lichen-Lessons from Gravestones.—Few botanists have paid any attention to our rock-loving Lichens, consequently the literature of the subject in this country is at a very low ebb. This is greatly to be regretted, for the beautiful parti-coloured films and patches of vegetation so common on architectural remains and exposed rocks are well worthy of close study. Lichens are known to be amongst the first objects which disintegrate rocks and stones, but the time required for their germination and growth has long been a vexed point. Recently an English botanist has hit upon the idea of noting the growth of lichens upon the *dated* monuments and gravestones of country cemeteries, and has found that it requires a period of twenty years for a lichen to acquire a moderate or adult size on a squared stone; the growth of these pretty rosettes of grey and yellow colour, so ornamental to our architectural remains, is, as might have been expected, excessively slow. *Builder.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

The shifting of plants into larger-sized pots, or, as we of the craft term it, fresh potting, should now be proceeded with in the case of stove or other plants requiring such aid, as suggested last week. Space will not allow me to give in detail every particular in regard to the exact consistence, the richness or otherwise, of soils which the several species require, or to state how firmly or otherwise individual plants should be potted, &c. I may, however, point out in general terms a few particulars, which are absolutely necessary to be attended to by those who wish to be successful in the treatment of plants grow in pots. Hard-wooded species of plants invariably require to be solidly and firmly potted. The composts used in potting them should be so composed as to admit of this being done without in any degree diminishing or impairing the needful amount of drainage, which is so necessary to cause the water given to them to percolate freely throughout the pot, and to flow as freely away without scouring the soil, or causing the many other evils attendant upon imperfect drainage and an injudiciously prepared and too tenacious substance. Hard-wooded plants, moreover, do not require to be potted so often as those of a more succulent nature, but require a larger amount of really good material of the proper sort, as they receive but little benefit from liquid manures, which are so serviceable in the case of gross feeders. Thus, whilst the best maiden loam is as essentially necessary to the soft-wooded plant as it is to the hard-wooded one, yet a different mode of mixing the materials is requisite in preparing a suitable compost for each. The hard-wooded plant should have as much partly decomposed fibrous matter as possible; soft, succulent plants, on the contrary, thrive better in thoroughly decomposed substances. Their growth is rapid, hence what is afforded them within the small compass of a pot should be at once fit for their use; for if this is not so, their principal growth will be made before the compost is in a fit state for them to feed upon. Actual manure may be mixed freely with this loam in the case of all plants of quick growth. The grosser the feeding capabilities of a plant, so much the stronger also should the stimulant given be; but others less strong, though of rapid development—such, for instance, as Chinese Primulas, will do better with the milder regimen of decomposed leaf-mould. The plants of slower growth should only have a very small portion of manure at any one potting. The manure should be applied with judgment, and only such as is thoroughly decomposed and is certain not to injure the component parts of the compost in admixture. It only remains for me to add, that the longer the intervals which exist between each potting, so much the more permanent and efficient should the drainage be made. Large crocks should be placed over the large outlets at the base of the pot, and over them a layer of potsherds broken so small as to prevent the soil finding its way down into and amongst the crocks, so as to choke up the proper channel. The more succulent in general a plant's roots are, so much the more loosely should it be potted. Give the final shift to any late *Cinerarias* which are needed for a successional display. They should, however, if dwarf and healthy, only receive a small potting at this time. Pinch back the young shoots upon *Fuchsias* started into growth, as previously advised, and continue to propagate any varieties of which a more extensive collection is required. Gradually advance the temperature both in stoves and in Orchid-houses, and with it afford a proportionately larger supply of moisture. Be cautious, however, at this early period, not to cause or permit too much water to lodge in the hearts or crowns of any plants, or it may cause the actual growing parts to become decayed. Above all things, attend to the fumigation of all structures likely to harbour or to produce insect pests. Always endeavour to act upon the preventive system, by smoking all such places periodically.

FORCING HOUSES.

The temperature in all *Pineries* containing forward successionals should now, as the season advances, be increased to a mean of about 73° by night, and, with the assistance of sun-heat, an increase of from 12° to 14° by day. Give them tolerably good syringings overhead with tepid water both mornings and afternoons when the days are bright and sunny, but only very early upon afternoons while dull weather prevails. The freshly potted suckers or crowns should have a nice soaking of water a few degrees warmer than the temperature of the house in the morning of fine days; though much of what is necessary may be afforded in process of syringing by experienced hands and those who closely study their wants. *Figs* that are swelling their fruit must be pushed on their way very evenly, as the least check they receive so deranges their organs as to cause them to shed the fruit at this stage. Such *Peach* and *Nectarine houses* as have fruit within swelling freely, should be attended to in the matter of thinning or pinching back the young shoots. The only safe way is to go over them carefully at intervals, and by taking out a few of the thickest and strongest shoots to somewhat ease the parent trees of their burden. Where any are in such an advanced state as to be about to commence stoning a more decided action, as regards pinching the shoots, will of course be needful. I would here throw out a hint regarding red spider, the only preventive of which is to keep the trees in health and cleanliness; for they are sure to follow in the wake of a neglect of one, or ill-success in the other. The next few weeks will be favourable to their formation upon many indoor subjects. If there is one preventive better than another it consists in a tolerably free use of flowers of sulphur, and an abundance of atmospheric humidity.

HARDY FLOWER GARDEN.

Those who have delayed to make the necessary sowing of *Sweet Peas* should do so at once. These are far more beautiful when sown thus early, and bloom before the excessive summer heat sets in. It is not necessary to sow them in pots; and with the customary protective measures, Sweet Peas are far more hardy than many suppose them to be. Many semi-hardy perennials, such as *Pentstemons*, *Phloxes*, *Pyrethrums*, &c., which, from their rarity, have been kept within the protection of a cold frame, should now be planted out into the open border; press the soil firmly around them after planting, and by any other means secure them against sudden storms and strong winds. Even in places where only limited means exist it will now be full time to bring the stock of *Dahlias* to light, and to start them into growth. Where it is not requisite to increase the stock by cuttings, it will not be necessary to force them on by placing them in an excess of heat. The more gently they are brought into active growth the greater will be their robustness. Propagate by means of cuttings any further stock of *Violas* which may be required.

KITCHEN GARDEN.

Sow a few *Cardoons* for early use. Make the main sowing of *Beet* upon good trenched soil, and with plenty of manure placed at the bottom of the trench. Finish planting all early *Potatos* immediately the ground becomes fit for the operation, as also *Jerusalem Artichokes*. Make a successional sowing of *Peas* and *Broad Beans* as soon as those previously sown sh aboveground, earthing up all that need it. Make fresh plantations of *Rhubarb*; this is generally done by dividing the old stools and replanting them into well-manured fresh soil. Sow *Capsicums* and *Chilies* in heat as also the herb *Sweet Basil*, for ulterior planting out *W. E.*

TOWN GARDENING.

Grass plots and lawns should now be rolled frequently, as this operation not only makes the surface firm, smooth, and clean, but renders the grass much easier to mow. It will be necessary to commence mowing at once: early in the morning, while the dew is on the ground, is the best time to do this, with the scythe: if with a mowing machine, later in the day, when the grass is dry. Grass plots in town gardens should not be cut quite so close as is usually done in, the country. The *Virginia Creeper*, a useful plant for covering walls, trellis-work, &c., should now be nailed in or otherwise secured. Have all the young shoots cut off, and the leading branches secured. *Chrysanthemums* are now growing fast; if dwarf plants are required they should be pegged down as previously directed. The annuals that were sown in gentle heat will now be coming up, and will require a little attention. Plenty of air should be afforded them in fine weather, and they should receive occasionally slight waterings, &c. *Herbaceous* plants may still be planted, if moved with plenty of earth round their roots. *Angelica*, one of the most useful plants for town gardens, should now be sown, and also the common *Tropæolum*, which does well in borders, and makes a pretty drooping plant, if sown in boxes on the balcony. *Hyacinths* will now have done flowering in glasses and pots; if these are turned out into the borders and covered with a little rotten dung in the autumn, and allowed to remain, they will flower well next season. *Tulips* are now getting forward, and if slightly protected on cold nights and during stormy weather, they will bloom freely, and give great satisfaction. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Mar. 24, 1869, as observed at the Horticultural Garden.

March.	Moon's Age.	Barometer.		Temperature. Of the Air.			Of the Earth		Wind	Rain.
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 18	5	29.828	29.710	51	30	40.5	41	40	S.	.06
Friday 19	6	29.720	29.460	50	33	41.5	43	41	S.	.16
Satur. 20	7	29.600	29.470	41	34	37.5	42	40	N.	.24
Sunday 21	)	29.874	29.675	43	38	40.5	42	41	N.E.	.13
Mond. 22	9	30.096	30.001	47	30	38.5	43	41	N.E.	.00
Tuesd. 23	10	30.196	30.167	41	29	35.0	42	41	N.E.	.00
Wed. 24	11	30.131	30.051	46	35	40.5	41	41	N.E.	.00
Average.		29.921	29.790	45.5	32.7	39.1	42.0	40.7		0.58

March 18—Fine, overcast; overcast; showery at night.
— 19—Overcast; heavy showers; fine; very damp at night.
— 20—Very boisterous; stormy, with rain; cold and stormy.
— 21—Stormy and overcast; showery; boisterous at night.
— 22—Fine, overcast; cloudy and cold; clear and fine.
— 23—Overcast and cold; cloudy, cold wind; clear and fine.
— 24—Fine and frosty; overcast, but fine; cloudy at night.
Mean temperature of the week, 2 6-10 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending April 3, 1869.

March and April.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..28	53.0	34.0	43.5	17	0.68 in.	4	8	6	2	2	8	2	4
Mon. ..29	53.7	33.4	43.6	13	0.33	2	5	11	3	2	8	9	3
Tues. ..30	53.7	34.3	44.0	19	0.50	3	6	7	1	6	10	5	5
Wed. ..31	55.3	33.9	44.6	18	0.30	4	7	3	3	9	8	6	5
Thurs. .. 1	55.0	34.4	44.7	21	0.76	3	8	4	3	5	11	3	6
Friday .. 2	57.8	36.7	46.9	21	1.19	5	5	4	4	4	12	6	3
Satur. .. 3	57.1	35.7	46.4	20	1.19	5	4	6	4	4	13	4	3

The highest temperature during the above period occurred on the 3d, 1848—therm. 78 deg.; and the lowest on the 1st, 1838—therm. 16 deg.

Notices to Correspondents.

Books: *S. T.* "Ayres on the Cucumber," or "Moore on the Cucumber," if either is still in print. We hear there is a new edition of the former to be expected before long, but perhaps not in time for your object. Look carefully to our weekly Calendar, and refer to that of last year.

Diseased Fir Trees: *P B.* Your Scotch Firs are attacked by a parasitic Fungus, Peridermium Pini, for which we do not know of any remedy. The trees may possibly outgrow the evil, as the branches are not affected in the same way as those of the Silver Fir from another species of the genus, where the nature of the foliage is permanently altered. Undoubtedly, the introduction of affected trees may be the means of spreading the parasite. *M J B.*

Green-fly in a Cucumber House: *Inquirer.* Fumigate the house gently two or three times, at frequent intervals, and use the syringe freely the next morning. For further information on this subject, see p. 573, 1868.

Name of Insect: *A Correspondent.*—The sketch of the "shadowy" insect represents one of the Hemiptera, by name Neides tipularis. It is reputed to be rare. *H T S.*

Names of Plants: *F W.* 1, Campyloneurum Phyllitidis; 2 appears to be the top of a frond of Lastrea Filix-mas; 3, Primula Fortunei.

Scott's Wasp Destroying Mixture.—Those who have wares to dispose of should advertise them, and not hide their light under a bushel.

Erratum.—In p. 308, col. c, 15 lines from top, for "Beech-wood" read "Peach-wood."

Communications Received.—C. L.—P. G.—J. A. W.—J. E.—C. F.—Midland.—T. C. B.—Q in the Corner.—J. J.—T. H. H.—A Constant Reader,—J. A.—A. Forsyth.—A. D.

SUTTONS'
HOME-GROWN FARM SEEDS,
NEW AND UNADULTERATED,
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A NEW AND DISTINCT VARIETY.



SUTTONS' NEW YELLOW INTERMEDIATE.

From the peculiar shape of the roots, and the leaves being small, this variety may be allowed to stand closer in the rows than other Mangels, *hence it produces a greater weight per acre.* It may be pulled and trimmed with half the labour of other kinds.

Price 1s. 6d. per lb.; much cheaper by cwt.

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SUTTONS' BERKSHIRE PRIZE YELLOW GLOBE.

The largest variety of Globe Mangel yet introduced. It is of beautiful shape, with very neat top. It is mostly of pale yellow colour, and generally only one tap-root. It grows to a large size, and has been known to produce the enormous weight of 35 tons per acre.

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The following excellent sorts can also be supplied:—
SUTTONS' MAMMOTH LONG RED, 1s. 6*d.* per lb.
SUTTONS' SELECTED YELLOW GLOBE, 1s. per lb.
SUTTONS' SELECTED ORANGE GLOBE, 1s. per lb.
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GOOD ORANGE GLOBE, 10*d.* p. lb. | GOOD LONG RED, 10*d.* lb.
SELECTED LONG YELLOW, 1s. per lb.
SELECTED RED GLOBE, 1s. per lb.
Cheaper by the cwt. Lowest price on application.

SUGAR BEET (Sow 8 lb. per acre).
For instructions on cultivation, see SUTTONS' "Farmer's Year Book."
WHITE SILESIAN GREEN-TOP, 10*d.* per lb.

For further particulars of Agricultural Seeds, see SUTTONS' "Farmer's Year Book for 1869." 6*d.* Post Free; Gratis to Customers.
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Finest Quality, per acre, 28s. to 32s.
Second Quality, per acre, 20s. to 26s.

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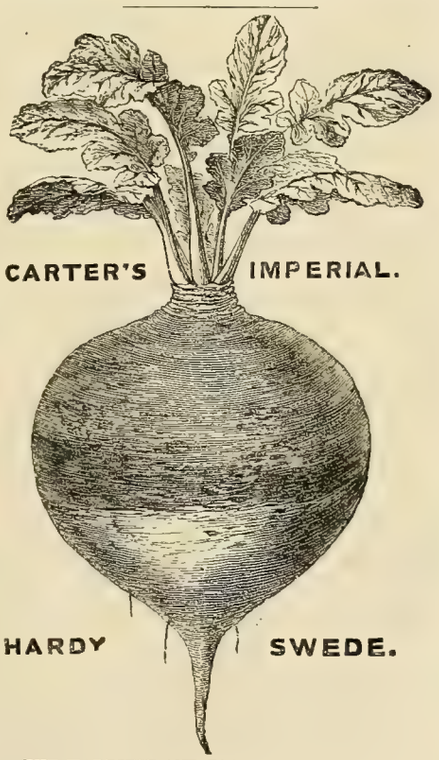
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See Illustration and evidence of quality at page 330 of this day's *Gardeners' Chronicle.*

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Cheaper per cwt.

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CARTER'S FINE CLOVER SEEDS.
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For particulars of the above choice stocks, see CARTER'S "Illustrated Farmer's Calendar for 1869."



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1s. per lb.; cheaper per cwt.

For FULL INFORMATION on the LAYING DOWN and AFTER-TREATMENT of GRASS LANDS, see

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HALLETT'S PEDIGREE CHEVALIER BARLEY produced in 1868 a Crop of 62 bushels per acre, a Sample of which was awarded the First Prize at the Birmingham Show of 1868. Took the First Prize also at the same Show of 1867. Produced in 1867 nearly 9 quarters per acre.
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ROYAL AGRICULTURAL SOCIETY of ENGLAND.

MANCHESTER MEETING, 1869.

STOCK and IMPLEMENT PRIZE SHEETS are Now Ready, and will be forwarded on application to HENRY WHITWORTH, Esq., Local Secretary, 96, King Street, Manchester; or

H. M. JENKINS, Secretary.
12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, MARCH 27, 1869.

MEETINGS FOR THE ENSUING WEEK.
April 1 { Yearling Shorthorn Bull Show and Sale, at Bingley Hall, Birmingham.
— 3 { Norfolk Chamber of Agriculture, at Norwich—1. The Contagious Diseases (Animals) Bill No. 2; 2. The Best Substitute for the Malt-tax.

WE some weeks ago called attention to the fact that the farmers of England are but scantily represented in the Commons House of Parliament. It was a phenomenon, not to say a scandal, that constituencies consisting almost wholly of those who cultivate the soil should send up soldiers, lawyers, noblemen, and squires, but no one really representing them—so few of these being agriculturists. Thanks partly to the fashion set by the Royal Agricultural Society of England, partly to the real interest, for all educated men, of the problems which agricultural improvement offers, the agriculturist is met with now in many other classes as well as among the actual tenants of the land; but that the latter, who may be said almost exclusively to hold the county franchise, should disregard the special agricultural fitness of any candidate for the county membership, and consider only the nomination of the leading county men, was not only an absurdity—it was a disgrace. This was one of the points enumerated as indicative of the present status of the tenant-farmer in this country. No doubt the necessity for a special or professional representation of his class in Parliament will pass away along with, almost in advance of, that undue subserviency which at present hinders it; for it only needs a general advance in intelligence and resolution among agriculturists to attain, without the aid of legislation, many of those aims which the most advanced among us propose to achieve by direct enactment. Nevertheless, the progress sought will be materially hastened by the presence among our legislators of men who have the confidence of farmers; and if more of the counties cannot send them up, let us hope that some of the borough constituencies may act for them.

The City of Hereford is to elect its representatives next Tuesday, and one of the candidates is Mr. C. WREN HOSKYNS, well known to the readers of the *Agricultural Gazette*—well known, indeed, to agricultural readers everywhere. No one has done more than Mr. HOSKYNS to illustrate the influence of English history, and especially of English legislation, on the condition of English agriculture; no other English writer has done so much to illustrate the charm and extend the interest now generally felt in even the commonest details of land-owning and of farming—no one, we may add, did more than he to revive the steam cultivation problem, whose achievement has been at length such a great and pregnant agricultural success; and as having already often been the exponent of

agricultural influences and relations, and of agricultural history, before citizens and city audiences, we can hardly imagine a more appropriate representative in Parliament of the chief city of so purely agricultural a county as Herefordshire. Any one with so long an experience as a farmer and a landowner, and with such a lively and personal appreciation of the difficulties—due to custom, law, and prejudice—amongst which agricultural progress has yet to win its way, would be welcomed to a place in Parliament by all intelligent men, however he might vote on party questions. And, speaking for the agricultural interest especially, we venture to express the earnest hope that there is a majority of the Hereford electors sufficiently alive to the intimate relationship of town and country, to choose a man of their own county (most unlikely therefore to lose sight of local interests), who is so capable of representing both.

It is a common opinion that "crops draw the ground," or exhaust it, in proportion to the length of time they occupy it. Mangel seed, which is harvested in September, is more exhausting than Turnip seed, which is harvested in July. Rape, fed off, and then allowed to stand and sprout again, proves very exhausting; the same is observed in the re-sprouting of cabbage-stalks. This is difficult of explanation. The theory of plants exhaling ammonia has sometimes been dragged in, to account for certain anomalies of this kind. It does not appear, however, to be a satisfactory explanation in those instances of exhaustion just given. It can hardly be supposed that the process of exhalation can be greatest in the last stages, when there is the least number of leaves, and their action must be feeble. Besides, ammonia is a substance always in the air, and constantly absorbed by the earth; why should its temporary removal in a gaseous form prove an injury to the soil? Baron Liebig ("Modern Agriculture," p. 53) calculated that the upper 10 inches of an acre of ground might contain 10,000 lb. of ammonia or combined nitrogen. This refers to clays, which absorb three times as much, both of water and gases, as sands. No doubt the stems of plants in the latter stages of their growth, when they become hard and woody, abstract mineral food from the ground, but this does not account for Mangel seed exhausting more than the Turnip seed, supposing the weight of the crop and its mineral constituents to be similar. It might perhaps be accepted as a plausible explanation of the greater exhaustion of the soil, by feeding off Rape when it is old, and the stems remain untouched, compared with that of feeding off the crop at an earlier stage, when the stems are succulent and are eaten to the ground. But there are examples of exhaustion by forage crops, eaten close to the ground, which are still unexplained; and, on the other hand, in the case of Red Clover, it has been asserted that it may even be allowed to blossom and ripen its seed without injury to the succeeding crop of Wheat. We think, however, that this only applies to land in high condition; on inferior soils the crop of seed proves more exhausting than the crop of hay when the aftermath is fed.

We are acquainted with a considerable tract of heavy land of inferior quality well adapted for observations on the maintenance of fertility, just as a weak man is a better subject for hygienic observations than a person whom "nothing can hurt." Mixed with the clay are fine white sand and iron: a thin staple rests on hard yellow clay and gravel, which does not prove a hidden store of fertility, and must be subjected to long exposure and liberal manuring, when brought to the surface, to render it innocuous. This is justly described as hungry land; it is commonly said to eat up everything that is given to it, because if a good coat of manure, or good sheepfold, produces one good crop, the hunger returns immediately, and must be satisfied before another fair crop can be grown. It is a rapacious soil; valuable therefore, as we said, for experimental purposes. Italian Rye-grass and perennial Rye-grass are especially injurious on this land, particularly as a preparation for Wheat. On some of the rich alluvial soils on the Sussex coast their injurious effects, to whatever cause attributable, are counteracted, whether by radical influences—root-power—or by conservative tendencies which maintain its condition, it is difficult to say. This rich land, however, is uninjured by Rye-grass, while on the hungry soil it proves a terrible scourge. Of course, if the Grass were allowed to yield seed, we could understand the opposition of the two graminaceous plants; but even close feeding down all the summer is followed by injury to the succeeding crop of Wheat. The common observation of intelligent farmers seldom errs on these points, and it is conclusive that Italian and other Rye-grasses are injurious to Wheat, even when they are not allowed to produce stalks. A few acres of Italian Rye-grass sown for early feed in a large field, with Trefoil and White Clover adjoining it, was broken up by a skilful farmer early in July, and after thoroughly cleaning the land it received a light dressing of manure before sowing with Wheat. This thorough and timely cleansing and wasting away of every particle of Grass is the great point in growing a good crop of Wheat after Italian Rye-grass, and this treatment and manuring was followed by a middling crop of Wheat, instead of one that would inevitably have been bad; but the Wheat was inferior to that after the Trefoil and White Clover, though the latter was unmanured. On the same land both Barley and Wheat, when sown after Tares, whatever the subsequent cultivation, are unusually strong crops as regards straw, with a yield of grain, generally large, but always of inferior quality. Three acres of Tares were cut for soiling, and the rest of the field, being of Swedes, was eaten off by sheep—the Tare land was several times ploughed, and was sown in good order with Barley. It yielded a little over 5 quarters an acre, worth 45*s.* a quarter, the rest of the field yielded a little less than 5 quarters, worth 50*s.* a quarter.

Probably the results in this instance, and in several others we have referred to, must be explained by the physiologist rather than the chemist. The mechanical condition of the land has great influence both on the quantity and the quality of the crop growing on it. All corn crops require a clean seed-bed. Even Grass that is dead, or nearly dead, and almost entirely turned under by the plough, proves exceedingly injurious to Wheat. It is much injured even by small annual and other weeds sharing the ground with it in the early stages of its growth. Black Grass, and weeds of that family, are still more injurious. In what way this struggle for existence is carried on, between plant and plant, is not fully understood, but there is strong evidence that they take the bulk of their food at the surface; and it is there the internecine warfare goes on between the families and tribes of plants.

It is the immediate surface that absorbs and fixes the gaseous atmospheric food, and the smallest weed shares it with the cultivated crop. Perhaps the superior robustness and vigour of weeds give them the advantage. Unmolested, they would in time conquer the whole surface, like barbarous, marauding tribes, spoiling the softer races of civilisation. In connection with this subject, it is as well to remember how necessary is a suitable seed-bed, and such a preparation for a crop as suits its special habit. Red Clover hay as a preparation for Wheat, is a case in point; few crops take more from the soil, of the same constituents that Wheat requires, yet no other crop is so good a forerunner of Wheat. Agricultural chemists explain this fact by stating that though Clover removes much it leaves more behind. With regard to its mineral constituents, they say it gets them from the subsoil. Wheat, then, we suppose, gets them from the top soil. With regard to its nitrogen, of which there are three times as much as in an average crop of Wheat, it gets it from the air, and its roots and decayed leaves contain a large store of nitrogen, which is returned to the soil. And so Clover is an excellent preparation for Wheat; so says the chemist, and so says the farmer.

Since the process of feeding by root and leaves of the two plants is carried on by organs very similar, it is difficult to understand the different effects on a crop of Wheat, of Red Clover, and Italian Rye-grass. One of these removes an exceptional quantity both of nitrogen and mineral constituents from the soil, yet it is one of the best preparations for Wheat; while Rye-grass, fed on the land, is one of the worst. It has been sometimes explained that the two plants belong to the same family, but Barley and Oats are of the same family, and yet they follow Wheat readily, and in fact the soundest and best Barley is commonly grown after Wheat. If it be said that these crops are sown five months after the removal of the Wheat, when the winter's exposure has destroyed all possible taint or influence of the kindred crop, it may be said in return that Rivett Wheat thrives well, after the common sorts, though sown within a month of harvest. There are many crops which do not bear frequent repetition or follow each other kindly. Peas should not be repeated too often; Tares are found to annoy Red Clover; the latter plant is, of course, without parallel in requiring an interval of eight years. Alsike Clover, though so closely allied to the common Red Clover, is not peculiar in this respect, but then it is a robust perennial. Has not the habit and vigour of different plants a more direct bearing on this subject than the mere question of food and soil constituents? The Rivett Wheat just referred to is more vigorous in habit than any other variety. In horticulture there are many specimens quite as "fanciful" as Red Clover: they are delicate from artificial treatment. Will any plant improver undertake to invigorate the constitution of Red Clover by crossing the varieties?

There was once a very comfortable theory to explain the object of a rotation. One crop—Red Clover, for instance—was supposed to excrete the undigested portions of its food until it was no longer able to occupy the soil, which became choked by excrementitious matter; then came a crop of a different species—Wheat, for instance—which fed and flourished on the food that poisoned its predecessor. The excretory theory has been abandoned; and, may we not add, no satisfactory one has yet replaced it?

In attempting an explanation of these singular phenomena of vegetation, it is impossible not to feel that, however much we have learned, much remains beyond the boundaries of our present knowledge; there is a wide field still for the physiologist and the chemist to explore.

—— At Mark Lane the trade has been in a very inactive state, at about previous prices.——The live stock and meat trade has been somewhat irregular. Good beasts have made 5*s.* 8*d.*, sheep 6*s.* 2*d.*, and lambs 7*s.* per 8 lb.——The seed trade is getting more and more animated as the sowing time approaches. White Clover is 4*s.* to 5*s.* a cwt. dearer.

—— The Royal Agricultural Society's Journal (Part I. for 1869) was issued this week. Besides the usual statistical tables and lists of officials, members, &c., there are the following nine articles and essays:—

1. The Farming of Middlesex. Rev. J. C. Clutterbuck.
2. Some of the Agricultural Lessons of 1868. J. Chalmers Morton.
3. Field Experiments on Clover-seeds and Permanent Pasture. Dr. Voelcker.
4. The Influence of Climate and Hereditary Character upon Sheep. Professor Tanner.
5. A Short History of the Rise and Progress of the Devon Breed of Cattle. J. Tanner Davy.
6. Chemical Report. Dr. Voelcker.
7. The Best Mode of Providing a Continuous Succession of Green Crops, including Roots, &c. R. L. Everett.
8. On the Introduction and Cultivation of the newer Coniferæ and other Forest Trees, with special reference to the Climate of Great Britain and Ireland. Robert Hutchison.
9. Variation in the Price and Supply of Wheat. H. Evershed.

—— Agricultural Statistics were briefly referred to in the House of Commons on Tuesday evening. Mr. Read asked the Secretary of the Board of Trade when the agricultural statistics would be collected this year; whether horses would be included in those returns; and whether any other attempt would be made to render those returns more comprehensive and complete, especially with regard to live stock? Mr. Bright said it was not the intention of the Government to collect the agricultural statistics on the same day as in the previous year—namely, June 25, nor was it proposed to take any account of horses; for it was said that if anything was asked about horses, the farmers were understood to suspect that it was intended to bring the assessed taxes upon them. He hoped this statement was untrue, and if so, he knew no reason why horses should not be included. There was great difficulty in the work already undertaken, but the Board of Trade would listen to and consider suggestions with a view to make the returns more complete.

—— We are very glad to learn that the Royal Agricultural College at Cirencester is in a very prosperous condition. The building is quite full; 76 students at present attend the lectures; and a further accession of students is expected next term.

OUR LIVE STOCK.

On Tuesday last a large company, comprising a considerable number of well-known Shorthorn breeders, assembled to witness the remaining portion of Mr. Rich's stock brought to the hammer. The day was cold, but fortunately dry, and hospitable provision was made to, as far as possible, keep up the animal heat of the purchasers and spectators. Colonel Kingscote was prevented from taking the chair at lunch, owing to an accident which he received some time since in the hunting field, but his place was well filled by Mr. Edward Bowly, of Siddington. We have not space to enlarge upon the toasts, loyal and complimentary, which were given, but must be content with stating that the hilarity of the company was subdued by a universal feeling of regret at the withdrawal of Mr. Rich from the Shorthorn fraternity, of which he has been long a conspicuous ornament. How completely Mr. Rich has retired from a business which must have been to him a source both of profit and pleasure, is indicated by his Herd Books having been sold at the conclusion of the sale. After lunch, and punctually at one o'clock, the

auction commenced with Lot 1, *Florentia* 3*d*, a good old cow, descended from the late Earl Ducie's *Flourish*, by ZENITH. The prices realised by the first few lots were somewhat low, but the appearance of *Waterloo* 32*d* (Lot 6) was followed by an exceedingly brisk competition between Lords Fitzhardinge and Dunmore, ending in favour of Lord Fitzhardinge, who became the owner of the purest bred Waterloo cow in the kingdom for 360 gs. *Waterloo* 32*d* is daughter of *Waterloo* 28*th*, sold at the last Didmarton sale for 270 gs., and 7TH DUKE OF YORK. *Florentia* 8*th* is a remarkably good heifer by 7TH DUKE OF YORK and from Lot 1. Her rich colour and abundance of hair caused considerable competition, which was terminated by her becoming the property of Mr. J. W. Larkings at 120 gs. *Carolina* 5*th* was bought by Mr. J. P. Forster, of Killhow, for 205 gs., and the same gentleman became the owner of *Ursula* 19*th* and *Persiani* for 100 gs. each. Reference to the accompanying list will show that good prices, although below the "three figures," were given for several other females. When 2D DUKE OF COLLINGHAM was brought into the ring, the company were electrified by a bold bid of 500 gs. from Lord Fitzhardinge; this figure was almost immediately improved to 650 gs, by Lord Dunmore, to whom this exceedingly well bred and handsome bull was knocked down. 3RD DUKE OF WATERLOO was bought cheap at 140 gs. by Mr. Larkings, and we could hardly help envying Mr. Sisman his purchase of 4TH DUKE OF WATERLOO for 52 gs. The Bates bull, DUKE OF KIRKLEVINGTON, although bringing the respectable figure of 105 gs., seemed also rather a bargain when we remembered the high price fetched by his mother, *Kirklevington* 12*th*, and other members of his family. The sale was not considered to be quite equal to that of October, and the animals were, we think, hardly in such blooming condition. The total proceeds were 4034*l*., and an average of 72*l*. 0*s*. 8*d*. was reached. The 40 females made an average of 65*l*. 11*s*. 5*d*., and the 16 bulls of 88*l*. 4*s*. Comparing this with the result of the October sale, the general average is seen to be somewhat higher, owing to the long figure given for the DUKE OF COLLINGHAM. On the occasion referred to the general average was 69*l*. 4*s*.; that for females was 73*l*. 11*s*. 3*d*., and that for bulls, 48*l*. 3*s*. 11*d*. This famous herd of Shorthorns has realised for its owner the large sum of 8045*l*., a most satisfactory evidence of the attention and skill which has been bestowed upon it. The following list is arranged in order as lotted:—

Name of Animal.	When Calved.	Price.	Name of Purchaser.
Females.		Gs.	
Florentia 3*d*	Nov., 1860	60	Mr. J. K. Fowler.
Mulberry	Feb., 1861	37	Capt. Baring.
Ursula 12*th*	Jan., 1862	33	Mr. T. Arkle.
Palmyra	Feb., 1862	55	Capt. De Winton.
Queen of Tyre	May, 1862	45	Mr. J. W. Larkings.
Waterloo 32*d*	Feb., 1864	360	Lord Fitzhardinge.
Chaplet 11*th*	July, 1864	34	Mr. T. Arkle.
Florentia 8*th*	Oct., 1864	120	Mr. J. W. Larkings.
Ursula 17*th*	Nov., 1864	50	Rev. E. T. Williams.
Florentia 9*th*	Nov., 1864	55	Capt. Blathwayt.
Sterope	Dec., 1864	44	Mr. Thayer.
Carolina 5*th*	Jan., 1865	205	Mr. J. P. Forster.
Ketura 5*th*	April, 1865	38	Mr. Neame.
Wild Eyes 25*th* ..	June, 1865	41	Lord Dunmore.
Ursula 19*th*	June, 1865	100	Mr. J. P. Forster.
Peri	Oct., 1865	37	Mr. Monsell.
Persiani	Oct., 1865	100	Mr. J. P. Forster.
Carolina 6*th*	Dec., 1865	80	Mr. Winnell.
Guelder Rose 3*d* ..	Jan., 1866	37	Mr. Gould.
Ketura 6*th*	Feb., 1866	31	Mr. Allen.
Fairy Belle	Mar., 1866	76	Mr. J. P. Forster.
Florentia 12*th* ..	Mar., 1866	43	Mr. J. W. Larkings.
Barberry	Mar., 1866	56	Capt. De Winton.
Ursula 21*st*	May, 1866	60	Sir John Rolt.
Florentia 13*th* ..	April, 1866	93	Mr. Fawcett.
Ursula 22*d*	Oct., 1866	41	Mr. Duckworth.
Ursula 27*th*	Sept., 1867	42	Mr. Fawcett.
Pearl of Peru ..	Sept., 1867	45	Lord Fitzhardinge.
Florentia 18*th* ..	Nov., 1867	33	Lord Skelmersdale.
Maid of Tyre ..	Dec., 1867	61	Lord Fitzhardinge.
Florentia 21*st* ..	May, 1868	27	Capt. De Winton.
Florentia 22*d* ..	June, 1868	35	Lord Dunmore.
Cranberry	Aug., 1868	30	Mr. J. P. Forster.
Ursula 30*th*	Sept., 1868	60	Colonel Kingscote.
Ursula 31*st*	Sept., 1868	20	Lord Fitzhardinge.
Storm Queen	Sept., 1868	27	Capt. Gunter.
Peruvian Queen ..	Sept., 1868	29	Mr. J. P. Forster.
Florentia 24*th* ..	Oct., 1868	78	Mr. J. P. Forster.
Ketura 7*th*	Oct., 1868	25	Mr. J. P. Forster.
Rose of Tyre	Dec., 1868	55	Mr. Rouse.
Bulls.			
2D DUKE OF COLLINGHAM (23,730)	Oct., 1866	650	Lord Dunmore.
3D DUKE OF WATERLOO (23,801)	Nov., 1866	140	Mr. J. W. Larkings.
GRAND SULTAN ..	Nov., 1867	62	Mr. Bird.
IMPERIAL DUKE OF YORK	Dec., 1867	32	Mr. Gould.
4TH D. OF WATERLOO	April, 1868	52	Mr. Sisman.
DUKE OF FLAMBORO'	Jan., 1868	71	Mr. B. Jenkins.
D. OF KIRKLEVINGTON	May, 1868	105	Mr. J. W. Larkings.
IMPERIAL GLOUCESTER	Aug., 1868	20	Mr. Bengough.
PERSEUS	Sept., 1868	44	Mr. Udale.
PRINCE PAUL	Do.	13	Mr. Webb.
EARL OF VERULAM ..	Do.	25	Mr. Strickland.
PARIS	Do.	27	Mr. Sisman.
DUKE FREDERICK ..	Dec., 1868	21	Mr. Bennett.
EARL OF ST. LAWRENCE	Do.	50	Mr. Hobbs.
FITZWALTER	Do	21	Mr. Iles.
Not entered	Mar., 1869	11	Lord Fitzhardinge.

Bulls realised	1844 gs.
Females realised	2498 gs.
Grand total	3842 gs.
Average equal	£72 0 8
Average of females	£65 11 5
Average of bulls	88 4 0

—— The sale of Mr. Chaloner, of King's Fort's, Shorthorns, will take place on Tuesday, the 30th inst. This herd is well known in both England and Ireland, and we hope to hear of a good company and a successful sale. King's Fort is three miles from Kells, where accommodation and cars can be obtained. There is a railway from Dublin to Kells, and a train leaving at 9 A.M. We have not space to enlarge upon the merits of the animals which form Mr. Chaloner's herd, but must be content to refer our readers to the published catalogue, which is exceedingly inviting.

—— Messrs. Cruickshank's annual sale of Shorthorns took place as usual at Sittyton on Thursday last, when 53 yearling bulls and 35 yearling heifers were offered. The total amount realised was 2591 gs., at an average of 38*l*. 5*s*. for the bulls, and 24*l*. 10*s*. for the heifers. These prices did not reach those of last year, when the male animals made 44 gs. all round, and the heifers 30*l*. Amongst the best prices on Thursday were GEORGE PEABODY (Sir W. Forbes), 71 gs.; KINSMAN (Mr. Beedie), 58 gs.; WINDSOR CASTLE (Mr. Geikie), 50 gs.; LORD NEVILLE (Mr. Elmslie), 50 gs.; BREASTPLATE (Mr. Durno), 50 gs.; CHIEF BARON (Dr. Will), 47 gs.; LORD FORTH (Mr. Longmore), 47 gs.; JULIUS CÆSAR (Mr. Marr), 47 gs.; ORTHODOX (Mr. M. Graham), 45 gs.; and BRIDESMAN (Mr. Maitland), 45 gs. Of the heifers *Vanity* (Mr. M. Graham), made 38 gs.; *Lady Sally* (Mr. Scott), 35 gs.; *Butterfly* (Mr. Ritchie), 34 gs.; *Julia* (Mr. Lawson), 33 gs.; and *Goldfinch* (Mr. Morrison), 32 gs.; with *Jewess* (Mr. Wilson), *Amelia* (Mr. Cooper), and *Golden Wreath* (Mr. Marr), reaching to 30 gs. each. GEORGE PEABODY and *Vanity* are both by FORTH, and the stock chiefly by FORTH, CHAMPION, ALLAN, and LORD BYRON.

A CHAPTER ON POTATOS.

THE Council of the Birmingham Cattle and Poultry Show have at all times manifested a desire to adopt as perfect a system of classification as possible in their prize lists; and a further and useful step in this direction was taken last year, when separate classes were for the first time opened for named varieties of Potatos. The question as to the best plan of exhibiting Potatos has undergone considerable discussion in some of our horticultural journals, without producing any general agreement; but a course has been adopted at Birmingham which will hereafter, we feel satisfied, be almost universally followed. It had become evident that the simple old divisions of "round" and "kidney" sorts were most unsatisfactory, as must, indeed, be every attempt to classify Potatos under particular forms; while, with the number of well-known varieties in cultivation, the advantages of classification by name are obvious. In adopting a new system, the Council have effected a reform in the gallery on precisely the same principles as that which they established on the floor of Bingley Hall when setting the example of classifying cattle by breeds instead of age—a plan generally followed before the establishment of the Birmingham Show. As we stated on a former occasion, the first experiment of an improved plan of exhibiting what a writer in the *Gardeners' Chronicle* very properly describes as "one of the most important of Mother Earth's productions," was pronounced on all hands to be a complete success; although doubts had been previously expressed by some persons as to the possibility of bringing together a collection of Potatos true to name. There were, indeed, two or three errors, which appeared to be rather the results of carelessness in making the entries or in sending the specimens to the Hall, than to any want of knowledge on the subject. For instance, a lot of good Ashleaf Kidneys were placed in the class for Rivers'; a fine sample of the latter found its way into a vacant compartment at the end of all the classes; 12 Dalmahoys were staged in the class for Daintree's First Early; and a lot of Daintrees were in the Dalmahoy class. With these exceptions, the entries were satisfactory; much more so, indeed, than we had expected to see them at a first show under the new regulations. The entries numbered 66, of which 63 were sent; and, bearing in mind the drought of the past summer and autumn, the collection was an exceedingly good one; and a few remarks on the different varieties for which prizes were offered, now that the planting season is approaching, may be useful to some of our readers.

There were 11 classes for named Potatos, as follows:—Ashleaf Kidney, Rivers' Royal Ashleaf Kidney, Gloucestershire Kidney, Daintree's First Early, King of Potatos, Wheelers' Milky White, Flukes, Dalmahoy, Red Regent, Paterson's Victoria, Skerry Blue, and an extra class for any other named varieties. Of course, in preparing a list of this kind there will always be some difference of opinion as to the sorts which should be selected; but the Birmingham list, we think, included the best kinds in cultivation at the present time, and most of which have been extensively grown for many years. The first, the Early Ashleaf, is not now so often seen as it was 10 or 15 years ago; but it is most desirable that its cultivation should be kept up, as there is nothing superior, if equal, to it in quality, when well grown. There could be no hesitation about Rivers' Royal Ashleaf, which is a favourite in nearly all parts of the country. It is a great cropper, and succeeds well on all descriptions of soil. The same may be said of the Gloucestershire Kidney, which was, we believe, sent out 16 or 18 years ago, and the demand for which is increasing every year. This Potato does well on strong soil, which is not the case with all our early varieties. Daintree's First Early is a round Potato, something like the old Fox's Seedling, but larger. It is a good cropper, the tubers very regular in size, of excellent quality, and very useful to follow the kidneys. We have frequently advised cottagers to grow this Potato for use before the later kinds are in a fit state for cooking. The King of Potatos has been very extensively and successfully grown, but it has not been coming so true as we should like to see it during the last few years; and we object to sorts which produce rounds and kidneys from the same root. When first sent out the produce was very regular, and, with some care in the choice of seed, it may again become so. The next on the list is Wheelers' Milky White, first introduced by Messrs. Wheeler and Son, of Gloucester, three or four years ago, and the most valuable addition which has been made to our second earlies. The Milky White is of the finest possible quality, really milky white in appearance, crops well on light or on strong soils, and remains in perfection up to Christmas, or even later, if carefully stored. Of the Fluke we need say but little, as it is so well known and appreciated. We may, however, mention that the true Fluke is not a large Potato, but very uniform in size. There were two or three lots of the Queen of Flukes sent to Bingley Hall, which were not passed over by the judges, as the prizes were offered in general terms; but another year it may be fairly required that none but the original Fluke shall be admitted to the class. The Dalmahoy is not so well known in England as it deserves to be. It was raised at Dalmahoy, in Scotland, about, we believe, twelve years ago, and has, we understand, to a considerable extent displaced the White Regent, on which it is a great improvement, in that part of the kingdom. The Dalmahoy is a late white round Potato, the skin being rather rough, of excellent quality, and a large cropper, the tubers being uniform in size. The Dalmahoy is more vigorous in growth than the White Regent, and has been found to be productive in districts where the latter has proved a comparative failure. We believe that a large portion of the Potatos now sent from Scotland to the London and other markets under the name of Regents are in reality Dalmahoys. The Red Regents in many cases proved a sad failure in the past year, and particularly in this neighbourhood; so much so, indeed, that we do not expect to see them extensively grown again for some time to come, especially as there are many other late varieties of much greater value. This Potato is also losing its original fine form. We have seen, at the Sparkenhoe Club and other shows, specimens as round as a cricket ball. As Milky White for a second early, so Paterson's Victoria for a late crop is one of the most admirable additions to our Potatos. It was sent out a few years ago by Messrs. Paterson, of Dundee, Mr. Paterson, sen., as many of our readers are aware, having given much attention to the cultivation of Potatos for many years. The Victoria is an abundant cropper, of the very highest quality, and keeps well until the new supply comes round. It should be grown in every garden where there is room for late Potatos; while it is just the sort which was wanted for field cultivation, where most inferior varieties have been too long tolerated, as those who dwell or dine in towns well know. In fact, the Victoria is already finding its way into general cultivation in our southern counties, and will be most extensively planted in other parts of the country during the present season. The last named on the list is the Skerry Blue, not a handsome, but a very useful sort, and particularly for growing on a large scale. It keeps well, boils white, and has been frequently reported upon in the *Agricultural Gazette* and other journals as resisting the disease better than any other Potato. There are some other valuable varieties in cultivation besides those we have enumerated, some of them of long standing, amongst which we may mention Myatt's Ashleaf Kidney and Wellington, which is useful as a second early; while some promising seedlings were noticed in the article from the *Gardeners' Chronicle*, which we transferred to our columns on the 21st ult. *Midland Counties Herald.*

(*To be Continued.*)

CONSUMPTION OF BREAD.

[The following is the substance of Dr. Gilbert's speech at the Statistical Society on the occasion of Mr. Caird's paper on the Agricultural Statistics of 1868.]

DR. GILBERT said that in the few remarks he had to to make he would confine his attention to the home produce, the imports, and the consumption of Wheat, a subject to which Mr. Lawes and himself had paid very great attention. None could better appreciate than the President and Mr. Caird both the extent and the deficiencies of existing information on this important question, and although that information was handled so ably by Mr. Caird as hardly to show the deficiences of our knowledge, yet it must not be forgotten, as remarked by Mr. Sewell Read, that, after all, the only actual records that we had to guide us in reference to the home produce related to the number of acres under the crop; and it was only by careful judgment as to the yield per acre that the number of acres under the crop could be turned to any useful account in estimating the total yield of the country; and however near the truth the estimates that had been formed might prove to be, it must be admitted that the necessary data for really fixed conclusions were as yet very deficient on some points. It was very much to be hoped that in future not only returns of the number of acres under each crop would be obtained, but an attempt made to collect returns as to the produce per acre also. He (Dr. Gilbert) fully admitted that there would be very much more difficulty in getting reliable information in regard to the produce per acre, than to the number of acres; but he had little doubt, that if the experience in Ireland and in Scotland were carefully considered, some plan might be devised by which, if not at first, at any rate after a few years, trustworthy information might be obtained on this important element of the question. But independently of estimates founded on a knowledge of the home produce and imports of Wheat, there was another way of attempting to ascertain the requirements of the population, viz., to determine, by reference to dietaries, and other information, the actual amount of bread and flour consumed per head per annum by different classes,

or by the whole population collectively. To this branch of the subject also, Mr. Lawes had himself devoted a considerable amount of attention, feeling that correct knowledge respecting it would not only be of the greatest value as a means of confirmation or correction of the conclusions arrived at by reference to the home produce and the imports, but of very great importance in many other points of view.

Accordingly, many years ago they had reduced the entries of bread and flour in such records of dietaries as were at command, to their equivalent in Wheat, and the result so indicated was an average consumption in England amounting to from 6½ to 6¾ bushels per head per annum. More recently, as was well known, Dr. Edward Smith had collected a great deal of information as to the dietaries of various classes of the population, the results of which were recorded in a Report of the medical officer of the Privy Council; and Mr. Lawes and he (Dr. Gilbert) had reduced the returns of bread and flour in those records also to their equivalent in Wheat grain; and, with permission, he would call attention to some of the results obtained, as compared with other information on the subject. By way of supplying a point for comparison he would remark that the estimates of Mr. Lawes and himself, founded on the home produce and the imports, indicated an average consumption in England and Wales of about 6.3, in Scotland of about 4.2, in Great Britain of about 6.0, in Ireland of about 3.3, and in the United Kingdom of about 5.5 bushels of Wheat per head per annum. Now, Dr. E. Smith's cases were professedly those of low-fed populations, and his returns of bread and flour consumed per family, calculated as above stated, show the following rates of consumption of Wheat per head per annum:—

	Bushels.
Farm labourers, England	7.44
,, Wales	6.74
,, Scotland	1.85
,, Ireland	2.91
Various occupations, Cotton Districts	6.78
Silk weavers, London, Coventry, and Macclesfield	6.28
Kid glovers, Yeovil	6.20
Stocking weavers, Derbyshire	7.16
Shoemakers, Northampton and Stafford	6.74
Needle-women, London	4.88

It will be seen that the amount of Wheat thus estimated to be consumed by the low-fed classes in England and Wales is generally higher than the estimate founded on home produce and imports for the total population of the same divisions of the kingdom. And here, as showing the necessity for better information on the whole subject, he might call attention to the fact that whilst their own estimate, founded on home produce and imports, showed a consumption of about 6 bushels per head in Great Britain, the calculation of Mr. Caird's estimate that "the people in England and Scotland have among them a pound and a quarter each of bread a day," showed a consumption of over 7 bushels. Again, in regard to Ireland, their own estimate, founded on home produce and imports, showed a present consumption of about 3.3 bushels of Wheat per head per annum, whilst the calculation from Dr. E. Smith's returns of dietaries shows 2.91 bushels, and the consumption of a quarter of a pound of bread per head per day, as stated by Mr. Caird, would amount to only about 1.44 bushels of Wheat per head per annum. Feeling how very desirable it was to get further information on the subject of consumption, Mr. Lawes had decided to institute an initiative inquiry on the subject; hoping, at the same time, that the Government might think it desirable to carry out a more general inquiry throughout the country. Accordingly, they had devised a suitable form for the collection of returns of the amount of bread and flour consumed by families of different classes in the parish of Harpenden. The general result was, that 50 families, chiefly of agricultural labourers, and taken without selection in the order in which the returns were collected, showed an average consumption of 6.74 bushels of Wheat per head per annum. A second set of 50 of the same class showed 6.86 bushels, whilst 50 families of farmers, shopkeepers, artisans, and others, showed a consumption of scarcely 5½ bushels per head per annum. It will thus be seen that while the lower-fed of these classes consumed more, those having presumably much more of other descriptions of food at their command consumed considerably less than the estimated average consumption in England, as deduced from the home produce and imports. In conclusion, whilst the results brought before them by Mr. Caird that evening were sufficient evidence of the great advances in our knowledge of late years, it could not be doubted that it was still a great desideratum to get official information, both as to the produce per acre of our different crops, and more particularly of Wheat, and as to the actual consumption of bread and flour by different classes, and by the whole community.

WHEAT FOR HORSES.

[At a recent meeting of the East Riding Chamber of Agriculture, the best method of feeding and rearing stock without Turnips during the winter season, was the subject of the following discussion.]

Mr. Bainton, of Beverley Park, said that he had been using Wheat for horses, and found that they were doing well upon it. There was a danger, however, in the use of Wheat, if not judiciously applied. A few years ago he lost one horse, and one or two others became affected in the feet, the cause of which he believed was that he had not used the Wheat properly. From the present price of Wheat, compared to other articles, it would, if applied, be found more economical than most other kinds of food. In sheep, where they had little grass-lands and a few Turnips, they might get over it better than where they had none. He had a few Turnips, and he let them have Turnips for one half of their food, and the other half was an equal mixture of cotton-cake and linseed-cake. If it was a tolerably open winter he had no doubt he would get it over with the mixture, and it would not be an expensive way of feeding them. There was another kind of food which he had not heard of before, and which he was informed some parties had been in the habit of using, and that was palm-nut meal. He had been given to understand that it had been tried by a man in the employ of a gentleman in the neighbourhood for feeding pigs, and tested with barley-meal. The pigs were weighed weekly, and it was found that they made most on palm-nut meal. Economy was the great thing for them to look at, and in all matters of experiments they should know what the different articles cost. Barley-meal was 1*s.* 4*d.* or 1*s.* 6*d.* per stone, and palm-nut meal about 1*s.* If palm-nut meal answered the same purpose as barley-meal it would be a greater advantage, but if it answered better it would be a greater advantage still. The cost of the linseed-cake and cotton-cake which he gave to his sheep cost him, perhaps, 4½*d.* per head per week. If he could keep them healthy on that with a few Turnips and a little Grass it was not a dear method of feeding them.

Mr. George Holmes (V.S., Beverley) observed with respect to the feeding of stock that he had been in the habit of giving artificial food to certain kinds of horses that were wanted to be quickly fed up, and which, they were aware, it was desirable should be done with as little expense as possible. His method was this. He had linseed-cake ground very fine, and steeped in water for a whole day. After steeping he had it mixed with a quantity of fine chopped straw, if the straw was good, or wheat chaff. He had used Wheat, but he took great care to boil it before using. He did not put the Wheat into the copper till the water began to boil, and he would advise them not to put the Wheat into the water till it had boiled. He would recommend a grate of either wood or iron being placed in the bottom of the copper. This prevented the Wheat settling down to the bottom, and rendering it less liable for any part to be burnt or set. If they put it in the water cold and let all boil together it was sure to set to the bottom. After boiling he allowed it to simmer for two hours, and then let it remain in the copper, and used it when he wanted it. If they wished to preserve it for three or four days they must keep the air excluded from it, otherwise it would go sour. The plan he adopted was to have a closely fitting lid to the copper, and by thus excluding the air from it it could be kept sweet for a week. This could be more effectually done by throwing three or four sacks over the lid. He found that Linseed mixed with Wheat had a wonderful effect upon horses, and fed them quickly. He allowed each horse a quartern and a-half of Wheat per day, mixed with so much Linseed. Three cakes of Linseed ground and put into a large tub containing from 25 to 30 gallons of water was enough for 15 horses. This mixture, he observed, should be stirred up three or four times during the day with a shovel kept for the purpose, thus causing the liquid to be of a more thick or glutinous nature. After using the liquid for some time he was induced to try Linseed and Indian corn. He bruised the Indian Wheat and boiled it in the same way as English Wheat. The improvement made by the horses on Indian Wheat and Linseed was marvellous. This mixture he used at the present time, and with it he gave Wheat chaff or chopped straw, Oat-straw being the best. He had seen Wheat given with injurious effect when given whole. He had seen it given in the manger, in the same way as other corn; and in horses that eat greedily at it, it would produce swelling. Their stomachs became distended, and they died if relief could not be quickly obtained. The stomach of a horse was remarkably small, very little larger than that of the human being, so that it required great caution that no food should be given to that animal which had any tendency to swell or ferment. Wheat was not nearly so beneficial given whole as when it was boiled or steeped. Some people, he was told, had tried boiled Potatos with grain, mixed with straw or chaff, and he was informed that it was much better for feeding quickly than anything else. In his opinion, mixed food was the best for all kinds of stock, since it was much better to digest. The more digestive the food the better chance of feeding the stock. If farmers provided themselves with boilers, they would find a great saving in preparing this kind of food. A building erected for the purpose of boiling and mixing would well repay every man that had stock to feed. A great many holding sheep and cattle might be held on during the scarcity of Turnips by this kind of feeding.

Mr. D. Bradley (Etton) said, in feeding stock with mixed food he used rape-cake. He had some beasts up from Grass, and, having no Turnips, and linseed-cake being very expensive, he applied to his friends for advice, and amongst others to Mr. Park. That gentleman's suggestions he adopted, and he believed that a ton of rape-cake, which could be obtained for 8*l.* 10*s.* per ton, if boiled, was equal to a ton of linseed-cake raw. He had only tried one ton of it amongst his stock, and they had done wonderful on it. He added one quart of Linseed to every boiling. With respect to sheep, he had adopted the same method as the chairman had followed out. His stock was doing remarkably well on it, and he was sorry that on account of his boiler being required for other purposes he could not continue it.

Mr. W. R. Park (Catwick) said that he had had a number of lambs penned up in a close fold in a stubble field, where they had been for seven weeks, and were fed entirely on what was carried to them. What he had given them was a mixture of rape-cake, Indian corn, and a small quantity of Linseed. These ingredients he boiled together. It took about an hour to become a-boil, and it was allowed to boil from 20 minutes to half an hour, when it formed into the consistency of a thick soup. The proportions of each were about 2 stones of rape-cake, 1 stone of Indian corn, and 2 lb. of Linseed. The soup, while boiling hot, was thrown upon cut straw, previously spread upon an asphalted floor, and well mixed with about 2 stones of bran and a little salt, which, after being well worked about with a rake, were shovelled into a heap, where the cooking process still continued, which rendered the straw soft and palatable, and gave it something of the appearance of a warmed mash. A few shovelfuls of pulped Cabbage were occasionally mixed with it. The object aimed at was to induce the animals to eat a great quantity of straw. The mixture was carted to the lamb fold, and given to them in troughs. The method of feeding them was not an expensive one; the cost of the ingredients being about 8*l.* a ton. Lambs eat about ¾ lb. per day each, and the cost per head for food would be about 4½*d.* per week. He would calculate the fuel and labour at 1½*d.* per head more, and the total expenditure per head per week would not be more than 6*d.* to 6½*d.* He calculated nothing for the straw, for he did not think it was deteriorated in value (as manure) for having passed through the stomachs of animals. His lambs were in an improving state, healthy, and in fair store condition. He could only express his regret, that as green cattle food was now so scarce in the country, the Legislature should continue to impose a tax of 70 per cent. upon malt, which was one of the most digestible articles known.

VALUATION OF LAND FOR RAILWAYS.

[The following is a further extract from Mr. Bailey Denton's Paper before the Surveyors' Association.]

With respect to the outlay in the purchase of land, I am able to give a few more particulars, in consequence of having been very kindly assisted by the secretaries of several of the railway companies and by many of the members of this Institution, who have had large experience in railway purchases. The following tabulated statement exhibits past experiences in the purchase of several lines, which will serve as an index to the remainder. In most cases the acreage cost includes surveyor's charges on both sides, but excludes the solicitor's costs of conveyancing:—

Name of Railway.	Length.	Cost per Acre.	Authority.
	Miles.	£	
Cockermouth, Keswick, and Penrith	31¼	222	Secretary.
Whitehaven and Egremont	21	249	Do.
Furness	93	114	Do.
Manchester, Sheffield, and Lincolnshire	246	295	Do.
Doncaster and Gainsboro'	17¼	191	Mr. Bidwell*
Lincoln and Honington	18¾	288	Do.
Chester and Holyhead	80	275	Mr. Fuller.*
Chester and Mold	16	300	Do.
North Staffordshire	123	446	Secretary.
Kettering, Thrapstone, and Huntingdon	26½	175	Mr. Denton*
Great Northern, Main Line	235	440 including town-lands and property	Secretary.
Spalding and March	19	204	Mr. Bidwell*
Peterborough and Wisbeach	24	230	Mr. Fuller.*
Royston and Hitchin	17 m. 16 ch.	190	Mr. Denton*
Great Eastern Branches through Rural Districts	—	250	Mr. Adams*
Sutton Junction	13	600	Mr. Fuller.*
Horsham and Dorking	20	200	Do.
Uckfield and Tunbridge Wells	16	180	Do.
Bognor	4	300	Do.
South Eastern Rural Lines, average	—	300	Mr. Ryde.*
Tunbridge and Dartford Lines	—	200	Do.
Strood and Bickley, L. C. and D. Railway	20	300	Mr. Oakley*
Alton and Winchester, S. W. Railway	17	215	Mr. Denton*
Chertsey Branch, S. W. Ry.	2½	330	Do.
Swindon and Cheltenham	—	200	Mr. Hall.*
Stonehouse and Nailsworth	6	400	Mr. Fuller.*

In several of the above costs, the compensation to the occupiers is excluded.

Having regard only to those lines in the foregoing schedule which may be called rural, and taking off from the remainder a fair proportion of the length of those in which lands of mixed character were purchased, 240*l.* may safely be taken as the average amount of money paid per acre to landowners, exclusive of the occupiers' interests. This amount, it cannot be denied, has been paid in four cases out of five where the land would have been well sold at 30 years' purchase on its rental, without anything being added for severance and compulsory sale. The readiness with which landowners will sell their land at a very moderate cost, or even give it, for railways, if they cannot get them without, quite sanctions this assertion. In the Isle of Anglesea the land for the Central Railway, 18 miles in length, was purchased for 5000*l.*, and this was done by the secretary himself applying to the landowners before any other steps were taken. Again, the land for the Ringwood and Christchurch line, 7¾ miles in length, was purchased for 1200*l.*, or 150*l.* an acre; and at this moment the greater part of the land for an extension in North Devon is very widely offered for nothing if, by such means, the parent company can be induced to make it. I cannot give many instances of this sort, for, unfortunately, though great professions of liberality have frequently been made to induce the promoters of railways to make them, directly an Act has been obtained for the purpose, legal reasons have been found for discarding preliminary professions, and the obligations of trustees and of persons under disability have been made the pretext for squeezing out of railway companies as much as could possibly be got. If experience had shown that the prices obtained by landowners were only such as

* Company's Surveyor.

would qualify them to make a proper abatement of rent to their tenants, the statements I have made would utterly fail in truth and fairness; but I feel sure you will agree with me that the cases are very few in which landowners have not gained considerable profit —*i.e.*, increased income—by the sale of their land, after making such abatement as they have made to their tenants. Isolated cases, no doubt, could be found where injury has been done for which no adequate compensation has been given; but, fortunately, they are few. In a very large majority of instances no abatement has been made to the tenant, and none has been asked beyond the simple proportionate amount per acre for the land taken,—generally calculated on the bare rent of the farm; though the inconveniences which a tenant-at-will suffers have not always been fully compensated by the money he has received of the railway company.

I am now speaking before an Institution, the members of which have the most perfect knowledge of facts, and I would ask whether this statement is at all exaggerated? Mr. Beadel writes—

"As a general principle, I think a landowner might well afford to sell his land at its bare value, giving up all claim for severance and compulsory sale; but taking care that, so far as accommodation works are concerned, he is properly protected."

This is precisely my view of the question, and, in order that we may appreciate the full extent and effect of the over-payment to landowners, which has doubtless had something to do with the present condition of railways, and the dead-lock to which they have come, we may assume that an average of 60*l.* an acre—*i.e.*, 2*l.* (tithe free) × 30 year's purchase, would have been ample payment for the 100,000 acres which railways have absorbed in rural districts. If this be so, and 210*l.* an acre has been paid for this quantity of land, the total amount must have reached 24,000,000*l.* when 6,000,000*l.* should have sufficed. Hence it follows that 18,000,000*l.* have actually been lost to the railways, and gained by those individuals of the landed interest who have been lucky enough to possess lands required for making them. I will illustrate the way in which the landowner's profit has been gained, by three cases within my own experience, believing them to be typical of others. In one case, acting for a landowner, I was instrumental in obtaining the sum of 1700*l.* for 3½ acres of land. The case was one of very bad severance, there being upwards of 250 acres of productive arable land cut off from the homestead by the railway, which crossed on a level. The abatement made to the tenant was 20*l.* a-year, and the landowner having applied the money obtained in the redemption of the land-tax, and in the purchase of additional land, obtained nearly 60*l.* a-year, so that he gained a profit of nearly 40*l.* a-year. In the next case, a noble marquis, now deceased, sold between 13 and 14 acres of land, on a branch railway (purely agricultural), at 120*l.* an acre, for which he was receiving about 25*s.* tithe-free rent, and represented the proportion of the land-tax as merely nominal, while he pleaded great generosity in selling the land at the price. The railway was taken on lease, during construction, by one of the great parent lines, and though effort was made to apportion the land-tax, difficulties were found in doing so, and it was postponed until the lease was perfected. The noble marquis then demanded a reapportionment of the land-tax, *ad valorem*, on the ground that agriculture was depressed, and the railway interest on the ascendant. The case was taken before the local Commissioners, and they being unable to resist the law, fixed on the railway such an amount of land-tax that, when redeemed, the price of the land purchased was raised to 175*l.* an acre. As a large part of the land in the parish belonged to the marquis, he, of course, gained by the increased amount apportioned on the railway. The third case is one in which a line was promoted by the landowners of the district. It passed through a property, under trust, for which an eminent solicitor, much connected with railway enterprise, was acting. He, being versed in such matters, opposed the Bill in Parliament, and came to terms in the committee-room. I refrain from mentioning the amount agreed upon, though it was a large one, but it is certain that the tenant, from that day to this, has received no abatement of rent; on the contrary, he has re-hired the farm on lease, without desiring any reduction, being satisfied that the accommodation the railway affords compensates him for the loss of the land taken. While referring to this latter case, I am reminded of the observation of our highly esteemed friend and Associate, Mr. John Horatio Lloyd, on the evening of our first meeting, when he said, speaking of our position as surveyors, that the zeal for the interests of our employers not unfrequently warps our judgment and puts a strain upon our consciences. Now, my experience leads me to the conclusion, that though many surveyors are led in their zeal to do the best they can for claimants against railways, whose cases are put into their hands, there seldom is wanting, in the worst cases of exaction, a legal adviser who, with a full knowledge of the value of the accommodation railways afford, instructs the surveyor employed to obtain the very utmost he can, and frequently adopts the most paltry expedients to grasp it. Great reliance is placed on the disposition of juries and umpires to split differences, and it is not an uncommon practice for solicitors and surveyors so to prepare their cases, after having ascertained the very outside to which the railway company will go, as to furnish figures in evidence as much above the sum they really hope to get as the company's offer is below it.

Every purchaser for railway companies is alive to these tactics, and will acknowledge that, so long as the only alternative to yielding is an appeal to jury or arbitration, with all the expense of counsel, solicitors, and witnesses, it is doubtful whether it is not better, on the ground of expediency, to succumb to exaction rather than to resist it on the ground of principle. To reduce the cost of land by an acceptable mode of proceeding is a primary consideration. With a view to raise a discussion on this point, I will now venture to place before you some suggestions for that purpose. I have already proposed that no payment should be made for compulsory sale or for severance, but that a fixed number of years' purchase on the annual value, with proper accommodation works, should be the only basis of compensation when the land is simply farming land. It then remains to be considered whether the land should be paid for outright. It is the opinion of some persons that a very long lease or easement at an annual rental, say for 999 years, such as exists in the case of the Blyth and Tyne railway, would be the better mode of acquiring land; and, if this latter plan were adopted, subject to a revision of rental at certain periods, so as to give the landowner the benefit of a general rise in value, it is not open to much objection. It would have this advantage, that many legal expenses would be avoided which appertain to the purchase of land.

STEAM CULTIVATION.

It is generally admitted that steam is the power that must be used for the future in the proper cultivation of the soil. The only question is, how small-sized a farm can, with advantage, in a commercial point of view, use this power. We have already pretty plainly shown the cost per acre; and I will base this matter of expense on the facts drawn from the report of the judges at the Leicester meeting, as shown in an article, at p. 1241 of last year's *Agricultural Gazette*. Let us discuss the subject without prejudice, acknowledging that each system has its good points, performing the work usually required to be done in an equal degree of perfection.

What we have to do, is to ascertain what set or system will suit our purpose. In starting we must have something to work upon, we must assume something; at all events we must assume the farmer intends to make the most of his land, to manage his holding on the most improved and painstaking principles, in fact, to "walk with the times." "Science with practice" is his motto. He bases his system of farming on the principle of restitution, increasing and insuring the fertility of his fields by adding and returning to them, in the shape of manures, &c., the various constituents of the soil, as exhausted by the crops he grows; trying at the same time, by every mechanical means at his command, to bring the soil into such a state as to allow the young rootlets freedom of action in performing those functions assigned them by an All-wise Providence. To do this, to make the land friable and light, a thorough moving and disintegration of the soil, and even subsoil where necessary, is of the greatest importance. This thorough moving of the soil is but what was practised in days of old; each succeeding generation has had its advocates, the market gardener of the present day pursues the same course, even farmers themselves require the garden attached to their homes to be well and deeply turned up with the spade and the fork, but in the field a shallow furrow is deemed sufficient. The power most suited to this purpose has already been acknowledged to be steam; and to make its application beneficial in every sense to the farmer, the engine must be used for purposes performed now by horses: it is the bringing of this latter power to its lowest proportion that must be our aim. Good and rational farming—farming based on restitution—will, no doubt, fight our battle; still the question is before us—In what way can we effect this?

Let us hope for aid from those who have used the roundabout tackle of either maker: they will lend us their experience and tender their advice, remembering that "what may kill one, will cure another," that although themselves successful up to a certain mark, much remains to be done to bring farming in its truest sense out of that "rest and be thankful" system into which it seems to be drifting. The aim of the farmer will be to obtain the best return from his holding, irrespective of power employed or produce grown, adapting his system in general to the nature of the ground his farm consists of. It is almost impossible to lay down as a rule that either steam or horse-power will be employed any certain number of days on a given quantity of land. On the other hand, let us not lay too much stress on the aid steam can afford us, or underrate the value of horses in conjunction with the former. That horse-power can be reduced to within certain limits, no one will deny; but what the limit is at present appears to be doubtful—trustworthy, reliable data on that point seem to be wanting. If we concede that 250 acres is about the point below which steam would not show such a decided profit, and try to take a bird's-eye view of the general doings of the farm, we may perhaps arrive at some middle line, on either side of which the practical farmer will feel his way.

At p. 1326 it was shown that the roundabout system was the cheapest. Since that was written, our neighbours across the Channel—the French—have contributed their evidence as to the suitability of the smaller tackle for our purpose. In an article in the *Journal d'Agriculture Pratique*, a translation of which appeared recently in one of the leading agricultural Papers, an acknowledged French authority has given a long review of the subject, and has come to the conclusion that the double tackle is not suitable even to a high-farmed occupation of 500 acres. It is with the avowed intention of bringing the land of Great Britain into that state of cultivation which, in every instance, when proper forethought and judgment have been exercised, it has proved itself capable of—to increase the producing power, or rather, I should say, to bring into activity the latent producing powers of the soil; raising, if not enough, still a far greater quantity of corn and meat for the use of our own people—that should be our aim. The only point on which the question of tackle or system will be taken into consideration will be the question of expense, consistent with adaptability to the work. The farms of England are of various sizes, and equally varied configuration; in some—indeed, many—instances, they could be altered with advantage; in many more it would not be advisable, on more grounds than one, to do so. For these reasons alone we must endeavour to find the implement that can suit our convenience, and not yield ourselves to be moulded into such shape as the manufacturer of our implements may think fit. It rests with the farmers or occupiers of land to say, if I may be allowed to use the expression, to the molten liquid in the crucible, "Flow into such a shape; such shape and weight do I require in this particular, for I am going to bring to bear on it such and such power only;" and not that we should be told, "Here is a steam ploughing tackle, which we deem the best for the work; we must admit it is more powerful than you require, and the cost is considerable; but at the same time, for reasons it is as well you do not inquire into, you can have no other; so you had better allow your next door neighbour to add your farm to his. It may be, you have not the means, much less the energy, requisite; you had better allow Mr. Jobcart to purchase a tackle from us, and he will do your work for you; he will not charge you at all events more than it costs you now, and besides, the work will be better done: we know he has the money, and are sure he will do it."

The Royal Agricultural Society gave a prize for the implement best adapted to a small-sized occupation, calling upon their judges to give a decision on the subject, and they came to the conclusion that the roundabout was the most economical in its application to the soil on farms of 250 acres in extent; below that, it was not considered advisable. One man, prominent amongst many other workers of the roundabout tackle, Mr. Smith, of Woolston, assures us we ought, and can do, all our requisite work in two months—September and October. He gives us a little grace it is true, say some few days in March also. Here, however, is the practice of one man continued over a period of 14 years; it ought to be worth something, and his evidence goes to show that the land can be got ready for seed at a cost of 6*s.* 10*d.* per acre for the year. In his late communication he says, "Here is my Mangel land ready for planting, at one operation, at a cost of 7*s.* 3*d.* per acre;" and mark the superiority of the work.

But if the farmer intends to make the most of his holding, a greater number of live stock than is now generally kept must be fed on the farm. On a farm of the size I am keeping in view, viz., 200 acres arable, or thereabouts, we should on the four-course system have 50 acres of roots. As to what can be done in the way of feeding stock with roots, &c., aided by cake and corn, much can be gathered from a paper read by Mr. Hugh Stephenson, of Throckley, before the Newcastle-upon-Tyne Farmers' Club, wherein he informed his hearers that with 50 acres of roots he feeds upwards of 100 cattle and 400 sheep—200 of the latter being sold fat in April. And have we not many more such examples in Mr. Mechi and others?—in fact, week by week we might gain considerable information on this point from papers read by, and communications from, men of well-known agricultural ability and integrity, as published in the several agricultural Papers. With a full complement of fattening stock at the homestead and in the fields, the engine will find considerable employment in chaff-cutting, grinding, pulping, perhaps a little water pumping, steaming of food, &c., thus lessening the amount of interest chargeable to the cultivation of the land. These things it will be required to do under the present system of farming, and let us hope the day is dawning upon us when farmers will break away from routine, when the agriculturist will draw more on his brains than on his muscular powers; when perseverance, energy, and thoughtful judgment will be more prominent in his every action.

Will any one doubt but that steam will take a yet more prominent part than it has hitherto done in the cultivation of the soil and general economy of the farm? Are there not many instances where a traction engine could be used with advantage for draught purposes? Will the day ever come when the straw and other provender will be cut into chaff and passed through the animals, then forced by steam, irrigating the fields with the liquids of the homestead? Is it an impossibility for tanks, ponds, &c., to be made to supply the plants with water during a severe drought; or supposing a stream running through a farm, to dam it up, and use a centrifugal pump to force water for irrigation purposes, liquid manure pipes being made use of for conveyance? Can we not find a "cunning worker" who can contrive a drill for steam?—a light rope made of the best materials might help us, not only here but in our general work. Lastly, can we not make a traction engine available at harvest time? I fancy it can be done. *West Indian.*

Home Correspondence.

The Profitable Utilisation of Town Sewage.—As discussion on this as yet unsolved question ought to be productive of good, I venture a few notes thereon. Two or three successful experiments with sewage farming appear to me to have caused an exaggerated opinion to be formed of the value of sewage, and much writing has been expended on the obstinate prejudices of the farmer in not availing himself of a valuable manure, brought to his land at a nominal cost. To my thinking these writers overlook in their zeal many difficulties clear to the practical farmer. All of those who are brought into contact with the farmers will admit that they are shrewd intelligent men of business, sharp at buying and selling, quick in the appreciation of an advantage, and that they as thoroughly under-

stand their work as do the merchant, the solicitor, and other professional men. The sewage advocates appear to me to overlook several important considerations as affecting the farmer, namely, that he has to provide out of the produce of his farm high rents and taxes, the pay of his establishment, feed of his stock, wear and tear, and last, though not least, he and his family have to live. Further, that all these are dependent on his land being tilled and his seeds in at seasons which he can neither shift nor alter. The introduction of sewage on a farm means the upsetting of all ordinary cultivation for at least one season. It is very far from being the simple business of the popular idea. In the first place the farm has to be surveyed, and the levels accurately determined. The fields have then to be planned with reference to watercourses and outfall. Generally considerable alterations will have to be made in the size of fields, removal of hedges, cutting of drains and ditches, and making roads. These determined, the land will have to be laid out specially for sewage irrigation. The cost of this work will vary with the configuration of the land and the nature of the soil; but under the most favourable conditions it will be expensive, and may be considered cheap if it does not exceed an average of 5*l.* per acre. Add to this the loss or partial loss of a year's produce, and it will be readily seen that the "sewage business" to the farmer is one of very serious responsibility. Again, the sewage is only of use to the farmer as a manure, but the receipt of sewage involves its purification, and therefore of the disposal of a volume of water, for which the farmer has no use, and to him is simply a nuisance. To turn this, unpurified, into the watercourses, is to run into the face of danger in the shape of lawsuits; to pour it over land not wanting it is to do the land more harm than good. No one has yet succeeded in purifying sewage by passing it over one piece of land; the best of its fertilising properties have been extracted, and as a fertiliser it is of little value, yet it still holds sufficient impurities in solution to be unfit to pass into streams. Having purified the sewage to your own satisfaction does not necessarily convince your neighbours that you have done so. A farm drains into watercourses to which others have common rights. The drainage may pass down through the lands of several occupiers before it reaches a stream. It is almost certain that some of these occupiers will object to their watercourses and drinking places (cattle) being polluted; if the farmer was at feud with any of his neighbours he would always be at their mercy. Who is to protect the farmer against injunction? If the drainage be direct into a stream the risks are increased, as so many rights are touched. Finally, there is to me another serious difficulty, never yet discussed as far as I am aware, viz., the effect on the land within its influence of raising the natural water level? For example, the arterial drainage of the land has been laid with reference to the natural water-level and drainage of the country. If you raise this level by the constant discharge of effluent water into the main watercourses, what will be the result? Will not the arterial drainage be backed, and the land become wet, and in so acting will it not give rise to injunctions and demands for compensation? These are some of the points that have struck me. I shall be glad if any of your correspondents will discuss them. Where the sewage can be applied without much reference to its purification, as at Barking and at Aldershott, on naturally poor gravelly or sandy soils, the question assumes a widely different aspect. Where farms with such soils and so placed lay within convenient reach of sewage, doubtless it can be applied with great and permanent advantage. But it remains yet to be proved that naturally fertile, highly-cultivated land, such as is usually found in the vicinity of towns, always highly-rented, and generally fettered by the contingent rights of others, can be worked to a profit. *H.*

Contagious Diseases (Animals) Bill: Stamping out other Inflictions on Cattle, Sheep, &c.—Who has not witnessed cattle late in summer, with tail erect, galloping to and fro, whilst the sunshine was at the same time most sweltering; and not only by this extreme and inopportune exercise reducing the yield of milk, but also running off the flesh, which has been "laid on" at considerable expense to the farmer? We all know this extraordinary and violent speed is caused by the terror the poor cattle have of the gad or ox-fly, whose simple hum is enough to thus be the cause of all this destruction of milk and meat. The female gad-fly is seeking to alight upon the back of the beast, which it will effect in spite of all its galloping, and then, by perforating the hide, deposit an egg under the skin. This egg soon hatches; and by the irritation caused by the young grub, a tumour is formed, and the grub subsists in this tumour, which enlarges till it produces a bump, so conspicuous in the early months of the year. The cattle, from the attempts to rub these parts and the sensitiveness evinced by any pressure, clearly are made uncomfortable; which is at the expense of the feeders, and a diminution of the food of the people. Now, as these grubs reach their full growth in the early part of the year, and then make their exit from the cattle's backs (after which they become a gad-fly in August and September), obviously, if ample action was taken for one year over the United Kingdom, and all these grubs extracted during the months of January, February, March, and April, this fly would be utterly exterminated, and only the few foreign beasts imported from time to time be to inspect and operate upon. The Contagion Bill does not embrace any disease or evil attacking our herds and flocks, except such as are infectious or contagious. As this Bill will establish a machinery which could perform the necessary operations for extracting and killing the gad-fly grub—and, be it remembered, it repeals the other Acts of Parliament relating to the prevention of disease and cattle attending markets, &c., and is to embrace the whole question—I submit that clauses should be added providing for the extinction of the gad-fly, or at least giving power to the Privy Council to act in the matter. Again, now that a registry of all dogs can easily be obtained, as they require licenses (and upon the licenses as issued printed directions could be given), if it were imperative that all dogs (which are nearly universally affected with tapeworm) should be treated at proper intervals, say five times a year, for tapeworm, not only would the health of dogdom be sanitarily improved, to the benefit of their feeders, but also the people's food would not be lost, and the farmer saved likewise from loss by having his sheep completely exempt from sturdy, as this complaint is caused by the young sheep obtaining the eggs of one of the eight species of tapeworm which inhabit the dog—and most probably the measles in pork and bacon would also be nearly a thing of the past. There is also the foot-rot and ticks in sheep, and lice in cattle, which might all be put under orders and exterminated in time. If any one may think these suggestions novel, I may say, that when we find several of our most eminent physicians are urging stringent legislation for the object of clearing the country of small-pox and cognate diseases which affect the human subject, it should be recollected that man and dogs have tapeworm by eating beef, mutton, pork, rabbits, &c., afflicted with tapeworms in their juvenile stage, inhabiting the tissues of the body. As this Government Contagious Diseases (Animals) Bill is to come on for discussion in the Commons after Easter, and as the Government and all parties seem most disposed to pass it as complete a measure as possible, and as when passed it will be very difficult to get any allied subject considered, I submit effort should be made to get every useful matter embodied in it. *W. A. Wooler, Sadberge Hall, March* 17.

The Dry-Earth System.—When so much is being said about Moule's earth closet, it is but right that the reader should know that the subject of the patent is old, and now public property, it having been patented by Thomas Swinburne in 1838 (No. 7810). *W. B.* [The writer is, we think, mistaken as to what really is the subject of Mr. Moule's patent.]

Foreign Correspondence.

TORONTO: *Cattle Feeding (concluded from p.* 316*).*—In this city we have an enormous distillery working during the winter season: from 15,000 to 20,000 bushels of Indian Corn and other grain each day is the quantity manufactured. They have over 1000 head of cattle fattening, and supply all the people who keep cows with slop; the grain is all mashed and fermented and distilled in a liquid form, it is not strained like brewers' grains, but comes from the still like a thin gruel, with the ground grain all through it. This is taken away daily by the cowkeepers and fed to the cows while warm, and the result is an enormous flow of milk, while at the same time the cow fattens, so that at the end of the season she is fit for beef, and is milked all the time. When the cows are kept clean the milk is very good, and it is always very rich. Cows have hay with it, and roots too, when they can be got.

Private cowkeepers, or those who sell milk, of course have their own ideas about cow management; but in the large distillery byres and stables, where the animals are forced on as fast as possible, and where they stand by the hundred together, they are kept as warm as possible. The heat of the stable or byre is overpowering, and as no litter is used the beasts are all very wet and dirty, notwithstanding that every pains is taken to keep them reasonably clean; being always wet, however, the heat of the stables is necessarily kept up to the highest point. The animals have enough hay to secure a proper cud, and they fatten most rapidly. Cows will milk all the time and fatten in six months. Oxen vary according to the breed; young 3-year and 4-year-old Durhams are liked best. The casualties are very few, and in good seasons the profits are large. The quantity consumed each day by each beast on the average is the slop from about three quarters of a bushel of grain; some will eat a bushel, and some less than three-fourths of a bushel; but 750 bushels a day will fatten about 1000 cattle.

The beef is very good, but of course not so good as dry feed beef. It is, however, very cheaply fattened. The price paid is 4*d.* sterling for the slop of each bushel of grain mashed; sometimes the price rises to 5*d.* per bushel in seasons of scarcity.

All American, and many Canadian, cowkeepers "slop" their cows extensively; if they are not within reach of a distillery, the slop is made in tanks, but of course not distilled; it then goes much further.

The Irish are our principal city cowfeeders and milksellers, and it is very curious to see the enormous quantity of food they will get into the cows. In the season when they are turned out of their stables and driven to pasture, they are always slopped first, and you constantly see cows so full as hardly to be able to walk; they are nearly "hoven." Of course, they are gradually brought to this pitch of gormandising. They milk wonderfully, and fatten fast; but even when the cows are kept on year after year, and allowed to calve, they are stuffed with food to nearly, if not quite, the same extent. I never saw cows in England, even in the cities and towns where they were kept for milk, crammed in the way the Irish cram their cows here. It only shows what may be done if tried; and they do it to profit, too, for they are very close calculators.

One of the beef stables at the distillery holds 800 head of cattle. They are all tied head to head in rows, with just a passage between them at head and tail for necessary attendance. There are no stalls, only posts to tie them to, and it is said that they fatten best in a crowd, where they can see each other. All these animals are fed with the slop absolutely hot. The people who attend in these stables are remarkably healthy, and rapidly recover from anything like a consumptive tendency.

This is scarcely an agricultural matter, but it will show farmers that there are other plans of fattening animals than the usual jog-trot of a farm; and I assure you there is a great deal to be learnt by the observant in such matters. We have, however, wandered a long way from the butter.

Should any of your readers, after reading the foregoing account of "Scald Cream Butter-making," wish to go into the business as a business, allow me to suggest the following plan for a "butter factory." The factory should consist of three compartments if the milk stands during three meals or milkings, or four compartments if it is to stand during four milkings; each compartment should be made capable of holding one entire milking, in the usual pans, or in pans made for the purpose. The centre of the compartment should consist of a raised bench or platform, on which should be constructed a water-tight trough of about 4 inches deep; this trough should be fitted with a tight cover, through which holes for the pans should be made (in America we should make all this of wood, in England it will no doubt be made of cemented brick or iron). Each hole should admit a pan, so as to sink into it from 1½ to 2 inches, and these holes should be lined with a strip of felt or cloth to make them tight against steam; any spare hole should be filled with pans of water, or tight covers. As soon as the milk from the milking is strained into these pans, if the weather is hot, cold spring-water should be admitted into the trough, and kept there till the required temperature of 60° Fahr. is produced: the water should then be tried, and if likely to chill the milk too far, should be turned off; if it does not cool the milk enough, more should be let on until the milk is at a right heat; all is then to be allowed to repose for 24 hours, by which time the cream will be thoroughly risen. Then steam should be turned on under the pans until they come to 180°, and they are to be kept at this heat for the required time, then the steam is turned off, and more cold water is added until the temperature is reduced again to 60°, and all allowed to rest for 12 hours. The milk must then be skimmed, and the place be in readiness for the new milking. Of course, proper steam appliances must be provided, and collapsing valves attached to the troughs, to guard against accidents by vacua; also proper precautions must be taken to spread the steam, so as to heat all the pans alike; but this is mere matter of detail. The necessity for four or three compartments will be evident, on account of the steam. Proper windows and ventilation must be provided for letting off the steam, and guarding against condensation on the ceiling. The plan necessitates a steam-boiler and a plentiful supply of spring-water to produce the necessary alternations of temperature; the steam would enable the pans to be scalded and cleansed with very little trouble.

In summer, when the steam is not wanted, the troughs and water might still be used with excellent effect, to get the milk in the most favourable state possible in the least time, and it would save an immense deal of taint and souring.

With a butter factory of this kind, the milk of 100 cows, or 400 cows, could be converted into a uniform quality of butter, always good and beyond complaint, and sure of a ready market.

The outlay would be considerable, but not great, and the butter-making would be reduced to a science, instead of being, as it is now, worked entirely by "the rule of thumb." Four years ago there were only two cheese factories in Canada, now they abound in every district, and they have raised the price of butter fully one-third, and reduced its quality fully one-half. We are just on the borders of a "butter factory age," which I am sure will have the best possible effect, not only on the farmers' interests, but on those of the consumer. *E. L. C., January* 24.

Societies.

AYRSHIRE.

Dairy Farming.—At the late quarterly meeting of the Ayrshire Farmers' Club, Mr. Stevenson, of Silverwood, read the following essay on "Dairy Farming":—The subject is obviously so wide, that it would be out of place to try to take up all the topics which it embraces, and I shall confine myself, therefore, to two principal points—viz., the Food of the Cattle, and the Manufacture of the Dairy Produce. In the department of food too great care cannot be bestowed. Experience, without any aid from science, teaches us that within certain limits the milk is determined, not only as to quantity but also quality, by the nature of the food. As to the summer time, auxiliary food, such as bean-meal and other feeding stuffs, may be given with advantage: but the staple article of diet is Grass, and to secure that in rich abundance should be our endeavour.

Overstocking is a frequent but serious error. Cows may give as good a return in midsummer on moderate as on rougher Grass, but they are sure to fall sadly off as the season advances. Besides, a too heavy stock seriously hinders the natural growth of the pasture, for by cropping it close the roots of the plants are exposed to the free action of the elements, the loss arising from which in a summer like the last would be incalculable. In my view, therefore, the greatest amount of Grass, and the fullest yield of dairy produce, are secured by such moderate stocking as affords abundant provision for the cattle all the season, so long as the weather permits of their being out.

Summer Food.—The important question presents itself—How can we raise the land to the highest grass-producing power? Of recent years, it appears to me

that a great blunder has been committed in the general adoption of the green-crop system. Not that I would object to the system in itself, for I believe that along with the introduction of draining, and the use of any artificial manures, it has done more to develop the agricultural resources of our country than perhaps anything else. Whole districts, formerly little worth, have been entirely changed, and instead of being only able to support moorfowl, and a very limited stock, are now bearing magnificent crops, or clothed with luxuriant pastures. At the same time, however, I believe that the system of green-cropping is altogether unsuitable for, and in no quarter has been less successful than on, the heavy soils of Ayrshire. In a dry summer a good crop can be raised; but in a wet season, of which there are many, the working of the land in a proper state is next to impossible, and too frequently results in not only a failure of crop, but in souring and permanently injuring the soil, and unfitting it for raising Grass or anything else. Happily there is now a growing conviction of this, and a consequent abandonment of the system; but I believe that in many places its operation has, in every way, greatly deteriorated the pasture, and years of another plan must pass before it is restored to its old point of excellence. In addition to the indirect damage it did the Grass by injuring the soil, the green-cropping system robbed it directly by using up all the available manure of the farm; the pastures consequently were neglected. Now, there is nothing connected with our management that will give a more sure return than generous top-dressing, which proximity to large towns will facilitate, and which, so far in every case, the abandonment of green-cropping will provide for. I would only add a sentence to modify my stricture on green-cropping. I would be in favour of a few acres of roots on the lightest of the land—and on most farms there is a proportion of comparatively light land,—for these would be most useful for the wintering of the cattle, and by favourable opportunities for their cultivation being embraced, might be raised without injuring the soil, and without any extra expense.

On the whole, the best system for our heavy land seems to be the eight shift, which is adopted by many, consisting of two white crops, a hay crop, and five years' Grass. This course may appear to many old-fashioned, and ill in keeping with our advanced agriculture; but growing experience confirms us in the belief that in following thus far the rotation of our forefathers, we are acting most for our own profit. It produces as much fodder as is needed for wintering, while the unreduced state in which the land is laid down and its long rest of five years constitutes a condition for good pasture. To obtain a good braird of Grass seeds, and so a good sward afterwards, my experience leads me to think that the stubble land should not be ploughed too early. Perhaps the latter end of February and beginning of March is the best time. This, however, may depend a little on the nature of the soil and other circumstances. I would also recommend that the seeds be sown immediately after the Oats or other crop is harrowed in, because at that time there is generally the moisture in the ground which is necessary to bring them away at once.

As I have already stated, there should be as plentiful top-dressings of the pastures as can be attained. The best time for their application is in the months of August, September, and October. Some are in the habit of top-dressing the land with solid manure before they break it up; but, except where Beans are to be sown, I would approve rather of applying a mixture of bones and guano, and retaining the solid manure for the young Grass. I would be in favour of a slight top-dressing of lime, if applied soon after the hay crop is off. This would not only induce the growth of the finer Grasses, but on being broken up the land would yield a crop firm in straw and heavy in grain. Where milk is produced and young cattle are reared, chemistry would point to bones as a first-class top-dressing; but they have been frequently used in my locality without any apparent result. I believe, however, if genuine dissolved bones are applied, they will be sure to give satisfaction. There can be no doubt that such treatment will soon tell favourably upon the Grass, and then, in turn, the crops will be correspondingly improved.

Winter Food.—Passing from Grass, the chief dairy food for summer, we go on to consider the best milk-producing treatment for the winter. Of first importance is the building; it should be roomy, well-ventilated, and kept at a temperature of 60°. Were it much colder, part of the food would be consumed to keep up the natural heat of the animal, which would otherwise go towards the secretion of milk. In the matter of foddering, as much straw should be given as the cattle can consume, but waste should be guarded against. When not eaten it is indeed converted into manure, but in that case there is a great loss. Straw and hay are far more valuable when given as food than as reduced to dung, and therefore economy requires as great care in their use as of any other feeding stuff. Straw in plenty, with the addition of a few roots, is sufficient to keep young or other cattle in condition but artificial means are required to induce a full flow of milk. Cut straw or chaff, steamed or boiled, along with sundry milk-producing mixtures, are accordingly given twice, or, perhaps better, three times a-day, and in as large quantity as can be readily taken, as all ruminants require to have the stomach filled before they will lie down and quietly ruminate. Great caution must be exercised against over-feeding, for where surfeit is induced, it is difficult to restore the appetite, and often serious injury, for a time, results.

With respect to the best feeding-stuffs, great diversity of opinion and practice prevails. Where a large quantity of milk simply is wished, succulent food which contains a large proportion of water, brewers' and distillers' grains, are used. A like liquified result could be obtained by the addition of water to good rich milk, but by this way the dairyman's conscience might not be so easy. Milk which will produce much butter must be stimulated by other means. Turnips are an excellent help; recklessly applied, however, they will yield that atrociously acrid and all but uneatable butter with which the market is so full in the closing year. But all disagreeable taste may be prevented by putting a little saltpetre into the warm milk, and by giving the foddering of Turnips immediately after the milking of the cows. But passing this, which our narrowed green crop renders less important, common practice has hitherto given a first place to bean-meal and bran. Bran is particularly suitable for using along with bean-meal, as it is slightly laxative, and is corrective of evil tendencies arising from large consumption of bean-meal. Of late years, oil-cake and rape-cake have been greatly recommended; and from the large percentage of oil which they contain, theorists give them a first place as feeding stuffs for producing milk rich in butter. They are nearly identical in composition, but the oil of each belongs to a different class: the oil of Linseed belonging to the "setting" class, while that of rape-cake belongs to the "unctuous," and on analysis corresponds exactly with the oil of butter of fair quality. According to theory, then, this should be the best adapted for butter-producing purposes, and it has the recommendation of being a third lower in price than linseed-cake. They are both objected to by many on account of their producing butter soft and oily, and rape-cake is doubly objected to on account of its imparting to the butter a disagreeable flavour. By boiling or steaming it, however, the unpleasant flavour which would otherwise be given is prevented. I have read of cases where, in addition to a mixture of equal proportions of bean-meal and bran, as much as 5 lb. per day of steamed rape-cake was give to each cow, and the result was a yield of butter which commanded a penny a pound more than the ordinary market price. Formerly I was in the habit of using, with satisfactory results, a mixture of bean-meal and bran, composed of two parts of the former to one of the latter. Lately, however, I have added 2 lb. of rape-cake per day to each cow, which has increased the volume of milk, and also the quantity of butter, without in any way impairing its quality.

I can, therefore, recommend the use of this feeding stuff in small quantity, not only for its butter-producing properties, but also for its beneficial effect on the health of the animal itself. The opinion now is very generally entertained among practical men, that a mixed food is more economical than the use of any one food alone. The composition of different kinds of food is unlike; therefore, a mixture of several kinds is more likely to supply all that the animal wants, at less cost and with less waste, than when any one is given alone.

Dairy Management.—The second point I meant to touch on was the manufacture of the dairy produce, but I will do little more than notice it. This is of equal importance to the matter of food, which regulates the character of the produce. The very act of milking is important. It should take place at least twice a-day, at regular intervals, and above all, with thorough experienced hands. When the milk is not taken quickly and fully, the volume will soon be sadly lessened, and to prevent this possibility, the habit of "aftering" by a trustworthy or interested person should be followed. Those who can sell the milk as it comes from the cow have certainly the easiest, and probably the most remunerative, method of disposing of it. Since the railways have intersected our land, those far removed from large cities can thus dispose of their milk as well as those in their near neighbourhood. It is plain, however, that in summer the immediate use of not a tithe of the actual milk of the country can be secured, and as for the winter, when possibly this might be brought about, butter-making is far more profitable, as the milk in winter will produce nearly twice as much butter as in summer, and the butter-milk may be readily sold to advantage, while the butter itself commands a very high price. I regard, therefore, the direct disposal of the milk as open to but a few, and its manufacture into butter or cheese alone remains for the many.

The method of cheese-making has been brought before the public so well of late, that it would be superfluous in me to attempt any remarks on the subject. Suffice it to say that the Cheddar system is most simple, suited to every pasture, and productive of cheese of the greatest uniformity and first quality. Great praise is due to our county association for its exertions in introducing the system, and also for the stimulus to its improvement which it presents in distributing such substantial premiums at the annual exhibitions.

With respect to butter manufacture, I will only make a few passing remarks. The process is substantially the same in the hands of all, and it dates so far back that now it should have reached a very high degree of perfection. Still it is a notorious fact that there is a very rancid butter produced. This may result, as I have hinted, so far from careless feeding; but perhaps in greater measure from the unskilful handling of the milk. In many cases it may be caused by inattention to cleanliness. Certainly where cleanliness is neglected, a taint will be communicated to the milk, which will vitiate the butter produced. Some churn the whole milk, others churn only the cream. I believe with the same management the best butter is produced from the whole milk. In some districts the cream is churned sweet. In Ayrshire, however, both milk and cream are generally soured. This greatly facilitates the process of churning, making it merely a mechanical operation. The butter is also superior to that produced from sweet cream. Milk contains the principal ingredients requisite for the vinous fermentation—viz., sugar, and a protein compound, soluble albumen. This last is converted into a ferment by the influence of the oxygen of the atmosphere, which slowly converts the sugar of milk into lactic acid, or in other words, sours it. This change should take place soon; it is easily attained in summer; but in winter the temperature is often so low that it has to be brought about by artificial means. Unless this is done, according to Dr. Lyon Playfair, another action takes place, which is called putrefactive fermentation, caused by the action of the oxygen of the atmosphere on the caseine of the milk. It is impossible to make good butter from milk undergoing this change. When putrefaction has commenced, it is impossible to arrest it. It is consequently imparted to the butter by the small quantity of caseine remaining in it, and which cannot wholly be extracted. Such butter soon becomes rancid, even in winter. When the whole milk is properly soured, it should be churned at a temperature of about 60°, and butter should be formed in little more than an hour. The temperature can be regulated by the addition of either hot or cold water when the churn is in motion. The butter when taken off should be washed in cold water as long as it imparts any colour to it, when it may be put up for the market. If the whole milk is properly soured and churned at a right temperature, it will keep sweet for a month, or even six weeks in some cases. I have heard of cream being churned for hours before butter was produced. In such cases, according to some, the addition of a little cold water would hasten the process.

The comparative profit arising from the two methods of butter and cheese manufacture is worthy of remark. The expense incurred is, I believe, much the same in both, and the average money return obtained over a term of years will be also very much the same. It is a fact, however, that the cheese and butter elements in milk vary according to the season and feeding; and, in keeping with this, I consider that cheese-making for the first months of the Grass, and butter-making for the rest of the year, is in itself the most profitable method; and additionally so from this further circumstance, that the butter-milk is far better for feeding pigs than whey, or it may in winter be sold for a long time at a very high rate.

Discussion.

Mr. Wallace, Kirklandholm, said he did not think the farmers of Ayrshire were improving their stock. They were bringing in a smaller kind of cattle, and some of the points being brought out were not those of the best milk-producing animals. A cow must have different points of excellence from any other animal. In a good horse they liked the parts closely compacted, and the animal well knit; but it should be the opposite of this in a good cow. In many districts it used not to be thought profitable to keep heavy cattle, but now he was afraid they were going in altogether another way. Starting, however, with a good cow, the question was what was the best thing to give it; and, perhaps, as Mr. Stevenson said, the best kind of good suitable food for a cow was good pasture. A great many farmers starved their cattle in the fields, and it was injurious to the cattle, for it was only reasonable to suppose that if a cow only got three-fourths of the necessary food, and it was required to build up flesh and bones, they gave little produce; but if they gave the other fourth necessary, they might expect that it would go to the production of milk, which was a very important matter. He had heard of a knowing dealer who, when good-wives complained to him of their cows not giving so much as they ought, recommended them to sell one or two. He thought it most necessary, in order to get their cattle to give the greatest possible quantity of milk, that they should be entirely confined to pasture. House feeding was not a profitable way. There were many arguments against it, and if cattle depended upon such food they might be sure they had bare pasture, and they would see the cows standing slouching in corners with their backs up, waiting till they got into the house. He studied to keep house feeding from the cows as long as possible at the end of the year, for he thought they were subject to cold and all kinds of diseases when they were standing about in corners depending upon house-feeding. He agreed with Mr. Stevenson that rape-cake was a good thing to give to cows; besides, it was much cheaper than other feeding stuffs. He thought it was advantageous in any circumstances, and cattle, if they got fewer Turnips, would be all the better and more easily brought into good condition. He was not in favour of forcing cattle, but he believed that cattle kept till near the calving in what was called hard condition, would be more healthy, and give as much produce in spring as those fed through the winter.

Mr. Reid, Clune, never allowed water to be used at all in his dairy; when the butter was just about to gather they might syne a jug-full of water in it, but that was all the water used. They beat it, however, as long as there was the least appearance of butter-milk in it.

Mr. Brown, Ardnell, said it was a great mistake to overburden pasture by putting too many cows upon it. He had seen when cattle were running for the flies, and running about, that they did more damage to the pasture than by eating it. He had been in the habit of pasturing one field at a time, and he had seen a field after it had been eaten lie for eight days and they would know no difference in it; but after it had lain for two or three weeks, it would grow as much in one week as it would otherwise grow in double the time. As to the management of butter, he perfectly agreed with Mr. Stevenson, and he could not see that any harm arose from washing it.

Mr. Reid: Our opinion is that water takes away the richness of the butter, and it does not keep so well.

Mr. White, East Raws, differed from Mr. Stevenson as to the application of solid manure to Grass. He would rather save the manure for the crops, and top-dress the pasture with bones and guano, for he thought the ploughing in of manure had a better effect upon land, and they got more good of the manure. The pasture also would be stronger with bones and guano than solid manure. With regard to the feeding of cattle, he thought a little more of the artificial foods than was used would be beneficial; and in some districts where they were far from the supply of manure for lands, if they used more of these stuffs they would have a supply of manure, for it was an indirect way of supplying manure for the soil. They might also help themselves by raising feeding stuffs—succulent roots, Tares, &c.—to supply cattle with when the Grass became scarce. Cabbages are a very good thing for producing milk, and where they can be well grown are a very profitable crop. They require a considerable amount of manure, but in good seasons they are very useful, and cattle generally are very fond of them. In some districts Tares were sown to preserve the milking qualities of the animals during September and October, but he had little experience of them.

Mr. Stevenson, Hillhouse, concurred in the system of dairy management recommended by Mr. Stevenson. Green-crop

ing was advantageous for light lands; but the system of taking two cereal crops, and sowing down with Grass seeds for pasture, was the best adapted for the heavy soils and clay-lands of Ayrshire. Green-cropped land at a distance might seem to be luxuriant and green, but upon close inspection the herbage was found to be scanty and thin, and although the Grass came earliest in spring, it had not the same durability, and did not produce that thick close sward of Grass so essential to the success of dairy farming.

Mr. STEELE, Burnhead, could not agree with Mr. Wallace in reference to the breed of cattle. He seemed to think the cattle were degenerating, but there had been large cows and small ones ever since he remembered. It was complained that the breed was too small; but he would maintain distinctly that he would keep four of these small cows as well as any man would keep five large ones. He would feed them on the same quantity of produce, he would have a greater quantity of milk from them, and when they brought these small cows to the shambles, they would have more weight from them. He was not afraid to put his cows out early in the season, even though he had to give them some artificial feeding along with the Grass. He believed they were less liable to disease in this way than when taken at once from the fodder and put on a full bite of Grass.

Mr. MURDOCH, Kerspark, said he was fond of letting cattle get a good rough bite at all times, and he was corroborated in that opinion by an individual who had commenced farming at 20 and continued it till he was 80. The gentleman he spoke of went to see a friend at Kilmarnock, who has a dairy of 24 cows. After they went out and looked at the cows in the field, his friend said, "I find I stand in need of 30*l.*, and I wish you could oblige me." "I think," said my friend, "you might oblige yourself." "How could I do that?" he replied. "Well, I think if you were to sell two of your cows you would find your produce nothing deteriorated, and you would have the money in your own hands; your Grass is far too bare." "Well, I never thought of that," was the reply. For the first two or three weeks after the two cows were sold there was a deficiency, but the produce came up till it equalled what it had been before the two cows were sold. He concurred in the remarks that had been made as to the want of accommodation for the management of dairy produce. That, to his knowledge, was greatly wanted in Ayrshire,—at least, in his neighbourhood. They found much better accommodation in Wigtownshire, and he had seen a dairy at Kirkcolm where they had the whole apparatus for heating,—boilers, and everything necessary. They can run the milk from one part of the dairy to another, and they run the whey to the pig-house outside.

Mr. R. M. CUNNINGHAME did not keep a large dairy, but he reared calves for fattening purposes. Sometimes they had not a sufficient number, and they had to get a few from their neighbours. These sometimes turned out to be very good, and sometimes the reverse, just as they happened to be from a good male animal, for it depends more upon the male than the female the getting of an animal that will grow well. He gave a large proportion of milk for the first two months to these calves, and gradually took off the full milk and introduced them to skim-milk and oilcake. Last summer he must say he never had a better lot of calves; each throve better than another, and they never were more healthy, and they were in the house the whole summer. He had not pasture to put them out on, and he just cut what Grass he could get about the ditches, and gave it them with a pound of oilcake every day, dissolved in milk or water. To this day they were doing well and thriving, showing that the treatment they had received had been good, and he meant to continue that system as heretofore. He was somewhat opposed to Mr. Steele's remarks about the size of cows, for he had himself been looking about the showyards, and all the cattle-dealers he came in contact with admitted that Ayrshire stock had much deteriorated. There were some parishes that used to produce good strong animals where they could not now get a good-sized strong cow. What farmers wanted now were cows that would pay. Rents were rising, taxes were increasing, manures and feeding stuffs were rising, everything was rising, and if they were to meet their engagements they must devise some means of increasing the produce from their farms, it did not matter whether it was in grain, cheese, butter, or what it was. What they wanted now in this country, where so many cattle were bred—for he had been looking into the agricultural returns, and Ayrshire stood second in the list as having the greatest number of cattle, and rearing the most, and seeing they did so much in that way they should be improving rather than degenerating in their class of cattle—what they wanted now was a good cow and a strong cow, that would pay well for five or six years. Some people told them that a small cow would give as much produce as a large cow, and would consume a less quantity of food. He denied that, and instanced the case of the prizes offered by the Duke of Athole for the cows giving the most milk, in proof of this. He put it to them if any of the animals gaining prizes at the shows in Ayr had competed successfully for those prizes. Many of these large cows would give as much milk at one yield as those little cows would give at three yields. What they wanted was a cow that would serve them six or seven years, and then lay on 25 or 30 tron stones of beef on her. That is the thing to pay.

Reviews.

Report of the Commissioner of Agriculture and Arts of the Province of Ontario, for the year 1868.

Mr. Carling's annual report to the Lieut.-Governor of the Province is this year especially interesting to English readers, as containing an account of Professor Buckland's visit to England last summer, under a commission to establish relations with the agricultural societies of this country, to note improvements in implements, cultivation, and stock, and to visit the leading agricultural shows. No one could have been better qualified than Professor Buckland to observe the agricultural improvements of the mother country since he left it, 20 years ago, for he was then well known as an agricultural writer and practical farmer, and well acquainted with the agriculture of the country. His account of the Leicester and other shows which he visited points out those particulars especially in which our management appears to excel that of the Canadian agricultural meetings.

"In looking at the comparative condition of the agricultural exhibitions in Britain and Canada, the principal difference appears in the higher average of the quality of the stock and implements (grain being seldom or never shown) than it is with us. A positively inferior animal is never sent to a British show. In this respect it is satisfactory to know that our provincial exhibitions have of late very much improved; the average quality of their material in every department being now much higher than it was only a few years since, and it should be borne in mind that quality rather than quantity is the exponent of healthy progress. So also in the manner of conducting our shows, improvements have been progressively made; but there yet remains much to do in this direction, particularly as compared with the almost perfect management of the principal British societies. The entries are finally closed several weeks before the exhibition begins, and on no pretext whatever can stock or articles be entered after a certain day, and the arrangements and accommodation are made accordingly. I cannot remember attending the smallest country show at which the list of entries was not closed some days or weeks beforehand."

As to the general impression which the state of the country left on the mind of a Canadian visitor, anxious for the future of the colony, and, above all things, desirous to promote the immigration of labourers, Professor Buckland says:—

"I was, more or less, in 35 counties of England and 17 of Scotland, but found little or any redundancy of labour, except in a very few places, agricultural or mechanical. The people generally were fully employed, and at wages considerably advanced, and in many places still increasing. The late monetary panic, for a while, disturbed the balance between capital and labour, and many thousands of workmen were discharged when railway operations became suspended, yet most of these hands have since been absorbed in the ordinary work of the farm, or manufactories in the large centres of industry. In Cornwall I found a number of miners out of work, or only partially employed, in consequence of the old mines not being sufficiently productive to compete with newer ones in other countries. These Cornish miners would make excellent settlers for Canada, either to help in the development of our incipient mines, or to work on the land. In east London, it is well known, that large numbers of workmen, from local causes, have been deprived of employment. Some of them have already been sent to Canada, and if judiciously selected may become desirable settlers; but the majority of that kind of population, physically and morally considered, would probably prove most unsuitable. Nothing could be more unfortunate for a country like ours than a large influx of the dregs of a city population. We want strong, sober, industrious young people, with or without means, who will readily adapt themselves to the wants and ways of the country. I did expect to make an impression, particularly among small farmers with large families, favourable to their emigrating to Canada, and hope that my endeavours will not be wholly unproductive. With this class of young people, even, I found that the great towns and cities, the centres of commerce and manufactures, railway situations, &c., absorb the greater portion of them as fast as they accumulate. There has been for years a steady tendency in the United Kingdom to diminish the number of farms, by joining two or more small ones together, thereby, of course, lessening the number of farmers. I mention this as a fact, without commenting either way as to its tendency. The results, however, of such a state of things are, that the sons of small farmers in particular must either emigrate or seek employment in other pursuits. From the intercourse I had with the British people, during a five months' sojourn, I am decidedly of opinion that by widely diffusing correct information on the position and resources of our new dominion, and particularly those of our own province of Ontario, a larger and healthier immigration might be secured than has hitherto been the case for many years. The opening of roads through unsettled districts, adapted to agricultural and mechanical pursuits, and the present policy of the Government of Ontario to make on a liberal scale free grants of land to new settlers, with a wider and more efficient system of emigration agency in the United Kingdom, and other European countries, could not fail, if properly sustained and persevered in, of producing most beneficial results."

The Poultry Yard.

PRESENT PRICES OF POULTRY.—The present time must be called a very dull one for the West-end London trade, and as the principal consumption of the best poultry is at the West-end, the demand cannot be considered an average one. The supply is small, and an idea may be formed as to what is the result of poultry keeping where the birds are well done and the young chickens now marketable. The best Surrey fowls, well fatted, now realise 6*s.* and 6*s.* 6*d.* each. These come from the neighbourhoods of Horsham, Bolney, Cuckfield, Lingfield, &c., so that they are Surrey only in name. The best chickens now make 4*s.*, and 4*s.* 6*d.* each, and some of the feeders send four and five dozens per week, and will continue to do so for months. Cambridgeshire and Lincolnshire fowls of best quality now bring from 3*s.* to 4*s.* 6*d.*, and some even 5*s.* each; Essex young fowls, 3*s.* 6*d.* to 4*s.* each; Devonshire, 2*s.* 9*d.* to 3*s.* 6*d.*; Irish chickens, 1*s.* 9*d.* to 2*s.* 6*d.* each. Really well fed green geese make 8*s.* to 9*s.* each, and ducklings (Aylesbury), although now cheaper, have been making 6*s.* each. The celebrated Canetons de Rouen made last week in the Paris market no less than 11 francs each.

"T. W." writes:—"With reference to your article in this day's *Agricultural Gazette* on poultry, in reply to 'West Cheshire,' suggesting a cross between Dorking hens and Brahma cocks, I wish to know whether you consider such a system of crossing as the best mode of obtaining good and useful poultry, as to size and quality of meat; or whether your opinion is given merely as a reply to the point suggested by 'West Cheshire,' viz., 'I have thought of Dorking hens and game cock, or Brahma cock,' and whether you consider such a cross-breed (which would require two seasons and two yards to carry out) would produce better poultry than pure-bred Dorkings. Further, in case you recommend the cross-breed in preference to the pure breed, would it not be better always to breed from pure-bred cocks, changing the breed each alternate year, instead of always breeding from half-bred cocks?" The article last week, in reply to "West Cheshire's" query, was written with a view to his particular case. As a general rule, we should always prefer the pure breed to crosses. Regarded from a table point of view, we are inclined to pin our faith to the Dorking; but we are not bold enough to say that it may not be improved, at any rate as regards size and strength of constitution. With more or less truth it is a common idea among many farmers that the pure Dorkings are delicate of constitution; we should fancy "West Cheshire" had that in his mind when he first spoke of the crosses. The delicacy exists more in imagination than fact. In no colony has the Dorking not been tried, and we think we are right in saying that in no colony has it failed. The extreme north of Britain, and the sister island, both send birds to our great shows that demonstrate the success with which the breed is developed under various climates. Allowing the Brahma Poutra to be a still hardier fowl, and more easily reared than the Dorking, it is worth the trial to endeavour to engraft the strength of one breed on the undeniable meat qualities of the other, and we think this would be most easily done as described last week. There is nothing to take away from the Dorking: all his qualities are good ones, and the object of the cross must be to make them still better. The Americans now are giving great attention to their fowls, and last year were among our best buyers for the breeding season of 1868. We now hear, and we do not think that it is "tall talk" only, that they are producing Brahma cockerels up to 14 lb. weight. If such be the case, it is certainly progress; and we think we ought to be able to do as much. In making the Dorking and Brahma cross we should be inclined to put the birds according to our notes in last week's number, breeding away from the outward appearance of the Asiatic as much as possible. It was done with great success some 10 or 12 years ago, but the experiment was made for a purpose, and then allowed to die out. The cock birds took very much the plumage of the silver-grey Dorking cock, with a very sharp head, fine small single comb, a short neck, full hackle, very square body, like that of a Crêvecœur, a tail that showed the Brahma strongly, and legs like those of a Dorking. The hens were like silvered silver greys, the breast light grey instead of salmon-coloured, the bodies more squat, and longer than those of either parent, the tail smaller than that of the Dorking, and carried in a different manner. It always gave the idea that the bird had been lifted up by it until the greater part of it came out in the hand. Some of these birds find their way into parts of the country where the pure Dorkings are the rule, and were used here and there for stock; but as the chickens were early killed for market, they did not spread. In making the cross, the best old type of Brahma should be used, not the vulture-hocked, stilty bird with ugly comb, one now often sees as a Brahma Poutra.

The Market System, beginning with the higgler, and passing on through the feeder, the salesman, the wholesale purchaser, and eventually the retail shopkeeper, places a wide gulf between the producer and the consumer, by which both are sufferers. It is quite certain that, in these times, poultry cannot be farmed profitably as a save-all only; and that if it be farmed at all it must be placed on the same footing as other stock. Capital (in its degree), intelligence, economy, and invention, must all be employed, and then the result will be the same as in other stock. By the abundant demand which exists, the knowledge that poultry does not cost more to produce than other animal food, and the extravagant price which it commands in the markets, it would seem as if this kind had reached that period which immediately precedes the general practice of cultivating land for the sake of rearing it. We import annually about 438,878,880 eggs from France, Belgium, Spain, the Channel Islands, and Hamburgh, at an estimated outgoing (6*s.* 6*d.* per 120, or the "long hundred") of 1,263,601*l.* In addition to this we import also from Belgium, France, and Holland 174,971*l.* worth of poultry or thereabouts every year. Yet in spite of the perishable nature of both eggs and poultry, and that our own production always commands a considerably higher price than the imported article, it pays the foreigners to supply our markets. It is clear, therefore, that on the Continent some better, more intelligent, and economical system than our own is pursued, and, although we are not disposed to admit the truth but can affirm to the contrary of very many of the wondrous stories we have heard of French poultry-keeping, yet it is beyond all question that there the rearing, feeding, and general farming of poultry is a very important consideration in rural economy, sufficiently profitable to encourage the farmer to raise a considerable quantity of Buckwheat and other seed suitable for the purpose—and that the foreign market system is well worthy of our examination. *M. G. Manning.*

Calendar of Operations.

Kohl Rabi, green and purple, may be sown this month for transplanting in May; but the more advisable plan is to sow in the same way and time as the Swede—4 lb. of seed being sufficient to sow an acre. If sown in April with a single-drill machine, every tenth drill will be sufficient to supply plants for the nine intervening drills; if with a two-drill machine, one seed box may run empty, or the two drills may be sown at intervals of 18 drills asunder. The land is manured as for Cabbages or Swedes. If the land has been manured in autumn with farmyard manure, the practice is similar to that for Potatos:—viz., the drills being harrowed down, split, &c;

guano and superphosphate, from 2 to 3 cwt. each, may then be sown, and the drills lightly formed again for the seed. In some cases if the farmyard dung is not thoroughly incorporated, and if the land does not stand in need of a thorough fallowing at this season, the winter drills may be harrowed down, the guano and superphosphate sown, and the drills set up again for the seed. This latter plan insures a fine seed-bed, and is more easily carried out in catchy weather than the former. A third plan is to sow the seed and manure on the top of the winter ridgelet or furrow with a seed and manure drill; a fourth plan is to raise the plants in a seed-bed, as in growing Cabbage plants, for transplanting. But all these practices are being superseded by seeding the whole ground at a later period, viz., May.

Flax sowing commences about the close of this month and beginning of April in the moist climate of Ireland, and in Scotland as early as the season will permit, but in the southern provinces of England the former period is preferable in order to get the ground covered before the dry weather sets in. In some Flax-growing districts it is grown as a fallow crop, the land being sown out with Grass seeds immediately before the time of weeding—the trampling in the weeding and the pulling of the Flax securing a fine green sward of Grass by the month of August. In the drier climate of England and Scotland, it is not so easy to carry out this practice, the land, after the Flax is pulled, having to be worked as fallow for some other crop. The crop is partial to a liquid manure, consisting of dissolved rape-cake, which is applied at the time of sowing, or a short time previous, as the land requires.

Wheat hoeing generally commences towards the close of this month, both by hand and horse-hoe. If the surface is dry, hard, and crusty, rolling will greatly facilitate the operation; but if the surface is either pulverised with the frost and pliable, or soft from the presence of moisture below, rolling will be unnecessary. Hoeing both promotes and checks tillering according as the work is performed; so that when tillering has so advanced as to indicate an excess of plants at the first hoeing, the hoes may work close up to the drills. But a good old rule may be here quoted and observed, viz., "When Wheat is thick well ply the harrows: but when it is thin well use the hoe." If there is a deficiency of plant, hoe close up, so as to encourage lateral growth, but use a narrower hoe the second time. In growing seasons, however, it is sometimes necessary to reduce the blade or "flag" next month, or in May, taking care not to injure the ear.

LIVE STOCK.—*Springing cows* require a nourishing but cooling and rather laxative diet, easily digested, and free from liability to "hoove." The bowels require to be kept open but not loose. Large bellyfuls of Turnips with the tops or Cabbages are highly objectionable. Cold frosty water is equally objectionable. Harsh treatment, frights from any cause that startle the cow, a false step or leap in shifting from one place to another are each liable to turn the calf from its natural position. And a large roomy single box, in which the cow can move about at pleasure, and in which she can be calved, is far better than to be tied up in a confined stall.

Calving sometimes takes place within the usual period of gestation (280 days), but more frequently beyond it. But about this there is seldom any difficulty, if the previous management has been what it should be.

The Dairy.—When the cows calve in March, it is seldom that much good can be done in the way of making cheese and butter until next month. In breeding districts it is common to put two calves to one cow, so that they consume the whole of the milk until weaning time, and when weaned a third calf is then put upon the cow. But some cows nurse four calves in a season. In dairy districts, however, calves are either fattened or brought up on a portion of the milk, the remainder being sent to the dairy. But for three weeks or a month it makes inferior cheese, and if set up for cream the butter is not of the first quality, especially if the cream is allowed to rise for more than 10 or 12 hours. Skim the evening milk in the morning, and the morning milk in the evening, and then churn the cream every alternate day, and use the butter fresh, or slightly salted.

Lambing Season.—In exposed situations March winds are often killing for ewes, both before and after lambing; but where there is shelter, and when the weather is dry, little or no harm is sustained from a low temperature. Hence, lambing in March is very general in all our low-land sheepwalks throughout England. Much of what might be said under "springing cows" and "calving" applies in principle to springing ewes and lambing. Ewe flocks require very careful and gentle treatment before lambing; a wet skin followed by a frosty night is very injurious to a ewe just at the lambing. In late seasons a liberal supply of cake, corn, Cabbages and Swedes, Turnips, or Mangels, will be needed. In open early ones less will be needed. In any case, some provision is made for the ewes and their newly-dropped followers; some have a paddock or two, with hovels and permanent pens, with the shepherd's house adjacent. But the more common provision is a large roomy hovel, on some elevated dry ground, sheltered from the north and east winds, with a bothy for the shepherd, the pens being made of hurdles wattled with straw—*i. e.*, two hurdles with straw between them, so arranged as to afford shelter whichever way the wind blows, and also to defend the ewes and lambs from rain by placing a second course of wattled hurdles over the bottom ones, and slanting inwards, so as to form a half roof for carrying the rain outside the pen, and keep the inside dry, clean and well-ventilated. In such pens the ewes and lambs do better than in the hovel. Throughout the day the first lambs, with the ewes farthest from the lambing, may feed in the close or Turnip field adjoining, but at night they are brought into the paddock for shelter, while the ewes about to lamb are brought into the hovel. Many ewes, however, drop their lambs in the field throughout the day and in the paddock at night, so that the shepherd has enough to do. It is very seldom that a ewe requires assistance at lambing. The newly-lambed ewes are kept by themselves until clean, and this is better done in the pens and paddock than in the field, as the shepherd's boy can easily keep the former clean, and all the filth out of harm's way. Not the least of the labours of the shepherd is to see that the ewes have sufficient milk for their lambs. A supply of cow's milk should be at hand, and given with a feeding bottle; but if twin lambs can be shifted from one ewe to another that has lost her lamb, or that is giving more milk, it is better. In a very short time the ewes and followers will shift for themselves, if they have a plentiful supply of food and shelter to go to at night or in stormy weather. But many delicate ewes require the constant care of the shepherd.

Farm Horses require a full allowance of ground Oats and Beans mixed in their chaff to meet the heavy demand upon them this month. Something cooling is also necessary, and for this purpose a daily allowance of bran or boiled Barley, or Carrots, is given. *W. B.*

Notices to Correspondents.

GRASSES: *W B* says, one of your correspondents stated last year that, in lieu of the expensive Grass seeds sown for permanent pasture, he had obtained an equally good sward by only sowing three or four sorts, trusting to the Grasses indigenous to the soil making up for the other sorts. If I remember rightly, he used Timothy, Cocksfoot, Broad and Alsike Clover. As I should like to make such a trial, perhaps one of your readers would mention the sorts of Grasses used, the quantity per acre, and if sown with or without a crop. The following is a full list of seeds for medium soils (Lawson):—

	With a Crop.	Without a Crop.
Aira cæspitosa lutescens	1 ..	1
Alopecurus pratensis	1½ ..	2
Arrhenatheum avenaceum	½ ..	1½
Avena flavescens	1 ..	1
Dactylis glomerata	2 ..	2
Festuca duriuscula	3 ..	3
,, heterophylla	1 ..	1
,, loliacea	1 ..	1
,, pratensis	2 ..	2
Lolium italicum	3 ..	3
,, perenne	5 ..	5
Phleum pratense	1 ..	1½
Poa nemoralis	3 ..	4
,, trivialis	1 ..	1½
Trifolium pratense perenne	3 ..	4
,, repens	4 ..	5
Total	33 lb.	38½ lb.

NAMES OF GRASSES: *J B.* Your Grasses are: 1. Cynosurus cristatus (Crested Dogstail); 2. Anthoxanthum odoratum (Sweet Vernal).

RULES OF THE SOUTH LINCOLN ASSOCIATION: *Cor.*—We quote the leading rules of this co-operative manure association, established June 10, 1868. They are shortly these:—"This Association is formed for the purpose of purchasing genuine phosphatic manures, and of supplying the same to its members at cost prices.—Any person wishing to become a member of the Association, shall sign the required form, and forward it so signed and properly filled up with the number of acres in his occupation, along with the entrance-money due—viz., one halfpenny per acre on his occupation—to the secretary, to be presented to the committee at their next meeting, when, if such application shall be approved of by a majority of the committee then present, the person thus applying shall be admitted a member.—Any member wishing to procure phosphatic manures through the Association, shall state in writing to the secretary, on or before the 1st day of January in each year, the quantity he requires for the ensuing season, at what time to be delivered, and at what railway-station, and shall at the same time pay a fee of 1*s.* per ton on the manure so ordered.—In order to secure to the members of this Association the fullest advantage in the price and quality of phosphatic manures purchased by the committee, all contracts with manufacturers shall be made early, and for prompt payment after delivery.—Notice of the terms and conditions of all contracts made by the committee shall be communicated to members as early as possible after such contracts are completed.—No manure shall be actually delivered until the full value has been paid to the treasurers, Messrs. Peacock and Co., who will give due notice of the same to the secretary.—No member can subscribe for a less quantity than five tons of phosphatic manure; but two or more persons, each requiring less than five tons, may subscribe under one name.—No member of this Association shall, in any event, or in any manner, become responsible for any demand or claim upon the said Association, beyond the amount payable by him under the provisions of these rules.—All fees for which members are liable shall be paid to the secretary, unless otherwise ordered by the committee, and the secretary shall pay into the hands of the treasurer all moneys he may receive on account of the Association, not later than the Monday next following such receipt.—Any payments to which members are liable under the rules of the Association shall be recoverable by action or suit; and any action or suit which may be necessary, shall be brought in the name of the Chairman of the committee for the time being of the Association, and such committee shall be reimbursed out of the funds thereof, for all such damages, expenses, and costs to which they may be put in respect of such action or suit, and such expenses shall form the first claim upon the funds of the Association.—A general annual meeting of the members shall be held at Sleaford, in the first week of January in each year, when the transactions and liabilities of the Association shall be declared, and the committee and officers for the ensuing year appointed.—In case of any doubt or dispute arising out of the interpretation of any of these rules, or as to the quality or quantity of any manures delivered by this Association, the same shall be settled by a majority of the committee, whose decision shall be final.—The Analytical Chemist to the Association shall be the chemist of the Royal Agricultural Society for the time being.—A special meeting of the members may be called at any time by the secretary, on the requisition of three members of the committee, or of six ordinary members.

SEEDS: *B R.* The quantity of seed to be purchased is to be obtained by multiplying the following quantities per acre by the number of acres to be sown. Wheat, 1½ to 2 bushels; Barley, 2 to 3 bushels; Oats, 3 to 4 bushels; Beans 1½ to 3 bushels; Peas, 2 to 3 bushels; Vetches, 2½ to 3 bushels; Sainfoin, 4 bushels (of the rough seed); Turnips, 3 lb.; Mangel Wurzel, 6 to 8 lb.; Carrots, 6 to 7 lb.; Parsnips, 5 to 7 lb. Mixed Grass seeds, 40 to 50 lb.

SUTTONS' GRASS SEEDS

FOR ALL SOILS,

CARRIAGE FREE,

PRODUCING ABUNDANT CROPS OF HAY AND SUPERIOR PASTURAGE.



SUTTONS'

MIXTURES for PERMANENT PASTURE

FOR

1. STIFF CLAYS
2. HEAVY LOAMS
3. MEDIUM LOAMS
4. LIGHT SANDS
5. SHARP GRAVELS
6. CHALKY UPLANDS
7. SHEEP DOWNS
8. WATER MEADOWS

SUTTONS' "BEST QUALITY" MIXTURES.—Two bushels of Grass Seeds, and 12 lb. of Clovers and other small Seeds per acre, 28*s.* to 32*s.* per acre, Carriage Free.

SUTTONS' "CHEAPER MIXTURES," 20*s.* to 26*s.* per acre, Carriage Free.

SUTTONS' MIXTURES of "SEEDS."

SUTTONS' "SEEDS" for ONE YEAR'S LAY.—Best quality, 13*s.* 6*d.* per acre, Carriage Free; second quality cheaper.

SUTTONS' "SEEDS" for TWO YEARS' LAY.—Best quality, 17*s.* 6*d.* per acre, Carriage Free; second quality cheaper.

SUTTONS' "SEEDS" for THREE or FOUR YEARS' LAY.—Best quality, 22*s.* per acre, Carriage Free; second quality cheaper.

SUTTONS' "CRYSTAL PALACE" MIXTURE for PARK GROUNDS, which produced the beautiful Lawns at the Crystal Palace, Sydenham. 18*s.* per bushel, Carriage Free.

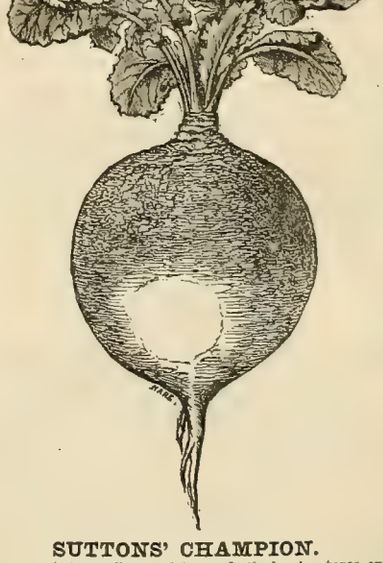
SUTTONS' NEW and UNADULTERATED CLOVER SEEDS, at market prices. Samples and lowest prices per cwt. on application.

SUTTONS' IMPROVED ITALIAN RYE-GRASS, the best and most productive in cultivation. As supplied to the Metropolis Sewage Company. Price 7*s.* per bushel, cheaper by the quarter.

SUTTONS' PRIZE SWEDE SEED.

THE BEST SWEDE IN CULTIVATION IS

SUTTONS' CHAMPION SWEDE,



THE BEST SWEDE IN CULTIVATION

SUTTONS' CHAMPION.

A large purple-top yellow variety, perfectly hardy, stores exceedingly well, remarkable for its small neck and freedom from coarse roots. Roots of this variety, notwithstanding the severe drought last season, weighing upwards of 16 lb. each, attracted marked attention on our Stand at the Smithfield Club Cattle Show.

Price 1s. per lb.; much cheaper by bushel.

For further particulars of Agricultural Seeds, see SUTTONS' "Farmer's Year Book for 1869." 6*d.* Post Free; Gratis to Customer Five per cent. allowed for cash payments.

SUTTON AND SONS, SEEDSMEN TO THE QUEEN, READING.

RICHARD WALKER has to offer the finest sort of ROUND POTATO out, AMERICAN RED. It boils as white as snow, and is the heaviest Cropper in this country. R. W. imported it direct in 1865, and will warrant it to grow 16 tons to the acre. As the stock is limited, apply early. Price per cwt., 30s.; smaller quantities at the same rate. Mixed LACED PINKS, 20s. per 100 for cash. Biggleswade Market Gardens.

1868.—Mangel Wurzel Seed.

H. AND F. SHARPE can offer the Trade some splendid STOCKS of the above-named Seed, grown on their own Farm this season from picked Bulbs. The quality is very fine, and prices low. Samples may be obtained on application.
Seed Growing Establishment, Wisbech.

Seeds Direct from the Growers the best means of Preventing Disappointment.

NOTICE.—PURCHASERS of LARGE QUANTITIES of FARM or GARDEN SEEDS will be supplied liberally by SUTTON & SONS. For prices apply (stating quantity required) to SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

REIGATE SILVER SAND, 12s. per ton, at Swan Place. Delivered four miles, or to any London Wharf or Railway, 16s. per ton; or 1s. 6d. per bushel. Sacks at cost price, or on hire. PEAT, LOAM, LEAF MOULD, SPHAGNUM, and COCOA-FIBRE REFUSE.
JOHN KENNARD, Swan Place, Old Kent Road, London, S.E.

GOOD FIELD TURF for SALE, delivered into trucks at Wimbledon Station, on the London and South-Western Railway, and London, Brighton, and South Coast Railway. Price on application to
D. S. THOMSON, Nurseryman, Wimbledon, S.W.

FIBROUS PEAT, of first-class quality, for Orchids, Heaths, American Plants, and all Potting purposes, may be obtained on application to Mr. THOMAS JESSOP, Farningham Wood, near Sevenoaks Station, Kent. Price 8s. per cubic yard, when delivered to London, Chatham, and Dover Railway, in trucks of 16 yards, for most stations in the kingdom; or 4s. per cubic yard when fetched in carts from the Wood. It is extensively used and appreciated in the principal Nurseries, and in the Royal Parks and Gardens.

LAWES' MANURE for GRASS LANDS should be applied during the months of February and March. NITRATE of SODA supplied ex Ship or from Stocks at Docks at London, Liverpool, and other ports, at lowest market prices.

LAWES' MANURES are now ready for delivery for present season, 1869.
LAWES' PATENT TURNIP MANURE.
" DISSOLVED BONES.
" SUPERPHOSPHATE of LIME.
" WHEAT, BARLEY, GRASS, and MANGEL MANURE.
" CONCENTRATED CORN and GRASS MANURE.
These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom.
GENUINE PERUVIAN GUANO direct from the importers.
NITRATE of SODA, SULPHATE of AMMONIA, and other Chemical Manures.
AMERICAN and other CAKES at market prices.
Address, JOHN BENNET LAWES, 59, Mark Lane, London, E.C.; 22, Eden Quay, Dublin; and Market Street, Shrewsbury.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)
Have now ready for delivery, in fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES.
Also Genuine PERUVIAN GUANO, and NITRATE of SODA ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c. E. PURSER, Secretary.
Offices, 116, Fenchurch Street, E.C.

ODAMS'S NITROPHOSPHATE for CORN.
ODAMS'S NITROPHOSPHATE for ROOTS.
ODAMS'S DISSOLVED BONES.
ODAMS'S SUPERPHOSPHATE of LIME.
ODAMS'S PREPARED PERUVIAN GUANO.
ODAMS'S GRASS and CLOVER MANURE.

MANUFACTURED BY

THE PATENT NITROPHOSPHATE or BLOOD MANURE COMPANY (LIMITED).
Chief Offices—109, Fenchurch Street, London.
Western Counties Branch—Queen Street, Exeter.
Irish Branch—40, Westmoreland Street, Dublin.
DIRECTORS.
Chairman—JOHN CLAYDEN, Littlebury, Essex.
Deputy-Chairman—JOHN COLLINS, 255, Camden Road, Holloway.
Edward Bell, 48, Marine Parade, Brighton.
Richard Hunt, Stanstead Abbot, Herts.
Robert Leeds, Castle Acre, Norfolk.
George Savill, Ingthorp, near Stamford.
Samuel Jonas, Crishall Grange, Essex.
Charles Dorman, 23, Essex Street, Strand.
Thomas Webb, Hildersham, Cambridgeshire
Jonas Webb, Melton Ross, Lincolnshire.
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Managing Director—James Odams.
Bankers—Messrs. Barnetts, Hoares, & Co., Lombard Street.
Solicitors—Messrs. Kingsford & Dorman, 23, Essex Street, Strand.
Auditor—J. Carter Jonas, Cambridge.
This Company was originally formed by, and is under the direction of, Agriculturists, circumstances that have justly earned for it another title, viz.:—
THE TENANT FARMER'S MANURE COMPANY.
Its Members are Cultivators of upwards of 50,000 Acres of Land, which has been for years under Management with Manures of their own Manufacture, consequently the consumer has the best guarantee for the genuineness and efficacy of the Manures manufactured by this Company.
Particulars will be forwarded on application to the Secretary; or may be had of the Local Agents.
C. T. MACADAM, Secretary.
Chief Offices—109, Fenchurch Street, London, E.C.

The Cheapest and Best Insecticide.
DUTY-FREE TOBACCO.
BY HER MAJESTY'S ROYAL LETTERS PATENT, AND BY PERMISSION OF THE HON. BOARD OF CUSTOMS.

POOLEY'S TOBACCO POWDER, for the Prevention and Destruction of Blight and other Diseases in Plants.
Sold by Nurserymen, Seedsmen, and Florists,
In Tins at 1s., 2s. 6d., and 5s.
Powder Distributors, 2s. 6s. and 3s. 6d. each.
"I find it exceedingly useful for killing the Aphides on Roses and other Plants."—GEO. EYLES, Superintendent, Royal Horticultural Gardens, South Kensington. May 7, 1868.
Sole Manufacturer, T. A. POOLEY, Bonded Warehouse, Sussex Wharf, Wapping, E.

Tobacco Tissue,

FOR DESTROYING RED SPIDER, MEALY-BUG, THRIP, GREEN and BLACK FLY, without the aid of a Fumigator.—This article having been before the Public for the last three years, and being now used by many of the leading Horticulturists—from several of whom Testimonials have been received as to its efficacy,—the Manufacturers beg to recommend those who have not used it to give it a trial, feeling confident when they have done so they will use nothing else, as it is far superior to paper or rag, and will not injure the plants. Sold in 1lb. packets and upwards; price 3s. 6d. per lb., carriage free. A reduction in price for large quantities.
To be had of MESSRS. ROBERTS AND SONS, Tobacco Manufacturers, 112, St. John Street, Clerkenwell, E.C., of whom Samples and Testimonials may be obtained; and of all Seedsmen and Nurserymen.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY (Limited),
CORN, SEED, MANURE, and OILCAKE MERCHANTS.
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstok
Samples and prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

GENUINE TOBACCO PAPER, of the finest quality, 10d. per lb., or 84s. per cwt.
WILLIAM RUSHFORTH, Nurseryman and Seed Merchant, Leeds.

ROLL TOBACCO CLOTH.—The cheapest and best article for Smoking Greenhouses and destroying the Fly: equal to Tobacco in strength, 1s. 4d. per lb.: over 10 lb., 1s. 1d.
JOSEPH BAKER, 10, Gough Square, Fleet Street, E.C.
Post Office Orders payable Fleet Street.



Red Spider Magnified.

GISHURST COMPOUND.
Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blights, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d.
Wholesale by
PRICE'S PATENT CANDLE COMPANY (Limited),
Battersea, London, S.W.

By Royal Appointment

To HER MAJESTY, by Special Warrant, dated December, 1865.

To the PRINCE OF WALES, by Special Warrant dated February 10, 1866.

DAY, SON, AND HEWITT,
Original and Sole Proprietors of the STOCKBREEDERS' MEDICINE CHESTS, for DISORDERS in HORSES, CATTLE, CALVES, SHEEP, and LAMBS.

No. 1 MEDICINE CHEST, Contains Sixteen different kinds of Compounds, admirably arranged, with Complete Guide to Farriery. Price £6 6s., carriage paid.

No. 2 MEDICINE CHEST, Contains the Extract, Gaseous Fluid, Red Drench, and Red Paste, with Shilling Key to Farriery. Price £2 16s. 6d., carriage paid.

Every Stockowner should send for DAY, SON & HEWITT'S Work on Farriery. Large Edition, 2s. 6d., or free by post for 33 stamps. Small Edition, 1s., or free by post for 13 stamps.
DAY, SON & HEWITT, 22, Dorset Street, Baker Street, London, W.



H. BROOK AND CO., Sole Manufacturers of the CHELTENHAM GARDEN ENGINE, which weighs only 3 lb. 1 oz., throws water in a continuous stream over 35 feet. To be had of all Ironmongers, and Wholesale only at 10, Featherstone Buildings, Holborn, London, W.C.
GARDEN HOSE and BRANCHES in great variety.

WARNER'S SILICATE of IRON PAINT,
A certain PREVENTION against DAMP WALLS,
Effectually PRESERVES IRON and WOOD,
Is unaffected by extreme HEAT and AMMONIA.
Has great Covering properties.
All Colours supplied and can be obtained through any Chemist or Ironmonger, of
WARNER & ASHBY, 17, Laurence Pountney Lane, E.C.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.
For particulars apply to JOHN FOWLER & Co., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

IRON HURDLES
(Silver Medal of the Royal Agricultural Society):
SHEEP, 3s. 5d.; CATTLE, 4s. 2d.; OX, 5s. 11d.
List by post. GATES and FENCING of every description.
St. Pancras Iron Work Company, Old St. Pancras Road, London, N.W.

THE TANNED LEATHER COMPANY,
Armit Works, Greenfield, near Manchester.
TANNERS, CURRIERS, and MANUFACTURERS of IMPROVED TANNED LEATHER DRIVING STRAPS for MACHINERY
PRIME STRAP and SOLE BUTTS.
WALRUS LEATHER for COVERING COTTON GIN POLISHING ROLLERS.
Price Lists sent free by post.
Warehouse: 81, Mark Lane, London, E.C.

Green's Patent Noiseless Lawn Mowers.

GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every prize that has been given in all cases of competition, and in proof of their superiority upwards of 44,000 have been sold since the year 1856.
They are the simplest in construction, least liable to get out of order, and can be worked with far greater ease than any other Lawn Mower extant.

They are the only Machines in constant use at

Buckingham Palace Gardens	The Winter Palace Gardens, Dublin
Marlborough House Gardens	The Dublin Botanic Gardens
Royal Horticultural Society, South Kensington	The Liverpool Botanic Gardens
The Royal Botanic Gardens, Regent's Park	The Leeds Royal Park
The Crystal Palace Company's Gardens, Sydenham	The Hull Botanic Gardens
The Hyde Park Gardens	The Botanic Gardens, Brussels
	The Sunderland Park
	The Preston Park

And in most of the principal Parks and Squares in the United Kingdom.

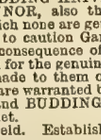


Every Machine is warranted to give entire satisfaction, and if not approved of can be returned at once unconditionally.
Illustrated Price Lists on application, which include Free Delivery to all the principal Railway Stations and Shipping Ports in England. All Orders executed on the day they are received.
T. G. & Son have ten times more Lawn Mowers in Stock at their Establishment, 54 and 55, Blackfriars Road, S., than any other firm in London, that intending Purchasers can select from.
Having very extensive premises in London, we are in a position to do all kinds of repairs there as well as at the Works at Leeds.
THOMAS GREEN & SON, Smithfield Iron Works, Leeds; and 54 and 55, Blackfriars Road, London, S.

Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them.
Observe the mark SAYNOR, also the Corporate Mark, OBTAIN WARRANTED, without which none are genuine.
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.
S. & C.'s PRUNING and BUDDING KNIVES are the best and the cheapest in the market.
Paxton Works, Sheffield. Established upwards of 125 years.

Glass for Garden Purposes.
JAMES PHILLIPS AND CO.
beg to submit their REDUCED PRICES as follows:—

PROPAGATING GLASSES.



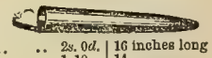
Each.—s. d.		Each.—s. d.
2 inches in diameter .. 0 3½	12 inches in diameter .. 1 9	
3 " " .. 0 4½	13 " " .. 2 0	
4 " " .. 0 5½	14 " " .. 2 6	
5 " " .. 0 6½	15 " " .. 3 0	
6 " " .. 0 8	16 " " .. 3 6	
7 " " .. 0 10	17 " " .. 4 0	
8 " " .. 1 0	18 " " .. 5 0	
9 " " .. 1 2	19 " " .. 6 0	
10 " " .. 1 4	20 " " .. 7 0	
11 " " .. 1 6		

BEE GLASSES, with ventilating hole through knob.

4 inches in diameter ..	0s. 6d.	9 inches in diameter ..	1s. 8d.
6 " " ..	0 8	10 " " ..	2 0
7 " " ..	0 10	11 " " ..	2 6
7 " " ..	1 1	12 " " ..	3 0
8 " " ..	1 4		

Either flat or conical tops.

CUCUMBER GLASSES.



24 inches long ..	2s. 0d.	16 inches long ..	1s. 4d.
22 " ..	1 10	14 " ..	1 2
20 " ..	1 8	12 " ..	2 6
18 " ..	1 6		

HAND GLASSES, WITH OPEN TOPS.



Each.—s. d.		Each.—s. d.
2 inches 6 6	18 inches 9 6	
14 " 7 6	20 " 10 6	
16 " 8 6	22 " 11 6	
	24 " 12 6	

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS.
PAINTS of various colours ground ready for use.
SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of Prices and Estimates forwarded on application to
JAMES PHILLIPS & Co., 180, Bishopsgate Street Without, E.C.

Horticultural Glass Warehouse.
THOMAS MILLINGTON AND CO.,
87, Bishopsgate Street Without, London, E.C.
NEW LIST for ORCHARD-HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD-HOUSE SIZES.

in. in.		4ths.	3rds.	2nds.	Best.
20 by 12 }	15 oz.	14s 3d	15s 6d	18s 6d	20s 0d
20 by 13 } Per 100 feet {					
20 by 14 }	21 oz.	19s 6d	22s 2d	25s 6d	26s 6d
20 by 15 }					
20 by 16 }					

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in. in.	in. in.	in. in.	in. in.	4ths.	3ds.	2nds.	Best.
6 by 4 }	7 by 5 }	8 by 6 }	9 by 7 }	12s 3d	13s 3d	16s 0d	18s 0d
6½ by 4½ }	7½ by 5½ }	8½ by 6½ }	9½ by 7½ }				

Per 100 feet.

10 by 8 }	12 by 9 }	12½ by 10½ }	14½ by 10½ }	13s 3d	14s 6d	17s 3d	19s 0d
10½ by 8½ }	12½ by 9½ }	13 by 10 }	15 by 10 }				
11 by 9 }	13 by 9 }	13½ by 10½ }	13 by 11 }				
11½ by 9½ }	12 by 10 }	14 by 10 }	14 by 11 }				

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in. in.	in. in.	in. in.	in. in.	4ths.	3ds.	2nds.	Best
15½ by 10½	14 by 12	22 by 12	22 by 16	14s 3d	15s 6d	18s 6d	20s 0d
16 by 10	14½ by 12½	17 by 13	24 by 16				
14½ by 11½	16 by 12	23 by 13	20 by 17				
15 by 11	15½ by 12½	18 by 14	22 by 17				
15½ by 11½	16 by 12	22 by 14	24 by 17				
16 by 11	16½ by 12½	24 by 14	20 by 18				
21 by 11	17 by 12	22 by 15	22 by 18				
13 by 12	18 by 12	24 by 15	24 by 18				

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.
In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	36s.	4ths quality, per 200 feet case,	36s.
3ds " "	42s.	3ds " "	42s.
2ds " "	60s.	2ds " "	60s.
Best " "	75s.	Best " "	75s.

SHEET GLASS is made only in the following substances, 15 oz. 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.
HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.
BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.
STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.
WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a-half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.
IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4s. per gallon.

Per cwt.—s. d.		Per gallon.—s. d.	
GENUINE WHITE LEAD	30 0	LINSEED OIL	2 9
SECONDS WHITE LEAD	28 0	BOILED OIL	3 2
GROUND PATENT DRYERS, 3d. to 4½d. per lb.		TURPENTINE	2 9
" OXFORD OCHRE, 3d. to 4½d. per lb.		LINSEED OIL PUTTY, 8s. per cwt.	
" RAW UMBER, 4½d. to 6d. per lb. [per lb.		FINE OAK VARNISH, 10s. to 12	0
" BURNT do., 6d. to 9d.		" CARRIAGE do., 12s. to 14	0
GREEN PAINT, all shades,	28s. to 60 0	" PAPER do. 10s. to 12	0
BLACK PAINT,	24s. to 36 0	" COPAL	16 0
RED PAINT ..	28s. to 36 0	KNOTTING	10 0
		Patent GOLD SIZE ..	10 0
GROUND BRUSHES.		" BLACK JAPAN ..	12 0
DUSTERS. | SASH TOOLS.		GLAZIER'S DIAMONDS and TOOLS	
DISTEMPER BRUSHES.		MILLED LEAD and PIPES	
		OLD LEAD Bought or taken in exchange.	

The above are Net, for Cash, and as such cannot be booked.
Lists of any of the above on application.

AS A PROOF OF THE SUPERIORITY OF THE THRESHING MACHINERY

MANUFACTURED BY

CLAYTON, SHUTTLEWORTH & CO.,

They beg to call attention to the following statement.

	ENGINES.	MACHINES.
Engines and Machines sent out in the year 1868	812	644
Total Number sent out up to December 31, 1868	8,921	7,982

The Gold Medal was awarded them at the Paris Exhibition, 1867, for Portable Engines and Threshing Machines; and at the last trial of the Royal Agricultural Society they gained EVERY FIRST PRIZE offered for Steam Engines, also the Prize of £15 for Finishing Threshing Machines, and Silver Medal for special improvements—on which occasion the following Firms, amongst others, competed:—Messrs. Ransomes & Sims, Tuxford & Sons, Reading Ironworks Company (Limited); Brown & May, Allchin & Son, Barrows & Carmichael, Humphries; Marshall, Sons & Co. (Limited); Burrell; Ruston, Proctor & Co.; Roby & Co. (Limited); Holmes & Sons, E. R. & F. Turner, P. & H. Gibbons, Tasker & Sons, Nalder & Nalder, Riches & Watts, Wallace & Haslem, Catchpole & Thompson, &c., &c.

NOTE.—The Royal Agricultural Society will not hold another trial of Portable Steam Engines and Threshing Machines until the year 1872.

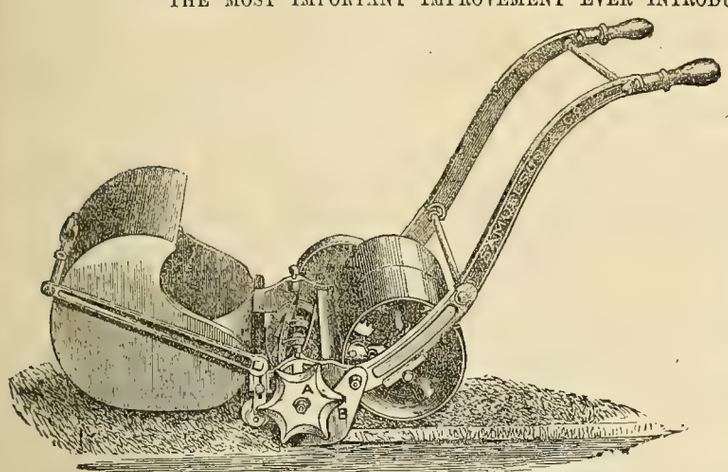
CLAYTON, SHUTTLEWORTH, AND CO., STAMP END WORKS, LINCOLN; and 78, LOMBARD STREET, LONDON, E.C.

CATALOGUES AND EVERY INFORMATION FORWARDED POST FREE.

SAMUELSON & CO.'S

NEWLY PATENTED EDGE-CLIPPING SILENT LAWN MOWERS.

THE MOST IMPORTANT IMPROVEMENT EVER INTRODUCED.



MESSRS. SAMUELSON AND CO. BEG TO DRAW SPECIAL ATTENTION TO THEIR NEW

LAWN MOWERS, for 1869,

Which are fitted, when required, with a new Patent EDGE-CLIPPING arrangement, entirely superseding the old and tedious operation of Edge-Clipping by hand.

All Machines fitted with new Silent Gearing, ensuring perfect freedom from noise when at work.

Catalogues, with full descriptions and prices of the new Patent Edge-Clipping Silent Lawn Mower, on application to

SAMUELSON AND CO., BRITANNIA WORKS, BANBURY.

JOHN WARNER & SONS,

CRESCENT, CRIPPLEGATE, LONDON, E.C.

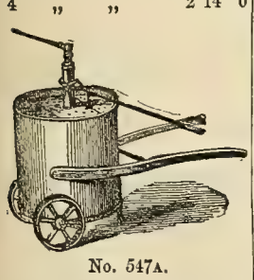
BRASS AND BELL FOUNDERS TO HER MAJESTY, HYDRAULIC ENGINEERS.



No. 35.

35. WARNERS' PATENT CAST-IRON **LIFT PUMPS.**

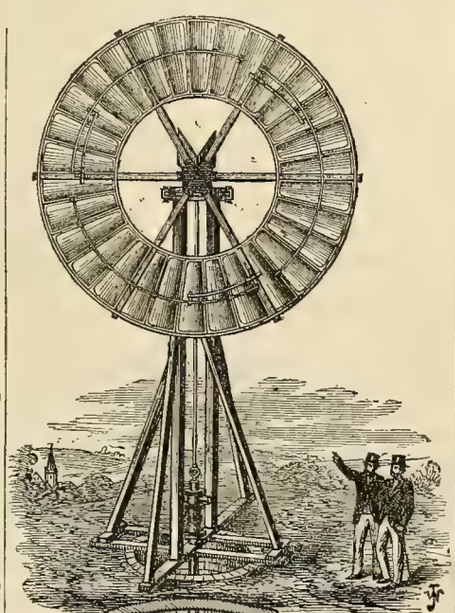
2½ inches diameter	£1	8	6
3 " "	2	1	0
3½ " "	2	6	0
4 " "	2	14	0



No. 547A.

WARNERS' **GARDEN ENGINE.**

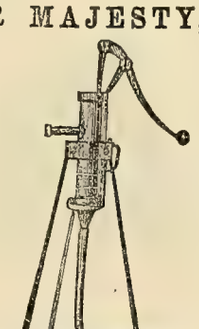
28 gallons	£5	10	0
24 "	4	19	0
16 "	3	14	0
10 "	2	19	0



THE PATENT ANNULAR SAIL WIND ENGINE.

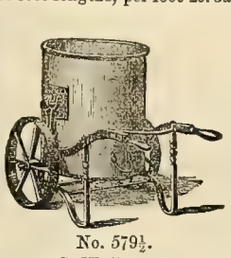
These Engines are adapted for Grinding, Chaff Cutting, &c., as well as for Pumping.

Illustrated and Priced Lists of Garden Engines, Swing Barrows, Syringes, Rubber Hose, will be sent upon application. Also Estimates for Hydraulic Machinery of every description.



No. 42.

No. 42. WARNERS' **PORTABLE PUMPS,** With Improved Valves for Liquid Manure, £2 15*s.* Two-inch Flexible Rubber Suction Pipe, in 10, 12, and 15 feet lengths, per foot 2*s.* 6*d.*



No. 579½.

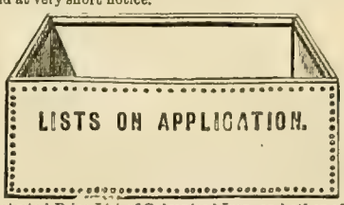
SWING **WATER BARROW.**

50 gallons	£5	12	0
38 "	3	17	0
30 "	2	13	0
20 "	2	2	0

"Every Cottage should be provided with a Water Tank." *Disraeli.*

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F. BRABY AND CO. having laid down more extensive and Improved Machinery on their Deptford premises (IDA WHARF), are prepared to supply WROUGHT-IRON TANKS, GALVANISED or PAINTED, of superior quality, at reduced prices, and at very short notice.

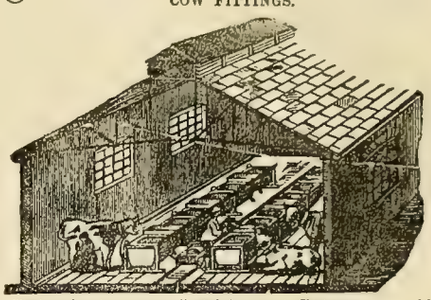


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N.B. Open Tanks of different sizes packed one in another to save carriage.

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Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rick dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of Iron. Prices of Fittings per Cow 65*s.*

Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

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The HYDRONETTE is a more useful, easy working, reliable, and convenient water-throwing machine than any other in use. It is made in five sizes, viz.:—No. 1, with 4 feet of Suction Hose, Strainer, Jet, and Rose, 12*s.* 6*d.*; No. 2, 15*s.* 6*d.*; No. 3, £1 1*s.*; No. 4, £1 5*s.*; No. 5, £1 10*s.* Extra Hose and Union Joints furnished to order.

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WIREWORK for ROSARIES, continuous or circular, for Pleasure Grounds, made in different designs, suitable for Garden adornment; Wirework for Summer-houses, Wirework for Garden Bordering, Flower Trainers, &c; Wirework for Screens or Partitions, for hiding unsightly walls, buildings, &c., made in various patterns; Plain and Ornamental Garden Arches for Walks; Ornamental Arches for Cross-walks, Wirework Temples, Arbors, &c.; Diamond Wirework Trellis for Creepers, Ornamental Wirework Fencing, for dividing Gardens, Lawns, &c.

WIREWORK FLOWER STANDS. SUSPENDING BASKETS.

All kinds of WIREWORK for GARDENS and CONSERVATORIES, &c.

AVIARIES, PHEASANTRIES, &c., in various designs.

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Plans and Estimates on application.
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HOT-WATER PIPES, BOILERS, &c., &c., delivered in London, Liverpool, Bristol, or equivalent.
Large stock kept at the Works.

	2-inch.	3-inch.	3½-inch.	4-inch.
	s. d.	s. d.	s. d.	s. d.
HOT-WATER PIPES—per yard	0 11	1 5	1 8½	1 11
ELBOWS .. .. .. each	1 4	2 1	2 6	2 9
TEES .. .. „	2 0	3 0	3 6	4 0
SYPHONS .. .. .. „	1 9	3 0	3 6	4 0
VALVES .. .. .. „	10 0	11 6	12 0	13 0

Nett cash prices on receipt of invoice.
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Estimates and Priced Credit Lists, with terms, by post.

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	2-inch.	3-inch.	4-inch.
	1s. 0d.	1s. 6d.	2s. 0d.
HOT-WATER PIPES, from stock—p. yard	1 6	2 3	2 9
ELBOWS for ditto .. .. .. each	2 3	3 6	4 6
TEES .. .. „	2 3	3 6	4 6
SYPHONS .. .. „	10 0	11 6	13 0
THROTTLE VALVES .. .. .. „			

Cash remittance with order.
N.B. All Goods of first-class manufacture. No second quality kept.
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HOT-WATER PIPES.
CASH PRICES.

	2-inch.	3-inch.	4-inch.
	1s. 0d.	1s. 6d.	2s. 0d.
PIPES .. .. per yard	1 6	2 3	3 0
ELBOWS .. .. each	2 6	3 6	4 6
TEES .. .. „	2 6	3 6	4 6
SYPHONS .. .. „	10 0	11 6	13 0
VALVES .. .. „			

No credit will be given when Pipes, &c., are invoiced at the above prices.
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	Each.
6 ft. by 4 ft. Lights, 2 ins. thick, unglazed	£0 5 0
„ „ Primed and Glazed with 10 oz. Sheet	0 11 0
„ „ with stout Portable Box, not Painted..	1 3 0
„ „ Painted four coats, and Handles on	1 8 0
„ „ Packed and Delivered in Railway Van..	1 10 0
6 ft. by 8 ft., Double Lights, do.	2 15 0

GREENHOUSES.	Per ft. super.
Woodwork only Prepared and Fitted	0 0 6
„ Primed and Glazed with 16 oz. Sheet ..	0 0 9
„ Delivered, and Fixed with Ironwork ..	0 1 0
„ Painted four coats, two sides, ready for use	0 1 3

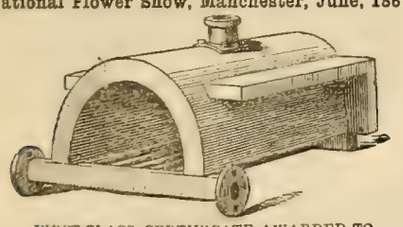
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200 CUCUMBER and MELON BOXES and LIGHTS, all sizes, Glazed and Painted complete, ready for immediate use, packed and sent to all parts of the Kingdom.
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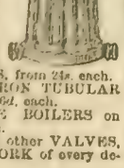
National Flower Show, Manchester, June, 1867.



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"The Judges consider this one of the most powerful and useful Boilers for general purposes."
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Tubular Boiler.

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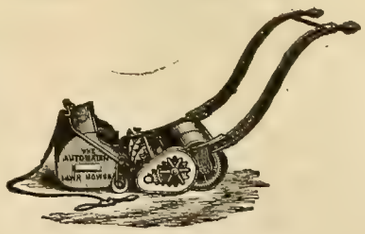
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Are guaranteed to perform their work perfectly, and if not approved may be returned within a month. They are *easy to work, light in draught, almost noiseless;* and being driven by machine-made gearing *are not liable to get out of order.*

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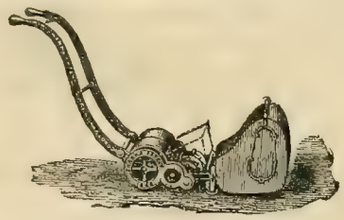
10 inch	£3 10 0
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14 inch	5 10 0
16 inch	6 10 0
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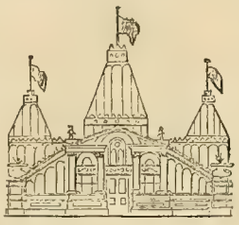


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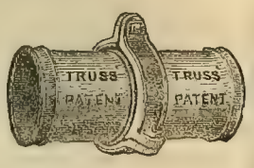
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UNIVERSAL FLEXIBLE AND LEAKLESS PIPE-JOINTS.



Horticultural Buildings of every description from 1s. 6d. *per foot superficial, inclusive of Brickwork.*
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"None who take an interest in the construction of Hothouses, or in the management of their contents, should fail in adding this to their collection, however complete that may already be."—*The Farmer*, November 13, 1867.

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NEW OVAL TUBULAR BOILER,

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Extract from Report in Gardeners' Chronicle *of International Exhibition, May* 24, 1862, *page* 476.

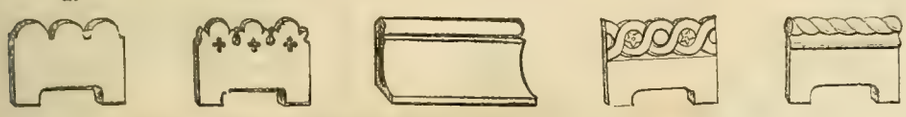
"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. Gray's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

☞ *They are made of all sizes, which, with prices, may be had on application.*

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THESE TILES ARE MANUFACTURED IN

VITRIFIED STONE-WARE AND IN TERRA-COTTA OF THE BEST MATERIAL,

WHICH IS BURNT TO AN EXTRA DEGREE OF HARDNESS,

AND WARRANTED IMPERISHABLE.

They will be found to be far preferable to Box and other Edgings, as they require no attention when once fixed, take up less room, and do not harbour Slugs, &c.

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Indestructible Terra-Cotta Plant Markers.

MAW and CO.'S PATENT.—Prices, Printed Patterns, and Specimens sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c. Maw & Co., Benthall Works, Broseley.



GARDEN BORDER EDGING TILES, in great variety of patterns and materials, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

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Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price List free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

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The best Shading is "Frigi Domo" Netting.

White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for

PROTECTION from the COLD WINDS and MORNING FROSTS.

"FRIGI DOMO" NETTING, 2 yards wide, 1s. 6d. per yard run.
"FRIGI DOMO" CANVAS.

Two yards wide .. .. 1s. 9d. per yard run.
Four yards wide .. .. 3s. 6d. per yard.
An improved make, 2 yards wide .. 1s. 9d. per yard.
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"Sir,—Please send me at once, by Midland Railway, 50 yards of Frigi Domo 2 yards wide, same as you sent me about this time last year, and which answered its purpose admirably.—Yours respectfully, "G. H. Strutt.

"P.S.—We had 300 dozen Apricots last year on walls protected solely by Frigi Domo."

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F. A. HAAGE'S WOOD GARDEN STICKS and TALLIES, commended by the Royal Horticultural Society, acknowledged to be the neatest, cheapest, and best Training Sticks and Tallies made.

The above can now be had, of all sizes, Wholesale, of Betham & Blackith, Cox's Quay, Lower Thames Street, London, E.C.; and Retail of the principal Seedsmen and Florists.

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A FABRIC, for the Protecting of Blossom on Fruit Trees from Hail and Frost, &c.: also of the Fruit from Birds, &c. For samples and price, address

James Hoyle & Son, Hebden Bridge, via Manchester.

RALPH WALLER and CO., 45, Dale Street, Manchester. Manufacturers of all kinds of GARDEN NETTING, &c.—The serious injury done every spring to fruit crops by frost has proved to every Gardener the absolute necessity of providing some protection to the trees early in the year. If the blossom, in its earliest development, be but slightly weakened by frost, the vitality of the fruit germ is destroyed, and the fruit lost. In this climate, on the average of a century, there is not more than one year in 19 when the protection is unnecessary. Many fabrics have been tried for this purpose of protection, with more or less success; and we may now say, without fear of contradiction, that we have succeeded in manufacturing the only fabric which is altogether unobjectionable for this purpose. Without unduly nursing, it effectually protects the young germ, and does not impede the action of light and due circulation of air. Some other fabrics do this, and thus weaken the vitality of the tree altogether. Almost every large grower in the three kingdoms can testify to these facts.

The Nettings also make a beautiful shading for Hothouses in summer, and are cheaper than other fabrics on account of their great durability.

Netting (qualities): Nos. 1, 2, 3, in pieces of 30 yards long, 1¼ yard wide. Tiffany: in pieces 20 yards long, 30 inches wide.

For prices, &c., apply to the above address—45, Dale Street, Manchester.

Dry and Warm Feet.

PATENT MOULDED INDIA RUBBER CLUMPS for BOOTS and SHOES.—A new invention, unsurpassed for durability, economy, and comfort. These Clumps wear twice as long as Leather, are impervious to Damp, not affected by Heat or Cold, and any handy man can easily attach them. Full printed instructions are sent with the Clumps.

Price per Pair, Round or Square Toes.

Men's and Boy's sizes:—

No. 1.	2	3	3*	4	5	6	7	8
2s.	1s. 9d.	1s. 7d.	1s. 6d.	1s. 3d.	1s. 2d.	1s.	9d.	8d.

Extra sizes:—

No. 0.	00	XX
2s. 6d.	2s. 2d.	1s. 10d. per pair.

Women's and Children's Sizes:—

No. 11.	12	13	14	15	16
1s. 3d.	1s.	10d.	9d.	8d.	7d. per pair.

To ensure a fit, a Paper Pattern, giving exact size of Bottom of Boots, should be sent with order.

James Lyne Hancock, Vulcanised India-Rubber Works, 200, Goswell Road, London, E.C.

MR. A. CHANDLER, Horticultural Agent and Valuer, 10, Wynell Road, Forest Hill, S.E.

N.B.—Valuations made of Nursery Stock, Private Collections of Plants, and everything connected with Horticulture.

COUNTRY HOUSE WANTED, for a term, with or without Shooting, Furnished or Unfurnished, containing not less than Three Reception Rooms and Twelve Bedrooms, with good Offices, Coach-house, and Stables. Must be in a dry situation, and within a walk of a Church. Great care would be taken of the Premises, and the Game well preserved.

Full particulars to be forwarded to Baronet, care of Messrs. Bennett & Cooper, 6, New Broad Street, E.C.

Sales by Auction.

FORTY PORTABLE STEAM ENGINES (new and second-hand), THRESHING MACHINES, STEAM CULTIVATING APPARATUS, SAW TABLES, MORTAR MILLS, &c., by eminent Makers, will be SOLD by AUCTION, by Messrs. Clarke & Barrows, at Banbury, on EASTER TUESDAY, March 30, at 11 o'Clock. For Catalogues, apply to the Auctioneers, 38, Cannon Street, Birmingham.

Sale of the King's Fort Herd of Shorthorns.

MR. JOHN THORNTON will SELL by AUCTION, unreservedly, on EASTER TUESDAY, March 30, at King's Fort, Kells, Co. Meath, Ireland, the celebrated HERD of SHORTHORNS belonging to Richard Chaloner, Esq.

It has been bred from the Aylesby, Farnley, and other first-class Herds, and contains several fashionable tribes. Booth Bulls have been used for generations. King Richard, now in use, is from an own Sister to the First Prize Cow at the last Royal and Yorkshire Meetings, whilst the King's Fort animals have won similar honours at the Royal Irish and Dublin Shows.

Catalogues with Pedigrees may be had of John Thornton, 15, Langham Place, London, W.; or at King's Fort, Ireland.

Hardy Plants from Surrey.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, March 31, at Half-past 12 o'Clock precisely, a Consignment of Hardy TREES and SHRUBS from Surrey, consisting of RHODODENDRONS, AUCUBAS, LAURELS, LAURUSTINUS, HOLLIES, LILACS, YUCCAS, YEWS, ROSES, FRUIT TREES, CLIMBING PLANTS, CONIFERS, GLADIOLI, RANUNCULI, LILIUMS, Rustic Seats, Stools, Vases, &c.

On view the Morning of Sale, and Catalogues had.

MR. J. C. STEVENS, Horticultural Auctioneer and Valuer, 38, King Street, Covent Garden, W.C., begs to announce that the FIRST SALE of MR. DAY'S COLLECTION is fixed for THURSDAY, April 1, and will comprise many fine SPECIMEN PLANTS in perfect health, and some of the finest and rarest species and varieties in cultivation, amongst which are the following:—

Ada aurantiaca
Aerides Schroederi
" affine
" Angræcum sesquipedale
Burlingtonia candida
Saccolabium guttatum
" curvifolium
" ampullaceum
Phalænopsis amabilis
" Schilleriana
Vanda Batemanni
Oncidium macranthum
" serratum
" Forbesii
" Kramerianum
Odontoglossum nævium
" Alexandræ
Cattleya Dowiana
" Exoniensis
" labiata
" Walkeriana
Lælia elegans
" Bluntii
" Dayana
" Wolstenholmæ
" purpuracea splendens (Mr. Rucker's variety.)
Sobralia macrantha
Trichopilia crispa,
&c., &c., &c.

On view the Morning of Sale, and Catalogues had.

Important Sale of Orchids.

MR. J. C. STEVENS begs to announce that he has received instructions from John Day, Esq., of Tottenham, to offer for SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., during the month of April, a large proportion of his extensive and well-known COLLECTION of ORCHIDS, which will include many fine Specimen Plants, and some of the finest varieties in cultivation.

Mr. Day being overstocked, this Sale will afford an excellent opportunity, for those desirous of making a collection, of securing well-established Plants of all the best kinds; and buyers may depend upon the plants being correctly named.

More detailed particulars in future advertisements.

Highly Important Sale of Established Orchids.

MR. J. C. STEVENS has been favoured with instructions from W. W. Buller, Esq., of Strete Raleigh, to offer for SALE his entire Collection of ORCHIDS, by AUCTION Without Reserve, on WEDNESDAY and THURSDAY, May 5 and 6, at Half-past 12 o'Clock precisely, at his Great Rooms, 38, King Street, Covent Garden, London, W.C. This Collection is perhaps unsurpassed for the variety and rarity of the plants cultivated. It includes many not only of Horticultural but Botanical interest, and possesses some extremely rare, if not unique, specimens. It comprises selections from every importation of importance during the last seven years.

In Cattleyas and other Orchids subject to great variation, immense quantities have been purchased at different times, and after flowering the inferior varieties have been discarded. The specimens now submitted for Sale comprise only the finest varieties, and therefore offer unusual advantages to buyers of this class of plants.

More detailed particulars in the Catalogues, which will be ready for distribution in a few days.

Cheltenham.

HIGHLY IMPORTANT SALE of EXHIBITION SPECIMENS of GREENHOUSE and STOVE PLANTS and AZALEAS.

MESSRS. PROTHEROE and MORRIS are instructed, by T. P. Walter Butt, Esq., to offer for UNRESERVED SALE by AUCTION on the premises, Arle Court, Cheltenham, on WEDNESDAY, April 14, the whole of the EXHIBITION SPECIMENS, enumerating many unrivalled plants of Ixoras, Kondeletias, Stephanotis, Crotons, Ericas, Phœnocoma, Aphelexis, Pimeleas, Genetyllis, Dracophyllum, &c.; amongst the Azaleas are gorgeous specimens of Etoile de Gand, Madame Mieller, Iveryana, Juliana, Duc de Nassau, Extranei, and others equal in merit.

N.B. This matchless collection has attained its present development under the skilful treatment of Mr. May, formerly Gardener at Ealing Park, which fact will be a sufficient assurance to all connoisseurs that the plants are in the finest state of cultivation.

Catalogues are being prepared, and when ready may be obtained of Mr. May on the premises; and of the Auctioneers and Valuers, Leytonstone.

BINGLEY HALL, BIRMINGHAM.—The GREAT CENTRAL EXHIBITION and SALE of YOUNG BULLS and other PURE BRED SHORTHORNS, will be held on THURSDAY, April 1.

140 head of highly-descended COWS, HEIFERS, and BULLS, from many of the leading Herds of the kingdom, are entered.

Admission to the Public, from 9 o'clock until 4, One Shilling.

The whole of the ANIMALS EXHIBITED will be OFFERED for SALE by AUCTION, the same day, without any further reserve than entering them at not more than Twenty Guineas each.

In consequence of the numerous Entries, the Judging will commence at 9 o'clock, instead of at 10, as previously announced; and the Auction will take place at 10·30, or as soon as the Judges have completed their awards.

Catalogues, with full Pedigrees, will be ready on the 23rd instant, and will be sent by the Secretary, on receipt of seven stamps.

JOHN B. LYTHALL, Secretary.

Offices, 39, New Street, Birmingham, March 18.

Siddington House, Cirencester.

IMPORTANT SALE OF FIRST-CLASS SHORTHORNS.

MR. STRAFFORD is favoured with instructions to announce for SALE by AUCTION, without reserve, on THURSDAY, the 22d of April next, about FORTY HEAD of FIRST-CLASS SHORTHORNS, belonging to Edward Bowly, Esq., of Siddington House, Cirencester, which have been long and carefully bred from the most fashionable strains, and include the "Musical" family, as well as part of the "Siddingtons" and other good sorts, with twelve very superior young Bulls. Prominent amongst the sires is the 7th Duke of York (17,754), and from dams by 4th Duke of Oxford (11,387), long used at Siddington, as well as other famed Bulls of Kirklevington blood. The Cows and Heifers are chiefly served by 2d Duke of Ciaro (21,576), and 3d Duke of Waterloo (23,801). The whole will be found in fine health, and well worthy the attention of purchasers.

Catalogues, with Pedigrees and other particulars, may be had on application to Mr. Strafford, 13, Euston Square, London; or of Mr. Bowly, Siddington House, Cirencester.

Preliminary Notice.—Surrey.

MR. W. DILLISTONE has received instructions to SELL by AUCTION, the early part of the ensuing month, several hundred thousands of Seedling and Transplanted FOREST TREES, &c., descriptions of which will appear in future Advertisements, offering a rare opportunity to intending planters of such stuff.

General Horticultural Agency Office, Sible Hedingham, Essex.—March 24, 1869.

SHANKS'S PATENT LAWN MOWERS FOR 1869.

UNDER THE PATRONAGE
OF
HER MOST GRACIOUS MAJESTY
THE QUEEN,



AND MOST OF THE
PRINCIPAL NOBILITY
OF
GREAT BRITAIN.

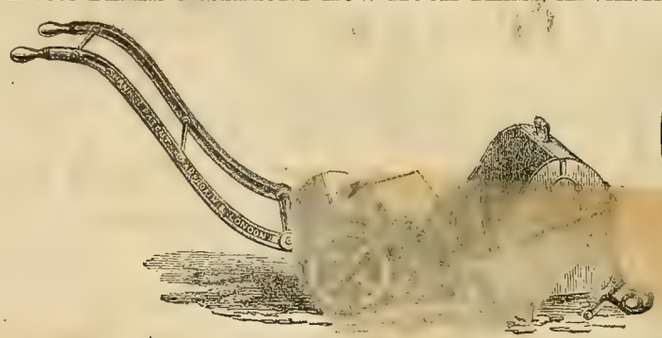
The Patent Improvements recently introduced give Shanks's Machine several important advantages possessed by no other Lawn Mower.

PATENT DOUBLE-EDGED SOLE PLATE, WIND GUARD, &c., &c.

THE UNPRECEDENTED SALE FOR 1868 BEARS TESTIMONY HOW MUCH THESE ADVANTAGES HAVE BEEN APPRECIATED.



THE FIRST PRIZE MEDAL
OF THE
INTERNATIONAL EXHIBITION,
LONDON, 1862.



HAND MACHINE.



PRIZE SILVER MEDAL
OF THE
UNIVERSAL EXHIBITION,
PARIS, 1867.

ALEXANDER SHANKS AND SON, in presenting their "PRICE LIST of LAWN MOWERS for 1869," have much satisfaction in intimating that among all the Exhibitors of Lawn Mowers at the Universal Exhibition of 1867, they are the only Firm to whom the Jury have awarded a Medal.

A. S. AND SON have, in addition to the PATENT DOUBLE-EDGED SOLE PLATE and WIND GUARD, made very great Alterations and Improvements in their Machine. These alterations, which were introduced last Season, have now undergone an effectual trial, and the result has been so successful as to enable A. S. AND SON to offer a Machine which far excels any other that has ever yet been offered, *whether for ease in working, certainty of action, or durability.* It has only to be compared with other Machines, when its superiority will be at once seen and understood.

PRICES—INCLUDING CARRIAGE TO ANY RAILWAY STATION OR SHIPPING PORT IN THE KINGDOM.

SHANKS'S NEW PATENT HAND MACHINE.

10-inch Machine	£3 10 0	Easily Worked *By a Lady*	16-inch Machine	£6 10 0	Easily Worked *By a Man*
12-inch Machine	4 10 0		19-inch Machine	7 15 0	*By a Man and a Boy*
14-inch Machine	5 10 0	*By a Boy*	22-inch Machine	8 10 0	*By Two Men*
			24-inch Machine	9 0 0	

The Hand Machines are all with Silent Movement.

SHANKS'S NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* ,,
30-inch Machine	15 15 0	30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra.
Boots for Pony, 22*s.* per set.; Ditto for Donkey, 18*s.* per set.

SHANKS'S NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* ,,
42-inch Machine	26 0 0	40*s.* ,,
48-inch Machine	28 0 0	40*s.* ,,

Silent Movement, 20*s.* extra. Boots for Horse, 26*s.* per set.

SHANKS'S PATENT LAWN MOWERS

ARE THE ONLY ONES IN DAILY USE IN THE

ROYAL GARDENS AT KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, AND BALMORAL;
IN THE GARDENS OF THE ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON;
IN THE GROUNDS OF THE CRYSTAL PALACE COMPANY, AT SYDENHAM;
IN HYDE PARK, IN VICTORIA PARK, IN BATTERSEA PARK;

And in many hundreds of the principal Gardens in the Kingdom, as well as abroad, where their merits have been fully proved and their success firmly established.

Every Machine warranted to give ample satisfaction, and, if not approved of, can be at once returned.

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH,
AND
27, LEADENHALL STREET, LONDON.

27. *Leadenhall Street is the only place in London where intending purchasers of Lawn Mowers can choose from a Stock of from 150 to 200 Machines. All sizes kept there, whether for Horse, Pony, or Hand Power.*

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by JAMES MATTHEWS, at the Office of Messrs. HARDWICKE, EVANS & CO., Lombard Street, Precinct of Whitefriars, City of London, in the Co. of Middlesex, and Published by the said JAMES MATTHEWS, at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, March 27, 1869.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 14.—1869.] SATURDAY, APRIL 3. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.
Messrs. LANE AND SON'S SHOW of AZALEAS and SPRING FLOWERS will be OPEN from APRIL 7 to the 17th. Band of the Royal Horse Guards every Saturday.

ROYAL BOTANIC SOCIETY'S GARDENS, Regent's Park.—NEXT EXHIBITION of SPRING FLOWERS, ROSES, AZALEAS, &c., APRIL 27 and 28. Tickets 2s. 6d. each, to be had on orders from Fellows of the Society. Gates open at 2 o'Clock. Band will play from 2.30 to 5.30.

GRAND NATIONAL HORTICULTURAL EXHIBITION, 1869.—Nearly ONE THOUSAND POUNDS in PRIZES. To be held in the BOTANIC GARDEN, MANCHESTER, MAY 14 to 21. ENTRIES CLOSE on MAY 1.
Schedules, &c., may be obtained from the undersigned,
Botanic Garden, Manchester. BRUCE FINDLAY.

WEST of ENGLAND ROSE SHOW.—GRAND ANNUAL EXHIBITION of ROSES (open to the United Kingdom), is fixed to take place on THURSDAY, June 24, when 150 Guineas will be offered in PRIZES. All communications to be addressed to Rev. C. H. BULMER, M.A., Credenhill Rectory, near Hereford.

CARLISLE and CUMBERLAND FLORAL and HORTICULTURAL SOCIETY'S ANNUAL SHOW of FRUITS, FLOWERS, and VEGETABLES will be held in SEPTEMBER. Schedules may be had on application to the Secretary, JOHN MOUNSEY.
Warwick Street, Carlisle.—March 23.

Royal Ascot or Perpetual Vine.
MESSRS. JOHN STANDISH AND CO. are now selling fine strong plants of this extraordinarily productive VINE at 21s., 42s., and 63s. each.
Royal Nurseries, Ascot, Berks.

Mrs. Pince's Black Muscat Grape.
J. MEREDITH is now prepared to execute orders for this fine Grape. CANES, fit for immediate planting, from 10s. 6d. upwards.
The Vineyard, Garston, near Liverpool.

Pines.
TWO HUNDRED PINE PLANTS for SALE; chiefly Queens. Warranted clean. In all stages.
FRANCIS R. KINGHORN, Sheen Nursery, Richmond, S.W.

Pines.
B. S. WILLIAMS has all the best kinds, in splendid condition, warranted clean. Prices on application.
B. S. WILLIAMS, Seed Merchant and Nurseryman, Upper Holloway, London, N.

Grape Vines.
B. S. WILLIAMS' STOCK this season is remarkably fine, and in good condition for sending out. Kinds and prices can be had on application.
B. S. WILLIAMS, Seed Merchant and Nurseryman, Upper Holloway, London, N.

Must be Sold, to make room.
L. WOODTHORPE offers the following, to effect a clearance:—Strong Fruiting VINES, 10 to 12 feet in length, and thick in proportion, 3s. 6d. each. Extra strong, will carry 8 to 10 bunches, 5s. each.
Munro Nursery, Sible Hedingham, Essex.

Pyramidal Cherries, extra fine, for Gardens.
WM. WOOD AND SON have a magnificent stock of the above to offer. The Pyramid Cherries are especially fine.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LIST of these varieties from Mr. WEBB, Calcot, Reading.

HERBACEOUS and ALPINE PLANTS, of the best and most attractive. Prices very low. CATALOGUES free.
STEPHEN BROWN, Nursery, Sudbury, Suffolk.

SUBTROPICAL GARDENS.—One Hundred well-ripened Seeds ECHEVERIA METALLICA, post free, 2s. 6d.
R. TANTON, F.R.H.S., Nurseries, Epsom.

ALLAMANDA WARDLEIANA.
This magnificent Plant is now being sent out, 21s. each.
A Coloured Plate by Andrews for 13 stamps.
R. TANTON, F.R.H.S., The Nurseries, Epsom.

THE GOLDEN ARBOR-VITÆ, THUJA AUREA.—Fine specimen plants, 2½ feet high, and 2 feet through, will be offered at very reduced prices. Apply to
WM. WOOD & SON, Maresfield, near Uckfield, Sussex.

D. MITCHELL (late Lamont & Mitchell), 3, Hanover Street, Edinburgh, has to offer fine clean-grown SILVER FIR, 9 to 15 inches; also SPRUCE, from 1½ to 2½ feet. Prices on application. Nurseries, Dean Park.

FOREST TREES and SHRUBS.—CATALOGUES of the above for the present season may now be had, post free, upon application.
PETER LAWSON & SON, Edinburgh and London.

Carnations, Picotees, and Pinks.
WOOD AND INGRAM will supply 20 Pairs fine named CARNATIONS and PICOTEES for £1; and 12 pairs fine named PINKS for 7s. 6d., package included. Selection left to W. & I. Nurseries, Huntingdon.

CALCEOLARIAS, Herbaceous, of the choicest strains (free by post), out of pans, 12s. 6d. per 100; out of single pots, very fine plants, 25s. per 100; less quantities at the same rate.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

NEW COLEUS.—The 12 new Coleus of the Royal Horticultural Society, sent out in 1868, with other fine varieties, sent post free—12 fine varieties for 2s. 6d.; 12 cuttings, in 12 fine varieties, for 1s. 2d.; from
B. W. KNIGHT, Florist, Battle, Sussex.

Dahlias.
JOHN KEYNES, NURSERYMAN, Salisbury. Twelve splendid Show Flowers. Four Fancy ditto. Obtained First-class Certificates at many exhibitions. CATALOGUES ready.

DAHLIAS, DAHLIAS, DAHLIAS: strong plants now ready.—Selection left to JOHN J. HASLAM, Chadderton, Manchester, for cash, in 12 good kinds, 4s.; 24, 8s.; or per 100, 25s. Fancy PICOTEE (Countess of Ellesmere), strong plants, 70s. per 100 pairs.

REV. E. HAWKE'S NEW SEEDLING HOLLYHOCKS—Willingham Model, Ida, Formosa, all warranted first-rate Exhibition varieties.
Apply to E. GRAY, Nurseryman, Gainsborough.

GLADIOLUS BRENCHLEYENSIS.—A few hundreds of extra fine roots, at 7s. 6d. and 10s. per 100, package free.
J. SCOTT, The Seed Stores, Yeovil, Somerset.

GLADIOLI, in extensive assortment, of the finest (should be planted immediately). Prices low. CATALOGUES free.
STEPHEN BROWN, Nursery, Sudbury, Suffolk.

GLADIOLI SEEDLINGS (Mixed).—Beautiful Flowers equal to any collection, of all colours. Strong Flowering Bulbs, 7s. per 100; 3l. 4s. per 1000.—Apply to LEVEQUE et FILS, Nurserymen, 132 and 134, Boulevard de l'Hôpital, Paris.

GLOXINIAS, erect and drooping, 2-yr. old bulbs, free by post, in 12 choice named sorts, 8s.; 24 sorts for 15s.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

GLENNY'S IMPROVED BALSAM, the finest in the world.—A few mixed packets at 13 stamps; Six Classes, 37 stamps; any Single Colour, 12 Seeds, 7 stamps.
Mr. GLENNY is DISPOSING of his NURSERY BUSINESS, and intends to devote himself to Writing and Judging.—Fulham, S.W.

THE MOST BEAUTIFUL FRENCH ASTER grown is Truffaut's REINE MARGUERITE PÆONY-FLOWERING. 500 Seeds for 1s., in 16 fine double colours, mixed. Quality guaranteed. Free by post.
ALFRED HAMMOND, Bedwin Street, Salisbury.

SAMUEL COX, NURSERYMAN, Ludlow, offers 90,000 GERANIUMS, HELIOTROPES, LOBELIAS, CALCEOLARIAS, VERBENAS, &c. LISTS on application. They are strong plants, out of store pots, and will be sold cheap, as the room is wanted for other plants.

ADAM FORSYTH'S CATALOGUE of New and Choice CHRYSANTHEMUMS for 1869 is now ready; containing also a practical Treatise on their Cultivation. Forwarded to all applicants for one stamp.
Brunswick Nursery, Stoke Newington, N.

AUCUBA POLLEN.—One dozen Flowers for 1s., Four dozen for 3s. Sent post free on receipt of stamps by
JOHN STANDISH & Co., Royal Nurseries, Ascot.

WANTED, Cuttings or Small Plants of GERANIUMS, FUCHSIAS, VERBENAS, and other Bedding Plants.
Address, Mr. THORNHILL, Nurseryman, Sale, Cheshire.

To the Trade.—Golden Chain Geraniums.
HUSSEY AND SON beg to offer fine Plants of the above, from store pots, at 14s. per 100. Also, BIJOU, very fine, at 8s. per 100.
Mile End Nursery, Eaton, Norwich.

Dwarf Roses.
HUSSEY AND SON can still supply the above, HYBRID PERPETUALS on Manetti, at 40s. per 100.
Mile End Nursery, Eaton, Norwich.

NEW ROSES.—Twelve of the best of 1869, in 7-inch pots, for 36s. Fine BEDDING PLANTS, including Mrs. Pollock, 25s. per 100, cash. Baskets and packing included.
GEORGE DAVISON, White Cross Nurseries, Hereford.

TWELVE of the VERY BEST NEW ROSES of 1869 for THIRTY-SIX SHILLINGS.
Address, WM. WOOD & SON, Maresfield, near Uckfield, Sussex.

"Mr. PAUL's Roses * * * are things to see once and dream of for ever."—*Athenæum.*
WM. PAUL begs to announce that his CATALOGUE of ROSES is now ready, and will be forwarded free on application.
PAUL'S Nurseries, Waltham Cross, London, N.

NEW ROSES of 1869.—All the best varieties; 2000 fine strong plants. DESCRIPTIVE LIST on application.
JOHN CRANSTON, Nurseries, King's Acre, Hereford.

EXTRA STRONG ROSES, in pots.—Several thousand Tea-Scented, Noisette, and Hybrid Perpetual varieties, together with the best NEW ROSES of 1868.
DESCRIPTIVE LIST on application.
JOHN CRANSTON, Nurseries, King's Acre, Hereford.

Established 1806.
T. HANDASYDE AND DAVIDSON have a large stock of all the leading sorts of ROSES, in pots. Prices to the Trade on application.
Seed Warehouse, 24, Cockburn Street, Edinburgh.
Nurseries, Brunstain Glen, Musselburgh.

MANETTI and RHODODENDRON STOCKS.—Several thousands of the above, fit for immediate working, still to offer at our Catalogue prices.
THOS. CRIPPS & SON, Nurserymen, Tunbridge Wells.

Three-yr. Seedling Rhododendron.
H. AND G. FARNSWORTH have to offer a large quantity of the above, at a low rate. Prices and samples on application. The Nurseries, Matlock.

B. S. WILLIAMS' DESCRIPTIVE CATALOGUE of FLOWER, VEGETABLE, and AGRICULTURAL SEEDS, &c., is now ready; post free to all applicants.
Victoria and Paradise Nursery, Upper Holloway, London, N.

New Spring Catalogue.
CHARLES TURNER'S DESCRIPTIVE LIST of PLANTS for this season, including many new varieties now offered for the first time, is now ready.
The Royal Nursery, Slough.

Gratis and Post Free.
DICK RADCLYFFE AND CO.'S SEED CATALOGUE,
129, High Holborn, W.C.

NEW and GENUINE AGRICULTURAL and GARDEN SEEDS.—Special prices and advantageous offers of above on application to
ALFRED LEGERTON, Seed Merchant, 5, Aldgate, London, E.

NEW and GENUINE AGRICULTURAL and GARDEN SEEDS.
Special prices and advantageous offers on application to
JAS. FAIRHEAD & SON, Seed Merchants, 7, Borough Market, London.

Agricultural and Garden Seeds.
H. AND F. SHARPE'S SPECIAL PRICED LIST of HOME-GROWN SEEDS is now ready, and may be had on application.
Seed Growing Establishment, Wisbech.

WAITE, BURNELL, HUGGINS AND CO.'S WHOLESALE CATALOGUE of AGRICULTURAL SEEDS for this season is now ready, and will be forwarded post free upon application.
Seed Warehouse, Southwark Street, London, S.E.

PARIS, 1867. SUTTONS' GRASS SEEDS for ALL SOILS. A PREMIER PRIX SILVER MEDAL for GARDEN SEEDS, GRASSES, and GRASS SEEDS, was Awarded to SUTTON AND SONS, SEEDSMEN to the QUEEN, Reading, Berks.

SUTTONS' PERMANENT GRASS SEEDS, 20s. to 32s. per acre, carriage free.
SUTTONS' MIXTURES for 1, 2, 3, or 4 years, 10s. 6d. to 22s. per acre, carriage free.
SUTTON & SONS, Reading, Berks.

SUTTONS' GRASS SEEDS for ALL SOILS.
See page 374 of this day's *Gardeners' Chronicle.*

SUTTONS' GRASS SEEDS for VARIOUS PURPOSES.
See page 374 of this day's *Gardeners' Chronicle.*

SUTTONS' HOME-GROWN FARM SEEDS.
See page 367 of this day's *Gardeners' Chronicle.*

SUTTONS' FARMER'S YEAR-BOOK for 1869 is now Ready, price 6d., gratis to customers.
Royal Berks Seed Establishment, Reading.

CARTER'S FARM SEEDS.—See large Advertisement at page 358 of this day's *Gardeners' Chronicle.*
SEED GROWERS, MERCHANTS, and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

A SPECIAL PRIZE MEDAL, PARIS, 1867, was AWARDED to JAMES CARTER & Co., 237 & 238, High Holborn, London, W.C., for GRASS SEEDS, supplied for the Exhibition Grounds.

GRASS SEEDS: WHEN and WHAT to SOW.—For the fullest information on this subject, see CARTER'S ILLUSTRATED FARMER'S CALENDAR for 1869; post free, 6d.
JAMES CARTER & Co., Seed Growers, 237 and 238, High Holborn, London, W.C.

EVERY GARDEN REQUISITE KEPT in STOCK at
CARTER'S New Seed Warehouse, 237 and 238, High Holborn, London.

Mangel Wurzel Seed.
JOHN SHARPE can offer on good terms, from highly selected Stocks, and his own growing this year.
Bardney Manor, Lincoln.

To the Trade.
HALL'S WESTBURY SWEDE TURNIP SEED, true, nett. Grown last season from transplanted roots. For samples and prices, apply to
WILLIAM COCKS, Seed Grower, Donington, near Spalding.

SUTTONS' CHAMPION SWEDE, the hardiest and best in cultivation. Lowest price per bushel on application.
SUTTON & SONS, Seed Growers, Reading.

SUTTONS' IMPERIAL GREEN GLOBE, the heaviest White-fleshed Turnip in cultivation. Lowest price per bushel on application.
SUTTON & SONS, Seed Growers, Reading.

The Sugar-Beet Question.
For INSTRUCTIONS on CULTIVATION, see
SUTTONS' FARMER'S YEAR-BOOK for 1869. 6d. post free, gratis to customers.
SUTTON & SONS, Seedsmen to the Queen, Reading.

CUCUMBER PLANTS.—TELEGRAPH, warranted true. Selected stock, strong plants.
Apply to A. WATKINS, Bishop Stortford, Herts.

POTATOS.—Handsworth Early Round.—Price on application to
JAS. FAIRHEAD & SON, Seed Merchants, 7, Borough Market, London.

The Best New Potato for 1869 is
SUTTONS' BERKSHIRE KIDNEY, 5s. per peck, 18s. per bushel, carriage free.
SUTTON & SONS, Royal Berks Seed Establishment, Reading.

POTATOS.—Nice selected seed of Fluke and Dalmahoy, per cwt. or ton.
ARTICHOKES, JERUSALEM, fine, 5s. per bushel.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

NOTICE.—By far the best POTATOS known are STAFFORD HALL KIDNEY and MILKY WHITE. Peck of each forwarded for 9s.
RANSLEY TANTON, F.R.H.S., Nurseries, Epsom.

Seed Potato.
GEO. SIBBALD, Drumgeith, [illegible] begs to intimate that he has still on hand a few [illegible] ROCKS, FLUKES, REGENTS, and PATERSON'S VICTORIA POTATO, which he will sell cheap. Prices on application.

NEWSPAPER
PENNY

Stocks, Stocks, Stocks.

B. S. WILLIAMS has much pleasure in offering carefully selected seed of a very fine WHITE WALLFLOWER-LEAVED TEN-WEEK STOCK. It is very pure in colour, and produces an immense spike of large double flower, and is admirably adapted for bedding purposes. Per packet, 1s.

Victoria and Paradise Nursery, Upper Holloway, London, W.

Market Gardens, Biggleswade, Beds.

RICHARD WALKER can supply for cash the old Crimson CLOVES, 10s. per 100; SCARLET KING DAISIES, 5s. per 100; EAST HAM and all the leading sorts of CABBAGE PLANTS, 2s. 6d. per 1000; RED DUTCH, extra fine, 4s. per 1000; GIANT ASPARAGUS, 3-yr., 3s. per 100.

Beautiful Spring Flowers.

WM. DILLISTONE begs to offer the following, in good plants:—

	Per doz.—s. d.		Per doz.—s. d.
Primrose, double White	6 0	Iberis sempervirens	4 0
,, double Yellow	9 0	Linum flavum	6 0
,, double Rose	9 0	Lychnis, sorts	4 0
,, double Purple	9 0	Myosotis, do.	4 0
,, double Lilac	6 0	Phlox Nelsoni	4 0
,, single, in 4 colours	4 0	Pyrethrum, hardy sorts	6 0
Auriculas, early red, for borders	4 0	Saxifraga, double White, and others	4 0
Hepatica, double Red	4 0	Tritonias, sorts, to name	9 0
,, single Red	4 0	Yuccas ,, ,,	6 0
,, ,, Blue	4 0	Polyanthus, fine laced kinds	3 0
Daisies in varieties, to name	3 0	Cloves, old Blood-red	4 0
Dielytra spectabilis	6 0	,, ,, Scarlet	4 0
Helleborus niger (Christmas Rose)	6 0	,, ,, Striped	4 0
Hellebotus, Red (atrorubens)	9 0	Hollyhocks, choice named, 6s. and	9 0
Rocket, double White	6 0	,, 24 pkts. seed in 24 distinct sorts, from finest double flowers, named	8 6
,, ,, Purple	6 0	Violets, double, King, Queen, Red, Neapolitan, White and Blue	4 0
,, ,, Rose	6 0	Violets, single, Czar, Russian White, Superba, Giant, Striped and Suavis	4 0
Wallflower, double Red	4 0	Paeonias, choice named	6 0
,, ,, Black	4 0	,, old double Crimson	4 0
Carnation, Tree, Souvenir de la Malmaison	18 0	Statice (herbaceous vars.)	4 0
Helianthemum (Rock Cistus) in 18 sorts, to name	6 0		
Arabis albida variegata	4 0		
Aubrietia, in 4 distinct sorts	4 0		
Delphinium formosum	4 0		

Post Office Orders on Castle Hedingham Nurseries, and General Horticultural Agency Offices, Sible Hedingham, Essex.

Genuine Seeds.—Carriage Paid.

B. S. WILLIAMS,
NURSERYMAN AND SEEDSMAN,
Victoria and Paradise Nursery, Upper Holloway, London, N.

COMPLETE COLLECTIONS
OF
KITCHEN GARDEN SEEDS
To suit Gardens of various sizes,
10s. 6d., 21s., 42s., 63s., and 84s. each.

NEW and CHOICE VEGETABLE SEEDS.	Per Pkt. s. d.
WILLIAMS' IMPROVED GREEN CURLED BORECOLE	0 6
WILLIAMS' ALEXANDRA BROCCOLI	1 6
DELL'S FINE DARK BEET	1 0
WILLIAMS' MATCHLESS RED CELERY	1 0
SHARMAN'S UNIVERSAL CUCUMBER (new)	1 6
TELEGRAPH IMPROVED (Woolley's variety)	1 6
WILLIAMS' PARADISE GEM MELON, scarlet flesh, of excellent flavour, and 12 days earlier than any other in cultivation (new)	2 6
WHEELERS' TOM THUMB LETTUCE	0 6
DIGSWELL PRIZE ENDIVE	1 0
WILLIAMS' VICTORIA COS LETTUCE (new)	1 0
MALVERN HALL MELON	1 6
GOLDEN QUEEN (New Hybrid Prize) MELON	2 0
BEDFORDSHIRE CHAMPION ONION (new)	1 0
NUNEHAM PARK ONION 1s. and	1 6
CULLINGFORD'S CHAMPION MARROW PEA, an excellent cropper, and fine flavour (new) per qrt.	3 6
MACLEAN'S LITTLE GEM PEA (very early) ,,	2 6
LEE'S GIANT ORACH per pkt.	0 6
ORANGEFIELD DWARF PROLIFIC TOMATO ,,	1 0

NEW and CHOICE FLOWER SEEDS.	Per Pkt.
WILLIAMS' SUPERB STRAIN of PRIMULA.—B. S. W. can with confidence offer his superb strain of Primula as being the finest in cultivation.	
Red, White, or Mixed 2s. 6d., 3s. 6d., and	5 0
CINERARIA (Weatherill's extra choice strain) 2s. 6d. and	3 6
CALCEOLARIA (Neill's extra choice strain), 2s. 6d., 3s. 6d., and	5 0
,, (James' strain) 2s. 6d. and	3 6
,, (Dalkeith Palace strain)	2 6
CYCLAMEN Wiggins' prize strain) 1s. 6d., 2s. 6d., and	3 6
POLYANTHUS (Wiggins' prize strain) 1s. 6d. and	2 6
BALSAM (Williams' superb strain) 1s. 6d. and	2 6
CLIANTHUS DAMPIERI (fresh imported seed)	1 6
GERANIUM LE GRAND 1s. 6d. and	2 6
SOLANUM (Weatherill's hybrids) 2s. 6d., 3s. 6d., and	5 0
VIOLA LUTEA (yellow flowered Violet) 1s. 6d. and	2 6
WALLFLOWER Saunders' fine dark variety)	1 0
SALVIA ARGENTEA, a beautiful silvery-foliaged ornamental plant	1 0
IANTHUS HEDDEWIGII DIADEMATUS fl.-pl., flowers very large, and colours most beautiful (new)	2 6
ECHEVERIA METALLICA (new Bedding plant).	
OXALIS VALDIVIANA, quite hardy, the flowers are bright yellow and sweet scented, and produced in bunches of large size (new)	1 0
PALAVA FLEXUOSA, very pretty annual (new)	1 0
MYOSOTIS AZORICA ALBA, the flowers are pure white, contrasting beautifully with the blue variety Coelestina (new)	2 6
STOCK, EAST LOTHIAN.—This is a splendid variety, of dwarf and compact habit, producing immense spikes of bloom, and very double. They make a grand display in beds, and for ribbon borders. Per collection of three colours (scarlet, Purple, and White)	2 6
TACSONIA VAN VOLXEMI (a beautiful Climber	2 6
AMARANTHUS SPECIOSUS AUREUS (New Golden Prince Feather)	1 0
ANTHERINUM ASARINA, very beautiful for rockwork (new)	1 0
HELICHRYSUM APICULATUM (new)	1 0
MIMULUS REPENS, this is a very distinct species, the flowers are of a pale lilac-purple colour, the lower lip being prettily spotted with orange on a yellow ground (new)	1 0
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ZINNIA ELEGANS TAGETIFLORA fl.-pl. (new)	1 0

Imported GERMAN ASTERS, STOCKS, WALLFLOWERS, ZINNIAS, &c., in Collections, as imported.

GLADIOLI ROOTS, named kinds, per doz., 1s., 2s., 3s., 10s., and 12s.
BRENCHLEYENSIS, fine large roots, 3s. per doz., 20s. per 100.

ENGLISH-GROWS SEEDLING GLADIOLI.

B. S. WILLIAMS can strongly recommend these SEEDLING GLADIOLI. Being all Seedling Roots, they can be warranted to flower strongly, and will produce blooms possessing colour and qualities, perhaps, entirely new. For Masses and Borders these were in much use last season, and gave great satisfaction. Price, per doz., 4s.; per 100, 25s.

Victoria and Paradise Nursery, Upper Holloway, London, N.

THE BEST NEW ROSES OF 1869.

THE LARGEST, BEST, AND FINEST PLANTS THAT CAN BE PROCURED IN THE TRADE.

WM. WOOD & SON

HAVE NO HESITATION IN STATING THAT

THEIR STOCK OF NEW ROSES CANNOT BE SURPASSED.

THE PLANTS ARE NOW READY FOR IMMEDIATE DELIVERY.

CATALOGUES ON APPLICATION.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

CHOICE PRIMULA SEEDS.

B. S. WILLIAMS

BEGS TO CALL SPECIAL ATTENTION TO HIS SUPERB STRAIN OF THIS

UNIVERSALLY ADMIRED WINTER AND SPRING FLOWERING PLANT.

He can with confidence offer it as being unequalled in cultivation.

Plants from this Seed have always been awarded First Prizes wherever exhibited. B. S. W.'s strain of Primula is so well known to all the principal gardeners in the three kingdoms that testimonials are unnecessary.

In sealed packets, Red, White, or Mixed, 2s. 6d., 3s. 6d., and 5s. each.

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

B. S. WILLIAMS,

NURSERYMAN AND SEEDSMAN,

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.,

Respectfully invites the Nobility and Gentry about to furnish their Conservatories, Greenhouses, Stoves, or Orchid-houses, to an inspection of his

STOCK OF MAGNIFICENT SPECIMEN PLANTS,

MANY OF WHICH ARE UNEQUALLED IN THIS COUNTRY.

THEY CONSIST OF—

The Choicest and rarest Exotics, such as TREE-FERNS, PALMS, BEAUCARNEAS, AGAVES, YUCCAS, CYCADS, ARALIAS, CAMELLIAS, AZALEAS, and all other kinds of STOVE and GREENHOUSE FLOWERING and ORNAMENTAL FOLIAGE PLANTS, proved to be worthy of cultivation.

The Large CONSERVATORY, at all times of the year well worth a visit, is now unusually gay with flowers of Camellias, Azaleas, Ericas, Epacris, the magnificent varieties of Cyclamen persicum, obtained from Wiggins' strain of seed; Williams' superb Chinese Primulas; the beautiful improved Hybrid Solanums, now laden with their large and highly ornamental berries; Hyacinths, and many other Spring Flowering Plants, also helping to make a grand floral display.

The STOVES and ORCHID-HOUSES are also very attractive and interesting just now, with blooms of Odontoglossums, Cypripediums, Cœlogynes, Lycaste Skinneri, Phalænopsis, and many other kinds.

The COLLECTION of MEXICAN PLANTS is surpassed only by that of Kew Gardens.

All NEW PLANTS of sterling merit are added to the Collection as soon as procurable, and may be seen here, the inspection of which would alone repay a visit.

In May will be published,

A CATALOGUE OF NEW AND RARE PLANTS FOR 1869,

POST FREE TO ALL APPLICANTS.

The "Favourite" Omnibuses leave Victoria Nursery every seven minutes for the City and London Bridge, the Strand and Victoria Station, and for Regent Street, the West End, and Brompton.

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

WILLIAM ROLLISSON & SONS'

BRILLIANT NEW TRICOLOR GERANIUM, THE MOONSTONE,

WILL BE SENT OUT ON AND AFTER THE 30TH OF THE PRESENT MONTH.

The habit of the above most beautiful Tricolor is compact and exceedingly free; the leaves, which are of good substance and moderately large, are almost round, and from the slight convexity of their shape they exhibit to great advantage the rich and varied colourings with which they are adorned; the centre of the leaf is of a bright and lively green surrounded by a dark chocolate zone, which is much intercepted by the most intense blood-red. This bright colour shades off, towards the edge of the leaf, to a soft crimson-lake, which entirely encircles the whole zone, edged with a bright lemon-yellow belt. It is somewhat in the way of Lucie Grieve in its colourings, but is rather brighter, and, unlike the shy habit and slow growth of that variety, "The Moonstone" is almost as free in habit as a Tom Thumb, while it remains constant in character. This, without exception, is the finest Tricolor hitherto offered to the public.

THE FOLLOWING NINE SPLENDID NEW DOUBLE GERANIUMS FOR 1869,

MADAME BONDET	MDLLE. LOUISE DELESALLE	M. FROEBEL
MADAME DEBRAY	M. DE ST. JEAN	MARIE LEMOINE
MARIE CROUSSE	M. DE ST. PAUL	WILHELM PFITZER

Together with many other Novelties of sterling merit, will be distributed on and after the 30th of the present Month.

For Descriptions and Prices of the above, see SPRING CATALOGUE of NEW and CHOICE SOFT-WOODED PLANTS for 1869, which will be sent Gratis and Post Free on application to

THE NURSERIES, TOOTING, LONDON, S.W.

Elvaston Nurseries, Borrowash.

WILLIAM BARRON AND SON'S PRICED DESCRIPTIVE CATALOGUE of CONIFERÆ, HARDY JAPANESE PLANTS, FOREST TREES, EVERGREEN and DECIDUOUS SHRUBS, ROSES, RHODODENDRONS, FRUIT TREES, &c., for spring of 1869, may be had, post free, on application. Their stock this year is unusually fine. Elvaston Nurseries are only three minutes' walk from the Borrowash Station on the Derby and Nottingham Railway.

Camellias, Azalea indica, and Rhododendrons
BY THE 100,000.

JOSEPH BAUMANN, NURSERYMAN, Ghent, Belgium, begs to offer the following Plants, without Flower-buds:—
100 CAMELLIAS, best sorts, £3, £4, £5, £6, and £8.
100 AZALEA INDICA, best sorts, good plants, £3 10s.
100 RHIODODENDRONS, best hardy sorts, 2-yr. grafted, £6.
100 AZALEA INDICA, Stocks, 12s.
100 " PONTICA, small Stocks, 5s.
100 THUJA ELLWANGERIANA (or Tom Thumb Arbor-vitæ, new), £2
1 PÆONIA MOUTAN GLORIA BELGARUM, £1.
1 " SOUVENIR DE GAND, £1.
3 New AZALEA" INDICA, 1st prize at Ghent:—ALFRED DELIMON, COMTE BISMARCK, TRIOMPHE D'EVERGEM; the three, with or without flower-buds, 15s.

NEW LOBELIA, TRUE BLUE.—This desirable Novelty will be sent out for the first time in May next. The Plant is of a dwarf upright habit, very compact grower, flowers larger than L. Paxtoniana, bright azure blue, with small but distinct white eye, very free flowerer, and lasts throughout the season. Strong Plants, 75s. per 100, 12s. per dozen, and 1s. 6d. each, with the usual discount to the Trade.
PETER LAWSON & SON, Edinburgh and London.

ACACIA ARMATA.—Per dozen 9s. 0d.
ACACIA DRUMMONDI 12 0
CYTISUS FRAGRANS 9 0
EPACRIS, in 12 good varieties 9 0
GREVILLEA LAVANDULACEA ROSEA 9 0
CORONILLA GLAUCA 6 0
ERICAS, in variety 12 0
CINERARIAS, in variety .. .. .. 6s. & 8 0
MONOCHÆTUM SERICEUM GRANDIFLORUM .. 9 0
GARDENIAS or CAPE JESSAMINE 12 0
RHYNCHOSPERMUM JASMINOIDES 12 0
JASMINUM LIGUSTRIFOLIUM 12 0
CHOROZEMA, in variety 9 0
The above are good healthy blooming Plants, and are well worthy of attention.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

CYCLAMEN PERSICUM (HYBRIDS).

B. S. WILLIAMS

HAS GREAT PLEASURE IN OFFERING

SEEDS OF HIS SUPERB VARIETIES OF CYCLAMENS,

Which are much superior to those sent out by him last season, being saved from the plants exhibited by Mr. Wiggins, at the Meeting of the Royal Horticultural Society, at Kensington, on Tuesday last (Feb. 16), when they were pronounced far in advance of any ever before raised, both in point of size of flower and richness of colour, which varies from pure white to mauve and deep red; many of them in addition being beautifully striped and spotted, and deliciously fragrant. Seeds sown in heat from the present time until the end of March, can be grown to produce flowers within 12 months.

B. S. W. having made arrangements for the supply of all Mr. Wiggins' Seed, it can only be had genuine in sealed packets bearing his name and address.

In Sealed Packets, 1s. 6d., 2s. 6d., and 3s. 6d. each.

B. S. WILLIAMS, VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, N.

Thomas Gibbs & Co.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND
THOS. GIBBS & Co.
Corner of
HALF-MOON St.
PICCADILLY,
London.
APPOINTED APRIL 3, 1844.
THE SEEDSMEN

CORNER of STREET.

Trade Mark.

GRASS SEEDS,
AGRICULTURAL SEEDS,

KITCHEN GARDEN SEEDS,
FLOWER SEEDS.

Catalogues forwarded Post Free to any address on application.

SELECT AND GENUINE FARM SEEDS,

CARRIAGE FREE.

PRICED DESCRIPTIVE LIST on application, Post Free.

JAMES DICKSON AND SONS can confidently recommend their DICKSONS' PRIZE PURPLE-TOP SWEDE, as being superior to any other, also their ROOT-CROP SEEDS of every description; their CLOVERS, GRASS, SEEDS, &c., are all extra clean, much more so than those generally offered.

James Dickson & Sons.

OLD ESTABLISHED NURSERY AND SEED BUSINESS,
102, EASTGATE STREET, AND "NEWTON" NURSERIES, CHESTER.

HAMMOND'S IMPERIAL HARDY WHITE BROCCOLI,
1s. per packet.

WILLIAM ARMITAGE & SON,

SEED MERCHANTS, HUDDERSFIELD,

HAVING SECURED THE STOCK FROM MR. HAMMOND, HAVE IT NOW READY TO SEND OUT.

It can be had through any of the London Trade.

From "THE GARDENER'S MAGAZINE," *May* 30, 1868.

"HAMMOND'S IMPERIAL HARDY WHITE BROCCOLI.—We have received samples of this variety from Mr. W. Hammond, Market Gardener, Birkby, Huddersfield, Yorkshire. The heads are large, even in outline and hemispherical, so close that there is not space anywhere for so much as the point of a pencil, the colour creamy white, average weight when trimmed for cooking 3 lb., in quality first-rate, as mild and sweet as a Cauliflower."

From "THE GARDENER'S MAGAZINE," *June* 13, 1868.

"HAMMOND'S IMPERIAL HARDY WHITE BROCCOLI.—Several correspondents have inquired after seed of this variety, and in one case lamps are forwarded to us for a supply. We have returned the lamps to the sender, and informed him, as we now, for the andreth time, inform everybody, that we do not trade in seeds, lants, or any kind of nursery produce. In the note on this roccoli, at page 240, we told our readers all we knew about it, and ave the name and address of the cultivator to whom we were debted for the samples. But as some of our readers wish for further information, we return to the subject for the purpose of publishing Mr. Hammond's statement of its character and merits. He says: 'The Broccolis I sent you were fair samples of about 8000 grown for market. Hundreds of them weigh 8 lb. to 10 lb. each. The plant is of dwarf robust habit, and stands the severest winter. I have grown it upwards of 20 years, and have always carefully selected the best for seed to keep it true. It is the only Broccoli that we can rely upon to stand the winter in this locality. The samples sent to you were fully exposed to the sun, which soon changes their colour, but if shaded with a leaf the heads are as white as snow.' The great size to which this variety may be grown is, in our opinion, no great recommendation; but there are thousands of cultivators who believe in large Broccoli, and to such this will be valuable. As for those who prefer smallish heads (as we do), planting rather thick will no doubt accomplish their object, and render the plants additionally self-protective against severe winter weather. Any further inquiries on this subject must be addressed to Mr. Hammond, Market Gardener, Birkby, Huddersfield."—*S. H.*

Bedding Geranium, from

JOHN KEYNES, NURSERYMAN, Salisbury.
LITTLE PINKIE.—Salmon pink colour, fine close dwarf habit, most profuse bloomer. One of the greatest acquisitions for Bedding purposes ever yet produced; this will last for many years; has been fully proved. A perfect gem. The finest Bedding Geranium in the Trade. 1ss. per doz. Fine Plants on May 1.

Cheap Tricolor Geraniums.

ALFRED FRYER offers 50,000 fine Plants, at the following low prices for cash. Package free.
LADY CULLUM, 12s., 18s., and 24s. per dozen.
SOPHIA DUMARESQUE, 7s., 10s., and 13s. per dozen.
SUNSET, 5s., 6s., and 7s. per dozen.
MRS. POLLOCK, 3s. 6d., 5s., and 6s. per dozen.
MRS. BENYON, 5s., 6s., and 7s. per dozen
Remittance requested from unknown correspondents.
Address, ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

Cheap, Cheap, Cheap.

FINE HEALTHY TRICOLOR and other PELARGONIUMS.
Lady Cullum, 12s., 18s., and 24s. per dozen.
Sophia Dumaresque, 6s., 10s., and 12s. per dozen.
Italia Unita, 4s. per dozen.
Crystal Palace Gem, 4s. per dozen.
Leonidas (splendid), 6s. per dozen.
Mrs. Pollock, 3s. 6d. per dozen, 24s. per 100.
Beauty of Oulton, 4s. per dozen.
Centaurea Candidissima, strong plants, 5s. per dozen.
In strong plants, for cash, package included. CATALOGUES free on application.
JOHN BARRETT, St. John's Nursery, Bury St. Edmund's, Suffolk.

West of England Bedding Plant Establishment.
NEW GERANIUMS.

THOMAS SAMPSON, The Preston Road and Houndstone Nurseries, Yeovil, Somerset, begs to announce that the undernamed GERANIUMS will be ready to send out after May 1. Orders sent out in rotation.
T. S. has much pleasure in recommending these as the four best of the class of Bronze Tricolored Geraniums yet out.
Beauty of Preston, Duke of Edinburgh, Hero of Houndstone, Sir Robert Napier, } Of free growth, compact habit, leaves flat, nearly a circle, with brilliant scarlet zoned horse-shoes.
Received a First-class Certificate at the Bath and West of England Horticultural Show in 1868.
At 10s. 6d. each, or the set for 30s. Early orders solicited.
PETER DRUMMOND, Manager.

F. AND A. SMITH invite the attention of intending purchasers of TRICOLOR and BICOLOR GERANIUMS to their very extensive collections in each class. The plants are now in fine colour, and will well repay a personal visit. They would especially mention the following attractive varieties:—
GOLDEN TRICOLORS.—Earl of Derby, Jetty Lacy, King Marvellous, Pre-eminent, Refulgens, Sunray, &c.
SILVER TRICOLORS.—Andromeda, Duchess of Sutherland, Mrs. Dombrain, Peri, Queen Mab, &c.
BICOLORS.—Bullion, Compacta, Combatant, Gladiator, Golden Rule, Plutus, Standard, &c.
ZONALS.—Beauty of Dulwich, Circle, Crimson Perfection, Favourite, Hebe, Little Excellent, Sunnyside, &c.
CATALOGUES, containing full descriptions of these and other beautiful novelties, may be had on application.
The Nurseries are within a few minutes' walk of the Lower Norwood Station (Crystal Palace line) and the Dulwich Station (London, Chatham, and Dover Railway).
The Nurseries, West Dulwich, S.E.

Gold and Silver Tricolor and Bicolor Geraniums.

WOOD AND INGRAM offer fine plants of the following:—

TRICOLORS.

	Each.—s. d.		Each.—s. d.
Eastern Beauty	1 0	Gold Pheasant	0 6
Lady Cullum	2 0	Mrs. Benyon	0 6
Sophia Cusack	2 6	Sophia Dumaresque ..	1 0
Sunset	0 6	Glowworm	0 6
Italia Unita	0 6	Silver Star	1 6
Countess	1 0	Queen's Favourite	1 0

Or the 12 varieties for 12s., package included.

EXTRA CHOICE VARIETIES.

	Each.—s. d.		Each.—s. d.
Countess of Craven ..	2 6	Lucy Grieve	5 0
Miss Watson	5 0	Mrs. Dix	5 0
Star of India	3 6	Queen Victoria	2 0

Or the six varieties for £1, package included.

BICOLORS.

	Each.—s. d.		Each.—s. d.
Artemus Ward	1 6	Luna	0 6
Beauty of Oulton	0 6	Circlet	0 6
" Ribblesdale ..	1 0	President Lincoln	0 6
Gaiety	0 6	Neatness	0 6
Sceptre d'Or	0 6	Her Majesty	2 6
Perilla	1 6	Kentish Hero	2 6

Or the 12 varieties for 12s., package included.
Nurseries, Huntingdon.

Variegated Geraniums.—To the Trade.

WOOD AND INGRAM offer the following:—

	Per doz.—s. d.		Per doz.—s. d.
Mrs. Pollock	3 0	Gold Pheasant	4 0
Lady Cullum	18 0	Mrs. Benyon	4 0
Sophia Dumaresque ..	9 0	Sunset	4 0
Glowworm	4 0	Italia Unita	6 0
Silver Star	12 0	Queen's Favourite	8 0
Beauty of Oulton	4 0	Circlet	4 0
" Ribblesdale ..	12 0	Gaiety	4 0
Neatness	6 0	Perilla	12 0
President Lincoln	5 0	Duke of Edinburgh ..	6 0
Brilliantissima	4 0		

Nurseries, Huntingdon.

CHOICE FERNS.—Lomaria gibba, Cyrtomium falcatum, Blechnum brasiliense, Blechnum corcovadense, Davallia dissecta, Pteris nemoralis variegata, Adiantum setulosum, Adiantum hispidulum, Gymnogramma Mertensii (Gold Fern), Gymnogramma hybrida (Silver Fern), Asplenium polymorphum, Pleopeltis stigmatica.
WOOD & INGRAM offer the above at 1s. 6d. each, or the 12 for 15s., package included.
Nurseries, Huntingdon.

To the Trade.

WOOD AND INGRAM beg to offer—
BLECHNUM BRASILIENSE, do. do., per doz. 6s.
" CORCOVADENSE, do. do., per doz. 6s.
YUCCA ALCÆFOLIA, strong, in 3-inch pots, per doz. 12s.
ISOLEPIS GRACILIS, strong, in 4-inch pots, per doz. 4s.
STATICE MACROPHYLLA, fine plants, will bloom this season, per doz. 30s.
LOBELIA TRENTHAM BLUE, per doz. 2s. 6d.
LASTRÆA FILIX-MAS CRISPA, established in small pots, per doz., 6s.; per 100, 40s.
CALCEOLARIA AUREA FLORIBUNDA, fine autumn-struck plants, not potted, 5s. per 100.
Nurseries, Huntingdon.

New Zonal Geraniums of 1868, and Double Varieties.

WOOD AND INGRAM offer the following fine varieties, in strong plants, at 1s. each, or 10s. per doz., package included:—Eclat, First Favourite, Grand Duke, Glow, Countess of Rosslyn, Emmeline, Rose Stella, Countess of Strathmore, Comet, Nosegay floribunda, The Sultan, Hon. G. Hardy, Miss Edith, The Seraph, Baron, Christabel (Mann).

DOUBLE-FLOWERING VARIETIES.

	Each.—s. d.		Each.—s. d.
Madame Rose Charmeux .	2 6	Gloire de Nancy	0 6
Maréchal de Chanflourd ..	0 6	Auguste Ferrier	0 6
		Triomphe de Gergovia, 6d.	

Or the five varieties for 4s., package included.
Nurseries, Huntingdon.

LORD DERBY, BEAUTY of CALDERDALE, Egyptian Queen, Mimas, Her Majesty, Miss Watson, Sophia Dumaresque, Madame Lemoine, Baron, Beauty of Ribblesdale, Triomphe de Lorraine, Sophia Cusack—the 12 for 23s., including package, at

WILLIAM COCKS, Old Nurseries, Donington, Spalding.

Tricolor Geranium Louise Smith.

F. AND A. SMITH are receiving numerous commendations from Cultivators who possess the above. In habit it is exceedingly vigorous, the colours bright and constant; as a specimen it is unique, and for planting out there is nothing among Tricolor Geraniums so free and beautiful as this is. We can supply plants of various sizes, suitable for exhibition, and smaller ones in quantity. Prices (moderate) may be had on application.—The Nurseries, West Dulwich.

VARIEGATED PELARGONIUMS.

Louisa Smith	Miss Watson	Caroline Longfield
Countess Tyrconnel	Spanish Beauty	Lady of Shallot
Madeline Schiller	Dawn	Princess of Wales
Italian Beauty	Queen Victoria	Glen Eyre Beauty

21s.

CASBON & SON, Gravel Walk Nursery, Peterborough

GEO. SMITH begs to call the attention of the Readers of the *Gardeners' Chronicle* to his splendid SEEDLING PELARGONIUMS, which have taken First-class Certificates. G. S. offers them with the greatest confidence as first-class additions, viz.:—

NOSEGAY GERANIUMS

LIZZIE (G. S.).—A novel-coloured and desirable variety, having salmon-coloured flowers, suffused with orange in the centre, dashed with violet at the tips. Quite new in colour, and a fine acquisition to the Nosegay class. Fine habit; foliage heavily zoned. Awarded First-class Certificate at the Royal Horticultural Society. Plants 7s. 6d. each. Where six are ordered seven will be sent, and where 12 are ordered 15 will be forwarded.

MASTERPIECE (G. S.).—This noble flower is of novel colour, the pips large, salmon-crimson round the centre; the edges of the young blooms orange-crimson; immense trusses, and globular; foliage slightly zoned, extra fine habit. Awarded a First-class Certificate at the Royal Horticultural Society. Plants 7s. 6d. each. Where six are ordered seven will be sent, and where 12 are ordered 15 will be forwarded.

VICTOR (G. S.).—Bright orange-scarlet flowers, large, and very double; free-blooming, and the most compact and beautiful double variety yet raised. Awarded a First-class Certificate by the Royal Horticultural Society. Plants 7s. 6d. each.

*** Notice.—Coloured drawings of Lizzie, Masterpiece, and Victor, faithfully represented by measurement of full size, and without any exaggeration of flower and foliage. 1s. 6d. each.

The above novelties, in good plants, to be sent out the first week in May. Usual discount to the Trade. Cash to accompany orders, payable at Hornsey Road, N., from unknown correspondents.

Tollington Nursery, Hornsey Road, Islington, London, N.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.—Mr. WEBB, Calcot, Reading.

Vegetable, Agricultural, and Flower Seeds.

MISCELLANEOUS HARDY BEDDING PLANTS, SWEET VIOLETS, &c.

ROBERT PARKER begs to announce that his CATALOGUE, containing DESCRIPTIVE LISTS of the finest kinds in cultivation of the above-named, is now published, and will be forwarded to applicants. The stocks of Seeds have all been procured from the best possible sources; all are warranted genuine, and are offered at the lowest possible prices.

Intending purchasers are requested to compare the prices with those of other houses.

Exotic Nursery, Tooting, Surrey, S.W.

New Seeds for the Garden and Farm, 1869.



ARCHD. HENDERSON'S DESCRIPTIVE and PRICED CATALOGUE of SEEDS, containing Cultural Remarks on all the most important SEEDS,

A select list of GLADIOLUS for Spring Planting,

GRAPE VINES, in Pots, an unrivalled Collection.

Also his DESCRIPTIVE CATALOGUE of GENERAL NURSERY STOCK is now ready, and may be had gratis and post free upon application.

Sion Nursery, Thornton Heath, Surrey; and at the East Surrey Seed Warehouse, College Grounds, North End, Croydon.

To Noblemen and Gentlemen Planting for Pheasant DRIVES, &c.—NOW BEING THE BEST TIME TO PLANT YEWS, HOLLIES, TREE BOX, &c.,

C. WHITEHOUSE, Brereton Nursery, Rugely, begs to offer stout bushy YEWS and HOLLIES, 4 to 4½ feet TREE BOX (always dry under for Pheasants, in wet weather) about 4 feet; and as he holds a very large stock of the above, the price will be very reasonable.

JEAN VERSCHAFFELT, NURSERYMAN, 134, Faubourg de Bruxelles, Ghent, Belgium, begs to offer the following interesting Plants, at the undermentioned low prices, viz.:—

AZALEA INDICA CHARLES DE BUCK (see description in J. V.'s Catalogue), strong plants with buds, 12s.; three plants for 30s.

AZALEA INDICA THEODOROS (ditto), fine plants, 8s.; three plants for 20s.

LINNGIA PURPUREA NIGRA, a new Gesneriaceous plant, with fine leaves of a dark metallic hue, grows 3 feet high in a fine bush, will do well in summer in the subtropical garden; price 5s. each; per dozen, £2.

LOMARIA CYCADÆFOLIA, extra fine imported stems, 1 to 2 feet high, a magnificent Tree Fern, £2 to £3.

LATANIA BORBONICA, 2-yr. seedlings, per dozen, 10s.; do., per 100, £3 10s.; do., fine healthy strong plants, 5s. to 21s. and upwards.

PANDANUS UTILIS, 2-yr. seedlings, per doz., 12s.; do., per 100, £4.

ECHEVERIA AGAVOIDES, very fine and rare, good strong plants, 10s.; do., per dozen, £4.

MUSA ENSETE, each, 20s.

AGAVE DEALBATA, fine plants, 5s.

TESTUDINARIA (TAMUS) ELEPHANTIPES, fine imported plants, 10s.

CORYPHA AUSTRALIS, per dozen, 20s.; do., fine plants, 4s. each; do., very strong plants, 21s.

PILOCEREUS SENILIS, extra fine, imported plants, perfectly rooted now, nice young individuals, 5s.; do., stronger plants, 12s., 20s., to 42s. each, according to size and beauty.

AGAVE VERSCHAFFELTI, in variety, 21s.

YUCCA ALBO SPICA (true), very fine, 15s.

ACER JAPONICUM ATROPURPUREUM, fine extra strong plants, in pots, 1½ to 2 feet high, extra, 15s.

AUCUBAS, male and female, 12 for 30s.

ENCEPHALARTOS LEHMANNI, magnificent stems, lately imported, 21s. to £10 10s. each, according to size and shape.

CHAMÆROPS HUMILIS, 3-yr. seedlings, per dozen, 12s.

PANICUM PLICATUM NIVEO VITTATIS, 2s. 6d.

BONAPARTEA GRACILIS, in small pots, per dozen, 12s.

GYNERIUM ARGENTEUM fol. ALBO-LINEATIS, fine plants, 5s.

EUPHORBIA MONTEIRI, strong imported specimens, very rare, 10s. 6d.

AZALEA INDICA, very fine specimen plants, full of buds, 21s. to 42s. each.

DRACÆNA INDIVISA, fine young plants, from seed, per doz., 21s.

ARUNDO DONAX VERSICOLOR, strong plants, grown in pots, per dozen, 21s.

AGAVE FILIFERA, very fine, strong, 4-yr. seedlings, per doz., 40s.

CAMELLIA EUGENIE DE MASSENA, 5s.

YUCCA QUADRICOLOR (true), 12s.

All the above in fine healthy plants. Early orders are respectfully solicited. All letters to be addressed to JEAN VERSCHAFFELT, Ghent, Belgium.

ARTHUR HENDERSON & CO.'S

FLOWER SEED NOVELTIES FOR 1869.

Abronia arenaria.

This very pretty novelty agrees in its general habit of growth with the well-known A. umbellata, having, like that species, trailing stems, oval, entire, and somewhat fleshy foliage, and flowers in stalked umbels from the axils, but differs in the colour of its blossoms, which are of a pure waxy yellow, deliciously scented, and produced in long succession. It blooms easily first year from seed, and may therefore be treated as a half-hardy annual, but is perennial in dry soils. Per packet, 1s.

Agrostemma cœli rosea, dwarf-fringed Lilac.

A very beautiful novelty; it produces large, compact bushes, 8 to 9 inches high, exceedingly floriferous, bright, violet lilac, very fresh, and so numerous as to resemble a large bouquet. Per packet, 1s.

Agrostemma, dwarf-fringed Rose.

Very pretty hardy annual, showy, and keeping in flower a long time. Per packet, 4d.

Amaranthus bicolor ruber.

Fine vigorous variegated-leaved plant, with abundant foliage, green, striped, and shaded with purplish red at the foot of the stems and branches; bright carminate scarlet, sometimes pointed yellow, and thickly set at the top. We consider this variety as one of the best variegated-leaved plants, very different from, and far more showy than an old Amaranthus bicolor. Per packet, 1s.

Amaranthus speciosus aureus

(NEW GOLDEN PRINCE'S FEATHER).

This is a seedling from the well-known purple Prince's Feather; it agrees in almost every point with the variety hitherto cultivated; but differs in a striking degree in its tint, which is of a rich golden yellow; from its distinct colour, for massing in beds or as a line in a ribbon border, it will be found invaluable. Per packet, 1s.

Arabis arenosa.

This is one of the finest spring flowers; the reason of its being so rarely cultivated is through improper treatment; sown in June, July, and August, and transplanted in September and October, about 18 inches high, it will produce in spring a very dwarf bush, about 16 inches wide, covered with a large number of flower spikes, varying from rosy white to bright rose. Per packet, 6d.

Aster Bouquet Perfection (Schilla Aster).

Exceedingly beautiful, excels all other varieties by the regularity of its habit; every plant, with its numerous full double deep flowers, forms a perfect bouquet in the shape of a pyramid. Foliage very distinct; height about 15 inches. White variety. Dark carmine with white. Per packet, 1s.

Asperula azurea setosa.

Hardy annual, most profuse blooming; it is of a dense habit, attaining an average growth of 1 foot, and covering itself with bunches of beautiful light blue flowers, which are very sweet scented, lasting a long while in perfection. Per packet, 1s.

Cheiranthus Cheiri albus plenus.

White flowered double Wallflower, very striking and beautiful, in two varieties.

I. White double branching, 1s. 6d. per packet.
II. White double branching Rocket, 1s. 6d. per packet.

Datura fastuosa Huberiana.

New varieties, mixed.

These charming novelties comprise the most beautiful variations in colours, such as white and yellow, violet and sulphur. They are most distinct and highly desirable additions. Per packet, 6d.

Delphinium formosum cœlestinum.

A soft, light sky-blue of this fine hardy variety, very beautiful. Per packet, 6d.

Dianthus barbatus nigricans

(SWEET WILLIAM).

An elegant novelty, which by its very dark character differs widely from all the other varieties yet offered. It has deep violet leaves and dark blood-red velvety flowers. Per packet, 6d.

Heartsease or Pansy.

KING of the BLACKS ..	per pkt.	1s. 0d.
GOLDEN BELT	„	1 6
PURE WHITE	„	1 0
VIOLET, with white edge	„	1 0
COPPER-COLOURED	„	1 0
SKY-BLUE	„	1 0

The above splendid varieties are now completely fixed, and reproduced from seed almost without sporting.

Heracleum eminens.

Hardy perennial herbaceous plant. A most beautiful ornamental foliaged plant, attaining a large size; of exquisite beauty as a single plant on lawns or in groups in parks. The beautifully delineated foliage is of great substance, densely covered with a greenish white tomentose down; very ornamental throughout the season. The flower-stems bear very umbraceous nobly-formed umbels of flowers. A rare and altogether magnificent species. 1s. per packet.

Ipomœa hederacea atrocarminea grandiflora alba marginata.

Handsome variety, with brilliant carmine flowers, edged pure white. Six Seeds, 1s. 6d.

Ipomœa hederacea grandiflora alba picta carminea.

With silver marbled leaves, heart-shaped, largely marbled with silver grey, flowers white, clotted with brilliant carmine. Six Seeds, 1s. 6d.

Ipomœa hederacea alba grandiflora.

Ipomœa hederacea grandiflora alba picta liliacea.

With silver marbled leaves, heart-shaped, largely marbled with silvery grey, white flowers, spotted with clear lilac. Six Seeds, 1s. 6d.

Ipomœa hederacea grandiflora atrocarminea intus alba.

With silvery marbled leaves, tri-lobed leaves, largely marbled silver grey, flowers dark carmine, with large white throat. Six Seeds, 1s. 6d.

Marigold, Dwarf French New Golden.

A pure golden dwarf French Marigold, very double and constant. Per packet, 6d.

Mimulus repens.

This very distinct species presents a marked contrast in its habit and foliage, as well as in the colour of its flowers, to most of the other members of this popular genus. It produces slender trailing stems, clothed with very small ovate entire foliage, and flowers of a pale lilac-purple colour, the lower lip being prettily spotted with orange on a yellow ground. It is best suited to pot culture, being a cool greenhouse plant, and produces its flowers during the summer months. Per packet, 1s.

Modiola geranioides.

An elegant little tuberous-rooted Malvaceous plant, of trailing habit, with pretty incised foliage, and light crimson flowers, each rather more than an inch in diameter, produced from the axles. Though an abundant bloomer, it is unfortunately a shy seeder in England. It has proved quite hardy in well-drained light soil, and is of the easiest culture. Per packet, 1s.

Nierembergia frutescens.

Soft-wooded shrub, from Chili, 2½ feet high, branching habit, with white lilac flowers; abundant bloomer. Per packet, 6d.

Oxalis valdiviana.

It is quite hardy, its habit is compact and good, and it throws its bloom spikes well above the foliage. The flowers are of a bright yellow, sweet scented, and produced in bunches of large size; the plant thus continuing a considerable time in bloom. Per packet, 1s.

Palava flexuosa.

This most beautiful annual is one of the finest introductions of late years, average height 15 to 18 inches, branching freely, producing in the greatest profusion its charming flowers, which are thrown well above the foliage. Its leaves are very neat and graceful, colour bright rosy pink, fading towards the centre, while the base of the sepals and petals is almost black, producing a fine contrast. Per packet, 1s.

Perilla nankinensis foliis variegatis.

The dark leaves are beautifully variegated with silvery white. Reproduced well from seed. Per packet, 1s. 6d.

Polafoxia Hookeriana.

A beautiful rose-flowering everlasting. Per packet, 6d.

Portulaca grandiflora flore-pleno

(DOUBLE PORTULACA).

Mixed seed, consisting of the finest double varieties, of the most brilliant colours, in scarlet, crimson, yellow striped, &c.; will produce two-thirds double flowers. Per packet, 1s.

Potentilla.

Fine double varieties, mixed, containing rich crimson, golden yellow, and finely mottled varieties of this fine perennial. Per packet, 1s.

Pyrethrum (Golden Feather).

This new and beautiful bedding, edging and decorative plant comes true from seed. One of the most effective and telling plants of the season. Per packet, 6d.

Solanum capsicastrum Hendersonii.

A fine seedling between Capsicastrum and Pseudo-Capsicum; a neat and beautiful plant, covered with berries of scarlet fruit, for pot culture and winter decoration; height 1½ to 2 feet. Per packet, 6d.

Stock, Anderson's Rose Intermediate.

A very dwarf free flowering variety, well adapted for growing in pots, beds, masses, or ribbonding; the habit is fine and compact. Per packet, 1s. 6d.

Tacsonia Van Volxemi.

This splendid and beautiful Climber we can offer seed of; it is one of the finest of this tribe, free to flower, of many months' continuance in bloom; colour very brilliant. Per packet, 6d.

Trachelium canescens, flesh-coloured flowers.

„ „ lilac-coloured flowers.

Two pretty new varieties of this very useful autumnal garden flowering plant. Per packet, 1s.

Viola lutea.

A neat new bedding and edging plant, quite hardy, of a very compact habit, and produces its beautiful canary-coloured flowers throughout the season (rain or sunshine) in the greatest profusion. This plant has qualities adapted for bedding purposes, which when known will render it as popular and as much sought after as its lovely compeer the Viola cornuta. Per packet, 6d.

Viscaria oculata, Dwarf Perfection.

This is a remarkable fine novelty, very dwarf, 6 to 8 inches high, very bushy and compact, exceedingly floriferous; flowers rosy white, slightly shaded lilac, with a purplish stain in the centre. Per packet, 1s.

Viscaria elegans picta.

The centre of the flower is dark crimson, gradually merging into a bright scarlet, belted with a pure white margin, profusion of flowers and brilliant appearance. Per packet, 6d.

Waitzia Steetziana.

A very pretty miniature species, suitable for pots, but succeeding well in the open ground, not apt to die off as some of the other species; about 6 inches high, with comparatively large corymbs of yellow flowers. Per packet, 1s.

Wigandia vigieri.

This is one of our best large ornamental-leaved plants, equal, if not superior, in size to W. caracassana, from which it is easily distinguished by the silvery tinge of its immense leaves. Per pkt., 1s.

Zamesia americana.

This is a neat, dwarf, deciduous shrub, belonging to the Hydrangea section of the Saxifrage tribe, and attaining a height of about 3 feet. It produces opposite-ovate, serrated foliage, whitish beneath, with terminal cymes of neat white Saxifrage-like flowers. A very rare plant, being found apparently in only one locality in New Mexico, in the vicinity of the Rocky Mountains. It is perfectly hardy, and of easy culture in light soil. The seeds are small, like those of many species of Saxifrage. Per packet, 1s.

PINE APPLE PLACE, MAIDA VALE, LONDON, W.

KNAP HILL NURSERY, WOKING, SURREY.

ANTHONY WATERER

BEGS TO SUBMIT THE

FOLLOWING LIST to the NOTICE of INTENDING PLANTERS.

EVERYTHING IS WELL GROWN AND FINELY ROOTED.

In proof of which he gives the date of their last removal.

ABIES ORIENTALIS, 5, 6, 7, and 8 feet, 10*s.* 6*d.* to 21*s.* each.
" " beautiful specimens, 10, 12, and 14 feet high, 15 and 20 feet in circumference, 31*s.* 6*d.* to 63*s.* each, and upwards. Moved April, 1868.
" ALBERTUS, 5 to 9 feet, 30*s.* to 60*s.* per doz., moved April, 1868.
" DOUGLASSII, 5, 6, 7, and 8 feet, 5*s.* to 10*s.* 6*d.* each, moved August, 1868.
" CANADENSIS, 4, 5, 6, 7 feet high, 18*s.* to 30*s.* per dozen.
" PUMILA, PYGMÆA, CLANBRASILIANA, GREGORII } Hundreds of these dwarf varieties of the common Spruce Fir, many are 20 and 30 years old.
" EXCELSA.—The Common Spruce, 5, 6, and 7 feet high 7 to 10 feet round, moved April, 1868, 21*s.* to 30*s.* per dozen.
PICEA NOBILIS, 4, 5, 7, 8, and 10 feet high, 8 and 15 feet in circumference, 42*s.* to 147*s.* each. Hundreds of magnificent plants of the best glaucous variety. None are grafted, and all moved since March, 1868.
" NORDMANNIANA, beautiful seedling plants, 1½ to 2 feet, 30*s.* and 42*s.* per dozen.
" " 3, 4, 5, 6, and 8 feet, 10*s.* 6*d.* to 105*s.* each.
" " Splendid trees, moved August, 1868, 10 and 15 feet high, 15 to 20 feet in circumference, 7 guineas each and upwards.
" MAGNIFICA or NOBILIS ROBUSTA, 2 feet, 15*s.* each.
" " " " 2½ to 3 feet, 6 feet in circumference, 21*s.* to 31*s.* 6*d.* each.
" " " " 3, 4, and 5 feet, 31*s.* 6*d.* to 63*s.* each and upwards. Mr. Waterer has hundreds of this handsome Fir, all seedlings.
" LASIOCARPA, 2 to 2½ feet, 60*s.* per dozen. [each.
" " 3 to 4 feet high, 8 and 9 feet in circumference, 21*s.* and 31*s.* 6*d.*
" " 5, 6, 7, and 8 feet high, 10 and 12 feet in circumference, 42*s.* and 63*s.* each ; hundreds of them. [42*s.* each.
" PINSAPO, 3, 4, and 5 feet high, 9 and 10 feet round, 7*s.* 6*d.* to
" " 7, 8, and 10 feet high, 63*s.* to 147*s.* each, moved August, 1868.
PINUS AUSTRIACA, moved April, 1868, 3 feet, £5 per 100.
" BENTHAMIANA, moved April, 1868, 2 to 2½ feet, 30*s.* per doz.
" CEMBRA, 8 to 10 feet, 10 and 12 feet round, moved 1863, 10*s.* 6*d.* to 21*s.* each.
CEDRUS ATLANTICA, 5 to 6 feet, 42*s.* to 60*s.* per doz., moved 1868.
" " 7 to 8 feet, 84*s.* per dozen, moved 1868.
" " 8 to 10 feet, 7*s.* 6*d.* and 10*s.* 6*d.* each, moved 1868.
" DEODARA, 4 to 6 feet, 42*s.* and 60*s.* per dozen.
" " 7 to 8 feet, 84*s.* per dozen.
" " 10 to 12 feet, 120*s.* per dozen and upwards. Some thousands of these large Deodars, the majority moved since Jan., 1868.
" LIBANI, moved April, 1868, 5, 6, 7, and 10 feet, 5*s.* to 21*s.* each.
CUPRESSUS LAWSONIANA, 4 to 5 feet, 30*s.* per dozen.
" " 5 to 6 feet, 42*s.* ; 7 to 8 feet, 60*s.*
" " 9 to 10 feet, 7*s.* 6*d.* to 10*s.* 6*d.* each.
" " 12 to 18 feet high, and as much round, 21*s.* to 63*s.* each. We have thousands of these large Lawsonianas, from 5 to 15 feet high, the majority moved in 1868.
JUNIPERUS CHINENSIS, 4 to 5 feet, 30*s.* and 42*s.* per dozen ; 6 to 7 feet, 60*s.* to 84*s.* per dozen ; 8 and 9 feet, and as much round, 21*s.* each ; some magnificent plants, 10 to 15 feet high, 15 and 20 feet in circumference, 63*s.* to 105*s.* each and upwards. We have several thousands of this fine Juniper, 4 feet and upwards, the majority moved in 1868.
JUNIPERUS VIRGINIANA (Red Cedars), 4, 5, 6, and 7 feet, moved August, 1868, 18*s.* to 42*s.* per dozen.
YEW, ENGLISH.—Many thousands, 4, 5, 6, 7, 8, 10, 12 and 15 feet high, nearly all of which have been moved within 12 months.
" IRISH.—Handsome plants, 7 to 8 and 10 feet, 7*s.* 6*d.* to 10*s.* 6*d.* each, and upwards.
" GOLDEN and ELEGANTISSIMA. — Hundreds of fine plants, on their own bottoms and worked, from 3 to 6 and 8 feet high.
Many of these plants are 30 years old; all have been recently removed.
THUJA AUREA.—This plant originated at this Nursery. We have large numbers of fine specimens, 3, 4, 5, and 6 feet high, 8, 10, and 15 feet round.
" GIGANTEA.—Splendid plants, moved August, 1868, 10 to 15 feet high, 21*s.* to 42*s.* and upwards each.
" LOBBII, 6 to 7 feet, and as much round, 5*s.* to 7*s.* 6*d.* each.
" 10 to 14 feet, do. do., 21*s.* to 63*s.* each.
All moved in 1868.

THUJOPSIS BOREALIS, 5 to 6 feet, 60*s.* per dozen.
Do. do., 7 to 8 feet, 10 and 12 feet in circumference, 10*s.* 6*d.* each and upwards.
Moved in 1868.
WELLINGTONIA GIGANTEA, 4 to 5 feet, 7*s.* 6*d.* to 10*s.* 6*d.* each.
Do. do., 6, 7, 8, and 9 feet, 21*s.* to 63*s.* each.
All moved August, 1868.
HOLLIES, GREEN, COMMON.—Stout, finely rooted plants, 3 feet, 18*s.* per dozen ; £6 per 100.
Many thousands 4, 5, 6, and 7 feet high, 30*s.* to 84*s.* per dozen and upwards.
A number of splendid plants, 10 to 15 feet high, 15 and 20 feet round. All moved April, 1868.
" SCOTTICA, LAURIFOLIA, MYRTÆFOLIA, } Three of the finest hardy Evergreen known. Thousands of beautiful plants, 5, 6, 7, 8, and 9 ft. high, 7*s.* 6*d.* to 21*s.* each, and upwards.
" HODGIN'S HOLLY, 4, 5, and 6 feet.
" GOLDEN QUEEN.—Hundreds of magnificent plants, 4 to 8 feet high, and as much in circumference.
" WATERER'S.—This variety originated here, and we have them by hundreds. 3, 4, and 5 feet high, 8 to 15 feet in circumference—the admiration of everybody who sees them. There are many of them 20 and 30 years old, and have been constantly and recently removed.
" SILVER QUEEN, 3, 4, and 5 feet high.
" STANDARD, WATERER'S, and GOLDEN QUEEN HOLLIES, 5 to 6 feet stems, with heads 6 to 9 feet round, very handsome.
" STANDARD WEEPING HOLLIES.—Some of the finest plants in the kingdom, worked and on their own roots. One, probably the finest that exists in any Nursery, has a stem 10 feet high, 20 inches in circumference, perfectly straight, with a magnificent head covered with berries. This plant was moved August, 1868.
" VARIEGATED, of the ordinary kinds. — A stock of many thousands, from 4 to 5, 6 and 8 feet high. Plants in finer condition cannot be desired. The prices will be found fair and reasonable.
BOX, GREEN and VARIEGATED, 4, 5, 6, 7, and 8 feet high, 2*s.* 6*d.* to 10*s.* 6*d.* each and upwards.
" PYRAMIDS, up to 8 feet, very fine
BAYS, STANDARDS, PYRAMIDS. } from 3 to 10 guineas a pair.
LAURUSTINUS, STANDARDS, 31*s.* 6*d.* each and upwards.
LAURELS, PORTUGAL, 4 and 5 feet high, 7 and 8 feet in circumference, 42*s.* and 60*s.* per dozen. Moved July, 1868.
RHODODENDRONS.—One of the finest stocks of all the leading kinds, nice healthy bushy plants, 1½ and 2 feet high, many of them layers (far preferable to grafted plants), from £7 10*s.* to £15 per 100.
" STANDARDS.—A large number of the oldest and finest specimens to be met with in any Nursery, many of them being 20 and 40 years of age, with heads measuring 15 and 30 feet in circumference, and when in bloom are objects of wonderful beauty.
" SEEDLING varieties, varying much in colour, fine plants, many of them blooming, 1½ to 2 and 3 feet, £5 to £15 per 100.
" DWARF varieties, several kinds, £5 to £7 10*s.* per 100.
" ODORATUM, GOVENIANUM, } Nice blooming plants, beautifully scented, 12*s.* and 18*s.* per dozen.
" PONTICUM, for cover, good plants, £7 10*s.* to £15 per 1000.
The Exhibitions of Rhododendrons in the Horticultural Society's Gardens are supplied from Knap Hill.
AZALEAS.—A fine stock of the most beautiful varieties in cultivation, good blooming plants, carefully selected, will be supplied at 18*s.* to 30*s.* per dozen. Large plants, 3, 4, 5, and 6 feet high, of all the fine Ghent and other kinds.
KALMIA LATIFOLIA.—Nice blooming plants, 12*s.* and 18*s.* per dozen; larger, of all sizes.
ERICA HERBACEA CARNEA.—The prettiest of the Spring-flowering Heaths; fine plants, by the 100 or 1000. A large stock of the best varieties of Hardy Heaths at 30*s.* per 100.
DAPHNE CNEORUM MAJUS.—A grand improvement on the old variety; fine plants, 18*s.* per dozen.
AUCUBA JAPONICA, up to 3 feet; thousands.

THE FOLLOWING ORNAMENTAL TREES, OF LARGE SIZE,

Are well grown and well rooted, and stout.

PLANES, ORIENTAL and OCCIDENTAL, 10 to 15 feet high.
SYCAMORE, 10 to 14 feet.
WEEPING BIRCH, 8 to 12 feet.
MOUNTAIN ASH, 8 to 10 feet.
HORSE-CHESTNUTS, COMMON, 10 to 12 feet.
SCARLET HORSE-CHESTNUTS, very fine flowering Trees, 10 years, worked.
BEECH, WEEPING, 7 to 1 years, worked.
BEECH, PURPLE, 8 to 15 feet high.
DECIDUOUS CYPRESS, 8 to 12 feet.
NORWAY MAPLES, 8 to 12 feet.
LOMBARDY POPLARS, 10 to 12 feet.
THORNS, fine Standards, of the most ornamental kinds.
ASH, Gold-barked, Flowering, and other varieties; fine Standards, 8 to 10 feet.
LIMES, 10 to 12 feet.

As well as the above-mentioned articles, at Knap Hill will be found one or perhaps the most extensive Stock of all the better kinds of HARDY EVERGREENS, DECIDUOUS and FLOWERING ORNAMENTAL TREES and SHRUBS.

A PRICED AND DESCRIPTIVE CATALOGUE

Will be forwarded on application.

Purchasers are respectfully invited to inspect the Plants growing in the Nursery.
No Catalogue can adequately represent such a Stock.

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contains a sketch of the various forms of Trees, with directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by post for three stamps.

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EVERGREEN HEDGES.
AMERICAN ARBOR-VITÆ, 4 to 5 feet, at 50*s.* per 100; 5 to 6 feet, at 84*s.* per 100; 6 to 7 feet, at 100*s.* per 100.
SIBERIAN ARBOR-VITÆ, 2 to 2½ feet, 40*s.* per 100 ; 2½ to 3 feet, 50*s.* per 100 ; 3 to 3½ feet, 75*s.* per 100 ; 3½ to 4 feet, 100*s.* per 100.
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PICEA NOBILIS.—12 to 18 inches, 18*s.* per dozen, 135*s.* per 100 ; 18 inches to 2 feet, 30*s.* per dozen, 230*s.* per 100. This is one of the most beautiful Trees in cultivation. All are Seedling Plants.
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JEAN VERSCHAFFELT has a very large Stock of extra fine Standard and Pyramid SWEET BAYS (Laurus nobilis) of all sizes, suited for Ornamenting Terraces, Conservatories, &c. The prices vary from 42*s.* per pair, according to size. All the above (a stock of upwards of 200 pairs) are grown in tubs, and superiorly cultivated. Particulars as to size and price to be had on application to
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BERBERIS DARWINII, 9 to 15 inches, 25*s.* per 100.
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Apply to Charles Noble, Bagshot.
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PÆONIES, choice named herbaceous, 25 varieties, 10*s.*
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ASCLEPIA TUBEROSA, 100 flowering roots, 21*s.*
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PHLOX, 25 choice varieties, 7*s.* 6*d.*
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AZALEA SINENSIS, 50 plants, 40*s.*
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CHAMÆROPS HUMILIS, 25 fine plants, 31*s.*
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EUGENIA UGNI, 12 fine plants, 9*s.*
ILLICIUM RELIGIOSUM, 12 fine plants, 15*s.*
IRIS GERMANICA, 50 varieties, 20*s.*
LASTREA OPACA, 12 strong plants, 18*s.*
MAGNOLIA TRIPETALA, 100 for 25*s.*
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PASSIFLORA, of sorts, 12 for 6*s.*
RHODODENDRON CILIATUM, with flower-buds, 25 for 18*s.*
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AS SUPPLIED TO

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Special preparations will be made for peculiar Soils not described below.

FOR HEAVY SOILS.

CONTENTS OF CARTER'S MIXTURES.	No. 1. Fertile Clays.	No. 2. Poor Clays.	No. 3. High-lying Clay Soils.
	lb.	lb.	lb.
Sweet Vernal	1	1	1
Meadow Foxtail	2½	2	2
Large Oat-grass	..	1	2
Crested Dogstail	..	2	3
Cocksfoot	4	3	3
Hard Fescue	2	3	3
Various-leaved Fescue	2	2	3
Tall Fescue	2	2	2
Darnel-leaved Fescue	2½	2½	1
Meadow Fescue	3	3	2
Best Imported Italian Rye-grass	4	4	..
Pacey's Perennial Rye-grass	4	4	3
Timothy	3½	2½	2
Wood Meadow-grass	3	3	4
Rough-stalked Meadow-grass	..	2	3
Perennial Red Clover	4½	5	3
Perennial White Clover	4	4	4
Alsike Clover	1	..	1
Yellow Trefoil Clover	2	3	4

Per imperial acre—Finest quality—28s. to 35s.
" " Second quality—20s. to 26s.

FOR MEDIUM SOILS.

CONTENTS OF CARTER'S MIXTURES.	No. 4. Alluvial Soils.	No. 5. Limestone or Calcareous Soils.	No. 6. Loams derived from Old or New Red Sandstone.
	lb.	lb.	lb.
Sweet Vernal	1	1	1
Meadow Foxtail	3	2½	2
Large Oat-grass	..	2½	..
Golden Bristle-grass	..	2	..
Cocksfoot	4½	3	4½
Hard Fescue	2	2	2
Sheep's Fescue	2	3	2
Darnel-leaved Fescue	1	1	1
Meadow Fescue	2	..	1
Best Imported Italian Rye-grass	9	8	9
Pacey's Perennial Rye-grass	5	7	4
Timothy	4½	2½	3½
Wood Meadow-grass	1	2	1
Rough-stalked Meadow-grass	1	2	..
Perennial Red Clover	6	5	4
Perennial White Clover	3	4	4
Alsike Clover	1	..	1
Yellow Trefoil Clover	2	3	3

Per imperial acre—Finest quality—28s. to 34s.
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CONTENTS OF CARTER'S MIXTURES.	No. 7. Light Chalk soils.	No. 8. Brashy Limestone soils.	No. 9. Sandy soils.
	lb.	lb.	lb.
Sweet Vernal	1	1	1
Meadow Foxtail	2	2	2
Golden Bristle-grass	2	2½	..
Cocksfoot	2	2	..
Hard Fescue	1	1	1
Various-leaved Fescue	1	..	1
Reddish Fescue	1	1	1
Sheep's Fescue	3	4	3
Best Imported Italian Rye-grass	4	4	4
Pacey's Perennial Rye-grass	4	4	4
Wood Meadow-grass	1	1	..
Sandy Lyme-grass	..	..	2
Crested Dogstail	2	2	3
Yarrow	½	½	1
Yellow Trefoil	3	4	5
Perennial Red Clover	6	4	4
Perennial White Clover	2	3	2
Alsike Clover	1	1	1
Burnet	..	..	3
Sainfoin	8	8	8

Per imperial acre—Finest quality—28s. to 30s.
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FOR ALTERNATE HUSBANDRY.

Including the greatest food and hay producing Grasses and Clovers, in such proportions as the particular rotation may require.
For ONE YEAR'S LAY, best quality, 13s. 6d. per acre.
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For THREE or FOUR YEARS' LAY, 22s. per acre.

CARTER'S SUPERFINE ITALIAN RYE-GRASS.

7s. 6d. per bushel; cheaper samples from 4s. 6d. to 7s. per bushel.

PACEY'S PERENNIAL RYE-GRASS,

7s. per bushel; cheaper samples, 5s. to 6s. 6d. per bushel.

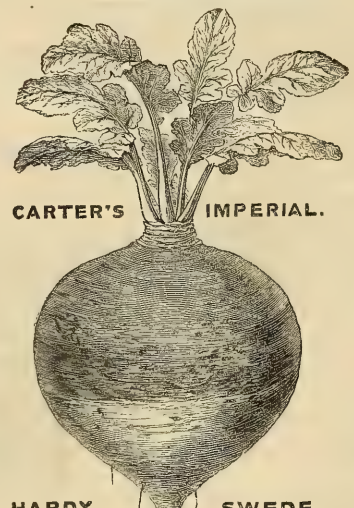
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CARTER'S WARDEN IMPROVED MANGEL, not to be surpassed, 1s. 6d. per lb.
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CARTER'S IMPROVED RED GLOBE, 1s. per lb.
Cheaper per Cwt.

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OF FINE GRASS SEEDS FOR LAWNS, &c.

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Free from weeds and dirt.

BROAD-LEAVED RED, PERENNIAL RED or COW GRASS, | WHITE DUTCH, ALSIKE HYBRID, [HOP. YELLOW TREFOIL or

Lowest price on application.

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OF FINE GRASS SEEDS FOR CRICKET GROUNDS.
18s. per bushel. (3 bushels per acre.)

LOOK TO YOUR GRASS LANDS.

CARTER'S RENOVATING MIXTURE

Should be sown on meadows that have suffered from the past dry summer. The Mixture includes the most desirable Grasses and Clovers for hay crop, and succeeding green feeding, and will soon restore a first-rate permanent pasture.
Sow 8 to 12 lb. per acre. Price 9d. per lb.; 80s. per cwt.

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HARTLEY'S SHORT-TOP SWEDE	per lb.—1s. 0d.
IMPROVED LIVERPOOL SWEDE	0 9
CHAMPION GREEN-TOP HYBRID TURNIP	1 3
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ROBERT PARKER begs to offer the undernamed, all of which can be supplied in strong healthy plants:—

	Per dozen—s. d.
AJUGA ORIENTALIS	4 0
HESPERIS MATRONALIS ALBA-PLENO (Double White Rocket)	4 0
LITHOSPERMUM PROSTRATUM (fruticosum) ..	9 0
PANSY CLIVEDEN BLUE	4 0
" " PURPLE	4 0
" " YELLOW	4 0
" GREAT EASTERN	4 0
" IMPERIAL BLUE	18 0
SEMPERVIVUM CALIFORNICUM	6 0
TRITOMA GRANDIS	18 0
" UVARIA GLAUCESCENS	12 0
VIOLA LUTEA SEMPERFLORENS	4 0

Special quotations may be had, if required, for the above, and many other kinds, by the 100, or in larger quantities.
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LEWIS S. WOODTHORPE will be happy to forward, post free, on application, his CATALOGUE (which will be found very reasonably priced) of NEW and CHOICE PLANTS, beautiful SPRING FLOWERS, and GENERAL NURSERY STOCK.
A heavy discount to the Trade.
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Now Ready.

HENRY WALTON begs to inform his Friends and the Public that his NEW SPRING CATALOGUE is now ready, containing all the newest and most select Pelargoniums, Tricolor, Gold and Bronze; Show and Fancy, Ivy-leaved and Double Geraniums; Petunias, Petunias, Verbenas, Dahlias, Show and Fancy; bedding and other New and Rare Plants, &c.
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Now Ready.

GEO. SMITH'S PRICED and DESCRIPTIVE CATALOGUE, containing Select Lists of all the leading kinds of choice Show, Spotted, French, Fancy, Variegated, Zonal, Gold and Bronze, Ivyleaf, and Double-flowering PELARGONIUMS, VERBENAS, FUCHSIAS, PETUNIAS, CHRYSANTHEMUMS, DAHLIAS, BEDDING PLANTS, &c., in exchange for one postage stamp.
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Finest Prize Hollyhock Seed.

HENRY MAY begs to offer Seed from his renowned Collection of HOLLYHOCKS, which has for years been awarded all the First Prizes at all the great Exhibitions in the North of England. The Seed is saved from the newest and finest varieties only, and he will supply 500 Seeds for 5s., 1000 for 9s., 2000 for 15s. Trade Offer Seeds by the Bushel.
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Superb Double Hollyhocks.

Now is the time for Planting to ensure Good Spikes and Blooms this Season.

WILLIAM CHATER'S CATALOGUE of his unrivalled Collection may be had upon forwarding one postage stamp. Choice Blotched Seedlings, with colours attached, 40s. per 100. Unbloomed Seedlings, from finest named varieties, 25s. per 100. SEEDS, saved only from first-class flowers, in packets and collections, from 1s. to 10s. 6d.
Special prices for quantities to the Trade on application.
William Chater, The Nurseries, Saffron Walden.

Genuine and First-class Seeds, Carriage Free.

WM. PAUL begs to announce that his NEW CATALOGUE of SELECT VEGETABLE and FLOWER SEEDS is just published, and will be forwarded free by post on application.
He has made enlarged arrangements, by which he believes he will be able to secure for his Customers, as usual, the best races of VEGETABLE and FLOWER SEEDS, of good germinating qualities, free from adulteration. For further particulars, see large Advertisement of last week.
Important.—All letters should be addressed Wm. Paul, Waltham Cross, London, N.

Golden Coleus, Queen Victoria.

MESSRS. JOHN and CHARLES LEE are now sending out this most beautiful and most brilliant of all Coleuses. The centres of the leaves are superb bronze, light crimson edged, with a double row of golden beads, richly broken with crimson veinings. QUEEN VICTORIA is of free growth and good habit, and has a truly regal appearance. First-class Certificate. Price 7s. 6d.
Messrs. Lee also offer COLEUS PRINCESS ROYAL.—Colour and habit the same as Queen Victoria, except that the golden margin is much narrower. A superb variety. First-class Certificate. Price 7s. 6d.
COLEUS ALBERT VICTOR.—Centre of leaves brownish-red, shaded with purplish maroon; golden margin very broad. Very distinct and effective. A strong grower. First-class Certificate. Price 7s. 6d.
The Set of Three for 20s. Usual allowance to the Trade.
Royal Vineyard Nursery and Seed Establishment, Hammersmith.

New Hybrids.

ISAAC DAVIES respectfully announces that he has yet a few Plants to offer of his beautiful HYBRIDS, viz., RHODODENDRON MULTIFLORUM and AZALEA HYBRIDA ODORATA, the latter having been again awarded a First-class Certificate of Merit by the Horticultural Society of Liverpool on the 17th of last month; and the following is from the report of the Show given in the *Liverpool Mercury*:—
"Mr. Isaac Davies, Nurseryman, of Ormskirk, exhibited a new Azalea hybrida odorata, to which a First-class Certificate was awarded by the Royal Horticultural Society of London, in April, 1868. This Azalea is the purest white of that description of flower yet submitted to the public, and, in addition to its fragrance, it has the quality of growing in enormous clusters. The specimen exhibited, though small, was spoken of in the highest terms of commendation by the judges, and will certainly become a great favourite with Azalea growers."
A full and faithful description of the above, with prices, forwarded to any address on application.
Brook Lane Nursery, Ormskirk, Lancashire.

New Verbenas.

JOHN KEYNES will be ready to send out the 12 splendid VERBENAS (price 3s. 6d. each) raised by Mr. Eckford, on May 1. A Plate of six of these splendid Flowers will be sent on receipt of 16 postage stamps.
Salisbury, April 3, 1869.

Verbenas, Verbenas.

ALL the LEADING VARIETIES of 1868, also Purple, White, Scarlet, and Pink, with plenty of Cuttings, at 2s. per doz.; Small Plants, 6s. per 100, or £2 10s. per 1000.
Twenty new varieties of ZONAL GERANIUMS of 1868 for 10s.
Philip Ladds, Nursery, Bexley Heath, Kent.

Verbenas, 5s. per 100, 40s. per 1000.

WILLIAM BADMAN offers Purple, White, Scarlet, Crimson, Rose, &c., strong plants, from store pots, 5s. per 100, 40s. per 1000. LOBELIA SPECIOSA (true), strong, from cuttings, 5s. per 100, 40s. per 1000. Terms cash, package included.
Cemetery Nursery, Gravesend.

Fuchsias.

H. CANNELL has a great quantity of all the best FUCHSIAS in cultivation, and in the very best condition, both small and vigorous plants, in 60-pots, fitted for exhibition, and also Stock Plants, full of Cuttings. Price on application.
H. Cannell, Florist, Woolwich.

British Fern Catalogue.

ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, Sidcup Hill, Kent.

GOLD and SILVER FERNS.—Gymnogramma

chrysophylla Mertensii, and Pteris cretica albo-lineata, good plants, 12 for 10s.; 25 for 18s. Package free. Trade price per 100 on application.
H. & R. Stirzaker, Skerton Nurseries, Lancaster.

WANTED, CAMELLIAS—Double White Fimbriata

and Imbricata, 6 to 8 feet high, in pots or tubs. Also, large GARDENIA FLORIBUNDA.
Address, Wm. Welham, Horne Hill Road Nursery, Coldharbour Lane, Camberwell, S.W.

Roses.

JOHN CRANSTON will be happy to forward on application his DESCRIPTIVE CATALOGUE of ROSES for 1868 and 1869. For quality or quantity the stock is unsurpassed; the Manetti Roses especially are acknowledged to be the finest grown plants in the Trade.
Nurseries, King's Acre, near Hereford.

New Roses, &c., 1869.

WM. KNIGHT begs to offer the following Plants:—

12 NEW ROSES, Strong Plants	36s.
12 Finest NEW FUCHSIAS, Strong Plants ..	6s.
12 Finest NEW VERBENAS, Strong Plants ..	4s.
12 Finest COLEUS, Strong Plants	5s.
6 NEW PETUNIAS, Strong Plants	4s.

Or the above Collection, package included, for £2 10s.
CATALOGUE free.
Floral Nursery, Hailsham, Sussex.

TWELVE BEST NEW ROSES of 1869, good plants,

for 30s. The best of last year's, and older kinds, established in 6-inch pots, splendid plants, 24s. per doz.
Strong DAHLIA Pot roots, in 100 finest kinds, including the varieties of 1867, 3s. per doz., £1 per 100.
PANSIES, a splendid collection, named varieties, 3s. to 6s. per doz.; mixtures, good quality, 12s. 6d. per 100, £5 per 1000.
FUCHSIAS, LUSTRE and STARLIGHT, two of the best of last year's kinds, 6s. per doz. VAINQUEUR DE FUEBLA, the best double white corolla out, 3s. per doz.
GERANIUM, LORD DERBY, the finest Zonal out, 16s. per doz.
FERN, LOMARIA GIBBA, strong plants, 12s. per doz.
Young's Blood-red WALLFLOWER SEED, extra fine quality, 3s. per lb.
PANSY SEED, very fine, per pkt. 1s., per oz. 15s. [oz. 16s.
POLYANTHUS SEED, from fine laced flowers, per pkt. 1s., per
Thos. Milner, Nurseryman, Bradford, Yorkshire.

Magnificent New Plant,

GESNERA EXONIENSIS.
This is acknowledged by all who have seen it to be the finest winter-blooming plant ever yet offered.
The colour of the flowers is an intense orange-scarlet, the leaf is of a new dark velvety texture, studded with minute red hairs like plush. Nothing can be imagined more brilliant than the mass of bloom, which when well-grown is quite three inches through.
The value of the plant may be gathered from the fact of our having now one in particular that has been in perfection for the last five months, the admiration of all who see it.
Fine tubers sent free by post that will bloom this year at 5s. and 7s. 6d. each. Early orders are respectfully solicited.
Lucombe, Pince & Co., Exeter Nursery, Exeter.

Choice Bedding Geraniums.

THOMAS PESTRIDGE can now supply in strong plants, for cash, the following varieties:—

	Per doz. s. d.	Each. s. d.		Per doz. s. d.	Each. s. d.
Lady Cullum ..	12 0	1 6	Egyptian Queen ..	..	3 0
Lucy Grieve ..	..	5 0	Her Majesty ..	..	2 6
Mrs. Pollock ..	4 0	0 6	Luna ..	4 0	0 6
Sophia Cusack ..	20 0	2 6	Model ..	8 0	1 0
Sophia Dumaresque	8 0	1 0	Mrs. Charles Barry	6 0	0 9
Sunset ..	5 0	0 9	Perilla ..	7 0	1 0
Italia Unita ..	4 0	0 6	Refulgens ..	12 0	2 0
Beauty of Calderdale	9 0	1 6	Sedyke ..	5 0	0 9
Crystal Palace Gem..	4 0	0 6	Viceroy ..	12 0	2 0

Twelve varieties, the Purchaser's selection from the above, 18s. package included. Cash must accompany all orders.
The Greenway Nursery, Uxbridge, Middlesex.

SCOTT'S SUPERB SEEDS for EXHIBITION, &c.

	Post Free. Per packet.—s. d.
ASTERS, new Quilled Reid's Exhibition, 10 vars., mixed ..	1 0
" new Globe Quilled, 12 vars., separate	2 0
" 24 superb varieties, mixed	1 0
" Truffaut's French Perfection, 12 vars., separate	3 0
" do. do. 8 do.	2 0
" do. do. 24 vars., mixed	1 0
The foregoing are the most perfect shaped Asters ever offered, and for several years have gained the first prizes wherever exhibited.	
" Dwarf Chrysanthemum-flowered, 12 vars., mixed ..	1 0
" Superb Crown-flowered, 6 vars., mixed .. 6d. and	1 0
" French Giant Emperor, 12 vars., mixed	1 0
" Newest Victoria	1 0
STOCKS, Newest large-flowered, Ten-week, 12 vars., separate	2 6
" Newest large-flowered, Ten-week, 8 vars., separate.. ..	1 9
" Dwarf German Ten-week, 24 vars., mixed	1 0
" Newest Large-flowered Ten-week, 18 vars., mixed	1 0
" Crimson Dwarf Bouquet, extra	1 0
GERANIUM TRICOLOR, Golden and Silver, most carefully hybridised by J. Scorr from his well-known splendid collection	1 0
PRIMULA FIMBRIATA, six extra superb varieties, mixed, 1s. 6d. and	2 6
" Separate, each .. .. 1s. 6d. to	2 6
CALCEOLARIA, Scorr's splendid hybridised dwarf 1s. and	2 6
CINERARIA, extra choice, from a prize collection 1s. and	2 6
PETUNIA fl.-pl., extra superb, choicest mixed double.. ..	1 0
" single, extra superb, choicest mixed	1 0
BALSAM, extra superb, choicest mixed double	1 0
PHLOX DRUMMONDI, 10 superb varieties, mixed	1 0
LOBELIA SPECIOSA, true Crystal Palace var. 6d. and	1 0
MARIGOLD, French, superb, 6 vars., mixed .. 6d. and	1 0
ZINNIA fl.-pl., superb double, 6 vars., mixed .. 6d. and	1 0

For all other varieties of new and choicest flower Seeds, also new varieties and collections of Vegetable Seeds, see J. Scorr's "convenient" PRICED CATALOGUE, free on application to
J. Scorr, The Seed Stores, Yeovil, Somerset.

Gladioli, the most Extensive Collection.

BARR and SUGDEN, 12, King Street, Covent Garden, W.C., have the finest and largest collection of GLADIOLI ever offered, prices varying from 2d. to 10s. per root. For particulars see pp. 68, 69, 70, and 71 of B. & S.'s SPRING SEED CATALOGUE.
Barr & Sugden, 12, King Street, Covent Garden, W.C.

Choice Seeds, Gladioli, &c.

WM. CUTBUSH and SON'S CATALOGUE of the above contains description and price of many very superior home-grown VEGETABLE and FLOWER SEEDS, and choice varieties of GLADIOLI, &c., all of which are highly recommended. Post free on application.
Highgate Nurseries, London, N.

New Chrysanthemums.

JOHN SALTER and SON beg to announce that their CATALOGUE of NEW JAPANESE and other CHRYSANTHEMUMS is now ready, and may be had on receipt of two stamps.
Versailles Nursery, William Street, Vale Place, Hammersmith, near Kensington Railway.

Prize of Five Pounds.

MESSRS. JOHN and CHARLES LEE will give a PRIZE of FIVE POUNDS for the best THREE BUNCHES of MADRESFIELD COURT BLACK MUSCAT GRAPES, on October 5, 1869, to be awarded by the Fruit Committee of the Royal Horticultural Society at South Kensington. Mr. Cox will not compete.
Messrs. Lee can still supply a few extra strong Fruiting Canes at 63s. each.—Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

July 19th to 24th, 1869.

THE ROYAL HORTICULTURAL SOCIETY'S GRAND EXHIBITION at MANCHESTER,
in connection with the
SHOW of the ROYAL AGRICULTURAL SOCIETY.
Amongst various Special Prizes,
A SILVER CUP (copy of the famous Cellini Cup), **VALUE £21**
will be offered by the Proprietors of the
GARDENERS' CHRONICLE and AGRICULTURAL GAZETTE
for the best COLLECTION of 5 FRUITS and 8 VEGETABLES,
to be made up as follows.
In awarding the Prize, Marks will be adjudged according to the following scale, for the several subjects produced.

	Good.	Medium.	Inferior.
Grapes	6 marks	3 marks	1 mark
Melons (2 fruits)	6 "	3 "	1 "
Strawberries	3 "	2 "	1 "
Gooseberries	3 "	2 "	1 "
Currants	3 "	2 "	1 "
Cherries	3 "	2 "	1 "
Raspberries	3 "	2 "	1 "
Apples of 1868	6 "	3 "	1 "
(Any 5 of the above 8 subjects).			
Peas	3 "	2 "	1 "
French Beans	3 "	2 "	1 "
Broad Beans	3 "	2 "	1 "
Cauliflowers	3 "	2 "	1 "
Cucumbers (brace)	3 "	2 "	1 "
Summer Cabbages	3 "	2 "	1 "
Early Carrots	3 "	2 "	1 "
Turnips	3 "	2 "	1 "
Globe Artichokes	3 "	2 "	1 "
Onions	3 "	2 "	1 "
Spinach	3 "	2 "	1 "
Rhubarb	3 "	2 "	1 "
Potatos	3 "	2 "	1 "
Mixed Salading	3 "	2 "	1 "
(Any 8 of the above 14 subjects).			

This Prize is open for Competition amongst Amateurs and Gardeners of private families. The Fruit and Vegetables produced must be of *the Exhibitor's own growing*; and any article otherwise obtained will disqualify the Collection. It is expected that the several articles will be neatly and effectively displayed.

The Gardeners' Chronicle.

SATURDAY, APRIL 3, 1869.

MEETINGS FOR THE ENSUING WEEK.

Monday, April 5	—	Entomological	7 P.M.
Tuesday, " 6	—	Royal Horticultural (Fruit and Floral Committees), at South Kensington ..	11 A.M.
	—	Ditto (Scientific Committee)	1.30 P.M.
	—	Ditto (General Meeting)	3 P.M.

In a multitude of counsellors, it is said, there is safety; yet, when doctors disagree, who shall decide? How can we reconcile the many conflicting statements made on the subject of Heating Vine-Borders? How shall we pick the solid grains from the great amount of chaff in which they have become enveloped? The subject itself is one of very great importance to gardeners and gardening generally; and if it is considered so by the former, is fully borne out by the fact that so many of our great gardeners have taken part in the discussion—men whose names are in themselves pillars of strength, and whose opinions on subjects horticultural are entitled to our greatest respect; yet in this instance we have had some advocating what the others in a great measure condemn.

Grapes are grown to a far greater extent, and in general with greater success, at the present day, than they have been in any preceding time. There are very few gardens now-a-days which are not in possession of their Vines and vineries, and every gardener must per force understand their culture; so that the question as to the necessity or desirability of bottom-heat for Vine-borders is one which it is well to have thoroughly cleared up. It is a question which has been often debated and discussed, and, as usually happens in such cases, a good deal may be said on both sides. If, therefore, the late discussion has done aught to elucidate the truth, it will do good, and will prove a useful guide in time to come.

In a broad sense "bottom-heat" may be described as a warming of the soil about the roots. This may be accomplished in various ways, and by various means. We do not restrict it to the application of heat from below. There

is scarcely a Vine-border throughout the country which is not more or less warmed in some way or other. Every gardener in this country, while constructing his Vine-borders, takes care, while supplying enough feeding material, to have his border laid warm and dry. All admit the necessity of warming so far, and it is absolutely necessary in some situations to pay extreme attention to this point. Some situations are naturally more cold and damp, and require more warming, &c., than others. This, therefore, should not be lost sight of in speaking generally of heated borders. As to the methods and extent of warming, we have, in the first place, the simple draining of the ground, the concreting of the bottom of the border, and paving it with brickbats, &c., which are almost universally practised; then others may be, as it is termed, aërated, which is simply well drained, and a very excellent method it is; others, more elaborate, may have the addition of hot-water pipes, or hot manure, &c., in various positions, and to a varying extent—amongst the brickbats immediately underneath the roots, or in capacious chambers below them, as in the Kingston Hall example, the allusion to which, and its apparent justification, by Mr. WESTLAND, have been the principle cause of this discussion. There are, besides, many other methods of increasing the natural warmth of a Vine-border, such as elevating it above the surrounding level, protecting it from cold and wet, husbanding the heats of summer, applying heating materials to the surface, or forming it inside the house, &c., all of which may be more or less recommended.

A certain degree of heat for the roots of Vines being thus considered, by all parties, to be beneficial, it seems a simple problem to determine what should be its exact amount, yet it is on this very point that opinions are divided. We know exactly how much to apply to the tops at all seasons, but how much we ought to apply to the roots is not clearly ascertained. For the production of early Grapes—Grapes to ripen in April, Mr. WESTLAND gives it as his opinion, that the temperature of the border "should correspond with the mean temperature of the house," say 60°. Mr. THOMSON, whose experience is great, puts it at the same figure. Now, assuming this to be correct, we have here some data to go by. To attain and maintain that degree of temperature it is absolutely necessary to have recourse to fire-heat in some shape or form: the border must, in fact, be warmed by hot-water pipes. We therefore give our vote unhesitatingly in favour of Mr. THOMSON'S practice (see p. 27), as being the simplest and most effectual. Although in unskilled hands heated borders may be said to be "dangerous things," it is shown, in Mr. THOMSON'S letter, that in skilled hands they are exceedingly obedient. The chambered borders at Kingston Hall have been condemned by those most conversant with them, on account of the expense of construction. We are well aware of the many fine crops of Grapes produced by Mr. WESTLAND, but, when we take into consideration the enormous expense attendant on the formation of these borders, and the condition of the Vines during the past season, we must join in their condemnation. It may be said, that a good thing is not dear at any price; yet if the same result can be produced at a less cost, we prefer the cheaper plan. Mr. WESTLAND'S proposed border, as propounded by Mr. AYRES, seems good in principle; nevertheless, it seems to us, that unless considerable heat is continuously kept up—which is objectionable—the border will only become heated to a very slight degree.

We come now to consider the necessity for so high a degree of earth-temperature to start Vines in November, or at any other season. Mr. SAGE, a good practical gardener, says 50° is much preferable. Mr. MILLER, Combe Abbey, and others, say something to the same effect. We have heard the argument used, that if 60° is necessary in November, it is equally so in December, January, February, and March; yet the advocates of the heated borders do not deem it necessary for the three latter months, and why? It may appear rather paradoxical that those Vines which bear the best fruit, the main supply in fact, should require no assistance in the way of bottom-heat, though that is found so beneficial in the case of the others started earlier,—that the Vines which produce the main crop, should, in fact, start into action without bottom-heat at the season when the earth's temperature is at its very lowest, and greatly below that of November, when such heat is deemed necessary. The average temperature of the earth, as noted at Chiswick, at a depth of 2 feet, is in November 47°, in January 40°, in March 44°, and it is the very end of June before 60° is arrived at. It then rises to 68°, and in September sinks to 61°, October 56°; and at 1 foot the temperature is in summer a little higher, in winter a little lower. Our well-formed Vine-borders are, probably, considerably warmer than this; yet here we have the fluctuations shown, and some idea of the actual temperature realised; and from that and our own practical experience combined, we draw the conclusion that 60° is an extreme temperature, and higher than necessary to start with, even in November. The earlier Vines are forced, the more difficult it is to get them to break. It is unnatural for them to do so in November, and they have to be forced to do it. This is the reason why a higher degree of temperature in the border is necessary to set the roots in action in the one case than in the other; it is sound doctrine, as they will naturally move in spring at a much lower temperature. Roots grow to some extent, in favourable situations, during the winter, while the tops are yet dormant; in their action they are always naturally in advance of the tops, but when forcing is commenced in November their action is anticipated: hence the necessity of a stimulant; and the farther out of the natural course, the greater must the stimulant be.

Vines forced early one season require less forcing the following one. They seem to get used to an earlier season, yet, by continued forcing, Vines become exhausted, and require renewal much sooner than those which are allowed a more natural life. We have seen many excellent crops of Grapes produced and ripened in the end of April and May, by the husbanding of the heats of summer in early autumn, and by protection from cold and wet in winter, with the addition of a little fermenting material to the outside borders, as well as by the use of inside borders, of which we much approve for early work. And, again, for very early Grapes, we are greatly in favour of the use of pot Vines. They can be forced at a much less expense. This, in fact, is the only purpose for which pot Grapes can be recommended, viz., to bridge over the gap that may exist between the late and early crops on the permanent Vines. Thus, although we approve of Mr. THOMSON'S method of applying bottom-heat, as being the best brought forward—and look upon it and similar methods as great feats of horticultural, skill—yet, seeing that it is apt to be mismanaged, and that equally good Grapes, and a continuous supply, can be procured without incurring that expense, we are inclined to say—Let well alone.

After all comes the final question, is it necessary to force Grapes so early? For those who prefer newly ripened fruits it may be; for those who are content with well-kept Muscats, Lady Downe's, Alicante, Mrs. Pince's, &c., it is not. Mr. MILLER, of Combe Abbey, one of the most successful Grape cultivators in this country, who objects to early forcing, states that by the aid of the fine late Grapes now in existence, he is enabled to belt the year round without it. Remembering what we do of Mr. MILLER'S freshly kept Grapes in March, as well as those of Mr. TILLYARD, at Stanmore Priory, and the examples of Mr. MEREDITH, Mr. STEVENS, and others, as well as the late kept Grapes still to be seen in Covent Garden, we decidedly give them the preference. They are not only not coarse, but rich and luscious in comparison, in our opinion, with the newly ripened fruit, excepting Royal Ascot, in the end of March and beginning of April. As they can be kept so well now, at so much less expense than by forcing, we fail to see the utility of forcing early; and this conclusion does away, to a great extent, with the necessity of having hot-water pipes and heated chambers underneath our Vine-borders.

—A UNIVERSAL AGRICULTURAL CONGRESS is to take place at Copenhagen from the 6th to the 10th of July next, under the presidency of the Comte HOLSTEIN. The scheme is an extensive one, and combines the following features:—1. Reports and discussions on agricultural matters; 2. Exhibitions of domestic animals of the bovine, equine, ovine, porcine, and feathered classes; 3. Exhibition of implements, machines, &c., connected with agriculture, forestry, dairy management, the chase, fishing, bee-culture, and gardening; 4. Exhibition of the products of agriculture, forestry, &c.; 5. Horticultural exhibition. This latter, which more immediately concerns us, is in charge of a special committee, consisting of the Baron ZYPHEN ADELER (president) and M. ROTHE, director of the Public Parks, members of the General Commission; and M. TYGE ROTHE, director of the Royal Garden of Rosenberg; M. C. L. HANSEN, nurseryman; and M. J. C. HOLM, secretary of the Horticultural Society of Copenhagen. It is to embrace vegetable and table fruits, in season, as well as forced or retarded; fruit trees and garden seeds; ornamental plants and cut flowers; official plants; horticultural products, as preserved fruits, &c.; plans and designs for gardens, hothouses, &c.; horticultural erections, heating apparatus, and garden ornaments. Notice of intention to exhibit is to be sent before the 15th of June to the Secretary, M. D. DESSAU, Hauserplads No. 12, Copenhagen.

—— What is a SPECIES of NARCISSUS? We ask the question in reference to the proposed exhibition of species of Narcissus next year (see p. 308). Further, we may ask, Who are to be the judges? and, What rules of law are to be laid down for their guidance? Are we to go back to the origin of species, and endeavour to discover the handsome but somewhat conceited youth who is said to have been the involuntary founder of his race? No, surely; and yet we should thus get at the root of the matter (*narke*), though naturally the process would be narcotic in its effects. Seriously, we don't suppose any three botanists would be of the same opinion as to what constitutes a species in this more than usually variable genus. HERBERT formed his own opinions on the matter, so did HAWORTH, so has BOISSIER, so also M. JORDAN; but assuredly not one of the botanists we have mentioned, and we might enumerate many others, has carried entire conviction to the minds of others. In this dilemma, what are the judges at the forthcoming exhibition to do? There is time enough to consider this matter, and we are happy to be able to announce that Mr. J. G. BAKER, of the Royal Herbarium, Kew, has kindly undertaken, at our request, to prepare a few notes on this beautiful genus, which may facilitate their labours. Few persons could be so well suited as Mr. BAKER, both by personal knowledge and favourable circumstances, for summarising the state of science as regards the cultivated species of Narcissus. We hope to publish the first portion of Mr. BAKER'S remarks in an early number, and in the meantime, as it is desirable to know what species actually are in cultivation, any of our correspondents who may have specimens in a fit state for determination, will be aiding in the good work by forwarding specimens either to Mr. BAKER, or to ourselves.

—— The following extract from the official Prussian *Gazette*, received from her Majesty's Ambassador at Berlin, has been forwarded to us for publication:—"The *Staats Anzeiger* gives us some particulars of the NEW METHOD of CULTIVATING the POTATO, discovered by GÜHLICH, of Pinneberg, in Holstein, and which, it is said, has given surprising results where it has been employed. The leading features of this new mode of culture are—1. Turning up the soil to a considerable depth; 2. Choosing as seed large, sound, and many-eyed Potatos; 3. Leaving each seed Potato a space of 12 square feet; 4. Laying the seed Potato with the budding side down. By a report laid before the last meeting of the Francfort Agricultural Society, we learn the result of experiments in Potato-growing made last year. In one morgen (two-thirds of an acre), which was planted with 8 metzen of seed (1 metze is somewhat less than one-tenth of an English bushel), and where each seed Potato was left 12 square feet the produce was 108 scheffels (German bushels, = 1.5 English). Another morgen of land, planted with 12 metzen, and where each seed Potato had a space of 9 square feet, yielded 88 scheffels. A third morgen was planted with 1 scheffel of seed, each Potato being left 6 square feet, and the produce was 78 scheffels. The average crop obtained from 7—8 scheffels on the same land was 50—60 scheffels. The advantages of GÜHLICH'S system, then, consist of—1. A saving of 6—7 scheffels per morgen in seed; and, 2. An increase of from 25 to 100 per cent. in the produce.

—— A correspondent expresses his surprise at the two portions of a LAYER of a Black Hamburgh Vine, on either side of the peg which fastened it to the ground, producing shoots, as the SAP must move in the part nearest to the parent Vine in a direction contrary to that which it took originally, inasmuch as he conceives that this is contrary to "recent discoveries, by which it is declared to ascend by ducts and valves." The fact, however, is, that no such theory prevails; but, on the contrary, it is now well ascertained that an interchange of the fluid or gaseous contents of any two contiguous cells through the whole plant may take place in any direction, though the main current may be in one direction rather than in another. As regards valves, like those of a pump, no such organs exist, though permeable dissepiments are sufficiently abundant. The old experiment of planting a Gooseberry tree head downwards is a case exactly analogous to that of our correspondent's Vines, as, indeed, are most instances in which the tips of the shoots take root. A cutting of a Gooseberry tree will readily take root if reversed; the same may be said of many other plants. This of course could not be the case if the sap could rise in ne direction only. *M. J. B.*

A CHAPTER ON SWEET PEAS.

THE author of your admirably written and exhaustive Calendar adverted last week to the hardiness of Sweet Peas, and the necessity of early sowing, if we would have them exhibit their full richness of colouring, purity of tint, and sweetness. Permit me to endorse this excellent advice, and to add, that the best time to sow Sweet Peas for the first grand display, which is the richest, is in the open ground in November. Sweet Peas are just as hardy as any other Peas, probably more so: and for some years past I have sown

them with the first crop of Racehorses, &c., and the Sweet Peas bloom among the first of them all, and stand the weather as well or better than the hardiest among them.

After our exceptionally mild winter, this March has been a trying month for Peas, and none of them have much relished the biting frosts, pelting hailstorms, cold drenching rain-baths, and withering blasts they have had to contend with; but our Sweet Peas have suffered less than any of the others. They are short, but perfectly healthy, and all that the cold has been able to effect has been to arrest growth,—to keep them like the Wheats this spring, very close to the ground—but it has been unable to injure the growth already made; and with the next breath of spring the plants will start off as if by magic, and mount up their stakes as if running a race for very life.

This brings me to note a rather peculiar feature in our practice. No sooner do the Peas come through than we draw up two ridges of earth about 2 inches high, one on each side of the Peas, leaving a space from 4 to 6 inches wide between. The Peas of course occupy the centre of the valley, and these ridges act the part of useful break forces to the cold air, while the early Peas are gathering up their powers of resistance and endurance. By the time they reach the top of the earth barriers they are perfectly formed, having put on their full complement of leaf clothing, and are prepared to do brave and victorious battle with the elements. But just at this stage we meet them with another shelter and aid to growth—sticks. I wonder if any one has ever tried the full protective force of bare sticks. I saw lately a most powerful illustration of their power in the garden of a friend. One of the top quarters of his kitchen garden was bounded with a line of the lovely Aubrietia deltoidea; the whole row was in the same condition—in bud, excepting at one spot, where it was in full flower. Now what hastened it there, and caused it to expand a week or a fortnight before the other portion? There seemed absolutely no cause whatever. Yet there was, but it would be a long while before my readers would divine it. Just at that spot two or three young shoots of a Currant bush sprayed over the Aubrietia, and so effectively did they either keep the cold off, or radiate heat down upon it, as to advance its flowering by a week or a fortnight. Without seeing it one could scarcely credit that such a result could have sprung from such a cause. But the fact has confirmed me in the practice that I have adopted with all early Peas for years. As soon as they are fairly up, I invite them to climb, by affording them the protection and support of sticks. For the first crops the stakes should be placed much closer than for later ones. We generally choose stakes with small twigs at the bottom, and allow the main stakes to interlace over the top. Doubtless thus applied the stakes afford a most efficient shelter, and powerfully stimulate earliness of growth. But I must have done with the stakes, or your readers will accuse me of starting with the assertion of the perfect hardiness of Sweet Peas, and then proceeding to advocate a coddling regimen for their infantile days. Nevertheless there is a wide distinction between the shelter of stakes in the open, and pot, box, or glass nursing, with imbecility and unnatural tenderness.

Sweet Peas sown in November, and treated thus, will be in blossom early in June, and few flowers can prove more useful for cutting at that period. For bouquet work they are most effective, with one blossom only left on a stem. By this method every bloom can be arranged to a nicety of position and an equality of height, and they impart a dressiness and sweetness as an outer row, reposing on a fringe of green, that not many flowers can equal and hardly any excel. But the stand for the display of Sweet Peas is a wide mouthed vase from 9 inches to a foot in height. For this purpose branches of different lengths should be cut, choosing those of the most artistic form, abundant bloom, and greatest number, length, and curliness of tendril; also a bunch of the finest distinct blossoms. Then, with a correct eye and artistic fingers, carefully arrange and fill in the materials, allowing the tendrils and the leaves to depend over the edges of the vase, and spring up slightly beyond the flowers in all directions, and you will have an offering fit for the acceptance of the Queen of Beauty herself. Such a perfect vase once presented in the drawing-room, is not willingly let go. It is welcomed with such rapture that means must be devised to make it a permanent institution there. The simplest mode of doing so, is to sow Sweet Peas three or four times, as we do all other Peas. It is just as easy, indeed easier, to keep up a succession of Sweet Pea blossom, as of edible Pea pods, and by the same means. Sow therefore in November, for the first crop; in March, for the second; in May, for the third; and if they must be gathered right up into the frost and snow, try a few more in June for the last. The March and May sowings should be in partially shaded places, as the sun destroys the purity of colour; and the last should be sown, like the first, on a warm spot. This, however, is not essential for the first crop on account of any delicacy of the plants, but simply to hasten the first crop of flowers. I could name ladies who prize this pure pleasure as much or more than the epicure does his first ducklings and pealets.

Where Sweet Peas are used for boundaries of ribbons, covering fences, forming screens, &c., they may be made to flower throughout the season, by preventing the maturation of a single seed, and by frequent delugings of liquid manure. The branch cutting for decorative purposes also favours the breaking back of the haulm, and this tends to continuity of blossoming. The Scarlet Invincible Pea, which, by the way, is not a scarlet, shows what may be done by careful selection, and points the way to greater distinctness and vividness of colouring. A spotless white, a perfect blue, a vivid scarlet are within reach, and would form valuable backgrounds to many ribbon or flower-garden arrangements, where an indiscriminate mixture cannot be used.

With these new varieties, and early and successive sowings, or judicious pickings, no flower garden or drawing-room need be without the sweet adornment of these lovely flowers from May to November. *D. T. Fish, F.R.H.S.*

CYCLAMENS.

C. hederifolium, Aiton.—The tuber of this species is not unfrequently a foot in diameter when full grown; its shape is somewhat spheroidal, depressed on the

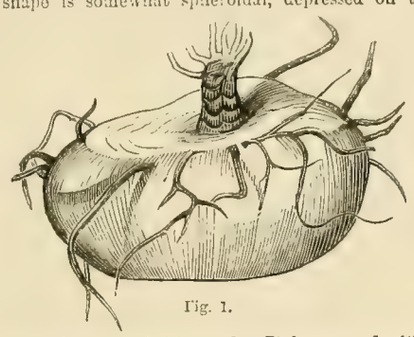


Fig. 1.

upper surface, rounded beneath. It is covered with a brownish rough rind, which cracks irregularly, so as to



Fig. 2.

form little scales. The root fibres emerge from the whole of the upper surface of the tuber, but princi-

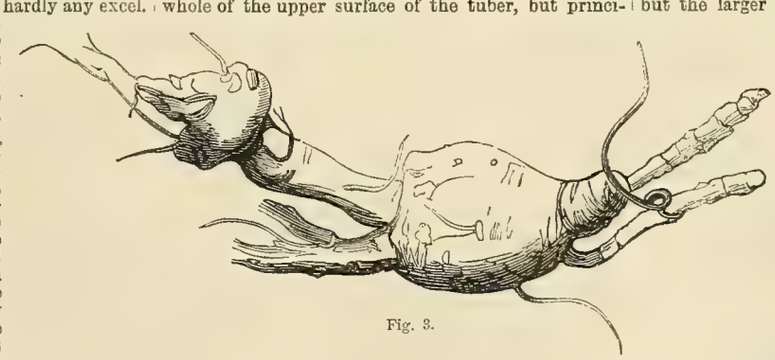


Fig. 3.

pally, and in greatest numbers, from the rim of the tuber; few or none issue from the lower surface. The leaves and flowers spring direct from the tuber without the intervention of any stem. At first they spread horizontally, but ultimately become erect. The accompanying figure 1 is taken from a small and not very characteristic example. There are not sufficient fibrils shown emerging from the upper surface and margin; the lower side of the tuber is moreover more rounded than is shown in the figure, while it is quite exceptional for the leaves to proceed from a little stem as shown in the cut. They issue in general directly from the tuber. The plant is well figured in Baxter's "British Botany," t. 505.

C. europæum, Linn.—In this species the tuber is of medium size and very irregular form, sometimes roundish or depressed and knotted, at other times elongated. The rind is thin, smooth, yellowish, sometimes "scabby." The tuber is sometimes of considerable length and size, as remarked by Sweert, who says "caudex non raro elongatus." Another author speaks of having seen it a foot and a half in length. The leaves and flowers originate from stalks or branches, which emerge from all parts of the tuber. The root fibrils spring from the lower surface of the tuber as freely as from the upper, but are never so numerous as in C. hederifolium. The drawing 2 shows the tuber too much depressed above. The stem emerging from it is rarely so much branched as is shown in the sketch, and there are usually two or three springing from different parts of the tuber and growing in different directions.

Figure 3 shows a piece broken off from one of the long underground stems just alluded to. Its direction is horizontal or creeping, not erect. It produces stalks or branches at both ends, and from which the leaves and flowers arise. This form is the "radice anemone" or "anemonoides" of some botanists and of the Dutch florists. *J. Atkins, Painswick.*

INDIAN MAIZE.

The interesting paper on this valuable and too much neglected esculent, by Mr. Clarke (see p. 251), has induced me to add some experiences of my own. The plan recommended by Mr. Clarke is not unknown to me, though I have never actually tried it; it is, however, suggestive. The "Six-weeks' Maize" is a novelty to me. Can the size and weight of the cobs be sufficient to make it a remunerative crop? The common yellow variety known in commerce can be obtained cheaper from America than we can grow it, unless, as at Barking Creek, sewage be used, and this is reported to be a great success. But what I should like to see grown largely as a delicious and nutritive table esculent, and capable of supplying blanks in the rotation of other delicate vegetables, is Indian Maize, used in a green state, as is commonly done in the United States. To do this, however, it is necessary to obtain seed of the right kinds, as the common yellow is only fit for cattle or poultry, at least in a green state.

While reporting for Government, in Paris, my attention was directed to an unequalled collection of varieties of Indian Maize, which was exhibited in the American section. Through the kindness of the Commissioner, a selection of the best of these was sent me, and in the summer of last year they were all planted out in the open ground, as early as April, in my garden, which is exposed to the wind, and the soil of which is unfavourable for Maize.

The plants grew rapidly, and reached to 10 feet in height, and were then secured to short stakes, by which means they weathered, without injury, a gale of 30 lb. pressure to the square foot in August. They presented a magnificent appearance, having cobs of a size which many intelligent visitors pronounced to be finer than any in China or Japan. This might easily be the case, for it is not probable that seed is so carefully selected in those countries as in a selection from the best in the whole of the United States, which embraces such a range of climate. Some idea of the size and consequent value of these new and splendid varieties—which have never before this been exhibited in such a complete form in Europe—may be arrived at when it is stated that the cobs were nearly three times as heavy as some cobs of the best Algerian corn, grown in this island, in a garden, from selected seed, and ripening nearly at the same time. The varieties I grew ranged in height from the 3-foot "pop corn" so well known, and which ripened early in September, to the 10-foot heavy blue corn, which ripened in October. In all there were about 20 varieties, of many sizes and shades of colour, ranging from the large pure white corn of Georgia (which is extremely delicate), through shades of yellow, to tawny; others were of a Mulberry colour, and some dark red; a few were of a fine blue. Of these 20 varieties some will in time be found useless, no doubt, but the larger proportion will supply a succession of autumnal table esculents, having a flavour much resembling Peas, and very nutritious. In New York it is customary to boil the "sweet corn" for an hour or an hour and a-half (according to the ripeness of the cob) in one thickness of the husks, tying the ends together. Butter and salt is then spread over them. The number of cobs I did not find to exceed two on a plant as an average, and this is considered to be a fair result, considering the size of these cobs. On some of the dwarf varieties (one of which is remarkably beautiful) there were occasionally four cobs.

Having no previous experience, the plants remained unwatered during the dry summer; they were twice earthed up, but the ground was very inadequately prepared from the first. Thus the trial was a fair one, and I look forward with great interest to amateurs and others taking up this matter of selected white Indian Maize, to be eaten green. There is no doubt that such a collection would never have reached Europe but for the occasion of the Paris Exhibition; and the plants having been tried in this island during last season, and having matured their seeds perfectly, this is a good opportunity to test their value once for all. I had at first decided on distributing the spare seed to friends, but being discouraged from so doing as an inadequate method of arriving at any large result, I transferred them to Messrs. Barr & Sugden, who have had a good previous experience in this matter, and are themselves prepared to experiment largely in them this year. For myself, I have prepared a number of seeds in small pots, so as to forward them under glass, as April might prove a treacherous month for open air planting.

I should also suggest to amateurs the Australian plan of sowing three seeds in a triangle, at say a foot of interval, for the sake of putting a stake 3 feet high between each group of three. As subtropical plants

some were extremely showy, and would ornament a garden. In conclusion, I only hope these plants will interest others as much as they have me, and that they will record their experiences for the general benefit. Surely out of 20 varieties we may calculate of one-half being permanently adopted. *T. C. Bréhaut, Richmond House, Guernsey.*

MASTIC L'HOMME LEFORT.

This is a long unmeaning name for a minor but exceedingly useful article—grafting wax, "*pour greffer a froid*," as stated in the superscription on the little tin boxes in which it is received. This composition comes from France, where grafting wax is much more generally used than in this country. In grafting, as is well known, after the parts have been properly joined and fixed, it is necessary to apply some substance to exclude the outer air from the wounds, in order to prevent them from drying up; otherwise the parts would not unite. In this country, for the ordinary grafting of fruit trees, &c., a mixture of clay is most generally used, and it answers well, and costs little beyond the labour of mixing and application, which however, when only one or two grafts are made, is pretty considerable. In France, grafting wax of various composition is generally used, and it is frequently employed in this country, especially for the finer operations. The great objections to its use are, the necessity of having fire near the place of work to melt the stuff, for it must be applied while warm, and if allowed to cool becomes set; and that it is somewhat hard, and apt to injure delicate bark. It thus takes up a good deal of time, even when a very small quantity is required.

The importance and usefulness, then, of the Mastic l'Homme Lefort, which is always in a condition fit for use, will be at once seen. It is a substance of about the consistency of common white lead, somewhat resembling half-melted gutta-percha, and having a very pleasant and agreeable perfume. It is quite easy of application, being readily spread over the parts with the blade of a knife or a flat piece of wood, like butter on bread. Although in the box, away from the air, it will keep pliable and moist for many years, it very soon hardens on the outside after being exposed thinly, and, as it were, hermetically seals up the point of junction, and thus prevents all access of air to the cuts. It is at the same time quite elastic, and easily removed when required.

This substance was introduced by Mons. Lefort to this country some six or eight years ago, and is now in the hands of Hooper & Co., Covent Garden. It was at the time largely tried in various ways in the Royal Horticultural Gardens, Chiswick, by Mr. Thompson, who reported favourably on its merits. I have myself used it in grafting all sorts of hardy fruit trees, and approve of it very much indeed. In grafting tall standards it is better than clay, which it is difficult to fix at all times. This, on the contrary, can be applied with the greatest ease in any position, and a very little of it suffices spread thinly round about the junction of the scion with the stock. I wish particularly to recommend its use in grafting Vines. For this purpose it is far superior to clay, or any other article that I have used—and I have grafted some hundreds. The objection to the use of clay or moss is that in general when the Vines are growing a moist atmosphere is maintained in the house; in fact, to induce the scion to break strongly it is regularly syringed. The clay, &c., is thus kept continually moist, and roots are emitted into it from the stock, and frequently from the scion also. When this takes place, and I have seen it many times, there is but little chance of the graft succeeding. With the Mastic, on the contrary, no roots are possible, however much the moisture and heat applied externally to the graft and stock, and, as a consequence, success in Vine grafting becomes almost a certainty.

I have also found the Mastic useful in placing over wounds or bruises on plants generally, thereby enabling them to heal quickly. For this purpose, for Vine grafting, and for all the more delicate operations of grafting, I strongly recommend it: further, it is very handy, always ready for use, and so easily applied. With a sharp knife, a bit of matting, and a little sixpenny box of Mastic l'Homme Lefort (at which price sufficient for 100 grafts can be purchased) any gentleman or even lady can go grafting trees, at any moment, with the greatest facility, and finish the operation without soiling the fingers. *B.*

Home Correspondence.

Diseased Pines.—Since January last I have cut ten Pines, three of which were black inside, and quite unfit for table. When the stalk is amputated all seem solid and good, and it is not before they reach my employer's table that the evil is detected, which is the more vexatious to me. As it never occurs in the warmer months, I am inclined to think that the extraordinary wet and dull season has something to do with it. The pots in which they grow are well drained, the soil consists of two parts turfy loam, to one part well decomposed horse-dung and sifted charcoal; the plants are plunged in a pit of leaves (in a stove), the depth of which is from 5½ to 7 feet; this is full of good leaves. I rearrange my plants every spring and autumn, trenching the whole depth of leaves, first backwards, then forwards, working in fresh leaves each time. When done last week a beautiful pure steam arose from the old leaves. I have stove plants on the front stage; Vines are on the rafters till the fruit is cut (about November), then they are drawn through the front lights to ripen their wood. I plunge the pots over their rims about an inch; but as the leaves are pure and good I do not think that harm arises from this cause, as oftentimes the plants have some strong feeders groping in the leaves. I am very particular in watering, sometimes the syringe only is used for some six weeks, and then not on dull days. When the fruit is swelling and the plants are dry, I give them a little clear tepid manure water. The lowest bottom-heat has been about 72°, and the temperature of the atmosphere from 67° to 70°. I fear that latterly the bottom-heat has been rather insufficient: is that, in your opinion, the real cause? As my case is somewhat different to that of another correspondent (see p. 195), who is in the same trouble, I may be allowed to say, that if some of your able correspondents will point out either the cause, or my errors, I shall feel very grateful. *C. L.* [We submitted this question, as also that given at p. 195, to Mr. David Thomson, who kindly answers:—"There are two causes which are especially calculated to produce decomposition in Pine-apples. The one is excess of moisture at the root after the fruit begins the ripening process, the other is that of leaving the fruit too long before it is cut or used after being quite ripe. Then there are some varieties more subject to rot than others, such as the spurious variety of the Smooth-leaved Cayenne, and the Prickly Cayenne. The varieties in this case are not referred to. The plunging of the fruiting Pines over the rims of the pots among leaves, and allowing them to root into them in the dull winter months, must be regarded as unfavourable in this particular case, because the absorption of moisture by the roots can neither be so effectually checked or regulated as when the roots are confined to the pots, or even a bed of soil, allowed to become dry as the Pine ripens. Pines to swell and ripen in the dead of winter should always be carefully drained, and have a bottom-heat of say 80° to 85°. And as it is requisite to maintain a moderately moist atmosphere while the fruit are swelling, comparatively little water at the root is required in such sunless weather; and immediately the fruit begins to colour no more water should be given to the roots. Managed thus, Pines may be cut or removed to a cooler and drier place, and kept perfectly well for a month after being ripe. More Pines in all stages are ruined by over-watering than from any other cause. We should say that cold and damp at the roots have caused decay in this case. We know of a case on a wholesale scale where, last winter, from no other cause than over-watering, every Pine proved black at the centre when cut."]

Marechal Niel Rose.—Will you kindly advise me in the matter of a Maréchal Niel Rose? It was planted three years ago. Last year in the early summer it produced an abundance of small buds, only three of which really opened, and these produced very poor flowers. In the autumn of last year three flowers were produced, one of which was magnificent. The plant kept its leaves well through the winter and looked healthy. It is now almost leafless, and is covered with multitudes of small buds just the same as last year, and which will evidently come to nothing. The Rose is against a south wall; my garden is suburban, with a gravelly subsoil, but the border has been well made, and manured with rotten stable dung. Last year, for a short time in the spring, on the advice of a nurseryman, I bent the shoots downwards on the wall in an umbrella shape, but doubting the advantage of so doing, I soon trained them horizontally again. The Rose has been very sparingly pruned, only the tips of the shoots having been taken off. Can you suggest anything to make the plant do better for the future, or is it hopeless to grow Maréchal Niel out-of-doors within seven miles of London Bridge? *C. F.* [We submitted the above to the Rev. S. Reynolds Hole, who obligingly sends us the following reply:—It is difficult to prescribe without seeing the patient. The symptoms of debility are serious, and the proximity to London and the gravelly subsoil are adverse to recovery, and yet that "one magnificent bloom" encourages both hope and care. The premature development of buds, weakly, and doomed to sure destruction, is common with this beautiful Rose, especially when it is worked on the Manetti stock, and is grown against a wall with a southern aspect. The most successful plan of realising Maréchal Niel in his integrity has been, in my case, to grow it upon the Briar, either upon a wall with an eastern aspect, upon standards, or on arcades. If "C. F." has not tried the Briar, I advise him to do so, renovating, at the same time, and manuring his soil. *S. R. H.*]

Surface Cropping Vine-borders.—There exists a diversity of opinion on this point. In a theoretical point of view the non-croppers have seemingly a plausible case; but what says practice on the point? I well remember that, 20 years ago, in a large garden with an extensive range of vineries, the then gardener annually planted the Vine-borders with bedding plants, the Vines bearing enormous crops of first-class fruit every season without the least indication of distress. The borders were subjected at least once a year to the barbarous practice of digging or forking in a good top-dressing of thoroughly rotted dung. I have seen the same practice carried out repeatedly both in Ireland and in Scotland, and I must say with no injurious consequences. So soon as it is proven that cropping is injurious to Vine or fruit tree borders, then will arise the disagreeable necessity of asking our employers for more ground to grow vegetables, and flowers for cutting purposes. Were all our Vine-borders divested of their summer garb, and our fruit tree borders of the useful in the shape of vegetables, I apprehend our employers would not often enter into a garden which would look like a fallow field at midsummer. At this place there is a good range of forcing-houses of large dimensions. In one of them there is a Black Hamburgh Vine, which has been planted between 80 and 90 years. It covers 75 feet of rafter, and is now as healthy and fruitful as in the first few years of its existence. This Vine has 24 feet of border to revel in ere it reaches a 6 foot gravel-walk, which the roots pass under into a vegetable garden. I have traced the roots a considerable distance in the vegetable break, which I crop heavily all through the season, and have found them in the most healthy condition. The portion of the border allotted to this fine old Vine, before it reaches the path, is always cropped during the summer months. Another house, in the same range, is planted with Muscats; we have a 15-foot border ere the roots reach the path. The quarter opposite this house is devoted to the growth of Asparagus, and we all know that this plant is a great feeder and a deep feeder. Nevertheless, I have found healthy roots at 60 feet distance from the front of this house amongst the Asparagus roots. All our kitchen garden borders are heavily cropped every season, and I suppose have been for the last 50 years, yet the wall trees are in a most healthy condition, bearing heavy crops of good fruit every season, as scores of visitors can testify. I would rather crop the borders in this manner, than plant them with dwarf fruit trees. *A Middlesex Gardener.*

Arundo conspicua.—Allow me to call attention to the New Zealand Toe-Toe Grass, or Arundo conspicua. I believe this will prove a valuable plant for cultivation in this country for ropes and strong hempen fabrics. The fibre is nearly as tough as that of the New Zealand Flax (P. tenax), while the plant is much more prolific, and seems as if it would grow anywhere in this country and yield a heavy crop. The blades are stronger than our Pampas Grass (Gynerium argenteum), of a darker green colour, rather broader, and not quite so erect, and from 2 to 4 feet in length. I enclose a blade for you to test its strength. *Henry Curtis, Devon Rosery, Torquay.*

Soil for Rhododendrons.—We have no hardy evergreen—the Camellia alone excepted—that can be compared for beauty with the Rhododendron; and on this account it certainly deserves to be much more extensively cultivated. The idea that this shrub will not thrive, except when planted in peat soil, is quite erroneous. Where the ground is naturally composed of peat, they thrive well; but they may be equally well grown in almost any kind of loamy soil that is not tenacious enough to knead. They thrive well in mellow, sandy, hazel loam, but do not succeed when planted in sharp gravel, or in soil of a calcareous nature. The use of peat soil, by those unacquainted with its nature, should be avoided as much as possible. R. ponticum is considered by many to be rabbit proof, but unfortunately I find it not quite so. *F. Flitton.*

"Caractacus" Pea.—A row 50 feet in length under glass was sown here on the 6th of January, from which 3 quarts were gathered to-day, March 25th, and this picking has been purposely delayed a few days after the Peas were fit. As this Pea seems to possess capabilities for moderate forcing, and may prove to be an acquisition on this account, I may state that I saw it growing in the valley of the Thames from seed in June last, when it was 2 feet in height, and loaded with medium sized pods. It is less productive in straw and pods under glass. It is of the Dillistone's Prolific type, perfectly pure, and of uniform growth. It was supplied under the name of Caractacus. *John Reid, Haigh Hall Gardens.*

Primula sinensis.—Accompanying this paper are a few Primula blooms, sent not for an opinion on their merits, but to show that in addition to the beautiful kinds in the hands of Messrs. Windebank and Kingsbury (p. 281), there are others dissimilar from theirs that may ultimately produce distinct types. The white bloom is from a plant producing red leafstalks as deeply coloured as are those of the purple kinds. The semi-double flowers come true from seed, and are reproduced from year to year. Unlike the perfectly double ones, these produce flowers having the necessary productive organs; they are of a less robust habit of growth than the single kinds, but are as easily cultivated, and are very useful for winter work; the bloom remains longer upon the stalk, and consequently they are better adapted for bouquets. This type of flower is as yet almost exclusively confined to whites. Two other blooms having a white ground suffused with lavender, and eyes quite distinct and margined with a white ring, are dissimilar in appearance from any I have seen elsewhere. The habit of foliage in this type is strong and robust, the leafstalks light in colour and very erect. The other two blooms have a purple ground colour flaked with white, thus reversing the previous order of things in flaked flowers, which hitherto have been white grounds flaked with purple. These four latter blooms are small, as the plants have passed their best, but I expect to reproduce them as distinct types another winter. I have no doubt but that we may go on producing new shades of colour in the Primula *ad infinitum;* and certainly there are few flowers that will more amply repay the careful hybridiser for his pains than the one now the subject of comment. Whilst they are eminently easy of cultivation, they afford the richest display of colouring that can be got from any other like plant in the dead of winter. One of the most successful private hybridisers of the Primula recently told me that he was trying to produce a yellow one; this would be a decided novelty, and it seems not unlikely that the desired colour may ultimately result. I am trying to do the same, and hope for success. The possibility of getting a blue shade is also worthy of attention, and, if obtained, it would indeed be an achievement. I have seen nothing that I think would prove a better ground-work for this purpose than the lavender-shaded flower sent. As far as I can gather we now have in the Primula the following colours:—Whites, sometimes slightly shaded with pink; purples, from pale lilac to rich mauve; rose, or kermesina type, which varies in shade, but the deeper ones are very showy, and this type may, moreover, ultimately develop a scarlet with a greater fixity of colour than now exists; flaked flowers, having white grounds and purple or rose flakes and specks; and a very distinct flower, having a white ground with a rich salmon tint round the eye, gradually shading off to

the edge of the flower. To these ultimately may be added the two newer types now sent, and which will, I trust, prove the progenitors of a stock like unto like. In spite, however, of this neighbourhood having taken the lead in the hybridisation of the Primula, we are not equal to some of our compeers around London in the matter of growth and cultivation. Till recently I had never seen the Primula grown for exhibition; a visit, however, to Isleworth, to see Messrs. Wiggins & James' fine plants, convinced me that the Primula to show well must be done well; what splendid heads of bloom they had, and the individual flowers equally fine! But I regretted to see that they had almost entirely confined themselves to the old purple and white types. When such men as these take the newer shades of colour in hand, they will some day produce a real sensation at South Kensington. *A. Dean, Old Shirley.*

Graft Hybrids.—The discussion in the *Gardeners' Chronicle*, respecting the alleged changes produced in the character of the offspring of grafted Potatos, will, I trust, be the means of clearing away some of the uncertainty which still exists as to the general influence of stocks upon scions. That a stock has always some influence on a scion of a different kind, is usually acknowledged, but whether that influence extends beyond a mere transient effect on the graft so long as it remains on the stock, or whether a permanent change is thereby effected in the variety grafted, is the question which the Potato discussion may possibly elucidate. The oft-repeated instance of the Cytisus Adami is not, to my mind, sufficiently authenticated, for I am assured that unworked seedling Laburnums have been known to produce bunches bearing purple flowers. The case, however, of Mr. D. T. Fish's grafted Holly, of which a branch bearing orange-coloured berries was exhibited by Dr. Masters at a recent meeting of the Linnean Society, seems in some measure to support the respectable testimony evoked in your columns in favour of the change in the Potato, and which evidence has tended to resolve into doubt my scepticism as to graft hybrids. Following, therefore, the example set by the Royal Horticultural Society (and like Mr. Mechi, with the Oat-Barley theory, as persistently adhered to in the Fens), I have been induced to try the experiment. That it is possible to effect union between the eye of one Potato and the "set" of another is easily capable of proof, as I have already ascertained by placing the grafted sets in Cocoa refuse, and examining them from time to time. Collateral evidence can, I am informed, also be gathered from the Dahlia, which has been thus successfully treated for many years. I cannot, however, ascertain that any change, either permanent or transitory, has been noticed in the results obtained from grafting that plant, although it is said union is effected as readily as with the Potato. The cases of both plants are easy of observation, and well worthy of trial by your readers. The specimens enclosed—partially swollen sprouts from Potatos which have been allowed to club in the light, will show that there is but little (if any) real distinction between the eye of a Potato and the bud of a Rose, or other plant; and I am led to inquire why, if the change takes place so perceptibly with one plant, many others are not affected more apparently in a greater or less degree? and why has not the matter been cleared up long ago? Again, as the offspring young Potato appears to be merely a distended prolongation of, or an offset from the set, I ask, When does the alleged change take place? if at all, I argue it should commence so soon as union is effected. A further query arises as to the extent to which the character of the offspring can be controlled by regulating the proportion of the set to the size of the eye and its accompanying piece of tuber; and premising any permanent alteration to ensue, it would seem that the variations in the offspring ought to be anticipated to some nicety, and if an eye can be spliced to two or more sets (not an impossibility), what limit is to be placed to the blending of varieties by a skilful and judicious manipulation? I would suggest that the Royal Horticultural Society should include in its experiments the effect of increasing the number of sets to one graft, and the result may perhaps, by analogy, throw some light upon the doctrine of superfœtation. At all events the thoroughly practical working out by authority of a matter which forms one of the most interesting subjects of the day to the naturalist and the horticulturist, will neither bring discredit on, nor be unfruitful in its results to the Society. *T. Laxton, Stamford, March* 31.

Prizes of the Royal Horticultural Society.—I observe that the Royal Horticultural Society has lately offered prizes for various sorts of Apples. Now, Apples are good things in their way, but if one has an average orchard and a good fruit-room, to have good Apples in February is no great feat of horticultural skill. It would be much more important to Grape growers, whose name is legion, if the Society would offer prizes for the best kept Grapes, white and black; the best early Grapes to be accompanied with a statement of the system of culture that produced them; whether they had bottom-heat or not, and if they had, how applied; the best Strawberries; the best basket of forced vegetables and salads, &c. We who dwell in the country, and have but a limited knowledge of what goes on at the great fountains of horticultural science, often wonder why certain things are done, and certain others left undone. A writer in the "Notts Guardian" states that Lady Downe's Grape, Black Alicante, and Barbarossa are utterly worthless, and that Mrs. Pince's Black Muscat is the Grape that is to displace such rubbish. Now, what we country folk wonder at is, that neither Mr. Pince nor Mr. Meredith, who are said to have grown it to great perfection this year, give any indications that they mean to exhibit it. Both have plants of it by the hundred for sale, and one is afraid that it is a failure, else they would for their own interests have allowed it to see the light. There is yet plenty of time to illustrate the keeping qualities of any Grape. If the powers that rule at Kensington would take the matter up, and offer prizes for the best late Grapes in March, it would then be patent which these were, and I for one should not be surprised to see Lady Downe's in the first position. *Q. in the Corner.* [The answer to this would probably be, that different objects must wait their turn. Prizes for Grapes have been offered in former years, also for Salads, &c., and in some cases but little responded to; whereas the prizes for Apples and Pears offered in February last brought together one of the most interesting displays of the kind that has for a long time been seen. "Q.'s" hints may possibly fit in with the arrangements another season, and for this reason we put them on record. Eds.]

Growth of Conifers.—In your volume for 1856, at p. 230, a tabular statement is given of the growth of Conifers at Boconnoc, in Cornwall, as measured in December, 1855. The following is an account of their growth since that time:—

	When introduced.	Heights, Dec., 1855.	Heights, March, 1869.
		ft. in.	ft. in.
Pinus austriaca	1842	22 3	42 0
,, Cembra	1842	11 10	22 7
,, excelsa	1842	22 7	30 3
,, Hartwegii	1842	15 1	32 10
,, insignis	1847	33 1	64 4
,, inops	1842	18 7	29 2
,, Laricio	1842	22 0	39 7
,, pungens	1842	17 0	28 6
,, Pythyusa	1842	18 4	33 0
,, rigida	1842	21 8	36 4
,, resinosa	1841	9 9	22 9
,, serotina	1842	15 10	24 6
,, Teocoté	1842	21 7	38 9
Abies Brunoniana	1842	8 11	23 0
,, Douglasii	1841	30 8	61 7
,, Ellicombiensis	1842	13 2	31 3
,, Morinda	1842	12 11	35 2
,, Menziesii	1842	33 6	56 6
,, Smithiana	1842	7 9	21 6
Picea cephalonica	1842	14 6	42 6
,, Pinsapo	1842	12 0	20 0
,, spectabilis	1842	5 8	24 5
,, Webbiana	1842	22 2	40 0
Araucaria imbricata	1841	9 6	24 4
Cedrus Deodara	1841	22 0	37 3
Cupressus torulosa	1841	13 0	31 10
,, macrocarpa	..	..	29 4
,, Goveniana	..	..	22 3
Cryptomeria japonica	1851	14 0	37 4
Taxodium sempervirens	1851	..	45 6
Wellingtonia gigantea	1856	..	25 0

The following is the measurement of the girth of stems and length of branches of a few of the best specimens:—Abies Menziesii, girth of stem 2 feet from the ground, 8 feet 4 inches, length of branch 16 feet 6 inches; Abies Douglasii, girth of stem 7 feet 2 inches, length of branch 22 feet 6 inches; Cryptomeria japonica, girth of stem 4 feet 10 inches, length of branch 14 feet 4 inches; Taxodium sempervirens, girth of stem 7 feet 3 inches, length of branch 18 feet; Wellingtonia gigantea, girth of stem 4 feet, length of branch 7 feet. *Charles Lee, Gr. to Hon. G. M. Fortescue, Boconnoc.*

Surface Cropping Vine-borders.—The present discussion in your columns forcibly reminds me of the common proverb, that of two evils we should choose the least. But it should be borne in mind that this proverb is thoroughly vicious in principle, and ever gives rise to questionable practices. No man is compelled to choose an evil course. He is never completely hemmed in by an unbroken barrier of evils—some outlet for good is constantly provided. To square the proverb with truth or sound ethics, it should run—Of two evils choose neither, or spurn both. A similar principle should guide us in plant-growing. Here, as in our own conduct, we are not shut up to a choice of evils, but are free to elect or choose the good. The cultivator, for instance, who inscribes "Sacred to the roots" on his Vine-border, is not compelled to invite or allow the attacks of red spider on the leaves or branches of his Vines. The fact of having done justice to the roots can never be accepted as a reason for treating the top with indifference. Instead of there being any antagonism between the cases of both, anxiety for the well-being of the one is almost sure to beget a like zeal for the well-doing of the other. Hence the illogicalness of those who when one good practice is commended, extol another in preference, or to its depreciation. The cropping of Vine-borders is either right or wrong; and it is one or the other wholly independent of the evils wrought by red spider on the leaves of Vines. Surface-cropping and red spider are both evils of sufficient importance to be discussed singly and alone, and neither are likely to be cured by any cultivator, however famous, informing us that he prefers the one to the other. The important question is, not which is the worst evil of the two, but why should we have either. I contend that no cultivator should surface-crop his border. Mr. Thomson says no Vine grower should admit red spider, and yet somehow he sees fit to offer his good advice in apparent antagonism to my inscription. But the two are in perfect accord, and both are alike good. It cannot be intended to convey the idea that there is the most distant connection between an uncropped border without, and red spider within the house, for it is well known that there can be no such connection. Neither do I yield to any one in attributing the utmost importance to cleanliness within the house. Thrips or spider largely impair or totally destroy the functions of the leaves, and disorganise the entire economy of life. It is only needful to look at infected leaves through a common microscope to be convinced of this. Freedom from such pests is essential to success, and ought to be one of the primary objects of all Vine growers. Upon every Vine should be written "No spider, thrips, or bug allowed here." Outside and inside the borders should bear the inscription, "Sacred to the roots." When we think for a moment of the expense of building, planting, and heating Vineries, it is astounding that anything should be permitted to share the borders with the Vine roots. The mere risk of impairing or exhausting the soil should be enough to prevent surface cropping Only think of what the soil will have to produce in the course of years, and the difficulty, expense, and risk of its renewal is enough to make us pause ere we take a surface crop off it of either beauty or utility, and thus dissipate its stamina and impair its powers of production. The border, from its position and its underground treasures, has become precious as gold, and its surface crop treats it like so much copper. A Vine-border is prostituted and degraded when it is used for growing what any other soil or place would grow just as well or better. Even if it does not much injure the Vines—which it does—surface cropping is a piece of the most reckless extravagance that can be indulged in. It scatters, as it were, broadcast, among common flowers or vegetables, the food that was prepared for conversion into meat or drink fit for the gods. It would almost seem an act of sacrilege to grow Cabbages on a Vine-border; but as far as the waste of Vine food is concerned, bedding plants are about as greedy robbers. Even beauty may be purchased too dear; and it is so bought when it weaves its robe of glory out of the blood of Grapes: a compensation, indeed, may be given, but it is difficult to measure the loss, and impossible in many instances fully to restore it. Restoratives are needed for the Vines alone, and they are entitled to the whole benefit—and need it, too, to keep up their productive stamina to the highest pitch for many years together. But it it is not only that these competitive roots exhaust, they likewise injuriously affect the texture of the soil. Their multitudinous borings break and fine down the earth, and so unduly compact it into a solid dense mass, well nigh impervious to air and water. This is a great evil on many soils, and one means of avoiding it is to devote the ground solely to the use of the Vines. I have no more faith in mere panaceas than your correspondent. Attention to no one point, however important, can command success. Still I believe a rich, sweet, unclothed border for the roots, and spotlessly clean tops, are the twin sisters of successful Vine growing; and that where they are present, with ordinary skill as an auxiliary in the application of water, light, heat, and air, good Grapes are almost sure to follow as a matter of course. *D. T. Fish, F.R.H.S.*

Potato Improvement.—Having made experiments on the Hemp plant by a process of pruning, or mutilation as it may be termed, and produced seeds with tricotyledonous embryos—a plant having three leaves in a whorl, instead of two opposite, and female plants bearing male flowers*—I would suggest that the following mode of treatment may very probably give rise to new and perhaps unusually productive varieties of the Potato, if the increased number of leaves in the Hemp may be regarded (from having buds in their axils) as an indication of an increased number of branches. And as real vigour of growth is, it appears to me, the best preventive of diseases connected with the growth of Fungi, it may be hoped that varieties of the Potato may be raised by such a process which will stand against the Potato disease better than any of those hitherto grown. The Potato selected should be the largest sized one of the variety that can be procured. All the eyes but two should be cut out, or, if that is inconvenient, it should be allowed to sprout before planting, and all the young stems but two broken off. When it comes up, more than two stems will, in the first place, appear, and of them all but the two largest should be pulled up, care being taken not to injure the plant, to avoid which the knife may sometimes be necessary. Many small stems will continue to come up for weeks, which should be removed soon after their appearance, so that only two stems are allowed to grow. Some time before the flowers open, those parts of the stems which are above the peduncles should be cut off, and also the branches from the axils of all the leaves. The places of these branches will be quickly supplied by others for weeks, but these should be removed about once a week: also, before the flowers open, and as soon as it can well be done, all but the two or three largest should be removed. It may be expected when the fruit has ripened that some of the seeds will be found to be of larger size than usual. Of these the larger only should be planted, and the most productive seedling raised from them selected to proceed with the experiment, which I should expect might be advantageously carried on to the third or fourth generation at least. What would be the consequences I cannot conjecture; but I believe that varieties of more vigorous growth would be raised, which might perhaps prove to be much less liable to disease, and more prolific. Having made the experiment but once, I am unable to give complete directions, but the principle will be sufficiently obvious; it is an extension of that which Mr. Hallett has so successfully applied to cereals, although originating from different data. The Rev. F. D. Horner, of Ripon, Yorkshire, who has cultivated Indian Corn for so many years that he regards his varieties as acclimatised, and who ripened last year 80 plants, one of his varieties being 9 feet high, never allows a plant to ripen more than two cobs; and to this I attribute, in some measure at least, his success. Had he commenced with the Six-weeks' variety, and always reduced the cobs to one, it may be a question whether the plant might not by this time have become available for farm cultivation in the south of England. Not being able at present to carry out the above experiment

* One plant bore two male flowers, and another one; the anthers being of the usual size.

in such an extended way as it appears to me it deserves, and being very desirous that it should be tried, I shall feel a pleasure in answering any inquiries on the subject, or any objections to the principle on which the experiment is conducted. *B. Clarke, F.L.S., Mount Vernon, Hampstead.*

Tree Ferns in the Open Air.—I have reason to believe that many persons have planted in the open air, in various parts of England and Ireland, specimens of the Tree Ferns (Alsophila, Cyathea, &c.) of the southern hemisphere. If any of your correspondents will kindly communicate the results of their experience in this matter, mentioning the species selected, the particular localities, the degree of local exposure, the artificial protection afforded, the minimum of temperature endured, and any other similar details that bear on the probability of our naturalising these elegant plants, I for one, and I doubt not others, will feel grateful. *P. H. Gosse, F.R.S., Torquay.*

Foreign Correspondence.

Gardening Notes from Russia.—In the "Moscow Horticultural Journal" there is an article by M. F. Demyoor on pleasure grounds, in which it is stated, truly enough, that the first condition of beauty in a garden is a well-kept lawn. In this country, however, especially in the more southern parts, a beautiful lawn is but rarely seen. The summer is usually so hot and dry, that it is difficult to keep a lawn of any extent fresh and green without frequent watering, and owing to the trouble and expense of extra hands, that is just what people here do not like to undertake. There was an unusual supply of rain last summer, and lawns were therefore fresh enough, but in general they are quite brown after the month of May. The Russians are astonished when they are told that our parks and lawns are green all the year round; and yet if they would only give themselves the trouble, a good deal might be done to insure the much-prized luxury. But instead of making any arrangements to insure a convenient supply of water for this purpose, by means of tanks and butts, they allow the rain in wet weather to run off. The ground, besides, is always so hard and dry, that the water evaporates before it has time to reach to the roots of the Grass. M. Demyoor relates an anecdote of M. Varé, of Paris, which I think it worth while noticing. He states that "Queen Victoria requested Varé to lay out a garden for her, notwithstanding that she could command the services of the celebrated Paxton. The Queen asked him for a plan. Varé replied that he only understood drawing plans on the ground. That was true: we never knew him to draw a plan on paper, but on the ground he gave a striking proof of his skill, as may be seen in the grounds of Baron Rothschild near the Lake of Geneva, in those of M. Fould at St. Germains, near Paris, the Bois de Boulogne, and many other parks and gardens of his laying-out. This proves that it is possible to be a good landscape gardener, without being a designer or draughtsman, for the first essential is to have correct taste. We do not mean to say that it is not necessary to measure the ground before beginning the work: on the contrary; but the first thing is to have a clear idea of all the objects of the locality as they exist, and as they are likely to be after 20 years." My object in giving you this quotation is to show you what is stated respecting the Queen, in reference to a subject which is generally considered to be essentially English. It is only of late years that the French have given up their old-fashioned system of stiff lines, squares, and angles, and adopted a more natural and more graceful style, and everybody allows that the most beautiful gardens on the Continent at the present day have been copied more or less from the works of English masters. I am, therefore, much disposed to doubt the truth of this story.

As I stated on a former occasion, M. Enke has an interesting article about the great London Exhibition of 1866, and I notice it, not because it is the report of a show long since past, but because I think you may be curious to know the opinion of a Russian authority respecting English gardening, and plant growing in particular, for the same remarks might apply to almost any of our great flower shows. M. Enke says:—"Respecting this exhibition, I have sometimes asked myself the question: Does it come up to my expectations? On that point I can only answer, that before I entered the building I supposed I should meet with nothing very wonderful, and yet I must acknowledge that all I saw far exceeded what I thought I should probably find. The English really are remarkably clever in always showing themselves to the greatest advantage." As might be expected, M. Enke was astonished at the sight of the stove and greenhouse plants. "All these specimens," he states, "must be seen in order to have an idea of the perfection attained by the English in plant culture. I do not know which surprises me most, the patience indispensable to grow such plants, or the high degree of excellence attained. Every one of those I have enumerated was in reality a model of perfection. Many plants which we in Russia have long neglected because we have not understood their culture, or because we have not taken the trouble to grow them, are here objects of general admiration. As for Azaleas, I must own that I was quite amazed at the sight of them. There were some collections of 20 specimens, all in the pyramidal form, 2½ to 3½ archines* high, and from 2 to 3 archines in diameter. These from top to bottom were so profusely covered with flowers, that even the leaves were scarcely seen." M. Enke considers the English mode of growing the Azalea preferable to that adopted by the Belgians; and the free pyramidal form, he thinks, is by far the most effective.

Respecting the Orchids, M. Enke says, "It would be difficult to say which were the best of these magnificent plants; they were all exquisite in their way; and he who has never happened to see a collection of Orchids in their full bloom, can have no clear idea of the beauty of these luxuriant plants." The collections of Nepenthes and Cacti elicited M. Enke's fullest admiration. He was equally pleased with the show of Rhododendrons, and was only astonished to learn that but a very limited number of those gorgeous plants were exhibited, owing to the fact that the show of American plants would take place 10 days afterwards.

Coming to the Roses, he says: "I was as much astonished at the perfection of cultivation of these plants, as I was struck with the splendour of the Azaleas. The first collection I came to was awarded the 3d prize. I thought that this must certainly be a mistake, because the plants were exceedingly beautiful, at least much more so than anything I had ever seen at our exhibitions of Moscow and St. Petersburg. But when I came to the collection that was awarded the 1st prize, I was convinced that the mistake was on my own side. Goodness gracious! I involuntarily exclaimed, is it possible that the culture of Roses has attained such a high degree of perfection! I closely examined some of the most magnificent specimens, thinking that surely there must be several plants growing together, but I found that each pot contained only one. It would be difficult to say which of the 20 specimens in this collection was the most exquisite, they were so lovely and so perfect. I counted on Rose remontante Anna Alexieff 85, and on Louise Odier 96 of the more charming flowers in full bloom, without speaking of the buds, which were innumerable. The plants were of a moderate height, but generally from an archine and a half to an archine and three-quarters in diameter. Their beauty was much enhanced by their being grown in small pots, for I can easily understand that large pots would only diminish their effect."

M. Enke is a great admirer of the Holly, and was quite charmed with the collections exhibited. "To cultivate such Hollies in pots," he tells his Russian friends, "would be exceedingly difficult, but in England they grow in the open ground without the least protection, and those shown were only planted in their pots a short time before the day of exhibition. The Holly on this account is much prized by the English, Belgians, and Germans, as well as by the inhabitants of the southern and central parts of Europe. It is distributed freely in parks and private gardens, in clumps or singly. It is also plentifully used for hedges." What must be thought of such information in a country where there is not a single hedge of any kind to be seen? Inclosures in the towns of Russia are generally formed of boards, but in the country most frequently of branches, very often of straw and manure. Brick walls are too expensive, and very sparingly met with*, near the houses of some of the richer gentry. *K.*

(To be Continued.)

* An archine is the general measure used in Russia; it is 27 in. long, and is divided into 16 vershki. The vershok (Eng.) is consequently a little less than 2 inches.

* Bricks in the south of Russia cost from 6 to 7 roubles a thousand (about 20*s*.), but they cannot be burned very hard, as the clay is too sandy, and they do not last long, unless covered with plaster.

Societies.

Glasgow and West of Scotland Horticultural.—The spring show of this Society took place last week in the City Hall. The weather was propitious, and the exhibition was made up of some very choice materials, Dutch bulbs forming the staple. Never before in Glasgow were there so many good Hyacinths shown; indeed, it is a matter of wonder, expressed even by the Dutch growers, how well the flowering properties of these bulbs are brought out by the gardeners of this country. In the open and nurserymen's classes Mr. P. M'Kenzie carried off the palm with some very fine specimens; and from his collections were selected the first and second best Hyacinths in the exhibition. In the gardeners' classes there was much more excitement and considerably more rivalry, in some cases not fewer than 12 different lots competed for the awards. It is due to Mr. N. Glass, gr. to Mr. Bolton, of Carbrook, Mr. J. Sutherland, gr. to Mr. Denny, Dumbarton, and Mr. Mackay, gr. to Mr. Reid, Rutherglen, to say that their respective lots were well grown, well selected, and well staged. When we come to individualise we find the old sorts that took position ten years ago still prominent, beating many of the higher priced rivals of modern introduction. There is nothing finer in whites than Alba maxima and Mont Blanc, unless it be Snowball, which lacks in strength of spike what it gains in substance and size of flower. Among deep reds, Koh-i-noor, Lord Macaulay, and Von Schiller stand out boldly among their fellows; and in the various shades of blue we have Maria, Charles Dickens and Grand Lilas—all flowers that one sees in every winning stand, and such as ought to recommend themselves to all interested in the culture of Hyacinths. Curiously enough, the double-flowered sorts which the florist is anxious to encourage, and the botanist to discourage, cannot at all approach in point of excellence their single rivals, unless it be a blush called Duke of Wellington, and a blue one looking like a Delphinium, called Garrick. Of the amateur class, which labours under difficulties, and even in the midst of city smoke triumphs in the cultivation of bulbs, Messrs. Robertson, J. H. Sharpe, and Wilkie, all from the Hutchesontown district of the city, not only took prizes, but earned them meritoriously. The Tulips were quite marked plants; while the Narcissi and Croci were an exhibition of themselves. The king of the bulb race is the Brazilian Amaryllis, the tall scapes and large and prominent flowers of which invest these bulbs with no small importance. It was here but sparsely shown, the best lots coming from Messrs. Fleming and Sutherland.

Among the miscellaneous hard-wooded plants, the Azaleas claimed paramount attention; but their great pyramids of colour would have been relieved by the arching fronds of Tree Ferns, or some of the choicer foliage plants that have beauty of foliation and outline to recommend them. The collections from Mr. Boyd, gr. to Mr. Finlay, of Easterhill, and Mr. R. Caskie, gr. to Mr. A. Graham, Thornwood, were closely matched. Heaths, Epacris, and some of the choicer Orchids were only indifferently contested for, the best plant of a purely bridal Orchid (Cœlogyne cristata) being furnished by Mr. Jas. Forbes, Beachwood. New Holland plants came very well handled, the Chorozemas, with their wreaths of showy orange and scarlet leguminous flowers, deservedly attracting notice, as did the catkin-like inflorescence of the various Acacias, which were numerous and well grown. Not the least decorative plant of easy culture, which any citizen with a greenhouse, however small, could manage, was the Deutzia gracilis. The flowers of this plant are sometime mistaken for Orange blossoms, and they come forth in such quantities as to delight all who tend them. Gardeners, however, are evidently erring in training the plants into shapes far too formal; even the 1st prize lots had this fault. It was pleasing to turn from these to the Dielytras, which bear well the pressure of artificial heat, and remunerate the grower with a large crop of depending flower-stems. Camellia blooms and Camellia plants are always desirable to look at, and although there were not quantities of them, the flowers were conspicuous and good, particularly the cut blooms from Mr. James Dalglish, gr. to Mr. J. Alston, of Muirburn. The Rhododendrons and Roses were general favourites, but there was not a large exhibition of either of them. The best lots were good, and particularly the Gloire de Dijon Rose from Mr. David Coghill. Many very excellent hand bouquets were shown, and formed a most interesting feature. Some excellent Strawberries and Cucumbers came from Mr. Methven, gr. to Colonel Campbell, of Blythswood. Vases in earthenware, and representations of tree stumps in the same material, for Ferns and such like plants, came from J. & R. Howie, Kilmarnock. It is due to those in charge of the proceedings, as well as to the newly appointed secretary, Mr. F. G. Dougall, to remark that the first exhibition of the Society's 58th season passed off with great *éclat*. The Society's office-bearers met the judges and a few friends at dinner in the afternoon.

Notices of Books.

How to Grow Mushrooms. A Popular Explanation of the Best Method of Culture. By William Earley. London: Bradbury, Evans & Co.

A modest pamphlet, in which the author, Mr. Earley, one of our best practical gardeners, and most successful cultivators of that greatly relished delicacy, the Mushroom, explains the method more particularly practised by himself with such satisfactory results. This is done in a very simple yet straightforward manner, and the little points on which success greatly depends, and others whence failures arise, are clearly noticed. It is written throughout in a very plain, practical and intelligible style, without the slightest air of pretension. It may be said, perhaps, to be a little too precise in many points of detail, and that sufficient reasons are not always given for the adoption of particular practices, &c.; nevertheless, as a guide containing many practical hints for amateur Mushroom cultivators we recommend its perusal, the instructions given being in the highest sense trustworthy, and tending to simplify Mushroom cultivation, and to do away with that halo of mystery with which their production is by some believed to be surrounded.

Notes on the Art of Growing Roses Out-of-Doors. By the Rev. O. Fisher, M.A. London: Bradbury, Evans & Co.

As these notes were originally printed in our columns, we can do no more than recommend them to the notice of all who desire thoroughly sound practical information on the culture of the Queen of Flowers.

Les Pensées: Histoire, Culture, Multiplication, Emploi. Par J. Barillet, Jardinier en Chef de la Ville de Paris. Paris: J. Rothschild. Small folio, pp. 52.

This is an *ouvrage de luxe*, in which the lightly furnished pages of text seem to be introduced mainly as a background or setting to some 25 chromo-lithographic plates of fancy and striped Pansies, prepared from specimens furnished by F. Lesemann, head gardener at Hietzing, near Vienna, who, it appears, has paid great attention to the raising of varieties of new strains. The plates have been exceedingly well got up at the Imperial Austrian printing establishment; and though the varieties figured are as far from our notions of perfection as can well be, the blossoms being rough, wavy and irregular, and in some cases grotesquely particoloured, they yet make pretty pictures, and seem to be represented with as much accuracy as could be expected by this process, though the greens are here and there a little too metallic-looking. To these 25 plates M. Barillet has fitted 26 chapters devoted to the etymology, history, classification, cultivation, and propagation of the Pansy. As to the origin of the garden Pansy, M. Barillet observes, that without doubt the first notion of its ornamental capabilities was due to the crossing of Viola arvensis and V. altaica, whether this may have occurred naturally or by artificial means. To these two species must be added, as primitive types, V. rothomagensis and V. lutea. From these several species, through a long chain of successive links, and gradually moulded out of forms whose extreme diversity of character and aspect bore unmistakeable evidence of their mixed origin, our present garden Pansies have been derived by gradual development and selection. Camerarius, in 1579, we are told, made some progress in this direction. Later, at the beginning of the present century, a young English lady, daughter of the Earl of Tankerville, took the Pansy under her care, and with the aid of her father's gardener, Mr. Richardson, formed an interesting collection at Walton-on-Thames, while several English horticulturists, Mr. Lee, of Hammersmith, at their head, stimulated by this example, and foreseeing the position which the Pansy would soon take up amongst garden flowers, gave it an honourable place in their establishments. M. Lémon was the first in France to imitate this example, and subsequently M. Boursault and M. Ragonot-Godefroy, who engaging in Pansy culture as a speciality, acquired a well-merited reputation therein.

M. Barillet classifies Pansies under five heads, as follows:—1. English Pansies, a class equivalent to our show varieties, and of which Mr. Downie is mentioned as one of the principal producers; 2. Fancy Pansies, a French class, which owes its improved condition mainly to M. Miellez; 3. Striped Pansies, a class almost entirely due to M. Charpentier, of Bellevue, near Paris; 4. Unicolor Pansies, again an English class much employed for garden decoration, with flower, usually white, yellow, and orange-coloured, and yieldins the earliest bloomers; and, 5. Perennial Pansies, which

are generally whole-coloured. This latter class leads the author to remark that the Pansy of the florist can only be considered as an annual or biennial—a doctrine which, if accepted at all, can only be received in the sense that young plants should be raised every year to ensure a vigorous bloom, else what becomes of our collections of named varieties, which are cultivated year after year—formerly perhaps more so than now? Of the herbaceous or perennial Pansy, M. Barillet admits only two or three varieties, viz., two with blue and violet flowers, and one with white flowers. There exists, he observes, in Belgium and Germany, and he might have added in England, a perennial Pansy with double flowers. We add here a free rendering of the chapter on striped Pansies, of which some curious forms are given amongst the illustrations:—"The striped Pansies, though forming a numerous class, have not yet attained to the same dimensions and the same degree of perfection as the fancy kinds. The form of the flower is rather ovoid than round, which is explained by the tendency of the rays or stripes to widen towards the outer part of the petals. The stripes should be velvety, and of a deep colour, reposing on a ground of a brighter hue. Some of these striped Pansies have the edging of their petals deeper-coloured, which gives to the flowers a most agreeable effect. The most usual colour is bright orange for the ground, and deep crimson for the stripes, but chamois or rose or salmon grounds are the most highly esteemed. The flowers whose petals are sloped, or but little rounded on the edge, are considered as ungraceful. The amateur who would specially engage in cultivating these striped Pansies, would find in them a free and open field, full of interest." "Les Pensées" may be recommended as an elegant drawing-room book, devoted to a group of flowers which are especial favourites amongst ladies.

The Naturalist in Norway, &c. By Rev. J. Bowden, LL.D. London: Reeve & Co. Crown 8vo, pp. 261; eight coloured plates.

A discursive account of the birds, beasts, and fishes, of the flowers and Ferns, the fisheries and the climate, of Norway. The writer has succeeded in stringing together a good many pieces of information procured from various sources, some trustworthy, some problematical as to their veracity. Here and there there are evidences of personal acquaintance with the scenes described, but to a great extent the book might have been written by the rev. doctor with no further acquaintance with the country than his library would furnish. Nevertheless, he has given us a very readable book, which should be in the hands of all those contemplating a tour in Norway for sporting or natural history purposes. In the chapter on the vegetable products of Norway, it is strange that there should be no reference whatever to Schuebeler's excellent treatise on this subject; and this being so, it is not to be wondered at that Anderssen's similar publication on Sweden should be wholly passed over.

Catalogues Received.—Trade Lists form a branch of garden literature, the general quality of which, we are glad to see, is improving. The following Seed Lists are before us:—W. Rollisson & Son's General Catalogue.—Barr & Sugden's Descriptive Catalogue.—E. G. Henderson & Son's Catalogue.—Dick Radclyffe & Co.'s Catalogue.—F. & A. Smith's Catalogue.—Harrison & Son's Catalogue.—Felton & Son's Descriptive Catalogue.—D. G. McKay's Illustrated Catalogue.—Hooper & Co.'s General Catalogue.—J. Scott's Catalogue.—T. Pierpoint's Spring Catalogue.—Charlwood & Cummins' Tree Seed Catalogue.—Little & Ballantyne's Descriptive Catalogue.—Longhead & Park's Spring Catalogue. Most of these furnish descriptive notes of the principal subjects offered, and often accompanied by cultural hints.

Of Plant Lists we have received the following:—W. Paul's Spring Catalogue of New Roses, &c.—W. Rollisson & Son's Soft-wooded Plants.—J. Salter & Son's Descriptive Catalogue of Chrysanthemums, &c.—R. Parker's Catalogue of Stove, Greenhouse, and Hardy Plants.—Downie, Laird & Laing's Descriptive Catalogue of Florists' Flowers.—H. Cannell's Floral Guide for 1869.—To these we may add Mr. Hudspith's Fern and Floral Arboretes, made in Terra-cotta.—Deserving of special record are two lists of Alpine and Herbaceous plants, which we hope may be regarded as indications of a growing taste for these most interesting plants. J. Backhouse & Son's Alpine Plants and Hardy Perennials extends to 34 pages, and is enriched with many useful descriptive notes and memoranda, especially in the case of the newer and rarer species. T. S. Ware's List of Perennials is a list, with tabular descriptions, of the species, and general observations and memoranda on the genera; it spreads over 70 pages, and offers, at reasonable cost, a most extended choice of the more ornamental hardy herbaceous plants to be met with in cultivation. Both may be especially commended for their general accuracy.

Of Foreign Lists we have Vilmorin-Andrieux et Cie.'s (Paris) Catalogue Général des Graines et Plantes; also Supplément aux Catalogues.—Thibaut et Keteleer's (Paris) Catalogue Général des Plantes.—P. Tollard's (Paris) Catalogue Général des Graines.—Louis de Smet's (Gand) Prix-Courant for 1869 (rich in Agaves, &c.).—A. Stelzner's (Gand) Catalogue des Plantes Nouvelles, &c. (several fine new Gymnogrammas).—Jules de Cock et Sœur's (Gand) Prix-Courant pour Marchands sans remise.—E. H. Krelage's (Haarlem) Special Catalogue of Pæonies (eight pages); also Catalogue Spécial et Descriptif des Fraisiérs.—J. A. Bruce's (Hamilton, Ontario) Descriptive Catalogue of Seeds, &c.—V. Lemoine's (Nancy) Prix-Courant for Spring of 1869 (new Double-flowered Pelargoniums): also Graines de Fleurs.—Amb. Verschaffelt's Prix-Courant for Spring of 1869 (includes several novelties and illustrations).

The Apiary.

I was very much interested in reading the report of the meeting of German bee-masters at Darmstadt which appeared in a recent issue. It seems as if the German apiarians are very far beyond the majority of English apiarians in the matter of scientific and practical knowledge of their favourite subject. Our German brethren seem to have entered *con amore* into the pursuit of bee-keeping, not only with a view to profit, but with the determination of thoroughly investigating all the scientific questions which from time to time arise concerning their little favourites. It is evident that they are not easily satisfied with mere theory; they sift and search every matter that may be brought before their notice, until by repeated demonstration all doubts as to their correctness or otherwise are dissipated. There are a few bright examples among English scientific bee-keepers of real searchers after truth; but it must be admitted that the greater part of their knowledge has been derived, in the first place, from the discoveries of German apiarians. Having lately seen a number or two of the German "Bienenzeitung," I was struck with the variety of interesting subjects which were written upon. It then occurred to me to ask the query, how is it that a similar periodical cannot be supported in this country? It is true we have agricultural and horticultural journals which devote a portion of their columns to bee-subjects, and very interesting and satisfactory they are as far as they go; but it must be admitted, without offering any disparagement to their endeavours, that they do not, and cannot fill the place of a recognised periodical devoted entirely to the advancement of scientific and practical bee-knowledge.

Again, when reading the report of the German apiarian congress, I asked myself, whether it would be possible to institute such an annual gathering in this country. And I now ask the readers of the *Gardeners' Chronicle* to turn the matter over in their minds, in order to see if such a project is at all feasible.

The British Association holds its next meeting at Exeter in August. Could there not be called together at the same time a meeting of British apiarians, which would, of course, be totally independent of the larger and more important gathering? My object in proposing that the meeting should be held at the same time, is that the extra attractions of the British Association week might be an inducement to draw many apiarians together, who would hardly be expected to come for the apiarian congress alone. I have not weighed the subject much in my mind, but crude as it is, I throw out the suggestion for others to think over, and determine whether it would be possible to hold such a Congress, either at the time and place proposed, or any other. If it could be carried out, there is no doubt that scientific and practical bee-keeping in this country would receive a very great stimulus. *Apiator.*

"P. G." writes:—"I have a Woodbury hive, which, owing to my having given the bees room in time, has not sent out a swarm the last two years. Is it desirable that I should compel it to swarm this year, regard being had to the fact that the queen is now three years old."

[If you desire, or have no objection to increase the number of your stocks, it may be as well to endeavour to obtain a swarm from your stock which has not swarmed for two years. You will then ensure its having a young queen. This would most probably be considered the most judicious practice, but we have worked hives for three or four seasons without their having once swarmed, obtaining large harvests of honey from them every favourable year. We have gone upon the principle that we would rather purchase a few swarms occasionally, or take the chance of those which will issue from the best managed non-swarming depriving stocks to keep up the required number in our apiary, than put up any of these last with the avowed object of forcing them to swarm. Such stocks are worked for surplus honey-giving, until they show signs of decreasing energy and prosperity, when we generally effect a change of queens by removing the old one, and putting a young fertile queen in its stead, or by inserting a couple of sealed royal cells. If this mode of treatment is rather beyond your attainments, then you had better allow your stock to throw off a natural swarm.]

Garden Memoranda.

Edinburgh Royal Botanic Gardens—Extension and Improvements.—It is specially interesting at this season of the year to have to note some extensive and marked additions to the attractions of our Botanical Gardens, Inverleith Row. The old garden belonging to the Horticultural Society, adjoining the Botanic Gardens on the south, has now been added to the latter for the purposes of an arboretum. This gives an additional area of 12 acres, making the entire extent of the gardens 27½ acres. The high boundary wall which divided the two pieces of ground has been removed, and a new palisading has been erected at the extreme southern end of the newly acquired garden, where no substantial boundary previously existed, there being simply an old hedge and a paling. Owing to the previous limited dimensions of the Botanic Gardens no satisfactory arrangement could be made with the trees and shrubs, which were mixed together in groups with no attention whatever to their respective species; but with the extensive addition now made to the space, Mr. M'Nab, the skilful curator of the gardens, is enabled to adopt a useful and admirable scientific arrangement, in bringing together all the species of the different genera. Instead of finding the trees crowded together in miscellaneous groups, as hitherto—the different species scattered indiscriminately wherever space could be found for them—the visitor will now be enabled to see at a glance the whole species of each genus planted in distinct and complete groups. Thus, the Picea, the Abies, the Pinus, the Cupressinæ, the Cedrus Deodara, the African Cedar, the Araucaria, or Chilian Pine, the Taxodium, the Cryptomeria, the Wellingtonia gigantea, the Juniper, Yew, &c., are all grown in their various species distinct—an arrangement of the greatest possible advantage for scientific and practical purposes, as it is much easier to see by this means the superiority of one kind or species over another, than by wandering indiscriminately over the whole garden for the purpose. The effect of this arrangement will in time become perceptible over the whole country, as owners of property, by inspecting the gardens, can now make a much more judicious selection of trees for planting, when they see the different genera and species so closely contrasted. Mr. M'Nab has thus accomplished a work the full benefit of which cannot easily be estimated. The Pines are planted round the entire western division of the garden, the trees varying in height from 2 feet to 18 or 20 feet. In the severe winter of 1860-61, a large number of trees, it will be remembered, was killed in this country, and the Araucarias in the Botanic Gardens suffered severely; but Mr. M'Nab found that at certain elevations the trees did well enough: and, in order to guard against future losses, he has now planted extensively on what he regards as the safe elevation. The memorial trees planted by the Prince Consort, the Prince of Wales, and the Duke of Edinburgh, are all, we may mention, growing well. Another memorial tree has recently been planted by Professor Lyon Playfair, M.P. The east side of the new portion of the gardens is being arranged into compartments—one for weeping trees, another for variegated trees, and a third for the upright varieties. A large portion of the old ground has been laid out in natural orders, with distinct collections of medical plants, British plants, and a large assortment of Continental herbaceous plants, such as will stand exposure to this climate. A new arrangement has also been adopted with the spring bulbs, a compartment being entirely devoted to their cultivation, instead of their being scattered about, as formerly, in borders. One of the greatest improvements, however, is the fitting-up of the horticultural hall as an herbarium, which, when finished, promises to be second only to that at Kew. The collections have been removed to it from the University rooms, where they were merely preserved in one general collection; but here they have been placed in cabinets, according to their countries—British, European, Australian, North and South American, East Indian, &c. They have been brought to the gardens and arranged in this way for easier consultation; and the public, to whom they will, of course, always be open, will find them an interesting addition to the attractions of the gardens. Some important alterations are contemplated in the construction of the museum building. At present the hall is dark and dingy, being lighted merely by windows on two sides; and it is proposed to fill up these windows as cases, and introduce skylight windows by removing the large panels in the ceiling. The space in the centre of the main range of houses is still unoccupied; but a promise has been obtained from the Government that the house for the hardy Palms and Ferns which it is contemplated to erect here, shall be provided for in next year's Estimates. This addition to the buildings will be a great acquisition, as increased accommodation is very much required. The tropical Palm house, now too much crowded, will be greatly relieved by the removal of the hardy subjects, and the new building will do away with the necessity for the present unsightly temporary structure between the two Palm houses. From the south side of the gardens, as now extended, a magnificent view of the city is obtained, taking in all the commanding points with picturesque distinctness, and having the Pentlands to form the background. *The Scotsman.*

Miscellaneous.

Insect Depredations.—The *American Entomologist* asserts that, one year with another, the United States suffers a loss from the depredations of the insect tribe, to the amount of 300,000,000 dollars annually. This seems an enormous amount; but when we consider the number of enemies which vegetation has in the bug or insect family, and the rapidity with which each saps the life of a plant, or the fruit which it produces, the sum, large as it is, will not be deemed an extravagant one. Alluding to these depredations, the *Entomologist* says:—"Turn them which way they will, the agriculturists and the horticulturists of the Northern States are met by plant lice, bark lice, May bugs, Rose bugs, weevils, cutworms, caterpillars, palmer worms, canker worms, slug worms, and leaf rollers; and at periodic intervals the army worm marches over their fields like a destroying pestilence; while in Kansas, Nebraska, and Minnesota, and the more westerly parts of Missouri and Iowa, the hateful grasshopper, in particular seasons, swoops down with the western breeze in devouring swarms from the Rocky Mountains, and like its close ally, the locust of Scripture and of modern Europe, devours every green thing from off the face of the earth. Philadelphia has taken steps to import a thousand English sparrows, which will be let loose in the public squares and parks next spring." Read that, ye members of sparrow clubs!

Removal of a Large Tree.—On the 6th Feb., at Elveden Hall, the seat of his Highness the Maharajah Duleep Singh, considerable interest was excited by the successful removal of a very large tree, under the superintendence of Mr. Barron, of the Elvaston Nurseries, Derby. It was no ordinary undertaking, as will be seen from the following dimensions of this remarkably fine specimen of Purple Beech. It is nearly 50 feet high, the diameter of the branches 58 feet, and the circumference of the stem 7 feet 8 inches about a foot from the ground. The mass of soil and undisturbed roots measured 16 feet by 14 feet, the roots extending 6 feet beyond, the whole weighing considerably over 20 tons. It had a platform of strong timber constructed underneath, and was raised upon rollers laid on planks by means of powerful screw-jacks. This being done, the tree was drawn on to its new site with the aid of pulley-blocks of unusual size, and maintained throughout in an upright position. The complete success of the operation reflects the greatest credit on Mr. Barron, who on its termination received three hearty cheers from those who were fortunate enough to witness it. *Land and Water.*

Garden Operations.

(For the ensuing week.)

PLANT HOUSES.

The several varieties of the much neglected though beautiful genus, *Ixora*, will now require attention, such as potting, &c. All the varieties delight in a free open compost of peat, and good yellow fibry loam, with a plentiful supply of silver sand, small lumps of charcoal, and potsherds broken very small in admixture. The application of bottom-heat in the cultivation of these and many other similar plants is of great importance, and it would amply repay the cultivator, if he has not a regular supply of bottom-heat at command, to make a suitable temporary place with the aid of fermenting materials, in which to afford them such beneficial assistance. They may be plunged into this as soon as they have been potted. Other kindred subjects, such as *Gardenias*, especially such as *Stanleyana*, *citriodora*, and *Fortunei*, would luxuriate in such a place, even if the flowers are only now about to expand; and these latter will attain double the size in such a position, to what they would do upon an ordinary stove stage, or bed. Then there are *Franciscea*, *Dipladenias*, *Clerodendrons*, *Bougainvilleas*, *Stephanotis*, *Allamandas*, *Combretums*, *Rondeletias*, &c., all of which would be "at home" under such favourable circumstances. Even a pot or two of *Eucharis amazonica* may be plunged into the material, which will induce the plants to bloom again, and that somewhat earlier than others which may not receive this kindly aid. In no instance should this artificial bottom-heat exceed a maximum of 85° to 87°; and what is of equal importance, the moisture that may settle upon the foliage of the plants should, if possible, by a judicious admission of air, become moderately dry at least once in 48 hours. *Boronias*, and especially the beautiful and fragrant *B. serrulata*, which one seldom sees in perfection now, like a little additional heat in the spring months during their period of growth. When growing they also like a tolerably free supply of moisture, both top and bottom, and more especially if potted firmly, as they always should be, in fibrous soil, with plenty of sand. Undeviating care and attention will now, and for some time to come, be necessary in watering all plants which have only recently been shifted, and until the roots commence to grow vigorously. According as the progress of potting is being pushed forward, so in proportion should the heat be kept up. Plants which have undergone this operation will require the most, because a greater mass of inert soil surrounds the roots, and a slight additional incentive is needful to induce a strong and wholesome activity among them. Be particular in regard to giving the necessary supply of air to plant houses at this season, and to close the lights or ventilators on the approach of a storm or dull period, both which may be expected at this season, the fluctuations of temperature being great, and likely to give the inmates a chill if due care be not taken to prevent the ill effects arising from this cause.

FORCING HOUSES.

Vineries will now require almost hourly attention in the matter of tying and disbudding the Vines, thinning out the berries, &c., in addition to constantly keeping up a wholesome amount of moisture, and furnishing the many other requisite attentions. *Pines* which have been turned out of the pots into a bed formed within the pit, should now receive a nice fresh surfacing of rich open loam and well rotted manure, if this has not been previously done. Remove carefully any decayed or ripened leaves from around the base of any plant. In surfacing them be particular not to place such a thickness of fresh material thereon as to unduly bury the main stalks. The department which is set apart for those Pines which are swelling their fruit, should now be kept up to a good high temperature, and have an abundant supply of atmospheric moisture. To insure this, especially during the prevalence of dull, cold, or boisterous weather, much less air should be given than is essential for younger successionals, which are required to be kept dwarf, sturdy, and stiff. Even this, however, may be overdone. An unreasonable amount of heat and moisture, without a moderate supply of fresh air at frequent intervals is, I feel convinced, the cause, in the main, of most of the disproportionately large crowns which are to be seen overtopping fruits of moderate size. It will now be safe for amateurs and others having only limited means at command, and who are not thoroughly initiated into the art of forcing very early, to commence *Cucumber* growing. The advice regarding the sweetening of the necessary fermenting materials by successive heatings, caused by turning the materials over two or three times, must be closely followed. As the period has now become moderately advanced, only a tithe of the heat required earlier will now be needed; hence only a smaller quantity of material than was previously required need be brought into play. So soon as the bed is made up, and which should be so built as that the frame can just stand safely upon it, the soil, in the form of a conical-shaped mound, may be placed under the centre of each light, after the materials have been well trodden down. A lining some two feet wide should then be placed around the outer sides of the bed, formed of the same heating material as that with which the bed itself is formed, the sides of the box or frame being well landed up, as this causes a dryer warmth than that arising from below. When the heat averages from 60° to 75°, and with a little air to give egress to excessive steam at the back, the plants may be turned out into the mounds; cover them up well at night, leaving a little air on these also. In regard to other forcing houses, such as *Peach*, *Nectarine*, *Fig*, and *Cherry Houses*, I distinctively advise that a moderate temperature only should be maintained by night. I have so frequently urged the benefit accruing to all forced subjects by a moderate and a judicious supply of fresh night air, that it seems superfluous to repeat such advice. So soon, however, as a change from the present ungenial and very bad forcing weather takes place, and more temperate nights, with even a moderate supply of sunheat by day occur, then let the night air be admitted with moderate freedom. Above all, do not attempt to force against time under such unfavourable circumstances, as at the best an ill-developed and tasteless crop will assuredly be the consequence. Take every possible advantage of natural warmth and sunshine, and the present slowness will prove a greater incentive to quick vegetation and fruit formation in the future than is supposed.

HARDY FRUIT GARDEN.

The present is a very trying period for all tender *Wall Fruits*. Those only who are in possession of a good protective covering can hope to secure a perfect crop this in-coming summer. I have kept my "Frigi Domo" curtains to the walls night and day, during the prevalence of the late chilling winds, and with great advantage. I caution all who may have saved a crop, against allowing the sun to have full power upon it until such time as it has become sufficiently strong to withstand its influences, by the use of partial shadings, &c. The rays of the sun, as we shall find, have gained much power during the past period of cloudy weather; hence the need of such caution.

HARDY FLOWER GARDEN.

Continue by the aid of frames, &c., to propagate any further supply of *Dahlias* which may be required. Finish planting *Ranunculi* in all instances where any are still above ground. It will be necessary now to seriously think about mowing lawns, &c.; for, early as it is, the sward is assuming a very forward and an exceedingly coarse appearance, and this is likely to become worse if not soon headed down. Try to select a mild, or at least non-frosty period, for the operation of mowing. As soon as the weather becomes a little more settled, sow *Hardy Annuals* in the open quarters where it is intended they should flower. The old way of sowing them in a circle or ring has many advantages not possessed by an indiscriminate scattering of the seed upon any given space. Sow seeds of *Polyanthus* and *Auriculas* of the Alpine sections in pans, and place them in a sunny shelf in a moderate temperature only. Prick off into pans, boxes, or pots, such things as *Seedling Lobelias*, *Pyrethrums* (especially the Golden Feverfew), *Chamæpeuces*, *Echeverias*, and other ornamental foliage plants of the more hard-wooded sections, and which require pushing forward. My advice is, never to sow seeds of any kind until you can fully calculate upon giving them all the attention they require. A greater mistake cannot be made than sowing indiscriminately, and with no regard to such circumstances. The result is that 8-10ths of the produce dwindles away, and others which are left have lost their main vigour ere a chance of growing is afforded. Make further sowings of any half-hardy annuals intended to be grown, so soon as the necessary attentions suggested above can be relied on. The in-coming week will be a good one in which to sow a Grass mixture for renovating such lawns as may be wanting in vigour or verdancy.

KITCHEN GARDEN.

Autumn-sown *Cauliflowers* and *Cabbages* may all be finally transplanted on to their summer quarters upon the first favourable opportunity. When either of these are pricked out or transplanted into freshly dug soils, be careful to tread the ground all over first, and to tread the roots of each plant firmly into the soil. If cold winds prevail, drill rows may be drawn, along which they should be planted, as part protection from chilling winds, &c. Sow successional crops of *Spinach*, *Lettuces*, *Celery*, and some of the *New Zealand Perennial Spinach* upon a slight hot-bed; it will come in well, and in good time for transplanting into the open borders in May. *W. E.*

TOWN GARDENING.

In February last (p. 170) I gave a list of Chrysanthemums, and a few hints for their cultivation in open borders. I now propose to furnish the following list of varieties which come to great perfection if grown as flowering specimens under canvas against a wall:—Aimée Ferrière, silver white, tipped with pink; Avigena, amaranth; Antonella, salmon-orange; Beverley, white; Beverley, golden; Cherub, golden amber; Delight, rich canary; Dupont de l'Eure, salmon-rose; Lady Slade, lilac and peach; Lady Hardinge, delicate rose; Jardin des Plantes, bright golden orange; Mrs. George Rundle, white; Prince of Wales, purple-violet; Prince Alfred, rosy-carmine; Princess of Wales, white, tipped rose; Rev. J. Dix, orange-red. Splendid blooms can be obtained in the very heart of towns by the following means:—In the first place the borders should be well drained, and then be prepared, by using a compost of two-thirds of loam and one part of rotten dung and leaf mould, to the depth of 18 inches. These borders should be not less than two feet in width. Plants should now be obtained that were struck last autumn, and which have been wintered in cold frames. Though I have had fine flowers from spring-struck cuttings, they are not, as a rule, so good as those obtained from plants struck in the autumn. The plants should now be planted, about 6 inches apart and 4 inches from the wall; all lateral shoots should be removed as fast as they grow, until the plant divides into two or more leading shoots, and as many of these latter may be retained as the strength of the plant will admit of. The watering of the plants must be attended to during the summer, both by applying it to the roots, and by syringing the tops every fine evening. Liquid manure should not be given to them until about the second week in August. The mixture which I use is prepared in the following manner:—I have a large tub which holds about 50 gallons, in which I put 1 peck of soot, 1 bushel of horse-droppings, and four canfuls of soapsuds, filling the tub up with soft water; the whole is well stirred up and allowed to settle some days previously to its being used. If one-fourth of this mixture, with three-fourths of soft water, be given about three times a week when the plants are dry, it will be sufficient. About the second week in August the buds will commence to show on the tips of the leading shoots, surrounded by clusters of smaller ones, and if the leading bud is a good plump one, the smaller buds should be removed. As the season advances some means should be provided for protecting the flowers, which can be done by placing upright posts four feet from the wall, and from these posts fixing others that will lean to the wall. This skeleton framework should be covered with canvas as soon as the buds begin to show colour. Should the plants grow above the height of the wall, the shoots may be trained down right and left. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending Mar. 31, 1869, as observed at the Horticultural Garden

March.	Moon's Age.	Barometer.		Temperature. Of the Air.			Of the Earth		Wind	Rain.
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 25	12	30.013	30.000	49	29	38.5	43	41	E.	.00
Friday 26	13	29.913	29.614	49	28	38.5	43	41	N.	.00
Satur. 27	○	29.727	29.525	42	23	32.5	43	41	N.	.02
Sunday 28	15	29.672	29.466	40	33	36.5	42	41	E.	.00
Mond. 29	16	29.848	29.638	43	27	35.0	42	41	N.E.	.04
Tuesd. 30	17	29.854	29.776	45	36	40.5	42	40	N.E.	.00
Wed. 31	18	29.797	29.757	51	28	38.5	42	40	N.E.	.00
Average .		29.832	29.682	45.5	29.1	37.3	42.4	40.7		0.06

March 25—Overcast; cloudy and fine; densely clouded at night.
— 26—Overcast; densely overcast; clear and fine.
— 27—Fine; cloudy, cold wind; cloudy but fine.
— 28—Overcast, very dull; foggy, very dark; densely overcast.
— 29—Clear and cold; boisterous and stormy; clear and fine.
— 30—Densely overcast; cloudy, brisk wind; overcast.
— 31—Overcast and cold; cloudy; overcast; fine at night.
Mean temperature of the week, 6 1-10 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 43 years, for the ensuing Week, ending April 10, 1869.

April.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday.. 4	56.7	35.7	46.2	17	0.30 in.	5	3	4	2	4	12	6	7
Mon. .. 5	57.0	36.7	46.0	21	0.30	2	6	6	3	3	8	13	2
Tues. .. 6	57.0	36.9	47.2	14	0.30	3	9	6	2	4	14	4	1
Wed. .. 7	57.7	36.8	47.3	21	0.50	2	9	4	3	4	13	7	1
Thurs. .. 8	56.1	35.8	46.0	23	0.69	2	6	8	2	6	11	6	2
Friday .. 9	55.0	35.3	45.2	22	0.73	3	7	7	1	5	7	7	3
Satur. ..10	55.9	33.5	44.7										

The highest temperature during the above period occurred on the 7th, 1859—therm. 79 deg.; and the lowest on the 10th, 1860—therm. 20 deg.

Notices to Correspondents.

Cucumbers: *T L E.* As explained last week, black-tipped spines will not be admissible to compete as black spines.

Fixing Wire Netting: *F F.* We await further explanations on this subject.

Horticultural "Congress:" *W T.* There is no real ground for even the small murmurs of grumbling to which you refer. The meeting, as an experimental one, is very properly planned on a moderate scale. The arena for the assembly is provided, without trouble or expense to gardeners, who are to have the use of it, with full liberty of action, within the bounds of order; and as to the destiny of the papers, the arrangement adopted is that usually followed in all scientific societies and associations, where the papers remain in the hands of the authorities by whom the meetings are held. We hope it may be found practicable to publish a full and separate report of the whole proceedings.

Insects: *W E M.* The insect sent with the Peach and Nectarine blooms from an orchard-house, is an aphis which has no power of gnawing the calyx of the flowers. The mischief has probably been done by a Weevil (Otiorhynchus sp.), which is nocturnal in its habits, and should be sought for with a lanthorn after dark, when it will doubtless be found on the stems and twigs, committing the devastation complained of. *W.*

Management of Vineries: *Vitis.* It is our practice to syringe our Vines regularly two and three times a-day, and maintain a moist, warm, atmosphere about them until they come into flower, when the syringing of the Vines themselves is discontinued; and while they are in flower a little drier atmosphere is maintained. When fairly set, then abundance of moisture, with a corresponding degree of warmth, is most congenial to them. This is the general practice of Grape growers. A dry atmosphere in a vinery while the Vines are growing rapidly, is exceedingly injurious—the notion that it prevents bunches running to tendrils is absurd: the one has no connection with the other. A very dry atmosphere will have this effect—the prevention of the full development of every part of the Vines; and from this it may be argued, the bunches being smaller, that they have not run or straggled so much. *B.*

Names of Fruits: *T H H.* Sturmer Pippin.—*J T.* Probably Blenheim Orange, not Beauty of Kent.

Names of Plants: *S R.* Doodia media is the D. lunulata of the book you refer to. Messrs. Maull & Co. have published a *carte de visite* of Sir W. Hooker. — *A O R.* Limnanthes Douglasii.—*Cape Everlasting.* Astelma eximium, a very handsome greenhouse shrub, rather difficult to cultivate; it should be obtainable at any of the great plant nurseries. —*J J.* We cannot name your Orchid unless you send us information as to the habit and habitat. It is cruel to ask us to attempt to do so.—*W Phillips.* 1, Capsella Bursa pastoris; 2, Draba verna; 3, Cardamine hirsuta.

Removal of Greenhouses: *Constant Reader.* A nurseryman is, at the expiration of his lease, entitled to remove greenhouses erected by him for the purposes of his business. Such erections are considered trade fixtures. See our volume for 1862, p. 1170. An ordinary tenant could not so remove the buildings he might have erected.

Variegated Pelargoniums: *R D.* writes to correct a misstatement in his paper on Mr. Morris' Variegated Zonal Pelargoniums, at p. 337. "Prince of Wales was not raised by Mr. Morris, but by Messrs. Carter & Co., at their nursery at Perry Hill."

Yang-mae: *Cape Everlasting.* The Yang-mae was introduced some years since by Mr. Fortune to the nursery of Messrs. Standish & Noble, and doubtless one or other of these gentlemen, whose addresses may be found in our advertising columns, could tell you where the plant is obtainable.

Communications Received.—H. C.—J. B. T.—J. McI.—J. G. B. —C. F.—E. A. O.—Hants.—A.—H, Cannell.—D. T. F.

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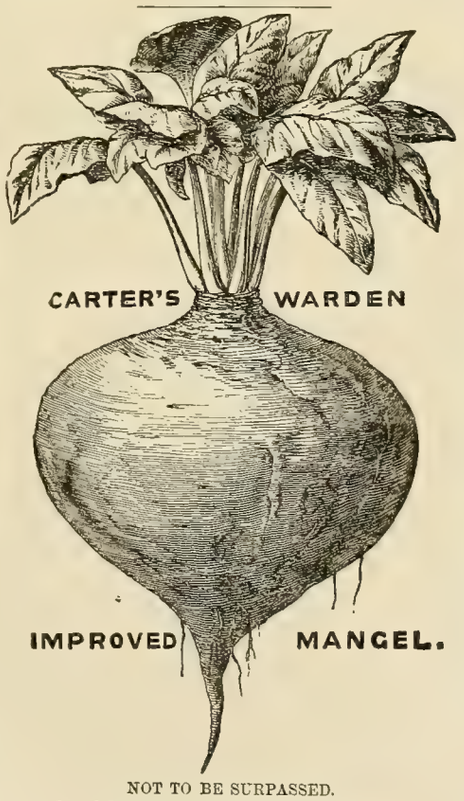
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The Right Hon. The Earl of Carnarvon.
The ANNUAL MEETING will be HELD at SOUTHAMPTON on MAY 31, and JUNE 1, 2, 3, and 4.
Prize Sheets and Regulation Papers for Stock, Poultry, Implements, and Horticulture, may now be obtained from the Secretary, Bath.
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MANCHESTER MEETING, 1869.

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The Agricultural Gazette.
SATURDAY, APRIL 3, 1869.

MEETINGS FOR THE ENSUING WEEK.
April 5 { London Farmers' Club (Captain Dashwood on the Systems of Local Rating in England, Scotland, and Ireland).—6 P.M.
— 7—Royal Agricultural Society of England.

As our readers already know, it is proposed that the Adulteration of Seeds be declared a crime by Act of Parliament, and that a code of fines be enacted for various forms of the offence. And that the offence is common enough, and injurious enough to demand special legislation of this kind, no agriculturist is likely to deny. Seeing, however, how various the modes of adulteration may be, and how difficult they are of detection, and also taking into consideration the extreme ignorance of too many farmers on this subject, we confess that our hopes of remedying the evil hinge at least as much on the advance of education. Indeed, it is not only the farmer who would want to be educated in the matter—the juries who would have to try such cases would also require to be taught. We speak with some degree of personal experience on this question, having once been engaged upon a trial where it was sought to recover damages for the injury done by a large mixture of Burnet with Sainfoin. Because the two seeds were somewhat alike in colour, neither the judge, the counsel, nor the jury could be made to understand the difference, and the jury sapiently concluded that the seedsman was not to blame in the matter, and accordingly the plaintiff was non-suited.

In another case, where a seedsman was called to account for sending common Turnip seed, instead of Swede seed, the judge ruled that there was not much difference between them, and that the suitor was not entitled to damages. Moreover, as seeds are necessarily very variable in their germinating percentage, it will be exceedingly difficult to bring home cases of mixture of old seeds or killed seeds to the dishonest seedsman, and unless some expert constantly attends the markets, or examines samples before they are sent out, it will be utterly impossible in this way to save the consumer from being often cheated. He may sow a sample of seed, and be disappointed in the crop,

but his misfortune may be referred to birds or insects, or weather, perhaps to all of them, and it will be exceedingly difficult to prove that it was the seed that was at fault—more difficult, indeed, than it is to show an adulteration of pepper, or mustard, or coffee, and other groceries, all of which are just as difficult to get genuine as though no Act of Parliament existed for the punishment of the fraudulent. While, therefore, we by no means deny the power of a properly constructed and vigorously administered Act of Parliament in the matter, there can be no doubt that, for its entire efficiency, it requires to be accompanied by the better professional education of the farmer. He must be taught to come somehow to believe, in the first place, that pure genuine seed of the best kind, at a fair price, is more economical than that which is cheap and nasty.

When some few years ago we had commenced an inquiry in the dirty seed grievance, we could find samples, in almost any market, that contained enough of weeds to take possession of the soil in which they were sown. Farmers then had really never thought upon the question of weed admixture, but when they came to look at the samples for themselves, they were astonished to find for what a quantity of things, other than their required seeds, they were paying—and some, indeed, have even got critical in the matter, and employ the microscope; and we are not a little proud to say that such samples of dirty seed as were prevalent even 10 years ago can scarcely be met with in any market at the present time.

Without, however, any admixture of weeds, but merely as the result of season or wet harvesting, Clover seed often varies very considerably with regard to germinating power; and as these dead-looking samples would certainly be sold cheaper than brighter ones, it is very important that farmers should be made acquainted with the fact that the price charged is by no means in proportion to its germinal quality, as may be seen from the following list, taken from different market samples in the month of March, 1867. It should be here noted that these samples were not given us by seedsmen, but were taken by us from samples in market.

Table of Germination and Prices of Clovers.

Samples.	Price per cwt.	Percentage of dead seeds.	Percentage of germinating seeds.	Samples.	Price per cwt.	Percentage of dead seeds.	Percentage of germinating seeds.
1. Red Clover	56s	32	68	10. Red Clover	27s	70	30
2. ,, ..	32	50	50	11. ,, ..	75	10	90
3. ,, ..	51	40	60	12. ,, ..	72	5	95
4. ,, ..	66	5	95	13. ,, .	80	5	95
5. ,, ..	74	4	96	14. ,, ..	66	60	40
6. ,, ..	80	5	95	15. ,, ..	70	15	85
7. ,, ..	70	5	95	16. Cow Grass			
8. ,, ..	75	3	97	Clover ..	90	4	96
9. ,, ..	60	40	60				

These trials were made with Clover seeds themselves, putting aside the weeds, of which most of the samples contained a greater or less proportion, many of them having in a sample of mixed Clover and weeds from one to as many as eight per cent. of Plantain seeds. It is, however, but fair to say that the highest percentage of Plantain occurred in foreign samples; and this constant occurrence of Plantain in Clover, in the quantity in which we find it, would appear due to the fact that farmers as a rule do not object to Plantain in Clover, and consequently, seedsmen too often mix them purposely.

But again, farmers have been further educated to detect the difference between doctored Hop Trefoil and Clover seed; as, since our exposure of this fraud in 1867, we have not met with any of this villainous compound in any sample that has come before us.

We hope then to see the time when buyers will themselves be able to detect the difference between good seed and bad, between dirty seed and clean seed, and then that they will not purchase either bad or dirty seed because it is so cheap that they may afford to sow a little more of it to make it up; but as the eye can often be deceived in these matters by different methods of dressing, just as the unwary sometimes mistake a swell-mobsman for a gentleman, it will be necessary to try the germinal test, not (as we have seen it sometimes applied) by taking up a hazard pinch and scattering it in a flower-pot, but by carefully counting a given number of seeds, and thus ascertaining the exact proportion of the living to the dead.

Now, in conducting this operation, it is necessary that the farmer should observe the form in which the seed he is trying germinates, or he may take weeds into his count; but further, if he is careful to sow all his seeds at one uniform depth, then if many seeds come up days after his first lot, he may give a pretty shrewd guess that the sample has old seed mixed with new.

If, on the other hand, our agricultural friends will not take this trouble, we should advise—as, indeed, we should under almost all circumstances—that they should put themselves in the hands of those whom they know to be honest, intelligent, fair dealing seedsmen.

No men more deplore the evils which the nefarious dealers introduced into the trade; and we feel bound to say, as a matter of constant experience, that no men have been more anxious to give us correct information, and to assist us in our inquiries into this subject, than have some of those who are connected with the seed trade.

It is true we have met with opposition from some whose large establishments might have led us to hope better things, but upon inquiry we have always found out that they have been sharp practitioners, holding the theory that their customers may see what they buy, and therefore any defalcation is their own fault. And it will be admitted that after all this is a cogent reason why the farmer should become educated in these matters, and thus be able to trust to himself better than to anybody else. Let us add that nothing herein stated is to be taken as opposed to the project of legislation now before the House. While believing in the better intelligence of buyers as their best protection, we welcome the assistance of the magistrate. *B.*

—— At Mark Lane and throughout the country the corn trade has been in a very quiet state, with a slight rise in prices.——In London the meat trade has recovered the depression which existed last week. Prime oxen have gone up to 5*s.* 10*d.* per 8 lb., and best Down sheep to 6*s.* 4*d.* per 8 lb. The supply of both English and foreign stock has been short throughout the week. In the midland counties meat is quite as dear as it is in London.——There is nothing of a striking character in the seed trade.

—— Our readers will be glad to see in the Parliamentary news of the past week, that Mr. C. Wren Hoskyns, M.P., has taken his seat as Member for the City of Hereford.

—— "Where are we?" Under this quaint title Mr. G. A. May, of Elford, Tamworth, read himself in as chairman for the coming year of the Midland Farmers' Club. It is a good custom with this society for its newly elected Chairman to read a paper on his taking his seat for the first time. Mr. May's paper as a whole was eminently suggestive, and in many of its more practical parts it was exhaustive. Mr. May vindicated the title of his paper by relating an anecdote, which suggested the changes which had taken place in agriculture during the last quarter of a century. When the great transition from coaching to railway travelling was going on, an old "whip" was asked what he thought of the new and more rapid method, "Well," said he, "when an accident happens with a coach, there we be; but when a train comes to grief, where are we?" Mr. May claimed for agriculture a very forward place, if not the first place in the business of this country. A noisy class spoke of us contemptuously, but this was the result of their ignorance, and not our fault. In agriculture, however, the race is not to the swift, but the battle is to the strong. If there had not been an increase of wealth among us, there had been of intelligence. He laughed at the idea that the agricultural labourer was better off in the days of Queen Elizabeth than they are now: then they had no stockings, calicos, flannel, Potatos, nor many other articles of comfort common as the present time. The average wage of the Staffordshire labourer was, he found, 14*s.* a week, including extras, but not earnings by piecework. He paid 40*l.* to his best labourers, and 45*l.* to men who could thatch, trim hedges, and so on. These he compared with the wages of town labourers, who earned 20*s.* a week and had to pay 5*s.* for rent and to put their hand in their pocket for everything, even to light a fire. His men paid 1*s.* 6*d.* a week for a house and garden. By this he did not mean they were well off, but he desired to remove a false impression. He wished they could be made better off. He recommended a system of popular evening lectures, to make up for the educational disadvantages incidental to rural districts. There were five steam engines in his parish, and four in an adjoining one. Many labourers won't learn skilled labour, although they could soon earn 2*s.* a week more by doing lighter work. Foreign competition seemed to be the only excuse for child labour. Mr. May raised and discussed many of the other current topics of the day; but our space is too much filled up at this end of the week to allow any further reference to them to-day. The discussion was extended to considerable length.—Mr. Lowe expected he should have heard from Mr. May the position of the farmer himself. That of the labourer had been touched on, but nothing about the farmer had been said, in reply to the question, "Where are we?" He contended that the agricultural labourer was better off than the occupants of some of our dwellings in towns. These dwellings are a disgrace to a civilised community. The labourer in our towns with 30*s.* a week is not better off than the peasant is with his 16*s.* or 18*s.* a week. The demoralisation of our towns, too, is shocking, and this the farm labourer escapes to a large extent. He did not think the farmers were treated properly by Mr. Bright in his position as a Minister of the Crown. Farmers' difficulties affect other classes also. If the farmers are placed at a disadvantage, the effect must react on all the rest of the community. He was glad, however, that less complaints were rife now than he had known for a long time, and he should be glad to find hereafter that all classes were sharing in the success which this absence of complaint indicated.—Mr. Brawn: Mr. Lowe had congratulated us on our comfortable position. Mr. May had raised the question—Where are we? He would vary it a little, and ask—*How* are we? Or, rather, he might ask—*How do we do?* Mr. Brawn then related the shortness of all kinds of produce excepting Wheat, to show that the high price of meat was no advantage. "Where are we?" What is our position in regard to the foreign corn grower? He looked with alarm for the British farmer in regard to the countries which are likely to send us corn in coming years. The repeal of the duty on corn had, according to Mr. Caird's figures, lessened the cost per head about ¾*d.* per week. When he recalled to mind the agitation which had taken place years ago in the town of Birminghan, the parading with a big loaf on a pole, set off, as regards its size, by a little cake, and the rejoicing which followed the final measure that repealed the Corn Laws, he did not think that the ¾*d.* per head per week saved in the cost of bread was, after all, so much a matter for congratulation. The saving was far exceeded by the cost of other articles which had risen according as farmers had sold corn cheaper. Wheat had not been produced because it had not paid; and when Wheat did not pay, other corn was seldom profitable. It was a loss of both corn and meat to have land long in Grass. But to put land down to Grass by saving expenses, diminished the loss in unprofitable times. When corn was reduced below the cost of production, farmers ought to have been relieved to the greatest possible extent, instead of which taxes and rates had rapidly increased.—Mr. Wright and attended many of the meetings of the Social Science Association—they were a company of amiable men, but their advice, if acted on, would only be a mere scratching of the surface of our difficulties. He urged that security was the matter most required to stimulate improvement. The farmer also needed a longer notice of the termination of his agreement, and full compensation for all unexhausted improvements. He regretted the condition of the population in towns, and was sure that it was most desirable that more labour should be employed on land.—Mr. King entered at length into the well-worn arguments, founded on the past increase of poor rates, due to the increase of burdens which had been imposed on that charge; and he then reviewed at length the physical and moral condition of the humbler classes in town and country.—Mr. Masfen wished to thank Mr. Lowe for the excellent advice which he always gave to us farmers. To this, however, he would add, that the advice would come better from Mr. Lowe were he himself to take a farm of 400 or 500 acres, so that at the end of a few years he might be able to speak with the authority of experience. Mr. May's calculation as regards his labourers was nearly the same as his own. If the agricultural labourer were compared with town labourers—not the skilled artisan, who earned the most, the condition of the former would be found to be far better than that of the latter. Labourers had flocked to towns because they had found hitherto that they could get a higher rate of wages; these men, however, were generally the best of our peasantry, and they got into good employment as carmen, porters, and so on; and if they resisted the temptations around them, their position was no doubt improved. But these confidential and well-paid men were no criterion of the general comfort of those people who had flocked to towns because the profits on farming had been too small to find them employment in the country.—Mr. Ford regretted, with Mr. Lowe, that Mr. May had not said more of the British farmer himself; and after a review of the paper at considerable length, to which we must hereafter refer, the proceedings terminated with a vote of thanks to the Chairman.

—— At the last meeting of the Highland and Agricultural Society, two excellent papers on Deep Tillage and Steam Cultivation were read by the Marquis of Tweeddale and Mr. G. Hope, of Fenton Barns, to which we shall give the earliest possible publication.

—— Mr. Alnatt makes a singular blunder in his latest monthly meteorological report to the *Times*. His account of March weather which appeared yesterday in that journal, is prefaced by references to the temperature and rainfall of other parts of the world. Then we are told that there were 61.3° of Fahrenheit between an Australian station and one in England in the temperature of January 27, 1869; and we are told that 11,800 tons of snow per acre had been reported at Montreal up to St. Valentine's Day. The former of these statements is really nothing to the purpose of any meteorological contrast, seeing that a similar difference is often reported between a winter and a summer day in our own country. The latter is, what Mr Alnatt himself declares it to be, "an incredible sum." He has, however, stated it with the intention that his readers should receive it as a fact, whereas it is of course a mere mistake. He has for the moment forgotten that 118 inches of snow, at which the fall had

been estimated in Canada, do not weigh so much as 118 inches of water.

—— A special meeting of the Council of the Lincolnshire Chamber of Agriculture took place on Thursday, the 25th ult., to discuss the Adulteration of Seeds Bill, now before Parliament. After addresses by Mr. C. Sharpe, of Sleaford, Mr. Welby, M.P., and others, Mr. Bramley, as a large seed consumer, testified to the truth of the allegation that a large quantity of seed came to the farmer in a greatly adulterated condition, and that he suffered great loss thereby, not only in his crops, but in the expense of obtaining them. He had heard it stated by some farmers that this movement was not a genuine affair, but that it had been orignated by the seedsmen, who found themselves injured by a practice which no longer served their purpose, and who now asked the farmers' assistance to stop it. This view of the matter did not, however, affect him, for he averred that it was a *bond fide* movement, and that they, as farmers, having due regard to their own interests, were bound to support it; for, if the measure passed it would have a beneficial effect, not only on the trade, but on the farming community generally. Under this Bill magistrates would have summary jurisdiction, which was inexpensive compared with the only redress now obtainable, which was surrounded with other difficulties. Farmers too were interested in the question, because adulteration of seeds was so difficult to detect; and therefore, if any Bill could be devised to stop adulteration it would be to their advantage. The following resolutions were carried:—

"That this Council being fully convinced that the adulteration of seeds is carried on to a great extent, and that such adulteration is detrimental to the agricultural interest, recommends that the Bill now before Parliament, entitled 'An Act for preventing the Adulteration of Seeds,' be supported by the Central Chamber of Agriculture and by the agricultural community at large."

"That a copy of the foregoing resolution, together with a request to support the above Bill, be forwarded to the Central Chamber of Agriculture, and also to all the Members of Parliament connected with this county."

"That Mr. Charles Sharpe, of Sleaford, be sent by this Council as a special delegate to the Central Chamber of Agriculture, to bring before its notice the provisions of the Bill."

OUR LIVE STOCK.

Mr. Chaloner's sale took place on Tuesday last, resulting in an average of 50*l*. 11*s*. 6*d*. for 53 head. Out of the 31 cows and heifers that were in the first edition of the catalogue, 12 were purchased to go into England, two to Canada, and one to America. These included some of the best prices, the highest being 150 gs. for lot 15, *Fair Maid of Hope* (R. Gibson, New York); lot 6, *Floribunda*, 100 gs.; and lot 4, *British Maid*, 80 gs., the dam of the 150 gs. heifer, were bought for Mr. Cochrane, of Canada. Lot 3, *Bagatelle*, made 55 gs., and goes to Mr. Blackwell in Derbyshire; and lot 1, *Lady Pigot*, and her daughter, *British Fern*, went to Mr. How, Huntingdon, at 80 gs. Six lots were bought by Mr. R. Jefferson and Mr. W. Fox to go into Cumberland, old *Village Rose*, the dam of Sovereign, being among them, at 40 gs., whilst two down-calving heifers to King Richard find a new home in Hertfordshire. In Ireland Col. Leslie, co. Monaghan; Mr. Madden, co. Fermanagh; Mr. Smith, co. Limerick; and Major Nugent for Viscount Bangor, were the principal buyers. Mr. Tynte, co. Wicklow, gave 135 gs. for lot 18, *Maidenhair*; and Col. Leslie bought her little heifer calf just dropped for 37 gs. *Fair Maid of Meath*, a white yearling heifer, daughter of *Fair Maid of Hope*, fetched 100 gs. (Major Nugent), and *Flower Belle*, a red yearling from *Floribunda*, 65 gs. (Colonel Leslie). The competition for the prize bull Sovereign, owing probably to the condition of his entry next month in Dublin, was dull, and Mr. Chaloner, by permission of the company, was allowed to reserve him at 150 gs. His yearling half-brother, The Earl, however, made 93 gs. (Mr. E. J. Smith), and The Marquis 60 gs. (T. Gerrard, co. Meath). Mars, out of *Maidenhair*, also remains in the county with Mr. Wade, for 69 gs. Star made 52 gs. (J. Leonard), Abercorn 50 gs. (Mr. Pratt), and Viceroy, a roan bull calf of the Victoria tribe, went for 28 gs. to Mr. Shirley Montgomery of Ballwer, who also took two or three cows and heifers as the nucleus of a herd. The stock, although very healthy, was not brought out in high condition, but a large company came to see it sold. The Village Rose or Wharfdale, was the most admired family, and 12 of them, exclusive of Sovereign, averaged nearly 80*l*. each. Mr. Thornton's sale arrangements and conduction, gave great satisfaction; but the spirit of the sale was sadly marred by the death of Mr. Chaloner's neighbour, Mr. Barnes' (of Westland) eldest son, who died suddenly the day before, in the very prime of his manhood, just as he was starting for the sale.

—— Mr. Bowly, of Siddington, has very recently secured a first-rate addition to his herd by the purchase of a bull calf of the Duchess tribe from Captain Gunter. He is by 4th Duke of Thorndale, and from *Duchess 94th* by 2d Duke of Wharfdale.

—— We have just received a copy of Mr. Hugh Aylmer's catalogue, dated Lady-day. It contains a greater amount of information than is usually met with in such publications, for besides the usual pedigrees, and the less frequent list of the breeders of sires, there are some interesting notes upon the history of the various families composing the herd. There are at present, at West Dereham Abbey, 78 cows and heifers and 14 bulls. The entire herd may be divided into 21 groups of families, the greater part of whom have signalised themselves in the showyards of our leading agricultural societies. Among these may be mentioned some individuals of the well-known Calomel tribe, bred by Messrs. J. and R. Booth, and originally descended from the stock of Sir M. W. Ridley, Bart.; three representatives of Mr. Troutbeck's Strawberry family; 12 descendants of *Red Rose* by Mr. R. Booth's Columella, a good old Nottinghamshire family of Shorthorns; and some well-bred animals descended from stock bought at the Chilton sale, which even at that time could boast six crosses of Mason blood, and which are now designated as the Britannia family: *Jewess*, *Jessie Hopewell*, and *Jewess 2d* are of the same blood. Mr. Aylmer is fortunate in possessing five females and a young bull of the celebrated *Princess* by Favourite strain, known also as the Gwynne family. Prince Gwynne, the youngest scion of this house, is by Prince Christian, and boasts 16 crosses of pure blood, extending back to Phenomenon, Favourite, Hubback, and The Studley Bull. Scarcely less widely known is the Sylph tribe, originally bred by Colonel Trotter, and afterwards by Mr. Arbuthnot and Sir Charles Knightley, who sold the original *Sylph* to Earl Spencer. This family, also known as Charmers and Sweethearts, of Milcote notoriety, is represented by *Charmers 2d* and *3d* and *Coral*. The Frill family is also well known, and was first purchased by Sir Charles Tempest from Mr. Cattley, near York. At the Milcote sale in 1860 eight of this tribe averaged 56*l*. each. Mr. Aylmer has six females of this excellent sort. Such are the principal families constituting Mr. Hugh Aylmer's herd. The bulls at present in use are all from Warlaby, and comprise General Hopewell (17,953), Prince Christian (22,581), Ravenspur, and Royal Broughton, by Commander-in-Chief, and from *Lady Mirth* of the Bliss tribe.

—— We hear a good account of the Wateringbury herd. Mr. Leney informs us that *7th Duchess of Geneva* produced a white heifer on March 12 to Grand Duke 15th, and on the 1st ult. *Twin Duchess 2d*, from *Charming*, and by 4th Duke of Thorndale, produced a very nice bull calf to Lord Oxford 2d. *7th Maid of Oxford* is in calf again to 15th Grand Duke.

THE PROFITABLE UTILISATION OF TOWN SEWAGE.

I willingly accept your correspondent "H.'s" invitation to a discussion of this question, although I protest altogether against the epithet "unsolved" being applied to it. The discussion of a new method of agriculture, or of a new kind of manure, or of a new crop, must always be useful to the agricultural world, but it does not follow that because the majority of people have not had an opportunity of studying a new agricultural question, or are ignorant of how it is to be solved, that therefore the question itself should, as a matter of fact, be still unsolved. "H." evidently has not had sufficient access to a properly managed sewage farm to feel satisfied of the results to be obtained, but the question itself is solved for all that. It is, however, a large question, and involves the whole of the three cases enumerated in which discussion is useful. Sewage is a new manure, for it has hardly any affinity to the night-soil of a former generation. The night-soil was only used after many months, or even years, of fermentation and putrefaction. It was then used in a comparatively solid form, and its value per ton was very considerable, whereas that of sewage is altogether below that of any other known manure. Being made the vehicle of its own distribution by means of surface irrigation, it necessitates a new system of cultivation, and the nature of the crops to which it is applied is so much changed that they may to a certain extent be called new crops; for instance, Italian Rye-grass, which under ordinary cultivation will last three or four seasons, yields its full returns, and is worn out in one season under the stimulating effects of sewage. And in treating this question we must never lose sight of the fact that the cultivation is so peculiar that ordinary experience is frequently belied by the results obtained on a sewage farm.

It is very possible that some persons, as "H." thinks, have still got an exaggerated opinion of town sewage. This was what Baron Liebig and the Corporation of the City of London did so much to propagate, and this was what I had to fight against so keenly before the Parliamentary Committees in 1864 and 1865. But I had hoped that these exaggerated notions had now given place to a juster appreciation, and as to the "obstinate prejudices of the farmer," I confess I have no such experience to quote from, nor indeed have I seen this charge publicly brought against the farming world in connection with this subject. Of course it is only reasonable to expect so novel a system of agriculture to be first adopted by the leaders in the agricultural world, by the men who have adopted first hay-making machines, then grass-mowing machines, then reaping machines, threshing machines, and lastly, steam cultivation; and I certainly think that these, who are the representative men of the farmers of the present day, are quite as intelligent, and a great deal more courageous and revolutionary in their method of conducting their business, than ordinary members of the mercantile community, although it may be that improvements in reducing the cost of the production of manufactured articles tells sooner upon competitors in the same trade than reduction in the cost of producing Turnips or Wheat. And, therefore, to this extent, and to this extent only, it may be true that improvements in agriculture are longer in being universally adopted than improvements in manufactures. But giving, as I do, farmers full credit for being on the whole more "go-ahead" than commercial men, I consider them also less likely to make mistakes, and, therefore, less likely to rush headlong into a new system until they fully understand it, and appreciate the difficulties as well as the advantages. Now the theory and practice of sewage farming are both so new that ordinary farmers, in most parts of the country at least, have absolutely no opportunity of acquiring any knowledge about them, except through the columns of the agricultural periodicals, and I suppose there are few men, whether farmers or manufacturers, who have adopted a new system of gaining their bread on the strength of a newspaper article. But because your correspondent "H." is more or less in this last category, he ought not to conclude, either that the difficulties that he alluded to have not fairly been looked in the face, or that there is no way of getting over them.

He assumes that all the advocates of sewage farming have overlooked, first, that out of the produce of his farm the farmer has to pay rent and taxes, wages, wear and tear, the keep of his stock, and lastly, to support his family; secondly, that the seasons are immutable; thirdly, that sewage upsets all ordinary cultivation for at least one season; fourthly, that the water in which the sewage manure is contained has to be purified and disposed of subject to local peculiarities; fifthly, that a mysterious, but, as "H." calls it, "serious difficulty is created by raising the natural water level."

Now I will take these assumptions in order. The first is tantamount to assuming that every one who has ever advocated the use of sewage is absolutely devoid of any common sense. Whether or not "H." is, in the abstract, entitled to make such an assumption, I am hardly prepared to say; but it argues a great boldness, not to say rashness of disposition, and I should have thought it had been completely answered by the statement of net profits per acre realised on the Lodge Farm which have been from time to time published in your columns. Surely if a man makes more money per acre with sewage farming than with ordinary farming, he ought not to have any unusual difficulty in maintaining his wife and family—unless indeed "H." thinks that the fertilising effects of sewage are so great that his family would grow in size and numbers beyond all former precedent.

"H.'s" second assumption that the advocates of sewage farming have forgotten that all farming operations must be more or less governed by the seasons, is also, I think, an assumption of ignorance and folly on the part of such advocates as he is hardly entitled to make; I therefore pass it by.

As to the assumption that the introduction of sewage on to a farm upsets all ordinary cultivation for at least one season, why, the introduction of sewage on to a farm upsets ordinary cultivation for ever; and unless "H." and all other agriculturists experienced in ordinary farming will make up their minds to throw away nine-tenths of their former experience as inapplicable, they will never succeed with sewage farming, and never comprehend its advantages. A sewage farmer must have plenty of faith in sewage, indeed need use nothing else, and may in a great measure count his chickens before they are hatched, as he is rendered far more independent of seasons by the extraordinary stimulating powers of what I may term a ready cooked manure, than he can ever comprehend from the experience of ordinary farming. In ordinary farming, for instance, nothing is so fallacious, and in many cases ruinous to the enthusiast, as calculating on the attainment and maintenance of maximum results; whereas, by the use of sewage, the attainment and maintenance of such maximum results becomes a sober certainty, on which the farmer may calculate with implicit reliance. Therefore, the fact that sewage upsets ordinary cultivation is an advantage, and not a disadvantage. But if "H." means that the introduction of sewage on a farm loses to the farmer the use of his land for one season, then I say that the objection is absolutely and totally unfounded: and any man who manages so badly as to waste the whole, or even any considerable part, of the growing season in laying out his land, having of course due warning when he is to receive the sewage, is simply a bad manager, and a bad manager will not make money in any business; therefore, it will be the fault of the man, and not of the system.

The fourth objection that "H." raises is, that the water in which the manurial ingredients of sewage are contained has to be purified and disposed of. This is no objection at all. He might as well say that a crop of Wheat has to be carted, has to be threshed, and has to be sold. It is simply one of the ordinary and very simple operations that have to be provided for in sewage farming. Nine-tenths of all the best farms in Scotland, and in Northumberland, Yorkshire, and many other parts of England, either are drained by subsoil pipe-drains, or ought to be so drained. Once the drains are laid, which can be effected in the ordinary way by money borrowed from any of the various Lands' Improvement Companies upon a rent-charge over a term of say 25 years, the water conveys away itself, and if a man wishes to set up a farm on advanced principles, that is to say, to get the benefit of all the latest discoveries and inventions in agriculture, whether the farm is a sewage farm or an ordinary farm, one of the first things he will do in many parts of the country—and in most parts of the country which act as models to the rest—is to drain his land. Consequently "H.'s" objection on this score holds equally good to all advanced farming in those very parts of the country where the farming is most advanced.

His fifth and last objection—that a serious difficulty is created by "raising the natural water level"—I confess I do not comprehend. If land is properly drained, it *is* drained, and there is an end of it; and if it is not drained, it is simply *not* drained, and there ought to be a beginning. But how, if land is properly laid out for sewage, one of the first operations for which is a comprehensive system of drainage, the natural water level can be raised, I confess myself wholly unable to understand, and I think that it must be a phrase which has escaped from the pen of your correspondent "H." without due consideration. If he attempts in stiff soil, or in any part of England where there are 30, or even 25 inches of rainfall, to apply sewage in any quantity beyond a mere occasional accidental dressing, without draining his land, he will

fail utterly, but he would fail, though in a less degree, even with ordinary high farming. As for any necessity of pouring sewage over more than one surface of land in order to purify it, such a necessity is entirely visionary, unless in cases where very large quantities are given, by which I mean not only a large total quantity in the 12 months, but also cases where each individual dressing is beyond the capacity of the crop and soil together to purify. But if land is properly laid out there is no necessity whatever for either of these excesses, and I myself produced some very astonishing results—on a small scale no doubt, but still on a practical working scale—last season, an account of which appeared in your columns, on a field where not only the sewage never was applied twice to any land at all, but from which there was no outfall of any sort or kind.

And now I will end as "H." began, and say that I trust this little discussion may be of some practical use, not in solving the question, but in convincing "H." and others that the question is already solved. *W. Hope, Parsloes, Barking, March* 31.

A CHAPTER ON POTATOS.

(*Concluded from p.* 341.)

The Miscellaneous Class at the late show for other named sorts was an interesting collection, 23 lots being entered. The judges had two 1st and two 2d prizes at their disposal in this division. One of the 1st prizes went to Messrs. Sutton & Sons' Berkshire Hero, a Kidney Potato which will, we have no doubt, become a general favourite. It appears to be of vigorous habit (for we have not grown it, being, like many others, too late in applying for seed last year). Its quality and productiveness are highly spoken of, and the two samples sent were remarkably true to the engraving in Suttons' "Amateur's Guide." The other 1st prize was given for a round white seedling, shown by Mr. J. K. Fowler, of the Prebendal Farms, Aylesbury, about which we should be glad to have further information. We should judge it to be a second early, of good quality, while in appearance it is all that could be desired. One of the 2d prizes went to Mr. George Dunkley, Kingsthorp, Northampton, for Johnson's Seedling Kidney, which was also very promising. The other 2d prize was given to a lot named Shackel's Conqueror, very good, but improperly named; they were like the Wellington, but rounder in shape than we ever saw any specimens of that sort.

Increased attention has been given during the last few years to improved modes of cultivating Potatos, and greater care has been exercised in the selection of seed and of sorts for planting. This is shown in some degree by the many letters from correspondents in all parts of the country which are to be found in the catalogues of our leading seedsmen; and it is a gratifying fact that at most of the cottagers' shows which are now established in so many of the rural districts really good collections of Potatos are brought together. Still in some quarters more care might be used in planting than is generally observed. As regards garden cultivation (and the nearer the plans are adopted in the fields the better will be the results) we have found that in order to obtain good crops of good quality the land intended for Potatos in the following year should be ridged up early in the autumn, and some well-made manure thrown on when the soil is dry, say in November; if during a frost it will be all the better. There is a marked difference in the appearance and quality of Potatos planted on land thus treated as compared with those put in the ground upon comparatively fresh manure. A slight dressing of guano, or of some one of the established special manures prepared for this crop, applied in damp weather before the final hoeing, is of great advantage, especially on light soils. It is also a good plan to pull off some of the outside and weaker shoots; the crop by this means will come much more regular in size; and there is not one of our vegetables which will so well repay a little extra trouble as the Potato.

We have in former numbers of the *Herald* referred to the very interesting experiments so carefully carried out by Mr. G. Maw, of Benthall Hall, Salop, in order to ascertain the size of sets which are most productive. Mr. Maw's report on the results of his last and most complete series of trials was published in the volume of the Journal of the Royal Agricultural Society of England for 1857; the general conclusions established by him being that "every increase in the size of the set from 1 oz. up to 8 oz. in weight produces an increase in the crop much greater than the additional weight of the set planted. The net profits over and above the extra weight of the sets in planting 4 oz. sets in lieu of 1 oz. sets, amounted in the whole series of experiments to between 3 and 4 tons per acre; and the further profit on the increase of the size of the set from 4 oz. to 8 oz. averaged about 5 tons an acre; all the intermediate steps partaking proportionately of the increase." Those who desire to profit by the results of Mr. Maw's labours will plant whole Potatos; and, so far as the garden is concerned, it is advisable to cut out from each tuber, with a sharp-pointed knife, some of the eyes which are too thickly placed, this being another mode of obtaining the largest number of Potatos of a size fit for cooking. When Potatos are planted whole, a small piece of the skin at one end should also be cut off; this, we are assured, causes the eyes to start more rapidly and to grow more vigorously.

We should be glad to hear of some careful trials being made where Potatos are extensively grown, in order to ascertain the comparative productiveness and value of different sorts, as we have seen done with regard to Wheat and other farm produce. The results would be valuable for future guidance; and such, we have no doubt, as would surprise many who stick to a few old and coarse sorts.

The question—Can we have Potatos in fine condition all the year round?—has often been asked, and we think it may be answered in the affirmative, if proper care is used in the selection of varieties and in cultivation. To ensure this result some one or more of the Kidney Potatos we have named should be chosen for the first crop; and we have always thought that more kidneys might be grown with advantage than is generally the case, such as Rivers' and Gloucestershire, which are large croppers, and keep well for some considerable time. We say nothing about which sorts are the earliest, as the race for very early Potatos is simply a race for an indigestion; most of the earlies are much more wholesome and much better in quality if gathered when perfectly ripe and kept for a couple of months before cooking. Daintree's First Early would follow the kidneys; and, as we have said, in the Milky White we have all that could be desired for a second crop. With regard to late Potatos, there is now no difficulty whatever in making a satisfactory selection, Paterson's Victoria, Dalmahoy, the Fluke, Skerry Blue, and some of the other blue varieties, affording ample means of doing so. The Victoria and the Fluke are, perhaps, the most reliable, the latter, if of a good strain, improving in condition the longer it is kept. We believe it is the opinion of the medical profession that some care should be exercised in the choice of Potatos for use at different seasons of the year, and that the late sorts are by no means so nutritive or digestible if cooked when first gathered as they are after having been kept for some time. A little observation would satisfy any one as to the soundness of these opinions.

We may add, in conclusion, that the reports on the trials of Potatos in different parts of the country, which are prepared for publication in our horticultural journals, would be even more useful than they are at present if information were added as to the nature of the soils on which the trials are made and the modes of cultivation adopted. Is it the character of the soil which, speaking generally, makes the difference in the produce of different varieties, or can this be materially influenced, in most cases, by care in cultivation? With regard to the Fluke, we believe it is the almost universal opinion of growers of Potatos that this sort does well on strong soils only, but this, we have reason to know, is not an invariable rule. *Midland Counties Herald.*

AGRICULTURAL STATISTICS, 1868.

[We continue the publication of the official returns.]

Statement of the Estimated Quantities of the Principal Kinds of Corn and of Potatos, in English Imperial Bushels, and of Beetroot, Produced in various Foreign Countries, according to the latest Returns.

Description of Crops.	Russia (average of 1859 to 1863). In Europe.	Russia (average of 1859 to 1863). In Asia.	Sweden (in 1866).	Norway (in 1865).	Prussia (in 1867).
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
Wheat and Spelt*	Winter Corn. 509,025,520	Winter Corn. 10,863,553	2,724,000	236,000	61,229,000
Barley			13,620,000	2,929,000	71,865,000
Oats			31,780,000	6,517,000	188,124,000
Rye			16,344,000	585,000	143,662,000
Beans and Peas	Spring Corn. 717,651,720	Spring Corn. 68,564,200	2,270,000	152,000	18,779,000
Maize			..	Mixed Grain. 1,490,000	..
Potatos	138,716,470	8,436,982	40,860,000	15,452,000	719,340,000
Beetroot tons.	..	..	..	..	2,003,000

Description of Crops.	Wurtemburg (in 1867).	Holland (in 1866).	France (in 1867).	Italy (in 1867).	United States in (1860).
	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.
Wheat and Spelt	18,267,950†	4,293,000	247,825,895	94,592,212	167,911,777
Barley	5,621,875	3,659,000	53,053,140	20,534,907	15,351,122
Oats	9,552,053	9,299,000	172,844,710		167,463,890
Rye	1,842,067	10,171,000	66,179,554	7,699,865	20,468,339
Beans and Peas	989,451	2,828,000	12,190,247	..	14,610,136
Maize	113,474	Buckwheat. 3,415,000	30,939,100	44,968,387	813,628,958
Potatos	22,424,813	36,078,000	307,801,343	26,160,868	148,646,577
Beet-root tons.	..	135,700	..	..	..

Statement of the Estimated Average Yield per Statute Acre of the principal Corn Crops in Imperial Bushels, and of Beetroot, in various Countries.

Countries.	Date of Return.	Wheat and Spelt.	Barley.	Oats.	Rye.	Beans and Peas	Beetroot.
		Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Tons.
Sweden	1866	19.83	23.13	23.13	18.17	..	..
Norway	1865	17.02	23.30	24.76	23.30	17.02	..
Prussia	1867	17.13	25.14	32.90	16.75	17.53	15.62
Wurtemberg	1867	34.80†	24.40	30.06	17.65	17.44	..
Holland	1866	20.62	35.30	40.00	20.30	24.95	10.81
Belgium	1866	20.10‡ / 20.60§	35.32‡ / 29.10§	40.37	24.57	22.17	13.76
France	1867	13.89	19.18	21.03	13.54	15.00	15.90

* Austria and Hungary in 1868 produced 143,000,000 bushels of Wheat and Spelt, of which quantity it is estimated that 79,000,000 bushels were produced in Hungary. † Chiefly Spelt. ‡ Winter. § Spring.

Home Correspondence.

Cider Orchards.—A peevish Fellow of a College, being asked to subscribe to an institution for the good of posterity, exclaimed "We are always asked to do something for the good of posterity, but I would fain see posterity do something for us!" Perhaps some of those to whom I am about to propose the planting of cider orchards may be of the same mind; still it is to be hoped there may be a good many who do not hold such selfish views. Were I a landholder, one of my improvements would be the planting of an orchard of one or two acres or more, according to the size of the farm, in a grassed paddock close to the homestead. Such would be found to be of great benefit to the farmer. Such an enclosure is also useful for stock purposes during a great part of the year. Strong land well drained makes the strongest and best keeping cider; where the land is chalky or gravelly the cider is milder, and, I think, pleasanter; but it will not keep good longer than a year. If a few Pears are ground up with the Apples they greatly improve the cider. If the orchard is grassed, the Grass should not be allowed, during the minority of the plantation, to approach nearer the stem of the tree than 4 feet. If the soil is thin, it is best to plant the tree on the surface (the clod [? sod] being turned down), and to put earth over the roots, like a semi-molehill. The proper distance for permanence is 24 feet apart every way. This plan will take 95 trees per acre; but for 20 years another plant between each tree in the rows may be planted; and when the branches touch, the intermediate trees may be grubbed up, planted elsewhere, or destroyed. An acre thus planted will take 142 trees. Orchards, even in thin land, would succeed were the trees occasionally manured over the radius of the roots, or were cattle, depastured in the orchard, suffered to lie there. The best cider Apples (according to Mr. John Scott), are Best Bache, Coccagee, Fox Whelp, Kingston Black, Red Must, Red Streak, the Late Jersey: the above are described as first-rate. The next are described as fine, esteemed, or excellent; viz., Bringewood, Cowrane, Forest Styre, Foxley, Early Jersey, and Tom Potter, vulgarly called Tom Put. Scott names two Crabs thus:—Haglo, specific gravity, 10.81; and Siberian Bitter Sweet, 10.91. One word about Coccagee. Some 50 years ago my father bought a hogshead of Coccagee cider, made somewhere in the vicinity of Taunton. He gave six guineas for the hogshead, and it was worth it. He valued it more than any wine he possessed. He had it bottled, and took it from our country residence to the more genial cellars of Weymouth, where it blew up and destroyed a quantity of the finest old port! Coccagee cider is the finest cider in the world, but beware of very warm cellars! Finally, as it would be very just and wise if landlords were to give their tenants a co-proprietorship in rabbits and hares, so it would be no less kind and beneficial to themselves and their tenants, if they would establish near their farmsteads a nice cider orchard. *W. F. Radclyffe, Okeford Fitzpaine.*

Shropshire Sheep.—Why do we find that it is "much easier to sell" a fat "black-foot" than a pale-faced long-wool? Simply because the meat of the one is of higher market value than that of the other. "We cannot sell fat to be eaten now," say our butchers; and those of us who have to provide meat for large families can speak feelingly of the contrariety of demonstration which is bestowed upon the advent of a fat joint of mutton. Materfamilias asks deprecatingly, whether we could not have had the fat cut off? and the heroine of the ladle has pheasant visions of "perquisites:" who ever heard of complaints of too much fat from the regions below? But how does all this affect the farmer—what has he got to do with the different ways in which meat is received into houses? Well, perhaps, very little; but he might learn a lesson from the facts. Materfamilias or her lord has to pay for the meat, and, having to pay for it, she or he expects that a choice might be permitted; and if a choice may be indulged in, we find that the mutton possessing most flesh in proportion to fat is that usually selected. Butchers, knowing that markets ought to be regulated by the good old economic laws of supply and demand, of course raise the price of mutton of good flesh, and in the course of some time—but not until master butchers can't prevent it—farmers get to know that mutton with much lean is preferred, and that the

consumer is satisfied to pay the price of meat for the piece of skin with black hair which is now generally left on the shanks of legs and shoulders of mutton, merely for the satisfaction of knowing that the joint really belonged to a "good-fleshed" sheep. The farmer, though not at all times the most shrewd political economist, thinks that he might as well have a "pull" out of the animal most in demand; he accordingly asks and obtains a higher price, if he is so fortunate as to possess Shropshires, or sheep of the same class. This is, as clearly as I can put it, the philosophy of the ease with which a fat "black-foot" can be sold. I have attended some sales of sheep lately, and it strikes me very forcibly that the Shropshire breed of sheep is destined to supersede a large number of those breeds which lay on enormous quantities of fat mutton. I am not a Shropshire breeder, but I intend, as soon as circumstances will permit, to "go in" for a fair trial. Although not approving of the system as at present carried out, I may state the fact of my having seen large numbers of Shropshire hoggets bought for immediate slaughter. I have no doubt that the Shropshire is a sheep of early maturity. I have seen many instances of the hardiness of the lambs at an early age; I believe that the wool, on suitable soils, will return quite as much profit as that of other breeds; and altogether I think the Shropshire is a breed deserving of more extensive cultivation. I don't at all say that itought to be sent into Lincolnshire, to supersede the fine lustre-woolled sheep of that county—the Cotswold Hills, too, would reject the comparatively small Shropshire,—but over a large extent of this country, on the fair Shropshire soils, I am fully convinced the Shropshire might be introduced with advantage. *C.*

Field Work for Women.—Observing that the present Parliament appears to profess a desire to be practical, and as inquiry has been made in the House of Commons about field gangs in Scotland, I therefore forward you an extract from Mr. Skirving's book on "Landlords and Labourers." p. 37:—

"A considerable number of female servants are absolutely necessary upon every arable farm. This fact has been ignored by some writers and speakers on the labour question, and deplored by others. In many districts of England, it is true, the lighter offices, which in Scotland are done by women, are performed by men. In such counties rents are generally low, and the produce of the soil is swallowed up by wages, whilst the men are lazy, the women idle, and the agriculture slovenly. The outcry against women working in the fields, while it never proceeds from those practically acquainted with the subject, comes from rather unexpected quarters. It comes sometimes from philanthropic townsmen, who nevertheless see women toiled to death in thousands around them, killed by the needle or the spindle as surely as ever soldier was killed by the sword. It comes sometimes as strangely from foreigners, who must have seen women made beasts of burden in almost every country of the Continent. In soft Italia we read the other day that 8000 women were employed on the railways as navvies.

"The mistakes of travellers might furnish the subject of an amusing volume, and among the instances might be placed some remarks I recently saw in a German book of travel. The Scotch, the writer said, must be in a degraded position, from the manner in which they used their women. Not only did they labour in the fields, but 'they did all the hardest work. He had even seen in the harvest-field a number of women reaping, while a lot of hulking savages were merely binding what the females had cut.' Even such a practical nobleman as the Duke of Buccleuch seems to allow his chivalry to lead him astray in this respect. At a meeting of the Agricultural Cottage Society, his Grace is reported to have said that on one of his own farms, when told, 'Oh, we can't get the women out of the house, they stay at home with the children.' 'Well,' said his Grace, 'that is exactly the place for them.' And so it was for married women, but is his Grace to find them all husbands? Married women working in the fields is entirely exceptional, and few or none do so in any county with which I am well acquainted.

"The outcry against the coarseness of the thing seems strange after all that has been said and sung in classic or in pastoral poetry about Phyllises and shepherdesses, and corn-reapers and Vine-dressers. Ruth, too, must have been a somewhat rough maiden after all.

"But it is more to the purpose to remark that, while sentimentalists are objecting to females engaging in rural labour, more practical philanthropists are anxiously endeavouring to discover modes by which women in towns may be kept by honest labour from starvation, and yet saved from that over-amount of toil to which so many are compelled by a cruel necessity to submit. Why should they not work in the fields, if they can get nothing else to do? For their morals, surely idleness would be more destructive than work; and for their health, are free air and exercise hurtful? Tennyson knew better when he described them somewhat ungallantly as—

> "Daughters of the plough, stronger than men,
> Huge women, blowsed with health, and wind, and rain,
> And labour."

I trust Mr. Skirving's statement on this subject will be accepted as representing or expressing the sentiments of intelligent male and female farm operatives, as well as the supposed interested parties—farmers. So much at present in behalf of the class of people to whom I belong, and whom I respect so much. *T. W. Rutherford, Edinburgh.*

Foreign Correspondence.

PARIS.—*Cattle, &c., Exhibition.*—The general *concours* of fat cattle, sheep and pigs, poultry, live and dead, seeds, roots, &c., opened, as announced, on the 22d ult., and closed on the 24th. If we compare the exhibitions of the present day with those of 20 years ago, the progress shown is great; thus in 1849 there appeared at the *concours* only 61 head of cattle and 19 pens of sheep, the numbers this year being 232 of the former and 26 of the latter, in addition to 166 pigs and 23 calves, which were not admitted previously to 1851. Comparing the numbers of the present year with those of its immediate predecessors, there is, however, little sign of progress as regards numbers; thus there were more head of cattle exhibited each year since 1857 than at the present show, with the exception of 1864-5-6-8; but cows were not mentioned, though probably included, until 1862, and with these the total number for the present year is brought up to 285, the highest total attained having been in 1867, when it reached 306.

As regards sheep the numbers are diminishing, the number of pens, 26, being lower than in any other year, except 1868, since 1862. Pigs, on the contrary, show a very decided improvement in every respect, numbers included, which have grown with tolerable steadiness from 22 in 1851 to 166 this year.

The alterations in the relative proportions of the various breeds are, however, of more significance than in the totals, and we are furnished with a comparative statement of the present and three former years. The pure Normandy and Flemish races of cattle seem destined to disappear; there were 9 of the former shown in 1867 and only three this year, while of the latter only one appears this year, and none in either of the three preceding years. The Charollais race seems to grow in estimation, the numbers for the four years being 7, 9, 16, and 13, but this must arise principally from the value of those powerful beasts for labour, their huge frames cannot be profitable for the production of meat; one animal of this class shown this year is a perfect monster, but for beauty of form we must search elsewhere. The pure Salers and Garonnaise races seem to be on the increase, while the Limousine, on the contrary, shows a diminution. The principal progress seems to be taking place in the case of other French races of the larger kinds, such as the Femelin, Périgourdin, and Maraîchin, of which there are 19 specimens shown this year against 8 in 1866; there is a falling off in the middle-sized and smaller miscellaneous races, such as the Landais and Breton. The Durhams, on the contrary, are evidently in favour, the numbers having increased from 8 in 1866 to 14 last year and 11 this year; one of these, a 3-year-old, is certainly the most symmetrical animal in the collection. Of the other foreign races or cross-breeds there are about 40 animals in the show, the numbers standing much the same as in 1866; they include two Ayrshire, one Suffolk, and 35 crosses all with the Durham, with about four exceptions. In addition to the animals shown singly there are 15 lots of four each, and three of these consist of crosses between the Durham and French races.

The cows number 39, of which 24 are of mixed breed, principally Durham crosses.

The sheep consist of five pens of half-bred Merinos, seven pens of crosses between the Dishley and French races, 11 of Southdown crosses, and three of pure Berrichon and Berrichon-Nivernais breeds.

The pigs are equally divided between pure French, foreign, and crosses between the two.

A general view of the show certainly does not impress one with a very favourable idea of the breeds of cattle in France; fine heads and compact frames are in a terrible minority, and the animals do not exhibit those unmistakeable marks of high feeding that we are accustomed to see in England; on the other hand, there is a more sensible proportion of lean to fat, and altogether one arrives at the conclusion that the French cattle breeders and feeders manage their business on sensible and economical principles. The sheep and pigs show far more breed than the cattle, and seem to have been well fed and managed; the latter, especially, would look quite at home at Islington, being, perhaps, not quite so helplessly plethoric as our own grunters.

The exhibition of live poultry, rabbits, &c., is a very fine one, consisting of 345 lots of two or three birds to each. The Crèvecœur, Houdan, La Flèche, Bresse, Normandy, and other fowls, which are the pride of French farmers, and deservedly so, formed the greater part of the show; in addition to these there were a few lots of Dorking and Spanish, and a great number of Cochin-China, Brahma Poutra, Padoue, Nagasaki, and Java fowls. The French turkeys are almost as famous as the fowls, and some of the great Brazilian breed at the exhibition were magnificent birds.

With the rabbits were a number of animals crossed with the hare—léporides, as they are called here, the breeding of which just now occupies a good deal of attention; there were examples of the produce of these léporides, and of further crosses with wild rabbits, good sized, vivacious-looking creatures, that seem to promise well.

The show of poultry, prepared for market in the ordinary business fashion, which has for several years been held at Christmas time in the Champs Elysées, and attracted crowds of fashionable visitors—the landed proprietors evidently making it a point to patronise the exhibition—was this year connected with the cattle show, to the great disadvantage of the former. The grandees who flocked to the Palais de l'Industrie were absent from La Villette, one of the most distant and least attractive of all the dull outskirts of Paris. The farmers seem to have anticipated this result, for the number of lots exhibited was not more than half what we have been accustomed to see at the West-end. But if the quantity was less, the quality of the articles showed no falling off. There is no commodity, in fact, in which the French excel the rest of the world so much as poultry, whether in breeding, feeding, or getting it up for market. With respect to the first point, we are not quite sure that any French fowl exceeds a Dorking, but with regard to fattening, and above all in preparing poultry for market, we have indeed much to learn. Poultry in France is divided into ordinary, half fatted and fatted; and the prices which fatted pullets and capons of the best breeds fetch in Paris would make a London cook stare aghast—8*s.* and 10*s.* each is quite a low figure. But then they are got up with so much art as well as judgment; the Bresse fowls, for instance, which stand in the first rank, and are the most remarkable for the manner in which they are prepared for market, are wrapped in cloths dipped in warm milk, to give a delicate appearance to the flesh, and the small-boned legs and wings are so lost in the plump flesh of the creatures, that when exposed for sale they look much more like delicate legs of lamb than fowls. All this elaborate getting up, some people may say, does not improve the taste of the bird; perhaps not, but this careful preparation for market really forms part of the general carefulness exhibited by the French poultry breeder at every stage, and by such means the rearing and feeding of poultry has become an extensive and lucrative trade, while those who are willing to pay for delicacies in the way of poultry may always obtain them in Paris more readily than anywhere else, and the shops of the dealers show how great is the demand.

The cramming of fowls is becoming more systematic every year; the last method which has been made public is that of placing the birds in stages on a revolving octagonal frame, which contains from 300 to 500. Each bird is fixed by one leg to its place, and divided from his neighbour by slight partitions, and the frame has five sides, with eight or ten stages, or rows of five birds on each side. The feeder stands on a small platform, on which he raises himself by means of cords, so as to reach the upper rows, and when he has crammed all the birds on one side of the frame he turns the latter, so as to bring another side opposite to him.

(*To be continued.*)

Societies.

BINGLEY HALL, BIRMINGHAM.

April 1: *Shorthorn Cattle Show and Sale.*—The second of these annual meetings for exhibiting and disposing of cattle took place here to-day. Viewing this meeting generally, it was a great success. This is indicated at once by the number of entries being no less than 137 animals, viz., 36 young bulls between 12 and 21 months of age; 38 calves; 20 cows and heifers; the remainder being bulls of various ages. This large response to the invitation and offers of the Bingley Hall Company and Mr. Lythall's auctioneering experience, speaks well for future meetings of a similar kind. The prizes offered by the Company amounted to 100 guineas and a silver cup, or any other article of the value of 10 guineas. The yearling bulls had 70 gs., divided among them in sums of 50 gs., 15 gs., and 5 gs.

The 1st was awarded without any hesitation to G. S. Foljambe, Esq., Osberton Hall, Worksop, Notts, for KNIGHT OF THE WHISTLE, by KNIGHT OF THE GARTER. This young bull is very large of his age, and he has hocks and knees of a size which the last generation used to admire, but which, unfortunately as we think, are seldom seen in the present day: he has also a good masculine head, a straight level back, and his condition generally, and coat in particular, does great credit to the character of his parentage as well as to his feeder. The hammer fell at 95 gs. when he was in the ring, and the purchaser was declared to be Mr. Radley, of Furbeck, Rotherham. We say declared, for there were various rumours to the effect that he came to take the prize of 50 gs., and not to be legitimately sold. This, however, will no doubt be discussed and settled at a future time. We forgot to say above that as much provision against this practice—which occurred in more than one case last year—as could be made, was made by introducing into the rules a provision that no animal should have a greater up-set price than 20 gs. put upon it, and after it had gone beyond that sum it was supposed to be before the public for *bonâ fide* sale. The 2nd prize was awarded to Messrs. Crawshaw and Blakeley for a bull with admirable hind-quarters, but with a small girth before and a light neck. His coat and quality generally, however, were excellent, and he made 100 gs. to Messrs. F. & H. Brett. The 3rd was also taken by Mr. Foljambe for KNIGHT OF THE BATH, by KNIGHT OF THE GARTER, dam *Mayfly*, by IMPERIAL WINDSOR, and he made 80 gs. Mr. Foljambe is certainly going in the right direction as regards selection, that is, if the animals shown here be a fair specimen of the Osberton Hall herd; for it is some time since we have seen animals with more thriftiness or inclination to "shoot out and grow." In this class Mr. Garne had a very large and heavy white bull, with ample bone for his age, and his head and horns were also well formed. He realised 51 gs. to Mr. Blackwell, of Matlock. Mr. Francis Hawkesworth Fawkes, of Farnley Hall, Yorkshire, was highly commended for LORD MONTGOMERY, a roan, by LORD COBHAM, dam *Magnolia*, by ROYAL OAK. He was bought by Mr. Trethewy, for 72 gs. Mr. Wortley had a well-bred red roan bull, in store condition, which sold for 30 gs. Lord Beauchamp's FACTOTUM was commended, but he was short and thick, and wanted substance for breeding animals that will have to be reckoned up by the butcher's scale. He was bought by Mr. Horton, of Coleshill, at 42 gs. Mr. Wakefield, of Fletchampstead Hall, Coventry, had a high commendation for CATTON, a remarkably well-grown light roan: this animal promises, from present appearances, to come to the front some day. He is by GENEVA DUKE, dam *Wild Eyes*, by WHITE PRINCE, and he was sold to Mr. B. H. Allen, at 56 gs. Mr. Corbett, of Dumbledon, bought Mr. Stratton's commended bull, ABSOLOM, for 40 gs.

The calves were a weak lot as a whole. Earl Beauchamp's ACHIEVEMENT, by ARCHDUKE, dam *Acorn*, made 60 gs.; and his lordship's LORD OF THE MANOR, by the same sire, dam *Worcester 2d*, made 37 gs.; and another, KING OF THE MAY, a weedy thing, by SUPERINTENDENT, dam *Favourite*, made 36 gs. Mr. Cheney's TELEMACHUS made 46 gs.; Mr. T. E. Pawlett's HAROLD made 43 gs.; Mr. E. Lythall's LORD WATERFORD, by WATCHMAN, dam *Lady Leek*, made 37 gs.; another of Earl Beauchamp's made 28 gs.; Mr. Wortley's SYLVANUS, by LORD SCARLET, dam *Queen of the Forest*, made 31 gs.; Mr. Garne's PAN, by REX, dam *Pandora*, made 51 gs. to Mr. Stavely; two others of Mr. E. Lythall's made 36 gs. and 38 gs. respectively; Mr. Thornton bought the Rev. R. B. Kennard's OXFORD PRINCE, by DUKE OF MONTROSE, dam *Empress of Oxford*, for 31 gs.; and Mr. Foljambe's WHITE LION made 43 gs. to Mr. Ashton.

The cows were irregular in character. *Flora*, sent by Mr. Foljambe, was awarded the cup, and she was bought by Mr. Radley, of Furbeck, the buyer of the 1st prize yearling, at 150 gs.; Mr. Pawlett's *Young Jewel* was commended, and sold for 42 gs.; Mr. Garne's *Beautrice* made 47 gs. to Mr. Harding, of Swansea; and Mr. Butler's highly-commended *Badmington Gem* was bought by Mr. F. Lythall, of Banbury, at 38 gs.

The older bulls made from 20 gs. to 41 gs., according to their youth and promise, or their form and estimated capacity for work.

The various inferior, and the few bad animals sent here, indicate that this trade is being over-done, or that their breeders have not the capacity for judiciously selecting males and females for breeding purposes. These breeders would, therefore, clearly benefit themselves and better judges, if they would turn their attention to feeding instead of breeding. The defective appearance of some of the animals must however be set down to the late trying seasons.

The sum made by the sale was 3749*l.* 12*s.*

Farmers' Clubs.

CIRENCESTER.

March 8. — *The Game Laws.*—We regret we are unable to give more than an abridged report of the valuable paper on this subject lately read by Mr. W. J. EDMONDS, of Lechlade, before this Club:—

The country is a vast garden, every acre made to produce its quota towards the maintenance of our teeming population, yet not producing enough to meet our wants, for I find that in the year 1867 there were imported 34½ million cwt. of Wheat, 3½ million cwt. of Wheat flour, 5¾ million cwt. of Barley, about 9½ million cwt. of Oats, and 3½ million cwt. of Beans and Peas. Now, I wish this fact to be borne in mind whenever the subject now being brought forward is discussed, namely, the subject of the undue preservation of game in this country, and I would speak more particularly of ground game. My proposition is that game is unduly preserved, that is, that it is preserved to so great an extent that such injury is done to the growing crops, whether of corn or of Grass, as materially to interfere with the yield of those crops, thus shortening the supply of home food for the people, both of corn and meat, destroying the profits which ought to accrue to the farmer for his trouble and outlay in cultivation, and also preventing the employment of the number of hands which would otherwise be profitably employed in the cultivation of the soil, which deprives of support, and that to a material extent, many of those who should be supported by agriculture, whilst at the same time it is a bar to the application of the skill and capital which would otherwise be applied, and is now to a great extent applied where game is not over-preserved. Now, what do we mean by game? The definition given is that it is "All wild birds and wild quadrupeds of Britain which the law allows to be captured or killed only at certain seasons and by licensed persons." There game means certain wild birds and animals specially protected, in order that the amusement of sporting may be enjoyed by those who possess the necessary qualifications; and its undue preservation is owing to the fondness of the comparative few for a sport which may, under certain conditions, be enjoyed by them with insignificant loss to any one, but which, carried to excess, becomes an intolerable nuisance to the many. Bearing in our mind, then, what game is, and why alone it is preserved, I will proceed to show that

The Damage which it Causes renders its undue preservation unjustifiable. The Rev. J. Fraser, in his report relating to the employment of women and children in agriculture, touches incidentally on the effects of the preservation of game. He says:—

"The extent to which the system of game-preserving is carried on in many parts of England, and particularly in the county of Norfolk, is assuming a serious significance, both in a moral and an economical point of view. The farmer cannot cultivate his land with the proper measure of profit, and there is a tangible loss thereby sustained in the resources of the country; while the way in which, and the extent to which, preserves are stocked to meet the present taste of battue shooting, and to satisfy the notion that you have had no sport unless you have slain 'heaps upon heaps,' act as irresistible incentives with the peasant, who loves his bit of sport as truly as the gentleman, and whose honest earnings are not sufficient to enable him to overcome the temptation thus thrown in his way to poach and to steal."

In the *Times* of December 14, 1863, under the head of a "Midland Battue," we read "that certain preserves were shot through by nine noblemen and gentlemen, and the quantity of game bagged was 2330 head; of these 1030 were pheasants, and 800 hares." In the *Times* of November 30, 1868, we read, "At a Suffolk battue 5235 head of game were killed in four days, of which 2357 were brought down the second day." In the *Field*, December 9, 1868, we read under the head of Suffolk, "Game killed by seven guns in three days, a total of 2726 head," of which more than 700 were rabbits. In the same paper we find that 11 noblemen and gentlemen killed in five days 8345 head, of which 4977 were hares and rabbits. In a neighbouring county more than 2000 head of game were shot in one week in December on one estate, by no means a large one, and more than 1000 being rabbits. But we need not waste time by multiplying instances of this kind, any sporting paper will furnish them week by week through the season (though in fairness I should say that I have noticed the largest numbers I saw), and the publicity given to this kind of sport encourages it, because it stimulates every landowner who has a passion for it to vie with his neighbour in the number of head of game which his preserves may contain; and those who indulge in such rivalry may be said to have a gamey ambition. I confess that to me and to many others such sport seems very tame. Pheasants, numerous as barndoor fowls in a farmyard, and as easily shot down; rabbits, as thick as in a warren, and hares without end; each sportsman supplied by his servant with ready-loaded guns, to be discharged as soon as loaded; all plain, matter-of-fact work—a continuous bang, bang, for an hour or two together. If otherwise, how could nine gentlemen bag in one day 2330 head, or 259 as the average of each gun or set of guns on a December day? These facts show that game is preserved to a great extent in many parts of the country—I may say more or less in all, and I say so with more confidence, because from observations and inquiries I have made within the last month or two, I have been astonished to find

The Amount of Injury sustained.—On this I will bring to your notice the written testimony of a landlord, whose memory is much respected, who was a staunch friend to agriculture, and who was a most able and far-seeing man—I mean the late Mr. Pusey. In the fourth volume of the Royal Agricultural Journal, published 25 or 26 years ago, he writes, on speaking of agricultural improvements in Lincolnshire—

"Sometimes you find a large piece of the best land enclosed with a high fence, and you hope that the owner is about to begin tilling his freehold. On the contrary, the object of this improvement is to keep out the only sign of farming, the sheep, and to preserve the best of the land (because where the land is best the covert is highest) an undisturbed realm for the blackcock. Every blackcock killed by the owners of these moors has cost more, I was convinced, than a full-fed ox, though, indeed, it is nothing new that sporting should impede farming. The New Forest was made for the deer, and Henry I. afforested 70,000 acres of fens, 'doing,' as Dugdale says, 'for the pleasure of hunting much harm to the commonwealth.' In later times, when it was proposed to lay the fens dry, the fenmen opposed the scheme obstinately, and their main argument (as I found in a curious old pamphlet) was the destruction that would fall on the wild ducks and other waterfowl. In the last generation we have seen how rabbits resisted the long-woolled sheep, and now blackcocks and grouse, I believe, are the main impediments to the extension of cultivation. On the Somersetshire moors the sheep are indeed generally admitted, but the rent of the land is 1*s.* or 2*s.* an acre, quite sufficient for such feed as the animals find. Yet there is land so let for which I know that in Berkshire 30*l.* an acre would be a fair price; and if the landlords in Somersetshire sold some of their moors at a rate calculated on the present rental, that land I found, on riding over it, would be as cheap as any that can be obtained in the backwoods of Canada—not only as cheap, but more easily cultivated, near a much better market, and, above all, at home."

On an estate where the house and shooting were let together, the right of sporting being reserved to the landlord or others, in the tenants' agreements, the damage done to a piece of Barley was estimated by a valuer (a professional man) at 61*s.* per acre, and to the whole farm at no less than 7*s.* 6*d.* per acre. This was corroborated by a very respectable witness, and a fully competent judge in such matters. On two-thirds of the farm Vetches can never be planted with any chance of a fair return, and through the fact of small crops being harvested, and of little farmyard manure being made, the labour bill is much lower than it should be, and the loss to the country is not merely the 7*s.* 6*d.* per acre, but also the larger portion of the value of the extra corn and meat which would be produced upon the farm if the tenant could cultivate in such a manner as to have a fair chance of securing large crops. In the *Field* of January 9, 1869, we read of an experiment made on a game-preserved farm. One acre of Wheat was fenced in with close hurdles of some kind, and yielded 9 sacks on that acre; the rest of the field yielded 6 bushels to an acre, being a loss of 7 sacks 2 bushels per acre from game. Now the Wheat acreage of England and Wales, taking the average of the past 16 years, is estimated at 3,360,090 acres, so that the loss to the country on its whole Wheat acreage, besides the interference with labour, the loss of straw, &c., and, as a consequence, of home-made manure, reckoned at the rate of the loss actually sustained on that piece of land, would be 31,500,843*l.*, taking Wheat to be worth 25*s.* a sack. Surely such a fact should startle the greatest game preserver! Again, another case has been mentioned to me of a similar description, although not so great a loss. A piece of Wheat was enclosed in the middle of a field, and at harvest competent judges—valuers—estimated the difference at 2 sacks to an acre, the larger quantity being grown on the enclosed piece, the quality of which was superior by about 1*l.* per load, and fit to harvest before the other. The fact was that all the field of Wheat, excepting the protected piece, after having been eaten down by hares and rabbits, which were afterwards considerably thinned, again grew, and so luxuriantly as to cause the blight, hence the difference. I venture to assert, without fear of contradiction, that one-fourth of the cultivated land in England and Wales—and I include grass-land, for that sustains great injury—suffers from game to the extent of 5*s.* per acre under its present management; we must add a further sum of 2*s.* 6*d.* per acre for the value of the extra produce which would also be grown on this land if good farming could be pursued. Now, taking 31½ million acres as the cultivated portion of England and Wales, we get eight million acres nearly as one-fourth of the whole, which, at 5*s.* an acre, plus 2*s.* 6*d.* an acre, making 7*s.* 6*d.* an acre, gives us a money value of three millions. But we have still between five and six millions of acres, returned as uncultivable, to deal with. When we find that only 25 years ago Mr. Pusey found land in Lincolnshire being enclosed for game, and in Somersetshire let at 1*s.* or 2*s.* per acre, the fee simple of which would have been worth 30*l.* an acre in Berkshire; when Mr. Evershed tells us that the best loams in Surrey are surrounded by land growing nothing but Gorse, &c., we cannot but conclude that some portions of the five and a half millions of waste land is kept back from cultivation by the love of sport—not fewer, I estimate, than one million acres—which would produce, after paying all expenses, a net value of 3*l.* an acre at the least, or a total of 3,000,000*l.*, which, added to the former amount, gives us the enormous sum of 6,000,000*l.*, being nearly the value of one-third of our Wheat and flour imports, annually lost to the public by the undue preservation of game.

The Gamekeepers. — I approach the part of the subject we are now to consider with reluctance, because I fear I shall not be able adequately to impress game-preservers with the fact of the cruel injustice, the continual worry, and the substantial loss which are occasioned by their love of sport. I believe there are very many gentlemen entirely ignorant of the extent to which they are injuring others, and the unhappiness—I use the word advisedly—the unhappiness which they cause in many and many a family. Often is it a fact that a gamekeeper (who naturally loves and wants game) has considerable influence with his master; he relies on him and takes his word without thinking for himself, and is perhaps the more naturally induced to do so when that word coincides with his own wishes. He is told there is not much game. He is told that such and such farmers are grumblers. He is told that the wireworm killed, or the slug eat off, the young corn. He is told that the sheep broke through the hurdles and did the damage, or that it was the rook that spoiled the Turnip crop, not the pheasant or the hare; so he rests satisfied. There is an excellent letter in the *Field* of November 7, 1868, signed "Land Agent," which is worthy the perusal of every landlord; it is fairly and truthfully written, and I cannot do better than extract parts of two or three paragraphs from it. He says:—

"I state most positively that damage done by game and rabbits is causing more ill-feeling between landlords and tenants than all other questions put together. I have known many landlords as just, kindly, considerate men on all other subjects who were as unjust on the tenants' losses by game and rabbits as men could be; as an instance, I knew a case where a landlord desired me to give 2*l.* as compensation for an acre of Wheat utterly destroyed, because he was told the ground was worth 2*l.* an acre, and, need I say that 12*l.* would not have been more than a fair compensation, or that the crop probably cost the tenant 8*l.*, the other 4*l.* being the tenant's profit and interest on his capital." "On another estate, where the shooting was let to a gentleman for 50*l.* a year, and where the tenants were suffering to the amount of at least 200*l.* a year, I got the landlord to let the shooting to the tenants for 60*l.* a year, reserving the right of shooting to the landlord into the bargain; and you should hear them cheer when his health is proposed at the rent dinner, although formerly I could scarcely elicit a cheer of any sort."

This gentleman then gives an instance where a tenant had been ruined in spite of gaining an action for damages, and where he himself had 84*l.* worth of rabbits killed on an area of 100 acres, and no wonder at the tenant being ruined, if, as Mr. Large informs us in his concise and nicely arranged "Secrets of Farming," where the question of rabbits is well dealt with, every one of them does 10*s.* worth of damage in a year. Then, as an instance of a gamekeeper's view, "Land Agent" adds: "A keeper assured me that the tenants' complaints were groundless, there was only a breeding stock of rabbits left. I put trappers on and killed close upon 2000." Well, now this keeper did not deceive "Land Agent," but how many landlords are thus deceived? And how absurd is the remark, with a view to prove no injustice, "Game farms are let at game rents." I think the very worst feature connected with this part of the subject is where a landlord resides at a distance and lets his shooting, with or without a house, to any one but the tenants. Such a practice is a wrong one in principle, nay more, it is a cruel and an unjust one. Talk not of the tenant being free to take a farm or leave it; talk not of his having voluntarily acquiesced in the preservation of game. The tenant-farmers of England are too numerous, and brought up unable to quickly turn their hands to other occupations, to be able as a body to reject farms unless they can control the quantity of game; and so long as that continues so long will the game injustice remain.

Letting Separately the Game.—I say that gentlemen, knowing as they must, even from newspaper reports, how often farmers are injured by game tenants, should never let their shooting until they have first offered it to the tenants themselves. In the case of a landlord keeping the shooting in his own hands, I consider that any person owning land, who finds it more convenient to let a portion, or all of it, to others, should renounce his right to keep any birds or quadrupeds upon it at all exclusively as his own. I cannot understand a lessee spending large sums on a farm in cultivating it, and paying rent for its use every year, and yet be hampered by a stipulation that the lessor is empowered to partially stock it, whether he made me a so-called compensation or not. Why should I be so annoyed, so continually worried? Why every time I walk or ride round my farm should I be reminded by the gnawed Swedes, the fallow-like appearance of my Wheat and Barley, my short crops of seeds, my destroyed Vetches, my poisoned Grass, my spoiled hedgerow, and stopped-up watercourses and drains, that either I had made a very foolish bargain, or that my landlord was behaving most injuriously? It would act upon one's life as a slow poison, and all for the sake of not more, as a rule, than half-a-dozen days' pastime for the lessor. But there is one thing I should never mind doing,—I should never object to having, and indeed I like to have, game enough for pleasant sporting; and if the landlord, in parting with his land, would say, Protect yourself, but I must come when I like and enjoy my sport, most willingly, most gladly would I acquiesce. In passing on from this part of the subject I will throw out, for the consideration of both parties, a practical suggestion, and it is this—That it shall be considered unjust and unhandsome conduct on the part of any landlord to let his shooting without first offering it to his tenants at a fair and reasonable price; and that where the landlord retains the shooting for his own use, rabbits shall in no case be reserved; tenants to have a joint right to kill hares; winged game to be reserved to the landlord.

Poaching and Poachers.—I will now give two or

three examples of the effect of game preserving on the labouring classes. From Mr. Corbet's paper, I find that in England alone there were in 1843, 4270 convictions for poaching, whilst in 1859 there were only 2608 the United Kingdom through. The kindness of friends has enabled me to obtain the number of game convictions in Gloucestershire for 1868, excepting those in the petty sessional division of Newent, and the total number of those I have received is 180. How many Newent would contribute to increase that amount I cannot say. Now the average acreage of the 40 English counties is 814,614 acres, whilst the acreage of Gloucestershire is 805,102 acres, being thus a little below the average. Supposing, then, that the convictions for poaching in this county to be an average, the total number is certainly wonderfully increased since 1859, for we should have more than 7200 convictions for England alone; and indeed this is fully borne out by a statement I saw in a letter in the *Bell's Weekly Messenger*, that there were 10,000 game convictions in 1868. There is no doubt that where there is most game there is most poaching, and from this statement we may reasonably conclude that as poaching has increased so also has game preserving, and that to an extraordinary degree. If it is argued that since the Act of 1862, more poachers have been convicted through the power of interference given to the police, I answer that such may have been the case in 1863, but that five years surely must be a sufficient time to have checked the numbers, and if the Act was good for anything we ought to have fewer.

Conclusion.—I have endeavoured throughout this paper to avoid expressing opinions upon any points without bringing proofs in support of those opinions, and I think I am justified in saying that I have proved every part of my proposition. If game-preserving landlords can explain away all the evils that I have dwelt on, or can prove the existence of so much good as to compensate for them, it is for them to do so. If they say that they give employment to watchers, helpers, and dog-servers, as was much insisted on (so I see by Mr. Corbet's paper) when the Game Law Committee of the House sat in 1844 or 1845, I would answar that, whether for the country, the farmer, or the labourer, those men would have been about as profitably and less mischievously employed if they were engaged in chopping smoke. I have not spoken of many points which might be urged against preserving—such, for instance, as ratepayers having to support poachers in gaols, and their wives and families in the union, but I hope the fact of my speaking as I have, at the risk of offending some who, thinking differently to me, may not be able to believe that all I have said was necessary, is a proof of my conviction of the absolute necessity for doing so, for I would not lightly lose, and I cannot afford to lose, the good opinion of any one. But at the same time, when I know the injury to the country by the over-preservation of game, the depressing influence, the substantial loss, the continual worry, the lost comforts, the hurried school-days of children, the misunderstandings occasioned by it to the farmer, together with the general bad effect it has upon the labourer, I have thought it my duty, and I have willingly come forward to read a paper upon it; and I say further, that I trust the subject will be agitated in every county, and that ere long game-preserving to an injurious extent will be a thing of the past.

After a prolonged and vigorous discussion, the following resolution was unanimously adopted:—

"That this Chamber is of opinion that the over-preservation of game is productive of great injustice to the occupier of land, and of serious injury to the commonwealth, and that it is desirable that the subject be brought prominently before the public, with a view to the promotion of a better state of opinion thereon, and of obtaining such remedies as may appear best calculated to effect a removal of the evils complained of; and further, that those remedies should comprise the following points, viz., that where a landlord lets the right of shooting, it should, in the first instance, be offered to the tenant of the land; and where the landlord reserves the right, such reservation should in no case extend to rabbits, and as to hares, that the landlord and tenant should have a joint right of shooting, the winged game only being exclusively reserved to the landlord."

Reviews.

The Journal of the Royal Agricultural Society of England. Vol. V., Part 1. John Murray, Albemarle Street.

The current Part of the Agricultural Journal contains fewer papers than usual, chiefly owing to Mr. Evershed's long report on the corn markets of the world, and on "Variations in the Price and Supply of Wheat," which occupies more than one-third of its pages. This paper is, however, a very valuable discussion of the facts on which, along with the character of our own harvest, corn prices in the English market depend; and it was well that Mr. Evershed's practical and familiar acquaintance with a subject which has, we believe, been very serviceable to himself, should be made available for all who choose to consult him through the pages of the Agricultural Journal.

The first paper of the series is Mr. Clutterbuck's interesting and readable report on the agriculture of Middlesex, of which one is surprised to learn that the corn lands are as large a percentage of the whole area as they are in many other English counties.—Mr. J. C. Morton gives a collection of reports on the character of the past season, and its influence on farm practice, from which he deduces as their leading lessons—1, The policy and need of ample liberty of cultivation being given to the cultivator; 2, the importance, by deep drainage and deep tillage, of having in the soil and subsoil a deep and well-furnished storehouse of food for plants always ready against a time of drought; 3, the serviceableness (against a like contingency) of seed-beds full of plants, especially Cabbage and Kohl Rabi plants, which may be transplanted if other crops shall fail; 4, the rapid growth of White Mustard, Stubble Turnips, Rape, Italian Rye-grass, Rye, and other useful leaf crops, in the autumn, when once the hardened cultivated stubble has been moistened to receive the seed; 5, the independence (thanks to manufactured fertilisers) alike of the soil and of the farmer, as regards the rotation-rules on which good agriculture used formerly to be supposed to hinge; and 6, the serviceableness, for economising food, of all those machines which enable us to divide and mix—the chaff-machine, the pulper, and the grinding-mill; and thus, by a small quantity of roots and meal, to render nutritive and palatable a large quantity of comparatively innutritious but yet useful fodder.

It is unfortunate that among the points to which Mr. Morton drew the attention of his correspondents, he omitted to name the value of the roller as a tillage implement during drought. We have lately been over one of the finest pieces of young Clover that were ever seen—a most exceptional thing this year—which has been owing simply to extraordinary and excessive rolling in the spring of 1868. The Wheat was put in after a drill presser of a homely, but unusually efficient kind. The field was a light soil on the lower oolite, and every plough was followed by a loaded cart, one wheel running in the newly turned-up furrow, the other on the unploughed land. And in the spring the loaded cart was again drawn once for every interval of the drill, up and down the lines of the young Wheat plant. This, it is plain, was far more efficient than an ordinary rolling. The Wheat was, after this excessive trampling with a pair of horses and two heavy wheels for every 8 inches of its width, twice harrowed, and the Clover sown and rolled in. The young plant came at once, and survived the drought, and now covers the land with magnificent promise of a heavy crop both for fodder and for seed.

Among the other papers of the Part are Dr. Voelcker's exhaustive treatment of the subject of manuring for Clover and pasture lands—Professor Tanner's paper on the influence of climate and hereditary character on sheep—Mr. Davy's history of the Devon breed of cattle—Dr. Voelcker's chemical report, to which we shall refer hereafter—Mr. Hutchison's reference to the cultivation of new Coniferæ—and Mr. Everett's very useful practical essay on the best method of obtaining a continuous succession of green crops, including roots, throughout the year.

Farm Memoranda.

Hampshire.—The month of February, although very wet and stormy, cannot be said to have been unseasonable, as this month is usually wet; but this year has proved also exceedingly mild, the Grass in the meadows being as forward as it often proves in the April month. Very little was done in February in the planting of Beans or Peas, but since the month of March began the weather has proved dry enough at intervals for planting Beans and sowing Oats, Barley, &c., and on the dryest soils, the gravel and chalk hills, a considerable breadth has been seeded in fair average condition. In some cases the Clover and Grass seeds have been sown at the same time as the corn, but until the end of the month it is considered best to defer the seeding until the corn is up, more particularly as the ring roller now so generally in use answers admirably in breaking down the surface and covering the small seeds. The different sorts of Clover seeds are rather dear this year, but the Alsike variety is much cheaper and more generally grown than formerly, it being found a capital alternation for other varieties. The broad Clovers this year offering are many of them samples of foreign growth, or grown from foreign seed the previous year; in either case they cannot be depended upon like our own growth. They seldom produce a full crop, either in the first or second cutting. All kinds of fodder crops are very forward; Vetches, Trifolium, Rye, Italian Rye-grass, &c., are quite a month earlier than they often are. This is fortunate, for on many of the chalk-hill farms Turnips and Swedes, the ordinary sheep food for March and April, are nearly gone, and are being supplemented by Mangel, where parties succeed in growing them; and it ought to be considered too great a risk to run on stock farms, unless a fair proportion of Mangel is provided, as well as other roots. The prejudice at one time existing against the growth and use of Mangel is fast dying out, and no doubt an unusually large acreage will be sown this year. The Sugar-Beet, too, is beginning to attract attention, and in case there was a free sale for them they would be largely grown upon strong and heavy loams, which are too cold and flat for feeding sheep upon in the winter months. The Wheat plant looks well, more particularly upon dry soils, but on clay and strong lands the weather has not been dry enough. There is, however, less loss of plant this year than is often the case. The prices of grain seem to be gradually receding, no doubt arising from the appearance of the crops, the season, and the probability of large importations. All kinds of meat are now very dear to the consumer, and must very soon diminish consumption, which is the only thing likely to keep the price in check, as the number of fat animals are very short in this country compared with the ordinary supplies at this time of year, either of cattle, sheep, or pigs.

In our last report a good fall of lambs on the vale farms was stated; the lambing season also on the hill farms is now far advanced, and this is the third year in succession when the fall of lambs has been over the average, but the present has proved the best of any year reported within our recollection, the ewes producing more twin lambs, for the most part in sound healthy condition. In looking back, however, to years past, it has been often remarked that the flocks of Hampshire Down sheep have been subject to very serious losses, both of ewes, lambs, and sheep of different ages, at certain times of the year; and it cannot be said to be the result of the soil and climate of Hampshire entirely, for it is noticed both in Wiltshire and Berkshire likewise, but is complained of as applicable to the Hampshire Down breed, and that they are by no means a sheep possessing a good constitution, in consequence of which an experiment has been going on for some years by crossing them with the Shropshire breed, and this cross has been found very good in various ways. We have an excellent record as to the Hants Downs only yielding 89 per cent. of lambs, whereas the Shropshires yield 120 per cent. The latter are said to be more hardy, will bear closer feeding, have more aptitude to fatten, produce more wool, are quieter feeders, being hardly ever known to hoven on succulent food like Rape, &c. These advantages are great, and calculated to improve the Hampshire breed immensely if the cross is carried out with judgment, and the blood carefully commingled. Lambs of this cross taking the prize at Botley on the 15th inst. were remarkably fine specimens of early maturity. *Joseph Blundell, Southampton, March* 20.

The Poultry Yard.

To "A. K.," who writes to complain that her fowls eat each others plumage:—In all probability you have read Verdan's "Greece," and remember the dreary mirth therein described as exciting the man who walked his rooms the livelong night, laughing at and enjoying the chorus of a Greek play. The case of your birds does in this untoward season afford to other amateurs that negative satisfaction that even the best among us feel, on finding others in as bad a plight as ourselves. For what reason we are unable to say, but your letter might be that of many amateurs this year. Many a promising sale, many a Silver Cup reckoned on with certainty, has been postponed *sine die*, because, indulging in an unholy and unauthorised appetite, the birds, especially the Spanish and Houdans, have eaten each other, or at least each other's plumage. Before prescribing a remedy we must try and find the cause. Are your fowls kept on a brick or boarded floor, or do you keep them in confinement? If the floor be boarded or bricked we advise its removal, and the substitution of a gravel and chalk mixture. If the birds be kept in confinement, they, at this season, require a very liberal and varied diet, plenty of vegetable; and in all their soft food, such as barley-meal, &c., a quantity of flour-of-sulphur should be mixed. It sometimes happens that one particular bird is the culprit; if such be the case, it should be at once withdrawn, and, unless very valuable, it should be at once killed. A bird that is naked, or bare in any part, should always at once be removed from the company of the others, placed by itself; the stumps, if any, of the old feathers carefully drawn, and the bare place washed with warm water and anointed with spermaceti ointment. All fowls and pheasants will pick at bare flesh, and when the skin is broken they will peck it and eat it to the bone. A correspondent, writing to the "Journal of Horticulture," recommends the application of a solution of bitter aloes to the feathers of the birds, and says he has never known it to fail as deterrent. Whatever may be the cause, it is certain that this year the complaints of this feather-stripping are double the average, and the difficulty of the cure is manifest. The ingenuity and experience of all poultry fanciers will be brought to bear on it, and we hope with satisfactory results.

The very rough weather, and the biting east winds to which we have been subject for the last few weeks, render additional care and attention absolutely necessary for the well-doing of the little chickens already hatched. If the coops can be placed under the shelter of a shed so much the better, if not, then an old sack thrown over, and the back of the coop carefully kept to the wind. Every little extra attention, in the way of diet, will be amply repaid by the growth and strength of the chickens.

The Loss of Weight in Cooking, comparing poultry and other meats, would, according to Professor Donovan, be as follows: He took a piece of longer ribs of beef weighing 11¼ lb.; this, when roasted, lost 2 lb. 6 oz., of which 28 oz. were water, and 10 oz. fat, &c. The meat was then dissected from the bones, and these were found to weigh 16 oz. Consequently, of the original joint, which weighed more than 11 lb., there was less than 8 lb. of meat; so that if it was bought at 8½*d.* per pound, the roasted beef that could be actually consumed would cost more than 1*s.* a pound. Part of a sirloin of beef that weighed 12 lb. lost by roasting 44 oz., of which 27 were water, and 17 fat, &c. The bones weighed 2 lb., and the beef that was actually suitable for eating weighed 7¼ lb. Hence, if the cost of the joint were at the rate of 8½*d.* per pound, the value of the roasted meat would be 1*s.* 2*d.* per pound. A leg of mutton that weighed when bought 9¾ lb., lost when roasting 1 lb. of fat, &c., and 14 oz. of water. The bone weighed 16 oz. Only 6 lb. 6 oz. were left, and if the butcher had charged 8*d.* per pound, the cooked meat would cost more than 11*d.* A goose, not stuffed, prepared for roasting, weighed 5½ lb.; when roasted it was found to have lost 18 oz., and the bones weighed 12 oz. The edible part that remained, therefore, if the goose sold at 1*s.* a pound, would be worth 1*s.* 8½*d.* per pound. A turkey, properly trussed, weighed, including its liver and gizzard, 6 lb. 11 oz. It lost 20 oz. in roasting, and its skeleton weighed nearly 14 oz., the weight of its edible part being 4 lb. 10 oz. Had the original price of the turkey been 5*s.*, the value of the roasted meat would be 1*s.* 1*d.* per pound. According to the same authority, a duck when prepared for roasting weighed 1 lb. 10½ oz. In roasting it lost 6½ oz., and the bones weighed 4 oz. The edible portion therefore was only about 1 lb., and if the duck cost 2*s.* or 1*s.* 8*d.*, the food it yielded

would be this sum per pound. A fowl weighing 1½ lb. lost 3 oz. when roasted, and its skeleton weighed 3½ oz. The edible portion therefore was 16½ oz. At the price fowls commonly sell at, the cost of the roasted meat would be 1*s.* 6*d.* per pound. The proportion between the bones and flesh of the fowl above mentioned are no evidence of what birds judiciously crossed in breeding and carefully reared can be made. It is no common thing now to find chickens plucked and trussed, but not drawn, weighing from 5 lb. to 6 lb. each at as many months old. Of the three entries made at the Chelmsford and Essex Poultry Show last year, of chickens thus to be shown, two pairs only appeared, but these, a cross between a Dorking cock and light Brahma hens, weighed each of them, at 22 weeks old, the one 16 lb. 14 oz., and the other 16 lb. 9 oz. the pair. These were priced and sold at 11*s.* each couple, being a fraction more than 7½*d.* per lb. And yet the usual selling price of ordinary poultry, live weight, we have seen from Mr. Mechi, is fully 9*d.* per lb., whilst we all know by experience that before it comes to the spit it will cost the consumer fully 1*s.* the lb., and that for inferior birds.

Miscellaneous.

A Farm Labourer's Opinions.—Mr. Frazer, in the Appendix to the Second Report of the Commission on the Employment of Women and Children in Agriculture, cites the evidence of John Townsend, aged 51, parish clerk and post-office keeper at Ingoldisthorpe, Norfolk, and secretary of Ingoldisthorpe Benefit Society, a farm labourer, upon various matters connected with this occupation:—"Thinks many men are so bad off because they don't earn sufficient money to maintain them and bring their family up. Finds that the farmers are taking to give daywork to their men instead of piecework. Hasn't himself had a day of Turnip hoeing work by the piece this year. Would much prefer doing any sort of work by the piece to doing it by the day. When he's paid what he thinks his work is worth, works with a better heart, and doesn't care how hard the work is. A man may work well for nine and a-half hours a day. Sometimes the work is so put as to try a man very hard. For instance, at muck-drawing a man begins his day at half-past six, and goes on without being allowed any time for meals till half-past three, when his day's over; but it's too long a time for any man to go without food. Doesn't like to see women who have got children at home working in the fields. Never allowed his wife to go. Considers any farmer can do without women on his farm, but he gets women cheaper than men. There's plenty of work that women do that they take out of the hands of men. Two women can hoe as much, or more than as much, Wheat as any one man, and would be 8*d.* a day cheaper. Doesn't know, however, what widows could do to support themselves unless they went out to farm work. If boys are once taken from school to work, there's not one in 10 who would ever care to come back to his books. Thinks it quite soon enough for a lad to go out to work at 13 or 14, if his parents can maintain him. Went to school himself till he was 13, and there's no sort of labouring work that he can't turn his hand to. Has had seven children, and they have all had a learning, and they all feel the value of it now. There are some parents who don't seem to see it. There's Tom Richardson's family, the girls all running about with their highlows all undone, and their flyings about this way and that; they'd be a deal better at school. Their mother was a field worker, and never looked after them. The worst thing that ever came up was girls going to work in the fields; they get their heads so that you can't persuade them to go to service, and they get linked so with other wild girls and young chaps that fall into bad ways. It's quite as bad, or even worse, for them to go into the fields at 13 or 14 as if they went at 16 or 18; the older ones learn the little ones all sorts of bad things. Would like to see a law to prevent girls under 20 from going into the fields at all; it wouldn't hurt the farmer, and it would be much better for the girls. A mother, perhaps, might look after a young girl, and some mothers do, but a girl of 16 gets her head so that she don't care for her mother, or give heed to what she says. Doesn't think that a working man wants more learning than to read, write, and cast an account. Doesn't see that there's anything taught in the school that there's no need for a labouring man to learn; nothing more than what children ought to know. When he was a young man his day's work never took such an effect upon him that he couldn't have gone to a night school. Thinks a night school a very handy thing for those boys that are gone out to work, if they could only make up their mind to learn. Most of the drinking in the public-houses begins after ten o'clock. A man goes into a public house perhaps at eight o'clock and sits there a couple of hours, and drinks his two or three pints, and then he feels as though he wanted ever so much more; there are some men who would drink a gallon of beer in a night. What draws most men to public-houses is the company; some, no doubt, are drove there by discomfort at home. ('Another person told me,' says Mr. Frazer, 'a man would rather pay for his beer in the public house than have it given to him if he was bound to drink it at home.') Thinks that not half the young men get drunk now that used to do when he was young. They take more delight in other things, more pride in their dress. Nineteen out of every 20 young men now-a-days have a good suit of black clothes, which has cost 50*s.* or 3*l.* They also put into clubs more, and are more saving. There is also less swearing and less blackguarding than there used to be. The cottages are not half so good as they ought to be; three-fourths of those in Ingoldisthorpe are very indecent. Brought up his own family in one chamber. There should have been three chambers to make it decent. No labouring man out to pay more than 3*l.* for his cottage, but he ought to be willing to pay extra for a good piece of garden ground; wouldn't mind himself to pay 10*s.* a year for a quarter of an acre."

Calendar of Operations.

April.—*Spring Wheat* may yet be sown on soils better adapted naturally for it than for Barley or Oats. The seed should be drilled into a fine seed-bed, and covered with from half an inch to an inch of mould: not more. If sown broadcast on newly ploughed land, it should get a stroke of the harrows before seeding, so as to prevent much of the seed being buried too deep; but drilling is to be preferred. If after a fallow crop, and the land be in good heart and clean, and the sowing is followed with a good season, hoeing may not be necessary. In this case Clover seeds, or Clover and Rye-grass, may be sown subsequently, and rolled in. If the Wheat has not been got in, so as to permit of the land being rolled at the time, and if the probability is that hoeing will be required, the sowing of the Grass seeds should be deferred until the final rolling, to smooth the surface for the reaping machine.

Barley is largely sown during the early part of April—more extensively in the northern counties than in March. In some of the Highland and late districts of Scotland, Bere or Begg is seldom sown before the close of the month, and the first or second week in May, about 1 bushel of seed less being required to the acre than of Barley. Both crops are generally sown out with Rye-grass and Clover: from 3 to 4 pecks of Rye-grass and 20 lb. of Clover (half red, half white) per imperial acre, if for hay, but if for pasture, from 6 to 8 lb. of Red Clover, and 12 lb. of white and yellow. In some districts a larger quantity of Rye-grass (viz., from 4 to 6 pecks), and less Clover (4 lb. of red and an equal quantity of white and yellow) are sown. If a hay crop only is taken it is common to sow annual Rye-Grass and Red Clover, with almost no white, and if one-year pasture, white and yellow Clover with little red. But when the land lies two or three years in pasture, then perennial Rye-grass, with, in some cases, a small quantity of the natural Grasses, as the Poas, Fescues, Timothy, or Coltsfoot, are sown—the mixture of Clover being chiefly of white and yellow, with 2 or 3 lb. of Alsike Clover or Cow-grass. In the north Clover seldom ripens its seed, so that seed has annually to be purchased, and this no doubt accounts in some measure for the above diversity of the practice as to the quantity of seed sown. In the southern provinces, where the different kinds of Clover are grown for seed, they are of course sown separately, each by itself. Red Clover and Sainfoin are also in some cases sown out with Barley for forage crops the following season.

Oat sowing is finished as early in the month as the season will permit. In some late districts this is almost the only white corn crop grown—Wheat and Barley not being so well suited for the land and climate. The Oats may be drilled, but it is better to sow the Rye-grass and Clover broadcast. In dry weather the roller may follow the Grass seed-harrow, or light chain-harrow, or bush-harrow may be used after the roller; but in wet seasons it may be advisable to defer the rolling to next month, or until such time as the land is in good condition. On some stony ground large stones have to be carted off before rolling, so as to leave a proper sole or surface for the scythe or reaping machine. Properly underdrained land does not require water-furrowing, but otherwise water-furrowing immediately after sowing is still the rule.

Vetches are sown as in March for summer mowings.

Potato planting should be finished as early in the month as the land can be got ready. In the north, where harvest is late and winter early, it is seldom that the stubbles, after a two or three year old lea crop of corn, can be properly fallowed and cleaned in autumn; and as the spring is also late, April is generally well advanced before the land is fit for manuring and planting, and no greater mistake can be made than to plant before the land is ready. The Surinam or Yam Potato for stock feeding may be planted on a stiffer soil than the common sorts.

Sainfoin may be sown in chalky and dry limestone soils as last month, also in the place of Clover in sowing out Barley in rich soils, and also on poor soils as a permanent forage plant.

Gorse may likewise be sown as last month, either as a forage crop or for sheep pasturage. In some situations it makes an excellent fence, the annual clippings or mowings with a short Furze scythe furnishing a supply of wholesome green food during winter.

Flax.—For the northern counties the beginning of April is better suited for sowing than the latter half of March; but in localities where the month of May is dry, the plants should be up to cover the ground, otherwise the crop suffers.

Notices to Correspondents.

Comfrey: *Tenant-Farmer.* The Comfrey is a native plant, found in damp places, as on the banks of ditches and streamlets. Its serviceableness as a fodder plant is an old story; but, considering the immense superiority of other crops, not a true one.

Entomology: *W. A. W.* Mr. Curtis's contributions to the "Agri. Cyclo." have been published in a separate form by Messrs. Blackie, 36, Frederick Street, Glasgow.

Mowing Machines: *M. Lucas.* The last trial was at the Plymouth meeting of the English Agricultural Society; and the following was the draught of the best mowers:—

	Draught in lb.	Units of power spent per square foot cut.
Burgess & Key's ..	263.4	65.8
Samuelson's	155.5	41.4
Wood's	267.4	66.8

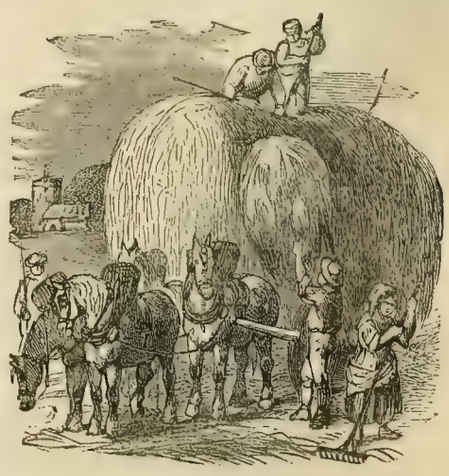
Be it remembered there are many particulars besides ease of draught which go to make up merit. The prizes were given, 1st, to A. Wood; 2d, to Hornsby & Sons; 3d, to H. Kearsley; and Burgess & Key were commended.

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FOR	BEST QUALITY,	GOOD QUALITY,	CHEAPER MIXTURES
1. STIFF CLAY SOILS	2 bushels fine Grass Seeds	2 bushels mixed	2 bushels mixed
2. HEAVY LOAMS	and 12 lb.	Grasses and	Grasses and
3. MEDIUM LOAMS	Clovers	Clovers	Clovers
4. LIGHT SANDS	supplied	supplied	supplied
5. SHARP GRAVELS	per acre.	per acre.	per acre.
6. CHALKY UPLANDS	**28s. to 32s.**	**24s. to 26s.**	**20s.**
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Best Quality	Best Quality	Best Quality
13s. 6d.	**17s. 6d.**	**22s.**
per acre.	per acre.	per acre.
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18s.	**18s.**	**20s.**
per bushel.	per bushel.	per bushel.
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Sow 2½ bush. per acre.	Sow 2½ bush. per acre.	Sow 3 bush. per acre.

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YELLOW TREFOIL	COW GRASS
ALSIKE	GIANT WHITE.

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Fourthly,—To Scientific Agriculturists generally.

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4 lb. Evergreen Rye-grass, Lolium perenne
3 lb. Italian Rye-grass, Lolium italicum
2 lb. Cocksfoot Grass, Dactylis glomerata
1 lb. Timothy, Phleum pratense
6 lb. Red Clover, Trifolium pratense
6 lb. Trefoil, Medicago lupulina

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4 lb. Italian Rye-grass, Lolium italicum
2 lb. Cocksfoot, Dactylis glomerata
2 lb. Timothy Grass, Phleum pratense
2 lb. Red Clover, Trifolium pratense
3 lb. Cow Grass, Trifolium pratense perenne
3 lb. White Dutch, Trifolium repens
4 lb. Trefoil, Medicago lupulina

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Englefield Yellow Globe	0 9	..	74 0
CARROTS:—Altringham	1 0	..	100 0
James' Intermediate	1 0	..	100 0
Long Orange	1 6	..	..
White Belgian	0 10	..	..
SWEDE:—Old Purple Top	0 8	30 0	66 0
Hall's Westbury	0 9	33 0	70 0
Marshall's Purple Top	0 8	30 0	66 0
Skirving's Liverpool	0 8	30 0	66 0
Green Kohl Rabi, English grown	1 3	55 0	112 0
Turnip Green-Top	0 8	30 0	66 0
Early Stone ditto	0 9	32 0	70 0
Samples forwarded on application.			
WHITE MUSTARD		14 0	28 0
RAPE		10 6	21 0

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THE LONDON MANURE COMPANY
(ESTABLISHED 1840)
Have now ready for delivery, in fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES.
Also Genuine PERUVIAN GUANO, and NITRATE of SODA ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c.
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LAWES' MANURES are now ready for delivery for present season, 1869.
LAWES' PATENT TURNIP MANURE.
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These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom.
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NITRATE of SODA, SULPHATE of AMMONIA, and other Chemical Manures.
AMERICAN and other CAKES at market prices.
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Its Members are Cultivators of upwards of 50,000 Acres of Land, which has been for years under Management with Manures of their own Manufacture, consequently the consumer has the best guarantee for the genuineness and efficacy of the Manures manufactured by this Company.
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SCOTT'S WASP DESTROYER will effectually destroy Wasps, Cockroaches, Crickets, and other Garden Pests. See testimonials, &c., on application to
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The Best and Cheapest Vermin Killer.

Vide "The Gardener's Magazine," conducted by Shirley Hibberd, Esq., F.R.H.S., of August 15, 1868.
UNDER PERMISSION OF THE HON. BOARD OF CUSTOMS.
THE LONDON GROUND TOBACCO (free of duty), for the Destruction and Prevention of the Grub and Blight in Plants. Sold in Tins, 1s. and 2s. 6d. each, by Seedsmen and Druggists,
Manufacturers: CORRY & SOPER, at their Bonded Warehouse, Shad Thames, London, S.E. [AGENTS WANTED.]

The Cheapest and Best Insecticide.
DUTY-FREE TOBACCO.
BY HER MAJESTY'S ROYAL LETTERS PATENT, AND BY PERMISSION OF THE HON. BOARD OF CUSTOMS.

POOLEY'S TOBACCO POWDER, for the Prevention and Destruction of Blight and other Diseases in Plants.
Sold by Nurserymen, Seedsmen, and Florists,
In Tins at 1s., 2s. 6d., and 5s.
Powder Distributors, 2s. 6s. and 3s. 6d. each.
"I find it exceedingly useful for killing the Aphides on Roses and other Plants."—GEO. EYLES, Superintendent, Royal Horticultural Gardens, South Kensington. May 7, 1868.
Sole Manufacturer, F. A. POOLEY, Bonded Warehouse, Sussex Wharf, Wapping, E.

Tobacco Tissue,
FOR DESTROYING RED SPIDER, MEALY-BUG, THRIP, GREEN and BLACK FLY, without the aid of a Fumigator.—This article having been before the Public for the last three years, and being now used by many of the leading Horticulturists—from several of whom Testimonials have been received as to its efficacy,—the Manufacturers beg to recommend those who have not used it to give it a trial, feeling confident when they have done so they will use nothing else, as it is far superior to paper or rag, and will not injure the plants. Sold in 1lb. packets and upwards; price 3s. 6d. per lb., carriage free A reduction in price for large quantities.
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ROLL TOBACCO CLOTH.—The cheapest and best Y article for Smoking Greenhouses and destroying the Fly: equal to Tobacco in strength, 1*s.* 4*d.* per lb.: over 10 lb., 1*s.* 1*d.*
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Red Spider
Magnified.

GISHURST COMPOUND.

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
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Wholesale by
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An Invaluable Discovery.
CLARKE'S INSECT-DESTROYING COMPOUND.—A Discovery made solely for private use, now offered to the Public. A Discovery which will save Gardeners endless trouble and care. The discovery of a Compound in Solution, which will destroy every Insect it comes in contact with, and this without the slightest injury to FOLIAGE, FRUIT, or FLOWERS. A Solution which may be used without care, similar to clear water, which will be found instant death to Green Fly, Thrip, Red Spider, Brown and White Scale, and a thorough eradicator of Mealy-Bug, Ants, and the Caterpillars which infest Cabbages and Gooseberry Trees, also Blight and Mildew.
See Report of Trials, "Journal of Horticulture," July 30, p. 72.
A 2*s.* Box will make Six Gallons, a 4*s.* Box Twelve Gallons. Directions for use with each Box. Also a Solution prepared expressly for Mealy Bug, which is instant death to all it touches, in Bottles ready for use, 2*s.* each. May be had of most of the principal Nursery and Seedsmen, and of the Proprietor.
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By Royal Appointment
To HER MAJESTY, by Special Warrant, dated December, 1865.
To the PRINCE OF WALES, by Special Warrant dated February 10, 1866.

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SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the Corporate Mark, OBTAIN WARRANTED, without which none are genuine.
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.
S. & C.'s PRUNING and BUDDING KNIVES are the best and the cheapest in the market.
Paxton Works, Sheffield. Established upwards of 125 years.

BROWN'S FLORAL SHADING, for Shading Plants under Glass from the Sun, and protecting the Bloom of Wall Trees from Frost. Sold by Nurserymen and Seedsmen.
No. 1. 36 inches wide, 20 yards long, at 4*s.* 6*d.* per piece.
No. 2. 38 " " 20 " " 4*s.* 10*d.* per piece.
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Samples on application to CHARLES BROWN, Greenheys, Manchester.

TANNED GARDEN NETTING, for Preserving Seed Beds, Fruit, Strawberries, from Frost, Blight, Birds, &c., and as a Fence for Fowls, &c. One yard wide, 1½*d.*; two yards, 3*d.*; three yards, 4½*d.*; and four yards 6*d.* per yard in any quantity. May be had of CHAS. WRIGHT & Co., William Street, Newark-on-Trent, or their Agents, Messrs. HOOPER & Co., Covent Garden Market, London, W.C.

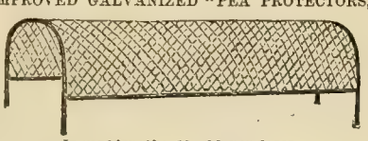
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Preserve your Trees from Frost.
TANNED NETTING for FRUIT TREES.
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Address, BENJAMIN EDGINGTON, (only), 2, Duke Street, London Bridge, S.E. No other Establishment.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, and Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, Royal Gardens, Kew, &c.

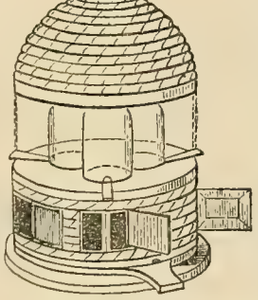
The best Shading is "Frigi Domo" Netting.
White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for
PROTECTION from the COLD WINDS and MORNING FROSTS.
"FRIGI DOMO" NETTING, 2 yards wide, 1*s.* 6*d.* per yard run.
"FRIGI DOMO" CANVAS.
Two yards wide .. .. 1*s.* 9*d.* per yard run.
Four yards wide .. .. 3*s.* 6*d.* per yard.
An improved make, 2 yards wide .. 1*s.* 9*d.* per yard.
An improved make, 3 yards wide .. 2*s.* 8*d.* per yard run.
"Bridgehill, Belper, Feb. 13, 1869.
"SIR,—Please send me at once, by Midland Railway, 60 yards of Frigi Domo 2 yards wide, same as you sent me about this time last year, and which answered its purpose admirably.—Yours respectfully, "G. H. STRETT.
"P.S.—We had 300 dozen Apricots last year on walls protected solely by Frigi Domo."
ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.

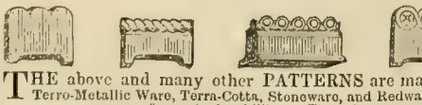
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TANNERS, CURRIERS, and MANUFACTURERS of IMPROVED TANNED LEATHER DRIVING STRAPS for MACHINERY PRIME STRAP and SOLE BUTTS.
Price Lists sent free by post
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IMPROVED GALVANIZED "PEA PROTECTORS,"

In yard lengths, 10*s.* 6*d.* per dozen.
May be had through any Ironmonger in the Kingdom.

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WIREWORK for ROSARIES, continuous or circular, for Pleasure Grounds, made in different designs, suitable for Garden adornment; Wirework for Summer-houses, Wirework for Garden Bordering, Flower Trainers, &c.; Wirework for Screens or Partitions, for hiding unsightly walls, buildings, &c., made in various patterns; Plain and Ornamental Garden Arches for Walks; Ornamental Arches for Cross-walks, Wirework Temples, Arbors, &c.; Diamond Wirework Trellis for Creepers, Ornamental Wirework Fencing, for dividing Gardens, Lawns, &c.
WIREWORK FLOWER STANDS. SUSPENDING BASKETS.
All kinds of WIREWORK for GARDENS and CONSERVATORIES, &c.
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Sir J. Paxton's Registered STRAWBERRY CRINOLINES, for keeping your Strawberries clean, free from dirt, slugs, contact with the soil, superfluous moisture, and other nuisances. These have already proved a great success, in answering the purpose for which they were intended, ripening the fruit regular, &c.
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Illustrated Catalogues of WIREWORK, &c., on application to
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TWO SILVER MEDALS AWARDED TO GEO. NEIGHBOUR & SONS, AT THE PARIS EXHIBITION OF 1867. THE ONLY ENGLISH EXHIBITORS WHO OBTAINED A SILVER MEDAL FOR BEE-HIVES.
NEIGHBOURS' IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR AND SONS, working three bell-glasses; is neatly and strongly made of straw; it has three windows in the lower hive.

This Hive will be found to possess many practical advantages, and is more easy of management than any other Bee-Hive that has been introduced.
Price, complete .. £1 15 0
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THE LIGURIAN or ITALIAN ALP BEE being much in repute, G. N. & SONS supply colonies of Bees with genuine Italian Queens (which will shortly have wholly yellow Italian Alp Bees) at £3 3*s.* each.
An Italian Alp Queen, with full directions for uniting to Black Stocks, £1 each.
ENGLISH BEES.—Stocks and Swarms may be obtained as heretofore.
A newly-arranged CATALOGUE of other Improved Hives, with Drawings and Prices, sent on receipt of two stamps.
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Rosher's Garden Edging Tiles.

THE above and many other PATTERNS are made in Terro-Metallic Ware, Terra-Cotta, Stoneware, and Redware, and of great durability. The planer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.

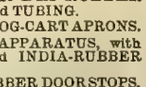
GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability and superior finish, and in much variety of design.
F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.E. Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
Illustrated Price Lists free by post. The Trade supplied.

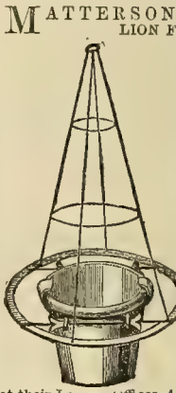
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To be obtained of F. & G. ROSHER, at their premises as above.

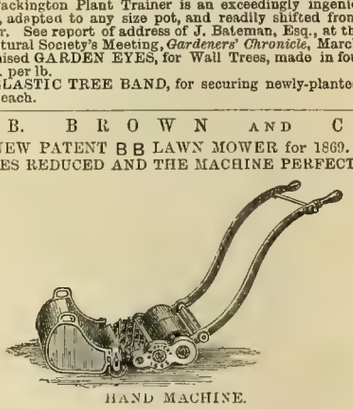
SILVER SAND (REIGATE), at the above addresses—14*s.* per Ton, or 1*s.* 3*d.* per Bushel; 2*s.* per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1*s.* per Ton less. A coarser grained Sand 4*s.* per ton more. Samples of each Sand sent by post.
FLINTS and BRICK BURRS for Rockeries or Grotto. KENT PEAT and LOAM supplied at lowest rates.
F. & G. ROSHER.—Addresses see above.
N.B. Orders promptly executed by Railway or Vessel.
A liberal discount to the Trade.

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For Samples and Prices apply to
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Established 1833.


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HANCOCK'S INDIA-RUBBER HOSE and TUBING.
CARRIAGE, GIG, & DOG-CART APRONS.
HORSE SINGEING APPARATUS, with GAS BURNERS, and INDIA-RUBBER TUBING.
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WATERPROOF CART and WAGGON COVERS made any size.
HORSE-LOIN COVERS (Waterproof), with Straps complete.
BELTING for SAW MILLS, THRESHING MACHINES, and FLOUR MILLS.
IMPROVED INDIA-RUBBER WEDGE-SHAPED GAS BAGS, for Microscopes and Dissolving Views; any size to order.
FLANGE TUBING, for excluding Draught and Dust, and preventing the Slamming of Glass Doors.

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Illustrated Price Lists on application.
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The Packington Plant Trainer,
MANUFACTURED BY
MATTERSON, HUXLEY, AND WATSON, LION FOUNDRY, COVENTRY.

The Packington Plant Trainer is intended to facilitate the training of plants, to do away with the necessity of putting sticks into the soil of the flower-pot (which to a certain extent injure the root of the plant), and also saves time and trouble when it is necessary to re-pot the plant.
The base of the frame is fitted with two horizontal rods, screwed the whole length, and upon these slide two bands, which, by means of the fly-nuts, can be extended or contracted at pleasure, so that in repotting a plant all that is required is to slacken the nuts, draw away the bands; the pot can then be taken away and replaced by a larger one—the bands tightened to the large pot by means of the nuts—the plant remaining attached to the frame as before.
The Trainers are made either in Copper or Galvanised Iron, and to any size and pattern required, from 7*s.* 6*d.* to 21*s.* each.
Patterns and prices forwarded on application to the makers, Coventry, or at their LONDON Offices, 4, Dowgate Hill, Cannon Street, E.C.
The Packington Plant Trainer is an exceedingly ingenious contrivance, adapted to any size pot, and readily shifted from one to the other. See report of address of J. Bateman, Esq., at the Royal Horticultural Society's Meeting, *Gardeners' Chronicle*, March 6, 1869.
Galvanised GARDEN EYES, for Wall Trees, made in four sizes, price 5*d.* per lb.
The ELASTIC TREE BAND, for securing newly-planted Trees, price 1*s.* each.

J. B. BROWN AND CO.'S NEW PATENT B B LAWN MOWER for 1869.
PRICES REDUCED AND THE MACHINE PERFECTED.

HAND MACHINE.
The NEW PATENT B B LAWN MOWER is universally allowed to be, by the most competent practical judges, superior to any other—being the best designed, also of exceptionally best material only, all parts liable to breakage being of malleable iron, every part made to standard guage, and all accurately numbered, and the entire Machine fitted and finished in a manner incontestably superior to any other Lawn Mower manufactured.
TESTIMONIAL
From ALEX. MACKENZIE, Esq., Alexandra Park, Muswell Hill—appointed by the Metropolitan Board of Works to lay out their new Public Parks, and to plant the Thames Embankment—July 1st, 1868.
"Gentlemen.—I have pleasure in informing you that the 42-inch Horse Mowing Machine, supplied by your firm 15 months ago, does its work remarkably well. The two 42-inch Horse Machines supplied by you in May last are also most satisfactory.
"I have recommended your Lawn Mower to many of my friends, believing that the machine does its work better than any other, and combines strength superior to Shanks' machine, with the lightness of Green's. Having now four of your Lawn Mowing Machines in constant use on our grounds, and two of these having been in work over a year, I have never had cause to alter this opinion of your machine, which I now have pleasure in giving to you.—Yours faithfully, ALEX. MACKENZIE.
"Messrs. J. B. Brown & Co., 148, Upper Thames Street."
The B B LAWN MOWER was selected at the Paris Exhibition, in preference to all others, by the celebrated Engineer, Mons. Henry Schneider, of the well-known Engineering Works at Creusot, and President of the French Legislative Assembly. The following is a copy of a note received by Messrs. BROWN & Co. from Mons. Schneider:—
"Usines de Creusot.—Schneider et Cie.,
"08, Rue de Provence, Paris, le 24 Fevrier, 1868.
"Monsieur,—J'ai fait faire l'essai de votre Machine à tondre les gazons, et m'empresse de vous faire connaitre que les resultats en ont été satisfaisats.—Recevez, Monsieur, mes sincères salutations.
(Signed) "H. SCHNEIDER."
"Messrs. J. B. Brown et Cie., 90, Cannon Street, London."

PRICES—NEW PATENT B B HAND MACHINE for 1869.

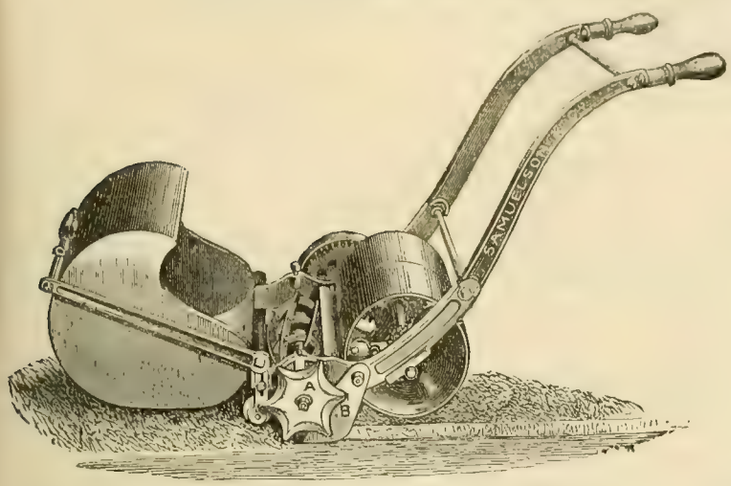
10-inch, 12-inch	For a Boy.	£3 5 0	4 5 0	18-inch	A Man and Boy	£7 0 0	
14-inch	A Man	5 5 0		20-inch, 22-inch	Two Men	7 10 0	8 0 0
16-inch	A Man and Boy	6 0 0		24-inch		8 10 0	

Prices of Horse and Pony Machines on application.
*** Every Machine is warranted to give perfect satisfaction in every respect, and delivered free to any Railway Station in the kingdom.
☞ It is most important, in order to prevent disappointment, that orders for delivery during the season 1869 should be given without delay.
Messrs. J. B. BROWN & Co., Offices, 90, Cannon Street, E.C.; Manufactory, 240, New Kent Road, S.E.

SAMUELSON & CO.'S

NEWLY PATENTED EDGE-CLIPPING SILENT LAWN MOWERS.

THE MOST IMPORTANT IMPROVEMENT EVER INTRODUCED.



MESSRS. SAMUELSON AND CO. BEG TO DRAW SPECIAL ATTENTION TO THEIR NEW

LAWN MOWERS, for 1869,

Which are fitted, when required, with a new Patent EDGE-CLIPPING arrangement, entirely superseding the old and tedious operation of Edge-Clipping by hand.

All Machines fitted with new Silent Gearing, ensuring perfect freedom from noise when at work.

Catalogues, with full descriptions and prices of the new Patent Edge-Clipping Silent Lawn Mower, on application to

SAMUELSON AND CO., BRITANNIA WORKS, BANBURY.

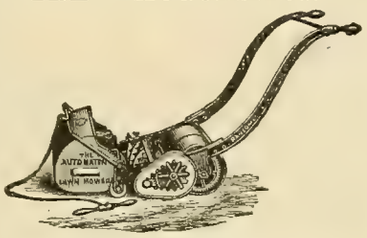
DESCRIPTION.

THE "AUTOMATONS"

Are guaranteed to perform their work perfectly, and if not approved may be returned within a month. They are *easy to work, light in draught, almost noiseless;* and being driven by machine-made gearing *are not liable to get out of order.*

Illustrated Lists and Testimonials sent post free.

THE "AUTOMATON"



LAWN MOWER.

2400 Sold since 1867.

PRICES.

THE "AUTOMATONS."			
10 inch	£3	10	0
12 inch	4	10	0
14 inch	5	10	0
16 inch	6	10	0
18 inch	7	10	0
20 inch	8	0	0
GARDEN ROLLERS.			
16 inch	£1	15	0
18 inch	2	0	0
20 inch	2	10	0
22 inch	3	0	0
24 inch	3	10	0

Delivered Free to all the principal Stations in England.

RANSOMES, SIMS, AND HEAD, ORWELL WORKS, IPSWICH.

JOHN WARNER & SONS,

CRESCENT, CRIPPLEGATE, LONDON, E.C.

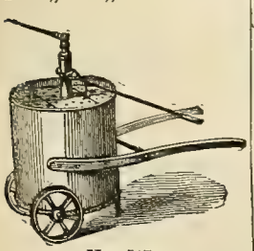
BRASS AND BELL FOUNDERS TO HER MAJESTY, HYDRAULIC ENGINEERS.



No. 35.

35. WARNERS' PATENT CAST-IRON **LIFT PUMPS.**

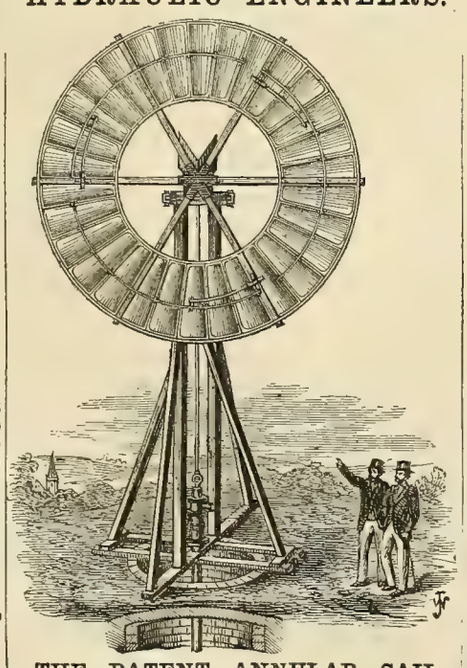
2½ inches diameter	£1	8	6
3 " "	2	1	0
3½ " "	2	6	0
4 " "	2	14	0



No. 547A.

WARNERS' **GARDEN ENGINE.**

28 gallons	£5	10	0
24 "	4	19	0
16 "	3	14	0
10 "	2	19	0

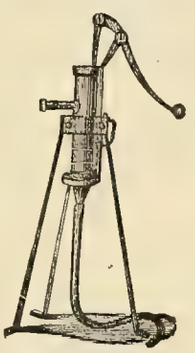


THE PATENT ANNULAR SAIL WIND ENGINE.

These Engines are adapted for Grinding, Chaff Cutting, &c., as well as for Pumping.

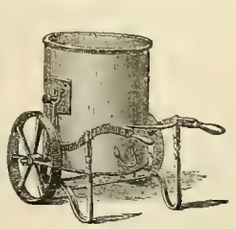
May be seen in action at their Factory as above.

Illustrated and Priced Lists of Garden Engines, Swing Barrows, Syringes, Rubber Hose, will be sent upon application. Also Estimates for Hydraulic Machinery of every description.



No. 42.

No. 42. WARNERS' **PORTABLE PUMPS,** With Improved Valves for Liquid Manure, £2 15*s.* Two-inch Flexible Rubber Suction Pipe, in 10, 12, and 15 feet lengths, per foot 2*s.* 5*d.*



No. 579½.

S W I N G **WATER BARROW.**

50 gallons	£5	12	0
38 "	3	17	0
30 "	2	13	0
20 "	2	2	

GARDEN NETTING (at Reduced Price), for the Protection of newly-sown Seeds from Frost, Blight, and Birds; also as a Fence for Poultry, Rabbits, and Sheep, 1*d.* per square yard, carriage free, in quantities of 250, 500, or 1000 yards.

SCRIM CANVAS, for Wall Fruit, Greenhouse Shades, Tulip Covers.

HAYTHORN'S and WALLER'S NETTINGS, sample of material free on application.

PERUVIAN GUANO, and every other kind of ARTIFICIAL MANURE in Stock. Be particular.

FREDERICK EDGINGTON & Co., Marquee, Tent, Flag, and Rick Cloth Manufacturers, 60 and 62, Old Kent Road, London, S.E.

SECOND-HAND TENTS from ABYSSINIA, Cheap.

Prize Medal, 1867. PRIZE MEDAL for BEST



LIQUID MANURE CARTS,

CLOD CRUSHERS,

and ROLLERS,

also 21 other PRIZES,

Awarded to I. JAMES, Tivoli, Cheltenham.

"Every Cottage should be provided with a Water Tank." *Disraeli.*

Iron Cisterns.

F. BRABY AND CO. having laid down more extensive and Improved Machinery on their Deptford premises (IDA WHARF), are prepared to supply WROUGHT-IRON TANKS, GALVANISED or PAINTED, of superior quality, at reduced prices, and at very short notice.

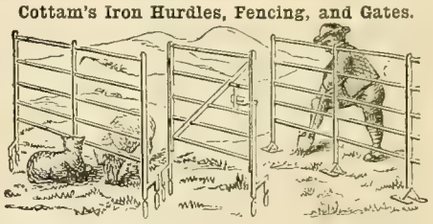


An Illustrated Price List of Galvanised Iron, and other of BRABY'S special Manufactures, sent on application.

F. BRABY & Co., Limited, Fitzroy Works, Euston Road, London; or through all respectable Ironmongers.

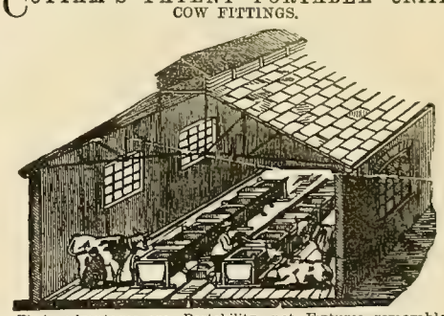
N.B. Open Tanks of different sizes packed one in another to save carriage.

Cottam's Iron Hurdles, Fencing, and Gates.



COTTAM'S HURDLES are made in the best manner, of superior Wrought Iron, by an improved method. Illustrated Price Lists on application to COTTAM & Co., Iron Works, 2, Winsley Street, Oxford Street, London, W.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rick dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of Iron. Prices of Fittings per Cow 55*s.*

Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

GLASS for ORCHARD HOUSES,

As supplied by them to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.

Each Box contains 100 feet. The prices only apply to the sizes stated.

Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.

	16 oz. to the foot.	21 oz.
Fourth quality	15*s.* 0*d.*	19*s.* 6*d.*
Third ditto	16*s.* 0*d.*	22*s.* 6*d.*
Seconds	18*s.* 6*d.*	26*s.* 0*d.*
English	20*s.* 0*d.*	27*s.* 0*d.*

The above prices include the boxes, which are not returnable.

HORTICULTURAL GLASS.

Stock sizes, 16-oz., in 100 feet boxes, boxes included.

These prices only apply to the sizes stated.

				4ths.	3rds.	2nd.
				s. d.	*s. d.*	*s. d.*
11 by 9	12 by 9	13 by 9	14 by 9	13 6	15 6	17 0
12 " 10	13 " 10	14 " 10	15 " 10			
13 " 11	14 " 11	..	..			
14 " 12	15 " 12	15 " 11	16 " 11			
15 " 12	16 " 12	16 " 12	17 " 12			
16 " 13	17 " 13	20 " 12	..			
16 " 14	20 " 13	18 " 13	..	15 0	16 0	18 6
	17 " 14	18 " 14	..	16 to 17 oz. to the foot.		
	20 " 14					

SMALL SHEET SQUARES.

In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	.. 12*s.* 6*d.*
8 by 6	8½ by 6½	9 by 7	9½ by 7½	
		10 by 8	10½ by 8½	.. 13*s.* 6*d.*

Boxes 2*s.* each returnable at full price.

Painted and Glazed with 16-oz. Sheet Glass.

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS.

PAINTS of various colours ground ready for use.

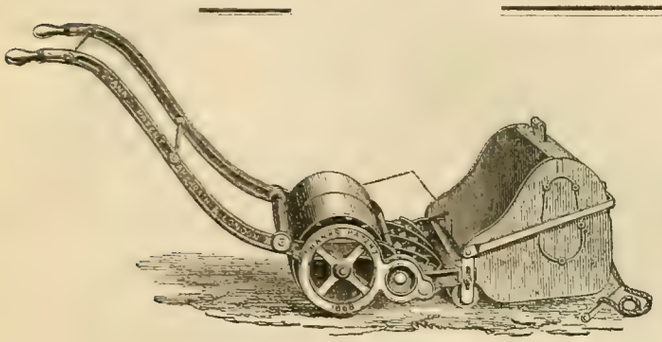
SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of Prices and Estimates forwarded on application to

JAMES PHILLIPS & Co., 180, Bishopsgate Street Without, E.C.

SHANKS'S PATENT LAWN MOWERS FOR 1869.

UNDER THE PATRONAGE
OF
HER MOST GRACIOUS MAJESTY
THE QUEEN,

AND MOST OF THE
PRINCIPAL NOBILITY
OF
GREAT BRITAIN.



HAND MACHINE.

SHANKS'S PATENT LAWN MOWERS

ARE ALL FITTED WITH

PATENT DOUBLE-EDGED SOLE PLATES, WIND GUARDS, AND SELF-SHARPENING REVOLVING CUTTERS.

Advantages possessed by no other Lawn Mowers.

The unprecedented Sale of SHANKS'S LAWN MOWERS for 1868 *forms the most convincing testimony of the value and success of the Improvements introduced last Season.*

PRICES—INCLUDING CARRIAGE TO ANY RAILWAY STATION OR SHIPPING PORT IN THE KINGDOM.

SHANKS'S NEW PATENT HAND MACHINE.

		Easily Worked
10-inch Machine	£3 10 0	*By a Lady*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*By a Boy*
16-inch Machine	£6 10 0	*By a Man*
19-inch Machine	7 15 0	*By a Man and a Boy*
22-inch Machine	8 10 0	*By Two Men*
24-inch Machine	9 0 0	

The Hand Machines are all with Silent Movement.

SHANKS'S NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* ,,
30-inch Machine	15 15 0	30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra.
Boots for Pony, 22*s.* per set.; Ditto for Donkey, 18*s.* per set.

SHANKS'S NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* ,,
42-inch Machine	26 0 0	40*s.* ,,
48-inch Machine	28 0 0	40*s.* ,,

Silent Movement, 20*s.* extra. Boots for Horse, 26*s.* per set.

Every Machine warranted to give ample satisfaction, and, if not approved of, can be at once returned without any expense to the buyer.

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH; and
27, LEADENHALL STREET, LONDON, E.C.

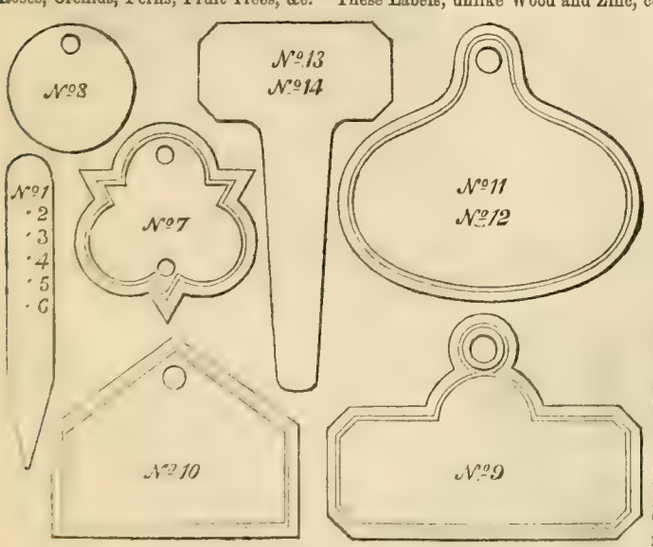
27, *Leadenhall Street is the only place in London where intending purchasers of Lawn Mowers can choose from a Stock of from* 150 *to* 200 *Machines. All sizes kept there, whether for Horse, Pony, or Hand Power.*

BY HER MAJESTY'S ROYAL LETTERS PATENT.

TO MEET A WANT WHICH HAS BEEN LONG FELT BY THE HORTICULTURAL PUBLIC,

MAW & CO.'S PATENT IMPERISHABLE TERRA-COTTA PLANT MARKERS.

Are offered as a cheap and permanent substitute for WOODEN and ZINC TALLIES for the Labelling of Plants in Pots, and in the Open Border, and for suspending to Roses, Orchids, Ferns, Fruit Trees, &c. These Labels, unlike Wood and Zinc, combine perfect durability with a lasting legible inscription, and form an elegant adjunct to the Garden and Conservatory for the naming of Horticultural and Botanical Collections. They are also invaluable for the labelling of Wine Cellars and for general use in situations where other materials are perishable by damp.



Commended by the Editors of the *Gardeners' Chronicle*, and the Floral Committee of the Royal Horticultural Society. (See *Gardeners' Chronicle*, July 11, 1868.)

Can be procured from the Manufactory, or through any Nurseryman, Seedsman, or Ironmonger.

Specimens sent Post Free on application.

No. 1	3½ by ½ inch.	No. 8	1½ inch diam.
No. 2	4½ ,, ⅝ ,,	No. 9	3½ by 2½ inches.
No. 3	5½ ,, ¾ ,,	No. 10	2¾ ,, 2¼ ,,
No. 4	6 ,, ⅞ ,,	No. 11	3½ ,, 3 ,,
No. 5	7 ,, 1⅛ ,,	No. 12	5 ,, 4½ ,,
No. 6	8 ,, 1 ,,	No. 13	2 ,, 4 ,,
No. 7	2¼ ,, 2 ,,	No. 14	3 ,, 5 ,,

Can be seen in use at the Royal Gardens, Kew; the Gardens of the Royal Horticultural and Royal Botanic Societies, Battersea Park, the Royal Botanic Garden, at Edinburgh; and Botanic Gardens, Glasnevin, near Dublin, &c.

Directions for Writing on the Labels with Black-lead Pencil.—Apply a little white-lead paint thinly over the part to be written upon, and *whilst wet*, write with a hard fine-pointed black-lead pencil. The writing will be perfectly indelible and unaffected by wet immediately the paint is set.

Black Enamel Writing on the Labels.—All the above sizes can be supplied in several colours, ready written upon, with black enamel, having the appearance of jet black ink, but perfectly permanent. On receipt of Lists of Names, Estimates of Cost will be sent for any quantities of Pot or Border Labels, Suspending Labels for Orchids, Roses, Ferns, Fruit Trees, &c. Consecutive Sets of Numerals printed on the Labels, and Labels for Wine Bins, ready written with Enamel, kept in stock.

MAW & CO.'S ENCAUSTIC TILE and GEOMETRICAL MOSAIC PAVEMENTS and WALL LININGS

FOR CONSERVATORIES, GREENHOUSES, ENTRANCE HALLS, VERANDAHS, DAIRIES, &c.

Printed Patterns of various Designs suitable for the above will be forwarded on application, and Drawings, free of charge, of any of the Designs adapted to the given dimensions of spaces proposed to be Paved, will be supplied, accompanied by estimates of cost, including the expense of laying or otherwise. Applications for Estimates should be accompanied by an exact plan of the space drawn to scale, with all the dimensions marked in figures, and care should be taken that the size and position of all door-entrances and recesses that have to be paved are correctly represented; and when the walls are not exactly parallel, the measurements between the *opposite* angles, as well as along each wall, should be given.

WHITE GLAZED TILES for DAIRIES, &c.

Address—MAW AND CO., BENTHALL WORKS, BROSELEY, SALOP.

The Telegraph and Railway Station at Ironbridge, on the Severn Valley (Great Western) line, is within three minutes' walk of the Works.

A FABRIC, for the Protecting of Blossom on Fruit Trees from Hail and Frost, &c.: also of the Fruit from Birds, &c. For samples and price, address
James Hoyle & Son, Helsden Bridge, via Manchester.

NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.—TANNED NETTING for Protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3d. per yard, or 100 yards, 20s.; 4 yards wide, 6d. per yard, or 50 yards, 20s. NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls: 2 yards wide, 6d. per yard; 4 yards wide, 1s. per yard; ½-inch mesh, 4 yards wide, 1s. 6d. per yard. Can be had in any quantity of
Eaton & Deller, 6 and 7, Crooked Lane, London Bridge, E.C.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.
For particulars apply to John Fowler & Co., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

IRON HURDLES
(Silver Medal of the Royal Agricultural Society):
SHEEP, 3s. 5d.; CATTLE, 4s. 2d.; OX, 5s. 11d.
List by post. GATES and FENCING of every description.
St. Pancras Iron Work Company, Old St. Pancras Road, London, N.W.

Horticultural Glass Warehouse.
THOMAS MILLINGTON and CO.,
87, Bishopsgate Street Without, London, E.C.
NEW LIST for ORCHARD-HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD-HOUSE SIZES.

in.	in.		4ths.	3rds.	2nds.	Best.
20 by 12						
20 by 13		15 oz.	11s 3d	15s 6d	18s 6d	20s 0d
20 by 14	Per 100 feet					
20 by 15		21 oz.	10s 6d	22s 2d	25s 6d	26s 6d
20 by 16						

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7					12s 3d	13s 3d	16s 0d	18s 0d
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½								
Per 100 feet.											
10 by 8	12 by 9	12½ by 10½	14½ by 10½					13s 3d	14s 6d	17s 3d	19s 0d
10½ by 8½	12½ by 9½	13 by 10	15 by 10								
11 by 9	13 by 9	13½ by 10½	13 by 11								
11½ by 9½	12 by 10	14 by 10	14 by 11								

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best
15½ by 10½	14 by 12	22 by 12	22 by 16					14s 3d	15s 6d	18s 6d	20s 0d
16 by 10	14½ by 12½	17 by 13	24 by 16								
14½ by 11½	15 by 12	23 by 13	20 by 17								
15 by 11	15½ by 12½	18 by 14	22 by 17								
15½ by 11½	16 by 12	22 by 14	24 by 17								
16 by 11	16½ by 12½	24 by 14	20 by 18								
21 by 11	17 by 13	22 by 15	22 by 18								
13 by 12	18 by 12	24 by 15	24 by 18								

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.
In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	30s.	4ths quality, per 200 feet case,	30s.
3ds " "	42s.	3ds " "	42s.
2ds " "	60s.	2ds " "	60s.
Best " "	75s.	Best " "	75s.

SHEET GLASS is made only in the following substances, 15 oz. 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.
HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.
BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.
STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.
WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a-half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.
IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4s. per gallon.

	Per cwt.—s. d.		Per gallon.—s. d.
GENUINE WHITE LEAD	30 0	LINSEED OIL	2 9
SECONDS WHITE LEAD	28 0	BOILED OIL	3 2
GROUND PATENT DRYERS, 3d. to 4½d. per lb.		TURPENTINE	2 9
" OXFORD OCHRE, 3d. to 4½d. per lb.		LINSEED OIL PUTTY, 8s. per cwt.	
" RAW UMBER, 4½d. to 6d. per lb. [per lb.		Fine OAK VARNISH, 10s. to 12 0	
" BURNT do., 6d. to 9d.		" CARRIAGE do., 12s. to 14 0	
GREEN PAINT, all shades, 28s. to 60 0		" PAPER do. 10s. to 12 0	
BLACK PAINT, 24s. to 36 0		" COPAL 16 0	
RED PAINT .. 28s. to 36 0		KNOTTING 10 0	
GROUND BRUSHES.		Patent GOLD SIZE .. 10 0	
DUSTERS. SASH TOOLS.		" BLACK JAPAN .. 12 0	
DISTEMPER BRUSHES.		GLAZIER'S DIAMONDS and TOOLS	
		MILLED LEAD and PIPES	
		OLD LEAD Bought or taken in exchange.	

The above are Net, for Cash, and as such cannot be booked.
Lists of any of the above on application.

Notice of Removal.
WILKINSON and KIDD, Saddlers to Her Majesty and H.R.H. the Prince of Wales, have REMOVED their Establishment from the Corner of Park Street, Oxford Street, to 5, HANOVER SQUARE, W. (adjoining the Queen's Concert Rooms). Established 1786.

"THE DECAY of the TEETH and GUMS arises from various causes, but principally it may be attributed to early neglect, ill-health, and the use of tooth-powders containing mineral and other deleterious acids, which give a momentary whiteness to the teeth, while they corrode the enamel. It is highly satisfactory to point out MESSRS. ROWLANDS' ODONTO, or PEARL DENTIFRICE, as a preparation free from all injurious elements, and eminently calculated to embellish and preserve the dental structure; to impart a grateful fragrance to the breath, and to embellish and perpetuate the graces of the mouth."—*Observer.*

ELECTRICITY IS LIFE.
SELF-ADJUSTING CURATIVE and ELECTRIC BELT.
Sufferers from nervous debility, indigestion, weakness, &c., can now cure themselves by the only "Guaranteed Remedy" in Europe, protected by Her Majesty's Great Seal.
Free for One Stamp, by H. James, Esq., Medical Electrician (to the London Hospitals), Percy House, Bedford Square, London, W.C.
N.B.—Medicine and Fees superseded. A Test gratis. Send for details. Established 1840.

GOUT and RHEUMATISM.—The excruciating pain of Gout or Rheumatism is quickly Relieved and Cured in a few days by that celebrated medicine, BLAIR'S GOUT and RHEUMATIC PILLS. They require no restraint of diet or confinement during their use, and are certain to prevent the disease attacking any vital part. Sold by all medicine vendors, at 1s. 1½d. and 2s. 9d the box, or obtained through any chemist.

CORNS and BUNIONS.—A Gentleman, many years tormented with Corns, will be happy to afford others the information by which he obtained their complete removal in a short period, without pain or any inconvenience.—Forward address on a stamped envelope to F. Kingston, Esq., Ware, Herts.

DINNEFORD'S FLUID MAGNESIA.—The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion; and the best mild aperient for delicate constitutions, especially adapted for Ladies, Children, and Infants.
Dinneford & Co., 172, New Bond Street, London; and of all Chemists throughout the World.

MACNIVEN and CAMERON,
Wholesale and Export Stationers,
23, 25, 27, 29, 31, and 33, Blair Street, Edinburgh.
"Somewhat Pensive.—There are three kinds of PENS sold by a celebrated Edinburgh Firm, under the names of the *Waverley* Pen, the *Owl* Pen, and the *Redgauntlet* Pen. Now, whatever may be the case with regard to the inhabitants, the other two are, doubtless, unrivalled, for what can equal the Pens of Scott and Dickens?"—*Judy.*

CORDING'S WATERPROOFS for the TROPICS.

CORDING'S HUNTING COAT, with LEGGINGS and VALISE, complete.

CORDING'S DEMI-RIDING BREECHES, 12s. 6d

CORDING'S GUINEA FISHING COAT.

CORDING'S GUINEA STORM COAT.

CORDING'S DRIVING COATS.

CORDING'S GIG, BOX, and DOGCART APRONS, warranted not to crack.

CORDING'S WATERPROOF CLOAKS for LADIES.

CORDING'S WATERPROOFS are the best, and guaranteed to stand all climates.

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PURE AERATED WATERS.

Ellis's Ruthin Soda Water.	Ellis's Ruthin Lemonade.
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Ellis's Ruthin Seltzer Water.	Ellis's Lithia and Potass Water.

For Gout, the last-named is a splendid remedy.
Every Cork is branded "R. Ellis & Son, Ruthin," and every label bears their trade mark, without which none is genuine. Sold by Chemists, Hotel-Keepers, Confectioners; and Wholesale only from R. Ellis & Son, Ruthin, North Wales.

Sauce.—Lea & Perrins.
THE "WORCESTERSHIRE," pronounced by Connoisseurs "THE ONLY GOOD SAUCE," Improves the Appetite, and Aids Digestion. Unrivalled for piquancy and flavour. Ask for Lea & Perrins' Sauce. Beware of Imitations, and see the Names of Lea & Perrins on all bottles and labels.
Agents—Crosse & Blackwell, London, and Sold by all Dealers in Sauces throughout the World.

Galvanism and Medicine Superseded.
NEW METHOD of CURING DISEASE, without the aid of doctors and their drugs, by studying the laws of health and Nature. Invalids cannot too carefully avoid pills, pretended life drops, and other dangerous medicines, as they contain mineral poisons, which act on the delicate coatings of the stomach, and thus destroy the receptacle of our daily sustenance. The Advertiser was pronounced incurable; but, acting in accordance with the advice he now offers, has, by God's blessing, been restored to health and strength; and with sympathy for like sufferers, the means of cure will be sent, post paid, on receipt of address and two stamps.—Address
Philip Gaspey, Esq., 20, York Buildings, Strand, London, W.C.

MR. EDWIN COOLING,
Horticultural Valuer, Mile Ash, Derby.

New Silkworms.
EGGS, of different Mulberry varieties, producing Yellow, White, or Green Silk, 1s. per 100; Oak-leaf kinds, 1s. for 15; Ailantus sorts, 1s. for 20. MULBERRY and AILANTUS seedling plants, &c. See CIRCULAR, &c., 3d.
L. Harman, Jr., Old Catton, Norwich.

Bristol Spanish.
MR. HENRY LANE, of Ashley Villa, Ashley Road, Bristol, will be happy to DISPOSE OF some of his Prize Birds or Eggs, or EXCHANGE for some half or quarter specimen Green or Hothouse Plants, or for a Portable Fowls' House. His birds are the best strain in England, and are composed of the following Prize Birds:—First Prize Cockerel at Birmingham, 1867, bought of Miss Biggar for 15 guineas; First Prize Hens at Birmingham and Bristol, 1868, bought of Mr. Hyde for 15 guineas; and his own three First Prizes at Manchester, &c.

To Road Makers.
TENDERS are REQUIRED for FORMING and COMPLETING a ROAD and FOOTPATH on an Estate, in Beckenham, Kent. Length about 400 yards; breadth from 7 to 10 yards. For particulars apply to Mr. Hy. Daukes, 7, Whitehall Place, S.W. The Tenders to be sent in on or before Saturday, the 10th inst.

FLORISTS and NURSERYMEN.—The Goodwill, Glasshouses, Hot-water Apparatus, of a First-class FLORIST, in excellent position, West, for SALE. Long Lease; Rent 30l.; Stock optional. Cash, £225.—Mr. Krüss, 17, Great Portland Street, W.

TO BE LET, close to Notting Hill Station, a PLOT of GROUND suitable for a Nursery. It is situated in a good neighbourhood, and offers a first-class opening for an enterprising man.—Apply, Acacia Villa, Ladbroke Road, Notting Hill, W.

Sales by Auction.

Great Sale of Choice Nursery Stock at Rainworth, near Mansfield, Notts.

MESSRS. POTT and NEALE have received Instructions from the Midland Railway Company to SELL by AUCTION, as above, early in APRIL, without the slightest reserve, as the ground must be immediately cleared. The Stock includes 150,000 Seedling RHODODENDRONS, 3000 best GOLD HOLLY (Queen), 2000 Choice HOLLIES of sorts, 13,000 English OAK, 9 to 12 inches, Picea nobilis, Araucaria imbricata, Cupressus Lawsoniana, Thujopsis borealis, Irish Yews, Wellingtonias, Thuja Lobbii, Fruit Trees, and General Nursery Stock, in fine condition for removal.
Catalogues may be had from the Auctioneers, Wheeler Gate, Nottingham; or from Mr. Edward Cooling, Horticultural Valuer, Derby.

Turnham Green, five minutes' walk from the Station.

To Noblemen, Gentlemen, Nurserymen, and Others.
IMPORTANT SALE OF NURSERY STOCK, 4000 PINES, &c.
MR. J. S. GOMME is instructed by Mr. Joseph Smith (who is relinquishing this department of his business) to SELL by AUCTION, on the Premises, Acton Green, Turnham Green, nearly opposite the Station, on TUESDAY, April 27, the extensive STOCK in TRADE, comprising about 4000 fine healthy Pines—Jamaicas, Queens, Providence, and Smooth-leaved Cayenne—in all the various stages of growth; also, a choice and extensive collection of Bedding Plants, in pots, consisting of 5000 Geraniums, including Mrs. Pollock, Tom Thumb, Scarlets, and others; several thousand Verbenas, Fuchsias, Heliotropes, Stocks, Carnations, &c., and various effects appertaining to the Trade.
May be viewed one week prior to the Sale, and Catalogues obtained on the Premises, at the usual Inns in Covent Garden, and at the Offices of the Auctioneer and Market Garden Valuer, No. 23, Old Jewry, E.C., and Feltham.

Sale of First-class Carnations and Picotees, STANDARD and DWARF ROSES, &c.

MESSRS. PROTHEROE and MORRIS will SELL by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, City, E.C., on WEDNESDAY, April 7, at half-past 12 o'Clock precisely, a first-class Collection of CARNATIONS and PICOTEES (the surplus stock of an eminent grower), also a superb assortment of Standard and Dwarf ROSES, selected AMERICAN PLANTS, clean-grown FRUIT TREES, CAMELLIAS, AZALEA INDICA, GLADIOLI, &c.
On View Morning of Sale, Catalogues had at the Rooms, as above, and of the Auctioneers and Valuers, Leytonstone, N.E.

Cheltenham.

HIGHLY IMPORTANT SALE of EXHIBITION SPECIMENS of GREENHOUSE and STOVE PLANTS and AZALEAS.
MESSRS. PROTHEROE and MORRIS are instructed, by T. P. Walter Butt, Esq., to offer for UNRESERVED SALE by AUCTION on the premises, Arle Court, Cheltenham, on WEDNESDAY, April 14, the whole of the EXHIBITION SPECIMENS, enumerating many unrivalled plants of Ixoras, Rondeletias, Stephanotis, Croton, Ericas, Phœnocoma, Aphelexis, Pimeleas, Genetyllis, Dracophyllum, &c.; amongst the Azaleas are gorgeous specimens of Etoile de Gand, Madame Mielez, Iveryana, Juliana, Duc de Nassau, Extranei, and others equal in merit. Also a capital, strong, well-built Plant Van.
N.B. This matchless collection has attained its present development under the skilful treatment of Mr. May, formerly Gardener at Ealing Park, which fact will be a sufficient assurance to all connoissours that the plants are in the finest state of cultivation.
Catalogues are being prepared, and when ready may be obtained of Mr. May on the premises; and of the Auctioneers and Valuers, Leytonstone.

SALE THIS DAY AT HALF-PAST 12 O'CLOCK PRECISELY.

Consignment of Plants from Ghent.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, April 3, at half-past 12 o'Clock precisely, choice CAMELLIAS, INDIAN AZALEAS, TREE PEONIES, YUCCAS, SALISBURIAS, and other plants, from Ghent; Berberis, Euonymus, Hollies, Oaks, Laurustinus, Auriculas, Carnations, Cinerarias, Raspberry Canes, Strawberry Plants, Asparagus Roots, Gladioli, Ranunculi, &c.
On view the Morning of Sale, and Catalogues had.

Notice.

MR. J. C. STEVENS begs to announce that in consequence of the continued severity of the weather, Mr. Day's SALE of ORCHIDS, which was to have taken place on THURSDAY, April 1, is unavoidably postponed for a few days. Due notice will be given of the date of the Sale.
38, King Street, Covent Garden, W.C.

Hardy Plants.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, April 7, at half-past 12 o'Clock precisely, CONIFERS, LAURELS, STANDARD RHODODENDRONS, Hollyhocks, Yuccas, Filberts, Strawberries, Currants, Azaleas, Apples, Deutzias, Syringas, Lilacs, Climbing Plants, Cotoneasters, Ornamental Flowering Shrubs, &c., Gladioli, Dahlias, Ranunculi, &c.
On view the Morning of Sale, and Catalogues had.

Choice Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 8, at Half-past 12 o'Clock precisely, an important consignment of ORCHIDS from New Grenada, including Anguloa Clowesii, Cypripedium Schlimii, Lycaste Barringtoni, Maxillaria venusta, and other species; 200 magnificent masses of Odontoglossum Phalænopsis, the finest ever imported, and in the most splendid condition possible; Warrea tricolor, Eriopsis rutidobulbum, Epidendrum Warscewiczella, &c. Also some Bulbs of a fine red-flowering AMARYLLIS.
On view the Morning of Sale, and Catalogues had.

Carnations, Picotees, Pinks, and Gladioli.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, April 10, at half-past 12 o'Clock precisely, the remaining portion of MESSRS. YOUELL and CO.'s stock of GLADIOLI, CARNATIONS, PICOTEES, and PINKS, removed from Yarmouth.
On view the Morning of Sale, and Catalogues had.

Choice Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, April 13, at half-past 12 o'Clock precisely, fine Specimen Plants of ESTABLISHED ORCHIDS, from the Collection of the Rev. W. Ellis, of Hoddesdon, consisting of Aerides, Oncidiums, Cattleyas, Lælias, Epidendrums, Angræcums, Dendrobiums, Odontoglossums, Saccolabiums, Cypripediums, Phalænopsis, Lycaste, Cælogynes, Burlingtonias, &c.
On view the Morning of Sale and Catalogues had.

Highly Important Sale of Established Orchids.

MR. J. C. STEVENS has been favoured with instructions from W. W. Buller, Esq., of Strete Raleigh, to offer for SALE his entire Collection of ORCHIDS, by AUCTION, Without Reserve, on WEDNESDAY and THURSDAY, May 5 and 6, at Half-past 12 o'Clock precisely, at his Great Rooms, 38, King Street, Covent Garden, London, W.C. This Collection is perhaps unsurpassed for the variety and rarity of the plants cultivated. It includes many not only of Horticultural but Botanical interest, and possesses some extremely rare, if not unique, specimens. It comprises selections from every importation of importance during the last seven years.
In Cattleyas and other Orchids subject to great variation, immense quantities have been purchased at different times, and after flowering the inferior varieties have been discarded. The specimens now submitted for Sale comprise only the finest varieties, and therefore offer unusual advantages to buyers of this class of plants.
More detailed particulars in the Catalogues, which will be ready for distribution in a few days.

Orpines, Wateringbury, Kent.

IMPORTANT SALE OF FIRST-CLASS SHORTHORNS.
MR. STRAFFORD begs to announce that the SALE by AUCTION of the FIRST-CLASS SHORTHORNS belonging to Messrs. F. Leney & Son, Wateringbury, Kent, is fixed for THURSDAY, the 6th of May next, and will consist of 23 very choice YOUNG HEIFERS, and the same number of YOUNG BULLS from this famed herd, which has been bred with great spirit and judgment from the most fashionable sources, and by sires of the highest breeding and repute, such as 12th Duke of Thorndale, 15th Grand Duke, Knightley, Lord Oxford 2d, and others of Fawsley and Kirklevington blood.
Catalogues with Pedigrees may be had of Mr. Strafford, 13, Euston Square, London; or of Messrs. Leney, Wateringbury.

Important Sale of First-class Shorthorns.

MR. STRAFFORD is honoured with instructions to announce for SALE by AUCTION, without reserve, on FRIDAY, the 7th of May next, at Wicken Park, Bucks, 50 Head of First-class SHORTHORN BULLS, COWS, and HEIFERS, from the Penryhn Castle and Wicken Park Herds, bred by and the property of the Right Hon. Lord Penryhn. Amongst them will be found the Darlington as well as the Wild Eyes tribes, and other good sorts, with some very superior Young Bulls, whose sires are of the famed Duchess family, such as the Duke of Geneva (19,614), 3d Duke of Wharfdale (21,619), 11th Grand Duke (21,549), &c.
Catalogues with Pedigrees will shortly be issued, and may be had of Mr. Strafford, 13, Euston Square, London; or Mr. Doig, Lillingstone Hall, Buckingham; and of Mr. Smith, Penryhn Farm, Bangor.

Market Gardener's Stock on Cranbrook Farm, near THE ORPHAN ASYLUM, LOWER CLAPTON, MIDDLESEX.

MESSRS. DUCKWORTH and CLAYDEN will SELL by AUCTION, on TUESDAY, April 20, at 11 for 12 o'Clock, in Lots, by order of Messrs. Brandon, who are compelled to give up the Land on the 30th, it being required for building purposes, the WHOLE of the IMPLEMENTS, HORSES, HARNESS, WAGGONS, VANS, CARTS, WAGGONETTE, 280 Boxes and Lights, 866 Bell and Hand-glasses, Heaps of Manure, and numerous effects.
May be viewed one day prior to the Sale, and Catalogues had on the Premises, at the Windsor Castle Inn, Lower Clapton, at Way's Coffee House, Covent Garden, and of Messrs. Duckworth & Clayden, Hadley, Barnet.

NO IMPROVEMENTS OR ALTERATIONS FOR THE PRESENT SEASON, 1869,

IN

GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

THE Extraordinary Success of GREEN'S PATENT LAWN MOWERS is an established fact. During the last five years the demand has been unprecedented, which alone is a proof of their superiority over all others. The following are their characteristic features:—

1st. Simplicity of Construction, every part being free of access.
2d. They are worked with far greater ease than any other Lawn Mower.
3d. They are the least liable to get out of order.

From the fact that these MACHINES are so well known in Great Britain and Ireland, also on the Continent of Europe, T. GREEN AND SON do not deem it necessary to trouble the Public with a list of the numerous Testimonials that they have received from time to time, but would simply add,

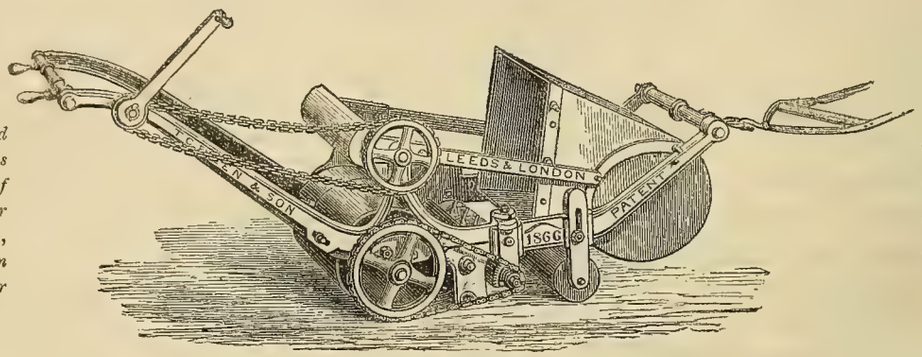
THEY ARE THE ONLY MACHINES IN CONSTANT USE AT

THE ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON
THE ROYAL BOTANIC GARDENS, REGENT'S PARK
THE CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM
BUCKINGHAM PALACE GARDENS
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THE HYDE PARK GARDENS
THE WINTER PALACE GARDENS, DUBLIN
THE DUBLIN BOTANIC GARDENS
THE LIVERPOOL BOTANIC GARDENS
THE LEEDS ROYAL PARK
THE HULL BOTANIC GARDENS
THE BOTANIC GARDENS, BRUSSELS
THE SUNDERLAND PARK
THE PRESTON PARK

AND IN MOST OF THE PRINCIPAL PARKS, SQUARES, ETC., IN THE UNITED KINGDOM.

HORSE, PONY, AND DONKEY MACHINE.

GREEN'S PATENT
LAWN MOWERS
have proved to be the best, and carried off every Prize that has been given in all cases of competition. Since the first year they were introduced (1856), *upwards of* 46,600 *have been sold, and* 25,000 *of that number during the last five seasons.*



T. GREEN & SON
warrant every Machine to give entire satisfaction, and if not approved of can be returned unconditionally.

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

PONY AND DONKEY MACHINES.

To Cut 26 inches	.. ..	.. £13 0 0	} *Leather Boots for Donkey*, 18*s*. *Leather Boots for Pony*, 22*s*.
„ 28 „	.. .. ..	.. 15 0 0	
„ 30 „	.. .. ..	.. 17 0 0	

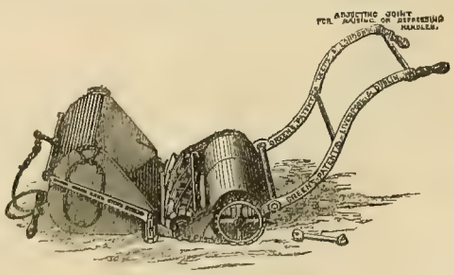
HORSE MACHINES.

To Cut 30 inches	.. ..	.. £21 0 0	} *Leather Boots for Horse*, 26*s*.
„ 36 „	.. .. ..	.. 24 0 0	
„ 42 „	.. .. ..	.. 27 0 0	
„ 48 „	.. .. ..	.. 30 0 0	

Both the Horse, Pony, Donkey, and Hand Machines possess (over all other Makers) the advantage of Self-sharpening. The cutters being steel on each side, when they become dull or blunt by running one way round, the cylinder can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the Machine will cut equal to new. Arrangements are made that the cylinder can be reversed, by any inexperienced person, in two or three minutes.

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To Cut 10 inches	.. £3 10 0	*Suitable for a Lady*	To Cut 18 inches	.. £7 10 0 *Suitable for One Person.*
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„ 16 „	.. 6 10 0	„ „	„ 24 „	.. 9 0 0 „ „



Packing Cases are charged at the following low rates, viz.:—for the 10 and 12-inch Machine, 3*s*.; 14 and 16-inch, 4*s*.; 18 and 20-inch, 5*s*.; 22 and 24-inch, 6*s*. Parties providing themselves with Lawn Mowers are recommended to purchase the cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England, Ireland, and Scotland.

HORTICULTURAL and AGRICULTURAL IMPLEMENTS, GARDEN SEATS and CHAIRS, FOUNTAINS, VASES, PLAIN and GALVANISED WIRE NETTING, and ORNAMENTAL WIRE WORK of every description.

Having very extensive Premises in London, we are in a position to do all kinds of Repairs there, as well as at our Leeds Establishment.

Having a large quantity of MACHINES in stock at our Leeds and London Establishments, we are in a position to execute Orders on the day they are received.

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;
and 54 & 55, BLACKFRIARS ROAD, LONDON, S.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 15.—1869.] SATURDAY, APRIL 10. {Price Fivepence. {STAMPED EDITION, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.
SECOND SPRING FLOWER SHOW of the Season, on SATURDAY, April 17. Band of the Royal Horse Guards from 3.30. Tickets at the Gardens, and of the principal Musicsellers (bought prior to 17th)—Fellows' Friends, 2s. 6d.; Public, 3s. 6d.; or on the day, 5s.

ROYAL BOTANIC SOCIETY'S GARDENS, Regent's Park.—NEXT EXHIBITION of SPRING FLOWERS, ROSES, AZALEAS, &c., APRIL 27 and 28. Tickets 2s. 6d. each, to be had on orders from Fellows of the Society. Gates open at 2 o'Clock. Band will play from 2.30 to 5.30. SUMMER EXHIBITIONS, MAY 19 and 20, JUNE 30, and JULY 1. Tickets 4s. each.

GRAND NATIONAL HORTICULTURAL EXHIBITION, 1869.—Nearly ONE THOUSAND POUNDS in PRIZES. To be held in the BOTANIC GARDEN, MANCHESTER, MAY 14 to 21. ENTRIES CLOSE on MAY 1.
Schedules, &c., may be obtained from the undersigned,
Botanic Garden, Manchester. BRUCE FINDLAY.

CARLISLE and CUMBERLAND FLORAL and HORTICULTURAL SOCIETY'S ANNUAL SHOW of FRUITS, FLOWERS, and VEGETABLES will be held in SEPTEMBER. Schedules may be had on application to the Secretary. JOHN MOUNSEY.
Warwick Street, Carlisle.—March 23.

W. DILLISTONE, HORTICULTURAL AGENT, begs to offer his services as JUDGE to any of the forthcoming HORTICULTURAL EXHIBITIONS. Twenty-five years' practical experience. Sible Hedingham, Essex.

B. S. WILLIAMS' DESCRIPTIVE CATALOGUE of FLOWER, VEGETABLE, and AGRICULTURAL SEEDS, &c., is now ready; post free to all applicants.
Victoria and Paradise Nursery, Upper Holloway, London, N.

THE QUEEN of RHODODENDRONS, 7s. 6d., 10s. 6d., 21s., 42s., 63s., and 105s. each.
CHARLES NOBLE, Bagshot.

MANETTI and RHODODENDRON STOCKS.—Several thousands of the above, fit for immediate working, still to offer at our Catalogue prices.
THOS. CRIPPS & SON, Nurserymen, Tunbridge Wells.

Cinerarias.
F. AND A. SMITH invite an inspection of their unrivalled Collection, NOW in FULL BLOOM, and from which they gather the Seed sent to their customers. F. & A. SMITH have received the only Certificates awarded during the last two years for Cinerarias. The Nurseries, West Dulwich.

Specimen Pelargoniums.
JOHN FRASER, Lea Bridge Road Nurseries, N.E., begs to announce that he has instructed Messrs. PROTHEROE AND MORRIS to DISPOSE of his SPECIMEN PELARGONIUMS by AUCTION, on MONDAY, April 19.

Pelargoniums for the Million.
JAMES HOLDER can supply strong Plants of the above. Forty plants, distinct sorts, for 25s.; 30 sorts for 20s., or 20 sorts for 15s., hamper and package included, consisting of French, Fancy, and Show varieties.—Crown Nursery, Reading.

To the Trade.—Golden Chain Geraniums.
HUSSEY AND SON beg to offer fine Plants of the above, from store pots, at 14s. per 100. Also, BIJOU, very fine, at 8s. per 100.
Mile End Nursery, Eaton, Norwich.

Dwarf Roses.
HUSSEY AND SON can still supply the above, HYBRID PERPETUALS on Manetti, at 40s. per 100.
Mile End Nursery, Eaton, Norwich.

"Mr. PAUL's Roses * * * are things to see once and dream of for ever."—*Athenæum.*
WM. PAUL begs to announce that his CATALOGUE of ROSES is now ready, and will be forwarded free on application.
PAUL's Nurseries, Waltham Cross, London, N.

TWELVE of the VERY BEST NEW ROSES of 1869 for THIRTY-SIX SHILLINGS.
Address, WM. WOOD & SON, Maresfield, near Uckfield, Sussex.

NEW ROSES.—Twelve of the best of 1869, in 6-inch pots, for 36s. Fine BEDDING PLANTS, including Mrs. Pollock, 25s. per 100, cash. Baskets and packing included.
GEORGE DAVISON, White Cross Nurseries, Hereford.

NEW ROSES of 1869.—All the best varieties; 2000 fine strong plants. DESCRIPTIVE LIST on application.
JOHN CRANSTON, Nurseries, King's Acre, Hereford.

EXTRA STRONG ROSES, in pots.—Several thousand Tea-Scented, Noisette, and Hybrid Perpetual varieties, together with the best NEW ROSES of 1868. DESCRIPTIVE LIST on application.
JOHN CRANSTON, Nurseries, King's Acre, Hereford.

Established 1806.
T. HANDASYDE AND DAVIDSON have a large stock of all the leading sorts of ROSES, in pots. Prices to the Trade on application.
Seed Warehouse, 24, Cockburn Street, Edinburgh.
Nurseries, Brunstain Glen, Musselburgh.

ADAM FORSYTH'S CATALOGUE of New and Choice CHRYSANTHEMUMS for 1869 is now ready; containing also a practical Treatize on their Cultivation. Forwarded to all applicants for one stamp.
Brunswick Nursery, Stoke Newington, N.

NEW COLEUS.—The 12 new Coleus of the Royal Horticultural Society, sent out in 1868, with other fine varieties, sent post free—12 fine varieties for 2s. 6d.; 12 cuttings, in 12 fine varieties, for 1s. 2d.; from
B. W. KNIGHT, Florist, Battle, Sussex.

Fuchsias.
H. CANNELL has a splendid stock of young vigorous Plants of all the best varieties up to 1869, and will send the 12 best exhibition kinds for 6s., with full directions how to grow, show, and get the first prize, and package free.

To the Trade.
H. CANNELL has a large quantity of GOLDEN FEATHER and mixed BALSAM SEED. Both are warranted to be first-class in quality. Price on application.
H. CANNELL, Florists' Flower Seed Merchant, Woolwich, S.E.

DIANTHUS ALPINUS, the handsomest dwarf Alpine for Rockwork or Ribbon Border. A strong Plant free by post for 12 stamps, or six for 5s.
FENNESSY & SON, Waterford Nursery.

GOLD FERNS.— Gymnogramma chrysophylla, &c., Mertensii, Pteris cretica albo-lineata, good plants, 12 for 10s., package free. Trade price per 100.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

CALCEOLARIAS, Herbaceous, of the choicest strains (free by post), out of pans, 12s. 6d. per 100; out of single pots, very fine plants, 25s. per 100; less quantities at the same rate.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

Dahlias.
JOHN KEYNES, NURSERYMAN, Salisbury. Twelve splendid Show Flowers. Four Fancy ditto. Obtained First-class Certificates at many exhibitions. CATALOGUES ready.

DAHLIAS, DAHLIAS, DAHLIAS: strong plants now ready.—Selection left to JOHN J. HASLAM, Chadderton, Manchester, for cash, in 12 good kinds, 4s.; 24, 8s.; or per 100, 25s. Fancy PICOTEE (Countess of Ellesmere), strong plants, 70s. per 100 pairs.

New Verbenas.
JOHN KEYNES will be ready to send out the 12 splendid VERBENAS (price 3s. 6d. each) raised by Mr. Eckford, on May 1. A Plate of six of these splendid Flowers will be sent on receipt of 16 postage stamps.
Salisbury, April 3, 1869.

SAMUEL COX, NURSERYMAN, Ludlow, offers 90,000 GERANIUMS, HELIOTROPES, CALCEOLARIAS, LOBELIAS, VERBENAS, strong plants, out of store pots, and will be sold cheap, as the room is wanted for other plants. LISTS on application.

Gratis and Post Free.
DICK RADCLYFFE AND CO.'S SEED CATALOGUE,
129, High Holborn, W.C.

EVERY GARDEN REQUISITE KEPT in STOCK at
CARTER'S New Seed Warehouse, 237 and 238, High Holborn, London.

HERBACEOUS and ALPINE PLANTS, of the best and most attractive. Prices very low. CATALOGUES free.
STEPHEN BROWN, Nursery, Sudbury, Suffolk.

GLADIOLI, in extensive assortment, of the finest (should be planted immediately). Prices low. CATALOGUES free.
STEPHEN BROWN, Nursery, Sudbury, Suffolk.

GLADIOLI SEEDLINGS (Mixed).—Beautiful Flowers equal to any collection, of all colours. Strong Flowering Bulbs, 7s. per 100; 3l. 4s. per 1000.—Apply to LEVEQUE ET FILS, Nurserymen, 132 and 134, Boulevard de l'Hôpital, Paris.

GLOXINIAS, erect and drooping, 2-yr. old bulbs, free by post, in 12 choice named sorts, 8s.; 24 sorts for 15s.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

Three-yr. Seedling Rhododendrons.
H. AND G. FARNSWORTH have to offer a large quantity of the above, at a low rate. Prices and samples on application. The Nurseries, Matlock.

Mrs. Pince's Black Muscat Grape.
J. MEREDITH is now prepared to execute orders for this fine Grape. CANES, fit for immediate planting, from 10s. 6d. upwards.
The Vineyard, Garston, near Liverpool.

Pines.
B. S. WILLIAMS has all the best kinds, in splendid condition, warranted clean. Prices on application.
B. S. WILLIAMS, Seed Merchant and Nurseryman, Upper Holloway, London, N.

Royal Ascot or Perpetual Vine.
MESSRS. JOHN STANDISH AND CO. are now selling fine strong plants of this extraordinarily productive VINE at 21s., 42s., and 63s. each.
Royal Nurseries, Ascot, Berks.

GRAPE VINES (leading kinds).—About 150 fine Planting Canes are offered at 18s. per dozen, cash; or they will be EXCHANGED for good hardy Trees or Shrubs. Offers of such with List may be forwarded to
CHARLES NOBLE, Bagshot, Surrey.

WANTED, STRAWBERRY PLANTS, in Pots, for Forcing (six dozen). State price for cash to
POTTER & FERRIGE, The Nurseries, Sutton, Surrey.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LIST of these varieties from Mr. WEBB, Calcot, Reading.

AUCUBA POLLEN.—One dozen Flowers for 1s., Four dozen for 3s. Sent post free on receipt of stamps by
JOHN STANDISH & Co., Royal Nurseries, Ascot.

FOREST TREES and SHRUBS.—CATALOGUES of the above for the present season may now be had, post free, upon application.
PETER LAWSON & SON, Edinburgh and London.

THE GOLDEN ARBOR-VITÆ, THUJA AUREA.—Fine specimen plants, 2½ feet high, and 2 feet through, will be offered at very reduced prices. Apply to
WM. WOOD & SON, Maresfield, near Uckfield, Sussex.

CARTER'S FARM SEEDS.—See large Advertisement at page 380 of this day's *Gardeners' Chronicle.*
SEED GROWERS, MERCHANTS, and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

A SPECIAL PRIZE MEDAL, PARIS, 1867, was AWARDED to JAMES CARTER & Co., 237 & 238, High Holborn, London, W.C., for GRASS SEEDS, supplied for the Exhibition Grounds.

GRASS SEEDS: WHEN and WHAT to SOW.—For the fullest information on this subject, see CARTER'S ILLUSTRATED FARMER'S CALENDAR for 1869; post free, 6d.
JAMES CARTER & Co., Seed Growers, 237 and 238, High Holborn, London, W.C.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for one postage stamp.
RICHARD SMITH, Seed Merchant, Worcester.

PARIS, 1867. SUTTONS' GRASS SEEDS for ALL SOILS. A PREMIER PRIX SILVER MEDAL for GARDEN SEEDS, GRASSES, and GRASS SEEDS, was Awarded to SUTTON AND SONS, SEEDSMEN to the QUEEN, Reading, Berks.

SUTTONS' PERMANENT GRASS SEEDS, 20s. to 32s. per acre, carriage free.
SUTTONS' MIXTURES for 1, 2, 3, or 4 years, 10s. 6d. to 22s. per acre, carriage free.
SUTTON & SONS, Reading, Berks.

SUTTONS' GRASS SEEDS for ALL SOILS.
See page 403 of this day's *Gardeners' Chronicle.*

SUTTONS' GRASS SEEDS for VARIOUS PURPOSES.
See page 403 of this day's *Gardeners' Chronicle.*

SUTTONS' HOME-GROWN FARM SEEDS.
See page 395 of this day's *Gardeners' Chronicle.*

SUTTONS' FARMER'S YEAR-BOOK for 1869 is now Ready, price 6d., gratis to customers.
Royal Berks Seed Establishment, Reading.

New Spring Catalogue.
CHARLES TURNER'S DESCRIPTIVE LIST of PLANTS for this season, including many new varieties now offered for the first time, is now ready.
The Royal Nursery, Slough.

WAITE, BURNELL, HUGGINS AND CO.'S WHOLESALE CATALOGUE of AGRICULTURAL SEEDS for this season is now ready, and will be forwarded post free upon application.
Seed Warehouse, Southwark Street, London, S.E.

NEW and GENUINE AGRICULTURAL and GARDEN SEEDS.
Special prices and advantageous offers on application to
JAS. FAIRHEAD & SON, Seed Merchants, 7, Borough Market, London.

NEW and GENUINE AGRICULTURAL and GARDEN SEEDS.—Special prices and advantageous offers of above on application to
ALFRED LEGERTON, Seed Merchant, 5, Aldgate, London, E.

Agricultural and Garden Seeds.
H. AND F. SHARPE'S SPECIAL PRICED LIST of HOME-GROWN SEEDS is now ready, and may be had on application.
Seed Growing Establishment, Wisbech.

Mangel Wurzel Seed.
JOHN SHARPE can offer on good terms, from highly selected Stocks, and his own growing this year.
Bardney Manor, Lincoln.

FOR SALE, to the Trade or otherwise, some first-class Stocks of MANGEL, SWEDE, and White TURNIP SEED. For particulars, address SEED GROWER, *Gardeners' Chronicle* Office, W.C.

Altringham Carrot, Drumhead Cabbage.
LEWIS S. WOODTHORPE offers the above by the cwt. or lb., cheap, to clear out.
Munro Nursery, Sible Hedingham, Essex.

SUTTONS' CHAMPION SWEDE, the hardiest and best in cultivation. Lowest price per bushel on application.
SUTTON & SONS, Seed Growers, Reading.

SUTTONS' IMPERIAL GREEN GLOBE, the heaviest White-fleshed Turnip in cultivation. Lowest price per bushel on application.
SUTTON & SONS, Seed Growers, Reading.

The Sugar-Beet Question.
For INSTRUCTIONS on CULTIVATION, see
SUTTONS' FARMER'S YEAR-BOOK for 1869. 6d. post free, gratis to customers.
SUTTON & SONS, Seedsmen to the Queen, Reading.

To Market Gardeners and Others.
CABBAGE PLANTS for SALE; also 40 Bushels SCARLET RUNNERS. BEANS, growth of 1866. Price on application to THOMAS AYRES, Seed Grower, &c., Biggleswade, Beds.

CUCUMBER PLANTS.—TELEGRAPH, warranted true. Selected stock, strong plants.
Apply to A. WATKINS, Bishop Stortford, Herts.

To the Trade and Others.
SCARLET RUNNER BEANS, warranted English, fine samples, 1867 growth, 30s.; 1868 growth, 50s. per bushel, for cash.
FREDK. GEE, Seed Merchant and Grower, Biggleswade, Beds.

Yorkshire Hero and Champion of England Peas.
TO BE SOLD, by the Grower, about 50 bushels of the above, the former at 27s. 6d. a bushel, and the latter at 35s., delivered in London.
Y. Z., 28, Great James Street, W.C.

POTATOS.—Fluke, nice seed, per cwt. or ton. ARTICHOKES, JERUSALEM, fine, 6s. per bushel.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

POTATOS.—Handsworth Early Round.—Price on application to
JAS. FAIRHEAD & SON, Seed Merchants, 7, Borough Market, London.

SEED POTATOS.—Rivers' Royal Ashleaf, Early Dalmahoy, Myatt's Early Prolific, and all the finest early and late varieties, free from disease, excellent in quality, and at moderate prices. For Special Priced Lists apply to
H. & F. SHARPE, Seed Growers, Wisbech.

NEWSPAPER

NEW DOUBLE GERANIUMS.—12 fine varieties Double Zonal Geraniums, including Madame Lemoine, for 20s.; 12 best New Zonal Geraniums of 1868 for 6s.; 12 fine varieties Gold and Golden Bicoloured Geraniums for 6s. Package included.

From R. W. KNIGHT, Florist, Battle, Sussex.

LORD DERBY, BEAUTY of CALDERDALE Egyptian Queen, Mimas, Her Majesty, Miss Watson, Sophia Dumaresque, Madame Lemoine, Baron, Beauty of Ribblesdale, Triomphe de Lorraine, Sophia Cusack—the 12 for 23s., including package, at

WILLIAM COCKS, Old Nurseries, Donington, Spalding.

Bedding Geranium, from

JOHN KEYNES, NURSERYMAN, Salisbury: LITTLE PINKIE.—Salmon pink colour, fine close dwarf habit, most profuse bloomer. One of the greatest acquisitions for Bedding purposes ever yet produced; this will last for many years; has been fully proved. A perfect gem. The finest Bedding Geranium in the Trade. 18s. per doz. Fine Plants on May 1.

Double Geraniums.

H. CANNELL has a large quantity of all the best varieties out up to the present, and will send the Six best and most distinct kinds for 11s., including the following:—Impératrice Eugénie, Emily Lemoine, Andrew Henderson, and Madame Lemoine (rose colour). The last two have received First-class Certificates, and can be supplied, strong plants, 28s. per dozen. Nothing to equal these for cut blooms, button-holes, &c. Package included. The Nursery, Woolwich.

Tricolor Pelargoniums.

J. WATSON, New Zealand Nursery, St. Alban's, begs leave to offer his two beautiful TRICOLOR PELARGONIUMS, MISS WATSON and MRS. DIX, unrivalled for freedom of growth and beauty of colouring, in good plants, 5s. each; also, PRINCESS CLOTHILDE, 5s. each, or the three for 13s. 6d. Miss Watson and Mrs. Dix have received 17 First-class Certificates and Extra Prizes from the leading Horticultural Societies of the kingdom. Early orders solicited.

VARIEGATED PELARGONIUMS.

Louise Smith	Miss Watson	Caroline Longfield
Countess Tyrconnel	Spanish Beauty	Lady of Shallot
Madeline Schiller	Dawn	Princess of Wales
Italian Beauty	Queen Victoria	Glen Eyre Beauty

21s.

CASBON & SON, Gravel Walk Nursery, Peterborough

Beautiful Coloured Drawings.

GEO. SMITH can still supply beautiful ILLUSTRATIONS, by Mr. Andrews, of his new Seedling GERANIUMS, to be sent out the beginning of May, viz.:—Masterpiece and Lizzie, the finest Nosegay in cultivation; also Victor, a superb double-flowering variety. The above have all received First-class Certificates from the Floral Committee of the Royal Horticultural Society. For description see CATALOGUE, in exchange for one postage stamp.

Tollington Nursery, Hornsey Road, Islington, London, N.

The Gem of the Season.

ZONAL SCARLET GERANIUM, PRINCE ARTHUR.

THOMAS MALYON has the entire stock of this attractive and beautiful GERANIUM, which cannot fail to give the highest satisfaction. It was raised by H.R.H. Prince Arthur, and by his express desire named as above. For description and other particulars, see former advertisements. Strong plants are now ready, 5s. each, or five plants for 21s.; the usual discount to the Trade. Remittance or reference.

Agents: Hugh Low, Clapton; Flanagan, Cheapside; Brigden, London Bridge.—THOMAS MALYON, Lewisham Road, Greenwich, S.E.

Cheap, Cheap, Cheap.

FINE HEALTHY TRICOLOR and other PELARGONIUMS.

Lady Cullum, 12s., 15s., and 18s. per dozen.
Sophia Dumaresque, 6s., 10s., and 12s. per dozen.
Italia Unita, 4s. per dozen.
Crystal Palace Gem, 4s. per dozen.
Leonidas (splendid), 6s. per dozen.
Mrs. Pollock, 3s. 6d. per dozen, 24s. per 100.
Beauty of Oulton, 4s. per dozen.
Centaurea Candidissima, strong plants, 5s. per dozen.

In strong plants, for cash, package included. CATALOGUES free on application.

JOHN BARRETT, St. John's Nursery, Bury St. Edmund's, Suffolk.

West of England Bedding Plant Establishment.

NEW GERANIUMS.

THOMAS SAMPSON, The Preston Road and Houndstone Nurseries, Yeovil, Somerset, begs to announce that the undernamed GERANIUMS will be ready to send out after May 1. Orders sent out in rotation.

T. S. has much pleasure in recommending these as the four best of the class of Bronze Tricolored Geraniums yet out.

Beauty of Preston, Duke of Edinburgh, Hero of Houndstone, Sir Robert Napier, } Of free growth, compact habit, leaves flat, nearly a circle, with brilliant scarlet zoned horse-shoes.

Received a First-class Certificate at the Bath and West of England Horticultural Show in 1868.

At 10s. 6d. each, or the set for 30s. Early orders solicited.

PETER DRUMMOND, Manager.

F. AND A. SMITH invite the attention of intending purchasers of TRICOLOR and BICOLOR GERANIUMS to their very extensive collections in each class. The plants are now in fine colour, and will well repay a personal visit. They would especially mention the following attractive varieties:—

GOLDEN TRICOLORS.—Earl of Derby, Jetty Lacy, King Marvellous, Pre-eminent, Refulgens, Sunray, &c.

SILVER TRICOLORS.—Andromeda, Duchess of Sutherland, Mrs. Dombrain, Peri, Queen Mab, &c.

BICOLORS.—Bullion, Compacta, Combatant, Gladiator, Golden Rule, Plutus, Standard, &c.

ZONALS.—Beauty of Dulwich, Circle, Crimson Perfection, Favourite, Hebe, Little Excellent, Sunnyside, &c.

CATALOGUES, containing full descriptions of these and other beautiful novelties, may be had on application.

The Nurseries are within a few minutes' walk of the Lower Norwood Station (Crystal Palace line) and the Dulwich Station (London, Chatham, and Dover Railway).

The Nurseries, West Dulwich, S.E.

GERANIUMS, Gold, Bronze, and Tricolored, &c.—Beauty, Beauty of Calderdale, Beauty of Rivesdale, Compactum, Glowworm, Model, Princess Alice, Perilla, Little Golden Christine, Little Golden Spread Eagle, Countess of Tyrconnel, Gipsey Chief, Firebrand (Gill), Edwina Fitzpatrick, Sophia Dumaresque. The above, 1s. 6d. each, or 12s. per dozen, hamper and packing included; cheaper by the 100.

NEW GOLDEN and BRONZE GERANIUMS:—Admiration Arthur H. Wills, Egyptian Queen, Empress Eugénie, Fascination, Her Majesty, Ebor, Viceroy, Painted Lady, Refulgens, Rosamond, The Sultan. The above 12 for 21s., hamper and packing included.

PELARGONIUMS, New Show Varieties of 1868:—Captain John, Empress, Firefly, Grandee, Heirloom, Hermit, Keepsake, King of Trumps, Magician, Needle Gun, Prince of Orange, Rob Roy, Victor, Woman in White. 2s. 6d. each, 24s. per dozen, or the set for 20s.

PELARGONIUMS, Show Varieties of 1867.—Beauty of Windsor, Betrothed, Congress, Favourite, Gold Button, International, King of Flowers, Lord Lyon, Milton, Mongini, Perfection, Prince of Orange. The above set for 18s.

FANCY PELARGONIUMS of 1867.—Duchess of Buccleuch, Marguerite, Meranton, Nestness, Princess Helena, Silver Mantle. 1s. 6d. each, or the set for 8s.

12 New FUCHSIAS of 1868, strong plants. 10s. to 12s. per dozen.
12 New PETUNIAS of 1868. 9s. to 12s. per dozen.
12 New VERBENAS of 1868. 2s. to 4s. per dozen.
12 Splendid New EPACRIS, covered with bloom. 12s. to 18s. p. doz.
12 Grand AZALEAS, well set with bud. 18s., 24s. and 36s. per doz.

CATALOGUES of the above and all the New Tricolored and Golden Bronze Geraniums, New and Rare Plants, &c., can be had on application to

HENRY WALTON, Edge End, Marsden, near Burnley, Lancashire.

BRONZE and TRICOLOR GERANIUMS.—The following new varieties, good, package included, 20s.

Louise Smith	Lady Palmerston	Model
Viceroy	Countess of Kellie	Beauty of Calderdale
Admiraton	Princess of Wales	A. H. Wills
L'Empereur	E. G. Henderson	Beauty of Ribblesdale

Also, six Double Varieties, including Madame Lemoine, 8s.
CINERARIA MARITIMA, fine edging plants, 2s. 6d. per dozen.

JOHN CHATER, Nurseryman, Bocking, Braintree.

Cheap Tricolor Geraniums.

ALFRED FRYER offers 50,000 fine Plants, at the following low prices for cash. Package free.

LADY CULLUM, 13s., 18s., and 21s. per dozen.
SOPHIA DUMARESQUE, 7s., 10s., and 13s. per dozen.
SUNSET, 5s., 6s., and 7s. per dozen.
MRS. POLLOCK, 3s. 6d., 5s., and 6s. per dozen.
MRS. BENYON, 5s., 6s., and 7s. per dozen.

Remittance requested from unknown correspondents.

Address, ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

Choice Bedding Geraniums.

THOMAS PESTRIDGE can now supply in strong plants, for cash, the following varieties:—

	Per doz.	Each.		Per doz.	Each.
	s.	d.		s.	d.
Lady Cullum	12	1 6	Egyptian Queen		3 0
Lucy Grieve		5 0	Her Majesty		2 6
Mrs. Pollock	4	0 6	Luna	4	0 6
Sophia Cusack	20	0 2 6	Model	8	1 0
Sophia Dumaresque	8	1 0	Mrs. Charles Barry	5	0 9
Sunset	5	0 0 9	Perilla	7	1 0
Italia Unita	4	0 0 6	Refulgens	12	2 0
Beauty of Calderdale	9	0 1 6	Vandyke	5	0 9
Crystal Palace Gem	4	0 0 6	Viceroy	12	2 0

Twelve varieties, the Purchaser's selection from the above, 18s., package included. Cash must accompany all orders.

The Greenway Nursery, Uxbridge, Middlesex.

Gold and Silver Tricolor and Bicolor Geraniums.

WOOD AND INGRAM offer fine plants of the following:—

TRICOLORS.

	Each.—s.	d.		Each.—s.	d.
Eastern Beauty	1	0	Gold Pheasant	0	6
Lady Cullum	2	0	Mrs. Benyon	0	6
Sophia Cusack	2	6	Sophia Dumaresque	1	0
Sunset	0	6	Glowworm	0	6
Italia Unita	0	6	Silver Star	1	6
Countess	1	0	Queen's Favourite	1	0

Or the 12 varieties for 12s., package included.

BICOLORS.

	Each.—s.	d.		Each.—s.	d.
Artemus Ward	1	6	Luna	0	6
Beauty of Oulton	0	6	Circlet	0	6
,, Ribblesdale	1	0	President Lincoln	0	6
Gaiety	0	6	Neatness	0	6
Sceptre d'Or	0	6	Her Majesty	2	6
Perilla	1	6	Kentish Hero	2	6

Or the 12 varieties for 12s., package included.

Nurseries, Huntingdon.

Variegated Geraniums.—To the Trade.

WOOD AND INGRAM offer the following:—

	Per doz.—s.	d.		Per doz.—s.	d.
Mrs. Pollock	3	0	Gold Pheasant	4	0
Lady Cullum	18	0	Mrs. Benyon	4	0
Sophia Dumaresque	9	0	Sunset	4	0
Glowworm	4	0	Italia Unita	6	0
Silver Star	12	0	Queen's Favourite	8	0
Beauty of Oulton	4	0	Circlet	4	0
,, Ribblesdale	12	0	Gaiety	4	0
Neatness	6	0	Perilla	12	0
President Lincoln	5	0	Duke of Edinburgh	6	0
Brilliantissima	4	0			

Nurseries, Huntingdon.

CHOICE FERNS.—Lomaria gibba, Cyrtomium falcatum, Blechnum brasiliense, Blechnum corcovadense, Davallia dissecta, Pteris nemoralis variegata, Adiantum setulosum, Adiantum hispidulum, Gymnogramma Mertensii (Gold Fern), Gymnogramma hybrida (Silver Fern), Asplenium polymorphum, Pieopeltis stigmatica.

WOOD & INGRAM offer the above at 1s. 6d. each, or the 12 for 15s., package included.

Nurseries, Huntingdon.

To the Trade.

WOOD AND INGRAM beg to offer—

BLECHNUM BRASILIENSE, do. do., per doz. 6s.
CORCOVADENSE, do. do., per doz. 6s.
YUCCA ALOËFOLIA, strong, in 3-inch pots, per doz. 12s.
ISOLEPIS GRACILIS, strong, in 4-inch pots, per doz. 4s.
STATICE MACROPHYLLA, fine plants, will bloom this season, per doz. 30s.
LOBELIA TRENTHAM BLUE, per doz. 2s. 6d.
LASTRÆA FILIX-MAS CRISPA, established in small pots, per doz., 6s.; per 100, 40s.
CALCEOLARIA AUREA FLORIBUNDA, fine autumn-struck plants, not potted, 5s. per 100.

Nurseries, Huntingdon.

New Zonal Geraniums of 1868, and Double Varieties.

WOOD AND INGRAM offer the following fine varieties, in strong plants, at 1s. each, or 10s. per doz., package included:—Eclat, First Favourite, Grand Duke, Glow, Countess of Rosslyn, Emmeline, Rose Stella, Countess of Strathmore, Comet, Nosegay floribunda, The Sultan, Hon. G. Hardy, Miss Edith, The Seraph, Baron, Christabel (Mann).

Nurseries, Huntingdon.

SCOTT'S SUPERB SEEDS for EXHIBITION, &c.

	Post Free. Per packet.—s.	d.
ASTERS, new Quilled Reid's Exhibition, 10 vars., mixed	1	0
,, new Globe Quilled, 12 vars., separate	2	0
,, 24 superb varieties, mixed	1	0
,, Truffaut's French Perfection, 12 vars., separate	3	0
,, do. do. 8 do.	2	0
,, do. do. 24 vars., mixed	1	0
The foregoing are the most perfect shaped Asters ever offered, and for several years have gained the first prizes wherever exhibited.		
,, Dwarf Chrysanthemum-flowered, 12 vars., mixed	1	0
,, Superb Crown-flowered, 6 vars., mixed 6d. and	1	0
,, French Giant Emperor, 12 vars., mixed	1	0
,, Newest Victoria	1	0
STOCKS, Newest large-flowered, Ten-week, 12 vars., separate	2	6
,, Newest large-flowered, Ten-week, 8 vars., separate	1	0
,, Dwarf German Ten-week, 24 vars., mixed	1	0
,, Newest Large-flowered Ten-week, 18 vars., mixed	1	0
,, Crimson Dwarf Bouquet, extra	1	0
GERANIUM TRICOLOR, Golden and Silver, most carefully hybridised by J. SCOTT from his well-known splendid collection	1	0
PRIMULA FIMBRIATA, six extra superb varieties, mixed, 1s. 6d. and	2	6
,, Separate, each 1s. 6d. to	2	6
CALCEOLARIA, SCOTT'S splendid hybridised dwarf 1s. and	2	6
CINERARIA, extra choice, from a prize collection 1s. and	2	6
PETUNIA fl.-pl., extra superb, choicest mixed double	1	0
,, single, extra superb, choicest mixed	1	0
BALSAM, extra superb, choicest mixed double	1	0
PHLOX DRUMMONDI, 10 superb varieties, mixed	1	0
LOBELIA SPECIOSA, true Crystal Palace var. 6d. and	1	0
MARIGOLD, French, superb, 6 vars., mixed 6d. and	1	0
ZINNIA fl.-pl., superb double, 6 vars., mixed 6d. and	1	0

For all other varieties of new and choicest Flower Seeds, also new varieties and collections of Vegetable Seeds, see J. SCOTT'S "convenient" PRICED CATALOGUE, free on application to

J. SCOTT, The Seed Stores, Yeovil, Somerset.

New Roses 1869.



MESSRS. VEITCH AND SONS are now prepared to supply good established Plants in pots of all the best varieties, a LIST of which can be had on application. Price 36s. per dozen.

Usual discount to the Trade.

Royal Exotic Nursery, King's Road, Chelsea, S.W.

Roses.

JOHN CRANSTON will be happy to forward on application his DESCRIPTIVE CATALOGUE of ROSES for 1868 and 1869. For quality or quantity the stock is unsurpassed; the Manetti Roses especially are acknowledged to be the finest grown plants in the Trade.

Nurseries, King's Acre, near Hereford.

New Roses, &c., 1869.

WM. KNIGHT begs to offer the following Plants:—

12 NEW ROSES, Strong Plants .. .. .. 36s.
12 Finest NEW FUCHSIAS, Strong Plants .. 6s.
12 Finest NEW VERBENAS, Strong Plants .. 4s.
12 Finest COLEUS, Strong Plants .. .. .. 5s.
6 NEW PETUNIAS, Strong Plants .. .. 4s.

Or the above Collection, package included, for £2 10s.

CATALOGUE free.

Floral Nursery, Hailsham, Sussex.

Vegetable, Agricultural, and Flower Seeds.

MISCELLANEOUS HARDY BEDDING PLANTS, SWEET VIOLETS, &c.

ROBERT PARKER begs to announce that his CATALOGUE, containing DESCRIPTIVE LISTS of the finest kinds in cultivation of the above-named, is now published, and will be forwarded to applicants. The stocks of Seeds have all been procured from the best possible sources; all are warranted genuine, and are offered at the lowest possible prices.

Intending purchasers are requested to compare the prices with those of other houses.

Exotic Nursery, Tooting, Surrey, S.W.

To Noblemen and Gentlemen Planting for Pheasant

DRIVES, &c.—NOW BEING THE BEST TIME TO PLANT YEWS, HOLLIES, TREE BOX, &c.,

C. WHITEHOUSE, Brereton Nursery, Rugely, begs to offer stout bushy YEWS and HOLLIES, 4 to 4½ feet TREE BOX (always dry under for Pheasants, in wet weather) about 4 feet; and as he holds a very large stock of the above, the price will be very reasonable.

Genuine Seeds.—Carriage Paid.

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COMPLETE COLLECTIONS OF KITCHEN GARDEN SEEDS

To suit Gardens of various sizes,

10s. 6d., 21s., 42s., 63s., and 84s. each.

NEW and CHOICE VEGETABLE SEEDS.	Per Pkt. s.	d.
WILLIAMS' IMPROVED GREEN CURLED BORECOLE	0	6
WILLIAMS' ALEXANDRA BROCCOLI	1	6
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Red, White, or Mixed 2s. 6d., 3s. 6d., and	5	0
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POLYANTHUS (Wiggins' prize strain) 1s. 6d. and	2	6
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Apply to D. G. Ross, Dingwall (Trustee for the Creditors).

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" in 50 choice hardy varieties, 100 for £4.
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BLACK HAMBURGH VINES, 50 for 20s.
YUCCA ALOIFOLIA, 50 for 15s.
ACACIAS in fine varieties, 25 for 10s. 6d.
AGAVES, 12 sorts, 36s.
ALSOPHILA EXCELSA, 12 fine plants, 18s.
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BEGONIA PEARCEI, 25 plants, 15s.
" in choice varieties, 25 for 12s.
BIGNONIA ARGYREA VIOLACEA, 12 for 12s.
DASYLIRION, of sorts, 12 strong, 40s.
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" stronger, 100 for from £5 to £6.

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		Doz.	Per 100	Per 1000
		s. d.	£ s. d.	£ s. d.
RHODODENDRON PONTICUM, fine bushy plants, well rooted ..	9 to 15 inches	3 0	0 15 0	7 0 0
" " " " "	1 to 1½ foot	4 0	1 0 0	9 10 0
" " " " "	15 to 20 inches	1 6	1 2 6	11 0 0
" HYBRIDUM, bushy plants,	9 to 15 inches	3 0	1 5 0	..
" " " "	1 to 1½ foot	5 0	1 10 0	..
" " " "	1½ to 2 feet	6 0	2 0 0	..
" MAXIMUM ALBUM "	1 to 1½ foot	4 0	1 5 0	12 0 0
" " " "	15 to 20 inches	5 0	1 10 0	14 0 0
" " " "	1½ to 2 feet	6 0	2 0 0	..
The above sorts selected in bloom bud		2s. doz. ex.		
" HIRSUTUM, dwarf Alpine, nice bushy plants		3 0	0 15 0	7 0 0
" 120 named varieties, 1, 2, and 3 year, from grafts, 1s. 6d. to 3s. 6d. each.				
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ARBOR-VITÆ, American, fine bushy well-rooted plants, fine for single plants or hedges	1½ to 2 feet	2 0	0 12 0	..
" " " " "	2 to 2½ feet	2 6	0 15 0	..
" " " " "	2½ to 3½ feet	3 0	0 16 0	..
" " " " "	3½ to 4½ feet	4 0	1 5 0	..
" " " " "	4 to 5 feet	5 0	1 10 0	..
"	5 to 6 feet	10 0	..	..
Double WHIN, FURZE or GORSE, good plants, extra transplanted	1 to 1½ foot	3 0	0 12 0	..
" " " "	15 to 20 inches	4 0	0 15 0	..
" " " "	nice plants in pots	4 0	1 0 0	..
COTONEASTER MICROPHYLLA, nice bushy plants	1 to 1½ foot	..	0 12 0	5 0 0
" " " "	1½ to 2 feet	..	0 15 0	..

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RHODODENDRONS.—Hardy scarlet, crimson rose, white; for superior clumps or borders fine well-grown plants. An excellent assortment would be supplied at £15 per 100. Fine bushy plants can also be supplied, averaging 3 to 5 feet.

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THUJOPSIS BOREALIS.—2 to 3 to 4 to 6 feet.

THUJA AUREA.—All sizes, 2 to 4 to 5 feet, perfect globes.

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WOOD MEADOW GRASS	1	2	1
Rough-stalked MEADOW GRASS	1	2	..
PERENNIAL RED CLOVER	6	5	4
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ALSIKE CLOVER	1	..	1
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COCKSFOOT	2	2	..
HARD FESCUE	1	1	1
VARIOUS-LEAVED FESCUE	1	..	1
REDDISH FESCUE	1	1	1
SHEEP'S FESCUE	3	2	3
Best imported Italian RYE-GRASS	4	4	4
Pacey's Perennial RYE-GRASS	4	4	4
WOOD MEADOW GRASS	1	1	..
SANDY LYME GRASS	..	..	2
CRESTED DOGSTAIL	2	2	3
YARROW	½	½	1
YELLOW TREFOIL	3	4	5
PERENNIAL RED CLOVER	6	4	4
PERENNIAL WHITE CLOVER	2	3	2
ALSIKE CLOVER	1	1	1
BURNET	..	..	3
SAINFOIN	8	8	8

Per imperial acre—Finest quality—28s. to 32s.
" " Second quality—20s. to 26s.

CARTER'S GRASS SEEDS
FOR ALTERNATE HUSBANDRY.

Including the greatest food and hay producing Grasses and Clovers, in such proportions as the particular rotation may require.

For ONE YEAR'S LAY, best quality, 13s. 6d. per acre.
For TWO YEARS' LAY, 17s. 6d. per acre.
For THREE or FOUR YEARS' LAY, 22s. per acre.

CARTER'S SUPERFINE ITALIAN RYE-GRASS.

7s. 6d. per bushel; cheaper samples from 4s. 6d. to 7s. per bushel.

PACEY'S PERENNIAL RYE-GRASS,

7s. per bushel; cheaper samples, 5s. to 6s. 6d. per bushel.

CARTER'S
PRIZE MANGEL WURZEL.

The following are the Six finest varieties in cultivation:

CARTER'S WARDEN IMPROVED MANGEL, not to be surpassed, 1s. 6d. per lb.

CARTER'S CHAMPION ORANGE GLOBE, an immense cropper, 1s. per lb.

CARTER'S YELLOW INTERMEDIATE, fine top, large oval root, 1s. 6d. per lb.

CARTER'S MAMMOTH LONG RED, a new variety, (see Testimonial), 1s. 6d. per lb.

CARTER'S ELVETHAM LONG YELLOW, very superior, 1s. 6d. per lb.

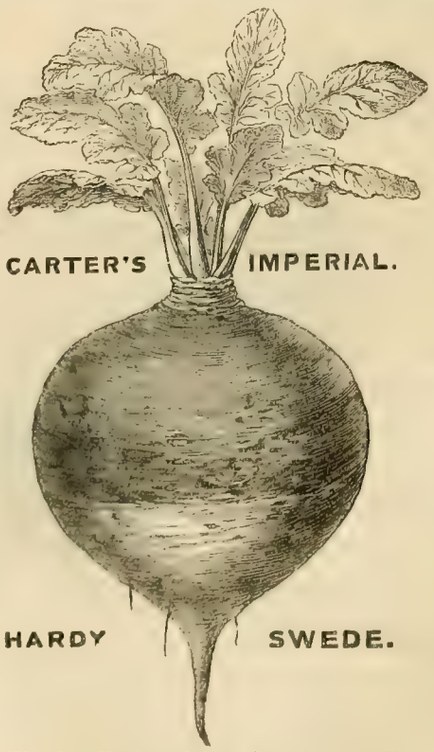
CARTER'S IMPROVED RED GLOBE, 1s. per lb.

Cheaper per Cwt.

For full descriptions of CARTER'S PRIZE STOCKS of MANGEL, TURNIPS, GRASSES, and other FARM SEEDS, harvested on their own Seed Farms, see

CARTER'S ILLUSTRATED FARMER'S CALENDAR FOR 1869.

Post Free 6d. (gratis to purchasers).



The hardiest and best, 1s. 6d. per lb.

CARTER'S "ROYAL MIXTURE"
OF FINE GRASS SEEDS FOR LAWNS, &c.

20s. per bushel; second quality, 18s.

CARTER'S FINE CLOVERS,

Free from weeds and dirt.

BROAD-LEAVED RED, PERENNIAL RED or COW GRASS, | WHITE DUTCH, ALSIKE HYBRID, [HOP. YELLOW TREFOIL or

Lowest price on application.

CARTER'S "LORD'S MIXTURE"

OF FINE GRASS SEEDS FOR CRICKET GROUNDS.

18s. per bushel. (3 bushels per acre.)

LOOK TO YOUR GRASS LANDS.

CARTER'S RENOVATING MIXTURE

Should be sown on meadows that have suffered from the past dry summer. The Mixture includes the most desirable Grasses and Clovers for hay crop, and succeeding green feeding, and will soon restore a permanent pasture.

Sow 8 to 12 lb. per acre. Price 9d. per lb.; 80s. per cwt.

CARTER'S
PRIZE SWEDE AND TURNIP.

	per lb.—1s. 0d.
HARTLEY'S SHORT-TOP SWEDE	
IMPROVED LIVERPOOL SWEDE	0 9
CHAMPION GREEN-TOP HYBRID TURNIP	1 3
CHAMPION PURPLE-TOP HYBRID TURNIP	1 3
DEVONSHIRE GREYSTONE TURNIP	1 6
POMERANIAN WHITE GLOBE TURNIP	0 10
IMPERIAL GREEN GLOBE TURNIP	0 9
LINCOLNSHIRE RED GLOBE TURNIP	0 10

Ordinary Stocks Cheaper.

5 per cent. discount for cash. Special estimates for quantities.

JAMES CARTER AND CO., GROWERS AND DISTRIBUTORS OF GENUINE SEEDS,
237 AND 238, HIGH HOLBORN, LONDON, W.C.

British Fern Catalogue.

ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, Sidcup Hill, Kent.

Gladioli, the most Extensive Collection.

BARR AND SUGDEN, 12, King Street, Covent Garden, W.C., have the finest and largest collection of GLADIOLI ever offered, prices varying from 2d. to 15s. per root. For particulars see pp. 68, 69, 70, and 71 of B. & S.'s SPRING SEED CATALOGUE.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

Choice Seeds, Gladioli, &c.

WM. CUTBUSH AND SON'S CATALOGUE of the above contains description and price of many very superior home-grown VEGETABLE and FLOWER SEEDS, and choice varieties of GLADIOLI, &c., all of which are highly recommended. Post free on application.
Highgate Nurseries, London, N.

Elvaston Nurseries, Borrowash.

WILLIAM BARRON AND SON'S PRICED DESCRIPTIVE CATALOGUE of CONIFERÆ, HARDY JAPANESE PLANTS, FOREST TREES, EVERGREEN and DECIDUOUS SHRUBS, ROSES, RHODODENDRONS, FRUIT TREES, &c., for spring of 1869, may be had, post free, on application. Their stock this year is unusually fine. Elvaston Nurseries are only three minutes' walk from the Borrowash Station on the Derby and Nottingham Railway.

NEW LOBELIA, TRUE BLUE.—This desirable Novelty will be sent out for the first time in May next. The Plant is of a dwarf upright habit, very compact grower, flowers larger than L. Paxtoniana, bright azure blue, with small but distinct white eye, very free flowerer, and lasts throughout the season. Strong Plants, 7s. per 100, 12s. per dozen, and 1s. 6d. each, with the usual discount to the Trade.
PETER LAWSON & SON, Edinburgh and London.

Stocks, Stocks, Stocks.

B. S. WILLIAMS has much pleasure in offering carefully selected seed of a very fine WHITE WALLFLOWER-LEAVED TEN-WEEK STOCK. It is very pure in colour, and produces an immense spike of large double flower, and is admirably adapted for bedding purposes. Per packet, 1s.
Victoria and Paradise Nursery, Upper Holloway, London, W.

New Bedding Plant—Echeveria metallica.

B. S. WILLIAMS is now enabled to offer for the first time SEEDS of this very Ornamental Bedding Plant, which during the past season produced such a splendid effect in the Grounds at Battersea Park. For edging, and various other purposes, the broad bronzy leaves afford a very striking and beautiful contrast, quite distinct from any other plant yet used for bedding purposes. In sealed Packets, 2s. 6d. each.
B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, N.

Verbenas, Verbenas.

ALL the LEADING VARIETIES of 1868, also Purple, White, Scarlet, and Pink, with plenty of Cuttings, at 2s. per doz.; Small Plants, 6s. per 100, or £2 10s. per 1000.
Twenty new varieties of ZONAL GERANIUMS of 1868 for 10s.
PHILIP LADDS, Nursery, Bexley Heath, Kent.

Verbenas, 5s. per 100; 40s. per 1000.

WILLIAM BADMAN has to offer as under:—
VERBENAS, Purple, White, Scarlet, Rose, Crimson, &c., strong plants from store pots, 5s. per 100; 40s. per 1000.
LOBELIA SPECIOSA (true) from cuttings, 5s. p. 100; 40s. p. 1000.
PELARGONIUM CRYSTAL PALACE GEM, the finest golden leaf in cultivation, in small pots, 4s. per doz. 6 Finest Double Geraniums, including MADAME LEMOINE, 10s. Package included. Terms cash.
Cemetery Nursery, Gravesend.

Twenty Thousand Bedding Plants.

A. CAMPBELL, Hemingford Grey Nursery, St. Ives, Hunts, offers the following:—Strong healthy Plants of VERBENAS, yellow CALCEOLARIAS, Blue LOBELIAS, all spring-struck, at 8s. per 100, package included. MRS. POLLOCK GERANIUM, strong autumn-struck plants, 25s. per 100; SOPHIA DUMARESQUE, 10s. per dozen.

TO OWNERS of GARDENS.—In consequence of a large Private Garden, near Harrogate, not being planted this year, upwards of 7000 BEDDING PLANTS are FOR SALE by Private Contract, in Lots of 100 each.
For particulars, apply to Mr. THOMAS KNOWLES, Merchant, Harrogate; or Mr. TAYLOR, Nurseryman, Knaresborough.

Market Gardens, Biggleswade, Beds.

RICHARD WALKER can supply for cash the old Crimson CLOVES, 10s. per 100; SCARLET KING DAISIES, 5s. per 100; EAST HAM and DRUMHEAD CABBAGE PLANTS, 2s. 6d. per 1000; RED DUTCH, extra fine, 4s. per 1000; fine BROWN COS LETTUCE PLANTS, 6d. per 100.

Finest Prize Hollyhock Seed.

HENRY MAY begs to offer Seed from his renowned Collection of HOLLYHOCKS, which has for years been awarded all the First Prizes at all the great Exhibitions in the North of England. The Seed is saved from the newest and finest varieties only, and he will supply 500 Seeds for 5s., 1000 for 9s., 2000 for 15s. Post-office Orders payable at Bedale.
HENRY MAY, The Hope Nurseries, Bedale.

Superb Double Hollyhocks.

NOW IS THE TIME FOR PLANTING TO ENSURE GOOD SPIKES AND BLOOMS THIS SEASON.

WILLIAM CHATER'S CATALOGUE of his unrivalled Collection may be had upon forwarding one postage stamp. Choice Bloomed Seedlings, with colours attached, 40s. per 100. Unbloomed Seedlings, from finest named varieties, 25s. per 100. SEEDS, saved only from first-class flowers, in packets and collections, from 1s. to 10s. 6d.
Special prices for quantities to the Trade on application.
WILLIAM CHATER, The Nurseries, Saffron Walden.

Now Ready.

HENRY WALTON begs to inform his Friends and the Public that his NEW SPRING CATALOGUE is now ready, containing all the newest and most select Pelargoniums, Tricolor, Gold and Bronze; Show and Fancy, Ivy-leaved and Double Geraniums; Fuchsias, Petunias, Verbenas, Dahlias, Show and Fancy; bedding and other New and Rare Plants, &c.
Edge End, Marsden, near Burnley, Lancashire.

Magnificent New Plant,

GESNERA EXONIENSIS.
This is acknowledged by all who have seen it to be the finest winter-blooming plant ever yet offered.
The colour of the flowers is an intense orange-scarlet, the leaf is of a new dark velvety texture, studded with minute red hairs like plush. Nothing can be imagined more brilliant than the mass of bloom, which when well-grown is quite 20 inches through.
The value of the plant may be gathered from the fact of our having now one in particular that has been in perfection for the last five months, the admiration of all who see it.
Fine tubers sent free by post that will bloom this year at 5s. and 7s. 6d. each. Early orders are respectfully solicited.
LUCOMBE, PINCE & Co., Exeter Nursery, Exeter.

EDWARD SANG AND SONS, Nurserymen and Seed Merchants, Kirkcaldy.
CALCEOLARIA AMBASSADOR (Sang's).—Autumn-struck plants of this now well-known beautiful Calceolaria, 9s. per dozen.
SANG'S DEEP CRIMSON BEET.—Most beautiful in colour, and finely flavoured. Per packet, 3d., or 6d. per oz.
TRUE SCOTCH LEEK.—A very superior large hardy Leek, capable of withstanding the severest winters. Per pkt., 3d., or 1s. per oz.
PRINCE of WALES' GREENS.—Dwarf, and most beautifully curled. Per oz., 4d.
PRICED CATALOGUES of Forest, Fruit, and Ornamental Trees and Shrubs, Vegetable and Flower Seeds, Ferns, &c., may be had free on application.
E. S. & SONS deal liberally with respect to the carriage of their packages.

LONDON and CONTINENTAL SEED COMPANY.
CHIEF OFFICE—
68, WELBECK STREET, CAVENDISH SQUARE, LONDON, W.
Brighton Branch—80, King's Road. Southampton Branch—178, High Street. Plymouth Branch—15, Devonshire Terrace.

THE LONDON and CONTINENTAL SEED COMPANY has purchased the old and important Business of Rendle & Co., of Plymouth, which has been established for nearly 100 years.

THE LONDON and CONTINENTAL SEED COMPANY.—Mr. RENDLE, the head of the old Firm, has consented to be the Managing Director of this Company.

DISCOUNT of TWOPENCE in the SHILLING will be taken off the published prices of any London or Provincial Seed Merchant.

DISCOUNT of TWOPENCE in the SHILLING will be taken off the published prices of Seeds for the Farm, the Kitchen Garden, and the Flower Garden.

THE NEW FARM SEED LIST is now ready, and can be had on application, gratis. A Discount of Twopence in the Shilling off all Farm Seeds.

SEEDS CARRIAGE FREE.—All Orders Carriage Free to any Railway Station in England, or Steam Port in Ireland.

SAMPLES of FARM SEEDS can be had on application.

FARM SEEDS for THOUSANDS of ACRES are annually supplied by this Company.

ALL WHO REQUIRE FARM SEEDS should procure a Copy of the NEW FARM SEED CATALOGUE.

A FULL DISCOUNT WILL BE ALLOWED off all Farm Seeds.

THE USUAL PROFIT is DIVIDED between the Consumer and the Merchant on the Co-operative principle.
For CATALOGUES and further information, apply to
The London and Continental Seed Company, 68, Welbeck Street, Cavendish Square, London, W.

Dahlia imperialis.

H. DAVIES having purchased the Stock of this magnificent Plant, which obtained the First-class Certificate of the Royal Horticultural Society (see *Gardeners' Chronicle* of Dec. 19, 1868), will be prepared to send out strong Plants after May 1, at 2s. 6d. each, or, securely packed, 3s. each. Orders are now being booked, and will be executed in strict rotation.
Nursery and Seed Establishment, Great Stanmore, Middlesex, N.W.

Splendid Indian Azaleas.

WILLIAM BARNES' unrivalled Collection of AZALEAS is this season unusually fine, and in the highest possible health, loaded with strong bloom-buds from top to bottom, and the plants properly trained as Pyramids, but neither stiff nor formal; their average heights are from 2 to 5 feet, and beautifully clothed down to the pot. These plants cannot fail to please those who are either adding to their present collection or forming a new one. W. B. has also many thousands in smaller sizes, comprising all the newest and best of the older varieties, in the most beautiful and healthy condition. Prices and varieties may be had on application.
WILLIAM BARNES, Camden Nursery, Camberwell, S.E.—April 10.

Hardy Bedding Plants.

ROBERT PARKER begs to offer the undernamed, all of which can be supplied in strong healthy plants:—

	Per dozen—s.	d.
AJUGA ORIENTALIS	4	0
HESPERIS MATRONALIS ALBO-PLENO (Double White Rocket)	4	0
LUTHOSPERMUM PROSTRATUM (fruticosum)	9	0
PANSY CLIVEDEN BLUE	4	0
" PURPLE	4	0
" YELLOW	4	0
" GREAT EASTERN	4	0
" IMPERIAL BLUE	18	0
SEMPERVIVUM CALIFORNICUM	6	0
TRITOMA GRANDIS	18	0
" UVARIA GLAUCESCENS	12	0
VIOLA LUTEA SEMPERFLORENS	4	0

Special quotations may be had, if required, for the above, and many other kinds, by the 100, or in larger quantities.
Exotic Nursery, Tooting, Surrey, S.W.

Camellias, Azalea indica, and Rhododendrons
BY THE 100,000.

JOSEPH BAUMANN, NURSERYMAN, Ghent, Belgium, begs to offer the following Plants, without Flower-buds:—
100 CAMELLIAS, best sorts, £3, £4, £5, £6, and £8.
100 AZALEA INDICA, best sorts, good plants, £3 10s.
100 RHODODENDRONS, best hardy sorts, 2-yr. grafted, £6.
100 AZALEA INDICA, Stocks, 12s.
100 " PONTICA, small Stocks, 5s.
100 THUJA ELLWANGERIANA (or Tom Thumb Arbor-vitæ, new), £2
1 PÆONIA MOUTAN GLORIA BELGARUM, £1.
1 " SOUVENIR DE GAND, £1.
3 New "AZALEA" INDICA, 1st prize at Ghent:—ALFRED DELIMON, COMTE BISMARCK, TRIOMPHE D'EVERGEM; the three, with or without flower-buds, 15s.

Planting Season.—Walton Nursery, Liverpool.
To PLANTERS of PUBLIC or PRIVATE PARKS, CEMETERIES, PLEASURE GROUNDS, or WOODS and FORESTS.

WM. SKIRVING begs to offer his extensive and choice Stock of TREES and SHRUBS, all now in fine condition for removing; and as he is clearing off the Stock from 50 acres of his Nursery—the land being required for building—he is willing to accept very moderate prices.
The Stock consists of immense quantities of FOREST and ORNAMENTAL TREES, and of DECIDUOUS and EVERGREEN SHRUBS of all sizes, amongst which are some thousands of the Variegated Holly, of the finest colours and great size; also, of the large broad-leaved green variety, the finest and hardiest of all Evergreen Trees.
Gentlemen wishing to make new or renovate old Pleasure Grounds will find this a most excellent opportunity of effecting an immediate improvement. A specimen of this may be witnessed by a visit to the Nursery, which is respectfully solicited.
Walton Nursery, Liverpool.

Beautiful Spring Flowers.

WM. DILLISTONE begs to offer the following, in good plants:—

	Per doz.—s.	d.
Primrose, double White	6	0
" double Yellow	9	0
" double Rose	9	0
" double Purple	9	0
" double Lilac	6	0
" single, in 4 colours	4	0
Auriculas, early red, for borders	4	0
Hepatica, double Red	4	0
" single Red	4	0
" " Blue	4	0
Daisies in varieties, to name	3	0
Dielytra spectabilis	6	0
Helleborus niger (Christmas Rose)	6	0
Helleborus, Red (atroru-bens)	9	0
Rocket, double White	6	0
" " Purple	6	0
" " Rose	6	0
Wallflower, double Red	4	0
" " Black	4	0
Carnation, Tree, Souvenir de la Malmaison	18	0
Helianthemum (Rock Cistus) in 18 sorts, to name	6	0
Arabis albida variegata	4	0
Aubrietia, in 4 distinct sorts	4	0
Delphinium formosum	4	0
Iberis sempervirens	4	0
Linum flavum	6	0
Lychnis, sorts	4	0
Myosotis, do.	4	0
Phlox Nelsoni	4	0
Pyrethrum, hardy sorts	6	0
Saxifraga, double White, and others	4	0
Tritonias, sorts, to name	9	0
Yuccas "	6	0
Polyanthus, fine laced kinds	3	0
Cloves, old Blood-red	4	0
" " Scarlet	4	0
" " Striped	4	0
Hollyhocks, choice named, 6s. and	9	0
" 24 pkts. seed in 24 distinct sorts, from finest double flowers, named	8	6
Violets, double, King, Queen, Red, Neapolitan, White and Blue	4	0
Violets, single, Czar, Russian White, Superba, Giant, Striped and Suavis	4	0
Pæonias, choice named	6	0
" old double Crimson	4	0
Statice (herbaceous vars.)	4	0

Post Office Orders on Castle Hedingham Nurseries, and General Horticultural Agency Offices, Sible Hedingham, Essex.

Carnations, Picotees, and Pinks.

WOOD AND INGRAM will supply 10 Pairs fine named SELF CARNATIONS, of various colours, and 10 Pairs fine named PICOTEES for £1; and 12 pairs fine named PINKS for 7s. 6d., package included. Selection left to W. & I.
Nurseries, Huntingdon.

Viola cornuta alba.

JAMES DICKSON AND SONS, 32, Hanover Street, Edinburgh, can supply the above beautiful Bedding Plant, pronounced by all who saw it in bloom last year to be UNRIVALLED AS A WHITE BEDDING PLANT. 30s. per 100, autumn-struck plants; if taken in quantities of 500 a reduction in price will be made.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.—Mr. WEBB, Calcot, Reading.

Arundo conspicua (Calamagrostis conspicua).



MESSRS. VEITCH AND SONS beg to call attention to the remarks respecting the above in the *Gardeners' Chronicle*, April 3, 1869, page 362, and "Journal of Horticulture," April 1, page 221; and to intimate that they can supply good Plants at 18s. and 24s. per dozen.
Royal Exotic Nursery, King's Road, Chelsea, S.W.

July 19th to 24th, 1869.

THE ROYAL HORTICULTURAL SOCIETY'S GRAND EXHIBITION at MANCHESTER,
in connection with the
SHOW of the ROYAL AGRICULTURAL SOCIETY.
Amongst various Special Prizes,
A SILVER CUP (copy of the famous Cellini Cup), **VALUE £21**
will be offered by the Proprietors of the
GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE
for the best COLLECTION of 5 FRUITS and 8 VEGETABLES, to be made up as follows.

In awarding the Prize, Marks will be adjudged according to the following scale, for the several subjects produced.

	Good.	Medium.	Inferior.
Grapes	6 marks	3 marks	1 mark
Melons (2 fruits)	6 "	3 "	1 "
Strawberries	3 "	2 "	1 "
Gooseberries	3 "	2 "	1 "
Currants	3 "	2 "	1 "
Cherries	3 "	2 "	1 "
Raspberries	3 "	2 "	1 "
Apples of 1868	6 "	3 "	1 "
(Any 5 of the above 8 subjects).			
Peas	3 "	2 "	1 "
French Beans	3 "	2 "	1 "
Broad Beans	3 "	2 "	1 "
Cauliflowers	3 "	2 "	1 "
Cucumbers (brace)	3 "	2 "	1 "
Summer Cabbages	3 "	2 "	1 "
Early Carrots	3 "	2 "	1 "
Turnips	3 "	2 "	1 "
Globe Artichokes	3 "	2 "	1 "
Onions	3 "	2 "	1 "
Spinach	3 "	2 "	1 "
Rhubarb	3 "	2 "	1 "
Potatos	3 "	2 "	1 "
Mixed Salading	3 "	2 "	1 "
(Any 8 of the above 14 subjects).			

This Prize is open for Competition amongst Amateurs and Gardeners of private families. The Fruit and Vegetables produced must be of *the Exhibitor's own growing;* and any article otherwise obtained will disqualify the Collection. It is expected that the several articles will be neatly and effectively displayed.

The Gardeners' Chronicle.

SATURDAY, APRIL 10, 1869.

MEETINGS FOR THE ENSUING WEEK.

THURSDAY, April 15—Linnean .. .. 8 P.M.
SATURDAY, — 17—Royal Horticultural (Second Spring Flower Show), at South Kensington .. 2 P.M.

IT will be remembered that FIRES, ORIGINATING FROM RAILWAY LOCOMOTIVES, were rather numerous during the past dry summer, and those who visited Leicester during the great exhibitions of the Royal Agricultural and Horticultural Societies had ample opportunities of perceiving that the Midland Company's route formed no exception to the general rule. The fires were not only numerous but some of them of a very serious character, extending to large areas of corn and grass crops, and in some cases to woods and plantations. Generally the claims for compensation have been settled privately by the railway companies, but there have been some exceptions to this rule, and one occurred on the Midland Circuit at Nottingham at the recent Assizes, where Mr. HARRIS, the Official Assignee in Bankruptcy, brought an action against the Midland Railway Company for injury done by fire to his property situated at Kegworth, on the Nottingham and Leicester line. The principal fire—for there were many of them—occurred on the 16th of last July, destroying 4 acres of Grass keep, several hundred trees and shrubs of eight to ten years' growth, and some established quickset fences. Acting under the direction of one of the subordinate inspectors of the Railway Company, Mr. HARRIS caused the damage to be estimated by a competent horticultural valuer, who assessed the loss of crop, and the cost of restoring the plantation and fences with plants of the same size, at 118*l.* 14s., and the damage to the freehold, it being for sale at the time, at 350*l.* For these amounts a claim was made upon the Railway Company, who, so far from honouring it, at once denied their liability, and would not even entertain the question of compensation at all. Feeling that neither in law nor equity could damage so manifest and serious be pooh-poohed,

Mr. HARRIS placed the matter in the hands of his solicitors, but it was not until the irresistible eloquence of a writ from the Court of Queen's Bench had been tried, that the Company was brought to a sense or appreciation of its responsibility. Then a parley was attempted, and the surveyor was sent down, but as he would neither offer terms, nor undertake to restore the damage, there was no resource left but to carry the matter into Court. It may here be remarked that Mr. HARRIS did not claim for injury to the freehold, he merely sued for the cost of restoration and maintenance, in fact for the 118*l.* 14*s.* before alluded to, and the valuer's fees.

As the day of trial approached overtures were made to withdraw the plea, and refer the matter to arbitration, but that Mr. HARRIS declined, unless the Company would consent to re-open the whole question—that of injury to the freehold, as well as damage to things growing or being upon it, which they refused to do. Accordingly on March 8th the cause went for trial at the Nottingham spring Assizes. The pleadings were opened by Mr. OVEREND, Q.C., who, with plans prepared for the purpose, was explaining to the Court and jury the nature and extent of the injury sustained, when the learned Judge, Baron CLEASBY, interposed, stating that it was not a case for a common jury, and suggesting that the matter should be referred to some competent person or persons. The plaintiff consenting, various nurserymen were named and objected to by the respective parties, until at last Mr. WM. ARTHUR DICKSON, of the firm of Messrs. JAMES DICKSON & SONS, of Chester, was accepted, and approved by the Court. A verdict for the plaintiff for 250*l.*, subject to the certificate of Mr. DICKSON, was then entered, and so the legal proceedings ended. Since then Mr. DICKSON has examined the property and taken particulars, and on the 29th ult. he made his award "for the loss and damage sustained by the plaintiff, at the sum of 144*l.*, and no more." Considering that the original claim was for 118*l.* 14*s.*, and that some 80 additional trees have since been found to be dead, this award may be taken as a complete confirmation of the justice of Mr. HARRIS' claim. The valuer acting in this case was Mr. W. P. AYRES, of Nottingham.

Notwithstanding the amount recovered, it may not be out of place to state, that at the arbitration, an estimate was put into the referee's hand, signed by two well-known nurserymen, stating that the plantations could be restored for 16*l.*! When we state that about an acre of ground had to have the killed trees grubbed out, and be trenched preparatory to planting, we need scarcely say the sum named would suffice for those operations, and nothing more. Where the 360 trees and shrubs, 5 to 15 feet high, were to come from, we cannot imagine.

—— FEW persons, comparatively, are aware of the great beauty, as decorative objects, of well-grown plants of some of the smaller-fruited TOMATOS. We are therefore glad to see that especial attention is directed to them by our contemporary, the "Florist," in the April number of which magazine is a coloured plate representing, in addition to the Orangefield and the crimson Feejee Island, the following ornamental varieties—namely, the Yellow Plum, the Pear-formed, the Yellow Cherry, and the Currant Tomatos. The Yellow Plum Tomato has the fruits about the size and shape of a Damson. The Pear-formed is red, and of rather larger size than the Plum-shaped. The Yellow Cherry Tomato has still smaller spherical yellow fruits, produced in great abundance, and very attractive in appearance. The Currant Tomato is the most ornamental of all, producing long drooping racemes of bright red fruit. Messrs. VILMORIN, by whom it has been distributed under the name of Solanum (Lycopersicum) racemigerum, give the following account of it:—"This most ornamental species of Tomato has been received from M. DUBIEU DE MAISONNEUVE, the learned director of the Bordeaux Botanic Garden. It is a veritable Tomato, the sub-climbing stems of which are very much branched, and bear a profusion of simple or divided racemes from 6 to 8 inches long, composed of from 15 to 25 smooth round fruits, disposed in two rows, and of a very bright scarlet colour, so as to give them a strong resemblance to clusters of red Currants. It is a most interesting plant, and one which may be thoroughly utilised as an object of ornament, under the treatment given to the ordinary culinary Tomato." These varieties are especially recommended for the great beauty of the plants when well grown and full of fruit. They may be successfully grown in pots for house decoration, and their quality is quite equal to that of the larger sorts from the utilitarian point of view.

—— We hear that the public is to have the advantage of a VINE MANURE prepared by Mr. MEREDITH, of Garston, who attributes to its use in great measure the success which has attended his exhibitions of Grapes, not only in this country, but in France, Belgium, &c. If it possess but a modicum of the excellencies attributed to it, this material will be a valuable aid to gardeners, since it is said to secure not only fine bunches, but good flavour and high finish.

—— We understand that the beautiful MAGNOLIA CAMPBELLI, referred to at p. 334, was first distributed from the Royal Gardens, Kew, about a couple of years since. The original illustration, with that of several other Indian plants remarkable for their extreme beauty, appeared in Dr. HOOKER'S *Illustrations of Himalayan Plants*, a magnificent folio, published in 1855.

—— Sydney papers record the appearance of the VINE DISEASE (Oidium) in NEW SOUTH WALES. They take the matter very philosophically, by stating that the application of sulphur is so efficacious that the cost price of the wine is so much more per gallon—that is about all, and this being in reality a consumer's matter.

New Plants.

TACSONIA (§ Bracteogamia) QUITENSIS, *Benth. Plant. Hartweg.* p. 183.

"Caule angulato velutino; stipulis suborbiculato dimidiatis, denticulatis, aristatis; foliis 5-nervibus, profunde trilobis, lobis ovatis acuminatis serratis supra glabriusculis subtus velutinis vix canescentibus; bracteis connatis calycisque tubo tomentosis. Folia quoad formam iis T. erianthæ subsimilia; lobi subæquales a petiolo usque ad apicem 2 poll. longi, ultra medium separati, subcoriacei. Pubes paginæ inferioris et ramulorum primo juventute canescens, mox flavescens. Glandulæ petiolares circa 6 sessiles. Bracteæ sesquipollicares alte connatæ. Calycis tubus 4 poll. laciniæ 18—20 lin. long, late oblongæ obtusæ aristatæ. Corona T. erianthæ.—In præruptis prope Quito."—Benth. *loc cit.*—*T. mollissima*, Hort. Angl. quorund. non H. B. K.

We here cite the technical characters of a plant grown by Mr. Drewitt, of The Denbies Gardens, under the false name of T. mollissima. For the history of its introduction and for a comparative statement of the points of difference between the present species and its most closely related neighbours, we refer the reader to another column of the present issue. *M. T. M.*

DENDROBIUM MISERUM, *sp. n.*

(Stachyobium) caulibus fusiformibus vaginatis apice foliiferis; foliis ligulatis, apice microscopice serrulatis aristatis; racemo terminali, bracteis triangulis parvis; mento extinctoriiformis; sepalo dorsali ligulato acuto, sepalis lateralibus triangulis extensis; tepalis ligulatis acuminatis sepalo dorsali longioribus; labello unguiculato ovato subacuto toto limbo serrulato; carina depressa lineari marginata apice ampliata acuta a basi usque versus apicem labelli; columna basi æqualis.

Quite insignificant, with small green flowers and a lip bordered with purple. Introduced from Assam by J. Day, Esq. *H. G. Rchb. fil.*

ODONTOGLOSSUM ANTHOXANTHUM, *sp. n.*

Racemo fractiflexo, paucifloro; bracteis triangulis acutis, ovaria pedicellata dimidio æquantibus; sepalo dorsali cuneato oblongo acuto, sepalis lateralibus longioribus, angustioribus, infra per medium carinatis; tepalis cuneato ovatis apiculatis; labello basi subcordato, medio trilobo, lobis lateralibus obtusangulis, lobo antico semiligulato apiculato; carinis geminis crassis parallelis apicibus liberis divergentibus a basi in basin lobi antici; columna crassia prona, alii ligulatis acutis erectis utrinque, tabula apice subexcisura foveæ utrinque acuta erecta.

Flowers small, sulphur coloured; superior limb of stigmatical hollow, and some dots on the crest, brownish red. One of the recent introductions of Messrs. Backhouse & Son, of York, probably from the vicinity of Peru. *H. G. Rchb. fil.*

BRASSIA ARCUIGERA, *sp. n.*

Bracteis triangulis ochreatis acutis ovaria pedicellata longe non æquantibus; sepalis linearibus acuminatis, labello paulo longioribus; tepalis subæqualibus brevioribus; labello oblongo pandurato aristato, lamellis in basi semioblongis geminis intus papillosis, antice utrinque in arcum extrorsum excedentibus; columna basi ampliata.

One of the Peruvian introductions of Messrs. Veitch. It is in the way of Brassia Lanceana, but the flowers are smaller. *H. G. Rchb. fil.*

BEDDING PLANTS GROWN AT CHISWICK: 1868.

THE following abstract of the results of the trials of new varieties of bedding plants in 1868, from the Report which has just been issued, will be sufficient for the use of cultivators, as indicating the colours, habits, and general peculiarities of the several kinds. The season, it will be remembered, was peculiarly hot and dry, and this may have moderated the vigour of some sorts, which in ordinary and moister seasons might have a greater tendency to leaf development, while the exhaustive character of the weather may in some cases have interfered with the normal continuity of bloom. The notes here collected will therefore have to be taken in connection with these considerations. In order to render the report the more complete, the varieties of Pelargoniums which received Certificates in 1865 and in subsequent years, and which were grown with the newer kinds for comparison, have been included.

BEDDING PELARGONIUMS.

§ I. Leaves Self-coloured (P. inquinans type).

Leaves Green—Flowers Single.

* Flowers round-petaled.

1. Flowers scarlet:—

Elcanor. Compact habit; flowers bold, scarlet. 1st class in 1865.

Punch. Vigorous habit; flowers bold, bright scarlet, abundant. 1st class in 1865, confirmed in 1868.

Red Dragon. Of moderately vigorous habit; flowers very deep crimson-scarlet, in compact trusses, and remarkable for their rich velvety surface. 1st class in 1865.

Trentham Scarlet. Compact habit; flowers bright scarlet. 1st class in 1865.

St. George. A vigorous growing variety, of erect habit, with deep crimson-scarlet flowers, resembling those of Sambo in colour. 1st class in 1868.

Warrior. Vigorous habit; flowers large, bright scarlet; a fine showy variety, in the way of Punch. 1st class in 1867, confirmed in 1868.

Reported as promising:—Governor.

Passed:—Atrosanguineum, Brilliancy, Cardinal, Commodore Nutt, Diamond, Edith, Eunice, Gloire d'Ecully, L'Etendard, Little David, Little Major, Lord Lyons, and Rigby's Queen.

2. Flowers cerise or rosy-scarlet:—

Lady Middleton. Of moderately vigorous habit; flowers of a bright cerise or rosy-scarlet. 1st class in 1865.

Promising:—Robin Hood.

Passed:—Prince Teck and Poet Laureate.

3. Flowers rose-pink:—

Christine. Of moderate vigour; flowers clear rose-pink. 1st class in 1865, confirmed in 1868.

Madame Barre. Of compact habit; flowers dark rose with paler eye. 1st class in 1866.

Promising:—Improved Pink, Mdlle. Renoult.

Passed:—Belle Rose, Madame Evirens (? Ermens), Pink Hermit, Pink Pet, and Rose Queen.

** Flowers narrower-petaled (Nosegays).

Orange Nosegay. Straggling habit; flowers orange-scarlet. 1st class in 1866.

Vulcan. Of free straggling habit; leaves lobed; flowers clear scarlet, semi-nosegay. 2d class in 1867.

Promising:—Christine Surpasse, Countess of Rosslyn, Duchess of Sutherland, Glory of Waltham, International, Lilacinum, Purple Queen.

Passed:—Abd-el-Kader, Christine Nosegay, Constellation, Countess of Breadalbane, Edwin, Fame, L'Africaine, Maid of Kent, Naiad, Peach Nosegay, Scarlet Christine, Surpasse Orange Nosegay, Thor, and Waltham Lilac.

Leaves Green—Flowers Double.

Gloire de Nancy. A fine variety of vigorous habit, having on the bold green leaves a very indistinctly marked zone; flowers full double, in close large trusses, rosy-scarlet. 1st class in 1867, confirmed in 1868.

Leaves Golden.

Creed's Seedling. Compact growing; leaves yellow-green; flowers deep opaque scarlet. 1st class in 1866.

International. Dwarf and moderately vigorous; leaves flat, yellowish-green; flowers bright deep rose, free and telling. 1st class in 1868.

Golden Superb Nosegay. Of dwarf vigorous habit, with large flat yellowish leaves marked with very indistinct zones; flowers dark crimson-scarlet. 1st class in 1868.

Promising:—Hybrid Ivy-leaf, Jason, Little Golden Christine, and Ochroleuca.

Passed:—Andrew Murray, Florence, Golden Dwarf, Henderson, Little Golden Spread Eagle, Majesty, Ossian, Pillar of Gold, Pink Beauty, and Robert Fish.

§ II. Leaves Marginately Variegated.

Margins Pure White.

Albion's Cliffs. Of free and very spreading habit of growth; leaves white-edged; flowers light scarlet. The foliage was much more effective than in 1867, when it received a 2d class. 1st class in 1868.

Castlemilk. Of vigorous spreading habit; leaves with broad white edge; flowers scarlet. 1st class in 1867, confirmed in 1868.

Jane. Moderately vigorous; leaves with white edge; flowers scarlet, 1st class in 1865.

Mrs. Lenox. Moderately vigorous; leaves with broad white edge; flowers scarlet. 1st class in 1865.

Mountain of Snow. Of moderately vigorous spreading habit; leaves with broad white edge, very effective; flowers light scarlet. 1st class in 1868.

Princess Alexandra. Starved; leaves with broad white edge; flowers light scarlet. 1st class in 1867.

Passed:—Bridesmaid, Brilliantissima, Crown Princess, Favourite, Honeycomb, Mary Ellen, Miss Kingsbury, Oriana Improved, Silver Star, Snowstorm, and Virgin Queen.

Margins Creamy White.

Alma. Of vigorous spreading habit; leaves rather cupped, with a creamy edge; flowers scarlet. 1st class in 1865.

Brilliant Superb. Moderately vigorous; leaves with creamy edge; flowers scarlet. 1st class in 1866.

Flower of Spring. Of compact and moderate growth; leaves with a broad creamy edge; flowers scarlet, of fine quality. 1st class in 1865, confirmed in 1868.

Queen of Queens. Of moderately vigorous growth; leaves with creamy-white edge; flowers scarlet. 1st class in 1865.

Silver Chain. Of compact habit; leaves with creamy edge; flowers scarlet, in the way of Flower of Spring. 1st class in 1865.

Snowdrop. Moderately vigorous; leaves with creamy edge; flowers scarlet. 1st class in 1868.

Passed:—Annie, Bijou Improved, Cheerfulness, Daybreak, Ellen Smith, Flower of the Day, Hendersoni, Koh-i-noor, Minnie Warren, Mountain of Light, Silver Queen, and Snowflake.

Margins Yellow-Green or Golden.

Cloth of Gold. Moderately vigorous; leaves with yellow margin and green centre. 1st class in 1865.

Crystal Palace Gem. Dwarfish, but free in growth; leaves yellow-green with dark green radiate centre; flowers rosy-scarlet. 1st class in 1866, confirmed in 1868.

Golden Chain. A well-known standard bedding variety; leaves with a green centre, more or less radiate, and a golden edge. 1st class in 1865.

Golden Fleece. Dwarf; leaves yellow-green, with small radiate green centre; flowers scarlet. 1st class in 1865.

Unique. This variety has the general character of Golden Chain, but appears to be of freer growth; leaves with a green radiating centre, and golden edge; it did not flower. 1st class in 1868.

Promising:—Primrose.

(*To be Continued.*)

TACSONIAS.

IN the autumn of last year Mr. Drewitt, gr. to Mrs. Cubitt, of The Denbies, near Dorking, sent to one of the meetings of the Floral Committee blossoms of two species of Tacsonia—one shown as a new species raised from Peruvian seed by Mr. Drewitt; the other, sent for comparison, and named T. mollissima. As it was evident that the supposed new species was the real T. mollissima, while the plant so-called belonged to another species, it was of course surmised that some accidental transposition of labels had taken place. On inquiry, however, Mr. Drewitt stated that he had grown the plant he called mollissima since 1852, that he had received it in the first instance from Mr. Arthur Henderson, under that name, that it had been seen by hundreds of gardeners who had visited Denbies, and that it had been always considered to be T. mollissima and none other. This statement of Mr. Drewitt's, coupled with the fact that we had received from other sources leaves apparently of two species, under the name mollissima,

led us to examine Mr. Drewitt's specimens and the allied plants with great care. The result of this investigation confirms our original impression, that Mr. Drewitt's T. mollissima is a species heretofore not recognised as a cultivated plant, and the true name of which is T. quitensis; and further, that the supposed new species, raised by Mr. Drewitt, is the true T. mollissima. It results from this that there are in cultivation two species (if species they can be called) going under the name of Tacsonia mollissima. The plants are so much alike that they may readily be confounded if not seen side by side; but when their distinguishing characters are pointed out, they may be as readily recognised. To show how closely allied these plants are, it may be remarked that Dr. Hooker, in commenting incidentally on the figure given in the "Botanical Magazine," t. 4187, as T. mollissima, expresses a doubt whether the plate in question does not rather represent T. quitensis; this doubt, indeed, we do not share, for the relatively small flowers, and specially the comparatively short involucre, seem to us to indicate that the plant figured in the "Botanical Magazine" (*l. c.*) is the true T. mollissima.

There is a third species, or, as we should prefer to call it, a variety, named T. eriantha, which has been recently figured in the "Botanical Magazine," and which is also nearly allied to T. mollissima and to T. quitensis: indeed, in our opinion, T. eriantha is only a more densely pubescent form of T. quitensis.

The following comparative statement shows in what special points the three nearly allied forms above alluded to, differ the one from the other:—

T. mollissima, H. B. K., De C. Prod. iii, 334; Bot. Mag. 4187.—Leaves downy on both surfaces, especially so on the lower face; leaf lobes often oblong lanceolate; bracteal tube not greatly exceeding an inch in length, tips of the bracts (the free portions) lanceolate, united margins slightly everted towards the base; flower-tube 2½ to 3 inches long, glabrous; coronal tubercles around the mouth of the throat rounded, and nearly equal in size, form, and colour; fruit elliptical, 2½ inches long, citron yellow or apricot-coloured, covered with a glaucous bloom, and a fine down.

T. quitensis, Benth. (*supra citat.*).—Leaves nearly glabrous above, downy beneath; leaf lobes often ovate-acute; bracteal tube nearly 2 inches long, tips of the bracts (the free portions) ovate-acute, margins not everted; flower-tube nearly or quite 4 inches in length, downy, coronal tubercles thick, awl-shaped, irregular in form and size; fruit not seen.

T. quitensis, var. *eriantha*, Mast. = *T. eriantha*, Benth., Pl. Hartweg. p. 183; Hook. Bot. Mag. t. 5750.—Leaves nearly glabrous above, covered with snow-white down on the under-surface between the nerves, as also are the tube of the bracts and that of the flower. In the form of the leaf-lobes, bracts, corona, &c., T. eriantha appears nearly, if not quite, identical with T. quitensis. Dried fruits of T. eriantha in the Kew herbarium are pyriform, 2½ inches long, covered with a pale reddish down. This plant has recently flowered with I. Anderson-Henry, Esq., who received seeds from Professor Jameson, of Quito.

It will thus be seen that T. quitensis, which has so long been hiding itself under a false name, is really a finer flower, and is even more worthy the attention of the cultivator than the true T. mollissima. Both are, however, beautiful, but, if there is choice offered, we advise the reader to select T. quitensis in preference to T. mollissima.

All three forms appear to be in cultivation in New Grenada, Peru, and Ecuador; and this circumstance, taken in conjunction with their growth at greater or less elevations on the mountains, and the extensive range of some of the forms in latitude, would tend to the inference that the plants were likely to be variable in their characters, even if the actual specimens did not prove the fact. The fruit of T. quitensis and T. eriantha, probably also that of T. mollissima, is edible; but unless under Andine suns the flavour is more decided than it is here, we should regard the fruits as ornamental rather than useful on the dessert table. We would here call the attention of collectors to the fact that there are still two or three other species growing high up on the Andes well worth introducing; one, indeed, not yet named, but which grows in the neighbourhood of Quito, is, if we may judge from dried specimens, superior in size and beauty of flower to any other yet known. It is singular that there are two or three of these fine forms still undescribed, and which appear to have escaped the observation of Dr. Jameson, who, under very disadvantageous circumstances, is preparing a "Synopsis Plantarum Æquatoriensium," two volumes of which have already appeared.

Another fact, of more importance to the cultivator, and to which we draw special attention—in this following in the wake of other botanists—is this, that these lovely climbers grow high up on the Andes in cold, foggy, misty climates, at a height of from 8,000 to 13,000 feet, some of them "near the snow." Inference—no coddling required. Another fact—the flowers are often lacerated by humming-birds, in their efforts to get at the honey in the base of the flower tube. Query—could we not have here both plants and birds too? We could forgive a torn flower or two; besides, is it not possible that the birds might "set" the flowers for us, and so secure the formation of fruit? *M. T. M.*

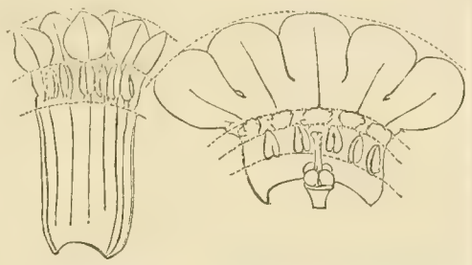
BOTANICAL DRAWING.—No. VII.

In drawing analyses of flowers, their size should be regulated by that of the drawing in which they are to be introduced, as small dissections added to a large plate appear trifling, and if they are to be of use in explaining the structure they should always be sufficiently magnified to exhibit unmistakably and correctly the smallest peculiarity that may be of interest.

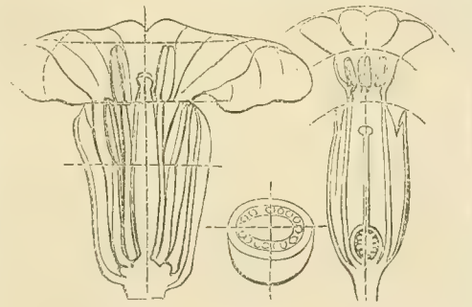
In some earlier works on botany, the dissections are often represented of even less than the natural size, and are placed, perhaps judiciously, so as almost to escape observation: an instance of bad taste or timidity, which is not so common in later productions of the pencil or the press. If analyses are intended to be useful, they should be large enough to be sufficiently explanatory even in respect to their hairs, glands, &c. There is a general tendency in first attempts at dissection to represent the portions too small, on the same principle, possibly, that schoolboys are rather partial to small-handwriting, under the impression that errors are not so easily detected. It requires some judgment to hit the happy medium.

For general purposes a flower shown cut open through the middle is sufficient, but for scientific enlightenment much more is requisite; and the beginner, if he wishes to perfect himself in these matters, should consult some botanical work, for it is not my object in these notes to give a lecture on structural botany.

If a Forget-me-Not be the subject of study, the beginner should first faintly define the contour, then mark off the relative position and size of the stamens, and notice whether they are betwixt or opposite the lobes of the corolla, as in the following cut.

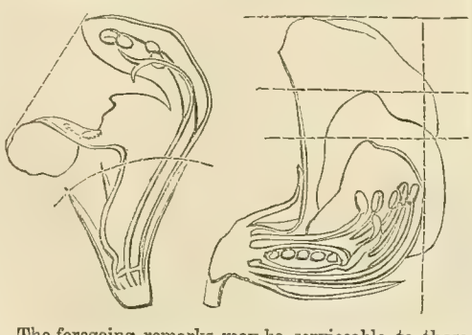


When the ovary is represented cut open, to show the arrangement of the ovules, it is advisable to cut the corolla also in half vertically, and treat it as in the former case. Cruciferous plants, such as the Wallflower, will be found easier to render if treated as in the next diagram; the lines there marked across as a test of the distance and size of the parts, may be put in or imagined. In making sections of the ovary, it will save much trouble and use of india-rubber if they be treated as in the section given below; if there are many compartments this circle should be divided systematically, by lines radiating from the centre, and it is possible thus to make them all of the same dimensions. The right-hand figure in this diagram shows how the structure of the Cowslip may be shown.



Irregular flowers, such as those of the Mint or Dead Nettle, may be represented neatly divided vertically with but half the parts remaining, as in the following cut, or spread open like any regular flower. It must be remembered that, however unequal the lobes of the corolla may be, the stamens or filaments almost always spring from between them, and it is a certain test to draw a faint line from the base of each filament to the cleft of the flower. The filaments in such flowers are often attached low down in the tube, and if this precaution be not taken, a botanist might have some reason to doubt the correctness or botanical knowledge of the draughtsman. The following cut will, perhaps, be of service in illustration of my observations.

Papilionaceous, or Pea-flowers are often represented, for scientific purposes, with all the parts separated, but it is a good and concise method to show a flower cut vertically in half through the ovary, so as to explain the relative position of the parts, the number of ovules in the seed-vessel, &c.



The foregoing remarks may be serviceable to those who are ambitious of testing their patience, and correctness of eye, by dissecting flowers. Indeed, one of the finest exercises of the former virtue with which I am acquainted, is the analysis of a dried flower, from an herbarium specimen, perhaps very small, worm-eaten and gluey, and having no apparent analogy to any known plant.

After treating of the inside of flowers, it may be well to allude to the various coverings of the outside, and of plants generally, viz., the hairs, down, and spines with which they are sometimes clothed. Let not the botanical artist who would earn a character for careful observation and correct representation, regard these as trifling matters, for they have caused more schism in the botanical world, perhaps, than their apparent importance would justify—ay, even to the bandying between opposing parties of opprobrious epithets, such as "hair-splitters" and "lumpers." It is best to steer a middle course between the contending factions, for an artist, if judicious, should have no bias either way—he is generally regarded as a neutral person.

Hairs, however, if very obvious on a plant, should certainly be rendered, and not in a slovenly manner. The angle they form with the part covered should be noted, as well as their general form, whether glandular or stellate, &c.: if they are represented at all, they should be done correctly. The artist will see that it is safest to be correct to a hair, and if he wishes to educate and refine his eye in this respect, I could not recommend more suitable subjects for the purpose than the British Roses and Brambles, two groups of plants greatly indebted to acute British botanists for their numerous subdivisions, and which, without the aid of particularly correct drawings, it would be very difficult to define. *W. H. Fitch.*

HARDY HERBACEOUS PLANTS.

Much disappointment is often experienced in raising the seeds of perennial plants, and blame is attributed to the vendor of the seeds, that ought in reality to be awarded nearer home. We may take it as an axiom of general applicability that the more permanent and perennial a plant is, the greater the amount of care and patience required in rearing it from the seedling state to its perfect maturity. Often before this important point has been attained, an unfavourable verdict is passed, and the unfortunate plant is discarded, and condemned, perhaps executed, without a fair trial. What I wish therefore to do, is to place before purchasers of such seeds a method of procedure by which they may be enabled, or at least assisted, to do justice to the seeds, to the vendor, and finally to themselves.

Every one who has a garden purchases his collection of what are technically called "annuals," and sows them after his own particular fashion. This consists usually in sprinkling the seed in small circular patches in the borders, where they rapidly vegetate; and some month or two after this operation has been performed, these patches present the spectacle of some 200 plants or more striving for mastery in a space of ground of sufficient extent to admit of the perfect development of some three or four only. One of the first principles of beauty consists in perfect development, but from the practice just described, it might be imagined that in place of perfection the owner of the garden was intent on making each group an epitome of that struggle for life which Darwin and others have so well pointed out as existing in Nature, but against which it ought to be our aim and object to guard. We ought to endeavour to place Nature, at least within our garden walls, at an advantage, and not at a disadvantage, as we too frequently do. The remedy for this is simple—viz., thin out every patch, leaving first, say a dozen, and finally reduce them to three or four; and further, begin to do this as soon as ever the plants can be handled.

To adopt such a plan as this for sowing perennial seeds, can, however, never be attended with satisfactory results; many of them, especially the more permanent sorts, would by the autumn have made so little growth, that in digging the borders, the patches of small, almost leafless plants, would run the risk of destruction; and presuming, as is sometimes the case, that the seeds have not vegetated the first season, their destruction would become almost a moral certainty. Without hesitation I therefore say, do not sow your perennial seeds in the spot which the plants are ultimately intended to occupy. Let them go through a preparatory process, and what that preparatory process is, I will now briefly endeavour to explain.

Presuming that the selection of the seeds is made, and that the seeds themselves are in the hands of the purchaser, the operation of sowing should take place as early as may be practicable in March. First of all, the requisite number of five or six-inch pots should be obtained, so that each seed packet can have a separate pot for itself. Some nice light soil, with a fair amount of sand and leaf-mould therein (if obtainable) should be prepared, and passed through a coarse sieve, keeping a sharp eye after worms, and at once removing them; the rough part which remains in the sieve should be placed above the drainage in the bottom of the pots to the extent of two-thirds of the depth, filling the remaining third with the fine soil; the whole should then be well pressed down, so that the surface for the reception of the seeds should be half an inch below the brim of the pot, and tolerably even. Each packet of seed should then be sown, and covered with a sprinkling of fine soil, which is to be pressed down by means of a flat piece of wood, or, what will be perhaps more readily available, by the bottom of a flower-pot.

The best guide as to the thickness of covering required is to arrange so that no seeds shall be seen on the surface after the operation. If the seeds are minute, a very small quantity will be required to attain this end; if they are large, more will be requisite. This completed, and each pot duly labelled with the name of the plant and height of growth, the pots should then be placed in a cold frame tolerably near the glass, taking care that each pot is set level or as nearly so as practicable.

In preparing the frame for their reception it is desirable to have a good thickness of lime rubbish in the bottom, say from 9 to 12 inches, as a protection

against worms; good sharp ashes will answer the same purpose. The lights should then be put on and closed for a week or so, the only further attention required being to shade from sunshine. By this time it will be advisable to give them a watering with tepid water, using a very fine "rose" for the purpose, and even then the water should be applied gradually, so that the soil is in no case washed over the side of the pot. Till the middle of April, beyond shading from sunshine and watering as above directed, it will only be requisite to give a little air by pushing down the sashes, say 3 or 4 inches at the top, when the sun is powerful. By this time some of the seeds will have made their appearance, and should be either transferred to another frame, where they can have more light and air, or be set by themselves at one end of the frame, where the shading can be omitted. The chief object should be, as soon as the seeds are up, to encourage the young plants to make as robust a growth as possible.

By the end of April or beginning of May the lights may with advantage be thrown off for a couple of hours every morning, at which time the watering should be done. By 9 o'clock the lights should be put on again, and shading also, if the day be sunny. This practice may be continued till the end of July, with one further proviso, that whenever a gentle rain is falling, the seeds should have the full benefit of it, but they should be protected against exposure to thunder showers, which are sure to disturb and wash out the smaller seeds. By this time the great majority of the seeds will have vegetated, and have been from time to time removed to a more exposed position. It must not, however, be assumed that there is no hope for the others. As before remarked, there are many plants that rarely ever vegetate the first season, but will braird abundantly early in the following spring. This remark applies especially to the following genera—Gentiana, Eryngium, Primula, Trollius, Iris, Lilium, Clematis, Anemone, &c. All that is necessary with these pots that remain, is to give an occasional watering, and to guard against the growth of the Lichen-like Marchantia. This is frequently a great pest in damp localities, and is only to be kept in check by carefully removing the small fragments on their first appearance, for if allowed to make too much headway, any attempt at removal carries away the surface soil, and with it the seeds. In the month of October each pot should be surfaced with a sprinkling of fine soil, well pressed down, in fact, the process before described after sowing should be repeated. The pots may remain in the frame till the spring, nor should they be despaired of altogether till May or June.

To those who may not have the advantage of a cold frame to carry out the foregoing instructions, I would still recommend the use of flower-pots rather than sowing in the open ground; but under these circumstances I would say—sow one month later; place the pots in a warm, sunny corner, and arrange some simple contrivance so that you can shade with mats during hot sunshine, and also cover up at nights, in order to keep off heavy rains; the same care in watering should be observed, and the same watchful eye after snails, woodlice, and other depredators should be maintained. One important point must not be forgotten—never water in bright sunshine; many a nice braird of young plantlets has been lost by the neglect of this precaution.

So much for the seeds in their seed pots. Now a word or two as to their treatment afterwards. My practice is to pot off, as soon as the plants are sufficiently strong to handle, as many as are required, in three or four pots, say three in each pot, where they will grow well during the summer, and become thoroughly rooted, ready for consigning to their final habitat, be it rockery, border, or shrubbery, in the early part of spring, after the borders have been roughly raked over; thus giving them ample time to establish themselves before autumn arrives, and their enemy, the spade, is likely to come in their way. Failing a supply of pots sufficient for all, some of the stronger growing ones may be planted in a sheltered bed of light soil, care being taken to shade them for a few days after being planted; or a few old boxes, 5 or 6 inches deep, may be used with even greater advantage for the same purpose, as they may readily be moved from the shady side of a wall to a more sunny locality after they have recovered sufficiently the process of transplanting; and finally, they may receive the shelter of a cold frame as soon as winter sets in. This recommendation must not be considered as indicative of their inability to stand the cold weather, but as a preventive of the mechanical action of frost, which, in some soils especially, is apt to loosen their root-hold, and force the young plants, roots and all, to the surface of the soil.

In the case of the smaller growing alpines, such as the Drabas, Arabis, &c., I generally find that they stand the first winter best in pots of the smallest size, and in this form they may be the more readily inserted in the interstices of a rockery, where they will permanently establish themselves.

One further caution, and my task is complete. Should any of the pots of seedlings look yellow in the leaf and unhealthy during the extreme heat of summer, examine the back of the leaves, and the probability is that they will be found infested with the aphis, popularly known as greenfly, though the insect may be sometimes yellow and sometimes black. If such be the case, the best and indeed only cure is to burn sufficient tobacco in the frame to fill it thoroughly with smoke. In this operation, be careful not to let the tobacco blaze. Select for it a calm evening after a warm day, when there is little or no moisture on the surface of the pots or among the leaves of the plants; then, and only then, will it prove really effectual. *J. C. Niven, Hull.*

METEOROLOGICAL TABLE FOR THE QUARTER ENDING MARCH 31, 1869.

Observed at Weybridge Heath, Surrey. Lat. 51° 21′ 18″ N.; long. 0h. 1m. 46s. W. 150 feet above mean sea level, on the Lower Bagshot sand. Soil and subsoil fine sand.—By W. F. Harrison, Esq., F.M.S.

Mean pressure of dry air reduced to 32° at sea level.	Highest temperature of the air in the quarter.	Lowest ditto.	Range of temperature in the quarter.	Mean of all highest.	Mean of all lowest.	Mean monthly range of temperature.	Mean daily range of temperature.	Mean temperature of the air.	Mean temperature of the dew point.	Mean reading of thermometer in sun's rays.	Mean ditto on grass.	Mean temperature of the earth. One foot deep.	Mean temperature of the earth. Two feet deep.	Mean elastic force of vapour.	Mean weight of vapour in a cubic foot of air.	Mean additional weight required for saturation.	Mean degree of humidity (complete saturation = 100).	Mean weight of a cubic foot of air.	Wind. Mean estimated strength (0–6).	Wind. Relative proportion of N.	Wind. Relative proportion of E.	Wind. Relative proportion of S.	Wind. Relative proportion of W.	Mean amount of ozone (Schonbein's scale)	Mean amount of cloud (0–10).	Rain. Number of days on which it fell.	Rain. Amount collected.
Inches.														Inches.	Grains.	Grains.		Grains.									In.
29.980	60°.00	23°.75	36°.25	57°.00	26°.50	30°.50	10°.90	41°.55	36°.48	68°.52	32°.60	41°.63	39°.11	.222	2.54	0.54	80.8	551.2	1.4	12	6	19	8	3.5	7.1	47	6.9

SURFACE CROPPING VINE BORDERS.

Any novelty in practice, however successfully carried out, is certain to be assailed. Antiquated notions and prejudices warp the professional mind to such a degree, that nothing short of ocular demonstration will dispel them. Even though the achievement may be respectable beyond ordinary calculations, unless it is reproduced year after year, there are dissentients and malcontents ever ready to aver it has been brought about by some fortuitous accident, rather than willing to investigate calmly and deliberately its merits. In gardening, as in other things, we have a wide field for theorising and practising; and one of the subjects that has lately cropped up for investigation and debate is the surface cropping of Vine-borders.

It originated, as your readers may remember, through some remarks that I felt called upon to make in reporting on the Vines and Vine-borders at Archerfield; and I was surprised that a practice so novel and so successful, as the instance of fruit and flowers living in the same paddock, and enjoying without stint and in common the same food, should have so long passed unnoticed. Eventually Mr. Fish (see p. 193) took the matter up, and having made some quotations from my paper, disputed the wisdom of the practice inculcated, and hoisted his banner, upon which was written "Sacred to the Vine roots alone." Mr. Thomson (p. 222) then pointed out the inaccuracy of Mr. Fish's deductions, and quoted certain figures showing that that writer must have based his arguments upon false premises. Mr. F. (p. 304) rejoins, giving fuller quotations from my article, and justifying the position he had assumed, rather cleverly taking in Mr. T. as a supporter of the cause for which his banner is unfurled. I have waited patiently while all this has been going on, and have seen Mr. Thomson's final rejoinder. It now devolves upon me to vindicate the general accuracy of my report.

The two points which I am concerned in clearing up, are the width of the borders, and the nature of the soil of which they are composed. I said that there was no stop for root ramification—which is not disputed; and that the borders were added to year by year, even up to the espalier trees, which must be *at least 50 feet from the walls of the houses*. Any one can see from the manner of expression, that the words in italics conveyed an eye impression as to distance, and that it was more the principle of root extension that I was noticing, than an exact tape-line measurement of border breadth. Feeling confident that it was no wild estimate which I put upon record, I have since ascertained that, in the case of the four principal vineries, the width from the back wall to the espalier trees is 48 feet. Mr. Thomson's own explanation, with reference to the soil, is perfectly satisfactory, and does not impugn in the least the accuracy of what I intended to be a faithful report.

Turning from personal explanations to the far more important point at issue—the surface cropping of Vine-borders—I must confess that I fail to see the potency of Mr. Fish's arguments. The borders may be "consecrated by the wisdom of science," as they certainly are by "the general consent of practice;" but that does not preclude them from being specially prepared to receive the "common herd," that in time feast the eye with beauty, living on some of the crumbs of food which the "kingly feaster," revelling in affluence, can well afford to spare. In truth, horticultural science is not yet advanced enough to proclaim advice upon this point to her many devotees. With all our boasted enlightenment in the art, we are mere children in dealing with chemical combinations. Our ideas are good enough as to the mechanical construction of soils—what should be introduced to disunite, and what to give coherency to our favourite staples; but the general furnishing is a mere eye-estimate, "a fortuitous combination of atoms," involving not the slightest degree of scientific research. Unlike the more ambitious and best taught of our agricultural compeers, we have neither formulæ nor figures to guide us. We sail without chart or compass, occasionally making sad mistakes, and if we chance to have piloted our craft under a fortunate star, it is blazoned abroad as a triumph of horticultural skill. This is far from being a satisfactory state of things, but it may be considered to be a triumphant answer to malcontents who deal with things upon the principle of their forefathers, and who can see nothing good beyond the limited area of what we might conveniently call respectable practice.

One grain of corn is worth a bushel of chaff, and therefore this hard fact, which I am bound again to iterate, so as to command the attention of observing men, is worth a thousand theories "disestablished." The Vines and their produce of fruit, and the bedding plants and their produce of flowers, living upon diet common to both, were, in the case in question, quite marvellous examples of cultivation. Your readers, if they have not already done so, may see my estimate of the Grapes at p. 1138, 1868. You have in possession my remarks upon the bedding-out plants, and the panel system of adornment which was so artistically exhibited upon the auxiliary Vine-borders, which have called forth so much comment in your pages. These facts then are indisputable, and furnish data for investigation and comment.

Mr. Fish approaches the subject with his usual fertility of language, and builds up a most elaborate argument for things remaining in *statu quo*. He conjures up the voracious character of the bedding-out flock in the matter of both eating and drinking, points to the pernicious influence their roots are likely to exercise on coming in contact with those of the "kingly feaster," and even when they have served the purposes for which they were introduced, he sees or anticipates the creation and propagation of Fungi. All this is special pleading, very captivating to the public eye, and apparently unanswerable. Let me try to deal with it; for it is not a little question that is involved, a difference between one writer and another, but a broad question between one system and another, wherein the whole Grape-growing public is concerned. Bedding-out plants, if unstinted, certainly live rather riotously, but how does Mr. Thomson provide for this? Something in the same way as one would provide a feast for striplings in the pricking-out process, and attended with much the same result. "The plan adopted was not to probe deeply into the Vine-borders, for they were full of Vine roots, but to lay over them from 3 to 4 inches of well decayed manure, and over the manure a layer of rich soil, and in this to plant the bedding things. And if ever Mr. Fish tries this method he will find that the roots of bedding plants are wonderfully, though not singularly, fond of being near the commissariat." This is another simple fact, showing how bedding-out may be successfully sustained simultaneously with Vine feeding, without detriment to either. But Mr. Fish must be corrected in his deductions upon this point. He has either not sufficiently consulted or has misunderstood my report, or has been led away by the enthusiasm of his subject, else he could not have advised your readers to note, at p. 193, how the success debated upon had been achieved. He says that it was brought about "by getting the Vine roots beyond the region of the bedding plants as speedily as possible." Now, that was practically impossible, for the further outwards and onwards the roots proceeded, the hotter must have been the fight in the midst of that field of floral beauty. Other reasons than those implied must be adduced to account for the so-called anomaly. Mr. Thomson himself has some doubt as to the advisability of his own practice being held out as a precedent for general adoption; but notwithstanding that, the success that has attended it deserves probing to the bottom. Even Mr. Fish, in the honesty or simplicity of his arguments, runs himself to earth by promulgating, against his own plea, the probability of Vine roots not living at the same table as the bedding-out herd. Doubtless there is much more in this than most of us seem to appreciate or understand. In agricultural husbandry, as I have said above, they manage these things better. Their chemists have proved that certain Clovers and Grasses are excellent preparative subjects for Wheat, that they prefer and select each its own diet; and so it may be, and doubtless it is, with the Vine and the "bedders," only we have that yet to ascertain—as well as many other things which the projectors and controllers of every school of young gardeners ought to provide for in arranging a curriculum.

With reference to deleterious secretions and their contaminating tendency, you have already avowed that this is an open question, and not likely ever to assume formidable dimensions. The Fungi, where generated, are bad enough to cope with in many of their forms, but I don't anticipate their creation or propagation in the case of bedders, such as Pelargoniums, Verbenas, or anything in fact that comes under this category. I should be far more apprehensive of Fungus in a mulching of leaves, or if anything were introduced of an arborescent growth. In truth we are bound to lay aside prejudice, to banish foregone conclusions, and to dispel the phantom of sacredness which due veneration to our ancestors at all times calls forth in approaching this subject. We have naked realities to face. We have not merely an ephemeral or evanescent success, but a steady round of success for a series of years, to con over, and satisfy our minds upon.

My own opinion coincides with that of Mr. Fish when he declares that the "hard and fast line" of the prescribed border ought to be proscribed, if bedding-out and Grape growing are to go on hand in hand. I cannot, however, entertain the same regard as he manifests for the old limited border. If the growers of specimen plants throughout the country were to tie themselves down to pots 18 inches in diameter, the wearing-out process of the afternoon of life would soon become lamentably visible. A run of success cannot be attained without a proportionate amount of labour and skill invested in the speculation. We all know that—even the most apathetic individual among us, notwithstanding the hazy vision that may envelope his faculties, and tie him down to time-honoured systems of practice. Mr. Thomson declared himself to be the victim of circumstances, but he deserves credit for carrying out his plans in such a way as to show results which will not only awaken curiosity, but arouse the speculative mind to action. This is not a question regarding places well or ill appointed in the shape of manual labour; were it so, a very good "brief" might be held in some instances, showing that it was scarcely possible to overtake the ordinary routine of duties. It is a question involving a principle, which Mr. Fish condemns, at the same time raising his standard with its famous inscription in defiance. I hold that, unless he can fortify his position with more stable arguments—unless he can show that, without regard to additional labour, first-rate Grapes cannot generally be so grown, he must "strike his flag." *A.*

Home Correspondence.

Pear Blossom.—I have never before seen such abundance of Pear bloom as we are favoured with here this season, and if one can judge rightly when *en route* from here to London by train, the same appearance of abundance is to be seen within a moderate radius. Upon many of the trees which I have examined closely, it were easy to cover with the extended bare hand from 15 to 18 well plumped buds. Now it is well known to all cultivators that few things impoverish a tree more than does the production of these floral organs, and that in all probability the development of the very necessary and subtle agent, pollen, taxes the trees more than that of all or any other parts of their wonderful organism. I therefore suggest that unless we assist all such trees so laden by the simple process of thinning out at least some part of this excessive strain upon their capabilities, we may find ourselves minus a Pear crop, however fine the show may be, when it finally unfolds its flowers. I have always observed the first symptom of weakness shown by trees, otherwise seeming in perfect health, to consist of a deficiency or total absence of pollen; and I need not refer to the consequence of a dearth of or even a short supply of this. Sufficient it will be for me to remind those concerned, that after the whole floral envelope has been perfected, the strain upon the tree going on continually from little to more, there finally comes the perfecting process, the giving vitality to each minute grain of pollen; and if the extraordinary resources of the parent tree have been previously overtaxed, what hope can there be of a successful issue? Some would say, "Wait until we are secure from frost before you deprive a tree of its floral offerings." But I answer, frost or no frost, of what avail is this sort of reasoning, when, by the very artificial existence we have given the tree, we cause such an aggregation of bloom, that by sheer exhaustion it becomes smitten with barrenness. Rather, by a judicious use of our powers, let us have some slight resort to thinning, so that the blooms which each tree may produce may at least be capable of giving such a return as the cultivator requires of it. *William Earley, Digswell, Welwyn.*

Cucumber and Melon Plants Destroyed.—I have just had two plants of Queen Anne's Melon and several plants of Cucumbers destroyed. My gardener, on uncovering the frames, saw a green rose-beetle eating away at a great rate. On examining the pits we found upwards of 50 of them that had crawled out of the soil, which was light and fibry, from a bed whereon I had grown Portmanteau de Naples last year, and on turning which in the winter, we filled a large iron bowl with cockchafer grubs. I have some of the Gourd in my kitchen now, and it is most excellent. My fruit weighed from 16 lb. to 21 lb. *Francis Davies, Pershore.*

The Vine, or Vitis vinifera.—From the time that Noah planted his vineyard, every heathen nation seems to have contended for the honour of claiming as its own, the distributor of the Vine and its benefits, and deifying him accordingly. The Egyptian gave the palm to Osiris, the ancient Italian to Saturn, whilst the Greek shouted for his Bacchus, who brought the goodly plant from Arabia the Happy, commemorating and softening the triumph of his arms by leaving it as a legacy to the conquered. Still it may be asked, Of what country was the Vine originally a native? The question is more easily put than answered. The contention among the cities for the honour of having been the birthplace of Homer sinks into insignificance compared with the struggles for precedence in this honour among entire countries. Britain owes the presence of the Vine, in all probability, to the Romans. It does not appear to have existed here in the time of Agricola, but the subsequent intercourse could hardly fail of introducing it. There is extant an edict of Probus, allowing "omnibus Gallis et Britannis ut vineas habeant et vinum conficiant." The venerable Bede notices several vineyards, and Winchester was long supposed to have received its name from the Vines for which it was certainly noted. The Normans called the Isle of Ely the "Isle of Vines," and its bishop, soon after the Conquest, appears to have received tithe of wine, to the amount of three or four tuns annually, from his diocese. Vineyards are frequently mentioned in Domesday Book. The Sussex vineyard belonging to the Duke of Norfolk, from whose produce many pipes of good Burgundy wine were made, shows to what extent the cultivation was carried. Drayton sings—

"—— Gloster in times past her selfe did highly prize,
When in her pride of strength she nourish't goodly Vines,
And oft her cares represt with her delicious wines.
But now th' all-cheering sun the colder soyle deceaves,
And us (heere tow'rds the pole) still falling southward leaves;
So that the sullen earth th' effect thereof doth prove—
According to their books, who hold that he doth move
From his first zenith's point."

The "goodly Vines" were gone, therefore, in his time and superseded:—

"For of their Vines deprived, now Gloster learns to plant
The Peare tree everywhere: whose fruit she strains for juice,
That her pur'st pery is, which first she did produce
From Worstershire, and there is common as the fields,
Which naturally that soyle in most abundance yields."

But though Vines are now cultivated in this country only against walls and under glass—a rather expensive mode,—yet there is no reason why the Vine should not be cultivated in the southern and south-western counties of England by great numbers of the inhabitants, including the humblest cottagers, who might add most beneficially to their comforts and resources. Instead of having bare walls how many of those facing the sun might be covered with ripe clusters and rich foliage? How many hill-sides and sunny slopes, now barren, might "wave in purple," and "drop sweet wine?" These are no figures of rhetoric, as the advice is quite practicable, and easy to be acted on. The natural soil, which is the most congenial to the growth of the Vine, and to the perfection of its fruit, in this country, is a light, rich, sandy loam, from 18 inches to 2 feet in depth. One of the principal causes of Grapes not ripening well on open walls in this country, is the great depth of mould in which the roots are allowed to run, which, enticing them to penetrate in search of food below the influence of the sun's rays, supplies them with too great a quantity of moisture. It is a well known fact that the Vine is not only a most gross feeder, but a very ghoul in deep rich soil, and particularly among graveyards. It would seem well fitted for bearing the Grape from which might be crushed the "coal black wine" that filled the cup of "King Death." But the Vine is not the only fruit tree which revels in such deadly diet. Upon the exhumation of the remains of the hapless André, in the field, immediately over his remains, there flourished most luxuriantly a small Peach tree, which had been planted at the head of the grave by the kindly feeling of a lady in the neighbourhood. On the disinterment of his remains, the roots of the small Peach tree were found to have completely surrounded the skull like a net. This uprooted tree, however, though carefully removed to a garden, and there attended with pious care, in the hope of preserving it for the sisters of André, drooped and died away. Plants indeed in general grow nowhere more vigorously than amid graves, drawing their nourishment from sources which can hardly be contemplated by the sensitive without a shudder. We need only advert to the legend of Lisabetta and Lorenzo—a story to which, in spite of the elegant and pathetic prose of Boccacio, or the harmonious verses of Dryden, we could never be reconciled. *John Cole McArdell.*

Variegated Pelargonium Show: Proposed Congress.—I have often thought that the special show of Variegated Zonal Pelargoniums, held last year at South Kensington, was not equal, as regards the excitement it created among the growers and admirers of these interesting plants, to that which was held in the Council-room in the previous year, on which occasion some interesting papers were read by persons who had been more or less successful in raising and growing these beautiful plants. I think I am but expressing the wishes of most of those who are engaged in the cultivation of this and the kindred classes of Pelargoniums, when I say that papers and observations of a similar nature should be again brought forward. This special show is the only occasion during the whole year on which the growers and raisers of these plants are brought face to face. I hold that the class of Variegated Zonal Pelargoniums is yet but in its infancy as regards the attractiveness of its foliage; and I believe that it is most important to show how easily the plants may be cultivated. What we require are a few simple rules, that must be adhered to at certain seasons of the year. Mr. Morris grows these plants like weeds, and he declares that he very rarely does anything to them. What I propose is this, that after the exhibitors have cleared out for the judges (say about 10 A.M.) a substantial breakfast, at a reasonable charge, should be provided, for which tickets should be purchased beforehand; that this breakfast should be over by 11 o'clock, when those interested should assemble, and constitute themselves into a meeting, with chairman, &c., *en règle*, for the purpose of reading papers and holding a discussion on the hybridisation and cultivation of this particular class of plants. I see no reason why this should not be called a Pelargonium Congress, and should you think well of these suggestions, and publish them in the *Gardeners' Chronicle*, I am willing to subscribe 10*s.* toward 5*l.*, as a prize for the best essay, by an amateur, on the history, future changes, character, and cultivation of the highly coloured variegated zonals. I propose that the essays should be delivered to the Floral Committee by May 17, that that body, or a sub-committee thereof, should decide which is the best essay contributed, and that an announcement of the decision should be made at the proposed breakfast; while at the discussion meeting the prize of 5*l.* should be handed over to the winner, and the prize essay read and discussed. I think it would be well if the awards at the then pending show, should be announced at this meeting as soon as they are known, as this would prevent a commotion among the exhibitors in the midst of the visitors. I should be glad to hear the opinion of other growers on this subject; indeed I should have been glad had these few suggestions emanated from some more influential and experienced grower. *H. Cannell, Nurseryman, Woolwich.* [This is a capital suggestion, which we should be glad to see carried out, and which we will gladly further if it be in our power. We like these friendly gatherings, whether they are called congresses or designated by some other name. No doubt such a meeting as is here suggested could be held in the Council-room at the hour specified. Eds.]

Hardy Broccoli.—In reply to "Colo" (see p. 278), who asks for information as to the best hardy Broccoli, I beg to say that we are rarely without Broccoli or Cauliflower all the year round; and to obtain this constant supply we grow the following:—For autumn and early winter use, the Bishopthorpe strain of the true Walcheren, a sort rarely seen now. This we sow the first and last weeks in June—plant after early Potatos, and it is in use from October till Christmas. After this variety we have none to equal Backhouse's Winter White Protecting, which is in use with us from November till February. This is succeeded by Frogmore Protecting, and Melville's Hardy Scotch, a grand Broccoli. These again are succeeded by Cattell's Eclipse, which generally lasts till the beginning of June. I will not say the above are the best in cultivation (others may be as good); but if "Colo" or any one else will give them a fair trial, I think he will not wish for a change. The great difficulty is to get them true to name. Two years ago I had a quarter planted with Dilcock's Bride (a fine sort when true), but which were the most mongrel lot I ever grew. And for the same reason I have discarded Snow's Superb Winter White and several good old sorts. *J. M'Indoe, The Gardens, Bishopthorpe Palace, York.*

Graft Hybrids.—In continuation of my remarks on the subject of graft hybrids (see p. 334), I may say that I believe it is yet very imperfectly known, what Nature may be constrained to do, under judicious treatment. I suspect that various kinds of flowers may be altered in their tints by the process of grafting, and especially in the case of those which can be propagated by cuttings; and I am further of opinion (as are also some skilful florists with whom I have lately discussed the matter) that if this subject was thoroughly gone into, and experiments made, it would be likely to produce curious and important results upon Dahlias, Pæonies, and a great number of the deciduous herbaceous plants. At any rate, it is worth a trial. *Edward Fitzpatrick, Deputy County Surveyor, Tipperary Town, Ireland.*

Foreign Correspondence.

Gardening Notes from Russia (see p. 364).—In speaking of the coloured-leaved Pelargoniums, M. Enke finds it difficult to express his astonishment. "It is necessary to see such plants," he says, "in order to have a correct idea of their beauty. It is not only wonderful to see with what skill they have been grown, but to think of the great patience indispensable to attain such results. And yet the English are not satisfied. They hope to attain something still better. Some years ago, when Mrs. Pollock was introduced, gardeners supposed it was the very summit of perfection. But no: the English florists proved that it was possible to reach something higher in the culture of the Pelargonium. This was proved by the new varieties brought to the exhibition, and it is probable that they will soon be eclipsed by others still more beautiful."

After naming some of the best new sorts, M. Enke states that he thinks it would be well to keep out of the catalogues a great number of common sorts which have no particular merit, and cultivate only those that are the most beautiful and the most distinct from one another.

Respecting Calceolarias M. Enke says:—"Though we grow them well in Moscow, I never saw anything like such examples as were exhibited here. I could not have thought that the culture of these plants could have been carried to so high a degree of perfection. The greater number of those shown were of low growth, but a full archine in diameter. It may seem to some a mere fiction that a Calceolaria can be grown to an archine in diameter, but it is nevertheless true. I closely examined them, thinking that perhaps two or three might be growing together in one pot; but no—I found, as in the case of the Roses and Pelargoniums, every pot contained only a single plant. As for the variety of colours and tints, I should say that nothing better was possible. The pots, too, in which they were grown were proportionably small. I do not understand, however, why shrubby Calceolarias were not shown; they are so beautiful, and so worthy of a place in our gardens."

Of the collections of Reseda odorata, Cuphea platycentra, Heliotropes, and Fuchsias, M. Enke speaks in flattering terms. He takes a passing glance at the new plants and the Coniferæ, all of which excite his admiration, and then gives an account of the fruit and vegetables. Like almost all Grape growers in England he considers the Black Hamburgh and Muscats exceedingly fine sorts; but he says he was astonished that there were no ripe Plums shown, seeing that in Moscow, where the climate is not so favourable, they are plentiful enough as early as the beginning of April. I can only say that I have seen whole gardens of Plums in the environs of Poltova, which is a great deal further south than Moscow, but I never saw any so early as that; and no doubt M. Enke is speaking of Plums grown under glass, and in that case the climate has not so much to do with their culture as to make the fact remarkable. Gooseberries, he says, were not shown; and this, I think, is to be regretted, for I should say that not only are there more varieties of this fruit, but it is grown to greater perfection, in England than in any other country. Of course the month of May is too early for a general fruit exhibition; but still M. Enke was very highly pleased with what he saw.

In speaking of the vegetables, he recommends Russian gardeners to pay more attention to Seakale, as worthy of being more generally grown for table in this country. He says Rhubarb tarts are the most favourite dish of the English, but does not say that this vegetable might be grown here, because no doubt he does not think the Russians likely to imitate the English in this respect; and the fact is, the cooks in the houses of the gentry know nothing about the making of such tarts. I have never seen them, except where there happened to be an English governess or nursery-maid who could make them; and though the gentry are ready enough to eat them when thus prepared, they would never take the trouble to get their cooks to supply them.

M. Enke particularly admired the glass cases of seeds, and strongly recommends the directors of agricultural and horticultural establishments of every kind, whether on a large or small scale, to adopt such cases. "How often," he remarks, "do we not find gardeners who do not know the difference between many of the most common seeds?"

In the Agricultural and Horticultural Museum of St. Petersburg there is a vast collection of seeds in glass cases: I should say, the most complete collection I have seen on the Continent. But unfortunately the labels are not what they should be; not only are the names almost exclusively in Russian, but they are very often so badly written that it is difficult to make them out. If the names, at least, were printed in Latin as well as in Russian, it would much facilitate the investigations of those likely to feel an interest in such exhibitions.

In closing his long report, of which I have only noticed some of the more striking features, M. Enke says, "I sincerely wish this exhibition may have left the same deep impression on all other visitors that it has left on me; I am satisfied in the highest degree, and the pleasing remembrance of that gigantic undertaking will never be effaced from my mind. As the representative of the Horticultural Society of Moscow, I everywhere met with a friendly and hospitable reception." *K.*

Bangalore.—In your issue of the 26th December last, you give a list of trees in the Botanic Garden at Melbourne, on which the Loranthus pendulus and celastroides have been observed to grow. I now beg to add that this pest [which one?] is growing at the Neilgherry hills on the imported Australian trees, Acacia mollissima and Acacia Melanoxylon—to such an extent as to kill the parent trees, in several instances that came under my own observation when staying at Ootacamund about three years ago. It seemed to prefer the A. Melanoxylon, which may be synonymous with the A. longifolia of Dr. von Müller. This tree was formerly called A. robusta. In Mysore we have a great variety of indigenous Acacias, in the form of trees, shrubs, and trailers. At p. 7 you give an account of the Portulaca; it is our hot weather bedder *par excellence*. I have two beds of the single kind, which I also prefer to the double for brilliancy; the beds are 24 by 4 feet each, and of a morning the effect is grand. The plants are of different colours, but other smaller beds are of one colour each; the mixed bed, however, looks very gay. This so struck a wealthy native who visited me a few months ago, when the beds were similarly planted, that he asked for some seed, and on my paying him a visit last week I found he had made an excellent garden, in which beds of Portulaca were visible, also Géant des Batailles and Cloth of Gold Roses, and other gay flowers. I was at Nundidroog on the 31st ult., and, in what is called "Cunningham's Garden," the brilliancy of a bed of blue and white Larkspur, surrounded by Mignonette, was exquisite, and the fragrance of the various flowers most grateful, after a hot Jummabundy tour in tents. The thermometer in my house at Bangalore yesterday was 84; I have not the courage to look what it is in my tent.

At our last show at the market on the 31st December, 1868, there was a large variety of well-grown fruit, vegetables, and flowers; one Apple weighed 14 oz., and a few selected Potatos (20) turned the scale at 16 lb. The new Peaches, Plums, Vines, &c., received from England and France a year ago, are doing well under the fostering care of Mr. Nene, the superintendent of Laul Baugh, and we hope to improve our culture very decidedly in a year or two. Our Peaches, Apples, and Strawberries are now in perfection. The native gardeners pick them before they are ripe, and keep them in straw, but they are then quite different to the same kind ripened on the tree. Our shows are gradually convincing them that it is to their advantage to produce quality over quantity. We have been very successful with Geraniums, Lobelias, and Nasturtiums, and with many other flowers that formerly were thought not to succeed at Bangalore. The Centaurea candidissima and Salvia argentea thrive admirably, as does the Iresine Herbstii; Caladiums and Begonias make a luxuriant growth. Colonel Boddum, who has relieved me of the secretaryship of our society, takes special interest in the flower department, and it is to his zeal we are indebted for the stride we have taken in it. Others, also, take much interest in the other departments, so that we confidently look forward to a general agricultural and horticultural improvement. *J. Puckle, Mysore Commission.*

Societies.

Royal Horticultural: *April* 6.—Major Trevor Clarke, in the chair. The usual preliminary business of the meeting being concluded, the Rev. J. Dix announced the awards of the Floral Committee, and G. F. Wilson, Esq., those of the Fruit Committee.

The Rev. M. J. Berkeley then exhibited further specimens of branches of Elms studded over with gnaurs, sent from the Society's garden at Chiswick; they were not so handsome or regularly studded over as the specimen produced by Mr. Bateman at a former meeting, and on examining them he (Mr. Berkeley) had found on some of the specimens one developed bud, and on others more, as in the specimens he had found in Rutlandshire. Mr. Berkeley then read the following abstract from the communications relating to the preservation of Apples, received from the different growers who competed for prizes on a recent occasion:—

"1. As the flavour of fruit is so easily affected by heterogeneous odours, it is highly desirable that the Apple and Pear rooms should, if possible, be distinct from each other.

"2. That the walls and the floor should be annually washed with a solution of quicklime, to which common salt is sometimes added.

"3. That the room should be perfectly dry, kept at as uniform a temperature as practicable, and well ventilated; but that there should not be a thorough draft, which would cause the fruit to shrivel.

"4. That the utmost care should be taken in gathering the fruit, which should be handled as little as possible.

"5. That for present use the fruit should be well ripened; but if for long keeping, it is better, especially with Pears, that it should not have arrived at complete maturity. This point, however, requires considerable judgment.

"6. That no imperfect fruit should be stored with that which is sound, and that every more or less decayed specimen should be immediately removed.

"7. That, if placed on shelves, the fruit should not lie more than two deep, and that no straw should be used.

"8. That where especially clear and beautiful specimens are wanted, they may be packed carefully in dry bran, or in layers of perfectly dry cotton-wool, either in closed boxes or in large garden pots. Scentless sawdust will answer the same purpose, but pine sawdust is apt to communicate an unpleasant taste.

"9. With care early Apples may be kept till Christmas, while many kinds may be preserved in perfection to a second year."

Mr. Berkeley then remarked that the second recommendation was open to objection, on account of the salt inducing dampness. He also remarked that the imported New Town Pippin Apples were deteriorated in flavour by being packed in Pine sawdust. He then directed attention to a small specimen of Thrixspermum luniferum, not as an object of beauty, but of curiosity, as the plant in question threw up at different times spikes of bloom, but seldom made any growth as regards producing leaves; and another very interesting physiological fact was that the aërial roots produced by these leafless plants contained chlorophyll, and thus were enabled to fulfil the functions of leaves. Alluding to the prizes offered for the species of Narcissus, Mr. Berkeley stated that the object of the prize was to encourage the growth of as many distinct forms of this genus as possible, and to insure as large a collection as could be got together. He then called attention to the species of Cephalotaxus exhibited by Messrs. Lee, and stated that he believed C. drupacea to be merely a variety of C. Fortunei. The latter plant had at one time been considered dicœcious, but in the gardens of the Lord Chief Baron Pollock ripe fruits have been observed on the same plant with the male flowers. A flowering branch of Picea Pinsapo was exhibited, and other instances of the plant having flowered were mentioned. Attention was called to a yellow-flowered Rhododendron, supposed to be a form of R. Brookeanum; and reference was made to a plant exhibited at a former meeting, and which had been determined to be Callicoma serratifolia, a plant introduced as long ago as 1783. Alluding to the general fact that it is rare to have two fine crops of Apples in succession, Mr. Berkeley remarked that this year, as last, the blossoms were very abundant. With reference to Pear blossom, he remarked that he had never seen it injured by frost whilst in bud, but when the flowers opened the stigmas were very liable to be hurt by frost. Some fine specimens of a species of Peziza, found growing under Cedar trees, were noticed; similar specimens had been exhibited on a previous occasion by Mr. Edmonds from Chiswick House.

Major Clarke made some remarks on a small flower of Gladiolus, of a pure blue colour, and to the night-scented Gladiolus tristis. He then exhibited a plant of Hemerocallis japonica, sometimes called Funkia subcordata, a plant rarely seen in flower, owing to its cultivation being misunderstood; the plant was perfectly hardy, but rarely flowered out-of-doors, though in a warm greenhouse it flowered well, under certain conditions. Its flowers were formed in the centre of the crown, if that crown was well developed and the smaller lateral buds removed.

Mr. Bateman, amongst other remarks concerning the Orchids exhibited, alluded to other leafless species among the Epidendrums and Angræcums, and to the pleasure that he experienced in seeing the Messrs. Rollisson again exhibiting Orchids as they had done many years ago, before most of our present race of Orchid growers had appeared.

Scientific Committee.—Dr. Thomson, F.R.S., in the chair. Present—Major Clarke, Dr. Hogg, Mr. Bentham, Mr. Horne, Dr. Welwitsch, Mr. A. Murray, Mr. G. F. Wilson, Dr. Masters, Mr. Stainton, Dr. Voelcker, Dr. Gilbert, and the Secretary, the Rev. M. J. Berkeley. After the transaction of the formal business the Secretary read a communication from Mr. D. T. Fish, relating to the growth of Beetroot sugar, in allusion to previous remarks at a former meeting of the Committee. In the course of the discussion it was stated that in Northern Germany the Beetroot was used in the manufacture of Hamburgh sherry. Mr. Bentham stated that in France the culture of Beet for sugar had been found profitable to a few who could afford to invest a large capital, and to wait for the returns. It was stated, on the authority of Prof. Westwood, that the cockroach exhibited at the last meeting was Blatta melanocephala, a species native to India and the Indian archipelago. Mr. I. Anderson-Henry sent a communication relating to Cupressus Lawsoniana and C. fragrans. The male flowers of the former were stated to be bright pink, those of C. fragrans much paler. Mr. A. Murray considered the two species distinct, though indistinguishable by the foliage alone. If bruised, however, the shoots of C. fragrans emitted a well-marked fragrance. Dr. Kellogg, of California, had discovered the Fragrant Cedar, and called it the Mount Ophir Cedar. Mr. Berkeley exhibited some leaves of Pelargonium affected with spot, produced by the chill accruing from a drop of water.

Dr. Welwitsch exhibited a slab of the wood of Herminiera Elaphroxylon, a tree growing in water and in damp places in tropical Africa. The wood is particularly light, and might well be used, could it be readily obtained, in place of cork for entomological purposes. The tree is closely allied to Æschynomene, the species of which have a similar light wood, used in the fabrication of pith helmets. Mr. G. F. Wilson showed a specimen, in bloom, of Lilium Thomsonianum, a North Indian species, of remarkable form as regards the bulb and the flowers. The specimen exhibited gave little idea of the beauty of the plant grown in its native country, but as it has only recently been introduced into this country it will no doubt improve on longer acquaintance. Specimens of diseased Apple shoots from General Munro, of diseased Peach-wood from Mr. Muir, and of similar shoots from Mr. Fish, were laid on the table, and will be reported on at the next meeting by Mr. Berkeley. Mr. Horne exhibited some saw-flies (Selandria), which he had observed to affect the Watercress grown in India from English seed. Dr. Hogg reported that the seeds of the Grasses, &c., had been sown at Chiswick with the view of ascertaining the effect of various manures on the composition of mixed herbage. Major Clarke exhibited a Coleus with thick stem and very large leaves, produced by continually depriving the plant of its lateral shoots. The same gentleman also showed the two forms of Ficus stipularis, the small-leaved form grown against a wall, and the larger-leaved form, which is borne on shoots removed from the wall or grown as standards. Major Clarke also exhibited flowers of the night-scented Gladiolus tristis.

The meeting then adjourned.

Floral Committee.—Rev. J. Dix in the chair. This was a full meeting, so far as regards subjects of exhibition, and several novelties of interest were brought forward. Unfortunately the day proved wet, so that few visitors could be present. Mr. Williams, Holloway, sent a Cœlogyne, supposed to be ocellata, a pretty dwarf plant, with a raceme of pure white flowers, marked on the lip with a large yellow blotch, which was bordered by a red line. From Mr. Bull, Chelsea, came Ficus eburnea, a fine species of bold character, with clean, glossy, subcoriaceous ovate leaves, marked with white ribs, in the way of F. leuconeura. Mr. Green, gr. to W. W. Saunders, Esq., sent the dwarf-habited Agave De Smetiana, one of the smaller growing species, in which the leaves have a pale brownish margin, broken up by irregular, coarse, flattened spines of the same colour, varying in form, and curving in different directions. From G. Wilson, Esq., came a well-bloomed plant, received from M. Leichtlin, of the Anthericum-like Lilium Thomsonianum—a curious species, with an inflorescence branching from the very base, about a foot and a half high, bearing numerous narrow-petaled, pale pinkish flowers, the leaves long, narrow, and flaccid. All the foregoing received First-class Certificates; as did also a yellow-flowered Eastern Rhododendron, with narrowly ovate lanceolate glossy acuminate leaves, and showy clear yellow flowers, which was supposed to be the same as one previously shown under the name of R. Brookeanum flavum, but to which the designation of R. Lobbianum had been applied. This was exhibited by Messrs. Veitch & Sons, of Chelsea. A First-class Certificate was also awarded to Cineraria Orb of Day, from Messrs. F. & A. Smith, Dulwich, a variety showing remarkable richness of colouring, the florets being of an intense velvety crimson, with a narrow zone of white next the grey disc. A Second-class Certificate was awarded to Cymbidium tigrinum, a very distinct looking plant, with long olive-tinted sepals and petals, and a white lip marked with transverse bands of purple, from Messrs. Veitch & Sons; and also to a fine variety of Oncidium nubigenum, from Mr. Bull.

Among the awards for collections, the following may be noted:—Special Certificate to Messrs. Veitch for a fine and varied collection of plants in flower; to Messrs. Rollisson & Sons for a handsome group of Palms, Camellias, &c.; to Mr. W. Paul, Waltham Cross, for a beautiful collection of pot Roses; to Mr. Williams for a showy group of Orchids, and another for greenhouse plants; to Messrs. Smith for Cinerarias, Variegated Zonal Pelargoniums, and other plants; to Mr. Turner for some finely grown Variegated Zonal Pelargoniums; and to Mr. Lawrence, gr. to the Lord Bishop of Winchester, for a very fine example of Odontoglossum luteo-purpureum. In a group of Cinerarias sent by Messrs. Dobson, Isleworth, Princess Teck, a dwarf-habited white, with dark eye, elicited some criticism, but was considered too coarse. Mr. Sherratt, gr. to J. Bateman, Esq., sent trusses of Rhododendron Batemani, a Bhotan species, with purplish-crimson black-spotted flowers, but suitable only for indoor culture, and for that purpose far surpassed by many others. Messrs. Rollisson had in their group a good example of Angræcum sesquipedale, and three handsome striped Camellias—Bonomiana, Lavinia Maggi, with more numerous, and La Reine with fewer stripes. From Mr.

Bull came Euonymus japonicus, the young shoots of which at this season assume a golden hue; Nidularium Pinelli, a Brazilian species, with the central leaves rosy-red; one of the forms of Cattleya Trianæ sent as quadricolor; highly coloured and finely-developed samples of Sophronitis grandiflora; a South American Bignonia called mirabilis, with long elliptic, bronzy-green leaves, marked with grey ribs and veins, but too young to form any opinion on; and a flowering plant of the rare old Strelitzia juncea. Messrs. J. & C. Lee sent six plants of Cephalotaxus, showing certain differences of character, some of which were monœcious. In Mr. Williams' groups were three forms of Vanda tricolor; a good Phaius Wallichii; and a second smaller-flowered and inferior white Cœlogyne; also a white Primula sinensis called alba magnifica, with red stalks and white blossoms, closely resembling that shown by Mr. W. Paul at a previous meeting, but thought to be less pure in colour. Messrs. F. & A. Smith showed Azalea Advancer, a variety resembling Frost's Perfection, both in form and colour, but apparently even more perfect in form, though as the plant was in a starved condition the blossoms were small, and not well developed; a second, called Nimrod, was of a dull orange-red. Mr. W. Paul had a very distinct cream-coloured Hyacinth, called Sonora, which deserves notice for its dissimilarity to all others; also Prince Leopold Rose, a deep purplish crimson, of some promise, and said to be a climber. Messrs. Veitch & Sons sent several plants of Azalea James Veitch, a bright deep rose, very effective in colouring, and, as exhibited last season in Ghent, a first-class sort, but on this occasion the flowers were small, and too much crumpled to suit the critical eye, probably the result of over forcing; the curious Thrixspermum luniferum, a minute Orchid, all flowers and roots; the purple-spotted Oncidium cucullatum; half-a-dozen well-bloomed Hoteias; a small sample of Oncidium macranthum; and a very beautiful specimen of the rosy-tubed Rhododendron Countess of Haddington. Messrs. Paul & Son sent a Camellia, called Glory of Cheshunt, which was considered to be undistinguishable from Valteveraio. Cut specimens of a fine hybrid Rhododendron, too near Sesterianum, and apparently an identical cross, were sent by Mr. Whiting, of the Deepdene. In the collection of plants from Mr. Saunders' garden were two species of Neottia, with dull greenish flowers, one of which, from Santa Martha, had ovate bronzy leaves, beautifully spotted with white. Pelargoniums of the variegated zonal, gold and bronze, and other zonal sections, were sent by Mr. Turner, Mr. Badman, and Mr. Laxton, but the Committee determined, as in previous years, that these plants could not be satisfactorily criticised before the date of the Pelargonium show, where they will form the special feature. Samples of the Coleus Princess Royal and Duke of Edinburgh came from Mr. Turner and Mr. Bull respectively; and a basketful of the charming Fuchsia Regalia, a golden-leaved sort, from the Society's garden at Chiswick, where it was raised.

Fruit Committee.—On this occasion the following prizes for Cucumbers were offered for competition:—1. White-spined Cucumber, one brace, of one sort only (open), 1*l.*, 10*s.*; 2. Black-spined Cucumber, one brace, of one sort only (open), 1*l.*, 10*s.*; 3. Smooth Cucumber, one brace, of one sort only (open), 1*l.*, 10*s.*; 4. Six Cucumbers, not confined to one sort (open), 2*l.*, 1*l.* In Class 1, Mr. T. Lockie, gr. to F. W. Berger, Esq., Court Gardens, Great Marlow, exhibited a fine brace of Berkshire Challenge; Mr. Godfrey, gr. to J. Anderson, Esq., Ankerwyke House, Wraysbury, sent Anderson's Perfection; Mr. May, East Dene, Bonchurch, Isle of Wight, contributed Perfection; and Mr. B. S. Williams, Victoria Nursery, Holloway, exhibited Holloway Rival. The 1st prize was awarded to Mr. Lockie, and the 2d to Mr. Godfrey. In Class 2 there was no competition. In Class 3, Mr. Gilbert, gr. to the Marquis of Exeter, Burghley, contributed a fine brace of Telegraph, the true variety. Mr. Cadger, gr. to J. Shaw Leigh, Esq., Luton Hoo, Beds, sent a large brace of Cox's Volunteer. Mr. Gilbert received the 1st prize, which was the only award made in this class. In Class 4, for six Cucumbers, not confined to one sort, the 1st prize was deservedly awarded to Mr. T. Lockie, who contributed six handsome fruit of a variety named Blue Gown, measuring 22 inches in length, symmetrical throughout, and covered with a fine bloom. The variety is a black-spine, and is the result of a cross between Turner's Favourite and Telegraph, but much more closely resembles the former than the latter. Mr. Godfrey also contributed Anderson's Perfection in this class, and was again placed 2d. Mr. Parsons, gr. to R. Attenborough, Esq., Acton Green, exhibited Gunner's Green, a very useful variety. Mr. B. S. Williams, Holloway, sent six fine fruit of Telegraph, but they were rather pale in colour. Mr. Hallett, gr. to Colonel Graham, Cossington House, Bridgewater, sent Hallett's Perfection, which was by no means perfect in shape, being for the most part club-ended; and Mr. Cadger contributed three very nice and even black-spined Cucumbers, and three of a smooth variety, the latter rather out of condition, which prevented them from taking a prize. A very handsome brace of a seedling white-spine variety, about 15 inches in length, was sent by Mr. W. Hollah, gr. to H. Saville, Esq., Rufford Abbey, Notts, but it unfortunately arrived too late for competition. Amongst miscellaneous subjects exhibited was a very good dish of early Potatos, named Prince of Wales, from Mr. Cadger, Luton Hoo. Messrs. Maule & Sons, Bristol, sent a dish of small, finely coloured Apples, named Easter Beauty, the flavour of which was not very remarkable. Mr. Beech, Castle Ashby, sent a seedling Apple somewhat resembling Wellington in appearance. Mr. B. Ord, Whitfield Hall, Haydon Bridge, exhibited two specimens of a seedling Apple, possessing considerable merit, which the Committee wished to see again next year, as the fruits were rather past their best. Mr. G. Craddock, gr. to Lord Willoughby de Broke, Compton Verney, Warwick, contributed some exceedingly well-grown specimens of Shaddocks and Seville Oranges. Mr. Calver, gr. to Sir H. G. Cotterill, Bart., Garnons, Hereford, sent a well-kept bunch of Lady Downe's Seedling Grape, of excellent flavour. Mr. T. Lockie, gr. to F. W. Berger, Esq., exhibited a handsome dish of Reinette du Canada Apples, grown in a 10-inch pot in an orchard-house, to which the Committee awarded a Special Certificate. A sample of Mushroom spawn, sent by Mr. G. J. Edwards, Money Cottage, Godalming, was also exhibited.

Messrs. Lane and Sons' Exhibition of Spring Flowering Plants.—This fine display of spring flowers, which opened on Wednesday last, is held in the Eastern Conservatory Arcade, the whole of which is filled with a very gay collection of flowering plants, supplied by the above firm, consisting of a fine bank of exceedingly well-bloomed Roses, other equally fine banks of gorgeous Rhododendrons, dwarf and standard Azaleas, Deutzias, Spiræa japonica, and various miscellaneous spring-flowering plants, intermingled with which are some fine plants of Aucuba japonica in fruit, some well-furnished specimens of Thujopsis dolabrata, and various varieties of Cupressus, the graceful form and lively green colour of which forms a favourable contrast with, and somewhat tones down the bright colours of, the more showy plants with which they are associated. There are also some nice bushy plants of the Holly-like Osmanthus Aquifolius, and other plants equally interesting. The whole is tastefully and effectively arranged, and reflects great credit on the Messrs. Lane. The exhibition, which has been visited by their Royal Highnesses the Prince and Princess of Teck, will continue on view until Friday next, April 16, and it is well worthy of an inspection by all who may be enabled to visit the garden.

Notices of Books.

Insect Architecture. By James Rennie. New edition, much enlarged by the Rev. J. G. Wood, M.A., with 186 illustrations. London: Bell & Daldy. Pp. 139. The original edition of this work appeared more than 40 years ago, and formed one of the volumes of the Library of Entertaining Knowledge. Its author was Professor of Zoology at King's College, London, and those who are acquainted with Kirby and Spence's Introduction to Entomology (and who is not?) will have no difficulty in guessing at the fountain from which he mainly drew his supplies. Nevertheless, he recorded many original observations, and produced a very interesting handbook. The Editor of the present edition informs us that the proprietors, believing that much additional knowledge of the subject has been obtained since the book was written, have asked him to supply further characteristic examples of insect architecture. In compliance with this request, he has increased the size of the work to half as large again. The additional pages contain a fair proportion of illustrations, chiefly taken from foreign specimens to be found at the British Museum; while the published labours of Mr. Frederick Smith have been mainly instrumental in furnishing the new matter, original observations by the Editor being rarely alluded to. The subjects of the Mason Wasps, the Social Wasps, the Saw Flies, the Mason Bees, and the Spinning Caterpillars, are those which have been principally added to; but amongst this additional matter there is very little to interest the gardener, compared with the contents of the original work. Attention is, however, directed to a species of humming-bee, called Crabro luteipalpis, which "is fond of making its burrows in the mortar of old walls, preferring those spots where nails have been drawn, making the process of burrowing easier for the insect. It is not uncommon in the outskirts of London. All gardeners, especially those who cultivate Roses, ought to encourage this very little insect, and welcome its presence, for it provisions its nest with the aphides or green blight which infest the Rose-trees, and which have destroyed so many promising plants." One other insect (Cerceris arenarius) is referred to as being useful to the gardener from its predilection for capturing and storing up weevils of different kinds in its burrows as food for its young: it has been seen to take the nut-weevil, and the weevil which attacks our succulent plants; let us hope that it also pays some attention to that other garden weevil with red legs (and a long, unmusical name), which injures the blooms of Apricots, Peaches, and Plums, by devouring the centre of the bud.

The Editor informs us that he has not been at liberty to alter or expunge any of the original letterpress, which perhaps is as well; for the additions do not exhibit that care which we have a right to expect, bees being described under the title of Mason Wasps, and ichneumons, living upon the caterpillar of a cabbage butterfly, being referred to under the thrice-repeated heading of "Grub Parasite in the Snail"! These, and sundry other shortcomings, induce us to regret that the bringing-up of Mr. Rennie's work upon Insect Architecture to the present state of knowledge had not been entrusted to some more experienced entomologist, since there are several who are well qualified to have undertaken the task, and who would not have been chargeable with such an infringement of the rules of grammatical construction as occurs in the extract which we have made.

The Apiary.

Non-Swarming Hives.—In the reply to "P. G.," p. 365, it is stated that "we have worked hives for three or four seasons without their having once swarmed, obtaining large harvests of honey from them every favourable year." I have frequently exceeded this time with non-swarming hives, and have kept them in perfect strength up to the sixth and seventh season. In 1858 I hived swarms into two straw hives with flat wooden tops, for supering. One of these remained healthy and populous for six and a-half years, working well in supers nearly every season, and never, to my knowledge, sending out a swarm. Fearing that the combs must be nearly worn out, I destroyed it, uniting the bees to another stock. The central combs were nearly filled with healthy brood in all stages, and I much regretted having sacrificed the stock.

The second hive, during its existence of seven years, having been allowed to remain in the apiary for nearly another year, had only swarmed once during that period. In the early summer, as the population seemed dwindling away, I drove out the bees, and broke up the stock. I discovered a fine queen, which was to all appearance decidedly a very young one, with a large quantity of unsealed larvæ. If the hive had been left unmolested, I have no doubt it would have soon become both populous and prosperous. It was evident that the bees had raised a young queen within the past two or three weeks. I believe this is more often done than the bees are given credit for. In other instances I could mention, wherein hives have not swarmed for three or more seasons, I have found, on inspection, that they were in possession of queens which had all the appearance and attributes of young and prolific queens, leading me to the belief that they had more or less recently been substituted for old and worn-out mothers.

As I generally have maintained my apiary up to a certain numerical strength, I have not been very anxious to have swarms; so that the hives have been almost entirely worked for a honey-harvest. I have depended for the due supply of swarms, for filling up any deficiencies that might from time to time occur, to such as would issue in spite of all precaution to the contrary, or to such as I made artificially from selected stocks—chiefly Ligurian. Where only a limited supply of hives can be kept, I believe this to be the best practice. *S. Bevan Fox.*

Death from the Sting of a Bee.—Mr. Samuel Perkin, of Beardon, near Launceston, has died from the sting of a bee. The deceased had removed a hive of bees, and in moving them had broken the combs. A day or two after he went to look at the bees, and while doing so was stung by one of them in the neck, in or near the jugular vein. He immediately felt faint, and died in less than 15 minutes. Deceased being naturally very timid in regard to bees, the shock to his system was felt so keenly, as to cause a sudden stoppage of the action of the heart. *From the Western Chronicle of Current Events.*

Garden Memoranda.

Bicton Gardens, the Seat of the Right Hon. Lady Rolle, Budleigh Salterton, Devonshire.—Bicton gardens and their able manager, Mr. James Barnes, are so well and so honourably known that it would seem almost an impertinence to attempt to introduce either of them to your readers. We will therefore at once plunge into the eastern park, through the handsome lodge on the Budleigh Salterton road. No sooner do we enter the gates than one of the grandest features of Bicton, and one of the most unique in Europe, is displayed on each side of the carriage road. A noble avenue of Araucaria imbricata extends the whole way from the lodge gates to the boundary of the inner deer park, the sight of which imparted a sensation wholly new, reminding one of what avenues of Prickly Pears or such Cereuses as speciosissimus might become under cloudless skies and tropical suns. These Araucarias range from 28 to 30 feet in height, from 18 to 24 feet in width of branch, and from 4 to 5 feet in circumference of bole. The trees are planted 50 feet apart in the rows, and 50 feet from each side of the carriage road. They thus stand 50 feet by 100 feet. They vary considerably in habit, colour, and size; but this, while a disadvantage to a certain extent for avenues, gives an individuality to the trees that endows them with something akin to a personal character, so that while the whole are beautiful, and each is sufficiently like its neighbour, yet each tree becomes almost a study in itself.

Neither do these differences arise wholly from sexual distinctions. On the contrary, these do not seem to modify form, colour, or habit to any perceptible extent; for even so good an authority as Mr. Barnes declines to hazard an opinion about the sex of Araucarias, until he has ocular demonstration from the appearance of the male catkins or embryo cones. Up to the present date 15 or 16 of these trees have proved themselves male plants by producing catkins, while only one in the avenue has produced cones or ripened seeds. However, other plants in different parts of the grounds have produced cones for many years, and there are numbers of Araucarias at Bicton, from 4 to 5 feet high, that have been raised from seed ripened at home. To ensure success artificial impregnation is requisite to this extent:—Mr. Barnes gathers the catkins of the male trees, and suspends them over the embryo cones; in this way the fructification and maturation of the seeds is effected. The seeds ripened at Bicton have proved of the best quality. The long catkins have a striking effect; the cones are handsome. The credit of ripening the seeds is wholly due to Mr. Barnes, as, had he not discovered his simple mode of fructifying the cones, the probability is that they might never have been matured in England.

Just inside the lodge gates a group of Wellingtonia gigantea is planted in a very exposed position, where the trees encounter the full force of the east and north-east winds. Notwithstanding this exposure, they are in robust health, and range in height from 22 to 24 feet, with a diameter of branch of 36 feet, and a circumference of bole of 5 feet 6 inches; they have likewise produced abundance of cones, and a few of them some male catkins. Still, having seen the Wellingtonia in many situations, I believe a somewhat sheltered locality and a moist soil are the likeliest conditions for ensuring rapidity of growth. Fine as the Araucarias are in this avenue, there are some still finer just inside the deer park, and in different parts of the magnificent arboretum. Some of these latter bore cones many years before those in the avenue. Entering the arboretum near the deer park, we are soon in the middle of the pinetum. But it is more like a forest of fine Pinewood, than the usual collection of tiny trees that one meets with. Many of the specimens are large enough to be converted into good-sized deals. Most of them have attained to the dimensions of respectable timber trees. It is astonishing how time, age, and size, modify the character of many Coniferæ. We found ourselves constantly at fault among these splendid specimens. The ground itself is enchantingly undulated and artistically disposed. Here is a secluded, sheltered valley, and there a bleak knoll; then a sunny southern bank, and again a shaded, cool, northern aspect. Water adds its never-failing charms to the greenness of the Grass, and the rich beauty and variety of the trees and shrubs. The lake is visible from so many points, and looks so different from each, that one is often tempted to exclaim—What! another lake! It covers about 30 acres of ground, and abounds with islands, furnished with choice waterfowl, and planted round with a rich and varied vegetation.

As we travel onward we meet a constant succession of changes, and new and fresh scenes. Though the walk or drive is long, it never becomes monotonous. There are rockworks to be admired, temples in which to worship the beautiful, summer-houses to rest in, American gardens and rosariums to pass through, Swiss cottages to be explored, and grand trees and shrubs everywhere to challenge our admiration. Near

the Swiss cottage there are some very fine specimens of standard Laurustinus, Rhododendrons, Cedars, &c. Within the cottage there are some most interesting relics, amongst which are two of the chairs of Sir Walter Raleigh. In another part there is a large well-filled aviary, badger and other houses, &c. And thus as we pass on and on through scenes of vernal loveliness, the mind is relieved by other features of interest, and we find that Mr. Barnes' strong mind and warm heart include in their wide embrace all animated nature. He delights almost as much in the sight of a rare bird or wild animal as in his grand collection of plants and trees. When we reached the tower, we found it a large fort-like building, the basement floor supported by retaining walls, on which miniature cannon were mounted. The bottom of the building forms a dwelling-house for a family, the second and third storeys contain a large and rare assortment of valuable china, and the upper storey and battlement afford a magnificent view of the surrounding country and the sea. *F.*

(To be Continued.)

Obituary.

On the 3d inst., at Newmarket Road, Norwich, where she had resided since the death of her husband, Sarah, widow of the late Professor Lindley, in the 75th year of her age. Those who knew Dr. Lindley in the busiest years of his active life, well know how greatly he was aided in his labours by his zealous and amiable consort; and those who were acquainted with him in later years will remember the unflagging devotion of the wife. She will live long in the memory of those who had the happiness of her acquaintance.

Miscellaneous.

Apples as Single Lateral Cordons.—The quadruple lateral cordon is a tree well adapted for the edging of the borders of the kitchen garden. It is merely the double cordon repeated; and we must suppose the two branches of the double cordon to be trained 9 inches from the surface of the ground, and above them, at about 9 inches distance, two other branches in the same direction; this will give the quadruple cordon, or low espalier edging tree, occupying no more space than the single cordon, and giving double its produce. The stem of the short crook for single or double cordons should be 20 inches long; that of the longer one, for quadruple cordons, should be 28 inches long. *Rivers' Miniature Fruit Garden.*

Garden Operations.

(For the ensuing week.)

PLANT HOUSES.

Anœctochili, which undoubtedly in their markings are the most beautiful of all ornamental foliage plants, will now require attention. It will be advisable to fresh pot them all, and to remove such of the old soil from around their roots as can be done readily, so as the more efficiently to perform the operation of shifting them on. The whole compost will have become more or less soured, in consequence of the need that existed during the past growing season to keep them constantly well soaked with water. The compost which we are in the habit of preparing for them is made up as follows:—well-dried sphagnum, chopped up very small, three parts; washed and dried silver sand, two parts, and clean potsherds broken very small, one part. These ingredients should be thoroughly incorporated together, and in potting they require to be pressed firmly, but with due care, around the delicate creeping succulent roots, which are very liable to injury. The pots should be filled to one-fourth of their height with crocks of moderate size, not tossed in loosely, but packed up regularly, as this plan not only affords a free drainage for the surface water given, but furnishes a channel for the ascent of water from saucers placed underneath the pots. Immediately the plants are potted, each pot should receive a thorough soaking of clear tepid water. The glasses should afterwards be quickly placed over them, and greater attention in regard to wiping these glasses dry daily will be needed. The old, hard-caked surface, having given way to a more open, porous material, a denser volume of moisture will constantly arise, and with much benefit. All recently potted plants, of whatever sort they may be, should now be very carefully managed in the matter of watering. Whenever water is given to the roots let there be no doubt but that every part receives uniformly an efficient soaking. In a general way, it is better to let the surface soil upon the balls of all freshly potted, and indeed of all fresh surfaced plants, become moderately dry before the first good soaking is given. This obviates the tendency which close and consistent soils have to cake. It is equally necessary, if from any cause this precaution has to be set aside, to move the surface crust with the fingers after the first watering, and with a like object to allow the same to become moderately dry before another watering is given. As I write it does not seem at all necessary to advise that shading be afforded to all freshly potted plants, and especially such as have had their roots materially reduced. The present dulness, however, will only increase the necessity of such care whenever the sun does shine more brightly. Atmospheric moisture should be freely afforded. Close all lights early on the afternoons of days when air can be afforded, and by occasionally showering tepid water over the surface foliage with a syringe or a watering-pot, having a fine spray rose, try to induce reciprocity of action between the roots and leaves. *Camellias* are in general very forward this season, both as regards earliness of bloom, and subsequent quickness of growth. This latter, I fear, if care is not taken to keep them back as much as possible, will tend to a rather early maturation of the young shoots, and thus bring on too early flowering. Where any plants have a tendency to make too much wood, or become drawn, it would be well to prune back the leading shoots of last year's growth; or, if there is any objection to such violent means, the young buds now in process of formation at the points of last year's wood may be pinched off with the finger and thumb. Plants treated upon this latter principle will be somewhat checked, and so the retarding process may be successfully carried out.

FORCING HOUSES.

The atmosphere in *Early Vineries*, containing Grapes which have finished swelling, should now be kept rather dryer than previously. I am much opposed to the process of deluging the bunches periodically with water after they have attained to a certain size, and I may here repeat that no water should by any means be allowed to come in contact with them. Those having *Late Vineries*, in which they may be endeavouring by every means to keep back the Vines, should be careful not to push the retarding process beyond reasonable limits. Better to set them gently growing, than to risk a check, from which they may not perfectly recover. Amateurs or others having Vines growing up the rafters, in houses containing mixed plants, should now—during a mild day—thoroughly cleanse the house, and so far as possible, every plant that is in it. If perfect immunity from insects cannot be secured thus early, what hope can there be of success hereafter? *Peaches* and *Nectarines*, in whatever stage of growth, should now have a plentiful supply of fresh air, early, on mild and sunny mornings. If it is desirable to hasten any forward, do not attempt to do so at the expense of giving air, but have resort to rather earlier closing in the afternoon. Forced *Strawberries* may now receive a full current of air upon all mild and fine days; and, excepting where ripening fruit are hanging upon the plants, an abundance of water should be given over all their parts. The more air that can be afforded, so much the stronger may be the liquid manure used in watering. Now that by such aids the leaves have become well hardened and matured, these will be the better able to turn this nourishment to good account. I have frequently urged the objection to leaving stale waterings in pans or saucers, for any length of time together, under these or any other kind of plants. These pans or saucers should be emptied and cleansed as often as may be convenient. Independently of the injurious effects of souring the balls, it is not natural for plants, purely non-aquatic in their nature, to be always glutted with the liquid element. By allowing the plants to become occasionally dry at not too distant periods, a quick growth will be more readily insured in the future.

HARDY FRUIT GARDEN.

Should a mild and more favourable growing period return by the time this is in the hands of the reader, I would advise that nothing be done yet in the way of disbudding or pruning wall-fruit trees, even in instances where some advance in the matter of actual growth has been made, under any form of protective materials. Rather let the somewhat deranged functions of the trees—caused by the late extremes of weather—right themselves before any mutilation be undertaken, even of the most necessary kind.

HARDY FLOWER GARDEN.

Auriculas should be carefully shaded during bright sunny periods. This is best done by means of thin calico, stretched upon a slight framework, and fixed sufficiently high above the plants not to impede the free current of air which is needed around them at all times. *Polyanthuses* are pushing up their flower-spikes very irregularly and prematurely. Where late displays are in contemplation, it is possible these may yet be secured by pinching the buds carefully back as soon as perceived. Hoe over or otherwise loosen the caked surfaces upon all *Ranunculus*, *Tulip*, and *Anemone* beds, &c. In a general way it will be necessary, in all instances where neatness is aimed at, to hoe and rake over the the surfaces of *Herbaceous borders*, or others of a permanent character, which have already been dug, as they have become somewhat green, and require such attention.

KITCHEN GARDEN.

Where there is a demand for *Scorzonera* and *Salsify* early in the season, a little may now be sown for the first crop. Make sure of an early supply of *Dwarf French Beans*, by sowing a few in small pots to turn out early, when all danger of frost is past. I perceive the earlier *Potatos* are already pushing through the ground. It will be necessary, therefore, to draw the soil lightly to and over them as a protection against frost. Pot off *Tomatos* and *Chilies*, or *Capsicums*, the former into 60-sized pots, which they may be induced to fill with roots, with a view to checking the vigour of each, and of conducing to greater fertility. *W. E.*

TOWN GARDENING.

Continue to sow annuals, as directed last month. Shrubs that have been replanted should now receive a good soaking of water at the roots, and be syringed over the tops, as this is of the utmost importance in regard to their future growth, and should not be neglected by any means. Rhododendrons are most useful shrubs for town gardens, as they can be moved in full bud without the slightest injury, and will flower freely, making a gay show for a month. If they are removed back to the country when done flowering they will not be materially injured. Therefore, a beautiful display might be produced for a month at a very small cost, if the plants could be hired from the nurseryman. Small Salading can be successfully grown in the most confined gardens: and as green food is so essential to the health of townsmen, I do not think it out of place here to give a few hints on the cultivation of Mustard and Cress. In the first place, it is desirable that a little fresh soil should be obtained; and, whether the seed is to be sown in boxes or in the open ground, a thickness of about three inches of soil will be sufficient—this should be gently beaten down level. The Cress should be sown a few days before the Mustard, and when this is done it should be covered over with woollen serge (not soil), and be well watered. The Mustard seed may be sown in the same manner; and by these means they will both be ready to cut at the same time, and the salad will be as clean and as crisp as if grown in the country. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending April 7, 1869, as observed at the Horticultural Garden.

April.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind	Rain.
Thurs. 1	19	29.865	29.824	50	21	35.5	42	41	N.E.	.00
Friday 2	20	29.759	29.551	52	36	44.0	41	41	S.W.	.08
Satur. 3	☾	29.451	29.311	48	33	40.5	45	41	S.W.	.04
Sunday 4	22	29.909	29.508	49	24	36.5	44	42	N.	.00
Mond. 5	23	30.111	30.041	55	41	48.0	45	42	W.	.00
Tuesd. 6	24	30.061	29.904	50	46	48.0	45	42	W.	.24
Wed. 7	25	29.908	29.870	65	42	53.5	47	43	S.W.	.02
Average		29.866	29.716	52.7	34.7	43.7	44.1	41.7		0.39

April 1—Fine and frosty; cloudy, but fine; fine, very mild.
— 2—Fine, cloudy; fine; densely overcast at night.
— 3—Very fine; densely overcast; overcast, very damp.
— 4—Clear and fine; overcast and cold; fine, starlight.
— 5—Very fine; cloudy, but fine; overcast, heavy clouds.
— 6—Fine, very mild; rain; overcast, heavy rain.
— 7—Fine and overcast; fine, very mild; clear and fine.
Mean temperature of the week, 2 6-10 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending April 17, 1869.

April.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..11	56.0	35.2	45.6	20	0.31 in.	3	8	7	—	3	13	2	7
Mon. ..12	55.8	36.4	46.1	27	0.56	8	8	3	3	6	9	3	3
Tues. ..13	55.6	33.9	44.7	17	0.45	9	7	4	3	3	9	7	1
Wed. ..14	57.0	36.1	46.6	17	0.36	4	9	4	3	3	9	2	9
Thurs. ..15	58.4	37.8	48.1	21	0.47	1	10	5	2	5	10	3	7
Friday ..16	57.4	37.1	47.3	27	0.56	9	7	3	3	3	9	7	2
Satur. ..17	58.2	35.8	47.0	15	0.32	8	7	7	2	1	9	4	5

The highest temperature during the above period occurred on the 17th, 1854—therm. 77 deg.; and the lowest on the 15th, 1862—therm. 20 deg.

Notices to Correspondents.

Bottle Gourds: *F D* asks, "Is there a Bottle Gourd?" To which we reply, yes; but while so many of the true Gourds are wholesome, and largely used for food, the Lagenarias, or Bottle Gourds, are believed to be deleterious.

Glazing: *J C.* writes:—"Some weeks ago Messrs. Smith of Dulwich gave a sketch of a new method of glazing, and offered to enter into statistics if wished. I, for one, should be glad to see them, and have been anxiously looking for them.

Insects: *E A O.* The best mode of preparing Caterpillars is to make a very small incision near the extremity of the under-side of the body, gently squeezing out the contents, and then inserting the point of a blow-pipe,—the Caterpillar, while distended to its natural size by the breath, being held near the flame of a spirit lamp to dry it quickly. Mr. Burchell preserved Caterpillars in South America by flattening them, when so distended, between the pages of a book, showing their size, colour, and marking. They will also keep well in spirits of wine, but the tubes or bottles must be made so as to prevent evaporation as much as possible. *W.*

List of Dahlias: *J B T.* "Twelve good Dahlias (selfs) of 1867," is no doubt intended to mean what are popularly termed Show Dahlias, but exclusive of Fancies. It is scarcely probable that any one year should produce 12 good self-coloured Dahlias,—*i.e.*, flowers of one shade of colour only. The summer of 1868 was by no means favourable to Dahlias, but the following no doubt represent the best of the new flowers of 1867 that were sent out in the spring of 1868,—viz.: Adonis (Fellowes), Buttercup (Fellowes), Caroline Tetterell (Keynes), Chameleon (G. Wheeler), Hebe (Rawlings), Lady Derby (Keynes), Mr. Dodds (Keynes), Mr. Dorling (Turner), Mrs. Edgar Green (Perry), Rosy Queen (Keynes), Vedette (Fellowes), and Yellow Perfection (Turner). To these may be added Gipsy Queen (Hopkins), and President (Legge). Of newer flowers, to be sent out in May next, the following were the most promising when exhibited last year as seedlings:—Annie Neville (Keynes), Commander (Bragg), Emperor (Rawlings), Indian Chief (Rawlings), James Hunter (Keynes), Julia Wyatt (Keynes), King of Primroses (Rawlings), Memorial (Eckford), Modesty (Perry), Mr. Brunton (Eckford), Queen of Beauty (Turner), and Unique (Fellowes). Should it be the aim of "J. B. T." to obtain some trustworthy exhibition flowers, he would do well to obtain the following 12 varieties, if not already in his possession,—viz.: Bob Ridley (Turner), Charlotte Dorling (Turner), George Wheeler (Keynes), James Backhouse (Godwin), Leah (Turner), Lord Shaftesbury (Perry), Mr. Boston (May), Princess of Wales (Keynes), Paradise Williams (Keynes), Princess (Fellowes), Primrose Perfection, and Vice-President (Keynes).

Names of Fruits: *F D.* 1. Like Red Ingestre, much bruised. 2. Not known.

Names of Plants: *R. Fraser.* 5, Pittosporum tenuifolium—*C F.* Edwardsia microphylla.—*J M R.* Clematis parvifolia.—*W T.* Medicago arborea; Scilla italica.—*P H G.* We agree with you that the dusky Gongora is only a variety of G. maculata.—*E G.* A narrow form of Pleopeltis irioides.—*P J H.* Omphalodes verna.

Peaches dropping off; *B D.* It is impossible to say without seeing the tree, and being made acquainted with the treatment it has received. It may be owing to dryness at the roots, too much excitement, a sudden check, disbudding too severely, or being over luxuriant in growth.

Pelargonium Spot: *A Constant Reader.* Yours is not a common case of Pelargonium spotting. There is no Fungus. The spots are confined, or nearly so, to pale patches of the leaves, which are clearly in a partially chlorotic condition, and arise, probably, either from the action of the sun on drops of water, or from their chilling the subjacent tissues. The evil is probably caused by a bad condition of the roots. *M J B.*

Seeds for India: *A. O.* Some of our best sorts of vegetables, as Cauliflowers, Cape Broccoli, Vegetable Marrows, Peas, Runner Beans, Lettuces, &c., would possibly be useful, though they perhaps could not be perpetuated there. Of flowers, such things as choice varieties of Ipomœas, Tropæolums, Lupines, Daturas, Portulacas, Petunias, Mirabilis, and Helichrysums, might be tried. It is, however, anything but a favourable climate for gardening.

Wooden Troughs: *R T F* asks: "Have you, or any of your subscribers, any experience of wooden troughs, covered with painted tiles, for garden-boxes? Those in general use are, I see, made of zinc."

Communications Received:—W. M.—A. D.—H.—W. B.—D. C.—Alpha.—A Forester.—A.

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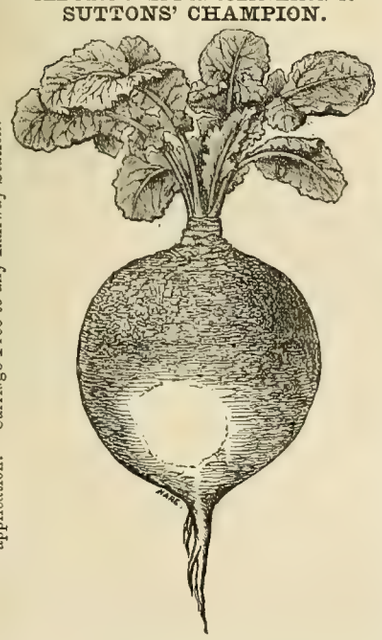


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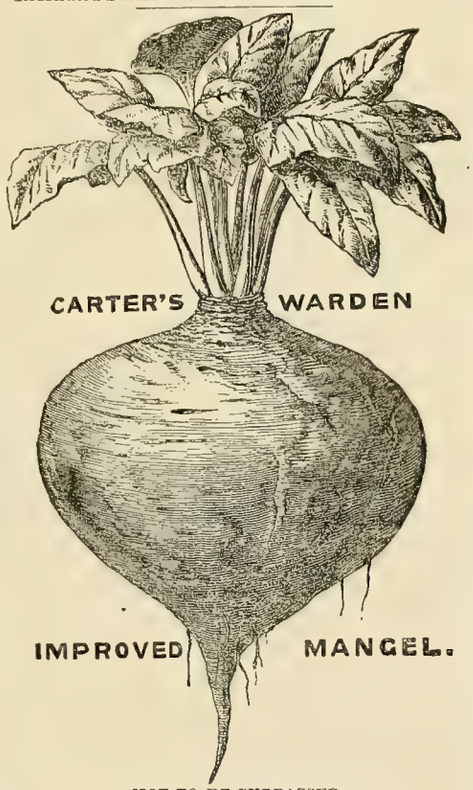
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SOUTHAMPTON MEETING of the BATH and WEST of ENGLAND AGRICULTURAL SOCIETY and SOUTHERN COUNTIES ASSOCIATION.

The ENTRIES of DEVON, SHORTHORN, HEREFORD, SUSSEX, and CHANNEL ISLANDS CATTLE, together with those for SHEEP, HORSES, and PIGS, CLOSE on the 12th inst.; but the time for the ENTRY of POULTRY has been extended to the 8th of MAY.

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ROYAL AGRICULTURAL SOCIETY of ENGLAND.

MANCHESTER MEETING, 1869.

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ROYAL AGRICULTURAL SOCIETY of ENGLAND.

MANCHESTER MEETING, 1869.

ENTRIES for IMPLEMENTS, &c., CLOSE on the 1st of MAY; and all Certificates received after that date will be returned to the senders.

H. M. JENKINS, Secretary.
12, Hanover Square, London, W.

The Agricultural Gazette.
SATURDAY, APRIL 10, 1869.

MEETINGS FOR THE ENSUING WEEK.

April 12—Cirencester (Farm Tenancies).
— 13—Royal Dublin Agricultural Society's Show.
— 17—Norfolk Chamber of Agriculture, at Norwich (Valuation of Property Bill).

AGRICULTURAL labourers are, we believe, at present exciting more compassionate interest in the minds of well-meaning men than any other class in the country. They are declared to be half-fed, ill-housed, helpless. It is no answer to such an assertion that other large classes living in towns are in an even worse plight, and that unskilled labourers in the country are better off than the corresponding class elsewhere. The honest inquirer has generally to allow for this fact, however—that the superiority of country lodging, bad as it may often be, and of country food, has to be admitted. But it is the comparative helplessness of the village labourer that touches you; the townsman strikes and congregates, even riots, and *will* be heard occasionally—the farm labourer is never heard. That is probably the reason why clergymen and philanthropists are so urgent on the subject, and why Farmers' Clubs and Chambers of Agriculture are constantly discussing it. And it is well that this interest should exist, notwithstanding that it is from the class themselves that help must really come. They are not helpless. Over great part of England the agricultural labourer of a certain age has abundance of pocket-money! From 18 to 25, when a single man, he is lodged and boarded, and receives from 10*l.* to 16*l.* a-year. If he could only be induced to abstain from public-house resort, he might before he married be a man of property—have a houseful of furniture, or even both house and furniture of his own. There is no one from whom he has anything like the chance of help that exists within his own unaided reach. And it is on education during boyhood, and on considerate and firm management during youth—on personal character, in short—that his condition as a man depends.

We are glad, nevertheless, that public-spirited men keep the facts regarding the class generally prominently before the public; good service is done, not only by those who urge self-restraint and personal influence as their two great helps, but also by those who criticise the more public agencies which are at work both against and for the class. In particular, all true pictures of

the actual facts are most serviceable: and we desire to call attention to an excellent review of this kind which appears in the current number of "Fraser's Magazine." Nowhere have we seen a more exhaustive or suggestive representation of the leading facts which the census and the statistical returns together teach regarding the farm labourer. It well deserves the study of the agriculturist, and having just become aware of its publication, we lose no time in at once prominently calling his attention to it. We hope next week to state in detail some of its illustrations and suggestions on this most important subject.

Any one who will introduce a plant as valuable as Red Clover, and without that singular weakness called Clover sickness, will be a public benefactor. To ask the chemist to use his skill in feeding, or doctoring the soil, would be a mere taunt; he has apparently exhausted his list of recipes. One process, in another department of science, has not been tried, so far as we know. The plant-improver may possibly succeed in invigorating the constitution of the Clover by the same means that were so effective in the case of the Pea. The stimulating effects of crossing varieties are known to all breeders of stock, and the close analogy subsisting between animals and plants in almost everything relating to the phenomena of reproduction, would lead us to expect similar results from crossing in each. But there is no need to rely on mere theory, because the effect of this process in the case of plants has been tested repeatedly. It is well known that in many cases by placing on the stigma of a plant the pollen from the blossom of another individual, increased vigour and constitution are imparted to the offspring. The effect is much greater in the case of plants that do not readily intermix without artificial aid. Knight's sagacity led him to infer this, and he commenced his experiments on the Pea, because its blossom encloses and isolates the reproductive organs. A Pea which had grown in his garden for some years, and had become dwarfed and enfeebled in constitution, was crossed with a stout field Pea with striking results. It may be possible to do for Clover what Knight did for Marrowfats. It is of the same family as the Pea, with closed blossoms, in which self fertilisation must usually take place, since it is only by accident or by insect agency that foreign pollen can be introduced.

It is remarkable that the graminaceous plants, which are so widely distributed and so important, have ample provision for natural or spontaneous intermixture. A field of Wheat in full blossom is soon wrapt in a cloud of pollen, and myriads of these tiny cells—each the germ of a new life—are destroyed, never meeting with the nucleus for their growth, so lavish is Nature in providing for the continuation of this necessary plant. In the flowers of many kinds of Orchis, on the contrary, the pollen is so placed that it cannot possibly reach the stigma of its own flower, but is borne on the backs of bees, or other insects, who make their way to the blossom of another individual plant of the same species, in order to feed on the honey in the nectary, and thus, not only attain their own ends, but by so doing become the agents by which this singular tribe of plants is continued.

There is an ample field for the plant-improver, and he may be assured that the principles of breeding may be applied successfully to plants grown on the farm, as they have been in numberless instances to garden plants. No doubt something may be done with Clovers, but it would be rash to assert that they could by invigoration be made to grow year after year on the same soil. The causes of shyness in this respect are obscure, and the balance of evidence is in favour of the theory that the defect is in our over-cropped soil, not in the plant itself. It is true chemists have analysed the plant and supplied all the constituents of its food, and much besides; but they have not supplied Nature. In the new soils of the New World, Red Clover grows year after year on the same land with the utmost vigour. And this does not appear to be due to climate, or to constitutional causes affecting the plant, but to soil. A robust plant, however, will make far more growth on the same soil than a tender plant of the same kind. Its roots spread further, it collects more food; it in fact makes more use of the materials in the soil.

Several perennial plants in cultivation live long on rich soils, and die soon on poor soils; the scale of duration of life is nicely graduated in the case of the Sugar-cane, which on the rich soils of Cuba yields a crop of Canes for many years in succession, while in the Gulf States it lives various periods, from one year to eight, according to the strength of the soil. It lasts longest on rich land, and longer on fresh soils than on those which have been long cropped. A dose of guano prolongs its life. In the higher latitudes of the Carolinas, at the outside limits of its profitable cultivation, the effect of climate on the constitution of the Cane obliges the planter to renew it every year, however rich the soil may be. There is in these cases what in medical science is called "action and reaction;" the strongest plant lives longest, the weakest soil starves soonest. A strong plant clings to life, a weak soil impairs the powers of life, and a weak plant is invigorated on a rich soil.

—— At Mark Lane on Monday the price of Wheat fell from 1*s.* to 2*s.* per qr. Excepting fine samples of Barley, other grain and pulse have participated in the fall.——The meat trade is active for good qualities. Good beasts make 5*s.* 10*d.* per 8 lb., and sheep 6*s.* 4*d.* per 8 lb.——The activity in the agricultural seed trade anticipated has not been fully realised. Clover and Italian Rye-grass seeds scarce and dear. Spring Tares have given way 2*s.* per quarter.

—— It will be seen in the report of the Parliamentary proceedings of the week, that among the items of Mr. Lowe's Budget is the repeal of the present import duty on corn. One shilling a quarter seems little better than a merely nominal impost, but it has produced no less than 900,000*l.* per annum; and it has, of course, hitherto, to a certain extent, acted as a protection of the British grower against foreign competition.—On the same evening on which Mr. Lowe unfolded his financial plans the Government Contagious Diseases (Animals) Bill was read a second time, after a debate in which Mr. Corrance, Mr. Pell, Mr. Howard, and other agricultural members took part. A vigorous protest, in which we entirely sympathise, was urged on behalf of Cheshire, that the country at large should pay for the losses incurred by that county for cattle slaughtered for the public advantage previous to the Compensation Act of 1866.

—— After the excellent paper read by Mr. Dashwood, before the London Farmers' Club, on Monday last, Mr. Read, M.P., said that Mr. Dashwood had been true to his text on the card. He agreed with the theory which Mr. Dashwood had advanced. Had we to begin again, there is no doubt that many points of this theory would be adopted, and profitably so—the more you can influence people in the payment of rates, the better management you will have of those rates. He objected to the compound rate on this ground. Proprietors of property do not often participate in administering the rate. It would not be advisable to have two collections, as the landlord could not often be found. The Scotch have had their Poor Law only 25 years; its effect has been to increase the cost frightfully. An effort used to be made to keep off the parish relief fund; now the object of many of the poor is to get all they can out of the rates. Men are not encouraged by our present system to be provident. If a man be driven to seek relief, he would get 10*s.* and the doctor, in an ordinary case; if he had subscribed to a benefit club he got proportionately less. One word on Ireland. From what we hear, Ireland must be a terrestrial paradise. We are told that 1 in 85 only of the population receive parochial relief in Ireland, while in this country 1 in 20, and in Scotland 1 in 36 are dependent on the poor rates. Before the Statistical Society, again, the other night, figures were used to show the rapidly increasing material prosperity of Ireland, and the general happy and comfortable condition of that agricultural country.—Mr. Pell said that in regard to the system of rating in Scotland and Ireland, he was as ignorant as a man can well be, but in regard to the system here he was too well acquainted, being a sufferer. In England there is a considerable mystification overhanging the system of rating. The only voucher or docket is a very small piece of paper, badly written on, but headed "Poor rate." On inquiry, however, this will be described as implying a union rate as well, which has afterwards to be explained as covering a highway rate, a county rate, and so on. If there be a poor rate, let the amount be stated, and the same done of the highway and county rates. What will be the result of the present system in a year or two? If a highway trust becomes insolvent, the repair of the road will fall on the parish. There is a notion abroad that it will fall on the county rate. But this is not the case. In the county he represents, under the Acts coming into operation this year and next year, the rates will be increased 2*s.* 4½*d.* in the pound; under the present system, the payer of rates will not know whether this increase is attributable to an increase of paupers or lunatics. The present system keeps every one in a state of ignorance as to what they really pay for.—Mr. Nockolds approved of personal payments of rates, and of dividing the whole between owner and tenant. Poor men are made to feel and inquire if they pay the rates, and independent men will find a combination both of self-interest and amusement in seeing that they are not treated unjustly.—Mr. J. K. Fowler lived in a parish where nearly every householder paid the rates. The effect of this was that remarks were now made that were never heard before. For example, one man now said to another, such and such a man is "on the rates, but is able to do as good a day's work as I am." If the half-rating plan be fully carried out, the cost will soon be reduced.—Mr. Eve had moved a good deal among the poor, and found they were constantly complaining of the poor rates. He for one quite approved the system of compounding. Poor persons never knew when a rate was coming, nor the amount likely to be levied. This was not the case if the rate was blended with the rent. The precarious character of employments, too, in boroughs caused many persons to rove, and it was impossible to collect rates off the working classes with that regularity and certainty which would make it certain that profitable property bore its fair share of public burdens.—Mr. Congreve corrected Mr. Eve in a statement he made that the board of guardians enforced the rates. This was done by the magistrates. The owners of property in this country often know nothing about the increase of rates. His own parish was a closed parish, but since the union rating the rates had been doubled. The landlord practically knew nothing about that increase of local burdens.—Mr. Hurst gave it as his opinion that half rates would not be an unmixed good. —Mr. Bradshaw, as a guardian of nine years' experience, proposed on one occasion that distinct entries should be made of separate items, and so sent out to the ratepayers. But by whom would it be supposed this proposition was opposed?—by the other guardians.—Mr. H. Cheffins instanced the question of allotments to show that it is desirable that the proprietors should pay the rates of small tenements, as it was impossible to collect the small sums due. The holders of these allotments were scattered all about a parish or district, and it was worth more than the sum to be collected to attempt to make the collection.—Mr. Smithies said it was right theoretically that the poor man should have his attention directed to poor rates by being called upon to pay them, but practically it could not be done in every case. If landlords paid half the rates, as they have both the ability and the time, they would no doubt undertake that justice was done to the owners of property as well as to the poor. —Mr. Craske would be very glad to see the proprietors pay half the rates: but if the poor rates were to be properly seen to, he was sure that the sums now expended might be very much reduced. Some hope was now based on the rate-payers getting more power, but financial boards would not do all the good that was expected of them.—Mr. Duckham said he had paid considerable attention to the system of taxation in Ireland, and he was sure the management of the rates there was worse and less efficient in its effect than it was in this country. He then reviewed the effect of game preserving on the rate fund itself, and the way in which the calls upon it were increased.—Mr. Gardener said no one had attempted to explain the cause for the difference in the rates of England and Ireland. He was inclined to think it was owing to the heart of John Bull being more tender. This was his experience. Guardians often yielded to well-told tales of distress in this country, which would be thought but little or nothing of perhaps in Ireland. —Mr. Treadwell said, if guardians would steel their hearts against giving outdoor relief, he was sure the rates would be decreased.—Mr. Neile was disappointed at the result of the discussion, as he was sure that the question of assessment could not be excluded from a sound discussion of the subject.—The Chairman thought the system of rating landlords a sound one. For example, when the cattle-plague rate was before the country, they were watchful and active for the purpose of keeping those rates down.—Mr. Dashwood, in reply to Mr. Read, would say that he had carefully gone through the statistics from which he had quoted. Scotland stood better than we did, because they had not had a Poor Law so long. We were suffering from the effect of the old law, as well as from the bad management of the present day.

—— The Central Chamber of Agriculture met at the Salisbury Hotel on Tuesday last to discuss the subjects put on the paper for consideration at the April Council Meeting. Mr. C. S. Read, M.P., the chairman for the year, presided. The first business was—

"To consider the proposal (postponed from the last meeting) for a deputation to the President of the Board of Trade on the subject of a separate Government department for agriculture."

This was brought on by Mr. Jasper More, who said that as he found the opinions generally of the Chambers were against the appointing such a deputation at the present time, he would not press his motion on this occasion. He did not, however, intend to let the matter drop, as he was still of opinion that the subject was an important one, and that the ball ought to be kept rolling. He might add that the President of the Board of Trade had assured him that he would have great pleasure in receiving a deputation on the subject at any time. The next subject was—

"To consider a proposal for a committee of the Chambers to conduct the agitation upon the subject of local taxation."

The Chairman, in bringing this motion before the Chamber, dwelt at some length upon the importance of the subject, and moved that a committee of six members be appointed to investigate and report to the Chamber, as to the course to be adopted, at the next meeting. Sir Massey Lopes seconded the motion, and a committee was accordingly appointed. The main subject of the day was then brought on, viz.:—

"To consider what steps shall be taken with regard to the Government Contagious Diseases (Animals) Bill."

Eleven resolutions had been previously prepared by the Business Committee, which were presented to the Council, as follows:—

"That regulations for the proper accommodation and watering of animals in transit by ship or railway should be made compulsory.—That owners of animals suffering from contagious or infectious disease should be required to give immediate notice

of the existence of such disease to an authority appointed for the purpose.—That clauses 30 and 54 should be so amended as to give less arbitrary powers to inspectors.—That the slaughter of cattle which have been in contact with plague-stricken cattle should be made compulsory.—That sheep-pox should be dealt with in the same way as cattle plague.—That for carrying out the purposes of the Act every local authority should appoint a committee, consisting of equal numbers of magistrates and ratepayers.—That the slaughter quarantine, or sufficient inspection of imported animals at the places of debarkation, should be made compulsory, and not left to the uncertain operation of Orders of the Privy Council.—That separate markets for the reception, sale, or slaughter of such animals should be established by statutory enactment at all places where foreign animals are landed.—That the provisions of the Bill should embrace the whole of the United Kingdom.—That unless the foregoing regulations with regard to foreign animals be embodied in the Bill, it should meet with the determined opposition of the Chambers.—That a deputation be appointed to lay these views before the Vice-President of the Privy Council."

These resolutions were discussed at great length. Clause 9 was rejected. The following motions were then made and carried—

"That every facility and encouragement, by legislation and otherwise, ought to be given to the carrying of dead meat, and to the more complete development of that trade." And—

"That the compensation for slaughtered diseased animals should be defrayed (as in Ireland) from the general taxation; or, at least, that a moiety of such compensation should come from the Imperial revenue, instead of being paid, as it was now done, by local taxation."

And these were subsequently appended to the previous resolutions on the "Contagious Diseases (Animals) (No. 2) Bill," for presentation by the deputation to Mr. Forster, the Vice-President of the Privy-Council. Other subjects on the agenda paper were not discussed, Mr. Forster having appointed to receive the deputation on the "Contagious Diseases (Animals) (No. 2) Bill" at a quarter to four o'clock.

—— Deputations to Ministers of the Government have been plentiful this week. Three of them, all of which took place on Tuesday, related to traffic in live stock. The first was from the London Farmers' Club to the Vice-President of the Privy Council on the subject of "The Cattle Plague Restrictions and the Government Bill." Mr. Howard, M.P. for Bedford, introduced the deputation by saying: This was a tenant-farmers' association perhaps more than any other in England, inasmuch as landlords were no more among them than tenant-farmers are in the House of Commons. They had not come before him with any hostile feeling to the measure he had brought in. On the contrary, they thought he had done well to bring in a consolidated measure dealing with other diseases as well as rinderpest—of home as well as foreign production. Yet there were some points in which they believed it to be insufficient to meet the diseases from imported animals. He repudiated the calumny so frequently uttered, that farmers want to return to the old system of protection. Since the repeal of the Corn Laws there had not been a single public meeting held, or a single petition presented, with that object. The members of this Club and the farmers of England had not only accepted the principles of free trade, but had cheerfully accepted them. Last September they waited upon Lord Robert Montagu, suggesting the establishment of separate markets for foreign stock, as a means of defence against cattle plague. They met again on Monday, and after considering all the circumstances, they thought that was still a wise course to pursue.—Mr. Newton, chairman of the Club, begged the right hon. gentleman to understand that they entirely repudiated the idea that they were coming there to try and increase the price of cattle for their own benefit.—Mr. Fowler, Bucks, noticed the destruction of the whole of Baron Rothschild's herd, and agreed with the previous speaker that the establishment of riverside markets is the best preventive.—Mr. Smithies, Herefordshire, said that the universal opinion of his neighbours is that the only effectual means of keeping out the cattle plague is the establishment of separate markets. — Mr. Forster said, in reply, that he was glad to have the opportunity of meeting so many gentlemen of practical information whose interests were much affected and ought to be considered. Was it a general impression among the farmers represented by their Club that they did or not dislike the cordon about London, by which all cattle that came into the metropolis never went out alive?—Mr. Leeds, one of the largest Norfolk farmers, said that when there is an over-supply they had to endure a loss of 3*l*. per bullock. Formerly they could send them to Brighton. Now they were obliged to sell them in London for whatever they would fetch.—Mr. Forster had been in communication with the City authorities, and he had reason to believe that they will establish separate markets. How much further could Government go? It would be of no use their saying there should be separate markets, unless they were prepared to show how it is to be done. They did not think they could get Parliament to make these markets a tax on the country; and, on the other hand, it would be arbitrary to force the various towns to rate themselves for it. Did they not think they were considerably in advance of public opinion if they asked for that?—Mr. Howard said their application applied to London.—Mr. Forster believed that it would be done.

—— The deputation to the Vice-President of the Privy Council, as above-mentioned, was introduced by Mr. C. S. Read, M.P., and the objects of the deputation were explained by Mr. Randall, representing the Lincolnshire Chamber; Captain Craigie, of the North Riding Chamber; Mr. Rigby, of the Chester Chamber; and Mr. Duckham, of the Herefordshire Chamber. Mr. Forster said that, with regard to the resolutions of the Chamber, he thought that the question of the dead meat traffic was simply one of arrangement between the meat senders and the railway companies. He did not exactly see how the interference of the Legislature could be asked to affect either parties. He would gladly see the dead meat trade much greater than it was at present, but he did not see how the Government was to facilitate its growth. As to the separate markets for the reception, sale, and slaughter of foreign cattle, he would ask who they expected to build them? That appears to have been the question on which all the difficulties of the Bill of last year turned—Who is to find the money for building the separate markets? Is it expected that it can be supplied by Government out of the Consolidated Fund? or that it should be found by the Board of Works or the Corporation of the City of London and the cost thrown on the ratepayers? If the Legislature were to tell the importers of foreign cattle at the port of London that they might not import any foreign cattle until these markets were made, what would be the consequence? London could not do without its supply of foreign meat, and the Legislature were not prepared to risk the consequences of such a restriction. He thought that to go further than is proposed by the Bill of the Government, would be to attempt to do more than the present state of public opinion would sanction. He thought, however, that they would soon have separate markets in London, as the City authorities were about erecting them. They must not think that, while the home stock was subjected to very stringent measures to prevent contagion and disease, the foreign cattle were imported under no restrictions whatever. On the contrary, the imported stock were subject to even more stringent rules than the home. The question was a very difficult one, and there were many interests to consider; but he thought that the interests of the English agriculturists had been respected as much as possible in the Government Bill. He would, however, have great pleasure in communicating their requests and objections to the President of the Privy Council, who would no doubt give them the utmost consideration.

—— Another deputation to Mr. Forster was from several boroughs situated in Cheshire and Lancashire, for the most part where the rinderpest raged with the greatest virulence and fatality. Mr. Hadfield, Mr. Jacob Bright, Colonel Akroyd, and several other Members of Parliament, accompanied the deputation. Their object was to press upon the Minister the injustice of obliging boroughs to pay the compensation for the animals slaughtered under the cattle plague orders, while exempting those places that have quarter sessions of their own. In support of this view, Mr. J. B. Smith, Stockport, said that all the boroughs which were saddled with the expense of compensation for the cattle plague were dissatisfied, and that their opinion is, that those who profit by it—namely, those who had sound cattle—should pay the compensation. A poll-tax should be laid on all the cattle in the country. He calculated that the owners of cattle had profited 20,000,000*l*. by the rise in price, while the boroughs had had to bear the loss.— The Mayor of Salford read a resolution to the effect that the compensation ought to be raised by a poll-tax.—To this Mr. Forster replied, that "the resolution would oblige the Government to alter their whole Bill, and they would have to include Ireland."—Mr. Pochin rejoined that Ireland reaps the advantages, and ought to bear part of the cost. Cheshire had paid in compensation 278,000*l*. Indeed, that county might almost be pauperised by the conditions of this Bill. A contribution of 1*s*. per head would meet the loss of five per cent. of cattle, while the farmers would reap the advantage of the increase in price.—Colonel Akroyd and others having spoken, Mr. Forster said the object of the Government in bringing forward their Bill was, first, to put the regulations in better form, and secondly, to extend the Act to other diseases than cattle plague. They took the existing provisions, and therefore did not alter the compensation clauses. He urged them therefore to see Mr. Gladstone, or to present a memorial, laying specially before him that this was an interference with municipal government, and secondly, that the clause formed no part of the original Bill. At the same time he expressed his strong belief that the necessity for compensation to so great an extent will not again arise. The deputation agreed to the suggestion to represent the matter to Mr. Gladstone.

—— Mr. Watson, "late surgeon to the Government Hospital, Chincha Islands," writes to the *Times* to say that the guano there is done, but a few weeks now being needed to complete the work calculated to have required 15 or 16 years to come. He also says that there is no deposit of guano on the Peruvian coast at all equal to that of the Chinchas, and that in particular that of the Lobos Islands is a mere deposit of phosphate with a very small percentage of ammonia. To this Messrs. Thomson, Brown & Co. reply, that on the 1st of February there was a stock in hand of 135,000 tons; ships discharging, 17,000 tons; homeward bound, 31,000 tons; loading at Chinchas, 95,650 tons; chartered for the United Kingdom, 156,600 tons: total, 435,200 tons. And Mr. Haslewood, "broker to all the Peruvian loans issued in this country since 1853," adds that cargoes from two or three other Peruvian deposits have been supplied to England, taken from the upper layers, and therefore no doubt deficient in ammonia; but the prices they have realised, together with the reports of the lower strata received, justify the belief that they will prove of equal money value with the guano of the Chinchas. Then follows another letter from Mr. Watson, reiterating, scolding, and explaining all the interest of the Peruvian bondholders, to whom alone indeed the correspondence seems to be addressed. It has, however, we cannot help perceiving, a very serious side for English agriculturists, on whom it will probably leave the impression that very soon they may suddenly find it impossible to procure the fine Peruvian guano which has hitherto been the greatest agricultural help at their command.

—— We learn from the *Oxford Times* that Henry Giles, toll-gate keeper, Sandford, was lately charged by Mr. John Stowe with having demanded the sum of 6*s*. toll for a steam-engine used for the cultivation of land. Mr. Stowe, the owner of two steam-engines used only for the cultivation of land and threshing purposes, passed through the gate with one of them on the 2d ult., and the defendant demanded 6*s*. toll, which was paid; the plough belonging to it was to follow. Mr. Thompson quoted the Act of Parliament, in which it was mentioned that threshing-machines were exempt from toll, but nothing was said about travelling steam-engines. He also stated that such engines were not invented when that Act was passed, and therefore he submitted that they were liable to toll. The Clerk said it appeared to him that locomotives should be charged with toll, or be exempt, exactly as if they were waggons; and the Act said no waggons carrying agricultural implements, or used for agricultural purposes, should be charged toll. The Magistrates, after a short consultation, gave it as their opinion, that the locomotive was exempt from toll, and wished it to be understood that that would be their decision in all cases of a similar nature. They would not inflict any costs, as it was a case which required some consideration; but the 6*s*. would have to be refunded. The Bench asked Mr. Thompson if he pressed for a conviction, so that he might carry the case to another court; but he said he did not wish to put his client to the expense of 30*l*.

OUR LIVE STOCK.

We have before us Mr. F. Leney's sale catalogue, which records the names of 23 cows and heifers, and the same number of bulls. All these animals are young, and belong to families well-known throughout the Shorthorn world. The sale is fixed for Thursday, May 6, at 2 o'clock, when Mr. Strafford will officiate as auctioneer. An inspection of the catalogue reveals a considerable number of members of the Charmer family, some of which are by Knightley, of the same tribe, and others by bulls of Duchess, Grand Duchess, or Oxford blood; a large collection of the Jenny family, both male and female; one heifer and two bulls of the Garland tribe; *May Duchess*, by Knightley, of the *Anna* by Pilot family; *Princess Royal*, by Lord Oxford 2d (20,215), dam *Princess Alice* by British Flag; a bull calf by the same bull, and out of a cow of the famous Chaff family, and the Duchess bull Grand Duke of Kent, are among the most notable features of the catalogue. The bulls lately used in the herd have been Waterloo Duke (21,077) of the Bates Waterloo family; Lord Oxford 2d (20,215), Knightley, and the two Duchess bulls Grand Duke 15th, and 12th Duke of Thorndale The Orpines, Wateringbury is easy of access—the last-named placed being a station on the Paddock Wood and Maidstone branch of the South-Eastern Railway.

—— We hope next week to give our readers a short description of the Siddington herd, with special reference to the Musical and Siddington families, which will be offered for sale on Thursday, the 22nd inst. We believe this event has been anticipated by the lovers of pure Bates blood for some time; and the intimate connection which has so long subsisted between the Siddington and late Didmarton herds warrant us in prophesying a good company and high prices.

—— Mr. Charles Howard, of Biddenham, has issued a new catalogue, containing the pedigrees of 32 females and eight bulls, of which no fewer than 19 belong to the famous *Princess*, by Favourite, or Gwynne family, a tribe traceable to the celebrated Studley Bull (626), bred by Sharter, of Chilton, and which has a large circle of ardent admirers. *No.* 55 *Chilton sale*, by Monarch (2324), has eight representatives at Biddenham, known under the generic name of Spencer. There are also four examples of the Charmer or Sweetheart family. It would be difficult to find better blood than flows in the veins of the excellent stock just mentioned. The task of the owner of such strains is, doubtless, further improvement; but unless carefully bred, there is the danger of its retrograding instead of advancing. An examination of the pedigrees of the younger animals of the herd will be sufficient to convince any one of Mr. Howard's determination to maintain the character of the good old Shorthorn families he has gathered around him. Thus the combining of the Princess and Duchess blood, as in the case of Oxford Gwynne, should produce animals of a first-class type. The names of the bulls lately used in the herd, will serve further to indicate the good breeding of the Biddenham herd, namely, 5th Grand Duke, and his son Lord Claret, dam *Claret* by British Prince (14,197), and Thorndale Knightley, of of Charmer and Princess blood.

—— Within the last month the Holly Bank herd has been increased by the birth of two calves, both by Earl of Barrington; the first a red and white heifer from *Grenade* by Titan (17,125), and the other a very fine red heifer from *Iris* 2*d* by Lord Liverpool (22,168), dam *Verbena* by Mosquito (14,964), and descended from *Victoria* by 2d Duke of York. Two bulls of this family have been awarded prizes at the Royal Agricultural Shows, viz., Vatican (12,260), who successfully contested the Society's highest honours with the celebrated Windsor and Glo'ster's Grand Duke (12,924), winner of the 2d prize at Salisbury.

—— The Société d'Acclimatation has recently awarded several prizes for the rearing and training of yaks. This animal is allied to the zebus or humped cattle of India, and is domesticated in Thibet and North Asia, where he is much valued for many economic purposes. In general form he more closely resembles the horse than the ox. His neck is short, his limbs light, terminating in small hoofs, and he is covered with a long and thick coat, which conceals an undergrowth of fine wool, used

in Thibet in the manufacture of some of the finest fabrics. This woolly covering is said to disappear with advancing age, or when he is brought from the rigorous climate for which he appears so well adapted. Such was certainly the case with the herd of twelve individuals introduced into France by M. Montigny, Consul-General at Changhai, in the year 1851. The yak is used for purposes of draught, and is exceedingly sure-footed. He yields excellent beef, and the female gives milk of good quality. Whether he will ever find a place among the domestic animals of Western Europe it is impossible to say. He has been proposed as a substitute for the mule in mountainous districts, and his extreme hardihood and varied acquirements may give him an interest even in the eyes of English agriculturists.

Sheep.—Messrs. Robert and John Russell, long extensive and successful farmers in the neighbourhood of Dartford, have within the last two years appeared before the public as successful breeders of Hampshire Down sheep. We have just received intelligence as to the present condition of this flock, and are able to state that 730 ewes have produced 933 lambs, and that only seven ewes have been lost during the lambing season. The history of the Farningham flock is worthy of attention, as it was commenced in opposition to the farming opinion of the district, where it was generally thought that raising lambs would not be a successful enterprise. Still, in spite of this discouraging opinion, the Russells persevered—and succeeded. Mr. Willoughby Wood informs us of a similar feeling with regard to breeding lambs in his immediate neighbourhood—"My land is so unfavourable for sheep that when first I entered upon it I was told that it would be madness to keep a ewe flock." And yet the Holly Bank Shropshires have gained a position under Mr. Wood's able management. We have then here two instances, showing that local opinion should be subjected to the test of experiment, and not be blindly accepted as the *dictum* by which all future practice must be controlled. Mr. Russell thus speaks of the commencement of his flock:—"The reason we tried to breed our flock was that the stock we purchased were not only difficult to fatten, but the casualties were numerous, principally from giddiness. Our flock commenced with Southdown ewes, which were crossed with Hampshire rams every season. The stock increased in size and earliness of maturity, enabling us to sell them at one year old." Fresh males were purchased every year, until at length, after bringing home some of the best which money could procure, Mr. Russell found that his own young rams were superior to those he had bought. This determined him to exhibit at the "Royal," which he did at Leicester, and so successfully as to carry off the 1st prize, and subsequently similar success attended his sheep at Islington. Distance from other similar flocks is a difficulty at Farningham, especially in the important item of finding a market for rams. As the Messrs. Russell have 100 ram lambs, they propose either to send them to some west country fair or have an auction in the west of England.

STEAM CULTIVATION.

I have looked through "West Indian's" steadily written article on Steam Cultivation, and as he has touched upon "E. Pepin Lehalleur's" article in the "Journal d'Agriculture Pratique," I will give a summary of it, with some remarks of my own, in support of my own mode of application. Here is the sum-total of the article above referred to. The Agricultural Societies, both in France and England, are thanked for giving trials and reports by which we are told that the superiority of steam-power over horse-power is completely settled, although as yet there is a difference of opinion as to what is the "best application," — the contest being between a two-engine set, costing 1400*l.* and a one-engine set, working upon the roundabout plan, said to cost 720*l.* Some statements are then made as to where "bare fallows must completely cease to exist," fixing the time for working from February 15 to May 15, and from August 15 to November 15—in all, 180 days, but from these we are to deduct 50 days for Sundays, &c., fixing 130 days as the working days in a year for a set of tackle, be it what it may, thus condemning our own Royal Agricultural Society's practice of basing their estimates on 200 days' work, Then come some estimates on a 500-acre farm, fixing the Grass thereon at 225 acres on an average of years, leaving 275 acres for corn and roots. Then these 275 acres are to be reduced by small fields to be done with horses that must be kept for carting corn, &c., to 225 acres. Then we are told how to operate:—"1. A breaking up of the stubbles directly after the cereal crops have been carted at the latter end of the summer, ... by a light ploughing or a grubbing . . . . . then a ploughing, partly for winter-sown white crops, partly for leaving the soil exposed to the fertilising action of frosts. In the spring one cultivating or scarifying, and one harrowing, will leave the soil in the best condition for seeding during the months of March, April, and May." 50 acres are set apart for the winter-sown white crop, leaving 175 acres for Oats and spring corn, and here is the sum total of work to be applied on the 225 acres—100 acres of grubbing and scarifying, 225 acres of ploughing, with a harrowing; showing that it would not do to employ a double-engine set on such a holding, and that such a set has no chance except in the hands of the contractor. We are then shown what a roundabout set can do upon such a holding. "The work required by 225 acres will occupy Howards' tackle during 104 days," and a day's working expenses are fixed at 2*l.* 3*s.* 8*d.*, or 8*s.* 8*d.* an acre for ploughing, 4*s.* 4*d.* an acre for scarifying, and 3*s.* an acre for harrowing. After comparing these figures with horse-work, the Leicester award is approved by justifying the use of a roundabout set on such a holding, leaving the double-engine set entirely to the contractor.

Permit me to make a few remarks upon these statements. 1400*l.* represents the cost of a set of Fowler's double-engine tackle, but 720*l.* (the cost of Howards') does not represent a set of mine. Here is the cost of a set of my own:—

	£	s.	d.
Four-wheeled windlass, with anchors, snatch-blocks, and rollers complete	110	0	0
1400 yards of best steel wire rope, of extra quality and strength	70	0	0
Five-tined cultivator	21	0	0
Ridging and subsoiling plough	21	0	0
10-horse power portable engine	300	0	0
	£522	0	

This is all that is needed to work land in England. What is wanted in France I know nothing about.

Now let us look at the time fixed for working. In England February 15 is too early, for we do not need it for the planting of our Beans; I have tried the matter, and have done the work well and have had good results from it, but I find that I can do better without the aid of steam for that purpose than with it. March 15 would be a more seasonable time for bringing out the tackle, and those who need it might work on to May 15, but for the life of me I cannot see what use it can be all that time on such a holding. I can quite agree about the land all being in crop during the summer months, but I cannot understand how we can be usefully out upon our stubbles after "cereal crops" are harvested by August 15, for it is the stubbles after my pulse crops that I want to be at first, and as a rule they are not cleared until the end August. September and October are the two months to work tackle, and when we are told to work on to November 15, we are told to work almost in the dark. There are only nine hours a day, including meal times and stoppages, for working without a candle. Then I must knock off 15 days in November, 15 days in August, and 28 days from February 15 to March 15—in all 58 days—from the 130 days already shown as the working days for a year, less 10 days for Sundays. This will reduce the working days of a year to 82, therefore Howards' tackle would not be able, according to my showing, to do its 104 days' work a-year on such a holding.

Now let us look at the cost of this 104 days' work on 225 acres of land. 104 by 2*l.* 3*s.* 8*d.* a day equals 227*l.* 1*s.* 4*d.*, or 1*l.* 0*s.* 2*d.* an acre for a seed-bed.

Again, compare the cost of these seed-beds with mine worked upon my plan, with tackle costing 522*l.* Here is my mode of calculating: Half the engine to be charged to threshing and grinding, &c., in the same way that "E. Pepin Lehalleur" did; this reduces the cost to cultivation to 372*l.* To do the 225 acres, the tackle would be required 11 days at smashing and 27 days at ridging and subsoiling. The cost of the men for a day's smashing is 16*s.* 6*d.*; of coal, 8*s.*; of oil, 8*d.*, for 11 days; total, 13*l.* 16*s.* 10*d.* The cost of the men for a day's ridging and subsoiling is 18*s.* 6*d.*; of coal, 8*s.*; of oil, 8*d.*, for 27 days, equals 36*l.* 13*s.* 6*d.* The cost for the 225 acres would stand thus:—

	£	s.	d.
88 acres of smashing—for labour, coal, and oil	13	16	10
137 acres of ridging and subsoiling—for labour, coal, and oil	36	13	6
Interest at 5 per cent. on 372*l.*	18	14	0
Wear and tear on the 38 days' work	8	8	0
	£77	12	6

Or an average of 6*s.* 10½*d.* per acre.

This is a most wonderful support to my own figures, worked out last autumn, when I showed that my average cost of seed-beds was 6*s.* 10½*d.* an acre; yet it proves plainly that "E. Pepin Lehalleur's" mode of application (the Howards') is by no means the best, inasmuch as the cost is shown to be 1*l.* 0*s.* 2*d.* an acre, against my 6*s.* 10½*d.* He may plough and he may harrow, and he may also scratch, but these figures speak for themselves, and prove him to be a long way behind, for there are my lands and seed-beds to look at; yes, and there is more than that, for there are now my three fields of Wheat to look at, planted with but a mere trifle over a bushel of seed per acre, 12 inches from row to row, seeded at a total cost of 6*s.* 9*d.* for seed-bed an acre. They look much stronger in leaf and colour than anything under horse culture in this neighbourhood, or any that I have seen within the last month, go where I may, although seeded as thick again. People who have visited me within the last 14 days from several parts of England tell me that they have seen none like them for strength. Then there are my Beans up and strong on my ridged and subsoiled land, costing only 7*s.* an acre for working 10 inches deep. My crop last bad Bean year, grown upon land similarly treated, gave me a produce on my heavy clay land of 28 bushels per acre, an average of what it used to be under horse culture; and on my best land I had 37 bushels per acre, which I sold to my neighbours for seed at 6*s.* 6*d.* per bushel. Then there are my Mangels, already planted on my land, that cost only 7*s.* an acre for ridging and subsoiling last autumn; a finer tilth never was seen, although we have had a frostless winter. And there is my Barley already planted, the third white crop in succession, on land as clean as a garden, that was ridged and subsoiled last autumn 11 inches deep, that had nothing this spring to bring it upon the flat, but a splitting of the ridge with my subsoiler worked with horses. His evidence goes against the contract plan with a 1400*l.* set, for he shortens up the time for working, yet not enough, as I have shown—to say nothing about the April and May working, which to my mind is very questionable, for September and October are the only months in which steam-power can be applied with advantage, excepting a very little spring work. We all know that the contract man cannot give seed-beds for 6*s.* 10½*d.* an acre. Then this difference of opinion may be set at rest, for there is no tackle but mine that can do it at so low a cost per acre, therefore it must be the "best application," and the Frenchmen have yet to learn how to apply it.

The Royal Agricultural Society of England made a grand mistake at starting by sticking to the old horse road, and M. Lehalleur appears now to back it up by sticking to the plough, the grubber, the scarifier, and the harrow; while I have cut out a new road strictly applicable to the power of steam, and have beaten the lot three to one—6*s.* 10½*d.* against 1*l.* 0*s.* 2*d.*—according to the Frenchman's figures. *William Smith, Woolston, Bletchley Station, Bucks, March* 29.

P.S. I have overlooked "West Indian's" three questions.

"Can we not find a 'cunning worker' who can contrive a drill for steam?"—I have contrived one that works well, yet I find, as I have before told you, that in practice it is not needed. Look at my Wheats now growing, drilled in with horses, and look at my Beans, planted by hand, above noticed; in support of this I tell the world what is good, and I tell it what is good for nothing.

"A light rope made of the best materials might help us?"—We have got that.

"Can we not make a traction engine available at harvest? I fancy it can be done."—It can be done, but it will not pay.

Now let me ask a question. How many horses do we need to assist our railways in carrying on the traffic of the country? When that is done by steam, and the hunting into the bargain, we will cart our corn by steam.

ADULTERATION OF SEEDS.

[The following is an abridged report of the proceedings in connection with this subject at a recent meeting of the Lincolnshire Chamber of Agriculture.]

Mr. Charles Sharpe said—I will briefly state the grievances which have long been complained of in the columns of the leading agricultural and horticultural journals. They are these: large quantities of rubsen or German Rape seed, and inferior samples of English Rape, are killed by a process of steaming and kiln drying, for the purpose of mixing with English-grown Turnip seed. Seeds of the cheaper kind of Brassicas are prepared in a like manner for adulterating the seed of those varieties which have a higher value. Trefoil, a cheap and inferior kind of Clover, is killed and dyed for mixing with Red Clover and Cowgrass, and inferior old samples of Clover seeds are coloured and dyed for the adulteration of seeds of a much higher value,—this process of colouring or dyeing generally destroying to a great extent the germinating power of the seed so treated. There are other minor cases which might be mentioned, but these constitute the principal evils complained of. These statements have frequently been publicly made without receiving any contradiction, and in the absence of denial we have a right to assume that in the main they are correct. Now, to carry out this system of adulteration, there exist in London and other places several manufactories for the preparation of seed for adulteration, their sole business being to kill and colour seed. The Bill proposes to inflict a penalty upon any person engaged in the business of preparing seed for adulteration; and the promoters of the Bill anticipate that this clause alone will do much to prevent the practices complained of. Penalties are also imposed upon any one knowingly or purposely selling seeds mixed with killed or dyed seeds. The Bill is very simple and very short, being confined to dealing with the fraudulent practices in the trade. It has been said that the Bill does not go far enough, and should also deal with old seed, and I will take this opportunity of replying to such remarks. There would be great difficulty in applying the Bill so as to prevent the sale of old seeds, for it is impossible to say at what age seed may be considered unfit for use for sowing, so much depends upon the season in which they are harvested, as in some years with a fine harvest the seeds then saved will, when kept over one or two years, be as good as, and even superior to, the new seed of several succeeding seasons. In our changeable climate, too, the harvesting of seed must always be considered precarious, and therefore it often occurs that the crop of a year harvested in fine condition and quality has to supply the demand of following years of inferior quality or quantity. It was thus considered advisable in framing the Bill to leave out all reference to this, as interfering too much with the freedom necessary to conduct the seed business. The law already provides a remedy for any injury inflicted upon the public by the sale of old seed of bad growth, and we are supported also in coming to this conclusion by the opinion of the committee of the Council of Horticulture in their report upon the adulteration of seeds, sec. 13, 14. They say—

"Actual adulteration is entitled to no mercy. It is a deliberate and intentional fraud, in the suppression of which the trade is as much interested as the general public, and ought to be suppressed by the strong hand of the law in the same way as any other fraud. It is different with the selling of old seed. The seeds produced in different years, like different vintages, vary in their quality, and in the power of retaining their vitality. It thus sometimes happens that two years' old seed is better than one year old. There is thus a special difficulty in dealing with it."

If this Bill should become law, and the use of killed seed be done away with, the consumption of good seed will not be interfered with, as is now the case, and large stocks in consequence will be prevented from accumulating. Old seeds betray their presence; killed or coloured seeds do not, except to those accustomed to the trade. It is satisfactory that no opposition is offered to the Bill; in fact it would be strange to find any opposition or any objections raised against it. The only persons who can put forward any plea of injury sustained are those engaged in the killing and colouring of seed. As to the former, I do not know what they

may turn their hands to next; but the latter, who have attained to such perfection in imitating and even surpassing Nature, may perhaps be found competing successfully for the prizes given next year by the Royal Academy. This Bill having been called for by loud public complaints, is supported by all the respectable seedsmen throughout the United Kingdom, who feel they are unequal to the task of putting down a system that is no modern invention, but bequeathed to them by traditional customs long established; and I trust the measure will also receive the earnest support of the Chambers of Agriculture throughout the country. The adulteration of seeds exposes the honest dealer to the most unfair competition, and is highly injurious to the consumer and the country at large. Killed seed committed to the ground of course yields no return for the outlay, being quite without result, and is so much sheer waste and loss to the nation. It is difficult to estimate the loss, but I venture to assert 40,000 to 50,000 bushels of prepared seed is annually used for mixing with Turnip seed, besides the hundreds of tons of Clover seeds wasted for a like purpose. I hope I have said enough to show you that this is a great public question, and that there are strong reasons why the Bill to which I have called your attention should be supported by this and every other Chamber of Agriculture throughout the country.

Mr. Welby, M.P., said he attended this meeting to hear their opinions on the Bill, as he had charge of it in conjunction with other Members of Parliament, and should have much pleasure in doing what he could for it, because he believed the evil complained of was of a very serious character, and very detrimental to the interests of the agricultural community, and also that it could not be effectually checked without the assistance of Parliament. One objection which might be brought against the Bill, was that it would be creating a new offence, or that it was moving in a direction which was almost sure to fail or be inoperative. Mr. Bright, in fact, took that view only a few weeks ago. But as to its being a new offence, that was not strictly correct, as the evil practices against which the Bill was directed might now be made the subject of an action at law; that, however, was so expensive and doubtful that the victim generally chose rather to submit in silence than to resort to law. As to the Act being inoperative, all they could say in answer to that was that they hoped for the best; and his own opinion was that it would have a good and practical effect, and even already a check had been given to the practices complained of in anticipation, and that check would be much greater if the Bill became law. Even if the difficulty of proof were so great that no convictions took place under the Act, it might yet do good; and as every large wholesale house had proof-rooms for testing seed, and could ascertain whether the seed they sent out was genuine or not, they could not say they sold bad seed innocently, and if it was brought home to them they must abide the consequences. As to the retailers, they would be liable to be called before the magistrates, and the proof of their innocence must be left with themselves.

Home Correspondence.

The Adulteration of Manures.—Dr. Voelcker, in his lecture to the Central Farmers' Club, very properly called attention to the continued practice of adulteration which still existed with regard to manures, and more particularly with reference to guano. He added the additional caution, although rather mysteriously expressed, that farmers should never buy guano at a public auction. I happen to know that the Doctor had good reasons for giving this advice, as the following facts will show. In a large town in the south of England a quantity of Peruvian guano was advertised for public sale a short time since by a very respectable auctioneer, by handbill and otherwise, in the usual way. A friend of the writer attended and asked for an analysis, and one was produced, signed by Dr. Voelcker, and showing 14 per cent. of ammonia; whereupon he bought 5 tons, but before paying for it took a sample from the lot produced, which he forwarded to Dr. V. for an analysis, the result of which was that instead of 14 it exhibited barely 2½ per cent. of ammonia, but consisted mostly of gypsum, and contained about one-sixth part only of pure guano. Of course this exploded the plot, and the auctioneer was much disgusted with the transaction. This, however, did not prevent sundry other attempts being made in neighbouring counties, and no doubt the author or authors of the scheme, who it may be observed hail from the north or north-east of London, have made a good thing of it, for this is not the first time, nor the first year by many, in which the aid of auctioneers has been sought to plant these on the credulity of farmers. Now, what is one of the main causes of the success of these manœuvres?—why, that incessant craving after cheap things, that eagerness to buy goods under their real value, which is a ruling principle with many purchasers of manures, and which appears to be encouraged by many who profess entirely different ideas. Now Peruvian guano is sold by the agents of the Peruvian Government at 12*l.* 10*s.* per ton in wholesale quantities, without any deduction or discount, but with shipping expenses added. The merchant has to add freight and railway expenses, and, if he is honest, a moderate profit for himself: and yet it is sometimes offered at less than cost price. Again, with regard to that valuable manure, superphosphate, one would suppose that the interest of consumers would be to encourage old established, respectable, and skilful manufacturers to improve the manufacture as much as possible, and with this object to seek out the richest and most valuable sources of phosphates. But no; the principle advocated of late has been to encourage the manufacture of the low-class superphosphates, such as coprolite and acid; and having buried the good old principle, "live and let live," and ruined, or endeavoured to ruin, the merchant or dealer, to render the article at such a price as will only yield a very small profit to the manufacturer, provided he uses the most inferior and lowest price raw materials he can get; for many of the really good raw materials, such as bone-ash, Sombrero phosphate, &c., are imported at higher prices than the coprolite and acid pseudo-superphosphate is now sold at. Now if Editors and printers would work for nothing, what cheap newspapers we should get; if engineers would level and navvies delve for nought, what cheap fares we should have on our railways; if lawyers and barristers were to go without their fees, how delightful a lawsuit would become; and yet none of these cases would be more absurd than the spectacle afforded of individuals doing the dirty work of a manure company without fee or reward under the glorious appellation of honorary secretary, and more particularly if it can get newspapers to advertise it for nothing. Verily the labourer is no longer worthy of his hire. *S.*

Cropping Steam Cultivated Clays.—The discussion in your columns as to the value of steam cultivation have been of great assistance to intending purchasers of steam tackle, but the best way of cropping steam cultivated farms has not been much discussed. I should much like to hear the views of gentlemen who occupy and steam cultivate clay farms. I have been a steam cultivator for five years, and, after many trials, crop as follows:—My farm consists of 305 acres of arable land. I grow 5 acres of Mangel year after year, reducing my course to 300 acres exactly. I grow 150 acres of Wheat and Barley—usually 80 acres of Wheat after Clover and Beans; 70 acres of Barley after Peas, Tares, &c.; 50 acres of Broad Clover, 30 acres Beans, and 20 acres Peas, thus reducing my fallow shift to 50 acres. Of that I grow 30 acres of Tares, 10 acres of Turnips, and 10 acres of Coleseed and Mustard. I believe this, on the whole, to be as profitable a course of cropping as can be devised on clay soil. I have tried growing large breadths of roots. I can grow a good crop, but at a heavy loss. It reduces my Barley crop by at least 10 bushels an acre, a reduction which no crop of roots can repay. All my Barley this year sold at over 50*s.* a quarter. On the other hand, I do not believe corn can be profitably grown after corn on clay soil; can any of your correspondents suggest a better rotation? The ordinary four-course is the usual mode of farming here, having above one-eighth bare fallow, one-eighth Tares, one-eighth Clover, one-eighth Beans and Peas, the rest Wheat and Barley. Though a stiff clay district, we grow very fine Barley, and good crops. Some time ago you inserted a note of mine, praising Howards' steam cultivator; Mr. Smith, with his usual want of courtesy to all who do not think his steam-cultivator the best in the world, at once attacked my opinion in unmeasured language. What a pity a man to whom all steam cultivators feel indebted cannot keep his temper and write like a gentleman. *Steam Cultivator, Huntingdonshire, April 5.*

Foreign Correspondence.

Paris.—*Cattle, &c., Exhibition* (*concluded from p.* 371).—The show of seeds, roots, &c., comprised about 600 lots, the most important class being that of the Beetroots, and amongst these the Yellow Globe and other Sugar-Beets, which are reported as producing from 30 to 85 tons of roots per hectolitre, that is to say, from 12 to 34 tons per acre. There was also a fair show of Swedes, white Carrots of the Vosges, Potatos, Jerusalem Artichokes, and other roots, as well as a great variety of Haricot Beans.

The exhibition of machines and implements was not, like the preceding, competitive, but the list includes upwards of 400 items, of which a very large portion were either English or formed upon English models, more or less disguised.

Mr. Pilter, of Paris, showed a fine and varied collection of English machines and implements, including portable steam-engines by Garrett and other makers, ploughs, harrows, and other implement by Howard, Garrett's compact ridge drill with its simple method of increasing or diminishing the quantity of seed delivered by the cup or scoop, Wood's mowing and Samuelson's reaping machines, Howard's horse-rakes, and many other well-known implements. The ingenious arrangement of Howard's chain harrow, as well as the ridge harrows of the same firm, attracted great attention, especially the former, which tells its own tale to all observers. Mr. Pilter's collection occupied a very large proportion of the space allotted to implements, and was by far the most complete on the ground.

Messrs. Smyth & Sons, of Peasenhall, Suffolk, and Dieppe, made a good show with their seed and manure drills, of which they exhibited half a dozen different sizes.

Several of the largest French manufacturers of portable engines and implements also made good shows, but, with the exception of modifications to suit French soils and habits, there was little novelty to be discovered.

Messrs. Charles Powis & Co., of Millwall, showed a series of three of their well-known machines for sawing and working wood for agricultural purposes, or for doing general work on private estates or in rural districts, namely, a hand machine for cutting tenons and mortises, and boring and drilling wood and iron; a circular sawing machine, which was driven by one of Garrett's portable engines, and a combined sawing and wood-working machine for general purposes. The last-named is certainly one of the most solid, compact, and comprehensive wood-working machines we have yet seen; the iron frame is cast in a single piece, and all the parts of the machine seem to have been very carefully studied. Some nice sawing and wood-working machines were exhibited by a French maker; but, while the capacity and finish of these machines were very inferior to those of Messrs. Powis, the prices quoted, on the contrary, were very much higher. There is no doubt that the French manufacturers have run us pretty hard of late in some kinds of work, but it is certain that in agricultural and other similar machines we maintain both our superiority and our relative cheapness.

Our neighbours show many ingenious improvements in their utensils and apparatus, but not generally in those applicable to English use; alembics and other apparatus for distilling on a small scale, pumps for wine and other liquors, and for liquid manure, apparatus for irrigation of Grass, watering-engines, &c., have received much attention and many improvements. We noticed one novelty, which may possibly become of general interest, namely, brushes for dressing horses and for hulling Wheat, rice, &c., and for many other purposes, made of quills hardened by a particular process.

The manner in which the whole of the exhibitions enumerated were arranged deserves the highest praise. One-half of the noble covered Cattle Market was devoted to the live animals, all of which had ample space; at the sides were ranged the live birds, &c., and in front of them the dead poultry; the end of the building was devoted to the collection of seeds and roots. In all cases the lines were kept straight, and perfectly unbroken and uninterrupted, and thousands of visitors might have circulated without the slightest difficulty. Unfortunately, the capacity of the building was not tested, for the visitors were lamentably few in number on the opening day, when the fee for admission was five francs. It is incomprehensible that in such a very agricultural country as France a general exhibition like this, held in the capital, at the season when all the world is in town, should not attract more visitors.

In front of the Cattle Market is a large open space, in the centre of which stands an immense fountain, the oldest in Paris—that with the eight lions, which stood formerly on the Boulevards, and was known as the fountain of the Château d'Eau. Here were arranged the machines and implements, the larger in the centre, and the smaller under covered arcades at the side. The old fountain was gay with evergreens, and the tricoloured flag waved brightly everywhere; nothing was wanting, except the presence of those most interested in such a show, to render it a brilliant success.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Monthly Council: *Wednesday, April 7*, 1869.—Present—Lord Walsingham, Vice-President, in the chair; Viscount Bridport, Lord Chesham, Lord Kesteven, Lord Tredegar, the Hon. H. G. Liddell, M.P.; Sir T. Hesketh, Bart., M.P.; Sir Massey Lopes, Bart., M.P.; Sir A. Macdonald, Bart.; Sir H. Vane, Bart.; Mr. Baldwin, Mr. Barnett, Mr. Bowly, Mr. Bramston, Mr. Cantrell, Colonel Challoner, Mr. Davies, Mr. Dent, M.P.; Mr. Druce, Mr. Edmonds, Mr. Brandreth Gibbs, Mr. Hassall, Mr. Hornsby, Mr. Hoskyns, M.P.; Mr. Randall, Mr. R. C. Ransome, Mr. Rigden, Mr. Stone, Mr. Statter, Mr. Thompson, Mr. Torr, Mr. Webb, Mr. Wells, M.P.; Professor Wilson, and Dr. Voelcker.

Sir Harcourt Johnstone, Bart., M.P., was elected a Governor. The following new members were elected:

Agate, Alfred, Horsham.
Armstrong, Thomas John, 5, Hawthorn Terrace, Newcastle-on-Tyne.
Balstone, H. K., Hale Carr, Altrincham, Cheshire.
Baumgardte, Edmund C., Grove Bridge, Hellingley, Hurst Green.
Bowling, Roger, Forton, Garstang, Lancashire.
Charlesworth, John B., Hatfield Hall, Wakefield.
Cheetham, Henry, Wollaton, near Nottingham.
Cooke, John, Mill Moor, Macefen, Malpas, Cheshire.
Dunn, John, Fernhill Villa, Market Drayton, Salop.
Eastwood, George, Healey Hall, Burnley, Lancaster.
Elwes, Hugh W. H., Stowe Park, Bungay, Suffolk.
Freeman, Frederick, Speedwell, Woburn, Beds.
Greatorex, Frederick, Queen's Brewery, Manchester.
Guilding, Richard, Malvern Wells, Worcestershire.
Hathorn, Alexander, Smeathalls, near Ferrybridge, Yorkshire.
Hesseltine, William, Beaumont Cote, Barton-on-Humber, Lincoln.
Hills, Alfred, Penkridge.
Hills, William Arthur, Hammerwich, Lichfield, Staffordshire.
Howard, Samuel, Dairy House Farm, Dunham Massey, Altrincham, Cheshire.
Ikin, Edward, Moat House Farm, Wem, Salop.
Ingledew, William, Sceugh Farm, Penrith, Cumberland.
Jones, Arthur Owen, Marwood Hill, Barnstaple, Devon.
Learmouth, Thomas Q., Park Hall, Linlithgow, N.B.
Leigh, Egerton, Jodrell Hall, Holmes Chapel, Cheshire.
Morley, Henry Hope, Craven Lodge, Stamford Hill, Middlesex.
Muirhead, Thomas, 20, Victoria Street, Manchester.
Oxley, John Stewart, Fen Place, Worth, Sussex.
Peto, Lawrence James, 17, Esplanade, Lowestoft, Suffolk.
Platt, John, Belle Vue, Wem, Salop.
Prevost, Lieut.-Colonel Charles, Wellclose, Brockworth, Gloucester.
Ridley, Matthew White, M.P., Blagdon, Cramlington, Northumberland.
Roy, Robert Henry, Walden Hall, Saffron Walden.
Russell, Joseph, Manor House, Bewbush, Lower Beeding, Sussex.
Sandy, Thomas G., Burnley.
Skelmersdale, Lord, Lathorn House, Ormskirk, Lancaster.
Staples-Browne, Frederick J., Glen Lodge, Maidenhead.
Stocks, Charles, Cheadle, near Manchester.
Storey, George, Brunshawe House, Burnley, Lancaster.
Tanner, Richard, Frodesley, Donington, Salop.
Thompson, William, Parkend, Workington, Cumberland.
Walker, Matthew, Stockley Park, Burton-on-Trent, Staffs.

Finances.—Mr. Bramston presented the report, from which it appeared that the Secretary's receipts during the past month had been examined, and were found correct. The balance in the hands of the bankers on March 31 was 2038*l.* 11*s.* 6*d.*, 3000*l.* remaining on deposit at interest. The balance-sheet for the quarter ended March 31, 1869, and the statement of subscrip-

tions and arrears were laid on the table, the amount of arrears due being 900*l.*

Journal.—Mr. Thompson (Chairman) reported—(1). That the new number of the Journal was on the table. The delay in its publication, on this and several previous occasions, had caused much annoyance to the Committee, and they therefore reported that Mr. Jenkins was prepared to undertake that the Journal shall in future be published at the right time, namely, by the end of the months of February and August, provided it be distinctly understood to be the wish of the Council that such publication shall take place without waiting for any of the reports of the judges at the country meetings, which may not have been sent to the Editor in time for publication at the end of August. (2). A letter having been received from the Duke of Northumberland, K.G., offering a short paper for the Journal, on the use of the steam-plough on his estates, the Committee recommended that his Grace's offer be accepted with thanks. (3). M. Fleury, French Consul-General in England, having written to request that the "Société des Agriculteurs de France," recently established in Paris, may be affiliated to this Society, and exchange publications with it, the Committee recommended, without giving at present any opinion on the request for affiliation, that an interchange of publications between the two Societies be established. (4). The Committee recommended that a prize of 25*l.* be offered for the best Essay on any agricultural subject, the Essays to be sent in by October 1st, 1869. This report was adopted after some conversation. Mr. Wells, M.P., asking, on the first subject, whether the judges clearly understood, in all cases, that a report is required of them, Mr. Bowly testifying to the delay consequent on the judges' reports not being duly sent in, and Mr. Dent, M.P., insisting that the irregularity in the appearance of the Society's publications was a discredit to it, and showed a lack of business-like management of its affairs. Mr. Thompson then stated that, in view of the probability of the Society's educational grant being discontinued, and in order to encourage young and rising agriculturists, and to obtain useful and interesting matter for the Journal, he wished to suggest the establishment of two travelling scholarships of 100*l.* each, one for British and the other for Foreign agriculture, so that, if considered desirable, the matter might be referred to a special committee. Mr. Dent, M.P., while admitting the desirability of obtaining matter for the Journal without having recourse to Prize Essays, more especially reports on the agriculture of different districts, would prefer experienced persons instead of young men. The Hon. Mr. Liddell, M.P., asked how the qualifications of the candidates would be ascertained, and also whether it would not be possible to combine Mr. Thompson's idea with the award of the prize of 25*l.* already sanctioned, increasing the amount if necessary? Mr. Wells, M.P., objected to the time at which this proposal had been brought forward, as being based on the assumption that the education grant would come to an end; and would, therefore, prefer to have the subject postponed for a year, although he regarded the proposals, especially Mr. Dent's, as worthy of consideration. Lord Kesteven thought that 100*l.* would go a very little way, as the pupil would have to learn; and, as little dependence could be placed on his conclusions, no practical result would ensue. As the Council could not come to a decision at once, he would prefer the report of a special committee. The Chairman suggested that the Journal Committee should reconsider the matter. Mr. Randell stated that as a series of reports on farms had been commenced, he would like to see the result before proceeding further, and hoped that the matter would be deferred. Mr. Thompson, in reply, observed that his object was to have the matter discussed, and that he objected to its being referred to so small a committee as the Journal Committee. His proposal, if adopted, would take the place of special prizes, and would be an extension of the inspection scheme. The qualifications of candidates would be ascertained by finding out what they had already done, and by their own writing. Ultimately, on the suggestion of the Chairman, both Mr. Thompson and Mr. Dent gave notice of their intention to bring forward a motion on the subject at the next monthly Council.

General, Manchester.—Lord Walsingham presented the report of the Committee, which contained the following recommendations:—(1) That the Society provide fittings for two striking-clocks in the body of the show-yard, in addition to one at the entrance, the clocks to be supplied gratis; and (2), that the Manchester Local Committee be relieved from their undertaking to remove the toll-gates between Manchester and the show-yard. It was also announced that the show of fox-hounds and hunters leaping will be under the patronage of H. R. H. the Prince of Wales, President of the Society. This report was adopted. Mr. Torr then brought forward a suggestion that a Council meeting should be held every day during the show, at one o'clock; that the Council be composed of the stewards of live stock and of implements, the honorary director, and such other members of the Council as may be specially nominated for the purpose; but that the functions of this Council should in no way interfere with the authority and duties of the stewards and the honorary director. A discussion having ensued, in which Colonel Challoner, Mr. Bowly, Mr. Dent, M.P., and Mr. Brandreth Gibbs took part, expressing themselves as more or less favourable to the plan, it was finally arranged, at the suggestion of Mr. Dent, that Mr. Torr should give notice of his intention to move a resolution on the subject at the next monthly Council. Notice was accordingly given.

Chemical.—Mr. Wells, M.P. (Chairman), reported the recommendation of the Committee that Monday, May 10, at 2 o'clock, be fixed on for Dr. Voelcker's lecture on his chemical investigations during the past year.—This report was adopted.

Education.—Mr. Wells, M.P., reported that 21 gentlemen had entered their names as candidates for the Society's educational prizes; he announced that the examination would commence on Tuesday, April 13, and gave a general description of the scheme proposed to be followed.—This report was adopted.

Selection.—Mr. Dent, M.P., presented the report, in which the Committee recommended that his Grace the Duke of Devonshire, K.G., should be elected a Vice-President, in the place of the late Sir J. V. B. Johnstone, Bart., M.P. It was also recommended that his Highness the Pasha of Egypt be elected an honorary member of the Society, and that a bound copy of the Society's Journal up to the present time be forwarded for his acceptance; also, that M. Drouyn de L'huys, President, and M. Lecouteux, Secretary of the "Société des Agriculteurs de France," be elected honorary members of the Society. This report having been adopted, it was proposed by Mr. Dent, M.P., seconded by Mr. Thompson, and carried unanimously, that his Grace the Duke of Devonshire be elected a Vice-President in the place of the late Sir J. V. B. Johnstone, Bart., M.P. On the motion of Mr. Dent, M.P., it was unanimously resolved that his Highness the Pasha of Egypt be elected an honorary member of the Society, and that a bound copy of the Society's Journal up to the present time be forwarded for his acceptance, in recognition of his generous aid to British agriculture, his interest in its progress, and his courtesy to the Society. On the motion of Mr. Thompson, his Excellency M. Drouyn de L'huys and M. Lecouteux were unanimously elected honorary members of the Society, the mover of the resolution observing that the former gentleman was already very well known to members of the Society, and that the latter was recognised as the leading man amongst French agriculturists, and as the promoter of the "Société des Agriculteurs de France."

A memorial was received from the Corporation of Oxford, inviting the Society to hold its country meeting for 1870 in that city. On the motion of Mr. Torr this memorial was referred to an inspection committee, consisting of his Grace the Duke of Richmond, K.G.; Sir A. K. Macdonald, Mr. Brandreth Gibbs, Mr. D. R. Davies, and Mr. C. Randell.

The following memorials were received on the subject of inspection of wool and shearing:—

"*To the Council of the Agricultural Society of England.*—We, the undersigned, being exhibitors and breeders, and interested in the welfare of Shropshire sheep, beg respectfully to represent to your honourable Council, that we consider the means at present adopted by the Royal Agricultural Society of inspecting the wool, and disqualifying sheep, by private parties, whose names are not published as inspectors, are most objectionable, as being at variance with the rules of the Society, subversive of the privileges and powers that should alone be exercised by the judges, and a system which fails fairly to prevent the evil it is intended to remedy, by its having been known to permit the competition of animals which could not have been fairly shorn, and having disqualified others which could have been proved to have been shorn in conformity with the rules of the Society. Under these circumstances, we beg to memorialise your honourable Council to abolish the inspection by private parties, and to invest the judges with full power to decide upon the eligibility of the animals for competition, and to act as they may think fit."

"We, the undersigned, breeders of Oxfordshire sheep (whilst admitting that it is desirable all sheep exhibited should be bare shorn after the 1st April, are thoroughly convinced that no system of inspection will ensure it), hereby respectfully submit that it is necessary to abolish the restrictions now in force, believing that the judges will much more effectually condemn unfair practices than any system of inspection can do."

"We, the undersigned breeders of long-woolled sheep, desire respectfully to represent to your honourable Council, that the present regulations for the inspection of shearing have utterly failed; the undersigned would be strongly in favour of sheep for exhibition at the Royal Agricultural Society's meetings being shorn bare on or after April 1, if such a regulation could be carried out; but, being unable to conceive any, and believing that no means can be suggested which would accomplish so desirable an object, they respectfully urge that it would be advisable to abolish all restrictions on the shearing of sheep."

"We, the undersigned breeders of sheep, residing in the county of Norfolk, desire respectfully to represent to your Council that the present regulations for the inspection of shearing have utterly failed; the undersigned would be strongly in favour of sheep for exhibition at the Society's annual summer meetings being shorn bare on or after the first day of April, if such a regulation could be carried out; but being unable to conceive any means, and believing that no means can be suggested whereby so desirable an end could be attained, earnestly urge upon the Council the advisability of abolishing all restrictions whatever upon the shearing of sheep."

A letter on the same subject from Mr. Beale Brown was then read, urging the Council to continue the inspection. Mr. Randell stated his conviction that the feeling against the continuation of the inspection was by no means general, and quoted from several communications to that effect which had been received by him. He moved:—

"That the Secretary inform those gentlemen who have forwarded memorials on the subject of the inspection of shearing, that these have been considered by the Council. The ground of objection seems to be that such inspection is made 'by private parties whose names are not published,' and it is asked, not that inspection shall be abandoned, but that the duty of performing it shall devolve upon the judges.

"The Council cannot admit that there has been any concealment of the names of the inspectors, as they appeared with the names of the judges on the Plymouth and Bury St. Edmund's award lists, and it was known to the exhibitors that the same gentlemen were employed at Leicester; the omission of the names at this meeting was, therefore, certainly not intentional.

"The Council cannot believe that it would be agreeable to the judges to have the additional duty imposed upon them which the memorialists ask for, or that it would be as efficiently performed by them as by persons specially appointed for the purpose.

"The object which the Council had in requiring that all sheep exhibited should have been fairly shorn was to prevent deception, and they know that this object has been attained to a great extent, though they are sorry to find, from the statement in the memorials, not absolutely. They hope the time is not distant when all exhibitors will find that it is as dishonourable to certify falsely as to shearing as it would be in respect of age or ownership. Inspection may then be abandoned, but until then it must continue, and the Council will be glad to receive and consider any suggestions having for their object the making such inspection more effectual. Meantime, disqualifications by inspectors of shearing must be regarded as final."

Mr. Rigden, as a large breeder and constant exhibitor for many years, expressed his opinion that the shearing had much improved since the establishment of the system of inspection: he stated that he had no fear of his sheep being disqualified by the inspectors, and avowed his belief that a continuation of the inspection will in time do away with unfair shearing. He seconded Mr. Randell's motion, that the above reply be sent to the memoralists. Lord Chesham suggested that if any sheep belonging to an exhibitor were disqualified, the whole of those, the property of the same owner, should share the same fate. Mr. Davies remarked that, having been a steward of live stock for two years, he believed the continuance of the inspection to be highly desirable, and that his inquiries amongst eminent agriculturists led to the same conclusion. Mr. Randell's motion having been put by the Chairman, was carried unanimously. It was suggested by Mr. Bowly, proposed by Mr. Randell, seconded by Mr. Edmonds, and carried unanimously, that a third inspector of wool and shearing be appointed.

On the motion of Mr. Ransome it was resolved that the principal county agricultural societies, and the Institution of Mechanical Engineers, should be requested to nominate judges of machinery, the nominations to be sent in by April 30.

At the request of the secretary of the Society of Arts, and on the motion of Sir A. K. Macdonald, seconded by Mr. Davies, Dr. Voelcker was unanimously nominated by the Council as a judge of the milk-cans and milk-vans sent to compete for the prizes offered by that Society.

BATH AND WEST OF ENGLAND.

At the late Council meeting of this society Mr. Acland, M.P., as chairman of the Journal Committee, laid on the table a copy of vol. xvi., concluding the series commencing with the extension of the society's operations in 1852; and it was ordered that with the part of the Journal containing the report of the first united annual meeting of the Bath and West of England Society and Southern Counties Association (now amalgamated) a new or third series shall be commenced.

The Meeting of 1870.—A letter was read from the local secretaries at Taunton, to Mr. R. G. Badcock, containing the following copy of a resolution passed by the local committee, on Monday, March 29:—"That Mr. Robert Badcock be requested to inform the Bath and West of England Society and Southern Counties Association, at their meeting to-morrow, that the subscription list of the local committee, formed for the purpose of promoting a meeting of the Society for the year 1870 at Taunton, amounts to nearly 1,500*l.*, and that the committee have no doubt of further contributions; also that the local committee desire to be informed of the latest time at which the society is open to receive a further communication from the local committee on the subject of such invitation." To this communication the secretary was directed to reply that if at the Council meeting on April 26 the local committee are prepared to give a written assurance that the Society's requirements will be complied with, the Council will be most happy to make arrangements accordingly.

Southampton Meeting.—The programme for the forthcoming meeting was brought up and provisionally adopted. The stock prize sheet, for which the entries closed on the 12th inst., places Devon, Shorthorn, Hereford, and Sussex cattle on the same footing; there being the same number of classes, with prizes of the same amount for each breed. The sheep classes include Southdowns, Hampshire Downs, Leicesters, Cotswolds, Shropshires, Oxfordshire Downs, Somerset and Dorset Horns, Exmoors and other mountain sheep. Special local prizes are offered for Forest horses; and there are also prizes offered by the Society and the Southampton local committee for Channel Islands cattle, of which a large show is expected. The time for entering poultry has been extended to May 8. The show will open on Monday morning, May 31, at 10 o'clock, when the open judging of cattle, sheep, horses, pigs, and poultry, will commence, and be continued till the awards are made in the several classes.

Farmers' Clubs.

LONDON.

April 5.—Mr. F. L. Dashwood said—I cannot but think that a few persons are aware of the difference that exists in the modes of rating in the three divisions of our country. I do not enter into the detail of the machinery for assessments, valuations, collections, &c., I only give the points that appear to me to be the most important for the object I have in view, namely, to see what we in England can learn worth adoption, so that our whole system of rating may be improved and work more harmoniously, and to the advantage of all classes. The chief points are as follows:—

In England, now, a church rate is not compulsory; no education rate.

The county rate (which includes three-fourths of the expenses of the police) is paid by occupiers, but they have no voice as to the expenditure, which is managed by the magistrates at quarter sessions, but directed and controlled by the State. The poor rate (under which head most rates are collected) is paid by the occupier, the expenditure controlled by a board of guardians, composed of occupiers and magistrates *ex officio*.

The highway rate, similar to the poor rate (if under the highway board), except that the expenditure is confined to individual parishes, and does not yet extend to the district of the highway board. The compounding for rates is allowed in many parishes, for occupations under a certain rental, but not in boroughs since the last Reform Bill.

In Scotland the charges for the churches, clergymen's houses, and for schools are paid by the owners.

The county rate (which includes three-fourths of the expenses of the police, and controlled by the State, as in England) is all paid by the owners and managed by those of over 100*l.* a year in land, and of over 250*l.* a year in house property. The poor rate is paid half by the owners and half by the occupiers, and managed by owners of over 20*l.* a-year, and an elected Board. Union rating has not yet been adopted. The highway rate: The system varies in the different counties, but as an instance I will quote Kircudbrightshire, where the owners pay half for repairs, and pay all for new work, and the occupiers pay half for repairs only. The district is managed by a Board, which is composed of owners over 100*l.* a-year, and an elected member from every parish. The charge and expenditure are on the district and not on the parish. The turnpikes have been abolished in this and in many other counties, as recommended by the Committee on Scotch Roads in 1858. No compounding for rates; but occupiers of 4*l.* and under, and of tenements let for less than 12 months, need not be placed on the rate book (this does not apply to boroughs since the last Reform Bill); but the owners may recover half of the rate from their occupiers.

In Ireland no church rate. Three-fourths, if not all, the charge for education, and all for the police, are paid by the State.

The county rate (this includes the roads, after having passed through the Presentment Sessions) is paid by the occupiers, and is controlled at the assizes by the Grand Jury, composed almost entirely of magistrates. The poor rate is first paid by the occupiers, but half of it is repaid them by the owners at rent-day. The expenditure is controlled by the magistrates and elected guardians at union Boards, as in England: there is not as yet union rating. The highway rate is paid by the occupiers, and controlled by a Board of rate-payers and magistrates at Presentment Sessions. The proceedings of these boards were all to be passed with the county rate by the Grand Jury at the assizes. No compounding for rates: owners pay all rates for holdings under 4*l.* a-year in counties.

I will now attempt to show you by an example how great is the difference that exists between them.

We will take 2*s.* 6*d.* in the pound as being the amount of all the rates, and we will assume each rate to be in each of the three countries of the same proportion—say, poor rate 1*s.* 3*d.*, highway rate, 9*d.*, county rate 6*d.*—total, 2*s.* 6*d.* The result would be, that in England the owner pays (directly) nil. The occupier pays the whole—namely, 2*s.* 6*d.* In Ireland the owner pays half the poor rate, 7½*d.*; the occupier half the poor rate, 7½*d.*, and all the county and highway rates, 1*s.* 3*d.*—making a total of 1*s.* 10½*d.* In Scotland the owner pays half the poor rate, 7½*d.*; half the highway rate, 4½*d.*; all the county rate, 6*d.*—making a total of 1*s.* 6*d.* The occupier half the poor rate, 7½*d.*, half the highway rate, 5½*d.*—making a total of 1*s.* Mark the important difference—the owner in England paying (directly) nil, but in Scotland 1*s.* 6*d.* The occupier in England paying 2*s.* 6*d.*, in Scotland only 1*s.* We cannot now be astonished that we hear so little, if any, real grumbling as to the rates in Scotland — somewhat more in Ireland—and so much in England. No wonder that in England owners have not had brought home to them the necessity of taking their proper share in the administration of work in which they are really so largely interested. On comparing the systems of rating, it appears to me that England is now under the worst and Scotland, as a whole, on the best system. But the important difference I wish specially to point out, and to urge on your attention, is the system of half-rating as adopted and carried out in Ireland as to the poor rate. This I believe to be the keynote to all our troubles in matters connected with rating. This system of half-rating has been found to work so well in Ireland as to the poor rate, that there is now a Bill before Parliament for the same system to be extended to the county rate, which rate includes, as I stated before, the highways. Ought not the following to be the machinery of all rating, namely—That all rates should be paid half by the owner and half by the occupier; the occupier first paying the whole of the rate, he being empowered to deduct half the amount from his rent, as was done in England with the cattle-plague rate; the expenditure of all rates to be controlled by both owner and occupier, the lasting interest of the owner being considered as well as the temporary interests of the occupier, somewhat as is now done as to the number of votes in vestry? The owners having to make an entry of the half yearly deductions for rates in their rent-rolls, would have this expenditure brought to their notice, which is not the case under the present system, and they would see that their lasting interests were provided for. I have seen the rent-roll of an Irish landowner, with its column of deductions for poor rates, and an agent of English estates would allow that such a summary would be a most instructive lesson to any owner. The occupiers knowing that half the rates would be returned to them, and that in case of any fresh rate being imposed they would only have to bear half the burden, would not be inclined to oppose any useful improvement; and this would lead to both parties working together in a more advantageous manner to themselves and to all classes than at present. Many may urge, why alter a system which satisfies the owners of property and the public generally? and, as to the occupiers, they agree to certain terms when entering on their tenancies, so they have no cause to complain. In answer, I urge that I am not advocating the interest of either party, the owner or the occupier, the lasting or the temporary interest; I am only advocating measures for the good of all classes in the country. I ask, do we find the present system to work well? and, if not, what is the reason? and can it be improved? As many may wish to know what have been my chances of gaining experience on such subjects, I may state I am, and I have been for several years, a large employer of labour, both as a tenant-farmer occupying upwards of 1000 acres of land, chiefly arable, and also assisting largely in estate management; and I have for years taken great interest in the welfare and improvement of our labouring population. I have also been a Poor Law guardian, and, as a magistrate, a guardian *ex officio*; consequently I hope I may be considered to have had good opportunities for observing not only the good and bad points of our machinery and management, but also the ideas of all classes connected with such management, &c., and I have felt more and more disheartened as I have observed how hopeless is the real improvement of the agricultural labourer under the disadvantages of the present system; and I am strongly convinced that the half-rating would be of the greatest use to our country—indeed, that without it our rating will never be on a proper basis, or get the support of all classes, or be well regulated.

Our present system is most faulty.

The owners of property, with their lasting interests, and on (either personally or by their agents), and thus fail to look after their interests and duties from the same cause as in the country—namely, that they do not pay directly; and the large employers of labour and professional men, as a matter of course, cannot give up their time to such a small matter as the question of the rates on their individual holdings, consequently the management must lapse to a less interested class, or to those who undertake these disagreeable offices for other reasons. Can we expect persons to take onerous duties on themselves unless they feel interested through their property at stake? How many of such, or of their representatives, with practical experience, are on the metropolitan Boards? In support of my assertions, I must now draw your attention to the report from the Select Committee on Poor Rate Assessment, printed by order of the House of Commons, June 28, 1868. In it Mr. Lambert, Inspector of Auditors for the Poor Law Board, speaks favourably of the half-rating system of Ireland and of Scotland, and his evidence is very interesting on many points of detail. The evidence describing the ill effects of the law of compounding (in some cases rendering the permanent interests of the landlords inaccessible to tenants) is most useful; and specially interesting is the evidence of Mr. Wrigley, of Oldham; Mr. Jeffery, of Liverpool; and of Mr. Chapman, of Stockport, as to the good effects arising from small occupiers paying the rates. I should recommend any one taking up this subject to read this report. I confess that since reading it I feel strongly that all compounding ought to be abolished in the country as well as in boroughs, so as to get all classes to take interest in the management of the rates, and that the half-rating should be made the basis—the occupier, as

TABLE OF RATING IN THE THREE COUNTRIES.

Description of Rate.	England.	Scotland.	Ireland.
Church	Not compulsory	Paid by owners	None.
Education	None	Paid by owners	Paid by the State.
Poor	Paid by occupier; managed by an elected Board composed of elected guardians and magistrates *ex officio*.	Paid half by the owners, and half by the occupiers; managed by owners of 20*l.* a-year and above, and an elected Board.	The whole is first paid by the occupier, and he is empowered to deduct half the amount from the rent; managed by a Board composed of elected guardians and magistrates *ex officio*.
Is supplemented by the State for medical attendance, and for schools in union-houses.			
Highway	Paid by the occupiers, and managed by Boards composed as the Boards of guardians—that is, where the new highway system has been adopted. The charge and expenditure is on the parish, not on the district.	Different counties have different systems. Take Kirkcudbrightshire, owners pay half for repairs (and all for new work), occupiers pay the other half; managed by a district Board, which is composed of owners over 100*l.* a-year, and an elected member from every parish. The charge and expenditure are on the district, not on the parish.	Paid by occupiers, and controlled by a Board of ratepayers and magistrates, and passed by the Grand Jury with the county rate.
Police	Merged in county rate; paid by the occupiers, and supplemented by the State to the amount of one-fourth.	Merged in county rate, paid by the owners only, and supplemented by the State to the amount of one-fourth.	Paid by the State.
County	Paid by occupiers, but managed solely by the magistrates, but much controlled by the State.	Paid by owners, and managed by the owners of over 100*l.* a-year; controlled by the State, as in England.	Paid by the occupiers; the expenses of highways and of police-stations, &c., being added; the whole is managed by the Grand Jury at assizes, which jury is almost entirely composed of magistrates.
This includes bridges, police (except in Ireland), gaols, expenses of criminals (the latter supplemented by the State), lunatic asylum. The expenses of lunatics is repaid by unions in England, and by parishes in Scotland and Ireland.			
Compounding for Rates	Not allowed in boroughs	No compounding, but occupiers of 4*l.* and under, and of tenements let for less than 12 months need not be placed on the rate-book (except in boroughs), but the owner may recover half of rate from the occupier.	No compounding; the owners pay the rates for 4*l.* and under in counties.

whom really fall, in the average of years, all these charges, both in country and town, are by the present legislation causing indirect payment, allowed, or rather made to leave their interests and duties to their tenants, and are thus practically shut out from the management of the poor and highway rates (which in my union and district, in Oxfordshire, are as four-fifths to the one-fifth for the county rate, managed by owners). The owners are often magistrates, and as such can attend the Board of Guardians and of Highways in the district in which they reside, and one-third of the members of assessment committees may be composed of magistrates *ex officio*; but as these owners do not pay directly any of these charges on their property (except for land in hand or for cottages), the importance of such matters is not brought to their notice, neither do they, when they attend at their respective Boards (which is, comparatively speaking, seldom, or, at all events, not for a continued period), carry that weight their lasting interests represent; in fact, they are looked on as interlopers, which the law has practically made them; and thus, through the non-payment of the rates both the highest and lowest classes are excluded from taking interest in and sharing in this work. The occupiers, on whom, as ratepayers, the business really devolves, as a rule, do their best, for which they often get abuse instead of co-operation. Having only temporary interests their management is necessarily rather parsimonious than economical, and they naturally oppose as long as possible any change that may increase the annual charge, as they know all expenditure for a future benefit will fall directly on themselves; as, for instance, in such cases as the Union Rating and Highway District Bill (we well know the opposition this Bill met with), and may shortly be the case with an education Bill. I will now endeavour to show what I believe to be the unsatisfactory results of our system of rating in England. There exists no system of primary education worthy of a name. Great complaints as to the increase of the rates, and as to the occupiers having no voice in the expenditure of the county rate; and great fears as to the expenses of the highways and of the turnpike roads being made district charges. From the Poor Law Annual Report of last year I find we have, say one pauper in every 20 in the population, whilst in Scotland there is one, say in 36, whereas in Ireland one only in 85. In our purely agricultural districts one pauper in every 14 of population. In my own county (Oxfordshire), in one union, January 1, 1868, one pauper in 11 of the population, and similar cases can be found in other districts of England; at the same date in one union in Sussex, one in 10. How can such a population be otherwise than demoralised? We must allow that Ireland has only had a Poor Law comparatively of late years; but through the education, arising partly from the half-rating, the Irish landowner will invariably be found more cognisant of his duties in this line than the English landowner—at least this is the experience of myself and others. Does not blame rest with the system that causes such ignorance? It speaks for itself, that it must be the system that is at fault, as we all know that many of our owners of property would be ready to join in such work if they felt how much it is their interest to do so. Theoretically, a Poor Law cannot well be defended; but practically in a rich country it is a most useful institution, and the Poor Law is not to blame for the abuses we hear of, but the faulty system, and consequent lax administration which have led to such abuses.

We have all read of the great complaints as to the management of the rates in general in London.

The *Times* of the 1st of February, 1869, states, the sum expended in out-door relief has increased within the last nine years about 130 per cent.; and in a leading article of May 20, 1868, it is stated, "But a man may live for many years in the parish, and be in its best society, without any knowledge whatever of the parochial administration." I trust some one acquainted with the working of the London Boards will be able to explain the cause; but from inquiries I have made I understand the owners of property are rarely, if ever, represented in Ireland, being responsible for the rate in the first instance—the half being recouped him at the payment of his rent. This machinery appears for many reasons to be better than the Scotch, in which the owner is directly responsible and does not pay through his tenant, but I understand that in practice it is very often paid through the tenant, and would much facilitate the collection of rates, which, with the small occupiers who may have to pay them, is found so difficult under the present system; also lead to better management on the part of the more listless occupiers (the retaining of the receipt-papers to obtain the repayment of the half is a good schooling in itself), and without doubt would diminish pauperism (see Mr. Jeffery's evidence), and with an education rate would doubtless lead to the smaller ratepayers taking greater interest in the education of their children, which interest, uniting with the more extended views of the larger ratepayers and owners of property, would render this one of the great difficulties of the present time. In the report from the Committee of the House of Lords, in session of 1850, Sir George Cornewall Lewis speaks well of the half-rating in Scotland.

Before terminating I must refer you to a discussion at this Farmers' Club in Nov., 1864.

This will show that this point has been already mentioned at this Club, and I extract the words of Sir J. Cressingham: "He thought the basis of county rating required some modification; at present the whole burden fell upon the occupiers, and the widening of the basis of charge would, in his opinion, lead to a more economical and equitable expenditure. The burden should be divided more or less between the occupier and the owner of property. Some years ago, it having been determined to add to a county prison in Kent, the owners were, if he recollected rightly, assessed to the amount of 2*s.* 6*d.* in the pound, and the occupiers to the amount of 1*s.* 6*d.* That appeared to him an equitable arrangement, and he thought that in order to secure a better system in the country generally owners should be made partly liable for charges which now pressed on occupiers alone."

I must also add extracts from a paper on local rating, read by Mr. Charles Grey, of Dilston, in Northumberland, at a meeting of the Farmers' Club at Hexam, the account of which appeared in the *Mark Lane Express* of Dec. 21, 1858, but, being in the supplement, I am afraid it escaped the notice of many.

Mr. Grey, who for some years had the management of large estates in Ireland, states: "This club is aware that I have already advocated the equal division of rates between landlord and tenant—that the tenant should pay them in the first instance and be empowered to deduct half the amount from his rent. We have a precedent for this in the payment of poor rates in Ireland and other local rates in Scotland, where the plan works successfully. In support of the justice of this proposition numberless instances could be brought forward in this county where the rates on farms during the present leases have risen considerably, very much from causes over which the ratepayers had no control—such as county rate, contributions to turnpikes, &c. I think, therefore, that landowners should partly share in the fluctuation of local rates, as they are equally interested in the prosperity and peace of the district, and in the condition of its highways."

In conclusion, as to the real origin of my taking up this subject and bringing it before you, I must be allowed to repeat that I have for years been interested in the improvement of our labouring population, and especially of that class, the agricultural labourer, whose state we cannot consider to be satisfactory, and for which state we connected with the country receive great blame when I do not consider we deserve it.

As a large employer of labour I find no difficulty in getting work done, and well done; and good farming much improves the quality of the labour and the condition of the labourer. I

have for years watched our system of education, also the benevolent and well-intentioned assistance usually given by clothing, coal, and other charitable clubs, and all such supposed encouragers of provident habits; and I still find that, as a class, the agricultural labourer, though improved as to condition, does not improve in his habits of providence and forethought as might be desired. And I ask, does not this unsatisfactory state mainly result from the faults of the system which I have been explaining, aggravated by our badly administered Poor Law, and by the well-intentioned charitable societies, all tending, by keeping the supply of labour greater than the regular demand for it, to the lowering of wages, and to the demoralisation of the class? Is it not a fact that our best labourers are to be found where there is the least of such artificial and benevolent assistance; in fact, where the people have mostly to rely on their own exertions? I am far from being against charity to individuals when personally known (and there will always be plenty of such cases), but I am against any such organised plans as tend to lower a class in their own self-respect. I need scarcely point out to you that the main blot in our Poor Law management is the great abuse made of outdoor relief, which resolves itself in many instances to relief in aid of wages. In Ireland the number of outdoor paupers is less than one-third of the indoor (in the last Irish Poor Law Report it was stated that Dr. Edward Smith and other scientific authorities have established the fact that the Irish farm labourer is better fed than his representatives in England), whilst in our agricultural districts there are about eight times as many more outdoor paupers than indoor; and the outdoor expenditure amounts in similar districts to about one-third of that of all our rates.

Many can well remember the evils of the old system, altered in 1834, and in many cases we can trace its evil effects in families at the present time.

Are we not, notwithstanding our experience, and with our superior advantages, drifting back to similar evils under our present outdoor relief system? As long as this system prevails to the extent it does, especially in our agricultural districts, I am afraid the labouring classes will never be able to emancipate themselves from this state of dependence. I have such faith in their good sense that I am confident that, had it not been for the temptation afforded by this easily-obtained Poor Law relief, they would long since have placed their benefit clubs on a sound footing. Do not the attempts hitherto made by them for such provision prove their wishes to be in favour of independence? And I believe the system of dividing the rates between owner and tenant, and the results arising from it (among which I most specially mention an improved system of education), would lead to the elevation of the agricultural labouring class, which has hitherto been cut off from the duties of citizenship. Mr. Goschen's Bill, empowering the tenants of occupations for a term less than a quarter to deduct the rates from the landlord, will be of great use, if followed up, as I trust it will be, by a Bill for the half-payment of all rates on all occupations for a longer term than a quarter of a year. I should strongly recommend all owners of property to extend their tenancies of even small holdings to a term longer than a quarter, so that their tenants should be the medium of payment, as they would then find them more careful, and both parties would be mutually interested in these matters. As a matter of account, the owners would then find in their rent-roll books all deductions for rates on these small holdings entered under the proper heads, instead of, as at present, generally so distributed in the general account, that neither owners nor their agents ever have any real knowledge of what the different charges for rates amount to: and an owner would then easily be able to learn what the rates on the whole of his property amounted to yearly, as these facts would be brought to his notice after every audit day. Landlords who at present take no interest in the charges paid by their tenants would probably be startled to find their property is taxed as follows:—If at 2*s.* 6*d.* in the pound, the yearly charge on 100*l.* rateable value is 12*l.* 10*s.*; ditto on 1000*l*, ditto 125*l.* The half-rate would be 62*l.* 10*s.* The average of all rates in England and Wales is 3*s.* 4*d.* in the pound, and 4*d.* paid by the State. At this 3*s.* 4*d.* in the pound the yearly charge on 100*l.* rateable value would be 16*l.* 13*s.* 4*d.*; ditto on 1000*l.*, ditto 176*l.* 13*s.* 4*d.*; the half-rate would be 88*l.* 6*s.* 8*d.* As to the national rating, which some persons advocate, I think its objections are well met in the report of the Committee of the House of Lords in 1850. I myself feel very antagonistic to the centralisation which would result. Whether in case of a primary education rate being imposed on property it might be advisable for the State to alleviate the owners of property to an equal amount, applied either towards the highway or poor rate, admits of consideration. My experience is in favour of a small subsidy from the State, which leads to the Government inspector's recommendation being listened to by the local boards (do we not now require this in our Poor Law management?). These recommendations are generally very useful, as they result from the experience collected by the head office from all parts of the country. On referring to the papers read before this Club I find that union rating—that useful measure passed in 1865—was advocated by this Club as far back as 1850. I trust, should you think well of the half-rating system, it may not take so long a period before legislation grants it to us. I have found much difficulty in collecting these facts, the details of payment not only of the rates, but also other charges and of the allowances from the State, varying in the three countries—the Poor Law Reports also being drawn up in different forms—but I believe I am accurate as to the principal points useful for the discussion of this subject; and trusting you will excuse my shortcomings, I now leave it in your hands.

Reviews.

The Country Gentleman's Magazine for April, 1869. Simpkin, Marshall & Co.

The current number may be taken as a fair or favourable example of the form which this long-established periodical has at length assumed. It is no longer a strictly agricultural journal, or a collection of original articles. On the other hand it is no longer a heavy, and except for professional use, an unreable book. It is, for the most part, a light, various, amply illustrated re-edition of well written, cleverly written, smartly written articles, which have already appeared in the columns of our excellent contemporary, the *Farmer*; and which, we cordially admit, almost always well deserve the more permanent form they here receive. The present number contains leading articles on the adulteration of seeds, the improvement of pastures, the management of irrigated lands, the making and the use of farmyard manure, the supply of nitrate of soda, the increase of home food production, pictures of foreign cattle, reports on the feeding of cattle, on the plough, and details of farm building construction, reviews of books, gardening papers, poultry papers, travels by tourists, contributions by arboriculturists, by naturalists, by the veterinary surgeon, and by the poultry keeper and the housewife. There is information for anybody from almost everybody; and we hope that everybody is satisfied. We think everybody—the proprietor included—ought to be; for he has certainly provided something for every taste; and the useful is well mingled with the ornamental. We take an extract from the article on "American Dairy Factories":—

"The Rockville factory stands near or adjoining a wet and springy piece of ground, covered with fragments of rock from the Shawangunk mountains. The buildings were erected a year ago, and have some improvement in construction over the older factories. The main structure is 25 feet by 50 feet—two storeys—which are used for manufacturing and curing cheese. Adjoining this on one end is the spring-room, and on the side running back in the shape of *L* is the churn-room, 20 by 30 feet; on the end of the churn-room is the ice-house, which is arranged so as to lead out of the churn-room with a broad hall or alley, which serves as a cellar for storing butter.

"This hall has double sides, packed in with tan-bark; and the ice-house being on one side, with communication by door, makes it a cool and nice place for keeping butter or cream in summer. In the spring-room there are two vats—one 9 feet by 12 feet, and the other 8 feet by 12 feet, sunk even with the floor, and arranged so as to be filled from one spring. The temperature of the water is 48°. It is soft water, but less so than those at the other factories to which we have referred. The delivery of the milk is at a window, and on a platform the height of a waggon. As the teams drive up, the cans are slid upon the platform, and emptied into a large square receiving-butt or can of tin inside of the window, standing upon platform scales, where it is weighed, and then conducted out by two faucets into the long tin pails or coolers. The cost of structure and fixtures was 3000*l.* The number of cows from which milk is delivered is 425, and on November 1 the receipts were 1800 quarts—estimating a quart, wine measure, to weigh 2 lb. Milk varies in weight, and a wine quart weighs at some seasons of the year, a trifle over 2 lb. During the month of May, when cows are in pasture, Mr. Slaughter finds that 100 quarts, wine measure, will weigh 211 lb. The milk here is kept in the spring from 24 to 36 hours, when the cream is taken off and allowed to sour, and then churned. Mr. Uptegrove, the superintendent of the factory, informed us that about one-tenth more butter is obtained from the cream when churned sour than when sweet. At this season of the year (November 2), the cream is taken off and deposited in the long tin pails, and immediately carried to the churn-room, which is kept, by means of a coal stove, at a temperature of 60° to 65°. Cream two days old when taken off will require from two to three days before it will thicken in the churn-room at the above temperature.

"*Butter-making.*—The churns are the barrel and half-dash churn, and are filled about half full of cream, which is diluted by putting in cold water in summer, and warm water in cold weather, at the rate of 16 to 30 quarts for each mess or churning. The temperature of the cream in summer, when the churns are started, is about 60°, but in cold weather they are started at about 64°. When a mass of cream is to to be churned, the churns are filled about half full, and a pail of spring water added to dilute the cream; in warm weather cold water is used, and in cold weather warm water, so as to make the mass at a temperature of 60° to 62°. The temperature of the cream while churning should be kept below 65°, for if at the close of the churning the buttermilk should be at a temperature above 64°, the flavour and colour of the butter are injured. When the butter begins to come, the churn is rinsed down with cold water. After the butter is taken from the churn, care is taken not to touch it more than is necessary with the hands. The butter trays are elliptical in shape, and the ladle is used for turning over the butter while it is being washed. In salting and working over, the whole is done by the butter worker heretofore described, and great care is taken not to work it too much, as over-working spoils the grain and makes the butter slobby. A 22 lb. batch is laid upon the inclined slab or butter worker, and the lever applied, first beginning at one side until the whole is gone over. Only a few manipulations of this kind are required, and we were surprised at the expedition by which this part of the process was effected. The salting and working of the butter is by the same rule adopted by the other factories, 18 oz. of salt being used for 22 lb. of butter.

"The butter worker is similar to the one alluded to, except that the lever is diamond-shaped, which it is claimed is an improvement. The inclined triangular slab on which the butter is worked stands upon legs, and has beveled sides about 3 inches high. It is 4 feet long and 25 inches wide at the upper end, tapering down to 5 inches at the lower end. At this point there is an opening for the escape of the buttermilk into a pail below. In salting, the butter is washed and then spread out with the ladle upon the worker, and pure fine Ashton salt sprinkled over the mass. It is then turned over a little with the ladle, and afterwards worked with the lever.

"At this factory there was a little contrivance, consisting of a wheel and lever and weight, for regulating the stroke of the dashers when churning. The trays are eliptical, being 2½ feet long and 1½ foot across, and will hold 25 lb. of butter. The butter is packed in Orange county pails or tubs holding 60 lb., or in oak firkins of 80 lb., as at the other factories, and shipped twice a week to New York, bringing 70 cents. per lb. The association is composed of 28 farmers, who have dairies running from five to ten, and up to 30 cows. Four farmers not belonging to the association deliver milk here, and are charged 1½ dols. per cow extra.

"The cheese is manufactured out of skimmed milk, by the same process as at the other factories. They are pressed in 16-inch hoops, 6 inches high, and weigh about 35 lb. each. The 1800 quarts of milk received per day at this season of the year, after the cream has been taken off, will make nice skim-milk cheese.

"*Labour employed.*—Besides the superintendent, three hands are employed at the factory—two men and one woman. The butter maker and his wife, 50 dols. per month, find themselves in board, &c.; the remaining hands get 20 dols per month, and board. At all these factories Ralph's Oneida vat is in use for cheese-making, and gives universal satisfaction."

Farm Memoranda.

Banffshire: Boyne District, *March* 29.—After an almost unprecedented mild winter we are like to have a backward spring, and we have not been troubled with March dust. "The best laid schemes o' mice and men gang aft a-gley." About the middle of February ploughing was close up to the Turnips, and many had the seed prepared, thinking that with March weather everything would go on without any stoppage, but February kept true to the old adage, and filled the dike to overflowing with white, and for the last three weeks frost and sleet has been the prevailing weather, giving everything a check in growth, and up to this date very little has been sown; but as it is now appearing to settle, sowing will go on without interruption, as the ploughing is mostly finished, and manure of every kind is at hand ready to be put in.

Stackyards are in most cases empty, and early Grass will be much needed, more so than for many years back; Turnips are almost out of sight, and large will be the bills for artificial food this year, and every kind of it has been tried in this district—linseed-cake, rape-cake, cotton-cake, cocoanut-cake, bran and bean-meal, but mostly all prefer the linseed-cake if pure.

Live stock have been very healthy, except some cases of quarterill among yearlings, which generally proves fatal. Fat stock are mostly all sold out, and have brought excellent prices, and store stock are now coming to something like value; sheep also are selling at great prices, and we hear they are lambing well, being in excellent condition with the open winter; a great many cows, however, have missed calf this season, owing, it is thought, to the peculiarity of last summer.

Grain has been very stationary for a good many weeks, but now that seed has mostly all changed hands it is on the decline in price, and we have no doubt many a labouring man will be thankful therefore, as provisions of every kind have been very high through the winter, but work has been plentiful with little broken time. *W. J.*

South Staffordshire: *March* 31.—A "change has come o'er the spirit of our dream," April has gone back to January, and "all that did the eye delight with hope has faded quite." Wise people with chattering teeth say "the check will do good," "it will put things right." Well, I don't think I am very fond of checks—checques on a good banker, checks to wrong doing, are good in their way, but checks to fruition of blossom, to development of vegetation, to the growth of lamb and mutton, I don't much like; "each thing in its place is best," but I don't object to early Grass or Peas, and I am sure that a south wind is preferable to an east one, and mild showers to snow and sleet, with the thermometer, as Mr. Glashier tells us, 5° below the average. Well, we must grin and bear it; happy they whose hay, straw, and roots are of an elastic nature; an extra fortnight of store or purchased food in May represents a lot of money and grumbling.

Wheat on cold strong land looks brown, and in the market claims no attention. The spring-sown crops very wisely keep their noses underground, and bird tending will be a considerable item in the sundries.

Most of our Burton brewers are fully supplied with Barley, and only very fine samples are at all noticed. It was thought that seed Barley would be very scarce, but everyone put by a bit of thin, and "many pickles mak' a mickle." Light-land Turnip fallows are being worked, but strong land is too cold at bottom yet, and if fine weather does not soon come, Mangel sowing will be late.

Meat continues dear, and of course store cattle and sheep follow close in value. The grazier's prospect is not encouraging, if meat goes down a penny he will be on the wrong side. The fall of lambs is an average. I can't understand how we had an increase in 1868 of 2,000,000 sheep, but our masters say it is so. *G. A. M.*

Roxburghshire, Tweedside: *April* 1.—There has been a large quantity of seed put in during the last 10 days, in most excellent condition, and should the weather continue fine for the remainder of this week, there will be no ground intended for grain in our neighbourhood left unsown. The land has taken less labour than usual to reduce it to a fine mould, and farm work is now far advanced, crossing for Turnips having already commenced.

Turnips are nearly all consumed, and very few cattle remain to be sent out; those that remain are chiefly carried on with Potatos, cake, and meal, Potatos having been selling lately at feeding prices (40*s.* per ton). Sheep have also been going off to the fat markets in large quantities, the numbers left on hand being much smaller than usual.

The lambing season in the low districts is now well over; there are a goodly number of twins, with plenty of milk for them. Very few flocks have had their usual allowance of Turnips, but have been carried through principally on rape-cake, bran, and Oats, and have thriven well on their extra food. Grass parks are letting at rents much the same as last season, although then the takers in many instances lost nearly the whole rents, owing to the high prices paid for stock to put into them, the drought, and the subsequent fall in the value of cattle and sheep.

Stackyards are now pretty well threshed out, and any stacks that remain are Wheat, or a stack or two of Oats, that may be required for fodder during the summer. *H.*

The Poultry Yard.

"Grey Dorking," sends us the following:—"In the Foreign Correspondence of last week's Number, you mention the Poultry Show, as held in conjunction with the 'Concours' of cattle, &c., at La Villette. Your correspondent justly appreciates the native breeds of poultry as there exhibited. Of turkeys the French have but one breed that attain any great degree of excellence, that is the Normandy black turkey, the produce of English Norfolk turkeys, taken over from here, and the result of the attention given by Frenchmen and Frenchwomen to the instructions they received at the hands of East Anglians sent over to prepare the French bird for the English market. Your correspondent, in speaking of the comparative quality of English and French poultry respectively, has one or two points to which he must descend to make his parallel complete. An organist, on completing the execution of a *morceau* of great merit, said to the lad who blew the bellows, "Did not I play that well?" "You," said the lad, "say rather me." The organist tried alone, and we have heard the result. The comparison between poultry, as eaten in France and in England, must always result disastrously to the latter, because here we cannot get a competent jury. The man who breakfasts with Champore, Place de la Bourse, and eats of his *plât du jour*, may regard the arrival of the dinner hour with comparative indifference; but the man who takes his *café au lait* outside Paris before coming to business, and whose income does not allow him to make two heavy meals at the *restaurateur's*, is an epicure for his own entertainment, and nearly always does fowl in some shape or other figure on his *ménu*. The man moving in the same sphere in this country would not dream of poultry for his dinner, unless on the occasion of birthday, christening, or some such family festival. Thus the judges in the one department would not have practical experience sufficient to cope with the others. Another, and the stronger reason for the extra appreciation and consumption of poultry in France generally, and Paris in particular, is the mode of cooking it. What mistress of a middle-class household in England orders a couple of fowls without an inward presentiment that they must be overdone or underdone? What mistress of a similar houshold in Paris takes the slightest trouble or pains about it, beyond telling Rosine or Jacinthe to get two fowls at the *rôtisseur's* or *traiteur's*. If the former be the man, the *bonne* repairs to his shop, generally in one of the little streets running off the Rue St. Honoré or the Rue Montmartre, and there she makes her bargain; always a hard one, if one may judge by the time and gesticulation employed on it. It is, however, gratifying to know that, in one respect, it is always a satisfactory bargain, for the fowls are always well roasted, and that is a great deal. The revolving spit turning them over and over the bright charcoal, with Mossoo at hand ready to apply the ladleful of dripping where most required, ensures them an even cooking, that our two fowls in an English *ménage* don't get, where the charwoman gives what morsels she can steal from her vegetables and plates and dishes to 'them chickens.' Another thing that enhances much the flavour of the roast fowl in France, as eaten by an Englishman, is the *tout ensemble* of the dinner. The consumer is the guest of a resident who goes out of his way to give him a treat, or he is a man on a holiday, and who for the time being says, 'hang the expense!' His dinner then costs him per diem nearly the amount to which he would limit himself per week, were he at home, in private or commercial life, for a similar purpose. The price quoted, 8*s.* and 10*s.* each, is frequently paid at Leadenhall Market at this time of year, by the principal poulterers, for their best fowls; but these are few in number, and the demand generally exceeds the supply. Every one who has seen the two breeds, viz., Dorking and French, brought to perfection in fatting, will at once concede the superiority of the former as a fattening bird, or rather meat producing. It is ready six weeks earlier than the other, and its weight is that of meat, while the other is largely composed of fat. It must be readily allowed that the average quality of table poultry is better in France than with us, and every criticism of the breeds, modes of fattening, &c., must help us to a better knowledge and, it is to be hoped, increased attention to a portion of stock at present much neglected in our country."

Calendar of Operations.

April.—*The Carrot* is sometimes sown broadcast, but more frequently in drills about 18 to 24 inches apart, from the middle to the end of the month in the southern provinces, and northwards to the middle of May. The Belgian varieties (white and yellow) yield the heaviest crops. The Carrot delights in a deep sandy loam, but grows freely in rich peaty soils. The land is generally manured on the flat in autumn, the manure being either ploughed or ribbed in, and when practicable the land is deeply autumn fallowed prior to manuring; trench ploughing, or subsoil ploughing, being common. In the United States it is common to apply wood ashes, common salt, and gypsum, at the time of sowing. In England 2 or 3 cwt. of guano is harrowed into the land before rolling for the seed when sown broadcast; and when the crop is drilled the artificial manure may be drilled in, as in the case of Turnips, either mixed with ashes or in a liquid form. The seed should be of last year's growth, and fresh; it should be well mixed in sawdust, and allowed to lie for a day or two before sowing, and a peck of Barley or Rape may be added, to show the line of the braird in horse-hoeing the first time. About 7 lb. of seed are sown broadcast, and 6 lb. drilled in per acre. It should be lightly covered with not more than half-an-inch of soil, and rolled.

Mangel Wurzel is generally sown about the latter end of the month or beginning of May. If the land has been previously manured, and is ready for sowing, the latter period is often as promising as the former. The general practice, however, is to manure at the time of sowing, and for such the former period is to be preferred. About 20 cubic yards of farmyard manure, a month or six weeks turned on the dunghill, is spread evenly in the newly-opened drills, from 27 to 30 inches apart. About 2½ cwt. of superphosphate, and an equal quantity of common salt, are sown broadcast on the dung, and the covering of the dung keeps pace with the opening of the drills, so as to have as little exposure to the atmosphere as possible. The sowing follows close after, "yoking after yoking," so as to get in the seed with the moisture; some damp the seed before sowing to make it braird more rapidly. It should be lightly covered with not more than half-an-inch of mould, and about 7 lb. of seed are required per acre. The more the soil is compressed by heavy rolling the better will the seed vegetate and the plants grow. When more or less farmyard manure than the above is applied, less or more artificial manure is used. Some apply the artificial manure in a liquid form, by means of a combined liquid manure and seed drill, either with a continuous or drop motion, as Gillyatt's. The latter, the drop motion, sows both the seed and manure in each row alternately, and at equal distances apart. Not a few prefer the old plan of dibbling in the seed: but continuous sowing, for many reasons, is becoming more and more general.

Sugar-Beet (the white Silesian) is sown about the same time as Mangel Wurzel and Carrot. Its cultivation, perhaps, more resembles the latter than the former, the deep working of the land being essential both in autumn and spring. Opinion is somewhat divided as to the soil and manure best adapted for it, but there is little question that it resembles very closely Mangel Wurzel in both these respects, rich and rather heavy land being the best. The distance between the rows is very various, but as horse-hoeing is favourable to the growth of sugar, 20 inches apart, growing the roots the closer the other way, will probably become general, more especially as roots over 4 lb. decrease in saccharine value. The seed is sown as that of Mangel, not deeper than half-an-inch, from 6 to 8 lb. per acre. And it is essential that the seed be fresh, of the last year's growth, and of the proper sort, so as to insure an equal braird, with plenty of plants, equality in the size of the roots being the sure key to success.

Cabbage seed may be sown about the middle of the month for thinning out in the drill, so as to avoid transplanting. The operation is similar to sowing Turnip seed. The land is in some cases manured in autumn, in others at the time of sowing, in drills 30 inches apart. If the former, a stroke of the harrows will generally make the ridgelets ready for the Turnip seed-drill; and if the land is clean, and well pulverised with the weather, the harrows may not be required. If manured at the time of sowing, with from 20 to 30 cubic yards of farmyard dung per acre, the practice is similar to that of Mangel and Sugar-Beet. From 3 to 4 lb. of seed are sown per acre, the latter if the weather is dry, the former if moist.

Cabbage plants from the autumn sowing are planted from the middle to the close of the middle. About 5000 Drumhead plants will plant an acre. The land is either manured in autumn or in the spring, about a month before planting. Watering newly-planted Cabbages is generally objected to by farmers, but the practice is successfully carried out in gardens, and may be so in the field; but in very dry weather each plant should get a good soaking, so as to supply moisture to the roots, for a small dribble on the surface does harm. If water is near, two water-carts will keep half-a-dozen watering-pans going, doing about 6 acres a-day.

Hop Gardens should be ready for poling in the early part of the month, as the bines or runners now begin to rise rapidly. The poles are either set vertically, one or more in each hole, or standards are raised, and between these wooden bars or galvanised wires are stretched for training the bines. Throughout the plantations weeds are kept under by means of the hoe and nidget, *i. e.*, hop scarifier. Nursery beds require also to be weeded and kept clean.

Teasel is sown this month, either broadcast or in drills 27 inches apart, from two to three pecks of seed per acre; or it may be sown in seed-beds for transplanting in autumn, the crop being harvested the second year. This latter is the more common practice. The plant requires a clean clayey soil, in a thorough state of cultivation.

Chicory is sown this month, both as a forage plant on poor sandy soils, and also as a root crop on richer land for roasting as a part substitute for coffee. For either purpose about 12 to 15 lb. of seed will drill an acre. For soiling, the drills should not be more than 9 inches apart, or no more than will permit of the crop being hand-hoed; for roots for roasting the drills should permit of horse-hoeing, the plants being set out as Carrots. Chicory may also be sown broadcast in the place of Clover, on many light Clover-sick soils, in laying down land to permanent pasture, with a light crop of Barley or Oats.

Notices to Correspondents.

Guano: *W. Beale.* Supposing guano to contain 14 or 15 per cent. of ammonia, you might serviceably add a gallon of sulphuric acid to every cwt. of it, in order to fix the volatile ammonia which it contains.

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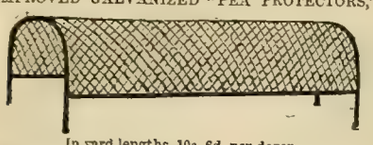
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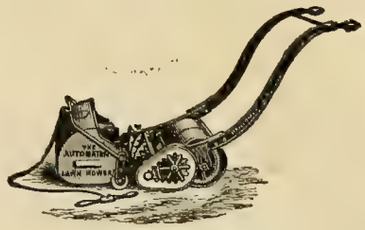
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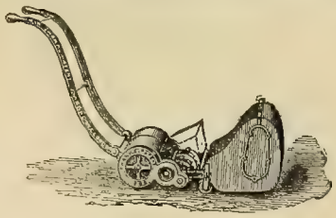
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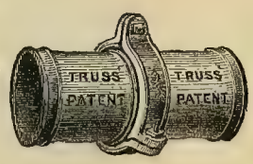
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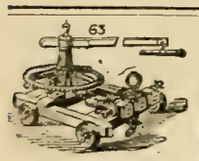
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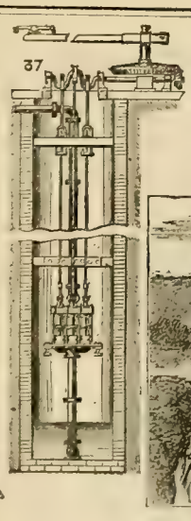
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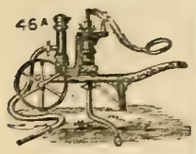
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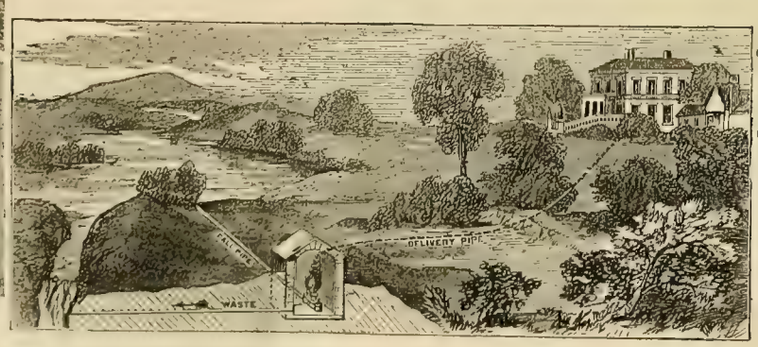


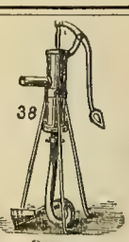






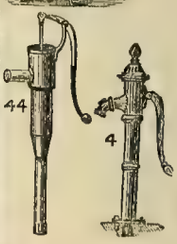


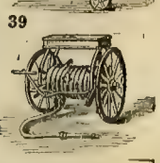


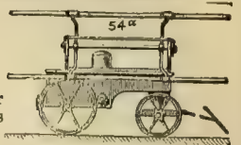












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3d. They are the least liable to get out of order.

From the fact that these MACHINES are so well known in Great Britain and Ireland, also on the Continent of Europe, T. GREEN AND SON do not deem it necessary to trouble the Public with a list of the numerous Testimonials that they have received from time to time, but would simply add,

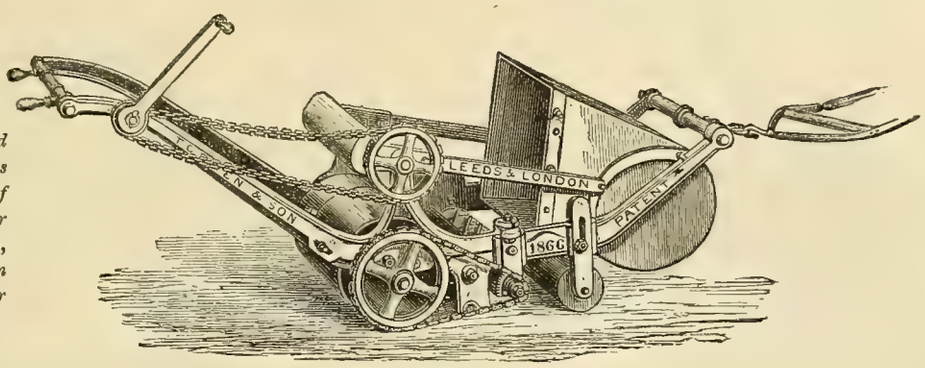
THEY ARE THE ONLY MACHINES IN CONSTANT USE AT

THE ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON
THE ROYAL BOTANIC GARDENS, REGENT'S PARK
THE CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM
BUCKINGHAM PALACE GARDENS
MARLBOROUGH HOUSE
THE HYDE PARK GARDENS
THE WINTER PALACE GARDENS, DUBLIN
THE DUBLIN BOTANIC GARDENS
THE LIVERPOOL BOTANIC GARDENS
THE LEEDS ROYAL PARK
THE HULL BOTANIC GARDENS
THE BOTANIC GARDENS, BRUSSELS
THE SUNDERLAND PARK
THE PRESTON PARK

AND IN MOST OF THE PRINCIPAL PARKS, SQUARES, ETC., IN THE UNITED KINGDOM.

HORSE, PONY, AND DONKEY MACHINE.

GREEN'S PATENT
LAWN MOWERS
have proved to be the best, and carried off every Prize that has been given in all cases of competition. Since the first year they were introduced (1856), *upwards of* 46,600 *have been sold, and* 25,000 *of that number during the last five seasons.*



T. GREEN & SON
warrant every Machine to give entire satisfaction, and if not approved of can be returned unconditionally.

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

PONY AND DONKEY MACHINES.

To Cut 26 inches	.. ..	.. £13 0 0	*Leather Boots for Donkey*, 18*s*. *Leather Boots for Pony*, 22*s*.
„ 28 „	.. .. ..	.. 15 0 0	
„ 30 „	.. .. ..	.. 17 0 0	

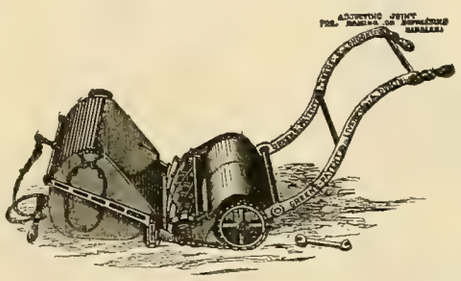
HORSE MACHINES.

To Cut 30 inches	.. ..	.. £21 0 0	*Leather Boots for Horse*, 26*s*.
„ 36 „	.. .. ..	.. 24 0 0	
„ 42 „	.. .. ..	.. 27 0 0	
„ 48 „	.. .. ..	.. 30 0 0	

Both the Horse, Pony, Donkey, and Hand Machines possess (over all other Makers) the advantage of Self-sharpening. The cutters being steel on each side, when they become dull or blunt by running one way round, the cylinder can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the Machine will cut equal to new. Arrangements are made that the cylinder can be reversed, by any inexperienced person, in two or three minutes.

HAND MACHINES.

To Cut 10 inches	.. £3 10 0	*Suitable for a Lady*	
„ 12 „	.. 4 10 0	„	„
„ 14 „	.. 5 10 0	*Suitable for One Person*	
„ 16 „	.. 6 10 0	„	„



To Cut 18 inches	.. £7 10 0	*Suitable for One Person.*	
„ 20 „	.. 8 0 0	*Suitable for Two Persons*	
„ 22 „	.. 8 10 0	„	„
„ 24 „	.. 9 0 0	„	„

Packing Cases are charged at the following low rates, viz.:—for the 10 and 12-inch Machine, 3*s*.; 14 and 16-inch, 4*s*.; 18 and 20-inch, 5*s*.; 22 and 24-inch, 6*s*. Parties providing themselves with Lawn Mowers are recommended to purchase the cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England, Ireland, and Scotland.

HORTICULTURAL and AGRICULTURAL IMPLEMENTS, GARDEN SEATS and CHAIRS, FOUNTAINS, VASES, PLAIN and GALVANISED WIRE NETTING, and ORNAMENTAL WIRE WORK of every description.

Having very extensive Premises in London, we are in a position to do all kinds of Repairs there, as well as at our Leeds Establishment.

Having a large quantity of MACHINES in stock at our Leeds and London Establishments, we are in a position to execute Orders on the day they are received.

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;
and 54 & 55, BLACKFRIARS ROAD, LONDON, S.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

MR. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

Acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in GARDENERS' CHRONICLE *of International Exhibition, May* 24, 1862, *page* 476.

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

☞ *They are made of all sizes, which, with prices, may be had on application.*

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

SAMUELSON & CO.'S

NEWLY PATENTED EDGE-CLIPPING SILENT LAWN MOWERS.

THE MOST IMPORTANT IMPROVEMENT EVER INTRODUCED.



MESSRS. SAMUELSON AND CO. BEG TO DRAW SPECIAL ATTENTION TO THEIR NEW

LAWN MOWERS, for 1869,

Which are fitted, when required, with a new Patent EDGE-CLIPPING arrangement, entirely superseding the old and tedious operation of Edge-Clipping by hand.

All Machines fitted with new Silent Gearing, ensuring perfect freedom from noise when at work.

Catalogues, with full descriptions and prices of the new Patent Edge-Clipping Silent Lawn Mower, on application to

SAMUELSON AND CO., BRITANNIA WORKS, BANBURY.

JOHN WARNER & SONS,

CRESCENT, CRIPPLEGATE, LONDON, E.C.

BRASS AND BELL FOUNDERS TO HER MAJESTY, HYDRAULIC ENGINEERS.



No. 35.

35. WARNERS' PATENT CAST-IRON **LIFT PUMPS.**

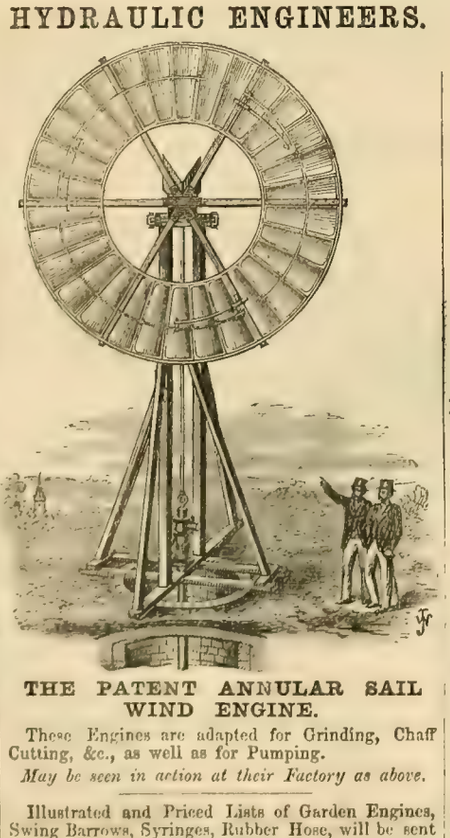
2½ inches diameter	£1	8	6
3 " "	2	1	0
3½ " "	2	6	0
4 " "	2	14	0



No. 517A.

WARNERS' **GARDEN ENGINE.**

28 gallons	£5	10	0
24 "	4	19	0
16 "	3	14	0
10 "	2	19	0

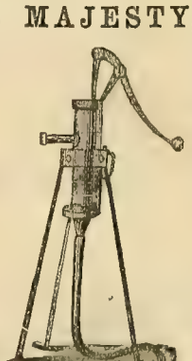


THE PATENT ANNULAR SAIL WIND ENGINE.

These Engines are adapted for Grinding, Chaff Cutting, &c., as well as for Pumping.

May be seen in action at their Factory as above.

Illustrated and Priced Lists of Garden Engines, Swing Barrows, Syringes, Rubber Hose, will be sent upon application. Also Estimates for Hydraulic Machinery of every description.



No. 42.

No. 42. WARNERS' **PORTABLE PUMPS,** With Improved Valves for Liquid Manure, £2 15*s.* Two-inch Flexible Rubber Suction Pipe, in 10, 12, and 15 feet lengths, per foot 2*s.* 5*d.*



No. 579½.

SWING **WATER BARROW.**

50 gallons	£5	12	0
38 "	3	17	0
30 "	2	13	0
20 "	2	2	0

"Every Cottage should be provided with a Water Tank." *Disraeli.*

Iron Cisterns.

F. BRABY AND CO. having laid down more extensive and Improved Machinery on their Deptford premises (IDA WHARF), are prepared to supply WROUGHT-IRON TANKS, GALVANISED or PAINTED, of superior quality, at reduced prices, and at very short notice.



An Illustrated Price List of Galvanised Iron, and other of BRABY'S special Manufactures sent on application.

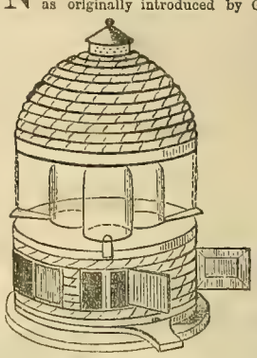
F. BRABY & Co., Limited, Fitzroy Works, Euston Road, London; or through all respectable Ironmongers.

N.B. Open Tanks of different sizes packed one in another to save carriage.

Bee-Hives.

TWO SILVER MEDALS AWARDED TO GEO. NEIGHBOUR & SONS, AT THE PARIS EXHIBITION OF 1867. THE ONLY ENGLISH EXHIBITORS WHO OBTAINED A SILVER MEDAL FOR BEE-HIVES.

NEIGHBOURS' IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR AND SONS, working three bell-glasses; is neatly and strongly made of straw; it has three windows in the lower hive.



This Hive will be found to possess many practical advantages, and is more easy of management than any other Bee-Hive that has been introduced.

Price, complete .. £1 15 0
Stand for ditto 0 10 0

THE LIGURIAN or ITALIAN ALP BEE being much in repute, G. N. & SONS supply colonies of Bees with genuine Italian Queens (which will shortly have wholly yellow Italian Alp Bees) at £3 3*s.* each.

An Italian Alp Queen, with full directions for uniting to Black Stocks, £1 each.

ENGLISH BEES.—Stocks and Swarms may be obtained as heretofore.

A newly-arranged CATALOGUE of other Improved Hives, with Drawings and Prices, sent on receipt of two stamps.

Address, GEO. NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London.

AGENTS:—Liverpool: JAMES CUTHBERT, 12, Clayton Square. Manchester: J. WILSON, 60, King Street. Dublin: EDMONSTON BROTHERS, 10, Dame Street. Glasgow: AUSTIN & MCASLAN, 16, Buchanan Street.

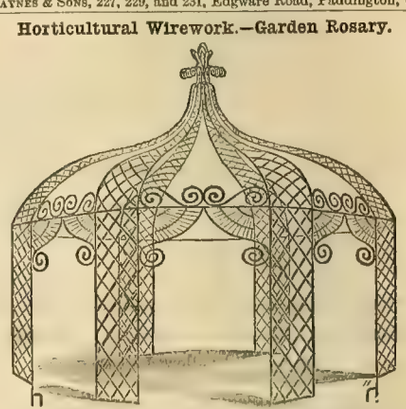
THE HYDRONETTE, (Robins' Patent,) for Gardens, Greenhouses, Conservatories, Hotbeds, &c. Unrivalled ease of action, simplicity, convenience, and force.



The HYDRONETTE is a more useful, easy working, reliable, and convenient water-throwing machine than any other in use. It is made in five sizes, viz.:—No. 1, with 4 feet of Suction Hose, Strainer, Jet, and Rose, 12*s.* 6*d.*; No. 2, 15*s.* 6*d.*; No. 3, £1 1*s.*; No. 4, £1 5*s.*; No. 5, £1 10*s.* Extra Hose and Union Joints furnished to order. Forwarded on receipt of Post Office order by the Proprietors,

HAYNES & SONS, 227, 229, and 231, Edgware Road, Paddington, W.

Horticultural Wirework.—Garden Rosary.



WIREWORK for ROSARIES, continuous or circular, for Pleasure Grounds, made in different designs, suitable for Garden adornment; Wirework for Summer-houses, Wirework for Garden Bordering, Flower Trainers, &c.; Wirework for Screens or Partitions, for hiding unsightly walls, buildings, &c., made in various patterns; Plain and Ornamental Garden Arches for Walks; Ornamental Arches for Cross-walks, Wirework Temples, Arbors, &c.; Diamond Wirework Trellis for Creepers, Ornamental Wirework Fencing, for dividing Gardens, Lawns, &c.

WIREWORK FLOWER STANDS. SUSPENDING BASKETS.

All kinds of WIREWORK for GARDENS and CONSERVATORIES, &c.

AVIARIES, PHEASANTRIES, &c., in various designs.

Sir J. Paxton's Registered STRAWBERRY CRINOLINES, for keeping your Strawberries clean, free from dirt, slugs, contact with the soil, superfluous moisture, and other nuisances. These have already proved a great success, in answering the purpose for which they were intended, ripening the fruit regular, &c.

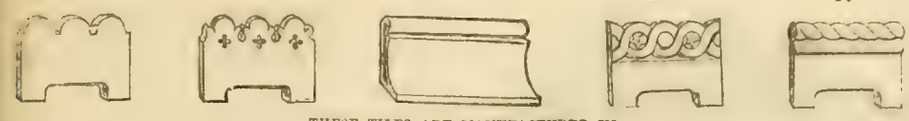
For particulars see Illustrations, Testimonials, &c.

Illustrated Catalogues of WIREWORK, &c., on application to

R. HOLLIDAY, Practical Wirewor anufacturer, 2A, Portobello Terrace, Notting Hill Gate, London,

H. DOULTON & CO.'S GARDEN EDGING TILES

1. 2. 3. 4. 5.



THESE TILES ARE MANUFACTURED IN

VITRIFIED STONE-WARE AND IN TERRA-COTTA OF THE BEST MATERIAL,

WHICH IS BURNT TO AN EXTRA DEGREE OF HARDNESS,

AND WARRANTED IMPERISHABLE.

They will be found to be far preferable to Box and other Edgings, as they require no attention when once fixed, take up less room, and do not harbour Slugs, &c.

PRICE LISTS of the above, and also of TERRA-COTTA GARDEN VASES, FOUNTAINS, PENDANTS, FLOWER-POTS, FERN-CASES, &c., &c., may be had on application to

DOULTON AND CO., HIGH STREET, LAMBETH, S.E.

WARNER'S SILICATE of IRON PAINT,
A certain PREVENTION against DAMP WALLS,
Effectually PRESERVES IRON and WOOD,
Is unaffected by extreme HEAT and AMMONIA.
Has great Covering properties.
All Colours supplied and can be obtained through any Chemist or Ironmonger, of
WARNER & ASHBY, 17, Laurence Pountney Lane, E.C.



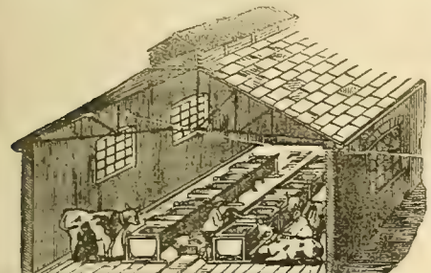
H. BROOK AND CO., Sole Manufacturers of the CHELTENHAM GARDEN ENGINE, which weighs only 3 lb. 1 oz., throws water in a continuous stream over 35 feet. To be had of all Ironmongers, and Wholesale only at 10, Featherstone Buildings, Holborn, London, W.C.
GARDEN HOSE and BRANCHES in great variety.

Cottam's Iron Hurdles, Fencing, and Gates.



COTTAM'S HURDLES are made in the best manner, of superior Wrought Iron, by an improved method. Illustrated Price Lists on application to COTTAM & Co., Iron Works, 2, Winsley Street, Oxford Street, London, W.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rick dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of Iron. Prices of Fittings per Cow 55s.

Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

RALPH WALLER AND CO., 45, Dale Street, Manchester, Manufacturers of all kinds of GARDEN NETTING, &c.—The serious injury done every spring to fruit crops by frost has proved to every Gardener the absolute necessity of providing some protection to the trees early in the year. If the blossom, in its earliest development, be but slightly weakened by frost, the vitality of the fruit germ is destroyed, and the fruit lost. In this climate, on the average of a century, there is not more than one year in 19 when the protection is unnecessary. Many fabrics have been tried for this purpose of protection, with more or less success; and we may now say, without fear of contradiction, that we have succeeded in manufacturing the only fabric which is altogether unobjectionable for this purpose. Without unduly nursing, it effectually protects the young germ, and does not impede the action of light and due circulation of air. Some other fabrics do this, and thus weaken the vitality of the tree altogether. Almost every large grower in the three kingdoms can testify to these facts.

The Nettings also make a beautiful shading for Hothouses in summer, and are cheaper than other fabrics on account of their great durability.

Netting (qualities): Nos. 1, 2, 3, in pieces of 30 yards long, 1½ yard wide. Tiffany: in pieces 20 yards long, 39 inches wide.

For prices, &c., apply to the above address—45, Dale Street, Manchester.

MR. EDWIN COOLING,
HORTICULTURAL VALUER, Mile Ash, Derby.

MR. A. CHANDLER, HORTICULTURAL AGENT and VALUER, 10, Wynell Road, Forest Hill, S.E.
N.B.—Valuations made of Nursery Stock, Private Collections of Plants, and everything connected with Horticulture.

Bristol Spanish.

MR. HENRY LANE, of Ashley Villa, Ashley Road, Bristol, will be happy to DISPOSE OF some of his Prize Birds or Eggs, or EXCHANGE for some half or quarter specimen Green or Hothouse Plants, or for a Portable Fowls' House. His birds are the best strain in England, and are composed of the following Prize Birds:—First Prize Cockerel at Birmingham, 1867, bought of Miss Biggar for 15 guineas; First Prize Hens at Birmingham and Bristol, 1868, bought of Mr. Hyde for 15 guineas; and his own three First Prizes at Manchester, &c.

MR. W. DILLISTONE, AUCTIONEER and VALUER, &c., undertakes SALES by AUCTION and VALUATIONS of all kinds of NURSERY, SEED, and FLORISTS' STOCK, and every Garden Requisite, in Town and Country. Terms free on application.
General Horticultural Agency Offices, Sible Hedingham, Essex.

TO BE SOLD, IMMEDIATELY, a very thriving NURSERY BUSINESS, comprising Lease, Nursery Stock, Greenhouses, Frames, &c. Suitable for Market Purposes.
Mr. T. COOPER, 8, South Street, Stockwell, S.

TO BE LET, three miles west of Hyde Park, a SMALL NURSERY, doing a good Market Business. Propagating and Forcing Houses, Heated with Hot Water, and every appliance for carrying on a Business; also a good Dwelling-house on the premises may be had.
Address G. H., Post Office, Dorcas Terrace, Hammersmith, W.

TO BE LET, on LEASE, MARKET GARDEN GROUND, 30 Acres or upwards, not far from Three Railway Stations, and only seven or eight miles South of London.
Applications by letter, in the first instance, stating the views of the applicant, to be addressed to X. X. X., Davies & Co., Advertising Agents, Finch Lane, Cornhill, E.C.

To Gardeners and Others.

TO BE SOLD, the LEASE, STOCK, FIXTURES, &c., of a SEED, FLORIST, and JOBBING GARDENER'S BUSINESS, situate in a rapidly increasing neighbourhood, within a few miles of London. No opposition. Will bear the strictest investigation, and satisfactory reasons given for leaving. Coming in extremely moderate if taken immediately.
Address SEEDSMAN, *Gardeners' Chronicle* Office, W.C.

To Nurserymen and Market Gardeners.
HEAVITREE, 1½ MILE FROM EXETER.

TO BE SOLD or LET, a LEASE (18 years) of 24 ACRES of LAND, with HOUSE and BUILDINGS. There are 20 Acres of Market Garden, well stocked with choice Fruit, the remainder Orchard and Meadow, suitable for a Nursery, for which the Land is well adapted. To be taken at a valuation. A portion of the money may remain on good security.
Apply to Mr. CHARLES SCLATER, Exeter.

County Cork, Ireland.

TO BE SOLD, the INTEREST of the DWELLING HOUSE, OUT-OFFICES, and LANDS of WEST PARK, situate about 1 mile from the town of Midleton (a station on the Cork and Youghal Railway), containing 417 acres, of which 250 are Pasture, and some of the best Dairy Land in the county.
The House is most commodious, and contains four Sitting Rooms on Ground Floor, five Bedrooms, besides Servants' Apartments, Kitchen, Scullery, Cheese-room, Bake-house, Dairy, Beer and Wine Cellars, Pantrys, W.C., &c. The whole House is in capital order, having been newly painted and Papered, and a small Turkish Bath has also been erected within the last year.
The Out-Offices and Farm Buildings are most extensive; Stabling for 12 Horses, Coach-house, Harness Room, &c.; Stalls for 75 head of Cattle. The Lands are well sheltered and divided, a good supply of Water running through them, and in capital heart, having been greatly improved by the present tenant, who has carried on Cheese-making for the last few years with success. The Growing Crops (about 138 acres) to be taken at a Valuation. There is a Walled-in Fruit and Vegetable Garden, and about 16 acres of Orchard.
For further particulars and cards to view, apply to H. & R. TOWNSEND, 69, South Mall, Cork, by whom proposals (written only) will be received.
N.B.—There is a first-class Endowed School in Midleton.

Sales by Auction.

Market Gardener's Stock on Cranbrook Farm, near THE ORPHAN ASYLUM, LOWER CLAPTON, MIDDLESEX.

MESSRS. DUCKWORTH AND CLAYDEN will SELL by AUCTION, on TUESDAY, April 20, at 11 for 12 o'Clock, in Lots, by order of Messrs. Brandon, who are compelled to give up the Land on the 30th, it being required for building purposes, the WHOLE of the IMPLEMENTS, HORSES, HARNESS, WAGGONS, VANS, CARTS, WAGGONETTE, 280 Boxes and Lights, 866 Bell and Hand-glasses, Heaps of Manure, and numerous effects.
May be viewed one day prior to the Sale, and Catalogues had on the Premises, at the Windsor Castle Inn, Lower Clapton, at Way's Coffee House, Covent Garden, and of Messrs. DUCKWORTH & CLAYDEN, Hadley, Barnet.

Guildford, Surrey.—Sale of Forest Trees, &c.
IMPORTANT TO GENTLEMEN, NURSERYMEN, &c.

MR. W. DILLISTONE has received instructions to SELL by AUCTION, on Ground adjoining the White Horse Hotel, Guildford, on WEDNESDAY, April 21, at 10 for 11 o'Clock, in consequence of the Land being required for Building purposes, an extensive assortment of Seedling and Transplanted FOREST TREES, consisting of Alder, Ash, Berberry, Beech, Birch, Broom, Scarlet Elder, Elm, Oaks, Privet, Austrian Pines, Silver and Spruce Firs, Sycamore, &c. Also a choice collection of FRUIT TREES, ROSES, CONIFERÆ, CLIMBERS, Hardy HERBACEOUS PLANTS, and numerous other Garden Requisites.
To be viewed on the Morning of Sale, and full Particulars will be described in Catalogues, to be had at White Hart Hotel and *West Surrey Times* Office, Guildford, and place of Sale; or post free of the Auctioneer at his General Horticultural Agency Offices, Sible Hedingham, Essex.

Siddington House, Cirencester.

MR. STRAFFORD is favoured with instructions to announce for SALE by AUCTION, without reserve, on THURSDAY, the 22d of April next, about FORTY HEAD of FIRST-CLASS SHORTHORNS, belonging to Edward Bowly, Esq., of Siddington House, Cirencester, which have been long and carefully bred from the most fashionable strains, and include the "Musical" family, as well as part of the "Siddingtons" and other good sorts, with twelve very superior young Bulls. Prominent amongst the sires is the 7th Duke of York (17,754), and from dams by 4th Duke of Oxford (11,387), long used at Siddington, as well as other famed Bulls of Kirklevington blood. The Cows and Heifers are chiefly served by 2d Duke of Ciaro (21,576), and 3d Duke of Waterloo (23,801). The whole will be found in fine health, and well worthy the attention of purchasers.
Catalogues, with Pedigrees and other particulars, may be had on application to Mr. STRAFFORD, 13, Euston Square, London; or of Mr. BOWLY, Siddington House, Cirencester.

Choice Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, April 13, at half-past 12 o'Clock precisely, fine Specimen Plants of ESTABLISHED ORCHIDS, from the Collection of the Rev. W. Ellis, of Hoddesdon, consisting of Acrides, Oncidiums, Cattleyas, Lælias, Epidendrums, Angræcums, Dendrobiums, Odontoglossums, Saccolabiums, Cypripediums, Phalænopsis, Vandas, Lycaste, Cœlogynes, Burlingtonias, &c.
On view the Morning of Sale and Catalogues had.

Established Orchids.

MR. J. C. STEVENS, HORTICULTURAL AUCTIONEER and VALUER, 38, King Street, Covent Garden, W.C., begs to announce that the FIRST SALE of Mr. DAY'S COLLECTION is fixed for THURSDAY and FRIDAY, April 15 and 16, at half-past 12 o'Clock precisely each day, and will comprise many fine SPECIMEN PLANTS in perfect health, and some of the finest and rarest species and varieties in cultivation, amongst which are the following:—

Ada aurantiaca
Aerides Schroederi
" affine
" Veitchianum
Angræcum sesquipedale
Burlingtonia candida
Saccolabium guttatum
" curvifolium
" ampullaceum
Phalænopsis amabilis
" Schilleriana
Vanda Batemanni
Oncidium macranthum
" serratum
" Forbesii
" Kramerianum
" sessile
" sarcodes
Odontoglossum nævium
" Alexandræ
Odontoglossum Phalænopsis
" Pescatorea
Cattleya Dowiana
" Exoniensis
" labiata
" Walkeriana
Lælia elegans
" Bluttii
" Dayana
" Wolstenholmæ
" purpuracea splendens
" (Mr. Rucker's variety.)
Sobralia macrantha
Trichopilia crispa,
Epidendrum sceptrum
Cypripedium barbatum biflorum
Dendrobium Macarthiæ
Dendrochilium filiforme
Thunia Bensoni
&c., &c., &c.

On view the Morning of Sale, and Catalogues had.

Cheltenham.
HIGHLY IMPORTANT SALE of EXHIBITION SPECIMENS of GREENHOUSE and STOVE PLANTS and AZALEAS.

MESSRS. PROTHEROE AND MORRIS are instructed, by T. P. Walter Butt, Esq., to offer for UNRESERVED SALE by AUCTION on the premises, Arle Court, Cheltenham, on WEDNESDAY, April 14, the whole of the EXHIBITION SPECIMENS, enumerating many unrivalled plants of Ixoras, Rondeletias, Stephanotis, Crotons, Ericas, Phœnocoma, Aphelexis, Pimeleas, Genetyllis, Dracophyllum, &c.; amongst the Azaleas are gorgeous specimens of Etoile de Gand, Madame Miellez, Iveryana, Juliana, Duc de Nassau, Extranei, and others equal in merit. Also a capital, strong, well-built Plant Van.
N.B. This matchless collection has attained its present development under the skilful treatment of Mr. May, formerly Gardener at Ealing Park, which fact will be a sufficient assurance to all connoisseurs that the plants are in the finest state of cultivation.
Catalogues are now ready, and may be obtained of Mr. MAY on the premises; and of the Auctioneers and Valuers, Leytonstone, N.E.

Sale of First-class Carnations and Picotees,
STANDARD and DWARF ROSES, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, City, E.C., on SATURDAY, April 17, at half-past 12 o'Clock precisely, a first-class Collection of CARNATIONS and PICOTEES (the surplus stock of an eminent grower), also a superb assortment of Standard and Dwarf ROSES, selected AMERICAN PLANTS, clean-grown FRUIT TREES, BEDDING PLANTS, AZALEA INDICA, GLADIOLI, Rustic Seats, Stools and Vases.
On View Morning of Sale, Catalogues had at the Rooms, as above, and of the Auctioneers and Valuers, Leytonstone, N.E.

Short Notice.—Sale of Specimen Pelargoniums.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Mr. John Fraser to submit for UNRESERVED SALE by AUCTION, on the Premises, the Nurseries, Lea Bridge Road, N.E., on MONDAY, April 19, at 1 for 2 o'Clock precisely, the whole of his FIRST PRIZE SPECIMEN PELARGONIUMS, consisting of Zonal, Fancy, choice large-flowering, and French spotted varieties. These Specimens are well adapted for either Exhibition purposes or Conservatory decoration; the Zonal tribe will also be admirably suited to furnish large Vases in the Flower Garden.
On view any day prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, Leytonstone, N.E.
N.B.—Messrs. P. & M. respectfully invite all persons interested in this beautiful tribe of Plants to inspect this Collection, as no description can convey an adequate idea of its merits.

Chadwell Heath, Essex.
UNRESERVED SALE OF GREENHOUSE AND BEDDING PLANTS, AND SPECIMEN AZALEA INDICA.

MESSRS. PROTHEROE AND MORRIS have received instructions from the Executors of the late Samuel Seabrook, Esq., of Dagenham, to SELL by AUCTION, without reserve, on the Premises, Vallance Farm, Chadwell Heath, on TUESDAY, April 27, at 12 o'Clock precisely, the whole of the GREENHOUSE PLANTS, including some splendid specimen Azalea indica, from 1½ ft. to 4 ft. high by 2 ft. to 4 ft. through, abundantly furnished with bloom-buds; fine specimen Pelargoniums, large Camellias, Fuchsias, Primulas, Coronilla, &c.; also about 10,000 BEDDING PLANTS, consisting chiefly of Scarlet and Variegated Geraniums; likewise the Fruiting and Succession PINES, together with seven ranges of Brick Pits, with a quantity of Glazed Sashes, Frames, Bricks, Flues, &c.; also a quantity of Dunnage Mats, Garden Compost, Rotten Manure, Coke, and various other effects.
May be viewed any day prior to the Sale. Catalogues may be had on the Premises of Mr. TWYFORD, and of the Auctioneers and Valuers, Leytonstone, Essex, N.E.

Great Sale of Choice Nursery Stock at Rainworth, near Mansfield, Notts.

MESSRS. POTT AND NEALE have received Instructions from the Midland Railway Company to SELL by AUCTION, as above, early in APRIL, without the slightest reserve, as the ground must be immediately cleared. The Stock includes 250,000 Seedling RHODODENDRONS, 3000 best GOLD HOLLY (Queen), 2000 Choice HOLLIES of sorts, 13,000 English OAK, 9 to 12 inches, Picea nobilis, Araucaria imbricata, Cupressus Lawsoniana, Thujopsis borealis, Irish Yews, Wellingtonias, Thuja Lobbii, Fruit Trees, and General Nursery Stock, in fine condition for removal.
Catalogues may be had from the Auctioneers, Wheeler Gate, Nottingham; or from Mr. EDWIN COOLING, Horticultural Valuer, Derby.

Turnham Green, five minutes' walk from the Station.
TO NOBLEMEN, GENTLEMEN, NURSERYMEN, AND OTHERS.
IMPORTANT SALE OF NURSERY STOCK, 4000 PINES, &c.

MR. J. S. GOMME is instructed by Mr. Joseph Smith (who is relinquishing this department of his business) to SELL by AUCTION, on the Premises, Acton Green, Turnham Green, nearly opposite the Station, on TUESDAY, April 27, at 11 for 12 o'Clock precisely, on account of the number of Lots, the extensive STOCK in TRADE, comprising about 4000 fine healthy Pines—Jamaicas, Queens, Providence, and Smooth-leaved Cayenne—in all the various stages of growth; also, a choice and extensive collection of Bedding Plants, in pots, consisting of 5000 Geraniums, including Mrs. Pollock, Tom Thumb, Scarlets, and others; several thousand Verbenas, Fuchsias, Heliotropes, Stocks, Carnations, &c., and various effects appertaining to the Trade.
May be viewed one week prior to the Sale, and Catalogues obtained on the Premises, at the usual Inns in Covent Garden, and at the Offices of the Auctioneer and Market Garden Valuer, No. 23, Old Jewry, E.C., and Feltham.

Sale of Shorthorns at Ridlington, Rutland.

MR. JOHN THORNTON will SELL by AUCTION, without any reserve, at Ridlington, near Uppingham, on THURSDAY, May 13, Mr. Wortley's entire Herd of PURE-BRED SHORTHORNS, numbering between FIFTY and SIXTY HEAD, and comprising several animals of the fashionable Bates and Booth Blood, as well as others of the strain from which Mr. Baker reared his prize oxen. Imperial Count (24,183), and Highland Chief (24,142), of prize Booth blood, have recently been used.
Catalogues with pedigrees will soon be ready, and may be had of JOHN THORNTON, 15, Langham Place, W., or at Ridlington.

SHANKS'S PATENT LAWN MOWERS FOR 1869.

UNDER THE PATRONAGE
OF
HER MOST GRACIOUS MAJESTY
THE QUEEN,



AND MOST OF THE
PRINCIPAL NOBILITY
OF
GREAT BRITAIN.

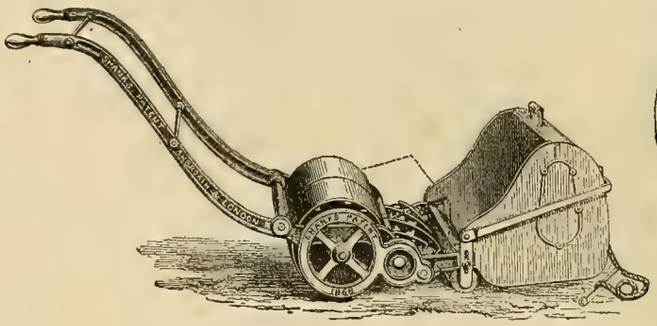
The Patent Improvements recently introduced give Shanks's Machine several important advantages possessed by no other Lawn Mower.

PATENT DOUBLE-EDGED SOLE PLATE, WIND GUARD, &c., &c.

THE UNPRECEDENTED SALE FOR 1868 BEARS TESTIMONY HOW MUCH THESE ADVANTAGES HAVE BEEN APPRECIATED.



THE FIRST PRIZE MEDAL
OF THE
INTERNATIONAL EXHIBITION,
LONDON, 1862.



HAND MACHINE.



THE FIRST PRIZE SILVER MEDAL
OF THE
UNIVERSAL EXHIBITION,
PARIS, 1867.

ALEXANDER SHANKS AND SON, in presenting their "PRICE LIST of LAWN MOWERS for 1869," have much satisfaction in intimating that among all the Exhibitors of Lawn Mowers at the Universal Exhibition of 1867, they are the only Firm to whom the Jury have awarded a Medal.

A. S. AND SON have, in addition to the PATENT DOUBLE-EDGED SOLE PLATE and WIND GUARD, made very great Alterations and Improvements in their Machine. These alterations, which were introduced last Season, have now undergone an effectual trial, and the result has been so successful as to enable A. S. AND SON to offer a Machine which far excels any other that has ever yet been offered, *whether for ease in working, certainty of action, or durability.* It has only to be compared with other Machines, when its superiority will be at once seen and understood.

PRICES—INCLUDING CARRIAGE TO ANY RAILWAY STATION OR SHIPPING PORT IN THE KINGDOM.

SHANKS'S NEW PATENT HAND MACHINE.

10-inch Machine	£3 10 0	Easily Worked	*By a Lady*
12-inch Machine	4 10 0		
14-inch Machine	5 10 0	*By a Boy*	
16-inch Machine	£6 10 0	Easily Worked	*By a Man*
19-inch Machine	7 15 0		*By a Man and a Boy*
22-inch Machine	8 10 0		*By Two Men*
24-inch Machine	9 0 0		

The Hand Machines are all with Silent Movement.

SHANKS'S NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* ,,
30-inch Machine	15 15 0	30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra.
Boots for Pony, 22*s.* per set.; Ditto for Donkey, 18*s.* per set.

SHANKS'S NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* ,,
42-inch Machine	26 0 0	40*s.* ,,
48-inch Machine	28 0 0	40*s.* ,,

Silent Movement, 20*s.* extra. Boots for Horse, 26*s.* per set.

SHANKS'S PATENT LAWN MOWERS

ARE THE ONLY ONES IN DAILY USE IN THE

ROYAL GARDENS AT KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, AND BALMORAL;
IN THE GARDENS OF THE ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON;
IN THE GROUNDS OF THE CRYSTAL PALACE COMPANY, AT SYDENHAM;
IN HYDE PARK, IN VICTORIA PARK, IN BATTERSEA PARK;

And in many hundreds of the principal Gardens in the Kingdom, as well as abroad, where their merits have been fully proved and their success firmly established.

Every Machine warranted to give ample satisfaction, and, if not approved of, can be at once returned.

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH,
AND
27, LEADENHALL STREET, LONDON.

27. Leadenhall Street is the only place in London where intending purchasers of Lawn Mowers can choose from a Stock of from 150 to 200 Machines. All sizes kept there, whether for Horse, Pony, or Hand Power.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by JAMES MATTHEWS, at the Office of Messrs. BRADBURY, EVANS & Co., Lombard Street, Precinct of Whitefriars, City of London, in the Co. of Middlesex, and Published by the said JAMES MATTHEWS, at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, April 10, 1869.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 16.—1869.] SATURDAY, APRIL 17. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL BOTANIC SOCIETY'S GARDENS, Regent's Park.—NEXT EXHIBITION of SPRING FLOWERS, ROSES, AZALEAS, &c., APRIL 27 and 28. Tickets 2s. 6d. each, to be had on orders from Fellows of the Society. Gates open at 2 o'Clock. Band will play from 2.30 to 5.30. SUMMER EXHIBITIONS, MAY 19 and 20, JUNE 30, and JULY 1. Tickets 4s. each.

CRYSTAL PALACE.—FIRST GRAND FLOWER SHOW, SATURDAY, MAY 15. Schedules, &c., with Prize List, on application. I. WILKINSON, Superintendent.

SPALDING HORTICULTURAL FETE, FLOWER FRUIT, &c. SHOW.—The ANNUAL EXHIBITION will be held in the GROUNDS of AYSCOUGHFEE HALL, on THURSDAY, June 24. Schedules may be had on application. Band of the Royal Horse Guards, GEO. F. BARRELL, Hon. Sec.

W. DILLISTONE, HORTICULTURAL AGENT, begs to offer his services as JUDGE to any of the forthcoming HORTICULTURAL EXHIBITIONS. Twenty-five years' practical experience. Sible Hedingham, Essex.

Pines.

B. S. WILLIAMS has all the best kinds, in splendid condition, warranted clean. Prices on application.
B. S. WILLIAMS, Seed Merchant and Nurseryman, Upper Holloway, London, N.

Royal Ascot or Perpetual Vine.

MESSRS. JOHN STANDISH AND CO. are now selling fine strong plants of this extraordinarily productive VINE at 21s., 42s., and 63s. each.
Royal Nurseries, Ascot, Berks.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LIST of these varieties from Mr. WEBB, Calcot, Reading.

ORCHARD-HOUSE TREES Fruiting in Pots.—Peaches, Nectarines, Apricots, Cherries, Plums, Pears, Apples, Vines, and Figs.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

AUCUBA POLLEN.—One dozen Flowers for 1s., Four dozen for 3s. Sent post free on receipt of stamps by JOHN STANDISH & Co., Royal Nurseries, Ascot.

CENTUREA CANDIDISSIMA and RAGUSINA.—A large quantity of the above, first-rate stuff, in 48-pots.
G. WELLS, Grove Nursery, Coleman Street, Camberwell, S.E.

THE GOLDEN ARBOR-VITÆ, THUJA AUREA.—Fine specimen plants, 2½ feet high, and 2 feet through, will be offered at very reduced prices. Apply to
WM. WOOD & SON, Maresfield, near Uckfield, Sussex.

DIANTHUS ALPINUS, the handsomest dwarf Alpine for Rockwork or Ribbon Border. A strong Plant free by post for 12 stamps, or six for 5s.
FENNESSY & SON, Waterford Nursery.

GNAPHALIUM LANATUM, a hardy ornamental white-foliaged plant, suitable for edgings, 5s. per dozen bunches. Each bunch will separate into a number of plants.
CHARLES SHILLING, Hill Nursery, Winchfield, Hants.

Kalmia latifolia.

W. H. ROGERS, Red Lodge Nursery, Southampton, can offer nice bushy Plants of the above, from 1 to 2 feet, full of blooming buds, at 40s. per 100; or selected, 6s. per dozen. Also ANDROMEDA FORMOSA (true), 1 to 2 feet, at same price.

WANTED, CUPRESSUS MACROCARPA, 6, 9, to 12 inches. State price per 100. Would EXCHANGE DOUBLE PRIMULAS, in variety, including the true crimson. Sample flowers sent per post.
H. DICKSON, Belmont Nursery, Strandtown, Belfast.

DWARF BOX EDGING, 4d. per yard. 1 yard sufficient to plant 3 yards.
JOHN CRANSTON, Nurseries, King's Acre, near Hereford.

FOR SALE, from the Bankrupt Estate of Gunn & Petree, Inverness, 2,000,000 2-yr. Seedling SCOTCH FIRS, at 10d. per 1000; also 5,000,000 2-yr. and 1-yr. transplanted do., at 4s. 6d. per 1000.
Apply to D. G. Ross, Dingwall (Trustee for the Creditors).

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.—Mr. WEBB, Calcot, Reading.

British Fern Catalogue.

ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, Sidcup Hill, Kent.

To Nurserymen, Florists, Landscape Gardeners, and Others.

FOR SALE, from 300 to 400 dozen of various FLOWER ROOTS, strong and good; six weeks' time allowed.
Apply to J. BROWN, Gardener, near the Railway Station, Lower Mitcham, Surrey.

TWELVE of the VERY BEST NEW ROSES of 1869 for THIRTY-SIX SHILLINGS.
Address, WM. WOOD & SON, Maresfield, near Uckfield, Sussex.

NEW ROSES of 1869.—All the best varieties; 2000 fine strong plants. DESCRIPTIVE LIST on application.
JOHN CRANSTON, Nurseries, King's Acre, Hereford.

EXTRA STRONG ROSES, in pots.—Several thousand Tea-Scented, Noisette, and Hybrid Perpetual varieties, together with the best NEW ROSES of 1868.
DESCRIPTIVE LIST on application.
JOHN CRANSTON, Nurseries, King's Acre, Hereford.

NEW ROSES.—Twelve of the best of 1869, in 6-inch pots, for 36s. Fine BEDDING PLANTS, including Mrs. Pollock, 25s. per 100, cash. Baskets and packing included.
GEORGE DAVISON, White Cross Nurseries, Hereford.

"Mr. PAUL'S Roses * * * are things to see once and dream of for ever."—*Athenæum.*

WM. PAUL begs to announce that his CATALOGUE of ROSES is now ready, and will be forwarded free on application.
PAUL'S Nurseries, Waltham Cross, London, N.

ROSES in POTS, for Bedding-out.—All the leading sorts of Hybrid Perpetuals, and several Hardy Teas, strong, healthy-grown Plants, 8s. and 9s. per dozen, own selection.
A. GODWIN & SONS, Angel Road, Edmonton, London, N.E., and Ashborne, Derbyshire.

MANETTI and RHODODENDRON STOCKS.—Several thousands of the above, fit for immediate working, still to offer at our Catalogue prices.
THOS CRIPPS & SON, Nurserymen, Tunbridge Wells.

ADAM FORSYTH'S CATALOGUE of New and Choice CHRYSANTHEMUMS for 1869 is now ready; containing also a practical Treatise on their Cultivation. Forwarded to all applicants for one stamp.
Brunswick Nursery, Stoke Newington, N.

GOLD FERNS.—Gymnogramma chrysophylla and Mertensii, Pteris cretica albo-lineata, good plants, 12 for 10s., package free. Trade price per 100.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

HERBACEOUS and ALPINE PLANTS, of the best and most attractive. Prices very low. CATALOGUES free.
STEPHEN BROWN, Nursery, Sudbury, Suffolk.

GLADIOLI, in extensive assortment, of the finest (should be planted immediately). Prices low. CATALOGUES free.
STEPHEN BROWN, Nursery, Sudbury, Suffolk.

R. M. STARK'S LIST of NEW and RARE HARDY PLANTS (including SPRING SUPPLEMENT) is now ready, and may be had on application.
York Road, Trinity, Edinburgh.—April 15.

New Spring Catalogue.

CHARLES TURNER'S DESCRIPTIVE LIST of PLANTS for this season, including many new varieties now offered for the first time, is now ready.
The Royal Nursery, Slough.

Dahlias.

JOHN KEYNES, NURSERYMAN, Salisbury. Twelve splendid Show Flowers. Four Fancy ditto. Obtained First-class Certificates at many exhibitions. CATALOGUES ready.

DAHLIAS, DAHLIAS, DAHLIAS: strong plants now ready.—Selection left to JOHN J. HASLAM, Chadderton, Manchester, for cash, in 12 good kinds, 4s.; 24, 8s.; or per 100, 25s. Fancy PICOTEE (Countess of Ellesmere), strong plants, 70s. per 100 pairs.

Coleus, Coleus.

FOUR NEW GOLDEN COLEUS of the Royal Horticultural Society, 1869—Her Majesty, Prince of Wales, Princess of Wales, and Prince Arthur. The four free by post for 5s.
PHILIP LADDS, Nursery, Bexley Heath, Kent.

NEW COLEUS.—The 12 new Coleus of the Royal Horticultural Society, sent out in 1868, with other fine varieties, sent post free—12 fine varieties for 2s. 6d.; 12 cuttings, in 12 fine varieties, for 1s. 2d.; from
B. W. KNIGHT, Florist, Battle, Sussex.

Carnations and Picotees.

WOOD AND INGRAM will supply 10 Pairs fine named SELF CARNATIONS, of various colours, and 10 Pairs fine named PICOTEES for £1. Selection left to W. & I.
Nurseries, Huntingdon.

Hyacinths on View.

DICK RADCLYFFE AND CO., SEEDSMEN, FLORISTS, &c., 129, High Holborn W.C.
Orders taken for the Autumn of any of the specimens.

New Verbenas.

JOHN KEYNES will be ready to send out the 12 splendid VERBENAS (price 3s. 6d. each) raised by Mr. Eckford, on May 1. A Plate of six of these splendid Flowers will be sent on receipt of 16 postage stamps.
Salisbury, April 3, 1869.

New Verbenas.

WM. KNIGHT will be ready to send out his six splendid SEEDLING VERBENAS on and after May 1, at 3s. 6d. each. They were all awarded First-class Certificates at the Brighton September Show, 1868. The usual discount to the Trade.
Floral Nursery, Hailsham, Sussex.

Cheap Bedding Plants.

CALCEOLARIAS, strong Autumn-struck, of sorts, at 5s. to 6s. per 100; also, GERANIUMS, 1s. to 1s. 6d. per doz., or cheaper by the 100.
W. GROVE, Tupsley Nursery, Hereford.

Specimen Pelargoniums.

JOHN FRASER, Lea Bridge Road Nurseries, N.E., begs to announce that he has instructed Messrs. PROTHEROE AND MORRIS to DISPOSE of his SPECIMEN PELARGONIUMS by AUCTION, on MONDAY, April 19.

Pelargoniums for the Million.

JAMES HOLDER can supply strong Plants of the above. Forty plants, distinct sorts, for 25s.; 30 sorts for 20s., or 20 sorts for 15s., hamper and package included, consisting of French, Fancy, and Show varieties.—Crown Nursery, Reading.

NEW DOUBLE GERANIUMS.—12 fine varieties Double Zonal Geraniums, including Madame Lemoine, for 20s.; 12 best New Zonal Geraniums of 1868 for 6s.; 12 fine varieties Gold and Golden Bicoloured Geraniums for 6s. Package included.
From B. W. KNIGHT, Florist, Battle, Sussex.

B. S. WILLIAMS' DESCRIPTIVE CATALOGUE of FLOWER, VEGETABLE, and AGRICULTURAL SEEDS, &c., is now ready; post free to all applicants.
Victoria and Paradise Nursery, Upper Holloway, London, N.

NEW and GENUINE AGRICULTURAL and GARDEN SEEDS.
Special prices and advantageous offers on application to
JAS. FAIRHEAD & SON, Seed Merchants, 7, Borough Market, London.

NEW and GENUINE AGRICULTURAL and GARDEN SEEDS.
Special prices and advantageous offers of above on application to
ALFRED LEGERTON, Seed Merchant, 5, Aldgate, London, E.

WAITE, BURNELL, HUGGINS AND CO.'S WHOLESALE CATALOGUE of AGRICULTURAL SEEDS for this season is now ready, and will be forwarded post free upon application.
Seed Warehouse, Southwark Street, London, S.E.

Agricultural and Garden Seeds.

H. AND F. SHARPE'S SPECIAL PRICED LIST of HOME-GROWN SEEDS is now ready, and may be had on application.
Seed Growing Establishment, Wisbech.

PARIS, 1867. SUTTONS' GRASS SEEDS for ALL SOILS. A PREMIER PRIX SILVER MEDAL for GARDEN SEEDS, GRASSES, and GRASS SEEDS, was Awarded to SUTTON AND SONS, SEEDSMEN to the QUEEN, Reading, Berks.

SUTTONS' PERMANENT GRASS SEEDS, 20s. to 32s. per acre, carriage free.
SUTTONS' MIXTURES for 1, 2, 3, or 4 years, 10s. 6d. to 22s. per acre, carriage free.
SUTTON & SONS, Reading, Berks.

EVERY GARDEN REQUISITE KEPT in STOCK at CARTER'S New Seed Warehouse, 237 and 238, High Holborn, London.

CARTER'S FARM SEEDS.—See large Advertisement at page 386 of last week's *Gardeners' Chronicle.*
SEED GROWERS, MERCHANTS, and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

A SPECIAL PRIZE MEDAL, PARIS, 1867, was AWARDED to JAMES CARTER & Co., 237 & 238, High Holborn, London, W.C., for GRASS SEEDS, supplied for the Exhibition Grounds.

GRASS SEEDS: WHEN and WHAT to SOW.—For the fullest information on this subject, see CARTER'S ILLUSTRATED FARMER'S CALENDAR for 1869; post free, 6d.
JAMES CARTER & Co., Seed Growers, 237 and 238, High Holborn, London, W.C.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c.
Free for one postage stamp.
RICHARD SMITH, Seed Merchant, Worcester.

SUTTONS' FARMER'S YEAR-BOOK for 1869 is now Ready, price 6d., gratis to customers.
Royal Berks Seed Establishment, Reading.

The Sugar-Beet Question.

For INSTRUCTIONS on CULTIVATION, see SUTTONS' FARMER'S YEAR-BOOK for 1869. 6d. post free, gratis to customers.
SUTTON & SONS, Seedsmen to the Queen, Reading.

SUTTONS' CHAMPION SWEDE, the hardiest and best in cultivation. Lowest price per bushel on application.
SUTTON & SONS, Seed Growers, Reading.

Nonpareil Cabbage Seed.

ALFRED LEGERTON, SEED MERCHANT, 5, Aldgate, London, E., offers the above to the Trade at 90s. per cwt. It is a fine sample, true stock, and of crop 1868.

To the Trade.

HALL'S WESTBURY SWEDE TURNIP SEED, true, nett. Grown last season from transplanted roots. For samples and prices, apply to
WILLIAM COCKS, Seed Grower, Donington, near Spalding.

WANTED, in the Trade, LONG YELLOW and RED GLOBE MANGEL SEED, GREEN ROUND TURNIP, &c.—Address, with price, G., Messrs. Marshall & Sons, News Agents, 125, Fleet Street, London.

Mangel Wurzel Seed.

JOHN SHARPE can offer on good terms, from highly selected Stocks, and his own growing this year.
Bardney Manor, Lincoln.

Yellow Tankard Turnip.

ALFRED LEGERTON, SEED MERCHANT, 5, Aldgate, London, E., offers the above to the Trade at 21s. per bushel. It is a fine sample, beautiful stock, and of crop 1868. Special quotations for all other Agricultural Seeds will be sent upon application.
WHITE BELGIAN CARROT, new and true, 54s. per cwt.

Important Offer.

SPLENDID New English SCARLET RUNNER BEANS, at 45s. per bushel. An excellent sample of do., 1867, good growth, at 25s. per bushel. Hall's IMPROVED WESTBURY SWEDE, 1868 growth, net, fine stock, &c., at 23s. per bushel. Fine Green KOHL RABI. Price on application. Terms cash.
FREDK. GEE, Seed Merchant and Grower, Biggleswade, Beds.

CUCUMBER PLANTS.—TELEGRAPH, warranted true. Selected stock, strong plants.
Apply to A. WATKINS, Bishop Stortford, Herts.

POTATOS.—Fluke, nice seed, per cwt. or ton. ARTICHOKES, JERUSALEM, fine, 5s. per bushel.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

POTATOS.—Handsworth Early Round.—Price on application to
JAS. FAIRHEAD & SON, Seed Merchants, 7, Borough Market, London.

SEED POTATOS.—Rivers' Royal Ashleaf, Early Dalmahoy, Myatt's Early Prolific, and all the finest early and late varieties, free from disease, excellent in quality, and at moderate prices. For Special Priced Lists apply to
H. & F. SHARPE, Seed Growers, Wisbech.

GIANT ASPARAGUS PLANTS, the best that money can procure, 2s. 6d. per 100. This delicious Vegetable does not require half the expense usually incurred in planting it.
See RICHARD SMITH'S SEED LIST for 1868.
Extra strong SEAKALE, 2s. per dozen.
RICHARD SMITH, Nurseryman, Worcester.

Gladioli, the most Extensive Collection.

BARR AND SUGDEN, 12, King Street, Covent Garden, W.C., have the finest and largest collection of GLADIOLI ever offered, prices varying from 2d. to 15s. per root. For particulars see pp. 68, 69, 70, and 71 of B. & S.'s SPRING SEED CATALOGUE.

Barr & Sugden, 12, King Street, Covent Garden, W.C.

Choice Seeds, Gladioli, &c.

WM. CUTBUSH AND SON'S CATALOGUE of the above contains a description and price of many very superior kinds of VEGETABLE and FLOWER SEEDS, and choice varieties of GLADIOLI, &c., all of which are highly recommended. Post free on application.

Highgate Nurseries, London, N.

Stocks, Stocks, Stocks.

B. S. WILLIAMS has much pleasure in offering a splendid selected lot of very fine WHITE WALLFLOWER-LEAVED TEN-WEEK STOCK. It is very pure in colour, and produces an immense spike of large double flower, and is admirably adapted for bedding purposes. Per packet, 1s.

Victoria and Paradise Nursery, Upper Holloway, London, W.

TO OWNERS of GARDENS.—In consequence of a large Private Garden, near Harrogate, not being planted this year, upwards of 7000 BEDDING PLANTS are FOR SALE by Private Contract, in Lots of 100 each.

For particulars, apply to Mr. THOMAS KNOWLES, Merchant, Harrogate; or Mr. TAYLOR, Nurseryman, Knaresborough.

FOR SALE, COLLECTION of 100 fine FLOWERING SPECIMEN ORCHIDS.—The Grand Specimen ORCHIDS (some the finest in the country), a few large FERNS, and Fine-foliaged Plants, belonging to W. Jackson, Esq., of Cross Lanes, near Bedale, are now offered for Sale. To any Nobleman or Gentleman about to commence the cultivation of these beautiful plants, this is an opportunity rarely to be met with.

Full particulars on application to Mr. DAVID NORRIS, Gardener at Cross Lanes, near Bedale, Yorkshire.

SCOTT'S SUPERB PRIMULA FIMBRIATA, 6 var., mixed, or each colour separate, 1s. 6d. and 2s 6d. per pkt.
SCOTT'S SUPERB CINERARIA and CALCEOLARIA, 1s. and 2s. 6d. per packet.
SCOTT'S SUPERB EXHIBITION ASTERS, STOCKS, &c., &c.
See former Advertisements, or SEED CATALOGUE.
J. SCOTT, The Seed Stores, Ye will Somerset.

Finest Prize Hollyhock Seed.

HENRY MAY begs to offer Seed from his renowned Collection of HOLLYHOCKS, which has for years been awarded all the First Prizes at all the great Exhibitions in the North of England. The Seed is saved from the newest and finest varieties only, and he will supply 500 Seeds for 5s., 1000 for 9s., 2000 for 15s. Post-office Orders payable at Bedale.

HENRY MAY, The Hope Nurseries, Bedale.

NEW LOBELIA, TRUE BLUE.—This desirable Novelty will be sent out for the first time in May next. The Plants are of a dwarf upright habit, very compact grower, flowers larger than L. Paxtoniana, bright azure blue, with small but distinct white eye, very free flowerer, and lasts throughout the season. Strong Plants, 7s. per 100, 1s. per dozen, and 1s. 6d. each, with the usual discount to the Trade.

PETER LAWSON & SON, Edinburgh and London.

Now Ready.

HENRY WALTON begs to inform his Friends and the Public that his NEW SPRING CATALOGUE is now ready, containing all the newest and most select Pelargoniums, Tricolor, Gold and Silver; Show and Fancy, Ivy-leaved and Double Geraniums; Fuchsias, Petunias, Verbenas, Dahlias, Show and Fancy; bedding and other New and Rare Plants, &c.

Edge End, Marsden, near Burnley, Lancashire.

Dahlia imperialis.

H. DAVIES having purchased the Stock of this magnificent Plant, which obtained the First-class Certificate of the Royal Horticultural Society (see *Gardeners' Chronicle* of Dec. 19, 1868), will be prepared to send out strong Plants after May 1, at 2s. 6d. each, or, securely packed, 3s. each. Orders are now being booked, and will be executed in strict rotation.

Nursery and Seed Establishment, Great Stanmore, Middlesex, N.W.

Viola cornuta alba.

JAMES DICKSON AND SONS, 32, Hanover Street, Edinburgh, can supply the above beautiful Bedding Plant, pronounced by all who saw it in bloom last year to be UNRIVALLED AS A WHITE BEDDING PLANT. 30s. per 100, autumn-struck plants; if taken in quantities of 500 a reduction in price will be made.

Verbenas, Verbenas.

PHILIP LADDS is now sending out 50 New Varieties of VERBENAS of 1868, strong plants, in pots, 1s. 6d. per dozen. Forty new varieties, 18s. free by post for 8s. Scarlet, white, purple, and pink Verbenas, strong plants, in pots, 1s. 6d. per dozen. Strong young plants, 6s. per 100, or £2 10s. per 1000.

12 New Varieties of COLEUS, of the Horticultural Society, 1868, for 3s. the set.

LOBELIA SPECIOSA, true, from Cuttings, 5s. per 100, or £1 15s. per 1000.

25 New Varieties of ZONAL GERANIUMS, 1868, for 10s.

Nursery, Bexley Heath, Kent.

Verbenas, 5s. per 100; 40s. per 1000.

WILLIAM BADMAN has to offer as under:—
VERBENAS, Purple, White, Scarlet, Rose, Crimson, &c., strong plants from store pots, 5s. per 100; 40s. per 1000.
LOBELIA SPECIOSA (true) from cuttings, 5s. p. 100; 40s. p. 1000.
PELARGONIUM CRYSTAL PALACE GEM, the finest golden leaf in cultivation, in small pots, 4s. per doz. 6 Finest Double Geraniums, including MADAME LEMOINE, 10s. Package included. Terms cash.

Cemetery Nursery, Gravesend.

Genuine and First-class Seeds, Carriage Free.

WM. PAUL begs to announce that his NEW CATALOGUE of SELECT VEGETABLE and FLOWER SEEDS just published, and will be forwarded free by post on application.

By a simple cheap arrangement, by which he believes he will be able to secure for his Customers, as usual, the best races of VEGETABLE and FLOWER SEEDS, of good germinating qualities, true from soil to soil. For further particulars, see large Advertisement of last week.

Important.—All letters should be addressed WM. PAUL, Waltham Cross, Herts, N.

Hardy Scarlet and other choice named Rhododendrons.

W. H. ROGERS, Red Lion Nursery, Southampton, has [illegible] collection of the above at the low price of 24s. per dozen. The plants are strong, bushy, and [illegible] both [illegible] kinds.

Superb Double Hollyhocks.

SEED IS THE BEST FOR PLANTING TO ENSURE GOOD SPIKES AND BLOOMS THIS SEASON.

WILLIAM CHALER'S CATALOGUE of his unrivalled Collection may be had upon forwarding one postage stamp. Choice Registered Seedlings, with colours attached, 4s. per 100. Unregistered Seedlings, from finest named varieties, 2s. per 100. SEEDS, saved only from first-class flowers, in packets and Collections, from 1s. to 10s. 6d.

Special prices for large quantities to the Trade on application.

WILLIAM CHALER, The Nurseries, Saffron Walden.

Splendid Indian Azaleas.

WILLIAM BARNES' unrivalled Collection of AZALEAS is this season in splendid bloom, and in the highest possible health, covered with strong bloom-buds from top to bottom, and have been properly trained as Pyramids, but neither stiff nor formal; their average heights are from 2 to 2½ feet, and beautifully clothed down to the pot. These plants cannot fail to please those who are about adding to their present collection or forming a new one. W. B. has also many thousands in various sizes, comprising all the finest and most select varieties, in the most beautiful and [illegible] form, [illegible] for conservation.

WILLIAM BARNES, Camden Nursery, Camberwell, S.E.—April 10.

Bedding Plants.

THOMAS SAMPSON, The Preston Road and Houndstone Nurseries, Yeovil, Somerset, calls attention to his already well-known, unique, and extensive collection of BEDDING PLANTS, which will be found to be unequalled for quality of plants and prices. CATALOGUES ready by the middle of April.

PETER DRUMMOND, Manager.

Bedding Plants.

J. SCOTT, The Nurseries, Merriott, Somerset, has, as usual, to offer the finest collection of the above in the West and South-West of England. Self-superintendence and a long life devoted to his business, enables him to know, procure, and offer the best of everything suitable for gardens, cultivated in the best manner, and sold at prices that cannot be got under.

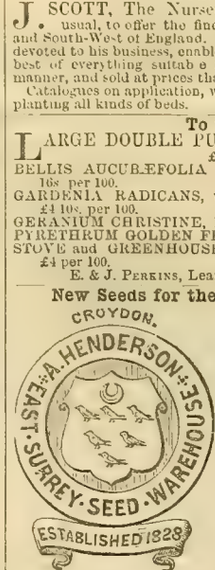
Catalogues on application, with Cultural Notes and directions for planting all kinds of beds.

To the Trade.

LARGE DOUBLE PURPLE ROCKETS, 3s. per doz., £1 per 100.
BELLIS AUCUBÆFOLIA (Variegated Daisy), 2s. 6d. per doz., 16s. per 100.
GARDENIA RADICANS, well set with blooms, 12s. per doz., £4 10s. per 100.
GERANIUM CHRISTINE, NOSEGAY, 6s. per doz., £2 per 100.
PYRETHRUM GOLDEN FEATHER, 1s. per doz., 6s. per 100.
STOVE and GREENHOUSE PLANTS in variety, 10s. per doz., £4 per 100.

E. & J. PERKINS, Leamington Nursery, Leamington.

New Seeds for the Garden and Farm, 1869.



ARCHD. HENDERSON'S DESCRIPTIVE and PRICED CATALOGUE of SEEDS, containing Cultural Remarks on all the most important SEEDS,

A select list of GLADIOLUS for Spring Planting,

GRAPE VINES, in Pots, an unrivalled Collection.

Also his DESCRIPTIVE CATALOGUE of GENERAL NURSERY STOCK is now ready, and may be had gratis and post free upon application.

Sion Nursery, Thornton Heath, Surrey; and at the East Surrey Seed Warehouse, College Grounds, North End, Croydon.

Genuine Seeds.—Carriage Paid.

B. S. WILLIAMS,
NURSERYMAN AND SEEDSMAN,
Victoria and Paradise Nursery, Upper Holloway, London, N.

COMPLETE COLLECTIONS
OF
KITCHEN GARDEN SEEDS
To suit Gardens of various sizes,
10s. 6d., 21s., 42s., 63s., and 84s. each.

NEW and CHOICE VEGETABLE SEEDS.	Per Pkt. s. d.
WILLIAMS' IMPROVED GREEN CURLED BORECOLE..	0 6
WILLIAMS' ALEXANDRA BROCCOLI..	1 6
DELL'S FINE DARK BEET..	1 0
WILLIAMS' MATCHLESS RED CELERY	1 0
SHARMAN'S UNIVERSAL CUCUMBER (new)	1 6
TELEGRAPH IMPROVED (Woolley's variety)	1 6
WILLIAMS' PARADISE GEM MELON, scarlet flesh, of excellent flavour, and 12 days earlier than any other in cultivation (new)	2 6
WHEELERS' TOM THUMB LETTUCE	0 6
DIGSWELL PRIZE ENDIVE..	1 0
WILLIAMS' VICTORIA COS LETTUCE (new)	1 0
MALVERN HALL MELON	1 6
GOLDEN QUEEN (New Hybrid Prize) MELON	2 0
BEDFORDSHIRE CHAMPION ONION (new)	1 0
NUNEHAM PARK ONION .. .. 1s. and	1 6
CULLINGFORD'S CHAMPION MARROW PEA, an excellent cropper, and fine flavour (new) .. .. per qrt.	3 6
MACLEAN'S LITTLE GEM PEA (very early) .. .. „	2 6
LEE'S GIANT ORACH .. .. per pkt.	0 6
ORANGEFIELD DWARF PROLIFIC TOMATO „	1 0

NEW and CHOICE FLOWER SEEDS.	Per Pkt.
WILLIAMS' SUPERB STRAIN of PRIMULA.—B. S. W. can with confidence offer his superb strain of Primula as being the finest in cultivation. Red, White, or Mixed .. .. .. 2s. 6d., 3s. 6d., and	5 0
CINERARIA (Weatherill's extra choice strain) .. 2s. 6d. and	3 6
CALCEOLARIA (Neill's extra choice strain), 2s. 6d., 3s. 6d., and	5 0
„ (James' strain) .. .. .. 2s. 6d. and	3 6
„ (Dalkeith Palace strain)	2 6
CYCLAMEN Wiggins' prize strain) .. 1s. 6d., 2s. 6d., and	3 6
POLYANTHUS (Wiggins' prize strain) .. .. 1s. 6d. and	2 6
BALSAM (Williams' superb strain) .. .. .. 1s. 6d. and	2 6
CLIANTHUS DAMPIERI (fresh imported seed)	1 6
GERANIUM LE GRAND .. .. 1s. 6d. and	2 6
SOLANUM (Weatherill's hybrids) .. 2s. 6d., 3s. 6d., and	5 0
VIOLA LUTEA (yellow flowered Violet) .. .. 1s. 6d. and	2 6
WALLFLOWER Saunders' fine dark variety)	1 0
SALVIA ARGENTEA, a beautiful silvery-foliaged ornamental plant	1 0
DIANTHUS HEDDEWIGII DIADEMATUS fl.-pl., flowers very large, and colours most beautiful (new)	2 6
ECHEVERIA METALLICA (new Bedding plant).	
OXALIS VALDIVIANA, quite hardy, the flowers are bright yellow and sweet scented, and produced in bunches of large size (new)	1 0
PALAVA FLEXUOSA, very pretty annual (now)	1 0
MYOSOTIS AZORICA ALBA, the flowers are pure white, contrasting beautifully with the blue variety Coelestina (new).	2 6
STOCK, EAST LOTHIAN.—This is a splendid variety, of dwarf and compact habit, producing immense spikes of bloom, and very double. They make a grand display in beds, and for ribbon borders. Per collection of three colours (Scarlet, Purple, and White)	2 6
TACSONIA VAN VOLXEMI (a beautiful Climber)	2 6
AMARANTHUS SPECIOSUS AUREUS (New Golden Prince Feather)	1 0
ANTIRRHINUM ASARINA, very beautiful for rockwork (new)	1 0
HELICHRYSUM APICULATUM (new)	1 0
MIMULUS REPENS, this is a very distinct species, the flowers are of a pale lilac-purple colour, the lower lip being prettily spotted with orange on a yellow ground (new) ..	1 0
ABRONIA ARENARIA, the flowers are of a pure waxy yellow, deliciously scented, and produced in long succession (new)	1 0
ZINNIA ELEGANS TAGETIFLORA fl.-pl. (new)	1 0

Imported GERMAN ASTERS, STOCKS, WALLFLOWERS, ZINNIAS, &c., in Collections, as imported.

GLADIOLI ROOTS, named kinds, per doz., 4s., 6s., 8s., 10s., and 12s.
BRENCHLEYENSIS, fine large roots, 3s. per doz., 20s. per 100.

ENGLISH-GROWN SEEDLING GLADIOLI.

B. S. WILLIAMS can strongly recommend these SEEDLING GLADIOLI. Being all Seedling Roots, they can be warranted to flower strongly, and will produce blooms possessing colour and qualities, perhaps, entirely new. For Masses and Borders these were much used last season, and gave great satisfaction. Price, per doz., 4s.; per 100, 30s.

Victoria and Paradise Nursery, Upper Holloway, London, N.

Roses.

JOHN CRANSTON will be happy to forward on application his DESCRIPTIVE CATALOGUE of ROSES for 1868 and 1869. For quality or quantity the stock is unsurpassed; the Manetti Roses especially are acknowledged to be the finest grown plants in the Trade.

Nurseries, King's Acre, near Hereford.

New Roses, &c., 1869.

WM. KNIGHT begs to offer the following Plants:—
12 NEW ROSES, Strong Plants .. .. .. 36s.
12 Finest NEW FUCHSIAS, Strong Plants .. .. 6s.
12 Finest NEW VERBENAS, Strong Plants .. 4s.
12 Finest COLEUS, Strong Plants .. .. .. 5s.
6 NEW PETUNIAS, Strong Plants .. .. .. 4s.
Or the above Collection, package included, for £2 10s.
CATALOGUE free.

Floral Nursery, Hailsham, Sussex.

New Roses 1869.



MESSRS. VEITCH AND SONS are now prepared to supply good established Plants in pots of all the best varieties, a LIST of which can be had on application. Price 36s. per dozen.

Usual discount to the Trade.

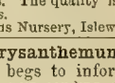
Royal Exotic Nursery, King's Road, Chelsea, S.W.

New Roses of 1869—19s. 3d. per dozen.

LÉVÊQUE ET FILS, NURSERYMEN, 132 and 134, Boulevard de l'Hôpital, Paris, have now ready all the NEW ROSES (66 sorts) of 1869. Good plants, well established in small pots, for better carriage. List on application. They can supply the following by the dozen or more of each:—(T. R.) Adrienne Christophle, Celina Noirey, Marie Ducher, Mario Sisley, Montplaisir; (Ch.) Margarita; (H. R.) Reine Blanche, Thyra Hammerich, Emilia Hausburg, Victor Trouillard père, Victor le Bihau, Berthe Baron, Julia Touvais, Perfection de Lyon, Réné Daniel, Mdme. de Canrobert, Devienne Lamy, &c.

They have also a large lot of—(T. R.) Jean Pernet, Reine de Portugal; (H. P.) Bne. de Rothschild, Elie Morel; (P. Moss) Sr. de Pierre Vibert, &c.

Prize Cineraria Seed.



J. DOBSON AND SONS beg to offer SEED from their Collection, which has taken Sixty First Prizes in six years, and numerous Certificates. The quality is unsurpassed. In sealed packets, 1s., 2s. 6d., and 5s.

Woodlands Nursery, Isleworth, W.

Chrysanthemums.

ADAM FORSYTH begs to inform the Trade and the Public that he is now sending out the following NEW CHRYSANTHEMUMS, viz.:—

Blonde Beauty	Mr. Evans
Mr. Geo. Haskin	Miss Mary Morgan

He is confident they will give as great satisfaction as any others he has hitherto introduced. For description and price, see CATALOGUE, which contains also a Practical Treatise on the Cultivation of this noble Flower. Forwarded on application for one stamp.

Brunswick Nursery, Stoke Newington, London, N.

WM. CLIBRAN will be glad to send Twelve CHRYSANTHEMUMS of 1868, including Japanese, for 4s.; 25 good old varieties, 6s. | 12 varieties of NEW COLEUS, 3s.
12 ZONAL and NOSEGAY PELARGONIUMS of 1868, 6s.
15 PELARGONIUMS for 8s. 6d.—Artemus Ward, Sophia Dumaresque, Perilla, Model, Aureum, Neatness, Mrs. Charles Barry, General Longstreet, Beauty, Glowworm, Beauty of Oulton, Gaiety, Madame Rose Charmeux, Triumph, L'Elegante.

Post or package free. Terms, cash. A CATALOGUE of Pelargoniums, Chrysanthemums, and other Plants, for one stamp.

Millbank Nursery, near Warrington.

New Golden Coleus of 1869.

H. CANNELL has procured a large Stock of the above splendid Foliage Plants, in 18 varieties, and can now execute orders with strong, highest-coloured plants, either in pots or otherwise. See CATALOGUE, with prices, history, culture, and description, for 3 stamps. Each variety is now forming into specimens.

	Each.		Each.
Princess Louisa	1 0	Princess Royal	4 6
Prince Leopold	1 0	Princess of Wales	1 0
Empress	1 0	Her Majesty	1 6
Masterpiece	1 0	Albert Victor	3 0
Model	1 0	Prince of Wales	1 0
Refulgens	1 0	Duke of Edinburgh ..	1 6
Umpire	1 0	Prince Arthur	1 6
Queen Victoria	5 0	Princess Beatrice	2 6

The usual discount to the Trade.

Amateurs are respectfully invited to inspect them. Also, H. C.'s Bicolor and other GERANIUMS, which are in splendid colour, and are now attracting the attention of all that see them.

Seventy trains stop at the Nursery daily (Dockyard Station), from Charing Cross and Cannon Street.

Florist, Woolwich.

Vegetable, Agricultural, and Flower Seeds.

MISCELLANEOUS HARDY BEDDING PLANTS, SWEET VIOLETS, &c.

ROBERT PARKER begs to announce that his CATALOGUE, containing DESCRIPTIVE LISTS of the finest kinds in cultivation of the above-named, is now published, and will be forwarded to applicants. The stocks of Seeds have all been procured from the best possible sources; all are warranted genuine, and are offered at the lowest possible prices.

Intending purchasers are requested to compare the prices with those of other houses.

Exotic Nursery, Tooting, Surrey, S.W.

CORDON APPLE TREES, on the true French Paradise Stock, as recommended by Mr. Robinson in his "Gleanings from French Gardens." All the best kinds, including CALVILLE BLANC, REINETTE DU CANADA, and other sorts. Prices upon application.

B. S. WILLIAMS, Victoria and Paradise Nursery, Upper Holloway, London, N.

To Noblemen and Gentlemen Planting for Pheasant

DRIVES, &c.—NOW BEING THE BEST TIME TO PLANT YEWS, HOLLIES, TREE BOX, &c.,

C. WHITEHOUSE, Brereton Nursery, Rugely, begs to offer stout bushy YEWS and HOLLIES, 4 to 4½ feet TREE BOX (always dry under for Pheasants, in wet weather) about 4 feet; and as he holds a very large stock of the above, the price will be very reasonable.

Planting Season.—Walton Nursery, Liverpool.

TO PLANTERS OF PUBLIC OR PRIVATE PARKS, CEMETERIES, PLEASURE GROUNDS, OR WOODS AND FORESTS.

WM. SKIRVING begs to offer his extensive and choice Stock of TREES and SHRUBS, all now in fine condition for removing; and as he is clearing off the Stock from 60 acres of his Nursery—the land being required for building—he is willing to accept very moderate prices.

The Stock consists of immense quantities of FOREST and ORNAMENTAL TREES, and of DECIDUOUS and EVERGREEN SHRUBS of all sizes, amongst which are some thousands of the Variegated Holly, of the finest colours and great size; also, of the large broad-leaved green variety, the finest and hardiest of all Evergreen Trees.

Gentlemen wishing to make new or renovate old Pleasure Grounds will find this a most excellent opportunity of effecting an immediate improvement. A specimen of this may be witnessed by a visit to the Nursery, which is respectfully solicited.

Walton Nursery, Liverpool.

SELECT AND GENUINE FARM SEEDS,

CARRIAGE FREE.

PRICED DESCRIPTIVE LIST on application, Post Free.

JAMES DICKSON AND SONS can confidently recommend their DICKSONS' PRIZE PURPLE-TOP SWEDE, as being superior to any other, also their ROOT-CROP SEEDS of every description; their CLOVERS, GRASS, SEEDS, &c., are all extra clean, much more so than those generally offered.

James Dickson & Sons

OLD ESTABLISHED NURSERY AND SEED BUSINESS,
102, EASTGATE STREET, AND "NEWTON" NURSERIES, CHESTER.

Thomas Gibbs & Co

ROYAL AGRICULTURAL SOCIETY OF ENGLAND — THOS. GIBBS & Co. Corner of HALF-MOON St PICCADILLY, London. — APPOINTED Ap. 3, 1844 & 6 — THE SEEDSMEN

CORNER of STREET.

Trade Mark.

GRASS SEEDS,
AGRICULTURAL SEEDS,

KITCHEN GARDEN SEEDS,
FLOWER SEEDS.

Catalogues forwarded Post Free to any address on application.

WILLIAM ROLLISSON & SONS'

BRILLIANT NEW TRICOLOR GERANIUM, THE MOONSTONE,

WILL BE SENT OUT ON AND AFTER THE 30TH OF THE PRESENT MONTH.

The habit of the above most beautiful Tricolor is compact and exceedingly free; the leaves, which are of good substance and moderately large, are almost round, and from the slight convexity of their shape they exhibit to great advantage the rich and varied colourings with which they are adorned; the centre of the leaf is of a bright and lively green surrounded by a dark chocolate zone, which is much intercepted by the most intense blood-red. This bright colour shades off, towards the edge of the leaf, to a soft crimson-lake, which entirely encircles the whole zone, edged with a bright lemon-yellow belt. It is somewhat in the way of Lucie Grieve in its colourings, but is rather brighter, and, unlike the shy habit and slow growth of that variety, "The Moonstone" is almost as free in habit as a Tom Thumb, while it remains constant in character. This, without exception, is the finest Tricolor hitherto offered to the public.

THE FOLLOWING NINE SPLENDID NEW DOUBLE GERANIUMS FOR 1869,

MADAME BONDET	MDLLE. LOUISE DELESALLE	M. FROEBEL
MADAME DEBRAY	M. DE ST. JEAN	MARIE LEMOINE
MARIE CROUSSE	M. DE ST. PAUL	WILHELM PFITZER

Together with many other Novelties of sterling merit, will be distributed on and after the 30th of the present Month.

For Descriptions and Prices of the above, see SPRING CATALOGUE of NEW and CHOICE SOFT-WOODED PLANTS for 1869, which will be sent Gratis and Post Free on application to

THE NURSERIES, TOOTING, LONDON, S.W.

LONDON AND CONTINENTAL SEED COMPANY.

CHIEF OFFICE—68, WELBECK STREET, CAVENDISH SQUARE, LONDON, W.

BRIGHTON BRANCH—80, KING'S ROAD. SOUTHAMPTON BRANCH—178, HIGH STREET.
PLYMOUTH BRANCH—15, DEVONSHIRE TERRACE.

THE LONDON and CONTINENTAL SEED COMPANY has purchased the old and important Business of Rendle & Co., of Plymouth, which has been established for nearly 100 years.

THE LONDON and CONTINENTAL SEED COMPANY.—MR. RENDLE, the head of the old Firm, has consented to be the Managing Director of this Company.

DISCOUNT of TWOPENCE in the SHILLING will be taken off the published prices of any London or Provincial Seed Merchant.

DISCOUNT of TWOPENCE in the SHILLING will be taken off the published prices of Seeds for the Farm, the Kitchen Garden, and the Flower Garden.

THE NEW FARM SEED LIST is now ready, and can be had on application, Gratis. A Discount of Twopence in the Shilling off all Farm Seeds.

SEEDS CARRIAGE FREE.—All Orders Carriage Free to any Railway Station in England, or Steam Port in Ireland.

SAMPLES of FARM SEEDS can be had on application.

FARM SEEDS for THOUSANDS of ACRES are annually supplied by this Company.

ALL WHO REQUIRE FARM SEEDS should procure a Copy of the NEW FARM SEED CATALOGUE.

A FULL DISCOUNT WILL be ALLOWED off all Farm Seeds.

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Beautiful Coloured Drawings.

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In strong plants, for cash, package included. CATALOGUES free on application.
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West of England Bedding Plant Establishment.

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Beauty of Preston, Duke of Edinburgh, Hero of Houndstone, Sir Robert Napier, } Of free growth, compact habit, leaves flat, nearly a circle, with brilliant scarlet zoned horse-shoes.

Received a First-class Certificate at the Bath and West of England Horticultural Show in 1868.

At 10s. 6d. each, or the set for 3½. Early orders solicited.
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CHOICE BEDDING, BICOLOR, and TRICOLOR GERANIUMS.

	Per doz.—s.	d.		Per doz.—s.	d.
A. H. Wills	18	0	Model	4	0
Beauty of Calderdale	6	0	Perilla	4	0
,, Ribblesdale	8	0	Princess Alice	6	0
Compactum	4	0	Refulgens	12	0
Her Majesty	12	0	Silver Star	4	0
Lady Cullum	12	0	Sophia Cusack	16	0
Little Golden Christine	12	0	Sophia Dumaresque	6	0
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Louise Smith	30	0	Viceroy	12	0

Cheaper by the 100 or 1000. Good Zonals, in sorts, 20s. per 100. The above are good plants, in 3-inch pots, package included.

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	Per doz.	Each.		Per doz.	Each.
	s. d.	s. d.		s. d.	s. d.
Lady Cullum	12 0	1 6	Egyptian Queen	3 0	
Lucy Grieve	5 0		Her Majesty	2 6	
Mrs. Pollock	4 0	0 6	Luna	4 0	0 6
Sophia Cusack	20 0	2 6	Model	8 0	1 0
Sophia Dumaresque	8 0	1 0	Mrs. Charles Barry	5 0	0 9
Sunset	5 0	0 9	Perilla	7 0	1 0
Italia Unita	4 0	0 6	Refulgens	12 0	2 0
Beauty of Calderdale	9 0	1 6	Vandyke	5 0	0 9
Crystal Palace Gem	4 0	0 6	Viceroy	12 0	2 0

Twelve varieties, the Purchaser's selection from the above, 18s., package included. Cash must accompany all orders.
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GOLDEN EMPEROR, large smooth golden leaves, entirely free from zone, habit compact and vigorous. Awarded the First Prize in the Class for Golden-leaved Pelargoniums at the Royal Horticultural Society's Special Show, in June last.

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The following are extracts from notices of the Special Pelargonium Show, with reference to the above varieties:—

Gardeners' Chronicle, June 20, p. 659.

"The best golden-leaved variety not in commerce was Golden Emperor, which came from Messrs. Saltmarsh, who also received a Second Prize for Golden Queen."

Journal of Horticulture, June 25, p. 454.

"Amongst the golden self varieties, Golden Emperor, from Messrs. Saltmarsh, was decidedly the best."

Also, in "Hogg's Gardener's Almanac" for the present year the following descriptions are given:—

"Golden Emperor, a fine-looking variety, with large smooth golden leaves. Awarded a First Prize as the best golden-leaved Pelargonium of 1868.

"Golden Queen, a very promising kind, well coloured, and good habit." Moulsham Nurseries, Chelmsford, Essex.

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B. S. W. having made arrangements for the supply of all Mr. Wiggins' Seed, it can only be had genuine in sealed packets bearing his name and address. In sealed packets, 1s. 6d., 2s. 6d., and 3s. 6d. each.

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Gold and Silver Tricolor and Bicolor Geraniums.

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TRICOLORS.

	Each.—s. d.		Each.—s. d.
Eastern Beauty	1 0	Gold Pheasant	0 6
Lady Cullum	2 0	Mrs. Benyon	0 6
Sophia Cusack	2 6	Sophia Dumaresque ..	1 0
Sunset	0 6	Glowworm	0 6
Italia Unita	0 6	Silver Star	1 6
Countess	1 0	Queen's Favourite	1 0

Or the 12 varieties for 12s., package included.

BICOLORS.

	Each.—s. d.		Each.—s. d.
Artemus Ward	1 6	Luna	0 6
Beauty of Oulton	0 6	Circlet	0 6
,, Ribblesdale ..	1 0	President Lincoln	0 6
Gaiety	0 6	Neatness	0 6
Sceptre d'Or	0 6	Her Majesty	2 6
Perilla	1 6	Kentish Hero	2 6

Or the 12 varieties for 12s., package included.

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Sophia Dumaresque ..	9 0	Sunset	4 0
Glowworm	4 0	Italia Unita	6 0
Silver Star	12 0	Queen's Favourite	8 0
Beauty of Oulton	4 0	Circlet	4 0
,, Ribblesdale ..	12 0	Gaiety	4 0
Neatness	6 0	Perilla	12 0
President Lincoln	5 0	Duke of Edinburgh ..	6 0
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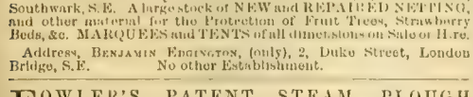
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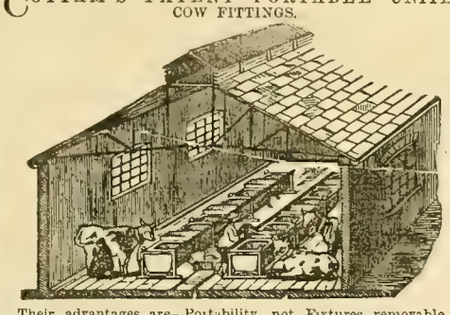
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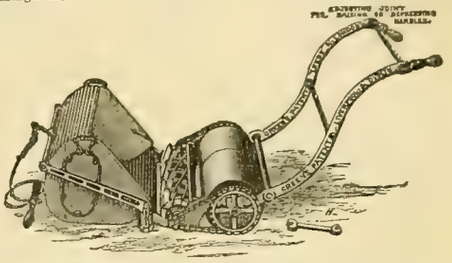
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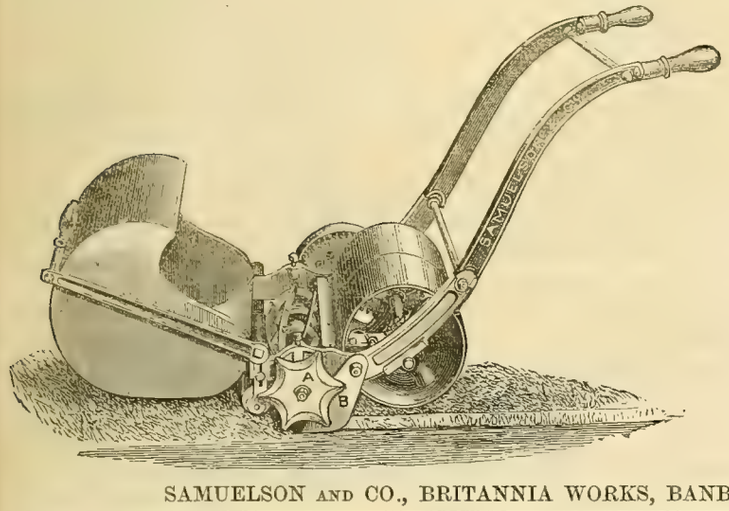
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The STRAWBERRY CRINOLINE is in the form of a table, made in halves, so as to be used without disturbing the plant. It is 16 inches in diameter, and stands 4 inches above the ground, galvanised. Its use is to preserve Strawberries from slugs, contact with the soil, superfluous moisture, and other nuisances. They are considered to last 10 years at least with care.

Price per Gross, £4.

The STRAWBERRY CRINOLINES are declared by all who use them to be of the greatest use in keeping the Fruit clean and assisting its growth—thus in the production of large crops. For particulars see Illustrated Catalogues, and Testimonials sent to us by our patrons last year.

The contrivance is by the late Sir Joseph Paxton, who, after testing them for one season in his own gardens, "Rock Hills," gave his approval of their usefulness. The right to Manufacture them was transferred to

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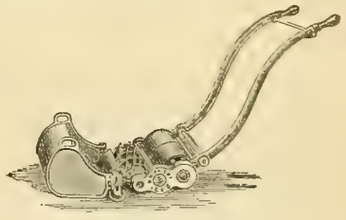
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TESTIMONIAL

From Alex. Mackenzie, Esq., Alexandra Park, Muswell Hill—appointed by the Metropolitan Board of Works to lay out their new Public Parks, and to plant the Thames Embankment—July 1st, 1868.

"Gentlemen.—I have pleasure in informing you that the 42-inch Horse Mowing Machine, supplied by your firm 15 months ago, does its work remarkably well. The two 42-inch Horse Machines supplied by you in May last are also most satisfactory.

"I have recommended your Lawn Mower to many of my friends, believing that the machine does its work better than any other, and combines strength superior to Shanks' machine, with the lightness of Green's. Having now four of your Lawn Mowing Machines in constant use on our grounds, and two of these having been in work over a year, I have never had cause to alter this opinion of your machine, which I now have pleasure in giving to you.—Yours faithfully, Alex. Mackenzie.

"Messrs. J. B. Brown & Co., 148, Upper Thames Street."

The B B LAWN MOWER was selected at the Paris Exhibition, in preference to all others, by the celebrated Engineer, Mons. Henry Schneider, of the well-known Engineering Works at Creusot, and President of the French Legislative Assembly. The following is a copy of a note received by Messrs. Brown & Co. from Mons. Schneider:—

"Usines de Creusot.—Schneider et Cie.,
"68, Rue de Provence, Paris, le 24 Fevrier, 1868.

"Monsieur,—J'ai fait faire l'essai de votre Machine à tondre les gazons, et m'empresse de vous faire connaitre que les resultats en ont été satisfaisats.—Recevez, Monsieur, mes sincères salutations.
(Signed) "H. Schneider."

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10-inch	For a Boy.	£3 5 0	18-inch	A Man and Boy	£7 0 0
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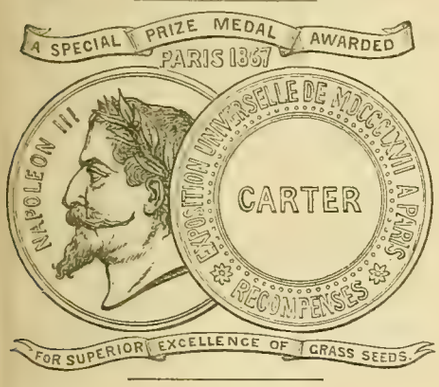
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GRAND NATIONAL HORTICULTURAL EXHIBITION, 1869, MAY 11 to 21.—NOTICE to EXHIBITORS.—All persons who intend to take part in this Exhibition must signify their intention to do so by letter addressed to the undersigned on or before MAY 1, on which day ENTRIES CLOSE. Gardeners will be admitted by tickets as follows:—First day, 2s. 6d. each; remaining days, 1s. each. Applications for these tickets must be made on or before May 10. BRUCE FINDLAY.
Botanic Garden, Manchester.

TUNBRIDGE WELLS HORTICULTURAL SOCIETY.—The ANNUAL GRAND EXHIBITION of FLOWERS and FRUIT will be held on FRIDAY, JULY 2, in the Grounds adjoining the Calverley Hotel, by permission of Edward Churchill, Esq.
Prizes open to all England; also Prizes for Hand Bouquets and Groups, or single piece for Table Decoration. Prizes for Cottagers' best-kept Gardens, and for Cottage Garden Productions.
Schedules may be obtained of Mr. E. F. LOOF, Secretary, 8, Parade, Tunbridge Wells.

July 19th to 24th, 1869.

THE ROYAL HORTICULTURAL SOCIETY'S GRAND EXHIBITION at MANCHESTER,
in connection with the
SHOW of the ROYAL AGRICULTURAL SOCIETY.
Amongst various Special Prizes,
A SILVER CUP (copy of the famous Cellini Cup), **VALUE £21**
will be offered by the Proprietors of the
GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE
for the best COLLECTION of 5 FRUITS and 8 VEGETABLES, to be made up as follows.
In awarding the Prize, Marks will be adjudged according to the following scale, for the several subjects produced.

	Good.	Medium.	Inferior.
Grapes	6 marks	3 marks	1 mark
Melons (2 fruits)	6 "	3 "	1 "
Strawberries	3 "	2 "	1 "
Gooseberries	3 "	2 "	1 "
Currants	3 "	2 "	1 "
Cherries	3 "	2 "	1 "
Raspberries	3 "	2 "	1 "
Apples of 1868	6 "	3 "	1 "
(Any 5 of the above 8 subjects).			
Peas	3 "	2 "	1 "
French Beans	3 "	2 "	1 "
Broad Beans	3 "	2 "	1 "
Cauliflowers	3 "	2 "	1 "
Cucumbers (brace)	3 "	2 "	1 "
Summer Cabbages	3 "	2 "	1 "
Early Carrots	3 "	2 "	1 "
Turnips	3 "	2 "	1 "
Globe Artichokes	3 "	2 "	1 "
Onions	3 "	2 "	1 "
Spinach	3 "	2 "	1 "
Rhubarb	3 "	2 "	1 "
Potatos	3 "	2 "	1 "
Mixed Salading (Any 3 of the above 11 subjects).	3 "	2 "	1 "

This Prize is open for Competition amongst Amateurs and Gardeners of private families. The Fruit and Vegetables produced must be of *the Exhibitor's own growing*; and any article otherwise obtained will disqualify the Collection. It is expected that the several articles will be neatly and effectively displayed.

The Gardeners' Chronicle.

SATURDAY, APRIL 17, 1869.

MEETING FOR THE ENSUING WEEK.

TUESDAY, April 20 { Royal Horticultural (Fruit and Floral Committees), at South Kensington .. 11 A.M.
Ditto (Scientific Committee) .. .. 1.30 P.M.
Ditto (General Meeting) .. .. .. 3 P.M.

THE chapters in Mr. DARWIN'S "ORIGIN of SPECIES" relating to the systems of classification adopted among naturalists, have always appeared to us to be among the most remarkable among the many noteworthy features in that now well-known work. Mr. DARWIN'S remarks are not only of very great interest in a purely scientific point of view, but their practical importance is fully as great, and will in the future be even more so. It would be out of place here to enter at length into the consideration of the so-called natural system of classification. Suffice it to say, that according to Mr. DARWIN'S views, such systems must have a genealogical basis. The several forms and groups of plants or animals that we see around us are related one to the other in various degrees, just as human beings are. The hypothesis of a common origin, and a consequent more or less direct relationship, thus affords a rational explanation of the existence and of the affinities of those groups which naturalists term species, genera, &c. To test the correctness or fallacy of such views two courses are open to us. We may proceed deductively, and from a full consideration of the facts already known to us we may arrive at conclusions which will be nearer or farther from the truth in direct proportion to the extent of our knowledge, and the correctness of our reasoning. Or we may proceed inductively, and, without bias one way or the other, laboriously and conscientiously accumulate facts. Each fact throws light upon its fellow; each one, while in itself again, continually unfolds the prospect of further gain, and opens up an illimitable prospect—an ever-shifting horizon—which prevents us from ever attaining to a full knowledge of what is probably quite beyond our mental range. Nevertheless we are tempted or compelled to progress from the unceasing stimulus afforded by the continual discovery of hitherto concealed truths, no less than by their intrinsic material importance. Mr. DARWIN has himself followed both modes of investigating the hidden secrets of Nature, and while his deductions are among the most startling of any in the whole history of science, his patience and sagacity as an experimenter have brought to light facts of which the physiologist already recognises the importance, and of which horticulturists and agriculturists will in future years reap the material result. With reference to the Darwinian theory it has always been felt that its soundness must be tested by students of special groups, either of animals orplants; and so we find M. MÜLLER testing the validity of the theory by an investigation of the Crustacea. Then we have Mr. BENTHAM treating the extensive genus Cassia on the same principle; and so with other naturalists—and this brings us to speak more particularly of M. CARRIÈRE'S labours. M. CARRIÈRE is a practical man, and is therefore entitled to a hearing from practical men. M. CARRIÈRE is a theorist, who reasons logically, and takes care that his premises are as sound as they can be made; he is therefore sure to be listened to with attention by others. M. CARRIÈRE, too, has pursued both methods of investigating the truth. Our own columns have from time to time furnished many illustrations of this statement, but we would allude now particularly to his genealogical arrangement of the varieties of Peaches and Nectarines, which is a practical carrying out of Mr. DARWIN'S ideas as to the relationship and filiation of natural groups. The genealogical trees of Mr. DARWIN and M. CARRIÈRE are constructed on the same principle as the "Greek trees" in the Greek grammars, and which, we must confess, have acquired in these Darwinian days an interest for us which we are compelled to admit was wholly unappreciated in our schoolboy days. But, not content with this, M. CARRIÈRE has followed the plan adopted by MM. VILMORIN, BUCKMAN, and others, of ascertaining by direct experiment the probable origin of some of our cultivated plants. Thus, from seeds of the wild Radish, carefully selected through four generations, M. CARRIÈRE states that he has produced a great variety of forms, which he summarises as follows:—

Raphanus Raphanistrum, wild form.

Flowers pale yellow, with purplish veins.
Pods relatively small, nodding, not very fleshy.
Roots filiform, dry, fibrous, always white, hard, somewhat woody; not edible.

Varieties educed by selection, &c

Flowers white, violet-rose, or yellow, self coloured, or usually streaked.
Pods variable in size and form, pendulous or erect, sometimes very large, as much so as those of the Madras Radish, and then succulent and edible.
Roots large, sometimes excessively so; variable in form and colour, fleshy; flesh white, yellowish, or rosy, sometimes violet; succulent and edible.

Some of the forms thus produced are valuable additions to our culinary vegetables, and may be treated as Turnips. M. CARRIÈRE draws attention to the different results of his experiments as carried out in the light, dry soil of Paris, and the stiffer, more retentive soil of the country. In the latter case, on good Wheat soil, the tendency was to form short thick roots, while in the light calcareous soil of Paris the varieties produced had long white roots, more like a Carrot in shape. M. CARRIÈRE further remarks on the difference in the result as manifested by autumn and spring-sown seeds respectively, and on the necessity for different treatment according as the plants are cultivated for the sake of their pods or their roots; whence, as well as from other experiments of a like nature, he concludes that the forms of organised beings are always in harmony with the conditions or circumstances in which they are developed. To us this seems rather too sweeping an assertion. It appears to us to exclude adaptation to function, and to limit the changes too exclusively to the action of external conditions. Perhaps we may have misunderstood M. CARRIÈRE. Our own notion is, that in all adult organised beings there are two sets of characteristics or attributes—the one congenital and common to all the members of large communities, at least in their earliest stages, the other manifesting themselves at a later period, and special to certain individuals or species. These latter characteristics are developed or acquired in conformity either with external conditions, or are manifested for the proper fulfilment of some function or office which has to be fulfilled. Thus the congenital features characterise large sections or groups, while the acquired characters serve to distinguish species or individuals one from the other. The experiments in progress at Chiswick on this important subject will, we hope, not only be of direct practical benefit, but will serve to throw light on the variations of plants as affected by different conditions of soil, &c.

We may remark, in conclusion, that the practical result of M. CARRIÈRE'S experiments has been the production of a new variety

of Radish, which he calls the Family Radish, on account of its size, and because it may be stored up for use through the winter in the same manner as Turnips. M. Carrière should make his case complete by telling us what pains he took to prevent cross-fertilisation. He states that he has procured all these varieties simply by selection; but it is impossible to avoid surmising, in the absence of any direct evidence to the contrary, that cross-fertilisation may also account for some of the forms which have been procured.

—— Fruits of the Japan Medlar, Eriobotrya japonica, have been recently sold in London streets by the hawkers, under the name of Japonicas. They are also to be seen in Covent Garden Market. The fruit as bought, would form a handsome addition to the dessert table, and has an agreeable sub-acid flavour. Some few years since fruits of Zizyphus sinensis, the Chinese Jujube, were sold in a similar way, under the same name—Japonicas. There are Japonicas and Japonicas it seems.

—— The following arrangements have been made with reference to the Lectures on Natural Science in the University of Oxford for the Easter term:—Geology—Professor John Phillips, M.A. (Volcanos and Earthquakes), Monday, Wednesday, 12 A.M.: first lecture, Monday, April 19; Botany and Rural Economy—Marmaduke Lawson, M.A. (Structural Botany and the Principles of Classification), Monday, Wednesday, Thursday, 1 P.M.: first lecture, Thursday, April 15; Zoology—J. O. Westwood, M.A. (Articulated Animals), Thursday, Saturday, 12 A.M.: first lecture, Thursday, May 6. The inaugural lecture of the Professor of Botany was delivered in the Museum on Thursday, April 15; the following lectures at the Botanic Gardens.

—— We are informed that the Degree of LL.D. has just been conferred by the Tusculum College, United States of America, on Mr. James Brown, Nurseryman and Wood Surveyor, Craig Mill, Stirling, as a mark of appreciation of the high merit of his work entitled "The Forester."

—— Special manures seem to be the order of the day. Last week we noticed a Vine manure, and our attention is now called to a Manure for Balcony Plants! bearing the unwieldy name of "London Balcony Creeping Plant Restorer," and which has been provided for the purpose of regenerating the plants used for beautifying the balconies of London mansions. It is Mr. Wimsett who thus caters for balcony plants, and an excuse for a concentrated manure of this kind may be found in the unpropitious circumstances under which plants grow in exposed window-ledges, and draughty balconies.

—— Accounts from the wine-growing districts in the south of France, quoted in the *Standard*, give details of a new Disease in the Vine, attributed to vermin which are found on the leaves. In the district of Orange (Vaucluse), of 10,000 hectares (2½ acres each) of Vines, 3,500 are destroyed. The loss is immense. At Sarrians few plants remain in a healthy state; at Roquemaure the loss amounts to one-half. The disease is spreading on all sides.

—— We are requested to inform all intending exhibitors at the ensuing International Horticultural Exhibition at St. Petersburgh, that all communications relating to the Exhibition should be sent to one or other of the three appointed representatives, on or before the 24th inst. The representatives are—Dr. Hogg, office of the "Journal of Horticulture," Fleet Street; Dr. Masters, office of the *Gardeners' Chronicle*, Wellington Street, Covent Garden; and Mr. H. J. Veitch, King's Road, Chelsea.

New Plants.

Sarcanthus arietinus, *sp. n.*

Foliis teretibus, validis; racemo multifloro parvifloro deflexo subfractiflexo; bracteis triangulis, ovaria pedicellata non dimidio aequantibus; sepalis oblongis; petalis ligulatis obtuse acutis; labello trifido, laciniis lateralibus obtusangulis, medio plicatis semisinuatis, lacinia media triangula acuta, calle erecto sub columna lanellato sulcato, cornu retroso; columna gracili apice juxta foveam utrinque angulata velutina.

Stem about 5 inches high, with six leaves on each side, perfectly straight, stiff, terete, 3 inches long, each as thick as a quill; flowers small, greenish, the lip rosy, with the middle lacinia yellowish, and the side laciniæ and a dot on the outside of the lip purplish. A very odd plant, looking as if made from tin, so stiff is it. One of the Assam introductions of J. Day, Esq. *H. G. Rchb. f.*

Oncidium Phalænopsis, *Lind. Rchb. f.—nec* Oncidium Phalænopsis, *Linden MSS. olim.*

(Tetrapetala planifolia; sepalo summo oblongo acuto; petalis subaequalibus, sepalo inferiori oblongo bilobo; labello panduriformi basi angustiori, antice dilatato reniformi lobulato, calle basi, bicruri antice utrinque acutangulo, carina angulata interjecta, basi velutina; columna aptera apice cucullata, bucca producta.—Perianthium candidum maculis striisque pulchre violaceis; labellum basi maculis multis violaceis; callus aurantiacus; fovea limbus violaceus.

This is a very gay and ornamental plant. The flowers grow in a raceme, and are as large as those of a great Oncidium cucullatum, cream coloured, with showy violet spots and bars, and a deep orange short or long crest. The limb of the stigmatical hollow is violet. It may be one of Mr. Wallis' Ecuadorian collection, since we obtained it from Director Linden. *H. G. Rchb. f.*

Oncidium andigenum, *Lind. Rchb. f.*

(Tetrapetala planifolia; sepalo summo oblongo lanceolato acuto, petalis subaequalibus, sepalo inferiori oblongo bidentato, labello panduruto basi angustiori, antice dilatato reniformi lobulato crispulo, callo bascos, brevi reniformi gibbo velutino postposito; columna aptera androclinio cucullato buccis producti. Flos ochraceus maculis multis violaceo-purpureis, callo aurantiaco, columna purpurea.

A very curious little Oncidium, in the way of O. cucullatum, bearing ochre-coloured flowers, with numerous purplish spots, and an orange-coloured crest. It may be one of Mr. Wallis' Ecuadorian collection, having been obtained from Director Linden. *H. G. Rchb. fil.*

PANELS, MONOGRAMS, &c., FOR FLOWER GARDENS.

The following remarks are intended to apply to the designing of patterns, panels, monograms, and the like, for flower gardens, my object being to discuss the manner in which such designs are carried into effect.

I recollect being told by a bishop (and I can give no better authority) that he had a very beautiful little flower garden, and the design was copied from one of his lordship's fire-shovels. This admission was certainly a privileged communication, for if the outer world had suspected that the ash-pan of a fire-shovel had ever borne the figure of such a flower knot, the respectability of the parterre would have been gone for ever.

The more expensive paper-hangings present patterns of a very high class, and the pattern designers in Manchester and other manufacturing towns produce a constant stream of elegant designs, and these artists are handsomely rewarded for their pains. I mention these things to show in the first place that pattern designing for horticulture is only part of a system of which horticulture has indeed but a very small share, and that the designing of the pattern, however important in itself as a guide, is but a very little way on the road to the skilful execution of the work.

If we take one or two of the best examples of pattern designing in horticulture of the present day, and compare the materials used in filling-in the pattern, we shall be better able to see what has been done as compared with what might have been done. In the garden of the Royal Horticultural Society of London I observed that the patterns of the panels were beautifully put in with Box edging, and displayed great skill in the design and in the workmanship, but judge of my surprise when I saw the elegant sweeps and curves flowing so gracefully, "conjunct and trine," to surround a patch of broken glass! Had botany in all her treasures no hue that would have suited such a small bed? In all the field of alpines, in the long catalogue of hardy herbaceous plants, dwarf shrubs, bedding plants, subtropicals, and the like, could none be found to fleck the pattern, equal to the colour of the artist's paint upon the plan? No! and the pattern was, and, for aught I now to the contrary, still is, filled in with crocks of coloured glass. Across the Atlantic an indignation meeting of the Blue Apron Legion would certainly have been called under such provocation, and every man worthy of the Shalloon* would no doubt have protested manfully against the intrusion, but here we only "grin and abide."

At Elvaston Castle, Derbyshire, there was a panel filled-in with Yew, and I name it here to show that after the pattern of this panel had been planned and coloured, the smallest portion of the work was only then accomplished. Besides the patience and perseverance, extending over many years, which this slow-growing evergreen tree would require, there was also such an amount of practical skill wanted as few men at the time could have supplied; for it was by no means made up of the solemn sad sepulchral Yew only, but of sports and varieties, and these were to be worked in after the fashion of a piece of tapestry. There has been a great deal of dabbling in panels up and down during the last 20 years, but we look in vain for the Elvaston Panel—now I believe in ruins—to be surpassed or even equalled, nay, no one seems to have even imitated it; and I must say that very few men would make the attempt, for reasons that I need not state here, but which the shrewd reader will not fail to discover for himself.

I come now to a case with which I am quite prepared to deal, having gone through every part of it myself. You will therefore have the evidence before you from the first hand, and from a great admirer of the artist who planned the work. After fruitless attempts had been made by Lord and Lady Shrewsbury (the late Lord John) to agree about cutting down overgrown trees, &c., at Alton Towers, it was arranged that W. A. Nesfield, Esq., the eminent landscape gardener, should be called in, and that his decision (to use a law phrase) should be final and binding on both parties. This gentleman was peculiarly fitted for the delicate task, being a landscape painter, as he could strike off at a heat the thing as it was—and the resemblance to the original was always marvellously like, and then in glowing colours could show, in like manner, what the landscape from a given point ought to be. He afterwards designed a flower garden, the chief features of which were a sunk panel with a fountain in the centre and a monogram of the family, an illuminated S. Every part of these figures was carried out to the letter, but surrounding them, and as it were to cut them off and isolate them, there ran a line of circles about 4 feet each in diameter, each circle having one Irish Yew, 4 ft. high, in the centre. The surface of the circle was paved, as specified, with white pebbles about the size of a bantam's egg; and, in order to clean the pebbles when the Grass was mowed, a bellows was to be used to blow the dust off the stones, in order to show a clean face on the causeway,—for that, in plain English, was the article with which our garden was to be ornamented. This, too, was carried out to the letter; and the blackish green of the Yew, standing on the cold stones, did not require to be condemned, for it was not to be endured, and was just another case after the fashion of the broken glass above stated. One of the labourers had an industrious wife and several children, and this good lady with her family collected the pebbles at a price per bushel, and she blessed the day when white pebbles were wanted, as she could earn 5*s.* a day at the job; all other parties to the contract were decidedly losers, for we mended the roads with the pebbles. Every Yew tree was propped with a stiff stake to keep the line quite true, and to every stake at planting time was put a standard Rose of the height of the Yew tree, just to warm off that important point, while in the place of the pebbles a cone of the brightest bedding plants was made around each Yew, which now formed a valuable back or foil to the bright flowers, these flowers, be it observed, being always in front, whichever way you looked; and some of the most competent judges expressed their opinion on the spot, that it was the finest sample of flower gardening that they had ever seen. When I mention that 45 flower beds were thus added to the artist's beautiful design, without in any way interfering with the pattern, I conclude that the change was unquestionably for the better. In the case of a Manchester house employing a pattern designer, where the house has to find the goods, and find also a market for them, there are bitter complaints because, as is said, the Continental artists who are employed degenerate after being a year or two in this country, and their designs cease to have the easy flow they once had. Now, if this be so with one class of artists, it may be so with another,—at all events, one conclusion is quite clear, that if a pattern can only be filled in with broken glass, such a pattern is quite unfit to be used for a flower garden. For that market the goods should be alive. The coloured pathway in a flower garden is perfectly legitimate, but a bed filled with paving stones, or one filled with broken glass, is not to be passed over in silence. *Alex. Forsyth.*

* Blue shalloon is the orthodox material for gardeners' aprons.

REVIEW OF THE GENUS NARCISSUS.—I.

In view of the reviving interest in this beautiful genus, I propose to devote a little space this spring to a review of the species and principal varieties, pointing out their characteristic distinctions as well as the materials at my command will allow, and endeavouring to group them so that my remarks may serve the reader as a guide to the naming and arranging of his specimens. In the last generation, at the time when the public interest in Narcissi reached its highest point, Mr. Haworth and the Hon. and Rev. W. Herbert studied the genus from living plants in English gardens in a very careful and elaborate manner, and both published the result of their investigations. In Haworth's monograph, which was printed in 1831, and published as a supplement to Sweet's "Flower Garden," in the year 1831 (vol. i., second series), nearly 150 so-called species are enumerated and characterised; but what Haworth understood by a species, is what most botanists mean when they speak of a slight garden variety; and not only have a large proportion of his plants never been identified in the wild state, but a considerable number of them he had never seen himself, but had taken up from the rude woodcuts of the pre-Linnæan herbalists. These 150 species he classified under 16 genera.

The Dean of Manchester, who for many years made a special study of Amaryllidaceæ, performed a very useful service in revising Haworth's work, which he did by reducing his 16 genera to six, rejecting such of his types as were known from figures only, and grouping the rest into combinations of a higher order of value; but he, too, here, as in the other genera of the order, took a different view of what constitutes a species to that which it is possible for any writer who deals with wild plants to adopt, and in consequence often founded species upon a basis of character so narrow as to make it quite impossible for those who use his book to apply his definitions in practice. The principal writers upon the genus on the Continent have followed our two English monographers almost implicitly both as regards the arrangement and characterisation of the plants, Spach, and Rœmer and Schultes treading in the footsteps of Haworth; and Kunth, in his "Enumeratio," which is the book generally used both at home and abroad for naming and classifying Amaryllidaceæ and Liliaceæ, following close upon the track of Herbert. My own view is that the range in structure which the plants show, taking in view the gradual manner in which the extremes are connected by intermediate links, is not too great for them to be associated together in a single genus, as Linnæus planned; and I believe that the number of what may be fairly called species, as the term is understood by the majority of botanists, which it is possible to characterise as clearly as species ought to be characterised, and which are known definitely in a wild state, is not much over 20. In the present paper I propose to pass these under review, giving for each as good distinctive characters as can be furnished, and enumerating under each its principal varieties and synonyms, with a reference to the figures where the typical plants and varieties will be found represented.

At the outset it will be better to clear the way by a few general remarks on the parts of the plant which vary sufficiently in the different species to furnish characters by which they may be known from one another; and for this purpose I will pass the parts of the plant rapidly under review.

Bulbs.—The bulbs of the different kinds vary in size very much, but in all are quite uniform in general character.

Leaf.—There are two well-marked types of leaf with intermediate gradations, one kind, rush-like in shape, and nearly or quite round in horizontal section; the other, though rather thicker in the middle

than towards the edge, yet nearly flat in the upper half, but becoming convex on the back and slightly concave on the face as it descends to clasp the base of the scape. We have good examples of the rush-like type of leaf in N. juncifolius and Jonquilla, and of the nearly flat kind, attaining a breadth of half-an-inch or more, in N. Tazetta and Pseudo-Narcissus. In N. odorus and intermedius we have a half-cylindrical leaf with a deep channel down the face, and in several kinds a less convex leaf, two or three lines broad. The rush-like and semi-cylindrical leaves are always a bright glossy green; those that are nearly flat are usually more or less covered with a glaucous bloom. In all except one of the autumn-flowering species, the leaves are contemporary with the flowers.

Scape.—In most of the species the scape is more or less compressed, with a raised line on the two opposite edges (ancipitous); in a few it is nearly or quite round in horizontal section (terete). In N. Pseudo-Narcissus, Bulbocodium, poeticus and incomparabilis, it is essentially single-flowered; but generally there is a tendency to produce more than one flower, and in some of the varieties of N. Tazetta we have as many as a dozen or even twenty. The spathe has never more than a single valve. Sometimes the flower is nearly sessile in the spathe, but more usually the pedicels are nearly or quite as long as the spathe.

Tube of the Perianth.—The tube is generally as long or rather longer than the divisions of the perianth. In all but two species it is a slender cylinder, slightly dilated at the throat, or a funnel with a narrow neck; but in N. Pseudo-Narcissus and Bulbocodium it is shaped like a reversed cone.

Divisions of the Perianth.—In N. Broussonetii, and the two species just mentioned, the divisions of the perianth form permanently an acute angle with the crown. In N. calathinus and triandrus they become decidedly reflexed when the flower expands; but in the majority of the species they spread out from the base of the crown horizontally, being usually broad enough to wrap over one another; but in the three autumn-flowering species very narrow, and narrowed gradually from the base to a sharp point.

Corona.—The crown in the centre of the flower varies very much, and furnishes some of the best marks which we can get for characterising the species. Beginning with N. Broussonetii, it shows itself as a layer almost entirely confluent with the upper part of the tube. We get it in the next stage of development in the autumn-flowering species, in which it is an erect rim, scarcely over half a line high. In N. poeticus and biflorus it is a similar but rather deeper rim, with a very much crisped scarious edge. In the N. Tazetta group it is a cup, from a third to a quarter as long as the divisions of the perianth. In N. incomparabilis and odorus it is an erect cylinder, half-an-inch deep, and quite as broad as deep, whilst in N. Pseudo-Narcissus and Bulbocodium we have it either as a reversed cone or a cylinder with a spreading mouth, which is quite as long, or rather longer than the divisions of the perianth.

Stamens.—Usually the length of the filaments is in proportion to that of the corona. In N. Tazetta, poeticus, and most of the others with a short crown, the stamens are nearly or quite sessile in two contiguous rows near the throat of the tube; but we have a marked exception to this in N. Broussonetii, which has filaments 1½ to 2 lines long. In N. odorus, incomparabilis, montanus, and Macleaii, the filaments about equal the anthers. In N. calathinus and triandrus they are two or three times as long as the anthers, the lower three issuing from near the base, and the upper three from near the top of the tube. In N. Pseudo-Narcissus they all spring from one level low down in the tube, and are quite straight and more than half-an-inch long. In N. Bulbocodium they spring from near the base of the tube, and reach nearly or quite to the mouth of the crown, and are all distinctly upcurved toward the point.

Style.—Herbert attaches great importance to the length of the style in characterising species and varieties, but it certainly is not at all safe to do so. In general terms I may say that the stigma is on a level with the upper row of stamens.

Colour of the Flower.—In nearly all the species there is considerable variation here. The corona is more constant in colour than the rest of the flower, and generally deeper in hue. From snow-white and milk-white, we pass gradually to a bright yellow, getting no other bright shade of colour except green in the limb of one rare, little-known species, and bright red in the crown of N. poeticus.

Time of Flowering.—The Daffodil leads the way, beginning generally near London early in March, and finishing before the end of the month. Next in order come N. incomparabilis, odorus, radiiflorus, Macleaii, and the early varieties of Tazetta, which are in full flower by the end of March, and continue through the early part of April. A third set, N. poeticus, biflorus, Jonquilla, juncifolius, Bulbocodium, and the late varieties of Tazetta, come out in April, and some of them continue into May; and three species—N. viridiflorus, elegans, and serotinus—flower in September.

On the whole the character which appears to be most readily applicable for dividing the species into groups, is that furnished by the proportion which the crown bears to the divisions of the flower; and I intend therefore, in enumerating the species, to classify them as follows:—

Group 1. *Magnicoronatæ.*—Crown as long, or rather longer than the divisions of the perianth.

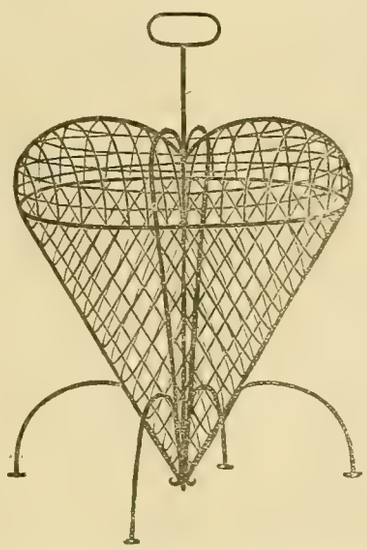
Group 2. *Mediocoronatæ.*—Crown half as long as the divisions of the perianth (in one or two exceptional cases three-quarters as long).

Group 3. *Parvicoronatæ.*—Crown less than half as long as the divisions of the perianth.

My next paper shall be devoted to the species and varieties of Group 1. *J. G. B.*

A FLOWER BASKET.

How comes it, among so many improvements in our implements, we have as yet no "patent" flower basket. It is time we had something better than a common basket for the purpose of carrying flowers for arranging in the vases of the drawing-rooms. As a start in this matter I send you a sketch of a contrivance, which I think will be useful for this purpose. It would carry a considerable quantity of flowers on its surface, and that too without bruising them or scattering their pollen. I fancy some one exclaiming on first seeing it, Hallo! we have now a flower balloon! Yes, a flower balloon. And so it is, for neither its use nor its shape suggest any other name for it. The material used may be brass wire or iron wire galvanised, or, what would be lighter, but not so enduring, viz., small basket withes. In making such a contrivance it will be necessary to have a smaller one (say 3 inches smaller) enclosed and fastened to the outer frame, otherwise heavy flowers would fall out, having nothing to catch the stem inside. This contrivance would also have an advantage over the basket in the arrangement of colour, foliage, &c., besides knowing at a glance what flowers are cut and what is wanted. I have said nothing about the size. If I were ordering one for a lady, I should say that I wanted an article made of brass wire of this shape (showing the sketch). I want it 9 inches wide at its biggest part, 9½ inches at its longest part. The size of wire for the frame, legs, and handle, should be 3-16ths of an inch diameter; the size of wire for the mesh-work, something less than 1-16th of an inch; the inner mesh-work, 1-inch mesh; the



outer mesh-work, half-inch mesh; small brass tying wire to be used for tying all together. This size I consider a convenient one for a lady; larger ones would be required for the use of gardeners in taking flowers to the house. I wait to hear of the objections to this, and see something better devised. *H. M., Enys, Penryn.*

A CHAPTER ON WORMS.

I THINK it was good old Isaak Walton who advised that worms should be mounted tenderly, and handled with the soft gentle touch of love. Could the worms have understood the matter, they certainly would not have been grateful for such seeming benevolence, for the net result of the advice was to prolong their dreary agony of dying, and husband their strength to the utmost limit of endurance, that they might wriggle the longer in torturing convulsions on the end of a cruel hook. Such is a powerful example of the distinction between sham and real kindness. If the worm was to be baited on a hook, the roughest mounting was the kindest. "W. T.'s" care for worms is however of quite a different stamp to the charming angler's; he determines that the worm shall live and not die, and in order that it may live in happiness and peace, he sets to work to disarm our prejudices against it. The worm, in the estimation of this writer, is not a pest to be free of, but a fellow helper of the husbandman in the cultivation of the earth. He reminds gardeners that after all, the worm has a right to live; that as it was created for higher purposes than to dangle at the end of a fish-hook, so probably it was not made to keep their destructiveness from rusting. And doubtless there are gardeners who need the caution. No sooner is a rustle heard among leaf or flower, or a movement observed in the earth or upon its surface, than the desire to kill takes possession of many; the presence of insect or animal life fires their eye with energy, nerves their arm, and gives swiftness to their feet. We are apt to become infected with a sort of anti-insectiphobia, just as officers of justice sometimes get a monomania against every one whose fault or misfortune brings him into contact with them.

I am grateful to "W. T." for his admirable paper upon the worm. He seems to have drank deeply into the spirit of the gentle poet Cowper, who wrote that he "would not reckon among his list of friends the man who heedless treads upon a worm." Neither does he rest their case wholly upon poetry or humanity, but he appeals to their usefulness. He claims them as the useful servants of man, inasmuch as they top-dress, drain, and deepen the earth. It might have been added, that they likewise dig, plough, or manure it, for they cannot do the former things without likewise performing the latter; and these five may be said to complete the circle of husbandry.

Well now, in these claims we have something tangible to go upon. The rage now-a-days is to test all work—to measure its value by results. Let us therefore bring the worms to this standard, and pronounce sentence of life or death, according to their proved utility or uselessness. But the worms have various workshops, for their field of labour is the world, and it is important to them which of their factories we shall choose to examine. I elect to judge of their work in the garden, and to estimate its value within that area. It is only just to the worms, and fair to myself, to bear this in mind in reading what follows. Taking a wider range over the whole field of the world, and especially looking at their operations through long ages, probably "W. T.'s" estimate of their value may be accepted. But I object *in toto* to their assistance in the garden, and for the following reasons:—To begin with their top-dressing, with which may be combined their digging and manuring—for the three proceed simultaneously and may be considered together: I decidedly object to this operation proceeding every day in the year. The chief merit of this operation is, that it shall be done once for all, about once a year. On the contrary, the worms are always at it. By night and by day, but especially by night, they rest not from their labours of throwing up miniature dunghills of slimy excretions—to the fouling of the cleanliness, and the marring of the beauty, of that verdant green carpet that they have elected to enrich with their ceaseless dressings. We would rather dispense with their services than be compelled to endure their slovenly presence, or put up with their slatternly ways. These muck-heaps are unsightly enough among flowers or vegetables. They are simply unendurable.

I do not accuse worms of eating roots. But as far as plants are concerned, it makes but little difference whether roots are eaten, or forcibly rent asunder, or pitched upside down into the air. These latter feats worms are certainly capable off, and I think "W. T." is also bound to tell us for what purpose the worms drag so many young plants into their holes.

Further, these worm workers are wholly destitute of intelligent discrimination. They treat all the surfaces alike. They spread or deposit their manure over the cleanest Grass or gravel, just as thickly as on arable land or green crops—that might be grateful for the honour. Nay, if there is any difference, it seems wholly in the wrong direction. They appear to put most down or up where it is least wanted. This is fatal to their top-dressing claims in gardens, and we consequently dismiss them with an indignant switch of the broom, or *sublimate* them with corrosive dressings off the face of the earth.

Let me now proceed to examine their claims as drainers. All efficient drainage has a twofold object in view. It lets out the water, and it lets in the air. Let us test the drainage of worms by their efficiency in the performance of either or both of these functions. Do they let out the water? Let us see. Has any one ever seen the outlet or discharge from a worm drain? Now a drain without an outlet is an anomaly. It is simply a hole for the reception of stagnant water, and if the water is to stagnate at all it is better that it should do so in the infinitely minute capillary tubes formed naturally in the earth than in the larger holes bored by worms; for the energy of putrefactive decomposition is largely dependent upon the volume of the decomposing substance or fluid. Hence stagnant water would deteriorate the soil with greater rapidity and force when collected together in worm holes than if diffused more equally through its mass by the natural structure and texture of the ground. Observation and experience confirm these views. Those soils are seldom either the driest or the sweetest, that are the most favoured by worms. On the contrary, the nett result of their chaotic medley of waterways, destitute of plan or outlet, is mostly a waterlogged mass of sour putrid earth. Nor is this to be wondered at, for next to the vital point of outlets is that of a proper disposition of mains and secondaries. These must be wisely placed, and properly graduated in relation to size and fall. But we find no regular system in regard to either in worm borings, and hence to a great extent the cause of their failure. Worm drains made to-day may be blocked up to-morrow by intercrossings, excrement, &c.

Another objection may be urged in an opposite direction, to the efficiency of worm drainage. Next to the vital question of providing outlets to drains, comes that of the inlets. Mains would be useless without collectors, and these are so arranged as to tap the entire surface-area where the drainage is perfect. Worms, on the contrary, seem bent upon excluding the water from their drains. They roof over the top with a pasty mass of excrementitious matter, more or less impervious to water, and seem bent upon maintaining a clear dry passage for themselves, rather than in providing channels for the removal of surface water. Even granting that worms may occasionally pierce through an impervious stratum into a more porous one beneath it, and thus facilitate the removal of water, I contend that their operations are too slow for gardening purposes. Why, a single man with a draining spade would let more water out of the land and more air into it in a single day than a thousand worms would in a century. If the worms thus practically fail in letting the water off the land, of course they likewise fail to perform the second great function of drainage, the letting of the air in. For the former must precede the latter; the air treads on the heels of the water, and every nook and cranny left vacant by the latter is instantly packed full of the former. This is one reason of the inertness and uselessness of waterlogged land; it is sadly deficient in vitalising air. If worms, therefore, may be broadly affirmed to fail in draining, neither can they succeed in aërating the soil. In all perfect drainage the two proceed simultaneously.

In regard to the last claim made for worms, that they deepen our soils, it is needful to bear in mind that there are two modes of deepening our tilths. The one is to add fresh matter to the bottom, the other is to spread a new layer over the top. It is to this latter method that "W. T." directs our attention in connection with the earth-deepening labours of worms. However, could he establish their claims to be good drainers, he might claim them as earth-deepeners in both senses; for every drop of water conveyed from the base of our tilths to a lower level, deepens the earth in its progress. The solvent powers of water work to convert the primitive earth into surface soil. But that drop of water accomplishes much more than this. It cleaves a pathway into the hidden recesses of the earth for the gases of the air, and the energies of the sun; and these, together, have potency enough to transform the dead mass of earth into living soil fit for the sustentation and development of life. In so far then as worms are drainers they are soil deepeners, but for all practical purposes relating to gardens, I contend that they are neither, to any appreciable extent. In other words, that their labour is not worth their company.

But "W. T." elects to rest their claims wholly upon their additions to the surface of the earth. He fixes our attention upon the lifting and carrying powers of worms. A case is cited from one of Darwin's works of a field that had been elevated 4 inches in 15 years by the agency of worms alone. Neither does this bold statement, astounding though it be, give a fair estimate of the magnitude of the work accomplished by the worms. It is one of the most marvellous illustrations of the power of littles to accomplish much. Let us try to realise what the worms are represented to have done. A layer of ashes and burnt marl was spread on the surface of a grass field 15 years before; the worms immediately set to work, and within the period stated had removed 4 inches of the soil from below this layer, and deposited it upon the top of it. This work staggers one, from its sheer magnitude, and the difficulties with which it is surrounded. I will only note two of the latter—the character of the roadway, and the weakness of the passengers. If there are two substances that worms dislike to travel in or over more than others, it is burnt marl and ashes. So thoroughly is this understood, that both are used as antidotes to worms, and yet if they transposed this mass of earth it had all to be carried over or through this distasteful and dangerous highway. And the worms are weak, they cannot carry burdens of earth unless in their stomachs. As these are not very large, their muscular powers might fail to wriggle them along if they unduly distended themselves. Considering their weakness, and their size, the work they are represented to have accomplished, is stupendous. Only think of lifting 4 inches of earth within so short a period. Why, it exceeds one quarter of an inch a year. It is at the rate of 25 tons per acre per annum, or over 400 tons spread upon the surface of every acre within the whole period—a stupendous lift assuredly for worms The work staggers one by its magnitude. This case, like vaulting ambition, carries one over to the other side, and instead of confirming our faith in the labour power of worms, tends to destroy it. *D. T. Fish F.R.H.S.*

(To be Continued.)

Home Correspondence.

Forest Management.—The subject of forestry having been so much of late before your readers, it may not be uninteresting to make some observations tending to explain how forestry has been so much neglected. The improvements made in other industries, demands that this science should not lag behind in the march of progress. It is true much has been done during the past few years to improve forestry; but still a great deal remains to be effected before it can be said to have attained the same perfection as the sister sciences of horticulture and agriculture have done. Without, however, the assistance of those more directly interested, viz., landed proprietors, it is vain to expect to see forestry reach the state of perfection we desire. If they took the same interest in the management of forest lands as they do in farming and gardening, there would not be so many unsightly and ruinously-managed plantations to be seen throughout the country; their failing to do so is the sole cause of the evil. To me it appears singular that gentlemen should take so little concern in the management of their woodlands. Apart from the profits realised, the study of forestry, as a mere pastime, could not fail to give real enjoyment. To explain the better how little interest is felt in this subject by proprietors, it need only be mentioned, that less care is, generally speaking, exercised in selecting a man for a forester, than is done in the engagement of a man for any situation connected with a landed proprietor's establishment: this fact is so well known as to require no argument to prove it. In cases where the duties of farm-overseeing and forestry are combined, a practical knowledge of the latter is held to be the least important qualification, for what good reason I am at a loss to understand. There cannot be a greater mistake, or a more certain way to injure a property permanently, than to entrust men, having no practical knowledge of such duties, with the management of valuable woods. It is not like cropping a field or a plot in a garden, where, through want of knowledge, the crop may miscarry, and the next season be remedied; a plantation once mismanaged will be irretrievably ruined. To manage woods profitably, it is absolutely necessary that the manager should be thoroughly acquainted with every particular connected with forest duties. This being the case, it is clear that no men should be entrusted with the oversight of woods except such as are fully competent to undertake the responsibility of managing them well—the more so, when it is remembered that the interests involved are not only those of the present owners, but of the distant future ones; indeed, it may be said these last, in many instances, will be more benefited,—which fact, I fear, goes far to explain the indifference too often manifested by the owners of woodlands; hence they delegate the charge to others, who are, through want of knowledge, incapable to undertake it. Thus it will be seen how woodland property can be permanently injured through present mismanagement, and that successors must suffer in consequence,—the timber which ought to be left for them, being cut down or otherwise destroyed. This is no imaginary case; many such instances have come directly under my observation, some of whichhave made me sad—to think that woods of immense value would be utterly ruined through wilful mismanagement. One apparent reason for this state of matters being allowed to go on, is the idea of saving a forester's wages. Where the woods are extensive the salary given to a practical man is amongst the most profitable outlay of a landed proprietor; and where it is desirable on economic grounds to manage farm and forest conjointly, how much better to engage a practical forester to undertake the combined duties, than to engage a man altogether unqualified to manage woods. It is not too much to say that foresters are as well qualified to manage farms, as farm stewards can be to manage woods. So long of course as those more directly concerned are pleased, no one else has a right to complain; but really it is time the subject of forestry received more attention from the landed proprietors of our country than it has hitherto had. *A Forester.*

Apple Blossoms.—I send you to-day flowering specimens of the Pommier de Paradis Apple, also a shoot and some blossoms of the Oslin, by which you will see how near their relationship is. I think that the latter must have been a seedling from the first, as it partakes of many of the same characteristics, *i. e.*, habit of growth, colour of the wood, and an inclination to throw out aërial roots or burrs; also in the colour of the flowers and the time of flowering being nearly the same. The name Oslin is in obscurity; the tree is said to have originated at Arbroath, in Scotland, but it has been said, and I think with truth, that it was brought by the monks from France to the garden of the Abbey of Arbroath; and although no French pomologist has noticed the fruit or given any description of it, yet there is a notice of an Apple in the "Jardinier Français," published in 1650 or 1651, under the name of Orgeran, and from which the fruit may have, by corruption, obtained its synonyme of Orgaline. It is also called, with some other names, Burr Knot, I suppose from its nature of throwing out the excrescences or rudimental aërial roots. But although it shows symptoms of making roots freely, yet it never does so without great care, and never in any way throws up suckers like the Pommier de Paradis. The fruit, too, has much of the flavour of the latter. Both are peculiar, and although Mr. Rivers has said that it would scarcely be relished by an urchin in Clare Market, yet with all due deference, I think it a spicy little fruit. It is also evident Mr. R. did not know the plant; and that none of the parties who took part in the discussion seem to have had any knowledge of the Pommier de Paradis as grown by me. I have examined my collection this morning, and find that a few sorts are beginning to show colour. Of these the most forward are Golden Harvey, Red Astracan, and Quarrenden. All these early-flowering kinds seem to have some of the Pommier blood mixed in them. Supposing no frosty nights supervene we will have a splendid crop of fruit. *John Scott, April 9.*

[Our correspondent's Paradise stock is clearly different from that of other people. We have not been able positively to assure ourselves that his stock is what is described in books as the Pyrus (Malus) præcox. As things go, there are considerable differences between the leaves and flowers of the Paradise and those of the Oslin sent by our correspondent. In our next issue we shall publish some remarks of M. Decaisne on this subject. Eds.]

Diseased Peach and Nectarine Shoots.—I received from Mr. Rivers, on April 8, a letter accompanied by two diseased shoots, both vigorous, with the same disease in every respect as those sent to me by Mr. Woodford, to which I have already referred. He says, "I enclose two pieces of Peach shoots with the canker which I have known for 50 years. It occurs in all soils here, whether light and warm, or stiff loam, favourable to the Peach; and it is entirely owing to our climate being too cold and moist; for in orchard-houses it is not to be found, and rarely on open walls with a southern aspect. With Peach trees trained in the open air, no matter how favourable the soil and aspect, it is very common. In the warm soil of the nurseries near London, Fulham, and Kensington, it is not so common as in the cooler districts of the country. It is not frost, for it occurs after the mildest winters, such as we have just had, with no severe frost. A fine healthy shoot will remain green and sound till early in March, when as the sap begins to move, rings of canker make their appearance, and the shoot dies down to within four or five eyes of its base. Trees in the second year are more liable to it than trees three or four years old." I knew it was canker, but did not know its cause. The best way to deal with it on open walls is to plant the trees, as here, on the surface of the ground, and earth them over, depressing the roots a little from the base of the tree to the points. The sun will then have a better chance of acting on the roots. I have planted 23 Peach and Nectarine trees, juveniles, with stones sunk under their roots. They have wintered well. Two maiden trees each of Lord Palmerston and Mr. Radclyffe, headed down to 1 yard in height, with their maiden twigs trained herring-bone fashion, are in full bloom, and I hope will fruit well this season. The Peach and Nectarine bloom, set, hang on here miraculously well. They began blooming February 1! I have watered the trees at the roots to-day (the 10th), and covered the foliage and "set" blooms, to prevent burning up; and the coping sheets will be undrawn to-night. *W. F. Radclyffe.*

Surface Cropping Vine-borders, &c.—As I have read the communications which have appeared in several late numbers of the *Gardeners' Chronicle* relative to surface cropping of Vine-borders, heating borders, and to the successful growth of the Vine generally, I am induced to offer a few remarks on the system of management in places where I was trained in the profession, with the practice I adopted in two gardens where I had the management. I perfectly agree with Mr. D. Thomson in saying "There are things in Vine management I like much worse than surface cropping." In a vinery at Tavistock Court, first-class Grapes were annually grown by my father (the late Mr. O. McArdell) for nearly 40 years, and these were at various times exhibited and took prizes at the North Devon Horticultural Society's meetings. Some of the Vines were very old, and the border they were planted in did not exceed 4 feet in width before reaching a 5-feet gravel walk, which the roots passed under into a vegetable garden, in various parts of which they were often found. The Vines at Moreton were well known and justly appreciated; the borders there were about 50 feet wide, and annually planted with flowering plants. At Arlington the vineries were placed on the top part of a terraced flower garden, the chief part of the borders, under grass, being quite close and hard; nevertheless, very good Grapes were there produced. At Castle Hill (in my time) the Vines were old, and the borders made according to an obsolete practice, being 4 feet deep, without drainage of any kind, on a stiff clay subsoil; a very short distance from the front of these houses was a gravel walk, under which the roots worked into the kitchen garden. Notwithstanding these disadvantages, Grapes of a very superior quality were regularly produced by the very intelligent and competent gardener of that day. Under similar but not exactly under the same circumstances, I have myself grown equally good Grapes, where the borders have also produced either vegetables of some kind, or flowering plants, intended to obviate the fallow-like appearance spoken of. I should also state that in the case of Mr. Fleming, at Trentham, I believe his general plan was to grow nothing on his borders, although he did not rigidly adhere to this practice. I am bound to admit that the finest and best Grapes I ever saw were grown at Trentham. As regards the growth of the Vine, all practical gardeners will admit that circumstances very materially alter cases, as such and such treatment in one part will not succeed in another. We should all, for our correct guidance, be disposed, in common, to investigate the practice of eminent men with impartiality; to acknowledge its merits, when discovered, with candour; and, of course, to renounce every error and unfounded prejudice that may be detected. As great liberty of speech is allowed to writers on subjects relating to horticulture, I trust I may be allowed to say that I entirely disagree with your talented correspondent and able writer, Mr. Fish, when he says, "Of two evils choose neither," as it is well-known that too often a lesser evil or error must be chosen. Evils or errors, of course, vary, but that doctrine, which is one and the same among many, is not an evil or error, but a tradition. It may well be said, "When doctors disagree, who shall decide?" As there will always be a great diversity of opinions on Vine growing, as on other subjects, I will conclude in the words of the poet:—

> "As long as words a different sense will bear,
> And each may be his own interpreter,
> Our airy faith will no foundation find:
> The world's a weathercock for every wind."

John Cole McArdell.

Protection of Apricots.—I do not know any kind of fruit tree that requires or is more deserving of the care and attention of a gardener in the spring months than the Apricot, blossoming, as it does in the southern counties sometimes, as early as the middle of February and the beginning of March. This season the weather has been very severe, and notwithstanding that protecting materials have been used to a great extent, I fear the crops in many places are nearly if not wholly destroyed. It may be said that it is premature to come to such a conclusion, but from what I have seen in some of the counties north of London, and in the more immediate neighbourhood of the metropolis, I do not expect more than half a crop of Apricots this year. During March, the tender blossoms were subjected to severe storms of sleet and rain from the south-west, and though protected with thick covering, the bloom got wet, and the severe frost during the middle of the month completely blackened and destroyed the first blossoms. Now, the question arises, taking the expense of the protecting materials required so often, and the labour and attention of covering and uncovering as at present employed, would it not be good policy, and pay gentlemen to whom the loss of a crop of this delicious fruit is of great importance, to erect glass cases in which the bloom and tender fruit would be safe from cutting winds and spring frosts? *D. Cunningham, Moor Park.*

Orchard Houses.—Never in the course of my long experience have I felt more enjoyment in my orchard-house than this season, for, owing to the mild yet stormy weather during January, February, and March, the climate always felt so dry and healthful. In the first-named months the buds of the Peaches and Apricots swelled rapidly and looked hopeful, for, to the observant mind the most trifling sign of the renewal of God's blessings gives a glow of inward satisfaction, known, I fear, by too few of us gardeners. Yet how can we guess at the inmost workings of a man's mind? Ought we not rather to believe that every one who cultivates a garden, whether an amateur or professional, always feels his heart move at the

approach of spring, particularly when we are favoured with such a day as to-day (April 8), when, for the first time this spring, the bees and the blossoms are alike rejoicing? When orchard-houses were first established I used to feel surprised that they were not patronised by great gardeners and great and rich men, but since then I have seen that unless for health-giving places of promenade for the wealthy or the aged, they were not required in our first-class gardens. I remember one of the late Lords Braybrooke saying, in the year 1855 or thereabouts, that his daily promenades in his orchard were a great comfort to him in his old age; and I can imagine no greater luxury than the enjoyment of a genial temperature without expatriation. I seem to think that if I were very wealthy and old, I would have an orchard-house built 400 or 500 feet long and 30 feet wide, with a promenade path in the centre, of fine gravel, some 8 feet wide. None but those who have tried it can imagine the great difference between gravel and pavement under glass; the former seems to take in and give out heat in reality, and feels always grateful to the feet; while pavement in cloudy weather is apt to feel damp and cool, and in sunny weather too hot. This is, however, merely a matter of opinion. An orchard-house promenade is always agreeable. To return to the reason why orchard-houses were not, and have not been, patronised by our accomplished gardeners in grand places, we have only to look at the absolute perfection of our first-class gardens. Walls covered with healthy fruit trees, houses devoted to Peaches, Nectarines, Pines, and Grapes; all managed with high skill and giving abundant products, perfect as possible: in fact, I know of nothing in culture so perfect as English first-class fruit gardens; they are as perfect as anything earthly can be; yet in 1867 some writers, full of French notions, dared to sneer at them. I repeat that, in such gardens, unless as sanatoriums, orchard-houses are not wanted, but to the thousands of clever amateur fruit gardeners they have been, and are, one of the greatest boons ever offered to them. It is very gratifying to hear from those who manufacture orchard-houses that the demand for them has been larger than ever, and that, according to their estimation, more orchard-houses have been built this season than in any former period. There is something in this that tells us forcibly how steadily a sound idea progresses in England. There is a quiet discrimination in the English gardening world, very remarkable. A new kind of fruit or flower may be figured and advertised to a great extent, but if it is faulty it is soon found out; while what is called a good thing increases annually in demand. Let a book or a plant have real merit, and it is sure to make its way. With regard to my own orchard-house, and the great pleasure I have derived from it for many years, I may perhaps be permitted to give a record, not of its "sayings and doings" this year, but of its doings only. By the last week in February my Apricot trees were rapidly coming into bloom, and owing to the cool cloudy weather of March they continued in bloom nearly the whole of the month. How bright and beautiful they were! By the middle of the month of March my Peach and Nectarine trees were in full bloom, their flowers not so large and brilliant as usual, owing to the low temperature, and then came on my double German Wallflowers, so full of beauty and fragrance. Mr. Kingsley some time since, in the *Field*, mentioned these very desirable spring flowers, but omitted to give their simple culture, which is merely to sow the seed in April in a light warm soil or a gentle hot-bed in the open air, and transplant them to rich soil early in June. About the middle or end of October they should be potted into 10 or 11-inch pots, three in a pot, and placed in the orchard-house. They form fine evergreens during the winter, and in March put forth their glorious spikes of flowers, here often from 2 to 3 feet in length. After mild winters they bloom well in the open air, but the flower-buds at the crown, which are so fine, often suffer in severe winters; in the orchard-house the pots should be plunged in cocoa-nut fibre or sawdust. These fine flowers have been created by the German florists, and they are apparently hybrids from crosses with the old Brompton Stock, as their foliage is so large and succulent, and so different from the "double blood Wallflower," the great favourite with old gardeners, but which never gave a grain of seed, and was increased by "slips." An old cottager, my father's servant, and the garden friend of my boyhood, used to be very proud of his "double bloods;" and if his spirit could, by a few raps, be told that our modern double Wallflowers bore seed, which they do here profusely in my orchard-house, he would give double raps in dissent. The variation in colour of these fine biennial shrubs is very remarkable: many of them are of the old dark brown or "blood" colour, others blue, others grey, and of a great number of shades of yellow, from straw to gold. To return to my subject: my Apricots have set a large quantity of fruit, as have my Peaches and Nectarines; but I have had my troubles, for Mr. Bluecap, the small tomtit, came into the house in the cold stormy weather, and picked off one side of the corolla of many flowers, for the sake, it seemed, of the small drop of honey at the bottom of the nectary. This was at first thought to be the work of one of those night-feeding beetles with a hard name, but the Messrs. Tomtit were caught at their work, and several of them trapped. This was a singular occurrence, and I have never before known it to happen. My house is now (April 8) gay with the blossoms of Pears, for towards the end of February I introduced 150 pyramidal Pear trees on Quince stocks, in pots; they are placed in two rows, one on each side of the 6-feet central walk, and form an avenue of beauty and hope. Their blossom-buds, by far too numerous, have been thinned, and I calculate that each tree here will give me a dozen of fruit. Towards the end of May, when the fruit is quite safe, they will be removed to the open, and the pots plunged in some rich manurial compost, so as to bring the fruit to a good size. My Cherry trees in pots, all pyramids, are, if possible, still more beautiful than my Pear trees; their blossoms are of such a pearly white, and hang in such graceful clusters. As ripe Cherries are not to be trusted to the open air, the trees remain all the summer under lock and key, to keep out the boys—what pestilent fellows they are when Cherries are ripening!—and nets, to admit air night and day and keep out the birds. When I reflect on the great satisfaction and pleasure I have derived from my orchard-house, I am more than ever surprised that some few writers should cast their aimless shafts of intended ridicule at this mode of culture. They seem to me like the mop of Dame Partington, for the waves of good culture cannot be kept back by the "feeble fluency" of writers, one of whom calls orchard-houses troublesome or obstreperous structures, while another goes so far as to say that he has scotched them. Now, it is probable that the enemies of orchard-house culture never had, when they were gardeners, the care of an orchard-house, or the building of one; consequently it is only charitable to suppose that they have never experienced the great pleasure and benefit to be derived from them. One would think that a love of gardening ought to make all men brothers, and I feel that one day spent with a good orchard-house cultivator would displace the most obstinate prejudice: the trees in bloom would soften it, and the fruit when ripe would obliterate it, by appealing to a sense a little more gross, but very effectual in removing wicked feelings. "Let us dine, and then talk," is a sound aphorism. I therefore invite those who oppose orchard-house culture to come and "let us roam together," first dining. *Orchard House.*

Hot Weather and its Opposite in April.—We have now had for three consecutive days heat ranging from 75° to 77° in the shade, reminding one of the same description of weather in 1859, for in that year on the 6th or 7th of April we had the thermometer ranging from 72° to 79°, the latter at 2.15 P.M. on the 7th. Pear and Plum trees burst simultaneously into bloom, and set their fruit freely. On the 18th of April came the fatal change, for on the morning of that day the minimum thermometer here (Sawbridgeworth) registered 7° of frost, and for three consecutive mornings the same. At Chiswick 11° of frost were registered on the 16th, and 9° on the 25th. The cold weather continued till May 24. The severe frosts noticed above destroyed all the fruit in the northern parts of England. The summer following was so hot and favourable to the ripening of fruit, that it was quite distressing to see the trees so bare of their beautiful and useful products. Let us hope that we shall not this season have an April winter. *T. R., April* 13.

The Surface Cropping of Vine-borders.—I confess to having anticipated "A.'s" paper with pleasure, and to reading it with a feeling of deep disappointment. I know nothing as to who or what or where "A." is; but I have felt deeply indebted to him. He has, as it were, taken me with him in his journeyings, on the wings of his swift strong pen, and permitted me to see sights of interest and beauty through his eyes, that I fear I may never behold with my own. This is no small service, and I desire thus publicly to thank him. I do this the more readily here and now, as I feel compelled to criticise his last utterance. It grieves me beyond measure further to state that I can no more enjoy these mental journeys as heretofore. "A." the critic and logician has shaken my confidence in "A." the seer of sights and reciter of facts. How this change has come about will appear upon reviewing "A.'s" last utterances upon the above subject. He has awoke to the discovery of a very famous novelty—*i. e.*, the surface cropping of Vine-borders. It reeked not that the practice may be as old as the beginning of Vine husbandry—it is new to "A.," and consequently to the whole world besides. Like many other far greater discoveries it was modestly, almost timidly announced, and its reception was equally tame. It fell upon the horticultural world silently as the dew, softly as the dawn of day; it created no *furore*, excited no interest, provoked no opposition. There seemed great danger of a brilliant discovery being strangled in its babyhood, with the cruellest of all swaddling bands—those of utter indifference. "A." now lifts the veil from his inner life, and gives us a glimpse of the agony and suspense that he endured through all those weary weeks, while wonder and disappointment strove together, vainly seeking to unravel the great mystery, why a practice so novel and so successful as the instance of fruit and flowers living in the same paddock should have so long passed unnoticed by practical men. Well, we can but wonder, too, not at the neglect of such a novelty—a new thing, laden probably with the burden of 6000 years—but at the expectation that the readers of the *Gardeners' Chronicle* could receive it as such. At last, however, and doubtless much to "A.'s" relief, his bait attracted my attention; not, however, by its novelty, but its questionable character. Months before these borders were described in the *Gardeners' Chronicle*, I had planted my banner with the now pretty well-known inscription, "Sacred to the roots," firmly down on the pages of the "Florist." It created some excitement there, being considered rather revolutionary to the ordinary modes of fruit and vegetable growing. It remained for "A." to object to it as old. It followed naturally that, upon noticing another flag with a *per contra* inscription, I should attempt to haul it down, and equally so that those who erected it should endeavour to defend it. One fact I could not but note,—that my first opponent fought in a half-hearted manner, and then made a last and final retreat on the back of a red spider. Then forth steps "A.," armed to the teeth with heavily-leaded adjectives, determined to destroy my banner, and silence me. But what is really the fact in regard to this matter of surface-cropping? Has it not always been, is it not now, a common practice throughout the three kingdoms? Twenty or more years ago, I began Vine-growing as a surface-cropper of Vine-borders with bedding plants. It happened in this way: I had a master and mistress; the former was all for fruit, the latter devoted to flowers. My master said, "No plants inside the vinery, no flowers outside." The lady said just the contrary. To please both was the problem set before me. It could only be done by a compromise, and the compromise ended, as all such between the two sexes must and ought, by the lady having her way. And so it happened that inside we grew plants, outside bedding plants, and the roots of the Vines were recouped every autumn with about 6 inches of rich compost. Everywhere one observes the same practice. My neighbour, Mr. Grieve, of Culford, has surface-cropped his Vine-borders with flowers for probably twenty years. His mode of proceeding is an improvement upon that under discussion. A few lines of beauty or sweetness are run along at back and front of the border; but the chief display is arranged along the centre, thus: bottomless bels of galvanised iron, about 2 feet deep, are placed at regular intervals on the surface of the Vine border; they are filled with 6 inches of dung and good rich soil, and tastefully and variously planted. Thus, the borders are most successfully adorned with beauty, without risk of impoverishment. But why multiply examples? Cropped borders are probably as common as uncropped, and the wonder is that a writer of "A.'s" intelligence could be found introducing a cropped Vine-border as a new thing. "A.'s" logic and quotations in his last paper are worthy of a place beside his latest discovery. I had not intended to refer again to either the width or quality of the borders in dispute, but I have no option after the new theory of measurement propounded by your correspondent. Already we have had an explanation of breadth. It has been said that "A." could not have meant actual but possible or prospective distance. Fifty feet was not the width of the borders now, but it might be so in '79. "A." silently ignores this theory. He tells us his was not a tape-line, but an eye measurement. It matters not a hair's-breadth how the space was measured; we expected only to be informed of the width, and that the space measured was the actual Vine-border, renewed at intervals, and filled with young roots ramifying towards the front "A." now gravely tells us that this is not what he measured. On the contrary he took an eye distance of two points, and of two objects in space. One was a brick wall, the other a line of espaliers. These are 48 feet apart, and his eye was within 2 feet of guessing the actual measurement by tape-line. In the name of common sense what has all this to do with the width of the Vine-borders, and how can it justify "A." in leading every reader to believe that they were 50 feet wide, when the widest among them was only 22 feet? The discrepancies about the quality of the borders is treated in a similar manner. "A." says that the explanation given is perfectly satisfactory, and does not impugn in the least the accuracy of his report. I challenge any one to say whether it is possible, from "A.'s" account, to have known that the spongioles in front were fed upon common kitchen-garden soil—which he does not even mention—and not upon the soil from the rocky crag, bones, lime rubbish, &c., which he does. Neither could any one have known from his paper that a part of the border was made of this one soil—and the spongioles fed with the other. I am accused of being led away by enthusiasm, or misunderstanding the matter, when I say that the success was achieved by getting the Vine beyond the region of the bedding plants as far as possible. Not at all. I adhere to that statement. "A.," indeed, tells us that it was impossible for the Vine roots to get away. "The farther outwards and onwards the roots proceeded the hotter must have been the fight in the midst of that field of floral beauty." Indeed; what then becomes of his theory of surface feeding—or two tables, one for the bedding plants and the other for the Vines? The only merit about the plan advocated by "A." consists in the two spreads. Unlike the arrangements in another place the lowest tables here are the heaviest laden with good things. There, deep down in the silent stillness of satisfying abundance, the Vine roots eat at their leisure, without either rival or contest. Far above them the common herd feed. There are surely two modes of escape for all roots from ruinous competition. One is to occupy fresh runs upon the surface, the other is to pierce boldly down and possess the land. "A." seems to forget that there is a vertical as well as a lateral means of escape for roots beyond proscribed regions. Either bedding plants feed upon the surface or they do not. If they do, there is no fight for food going on in the substance of the border in front, and the new matter tempts the main roots beyond the range of competitors. If they do not, then the entire theory that has been erected in favour of surface cropping falls to the ground. "A." may adopt either hypothesis, but he cannot choose both, and use one to vindicate the floral covering of Vine-borders, and the other to set the two sets of roots fighting fiercely in opposition to me. The mere possibility of such a contest gives a new stay to my banner, "Sacred to the Vine roots alone." *D. T. Fish, F.R.H.S.*

Foreign Correspondence.

Gardening Notes from Russia.—As every nation has its own characteristics, there are some things in this country which you do not find in any other. Though they have adopted a great deal that is of foreign extraction, the Russians in many respects have their own peculiar habits and customs. I am forcibly reminded of this fact as I look over some of the seedsmen's catalogues here. I shall give you one or two addresses:—

"Seed Magazine of G. and A. Proosakoff, late K. ya. Meyer, in the Bolshoy Loobianka (street), in the house belonging to the Prince Golitsine, opposite the office of the Moscow Society of Insurance from Fire, in Moscow."

"F. V. Shults' Seed Depôt for Rural Husbandry and the Lovers of Horticulture in Moscow, na Masnitskoy Ooleetsa (street), in the house of Pægoff, No. 179."

"Seed Warehouse of P. N. Kavskav, na Bolshoy Loobianskoy Ooleetsa, next door to the Hotel Labad, in the house belonging to Mazoorino, No. 121."

"Ernest Ivan Immer, Director of the Central Depôt of the Russian Society of the Lovers of Horticulture in Moscow, na Masnitskoy Ooleetsa, in the house belonging to Gospodin Tchertkoff."

"Seed Magazine of P. V. Vereshtchageen, Moscow, na Tverskoy Ooleetsa, in the house belonging to Daskevitch, next door to the Magazine of Geevag."

As you see in these five addresses, there are only two that contain a number; and in case you may fall into the mistake of supposing that it is the number of the room or apartment in the house mentioned, it may be as well to inform you that it is intended for the number of the street. But it is not the custom in Russia to take any notice of numbers, though of late years at least every house has been numbered. Formerly, perhaps, it was not so, especially in country towns. A Russian, however, would never consider it enough to give his address with the number of his street only. He thinks it indispensable to state the name of the landlord of the house, and give you other indications, such as you now see. Many people never take the trouble to inquire what is the number of the house in which they live. In general, the address tells you that it is in the corner house between a particular street and another, "opposite" such and such a house or building, "next door" to So-and-so, "not far" from this, "very near" that, &c.; but the number is rarely thought of. If it happens, as it often does, that in the very same street, or near it, there are several houses belonging to different people with the

same name, you may imagine how often mistakes occur when the number is overlooked. But such is the custom in Russia; and for the country the address is so long that the envelop is frequently quite covered with details. Nobody here would think of writing an address, such as "John Brown, Seedsman, 10, Cheapside, London," without giving some additional particulars, such as "opposite the clock," "not far from St. Paul's," &c. If the number were used at all it would have to be written "No. 10," in case those figures might mean something else. We write the number immediately before the name of the street; the Russians write it, if they write it at all, at the end of the address. We give the number the most prominent place on our shops and houses, so that it may be readily seen; here it is stuck up on the front of the house or building, so that it is rarely noticed except from the other side of the street. In short, to show you how little importance people here attach to such trifles, I shall just add that you may go about Moscow a whole day without once seeing either the number or the name of the street, for it is almost always hidden under sign-boards, or the whitewash of the houses.

There is another peculiarity which it may be as well to explain before I finish these preliminary remarks. You see in these addresses that there are always two initial letters or two names to the family name. But nobody in Russia, if I mistake not, ever has more than one surname, or if he has, he never uses more.

Let us take for instance "Ernest Ivan Immer." Here Ernest is M. Immer's Christian name, and Ivan (abbreviation of Ivanovitch) is the Christian name of his father. In Russia the father's name is always employed in this way for both sexes. In the case of a female the *itch* at the end of the father's name is changed to *na* or *ovna*, thus Marie Ivanovna. To speak correctly and politely it is always necessary to find out the father's name before addressing any person, or even before speaking of him. Nobody would say "have you seen Gospodin (Mr.) Ellis?" but "Nicolas Ivanovitch Ellis," or "Ivan Nicoleyitch Ellis," as the case may be. Mr. Ellis's own name never changes, but only his father's, whatever it may be; that is to say, it always takes the *itch* or *ovitch* at the end. Thus we have Ivan Karlovitch, or Karl Ivanovitch (pronounced Ivanitch), Frederick Vasilitch, Serge Andrayitch, Michel Alexandritch, and so on. If the son is called after his father we have Ivan (John) Ivanitch, Alexander Alexandritch, Vasil Vasilitch, &c. To speak in a respectful or friendly manner, this form must be used; but of course with strangers "Gospodin" or "Gospoda" (pl.) is permitted.

No address can be complete without two additions to the family name, or two Christian names, the son's and the father's; and even if the latter is not known to the writer any other may be adopted for the occasion; but in every case it is assumed that there must be no doubt respecting the paternity. The Russians are a great people, and I think you will agree with me that they are not wanting in originality. *K.*

Dominica.—The root of the Ipecacuanha is much used in this country, and in my opinion is one of the most valuable medicines we have in the treatment of dysentery. After taking almost the round of the pharmacopœia, I have fallen back upon opium and Ipecacuanha chiefly, in the treatment of this complaint. Our great object is to grow the home plants if possible, but very few take to the climate. Some Daisy roots were once sent out to me in a Wardian case, and I was very proud at being able to produce one Daisy.

No good account of Dominica has ever been published. A "History of the Island of Dominica" was published by Thomas A. Hervod, but it only came down to 1791: it is very meagre indeed. There are scattered notices of the island in various accounts of the West Indies (Bryan Edwards' for instance), but no continuous history of this little country, but the island is so small and of so little consequence that few would take the trouble of reading its history were it even written.

I had for a very long time made up my mind to attempt the ascent of our highest mountain range, Moom Diablom—a feat that had never before been accomplished, although an effort was made some 30 or 40 years ago to reach the top. The party attacked the mountain on the wrong side, and after being out some days returned *re infecta*. None of my friends in town were inclined to accompany me. My companion, who had been with me before in a forest excursion, was well skilled in Dominica woodcraft. We had nine people with us (negroes). We were able to ride up the mountain side to a height of about 1400 feet, and then we plunged into the forest on foot. The first night we bivouacked on a spur of the mountain, about 2000 feet high, sheltered, and very comfortable.

Next day a party went up the mountain to prepare an *ajoupa* for our reception, but were driven down by the wind, rain, and cold. The weather throughout was so unfavourable, that I began to despair of being able to reach the summit of the mountain. Next morning I determined on commencing the ascent proper, being very doubtful of succeeding, however. The first part of the mountain side we found so slippery (a red clay), that the fatigue was really excessive; but gradually we rose, and at length crossed the ridge at a sort of gap, in order to reach the accessible face of the mountain. We soon got into an unknown country, and had to cut our way through the jungle, so as to arrive at that part of the mountain side where we intended to make the ascent; and this, in short, we finally accomplished, but with no small amount of labour. The side of the mountain was very steep, and we rose by pulling ourselves up from one branch of a tree to another, two of our people taking the lead with cutlasses, and clearing a passage for us among the trees. This side of the mountain is exposed to the windward breeze, and often fierce gales fresh from the Atlantic; and as the wind blows always in one direction, the effect upon the vegetation has been singular. The trees are forced in upon the mountain side, as it were, and the branches are curiously tangled and interlaced, like network, so that you ascend as if you were mounting a ladder. It was late in the afternoon when we reached the summit, and unfortunately there was no time to remain there, as it was absolutely necessary to reach our bivouac lower down before darkness came upon us. I took with me an aneroid, and found (that is, if my observations were correct) that the mountain is by no means so high as is stated in the various accounts of Dominica. It is laid down as about 5400 feet in height, but by the aneroid barometer it is not more than 4300. I have always remembered what Sir William Hooker told me: "If you want new plants, go up the mountains;" and in the present instance the value of this dictum was strikingly exemplified. As we rose up the mountain side, and especially on the crest of the ridge, I gazed eagerly on the vegetation, the greatest part of which was new to me, and deeply regretted that time would not allow me to make but a small collection of plants. I was much struck with a singular-looking Moss pendent in masses from the trees, and almost of funereal blackness. This I found only on the highest part of the ridge. It attracted the notice of my swarthy companions also, and they quickly found a name for it in their *patois*—"Chevence nigre," that is, negro hair, which passed from mouth to mouth with loud peals of laughter, and certainly there is an absurd resemblance. The trip altogether was exceedingly interesting, and had the weather been favourable I should have enjoyed it much. We were three nights out in the woods, but the *ajoupa*, if properly put together, is tolerably comfortable—better than a hut I think. The botanical treasures tempt me very much to go a second time. *J.*

Societies.

Royal Caledonian Horticultural: *March* 31.—There was more than the usual run of luck attending the first exhibition of the season at Edinburgh. The day was particularly favourable both for exhibitors and visitors. Financially speaking, the undertaking was quite a success. The exhibition itself, in the matter of Hyacinths and Rhododendrons, was both interesting and instructive. The point of excellence which the culture of some of the best samples of both these popular tribes of plants had reached, was such as might well be rivalled, but could not be eclipsed, by our best cultivators. Hyacinths always form a leading feature at a spring show, and were here the chief object of attraction; but the masses of Rhododendrons, whether we consider their cultivation or their perfection as individual flowers and masses, elicited general admiration. The Azaleas here, as in Glasgow, were far too formal, some of them quite as much so as if turned out of a mould. As a whole, however, there is visible improvement in the articles exhibited; 'and, with a little attention on the part of our exhibitors, there might be less room for stricture. One thing, and this, too, within the province of the Society and its officials, ought to be remedied, because it is a patent defect, detracting from the appearance of every article staged. It is a drawback in all halls that contributions must be placed upon wooden tables; but they need not be conspicuous for bareness, as in Edinburgh, when the proper quantity of green baize would conceal the defect, and form a far more pleasing basis for the eye to rest upon.

The contributions of Hyacinths were chiefly brought forward by gardeners and amateurs. The nurserymen, who were wont to show excellently, and even give a good account of themselves against some of the best of the metropolitan growers, have become apathetic in the matter, and for the past season or two there has scarcely been any competition in the northern metropolis, the only firm exhibiting at this time being that of Messrs. James Dickson & Sons, with a lot far inferior in point of cultivation to some of the other classes. Mr. John Cowie, gr. to Captain Hope, Luffness; Mr. Currie, gr. to Mr. Nelson, Salisbury Green; Mr. Laird, Kinnellan; Mr. Glen, Rosehall; Mr. John Froyn, Bellmont; and Mr. R. Colville, Carlton Lodge, were the most successful in the gardeners' classes; and Mr. Young, the secretary, as usual, took chief position in the amateurs' classes. While not underrating the value of any of the lots, it is due to both Mr. Cowie and Mr. Currie to say that there was a degree of refinement apparent in their respective contributions which was not only worthy of all praise, but of imitation. The broad lusty foliage, the strong densely flowered spikes, and the fine pyramidal outline were quite conspicuous. As to sorts among the varied reds, there was first and foremost Koh-i-Noor, which was adjudged the best double in the hall, although it is only a move off the single variety, Von Schiller; Lina, first-rate when well done; Howard, Lord Macaulay, the finest single in the room, and in point of substance, form, and finish, quite magnificent; and Rouge pyramide. In blues, Grand Lilas, good although dull in colour; Charles Dickens, Feruk Khan, Baron von Tuyll, Maria, Lord Raglan, a fine large pip of good substance; and Haydn, which is distinct and good in a stand, being almost a pure mauve. Then in blush colours we had Seraphine, Gigantea, Duc de Malakoff, almost albaff; and Count Cavour, a fine variety, with the centre band of each segment of the flower a bright rose. In whites nothing was better than Alba maxima and Mont Blanc; and in yellows the only really good thing was Bird of Paradise, which has fine saffron-tipped pips. In doubles the only good thing in addition to Duke of Wellington, which was quite first rate in Mr. Cowie's stand, was Noble par mérite.

Rhododendrons were shown by Mr. Methven, Messrs. Dickson & Co., and by Messrs. P. Lawson & Sons. The former named gentlemen had, particularly fine, Vesuvius, a fine showy crimson; an immense plant of Guttatum colorans, white, densely spotted, fine form; and a fine ruby-tipped one of Belgian introduction. The best one in the Messrs. Dicksons' group was a seedling named Napoleon, a showy crimson, with dense spotting. The Messrs. Lawson had a good Dalhousiæ, which, along with Tree Ferns and Palms, formed a pleasing background in the orchestra. Cut blooms came in fine style from Mr. Pirie, gr. to the Earl of Wemyss, Dysart House; Jean Stern was particularly good, both as regards size and substance of flower, the fine white flowers with a profusion of chocolate spots individualising themselves among all others; then Broughtoni, Prince Camille de Rohan, Altaclerense, and elegans, were all well selected sorts.

Azaleas formed a considerable object of attraction, enhanced in this instance by the award of a silver cup, given by Mr. D. Mitchell to the best lot of four plants. It was won by Mr. D. Marshall, gr. to Miss Hay, of Kingston Grange, who was narrowly run by Mr. Gordon, gr. to J. D. Wauchope, Esq., of Niddrie. There was nothing particularly striking among the varieties, unless Duchesse Adelaide de Nassau, the old but effective Semi-duplex, Maculata, and Roi Léopold. Camellia blooms were in excellent condition, those from Mr. Robertson, gr. to Mr. Adie, Rockville, were quite up to the mark. His Countess of Ellesmere was a perfect flower, finely cupped, white, with slight pink markings. Giardino Franchetti was equally large and good, being a fine salmon slightly marked with pink. Others were Caryophylloides, almost imbricated to the centre, which is unusual; Imbricata, Valtevaredo, &c. Well managed Deutzias came from Mr. Gordon, elegantly trained, more than can be said of other lots. Cinerarias, Pelargoniums, and miscellaneous stove and greenhouse plants, were only indifferently represented. Besides the Anthurium Scherzerianum from Mr. Currie, little else was noteworthy.

The nurserymen contributed largely to fill up the hall. Among their productions there was little novelty, except the new Coleus, Albert Victor, from the Messrs. Downie & Co. This is a most beautiful variety, having a large leaf with a deep-flamed centre, and broad, bright golden margin. Baroness Rothschild is by some considered better, but not if judged in the state in which we saw it. Mr. Methven had a hybrid Azalea, a fine, sweet-scented truss of flower, under the name of A. hybrida odorata; it will be useful for bouquets and border decoration. What was pleasing to see in Scotland was a few well-grown Roses in pots, shown by Messrs. James Dickson & Sons. Another good thing was the representation of tree stumps, not in earthenware, which is very much in vogue now, but, more natural-like, done up with the bark of the Cork tree; and most admirable they looked, with little indigenous Ferns growing out of them. They were exhibited by Messrs. Dickson & Co. The Hoteia japonica rapidly increases in popularity as a verandah plant, and it was shown in a small state, but full of bloom, by Drummond Bros. Mr. I. Anderson-Henry had in bloom several Rhododendrons from the Himalaya, having very much, the appearance in flower of some of our own hybrids of arborcum: and a wayward Primula, in appearance like the Polyanthus, but looking at its peduncle, it was clearly a Primrose, with its bright purple corolla set upon a calyx that had been metamorphosed into leaves of twice the circumference of the normal calyx. It would be an interesting subject for the inspection of the Scientific Committee.

Fruit was not a large, but it was a choice exhibition. Mr. Temple, gr., Balbirnie, had a box of four bunches of well-retarded Lady Downe's Grapes, which received an award. Mr. John McKay, gr., The Glen, Peebles, had two excellent Cayenne Pine-apples. Mr. Lees, gr. to the Earl of Haddington, Tynninghame, had as pretty a lot of well-kept Apples as we have seen for years. The fine season of 1868 imparted size and colour to Tower of Glammis, Blenheim Pippin, and Ribston Pippin, such as are not often seen in Scotland, and Mr. Lees deserves credit for preserving and exhibiting them. Mr. Anderson, gr. to the Earl of Stair, Oxenford, had also a good lot of Winter Colman, Blenheim Orange, and Norfolk Beaufin.

Amongst vegetables there was a spirited display, called forth mainly by the debate which has been going on in the columns of the *Gardeners' Chronicle* throughout the autumn and winter. The North seems bent on supporting with the strongest of all evidence—*bonâ fide* produce—the claims which the champion of their cause demands and vindicates; and in order to show that they do battle successfully against the darkness of winter and the severity of early spring, we have Mr. Thomson, of Dalkeith, as representing the Lothians, and Mr. Temple, of Balbirnie, as representing the further North, showing collections of Broccoli, capital Asparagus, equally good French Beans. Mushrooms, Brussels Sprouts, new Potatos, Rhubarb, Spinach, Celery, Leeks, Radish, Seakale, and Beet, a very tempting vegetable; while in individual lots there were numerous competitors, and, as a whole, very good produce; the only deficient article called for in the schedule being early Cabbage, which might be considered too common for engaging northern skill. At the judges' dinner, the International show of fruit was spoken of as likely to be successful, the necessary funds having been nearly all subscribed.

Entomological: *March* 15.—Mr. H. W. Bates, President, in the chair. A letter was read from Mr. Schrader, at present in China, on the transformations of the case-bearing moths, of the genus Oiketicus, with notes on the deposition of eggs by the female, within the cast skin of the chrysalis. Mr. McLachlan exhibited an Ephemera, measuring nearly 3 inches in expanse, from Veragua. Mr. Hewitson sent for exhibition a fine series of butterflies from Nicaragua, collected by Mr. Belt, of which a second selection had been exhibited at a previous meeting by Mr. Druce, together with descriptions of two new species of Papilio from Ecuador, and six new butterflies of different families from Nicaragua. Mr. F. Smith exhibited Apis cunicularia of Linnæus (Colletes sp.), captured for the first time in this country, in some plenty, in May, 1867, by Mr. N. Cooke, in the Isle of Wight. Mr. Butler exhibited a series of butterflies captured near Chamounix in July and August, 1867, which presented certain differences from individuals of the same species captured in this country. Mr. Stainton remarked that even the common P. Atalanta in the South of France differed in its habits from those of British individuals. The President exhibited a series of specimens of butterflies, illustrating the range of variation in the individuals of the Machaon group, the species being apparently constant in most localities, whilst in other districts variations abounded, which he considered would ultimately be "improved" into species. Thus, in Japan, there were two distinct varieties or sub-species of P. Machaon, one of very large size, coexisting with P. Xuthus and P. Xuthulus. Four American allied species were also exhibited—P. Zelicaon, Sadalus, Asterias, and a still darker variety. The President also contributed a memoir on the Prionidœous Longicorn beetles of the Amazon Valley, consisting of 25 species, the total number of known species from Tropical America being 166. Mr. McLachlan read a memoir on the European species of Panorpa, with the description of a remarkable new species from Java. The author had found excellent characters to separate the species (which had been greatly confounded together by previous monographers) in the structure of the appendages at the extremity of the body.

Notices of Books.

La Vigne dans le Bordelais. Par Aug. Petit-Lafitte, Prof. d'Agriculture du département de la Gironde. (The Vine in the Bordeaux Country. By Aug. Petit-Lafitte, Professor of Agriculture in the Department of Gironde.) Paris: J. Rothschild. 1868, 8vo, pp. 692, with 75 wood engravings.

On a former occasion, we had under review in this Journal the important work of Monsieur Odart, which treated generally of the work of the vineyard, including numerous details of the process of wine-making, and of the niceties on which very decided differences in quality and character depend. The present thick volume relates to a particular district only, and would have been increased very much in value to outsiders had it given what may be called the mercantile details of the subject, which are of a peculiar interest to us now, as large consumers of wines of Bordeaux growth. It would have added much to this usefulness had our author, whose name is a guarantee for correct in-

formation on such subjects, shown what is the comparative value at Bordeaux of the light clarets of which we hear so much, and those of a more generous nature. We should then have had some little chance of ascertaining whether the very cheap samples which are so much vaunted can be really genuine, or whether they may not be manufactured after the fashion of some of the cheap sherries. At the same time we should not be surprised at the very high price which wines of the first quality command in this country, when it appeared that the figure at which they stand at home is six or eight times greater than that at which the cheapest clarets sell here. We should have been glad also to have had some details as to settling the annual nomenclature. We are not to suppose that clarets are necessarily the produce of the vineyards whose names they bear. The quality varies necessarily in different years, and we believe that the practice is to give to the first quality of the year, from whatever quarter it may come, the name which bears the highest repute. We should further have been glad to have had statistical accounts of the respective value of wines in different years. It appears from the Table given in the volume in respect of quality, that in 66 years, from 1801 to 1866, there was but one year the produce of which is pronounced excellent, 14 very good, 19 good, 9 ordinary, 10 moderate, 8 bad, 5 very bad. The quantity, on the other hand, was very abundant in 6 years, in 13 abundant, in 19 average, in 17 small, and in 11 very small. The quantity and quality by no means accord. The year in which the quality was best was an abundant, but not an extremely abundant year; whereas, during the seven disastrous years subsequent to the attack of the Vine mildew, there were five in which the quality is registered as good.

We should have been glad, moreover, to have learned what is the real cause of the comparative inferiority of wines in one of two contiguous vineyards, in which, as far as we have been able to learn, the soil, aspect, treatment, and variety of Vine, are identical. We have in remembrance two especial vineyards, in one of which the wine is of superior quality, while in the other, wine at the best of only a third-rate character is produced. We know how many circumstances, apparently of slight consequence, as the vicinity of gasometers, a starch establishment, or other factories, have an important influence; but in the absence of any palpable cause of this kind, it would have been extremely interesting to have obtained some positive information. It seems at least quite clear that rich soil and nitrogenous manures, if they increase quantity, which may be desirable where the object is to produce alcohol, are incompatible with the production of wines of distinguished character; while comparatively barren soils with good drainage, and at the same time a due but not excessive supply of moisture, will in a proper aspect give the most favourable results.

The general routine in the vineyard is much the same everywhere. Pruning, thinning, and keeping the ground clear of noxious weeds, are practised everywhere in much the same way. Animal manures are seldom used, the most eligible perhaps being bone-dust, which, however, must be applied with caution. A more frequent practice is to use chopped Heath, Gorse, or the cuttings of the Vines, which, as is the case with Hops in this country, in favourable soil, seem really preferable. We should, however, like to know whether the death of Vines, which is sometimes so much complained of, is not occasionally due to the spawn of Fungi, arising from undecomposed twigs. Green herbaceous plants are often used as manures, and one of the most efficacious seems to be Sainfoin.

A large portion of the volume is taken up with details as to the diseases to which the Vine is subject. All the known maladies, however, are not enumerated; and when we find it stated that the rust on Vines is produced by Uredo Rubigo, a plant confined to cereals, we cannot expect any very useful information as to the diseases produced by parasitic Fungi. That part which relates to the Vine mildew is peculiarly meagre, though some of the other matter in this part of the volume might well have given place to longer details on this head. The most fatal influence in the vineyard seems to be early frost and radiation from extremely clear skies, and for this reason, where Vines are trained to trees or on trellises, they sometimes escape, while those trained to stalks suffer. The disease called "couloure," which affects sometimes the flower, sometimes the berry when already formed, though yet tender, arises frequently from this cause; but the abortion of the fruit is induced sometimes by the deposit of dew on the stigma, the little globule acting like a lens on the delicate tissues when exposed to a burning sun, or from the exusion of excessive moisture from the stigma, especially where this in drying assumes a gummy form. This is not a very uncommon cause of abortion in artificial cultivation, though there are occasionally other conditions, as, for example, malformation, the cause of which is unappreciable. This is no less the case in cultivation in the vineyard than in our own houses. As regards noxious insects, the Bordeaux districts are very fortunate in being exempt from the little moth belonging to the genus Pyralis, which is so very destructive in other parts of France. The worst enemies of the Vines seem to be the birds, and what surprises us most is that starlings sometimes attack the vineyards in such clouds as to destroy a whole crop at once. Thrushes, also, are sometimes very destructive, though they are seldom so abundant as to be greatly feared. It is well known, however, that they get extremely fat when they have an opportunity of attacking the Figs, Olives, and Grapes; indeed, there is a common saying—"Soûl comme une grive," in consequence of their being then unable to fly a great distance, a name applied from a supposition that they are in a state of intoxication, though of course they could not get drunk on the sugary juices of the ripe Grape, though undoubtedly vinous fermentation sometimes takes place in diseased Grapes while they are yet on the branches. Thrushes are not without their predilections for Grapes in this country. We were extremely amused at Norwich last August at the perseverance with which the thrushes attacked the early Grapes there, carrying them off bodily, and returning after a minute or two for a fresh supply.

The nature of the soil appears to have considerable influence on the colour of the wine, its strength, sweetness, and aroma. The depth of colour seems to depend on the proportion of iron, the strength on that of the lime; while the sweetness, softness, and bouquet appear to be greater where the soil is much mixed with broken stones and is of a dry nature. Judgment must not, however, always be formed from the surface soil; a good deal depends on the subsoil—a matter of the greatest consequence where it is the practice, as in Madeira, to plant the cuttings at a great depth to secure the proper quantity of moisture. It may be interesting to state the proportion of œnanthine on which the bouquet depends, which is given as follows, in wines of the first quality:—Château Margaux, 1.25; do. Lafite, 1.20; do. Latour, 1.10; do. Haut-Brion, 0.65; while in ordinary growths in Margaux it stands at 0.70.

The more usual mode of propagation is by cuttings, which, according to the nature of the soil, are of greater or less length, while the modes of inserting them are different. In retentive soils, where the effect of too much moisture is feared, they are planted in a sort of lazy-bed, the base of the cuttings not being lower than the intervening furrows. Other methods are practised where it is necessary to replace dead or diseased plants in an established vineyard, and especially layering, while grafting is occasionally practised. Shoots of considerable length are sometimes layered from the old stock, where it is desirable to remove the stock itself, and yet retain the variety.

As regards the cultivation of the Vine in this country, the inference from all the details is against the excessive use of animal manure, and in favour of a good admixture of calcareous matter, no form perhaps being better than that of lime rubbish. Perfect drainage should also be secured. These at least we can command, and so long as Vines are planted within the house we can in a great measure obtain the proper degree of heat, moisture, and ventilation, though there are certain subtle inappreciable influences which after all must be left to Nature.

The Apiary.

Bees and Bee-Keeping. (By Sir Thomas Tancred, Bart.)—In the "Scientific Review," March 1, p. 54, of which number I was favoured with a copy, there appeared the first part of a review of a paper read by Sir Thomas Tancred at the Inventors' Institute. It is well known that the Germans early took a very decided lead in apiarian scientific and practical knowledge, and that they still number among their ranks a majority of the first bee-keepers of the day. Among the most justly celebrated of them all is M. Dzierzon, and it is to him that we are mainly indebted for the great advance that has been made of late years in bee-knowledge. Sir Thomas Tancred seems to have become impressed with the conviction of the truth of this fact, and it is evident from a perusal of his paper that he has drawn his inspiration largely from these sources. He sees in the Dzierzon hive, with its arrangement of movable combs, so decided an improvement on the ordinary straw or box hives of Great Britain, that he resolves to promote its introduction and use in this country. While disclaiming any intention of entering at length into the natural history of the bee, or of embracing the still more extensive subject of the practical management of an apiary, he says, "My purpose is rather to bring to your notice some practical appliances for which we are indebted to Germany, and which I am desirous of seeing introduced throughout the United Kingdom."

After a digression in allusion to the discovery of Dzierzon of the true solution of the mystery which had hitherto shrouded the propagation of the drones or males, Sir Thomas proceeds to the consideration of the movable comb hive invented by the talented discoverer; from the introduction of which, he says, "we must date a completely new epoch in rational bee-management." In confirmation of his views, he quotes from the Baron von Berlepsch, another celebrated German author:—

"The year 1845, in which Dzierzon came before the public as a discoverer, forms a turning point in bee-science." "Dzierzon contrived the hive with movable combs, and, aided as he is by a very rare gift of observation and generalisation, was enabled to unravel the relations of the sexes, and the life and doings of the hive, which had been shrouded in darkness for thousands of years. By the establishment of a new and true theory, Dzierzon has made it possible for every thinking person, in whatever country, to work out the most complete practical system. * * In practice also, Dzierzon has great merits, were it only by his invention of the hive with movable combs, without which a complete practical system is nowhere possible."

Von Berlepsch thus publishes his testimony to the value of the Dzierzon hive:—

"I have kept bees in hives of all the chief forms hitherto known, and according to all methods of management; and with the knowledge acquired by all this trouble and expense, I can assert that your hive (that is, Dzierzon's), amongst all those hitherto known, is the most complete. It will advance the practical management, no less than the science of bee-culture in a way which could not have been anticipated."

Sir Thomas Tancred has been induced to patent the Dzierzon hive in this country in order to have it properly made, and that it might have a fair trial. In this object I heartily wish him success, but at the same time I must express my belief that the Langstroth hive, or its modification, known as the Woodbury hive, or that of my own adaptation, as well as some of the forms in use by American apiarians, may be considered to afford greater facilities for manipulation, and to be superior in almost every respect for use among scientifical and practical men. In neither of these respects did the German and Dzierzon frame hives, which were shown in the Great Exhibition of 1862, at all satisfy me. I much preferred my own arrangement. Nevertheless, the efforts of such men as Sir Thomas Tancred to advance the practical management of bees on thoroughly scientific principles, cannot but be productive of much good, and deserve our warmest praise. At the same time I am not of the opinion that the Dzierzon hive is the one best adapted to our requirements. All that he has said in favour of the peculiar points of excellence which are possessed by that hive, are, in my opinion, applicable in a much greater degree to the Woodbury hive. *S. Bevan Fox.*

Garden Memoranda.

Bicton Gardens, the Seat of the Right Hon. Lady Rolle, Budleigh Salterton, Devonshire (*Continued from p.* 394).—We return through more and yet other grand masses of Rhododendrons—in fact, the whole of the woods at Bicton are undergoing a process of rhododendrization, if it may be so termed. Thousands of plants are raised from seeds, carefully nursed up until large enough to take care of themselves, and are then transferred to the woods as game cover. By a gradual process the entire woods will thus become adorned with beauty. Already the Rhododendron walks extend over eight miles: neither are the plants arranged in single file. At many points they recede in bold masses far back into the plantations. A similar process is proceeding with many of the Coniferæ; such trees as Abies Douglasii, Menziesii, and Morinda, Picea Pinsapo, Nordmanniana, and nobilis, Araucaria imbricata, &c., are raised in quantities, pushed forward in the nursery, and transferred to new grounds or the woods. In this way the whole place is undergoing a process of constant enrichment. New ground is being taken in for new sections of plants, or being furnished with the young plants of those varieties that are raised so plentifully at home.

A large space on the other side of the flower garden yet remains to be noticed. It is called the American ground, and is really a continuation, as it were, of the arboretum. Here are immense masses of Rhododendrons, Kalmias, Azaleas, Vacciniums, &c.; while through amongst them a beautiful stream, furnished with trout, &c., rushes along, and carries the overflow of the canals to the sea, between good plants of Bamboos, Pampas Grasses, &c. Close to these there are more Coniferæ, a noble Araucaria, the first to produce catkins at Bicton; a splendid tree of the Douglas Pine, from seed sown at Bicton; some magnificent Tulip trees, Catalpas, Ailantus, and a magnificent assortment of huge Magnolias, &c. The outside of the wall that bounds the flower garden is splendidly furnished with Camellias, having that dark glossy foliage which is indicative of the highest health, while noble standards grow and flower on the open border beside them. The Araucaria Cunninghami is likewise hardy here. Further up, in a secluded place overhung with immense Beech trees, the fernery is placed. It is formed of huge blocks of stones brought from the Sidmouth hills, and arranged with taste and originality. In the centre a fountain, that looks as if it had played there since the days of Adam, trickles its tiny streams over a rustic central pedestal of rough green slimy stones, while Ferns nestle round and, stealthily as it seems, dip their leaves into or get bespattered with the water spray. The rocks are clothed with Ferns, and a multitude of walks tempt one to a tour of exploration. Here, too, stands the shell house, furnished with a rich collection of shells and specimens of coral from India and New Zealand, and containing heathen gods from China and from Lucknow in India; also the identical ring to which the last Protestant martyr at Exeter was chained, when he was burnt for his faith! The whole scene is secluded and sombre in the extreme.

A few steps further and we come to a boundary of Hollies, which shuts out the Budleigh Salterton road. We have skirted, as it were, the entire length of the arboretum. With the exception of the flower garden, which cuts its width out of it, it reaches the entire distance from this road to the large plantation leading to the tower.

That portion, however, between the flower garden and the public road goes under the name of the American ground, and is chiefly devoted to Rhododendrons, Magnolias, &c.; but as it also is filled with trees and shrubs, the whole may be included under the general name of arboretum. The deer park forms the boundary of the arboretum on one side, and shrubberies that shut out the offices, kitchen garden, and the park, the other. It likewise runs up to the mansion, and some of the finest specimens of trees stand near the aviary, badger house, &c., at the end of the house. But it is time to leave the grounds to note some of the trees themselves. Among the specimens some of the Magnolias are very fine—Magnolia Soulangeana, maxima, tripetala, Thompsoniana, marginata, auriculata, and conspicua being some of the finest trees. Among Conifers the following were a few of the most noticeable for size:—Taxodium sempervirens, 43 feet high, 9 feet round the stem, and 28 feet diameter of branches. This plant has produced cones and catkins for several years. Araucaria Cunninghami, 36 feet high, 3 feet 6 inches round, and 20 feet diameter of branches; this has also coned. Araucaria imbricata, from 30 to 35 feet high and 4 feet 6 inches round; several female plants have coned, and from 16 to 18 male plants produced catkins;

plenty of seed has likewise been ripened, and plants raised or planted out. Cedrus Deodara, 60 feet high, bole 6 feet round, diameter of branches 36 feet; this tree has likewise coned for years. A very fine specimen of Pinus macrocarpa, with a bole nearly 8 feet round, and a sweep of branch 36 feet in diameter; Cryptomeria japonica, 28 feet high, girth of bole 4 feet, width of branch about 30 feet; Pinus insignis, a very magnificent tree, about 70 feet high, 11 feet in girth, and 60 in diameter of branches; Abies Douglasii, 63 feet high, 8 feet in girth, and 42 in width of branch; Abies Douglasii taxifolia, 50 feet high, 9 in girth, and 60 in diameter of boughs; Abies Menziesii, 70 feet high, nearly 9 in girth, and 37 in diameter of branches; Picea nobilis, 38 feet high, 7 in girth, and 36 in diameter of branches. Some immense trees of Picea cephalonica, in different parts of the grounds, are almost large enough to cut up into deals, especially some magnificent trees near the mansion; several of them girth from 7 to 8 feet round, and are lofty and broad in proportion; Picea Nordmanniana, about 40 feet high, and 4 feet in girth; Cupressus macrocarpa, 57 feet in height, 5 in girth, and 28 feet through. These are only a few samples amongst whole hosts of magnificent specimens. Quantities of the trees have likewise coned, and indeed a good many years ago a hundred varieties of cones were exhibited, all the produce of a single season.

Amongst a collection, numbering over 3000 species and varieties, it is impossible to dwell upon single specimens, however large or beautiful, therefore having been favoured with a look at the Hortus Lignosus Bictonensis, to assist actual sight, I will endeavour to give your readers some faint idea of the number and varieties of trees that adorn these lovely grounds. Accepting the guidance of this excellent list, and beginning at the beginning, your younger readers will be somewhat astonished to learn that there are to be found here something like 40 species or varieties of the Maiden's Bower or Clematis, exclusive of those recent introductions that have made so much stir as bedding plants. Few plants can equal them in light airy gracefulness of habit, or beauty and sweetness of flowers and seeds, or usefulness for bouquets or house decoration in vases, &c.

By a rapid transition we pass from these elegant climbers into a forest of Magnolias. Nothing can exceed in grandeur and dignity the fine foliage, and, if possible, grander flowers, of this magnificent class of plants. We observed six varieties of the grandiflora species alone, and varieties of conspicua, as well as many others, vieing with each other which would prove the loveliest cupbearer for the goddess Flora. Tulip trees grow to extraordinary perfection here; the size of the leaves, circumference of bole and branch, and colour of the Tulip-like blossoms, all arresting attention. From these pre-Adamite-looking leaves, we descend with a rush to note the pendent branches, curious flowers, brilliant berries, humble stature, and verdant dresses of the great family of Berberries, which muster here over 40 members strong. Their near relatives, the Mahonias, are also displayed in their striking liveries of green and gold. Close by, that cheerful family, the Cistus, or Rock Rose, gleams out upon us from a dozen or more distinct eyes. The Hibiscus endeavours to rival these, and opinions differ which of these two families can express the greater joy or gladness in their cheerful, transient blossoms. From these we ascend again to examine a whole host of Tilias, or Lime trees, of which there is a great variety.

The Maples and Sycamores follow, about 40 strong, with their marvellous varieties and ever-changing tints of leaf-colouring. Near to and in striking contrast with these is the grand muster of Horse-Chestnuts, with their Palm-like spread of glorious foliage, gorgeous flowers, and nut-brown fruits. In another place from 10 to 12 species of Vitis, or Grape Vine, are seen, suggesting strange thoughts to the hybridiser and the improver of fruits. Vegetable life is a plastic yielding thing in the hands of human skill. It was difficult to realise the fact that all these were closely allied or related to those Muscats and Hamburghs that we had just been admiring in the vineries. *F.*

(To be Continued.)

Garden Operations.

(For the ensuing week.)

PLANT HOUSES.

THE genus *Coleus*, though a very inferior member of the Labiate family, so far as its flowers are concerned, has now—thanks to the modest perseverance of Mr. Bause—taken the first rank amongst cool stove ornamental foliaged plants. Being subjects of quick growth and easy culture, none should be without at least some few varieties of the new strains. With judicious management the veriest mite of any one given variety put in as a cutting now can be readily grown to form a grand object for conservatory or greenhouse decoration during the incoming summer. Thus, not only can almost immediate effect be produced, but also, at the same time, an object or feature which is certain to afford an almost endless amount of interest to visitors. So far as my experience goes, I find that these hybrids are vastly more robust, and hardier in their constitution than any of the older forms. I am propagating a stock as quickly as possible of *C. Berkeleyi* and *C. Bausei* for early bedding-out, in which position I consider they cannot fail to thrive and be most successful: the former, a smooth or plane-leaved variety, seems especially adapted in all ways for this purpose; whilst *C. atropurpureus*, so far as its colour goes, is worthy of trial. Of the latter varieties it is early to say much, as to their fitness for bedding purposes. They are all good, if they will but stand sun and weather. To produce good specimens they should be [illegible] back as often as need be to produce any required fresh breaks only, and so as not to unduly check a free and continuous growth. They delight in a rich compost of loam, peat, leaf-mould, and silver sand. If the pots could be slightly plunged into bottom-heat so much the better. They like plenty of air judiciously applied, a humid atmosphere, and, if the markings are to be well brought out, they should be kept as close to the glass as possible. Just previously to each pot becoming filled with roots, and before another potting is needed, they would all be much benefited by a tolerably free supply of any powerful but innocuous stimulant, such as is not likely to sour the soil, &c. Tying in, training, pinching back the gross or irregular shoots are amongst the duties which will constantly force themselves upon our now greatly taxed attention. Nor must either one or the other be neglected, if we wish to do the objects of our charge justice. Assist by every possible means the rapid growth which all healthy well-going plants will be making. Be very particular not to permit any balls to become immoderately dry during bright and sunny weather, for should actual "flagging" or drooping of the young shoots and leaves not be an observed consequence, the object so neglected is certain to suffer greatly thereby. Should a plant by any oversight become unusually dry, do not let one or two hasty surface waterings afford an assurance that all is set to rights again, but rather be certain, by direct personal attention and the examination of the ball, that all its parts are uniformly and equally moist throughout. This I would enforce, especially in regard to *Indian Azaleas*, *Ericas*, *Epacris*, and indeed all hard-wooded plants having minute and fibrous roots; and should any doubt whatever exist, place the pot or pots forthwith into a vessel containing tepid water in such a way as that no doubt may remain, but so that every part has received a thorough soaking. Azaleas, already referred to, now that they are denuded of their bloom, may be potted as before advised, and be pushed along rapidly in a high degree of heat. It is astonishing what an amount of heat many hybrid Azaleas will bear; they will endure, with immunity, a heat of 100°, and with a dense reeking humidity, for many seasons together, and bloom the more abundantly if properly pinched back during the progress of growing. This shortens their longevity however. Being inhabitants in the main of the drier uplands of China, though called "Indian," they all delight in an abundant supply of water, which should be afforded frequently during growth, if a proper drainage exists at the bottom. *Mignonette*, if potted on, as advised some weeks ago, may, now that the pots are well filled with roots, have pans of water placed beneath them, where robust thriving heads of foliage are formed.

FORCING HOUSES.

Now that a milder period than what we have been experiencing has set in, and that the sun has attained to such an amount of power as to be able by penetration to influence the upper soil, on sunny southern aspects, it will be very beneficial to all early *Vineries*, containing Grapes which are in any stage of advancement, verging on ripening, and which have their roots in outside borders, to give the air full access to them, by removing any fermenting materials. If a reasonably mild period can be looked forward to, there will at this date be ample warmth from the sun to supply such heat as will be necessary at this stage. When cold frosty nights, or hailstorms, or particularly cold, keen, penetrative winds are anticipated, it will be necessary to place a covering of some sort over the borders as a slight protection until it is past. The shelter which a straw hurdle or two will afford, temporarily fixed to the windward of any object which it is wished to shelter, is too patent to need more than a passing hint from me. These would often do good service near the angles of many houses and borders at such times, and require very little outlay in their construction or application. It will now be necessary to prepare some suitable sort of shading for *Pines*. All they require is thin tiffany, or some other such light material as will relieve them from the powerful and direct rays of continuous sunshine. Much labour would eventually be saved by making a proper framework or movable screens for this purpose, which may be readily placed on or taken off. The use of shading, however, will only be needed for a very short time at present, and only just when the sun is most powerful. Finish pricking out all tender *Annuals* on to hotbeds, or any other suitable places, as soon as they are large enough to handle nicely. With proper shading, watering, &c., their growth will be rapid now, and the time will quickly arrive to finally transplant them into their blooming quarters. Sow *Mignonette* and all other semi-hardy annuals without further delay. Divide stools of any of the newer varieties of *Mimuluses*, potting them on rather freely and into a good rich compost. Finish planting *Pansies* in a light rich soil, which is the most suitable for them. Be particular when planting them to press the soil firmly around their tender foot-stalks; and, if necessary, to secure them from wind-waving, place a small quantity of decomposed leaf-mould closely around their base.

HARDY FRUIT GARDEN.

Attend carefully to all recently worked *Grafts*. The present weather, fluctuating between moist and exceedingly dry periods, will cause the grafting clay to become much cracked; hence the need of such attention. *Strawberry* beds or plantations will now require hoeing and the thorough cleaning off of any weeds that may have grown during the resting period. They are in the majority of instances, I regret to see, looking very unpromising; it will be necessary therefore in all such cases to make fresh plantations forthwith with any old plants which have been forced that are likely to thrive. The ground in process of preparation should be deeply trenched and well manured to the bottom. Endeavour to raise the mean height of the intended border some 6 or 8 inches above the ordinary level of the ground. Place a good mulching of decomposed manure around the base and over the roots of all newly planted trees, as a greater protection against any subsequent drought, and to aid an early root formation. Watchfulness must now be the order of the day in regard to attacks of aphis in this department, as indeed in almost all others.

KITCHEN GARDEN.

"Mould up," or draw earth up to and around, the stems of *Early Cauliflowers*, as well as to all successional sowings of *Peas* and *Beans*, as previously advised. Continue the necessary successional sowings of these and all similar subjects, according to the demands of the family. Surface stirring or hoeing the soil is never of more benefit to the growing crops than during the next two months. It seems to possess an almost magical effect when persisted in during those periods where a rapid growth is anticipated. Make more sowings of *Broccoli*, such as Wilcove, Snow's, Elletson's and Williams' Alexandra. Prick out *Early Celery* upon flat ridges, so prepared that a little bottom heat may be insured by means of the fermenting materials it contains. Sow *Cardoons* in ridges properly prepared as for Celery, only more liberally. Any fancied varieties of *Lettuces* should also now be sown in the open ground, and where they are to grow. *W. E.*

TOWN GARDENING.

DANDELIONS and Plantains will now be growing apace on the grass plots; these should be removed at once, with as much root as possible. Walks should now be thoroughly cleaned of all weeds, and afterwards be well rolled ere they become too dry and hard to be made even. Crocuses that may have done flowering should have their leaves tied in bunches, and left in this way till they are dead. Dahlias that were started into growth as previously advised should now be divided by selecting the strongest shoots, and securing to each of these one tuber, if possible; they should afterwards be potted and placed in a frame to be forwarded on until the middle of May, when they may be planted out in the borders where they are intended to flower. Cuttings of Calceolarias and Pyrethrums that have been struck in frames should now be potted, and protected from cold weather, and be encouraged to make dwarf bushy plants by the time they are wanted for planting out in the borders in May. Carnations should be at once planted out where they are intended to flower. Now that the sparrows are building their nests, they also require some attention, as they are great pests in town gardens at this season, on account of the damage they do to plants, in procuring materials with which to build their nests. I generally place small bits of hay and Moss, or pieces of paper, close to the plants, and I find that this supply keeps them off the plants almost entirely. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending April 14, 1869, as observed at the Horticultural Garden.

April.	Moon's Age.	Barometer.		Temperature. Of the Air.			Of the Earth		Wind	Rain.
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 8	26	29.921	29.894	61	44	52.5	50	44	S.	.00
Friday 9	27	30.079	29.902	48	43	45.5	49	45	E.	.00
Satur. 10	28	30.005	29.907	68	34	51.0	49	45	E.	.00
Sunday 11	29	30.079	30.053	78	38	58.0	50	46	S.	.00
Mond. 12	●	30.237	30.103	76	45	60.5	52	47	W.	.00
Tuesd. 13	1	30.240	30.083	75	40	57.5	52	48	S.W.	.00
Wed. 14	2	29.937	29.322	78	51	64.5	53	48	E.	.02
Average		30.071	29.895	69.1	42.1	55.6	50.7	46.1		0.02

April 8—Showery; overcast and mild; cloudy, very fine.
— 9—Foggy; densely overcast, cold wind; overcast,
— 10—Dense fog; fine; very fine; dense fog.
— 11—Fine, hazy; very fine and hot; clear and fine.
— 12—Very fine; fine, and very warm at night.
— 13—Densely overcast; very fine; clear and fine.
— 14—Fine, hazy; very fine; cloudy, but very fine.
Mean temperature of the week, 10 deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending April 21, 1869.

April.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..18	56.8	38.0	47.4	16	0.49 in.	6	7	7	1	6	6	7	4
Mon. ..19	59.0	35.6	47.3	10	0.45	6	13	3	3	4	8	6	—
Tues. ..20	60.3	35.1	47.7	17	0.34	5	8	6	2	1	10	6	3
Wed. ..21	59.5	37.2	48.3	16	0.28	4	7	7	3	2	7	9	4
Thurs. ..22	59.0	37.4	48.2	22	0.32	5	10	6	3	1	7	8	3
Friday ..23	59.2	36.8	48.0	21	0.53	2	9	7	2	4	7	5	7
Satur. ..24	58.8	36.0	47.4	17	0.60	5	7	7	6	2	9	4	3

The highest temperature during the above period occurred on the 18th, and 19th, 1854—therm. 77 deg.; and the lowest on the 24th, 1854—therm. 18 deg.

Notices to Correspondents.

ERIOBOTRYA JAPONICA, OR LOQUAT: *A McAndrews.* The plant is very ornamental, having large lanceolate leaves, shining above, downy beneath, and clusters of white scented flowers. It is worthy of extensive culture, both for ornament and for its fruit, which is fit for table about April. The plant can be propagated either by seeds or cuttings, or by grafting on the Whitethorn. The seeds should be sown in finely sifted leaf-mould, and the pot plunged in heat, covering the soil with moss to prevent dryness; afterwards pot on as required; give the plants stove treatment when making their growth. The plant when grown out-of-doors likes a warm situation, and grows from 6 to 10 feet in height.

NAMES OF FRUIT: *Alpha.* 1, Winter Nonsuch; 2, Winter Strawberry; 3, not known—worthless.

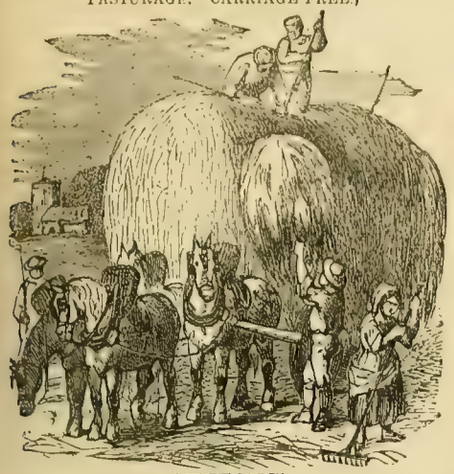
NAMES OF PLANTS: *A D B.* Bignonia speciosa.—*S W Teviot.* We believe your Boragewort to be Mertensia Drummondi; the specimen sent was too much crushed to be determined with certainty.—*G T B.* Cyclamen persicum.

PELARGONIUM: *Anglesea.* The leaves of the Golden Variegated Zonal you send are pretty, but they have no distinctive feature. You should show the plant at the special Pelargonium exhibition, next month, at South Kensington, when, if it has any merit on the score of habit, it may be made apparent by comparison.

COMMUNICATIONS RECEIVED.—G. W.—E.—R. S.—J. T.—J. G.—J. M'D.—A. B.—E. A. B.—N. B.—B. F.—A. B. D.—S. B.—F. D.—R. J. S.—F. F.—G. W. M.—J. W.—J. D.—R. G.

ERRATUM. At. p. 388 of our last, in col. *a*, for Mr. Wm. *Arthur* Dickson read Mr. Wm. *Alfred* Dickson.

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4. LIGHT SANDS			
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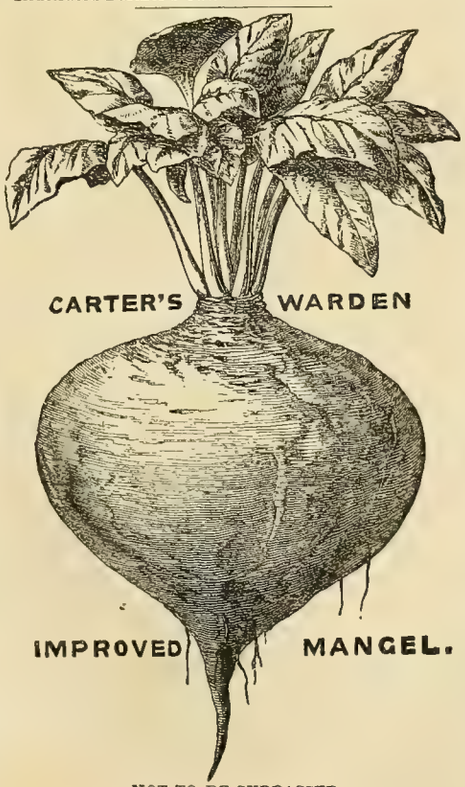
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ROYAL AGRICULTURAL SOCIETY of ENGLAND.
SHOWYARD REFRESHMENTS.
Persons desirous of having the Privilege of supplying either First or Second Class Refreshments for Visitors, in the Society's Showyard at Manchester, in July next, can obtain the particulars and Forms of Tender on application at 12, Hanover Square, London, W., or 96, King Street, Manchester.
Sealed Tenders must be sent in to 12, Hanover Square, London, W., on or before May 1, 1869.
The Society does not bind itself to accept the lowest or any Tender.
By order of the Council, H. M. JENKINS, Secretary.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.

MANCHESTER MEETING, 1869.

STOCK and IMPLEMENT PRIZE SHEETS are Now Ready, and will be forwarded on application to HENRY WHITWORTH, Esq., Local Secretary, 96, King Street, Manchester; or

H. M. JENKINS, Secretary.
12, Hanover Square, London, W.

ROYAL AGRICULTURAL SOCIETY of ENGLAND

MANCHESTER MEETING, 1869.

ENTRIES for IMPLEMENTS, &c., CLOSE on the 1st of MAY; and all Certificates received after that date will be returned to the senders.

H. M. JENKINS, Secretary.
12, Hanover Square, London, W.

The Agricultural Gazette.
SATURDAY, APRIL 17, 1869.

THAT which Mr. CAIRD has done for acres, bushels, and produce, in his annual discussion of the agricultural statistics issued by the Board of Trade, the writer in "Fraser," to whom we referred last week, has done for the labourer engaged in the production of home-grown food. Using both the decennial census and the annual crop returns—massing, comparing, and contrasting—arranging, classifying, and (by means of charts and diagrams) depicting—he has extracted from the cumbrous mass of figures, exhibiting them by curved lines and maps, the leading facts about the relations of the style of agriculture to the number of labourers engaged in it, and about the numbers at various ages engaged in agriculture as compared with other industries.

One of his most striking diagrams shows at a glance the percentage of the total number of male labourers employed in England and Wales in 1861 in agriculture, coal mining, and the manufacture of iron respectively, that was made up of any given age; and a duplicate curve enables us to compare the corresponding numbers, at the various ages indicated, engaged in agriculture in 1861 and 1851 respectively. We learn from it that there is a larger percentage of coal and iron labourers than there is of agricultural labourers between the ages of 18 and 45—and that (probably owing to the return of old and disabled men to their country parishes—possibly owing to the superior longevity of men engaged in open-air employment) there is a larger percentage of farm labourers above 45 years old. And not only is this true on a comparison of farm labourers with those of mines and workshops, but it is also true of farm labourers themselves, comparing those of 1861 with those of ten years previously. The proportion of older men has increased, the proportion of boys also is greater, but the proportion between the ages of 18 and 45 has diminished during the ten years.

In another very instructive diagram the reviewer represents the agricultural character of the several countries. The percentage proportion of occupied land in corn, green crops, Clover, permanent Grass, and fallow respectively, is seen at a glance, and the proportion of waste and unenclosed to the 100 acres occupied, is also repre-

sented. Comparing England and Scotland in a similar way, we are surprised to find how nearly the relative totals in these two parts of the country, as a whole, approach, as regards corn and green crop cultivation; and how large a proportion in Scotland there is of permanent Grass, excluding of course the waste and unoccupied area, which—only about 33 per cent. compared with that which is enclosed and occupied in England—is 10 times as much in Scotland. Similar county diagrams are given, representing not only the cropping per 100 acres of each, but the numbers (per 100 acres) of men and women employed in 1851 and 1861 respectively, and the quantities of old and young—both sheep and beasts—and dairy stock per 100 acres. The counties are, in fact, considered as so many individual farms, and there is represented for each—

"1. The proportion of waste to cultivated land, and the percentage of cultivated land in permanent pasture and under arable culture, subjected to the usual rotation of crops. 2. The number of men and women employed upon it; and, 3, the quantity of stock kept." *

The quantity of labour per 100 acres depends less upon the proportionate quantity of corn land than upon the quantity and character of their live stock. Lancashire and Middlesex employ more labour than other counties, notwithstanding their large proportion of grass-land, because they have a very large number of dairy stock. There is nevertheless, on the whole, a gradual increase in the number of labourers employed per 100 acres, in the counties, of most plough land, and a gradual diminution in the number of stock. Comparing England, Wales, Scotland, and Ireland, we see the very large preponderance of cattle and the small number of sheep which the last maintains per 100 acres as compared with the other parts of the United Kingdom. Taking stock of all kinds together, Scotland, with by far the largest proportion of arable land, has by far the largest proportion of live stock, and by far the smallest proportion of agricultural labourers—in fact, by far the best organisation of the agricultural system.

It is proper, however, to remark that a good deal of the difference existing in the several counties, as regards the labour engaged per 100 acres, depends not only on the stock and cropping, but on the prevalent character of the soil.

"If the lands are light they require less labour for their tillage, and are suitable for sheep-farming; and the sheep, the tending of which involves very little labour, consume the green produce on the spot, and manure the land at the same time. The heavier lands, on the contrary, demand more manual labour; sheep cannot be placed on them for fear of injuring the texture of the soil; stall-feeding, therefore, takes the place of sheep-farming. But stall-feeding necessitates much labour; the green produce has to be removed to the homesteads, the food has to be prepared, the stock has to be tended, and, finally, the manure has to be taken back to the land. Hence the corn-growing counties of Lincolnshire, the East Riding, and Hampshire employ but little labour, because of the predominance of sheep-farming; whereas there is an excess of labour employed in Bedfordshire, Berks, Cambridgeshire, Essex, Hertfordshire, Kent, Oxfordshire, Suffolk, and Surrey, which are also corn-growing counties, because they are the winter or stall-feeding counties of England. It is true that the statistics for these counties, both those of 1865 and of 1867, the former taken in March and the latter in June, show a rather meagre quantity of stock kept, but probably they are very far from doing justice to these counties, for the stock that are thus stall-fed are mostly what are called flying stock, that is, stock purchased in the autumn, generally in large quantities, to be fatted and sold during the winter.

"The counties in which there is a medium proportion of permanent pasture, almost without exception, employ a small amount of labour per 100 acres. They comprise most of the cheese farms and grazing districts of England, and their soil is, for the most part, clay."

To the remainder of this most suggestive essay we must direct attention on another occasion. The author proceeds to explain the phenomena which he has so well described, and to suggest remedies for that which he is constrained to condemn. We are not so sure that he is a prophet as we are that he is a historian. It appears to us that the actual course of events, when we can read their march upon the great scale in type so large as that which is here provided, must after all be taken to be the best possible under the circumstances of the country. These great totals with which the reviewer deals, are made up of items which in detail are each of them the decision and the action of the individual man doing the best he can for himself. He had not indeed so large a general view of what might be best for him to do, as the writer no doubt has, who now philosophises on his conduct—but he had in self-interest an infinitely sharper insight into the possibilities of his case. And, so, whether he were a father determining what he should do with his children, or the sons and daughters determining for themselves what kind of employment they shall choose for their life-maintenance—whether it be the landowner determining on the breaking up or laying down of his land in Grass, or the farmer determining what he shall do with his arable and pasture acres respectively—we are inclined to think that we have, in the reviewer's maps and diagrams of both fact and tendency, pictures not so much of blunders to be corrected as of natural and inevitable history—the proper and defensible result of circumstances. But to the further consideration of this subject we must return.

* The number of stock kept per 100 acres of cultivated land is evidently influenced in some counties by the extent of land retained as waste. Of this Westmoreland, Cumberland, Northumberland, and Cornwall, are notable instances. The waste in these counties is of great value for rearing young stock, which subsequently find their way to the richer pastures of the inland. The great excess of both cattle and sheep in Scotland and Wales over those in England, is to some extent to be attributed to the fact that they rear chiefly young stock, many of which are afterwards fattened in England. Much also of the large cattle stock of Ireland is brought across the Channel to the grazing counties of England.

—— THE Wheat trade in London on Monday gave way from 1*s.* to 2*s.* per quarter, and it has since been in a drooping state throughout the country. The large cargoes afloat from California and other parts of the world, have produced this result. The trade in other grain and pulse have participated in this depression.——In the stock and meat markets there has been but little variation. The extreme heat early in the week had some effect on the prices of inferior beef, but good qualities are scarce and command high figures.——The fine warm weather has caused much animation in the seed trade, but prices have not been so extravagant for Clover as was expected.

—— Why have we not yet received the report and annual accounts for 1868 of the Royal Agricultural Benevolent Association? Surely it is possible to let subscribers know within a month of their completion what the year's proceedings of the Society have been.

—— The vagaries of the weather are a never-ceasing wonder for the Englishman. It was but the other day that we walked about with greatcoat, plaid, and macintosh, doing our best to keep out snow and sleet and searching winds, and now we are in the midst of summer. Seed is everywhere throwing up the blade, Grass is coming forward rapidly—they have been cutting it regularly for the last two months on the Sewage Farm—and fallow preparation for Mangel Wurzel, Carrots, and Turnips is in progress. Happy they who, having manured and ploughed and ridged up their land in autumn, have kept altogether off it till now. To harrow down and again rib up the ridgelets with the double mouldboard-plough is all that they now need, to obtain the earliest and best possible seed-bed. And last year's experiences taught us the advantage of an early seed-time if they taught us anything at all.

—— Agricultural Statistics were brought before the House of Commons on Monday last, when Mr. BRIGHT appealed to Mr. PELL not to proceed at that late hour (12 o'clock) with the motion of which he had given notice. After some further exchange of views, Mr. PELL said he had better proceed, because he desired to call attention to the very unsatisfactory results which followed from the annual collection of these returns. After some remarks in support of this statement, Mr. PELL turned to the cost of the matter. "The returns had already cost a considerable sum of money, and in the estimates for the present year a sum of 16,500*l.* was required for the present year for Great Britain, and 3220*l.* for Ireland, making a total of nearly 20,000*l.* per annum for information which from its nature must necessarily be of a faulty and speculative character. At the same time he was not prepared to deny that the returns might be of value as a record of facts, and therefore, instead of discontinuing them altogether, he would propose that they should be collected every fifth year instead of annually." Colonel BRISE having seconded the motion, Mr. M'LAGAN moved the adjournment of the debate, which was agreed to.

—— At a recent County Court trial at Ashford two actions were brought by a manure dealer to recover the value of manure sold. In the one case, Mr. SKINNER, farmer, of Bethersden, bought of a traveller for the plaintiff half a ton of manure which was said to be real Peruvian guano, and the price of which was 13*l.* per ton. The defendant's story was that not only was the manure warranted to be the best Peruvian guano, but that it was not to be charged for if it did no good on the land. When the manure arrived the defendant found fault with it as not being like the sample; he, however, sowed all but one bag on a piece of Wheat, and the consequence was, that where the so-called guano was sown, the Wheat was worse than in that part of the field where none was put on. Mr. STOKES, a neighbour, had bought a quantity of the same guano, and he used it with the same result. The defendant produced samples of the guano purchased from plaintiff, and of real Peruvian guano, and declared he had had the former analysed, and it was nothing but a mixture of sand, sawdust, and other worthless compounds. The plaintiff's case, of course, completely denied this. The judge said the defendant should have sent the manure back instead of using it, and gave judgment for the full amount, with costs. In the second case, Mr. GEORGE BEKEN, farmer, of Woodchurch, was sued for 21*l.*, the value of three tons of Grass manure, at 7*l.* per ton. Mr. BEKEN'S story was that he was pressed for an order, and ultimately consented to purchase two tons of the manure, provided the plaintiff's firm advanced him 50*l.* till Michaelmas, WARREN having offered to procure him the loan. The next day he wrote to WARREN to countermand the order; but the manure had been sent to Ham Street station before the plaintiff received BEKEN'S letter countermanding it. BEKEN said he never ordered three tons of manure, and that his goods were always sent to Pluckley station, and not Ham Street station, besides which there was a distinct understanding that the loan of 50*l.* was to precede the manure. It seemed that the manure remained at Ham Street station until it was sold by the railway company to pay for the demurrage and carriage. The judge gave a verdict for the plaintiff, for the full amount in this case also.

OUR LIVE STOCK.

WE are able to give a most favourable report as to the condition of the Siddington Shorthorns. The present appearance of the heifers must impress any lover of symmetry, sweetness, and quality, most favourably, and we hope that their good qualities will be duly appreciated on Thursday next, when the large company, which we fully expect to see, are gathered around Mr. Strafford and the sale ring. The first on the catalogue, and oldest animal, is *Songstress* by MOUNTAINEER, dam *Minstrel*, by Sir Charles Knightley's NUNDI (9453), g.d. *La Polka*, by Earl Spencer's MONZANI (6222). Previously this stock had been in good hands for many generations, and reference to the Herd-Book will fully confirm its high character. The cow *La Polka* was purchased by Mr. Bowly of Mr. H. Tucker, of Bourton House, and it is from her that the whole Musical family is descended. She gave birth to three cow calves—*Minstrel*, already mentioned as the mother of *Songstress*; *Opera*, by Mr. Bowly's ALCHEMIST (11,097), a well-bred bull by SNOWBALL (8602), and out of a cow by PRINCE (7615); and lastly, *Melody*, by SNOWBALL. Representatives of each of these three matrons are to be found at Siddington, all of whom will be disposed of with one exception. *Songstress* (Lot 1) is now 12 years old, but still retains her good looks, and is in excellent condition. She is in calf to 2D DUKE OF CLARO (21,576), a splendid Duchess bull, and is due at the latter end of August. *Chorus* is a rich roan cow, of very fine and massive form, and of singularly rich colour. She is at present with her calf, BARON WETHERBY, now two months old. Among the other members of the Musical family may be mentioned *Musical* 2*d*, by EARL OF WALTON (17,787), and daughter of Lot 1. She is neat, but rather short, and, we thought, a little light in the neck. Next we have the two own sisters, *Musicals* 3*d* and 8*th*, the latter of which is a great beauty, rich in colour, very level, with good loins and hips, very neat shoulders—a good point, which runs through all the Siddington stock—and covered with a mossy deep coat. The other sister is not looking so well as when we last saw her, heavy in calf, in the Siddington pastures, but she is a very excellent animal. *Musicals* 11*th* and 12*th* occupied the same court, and both excited our admiration. All the Musical heifers attest the merits of the 7TH DUKE OF YORK as a sire, and show their high breeding from whatever point of view they are looked at. We were sorry to learn that *Musical* 10*th* died suddenly about a month ago, leaving a young bull, dropped very shortly before her death. The Violet tribe boasts a long pedigree, extending back to JOLLY'S BULL (337), after which we find no less than four Colling crosses, followed by crosses of Charge, Booth, Bates, and Whitaker blood. This brings us to *Verjuice*, by WHAREDALE (1578), the mother of *Violet*, by HENWOOD (2114), the ancestors of the animals which are now under consideration. Upon this stock has been grafted the Duchess blood, and although we cannot speak so admiringly of the members of this group as we have of the Musicals, yet they may be looked upon as very estimable cattle. *Geyser*, by EARL OF WALTON, of this tribe, is level, neat, and at the same time possessed of sufficient size, but is a little wanting in quality. 2*d Rose of Oxford* is a handsome roomy cow. She gave birth to a bull calf by 3D DUKE OF WATERLOO (23,801) last Sunday. We must pass on from the Violet family to what will no doubt be the great attractions of the day, the Siddingtons. These are Kirklevingtons, and are sprung from *Kirklevington* 7*th*, by EARL OF DERBY (10,177), purchased by Mr. Bowly from Mr. C. W. Harvey, of Walton-on-the-Hill. This cow produced twins in 1864, *Siddington* and *Siddington* 2*d*, by the 4TH DUKE OF OXFORD (11,387). Again in 1865 another heifer calf, *Siddington* 3*d*, by 7TH DUKE OF YORK, was produced by the same cow, and these three females formed the commencement of the "Siddington" family. *Kirklevington* 7*th* was subsequently returned to Mr. Harvey by Mr. Bowly, but she never bred again. *Siddingtons* 4*th* and 6*th* are both by 7TH DUKE OF YORK and from *Siddington* 2*d*, and *Siddington* 2*d* is own sister to *Kirklevington* 12*th*, of Didmarton notoriety. *Siddington* 2*d* will probably not be sold, although she appears in the catalogue, for reasons which will be considered satisfactory. The bulls lately used, and to whom the cows and heifers are in calf, are 2D DUKE OF CLARO, 3D DUKE OF WATERLOO (23,801), 15TH BARON WETHERBY, by 7TH DUKE OF YORK, and of the Gazelle family, 6TH EARL OF WALTON, and the 650 gs. DUKE OF COLLINGHAM. We cannot on the present occasion discourse at all lengthily on the merits of the bull section of the catalogue. BARON WETHERBY 20TH, by 7TH DUKE OF YORK, dam *Songstress* (Lot 1), is a remarkably fine young bull, with a splendid head, neck, and fore-end. There are several other straight, promising animals, almost all of whom are by the "7th Duke," and out of Musical, Violet, or Gazelle cows. Mr. Harvey's LORD WILD EYES 5TH is a well-grown, handsome bull, very good over the

shoulders, and girthing 7 feet 6 inches; he is two years and eight months old, was got by 3D LORD OXFORD (22,200) from *Wild Eyes 24th*, by 4TH DUKE OF OXFORD, and his pedigree may be traced, through a well-known Bates ancestry, back to *Wild Eyes 2d*, by Mr. Stephenson's celebrated bull BELVEDERE (1706). We took a look at the 7TH DUKE OF YORK, who seems in good health and spirits, but continues useless for breeding purposes, although Mr. Bowly has hopes that he will again do service. This we doubt, as the weakness in his hind-quarters, which we noticed last autumn, is still as bad as ever.

—— A sale catalogue has just been issued of the entire herd of Shorthorns at Costerton, near Dalkeith, in North Northumberland, the property of Mr. Ainslie. The sale of these cattle has been intrusted to Mr. Thornton, of Langham Place, London, who has advertised Tuesday, May 13, as the sale day. The herd consists of 19 females and 8 bulls, all of which are of Booth extraction. Representatives will be found of Mr. Wood's herd, of Stanwick Park; Mr. Mark Stewart's famous Brilliant tribe, and the late Mr. Anthony Maynard's herd; there are also specimens of the Sittyton stock, and of the Duke of Montrose's herd, members of the F. tribe from Panton, Lincolnshire, and Mr. Ellison's prize Juno family. DUKE OF TYNE (17,751), the 1st prize bull at the Worcester meeting of the Royal Agricultural Society, and LORD EAGLE (22,149) from the Alloa herd, have been lately used.

—— LORD RED EYES (24,159), has gone from Kingscote to Frocester Court, Gloucestershire, where Mr. Scott Hayward is laying the foundation of a Shorthorn herd. He has been during the past season with the herd of Mr. R. P. Davies, of Narberth. Belonging to the Kirklevington Wild Eyes family and by 2D DUKE OF WETHERBY (21,618), he traces back, in two crosses, almost immediately to Mr. Bates' own breeding; and, put to cows of a good strain, he may be depended on to reproduce the quality, symmetry, and precocity which distinguished his ancestry in Mr. Bates hands.

BEET FOR SUGAR.

ONE of the earliest recollections of my boyhood was, that I watched the culture of field Beet, under the quaint name given to it then of "Root of Scarcity." The principal heritor of the parish was fond of making experiments with agricultural plants, and had sowed a field with Beet within a furlong of our door, and I watched with anxiety the growth of the Root of Scarcity, and was eager to taste its flavour as soon as it had got to be the size of a Radish; and from that time, now nearly 50 years, I have made some important experiments myself with the Beet family. In treating of the white Silesian or Sugar-Beet, it will be necessary to keep in view the common red Beet of the gardens as a standard of reference, as it must still be regarded as the head and type of the family. In growing red Beet for salad, it is never desirable to have large roots, and it has been the aim of practical men to get a variety as dwarf in habit as possible, and dark in colour. The roots of the red Beet are best boiled whole, thereby preserving better their deep colour, which is important as a contrast to the other articles in the salad-bowl; but still, a certain amount of growth is essential, in order to get the sweetness as well as the colour. Now, a well-grown Cucumber will be about 1½ inches in diameter, and if the slices of the red Beet and the slices of the Cucumber are the same size the Beet for salad will then be in perfection. Beet for salad being wanted young and small is usually sowed early in March, and again after midsummer, and from various causes it is very apt to run to seed; and some little time before the flower-stem shows itself it will be found that a chemical change has begun in the body of the root, and that the sweetness and crispness are leaving it, and that stringyness and harsh flavour have set in, for the flower-stem is maintained at least in part by the juices already secreted below the collar, and it requires nice discernment to know when this change takes place, so that the supplies may be cut off by taking the Beet entirely out of the ground and keeping it cool, and in the dark, otherwise it would lose its sweetness and run to seed. The red Beet does not rise above the soil like Mangel Wurzel, but buries itself in the earth like a Carrot, and that slice immediately under the collar is always coarser than the rest, and this will be best understood by reference to the Carrot, where the top slice is green outside and inside, whilst the rest of the root is yellow, and this top slice has the poisonous tinge of the umbelliferous plants, to which family the Carrot belongs. When field Beet is grown on high drills, the air and light have full play upon that part which does not by Nature need their services, for if there be any one point clearly established in first-class cultivation, it is that above the collar of the plant all should be light, and below the collar all should be dark; the earthing-up question is thereby settled to a very shaving, and that beyond dispute, and whoever green, their roots in the air or blanches their leaves in the earth will no doubt be rewarded according to the ends they may have in view. In growing red Beet for salad, or white Beet for sugar, the collar of the plant should sit close to the surface of the soil. Whether we shall ever get to be a sugar-growing people or not I shall not stop to speculate upon, but one thing of very great importance to the farmer and the labourer will be brought about, and that is, that by the question being fully ventilated in your valuable paper, they will now know, if they did not know before, that very good table beer and very strong ale may be brewed in the short space of three days from white Silesian Beet without any great trouble or expense beyond that of the roots properly grown, "topped," and "tailed." A gentleman who had grown cane-sugar in Hindostan called to see me at Alton Towers, and offered to convert my cotton shirt into sugar if necessary, but as I had no intention of tampering with my wardrobe, we made some experiments on Beet; and as he had not only in view to make good table beer out of the syrup, or if need be ale, but also to give it the proper colour of "brown stout," he boiled only as much red Beet along with the white as should turn the article out of hand of the approved colour, and with his assistance we succeeded in making good beer. In making Beet thus do the work of malt, the colouring matter is of little importance to the user, as good ale would not be objected to on account of its dark colour, since London porter of the best brands is black, or very nearly so; but it is not so with sugar, the article in this case must be fair to look upon, and the purifying, refining, or bleaching of sugar in the usual way with animal charcoal can never be a cheap process, hence it is necessary to cultivate the colourless Beet and try to improve its quality, as has been done very successfully with the dark red Beet of the garden; a little care in selecting choice plants for seed will in a very few years greatly improve the variety best suited for the purpose. Beet for sugar should be succulent, young, and the produce of rapid and unchecked growth, for if it is wrong for salad in being woody, it is equally wrong for sugar.

I recollect seeing a quantity of vegetables of various kinds grown by a first-class nurseryman to prove the quality of the seeds that he supplied and for other purposes, and he had had the land trenched to the depth of 18 inches and well manured, and the white Silesian Beet in that case was certainly grown to perfection, for the space allotted to the development of the foliage was nicely adjusted to the supply of nutriment and development underground, and they were grown on the flat and stood about 2 feet from row to row, and 9 inches from plant to plant. This of course would only come under the head of garden cultivation, or at all events of spade husbandry. No earthing up had been attempted, and the roots were not exposed, as they would have been in farmer's ridges, in the usual way of growing field Beet. I have mentioned this case to show that we shall have to suit our culture to the nature of the crop, and not compel the crop to suit itself to our mode of growing Mangel Wurzel. No crop suffers more from drought than Beet does, hence the success of its cultivation in the moist climate of Ireland. I made notes of the Beet crop in the north of Ireland as being the finest sample of field culture that I had seen; and so well are the London dairymen aware of this, that I have seen a field of Beet on the banks of the Thames half grown at the time when ordinary farmers were only getting their ground ready for the same crop. The early-sown crop would have the immense advantage of a moist seed-time, or, at all events, of moist earth to vegetate in; and if this early crop manifested any symptoms of running to seed, the whole would be got off the ground and used. I would lay very great stress upon this matter, as the first half of the year can be used to grow white Beet just as well as the last half of the year, and the thing is already done by every gardener with red Beet; and if the Beet runs to seed, it will in most instances be attributable to the indiscretion of the cultivator, as he can effectually check it. But by proper deep cultivation, &c., the crop will not be so much at the mercy of the elements as it would be with shallow working; and unless all experience on the subject is at fault, it will be simply impossible to get a full crop of rich white Beet after a crop of Wheat, and without manure, on shallow culture, as we see stated in the papers giving advice on this subject. Sugars are very arbitrarily divided into two or more distinct classes. The cane-sugars crystallise into the four-sided clear crystals of the sugar of commerce. Grape-sugars do not crystallise, and when starch has been treated with sulphuric acid, or otherwise changed into sugar, the name "dextrine" is given to it, because its syrup throws the rays of transmitted light to the right (*dexter*), whereas the syrup of cane-sugar throws the rays another way. There is another very important distinction between beet-sugar and cane-sugar which it will be useful to look into. The Beet belongs to that grand botanical division of plants that grow from the outside, "exogens," and have a seed leaf with two cotyledons—"dicotyledons;" whereas the Sugar-cane is a gigantic grass, and grows from the inside, "endogens," and has but one seed leaf or one cotyledon—"monocotyledons." The Palms belong to this division, and they produce sugar also.

Any one at all acquainted with plants and the manufacturing of sugar will easily see what a gulf there is fixed by the hand of Nature between cane-sugar, that crystallises so beautifully, and beet-sugar, that does not crystallise. The English public have never taken freely to beet-sugar, and hence you can hardly get a sample at any grocer's shop; whereas in France the coffee and milk sold at the street corners is sweetened with beet-sugar, and the sugar and water drunk by the natives is sweetened by the same soft beet-sugar. Botanists apply the term "mothery" to such Ferns as have attained the adult stage when they produce fronds with spore cases, and thereby show symptoms of reproducing their species; and in order that a farmer may clearly see the "mothery" stage in white Beet, we shall take the leaves of the corn plants for example, and he will find that they are sweet only up to a certain point, and when the plant flowers and begins to propagate its species, the sweetness goes, and the stem and leaves are nearly tasteless. A great deal of the sheep pasture is made up of Grass that never gets "mothery," hence its richness of quality in proportion to its bulk; it is all leaves, with only here and there a windle straw to be seen of some plant that has escaped the bite, and has flowered and seeded; and as it is, the sugar that we are endeavouring to secure this peculiar outlet must not be neglected. Beet, as well as most other biennials, is easily started off to seed by being grown too closely together, and may be said to be starved into that state. Now, from all the samples that I have seen, I should conclude that each plant of white Beet should have not less than 1 square foot of space to grow in, even on the poorest land that might reasonably be cropped with it, and on a deep, rich staple about 1½ square feet. The plants in the first instance will stand 16 inches from row to row, and 9 inches from plant to plant in the row, and for the 1½ square feet the rows will be 2 feet apart, and 9 inches from plant to plant in the row. We sometimes see advertised a picture of a large root of field Beet, with a very small tuft of leaves, after the fashion of a Turnip Radish. A large root of fine quality never could be manufactured after that fashion, for it is due to the feeders below, and the large spread of foliage above, to elaborate the proper juices of the plant; and if the roots really did swell to a large size, with only a small tuft of leaves, the crop would be worthless, just as a crop of large Gooseberries are worthless when insects have reduced their foliage. If red Beet had not been eaten as salad, and white Beet had not been made into sugar, we should never have got at such accurate information as we have now of the properties of the plant—tracing the effect produced to the cause from which it has sprung. I recollect receiving from the Horticultural Society seeds of a greatly improved variety of red Beet, and I look to the crotchety few who hybridise plants to raise new varieties to improve the white Beet. When the syrup is got it is boiled *in vacuo* in copper globes of great thickness to resist the pressure of the atmosphere, and besides the enormous outlay for these kettles, there are air-pumps and steam-power to be provided, so that the sugar making can never become an institution on the farm, although I am not without hope that the brewing may, and that bread and cheese and good wholesome beer, all home-made, may long endear to the farmer and his dependents the glorious land we live in. *Alex. Forsyth.*

THE VALUE OF WELL-BRED STOCK.

"I HAVE now arrived at the last division of my subject, namely, the importance of keeping well-bred animals. I need scarcely advert to the vast progress which has already been made in this respect since the days when beasts were not supposed to be ripe before they were six years old, and when a gentleman deemed himself wronged if served with anything younger than 3-year-old mutton. Now our Shorthorns, our Herefords, our Devons, as well as our best cross-breeds, are slaughtered ripe and full of fat at three years old, while very few wether sheep live over 20 months, the majority being consumed considerably younger. What is it that has caused this extraordinary change? It is *breed;* in other words the accumulation, generation after generation, of certain qualities which experience has shown to be desirable. Few persons, perhaps, have realised the amount of gratitude due from the community to those illustrious men who first set the example of improving our live stock. In this stirring time we can scarcely estimate the difficulty of such an enterprise in those stagnant days. As an illustration of the prevailing feeling, no later than about the beginning of the present century, I may recite the reply of a Cumberland farmer to the celebrated Mr. Kirwen, who was commenting on the miserable appearance of his sheep: 'Well, sir, they're sich as God set upon the land.' Evidently this worthy man regarded the very idea of improvement as a kind of flying in the face of Providence. It is only by referring to old county histories that we are able to form any estimate of the change which Bakewell wrought in sheep by the introduction of the improved Leicesters. Rightly does the eminent naturalist, Darwin, speak of a successful breeder as an exceptional man, requiring a combination of qualities as rare as a great general, an eminent author, or a creative artist. It seems so easy for us at the present day to improve our flocks or our herds, surrounded as we are by noble stock of every description, that we can scarcely conceive the difficulties with which our early pioneers had to contend. The triumph of Bakewell consists in his having everywhere banished the profitless, scraggy, slow-going, local breeds of sheep, whose very names are now forgotten, and replaced them by the profitable, heavy-woolled, quick-feeding Leicesters. The process has been the reverse of that described in Genesis, for in this instance the well-favoured animals have swallowed up the ill-favoured and lean sheep. And if the progress of the Leicesters has of late years been arrested by the matchless Shropshires, which will probably at some future period share the kingdom with them, that circumstance does not detract from the fame of Bakewell. For Shropshire breeders are still following out, with the modifications rendered necessary by present circumstances, the principles which he promulgated. Consumers now call for a class of sheep in which the fat is mixed up with palatable meat, instead of being packed in such thick internal layers that no one who is not taking violent exercise is able to deal with it. The quality of the Shropshire mutton, combined with the size which it attains, the weight of wool, and the hardihood of the sheep, renders this breed one of the most profitable which can now be cultivated; I might even say, on all soils not specially adapted for the growth of extra wool, the most profitable; but it is only necessary to refer those who think I have exaggerated its merits to the present show in this town.

"If from sheep we pass to cattle, we find Charles Colling, Maynard, Bates, and Booth acting on the same principles which Bakewell professed. They selected the best materials within their reach, kept one aim steadily in view, and never rested until they had stamped the impress of their own thoughts upon their herds. The principle of selection was, to use the expression of Mr. Youatt, 'The magicians' wand, which enabled these gentlemen to summon into life whatever form and mould they pleased.' Time and

space forbid me to enter upon more than the merest indication of the result of their labours. Such was the fame achieved by Charles Colling, even in his lifetime, that at his sale the bull COMET was sold for 1,000 gs., the cow *Lady* for 400 gs., and the remainder of his stock for prices such as had never been heard of previously. The herds of his brother, Robert Colling, and subsequently that of Mr. Mason, also realised high prices. At that time, however, agriculture was in a state of stagnation, when compared with its present activity. Among farmers by profession, few thought of giving an extra price for a bull in order to improve their stock. A long period ensued after Mr. Mason's sale, during which the purchasers of Shorthorns were principally gentlemen, who, farming for their own amusement, were able to gratify what was then regarded as a mere speculative hobby by the mass of agriculturists. And fortunate it was for the cause of improvement that during this time, which Mr. Strafford calls 'the dark ages of Shorthorns,' men like Mr. Fawkes, Mr. Whitaker, Lord Spencer, and Mr. Bates, continued, in spite of public indifference, the cultivation of the highest class of Shorthorns. At the sale which took place consequent on the death of Lord Spencer, the prices were high for that day, the bull USURER making 400 gs. But the men who were most influential in raising the breed from its temporary eclipse were Mr. Bates and the two Booths. The stock of the latter were sedulously exhibited, and won many well-deserved victories at our principal shows. Mr. Bates, after carrying off four out of the five prizes at the Royal meeting at Oxford, did not afterwards greatly care to enter the showyard. There is, however, no man who, since the time of C. Colling, has done so much to raise the reputation of the breed. At the sale of that gentleman he purchased the heifer *Young Duchess* for 183 gs., being well acquainted with the value of her blood from having already possessed several animals of the same family. With rare judgment, sustained by no ordinary amount of self-reliance, having once chosen the *Duchess* blood, he made his herd out of this family. Anyone examining the pedigrees of the earlier *Duchess* animals will find that the same blood is repeatedly put together to an extent which is seldom met with elsewhere. Let us see what this blood is. Take the nine sires, for example, in the pedigree of the DUKE OF GLOSTER (12,382) which occur previous to BELVEDERE, and they will be found to be full of the blood of COMET, FAVOURITE, and HUBBACK, the three great originals of the Shorthorn race, FAVOURITE himself being used twice, and 2D HUBBACK, whose sire and dam were both by FAVOURITE, twice. Even when Mr. Bates looks out for a sire of another family on the dam's side, he still does not, like an ordinary breeder, wander off into another blood, and thus throw away the work of years. On the contrary, BELVEDERE, the bull of his choice, is, if possible, fuller of the blood of FAVOURITE and HUBBACK than some of the bulls already named. (Independently of his sire and grandsire, who are both descended from these bulls, we have real PHENOMENON, by FAVOURITE, dam by HUBBACK, after which FAVOURITE actually occurs three times in succession, preceded by HUBBACK.) So satisfied is he that he is on the right road, that he actually puts *Duchess* (39), by BELVEDERE, to her own sire, with a result which is a triumphant vindication of his sagacity. Their son, DUKE OF NORTHUMBERLAND (1,940), was never beaten in public competition, and was a bull whose equal Mr. Bates defied the world to produce. This is not the place to enter on the discussion of the so-called Oxford blood. Suffice it that the result has again proved Mr. Bates to be right. From his unwillingness to part with cows or heifers of his favourite tribes, breeders had no opportunity until the sale which occurred after his death of comparing their merits with those of their own herds. Although the prices made there were high, compared with those which had prevailed for several years past, yet they were mere indications of the upward movement which has ever since set in with regard to this blood. At the Tortworth sale, in 1853, there was a curiosity to see the 'Bates' animals in their new home which had not been paralleled since the Ketton sale. And the tide of public opinion had been setting in favour of 'Bates' blood so strongly that there was a general determination among breeders to go into it. Few, however, had anticipated what the prices would be, and no one who was present can ever forget the sensation which pervaded the vast assembly when the lovely rich roan heifer *Duchess 66th* was brought into the ring. The biddings rose for her till they reached the then unparalleled sum, for a heifer, of 700 gs. The Tortworth sale was the inauguration of a new era for Shorthorns. Since then we have seen four 'Bates' animals sold for upwards of 4,000 gs.

"I have brought forward these details in order to show why it is that animals of the highest class command such prices. It is because when we buy a 'Bates' bull we acquire a copy or repetition, as it were, of those great originals, HUBBACK, FAVOURITE, and COMET, the acknowledged ideals of the Shorthorn race. No mixture of doubtful or of alien blood has frittered away their power. The permanence of race, when preserved in its purity, receives a striking illustration from the permanence of its mercantile value. 50 years ago COMET sold for 1,000 gs., and such is still the value of a 'Bates' bull, the representative of COMET at the present day. But the value of a *Duchess* heifer has risen in the interval from 183 gs. to 1,000 gs.

"Such facts are a gratifying testimony to the growing demand for superior blood. They show that we appreciate the labours of the Collings, and the Bates, who, though no longer living, are still working among us for good. As with sheep, so with cattle, the ill-favoured and lean ones are being expelled by their well-favoured congeners.

"It must be owned, however, that the improvement of cattle has not yet reached the same stage which has been attained by sheep. The great body of farmers are still not sufficiently alive to the practical value of *blood*. On dairy farms, the owner is too often content to use some bull of his own rearing. Such men have not yet learned that a well-bred animal is a machine which not only does its work in a shorter time than a badly-bred one, but which in that time turns out such work as the other is incapable of accomplishing. Nor is it necessary to incur heavy expense to obtain stock sufficiently well-bred for ordinary feeding purposes, provided none but well-bred bulls are used. The effect produced by such a sire must be witnessed to be believed. I have constantly seen heifers by a well-bred bull out of nondescript dams, which might easily have passed for pure Shorthorns; and I have myself sold such heifers, at three years old, when they happened to be barren, from grass, at from 20*l.* to 25*l.* . . .

"The Legislature must give us security against the introduction of contagion from abroad.

"Farmers must (1.) neglect none of the means of increasing the produce of their land which modern science places at their disposal. Above all, they must improve their grass-land by returning to it a portion of those valuable constituents of which the sale of dairy stock annually deprives it.

"2. They must feed their store stock with such reasonable liberality as to keep them in a constantly growing state. This will furnish one important means of improving the land.

"Landlords must co-operate in the good work by improving buildings, and by affording to liberal tenants *security* for the outlay of their capital."—*From Mr. Willoughby Wood's published lecture on "The Means of Increasing the Home Production of Animal Food."* (Billing & Co., Birmingham.)

ON DEEP CULTIVATION

BY STEAM OR HORSE-POWER.

[At the recent meeting of the Highland and Agricultural Society, the following paper was read by the Right. Hon. the Marquis of Tweeddale.]

AT a meeting of the directors of the Highland and Agricultural Society, held on March 3, 1869, it was resolved, on the suggestion of the Special Committee on Steam Cultivation, that before that committee should give in their report, a discussion should take place to-day on the comparative advantages and cost of steam and horse-power or hand labour—1st, with reference to the working of land in a high state of cultivation; and 2d, with reference to improvable land. And I have to express the wish of the directors, that gentlemen who take an interest in this important subject will address the meeting, and give us the benefit of their knowledge and experience.

I have been asked to make some observations on the advantages to be gained by the deeper cultivation of the soil, and to state my experience of the different methods of deep ploughing I have tried on the farms in my own occupation.

The operations of deep ploughing at Yester have already been so fully described by Mr. Stephens in his book, entitled, "Yester Deep Land Culture," published in 1855, that I think it unnecessary to do more than refer to them generally. I have in my own hands upwards of 1700 acres of land, consisting of the farms of Yestermains, Broadwoodside, Danskine, and Newhall, situated in the upper district of East-Lothian, and from 350 to 700 feet above sea level. The land, before it was drained and improved, consisted principally of a naturally poor soil, of a moorish nature, resting on a subsoil of sandy clay containing moorland pan in considerable quantity, impervious to water, the surface soil seldom exceeding from 5 to 8 inches in depth (in many cases less), and in its natural condition not suitable for growing Turnips.

The first operation was to tile-drain the land thoroughly. On Yestermains and Broadwoodside this was done between 20 and 30 years ago. During the drainage operations I was led to observe, that although the water was in great measure removed from the soil, yet the drainage would not be perfect until the subsoil between the drains was broken up so as to allow the water to reach the drains more rapidly and the air to circulate in the soil: and as I had been in the habit of spreading the bottom soil of the drains across the surface of the ridges, and had observed the great change which took place in the subsoil from its exposure to sun and air, I commenced about 20 years ago to plough and subsoil the land to a depth of 20 inches, the operations being performed by a plough drawn by four horses, taking a furrow 15 inches deep, which was followed by a subsoil plough with four horses, breaking up an additional depth of 5 inches.

I found that the plough in common use in East-Lothian, from its mould-board being concave, was not adapted for deep ploughing, as it could not, without great exertion on the part of the ploughman, be kept deep enough in the soil; and also that it inverted the furrow slice, so that the whole subsoil was brought to the surface.

The implements used by me in deep ploughing were of my own contrivance, the mould-board of the plough being convex, and so constructed as not to invert the furrow slice, as in ordinary ploughing, but merely to turn it on its side or edge, and to break it as much as possible: in this way a comparatively small portion of the subsoil is brought to the surface, and yet a thorough mixing of the soil and subsoil is effected. The deep ploughing was first commenced with the stubble furrow, but afterwards in ploughing lea, in order to give the horses a firmer hold of the ground with their feet. The action of the subsoil plough is merely to stir the subsoil in the bottom of the furrow, and in doing so a little of the surface soil gets mixed with it and assists to keep it open.

The cost of this ploughing, as stated by Mr. Stephens, is 2*l.* 13*s.* per imperial acre, which includes 5*s.* per acre for removing stones.

I carried out this deep stirring of the soil in one rotation of five years, without regard to the expense of it, as I was desirous to set at rest the question as to whether such an operation was beneficial or lasting in its effects.

I tried teams of oxen of the best description yoked in the plough, but I found they were too slow, and the shape of their feet unfits them for walking on the pulverised soil. They soon tired, and could not work.

I also tried steam-power, consisting of two engines of 14-horse power, one on each headland, dragging the plough backward and forward between them; but the quantity of set-fast stones and other obstacles with which the plough came in contact in the land subjected the machinery to constant injury, and the expense and delay caused by the repair of these breakages were very great, and could not be avoided, as any contrivance to disengage the power of steam from the machinery when it met an obstacle, that was then known, had proved a failure.

With horses I had no difficulty, as they instinctively stopped when the plough met with an obstacle; and as I would not allow the ploughman to urge the horses to exert themselves, there were few or no breakages.

I have now had 20 years' experience of the effects of this deep ploughing.

I was told at the time I was engaged in that operation that I was destroying the land by mixing too much of the subsoil with the surface soil, and that in a year or two the subsoil would return to its natural state. Any one who knew the state of my farms before I commenced these operations, and who now sees the excellent crops of Turnips, grain, and Grass grown on them, and the comparatively early period of the year in which the grain ripens, and the cattle and sheep go into the fat market, with what they did formerly, will bear witness to the great improvement that has been effected; and instead of the subsoil which had been stirred running together again, it has been found to have changed its colour and character altogether, and to resemble very much the surface soil. So much is this the case that the stubble furrow can now be ploughed from 12 to 13 inches deep with two horses, and it has not been found necessary to repeat the operation of subsoiling.

In the course of these operations of deep ploughing and subsoiling considerable numbers of stones were found in the land, and some of them boulders of large size. These had all to be removed by hand labour, at a cost of about 5*s.* or 6*s.* an acre. They have been used for buildings, and in improving the roads on the farms.

Having been frequently told that the operation of deep ploughing and subsoiling, costing 2*l.* 13*s.* an acre, was beyond what a tenant of a farm would probably undertake, and that it should be done at the landlord's expense, I have, during the last five years, been making experiments on deep ploughing in a modified form on the farm of Newhall, which came into my possession recently, and has since been thoroughly tile-drained. It had never been ploughed more than 7 or 8 in. deep.

I have, with three horses yoked abreast in the plough, ploughed this farm from 12 to 14 inches deep and have dispensed with the subsoiling. This has been done without increasing the working strength on the farm or interfering with the regular work of the rotation; and as the cost, as I shall afterwards show you, is 1*l.* 2*s.* 3½*d.* per acre, including the expense of removing stones, I am satisfied that objections on the score of expense will not be made to it.

In March, 1868, I took a field of about 25 imperial acres into my own hand. This field had never been previously ploughed more than 7 or 8 inches deep. It had been tile-drained during the previous winter. I was desirous to have this field ploughed on my modified plan from 12 to 14 inches deep, and as it seemed to me to be a suitable field for the trial of a steam-driven implement, and as steam cultivation had not taken hold in Scotland as in England, I desired to satisfy farmers by giving them proof of the working of steam and horse power, so that they might judge of their comparative value; I therefore invited the owners of steam-ploughs to send their tackle to the field, stating that I would send my horses and ploughs to work alongside of them, so that a comparison could be made between the work done by horse and steam power. My invitation was not accepted, so I ploughed the field with my horses, having previously asked a number of well-known agriculturists to examine the work while in progress, and to state their opinion thereon.

I showed these gentlemen the working of a 4-horse plough, a 3-horse plough, and a 2-horse plough. They drew up a report, in which they say:—

"We found in operation on the field one plough with four horses, six ploughs with three horses, and five ploughs with two horses yoked to them. The 4-horse plough turned a furrow 14 inches deep and 14 inches wide; the horses were yoked two abreast, the leading pair by a seam chain to the bridle of the plough. . . .

"The 3-horse plough turned a furrow 13 inches deep by 13 inches wide; the horses were yoked abreast, two going on the land, and one in the furrow. The 2-horse plough turned a furrow 12 inches deep by 12 inches wide. . . .

"We did not test the draught of the various ploughs, but the horses were working freely and easily in all of them, and did not seem oppressed with the work in any way. We observed this particularly in the 3-horse plough, and recommended the Marquis to yoke three horses to each of the 'Yester' ploughs, as in our opinion the most economical application of the horse-power for the depth of furrow. His lordship concurred with us, and three horses were accordingly yoked in each of the ploughs.

"The measurements of the depth of furrow are made upon the solid unturned soil.

'The land contained some boulder stones, which were removed by labourers following the ploughs. None of the stones were very large, nor were they in greater quantity that is usually found in the soil in this district.

"An exact account of the time occupied in ploughing the field of 25 imperial acres has been kept by Lord Tweeddale's overseer, and it is equivalent to 54 days of a pair of horses working eight hours a day.

"Lord Tweeddale calculated that the actual cost of a pair of horses, including the ploughman's wages, is 1*s.* per hour; the expense of ploughing an imperial acre 13 inches deep is therefore 17*s.* 3½*d.*

"We have to record our entire satisfaction with the work done, and of the great improvement effected by this deep stirring of the soil.

"The ploughs are exceedingly well adapted for the purpose, their peculiar construction allowing a deep furrow to be turned without bringing too great a quantity of subsoil to the surface."

This report was very satisfactory to me, and it fully bore out my own opinion, that three horses yoked abreast was the best way of applying their power.

I have not yet had much time to observe the effects of this modified system of deep ploughing on Newhall, but, so far as I can judge, it will answer the end in view. The farm was completely worked out when I took it in hand; as an example of this, the outgoing tenant had a 14-acre field of Grass during the last year of his possession, and he put a mare and foal to graze on it. No other animals were put in the field, and before the season was over, owing to the scarcity of Grass, he had to remove them to another field. This field was drained, and then ploughed from 12 to 14 inches deep, and with an application of guano and dissolved bones, of the value of 2*l.* 13*s.* 6*d.* per acre, grew an excellent crop of Turnips; and last year, in young Grass, carried four sheep per acre most of the season.

I have left a field of Newhall in the state in which I got the farm, so that any one visiting it may judge for himself of the effects of deep cultivation.

From the remarks which I have now made it will be seen that the cost of breaking-up, ploughing, and subsoiling land to the depth of 20 inches is, per imperial acre, 2*l.* 8*s.*, and for removing stones 5*s.*—in all, 2*l.* 13*s.*; and for breaking-up and ploughing (for the first time) 13 inches deep, the cost per imperial acre is 17*s.* 3½*d.*, and for removing stones 5*s.*—in all, 1*l.* 2*s.* 3½*d.*

The question then comes to be whether these operations could have been more economically effected by steam than by horse-power. The presence of boulder stones in the soil is, in my opinion, an insuperable bar to the use of steam-power for breaking-up or deep ploughing for the first time land such as I have been describing. In my opinion it is necessary that all obstructions be removed from the soil before it can be properly and economically ploughed by steam-power; and a rearrangement of the fences on many farms.

After the land has been deep ploughed and the stones removed, as I have described, my practice has been to plough the stubble not less than from 12 to 14 inches deep (measured on the solid, and which is equivalent to from 16 to 18 inches on the turned land) once in each rotation, in preparation for the Turnip crop. Formerly the practice was to plough the stubble in autumn from 7 to 8 inches deep, and in spring to cross-plough it about the same depth, and it frequently required one or two furrows, besides the number of harrowings and rollings, before a sufficient mould could be got for sowing the Turnips. My experience of the deep ploughing is, that when the land is ordinarily clean no further ploughing is necessary; all that is required in spring being a turn of the grubber-harrow to level the surface, and a double turn of the common harrows to bring to the surface any weeds before making up the Turnip drills.

The seed furrows for the grain crops are not ploughed deeper than is necessary to cover the seed.

The increased depth of soil now in cultivation enables the roots of the Wheat and Clover to get a firm hold of the ground beyond the reach of frost, and they are not thrown out of the ground in spring, as they were formerly.

Whether this subsequent deep ploughing could be done cheaper by steam-power than by horses I am unable to say; but I hope the committee, from the information they have collected and may yet receive, will be able to settle this point. I have only to say that my experience leads me to believe that steam-power means speed, and that the more rapid cultivation of the land can only be effected when it is thoroughly pulverised for that purpose.

I have had an account kept of the time occupied by a pair of horses in ploughing an imperial acre 12 to 14 inches deep, which had been previously deep ploughed and the stones removed, and I find it to be 12 hours, and the cost 12*s.* per acre. I prefer yoking three horses in the plough, as I find it easier for the horses, and that the work is better done, although it costs 14*s.* 5*d.* an acre.

I will now give you my calculation of the cost of keeping a pair of farm horses for one year:—

Man's wages, &c.		£40	0 0
Oats, 31 quarters, at 25*s.*		38	15 0
Hay for 16 weeks, at 1 stone each horse per day—14 stones per week, at 1*s.* per stone of 22 lb.		11	4 0
Straw for 28 weeks, at 1 stone each horse per day—14 stones per week, at 4*d.* per stone of 22 lb.		6	10 8
Straw for litter compensated by manure		0	0 0
Grass and Tares for eight weeks, at 1*s.* 6*d.* per day for two horses		4	4 0
Blacksmith		4	5 0
Joiner		1	10 0
Saddler		1	5 0
Cost of pair of horses £90 0 0			
Depreciation in value, 7 per cent. £6 6 0			
Interest of capital, 4 per cent. 3 12 0			
	9	18	0
Cost of implements, harness, &c., for a pair of horses £60 0 0			
Depreciation in value, 6 per cent. £3 12 0			
Interest of capital, 4 per cent. 2 8 0			
	6	0	0
Sundries, including veterinary surgeon, medicine, bran for mashes, &c.	1	6	4
	£125	0	0

My horses work on an average 277 days in a year, and the average length of day is nine hours; the pair, therefore, cost me within a small fraction of 9*s.* per working day, or 1*s.* per hour. I have been told that this deep ploughing would soon deteriorate my horses, from over-exertion, and predispose them to disease. This I have not found to be the case, or that they were injured by the work in any way. If the horses are properly yoked, and driven by a ploughman who understands his work, and if the number in the plough is regulated by the nature of the soil to be ploughed, the work is little, if at all more severe than ordinary ploughing.

I have endeavoured to bring under your notice the causes which induced me to undertake the different operations which I have described on farms which have been cultivated under my own direction. The means employed in carrying them out have been given in detail, as well as the success which has attended the system I have followed. I trust that they may prove worthy of imitation by my neighbours on such soil and climate as they may think adapted for the undertaking, and that the fruit arising from their industry may tend to increase the produce of the land, and equally benefit the cultivator and the consumer.

Home Correspondence.

Summer Grazing.—The modern system of summer grazing is much on the increase, and will ultimately be very general. This is quite right in a country so confined in its resources as Great Britain for the fatting of animals destined for the food of its inhabitants. This island home of ours, in comparison with the outer world, is a mere speck; but it is wondrous in its enterprise, its influence, and its importance. It is manifestly at the head of the nations of the earth in its hold upon the destinies and advancing civilisation of the whole world. Its commerce extends to every country, and every port and harbour known in these countries is made to contribute to the support or comfort of its inhabitants. It is the great depository of the nations. The products of all countries find their way to its shores, and are most beneficially appropriated by its people. Thus it becomes in this respect the greatest of nations, and it is by the enterprise, the freedom of trade, and indomitable perseverance of its inhabitants that its prestige is upheld, and its innumerable blessings secured. The most important is the provision for the sustenance of its population. This mainly depends upon the industry, intelligence, and persevering efforts of its agriculturists. This class has wonderfully added to the resources of the nation during the past half century, and at the present time is probably doing more to advance its prosperity than any other class is doing or can do. It is their department in the national economy to provide food, &c., for the nation. I am about to show that they eminently do their duty in one especial part of their business, viz., in the summer grazing of their farm stock; I can't, I regret to say, include every grazier, but I speak now of the modern grazier and his doings. He can't extend the area of his fields, but he does the next best thing, he makes the fields support the greatest number of stock it is possible to put upon them with a satisfactory prospect of fattening them. The Grass pasturage is almost a secondary thing with the modern grazier. Take the fattening of cattle upon lands of the highest value. He selects cattle of considerable value, and nearly fat, to graze as his "first run." These are supplied with the most approved artificial foods in judicious rations, and are speedily well fatted. By this course he can fat off two, and three, or four "runs" or heads of cattle before the old-fashioned solely grass-feeding grazier can prepare one for sale; hence the value of feeding stuffs brought from some quarters of the globe. Take, again, secondary grass-lands; these would probably long ago have slowly fatted three sheep per acre. The modern grazier will put on from seven to 12 sheep per acre, give them liberal rations of cake, corn, &c., and thus fat them speedily. The difference is simply this; every good modern grazier adopts the use of artificial aids in his summer grazing. The ordinary grazier depends upon his pasturage alone; the former will readily, upon the average, fatten three animals ere the other can fatten one; *i.e.*, he stocks his land with more than double the quantity of sheep, and by his adventitious aids promotes their speedy progress, even upon secondary land. The old, or ordinary grazier, depending upon Grass alone, often fails to fat his animals at all, and is thus beaten to the extent I venture to assert. At the commencement of the present century it was customary to graze our best lands with inferior bred oxen of from four to five years old, now the average of oxen grazed will not exceed three years, their weight nearly equalling that of their clumsy progenitors. The sheep-feeding lands were grazed with three-shear sheep, also of inferior type; now these lands are chiefly grazed by sheep not exceeding 15 months at "stocking time," and at 18 months arrive at satisfactory weights, fattened. This is a great advance in a nation's progress; and, as knowledge increases and prejudices die out, modern grazing will be universal. *O. F.*

Prolific Sheep.—A farmer in this locality, Mr. Benjamin Thomas, Penbach, in the parish of Llangan, Carmarthenshire, possesses a ewe of a mongrel breed, which in January, 1868, brought fourth five lambs at a birth, and again, last December, produced three, thus making eight lambs within the year. One of the first-mentioned lambs died shortly after it came into the world, but the seven others, together with the mother, are at this time in good health and condition. This description of sheep appears to be exceedingly prolific, for another party on the adjoining farm obtained 11 lambs from two ewes of the same sort within the year, in 1867, and in the majority of cases twins made their appearance. These sheep also produce their progeny much earlier than the higher class race, which makes them very valuable on that account. They are small, but the meat is excellent, and it strikes me that offering prizes for them at the Smithfield Club shows would not be a bad plan. Another advantage attending them is, they seldom are attacked with disease of any kind, and their yield of wool is considerable. Being hybrid they differ from the natural mountain sheep of the country in sundry respects. The butchers about here purchase them readily; indeed, I may say, in preference to the aristocratic breeds; which proves that they are in great favour among their customers. *John Lewis, Whitland, Carmarthenshire, April 7.*

Foreign Correspondence.

Paris.—Agricultural subjects continue to occupy considerable attention, even more than is usual at this period of the year; and there are several reasons why this should be the case, one being the approach of the general election, when ministers and candidates often have an agricultural turn. The long debate in the Corps Législatif, on the costs of the transformation of Paris, and the publication of the fact that the city is now indebted on that account, according to official reports, in a sum exceeding 44,000,000 sterling, has also had its effect. "Of all the brilliant discussion," said a writer the other day, "there is but one thing that agriculturists need remember, namely, that during the last 17 years about 80 millions sterling have been absorbed by the great public works executed in Paris: this is 20 millions more than would have completed the provincial road-work (planned) of the entire empire," &c. "Nothing," says the same writer (M. J. A. Barral), "can better exemplify how little is done for agriculture than its special budget; out of the 1,650,000,000 f. devoted to the ordinary expenditure, only 3,272,000 f. are devoted to agricultural purposes. The subventions to the theatres amount to 1,837,000 f., and the total of those granted for agricultural societies, shows, exhibitions, prizes, and experiments connected with the diseases of the Potato, the Vine, and silkworms, is only 1,678,000 f.; the portion allotted to the agricultural societies and committees is 455,350 f., while the allowance to the Opera alone is 820,000f."

Of the various articles included in the agricultural budget, there is a sum of 656,000 f., only in part defrayed by the State, for the three veterinary schools; each pupil, except those belonging to the army, pays 18*l.* per annum for his board. There were last year 256 pupils in the Alford school, 176 in that of Lyons, and 156 at Toulouse, making 588 veterinary pupils in all.

The sum set down for the three imperial schools of agriculture is equal to 22,464*l.*, and the pupils pay each 30*l.* a year. These schools are apparently in a very poor way; last year there were but 131 pupils in all, namely, 48 at Grignon, 46 at Grand Jouan, and 37 at Saulsaie; the total cost to the Government was but 12,124*l.* In the 48 farm-schools there were 1264 pupils; the Government grant in 1867 was only 25,932*l.*, but it stands at 27,200*l.* for 1870. The three sheep farms belonging to the State, at Chambois and Haut-Tingry and Corbon, cost the Government little more than 4000*l.* a year; these establishments are regarded as being most serviceable to agriculture in improving the breed of animals.

The Inspectors-General of Agriculture, seven in number, with their four assistant inspectors, cost 2760*l.*; the travelling lectures on agriculture and arboriculture, 1440*l.*; and the 13 professors of agriculture in great towns, only 732*l.* in all. There is no increase in the budget this year, as compared with 1869; and it is stated by M. Barral that, the produce of the schools, sheep and cow farms being deducted from the grants, the cost per annum to the State is only in fact 100,280*l.* a year.

The Superior Commission of Agricultural Inquiry has recognised the necessity of more being done by Government, and the following is the purport of its recommendations:—The establishment of a superior school of agriculture in Paris, with an experimental farm in the environs; the establishment of one or two regional schools in the south of France; formation of free scholarships in favour of the pupils of the latter for the Paris school; extension and improved organisation of farm schools; encouragement of agricultural orphan schools for children of both sexes; encouragement of agriculture by the development of stations for experiments with the aid of the authorities of the departments and of the agricultural societies.

An amendment, signed by 144 deputies, has been presented to the Corps Législatif, in favour of an addition of 32,000*l.* to the budget for the purposes stated above.

The proposed plan of the new superior school of agriculture will shortly be published, and may be regarded as official and decided upon. It will be somewhat on the model of the old Agronomic Institute of Versailles.

In the meantime the local committees are adopting means towards the same end. The central committee of Sologne has opened courses of primary agricultural instruction, and last year distributed 10 gold medals to the schoolmasters who had made the greatest efforts to give their pupils the fundamental notions of gardening and agriculture. Deputations from this committee also visit farms, and hold conferences on various subjects on the spot.

M. Gaucheron, of Orleans, has earned great popularity by his public conferences, and received the Cross of the Legion of Honour from the hand of the Emperor last year. Not long since he had a conference at Lamotte-Beuvron, which was well attended, and created considerable interest.

Amongst the other proposals now before the Corps

Législatif is that of the appointment of a Director-General of Agriculture, under the Minister of Commerce, with a salary of 1000*l.* a-year, the same as that of the Director-General of Roads and Bridges.

The preparations for the regional shows are advancing actively, and in many cases there will be special exhibitions annexed to the general one; thus, at Beauvais, there is to be an industrial and horticultural exhibition, to open on June 1, and continue for six weeks: 2800*l.* has been collected for the expenses. The municipal council of Poictiers has decided on having an industrial, artistic, and archæological exhibition in June and July. Horticultural exhibitions announced:—Lyons, April 17 to 25; Moulins, April 22 to 25; Beauvais, July 1 to 15; Eure and Soir, May 5; Montereau, May 16 and 17. The town of Bordeaux has added to the Government prizes a special one, to consist of a silver cup of the value of 24*l.*, to be awarded to the exhibitor whose beasts exhibit the greatest number of good points as regard fattening.

The Society of the Agriculturists of France has issued the following conditions for the prize mentioned in the *Agricultural Gazette* of the 27th February:—Prize for the best essay on the employment of night-soil, to be awarded in 1870: the essay to include a study of the question from an administrative point of view, and also of that which has been done with such manure in France as well as abroad; 1st prize, 1000*l.* and a medal, with encouragement to the author of the second best. Essays, printed or written, to be sent to the office of the Society, 43, Rue de Bac, Paris, before November 1, 1869; memoirs, if published, must have appeared during the current year.

The same Society states, with regret, that as its statutes have not yet been approved, the regional conferences announced by them cannot be organised, and if held, must be convened in each locality according to the law regulating public meetings.

The Paris Society of Acclimatation held its annual meeting the other day under the presidency of M. Drouyn de Lhuys, when it was announced that the Great Gold Medal of Honour was awarded to Mr. James Youl, of London, for the introduction of salmon into Tasmania.

The following method of obtaining the full value from manure is said to have been employed for 26 years with great success. The dung is placed in a water-tight basin, with a roof to protect the manure from the sun and rain, and from which pigs, fowls, and all other domestic animals are excluded, placed at some little distance from the stables. The urine is received in another tank, well covered in. The urine to receive about 4 cwt. of sea or rock salt to say 200 gallons; the dung to be watered every day with the salted urine. By the adoption of this method, the manure is neither dried nor heated, and consequently loses none of its fertilising elements, so that 1 cwt. of such manure is worth at least 2½ cwt. of that treated in the ordinary way, that is to say, left uncovered and without salt. It must be remarked, however, that salt cannot be applied to manure used in the cultivation of Sugar-Beet, being very hurtful to the production of the saccharine principle in those roots.

CANADA: TORONTO.—*Hatching Chickens.*—What breeder of fancy poultry is there who has not been fretted and vexed by the loss of expected chickens of some rare breed, which he had spent a good deal of money on in the shape of eggs, and considerable time and trouble in obtaining those preliminaries (for all eggs are preliminaries), and the loss too often occurs just at the moment of hatching. Few people know that when once the egg arrives at the chipping state, and the chick has with his beak raised from the inside the small scale (usually called the pecking), that the matter is then altogether within the reach of the proprietor, and that it rests with him to insure the success of the future brood. Many hens, more particularly of the East Indian and Chinese breeds, seem to be very clumsy in hatching, and destroy as many chickens in the shell as they get out. To insure against bad performance on the part of the hen, as soon as the eggs are well chipped take them into the kitchen, prepare an earthen basin (a thick brownware one is best), heat it hot, put some bran into the bottom of it, the surface of which make hollow; cover this bottom with flannel—an old piece of blanket is best—then get another thick piece of similar flannel for a covering, and go to work with the eggs. With the finger nail, or some blunt thin-pointed instrument, begin at the peck of the egg; remove the shell and skin all round in a narrow circle until you have divided the shell, then take off the cap part—it will come off easily—and quickly shake the chick out of the other part into the hot basin. If the shell is not broken far enough to let him out easily, break it a little farther; perhaps he will bleed a little, but it won't matter: take them all out in this way, and put them together, covering up warm, and putting the basin in the oven or in some very warm place. Don't be afraid of heat, but don't roast them of course; they will, however, bear a great deal of heat. Keep them covered close with the flannel until they are all dry, which will be in some two or three hours; they will then be in the proper shape of chickens and fine dry fluffy little fellows, and may be restored to the hen, which should always have one or two left with her to keep her quiet in the nest. Don't laugh at this, but try it; do just as you are now told, and don't be afraid, and half-hatch the chicks, thinking that they will finish hatching themselves: you must make a clean job of it; if you leave the chick half in and half out of the shell the skin will dry on to the down, and the chick will die, whereas if you do it right you will not lose one in a hundred. When a chick is once hatched, if you lose him it is your own fault. Feed the first three days with chopped hard-boiled eggs, afterwards with Indian Corn-meal, ground fine, and mixed with cold water, and your chicks, if they are in a sheltered place, where the sun shines, and they can get flies and insects, will all live.

A New Export from Canada.—A new export has lately caused quite a trade between Canada and Scotland, by steamship; it consists of Apples. One man in our neighbourhood the season before last exported several thousand barrels, and the last year nearly as many; they go from the shores of Lake Ontario, the banks of the St. Lawrence, and Montreal, to Scotland, and afford good returns. Our Canadian Apples are very fine, and good sorts keep well. Our orchards were but little troubled with insects until last year; then, however, the Codlin moth (Carpocapsa Pomonella) was very destructive. The sorts exported are the Russets of several kinds, the Winter Greenings of two or three sorts, the Northern Spy, the Spitzenbergh, and Red Astrachan—all keeping Apples. The method of packing is in barrels (like flour barrels, which hold 200 lb. of flour), which are filled, well heaped up, then put under a screw press with a cushion, and the Apples crushed together gradually and firmly, until the head of the barrel can be put in and fastened; the barrel is then headed up tight. The Apples are packed in this manner in the orchard, are taken to the front, and go to Scotland with so small a loss by injury or rot as not to be appreciable in the transaction; the fruit sweats in the barrel, no air is given, and the fruit will keep in this way several months. If not pressed into the barrels the fruit injures by carriage so as to be unmerchantable; this is another fact which upsets all sorts of established ideas about the preservation of Apples, and the necessity of keeping them on shelves in an Apple house. Apples packed in barrels never shrink or become wrinkled, they keep them firm as long as they will keep at all; all the fruit is hand picked and carefully sorted, and all imperfect Apples rejected. Pears, too, are becoming a crop, but are not as yet exportable from Canada; in the adjoining States they travel in the same manner, and bring enormous prices in the cities of New York, Boston, Philadelphia, &c. Canada is becoming a Grape-growing country. Many hundreds of thousands are planted every year as standards in gardens and vineyards, they are all of the native American type; it is only those that will stand the winter. Canada has, however, produced some capital hybrid Grapes of the native sorts, impregnated with Black Hamburgh, Chasselas, Sweetwater, &c. It is absolutely necessary to have the native hardiness. Some of the hybrids require to be thrown down in the winter, but with this precaution they all do well. *E. L. C.*

Societies.

ROYAL DUBLIN SPRING SHOW.

April 15.—This great annual event commenced in Dublin on Tuesday last, when the spring collection of neat cattle, sheep, swine, poultry, machinery, &c., appeared on the Society's premises in Kildare Street. The present exhibition must be in every respect regarded as one of the very best ever held under the auspices of the Royal Dublin Society. In point of entries in the stock department it has far exceeded the exhibitions of 1868, both in Dublin and at Londonderry. As regards the attendance of visitors to the show, the same remarks may apply.

On Tuesday morning, at 7 o'clock, the judges in the several departments commenced the task of adjudication; and their labours lasted till after 2 o'clock. No sooner were the judges finished than the public, ignoring the extra charge for the first day, poured into the building; and it may also be stated that H.R.H. Prince Arthur and the Viceregal party were among the keenest of the *connoisseurs*.

The grand feature in the Royal Dublin Society's show consists in the yearling Shorthorn bull section. The entries in this class reached 124, being 17 in excess of the show of 1868, and 133 over the Royal show held in Derry last autumn. In the aged bulls there is no material difference in favour of either year; and, as regards the entries, there would be only a balance of five animals on the gross in this department in favour of the present show.

Sister England also put in a creditable appearance in the Shorthorn bull sections. His Excellency Earl Spencer, who is no mean adept in either Shorthorn or horse breeding, prepared a few fancy animals for the show, but the array of competitors for the winning of the Irish Railway and Townley Challenge Cups represented too wide a field of exhibitors to insure either of those trophies going to the Castle. At the show last year these cups were awarded to Bolivar, the property of Mr. Meadows, co. Wexford, who also was the winner at the recent Leicester show, where he was purchased for a long figure by an English breeder. Sovereign, the property of Mr. Challoner, Moynalty, co. Meath, was justly awarded the honors of winning both the Irish Farmers' Challenge Cup, the Irish Railway Challenge Cup, and the 1st prize of 20*l.* in his class, making in all, for that animal's owner, prizes of the value of 305*l.* This beautiful, cream-coloured animal was calved on 11th April, 1866, and is by Royal Sovereign, dam Village Rose, by Blood Royal. Sovereign won 1st prize and Townley Cup in 1867, the Railway Cup in 1868. His formidable competitor was Ravenswood, the property of Mr. R. G. Cosby, D.L., who since his first appearance in public has won no fewer than 26 prizes. At the Royal Irish show in Stephen's Green, in 1867, Ravensworth took 1st honours; in fact, wherever exhibited, he has been equally successful. He was calved in Tralee, co. Kerry, in 1863, and is by Nobleman, dam Bride of Lammermoor. His age is rather against him, but nevertheless he retains his points, shape, and symmetry, in a most admirable manner. In the aged bull section there were exhibited some of the very best and choicest strains in the country, from the famous bull Comet downwards.

The exhibition in the female section of Shorthorns was equally respectable, and the chief prizes were awarded to a tenant-farmer, Mr. James Smith, co. Carlow, who has spared neither pains nor expense in procuring the best animals. The following are the awards in the several sections:—

The Townley, or *Irish Farmers' Gazette* Plate, value 155*l.* For the animal of the breeding classes of neat cattle, which, in the opinion of the judges, possesses the greatest merit—Mr. Chaloner, Kingsfort, Moynalty.

Irish Railway Challenge Cup, value 150*l.* For the best bull of any breed, over 2 years and under 5 years old—Mr. Chaloner, Kingsfort, Moynalty, for his Shorthorn bull SOVEREIGN.

CLASS I.—BREEDING CATTLE.

Section 1. Best Shorthorn bull, calved in 1868—1st, Wm. Bolton, Kilmuckridge, Wexford; 2d, E J. Smith, Croom; 3d, T. Barnes, Westland, Moynalty; 4th, E. J. Smith. Highly Commended: Major Barton, Mrs. H. Chaloner, J. Meadows, W. D. Dunlop, N. M. Archdall, Sir Robert Paul, G. Lambart, W. Bolton.

Section 2. Best Shorthorn bull, calved in 1867—1st, J. M. Thornville, Wexford; 2d, J. Moffat, Enniscorthy; 3d, M. H. Franks, Mountrath. Highly Commended: N. M. Archdall.

Section 3. Best Shorthorn bull, calved in or prior to 1866.—1st, R. Chaloner, Kingsfort, Kells; 2d, R. G. Cosby, Stradbally Hall, Queen's County; 3d, Major Hamilton, Brown Hall, Ballintra. Highly Commended: E. J. Smith, J. Brangan.

Section 4. Best Shorthorn heifer, calved in 1868—1st, J. Meadows, Thornhill, Wexford; 2d, R. G. Cosby; 3d, Sir Robert Paul, Bart., Ballyglen, Waterford; 4th, R. G. Cosby. Highly Commended: J. Meadows, Lady Pigot. Commended: W. H. Massy, W. Bolton.

Section 6. Best Shorthorn heifer, calved 1866—1st, J. G. Grove, Letterkenny; 2d, J. Smith, Little Moyle, Carlow.

Section 7. Best Shorthorn cow, of any age—1st, Lady Pigot; 2d, J. G. Grove. Highly Commended: J. Smith. Commended: W. H. Massy, W. Bolton.

Section 8. Best Hereford bull, calved in 1868—J. O. G. Pollock, Mountainstown, Navan.

Section 9. Best Hereford bull, calved in 1867—P. J. Kearney; Miltown House, Clonmellon, Kells.

Section 10. Best Hereford bull, calved in or before 1866. Highly Commended: R. S. Fetherstonhaugh, P. J. Kearney. Commended: R. W. Reynell.

Section 11. Hereford heifer, calved in 1868—1st, J. Tuite, Sonna, Mullingar. Highly Commended: P. J. Kearney.

Section 12. Best Hereford heifer, calved in 1867—1st, P. J. Kearney.

Section 15. Best Hereford cow, of any age—P. J. Kearney, also, Highly Commended.

Section 16. Best polled Angus bull, calved in 1868—No entry.

Section 17. Best polled Angus bull, calved in 1868—2d, Wm. Owen, Blesinton. Highly Commended: Sir John S. Robinson, Bart.

Section 18. Best polled Angus heifer, calved in 1867—Sir John S. Robinson, Bart., Rokeby Hall, Dunleer.

Section 19. Best polled Angus heifer, calved prior to 1867—Wm. Owen, Blesinton.

Section 20. Best polled Angus cow, of any age—Wm. Owen.

Section 21. Best Devon bull, calved in 1868—Sir A. E. Bellingham, Bart., Dunsany House, Castle-bellingham.

Section 26. Best Kerry bull, of any age—1st, D. Bayley, Friarstown, co. Dublin; 2d, ditto. Highly Commended: J. Brady.

Section 27. Best Kerry heifer, calved in 1867, producing a live calf within 12 months after the date of show—J. Brady, Raheny. Highly Commended: E. H. Casey, jun. Commended: D. Bayley.

Section 28. Best Kerry heifer, calved in 1868—J. Brady, Raheny. Highly Commended: D. Bayley.

Section 29. Best Kerry cow—1st, J. Brady, Raheny; 2d, Sir C. Domvile. Highly Commended: J. Smith. Commended: ditto.

Section 38. Best Alderney (or other Channel Island) bull calved in 1868—Jas. Hamilton, Castle Hamilton, Killeshandra.

Section 39. Best Alderney (or other Channel Island) bull, calved before 1868—J. Smith, Little Moyle, Carlow. Highly Commended: J. Bayly. Commended: J. Smith.

Section 40. Best Alderney (or other Channel Island) heifer, giving milk or in calf—J. Smith, Little Moyle, Carlow.

CLASS II.—FAT CATTLE.

Section 42. Best Shorthorn ox, calved in 1866—R. W. Reynell, Killyneton, Killucan.

Best Shorthorn ox, calved prior to 1866—R. S. Fetherstonhaugh, Killucan. Highly Commended: ditto. Commended: O'Connell L. Murphy.

Section 43. Best Shorthorn cow, of any age—1st, J. J. Verschoyle, Saggard; 2d, O'Connell L. Murphy. Commended: E. J. Scully, J.P.

Section 44. Best Shorthorn heifer, not exceeding 4 years—1st, S. Garnett, Arch Hall, Navan; 2d, O'Connell L. Murphy.

Section 46. Best Hereford cow, of any age—1st, J. O. G. Pollock.

Section 48. Best polled Angus ox, calved 1867—No entry.

Best polled Angus ox, calved 1866—Major Barton, Straffan. Commended: ditto.

Section 52. Best Devon cow, of any age—S. Garnett, Clonee, co. Meath.

Section 56. Best Kerry heifer, not exceeding 4 years old—1st, R. Fetherstonhaugh, Kinnegad; 2d, S. Garnett.

Section 62. Best ox, of any other pure or cross breed—2d, R. S. Fetherstonhaugh.

Section 63. Best cow, calved prior to 1867 (not included in foregoing sections)—S. Mowbray, Kilcany, Mountrath. Commended: W. Dobbyn.

Section 64. Best heifer, of any other pure or cross breed, calved in or prior to 1867 (not included in the foregoing sections—R. S. Fetherstonhaugh. Highly Commended: Major Barton. Commended: S. Garnett.

In the exhibition of poultry, implements, and artificial manures, the entries are nearly the same as last year as regards numbers, but exceedingly varied as regards the value and extent of the respective collections. Here our English friends, as usual, take all the laurels; and although no prizes are offered, the display is highly creditable to the Messrs. Howard, Woods, Le Butt, Jack, Scott & Co., Simpson, Young & Co., Ransomes & Co., Richmond & Chandler, Samuelson, Burgess & Key, Ashby & Co., Brigham & Pickerton, and others.

Farmers' Clubs.

LAVENHAM.

The Cultivation of Beetroot.—At the last meeting of this Club this subject was laid before the members by Mr. HAWKINS, who said—

The business of the farmer, as far as regards the

production of crops, consists in knowing what elements any given crop will require, and in taking care that a due supply of these elements in a mineral state, and also in such alliances as are soluble in water, be present in the soil.

Nearly 2000 years ago it was said that one of the most important rules of husbandry was *bene arare*—or, in plain English, to plough well; and good ploughing is still essential to the profitable cultivation of the soil. The action of ordinary ploughing is, that it exposes the elements forming the soil, and particularly the humus, to air and moisture, by the action of which they form combinations that are soluble in water. Grubbing and subsoil-ploughing add to the regular soil. Farmyard manure is efficacious, just because it restores to the soil those very elements that were previously abstracted from it. I presume the increased fertility of land upon which guano is spread is owing to the guano containing all the elements which ordinary crops require, with the exception of potassa or salt. Bone-dust gives to the land phosphate of lime; nitrate of soda gives nitrogen and soda; sulphate of ammonia gives sulphur and nitrogen; and analogous explanation is to be given of the action of most other manures. Lime likewise acts by extracting the water of undecomposed vegetable matter, and thereby promoting its putrefaction. And, further, one action of draining is to prevent evaporation of water, and thereby to increase the temperature of the soil, and give increased heat to the crop. It is plain that many of the practical rules held in esteem by the majority of the agricultural world are not compatible with the views of science. For example, two white-straw crops in succession, or any manner of exhausting the soil, is held to be bad farming, and frequently prohibited in leases. Now, the business of the farmer is to obtain all he can from the soil: and the more rapidly and thoroughly he does it, the more food is produced, and the better he understands his employment. Formerly, when the action of the soil upon the crop was not understood, and when some unknown power was attributed to it, which required rest, or when plants were supposed to give forth excretions poisonous to plants of their own species, such prohibitions might be tolerated; but now that the action of the soil upon the plant is known, it would appear that prohibitions of cropping and compulsory rotations of crops are inexpedient. It is not taking too much out of the land that is to be avoided, but it is the putting plenty in that must be insisted upon; and if a farmer wishes he may grow Wheat or other crops every year upon the same field successively, as easily as he eats his dinner every day from the same plate. Formerly, when his only supply of manure was from his own farmyard, he could not; but now, if, as is nearly the case, his supply of food for plants is unbounded, he may grow what he likes, and as often as he likes.

So far as my experience has gone, my usual plan of growing Beetroot has been after a Wheat crop, that crop having been previously dressed with about 12 loads per acre of good farmyard manure, upon the young Clover layer, fed through the summer with sheep, consuming half a pound of linseed-cake each per day.

Should any manure remain after manuring the young Clovers in the autumn, and the other portion of land for Wheat not previously manured, it cannot be better applied at that season than for the root crop of the following spring, care being first taken, should there be present any appearance of Couch-grass, to employ a man and boy to fork and pick it off the land. If the land is clean, I rarely plough more than once for Mangels, and as early as I can after harvest, having the work performed soundly and well, varying from 5 to 8 inches deep, as the soil admits. I do not consider subsoil-ploughing is very advantageous for our common Beetroot, as I am inclined to believe that it receives its nutriment more from the surface than the soil. I usually apply in the spring, if I have manured with farmyard manure in the autumn, 2 cwt. of guano and 2 cwt. of salt per acre; if not, 3 to 4 cwt. of each, harrowing the land after with the duck-foot harrow twice over. I strike up the furrows with a double plough, and roll the land down after, the drill following with 8 lb. of seed per acre upon the flat, completing the operation with five rows on the 3-yard stetch at one time, the rows being 21 inches apart. As soon as the plants make their appearance, the land being in as fine a tilth as for Barley, I immediately make use of the horse-hoe, the young weeds being more easily destroyed than when allowed to make strong rootlets. When the plants are grown sufficiently large to set out, the sooner that operation is performed the better, care being taken to leave the single plants where convenient; but to realise a heavy crop a full plant is indispensable—from 100 to 120 plants to the rod. I have not gone into the full expense, as perhaps I ought to have done, to know the exact cost per acre, but I consider that to grow a good crop of Beet it would cost 9*l*., including rent, rates, tithes, insurance, manure, &c., and I think this will apply as well to the Sugar-Beet as to the other. I consider that the growth of Sugar-Beet is widely different to that of the common Beet, and I believe if we are to grow it successfully some arrangement must be made in the district for the use of a subsoil-plough. I have not the slightest doubt that it would give an increased weight of 10 tons per acre, if well and properly done. In attempting subsoil-ploughing, with one plough following another, the land gets very much stamped, and the season would not always permit this being done, although last year was a very favourable one. It is indispensable to get a good depth of tilth. I am not at all in a position to say which is the best manure to apply for Sugar-Beet, but I say with confidence that I never sowed guano that I did not reap benefit from it, and I stick to it in preference to any other manure because it has served me well. In the preparation for the Sugar-Beet, a good coat of farmyard manure is a good thing, and acts remarkably well; however much manure we use, there is no crop which repays it so well as the root crop. I usually mix salt with my guano for common Beet, but I am informed that it is very prejudicial to the production of sugar. This is a new thing to us, and in time we may find the very thing which is most suitable to the growth of Sugar-Beet.

But now there are several objections which have been raised to the growth of this Beet.

First there is that of the landlords, which I am extremely astonished at. To me, it is about the last objection in the world that could be raised, for I believe there are many landlords who are most desirous of promoting the welfare of their tenants, and who would do all they could for their benefit, and these could not be against the growth of Sugar-Beet. Then as to growing Sugar-Beet in preference to Beans and Peas. Here is the factory which Mr. Duncan has erected, and as people have now so ready a market for their Beet, surely they will grow it in preference to a crop which pays so badly as Beans and Peas. I know that during the ten years I have grown them on my farm I have not averaged six coombs per acre, whereas I can grow 20 tons of Beet. The only thing is to get the lands well prepared in the autumn. I never plough my land in the spring, for if I do, I never get a crop, while I never fail if I get my lands prepared in the autumn. We all know, too, that our land is left much cleaner from roots than from corn—that I am positive of; and I know from experience that I can grow better Wheat after Beet than after Beans and Peas. The best Wheat crop I ever grew in my life was grown after Beet, and if Wheat will do well after common Beet, it will after Sugar-Beet, and if you can get 30 tons per acre you can afford to put on a little dressing. I believe that if a landlord has a good tenant he will let him do as he likes in this, if he farms fairly; and it is to the interest of the tenant to keep his farm in good order, and not to worry his landlord with "I won't do this," or "I won't do that." I am convinced that as far as the value of the crops is concerned, Sugar-Beet will pay infinitely better than Beans or Peas. We have a certain market for the Beet. Mr. Duncan says he will give us 1*l*. a ton for it, and if I can't grow 30 tons this year I will try till I do. Some gentlemen who grew it last year had small crops, but there were smaller of other Beet, and no Turnips, and therefore I think it held its own as well as other roots. A gentleman present at our last meeting seemed to consider that the growth of Sugar-Beet was almost the wildest thing we could take in hand just then; he fancied that we were going to grow Sugar-Beet without making any return for it.

Last year I grew six acres, and sent them to Mr. Duncan, with the exception of three loads I reserved for seed, but I brought back 70 tons of pulp and Mangel tops, and I don't think that I have done my landlord any very great injury. I always, too, use guano for my root crops, and never a day passes the year through that I am not consuming oilcake for either sheep or bullocks. As to the pulp, the cattle are very fond of it. I was doubtful whether they would eat it or not, but I had three cows in the yard, and I told my man to try them with the pulp. The next day I was going through the yard, and I asked him how they ate it. He said he gave them 9 bushels, and they ate it all up. I told him that would not do, but it shows how fond they are of it. Sheep also like it, and I have consumed all mine, and should be thankful for some more. The only animals that objected to it were some 14 or 15 calves I had; everything else ate it remarkably well, and we may congratulate ourselves that there is something in return from the factory that is useful to us. When dried the pulp will keep for any length of time; it is like a biscuit, and apparently very nice for stock. I think a better arrangement might be made with regard to the trimming; the best might be trimmed on the farm. It does not make any difference to Mr. Duncan, and it does to us, having to cart them four miles or so. I have spoken to Mr. Duncan on the subject, and he says that he will fall in with any arrangement of that kind, and I shall adopt it another year. I shall grow 30 acres next year, and grow them as well as I can. I will now leave the subject in your hands, thanking you for the manner in which you have heard me.

Discussion.

Mr. Fish said he agreed with what Mr. Hawkins had said, and thought he had brought the subject before them in a very satisfactory manner. If Mr. Hawkins could grow 21 tons per acre without any special effort, and with such a year as the last had been, he certainly would grow 42 tons per acre with a good season. He thought they might double or treble their profits of last year. The weight of the roots should be from 3 to 4 lb. But what was the average weight of Mr. Hawkins' roots?—1½ lb. Well, let him double the weight of these roots; let each weigh 3 lb., and the thing was done at once. Was there any physical difficulty which prevented these roots growing to that size? He knew of none. Some people imagined that to grow this root to perfection sunny skies were required. There never was a greater fallacy. Some things would not lay up sugar in sunny skies at all. Take the Gooseberry, for instance. It was nowhere so sweet as in the north of Scotland; while in the south of England, where there was plenty of sunlight, it was sour instead of being sweet. Instead of having more sugar last season than they would have in an ordinary one, he believed they had had less. He would remind them of what Mr. Biddell had said at the last meeting, that Turnips were always sweeter in a wet season than in a dry one, and so it was; a dry season made them stringy. A good many of them looked blank when they were told that the roots must not weigh more than 4 lb., but many of them did not come up to a quarter of that, and the average of their roots was only about a pound. Now, would they tell him that they could not make that one pound into three? They might look with certainty for a minimum crop of 30 tons, instead of an average crop of 16 tons, which was what Mr. Biddell allowed, and which even then was the best crop they could grow—better than Wheat and Barley, while Beans and Peas were nowhere, and Mangel a dead loss on each acre. If they made their roots average 3 lb. they were safe for 30 tons per acre, and might go to 40 if they liked. Suppose Mr. Edgar—with whose crop he was very much deceived, for the tops were so big that the roots ought to have been bigger—had averaged 3 lb. weight for his roots; instead of having 14 tons, he would have had 42; Mr. Mumford, their Vice-President, who had told him that he intended to grow double, or even treble, as much this year as last, would have had 40 tons; and Mr. Hustler, who expected to get the cup, but did not, would have had 37 tons. He should like to know why Mr. Biddell, a gentleman whom he highly respected, and who knew a very great deal about farming matters, should tie them down to 16 tons per acre. Could they not grow four or six of these Sugar-Beet to one monster Mangel? Instead of being 30 inches apart, they might be 18 by 9, and four or five plants might be grown instead of one common Beet. If they only weighed 3 lb. each they might have as great a weight of Sugar-Beet as ever was grown of Mangel, for the Sugar-Beet was more easily grown. When Mr. Duncan came to them, having heard of their monster Mangels, he dwelt a good deal upon growing small roots, but he did not anticipate that they would only average 1 lb. each. Then, too, there was more sugar in the larger roots than in the very small ones. The general percentage of sugar in the roots sent from Lavenham was 9½ per cent., but in some of the larger roots it amounted to nearly 13 per cent. They knew that the largest per cent. (13) was obtained from a root grown at Barking, on sewage, the highest ever grown, while some of the large roots from Lavenham came to 12.5 and 12.8, and some of the smallest roots only averaged 5 per cent. With reference to cultivation, he thought the manure ought to be got on to the land as soon as possible in the autumn, as strong rank manure applied late in the spring would, he thought, be likely to injure the percentage of sugar, and if they had seen the analysis of Mr. Duncan they would see the importance of studying how best to develop the sugar. The first object must be, of course, to get as great a weight as possible, and next to get as large a percentage of sugar as possible, which would be to their interest, for if they could grow 15 cent. of sugar, it would answer Mr. Duncan's purpose to give them more than 1*l*. per ton. Suppose they grew Mangels; with these they fatted bullocks, and when they had fatted their bullocks, they took them down to Bury, and were proud of them, as well they might be, but what did they make of them? Just about the price of 1 acre of Sugar-Beet—30*l*. An acre of Sugar-Beet, too, only cost 9*l*., according to Mr. Hawkins; Mr. Biddell said it cost 10*l*. or 11*l*., but if they took it at 12*l*. then they had 18*l*. profit, or even if they put the cost at 15*l*. they netted another 15*l*. clear, and would anyone tell him that the bullock which they were so proud of—and which he was sure had eaten his head off before he left home—would bring them in anything like that? Looking at this, he himself had had serious thoughts of taking land and growing this Sugar-Beet, and if he could get 50 acres near to Lavenham he thought he should make his fortune. Their crops this year were not regular. They should have taken advantage of that shower which did come during the summer (he did not know exactly when), and have filled up the blanks, as Mr. Hawkins did. His crop was a perfect model of regularity, and this told when they came to weigh them. Mr. Hitchcock's came nearest to him. He quite agreed with what Mr. Hawkins had said about deep cultivation. He was quite surprised at the way in which farmers scratched the land; while they were so anxious to add a piece of land to their farms they neglected to dig down for it. A root must have fresh soil, and it mattered not a hair's-breadth whether it found it on the surface or went down for it. Every inch they went down they obtained an additional 100 tons per acre of soil for the plant. It was extraordinary how fleetly they ploughed, for as a rule no furrow exceeded 4 inches in depth.

Mr. Hitchcock: That is for Wheat.

Mr. Fish said not for Wheat alone, but for everything. Some farmers thought 6 or 8 inches a great depth. Let them turn up the soil gradually, increasing the depth, and they would at last get a grand tilth for their crops. If they gave the root from 12 to 18 inches of soil, it would go down of itself, and would require no earthing up. This was illustrated in the case of Mr. Edgar's roots, which buried themselves so that there was nothing to earth up. In conclusion he would remind them that the Beet must be buried in order to secrete sugar. The great chemical change which produced the sugar could not be carried on in the light.

Mr. Biddell said he was glad to see Mr. Fish there, for they often learnt a great deal from parties not personally interested in agriculture. Although endorsing all the principles which Mr. Hawkins had enunciated in his paper, he would ask how did he carry out his principle as to cultivation when he had only one ploughing for Beet? Mr. Hawkins had said, and Mr. Fish agreed with all his opinions, that the two kinds of roots—the common and the Sugar-Beet—were different. He did not know what their experience was, but if they had not had a good deal more experience than he (Mr. Biddell) and other Lavenham farmers had had, he thought it was a very bold assertion upon a very narrow basis to say that the two kinds of roots were so diametrically opposite. He did not see that the land was trodden much in subsoiling, for the horse walked before the machine, which broke it up after him. He met a Belgian gentleman a short time ago, and he told him that they could not reckon upon more than 16 or 20 tons on the average. Plants must have air, as well as room in the earth, and if they stood too thick they would not grow. If Mr. Fish's argument were carried out, he (Mr. Biddell) might expect a double crop if he put in 10 pecks of seed instead of five, and it might also be argued that Radishes would weigh more than Beet because they stood thicker. As to Mr. Hawkins, he thought he had his Beet too thick as it was, rather than too thin. They had had trials for growing Beet, and it was by no means an invariable rule that the thick plant won. As to the Gooseberry argument he thought that was a failure. He certainly had tasted some Aberdeen Gooseberries, and he never tasted better than in Scotland; but if they went into the gardens and tasted the Gooseberries that grew under the Apple trees in the shade were they not sour? As to Scotland having less sun than England, he differed from that opinion. The sun might not be so fierce, but they certainly had it more hours in the day. He was particularly careful in bringing his paper forward not to overstate the case. A great deal of harm was done by this, for people were choked with expectation at once. Manuring well in the autumn has been recommended, and he was not sure that that was not right as regarded the Beetroot, but he thought they lost the benefit of it afterwards, for the manure passed off with the water into the drains. He had seen the water come out of the drains in a very discoloured state, which he attributed to the manure. If Mr. Fish was so sanguine about the success of the Beet, he was not at all disinclined to let him have an acre of his land, and if he would give only one-fifth of his assumed profits he would accommodate him. He did not wish to diminish Mr. Hawkins' success; he was very pleased at it, but it was the result of a failure—he farmed for one thing and then put on another.

Mr. Hawkins said that was a mistake. He was going to put Peas on this piece of land, but as his Clover layer failed, he put his Peas there, and grew the Sugar-Beet on the piece which he had reserved for Peas.

Mr. Biddell said he had misunderstood him, but he cultivated for Peas and then grew Beet. It had been assumed that the plant would not find its way down unless the land were broken up. He (Mr. Biddell) had had drains stopped at a depth of 3 feet by Beetroot. He had tried subsoiling repeatedly, breaking the land up with a plough without a breast, and he had not seen the benefit of it yet.

Mr. Fish: How deep did you go?

Mr. Biddell said about a foot. His experience in subsoiling was that it did not answer. He was trying it again this year, and if it did not answer then he should be of opinion it would not answer anywhere. He should be glad to know whether Mr. Edgar found his Beet larger over the drains than elsewhere.

Mr. Edgar said the Beet went deepest at the sides of the furrows.

Mr. Biddell said he should have been inclined to agree with Mr. Fish as to thick planting, if he had not known that thick crops were not better than others; but he should try the plan. He certainly felt much obliged to Mr. Fish for coming to this meeting, for those who were not concerned in agriculture did not generally trouble themselves about it.

The Chairman, Mr. Hitchcock, said that mention had been made of Russia, but although Russia was very cold in winter it must be remembered they had very hot summers, and it also included a vast extent of territory, and a great variety of climate. A great bulk of their Linseed came from Russia, and they knew that a great deal also came from India. Mr. Duncan limited the Beet to 4 lb., but in Holland there was no limit at all, and the people at the factory took them all, though they did not like them heavy, as they did not contain so much saccharine matter as the lighter ones. Last year was an exceptional year, for they did not know whether they should grow Beet or not. He had lately met a farmer of 1000 acres who had more experience than many of them, for he grew a crop of Beet some years ago for a distillery, and said he was so satisfied with it that if he were within four miles of the factory he would grow 200 acres for Mr. Duncan. He also referred to the question of percentage, remarking that there was a difference between commercial and chemical analyses. It would only pay the merchant to get a certain quantity out, while the chemist got all the sugar out. He was talking to a large manufacturer, and he said that he was satisfied with 6 or 7 per cent. of sugar. They had a double purpose in growing these Beet; they wanted to grow as much as they could, and they wanted to keep their land as clean as possible, and this could be done best when they had a good distance between the plants. He did not think they ought to be closer than six on the stetch, as then they could clean the land easily. As to the quantity sent in to Mr. Duncan, he himself grew 11 acres,

and sent in 147 tons, and he thought when his were weighed he had 14½ tons to the acre, so that he came as near as most people. As regarded the transplanting, he was surprised that it answered, for generally it did not.

Mr. Fish said the Chairman was wrong in one particular, for the chemical analysis was exactly the same as the analysis at the factory, and they all knew how it was done. All the juice was got out that could be extracted, by immense pressure, and it was the same with the chemist. They took the temperature and the specific gravity, and the result was the same whether the chemist had an ounce or a bushel. Of course the Excise officers at the factory looked very sharp after the percentage of the sugar, or the Government would be mulcted of the duty. They must not throw discredit on these analyses, for they were made carefully. As to there being more sun in Scotland, he thought that was a mistake, for sometimes they were a month together without seeing the sun, it being obscured by mist. Although he had said he agreed with Mr. Hawkins, he only meant generally, and did not intend his remarks to apply to each particular point. He did not believe that the Sugar-Beet differed in its nature from the common Beet, or that it required different cultivation. The following was the number of plants to the acre grown by different gentlemen:—Mr. Hawkins, 32,000; Mr. Hitchcock, 36,000; Mr. Edgar, 34,000; Mr. Mumford, 22,000; and Mr. Hustler, 22,000. He did not advocate growing the plants closer, but would keep them as they are, and make them heavier. He thought they did not need to grow them thicker than 18 by 9. If he lived nearer to Mr. Biddell he would accept his offer, and would engage to grow 30 tons per acre.

Mr. Hawkins hoped this would not be the last time that Mr. Fish would be present at their meetings. As to the distance between the plants, he set his 21 inches apart. He quite agreed with Mr Hitchcock that six rows to the stetch were quite sufficient, and thought it would be better with only five. He was sure that in a good season he could grow 30 or 40 tons per acre, but he thought that the prizes at their shows should be competed for by acres and not by half-dozens. He thanked them for the kind hearing they had given him.

Votes of thanks to Mr. Hawkins and Mr. Fish concluded the meeting.—*Abridged from the "Bury Post."*

Reviews.

The Quarterly Journal of Science. No. XXII. April, 1869. Longmans, Green & Co.

We have again to remind our readers of this capital Quarterly Journal. Written, in its "chronicles," by students and labourers in the several departments of science, it presents an accurate periodical report of the progress of discovery; and in its preliminary essays and reviews, written generally in a more popular style, it gives for the non-professional reader occasional studies of whatever is of special interest at the time in the domains of general science. The present volume contains an exceedingly interesting picture of the natural history of the Malay Archipelago—a report on the projected tunnel under the Mersey at Birkenhead—an account (both historical and descriptive) of Vesuvius—a paper on the artificial production of ice and cold—a lecture by Mr. Huggins, the most active labourer in spectroscopic analysis, showing the wonderful results which we are obtaining from it—and a good paper on the water supply of London.

The following is the agricultural chronicle of the past quarter, extracted from its pages:—

"The past quarter has been full of agricultural interest. Thanks to the Chambers of Agriculture throughout the country, and their central representative in London, farmers are gradually acquiring that share in the conduct of public affairs which properly belongs to their wealth, their numbers, and their importance. As every addition to power and self-respect quickly shows itself in material results, it is proper that a social development of this kind be noticed here. And though for the present the movement bears rather a political than a practical aspect, yet we shall, no doubt, soon find technical and professional advancement marching in equal step with political and social progress.

"Turning now to the details of agricultural experience, we have to report that the severe drought of 1868, which resulted in the utter failure of the Turnip crop, the complete stoppage for several months of all Grass growth, and the provision of but a scanty crop of hay for winter use, has been followed by so mild and wet a winter that autumn-sown green crops (stubble Turnips, Rye, Rape, Mustard, and Italian Rye-grass) have done much to meet the difficulties which the stock-owner had anticipated. And the smaller consumption of succulent food, and the larger use of straw cut into chaff, and mixed with meal or cake for cattle and sheep (whether in a fatting or ordinary "store," or a breeding condition), have at once kept the live stock of the country in a more than usually healthy condition, and proved a useful lesson of economy for future seasons. An inquiry into the agricultural lessons of so unusual a season has shown that land drainage is serviceable even in a drought—both directly by deepening and enlarging the storehouse of vegetable resource on which plants can draw, and indirectly by enabling a deeper, earlier, and more thorough tillage, which hinders the cracking of the surface, and thus the searching influence of dry weather.

"It has also shown the advantage in farm practice of retaining for use seed-beds of plants, such as Cabbages, capable of transplanting as soon as rain comes, and thus of furnishing the earliest possible provision against a scarcity consequent on the failure of ordinary crops. It has shown, too, the great injury done to farmers, and to agriculture generally, by a rigid system of rules laid down in agreements between landlord and tenant. Those who felt at liberty, whether as to the subsequent cropping of the land in consequence of a failure of the young Clover plant, or as to immediate cropping to make up for a deficient Mangel and Turnip crop, to act as they thought best under the unusual circumstances, have been much better off than those who could do nothing out of the rule of rotation laid down to them without special licence from the owner or the agent.

"The dry weather was a great aid to those who are interested in the promotion of sewage farming.

"At the recent annual meeting of the Liverpool Sewage Utilisation Company, Mr. R. Neilson, the chairman, gave some information as to the satisfactory progress of the company's works. The original intention of laying the main line to the Crosby Sands was prevented by obstacles over which the company had no control. They had consequently arranged with Mr. Blundell, of Ince, for a lease of 40 acres of excellent land, on which to develop the system, and advantageously supply the sewage to a number of the tenants of that gentleman and of Lord Sefton, who were anxious to take it. Seven and a half miles had already been laid. The erection of the buildings of the pumping staton was completed, the boilers were in their places, and the principal portion of the engines were already finished. The connecting sewer had also been completed from the well to the point of junction with the main sewer which received the sewage from all the upper parts of Liverpool and Everton, as far as Edge Hill, being that portion of the town where water-closets had been most generally adopted, and which would give a comparatively inexhaustible supply.

"On Lodge Farm, situated near the market gardens around Barking, which were dried up and comparatively unproductive, enormous growths of Cabbages, Mangel Wurzel, and other succulent crops were obtained by three or four soakings with sewage in the course of the year; and unusual success also attended the use of sewage even for corn crops. A return of Potatos, grown with sewage, was obtained, equal to 50*l.* an acre: Cabbages, sold for 20*l.* an acre, and stubble Turnips, sold for 11*l.* an acre, were grown during the autumn months. Five and a half quarters of Wheat, taken after the Wheat crop of 1867, on poor gravelly soil, were obtained by the use of two dressings of sewage; and heavy crops of Rye and winter Oats were also grown. Around Salisbury, and in other water-meadow districts, the value of summer irrigation was seen, and farmers who owned any water-meadow had an immense advantage over their burned-up neighbours.

"As another feature of the season, we have to mention the successful commencement of the Sugar-Beet cultivation in this country. Analyses have proved that our Sugar-Beets of 1868 have contained 9 per cent. of sugar, which is rather more than those of Dutch growth; and roots grown with sewage at Lodge Farm yielded over 13 per cent. to Dr. Voelcker. Mr. Duncan's factory at Lavenham has begun work. Eight hundred tons have been grown for him by the Suffolk farmers; and contracts have been completed to supply 6000 tons next year; and there is every prospect of the industry being established at other points. At a recent meeting of the West Suffolk Chamber of Agriculture, Mr. Duncan said that the prospect of a satisfactory establishment of the beet-sugar manufacture in England now is greater than it has ever been, for in Cuba—which alone has hitherto supplied us with as much sugar as all the beet-sugar of the Continent—the abandonment of slavery is imminent; and this will, no doubt, so diminish supplies as very materially to raise the price. Moreover, the industry is not by any means an exhaustion of the soil. Sugar-beet does not exhaust the land, even so much as Mangel Wurzel growing. A small root, with a small percentage of ash, is desired; and as it is the ash alone which the plant takes from the soil, that will for the most part be returned to it in the compressed cake of pulp which is sent back from the factory to the farm.

"Turning now to another subject, we find from Dr. Voelcker's report to the English Agricultural Society, that 432 analyses of manures, and cattle food, made in 1868, indicate the general excellence of the superphosphates supplied to English farmers last year. Compound artificial manures, on the other hand, which are generally manufactured on a basis of spoiled guano, were inferior and dear. Sulphate of ammonia has increased in use for other purposes than those of English agriculture, and has thus risen enormously in value. The coprolite beds of Suffolk and Cambridgeshire are gradually becoming exhausted. Large quantities of Sombrero rock, and of the recently discovered phosphorite of the valley of the Lalm, in Nassau, have been imported.

"The immense demand for artificial foods has given a greater impetus to the adulteration of oilcakes. Among other newly introduced cattle foods is 'Nutritious cocoa extract.' 'Theobroma,' the generic name of the plant, signifying 'food for gods,' has long since proved an agreeable food for man, and it is quite possible that some of the coarser refuse part of the seeds from which the cocoa of the breakfast table is obtained may yield a wholesome food for beasts.

"Among the more important points in Dr. Voelcker's report is the scarcity of sulphate of ammonia. M. Ville, of Paris, has lately made known the fact that salts of ammonia are found in large quantities in some of the Tuscan lagoons. This fact had, indeed, been already fully investigated and published by M. Becchi, a distinguished Italian chemist and mineralogist, who in 1853 described a mineral known as 'Larderelliti,' named after the proprietor of the estate, and containing a considerable percentage of ammonia. A large block of this mineral, which is a borate of ammonia, was shown in the International Exhibition of 1862. Since then M. Becchi has continued his researches, and obtained by the recrystallisation of the residual salts left when some water from a lagoon at Travale was evaporated, a sample of ammoniacal mineral, containing no less than 80 per cent. of the pure salt. The announcement of such a fact as this is a very important point in the recent history of agriculture; and, though an Italian discovery, it will very soon tell upon English fertility.

"Coming home again, we have to report the activity of our local farmers' clubs, on whose operations, as well as on imported fertilisers, English fertility very materially hinges. The subjects of deep cultivation, steam culture, live stock management, dairy farming, the increase of home-meat production, the condition of the labourer, the serviceableness of benefit societies on his behalf, the best way of dealing with pauperism, the relations of railways and agriculture, have been thus discussed. And it is not only the strictly Agricultural Society which thus benefits the farmer. The Society of Arts has interested itself in, among other agricultural topics, the provision of contrivances for the safe transit of milk and meat by railway. And, in competition for its prizes, some 30 or 40 devices have been exhibited, more or less simple and efficient, out of which, probably, some improvement may arise in the present very imperfect arrangements by which so large a proportion of the food of the metropolis now reaches the consumer.

"From the annual returns of the Board of Trade, giving the agricultural statistics of the years 1867 and 1868, it appears that a considerable increase took place last year in the area under Wheat, and a diminution under all other grain crops. There was an increase in the area of the Potato crop, and a diminution under all other green crops. An increase in the number of cattle and sheep was returned, and a diminution in the number of pigs."

Farm Memoranda.

North Riding of Yorkshire.—During the month of March, and up to the second week of the present month, the weather generally was ungenial in the extreme, checking vegetation, and sickening the heart of the already depressed grazier with hope deferred. But on the 10th inst. we had a sudden remarkable change, from a midwinter to a midsummer temperature, which has changed the aspect of the country in the most magical manner; the frostbitten Wheat plant has sprung into active growth; the spring corn, hitherto inert in the soil, has germinated and in many instances shown aboveground; while the Grass fields have thrown off their russet brown, and assumed a cheering livery of green. The transformation has been complete, and a continuation of the present weather will convert into an early spring what every one anticipated 10 days ago would be a very backward season. Fortunate will it be to holders of stock if this result ensues. The few Turnips grown are, in the majority of cases, long since done. Hay is fast going into consumption, and most farmers are relying mainly on purchased foods to eke out their stores; and if the time for turning to pasture can be abridged by a week or 10 days, very considerable will be the saving both in hard cash and anxiety.

The Wheat plant, although backward, is, as a rule, sufficiently thick on the ground; and if we are now favoured with a dry season for a month or two, we should regard the prospect as hopeful. Although farmers have been delivering pretty freely, we should say there is yet a full average quantity usually on hand at this period of the year.

Farm work is well forward, in some few instances Barley is yet unsown, but not to any great extent. Ploughing the fallow land for roots has on many farms commenced, and on some Potatos are planted.

Fat cattle and sheep are numerically few, nevertheless our markets during the last fortnight have been less animated, which may be accounted for by the high rates checking consumption and also the large importation of foreign sheep. The lambing season is nearly over, the increase being a good average, and notwithstanding the untoward weather, fatalities have not been more than usual. Sheep, small weights, are worth in the wool about 10*d.*, and shorn 8*d.* per lb.; prime beef, 10*s.* per 14 lb. Store pigs are very scarce and dear.

Potatos have wintered well, and are selling very low, in many instances being used as cattle food. *W. J. M., April* 14.

Chrishall Grange.—The farm I now occupy consists of 850 acres, about 15 acres of which are Grass. The soil is on the chalk formation, which crops out on about half the farm; the rest consists of weak, light gravel and sandy soil, none of which requires draining. My sons' farms, which are adjoining mine—900 acres, 700 acres, another 700 acres, and 1000 acres respectively—are of the same description of soil, none of which requires draining. We are all advocates of deep ploughing; our first earth is with three horses, and ploughed from 10 to 12 inches deep. I myself do not believe it possible to cultivate too deep, if accompanied with high farming. By this plan I have increased the staple on one farm now held by my son from 3 and 4 inches to 10 and 12 inches, and the crops in the same ratio.

Steam cultivation we have only done on a small scale the last two years. Wheat was last year a full average crop on the chalk, barely average on sand and gravel. Barley has been a very light crop throughout the district, and Peas and Beans bad. But in regard to green crops I never knew them so bad. There are no early Turnips or Swedes—all our roots are grown since the rains after harvest, and I fear will scarcely have any bulbs.

We have ploughed up a large portion of our Wheat stubbles, which we were enabled to do, being as clean as possible. This land we have sown, some with Suttons' Six-weeks white Turnips for spring feed, some with Rape for ditto, and some with Mustard for feeding off this autumn; all with 3 cwt. root manure. We have also sown a large breadth of Rye and Tares for spring feed.

I fear our greatest calamity will be the failure of our next year's Clover, on some of which we have drilled Trifolium, and on some half a bushel of Trefoil, and over these Red Clover with Italian Rye-grass, and this has planted the best and is most likely to succeed, although I do not like it as a preparation for Wheat. I did not leave my old Clovers, so that what I have done will not interfere with my system, which is the four-course. I fear we shall have to plough up in the spring all our bad planted seed land and sow with Peas for a crop, and Tares for feed, the rest to be sown with

early Rape fed off again; the Rape being fed off for Wheat.

In addition to the preparation I have made by sowing Rape, Turnips and Mustard on my next year's fallows, I have the great satisfaction of having three barns, instead of being full of corn, filled with straw chaff well salted and fermented, which smells as sweet as hay. I believe I have the produce of straw cut into chaff of about 150 acres of Wheat, Oats, and Barley, and this enables me to use corn, cake, bran, and malt-combs or feeding to a much larger extent—and thus supply the manure lost by failure of root crops.

As to cattle in yards—with the prospect, through the folly of Parliament, of a repetition of that frightful plague, the cattle murrain, I had decided not to winter any this year; but I have been foolish enough to run the risk, and I am now feeding beasts in my boxes and yards by boiling the cake and meal, which I grind with my American mill. I have two coppers hung in my mixing place; we put the meal and cake-meal into these coppers, and boil them well, keeping the whole constantly well stirred. Near the coppers are two boarded bins, which are filled with my old chaff; the boiled mixture is poured on the chaff, which is well stirred over and well mixed up. The beasts are fed with it in a milk-warm state, and are doing well with it; they will not have a root to eat. Yet I shall thus be able to make them good fat beasts. Some neighbours of mine, until prevented by the Excise, germinated both Wheat and Barley, feeding both sheep and cattle on this undried malt, and in this state it may be given in unlimited quantity, and fatten at a far less cost than that of any other kind of food.

Much is said about the farmer's friend; surely, if such a class existed in Parliament, we should no longer be subject to such injustice and oppression as not to be permitted to use the produce of our farms in that state which alone will give us this advantage. Surely the Government will yet be induced to grant us the liberty of germinating corn for feeding purposes, which could be done without any loss to the revenue.—I consider the storing and fermenting straw chaff to be invaluable. I believe we do it in this locality to an extent unequalled elsewhere. It is done by us at little expense. Our engines are from 10 to 12-horse power: and by the aid of a rigger attached to our threshing machine, which drives one of Maynard's chaff-cutters, we cut the straw as fast as it is threshed. I can do this at from 4*d.* to 6*d.* per acre (see "Journal Royal Agricultural Society of England," vol. xxi. p. 172). It will this year be the salvation of our herds and flocks. *Mr. S. Jonas in the "Journal of the Royal Agricultural Society of England."*

The Poultry Yard.

It was pleasing and satisfactory to see last Saturday that "Grey Dorking," with an *amour propre* that would strike us as very proper, couches a bold lance, and shouts defiance to French poultry. We think he must be an especially favoured man, for to few does it fall in this, our happy island, to feed on eatable and delicate poultry from January to December. It was either an epicure or philosopher, perhaps he played both characters, who said that "Heaven sent the eatables, but that the devil found the cooks." It is undoubtedly true that a bad cook may spoil a good fowl, but it is an open question whether a good cook can render good and tender a bad fowl. Under all circumstances it is grand and philosophical to make the best of everything, and as in spite of "Grey Dorking," and other opinions, the majority of the votes of poultry eaters would be given in favour of the French birds, let us offer a few suggestions which may assist in making some of our English ones of better quality. In ordinary country life when poultry is, or rather should be, a portion of the stock, regular fatting should be unnecessary. Young fowls, well fed and at liberty, should be in sufficiently good condition to be caught for table at any time. When caught up they should not be killed immediately, but carefully put in a coop or hamper large enough to admit of their standing up comfortably. In this they should be left some few hours to give them the opportunity of digesting the food and passing it from crop to gizzard. This is very necessary, as if killed with a crop full of food the fowl will not keep. The cleanest and best mode of killing is by breaking the neck where it joins the head, and in this, it must be remembered, more knack is required than strength. The feet and tips of the wings should be gathered into the left hand, the head taken between the first and second fingers of the right, and the thumb placed under the lower mandible. The left hand, with the extremities, the killer keeps on his chest, the right he draws down over his right thigh, and when the fowl is extended to its full length, by a sudden jerk of the right wrist, turning the head of the fowl back, the spine is separated from the skull; the separation should be sufficiently to enable the thumb and finger to meet, if this be not done the blood remains in the breast, and spoils the fillet. As soon as dead the fowl should be picked quite clean, and laid breast downwards on a shelf, tail to the wall, head and neck hanging down. It is a good plan to kill all poultry in the cool of the evening, then it has the night to set and stiffen in. The next morning the fowl should be turned over on its back, and there be left until wanted for consumption. If young and fleshy, it should be fit to eat two days after death; but if old, it requires keeping; or if it be a pullet about to lay, she should be kept some days.

Where it is intended to fatten the fowls for table without feeding all the birds alike, confinement is necessary, if but one yard be kept; but if those destined for consumption can have a yard or court to themselves, then they may be fed on barley meal or oat-meal, fortified with milk, dripping, or pot liquor, as may be expedient or convenient. In fattening fowls it must be borne in mind that the food should never be left with them, but taken away as soon as they seem satisfied.

(To be Continued.)

Miscellaneous.

Mischief Caused by Game Tenants.—A gentleman took a small farm in Yorkshire last spring, the sporting over which had been reserved and let to a third person. His predecessor was entitled to 39 acres of the arable land as his go-away crop. Out of that the corn on 13 acres was completely consumed by hares and rabbits—not a sheaf reaped at harvest, while the remainder was of course very much damaged. Again, I can give an instance similar in some points to "Land Agent," of a house and shooting let to gentleman who did his best to make his rent out of the game, which fed upon the other tenants' crops. I certainly cannot understand, notwithstanding the perfect right he has to do so, the pleasure which a man with proper feelings finds in injuring others for the sake of a little amusement. I can only excuse him on the ground that he is ignorant of the fact of the mischief he is causing. In this case between three and four hundred pounds worth of game, chiefly rabbits, were sold in one year. The result is the landlord is unpopular, because the tenants feel themselves ill cared for, and their friends share that feeling. Well, now to pursue this. Suppose the tenants make claim for damage. They are referred to their leases, and possibly told that the game tenant promised not to injure their crops, and the landlord is sorry that he has, or that the remedy is against him. A tenant may bring an action for damage by rabbits. Can he sustain it? It was but the other day that a County Court judge ruled that rabbits were wild animals, and could not be restrained, and the farmer who brought an action against the game tenant of his farm for damage done to his best piece of Wheat and Barley, the crop on which was utterly destroyed, lost it on that ground. Yet that farmer was restricted from killing the rabbits, and had sent notice to the defendants (the game tenants) of the damage being done, and at the same time requesting that they would kill them or permit him to do so, of which no notice was taken. Now was such a state of things to be tolerated? Fancy this position—restrained from using means for self-defence, yet his crops destroyed, himself and family partly if not entirely ruined, and when seeking his remedy is told, "Rabbits are wild animals, and cannot be restrained." The only solace afforded him, and a very poor one it is, is this: his Honour said, "I think any landlord who permits game to be preserved to the grievous injury of the tenant, as in this case, is guilty of an act of dishonesty." And this County Court judge is not the only gentleman who has thought so. I know that that opinion was shared by a landowner, now no more, one whose opinion was much respected, who was a great politician, an ardent agriculturist, and for some years a game preserver. He took great interest in farming, he had his own crops eaten by game, he saw the mischief it caused, and he said, "It is not honest in me to let my farms and allow my tenants' crops to be spoiled, and feeling convinced of that, I at once give up game preserving." I only wish that all landowners had the same experience he had, and formed the same conclusions. *Mr. Edmonds before the Cirencester Farmers' Club.*

London Sewage and the Culture of the Silesian Beet.—In a letter published some weeks since in the *Times*, from Mr. Caird, he refers to Silesian Beet, grown near Barking, on land watered with London sewage, which on analysis by Professor Voelcker contained 13 per cent. of crystallisable sugar. I fully believed that the crystallisable sugar was in the root, but I doubted whether the quantity of ammoniacal salts contained in the sewage would not have rendered the extraction of the sugar difficult. I feared the same result as we have experienced with guano—viz., that the roots would produce more molasses than sugar, from the subdivision of the crystals of sugar by the crystals of ammonia and other salts. Before making up my mind that there was a new and profitable employment for sewage in the growth of Sugar-Beet, and the manufacture of sugar at the smallest possible expense, I obtained an analysis of the sewage from Mr. Hope, which showed 8·2 grains of ammonia in a gallon; this being the result of repeated analyses of different samples of sewage water. I then wrote to M. Leplay, who is certainly the most learned chemist on the question of beet-sugar, and who has been for many years a great manufacturer, asking his candid opinion. The following is a translation of his reply:—

"The quantity of ammonia contained in your London sewage cannot be injurious to the richness in sugar of the Beetroot. The ammonia is transformed during the vegetation of the plant, and is found in a very small quantity in the root, and this little is removed in the common process of manufacture of sugar. The principal requirement in the cultivation of Beetroot for sugar manufacture is that, notwithstanding the amount of sewage employed, the roots do not exceed 2 kilogrammes (4½lb.) in weight. To obtain this result, even when a maximum of any manure is employed, it is only necessary to grow the roots sufficiently near together in and between the rows. I repeat that the small quantity of ammonia which is found in sewage is not injurious, even when the sewage is employed in excess, provided you cease watering with it before the Beetroot ripens—that is to say, you must cease watering about the 15th of August; for, you know, with us the Beetroot is generally ripe, and the leaves begin to turn yellow, towards the end of September."

M. Leplay, in a second letter, to which I shall probably refer later, makes some observations on molasses from Beetroot. At present 60 to 70 per cent. of the whole amount of crystallisable sugar actually in the Beetroot becomes crystallised, or sugar; the rest, 30 to 40 per cent., remains in the form of molasses. It appears great success has been obtained by some new process, by which 20 to 25 per cent. more crystallised sugar is obtained. If this new process once becomes general, I do not know what will become of the West India planters. Already in France heavy duties are charged on Beetroot sugar, to enable the French colonial sugar growers to exist. I think it will not be long before Cotton will replace the Cane in the West Indies. Now the question of sewage is so prominently before the public, this discovery which Mr. Caird signalised, of the value of sewage applied to the growth of Sugar-Beet, seems to me of such importance that we can scarcely give it sufficient publicity; I therefore trust you will give my letter a space in your columns. *B., in the "Field."*

Agricultural Statistics.—The Commissioners of Inland Revenue in their 12th report, which has been printed, state with reference to the "agricultural crops and live stock returns," that their officers are exposed to much insult and annoyance in collecting these statistics. This is hardly to be wondered at, for we read that the time selected for pursuing their investigations is when the farmers are for the most part engaged in the hay harvest, and are "very irritable when called upon by a Government officer to leave their occupation for the purpose of detailing to him the particulars of their holdings." Would not the Somerset House officials be rather irritable if in the busiest hour of the day they were called from their rooms to answer the questions of an inquisitive country gentleman? Under the circumstances it is probable that the Commissioners are correct in supposing that the "results of their officers' investigations can scarcely be of much value." *Pall Mall Gazette.*

Wheat Cultivation in East Lothian.—The following is an abridged report of the discussion which followed Mr. Shirreff's paper on this subject, published here:—

Mr. Douglas, Athelstaneford, thought Mr. Shirreff had read a most instructive paper on the cultivation of Wheat, which was the mainstay of the agriculture of East Lothian, where the best Wheat was admittedly grown. He approved of Mr. Shirreff's suggestion as to the great advantage of good cultivation, and the proper preparation of the seed-bed. The plant was thereby better enabled to withstand the winter frost, and consequently a better sample was grown with less grey or inferior grain. Drill husbandry was most important, as it was essential to have the weeds killed, besides the advantage derived by the Wheat from the stirring of the soil. Horse-hoes were now constructed, which accelerated the labour of hoeing. He approved of the broadcast sowing-machine as a most desirable implement for sowing the seed regularly as well as for grass-seed sowing. —Mr. Elder, Bearford, held that the Browick, or Red Wheat, was the best for this country. The fine white varieties were all very well in favourable seasons; but the red would stand rains or storms when the others would fail. —Mr. Mill, Luggate, agreed that as to varieties every farmer was the best judge of what suited his own circumstances. He thought they should to a greater extent adopt the system of buying their seed from England. He had been in the habit of doing so for 10 years, and found that for two or three years he had gained a larger produce to the extent of two or three bolls per acre. The advantage decreased the fourth year, after which he again went to England for seed. Of the red varieties he preferred the Browick, which was a good cropper, and sold from 2*s.* to 3*s.* above the others. The best time for sowing was, in his own case, between the 1st of October and the end of November; but, as the Chairman said, a good "tid" was everything.—Mr. Harvey, Whittingham, agreed and disagreed with a good deal of what had been said. One year's test he held to be nothing in connection with the cultivation of Wheat or any other crop; and as to the kind of Wheat sown, he thought that was not so important as management—the taking advantage of the time and capabilities of the soil. He referred to an experiment made by two farmers in East Lothian and Ayrshire some years ago as to the cultivation of Wheat over a succession of three years. Any kind of Wheat was used, and Ayrshire had beat East Lothian all to sticks as to quantity. The greatest discrepancy occurred in the results; but the largest yield was got by Mr. Thomson, Kilmarnock, who in one field obtained a produce of about 23 bolls per Scotch acre. It was grand Wheat, and up to the present time he had seen nothing to beat it. Mr. Shirreff talked about compressing, but the land here was too gross to think of that, and in place of a roller being used to compress it, he had had to put on a Norwegian harrow to break it up. He had seen good Wheat crops sown from the end of September to the end of January; and as to varieties, while paying a high compliment to Mr. Patrick Shirreff for his labours in this respect, he confessed himself to be a disciple of the old school, and adhered to Hunter's, which he found suited him best over a number of years. On the whole, Wheat was so liable to casualties of all kinds, that he considered the best school in which to study its cultivation was that of individual practical experience.—Mr. Skirving said that Mr. Shirreff, in speaking as to whether ploughing or grubbing was the best preparation for Wheat, told them every man should be satisfied which was the best for his own farm. Now he (Mr. Skirving) had made several experiments on this point. He had been told that if he continued grubbing it would be the means of increasing weeds; but, as far as he could see, grubbing was a very good mode of cultivating the land. Last year he had half ploughed and half grubbed two fields, and he rather thought the advantage in both cases was with the grubbing, while there was certainly no increase of weeds. Even allowing the result as to produce to have been equal, the grubber had the advantage, because it was the cheapest. There was another subject connected with Wheat, which was as important as the time of sowing, and that was the time of reaping. In reviewing a work on agriculture by a Roman author some years ago, he (Mr. S.) had said the old Roman must be wrong when he advocated the cutting of Wheat before it was ripe. From all he could learn, he thought the old Roman was right, and he (Mr. S.) was wrong, because he was convinced that the loss from shake to ripe Wheat in this country far more than counterbalanced any advantage of plumpness in the grain. As to the use of the grubber, he would like to ask Mr. Swinton if the Marquis of Tweeddale, one of the best agriculturists in the county, who some years ago banished the grubber from his estate, still disliked the implement as much as he did, or if he grubbed for Wheat either before or after harvest. As to the kinds, he agreed very much with Mr. Harvey. They heard a great deal about new varieties, but in a few years the names were changed, and the old Fenton's and Hunter's remain when the others had passed away. Mr. Mill had advocated buying seed from the south. He had tried this system, but his experience was that the English Wheat degenerated very rapidly, and that the large produce only lasted the first year. —Mr. Swinton: In answer to Mr. Skirving's question about grubbers, I may say, in the first place, that as the Marquis of Tweeddale sows no Wheat, he does not grub for it. He does not grub after harvest. He ploughs, and ploughs deep after harvest, and harrows before sowing Turnips. —Mr. P. Shirreff, in briefly summing up the discussion, admitted with Mr. Harvey, that one year's experiencewas,

generally speaking, of little value; but, at the same time, if there had ever been a year in the world's history to test the full productive capabilities of Wheat, it was the year 1868. Mr. Mill had only corroborated opinions which he (Mr. S.) had expressed elsewhere as to the benefit of occasionally going to the south for seed. Fenton Wheat throve in the south—it acquired a new productive power—when it would not do at home. On the whole subject, while it was no doubt true that every man should be guided very much by his own circumstances, yet in the matter of Wheat cultivation they might derive some profit by looking kindly on the experiments and experiences of their neighbours.

Calendar of Operations.

APRIL.—*Hemp* may be sown towards the close of the month on rich fertile land. Poor soils are not adapted for it. Less Hemp and Flax are now sown than formerly, but of recent years there has been an increased breadth grown in places where there is a market and consumption for it. If grown after a white corn crop, the land is fallowed and manured in autumn as for Carrots. But the crop is not only a smothering one, but obnoxious to weeds, and ought never to be sown on land requiring hoeing; it is therefore generally sown broadcast, with from two to three bushels of seed per acre, and lightly covered with Grass seed-harrows. If sown after a fallow crop, as Turnips, the land may be sufficiently rich to permit of its being sown as Barley, but generally the crop will pay for a liberal dose of rape-cake and superphosphate. On the Continent special liquid manures are invariably applied as manuring for Flax.

Burnet may be sown on poor calcareous Clover-sick soils along with Chicory for sheep pasturage, where it grows naturally; 6 to 7 lb. of seed per acre will suffice for a mixture with an equal quantity of Chicory. When grown as a crop, from 25 to 30 lb. of seed per acre is sown.

Lupine is another plant which may be sown this month in poor sandy soils, also peaty and feny soils. Two bushels of seed are drilled in on the flat, about 16 inches apart, the land being immediately rolled. Before sowing the land should be deeply smashed up, as the plant requires a deep friable soil. Much of the success of its culture depends upon this peculiar state of the staple.

Lucerne is best adapted for the rich but dry calcareous soils of the southern counties. The land should be well fallowed and manured in autumn, smashed up and harrowed fine at this season, and then drilled with from 12 lb. to 16 lb. of seed per acre, the drills not more than 9 inches apart. If the land is infested with Couch, it should be carefully picked both before and after sowing, the growth of Grasses being very obnoxious to the crop.

Seed Threshing.—Farmers who grow their own seed corn, Grass seeds, and Turnip seeds, thresh out as they require them—newly threshed seed of every kind being the best. Grass seeds and Turnip seeds are generally threshed out about the commencement of the month. Rye-grass requires to be carefully sifted, in order to remove the seeds of weeds. Most farmers have machines for dressing the different kinds of seeds, but they should not be wholly trusted to. Turnip seeds often do not ripen and fill equally, while the large seeds are liable to be eaten into by insects. These latter, and the improperly ripened seeds, should both be dressed out, so as to get a uniform sample for sowing.

Change of Seed may take place shortly before the period of sowing, but the agreement between farmers to make the change is generally made beforehand.

Seed Orders and Deliveries.—The latter generally take place shortly before sowing, but the former some time previous. Thus the Grass seeds, Mangels, and Turnip seeds are frequently ordered at the summer and autumn agricultural meetings of the previous year, to be delivered and paid for in March, April, and May. Too many never give their orders until March, or perhaps when they require to sow; but the impropriety of such a course need not be pointed out to those versant with the seed trade. Bought seeds in March and April require to be carefully examined, and a small sample from the stock sown in a flower-pot to see how it vegetates. Some farmers never sow in the field a bushel or pound of seed of any kind, home-grown, exchanged, or purchased, without first having tried whether it will grow or no, and upon the result depends the quantity of seed they sow per acre.

Stifle-burning is also done this month, for the two-fold purpose of getting rid of an excess of vegetable matter in peaty soils, and of producing certain chemical and mechanical changes in clayey soils. The former process is similar to paring and burning—the only difference being that a shallow plough furrow is burned at so much for the ashes, the work being done at from 2*s.* to 2*s.* 6*d.* per cubic yard. In this way shallow peat incumbent on clay has been burned down until the staple has become mixed with the subsoil, thus forming a valuable loam. In the case of clay, the object is sometimes to get rid of live vegetable matter, as Black Twitch, as well as to change the mineral character of the staple. Thus the land is ribbed in autumn and ploughed up shallow in spring across, purposely to get it into a cloddy state, not too large for paring. In this manner 4000 bushels of ashes may be burned at a cost of from 12*s.* to 25*s.* up to 40*s.* per acre, including the spreading, forming a fine preparation for roots and subsequent crops. In other cases the clay is dug and burned in large heaps by means of coal or faggots at about 6*d.* per cubic yard of burned ashes, or 9*d.* to 1*s.* 3*d.* per cubic yard, including burning, filling, carting, spreading, and fuel; so that 100 cubic yards per acre costs about 75*s.* to 125*s.*, and in return the increase of the first crop nearly covers the whole expense. *W. B.*

Notices to Correspondents.

SOLUBLE PHOSPHATE: *J W P.* We have procured the letter referred to, but the process is far from being as simple and easy as represented. We shall be able, however, to give the subject more attention next week.

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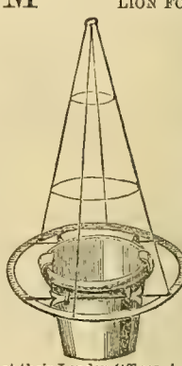
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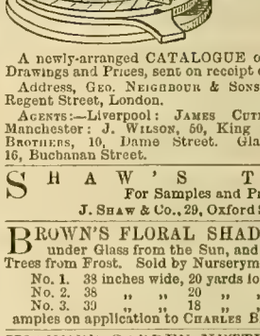
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NEIGHBOURS' IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR AND SONS, working three bell-glasses; is neatly and strongly made of straw; it has three windows in the lower hive.



This Hive will be found to possess many practical advantages, and is more easy of management than any other Bee-Hive that has been introduced.

Price, complete ..£1 15 0
Stand for ditto .. 0 10 0

THE LIGURIAN or ITALIAN ALP BEE being much in repute, G. N. & SONS supply colonies of Bees with genuine Italian Queens (which will shortly have wholly yellow Italian Alp Bees) at £3 3*s.* each.

An Italian Alp Queen, with full directions for uniting to Black Stocks, £1 each.

ENGLISH BEES.—Stocks and Swarms may be obtained as heretofore.

A newly-arranged CATALOGUE of other Improved Hives, with Drawings and Prices, sent on receipt of two stamps.

Address, GEO. NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London.

AGENTS:—Liverpool: JAMES CUTHBERT, 12, Clayton Square. Manchester: J. WILSON, 50, King Street. Dublin: EDMONSTON BROTHERS, 10, Dame Street. Glasgow: AUSTIN & MCASLAN, 16, Buchanan Street.

SHAW'S TIFFANY.
For Samples and Prices apply to
J. Shaw & Co., 29, Oxford Street, Manchester.

BROWN'S FLORAL SHADING, for Shading Plants under Glass from the Sun, and protecting the Bloom of Wall Trees from Frost. Sold by Nurserymen and Seedsmen.

No. 1.	38 inches wide, 20 yards long, at	4*s.* 6*d.*	per piece.
No. 2.	38 " "	20 " "	4*s.* 10*d.* per piece.
No. 3.	39 " "	18 " "	7*s.* extra stout.

amples on application to CHARLES BROWN, Greenheys, Manchester.

TANNED GARDEN NETTING, for Preserving Seed Beds, Fruit, Strawberries, from Frost, Blight, Birds, &c., and as a Fence for Fowls, &c. One yard wide, 1½*d.*; two yards, 3*d.*; three yards, 4½*d.*; and four yards 6*d.* per yard in any quantity. May be had of CHAS. WRIGHT & Co., William Street, Newark-on-Trent, or their Agents, Messrs. HOOPER & Co., Covent Garden Market, London, W.C.

NEW GARDEN NETS for the protection of Fruit Trees from Blight, Birds, &c. TIFFANY, 3½*d.* per yard; a good Second-hand GARDEN NET, 2 yards wide, 14*s.*, 4 yards, 28*s.*, the 100 yards run; RABBIT PURSE NETS, 7*s.* per dozen. FISHING NETS of every description, TENTS, MARQUEES, and RICK CLOTHS.

J. ALLEN & SON, Manufacturers, 11, Seymour Street, Euston Square, London, N.W.

NETTING for FRUIT TEEES, SEED BEDS, RIPE STRAWBERRIES, &c.—TANNED NETTING for Protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3*d.* per yard, or 100 yards, 20*s.*; 4 yards wide, 6*d.* per yard, or 50 yards, 20*s.* NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls: 2 yards wide, 6*d.* per yard; 4 yards wide, 1*s.* per yard; 2-inch mesh, 4 yards wide, 1*s.* 6*d.* per yard. Can be had in any quantity of
EATON & DELLER, 6 and 7, Crooked Lane, London Bridge, E.C.

GARDEN NETTING (at Reduced Price), for the Protection of newly-sown Seeds from Frost, Blight, and Birds; also as a Fence for Poultry, Rabbits, and Sheep, 1*d.* per square yard, carriage free, in quantities of 250, 500, or 1000 yards.
SCRIM CANVAS, for Wall Fruit, Greenhouse Shades, Tulip Covers
HAYTHORN'S and WALLER'S NETTINGS, sample of material free on application.
PERUVIAN GUANO, and every other kind of ARTIFICIAL MANURE in Stock. Be particular.
FREDERICK EDGINGTON & Co., Marquee, Tent, Flag, and Rick Cloth Manufacturers, 60 and 62, Old Kent Road, London, S.E.
SECOND-HAND TENTS from ABYSSINIA, Cheap.

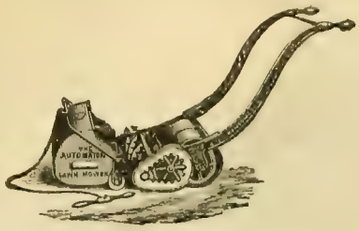
DESCRIPTION.

THE "AUTOMATONS"

Are guaranteed to perform their work perfectly, and if not approved may be returned within a month. They are *easy to work, light in draught, almost noiseless;* and being driven by machine-made gearing *are not liable to get out of order.*

Illustrated Lists and Testimonials sent post free.

THE "AUTOMATON"



LAWN MOWER.

2400 Sold since 1867.

PRICES.

THE "AUTOMATONS."

10 inch	£3 10 0
12 inch	4 10 0
14 inch	5 10 0
16 inch	6 10 0
18 inch	7 10 0
20 inch	8 0 0

GARDEN ROLLERS.

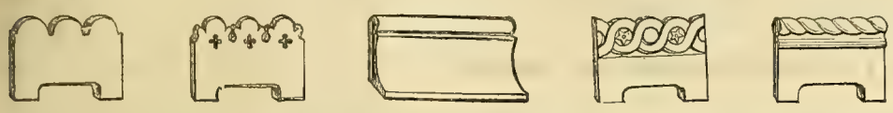
16 inch	£1 15 0
18 inch	2 0 0
20 inch	2 10 0
22 inch	3 0 0
24 inch	3 10 0

Delivered Free to all the principal Stations in England.

RANSOMES, SIMS, AND HEAD, ORWELL WORKS, IPSWICH.

H. DOULTON & CO.'S GARDEN EDGING TILES

1. 2. 3. 4. 5.



THESE TILES ARE MANUFACTURED IN

VITRIFIED STONE-WARE AND IN TERRA-COTTA OF THE BEST MATERIAL,

WHICH IS BURNT TO AN EXTRA DEGREE OF HARDNESS,

AND WARRANTED IMPERISHABLE.

They will be found to be far preferable to Box and other Edgings, as they require no attention when once fixed, take up less room, and do not harbour Slugs, &c.

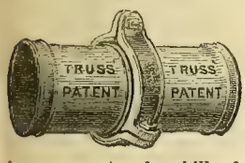
PRICE LISTS of the above, and also of TERRA-COTTA GARDEN VASES, FOUNTAINS, PENDANTS, FLOWER-POTS, FERN-CASES, &c., &c, may be had on application to

DOULTON AND CO., HIGH STREET, LAMBETH, S.E.

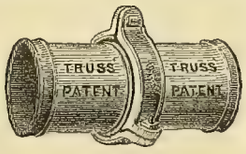
PORTABLE AND FIXED HOT-WATER APPARATUS,

FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH

TRUSS'S PATENT UNIVERSAL FLEXIBLE AND LEAKLESS PIPE-JOINTS.



T. S. TRUSS



Begs to state that the immense number of APPARATUS annually Designed and Erected by him in all parts of the kingdom, and for the ROYAL HORTICULTURAL SOCIETY at SOUTH KENSINGTON and CHISWICK, with unrivalled satisfaction, is a guarantee for skill of design, superior materials, and good workmanship; while the great advantagse obtained by his IMPROVED SYSTEM cannot be over-estimated, consisting of perfectly tight joints with neatness of appearance; EFFECTS A SAVING OF 25 PER CENT. on cost of Apparatus erected compared with other systems; facility for extensions, alterations or removals without injury to Pipes or Joints; can be erected by any Gardener; an ordinary size Apparatus erected in one day; and PERFECTNESS of DESIGN SUPPLIED, INSURING NO EXTRAS. Complete Apparatus, of the best materials, delivered to any Railway Station in England, and Erected at the following prices. Erection beyond 25 miles of London, railway fare for one man additional. Considerable reduction on large works.

TWO FOUR-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
20 feet by 10 feet ..	£9 0 0 ..	£2 0 0	50 feet by 15 feet ..	£17 10 0 ..	£3 0 0
30 feet by 12 feet ..	11 15 0 ..	2 10 0	75 feet by 15 feet ..	20 0 0 ..	3 0 0
40 feet by 15 feet ..	15 0 0 ..	2 15 0	100 feet by 15 feet ..	26 0 0 ..	3 5 0

Bath and Gas Work erected in town or country. **The Trade Supplied.**

Price Lists, Plans, and Estimates forwarded on application to

T. S. TRUSS, C.E., CONSULTING HORTICULTURAL ENGINEER, &c., SOLE MANUFACTURER, IRON MERCHANT, HOT-WATER APPARATUS MANUFACTURER, AND HORTICULTURAL BUILDER,

FRIAR STREET, BLACKFRIARS ROAD, LONDON, S.E.

GARTON AND KING, IRONFOUNDERS, HOT-WATER ENGINEERS, &c., Exeter.

CONSERVATORIES, GREENHOUSES, VINERIES, PINE-PITS, &c., HEATED by IMPROVED HOT-WATER APPARATUS, and G. & K.'s powerful and economical Boilers.

G. & K. refer with confidence to their lengthened experience and extensive practice in Heating by Hot-water Circulation.

Estimates and Plans furnished on application.

Heating by Hot Water.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, S.E.

	2-inch.	3-inch.	4-inch.
HOT-WATER PIPES, from stock—p. yard	1s. 0d.	1s. 6d.	2s. 0d.
ELBOWS for ditto .. .. .. each	1 6	2 3	2 9
TEES .. .. „	2 3	3 6	4 6
SYPHONS .. .. „	2 3	3 6	4 6
THROTTLE VALVES .. .. „	10 0	11 6	13 0

Cash remittance with order.

N.B. All Goods of first-class manufacture. No second quality kept.

Estimates given, and orders punctually attended to the same day.

HOT-WATER PIPES.

CASH PRICES.

	2-inch.	3-inch.	4-inch.
PIPES .. .. .. per yard	1s. 0d.	1s. 6d.	2s. 0d.
ELBOWS .. .. each	1 6	2 3	3 0
TEES .. .. „	2 6	3 6	4 6
SYPHONS .. .. „	2 6	3 6	4 6
VALVES .. .. „	10 0	11 6	13 0

No credit will be given when Pipes, &c., are invoiced at the above prices.

J. JONES AND SONS,

6, Bankside, Southwark, London, S.E.

Price Lists, with terms for credit and for delivery at country stations, will be sent on application.

HOT-WATER PIPES, BOILERS, &c., &c., delivered in London, Liverpool, Bristol, or equivalent.

Large stock kept at the Works.

	2-inch.	3-inch.	3½-inch.	4-inch.
	s. d.	s. d.	s. d.	s. d.
HOT-WATER PIPES—per yard	0 11	1 5	1 8½	1 11
ELBOWS .. .. .. each	1 4	2 1	2 6	2 9
TEES .. .. .. „	2 0	3 0	3 6	4 0
SYPHONS .. .. .. „	1 9	3 0	3 6	4 0
VALVES .. .. .. „	10 0	11 6	12 0	13 0

Nett cash prices on receipt of invoice.

GEORGE ROBINSON, The Dial Iron Works, Stourbridge; and Paddington Basin, 16 Wharf, three minutes' walk from Bishop's Road and Paddington Stations.

Estimates and Priced Credit Lists, with terms, by post.

W. H. LASCELLES' MACHINE-MADE MELON LIGHTS.



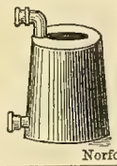
	Each.
6 ft. by 4 ft. Lights, 2 ins. thick, unglazed	£0 5 0
„ „ Primed and Glazed with 10 oz. Sheet	0 11 0
„ „ with stout Portable Box, not Painted..	1 3 0
„ „ Painted four coats, and Handles on	1 8 0
„ „ Packed and Delivered in Railway Van..	1 10 0
6 ft. by 8 ft., Double Lights, do.	2 15 0

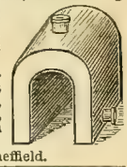
GREENHOUSES.

	Per ft. super.
Woodwork only Prepared and Fitted	0 0 6
„ Primed and Glazed with 16 oz. Sheet ..	0 0 9
„ Delivered, and Fixed with Ironwork ..	0 1 0
„ Painted four coats, two sides, ready for use	0 1 3

Finsbury Steam Joinery Works, 121, Bunhill Row, E.C.

J. C. AND J. S. ELLIS, HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, for Heating Greenhouses, Conservatories, Hothouses, Churches, Public Buildings, Private Residences, &c. Plans and estimates sent on application.





General Ironfounders, Manufacturers of Iron Roofs, Wrought and Cast Iron Cisterns and Tanks, Water Rams, Stable Fittings, and every description of Iron Work.

Norfolk Foundry, Doctor's Fields, Sheffield.

HOT-WATER APPARATUS

Erected Complete, or the Materials Supplied for Heating GREENHOUSES, HOTHOUSES, CONSERVATORIES, CHURCHES, PUBLIC BUILDINGS, &c.

Peill's Conical.



Tubular Boiler.



HOT-WATER PIPES at wholesale prices, Elbows, T Pieces, Syphons, and every other connection kept in stock.

WROUGHT and CAST IRON CONICAL, SADDLE, and IMPROVED PEILL'S and ELLIPTIC BOILERS, from 24s. each.

IMPROVED and EXTRA STRONG CAST IRON TUBULAR BOILERS, with or without Water Bars, from 52s. 6d. each.

CAST and WROUGHT IRON PORTABLE BOILERS on STAND, for use without brickwork, from 60s. each.

PATENT and IMPROVED THROTTLE and other VALVES, FURNACE DOORS, BARS, and FURNACE WORK of every description and size.

LYNCH WHITE,

Old Barge Iron Wharf, Upper Ground Street, London, S.E. (Surrey side Blackfriars Bridge).

Price List on application.

NOTICE.

ROYAL HORTICULTURAL SOCIETY, London.
ROYAL ZOOLOGICAL SOCIETY, London.
ROYAL BOTANIC SOCIETY, London.
ROYAL BOTANIC GARDENS, Dublin.
ROYAL BOTANIC GARDENS, Liverpool.
ROYAL BOTANIC GARDENS, Cambridge.
ROYAL WINTER GARDEN, Dublin.
ROYAL DEPARTMENT OF SCIENCE AND ART, London.

It is with great gratification that we announce our permission to refer upon any occasion to the various Heating Apparatuses at the above, where our "ONE BOILER SYSTEM" has for years been subjected to the most critical tests with every satisfactory result. It is matchless for efficiency, and is working the largest Apparatus on record. These are no theoretical statements, but positive facts, and it is not too much to add, that no boiler can boast a parallel.

For List of Details, see "ILLUSTRATED BOOK of DESIGNS" (12th Edition), which can be obtained by addressing a note to

JOHN WEEKS AND COMPANY, HORTICULTURAL ENGINEERS, &c., KING'S ROAD, CHELSEA, S.W.

John Weeks & Co.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, and Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, Royal Gardens, Kew, &c.

The best Shading is "Frigi Domo" Netting.

White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for

PROTECTION from the COLD WINDS and MORNING FROSTS.

"FRIGI DOMO" NETTING, 2 yards wide, 1s. 6d. per yard run.

"FRIGI DOMO" CANVAS.

Two yards wide .. .. 1s. 9d. per yard run.
Four yards wide .. .. 3s. 6d. per yard.
An improved make, 2 yards wide .. 1s. 9d. per yard.
An improved make, 3 yards wide .. 2s. 9d. per yard run.

"Bridgehill, Belper, Feb. 13. 1869.

"SIR,—Please send me at once, by Midland Railway, 50 yards of Frigi Domo 2 yards wide, same as you sent me about this time last year, and which answered its purpose admirably.—Yours respectfully, "G. H. STRUTT.

"P.S.—We had 300 dozen Apricots last year on walls protected solely by Frigi Domo."

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

GLASS for ORCHARD HOUSES,

As supplied by them to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.

Each Box contains 100 feet. The prices only apply to the sizes stated.

Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.

	16 oz. to the foot.	21 oz.
Fourth quality	15s. 0d.	19s. 6d.
Third ditto	16s. 0d.	22s. 0d.
Seconds	18s. 6d.	26s. 0d.
English	20s. 0d.	27s. 0d.

The above prices include the boxes, which are not returnable.

HORTICULTURAL GLASS.

Stock sizes, 16-oz., in 100 feet boxes, boxes included.

These prices only apply to the sizes stated.

				4ths.	3rds.	2nd.
				s. d.	s. d.	s. d.
11 by 9	12 by 9	13 by 9	14 by 9	13 6	15 6	17 0
12 „ 10	13 „ 10	14 „ 10	15 „ 10			
13 „ 11	14 „ 11	..	..			
14 „ 12	15 „ 12	15 „ 11	16 „ 11			
18 „ 12	19 „ 12	16 „ 12	17 „ 12			
16 „ 13	17 „ 13	20 „ 12	..	15 0	16 0	18 6
16 „ 14	20 „ 13	18 „ 13	..			
	17 „ 14	18 „ 14	..	16 to 17 oz. to the foot.		
	20 „ 14					

SMALL SHEET SQUARES.

In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 6½	12s. 0d.
8 by 6	8½ by 6½	9 by 7	9½ by 7½	
		10 by 8	10½ by 8½	13s. 6d.

Boxes 2s. each returnable at full price.

Painted and Glazed with 16-oz. Sheet Glass.

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS. PAINTS of various colours ground ready for use.

SHEET and ROUGH PLATE GLASS. SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of Prices and Estimates forwarded on application to JAMES PHILLIPS & Co., 180, Bishopsgate Street Without, E.C.

Horticultural Glass Warehouse.

THOMAS MILLINGTON AND CO., 87, Bishopsgate Street Without, London, E.C.

NEW LIST for ORCHARD-HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD-HOUSE SIZES.

in.	in.		4ths.	3rds.	2nds.	Best.
20 by 12						
20 by 13		15 oz.	14s 3d	15s 6d	18s 6d	20s 0d
20 by 14	Per 100 feet					
20 by 15		21 oz.	19s 6d	22s 2d	25s 6d	26s 6d
20 by 16						

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7			12s 3d	13s 3d	16s 0d	18s 0d
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½						

Per 100 feet.

10 by 8	12 by 9	12½ by 10½	14½ by 10½						
10½ by 8½	12½ by 9½	13 by 10	15 by 10			13s 3d	14s 6d	17s 3d	19s 0d
11 by 9	13 by 9	13½ by 10½	13 by 11						
11½ by 9½	12 by 10	14 by 10	14 by 11						

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best
15½ by 10½	14 by 12			22 by 12		22 by 16					
16 by 10	14½ by 12½			17 by 13		21 by 16					
14½ by 11½	15 by 12			23 by 13		20 by 17					
15 by 11	15½ by 12½			18 by 14		22 by 17		14s 3d	15s 6d	18s 6d	20s 0d
15½ by 11½	16 by 12			22 by 14		24 by 17					
16 by 11	10½ by 12½			24 by 14		20 by 18					
21 by 11	17 by 12			22 by 15		22 by 18					
13 by 12	18 by 12			24 by 15		24 by 18					

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.

In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	36s.	4ths quality, per 200 feet case,	36s.
3ds „ „	42s.	3ds „ „	42s.
2ds „ „	60s.	2ds „ „	60s.
Best „ „	75s.	Best „ „	76s.

SHEET GLASS is made only in the following substances, 15 oz. 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.

HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.

BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses. Coloured Glass Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.

STUCCO PAINT, 21s. per cwt. This Paint adheres firmly to the wall, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is to be used with rain or pure river water.

WHITE ZINC PAINT, 35s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a-half of White Lead and six gallons of Linseed Oil. Special Driers for this Paint.

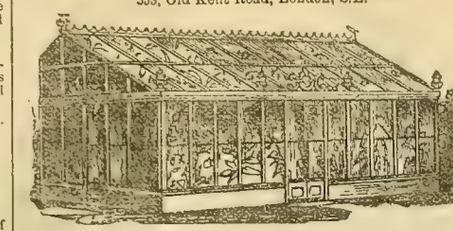
IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4s. per gallon.

Per cwt.—s. d.		Per gallon.—s. d.	
GENUINE WHITE LEAD	30 0	LINSEED OIL	2 9
SECONDS WHITE LEAD	28 0	BOILED OIL	3 2
GROUND PATENT DRYERS, 2d. to 4½d. per lb.		TURPENTINE	2 9
„ OXFORD OCHRE, 3d. to 4½d. per lb.		LINSEED OIL PUTTY, 8s. per cwt.	
„ RAW UMBER, 4½d. to 6d. per lb.		Fine OAK VARNISH, 10s. to 12	0
„ BURNT do., 6d. to 9d.	per lb.	„ CARRIAGE do., 12s. to 14	0
GREEN PAINT, all shades,	25s. to 60 0	„ PALE do. 10s. to 12	0
BLACK PAINT,	24s. to 36 0	COPAL	16 0
RED PAINT ..	25s. to 36 0	KNOTTING	10 0
		Patent GOLD SIZE ..	10 0
		„ BLACK JAPAN ..	12 0
		GLAZIER'S DIAMONDS and TOOLS	
		MILLED LEAD and PIPES	
GROUND BRUSHES, DUSTERS, SASH TOOLS, DISTEMPER BRUSHES.		OLD LEAD Bought or taken in exchange.	

The above are Net, for Cash, and as such cannot be booked.

Lists of any of the above on application.

JAMES WATTS AND CO., HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, 353, Old Kent Road, London, S.E.



200 CUCUMBER and MELON BOXES and LIGHTS, all sizes, Glazed and Painted complete, ready for immediate use, packed and sent to all parts of the Kingdom.

Strong ZINC HAND-GLASSES, all sizes.

References to the Nobility, Gentry, and Trade in most of the Counties in England.

Established 1833.



HANCOCK'S INDIA-RUBBER HOSE and TUBING.

CARRIAGE, GIG, & DOG-CART APRONS.

HORSE SINGEING APPARATUS, with GAS BURNERS, and INDIA-RUBBER TUBING.

Improved INDIA-RUBBER DOOR STOPS.

WATERPROOF CART and WAGGON COVERS made any size.

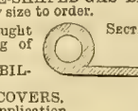
HORSE-LOIN COVERS (Waterproof), with Straps complete.

BELTING for SAW MILLS, THRESHING MACHINES, and FLOUR MILLS.

Trade Mark.

IMPROVED INDIA-RUBBER WEDGE-SHAPED GAS BAGS, for Microscopes and Dissolving Views; any size to order.

FLANGE TUBING, for excluding Draught and Dust, and preventing the Slamming of Glass Doors.


SECTION.

VULCANISED INDIA-RUBBER BILLIARD CUSHIONS.

WATERPROOF BILLIARD TABLE COVERS.

Illustrated Price Lists on application.

JAMES LYNE HANCOCK, Vulcanised India-Rubber Works, 266, Goswell Road, London, E.C.

"Every Cottage should be provided with a Water Tank." *Disraeli.*

Iron Cisterns.

F. BRABY AND CO. having laid down more extensive and Improved Machinery on their Deptford premises (IDA WHARF), are prepared to supply WROUGHT-IRON TANKS, GALVANISED or PAINTED, of superior quality, at reduced prices, and at very short notice.



An Illustrated Price List of Galvanised Iron, and other of BRABY'S special Manufactures sent on application.

F. BRABY & Co., Limited, Fitzroy Works, Euston Road, London; or through all respectable Ironmongers.

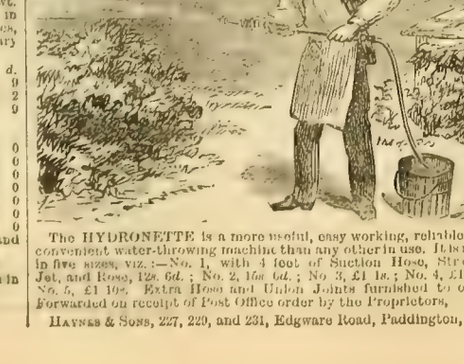
N.B. Open Tanks of different sizes packed one in another to save carriage.

THE IMPROVED PATENT GARDEN WATER and ROLLING ENGINE may be had at J. DORE'S, the Sole Manufacturer, 17, Exmouth Street, Clerkenwell, London, W.C.



The threefold use of this neat little Machine must be obvious in Watering, Rolling, or Syringing; it will throw about 60 feet, and is so portable that any ordinary domestic may use it. It contains about 20 gallons. Price £5 10s.; 26 gallons, £6 10s.

THE HYDRONETTE, (Robins' Patent,) for Gardens, Greenhouses, Conservatories, Hotbeds, &c. Unrivalled case of action, simplicity, convenience, and force.



The HYDRONETTE is a more useful, easy working, reliable, and convenient water-throwing machine than any other in use. It is made in five sizes, viz.:—No. 1, with 4 feet of Suction Hose, Strainer, Jet, and Rose, 12s. 6d.; No. 2, 15s. 6d.; No. 3, £1 1s.; No. 4, £1 5s.; No. 5, £1 10s. Extra Hose and Union Joints furnished to order. Forwarded on receipt of Post Office order by the Proprietors,

HAYNES & SONS, 227, 229, and 231, Edgware Road, Paddington, W.

IRON HURDLES (Silver Medal of the Royal Agricultural Society):

SHEEP, 3s. 6d.; CATTLE, 4s. 3d.; OX, 5s. 11d.

List by post. GATES and FENCING of every description.

St. Pancras Iron Work Company, Old St. Pancras Road, London, N.W.

LABELS, LABELS.—PARCHMENT or CLOTH LABELS.—Tree or Plant Labels, punched parchment, 4 inches long, 4s. per 1000, or 10,000 for 35s., cash on delivery. Sample Label sent on receipt of a postage stamp. Orders delivered free in London by JOHN FISHER & Co., Label Works, Boston, Lincolnshire.

Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the Corporate Mark, OBTAIN WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.

S. & C.'s PRUNING and BUDDING KNIVES are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

CORDINGS' CELEBRATED FISHING BOOTS remain soft and pliable.

CORDINGS' FISHING STOCKINGS.

CORDINGS' FISHING TROWSERS.

CORDINGS' ORIGINAL ANKLE BROGUES. Come up to the ankle, prevent stone or gravel injuring the feet.

CORDINGS' FISHING BROGUES.

CORDINGS' FISHING COATS and BAGS.

CORDINGS' GUINEA STORM COATS, unequalled.

CORDINGS' GIG, BOX, and DOGCART APRONS.

CORDINGS GUARANTEE their WATERPROOFS for all climates.

CORDINGS' GROUND SHEETS and PONCHO, as recommended and used by the Old Shekerray.

CORDINGS, 231, Strand, Temple Bar.

Notice of Removal.

WILKINSON AND KIDD, SADDLERS to HER MAJESTY and H.R.H. THE PRINCE OF WALES, have REMOVED their Establishment from the Corner of Park Street, Oxford Street, to 6, HANOVER SQUARE, W. (adjoining the Queen's Concert Rooms). Established 1786.

PURE AERATED WATERS.

Ellis's Ruthin Soda Water.	Ellis's Ruthin Lemonade.
Ellis's Ruthin Potass Water.	Ellis's Lithia Water.
Ellis's Ruthin Seltzer Water.	Ellis's Lithia and Potass Water.

For Gout, the last-named is a splendid remedy.

Every Cork is branded "R. ELLIS & SON, Ruthin," and every label bears their trade mark, without which none is genuine. Sold by Chemists, Hotel-Keepers, Confectioners; and Wholesale only from R. ELLIS & SON, Ruthin, North Wales.

Sauce.—Lea & Perrins.

THE "WORCESTERSHIRE," pronounced by Connoisseurs "THE ONLY GOOD SAUCE," Improves the Appetite, and Aids Digestion. Unrivalled for piquancy and flavour. Ask for LEA & PERRINS' SAUCE. Beware of Imitations, and see the Names of LEA & PERRINS on all bottles and labels.

Agents—CROSSE & BLACKWELL, London, and Sold by all Dealers in Sauces throughout the World.

A Success Unprecedented.

MARAVILLA COCOA is PERFECTION.—The *Globe* says:—"Taylor Brothers' Maravilla Cocoa has achieved a thorough success, and supersedes every other Cocoa in the market. Entire solubility, a delicate aroma, and a rare concentration of the purest elements of nutrition, distinguish the Maravilla Cocoa above all others. For homœopaths and invalids we could not recommend a more agreeable or valuable beverage."

Sold in Packets only, by all Grocers.

ELEGANT PERSONAL REQUISITES.—ROWLANDS' MACASSAR OIL, for promoting the growth, restoring, improving, and beautifying the human hair, 3s. 6d., 7s., 10s. 6d., and 21s. per bottle. ROWLANDS' KALYDOR, an Oriental preparation for improving the complexion and skin, and eradicating cutaneous defects, 4s. 6d. and 8s. 6d. per bottle ROWLANDS' ODONTO, or PEARL DENTIFRICE, bestows on the teeth a pearl-like whiteness, and gives a pleasing fragrance to the breath. 2s. 9d. per box. Sold by chemists and perfumers. Ask for "Rowlands'" articles.

DINNEFORD'S FLUID MAGNESIA.—The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion; and the best mild aperient for delicate constitutions, especially adapted for Ladies, Children, and Infants.

DINNEFORD & Co., 172, New Bond Street, London; and of all Chemists throughout the World.

CORNS and BUNIONS.—A Gentleman, many years tormented with Corns, will be happy to afford others the information by which he obtained their complete removal in a short period, without pain or any inconvenience.—Forward address on a stamped envelope to F. KINGSTON, Esq., Ware, Herts.

GOUT and RHEUMATISM.—The excruciating pain of Gout or Rheumatism is quickly relieved and cured in a few days by that celebrated medicine, BLAIR'S GOUT and RHEUMATIC PILLS.

They require no restraint of diet or confinement during use, and are certain to prevent the disease attacking any vital part.

Sold by all medicine vendors, at 1s. 1½d. and 2s. 9d. the box, or obtained through any chemist.

THOUSANDS and TENS of THOUSANDS DIE of DISEASE, produced in the first instance by neglect. The stomach is the most important organ, and is at the same time, from numerous causes, most frequently disordered, and thus begins more than half the ailments and troubles to which humanity is subjected; it is, therefore, most important to pay constant attention to the state of the stomach and bowels; and there is no medicine has such deserved repute as PARR'S LIFE PILLS for preserving regularity, and, consequently, ensuring long life.

ELECTRICITY IS LIFE. SELF-ADJUSTING CURATIVE and ELECTRIC BELT. Sufferers from nervous debility, indigestion, weakness, &c., can now cure themselves by the only "Guaranteed Remedy" in Europe, protected by Her Majesty's Great Seal.

Free for One Stamp, by B. JAMES, Esq., Medical Electrician (to the London Hospitals), Percy House, Bedford Square, London, W.C.

N.B.—Medicine and Fees superseded. A Test gratis. Send for details. Established 1840.

Galvanism and Medicine Superseded.

NEW METHOD of CURING DISEASE, without the aid of doctors and their drugs, by studying the laws of health and Nature. Invalids cannot too carefully avoid pills, pretended life drops, and other dangerous medicines, as they contain mineral poisons, which act on the delicate coatings of the stomach, and thus destroy the receptacle of our daily sustenance. The Advertiser was pronounced incurable; but, acting in accordance with the advice he now offers, has, by God's blessing, been restored to health and strength; and with sympathy for like sufferers, the means of cure will be sent, post paid, on receipt of address and two stamps.—Address PHILIP GASPEY, Esq., 20, York Buildings, Strand, London, W.C.

THE GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY.

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J. BAILEY DENTON, Principal Engineer.

Agricultural Improvements of any kind are executed by the Company, or the outlay thereon repaid to Landowners who prefer executing the work by their own Agents.

Tenants may also, by arrangement with their Landlords, procure the execution of such improvements.

The outlay, with all official expenses, may be charged on the Estate, and paid off by a rent-charge in 31 years, or at the option of the Landowners in a shorter term.

No investigation of title necessary, and no legal expenses incurred.

Application to be made to HORACE BROKE, the Secretary, at the Offices of the Company, 22, Whitehall Place, London, S.W.

THE LANDS IMPROVEMENT COMPANY.—(Incorporated by Special Acts of Parliament.)

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Henry Farquhar, Esq. (Messrs. Herries, Farquhar, & Co.), 16, St. James Street, S.W.
Lord Garlies, M.P., 35, Eaton Square, S.W., and Galloway House, Wigtonshire, N.B.
John Horatio Lloyd, Esq., 1, King's Bench Walk, Temple, E.C.
Granville R. Ryder, Esq. (Managing Director), 2, Princes Terrace, Hyde Park, S.W. [S.W.
Granville R. H. Somerset, Esq., Q.C., 6, Park Street, Westminster,
Henry W. West, Esq., Q.C., M.P., 10, King's Bench Walk, Temple, E.C.
Charles Watkin Williams Wynn, Esq., M.P. (Chairman), 2, Lower Berkeley Street, Portman Square, W., and Coed-y-Maen, Welshpool.

The Company advance money, unlimited in amount, for all purposes of Agricultural Improvement, including the erection of Cottages and Farm Buildings, to the Owners of settled and other Estates, and to the Clergy in respect of their Glebe Lands.

The whole outlay and expenses are liquidated by a rent-charge upon the land, redeeming principal and interest, over 25 years.

No investigation of title is required.

For Forms and further information apply to GRANVILLE R. RYDER, Esq., Managing Director, 3, Parliament Street, London.

Agricultural Improvements.

MR. BAILEY DENTON undertakes the UNDERDRAINAGE of LAND at a charge of 5s. an acre; and will supply PLANS and SPECIFICATIONS for Farm-houses, Farm-buildings, and Labourers' Cottages with or without Superintendence during Construction, on terms to be ascertained of him at 22, Whitehall Place, London, S.W.

National Education, Ireland.

ALBERT NATIONAL AGRICULTURAL TRAINING INSTITUTION, GLASNEVIN, DUBLIN.

The Commissioners of National Education in Ireland are prepared to receive into the Agricultural School at Glasnevin a CLASS of PAYING PUPILS, who will be INSTRUCTED in the THEORY and PRACTICE of AGRICULTURE. The number of Pupils in this Class to be at present limited to Ten.

There are three Farms attached to the Institution, viz.:—A Spade-labour Farm, of 5¼ acres; a Small Farm, of 25 acres, which is worked with simple and inexpensive implements; and a Large Farm, of nearly 150 acres, on which are employed the most improved Agricultural Implements and Machines, with the uses of which the pupils are made fully acquainted.

Various Rotations and Systems of Farm Management are pursued.

Lectures will be given each Session on the following subjects:—

1. Agricultural Chemistry and Geology, by W. K. Sullivan, Ph.D., Professor of Chemistry, Royal College of Science.
2. Botany and Vegetable Physiology, by D. Moore, Ph.D., Curator, Royal Dublin Society's Botanic Gardens.
3. The Structure and Diseases of Farm Animals, by a Veterinary Surgeon.
4. Agriculture, by the Superintendent and by the Agriculturist.
5. Horticulture, by Mr. Edward Carroll.

The course of training will extend over two years. The annual payment by each pupil to be £20 a year, payable quarterly in advance. This amount will cover the expense of Board, Lodging, Washing, and Medical Attendance.

Extern Pupils who reside in the City, or in the vicinity of the Model Farm, are permitted to attend the Lectures and take part in the practical business of the Farms, at a charge of £2 per quarter each.

The Model Farm is within three statute miles of the General Post Office. For further information apply to

THE SECRETARIES,
Education Office, Marlboro' Street, Dublin; or to
THE SUPERINTENDENT,
Albert Agricultural Institution, Glasnevin, Dublin.

MR. EDWIN COOLING,
Horticultural Valuer, Mile Ash, Derby.

MR. W. DILLISTONE, Auctioneer and Valuer, &c., undertakes SALES by AUCTION and VALUATIONS of all kinds of NURSERY, SEED, and FLORISTS' STOCK, and every Garden Requisite, in Town and Country. Terms free on application.

General Horticultural Agency Offices, Sible Hedingham, Essex.

Bristol Spanish.

MR. HENRY LANE, of Ashley Villa, Ashley Road, Bristol, will be happy to DISPOSE OF some of his Prize Birds or Eggs, or EXCHANGE for some half or quarter specimen Green or Hothouse Plants, or for a Portable Fowls' House. His birds are the best strain in England, and are composed of the following Prize Birds:—First Prize Cockerel at Birmingham, 1867, bought of Miss Biggar for 15 guineas; First Prize Hens at Birmingham and Bristol, 1868, bought of Mr. Hyde for 15 guineas; and his own three First Prizes at Manchester, &c.

Nursery and Florist's Business.

TO BE LET, a CAPITAL BUSINESS in the above, in one of the best business towns in England. Satisfactory reasons given for disposing of same. Terms easy.

Apply to Mr. W. Dillistone, Auctioneer and General Horticultural Agent, Sible Hedingham, Essex.

TO BE DISPOSED OF, with immediate possession, an established, well-stocked NURSERY, within three miles of the Metropolis and Covent Garden Market, with Lease, including four Dwelling-houses, producing £100 per annum. The ground comprises an area of about Two Acres, Hot-water Pits, Stable, &c., and every appliance suitable for carrying on a large business. Part of the Purchase-money many remain on mortgage.

For particulars apply to Messrs. Mills & Lockyer, Solicitors, 2, Brunswick Place, City Road, London, E.C.

County Cork, Ireland.

TO BE SOLD, the INTEREST of the DWELLING HOUSE, OUT-OFFICES, and LANDS of WEST PARK, situate about 1 mile from the town of Midleton (a station on the Cork and Youghal Railway), containing 417 acres, of which 250 are Pasture, and some of the best Dairy Land in the county.

The House is most commodious, and contains four Sitting Rooms on Ground Floor, five Bedrooms, besides Servants' Apartments, Kitchen, Scullery, Cheese-room, Bake-house, Dairy, Beer and Wine Cellars, Pantrys, W.C., &c. The whole House is in capital order, having been newly Painted and Papered, and a small Turkish Bath has also been erected within the last year.

The Out-Offices and Farm Buildings are most extensive; Stabling for 12 Horses, Coach-house, Harness Room, &c.; Stalls for 75 head of Cattle. The Lands are well sheltered and divided, a good supply of Water running through them, and in capital heart, having been greatly improved by the present tenant, who has carried on Cheese-making for the last few years with success. The Growing Crops (about 138 acres) to be taken at a Valuation. There is a Walled-in Fruit and Vegetable Garden, and about 16 acres of Orchard.

For further particulars and cards to view, apply to H. & R. Townsend, 69, South Mall, Cork, by whom proposals (written only) will be received.

N.B.—There is a first-class Endowed School in Midleton.

A SMALL NURSERY, in high condition, well stocked Indoors and out, stands in a first-rate position, commanding many advantages seldom to be met with. A good opening for a Man of first-rate ability.

For particulars apply to A. K., High Beech, Essex.

Sales by Auction.

Short Notice.—Sale of Specimen Pelargoniums.

MESSRS. PROTHEROE and MORRIS are favoured with instructions from Mr. John Fraser to submit for UNRESERVED SALE by AUCTION, on the Premises, the Nurseries, Lea Bridge Road, N.E., on MONDAY, April 19, at 1 for 2 o'Clock precisely, the whole of his FIRST PRIZE SPECIMEN PELARGONIUMS, consisting of Zonal, Fancy, choice large-flowering, and French spotted varieties. These Specimens are well adapted for either Exhibition purposes or Conservatory decoration; the Zonal tribe will also be admirably suited to furnish large Vases in the Flower Garden.

On view any day prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, Leytonstone, N.E.

N.B.—Messrs. P. & M. respectfully invite all persons interested in this beautiful tribe of Plants to inspect this Collection, as no description can convey an adequate idea of its merits.

Sale of First-class Carnations and Picotees,

STANDARD and DWARF ROSES, &c.

MESSRS. PROTHEROE and MORRIS will SELL by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, City, E.C., on THURSDAY, April 22, at half-past 12 o'Clock precisely, a first-class Collection of CARNATIONS and PICOTEES (the surplus stock of an eminent grower), also a superb assortment of Standard and Dwarf ROSES, selected AMERICAN PLANTS, clean-grown FRUIT TREES, BEDDING PLANTS, AZALEA INDICA, GLADIOLI, Rustic Seats, Stools and Vases.

On View Morning of Sale, Catalogues had at the Rooms, as above, and of the Auctioneers and Valuers, Leytonstone, N.E.

Chadwell Heath, Essex.

UNRESERVED SALE OF GREENHOUSE AND BEDDING PLANTS, AND SPECIMEN AZALEA INDICA.

MESSRS. PROTHEROE and MORRIS have received instructions from the Executors of the late Samuel Seabrook, Esq., of Dagenham, to SELL by AUCTION, without reserve, on the Premises, Vallance Farm, Chadwell Heath, on TUESDAY, April 27, at 12 o'Clock precisely, the whole of the GREENHOUSE PLANTS, including some splendid specimen Azalea indica, from 1½ ft. to 4 ft. high by 2 ft. to 4 ft. through, abundantly furnished with bloom-buds; fine specimen Pelargoniums, large Camellias, Fuchsias, Primulas, Coronilla, &c.; also about 10,000 BEDDING PLANTS, consisting chiefly of Scarlet and Variegated Geraniums; likewise the Fruiting and Succession PINES, together with seven ranges of Brick Pits, with a quantity of Glazed Sashes, Frames, Bricks, Flues, &c.; also a quantity of Dunnage Mats, Garden Compost, Rotten Manure, Coke, and various other effects.

May be viewed any day prior to the Sale. Catalogues may be had on the Premises of Mr. Twyford, and of the Auctioneers and Valuers, Leytonstone, Essex, N.E.

Coventry Nurseries.

Important to the Trade, or to Anyone Desirous of Embarking in the Nursery and Seed Business.

MESSRS. PROTHEROE and MORRIS have received instructions to offer by AUCTION, in one Lot, at Garraway's Coffee House, 'Change Alley, Cornhill, E.C., on THURSDAY, April 29, at 1 o'Clock precisely (if not previously disposed of by Private Contract) the long-established NURSERY and SEED BUSINESS with the whole of the OUT and INDOOR STOCK, the GREENHOUSES, PITS, and other erections, and entire Stock in Trade, as it now stands replete, and which is detailed more fully in particulars, which may be had of the Auctioneers and Valuers, Leytonstone, N.E.

N.B. The Nursery Grounds are most favourably situated, commanding a great frontage on the high road from Coventry Railway Station to the centre of the town, possessing unusual facilities for carrying on a most extensive and successful business.

Market Gardener's Stock on Cranbrook Farm, near

THE ORPHAN ASYLUM, LOWER CLAPTON, MIDDLESEX.

MESSRS. DUCKWORTH and CLAYDEN will SELL by AUCTION, on TUESDAY, April 20, at 11 for 12 o'Clock, in Lots, by order of Messrs. Brandon, who are compelled to give up the Land on the 30th, it being required for building purposes, the WHOLE of the IMPLEMENTS, HORSES, HARNESS, WAGGONS, VANS, CARTS, WAGGONETTE, 280 Boxes and Lights, 866 Bell and Hand-glasses, Heaps of Manure, and numerous effects.

May be viewed one day prior to the Sale, and Catalogues had on the Premises, at the Windsor Castle Inn, Lower Clapton, at Way's Coffee House, Covent Garden, and of Messrs. Duckworth & Clayden, Hadley, Barnet

Guildford, Surrey.—Sale of Forest Trees, &c.

IMPORTANT TO GENTLEMEN, NURSERYMEN, &c.

MR. W. DILLISTONE has received instructions to SELL by AUCTION, on Ground adjoining the White Horse Hotel, Guildford, on WEDNESDAY, April 21, at 10 for 11 o'Clock, in consequence of the Land being required for Building purposes, an extensive assortment of Seedling and Transplanted FOREST TREES, consisting of Alder, Ash, Berberry, Beech, Birch, Broom, Scarlet Elder, Elm, Oaks, Privet, Austrian Pines, Silver and Spruce Firs, Sycamore, &c. Also a choice collection of FRUIT TREES, ROSES, CONIFERÆ, CLIMBERS, Hardy HERBACEOUS PLANTS, and numerous other Garden Requisites.

To be viewed on the Morning of Sale, and full Particulars will be described in Catalogues, to be had at White Horse Hotel and *West Surrey Times* Office, Guildford, and place of Sale; or post free of the Auctioneer at his General Horticultural Agency Offices, Sible Hedingham, Essex.

Brentwood.

MR. W. DILLISTONE will SELL by AUCTION, at the Town Hall, Brentwood, on SATURDAY, April 24, at 12 o'Clock precisely, a Valuable and Choice Collection of NURSERY STOCK, GREENHOUSE, and BEDDING PLANTS, &c., consisting of Conifers, Shrubs, Roses, Fruit and Ornamental Trees; Greenhouse Plants, including a unique collection of Azaleas and Plants in bloom, Tricolor-leaved Geraniums, Hardy Herbaceous and Alpine Plants and Climbers, Tobacco Paper, &c.; also a small but Choice Stock of PRIZE POULTRY. The whole presenting a capital opportunity to Gentlemen, Gardeners, and Private Buyers, generally for the purchase of the above named stock.

On view the Morning of Sale, and Catalogues had at the White Hart Hotel, Brentwood, and posted free on application to the Auctioneer, Sible Hedingham, Essex.

Wicken Park, near Stony Stratford.

IMPORTANT SALE OF FIRST-CLASS SHORTHORNS.

MR. STRAFFORD is honoured with instructions to announce for SALE by AUCTION, without reserve, on FRIDAY, May 7, at Wicken Park, Bucks, FIFTY HEAD of First-class SHORTHORN BULLS, COWS, and HEIFERS, from the Penrhyn Castle and Wicken Park Herds, bred by and the property of the Right Hon. Lord Penrhyn. Amongst them will be found the Darlington as well as the Wild Eyes tribes, and other good sorts, with some very superior Young Bulls, whose sires are of the famed Duchess family, such as the Duke of Geneva (19,614), 3d Duke of Wharfdale (21,619), 11th Grand Duke (21,849), &c.

Catalogues with Pedigrees may be had of Mr. Strafford, 13, Euston Square, London; or Mr. Dorr, Lillingstone Hall, Buckingham; and of Mr. Smith, Penrhyn Farm, Bangor.

Cliveden, Maidenhead.

A LARGE ASSORTMENT of very CHOICE BEDDING and other PLANTS.

FAREBROTHER, LYE and WHEELER are instructed to SELL by AUCTION, on His Grace the Duke of Sutherland's Estate, on THURSDAY, May 20, at 12 o'clock, several thousands of the choicest and newest varieties of GERANIUMS, also a numerous collection of FOLIAGE and other PLANTS, comprising Coleus, Centaureas, Caladiums, Variegated Pines, Palms, Ferns, &c.

May be viewed the day prior and morning of sale, and catalogues had of Mr. Fleming on the estate, at the *Express* Office, Windsor; the *Mercury*, Reading; the *Bucks Free Press*, Wycombe; and at the offices of Messrs. Farebrother, Lye & Wheeler, Land Agents and Auctioneers, 8, Lancaster Place, Strand, London, W.C.

Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, April 19, at half-past 12 o'Clock precisely, an importation of Valuable ORCHIDS, just arrived, in fine condition, consisting of splendid masses of Cypripedium Stonii, Vanda Lowii, V. cærulea, V. Roxburghii, Odontoglossum phalænopsis, Dendrobium anosmum Dayanum, Cœlogyne species, Aerides Lobbii, Sophronites cernua, &c. Also (if received in time), 60 Lots of Imported Cattleya Mossiæ On view the Morning of Sale, and Catalogues had.

Importation of Cattleya Mossiæ, True.

JUST ARRIVED PER MAIL STEAMER.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY NEXT, April 19, 70 Lots of the True CATTLEYA MOSSIÆ, comprising some of the finest masses ever imported, and in the best possible condition.

On view the morning of Sale, and Catalogues had.

Hardy Plants.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, April 21, at half-past 12 o'Clock precisely, a collection of HARDY PLANTS, consisting of Carnations, Picotees and Pinks, Geraniums, Violets, Sweet Williams, Polyanthus, Tritomas, Rockets, Honeysuckles, Gazanias, Lilies, Strawberry Plants, Raspberry Canes, Pampas Grass, Asparagus Roots, Rustic Seats, Stools, Vases, Baskets, &c.

On view the Morning of Sale, and Catalogues had.

Importation of Valuable Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 22, at half-past 12 o'Clock precisely, a Collection of Rare and Valuable ORCHIDS, just received from Assam, in the finest possible condition, consisting of—

Dendrobium Falconeri	Vanda cristata
,, Wardianum	,, cærulea
,, sp. unknown	Dendrobium sulcatum
,, cambridgeanum	,, devonianum
,, chrysotoxum	,, Williamsoni
,, Gibsoni	&c., &c.

On view the Morning of Sale, and Catalogues had.

Importation of Orchids from India.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, April 24, at half-past 12 o'Clock precisely, without reserve, the entire contents of 16 Cases of ORCHIDS, received by the last Overland Mail from India, comprising fine masses of Saccolabium guttatum, Cymbidium Hookeri, and others; Vanda teres, Pleione Wallichi, Dendrobium Farmeri, the finest flesh-coloured variety; Vanda Cathcartii, exceedingly rare; Aerides affine, Dendrobium formosum, Phalænopsis Parishii, &c.

On view the Morning of Sale, and Catalogues had.

Important Sale of Established Orchids.

MR. J. C. STEVENS begs to announce that the SECOND PORTION of Mr. DAY'S well-known COLLECTION of ORCHIDS will be offered for SALE on THURSDAY and FRIDAY, April 29 and 30, at his Great Rooms, 38, King Street, Covent Garden, W.C., at half-past 12 o'Clock precisely, each day. There will be many SPECIMEN PLANTS, and many of the rarest and choicest Species and Varieties in cultivation. The Plants are all in perfect health, and buyers may depend upon the correctness of the names and descriptions given. Amongst them will be:—

Ada aurantiaca	Dendrobium Veitchii
Aerides affine superbum	,, Dayanum
,, Larpentæ	,, cucullatum giganteum
,, Fieldingii	Dendrochilum filiforme
Burlingtonia candida	Lælia elegans
Cattleya labiata	,, Turneri
,, Dowiana	,, Wolstenholmæ
,, Wagneri	,, furfuracea
,, Walkeriana	,, (Rucker's variety)
Cymbidium eburneum	Odontoglossum nævium
Cypripedium Stonii	,, Pescatorea
,, (variety platytænium)	Masdevallia Veitchiana
Phalænopsis Schilleriana	Vanda Lowii
&c.,	,, Batemanni
	&c., &c.

On view the morning of Sale, and Catalogues had.

Highly Important Sale of Established Orchids.

MR. J. C. STEVENS has been favoured with instructions from W. W. Buller, Esq., of Strete Ralegh, to offer for SALE his entire Collection of ORCHIDS, by AUCTION, Without Reserve, on WEDNESDAY and THURSDAY, May 5 and 6, at Half-past 12 o'Clock precisely, at his Great Rooms, 38, King Street, Covent Garden, London, W.C. This Collection is perhaps unsurpassed for the variety and rarity of the plants cultivated. It includes many not only of Horticultural but Botanical interest, and possesses some extremely rare, if not unique, specimens. It comprises selections from every importation of importance during the last seven years.

In Cattleyas and other Orchids subject to great variation, immense quantities have been purchased at different times, and after flowering the inferior varieties have been discarded. The specimens now submitted for Sale comprise only the finest varieties, and therefore offer unusual advantages to buyers of this class of plants. The following comprise some of the principal plants in this Collection:—

Cattleya Warneri	Phalænopsis Parishii
,, Wagneri	Saccolabium guttatum
,, labiata Sion House	Aerides Schrœderi
Dendrobium Wardianum	Dendrobium Veitchii
,, Heyneanum	,, Falconeri
,, thyrsiflorum	,, bigibbum
Nanodes Medusæ	,, Bullerianum
Epidendrum myrianthum	Cypripedium caudatum
Cymbidium eburneum	,, concolor
Grammatophyllum Ellissi	,, Lowii
Odontoglossum Alexandræ	,, Veitchii
,, Pescatorea	Brassia glumacea
Phalænopsis Lowii	,, Laurenciana
&c.,	&c.

Also Hybrid Cattleyas, Calanthes and Anguloas, raised by Mr. Buller.

On view the Morning of Sale, and Catalogues had.

Great Sale of Choice Nursery Stock at Rainworth near Mansfield, Notts.

MESSRS. POTT and NEALE have received Instructions from the Midland Railway Company to SELL by AUCTION, as above, on TUESDAY NEXT, April 20, at 12 o'Clock precisely, without the slightest reserve, as the ground must be immediately cleared. The Stock includes 250,000 Seedling RHODODENDRONS, 3000 best GOLD HOLLY (Queen), 2000 Choice HOLLIES of sorts, 13,000 English OAK, 9 to 12 inches, Picea nobilis, Araucaria imbricata, Cupressus Lawsoniana, Thujopsis borealis, Irish Yews, Wellingtonias, Thuja Lobbii, Fruit Trees, and General Nursery Stock, in fine condition for removal.

Catalogues may be had from the Auctioneers, Wheeler Gate, Nottingham; or from Mr. Edwin Cooling, Horticultural Valuer, Derby.

Turnham Green, five minutes' walk from the Station.

To Noblemen, Gentlemen, Nurserymen, and Others.

IMPORTANT SALE OF NURSERY STOCK, 4000 PINES, &c.

MR. J. S. GOMME is instructed by Mr. Joseph Smith (who is relinquishing this department of his business) to SELL by AUCTION, on the Premises, Acton Green, Turnham Green, nearly opposite the Station, on TUESDAY, April 27, at 11 for 12 o'Clock precisely, on account of the number of Lots, the extensive STOCK in TRADE, comprising about 4000 fine healthy Pines—Jamaicas, Queens, Providence, and Smooth-leaved Cayenne—in all the various stages of growth; also, a choice and extensive collection of Bedding Plants, in pots, consisting of 5000 Geraniums, including Mrs. Pollock, Tom Thumb, Scarlets, and others; several thousand Verbenas, Fuchsias, Heliotropes, Stocks, Carnations, &c., and various effects appertaining to the Trade.

May be viewed one week prior to the Sale, and Catalogues obtained on the Premises, at the usual Inns in Covent Garden, and at the Offices of the Auctioneer and Market Garden Valuer, No. 23, Old Jewry, E.C., and Feltham.

SHANKS'S PATENT LAWN MOWERS FOR 1869.

UNDER THE PATRONAGE
OF
HER MOST GRACIOUS MAJESTY
THE QUEEN,



AND MOST OF THE
PRINCIPAL NOBILITY
OF
GREAT BRITAIN.

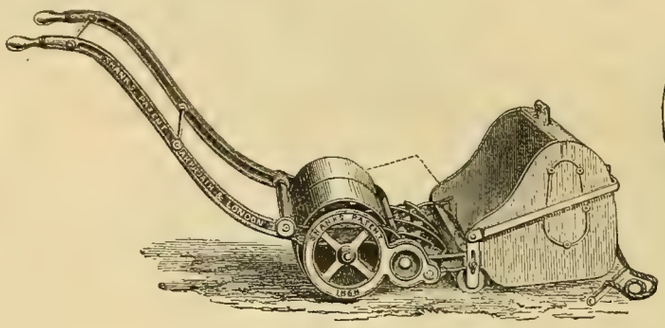
The Patent Improvements recently introduced give Shanks's Machine several important advantages possessed by no other Lawn Mower.

PATENT DOUBLE-EDGED SOLE PLATE, WIND GUARD, &c., &c.

THE UNPRECEDENTED SALE FOR 1868 BEARS TESTIMONY HOW MUCH THESE ADVANTAGES HAVE BEEN APPRECIATED.



THE FIRST PRIZE MEDAL
OF THE
INTERNATIONAL EXHIBITION,
LONDON, 1862.



HAND MACHINE.



THE FIRST PRIZE SILVER MEDAL
OF THE
UNIVERSAL EXHIBITION,
PARIS, 1867.

ALEXANDER SHANKS AND SON, in presenting their "PRICE LIST of LAWN MOWERS for 1869," have much satisfaction in intimating that among all the Exhibitors of Lawn Mowers at the Universal Exhibition of 1867, they are the only Firm to whom the Jury have awarded a Medal.

A. S. AND SON have, in addition to the PATENT DOUBLE-EDGED SOLE PLATE and WIND GUARD, made very great Alterations and Improvements in their Machine. These alterations, which were introduced last Season, have now undergone an effectual trial, and the result has been so successful as to enable A. S. AND SON to offer a Machine which far excels any other that has ever yet been offered, *whether for ease in working, certainty of action, or durability.* It has only to be compared with other Machines, when its superiority will be at once seen and understood.

PRICES—INCLUDING CARRIAGE TO ANY RAILWAY STATION OR SHIPPING PORT IN THE KINGDOM.

SHANKS'S NEW PATENT HAND MACHINE.

10-inch Machine	£3 10 0	Easily Worked *By a Lady*	
12-inch Machine	4 10 0		
14-inch Machine	5 10 0	*By a Boy*	
16-inch Machine	£6 10 0	Easily Worked *By a Man*	
19-inch Machine	7 15 0	*By a Man and a Boy*	
22-inch Machine	8 10 0	*By Two Men*	
24-inch Machine	9 0 0		

The Hand Machines are all with Silent Movement.

SHANKS'S NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* ,,
30-inch Machine	15 15 0	30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra.
Boots for Pony, 22*s.* per set.; Ditto for Donkey, 18*s.* per set.

SHANKS'S NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* ,,
42-inch Machine	26 0 0	40*s.* ,,
48-inch Machine	28 0 0	40*s.* ,,

Silent Movement, 20*s.* extra. Boots for Horse, 26*s.* per set.

SHANKS'S PATENT LAWN MOWERS

ARE THE ONLY ONES IN DAILY USE IN THE

ROYAL GARDENS AT KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, AND BALMORAL;
IN THE GARDENS OF THE ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON; | IN THE GROUNDS OF THE CRYSTAL PALACE COMPANY, AT SYDENHAM;
IN HYDE PARK, IN VICTORIA PARK, IN BATTERSEA PARK;

And in many hundreds of the principal Gardens in the Kingdom, as well as abroad, where their merits have been fully proved and their success firmly established.

Every Machine warranted to give ample satisfaction, and, if not approved of, can be at once returned.

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH,
AND
27, LEADENHALL STREET, LONDON.

27, *Leadenhall Street is the only place in London where intending purchasers of Lawn Mowers can choose from a Stock of from* 150 *to* 200 *Machines. All sizes kept there, whether for Horse, Pony, or Hand Power.*

Editorial Communications should be addressed to "The Editor," Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 17.—1869.] SATURDAY, APRIL 24. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.
SHOW of POT ROSES and SPRING FLOWERS on SATURDAY, May 8. Band of the Royal Horse Guards from 4. Doors open at 2. Tickets of principal Musicsellers (bought before 8th):—Fellows' Friends, 2s. 6d.; Public, 3s. 6d.; or on the day, 5s.

ROYAL BOTANIC SOCIETY'S GARDENS, Regent's Park.—TUESDAY and WEDNESDAY NEXT, April 27 and 28, EXHIBITION of SPRING FLOWERS. Tickets 2s. 6d. each, to be had on orders from Fellows of the Society. Gates open at 2 o'Clock. Band will play from 2.30 to 5.30.

ERITH and BELVEDERE HORTICULTURAL SOCIETY.—The ANNUAL SHOW will be held in Belvedere Park, on SATURDAY, June 26. Schedules of Prizes and every information will be forwarded upon receipt of a postage stamp, addressed to R. W. CRADOCK, Hon. Sec., Belvedere, Kent, S.E.

At the Botanic Society's First Spring Meeting,
REGENT'S PARK, APRIL 27 AND 28 NEXT.

JAMES CARTER AND CO. will EXHIBIT some splendid SEEDLING TRICOLOR and ZONAL GERANIUMS, which J. C. & Co. believe are destined to outrival all previous introductions.
JAMES CARTER & Co., The Royal Seedsmen and Nurserymen, 237 and 238, High Holborn, London, W.C.

W. DILLISTONE, HORTICULTURAL AGENT, begs to offer his services as JUDGE to any of the forthcoming HORTICULTURAL EXHIBITIONS. Twenty-five years' practical experience. Sible Hedingham, Essex.

New Roses of 1869.

PAUL AND SON can offer better Plants than they have sent out ever before, at 30s. and 42s. per dozen. LISTS on application. The Old Nurseries, Cheshunt, N.

NEW ROSES of 1869.—A choice selection only, in fine plants, including Tea-scented, 30s. and 36s. per dozen.
DOWNIE, LAIRD & LAING, Forest Hill, S.E.

NEW ROSES.—Twelve of the best of 1869, in 6-inch pots, for 36s. Fine BEDDING PLANTS, including Mrs. Pollock, 25s. per 100, cash. Baskets and packing included.
GEORGE DAVISON, White Cross Nurseries, Hereford.

NEW ROSES of 1869.—All the best varieties; 2000 fine strong plants. DESCRIPTIVE LIST on application.
JOHN CRANSTON, Nurseries, King's Acre, Hereford.

EXTRA STRONG ROSES, in pots.—Several thousand Tea-Scented, Noisette, and Hybrid Perpetual varieties, together with the best NEW ROSES of 1868. DESCRIPTIVE LIST on application.
JOHN CRANSTON, Nurseries, King's Acre, Hereford.

TWELVE of the VERY BEST NEW ROSES of 1869 for THIRTY-SIX SHILLINGS.
Address, WM. WOOD & SON, Maresfield, near Uckfield, Sussex.

"Mr. PAUL'S Roses * * * are things to see once and dream of for ever."—*Athenæum.*

WM. PAUL begs to announce that his CATALOGUE of ROSES is now ready, and will be forwarded free on application.
PAUL'S Nurseries, Waltham Cross, London, N.

ROSES in POTS, for Bedding-out.—All the leading sorts of Hybrid Perpetuals, and several Hardy Teas, strong, healthy-grown Plants, 8s. and 9s. per dozen, own selection.
A. GODWIN & SONS, Angel Road, Edmonton, London, N.E., and Ashborne, Derbyshire.

MANETTI and RHODODENDRON STOCKS.—Several thousands of the above, fit for immediate working, still to offer at our Catalogue prices.
THOS CRIPPS & SON, Nurserymen, Tunbridge Wells.

Specimen Pelargoniums.

JOHN FRASER, Lea Bridge Road Nurseries, N.E., begs to announce that he has instructed Messrs. PROTHEROE AND MORRIS to DISPOSE of his SPECIMEN PELARGONIUMS by AUCTION, on MONDAY, April 19.

Pelargoniums for the Million.

JAMES HOLDER can supply strong Plants of the above. Forty plants, distinct sorts, for 25s.; 30 sorts for 20s., or 20 sorts for 15s., hamper and package included, consisting of French, Fancy, and Show varieties.—Crown Nursery, Reading.

PELARGONIUM, KENTISH HERO.—This was decidedly the best Gold and Bronze bedder in the trial ground at Chiswick last summer. First-class Certificate; the only one awarded in that Section. 24s. and 30s. per dozen in May.
DOWNIE, LAIRD & LAING, Forest Hill, S.E.

LORD DERBY, BEAUTY of CALDERDALE, Egyptian Queen, Mimas, Her Majesty, Miss Watson, Sophia Dumaresque, Madame Lemoine, Baron, Beauty of Ribblesdale, Triomphe de Lorraine, Sophia Cusack—the 12 for 23s., including package, at
WILLIAM COCKS, Old Nurseries, Donington, Spalding.

Perry's New Verbenas.

CHARLES TURNER is now prepared to execute orders for these beautiful varieties. The set of 13 sorts for 25s.
The Royal Nurseries, Slough.

New Verbenas.

JOHN KEYNES will be ready to send out the 12 splendid VERBENAS (price 3s. 6d. each) raised by Mr. Eckford, on May 1. A Plate of six of these splendid Flowers will be sent on receipt of 16 postage stamps.
Salisbury, April 3, 1869.

New Verbenas.

WM. KNIGHT will be ready to send out his six splendid SEEDLING VERBENAS on and after May 1, at 3s. 6d. each. They were all awarded First-class Certificates at the Brighton September Show, 1868. The usual discount to the Trade.
Floral Nursery, Hailsham, Sussex.

FUCHSIAS.—Single and Double varieties, rooted plants, 3s. per dozen; £1 per 100 varieties; package or post free on receipt of stamps or Post-office order.
J. B. CURTIS, Sowerby, Thirsk.

Dahlias.

JOHN KEYNES, NURSERYMAN, Salisbury. Twelve splendid Show Flowers. Four Fancy ditto. Obtained First-class Certificates at many exhibitions. CATALOGUES ready.

Dahlias.

GEO. RAWLINGS devotes himself almost entirely to the cultivation of this noble flower. CATALOGUES of nearly 250 varieties now ready—Romford, Essex.

DAHLIAS, DAHLIAS, DAHLIAS: strong plants now ready.—Selection left to JOHN J. HASLAM, Chadderton, Manchester, for cash, in 12 good kinds, 4s.; 24, 8s.; or per 100, 25s. Fancy PICOTEE (Countess of Ellesmere), strong plants, 70s. per 100 pairs.

Carnations and Picotees.

WOOD AND INGRAM will supply 10 Pairs fine named SELF CARNATIONS, of various colours, and 10 Pairs fine named PICOTEES for £1. Selection left to W. & I.
Nurseries, Huntingdon.

ADAM FORSYTH'S CATALOGUE of New and Choice CHRYSANTHEMUMS for 1869 is now ready; containing also a practical Treatise on their Cultivation. Forwarded to all applicants for one stamp.
Brunswick Nursery, Stoke Newington, N.

Coleus, Coleus.

FOUR NEW GOLDEN COLEUS of the Royal Horticultural Society, 1869—Her Majesty, Prince of Wales, Princess of Wales, and Prince Arthur. The four free by post for 5s.
PHILIP LADDS, Nursery, Bexley Heath, Kent.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.—Mr. WEBB, Calcot, Reading.

SCOTT'S SUPERB PRIMULA FIMBRIATA, 6 var., mixed, or each colour separate, 1s. 6d. and 2s. 6d. per pkt.
SCOTT'S SUPERB CINERARIA and CALCEOLARIA, 1s. and 2s. 6d. per packet.
SCOTT'S SUPERB EXHIBITION ASTERS, STOCKS, &c., &c. See former Advertisments, or SEED CATALOGUE.
J. SCOTT, The Seed Stores, Yeovil, Somerset.

Royal Ascot or Perpetual Vine.

MESSRS. JOHN STANDISH AND CO. are now selling fine strong plants of this extraordinarily productive VINE at 21s., 42s., and 63s. each.
Royal Nurseries, Ascot, Berks.

Pines.

B. S. WILLIAMS has all the best kinds, in splendid condition, warranted clean. Prices on application.
B. S. WILLIAMS, Seed Merchant and Nurseryman, Upper Holloway, London, N.

ORCHARD-HOUSE TREES Fruiting in Pots.—Peaches, Nectarines, Apricots, Cherries, Plums, Pears, Apples, Vines, and Figs.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LIST of these varieties from Mr. WEBB, Calcot, Reading.

GOLD FERNS.—Gymnogramma chrysophylla and Mertensii, Pteris cretica albo-lineata, good plants, 12 for 10s., package free. Trade price per 100.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

British Fern Catalogue.

ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, Sidcup Hill, Kent.

HERBACEOUS and ALPINE PLANTS, of the best and most attractive. Prices very low. CATALOGUES free.
STEPHEN BROWN, Nursery, Sudbury, Suffolk.

THE GOLDEN ARBOR-VITÆ, THUJA AUREA.—Fine specimen plants, 2½ feet high, and 2 feet through, will be offered at very reduced prices. Apply to
WM. WOOD & SON, Maresfield, near Uckfield, Sussex.

GNAPHALIUM LANATUM, a hardy ornamental white-foliaged plant, suitable for edgings, 6s. per dozen bunches. Each bunch will separate into a number of plants.
CHARLES SHILLING, Hill Nursery, Winchfield, Hants.

DWARF BOX EDGING, 4d. per yard. 1 yard sufficient to plant 3 yards.
JOHN CRANSTON, Nurseries, King's Acre, near Hereford.

COMMON ENGLISH YEWS.—Wanted to Purchase, 70 strong well-furnished Plants, 10 feet high. State price to
RICHARD NISBET, Aswarby Park Gardens, Falkingham, Lincolnshire.

FOR SALE, a choice collection of well-trained PYRAMID INDIAN AZALEAS, 4 to 5 feet high, circumference 6 to 8 feet, now showing for flower. Also a few choice STOVE and GREENHOUSE SPECIMEN PLANTS.
Apply to J. G., 2, Widcombe Hill, Bath.

FOR SALE, from the Bankrupt Estate of Gunn & Petree, Inverness, 2,000,000 2-yr. Seedling SCOTCH FIRS, at 10d. per 1000; also 5,000,000 2-yr. and 1-yr. transplanted do., at 4s. 6d. per 1000.
Apply to D. G. Ross, Dingwall (Trustee for the Creditors).

Gladioli, the most Extensive Collection.

BARR AND SUGDEN, 12, King Street, Covent Garden, W.C., have the finest and largest collection of GLADIOLI ever offered, prices varying from 2d. to 15s. per root. For particulars see pp. 68, 69, 70, and 71 of B. & S.'s SPRING SEED CATALOGUE.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

Choice Seeds, Gladioli, &c.

WM. CUTBUSH AND SON'S CATALOGUE of the above contains description and price of many very superior home-grown VEGETABLE and FLOWER SEEDS, and choice varieties of GLADIOLI, &c., all of which are highly recommended. Post free on application.
Highgate Nurseries, London, N.

ARAUCARIA CUNNINGHAMI EXCELSA. — For SALE, a splendid grown Tree, 13 feet high, growing in a 24-inch pot.—For full particulars apply to
C. BUTLAND, Eccleshill Hall, near Leeds.

New Spring Catalogue.

CHARLES TURNER'S DESCRIPTIVE LIST of PLANTS for this season, including many new varieties now offered for the first time, is now ready.
The Royal Nursery, Slough.

B. S. WILLIAMS' DESCRIPTIVE CATALOGUE of FLOWER, VEGETABLE, and AGRICULTURAL SEEDS, &c., is now ready; post free to all applicants.
Victoria and Paradise Nursery, Upper Holloway, London, N.

NEW and GENUINE AGRICULTURAL and GARDEN SEEDS.
Special prices and advantageous offers on application to
JAS. FAIRHEAD & SON, Seed Merchants, 7, Borough Market, London.

NEW and GENUINE AGRICULTURAL and GARDEN SEEDS.
Special prices and advantageous offers of above on application to
ALFRED LEGERTON, Seed Merchant, 5, Aldgate, London, E.

WAITE, BURNELL, HUGGINS AND CO.'S WHOLESALE CATALOGUE of AGRICULTURAL SEEDS for this season is now ready, and will be forwarded post free upon application.
Seed Warehouse, Southwark Street, London, S.E.

Agricultural and Garden Seeds.

H. AND F. SHARPE'S SPECIAL PRICED LIST of HOME-GROWN SEEDS is now ready, and may be had on application.
Seed Growing Establishment, Wisbech.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY (Limited),
CORN, SEED, MANURE, and OILCAKE MERCHANTS.
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke
Samples and prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

PARIS, 1867. SUTTONS' GRASS SEEDS for ALL SOILS. A PREMIER PRIX SILVER MEDAL for GARDEN SEEDS, GRASSES, and GRASS SEEDS, was Awarded to SUTTON AND SONS, SEEDSMEN to the QUEEN, Reading, Berks.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c.
Free for one postage stamp.
RICHARD SMITH, Seed Merchant, Worcester.

A SPECIAL PRIZE MEDAL, PARIS, 1867, was AWARDED to JAMES CARTER & Co., 237 & 238, High Holborn, London, W.C., for GRASS SEEDS, supplied for the Exhibition Grounds.

GRASS SEEDS: WHEN and WHAT to SOW.—For the fullest information on this subject, see CARTER'S ILLUSTRATED FARMER'S CALENDAR for 1869; post free, 6d.
JAMES CARTER & Co., Seed Growers, 237 and 238, High Holborn, London, W.C.

EVERY GARDEN REQUISITE KEPT in STOCK at
CARTER'S New Seed Warehouse, 237 and 238, High Holborn, London.

CARTER'S FARM SEEDS.—See large Advertisement at page 386 of *Gardeners' Chronicle*, April 10, 1869.
SEED GROWERS, MERCHANTS, and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

SUTTONS' CHAMPION SWEDE, the hardiest and best in cultivation. Lowest price per bushel on application.
SUTTON & SONS, Seed Growers, Reading.

To the Trade.

HALL'S WESTBURY SWEDE TURNIP SEED, true, nett. Grown last season from transplanted roots. For samples and prices, apply to
WILLIAM COCKS, Seed Grower, Donington, near Spalding.

Mangel Wurzel Seed.

JOHN SHARPE can offer on good terms, from highly selected Stocks, and his own growing this year.
Bardney Manor, Lincoln.

1868.—Mangel Wurzel Seed.

H. AND F. SHARPE can offer the Trade some splendid STOCKS of the above-named Seed, grown on their own Farm this season from picked Bulbs. The quality is very fine, and prices low. Samples may be obtained on application.
Seed Growing Establishment, Wisbech.

GIANT ASPARAGUS PLANTS, the best that money can procure, 2s. 6d. per 100. This delicious Vegetable does not require half the expense usually incurred in planting it.
See RICHARD SMITH'S SEED LIST for 1868.
Extra strong SEAKALE, 2s. per dozen.
RICHARD SMITH, Nurseryman, Worcester.

CUCUMBER PLANTS.—TELEGRAPH, warranted true. Selected stock, strong plants.
Apply to A. WATKINS, Bishop Stortford, Herts.

POTATOS.—Fluke, nice seed, per cwt. or ton. ARTICHOKES, JERUSALEM, fine, 5s. per bushel.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

POTATOS.—Handsworth Early Round.—Price on application to
JAS. FAIRHEAD & SON, Seed Merchants, 7, Borough Market, London.

SURPLUS STOCK of SEED POTATOS.—Flukes, 8s. per sack of 16 stone, 70s. per ton.; Dalmahoys, 9s per sack of 16 stone, 80s. per ton; Early Shaws, 10s. per sack of 16 stone. Sacks 1s. 4d. each. Remittance to accompany orders.
CHRISTMAS QUINCEY, Seedsman, &c., Peterborough.

New and Choice Stove Plants and Ferns.

JOHN H. LEY, NURSERYMAN, Croydon, begs to offer the following, at very low rates for cash:—

	Each—s. d.		Each—s. d.
Alocasia Jenningsi ..	5 0	Eranthemum Andersoni	
Alsmandra Henfersoni ..	1 0	3s. 6d. and	5 0
Anthurium magnificum ..	2 0	Gymnastachyum Pearcei ..	1 6
Clerodendron Balfouri ..	1 0	Gymnogramma Laucheana	1 6
Dalechampia Roeciana		Passiflora trifasciata ..	2 6
rosea	1 6	Sanchezia nobilis variegata	2 6
Fittonia Argyroneura ..	1 6	Selaginella Poulteri ..	1 0

Or one of each, hamper included, sent on receipt of Post-office Order for 22s.

C. PLATZ AND SON, Erfurt (Prussia), having just received from the mother country a supply of the following SEEDS, fresh and of excellent quality, offer them to the public on the following terms:—

LATANIA BORBONICA (Livestonia sinensis), 10 lb., 72s.; 1 lb., 8s.; 100 seeds, 3s. 6d.
CHAMÆROPS EXCELSA, 100 seeds, 12s.
PANDANUS UTILIS, 100 seeds, 20s.
ZAMIA FURFURACEA, 100 seeds, 10s.
PINUS BENTHAMIANA, per lb., 130s.; per oz., 10s.
" LAMBERTIANA, per lb., 42s.; per oz., 3s. 6d.
" REGINÆ AMALIÆ (Peloponesica), per lb., 8s.

FOR SALE, COLLECTION of 100 fine FLOWERING SPECIMEN ORCHIDS.—The Grand Specimen ORCHIDS (some the finest in the country), a few large FERNS, and Fine-foliaged Plants, belonging to W. Jackson, Esq., of Cross Lanes, near Bedale, are now offered for Sale. To any Nobleman or Gentleman about to commence the cultivation of these beautiful plants, this is an opportunity rarely to be met with.

Full particulars on application to Mr. DAVID NORRIS, Gardener at Cross Lanes, near Bedale, Yorkshire.

GREENHOUSE PLANTS, good healthy stuff, in the following sorts, all set with flowers, 12 varieties, for 12s.; 24 for 24s., package included:—ACACIA ARMATA and DRUMMONDII, Cytisus fragrans, Grevillea rosea, Coronilla glauca and variegata; Ericas in variety; Gardenias in variety; Chorozemas in variety; Kennedyas, Soliyas, Aotus gracillimus, Brachysemas, Dilwynias, Pimeleas, Tremandra hirsuta, Azaleas, Rhynchospermum jasminoides. A good selection of Hard-wooded Greenhouse Plants, in 50 varieties, for 50s., package included.

H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

Lilium Washingtoneanum.

W. THOMPSON, SEEDSMAN, Tavern Street, Ipswich, respectfully begs to offer SEED of the above splendid NEW LILY, just received direct from California. It is of robust habit, growing 3 to 5 feet high, and produces very large, highly fragrant white flowers, spotted internally, and changing to blush before fading. Price 2s. 6d. per packet, post free. Price to the Trade per 1000 on application.

SOLANUM RACEMIGERUM (Currant-fruited Tomato.) Plants in pots of this "most ornamental of all" the fancy varieties (see *Gardeners' Chronicle*, p. 388), may be had at 1s. each; free by post, 1s. 3d. Admirably suited for pot or border culture, for which purposes it was used at Kensington and Chiswick last season.

ROBERT M. STARK, York Road, Trinity, Edinburgh.

To Noblemen and Gentlemen Planting for Pheasant DRIVES, &c.—NOW BEING THE BEST TIME TO PLANT YEWS, HOLLIES, TREE BOX, &c.,

C. WHITEHOUSE, Brereton Nursery, Rugely, begs to offer stout bushy YEWS and HOLLIES, 4 to 4½ feet TREE BOX (always dry under for Pheasants, in wet weather) about 4 feet; and as he holds a very large stock of the above, the price will be very reasonable.

Planting Season.—Walton Nursery, Liverpool.

TO PLANTERS OF PUBLIC OR PRIVATE PARKS, CEMETERIES, PLEASURE GROUNDS, OR WOODS AND FORESTS.

WM. SKIRVING begs to offer his extensive and choice Stock of TREES and SHRUBS, all now in fine condition for removing; and as he is clearing off the Stock from 50 acres of his Nursery—the land being required for building—he is willing to accept very moderate prices.

The Stock consists of immense quantities of FOREST and ORNAMENTAL TREES, and of DECIDUOUS and EVERGREEN SHRUBS of all sizes, amongst which are some thousands of the Variegated Hollly, of the finest colours and great size; also, of the large broad-leaved green variety, the finest and hardiest of all Evergreen Trees.

Gentlemen wishing to make new or renovate old Pleasure Grounds will find this a most excellent opportunity of effecting an immediate improvement. A specimen of this may be witnessed by a visit to the Nursery, which is respectfully solicited.

Walton Nursery, Liverpool.

Vegetable, Agricultural, and Flower Seeds.

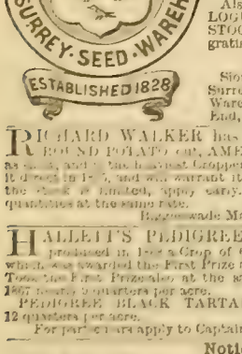
MISCELLANEOUS HARDY BEDDING PLANTS, SWEET VIOLETS, &c.

ROBERT PARKER begs to announce that his CATALOGUE, containing DESCRIPTIVE LISTS of the finest kinds in cultivation of the above-named, is now published, and will be forwarded to applicants. The stocks of Seeds have all been procured from the best possible sources; all are warranted genuine, and are offered at the lowest possible prices.

Intending purchasers are requested to compare the prices with those of other houses.

Exotic Nursery, Tooting, Surrey, S.W.

New Seeds for the Garden and Farm, 1869.



ARCHD. HENDERSON'S DESCRIPTIVE and PRICED CATALOGUE of SEEDS, containing Cultural Remarks on all the most important SEEDS,

A select list of GLADIOLUS for Spring Planting,

GRAPE VINES, in Pots, an unrivalled Collection.

Also his DESCRIPTIVE CATALOGUE of GENERAL NURSERY STOCK is now ready, and may be had gratis and post free upon application.

Seed Nursery, Thornton Heath, Surrey; and at the East Surrey Seed Warehouse, College Grounds, North End, Croydon.

RICHARD WALKER has to offer the finest sort of ROUND POTATO out, AMERICAN RED. It boils as white as snow, and is the heaviest cropper in this country. R. W. imported it direct in 1867, and will warrant it to grow 16 tons to the acre. As the stock is limited, apply early. Price per cwt., 30s.; smaller quantities at the same rate.

Bagshot-wade Market Gardens.

HALLETT'S PEDIGREE CHEVALIER BARLEY produced in 1868 a Crop of 62 bushels per acre, a Sample of which was awarded the First Prize at the Birmingham Show of 1868. Took the First Prize also at the same Show of 1867. Produced in 1867 nearly 9 quarters per acre.

PEDIGREE BLACK TARTARIAN OATS produced, 1868, 12 quarters per acre.

For particulars apply to Captain HALLETT, F.L.S., Brighton.

Notice.

HARRISON AND SON, SEED GROWERS, &c., Leicester, beg to inform Agriculturists and the Trade that they have entirely sold out of their NORMANTON GLOBE MANGEL WURZEL for this season, having had an extraordinary demand for this superior variety.

Secured a few sacks of CHAMPION YELLOW GLOBE, 1s. 2d. per lb. GIANT LONG RED (superior stock), 1s. per lb.

Also all other leading kinds at equally low prices and of unsurpassed quality. All orders value 20s. and upwards carriage free. For cash or reference before any payments.

HARRISON & SON'S CATALOGUE of their selected FARM SEEDS, &c., post free on application.

Harrison & Son, Midland Seed Warehouse, Leicester.

RHODODENDRONS by the doz., 100, 1000, or 10,000.

	Doz.	Per 100	Per 1000
	s. d.	£ s. d.	£ s. d.
RHODODENDRON PONTICUM, fine bushy plants, well rooted .. 9 to 15 inches	3 0	0 15 0	7 0 0
" " " " " 1 to 1½ foot	4 0	1 0 0	9 10 0
" " " " " 15 to 20 inches	4	6 1 2 0	11 0 0
" HYBRIDUM, bushy plants, 9 to 15 inches	4	0 1 5 0	..
" " " " 1 to 1½ foot	6	0 1 10 0	..
" " " " 1½ to 2 feet	6	0 2 0 0	..
" MAXIMUM ALBUM " 1 to 1½ foot	4	0 1 5 0	12 0 0
" " " " 15 to 20 inches	5	0 1 10 0	14 0 0
" " " " 1½ to 2 feet	6	0 2 0 0	..
The above sorts selected in bloom bud 2s. doz. ex.			
" HIRSUTUM, dwarf Alpine, nice bushy plants	3	0 0 15 0	7 0 0
" 120 named varieties, 1, 2, and 3 year, from grafts, 1s. 6d. to 3s. 6d. each.			
Hardy HEATHS, 40 varieties, nice plants, by the dozen, 100, or 1000, very cheap. See Catalogue.			
ARBOR-VITÆ, American, fine bushy well-rooted plants, fine for single plants or hedges .. .. 1½ to 2 feet	2	0 0 12 0	..
" " " " " 2 to 2½ feet	2	6 0 15 0	..
" " " " " 2½ to 3½ feet	3	0 0 16 0	..
" " " " " 3½ to 4½ feet	4	6 1 5 0	..
" " " " " 4 to 5 feet	5	0 1 10 0	..
" " " " " 5 to 6 feet	10	0 ..	..
Double "WHIN," FURZE or "GORSE, good plants, extra transplanted 1 to 1½ foot	3	0 0 12 0	..
" " " " 15 to 20 inches	4	0 0 15 0	..
" " " " nice plants in pots	4	0 1 0 0	..
COTONEASTER MICROPHYLLA, nice bushy plants .. .. .. 1 to 1½ foot	..	0 12 0	5 0 0
" " " " " 1½ to 2 feet	..	0 15 0	..

PRICED CATALOGUES and any information may be had on application to

JAMES SMITH, Darley Dale Nurseries, near Matlock.

New and Choice Flower Seeds, Post Free.

B. S. WILLIAMS, SEED MERCHANT AND NURSERYMAN,

Victoria and Paradise Nursery, Upper Holloway, London, N.

	Per packet.—s. d.
WILLIAMS' SUPERB STRAIN of PRIMULA.—B. S. W. can with confidence offer his superb strain of Primula as being the finest in cultivation.	
Red, White, or Mixed .. .. .. 2s. 6d., 3s. 6d., and	5 0
CINERARIA (Weatherill's extra choice strain) .. 2s. 6d. and	3 6
CALCEOLARIA (Neill's extra choice strain), 2s. 6d., 3s. 6d., and	5 0
" (Dalkeith Palace strain) .. ..1s. 6d. and	2 6
CARNATION, from Prize Flowers	1 0
CYCLAMEN (Wiggins' prize strain) .. 1s. 6d., 2s. 6d., and	3 6
POLYANTHUS (Wiggins' prize strain) .. .. 1s. 6d. and	2 6
BALSAM (Williams' superb strain) .. .. .. 1s. 6d. and	2 6
CLIANTHUS DAMPIERI (fresh imported seed)	1 6
GERANIUM LE GRAND .. .. 1s. 6d. and	2 6
SOLANUM (Weatherill's hybrids).—B. S. W. was awarded a Special Certificate for a Collection exhibited before the Floral Committee, December 15, 1868 2s. 6d., 3s. 6d., and	5 0
ECHEVERIA METALLICA (new Bedding plant)	2 6
STOCK (White Ten-week, Wallflower-leaved).—This is a splendid variety, the colour being so pure, and the flowers very double	1 0
HOLLYHOCK, from the best named sorts..	1 0
PANSY, from prize flowers	1 0
" finest Belgian varieties	1 0
PINK, Double-fringed, very fine	1 0
PICOTEE (from prize flowers)	1 0
SWEET WILLIAM, Hunt's Auricula-eyed .. 6d. and	1 0
OXALIS VALDIVIANA, quite hardy, the flowers are bright yellow and sweet scented, and produced in bunches of large size (new)	1 0
PALAVA FLEXUOSA, very pretty annual (new)	1 0
MYOSOTIS AZORICA ALBA, the flowers are pure white, contrasting beautifully with the blue variety Cœlestina (new)	2 6
MYOSOTIS AZORICA, var. CŒLESTINA, beautiful sky blue	1 6
AMARANTHUS SPECIOSUS AUREUS (New Golden Princes Feather)	1 0
ANTIRRHINUM ASARINA, very beautiful for rockwork (new)	1 0
HELICHRYSUM APICULATUM (new)	1 0
MIMULUS REPENS, this is a very distinct species, the flowers are of a pale lilac-purple colour, the lower lip being prettily spotted with orange on a yellow ground (new) ..	1 0
ABRONIA ARENARIA, the flowers are of a pure waxy yellow, deliciously scented, and produced in long succession (new)	1 0
ZINNIA ELEGANS TAGETIFLORA fl.-pl. (new)	1 0
ORNAMENTAL GOURDS, splendid varieties	0 6

Imported GERMAN ASTERS, STOCKS, WALLFLOWERS, ZINNIAS, &c., in Collections, as imported.

Victoria and Paradise Nursery, Upper Holloway, London, N.

New Pelargoniums of 1868.

WOOD AND INGRAM offer fine flowering Plants, in 5-inch Pots, of the following superb varieties:—

	Each—s. d.		Each—s. d.
Autocrat (Foster)	2 6	Captain John (Hoyle) ..	2 0
Eclair (Hoyle)	2 6	Emperor (Foster)	3 6
Example (Hoyle)	3 6	Firefly (Foster)	2 6
Grandee (Foster)	3 6	Heirloom (Hoyle)	3 6
Hermit (Foster)	3 6	King of Trumps (Foster) ..	3 6
Legacy (Hoyle)	2 6	Magician (Foster)	2 6
Robin Hood (Foster).. ..	2 6	Rob Roy (Foster)	2 6
Sœur de Charité (Foster) ..	3 6	Victor (Hoyle)..	3 6

Or the set of 16 for 40s., or 8 for 20s., equal quantities of the 2s. 6d. and 3s. 6d. varieties being included in the smaller selection. Package included.

FINE FLOWERING PELARGONIUMS.

WOOD & INGRAM offer the following 12 fine varieties at the prices affixed, or the set for 12s., package included.

	Each—s. d.		Each—s. d.
Charles Turner (Hoyle) ..	1 6	Beadsman	1 0
Favourite (Hoyle)	1 6	Nabob (Hoyle).. ..	1 6
John Hoyle (Hoyle)	1 6	Salacia	1 0
Pretty Mary (Hoyle).. ..	1 0	Cloth of Silver..	1 0
The Prince (Hoyle)	1 0	Miss-in-her-Teens	1 0
Amazon	1 0	Progress (Hoyle)	1 0

W. & I. also offer fine flowering plants of good ordinary showy kinds at 9s. per dozen, package included.

NEW HOLLYHOCKS of 1868 (sent out by Mr. Chater).

WOOD & INGRAM offer the following splendid varieties at 3s. 6d. each, or the set of 12 for 30s.:—

Adonis, Enchantress, Gem (Hawke), Midnight, Nobilis, Queen of Yellows, Rose d'Amour, Ruby Queen, Senior Wrangler (Hawke), Walden Queen, Walden Primrose, and Whitley King, all fine summer-struck thoroughly hardened plants.

FINE SHOW HOLLYHOCKS.

WOOD & INGRAM offer the following at the prices affixed, or the whole 21 fine varieties for 24s.; or 12, the selection being left to W. & I., for 12s., package included. Fine summer-struck thoroughly hardened plants:—

Alba Magna, 1s.; Argentea, 1s.; Carnea, 1s.; Carus, 1s.; Cerise Unique, 1s.; Cygnet, 2s. 6d.; Elegantissima, 1s.; Erebus, 1s.; Fanny Chater, 2s. 6d.; Glory of Walden, 1s. 6d.; Harriet, 1s.; Hercules, 2s. 6d.; Hon. Kate Neville, 1s.; King of Salmons, 1s.; La Dame Blanche, 1s.; Lady Braybrooke, 1s.; Lizzy, 1s.; Mennon, 1s.; Minerva, 1s. 6d.; Mr. Rooke, 1s.; Noisette, 1s.; Peach Blossom, 1s.; Plurimus Dulcis, 1s. 6d.; Pourpre de Tyre, 1s.

W. & I. also offer 12 good showy named kinds for Flower Garden, for 9s. or 12s.; good double kinds from open ground, not in pots, for 6s., package included.

GLOXINIAS.

WOOD & INGRAM offer the following 8 fine varieties of Gloxinias for 8s., good flowering plants, package included:—Annoau Cobalt, Celestial, Optima, Lady E. Scanley, Pentagonia nitrocata, Serena, Virginie, Frederic Lemaire.

The Nurseries, Huntingdon.

Silver Sand, Silver Sand.

BEST and CHEAPEST, delivered to Rail for any part of England. Apply to

J. SYMONDS, Contractor and Sand Merchant, Hatchlands, Red Hill.

REIGATE SILVER SAND, 12s. per ton, at Swan Place. Delivered four miles, or to any London Wharf or Railway, 16s. per ton; or 1s. 6d. per bushel. Sacks at cost price, or on hire. PEAT, LOAM, LEAF MOULD, SPHAGNUM, and COCOA-FIBRE REFUSE.

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FIBROUS PEAT, of first-class quality, for Orchids, Heaths, American Plants, and all Potting purposes, may be obtained on application to Mr. THOMAS JESSOP, Farningham Wood, near Sevenoaks Junction Station, Kent. Price 5s. per cubic yard, when delivered to London, Chatham, and Dover Railway, in trucks of 16 yards, for most stations in the kingdom; or 4s. per cubic yard when fetched in carts from the Wood. It is extensively used and appreciated in the principal Nurseries, and in the Royal Parks and Gardens.

The Vineyard, Garston.

MEREDITH'S VINE, PINE, PEACH, and PLANT MANURE.

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LAWES' PATENT TURNIP MANURE.
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" WHEAT, BARLEY, GRASS, and MANGEL MANURE.
" CONCENTRATED CORN and GRASS MANURE.

These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom.

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NITRATE of SODA, SULPHATE of AMMONIA, and other Chemical Manures.

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DISSOLVED BONES, for Dressing Pasture Lands
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Its Members are Cultivators of upwards of 50,000 Acres of Land, which has been for years under Management with Manures of their own Manufacture, consequently the consumer has the best guarantee for the genuineness and efficacy of the Manures manufactured by this Company.

Particulars will be forwarded on application to the Secretary; or may be had of the Local Agents.

C. T. MACADAM, Secretary.

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Sold by all Seedsmen and Nurserymen, and by Messrs. ROBERTS & SONS, 112, St. John Street, Clerkenwell, E.C., of whom a Drawing of the same can be obtained; also TOBACCO TISSUE for Fumigating Greenhouses, price 3s. 6d. per lb.

The Best and Cheapest Vermin Killer.

Vide "The Gardener's Magazine," conducted by Shirley Hibberd Esq., F.R.H.S., of August 15, 1868.

UNDER PERMISSION OF THE HON. BOARD OF CUSTOMS.

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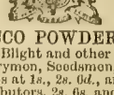
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Manufacturers: CORRY & SOPER, at their Bonded Warehouse, Shad Thames, London, S.E. [AGENTS WANTED.]

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DUTY-FREE TOBACCO.

BY HER MAJESTY'S ROYAL LETTERS PATENT, AND BY PERMISSION OF THE HON. BOARD OF CUSTOMS.



POOLEY'S TOBACCO POWDER, for the Prevention and Destruction of Blight and other Diseases in Plants.

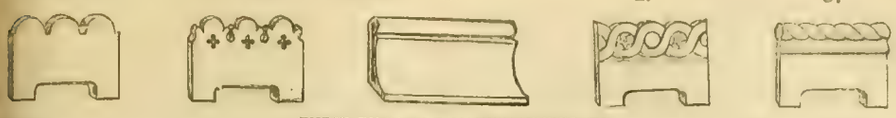
Sold by Nurserymen, Seedsmen, and Florists,
In Tins at 1s., 2s. 6d., and 5s.
Powder Distributors, 2s. 6s. and 3s. 6d. each.

"I find it exceedingly useful for killing the Aphides on Roses and other Plants."—GEO. EYLES, Superintendent, Royal Horticultural Gardens, South Kensington. May 7, 1868.

Sole Manufacturer, T. A. POOLEY, Bonded Warehouse, Sussex Wharf, Wapping, E.

H. DOULTON & CO.'S GARDEN EDGING TILES

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THESE TILES ARE MANUFACTURED IN

VITRIFIED STONE-WARE AND IN TERRA-COTTA OF THE BEST MATERIAL,

WHICH IS BURNT TO AN EXTRA DEGREE OF HARDNESS,

AND WARRANTED IMPERISHABLE.

They will be found to be far preferable to Box and other Edgings, as they require no attention when once fixed, take up less room, and do not harbour Slugs, &c.

PRICE LISTS of the above, and also of TERRA-COTTA GARDEN VASES, FOUNTAINS, PENDANTS, FLOWER-POTS, FERN-CASES, &c., &c, may be had on application to

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PAXTON'S STRAWBERRY CRINOLINE.



The STRAWBERRY CRINOLINE is in the form of a table, made in halves, so as to be used without disturbing the plant. It is 16 inches in diameter, and stands 4 inches above the ground, galvanised. Its use is to preserve Strawberries from slugs, contact with the soil, superfluous moisture, and other nuisances. They are considered to last 10 years at least with care.

Price per Gross, £4.

The STRAWBERRY CRINOLINES are declared by all who use them to be of the greatest use in keeping the Fruit clean and assisting its growth—thus in the production of large crops. For particulars see Illustrated Catalogues, and Testimonials sent to us by our patrons last year.

The contrivance is by the late Sir Joseph Paxton, who, after testing them for one season in his own gardens, "Rock Hills," gave his approval of their usefulness. The right to Manufacture them was transferred to

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GARDEN ARCHES, ARCADES, VERANDAHS, ORNAMENTAL FENCING, TRELLIS WORK for CREEPERS, FLOWER STANDS, SUSPENDING BASKETS, AVIARIES, PHEASANTRIES, &c.

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GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

MR. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

Acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in GARDENERS' CHRONICLE *of International Exhibition, May* 24, 1862, *page* 476.

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

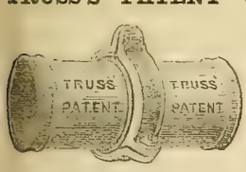
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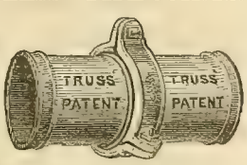
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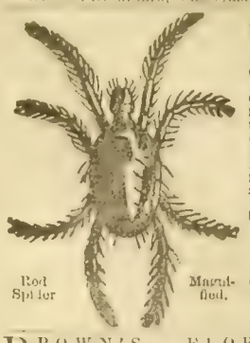
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GENUINE TOBACCO PAPER, of the finest quality, 10*d* per lb., or 8*s*. per cwt.
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Red Spider — Mealdfied.

GISHURST COMPOUND.

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1*s*., 3*s*., and 10*s*. 6*d*.

Wholesale by
PRICE'S PATENT CANDLE COMPANY (Limited),
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BROWN'S FLORAL SHADING.
Sold by Nurserymen and Seedsmen.
No. 1. 38 inches wide, 20 yards long, at 1*s*. 6*d*. per piece.
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Samples on application to CHARLES BROWN, Greenheys, Manchester.

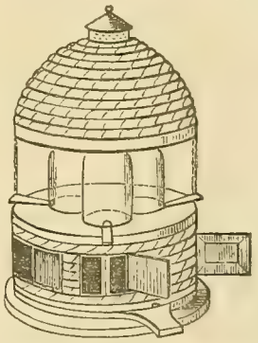
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SCRIM CANVAS, for Wall Fruit, Greenhouse Shades, Tulip Covers
HAYTHORN'S and WALLER'S NETTINGS, sample of material free on application.
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SECOND-HAND TENTS from ABYSSINIA, Cheap.

RALPH WALLER AND CO, 45, Dale Street, Manchester, Manufacturers of all kinds of GARDEN NETTING, &c.—The serious injury done every spring to fruit crops by frost has proved to every Gardener the absolute necessity of providing some protection to the trees early in the year. If the blossom, in its earliest development, be but slightly weakened by frost, the vitality of the fruit germ is destroyed, and the fruit lost. In this climate, on the average of a century, there is not more than one year in 19 when the protection is unnecessary. Many fabrics have been tried for this purpose of protection, with more or less success; and we may now say, without fear of contradiction, that we have succeeded in manufacturing the only fabric which is altogether unobjectionable for this purpose. Without unduly nursing, it effectually protects the young germ, and does not impede the action of light and due circulation of air. Some other fabrics do this, and thus weaken the vitality of the tree altogether. Almost every large grower in the three kingdoms can testify to these facts.
The Nettings also make a beautiful shading for Hothouses in summer, and are cheaper than other fabrics on account of their great durability.
Netting (qualities): Nos. 1, 2, 3, in pieces of 30 yards long, 1½ yard wide. Tiffany: in pieces 20 yards long, 39 inches wide.
For prices, &c., apply to the above address—45, Dale Street, Manchester.

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TWO SILVER MEDALS AWARDED TO GEO. NEIGHBOUR & SONS, AT THE PARIS EXHIBITION OF 1867. THE ONLY ENGLISH EXHIBITORS WHO OBTAINED A SILVER MEDAL FOR BEE-HIVES.

NEIGHBOURS' IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR AND SONS, working three bell-glasses; is neatly and strongly made of straw; it has three windows in the lower hive.



This Hive will be found to possess many practical advantages, and is more easy of management than any other Bee-Hive that has been introduced.
Price, complete ..£1 15 0
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THE LIGURIAN or ITALIAN ALP BEE being much in repute, G. N. & Sons supply colonies of Bees with genuine Italian Queens (which will shortly have wholly yellow Italian Alp Bees) at £3 3*s*. each.
An Italian Alp Queen, with full directions for uniting to Black Stocks, £1 each.
ENGLISH BEES.—Stocks and Swarms may be obtained as heretofore.

A newly-arranged CATALOGUE of other Improved Hives, with Drawings and Prices, sent on receipt of two stamps.
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AGENTS:—Liverpool: JAMES CUTHBERT, 12, Clayton Square. Manchester: J. WILSON, 50, King Street. Dublin: EDMONSTON BROTHERS, 10, Dame Street. Glasgow: AUSTIN & MCASLAN, 16, Buchanan Street.

Rosher's Garden Edging Tiles.



THE above and many other PATTERNS are made in Terro-Metallic Ware, Terra-Cotta, Stoneware, and Redware, and of great durability. The planer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability and superior finish, and in much variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.E. Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
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ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs. Likewise more elaborate designs. Pattern Sheets of Pavements, with prices, forwarded for selection.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.
To be obtained of F. & G. ROSHER, at their premises as above.

SILVER SAND (REIGATE), at the above addresses—14*s*. per Ton, 1*s*. 2*d*. per Bushel; 2*s*. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1*s*. per Ton less. A coarser grained Sand 4*s*. per ton more. Samples of Sand by post on receipt of stamp.
FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEAT and LOAM supplied at lowest rates.
F. & G. ROSHER.—Addresses see above.
N.B. Orders promptly executed by Railway or Vessel.
A liberal discount to the Trade.

Tricolor Pelargoniums.

J. WATSON, New Zealand Nursery, St. Alban's, begs leave to offer his two beautiful TRICOLOR PELARGONIUMS, MISS WATSON and MRS. DIX, unrivalled for freedom of growth and beauty of colouring, in good plants, 5s. each; also, PRINCESS CLOTHILDE, 5s. each, or the three for 13s. 6d. Miss Watson and Mrs. Dix have received 17 First-class Certificates and Extra Prizes from the leading Horticultural Societies of the kingdom. Early orders solicited.

Bedding Geranium, from

JOHN KEYNES, NURSERYMAN, Salisbury: LITTLE PINKIE.—Salmon pink colour, fine close dwarf habit, most profuse bloomer. One of the greatest acquisitions for Bedding purposes ever yet produced; this will last for many years; has been fully proved. A perfect gem. The finest Bedding Geranium in the Trade. 18s. per doz. Fine Plants on May 1.

Cheap Tricolor Geraniums.

ALFRED FRYER offers 50,000 fine Plants, at the following low prices for cash. Package free.
LADY CULLUM, 13s., 18s., and 21s. per dozen.
SOPHIA DUMARESQUE, 7s., 10s., and 13s. per dozen.
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MRS. POLLOCK, 3s. 6d., 5s., and 6s. per dozen.
MRS. BENYON, 5s., 6s., and 7s. per dozen.
Remittance requested from unknown correspondents.
Address, ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

Beautiful Coloured Drawings.

GEO. SMITH can still supply beautiful ILLUSTRATIONS, by Mr. Andrews, of his new Seedling GERANIUMS, viz., Masterpiece and Lizzie, the two finest Nosegay Geraniums in cultivation; also Victor, a superb double-flowering variety. The above have all received First-class Certificates from the Floral Committee of the Royal Horticultural Society. In three handsome Plates, for 1s postage stamps each. For description see CATALOGUE in exchange for one postage stamp.
Tollington Nursery, Hornsey Road, Islington, London, N.

Cheap, Cheap, Cheap.

FINE HEALTHY TRICOLOR and other PELARGONIUMS.
Lady Cullum, 12s., 15s., and 18s. per dozen.
Sophia Dumaresque, 6s., 10s., and 12s. per dozen.
Italia Unita, 4s. per dozen.
Crystal Palace Gem, 4s. per dozen.
Leonidas (splendid), 6s. per dozen.
Mrs. Pollock, 3s. 6d. per dozen, 24s. per 100.
Beauty of Oulton, 4s. per dozen.
Centaurea Candidissima, strong plants, 5s. per dozen.
In strong plants, for cash, package included. CATALOGUES free on application.
JOHN BARRETT, St. John's Nursery, Bury St. Edmund's, Suffolk.

CHOICE BEDDING, BICOLOR, and TRICOLOR GERANIUMS.

	Per doz.—s. d.		Per doz.—s. d.
A. H. Will's	18 0	Model	4 0
Beauty of Calderdale ..	6 0	Perilla	4 0
,, Ribblesdale ..	8 0	Princess Alice	6 0
Conspectum	4 0	Refulgens	12 0
Her Majesty	12 0	Silver Star	4 0
Lady Cullum	12 0	Sophia Cusack	15 0
Little Golden Christine ..	12 0	Sophia Dumaresque ..	6 0
,, Spread Eagle ..	12 0	The Sultan	12 0
Louise Smith	30 0	Viceroy	12 0

Cheaper by the 100 or 1000. Good Zonals, in sorts, 20s. per 100. The above are good plants, in 3-inch pots, package included.
A LIST, with prices of other choice Geraniums, can be had on application to
WM. POTTEN, Sissinghurst, Staplehurst, Kent.

Choice Bedding Geraniums.

THOMAS PESTRIDGE can now supply in strong plants, for cash, the following varieties:—

	Per doz.	Each.		Per doz.	Each.
	s. d.	s. d.		s. d.	s. d.
Lady Cullum ..	12 0	1 6	Egyptian Queen	3 0	
Lucy Grieve	..	5 0	Her Majesty	2 6	
Mrs. Pollock ..	4 0	0 6	Luna	4 0	0 6
Sophia Cusack ..	20 0	2 6	Model	8 0	1 0
Sophia Dumaresque	8 0	1 0	Mrs. Charles Barry ..	5 0	0 9
Sunset	5 0	0 9	Perilla	7 0	1 0
Italia Unita	4 0	0 6	Refulgens	12 0	2 0
Beauty of Calderdale	9 0	1 6	Vandyke	5 0	0 9
Crystal Palace Gem..	4 0	0 6	Viceroy	12 0	2 0

Twelve varieties, the Purchaser's selection from the above, 18s., package included. Cash must accompany all orders.
The Greenway Nursery, Uxbridge, Middlesex.

The best Golden-leaved Pelargoniums of the Season.

SALTMARSH AND SON will send out, early in May, the following First-class GOLDEN PELARGONIUMS, at 10s. 6d. each, with the usual discount to the Trade:—

GOLDEN EMPEROR, large smooth golden leaves, entirely free from zone, habit compact and vigorous. Awarded the First Prize in the Class for Golden-leaved Pelargoniums at the Royal Horticultural Society's Special Show, in June last.

GOLDEN QUEEN, rich golden-yellow leaves, with a blotch of a lighter shade of yellow in the centre of each leaf, being quite a distinct feature in variegation; habit neat and compact. Awarded the Second Prize in the same class as the preceding variety.

The following are extracts from notices of the Special Pelargonium Show, with reference to the above varieties:—

Gardeners' Chronicle, June 20, p. 659.
"The best golden-leaved variety not in commerce was Golden Emperor, which came from Messrs. Saltmarsh, who also received a Second Prize for Golden Queen."

Journal of Horticulture, June 25, p. 464.
"Amongst the golden self varieties, Golden Emperor, from Messrs. Saltmarsh, was decidedly the best."

Also, in "Hogg's Gardener's Almanac" for the present year the following descriptions are given:—
"Golden Emperor, a fine-looking variety, with large smooth golden leaves. Awarded a First Prize as the best golden-leaved Pelargonium of 1868.
"Golden Queen, a very promising kind, well coloured, and good habit." Mousham Nurseries, Chelmsford, Essex.

GERANIUMS, Gold, Bronze, and Tricolored, &c.—Beauty, Beauty of Calderdale, Beauty of Rivesdale, Compactum, Glowworm, Model, Princess Alice, Perilla, Little Golden Christine, Little Golden Spread Eagle, Countess of Tyrconnel, Gipsy Chief, Firebrand (Gill), Edwina Fitzpatrick, Sophia Dumaresque. The above, 1s. 6d. each, or 12s. per dozen, hamper and packing included; cheaper by the 100.
NEW GOLDEN and BRONZE GERANIUMS:—Admiration, Arthur H. Wills, Egyptian Queen, Empress Eugénie, Fascination, Her Majesty, Ester, Viceroy, Painted Lady, Refulgens, Rosalind, The Sultan. The above 12 for 21s., hamper and packing included.
PELARGONIUMS, New Show Varieties of 1868:—Captain John, Empress, Firefly, Grandee, Heirloom, Hermit, Keepsake, King of Trumps, Magician, Needle Gun, Prince of Orange, Rob Roy, Victor, Woman in White. 2s. 6d. each, 24s. per dozen, or the set for 20s.
PELARGONIUMS, Show Varieties of 1867.—Beauty of Windsor, Betrothed, Congress, Favourite, Gold Button, International, King of Flowers, Lord Lyon, Milton, Mongini, Perfection, Prince of Orange. The above set for 18s.
FANCY PELARGONIUMS of 1867.—Duchess of Buccleuch, Marguerite, Memnon, Neatness, Princess Helena, Silver Mantle. 1s. 6d. each, or the set for 8s.
12 New FUCHSIAS of 1868, strong plants. 10s. to 12s. per dozen.
12 New PETUNIAS of 1868. 9s. to 12s. per dozen.
12 New VERBENAS of 1868. 3s. to 4s. per dozen.
12 Splendid New PHLOXES, covered with bloom. 12s. to 18s. p. doz.
12 Grand AZALEAS, well set with bud. 18s., 24s. and 30s. per doz.
CATALOGUES of the above and all the New Tricolored and Golden Bronze Geraniums, New and Rare Plants, &c., can be had on application to
HENRY WALTON, Edge End, Marsden, near Burnley, Lancashire.

Gold and Silver Tricolor and Bicolor Geraniums.

WOOD AND INGRAM offer fine plants of the following:—

TRICOLORS.

	Each.—s. d.		Each.—s. d.
Eastern Beauty	1 0	Gold Pheasant	0 6
Lady Cullum	2 0	Mrs. Benyon	0 6
Sophia Cusack	2 6	Sophia Dumaresque ..	1 0
Sunset	0 6	Glowworm	0 6
Italia Unita	0 6	Silver Star	1 6
Countess	1 0	Queen's Favourite ..	1 0

Or the 12 varieties for 12s., package included.

BICOLORS.

	Each.—s. d.		Each.—s. d.
Artemus Ward	1 6	Luna	0 6
Beauty of Oulton ..	0 6	Circlet	0 6
,, Ribblesdale ..	1 0	President Lincoln ..	0 6
Gaiety	0 6	Neatness	0 6
Sceptre d'Or	0 6	Her Majesty	2 6
Perilla	1 6	Kentish Hero	2 6

Or the 12 varieties for 12s., package included.
Nurseries, Huntingdon.

Variegated Geraniums.—To the Trade.

WOOD AND INGRAM offer the following:—

	Per doz.—s. d.		Per doz.—s. d.
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Lady Cullum	18 0	Sunset	4 0
Sophia Dumaresque ..	9 0	Italia Unita	6 0
Glowworm	4 0	Queen's Favourite ..	8 0
Beauty of Ribblesdale	12 0	Circlet	4 0
Neatness	6 0	Perilla	12 0
President Lincoln ..	5 0	Duke of Edinburgh ..	6 0
Brilliantissima	4 0	L'Eleganto	6 0

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To the Trade.

WOOD AND INGRAM beg to offer—
BLECHNUM BRASILIENSE, do. do., per doz. 6s.
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YUCCA ALOEFOLIA, strong, in 3-inch pots, per doz. 9s.
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CALCEOLARIA AUREA FLORIBUNDA, fine autumn-struck plants, not potted, 5s. per 100.
CALCEOLARIA PRINCE OF ORANGE and FLORIBUNDA, 5s. per 100.
ATHYRIUM FILIX-FŒMINA, 4s. per doz.
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VERBENA PURPLE KING, fine strong plants, 15s. per 100.
GNAPHALIUM LANATUM, fine strong plants, 15s. per 100.
PYRETHRUM GOLDEN FEATHER, extra strong, from cuttings, 16s. per 100.
IRESINE HERBSTII, extra strong, from cuttings, 2s. per doz.; 16s. per 100.
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New Zonal Geraniums of 1868, and Double Varieties.

WOOD AND INGRAM offer the following fine varieties, in strong plants, at 1s. each, or 10s. per doz., package included:—Eclat, First Favourite, Grand Duke, Glow, Countess of Rosslyn, Emmeline, Rose Stella, Countess of Strathmore, Comet, Nosegay floribunda, The Sultan, Hon. G. Hardy, Miss Edith, The Seraph, Baron, Christabel (Mann).
Nurseries, Huntingdon.

VARIEGATED PELARGONIUMS.

Louise Smith	Miss Watson	Caroline Longfield
Countess Tyrconnel	Spanish Beauty	Lady of Shallot
Madeline Schiller	Dawn	Princess of Wales
Italian Beauty	Queen Victoria	Glen Eyre Beauty

21s.
CASBON & SON, Gravel Walk Nursery, Peterborough

F. AND A. SMITH invite the attention of intending purchasers of TRICOLOR and BICOLOR GERANIUMS to their very extensive Collections in each class. The plants are now in fine colour, and will well repay a personal inspection. They would especially mention the following attractive varieties:—
GOLDEN VARIEGATED ZONALS (TRICOLORS).—Earl of Derby, Jetty Lacy, King, Marvellous, Pre-eminent, Refulgens, Sunray, &c.
SILVER TRICOLORS.—Andromeda, Duchess of Sutherland, Mrs. Dombrain, Peri, Queen Mab, &c.
BICOLORS.—Bullion, Compacta, Combatant, Gladiator, Golden Rule, Plutus, Standard, &c.
ZONALS.—Beauty of Dulwich, Circle, Crimson Perfection, Favourite, Hebe, Little Excellent, Sunnyside, &c.
CATALOGUES (1869), containing full descriptions of these and other beautiful Novelties, may be had on application.
The Nurseries are within a few minutes' walk of the Lower Norwood Station (Crystal Palace line) and the Dulwich Station (London, Chatham, and Dover Railway).
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DICK RADCLYFFE AND CO.'S RUSTIC DECORATIONS, FERN CASES, &c.
SEED CATALOGUE gratis and post free.
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Four extraordinary Pictures, by Morales. Painted 1640.
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Market Gardens, Biggleswade, Beds.

RICHARD WALKER can supply for cash the SCARLET KING DAISIES, 5s. per 100; EARLY YORK CABBAGE PLANTS, 2s. 6d. per 1000; RED DUTCH, extra fine, 4s. per 1000; splendid BROWN COS LETTUCE PLANTS, 6d. per 100; WALCHEREN CAULIFLOWER PLANTS (true), 2s. per 100; Green KOHL RABI seed, the best ever offered, 1s. 6d. per lb.

Viola cornuta alba.

JAMES DICKSON AND SONS, 32, Hanover Street, Edinburgh, can supply the above beautiful Bedding Plant, pronounced by all who saw it in bloom last year to be UNRIVALLED AS A WHITE BEDDING PLANT. 30s. per 100, autumn-struck plants; if taken in quantities of 500 a reduction in price will be made.

To the Trade.

C. WHITEHOUSE, Brereton Nursery, Rugely, has to offer HOLLIES, 18 inches to 2 feet, 2 to 3 feet, 3 to 4 feet; also TREE BOX in sizes, YEWS, 3½ to 4 feet, well rooted and well furnished Plants, grown singly and stout; also 3-yr Seedling BERBERRIES, and 2-yr seedling YEWS. Price will be reasonable, as the stock is large.

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LARGE DOUBLE PURPLE ROCKETS, 3s. per doz., £1 per 100. BELLIS AUCUBÆFOLIA (Variegated Daisy), 2s. 6d. per doz., 16s. per 100; GARDENIA RADICANS, well set with blooms, 12s. per doz., £4 10s. per 100; GERANIUM CHRISTINE, NOSEGAY, 6s. per doz., £2 per 100; PYRETHRUM GOLDEN FEATHER, 1s. per doz., 6s. per 100; STOVE and GREENHOUSE PLANTS in variety, 10s. per doz., £4 per 100.
E. & J. PERKINS, Leamington Nursery, Leamington.

THE NEW GESNERACEOUS PLANTS
AND IRESINE LINDENI,

TOGETHER WITH MANY OTHER NOVELTIES, WILL BE SENT OUT on and after the 20th May.

FURTHER PARTICULARS WILL BE GIVEN NEXT WEEK.

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THOS. GIBBS & Co.
Corner of
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APPOINTED APRIL 1844
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KITCHEN GARDEN SEEDS,
FLOWER SEEDS.

Catalogues forwarded Post Free to any address on application.

CARTER'S STOVE, GREENHOUSE, AND BEDDING PLANTS.

JAMES CARTER & CO.,

THE ROYAL SEEDSMEN AND NURSERYMEN,

237 AND 238, HIGH HOLBORN, LONDON, W.C.; AND CRYSTAL PALACE NURSERIES, FOREST HILL, S.E.

J. C. & Co. desire to call attention to their large and varied stock of

STOVE, GREENHOUSE, AND BEDDING PLANTS,

Now on view at their Nurseries, embracing upwards of 500,000 strong healthy plants. For full particulars, see CARTER'S LIST of BEDDING and other PLANTS, illustrated, post free, gratis to customers. Will be ready May 1st next.

JAMES CARTER AND CO., 237 AND 238, HIGH HOLBORN, LONDON, W.C.

Stocks, Stocks, Stocks.

B. S. WILLIAMS has much pleasure in offering carefully selected seed of a very fine WHITE WALLFLOWER-LEAVED TEN-WEEK STOCK. It is very pure in colour, and produces an immense spike of large double flower, and is admirably adapted for bedding purposes. Per packet, 1s.
Victoria and Paradise Nursery, Upper Holloway, London, W.

Choice Primula Seeds.

B. S. WILLIAMS begs to call special attention to his superb Strain of this universally admired Winter and Spring-flowering Plant. He can with confidence offer it as being unequalled in cultivation. Plants from this Seed have always been awarded First Prizes wherever exhibited. B. S. W.'s strain of Primula is so well known to all the principal Gardeners in the three kingdoms, that testimonials are unnecessary. In sealed packets, Red, White, or Mixed, 2s. 6d., 3s. 6d., and 5s. each.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

Cyclamen Persicum (Hybrids).

B. S. WILLIAMS has great pleasure in offering SEEDS of his superb varieties of CYCLAMENS, which are much superior to those sent out by him last season, being saved from the plants exhibited by Mr. Wiggins, at the Meeting of the Royal Horticultural Society, at Kensington, on Tuesday, Feb. 16, when they were pronounced far in advance of any ever before raised, both in point of size of flower and richness of colour, which varies from pure white to mauve and deep red; many of them in addition being beautifully striped and spotted, and deliciously fragrant. Seeds sown in heat from the present time can be grown to produce flowers within 12 months.
B. S. W. having made arrangements for the supply of all Mr. Wiggins' Seed, it can only be had genuine in sealed packets bearing his name and address. In sealed packets, 1s. 6d., 2s. 6d., and 3s. 6d. each.
B. S. Williams, Victoria and Paradise Nurseries, Upper Holloway, N.

Cineraria Seed.

Now is the Time to Sow for an Early Crop.

F. AND A. SMITH beg to offer SEED of the above from their splendid Collection. As a proof of its general excellence they received last year the only Certificate awarded for Cinerarias, and they have already received two during the present season. The Nurseries, West Dulwich, S.E.

Dahlia imperialis.

H. DAVIES having purchased the Stock of this magnificent Plant, which obtained the First-class Certificate of the Royal Horticultural Society (see *Gardeners' Chronicle* of Dec. 19, 1868), will be prepared to send out strong Plants after May 1, at 2s. 6d. each, or, securely packed, 3s. each. Orders are now being booked, and will be executed in strict rotation.
Nursery and Seed Establishment, Great Staumore, Middlesex, N.W.

Verbenas, Verbenas.

PHILIP LADDS is now sending out New VERBENAS of 1868, strong plants, in pots, 1s 6d. per doz.; 40 new varieties, 1868, free by post for 5s.; Scarlet, White, Purple, and Pink Verbenas, strong plants, in pots, 1s. 6d. per dozen; strong young plants, 6s. per 100, or £2 10s. per 1000.
12 New Varieties of COLEUS, of the Horticultural Society, 1868, for 2s. the set.
LOBELIA SPECIOSA, true, from Cuttings, 5s. per 100, or £1 15s. per 1000.
20 New Varieties of ZONAL GERANIUMS, 1868, for 10s.
Nursery, Boxley Heath, Kent.

Verbenas, 5s. per 100; 40s. per 1000.

WILLIAM BADMAN has to offer as under:—
VERBENAS, Purple, White, Scarlet, Rose, Crimson, &c., strong plants from store pots, 5s. per 100; 40s. per 1000.
LOBELIA SPECIOSA (true) from cuttings, 5s. p. 100; 40s. p. 1000.
PELARGONIUM CRYSTAL PALACE GEM, the finest golden leaf in cultivation, in small pots, 4s. per doz. 6 Finest Double Geraniums, including MADAME LEMOINE, 10s. Package included. Terms cash.
Cemetery Nursery, Gravesend.

Chrysanthemums.

ADAM FORSYTH begs to inform the Trade and the Public that he is now sending out the following NEW CHRYSANTHEMUMS, viz.:—

Blonde Beauty	Mr. Evans
Mr. Geo. Haskin	Miss Mary Morgan

He is confident they will give as great satisfaction as any others he has hitherto introduced. For description and price, see CATALOGUE, which contains also a Practical Treatise on the Cultivation of this noble Flower. Forwarded on application for one stamp.
Brunswick Nursery, Stoke Newington, London, N.

WM. CLIBRAN will be glad to send Twelve CHRYSANTHEMUMS of 1868, including Japanese, for 4s.; 25 good old varieties, 8s. | 12 varieties of NEW COLEUS, 3s.
12 ZONAL and NOSEGAY PELARGONIUMS of 1868, 6s.
15 PELARGONIUMS for 8s. 6d.—Artemus Ward, Sophia Dumaresque, Perilla, Model, Aureum, Neatness, Mrs. Charles Barry, General Longstreet, Beauty, Glowworm, Beauty of Oulton, Gaiety, Madame Rose Charmeux, Triumph, L'Elegante.
Post or package free. Terms, cash. A CATALOGUE of Pelargoniums, Chrysanthemums, and other Plants, for one stamp.
Millbank Nursery, near Warrington.

Superb Double Hollyhocks.

Now is the time for Planting to ensure Good Spikes and Blooms this Season.

WILLIAM CHATER'S CATALOGUE of his unrivalled Collection may be had upon forwarding one postage stamp. Choice Bloomed Seedlings, with colours attached, 40s. per 100. Unbloomed Seedlings, from finest named varieties, 25s. per 100. SEEDS, saved only from first-class flowers, in packets and collections, from 1s. to 10s. 6d.
Special prices for quantities to the Trade on application.
William Chater, The Nurseries, Saffron Walden.

Splendid Indian Azaleas.

WILLIAM BARNES' unrivalled Collection of AZALEAS is this season unusually fine, and in the highest possible health, loaded with strong bloom-buds from top to bottom, and the plants properly trained as Pyramids, but neither stiff nor formal; their average heights are from 2 to 5 feet, and beautifully clothed down to the pot. These plants cannot fail to please those who are either adding to their present collection or forming a new one. W. B. has also many thousands in smaller sizes, comprising all the newest and best of the older varieties, in the most beautiful and healthy condition. Prices and varieties may be had on application.
William Barnes, Camden Nursery, Camberwell, S.E.—April 10.

Roses.

JOHN CRANSTON will be happy to forward on application his DESCRIPTIVE CATALOGUE of ROSES for 1868 and 1869. For quality or quantity the stock is unsurpassed; the Manetti Roses especially are acknowledged to be the finest grown plants in the Trade.
Nurseries, King's Acre, near Hereford.

New Roses, &c., 1869.

WM. KNIGHT begs to offer the following Plants:—

12 NEW ROSES, Strong Plants	36s.
12 Finest NEW FUCHSIAS, Strong Plants ..	6s.
12 Finest NEW VERBENAS, Strong Plants ..	4s.
12 Finest COLEUS, Strong Plants	5s.
6 NEW PETUNIAS, Strong Plants	4s.

Or the above Collection, package included, for £2 10s.
CATALOGUE free.
Floral Nursery, Hailsham, Sussex.

New Roses of 1869—19s. 3d. per dozen.

LÉVÊQUE ET FILS, Nurserymen, 132 and 134, Boulevard de l'Hôpital, Paris, have now ready all the NEW ROSES (66 sorts) of 1869. Good plants, well established in small pots, for better carriage. List on application. They can supply the following by the dozen or more of each:—(T. R.) Adrienne Christophle, Celina Noirey, Marie Ducher, Marie Sisley, Montplaisir; (Ch.) Margarita; (H. R.) Reine Blanche, Thyra Hammerich, Emilia Hausburg, Victor Trouillard père, Victor le Bihau, Berthe Baron, Julia Touvais, Perfection de Lyon, Réné Daniel, Mdme. de Canrobert, Devienne Lamy, &c.
They have also a large lot of—(T. R.) Jean Pernet, Reine de Portugal; (H. P.) Bne. de Rothschild, Elie Morel; (P. Moss) Sr. de Pierre Vibert, &c.

New Plant.

MR. WILLIAM BULL is now sending out the beautiful
LASIANDRA MACRANTHA.
The flowers of this plant are truly marvellous, 1¼ foot in circumference; are produced nearly throughout the year, and on plants when only an inch or two high. Some blooms of it were sent at Christmas to the Editor of the *Gardeners' Chronicle*, and the following remarks were made in the columns of that Journal, January 2, 1869:—
"We have before us fine blooming specimens of the noble Lasiandra macrantha, sent us by Mr. Bull, which shows that the flowers of this grand plant may be had in winter as well as in summer, which is an additional recommendation. Notwithstanding what may seem to be an unfavourable season, the blossoms are even now nearly five inches across, and are of the richest violet-blue, a tint which has not been reproduced in any of the illustrations which have yet appeared."
A DESCRIPTIVE CATALOGUE of other NEW PLANTS, just published, post free for 12 stamps.
Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

Genuine Seeds.

F. AND A. SMITH'S CATALOGUE of FLOWER and VEGETABLE SEEDS of first quality is now ready (free on application), including their fine Strains of BALSAMS, CALCEOLARIA, CINERARIA, PRIMULA, TRICOLORED and other PELARGONIUMS, with every Novelty of repute.
The Nurseries, West Dulwich, S.E.

CHARLES TURNER, The Royal Nurseries, Slough, begs to offer the following, in strong Plants:—

HOLLYHOCKS	12s. per dozen.
VERBENAS	6s. ,,
PELARGONIUMS, Show varieties	18s. ,,
,, Fancy varieties	18s. ,,
,, Zonal, best kinds for bloom ..	12s. ,,
,, for flue foliage	24s. ,,
ALPINE AURICULAS, in beautiful varieties ..	9s. ,,
TREE CARNATIONS	12s. ,,
PINKS .. .. per dozen pairs	9s.

Fine sorts of the above, and in greatest variety, selection left to C. Turner.

Now Ready.

HENRY WALTON begs to inform his Friends and the Public that his NEW SPRING CATALOGUE is now ready, containing all the newest and most select Pelargoniums, Tricolor, Gold and Bronze; Show and Fancy, Ivy-leaved and Double Geraniums; Fuchsias, Petunias, Verbenas, Dahlias, Show and Fancy; bedding and other New and Rare Plants, &c.
Edge End, Marsden, near Burnley, Lancashire.

General Catalogue.

WILLIAM ROLLISSON AND SONS beg to inform the Nobility, Gentry, and Trade that their NEW GENERAL CATALOGUE, consisting of upwards of 150 pages of letterpress, and containing nearly every Plant, Shrub, or Tree worthy of merit in cultivation, is now Published, and will be forwarded to applicants on receipt of eight postage stamps, and sent gratis to customers.
The Nurseries, Tooting, London, S.W.

NEW LOBELIA, TRUE BLUE.—This desirable Novelty will be sent out for the first time in May next. The Plant is of a dwarf upright habit, very compact grower, flowers larger than L. Paxtoniana, bright azure blue, with small but distinct white eye, very free flowerer, and lasts throughout the season. Strong Plants, 7s. per 100, 12s. per dozen, and 1s. 6d. each, with the usual discount to the Trade.
Peter Lawson & Son, Edinburgh and London.

VERY STRONG VINES (will fruit this summer) of the following 12 varieties, 5s. 6d. each.

Muscat Alexandra	Barbarossa
,, Bowood	Black Tripoli
,, Trouverene	Royal Vineyard
,, Muscadine	Duchess of Buccleuch
Royal Muscadine	White Tokay
Grovend Sweetwater	Gen. de la Marmora

STRONG PLANTING VINES, 2-yr. old, of the following varieties, 3s. 6d. each:—

Black Hamburgh	Black Prince
Victoria do.	,, Barbarossa
Mill Hill do.	,, Tripoli
Muscat Alexandra	White Frontignac
,, Cannon Hall	Royal Vineyard
,, Trouverene	Duchess of Buccleuch
,, Muscadine	White Tokay
Grovend Sweetwater	

J. Peed, Effra Nursery, Brixton, S.

Bedding Plants.

J. SCOTT, The Nurseries, Merriott, Somerset, has, as usual, to offer the finest collection of the above in the West and South-West of England. Self-superintendence and a long life devoted to his business, enables him to know, procure, and offer the best of everything suitable for gardens, cultivated in the best manner, and sold at prices that cannot be got under.
Catalogues on application, with Cultural Notes and directions for planting all kinds of beds.

One Hundred Thousand Bedding Plants.

THOMAS PERKINS has great pleasure in offering the following, all strong, well established Plants, turned out of single pots, at 2s. per doz.:—VARIEGATED, SCARLET, ZONAL, and other GERANIUMS; CALCEOLARIAS, Verbenas, Heliotropes, Lobelias, Salvias, variegated Alyssum, Gazanias, Petunias, Perilla nankinensis, Pentstemons, Nierembergias, Ageratums, Golden Feather, Musk, &c. DESCRIPTIVE PRICED CATALOGUES post free on application to
Thomas Perkins, 42, Drapery, Northampton.
N.B.—Price to the Trade on application.

CHEAP BEDDING PLANTS.
VERBENAS.—Scarlet, Purple and White, 2s. per dozen; 12s. per 100; 100s. per 1000.
ZONAL GERANIUMS.—Scarlet, Pink and White, 2s. per dozen; 12s. per 100; 100s. per 1000.
CALCEOLARIAS, HELIOTROPES, AGERATUMS, LOBELIAS, PETUNIAS, SALVIAS, ALYSSUMS, TROPÆOLUMS, GAZANIAS, and every description of BEDDING PLANTS. } 2s. per dozen; 12s. per 100; 100s. per 1000.
BICOLOR and TRICOLOR GERANIUMS.—Mrs. Pollock, Circlet, Luna, Goldfinch, Canary-bird, Mr. M. Hutton, Annie, &c., 4s. per dozen.
Cuttings of the above at a greatly reduced rate.
Also a fine Collection of PELARGONIUMS and FUCHSIAS, suitable for Furnishing Greenhouses, &c.
W. H. also desires to call attention to his superb Collection of STOVE, GREENHOUSE and ORNAMENTAL PLANTS, consisting of some of the finest specimens in England. All orders of 20s. and upwards carriage free to any part of England.
W. Heath & Son, College Nursery, Cheltenham.

West of England Bedding Plant Establishment.

BEDDING PLANTS.
THOMAS SAMPSON, The Preston Road and Houndstone Nurseries, Yeovil, Somerset, is now prepared to send out his unrivalled Collections of BEDDING PLANTS, for quantity, quality and cheapness by far exceeding any other Establishment in the County of Somerset or the West of England. T. S. flatters himself on having added to his already well-known Collection all the really good and choice things in each variety, and offers the same at prices that cannot be undersold. Catalogues free on application.
T. S. is now sending out his Collections of Bedding Plants made up of varieties from each section, including many of the dearer and leading varieties. T. S.'s selection only.

No. 1 Collection.—25 dozen plants, basket and packing included	£2	2 0
No. 2 Collection.—15 dozen plants, ditto	1	5 0
No. 3 Collection.—10 dozen plants, ditto	0	18 0
No. 4 Collection.—5 dozen plants, ditto	0	10 0

Orders sent out in rotation.
PETER DRUMMOND, Manager.

ROYAL HORTICULTURAL SOCIETY.—SHOW of AZALEAS and SPRING FLOWERS, April 17, 1869.

AWARDS of the JUDGES.

Class 2.—6 AZALEAS, distinct. (Amateurs.)
1st Prize, Mr. G. Wheeler, Gr. to Sir F. H. Goldsmid, Bart., M.P., St. John's Lodge, Regent's Park, N.W., £2.
2d, Mr. A. Wilkie, Gr., Addison Road, Kensington, W., £1 10s.
3d, Mr. G. Fairbairn, Gr. to His Grace the Duke of Northumberland, Sion House, Isleworth, W., £1.

Class 3.—6 AZALEAS, distinct. (Nurserymen.)
1st, Mr. C. Turner, Royal Nursery, Slough, £1 10s.
2d, Messrs. J. Dobson & Sons, Woodlands Nursery, Isleworth, W., £1.

Class 4.—AZALEA, single specimen. (Open.)
1st, Mr. A. Wilkie, 15s. | 2d, Mr. C. Turner, 10s.

Class 6.—6 CINERARIAS, distinct. (Open.)
1st, Messrs. J. Dobson & Sons, £1 10s.
2d, Mr. J. James, Gr. to W. F. Watson, Esq., Isleworth, W., £1.

Class 7.—6 CALCEOLARIAS, distinct. (Open.)
1st, Mr. J. James, £1.

Class 8.—12 CAMELLIAS, Cut Blooms, 6 kinds. (Open.)
1st, Mr. A. Wilkie, £1 10s. | 2d, Mr. G. Fairbairn, £1.

Class 9.—6 CAMELLIAS in Flower, distinct. (Open.)
1st, Mr. A. Wilkie, £2.

Class 10.—9 AURICULAS, edged, distinct. (Open.)
1st, Mr. C. Turner, £1 10s. | 3d, Mr. J. James, 15s.

Class 11.—9 AURICULAS, Selfs and Fancies, distinct. (Open.)
1st, Mr. C. Turner, £1 10s. | 2d, Mr. J. James, £1.

Class 12.—6 CYCLAMENS in Flower. (Amateurs.)
1st, Mr. J. Wiggins, Gr. to W. Beck, Esq., Worton Cottage, Isleworth, Mr. J. James, 10s. [worth, 10s.
3d, Mr. G. Fairbairn, 5s.

Class 14.—MISCELLANEOUS COLLECTION of PLANTS in Flower. (Open.)
1st, Mr. W. Bull, Nurseryman, King's Road, Chelsea, S.W., £1 15s.
2d, Messrs. J. & C. Lee, Royal Vineyard Nursery, Hammersmith, £1.
Equal 2d, Mr. B. S. Williams, Nurseryman, Upper Holloway, N., £1.
Equal 2d, Messrs. Reeves, Bros., Nurserymen, Notting Hill, W., £1.
Equal 2d, Mr. A. Wilkie, £1.
3d, Messrs. J. Salter & Son, Nurserymen, Hammersmith, W., 10s.
Equal 3d, Mr. T. S. Ware, Nurseryman, Tottenham, N., 10s.
Extra, Miss A. G. Neale, Norbiton, Kingston-on-Thames, 2 Cases of Skeletonised Leaves, 10s.
Extra, Mr. J. James, 12 British Ferns, 10s.
Extra, Mr. C. Turner, Collection of alpine Auriculas, 7s. 6d.
Extra, Mr. W. S. Roberts, Holwood Park Gardens, Bromley, Kent, Neapolitan Violets, Mignonette, &c., 7s. 6d.
Extra, Messrs. Reeves, Bros., 6 pots of Lily of the Valley, 5s.

FLORAL and HORTICULTURAL FETE, to be held on the RACE COURSE, NORTHAMPTON, in connection with the Northamptonshire Agricultural Society's Annual Show, on FRIDAY, July 2.
Silver Cups and Premiums to the amount of TWO HUNDRED and FIFTY POUNDS will be offered for competition. Open to all England. Prizes to be Paid on the Day of Exhibition.
President: The Worshipful the Mayor of Northampton.
Treasurer: Mr. Mark Dorman. | *Hon. Sec.:* Mr. Thos. L. Cordeux.
The Schedules and Rules may be obtained at Dorman's Library, or of F. Perkins, 2, Gold Street, Northampton.

GRAND NATIONAL HORTICULTURAL EXHIBITION, 1869, MAY 14 to 21.—NOTICE to EXHIBITORS.—All persons who intend to take part in this Exhibition must signify their intention to do so by letter addressed to the undersigned on or before MAY 1, on which day ENTRIES CLOSE. Gardeners will be admitted by tickets as follows:—First day, 2s. 6d. each; remaining days, 1s. each. Applications for these tickets must be made on or before May 10. BRUCE FINDLAY.
Botanic Garden, Manchester.

The Gardeners' Chronicle.

SATURDAY, APRIL 24, 1869.

MEETING FOR THE ENSUING WEEK.

TUESDAY, April 27 } Royal Botanic (Exhibition of Spring
WEDNESDAY, — 28 } Flowers) .. .. 2 P.M.

PARCHED as vegetation was everywhere last year, it is naturally to be expected that many plants will not bloom so well this season as generally. The struggle for life with many alpine plants was desperate, and thousands of them had to succumb, while all were more or less injured and exhausted by abundant flowering, and had to be removed at a season when the soil was dust, and remained so for weeks, nay months, afterwards. Artificial watering was almost useless; and, though it did to some extent keep the plants alive, the steady, life-invigorating down-pour did not come until the growing season was past; and hence, though they were saved, the vigorous preparation for another season's blooming was not made.

With these facts of our own garden experience in our mind, we went to Belvoir with the full expectation that some allowance must be made for the past, and that the display this year could not be so gay as we have been accustomed to see it. Well, to some extent that was the fact; but Mr. Ingram's stock of plants is so exhaustless, and his devotion to the spring garden so well known, that it is only those who had seen the garden under more genial circumstances that would perceive any falling off—for failure there is none. Among those which have suffered most may be noted the Kales, which got crippled in the seed-bed; Aubrietias, Arabis, and Blue Pansies, which, though blooming, are not so vigorous as in former years; and of course Auriculas, Primroses, and some of their delicate brotherhood, are not so strong nor blooming so profusely as we have seen them. Bulbs, however, were in no way depreciated. The bright little Scillas and Anemones were there, dressed in their gayest livery, in thousands; and Hyacinths, Narcissi, and Tulips were never so brilliant.

A most important fact connected with these latter gay but somewhat expensive plants has been demonstrated by Mr. Ingram. Last season we noted that the Hyacinths, Tulips, and Narcissi were all potted singly in small pots, 3-inch

pots or 60's being the largest size used, while thousands of Tulips and Crocuses were potted in "thumbs." This was for the convenience of removal both when in flower and out, and it also afforded the ready means of forwarding the plants by a little extra heat, or of retarding them to prolong the season of bloom. Thus the plants, being potted in the autumn or early winter, are placed in cold pits generally covered with shutters, and there remain until fit for removal to the flower-beds. When we recollect the elaborate directions which florists give about trenching, manuring, &c., for such plants, it would naturally be expected, that however well these small pots might suffice to sustain life for the time required, the bulbs would be useless the following season. So far, however, from such being the case, Mr. Ingram's potted bulbs of last year are just as good as those newly imported from Holland; and if we say he has thousands blooming at the present time, the flowers upon which are in every respect as good as upon others bought in last autumn, we do not exceed the truth. This is a very important fact. Mr. Ingram's system of management is simply to take the flowers off directly they become shabby, and when they are removed from the dressed ground to plant them out in rich nursery beds in the reserve garden; there they complete their growth, and are taken up the following autumn in full and vigorous maturation, to be dried, cleaned, preserved, and potted for the next season's use.

What, however, is seen at Belvoir in the flower gardens in April is but one turn of the floral kaleidoscope. The first view should be taken in November, when the groundwork is laid of the pretty pictures completed in the spring of the following year. When vegetation has lost its bright hues, the introduction of hardy evergreen shrubs and alpine plants affords an endless variety of shades of green, and, independent of all floral assistance, makes a well-arranged *parterre* both interesting and attractive. Without pretending to enumerate all the floral arrangements of the numerous beds, variously filled with hardy plants, we may still venture to mention some of those which present novel and effective features. Erica carnea in masses, thrown up by a cushion or groundwork of Sedum acre, and fringed by the same charming plant, is exceedingly telling. Aubrietia græca or grandiflora, edged with variegated Arabis, covers the beds during winter, and makes a glorious display in March and April. Arabis alpina, edged with double Daisies, is a valuable base for bulbs of various kinds, and is commonly associated with Scilla sibirica and Duc Van Thol Tulips—the white, scarlet, and blue of this arrangement forming a striking bed. Many Sedums and Saxifragas in small patches are unattractive, and would be passed unnoticed, but associated in masses, one shade of green, or gold, or brown, brings another into strong relief, and the effect is exceedingly pleasing.

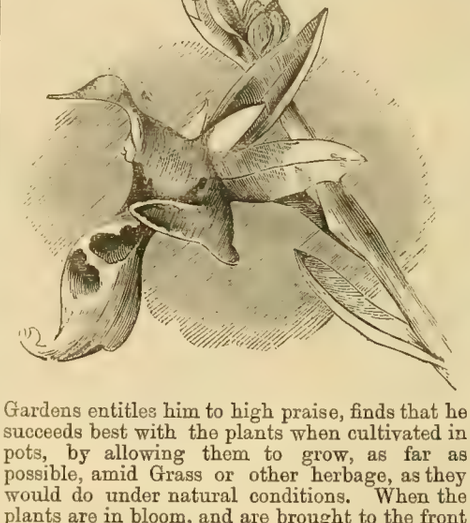
Perhaps the trilobed or Trefoil-shaped bed on grass at Belvoir illustrates this fact in the most striking manner. This bed is thus formed:—First, an outer fringe of the chaste Sempervivum californicum; this is followed by a band, 6 to 8 inches wide, of Sedum acre; next, a similar band of Saxifraga hypnoides, relieved by a broad band of Sedum glaucum, the centre of each lobe being filled up with Arabis lucida variegata and variegated Aubrietia, while in March and April the bed receives a central line of Tulips. Here the materials are simple and inexpensive, but the effect is quite enchanting, and continues throughout the season, and year after year. Plant the marginal line of this bed with the Sempervivum and Gentiana acaulis, or Double Crimson Primrose, and you would have a bed as near perfection as possible.

Among specialities may be mentioned a novelty brought into notice by Miss Hope, of Wardie Lodge, Edinburgh. It is a species of Heuchera, growing to the height of 6 inches, with large brown Acer-like leaves, so metallic in their appearance and colour that the plant might almost be mistaken for an herbaceous Acer. It is being employed by Mr. Ingram as a base for bright bulbs—Hyacinths and Scillas, and it is made use of to bring out the silvery foliage of Euonymus radicans variegata. This latter plant is valuable, intermixed with masses of Erica herbacea. A mass of Doronicum caucasicum, intermixed with a crimson Hyacinth, afforded a novel and striking combination. Standing out more boldly we may mention the broad-leaved Saxifraga cordifolia as making a fine bed, and serving, before its handsome clusters of flowers are thrown up, to show off white and pink Hyacinths in the most perfect manner

We must not omit to notice that Belvoir is not a spring garden—it is emphatically a winter garden, glowing with colour from November through the dark months; and when ordinary spring gardens are coming into beauty, Belvoir is beginning to fade.

One of the prettiest and most interesting features at the Royal Gardens, Kew, at the present time is, and for the last few weeks has been, the collection of European Terrestrial Orchids. The singularity of their form, and the brightness and odd distribution of their colour, render them always attractive, even to those who are not conversant with the romantic details of their life-history as unfolded by Darwin and others. But among those now or recently in flower at Kew are some, such as Orchis romana and O. provincialis, which are remarkable for the peculiarly delicate primrose yellow of their bloom—a colour not often seen in terrestrial Orchids, and specially as a "self" colour.*

Mr. Duncan, whose management of the alpine and herbaceous departments of the Royal



Gardens entitles him to high praise, finds that he succeeds best with the plants when cultivated in pots, by allowing them to grow, as far as possible, amid Grass or other herbage, as they would do under natural conditions. When the plants are in bloom, and are brought to the front for inspection, a dressy appearance may readily be given them by removing or regulating the Grass, so as to do away with any appearance of untidiness.

The accompanying sketch has been kindly forwarded us by Mr. G. C. Oxenden, as "a most faithful and exact copy of that which is in itself a grand instance of simulative beauty." It represents a common South European Orchid, which botanists know as the Snipe Orchis, Ophrys scolopax, but which our correspondent, as well he may with the sketch before him, suggests should receive the name of "Teal Orchis" (O. querquedula). The colouring, as described by our correspondent, is as follows:—Wings, French white; head, green; cheek, yellow; body, orchreous green, with extremely rich markings of brown velvet. These Orchids are so excessively variable in their complexion and features that, to speak metaphorically, we should not be much surprised to see a woodcock transmuted to a teal, or *vice versâ*; and hence we feel no particular surprise that the above clever sketch does not correspond fully, in all particulars, with the Ophrys scolopax figured in Moggridge's "Contributions to the Flora of Mentone," and other works. Mr. Moggridge, from his study of the South European forms, is disposed to follow a classification similar to that illustrated in *Punch* not long since, and wherein a railway porter is explaining to a lady travelling with a small menagerie, and who has to pay tariff accordingly, that "cats is dogs, and rabbits is dogs, and parrots is dogs, but this 'ere tortoise being a hinsect there aint no charge."

The correctness of this somewhat homely illustration will be seen when it is stated that Mr. Moggridge, following in the wake of no less distinguished a botanist than Linnæus himself, puts bees, wasps, spiders, and woodcocks all under the same head of Ophrys insectifera! At any rate his beautiful drawings certainly show numerous intermediate forms between Ophrys apifera, aranifera, atrata, arachnites, and scolopax. Linnæus even went further, and included O. fusca and O. lutea. If this view be correct, it would seem that the fly (O. muscifera) must be thrown into the happy family to increase its homogeneity!

Thanks to Mr. Moggridge and others, several of these beautiful Orchids have been introduced at Kew, and we trust that in due time we may see many more, and in the mean time, by way of stimulating the process, we recommend our readers to consult the accurate drawings of Mr. Moggridge in the work before alluded to.

* The following species have been flowered by Mr. Duncan during the last few weeks:—Ophrys fusca, O. fusca var. magna, O. picta, O. bombilifera, O. muscifera, O. insectifera, O. lutea, Orchis undulatifolia, O. variegata, O. fragrans, O. apifera, O. papilionacea, O. provincialis, O. romana, O. pauciflora.

We direct attention to the following official communications respecting the conveyance of passengers and goods at reduced rates for the International Horticultural Exhibition at St. Petersburgh. The first emanates from the Russian Minister for Commerce and Public Works, and relates to the Prussian State lines, and to those under State control. As far as the latter are concerned, however, the conditions are subject to the approval of the representatives of the several companies, of which there is little doubt:—

A. All living plants and easily perishable articles, addressed "Internationale Austellung von Gegenständen des Gartenbaues in Petersburg," will be forwarded to St. Petersburgh by passenger trains (excluding, however, fast and mail trains) at the ordinary rates for goods.

B. The before-mentioned objects, and also machinery, implements, utensils, &c., that have been exhibited and not sold at the Exhibition, and are accompanied by the Committee's certificate to that effect, will be conveyed back by goods train cost free.

C. Persons visiting the Exhibition will have to pay full fares for the outward journey, in return for which they will be entitled to travel homewards by the same class free, provided they possess the necessary authorisation from the Committee.

On the part of the Great Russian Railway Company, the following tariff has been fixed upon:—For every pood (about three to the cwt.) $\frac{3}{10}$ kopec (a kopec is about the tenth of a penny) will be charged per verst (about 1100 yards). It is 840 versts from the Prussian frontier to St. Petersburgh. The clauses respecting larger objects paying double fare, and articles under 3 pud paying for 3 pud, will not be put in force. A truck wholly occupied by one exhibitor's goods will be charged 15 kopecs the verst. Dr. Karl Koch informs us that arrangements are being made at Berlin, for all the visitors from the west proceeding to the St. Petersburgh Show to meet at Berlin, and proceed in a body thence to the Exhibition; and that on their return it is proposed that they should remain two or three days at Berlin, where a committee has been formed to show them all objects of horticultural interest.

We are requested to state that the Council of the Royal Horticultural Society will hold a conference with the exhibitors at the metropolitan shows, on Tuesday, May 4, at one o'clock, in the Council room at South Kensington, with the view of discussing certain contemplated restrictions in the size of pots to be used in exhibiting plants during the season of 1870.

Some time since we received specimens of an Earth-Worm without precise information as to its habits and history, and at a first glance mistook it for the common earth-worm. Afterwards, on receiving other specimens and fuller information, we referred the creature to Dr. Baird, of the British Museum, by whom it has been described as a new species, under the name of Megascolex diffringens. It is, we believe, Dr. Baird's intention to supplement a former paper which he laid before the Zoological Society in January last, by a second, in which he will give fuller information as to the manners and customs of this new visitor. It it is supposed to be of Eastern origin. From the singularity of its movements it has been called by more than one observer the "Eel-worm." One correspondent describes it as a "complete devil in a flower-pot—beats the common worm all to nothing in mischief, eats the heart out of the soil, upsets the drainage, and kills the roots in no time." It was first brought under our notice by Mr. Draper, of Seaham Hall, Sunderland, and we have since heard of it in Suffolk, in Wales, and other localities. It is a stove worm, and will not live out-of-doors—so it is said. Some interesting particulars relating to this unwelcome visitor will be found in Mr. Fish's Chapter on Worms.

To all lovers of Spring Flowers who may be residing in the metropolis, or who may be journeying thither within the next few days, we would say, go to Hyde Park to see the display of Tulips. We venture to think that there is nothing like it in the country, or anywhere else away from the bulb farms of Holland. The Tulips are massed in beds on grass on either side of the long strip of ground extending from Stanhope Gate to Grosvenor Gate, and appear as clean, healthful, and vigorous as if they had been nurtured far away from the smoke of a great city. Here, then, is one plant suitable for town gardens; and we shall be surprised and disappointed if the success of the experiment, does not induce many others under similar circumstances. Among the best and most effective may be noted:—Rex rubrorum, Tournesol, Rosine, Titian, La Candeur, new yellow Tournesol, and Roozenkroon, double; Vermillon Brillant, and Yellow Prince, single. The Crocuses have gone out of bloom, and the Hyacinths nearly so; but from the leaves of the former, and the splendour of the few remaining spikes of the latter, they must have been equally attractive in their season. The bulbs used in forming this brilliant display were supplied by Mr. William Paul.

New Plants.

Cœlogyne Gowerii, *sp. n.*

"Pseudobulbis foliisque Cœlogynis ocellatæ:" racemo flexuoso laxiflore erecto; bracteis scariosis nervosis deciduis ovatis acuminatis; sepalis cuneato-oblongis acutis; petalis lanceolatis, labello trifido, lacinia intermedia oblonga emarginata undulata serrulatis, plicæ lacinium mediana oblongam inflexo-apiculatam basi transsilicatibus, carinis tenuis integerrimis, carina media sub breviore, tumore adlito utrinque in basi laciniæ medio extus; androclinio subtiliter serrulato, labio stigmatis inferiori producto triangulo.

This is a delicate species, producing in a lax raceme charming white flowers, about the size of those of Cœlogyne fimbriata. There is an ochre-coloured tint spread over the disc of the lip. These Cœlogynes are very difficult to determine, and there are great mistakes about the limits of the species even in our best books. Having made many careful dissections of the types, we scarcely doubt we are right when we treat this plant as a new species. We should, however, be very thankful for further materials of these puzzling species, upon which many inquiries still remain to be made. We are indebted for the plant to Mr. B. S. Williams, of Upper Holloway, who obtained it from Assam, through Mr. Gower, who for nearly 20 years has been connected with Orchids, and to whom the species is dedicated. The plant was exhibited at Kensington in the beginning of April last. *H. G. Rchb. f.*

THE PARADISE APPLE.

[After vainly endeavouring to identify the flowers of Mr. Scott's Paradise Apple with those of P. Malus præcox, described in books, we forwarded the specimens to M. Decaisne, who obligingly replies to our queries as follows. —Eds.]

I have paid great attention for many years to the questions concerning the origin of alimentary plants, and amongst others to that of Pears, Cabbages, Lettuces, and Carrots, upon which subjects I have already expressed my opinion. Allow me at the outset to say, that the endeavour to establish a precise limit between the Paradise Apple and the Doucin is analogous to the search for the philosopher's stone. The flowers sent to me [those of Mr. Scott's Paradise stock], correspond to those of the Paradise Apple of some nurserymen, and to those of the Doucin of others. The truth is, that the form of the petals, the hairiness or smoothness of the styles, are as variable as the other characters presented by the plants, and as the aspect of the trees themselves. The wild Apples of our forests are in general spineless; their leaves are glabrous or pubescent; their fruits are of a yellow colour. Wild Apples never form trees in the manner that wild Pears do under the same conditions. The Apples form rather shrubs, which have or have not creeping roots; hence Tournefort's phrase, "Malus pumila quæ potius frutex quam arbor, fructu candido, Pirus paradisiaca." This name of Paradise Apple, or "fichet," was mentioned as long ago as the time of Ruellius in 1536. In the work called "Abregé pour les Arbres Nains" (p. 51), occurs this passage:—"Pour avoir bonne race de P. paradis il faut de celui qui porte des pommes toutes blanches, les autres qu'on appelle communement des bouttes-terres sont des espèces de francs qui jettent beaucoup de bois." Hence at that time the method of multiplying the Apple by cuttings was known, and the Paradise was specially recommended for the purpose. It is by no means proved that the P. Malus præcox of Pallas is a wild species peculiar to Russia; the contrary seems shown by the total absence of any Russian name for the plant, and which it would certainly possess if it were wild. Pallas himself simply calls it by German names, while the common Apple and the Malus baccata have Russian, Mongolian, Tartar, and other vernacular appellations.

In Russia, as with us, the wild Apples are generally unprovided with spines. Mr. Gelesnoff, who was kind enough to interest himself in this matter, has collected for me, from various points of the vast Russian empire, specimens of Apples specially for the purpose of enabling me to ascertain what sort it was that Pallas meant as Malus præcox. Generally speaking, the Russian Apples are spiny, their wood is exactly of the same colour (a brownish violet) as that of our wild plants. They are moreover glabrous or pubescent. I have received specimens from the Government of Novgorod, district of Krestz, from Cherson, Charkow, from the environs of Moscow, &c. Mr. Schrœder has sent me from the Jardin Agronomique of the latter city specimens which are spiny or spineless, and the same characters are met with in others; which I have received from Savoy. I have received or gathered for myself wild Apples, and I have often seen yellow and red, yellow (fructu candido) and streaked (panachée) fruits, as in our cultivated Apples. It must not be forgotten that the inhabitants of the lake dwellings already possessed Apples (see *Gardeners' Chronicle*, 1866, p. 1068); there is not the slightest doubt on this matter, as neither the flesh nor the pips of Apples can be confounded with the pulp and seeds of other fruits—of the Pear, for instance, of which latter I have not seen a trace among the *débris* of the alimentary substances of these ancient races.* The period of flowering offers no reliable character. We have at the present time in flower in the Museum garden Paradise Apples and Doucin Apples; and whoever has studied cultivated plants, knows well that they all present early and late races. Apples form no exception to the rule. The Horse-Chestnut of the Tuileries Garden, called by reason of its early flowering, "Marronier du vingt Mars," is an illustration, and hundreds of others might be cited. It must be remarked also that Pallas does not indicate the date of flowering of his Malus præcox, and that the precocity can only be attributed to the fruit "Johannis Apfel." The St. John's Apple is the analogue of our St. John's Pear, the fruit of which ripens at the end of June.

There is, then, absolutely nothing conclusive in the character taken from the precocity of the flower.

In my own opinion there is only a single species of wild Apple in Europe, and this tree varies like all others. Nature has not two methods of procedure. She carries on her operations in the fields in the same way that she does in our gardens. She multiplies species by modifying more or less profoundly their forms. This is a point which seems too often ignored or forgotten. It is a mistake to suppose that our wild Apples can be divided into two well-marked groups—the one with pubescent leaves, and sweetish fruits (Malus communis), the other with glabrous leaves and sour fruits (Malus acerba). No line of demarcation can be observed when numerous specimens from different localities are examined. I have before me bunches of wild Apples bearing fruits and leaves, some of the latter glabrous, the others downy, although all the fruits are yellow, and have already pointed out that for 300 years the Apple has been propagated by cuttings; a race has been established. Gardeners are too much inclined to dogmatise, and to take the exception for the rule. When they see that a particular variety does not succeed with them, immediately they jump to the conclusion that it is degenerating, and that it is so everywhere. There have been no important and comparative experiments whatever on the grafting of the Apple or of the Pear; all that has been done in this direction has been confined to individual observation, the results of which have been taken as proved without verification. What nonsense has been printed on the subject of the degeneration of varieties, and of their more or less complete recovery on the Paradise or on the Doucin, and on the free stock or on the Quince, in the case of the Pear.

I have accumulated materials which do not permit me to adopt the theory of the transformation of one species into another, though I admit that species are very variable. The "Malus" remain Apples, as the "Pirus" remain Pears, in spite of the diversity of their forms and the infinite number of their varieties. Neither do I believe in the metamorphosis of Raphanistrum into Raphanus, any more than I have credited the change from the wild form of the Carrot into the yellow Carrot, or that of the wild Cabbage of our chalk cliffs into a cultivated Cabbage, or that of Oats into Rye, that of Ægilops into Wheat, &c., of which the journals contain so many accounts. Plants do not get so mixed up in Nature.

I fear this letter is rather long, but the subject would require a much longer one, if time and space would permit me to treat it thoroughly. *J. Decaisne, April 14.*

* Heer, however, states that he has found Pear seeds in one or two instances. Eds.

BEDDING PLANTS GROWN AT CHISWICK: 1868.

(*Continued from p. 388.*)

§ III. Leaves Zonate (P. zonale type).

Leaves with Green Margin and Disc.

(a). Flowers round-petaled.

1. Flowers scarlet:—

Attraction. Compact and moderately vigorous; leaves indistinctly zoned; flowers bright scarlet. 1st class in 1865.

Aurora. A variety of dwarf and compact habit, growing about 6 inches high; leaves with dull zone; flowers large, clear light scarlet; good for edging. 1st class in 1868.

Chieftain. Vigorous habit; leaves marked with a dull zone; flowers large, light scarlet. 1st class in 1866.

Clipper. Compact habit; flowers of a light scarlet, and of very fine form. 1st class in 1865.

Dr. Lindley. Compact habit; leaves with dull zone; flowers light scarlet, of fine shape. 1st class in 1865.

Etna. Moderately vigorous in growth, with dull-zoned leaves, and large clear scarlet flowers. 1st class in 1868.

Faust. Of moderately vigorous habit; leaves very indistinctly zonate, almost plain; flowers large, very bright scarlet, in bold trusses, and of fine form. 1st class in 1865.

Garibaldi. Of compact habit; the leaves flat, with dark zone; flowers small, bright scarlet. 1st class in 1865.

Glorious. Dwarf and compact in habit; leaves small, zonate; flowers abundant, comparatively large, clear intense scarlet. 1st class in 1868.

Glory. Moderately vigorous, with indistinctly zoned leaves, and large light reddish-scarlet flowers. 1st class in 1866.

Glow. Dwarf, compact, and neat in habit, with small leaves marked with a dull zone, and large clear orange-scarlet flowers. 1st class in 1868; also 1st class as a pot-plant.

Mons. G. Natchet. Of moderately vigorous growth, with zonate leaves; flowers of moderate size, produced in fine trusses, scarlet. 1st class in 1865, confirmed in 1868.

Sambo. Of moderate vigour, and somewhat erect-growing; leaves lobed and wavy, with dull zone; flowers rather small, but produced in good trusses, of a rich dark crimson-scarlet, and very distinct and effective. 1st class in 1867, confirmed in 1868.

Commissioner. Compact; leaves with dull zone; flowers light scarlet. 2d class in 1865.

Emily Morland. Habit moderately vigorous; leaves with dark zone; flowers large, scarlet, with white eye. 2d class in 1867.

Emperor of the French. Of spreading habit, the leaves marked with a narrow vandyked zone; flowers small, scarlet. 2d class in 1865.

Germania. Moderately vigorous; leaves with dull zone; flowers large, light reddish-scarlet. 2d class in 1866.

Montrose. Moderately vigorous; leaves zoned; flowers scarlet. 2d class in 1866.

Rev. Joshua Dix. Moderately vigorous; leaves marked with a dull zone; flowers small, bright scarlet. 2d class in 1865.

Promising:—Chieftain, Compactum multiflorum, Euchar, Fearnought, Fiery Star, Glorious, Hector, La Foudre, Lord Derby, Mons. Galland, Murillo, Nyanza, Proconsul, Rev. Dr. Carey, Satisfaction, Solferino, Sunnyside, Vercingétorix, Victor Emmanuel, W. Underwood.

Passed:—Acme, Adonis, Alfred, Autocrat, Banner, Bonaventure, Charles Aubrey, Claude, Climax, Colonel, Comte Zamoiski, Crimson Perfection, Constance Hault, Countess, Edith, E. Milner, Emperor, Feu de Joie, Flambeau, Foxhunter, Fulgens, Grace Holmes, Great Eastern, Henri Lierval, Highland Chief, Huntsman, Imperial, Inquisitor, James Campbell, Kate Anderson, Le Zouave, Lord Chancellor, Loyalty, Magna Charta, Magnificent, Mimas, Model, Mons. Aimé Dubos, Mons. Barthère aîné, Mrs. Anderson, Mrs. Brock, Napoléon, Omega, Persurius, Poser, Prince Impérial, Prince of Orange, Prudent Gaudin, Really Good, Reliance, Rifleman, Royalty, Solfatara, Sunlight, Triomphe, Triomphe [illegible], Vesuvius, Venus, Victorious, Vivid, Welcome, and William Ingram.

2. Flowers [illegible]. [illegible].—

Eph[illegible]. Vigorous, bushy habit; dark zone; flowers soft salmon-rose, [illegible] form of the same character as Lucius, but with a more decided pink tinge in the colour of the flowers. 1st class in 1865.

Miriel. A moderately vigorous and good grower; variety, having zoned leaves, and flowers of a soft rosy-scarlet, the colour of Lucius; fine and very free. 1st class in 1865.

Christine Beauté. Of moderate growth; leaves wavy and lobed, with faint zone; flowers rosy-scarlet. 1st class in 1866.

Crystal Palace Gem. Of moderate growth; leaves flat and dark zoned; flowers large, rosy-scarlet. 1st class in 1867.

Excellent. Compact habit; leaves with dull zone; flowers light red or salmon scarlet, very free. 1st class in 1866; confirmed in 1868 as a pot-plant.

Forester. A compact grower, with dark-zoned leaves, and rosy scarlet flowers. 1st class in 1865.

Hector. Of moderate growth; leaves with dark zone; flowers large, deep carmine rose. 1st class in 1865.

Herald of Spring. Rather vigorous; leaves lobed and wavy, with a dark feathery zone; flowers abundant, and of fine shape, rosy-scarlet. 1st class in 1865.

Madame Madeline. Of moderate vigour; leaves with dark zone; flowers in fine trusses, beautiful rosy-scarlet, with white eye. 1st class in 1866; confirmed in 1868 as a pot-plant.

Mons. Martin. Of moderately vigorous habit; leaves with dark vandyked zone; flowers coriso-scarlet, in bold trusses. 1st class in 1865.

Provost. A variety of moderate growth; leaves with a dull zone; flowers of a soft rosy-scarlet, large, well-formed, and freely produced. 1st class in 1865, confirmed in 1868.

Regalia. Dwarf and good, of compact habit; leaves small, zonate; flowers large, and of fine shape, rosy-scarlet: in the way of Roi d'Italie. 1st class in 1868.

Roi d'Italie. This variety made very little growth; leaves zonate; flowers large, showy, rosy-scarlet, with pale eye. 1st class in 1865.

Bonnie Dundee. Compact habit; leaves dark-zoned; flowers rosy-scarlet. 2d class in 1865.

Promising:—Æstival, Alexander McKay, Derbyshire Hero, Empress, First Favourite, Lucius, Jules César, Mrs. Longman, Persian, President Johnson, Sir F. Kelly, Souvenir de M. Basseville, Umpire, Virginia.

Passed:— Amy Rubotin, Andromeda, Annie Findlay, Britannia, Candidate, Crimson Cushion, Endeavour, Etoile des Massifs, Eugénie Furst, Festival, Hero, Illustration, In Memoriam, La Niagara, L'Immobile, Lord Chancellor, Magnet, Matilda, Nora, Olivia, Prime Minister, Prince of Wales, Profusion, Rifleman, Rosabel, Tintoret, Victoire de Puebla, and Woodwardianum.

3. Flowers rose-pink:—

Beauté de Suresnes. Moderately vigorous; leaves with dull zone; flowers rose-pink, with white on the upper petals. 1st class in 1865.

Blue Bell. Of moderately vigorous habit; the leaves marked with a dull but deep-tinted zone distant from the margin, and the flowers very striking, of large size and fine form, in bold trusses, and of a deep bluish-tinted rose-pink, with white eye. 1st class in 1868. It was decidedly the gem of the season, and was greatly admired.

Pink Beauty. Vigorous in habit; leaves with dull zone; flowers large, rose-pink, with white blotch on the upper petals. 1st class in 1866.

Rose Rendatler. Of moderately vigorous growth; leaves with a dull zone; flowers rose-pink, the upper petals with white blotches, free. 1st class in 1865, confirmed in 1868.

Wiltshire Lass. Moderately vigorous; leaves with dull zone; flowers rose-pink, white on the upper petals, very like those of Beauté de Suresnes. 1st class in 1866.

Amy. Vigorous; leaves dull-zoned; flowers abundant, pale rose, with white base to the upper petals. 2d class in 1865.

Malthes de Marcol. Of free-branching habit, and remarkable for its abundant blossoms; flowers small, deep pink, with white eye. 2d class as a pot-plant.

Promising:—Delicata Lord Fitzherbert, Pink Perfection, Sereno, Alexandra.

Passed:— Forget-me-Not, Gloire des Roses, Kætchen Schreurer, Les Gaules, Madame Auguste Laloy, Madame Lefevre, Mdlle. Emmanuel Gaay, Mary Eveline, May Queen, Mons. Leyens, Peach Blossom, Pink Globe, Rosa Perfecta, St. Pierre.

4. Flowers salmon-coloured:—

Fanny. Of moderately vigorous habit; leaves darkly zonate; flowers of a light salmon colour, deeper at the eye, free. 1st class in 1865.

Jean Valjeans. Of moderately vigorous growth; leaves dark-zoned; flowers bright and clear salmon colour, in good trusses. 1st class in 1868 as a pot-plant.

Mons. Barre. Moderately vigorous; leaves dark-zoned; flowers salmon colour, free. 1st class in 1865.

St. Fiacre. Compact; leaves dark-zoned; flowers rich salmon, free. 1st class in 1865.

Seraph. Moderately vigorous; leaves with a deep broad almost marginal zone; flowers fine, freely produced, salmon colour, with white eye. 1st class in 1868 as a pot-plant.

Auricula. Moderately vigorous; leaves dark-zoned; flowers bright salmon. 2d class in 1865.

Cecilia. Compact habit; small dark-zoned leaves; flowers large, soft salmony-red. 2d class in 1865.

Charles Rouillard. Moderately vigorous; leaves dark-zoned; flowers salmon colour, paler at the edges. 2d class in 1866.

Souvenir du 8 Juin. Moderately vigorous; leaves lobed, wavy, zonate; flowers bright salmon. 2d class in 1865.

Promising:—Baronne Hausmann, Etienne Henri, Eugénie, John Veitch, Rosy Morn, Theodore, Thomas Moore.

Passed:—Alphonse Karr, Archévêque de Paris, Aurantia striata, Bridesmaid, Carminata, Carmine Stella, Charles VI., Charlotte Corday, Cherub, Comtesse de Pourtales, Emile Carre, Emile Licau, Fascination, Favourite, Floribundum, H. W. Longfellow, Jeanne de Rohan, L'Abbé Samson, Lady of the Lake, Lord Vernon, Madame Loussel, Mdlle. Augustine, Ma Gloire, Marginatum, Melaine Duhet, Madame Rudolphe Abel, Montem Smith, Nonsuch, Northern Rival, Pioneer, Princess Mary, Princess of Hesse, Princess of Wales, Psyche, Rosabella, Salamander, Seraphine, Souvenir de l'Isire, Vectis, and Virgile.

5. Flowers oculate:—

Amelina Grisau. Moderately vigorous; leaves dark-zoned; flowers white, with deep salmon eye; in the way of Vestal. 1st class in 1865.

Eugénie Mezard. Moderately vigorous; leaves flat, with dark zone; flowers blush-white, with deep salmon eye. 1st class in 1865.

Madame Verlé. Moderately vigorous; leaves with dark zone; flowers white, with pale salmon eye; fine form. 1st class in 1867.

Madame W. Pfitzer. Of vigorous growth; leaves with very dark zone; flowers white, with salmon eye. The variety sent as Rosebud was not distinguishable from this. 1st class in 1865.

Promising:—Alice, Dame Blanche, Fairy Queen, Madame Bruant, Mathilde Moret, Medea, Miss Louisa Pyne.

The delicate blossoms of this group being more suited for

indoor than for outdoor culture, some of the following, which were considered inferior, or superseded as outdoor plants, may be desirable for culture under glass:—Ary Zang, Beauty, Bright Eye, Christabel, Festoon, François Desbois, Gaëtana, Henri de Beaudot, Juliette, Lady Hamilton, Le Prophète, Loveliness, Madame Dufour, Madame Gauffier, Monseigneur Lavigerie, Madame Rudersdorff, Madame Van Houtte, Mdlle. Le Comtesse de Lircourt, Princess Mathilde, Queen of Beauties, Vestal, and Victory.

6. Flowers white:—

Le Vésuve. Of moderately vigorous growth; leaves marked with dull zone: flowers white, free, pure under glass, but suffused with blush outdoors. 1st class in 1868 as a pot-plant, and considered the best white for pot-culture.

Madame Martha Vincent. Of vigorous growth, with dull-zoned leaves, and blush-white flowers. 1st class in 1867.

Mdlle. Marie Mezard. Moderately vigorous; leaves zonate; flowers white. 1st class in 1866.

Madame Pescher. Moderately vigorous; leaves with dark zone; flowers white. 1st class in 1865.

Purity. Of moderately vigorous growth; leaves dull-zoned; flowers blush-white. 1st class in 1867.

White Perfection. Moderately vigorous, with dull-zoned leaves and blush-white flowers. 1st class in 1864.

Promising:—Album compactum, King of the Whites, Madame Barillet, Queen of the Whites, Virgo Maria, Wilhelmine Weick.

Passed:—Candidissimum, Emilie Vaucher, Lara, Madame Nardy, Snowball, White Pearl, White Tom Thumb.

(*To be Continued.*)

A CHAPTER ON WORMS.

(*Concluded from p.* 418.)

WE are led to inquire if there were no other agencies at work to produce the elevation of surface referred to besides the worms. There were, but before alluding to these it may be well to note that, supposing it possible that the work was accomplished by worms, it was not a deepening but a mere transposition of soil—the place of certain portions in relation to each other was changed; but unless it is contended that the worms actually made the earth that they brought to the surface, we have absolutely no proof that the soil was deeper than before. As the surface above the marl rose, the base on which the marl rested fell, and the depth continued as before. As far as any absolute deepening of the tilth was concerned, the stupendous work of the worms was labour absolutely lost. And this principle is of universal application, and completely destroys the claim of the worm to the character of a soil deepener. Not but what, if we grant its possession of such carrying powers as this case supposes, it is capable of rendering most important service as a mixer of soils.

But, as already hinted, I take leave to doubt its possession of any such extraordinary powers. The facts of this case can be explained on easier and more plausible assumptions. Two or more agencies, of equal or greater potency to the worms, were at work during the entire period to reduce the layer of marl to a lower level—the decomposition of the roots and stems of the Grass, and the specific gravity of the marl itself. The former worked to raise the surface to a higher level, by laying on an annual layer of new matter; the latter carried the marl lower and lower beyond the line of the original surface by its superior weight. By the action of these two forces working in opposite directions towards the same end, without intermission for 15 years, we recognise forces of sufficient potency to produce the observed effects without crediting the worms with more than the most infinitesimal portions of the work. While rejecting their claims as soil deepeners, in this sense, I am free to admit that by throwing up their casts they do remove small portions of earth from one place to another. In this case a good deal is made of the number of worm casts. Of course, in a work of this kind numbers would tell, but I have another theory to account for their being so numerous on the surface. Probably few or none of the worms passed through the layer of ashes and marl. If such was the case, they all lived in a small or shallow house, and not liking to work downwards, they worked upwards, and the unusual number of casts might only be the evidences of overcrowding, and in no sense the monuments or symbols of the extent and activity of their soil-deepening or rather earth-lifting labours.

Admitting them to possess some small influence in modifying the surface, I would ask of what practical use their aid in this direction can be to modern cultivators, when with one thrust of our spade we can effect more changes in 15 seconds than a family of worms could in as many years? Doubtless, in the wide economy of the universe these and other living things are of service, for nothing has been made in vain; but we may safely dismiss them from our gardens, as too weak and slow to render us any appreciable help; and we therefore remove them as useless, or proclaim war against them as positively injurious.

It is somewhat singular that if worms are so useful as "W. T." asserts in the open ground, that even he is compelled to admit that they are most injurious in pots; and yet, with the exception of the limited area of pots, plants in them do not vary much from those placed in the most favourable circumstances out-of-doors. In pots the drainage is perfect, the soil rich and deep in proportion to its width, yet within them worms work terrible havoc with the drainage, seem absolutely to eat the heart out of the soil, and their top-dressings or surface manurings are evil—wholly evil, and that continually. And then if these charges are true as against the common worm, they are more emphatically so against another species that I have known for 20 years as the Eel-worm. This is probably a tropical relative of the common worm, as it cannot live out-of-doors in our climate, scarcely subsists in a greenhouse, while it revels in the temperature of a plant, stove, or orchid-house. It differs from the common worm in its mode of locomotion, and several of its habits. It comes out at night on walls, stone floors, &c., and is as quick as an adder or serpent in its movements when disturbed. It seems in no fear of moles. When the soil in a pot, or a portion of the earth is shaken, the common worm rushes to the surface, preferring any other danger to the hungry mouth of a mole; the eel-worm, on the contrary, proceeds instantly inwards to the centre of the ball, and no amount of vibratory motions, tappings, or thumpings, will bring it out. Therefore, it is probably a denizen of regions where moles have no place. Fortunately this worm is far from common; I have only met with it here, and at Glevering Hall, in East Suffolk. It seems impossible to eradicate it. I have even washed the roots of the plants perfectly clean with warm water, and potted whole collections in fresh soil, but the worm has constantly cropped out afresh. It appears to breed with extraordinary rapidity, and is endowed with great muscular power, so much so that it is somewhat difficult to hold a large specimen between finger and thumb. Lime-water appears to have little influence upon it, and the only effective means of destruction is the very old one of catching the worms alive. The evil effected by these among pot plants, may safely be put down as tenfold greater than that by the common worm. No sooner is a plant observed to hoist signals of distress than an Eel-worm hunt takes place throughout its earthy domain. It is needful to proceed with the utmost caution and alacrity. The pot must be inverted without the slightest noise or vibration. If this is skilfully and instantaneously accomplished, the worms may often be found among the crocks, for which they seem to have a peculiar affection. But if any knocking has been indulged in to turn out the ball, either the worms will have wholly disappeared, or the wagging of their tails may be seen as they recede into their citadel in the centre of the ball, like flashes of light. From this post of danger to the plant, and safety to the worms, there is no means of dislodging them, unless by the demolition of the entire fortress piecemeal. This persistent hiding up is one of their most troublesome characteristics, and is entirely at variance with the outward-bound rush of the alarmed and common earth-worm, that renders it an easy prey to its foes.

But it is high time to add a few notes in reference to remedial measures. Our antidotes against worms arrange themselves into two classes, preventive and destructive. The former aims at limiting, the latter reduces, their numbers. In pot cultivation, prevention is our only safety. The soil used should be wisely chosen, carefully examined, and even skilfully doctored to keep out or destroy in the bud all worms; lime and fire are our chief preventive agents, while none of the other antidotes, such as salt, corrosive sublimate, ammoniacal liquor, &c., that may be used with more or less safety elsewhere, can be employed in pots, or for the soil to be used in them. Neither are they needed; all soils or manures used for potting that are likely to be impregnated with the germs of worms should be baked, or treated with lime. Roasting is the safest remedy, and if not carried to excess it does not injure the texture or quality of the soil, but rather improves it, while it destroys every kind and form of animal life. These, with a quick eye in potting, to reject every moving thing, constitute our chief preventive measures. Another is, however, worth noting here. Previous to using the soil, it should be spread out thinly over the potting bench and sprinkled over with dry charcoal powder, hot sand or ashes. A few turnings and sprinklings will well nigh ensure the annihilation of every form of life. With such precautionary measures beforehand, associated with the utmost watchfulness and promptitude in the destruction of the first worm that manifests itself or its works within a pot, these pests may be reduced to the lowest point of vexatiousness, if not utterly exterminated.

Preventive measures outside are more numerous, and include a wider range of method and materials—thorough drainage, trenching, subsoil ploughing, pulverisation, paring and burning, dressings of lime, especially quicklime, soot, salt, corrosive sublimate, guano, burnt clay or marl, and ashes, cold or hot, are all of the highest service.

Great care must likewise be exercised lest worms be introduced with manure. Dunghills or compost heaps seem to favour their rapid increase and multiplication, though violent fermentation removes or destroys them. Manures may likewise be treated to large doses of salt, lime, ammoniacal liquor, boiling hot brine, or other larvæ killers, before being put upon the land. Of course these destructive agents may be safely given in larger doses to the manure than it would be either safe or possible to apply to the land. Such applications would effectually destroy all animal life, while they would increase the stimulating force of the manure, and render it an antidote to worms wherever applied.

In the actual work of direct extermination we are powerfully assisted by other forms of life. By worms such creatures as blackbirds, thrushes, jackdaws, rooks, and a whole host of smaller sweet singers live. By increasing and multiplying such beasts of prey, we limit the sum total of the thing preyed upon. But notwithstanding all these checks, the earth teems with worm life, and in many localities they increase and multiply beyond endurance. We are therefore compelled to lend a hand in the grim work of death. Perhaps we can hardly do so more effectively than by following the example of the birds, by nimbly and deftly picking them up in the proper manner and at the proper time—the manner being swift, and the time the break of day—for only the early birds gather the worms. It is astonishing how many may be destroyed by hand-picking. Another mode of destruction is by pressure. A light roller, swiftly run along in front of us—it would not do to drag it, else our footfall would warn the worms, and give them time to escape—will crush thousands by the side of their holes.

This mode of destruction is most effective on chilly mornings, when the worms are partially paralysed by cold. On arable land or gravel, quicklime, hot ashes, corrosive sublimate, or salt scattered broadcast, will leave a wide field of worm death behind them. The safest destructive agent upon Grass is lime water; a persistent removal of their casts or heaps, and incessant rollings. They seem to have a decided objection to the removal of their casts. I believe these serve as a sort of roof to keep the water out of their homes, and they don't relish the labour and trouble of erecting a fresh roof every night. On gravel, salt in quantity or hot brine is death to all worms, old and young, and improves the gravel into the bargain; hollow rollers weighted with hot water would likewise give the worms urgent notice to quit. Fleming's salting machine will banish the whole fraternity from paths and roadways, and at the same time make them glisten with a sparkling, cleanly brightness, like the shingly sea-shore. By some such, or any other means of destruction, worms may be kept within bounds, or well-nigh exterminated. And I confess that the necessities of perfect cleanliness, and a careful regard for the health, safety, and thorough well-doing of plants within our gardens, induce me wholly to dispense with their assistance, and to urge war to the death against them within our boundaries. I look upon their reputed service as a poetical fiction, that utterly breaks down when examined by the clear, stern light of practical experience.

Still I am far from advocating anything like vindictiveness of feeling against worms, or any other vermin. Life should never be taken heedlessly, for the humblest form of it is sacred. But our position seems to necessitate a constant warfare against insect or animal life. Our standpoint as cultivators is, as it were, between the living and the dead—or rather, we are mediators between two forms of life; and our interference is expected to be wholly on one side—we must mediate entirely in favour of plants. I think it was Brougham who laid down the great principle that an advocate must sacrifice all other interests for that of his client. It is just so with gardeners. Vermin are opposed to our clients; therefore away with them. Still this work of death should be felt as a burden, not engaged in with the zest of pleasure; and it is so felt by many gardeners.

We would gladly give quarter to many insects if we dared, but it is impossible. They cannot appreciate generosity. Give them an inch, and they would not only instantly reach over an ell, but hasten to cover a square mile. They would do more and worse: they would eat up our clients. Over the wider field of the world the case is somewhat different. Each life sustains its place and power by a sort of general balance of force; and the result is an equipoise between the two,—apparent antagonisms become reconciled, and accidental destruction here and there results in the general preservation and well-doing of both forms of life. But we cannot afford to pursue the same system in gardening. Each cultivator is set for the defence and nurture of his own plants. These for the time being are the whole vegetable kingdom to him, and all that would enfeeble their growth or mar their beauty must be swept away like chaff before the blast of the whirlwind; hence our stifling smoke clouds must continue to arise, and our various death schemes be put in force against whole hosts of insects.

Almost the only way that we can mingle mercy with such stern judgment, is by the swiftness of our destruction. Every precaution should be taken against the infliction of unnecessary pain. The most merciful rule, alike applicable to every possible case of taking life, is that quaintly expressed by a tender-hearted old Scotch woman, who met a boy carrying a kitten doomed to death. "Be a guid laddie noo, and kill the puir bit beastie quick, and dinna *hurt* it." *D. T. Fish, F.R.H.S.*

Home Correspondence.

Fixing Wire Netting.—Where hares and rabbits are numerous, it is almost useless planting unless wire netting is used to keep the marauders off. The usual method of fixing wire is to set it in the ground 5 or 6 inches deep, to prevent rabbits burrowing beneath; even that depth is sometimes ineffectual. A better plan than this is to stretch a line 4 inches from the place where the wire is to stand. Nick by the line, with a spade, about 2 inches deep (A to B, Fig. 1), then insert the spade at C, 4 inches back from the first line, sloping to B; cast the soil out over A; this will leave a shallow trench 4 inches wide at the top. Unroll the netting on the ground (if there be any kinks in it pat it with the back of the spade) to be inclosed (D, D,

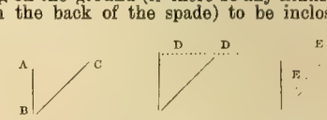


Fig. 1. Fig. 2. Fig. 3.

Fig. 2), drive hooked pegs into the ground 8 feet apart, at C, Fig. 1, that is, 4 inches from the edge of the web. Tread the web into the trench, at the same time pull the wire upright (E, E, Fig. 3). Drive stakes into the ground intermediate between the pegs, and fasten the wire to them top and bottom, by driving a nail in, and turning the head of it over the wire to the stake. Put the soil into the trench on the wire, care being taken that no large object, as a stone or log, lies near the wire, and rabbits will not then burrow beneath it. *F. Flitton.*

Gardening in France.—Having a great desire to go to France, and wishing to obtain a situation there as foreman (under an Englishman) in some good establishment near Paris, but not knowing the condition of gardeners there, I submit the following questions to you, soliciting as a favour your answer in the *Gardeners' Chronicle.* 1st. Are the wages received by gardeners in France, and the cost of provisions,

equivalent to our condition here? 2d. Is there as good a chance for a young gardener there as here? 3d. Are the best establishments in the neighbourhood of Paris? 4th. Would it be difficult to obtain such a situation as desired? *John M'Donald.* [We have referred your questions to one who has had personal experience in the matters you inquire about, and here is his reply. Eds.]—"There are very few gardens in France where the condition of the young gardener is in any way equal to that of the young gardener in Britain. The highest pay is chiefly found in gardens where the head gardener is either English or German. Even where the proprietor is English (as at the Marquis of Hertford's, in the Bois de Boulogne) the men receive only the ordinary French pay, namely, 60 and 70 francs per month; and even though the men are English it matters not, as long as the head gardener is French; native and foreign share alike. Though an Imperial young gardener in the kitchen or flower gardens of Versailles, your pay is the same. How many gardeners in the neighbourhood of Paris live and pay lodging, and appear respectable on this wage, I know not, for I always found provisions dearer there than here; and even 30 miles from Paris, as dear as in Paris itself. Those who are fortunate enough to obtain situations in private places where the head gardener receives 2000 or 3000 francs per annum, may perhaps be paid 80, and even 100 francs per calendar month, and lodging; but these places are rare—in fact, I only know of three places where these wages are given. Ninety-five head gardeners out of every 100 only receive 1000 to 1200 frances per annum, with house—and such a house! and it is obvious that the young gardener's pay is equally low. It stands to reason, then, that your correspondent's chance in procuring a situation such as he wants is small, for while Enlish gardeners there like their own countrymen as props, so in like manner does the French gardener like his compatriot to assist him in his labours. I believe there are only two or three English head gardeners in France, so that his chance of getting a foreman's place under an Englishman is very small. As far as my experience goes, the best establishments are within a radius of 30 miles of Paris: a few may be scattered without, but I am not aware of them. The language is certainly a drag on men who are up in years, and not acquainted with even its rudiments—a man under 20 years of age has a better chance of acquiring the language and falling into the French way of living; but if not steadily inclined, he is soon wrecked amongst cheap *eau de vie*, and becomes a disgrace to his countrymen, and a nuisance to France." *H. Knight.*

Cleaning Ponds. — Can any of your able correspondents kindly inform me how I can get rid of the slimy vegetable substance which covers a small pond and has a very unsightly appearance. It rises from the bottom in fine weather, and almost disappears in wet. When examined under the microscope it has the appearance of minute hairs. The pond has been cleaned out, and the bottom covered with cement and pebbles, and every morning there is water let in at one end and out at the other. We were advised to use chalk, and threw in a load of lumps, but without meeting with any success. Any advice on this subject would be gratefully received. *R. W.*

Wistarias and Magnolias Producing Seed.—The white-flowered Wistaria podded freely on a south wall here last year, and among many abortive seeds produced a few perfect ones, which have germinated this spring. Four years ago Magnolia Soulangeana on a west wall ripened seed, from which plants were raised. Are not these rather unusual occurrences in our climate? [Yes.] *W. F. H., Weybridge Heath.*

Coleus for Bedding-out.—I can fully endorse all that "W. E." (Garden Operations) says in favour of Coleus Berkeleyi and C. Bausei for bedding-out purposes. I planted them, with all the other new ones sent out last spring, for the purpose of testing their merits as "bedders," the result of which was, that I have discarded all but the two named. So pleased was my employer and myself with them, that this spring I have propagated some hundreds for bedding purposes. *W. Wildsmith, Gr. to Viscount Eversley, The Gardens, Heckfield Place, Winchfield, April* 17.

Caractacus Pea.—Having sown a row of this variety at 4 inches distance from the row, mentioned at p. 362, I find them fit for picking after the lapse of 50 days, being 29 days earlier than the former row in point of relative time. In this case the crop is more abundant than those of earlier growth, and the straw is fully as tall as it grows out-of-doors. If any of your experienced correspondents can inform me of any Pea that can be brought forward for use with greater facility I should be thankful. I grow Maclean's Little Gem (a wrinkled Pea), but I do not find it so tractable for early work as Caractacus. *John Reid, Haigh Hall Gardens.*

Hawthorn. — Although Hawthorn is familiar to every one, yet the origin of its name seems obscure; but this applies only to the fruit or haws. Some writers endeavour to derive this from *hegna*, Icelandic, to fence round, and thence urge that the German *Hagedorn* and the Anglo-Saxon *haga* and *haegs*, and all other local names, from haws, and even hedge, are derived from the same source. If so, haw is derived from fence, or place where the plant grew, and not from the name of the tree. Now, it seems strange to recur to the dead or stone fences of Iceland for the original name of our living ones. For though Hawthorn hedges have been long in extensive use they were probably not so before those of Holly, Yew, and other shrubs, both for shelter and ornament, yet in those instances the berries hold their respective names. I should notice, however, that wild Rose or Sweet Briar fences are exceptions, for the fruit or seed of these are called hips, and if haw means a hedge or fence, those hedges should be hip fences. Again, we gather nothing to favour the opinion, from other local names, such as Quickset and Whitethorn, referred to as distinguished from Blackthorn, fences. Still the berries of the Whitethorn are called haws, and in some places butter-haws. Perhaps enough has been said on that part of the subject, for the Celtic or primitive name of the Hawthorn might have been hay or haw long before it was used as a fence. But, however this may be, Hawthorn is not of very recent origin, for in the beginning of the 15th century, while King James I. of Scotland was a prisoner at Windsor, he mentions in his poem of "The Gardens:"—

> "Reelit about, and so with trees set
> Was all the place, and Hawthorn hedges knet."

J. Wighton. [The "haggard," or stackyard, in the north of Ireland, is in very many cases a space surrounded by Hawthorns; the "hallan" in Scotland is a 6-feet mud-wall, in old farm-buildings, &c., built up between the door and the fireplace, to keep off draughts. Next the fireplace, against the "hallan," is the "settle."—Printer's Devil.]

Polyanthus pin-eye *v.* **thrum-eye.**—I have lately become a grower of Polyanthuses. Can you inform me in the *Gardeners' Chronicle* if it is necessary to sow any of the pin-eyed flowers to impregnate the thrum-eyed flowers, as I am in doubt whether the pin-eyed flowers are male or not? *R. B.* [We leave our floricultural friends to answer the above questions from their own point of view. In the meantime we would refer our correspondent to the elaborate experiments of Mr. Darwin, published in the "Journal of the Linnean Society," and alluded to in our columns, 1861, p. 1048. The general results of Mr. Darwin's experiments are that the greatest number of good seeds are produced when pollen from a "thrum-eye" variety is placed on the stigma (or pin-head) of the pin-eyed flower, or *vice versâ*. When pollen from either a thrum-eyed or a pin-eyed flower is placed on the stigma of another flower of the same variety, the results are not so satisfactory, and still less so when a flower's own pollen is used to set its own stigma. Eds.]

Signs of Spring.—The following notice of the arrival of those of our migratory feathered visitors which give us most plainly of all such pleasurable assurances of the advent of that most delightful period, spring, may not be without interest to some of your readers, and especially those who reside in large towns, whether provincial or in the metropolis. Here (South Herts) swallows arrived in pairs on the 10th inst., and in small flocks on the 11th. On Sunday morning (April 11) the cuckoo's notes rang clearly through the air, which, following the slight frost of the previous night, was peculiarly sultry and warm. Upon the same day a bunch of Bluebells, moderately full blown, was seen. The thermometer on those two days (standing in full sun), was 96° and 92° respectively. And upon the latter day a thermometer at the northern side of the mansion here stood steadily up to 75° until 4.50 P.M. *William Earley, Digswell.*

The Surface Cropping of Vine-borders. — Having adverted last week to some of the accidental matters that have been thrown up around these borders, I proceed now to remark upon the general question, and to bring the matter to the twin tests of experience and common sense. But upon the very threshold of the subject I am confronted with some general charges levelled against the entire army of horticulturists. These charges are nothing less than ignorance, imbecility, and egotism in the most pronounced helpless and oppressive forms; for at p. 390, col. *b*, it is solemnly proclaimed that—"In truth, horticultural science is not yet advanced enough to proclaim advice upon this point (that of border making) to her many devotees." Our teachers being in such a state, is it any wonder that our practice "involves not the slightest degree of scientific research." But associated with the mental darkness that might be felt—has been, in fact, by "A.," for it seems impossible that he could have seen it among modern horticulturists—and an imbecility so enervating that it robs us of all power of improvement, there is seen the most despicable exhibition of egotism, and heard the loudest boastings. Our dull, apathetic, hazy-visioned eyes cannot see ourselves nor our doings as others, that is as "A.," sees us; so we take no note of our blunders and mistakes, but when chance or the stars, or the fortuitous atoms, work out for us the thing successfully, how we blazon abroad our triumph! In our "ignorance of chemical combinations" we are so very unlike our professedly wise friends, our "agricultural compeers"—we are so foolish, they so wise, that we have only to sit at their feet and learn all those "figures or formulæ" and chemical compoundings of which we are so blindly ignorant. "A." in the next column returns to the charge, and tells us how well they understand how "one crop prepares the ground for another." But their chemists seem to have forgotten to tell our friends how to grow two good crops together on the same land, at the same time, without injury to either—nay, with positive benefit to both. And this is the problem that "A." has set himself to solve, and because we cannot exactly see it, he piles up a seething agony of adjectives and sends them flying on the swift wings of the press at our devoted heads. Assume for a moment that "A.'s" picture of horticulturists is the true one—which I most emphatically deny—how does he propose to remedy it? We are ignorant, what instruction does he offer? This: we know nothing of the chemistry of border making; of necessity we make them faulty. And "A's." sole remedy for a faulty border is to take two crops off it instead of one. The border is weak, consequently give it a double weight to carry! Seriously, we have taught the agriculturists a good deal, nearly all, that is most valuable in modern husbandry, and I, for one, have no objection to learn of or from them. But what can they teach us that we do not know already? Have they any exclusive source of information? Who amongst us has not studied Liebig? Were not your own columns enriched years ago with the valuable letters of Solly and other explorers of chemistry? And have you not kept us constantly informed about the latest discoveries in the chemistry of soil making? Notwithstanding the sneers that have been directed against mere eye estimates, I have a good deal of faith in such tests of quality. The senses, enlightened by science and controlled by philosophy, are useful and tolerably safe instructors in regard to the quality of matter. Touch, sight, smell, and even taste, are not to be ignored in judging of the character of soils; and there are hundreds of practical men amongst us whose senses would prove much safer guides than the scientific formulæ of others. But practice with science is my motto; not the one without the other—far less the one to the disparagement of the other, but both together working in harmony under the control of common sense. Further, "A." admits that we are "good enough at the mechanical construction of soils." It will astonish him possibly to learn that most of us consider this of infinitely greater importance than any nice balancings or compoundings of their chemical constituents; the former is the foundation of the building, the latter only a temporary lodger, who is here to-day, and at the ends of the earth to-morrow. For one root that suffers for want of the necessary chemical constituents in soils, thousands languish and perish in the midst of a plethoric abundance of chemical compounds, because they are enveloped with such mechanical surroundings as deprives them of all power of eating or utilising the good food placed at their disposal. In fact, the chemical compoundings of fruit-tree borders belong more to the science of manuring, or feeding, than to that of house-building—border-making, for the roots to dwell in. Consequently horticulturists devote more attention to the former than the latter, in the formation of root grounds. Such a course is no proof of their ignorance, but rather an illustration of the profound knowledge of the relative importance of mechanical construction in the great art of border making. Grant that not to crop Vine-borders produces chaff, and the matter is decided at once. And yet this is the mode of putting the question used by a clever writer, who actually in the next paragraph accuses me of special pleading for placing my objections to surface cropping succinctly before your readers. One grain of comfort at least is left to us, bread cannot be transmuted into stones by any man's word, nor such Grapes as are grown by Messrs. Fowler, Meredith, Thomson, Fleming, and a noble host besides them, on uncropped borders, be converted into chaffy nothings by the scratch of any writer's pen. Neither have I the slightest wish to deny that good Grapes are grown on surface cropped borders; in fact this is one of those cases in which the voice of experience gives forth a most uncertain sound. The columns of the *Gardeners' Chronicle* might be filled for six months with cases of recorded success under surface cropping, and for six more with similar successes from uncropped borders, and yet the case be left very much as it is—that is, with a preponderance of proofs and talents in favour of the latter practice. The truth is, the Vine is so yielding in its habits, so accommodating in its modes of living, and so tenacious of life, that it will live, and prosper, and yield a good harvest of fruit under the most diverse and even antagonistic circumstances that can be imagined. In some places it seems impossible to injure it; neglect cannot weaken nor cruelty destroy it. In other situations it is comparatively shy and coy; the utmost skill cannot master some of its frailties, such as shanking, and no amount of coaxing or stimulating will render the plant or its luscious offering of fruit perfect. Sometimes the deepest depths of scientific research have been fathomed to the bottom, and the richest stores of practical knowledge exhausted, to form a perfect feeding ground for its roots, and a perfect living house for the top, and yet the ungrateful Vine droops or languishes, and refuses to occupy the ground beneath, or to finish perfect fruit in its model dwelling. At others a hole will be dug in a kitchen or flower garden, and a Vine roughly shoved in; and for years it will astonish all by the luxuriance of its growth and the high quality of its produce. Again, the Vine will refuse to thrive upon the choicest food, and anon it will be found lapping up the strongest sewage with apparent relish, picking decomposing bones with evident gusto, and even taking a hasty meal out of carrion. In fine, there are no conditions so perfect but that may sometimes fail to produce first-class Grapes. What, then, is the lesson to be learned from all this? That we are to be indifferent to conditions of success or skill in the use of them? Certainly not. Let us secure the very best of the one, and put forth the utmost amount of the other. But when success rewards or failure overtakes us, let the versatility of the Vine, if I may so express it, teach us wisdom in the assessment of the value of experience. For there is no practice so bad but it might be buttressed by cases of success in its favour; none so perfect but they might not be weakened by recorded cases of failure. We must therefore take heed how we record the verdict of experience. Allow me to say, by the way, that I have not expressed any opinion in favour of the propriety or otherwise of borders being bounded by a hard and fast line, as inferred by your correspondent. Amidst such endless varieties of conditions and diversities of skill and the use or abuse of them has success been reached, that the mere success of a practice can hardly be accepted as conclusive evidence of its being the best. In this case there cannot be a doubt that the success has been as great and as decided by those who do not surface crop the borders, as by those who do. Nay, I will go further, and assert that the cumulative evidence gleaned from the highest amount of success would be against the practice. In the superior court it has always been ruled, that each plant has a right to enjoy a morsel of ground wholly to itself. And not only is this held to be sound constitutional law, but the majority of plants have made good their claim to it in practice. Most plants in a state of nature clear the ground for the exclusive use of their own roots, and the Vine, from its ample foliage, would undoubtedly destroy any surface clothing that attempted to impoverish its roots; though man, by placing the roots in one situation and the tops in another has rendered surface cropping possible. But surely the possibility of a practice can never be accepted as any proof of its propriety or its wisdom. The invisibility of the roots has often caused them to be ignored and forgotten, and thus surface cropping has originated in a blunder and a mistake. The ground has been treated as if it were empty, when it has been full to repletion of our best and most valuable things. Is the Grape Vine to have its roots worse treated than a common Cabbage? Assuredly not. Then let us hasten to lay our very best food at its feet, and permit it to enjoy it at its leisure, without a rival, and a few feet of ground all and wholly to itself. Then upon every border will be inscribed—"Engaged for our most distinguished guests;" and over all will float the banner, higher and wider than ever, "Sacred to the Vine roots alone. *D. T. Fish, F.R.H.S., April* 19.

Foreign Correspondence.

Gardening Notes from Russia.—With respect to the catalogues, called here "Price-Currents," they are almost all printed in the form of a broadsheet, and differ but little from one another in their general arrangement. That of the central depôt of the Horticultural Society is double the size of the others I have obtained. Like the others, it begins with the kitchen garden seeds, and the names are printed in German as well as Russian; a few are in English, as Victory of Bath Cucumber, and Queen of England Pea. Then come the farm seeds: the Grasses are printed in Russian, Latin, and German; the Turnip seeds are almost all English. The Russian seedsmen invariably give the flowering plants and stove and greenhouse plants in general, in the Latin character; but they also give the pronunciation, that is, the Russian pronunciation of Latin in the Russian character, for the benefit of those who read Russian only. These and ornamental trees and shrubs, also in the Latin character, usually

occupy the middle part of the catalogue. The colour and other particulars are given with the annuals and perennials. Then follow the ordinary kinds of fruit trees, and a miscellaneous collection of plants, as Roses, Dahlias, Pelargoniums, &c. The Russian gentry are exceedingly fond of having their windows full of stove and greenhouse plants, such as Philodendron pertusum, Dracæna Draco, Araucaria excelsa, Ficus elastica (a great favourite), Arum odoratum, Pittosporum Tobira, and similar sorts. The present catalogue contains a list, with figures, of those most suited for rooms in winter. The last page contains an illustrated list of knives, shears, and similar tools used in gardening; these are nearly all of English make. This catalogue, the most complete I have seen here, closes with a short list of treatises and handbooks useful for amateurs; and a supplementary sheet is given with the Dutch bulbs.

In the other catalogues and price-currents the Grasses and ornamental trees and shrubs are in Russian and Latin: all the rest are in the Russian character only. English, French, and other foreign names, if printed in the Russian character, are written according to their original pronunciation; but, as might be expected, there are a good many mistakes here and there. On the Continent, the vowels in the Latin names never change, as with us; the letter *a* is always *ah*, *i* is always sounded like *ee*, *u* like *oo*, *e* like *a*; *w* is invariably pronounced like *v*, and *th* like *t*. Of course there is no fault to be found with this rule, and so long as the names are in Latin, the Russians are quite at liberty to write "Anoterah Droommonde-e" for Œnothera Drummondii, "Koopressoos Lahvsoniahna" for Cupressus Lawsoniana, Pavlovneeah for Paulownia, &c. But where the names are not in Latin the case is different, for then the original pronunciation should be given. Some of the Russian catalogues, however, contain a number of errors in this respect. In English, for instance, I find Vegetable Marrow, "Tom Toom" (Thumb), "Droomged" (Drumhead), "Veendsor," "Kveen" Victoria, &c. In these examples there is only the *th* in the word Thumb, which cannot be correctly represented in Russian. As for the letter *h*, writers generally seem to have disowned it, and adopted *g* in its stead. In all books or catalogues the names of plants which in Latin or English begin with the letter *h*, take *g* in Russian. Thus Hookerii, Hendersonii, Hibiscus, hybrida, are written as if they were pronounced Gookeree, Gendersonee, geebeescoos, geebreedah. In short, if a Russian were to write the pronunciation of such a line as—

"The horn of the hunter is heard on the hill,"

he would write,

"The gorn of the gonter is gored on the geel."

Yet the letter *ha* in Russian has precisely the sound of the letter *h* as we pronounce it in Latin or English. That letter is somewhat like *x* as we print it.

English names having the final *e* silent, are written according to the French pronunciation; that is to say, the *e* is sounded. Thus, the Russians always write Koës Golden Drop, Countess of Ellesmerë, Dropmoré, and so on.

I am informed that the seed trade in Moscow is much more extensive than in St. Petersburg, for the former, being the most central town, has more facilities of communication with the interior, both by river and railway. Mr. Shults told me that English flower seeds were always in request, but that they could obtain all others, whether for the garden or the field, without sending so far. With respect to garden tools he said it was only from England they could be had good. All others were only "dran," and not worth having. In speaking of spades, he remarked that the handles were of Boxwood; but I have in my time had enough to do with Boxwood, and with spades too, to know that this is a mistake. He assured me, however, that the maker in England had stated so, and perhaps he believed him.

When I was in the south I made frequent inquiries, and tried to find out whether there might not be some gardening journal or magazine in Russian, but in that part of the country nobody could give the information I wanted. But, in looking over the catalogues of E. Immer at the central depôt of the Moscow Society, I found a notice of the "Horticultural Journal," and I bought the last volume. This is a monthly periodical, of the usual size (8vo), edited by V. V. Grigoreff, assisted by MM. Achsharoomoff, Domess, Kovalevsky, Shreder, Enky, and Count Oovaroff. Unfortunately, this journal was not continued after the third year (1866), and I can only attribute its failure to the want of publicity. I feel convinced that if it had been properly advertised and made known, it would have succeeded. The price was only eight roubles (about 20*s.*) a-year, with two coloured plates to each number. The plates are not first-rate, and in any case might have been dispensed with. With respect to the editing, I consider that some useful modifications might have been introduced. The articles are generally a great deal too long and prosy. But few readers of such periodicals have the patience to finish an article of 10, 12, or 15 pages, however carefully studied or cleverly composed; shorter and more varied articles are better suited for the general reader. The private proceedings of the Society, too, have but little interest for distant subscribers, and ought not to occupy so much space, which might be used to greater advantage. One of the first papers that caught my attention was a biographical notice of Dr. Lindley, and as I knew nothing of the death of this distinguished botanist, except from a passing reference in a private letter I received in the south, not long ago, I read that article with much interest.

The Horticultural Society of Moscow holds a general meeting every month, and on these occasions awards prizes for the best plants that are exhibited. These meetings take place in the evening, in a room above the seed shop. The evening, it seems, is most convenient for those who are in the habit of attending. *K.*

Geneva: *The Mountains.*—John Ruskin says, "The best image which the world can give of Paradise is in the slope of meadows, orchards, and cornfields on the sides of a great alp, with its purple rocks and eternal snows above." No lines he ever wrote were truer. What on earth is so heavenly as a sunrise viewed from the top of a high mountain on a fine spring or summer morning?—the cocks crowing, the lark offering up his morning song, the eagles soaring overhead, the chamois on the ledge of a neighbouring rock enjoying his morning meal of grass and mountain herbs, the fox with his tail curved downwards "homeward bound" till evening, the goat at the cottage door on the look-out for a spare morsel of bread, the faithful shepherd's dog at his post, and the rosy-cheeked milkmaid at her's, singing merrily. The spring of 1869 is now upon us, the orchards are gay with Scillas and Snowdrops, and the hedgebanks golden with Primroses. I hope the few following remarks may be of service to the young botanists and collectors who are now looking forward with pleasure to add a few more treasures to their herbaria. The first great point in making a mountain excursion is an early start. Be up with

"The cock that crows in the morn,
That wakes the priest all shaven and shorn,"

and all will be right; but if you make a late start all goes wrong—all the party climbing in a broiling sun and out of temper. If you are far from the mountain you intend climbing, get over as much ground as possible the evening before, and sleep where you can. A barn, among clean, sweet straw, is a capital lodging. If your object is only to collect specimens for the herbarium, you only require two pieces of thin deal boards, about 18 inches square, a couple of leather straps and some sheets of rough brown paper, such as grocers use for sugar and coffee. Put your specimens into the paper on the spot. If tumbled about in a tin box they often lose both shape and colour. If your object be to get alpine plants and small Ferns, take a tin box or knapsack, and if you want a great quantity you must charter a donkey or highland pony. For seeds in autumn there is nothing better than some small boxes, such as chemists use for pills and cough lozenges. Your clothing ought to be neither too light nor too heavy. Good strong boots, corduroy breeks, Garibaldi shirt, a billy-cock hat, and the oldest jacket you have got. If the slope be very steep get a spike or two, such as cricketer's use, put in your boots. Also provide yourself with a good alpenstock with a spike in it. The stock must be strong and 6 feet long. In going up or coming down do not keep looking round whilst walking, or you may slip down the slope or tumble over a precipice. There is little danger and great pleasure in climbing a mountain, if people will only be prudent. Most mountain accidents occur from the imprudence of young tourists. Absolute obedience to the orders of the guide or elder of the party must be the order of day. A Swiss guide insists on the same obedience from a band of young tourists that an English drill-sergeant does from young recruits. As to food, that often depends on the tastes and funds of the tourists. Good bread and cheese and a few biscuits will pull you through a very long day. Add a piece of plain roast beef if you like (not cut up, or it will get dry). Salt things of all kinds ought to be avoided, as they provoke thirst. As to drink, take a small flask of some kind of spirits, and if you know that there is no spring on the top, you must carry up a bottle or two of water. Above all avoid (when very hot) drinking the snow mountain water, which is many degrees colder than what one gets in the valleys. When cool, drink as much as you like. On a scorching hot day one is often tempted by a clear mountain spring, but better suffer a little thirst than be on a sick bed for perhaps months. Never lay yourself down to rest in the open sun, or you run the risk of a sunstroke. *John A. Watson, Campagne Lammermoor, Geneva, Switzerland.*

Societies.

Royal Horticultural: *April* 17 (*Second Spring Show*).—The weather was on this occasion most unpropitious, but, notwithstanding, there was a nice exhibition, and a very fair attendance of visitors. The Azaleas were scarcely so numerous, or so good in point of quality, as might have been anticipated, probably owing to the unfavourable season with which growers have had to contend. In the nurserymen's class for nine plants there was no competition. In the amateurs' class of six varieties, Mr. G. Wheeler, gr. to Sir F. H. Goldsmid, Bart., obtained the 1st prize; he had a well-bloomed specimen of Criterion, and also of Stella, but the latter sort does not realise the anticipations formed respecting it, and it has a most objectionable tendency to produce petaloid filaments, which greatly detract from the beauty of its large finely-coloured flowers. Mr. Wilkie, Addison Road, Kensington, came in 2d with tolerably well bloomed plants; and Mr. Fairbairn, gr. to His Grace the Duke of Northumberland, Sion House, was 3d. In the nurserymen's class for six, the exhibitors were Mr. C. Turner, Slough, and Messrs. Dobson & Sons, Isleworth. The former took the 1st prize with six handsome and exceedingly well bloomed half standard specimens, having dense bushy heads, on clear stems of about 18 inches high, after the Belgian mode of training. In Messrs. Dobson & Sons' collection were small well flowered specimens of William Bull, a double shaded red; and Roi Léopold, clear rich salmon, a fine flower. For the best single specimen the 1st prize was awarded to Mr. Wilkie, who exhibited a standard plant of Sir Charles Napier about 6 feet high; the 2d prize being taken by Mr. Turner, with a splendidly flowered half-standard specimen of Madame Vervaene; while Mr. Wheeler secured the 3d, with Triumphans.

Cinerarias were less numerous and less meritorious than on former occasions. In the collection of Messrs. Dobson & Sons, which obtained the 1st prize, we noted Lord Elgin, deep purple; and Lady Grosvenor, white, edged with purple, as being very showy varieties. Mr. James, gr. to W. F. Watson, Esq., Isleworth, was the only exhibitor of Calceolarias, and received a 1st prize for six well-flowered specimens.

Auriculas attracted considerable attention. In the class for nine edged varieties, Mr. Turner was placed 1st, Mr. James receiving the 3d prize. In Mr. Turner's collection we observed the fine, grey-edged, violet-ground variety Colonel Champneys, introduced last year, and now fully sustaining its character as a first-class flower; Countess of Dunmore bore a fine truss and pip, and pure paste; General Neill, a dark crimson, with fine large pip; Chapman's Sophia and Bright Phœbus were also shown well. Mr. Turner was again to the fore in the class of selfs and fancys, being awarded the 1st prize for a fine collection, in which Millais and Metropolitan were pre-eminent. Mr. James secured the 2d prize, with a very neat collection. Cyclamens were not so numerous as at the former show, nevertheless the specimens exhibited by Mr. Wiggins, gr. to W. Beck, Esq., Isleworth, who received the 1st prize, were in all respects excellent. Camellias, six plants in flower, were shown by Mr. Wilkie, who also received a 1st prize for 12 cut blooms; Mr. Fairbairn being placed 2d in the latter class.

In the Miscellaneous Class, Mr. Bull came 1st with a superb collection of plants, comprising Dracænas, Palms, Ferns, Orchids, &c.; amongst the latter were several varieties of Cypripedium, including C. barbatum purpureum, Lowei, and caudatum, the latter having tail-like petals, about 16 inches in length; Oncidium Philipsianum, Odontoglossum cristatum, the curious Oncidium serratum, Lycaste Skinneri, and Lælia purpurata were also nicely bloomed. He had also Andromeda formosa, a fine old almost forgotten ornamental greenhouse evergreen, with clusters of small white globular flowers; and Pitcairnia tabulæformis, with leaves spread out flat, and of a beautiful light green colour. Messrs. J. & C. Lee, Hammersmith, had a fine collection, in which was a well-bloomed specimen of Rhododendron Jacksoni, a pale blush, with dark red stripes on the outside, a very pretty sort for forcing; Franciscea confertiflora; a very handsome and well-grown Gleichenia semivestita, and Sonerila margaritacea, in splendid condition. A fine collection of plants from Mr. B. S. Williams comprised Azalea Ne Plus Ultra, a new variety, having large white flowers; some good blooming specimens of Reseda odorata, and the following Orchids:—Cypripedium barbatum, C. villosum, Vanda tricolor, and Odontoglossum Alexandræ. Messrs. Salter & Son, Versailles Nursery, Hammersmith, produced an interesting collection of hardy variegated plants, in which the Beta chilensis was conspicuous, on account of the rich colour of its leaf-ribs; with it were Funkia undulata variegata, the fine Hemerocallis Kwanso plena, Arum maculatum variegatum, and A. italicum variegatum, all in good condition. Mr. Wilkie showed a collection of flowering plants, in which were Azaleas, Rhododendrons, Ixoras, Francisceas, Spiræa japonica, &c. Extra prizes were awarded to Mr. W. P. Roberts, Hathfield, Kent, for a collection of Neapolitan Violets, Solanum Capsicastrum, and Tree Mignonette; to Mr. Turner for a collection of alpine Auriculas; to Mr. James for 12 good British Ferns; to Mr. T. S. Ware, Tottenham, for a collection of alpine and spring flowering plants, in which were the beautiful white-flowered Trillium grandiflorum, the delicate Cyclamen repandum, Primula cortusoides amœna and alba, the pretty Dianthus multiflorus, and several varieties of Iris pumila; and to Messrs. Reeves, nurserymen, Notting Hill, for a fine and well flowered collection of French Pelargoniums, Spiræa japonica, Mignonette, &c. An extra prize was also awarded to Miss A. G. Neall, for two cases of neatly prepared skeleton leaves and seed vessels.

Messrs. Lane & Sons' exhibition of spring-flowering plants still looked remarkably attractive, a fresh batch of Roses and other plants, including some fine orchard-house pot trees covered with bloom, having been introduced. These added greatly to the extent and beauty of the display, which was, moreover, enhanced by the tasteful arrangement of the materials on the floor of the Western Arcade, in which the exhibition was held.

April 20.—James Bateman, Esq., F.R.S., in the chair. At the conclusion of the usual preliminary business of the meeting, the Rev. J. Dix, in announcing the awards of the Floral Committee, made some observations on the various objects brought before the Committee, and especially referred to a flowering specimen of Fuchsia Dominiana, an old and beautiful variety, though seldom seen. The plant had been sent by Mr. Edmonds from Chiswick House, and it was said to flower exceedingly well when planted in a border, but would not do so if grown in a pot. G. F. Wilson, Esq., then referred to the various subjects brought before the Fruit Committee, of which further particulars are given in another column.

Major Trevor Clarke directed attention to some exceedingly fine plants of Primula cortusoides amœna, from the Society's garden, Chiswick; and to a bunch of Primroses, which were originally wild varieties planted in his own garden 10 years ago, to show what improvement could be effected by continued cultivation. He then referred to some brilliantly-flowered Alpine Auriculas, from Mr. Turner, Slough, to a flowering spike of Hyacinthus romanus, and to a double-flowering variety of Oxalis cernua; and stated, in regard to the latter plant, that the leaves of the single variety were dotted over with numerous black spots, whereas those of the double variety had only one black spot on them.

Major Clarke then exhibited a flowering specimen of Lilium Thomsonianum from his own garden, and stated that the only difference between this plant and the one shown at a former meeting consisted in a little more brightness in the colour, which might have been altered by the weather. Mr. Edgeworth and Mr. Horne both stated that they had seen the plant in flower, from 2 to 3 feet in height, near Almora, at an altitude of some 3400 feet.

The Chairman then alluded to some splendid bouquets of cut Orchids brought by Mr. Anderson, of Meadow Bank, near Glasgow. He also referred to the curious Pilocereus senilis, the Old Man's Cactus, which he received first from Mexico many years ago; and to a flowering specimen of Burlingtonia fragrans, an elegant Orchid when well grown, which was not difficult when its proper treatment was understood. Mr. Bateman stated that it thrived best in a house that was not kept too hot, and that it required a season of drought. He then directed attention to a fine collection of cut Orchids sent from the neighbourhood of Leeds by Mr. Salt, amongst which were the bright lemon-coloured Oncidium concolor, a magnificent flower of Lycaste Skinneri, the largest Mr. Bateman had ever seen; also three different species of Cypripediums. He here remarked that a new species of this genus, that was distinct from, and likely to surpass, all other species of its class, was on its way to this country from Costa Rica. A splendid flower of Masdevallia Veitchiana was then noticed, of a rich scarlet colour shot with crimson, an

Orchid which had been found by the late Mr. Pearce in the high regions of Peru, near to the snow line. The plant was found to grow well in a cool and shady place. Allusion was then made to several other Orchids, and to the very beautiful Rhododendron, Countess of Haddington, one of the parents of which was R. Dalhousiæ.

A minute but most singular and beautiful Orchid, forming a contrast to the larger, more aristocratic-looking varieties, was then alluded to. At present, it was a botanical puzzle, only to be solved by Professor Reichenbach, to whom the plant was to be sent for determination.

Major Clarke called the attention of the meeting to the graceful and elegant Anthropodium cirratum, an old but rarely seen plant, forming a great contrast to the showy Amaryllids immediately behind it.

The Chairman then alluded to the various Orchids in Mr. Anderson's collection; and in allusion to the challenge medal, expressed his regret that the competition had not been more brisk; as it was, in the first instance it was carried off easily by Messrs. Veitch, and now by Mr. Anderson almost without a struggle. Nevertheless, he had great pleasure in presenting the medal, in consideration of the eminently successful manner in which Mr. Anderson had grown Orchids which before had baffled the skill of cultivators. Another claim that Mr. Anderson had on the gratitude of Orchid lovers, consisted in the fact that he never kept his knowledge to himself, but was always ready to impart it to others less skilful than himself. Mr. Bateman trusted that Mr. Anderson would continue to send from time to time such specimens of Orchids as he and he only could grow.

Mr. Anderson then said that he experienced very great pleasure in receiving the medal from the hands of Mr. Bateman, who had for so long a period been associated with Orchid culture, and who had done so much to promote a knowledge of them. His own knowledge (said Mr. Anderson) of the culture of Orchids was gained through dogged determination. The greatest difficulty in their culture arose from the want of sufficient knowledge of the climatal conditions under which they grew naturally, and of which as much information as possible should be obtained by collectors. When these conditions came to be more fully understood, he was sure that those who had a love for these remarkable flowers could at any time be gratified at a very moderate expense. The medal awarded to him would be highly treasured by himself and his successors, while his fellow-countrymen north of the Tweed would likewise feel the honour which had been conferred on him as a Scotch gardener. Such prizes were valuable, not only to the recipient, but stimulated the zeal of others, and raised the Horticultural Society in the general estimation of gardeners. Mr. Anderson then appropriately acknowledged the compliment paid him, and thanked the chairman for the kind manner in which he had spoken of him.

Scientific Committee: *April* 20.—W. W. Saunders, Esq., F.R.S., in the chair. Present: Messrs. A. Murray, Trevor Clarke, Horne, Miers, G. F. Wilson, Professor Abel, Dr. Gilbert, Dr. Bastian, Mr. Grove, Dr. Masters.

Dr. Masters read a communication from Mr. Berkeley, who was unfortunately unable to be present, and containing a report on some diseased Peach shoots forwarded by Mr. Fish. The disease in this case is not the same as that which affects the Peach trees at Eastwell Park, and elsewhere. The disease often appears near the base of the shoots, and the upper end continues healthy for some time. At present the disease is confined to young trees, and it has been observed on trees under glass as well as outdoors. Mr. Berkeley also stated that the swellings observed on the shoots of the Apple forwarded by General Munro, were of the same character as those described by M. Lacaze-Duthiers as "Galles internes fausses," and considered them to be the result of the irritation produced by the Apple aphis. The swellings are not confined to the neighbourhood of the buds.

Professor Westwood also sent a communication relating to the same Apple shoots, but stating that he had failed to detect any insect or trace of insect-agency in the swellings.

A communication from M. Decaisne relating to the origin of the cultivated Apple and to the nature of the Paradise Apple, was then read (see p. 443).

Some observations on a disease affecting the Sugar-cane in the Malayan peninsula, were then read.

"The first symptom is the sudden withering of the tips of the older leaves, this soon extends to the younger ones, and in the course of a few days the whole green top is as dead in appearance as if it had been scorched by fire. The cane does not follow immediately, but sprouts at the joints for a while. These shoots, however, soon wither away also, and then the cane decays rapidly. The disease generally commences when the canes are about four or five months old, and begin to show joint above ground; and it seems from that time to go on spreading more or less quickly till the canes reach maturity. On examination no trace of injury from insects is perceptible, the roots are to all appearance healthy, and, beyond the withering of the leaves, the only evidence of disease is a reddish discolouration internally, especially near the joints and top. At the early stage even this discolouration is scarcely perceptible, but at a more advanced one it becomes very marked. Microscopic examination of those parts reveals nothing that can throw light upon the cause of the disease. As a rule the disease spreads from a centre, but is occasionally capricious in its movements. It seems to attack by preference the strongest and healthiest canes, but the weaker ones are by no means exempt, and it does not appear to be propagated through the top, as tops taken from the surviving canes of a diseased field have produced canes that remained healthy to the last, and a top fairly diseased will not grow at all."

It was stated that the sugar plantations in the Mauritius had been nearly destroyed by the same or a very similar disease.

Mr. Horne stated that he had seen the canes similarly affected in India, where the mischief was usually attributed to the effects of excessive drought, deficient irrigation, and imperfect nutrition. Ultimately it was resolved that the specimens should be sent to Mr. Berkeley, to be more fully reported on at the next meeting of the Committee.

The Chairman read a note detailing the appearances presented by a second flower-spike of the Hyacinth Robert Steiger, which had been already exhibited to the Committee (see p. 196). When first shown, all the flowers on the spike were erect, unduly lengthened, and green. The blooms produced on the second spike were singularly intermediate in form and colour between the green, erect ones, and those usually produced on this variety. The details of these curious changes will probably be given at length in the "Proceedings." The Chairman exhibited a singular burr in the Scotch Fir, similar to those found in the Birch and other trees. The short contracted shoots were affected with blight. Dr. Masters stated that he had seen similar occurrences in the same tree, and also similar aggregations of small cones. In Germany the occurrence had been attributed to the presence of Peridermium Pini.

It was then arranged that a meeting of the Committee should be held in May, at Chiswick, for the purpose of examining the growth of the seeds in the experimental plot. The meeting then adjourned.

Floral Committee.—Rev. J. Dix in the chair. The number of subjects was more limited than on some occasions, but not less interesting. Messrs. Veitch & Sons showed a very distinct and desirable form of the fine Japanese Primula cortusoides amœna, called lilacina, which was remarkable for its flatly expanded neatly fringed segments, of a pretty pale lilac colour, deeper on the reverse of the flower. Robert Warner, Esq., sent a fine spotted variety of Odontoglossum Alexandræ, which was named Warneri; it has the sepals stained with rose, and marked with a few bold bronzy spots, the petals broad, white, and fringed, and the lip yellow at the base, white at the tip, and barred across the middle with bronze. Mr. Baxter, gr. to C. Keiser, Broxbourne, sent a handsome group of seedling Amaryllis of the Hippeastrum group. One called Mdlle. Titjiens had a white bar down each segment, with carmine-red on either side, passing off into carmine veins towards the edge; Olga was a pale rosy-red, with indistinct white central bar and white edge; and Alexandra was a bright carmine-red, with clear white edge, but wavy. They were all of good shape and handsome light-coloured flowers, and all received First-class Certificates, as did also the two before-mentioned plants. A Second-class Certificate was given to Amaryllis Duke of Edinburgh, one of the same group as the foregoing, a deep crimson, but rather narrower petaled; also to a very promising green-edged Auricula named Mrs. Butcher, from Mr. Butcher, of Camberwell; this has a deep maroon ground, a smooth solid paste, and well-proportioned parts. Mr. H. Williams, Finchley, sent half-a-dozen neat plants of the elegant, old-fashioned, half-forgotten Arthropodium cirratum, of New Zealand, a pretty greenhouse herb. Messrs. Veitch & Sons sent four collections of Orchids and other flowering plants, for which Special Certificates were granted. Davallia hemiptera, a lovely creeping basket Fern, from Borneo, with linear fronds, and dimidiate lobed pinnæ, had already received a First-class award. Crinum M'Arthuri, a pretty plant, with white flowers marked with rosy stripes, and said to be of hybrid origin, was considered too near C. capense. Besides these, the collection comprised the rare and beautiful Masdevallia Veitchiana, Oncidium leucochilum, sessile, and bifolium majus, Burlingtonia fragrans, Cymbidium Huttoni, with singularly dull, mournful-looking flowers; Clematis J. Gould Veitch, a blue form of C. Fortunei; Agave De Smetiana, and A. Verschaffeltii. Mr. R. T. Veitch, of Exeter, sent Rhododendron Excelsior, a deep rose-purple, with black spots; a fine flower, but with indifferent habit and foliage. Mr. Lorrimer, gr. to E. Salt, Esq., sent cut blooms of 12 Orchids, including the beautiful Masdevallia Veitchiana, already noticed; Oncidium concolor, a large clear yellow species; fine flowers of Cypripedium Lowei and Stonei, and good examples of Odontoglossum Hallii and maculatum. From Messrs. Smith, of Dulwich, came Azalea Magnum Bonum, a salmon-red, of good shape, but wanting in smoothness; the curious little Acacia hastulata, and several Azaleas and Heaths, for which a Special Certificate was given. Mr. William Paul, of Waltham Cross, again sent his Perpetual Climbing Rose Prince Leopold, a purple-crimson of good quality; also an unnamed and highly promising bright flesh-pink Rose, of large size and attractive appearance. Messrs. Downie & Co. sent Caladium Duc de Ratisbon, a white and green mottled sort in the way of Belleymei, but with a red costa superadded; also Ficus Chauvieri, a glossy-leaved white-ribbed species. Some showy Azaleas came from Mr. Z. Stevens, Trentham; one, named Thackeray, was an orange-red with spotted upper segment, large, and of good outline, but wanting in smoothness, which was also the case with the pale salmony-red Trentham Beauty; while Countess of Cromartie, a very smooth and finely-shaped flower, was of a pale washy salmon-pink. Mr. Turner received a Special Certificate for a group of alpine Auriculas, the same as that exhibited on the 17th; Mr. Hooper, of Bath, contributed two stands of Pansies; Mr. Kinghorn had plants of his beautifully striped Azalea Lizzie; and Mr. Edwards, gr. to Colonel Coryton, Pentillie Castle, Plymouth, had cut blooms of Rhododendron Miss Coryton, a variety said to be quite hardy, with bright rosy-carmine white-centred flowers.

Fruit Committee.—Mr. W. Gardiner, gr. to E. P. Shirley, Esq., Eatington Park, Stratford-on-Avon, sent one bunch each of Lady Downe's Seedling and Kempsey Alicante Grapes in fine condition; the flavour of the Lady Downes' Seedling, especially, was remarkably fine, considering that they must have been kept at least six months; a Special Certificate was awarded. A new seedling Apple of excellent quality, named Lord Stanley, was exhibited by Messrs. Ewing & Child, nurserymen, Norwich, which was said to keep in fine condition until the end of May; and the Committee, following their usual custom, requested to see it again before making any award to it. Mr. Gilbert, gr. to the Marquis of Exeter, also sent a seedling Apple, finely coloured; and to further assist the Committee in deciding upon its merits, Mr. Gilbert also furnished a tart made of the same variety; the Committee, however, did not consider the flavour to be first rate. A collection of vegetables and early salading materials was also contributed by Mr. Gilbert, to which a Special Certificate was awarded. Amongst the vegetables were some very nice heads of Chapple's Cream and Hibbins' Royal Alfred Broccoli; some fine young Cabbages, Potatos, French Beans, Asparagus, Spinach, and Seakale; and an excellent dish of Mushrooms. Salads were represented by three varieties of Cos Lettuce, Mustard and Cress, Beet, and a well-grown brace of Telegraph Cucumbers, &c.

Edinburgh Botanical: *March* 11.—Dr. Cleghorn, President, in the chair. Donations to the library, herbarium, and museum, at the Royal Botanic Garden, were announced. The following communications were read:—I. *Notes of a* 12 *days' Visit to Sicily, in February*, 1868. By Dr. H. Cleghorn. Dr. Cleghorn described the present state of the Botanical Gardens at Syracuse, Catania, and Palermo, and enumerated the principal plants observed in flower at the time of his visit. The Agricultural Institution at Castelnuovo, with its model farm, under the able management of Professor Inzenga, was mentioned, as furnishing a good example of the successful training of youths in rural pursuits. From the dryness of the climate, the seeds ripened at Palermo have been very suitable for the acclimatising societies of North India.—II. *Report on the Cultivation of Cinchona in Bengal for the year* 1867-68. By Thomas Anderson, M.D., Superintendent of the Botanical Gardens, and in charge of Cinchona cultivation in Bengal. The cultivation of the Cinchonas has been most successfully carried on during the year. The open air cultivation has been greatly extended, and now consists of four times the amount of plants reported last year. Permanent Plantations: As the process of planting followed by me at Darjeeling has not yet been fully stated in any of my previous reports, the time has now arrived for narrating the various stages of the open-air cultivation, from the clearance of the forest covered land until the end of the second year of the growth of the plants. Hitherto, the land selected has consisted of ground on which Lepchas had previously carried on the cultivation of Maize, Millets, and Rice (a peculiar variety, which is grown without being irrigated), in the manner known as jooma* cultivation, with patches of virgin forest occurring every here and there among the partially cleared spaces. Nepalese coolies with their kookeries (short heavy curved knives), and Lepchas, with their long, straight, sword-like knives, are sent to fell the jungle as close to the ground as possible. The scrub, and even young trees as thick as a man's body, fall rapidly before the knives of these clearers. Where patches of virgin forest are met with, the axe must be used; but here every tree is not felled, as the smaller ones, being notched near the ground, are borne down by the fall of the full-grown trees. In preparing ground for Cinchona planting at Darjeeling, the practice has always been to clear the land entirely of all vegetation, not a tree of even the smallest size ever being spared. In these hills, forest should not be felled before the middle or the end of November; if the land is cleared earlier, the Grasses and underwood spring up among the branches of the fallen trees, and thus their burning is prevented. Felling may be continued until the middle of March. After two or three months' exposure to the bright sunshine and dry air of the cold season, the felled trees are in a fit state to burn. By the end of March, therefore, fires may be lit in the afternoon, when the sun has thoroughly dried up the heavy dew, at the bottom of the slope covered with felled and dry jungle. The fire rapidly consumes the whole of the brushwood and the branches of the trees, leaving only the large branches and trunks to smoulder for weeks. Wherever virgin forest or bamboo jungle has existed, it has been necessary, after burning the lighter vegetation, to cut up the trunks of the trees and the Bamboos into short pieces, and either to pile them into heaps for burning, or to roll them into the steep ravines, which are too stony for planting Cinchonas. The land thus cleared by fire is ready for laying-out the ground for planting, and for marking the bridle-paths required to give easy access to all parts of it. These paths are made about 4 or 5 feet wide, and are connected with the principal roads of the plantations. The sites for the plants are fixed by means of a cord about 100 feet in length, on which marks are tied at intervals of 6 feet for C. succirubra, and at a shorter distance for C. officinalis. This marked cord is stretched along the ground, and at each mark on it a stick, about 2½ feet in length, is thrust into the ground, thus indicating the place where a Cinchona is to be planted. In order to secure uniformity in the plantation, each line is continued to the full extent of the ground to be planted before another line is commenced; the lines in properly laid-out plantations will thus be parallel. In the plantations of C. succirubra the lines are fixed at 6 feet from each other, and as the plants are 6 feet apart in the lines, a uniform distance of 6 feet between the plants is maintained. At first, C. officinalis was planted with an interval of 5 feet between the plants, but I have lately altered this plan for a system of close planting in lines, the lines being 4 feet apart. After the ground has been "staked out," the next preparation for planting consists in digging the soil to the depth of a foot, removing the roots at the same time in a circle about 1 foot in diameter, of which the stake is the centre. The planting of the ground thus prepared is performed in dull, cloudy weather, when showers are frequent, but when the ground is not saturated by long-continued heavy rain. The thoroughly hardened plants are brought from the adjoining nursery-beds in shallow boxes, which the men carry on their heads. The plants are given to the coolie engaged in planting, who, with his hands, makes a hole in the loose soil sufficiently large to admit the roots of the plant, and the soil is gently pressed around the roots to prevent the plant being beaten down by heavy rain. The plants when taken from the nursery-bed should not be less than 4 inches, and should not exceed a foot in height, but plants varying from 6 to 10 inches in height are of the best size. After the plants have been planted for three weeks, it is necessary to cut down the weeds which had sprung up around them, as in a few weeks more the young Cinchonas would soon be smothered in a jungle 5 or 6 feet high. These weeds require to be cut down once a month from May until the end of October; they are laid in lines following the slope of the hill, and the slightly raised ridges soon disappear as they are decomposed by the heavy rain and high temperature. During the same period of the year it is necessary to weed every six weeks the prepared circles in which the Cinchonas are growing, and at the same time to loosen the soil round the plants by lightly hoeing with a kodalie or furroah. In November the entire surface of the plantations is thoroughly hoed, and by this means the weeds receive a great check by being exposed to the drying sunshine of the cold season after having been uprooted. After hoeing, the plantation requires no attention until the end of April, when, a light covering of weeds having sprung up again, the circles round the plants should be lightly hoed and somewhat enlarged. From May again, until the end of October, the periodical cutting of the weeds must be continued, but not so frequently as in the previous season, as many of the strongest growing weeds by this time have succumbed to the hoeing in November. The growth of the plants is greatly favoured by a hoeing of the ground in November again, after the second growing season is over, and if this is done in the following year, their third growing season, the plants are tall and strong enough to outgrow the jungle, which then begins in its turn to be smothered under the dense foliage, at least of C. succirubra. The Selim Tea Association purchased 10,000 plants of C. succirubra in July, 1867, and all of these which were planted on steep slopes of the Himalaya immediately above the Teral are inferior in condition and promise, to the splendid plants of Cinchona in the Government plantation at Rishap, close to Rungbee. Chemical Analysis of the Bark: The bark of C. succirubra and C. officinalis, referred to in the last annual report as having been sent to London for analysis, was analysed by Mr. Howard. The analysis was most satisfactory.—III. *Notes on a Visit to the Hot Springs of Jumnotri in* 1860. Part II. By Mr. Wm. Bell.—IV. *On the Form of the Archetypal Leaf.* By Dr. Joseph Bullar. The author believed that the orbicular form of

* Joom cultivation is the term used to designate the rude cultivation practised by most of the hill tribes of India. It consists of felling and burning virgin forest (leaving the stumps of the trees standing) for the growth of sub-tropical grains. After two or three crops have been obtained, the ground is abandoned for a freshly-cleared patch of forest. The piece abandoned soon becomes covered with a dense vegetation of shrubs, gigantic Grasses, and young trees.

leaf was the archetypal one, the divisions of its veins representing the divisions in the calyx, corolla, and the other whorls of the flowers. Professors Balfour and Dickson doubted the correctness of Dr. Buller's theory. The paper was illustrated by drawings.—V. *Notice of the Occurrence of* [illegible] By F. Buchanan White.—VI. [illegible] *Vegetation of the Royal Botanic* [illegible] By Mr. M'Nab. Since the last meeting of the Botanical Society (Feb. 11) the weather has been very changeable, attended with frequent snowfalls, but of short duration; the temperatures were also somewhat fluctuating, falling considerably below the maximum temperatures recorded in my last report. The highest morning markings were on Feb. 18, 21, 24, March 5, 6, and 7; being respectively 41, 43, 45, 42, 42, and 42 degs. The lowest thermometer readings were on the morning of Feb. 19 and 28, March 1, 2, 3, and 4, marking 31, 29, 29, 31, 25, and 27 degs.; all other mornings averaging from 32 to 40 degs. The following plants have come into flower since last report, viz:—Feb. 18, Narcissus pumilus, first flower opened; 19, Hyoscyamus Scopolia; 20, Sisyrinchium grandiflorum album, and Narcissus minimus; 21, Scilla bifolia alba, and Scilla bifolia major; 26, Tussilago nivea, and Tussilago alba; 28, Muscari botryoides; 29, Puschkinia scilloides. March 1, Ribes sanguineum, first flower seen open; 2, Scilla sibirica, and Mandragora vernalis; 4, Corydalis cava; 5, Muscari botryoides alba; 5, Primula nivalis, and Gagea lutea; 6, Erythronium dens canis; 7, Ribes sanguineum album; 8, Scilla bifolia rubra, and Scilla bifolia patula; 9, Erythronium grandiflorum, and Muscari botryoides pallida; 10, Hyoscyamus orientalis; 11, Draba aizoides.—VII. *Miscellaneous Communications.*

Notices of Books.

Travels in the East Indian Archipelago. By A. S. Bickmore, M.A. London: Murray. 8vo, pp. 548, with Maps and Illustrations.

The American gentleman who is the author of this book is Professor of Natural History in Madison University, Hamilton, New York. The object of his journey was the collection and identification of the beautiful shells, &c., figured by Rumphius in his work on the shells of Amboina, and it would appear that he accomplished this object so entirely to his own satisfaction, that he has been induced to favour the world with his journal, and to dedicate this literary production to "the generous friends of science through whose liberality the travels described were made." He certainly appears to have been extraordinarily fortunate in the facilities which were afforded him for travelling amongst these tropical islands, there being always a berth in a steamer, a seat in a carriage, or a companion in a trip across the country, offering just in the very nick of time, and taking him where he had never expected to have a chance of going. But it would seem that he must have a very confused idea of the purpose to be served by publishing his journal. It is impossible for anyone to have travelled for 18 months in the Eastern Archipelago without having something original to record that will be of interest to the general reader; but it is a mistake to oblige him to wade through page after page of extracts from other writers, and of commercial, economical, and historical statistics, before coming to these readable parts. The opinions of others might well have been omitted, a list of their works, with a short synopsis of their contents, being the most that need have been given; while statistical information is more intelligible and easy of reference when tabulated in an appendix. If such corrections as these had been made, the book would have been reduced to about half its present thickness, and would have been much more entertaining. Nevertheless, it would still have been a disappointing and an unsatisfactory work; for, while it contains a long and interesting account of the volcanoes of those regions, and of the cultivation and preparation of Cloves, there are but few other subjects upon which the reader does not feel that he has left untold some of the most important features; and he cannot be sure whether this deficiency arises from want of knowledge or from carelessness. From a Natural History Professor might reasonably have been expected some original observations upon the plants and animals of so interesting a region, but the zoological information given is of a very superficial character, while the unnecessary and incorrect assertion that the "fleshy outer rind" of the Nutmeg is the "epicarp," does not impress us with a very high opinion of his botanical acquirements.

The description of his journey across the northern part of Celebes to examine the hot springs is very entertaining, and we particularly allude to it, as it affords a good illustration of the shortcomings to which we have referred. At the bottom of the third page devoted to this journey, we are told that "one object in visiting these hot springs was to ascertain at what degree of temperature vegetation first began to appear." Naturally enough, before turning over the next leaf, we "rub up" our memory and mentally run over a list of stove aquatics, and anticipate some interesting facts connected with the temperatures between which different plants will live, and the probably still more restricted range within which they will flower and produce fertile seeds, with the possibility of the mention of other circumstances more or less connected with such unusual conditions of plant life. Judge, then, of our disappointment, when we find no more information than the following extracts contain:—

"At a place where the temperature was 48 Celsius, 118.4° Fahrenheit, the rocks and sticks in the water were thickly covered with dark green Algæ. A little higher up the temperature was 51° Celsius, 123.8° Fahrenheit, and Algæ were still present, though the fumes of sulphur that rose choked me as I stooped to examine the temperature. * * * In several places between the clumps of small trees and Bamboos the water was boiling and bubbling furiously, and pouring out great volumes of stifling gases. * * * While I held the thermometer in the bubbling (not boiling) water, I ordered the coolie to raise the sticks that were floating in it, but could not discern the slightest appearance of any vegetable growth, though it was very noticeable a little further down the stream, where the temperature of the water was not more than 1° lower, but where the quantity of sulphur in the water must have been much less, judging by the proportionate strength of the fumes that rise in the two places." Subsequently, in another place, he found "a small quantity of Algæ on the bottom of the brook, each plant being about as large round as a pin, and an eighth of an inch in length, and resembling the Vaucheria, or brook-silk, the green threads of which are seen in the freshwater ponds by our roadsides in summer. Here the temperature was 76¾° Celsius, 170.15° Fahrenheit."

Surely we might have been informed what Bamboo, what kind of trees, and how many sorts of Algæ were observed in these stifling localities?

Accounts of travels in parts of the world not well known, are rendered much more entertaining if they are accompanied by good maps. In this respect the work under consideration is lamentably deficient, the principal map not containing one-twentieth of the places referred to in the book. For this there is no excuse: it is better to have no map at all, and to be thrown upon your own resources for an atlas, than to furnish an imperfect and incomplete map.

As a specimen of Mr. Bickmore's powers of description, we extract the following account of a dinner at which he was entertained by the Rajah of a small island near Amboina:—

"The wife of the Rajah was the only lady at the table, and as all the princes and notables of the other villages were present, the number of guests who were ready to take seats with us was not small. Our bill of fare was sufficient to satisfy the most fastidious epicure; for substantial diet the neighbouring forests had furnished us with an abundance of venison and the meat of the wild boar, and the adjoining bays had yielded several kinds of nice fish. All was prepared in an unexceptional manner, and the rich display of Pine-apples, Mangostins, Dukus, and several kinds of Bananas, was finer than many a European prince could set before his guests. The process of demolishing had fully begun, when the dark beauties, who had been dancing before the house, came in and ranged themselves round the table. My first impression was that they had come in to see how Europeans eat, and I only refrained from hinting to that effect to the Resident on my right, because he had already smiled to see my surprise at our novel reception, and besides I was anxious not to appear to be wholly ignorant of their odd customs. Soon they began to sing, and this, I thought to myself, is probably what is meant by a sumptuous banquet in the East; and if so, it well deserves the name. As the song continued, one after another took out a handkerchief of spotless white, and folding it into a triangular form, began to fan the gentleman in front of her. This is indeed Eastern luxury, I said to myself, and while I was wondering what would come next, the damsel behind the Resident reached forward and gave him a loud kiss on his cheek. I leaned back in my chair to give way to a hearty laugh, which I had been trying for a long time to restrain, when suddenly I was astonished by a similar salutation on the lips! It was done so quickly that I had no time to recover from my bewildering surprise, and coolly explain that such was not the custom in my land. Instead of my laughing at the Resident's expense, the whole party laughed at mine; but my confusion was dispelled by the assurance of all that even the Governor-General himself had to submit to such treatment when he came to inspect these islands."

If space permitted we could give many similarly amusing extracts; but this is the utmost that we can write in commendation of Mr. Bickmore's book.

In the quarto volume entitled *Die Lemnaceen* (Williams and Norgate), we have from the pen of Dr. Hegelmaier a valuable monograph of those simplest of all flowering plants the Duckweeds—so simple in their construction that they rarely produce flowers, so simple in their conformation that it is difficult to say whether they have stem or leaf, or stem alone, or leaf alone. This very simplicity renders them specially interesting to botanical students. Their geographical distribution is remarkably wide. Our commonest Duckweed (Lemna minor) occurs in Persia, Tibet, Ceylon, Japan, New Holland, Tasmania, New Zealand, Algeria, the Cape of Good Hope, the United States, Mexico, Bolivia, and Chili—a citizen of the world, indeed. The study of the African forms collected by Dr. Welwitsch, and described by Dr. Hegelmaier in "Seemann's Journal of Botany," prepared the way for this comprehensive monograph.

Of *Johnson's Gardeners' Dictionary* (Bell & Daldy) a new edition has recently been issued, with a Supplement purporting to include "all the new plants and varieties now cultivated," and which in this supplementary portion, as issued separately, is defined to mean "up to January, 1868." We can scarcely say that it keeps this promise; but, despite a considerable crop of errors, both of omission and commission, the volume supplies a want, that of a handy-book of reference, all the more to be welcomed because, on account of its cheapness, it comes within reach of any who may desire information of this kind. A thoroughly revised edition, really brought down to the present day, with obsolete plants expunged, and with the space occupied by the specific name done into English turned to better account by supplying useful intelligence, would be a really valuable book for gardeners and amateurs. As an instance of the waste of space to which we refer, we may cite "Lilium fulgens staminosum," explained by the addition "projecting-stamened, brilliant,"—correct enough, but of no real value to the cultivator, while no mention is made of such important particulars as the flowering season, or the height of the plant.

There is still room for a carefully drawn up list of cultivated plants.

The Apiary.

LAST year I gave as a super to an ordinary depriving hive an octagon box, filled, or nearly so, with comb, which was apparently quickly filled with honey and sealed. Upon taking the box off, however, I found that the greater part of the supposed honey was brood, the queen having used it as extensively for breeding as if it was the stock hive, and this, though the only means of communication between the two boxes was by a slit at each of the extreme sides of the hive. I have now a couple of supers from a hive that the bees deserted in summer or autumn, when I was away, and which was robbed by the others. They are full of pure comb, and I would use them in that state as supers but that it occurs to me that the reason the queen took so much to the super first mentioned might have been because it was furnished already with comb. What is your opinion about this? *A. B.*

[We do not know that a queen is more inclined to ascend for the purpose of breeding in a super already supplied with empty combs, than she is in a super wherein the combs are being newly constructed. In theory, however, it would seem likely that there would be a greater probability of her doing so, but in practice we have not found any difference in this respect. We believe that much depends on the condition of the combs in the stock hive. If they are old, or are so filled up with honey and pollen as to leave but a limited breeding space available for the queen, or if she, being a very prolific one, requires more room for her egg laying than the accommodation in the stock hive can provide her with, then, perhaps, a lot of combs ready for her use may attract her upwards, just as they do promote the queen's breeding propensities if placed between full combs in the stock hive. But, on the other hand, such combs ready for use are so often immediately filled by the workers with honey that the queen, although she may ascend for the purpose of reconnoitring and ascertaining their suitability for the reception of her eggs, finding that the cells are already appropriated, soon descends either without depositing any eggs at all, or only a few in some small space that may not have already received any honey. We have found such little patches of brood, about 2 or 3 inches square, on perhaps only one comb, where it was natural to suppose that if the queen had met with an unlimited supply of available cells, she would have gladly taken possession of them.

We have had many supers which contained last year's combs, beautifully filled with honey and without a vestige of brood; and, on the other hand, have had many supers, in which the combs had been entirely built by the stock the same season, utterly spoilt by extensive breeding. In practice we have always been only too glad to be able to retain, from the previous season, a supply of supers more or less furnished with clean empty combs; and we have often, heretofore, impressed upon our readers the advisablity of carefully putting them by for future use. At the same time we are bound to confess that the heaviest and finest supers we have ever taken or seen have been such as were put on with only a few rudiments of combs to serve as guides.]

Garden Memoranda.

BICTON GARDENS, THE SEAT OF THE RIGHT. HON. LADY ROLLE, BUDLEIGH SALTERTON, DEVONSHIRE (*Continued from p.* 422).—Near to the species of Vines was a capital collection of the brilliantly painted Virginian Creeper. Skipping over a number of small tribes, we observed over a score varieties of the Euonymus, or Spindle Tree, and a very extensive and unique collection of Hollies. Passing over the Rhamnus, or Buckthorn, and the Ceanothus, we noticed a rich collection of the Rhus, or Sumach, which produces grand tropical growths in the summer, and the richest tints of colouring in the autumn, while the flowers of some of them vie with the Spiræa itself in lightness and airy grace, and others resemble stout heads of dyed Indian Corn nestling upon a capacious bed of leaves. Again, omitting notice of many families, we are astonished at the richness and extent of the collection of Almond, Peach, Apricot, Plum, and Cherry trees, the latter alone numbering about 40 species. The Bicton arboretum is wonderfully rich in Spiræas; over 40 species are noted in the book, and there have been very few deaths among them: there are six varieties of chamædrifolia alone, as well as varieties and species from China and India, and many others. Considering the graceful beauty of these plants, and their usefulness in vase-filling, room decoration, and for making bouquets, it is perfectly astonishing that they are so little grown. It must be well worth a trip to Bicton to see the Spiræas in blossom. One is strongly tempted to give a list of the Thorns, but as they muster between 50 and 60 strong, we must forbear. The genus Pyrus, or Pear, was almost as well represented as the Cratægus. Passing over the Syringas, Deutzias, common Myrtles, and Ribes, which are wonderfully well represented, and Hydrangeas, which make men from the east or north, wise or otherwise, desirous of carrying back the Devonshire climate and its products with them, and noting the collection of Dogwood and Elders, we pause among glorious plants of Viburnum Tinus, or Laurustinus. Originally over 30 varieties were found here; some of the recent severe winters have proved too much for a few of them, even in Devonshire, but there is a grand assortment still left. Of Honeysuckles, again, there seemed to be examples of every known species, and the Heaths appeared to have come from every mountain glen and bog to enrich these grounds. The climate is most favourable for the Arbutus, or Strawberry tree.

Of Rhododendrons, about 150 varieties are grown, and about 200 of Azaleas. The Privet and Pæonies

follow in goodly array, and from these we plunge into such an assortment of Ash trees as we could hardly have thought could possibly be gathered together in one place. The genus Fraxinus musters at Bicton over 50 species or varieties. Of the Ornus, or Flowering Ash, a tree sadly neglected by planters, there were the following varieties:—europæa, rotundifolia, americana, globifera, floribunda, and Theophrasta. Passing rapidly through the Laurels, Daphnes, Box, and Mulberries, we arrive at the Elms, which are represented by over 40 varieties. Next Walnuts and Hickory trees are passed in review, and then the labyrinth of Salix or Willows is entered. The genus Salix is here illustrated by something like 150 examples, some of them of amazing beauty of colour of leaf and wood, and of such habits that they might stand for portaits of gracefulness itself. The Populus, or Poplar, is also strongly represented in this inexhaustible treasury of trees. At the time when the claims of this tree for avenues and other purposes have been pretty freely discussed, it may not be amiss to note a few of those to be found at Bicton. There were four varieties of the Abele or White, and as many of the Nigra or Black Poplar, three of the striking tremula section—perhaps the most glisteningly white (to coin a word) and effective of the whole genus. The rapidity of growth, uprightness of bole, size, form, colour, and motion of the leaves, render the Poplars valuable for rapid effects such as screens or blinds, and for creating lights and shadows in the landscape; while the rustling of their leaves, so unlike that of any other trees, extemporises a sort of arboreal music, not unlike the soft murmur of distant falling or running waters.

Passing by a goodly assortment of Alders, we arrive at the regions of the Birches and the Oaks. The former is a sadly neglected tree, of exquisite grace and great beauty. It is striking as a single specimen, admirably adapted for grouping, and a whole wood of it, spread over an undulated surface, is a sight rarely to be met with, unless in Scotland, but once seen, it haunts one with pleasant memories of the beautiful for evermore.

The Bicton arboretum is peculiarly rich in our grand national tree, the Oak. The field is tempting, but it is too wide to enter upon here; and the very prodigality of the wealth of the genus Quercus forbids our attempting to notify or reckon up its varied qualities and sources. For similar reasons, though of less potency in their individual cases, we pass over the Beeches, Chestnuts, Hornbeams, Hazels, and others, and pause for a moment among the Yews. It is astonishing how much this grand native tree is neglected by planters and landscape artists. Few of our rarer Conifers can equal in stately dignity and sombre grandeur a fine Yew tree. Yet how seldom is it met with as a tree. More frequently it is clipped into a hedge, or smothered up into a half dead mass of rottenness in overcrowded shrubberies. Occasionally, indeed, it is permitted to come forth in its sturdy dignity of bole and branch as a tree, and then only can its true character be determined. There is scarcely any tree that can equal it in beauty as it stands forth with the brand of past ages on its hoary boughs, the latter bespangled and decked throughout with its exquisite coral-red fruits or berries. But our business now is to note trees in general, not to pass eulogiums upon any one tree in particular, and so we leave the region of Yews and take a short step into that of the Conifers, which may be called the second part of the great panorama of trees, outspread over such a breadth of surface at Bicton. Hitherto the number and variety of trees have forced themselves on our attention, now their size and magnitude is one of the most prominent features; not but what there were many fine and noble plants among the deciduous trees, but the Coniferæ at Bicton are more like forest trees than the little pets that one so often meets with, as we have already stated. The fact is, Mr. Barnes has been an early planter and a skilful cultivator of these trees throughout a long and busy life. New plants, for which he is always on the look out, are kept for a time, as it were, in leading strings, and placed either in cold pits, or under the shelter and shade of boughs in the open ground. Most of the young plants at Bicton are provided with a shelter of boughs similar to that which gamekeepers afford to young pheasants. All round the sides, and sometimes bent over the tops likewise, branches of evergreen or deciduous trees in leaf are placed. These serve the twofold purpose of protection against the extremes of heat and cold. The former is almost as destructive to young Pinuses as the latter. Plants are frequently drawn up tenderly in pots under glass, and all at once transferred to the open. Under the fierce glare of the sun they are withered up and destroyed. The protecting screens of branches, while moderating the heat of the sun, likewise break the force of winds, and ward off frosts. Even their tendency slightly to draw the plants is an advantage during the earlier stages of growth. They are simply in this respect dead nurses, taking nothing out of the soil—substitutes for the usual living ones of growing Larch or Spruce. During the first few years of the life of a coniferous plant in the open, the chief object is to get it to lift itself up as speedily as possible from the surface of the ground. The closer to the earth the greater the danger from extremes of temperature. The most trying climate, that which tests the endurance of plant life to the uttermost, occurs within 2 feet of the earth's surface. Beyond this point our climate begins to improve. Hence we often find that such plants as Juniperus funebris, Pinus insignis, and others that are annually killed while of small stature, will live, if by any means they can reach to an altitude of from 3 to 6 feet, through winters that would have certainly destroyed them when nearer the ground. The terrible winter of 1859-60 swept over our country with the greatest destructive energy at an altitude of from 2 to 4 feet above the ground line. Everything tender within that range perished many things equally tender, but in a higher region, escaped. It was common enough to find the bottom portions of Cypresses, Evergreen Oaks, Laurels, &c., totally destroyed, while the upper branches were unscathed.

Mr. Barnes' protecting expedients, rough and simple though they look, meet this philosophical problem of low temperatures at low altitudes, and master it. This protection, combined with good soil and skilful culture likewise, speedily lifts the plant beyond the region of greatest danger, by fostering rapidity of growth. The process of perfect and complete exposure is then accomplished gradually. The branches are removed, or the thin leaves fall off piecemeal, and the fine, thrifty, fast-growing plants then rejoice in the sunshine and the breeze.

Returning from this long digression, we go through the collections of Pinus, but to give the names of these would be like writing a catalogue; so we pass on to the Abies or Spruce Firs, which are very numerous; as also are the Silver Firs. Thujas or Arbor-vitæs are well represented; then follows the Cupressus in goodly array. These, again, are succeeded by Taxodiums and Junipers; the latter numbering something like 200 species or varieties. In addition to all these, several acres of new ground was taken into the arboretum in 1866, and are furnished with Thujas, Retinosporas, Araucarias, Abies, Cupressus, Junipers, Pinus, &c. There is also another piece of something like 8 acres, devoted to the newer sorts of coniferous plants from Japan. All of these looked thrifty and healthy, and ranged in height from 2 to 6 feet. *F.*

(To be Continued.)

Miscellaneous.

Covent Garden Notes.—During the past few days small quantities of fine fruit of the Loquat (Eriobotrya japonica) have appeared in the market from Japan and South America, and are sold at one penny each. Large quantities of new Potatos, principally from Malta, Lisbon, and the Channel Islands, have also arrived, and are sold at 6*d.* per lb. Further consignments of about 3,000 boxes are on their way from the same places, and may be expected early in the ensuing week. In addition to the early vegetables from France, already announced, a good supply of new Turnips may be mentioned, which realise from 2*s.* to 3*s.* per bunch. Home forced Figs, of fine size and quality, have also reached the market, and command a sale at from 2*s.* 6*d.* to 3*s.* each.

Curcas purgans.—This is an Euphorbiaceous plant, which furnishes a kind of castor oil, analogous to that extracted usually from Ricinus communis, but infinitely more active. It grows in many parts of Africa, especially in the Cape de Verd Islands. The oil, which it furnishes in considerable quantity, has been investigated quite recently by M. Da Silva, who states that it has furnished him a small quantity of octylic alcohol, and that it yields to analysis as much as 6.10 per cent. of nitrogen. *Scientific Review.*

Diagonal Single Cordons.—There is perhaps no wall-fruit tree so likely to be largely benefited by single diagonal training as the Apricot. Every gardener knows the wretched disappointment often felt in summer by large and apparently healthy branches of their Apricot trees dying off suddenly, and leaving them without any remedy—for the gap made cannot be filled, owing to the rigidity of the remaining branches. There is, therefore, no remedy for this failure of Apricot trees when trained to walls in the usual manner, but there is a sure method of avoiding it—simple enough: it is by planting single diagonal cordon trees, which may be maiden trees with a single stem, or trees in a bearing state from the nursery. In planting, if the tree is slender, it is usual to keep the stem of the stock as nearly upright as possible; but as the graft is often too stiff to bend readily, the tree may be planted slopingly. Single diagonal Apricot trees require a south or south-west aspect, and should be planted 18 to 20 inches apart, and every shoot pinched in during the summer, as directed for cordon Pear trees, and the same direction as to reducing and thinning out the fruit spurs in winter is necessary. The leading shoot need not, as a general rule, be shortened till it reaches the top of the wall, as the shoot of an Apricot tree is generally so robust and full of buds. A single diagonal Apricot tree, sloped to an angle of 45° or so, will, when it reaches the top of a wall 10 feet in height, be a cordon 15 feet in length. A wall 20 feet long will thus give space enough for 10 or 12 trees, which in the course of two or three years will bear enormous quantities of fruit. One most important advantage, I repeat, is held out by this mode of culture: no unseemly gaps need be seen owing to the death of branches, as in the present mode, for whenever a tree dies—a very uncommon event—it may be at once replaced. The expense of ten trees instead of one may be urged by the planter, costing 15*s.* instead of 7*s.* 6*d.* for one well-trained tree. I have only to remark, that when the system is fully carried out, the demand will be met by a much cheaper supply, and it must be recollected that it gives a ten-fold advantage over the old method of training. *Rivers' Miniature Fruit Garden.*

Vegetable Products of N.W. America.—Chestnuts (Æsculus californica, Nutt.) are usually made into a gruel or soup. After being ground in a mortar, they are mixed with water in a waterproof basket, in which red-hot stones are thrown, and then the soup is cooked. As the stones, when taken out from the fire, have dirt and ashes adhering to them, the soup is not clean, and it often sets the teeth on edge. The acorns of several species of Oak (Quercus) are eaten with perhaps as much avidity as they were by the ancient Britons,—only we are too familiar with the process as practised by the "Digger" to throw any shade of romance around it. The acorns of the Californian Oaks are mostly large, and the trees in general produce abundantly, though some years there is a great scarcity, and much misery ensues among the poor natives. They do not, however, contain, in proportion to the bulk, an equal amount of nutriment with cereals. The acorns are gathered by the squaws, and are preserved in various methods; the most common plan is to make a basket with twigs and rushes in an Oak tree, and keep the acorns there. The acorns are prepared for eating by grinding them and boiling them with water into a thick paste, or by baking them into bread. The oven is a hole in the ground, about 18 inches cubic. Red-hot stones are placed in the bottom, a little dry sand or loam is placed over them, and next comes a layer of dry leaves. The dough or paste is poured into the hole until it is two or three inches deep; then comes another layer of leaves, more sand, red-hot stones, and finally dirt. At the end of five or six hours the oven has cooled down, and the bread is taken out, in the form of an irregular mass, nearly black in colour, not at all handsome to the eye or agreeable to the palate, and mixed with leaves and dirt. For grinding the acorns a stone pestle and mortar is used. The nuts of Hazel (Corylus americana, Walt.) are also extensively gathered as food in some parts of the country where they are found. The fruit of the Crab-apple (Pyrulus rivularis, Dougl.) are prepared for food by being wrapped in leaves and preserved in bags all winter; when they get sweet, they are cooked by digging a hole in the ground, covering it over thickly with green leaves, and a layer of earth or sand, and then kindling a fire above them. The fruit of the Cerasus mollis, Dougl., is also eaten. All of the edible berries of the country are eagerly collected by the Indians, and either eaten fresh or preserved for winter use; indeed, the "berry sun" is a great season with them, and all throughout the lovely summer weather of North-west America you every now and again come upon parties of women and children, in the woods, engaged in this agreeable pursuit. Equally so is it with the frontier white women and children, who get up parties of this nature for days and even weeks together, into the mountains. I used to come across these marooning parties in my wanderings, and some of the pleasant remembrances I have of my wild north-western life is the kindness I received from these little-polished but good-hearted people,—acts which I can never return, save by this general acknowledgement in a circle of my fellow-botanists, and I assure you I gladly embrace the opportunity of so doing. Some of the berries, such as the Strawberries (Fragaria vesca, L., F. virginiana, Ehr., and F. chilensis, Ehr.), will not admit of being dried, and are accordingly eaten fresh, or brought down to the frontier settlements and towns, and there sold to the whites. Nearly all of the others are dried, and pressed into cakes for winter use. During the latter end of the summer and autumn, all around Indian villages, but chiefly on platforms, and on the flat roofs of the houses, vast quantities of these berries may be seen drying, and being superintended by some ancient hag, whose hands and arms are dyed pink with them. When required for use, they are boiled, and form an agreeable dessert to salmon, beaver, or venison diet. The berries thus treated are various species of Vaccinium, Gualtheria Shallon, Pursh, Amelanchier canadensis, L., Rubus nutkæanus, Moç., R. spectabilis, Dougl., R. leucodermis, Dougl., Ribes divaricatum, Dougl., R. niveum, Lindl., &c.,—in fact, all the edible berries of the part of the country where the particular tribe lives. *R. Brown, in "Pharmaceutical Journal."*

Disa grandiflora.—First, as all the world knows, it grows on the summit of Table Mountain, and nowhere else. This summit is very frequently enveloped in mist, especially at the season when the Disa blooms. But it is very cold also, and the mist comes accompanied with a strong cold south-east wind. After this succeeds the scorching sun of lat. 33°. So much for general circumstances: the particular ones are that the plant "only" grows along the steep, boggy, spongy margins of a stream which has water in it "at all seasons," but which in winter must be so swollen as to cover the plant. Here the margin is completely clothed with the Disa, to the exclusion of other plants. But immediately beyond the Disa is a margin of Restios, which, growing taller than the Disas, and bending over the stream, afford considerable shade to the roots and leaves, at the same time that they leave the flower-stalks room to peep out at the sun and exhibit their large blossoms. All these, except the cold wind, can be easily managed in a case, and I should hope that our plant would have the good taste to forgive us that part. The shade, moist atmosphere and soil, seem the chief things to provide. *Memoirs of Dr. Harvey.*

Ants about Trees.—The Rev. W. P. Smith, M.D., of Fayetteville, Texas, communicates to an American paper the following mode of dealing with ants at the roots of fruit trees, which are very troublesome and destructive, particularly in warm climates: "I was raising some Tobacco, and operated with the green leaves in the following manner: I removed the earth from around the trees or Vines as much as I could without injuring the roots; then I put a handful of Tobacco leaves around the tree or Vine where the ants worked, covered them nicely with the earth, and pressed it well. In a few cases I had to repeat the dose, but I have tried it often, with uniform success, in driving off the ants, and saving the tree or Vine." *Field, Jan.* 16, 1869.

Green Wood.—A new method for drying green wood in a very short time, it is said, consists in boiling it for some hours in water and leaving it then to cool, by which the soluble substances are removed. It is then boiled in an aqueous solution of borax, by which the insoluble albumen of the wood is rendered soluble, and escapes from the pores. The wood is then placed in drying-chambers, heated by steam, and allowed to

remain three days. Wood thus treated is described as being more compact than it would be by 10 years of ordinary exposure; as not shrinking or warping, and as being secure against decay. On account of its greater density it is more easily polished, and is better fitted for articles of furniture and musical instruments. *Builder.*

Spirit of Lichens.—A Swedish philosopher, M. Sternberg, has just made some experiments with the view of converting the cellulose of certain species of Lichens, which are very common in Sweden, into glucose and alcohol. The species Cladonia rangiferina yielded the best results. Boiled for 12 hours with water containing 12½ per cent. of sulphuric acid, this Lichen yielded 68 per cent. of glucose; when hydrochloric acid was used instead, 66 per cent. of sugar was obtained. Fermented and distilled, the spirit obtained was found to possess a peculiar flavour of amandes (prussic acid?), but was not otherwise disagreeable; the glucose, isolated and examined, had a very disagreeable flavour. *Scientific Review.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

Aquariums, whether of large size, such as is required for the *Victoria regia*, ordinary tanks in stoves and intermediate houses, or smaller and more fanciful ones—in fact, such as are kept in ante and other rooms for the purposes of decoration, or for study and amusement, will now require something more than a casual "change of water." In all instances where practicable fresh soil should be added in lieu of the old worn and soured stuff, which has wintered through from the past season. The operator may uproot most varieties of true aquatic plants with tolerable immunity from risk of injury, if the whole process of soiling and replanting be undertaken with despatch. In the case of the Victoria itself, where the old plant has been wintered, in the majority of instances it will be sufficient to give a moderate surfacing of fresh soil to the existing mound, in which the young roots are already making some progress. The soil most suitable for that purpose is that obtained from lowland districts, such as is moderately stiff and somewhat clayey in its nature, and the more fibrous it is the better. Previously to this being used it should be exposed as much as possible to the sweetening influences of the air, by repeatedly turning it over, &c. This is a matter of much greater importance where a limited quantity only is wanted for use in the smaller form of tanks, than when a larger body of material is employed on a more extensive scale. Previous to placing the soil into the tank, whether as a surface-dressing or otherwise, care should be taken to withdraw the water so as not to allow the two to mix together in the form of mud, and by pressing the soil down firmly to fix the plant, as in potting, so that no undue burying occurs. It is not advisable to use manures in any form, the crude soil alone, if it is such as that just described, aided by a regular change of water, will amply suffice for all requirements. Immediately these operations are finished, the tank should be refilled with water somewhat warmer than that previously used, to assist the plants in recovering from any slight check which they may have experienced. The same remarks are applicable to *Nymphæas*, and to most other aquatics. If it is desirable to propagate these latter, it may be very readily done by taking off any small suckers or side shoots which emanate from around the base of the plants. Those who intend starting a seedling Victoria regia this year, should plant it as quickly as possible, if it is not already done. I may be allowed to draw the attention of those who interest themselves in the smaller forms of indoor aquariums to the simple yet interesting fresh-water perennial, *Vallisneria spiralis*; its long narrow leaves do not take up much room, whilst the simple flowers always remain under water, except at the time of impregnation, when they just manage to push their slender tips above, however deep the water may be. Attention should now be given without further delay to all particulars respecting shading such houses that require it, as previously advised. We have already had proof of the sun's power, which now increases rapidly from day to day. Pot-off *Cockscombs* and *Balsams* as soon as they are large enough for that purpose. Be very particular to keep both well up to the glass, and to afford a good supply of heat and atmospheric moisture. Give all greenhouse plants an abundance of air during calm and mild weather, and occasionally syringe with clear water such plants as *Camellias*, &c., which are making rapid growth. Prepare a rich compost, consisting of well decayed fibrous loam, cow and sheep-dung, &c., with which to surface-dress any Orange trees, &c., that may require it.

FORCING HOUSES.

In most instances the Grapes in second early *Vineries* will have been thinned by this time, therefore a little additional heat may be safely allowed by damping and closing the house early in the afternoon, say 3 or 4 o'clock, according to the power of the sun's rays. If the thermometer then runs up as high as 90°, or even 95°, a nice growing period is insured. At such a stage as the above great forethought will be necessary in regard to affording to all the roots of the Vines in inside borders at the height of their activity a sufficient supply of water. I have repeatedly urged the importance of this. Half-a-dozen or even a dozen, four or five gallon pots, may seem to many a good watering, and many amateurs act on such an idea in practice, giving little if any more to indoor borders of moderate size than this amount, two or sometimes three times in the season. If we take into consideration, and place as a contrast, what the external elements shower down on to Mother Earth during our most favoured summers—such in fact as we endeavour to imitate artificially, or should do, we cannot fail to see that we fall very far short of supplying as much as the roots actually require. Vines which have been retarded as much as possible, and which in consequence are only now breaking, would receive some benefit by being slightly shaded at all times when the sun is at the hottest. Air of course must be admitted freely throughout the structure, yet even this is not always sufficient to neutralise the withering influences of the sun's rays, when directed, as they otherwise would be, on to the tender young shoots. Attend carefully to the necessary thumb-and-finger pruning of all *Figs*, *Peaches*, *Cherries*, and the like, which exhibit the least symptom of too hasty or robust growth, always bearing in mind that once the fruit has been fairly thinned, and a proper leaf surface has been secured, the resources of each healthy tree should be concentrated in bringing the crop to a high standard of perfection. "First crop" Figs will be shortly making their final swelling, hence particular attention should be given to their roots. Where efficient drainage exists, and the roots are in a healthy state, the tree will be very much benefited by having a good soaking with liquid manure. Be particular, however, not to cause the border to become so wet as to remain over-moist at the exact time when the ripening process takes place. The soil at that particular time must be rather dry than otherwise. *Strawberries* may now be treated more liberally than heretofore at starting; having made a little growth without much forcing, manure-water can be applied with benefit. Forced Strawberries, as a rule, have been far below the ordinary standard this year, owing, no doubt, to the past hot season. I need not add much to the advice already given respecting *Pines*; suffice it to say, that as the past season forced the earlier successionals to flower and fruit against the will of the cultivator, and before their time, it will be the more necessary to force, or rather push, along by every possible means the other stock, to supply any deficiency which may occur.

HARDY FRUIT GARDEN.

The necessary operation of thinning the young shoots, or disbudding *Peach*, *Nectarine*, and *Apricot* trees, &c., should now be commenced in all earnest. Under proper protection they are generally well advanced already. Proceed by pinching off some of the twin growths, and by thinning out other shoots that are placed too thickly together. Be very careful in removing them not to bark the fruit-producing wood. The young shoot if not removed very carefully is very likely to draw a portion of the bark off with its "heel," hence the need of this caution. In thinning out the young growths always endeavour to leave as many promising young shoots as possible down at the bottom or base of the tree, and to encourage them by every possible means, to fill out any vacancies which occur. This may often be done at the expense of much growth, which often is forced at the apex, and often so near the coping of the wall that, if left, they are of little use for next year's fruiting.

KITCHEN GARDEN.

The main crop of *Salsify*, *Scorzonera*, and, if not already sown, of *Beet*, may now be got in. They all like abundance of manure, placed, by means of bastard-trenching at the depth of some 10 or 12 inches below the surface. It may now be possible to plant a few *Dwarf French Beans*, out of pots or boxes into a warm sheltered position, and where some slight protection can be afforded in case symptoms of a frost occur. Proceed with pricking out *Celery* as previously advised, and with the preparation of ridges for *Cucumbers*. The more fermenting material that can be got together for this purpose the better, as the more heat will be insured. Some growers who object to unsightly ridges elevated above the ground, prefer making a trench, into which the heating material is placed, and then covered over with the necessary soils. The old leaves, &c., which have been used for the purposes of forcing Seakale and Rhubarb will, with a little fresh warm litter mixed, do well for such a purpose. Transplant frame-sown *Parsley*, *Cauliflowers*, &c., into the necessary spaces. Attend to kitchen garden, and, indeed, all other *Walks*. Weeds grow apace now, and in a majority of instances a good crop is in process of formation. The most economical, and indeed effective, way of destroying them is by means of a judicious use of salt, which is procurable in a soiled and cheap condition at about 24*s.* to 26*s.* per ton, and a relative price per cwt. In regard to the best mode of application I hope to offer a few remarks next week. *W. E.*

TOWN GARDENING.

GRASS SEED that was sown as directed last month, will now have commenced to make its appearance above ground, and should therefore be lightly brushed over with a birch broom, when dry; as it is not advisable to roll it at present. Ivy will now require some attention, if it is wished to have it in perfection during the summer months; all the old leaves should be taken off, the principal branches should be nailed close in, and all straggling shoots cut out at once, and a charming bank of green will be obtained in a few days. Rockwork should now be planted with British Ferns, Alpine plants, &c., as directed in January last, at p. 32. Window plants should be allowed as much air as possible during fine weather, and should be supplied with water when they become dry on the surface; in doing this the pot should never be allowed to stand in water, but should be rather elevated than otherwise on something hollow. The India-rubber plant is an excellent one for towns, and should have its leaves sponged occasionally, which will tend much to the health of the plant. All other plants that are not in flower should now be well syringed, and have the surface of the soil stirred occasionally. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending April 21, 1869, as observed at the Horticultural Garden.

April.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth. 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs. 15	3	29.721	29.531	64	41	52.5	55	49	S.W.	.00
Friday 16	4	29.240	29.139	57	43	50.0	52	49	S.W.	.26
Satur. 17	5	29.500	29.245	52	43	47.5	51	48	N.W.	.02
Sunday 18	6	29.932	29.746	52	26	39.0	50	48	N.	.00
Mond. 19	7	30.081	29.954	56	42	49.0	50	48	W.	.00
Tuesd. 20	8	29.851	29.798	54	28	41.0	50	47	S.	.02
Wed. 21	9	30.018	29.995	64	30	47.0	51	48	W.	.00
Average.		29.757	29.658	57.0	36.1	46.5	51.3	48.1		0.30

April 15—Cloudy and fine; overcast; densely overcast, cold wind.
— 16—Overcast, slight rain; stormy; heavy rain at night.
— 17—Stormy and cold; boisterous; densely overcast, rain.
— 18—Boisterous and stormy; cloudy; clear and frosty.
— 19—Cloudy, fine, very fine; heavy clouds at night.
— 20—Densely overcast; cloudy; slight rain; densely overcast.
— 21—Clear and fine; cloudy; cloudy, but very fine at night.
Mean temperature of the week, 1 1.10 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending May 1, 1869.

April and May.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..25	59.6	37.2	48.4	17	1.40 in.	6	10	6	3	7	5	3	3
Mon. ..26	58.0	36.4	47.2	18	0.53	4	9	5	4	1	10	3	7
Tues. ..27	59.3	35.7	47.5	18	0.74	11	3	6	2	6	7	5	1
Wed. ..28	60.8	35.7	48.2	18	0.64	4	7	7	4	6	5	6	4
Thurs. ..29	60.5	37.5	49.0	15	0.75	5	5	9	2	4	9	1	8
Friday ..30	61.0	39.1	50.1	17	0.31	6	5	8	2	3	7	6	6
Satur. ..1	61.4	39.2	50.3	16	0.51	4	8	8	4	5	8	4	2

The highest temperature during the above period occurred on the 27th 1865—therm. 82 deg.; and the lowest on the 29th, 1861—therm. 18 deg.

Notices to Correspondents.

BEETLE RINGING THE BARK OF STANDARD ROSES: *W F R.* The culprit is a well-known offender, who ought to be branded with his own name in large letters (if there was room)—Otiorhyncus fuscipes.

BOOKS: *Rural Dean.* Probably "Indoor Gardening," published at 171, Fleet Street, will meet your wants.

BUGS: *E.* The best preventive is cleanliness. Give them neither quarter nor quarters.

CUCUMBERS AND MUSHROOMS: *R P H.* Cucumbers can be grown very well without any other artificial heat than that derived from manure and sun-heat. For information as to the best method of cultivating Mushrooms read Mr. Earley's pamphlet, recently published by Messrs. Bradbury, Evans & Co.

FUNGUS: *J B L.* Podisoma Juniperi.

GOURDS: *F. D.* The varieties of Cucurbita moschata, of which the Neapolitan (Courge pleine de Naples of Naudin) is one, are perhaps the best of all the varieties of Gourds; but in general they require too much heat to be successfully cultivated in northern countries. In Italy and the south of Europe they are extensively grown. The Cucurbita maxima (Gros Potiron blanc) is one of the best for general cultivation in this country, as also is the Ohio Squash. The true Egg Gourd, however, is the best for *purée*. For further information on this subject, see p. 982, vol. 1862 of this Journal.

HEATING: *E A B.* Wood may be used to heat greenhouses and frames if you find coal, cinders, or coke difficult to get, but it requires more attention. You had better provide a large common furnace and a simple hot-water apparatus if you decide to use it.

INSECTS IN CUCUMBER HOUSES: *J T* says, "If your correspondent 'F. D' (see p. 391), would procure a tin of Pooley's preparations of tobacco, and dust on and round the Cucumber or Melon plants at the time of turning out, he would not be troubled with the attack of Rose beetle or any other insect."

MELON PLANTS DISEASED: *R S.* The leaves were somewhat shrivelled when they reached us. We are however of opinion that they have been attacked with some sort of parasitic Fungus, which we fear will greatly injure your plants. It is no doubt partly caused through some affection at the roots. Have the pots at any time become waterlogged and sour, or have they experienced much fluctuation as to their degree of moisture?

NAMES OF PLANTS: *D D.* 1, Selliguea pedunculata; but we should have liked to have seen the sterile fronds also; 2, Pinus Pinaster.—*T Doxat.* Very bad specimens. 1, Blechnum brasiliense; 2, Pteris hastata; 3, Adiantum Capillus-Veneris; 4, Nephrolepis tuberosa; 5, Athyrium Filix-fœmina; 6, Phlebodium aureum.—*A B.* The white variety of Epidendrum macrochilum (E. atropurpureum of the older orchidists).—*N B.* Claytonia perfoliata. Acacia not recognised; send better specimen.—*A W, Cheshunt.* Triteleia uniflora.—*C W Strickland.* 1, Iris graminea; 2, Scilla natalensis; 3, Aspasia epidendroides.—*A B.* Mammillaria pusilla.

RECORDER: *J H W.* Perhaps our correspondent means the "Irish Gardeners' Record."

THRIPS IN CUCUMBER HOUSES: *A Subscriber.* Thrips are undoubtedly very troublesome pests, and difficult to get rid of. We think, however, that by perseverance in applying the several remedies you may overcome them. Try fumigating with tobacco and Laurel leaves, Pooley's tobacco powder, Fowler's Insecticide, or a syringing with a decoction of Quassia chips, either of which will eradicate them if persevered with, night after night; at the same time keeping up a steaming, close, warm atmosphere in the house, which latter the little animals much dislike. When your house is empty, cleanse it well by fumigating with sulphur in a burning state.

TOBACCO WATER: *E C.* If used too strong it is certainly injurious to Rose buds. The best means of getting rid of green-fly on them is by fumigating them where practicable, and a free use of the syringe afterwards will keep the plants nice and clean. Fowler's Insecticide, Gishurst Compound, and tobacco dust, are equally efficacious, but they make the leaves look so dirty, that no amount of syringing will restore them to their natural green colour.

TRANSPLANTING YEWS: *N B* will feel obliged if any of our practical readers will give the result of their experience as to the best time to transplant common English Yews, 10 feet high, to form a close hedge.

VINES: *T C.* We think your theory as to the cause of the check experienced in the growth of your Vines is in the main correct. Plants prematurely or too much excited at one time, always have a reactionary or standstill period subsequently. The excessive heat in the beginning of last week, after the extreme cold of the previous month, and its recurrence in the end of last week, sufficiently explain your case, and from this we learn a lesson of the importance of maintaining an equal temperature in our borders as well as in the interior of the houses.

WALTONIAN CASES: *R J S.* We do not know where these are to be procured. Miss Maling's indoor plant cases, which are a similar contrivance, are to be had of Mr. Gray. See our advertising columns.

COMMUNICATIONS RECEIVED.—W. B.—Thorne.—A. R.—J. S.—W. J.—W. P.—C. M'D.—T. H. Potts.—An Old Sub.

The Gardeners' Chronicle Newspaper.

SATURDAY, APRIL 24, 1869.

Hothouses for the Million.

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CASH PRICES.

	2-inch.	3-inch.	4-inch.
PIPES .. .. per yard	1s. 0d.	1s. 6d.	2s. 0d.
ELBOWS .. .. each	1 6	2 3	3 0
TEES .. .. ,,	2 6	3 6	4 6
SYPHONS .. .. ,,	2 6	3 6	4 6
VALVES .. .. ,,	10 0	11 6	13 0

No credit will be given when Pipes, &c., are invoiced at the above prices.

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HOT-WATER PIPES, BOILERS, &c., &c., delivered in London, Liverpool, Bristol, or equivalent.

Large stock kept at the Works.

	2-inch.	3-inch.	3½-inch.	4-inch.
	s. d.	s. d.	s. d.	s. d.
HOT-WATER PIPES—per yard	0 11	1 5	1 8½	1 11
ELBOWS .. .. each	1 4	2 1	2 6	2 9
TEES .. .. ,,	2 0	3 0	3 6	4 0
SYPHONS .. .. ,,	1 9	3 0	3 6	4 0
VALVES .. .. ,,	10 0	11 6	12 0	13 0

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HOT-WATER PIPES, from stock—p. yard	1s. 0d.	1s. 6d.	2s. 0d.
ELBOWS for ditto .. .. .. each	1 6	2 3	2 9
TEES .. .. ,,	2 3	3 6	4 6
SYPHONS .. .. ,,	2 3	3 6	4 6
THROTTLE VALVES .. .. ,,	10 0	11 6	13 0

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6 ft. by 4 ft. Lights, 2ins. thick, unglazed	£0 5 0
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6 ft. by 8 ft., Double Lights, do.	2 15 0

GREENHOUSES. Per ft. super.

Woodwork only Prepared and Fitted	0 0 6
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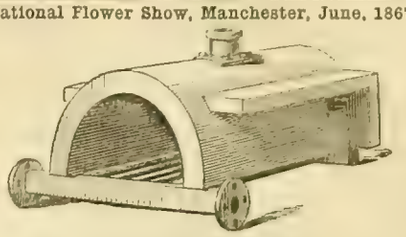
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National Flower Show, Manchester, June, 1867.



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See *Gardeners' Chronicle*, January 23, 1868.
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See *Gardeners' Magazine*, June 15, 1867.
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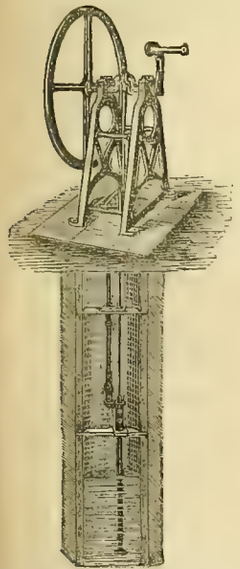
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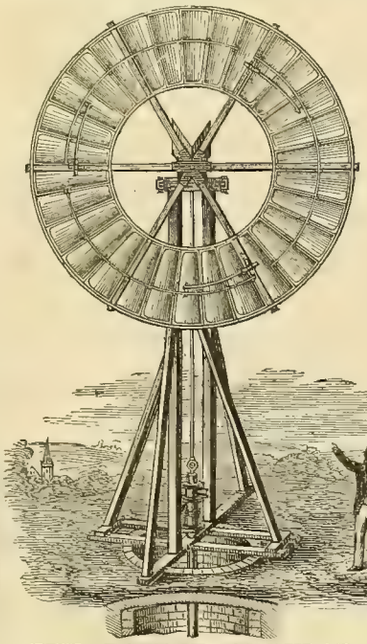
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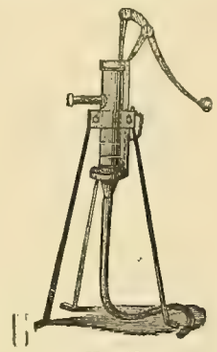


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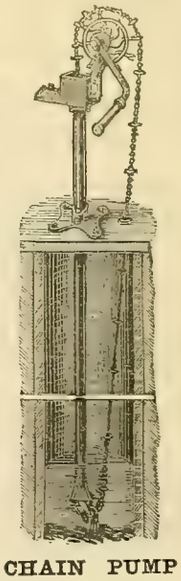


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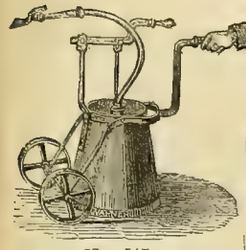
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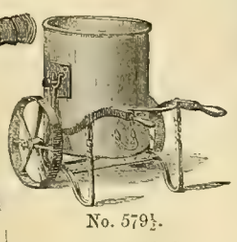
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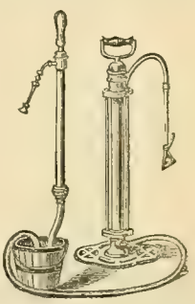
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38 ,, ...	3 17 0
30 ,, ...	2 13 0
20 ,, ...	2 2 0



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Home News.

DEPARTURE OF THE QUEEN FOR OSBORNE.—The Queen, accompanied by Prince and Princess Christian, the Princesses and Prince Leopold, left Windsor on Tuesday afternoon for Osborne, where they arrived at half-past six. Prince Albert Victor, Prince George, Princess Louisa, and Princess Victoria of Wales, and Prince Christian Victor and Prince Albert of Schleswig-Holstein, left Windsor by a previous train for Osborne. On Wednesday and Thursday the Queen drove out. On the return of the Prince and Princess of Wales from their Eastern tour, her Majesty and the Royal family, with the children of the Prince and Princess of Wales, will return to Windsor, and shortly afterwards proceed to Balmoral.

THE COURT AT WINDSOR.—On Saturday the Queen, accompanied by the Princesses, went in an open carriage and four to Aldershot, where the troops were drawn up for her Majesty's inspection, and afterwards marched past. In returning to Windsor her Majesty paid a visit to Sir James Clark at Bagshot Park. The Marquis of Hartington arrived from London on a visit. On Sunday morning the Queen and Royal family attended Divine service in the private chapel. The Rev. Henry White, Chaplain of the Chapel Royal, Savoy, preached the sermon. The Duke and Duchess d'Alençon arrived from Bushy Park on a visit. On Monday the Queen drove out with Princess Louisa. The Duke and Duchess d'Alençon left the Castle for Bushy.

THE PRINCE AND PRINCESS OF WALES arrived on the 12th inst. at Sebastopol, where they were received by General Kotzebue, governor of New Russia. Their Royal Highnesses returned to Constantinople on Saturday morning from the Crimea, and after paying a farewell visit to the Sultan left in the afternoon for Athens. After a stay of two or three

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days in that city, the Prince and Princess will go to Corfu, accompanied by King George; and it is expected that they will arrive at Marseilles, on their way home, between the 7th and 10th of May.

The Duke of Edinburgh.—It is announced that the Duke of Edinburgh will visit Calcutta about the middle of December, and that his stay in India will extend altogether to about three months. It is expected that he will spend two or three weeks in Calcutta, and then proceed to Agra, where the grand durbar will be held; after which he will visit Cashmere.

The Health of Prince Leopold.—In the train which conveyed the Queen and Royal family to Portsmouth on Tuesday, a saloon carriage, furnished with an indiarubber air bed, was attached specially for the use of Prince Leopold, and the public were excluded from the terminus, in order that his Royal Highness should not suffer from any unnecessary excitement. The Prince had so far recovered from the prostration caused by his recent attack as to be able to walk without assistance to his carriage. Sir William Jenner was in attendance upon him.

The Cabinet.—A Cabinet Council was held on Saturday, in Downing Street.

Parliamentary Movements.—The Earl of March, eldest son of the Duke of Richmond, was on Saturday elected for West Sussex, in the room of the Hon. H. Wyndham, now Lord Leaconfield, without opposition. Lord Hyde, eldest son of the Earl of Clarendon, and Lord Claud John Hamilton were put in nomination yesterday for Brecon, the former in the Liberal, the latter in the Conservative interest. The show of hands was in favour of Lord Hyde, and a poll was demanded on behalf of Lord C. J. Hamilton. The Attorney-General for Ireland, on Thursday, gave notice of an address for a Commission to inquire into corrupt practices at the late election for Cashel.

Trials of Election Petitions.—Mr. Justice Blackburn gave judgment on Saturday on the Hastings petition, deciding that Messrs. Brassey and North had been duly elected, and that no corrupt practices had been brought home to their knowledge. Costs to be paid by the petitioners. The petition against the return of Messrs. Malcolm and Collins, the Conservative members for Boston, has been withdrawn. The petition praying for the return of Mr. Hurst for Horsham will be unopposed. Mr. Hurst will therefore be declared duly elected. It has been decided to withdraw the petition against Mr. John Hardy, one of the Conservative members for South Warwickshire. The trial of the Southampton petition against the return of Mr. Gurney and Mr. Hoare, commenced on Wednesday in that town, and terminated yesterday in the withdrawal of the petition. Messrs. Gurney and Hoare were thereupon declared duly elected, the petitioners to pay costs. It is stated that the Conservative party at Hereford have resolved to petition against the return of Colonel Clive and Mr. Hoskyns. The new Bewdley petition against Mr. Cunliffe will be opened in that town on the 27th inst. before Mr. Justice Blackburn, and the new Taunton petition against Mr. H. James will be heard before Baron Martin on May 10, at Taunton.

Lord-Lieutenancy.—Sir Michael Shaw Stewart has been appointed Lord-Lieutenant of Renfrewshire, in the room of the late Lord Glasgow.

Bishopric of Exeter.—Bishop Trower, late Bishop of Gibraltar, has accepted a commission from the Bishop of Exeter empowering him to undertake generally the episcopal duties of the diocese.

Post-Office Savings Banks.—The sum of 5,333,638*l.* 6*s.* 2*d.* was received from depositors in the Post-office Savings Banks during the year ending on the 31st December last, and the total amount standing to their credit on that date was 11,666,655*l.* 8*s.* 5*d.* The interest amounted to 252,897*l.* 4*s.* 3*d.* The cost of working the establishment last year was 61,860*l.* 2*s.* 3*d.*

Foreign.

France.—In the sitting of the Legislative Body on Saturday, the Budget for the Ministry of Commerce came on for discussion. MM. Geliot, Buffet, Kolb-Bernard, and Brame made speeches, pointing out what they alleged to be the disastrous effects of the Treaty of Commerce with England on the industry of the northern departments of France. M. Gressier, the Minister of Commerce, in reply, stated that a Commission had been appointed to investigate the effects of the present system of the temporary admission of goods into France without duty, adding that if this system be the cause of any distress, the Government will put an end to it. M. Thiers asked that a Parliamentary inquiry into this question should be instituted. M. Pouyer-Quertier demanded that the right of fixing the Customs' tariff should be restored to the country, and also that notice should be given of withdrawal from the different Treaties of Commerce. The general debate was then closed. It is announced that at the last Conference between the Marquis de Lavalette, M. Rouher, M. Gressier, and M. Frère-Orban on the railway difficulty, the representatives of France informed the Belgian Prime Minister that the French Government viewed the question from a different point from that taken up by Belgium, and that the interests which it defended did not permit it to modify its opinion. M. Frère-Orban thereupon declined to stultify himself and his colleagues by sanctioning the sale of the Belgian line to France, and virtually abrogating the law unanimously passed by the Belgian Legislature to prevent such an encroachment. He at first intended to leave Paris on Tuesday evening on his return to Brussels, but subsequently deferred his departure; and it is now stated that before he leaves he will make fresh proposals for the settlement of the question. It is said that the English Government has recently offered its mediation to France and Belgium. The French Government on Thursday sent a communication to the papers denying that it had any knowledge of the reported convention between the Government of Tunis and a large banking-house of Paris for the conversion of the Tunisian debt. Prince Napoleon left Marseilles on Tuesday in his yacht, on a tour to Naples, Corfu, and the Adriatic. It is reported that the Empress will visit Egypt in October, in order to be present at the inauguration of the Suez Canal.

Spain.—In consequence of the encouragement given by the United States to the Cuba insurgents, and the announcement that an American squadron has been ordered to the West Indies, the Cortes have given Admiral Topete full powers to man the Spanish fleet, and every available vessel will forthwith be sent to Cuba to aid in the suppression of the rebellion in that island. In the sitting of the Constituent Cortes on Monday Senor Figuerola presented his Budget. He estimates the receipts at 2,141,000,000 reales, of which 473,000,000 reales are derived from taxes on landed property, 120,000,000 reales from taxes on articles of commerce, and 45,000,000 reales from succession duty. He proposes to abolish the duty on direct inheritances, to maintain the tax of 5 per cent. on incomes and salaries, and to suppress the salt monopoly in January, 1870, and the tobacco monopoly in July of the same year. The amount of the floating debt is not to exceed 600,000,000 reales. The tariff is to be reformed so as to remove all prohibitory duties, and establish three categories of extraordinary duties, one of 30 per cent., and in some cases of 35 per cent.; the maximum of the fiscal duties is 15 per cent., and those in the third category are of a minimum amount. The duties from 30 to 35 per cent. are to be levied upon those articles of merchandize which are at present subject to an excessively high tariff, and these duties are not to be modified for a period of six years, after which they will be gradually decreased. On Tuesday night there was an important meeting of the majority of the Senate, to discuss the motion of Senor Borguella, declaring all members of any branch of the Bourbon family ineligible to sit on the Throne of Spain. The proposition being opposed by Senor Rios Rosas and others, was ultimately withdrawn by Senor Borguella. In the sitting of the Constituent Cortes on Wednesday, the draft of the Constitution was resumed. Senor Figueras, a member of the Republican party, made a speech in which he argued that as the majority who wished for a Monarchy could not find a candidate who would accept the Crown, the only alternative that remained was to restore the Bourbon dynasty or to proclaim a Republic. Senor Zorilla, Minister of the Interior, in reply, declared that the restoration of the Bourbons was impossible, and that a Republic would be a national calamity. He added that the majority would succeed in coming to a satisfactory conclusion as to the sovereign to be chosen. In the sitting of Thursday the debate on the draft of the Constitution was continued. On Clause 17 an amendment was moved, with the object of establishing a censure over the Press, to be exercised previous to publication. This amendment was rejected, and the clauses granting liberty to the Press and freedom of public meeting, association, and petition, were adopted. It is believed that the Cortes will abolish the customs duties upon cotton and coal.

Portugal.—A military rising is said to be imminent at Lisbon and at Oporto. The Government has taken precautionary measures. The Chambers will be convoked for the 26th inst. A mutiny has occurred among the soldiers of the Zambesi expedition, stationed at Mafra, 18 miles from Lisbon. Troops have been sent to suppress the tumult and bring back the regiment to Lisbon.

Switzerland.—The inhabitants of the Canton of Zurich on Sunday adopted, by 34,441 against 22,351 votes, the new Cantonal Constitution, which is of a purely Democratic character.

Belgium.—In the sitting of the Chamber of Representatives, on Thursday, replying to some observations upon the means of communication with Switzerland by the railway managed in Belgium by the French Eastern Railway Company, the Minister of Public Works said that that company had not complied with the wishes expressed by the Government on the subject of the present arrangements for the traffic to Switzerland. The Minister added:—"Our relations with the Eastern Railway Company have naturally been affected by the opposition we have thought necessary to show towards certain of their plans." The riots among the Belgian workmen appear to be spreading. At a large village called Frameries, near Mons, the workmen have risen in great numbers, and have attempted to stop the railway traffic from Mauberge to Mons by stoning the passenger trains, cutting off the supply of water from the engines, and taking possession of the railway bridges. The workmen in the Borinage, the Charleroi district, and at Antwerp have also struck. Advocate Springard, who delivered an exciting speech at Mons, the secretary and several members of the Workmen's International Society, have been arrested.

Prussia.—It is said that the Prussian Government has instructed its ambassador in Paris to express its satisfaction at the late speech of M. de Lavalette as initiating a definitive policy of peace. In the sitting of the North German Parliament on Friday, a resolution was introduced by Herr Twesten and Count Munster, demanding the appointment of a responsible Federal Ministry. The resolution was strenuously opposed by Count Bismarck, but was adopted by a majority of 111 to 100. In the sitting of Thursday the estimates of the Ministry for Foreign Affairs were discussed. Herr Twesten made a speech, in which he called upon Count Bismarck to lay before the House copies of the diplomatic correspondence, in the shape of a Blue-book, as is done by other Governments. Count Bismarck replied that in countries where this custom obtained it proceeded from the necessities of the parliamentary system, but that it created mistrust among foreign Governments. Count Bismarck added that in England the publication of official documents was managed with great diplomatic tact, the result of many years' experience, but nevertheless it had given rise to complaints. It was well known that the very prudent publications made by the French Government did not attain their parliamentary object. He himself was not an advocate of this system, but in case the Parliament insisted he would lay before them what he could. He further remarked that the Governments which published Blue-books did not by any means give all the correspondence of their Foreign Offices. The International Conference of Delegates from Associations for the Care of the Wounded in time of war and of other invalided soldiers was opened in Berlin on Thursday in presence of the Queen of Prussia. 160 delegates attended. The journeymen carpenters of Berlin, to the number of 2000, have struck work. Public order has not been disturbed.

Bavaria.—In the sitting of the Upper House on Monday, the debate on the School Education Bill was continued. Prince Hohenlohe energetically protested against party feeling within the domain of the Church, so prevalent in modern times. He did not hesitate to stigmatise such principles as were put forward in the *Syllabus*, the *Encyclica*, and other publications as contrary to the spirit of the age, and a cause why Church and State were unable to go hand in hand. The Chamber of Deputies on Wednesday approved the revised Rhine Navigation Act.

Hanover.—A grand banquet was to have been given at the Odéon to celebrate the birthday of Queen Maria, but it was prohibited by the Prussian police. The Hanoverian patriots thereupon sent to Hietzing an address of congratulation and a bouquet. From 25,000 to 35,000 persons took part in this demonstration, preceded by about 60 carriages, at the head of which were six calashes with four horses each, occupied by members of the Hanoverian nobility. Prussia was represented by two carriages containing police functionaries, and a great number of subordinate police agents were dispersed among the crowd.

Saxony.—The King of Saxony arrived at Prague on Monday, to pay a visit to the Emperor Ferdinand on the occasion of his Majesty's birthday. King John afterwards left for Brandeis on a visit to the Grand Duke of Tuscany.

Austria.—The official *Gazette* of Sunday publishes an Imperial autograph letter appointing Count Taafe to the post of the President of the Cis-Leithan Council of Ministers. He retains at the same time the office of Minister of the Defence of the Country. The *Gazette* declares that this appointment was preceded by deliberations on pending political questions, which resulted in proving a full agreement to exist among the members of the Ministry. On Tuesday the Lower House of the Reichsrath read a second and third time a Bill for the reform of the land-tax. The debate on the National Schools Bill commenced on Wednesday. On Thursday the Upper House passed the Landwehr Bill, and approved the Telegraph Convention with the North German Confederation, and the Frontier Regulation Treaty with Prussia. The official *Gazette* of Thursday published the law, which has received the sanction of the Emperor, for the organisation of a supreme court of justice for the Empire.

Hungary.—The Emperor returned to Pesth on the 18th inst., and to-day his Majesty will open the Diet in person by a speech from the Throne. The Lower House met on Thursday for a preliminary sitting, the senior member acting as president. Some members of the Extreme Left demanded that the Royal flag should be removed from the castle at Buda. Count Andrassy replied, that during the opening of the Diet the national flags of Hungary and Croatia would be hoisted over the Royal Castle. The committee of Hungarian and Croatian members on the question of the future position of the town of Fiume will commence its deliberations before the end of this month. Count Andrassy is to be appointed colonel of the Honved Corps. The ceremony of unveiling the statue of the Palatine Archduke Joseph will take place to-morrow.

Italy.—Count Cambray-Digny, the Minister of Finance, commenced his financial statement in the Chamber of Deputies on Tuesday, and concluded it on Wednesday. He showed that there had been a steadily progressive increase in the ordinary revenue, and decrease in the expenditure since 1867. In future years he anticipated that there would be a reduction both of the ordinary and of the extraordinary expenditure, and that a balance of the revenue and expenditure might be expected in 1875. The total deficit to be provided for was 788,000,000 lire. This sum included the amount necessary to pay the debt due to the National Bank, and to abolish the forced currency. The bank would resume specie payments six months after the repayment of the debt. To cover this deficit he proposed financial operations, by which he expected to obtain 794 millions. He proposed first to farm the sale of the ecclesiastical property to a reorganised company for the sale of the domainal property; the company to advance 300 millions of lire against domainal obligations, guaranteeing to pay the first instalment of 130 millions within six months, and the remainder upon bonds issued yearly, and redeemable in 20 years. Secondly, to farm the service of the Treasury to the National Bank and the Bank of Naples, the Bank paying a guarantee of 100 millions of lire. Thirdly, to raise a forced loan to the amount of 320 millions of lire at 6 per cent., payable in four years, from 1871, redeemable in 10 years from 1881. Fourthly, to call for the repayment of the 70 millions of Treasury Bonds advanced to the railways. Public works will be vigorously prosecuted without fresh burdens being imposed on the Treasury; and the expense of reorganising the army and navy

will be spread over a long series of years. The principle of the Ministerial Bill, rendering ecclesiastical pupils liable to conscription, was approved on Monday by a majority of 223 to 25. A Mazzinian conspiracy was discovered on Monday at Milan. The police have seized a number of Orsini bombs, arms, and cipher documents. The six principal conspirators have been arrested, including Guiseppe Nathan of London. Milan is perfectly tranquil. King Victor Emmanuel left Florence on Sunday for Naples, by way of Bologna and Ancona. The Bellini Theatre at Naples was destroyed by fire on Saturday night.

GREECE.—The Prince and Princess of Wales arrived at the Piræus on Tuesday. Their Royal Highnesses were received with great ceremony, and travelled to Athens by the new railway from the Piræus to the capital.

THE PRINCIPALITIES.—A proclamation in the Turkish language, and addressed to the Turks in Bulgaria, has been seized in a printing establishment at Bucharest. It is signed by Bulgarian party leaders residing on Turkish territory. The Minister of the Interior has ordered further investigations to be made into the matter, and the Turkish Governor of Rustchuk has been communicated with.

SERVIA.—The Porte has conceded to Servia the right of concluding commercial treaties with foreign countries.

TURKEY.—The Prince and Princess of Wales returned to Constantinople on Saturday morning from the Crimea. They paid a farewell visit to the Sultan, and left in the afternoon for Greece. An agreement was signed on Saturday by Daoud Pasha, the South Austrian Railway Company, and Baron Hirsch, granting to the latter the concession of all the railway lines of the Ottoman Empire, and handing over the working of these lines to the South Austrian Company. The new Finance Minister will shortly publish his budget, with a general report, recommending a regular redemption of the consolidated debt.

EGYPT.—A commission, composed of the English, French, Italian, and Greek consols at Cairo, has examined into the late attempt to blow up the Viceroy's box at the theatre, and has come to the conclusion that it was intended to assassinate not only the Viceroy, but also his principal Ministers and other councillors who would have accompanied him to the theatre. M. Menasse, the Viceroy's theatrical *entrepreneur*, has been arrested on the charge of having planned the attempt. Another attempt was made on the life of the Viceroy, the Prince Heritier, and the Ministers, on the 18th ult., as they were returning by railway from Tomailia, and it was only owing to the intelligence of the driver of the pilot engine that the attempt to bring about a collision failed.

CAPE OF GOOD HOPE.—Her Majesty's ship Petrel arrived on the 8th of March at East London, with accounts of the 18th February from the Mozambique Channel, stating that Dr. Livingstone arrived at Zanzibar in January, and left for England by the overland route through Egypt. It is now known that the report is without foundation.

PERSIA.—A military revolt occurred at Teheran on the 20th of March, but was put down with great severity.

INDIA.—The loan for 5,000,000*l.* has been successful. The amount tendered for is 5,250,000*l.*, whereof a sum of 3,500,000*l.* is above the minimum. The minimum was fixed at 89. Tenders above 90, amounting to 1,670,000*l.*, will receive a full allotment.

CHINA.—The death of General Brunker, commanding the troops at Hong Kong, is announced.

UNITED STATES.—The Spanish authorities of Cuba, having seized an American ship called the Mary Lowell, which was hovering suspiciously on the coast, and attempting to communicate with the insurgents, the American Government have sent a squadron of eight ironclads to demand her restitution, and to reinforce the United States' squadron in the West Indies. It is said that there is a strong party in the States in favour of seizing Cuba, preparatory to a similar proceeding against the possessions of the other European Powers in the West Indies. The Senate has confirmed the appointment of Mr. Curtin, ex-Governor of Pennsylvania, as Minister at St. Petersburg, of Mr. Shellabergar as Minister at Lisbon, of Mr. Freeman Morse as Consul in London, and of Mr. Thomas Nelson as Minister to Mexico. Mr. Basset, a negro, has been nominated by the President as Minister to Hayti, and the nomination has been confirmed by the Senate.

CUBA.—Accounts from Havannah of April 21, state that the pacification of the insurrectionary districts is reported to be progressing.

BRAZILS.—The resignation of the Marquis de Caxias as Commander-in-chief has been accepted, and the Emperor's son-in-law, Count d'Eu, has been appointed his successor, and left for Asuncion on the 30th March. The Marquis de Caxias has been created a Duke for his services. Lopez was in the Corderillas with some irregular forces, variously estimated at from 700 to 5000 strong. The Mauá Railway traffic was stopped on the 30th March, the Government having refused a subsidy.

Parliament.

IN the House of Lords on Friday Lord HOUGHTON suggested the issue of a Royal Commission to inquire into the question of emigration in relation to the present state of pauperism, and into the expediency of empowering the Poor-law Guardians to raise the necessary funds by a rate, with a Government guarantee, to be supplemented by aid from Imperial resources. Earl GRANVILLE doubted the expediency of a Royal Commission, and was particularly opposed to any Imperial addition being made to local resources. The question, however, was before the Government, and the President of the Poor-law Board had at present under consideration measures for improving the existing regulations for promoting emigration. Lord OVERSTONE and Earl GREY denied altogether the assumed fact that England was labouring under over-population, and contended that there were not more ablebodied men than there was capital to employ. The Earl of CARNARVON denied that there was any great demand for labour in the Australian colonies, and hoped that the Government would not promote an artificial movement which they would find themselves unable to control. Lord REDESDALE pointed out the ill effects of union rates in increasing pauperism. After a reply from Lord HOUGHTON the subject dropped. Several Bills were advanced a stage. On Monday Lord REDESDALE asked the Government to declare what were their intentions with respect to the coronation oath, and whether they contemplated proposing any alteration in it in the event of the Bill disestablishing and disendowing the Irish Church becoming law. Earl GRANVILLE replied that in the judgment of the Government the coronation oath was imposed on her Majesty in her executive and not in her legislative capacity, and that the Government did not think it necessary to propose any alteration in the language of the oath. The Duke of ARGYLL brought in a Bill to amend the constitution of the Indian Council, by limiting all future appointments to the Board for 10 years, with power to the Secretary of State to reappoint, if desirable, for a further term of five years, and to grant a pension of 500*l.* per annum under special guarantees. The Marquis of SALISBURY expressed approval of the Bill, but doubted whether the services of the best men for the Indian Council could be secured for 1200*l.* a-year without a pension. In answer to Lord LYVEDEN, the Duke of ARGYLL stated that Lord Mayo, the Governor-General of India, was acting on the policy of his predecessor, by the avoidance of all entangling relations with Affghanistan. Lord LAWRENCE observed that he could not see the slightest danger of an entanglement in Affghanistan affairs from what had been done either by himself or by his successor. For himself he had always eschewed a policy that was calculated to lead to such a result, and he hoped that the course he had adopted would continue to be followed. The Bill was then read a first time. On Tuesday the Marquis of CLANRICARDE moved the second reading of the Tenure of Land (Ireland) Bill, the object of which was to enact that hereafter leases should be in writing, and that after 1871 all leases by parole should be deemed null and void. Earl GRANVILLE said that the Government were not prepared to deal with the land question in the present session, and were of opinion that the Bill would be insufficient to satisfy the wishes of the Irish people. Earl GREY supported the Bill, and said that the Government ought either to accept the Bill or move its rejection. After some remarks by the Earl of KIMBERLEY, the Marquis of SALISBURY, Lord ATHLUMNEY, Lord WESTBURY, Lord CAIRNS, and the Lord CHANCELLOR, the Bill was read a second time. On Thursday Lord LYTTELTON moved the second reading of the Increase of the Episcopate Bill, the object of which was to enable the Ecclesiastical Commissioners to frame schemes for the foundation of new sees, subject to the approval of the Queen in Council, the incomes of the new bishops to be raised by voluntary contributions, and to be not less than 2500*l.* a-year. The Archbishops of CANTERBURY and YORK, Lord PORTMAN, the Duke of SOMERSET, the Bishops of LONDON and GLOUCESTER, the LORD CHANCELLOR and Lord CAIRNS, objected to the principle of voluntary and subscription bishops, and Earls STANHOPE and GRANVILLE advised Lord Lyttelton not to press the Bill to a division. Earl NELSON and the Earl of CARNARVON supported the Bill, though objecting to some of its provisions. On a division the Bill was rejected, by a majority of 43 to 20. Seven Bishops and several lay Peers refrained from voting. Yesterday Lord MONCK called attention to the condition of our military force, and moved for a return of the number of militiamen who have passed through a course of musketry instruction. The House was left sitting.

In the House of Commons on Friday, on the motion for the consideration of the Metropolitan Railway Bill, Mr. SHERIDAN moved a clause repealing the exemption in the Act of last year, and compelling the company to provide smoking carriages in each train. The motion was opposed by the railway interest, but was carried on a division by a majority of 8, the numbers being 175 to 167. In reply to Sir G. JENKINSON, Mr. GLADSTONE said that the Government were not prepared either to legislate on the subject of local taxation, or to grant a committee of inquiry into the incidence of the poor rates in England and Wales. Mr. NEWDEGATE commented with some severity upon this mode of fulfilling the pledge which Ministers had given to Sir M. Lopes a few weeks ago, and contended that though the Government had the majority in the House the Conservatives represented the majority of the people of England, if not of the three kingdoms. The House then went into Committee on the Irish Church Bill, when the first clause, declaring the title of the Bill, was agreed to. On clause 2, providing for the dissolution of the legislative union between the Churches of England and Ireland, Mr. DISRAELI moved that it be omitted, stating that his object was to maintain the Royal supremacy, and to preserve the union between the Churches of England and Ireland in matters of doctrine, worship, and discipline. He contended that the omission of the clause would not prevent the accomplishment of the disestablishment and disendowment contemplated by the Bill, and that, unless it were struck out, the religious equality aimed at would not be gained. The ATTORNEY-GENERAL opposed the amendment, and said that the meaning of supremacy was that the Queen was supreme in all her courts, and that supremacy was unaffected by the Bill. Dr. BALL contended that the supremacy of the Crown was absolutely necessary for the discipline and authority of the Church in Ireland. Sir R. PALMER expressed his entire and total dissent from the views of Mr. Disraeli and Dr. Ball, which, he said, were founded upon a complete misunderstanding of the first principles of the Constitution and of the law of supremacy. Mr. WALPOLE, Mr. GRAVES, Mr. BENTINCK, Mr. CROSS, Mr. GREENE, Mr. A. EGERTON, Colonel BARTTELOT, and Mr. S. HILL opposed the clause, as embodying the obnoxious policy of disestablishment, while the ATTORNEY-GENERAL for IRELAND, Mr. PIM, Mr. MONK, Mr. CANDLISH, Mr. SYNAN, and Mr. WHALLEY supported it as the keystone of the Bill. Mr. GLADSTONE said that the Royal supremacy would not be affected by the Bill. He objected to the amendment, because it struck at the groundwork of the Bill, and because, as far as he had been able to ascertain, it was diametrically opposed to the feelings of Irish Churchmen, who desired, if this Bill were to be passed, to have perfect freedom of action and organisation. Mr. DISRAELI, in reply, repeated that his motive was to retain for the Protestant Episcopal Church the benefit of the Royal supremacy, and that this could be done without impeding the general policy of the Bill. He gathered from Mr. Gladstone's last words the inference that he was at last aiming at a system of Free Churches, and as he would not condescend to be prudent, he urged that the case of Ireland should be postponed until the three countries could be dealt with together, and involved in one common ruin. On a division the clause was carried by a majority of 123, the numbers being 344 to 221. On Monday Mr. H. SHERIDAN moved the insertion in the Metropolitan Railway Bill of a clause similar to the one introduced into the Metropolitan District Railway Bill on Friday for the provision of smoking carriages. Mr. BRIGHT opposed the motion, which was negatived, on a division, by 188 to 167. The House then went into Committee on the Irish Church Bill. Clauses from 3 to 9 inclusive, relating to the constitution and power of the Commission, were postponed. Clause 10, prohibiting future appointments to any ecclesiastical benefice or office, and clause 11, providing that all property vested in the Ecclesiastical Commissioners shall be transferred to the new Church body, and the existing Commission be dissolved, were agreed to. On clause 12 Mr. HARDY, in the absence of Mr. Disraeli from indisposition, moved, as an amendment, to prolong the operation until the 1st of January, 1872, the effect of which would be to delay the transfer of the Church property to the Commissioners for 12 months more. Mr. GLADSTONE opposed the amendment, which was negatived on a division by a majority of 107, the numbers being 301 to 194. On the question that the clause stand part of the Bill, Mr. VANCE condemned the Bill as founded on a principle of robbery and plunder, and Mr. CROSS, amidst much interruption, denounced the clause as a gross injustice to the laity. Mr. BENTINCK said that the Opposition was not to be daunted by clamour, and would move to report progress if not allowed a fair hearing. Sir H. HOARE vindicated the right of the majority to resist the obstructive policy of what he termed a "miserable minority." Lord C. HAMILTON and others protested against this language, and appealed to Mr. Gladstone to preserve order among his followers. After some further discussion the clause was carried on a division by a majority of 111, the numbers being 214 to 103. On clause 13, providing for the dissolution of ecclesiastical corporations and cessation of rights to sit in the House of Lords, Mr. CHARLEY moved an amendment to preserve their rights of peerage to the existing Bishops, but on the advice of Mr. HARDY he did not press it. On Mr. HARDY'S motion an addition was made to the clause preserving to the existing prelates and deans the title and precedence they now enjoy. On clause 14, the compensation clause, Mr. HARDY moved, as an amendment, the omission of that part which deducts the compensation to the curates from the income payable to the incumbent. Sir ROUNDELL PALMER, Dr. BALL, Mr. LEFROY, and others supported this amendment, which was opposed by Mr. C. FORTESCUE, the ATTORNEY-GENERAL for IRELAND, the SOLICITOR-GENERAL, and Mr. GLADSTONE. After a long conversation, the amendment was negatived by a majority of 98, the numbers being 330 to 232, and the further progress of the Committee was adjourned. On Tuesday Mr. W. H. GREGORY moved a resolution that it was desirable to reconsider the Carey Street site for the new law courts, inasmuch as the Thames Embankment, between the Temple and Somerset House, now offered greater advantages for the erection of such buildings, and had never yet been considered. He calculated the Carey Street site, including the approaches, would cost 3,150,000*l.*, while the river site could not cost more than 1,500,000*l.*, and would require no new approaches. He was informed that a solvent company was prepared to take the Carey Street site off the hands of the Government at the price which they had paid for it, so that no loss would accrue to the public on that score. Sir R. PALMER moved, as an amendment, that it was desirable to proceed as soon as possible with the erection of the new courts on the Carey Street site, and that, if additional land were necessary, it should be acquired in immediate proximity to that place. Mr. DENMAN seconded the amendment, which was supported by Mr. G. B. GREGORY, Mr. COWPER, and Lord JOHN MANNERS, while the Embankment site was supported by Lord BURY. Mr. B. HOPE and Mr. TITE suggested that both sites should be secured, and that the courts of law should be built in Carey Street, and the Probate Registry on the Embankment. The CHANCELLOR of the EXCHEQUER said that the estimate now made by the Commissioners for the site

and erection of what he called a "Tower of Babel" and a "Vanity Fair" was 3,200,000*l.*, and that, with approaches and other accompaniments, we should not get out of the business for less than 4,000,000*l.*, whereas the original estimate was only 1,500,000*l.* He had already stopped all the expenditure on the present scheme within his reach, and had refused his sanction to the outlay of 600,000*l.* for additional land until the pleasure of the House could be taken. Having remarked that the Government intended to bring in a Bill to transfer the Suitor's Fee Fund to the revenue, he suggested that the better course would be to dissolve the Commission and leave the work in the hands of the Government. The site in Carey Street might in course of time be disposed of without much loss, and another of 6 acres in extent might be acquired between Howard Street in the Strand and the Embankment. This would cost about 600,000*l.*, and a building which would contain all the courts and their offices might be erected there for 1,000,000*l.*; and he suggested that the façade designed by Inigo Jones for the palace of Charles I. at Whitehall might be placed in front of it. Mr. Henley said that the Government had raised an entirely new issue, and moved that the debate be adjourned. After some remarks from Mr. Locke, Mr. Crawford, and Lord John Manners, Mr. Gladstone consented to the adjournment of the debate, and it was adjourned accordingly until Monday next. Mr. O'Reilly moved for a Royal Commission to inquire into the existence of corrupt practices at the late election for the city of Dublin. Mr. Collins moved as an amendment that the Speaker be directed to issue a new writ for the election of a new member. After an animated discussion the motion was carried on a division by a majority of 72, the numbers being 192 to 120. On Wednesday Mr. T. Chambers moved the second reading of the Marriage with a Deceased Wife's Sister Bill. Captain Egerton seconded the motion. Mr. Sclater-Booth moved, as an amendment, that the Bill be read a second time that day six months. Mr. O'Reilly seconded the amendment. Lord Bury and Sir George Grey supported the Bill as a measure of religious freedom, and a boon to the poor man. Mr. Bright said that the opposition to the Bill rested entirely on sentiment, and that the "ecclesiastical rubbish" urged against the change had failed to show that the prohibition had any foundation in nature, or any sanction from revelation. Mr. Beresford Hope and the Solicitor-General opposed the Bill, on the ground that it was opposed to the feelings of the great mass of English women, and was promoted at the expense of a few rich men, who, having deliberately broken the existing law, now sought to repeal it. On a division the second reading was carried by a majority of 99, the numbers being 243 to 144. On Thursday Mr. Bruce, in reply to Sir G. Jenkinson, gave a long explanation of the manner in which he has exercised the prerogative of mercy since his accession to office, particularly in reference to the recent reprieve of the convict Wiltshire. In answer to Lord R. Montagu, Mr. W. E. Forster stated that two cargoes of sheep had arrived, one at London, and the other at Harwich, containing some sheep infected with the sheep-pox, but they had been destroyed, and measures had been taken to disinfect the wharves at which they had been landed. The House then resumed the consideration in Committee of the Irish Church Bill, taking up the 14th clause, which deals with the question of compensation. After some verbal amendments suggested by Mr. Disraeli had been accepted by the Government, a long discussion arose on the distinction to be drawn between the permanent and temporary curate, and on the annuities to be given them and deducted from the life interests of incumbents. Sir R. Palmer moved an amendment, providing that the curate to be compensated out of the incumbent's annuity shall be a permanent curate. On a division the amendment was rejected by a majority of 93, the numbers being 221 to 128. On Clause 15, regulating the compensation to curates, Mr. Lefroy moved an amendment that compensation should be given to non-permanent curates at the rate of 100*l.* for every year they might have served. On a division the amendment was negatived by 220 to 107. Mr. Pim moved an amendment for the compensation of non-permanent curates by a gratuity calculated upon length of service. Mr. Gladstone accepted this amendment, and after numerous verbal amendments had been made in the clause, it was finally agreed to. On Clause 16, Mr. Brodrick endeavoured, unsuccessfully, to obtain compensation on the footing of a freehold tenure for diocesan architects; and Mr. Vance equally failed to place vicars-choral and chairmen in the same category. On Clause 17, Mr. Charley moved an amendment in favour of the organists but was defeated by 314 to 199. In the middle of clause 18 a motion was made to report progress, and defeated by a majority of 113, but Mr. Gladstone yielded to a second motion to the same effect, and the Committee was adjourned soon after midnight. In Committee of the whole House resolutions were agreed to on which to found a Bill to transfer to the Civil Service Estimates certain expenses connected with the administration of justice, and to give the Treasury control over the fees levied in the courts of justice. Yesterday the House again went into Committee on the Irish Church Bill. On the 18th clause, referring to the compensation to be made to lay patrons, Mr. Goldney moved that a minimum be fixed as to the number of years' purchase to be given as compensation for advowsons. Mr. Gladstone opposed the motion, which was negatived on a division by 273 to 161. The House was left sitting.

City Intelligence.

Money Market, Friday.—British Funds: Consols closed at 93 to 93⅛ for Money, and 93⅛ to 93¼ for Account; New and Reduced Three per Cents., 91⅞ to 91¾; Bank Stock, 239 to 241; Exchequer Bills, 3*s.* to 8*s.* pm.; India Five per Cents., 114 to 114½.—Foreign: Turkish Five per Cents., 12½ to 12⅝; Ditto Six per Cents., 66¼ to 66½; Spanish, 33¼; Italian, 55¼ to 55½; Tobacco Loan, 84 to 85; Brazilian, 80⅛; Russian Moscow, 79; Orel Vitebsk, 78⅛; Egyptian (1864), 85⅜ to 86¼; Ditto Debentures, 98⅜ to 98⅝; Viceroy's Loan, 80 to 80½; Ditto (1868), 75⅛ to 76⅛; Peruvian, 78½ to 78⅞; Portuguese, 35½ to 36; Danubian Seven per Cents., 76 to 77; Ditto Eight per Cents., 88⅛ to 86½; United States 5-20 Bonds, 80½ to 80¾; Erie, 22½ to 23; Illinois, 98 to 99.

Metropolis and its Vicinity.

The Government and the Volunteers.—A memorial, signed by many peers and members of Parliament, all members of the Volunteer force, was lately presented by Lord Elcho to the Secretary of State for War, suggesting an inquiry as to the sufficiency or insufficiency of the present capitation grant, and expressing an opinion that the organisation and consequent efficiency of the force might be greatly improved without any increase of the Parliamentary grant, and without imposing any additional tax upon the time and service of the Volunteers. Lord Northbrook, the Under-Secretary of State for War, has replied to Lord Elcho as follows:—

"My Lord,—I am directed by the Secretary of State for War to acknowledge the receipt of your letter, enclosing a memorial on the subject of the capitation grant to the Volunteer force, agreed to at a meeting of Volunteer peers and members of Parliament, and I am to request that you will have the goodness to inform the memorialists that the question whether any increase of the present grant ought to be asked for from Parliament shall receive the careful consideration of her Majesty's Government in connection with the question, which is now also receiving their serious attention, as to what measures it may be expedient to take for the better organisation of the reserve forces as a support in a time of emergency to the regular forces of her Majesty."

The Easter Volunteer Review.—The report of General Sir J. Hope Grant on the Easter Review of Volunteers at Dover was published yesterday. It speaks in the highest terms of all the arrangements, and particularly of those of the railway companies; but, while giving credit to the Volunteer force for willingness and intelligence, it expresses the opinion that it cannot be really serviceable if it be not placed, while under arms, under some more stringent military control. "Such a large body of armed men not amenable to any military discipline might," it adds, "be the cause of very serious embarrassment."

Dr. Livingstone.—The statement in the Cape newspapers that accounts had been received of the safety of Dr. Livingstone, and that he was returning home by way of the Red Sea appears to be untrue, and to have originated in this manner: A French trading vessel off the coast of Zanzibar communicated the rumour to an English vessel on the same coast, which gave the intelligence on its arrival at the Cape. Sir R. Murchison has received despatches from the vice-consul at Zanzibar, dated March 5, two months later than the date of the rumour, in which not the slightest mention is made of Dr. Livingstone. The last intelligence received direct from him was on December 14, 1867, at which time he was at Cazambe, 700 miles from Zanzibar, and no reliable intelligence has since been received as to his movements. It is believed that he is at present travelling in the mass of fresh water lakes beyond the explorations of Speke and Grant.

The American Mail Service.—The Postmaster-General has received intimation from Mr. John Burns that as the Cunard contract has been ratified, two powerful screw steamships of upwards of 3000 tons each, specially adapted for the requirements of the North American Mail service, have been contracted for. These vessels are to be named Abyssinia and Algeria.

Lambeth Palace Grounds.—The Archbishop of Canterbury has written to Mr. Arthur Arnold that so far as he is at present advised by those whom he has consulted, who are interested in the welfare of the people of Lambeth, he believes that the grounds attached to Lambeth Palace are more really beneficial to the inhabitants of the district, if used according to the wise and liberal arrangement of his two predecessors, than if a portion of them were marked off for a recreation ground, open at all times to the public. The archbishop states that his predecessors have for some time past given permission for the use of the grounds for cricket, school feasts, &c., and that a vast number of persons have enjoyed the use of the ground for purposes for which it would have become useless if the plan which Mr. Arthur Arnold has suggested were adopted. Mr. Arnold, in reply, has expressed his regret at the decision at which his Grace has arrived, and points out that such a limited use of the ground is of no benefit whatever to the over-crowded poor of Lambeth.

Finsbury and Southwark Parks.—At the meeting of the Metropolitan Board of Works on Friday a report was brought up from the Parks, Commons, and Open Spaces Committee, recommending that the sum of 2000*l.* be advanced to Mr. Meston on account of his contract for the formation of the ornamental portion of Finsbury Park; that labels, showing the botanical and common names of the principal trees in Finsbury and Southwark Parks be provided, at a cost not exceeding 15*l.* for the former and 10*l.* for the latter; that, having regard to the condition of Southwark Park, no cricket be permitted to be played in it during the ensuing season; and that the estimates of Mr. Wood for the fencing of the corners of the plantations in Finsbury and Southwark Parks, amounting respectively to 133*l.* 15*s.* and 176*l.* 9*s.*, be accepted and the work carried out. All these recommendations were agreed to.

State of Blackheath.—At the weekly meeting of the Metropolitan Board of Works a deputation from the residents of Blackheath and neighbourhood presented a memorial urging the Board to protect and improve the heath. General Lefroy, R.A., in support of the memorial, stated that the heath was rapidly being destroyed by the costermongers and others who took possession of it, and unless effectual measures were taken it would soon become a great nuisance. The grass was nearly altogether disappearing, and there was no adequate police control over the roughs who assembled upon it, and whose language was of the most disgusting character. The memorialists strongly urged the Board to use the powers they possessed and put a stop to what would render the heath no longer a place of recreation, but a great evil to the inhabitants of this district. The memorial was referred to the Parks and Open Spaces Committee for consideration and report.

Proposed New Public Offices.—Colonel Clarke, the director of Admiralty works, who laid before Lord John Manners a plan for a range of public offices from Charing Cross to Great George Street, has prepared a cardboard model of his design, which has been inspected during the week by the Duke of Cambridge, Mr. Childers, M.P., and other official persons interested in the matter.

Her Majesty's Theatre.—The contract between the Earl of Dudley and Messrs. Trollope was signed May 28, 1868, and the further contracts for the decorations and the stage were entered into at the beginning of the present year. Messrs. Trollope were bound under heavy penalties to complete the whole by the end of March, and confident predictions were made that the works would not be accomplished, and that Messrs. Trollope would be probably ruined by the penalties that would be enforced against them; but in the unprecedented short time of 10 months everything has been completed, and the building is now in a condition to be handed over to the lessees.

Tower Subway.—A party of scientific men and engineers visited, last week, the works of the new Thames Subway, which are now making rapid progress. They were received at the Tower Hill shaft by one of the directors, Mr. P. W. Barlow, C.E., with the engineer and contractors, who explained the nature of the works, and accompanied their distinguished visitors to the bottom of the shaft. The descent was effected in the old-fashioned way, as in the bucket of a draw-well, only that the bucket was worked by a powerful steam engine. The shaft, about 60 feet deep, is encased in strong iron tubing for a considerable distance down, its lower part being faced with strong cyclindrical brickwork set in cement. At the bottom of the shaft a large circular opening forms the entrance to the tunnel, which has already been cut several yards onwards, and which will be rapidly pushed across the river. There appears, however, to be very little fear of an irruption of water, as the matter excavated is sound tenacious London clay, and there is every probability of this being continued across from shore to shore. The visitors expressed their complete confidence in the success of the work as a new engineering problem to be solved, and there can be little doubt that such a communication across the river will prove a great convenience to the public.

South Kensington Museum.—The Lord President of the Council has requested Sir Charles Wheatstone, Sir Michael Costa, Professor Tyndall, Lieut.-Colonel Scott, R.E., Captain Donnelly, R.E., and Mr. Bowley, to report on the acoustics of the new lecture theatre. There will be three trials, one by a lecture, with demonstrations, on musical pitch, by Professor Guthrie; a second by voices, directed by Mr. A. Sullivan; and the third by instruments, directed by Mr. Ella.

The New Meat Market.—A special meeting of the Court of Common Council was held at Guildhall on Thursday, the Lord Mayor in the chair, to consider a memorial from the meat salesmen of the Metropolitan Meat and Poultry Market, praying that they may be exempted from the payment of rates and taxes upon their premises, the occupiers at the old markets of Leadenhall and Newgate having been always free. After a long debate the prayer of the petition was complied with.

Admiralty Clerks.—In compliance with the recent Admiralty circular respecting the retirement or superannuation of clerks, five first-class clerks, 12 second-class clerks, and three third-class clerks, in the department of the Accountant-General, have retired. Three who had volunteered to retire from the service are not permitted to go. The establishment, however, is to be further reduced.

Church Conferences.—The council of the Church Association, the real promoters of the suit "Martin *v.* Mackonochie," have resolved on holding a series of conferences next month. Among the business to be done will be—"To consider a memorial to the two archbishops, stating the precise points settled by the late judicial decisions, and praying that the same may be enforced, and further appealing to them on the question raised on the 24th and 25th February, 1869 on the subject of the Lord's Supper, in the Houses of Convocation of Canterbury and York, by Archdeacon Denison and Archdeacon Churton." A scheme for joint action between clergy and laity and other practical matters will be considered.

The St. Alban's Case.—The bill of costs in the case "Martin *v.* Mackonochie" having been sent in for taxation, an offer was made by the proctors to Mr. Mackonochie, to pay, without the expense of taxation, 1500*l.*, which, under the advice of the proctor and solicitor of the Church Association, the Council decided to accept. The sum of 1500*l.* has now been paid.

The Case of Sir Culling Eardley.—The Home Secretary, acting upon a previous decision of his predecessor, Mr Hardy, has signed a free pardon for Sir Eardley Culling Eardley, who was a short time since convicted of bigamy, and sentenced to 18 months' im-

prisonment. The pardon was granted on the score of failing health, which rendered it necessary that Sir C. Eardley should be removed from Coldbath Fields to the South of Europe.

THE EMIGRATION OF GOVERNMENT WORKMEN.—Her Majesty's screw troopship Crocodile sailed from Portsmouth on Tuesday for Canada with the first portion of the discharged workmen from Government establishments who have accepted the Admiralty offer of a free passage to Canada. The number of emigrants on board was 391, viz., 175 men, 75 married women, 19 girls over 12 years of age, 113 children under 12, and 11 infants. On Thursday morning 130 discharged artisans from Woolwich Arsenal and Dockyard embarked in the Colonial Emigration Society's ship Dacia, in the Victoria Docks, for Quebec. Upwards of 2000 persons were assembled about the pier to see them off, a number of the Woolwich Relief Committee accompanied them up the river.

THE POOR-LAW BOARD AND LONDON PAUPERISM.—A deputation of guardians from the parish of Clerkenwell, appointed by a public meeting of ratepayers, had an interview with Mr. Goschen on Wednesday to state that they did not desire to be included in the projected union, for Poor-law purposes, of Holborn, Clerkenwell, and St. Luke's. Mr. Goschen, in reply, said that Clerkenwell and other parishes wanted to be "left alone." But it was his duty to look at the danger of leaving them alone, for pauperism was increasing at the rate of 45 per cent. in three years, and though guardians held to the opinion that they were doing their work well, he had before him the fact that there was an enormous increase in the expenditure for pauperism. He would not undertake the responsibility of leaving the guardians alone after seeing this state of things, but he should use his best endeavours to keep down the expenditure and the poor rates; and parishes must be prepared to give up something of their traditional systems if desirable reforms were to be carried out for the general good.

SOUTH METROPOLITAN DISTRICT ASYLUM FOR THE IMBECILE POOR.—The foundation-stone of the new asylum at Caterham was laid on Wednesday by Dr. Brewer, the chairman of the Board, in the presence of Lord William Lennox, Sir J. J. Hamilton, Bart., Sir Walter Stirling, Bart., Mr. J. G. Talbot, M.P., several of the county magistrates, the members of the Board, and several members of the Metropolitan Board of Works. After the conclusion of the ceremony, the company, numbering 200 persons, were entertained at luncheon in the laundry of the new building, which will contain accommodation for 700 males and 860 females. The contract for the buiding has been taken at 83,677*l.*, but the total expenditure before the asylum is ready for occupation will be about 129,000*l.*

THE LATE FRAUDS ON THE CITY GAS COMPANY.—The case of Mr. Benjamin Higgs was brought before Mr. Justice Brett on Monday, with a view to determine who are the rightful owners of the property he has left behind. The Guarantee Society entered the premises at Teddington and sold a portion of the property; but in the meantime execution on the property had been obtained by a creditor named Kuhl. The sale was then stopped by the execution creditor, other claimants came forward, and eventually the sheriff took out an interpleader summons to know what was to be done with the property. Mr. Justice Brett barred the claims of others, and authorised the sheriff to resume the sale for the execution creditor.

FORGERY OF BANKERS' CHEQUES.—On Friday Sydney Webb, a clerk in the Provincial Bank in the Edgware Road, was charged at the Mansion House by the Bankers' Protection Association, with carrying on an extraordinary system of forging bankers' cheques. His career appears to have commenced some years since at Birmingham, where he was clerk to the Town and District Bank, by tracing off signatures of good cheques that passed through the bank, and then fabricating forgeries, which he managed to get cashed among the country banks through the agency of a confederate named Hobday. About two years since Hobday was sentenced to 12 months' imprisonment for uttering one of these forgeries. In the meanwhile Webb obtained another appointment in the Provincial Bank, where he carried on his malpractices on a more extended scale, and as soon as Hobday's term of imprisonment expired he brought him to London, and put him into practice on the metropolitan bankers. To what extent these forgeries were carried on is not at present known. Hobday was again captured on March 19, at Messrs. Barnetts and Hoares, the bankers, in Lombard Street, where he had uttered a forged cheque for 360*l.* For this he was convicted, and sentenced to seven years' penal servitude, and subsequently hearing that Webb had been to his lodging and possessed himself of a sum of money and other property from his trunk, he divulged the forgeries to the Bankers' Association, who have taken these proceedings against Webb. After hearing the evidence of the accomplice the case was remanded.

THE ENGLISH JOINT STOCK BANK.—The affairs of this Bank, which stopped on the same day as Overend and Gurney, became the subject of a criminal prosecution on Monday against the late manager, Mr. Samuel Greenway Finney, who was apprehended on Saturday evening at Queen-berry Lodge, Elstree, on a warrant granted by the Lord Mayor, on the charge of unlawfully issuing false balance-sheets and papers relative to the financial position of the bank, with intent to deceive the shareholders. The prosecution was instituted by Mr. Lambert, who had invested 4000*l.* in the bank, and who seemed to be supported in the proceedings by other shareholders. The solicitor said that the directors were as culpable as the manager, and the shareholders intended to apply for warrants to apprehend them on the same charge. It appeared that Mr. Finney had already given evidence in the Court of Chancery on the affairs of the bank, and that the prosecutors were making use of that evidence against him. The defence was that the proceedings have been taken to extort money. The case will occupy many days. Mr. Finney was admitted to bail on entering into securities for 3000*l.*

MURDER AND SUICIDE IN THE CITY.—A shocking tragedy occurred on Saturday afternoon in Fleet Lane, a small street running from the Old Bailey to Farringdon Street. A man named Tillett, a labourer employed at some gas-works, had been living for some years with a widow named Talien, by whom he had four children. This woman had the interest of 900*l.* left by her deceased husband to bring up three children, and as the man had had but little work of late, this money had been their chief means of subsistence. The eldest child of the woman was a lad about 12 years of age, who had just undergone seven days' imprisonment for cigar-stealing. His release from prison appears to have been made an excuse for drinking, and both the man and the woman were so intoxicated early in the afternoon that they went into their room to lie down. In an hour afterwards they were found dead on the bed, with their throats cut almost from ear to ear. It appeared that the woman had been murdered in her sleep, and that the man afterwards committed suicide. He had given expression to some jealous and revengeful feelings on the previous evening at the public-house which he frequented. The man was 60 years of age, and the woman 40 The jury at the inquest returned a verdict of "wilful murder and *felo-de-se*" against Tillett.

THE PUBLIC HEALTH. — The Registrar-General's Weekly Report states that in the week that ended on Saturday, April 17, 4727 births and 3516 deaths were registered in London and in 13 other large towns of the United Kingdom. The annual rate of mortality was 28 per 1000 persons living, being 26 per 1000 in London, 32 in Edinburgh, 31 in Dublin, 27 in Bristol, 21 in Birmingham, 27 in Liverpool, 26 in Manchester, 31 in Salford, 28 in Sheffield, 31 in Bradford, 24 in Leeds, 31 in Hull, 35 in Newcastle-upon-Tyne, and 44 in Glasgow. The rate in Vienna was 36 per 1000 during the week ending the 10th inst., and in Berlin 32 per 1000 during the seven days ending the 15th inst. In London the births of 1072 boys and 1085 girls, in all 2157 children, were registered in the week. In the corresponding weeks of 10 years 1859-68, the average number, corrected for increase of population, was 2187. The deaths registered in London during the week were 1595. It was the 15th week of the year, and the average number for that week, corrected for increase of population, was 1520. The present return, therefore, exceeded by 75 the estimated amount.

Provincial.

BRISTOL.—The convict Charles Wiltshire, who was condemned to death at the late Gloucester Assizes for the murder of Harriet Nurse, under circumstances of great atrocity, has been reprieved by the Home Secretary. This decision was arrived at in consequence of the medical evidence given at the trial, and in compliance with a memorial from ten of the jury, in which the Judge entirely agreed.

BURSLEM.—The Wedgwood Institute, designed to perpetuate in his native town the memory of the great potter, was inaugurated on Wednesday by Earl De Grey and Ripon.

CHESTER.—Mr. Bent, the attorney for James Macdonald, who was sentenced to death at the recent Assizes for the murder of James Nalley, at Marple, has received a letter from the Home Office intimating that the sentence will be commuted to penal servitude for life.

EXETER.—A fire broke out on the 12th inst. in a very large Gothic structure, intended for an Independent chapel, on Southernhay. The building was nearly completed, and was shortly to be opened for worship. The workmen were at dinner, and it is said they had left a fire burning in an upper room, by which the roof caught. The flames spread with great fury, and the various engines failed to subdue them until after the interior of the building and the roof had been destroyed. The loss to the contractors is serious.

FALMOUTH.—The Aura, one of the Waterford Steam Company's liners, was totally wrecked a few days since on the Manacles Rock. The vessel was one of a line of packets plying between London, Plymouth, and Waterford. She had been lying up for repairs at Plymouth, and was proceeding to Waterford in ballast when she struck on the rocks in a dense fog, and broke across the centre. The crew took to their boats, and arrived safely in this harbour on the following morning.

MANCHESTER.—The mayor of this city received an intimation from Mr. Robinson Fowler last week that he had resigned his office of stipendiary magistrate for Manchester. It appears that he had run away with the wife of a merchant and justice of the peace living in the same city, a lady who is the mother of seven children, and is said to be possessed of 100,000*l.* in her own right. Mr. Fowler is also married, and has children.

NORWICH.—The execution of William Sheward for the murder of his wife, Martha Sheward, in June, 1851, took place on Tuesday within the walls of the county gaol. The convict, who was suffering from rheumatism of the ankles, had to be carried by two warders to the drop, but when there he behaved with firmness and resignation. His struggles were slight and brief. There was a crowd of about 2000 persons outside the gaol, and an intimation that the extreme sentence of the law had been carried out was made by the hoisting of a large black flag. Incessant efforts were made by the friends of the convict to obtain a reprieve, and an application was also made to the Attorney-General for a writ of error. These efforts proved fruitless, both the Attorney-General and the Home Secretary declining to interfere. While these efforts were proceeding on his behalf the convict made a second confession. This statement, which was reduced to writing by the governor of the gaol, was made on the 13th inst., and was in the following terms:—

"City Gaol, Norwich, April 13, 1869, 2.45 P.M.—The Voluntary Confession of William Sheward, under Sentence of Death in the above Prison.—In the year 1849, November, I placed a box of money, having 400*l.* in it, in Mr. Christie's possession, for him to take care of for me. In the year 1850 and to June, 1851, I drew from that box 150*l.*, during which time my wife wanted me to bring the box home. Mr. Christie asked me if he might make use of the money. My wife seemed determined to fetch the box herself. I knew he could not give it to me. On the 14th of June, 1851, Mr. Christie asked me to go to Yarmouth to pay 1000*l.* to a captain of a vessel laden with salt, to enable him to unload on the Monday morning. On Sunday morning, the 15th, I was going to Yarmouth on the above errand. She (my wife) said 'You shall not go. I will go to Mr. Christie and get the box of money myself and bring it home.' With that a slight altercation occurred. Then I ran the razor into her throat. She never spoke after. I then covered an apron over her head and went to Yarmouth. I came home at night, and slept on the sofa down stairs. On the Monday I went to work; I left off at 4 o'clock and went home. The house began to smell very faint; with that I made a fire in the bedroom and commenced to mutilate the body. Kept on until half-past 9 P.M. I then took some portions of the body and threw it away, arriving home at half-past 10. That night slept on the sofa again. Went to work again the next day; went home in the afternoon about 4 o'clock, and did the same. The same night, again. On Wednesday went to work as usual; left off early, and went home. Carried some more portions in a pail basket to another part of the city. Thursday.—Work same, and returned early. The head had been previously put in a saucepan and put on the fire, to keep the stench away. I then broke it up and distributed it about Thorpe; came home and emptied the pail in the 'cockey' in Bishopgate Street, with the entrails, &c. I then put the hands and feet into the same saucepan, in hopes they might boil to pieces. On Friday I went to work, and went home early and disposed of all the remains of the body, hands, and feet included, that night, because I knew I should not be able to be home on Saturday until late. On Sunday morning I burnt all the sheets, nightgown, pillow cases, and bedtick, and all that had any blood about them. The blankets, where there was any blood, I cut in small pieces, and distributed them about the city, and made off with anything that had any appearance of blood about them. The long hair, on my return from Thorpe, I cut with a pair of scissors into small pieces, and they blew away as I walked along. I also state I never saw or knew my present wife until June 21, 1852, 12 months after the occurrence. I hereby give authority to place the above facts to the Home Secrerary and Baron Pigott; but I request that this may not be published at present. Taken in the presence of the undersigned, this 13th day of April, 1869. WILLIAM SHEWARD." J. GODWIN JOHNSON, Visiting Magistrate. ROBERT WADE, Chaplain of the Norwich City Gaol. JOHN HOWARTH, Governor of the said Gaol.

OLDHAM.—The new Adelphi Music Hall, in Union Street, which was opened a few months ago by the Oldham Philharmonic Society, fell in on Monday morning, and has become a complete wreck. Friday night was fixed for the benefit of one of the *artistes* engaged, and as it was expected there would be a crowded house on the occasion, and it having been ascertained by an examination that morning that the building was unsafe, the managers decided not to allow the performance to take place in the building, which was calculated to hold 2000 people. On Monday morning, while the lessee, Mr. Seal, and some others connected with the place, were in the orchestra collecting their music, the east wall gave unmistakable evidence of its unsoundness, and they rushed for the outside. They were only just in time, and Mr. Seal was struck on the head by some of the *débris*, but was not seriously hurt. The cause of this catastrophe was the undermining of the foundation while excavating for some adjoining buildings.

PORTSMOUTH. — A court-martial was held on Thursday for the trial of Lieutenant Carré, the commanding officer, and the officers and crew of the Ferret, brig, which was wrecked at Dover during the gale of Easter Monday, and to inquire into the loss of that ship. Lieutenant Carré's narrative of the circumstances attending the loss of the Ferret was put in and read, and, after several witnesses had been examined, the court honourably acquitted the officers and crew, at the same time complimenting them for their conduct on the occasion.

PRESTON.—The number of spinners, piecers, and creelers now on the books of the Operative Spinners and Miners' Association is about 1100, and of weavers on the books of their union from 4000 to 5000. These are all now receiving what is called "strike" pay, the union weavers receiving 5*s.* 6*d.* each and the non-union hands 4*s.* each. It is believed, however, that the struggle is slowly dying out. The masters, who are running their mills wholly or partially, are doing so at a reduction of 5 or 10 per cent., and have all as many hands as they want. The establishments now stopped, with the exception of 10 or 12 that were closed long before the strike from badness of trade or other causes, remain closed until there is a revival of trade.

RIPON.—The Bishop of Ripon has inhibited the Rev. A. H. Mackonochie from preaching in this diocese. This announcement was made at a meeting of the Leeds branch of the Church Union in Leeds on Tuesday evening, at which meeting Mr. Mackonochie was presented with an address of sympathy. He had been announced to preach to-morrow at one of the churches in Bradford, but the mandate of the Bishop will be obeyed, and therefore the expected sermon will not be delivered. — Immediately after the accident on the Ure which led to the death of Sir Charles Slingsby and other gentlemen a movement was begun to erect a monument to their memory. Upwards of 1000*l.* has been subscribed for the widow of the huntsman Orvis, and 400*l.* for the families of the two Warriners, the ferrymen. No step has yet been taken towards the erection of the monument beyond a general acquiescence in the proposal. Instead of a pyramid or obelisk, however, a North Riding magistrate has made a suggestion for a memorial bridge across the Ure, which should at once perpetuate the memory of the "last of

the Slingsbys" and his friends, and prevent the recurrence of any similar catastrophe.

Tintagel.—A fatal accident occurred on Wednesday evening at the Delabole Slate Quarries, on the north coast of Cornwall, about four miles from this place. Part of the machinery used for hoisting slate and *débris* fell to the bottom of the quarry, a distance of 250 feet, carrying with it the ground on which the machinery stood. Scores of men were working at the bottom of the pit at the time, 12 of whom were buried in the ruins. Eight were dug out alive, but six of them were frightfully injured. The others are supposed to be killed. A little girl who was standing close to the machinery when it fell was hurled from top to bottom, but escaped unhurt.

Wigan.—On Friday the number of deaths by the explosion at Highbrooks Colliery was increased to 36. At the inquest on Monday the jury returned a verdict that the explosion was in all probability caused by a blown-out shot. The list of those requiring relief includes 13 widows, 30 children, and six others, who were dependent upon the deceased for their support, thus making a total of 49. The amount of the fund at present is 4878*l.*, which will not be sufficient to provide for the necessities of the sufferers by the first accident.

York.—An influential committee has been formed for the purpose of assisting the Rev. Charles Voysey, vicar of Healaugh, in his defence against the proceedings instituted against him by the Archbishop of York for the publication of a volume of sermons entitled "The Sling and the Stone," which, it is alleged, contains heretical and unsound teaching contrary to the doctrines of the Church. The case will be tried at York.

Ireland.

Prince Arthur, who received last week a cordial reception at Cashel and other places in Tipperary, left Thomastown Castle on Friday morning, and proceeded through a storm of rain to Lismore Castle, the seat of the Duke of Devonshire. The journey occupied five hours over a bleak mountainous road. The prince, in passing through Cahir and other intervening towns, was most warmly received by the inhabitants. In the evening a grand ball was given in his honour by the Duke of Devonshire. On Saturday a deputation from the inhabitants of the county of Waterford waited on the Prince and presented an address. On Monday the Prince visited Fermoy, and received an address from the inhabitants. He proceeded thence to Killarney, where he was received by Mr. James O'Connell, Bishop Moriarty, Mr. T. Gallway, J.P., representing Lord Castlerosse, and others, who presented an address. His Royal Highness remained at the Royal Victoria Hotel during his stay in Killarney, and on Monday visited Innisfallen, Glena Dinis, Muckross Abbey, and the Upper Lake by boat, lunched at the Queen's Cottage, Derrycunnighy, had tea at Glena Cottage, and returned to Killarney in the evening. On Wednesday the Prince visited Kenmare, and was received a mile outside of the town by a large number of the gentry of the district and the inhabitants of Kenmare, and a great number of the Lansdowne tenantry on horseback. He subsequently inspected the new Roman Catholic church, convent, and schools, through which he was conducted by Archdeacon O'Sullivan and the superioress, sister of the Lord Chancellor. On Thursday the Prince started for Valentia on a visit to the Knight of Kerry. Yesterday he paid a visit to the Anglo-American Company's telegraph offices, and sent a message to the Governor of Newfoundland, and received an answer in three minutes. He was to return to Killarney by Waterville, Glengariffe, and Kenmare.

Scotland.

Edinburgh University.—The Right Hon. John Inglis, Lord Justice-General of Scotland, was installed on Wednesday as Chancellor of the University of Edinburgh. Honorary degrees of Doctor of Divinity and Doctor of Laws were then conferred on several gentlemen distinguished in literature and science. The Chancellor delivered an address, in which he dwelt chiefly on the subject of university patronage, and on the position and prospects of the University of Edinburgh. In the evening the principal and professors held a *conversazione* in the college library, which was attended by about 1600 ladies and gentlemen.

Sporting.

The Oxford and American Boat-race.—The president of the Oxford University Boat Club (Mr. T. C. Tinné, of University College) has received a communication from Harvard College, United States, challenging the Oxonians to row a four-oared race from Putney to Mortlake in August next; and at a captain's meeting of the University Boat Club, held on Wednesday, it was unanimously agreed to accept the challenge.

Obituary.

The Earl of Fingall was found dead in his bed on Thursday morning. The deceased peer, Arthur James Plunkett, ninth Earl of Fingall, Baron Killeen, of Killeen Castle, county of Meath, in the peerage of Ireland, and Baron Fingall, of Woolhampton, Berks, in the peerage of the United Kingdom, was the only son of the eighth earl, by the only daughter of Mr. John Donelan, of Ballydonelan, Galway. He was born at Geneva in March, 1791, and consequently had only recently completed his 78th year. He represented Meath in the Liberal interest in the first two Parliaments of the reign of William IV., and succeeded to the honours of the Irish and British Peerage in 1836. He was for many years Lord-Lieutenant and Custos Rotulorum of the county of Meath, and one of the Visitors of the College of St. Patrick, Maynooth, and at one time a Lord-in-Waiting on her Majesty. He was nominated a Knight of the Order of St. Patrick in 1846, and was sworn a Privy Councillor in Ireland in 1834. He was one of the leading Roman Catholics of the last generation, and, in spite of having taken, together with his father, an active part in the struggle for Catholic Emancipation, he was always regarded as one of the Moderate party who adhered to Whig principles, and stood opposed to Ultramontane notions. He married in 1817 the only daughter of Mr. Elias Corbally, of Corbalton Hall, county of Meath, by whom he had two daughters and six sons. He is succeeded in the titles and estates by his eldest son, Arthur James, Lord Killeen, who was born at Naples in 1819, and who was for some years in the 8th Hussars, and served in the Crimea. He married in 1857 the daughter of M. Rio, of Paris, by whom he has issue.

Lord Fairfax died at Barnum's City Hotel, Baltimore, on the 14th inst., aged 40 years. The deceased, Charles Snowdon Fairfax, 10th Lord Fairfax, was born at Vaucleuse, Fairfax county, Virginia, in 1829, but for some years has resided in California, having served as Speaker of the House of Representatives of that State in 1854, and subsequently for five years as clerk of the Supreme Court of the same State. He was chairman of the California delegation to the Democratic National Convention which assembled in New York last July. He was thoroughly identified with the State of his adoption, and was well known and respected on the Pacific coast. He was collaterally related to Thomas, the sixth Baron Fairfax, who, having relinquished his English estates to his brother Robert, went over to America and settled on a plantation of more than a million of acres in Virginia, which he inherited from his mother, Catherine Colepepper, the daughter and heiress of Thomas Lord Colepepper, a title now extinct. He was the first person who employed George Washington as a surveyor. Robert Fairfax died in 1793, when the immense estate descended to the Rev. Bryan Fairfax, a second cousin, who became eighth baron. Charles Snowdon Fairfax, the subject of this notice, was the great-grandson of Rev. Bryan Fairfax, and succeeded to the title of Lord Fairfax in 1846—a title, however, which he never claimed, preferring to die, as he had lived, an American citizen. The peerage descends to his brother John, who resides in Maryland.

Sir Hugh Seymour Blane, Bart., of Blanefield, Ayrshire, and Culverlands, Berks, died on the 14th inst., at The Pastures, his seat in Derbyshire. He was the second son of Sir Gilbert Blane, M.D., one of the physicians of King George III., by the only daughter of Mr. A. Gardner. He entered the army at an early age, and served with the Scots Fusilier Guards at the battle of Waterloo. After attaining the rank of lieutenant-colonel, he retired from the service in 1831. He was born in 1795, and married in 1832 the daughter of Mr. John Armit, of Dublin, and succeeded his father as second baronet in 1834. He is succeeded by his eldest son, Colonel Seymour John Blane, who was born in 1833, and served with the Scots Fusilier Guards in the Crimean campaign, and was present at the battles of Balaklava and Inkerman, the siege of Sebastopol, and sortie on the 26th of October. In 1856 he exchanged into the 56th Foot, and in 1859 was appointed brigade-major of the Queen's troops in Calcutta, where he was military secretary and aide-de-camp to Lord Lawrence, the late Viceroy of India.

Judge Dobbs, senior judge of the Irish Landed Estates Court, died a few days since in London. He was appointed in 1857, under the viceroyalty of Lord Eglinton.

The Dowager Lady Farquhar died on Tuesday at her residence in Upper Grosvenor Street. She the mother of Sir Walter Rockliffe Farquhar, third baronet, and of Mrs. Grey, wife of the Hon. General Grey. She was the daughter of the Rev. Morton Rockliffe, of Woodford, Essex.

Wills.—The will of General Sir Arthur Benjamin Clifton, colonel of the 1st Dragoon Guards, has been sworn under 140,000*l.* personalty; Right Hon. Elizabeth Lowther, 45,000*l.*; Hon. Catherine Georgiana Brown, 1,000*l.*; Lady Gilbert, 3,000*l.*; Mr. Arthur Heathcote, of Durdans, Epsom, 16,000*l.*; Miss Anne Wells, of Norwich, 4,000*l.*; Mr. G. H. Lawrence, of Mossley Hill, Liverpool, 140,000*l.*; Mr. Wm. Rand, of Bradford, worsted spinner, 40,000*l.*

Markets.

COVENT GARDEN.—April 24.

The trade here has been somewhat livelier during the past week. Rough vegetables are a heavy trade just now, but Cauliflowers and spring Cabbages realise good prices. Broccoli is also in fair demand. Fine forced Figs are making their appearance, and are sold at from 2s. to 3s. each. Early Grapes and Strawberries, of which there are sufficient for the demand, are of better quality. New Potatos are coming in large quantities from Lisbon and Malta, and prices are low—8s. to 12s. per cwt. Flowers chiefly consist of Orchids, Mignonette, Cyclamens, Calla æthiopica, Cytisus racemosa, Lily of the Valley, Fuchsias, Wallflowers, Polyanthuses, German Stocks, Spiræa japonica, Cinerarias and Pelargoniums, Hydrangeas, and Anemones.

FRUIT.

Apples, per bushel, 5s to 10s	Pears, per doz., 12s
Grapes, per lb., 10s to 12s	Pine-apples, per lb., 8s to 12s
Kent Cobs, per lb., 1s to 1s 6d	Oranges, per 100, 4s to 12s
Lemons, per 100, 4s to 7s	Strawberries, per ounce, 1s to 2s
Melons, each, 2s to 4s	

VEGETABLES.

Artichokes, green, p. doz. 4s to 6s	Lettuces, p. score, 1s to 2s 6d
Beans, Kidney, p. 100, 2s to 3s	— French Cos, 8d to 10d each
Beet, per doz., 1s to 2s	Mint, per bunch, 1s to 1s 6d
Cabbages, per doz., 1s to 2s	Mushrooms, p. pott., 1s6d to 2s
Carrots, per bunch, 6d to 10d	Onions, per bushel, 16s
— new, do., 2s to 3s	Parsley, per bunch, 4d to 6d
Cauliflowers, Cornish, p. doz., 2s to 4s	Peas, green, p. quart, 6s to 8s
Celery, p. bund., 1s 6d to 2s 6d	Potatos, York Regents, p. ton, 100s to 150s
Cucumbers, each, 9d to 2s	— Flukes, do., 100s to 160s
Endive, per doz., 1s 6d to 2s	— new, 4d to 1s 6d p. lb.
Garlic and Shallots, per lb., 8d	Seakale, p. punn., 2s to 3s
Herbs, per bunch, 2d to 4d	Spinach, per bushel, 2s to 3s
Horse Radish, p. bund. 3s to 5s	Radishes, p. doz., 1s to 1s 6d
Leeks, per bunch, 4d to 6d	Turnips, new, p. bunch, 2s 6d

HAY.—Per Load of 36 Trusses.

Smithfield, Thursday, April 22.

Best Green Hay	— —	Clover, old ..	..120s to 132s
Prime Meadow Hay	115s to 120s	Inferior do. ..	..100 115
Inferior do. ..	..100 110	Prime new Clover..	— —
New do.	.. — —	Inferior do. ..	.. — —
Straw	.. 33 40	Charles James Easton.	

Cumberland Market, Thursday, April 22.

Sup. Meadow Hay	118s to 126s	Inferior Clover	..105s to 112s
Inferior do. ..	.. 98 110	New do.	.. — —
New do.	.. — —	Straw	.. 38 42
Superior Clover	..118 130	Joshua Baker.	

Whitechapel, Thursday, April 22.

Fine Meadow Hay	110s to 120s	Prime 1st cut Clover	120s to 130s
Inferior do. ..	.. 95 105	Inferior do. do. ..	100 110
Prime New Hay ..	— —	Prime 2d cut do...	— —
Inferior	.. — —	New Clover	— —
Straw	.. 30 34	Inferior do.	— —

COALS.—April 21.

West Hartley, 14s. 6d.; Holywell Main, 15s. 6d.; Walls End Haswell, 18s. 3d.; Walls End Hetton, 18s. 3d.; Walls End Hetton Lyons, 14s. 3d.; Brancepeth Cannel, 18s.

LEADENHALL POULTRY, &c.

Thursday, April 22.

	s. d.	s. d.		s. d.	s. d.
Geese .. each	.. — ..		Pigeons .. each	0 8	— 1 0
Goslings .. ,,	6 6	— 7 6	Tame Rabbits ,,	1 2	— 1 9
Turkeys .. ,,	.. — ..		Wild Rabbits ,,	0 9	— 1 0
Turkey pullets ,,	.. — ..		Wild Ducks .. ,,	.. — ..	
Ducks .. ,,	.. — ..		Pheasants .. ,,	.. — ..	
Ducklings .. ,,	4 0	— 5 0	Snipes .. ,,	.. — ..	
Surrey Fowls, couple,	9 0	— 14 0	Hares .. ,,	2 0	— 2 6
Do. chickens ,,	8 0	— 10 0	Plovers .. ,,	.. — ..	
Barn-door Fowls ,,	7 0	— 10 0	English Eggs, p. 100	7 0	— 7 6
Leverets .. each	2 6	— 4 0	Foreign do ,,	6 0	— 6 6

Fresh Butter, 1s. 2d. to 1s. 4d. per lb.; Plovers' eggs, 3s. per dozen.

ENGLISH WOOL.

The continuation of a number of small failures amongst spinners and dealers in the manufacturing districts has produced a great disinclination amongst buyers to enter into any transactions until they see more clearly how matters are going to turn; purchases have consequently been on a most limited scale, and rather in buyers' favour.

Current Prices of English Wool.	per lb.	s. d.	s. d.
Fleeces—Southdown hoggets	.. .. ..	1 4	to 1 5
Half-bred ditto ..	.. .. ..	1 4½	— 1 5
Kent Fleeces ..	.. .. ..	1 5	— 1 5
Southdown ewes and wethers		.. 1 4	— 1 4½
Leicester ditto	.. ..	1 1	— 1 5½
Sorts—Clothing ..	.. .. ..	1 0	— 1 8
Combing ..	.. .. ..	1 2	— 1 10

POTATOS.—Southwark, Monday, April 19.

During the past week the arrivals coastwise, by rail, and from abroad have been more than equal to the demand. Owing to the extreme heat of the greater part of the week the consumption fell off more than one-half, and prices are considerably lower. The following are this day's quotations:—York Regents, per ton, 60s. to 100s.; do. Flukes, 60s. to 120s.; Lincolnshire Regents, 60s. to 90s.; Dunbar and East Lothian do., 60s. to 120s.; Perth, Forfar, and Fife do., 60s. to 90s.; do. Rocks, 50s. to 60s.; French and Belgian Whites, 40s. to 60s.

HOPS.—Borough Market, April 23.

Messrs. Pattenden & Smith report the market steady, quotations being unchanged.

METROPOLITAN CATTLE MARKET.

Monday, April 19.

The number of Beasts is smaller, and more than half foreign; trade is brisk for choice qualities, but slow for second-rate, yet prices are higher for all kinds. The supply of Sheep is much smaller, and they are quickly disposed of at higher rates. Choice Lambs and Calves are also dearer. Our foreign supply consists of 2229 Beasts, 10,970 Sheep, and 94 Calves; from Scotland there are 102 Beasts; from Ireland, 40; from Norfolk and Suffolk, 800; and 480 from the Midland and Home Counties.

	s. d.	s. d.		s. d.	s. d.
Best Scots, Herefords, &c. ..	5 6	to 5 8	Best Long-wools ..	.. —	..
Best Shorthorns	5 2	— 5 4	Do. Shorn ..	5 2	to 5 6
2d quality Beasts	3 4	— 4 4	Ewes & 2d quality	.. —	..
Best Downs and Half-breds ..	.. —	..	Do. Shorn ..	4 2	— 4 8
Do. Shorn ..	5 6	— 5 10	Lambs	6 8	— 7 8
			Calves	3 8	— 5 10
			Pigs	3 4	— 5 4

Beasts, 3660; Sheep and Lambs, 26,130; Calves, 101; Pigs, 140.

Thursday, April 22.

The supply to-day is shorter than on this day week, and we have a ready sale at fully Monday's prices. The Lamb trade is very brisk, and a little dearer. Veal is also the turn dearer. The foreign supply is short, and consists of 235 Beasts, 750 Sheep, and 86 Calves.

	s. d.	s. d		s. d.	s. d.
Best Scots, Herefords, &c. ..	5 6	to 5 8	Best Long-wools ..	.. —	..
Best Shorthorns	5 2	— 5 4	Do. Shorn ..	5 2	to 5 6
2d quality Beasts	3 4	— 4 4	Ewes & 2d quality	.. —	..
Best Downs and Half-breds ..	.. —	..	Do. Shorn ..	4 2	— 4 8
Do. Shorn ..	5 6	— 5 10	Lambs	6 8	— 7 8
			Calves	3 8	— 5 10
			Pigs	3 4	— 5 4

Beasts, 680; Sheep and Lambs, 6890; Calves, 169; Pigs, —.

METROPOLITAN MEAT MARKET.—April 24.

Best Fresh Butter .. .. .. 16s. per dozen lb.
Second do. do... .. .. .. 14s. ,,
Small Pork, 4s. 8d. to 5s. 4d.; Large Pork, 4s. 0d. to 4s. 8d. per 8 lb.

MARK LANE.—Monday, April 19.

There was again a short supply of English Wheat to this morning's market, which was sold at a decline of 1s. per qr. upon the prices of this day se'nnight. There was a poor attendance, and very little demand for foreign Wheat; the few sales made were at a similar reduction. Barley met a slow sale. Beans and Peas were each 1s. per qr. cheaper. Oats were heavy, and inferior sorts brought rather less money. Flour was dull of sale.

Price per Imperial Quarter.	s. s.		s. s.
Wheat, Essex, Kent, Suffolk. White	42—46	Red.....	42—44
— — fine selected runs..do.	44—47	Red.....	45—46
— — Talavera.....	50—54		
— Norfolk	—	Red.....	—
— Foreign	40—60		
Barley, grind. & dist., 37s to 38s..Chev.	46—51	Malting ..	44—49
— Foreign..grinding and distilling	20—26	Malting ..	34—43
Oats, Essex and Suffolk	—		
— Scotch and Lincolnshire..Potato	25—33	Feed	—
— Irish .....Potato	30—32	Feed	23—28
— Foreign.....Poland and Brew	25—30	Feed	21—26
Rye.....	38—40	Foreign ..	—
Rye-meal, Foreign.....			
Beans, Mazagan....38s to 40s. ..Tick	42—43	Harrow ..	42—43
— Pigeon ....43s to 47s ..Winds.	—	Longpod..	—
— Foreign..Small	38—42	Egyptian..	35—36
Peas, White, Essex, and Kent..Boilers	40—42	Suffolk ..	40—43
— Maple 42s to 46s.....Grey	40—42	Foreign ..	37—40
Maize.....	—	Foreign ..	29—31
Flour, best marks delivered..per sack	39—43		
— 2d ditto.....ditto	28—40	Country..	28—40
— Foreign .....per barrel	23—37	Per sack..	30—40

Friday, April 23.

* The reports of the growing crops are very satisfactory from all quarters, from which no doubt millers and dealers look for a further decline, and we have to report for the past week a dull trade in the markets of the kingdom, resulting in a reduction of about 1s. per qr. in the value of home-grown and foreign Wheat. Excepting a little speculative movement in Beans at Liverpool, causing a recovery of 1s. per qr. in the value of this article, we find spring corn of all descriptions a difficult sale at receding prices. Flour moved off slowly, and quotations were against sellers to the extent of 6d. per barrel and 1s. per sack. The arrivals of grain and seed-laden vessels off the coast during the week consisted of 66 cargoes, of which, with those left over from last week, there remained for sale last night 39 cargoes. The trade in Wheat off the coast has been very limited, and prices show a further reduction of about 2s. per qr. Barley and Rye maintained late rates,

whilst Maize and Beans continued their downward course, being about 1s. per qr. cheaper. For forward shipment hardly any business transpired.

The arrivals of English grain this week are small, but fair of foreign. There was a poor attendance at this morning's market, and but little English Wheat on offer, which was cleared at Monday's quotations. Millers showed but little disposition to purchase foreign, and the sales made were at that day's quotations. Spring Corn of all descriptions was rather cheaper.

ARRIVALS FROM APRIL 17 TO APRIL 22, BOTH INCLUSIVE.

	Wheat.	Barley.	Oats.	Flour.
English ..	610 qrs.	1050 qrs.	— qrs.	— sks.
Irish	— ,,	— ,,	590 ,,	—
Foreign ..	24,500 ,,	7220 ,,	30,540 ,,	4210 ,, 2210 brls.
	25,110	8270	31,130	

LIVERPOOL, Tuesday, April 20.—The market was fairly attended. Wheat in limited demand, and prices are 1d. to 2d. per cental cheaper than on Friday. Flour very dull, and 1s. per barrel and sack cheaper. Beans, Oats, and Oatmeal without change. Indian Corn in small request, and fully 6d. per qr. lower than last market; round, 27s. 6d. to 27s. 9d.; new mixed, 27s. 9d. to 28s. 3d.

AVERAGES.

	Wheat.	Barley.	Oats.
March 6	48s10d	45s 6d	27s10d
— 20	47 9	45 0	27 3
— 27	46 5	43 8	27 1
April 3	46 4	44 1	26 9
— 10	47 0	44 6	26 5
— 17	46 8	44 6	27 7
Average ..	47 2	44 6	27 2

SEED MARKET

We have nothing new or important to report this week concerning the agricultural seed trade. Our season is now drawing to a close; the orders which come to hand are mostly for small quantities wanted for immediate use; the seed business is therefore getting every day more quiet, and until the consumptive demand has altogether ceased, we cannot expect much speculation in our market. There is a great deal more English Red Clover seed offering than was expected, and for this description there has consequently been a considerable decline in value. Of foreign Red the stocks now held in London are very light; the same can also be said of fine new Trefoil and White Clover seed; good new French Italian is very scarce, and prices have advanced 1s. to 2s. per cwt. French Sainfoin seed is in short supply, at higher rates. For white Mustard seed there is a brisk demand, and the little that is on offer is held at enhanced values. English Rapeseed is in fair request at the recent rise. Spring Tares are now very cheap. Canary and Hemp seed are both dearer. We have a good inquiry for Mangel and Lucerne seed. Home-grown Linseed is without alteration.

JOHN SHAW & SONS, 16, Water Lane.

WANTED, by a Gentleman residing in the suburbs of London, a respectable Married Couple, without family, the Man to act as HEAD GARDENER; he must have a good general knowledge of the profession, and will have two Men under him. The Woman to attend to the Lodge gate. Wages for the two, about 26s. per week, with free residence in the lodge.—Apply by letter, stating references, &c., addressed E., care of Messrs. Veitch & Sons, Royal Exotic Nursery, Chelsea, S.W.

Gardener.

WANTED, a GARDENER and his WIFE, without any children, to live in a Lodge, in Staffordshire. The Man must be a good Working Gardener, understand the Management of Vines and Orchard-house. The Wife will be required to attend to the Lodge Gate. Wages 20s. per week, rent free.—Y. Z., *Gardeners' Chronicle* Office, W.C.

WANTED IMMEDIATELY, in a London Nursery, a YOUNG MAN, well accustomed to Stove Plants.—Apply at DOLLICK'S, 344, Edgware Road, W.

WANTED, a YOUNG MAN, who has had some experience in Vegetable Growing, to take the Management of large Gardens, small Vinery, Cucumber House, and some Frames. One or more Men to assist when requisite. Good testimonials required.—Mr. S. ROBINSON, Shaw House, Melbourne, Derby.

WANTED IMMEDIATELY, a YOUNG MAN, who thoroughly understands Hard-wooded Propagating and general Greenhouse work. Must have unexceptionable references with regard to character and abilities. Wages, 20s. per week to begin with.—Apply to X. Y., Post Office, Norwich.

WANTED IMMEDIATELY, a YOUNG MAN, who has a thorough knowledge of the Sale and getting up of Plants for the London Markets. Liberal wages will be given to any persevering young Man who can produce satisfactory Testimonials as to sobriety, honesty, and integrity. No one need apply who has not been accustomed to the Market Trade.—Apply to F. BAKER, Plumstead Village, Kent.

WANTED, as WORKING GARDENER, a good practical Man, having a knowledge of Vines, Fruit, Melons, Cucumbers, Greenhouse, and Flower and Kitchen Gardening. Lad under him. Wife to undertake the Laundry.—Rev. W. HOMFREY, West Retford Rectory, Notts.

WANTED, 12 miles from London, a WORKING GARDENER, thoroughly competent to undertake Conservatory, Stove, and Cucumber-houses, Flower and Kitchen Gardens.—State wages required, age, married or single, length of time in last employ, and reference, to F. L., 133, Salisbury Square, E.C.

WANTED, near Dorking, an UNDER GARDENER. —Wages 16s. per week. A good cottage. Also Wife as LAUNDRESS.—Address C. W., Esq., Joldwynds, Dorking.

WANTED, as UNDER GARDENER, a steady, respectable married Man.—He must be able to put down Carpets, &c. No young children, as he would live in the lodge. Age about 30. Very comfortable situation.—Personal application to C. D., 2, Percy Place, Stamford Hill, N.

WANTED, in a Nursery, a good PROPAGATOR, who understands the Propagation of Bedding and other Hard-wooded Plants, and is make himself generally useful. Wages, 20s. per week.—Applications to be made to ISAAC MATTHEWS, Milton Nurseries, Stoke-on-Trent, Staffordshire.

WANTED IMMEDIATELY, a SHOPMAN for the Retail Seed Trade. He must be able to produce good testimonials as to ability and general good character. None others need apply.—Wood & Co., Barbourne Nurseries, Worcester.

WANT PLACES.—Letters to be Post Paid.

Gardeners and Under Gardeners.

WM. CUTBUSH AND SON beg to state that they have at all times on their books MEN of various qualifications, whose characters will bear the strictest inquiry. Any Gentleman making application would save time by clearly stating the duties to be undertaken, wages offered, &c., so that suitable Men may be selected.—Highgate Nurseries, London, N.

EXPERIENCED GARDENERS (or as GARDENER and BAILIFF), of various qualifications, recommended to Gentlemen.—Further particulars given on application to Messrs. E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

GARDENERS (EXPERIENCED).—JOSEPH MEREDITH, The Vineyard, Garston, near Liverpool, begs to intimate to Ladies and Gentlemen requiring the above that he has on his Register some excellent Men, for every class of situation, whom he can strongly recommend from his personal knowledge of them.

MR. WM. PAUL begs to announce that he has made arrangements by which he will be enabled in future to furnish Gentlemen with the NAMES, ADDRESSES, &c., of GARDENERS, and GARDENERS and BAILIFFS, of various qualifications, who are open to Engagements. The fullest particulars as to services required and wages given should be forwarded with application.—PAUL'S Nurseries, Waltham Cross, London, N.

To Gardeners and Bailiffs (Head, Foremen, or Under).

JAMES CARTER AND CO. having many applications for the above request that those WANTING SITUATIONS will send NAME, ADDRESS, and COPIES of TESTIMONIALS for ENTRY in their FREE REGISTER. Only those who can send unquestionable references need apply.

Any Lady or Gentleman requiring GARDENERS or BAILIFFS may rely upon J. CARTER & Co. adopting the most stringent regulations in reference to testimonials as to ability, honesty, &c.

JAMES CARTER & Co., 237 and 238, High Holborn, London, W.C.

GARDENER (HEAD).—Age 40, married; thoroughly practical in all branches. Nearly six years in present situation, and ten years in previous one. Testimonials and references good.—T. E., Hooton Pagnell, Doncaster, Yorkshire.

GARDENER (HEAD).—Married, two children; thoroughly understands the profession in all its branches. Four years' good character from last Employer.—J. E., Post Office, Worplesdon, near Guildford.

GARDENER (HEAD).—Age 30, married; has a thorough knowledge of Vines, Melons, and Cucumbers, Kitchen and Flower Gardening, and Early and Late Forcing.—J. S., Post Office, Enfield, N.

To Noblemen and Gentlemen.

GARDENER (HEAD), where good general practical Gardening is required.—Middle-aged, married, no incumbrance; thoroughly experienced.—G. H., Messrs. Rollisson & Son's, The Nurseries, Tooting, Surrey.

GARDENER (HEAD).—HENRY YOUELL, late of the firm of Youell & Co., Royal Nurseries, Great Yarmouth, desires a situation as HEAD GARDENER in a large Establishment, or as SALESMAN or TRAVELLER in the Trade. Has had six years' experience on the Road.—1, Cerdic Terrace, Great Yarmouth.

GARDENER (HEAD).—Age 33; well qualified to take the entire Management of a Nobleman's or Gentleman's Establishment; thoroughly understands Pines, Grapes, Orchids, and Stove Plants. Unexceptionable character from present and previous employers.—A. B., Post Office, Hyde.

GARDENER (HEAD).—Age 36, married, no incumbrance; has a thorough practical knowledge of Gardening in all its branches, Early and Late Forcing of Vines, Fruits, Cucumbers and Melons, Ferns, Stove and Greenhouse Plants, Flower and Kitchen Gardening; also the Management of Land and Stock. Wife a good Dairy-woman. Six years' character.—S. OSBORN, Grove Road, Hounslow, W.

GARDENER (HEAD).—Age 29, single; is at liberty to treat with any Nobleman, Lady, or Gentleman requiring the service of a thorough practical Gardener. The highest testimonials from late employer. Practical experience in very extensive Gardens of Noblemen and Gentlemen in whose service he has been, and to whom he can refer. To save trouble, no single-handed place accepted. —E. C., Gardens, J. Brand, Esq., Bedford Hill, Balham, Surrey, S.W.

GARDENER (HEAD), or GENERAL MANAGER of an Estate.—Any Nobleman or Gentleman in want of a confidential Person, would find a trustworthy Servant in the Advertiser. Can conduct a Rent Audit, and transact the general business of an Estate.—AUDI, VIDI, TACE, 30, Brewer Street, Regent Street, London.

GARDENER (HEAD), or GARDENER and FORESTER (no objection to Ireland).—RICHARD COOKE begs respectfully to offer his services to any Nobleman or Gentleman requiring a first-class practical Man in the above capacity. Has had considerable experience in the Building, Heating, &c., of Horticultural Buildings, also in the Formation of new places and Managing old. Five years' reference from last employer. — RICHARD COOKE, Queen Street, Burton-on-Trent.

GARDENER (HEAD, or good SINGLE-HANDED).—Age 25, married; thoroughly understands Stove and Greenhouse Plants, Forcing, Flower and Kitchen Gardening, &c. Good references.—J. C., 2, Hinton Villas, Loughborough Park, East Brixton, S.

GARDENER (HEAD, or good SINGLE-HANDED).—Age 30, married, one child; thoroughly understands the Forcing of Vines, Peaches, Melons, Stove and Greenhouse Plants, and Flower and Kitchen Gardening. Two years' good reference.—W. F., 16, Railway Terrace, Ladywell, Lewisham, S.E.

GARDENER (HEAD, WORKING).—Age 30, married, no children; has a thorough practical knowledge of Gardening, Vines, Fruits, Greenhouse, and Flower and Kitchen Gardening in all its branches, also Cucumbers, Melons, and Mushrooms. Has been 13 years in last place, from which he can be well recommended by W. R. SEYMOUR, Esq., Crowood, Hungerford.

GARDENER (HEAD), where one or more are kept.—Age 28, married, no incumbrance; first-class testimonials.—D. S., Mr. J. Ley, Nurseryman, Croydon, S.

GARDENER (HEAD), where one or two are kept.—Married, no incumbrance; understands Kitchen Gardening, Greenhouses, &c. Good character from last place.—H. H., 12, New Street, St. John's Wood, N.W.

GARDENER.—Married, no incumbrance; a steady, persevering, practical Man in all branches of the profession.—H. S., Elstree, Edgware, Herts, N.W.

GARDENER.—Age 31, married, one child; thoroughly understands Vines, Stove and Greenhouse Plants, Early and Late Forcing, and Flower and Kitchen Gardening. Excellent testimonials. State terms.—J. M., 36, Culford Road, N.

GARDENER, or as Kitchen Gardener in a Gentleman's large Establishment, or Single-handed.—Age 33, married, no incumbrance; understands the Culture of Bedding Plants; willing to be useful. Good character.—A. B., H. Matthews, Alvediston, Wilts.

To Noblemen and Gentlemen.

GARDENER.—JOSEPH FORSEY, practising as Gardener his whole time since leaving school, with pleasure and research, and for nearly the last seven years working and studying throughout the various departments of the noble and well-kept gardens of the Right Hon. Lady Rolle, Bicton, Budleigh Salterton—under the instruction and direction of Mr. James Barnes, to whom J. F. has been principal directing Foreman the last four years. J. F.'s whole life's pedigree will bear the strictest scrutiny.—Address as above.

To Gentlemen and Nurserymen.

GARDENER, or CULTIVATOR of Soft-wooded Plants and Florist Flowers.—Age 31, married; over 10 years' experience in Scotland in the successful production of Flowers, Fruits, and Vegetables, Forced and otherwise. At present Soft-wood Cultivator to Messrs. Veitch & Sons, Royal Exotic Nursery, Chelsea. First-class testimonials.—W. SCOTT, 60, Ifield Road, Fulham Road, Brompton, S.W.

GARDENER (SINGLE-HANDED).—Age 30, married; no objection to a Cow. Two years' good character.—J. C., 12, Chestnut Grove, Twickenham Green, S.W.

GARDENER, where two or three are kept, or as SECOND, in a large Establishment.—Mr. H. JONES, Gardener, Park Hatch, Godalming, can recommend a steady industrious Man (age 28, single); also a Youth, age 18, as IMPROVER.

GARDENER (SECOND).—Age 23; thorough knowledge of Forcing Vines, Peaches, Melons, Cucumbers, and Stove and Greenhouse Plants. Three and a half years' good character from last place.—T. J., 346, Caledonian Road, Islington, London, N.

GARDENER (UNDER, or IMPROVER), in the Houses.—Age 22; two years' good character from last situation.—C. B., Bowden Park, near Chippenham, Wilts.

GARDENER (UNDER), where he can get a good insight into House work.—Age 19; three and a half years' experience. Good character.—J. K., 3, Humo Place, Clapham, Surrey, S.

GARDENER (UNDER), or to assist in a Nursery.—Four years' character.—C. W., Mr. Taylor, Bookseller, Stanmore, Middlesex.

To Nurserymen and Gentlemen.

GARDENER (UNDER), either in a Nursery or Gentleman's Garden.—Age 18; has been in a Nursery for some time. Good reference.—A. S. H., Post Office, Glastonbury.

GARDENER (UNDER), where he can obtain a good knowledge of the profession.—A respectable Young Man.—Address, stating particulars, J. F. L., Post Office, Shooter's Hill Road, Blackheath, Kent, S.E.

IMPROVER, under a Foreman, in a Nobleman's or Gentleman's Garden, where Gardening is carried on in all its branches.—Age 24; well acquainted with Glass. Two years' good character as to ability, &c.—Address NOAH PRITCHARD, The Gardens, Ebbw Vale Park, Newport.

To Head Gardeners.

IMPROVER, under an experienced Gardener.—Age 19; a small Premium given.—State particulars to H. T., The Gardens, Hampton Court, Leominster.

APPRENTICE, or IMPROVER, in a Gentleman's Garden.—Age 22; has partly filled up his time in the Garden for the last four years. A Premium would be paid if moderate wages were given.—J. ANDERSON, Gardener, Akechurch Rectory, near Redditch, Worcestershire.

FOREMAN, in a Nobleman's or Gentleman's Garden. —Age 25; understands Gardening in all its branches.—W. W., 20, Brook Lane, Chester.

FOREMAN.—Age 25, single; understands his profession. Can be highly recommended. Good character.—J. E., Post Office, Eaton, Norwich.

FOREMAN, in any Nobleman's or Gentleman's Garden.—Age 24; thoroughly understands the profession in all its branches. Good character.—A. B., 8, Little Silver, St. David's, Exeter.

FOREMAN, in a Nobleman's or Gentleman's Establishment, or SINGLE-HANDED.—Eight years' practical experience in Early and Late Forcing, Pruning, &c.—Address H. JAMES, Houghton, Huntingdon; as to character and ability, to T. TILBROOK, Gardener to P. Brown, Esq., Houghton, Huntingdon.

To Nurserymen.

PROPAGATOR, or PROPAGATOR and GROWER.—Has had many years' experience in Market Nurseries; thoroughly understands the work.—W. SEVERN, 2, John's Cottage, West Fields, Barnes, Surrey.

To Nurserymen.

PROPAGATOR (Soft-wooded).—Age 25; highly respectable, intelligent, and energetic; has a good knowledge of Plants generally. Has held the position of Foreman in a Nobleman's Establishment.—W. BAILEY, The Royal Nurseries, Slough, Bucks.

LAND STEWARD, GARDENER, STOCK MANAGER, and GENERAL IMPROVER.—In prime of life, married, one little boy, Protestants; practical in the above departments.—L. STEWARD, 7, Eden Quay, Dublin.

To the London Seed Trade.

ASSISTANT SHOPMAN, in a leading Firm.—A steady Young Man. Excellent character. Six years' experience in good places.—DELTA, 47, Woolcott Buildings, Redland, Bristol.

LAUNDRESS (experienced).—Age 35, no family; find own help if required. Husband willing to make himself generally useful. Good testimonials.—LAUNDRESS, Grainsby Hall, Great Grimsby, Lincolnshire.

THE TEETH and BREATH.—"A good set of teeth ever insures favourable impressions, while their preservation is of the utmost importance to every individual, both as regards the general health by the proper mastication of food, and the consequent possession of pure and sweet breath. Among the various preparations offered for the teeth and gums, we could particularise ROWLANDS' ODONTO, or PEARL DENTIFRICE, as unrivalled for its excellence in purifying, embellishing, and preserving these important and attractive objects."—*Court Circular.*

WHEN the HAIR, through weakness, begins to fall off, or turn grey, no preparation will sooner arrest the progress of these evils, restore the ORIGINAL COLOUR, and produce a healthy and luxuriant growth, than Mrs. S. A. ALLEN'S WORLD'S HAIR RESTORER. It is simple in its application, requiring no previous preparation of the hair; its perfume is agreeable, and no pomade or hair oil is required with it. In large bottles, 6s., of chemists and perfumers.
Depot, 263, High Holborn, London.

DINNEFORD'S FLUID MAGNESIA.—The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion; and the best mild aperient for delicate constitutions, especially adapted for Ladies, Children, and Infants.
DINNEFORD & Co., 172, New Bond Street, London; and of all Chemists throughout the World.

CORNS and BUNIONS.—A Gentleman, many years tormented with Corns, will be happy to afford others the information by which he obtained their complete removal in a short period, without pain or any inconvenience.—Forward address on a stamped envelope to F. KINGSTON, Esq., Ware, Herts.

In the Spring
PARR'S LIFE PILLS
ARE USED BY THOUSANDS.
They clear from the body all hurtful impurities, and there is no medicine has such deserved repute for preserving regularity, and consequently insuring long life.

BILIOUS and LIVER COMPLAINTS, Indigestion, Sick Headache, Loss of Appetite, Drowsiness, Giddiness, Spasms, and all Disorders of the Stomach and Bowels, are quickly removed by that well-known remedy, FRAMPTON'S PILL of HEALTH. They unite the recommendation of a mild operation with the most successful effect; and where an aperient is required nothing can be better adapted.
Sold by all Medicine Vendors, at 1s. 1½d. and 2s. 9d. the box; or obtained through any Chemist.

The Best Remedy for Indigestion.

NORTON'S CAMOMILE PILLS are confidently recommended as a simple but certain remedy for indigestion. They act as a powerful Tonic and general Aperient; are mild in their operation; safe under any circumstances; and thousands of persons can now bear testimony to the benefits to be derived from their use. Sold in bottles at 1s. 1½d., 2s. 9d., and 11s. each, in every town in the Kingdom. CAUTION.—Be sure to ask for "NORTON'S PILLS," and do not be persuaded to purchase the various imitations.

ELECTRICITY IS LIFE.
SELF-ADJUSTING CURATIVE and ELECTRIC BELT.
Sufferers from nervous debility, indigestion, weakness, &c., can now cure themselves by the only "Guaranteed Remedy" in Europe, protected by Her Majesty's Great Seal.
Free for One Stamp, by H. JAMES, Esq., Medical Electrician (to the London Hospitals), Percy House, Bedford Square, London, W.C.
N.B.—Medicine and Fees superseded. A Test gratis. Send for details. Established 1840.

SUTTONS'
HOME-GROWN FARM SEEDS,
NEW AND UNADULTERATED,

CARRIAGE FREE.

THE BEST SWEDE IN CULTIVATION IS

SUTTONS' CHAMPION.



Price **1s.** per lb.; cheaper by the bushel. Lowest price per bushel on application. Carriage Free to any Railway Station.

Price **1s.** per lb.; cheaper by the bushel. Lowest price per bushel on application. Carriage Free to any Railway Station.

SUTTONS' CHAMPION SWEDE.

The hardiest, the most productive, and best shaped Purple-topped Swede in cultivation.

Price 1s. per lb

Lowest price for large quantities quoted on application.

This maintains its character as the best Swede in cultivation. It is a very large purple-topped yellow variety, perfectly hardy, and stores exceedingly well. It is of fine globular shape, and remarkable for its small neck, and freedom from coarse roots. It has taken for seven successive years His late Royal Highness the Prince Consort's Prize Cups, of the value of 20 guineas each. These same cups were last year awarded at the meetings of the Royal East Berks and South Bucks Agricultural Societies to crops of our Champion Swede, and other improved varieties of Agricultural Roots. Numerous other Silver Cups have been awarded to crops of this Swede, while it almost invariably obtains the first prize for pulled roots. Some very fine roots, WEIGHING UPWARDS OF 16 POUNDS EACH, grown by one of our cumstomers in Ireland, and exhibited on our stand at the Smithfield Club Show in December last, attracted marked attention.

From GEO. RANSON, Esq., *Poplar House, Sproughton.*

April 21, 1868.—"I had this year 15 acres of your Champion Swede, the FINEST AND BEST grown in my neighbourhood. I am only now finishing them."

From J. ARNATT, Esq., *Manor House, Tingewick.*

April 16, 1868.—"I took several prizes last year with crops grown from your seed, and amongst them was a £10 prize for the best general crop. I think there is no better Swede than the Champion grown."

From A. M. WHARTON, Esq., *Gasthorpe Lodge.*

March 2, 1868.—"I believe you are aware this is a great seed district, particularly for Turnips, &c.; but your unrivalled Champion Swede is almost exclusively grown."

From J. C. MOORE STEVENS, Esq., *Winscott.*

April 2, 1868.—"I won a Ten-Guinea Silver Cup last year for Swedes grown from your Champion Seed."

From Messrs. DUKE & SON.

April 14, 1868.—"We grew some splendid Champion Swedes from the seed you sent us last year."

SUTTONS'
IMPROVED VARIETIES OF TURNIPS
FOR PRESENT SOWING.

SUTTONS' LINCOLNSHIRE-RED PARAGON.
SUTTONS' POMERANIAN WHITE GLOBE.
SUTTONS' PURPLE-TOP MAMMOTH.
SUTTONS' IMPERIAL GREEN GLOBE.
SUTTONS' IMPROVED GREEN TANKARD.
SUTTONS' EARLY SIX-WEEKS.

Lowest prices per bushel on application.

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SUTTONS' HOME-GROWN FARM SEEDS

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SUTTONS' FARMER'S YEAR BOOK
for 1869.

6*d.* post free, gratis to customers.

All Goods Carriage Free, except small parcels.

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UTTON AND SONS, SEED GROWERS, READING.

THE ROYAL SEEDSMEN.

James Carter & Co. Seed Growers

237, 238, and 261, HIGH HOLBORN, LONDON, W.C.

SEED FARMS:
JUPES HILL FARM, DEDHAM, ESSEX;
GOD'S HOUSE FARM, ST. OSYTH, ESSEX;
EAST HOUSE FARM, DEDHAM, ESSEX;
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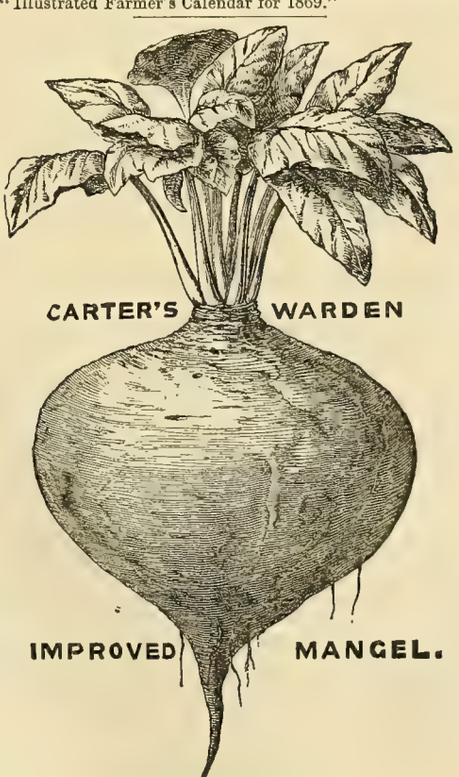
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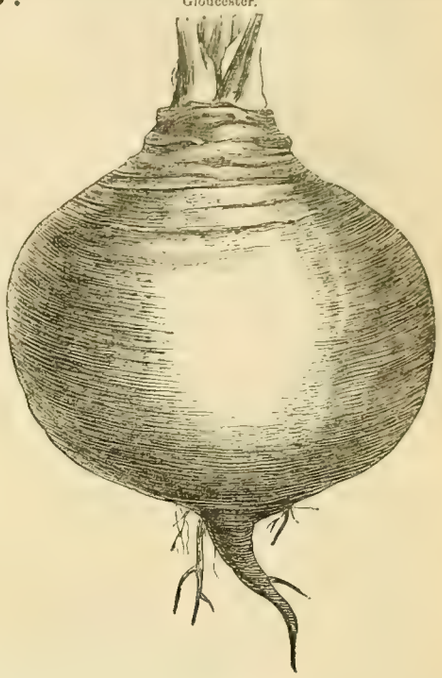
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MANCHESTER MEETING, 1869.

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MANCHESTER MEETING, 1869.

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12, Hanover Square, London, W.

The Agricultural Gazette.
SATURDAY, APRIL 24, 1869.

MEETING FOR THE ENSUING WEEK.
WEDNESDAY, April 28—Ayr Agricultural Spring Show.

SOME remarks which were incidentally made at the last monthly meeting of the Council of the Royal Agricultural Society deserve more attention than they are likely to attract. The Society has recently established examinations for testing the knowledge of those who mean to follow agriculture as a profession. As yet only two have been held. The results of the first were unsatisfactory, but this was mainly due to the defective arrangements of the examination itself. The second has only just terminated, and the report of the examiners has not been made. The examinations cannot possibly yet be said to have had a fair trial. It is astonishing, therefore, to read proposals for the appropriation to other purposes of the education grant, as if the whole scheme were

too radically bad to deserve even the little forbearance which would have been needed till the result of the second examination had been announced.

Nothing can be more disheartening than the way in which important questions of the greatest interest to the community are often settled without the community having any voice in the matter, or even knowing that they are under consideration. This is especially characteristic of English institutions. We are soanxious not to have enterprise cramped by centralised authority, that we run into the other extreme, and often allow it to be stifled by the inertness of private associations.

Now, the Royal Agricultural Society of England is such an association, but one of national magnitude. Though independent of Government control, it performs work which, in any other country, would be done by a branch of the Government itself. It represents also the great body of farmers, and its leaders should be anxious not only to advance farming as a business, but to elevate it as a profession. To discontinue these examinations would be to fail in both.

Farming in England requires, more than any other subject of equal national importance, to be stimulated and aided by every kind of assistance that human intelligence can provide. Still more obvious is it that the new generation of farmers ought to be men whose training not only fits them to thoroughly understand the present position of their work, but also to extend and improve its methods. Beyond a certain point mere business-like habits do little to increase production; and to increase production is to increase national resources. To decline to test the knowledge of those who are to help hereafter to feed the country is to repudiate agricultural education altogether, in fact to withdraw it from the category of intelligent pursuits, as if it were only a little more complex than the unsophisticated practice of the West Indian negro, who scratches the ground and contentedly sows a few Pumpkin seeds. To give up these examinations, is, in an age like the present, to be guilty of an anachronism.

Still more inconsistent is it with the other proceedings of the Society itself. So anxious was this body when it recently elected a Secretary and Editor to get a man of scientific attainments that it entirely overlooked the desirability of his knowing something about farming as well. Could any arrangement be more perverse?—the Editor of the Society's Journal is to know nothing about the practical needs of farming, while the readers of the Journal are not to be encouraged to take advantage of scientific teaching. If the members of the Council really succeed in carrying out their apparently foregone conclusions, they may be congratulated on having done not a little to degrade farming as a profession, and something to impede national progress.

IT is now the best season for sowing the Sugar-Beet. No green crop can be easier grown. It will thrive anywhere, and with any regimen under which common Mangel Wurzel will flourish. Those who know how to grow common Mangel need no instruction in the growth of Sugar-Beet. The two may be treated exactly alike unless in the following particulars. The Beet should be sown on the flat surface instead of in ridges, and about as close again together as common Mangel. The roots should not exceed an average weight of 4 lb. each. The amount of sugar produced within the root is largely dependent upon its being wholly excluded from the light: and of course the plants are easier earthed up to the leaves when placed on the flat than when perched upon the crown of ridges. The seed should be drilled in rows about 18 inches apart, and the plants thinned out to an average distance in the rows of from 8 to 10 inches. Sugar-Beet will grow upon any soil; but it prefers a mixed soil, of a tilth 12 inches in depth. It succeeds admirably after a crop of Wheat or Barley. The stubble should have been deeply broken up as early as possible in the autumn, and farmyard manure applied at the rate of from 10 to 15 tons per acre; if rank or fresh it is better ploughed in at that time; if well rotted, it may be applied in the spring. Supplementary to this, or to supply any lack of it when it is scarce, from 2 to 3 cwt. of guano or nitrate of soda per acre may be deeply harrowed in previous to sowing the seed.

A fine tilth must be obtained. To ensure the greatest success, perfect pulverisation is needed. It is a dead loss of growing force as well as an act of cruelty to plants to make them perform the drudgery of smoothing down a bed for themselves, when plough, scarifier, and harrow would do the work better. With a fine seed-bed, and good seed of the white Silesian Beet, drilled in at the rate of 6 or 8 lb. per acre, a good plant is well nigh certain. Regularity of plant is the first step towards a good yield. Sugar-Beet will bear transplanting as well as, or better than, any other green crop. But it is always safer to have to destroy a dozen plants, because they are too thick, than to be obliged to transplant one from the crop being too thin. The Beet requires the usual attention in hand thinning, cleaning, &c. About the middle of August it should be earthed up right to the leaves, unless indeed the roots elect—which they do upon some soils—to bury themselves. By the middle or end of October the Beet crop should be harvested. The best implement for taking up the roots is a three-pronged fork, and care must be exercised not to break them, otherwise a considerable amount of sugar will ooze out with the sap. The yield per acre may be safely reckoned at 20 tons. There is no reason in the nature of the Sugar-Beet why the crop should not be nearly as heavy as that of the common Mangel. Though smaller, its substance seems more firmly compacted together, and, bulk for bulk, it is certainly the heavier of the two. Forty tons of the common Mangel have been grown per acre, and there seems no reason why the same high maximum should not be reached with Sugar-Beet.

The sugar maker prefers the roots to average 4 lb. a-piece. Last season's crop only averaged from a pound to a pound and a-half. The heaviest crop, 21 tons per acre, was obtained with roots of the latter weight. They stood apart 22 inches by 9, and there was abundant head room and plenty of root space to have doubled their weight and size as they grew. This would have made the crop 42 tons to the acre. It thus appears that an average of 30 tons per acre in an ordinary season seems reasonable and moderate. The cost of production slightly exceeds that of common Mangel. A few more pounds of seed per acre, an extra allowance for hoeing, the plants being more numerous—and a shilling or two extra for harvesting, the roots being deeper in the ground—exhausts the list of extras. The entire cost of growing Sugar-Beet, including rent of land, cultivation, manure, and harvesting, and allowing no drawback for the unexhausted manure, nor its benefit to the succeeding grain crop, has been carefully calculated by the largest grower at 9*l.* per acre. Another grower makes it amount to 11*l.* Allowing, say 2*l.* more for carting to the factory, we reach a total outlay of 13*l.* per acre.

The price given for the roots is 1*l.* per ton. It follows that very large profits are within reach of the growers of Sugar-Beet. If the crop averages 30 tons per acre, 17*l.* is netted by it; if 25 tons, 12*l.*; and so on.

Comment upon these figures would only weaken their force. If farmers can better such returns from other crops of course they will do so; if not, they will doubtless turn their attention to sugar farming. And we may add facts to show that if they do so, we need fear no doubt of roast beef. One Lavenham farmer delivered 100 tons of Sugar-Beet to the factory, and he took back to his farm no less than 70 tons—67 of these were cattle food, the other 3 being Beet manure. The trimmings and pulp are greedily devoured by all kinds of stock except calves. When kept covered up from the air the pulp keeps sweet and good for months, probably years. If left exposed, the upper layer decomposes, or forms a crust that preserves the mass underneath. So little water remains in the pulp that a ton of it measures about 60 bushels. This consists of the entire flesh-forming matter of the Beet, minus the water and a portion of the sugar. It is a sort of Beet bread. A bushel of pulp, with a pound or two of oilcake and a few handfuls of meal per day, have been found to fatten bullocks rapidly and well. There was some fear that the pulp might prove a drug on the hands of the sugar maker. At first the cattle sniffed at it, and turned up their nose, but no sooner did it enter their heads that they were expected to eat it than they did so with a will, and asked for more. Now there is but one regret throughout the district—that the supply was so limited.

—— THE corn trade has been pursued at a further decline in prices. Wheat is 1*s.* to 2*s.* per quarter cheaper, and other grain has similarly fallen in value. ——The live stock and meat trade has on the contrary been in a highly animated condition. A moderate supply on Monday, when all good and fair qualities were rapidly bought up, was followed on Thursday by only 680 beasts in the market. Quotations are accordingly high, 6*s.* 10*d.* being the top figure. Mutton, lamb, pork, and veal are also dearer. The short crops of feed last autumn are now telling on supplies.——The season is nearly over for agricultural seeds.

—— A serious case of importing sheep diseased with small-pox was brought before the House of Commons on Thursday evening, by a question put by Lord ROBERT MONTAGU to Mr. W. E. FORSTER. Two cargoes had arrived from Antwerp—one at London, and the other at Harwich—in both of which the Government were informed that one or two sheep were infected with small-pox. According to the report of Professor SYMONDS, the latter cargo included 351 sheep, of which three were found to be suffering from sheep-pox. This fact was discovered, not only before the sheep had left the wharf, but before there was any possibility of their having any communication with other sheep. Steps were taken for the slaughter of the sheep, and orders were given that the wharf was not to be used until it was thoroughly disinfected. The same course was pursued with regard to the cargo that had arrived in London, which included no less than 1150 sheep, 22 being suspected of infection, and one or two unmistakably diseased. After a full explanation of the prompt and secure measures the Government had adopted for preventing the spread of the disease, Mr. FORSTER made the following remarkable statement:—"There was reason to believe that both the cargoes came from the same party at Antwerp, and were consigned to the same person in this country, but that they had been separated with the intent that they could be more easily landed and evade discovery."

—— The 1st prize in the polled heifer class of the Highland Society's Show at Aberdeen last year has not gone to the owner of the animal for which it was then awarded. The disqualification consists in the heifer not proving to be in calf. Mr. SKINNER, of Drumin, who exhibited her, subsequently sold her to Mr. M'COMBIE for 150 guineas. The 1st prize now goes to the Earl of SOUTHESK's heifer, which was placed 2d, and has "qualified," according to this proper rule of the Highland Society.

—— The entry of implements for exhibition at the Manchester meeting of the Royal Agricultural Society will close, we may remind our readers, on Saturday next, May 1.

—— An important seed case, of which the following is an abstract, was recently tried in the Sheriff's Court at Haddington:—"Mr. JOHN REID, jun., farmer, Hilton of Aldie, Kinross-shire, sued Messrs. ROUGHEAD & PARK, seed merchants, Haddington, for 100*l.* damages, on the ground that a quantity of Grass seed purchased by him in 1865 as perennial failed to produce a second year's crop, and must have been annual seed. A great deal of evidence was led on both sides, the witnesses being seedsmen, practical farmers, Grass seed growers, and practical botanists. For the pursuer, it was contended that there were two distinct varieties of the Rye-grass plant, an annual and perennial, as deponed to by a great number of witnesses; that the land on which he sowed the seed was in good condition and well prepared; and that a portion of the field sown with different seed produced a second year's crop. On the other hand, the defenders pleaded that the land was in poor condition; that according to scientific evidence there was no such thing as an annual Rye-grass, that being merely a trade term for the lighter kinds of seed; and that the seed supplied was from a bin from which they had supplied their perennial seed that year to numerous customers, without failure in any case except that of the pursuer. The Sheriff-Substitute has decided in favour of the defender, assessing the pursuer in expenses.

—— A metropolitan salesman was accused on Thursday last of having "cruelly tortured" 10 sheep by exposing them for sale in a newly shorn condition, in the Metropolitan Cattle Market, on the 29th of last March. These proceedings were taken by the Royal Society for the Prevention of Cruelty to Animals, against Mr. JOHN CONDON, and the police-court was crowded with his brother meat and cattle salesmen, who were anxious to hear the magistrate's decision. Mr. ELLISON, in giving judgment, said:—If cruelty had been committed, it had been done not only in the sending of the sheep from the country in the state they were, but in the exposing. He should be very glad if his decision were to be appealed from, but he should now fine the defendant 5*s.*, and 2*s.* costs, or, in default, five days' imprisonment in the House of Correction.

OUR LIVE STOCK.

THE SIDDINGTON HERD.—Mr. Bowley's sale, last Thursday, was eminently successful. A large company assembled to witness the proceedings, and among them many well-known breeders. Lord Dunmore's spirited bidding for the "Siddingtons" raised the average of the female section of the herd to a figure rarely attained even in Shorthorn sales. Mr. Bowley's general average suffered from the low prices obtained for the bulls. Thus while the heifers and cows made the astonishingly high average of 93*l.* 19*s.* 1*d.*, that of the bulls was only 35*l.* 5*s.* 9*d.* The three Siddingtons all became the property of Lord Dunmore, *Siddington* fetching 260 gs., *Siddington 4th* 400 gs., and *Siddington 6th* 360 gs. *Musicals* 12*th* and 14*th* made respectively 100 gs. and 105 gs, the first being bought by Lord Dunmore, and the second by Lord Fitzhardinge. We hope to give a complete price list next week. The average over the entire 39 animals disposed of was 72*l.* 16*s.*, the highest that has been reached since the Milcote sale last year, when 48 animals realised 75*l.* 4*s.* 7*d.* each.

—— On Friday, May 7, an important sale of high-bred Shorthorns will take place at Wicken Park, near Stony Stratford. Thirty-three females and 17 bulls, from the well known Penrhyn Castle and Wicken herds, will be

disposed of by Mr. Strafford; and judging from the established reputation of many of the families to be represented, we may expect to see a good company and fair prices. Most of the strains of blood to be found at the two establishments above named have a place in the sale catalogue, among which may be noticed some members of the Wild Eyes sort, of Kirklevington origin; the Darlingtons, descended from Mr. Sainsbury's well known tribe of the same name; individuals of the *Moss Rose* by Emperor (1974) family, and of Mr. Benjamin Wilson's Certainty tribe. A contemporary, speaking of the Darlingtons, says:—"The females of this line are six in number, of which perhaps *Darlington 12th*, splendidly bred, got by Duke of Geneva (19,614), will be considered the best. *Darlington 14th* is a neat, thick-ribbed, level heifer, two years old last July; *Darlington 15th* is not so good, but is still a good one; and *Darlington 17th* is a very promising yearling, by 11th Grand Duke (21,819). The Wild Eyes family appear under the name of Grand Duchesses, comprising *Grand Duchess*, calved in 1858, and her five daughters and grand-daughters. The old cow was bred by Mr. Bell, of Bickerstaffe, and was the produce of *Wildair*, by Santiago (12,047), and Cherry Duke 2d (11,265). Her grandmother was *Wild Eyes 8th*, by Duke of Northumberland (1940), and previous to this we find the famous Belvedere cross. The breeding of this family is, therefore, unexceptionable on the female side, and we think it cannot have suffered from the use of such bulls as Duke of Geneva (19,614) and 11th Grand Duke (21,819). *Grand Duchess of Wales*, got by the last-named bull, and from *Grand Duchess 3d*, by Duke of Geneva, is spoken of by those who have seen her as a very admirable heifer."

Sheep.—Not long since the *Agricultural Gazette* reported a paper on Sheep Management, by a Cornish farmer, containing a favourable account of a Shropshire flock. To-day we have to speak of the same breed of sheep in Yorkshire. Not the least valuable quality of these valuable animals is their ubiquity. They can hardly be placed out of their element, and will thrive well on poor light land. The home farm at Escrick (Lord Wenlock's) consists of some 200 acres of light sandy land, and the park about 850 acres more, part sand and part clay, recently drained, and useful, though by no means high class grass-land. The arable land is almost too light for Wheat, which is seldom grown. Swedes rarely do well. In a dripping season a fair bulk can be grown, but the quality is inferior, and they do not keep, becoming tough and woolly towards spring. Early and late Turnips do better; Mangel is found most reliable, and a large area are grown; last year the crops turned out remarkably well—the 30 acres yielding over 600 cartloads, one-third of which remain unconsumed at this time; so that, while scarcity of keep is the general cry, there is plenty at Escrick, and the result has been a full complement of fat beasts and a thriving flock. The extreme mildness of the winter has been here, as elsewhere, most favourable, since the flock lived at comparatively little cost. The ewes, 200 in number, found much picking on the grass-land, and, with the help of a little chaff (two-thirds straw and one-third hay), and about ½ lb. a-day of artificial food—palm-nut meal and decorticated cotton-cake—kept themselves in excellent condition, and have produced strong healthy progeny, at the rate of nearly three lambs to two ewes. The Shropshires are proverbial for fecundity. As soon as the lambs are sufficiently advanced, they are supplied with some hard meat, just to keep them moving on, not to force them. A few ram lambs are reserved for breeding purposes, as there is an increasing demand for them in the neighbourhood for crossing with Longwools. The sheep principally cultivated are a variety of Leicester, and the first cross make superior feeding sheep. For this purpose lambs are as much in favour as shearlings, and the prices obtained are very moderate, ranging from 3 to 10 gs. The remainder of the lambs are summered in the park, and not forced in any way. If roots are sufficiently abundant, they are folded on the ploughed land in winter, and are slaughtered during the second summer, when they kill from 18 to 25 lb. a quarter. The land is too poor to mature early or produce great weights, they might be made heavier by more forcing treatment, but over-ripe meat is objected to. The ewes are drafted with care, and though not on so large a scale as some of the home-breds, are matchy and of good quality. The type of feature is rather of the dark brown than the black. Rams from Messrs. Crane, H. Smith, Horton, Price Bowen and Mansell have been latterly used. The Leicester 2d prize shearling, belonging to the last-named breeder, was hired last year, and has produced some promising lambs. A son of "The Duke of Kent," from Harnage Grange, used the previous year, has also made his mark.

AGRICULTURAL SHOWS.

[At the annual meeting of the Royal Dublin Society, to which reference was made in our columns last week, Lord Spencer, the Lord-Lieutenant of Ireland, made the following speech.]

I have not very lately had the advantage of seeing one of the Royal Agricultural shows in England, but I have been at many shows of stock in England, and I have rarely seen such a fine collection of stock as I have seen in your yard during the last two days. I was challenged, when I last had the honour of occupying this chair, by my friend the secretary; and I, perhaps rather rashly for myself, accepted that challenge, and said that I would undertake to show some stock here at the show. I cannot say that I repent having accepted that challenge, though I am afraid my stock cut a poor figure in comparison with many that I saw in the yard. I hope that in some respects they did not do dishonour to a name that once was high in the Shorthorn way in England. I will not be discouraged, but I hope in the autumn to have another trial against the Irish breeders—not this time in cattle, but I hope to be able to show an English horse, and I really think that in this instance I shall not so easily meet with defeat.

Now, with regard to this show, I may be allowed to say that I think it is one of very great excellence. I think it a very remarkable thing to see such a large number of young stock brought together as was brought together of that class which has been more than once alluded to, and in such an excellent manner, by Lord Talbot—I mean the stock of young bulls. I think it a very remarkable thing to see 121 animals in the class of yearling bulls brought together, all of the highest breed of Shorthorns. I cannot conceive any better method of encouraging the breeding of stock in this country than to bring together, at this time of the year, this number of young animals, to enable the farmers of every part of the country to select stock from which they are to breed their cattle; and not only that, but to be able, at the same time, to fill their eye with the best form of cattle that can be brought from any part of the country. I believe that to be of the very greatest possible importance. Now, it has been said that those who give very high prices for cattle are doing a very ridiculous thing; but I venture to say the money they thus lay out is well laid out, for, though they may give prices which never bring a return to them, they have the satisfaction of feeling that by getting the best stock together they are improving the breed of cattle throughout the country; and what we want is to get, as I think, Mr. Maunsell described it, the best possible form, the highest degree of excellence. We want early maturity in our cattle. We want on the compactest form to get the best meat, with animals that do not require pampering or very high feeding. I believe that those who have studied the breed of cattle have done much to effect this object. A friend of mine in Gloucestershire told me a few years ago that he had given a fabulous price for one or two animals. I visited his yard, and I know his wife laughed at him, pointing out to me what she called "the golden calf"—an animal he had given 500 or 600 guineas for when a few weeks old; but I remember his telling me that all the farmers in the neighbourhood came to him with their cows on the ground of economy, because they got more for their calves than for any other breed. Now, I venture to say that in this yard no one ever saw two finer animals than the two bulls, one of which has been alluded to to-night. I know that I have seldom seen two better specimens of Shorthorns than those of Mr. Challoner and Mr. Cosby. These two bulls showed all the symmetry of form that could be expected in animals, and the quality of the flesh is excellent.

With regard to other stock, there were some very remarkable specimens, one of which in particular—the heifer, *Lady Matilda*—I was happy to see belonged to a gentleman who, I believe, is a tenant-farmer in this country. I may congratulate that gentleman—from the county of Carlow, if I mistake not—on having produced so very fine an animal, which is able to compete with our best herds that come from England to this country. Another animal was introduced to me, before almost unknown to me—certainly in its perfection unknown to me, although I have seen a great deal of stock in England—and that was of the Kerry breed, which I venture to say was one of the neatest and best looking animals of that class of its size that was ever shown in this country. I allude to an animal belonging to a lady, Miss Barrington. I hope she may rival that distinguished breeder of Shorthorns who has been already alluded to to-night, Lady Pigot. Now, whatever may be the difference of opinion with regard to pasturage or arable land, there can be no question of the great importance of obtaining the very best stock that can be procured for the country. It is satisfactory to any one who is a Shorthorn man, and who belongs—if I may style myself so—to a Shorthorn family, to see how that stock has taken root in this country. It seems to have made a most happy cross with the native breed of this country, and I know full well the value to Ireland which this stock ought to be; for a few years ago, when the cattle plague raged so much in England, all the great graziers in my own neighbourhood, and in the different counties of England, got their stock from Ireland. I have a considerable number every summer, and I know very well that the only year my farming was at all successful was the year when I bought 80 Shorthorns from Ireland. Do not let it be supposed that I got them very cheap, for I remember complaining very much to my bailiff when he came over that he had given a great deal too much money for those Shorthorns; but the quality of the animals was so good, and the improvement produced by the change of climate so great, that that was the only year my farming was successful.

In connection with that, I would point to one or two more general matters which I think deserve attention. One of these is the great importance of securing proper measures against the spread of contagion among the cattle of the country. When we have seen such valuable stock during the last two days in this yard, we know of how great importance it is to prevent the spreading of any contagion among those cattle. During the cattle plague, through what I believe was the great wisdom of the Government, this country had an almost complete immunity from that distressing calamity. But, at the same time, it is well to consider—and nobody can consider this subject so well as the Dublin Society—whether there may not be improvements with regard to the laws which regulate contagious diseases among cattle. In England at this time very considerable attention is being paid to this subject. The Bill that is being introduced into Parliament does not affect Ireland, but I think it behoves those who represent Ireland to look into the matter, and say whether improved regulations may not be made on this subject in this country. Much depends on the care that the owners of the cattle take of them; but I think a great deal can be done by just and proper regulations respecting them. Now, it is a very curious fact that, when the cattle plague restrictions—which were exceedingly strict, and much complained of in England—were enforced for some months, there was almost a complete disappearance of some of the diseases among cattle that formerly had attracted attention. I believe that pleuro-pneumonia, which all farmers know is most destructive to the value and lives of their cattle, disappeared after those strict regulations had been enforced in England. I mention this to show the great importance of having proper regulations with regard to cattle in this country. I purpose—I am doing it now—looking into the subject; but I believe a society like the Dublin Society would do very good work in advising those who are responsible on this matter. Now, there is one thing of great importance with regard to this, and to which I would like particularly to draw your attention, and that is, the regulation made with regard to the transit of cattle. I believe it is of the highest importance that the railroad trucks, in the first instance, should be kept completely clean; that they should be properly disinfected, and that the lairs or stand in which cattle stand before they are placed on board ship should be properly inspected, cleansed, and disinfected; that proper food and water should be given to the cattle during their transit; and that, finally, the steam-boats which convey them should be under proper regulations, and should be managed in a proper way. Neglect of these important points may do an immense deal of mischief in generating and spreading disease in this country. I believe it is of the utmost importance for a breeding country like Ireland, which exports a large number of cattle, that they should look carefully into these matters, and put their shoulders to the wheel and see whether the regulations are sufficient to prevent abuse in these matters. Though sometimes restrictions may be irksome, yet if the idea were abroad in England that we were spreading disease through the cattle from this country, the trade of this country would go down very much. I am happy to be able to say, from information I have got, that there never was a time when the cattle of this country were in a healthier condition; but I think it is much better to look into the matter while we are in that happy condition than to wait till the evil arises.

Now, I will touch but briefly on another matter, which I consider of great importance with regard to the live stock of this country. I observe that in Ireland there is no veterinary college. Now, I believe that it is of the greatest importance to the interests of those who have live stock in this country that there should be a competent body of men able to advise the owners of stock with regard to the health of their cattle, and not only that, but able at a moment of difficulty to assist the Government in their endeavours to investigate disease and to put down any contagion that may be existing. There can be no doubt that there are many able veterinary surgeons in this country, many who come from the veterinary schools of England and Scotland; but I think that it would be of great advantage to this country if there were a veterinary college or some veterinary department under another body established in this country; for there is no doubt if those who have a turn to enter this profession know that they have to go across to England and Scotland they may be prevented from doing so, and thus a field of useful work is closed to many Irishmen. Now, I often regret that there is not more sympathy and union between what are commonly called the medical and veterinary sciences. I believe if there were more union between the medical and veterinary bodies there would be great mutual advantage. I believe that not only would the veterinary science gain immense advantage from the knowledge and experience of the higher profession, but I believe that great benefit would be derived to the medical science by being able to make experiments on animals. I remember well when I had the honour of being on the Cattle Plague Commission, that we carried out several experiments with regard to the diseases of cattle. We had several distinguished medical gentlemen on the Commission, and, with their consent, we intrusted to the officers of the Commission the execution of several experiments on animals. Many curious experiments were made with regard to disinfection, with regard to inoculation with disease, and with regard to particular remedies; and I believe very important discoveries were not only made for veterinary science, but also, I believe, for the treatment of the human race. Now, I will not point out—it would not be my place to do so—how this could be obtained, but I believe it would be of great advantage to this country that a good veterinary college, or some department in that line, should be formed in Ireland.

There are only one or two other matters to which I should like to refer. The show was not only occupied with cattle but with two other important departments. There was a poultry show, to which Mr. Wade has alluded, and there was also an implement show. With regard to the poultry show I was much interested in the remarks which he made. It is interesting to know that the poultry are so useful an element in the business of the small farmers and cottagers of this country. I believe that the number of poultry has very largely increased of late years. I think it has nearly doubled within the last 20 years, and I know by statistics that within the last 10 years the number of poultry in this country amount to over 10 millions of money. That is a very large sum, and it is, no doubt, a very important branch of the wealth of this country. I notice that in the report they are all valued at 6*d*. a-piece. I do not like to give out many secrets from the accounts of my household, but I must say that I think I pay very highly for fowls. When I was

looking at this I inquired what was paid for the larger kinds of chickens, and I found that the price was 7*s.* for the larger chickens and half-a-crown for ordinary ones. I think, therefore, that the trade in poultry should be certainly encouraged as a means of great wealth to this country. We cannot attach too much importance to the encouragement of implements in this country. When I have been amusing myself every now and then in different parts of the country I have had opportunities of seeing the manner in which the agriculturists of Meath and Kildare carry out their tillage, and I have been very much struck everywhere I have been by seeing the ploughing conducted on the highest principles of English agriculture. I have seen grass-lands being first ploughed up, and I have seen other lands that have been ploughed up, and I have always noticed that the ploughs which ploughed those lands were of the latest patterns that I always see at the agricultural meetings in England. Now I, perhaps, may be allowed to attribute this excellence—for I believe it is a great excellence; if you use the best plough there is no doubt it is a great economy of labour and skill—I may attribute some of that excellence to the work of this Society, in showing in this town the latest improvements among the implements, and encouraging the farmers to get the best "tools for their work." I noticed to-day what I conceive to be an important machine for dealing with Flax, which I see is a very important branch of the agriculture of this country. I noticed the great increase that has been made within the last few years. I think within the last six years the numbers of those employed in dealing with Flax in this country have risen from 20,000 to 60,000; and it is a remarkable thing with regard to that, that out of the number of persons employed in manufactures in this country, 60,000 are employed in trades connected with Flax. Anything that encourages a manufacture so important as this, and cheapens the labour required in it, must be of very great importance, and it was, therefore, with great interest that I noticed the machine which I refer to in the yard to-day.

ARTIFICIAL WARPING.

The use of water as the carrier of fertilising matter is not confined to sewage farming; every case of warping land common on our tidal river banks, is an example of it.

The artificial practice of warping land, although similar in principle, differs indeed from the natural in many respects. The former has a very general application, whereas the latter is confined to a few localities. According to the artificial method, clay may be mixed in the water and applied to sandy, chalky, or peaty soils. Chalk, or any calcareous earth may be pounded and mixed with the clay, or mixed alone in the water. In a similar way peat, earth, mud, and the various alluvial deposits may be applied by means of water to soils of a different character. There is not, perhaps, a province in the kingdom, and perhaps there are not many farms, where the practice might not be carried out with advantage.

The practice is similar in many of its details to the tempering of clay in brickfields in the manufacture of coloured bricks. Thus the clay and chalk are broken down in the water, and by means of a small current are carried into the enclosure, where the mixture is deposited, and whence the clean water is decanted off. This is generally done by gravitation, and in very many places large fields of land might be similarly warped, also by gravitation.

The expense at which the work can be done both ways, or by a combination of them, is less than would perhaps generally be imagined. In the West Riding of Yorkshire, and North Lincolnshire adjoining, although the outlay was greater than would generally be the case, yet the peaty soils artificially warped, we were told, when on the ground, are paying remunerating interest and leaving fair profits to the farmer. This, however, is an exceptional example, the earth dug up for warping being somewhat similar to the silt of the natural system, consequently, on the question of outlay and returns, it is no safe rule. But the practice of claying fenland, and of warping poor moorland and sandy soils, by mixing the earth in the water used in irrigation, affords trustworthy data for determining whether the practice is likely to pay, and the profits in such cases are amply sufficient to warrant a conclusion in favour of artificial warping as proposed, for in a vast number of cases which have come under our own observation the work could be more effectually done at less money by the latter practice than by the former now in use. An immense area of the bogs of Ireland might also be warped with clay. We have gone over large areas of sandy, gravelly, and chalky soils where there was a command of clay and water in the winter time, soils in which the water would have sunk, thus leaving the clay mixed in the staple.

The pumping apparatus required would be of the common kind now in use in pumping water out of the fens, &c. The best method of breaking down the clay, chalk and calcareous earth, peat, &c., and the mixing of them with the water, would depend upon the nature of the material. Moist earths soon dissolve in water, and if full of small stones these could readily be screened out and separated from the fluid mass before it entered the pipes to the land. The size of the pipe would depend upon the steam-power, the height the water has to be raised, and the like. In ordinary cases a 6 or 8-inch pipe would suffice, but where large works, as for warping the immense bogs of Ireland, are concerned, and great quantities of water and clay might have to be carried a considerable distance, twice the above size might be used.

Four hypothetical examples might be imagined for practical illustration—(1) warping by gravitation, (2) warping by steam or water-power, to be followed by subsequent use of the same machinery for liquid manuring, (3) warping by steam or water-power, to be followed by liquid manuring by means of a separate machinery, the warping apparatus to be movable, (4) warping peat bogs by water or steam-power, the warping apparatus to be movable.

(1). There are thousands of acres of poor moorland sheep pasture capable of being warped on the first plan—the mountain stream furnishing water and the mountain side the clay or other warping material, so situated that it could be wheeled into the watercourses by a barrow from the pit. The only difference, therefore, between this plan and that now in use for irrigating by water only, would be an increase of fall, for breaking and mixing the clay at the clay pit, and for conveying it afterwards to the land for application a sufficient length of water-runs for distribution similar in construction to what were and are still used in irrigating meadows; and even warping (for warp has been applied in this way before now) would be required for spreading the thick muddy water over the heath or pasture. The length would be determined by the number of hands employed. One active warper would apply a great many tons of clay in a day of 10 hours. At the other end the clay or warping material would be broken down and mixed in the water by the force of the flowing current, and any stones could be screened out by this process. The question of expense, therefore, may be put thus: What would it cost to dig and wheel a cubic yard of clay into the stream? And in general the answer would represent a mere fraction of the expense of applying clay by carting, spreading and leaving it on the surface to be broken down and incorporated with the soil by the weather.

(2). By far the greatest area of land that would be permanently improved by artificial warping would require either water or steam-power. A large extent is naturally rich, but the greater breadth is known as "thirsty and hungry land"—soils that drink up all the rain that falls upon them, and eat all the manure given them, without yielding any adequate return in harvest. They are either naturally or artificially drained, and as the grand object in view requires the warp, whatever may be its nature, to be thoroughly incorporated with the staple, it follows that, in the process of warping, the warp should not be applied faster than the water can be filtered through the soil by drainage. In other words, it would not be necessary to raise embankments, so as to retain the water in a stagnant state, for allowing the clay to subside and form a layer of deposit in the surface, as in warping peat-bog. In order, therefore, the better to incorporate the clay with the staple, the latter should be ploughed deep, and smashed up across, so as to leave it as open as possible, and capable of holding a sufficient application effectually to improve its quality. It does not require logic to show that in this way, with a command of water, clay can be applied at a fraction of the expense it is now being done by carting and manual labour, and at the same time more effectually. So that, according to the old proverb, "Lay clay on sand, and you buy land," large estates would thus be bought and added to the superficies of the country for little money.

The chief question is this one of expense, and as almost the whole of the plant would afterwards be required for liquid manuring, the practical solution of the double problem resolves itself into the old story of "hitting two ways with one bone." There are in point of fact few projects of the present day that possess half the promise, or which have equal claim upon the attention of the agricultural public.

(3). The third proposition is somewhat similar to the second, the chief difference being that it assumes the work of warping to be of greater magnitude. There are large tracts of land that would pay for claying; but the clay best adapted for warping, and the water required are at too great a distance to pay for application on a small scale. Before the work will pay, landowners and their tenants must join so as to include in one contract what will pay for the laying down and use of pipes of suitable dimensions for finishing the work within a given time at so much per acre; and when one contract is concluded, the plant, including engine and pumping apparatus, would be removed to another. But upon each farm there would remain the pipes and hydrants required for liquid manure irrigation. Upon each farm the work of warping or claying would be similar to that of the second example already described, so that the tenant would have no more to do but screw on his hose to the hydrant, as soon as the land was in a fit state to receive liquid manure from the homestead. At the homestead the liquid manure would generally have to be raised from the tank by pumping apparatus, but to lands lying at a lower level it may be taken from the tank by a syphon, and thus save the expense of steam.

The greater extent of our fenland may be included under the second and third propositions; but the immense bogs of Ireland, together with other large tracts of peat in the United Kingdom, cannot be thus reclaimed. In this case a new soil has to be formed over the old, so that the process of artificial warping is similar to the natural one, with the exception of the conveyance and quality of the warp. As a rule, it may be laid down that in examples where the Peat can be thoroughly drained, either at the bottom or to a depth of 4 feet, then the practice of warping would fall under either the second or third proposition. But when the drainage cannot be thus effected, so as to remove the water and permit the incorporation of the warp with the staple, then the ground to be warped must be surrounded with a low embankment, over the top of which the warp would be discharged from the conveyance pipes, and when the area thus inclosed is full, the water would be drawn off as soon as the warp had subsided.

The small spots of green sward which here and there enliven the mountain-side towards its base are the results of natural warping of this kind, and the fine sweet herbage such spots yield compared with the heath adjoining proves the value which artificial warping would effect. In hill roads, when the storm-water which flows in the ruts bursts over and flows down over the heath, carrying with it fresh earth, fine sweet herbage springs up, which is greedily cropped by sheep. In like manner the immense bogs of Ireland could, by artificial warping, have their bleak and inhospitable appearance changed into emerald green, covered with thriving flocks and herds, at no great outlay of money. *W. B.*

ON DEEP CULTIVATION

By Steam or Horse-Power.

[The following is the second paper on this subject read before the meeting of the Highland and Agricultural Society, to which the Marquis of Tweeddale addressed his paper reported last week.]

Mr. George Hope, of Fenton Barns, said—I have no intention of discussing, except in an incidental way, the comparative advantages and cost of steam and horse power with reference to the working of land; and still less of comparing the merits of the various systems of steam cultivation now in use. I simply wish to state to you, as clearly and briefly as I can, my own practical experience in steam cultivation, and will leave you to draw your own inferences from the facts that I propose to lay before you. In September, 1863, I obtained from the Messrs. Howard of Bedford a set of their steam cultivating apparatus, a cultivator and a harrow and a 10-horse power engine made by Clayton and Shuttleworth of Lincoln. I can honestly say I have had no reason to regret making that purchase, though I have lately changed Howard's cultivator for Fowler's grubber, and have also added to my stock a Fowler's 4-share balance plough. Messrs. Howard's cultivator stirred even stubble land most efficiently, and suffered nothing from coming in contact with stones, so that I have never had to complain of breakages, while the quantity of land-fast stones that I have had to remove is immense. I may mention that from one single field the stones, when broken for the road, have measured about 200 cubic yards. However, Fowler's grubber covers more ground, and consequently does more work, without being heavier in draught, than Howard's, but it is only suitable for land that has been previously ploughed or stirred. Again, from the wheels of Fowler's being much larger and broader than Howard's, and as they only run on the unworked soil, the depth is more easily regulated, and no wheel marks are left on the stirred earth. On land that has been ploughed to the depth of 10 inches Fowler's grubber can easily be made to stir it from two to three inches deeper, withot any undue strain on the engine or rope, while Howard's, at that depth, had, on some soils, a strong tendency to bury itself altogether in the land. After some years' use of the cultivator, during which I ploughed nothing but lea, and that was done with horses, and having also got quit of stones, or nearly so, I began to doubt whether I was right in having the soil so seldom completely turned over. I therefore got one of Fowler's 4-share balance-ploughs, which, besides ploughing stubble, enables me to plough lea, and likewise land after a Turnip crop, when I prefer having it done so. By taking off the mouldboards from this plough, it turns up the soil and throws it on edge, which is called digging. This plan has certainly several advantages over ordinary ploughing. When done immediately after harvest, the soil does not run together from the effects of the weather, which stiff lands are apt to do, when ploughed early. It also exposes the largest possible surface to the atmosphere and to the effects of frost, but it does not destroy grasses or weeds in such an effectual manner as close and compact ploughing does. Unless the steam harrow is used in spring on land that has been dug, it is found very rough for horses walking over; but when it has been done in time, the soil is easily reduced to a fine mellow state. This digging is very popular with my neighbours who have steam-power, but I have found it suitable only when practised early in autumn or before winter. The usual furrow we make on stubble land is about 10 inches in depth, and on lea and land after a Turnip crop 8 inches is the rule. I may state the extent of land ploughed and grubbed annually is somewhat above 500 imperial acres. From accurate notes taken since last harvest I find that from that date we have ploughed 294 imperial acres in 54 days, but in which are included 5½ days for 11 changes from different fields. Though it commonly takes only from 3½ to 6 hours for change, fixing the apparatus, getting out the ropes and the steam up again, I have calculated half a day for each change. By dividing the 294 acres by the 54 days required for ploughing, then it gives very close to 5½ imperial acres as the work done daily. I must say I felt rather disappointed when I discovered this result, as on a square field of upwards of 40 imperial acres ploughed immediately after harvest, the time taken was only five days, which gives 8 imperial acres daily. When we came to small fields with corners, and in the short winter days of from seven to eight working hours, the extent of ground gone over was much reduced. In the general average there is also included a 26-acre field of very stiff clay, where we had to use only three ploughshares instead of four to obtain the required depth of 10 inches; the time taken to it was six and a-half days, which gives only 4 acres daily. We have also grubbed since harvest 104 imperial acres, the time taken, including two and a-half days for five changes, being altogether 15 days, or at the rate of 7 imperial acres daily. Here a 10-acre field again diminished the average amount of work done, as two and -half days were taken for it. We have also used the

steam harrow, going over 40 acres twice in three days. Before Turnips are sown another 100 acres must be grubbed, for which we may again add other 15 days, though, as the days are longer, the fields large, and the soil dry, I am confident it will be done in shorter time. From the above we have

294 imp. acres	ploughed in 54 days,	or say	5½ acres daily.
104 ,,	grubbed in 15 days,	}	7 acres daily.
100 ,, (to be)	,, in 14 days,	}	
40 ,,	harrowed twice in 3½ days,		12 acres daily.
538 imp. acres	in 86½ days.		

In regard to the cost it is naturally divided into, first—The interest on capital invested, and the tear and wear of machinery and implements; and, secondly, the average amount of daily expenditure. In regard to the first, it must to some extent be matter of opinion. At all events, even if the amount of interest was satisfactorily settled, the cost of the amount must vary according to the number of days the machinery is employed, and the greater or lesser number of acres over which it is thrown. In calculating this I will not take exactly my own outlay, as I have only a portable engine which requires two pairs of horses for about an hour or an hour and a-half at each change, and for which I have allowed already in charging half a day for every such change. If I were to make any change in my machinery, it would be to substitute a locomotive engine in place of the portable one, as then no horses would be required to move the engine and windlass; and in place of having to empty the water out of the boiler at each change, the steam would always be up, and ready at once to recommence work. I understand a 10-horse locomotive engine, with all the necessary apparatus, can be got for 700*l.* On this sum I consider that, for interest on capital, and for tear and wear, 12 per cent. will be found to be ample; indeed, taking my own experience, I think this above the mark, but assuming it to be 12, that sum would amount to 84*l.* per annum. Again, as the wire rope wears faster than the other parts of the machinery, I have no objections to add 6*d.* per acre for all work done. On say 520 acres this comes to 13*l.*, which falls to be added to the 84*l.*, making in all 97*l.* If this sum is divided by 86½, the number of days the steam tackle has been at work during the year, it gives 1*l.* 2*s.* 2*d.* for each day. To this falls to be added the second item, viz., the average amount of daily expenditure, which can be easily and accurately ascertained. With me it stands thus:—

	£	s.	d.
Five men and two boys' daily wages	0	13	4
One boy and horse half time, for water, &c.	0	2	6
Coals, including carriage, ½ ton	0	5	0
Oil	0	1	3
Making the daily expenditure	£1	2	1
Interest, and wear and tear daily	1	2	2
Thus the cost of each day's work comes to ..	£2	4	3

I have already shown the average daily work in ploughing is 5½ imperial acres, and the cost is thus 8*s.* 0½*d.* per imperial acre. Grubing 7 acres daily comes to 6*s.* 4*d.* per acre. It will be observed that the work done is not much more than could be accomplished by two pairs of horses constantly employed throughout the year. I have put away two pairs of horses, having now nine pairs in place of eleven, and I never feel the want of them; indeed, I sometimes think I might put away another pair, having this great advantage at the important periods of seedtime in autumn and spring, and when preparing land for the Potato and Turnip crops, viz., the possession of an implement that can do the work of six pairs of horses, to say nothing of the superior quality of the work it does. Ever since I got steam power, and by means of it, every acre of my farm has been cultivated to a wish, and every crop also has been sown in good time, which all practical men know to be of great importance in a pecuniary point of view. Again, having all the corn and grass-land without the vestige of a furrow, increases the crops, renders the land more suitable for the use of reaping machines, and adds not a little to the beauty of a farm. The double engine and other systems of steam cultivation have their own peculiar advantages, but the fixed engine, and roundabout mode I have adopted, commends itself to me, first, by being so much cheaper to begin with than any of the others; and, secondly, it leaves narrower headlands, and never poaches them, as the engine is frequently placed in the adjoining field to the one being cultivated, and is never moved from the gateway or spot where first placed.

THE FATTENING OF STOCK.

We slaughter annually in Ireland about half a million of beasts, and export to Great Britain about a third of a million. A large number of them are sent to market in very good condition by the graziers, large farmers, and landed gentry of Ireland. It is well known, however, to those who attend the Dublin and provincial markets, or witness the shipments of cattle from the Irish ports, that a great many beasts are sold either in a half-finished state, or sent to England as stores. The loss on the former is very considerable; for, as every practical man knows, beasts pay better for their keep in the more advanced than in the early stage of fattening. And, again, as our climate is, on the whole, better adapted for roots than that of England, we see no reason why a large number of the store cattle now exported should not be fattened in Ireland. It would increase the profit of the farmer and the gross produce of the country: the large quantity of valuable manure obtained would leave the land in better condition for other crops, and the labouring class would receive more employment. The farmers who sell their cattle say stall-feeding does not pay. It must be admitted that the slovenly system of stall-feeding which many people follow cannot pay; it is also true that the price of store cattle is sometimes so dear as to render it difficult to fatten them profitably; but it may be safely assumed that the intelligent farmers of England and Scotland, who fatten a great many of our Irish cattle, do not lose by the system. We have seen Irish cattle in the stalls of English farmers who pay a higher rent than is paid for the same class of land in Ireland.

Before a farmer embarks in stall-feeding, he should calculate the cost of raising a ton of roots on his farm, and the quantity of meat which that quantity of roots will produce. On land fairly adapted for root crop cultivation, roots can be raised at about 7*s.* 6*d.* a ton. Now, the results of several experiments, conducted with great care, show that when cattle are carefully selected and skilfully stall-fed, they pay not less than 6*d.* a cwt. for the Swedish Turnips consumed. The fattening of cattle divides itself into two great divisions—grazing and stall-feeding. The former of these is practised principally upon what, by way of distinction, is called fattening land; and we think that this is a profitable way of managing this class of land. The land is usually stocked at the rate of one beast per acre. About one-third of the number, or one beast to every 3 acres, is put on in October, and the remainder in May, when the Grass is pretty strong. The animals are sent to market as they become ripe. By stocking first-class land less closely, it often fattens two sets in the year. Some graziers give cake in troughs on the Grass, at the rate of 2 lb. and upwards per head daily. Crushed Oats are also used for the same purpose; and, considering the present low price of grain and the high price of beef, and the improvement which is effected in the land by the dung of the animals so fed, it pays very well. The average increase in weight of grazed cattle varies very much. Good 2-year-olds and 3-year-olds increase at the rate of 2 lb. (live weight) daily from May to October. This is above the average, but we believe it is attainable by skill in breeding and feeding. The grazier shifts his cattle from field to field, so that they may always have a good fresh bite. For this purpose his land may be divided into three or four sections. One is kept free from stock until the most forward beasts need it. The cattle are grazing on section two until section one is ready for them. Section three receives the less forward beasts or dairy stock: and store cattle and sheep may occupy a fourth section. The animals are regularly shifted from one division to another. Thus, when the stock in No. 4 is transferred to No. 3, the former is cleared and closed up till it is ready for the most forward beasts, and so on of the other divisions. It is worthy of remark that as fattening animals approach ripeness, they require better keep, which, in the case of grazing cattle, means more succulent pasture. Grazing cattle also require a plentiful supply of water. It is found beneficial to place rock-salt within their reach, so that they may lick it. The passages leading from field to field should be kept clean, to prevent disease of the feet, which keeps up irritation and wastes food.

Most farmers whose holdings are large, and who grow roots, fatten a number of beasts in houses during winter and spring. The system is usually called stall-feeding. The animals to be fattened are withdrawn from Grass and placed under shelter at the approach of winter. Irish tenant-farmers generally do this in stalls, which answer exceedingly well for the purpose. The house should be warm, but not close; there should be good ventilation, but no drafts of air. The animals should be kept as quiet as possible in the stalls, because every movement of the limbs, as well as every excitement and irritation, causes a waste of the animal tissue, which is equivalent to a waste of food. Too much light causes stall-fed animals to be restless, and retards the fattening process. The stalls should, therefore, be dark rather than lightsome. For about 10 days after cattle are put up to fatten they should get soft Turnips, which prepare them for the more nutritive sorts. From the very commencement the strictest regularity should be observed in the hours of feeding, and the beasts should be kept clean and comfortable all through. Some farmers curry once a day, and we have no doubt this extra trouble pays remarkably well, as it promotes the healthy action of the skin. The house, as already observed, should be warm, but not so close as to cause sweating, which is injurious. The greatest attention should also be paid to the dung, which should be neither too watery nor too hard. At first the soft Turnips generally scour them; but, if not allowed to go too far, this brings about a healthier action of the entire system, and by providing dry fodder the excrements are soon restored to their proper consistence. The animals may now receive more fattening food, the kinds and quantities of which vary with the size of the beasts and the views of the farmer. The kind of food most commonly given to stall-fed cattle are roots, straw, and hay, with oilcake or corn. The state in which it is best to give these substances to cattle is a subject on which opinions differ widely. Some (but we believe they are few in number), cook the roots. It is the general opinion, however, that this does not pay. The advocates of the system say the animals can digest their food with less exertion (which means less waste of tissue) when it is cooked for them. Roots are, however, easily digested; and, besides, the large quantity of saliva secreted during the mastication of the raw roots is required for the proper action of the stomach. To prevent choking, the roots should be cut into slices not exceeding an inch in thickness. Some, again, reduce the roots to shreds by what is called a pulping machine. The pulped food is often allowed to undergo a slight fermentation before it is used. The pulping machine appears to be serviceable when the farmer wants his cattle to consume and assimilate a large quantity of straw. By mixing the pulped roots with straw cut into what is called chaff by a chaff-cutting machine, and allowing the mixture to stand for a short time, cattle eat a great deal of straw. We have found the system exceedingly useful for milch cows, but not equally valuable for fattening beasts. The secretion of milk appears to be increased by a slight degree of fermentation. The use of the chaff-cutter for cutting up straw and hay has been warmly advocated. Animals can assimilate cut straw with less effort than long straw. It is also said, and with truth, that we can thoroughly mix bad and good straw and bad and good hay after they are cut into chaff, and so induce our farm animals to eat the bad along with the good. But the farmer should have neither bad straw nor bad hay. The chaff-cutter has special advantages, such as enabling to mix roots and straw together in the way just explained; but it remains to be proved whether the feeding value of the straw is directly increased by cutting it. When oilcake is given to fatting beasts it should be broken very fine, and given by itself, or strewed upon the Turnips. We have found the latter plan to answer very well. Some people who cut the straw or hay into chaff make the oilcake into a mucilage, and pour it upon the former. For feeding purposes corn should be either ground at the mill or crushed by a machine specially constructed for the purpose. The farmer who feeds horses and cattle on Oats should have an oat-crusher, to be worked by hand on small and moderate-sized farms, and by water or steam power on large holdings. Every cwt. of Oats given to thriving animals (along with roots and good Oat-straw) produces at least 12 lb. of beef and tallow. If given to ill-shaped and badly-reared cattle, it would not produce this. Stall-fed cattle should receive three feeds of roots, or of roots and cake or corn, in the day—one in the morning, one at noon, and one in the evening. They should also receive some good Oat-straw or hay at night, and after each feed. If fed oftener they are disturbed more than is desirable. The question, what are the proper quantities of the various kinds of food which ought to be given to stall-fed cattle? has never been fully answered. The usual practice is to give them as much roots and fodder as they can eat. This system often causes waste and loss. From 8 to 10 stones of roots in the day, according to the size and condition of the beasts, may be given, together with good straw or hay, and some ground corn or cake. For the first 10 days or a fortnight—that is, while the animals are on soft Turnips—no artificial food is needed, but when put on Swedish Turnips, 1 lb. or 2 lb. of corn or cake may be given daily to each, and the allowance may be increased to 4 lb. as the period advances. *Practical Agriculture, for the Use of Agricultural Classes in Primary Schools.*

THE BEET SUGAR MANUFACTURE IN GERMANY.

A very elaborate and interesting report on the introduction and present condition of the manufacture of Beetroot sugar in the States of the Zollverein, has been furnished to the Foreign Office by Her Majesty's Secretary of Legation at Munich.

The report opens with a history of the introduction of the Beet as a sugar producer, a brief sketch of which we have already given in these columns. So full, however, is the report of interesting details relating to this branch of industry in the Zollverein States, that we again open the question to present to our readers some of the principal points of interest culled from the mass.

Until about the year 1835, colonial or cane sugar alone was consumed in the Zollverein; 86 sugar refineries then existed throughout the various States of the Union. When Beetroot sugar was introduced, the use of colonial sugar gradually decreased. While at the present time little else but the former is used, confectioners and distillers of liqueurs being almost the only classes for whom it is imported, Beetroot from the time of its introduction has been subject to various legislative enactments, and such heavy taxes imposed, that at one time threatened to crush the trade—the total number of 238 manufactories, which were in operation in 1853, having been reduced in the course of the two following years to 216; but in the year 1856 the number had again risen to 233, and from that time forward there has been a progressive increase year by year.

Simultaneously with this increase further improvements were introduced in the mode of manufacture, and to such a perfection has it now been brought that, whilst at the period when the duty was first imposed the average yield was only calculated to be at the rate of one Zollverein cwt. of raw sugar to every 20 Zollverein cwt. of Beetroot, the most successful establishments produce, at the present day, that quantity of raw sugar from about 10 or 11 Zollverein cwt. of the root. The proportionate production of sugar varies, however, considerably in different manufactories, partly in consequence of a difference in the process adopted or the description of the machinery made use of, and partly in consequence of the greater or lesser quantity of saccharine matter contained in Beetroot grown in different soils and under different conditions as regards climate generally, or the weather which may have prevailed during particular seasons.

In some manufactories, especially in Wurtemburg and Baden, the system has been introduced of subjecting the Beetroot to a process of artificial drying, previous to using it in the sugar manufactory.

In Bavaria, between the years 1862 and 1865, the Beetroot sugar manufacture remained about stationary and the report says;—"From one cause or another it has never fairly taken root in this country, the chief obstacle thereto being, as I am assured, an indisposition on the part of the peasant proprietors (a very numerous class) to depart from the routine system of crops, as generally adopted in Bavaria, and to enter upon the cultivation of Beetroot on an extensive scale, without, perhaps, any very secure guarantee of the success of the sugar manufactories, and, consequently, of the permanency of the change to be made in their system of husbandry."

The report goes on to say:—"In several provinces of

this kingdom, especially in those of Upper and Lower Bavaria, the soil is particularly well adapted to the growth of Wheat and other grain; and crops of this description are there grown on a very extensive scale, and to the great advantage of their cultivators. In those districts it would, therefore, naturally be especially difficult to induce the landowners or farmers to adopt the cultivation of Beetroot on a sufficiently large scale to supply the requirements of sugar manufactories. But I am informed that, with the view of encouraging the cultivation of this plant, and of thereby preparing the way for an increase in the manufacture of Beetroot sugar in Bavaria, the Agricultural Society has lately offered annual prizes to the growers of the best specimens of the root, and a special reduction has been made in the tariff of charges for the conveyance of Beetroot, both on the Government railways and on those of the Eastern Company of Bavaria.

"The proprietors of the two sugar manufactories at Ratisbon and at Puch-hof (the only establishments of the kind in Bavaria proper) are making efforts to induce the farmers of that neighbourhood, and in the Bavarian valley of the Danube generally, to extend the cultivation of Beetroot; and have with this object provided them with instructions as to the most approved method of growing it, and have undertaken to purchase at a fixed price as much Beetroot as can be delivered at their manufactories; and at the same time to return, free of charge for carriage, to each of the several farmers, the residuum of the Beetroot delivered by them, after it has gone through the sugar manufacturing process, such residuum being, as is well known, an excellent article of food for cattle."

Thus it will be seen that the Continental agriculturists are not only alive to the value of the Beetroot as a sugar producer, but also as a nutritious and cheap cattle food. After the experiments on the Continent, by which the growth and manufacture of sugar, as well as the supply of a nutritious cattle food, is almost entirely a home industry, it is to be hoped that experiments in the cultivation of the plant in this country will not be lost sight of, but be actually made and persevered in. *John R. Jackson, Kew.*

Home Correspondence.

Triptree Hall Farm.—Wheats looking well, the two pecks an acre, drilled, scarcely distinguishable from the 4 pecks per acre; the peck an acre looking as though it would produce an ample crop. Spring Beans deeply rooted and coming through strongly. Winter Beans a full plant. Barley, 6 pecks per acre, after Wheat, showing well; the bushel per acre (Hallett's) also coming up well. Nine acres of winter Tares promise to give an abundant green crop. Red Clover, 5 acres, a patchy plant, and after feeding or mowing will probably be ploughed up. Italian Rye-grass, second year, ready to mow for our horses,—ewes with their lambs doing well upon it, supplemented with cake, corn, malt-combs, &c. We have 110 fine lambs from 80 ewes; 20 fat bullocks, two years old, are ready for the butcher as soon as we can spare them. They cost 8*l.* in September last, and are now valued at about 22*l.*: we have already sold 20. Our nine and a-half acres of Mangel land is in splendid order; it was heavily manured and double-ploughed in November. The seed goes in on the 14th inst., with 3 cwt. of Peruvian guano and some salt. Oats in, but not up. Wheat and winter Beans foul with weeds, owing to the mild, wet winter. Garrett's horse-hoe and the hand-hoe have been at work whenever the condition of the land would permit. Even on drained heavy land, there is too much moisture. The undrained and poorly farmed clays are rather water-logged, and my crops compare most favourably with those on such lands. Six acres of white Peas look well. Altogether, the farm looks in a paying condition, let the prices be what they may. Most of the Red Clover perished by the drought of 1868. *J. J. Mechi, April* 10.

Moulding-up Mangel Wurzel.—I have been much interested in the discussion in your paper on the growing of Sugar-Beet. As a grower of Mangel Wurzel, I wish to know if I should gain anything by earthing it up after the last weeding? Would not the roots contain more sugar—therefore, more feeding properties? I grow Orange Globe on the ridge, to enable me to get the horse-hoe among the weeds as soon as possible. By the time they are singled the ground is all but level. I could then with the plough earth-up if thought desirable. *Alex. Hadden, Ashby de la Zouch.*

[To earth up Mangel Wurzel would reduce the weight of the crop. The advantage of a ridge is that the horse-hoe may be got in among the young crop without injuring the plants, and, thus, that the soil may be drawn away from the young plant. And by this operation the plant is thrown more on its tap-root for a supply of food. If this were not done on friable soils, the lateral fibres would become a mass of surface roots, which would induce a large crown and a succession of sprouts throughout the plant's growth. The produce would thus be one of lateral roots and coarse foliage, and the weight as food for stock would consequently be greatly lessened. The quality of Mangel Wurzel is no doubt important, and it varies much in hot and cold summers. But for the farmer a large increase of weight is to be preferred to the moderate increase of saccharine juice in a crop of diminished quantity. On strong land this particular advantage of drawing the soil from the young plant is not so marked, indeed, in some cases, it may be dispensed with altogether. The drawing away of earth from roots or ridges is an almost unavoidable consequence of horse and hand-hoeing under such circumstances; and there is as great an increase of growth consequent on the cultivation as to justify it, notwithstanding the production of a smaller percentage of sugar in the roots that are thus laid bare.]

Foreign Correspondence.

CANADA.—*On Producing Varieties and Breeds in Domestic Poultry.*—All domestic poultry, and all birds which admit a variation in the plumage, like canary birds, can be bred to just such a form and colour as the owner pleases; by observing any peculiarity or desired point, the continuation and (so to speak) enlargement of that peculiarity can not only be made certain, but in three generations will become of so fixed a type as to be a breed of itself. Thus, if size is required in any breed, cross into one of the large East India breeds—the produce will be a complete mixture, but some of the young will turn after the male, and some after the female. Now select that which has increased in size, but retained the original type, and breed back again into the old stock, always selecting size on the one hand and the required peculiarity on the other. Thus, if you wish to increase the size of the Dorking, select your best Dorking hens, and let them run with a white Bramah Poutra cock—here the feathers agree in colour, and the transition is all the easier. From the chickens produced from this cross select those pullets which are increased in size, but have most of the Dorking type; put those back with the Dorking cock, and from their produce select again, always looking to size (the desired addition), but having an especial eye to the Dorking type. In three generations you will have increased size more than half, while the true Dorking has not been lost. All breeds can be treated the same way; but in order to secure uniformity of feather, corresponding colours should be used in the cross, when possible.

The cause of this is easy to be seen. If you breed any one animal with another, the constant passage of the blood and life-giving fluids between the fœtus and the mother in a great measure infects the blood of the mother, and the effect is often seen in several of the following young; but in birds it is different: the action of the life-producing influence in the male only clings to and affects the substance of the egg, which comes forth as a fecundated unit, independent of the mother altogether when once separated from her. During incubation the life of the egg is made to germinate by heat alone; the two substances within the egg-shell progress and work on each other, until a perfect chick is produced; this chick when at maturity has the power of again generating his or her kind, in the natural mode. Eggs even during the period of the ripening of one set of ovaries, or one clutch of eggs, as they are called, may be vivified by different males; you may have a true Dorking and a half-bred Brahma produced during the one laying of the one batch of eggs of the hen; the first which were sufficiently large in the ovary to be impregnated may be, and often are, true Dorkings; in a week or a fortnight's time impregnation by another male will produce a cross. *E. L. C.*

Farmers' Clubs.

CIRENCESTER.

Professor Wrightson on Farm Tenancies.—At a recent meeting of the Cirencester Chamber of Agriculture, Professor Wrightson moved the following resolution:—

"That short tenancies and the insecurity of tenant's capital invested in land, not his own, are calculated to act as obstructions to the development of modern agriculture."

He said:—In introducing this subject, I do not propose to give examples illustrative of the advantage of the motion I have ventured to support. I have adopted this course first, because examples are invidious; and, second, because I think my case is based upon principles which isolated examples cannot impugn, and that must eventually prevail. The late Mr. Baker, of Writtle, in his preface to "Bayldon's Rent and Tillages," says:—

"The increasing population of the kingdom demands that the utmost efforts should be made to increase its agricultural produce, and, as the area is limited, this cannot be obtained except by increasing the yearly acreable quantity. But this can be effected only by a liberal management and a judicious application of capital and skill; and it therefore becomes daily more imperative upon landed proprietors to give due encouragement to their tenants, by affording them the utmost security for the investment of their capital."

This was written in 1856, and if it was true then, much more is it applicable to the present time, when there is a more imperative demand for increasing our agricultural produce, and a still larger amount of capital required to do so.

Relation of Landlord and Tenant.—Agriculture is in danger of labouring under the great disadvantage of possessing more knowledge than power. Science and practice have increased her resources beyond anything our fathers could have imagined. Is it, then, right that impediments should be thrown in her way which effectually check her progress?

I have the highest respect for the bond of union, imperfect though it be, which has hitherto bound together landlords and tenants. But the changing conditions under which we live compel me to say that, in important transactions where identical and conflicting interests are to be defined, trust and confidence are words which should never be employed. Such sentiments are the legitimate fruit of a clear understanding, and cannot exist without it. I, for this reason, consider tenancies which are based upon anything short of definite agreement, to be unsatisfactory. Besides, this mutual trust and confidence is somewhat onesided in its nature. The lessor has every opportunity to make himself safe. The tenant is more or less at his mercy, and therefore it is the tenant who reposes confidence in his landlord, whereas the landlord is not called upon to place such implicit confidence in his tenant. If the farmer does not like the conditions of letting he can leave them alone; but the landlord has the alternative of a choice between tenants and no tenant at all. I should like to see this last proposition more generally acted upon. The proprietor farming his own estate would solve the whole difficulty, every case would be met, and unexhausted improvements would be at once recognised in the improved value of the land. It is altogether unlikely that we shall see any great alteration from the system of letting land. We live in a country where a great middle class exists, separating the landlord from his fields. Land is let at what is considered a fair rent—we shall for the sake of argument say it is improved and finally returned again to the landlord. The question before us is—Has he (the landlord) to reap the whole of the benefit which the land has received through the industry and capital of the waygoing tenant? Now I think we must not expect any class of men to give up what they can hold, or what they have a right to. The landlord cannot under such circumstances be called upon to make any return, and probably he will not do so. At least, if he does, he is acting generously, and is conferring a favour instead of paying a debt. What is the consequence of this dependence of the tenant? Just what might have been anticipated. If the land is let for the term of one year, improvements are not attempted; and if for a term of two years, the improvements are so regulated that little remains to be valued at the expiration of the term. In speaking thus generally, we cannot help remembering numerous exceptions in which land is well farmed under a mere year to year agreement. I think this is generally the case when, from the light character of the soil, manures and feeding stuffs yield a quick return, so that the chances are comparatively small of the tenant leaving them in the land. But even in these more favourable cases no tenant would apply manure or feed cake during his last year of tenancy, unless he was sure of repayment on his leaving the farm. In the case of stiff soils, however, the case is very different. These soils form a very large proportion of our country, and it is my firm conviction that without much greater encouragement to the capitalist such soils cannot be improved, and, also, that with security of possession and of capital there are men who would undertake and successfully carry out that improvement. Another point which appears to me worth notice is, that what we call good farming would be far surpassed if land were let upon such terms as to secure the realisation of capital expended on its improvement. You cannot force a landlord to give a lease or to consent to terms with reference to unexhausted improvements. Nevertheless I look for a not far distant time when they will do so. I believe in self-interest, and as soon as landlords really see that their interest is truly identical with that of the tenant-farmer then they will do their utmost to second his endeavours. At present the difficulty may be thus stated: (1) The tenant-farmer will not lay out a large capital without security of possession; (2) security in possession is not forthcoming; (3) therefore the land remains to a considerable extent unimproved. Here, then, is something very like a "dead lock." The landlord cannot be made to grant extensive privileges to the tenant. The tenant retorts by keeping his capital in his bank if he possesses it, or by refusing to farm under conditions which act as a bar to the prosecution of his business. At this juncture is heard the "move on" of agricultural progress, and the difficulty must be met. How are the two interests to be reconciled? First by relinquishing all feudal notions hitherto connected with the relation of landlord and tenant, and by looking upon the two parties in business relations as equal. It is exceedingly injurious to the progress of farming that tenants should in any sense continue as subordinates of the owner of the land they cultivate. I say continue, because I believe that such has been the relation of landlord and tenant, and that it is wrong, and cannot stand in the face of advanced agriculture. All remains of feudalism should be unrecognised, ridiculed, and destroyed as injurious to the interests of one class and detrimental to the well-being of the entire nation. I see in Chambers of Agriculture a means of compassing this good work, which, when accomplished, will have done more for agriculture than all the scientific improvements, without it, could possibly have effected.

The Question of Leases and Tenant-right.—But this is not all—indeed, it would be a pity to destroy even these feudal notions until a substitute for them could be found. Landlords may boast of their protection to their tenantry with some reason, and we should not disturb this imperfect and depressing species of good understanding without introducing some superior or equivalent relationship between the two parties.

Two great schemes have been proposed, the lease, and remuneration for unexhausted improvements. Now, a lease for a term of years is good, because it fosters outlay of capital and spirited farming; but it has its faults. First, it is bad for the lessor, because it fosters an up-and-down system of agriculture—the land being run out towards the end of the term. Secondly, it is bad for the lessee, because of the opportunity it offers for raising the rent at the termination of the lease. Leases have, therefore, a bad side as well as a good side. Next, with reference to the valuation of unexhausted improvements. These are open also to grave objections, as, for instance, the rendering the farm difficult to enter; and, again, the difficulty of making a just valuation, a good tenant often receiving less and a bad one more than he is entitled to. I think we must combine the two plans, if we want to solve the difficulties of the situation. A combination of leases and valuation for unexhausted improvements, as suggested by the Vale of Evesham code of landlord and tenant-right, would do much to settle the question, if carried out upon broad and liberal principles. First, it would encourage good farming up to the end of the lease. This is an important matter for the landlord, as it ensures the farm looking well just when he wishes it to look well, namely, when it is in the market. Next, a judicious application of the principle of valuation would act as a healthy check upon unduly raising the rent at the end of the lease. A highly improved farm, with a considerable burden of unexhausted improvements upon it, would not be so likely to provoke that wild bidding which has so often driven the old tenant out of his occupation. If a farm is really worth so much more at the termination of a lease, why should it be thought hard to allow the wag-going tenant for what he has done in improving it? And if he has not to be reimbursed, why should it be thought unfair to run the farm out before quitting? The very fact that it can be run out shows how completely the increased fertility is due to artificial means. This is, then, how the tenant reimburses himself—he runs the farm out. But how much better it would be to allow him for unexhausted manures and feeding stuffs at the end of his term. Our object should be to frame such a system of valuation that a system of improvement may be continuously carried on, despite changes of tenants. Such is, then, the state of the case. There are two parties who must be influenced by self-interest. So long as landlords are content with medium or present-day farming they can enjoy their property without granting new privileges to their tenants. So long as farmers have not ample security for capital invested in another person's land they will jog along as before. When, however, you convince the landlords that it is their advantage to grant security for invested capital, and that even the best farming is far behind what might be accomplished—that the highest rents are low to what might under an improved system be realised—then they will be likely to lend an ear to the often-told story of leases and tenant-right. It may be difficult for persons unacquainted with the peculiar relations of landlord and tenant to understand how any proprietor in the prospect of such advantages can deny leases to his tenantry. In illustration of this point I will quote from a recent contribution on the subject. R. G. Welford, Esq., Judge of the County Court of Warwickshire, in his excellent paper on leases which appeared in the number of "Practice with Science," for 1865, speaks as

follows of those landlords who are averse to granting leases: "The objectors may I think be arranged in three classes. Firstly, landowners who are determined at any sacrifices of their own incomes or economical interests to have their farms occupied by a dependent tenantry. Secondly, landowners who have a reasonable regard for their own interests in owning a well-tenanted estate, and truly desire to see their tenants farming well and prospering, but who object to relinquish this quasi-feudal control which yearly holdings give them over their tenants; and thirdly, landowners who wish to make the most of their property and have no special predilection for dependent tenants, but who, partly from want of knowledge of the business of landholding, and partly from participation in the ordinary opinions of their class, regard leases as one-sided bargains, which may benefit the tenants when prosperous, but will be of no use to the landlord when things go adversely." While we may recognise the first two classes of objectors as existing, yet we can hardly expect them to boldly assert the above as their reasons for denying leases. The last is the strongest and best argument, and a landowner would be justified in denying a lease which involves a one-sided bargain. We must break down the prejudices of those who disbelieve in leases, by endeavouring to show their immense advantage in a monetary point of view, and that the time for feudal superiority of class over class has for ever passed away. How frequently have I heard men of capital and education say, "I will never farm another man's property; if ever I farm I will buy land." This feeling springs from the dread of being placed in a dependent situation, possibly of having to give up political existence, of being exposed to the insolence of gamekeepers, of being unable to kill a partridge on his own farm, and of seeing the sporting let to a stranger. "Well," the landlord may answer, "let him buy land and become his own landlord. We also will maintain our landowning rights." If they came unanimously to this conclusion it is at their own peril, for such a state of mind is utterly opposed to agricultural advancement. It loses them a good class of men as tenants, prevents other men bred in towns, where such ideas are always considered intolerable, from entering into competition for farms, and it stultifies the energies of those who have already embarked their fortunes in farming. Mr. Mechi spoke out boldly and well before the Central Farmers' Club last November, when he said, "Agriculture is not yet treated on commercial or business principles. When it is looked upon as a business by our landowners, their agents and tenants, the practice in letting and hiring and holding will assimilate to the customs of our towns and cities." . . . . "We should," under such a new system of letting, "no longer witness that wretched unalterability which is too often the present characteristic of British agriculture—the antiquated gable-ended tenements called farmhouses, with their projecting beams and ceiling a few inches above one's head, the old crooked Adam-and-Eve fences, and the antiquarianism of the whole concern, which indicate a primitive, unaltered, and unbusiness-like condition of things." I think the picture a little over-drawn by that ardent apostle of agricultural progress, Mr. Mechi, but there is enough truth in it to render it worthy of respect.

What must we ask for?—If the foregoing remarks carry with them the sympathies of my hearers to any extent, the next question is—What must we ask for? and, is there a probability of gaining our point?

As to the last question, a great deal rests with the tenant-farmers themselves. Recently Mr. H. Holborow, of Willesley, near Tetbury, read a paper on farm agreements, before the Kingscote Agricultural Association. In the course of the discussion, Mr. J. C. Bengough said—"He believed it was farmers' own faults if they took farms at too high rents or on bad agreements; it was for them to combine together and say they would not have farms unless under certain agreements;" whereupon, we are informed by the agricultural journals, a voice exclaimed—"There never was such a thing as combination among farmers, and never will be." Who the owner of the voice which gave forth this oracular and prophetic statement was I do not know, but I think his somewhat irascible comment on Mr. Bengough's most sensible observation was uncalled for. A few years ago it might have been said with some truth, "There never was such a thing as combination among farmers," but happily farmers have lately followed the example of every other profession or business, and have commenced to lay their heads together. They have combined for the purpose of improving their live stock and implements and knowledge, and lately they have combined in order to make their voices heard in the House of Commons. Most successful have farmers been in their combinations, and I should say they are quite ready for united action upon any point which affects their interests. Still up to the present time there has been much too little of a common interest among them. The isolation of their position and the consequent difficulty of meeting with their fellows—their wide distribution and, although I speak under correction, their want of education, happily now disappearing, have all prevented them from organising a system of intercommunication for mutual information and sympathy. We are met to-day a corporate body, and as a member of a still larger fraternity, whose word will go forth and no doubt carry its influence, and this is a kind of combination which must become a power in the country. We at all events as a Chamber of Agriculture will gain a hearing, although the opinion of any one member might, if separate from the rest, be looked down upon as a cry of insignificant discontentment. In the next place what are we to ask for? I do not think any one is entitled to demand a favour. If we want something which will tend to our advantage we must be willing to pay for it or give an equivalent. Even then, we must remember that it requires two parties to make a bargain. In the present case the tenant-farmer would, I believe, offer a higher rent, he would embark in a more improving system of agriculture, and invest money in improvements hitherto looked upon as only to be undertaken by the landlord. He would also offer security that the property should not suffer during his tenancy. With reference to his demands I think long leases are an essential if knowledge and capital are to have fair play. This instrument should be short, and should contain no clause calculated to impede the tenant in the successful prosecution of his business. The Vale of Evesham code wisely ordains "The agreement of tenancy should contain no stipulation as to cropping, but if any dispute arise during the tenancy in respect of any course of cropping which the tenant may adopt, the same shall forthwith be submitted to the decision of arbitrators, &c. Every award made in these arbitrations shall be final and binding on both parties, and either party shall be at liberty to make such award a rule of any superior court of law." Very briefly I may say this proposed form of agreement is based upon the principle of allowing the tenant to farm as he likes, provided he farms well; of settling all disputes by arbitration; and of facilitating, as far as possible, the transfer of the farm from one tenant to another. Next, a tenant ought to have compensation for unexhausted improvements. Many lease-makers have made provision for the emergency of a change of tenancy by merely introducing restrictive clauses intended as a check upon the way-going tenant and a protection to the landlord. Now, I think leases made upon this principle are faulty, for two reasons; first, they fail in their intention, because you cannot make a man farm well by clauses in a lease; and, secondly, because the idea is somewhat unjust to the tenant. It is too much to ask a man to farm high to within three or four years of the termination of his lease, then to take measures for preventing him from realising his capital, and finally to re-let the farm at a great advance of rent. It appears to me that you cannot well get rid of the up-and-down system of farming with a simple lease, and that the more perfectly the tenant is prevented from taking out the artificial fertility which is the fruit of his capital then in the soil, the more unfairly you act towards him. This artificial fertility to a certain extent should be considered his own, and it is only reasonable that if the landlord insists upon having it he should pay for it. Hence I conclude that a valuation of unexhausted fertility is only just, and also that it is the only plan by which the fertility of land can be continuously increased. Thirdly, the tenant ought to be able to enjoy those amenities connected with the land he holds, not to the exclusion of the landlord, but sharing them with him. "You cannot both have your cake and eat it," and I think a landlord should not wish to let his land and yet retain rights which have been shown may easily become destructive to the very object of the farmer's toils. I allude to game, a subject which has lately been so ably and exhaustively treated before this Chamber that it leaves me nothing more to say upon it.

Conclusion.—I must now draw these remarks to a close. It may be objected to many of the suggestions I have made that they would fail in practice, for this reason—that farmers are not yet to be trusted with leases enabling them to farm without restriction as to cropping, or the sale of certain crops off the premises; that if farmers were as advanced in the knowledge of their own true interests as their town brethren, they might be allowed freedom, but not in their present state of knowledge. In short, that the remarks in this paper may at a future time become practical, but that at present they are unpractical. To such objections I answer that I believe in free discussion, and the benefit of healthy agitation. I believe the time for raising the question has come, and I have no fear that the tenant-farmers of England will be too suddenly emancipated from their present position. But let any noble landlord resolve to let his farms on the broad principles which I have attempted to lay down, and you may depend upon it he will have his pick of the tenant-farmers of England, both with respect to character, skill, and capital. It is worthy of observation, however, that mistrust on the part of the landlords as to the general run of tenants (and this remark is especially applicable in districts where poor or stiff soils and small occupations held by poor men is the rule), with regard to their knowledge of their true interests, is frequently urged against granting liberal leases. Nothing more than this can show the importance of education. The farmer, in making his bargain with the landlord, has to contend not only with a man who is in possession, and in a position almost to make his own terms, but generally with a man who is his superior in knowledge and address. If farmers disparage learning, and science, and books, as a means of absolutely increasing their profits in farming business, they must at least allow that if their education was equal to that of the landlords, agents, and solicitors with whom they have to cope, their social and business relations would be amazingly altered in a very short period of time.

BOTLEY AND SOUTH HANTS.

Farm Buildings.—At a late meeting of this club the subject for discussion was "What re-arrangement and modification of farm buildings, cottages, &c., is required to adapt them to the present system of farming?" And the following is the opening paper by Mr. Blundell:—

In taking a drive of only a few miles in almost any county in England we must notice the deplorable state of many of the homesteads, and this circumstance will show the propriety of discussing the subject on our card. I therefore proceed to introduce to your notice—first, a plan of farm buildings designed for the purpose of being fire-proof, and leave this meeting to determine how far it is desirable to erect such in preference to those in the ordinary way, composed of and built in part with inflammable materials.

The plans and sections which I now hand you for inspection are adapted for an occupation of from 700 acres and upwards, according to the soil and proportion of arable and pasture it may contain. As, however, it is erected upon the ridge-and-furrow principle in roof, and of 12-feet squares on the ground plan, it is easy to be diminished or multiplied according to the extent of a farm. In speaking of the buildings as fire-proof, it applies only to that part, and which is by far the most important part, viz., where the cattle are housed and accommodated, and you will notice that it is quite separated from the barn at one end and the manure sheds, &c., at the other, by a roadway 15 feet in width. You will also notice that no attempt has been made to render the barn, straw, hay houses, &c., fire-proof, because they would often contain a sufficiency of inflammable substances which in the event of fire would fuse the metal, had the structure been composed of metal only. I must call your attention to some advantages of fire-proof buildings. It often happens that a considerable number of cattle perish in the event of burning farm premises, the insurance saved on which and buildings combined may amount in this case, and according to the plan before you, to a considerable sum of money. As, however, many would hesitate to adopt so novel a plan, the sketch is made to show the way in which all the advantages of a farmstead may be obtained by the use in its construction of the ordinary materials, namely, brick, slate, wood, and glass; whereas the materials used for the fire-proof would consist of brick, iron, and glass only. I will now direct your attention to the position of the buildings, that is, they should run east and west, with the roof constructed of iron on the south side and glass on the north side of the ridge for the fire-proof; but the roofing of an ordinary building should be slates placed a little apart to allow ventilation on the south side, with glass on the north side. By this method of roofing ample light is obtained without the sunlight during the middle of the day. This is important, seeing that the flies always follow the sunlight, and are so annoying to cattle of every kind during the summer months. We will now speak of the accommodation of all kinds both for the animals for their food, and access to them, and also the space allotted to the implements, machinery, and manures. It is important also to notice that the fittings and the divisions of boxes and indeed all the compartments may be made of iron in shifting panels, so that all can be removed if required to form a covered farmyard. The accommodation for horses, as shown in the plan, is boxes 12 feet by 14 feet, giving ample space for one animal in a loose box, or they may be tethered in pairs. These boxes may be used for the manure to accumulate under the animals, or otherwise filled with earth, and the manure moved every day as in ordinary farm stables. Here the lecturer pointed out to the meeting the various positions assigned to the cattle, and the reason for their being so placed, and showed the advantageous situation of the offices for cattle food, and tramways connected with the whole, showing that complete communication existed throughout, and that food of every kind can be conveyed on trucks from any one part of the building to the cattle requiring it, and in the same way both litter and manure can be conveyed by manual labour only to and from the cattle pens and yards. With regard to the cost of such buildings as now on the plan before you, it would be 2000*l.* in iron, and if built with the ordinary materials 1700*l.*

Outlying Buildings.—There is one feature in respect of buildings which I think deserves especial attention, viz., that rather than erect large masses of buildings on a large farm it would be preferable to erect lesser ones in outlying lands, and I have here some plans which I think well adapted for the purpose.

Having seen on some farms during last summer several outlying yards and sheds had been erected upon the old principle of enclosing a certain area with sheds, leaving an open yard in the centre, and although the sheds were good and costly there was, to my mind, an objection besides expense, as where cattle and pigs feed and lay promiscuously the stock and manure suffer in value in consequence. To remedy these evils I hand a plan for your inspection, being a double range of boxes with hay and root house at the end, with concrete floor, connected by a tramway for feeding, and this style of building can be erected at a much cheaper rate than any I have seen, to feed a given number of cattle and pigs, with the additional advantage of thriving stock, and manure well made and preserved. The advantages to the farm of such outlying buildings are self-evident—ricks of corn may be built near them, threshed on the spot, and the corn winnowed, and the straw made into manure near to the land requiring the same. I have for many years thought that accommodation for horned cattle whilst feeding on pasture land was a matter which ought not to have been overlooked, and on extensive pastures it would answer to erect a building such as I now offer a plan of, for shelter in bad weather and from the effects of the hot sun in summer time. The building should be placed at a division where two pastures join, in order that the cattle may have access whilst feeding in each meadow. The shed, you will observe, is placed east and west, so that one side is a shelter in winter, and the other a sunshade in summer. I recommend that the shed should have a sunken floor, to hold earth or ashes for the purpose of absorbing and preserving the cattle urine, &c.; and for both dairy cows and young stock it is essential that their droppings should be returned to the soil for manure, for we know how grass-land is depreciated by the continued feeding of such stock, and when the animals go for shelter to some high hedge or clump of trees, where their droppings go for nothing. The plan of shed allows of increase or diminution, according to the size of the pasture; the sheds are also fitted with racks for green fodder in summer when required, and for hay or straw in the autumn or winter. For paddocks or small pasture enclosures, however, I advocate a circular shed, containing three divisions; one division pointing to the north will therefore furnish one morning and one afternoon shade from sun, and one shelter facing south for the winter. I need only say that the circular shed has the same objects and advantages in use as the elongated, and should be managed in the same manner. I beg to offer for inspection the plan of a shed with yards attached; also a root and hay house, which I designed for our vice-president, and which he has built with every prospect of beneficial use, the object being (situated as it is in the midst of pasture lands) to be used both in summer and winter for assisting cattle with additional artificial and green food, and for preserving the manure by accumulation, as in the box system, for application to the pasture and meadow land adjoining. This building is thatched, as being cooler in summer and warmer in winter than either tile or slate roofing.

Re-arrangement of Buildings.—Another branch of the subject relates to the re-arrangement of buildings, and the conversion of barns and other buildings into use for other purposes than they were originally intended.

This, however, I can scarcely explain as a whole, except that I have recently designed and carried out a re-arrangement of old buildings at Holly Hill Farm, the property of Captain Maxse, R.N., which I trust will be appreciated. I wish to say that any substantial old thatched barn may be converted into cattle boxes of the best description, and in my own case I have made them superior in every way for the fatting of cattle to any building I have seen erected specially for the purpose; and I submit for your inspection a plan and short statement, published in the Royal Agricultural Journal, at the request of the late Editor, Mr. P. Frere, the cost of each box being estimated at only 21*s.* each, including divisional poles, excavation, feeding path, &c. Certainly, not the least important branch of our subject remains to be considered, viz., the cheapest and best kind of cottages suitable for farm labourers, and to show their advantages. I think it is admitted that in many parts of the kingdom a sufficient number of labourers cannot be found for farm work unless they are localised by good and conveniently-placed dwellings. In conclusion, Mr. Blundell said he trusted the members would see the advantage he had endeavoured to show would be obtained by having improved farm buildings. He need not point out to them the great strides in advance which had been made in connection with farm buildings, to show the enormous sums of money which were expended some 20 or 30 years ago in constructing them on improved principles; and he referred more particularly to Scotland, where they could go for many miles without seeing anything but large masses of buildings, which entailed upon them a great deal of expense by their having to carry everything to the homestead; and he must say that some of the buildings adopted in that part of Hampshire and other parts of England were an improvement on the Scotch system. He would warn landowners and others against putting up great masses of brickwork, but it was necessary to do something in order to keep pace with the rapid advances that had been made in agriculture.

The plans were then spread out on a table, where Mr. Blundell ably explained them in detail, and answered questions that were put to him by various members. In reply to Mr. T. Warner, he said that he had not provided for a smith's shop, as it was only on gentlemen's own property that they were generally erected. If one was wanted, it could easily be inserted in the plan without destroying the unity or the utility of the building. The fire-proof building would be constructed of iron, brick, and glass throughout, and while he gave light and air, the buildings would be so placed that the animals would not be exposed to the heat of the sun. The system of tramway was a very simple one, and would render horse labour at the farm

almost unnecessary. With hand labour, things could be moved about from one part to the other with great ease.

Reviews.

Transactions of the Highland and Agricultural Society of Scotland. W. Blackwood, 37, Paternoster Row, London.

This annual volume contains, as is proper enough for a country where plantations are not only a most important branch of agriculture proper, but a great agent in the reclamation of uncultured lands, a very large number of arboricultural articles. These, with descriptions of works of reclamation, accounts of Turnip and Grass cultivation, a description of agriculture in Dumfriesshire, Isle of Man, Caithness, and some reference to live stock, make up the practical part of the journal. In addition to these we have the proceedings of the chemical department, and the official appendices. The number is full of substantial and useful information. We quote from one of the county reports a fact relating to the extension of Ayrshire dairying in the county of Dumfries:—

"The agricultural statistics have never been collected in such a form as to determine how many Ayrshires were in the county at any particular period. Their number, in comparison with the other breeds, is therefore a matter of conjecture. Five and twenty years ago, Galloways were the universal breed, with the exception of the Ayrshire cows in a few dairies, and a few Shorthorns close upon the Border. Now every arable farmer, almost without exception, in at least four or five of the parishes of upper Nithsdale, has a dairy, and the system prevails more or less in the whole of that dale, while Ayrshire cows are kept on many of the farms in every part of middle and upper Annandale. The increase of Ayrshires in point of numbers, and how the *fashion* has set in in their favour, may be inferred from the fact that, whereas, at the time we specify, it was never dreamt of to offer a prize for them at a local show, now an equal number of prizes are given for them at almost all local shows as for any other breed of cattle, and the attention of the public is divided between the prize-takers belonging to the two breeds. A further idea of the extent of that increase may be gathered from the fact, that whereas there were only 14,025 milch cows in the county in 1855, there were, as we have seen, 15,861 in 1866, showing an increase in 11 years of 1836, or fully one-eighth. Even more than the above number of Ayrshires would be added in that time, for the Galloways are diminishing almost as much as the Ayrshires are increasing.

"Were the writer disposed to give way to sentiment, he might give expression to a sad lament, that the substantial beef-producing Galloways should be supplanted to so large an extent by the less familiar and less imposing Ayrshires; but as his present duty is to act as a 'reporter,' he rests contented with simply recording the changed state of things."

Commercial Reports received at the Foreign Office from Her Majesty's Consuls Residing in Turkey in Asia. 1866, 1867, 1868.

The various Consular Reports from Turkey give an interesting account of the agriculture of Turkey, such as it is, and show us the decayed condition of a country that has seen better days. The nomenclature of the localities and places in this country is greatly confused. The province of Bagdad includes ancient Mesopotamia and a good deal besides. North Syria includes the country south of the Taurus chain of mountains, as far as a line drawn from the seaport of Beyrout through Palmyra to the Euphrates. South of that line to the confines of Arabia all is burning sand, or nearly so, and requires no agricultural description. Anatolia and Asia Minor, Kurdistan, Armenia, and Trebizond occupy the whole of the northern portion of Turkey, north of Syria, and between the Ægean sea on the west and the Persian dominions on the east.

The mineral wealth of the country is very great: wages are low—6½*d.* to 10¾*d.* a-day—and this alone shows the want of employment. Even the common roads are neglected, and those famous caravan routes which connected the great towns of the East with the coast are falling to decay. Locusts are often allowed to increase to such an extent as to destroy the crops. They can be kept down by diligently destroying the eggs for a few seasons; but if even an English farmer can seldom be found who will eradicate the last root and joint of "Couch," what can be expected of a lazy Turk? Concerted action and Government help are required, but the measures taken are seldom sufficient. One year the Government piously ordered holy water to be sprinkled, from the mosques, towards the infested districts. Perhaps this was typical of irrigation, the only means by which the maximum can be obtained from Turkish soil in general. In what may be called the upland or highland districts, including the lofty plateaux of Kurdistan, as a centre, and thence southwards to the plains of Mesopotamia, and northwards to the Black Sea, irrigation ceases to be a *sine qua non* of production. The climate is moderate, and agriculture is carried on in the valleys through which run the numerous rivers that afterwards water the southern plains. A spot of unexampled richness in this division of Turkey is the Pashalik of Kharput, midway between Erzeroum and Aleppo. Four rivers flow through it, two of which unite and form the Euphrates.

The general average of farms in Kharput employ 12 oxen and 20 souls, among whom are eight able-bodied labourers, the rest being boys, women, and young children. All, however, excepting infants, contribute to the general labour required to till it, collect the harvest, and other incidental work. The system of farming pursued is to divide the farm into four equal parts, of which one is sown every year with Wheat, another with Barley, and the third with various other seeds and Cotton, the fourth portion remaining fallow. The landlord provides seeds and constructs the rude mud cottages for the fellahs at his own expense; the latter finds labour, implements, oxen, and everything else. The proceeds, after deducting the seed and the Government tithe, is shared equally between the two. A farm such as we have described is sown with the different grains exhibited in the following table, which is a balance-sheet of a Kurdistan farm worked with 12 oxen:—

Receipts.

Wheat	£68	3	7½
Barley	19	1	9¾
Cotton	43	12	8¾
Mustard	0	14	6½
Castor Oil	3	13	7½
Beans	3	12	8¾
Yellow Peas	5	9	1
Black Peas	1	16	4½
Vetches	3	12	8¾
Chick Peas	2	14	6½
Millet	1	16	4½
Indian Corn	1	9	1
Lentils	1	16	4½
Madder	0	12	8¾
	£158	6	4

Expenses.

Seed	£19	10	0		
Tithe	14	15	5½		
	34	5	5		
	£124	0	11		
Deduct one half for landlord's share	62	0	5½		
	£62	0	5½		

Labourers' Expenses.

Casualties among oxen	£4	12	0
Implements	1	17	0
Poll tax	4	3	0
Military tax	2	6	0
Food for 20 persons	24	14	4½
Clothing	9	4	0
	46	16	4½
One year's savings for 20 persons	£15	4	1½

The savings seem small enough, but they are increased by the diligence of the men and women during the long winter months; the former occupying themselves in weaving the cotton and wool thread, spun by the women during the leisure hours in summer, into the coarse cloths in use throughout Kurdistan for shirts and jackets; and the latter in knitting stockings worn by townspeople and Kurds, from the wool they spin and dye at home. In this manner 9*l.* 1*s.* 9*d.* are added to the year's savings, making a total of 24*l.* 5*s.* 10*d*½. With this they purchase a few trinkets for the women, copper utensils, and sheep, whose produce furnishes them with thread, butter, butter-milk and cheese. They rarely touch fresh meat, contenting themselves with burghue (hulled corn), made into pillau with butter, milk, bread, eggs, fruit, and vegetables. In autumn a couple or three sheep are killed, and their flesh made into "bastoorma," which gives a relish to their winter fare. Altogether they are well off, more comfortable than in any other Turkish provinces I have seen, or than the same classes in Europe.

The productions of the Kharput province are very various. We are told that, besides all kinds of grain, cotton and silk are both cultivated; opium is grown at Malatia; Gall-nuts, gum-tragacanth, and shoemaker's glue (cot) at Paloo, near Kharput; madder roots and yellow berries at other spots; vineyards abound everywhere, yielding syrup and raisins as usual, as well as a tolerable wine, which is sent in large quantities to Erzeroum, Siwass, and Diarbekir. The Mulberry grows luxuriantly in every district; its fruit is either dried in the sun for winter use or distilled into rakki. It furnishes the materials for a paste called pesteck, a favourite delicacy in the northern provinces.

The neighbourhood of Mosul and between Mosul and Bagdad appears to be an equally fertile tract, a little more tropical in its character. On low levels, near the rivers, Rice is grown. The finest Date groves are south of Bagdad, near the Persian Gulf. The vast and fertile plains through which the Tigris and Euphrates flow, find a natural outlet by the navigation of the former river, which, after uniting in one stream with the Euphrates, falls into the gulf, below the port of Bussorah.

To return to Kharput: it is to some extent an exceptional district; the fertility of the soil, and the demand for produce in Diarbekir and other populous towns, has enabled an industrious community to establish itself in security, free from the attacks of the wandering tribes that are the curse of other parts of the country. A considerable Christian colony has sprung up; the labouring classes are nearly all Christian, they have acquired property in the land, in fact they monopolise all employment and occupations requiring talent. The old Turkish landowners, who keep open house with the ostentatious extravagance common to old Moslem families, and live in great apathy and idleness, would in time be all "bought up" by these active competitors if the latter had equal rights and privileges. The bad system of farming the tithes has been abandoned here.

To open up this and the best parts of eastern Turkey, a railway is needed from Alexandretta (the port on the Mediterranean), through Aleppo to Erzeroum; but there is no security for the introduction of foreign capital; and as for native energy, the port just named is exposed to the malaria from a pestilential marsh, which keeps half the people in bed with ague every summer, and yet the sum of 2000*l.* to drain the marsh is not forthcoming. A Turk leaves all to fate, and dies rather than exert himself or take the least trouble. A characteristic story is told of his apathy. Trebizond, an ancient port on the Black Sea, is the emporium for rhubarb, which grows in that part of Turkey. Hundred of bales are always in store ready for export, but not a grain of this valuable medicine can be obtained in the town, even in cases of necessity.

One of the best districts for the growth of Cotton appears to be on the banks of the river Khaboor; the rich soil has not been turned since Tamerlane devastated the neighbourhood and destroyed its town in the ninth century. The ground for miles about, level and free from stones, shows the marks of numerous canals, where an extensive system of irrigation was carried on. Sloping gently away from the river is a beautiful prairie of Grass and lovely flowers, which was once flooded, at will, by its waters, and by those of other streams that flow from the heights of Mount Masius. But this important region is now quite unavailable; the worthless Shenar Arabs, for want of a controlling government, wander over it at will. The industrious peasantry have been driven away by their extortions.

Our sketches are condensed from the accounts of men of business who are employed to sustain, as best they may in such a country, the interests of British commerce. Space forbids our using half the materials before us, even in relation to agriculture. The mineral wealth of Turkey is also very great. A splendid country, once the nucleus of civilisation, and lying at the very gates of the most civilised countries, has fallen into the depths of barbarism. Like a farm uncultivated, Turkey is an unoccupied waste. There was certainly some pretext for the three Russian invasions of this century. The nation seems irreclaimable, but we trust the soil may yet be reclaimed, for the good of the subject races who dwell on it.

Farm Memoranda.

West Sussex: *April* 20.—We are now at the end of one of the mildest winters we have had for many years, but the spring has been backward for feed. Grass, Turnips, and Vetches, as well as Italian Rye-grass, Winter Barley, &c., kept growing up to the end of February, but during March there was no growing weather, and the pastures at the end of the month had a very bleak appearance. Flock-masters were therefore hard pushed to keep their stock through, and now they are eating what ought to have been left for hay, so that next winter there will not be so much of that. Sowing is over in most cases, and the season, on the whole, has been favourable for this operation; the land has worked freely, and Oats and Barley lately sown have come up well, but anything that was sown early lay long in the ground. Wheat looks well, perhaps it never promised better; it is not very high out of the ground, but the blade is broad and healthy, and it tillers well. There has been a good deal of Clover failure, and some has been ploughed up for Peas or other crops, and stock will have to be bought cautiously next autumn, unless the root-crop turns out more than usually good. The lambing season is over, and has been a successful one; lambs are now coming into market plentifully, but the demand is not at all active; trade, however, may get better as the weather gets warmer. The best quality of mutton maintains its price; of second-rate there is too much, and lower prices have to be taken. Fallowing work is rather behind yet, as little has been done, but we hope to overcome it soon. *G. S.*

Chadbury, near Evesham.—[The following is a report by Mr Randell, in the current Number of the Journal of the Royal Agricultural Society]:—Your request that I will describe my farm before answering the questions of your circular as to the effects of the drought of the past season and the proceedings consequent thereupon, seems to involve the necessity for some detail as to the changes which cultivation has made upon the farm since I entered upon it in the year 1839; the increased stock, more especially of sheep, which those changes have enabled me to keep, and consequently the extent to which the drought of this year has affected me.

The farm consists of 490 acres, about 90 of which are in pasture and meadow, the remainder being arable, dividus thus:—100 acres of mixed gravelly soil, fair Turnip-land; 180 acres of heavy clay-land of ordinary quality; 120 acres of very poor clay.

At the time I entered upon it it was in a very bad condition. All my agricultural friends cautioned me as to the disastrous consequences which would follow my attempts to improve it, and the offgoing tenant and the old labourers alike assured me that, as to the 120-acre portion, "it never did grow a crop, and never would;" in fact, nearly all the land of this description had been entirely uncultivated for several years.

Obviously, the first thing to be done was the draining of the clay-land; next, the removal of unnecessary fences and all hedgerow timber from the arable land. My excellent landlord, Mr. Holland, allowed pipes for the former, and gave his unqualified consent to the latter. Finding limestone under one of the fields, I proceeded to burn and apply it to the fallows for roots, and after Vetches; but before the expiration of my second year I came to the conclusion that it would be cheaper and more beneficial to burn clay than stone, so I commenced the process of land burning and burning clay in large heaps from the old hedgerows and banks, described in a letter which appeared in the fifth volume of the Royal Agricultural Society's Journal. The effect of this treatment was that in the fifth year my flock of ewes had increased from 90—the number on the farm when I entered—to 300, and my growth of Wheat from about 225 quarters in each of the two first years to 1000 quarters. But, notwithstanding the influence of draining and burning in rendering it comparatively easy to produce roots upon the clay-land, clay it still remained; and those roots could not be consumed where grown without injury to the succeeding corn crop. I therefore resorted to shed and yard feeding of sheep; and my practice then settled down to growing Rape and early Turnips on part of the clay-

land, to be eaten off in October; Turnips and Swedes upon the lighter land, to serve till Christmas; and then Mangels in the yards till the end of April. In this process we use burnt soil in the sheds, 18 inches to 2 feet deep, turned over by degrees as it becomes saturated with urine and dung. This serves a double purpose,—preserving the feet of the sheep, and making a very valuable addition to artificial manure applied to the next root crops. Let me say, however, that it is a mistake to suppose—as I have often heard—that sheep will have foot-rot if kept on straw. I frequently winter the ewe tegs without the aid of burnt soil, and never have lameness. All that is required to guard against is that the pens be littered daily, but only just so much as is necessary. In this way the manure is so consolidated by the treading that no fermentation goes on, and the cause of foot-rot in yards is avoided. There will be no shed-feeding this winter. Rape and young Turnips must be eaten where grown.

I occupy now 250 acres in addition to this farm, all grass-land except 30 acres, and mainly used for dairy cows and young cattle; folding over during the winter, with ewes eating chaff, the portion of land which has been mown or grazed by dairy cows during the previous summer. Since occupying this additional land my flock of ewes has increased to 400; but the food-supply for them almost entirely (except during the months of December and January, when they are employed as above in counteracting the effect of mowing and dairy farming) is grown upon this farm. To show how this is done, I must give my usual cropping in detail:—

Wheat, 200 acres.
Winter Beans, 20 acres.
Clover for mowing, 20 acres.
Mixed seeds to graze, 60 acres; half of which is broken up in July for Rape.
Fallow, with green crops, 100 acres.
The fallow cropping will be in this way:—
30 acres of the poor clay-land will be put Vetches, part Italian Rye-grass, to be eaten off by the end of June; the land fallowed and prepared for Wheat by steam, having grown no other green crop.
25 acres of Mangels, manured after harvest; steam-ploughed and planted on stale furrow.
25 acres of Cabbages of different kinds, to be ready in succession, planted upon Wheat-stubble well manured in the autumn, eaten off in May, June, and July, and planted with Swedes, Turnips, and Rape.
15 acres of Winter Oats and Vetches, eaten off early by ewes and lambs and ewe tegs, and planted with Swedes and Turnips.
5 acres of late Cabbages, to be eaten off in August and left for Wheat.

In this way the fallow quarter provides a succession of food which, with the mixed seeds and an occasional but by no means frequent change to a grass field (for the grass-land does very little more than provide hay and carry the dairy stock and young cattle), carries the ewe tegs, ewes, and lambs through the summer, and produces sufficient roots to winter the lambs. The wether lambs are sold fat at the end of April or early in May; 50 or 60 yearling rams are kept, after finishing the Mangels, on Cabbages till September. This process has been uninterrupted—except 1864—for several years. But I must depart from the order in which your questions stand to follow out the subject of cropping, and show how the drought of this year has affected me and how I have provided for carrying my sheep through the approaching winter.

In the first place—and for the first time since I have tried to grow them—my Mangels, except about 2 acres, entirely failed. The field intended for them is naturally a poor piece of clay, subject to an unconquerable weed which only clay-land farmers know anything about—wild Onions. A manuring of 30 loads per acre in the autumn of 1867, coupled with a rather deep steam-ploughing and a very mild winter, brought up such a crop of these weeds that scarifying only, previous to planting the Mangels, was out of the question. It was, therefore, twice moved with Smith's steam cultivator as deep as it had been ploughed, in order to get under the Onions. The land was thus left rough: it dried through; we effectually got rid of that crop of Onions, but no Mangels vegetated. It was subsequently scarified and drilled with Turnips, but to no purpose; afterwards with Rape, which lay in the ground till we had rain early in August. In the same way 70 acres of Swedes, Turnips, and Rape also failed; and at the end of July I found myself with upwards of 1000 sheep and lambs, and nothing for them but 5 acres of Drumhead Cabbages, stunted by the dry weather, and 2 acres of Mangels.

(To be Continued.)

The Poultry Yard.

The first Napoleon called us a nation of shopkeepers, and the name has stuck to us ever since. He might with equal truth have called us a nation of farmers, as we all seem to have a natural love for agriculture and that which relates to it. Men engaged in commercial pursuits in town get away a few miles into the country, and devote their spare time and money to farming, with a zest and delight almost unknown in any other pursuit. It is curious to observe how those who are by birth and association real and true cockneys, become suddenly learned about cattle and implements, during the cattle show week in London. Publicity and notoriety are sweet to many, however painful may have been the path to reach them, and it is with the same sort of pleasure as that with which a man sees his name in the *Gazette* that we remark the position accorded to the poultry question in last Saturday's *Times*. Any how, it must denote progress and rising importance to the feathered portion of our farmyard stock. We have been accustomed for years to the little paragraphs introduced from time to time from the Customs' reports, in which the importation of eggs is spoken of in figures that puzzle one to read off from the very number of them. Now that half a leader has been devoted to them, jubilant may be our fowls and ducks. The calculation as to the cost of a fowl on its native cabin floor in Ireland, its rise and progress in value until it reaches the consumer's kitchen, cannot fail to recal to mind the prospectus of Mr. John Jones Tibbits in "The Caxtons," when he proposed to make everybody's fortune with his fruit gardens and orchards. The present Lord-Lieutenant deserves every one's thanks for drawing attention to a subject more or less important to us all, and hitherto almost universally neglected. But there are fowls and fowls, and in all probability as much difference between that which his lordship ate at 7*s.* and the one which was to cost 6*d.*, as between the English horse to be forthcoming at the next show and the Irish pony. The climate of Ireland is very favourable for all kinds of stock; even lions breed in the Zoological Gardens at Dublin, until it becomes a serious question how to dispose of the cubs. Irish chickens may undoubtedly be bought on the ground at certain times of the year at 6*d.* each, but then they are not in condition of flesh or growth for table use. They have to pass through several hands before they reach the consumer. When killed and sent to market they are subject to freight both by rail and steamer, neither of whom work for nothing. The present must be admitted to be the dullest season ever known in London, and the demand for poultry is not nearly up to its average. The principal consumption of the Irish poultry imported into England is in the metropolis, next comes Liverpool, then Manchester. The Irish fowls, as imported, are thus classed, according to their quality, and we give the average prices they have realised during the last ten days in the London market:—

Wexford fowls, from	..	2*s.* 3*d.* to 3*s.* 6*d.*	each.
Waterford do.	,,	.. 2*s.* 0*d.* to 2*s.* 9*d.*	,,
Armagh do.	,,	.. 1*s.* 9*d.* to 3*s.*	,,

From the above has to be deducted salesman's commission, market toll, freight, and the higgler's, or dealer's expenses and profit in collecting the birds. Thanks to the enterprise of some of the railway carriers, there is now no difficulty in the transit. Some of the large firms even provide baskets for bringing the fowls over. The prices above quoted show that if the starting point,—namely, the prime cost, 6*d.*—be a correct one, there is a good profit to be made in fattening for the London market; not that there is any probability of the Irish fowl reaching the price of 7*s.* until the breed is very much improved and the feeding very much amended. At present the birds, especially those from Armagh, are badly fed, killed, and prepared; those from Waterford are better, while the Wexford people take more pains than either in fattening, killing, and picking, and consequently reach the top price. That the quality will go on improving we may reasonably expect, but that the price will enable us to buy the Irish fowls of good edible quality at the price mentioned, viz., 1*s.* or 1*s.* 6*d.* each, is doubtful. We cannot say whether or no the retail price of fowls in Dublin reaches 7*s.* per head, but we know that the wholesale, indeed the feeder's price of the best English fowls does, and even exceeds it at this time of year.

The first dotterel of the season was in Leadenhall Market on Thursday the 22d.

A common blue heron was seen flying over Covent Garden Market in a westerly direction on Wednesday morning.

—— In our last Number we admitted an article on this subject from a foreign correspondent, which we have little doubt will cause some discussion, and many doubts, among poultry fanciers; it was on the hatching of chickens—that is, taking them out of the shell by human hands, instead of leaving that work to the hen. People have an idea that the hen sits on the egg for a certain time, and that when the time comes for hatching the chick bursts the egg and comes forth; there never was a greater mistake—the chick until liberated from the shell "by outside aid," is as incapable of motion as if it formed a solid with the egg, which it nearly does. You might as well enclose a man in an iron boiler, and tell him to get out without tools, as expect a chick to get out of the shell without help. The chick grows and swells in the inside of the shell, until at last the excrescence on the point of the beak of the bird presses against the inside of the shell, and bursts up a small scale; of course when it does this, it at the same time breaks "in that spot" the inside skin of the egg—this admits the air, in a short time it breathes and gets strength to cry loudly; the hen then sets to work to liberate it, she brings it forward under the feathers of the crop, and supporting it between the breast-bone and the nest, begins the work of setting her progeny free. She hitches the point of her beak into the hole formed by the raising of the scale by the chick's beak, and breaks away the egg skin or shell all round the greatest diameter of the egg; the joint efforts of the hen without and the chick within then liberates the prisoner, and he struggles into existence, and gets dry under the feathers, and with the natural heat of, the hen.

All female birds who set on their eggs to hatch them have the hook in the beak strongly developed; even the broad-billed duck and the goose have these hooks specially developed, and with them they liberate their young. In Australia, where everything seems to be by contraries, it is the cock of the brush turkey that hatches the eggs, and not the hen. It would be interesting to know whether the hook of the beak is better adapted for this service in the male of that bird than in the female; the hook on the beak of the ordinary cock of the common fowl is quite different from that of the hen—it is adapted for wounding in fight, but not for the hatching of eggs.

Our informant on this subject has all his life paid great attention to the facts as here stated, and has watched the hatching of every kind of domestic bird. They are all very jealous of being seen, and will at once stop in their operations if disturbed by personal intrusion; but the facts are as stated, and any poultry-keeper can prove it if he is observant enough.

Calendar of Operations.

April: *Paring and Burning*, if the land is level and free from stones, is generally done by a horse-paring plough; but if it is full of stones, unlevel, or covered with ant-hills, the paring must be done by the breast-spade or breast-plough. The depth or thickness of the turf cut depends upon two things—the thickness of the effete vegetable matter in the swards, and the quantity of ashes required. From an inch to an inch and a half is perhaps an average; but in some peaty soils it is twice this depth, while in some cases a shallow plough furrow-slice is burned for the sake of the ashes. This latter, however, is generally termed stifle-burning. The horse-plough and breast-plough will both cut the sods into short lengths and reverse them. In dry weather they are soon ready for burning, but otherwise they require to be set up to dry. Sometimes a team with a heavy harrow keeps tossing about the sods until sufficiently dry. They are, when ready, burned in heaps with a smouldering charring fire, so as to produce black ashes. A small allowance of straw per acre is generally given for kindling the fires. The work may be done for about 15*s.*, including the spreading, and about twice the money when the breast-plough is required, if done by contract.

Turnip Fallows.—After paring and burning, as soon as the ashes are spread the land is ploughed about 3 or 4 inches deep. It is then harrowed, smashed across, hollowed and clod-crushed, so as to break down the sods and incorporate the ashes. It is then ploughed about 3 inches deeper than before that, bringing up a fresh sod from the bottom to the surface. This fresh sod is broken and mixed with the soil below by means of the harrows, cultivator, and clod-crusher. Rape or Coleseed may be sown on the flat by the liquid manure and seed drill, or the land lie until next month for Swedes, or June for Turnips. If the land is naturally poor, 3 cwt. of soluble manure may be drilled in with 5 lb. of Rape seed.

Turnip Fallows after Stifle Burning and Clay Burning.—As soon as the ashes are spread upon peaty soils, they are mixed with fresh staple, similar to the ashes produced by paring and burning. Had the work been done in autumn or summer an equal depth of fresh soil would have been brought up to the action of the winter frost, but at this season the ashes may be mixed with only 2 or 3 inches of fresh staple, and sometimes no more than heavy harrows will bring up, or a light scratching with the cultivator. Much depends upon the soundness of the peat or subsoil below. When the surface of clay lands are stifle burned, if the land has been previously under the plough, the ashes may be mixed with the shallow staple by means of the cultivator, harrows, and clod-crusher. The old plan was to plough, harrow, and roll, but under this practice it is more difficult to get the ashes thoroughly incorporated with the staple, and the proper mixture of the ashes is the practical rule. The same rule applies to clay ashes burned in large heaps when carted and spread upon the surface of arable land. But if the land has not been previously under the plough, or if it is in a poached and worse state, the ashes require to be cautiously mixed with fresh soil, as in the case of peaty soils. It is better to stifle burn such soils in the summer time or autumn.

Draining and Trenching.—Some landowners and farmers prefer breaking up waste lands, old pastures, and exhausted fields from mismanagement by trenching, in preference to paring and burning. The work is best done early in winter, but in some moist climates, and also in dry ones, if there is a command of liquid manure, it may be profitably done after a Lady-day entry, or as late as April, provided the subsoil, brought to the surface, is sound and friable. If the land has not been previously drained, the work of draining should precede that of trenching. Examples might be quoted in which the stones dug out in trenching, when broken, filled the drains, with the exception of the first four drains opened; when the land between them was trenched, the stones from it were carried across by boys and women to the next four drains; and so on. In the absence of stones, tiles are used in draining. The trenching is generally from 20 to 24 inches deep, the top spit or sod being turned into the bottom of the trench, the bottom spit being thrown over it. When the work can be done without picking, it may cost 4*l.* per acre, but if the bottom spit is full of stones and requires picking, 5*l.* to 6*l.* The trenching in some cases may be done by horse or steam-power, a trench-plough following a common one. If the subsoil is a stony clay, poaching in, carrying or carting off the stones in showery weather should be avoided, but the trampling of gravelly soils in carting off stones will do little harm as the sods below keep the ground sufficiently open. On no account should the sods below be disturbed until they are thoroughly rotten. A sufficient depth of mould for covering artificial manure and seed can be raised by the harrows and clodcrusher. If necessary, the harrows may be loaded to keep them down. If there is a command of liquid manure in a diluted form the land should be well soaked with it as soon as it is trenched, and then allowed to lie until the effete vegetable and excrementitious matter is rotten, which will be in time for Turnip sowing. Lime may be applied if the land requires it. In most climates the sods will rot in a month's time sufficiently to grow Turnips with superphosphate—4 cwt., more or less, according to the nature of the land. If the subsoil indicates the need of liming, lime should be well harrowed in before the seed is sown.

Lime is applied in very varied quantities to Turnip

fallows during April and May, the dose running from 50 up to 500 bushels of newly calcined lime from the kiln. Applied to newly trenched land, it powerfully promotes the decomposition of the vegetable and excrementitious matters it contains. In the centre of each perch a heap of the lime shells is placed from the cart in heaps, and then covered with earth. In dry weather the slaking may necessarily take some days, but if the ground is moist, and the air humid, the heaps soon slake. They are then spread and well harrowed into the surface.

Hoeing by hand and horse-hoe is general now among Wheats, Beans, Peas, and early Potatos; Wheat hoeing should be finished in time for the rolling of the land for the reaping machine before the plants are too far advanced.

Grass seeds may be rolled into hoed Wheat, but if the Wheat has been sown broadcast it may be better to roll heavy land, and sow the seeds and then harrow in with light harrows. In lighter soils the seeds may be rolled in.

Soluble manures are sown broadcast, and are either hoed or harrowed into crops requiring them. In moist weather a shower will wash them into the roots of crops.

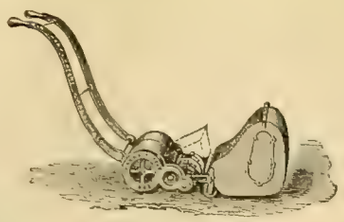
The pastures entered upon at Lady-day may yet be renovated by top-dressing and Grass seeds. Before the manure is applied the land should be carefully gone over, and Tussacks and weeds of every kind above-ground removed. The seeds may be bush-harrowed in, and also the top-dressing into the sward, and to effect this properly a bout or two of the bush-harrow may be necessary to work the manure properly into the roots.

Lady-day Entries often leave work to be done in April which had better been done in previous months. A different system of cropping is entered upon, old hedges are stubbed out, the grass-lands which they enclosed are pared and burned preparatory to being sown with Turnips or Rape, and gaps in the hedges which remain are filled up with the freshest and best plants carefully dug out of those which are removed. This latter—the filling of gaps—should be done as early as possible, and the newly planted Thorns copiously watered, to consolidate the earth about their roots. But the cutting of hedges and plashing to fill up gaps seldom do well in April, more especially old sickly hedges in early seasons. Entries are either to the Grass and fallow lands, the outgoing tenant retaining occupation of the lands under corn, or else (which is common) the incoming tenant purchases the entire interest of his predecessor; and each of these plans has its peculiar effects upon the various operations of farming. *W. B.*

Notices to Correspondents.

ESTIMATION OF PHOSPHATES: *J W P, Skifaal.* In reply to your letter we reproduce a portion of the report by Mr. W. Little, of Lincolnshire, from the *Chemical News*:—Mr. Burnard, in his ingenious process, recommends 100 grains of the manure to be tested to be added to two pints of water; and this large quantity of water is employed that sufficient of the sulphate of lime may be taken up by the water, to afford lime by its decomposition with soda for combination with the biphosphate, which is also in solution. The following is the exact method I have adopted in working out Mr. Burnard's process:—I have a measure holding 1000 grains of water; it is, in fact, a piece of glass tube, about half an inch in diameter, stopped at one end, and divided into 100 equal parts; consequently each division represents 10 grains of water. I then dissolve 10 grains of neutral carbonate of soda in rain-water, and make it up to 1000 grains. This constitutes my test solution of soda; every 10 divisions of the measure represents exactly 1 grain of soda. I then take another glass tube, about 1 foot long and one-eighth of an inch diameter, stopped at one end with a plug of gutta percha, which is perforated with a pin; the object of this tube is to add the test solution of soda, drop by drop, at the termination of the operation, when great nicety is requisite; this may be effected by applying the finger at the other end of the tube. I now proceed to test, agreeably to the recommendation of Mr. Burnard, one-half of the solution, or one pint, with my small tube, graduated into four divisions, so that each division represents one-tenth of a grain of soda. It may require soda solution equal to about ten divisions of the small drop tube (or one grain of soda) to neutralise the free sulphuric acid that may be present in the solution operated upon; but this is readily ascertained by adding the test solution gradually, and so long as the liquor remains quite clear when well agitated by stirring; directly the liquor assumes a slight milky appearance, the free sulphuric acid is neutralised, and the conversion of the biphosphate in solution into neutral phosphate is beginning, the milkiness being occasioned by the precipitation of phosphate of lime through the decomposition by the soda of the sulphate of lime in solution. At this time a piece of blue litmus paper, fastened to a piece of cork, must be put into the liquor, when it instantly becomes red. Having noted the exact quantity of soda solution employed to neutralise the free acid, more of it may now be added gradually, until the liquor begins to show an alkaline reaction, constantly stirring the whole time, this will be readily seen by the litmus paper assuming a bluish colour. We will now suppose that 1 grain of soda has been employed in neutralising any free acid that may be present, and 12 grains have been employed in decomposing the sulphate of lime for the precipitation of all the biphosphate as neutral phosphate, it now remains to estimate the quantity of biphosphate in the 100 grains of manure. Now, 1 equivalent of carbonate of soda (53) combines with 1 equivalent of anhydrous sulphuric acid (40) to form sulphate of soda. Consequently we have this proportion—As 53 is to 40, so is the 12 grains of soda to the quantity of anhydrous sulphuric acid employed in the conversion of the neutral phosphate of lime into biphosphate, which is 9.05; but as we have only tested half the liquor, the whole will show 18.1 grains as the quantity of anhydrous sulphuric acid employed in the 100 grains of manure. Again, 80 parts of anhydrous sulphuric acid are necessary to form 100 parts of biphosphate; consequently, we have this further proportion to show the percentage of biphosphate contained in the 100 grains—As 80 : 100 :: 18.1 : the percentage of the biphosphate formed by the 18.1 grains of anhydrous sulphuric acid, which shows the manure to contain about 22½ per cent. of soluble or biphosphate of lime."

EXHAUSTION OF LAND: *B.* Land cannot be exhausted by the application of manure; the idea is altogether a mistake. The exhaustion, if it takes place at all, is due, not to the manuring but the subsequent disposal of the crops grown.



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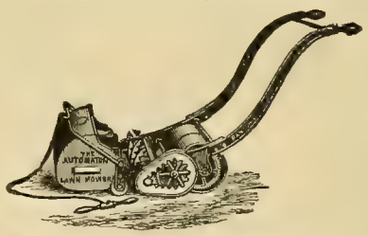
DESCRIPTION.

THE "AUTOMATONS"

Are guaranteed to perform their work perfectly, and if not approved may be returned within a month. They are *easy to work, light in draught, almost noiseless;* and being driven by machine-made gearing *are not liable to get out of order.*

Illustrated Lists and Testimonials sent post free.

THE "AUTOMATON"



LAWN MOWER.

2400 Sold since 1867.

PRICES.

THE "AUTOMATONS."

10 inch ..	..	..	£3 10 0
12 inch ..	..	..	4 10 0
14 inch ..	..	..	5 10 0
16 inch ..	..	..	6 10 0
18 inch ..	..	..	7 10 0
20 inch ..	..	..	8 0 0

GARDEN ROLLERS.

16 inch ..	..	..	£1 15 0
18 inch ..	..	..	2 0 0
20 inch ..	..	..	2 10 0
22 inch ..	..	..	3 0 0
24 inch ..	..	..	3 10 0

Delivered Free to all the principal Stations in England.

RANSOMES, SIMS, AND HEAD, ORWELL WORKS, IPSWICH.

GREEN'S IMPROVED PATENT ROLLER,

FOR

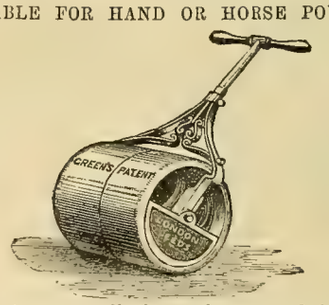
LAWNS, DRIVES, BOWLING GREENS, CRICKET FIELDS, and GRAVEL PATHS.

SUITABLE FOR HAND OR HORSE POWER.

PRICES OF

HAND ROLLERS.

Diam.	Length.	£	s.	d.
30 inches	32 inches ..	7	10	0
24 inches	26 inches ..	4	10	0
20 inches	22 inches ..	3	10	0
16 inches	17 inches ..	2	15	0



PRICES OF

ROLLERS

FITTED WITH SHAFTS,
Suitable for Pony or Horse Power.

Diam.	Length.	£	s.	d.
30 inches	32 inches ..	10	0	0
30 inches	36 inches ..	10	15	0
30 inches	42 inches ..	11	15	0
30 inches	48 inches ..	13	10	0
30 inches	60 inches ..	15	10	0
30 inches	72 inches ..	17	10	0
30 inches	84 inches ..	19	10	0

These Rollers possess many advantages over all others; they are made in two parts, and are free to revolve on the axis, affording greater facility for turning, and the outer edges are rounded off, or turned inwards, thus avoiding the unsightly marks left by other Rollers. They are manufactured of the best materials, and are got up in a manner surpassing any ever yet brought out. The Rollers 24 by 26 inches, 20 by 22 inches, and 16 by 17 inches, are also made in one part, at a reduced price; and, for Rollers of that size, will be found to answer many requirements, as the handle can be reversed to either side of the Roller at pleasure.

PRICES—24 in. by 26 in., £4; 20 in. by 22 in., £3 2s. 6d.; 16 in. by 17 in., £2 10s.

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

THOMAS GREEN AND SONS, SMITHFIELD IRON WORKS, LEEDS;
54 and 55, BLACKFRIARS ROAD, LONDON, S.

SAMUELSON & CO.'S

NEWLY PATENTED EDGE-CLIPPING SILENT LAWN MOWERS.

THE MOST IMPORTANT IMPROVEMENT EVER INTRODUCED.



MESSRS.
SAMUELSON AND CO.
BEG TO DRAW SPECIAL ATTENTION TO THEIR
NEW
LAWN MOWERS, for 1869,

Which are fitted, when required, with a new Patent EDGE-CLIPPING arrangement, entirely superseding the old and tedious operation of Edge-Clipping by hand.

All Machines fitted with new Silent Gearing, ensuring perfect freedom from noise when at work.

Catalogues, with full descriptions and prices of the new Patent Edge-Clipping Silent Lawn Mower, on application to

SAMUELSON AND CO., BRITANNIA WORKS, BANBURY.

NO IMPROVEMENTS OR ALTERATIONS FOR THE PRESENT SEASON, 1869,

IN

GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

THE Extraordinary Success of GREEN'S PATENT LAWN MOWERS is an established fact. During the last five years the demand has been unprecedented, which alone is a proof of their superiority over all others. The following are their characteristic features:—

1st. Simplicity of Construction, every part being free of access.
2d. They are worked with far greater ease than any other Lawn Mower.
3d. They are the least liable to get out of order.

From the fact that these MACHINES are so well known in Great Britain and Ireland, also on the Continent of Europe, T. GREEN AND SON do not deem it necessary to trouble the Public with a list of the numerous Testimonials that they have received from time to time, but would simply add,

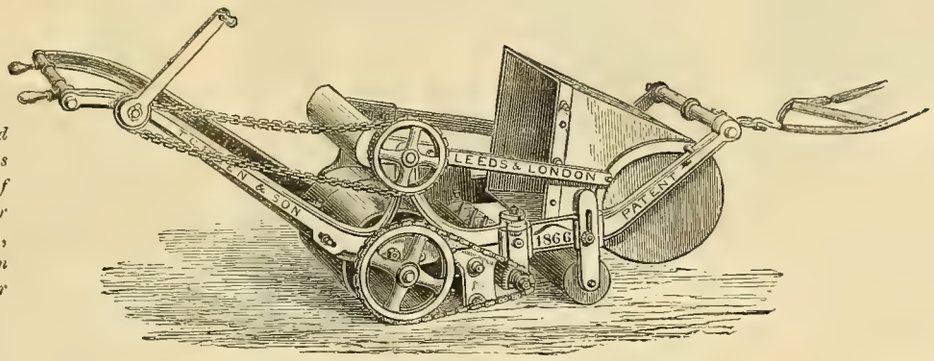
THEY ARE THE ONLY MACHINES IN CONSTANT USE AT

THE ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON
THE ROYAL BOTANIC GARDENS, REGENT'S PARK
THE CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM
BUCKINGHAM PALACE GARDENS
MARLBOROUGH HOUSE
THE HYDE PARK GARDENS
THE WINTER PALACE GARDENS, DUBLIN
THE DUBLIN BOTANIC GARDENS
THE LIVERPOOL BOTANIC GARDENS
THE LEEDS ROYAL PARK
THE HULL BOTANIC GARDENS
THE BOTANIC GARDENS, BRUSSELS
THE SUNDERLAND PARK
THE PRESTON PARK

AND IN MOST OF THE PRINCIPAL PARKS, SQUARES, ETC., IN THE UNITED KINGDOM.

HORSE, PONY, AND DONKEY MACHINE.

GREEN'S PATENT **LAWN MOWERS** *have proved to be the best, and carried off every Prize that has been given in all cases of competition. Since the first year they were introduced* (1856), *upwards of* 46,600 *have been sold, and* 25,000 *of that number during the last five seasons.*



T. GREEN & SON *warrant every Machine to give entire satisfaction, and if not approved of can be returned unconditionally.*

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

PONY AND DONKEY MACHINES.

To Cut 26 inches	..	..	..	£13	0	0
„ 28 „	..	..	..	15	0	0
„ 30 „	..	..	..	17	0	0

Leather Boots for Donkey, 18*s*. *Leather Boots for Pony*, 22*s*.

HORSE MACHINES.

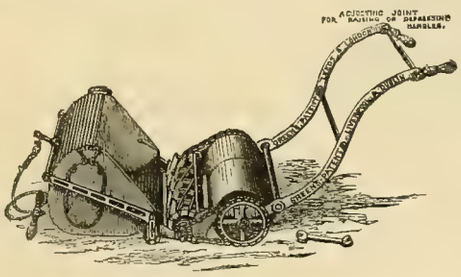
To Cut 30 inches	..	..	..	£21	0	0
„ 36 „	..	..	..	24	0	0
„ 42 „	..	..	..	27	0	0
„ 48 „	..	..	..	30	0	0

Leather Boots for Horse, 26*s*.

Both the Horse, Pony, Donkey, and Hand Machines possess (over all other Makers) the advantage of Self-sharpening. The cutters being steel on each side, when they become dull or blunt by running one way round, the cylinder can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the Machine will cut equal to new. Arrangements are made that the cylinder can be reversed, by any inexperienced person, in two or three minutes.

HAND MACHINES.

To Cut 10 inches	..	£3	10	0	*Suitable for a Lady*	
„ 12 „	..	4	10	0	„	„
„ 14 „	..	5	10	0	*Suitable for One Person*	
„ 16 „	..	6	10	0	„	„



To Cut 18 inches	..	£7	10	0	*Suitable for One Person.*	
„ 20 „	..	8	0	0	*Suitable for Two Persons*	
„ 22 „	..	8	10	0	„	„
„ 24 „	..	9	0	0	„	„

Packing Cases are charged at the following low rates, viz.:—for the 10 and 12-inch Machine, 3*s*.; 14 and 16-inch, 4*s*.; 18 and 20-inch, 5*s*.; 22 and 24-inch, 6*s*. Parties providing themselves with Lawn Mowers are recommended to purchase the cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England, Ireland, and Scotland.

HORTICULTURAL and AGRICULTURAL IMPLEMENTS, GARDEN SEATS and CHAIRS, FOUNTAINS, VASES, PLAIN and GALVANISED WIRE NETTING, and ORNAMENTAL WIRE WORK of every description.

Having very extensive Premises in London, we are in a position to do all kinds of Repairs there, as well as at our Leeds Establishment.

Having a large quantity of MACHINES in stock at our Leeds and London Establishments, we are in a position to execute Orders on the day they are received.

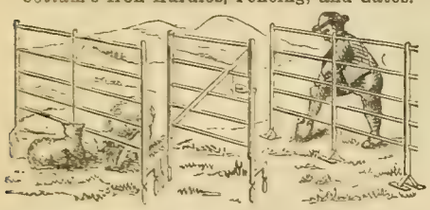
THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;
and 54 & 55, BLACKFRIARS ROAD, LONDON, S.



H. BROOK AND CO., Sole Manufacturers of the CHELTENHAM GARDEN ENGINE, which weighs only 3 lb. 1 oz., throws water in a continuous stream over 35 feet. To be had of all Ironmongers, and Wholesale only at 10, Featherstone Buildings, Holborn, London, W.C.

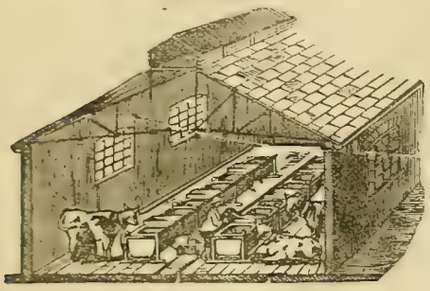
GARDEN HOSE and BRANCHES in great variety.

Cottam's Iron Hurdles, Fencing, and Gates.



COTTAM'S HURDLES are made in the best manner, of superior Wrought Iron, by an improved method. Illustrated Price Lists on application to COTTAM & Co., Iron Works, 2, Winsley Street, Oxford Street, London, W.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.

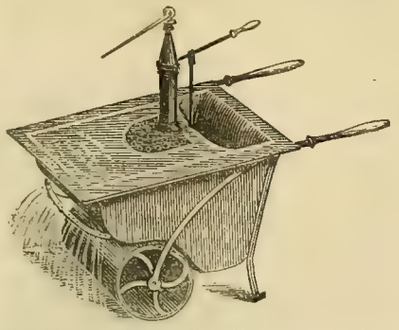


Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rick dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of Iron. Prices of Fittings per Cow 55*s.*

Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

SHAW'S TIFFANY.
For Samples and Prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

THE IMPROVED PATENT GARDEN WATER and ROLLING ENGINE may be had at J. POPE'S, the Sole Manufacturer, 17, Exmouth Street, Clerkenwell, London, W.C.



The threefold use of this neat little Machine must be obvious in Watering, Rolling, or Syringing; it will throw about 60 feet, and is so portable that any ordinary domestic may use it. It contains about 20 gallons. Price £5 10*s.*; 25 gallons, £6 16*s.*

THE HYDRONETTE, (Robins' Patent,) for Gardens, Greenhouses, Conservatories, Hotbeds, &c. Unrivalled ease of action, simplicity, convenience, and force.



The HYDRONETTE is a more useful, easy working, reliable, and convenient water-throwing machine than any other in use. It is made in five sizes, viz.:—No. 1, with 4 feet of Suction Hose, Strainer, Jet, and Rose, 12*s.* 6*d.*; No. 2, 15*s.* 6*d.*; No. 3, £1 1*s.*; No. 4, £1 5*s.*; No. 5, £1 10*s.* Extra Hose and Union Joints furnished to order. Forwarded on receipt of Post Office order by the Proprietors,
HAYNES & SONS, 227, 229, and 231, Edgware Road, Paddington, W.

EMIGRANT'S HOUSE-TENT, boarded floor, boarded sides, covered with waterproof canvas, glass windows to open, wood door, boarded partitions. Three Rooms, £17; Four Rooms, £20; One Room, £7 10*s.*, 12 feet square. GARDEN TENTS, from 30*s.* each. Drawings and prices of 14 kinds sent.
R. RICHARDSON, 99, Euston Road, London, N.W.

RICK-CLOTHS, NEW and SECOND-HAND, with POLES, PULLEYS, &c., complete.
An Illustrated Catalogue post free on application.

BENJAMIN EDGINGTON'S
CRICKET TENTS,
GARDEN TENTS,
TENTS FOR FLOWER SHOWS.

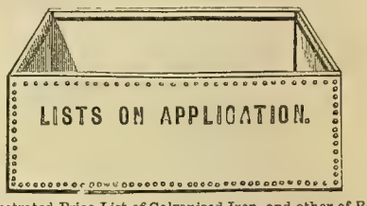


BENJAMIN EDGINGTON'S
WAGGON CLOTHS,
HAY CLOTHS,
GARDEN NETTING,
FLAGS.

Address, BENJAMIN EDGINGTON (only), 2, Duke Street, London Bridge, S.E. No other Establishment.

Health of Horses, Stables, and Dog Kennels.
MASTERS OF HOUNDS
Will find the greatest advantage in Paving the Floors of Stables and Kennels with
PYRIMONT SEYSSEL ASPHALTE.
Thirty years' experience of the durability of this material, for the above and many other purposes, testifies to its value. A List of all such and other works can be had on application to
J. FARRELL, Secretary, 5, Parliament Street, S.W.

"Every Cottage should be provided with a Water Tank." *Disraeli.*
Iron Cisterns.
F. BRABY AND CO. having laid down more extensive and Improved Machinery on their Deptford premises (IDA WHARF), are prepared to supply WROUGHT-IRON TANKS, GALVANISED or PAINTED, of superior quality, at reduced prices, and at very short notice.



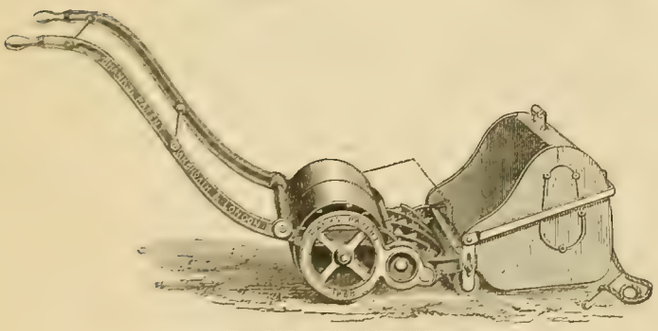
An Illustrated Price List of Galvanised Iron, and other of BRABY'S special Manufactures, sent on application.
F. BRABY & Co., Limited, Fitzroy Works, Euston Road, London; or through all respectable Ironmongers.
N.B. Open Tanks of different sizes packed one in another to save carriage.

SHANKS'S PATENT LAWN MOWERS FOR 1869.

UNDER THE PATRONAGE
OF
HER MOST GRACIOUS MAJESTY
THE QUEEN,



AND MOST OF THE
PRINCIPAL NOBILITY
OF
GREAT BRITAIN.



HAND MACHINE.

SHANKS'S PATENT LAWN MOWERS

ARE ALL FITTED WITH

PATENT DOUBLE-EDGED SOLE PLATES, WIND GUARDS, AND SELF-SHARPENING REVOLVING CUTTERS.

Advantages possessed by no other Lawn Mowers.

The unprecedented Sale of SHANKS'S LAWN MOWERS for 1868 *forms the most convincing testimony of the value and success of the Improvements introduced last Season.*

PRICES—INCLUDING CARRIAGE TO ANY RAILWAY STATION OR SHIPPING PORT IN THE KINGDOM.

SHANKS'S NEW PATENT HAND MACHINE.

		Easily Worked
10-inch Machine	£3 10 0	*By a Lady*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*By a Boy*
16-inch Machine	£6 10 0	*By a Man*
19-inch Machine	7 15 0	*By a Man and a Boy*
22-inch Machine	8 10 0	*By Two Men*
24-inch Machine	9 0 0	

The Hand Machines are all with Silent Movement.

SHANKS'S NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
25-inch Machine	£12 10 0	.. .. 25*s.* extra.
28-inch Machine	14 10 0	.. .. 30*s.* ,,
30-inch Machine	15 15 0	.. .. 30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra.
Boots for Pony, 22*s.* per set.; Ditto for Donkey, 18*s.* per set.

SHANKS'S NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
30-inch Machine	£19 0 0	.. .. 30*s.* extra.
36-inch Machine	22 0 0	.. .. 30*s.* ,,
42-inch Machine	26 0 0	.. .. 40*s.* ,,
48-inch Machine	28 0 0	.. .. 40*s.* ,,

Silent Movement, 20*s.* extra. Boots for Horse, 26*s.* per set.

Every Machine warranted to give ample satisfaction, and, if not approved of, can be at once returned without any expense to the buyer.

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH; and
27, LEADENHALL STREET, LONDON, E.C.

27, Leadenhall Street is the only place in London where intending purchasers of Lawn Mowers can choose from a Stock of from 150 *to* 200 *Machines. All sizes kept there, whether for Horse, Pony, or Hand Power.*

Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the Corporate Mark, OBTAIN WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.

S. & C.'s PRUNING and BUDDING KNIVES are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

Horticultural Glass Warehouse.

THOMAS MILLINGTON AND CO., 87, Bishopsgate Street Without, London, E.C.

NEW LIST for ORCHARD-HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD-HOUSE SIZES.

in.	in.		4ths.	3rds.	2nds.	Best.
20 by 12						
20 by 13						
20 by 14	Per 100 feet	15 oz.	14s 3d	15s 6d	18s 6d	20s 0d
20 by 15						
20 by 16		21 oz.	19s 6d	22s 3d	25s 6d	28s 0d

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5			8 by 6		9 by 7					
6½ by 4½	7½ by 5½			8½ by 6½		9½ by 7½		12s 3d	13s 3d	16s 0d	18s 0d
Per 100 feet.											
10 by 8	12 by 9		12½ by 10½		14½ by 10½						
10½ by 8½	12½ by 9½		13 by 10		15 by 10						
11 by 9	13 by 9		13½ by 10½		13 by 11			13s 3d	14s 6d	17s 3d	19s 0d
11½ by 9½	12 by 10		14 by 10		14 by 11						

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best
15½ by 10½	14 by 12		22 by 12		22 by 16				
16 by 10	14½ by 12½		17 by 13		24 by 16				
14½ by 11½	15 by 12		23 by 13		20 by 17				
15 by 11	15½ by 12½		18 by 14		22 by 17				
15½ by 11½	16 by 12		22 by 14		21 by 17	14s 3d	15s 6d	18s 6d	20s 0d
16 by 11	16½ by 12½		24 by 14		20 by 18				
21 by 11	17 by 12		22 by 15		22 by 18				
13 by 12	18 by 12		24 by 15		24 by 18				

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.

In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	36s.	4ths quality, per 200 feet case,	36s.
3ds " "	42s.	3ds " "	42s.
2ds " "	60s.	2ds " "	60s.
Best " "	75s.	Best " "	75s.

SHEET GLASS is made only in the following substances, 15 oz., 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.

HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.

BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.

STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a-half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.

IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4s. per gallon.

	Per cwt.—s. d.		Per gallon.—s. d.
GENUINE WHITE LEAD	30 0	LINSEED OIL	2 9
SECONDS WHITE LEAD	28 0	BOILED OIL	3 2
GROUND PATENT DRYERS, 3d. to 4½d. per lb.		TURPENTINE	2 9
" OXFORD OCHRE, 3d. to 4½d. per lb.		LINSEED OIL PUTTY, 8s. per cwt.	
" RAW UMBER, 4½d. to 6d. per lb.	[per lb.	Fine OAK VARNISH, 10s. to 12	0
" BURNT do., 6d. to 9d.		" CARRIAGE do., 12s. to 14	0
GREEN PAINT, all shades,	28s. to 60 0	" PAPER do. 10s. to 12	0
BLACK PAINT,	24s. to 36 0	" COPAL	16 0
RED PAINT ..	28s. to 36 0	KNOTTING	10 0
		Patent GOLD SIZE ..	10 0
		" BLACK JAPAN ..	12 0
GROUND BRUSHES.		GLAZIER'S DIAMONDS and TOOLS	
DUSTERS. | SASH TOOLS.		MILLED LEAD and PIPES	
DISTEMPER BRUSHES.		OLD LEAD Bought or taken in exchange.	

The above are Net, for Cash, and as such cannot be booked. Lists of any of the above on application.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their REDUCED PRICES as follows:—

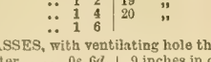
PROPAGATING  GLASSES.

	Each.—s. d.		Each.—s. d.
2 inches in diameter ..	0 3½	12 inches in diameter ..	1 0
3 " " ..	0 4½	13 " " ..	2 0
4 " " ..	0 5½	14 " " ..	2 6
5 " " ..	0 6½	15 " " ..	3 0
6 " " ..	0 8	16 " " ..	3 6
7 " " ..	0 10	17 " " ..	4 0
8 " " ..	1 0	18 " " ..	5 0
9 " " ..	1 2	19 " " ..	6 0
10 " " ..	1 4	20 " " ..	7 0
11 " " ..	1 6		

BEE GLASSES, with ventilating hole through knob.

	0s. 6d.		1s. 8d.
4 inches in diameter ..		9 inches in diameter ..	
5 " " ..	0 8	10 " " ..	2 0
6 " " ..	0 10	11 " " ..	2 6
7 " " ..	1 1	12 " " ..	3 0
8 " " ..	1 4		

Either flat or conical tops.

CUCUMBER  GLASSES

	2s. 0d.		1s. 4d.
24 inches long ..		16 inches long ..	
22 " ..	1 10	14 " ..	1 2
20 " ..	1 8	12 " ..	2 6
18 " ..	1 6		

HAND GLASSES,  WITH OPEN TOPS.

	Each.—s. d.		Each.—s. d.
12 inches	6 6	18 inches	9 6
14 "	7 6	20 "	10 6
16 "	8 6	22 "	11 6
		24 "	12 6

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS. PAINTS of various colours ground ready for use.

SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of Prices and Estimates forwarded on application to JAMES PHILLIPS & Co., 180, Bishopsgate Street Without, E.C.

TWO HUNDRED LARGE RAILROAD TARPAULINS—Returned Consignment—new, strong, oil-dressed, 20 by 14 feet each, for Stacks, Roofs, &c., £2 each. A very large quantity of strong second-hand, at 1d. per square foot, repaired and re-dressed.

R. RICHARDSON, 99, Euston Road, London, N.W.

CONTINUOUS IRON BAR FENCING, about 9000 feet run. 700 feet, 1¼ inch diameter; 3000 feet, 1½ inch; 3000 feet, 1 inch; 300 feet, ¾ inch; 1500 feet, ½ inch. Galvanised, and screws together in 10 feet lengths; hollow. Price of the whole lot, £50, or sold in small quantities at per foot, according to bore. Made for Government; are well adapted for Water-pipes.

R. RICHARDSON, 99, Euston Road, London, N.W.

IRON HURDLES (Silver Medal of the Royal Agricultural Society): SHEEP, 3s. 6d.; CATTLE, 4s. 2d.; OX, 5s. 11d. List by post. GATES and FENCING of every description. St. Pancras Iron Work Company, Old St. Pancras Road, London, N.W.

Dry and Warm Feet.

PATENT MOULDED INDIA RUBBER CLUMPS for BOOTS and SHOES.—A new invention, unsurpassed for durability, economy, and comfort. These Clumps wear twice as long as Leather, are impervious to Damp, not affected by Heat or Cold, and any handy man can easily attach them. Full printed instructions are sent with the Clumps.

Price per Pair, Round or Square Toes.

Men's and Boy's sizes:—

No. 1.	2	3	3*	4	5	6	7	8
2s.	1s. 9d.	1s. 7d.	1s. 6d.	1s. 5d.	1s. 3d.	1s. 2d.	1s.	9d.	8d.

Extra sizes:—

No. 0.	00	XX
2s. 6d.	2s. 2d.	1s. 10d. per pair.

Women's and Children's Sizes:—

No. 11.	12	13	14	15	16
1s. 3d.	1s.	10d.	9d.	8d.	7d. per pair.

To ensure a fit, a Paper Pattern, giving exact size of Bottom of Boots, should be sent with order.

JAMES LYNE HANCOCK, Vulcanised India-Rubber Works, 206, Goswell Road, London, E.C.

Bristol Spanish.

MR. HENRY LANE, of Ashley Villa, Ashley Road, Bristol, will be happy to DISPOSE OF some of his Prize Birds or Eggs, or EXCHANGE for some half or quarter specimen Green or Hothouse Plants, or for a Portable Fowls' House. His birds are the best strain in England, and are composed of the following Prize Birds:—First Prize Cockerel at Birmingham, 1867, bought of Miss Biggar for 15 guineas; First Prize Hens at Birmingham and Bristol, 1868, bought of Mr. Hyde for 15 guineas; and his own three First Prizes at Manchester, &c.

MR. EDWIN COOLING, HORTICULTURAL VALUER, Mile Ash, Derby.

MR. A. CHANDLER, HORTICULTURAL AGENT and VALUER, 10, Wynell Road, Forest Hill, S.E. N.B.—Valuations made of Nursery Stock, Private Collections of Plants, and everything connected with Horticulture.

MR. W. DILLISTONE, AUCTIONEER and VALUER, &c., undertakes SALES by AUCTION and VALUATIONS of all kinds of NURSERY, SEED, and FLORISTS' STOCK, and every Garden Requisite, in Town and Country. Terms free on application.

General Horticultural Agency Offices, Sible Hedingham, Essex.

Sales by Auction.

Chadwell Heath, Essex.

UNRESERVED SALE OF GREENHOUSE AND BEDDING PLANTS, AND SPECIMEN AZALEA INDICA.

MESSRS. PROTHEROE AND MORRIS have received instructions from the Executors of the late Samuel Seabrook, Esq., of Dagenham, to SELL by AUCTION, without reserve, on the Premises, Vallance Farm, Chadwell Heath, on TUESDAY, April 27, at 12 o'Clock precisely, the whole of the GREENHOUSE PLANTS, including some splendid specimen Azalea indica, from 1½ ft. to 4 ft. high by 2 ft. to 4 ft. through, abundantly furnished with bloom-buds; fine specimen Pelargoniums, large Camellias, Fuchsias, Primulas, Coronilla, &c.; also about 10,000 BEDDING PLANTS, consisting chiefly of Scarlet and Variegated Geraniums; likewise the Fruiting and Succession PINES, together with seven ranges of Brick Pits, with a quantity of Glazed Sashes, Frames, Bricks, Flues, &c.; also a quantity of Dunnage Mats, Garden Compost, Rotten Manure, Coke, and various other effects.

May be viewed any day prior to the Sale. Catalogues may be had on the Premises of Mr. TWYFORD, and of the Auctioneers and Valuers, Leytonstone, Essex, N.E.

Sale of First-class Carnations and Picotees,

STANDARD and DWARF ROSES, &c.

MESSRS. PROTHEROE and MORRIS will SELL by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, City, E.C., on WEDNESDAY, April 28, at half-past 12 o'Clock precisely, a first-class Collection of CARNATIONS and PICOTEES (the surplus stock of an eminent grower), also a superb assortment of Standard and Dwarf ROSES, selected AMERICAN PLANTS, clean-grown FRUIT TREES, BEDDING PLANTS, GLADIOLI, Rustic Seats, Stools and Vases.

On View Morning of Sale. Catalogues had at the Rooms, as above, and of the Auctioneers and Valuers, Leytonstone, N.E.

Coventry Nurseries.

IMPORTANT TO THE TRADE, OR TO ANYONE DESIROUS OF EMBARKING IN THE NURSERY AND SEED BUSINESS.

MESSRS. PROTHEROE AND MORRIS have received instructions to OFFER by AUCTION, in one Lot, at Garraway's Coffee House, 'Change Alley, Cornhill, E.C., on THURSDAY, April 29, at 1 o'Clock precisely (if not previously disposed of by Private Contract), the long-established NURSERY and SEED BUSINESS, with the whole of the Out and Indoor Stock, the Greenhouses, Pits, and other Erections, Utensils in Trade, as it now stands, replete, and which is detailed more fully in Particulars. The Nursery Grounds are most favourably situate, commanding a great frontage on the high road from Coventry Railway Station to the centre of the town, possessing unusual facilities for carrying on a most extensive and successful business; altogether, comprising about seven and a-half acres, divided thus:—

Home Nursery	0a.	2r.	26p.
Cheylismere Nursery	5	2	5
Park Nursery	1	1	2
	7	1	33

Held at less than £50 per annum rental. The soil is peculiarly adapted for the growth of Nursery Stock, the Conifer, and other Shrubs, and American Plants and Standard Roses grow to great perfection, so that with ordinary care and cultivation not only a flourishing local business may be transacted, but a wide and extensive trade may be done with London Nurserymen and Florists.

For particulars apply to the Auctioneers and Valuers, Leytonstone.

Richmond.—To Gentlemen, Florists, and Others.

MR. J. WILLMER begs to announce that he has received instructions from Messrs. G. & W. Steel, to SELL by AUCTION, on the Premises, Kew Road Nursery, Richmond, Surrey, S.W., on WEDNESDAY, May 5, at 11 o'Clock, in consequence of the number of Lots, upwards of 12,000 BEDDING and other PLANTS, in Pots, comprising 500 flowering Pelargoniums, 1000 Verbenas, of sorts; 2000 Calceolarias, 3000 Lobelia Paxtoni and speciosa, 4000 Tom Thumb Geraniums, 600 Mrs. Pollock, 500 Bijou, Flower of the Day, and Alma, 300 Cloth of Gold, and Golden Fleece, 300 Madame Vaucher, 300 Christina, 200 large Scarlet Geraniums for Vases; 500 Fuchsias, of sorts; Heliotropes, Hydrangeas, Gazanias, Deutzia gracilis; Iresine Herbstii, Lachenalia maculata, Variegated Arabis, Jasminum revolutum, Maurandia Barclayana, &c.

May be viewed the day preceding and Morning of Sale. Catalogues may be had on the Premises, and of the Auctioneer, Sunbury, Middlesex, S.W.

SALE THIS DAY, AT HALF-PAST TWELVE O'CLOCK.

Importation of Orchids from India.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, April 24, at half-past 12 o'Clock precisely, without reserve, the entire contents of 15 Cases of ORCHIDS, received by the last Overland Mail from India, comprising fine masses of Saccolabium guttatum, Cymbidium Hookeri, and others; Vandas teres, Pleione Wallichi, Dendrobium Farmeri, the finest flesh coloured variety; Vanda Cathcartii, exceedingly rare; Aerides affine, Dendrobium formosum, Phalænopsis Parishii, &c.

On view the Morning of Sale, and Catalogues had.

Important Sale of Established Orchids.

MR. J. C. STEVENS begs to announce that the SECOND PORTION of Mr. DAY'S well-known COLLECTION of ORCHIDS will be offered for SALE on THURSDAY and FRIDAY, April 29 and 30, at his Great Rooms, 38, King Street, Covent Garden, W.C., at half-past 12 o'Clock precisely, each day. There will be many SPECIMEN PLANTS, and many of the rarest and choicest Species and Varieties in cultivation. The Plants are all in perfect health, and buyers may depend upon the correctness of the names and descriptions given. Amongst them will be:—

Ada aurantiaca	Dendrobium Veitchii
Aerides affine superbum	" Dayanum
" Larpentæ	" cucullatum giganteum
" Fieldingi	Dendrochilum filiforme
Burlingtonia candida	Lælia elegans
Cattleya Labiata	" Turneri
" Dowiana	" Wolstenholmæ
" Wagneri	" furfuracea
" Walkeriana	(Rucker's variety)
Cymbidium eburneum	Odontoglossum nævium
Cypripedium Stonii	" Pescatorea
" " (variety platytænium)	Masdevallia Veitchiana
Phalænopsis Schilleriana	Vanda Lowii
&c.,	" Batemanni
	&c.,

On view the morning of Sale, and Catalogues had.

Highly Important Sale of Established Orchids.

MR. J. C. STEVENS has been favoured with instructions from W. W. Buller, Esq., of Strete Ralegh, to offer for SALE his entire Collection of ORCHIDS, by AUCTION, Without Reserve, on WEDNESDAY and THURSDAY, May 5 and 6, at Half-past 12 o'Clock precisely, at his Great Rooms, 38, King Street, Covent Garden, London, W.C. This Collection is perhaps unsurpassed for the variety and rarity of the plants cultivated. It includes many not only of Horticultural but Botanical interest, and possesses some extremely rare, if not unique, specimens. It comprises selections from every importation or importance during the last seven years.

In Cattleyas and other Orchids subject to great variation, immense quantities have been purchased at different times, and after flowering the inferior varieties have been discarded. The specimens now submitted for Sale comprise only the finest varieties, and therefore offer unusual advantages to buyers of this class of plants.

The following comprise some of the principal plants in this Collection:—

Masdevallia Veitchii	Dendrobium Veitchii
" Armini	" thyrsiflorum
" coccinea	" xanthoplilebium
" Tovarensis	" chlorops
Ada aurantiaca	" Heyneanum
Angulon Ruckeri	" lituiflorum
Epidendrum cnemidophorum	Cattleya Warneri
" myrianthum	" Exoniensis
Cymbidium eburneum	" Wagneri
Trichopilia crispa	Angræcum arcuatum
" rostrata	" sesquipedale
" coccinea	Aerides Huttoni
Cattleya Schilleriana	" Schroederi
" labiata Sion House	Vanda Lowii
" bulbosa	" Batemanni
Nanodes Medusæ	Oncidium sarcodes
Cypripedium concolor	" fuscipetalum
" caudatum roseum	Renanthera arachnites
" hirsutissimum	Phalænopsis grandiflora
" villosum	" amabilis
" Veitchii	" Schilleriana
" Lowii	" Lowii
Dendrobium microglaphys	" Parishii
" bigibbum	Odontoglossum roseum
" lasioglossum	" Pescatorei
" Lowii	Brassia glumacea
" Wardianum	" Laurenceana longissima
" Macarthiæ	Pilumna fragrans
" Falconeri	Dendrochilum filiforme
" Bullerianum	

Also a new Cypripedium from Siam, and Hybrid Cattleyas Anguloas, and Calanthes, raised by Mr. Buller.

In the first days' sale will also be included a few of the rarest and most valuable ORCHIDS, from Mr. Bateman's collection.

On view the Morning of Sale, and Catalogues had.

Turnham Green, five minutes' walk from the Station.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, AND OTHERS.

IMPORTANT SALE OF NURSERY STOCK, 4000 PINES, &c.

MR. J. S. GOMME is instructed by Mr. Joseph Smith (who is relinquishing this department of his business) to SELL by AUCTION, on the Premises, Acton Green, Turnham Green, nearly opposite the Station, on TUESDAY, April 27, at 11 for 12 o'Clock precisely, on account of the number of Lots, the extensive STOCK in TRADE, comprising about 4000 fine healthy Pines—Jamaicas, Queens, Providence, and Smooth-leaved Cayenne—in all the various stages of growth; also, a choice and extensive collection of Bedding Plants, in pots, consisting of 5000 Geraniums, including Mrs. Pollock, Tom Thumb, Scarlets, and others; several thousand Verbenas, Fuchsias, Heliotropes, Stocks, Carnations, &c., and various effects appertaining to the Trade.

May be viewed one week prior to the Sale, and Catalogues obtained on the Premises, at the usual Inns in Covent Garden, and at the Offices of the Auctioneer and Market Garden Valuer, No. 23, Old Jewry, E.C., and Feltham.

To Gentlemen, Florists, and Others.

MESSRS. BLAKE, SON, AND HADDOCK are instructed by the Proprietor to SELL by AUCTION, on the Premises, Croydon Lodge, North Park, Croydon, on WEDNESDAY, May 5, at 1 o'Clock, in convenient Lots, about 600 dozens of choice and well-grown BEDDING PLANTS, including 270 dozens of Mrs. Pollock, Bijou, Trentham Rose, Crystal Palace Gem, Golden Chain, Tom Thumb, Christine, and other named Geraniums; the remainder being Verbenas, Calceolarias, Lobelias, Chrysanthemums, Roses, &c.; about 15 dozens STOVE PLANTS, including fine specimens of Grandifolius Stanhopea, &c., in baskets; one very large Stephanotis floribunda; also GARDEN CHAIRS, Tables, and Baskets, Tools, Ladders, Lawn Mower, by Samuelson, 26-inch Iron Roller; Bee House, with three of Neighbour's Patent Hives, and two Hives of Bees; small Cart, Garden Engine, Hose, 1-light Box; Barrows, Flower Pots, two Dog Kennels, Set of Broughsm Harness, and various Effects.

On view the Afternoon prior to the Sale, and Catalogues had of RICHARD WHIBLEY, The Gardener, at Croydon Lodge; and of the Auctioneers, 32, Nicholas Lane, Lombard Street, E.C., and Croydon.

Orpines, Wateringbury, Kent.

IMPORTANT SALE OF FIRST-CLASS SHORTHORNS.

MR. STRAFFORD begs to announce that the SALE by AUCTION of the FIRST-CLASS SHORTHORNS belonging to Messrs. F. Leney & Son, Wateringbury, Kent, is fixed for THURSDAY, the 6th of May next, and will consist of 23 very choice YOUNG HEIFERS, and the same number of YOUNG BULLS from this famed herd, which has been bred with great spirit and judgment from the most fashionable sources, and by sires of the highest breeding and repute, such as 12th Duke of Thorndale, 15th Grand Duke, Knightley, Lord Oxford 2d, and others of Fawsley and Kirklevington blood. Mr. STRAFFORD can with great confidence recommend them to the favourable notice of purchasers; they are in fine health, and combine all the essentials of well-bred Shorthorns, full of hair, with rich quality and fine symmetry. Many of them are descended from good milking tribes. With the exception of the Grand Duke of Kent, on which Messrs. Leney retain the right to give one bid (to be stated at the time of Sale), the whole of the others will be Sold without any reserve.

Catalogues with Pedigrees may be had of Mr. STRAFFORD, 13, Euston Square, London; or of Messrs. LENEY, Wateringbury.

WILLIAM S. BURTON,

GENERAL FURNISHING IRONMONGER,

BY APPOINTMENT TO H.R.H. THE PRINCE OF WALES,

SENDS A CATALOGUE GRATIS AND POST PAID.

It contains upwards of 700 Illustrations of his unrivalled Stock of

ELECTRO PLATE, AND
BRITANNIA METAL GOODS,
DISH-COVERS, HOT-WATER DISHES,
STOVES AND FENDERS,
MARBLE CHIMNEY-PIECES,
KITCHEN RANGES,

LAMPS, GASELIERS,
TEA TRAYS,
URNS AND KETTLES,
TABLE CUTLERY,
CLOCKS,
CANDELABRA,

BATHS AND TOILET WARE,
IRON AND BRASS BEDSTEADS,
BEDDING AND BED HANGINGS,
BEDROOM CABINET FURNITURE,
TURNERY GOODS,
KITCHEN UTENSILS.

With Lists of Prices, and Plans of the

TWENTY LARGE SHOW-ROOMS,

AT 39, OXFORD STREET; 1, 1A, 2, 3, AND 4, NEWMAN STREET; 4, 5, AND 6, PERRY'S PLACE, AND 1, NEWMAN YARD, LONDON, W.

THE PERFECT SUBSTITUTE

for SILVER.—The real NICKEL SILVER, introduced more than 30 years ago by WILLIAM S. BURTON, when Plated by the Patent Process of Messrs. Elkington & Co., is beyond all comparison the very best article next to sterling silver that can be employed as such, either usefully or ornamentally, as by no possible test can it be distinguished from real silver.

A small, useful Set, guaranteed of First Quality for finish and durability, as follows:

	Fiddle or Old Silver Pattern.	Bead Pattern.	Thread Pattern.	King's or Shell and Thread.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
12 Table Forks	1 10 0	2 1 0	2 2 0	2 5 0
12 Table Spoons	1 10 0	2 1 0	2 2 0	2 5 0
12 Dessert Forks	1 2 0	1 7 0	1 10 0	1 11 0
12 Dessert Spoons	1 2 0	1 7 0	1 10 0	1 11 0
12 Tea Spoons	0 14 0	0 19 0	1 1 0	1 2 0
6 Egg Spoons, gt. bowls	0 9 0	0 12 0	0 12 0	0 13 6
2 Sauce Ladles	0 6 0	0 8 0	0 8 0	0 8 0
1 Gravy Spoon	0 6 0	0 8 6	0 9 0	0 9 6
2 Salt Spoons, gt. bowls	0 3 0	0 4 0	0 4 0	0 4 6
1 Mustard Spoon, gt. bwl.	0 1 6	0 2 0	0 2 0	0 2 3
1 Pair of Sugar Tongs	0 2 6	0 3 6	0 3 6	0 4 0
1 Pair of Fish Carvers	0 19 6	1 3 0	1 3 0	1 3 0
1 Butter Knife	0 3 0	0 4 0	0 4 0	0 4 3
1 Soup Ladle	0 10 0	0 12 0	0 14 0	0 15 0
1 Sugar Sifter	0 3 0	0 4 0	0 4 0	0 4 6
Total	9 1 6	11 10 0	12 8 6	13 2 6

Any article to be had singly at the same prices. An Oak Chest, to contain the above, and a relative number of Knives, &c., £2 15s.

A Second Quality of Fiddle Pattern

Table Spoons and Forks	£1 2 0	per doz.
Dessert Spoons and Forks	0 16 0	,,
Tea Spoons	0 10 0	,,

Tea and Coffee Sets, Dish Covers and Corner Dishes, Cruet and Liqueur Frames, &c., at proportionate prices.

All kinds of Re-plating done by the Patent Process.

FENDERS, STOVES, FIRE-IRONS, and CHIMNEY-PIECES.

—Buyers of the above are requested, before finally deciding, to visit WILLIAM S. BURTON'S SHOW-ROOMS. They contain such an assortment of Fenders, Stoves, Ranges, Chimney-pieces, Fire-irons, and General Ironmongery, as cannot be approached elsewhere, either for variety, novelty, beauty of design, or exquisiteness of workmanship. Bright Stoves, with ormolu ornaments, £3 8s. to £33 10s.; Bronze Fenders, with standards, 7s. to £5 12s.; Steel Fenders, £3 3s. to £11; ditto, with rich ormolu ornaments, from £3 3s. to £18; Chimney-pieces, from £1 8s. to £100; Fire-irons, from 3s. 3d. the set to £4 4s.

The BURTON and all other PATENT STOVES, with radiating hearth-plates.

LAMPS of ALL SORTS and PATTERNS.

—WILLIAM S. BURTON invites inspection of this Season's SHOW of LAMPS. The collection of French Moderateur Lamps, carefully selected at Paris, defies competition. The prices vary from 7s. to £7 7s. Each Lamp is guaranteed perfect, but to ensure their proper action, WILLIAM S. BURTON supplies

Pure Colza Oil at the Wholesale Price, 3s. 4d. per gallon.

Lamps of all other descriptions are on Show in great variety.

BEDDING MANUFACTURED on the Premises, and guaranteed by WILLIAM S. BURTON.

For Bedsteads, Wide	3 Feet 6 Inches.	4 Feet 6 Inches.	5 Feet.
	£ s. d.	£ s. d.	£ s. d.
Best Straw Paillasses	0 13 0	0 15 0	0 18 0
Best French Alva Mattresses	0 13 0	0 16 0	0 18 0
Best Cotton Flock Mattresses	0 18 6	1 2 6	1 6 6
Coloured Wool Mattresses	1 0 0	1 5 0	1 8 6
Best Brown Wool Mattresses	1 5 6	1 11 6	1 14 6
Best Brown Do., extra thick	1 8 6	1 16 0	1 19 0
Good White Wool Mattresses	1 14 0	2 3 0	2 7 0
Extra Super Do. Do.	3 0 0	3 13 0	4 1 0
Good Horse Hair Do.	2 5 0	2 18 0	3 6 6
Extra Super Do.	3 1 0	3 18 0	4 10 0
German Spring Hair Stuffing	3 12 6	4 7 6	4 15 0
Extra Super Do.	4 10 0	5 10 0	6 0 0
French Wool and Hair Mattress for use over spring	2 17 0	3 15 0	4 4 0
Extra Super Do. Do.	3 17 0	5 0 0	5 11 0
Feather Beds, Poultry, in Good Tick	1 16 0	2 7 0	..
Do. Do. Grey Goose, in Bordered Linen Ticks	3 10 0	5 0 0	5 13 6
Do. Do. Best White Do. in best Linen	4 17 0	6 17 6	7 12 0

Feather Pillows, 3s. 6d. to 14s.; Bolsters from 6s. to 29s. 6d.
Down Pillows from 10s. 6d. to 17s. 6d.
Blankets, Counterpanes, and Sheets in every variety.

FURNITURE, in complete suites

for Bedroom, of Mahogany, Birch, Fancy Woods, Polished and Japanned Deal, always on show. These are made by WILLIAM S. BURTON, at his Manufactory, 84, Newman Street, and every article is guaranteed. China Toilet Ware in great variety, from 4s. Set of Five Pieces.

THE BEST SHOW of IRON BEDSTEADS

in the KINGDOM is WILLIAM S. BURTON'S. He has EIGHT LARGE ROOMS devoted to the exclusive show of Iron and Brass Bedsteads and Children's Cots, with appropriate Bedding and Bedhangings. Portable Folding Bedsteads, from 11s.; Patent Iron Bedsteads, fitted with dovetail joints and patent sacking, from 14s. 6d.; and cots, from 15s. 6d.; handsome Ornamental Iron and Brass Bedsteads, in great variety, from £2 13s. 6d. to £20.

GASELIERS in GLASS or METAL.

—The increased and increasing use of Gas in private houses has induced WILLIAM S. BURTON to collect from the various Manufacturers in Metal and Glass all that is new and choice in Brackets, Pendants, and Chandeliers, adapted to Offices, Passages, and Dwelling Rooms, as well as to have some designed expressly for him; these are ON SHOW over his TWENTY LARGE ROOMS, and present, for novelty, variety, and purity of taste, an unequalled assortment. They are marked in plain figures, at prices proportionate with those which have tended to make his Establishment the largest and most remarkable in the Kingdom, viz., from 12s. 6d. (two-light) to £23.

DISH COVERS and HOT-WATER DISHES,

in every variety, and of the newest and most recherche patterns, are ON SHOW at WILLIAM S. BURTON'S. Block Tin, 19s. the Set of Six; elegant Modern Patterns, 35s. 6d. to 49s. 6d. the Set; Britannia Metal, with or without Silver-plated Handles, £3 2s. to £6 8s. the Set of Five; Electro-plated, £9 to £26 the Set of Four; Block Tin Hot-water Dishes, with Wells for Gravy, 12s. to 30s.; Britannia Metal, 22s. to 80s.; Electro-plated, on Nickel, full size, £9.

CUTLERY, WARRANTED.

—The most varied assortment of TABLE CUTLERY in the world, all warranted, is on Sale at WILLIAM S. BURTON'S, at prices that are remunerative only because of the largeness of the Sales.

Ivory Handles.	Table Knives per Dozen.	Dessert Knives per Dozen.	Carvers per Pair.
	s. d.	s. d.	s. d.
3¼-inch ivory handles	13 0	10 6	5 0
3¼-inch fine ivory balance handles	18 0	14 0	5 9
4-inch ivory balance handles	21 0	16 0	5 9
4-inch fine ivory handles	28 0	21 0	8 0
4-inch finest African ivory handles	34 0	27 0	12 0
Ditto, with silver ferules	42 0	35 0	13 6
Ditto, carved handles, silver ferules	55 0	45 0	18 6
Nickel electro-silver handles	25 0	19 0	7 6
Silver handles, of any pattern	84 0	54 0	21 0
Bone and Horn Handles—Knives and Forks per dozen.			
White bone handles	13 6	11 0	3 0
Ditto, balance handles	23 0	17 0	4 6
Black horn rimmed shoulders	18 0	15 6	4 6
Ditto, very strong riveted handles	12 6	9 6	3 0

The largest Stock in existence of Plated Dessert Knives and Forks, and Fish-eating Knives and Forks and Carvers.

PAPIER MACHE and IRON TEA-TRAYS.

—An assortment of TEA-TRAYS and WAITERS, wholly unprecedented, whether as to extent, variety, or novelty.

New Oval Papier Mâché Trays,
per Set of Three ... from 20s. to 10 guineas.
Ditto Iron ditto ... from 10s. to 4 guineas.
Convex-shape ditto ... from 7s. 6d.
Round and Gothic Waiters and Bread Baskets equally low.

BATHS and TOILET WARE.

—WILLIAM S. BURTON has ONE LARGE SHOW-ROOM devoted exclusively to the display of BATHS and TOILET WARE. The Stock of each is at once the largest, newest, and most varied ever submitted to the Public, and marked at prices proportionate with those that have tended to make his Establishment the most distinguished in this country. Portable Showers, 7s. 6d.; Pillar Showers, £3 to £5 12s.; Nursery, 15s. to 32s.; Sponging, 14s. to 32s.; Hip, 14s. to 31s. 6d. A large assortment of Gas Furnace, Hot and Cold Plunge, Vapour and Camp[illegible]ower Baths. Toilet Ware in great variety, from 15s. to 45s. the Set of Three.

KITC[illegible]N REQUISITES (including BR[illegible]ES and TURNERY).

—WILLIAM S. BURTON[illegible] every Article for the FURNISHING of KITCHE[illegible] arranged in Four Sets, each complete in itself.

	1	2	3	4
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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 18.—1869.] SATURDAY, MAY 1. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.
SHOW of POT ROSES and SPRING FLOWERS on SATURDAY, May 8. Band of the Royal Horse Guards from 4. Doors open at 2. Tickets of principal Musicsellers (bought before 8th):—Fellows' Friends, 2*s.* 6*d.*; Public, 3*s.* 6*d.*; or on the day, 5*s.*

ROYAL BOTANIC SOCIETY'S GARDENS, REGENT'S PARK.—SUMMER EXHIBITIONS of PLANTS, FLOWERS, and FRUIT, MAY 19 and 20, JUNE 30, and JULY 1. Tickets 4*s.* each, on or before Saturday next, May 8; after that date, 5*s.*; and on the days of the Exhibition, 7*s.* 6*d.* each.

CRYSTAL PALACE.—FIRST GRAND FLOWER SHOW, SATURDAY, May 15. Schedules, &c., with Prize List, on application. I. WILKINSON, Superintendent.

SPALDING HORTICULTURAL FETE, FLOWER, FRUIT, &c. SHOW.—The ANNUAL EXHIBITION will be held in the GROUNDS of AYSCOUGHFEE HALL, on THURSDAY, June 24. Schedules may be had on application. Band of the Royal Horse Guards,
GEO. F. BARRELL, Hon. Sec.

LEICESTERSHIRE HORTICULTURAL SOCIETY.—The GREAT SUMMER SHOW of this Society will be held at LEICESTER, on JULY 6 and 7 next, when Special Prizes will be given for Cut Roses and Collections of Bedding Plants, arranged for effect in pots, open to all England. Prizes will also be offered for British and Foreign Cage Birds.
Schedules and particulars may be had of the Secretary,
WM. PENN COX, 37, Market Place, Leicester.

Dahlias.
JOHN KEYNES, NURSERYMAN, Salisbury. Twelve splendid Show Flowers. Four Fancy ditto. Obtained First-class Certificates at many exhibitions. CATALOGUES ready.

Dahlias.
GEO. RAWLINGS devotes himself almost entirely to the cultivation of this noble flower. CATALOGUES of nearly 250 varieties now ready—Romford, Essex.

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Perry's New Verbenas.
CHARLES TURNER is now prepared to execute orders for these beautiful varieties. The set of 13 sorts for 25*s.*
The Royal Nurseries, Slough.

New Verbenas.
JOHN KEYNES will be ready to send out the 12 splendid VERBENAS (price 3*s.* 6*d.* each) raised by Mr. Eckford, on May 1. A Plate of six of these splendid Flowers will be sent on receipt of 16 postage stamps.
Salisbury, April 3, 1869.

New Verbenas.
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British Fern Catalogue.
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G. AND J. RUMLEY have to offer, cheap, a surplus stock of the following, in excellent condition, viz.:—KING of the POTATOS, FLUKES, FORTYFOLDS, EARLY MAY, EARLY OXFORD, MARTIN'S GLOBE, &c. Prices on application.
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GIANT ASPARAGUS PLANTS, the best that money can procure, 2*s.* 6*d.* per 100. This delicious Vegetable does not require half the expense usually incurred in planting it.
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SUTTONS' CHAMPION SWEDE, the hardiest and best in cultivation. Lowest price per bushel on application.
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To the Trade.
HALL'S WESTBURY SWEDE TURNIP SEED, true, nett. Grown last season from transplanted roots. For samples and prices, apply to
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To the Trade.
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Prices on application.
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Sunset	4 0	Luna	4 0
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In good Plants, for cash, package included. Trade price on application.

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Lady Cullum	2 0	Mrs. Benyon	0 6
Sophia Dumaresque ..	2 6	Sophia Dumaresque ..	1 0
Sunset	0 6	Glowworm	0 6
Italia Unita	0 6	Silver Star	1 0
Countess	1 0	Queen's Favourite	1 0

Or the 12 varieties for 12s., package included.

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	Each.—s. d.		Each.—s. d.
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Beauty of Oulton	0 6	Circlet	0 6
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Glowworm	4 0	Italia Unita	6 0
Beauty of Ribblesdale ..	12 0	Queen's Favourite	8 0
Neatness	6 0	Circlet	4 0
President Lincoln	6 0	Perilla	12 0
		Duke of Edinburgh	6 0
		L'Elegante	6 0

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ATHYRIUM FILIX-FŒMINA MULTICRISTATUM, 6s. per doz.
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GNAPHALIUM LANATUM, fine strong plants, 15s. per 100.
PYRETHRUM GOLDEN FEATHER, extra strong, from cuttings, 16s. per 100.
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WOOD AND INGRAM offer the following fine varieties, in strong plants, at 1s. each, or 10s. per doz., package included:—Eclat, First Favourite, Grand Duke, Glow, Countess of Roslyn, Emmeline, Rose Stella, Countess of Strathmore, Comet, Nosegay floribunda, The Sultan, Hon. G. Hardy, Miss Edith, The Seraph, Baron, Christabel (Mann).

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Antigone (Foster)	2 6	Captain John (Hoyle) ..	2 6
Eclair (Hoyle)	2 6	Emperor (Foster)	3 6
Example (Hoyle)	3 6	Firefly (Foster)	2 6
Grandeur (Foster)	3 6	Heirloom (Hoyle)	3 6
Hermit (Foster)	3 6	King of Trumps (Foster) ..	3 6
Legacy (Hoyle)	2 6	Magician (Foster)	2 6
Rose Queen (Foster) ..	2 6	Rob Roy (Foster)	2 6
Sœur de Charité (Foster) ..	3 6	Victor (Hoyle)	3 6

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The Prince (Hoyle)	1 6	Masquerader Teens	1 0
Aurora (Foster)	1 0	Princess (Hoyle)	1 6

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Ada Maria, 1s.; Argentea, 1s.; Carnea, 1s.; Carus, 1s.; Cerise Unique, 1s.; Cloth of Gold, 2s. 6d.; Emma Hemming, 1s.; Erminie, 1s.; Fanny Chater, 2s. 6d.; Glory of Weedon, 1s. 6d.; Hybrid, 1s.; Hercules, 2s. 6d.; Hon. Kate Nevill, 1s.; King of Scarlets, 1s.; La Dame Blanche, 1s.; Lady Beaconsfield, 1s.; Lizzy, 1s.; Mammon, 1s.; Marchesa, 1s. 6d.; Mr. Rouse, 1s.; Nobilissima, 1s.; Peach Blossom, 1s.; Purpurea Insignis, 1s. 6d.; Purpurea Lyra, 1s.

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THE WHOLE STOCK OF THE ABOVE BEAUTIFUL PLANT,

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Price, 1½ Guinea each. Strong Half Specimens, 5 and 7 Guineas each.

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BRILLIANT NEW TRICOLOR GERANIUM, THE MOONSTONE,

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The habit of the above most beautiful Tricolor is compact and exceedingly free; the leaves, which are of good substance and moderately large, are almost round, and from the slight convexity of their shape they exhibit to great advantage the rich and varied colourings with which they are adorned; the centre of the leaf is of a bright and lively green surrounded by a dark chocolate zone, which is much intercepted by the most intense blood-red. This bright colour shades off, towards the edge of the leaf, to a soft crimson-lake, which entirely encircles the whole zone, edged with a bright lemon-yellow belt. It is somewhat in the way of Lucie Grieve in its colourings, but is rather brighter, and, unlike the shy habit and slow growth of that variety, "The Moonstone" is almost as free in habit as a Tom Thumb, while it remains constant in character. This, without exception, is the finest Tricolor hitherto offered to the public.

THE FOLLOWING NINE SPLENDID NEW DOUBLE GERANIUMS FOR 1869,

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The two varieties now offered are the result of crossing by Mr. Parsons, of Welwyn, who has been so eminently successful with Achimenes. The present kinds are much superior to any ever offered by B. S. W., and cannot fail to give general satisfaction. Rose Queen will be found very distinct and desirable, while Williamsii is the most brilliant variety yet obtained.

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MODEL of PERFECTION.—A superb variety, of compact and free branching habit of growth, and very free flowering; flowers of great size, exquisite shape and good substance, petals very smooth, and round at the edge, rich deep purple in colour, with an oblong patch of white in the centre of each. The finest variety ever offered, suitable either for bedding purposes or pot culture. Price 5s. each.

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Beauty of Calderdale	Glen Eyre Beauty	Lurline

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CHOICE BEDDING, BICOLOR, and TRICOLOR GERANIUMS.

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Beauty of Calderdale ..	6 0	Perilla	4 0
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Compactum	4 0	Refulgens	12 0
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Lady Cullum	12 0	Sophia Cusack	15 0
Little Golden Christine ..	12 0	Sophia Dumaresque ..	6 0
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The best Golden-leaved Pelargoniums of the Season.

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GOLDEN EMPEROR, large smooth golden leaves, entirely free from zone, habit compact and vigorous. Awarded the First Prize in the Class for Golden-leaved Pelargoniums at the Royal Horticultural Society's Special Show, in June last.

GOLDEN QUEEN, rich golden-yellow leaves, with a blotch of a lighter shade of yellow in the centre of each leaf, being quite a distinct feature in variegation; habit neat and compact. Awarded the Second Prize in the same class as the preceding variety.

The following are extracts from notices of the Special Pelargonium Show, with reference to the above varieties:—

Gardeners' Chronicle, June 20, p. 659.

"The best golden-leaved variety not in commerce was Golden Emperor, which came from Messrs. Saltmarsh, who also received a Second Prize for Golden Queen."

Journal of Horticulture, June 25, p. 454.

"Amongst the golden self varieties, Golden Emperor, from Messrs. Saltmarsh, was decidedly the best."

Also, in "Hogg's Gardener's Almanac" for the present year the following descriptions are given:—

"Golden Emperor, a fine-looking variety, with large smooth golden leaves. Awarded a First Prize as the best golden-leaved Pelargonium of 1868.

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Plants of both ready in May, 10s. 6d. each. The usual discount to the Trade.

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Per packet.—s. d.

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Intending purchasers are requested to compare the prices with those of other houses.

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Vide "The Gardener's Magazine," conducted by Shirley Hibberd Esq., F.R.H.S., of August 15, 1868.

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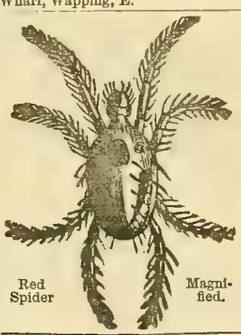
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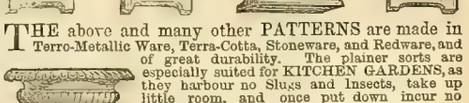
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F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.E. Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E. Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs. Likewise more elaborate designs. Pattern Sheets of Pavements, with prices, forwarded for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.

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SILVER SAND (REIGATE), at the above addresses—14s. per Ton, 1s. 2d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less. A coarser grained Sand 4s. per ton more. Samples of Sand by post on receipt of stamp.

FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEAT and LOAM supplied at lowest rates.

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N.B. Orders promptly executed by Railway or Vessel.
A liberal discount to the Trade.

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"SEVERAL THOUSAND MILES OF FENCING,"

And has received a large and distinguished preference over every other description of Park and Farm Fencing. The great success attending the introduction of our Patented Improvements has led to numerous worthless imitations being offered for sale by dealers and others. It is necessary for us therefore to note that this Fencing is EXCLUSIVELY MANUFACTURED at our Liverpool Works.

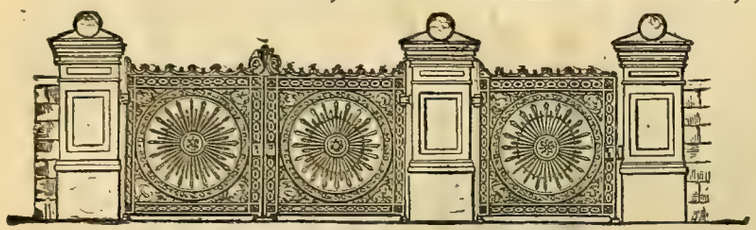


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OUR PATENT WIRE FENCING IS CHEAPER, STRONGER, MORE DURABLE, MORE EFFICIENT, AND BETTER IN APPEARANCE THAN BAR IRON FENCING, HURDLES, &c., AT TWICE THE COST.
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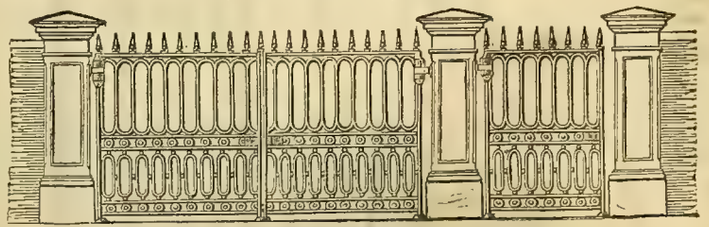
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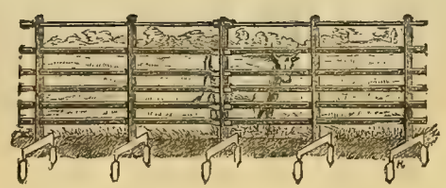
Solid Wire Drawn and Rolled, of every description, at the lowest prices.

Deer Fences of the most approved Designs.

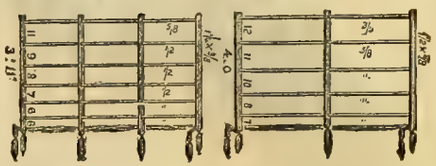




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GLASGOW BRANCH—BANK OF SCOTLAND BUILDINGS, GEORGE SQUARE.

PAXTON'S STRAWBERRY CRINOLINE.



The STRAWBERRY CRINOLINE is in the form of a table, made in halves, so as to be used without disturbing the plant. It is 16 inches in diameter, and stands, 4 inches above the ground, Galvanised. Its use is to preserve Strawberries from Slugs, contact with the soil, superfluous moisture, and other nuisances. They are considered to last ten years at least with care.

Price per Gross, £4.

The STRAWBERRY CRINOLINES are declared by all who use them to be of the greatest use in keeping the Fruit clean and assisting its growth—thus in the production of large crops. For particulars see Illustrated Catalogues, and Testimonials sent to us by our Patrons last year.

The contrivance is by the late Sir Joseph Paxton, who, after testing them for one season in his own Gardens, "Rock Hill," gave his approval of their usefulness. The right to Manufacture them was transferred to

R. HOLLIDAY, PRACTICAL WIRE WORKER, 2A, PORTOBELLO TERRACE, NOTTING HILL GATE, W.

TESTIMONIALS RECEIVED upon the PRACTICAL USE of PAXTON'S STRAWBERRY CRINOLINE.

"Fernlehurst, Shipley, near Leeds, Feb. 26, 1868.

"SIR,—In reply to your letter, asking my opinion of your 'Strawberry Crinolines,' I consider them a first-rate idea. They keep the fruit away from the wet and slugs, and materially assist in bringing to maturity a large proportion of the fruit, which is so generally covered by the leaves that it gets no direct solar heat. I expect to send you an order for a lot more in about a week.—Yours, &c.,

"Mr. HOLLIDAY. "EDWARD SALT."

"May, 1868.—Mr. HOLLIDAY, please forward three gross of Strawberry Crinolines.—Yours, &c.,

"EDWARD SALT."

"St. Andrew's House, Hertford, Feb. 14, 1868.

"SIR,—I have used the Strawberry Crinolines, with which you supplied me last year, for one season, and I consider them extremely useful for the purposes for which they are intended. They keep the fruit from the soil, and expose it more freely to the sun.—Your obedient servant,

"Mr. R. HOLLIDAY, 2A, Portobello Road, Notting Hill Gate, W. "JNO. MARCHANT, Jun."

"March 17, 1868.

"I have had the Strawberry Crinoline in use during the fruiting season of the past year, and I can candidly affirm that they are invaluable for all the purposes for which Mr. Holliday, the maker, recommends them. "JNO. H. McELROY, correspondent of the "Gardener's Magazine."

"Peopleton, Pershore, Feb. 20, 1869.

"The Rev. JAMES COOK wishes to express his great satisfaction with Mr. HOLLIDAY'S Strawberry Crinoline; very neat and efficient."

"The Arboretum, Henley Road, Ipswich.

"SIR,—I am so well pleased with the Strawberry Crinolines you supplied me, that I am induced to recommend you to advertise them extensively, as I am persuaded their great practical value only requires to be known, and they will be very generally adopted. They not only effect a great saving in the fruit, but the quality is also greatly improved.—I am, Sir, yours truly,

"Mr. R. HOLLIDAY. "W. B. JEFFRIES."

"The Fishery, Maidenhead, Feb. 8, 1869.

"SIR,—I found the Strawberry Crinolines I had of you last May very useful, as they kept the Strawberries free from dirt and slugs, and are much superior to anything I have used before for that purpose.—Yours obediently, "FREDK. NORMANSELL."

"Mr. HOLLIDAY.

"Flasby Hall, Gargrave-in-Craven, Feb. 4, 1869.

"SIR,—I am very much pleased with your Strawberry Crinolines; they answer perfectly, and keep the fruit clean and free from slugs. The only fault is their price, as, if quantities of Strawberries are raised, the number of Crinolines required involves a serious expense.—Yours, &c.,

"J. W. PRESTON."

"Knighton, Radnorshire, Feb. 4, 1869.

"SIR,—The Strawberry Crinolines (one gross) supplied by you last May answered very well (those that were tried).—I am, Sir, yours sincerely, "R. COOPER."

"Mr. R. HOLLIDAY.

"Chilham, Canterbury, Feb. 4, 1869.

"SIR,—Your Strawberry Crinolines were very useful to me last season, and more so as I, during the dry weather, worked the earth between the rows of Strawberries very deep and very continuously, and was thereby favoured with a very large crop, which your Crinolines kept from touching the loosened earth, thus rendering the fruit clean and palatable.—Yours, in haste, "WM. MARTEN."

"Mr. R. HOLLIDAY.

From Mr. JAMES PEARSON, *Gardener to* H. Bentley, Esq.

"Eshald House, Woodlesford, near Leeds, Feb. 13, 1868.

"SIR,—I got one gross of your Strawberry Crinolines in the middle of the ripening season, 1867, and we put them all to use without delay, and I have great pleasure to say they were the means of saving a great weight of fruit from perishing, it being a very wet season, likewise in keeping them clean from soil and slugs, which is a great nuisance to the eater; indeed, they answer all the usefulness I got them for.—Yours respectfully, "J. PEARSON."

"Mr. R. HOLLIDAY.

"Longmead, Bishopstoke, Hants, Feb. 4, 1869.

"SIR,—I can speak in the highest terms of your Strawberry Crinolines, which I consider are very useful in preserving the fruit from dirt and slugs. I ordered a gross from you last year, and they fully answered my expectations. You can confidently offer them to the notice of Strawberry growers.—Believe me, faithfully yours, "ALFRED BARTON."

"Rodwell Lodge, Weymouth, Feb. 4, 1869.

"SIR,—I have no hesitation in saying your Strawberry Crinolines answer admirably. The only drawback to their universal use is the expense, for where many varieties of Strawberries are grown the quantity required would be considerable, and the expense amount to a large item in the garden expenditure. You can use this in any manner you think proper.—Yours truly,

"Mr. R. HOLLIDAY "FREDK. CHAS. STEGGALL."

"Mendlesham Villa, Ramsgate, Feb. 5, 1869

"SIR,—The Strawberry Crinolines I had from you last year answered remarkably well, and I have recommended them to my friends.—I am yours obediently, "A. C. BINHALL."

"Mr. R. HOLLIDAY, Notting Hill.

"Eaton Hall, Retford, Feb. 6, 1869.

"DEAR SIR.—I have much pleasure in adding my testimony to the usefulness of your Strawberry Crinolines. I used them last summer with great success.—I am, Sir, yours obediently,

"Mr. R. HOLLIDAY. "W. T. TURNER."

"Brokenhurst Park, Lymington, Hants, Feb. 10, 1869.

"SIR,—I have much pleasure in enclosing you the testimonial you ask for. I consider your invention, the Strawberry Crinoline, of great value in ripening Strawberries and protecting them from slugs, &c.—Yours, &c., "JOHN MORANT."

"Mr. HOLLIDAY.

"Chipping Norton, Feb. 4, 1869.

"SIR,—The Strawberry Crinolines I had from you fully answered my expectations. I recommended them to others in Chipping Norton, who were also much pleased with their usefulness.—I am yours obediently, "J. H. BIGGESSTAFF."

"Mr. R. HOLLIDAY.

"Mountainstown, Navan, Ireland, Feb. 5, 1869.

"SIR,—I have used your Strawberry Crinolines, and highly approve of them; they fully answer all the purposes advertised for, and are I think an acquisition to the fruit garden.—Yours, &c.

"J. O. G. POLLOCK."

From Mr. W. ELLIOTT, *Gardener to* J. Dodson, Esq.

"Littledale Hall, Caton, Lancaster, Feb. 6, 1869.

"SIR,—At your request I write, and with much pleasure, to state that your Crinolines answered admirably here last year. Our crop of Strawberries was double what it has ever been (many around us failing altogether), and the fruit both ripened well and was unusually fine and clear of soil.—Yours obediently, "W. ELLIOTT."

"Mr. HOLLIDAY.

"The Limes, Thetford, Feb. 10, 1869.

"SIR,—I used the Strawberry Crinolines you sent me last year, and was much pleased with them; they effectually answer the purpose of keeping the fruit clean, and assist the ripening. Last season being very dry, they were not so much required, but I feel sure that in a wet season they will be found most useful.—Yours, "JOHN HOUCHEN."

"Mr. HOLLIDAY.

"Barcombe Place, near Lewes, Feb. 8, 1869.

"DEAR SIR,—In reply to yours, I beg to say that my experience teaches me that it is very desirable to keep the fruit of Strawberry plants away from the ground. The Strawberry Crinolines supplied by you to me last year certainly kept the fruit away from dirt, slugs, and superfluous moisture.—Yours truly, "G. GRANTHAM."

From THOS. WHIDDON, *Gr. to* H. MAUDSLAY, Esq.

"Bystock, Exmouth, Feb. 20, 1869.

"SIR,—I think your invention of the Wire Crinoline a great boon to Strawberry growers. We used the whole gross we received from you last year, and found them to answer a very good purpose. They keep the fruit clean, and clear from the attacks of slugs and wire-worms. I think in wet seasons they will be very useful. "THOS. WHIDDON."

"Mr. HOLLIDAY.

"The Gardens, Moor Court, near Stroud, Gloucestershire.

"DEAR SIR,—In reply to your request, I beg to say the Strawberry Crinolines (one gross) answer the purpose remarkably well for which they are intended; they are the means of saving much fruit from slugs and dirt in wet seasons, and ripen their fruit much better than lying on the ground.—I remain, yours truly, "WILLIAM BASSETT."

"Mr. HOLLIDAY.

ORNAMENTAL ROSARY FOR GARDEN ORNAMENTATION, &c.

HORTICULTURAL WIRE WORKS.

GARDENS and CONSERVATORIES FITTED UP with all kinds of WIRE WORK.

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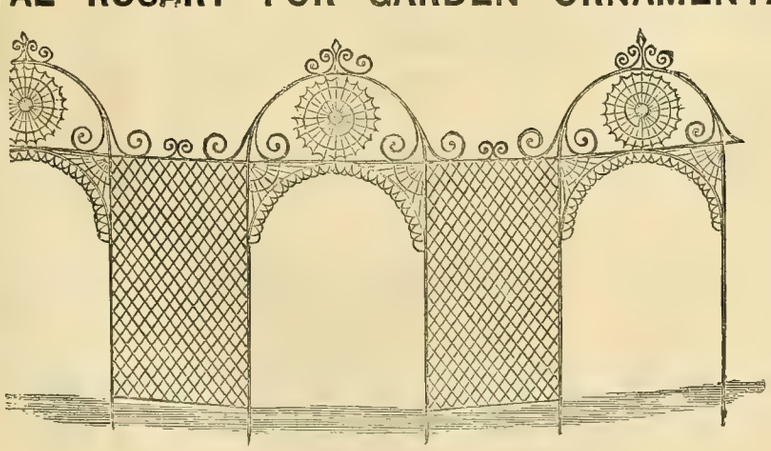
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Chrysanthemums.

ADAM FORSYTH begs to inform the Trade and the Public that he is now sending out the following NEW CHRYSANTHEMUMS, viz.:—

Blonde Beauty | Mr. Evans
Mr. Geo. Haskin | Miss Mary Morgan

He is confident they will give as great satisfaction as any others he has hitherto introduced. For description and price, see CATALOGUE, which contains also a Practical Treatise on the Cultivation of this noble Flower. Forwarded on application for one stamp.
Brunswick Nursery, Stoke Newington, London, N.

WM. CLIBRAN will be glad to send Twelve CHRYSANTHEMUMS of 1868, including Japanese, for 4s; 25 good old varieties, 3s. | 12 varieties of NEW COLEUS, 3s.
12 ZONAL and NOSEGAY PELARGONIUMS of 1868, 6s.
13 PELARGONIUMS for 8s. 6d.—Artemus Ward, Sophia Dumaresque, Perilla, Model, Aureum, Neatness, Mrs Charles Barry, General Longstreet, Beauty, Glowworm, Beauty of Oulton, Gaiety, Madame Rose Charmeux, Triumph, L'Elegante.
Post or package free. Terms, cash. A CATALOGUE of Pelargoniums, Chrysanthemums, and other Plants, for one stamp.
Millbank Nursery, near Warrington.

Now Ready.

HENRY WALTON begs to inform his Friends and the Public that his NEW SPRING CATALOGUE is now ready, containing all the newest and most select Pelargoniums, Tricolor, Gold and Bronze; Show and Fancy, Ivy-leaved and Double Geraniums; Fuchsias, Petunias, Verbenas, Dahlias, Show and Fancy; bedding and other New and Rare Plants, &c.
Edge End, Marsden, near Burnley, Lancashire.

Market Gardens, Biggleswade, Beds.

RICHARD WALKER can supply for cash the SCARLET KING DAISIES, 5s. per 100; EARLY YORK CABBAGE PLANTS, 2s. 6d. per 1000; RED DUTCH, extra fine, 4s. per 1000, splendid BROWN COS LETTUCE PLANTS, 6d. per 100; WALCHEREN CAULIFLOWER PLANTS (true), 2s. per 100; Green KOHL RABI seed, the best ever offered, 1s. per lb.

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Bedding Plants.

ARCHD. HENDERSON'S DESCRIPTIVE and PRICED CATALOGUE of BEDDING PLANTS is now ready, containing all the novelties of the past two years. The Stock is in fine condition; for extent and vigour unsurpassed.

Purchasers are respectfully invited to inspect the Stock at Sion Nursery, Whitehorse Road, Croydon.

Special offers will be made for large quantities.

Catalogues to be had gratis, and post free on application.

SUTTONS' GRASS SEEDS for ALL SOILS,
Carriage free.
As supplied to H.M. The Queen. As supplied to H.R.H. The Prince of Wales.

SUTTON AND SONS, SEEDSMEN to the QUEEN, Reading, Berks,
have still on hand each variety of the various cleaned PERMANENT PASTURE GRASSES and CLOVERS, suitable for various descriptions of soils.

For PERMANENT PASTURES, 20s. to 32s. per acre, } Carriage
For ,, PARKS, 18s. per bushel, } free.
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Special estimates given for large quantities.
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PAUL'S BEDDING GERANIUM,

BLUE BELL.

First-class Certificate, 1868. "*It was decidedly the gem of the season, and was greatly admired.*"—Report of Pelargoniums grown at Chiswick in 1868.

WM. PAUL begs to offer good plants of the above magnificent BEDDING GERANIUM, which he believes to be the finest ever yet raised, on the following terms, on and after May 15:—Single plants, 1*s.* 6*d.* each; 12 plants, 12*s.*; 50 Plants, £2 2*s.*; 100 plants, £4.

Description.—Flowers bluish tinted rose, large and good shape, trusses large and close, habit dwarf and compact, but very free both in growth and flowering; very effective.

NEW GOLDEN VARIEGATED GERANIUMS.—Plutarch, 15*s.* each; Rouge-et-Noir, 15*s.* each; Goldfinch, 10*s.* 6*d.* each.

A NEW SET of BEDDING GERANIUMS, Beaton's race, 5*s.* each; 42*s.* per dozen.

NEW CLIMBING ROSE.—Prince Leopold, H.P., beautiful deep red, large, and of fine form. Plants in May, 5*s.* each.

All the best NEW FRENCH ROSES, 36*s.* per dozen.

NEW PHLOXES.—Conqueror and Beautiful, the two finest of recent introductions, 2*s.* each.

All the best VARIEGATED and ZONAL PELARGONIUMS, ROSES, DAHLIAS, PHLOXES, &c., first-rate plants, at reasonable rates.

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THE NEW GESNERACEOUS PLANTS.

THE BEAUTIFUL

PLECTOPOMAS, TYDÆAS, NÆGELIAS, AND EUCODONIA NÆGELIOIDES LILACINELLA,

Several of which have been figured in the 17th Volume of "Flore des Serres," will be sent out on May 20. No description can give a correct idea of these charming plants, which become during the blooming season literally covered with large and well-formed flowers of divers shades, far surpassing anything yet obtained in this family.

IRESINE LINDENI.

This fine ornamental foliage plant, which has been justly termed "the gem of the season among bedding plants," will also be ready for distribution on May 20. It has obtained Prizes at Brussels, Liége, Louvain, and the Crystal Palace, Sydenham; also Certificates of Merit from the Société Impérial d'Horticulture of Paris, Royal Horticultural Society, and Royal Botanic Society, Regent's Park.

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LOUIS VAN HOUTTE, ROYAL NURSERY, GHENT, BELGIUM.

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ILLUSTRATED WITH COLOURED DRAWINGS.

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NEW PLANT CATALOGUE IS NOW READY,

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TRICOLOR AND BICOLOR GERANIUMS,

AND CONTAINING FULL DESCRIPTIVE LISTS OF THE NOVELTIES FOR 1869.

ONE MILLION BEDDING AND OTHER PLANTS

Now ready for sending out, as under, of which they invite inspection at their

CRYSTAL PALACE NURSERY, FOREST HILL, S.E.

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JAMES CARTER AND CO., SEED MERCHANTS and NURSERYMEN, 237 and 238, HIGH HOLBORN, LONDON, W.C.; and CRYSTAL PALACE NURSERY, FOREST HILL, S.E.

Cineraria Seed.

NOW IS THE TIME TO SOW FOR AN EARLY CROP.

F. AND A. SMITH beg to offer SEED of the above from their splendid Collection. As a proof of its general excellence they received last year the only Certificate awarded for Cinerarias, and they have already received two during the present season. The Nurseries, West Dulwich, S.E.

Genuine Seeds.

F. AND A. SMITH'S CATALOGUE of FLOWER and VEGETABLE SEEDS of first-quality is now ready (free on application), including their fine Strains of BALSAMS, CALCEOLARIA, CINERARIA, PRIMULA, TRICOLORED and other PELARGONIUMS, with every Novelty of repute.
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Verbenas, Verbenas.

PHILIP LADDS is now sending out new varieties of VERBENAS, 1868, at 1s 6d. per dozen; Scarlet, White, Purple, and Pink Verbenas at 1s. 6d. per dozen; strong young plants, 6s. per 100, or £2 10s. per 1000.
12 New Varieties of COLEUS, Royal Horticultural Society, 1868, 2s. per dozen.
20 New Varieties of ZONAL GERANIUMS, 1868, for 10s.
Nursery, Bexley Heath, Kent.

Verbenas, 5s. per 100; 40s. per 1000.

WILLIAM BADMAN has to offer as under:—
VERBENAS, Purple, White, Scarlet, Rose, Crimson, &c., strong plants from store pots, 5s. per 100; 40s. per 1000.
LOBELIA SPECIOSA (true) from cuttings, 5s. p. 100; 40s. p. 1000.
PELARGONIUM CRYSTAL PALACE GEM, the finest golden leaf in cultivation, in small pots, 4s. per doz. 6 Finest Double Geraniums, including MADAME LEMOINE, 10s. Package included. Terms cash.
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Stocks, Stocks, Stocks.

B. S. WILLIAMS has much pleasure in offering carefully selected seed of a very fine WHITE WALLFLOWER-LEAVED TEN-WEEK STOCK. It is very pure in colour, and produces an immense spike of large double flower, and is admirably adapted for bedding purposes. Per packet, 1s.
Victoria and Paradise Nursery, Upper Holloway, London, W.

Choice Primula Seeds.

B. S. WILLIAMS begs to call special attention to his superb Strain of this universally admired Winter and Spring-flowering Plant. He can with confidence offer it as being unequalled in cultivation. Plants from this Seed have always been awarded First Prizes wherever exhibited. B. S. W.'s strain of Primula is so well known to all the principal Gardeners in the three kingdoms, that testimonials are unnecessary. In sealed packets, Red, White, or Mixed, 2s. 6d., 3s. 6d., and 5s. each.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

Cyclamen Persicum (Hybrids).

B. S. WILLIAMS has great pleasure in offering SEEDS of his superb varieties of CYCLAMENS, which are much superior to those sent out by him last season, being saved from the plants exhibited by Mr. Wiggins, at the Meeting of the Royal Horticultural Society, at Kensington, on Tuesday, Feb. 16, when they were pronounced far in advance of any ever before raised, both in point of size of flower and richness of colour, which varies from pure white to mauve and deep red; many of them in addition being beautifully striped and spotted, and deliciously fragrant. Seeds sown in heat from the present time can be grown to produce flowers within 12 months.
B. S. W. having made arrangements for the supply of all Mr. Wiggins' Seed, it can only be had genuine in sealed packets bearing his name and address. In sealed packets, 1s. 6d., 2s. 6d., and 3s. 6d. each.
B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, N.

To the Trade.

LARGE DOUBLE PURPLE ROCKETS, 3s. per doz., £1 per 100. BELLIS AUCUBÆFOLIA (Variegated Daisy), 2s. 6d. per doz., 16s. per 100; GARDENIA RADICANS, well set with blooms, 12s. per doz., £4 10s. per 100; GERANIUM CHRISPINE, NOSEGAY, 6s. per doz., £2 per 100: PYRETHRUM GOLDEN FEATHER, 1s. per doz., 8s. per 100; STOVE and GREENHOUSE PLANTS in variety, 10s. per doz., £4 per 100.
E. & J. PERKINS, Leamington Nursery, Leamington.

Dahlia imperialis.

H. DAVIES having purchased the Stock of this magnificent Plant, which obtained the First-class Certificate of the Royal Horticultural Society (see *Gardeners' Chronicle* of Dec. 19, 1868), will be prepared to send out strong Plants after May 1, at 2s. 6d. each, or, securely packed, 3s. each. Orders are now being booked, and will be executed in strict rotation.
Nursery and Seed Establishment, Great Stanmore, Middlesex, N.W.

Splendid Indian Azaleas.

WILLIAM BARNES' unrivalled Collection of AZALEAS is this season unusually fine, and in the highest possible health, loaded with strong bloom-buds from top to bottom, and the plants properly trained as Pyramids, but neither stiff nor formal; their average heights are from 2 to 5 feet, and beautifully clothed down to the pot. These plants cannot fail to please those who are either adding to their present collection or forming a new one. W. B. has also many thousands in smaller sizes, comprising all the newest and best of the older varieties, in the most beautiful and healthy condition. Prices and varieties may be had on application.
WILLIAM BARNES, Camden Nursery, Camberwell, S.E.—April 10.

To the Trade.

C. WHITEHOUSE, Brereton Nursery, Rugely, has to offer HOLLIES, 18 inches to 2 feet, 2 to 3 feet, 3 to 4 feet; also TREE BOX in sizes, YEWS, 3½ to 4 feet, well rooted and well furnished Plants, grown singly and stout; also 3-yr Seedling BERBERRIES, and 2-yr seedling YEWS. Price will be reasonable, as the stock is large.

Bedding Plants.

J. SCOTT, The Nurseries, Merriott, Somerset, has, as usual, to offer the finest collection of the above in the West and South-West of England. Self-superintendence and a long life devoted to his business, enables him to know, procure, and offer the best of everything suitable for gardens, cultivated in the best manner, and sold at prices that cannot be got under.
Catalogues on application, with Cultural Notes and directions for planting all kinds of beds.

One Hundred Thousand Bedding Plants.

THOMAS PERKINS has great pleasure in offering the following, all strong, well established Plants, turned out of single pots, at 2s. per doz.:—VARIEGATED, SCARLET, ZONAL, and other GERANIUMS; CALCEOLARIAS, Verbenas, Heliotropes, Lobelias, Salvias, variegated Alyssum, Gazanias, Petunias, Perilla nankinensis, Pentstemons, Nierembergias, Ageratums, Golden Feather, Musk, &c. DESCRIPTIVE PRICED CATALOGUES post free on application to
THOMAS PERKINS, 42, Drapery, Northampton.
N.B.—Price to the Trade on application.

West of England Bedding Plant Establishment.

BEDDING PLANTS.

THOMAS SAMPSON, The Preston Road and Houndstone Nurseries, Yeovil, Somerset, is now prepared to send out his unrivalled Collections of BEDDING PLANTS, for quantity, quality and cheapness by far exceeding any other Establishment in the County of Somerset or the West of England. T. S. flatters himself on having added to his already well-known Collection all the really good and choice things in each variety, and offers the same at prices that cannot be undersold. Catalogues free on application.
T. S. is now sending out his Collections of Bedding Plants made up of varieties from each section, including many of the dearer and leading varieties. T. S.'s selection only.

No. 1 Collection.—25 dozen plants, basket and packing included		£2 2 0
No. 2 Collection.—15 dozen plants,	ditto	1 5 0
No. 3 Collection.—10 dozen plants,	ditto	0 18 0
No. 4 Collection.—5 dozen plants,	ditto	0 10 0

Orders sent out in rotation.
PETER DRUMMOND, Manager.

Genuine and First-class Seeds, Carriage Free.

WM. PAUL begs to announce that his NEW CATALOGUE of SELECT VEGETABLE and FLOWER SEEDS is just published, and will be forwarded free by post on application.
He has made enlarged arrangements, by which he believes he will be able to secure for his Customers, as usual, the best races of VEGETABLE and FLOWER SEEDS, of good germinating qualities, free from adulteration. For further particulars, see large Advertisement of last week.
Important.—All letters should be addressed WM. PAUL, Waltham Cross, London, N.

New Plant.

MR. WILLIAM BULL is now sending out the beautiful
LASIANDRA MACRANTHA.
The flowers of this plant are truly marvellous, 1½ foot in circumference; are produced nearly throughout the year, and on plants when only an inch or two high. Some blooms of it were sent at Christmas to the Editor of the *Gardeners' Chronicle*, and the following remarks were made in the columns of that Journal, January 2, 1869:—
"We have before us fine blooming specimens of the noble Lasiandra macrantha, sent us by Mr. BULL, which shows that the flowers of this grand plant may be had in winter as well as in summer, which is an additional recommendation. Notwithstanding what may seem to be an unfavourable season, the blossoms are even now nearly five inches across, and are of the richest violet-blue, a tint which has not been reproduced in any of the illustrations which have yet appeared."
A DESCRIPTIVE CATALOGUE of other NEW PLANTS, just published, post free for 12 stamps.
Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

New Golden Coleus.

H. WALTON having a fine stock of the following, is now prepared to send them, established in pots, or free by post when six or more are taken:—

	Each.—s.	d.		Each.—s.	d.
Albert Victor	2	6	Candollei	1	0
Beauty of St. John's Wood	2	6	Duke of Edinburgh	1	6
Princess Beatrice	2	6	Henderson	1	0
Prince Arthur	2	6	Masterpiece	1	0
Princess Roya	2	6	Model	1	0
Prince Leopold	2	6	Princess of Wales	1	0
Queen Victoria	2	6	Prince of Wales	1	0
Baroness Rothschild	2	6	Refulgens	1	0

The above eight for 18s. The above eight for 8s.
Edgend, Marsden, Lancashire.

New Golden Coleus of 1869.

H. CANNELL has procured a large Stock of the above splendid Foliage Plants, in 18 varieties, and can now execute orders with strong, highest-coloured plants, either in pots or otherwise. See CATALOGUE, with prices, history, culture, and description, for 3 stamps. Each variety is now forming into specimens.

	Each.—s.	d.		Each.—s.	d.
Princess Louisa	1	0	Princess of Wales	1	0
Prince Leopold	1	0	Her Majesty	1	6
Empress	1	0	Albert Victor	2	0
Masterpiece	1	0	Prince of Wales	1	0
Model	1	0	Duke of Edinburgh	1	6
Refulgens	1	0	Prince Arthur	1	6
Umpire	1	0	Princess Beatrice	2	0
Queen Victoria	3	6	Baroness Rothschild	2	6
Princess Royal	3	0	Beauty of St. John's Wood	2	6

The usual discount to the Trade.
Amateurs are respectfully invited to inspect them. Also, H. C.'s Bicolor and other GERANIUMS, which are in splendid colour, and are now attracting the attention of all that see them.
Seventy trains stop at the Nursery daily (Dockyard Station), from Charing Cross and Cannon Street.
Florist, Woolwich.

CHARLES TURNER, The Royal Nurseries, Slough, begs to offer the following, in strong Plants:—

HOLLYHOCKS	12s. per dozen.
VERBENAS	6s. "
PELARGONIUMS, Show varieties	18s. "
" Fancy varieties	18s. "
" Zonal, best kinds for bloom	12s. "
" for fine foliage	24s. "
ALPINE AURICULAS, in beautiful varieties	9s. "
TREE CARNATIONS	12s. "
PINKS per dozen pairs	9s.

Fine sorts of the above, and in greatest variety, selection left to C. TURNER.

Superb Double Hollyhocks.

NOW IS THE TIME FOR PLANTING TO ENSURE GOOD SPIKES AND BLOOMS THIS SEASON.

WILLIAM CHATER'S CATALOGUE of his unrivalled Collection may be had upon forwarding one postage stamp. Choice Bloomed Seedlings, with colours attached, 40s. per 100. Unbloomed Seedlings, from finest named varieties, 25s. per 100. SEEDS, saved only from first-class flowers, in packets and collections, from 1s. to 10s. 6d.
Special prices for quantities to the Trade on application.
WILLIAM CHATER, The Nurseries, Saffron Walden.

Hollyhocks, Bedding Plants, &c.

G. AND J. RUMLEY have to offer the under named, in fine strong plants, for cash, viz.:—
HOLLYHOCKS, in choice show varieties, 3s. to 6s. per dozen, 20s. to 30s. per 100.
HOLLYHOCKS, seedlings from the best varieties, 2s. per dozen, 10s. to 15s. per 100.
CARNATIONS and PICOTEES, seedlings from best varieties, 8s. to 12s. per 100, or 60s. per 1000.
CINERARIAS, extra fine blooming plants, 4s. to 6s. per dozen, 30s. to 40s. per 100. [20s. per 100.
CALCEOLARIA AUREA FLORIBUNDA, strong, 3s. per doz., or ZONAL GERANIUMS, in great variety, 3s. to 6s. per dozen, 20s. to 30s. per 100.
FUCHSIAS, choice varieties, 3s. to 6s. per dozen, 20s. to 50s. per 100.
BEDDING PLANTS, in great variety, 2s. to 4s. per dozen, 15s. to 30s. per 100.
A DESCRIPTIVE CATALOGUE may be had on application.
Newton-le-Willows, near Bedale, Yorkshire.

Roses.

JOHN CRANSTON will be happy to forward on application his DESCRIPTIVE CATALOGUE of ROSES for 1868 and 1869. For quality or quantity the stock is unsurpassed; the Manetti Roses especially are acknowledged to be the finest grown plants in the Trade.
Nurseries, King's Acre, near Hereford.

New Roses, &c., 1869.

WM. KNIGHT begs to offer the following Plants:—

12 NEW ROSES, Strong Plants	36s.
12 Finest NEW FUCHSIAS, Strong Plants	6s.
12 Finest NEW VERBENAS, Strong Plants	4s.
12 Finest COLEUS, Strong Plants	5s.
6 NEW PETUNIAS, Strong Plants	4s.

Or the above Collection, package included, for £2 10s.
CATALOGUE free.
Floral Nursery, Hailsham, Sussex.

New Roses of 1869—19s. 3d. per dozen.

L'ÉVÊQUE ET FILS, NURSERYMEN, 132 and 134, Boulevard de l'Hôpital, Paris, have now ready all the NEW ROSES (66 sorts) of 1869. Good plants, well established in small pots, for better carriage. List on application. They can supply the following by the dozen or more of each:—(T. R.) Adrienne Christophle, Celina Noirey, Marie Ducher, Marie Sisley, Montplaisir; (Ch.) Margarita; (H. R.) Reine Blanche, Thyra Hammerich, Emilia Hausburg, Victor Trouillard père, Victor le Bihau, Berthe Baron, Julia Touvais, Perfection de Lyon, Réné Daniel, Mdme. de Canrobert, Devienne Lamy, &c.
They have also a large lot of—(T. R.) Jean Pernet, Reine de Portugal; (H. P.) Bne. de Rothschild, Elie Morel; (P. Moss) Sr. de Pierre Vibert, &c.

ROYAL BOTANIC SOCIETY.—EXHIBITION of SPRING FLOWERS, APRIL 27 and 28.

LIST OF AWARDS.

6 ROSES. (Amateurs.)
1st Prize, Mr. J. James, Gr. to W. F. Watson, Esq., Isleworth.

9 ROSES. (Nurserymen.)
1st, Mr. W. Paul, Waltham Cross.
2d, Messrs. Paul & Son, Cheshunt, Herts.

3 ROSES. (Open.)
1st, Mr. W. Paul. | 2d, Messrs. Paul & Son.

ROSES, Cut Blooms.
3d, Mr. C. Osman, Gr. to R. Hanbury, Esq., Stanmore.

6 PELARGONIUMS.
1st, Messrs. J. Dobson & Son, Woodlands, Isleworth.
2d, Messrs. Reeves Brothers, Ivybridge Road, Notting Hill.
3d, Mr. G. Wheeler, Gr. to Sir F. B. Goodricke, Bart., Regent's Park.

6 AMARYLLIS.
1st, Mr. E. Baxter, Gr. to C. Keiser, Esq.

6 AURICULAS. (Amateurs.)
1st, Mr. J. Butcher, 1, South Street, Camberwell.
2d, Mr. J. James, Gr.

6 AURICULAS. (Nurserymen.)
1st, Mr. C. Turner, Slough, Bucks.

6 EXOTIC FERNS.
1st, Mr. A. Wright, Gr. to R. C. Roberts, Esq., Avenue Road.
2d, Mr. A. Wilkie, Gr., Oak Lodge, Kensington.
3d, Mr. G. Wheeler, Gr.

6 AZALEAS.
1st, Mr. C. Turner. | 2d, Mr. A. Wilkie, Gr.
3d, Mr. J. Fairbairn, Gr. to Duke of Northumberland, Syon House, Isleworth.

6 FOLIAGE and FLOWERING PLANTS.
1st, Mr. G. Wheeler, Gr. | 2d, Mr. A. Wright, Gr.
1st, Mr. J. Fairbairn, Gr. | 3d, Mr. A. Wilkie, Gr.

MISCELLANEOUS.
Mr. W. Paul, for Collection of Roses in Pots, £2.
Mr. B. S. Williams, for Collection of Miscellaneous Plants, £2.
Mr. W. Paul, for Collection of Tricolored Pelargoniums, 15s.
Mr. C. Turner, for Collection of Auriculas, 15s.
Messrs. J. Dobson & Son, for 6 Cinerarias, 15s.
Messrs. J. Carter & Co., for Primula cortusoides amœna, 10s.
Mr. J. James, Gr., for 6 Calceolarias, 10s.
Mr. J. James, Gr., for 12 British Ferns, 10s.
Mr. J. James, for 24 Pansies, 10s
Reeves Brothers, for 6 Lily of the Valley, 10s
First-class Certificate, Mr. C. Turner, for Auricula Constellation.
First-class Certificate, Mr. C. Turner, for Auricula Brunette.
First-class Certificate, Mr. J. Butcher, for Auricula Mrs. Butcher.
First-class Certificate, Mr. B. S. Williams, for Miltonia virginalis.

FLORAL and HORTICULTURAL FETE,

to be held on the RACE COURSE, NORTHAMPTON, in connection with the Northamptonshire Agricultural Society's Annual Show, on FRIDAY, July 2.
Silver Cups and Premiums to the amount of TWO HUNDRED and FIFTY POUNDS will be offered for competition. Open to all England. Prizes to be Paid on the Day of Exhibition.
President: The Worshipful the MAYOR OF NORTHAMPTON.
Treasurer: Mr. MARK DORMAN. | *Hon. Sec.:* Mr. THOS. L. CORDEUX.
The Schedules and Rules may be obtained at Dorman's Library, or of F. PERKINS, 2, Gold Street, Northampton.

July 19th to 24th, 1869.

THE ROYAL HORTICULTURAL SOCIETY'S GRAND EXHIBITION at MANCHESTER, in connection with the SHOW of the ROYAL AGRICULTURAL SOCIETY.
Amongst various Special Prizes,
A SILVER CUP (copy of the famous Cellini Cup), VALUE £21
will be offered by the Proprietors of the
GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE
for the best COLLECTION of 5 FRUITS and 8 VEGETABLES, to be made up as follows.
In awarding the Prize, Marks will be adjudged according to the following scale, for the several subjects produced.

	Good.	Medium.	Inferior.
Grapes	6 marks	3 marks	1 mark
Melons (2 fruits)	6 "	3 "	1 "
Strawberries	3 "	2 "	1 "
Gooseberries	3 "	2 "	1 "
Currants	3 "	2 "	1 "
Cherries	3 "	2 "	1 "
Raspberries	3 "	2 "	1 "
Apples of 1868 (Any 5 of the above 8 subjects).	6 "	3 "	1 "
Peas	3 "	2 "	1 "
French Beans	3 "	2 "	1 "
Broad Beans	3 "	2 "	1 "
Cauliflowers	3 "	2 "	1 "
Cucumbers (brace)	3 "	2 "	1 "
Summer Cabbages	3 "	2 "	1 "
Early Carrots	3 "	2 "	1 "
Turnips	3 "	2 "	1 "
Globe Artichokes	3 "	2 "	1 "
Onions	3 "	2 "	1 "
Spinach	3 "	2 "	1 "
Rhubarb	3 "	2 "	1 "
Potatos	3 "	2 "	1 "
Mixed Salading (Any 8 of the above 14 subjects).	3 "	2 "	1 "

This Prize is open for Competition amongst Amateurs and Gardeners of private families. The Fruit and Vegetables produced must be of *the Exhibitor's own growing*; and any article otherwise obtained will disqualify the Collection. It is expected that the several articles will be neatly and effectively displayed.

The Gardeners' Chronicle.

SATURDAY, MAY 1, 1869.

MEETINGS FOR THE ENSUING WEEK.

MONDAY,	May 3	Entomological	7 P.M.
TUESDAY,	— 4	Royal Horticultural (Fruit and Floral Committees), at South Kensington	11 A.M.
		Ditto (Scientific Committee)	1.30 P.M.
		Ditto (General Meeting)	3 P.M.
THURSDAY,	— 6	Linnean	8 P.M.
SATURDAY,	— 8	Royal Horticultural (Show of Pot Roses and Spring Flowers), at S. Kensington	2 P.M.

THE announcement which we have made of the desire of the Council of the Royal Horticultural Society to meet the exhibitors to discuss the matter of SHOWING PLANTS in future years in SMALLER POTS, is, no doubt, a very important one, and is calculated, we think, if not to open a new era in these annual displays, at least to revive an old one, and embellish it with amended features.

Those who can look back to the dawn of the "one-shift," or large pot system of culture, as set forth in these pages more than a quarter of a century ago, and can recollect, as the result of that system, the replenished collections of Ealing Park or Brooklands, and those of the Messrs. FRASER, MAY, BARNES, COLE, DODS, SPEED, and many

smaller growers, will have no difficulty in calling to mind the splendid small plants which those exhibitors used to produce, and the interest which the visitors used to manifest in them. We can recollect the first really good plant of Pimelea Hendersoni that was shown. It formed the centre plant in the front line of a collection of 50 stove and greenhouse plants, staged by Mr. William Barnes, then of Bromley, now of Camberwell, and caused a complete block in the crowd around it for the whole afternoon. If we were to say that that was the most meritorious collection of plants ever staged at Chiswick we should not be far from the truth, for it had quantity as well as quality, contained plants of difficult cultivation, and was not "tailed off" by common things. What was done then can be done again now, only there must be time allowed for preparation, and one season is not sufficient for that purpose. Such plants as Burtonias, Hoveas, especially H. pungens, Podolobiums, Boronias, Chorozemas, Dillwynias, and many more things that we might mention, require time, as well as skill and careful management, to bring them to a size, as well as keep them in a condition fit for exhibition; but such plants properly brought out are, as examples of cultivation, worth a forest of the soft-wooded stuff and foliage plants, without which even a collection of 12 plants can now scarcely be made up. Referring again to the example of Pimelea Hendersoni, the fact is worth recording, that so great was the desire to possess it, that every saleable plant in the trade was bought up within a week from the day of the show. These moderate-sized, compact, well-finished specimens, were everybody's plants, which did not put the possessor to inconvenience, like that referred to by our facetious friend, the Vicar of Caunton, who, describing the huge specimen of Erica Cavendishiana grown by the Messrs. Cole, said the possession of it would put a person with ordinary accommodation into the predicament "of an old lady who subscribed to a lottery for an elephant, and won it:" they would not know what to do with it. These large specimens, as examples of cultural skill, ought to receive every encouragement, but for general decorative purposes, for use in the conservatory, they are not so desirable as what are called half specimens.

Quite a sensation was created at the Royal Botanic Garden when, about the time before alluded to, the Brooklands collection of 20 species and varieties of Cape Heaths—small, symmetrical specimens, in 11-inch pots—was placed before the huge and well known plants of Miss Trail, of Bromley; and then the same day the Brooklands collection of 20 stove and greenhouse plants was placed equal for the gold medal with the Hayes collection, though Mr. Hunt tried to turn the tide in his favour by staging among his 20 three finely bloomed specimens of Orchids Look again to the time when the Brooklands collection compelled the late Mrs. Lawrence to fortify her position by giving the Messrs. Fraser 500*l.* for their specimen hard-wooded plants, and then we may know something of what small specimens, properly cared for, will do in the course of a few years. The Brooklands plants, when dispersed, formed the nucleus of the collection of Mr. Colyer, of Dartford; and in Heaths, added many rare gems to the collections of Mr. Rucker, Mr. Quilter, and of many other growers. We mention this collection particularly, as an example of what may be done with small plants, and of the stimulus which the large shift system of cultivation gave to plant growing at the time referred to. There has been no such enterprise since, just from the simple fact, that the new beginner, unless backed by an unlimited purse, has had no chance to compete against the monster specimens which now occupy the exhibition ground, and will keep it, at least until such times as a new order of things is inaugurated. Look, again, to the steady advance which Mr. Eyres, of Maidstone, made in the exhibition of Heaths. We do not suppose he ever purchased plants larger in size than ordinary nursery stock, and yet in the course of a few years he not only stocked half the country with specimen Heaths, but he retained in his own hands a sufficient number of them of them to vanquish all competitors.

Go back to those days when the collector as well as the cultivator was encouraged; call to mind the variety of plants which any May or June show brought together; remember the rare Heaths, and the glorious banks of Cacti, Clerodendrons, Kalosanths, &c., at a July meeting, and need there be any wonder at our great exhibitions failing in the power of attracting the wished-for thousands? The fact is, the public, like ourselves, are sick of the sameness; the "elephants" cease to attract, and therefore, if we may be allowed a figure of speech, we must look to the bright-eyed gazelles, the chaste but tiny humming-birds, and the glorious plumage of the birds of paradise of the vegetable kingdom, to win that public back to its allegiance to floral exhibitions.

The age we live in is strictly—too strictly in many respects we fear—sensational; something fresh, something exciting must be had, and without that the few thousands who constitute at the end of the season the difference between profit and loss in such ventures, cannot be had. In country towns acrobats, ballet dancers, nigger singers, Aunt Sallys, and all kinds of rural performers are subsidised to make up the extras of a flower show, but such amusements could not be allowed by a great Society. Consequently gardening, improved and improving, is the legitimate, as it must be the staple, article of attractiveness. Therefore, we say, vary it as much as possible, and do not stultify exhibitors by absurd exclusions. In May there would be no difficulty in showing 50 plants in flower without using either soft-wooded things or more than three plants of any one genus. In June half a score soft-wooded plants might be allowed, such as Achimenes and Pelargoniums of the show, fancy, and zonal sections: and in July tricolor Pelargoniums and a few foliage plants would not be out of place. Then we should have variety as well as beauty, and the materials for such collections are exhaustless.

Still the Council must not think they can drop the collections of large plants without a note of warning. Time must be given to grow the plants, and that time must not be less in duration than from the present time until the spring of 1872. By that time there are many hard-wooded plants that might be grown to a size large enough for exhibition, but the real gems, the plants of unquestionable merit, could not be grown in that time. The same remark will apply to Heaths, the hard-wooded ones, such as aristata, elegans, vasiflora, Sprengelii, obbata, and others of similar type, must have time to make fine specimens.

The minimum size of pot for these exhibitions should not be less than 9 inches, and for the sake of uniformity, as well as to facilitate the cultivation of plants in small pots, we should recommend that a new set of pots be made, varying in size from 9 to 21 inches, which should be the largest size allowable. These pots we would have of the respective sizes, 9, 12, 15, 18, and 21 inches diameter, the last three with loose bottoms, on the West Kent plan, and all a little more artistic in their outer configuration than the general run of plant pots; indeed, we want the Messrs. Minton, Maw, or some other of the great Staffordshire potters, to take up this subject for us; and if they did so, and gave us a neat, chaste, and nicely toned pot, without an extravagant charge, they would soon find their account in the manufacture.

Finally, we should not attach too much importance to what the present exhibitors may say or recommend. Vested interest in their present plants will prevent them from ignoring large specimens altogether, nor is it necessary that they should do so. It is desirable that large plants should always be shown either as single specimens or in collections of four or six plants, as they used to be shown at Chiswick 20 years ago. To limit the size of the pot is not always to limit the size of the plants. We have ample evidence that the Pelargoniums confined to 8 and 11-inch pots are quite as large, if not larger, than when pots of any size were allowed, with this difference, that they carry three or four times the quantity of bloom. Accomplish the same end with hard-wooded plants, and then exhibitors will have the pleasure of knowing that they can grow large and perfect specimens without having such an enormous quantity of soil to lift about. Of the result, so far as plant growing is concerned, we have not the slightest doubt. The idea is not new; it was discussed nearly 20 years ago; and we are glad to find that there is now a chance of its being carried out.

Before closing, we would just make one suggestion to the Council respecting Fruit, and that is, that they should recall to mind the May and June exhibitions of Chiswick in its palmy days, and of the crowds which used to surround the Fruit tables on those occasions. If they do this, we think they will find that they have "gained a loss" of late years, by abridging the display.

The soft balmy days which are now ushering in the brightness and glow of the "pleasant spring time," bring with them a reminder of that system of bedding-out popularly termed Spring Gardening. Its great utility as a decorative agent is so generally admitted, that it were almost a waste of words to argue in behalf of its extension, and yet there is a danger that it may be regarded in some degree as applicable to large places alone, while the requirements of smaller places are overlooked. The massive and ever-imposing effects annually witnessed at Belvoir, Cliveden, Nuneham, and elsewhere, represent triumphs of modern gardening; but it is the effect of a great whole, as the very extent of planting inevitably necessitates traces of coarseness in some of its details, especially where large masses of colour have to be originated. These coarser features are yet abundantly compensated for, by many small parts of the great whole in which is seen the presence of a refinement that can invariably be obtained in small gardens, where a cultivated taste and a ripened judgment presides over the arrangement of the plants.

The suburbs of the great metropolis are full of small gardens—and the same holds good of most cities and provincial towns, wherein there might be introduced some of the small details of spring gardening as seen at the famed places to which reference is made. There is a hideous monotony in lines of gardens almost destitute of a single occupant in the way of flowers during the winter and spring months—gardens that might be filled with subjects that, while they would furnish a pleasant display, would cost but a comparatively trifling sum when obtained. The plants that would be best adapted for suburban gardens during the winter season, are just those that in the main may be said to propagate themselves, as they are increased by division of the roots. There is scarcely a house having any pretensions to size but has a garden front and back, and in the latter there is generally some corner that can be used as a place for nursery beds for the spring flowering plants during the summer months. They can be crowded together as closely as possible; and if a little fine soil be scattered over the plants occasionally, and some water be given in very dry weather, it is all that is required to keep them alive during the summer. Of plants best adapted for suburban gardens, the various kinds of double Daisies appear in the foremost rank as blooming early, as effective when in flower, and as possessing a tenacious existence capable of surviving many privations and rude shocks that would destroy other plants. Some three or four colours of these Daisies—as, for instance, the crimson, white, and pink—would give an agency capable of being used with great effect, and in various designs. The restricted use of the Daisy in this way only shows how slow we are to learn its invaluable capabilities for spring work. Take away the Daisies from Cliveden, and there would be created a void most difficult to fill. Primroses, both single and double, though more difficult to manage than the Daisy, are only second to them in their adaptation for spring work, while they are ably reinforced by Cowslips and Polyanthuses. The Pansy thrives better as a suburban plant than is generally supposed; the main difficulty lies in its propagation, though root-division will be found to afford adequate means of maintaining an annual supply of plants. The simple and useful Violas, particularly V. cornuta, rank high as agents in this relationship, and are easily enough propagated. Hepaticas, among the earliest of winter-blooming plants, are too impatient of removal to be much used, but the single blue variety has proved in many instances to be well adapted for suburban use. Then there are the Aubrietias, the various kinds of Arabis, both with green and variegated foliage; the yellow Alyssum, Cheiranthus, &c., and a host of Saxifrages, Sedums, Echeverias, &c., many of which are well fitted for our purposes. The hardy bulbous-rooted plants likewise furnish a valuable contingent, such as the Scillas, Grape Hyacinth, Triteleia, Anemone appenina, and others, which would give varied and charming colours in their own good time.

We are slowly but surely reaching forward to better things in this respect, and it is noticed that, in many instances where flowers will not succeed

so favourably as could be wished for, foliage is made to do a valuable duty. A few suburban gardens have been met with where evergreen shrubs—small bushy subjects—planted closely together, are the sole occupiers of the garden the whole year round. Some of these flower at certain seasons, such as the Rhododendron, Laurustinus, &c., and small groups of flowering plants can be introduced among them where suitable openings admit of it. The sole employment of evergreens gives an almost unvarying monotony, but that is better than the monotony of bare beds and borders. What is required is a higher appreciation of the use to which the flower garden can be turned during the winter and spring months, and this it is one of the functions of horticulture to create. Evidences are multiplying that in the same ratio as the mere utilitarian invents, does the artist design and beautify; and as spring gardening attracts to itself a greater number of devotees, so surely will there be seen new agents and new illustrations, or at least the old agents in improved and more artistic combinations.

—— We have received from the Committee of the International Horticultural Exhibition of 1869, to be held at Hamburgh, a long report of the proceedings of the Committee up to this date. From this report we extract the following particulars relating to what promises to be an exhibition of the most important character:—The buildings are chiefly to be erected on that part of the plateau situated on the city side of the park, commencing with the so-called "Elbe Pavilion," with its large saloons and spacious localities of all descriptions—the refreshment rooms having been fitted up expressly for the occasion—terminated on the other side by a Swiss dairy on the Elbe Höhe, an elevation overlooking the Elbe. This latter is intended for a coffee-house and restaurant, the large open space before it, with the pavilion for the orchestra in the middle, affords on one side a view of the Elbe and the harbour of Hamburgh, on the other overlooks the entire exhibition grounds. In the centre, that it is to say, between the Elbe Pavilion and the Swiss dairy, the main building, a conservatory, will be erected in a style of truly imposing grandeur. It will consist of the central edifice, 70 feet high, with two wings, the southern for hothouse, the northern for greenhouse plants. Each wing will have two central naves of 30 feet, and two side wings each of 10 feet in breadth, each wing being 140 feet long. Towards the south, the principal building is to be connected, by a covered pergola, with the fruit-house, a structure erected after the design of the architect, M. Haller; and as the entries from nearly all the celebrities of this branch of horticulture have been very numerous, this fruit-house will have truly gigantic proportions. Adjoining to this, again, by another pergola, is the Swiss dairy; and all these buildings will be connected by covered ways, including the Elbe Pavilion, and will form a mass of buildings of above 1000 feet in length, which will from their extent afford to the visitors, in case of unfavourable weather, an attractive refuge. The steps which the Committee have taken in order to obtain a reduction in the fares and freights of the German and foreign lines of railways and steamers, have been most successful. Nearly all the German lines have offered to carry plants and perishable articles by passenger trains, at the usual goods' freight; and besides this, arrangements have been made that they shall be forwarded without detention; also that all exhibition goods shall be conveyed back freight free. In order to obtain the benefit of these reductions, of which a list will shortly be issued, those who intend to exhibit must procure certificates of admission, which the Hamburgh Committee will forward, post free, when applied for. It is, moreover, necessary, that all goods should be addressed to the care of the forwarding agents, Messrs. W. Grund & Co., Hamburgh. The Zollverein and the Custom House of Hamburgh will allow all articles of exhibition to be entered inwards and outwards duty free. Of extra prizes, we name the following as the most prominent:—From his Majesty the King of Prussia, a silver cup with the inscription: "Award for the best horticultural contribution at the International Horticultural Exhibition in Hamburgh, 1869." From her Majesty the Queen of Prussia (1), two beautiful porcelain vases, and (2) a 4½ feet high richly ornamented flower-stand in dark bronze. From the Prussian Ministry of Agriculture, the large gold medal, value 400 marks. From the magistrates of the town of Altona, 400 marks. From the Hamburgh Society of Arts and Science, 100 dollars. British exhibitors and others should communicate with Mr. George Eyles, Royal Horticultural Society, South Kensington, the Secretary of the English Committee.

—— There will be an alteration in the Flower Show arrangements at the Crystal Palace in the coming season. There are to be two grand shows, taking place on May 15 and June 5, instead of one. At the first a new and very attractive feature will be an International Bouquet Show, for which each competitor will exhibit a Wedding Bouquet, a Ball Bouquet, and a Vase Bouquet. The competition, it is expected, will be very interesting. Besides foreign *bouquetistes*, a number of private cultivators and lady visitors to the Palace have intimated their intention of entering anonymously for the prizes to be given at this show. The Rose Show, always a delightful exhibition, will be held on Saturday, June 19. In August an International Show of Gladioli will be held.

New Plants.

Pinus sylvestris—sub-species, *haynensis*.

P. sylvestri normali dignoscitur, foliis seriebus stomatum magis numerosis instructis; flore masculo crista antherarum sub-rotundata apice parum abrupte protensa; strobilis tenuioribus longioribus inæqualibus, squamis prope basin strobili apophysi obtuse uncinato, versus apicem strobili incrassato, ad medium plano.—Habitat (ut creditur) in montibus septentrionali-occidentalibus Himalayis.

A tree apparently of the same size as the common Scotch Fir. Bark rough and grey; branches robust and rather straggling; buds small; leaves of medium size, glaucous green, with a greater number of rows of stomata than is usually present in the leaves of the Scotch Fir, viz., about 14 on the back, and 12 on the front (instead of from 8 to 10, which is about the usual number); sheaths short; male catkins similar to those of the normal form, but the anthers are more rounded, and the crest instead of being elongated like a narrow-pointed gothic arch, is sub-depressed with a short peak, like a tubercule in profile, rising from it, (Figs. 1 *a* and 1 *b*). The cones (Fig. 2) are longer and more slender in proportion than those of the normal type, and the apophyses of the scales, except at the tip and base, are flatter and smoother; at the tip they are thickened and swollen, at the base they have the mucro reversed, forming a sort of thick, blunt hook, differing from the variety P. uncinata in the hook being confined almost to the middle or mucro. The whole tree diffuses a delightful fragrance, which is still more marked when the leaves or twigs are cut or bruised. The fragrance is not only much more powerful than that of the Scotch Fir, but is different in its character, being more aromatic.



Fig. 1 *a*.



Fig. 1 *b*.

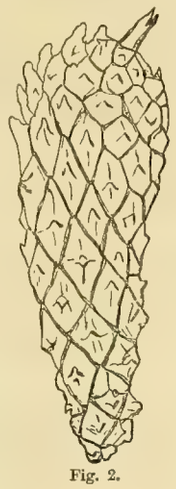


Fig. 2.

The tree from which the above description is taken is growing at Haynes Park, in Bedfordshire, the seat of F. J. Thynne, Esq., from which place I have given it its subspecific name. It is now 22 years old, and about 16 feet high, but it has lost its leader several times. It has already coned for a number of years, and last year rather abundantly, so that Mr. Thynne has been able to secure a good many seeds. He informs me that a Mr. Bastard (a name which runs in my head in connection with the introduction of some other East Indian Conifers) brought the seed home from the Himalayas. He gave it, or a portion of it, to a Mr. Dickenson, who gave some of it to a relative of his—the Rev. John Homer, a great lover of Conifers, who in his turn shared it with the late Lord Carteret (Mr. Thynne's great-uncle), another enthusiast in the same line, a short time before his death. This was in 1847, and, as throwing some light on the district from which it came, it should be mentioned that it was accompanied with some seeds of Cupressus torulosa, a species which comes from the Kumaon district of the north-west Himalayas. The seed of both came up, but by the year 1854 only one plant of the first remained—the individual in question. In that year Mr. Thynne's father sent a small branch of it to the Horticultural Society to be named, and Dr. Lindley named it "Pinus persica, a rare species, from Persia." It boots not now to inquire on what grounds Dr. Lindley arrived at that conclusion; not improbably from comparison with a tree labelled P. persica, in the Horticultural Society's Garden at Chiswick, which is traditionally believed to be an authentic original plant of Strangways' Pinus persica. But without going the length of saying positively that they are not the same, a careful examination has satisfied both Mr. Thynne and myself that this is not the case. Their facies is different, their foliage is different, the leaves of the Chiswick tree being slender and thin, and with five to eight rows of stomata; it moreover, and on this I lay some stress, wholly wants the fragrance of the other. It seems, therefore, that the Chiswick tree and the Haynes tree are distinct. If, however, the question were limited to the identity of these two trees, I should not have thought of drawing the attention of Coniferists to the matter, especially as the Chiswick tree seems not very thriving, and the differences I have mentioned may be due to that cause (although it is not likely); but a reference to books seems to show that neither the Chiswick tree nor the Haynes tree is Pinus persica, but that the latter at least is a form of P. sylvestris, not hitherto recorded or described. Both are two-leaved Pines, while the Pinus persica of Strangways would rather seem to be a three-leaved species. The first reference is to Loudon's "Gardeners' Magazine," xv., p. 130, where we should find the original description, but all that is said, however, is "P. persica? To Mr. Strangways we are also indebted for a cone with this name attached. The shape is somewhat like the cone of P. Pinea, and the seeds are large, with gibbous wings. Some seeds of this Pine have, we believe, come up in the Horticultural Society's Garden." Endlicher next places it among the Tædas, and Carrière, who made Endlicher's Synopsis his basis, does so too, but makes the leaves two or three in a sheath. I apprehend that the alternative of "two" may be a qualification due to his having seen the Chiswick tree marked Pinus persica. He mentions having seen it, and gives its height at the time he saw it. Gordon, again, who followed Carrière, and who was of course familiar with the Chiswick tree, makes it a two-leaved species; but, strange to say, his description is wholly irreconcileable with the Chiswick specimen. His description is, in fact, indistinguishable from that of P. Pinaster (cone 5 inches in length, smooth, hard, and shining, and leaves 5 inches in length, &c.), while the leaves of the Chiswick tree are only about 2 inches in length, and both tree and leaves very like a scraggy Scotch Fir. Our species has obviously nothing in common with his description, as any one may see by looking at the figure of the cone above given, which is not 2 inches in length, instead of 5, opaque instead of shining, and noways particularly hard. It thus agrees with none of the above descriptions of P. persica.

But there is another Pinus persica noticed by Gordon, with which it may have more relation, viz., Pinus sylvestris latifolia, Gordon, or Pinus persica of horticulturists. True, neither does his description of this variety agree with the Haynes tree, but it is confined to one character, which varies according to the degree of health and cultivation of the individual, so that it may be disregarded, and, if the locality can be depended on, we may be guided by it alone. His whole description is: "Leaves much broader, more glaucous, and longer than any other variety of Pinus sylvestris." But his locality, after being sifted, is more to the purpose. He says: "It is very robust, and grows rapidly to a great size on the mountains near Erzeroum, in Persia, and on the Caucasian mountains." Now, in the first place, Erzeroum is not in Persia, but in Armenia, which is part of Turkey in Asia; and in the next place, if he is correct in saying that the tree in question grows near Erzeroum, then he must be wrong in saying that it is very robust and grows rapidly to a great size, for there is only one forest in all Armenia, and that forest is composed of a species or variety of the Scotch Fir named Pinus Kochiana (after Professor Karl Koch) by Klotsch in his "Contributions de la Flore de l'Orient," and that species only grows to about 20 or 25 feet. My informant on these points is Professor Koch himself, who again speaks from personal observation. Whether or not it also grows in the Caucasus, as stated by Mr. Gordon, I do not know. I have not seen specimens of P. Kochiana, though I understand that young plants are growing in the Botanical Garden at Berlin. But, thanks to the kindness of M. Vilmorin, of Paris, I have specimens from a locality in the same direction (the eastern side of the Black Sea), of a species which has been named Pinus pontica by Boissier, which I suspect will turn out to be P. Kochiana. Boissier's species I am inclined to look upon as a somewhat intermediate half-way stepping-stone between the common form of Pinus sylvestris and our present tree, its cones having often the same long slender attenuated shape as those of this sub-species. At the same time it is fair to add that until I saw this further deviation from the common form, I regarded P. pontica as not differing from Pinus sylvestris.

The geographical distribution of the Scotch Fir would seem, therefore, to be a little more extended to the south-east than has hitherto been supposed. We know the extent of its range in the north of Europe and Asia pretty well. It there extends from the Atlantic to the Pacific; but we are not so well informed as to its distribution more to the south. No trace of it has previously been recorded from the Himalayas, but if the information received by Mr. Thynne as to the habitat of the present sub-species is well founded—and I see no reason to doubt it—I think we must then hold that the Scotch Fir, like the Cedar in former times, extended either at once or interruptedly and intermittently from Asia Minor to that range. I may add, as a piece of incidental information which may not have come under the notice of many of your readers, that M. the Abbé Armand David, in his "Journal d'un Voyage en Mongolie," published in the volume of the "Nouvelles Archives du Muséum d'Histoire Naturelle de Paris" which bears date 1867, speaks frequently of forests of Pinus sylvestris occurring in the regions of Mongolia and North China through which the upper waters of the Yellow River flow.

I am the more anxious to put this sub-species on record that it may secure the attention of future observers, so that the blanks in our knowledge of the distribution of this species may be filled up. *Andrew Murray.*

VERNAL SQUILLS.

Last year we attempted (see p. 516, 1868) to dispel some of the confusion attaching to the nomenclature of the early spring-flowering Squills. We showed that the same species was grown by various cultivators under many different names. We had proof also that under the same name two or three different species were grown and distributed by the trade. The article in question seems to have been approved by our *confrères* of the Press, inasmuch as it has been reproduced in several of the botanical and horticultural periodicals of the Continent, as well as in this country. But the task is never completed. New forms spring up in gardens, and demand admission as certified members of the floral community; old forms are sent out with new names, and necessitate on the part of the chronicler renewed examination. We had illustrations of both these circumstances this spring in the case of some Scillas forwarded to us by Messrs. E. H. Krelage & Son, of Haarlem. In consequence of our article of last year these gentlemen sent us bulbs of 14 varieties, which were duly planted in the open border of our garden, side by side, on the 9th of November last. Several of these having now flowered, an opportunity of comparing them with other varieties, described in our former article, has thus been afforded us. All 14 may be referred to one or

other of the three following species—S. bifolia, Linn., S. sibirica, Andr., and S. amœna, Linn. MM. Krelage inform us that the newer forms are seedling varieties of Scilla bifolia. We proceed to comment on them in the order in which we observed them to come into flower. As far as possible we have retained the names under which the bulbs were sent us by MM. Krelage, but we have taken the liberty of shortening the appellations where practicable, being of opinion that a redundant nomenclature may tend to exclude the bearers from catalogues or gardens, on the same principle as that on which the Spanish grandee, with no one knows how many names, was refused admission into the inn. In the following descriptive notice of the several varieties we allude merely to those points which appear to us to offer points of contrast. We may remark, that although in the several forms of S. bifolia the bulb varies, yet the differences in that organ are of a much slighter character than those afforded by the leaves, and especially by the flowers. This is an instance of what Mr. Darwin calls unconscious selection, and which has originated in the desire to get new and improved flowers, while changes in the bulb have not been correspondingly sought after.

Scilla bifolia var. pallida.—This was the pioneer of the group, it being observed in bloom on February 14. It appears to be a distinct variety from any other in cultivation. The flowers are in clusters or racemes of seven or eight on very long stalks, and are of a lavender-blue colour; the anthers are dark slaty-blue; the ovary slightly tapering at the apex.

Scilla bifolia var. maxima (= grandiflora maxima, Krelage).—In bloom on February 17. This is a very handsome variety, differing from the others in its larger flowers. The leaves too are almost as broad as those of S. sibirica, and are bright green. The scape bears a raceme of 11—15 flowers, the lower ones on long stalks. In the bud the segments of the flower are marked on the outer surface with a central brown stripe, which disappears as the flower expands. The expanded flowers are nearly an inch across, of a rich porcelain blue colour. The ovary is somewhat rounded at the apex.

Scilla bifolia var. compacta.—Flowers of this new variety were observed on February 24. It was sent under the name "præcox, true," but it has no claim to that appellation. There is so much confusion about Scilla præcox that we are not sure whether the better plan would not be to do away with the name altogether. We refer the reader to our previous article for our own opinion as to what Scilla præcox really is; at any rate the present plant is quite distinct from any of the varieties cultivated under the name præcox, and from its densely-packed flowers we propose the name compacta. The leaves of this variety are comparatively narrow, purplish-green, and with a shorter point than most of the others. The flowers are borne in a dense raceme, and are all turned to one side; the lower flower-stalks are not much longer than the upper ones; each flower is about half an inch in diameter, of a pale slaty-blue colour; the ovary is subglobose. From what has been said, it will be seen that this form, if not so showy as some of the others, is yet very distinct from them.

Scilla bifolia var. metallica.—Another fine variety. In bloom February 28. The leaves are rather broad, and purplish at the edge; the scape bears a raceme of 8—9 erect flowers, the lowest on long stalks; each flower is nearly an inch across, the segments, azure blue at the tips, shading off into violet at the base; the ovary is oblong and obtuse at the apex. There is a metallic sheen about the flowers which renders them very attractive.

Scilla bifolia var. alba.—In bloom February 28. Identical with the form cultivated in English gardens under the same name, and described in our former notice.

Scilla bifolia var. rosea.—February 28. Two bulbs were sent by Messrs. Krelage under the name of "bifolia cœrulea, n. 11." One turned out to be identical with the var. rosea of English gardens, the other had blue flowers which did not open till several days later. As there is evidently some accidental confusion here, further comment is not desirable at present.

Scilla bifolia var. grandiflora.—March 6. Leaves narrow with purple edges. Scape 3-flowered, lowest flower on long stalk. Flower rich cobalt blue, 1¼ inch in diameter. Ovary oblong obtuse.

Scilla bifolia, *Linn.*—March 6. Identical with the plant o called in most English gardens.

Scilla bifolia var. carnea.—March 6. Sent under the name rosea, but has smaller flowers, and appears to be the var. carnea of Bot. Mag. t. 746.

Scilla sibirica var. albo-striata.—April 11. This is a slight variation from the ordinary S. sibirica. MM. Krelage send it under the name of "Scilla amœna præcox albo-striata," but it is certainly not the true amœna, nor is it S. præcox properly so called. For the unravelling of the terribly complicated synonomy of this species we refer to our previous article.

Scilla amœna, *Linn.*—April 15. MM. Krelage send us two forms of this species—one under the name of S. hyacinthoides, which is a totally different plant; the other under the name sibirica, an equal misnomer. The two forms sent by MM. Krelage are so little different one from the other that it is not worth while to make distinct varieties of them; one, which comes nearest to the type, has rather darker flowers and a blue style, the other relatively paler flowers and a white style.

MM. Krelage tell us that they have in cultivation four or five other varieties of early spring flowering Squills, of which we have not seen specimens. In reference to the varieties above described, it must be remembered that only a single specimen, or, at most, two of each new kind, have been seen, and that it is very probable the characters above assigned may to some extent vary in accordance with differences in treatment, cultivation, soil, &c. *M. T. M.*

THE COLEUS.

Few groups of plants have so rapidly emerged from comparative obscurity into prominence and notoriety as that of the Coleus. Twenty years ago, almost the only representative of the family was the well known Coleus fruticosus—the "Nettle-leaved Geranium" of our grandmother's windows, a plant still sacred in our memory, and admirably adapted for the position it has from time immemorial been called to fill, that of a cottage window adorner. It is essentially a window plant, living and dying there, and never to be seen elsewhere. It cannot lay claim to any merit for beauty either in leaf or flower; it has however an iron constitution, for the more it is mismanaged the better it seems to grow; and it is always green and healthy-looking, but nothing more. In the Coleuses of to-day, however, we have some of the richest and most beautiful-foliaged plants in existence. What an advance!

The first of the family with ornamental or coloured leaves introduced to us was Coleus Blumei, or Plectranthus concolor picta, now a well-known plant. It is very distinct in character and easy of cultivation, requiring stove treatment in winter, and a greenhouse in summer. This has produced two sports—one named pectinata, a little more cut in the leaf; and Telfordi or aurea, a bright-coloured yellow but weakly-constitutioned variety, requiring the warmest treatment of all. Then appeared Coleus Verschaffeltii, a plant which, from the very day of its introduction, has gone on steadily advancing in favour, although, when first exhibited in this country, it was greatly objected to, as coarse and rough. How rapidly, however, opinions have changed. There is no plant much more respected at the present day. In ribbon flower-borders it stands unrivalled in producing effect of colour—such glorious masses of glowing crimson purple! As a specimen pot plant it is also greatly appreciated, for either summer or winter use. From this, several sports have been secured; first, C. marmorata, having the leaves slightly marbled with green, not very persistent however; C. aureo-marginata, having the leaves slightly edged with pale yellow, tolerably distinct, and rather pleasing; and quite lately another, named Beauty of St. John's Wood, which, however, I have not yet seen.

The next on the scene was Coleus Gibsoni, a robust-growing sort, somewhat resembling in appearance our old "window" favourite, with the addition of a little purple on its leaves. Unlike C. fruticosus, however, it requires stove temperature in winter, and greenhouse in summer; and although occasionally bedded out, it is not effective, and does not answer well. Coleus Veitchii is one of the latest, and is a sort of intermediate between Verschaffeltii and Gibsoni, pleasing when grown as a pot plant, but too tender for bedding purposes. Coleus nigricans, a dark-leaved sort, of straggling habit, is almost worthless. None of these latter three have produced any sports.

Such, then, was our stock of Coleuses until last season, when the hybrids appeared. The advance was so great, and so little expected, that the country was, as it were, taken by storm with them; and on their being sold, they were very speedily to be found in every garden in the country. The 12 distinct varieties raised by the Royal Horticultural Society were the first in the field; they were speedily followed by nearly double that number from Mr. Bull, many of which, however, proved identical with the Society's lot, though some of them were distinct and good.

In the Horticultural Society's collection of 1868 the most unique in my opinion is C. Bausei; it is, however, as a pot plant under glass that it tells to most advantage. There its dark plum colour comes out the clearest and brightest, and the green beading of its very regularly toothed leaves is just enough to set it off, and make it charming. In the open ground, judging from the past season, it becomes rather dingy and ineffective in colour; C. Saundersii is the next best for pot culture; while for bedding out, the best I believe to be C. Ruckeri, which becomes almost quite black, and C. Scottii, which is very dark, intermixed with green streaks. The others, of which much was hoped, as C. Berkeleyi and Marshallii, are rather too dingy in their hue to suit for bedding-out purposes. None of the whole batch yet sent out are, I believe, equal to our old favourite Verschaffeltii for bedding—there is a warmth and a depth of colour about this, to which the others cannot lay claim.

What are we, however, to expect from the many lovely gems, the second batch of seedlings raised at Chiswick, and now being distributed by several of our leading nurserymen? Here there is colour, and to spare—colour more bright, more deep and rich than the greatest enthusiast could ever have imagined to belong to foliage. We look for such colours only in flowers. What may not be done with these fine plants when once they are amongst us? For the decoration of our conservatories, and even windows in winter, flowers, as far as regards colour, may almost be dispensed with. For specimen plants in small pots for the dinner table they are, or will be, invaluable—red and crimson being the colours that tell to most advantage on a white cloth by gas-light. Amongst so many good ones, it is, indeed, difficult to say which bear the palm. For depth of colour I incline to Princess Royal; Queen Victoria is exceedingly pleasing and very effective. Then, for nobility of aspect, I name Albert Victor, and its partner, Baroness Rothschild. Duke of Edinburgh is striking and unique; and in contrast to all these, comes Princess Beatrice, a dwarf habited, pale yellow sort. To name more would but be to confound, and that is unpleasant. If there is not already, as the French so quaintly have it, an *embarras de richesse* amongst Coleuses, we shall have it shortly; they will be as numerous as the now numberless varieties of Zonal Pelargoniums. Besides the scores which are already in the nurserymen's hands, they have again at Chiswick a third batch of hybrids from the hybrids, amongst which are many striking novelties, distinct in character from all; and many other growers are similarly engaged in raising new Coleuses.

The Coleuses—all the varieties—are plants of very easy cultivation. The seed, which resembles that of the Amaranthus, is produced pretty freely from plants in pots under glass; it may be sown as soon as gathered, or kept for months. A little gentle heat is necessary—between 50° and 60°, or higher. The young seedlings must be treated like any other seedling plants, keeping them when potted off in a moist temperature of 60°, rising to 70° or 80° during the day; potting on liberally as required, using half peat and yellow loam, with a little manure, and sand. They are easily propagated from cuttings; indeed a good propagator, from a single healthy plant, may in six weeks produce many hundred rooted plants. The best time for their general propagation is the spring. If required for bedding out, they must be gradually hardened off, first by increasing the air, then by pulling off the lights entirely, if in pits, and exposing them on fine days and nights; care must be taken, however, to have the plants of a fair size first, as much of the ultimate success depends on this, and on their being properly hardened off. If intended for pot work for summer decoration, they may again be potted and made to grow freely, which they will do in a cool greenhouse, pinching them to the required form, of which the pyramidal is decidedly the prettiest. If intended for winter decoration, the cuttings should be put in later, say in July; and, treated as just described, they will be found of immense value. Nothing can be more effective than some plants we have had of these new Coleuses during the past winter. They are excellent for grouping amongst other plants, and their smaller branches also come in useful for mixing with cut flowers at a season when flowers are scarce. All through December and January I anticipate their being greatly in repute for this service. Coleus Verschaffeltii, Veitchii, &c., require a rather high stove temperature to keep them in respectable trim during the winter, and this is a drawback; but many of the new hybrids, such as C. Bausei, Marshallii, Berkeleyi, and Saundersii, I have found to do exceedingly well in a temperature which might be called intermediate, averaging at night between 45° and 50° only.

To these foliaged varieties I may just add one thorough gem—one worth cultivating for its flowers, which are deep blue, and produced in great abundance in October and November, and this is Coleus lanuginosus, a plant requiring exactly the same treatment as Salvia splendens, for which it forms a pleasing companion. *C. B.* [This communication will supply the information for which "Enquirer" asks. Eds.]

Home Correspondence.

The Manchester Show. — The coming National Horticultural Show at Manchester opens on the 14th of May. Nothing teaches the growers of plants so effectually as an exhibition of flowers and fruit. When Mr. Green, at Chiswick, exhibited his Epiphyllum, a yard or more in diameter, and a perfect cone of flowers, I renounced the theory of growing succulent plants in lime-rubbish from that day forward, for the evidence of superior skill was there beyond all dispute, and that one exhibition taught many a one besides me that although succulent plants require their rest to be in dryness, they also require strong food and drink when they are working for an exhibition. I would suggest to your readers that they should not miss the treat getting ready so handsomely for them at our National show. I have always considered that the excellencies of our best gardeners shine forth at such exhibitions brighter than they do at any other time. And there is so much to gratify any well-constituted mind—the brilliance of the gathering, the sweetness of the music, the loveliness and fragrance of the flowers in the stillness of their innate beauty, and the social unselfish enjoyment of the whole, brings such a *fête* under a summer evening's sun as near to perfect happiness as any patch of our chequered life is likely to be under the sun. The amount of money offered as prizes will convey clearly to gardeners and others acquainted with exhibitions of plants and flowers, the princely style of the coming *fête*, there being 1000*l.* offered in this way. All comments upon this sort of telling argument would be superfluous: there will unquestionably be a splendid exhibition. There are some new features in the schedule which it may be well to mention. There is a prize of 50*l.* offered for the best and most effective group of 50 plants, not less than one-half to be flowering plants, and of them not more than eight to be Orchids. Here is an opportunity for displaying something more than culture, as the second quality—viz., the effect of the group, will in a great measure depend upon the artistic effect of the setting up. The group must be a unit, and will therefore differ essentially from a collection, just as a picture differs from a panorama. The second best group will secure a prize of no mean value, 25*l.* Only imagine a prize of 20*l.* for a dozen Roses in pots, and 10*l.* for the next best dozen! About 50*l.* is offered for fruit. About 100 gs. for greenhouse Azaleas, and 70 gs. for Orchids. No class of plants suitable for exhibition at this season of the year seems to have been left out, for there are prizes offered for Tree Ferns, hardy and exotic Ferns, Palms, Yuccas, Dracænas, Pelargoniums, great and small, green-leaved, variegated-leaved, and belted; the Amaryllis tribe, and the Lilium auratum in all the boldness of its beauty. Prizes are offered for specimens of cone-bearing trees, and of hardy Rhododendons and Azaleas in flower; even the alpine plants, and the hardy herbaceous plants have not been forgotten. If the limits of this notice would admit I might go into particulars, but I think the gigantic nature of the enterprise will be clearly seen from the samples I have given; and as the first regulation states that "specimens may be exhibited from any part of the world, and by any person, either for sale or competition," no one can deny that the Manchester Botanical Society have made the world a very liberal offer. *Alex. Forsyth.*

Transplanting Large Yews.—I have an idea that "N. B.'s" inquiry was lately answered in your columns by Mr. Fish; but lest he may not have seen it, the matter is of sufficient general importance to receive a brief answer now. I therefore hasten to place a case and its results at the service of your correspondent. On, say the 5th of November, 1853, I had occasion to transplant some hundreds of Yews, from 6 to 12 feet high, to form a double line, the tall ones at the back, the small ones in front. The soil from which they were moved was a good stiff loam. Balls of earth were left on the largest plants from 4 to 6 feet across, on the

smaller from 2 to 4 feet; beyond these balls every root that could be spared in the process of removal was left intact, projecting beyond the ball. The only transplanting machine available was a barrow sledge drawn by two horses. The holes were dug out double the diameter of the balls, and half as deep again, the extra width enabling all the projecting roots to be properly spread out at planting, the extra depth being filled in with a tempting layer of the best soil. Staking and watering trod on the heels of the planting, in fact no plant was considered finished until these operations ensured comparative immovability of top and compactness and solidity of base. Finally a layer of long litter, 6 inches deep, was spread over the whole root area, to keep the water in and the cold out, and this completed the work of removal. The results were entirely satisfactory. Out of a long line, over 100 yards, there were only two deaths of the smaller plants, one of them only arising from removal, the other being killed by poison, the latter being so singular a case that it may be worth noting here. One plant, near an old Sycamore tree, perished, and was renewed every season for five years running. At last the large tree on the same spot suddenly died. It was then discovered that the earth beneath was one mass of the spawn of a common Toadstool. Scarcely any of this spawn had reached within a yard of the surface, but in digging a strong musty smell had been detected, and it seemed as if the odour of the Fungi had poisoned the successive Yew plants without actual contact, for the soil for these particular plants had been several times renewed bodily. After the death of the Sycamore, and the removal of its wholly decomposed and Fungus-possessed roots, the next Yew plant grew away like its neighbour, and has thriven well ever since. Nothing can exceed the health and beauty of these transplanted Yews, and they have progressed with a rapidity that would astonish your venerable correspondent, Mr. Forsyth, whose communications are so full of interest, and who, in his paper on "Monograms," puts down the Yew as a slow-growing tree! However, I must add that these trees are very much sheltered, and that if your correspondent's position is greatly exposed, the system of dead nursing practised by Mr. Barnes, of Bicton, for his young Conifers (see p. 449), would render useful service for the first season after removal. I would recommend November as the safest month for removal. A good strong loam or rich black mould are the best soils for rapid growth, and the plan of removal above indicated. You may give my address to "N. B.," and if he can call here I shall be most happy to show him the trees, and thus afford him the opportunity of judging for himself. *Taxus.*

Orchard Houses.—Your correspondent "Orchard House" conceals his real name, but why should we give ourselves such synonyms if we are advocating a good cause? I never like dealing with your dark-lantern gentlemen; one never knows how to take the bull by the horns, or whether the party is worth powder and shot; he may be, peradventure, an orchard-house builder, or a great grower of orchard-house trees for the million, or he may be the friend of one or other of these gentlemen wishing to help them to push their fortunes at the expense of the uninitiated or unwary amateur, who is often too ready to catch at such specious contrivances as growing fruit for the million. I have said, and still say, that these structures in the hands of adepts are, and can be made, very pleasant and enjoysble things; but Mr. Million does not understand what he is about when he orders the carpenter and glazier to put him up an orchard-house, or when he sends to his nurseryman for 150 Pear trees to fill it. The trees come home young and healthy, planted in large pots, involving considerable outlay in carriage; they are introduced to their new abode, which has been got all in fine order to receive them. Mr. Million, after having them all arranged, and in nice trees, calls his friends to see his fine house, and they smoke their pipes and talk over the coming crops, not then thinking how much of the weed they will have to consume to keep the trees clear of garden pests, such as greenfly, red spider, thrips, and such-like lovers of fruit trees. The trees begin to grow and to blossom, a triumphant time for Mr. Million. Watering is beginning to be required; he knows but little on the subject, but refers to his fruit-tree manual, and then either deluges his trees or gives them a slight wetting on the surface—this is oftenest the case; the roots get dry, blossoms begin to fall, leaves begin to take the yellows, red spider, fly, and thrips begin to make their appearance; and Mr. Million is at his wits' end. His roots are dry, his atmosphere is dry, and his enemies are sucking the life-blood out of his trees, and worthy Mr. Million, not knowing what else to do, lets them go on, still giving them sips of water, and keeping a dry atmosphere. In course of time a few fruit come to a state of half-ripened maturity, with somewhat of a sloey taste. Mr. Million is in raptures, and shows his friends his wonderful productions. This actually happened to the writer. A friend of his built and managed a large house, just as is stated above, and showed him the produce, which was, just as I have said, like Sloes. He was in great glee over the abortions; but I am sorry to say the second year all went wrong, and he pulled down his house and sold it to a neighbour, at least 30*l.* poorer from having dabbled in orchard-houses for the million. His neighbour keeps a gardener, and I visited the garden and house some time ago, and would not have given 20*l.* for house, trees, and all it contained, and this after at least six years' lost time. The same house or amount of glass surface, managed in the old-fashioned way, would have produced bushels of good fruit, and it is this cause of loss and waste that I scotch and not the houses, for I am aware any glass structure, well managed (and this must be by people who know how to manage, and not by Mr. Million), will produce fine and certain crops of fruit; but I must again cry, Alas! for Mr. M.; he is not the right person to do it. "Orchard House" hints that we, the detractors, do not know anything about their management, and kindly invites us to dine. I won't repeat Byron's couplet, but will thank Mr. O. H. for his kind invite, albeit he doesn't tell us where to go for our dinner. In 1833 I lived at or near the Earl of Lauderdale's, in Dunbar, East Lothian. There was a magnificent orchard-house there, and the Earl's gardener was looked up to by us aspirants as one of the best in the country; yet I recollect that, although the house was filled with beautiful green tubs, and some good trees—Apples, Pears, Plums, Cherries, Peaches, and Nectarines—yet the produce was, as far as I recollect, two or three fruit on the flat Peach of China; and I can supply more modern examples by the score. Yet, after all, your amateur, or even high professional must be educated up to these things; and I do not run them down, or "scotch them in my mood;" but think that, after a good dinner, Sloes may be fit for food. Yet the indiscriminate laudation of such structures deceives the million. They begin, because they think that they can do the thing cheaply. Why do not good gardeners advocate orchard-houses? Simply because they are called upon to supply their employers with an abundance, and not with a fanciful and scanty supply. "O. H." gives evidence to this fact—gardeners must produce fruit, and not get up structures simply to lounge in in cold weather. *J. Scott.*

Orchard Houses as Sources of Pleasure and Profit.—Perhaps we have never had a season that has given a more emphatic testimony in favour of orchard-houses than the present. A year without a winter has been succeeded by a spring of sufficient severity to cut off Apricots and Peaches by the thousand, and walls, protected and unprotected, will be comparatively bare of fruit this autumn. This, however, will probably plead for orchard-houses with greater potency than any other argument. In contrast with the present state and dreary prospect of walls, the glowing picture of present pleasure and prospective plenty, painted by "Orchard House" (p. 418), is somewhat tantalising, but not at all overdrawn. In fact, this writer does not by any means exhaust the points of contrast, nor enumerate the whole of the advantages that such structures yield over and above walls. He confines himself chiefly to the enjoyment of the present state of orchard-houses, and the pleasure derived from the delightful promenades that they afford. It is perfectly astonishing that so little note has been taken of this view of the subject. A walk during March or April among avenues of Peach, Apricot, Nectarine, Cherry, Pear, or Plum trees in full blossom, and the air laden with the sweet perfume of early Stocks or Wallflowers, is one of the chief delights of modern gardening, a pleasure full and satisfying, a sight of which we can never weary. Neither does the satisfaction end with the enjoyment of the present; it is heightened by the certainty with which we are enabled to anticipate the future. Trees in the open or on walls, in full and glorious blossom, may excite the same emotion of pleasure, but while we gaze upon them we can only rejoice with trembling. Every rolling away of the clouds, every change of wind, every fall in the temperature, fills us with apprehensions for their safety, and fears for their security mar our enjoyment of their beauty. And when the cruel frost comes and ruthlessly wrecks all their glory, and covers them with its dreary pall of unseasonable death, we mourn the loss with feelings akin to those that affect us when youth in its prime is suddenly cut off. The very fear of such a catastrophe or loss mars our joy of actual possession, and the sting, danger, pierces through the heart, our enjoyment. The safety of our blossoms under glass lends a zest to our pleasure; and not only are they safe for the present, but the future. This grand promise of a fruitful autumn can hardly fail to be realised. The flower must needs ripen into fruit. Orchard-houses shut out the cold, and let in the heat, and they do both with sufficient force to insure a plentiful harvest of luscious fruit. While this is their primary purpose, they provide, as it were by the way, one of the most delightful and pleasant of all promenades, where beauty may be seen to the greatest advantage and all the charms of spring be enjoyed without its harsh, biting winds, erratic changes, and pelting showers. Within these weather-proof structures, our pet trees may be attended to, cultured, and nurtured in all weathers, not only with positive advantage to their health, but to the preservation or establishment of our own, while they also place a cheap and novel pleasure within reach of all classes. *Quercus.*

Pelargonium Congress and Prize Essay.—I am glad to say my proposition for a prize essay at the forthcoming special Pelargonium show at Kensington, on May 22d, has been favourably received by the Council of the Royal Horticultural Society, and every accommodation will be provided. I have also guarantors for the 5*l.* proposed to be subscribed for the prize. It has been, however, suggested that the subscription should be made general among the growers. The subscribers' names will be announced by the chairman of the meeting, and if more than is required should be collected, the balance will be returned. Mr. Moore, of the Botanic Gardens, Chelsea, has kindly consented to receive subscriptions for the above prize. Amateur cultivators are invited to enter into this competition, and to send in their essays by the 17th May, when a sub-committee of the Floral Committee will decide on the best, and the arrangements described at p. 391 will be carried out. Those who are interested in this subject are requested to send in their suggestions at once, so that all necessary arrangements may be carried out successfully. I am heartily glad that the proposal to hold this meeting has been so favourably responded to; and I hope such meetings will be continued, and that the exhibitors at South Kensington may have the advantage of a Horticultural Congress as well as the good people who assemble at Manchester; for the time is come when the spare hours between 10 A.M., when exhibitors and their assistants clear out from the show, and 2 P.M., when they are re-admitted, should be more profitably employed than in strolling through Hyde Park, or lying about with the sheep, as a great number are compelled to do under the present sleepy arrangements. *Henry Cannell, Woolwich.*

Araucaria Cunninghami.—In the interesting account of Bicton Gardens, now appearing in the *Gardeners' Chronicle*, the above-named tree is said to be 36 feet high. You will confer a favour on me, and I am sure on others who may have failed to get the Araucaria Cunninghami to grow in the open air, if you will give a few particulars as to the position, &c., of this Araucaria at Bicton, and how it has been made to succeed so well there; and say authoritatively that the tree referred to, is not confounded with Cunninghamia sinensis? I note every scrap that appears about Bicton and its rare trees, but I have not noticed any account of the Cunninghamia sinensis growing at Bicton, and I remember that Lady Rolle, when visiting here some years ago, compared the broad-leaved Chinese Fir growing here to the one at Bicton. *Charles M'Donald, Woodstock Park, April 20.* [Mr. Barnes has favoured us with the following reply:—The description of this plant is correct. The position in which it is growing is a kind of dell or low healthy spot formed into a rockery, where it is planted many feet above the natural surface, amongst the large stones of which the rockery is formed. Its huge roots run for considerable distances on the surface of the earth, then dip down under the stones, come out again on the surface, and again dip under, and so on. It seems to really enjoy itself, and grows most luxuriantly. Its shelter is a large plantation of very high trees and thick tall luxuriant evergreens of various kinds, and extending from south-east to south-west by north to a considerable breadth all round, for half a mile or more; in fact it is sheltered with heavy plantations all round at a considerable distance, and the sun is admitted only from south-east to south-west. The bottom shelter consists of thick luxuriant evergreens from 10 to 14 feet high—many feet away, of course, from the plant, and under a high wall at the back. Thus all cutting winds are completely subdued, while the sun from south-east to south-west shines in at the right part of the day to maintain its health and luxuriance. It is these little items carefully carried out that probably enables us to succeed in growing so many rare plants, tender and early growing Coniferæ, &c. We succeed by planting them where the morning sun is excluded, and where the cold biting winds from south-east to north-west are partially, or as much as possible, excluded. In the course of a few years we find that tender trees, and those which naturally make their growth early, commence later every year, until in the course of time they make their annual growth in our natural season. The seedlings, moreover, which I have raised from many of our trees are inured to our climate, and become nearly or quite hardy. *James Barnes, Bicton.*]

What Sized Pot?—The Royal Horticultural Society calls a meeting of exhibitors at South Kensington on the 4th inst., with the view of ascertaining their views in regard to the restrictions of the sizes of the pots in which various plants are to be grown and exhibited in 1870. If this meeting should lead to the removal of all restrictions, I, for one, shall rejoice in it. What are or should be the aims of our horticultural shows? 1. To develop the skill of the horticulturist. 2. To draw and please the public by a good exhibition. Now, I maintain that the freer the rules, other things being equal, the better will be the plants, and the better the show. Restricting the size of the pot reminds me of the practice of the Chinese with the human foot, in making the foot, big or little, grow to a certain model shoe. Is not our plan of making the shoe to fit the foot the better practice? Is it wise to provoke pain by squeezing a big foot into a little shoe? It may be all very well for the man with the little feet to argue that little feet are "properest" and best. The fox who had lost his tail tried to persuade other foxes that tails weren't the fashion; but the company of foxes, after hearing the arguments of their learned brother, responded through one wise old fox, that they thought a good brush wasn't a bad thing after all. It has always appeared to me that the prizes should be offered for the best, leaving the *modus operandi* in production absolutely free to the exhibitor. By restrictions you cramp the energy and enterprise of the exhibitor; you do away with the freedom of individual thought and action, thus leading to monotony rather than to variety; you check the natural development of the plant, and the exhibition is shorn of much of its possible originality and grandeur. Restrictions as to the number of plants may be all very well, but if applied to the size of the pots let them be made to additional or subsidiary, rather than to primary classes, calling them if you like "accommodation" classes. *W. P.*

The Composite Structure of Simple Leaves.—In the *Gardeners' Chronicle*, p. 337, I notice a review of a paper of mine on the composite structure of simple leaves, which appeared in the Transactions of the Royal Microscopical Society. In this paper I attempted to show the remarkable repetition of similar typical structure pervading all leaves, and then to demonstrate how such structures were not only repeated as in compound leaves, but repeated and united as in lobed ones, the clue to the whole being the venation which gives character to every leaf, and to a great extent modifies its form. To the hypothesis as to the lobed leaf being composed of a number of similar leaflets coherent at their edges into one blade I was prepared to expect objections, inasmuch as such a construction is at variance with that which has usually been put upon it by botanical writers; but for the laconic not to say flippant critique occupying about 40 lines in the *Gardeners' Chronicle*, I must confess I was not prepared. I shall endeavour briefly to answer the reviewer's statements *seriatim*. He commences: "If it be intended to convey to the reader that the form of the leaf depends on the arrangement of the veins, the statement may be questioned, as the form

of the leaf is sketched out before the formation of the veins." My answer is, this is the first time that a doubt has been expressed as regards the relation of the form of the leaf to its venation [?], and it were almost an endless expenditure of time and paper to attempt to prove what has not only never been denied [?], but on the contrary has been recognised as an established fact by all botanists and botanical writers [?], were it not for the cool and unceremonious way in which the writer attempts to dispose of the subject. That the form of the leaf and its venation are closely related is evident—first, from a careful inspection of a perfectly formed mature leaf, in which if the veins are not all visible to the naked eye, they may be rendered so by a lens of moderate power (12 diam.); next, the venation of the whole leaf, taken as an entire piece of network, has generally by common parlance been called the skeleton, that is the framework or outline of the body or form of any object; thirdly, if the leaf be denuded of its green pulp or parenchyma, what is left? the skeleton; which exactly resembles the original leaf in form, often even to the skirting of its very margin. Hence the one is so nearly a counterpart of the other, the form of the skeleton to that of the entire leaf, that the name of the latter is known by its skeleton. But what say the authorities on this relation between the form of the leaf and its venation? [Then follow several quotations, apparently supporting Mr. Gorham's views, but which our space does not permit us to insert.] From these quotations it may be gathered that it was the intention of these eminent botanists, at least, to convey to the reader that the form of the leaf depends on the arrangement of its veins, and no one has ever dreamt of questioning this excepting the writer in the *Gardeners' Chronicle*. [?] As to the form of the leaf being sketched out before the formation of the veins, this is not disputed. But whoever heard of selecting an undeveloped half-expanded leaf in order to demonstrate the peculiarities of a perfect one? The truth is, that the parts of the leaf grow consentaneously [not quite], the parenchyma and the veins are mutually engaged in its formation, and the statement as to the form of the leaf being sketched out before the formation of the veins is a mere quibble, destined to confuse the non-botanical reader, but not at all likely to interfere with the botanist, who knows that a leaf without veins is not that kind of leaf on which to base any scientific conclusions as to classification, &c. After having satisfied himself that the relationship between the form and venation of the leaf may be questioned—a conclusion which I am persuaded no other botanist would endorse [?], the writer proceeds to state, "The same sort of fallacy runs through the whole paper—the cart is invariably put before the horse—these leaflets are said to be joined together or anastomosed, which certainly were never separate at any time." I can imagine one unaccustomed to botanical pursuits to have penned this sentence—a mere tyro, for instance, who had never heard of a gamosepalous calyx, or a syncarpous pistil, might have been astonished at my presumption in thus committing myself to the phrase, "junction of leaflets into one entire blade takes place." It is consoling, however, to find myself in good company, and with illustrations in abundance from other sources besides the leaf, which make good my position. What, for instance, is a monophyllous or gamosepalous calyx? [Here follow other quotations.] Who as a botanist can fail to recognise, unless blinded by prejudice, the true affinities of these two parts of the plant, the lobed leaf and the gamosepalous calyx? Now no botanist has ever seen the sepals in a gamosepalous calyx separate at any time [?], yet the fact of their adherence [coherence] is allowed without noticing when and how this may have been accomplished. This is precisely the condition of the leaflets in a lobed leaf. In the case of the gamosepalous calyx, the botanist does not say with this reviewer, "the phenomenon is one of imperfect partition, not of junction;" but knowing intuitively to the contrary, he says at once, honestly, the sepals unite, and calls their union coherence. "At the part where the sepals unite," says Balfour (¶ 360), "there is occasionally a prominent line formed by the union of the vessels of each." This line is precisely analogous to the space which I have called, as applied to the union of the vessels of the leaves, *commissura*. Slit up a gamosepalous calyx on one side, unroll and flatten it out, and you have a fair idea of a lobed leaf. Roll up a lobed leaf on the other hand, and assume it to be united at its edges. It becomes converted into the gamosepalous calyx. The same composite structure is accorded by botanists to the gamopetalous corolla. Again: the reviewer seems to allow his mind to become confused by dividing his attention on the leaf in its several stages of growth, and he is especially *en rapport* with the prevalent school notion of separation, to the utter annihilation of anything like cohesion.[?] It seems scarcely to have entered his mind, that from their earliest formation, lobed leaves may have been constituted like monosepalous calyxes—that the original germs in a lobed leaf may have been, and doubtless are, destined to expand into so many similar leaflets, and that their cellular papillæ, in the course of expansion, contract adhesion [cohesion] to a certain extent, and for a definite distance, towards the margin; after which the leaflets, diminishing in width, and becoming lanceolate, elliptical, &c., as the case may be, from their original tendency to do so, develop themselves into perfect leaves, of the terminal end of which each lobe is the representative. Hence, the process is not one of separation, but of cessation of coalescence. Finally, the reviewer says, "according to the extent of the separation is the depth of the lobes, or the degree of composition." Precisely so. No one can deny this truism; besides which, it is the language of the schools, and it would be impolitic to "run out of the groove." If the lobes are separated 1 inch, the depth of the separation is 1 inch. It does not, cannot in any way, account for the void space between the lobes. If I chose to be hypercritical by using an argument analogous to his own, I might ask the reviewer in this place, whether he has ever found those parts which he calls separate joined at any time? [Sometimes.] If not, how can he say they have become separated? The truth is, they never were joined, and so never positively separated. They simply exist in a state of disunion because the adherence [coherence] at their edges has ceased for a longer or shorter period before they have arrived at maturity, and with that separation commences the gap which he calls separation. In conclusion, it is to be regretted that in thus writing at random statements have been made which are altogether irreconcilable with facts. [?] Fortunately, however, there are always to be found a few honest aspirants neither trammelled by prejudice nor by the dogmas of the schools. But while I find facts taking the place of argument I shall still adhere to my own hypothesis, that the lobed leaf is, like the gamosepalous calyx, gamophyllous. *John Gorham, M.R.C.S.* [Space forbids the insertion of the whole of our correspondent's lengthy letter. If he had used the terms in the ordinary conventional sense, to express things as they seem to be, rather than as they are, our reviewer's criticism would have been uncalled for. The whole gist of Mr. Gorham's paper, however, turns upon the actual way in which leaves are built up, not upon a convenient but inaccurate method of classifying the innumerable variations in form which the perfect leaf presents. Had our correspondent employed half the zeal and pains he has exhibited in working up his paper upon an investigation of the manner in which leaves grow from initial tubercle to full maturity, or even had he consulted the numerous monographs on the subject, he would not have so persistently "put the cart before the horse." Neither would our reviewer's orthodoxy have been called into question in one sentence, and in another have been censured for being blinded by prejudice and school dogmas. As it is, it would seem from Mr. Gorham's statements that our reviewer—lucky fellow!—has hit the happy mean,—*rem acu tetigit*. Eds.]

Foreign Correspondence.

Moulmein.—It took me to 14 days to reach Taungoo (a place considerably to the north of Moulmein), partly by land and partly by boat; the road lies through Sittoung and Shwag-gyee, and follows in the main the course of the Sittoung (commonly called Sittang) River, avoiding its sinuosities. Sittoung, Shwag-gyee, and Taungoo are all on the Sittoung River, which runs a course eastward of the Aya Waddee, and parallel with it, but much smaller than either that river or the Saluen, about equidistant, between which two rivers it flows. Sittoung, with its neighbourhood, is the locality for Melanorrhæa usitatissima. This tree is not found in the Tenasserim provinces, nor hence to Taungoo in Burmah proper, except round about Sittoung, within a radius of perhaps 10 or 15 miles: it affects the hard, dry laterite soil of the low hills, which rise but little above the plains of Pegu, and stretch away to the west. Where it is found, it forms the principal tree in the somewhat scanty jungle. I am not aware if there be any other locality for it in Burmah. This tree produces a very hard wood, and yields a varnish very much used by the natives for lacquering all kinds of domestic utensils and furniture. It has been described as growing upwards of 100 feet high, but I never saw them more than 40 or 50 feet, the trunk of a good-sized tree being about 2 feet in diameter; it gives off its lower branches very near the ground, the branches upwards are much bent with many knees, giving the tree, foliage apart, very much the appearance of a moderate sized English Oak. The whole tree is of a very sombre hue, the trunk and branches being nearly black, and the scanty foliage dark olive green. The "Thit-tsee," or black varnish, is extracted by making a V-shaped incision in the trunk, and driving a point of a Bamboo, sharpened on one side, into the tree at the bottom of the V, to catch the flow. This varnish as it flows from the tree is a thick whitish fluid, which becomes quite black on exposure to the air; it is, therefore, kept under water to preserve it. Sir David Brewster accounted for this change, by the fluid losing its organised structure, settling down into a homogeneous mass and transmitting the sun's rays, which in an organised condition it dispersed. Taungoo is our frontier military station on the N.E. of our Burmese possessions; my object in going thither was first of all to see the place, but chiefly to see Nat-toung, a mountain about 40 miles (as the crow flies) E.S.E. of it, said to be the highest in Burmah. Taungoo is situated on the plain, on the proper right bank of the river Sittoung, which here flows nearly at the foot of that range of mountains which form the watershed between the Saluen River on the east and the rivers of the Pegu plain on the west. In the latitude of Taungoo the range is very broad, but it narrows more and more southward till it ends in a single ridge of moderate elevation at Martaban point, round which the Saluen flows to the sea, separating Martaban from Moulmein. As the mountain lies behind three or four intermediate ranges, the journey is a very laborious one. I carried an aneroid with me, but above 5500 feet the instrument altogether failed, so I had to trust to the thermometer for height. Water boiled on the summit of Nat-toung at 200°, making it, say, in round numbers, 7500 feet above Moulmein. But though the most striking point, and most notable mountain, it is not quite the highest. Po-ghau, a neighbouring point, terminating a long ridge stretching away N. and E. of Nat-toung is higher by about 500 feet, so that we may safely put down the highest hill in Burmah as 8000 feet, more or less. From Nat-toung, a bare or "bald-headed mountain," as another of its names means, a grand view is obtained when the state of the atmosphere will admit of it. By the time we reached the top the distant views were obscured by the smoke which envelopes the whole country in the hot weather. We saw, however, the Saluen on the east and the Sittoung on the west, and higher mountains (probably 10,000 feet) beyond the former, eastward in the Res Karen country; and a low range of hills beyond the latter westward, which range forms the watershed between the Sittoung and the Aya Waddee rivers. Our Karen porters were with difficulty persuaded to stay even one night on the top, so that we were unable to ascend to the very highest summit before spoken of, which would have taken at least another day; though not far, it was clothed with dense jungle, which would have made our progress very slow. The thermometer stood at 40° at 10 P.M., and before sunrise. I could carry but one small press, so could only cull what seemed choice among the plants. The vegetation on and about Nat-toung consisted of Quercus, Castanea, Pinus, Rhododendron, Vacciniaceæ (this order largely represented by six beautiful Thibaudias and several shrubby Vaccinia), Gentiana, the Aralias, &c. A lovely Pleione was found abundantly at the top (7500 feet), growing on trees, buried in moss. There were three Rhododendrons on the mountain, R. moulmeinense (a lovely plant), and second species, of which I know not the name. R. moulmeinense is a small plant, and epiphytal, growing after the manner of the Thibaudias, whereas this latter species is a tree 30 feet high, with cinnamon-coloured bark. A hybrid species, not in flower but in seed, was a dwarf shrub, and bears, I should say, a red flower, the other two being white. However, as I met Mr. Sulpizy Kurz on my descent, despatched from Calcutta to collect for three or four months on behalf of Government, and armed with Government authority and Government money, with staff of men and elephants, and stacks of paper, I need say but little of the botany, as of course he can and will collect and dry everything, little and big, which it was utterly out of my power to do. He, too, contemplates the ascent of Nat-toung. *P.*

Societies.

Royal Botanic: *April 27 and 28.*—The second spring exhibition of this Society was held in a tent at the north side of the conservatory, and the weather being all that could be desired, there was a large and fashionable attendance, including the Princess Mary of Cambridge and Prince Teck. The show of Roses, though not extensive, was nevertheless magnificent in point of quality, Mr. William Paul, and Messrs. Paul & Sons, contributing very fine collections. The 1st prize for 9 plants was taken by Mr. W. Paul, whose plants were unusually fine, and furnished some splendid blooms; they consisted of the following varieties:—Paul Ricaut, Madame de St. Joseph, Sénateur Vaisse, Glory of Waltham, Alba rosea, John Hopper, Pierre Notting, Souvenir d'Elise Vardon, and Baron Adolphe de Rothschild. Messrs. Paul & Son had another finely-grown set of plants, but they were scarcely enough advanced, and had a preponderance of pale colours; they comprised Madame Thérèse Levet, Céline Forestier, Madlle. Marie Rady, President, Madame Villermoz, Madame Victor Verdier, Souvenir d'un Ami, Souvenir d'Elise, and Princess Mary of Cambridge. Mr. Wm. Paul was again 1st in the class for three new varieties, furnishing remarkably fine plants of Antoine Ducher, Horace Vernet, with some splendid blooms; and Monsieur Furtado. Messrs. Paul & Son competed with Impératrice Charlotte, Madame Margottin, and Monsieur Furtado. Mr. James, gr. to W. F. Watson, Esq., contributed six nice plants in the amateurs' class; and two boxes of cut Roses were sent by Mr. W. C. Osmond, gr. to B. Holland, Esq., Stanmore. In addition to the above, Mr. W. Paul exhibited a charming collection of well-known varieties, which assisted materially in furnishing the show.

The prizes offered for six foliage and flowering plants produced a lively contest, the specimens exhibited being for the most part exceedingly well grown. 1st prizes were awarded to Mr. Fairbairn, Syon House Gardens, Isleworth; and to Mr. Wheeler, gr. to Sir F. H. Goldsmid, Bart. In Mr. Fairbairn's collection were grand specimens of Alocasia zebrina, and Anthurium acaule, and fair examples of Sobralia macrantha, Vanda tricolor, and Phalænopsis amabilis. Mr. Wheeler furnished an exceedingly well-grown and well-flowered specimen of Chorozema cordatum splendens, about 4 feet through; good samples of Eriostemon linearifolius and Clerodendron Thomsonæ, a fine Dicksonia antarctica, and a rather poor Alocasia metallica. Mr. D. Wright gr. to C. H. C. Roberts, Esq., Avenue Road, N.W., came 2d; his most noticeable plants were a moderate-sized Genetyllis tulipifera, well-flowered; Eriostemon linearifolius, a good specimen; a grand Croton variegatum, and Pandanus javanicus variegatus. Mr. Wilkie, gr., Oak Lodge, Kensington, was 3d, with a very nice collection; and Mr. T. Burnett, gr. to W. Terry, Esq., Peterborough House, Fulham, also contributed. Azaleas were shown here, as at South Kensington, by Mr. Turner, who took the 1st prize with six fine half-standard specimens, having dense bushy heads, covered with bloom; the varieties were—Alba perfecta, Duc de Nassau, Rosea odorata, Hercules, Hooibrenkii, and Etendard de Flandre Mr. Wilkie was 2d with well-bloomed plants of President, Burlingtonii, Duc de Nassau, Prince of Wales, Trotteriana, and Eulalie Van Geert. Mr. Fairbairn came 3d, and Messrs. Cutbush & Son, Highgate, Messrs. Dobson & Sons, Isleworth, and Mr. T. Burnett also exhibited.

Exotic Ferns were shown in splendid condition by Mr. D. Wright, who took the 1st prize with six well-grown specimens, consisting of Cibotium Schiedei, Alsophila spinosa, Dicksonia antarctica, Lomaria gibba, Cibotium princeps, and Adiantum cuneatum. Mr. Wilkie received the 2d prize with the following—Thamnopteris vulgaris, Lomaria cycadæfolia, Cibotium princeps, Dicksonia squarrosa, Pteris cretica albo-lineata, and Davallia bullata. Mr. G. Wheeler was 3d with good examples of Adiantum cuneatum, Lomaria gibba, Asplenium Belangeri, Dicksonia antarctica, Blechnum corcovadense, and Drynaria musæfolia. Mr. Fairbairn also contributed. Mr. James, Isleworth, sent an exceedingly well-grown collection of British Ferns.

Pelargoniums were exhibited by Messrs. Dobson & Sons, who furnished six very neat and well-flowered specimens of the French varieties; by Messrs. Reeves Brothers, Notting Hill, who sent what are known as market varieties of the latter class; and by Mr. G. Wheeler, who contributed six specimens of zonal varieties, trained very unnaturally on a sloping shield. Mr. Baxter, gr. to C. Keiser, Esq., Broxbourne, took a 1st prize for six Amaryllis, with fine plants of Olga, Beauty of Broxbourne, Alexandra, Edmund Sibeth, Othello, and Mrs. Sibeth. Auriculas were not largely shown, nevertheless the collection of alpine varieties from Mr. Turner was a very praiseworthy exhibition. In the nurserymen's class, Mr. Turner, the only exhibitor, received the 1st prize for a group consisting of Colonel Champneys, Countess of Dunmore, Miss Brightley, Constellation, Eclât, and Chieftain, Mr. Butcher, Camberwell, was 1st in the amateurs' class, and Mr. James, 2d, but their plants were rather past their best. Mr. Turner received First-class Certificates for two seedlings of the alpine class, named Constellation and Brunette. A similar honour was conferred on the green-edged variety named Mrs. Butcher, from Mr. Butcher, which was shown at the last meeting of the Floral Committee. Mr. B. S. Williams also received a First-class Certificate for Miltonia virginalis, a pretty white-flowered species with a rosy striped lip.

Of miscellaneous plants exhibited, Mr. B. S. Williams sent a charming group of fine foliage and flowering plants, Orchids, &c., in which was the charming waxy-looking white Erica mirabilis, a well grown specimen of Tetratheca tetrandra—a plant that is somewhat difficult to cultivate; Vanda tricolor and tricolor superba, Odontoglossum Phalænopsis, Lycaste Harrisoniæ, Trichopilia suavis, and Cypripedium barbatum and villosum. Mr. W. Paul and Messrs. Carter & Co. each exhibited collections of Tricolor and Bronze Zonal Pelargoniums, &c. The latter also sent a fine basket of Primula cortusoides amœna. Specimens of showy herbaceous Calceolarias were shown by Mr. James, who also sent a fine stand of Pansies. Mr. Bragg, of Slough, also furnished Pansies. Mr. W. P. Roberts, gr., Holwood, Kent, furnished a batch of Neapolitan Violets, rather past their best. Messrs. Dobson & Sons sent six varieties of Cinerarias; and some good pots of Lily of the Valley and well-flowered specimens of Hoteia japonica came from Messrs. Reeves Brothers, Notting Hill. Mr. Fairbairn, Syon House Gardens, also furnished some cut specimens of Bignonia venusta, carrying dense trusses of its fine orange flowers.

Florists' Flowers.

Any notice of the newer forms of the Chinese Primrose would be incomplete without a reference to the fine and varied collection grown at Glen Eyre, near Southampton, the residence of Mrs. Col. Crabbe. The gardener, Mr. Stewart, has for some years past been engaged on the improvement of the Primula, having been among the earliest to take this flower in hand; while as the raiser of some choice things in the way of Pelargoniums, and notably as the raiser of one of the bedders in the silver-edged section of the variegated

zonal kinds, Glen Eyre Beauty, Mr. Stewart has also made his mark in the annals of floriculture. It is not too much to say that the collection of Primulas grown this season by Mr. Stewart manifests an extent of variation even beyond that in the possession of his neighbours, Messrs. Windebank & Kingsbury, as from 15 to 20 distinct sorts can be selected at Glen Eyre; at the same time it is noticeable that each of the growers have, as it were, a line of their own, there being certain characteristics of each strain distinct in general appearance from the other. Especially noticeable in Mr. Stewart's strain is the variation of foliage—not of much moment, perhaps, in its present stage of development, but suggestive, notwithstanding, not only of the tendency of the Chinese Primrose to sport, but also that it may be the occasion of yielding hybrids of a valuable, or, at least, interesting character. Among the Fern-leaved plants this tendency to variation of foliage prevails in a much larger degree than among plants of the old type of leaf. While some of the frond-like leaves are longer, and at the same time narrower, others are much stouter in texture than the rest; some have a deep olive-green colour, on some the hue is much brighter. This does not appear to be the accident of age, but the normal character of the foliage, present in young and old leaves alike. Again, some are much more deeply as well as more frequently serrated on the edges than others. One thing appears to be required, however, at least as far as Mr. Stewart's strain is affected—that the flower and leaf-stalks should be stouter: in this respect they are behind the older type of leaf.

Turning now to the flowers on these Fern-leaved plants, one is conspicuous for its delicate and soft tint of lavender-rose, not that mere washed-out hue one sometimes meets with, but a distinct tinge of colour very pleasant to the eye. Another flower is marvellously fine, large, bold, and of the stoutest texture, and suffused with deep flesh—an actual development of normal colouring, not merely a white flower tinted in this way by age. Of all the flesh-tinted flowers I have looked upon this spring, this is the finest. One pure white flower is very fine, and has an immense lemon eye; the later flowers have all come flaked with rose, while the earlier blossoms were remarkable for purity; the flaked flowers were, however, as finely developed as the white ones. Between the rich crimson purple flowers, some of which are very deep in colour, and the delicate shade of lavender-rose referred to above, there are intermediate shades of lively rose, some very pretty. Perhaps most noticeable of all among the flowers of the Fern-leaved foliage is the presence on the rose-coloured flowers of a distinct pale ring round the lemon eye; this, though not yet regularly and clearly defined, Mr. Stewart thinks will presently become pure white, like that seen round the disc of an almost self Cineraria.

Of flaked flowers on the Fern-leaved foliage Mr. Stewart has a good variety, particularly in relation to brilliancy of the flake—being in this respect further ahead of his neighbours. Some of the flaked flowers seen this spring lack substance and good fringed edges. In Mr. Stewart's flowers there is no want of this, all the flaked flowers being as fine as could well be desired.

Of the old type of foliage there are many plants showing variations of foliage, but as it is not so ornamental as the Fern-leaved type, it is not of so much consequence. In the way of flowers the kermesina type is very fine, the colour being superb, and associated with large and finely-formed and fringed flowers. White or pale flowers suffused with deep flesh are as fine as on the Fern-foliaged plants, and like them vary in depth, some being only delicately touched with this tint, others quite suffused with it; in some flowers this colour predominates more round the centre or eye than towards the circumference, in others it forms a distinct margin to the flowers.

One plant has an extremely curious appearance, though evidently a kind of floricultural monstrosity. The plant has red hairy leaf-stalks, the leaves each have five angular and serrated lobes of a dark olive-green, very similar in appearance to one of the green-house Begonias, the name of which I do not recollect. It has thrown up a flower-stalk of a curious character, having abrupt, flattened buds, but though evidently a malformation, there was reason to hope some flowers would be developed. I have since heard that no flower appeared, but simply that the bud slightly expanded, and was no more than a kind of elongated green calyx. Mr. Stewart was hopeful that he had by accident hit upon what might prove a true garden hybrid; but so far he has been disappointed in his expectation.

Most probably the results which have followed Mr. Stewart's attempt with the Chinese Primula—if attempt it may be termed—is due more to accident than actual design, as it seems he does not resort to artificial fertilisation, but simply seeds from the most novel flowers, and thus obtains a progeny for the following year. To him Primulas are invaluable for conservatory decoration, and for this purpose solely he cultivates them. Double flowers come among his seedlings apparently as a natural result, and what has happened to him in this way tends to imbue him with the idea that there is much less in artificial fertilisation than some are led to suppose. A neighbour of his has for some time past grown fine strains of the ordinary red and white Primulas, and by simply saving seed from the finest flowers a good percentage come double or semi-double. There is a great advantage about these semi-double flowers, notwithstanding they are destitute of the functions resulting in semination—namely, that the blooms are as large as the ordinary fringed single flowers, they remain for a much longer time attached to the calyx, and consequently are most useful for cutting from. Probably, by high cultivation and careful selection, it is placed in the power of every cultivator to raise a fair sprinkling of double flowers; certain it is that those cultivators who would see the utmost of what their Primulas can be brought to, must cultivate liberally; the semi-starvation process must be given up, and be replaced by a kindlier and more generous mode. Were this done, finely developed Primulas would then become the rule of cultivation, not the exception they too often form in these days. *R. D.*

The Apiary.

ALSIKE AND MELILOT CLOVER. (*From the American Bee Journal.*)—The attention of bee-keepers is being directed to the cultivation of honey-producing plants, to enable bees to store a winter's supply in extremely poor seasons, and add largely to their stores in more favourable ones. Among the plants recommended are the Alsike and Melilot Clovers. Last spring I sowed four acres with Alsike Clover, the seed having been procured from Mr. H. M. Thomas, of Brooklyn, Ontario, Canada West.

In the summer of 1867 I procured a small packet of Melilot Clover seed from Mr. Baldridge. I found the plant identical with one growing here, and called by some Dutch Clover and by others Sweet Clover.

From what has been published in relation to these plants, I must say, that so far I have been somewhat disappointed in them both. The Alsike has exceeded my expectations. The seed was late, four pounds to the acre, on sandy soil (where it is represented as not doing well), in Wheat, and dragged in. Notwithstanding the dryness of the season, and the fact that the Wheat would retard its growth, it has been in blossom, so that my bees have worked on it; and it is now quite as large as Red Clover sown at the same time in adjoining fields. It promises now, with me, to be equal if not superior to Red Clover for hay and pasture; and it will, without doubt, prove valuable for bees. The Melilot Clover commenced blooming early in July, and continued to bloom until September. But few bees could be found on it at any time, with the exception of about two weeks after a rain, during which time it was absolutely alive with them. I have never seen one-tenth part of the number at work on the same surface on any other honey-producing plant. It was quite as much affected, however, by the drought as the White Clover, Buckwheat, and other flowers; and during the dry weather but little honey was collected from it. *J. A. Townley.*

[We have often heard the Alsike and Melilot Clover spoken of in terms of high praise as honey-secreting plants, and have seen the former recommended to agriculturists as a useful and remunerative crop to cultivate for stock feeding. Have any of our agricultural readers tried it? and if so, what report can they give of it? If really a remunerative crop, apiarians may hope that it will be more extensively grown, as there is no doubt of its value as a honey plant. The Trifolium incarnatum, on some soils, is a highly remunerative fodder plant; in other districts it does not answer so well. Where it can be successfully grown, it is of very great value to the bee-keepers. Our bees have thriven wonderfully, and we have had large supers filled in an exceedingly short period of time when there was an ample supply of this food within a short distance of our apiary. The honey also is of very fine quality. We should be glad to know more of the Alsike Clover from any one who has had any experience with it. EDS.]

Garden Memoranda.

BICTON GARDENS, THE SEAT OF THE RIGHT HON. LADY ROLLE, BUDLEIGH SALTERTON, DEVONSHIRE (*continued from p.* 449).—From the arboretum we naturally turn into the flower garden. As already observed, the garden as it were cuts its own breadth clean out of the extensive grounds devoted to trees and shrubs; or, to write more definitely, the arboretum ends in a screen of shrubs that runs up to the flower garden on one side, while on the other, the American gardens, ferneries, &c, occupy the space between the flower garden and the public road. Throughout the greater portion of its length it has an additional inner boundary of brick walls, furnished throughout with Magnolia grandiflora. The upper boundary is formed by the noble range of glass, consisting of conservatories, plant stoves, Orchid-houses, greenhouses, Peach-houses, and early vineries. In the centre a massive Corinthian temple is placed, which forms a most substantial and imposing ornament of the range. The glass reaches the entire distance between the two walls (about 110 yards), the end houses (Peach-houses) being inclined to the side wall, to take off the sharpness of the corner. In front, the garden and its accompaniment of water, &c., is bounded by a fine new church, built by Lady Rolle about 10 years ago; by high banks crowned with lofty shrubs, a level glade cut through the banks, carrying the eye along to a noble obelisk some way off in the distance, and with portions of the park itself to the left of the church. The ground falls probably 50 feet from the range of glass to the site of the church. It is in the form of a long narrow parallelogram, sloping to the south, and is wholly enclosed on three sides, and almost so in front likewise, by the high turf banks and their shrub-crowned heights, the church, &c.

This most eligible site for a flower garden is divided into three portions, and devoted to three distinct purposes—the upper to flowers, shrubs, and trees, the middle to Grass, and the lower to water. A space of about 60 yards in depth, measuring from the gravel walk in front of the glass, is devoted to the flower garden proper. A gravel walk is then carried across, and the ground is carried down by means of a Grass bank to a level about 14 feet lower, the side walks reaching the lower ground by flights of stone steps. Then follows a piece of perfectly level, closely-shaven turf, destitute of all ornament, except a row of statues arranged across its centre, the middle one being considerably larger than the three on each side of it. This large, smooth piece of turf, so adorned, had a novel and striking effect. Beyond this another walk is carried across, supported with a broad margin of turf, on which standard Bays were arranged at regular intervals. This is succeeded by another Grass slope, carrying the ground down about 5 feet lower; in fact, to the water level. The disposition of the water on this lower level is peculiar, but well adapted to the highly formal character of the ground. About two-thirds of the space is devoted to a square piece of water, leaving a wide block of turf at each end to make the width the same as that of the flower garden. This turf likewise proceeds in a narrower band along the bottom, thus surrounding the square sheet of water with a boundary of green Grass; but, just in the centre of this narrower band, an elliptical reservoir is formed, cutting the turf asunder, and admitting the water from the square into a narrow canal, that forms a second water-line at the bottom, and then doubles back along the ends of the blocks of turf already noted. These end canals are slightly beyond the lines of the enclosing walls that bound the flower garden, and form, as it were, a finishing barrier of silvery water between the flower garden arrangement and the arboretum, on the one side, and the American garden on the other. The walls do not reach down to the water, so at this portion there is no boundary but that of the water, on one side, and in addition to this a solid mass of vegetation, chiefly Yews, on a very high Grass slope, on the other. A little beyond the water there is another walk, then more Grass, succeeded by the huge Grass bank already noticed, probably 12 feet high, carried round far enough to hide the end of the pinetum and the old church and churchyard, and suddenly terminating at the beautiful new church. Beyond this, on the left, is the American ground, rockwork, shell-house, and the overflow of the water from the canal, furnished with the Bamboos, Pampas Grasses, &c., already noticed. It will be seen that the ground as a whole is unique, and the effect of these three kinds of beauty, each seen by itself, and all in juxtaposition, close enough to contrast, harmonise, and heighten the effects of each other, is as pleasing and satisfying as it is novel. First we have flowers, next green Grass pure and simple, and, finally, water both at rest and in motion, the former largely prevailing. Besides all these, there is a sculpturesque, architectural, and arboreal character or spirit pervading the whole. There is the temple at the top, the beautiful church at the bottom, fountains, vases, stone seats, and steps here and there all the way through, while grand trees tower up in the park in front, and high over the walls on each side, and you feel that the temple of Flora is enwreathed with garlands borrowed from other and almost equally beautiful arts. Imbued with this spirit, one doubts whether Flora's temple is quite worthy of its surroundings. I think for Bicton she deserves more room, and a more artistic base. Everything else here being so formal, I would have more formality in the flower garden, and one of the best and largest geometrical designs that has ever been laid down would not be too good for this grand position. My meaning will appear more obvious as I proceed to describe the flower garden as it is.

First of all there is a border in front of the glass range, then a fine gravel walk, followed by the inclined piece of turf on which the garden is displayed. The upper border at the time of my visit (August) was one of the grandest sights I have ever seen, filled from end to end with the Belladonna Lily in full flower. Why does not everybody grow this lovely Lily?—in the garden and the drawing-room alike scarcely anything can equal it in regal grandeur. The Lily is succeeded in the autumn and winter by the grand display of Violets, so sweetly described in your columns that one could almost have smelt them, by Mr. Robinson. On the opposite side of the walk are some well-filled vases of Pelargoniums, &c.; then follow two enormous Pampas Grasses, that have each produced 100 or more blossom-spikes at one time. Close to these are two very fine Dracænas, of extraordinary dimensions; then on each side, between these plants, massive vases filled with Pelargoniums. These vases are each surrounded by a group of six beds, well filled with the usual bedding plants. Further down a small fountain on each side discourse their sweet notes to four beds at their feet. These were filled with Calceolarias, Pelargoniums, Pinks, and Everlastings. Beyond these there is an outer rim, cut into four other beds, with four circles. They were filled with Iresine Herbstii, Amaranthus melancholicus, Cineraria maritima, and Lobelia; the four small circles with Pelargoniums. Then a large dial stands in the centre, with two whole circles at equal distance on either side, superbly furnished with the two Pelargoniums Rose Rendatler and Clipper. These two beds were the pets of the flower garden. Further on two very large stone baskets on each side, surrounded with groups of 12 beds each, well filled with the usual occupants. Near here again specimen Cedars and Magnolias claim notice. Then follow beds or groups of Roses, Rhododendrons, and common shrubs; and again dwarf vases, surrounded with eight heart-shaped beds devoted to Verbenas; then a couple more heavy vases, surrounded with scrolls and circles, followed by massive stone seats on each side, completes the flower garden and brings us to the turf, adorned with small figures representing, I believe, the Graces, or Virtues, or both.

Through its whole extent the centre of the ground is comparatively clear. By this arrangement the dial in the middle of the flower garden, the centre figure on the level turf, and bottom fountain are all visible from the upper end of the garden. These, with the vases scattered about and embellishing the steps, the temple, and the church, add an architectural character to the whole scene. This idea is still farther heightened by the view of the obelisk, seen far away in the distance. In the outer corners of the square blocks of turf at the

ends of the water a nice Deodar is placed on either side, while along the edge of the water a pyramidal Cypress and vase are alternated all round. The walls are covered with Magnolia grandiflora, which, previous to the terrible winter of 1859-60, came out to the walk and formed a half cone from base to summit. But that memorable winter killed them nearly to the ground, and they are now confined to the wall which they have already covered. To fill up the vacant space thus formed between the wall and the walk a ribbon border has been formed thus:—Back row: a fine collection of herbaceous Phloxes, then a line of scarlet Pelargoniums, 3, Mangles' ditto; 4, Lobelias. Lower down the front row is Alyssum; 2, scarlet Pelargoniums; 3, Phloxes.

The whole garden, turf, gravel, and beds were in admirable keeping—not a weed visible: yes, there was one on a walk, and so sharp were Mr. Barnes' eyes that it was up before I could see it—not a leaf nor branch out of place. All the flowers, too, were in the highest health, and had filled the beds to repletion, and the whole effect was original, quaint, and pleasing. My criticism refers only to the ground lines, and these I still think might be altered to advantage. With a more pretentious design the same amount of floral beauty—and there might be more material as well—that is now broken up into many independent centres and semi-detached parts, might be converted into the tributary streams of one complete and united whole; and thus the flower garden would be moulded more into harmony with the extent, richness, and grandeur of the other parts of these magnificent grounds. *F.*

(To be Continued.)

Garden Operations.

(For the ensuing week.)

PLANT HOUSES.

Old plants of *Cape* and other fancy kinds of *Pelargoniums* will now, under ordinary treatment, be pushing the bloom-buds rather prominently, and should therefore have as much artificial assistance as possible, in the form of liquid manure. Where small-sized pots are used to flower them in, it would materially assist them if a slight surfacing of good rich, thoroughly decomposed compost could be given. If practicable, the old soil in the pot should be first stirred up, and when the layer is added it should be pressed down very firmly. Where a younger stock exists, and a lengthened period of flowering is desirable, it may be necessary to have a few somewhat earlier than they would be under ordinary treatment. In that case it may be useful to add, that when once the flower-buds begin to form, and the operation of staking is completed, this class of plants will stand a moderate amount of forcing without loss of vigour, or deterioration in the matter of quantity or quality of flowers. The temperature of a vinery or similar house in active work suits them well in such instances. The later and finer specimens should have the requisite amount of staking, tying, &c., done as early and as often as the advancement of growth of different collections will admit. The usual routine of keeping them close to the glass and of affording an undeviating and constant supply of water, &c., are points in cultivation so well known as to require but a passing notice. The plants should be fumigated periodically, more as a preventive against, than as a means of destruction of insects. A few of the finer forms of *Scarlet* and other *Zonal Pelargoniums* should now be selected out of the general stock of bedding plants for growing in pots, to furnish an in-door display during the autumn and early winter months. Any strong plants, if selected at once, and potted on into moderate-sized pots, and shifted once or twice during the summer, will amply repay the cultivator during the months of November and December. Amongst the many good varieties, which are now plentifully distributed about, I may direct attention to Blue Bell, Cottage Maid, and other similar forms that have intermediate colours, which contrast admirably with the many shades of scarlet now in cultivation. *Herbaceous Calceolarias* will now be showing flower in some stage or other, and according to the manner in which they are treated, whether favourably or otherwise, so in proportion will be the robustness of growth, and the fineness of individual blooms. These plants should not by any means be permitted, during this period, to become dry, and especially now that the pots are filled with roots. After having paid so much attention to them during their growth, we should now be more anxious than ever to push them to a successful issue. The leaves should be maintained in health and verdancy to the last, if a fine head of bloom is to be secured. An occasional sprinkling over them will tend materially to attain this desirable result. The compost, prepared as advised last week for surface-dressing *Orange trees*, &c., should be placed upon the balls when the surface soil is moderately dry. First of all remove as much of the old soil as possible without disturbing the roots; then leaving this disturbed surface somewhat loose, replenish with the fresh compost, and press it down firmly and in such a manner as to cause it to amalgamate more or less with the old soil, to insure an equal distribution of the water given, and to allow it to flow freely throughout the whole. These and all similar plants should receive frequent delugings of water with a syringe, or, what is better, a garden engine, when used with moderate force, to insure a full and free growth.

FORCING HOUSES.

The work here, though requiring as much care as formerly, will, however, be less complicated than heretofore. The teachings of our great instructor, Nature, at this season, only require to be judiciously acted on in forcing houses generally to secure their beneficial and wonderful results on all within. We may, however, to some extent guard against fluctuations of the external temperature, by closing all ventilators against cold or easterly winds. By applying a slight amount of artificial heat during such periods we may insure an even and regular temperature. The same remarks apply equally to nights as to days; for if a cold frosty air prevails, the effects of it can be readily neutralised by the same means. During mild south or south-westerly winds, such as we may now anticipate, air may be cautiously admitted with great benefit. There is some difference of practice as to the manner of giving air in such cases. When the sun shines, and the external air is colder than is desirable to be admitted into the house, it is a common practice—and a correct one—to open the ventilators at the apex of the house only. But during mild genial periods, and especially by night, when it is desirable to retain the latent heat that is closed up in the house, it is essentially necessary to give air at the front or sides, so low down that the heated air, which is more buoyant, and consequently always on the rise, may not be wasted. In affording air at night great caution must be observed not to admit any more than is requisite to keep the temperature at a fixed minimum point, and to be always on the safe side of this if possible. To the advice regarding stopping and pinching in of laterals, &c., recently given in regard to *Vineries*, I need add but little this week; suffice it to say that as much humidity as possible may be allowed by keeping all cool surfaces constantly damped over. By damping it should be borne in mind that I prefer little and often to too heavy surface delugings, which tends materially to lower the temperature. The water so distributed should at all times be as near the temperature of the house itself as possible, thus enabling it to throw off a profuse vapour at once. Where young Vines are fruiting for the first season or so, it may be as well to remark that so soon as the leading shoot reaches the top of the house, it should be pinched back or stopped. Those who are growing on young Vines for the purpose of planting out into properly prepared borders, may now plant out at once. Be very particular not to plant too deeply, and so press the soil evenly around and upon the roots that the ball may not be left harder and firmer than the soil surrounding it, as great danger will exist that all the water which may ultimately be given may flow off into the looser and more porous material, and that the original roots will be left dry and unprovided for. The roots, even of such plants as these, should be so spread out upon the fresh soil prepared for their reception that each may choose its own feeding ground, and that all alike may find equal support apart from the other. With bright, sunny weather, afford to all *Pines*, now that the full growing period has arrived, as great and constant a volume of humidity as is possible. In like manner, during such periods, more liquid stimulants may also be afforded. *Melons* and *Cucumbers* will now require daily attention in regard to stopping grosser leading shoots, laterals which show fruiting flowers, and tendrils which, whether rightly or not, are said to absorb an amount of the plant juices that are required for the production of fruit itself. Be very particular in regard to the latter not to over-crop them at any stage, and to thin out the shoots and such of the larger or grosser leaves upon the Melons, that a fair amount of light, and the drying influence of the sun, may be felt. Density of foliage, or its customary attendant, condensed moisture, which settles upon the leaves under such conditions, are certain forerunners of canker and many attendant evils. Give all *Figs* bearing fruit in pots a free supply of moderately clear liquid manure, and frequent syringings overhead. As *Peaches* or *Nectarines* finish swelling off in the earlier house reduce the temperature somewhat in conjunction with the supply of moisture, and by free admission of fresh air allow its ripening influences full play.

HARDY FLOWER GARDEN.

Those who are desirous of prolonging the blooming period of *Auriculas* should, now that they are blooming, remove them to a cool north or north-east aspect. Always have some sort of protection at hand, if full exposure be permitted during fine weather, so as to ward off any heavy showers of rain which may fall. Where *Tulips* are cultivated in beds by themselves, it would be well to place the necessary awning over them at once, to shade them from the sun; as, then, not only will their beautiful markings be brought out to the full, but also their blooming period will be prolonged materially.

HARDY FRUIT GARDEN.

The forebodings in reference to the prevalence of insects upon walls, owing to the very mild season we have passed through, are, I am sorry to say, likely to be verified. Already *aphis* of various sorts are abundant on *Peaches* and *Nectarines*, and are exceedingly plump and robust. The nostrums in general use must therefore be put in full force for their destruction at the earliest possible moment.

KITCHEN GARDEN.

A successional sowing of *Broccoli* should now be made, and should include such sorts as Snow's Winter White, Cattell's Eclipse, and Williams' Alexandra. Attend to the necessary successional sowings of all other subjects, according to the demands of the establishment. *Salting the walks*, to which I referred last week, should always be done if possible immediately after a shower, and when no more rain is anticipated for a day or two. With such an amount of precaution, successfully carried out, very little salt will be needed. Where water convenience exists, such as an extensive stock of hose or small watercarts, &c., the best time for salting is during a hot, dry period; the salt, immediately it is placed on to the walks, should be damped over, and then becomes at once effective. Where only small enclosures exist, of course it will be possible to damp the salt over with a syringe or watering-pot. This, however, in large places would not be possible. In any case, endeavour so to arrange the matter that no heavy rains immediately follow the spreading of the salt, and wash it all away before any good accrues. In regard to quantities which will suffice under such considerations as above, I may say that a bushel measure is ample for an ordinary-sized walk, some 200 feet long. *W. E.*

TOWN GARDENING.

Carnations and all other such plants that require support should now be neatly staked and tied up at once. The stakes should be placed perfectly upright, and the young stems should be tied-in carefully, as they continue to make growth, so as to give them a neat and finished appearance. Where a good display of Pompon *Chrysanthemums* is required, they should now be propagated to the necessary extent, which may be readily done by dibbling the cuttings into the ground, and afterwards giving them a good watering. Annuals that have come up in too great quantities should now be thinned out judiciously; those that were sown on slight hot-beds should be transplanted at once in patches of three or five together, according to the habit and mode of growth of the different varieties. A sowing of *Virginian Stock*, if made now, will furnish a good display of bloom about midsummer. The white and yellow-flowered *Jasmine* should now be pruned by cutting out all the dead wood and shortening the young shoots, and afterwards be nailed in closely and neatly. The watering of newly planted trees and shrubs should, at this season, be attended to regularly. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending April 28, 1869, as observed at the Horticultural Garden.

April.	Moon's Age.	Barometer.		Temperature.					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 22	10	30.018	29.995	65	35	50.0	51	48	S.	.00
Friday 23	11	30.046	29.955	60	49	54.5	52	48	S.	.54
Satur. 24	12	30.041	29.990	65	43	54.0	53	48	N.	.00
Sunday 25	13	30.238	30.156	69	34	51.5	54	49	N.	.00
Mond. 26	○	30.227	30.142	64	38	51.0	53	50	E.	.00
Tuesd. 27	15	30.137	30.091	66	40	53.0	54	50	E.	.00
Wed. 28	16	30.276	30.137	75	37	56.0	55	50	E.	.00
Average.		30.140	30.066	66.3	39.4	52.8	53.1	49.0		0.54

April 22—Clear and fine; cloudy; fine, starlight.
— 23—Fine, overcast, slight showers; heavy rain.
— 24—Densely overcast; cloudy; fine and clear.
— 25—Cloudy, but fine; very fine; clear and fine.
— 26—Foggy; very fine; densely overcast at night.
— 27—Very fine; clear and very fine; fine, cold wind.
— 28—Very fine; clear and fine; clear, cold wind.
Mean temperature of the week, 4 9-10 deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending May 8, 1869.

May.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.						
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday.. 2	62.7	39.1	50.9	15	0.72 in.	4	10	10	1	5	7	5	2
Mon. .. 3	62.4	42.2	52.3	20	0.58	2	8	10	1	5	8	3	6
Tues. .. 4	62.4	38.5	50.5	16	0.70	6	10	8	2	8	4	4	1
Wed. .. 5	62.9	39.0	50.9	22	1.26	5	11	4	5	10	6	1	1
Thurs. .. 6	62.3	38.5	50.4	16	0.68	1	11	5	7	4	6	7	3
Friday .. 7	60.3	39.4	49.8	18	0.80	6	7	6	5	6	8	3	2
Satur. .. 8	62.6	39.6	51.1	18	0.82	2	7	9	1	7	7	6	4

The highest temperature during the above period occurred on the 6th 1852—therm. 84 deg.; and the lowest on the 6th, 1865—therm. 20 deg.

Notices to Correspondents.

Ants and Tobacco Powder: *An 18 Years' Sub.* The following mixtures have been found successful in destroying ants:—4 oz. of Quassia chips, boiled for 10 minutes in a gallon of water, dissolving in the liquid while cooling 4 oz. of soft soap.—Take 1 lb. of black soap, dissolve it in 4 gallons of water, and scatter the solution through a fine rose over the runs and nests, taking care, however, not to water the roots of the plants with it. A sprinkling of guano over the surface of the bed also proves very obnoxious to them. Pooley's Tobacco Powder can be obtained from almost any nurserymen or seedsmen. Consult our advertisement columns.

Cinerarias: *D N.* Very good as decorative plants, but of no further merit.

Cockroaches in Mushroom Beds: *A K.* Bait them well with oatmeal for three or four successive nights, or until such time as they feed greedily on it; then mix some arsenic with the meal for one night, repeating the process from time to time if necessary. In the printed extracts from the Proceedings of the Royal Horticultural Society the following statement respecting Cockroaches occurs:—"Mr. Wilson stated that if a bowl is wrapped round with a wet cloth they will get into the bowl, from which they cannot escape."

Gardeners' Record: *J H W.* It is published by Mr. T. Edmondson, 9, Dame Street, Dublin. Price, post free, 4*d.*

Lawn Paddock: *Old Subscriber.* The various mowing-machines may be set so as to cut Grass much longer than would be permissible for a well-kept lawn, but probably not sufficiently long for your paddock of about an acre adjoining the lawn, and which you do not wish to keep close on account of the expense, nor wish to leave long because you say it fills the garden with weeds. We can advise no alternative between keeping it cut as high as a machine can be set, feeding it off with sheep, or mowing for hay as it advances towards flowering. Two cuttings would get rid of the flowering stems; and unless the pasture is very foul, there should be no consequent annoyance in the garden from weeds.

Names of Plants: *H T W.* Crushed beyond certain recognition; they appear to be—1, Selaginella Kraussiana; 2, Selaginella uncinata.—*R C.* A, Aronaria balearica; 1, Acer platanoides; 2, Acer saccharinum.

Orchard House: *Thorne.* There can be no objection to the plan you propose, protection being simply required. A little ventilation on the north side of the house in very close weather would be an improvement, if it could be easily obtained.

Plantations: *G W M* would be glad to hear from the "two well-known nurserymen" (see p. 387) who estimated that Mr. Harris' plantations could be restored for 16*l.* He, and probably others, would be glad to obtain from them 860 trees and shrubs, 5 to 15 feet high, on the above—their own—estimate of their value, they undertaking to trench the ground, plant the trees at their own cost, and pay the carriage of them.

Communications Received.—A. R.—Cedo Nulli.—T. W.—A. P.—E. G.—C. W. S.—J. F. A.—J. G. B.—Spring Garden.—W.—D. T. F.—J. B.—H. C.—J. L.—T. M.

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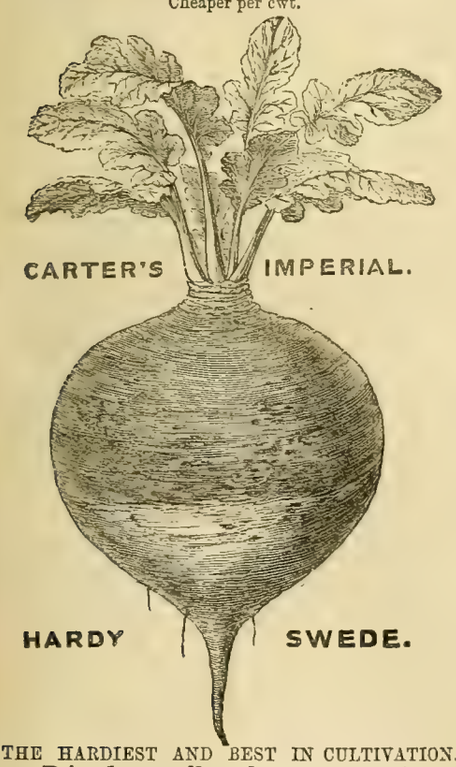
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CARTER'S DEVONSHIRE GREYSTONE TURNIP	1	6
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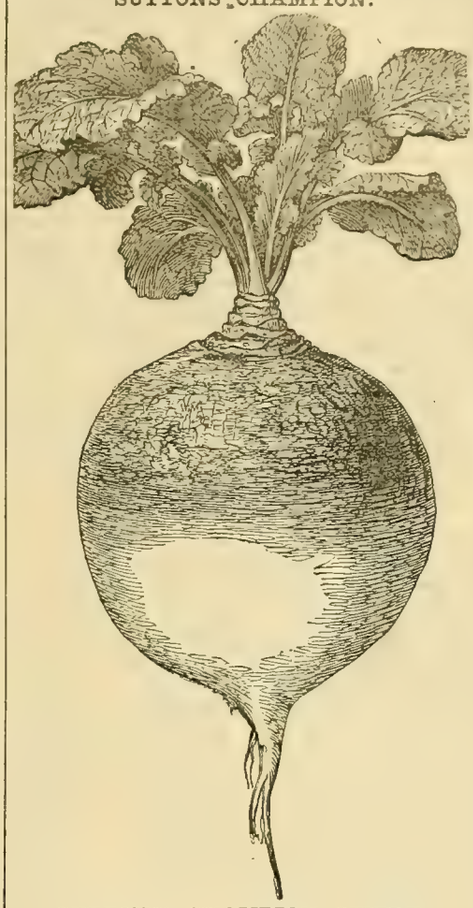
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From GEO. RANSON, Esq., *Poplar House, Sproughton.*
April 21, 1868.—"I had this year 15 acres of your Champion Swede, the FINEST AND BEST grown in my neighbourhood. I am only now finishing them."

From J. ARNATT, Esq., *Manor House, Tingewick.*
April 16, 1868.—"I took several prizes last year with crops grown from your seed, and amongst them was a £10 prize for the best general crop. I think there is no better Swede than the Champion grown."

From A. M. WHARTON, Esq., *Gasthorpe Lodge.*
March 2, 1868.—"I believe you are aware this is a great seed district, particularly for Turnips, &c.; but your unrivalled Champion Swede is almost exclusively grown."

From J. C. MOORE STEVENS, Esq., *Winscott.*
April 2, 1868.—"I won a Ten-Guinea Silver Cup last year for Swedes grown from your Champion Seed."

From Messrs. DUKE & SON.
April 14, 1868.—"We grew some splendid Champion Swedes from the seed you sent us last year."

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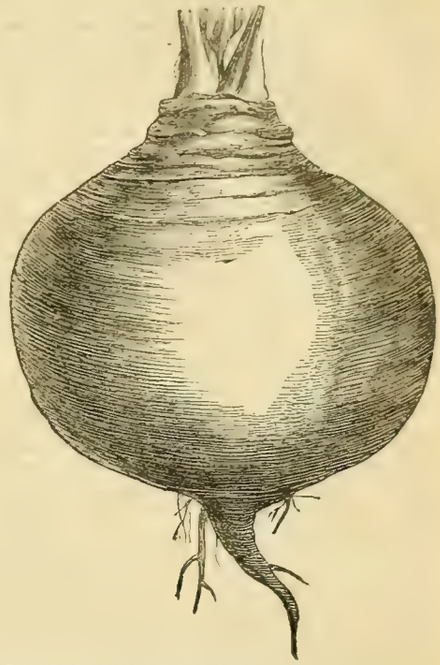
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ROYAL AGRICULTURAL SOCIETY of ENGLAND.

DR. VOELCKER'S RESEARCHES.

A Lecture, "On the RESULTS of CHEMICAL INVESTIGATIONS made during the PAST YEAR," will be delivered by Dr. VOELCKER, on MONDAY, May 10, at 2 P.M., at the Society's Rooms, 12, Hanover Square, W.

Members of the Society and their Friends, as well as other Gentlemen interested in the subject, are invited to attend.

H. M. JENKINS, Secretary.
12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, MAY 1, 1869.

MEETINGS FOR THE ENSUING WEEK.

May 3 { London Farmers' Club (Mr. Henry Corbet on Foxes v. Rabbits), at Salisbury Hotel—6 P.M.
— 4—Chamber of Agriculture, at Salisbury Hotel.
— 5—Royal Agricultural Society of England, at Hanover Square.

ENGLISH agriculturists are once more concerned for the security of their flocks in respect of the much dreaded small-pox, which has again been introduced into this country by sheep imported into London and Harwich. Three cargoes were detained last week by the veterinary inspectors to the Customs.

More than 3000 sheep have been slaughtered on the wharves of London and Harwich in the last few days, but of that number not more than a dozen were actually affected with small-pox; the others were detained as a measure of precaution, and not on account of their being unsound at the time.

All the consolation which the home producer is offered is conveyed to him in the official statement that the existing arrangements are sufficient for the emergency; and that, as at present informed, the Government does not contemplate the re-enactment of the Order to slaughter at the landing-places all sheep imported from the Continent. Under these circumstances the farmer naturally asks—What are the existing regulations, and how do they act to prevent the spread of infectious diseases?

It is generally understood that considerable discretionary power is vested in the authorities

of the Customs in all matters relating to landing properties, whether live or dead. In the case of imported animals, the powers of the Customs are based upon an Order of the Queen in Council, dated July 28, 1856. By this instrument the Customs have power conferred upon them to "seize," "detain," and "destroy" any animals "infected with or labouring under any contagious or infectious disorder;" and further, any animals "brought into this country in the same ship or vessel" with the diseased animals, "together with hay, straw, fodder, or other article."

The terms in which the power to destroy is conveyed are, "the said Commissioners may if they think fit." The detention of the dangerous commodity is made imperative by the Order in Council; its destruction is merely permissive; and considering the difference in the circumstances under which cattle and sheep may be detained, it is very desirable that a discretionary power should be exercised in reference to the disposal of them.

For the purpose of carrying the Order into effect, veterinary inspectors are stationed by the Customs at every port where foreign animals are landed; all cattle, sheep, and pigs are examined on the landing-place, and presuming they are sound, and there is no Order in Council in force having special reference to them, they are allowed to pass from under the Customs' jurisdiction. If any of the animals are found to be affected with a contagious disease of a malignant character, as cattle plague, or sheep pox, they are killed, and their carcases are destroyed, and the remainder of the cargo is slaughtered immediately, and delivered to the importers as "dead meat." Should the infectious disease prove to be of a non-malignant nature, as mouth-and-foot complaint, the usual course is to slaughter the *diseased* animals, and to deliver those which are *apparently* healthy to the owners, by whom they are taken to market; and as the period of incubation of mouth-and-foot disease is very short, the released animals are frequently found suffering from it when they reach their destination. Inspection at the landing-place, the detention and slaughter of diseased and infected animals, and the disinfection of ships in which they have been brought over, and also of the wharves, lairs, and slaughter-houses on which they have been placed, constitute the "existing regulations."

So long as exporters of foreign sheep are so obliging as to send a few animals in a cargo with the disease so well-developed that detection is certain, the system of inspection affords almost absolute security; but if, in the exercise of ordinary discretion, they carefully remove all such evidence of the disease, and send over only those sheep which have been exposed to the infection, but are yet, and for some days will remain, free from any trace of the malady, then detection is impossible, and the infected animals will escape into the country.

It can hardly be doubted that many cargoes of infected sheep have so escaped, and the immunity which our flocks have up to the present enjoyed is in a great measure due to the fact, that the foreign sheep have all been slaughtered. Farmers have been more anxious to get rid of their superfluous stock than to purchase stores. But now the case is altered. An abundant crop of Grass is promised, and many farms which, during the autumn and winter, were almost cleared of live stock, owing to the dearth of food, will be in a position to support the average number at least. The fear therefore is, that under these circumstances farmers will be induced to purchase imported sheep for stores.

Foreign sheep, which are brought over in vessels with cattle, are treated as foreign cattle, being detained 12 hours for inspection; and when passed they are not allowed to go out of the metropolis. Hence their power to do mischief is limited; but sheep which are not brought over with cattle are discharged from the wharf as soon as they have been examined, and they have also the privilege of travelling all over the country by road or rail.

According to the existing regulations, inspection of animals, on their being landed in this country, is the only safeguard against the introduction of infectiously diseased cattle or sheep. Judging from the results, the examination on the other side of the water is anything but critical, and therefore our security may be said to rest upon the vigilance of our own inspectors. It is only fair to them to admit that they have given good evidence of skill and watchfulness, but it is also equally fair to assert that no perfection of skill and excess of vigilance are equal to the detection of an infectious disease while it is in the incubative stage, and is not manifested outwardly. The term "apparently healthy," which is commonly applied by professional men to animals that show no symptoms of illness, but are nevertheless under suspicion, very neatly expresses the doubt which must always exist, in reference to the existence of the germs of a contagious malady, until a sufficient time has elapsed to enable the examiner to form a positive opinion. The slaughter of foreign sheep within the limits of the metropolis considerably lessens the risk of the spread of small-pox, but this regulation only applies to a certain proportion of those which are imported. A large number of foreign sheep are every week removed into the country, and there is no regulation which compels their slaughter. It is therefore of the utmost importance that every farmer should make arrangements to subject all newly-purchased stock to a fortnight's quarantine before he allows them the run of his farm. Thus, while purchasing homestock, he will insure the greatest amount of security which is attainable under the existing regulations. All danger may, however, be averted simply by British agriculturists tacitly determining not to purchase a single foreign sheep for store purposes.

There is rich land in America, that we are told cannot be exhausted. In the rich valley of the Scioto—a feeder of the Ohio—Indian corn yields 70, 80, 90, and in some instances 160 bushels per acre. The fertile flats of Illinois, Ohio, Indiana, and the Central States, have been cropped with the same prolific cereal 20 years in succession, without apparent diminution in the yield. Manure, which is so indispensable a restorative on our own land, is totally disregarded. The soft rich soil is so amazingly productive, that the common price of Maize some years ago was only a few pence a bushel, much less than its value here as a manure; but that which is so large an item in the worth of feeding corn here, viz., the value of the residue which is returned to the soil in manure, and is necessary to its continued fertility, is of no value on land of such maiden freshness.

Formerly Maize was worth only 3*d.* a bushel; the increase of population and the exportation of Maize in the more compact form of bacon has somewhat raised its price even in the distant States; but such is the abundance of these staple commodities in the United States, that the common ration of the negro, when he was one of the domestic animals, was ¾ lb. of bacon a-day, and Maize *ad libitum*.

In the rich Maize districts the land is too strong to bear a healthy crop of Wheat, with such preparation as would be necessary here; it must be tamed before it will carry Wheat. A common system of cropping is Maize and Wheat alternately for a number of years, without manure. The land only requires cleaning, it need not be fed or rested. Maize drilled in rows a yard apart, and generally in "check rows," so that the plough can pass in both directions, is an admirable fallow crop. The light 1-horse plough is carried by a Kentucky labourer from one field to another, and it and the hot summer sun, with a little help from a hand hoe, soon destroy all the weeds till the crop rushes up to the height sometimes of 12 or 14 feet, and takes full possession of the land. Early in September the seed of the next crop is harrowed or grubbed into the friable seed-bed without ploughing, and the Maize stubble protects it in the winter months. Thus, in a country where labour is dear, the only heavy item in the cost of production is reduced to a minimum, and the ground is always occupied by a crop of value.

In Alabama, the State of Mississippi, and Louisiana, &c., on land equally rich and nearer the sun, two crops of Cotton followed by one of Maize to clean the land is a common rotation, which is repeated for years without manure, until the produce of the crops becomes small from exhaustion, when the land is frequently abandoned to Nature, and a new tract is broken up. The Cotton growers have used guano with great effect on the crop; and gypsum is used with almost equal effect on Red Clover further north, where that crop, so shy with us, grows vigorously on the fresh soils, and is commonly repeated alternately with Wheat.

On the exhausted Cotton soils, the Peach and other fruit trees do not thrive. The fruit, if it sets, often becomes dropsical and falls after rains. The same fruits thrive very well on the fresh land. The quality of the soil is indicated by the growth of the timber on it. The first settlers found the valleys and uplands covered with magnificent forests of Oak, Elm, Ash, Magnolia, the Mulberry, and the wild Vine; they have been cleared, and the land brought under the dominion of King Cotton. It is found that when the soil has been taxed by 15 or 20 crops of Cotton and Maize in succession, it will no longer yield these crops, nor will it bear again the same broad-leaved trees. The Pine, which affects poor soils, springs up on the exhausted and abandoned lands; but if the primeval forest be cut down or burnt, and if the soil be not wasted afterwards, the same kind of trees will again occupy the land.

The Sugar-cane and Tobacco cultivation afford similar evidence that soils said to be inexhaustible are, in fact, exhausted in a period so short, that it is but a brief span in the history of a nation. The process commences when the first crop is removed without restoration of the soil-constituents which it appropriated in its growth; it is retarded by partial restoration, by artificial or other manures; but it is only arrested when restoration is complete. In this country our use of manures and feeding stuffs is very great, and is a set-off against the enormous waste of the remains of human food. But when the public have a clear perception of the enormity of this waste the means of preventing it will undoubtedly be discovered, and a source of fertility will then be placed at the disposal of our home agriculture, which will add immensely to the wealth and resources of the nation.

—— At Mark Lane on Monday the corn trade was in a very sluggish condition, and in some instances a trifle less money had to be accepted. Throughout the week but little alteration has occurred.——At the Metropolitan Cattle and Meat Markets previous high prices have been sustained.——The spring seed trade has closed.

—— On the subject of the Game Laws in Scotland, Mr. Loch moved on Tuesday last for a Select Committee, and after a short discussion, in which Lord Elcho, Mr. Crawfurd, Mr. M'Lagan, Mr. Bright, and other members took part, the motion was agreed to.

—— Miss Coutts' New Market at Bethnal Green was inaugurated with all due state and ceremony on Wednesday last. This gift is the largest and noblest of its kind that has ever been presented to the public. It is situated in the poorest part of the East-end of London, and it has occupied nearly four years in building, costing upwards of 200,000*l.* After the many complaints there have been of late years of want of markets where poor and needy people could go and find a collective display of the common necessaries of life at the lowest purchasable price, this spacious and magnificent building cannot but be appreciated as a great boon. The noble-hearted lady took part in the ceremony of opening the market, and presenting it to the public. Tremendous crowds, and hearty cheers, of course, awaited her. Among those who were present in the building to do honour to Miss Coutts' munificence, were the Duchess of Cambridge, with the Prince and Princess Teck, the Archbishop of Canterbury, the Bishop of London, the Duke of Wellington, the Marquis of Salisbury, the Earl of Harrowby, Earl Grey, Lord Houghton, Lord Redesdale, and the Lord Mayor. The building is a little over 100 feet long, and its width 50 feet. The space in the centre of the hall affords an area of about 2600 superficial feet, and is unobstructed by fixtures of any kind, as it is intended for the accommodation of small dealers; but in the aisles behind the pillars are arranged 24 shops, each containing an office furnished with a fireplace, desk, sink, counter, and other fittings necessary for the sale of meat, fish, poultry, and so on. The basement contains 26 well lighted cellars. The market yard covers about 8000 superficial feet. There is also a coffee-shop and tavern, in fact no point requisite for convenience and comfort has been overlooked or omitted. We trust this noble addition to Miss Coutts' long list of public benefactions will meet with the success it deserves and be an example for parochial and corporate bodies to imitate.

—— The Agricultural Hall (Islington) Horse Show will be opened on Saturday, May 29, and continued till Friday, June 4. Entries close on May 20. The prize list is an extensive one. There are 16 classes proper, five extra classes, and two classes of three prizes each for leaping. The 1st prize in the "weight carriers" (hunters) is 80*l.*, the other 1st prizes, three in number, for other classes of hunters, being 50*l.* each. A gold medal, value 25 gs., is also offered for the best animal in the four hunter classes. There are other considerable prizes offered for riding horses, cover hacks and roadsters, park hacks, ladies' horses, harness horses, cobs, and ponies; 50*l.* and medal is offered for the best thorough-bred stallion, and 30*l.* and medal for another class of stallions. For full information we must, how-

ever, refer the reader to Mr. Secretary SIDNEY and the prize list.

—— A Towns Drainage and Sewage Utilisation Company has been incorporated, Mr. J. BAILEY-DENTON being the acting engineer. The Company propose to assist the local authorities of towns in disposing of their sewage, by acting as a medium between the sewer authorities and farmers disposed to apply sewage on the lands they already occupy, or who may become tenants of land irrigated with sewage, after it has been properly laid out for the purpose. They will undertake the purchase or lease of land for the reception of sewage by irrigation or otherwise, or they will institute preliminary inquiries, and prepare the necessary plans of dealing with town sewage in any locality which may desire their services. They will advance, or procure the advance, of the funds for the execution of such works as may be necessary; or they will undertake the whole responsibility of such works, including the preparation of plans and specifications, the provision of funds, and execution of works under the immediate superintendence of their own engineers. They will also be prepared to advise upon, and to treat for, the preparation of plans and the construction of works necessary for the supply of water to towns and districts at present insufficiently provided. The company having been constituted at a time when works of the kind thus contemplated are likely to meet a very general want throughout the country.

—— The following paragraph from the *Pall Mall Gazette* appears to us to deserve general attention:—"The allegation has been made that if the Game Laws are in any degree modified, the farmers will suffer so much from trespassers that they will demand a stringent Trespass Act. The idea is preposterous. Larks are not game, nor are plovers' eggs, yet both are delicacies, which bring a high price. But who ever heard of a farmer complaining of the damage done by persons snaring larks or seeking for plovers' nests? The fact is, they are not preserved, and therefore they are not inordinately numerous, and by consequence there are no bands of men hunting after them. They just afford an occasional remuneration to a few persons who do not do a tenth of the damage in a whole year that is inflicted in five minutes by a single run with foxhounds over a field of young Wheat, or even by the landlord, with his friends, keepers, and dogs, beating a Turnip field in early autumn. It is not the Game Laws that secure our lands from trespass; they create trespass by creating the occasion and temptation. After all, our unreasonable game preservers are happily a minority even among landlords. They have done enough of mischief by pushing to extravagance the execution of the laws which were never intended to sanction their monstrous pretensions. They have now brought about the reaction, beginning in Scotland, but sure to extend to England, which demands the abolition of laws they have perverted. We counsel them to yield to the first demand. At present the Scottish farmers are ready to compromise with them for the abandonment of hares and rabbits. But if this is resisted the great towns are sure to take the question up, and to ask why we keep in force laws which breed poachers as well as pheasants, and fill our gaols as certainly as our preserves. The wiser Conservatives in Scotland see the demand to be inevitable, and their English brethren will be very foolish if they reject the present Sybilline offer."

—— In a recent case before the Court of Record at Hull, the plaintiff was formerly in the employ of defendants, seed crushers at Hull, in the capacity of warehouseman, and in April, 1867, informed them that it had occurred to him that acorns ground into meal would make very good "buff'em" for cake.—Buff'em is to cake what "bunkum" is to speech.—On that suggestion defendants bought at various times 295 tons of acorns, and used upwards of 200 tons of it in lieu of bran. The price of the latter was about 5*l.* a ton, and of acorns at Smyrna 1*l.* a ton, the difference in value as buff'em being stated by the defendant at about 2*l.* per ton. Plaintiff's case was that defendants had promised to remunerate him for imparting this secret, but had not done so. He had sent in a bill claiming 7*s.* 6*d.* a ton, which amounted in the aggregate to 113*l.* 5*s.* The defendants denied that they had promised to remunerate the plaintiff, who was their servant, but had said that if the meal turned out well they would make him a present. It had not answered as "buff'em," inasmuch as the farmers complained that cake made from it was bitter, and they would not buy it. Defendants had between 80 and 100 tons of acorn-meal in their premises now, and had tried in vain to sell it; they had given up using it two or three months ago. The jury found a verdict for plaintiff for 50*l.*

—— What are the merits of a public-house pig club? We are induced to ask this question by the following extract, which appears to be a communication by the authorised correspondent of the *Stamford Mercury*:—

"SPILSBY.—The first annual meeting of the recently-established pig club was held on the 15th inst., at the White Horse Inn, when the members partook of an excellent supper. The chair was occupied by Mr. MILNER, the treasurer. The club consists of about 20 members. The monthly contributions are, when a pig is less than 3*l.* in value, 3*d.*, and when above that sum 4*d.* In case of death 15*s.* in the pound is allowed. During the evening several toasts were proposed, and responded to. Considering how important a good pig is to the family of a labouring man, how precarious its life, and how painfully when death occurs the loss is felt, it is hoped the number of members will be greatly augmented from the working classes, for whose special benefit the club has been established."

We can understand that it is a good thing for a poor man to keep a pig. We are also aware that pigs are liable to measles, "heaves," cholera, and apoplexy; and that they may therefore be unexpectedly carried off by one of the forms of lingering or sudden death to which pigs are liable; and accordingly that it is a good thing for a poor cobbler, husbandman, or other labourer, who puts all his pence in one pig, to have some neighbourly mode of assuring himself against the entire loss of his pig from some unforeseen and unavoidable visitation or casualty. But how provident habits are to be inculcated by a public-house jollification, so that, thereby, one of the small-wage class may be induced to practically realise "how important a good pig is to the family of a labouring man," we are not able to determine from the above details.

OUR LIVE STOCK.

LAST week we briefly noticed the principal points of interest of the Siddington sale. We have since heard that Lord Dunmore has purchased another Siddington from Mr. Bowly at a high figure, and that, taking this last sale into account, the average of the females has been raised to 106*l.* It may also be interesting to our readers to learn that *Kirklevington 12th*, which Lord Dunmore obtained from Mr. Leney at an advance over the 384 gs. she fetched at the Didmarton sale last October, produced a heifer calf on the 22d inst. to 2D DUKE OF COLLINGHAM. Henceforward Dunmore will be associated with Kirklevington blood, as Lord Dunmore apparently loses no opportunity of securing any number of this fashionable family which comes into the market.

LORD WILD EYES 5TH, the property of Mr. Harvey, was put up for sale at Siddington with Mr. Bowly's stock, and was purchased by Lord Fitzhardinge for 110 gs., the previous bid of 100 gs. having been made by a tenant-farmer of the neighbourhood. The following is a complete list of the animals, their purchasers, and the prices realised:—

Name of animal.	When calved.	Price.	Name of Purchaser.
Females.		Gs.	
Songstress	Mar., 1857	40	Capt. De Winton
Rose of Oxford ..	Aug., 1861	37	Mr. W. J. Edmunds
Chorus	Aug., 1861	40	Mr. C. Hobbs
Geyser	Oct., 1862	34	Mr. Bourne
Harpsichord	Nov., 1862	50	Mr. Lawrence
2d Rose of Oxford ..	July, 1863	41	Lord Dunmore
Siddington	April, 1864	260	Lord Dunmore
Musical 2d	May, 1864	50	Mr. C. Hobbs
Musical 3d	Jan., 1865	68	Lord Fitzhardinge
Musical 5th	July, 1865	38	Mr. Walker
Musical 6th	Oct., 1865	86	Mr. Moore
Musical 8th	June, 1866	62	Lord Bolton
Musical 9th	July, 1866	75	Lord Dunmore
Musical 10th ..	Aug., 1866	dead	
Musical 11th ..	Feb., 1867	70	Lord Fitzhardinge
Siddington 4th ..	Mar., 1867	400	Lord Dunmore
Violet	Mar., 1867	50	Lord Dunmore
Musical 12th ..	June, 1867	100	Lord Fitzhardinge
Violet 2d	Jan., 1868	35	Lord Fitzhardinge
Musical 13th ..	Mar., 1868	80	Mr. J. P. Foster
Siddington 6th ..	Mar., 1868	370	Lord Dunmore
Musical 14th ..	Aug., 1868	105	Lord Fitzhardinge
Violet 3d	April, 1868	41	Mr. Mace
Violet 4th	May, 1868	51	Mr. Mace
Musical 15th ..	Jan., 1869	36	Mr. J. P. Foster
Violet 5th	April, 1869	18	Lord Dunmore
Bulls.			
BRN. WETHERBY 15TH	May, 1867	42	Mr. Faulkner
WESTERN DUKE 2D	Jan., 1868	36	Mr. Cook
WESTERN DUKE 3D	Feb., 1868	46	Mr. Allan
BRN. WETHERBY 18TH	Mar., 1868	38	Mr. Pegler
BRN. WETHERBY 20TH	May, 1868	36	Mr. W. Garne
BRN. WETHERBY 21ST	Mar., 1868	61	Mr. Knowles
BRN. WETHERBY 22D	Aug., 1868	41	Mr. Mutlow
LORD DAWPOOL ..	Nov., 1868	27	Mr. Hawkins
BRN. WETHERBY 23D	Jan., 1869	20	Mr. Moore
BRN. WETHERBY 24TH	Feb., 1869	30	Mr. Mace
LORD MAIDSTONE ..	Jan., 1869	42	Mr. Moore
FITZWALTON ..	Mar., 1869	23	Mr. Arklo
FITZ WETHERBY ..	Mar., 1869	15	Mr. Houseman
LORD WATERLOO ..	April, 1869	10	Lord Powerscourt

Average of 25 females ..	£93	19	1 =	£2348	17	0
Average of 14 bulls	35	0	6 =	490	7	0
Average of 39 bulls and females	72	16	0			
Grand total				£2839	4	0

—— Two valuable heifer calves have been added to the Kingscote herd this week; on the 18th a roan from the *Countess of Oxford*, by COUNT BICKERSTAFFE 2D; and on the 20th, a roan, by 3D DUKE OF CLARENCE (23,727), and from *Honey 24th* by 2D DUKE OF WETHERBY (21,618), dam *Honey 15th* by DUKE OF CLARENCE (19,611). It will be seen by a perusal of the pedigrees of this latter calf that it is bred in and in very closely; it, however, shows no symptom of weakness, but is a fine specimen of what a Shorthorn calf should be, with all that vigour so characteristic of Bates blood. COUNT BICKERSTAFFE 2D is full brother to COUNT BICKERSTAFFE (23,630), and *Countess of Oxford* is by 7TH DUKE OF AIRDRIE (23,718) dam *Gem of Oxford* by 2D GRAND DUKE (12,961). Major Conolly, M.P., has purchased AERONAUT, by 3D DUKE OF CLARENCE, dam *Ariel Duchess* by DUKE OF WHARFEDALE (19,648), of Col. Kingscote, for the respectable sum of 200 gs.

—— Mr. Leney, of Wateringbury's, sale will take place on Thursday, the 6th inst. Twenty-three heifers and as many bulls will be offered to the public by Mr. Strafford, and from what we have lately seen and heard, respecting Duchess and Kirklevington blood, we may expect to witness plenty of competition and high bidding. We have so recently called attention to Mr. Leney's herd, and its high character is so well known, that it is hardly necessary on the present occasion to enter further into details as to its merits.

—— The Ridlington Catalogue has at length appeared. It contains no fewer than 64 entries, of which 50 are females. All these animals, bred by Mr. Wortley, will be offered for public auction, by Mr. John Thornton, on Thursday, 13th inst., at Ridlington. Mr. Thornton, in his lucid prefatory remarks, tells us that "the tribes from which many of these animals are bred have been located in the county of Rutland for a great number of years, and are of the same stock as that from which Mr. Baker, of Cottesmore, bred his celebrated Smithfield gold medal heifer in 1837, and his gold medal steer in 1860." Six females are descended from Mr. Bell's Kirklevington cow *Active*, by 4TH DUKE OF YORK, and are full of Bates blood. The essential character of the herd is, however, Booth, and many of the pedigrees record four or five crosses of this blood. The two sires last used, were, first IMPERIAL COUNT (24,183) by IMPERIAL WINDSOR, both bred by Mr. Carr, of Stackhouse, and from a grand-daughter of Mr. John Booth's *Calomel*, by HAMLET; and also HIGHLAND CHIEF (24,142), bred by Mr. Wortley, by BRITISH FLAG (19,351), and from a daughter of *Pride of Southwick*, the winner of the 1st prize at the Worcester meeting of the "Royal" in 1863. The stock are pronounced to be in good healthy condition, well haired, possessed of good feeding qualities, and to be excellent milkers. Several of the cows are newly calved, and others have been served by IMPERIAL COUNT, HIGHLAND CHIEF, GENERAL NAPIER (24,023), the property of Mr. Cheney, of Gaddesby Hall; and PRESIDENT, bred by Mr. Adkins, of Milcote, and descended from FAVOURITE (252).

—— From Longford House, Minchinhampton, we are favoured with the following:—*Ursula 24th*, by 7TH DUKE OF YORK, let at Mr. Rich's sale at Didmarton, in October, for Wm. Playne, Esq., produced on Monday last a very handsome red and white female calf to 2D DUKE OF COLLINGHAM (23,730), which it is proposed to call *Queen of Didmarton*.

RURAL SCHOOLS.

[The President of the Barnstaple Farmers' Club, the Rev. Prebendary Brereton, recently delivered a lecture before its members, of which the following is an abstract.]

BY way of a peg on which to hang my remarks, I will refer to a statement made a few days since by Canon Girdlestone in the *Times*, of the state of the school in the parish of Halberton. The notoriety which Canon Girdlestone had previously conferred on that parish relieves me from any hesitation in referring to it; while the exact details with regard to his school which he has now published furnish me with the best possible illustration of the present parochial system. Halberton, with its 7600 acres and population of 1660, may be taken in these respects as an average rural parish. If the boundaries of parishes (as is much to be wished) should ever be re-adjusted and their population approximated, Halberton would not be a bad standard of acreage and population. The number of children attending the school are not much below the desirable proportion, while the cost, which is little over 1*l.* per head, though higher than that in many rural parishes, is not much to be complained of. It was, however, to utter aloud a complaint that Canon Girdlestone made his statement in the *Times*, and the *Times* endorsed his complaint as applicable not only to Halberton, but to all England. And I am free to own that if his complaint will bear consideration in Halberton, it may be accepted as fairly applicable to any parish school under the same system.

Canon Girdlestone's complaint has respect to the incidence of the cost of the school. He complains that much too large a share falls upon himself as the clergyman of the place, and demands a compulsory transfer of that share by the process of a rate to the owners and occupiers of property. The cost of the school last year was 133*l.* 4*s.* 6*d.*, and was thus distributed:—56*l.* 16*s.*, or more than two-fifths, was provided by the general tax-payers, and received as a Government grant; 25*l.*, or somewhat less than one-fifth, was voluntarily subscribed by the owners and occupiers; 24*l.* 17*s.* 3*d.*, a still smaller one-fifth, was paid by the parents; leaving exactly another one-fifth, which was met by an endowment of 4*l.*, and Canon Girdlestone's own contribution of 22*l.* 11*s.* 3*d.* In other words, of the 1*l.* which the schooling of each child has cost, more than 8*s.* has been paid by the Government, 4*s.* by the endowment and vicar, not quite 4*s.* by the voluntary subscribers, and still less than 4*s.* by the parent. Now, what is the true inference to be drawn from this statement? What is the real grievance to be complained of? Is it not that the public already does far too much, and the parent far too little? Ought not Canon Girdlestone, as a true friend of the labourer, to call upon him to do his own duty before he agitates for an extra burden to be compulsorily laid upon those who already do voluntarily for their neighbour's child more than he is willing to do himself? What can that education be really worth, to which the parent contributes so little? I might add, how unsatisfactory to their minister must be the result of his own example and instruction, if it leaves them contented to do so little!

Though I may have the misfortune to differ from Canon Girdlestone in some of his views, I have been disposed to admire sincerely the energy and independence of spirit, even if it borders upon stubbornness, which he has shown in fighting the cause he has undertaken. I feel it, therefore, difficult to understand how he, of all men, should fail to perceive the injury that is done to the independence of the English labourer by thus stepping in between him and his child, and encouraging him to cast upon others one of the first duties that belong to him as an English and a Christian parent. I can only attribute this strange unkindness of good and kind men, that will not let us look upon the labourer as one of ourselves, and expect from him the feelings and the consequent duties of any other good man, to those utterly unfounded views of the agricultural labourer's enslaved position in England which Canon Girdlestone has taken up and so loudly proclaimed. What is that position? Why simply this. The English agricultural labourer, instead of being an owner or occupier of land, is a dealer in those

particular branches of labour which are required for the cultivation of the land. For this labour of his there is a constant demand. The nature of the soil and of the climate, as well as the state of the markets for agricultural produce, absolutely requires a constant application of labour to the land. The owner of this labour is free to take it where it is wanted, like a carpenter, or blacksmith, or any other workman. But the nature of his employment being of so constant a kind, there is a tendency, quite apart from any legal regulations, to attach the agricultural labourer to that portion of the soil, that farm, that parish, that district, with which he is familiar. The consequence is, that the condition of the labourer in any one district is very much identified with the prosperity of that district, and we are able at any time to estimate pretty fairly the state of the agricultural labourer in a district, by ascertaining the state of agricultural prosperity as indicated by the cultivation of the district. In proportion to that prosperity that cultivation will be high, and the rate of labour to the acre will be high. Except in the neighbourhood of large towns where the surplus town population may (like the Irish in Lancashire) compete with the habitual rural labourer; and, except also where a transition is taking place from a general system of tillage to one of pasturage, the condition of the labourer will be increasingly comfortable with advancing cultivation.

There is a very simple division sum that will give any person who wishes to know the truth a satisfactory notion of the state of the labourer in any district. Let him ascertain from experienced farmers the annual cost of labour per acre. Let him multiply the acres of his district (deducting woods and waste) by this amount. Let him ascertain the number of families in the district who are habitually employed in agricultural labour, and divide the amount of the labour fund by the number of families. I have roughly applied this test to the parish of Halberton. Canon Girdlestone gives me the acreage at 7,604, and the rental at 15,413*l.*, or rather more than 2*l.* per acre. Now, before making any further inquiries, I have before me, as tested by the rental, a fertile, if not a prosperous, parish; and I have a strong presumption in my mind that the labour fund must bear some near proportion to the rental. I am persuaded that it cannot, according to the average of England, be less than 1*l.* per acre. I shall not be greatly surprised if I learn that it approaches the rent. I have, however, taken the liberty to ask information of one or two persons, who practically know the district, and, so far as I have received that information, I take it to be certainly not less than 1*l.*; it might—and, indeed, according to these samples, would—be as much as 30*s.*, or a total sum of from 8,000*l.* to 12,000*l.* I now turn to the population: it is given as 1,663. I should not, judging from other districts, be making an unwarrantable deduction for the upper and middle classes, and for other occupations than agriculture, if I wrote off the odd 663, and assumed the remaining 1,000 to represent the agricultural labourers and their families. But I will take the higher estimate of 1,200, or 240 families, as engaged in earning that amount of 8,000*l.* or 10,000*l.*, and I feel satisfied that in some form or other they do, and must, by the nature of things, receive that sum in money or its equivalent. Now, I ask, What do these 240 families do for their children's education? Why they do not, out of their 8,000*l.* or 10,000*l.*, spend as much as 25*l.* towards the annual cost of the school; and a cry is raised on their behalf to compel the other parents of the district to do more than they now, out of pure liberality, are doing, which is actually more than the parents of the children in the school care to give. I acknowledge that when I heard and read some of the attacks made by Canon Girdlestone upon the justice and humanity of the Devonshire owners and occupiers, my indignation was great, because I believed, from my own knowledge of those classes, that they did not generally deserve those imputations. But the more I have reflected on the matter, I have found myself disposed to be even more annoyed and vexed for the labourer himself. I do not know how to suppress my indignation when I think on what is being done in the labourer's name by his professed friends to increase and perpetuate his degradation. The great enemy of the labourer in England is the luxurious philanthropy of the richer classes which will use him, and perhaps fondle him as a horse or dog, but will not trust him as a man and a fellow-citizen. But I will turn now to the expenditure side of Canon Girdlestone's school. It is stated to have been for last year as follows:—Master, 79*l.* 6*s.*; assistant, 11*l.* 7*s.* 4*d.*; pupil teachers, 32*l.* 10*s.*; books, &c., 2*l.* 14*s.* 1*d.*; fuel and lights, 4*l.* 10*s.*; furniture and repairs, 2*l.* 17*s.* 1*d.*—133*l.* 4*s.* 6*d.* To this has to be added the previous cost of the master's training, all, or nearly all of which, it may be presumed, had been contributed by the public. The charges for repairs, fuel, &c., are trivial. The principal charge by far is that for teaching; and, although I have shown you that there are good reasons to believe that the whole of that teaching might, without any real pinch, be paid for by the parents of the children, supposing them to make prudent use of their resources, yet I acknowledge that it is most right (so long as sound principles are observed) that the blessing of good teaching should be provided for all at the lowest possible cost. Especially does this seem desirable or even necessary, when we consider the smaller parishes, which being unable to supply as many scholars as Halberton, must either have inferior teaching, or pay a higher rate per head. Now, the true principle on which to diminish the cost of elementary teaching seems to me to be this: Not to give out of taxation or rates a great bonus to the labouring classes like the 56*l.* now paid by the Government to Halberton parish, and the further charge upon the rates of that parish advocated by Canon Girdlestone; but, so to organise the whole teaching profession of the country, that, like the clerical or medical profession, it shall minister according to their wants and means to every class.

SOILING *v.* PASTURING IRRIGATED MEADOWS.

Economy is the order of the day, and the question practically involved in the above heading, it will readily be seen, is one of economy, viz., which of the two plans of utilising the Grass of irrigated meadows is the best? It is a question which has given rise to much controversy, owing to the great diversity of circumstances which attend either practice, both as to the growth of the Grass and its consumption. The more go-ahead economists have long been in favour of soiling, the old plea being that "horned cattle and sheep in a meadow eat with five mouths, and that their feet consume more than their mouths." There is no doubt much exaggeration in the expression, but at the same time it obviously contains much solid truth. On the other hand, looking from a pecuniary point of view, perhaps more money has been made by eating off the Grass of irrigated meadows by sheep than by soiling, and we need hardly add that King Capital invariably rules the day. Of late years, however, the progress of artificial manures, mowing machinery, &c., have been turning the scales the other way; and the current year, so far as gone, has many things to say in favour of soiling.

The question as to quantity or weight of Grass is in favour of soiling. About this there is hardly a divided opinion; but in wet seasons, or where the ground is moist, the feet of the mower, the heel of the scythe, and the gathering and carting the Grass off the land, less or more injure the plants, not a few of the finer Grasses dying out at every cutting. And, although the harm from mowing machines on level land, *i.e.*, on a plane surface, may be set down at something less than that from the scythe, experience of mowing machines in irrigated meadows is yet wanting to determine the difference in their favour. In point of fact, water-meadows with open carriers, &c., are not well adapted for the mowing machines now in use. No doubt machines can be made that will mow the panes of the different modes of irrigating, collect and carry the Grass short distances, and be actuated by a wire rope kept off the ground by rope-porters, something on the principle of Halkett's system of steam culture, the mowing machine and grass truck being both actuated by steam-power. But we have not got this length yet in the march of improvement, and therefore we must turn back, and view the subject in the light of our old and well-tried implements—the scythe, rake, &c.; and here soil, climate, Grass, and quality of the water present a very diversified picture of what may be termed in each case good water-meadow practice.

Open, porous, sandy, and gravelly soils carry the foot of the mower, and also carts, better than close alluvial and clayey soils, but the Grass on the latter sometimes stands better up to the scythe than that on the former, thereby sustaining less harm both from the feet of the mower and the heel of the scythe. Much depends upon the quality of the water. If the water holds in solution much mineral matter, and is at the same time turbid from the presence of much organic and inorganic matter in suspension, it rapidly changes the quality of both the above classes of soils by bringing them nearer and nearer to a common standard. Art may do much thus to improve both classes, but they can never be wholly equal unless fresh soil is added to the surface on the principle of warping. In point of fact it may not inaptly be said that the difference between the two classes of soils is greater than it should be.

Climate and the nature of the soil, apart from the above class characteristics, have much to do in determining the kind and quality of the Grass. Thus, there is a wide difference between the produce of the sandstone and oolite soils of Cromarty and Ross-shire, from the produce of similar soils in the midland and southern counties of England, more especially when under irrigation. This difference of produce is chiefly due to a difference in the quality of the water, in the temperature of the soil and atmosphere, and in the length of the day or amount of light.

That, however, which has the most conspicuous effect upon both the quantity and quality of the Grass is the quality of the water used for irrigating. With this fact all who have irrigated meadows are familiar. No doubt the experience of each is chiefly confined to his own district. This may be granted without in the slightest degree affecting the argument, for in every district there will be found a diversity in the quality of the water; and even upon every individual meadow the waterman is familiar with the difference between head and tail water, and the quality of the Grass they respectively produce.

Generally speaking, the richer the water in manurial matter, and the higher the temperature, the more rapid the growth of Grass—other things, as the quality of the soil, and the quantity of water used, being equal. But in both these conditions there is an obvious limit, beyond which either manurial richness or temperature cannot be carried with economy, for a too rapid growth is but another name for a shortlived unhealthy constitution, if not imperfect organism and disease. Much of this abnormal state of vegetable life is due to the Grasses being too much crowded together or too thick upon the ground, so that towards the bottom they become etiolated or blanched from the want of the requisite supply of light essentially necessary to a healthy organism, and this unhealthy state is not confined to the portion of the plant above ground, but extends also to the roots below the surface. Whenever the Grass therefore begins to be white and blanched near the root it should be mown, so as to let in the light to the portion or stubble left above ground, and if this is done in time the life of the plant will be preserved and health restored. But if allowed to grow a certain length with a view of increasing the weight of the Grass mown, the stems grow more rapidly in length than in thickness, "the one drawing up the other," as it is sometimes termed; so that they have not strength to support themselves upright, but knee over with the first shower of rain, heavy dew, or wind, and ultimately by the weight of the top above, if the seeds-talks are allowed to shoot, form, and fill. Hence when the scythe enters Grass thus kneed or laid, "it pulls down the heel," to use the expressive language of the mower. This, however, is not the true explanation of what is felt, for if the scythe is drawn in the direction the Grass is kneed or laid, the edge and heel have a tendency to rise up, only cutting what stands perpendicular or upright, which leaves the greater portion of the crop on the ground. To obviate this the mower must cut against the angle of inclination, and, by so doing, the edge and heel are said to be drawn to the ground, *i. e.*, into the angle which the Grass makes with the ground, occasionally much of the Grass being torn up by the roots, and not cut at all. In other cases it is both torn up and cut, the roots being separated from the Grass, more especially when the Grass at the roots begins to rot before the crop is mown, as it is very liable to do in soft warm weather. Indeed, it may not inaptly be said, that the moment etiolation commences the process of rotting begins, and that the rotting process is stimulated by the presence of manurial matter left upon the surface or amongst the roots of the Grass.

Some Grasses suffer more from etiolation than others, and there are also differences as to stooling, matting of the roots, with a thick growth above. Thus annual or biennial Grasses, as Italian Rye-grass, suffer more from etiolation than the perennial Grass, but the latter are more liable to grow thick, and thus exclude light. As a general rule, therefore, Rye-grass will grow to the greatest length before it requires to be cut, but, on the other hand, like all short-lived plants, it is more easily forced, but more liable to a premature end by blanching, improper food, and the like. Hence the reason why very little Rye-grass is to be found in old water-meadows, or any short-lived kind of Grass. And besides, although biennials yield well for a time, they do not stand the feet of sheep so well as the perennial Poas and Fescues, whose roots form a more durable carpet. But when mown, the thick, close texture of the roots below, and of the Grass above, is against them if they are not kept short, so as to let in the light, and thus avoid blanching and rotting, to which they are peculiarly liable, no less owing to the growth than their natural tendency to knee over, and even grow at an angle instead of upright. Water-meadows of such Grass should therefore always be mown short.

The practice of frequent mowings and waterings is attended with considerable expense; so that, unless the return of Grass does something more than cover it in good years, unfavourable seasons will turn the balance the wrong way for the farmer. The practice of one year, or even two, is seldom sufficient to be received as a rule of guidance in any branch of agriculture, and the mowing of water-meadows for soiling is no exception. But, as the balance turns on the question of weight of produce, the prospects of every current year should therefore be its own rule. And more than this; for, with the command of artificial manure, applied and flooded down to the roots of the Grass, another question arises, as to what extent this or that meadow may be forced so as to increase the weight of each cutting, and also the number of cuttings in a season.

Let us now view the contra side of the question, the more common practice of turning in the sheep into the meadow, followed perhaps by a hay crop, and so on. The latter, the hay crop, may, no doubt, be forced forward by artificial manure, but, if this is done, the crop must be cut short for reasons already stated. Sheep, if the meadow has been laid dry, may be turned in so as to eat off the crop in time, but the practice of forcing forward the maiden crop of the season by artificial manures, is more doubtful, owing to the extreme fickleness of our climate, and the risk of having to turn in sheep before the land is sufficiently dry to carry them. No doubt an early bite is always favourable, but unless the ground is dry, and the Grass free from etiolation, the feet of sheep do an immense harm. In judging of this it must be borne in mind that when artificial manure, or town sewage, or the like, are applied to old water-meadows, which have a thick carpet, they utilise much of the effete vegetable matter which forms the thick carpet under the feet of sheep, consequently when thus forced they are less adapted for sheep feeding. In other words, they sustain more harm even when sufficiently dry to carry the weight of sheep. But when the Grass at the roots is blanched, and when the feet sink and pit, then the combined action of the feet and droppings of the sheep on the etiolated and rotting Grasses may be more easily imagined than expressed. That the rotten effete matter and the droppings of the sheep enrich the land may be granted, but the economy of such a practice for the production of a hay crop on a water-meadow, with an abundant command of water, is another and a very different question, even in seasons favourable for the details of such a practice. But the special question which naturally arises for solution just now, is the adaptation and economy of the practice for the current season. If the weather continues to be an exception, as it has hitherto been, will the common practice be the most economical rule?

On sandy and gravelly soils that will carry sheep at any time without poaching, flockmasters may be at no loss for an answer to the above, but on many water-meadows it will be otherwise. And even in the former case it must be borne in mind that the Grass of a mild warm season is more liable to etiolate and

rot than the produce of a colder one, owing to the more rapid growth of the former; consequently, to avoid harm, the bite must be shorter and the profit less: and the same rule applies to the hay crop, or second pasturing that follows. On the other hand, should extreme drought set in immediately after the flock is removed, and before the hay crop or second bite is started, watering may be necessary; hence the position of those who have not the command of water in the summer time—conditions which less or more influence the times of entering or removing the sheep, for in the case of drought the Grass should not be eaten so bare as when the weather is moist and growing; and the early removal of the sheep means so much less "gooding" to the land and the following crop, from the sheep's droppings.

The heavier class of soils require to be earlier fed, and not cropped so bare, to provide for the influence of drought, and even in moist-growing weather this may prove the safer practice, *i.e.*, Don't keep the flock long in the meadow at a time if the feet are doing harm. Where a hay crop is of necessity required to provide for the ensuing winter, it must be attended to as the primary and not secondary question, and it is better to secure a good crop on half the meadow than a bad one over the whole. Hence the cross-questions that arise relative to soiling the first cut and haying the second, as the weather may indicate—half a bite, and then hay, and so on. All things considered, forcing and soiling appear to have the turn of the scale in their favour. *W. B.*

Home Correspondence.

The Landowner.—There is hardly any profession whose wise and successful prosecution tends more to the general welfare than that of the landowner. It depends greatly upon him whether his estate shall yield food, wages, and farm profits in abundance or at all. On his will and judgment rests the share which is contributed by his portion of this island to the prosperity of its population. There cannot be a greater contrast than land managed under different ownerships presents. Much greater than those arising from differences of soil or of climate—these act directly upon the character of the population, producing all the differences between listlessness and energy, between poverty and wealth. There are light sandy districts in this country formerly so worthless and deserted that land-lighthouses were necessary for the guidance of the traveller, which now, thanks to the wisdom of measures taken by their owners, present the best illustrations of fertility and productiveness. There are clayey tracts which in some parts are a poverty-stricken dairy country, and in others, owing to similar measures, are drained, tilled, and productive. On the one side in these two pictures we have a scanty population earning a precarious livelihood, while on the other there are intelligence, activity, well-paid labour, well-supplied markets, and a prosperous tenantry. The difference between the two is due to the difference between energy and carelessness, between parsimony and liberality, between recklessness and wisdom, in the person and management of the landowner. *M.*

Prolific Sheep.—I well know the class of sheep mentioned by your correspondent from Carmarthenshire. They are certainly prolific, compared with our modern improved breeds. They generally bring twins, with an occasional bonus in the way of an extra lamb or two. Small flocks of say 20 ewes not unfrequently rear more than twice their number of lambs. We have seen a ewe bring as many as six, five of which lived (by the help of much hand-feeding of course) and followed their dam. They took up their quarters at night in a large kive laid on its side by the hedge, whilst their dam slept outside. This place became also their natural resort when a storm came. Little care is taken to improve the size and quality of these sheep. The small farmer, however, continually culls from his flock all those that bring only single lambs. They are certainly "a mongrel breed"—the mountain sheep intercrossed with the Southdown or Leicester, just as accident or taste may guide. They have no distinct type, and cannot be called a breed at all. It is not likely that the Smithfield Club will recognise them next year, or the year after, when we remember how long some of our best improved breeds were left out in the cold. Let your correspondent try nearer home first, and get prizes for them at Carmarthen, Lanboidy, Narberth, and Haverfordwest. *E.*

Foreign Correspondence.

PARIS.—The fertility of the country watered by the Nile, and the low price of Egyptian Wheat, induced the French Government some time since to take up the question of the import of that corn into France in years of scarcity; but, in consequence of the want of agreement amongst the analyses published by able agricultural chemists, it was decided that the subject should be re-examined in the laboratory of the Agricultural School of the Seine Inferieure at Rouen. Two samples were taken from a ton of Egyptian Wheat, all of which came from the same district, not far from Luxor, and about 400 miles south of Cairo. The Wheat from which both these samples were taken was produced without the application of any manure, the only difference being, that while the sample No. 1 was produced by a careful farmer, who made his harvest with care, and cleaned his grain after threshing, the sample No 2 was prepared in the rough manner of the country, without any cleaning whatever. The latter had a peculiar odour, which was attributed to the practice, common in Egypt, of sprinkling the floors of the granary with horse-dung, as a protection against weevils.

The sample No. 2 was found to contain 10·7 per cent. of azotised matter, while No. 1 was twice as rich. A very careful examination led to the conviction that the small elasticity of the gluten derived from Egyptian Wheat was due to the presence of a larger proportion of cellular tissue than was to be found in French Wheat. It was found that by squeezing the gluten of Egyptian grain in a cloth a very sensible difference was produced in the elastic quality and even in the richness in azote. This mechanical treatment divided the gluten into two parts, one of which, a purified and very elastic gluten, passed through the cloth, while the other remained in the cloth without possessing any elasticity, and containing 13 per cent. of cellular tissue. The flour made from Egyptian Wheat when mixed with water produces a short dough, from which only bread of a mediocre quality can be made. This bread is almost brown, and when stale the crumb is brittle. It also possesses the peculiar smell and taste which are found in the flour and even in the grain. The peculiar qualities and the chemical composition of the gluten of Egyptian Wheat—dark in colour, granular, and wanting in elasticity—explain the inferior quality of the bread.

French farmers are giving attention to Siberian Oats, which, they say, appears to be superior to all the kinds at present cultivated in Western Europe. The present is the time for experimenting with the grain, which should be sown in spring rather than in autumn. A quantity of the seed was placed last year at the disposal of the Agricultural Committee of Pontarlier, and distributed amongst several farmers, and the produce varied from 20 to 35 times the quantity sown.

The application of cotton-waste to agricultural purposes is one of the economies which our neighbours are now attempting to work out. M. Bidault, cotton-spinner of Arcis-sur-Aube, and a distinguished amateur horticulturist, is said to have been the first who had the idea of applying cotton-waste to the purposes of cultivation; he has been highly successful in raising vegetables, and especially Asparagus, which seems to thrive better with this new kind of manure than with any other kind whatever. Last year the same manufacturer tried the experiment of protecting his Asparagus beds from the cold by means of a warm cotton blanket, that is to say, by a layer of cotton-waste 8 inches thick; and not only was the Asparagus protected from the cold, but in January the plants were actually pushing through the blanket, and were found to be excellent. The effect of cotton, as applied in the above manner, is to be explained partly by the fact of its being a very bad conductor of heat, but it may be looked upon also as actually producing heat, by the decomposition of that portion which is next to the ground, by the effect of humidity. Cotton manure is prepared in the following manner:—The cotton-waste is placed in alternate layers with the mud and sweepings of the factory, weeds from the garden, or whatever else is useful as manure, the cotton forming about three-quarters of the whole. The heap is then constantly and abundantly watered, and the mass soon becomes black and powdery, so that it is easily applied. M. Bidault reports the effect of this manure to be admirable, but some other persons who have used it say that it produces a white efflorescence like mildew, and that it attracts worms and insects. M. Bidault explains this by stating that only raw cotton-waste should be used, for if dyed or impregnated with greasy matters it produces the efflorescence complained of. As to worms and larvæ, it does not appear that cotton gives rise to more than any other kind of manure.

Our neighbours here are much occupied with the cultivation of new kinds of green crops for fodder, one of those is the Sarrasin, a Buckwheat, which a farmer tried in June last, and of which he obtained an abundant crop, which nourished his stock for a month when forage was very scarce. He recommends it strongly on account of its rapid vegetation during dry weather, as it may be sown during the whole of the summer.

The Giant Maize of Caraqua, or the Horse-tooth Indian Corn, seems at present to attract most attention as a green crop, and is declared to be equally suited to the north as to the south of France, although it is only in the warmer parts of the country that the grain can be advantageously ripened for seed. Certainly the appearance of the Maize grown in some parts of France and Savoy is not very encouraging, but the Giant Caraqua Maize is cultivated largely in Germany, and the efforts of the late M. de Gourcy to introduce it into the south of France, and thence to supply the farmers of the northern districts with seed for the production of fodder, seem to have been successful. M. A. de Gasquet, of Mentonne, near Cotignac, Var, gives a careful account of his experience and successes. He does not pretend that it will flourish equally well on all kinds of land; he says that, being a plant of luxuriant and very rapid growth, there are three conditions essential to its complete success—it requires a fresh soil, deeply ploughed and richly manured. Under these conditions, he says, there are few plants more remunerative. The plan which he adopts is to plough the land deeply at the commencement of the winter, to leave it to be acted upon by the frost, and then to plough in the manure in March. It is sown in the south during the month of April, and three years' experience has proved that such early sowing is efficacious when the ripening of the grain is the object; when it is cultivated as a green crop only, the sowing may be continued fortnightly till the end of May, and even later in the south where irrigation can be employed. The seed is drilled or dropped by hand in lines from 28 to 40 inches apart, the seeds being placed at intervals of 12 to 20 inches, and at a depth of not more than 2 inches, except on sloping ground and when much rain has fallen, when it may be set at twice that depth. As soon as the young plants begin to appear, the soil must be loosened around them, and, when more advanced, the plants must be kept clear of each other by removing all valueless shoots. The crop is ready for cutting for fodder as soon as the flower-buds begin to form, but the corn when cut must be allowed to lie in heaps for 24 hours, when a slight fermentation sets in, and the food then becomes much more agreeable to cattle than when first cut.

As regards the production of ripe corn another farmer says that he gathered his crop in during September, and the heads were so heavy that for one litre of seed sown he had about 300 litres of corn. As a green crop, it is said to be excessively productive; the plants grow to a height of 9 and sometimes even of 14 feet. The stalks of the Giant Maize are said to be far more sugary than those of the common Indian Corn, while any superabundance of grain may be very advantageously applied to the feeding of poultry. *G. W. Y.*

Societies.

TARPORLEY.

Cheshire Farmsteads.—A paper on this subject, of which the following is an abridgment, was read at a meeting of this agricultural Society by Mr. RICHARD BECKETT, of Hartford. He said:—

If I am asked what is the best advice I could give to those about to build, it would be something of this sort: As "understanding a thing is half-doing it," be thoroughly satisfied before you lay a brick that the plans not only show the accommodation you want, but that it is well and conveniently arranged for its purpose—ever remembering that as the area covered is a criterion of cost, so let as little room as possible be given to unnecessary passages and useless places. It is easy to correct what is wrong before you begin—it is not so when built, for then needless additional expense must be incurred, or there it must remain, it may be, to the discredit of all concerned. Then, if you build by estimate, be prepared with something more than the sum first named, for depend upon it there is truth in the old adage, "The charges of building and making of gardens are unknown." Rely more on the character of your tradesman than on figures; and, above all, what you do build, build substantially. Give your orders as long beforehand as you can. To delay them until spring is advanced, and then to insist on the work being done in a few summer months, perplexes an employer, is injurious to the employed, and leads to disappointment and loss. Moreover, "Good and quickly seldom meet." Shakespeare says:—

> "When we do mean to build,
> We first survey the plot, then draw the model;
> And when we see the figure of the house,
> Then must we rate the cost of the erection,
> Which if we find outweighs ability,
> What do we then, but draw anew the model."

As the tenant is the most interested in the convenience of the buildings, it is but right that his opinion should be taken; and, indeed, so far as my experience goes, it generally is. But still I am no advocate for the sort of Parliament which the chronicler of a clay farm has so humourously described:—

> "The landlord, the tenant, the bricklayer, the carpenter, the workman, and last, not least, the gaping neighbour, each has his opinion, and gives it freely enough. The result is generally a mongrel compromise between them all. No one voice, no one plan is predominant: and by the time the whole outlay is expended, the job is half a job, and the ship is spoilt for a ha'porth of tar and an ounce of oakum! The extreme of cold, as well as the extreme of heat, will leave a blister on the fingers.

Position.—When you possess the power of choosing the situation, Lord Bacon's advice is—'Avoid ill ways, ill markets, and ill neighbours." The two last are, perhaps, greater ills than the first, and not easily avoided. Good accessible roads are unquestionably a greater consideration than central position, which writers on this subject have theorised so much about. Another authority says, "A house built in low or flat ground by a river side, makes work for the physician, apothecary, surgeon, coffin-maker, and grave-digger," so there is more in this question of locality than we are disposed to think.

Site.—This, as well as the last, does not often happen to be a matter of choice, but when it does, it is just as well to recollect what an artist has said, "None but a fool would build a house on a hill unless there was another hill behind it as a shelter against northern storms." But there is one very material consideration these wise men have not mentioned, and that is, a constant and abundant supply of water—a *sine quâ non* about a farmstead.

Aspect.—This, at any rate, in new buildings, can and ought to be considered. If in other dwellings comfort and health are affected by it, in a Cheshire farmstead there is the other advantage—usefulness. Aspect is, to some extent, as necessary in a farmhouse as in a greenhouse, for if there is a manufactured article one may call vegetable, and requires treating as such, it is cheese. The best front aspect is south-east; north and east are cold and cutting, south and west hot and wet. A reference to the plan before you will best explain what I deem the best disposition of the different rooms. The living room is on the south-east, kitchen south-west, and the milkhouse on the north and north-east. Of a milkhouse Professor Voelcker says "It should be dry, well ventilated, and protected from the rays of the sun."

Arrangement.—Here again I must refer you to the plan, mentioning only some points which strike me as important. As "One eye of a master is said to see more than ten of his servants," the living room, with master's bedroom over it, should command a view of the farmyard. A good-sized back or working kitchen, with a soft-water tank under it, is provided. In this kitchen the bulk of the rougher work and cheesemaking are done; the best kitchen being more of a dining and

general living room for the servants. Over this working kitchen I have placed the cheesemaking room, or rather rooms, for the smaller the room the more uniform the temperature. No farmhouse, at any rate, ought to be without a second staircase, if only for the complete separation of male and female dormitories. Good cellarage is indispensable; and attics, where the elevation will allow of them, are a great convenience. For the arrangement of the farmery, I consider the cruciform plan as best adapted for the purpose, the double cow-sheds forming the main leg; the root-house, with chopping-room over it, filling in the intersection between this and the young stock sheds on the one side, and the cart and implement sheds on the other. Dutch bays have of late entirely superseded the old lock-up barns. These are placed against the root and chopping-houses. Over the cart and implement sheds is the granary. Stables and loose boxes form a wing on the south-east side. Piggeries, yards, as well as sleeping-sheds, should, I think, be roofed in, but open on at least two sides. Pigs, from their general treatment, might appear to be considered an exception to all other animals which thrive and fatten best when sheltered and warm. A covered pigstye has also less of the "rank compound of villainous smells" so common to open ones. There are no lofts over the cattle sheds; the little convenience these may be being more than counterbalanced by their many disadvantages—such as injury done to the provender from exhalation, the health of the animals being affected by the confined space, and the discomfort to the milkers in hot weather. Add to this the danger of fire. I have known so many losses from fire traceable to these lofts, often from unprotected lights, that I wonder insurances offices don't levy an increased rate where they exist. Other depôts for the provender must of course be provided in lieu of lofts. Liquid manure tanks, so popular a few years ago, are now, it is to be feared, very little cared for. Where they are not regularly emptied, either for distribution on the land or on to the manure, they are a doubtful advantage, for they then simply convert a visible and partial waste into an invisible and total loss. I do not recommend that the drains should be taken directly into the tank, but that they should deliver themselves on to the manure in the manure-yard, which should be sunk for that purpose. The tank being in the opposite corner of the manure-stead, would thus only receive what the manure (or the next best thing, sand or soil, carted for the purpose) failed to absorb. The liquid should likewise be constantly pumped back again on to the manure or soil, and never be allowed to reach the overflow pipe. A great want in modern farmeries seems to be a sufficient number of good loose boxes for breeding and sick animals, and fair-sized strawyards for young stock. That useful fluid rain-water is too often allowed to run to waste, instead of which I would provide a large underground tank, having a lift-pump and drinking-trough in the yard. Stationary engines can hardly, in these days of locomotives, be said to be a necessity; as "'Tis use alone that sanctifies expense," I do not consider the engine-houses are a fair demand on a landlord's purse. Horse-power, both for preparing cattle food and churning, is more economical in the long run. The rickyard would, of course, adjoin the Dutch bays. I may mention here, I think it a too common practice to place it very near the buildings, for if a fire takes place, it results in the destruction of both buildings and produce. I have placed the higher building so as to protect the cattle-sheds and yards from the prevalent cold winds and wet.

Construction.—By this is meant both materials and their disposal. The strength of materials should always be proportioned to what is required of them—and of the two, "stronger than strong enough." Tredgold, a great authority on this, says:—"The strength depends more upon the right position of the materials than on the substance." I will epitomise some practical points which suggest themselves. All underground work, especially in wet situations, should be set in hydraulic mortar. Astbury, in this county, supplies an excellent quality of hydraulic lime. Good sand is essential to good mortar as well as good lime. External walls, especially of cheese rooms and dairies, are better built with a cavity, thus resisting all external influences, whether from heat, cold, or damp. Brickwork can hardly be set too wet in summer, or too dry in winter. Hereabouts we are not rich in good building stones. Runcorn provides a fair red sandstone, and Mow Cop and Biddulph Park an excellent grey grit. These last have but one fault, that is, the expense of working them. In timber, there is nothing equals our famous Oak for internal fittings to cattle-sheds, door-frames, and such like, especially as it is now much cheaper than formerly, iron having forestalled it so much in shipbuilding. For general purposes American red and yellow Pine are the best; American Spruce is the cheapest and the worst. We have a maxim in carpentry which is worth remembering, namely, "Truss with wood, and tye with iron." All large doors, and those exposed to wind, should slide, where practicable. For roof covering, tiles, although heavier than slates, have the advantage of being less costly; they are also slow and imperfect conductors of both heat and cold. All roofs should be spouted, and eaves and verges should overhang the walls at least a foot. Let there be as little to keep up in the way of external exposed wood and ironwork as may be.

External Appearance.—It has been well said, "houses are built to live in more than to look on;" therefore let use be preferred before uniformity, except where both may be had. Both can be had, as we all know. It is well to remember "the difference of cost between good and bad building is very small, the difference in their appearance and utility immense." The architecture should be distinctive, that is, the appearance of a building should bespeak its character and use. The Elizabethan style is generally preferred. Much may be done by colour as well as outline. What dress is to an individual, colour is to an elevation.

Ventilation.—For a definition of this, I will quote from a lecture I heard a week or two ago, by Mr. Reid, ventilatist, of Prescot. He says: "To define the word ventilation, it is to be understood as being the due and suitable supply of air to any apartment or place not having free and unlimited communication with the open atmosphere. This definition therefore includes all buildings, and all parts of buildings; and the supplying to them of the most important and the most indispensable of all things necessary to sustaining the life and health of the occupants of such dwellings—for without clothing a person may live long, and without food may live days, but without air life cannot be sustained even a few minutes; therefore air is the most absolutely indispensable of all life-sustaining substances. The definition also embraces the art and skill necessary to introduce such air in due quantity at proper places in a fit condition, and appliances to ensure a continuous circulation into and out of every apartment." So that, to be satisfactory, it implies ingress as much as egress—a free current without draughts. For admitting the air into the cattle steadings, a glazed drain tube, a little above the floor, pointing inwards and downwards, is not a bad expedient—the point of egress should be as high as possible. What are known as bonnet ridges and louver ventilators are generally used for this purpose. As to the ventilation of the rooms of a house, there is no doubt every room which is closed for hours together should have two flues—one for smoke, the other for vitiated air. It certainly seems odd that we should devote such endless ingenuity and expenditure in securing the most perfect ventilation in our gaols and workhouses, and yet so entirely neglect it in our own dwellings. I cannot refrain from quoting here some remarks I met with a day or two ago on this subject—reflecting, though it does, on my own craft: "The manner in which rooms are now constructed is, in my opinion, really criminal; one would suppose that every pains and care were taken to render them thoroughly uncomfortable and unhealthy as possible; they are positively as much like airtight boxes as they can be. They have no properly constructed inlets for fresh air, which is left to get in as it can through the chinks and crevices of ill-fitting doors or windows. It is a mercy, for the sake of their inmates, that the joiner does not more perfectly complete his work; were he so to do, the chances are that they would not 'live out half their days,' where the foul or respired air is guardedly retained as though tenacious of losing one's breath." Light is only secondary to ventilation, and being cheaply come at there is the less reason to withhold it. Continued darkness is without doubt injurious to sight, and so also is too glaring a light in front of an animal. Heating of cheese-rooms, either by hot air or hot water, is the exception, and ought, we are told, to be the rule. The simplest plan, and I think the best because the most easily regulated, is having a stove in the press-room with its pipe passing through an aperture much larger than itself in the floor of the cheese-room above.

Cost.—Bailey Denton, in his "Homesteads of England," a most admirable work, computes this at about 7*l.* per acre, which probably, as an approximation, is as near as one can hope to get; but it is evident this would vary in proportion to the extent of the farm. The number of cattle kept is so disproportionate to the acreage on different farms that any average computation based on extent is necessarily very uncertain. The next thing which would follow upon cost, namely, interest, is so unwelcome a theme, and so rarely brought into question in Cheshire, that we will, as the schoolboys say, "skip it," although, mind you, I am not a convert of those who seem to think a landowner is the only man in the world who should eschew an interest table. I shall conclude with a few general remarks, which I hope you will not think irrelevant. A landed estate has not inaptly been styled "an animal with its mouth ever open." It is, therefore, wiser to expect too little than too much. There is one essential to a satisfactory homestead I have not yet mentioned, and that is an occupant who appreciates it, and will see that as there is a place for everything, so everything shall be in its place. I care not how good and well-arranged it may be, if misappropriation within and untidiness without are the rule, the effect can only be one the reverse of pleasing. A good homestead without a good tenant is a lock without a key. My views of what chiefly constitute a good Cheshire farmstead are now before you, and all I can says is—

"If a better system's thine,
Impart it frankly, or make use of mine."

Most of you have the advantage of experience in the everyday working of them, which I have not; therefore, so far, your opinions are worth more than mine, and I trust you will not hesitate to give them as freely and candidly as I have tried to do. No one can be more interested in learning than I am, and none, I hope, more willing. Notwithstanding we have in this country some of the best landlords, the best farms, the best farmers, and the best farmsteads in the world, we have a sufficient number of the latter at least, which are so unworthy of the name of farmsteads as to render this subject worthy of our consideration. The plan which the most successfully combines working convenience with economy of space and the best facilities for manufacturing cheese and manure, must be the best, come from where it may.

Farmers' Clubs.

WINFRITH.

The Cultivation of Artificial Grasses.—A paper read by Mr. J. Scutt, of Bere Regis, before a recent meeting of this Club:—There are a great variety of plants which may be classed under this head, but I shall confine my remarks to a few varieties with which we are mostly acquainted, and which constitute a large portion of our forage crops. First, I will ask your attention to a few remarks on Rye-grass—the green or perennial, the white or annual, and Italian. These seeds do not appear to have been known in this country until about the middle of the 17th century, from which time they gradually grew into favour; but farmers then not understanding the difference in the varieties, and by constantly saving the seed from the first crops, it resulted in the prevalence of a short-lived variety, afterwards termed "annual, or white Rye-grass," and unfit for laying down of lands to two or more years. This naturally directed attention to the selection of a more lasting variety, which was supplied by Mr. Pacey, whose perennial Grass has since become known throughout the country; but our best perennial seeds are obtained from Devonshire, and known as the Devon Rye-grass. This variety is mostly in favour, as the hay made from it is not of as coarse a nature as that of the white or annual, the stalks being smaller, with more root-leaves, which fully compensates for the extra length and coarser stalks of the latter, besides rendering the hay less wiry and more palatable to the stock fed on it.

Italian Rye-grass is a variety very generally esteemed as being more vigorous in its growth, gives a stronger braird, arrives sooner at maturity, has a greater abundance of foliage, grows much taller, is more upright, or less inclined to spread on the ground, and one of its most distinguishing characters is that it is preferred by cattle to any of the common sorts, and which has been proved by many in different parts of the country, while it yields early, bulky, and quickly succeeding herbage, which renders it an invaluable Grass. With regard to its duration, I think it cannot be called more than a biennial, and the greatest produce is obtained in the first year. There are many different opinions as to the real merits of the Italian Rye-grass, but perhaps the best proof is the great and increasing demand for its seeds. There are a great many varieties of the Italian as well as other Rye-grass, and, although Rye-grass may be grown in almost any description of soil, it has a certain preference for soils by which its growth is naturally influenced. Thus it requires a little consideration beforehand as to the respective suitabilities of the crop and of the soil, which will enable us to avoid those unsatisfactory results that so frequently occur when these points are not attended to. A temperate climate and moist soil are the most suitable to its growth. Rye-grass, too, thrives best in loamy and the stronger classes of soils, such as we find generally in the counties of Somerset and Devon.

The preparation of the soil is another and very important thing towards the success of the crop and the conditions it meets with, favourable or otherwise, in the soil. We know no crop can thrive as it should unless this is attended to, and above all things keep the soil clear of weeds, which are always stealing the money from our pockets unheeded by grasping the food from the crop intended to be feed. The selection of the seed has a particular bearing in the present case, as probably not one of the seeds we use in our ordinary crops is subject to the same amount of adulteration as the Italian, and also all low quality Grass seeds. This is well known to seedsmen and farmers, and of course reprehended by both, but practically supported by the latter, who too often look to the quantity rather than to the quality of the seed, and fancy that because it is offered them at a low price it must be cheap. It is true that by increasing the quantity of seed per acre they increase their chance of getting a plant, but at the same time it should be borne in mind that they also increase their crop of weeds; and it does not require much observation nor time to show that bad seed is dear at any price. I have seen an analysis of Rye-grass given in the *Agricultural Gazette*, and I think no one could have any idea of the number of weeds found mixed even with apparently pure samples; but, remember, I do not believe at all times this is from adulteration, but from the careless way in which many are grown and brought to market, not half cleaned, and retailed by the grower often to his own as well as to his neighbour's injury. It is often well to notice that the lighter samples of seed contain the greater number of weeds. This arises partly from the carelessness of its growth on the one hand, and the impossibility of cleaning mere chaffy stuff on the other; whereas the heavier samples of seed are more carefully grown, and the grains, being more plump and rounded, do not adhere to the weeds, and are more easily separated. This, I think, shows the great importance of a careful selection of seed, as when weeds are sown as well both are placed under exactly the same conditions, and as the latter are generally more vigorous in their habits and more hardy in their nature, a struggle for possession takes place, and the weakest goes to the wall.

The Sainfoin Crop is another of our best forage crops, and one, I believe, not half valued as it ought to be. This plant was introduced into France and called "French Finger Grass;" hence the common name French Grass. In soils suitable for its growth no farmer can grow too much of it; it appears to have been long cultivated on the Continent before its introduction into this country, which was about a century and a half ago. The only two species cultivated in this country is the common and the Giant. The common variety is that generally sown if required to remain down some years. The quality of the hay from this would be, I should say, rather superior to that made from the Giant, although this latter is no doubt the more profitable to grow, if not allowed to remain down more than two, or, at the longest, three years. The soils best suited to its growth are those of a light, shallow kind, particularly those of a calcareous formation; in such it will probably give a more productive return than could be obtained from any of our cultivated plants. The soils containing large proportions of clay are unsuitable for its cultivation; but lands

that are thin, chalky, and too close to the rock to carry ordinary crops of corn may be brought into profitable cultivation by being laid down to Sainfoin for a course of years. The yield of the crop greatly depends upon the condition in which it is sustained; if continually mown, and sometimes saved for seed, without any compensating manure being applied to it, the plant will gradually become weaker, and the indigenous plants rapidly increase until they gradually stifle the Sainfoin, and the land becomes filled with Grass and weeds; whereas, on the other hand, if the plant is not allowed to stand too long before being cut for hay, and the aftershare or second growth be fed off with corn or cake, or a dressing with farmyard manure be applied during the winter, the condition of the land will be kept up, the plants will grow vigorously, and the weeds will not gain the ascendancy. As with Rye-grass, so with Sainfoin: I say, have the best seed, which, if apparently dear, is in reality the cheapest. The seed grown in France, as a rule, is not to be depended on as is that grown in England, although a great quantity of is used, especially of the Giant variety, to mix with it other seeds when the land is intended to lay for two years. Good fresh Sainfoin seed should be plump, of a light grey colour outside, and of a greenish tint inside; if of a very dark colour, it has either been badly manured or else injured in the stack, and is of an inferior character. I do not think it is advisable to save a crop of seed, except it be the last crop before being broken up, as the weeds and Grass ripen as well, dropping their seeds and filling the land, thereby destroying the vigorous growth of the plant by consuming the food which would otherwise go towards the development of the cultivated plant. I think it a good plan to give the plant a good harrowing after the winter is over, which will destroy many of the annual weeds which have vegetated on the surface. With these few remarks I leave the subject in your hands, and trust that a good discussion may arise. I have only touched on a few of the leading plants cultivated for the supply of food for our stock. The Clover crop, with its numerous varieties, may be classed among our artificial Grasses, and would form a good subject to be treated on by some other member of this club on some future occasion.

DISCUSSION.

Mr. W. CHICK, speaking of Sainfoin, remarked that he had recently broken up a piece of land that had been down to Sainfoin for the last nine years, and the Grass was almost as good now as formerly; it was only on account of the ground being full of Bob and Black Grass that he was induced to break it up. His plan was to get a crop of hay from it first, then to hurdle it off for the sheep, which he supplied with a little cake in the autumn. He spoke highly in favour of Italian Rye-grass, and, although he would not go so far as to say they could not possibly grow too much of it, yet every man ought to have a certain amount of it, particularly on good soils.

Mr. W. BUDDEN had discovered since he had sown Italian Rye-grass that it had paid him double and treble as much as the other, especially the foreign sort; in fact, he would not sow English seeds if any one were to make him a present of a lot. He related an instance of sowing some of Pacey's green Rye-grass in the midst of a piece of Italian. The result was that the latter had grown much more luxuriantly, and would produce double the crop of the other. It might be argued that the green Rye-grass produced hay of better quality, but he did not think this could be proved—that was, if the Italian was cut soon enough, and not allowed to grow sticky. He had cut Italian Rye-grass mixed with Clover, and found the sheep had done better than ever before. If they had green Rye-grass they invariably had to let it stay too long, in order to get the Clover out in flower. That was disadvantageous; and he found Italian Rye-grass could be produced more easily and profitably with the broad Clover. He recollected a few years ago sowing some Italian Rye-grass from seed that had been grown in the locality for one year; but the seed did not produce half the quantity as from the foreign seed. He had two sacks to try, and the difference in the crops could be seen from a long distance.

Mr. T. C. SAUNDERS said if a farmer hoped to keep his land clean it was essential that he should be particular in selecting the very best seeds. Italian Rye-grass was very useful, but it was frequently found that the seed was very foul. One drawback was that Italian Rye-grass seed contained so much Couch; although it was scarcely perceptible, it caused much trouble for two or three years to clean the land. Therefore, when he purchased Italian Rye-grass seed he was particular in cleansing it as effectually as possible. He did not think, however, there was so much adulteration of this kind in the foreign as there was in the English seeds. His own experience taught him it was advisable to let the Sainfoin stand until it reached a certain stage before cutting, for having cut a portion of the crop early he found the plants bled, and there was always a marked difference between it and the remainder of the piece which had been allowed to remain some time longer. If they allowed Sainfoin to attain a certain degree of ripeness it turned out better in the end, and the plants were not apt to bleed. Giant Sainfoin did not foul the land as much as the other sort, and he did not object to have a portion of a field sown with it, to come in with the common sort. He could not go so far as some previous speakers with respect to the superiority of foreign seed, but the best he could get, in his opinion, was direct from a well-known respectable grower in Hampshire.

Mr. READER, demurring to the statement set forth in the paper relative to the weight of the Italian Rye-grass, recollected when it was first introduced into this country, some 25 years ago, the prevailing opinion was that it should not weigh more than 12lb. per bushel; but he considered the heavier they could get a good Italian Rye-grass the better. One year he saved some himself, and threshed it in the fall of the year, putting away a certain quantity to sow in the spring. He put it aside, however, and when the spring came he could not find it, and he was obliged to sow some "tailing" in one part of the field. The result convinced him that the lighter seed was the best, for his "tailing" produced as good a crop as if he had procured foreign seed. In a field close by, where the "best seed" was sown, the plants went back like the common Italians; it did not grow so fast as his "tailing" seed did. That convinced him that the opinion which prevailed when the Grass was first introduced into the country was a correct one. If they sowed Italian Rye-grass, in five or six years it would get as heavy almost as the English sort. He did not mix his Rye-grass with his broad Clovers; he believed it was a very bad plan. When he sowed his Clovers, instead of sowing them once in four or five years, he sowed once only in nine years, and varied the cropping with Italian or Devon Rye-grasses, Dutch, and so forth. If this plan were generally adopted much better broad Clovers would be produced than by sowing them every "round." The land often became Clover-sick because it was sown too often with that plant; the land required longer time to rest, and he felt convinced by the nine-years' system the crop would yield half as much again as when sown every four years. A certain quantity of Sainfoin should be sown on all farms; but he did not recommend them to go too deeply into it. If land was sown down to Sainfoin for five years, they could not sow the same plant again with any advantage for 20 years afterwards. People said if they sowed a sack per acre it was sufficient; but he had never found 6 bushels too much. They heard people complain that the Giant Sainfoin grew too coarse. But why was that? Because it was not sown sufficiently thick. If any of those present were in the habit of sowing it, he recommended them to cut it early in the first crop and save the second for seed, the same as with broad Clover. They would thus get a good amount of feed, and they would obtain more seed from the second cropping than from the first. He had proved this at different times. On all lands where there was a poor subsoil Sainfoin could be grown advantageously; but it was useless to sow it in strong clays or on sand. It required a dry porous subsoil, so that the roots might penetrate to some depth; he recollected an instance where the roots of this plant had descended six or seven feet into the ground.

Mr. SCUTT, in reply to Mr. Sturdy's question as to the best time to sow Italian Rye-grass, might mention that he sowed his with broad Clover; therefore it would not do to put it in till the spring of the year; but he had occasionally sown Rape and Italian Rye in the fall, and it answered remarkably well. With respect to sowing in Barley land, he put Rye-grass and Clover together, and sowed them the same as green or white Rye-grasses. It must depend altogether upon circumstances how this was managed. He thought most gentlemen had agreed with him in the opinion that Italian Rye-grass was more profitable to grow than any other Grass. Mr. Reader had made a remark with regard to the weight of the seed. He (Mr. Scutt) thought it must be borne in mind that the heavier seed, as a rule, had not such a bad character as the lighter ones had. When they sowed lighter seeds they must get only a medium quality, and having so much "tailing" with it, the inferior seed was indeed heavier than the better sorts; besides, they could not clear the lighter seeds as they could the heavier, and consequently they must, as a rule, sow more weeds with the former. He agreed with Mr. Saunders that in the case of Sainfoin the plant was strengthened by being allowed to remain a proper time before cutting; at the same time, if there were any weeds, they dropped their seeds into the land, and proved an injury to the succeeding crop. He could understand Mr. Reader's statement that six bushels of Giant Sainfoin seed per acre were not too much, because the seed was larger than the common sort. In all these matters he was an advocate for top-dressing; it always paid the best in the end to keep the land well supplied with manure.

Reviews.

Horse and Man. By C. S. March Phillipps, author of "Jurisprudence," &c. Longmans, Green, and Co.

This little volume will be sufficiently brought under the notice of our readers by an extract from its preface:—

"I may be able to do good service by introducing to the civilian horseman those elementary principles of M. Baucher's system which Captain Nolan has judged likely to be useful in the military riding-school. My own observation has convinced me that they may be made exceedingly serviceable in the education of ordinary horses, and they are entirely unknown to, or neglected by, ordinary horsemen. I have therefore endeavoured to explain them in a simple and straightforward manner, as I find them laid down by M. Baucher himself; and I have also stated the opinion which experience has led me to form of their practical utility or necessity, in the hope that better judges may possibly be induced to give them an equally fair trial.

"All Englishmen naturally hate theory; and perhaps no Englishman hates it so thoroughly as an English sportsman. The fact is, in my opinion, highly creditable to the English intellect. Practical men are quite justified in hating a thing of which, potentially beautiful and admirable as it may be, they have never met with any specimen that was not actually useless or pernicious. And just as English statesmen despise a theory of government which practically leads to slavery or to anarchy, even so do English horsemen despise a theory of equitation which practically disables its professors from riding across country. Your conclusions, we say, may be true in theory, but they are false in practice; and this familiar platitude is by no means so absurd as it sounds. Its real meaning is: We do not think it worth while to prove by argument that your theory is false, because experiment has convinced us that it cannot possibly be true.

"But I do not observe that, when Englishmen have once perceived the practical value of a theory, they are either incapable or impatient of the abstract reasoning necessary to explain its principles. The kind of theory which we despise is that which is founded upon ingenious assumption unverified by experiment. Experiment is therefore our first demand. Show us your results, we say, and if we like them we will try to understand your demonstration. And how faithfully we in this respect keep our word, nobody who has ever been intimate with an enthusiastic rifleman or yachtsman requires to be reminded.

"I persuade myself that M. Baucher's system is one which will stand this test. The simple and obvious method of manipulation by which it imparts lightness and elasticity to the dull, or calmness and docility to the fretful horse, can be tried without the slightest difficulty by any practised horseman; nor do I believe that any practised horseman who fairly tries it will deny its efficiency. That I neither profess to be an accomplished master of its resources, nor an implicit believer in the magical properties which some of its admirers ascribe to it, will appear hereafter. But I am convinced that its elementary lessons may be employed with perfect ease, and with most satisfactory effect, by any man who has an awkward hack which he wishes to make a clever one."

Mr. Phillipps goes on to say that he adds one work more on equitation because the modern English manuals, which alone are good for anything, have all been written by accomplished horsemen.

"How can such a man realize the difficulties of a novice? He tells us what we ought to do; but if we were to suggest that we cannot do it, he would listen as if we were complaining that we cannot help stammering or squinting. It is very singular and very unfortunate; he cannot account for it; he has been performing these manœuvres all his life, and never found them puzzling or difficult.

"Now I am well aware that most of these gentlemen know much more of good riding than I do, but I flatter myself that I know more of bad riding than they do. Circumstances induced me, when in the prime of life, to take pains enough to become a fair mechanical horseman; and the difficulties of the achievement are therefore fresh and vivid in my memory."

We add that the instructions which the author gives, based thus upon his own experience, are given in good and simple English, and that the book is very pleasant reading.

Examples of Modern Steam, Air, and Gas Engines of the most Approved Recent Types, &c. By John Bourne, C.E. In 1 Vol. 4to. Illustrated by about 50 Plates, and about 400 Woodcuts. Longmans.

Ten or eleven of the monthly parts of this elaborate and very complete work have already appeared. The steam-engine yields now so material and considerable a portion of the force used in agriculture, that we may most properly call the attention of agriculturists to Mr. Bourne's Treatise. They will find in it the completest possible account of the various forms of engine in use, whether locomotive or fixed, illustrated by detailed drawings and specifications of the best examples actually constructed.

Farm Memoranda.

CHADBURY, NEAR EVESHAM (*concluded from p.* 459).—Harvest was finished on the last day of July; during the previous week I had scarified 22 acres of Winter Bean stubble, and worked down 11 acres of the poor clay fallow after Vetches, to sow both with White Mustard, giving the latter piece 2 cwt. of guano per acre. I also manured, steam ploughed, and planted with Rape 13 acres of Wheat stubble; this latter 46 acres being in addition to the ordinary area of green crops. I had on the 6th of August, waiting for rain, 33 acres of Mustard, 50 acres of Rape, 50 acres of Turnips. The rain came, and from the healthy state of the land after the excessive drought—the clay-land more especially—the growth of all was very luxuriant. By the middle of September the Mustard required more sheep to eat it than I had; and I gave two of my neighbours as much as they would send sheep and hurdles for. By the middle of October the Rape was ready, and will carry the lambs nearly to Christmas; and the Turnips, if not destroyed by frost—and young Turnips, protected by luxuriant tops, are not often destroyed—will serve the remainder of the winter; the little lot of Mangels, pulped and economically used, holding on till the early Cabbages are ready.

You will perhaps ask how, with only 5 acres of Cabbages, more than 1000 sheep were maintained from July to the middle of September. The draft ewes were sold early in September; the store ewes and theaves lay upon the bare and burnt-up seeds, a poor grass-hill, and the corn stubbles, and lived upon Wheat chaff, bran, and cotton-cake, costing not quite 3*d.* per head per week. The ewe-lambs were put upon a meadow which had been mown; it was entirely burnt up, and they were kept on Clover chaff, bran, malt-dust, cotton-cake and linseed-cake. The ram and wether lambs went to the Cabbages, getting only half the usual allowance and a mixture of dry food, as the ewe-lambs. In a month, however, we could see that the Cabbages would suffice for all the lambs until the Mustard was ready, and the ewe-lambs also were then put to them. By this time we had learnt—and this is a lesson we shall continue to act upon—that the lambs were doing better on a smaller quantity of Cabbages and more dry food than they formerly did with as much Cabbages as they could eat.

As it was important, with a view to the next Wheat crop, that all the Mustard and the Rape where Mangels should have been, should be eaten off in good time, we kept store ewes and the lambs on those fields till finished. All is now (Nov. 11) ploughed, and part planted with Wheat.

The ewes are now upon the grass-land, and only the lambs (520) upon Rape. At first we lost several (not uncommon upon young Rape), so we bled the whole lot and reduced their allowance of purchased food. They have now no cake, the mixture being for the lot daily:—

1 cwt. Bran, costing	.. ..	6*s.* 3*d.*
1 cwt. Malt-dust	.. ..	5 3
½ cwt. "Ground-nut meal"	.. .. ..	4 1½

with 30 bushels Clover chaff and Wheat chaff, given two-thirds in the morning, and one-third at night.

This "ground-nut" meal is a new article of food. What its feeding properties are we do not yet know; it is certain, however, that stock of all kinds are fond of it, that it increases milk, and that it induces sheep to eat Wheat chaff most kindly. Messrs. Burlingham and Co., Evesham, are agents here for the crushers in Liverpool, and will answer any inquiries you make about it.

Thus I hope to get my sheep stock through the winter. For spring and summer food—Clover and mixed seeds having entirely failed—the 81 acres sown therewith have been planted with

Cabbages	.. ..	10 acres.
Trifolium	.. ..	33 ,,
Italian Rye-grass	.. ..	30 ,,
Rye to feed off	.. ..	8 ,,

My difficulty will be with ewes and lambs at first, the provision for them coming on in the following order:—

8 acres	Rye	while lambing.
6 ,,	Rape grown on Wheat stubble	
16 ,,	winter Oats.	
30 ,,	Rye-grass.	

These crops, with about 100 acres of the grass-land, must carry them till the Trifolium is fit to fold off, of which we shall probably want about 10 or 12 acres, leaving the remainder to be partly mown for fodder and partly given to working horses until the Vetches are ready for them. By the end of May we shall wean the lambs to Cabbages, and then all anxiety about them is over. I have 30 acres planted this year, and I have 7 acres more to plant in the spring.

The cow stock—97 Shorthorns of all ages—will be kept mainly on straw with one feed a day of a mixture of cut chaff, Wheat chaff, bran and "ground-nut" meal; reserving the hay for the dairy cows and heifers (45) after calving. The horses will have cut straw and Wheat chaff and "roughings" (cavings), with bran, Indian corn, and beans. The season does not affect the feeding of horses or cattle. We have abundance of straw.

The only change as to the corn crops will be that, instead of half the arable land being Wheat, about 30 acres after Turnips last eaten will be Barley, and only 170 Wheat.

The dry season of 1864, when everything in the shape of green food for winter, except Mangels and Cabbages failed, taught us that sheep would do better upon Mangels pulped and mixed with a large proportion of dry food (Clover and Wheat chaff) than they had before done with Mangels sliced, and we have acted upon that lesson since. This year has convinced us that lambs at Cabbages do better the more dry food they are induced to eat; also that, after an early harvest upon light land, a crop of Rape may be grown upon Wheat stubble, and eaten off in time to plant Cabbages in October. The land having been manured for the Rape, is ready for the Cabbages.

I have answered, probably at greater length than you will consider necessary, the three last questions of your circular. My replies to the other three shall be more brief:—

Land Drainage.—Probably there never was a season in which so little difference was observable between drained and undrained land. The land really could hardly be said to be wet during the winter of 1867-8. If the previous autumn and winter had been otherwise, and the dry summer of 1868 had followed a season of ordinary character, every farmer of clay-land knows perfectly well that the undrained fields would have cracked in all directions, and the wetter the land had been during the winter the sooner would it have suffered from the drought of summer, whether in tillage or grass. I must go back some years to give you an instance. I have a meadow, 36 acres, very flat, naturally very difficult to drain. My predecessor told me that "the Grass never began to grow there till Pershore Fair (June 26)." The reason was obvious; it was often flooded, and neither floods nor rains could do more than get off the surface until evaporated by the summer heat. The land was starved by stagnant moisture until the summer was half gone, and then it cracked and burned. It is now drained and embanked to make the floods manageable, and though not a good meadow, is very much improved. It produced more than a ton per acre this year, cut the middle of June.

Steam-Cultivation.—I adopted steam-cultivation in 1857. I cannot give any positive proof that the land has suffered more or less this year by reason of deep cultivation; but it can scarcely be doubted that an additional depth of cultivated soil must enable plants better to withstand drought. It is quite certain that the drainage is more effective since the adoption of steam-cultivation, and this is proof that drought is less injurious; for, as I have said before, all know who farm it, that undrained, or imperfectly drained clay-land suffers more from dry seasons, as well as wet ones, than land which has been effectually drained. My work by steam this season has been:—

29 acres steam-cultivated twice for Mangels.
25 acres of clay land, after Italian Rye-grass, broken up by Smith's cultivator; afterwards ploughed with Fowler's plough for Rape and Turnips.
17 acres of lighter land, Italian Rye-grass, broken up by Smith's cultivator, and afterwards crossed for Swedes, failed; now Turnips—my last crop.
23 acres of clay, after Vetches; first cultivated, then ploughed.
23 acres after Cabbages, first cultivated, then ploughed; 15 acres now Turnips and Rape.
39 acres of poor clay, after mixed seeds in July; worked with Fowler's plough for Wheat.
21 acres Clover in September; ploughed with Fowler's plough for Wheat.
103 acres of Wheat stubble, ploughed, and 23 acres of ditto, cultivated, for winter Beans, Cabbages, Vetches, Rape, winter Oats, Rye, and Mangels (1869).
21 acres ploughed after Mustard for Wheat.
Total, in the year, 280 acres once ploughed or cultivated, and 58 acres twice.

Assuredly there could not be a finer season for steam-cultivation than this has been, and all crops upon clay-land in 1869 will be benefited by the healthy state in which the drought of 1868 has left it.

Harvest of 1868.—The Wheat upon all clay soils is now known to be very good; in this district the marls, sands, and gravels are below an average, the crops having ripened prematurely. This applies to Barley also. Winter Beans are good; spring Beans, very bad; Peas, an average crop; of green crops I have said enough. *C. Randell, in "Journal of the Royal Agricultural Society."*

The Poultry Yard.

On all sides, and from correspondents in general, we have a host of letters, of which the burden is the same—"Pray say why the eggs don't hatch." Many add, "We find perfectly grown and matured chickens in the eggs, but they seem to have died just when they should have hatched."

On referring to last week's Number, an interesting paragraph will be found, which relates to the letter of a foreign correspondent, respecting the artificial aid to be given to chickens, ducklings, &c., when they emerge, or should emerge, from the egg. We are inclined to think, and certainly to advise, that the only help that should be given should be that which can be supplied by wetting, and consequently softening the shell of the egg for some days previous to hatching. This may be done when the hen goes off to feed, either by sprinkling the eggs with tepid water, or by wetting the breast of the hen. That this is a real and necessary attention we fully believe, and would ask in support of our assertion of any game-preserver or naturalist, how often has he found in the nest of a bird that has bred in the wild state, an egg left in the nest with a fully developed chick or poult in it? We think the general reply would be, hardly ever. And why? Because the hen pheasant or partridge when sitting leaves her nest at dawn for food, and at that time the dew is very heavy, or from rain or frost the grass, stubbles, hedgerows, and fallows are all wet. She returns to her nest with her breast in a state that one would describe as draggled, but the result is success. We can confidently recommend the following to those who are anxious about their early hatches, and who for security's sake set their first hens indoors, and in stables, cow-houses, &c. In the first place, always damp the eggs every morning for at least six days before hatching. When you hear the first chirp of a chick from underneath the hen, get a pail of tepidly warm water, and put it by the side of the nest. Kneeling down, gently remove the hen, placing her where she will not see what is going on, then take out the chickens already hatched, and place them in a basket with flannel. Now, take the eggs one by one, and putting them in the water, watch them as they become covered. Those that contain live chickens will at once begin to roll from side to side, as if the situation were unpleasant, and should then be put back in the nest, the hen being replaced on them. We have hardly ever known this fail, but at the same time must say that we have hardly ever known the dry-handed assistance to be successful. However tenderly handled and replaced in the nest, something or other too often has prevented the satisfactory egress, and we have had the mortification of finding the well-grown and fully developed chick dead in the process of clearing himself from the shell. With regard to the assistance given by the hen, that is and must be a matter of conjecture and doubt. If the hooked beak be a necessity, and if it be (as described at p. 459) fully developed in the sitting hens and feathered mothers generally, what becomes of it when the birds are hatched (as thousands of tame pheasants now are) by a hatching machine? or, as is often the case in France, by a capon? We should be more inclined to think that the hen's care in moving and shifting her eggs is to get that side of them uppermost which shows the point of the beak through it; that the shell and membrane being damp and soft yield (after the first break by the beak) to the muscular expansion of the chick; and whereas, had they been dry they would have walled him in, they now loose him, to grow into a silver-cup winner, or to be served as a *poulet à la reine aux pointes d'asperges*, as soon as he shall be big enough.

There are many people who never heard of the Great Auk, and who would class him with the Great Mogul, or the Grand Llama. It is, we think, now universally conceded that this great bird is extinct, and the few skins remaining in the principal collections of Europe will have their value enhanced by the result of Mr. J. C. Stevens' sale at King Street, Covent Garden, on Wednesday last, when the skin of a Great Auk fetched 90 gs., and an egg of the same bird 60*l.* Two casts of the egg brought respectively 2*l.* and 2*l.* 7*s.* 6*d.* A skin of the Apteryx fetched 9*l.*, and one skin of a curious variety of snipe brought no less than 12*l.*

How to Keep Young Chickens.—The best way to keep young chickens is to allow the mother to ramble with them where she pleases. They will thus secure, according to their wants, the heat of the sun, the cooling of the shade, exercise, air, and a variety of suitable food. The next best thing is to follow the long-established custom of confining the hen in a coop near the dwelling-house, and allow the chickens to run out and in at their pleasure. In many places you cannot confine the hen in a coop, and let the chickens run at large without risking the loss of most of them. A friend near us constructed large coops 6 or 8 feet long, and 4 feet high by 4 feet wide, all made with slat-work, and kept the hen and chickens together therein, and got a pretty good thing and saved his chickens. This year we thought we would improve on our friend's plan. We made a frame-work of similar size, and, instead of covering it with slat-work, we covered it with netting, putting boards in the ground all round the bottom, coming up 8 or 10 inches, and this was in a light, airy place, partly under the shade of trees. A box was placed in one corner for a shelter. We put in a hen and her brood of 12 chickens, and never saw anything do better. We had got just what we wanted—a safe, cheap coop, with plenty of light and air. We took a good deal of pride in our new arrangement, and the cats and rats found poor picking in our young flock. For several days everything went on well; but in this, as in all things else in this world, we soon found that we could not be sure of avoiding annoyances and disappointments. One morning we found that six of our chickens had been killed during the night, and nothing was left behind to indicate how. We presume our wicked friend was a weazel. It must have gone through the meshes of the netting, less than 1 inch square. We propose now to use a netting of strong twine with very small meshes, and we believe we shall then have the best and safest arrangement for raising chickens that can be found, the great object being to obtain for the brood the greatest quantity of light and air, without which we are convinced they do not prosper well.—*Albany Cultivator.*

Miscellaneous.

Three Game Bills.—The *Pall Mall Gazette* thus describes the Bills on this subject now before Parliament:—The first, Game Laws (Scotland) No. 1 Bill, is brought in by Lord Elcho and Sir Graham Montgomery, and may therefore be taken as indicating on the part of the highest Conservatives a sense of the necessity of doing something combined with an earnest effort to do nothing. It is a very curious example of success in this last direction. Clause 3 bestows upon tenants the right to kill hares, if not specially reserved in the lease. Now, in Scotland game is the landlord's, not, as in England, the tenant's, in default of special reservation, but for greater security a special reservation is almost invariably inserted in the lease, and therefore in such cases the Bill would have no operation. But to make this quite safe Lord Elcho, in clause 7, would enact that the Bill shall not apply at all to existing leases. Consequently, matters would remain as they are till all current leases have run out, and then every landlord would have the opportunity of rendering the Bill nugatory by reserving the hares in his future leases. Lord Elcho is, however, good enough to propose that tenants, if they do get permission to kill hares, shall not need to take out a license, which happens to be already the law. He also gives a remedy by action before the sheriff for damage occasioned by any increase of game after a tenant's entry, which also is already a well-established principle. On the whole, it is not singular that this proposed legislation has been received by the Scottish farmers with the utmost indifference of contempt; they have not thought it worth discussing, much less petitioning against. "Game Laws (Scotland) No. 2 Bill" is the production of Mr. Loch, Sir Robert Anstruther, member for Fifeshire, and Mr. Parker, the English member for Perthshire. Its leading principle is to be found in the declaration that any tenant, by himself or any other person having his authority or permission, may kill hares and rabbits on his farm, "any agreement or covenant with the lessor to the contrary notwithstanding." There is a further provision entitling an owner or occupier to recover damages from a neighbouring owner for injury done by the trespassing of his game: a new idea, which for the first time suggests that game is property, and that as such its owners have the duty of paying for what it consumes on other people's land, as well as the right of shooting it themselves when on their own land. The Bill also proposes to transfer the jurisdiction of the justices of the peace in Game Law cases to the sheriff or stipendiary magistrate. The idea of this measure is due to an Ayrshire farmers' club, and it has received much support in Aberdeenshire. But in the other counties the farmers look upon it coldly, and the Scottish Chamber of Agriculture, which is guided by some of the most distinguished of their body, has pronounced against it. They argue that its basis is immoral, since it would permit a tenant to set at nought a solemn stipulation into which he had entered. It is worth observing that this objection seems to presuppose that game-preserving landlords will still seek to bind their tenants to preserve, and will only be defeated by the tenants breaking their promise under cover of the law. Another objection is that the law has no right to interfere between parties who have full capacity to enter into such contracts as they think fit. But the most practical of all the objections is that, while the measure is not needed in the case of non-preserving landlords, it would only be effectual at the cost of a quarrel in the case of landlords who wish to preserve. It is only the tenant who is to be permitted to kill hares, and therefore, if the stock of hares is not kept up, the blame will clearly light upon him. Now when a landlord chooses to preserve, he may say to the tenant, "The law gives you the right to kill hares, but I wish you not to use that right, and if you defy me you must take the consequences." And there are few farmers who, even with leases, would like to take the consequences of an open rupture with their landlords. It would to them mean in practice the exaction of every penny of rent to the day, no matter how bad the times; refusal of all assistance in draining, building, or fencing beyond what the lease has absolutely defined; and certain ejection when the lease should expire. For these reasons the more far-seeing among the tenantry object to this form of relief, and perhaps the more readily because they do not think that Parliament will ever lay down the precedent of so violent an interference with the ordinary liberty of commercial transactions. The third Bill, the "Game Laws Amendment (Scotland) Bill," bears the names of Messrs. M'Lagan, Fordyce, and Orr Ewing, all county members, the last being usually classed as a conservative. Moreover, it is in substance identical with one which was last year endorsed by Sir W. Stirling Maxwell, then the Conservative member for Perthshire. But it is really the suggestion of the Chamber of Agriculture, and has lately received the renewed approval of that body, besides being adopted at several farmers' meetings. Its basis is that hares and rabbits should be excluded henceforth from the list of game and the protection of the Game Laws. Besides this it abrogates, like the last-mentioned Bill, the jurisdiction of the justices in all Game Law cases. It declares that no man shall be tried twice for the same offence under different Acts, and it gives the tenant a summary claim for damages arising through increase of game on the farm. To this measure it is obvious that no objection of principle can lie. It interferes in no way with existing bargains; it only repeals in part the Game Laws, and what the Legislature has enacted it may, of course, at any time repeal. Neither does it introduce strife between the parties to the bargains, for if hares diminish the landlord cannot reasonably blame the tenant, who has no more power than himself to preserve what the law no longer gives the means of preserving. Doubtless, the diminution

in the numbers of this species of animal will be speedily effected by poachers (if they can longer be called so), and it is idle for the advocates of the measure to blink this necessary result. But there are two facts worth noting. Hares and rabbits will be reduced by poaching just to the point at which poaching ceases to be profitable, and then poaching will, as a trade, or as an avocation involving any serious loss of time, die out. This is proved by the existing experience of many large estates, where there is no preserving of game at all, where, in fact, the Game Laws are to all practical purposes as if they never were enacted, but where game is by no means extinct, but exists in sufficient quantities to give fair sport to the fair sportsman. The second fact is that the proposed change in the law applies only to the most destructive, and at the same time, considering ease of capture, the most profitable animals to the poacher, and still leaves partridges, pheasants, and grouse under the protection of the law. Now, if sportsmen cannot be satisfied to compromise for the preservation of winged game by abandoning ground game to the wrath of the farmers, they must be prepared to fight for the extravagant privileges of a very small order against the plain demands of justice and the good sense of the whole people.

Sugar-Beet. — In your *Norwich Mercury*, March 3, 1869, you sent me a very interesting article about the growing of Sugar-Beet in England, and I, therefore, send you a few commonplace remarks about the culture of Sugar-Beets in the Zollverein during the last years. There were transferred into sugar during the following years

1865-6,	43,452,774	cwt. of Beet in	295 sugar manufactories ;
1866-7,	50,712,709	,,	296 ,,
1867-8,	40,593,392	,,	293 ,,

And whilst the official report of 1868-69 has not yet appeared, we may estimate the quantity of Beets boiled in the different manufactories as at least 50,000,000 during that period. These numbers, considering the weight, would naturally be much higher if the mode of gathering the Government tax equal to 7½ groschen, or ¼ Prussian dollar, to about 9*d.* on each cwt. of well-washed raw Sugar-Beets) did not make it necessary to grow only such roots which contain as much sugar as possible, and for this very reason, the cultivator has to take the greatest precaution as to the choosing of the land on which he intends raising the crop. Freshly manured land (fresh sheep-dung is the most direful of all manures for growing Sugar-Beets), and new land freshly brought into cultivation from meadows, are under all circumstances to be avoided, for though the land yields a very large return as to the weight of the roots, these contain such a quantity of water, salts, &c., that they are actually unfit for producing sugar; Wheat, Barley, or Rye stubble, are considered best. Trials made last year with Peruvian guano had very happy results, as well respecting quality as quantity, whilst a newly-published report about trials with Baker's Island Guano was not very encouraging. The custom of tearing off two or three leaves of the roots in the latter part of July and August, to feed the cattle with, as is done by the smaller cultivators, is also very obnoxious to the growth of the Beets, as they are apt to form green tops, which contain little or no sugar at all, and are, therefore, cut off before the roots are weighed for paying the duty. Great attention must be paid to the raising of the seed; the Beets which are designed for this purpose must be very healthy and ripe, and must be planted far away from other sorts, as these latter have a very bad influence during blossom time. Here in our part of the country we prefer the white Silesian root, as it grows very little out of the earth, and, therefore, does not form green tops, which contain no sugar. We generally plant in the month of April or the beginning of May, according to the quality of the ground, but an early culture is much to be recommended, as the ripe fruit contains more sugar than the unripe, which is dug up whilst still growing; the warm, wet, and dewy nights of August are very profitable for the growing. The greater part of our Beets are drilled at a distance of 18 inches Rhenish; smaller cultivators plant the seeds by hand, several kernels together (the strongest plant afterwards is left and the others are drawn) in spaces of about 13 inches in rows, and 15 inches in banks (ridges); a greater distance is not advisable, as the Beets otherwise grow too bulky, with little sugar in them. The yield is, of course, very variable; there are provinces where 150 cwt. per Prussian acre (equal to two-thirds of an English acre) are considered a good harvest, while there are others where the return varies between 250 and 300 cwt. and more per Prussian acre; but Beets of this size stand much behind in quality to the former. We generally pay an average price of 10 groschen, equal to about 1*s.* per cwt., and the happy financial circumstances of the cultivators of Sugar-Beets show that the culture of them is judicious, brings good returns, and enriches the farmer. *E. Ludovici, of Brunswick, in the "Norwich Mercury."*

Calendar of Operations.

MAY.—*Barley* is sown in some late districts about the beginning of May, but it is liable to suffer from the early autumn frosts of such districts, much of it being thus unfit for malting. When sown so late the ground should be reduced to a fine tilth, so as to get it quickly into braird, and for this purpose drilling is better than broadcasting. When sown down with Grass seeds, as is generally the case, this should be done immediately, and the land rolled if the weather permits.

Bere or Bigg (six-rowed Barley) ripens earlier than the two-rowed Barleys, and hence it is sown in some parts of Scotland where the latter cannot be profitably grown. Some prefer it for pot barley, gruels, &c., growing no more of this, on land capable of growing the two-rowed sorts, than is required for family use and live stock. Cultivation, the same as for Barley, and about 2 bushels of seed per acre. It is often not sown before the first week in May, and sometimes as late as the end of the month.

Buckwheat is sown from the middle to the end of the month. On some poor sandy soils it pays better than Barley. When Barley has not been got in in time, Buckwheat forms a profitable substitute on good Barley land; it is also sown in game preserves. It is generally sown broadcast, about 1½ bushel of seed per acre on poor soils, and 1 bushel on better land: but drilling, from 10 to 14 inches between the drills, is to be preferred, as birds devour greedily every particle of seed not covered when sown broadcast.

Hemp may be sown in the early part of the month, as directed in April.

Lucerne is sown throughout the month, but the earlier the better, if intended for forage cropping. Drill as in last month.

Lupine is also sown throughout May, as directed in April, on poor sandy and peaty soils adapted for its growth.

Rape is sown early, for sheep feed in July. The preparation of the land, manuring, and seeding, are similar to Turnip culture. It is generally sown in drills, from 12 to 20 inches apart, on the flat. The crop is well adapted for heavy soils, and is very commonly grown after paring and burning, not only for sheep, but for mowing for stall or yard-fed cattle.

Spring-sown Cabbages in beds are planted out in drills this month, as the autumn-sown were in April. In dry weather, which is common in May, much difficulty is experienced in getting the plants to root without a liberal use of the water-cart.

Mangel Wurzel sowing should be finished during the first, or at the latest the second, week in May. In using the liquid-manure drill it must be borne in mind that as the season advances more water per acre is required. Damping the seed to forward germination requires also to be attended to. And if these practical details are observed, the crop sown the first week in May is often as soon ready for the hoe as the previous sowing in April.

Hoeing of spring corn is generally finished this month. Thistles now make their appearance in the rows on land that is cultivated too shallow and require to be spudded out. Beans, Peas, Parsnips, Potatos, Cabbages, and Carrots require both horse-hoeing and hand-hoeing, and all these crops require the earth to be drawn well up to the plants in hand-hoeing them. Potatos grown in "lazy beds" are earthed over with fresh soil dug from the alleys. Towards the close of the month Beans and Peas require moulding up with a double mouldboard-plough. Sainfoin, Lucerne, and Lupine, when grown as standing forage crops, require careful hand-hoeing. Couch-grass should be pulled up by the hand, and not a blade of Grass of any kind left in the rows.

Grass seeds.—Sowing after the last hoeing is preferred by many to the counter practice of laying down land to Grass at the time of sowing the corn without hoeing—the seeds in both cases being rolled in. When the land in March and April is too wet for rolling at the time of sowing the corn, both the sowing of Grass seeds and rolling must be deferred to May.

Turnip fallows occupy a large area of every province in the kingdon, and the getting of the land ready for sowing is the chief operation of the current month. On some Turnip and Barley farms, which are cultivated on the four-course, five-course, or six-course shift of cropping, one-fourth, one-fifth, or one-sixth of the land is annually in Turnips. Once Turnips in four years, however, is generally considered too near a rotation, but in many cases successful practice overrules the objection. Deep cultivation in autumn, and the use of artificial manures in a liquid form, are doing much to remove objections of this kind. Some continue to follow the old practice of cross-ploughing, harrowing, and rolling. In autumn the stubbles are ploughed—"rafter-ploughed," "baulk-ploughed," or "ribbed," as it is termed in different districts. In March, April, or beginning of May, the land, when lying under the latter in ridgelets, is "coup-rafted," "coup-baulked," or "coup-ribbed," as the phrase may run, and then harrowed before it is cross-ploughed; and when ploughed across the field it is again harrowed and the weeds gathered off. It is next ploughed lengthways, harrowed, and carefully weeded, and then rolled, when it is generally ready for ridging for the manure, or for spreading the manure and ploughing it in. But the plough is now generally superseded by the cultivator, which loosens the soil, and brings up any weeds to the surface much more effectually and expeditiously than the plough. The cultivator also keeps the natural moisture in the ground, if harrowing and raking be kept well up, and the winter-made mould is thus kept upon the surface, both of which are essential in the successful growth of Turnips on moist soils. On heavy soils it could not be expected that a crop could be grown where the land was cross-ploughed in May. In dry seasons the roller should follow the cultivator and harrows, so as to retain the moisture in the ground. Should hot dry weather set in before seed-time, the harrowing and heavy rolling should be repeated. Too much importance cannot be placed upon these simple operations in the preparation of the land for Turnips.

Water-meadows now afford a plentiful supply of green food both for folding and soiling. What is intended for hay should now be cleared of stock; that for soiling is alternately mown and watered during the season. The Grass at first is rather laxative, so that dry food of some kind should be given, as corn or hay, more especially to milch ewes and milch cows; for when they begin to purge, the bowels of the lambs and calves also become affected—while cow's milk in this state is unfit for dairy purposes. When cut for soiling, a little dry hay and meal mixed with the Grass will obviate harm. When folded, cows are only allowed a short time on the meadows, and sheep are also removed to dry food as they require it.

Notices to Correspondents.

FOREIGN PALM-NUT MEAL: *R. N.*" Unless the cheaper price be owing to admixture with trash of any kind, and that is to be ascertained only by an examination of the particular lot for sale, you should not be deterred by the price from purchasing. Our manufacturers are as good at squeezing out the oil as any are; and the foreign meal is likely to be the richer of the two.

HIGHWAY: *J. G.* Next week.

LAMBS: *H G P.* The best method of the operation is that to which the shepherds of the district are accustomed. In a matter where there is ample local experience, the local rules are the safest to adopt, and an old shepherd is as good an adviser in such a thing as a veterinary surgeon.

J. B. BROWN AND CO.'S
NEW PATENT B B LAWN MOWER for 1869.
PRICES REDUCED AND THE MACHINE PERFECTED.



The B B LAWN MOWER (London made) is universally allowed to be, by practical judges, superior to any other—being the best designed, also of best material only, all parts liable to breakage being of malleable iron, and made to standard gauge, all accurately numbered, and the entire Machine fitted and finished in a manner incontestably superior to any other Lawn Mower manufactured.

ALEX. MACKENZIE, Esq., Alexandra Park, Muswell Hill—appointed by the Metropolitan Board of Works to lay out their New Public Parks, and to plant the Thames Embankment, thus writes:—

"I have recommended your Lawn Mower to many of my friends, believing that the machine does its work better than any other, and combines strength superior to Shanks' machine, with the lightness of Green's. Having now four of your Lawn Mowing Machines in constant use on our grounds, and two of these having been in work over a year, I have never had cause to alter this opinion of your machine, which I now have pleasure in giving to you."

The B B LAWN MOWER was selected at the Paris Exhibition, in preference to all others, by the celebrated Engineer, Mons. Henry Schneider, of Creusot, and President of the French Legislative Assembly.

PRICES—NEW PATENT B B HAND MACHINE for 1869.

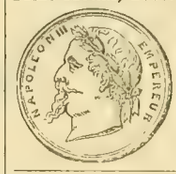
10-inch	For a Boy.	£3 5 0	18-inch	A Man and Boy	£7 0 0
12-inch		4 5 0	20-inch	Two Men	7 10 0
14-inch	A Man	5 5 0	22-inch		8 0 0
16-inch	A Man and Boy	6 0 0	24-inch		8 10 0

Prices of Horse and Pony Machines on application.

Every Machine warranted to give satisfaction, and delivered free.

J. B. BROWN & Co., 90, Cannon Street, E.C., and 148, Upper Thames Street, E.C.

Prize Medal, 1867. PRIZE MEDAL for BEST



LIQUID MANURE CARTS,

CLOD CRUSHERS,

and ROLLERS,

also 21 other PRIZES,

Awarded to I. JAMES, Tivoli, Cheltenham.

"Every Cottage should be provided with a Water Tank." *Disraeli.*

Iron Cisterns.

F. BRABY AND CO. having laid down more extensive and Improved Machinery on their Deptford premises (IDA WHARF), are prepared to supply WROUGHT-IRON TANKS, GALVANISED or PAINTED, of superior quality, at reduced prices, and at very short notice.

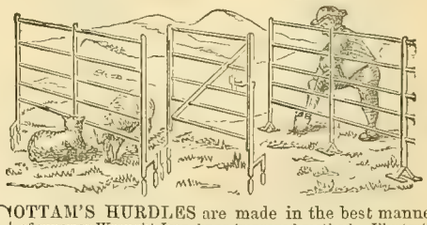


An Illustrated Price List of Galvanised Iron, and other of BRABY'S special Manufactures, sent on application.

F. BRABY & Co., Limited, Fitzroy Works, Euston Road, London; or through all respectable Ironmongers.

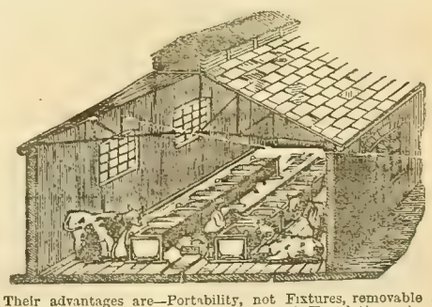
N.B. Open Tanks of different sizes packed one in another to save carriage.

Cottam's Iron Hurdles, Fencing, and Gates.



COTTAM'S HURDLES are made in the best manner, of superior Wrought Iron, by an improved method. Illustrated Price Lists on application to COTTAM & Co., Iron Works, 2, Winsley Street, Oxford Street, London, W.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rick dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of Iron. Prices of Fittings per Cow 55*s.*

Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

NO IMPROVEMENTS OR ALTERATIONS FOR THE PRESENT SEASON, 1869,

IN

GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

The Extraordinary Success of GREEN'S PATENT LAWN MOWERS is an established fact. During the last five years the demand has been unprecedented, which alone is a proof of their superiority over all others. The following are their characteristic features:—

1st. Simplicity of Construction, every part being free of access.
2d. They are worked with far greater ease than any other Lawn Mower.
3d. They are the least liable to get out of order.

From the fact that these MACHINES are so well known in Great Britain and Ireland, also on the Continent of Europe, T. GREEN and SON do not deem it necessary to trouble the Public with a list of the numerous Testimonials that they have received from time to time, but would simply add,

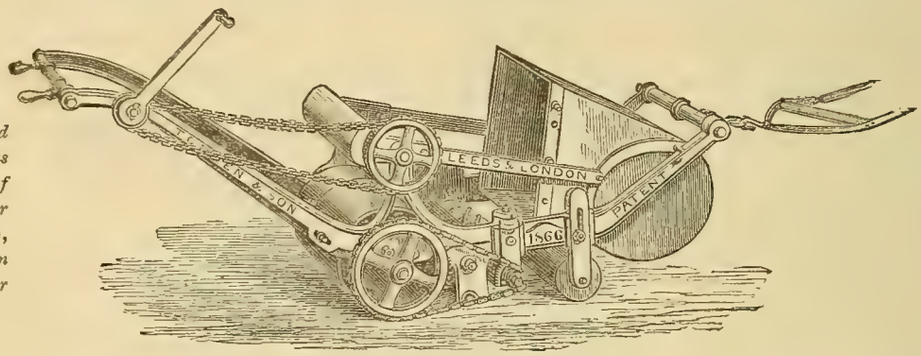
THEY ARE THE ONLY MACHINES IN CONSTANT USE AT

THE ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON
THE ROYAL BOTANIC GARDENS, REGENT'S PARK
THE CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM
BUCKINGHAM PALACE GARDENS
MARLBOROUGH HOUSE
THE HYDE PARK GARDENS
THE WINTER PALACE GARDENS, DUBLIN
THE DUBLIN BOTANIC GARDENS
THE LIVERPOOL BOTANIC GARDENS
THE LEEDS ROYAL PARK
THE HULL BOTANIC GARDENS
THE BOTANIC GARDENS, BRUSSELS
THE SUNDERLAND PARK
THE PRESTON PARK

AND IN MOST OF THE PRINCIPAL PARKS, SQUARES, ETC., IN THE UNITED KINGDOM.

HORSE, PONY, AND DONKEY MACHINE.

GREEN'S PATENT
LAWN MOWERS
have proved to be the best, and carried off every Prize that has been given in all cases of competition. Since the first year they were introduced (1856), *upwards of* 46,000 *have been sold, and* 25,000 *of that number during the last five seasons.*



T. GREEN & SON
warrant every Machine to give entire satisfaction, and if not approved of can be returned unconditionally.

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

PONY AND DONKEY MACHINES.

To Cut 26 inches	£13	0	0	*Leather Boots for Donkey*, 18*s*. *Leather Boots for Pony*, 22*s*.
„ 28 „	15	0	0	
„ 30 „	17	0	0	

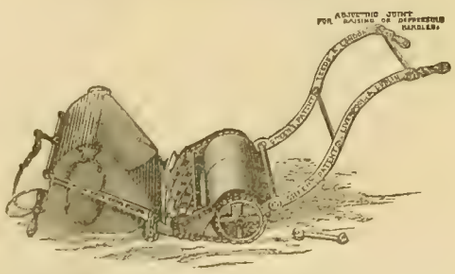
HORSE MACHINES.

To Cut 30 inches	£21	0	0	*Leather Boots for Horse*, 26*s*.
„ 36 „	24	0	0	
„ 42 „	27	0	0	
„ 48 „	30	0	0	

Both the Horse, Pony, Donkey, and Hand Machines possess (over all other Makers) the advantage of Self-sharpening. The cutters being steel on each side, when they become dull or blunt by running one way round, the cylinder can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the Machine will cut equal to new. Arrangements are made that the cylinder can be reversed, by any inexperienced person, in two or three minutes.

HAND MACHINES.

To Cut 10 inches ..	£3	10	0	*Suitable for a Lady*
„ 12 „ ..	4	10	0	„ „
„ 14 „ ..	5	10	0	*Suitable for One Person*
„ 16 „ ..	6	10	0	„ „



To Cut 18 inches ..	£7	10	0	*Suitable for One Person.*
„ 20 „ ..	8	0	0	*Suitable for Two Persons*
„ 22 „ ..	8	10	0	„ „
„ 24 „ ..	9	0	0	„ „

Packing Cases are charged at the following low rates, viz.:—for the 10 and 12-inch Machine, 3*s*.; 14 and 16-inch, 4*s*.; 18 and 20-inch, 5*s*.; 22 and 24-inch, 6*s*. Parties providing themselves with Lawn Mowers are recommended to purchase the cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England, Ireland, and Scotland.

HORTICULTURAL and AGRICULTURAL IMPLEMENTS, GARDEN SEATS and CHAIRS, FOUNTAINS, VASES, PLAIN and GALVANISED WIRE NETTING, and ORNAMENTAL WIRE WORK of every description.

Having very extensive Premises in London, we are in a position to do all kinds of Repairs there, as well as at our Leeds Establishment.

Having a large quantity of MACHINES in stock at our Leeds and London Establishments, we are in a position to execute Orders on the day they are received.

THOMAS GREEN and SON, SMITHFIELD IRON WORKS, LEEDS;
and 54 & 55, BLACKFRIARS ROAD, LONDON, S.

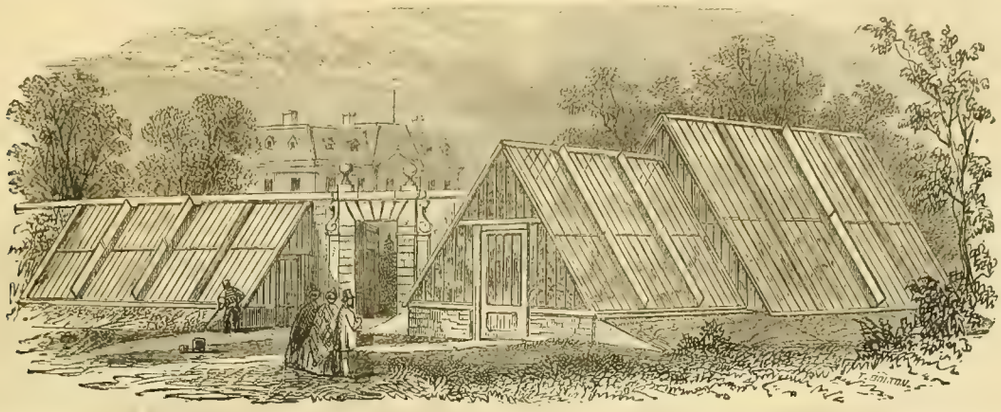
HOTHOUSES FOR THE MILLION.

AWARDED A PRIZE MEDAL, INTERNATIONAL EXHIBITION, 1862.

ON THE PRINCIPLE INVENTED AND PATENTED BY SIR JOSEPH PAXTON, M.P.

Combining Simplicity, Cheapness, Excellence, and Durability. *Being capable of fulfilling in the most perfect manner all the requirements of Horticulture.*

"Nothing can be more easy than to build them, nothing more simple than to remove them."—*Daily News, May* 22, 1862.



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ILLUSTRATED CIRCULARS with LISTS of PRICES of the PATENT ROOFS, with Views of Conservatories, can be had on application to

MESSRS. HEREMAN AND MORTON, 7, PALL MALL EAST, LONDON, S.W.

The THIRD EDITION of a HANDBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses, containing Illustrations, Hints for Heating Houses, and General Directions for Cultivation, &c., by S. HEREMAN, Chatsworth, price 1*s.*; post free, 1*s.* 1*d.*

"The instructions given for the cultivation of the Vine and other crops are essentially practical, and are evidently written by one who has himself performed all the operations before he attempted to instruct others."—*Cottage Gardener, October* 6, 1863.

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"The cultural directions have the great merit of being concise and clear."—*Gardeners' Chronicle*, Nov. 30, 1867.

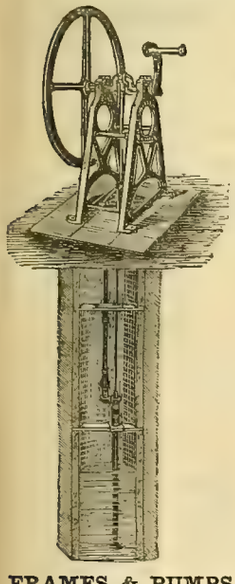
JOHN WARNER & SONS,

BELL AND BRASS FOUNDERS TO HER MAJESTY,

HYDRAULIC ENGINEERS,

8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

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FRAMES & PUMPS FOR DEEP WELLS.



No. 35.

CAST-IRON PUMPS.

2½ inches	..	£1	8 6
3 ,,	..	2	1 0
3½ ,,	..	2	6 0
4 ,,	..	2	14 0



No. 39.

WARNERS' CRYSTAL PALACE

FIRE ENGINE, or PORTABLE FORCE PUMP.

Price on Barrow, with Branch Pipe, Spreader, Unions, and Suction Rose, £6.

1¾-in. 2-ply Rubber Suction Pipe, per foot, 2*s.* 2*d.*; 1¼-in. ditto Delivery Hose, 1*s.* 4*d.*

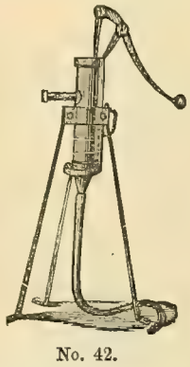
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Messrs. Warner & Sons.

"Gentlemen,—I feel great pleasure in stating that I was present at a trial of your small Crystal Palace Fire Engine, and was much pleased with its efficiency and simplicity. The Pump throws out a steady jet of water to a height of 50 feet with very little labour. The Pump we have is well made, very simple in its parts, and not likely, I think, to get out of order. The advantage of this pump is its being very portable. Besides being a good Fire Engine, it will make an excellent Garden Engine. "I remain, gentlemen, yours obediently,

"Edwin Rose, Engineer to the "Crystal Palace Company."

Drawing and Estimates for Wind Engines, Water Wheels, and Hydraulic Machinery of every description for Steam, Horse, or Hand-power will be forwarded upon application.

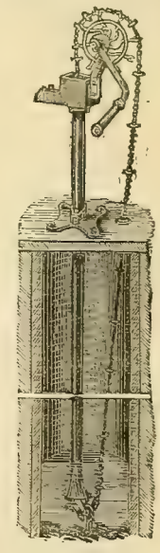


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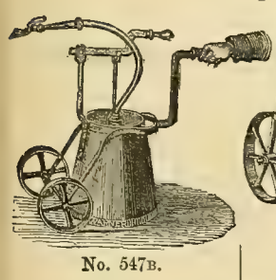
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With Improved Valves for Liquid Manure, £2 15*s.*

2-inch Flexible Rubber Suction Pipe, in 10, 12, and 15 ft. lengths, per foot, 2*s.* 5*d.*



CHAIN PUMP FOR LIQUID MANURE.

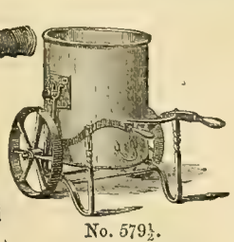


No. 547B.

WARNERS'

GARDEN ENGINE

Holds 6 gallons; is light, portable, and easily worked by a lady or child .. 50*s.*



No. 579½.

SWING

WATER BARROW.

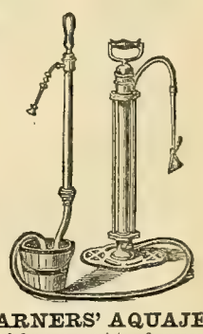
50 gallons	..	£5	12 0
38 ,,	..	3	17 0
30 ,,	..	2	13 0
20 ,,	..	2	2 0



No. 547A.

GARDEN ENGINE

28 gallons	..	£5	10 0
24 ,,	..	4	19 0
16 ,,	..	3	14 0
10 ,,	..	2	19 0



WARNERS' AQUAJECT

Useful for every variety of purpose—in watering or washing flowers or trees in Gardens, Conservatories, &c.; also, for washing Carriages or Windows, laying Dust, &c.

Price, complete .. £1 10 0

Small size for the hand, as an ordinary Syringe 0 15 0

Indestructible Terra-Cotta Plant Markers.

MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c. Maw & Co., Benthall Works, Broseley.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.

For particulars apply to JOHN FOWLER & Co., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

IRON HURDLES

(Silver Medal of the Royal Agricultural Society):

SHEEP, 3s. 8d.; CATTLE, 4s. 3d.; OX, 5s. 11d.

List by post. GATES and FENCING of every description.

St. Pancras Iron Work Company, Old St. Pancras Road, London, N.W.

THE TANNED LEATHER COMPANY,

Armit Works, Greenfield, near Manchester.

TANNERS, CURRIERS, and MANUFACTURERS of IMPROVED TANNED LEATHER DRIVING STRAPS for MACHINERY

PRIME STRAP and SOLE BUTTS.

Price Lists sent free by post.

Warehouse: 81, Mark Lane, London, E.C.

BROWN'S FLORAL SHADING.

Sold by Nurserymen and Seedsmen.

No. 1. 36 inches wide, 20 yards long, at 4s. 6d. per piece.
No. 2. 36 " " 20 " " 4s. 10d. per piece.
No. 3. 36 " " 18 " " 7s. extra stout.

Samples on application to CHARLES BROWN, Greenheys, Manchester.

Established 1833.



Trade Mark.

HANCOCK'S INDIA-RUBBER HOSE and TUBING.

CARRIAGE, GIG, & DOG-CART APRONS.

HORSE SINGEING APPARATUS, with GAS BURNERS, and INDIA-RUBBER TUBING.

Improved INDIA-RUBBER DOOR STOPS.

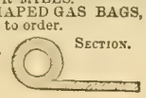
WATERPROOF CART and WAGGON COVERS made any size.

HORSE-LOIN COVERS (Waterproof), with Straps complete.

BELTING for SAW MILLS, THRESHING MACHINES, and FLOUR MILLS.

IMPROVED INDIA-RUBBER WEDGE-SHAPED GAS BAGS, or Microscopes and Dissolving Views; any size to order.

FLANGE TUBING, for excluding Draught and Dust, and preventing the Slamming of Glass Doors.



SECTION.

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WATERPROOF BILLIARD TABLE COVERS.

Illustrated Price Lists on application.

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THE HYDRONETTE,

(Robins' Patent,) for Gardens, Greenhouses, Conservatories, Hotbeds, &c. Unrivalled ease of action, simplicity, convenience, and force.



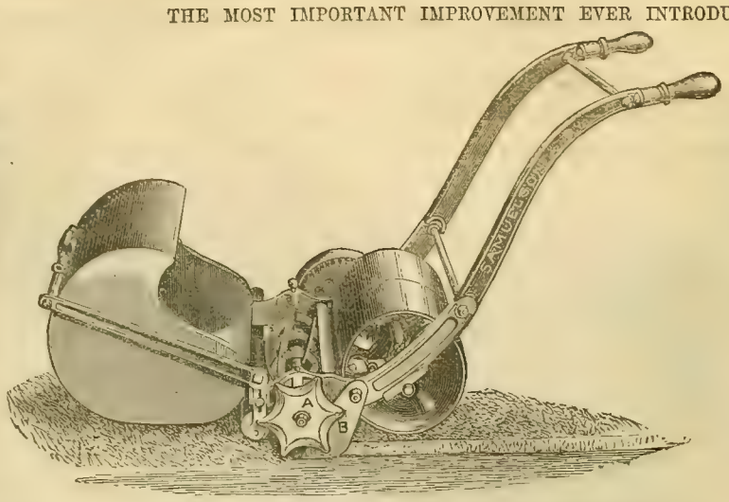
The HYDRONETTE is a more useful, easy working, reliable, and convenient water-throwing machine than any other in use. It is made in five sizes, viz.:—No. 1, with 4 feet of Suction Hose, Strainer, Jet, and Rose, 12s. 6d.; No. 2, 15s. 6d.; No. 3, £1 1s.; No. 4, £1 5s.; No. 5, £1 10s. Extra Hose and Union Joints furnished to order. Forwarded on receipt of Post Office order by the Proprietors,

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SAMUELSON & CO.'S

NEWLY PATENTED EDGE-CLIPPING SILENT LAWN MOWERS.

THE MOST IMPORTANT IMPROVEMENT EVER INTRODUCED.



MESSRS. SAMUELSON AND CO. BEG TO DRAW SPECIAL ATTENTION TO THEIR

NEW

LAWN MOWERS, for 1869,

Which are fitted, when required, with a new Patent EDGE-CLIPPING arrangement, entirely superseding the old and tedious operation of Edge-Clipping by hand.

All Machines fitted with new Silent Gearing, ensuring perfect freedom from noise when at work.

Catalogues, with full descriptions and prices of the new Patent Edge-Clipping Silent Lawn Mower, on application to

SAMUELSON AND CO., BRITANNIA WORKS, BANBURY.

GREEN'S IMPROVED PATENT ROLLER,

FOR

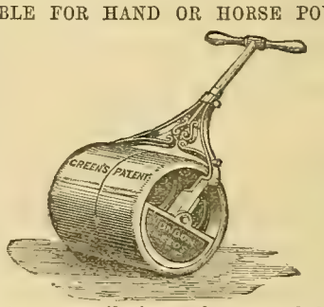
LAWNS, DRIVES, BOWLING GREENS, CRICKET FIELDS, and GRAVEL PATHS.

SUITABLE FOR HAND OR HORSE POWER.

PRICES OF

HAND ROLLERS.

Diam.	Length.	£	s.	d.
30 inches	32 inches ..	7	10	0
24 inches	26 inches ..	4	10	0
20 inches	22 inches ..	3	10	0
16 inches	17 inches ..	2	15	0



PRICES OF

ROLLERS

FITTED WITH SHAFTS,

Suitable for Pony or Horse Power.

Diam.	Length.	£	s.	d.
30 inches	32 inches ..	10	0	0
30 inches	36 inches ..	10	15	0
30 inches	42 inches ..	11	15	0
30 inches	48 inches ..	13	10	0
30 inches	60 inches ..	15	10	0
30 inches	72 inches ..	17	10	0
30 inches	84 inches ..	19	10	0

These Rollers possess many advantages over all others; they are made in two parts, and are free to revolve on the axis, affording greater facility for turning, and the outer edges are rounded off, or turned inwards, thus avoiding the unsightly marks left by other Rollers. They are manufactured of the best materials, and are got up in a manner surpassing any ever yet brought out. The Rollers 24 by 26 inches, 20 by 22 inches, and 16 by 17 inches, are also made in one part, at a reduced price; and, for Rollers of that size, will be found to answer many requirements, as the handle can be reversed to either side of the Roller at pleasure.

PRICES—24 in. by 26 in., £4; 20 in. by 22 in., £3 2s. 6d.; 16 in. by 17 in., £2 10s.

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

THOMAS GREEN AND SONS, SMITHFIELD IRON WORKS, LEEDS; 54 and 55, BLACKFRIARS ROAD, LONDON, S.

S. OWENS & CO.,

HYDRAULIC ENGINEERS,

WHITEFRIARS STREET, LONDON, E.C.



THE IMPROVED SELF-ACTING HYDRAULIC RAM.

This useful Self-acting Apparatus, which works day and night without needing attention, will raise water to any height or distance, without cost for labour or motive power, where a few feet fall can be obtained, and is suited for supplying Public or Private Establishments, Farm Buildings, Railway Stations, &c.

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No. 63. PORTABLE IRRIGATORS with Double or Treble Barrels for Horse or Steam Power.

No. 46a. IMPROVED DOUBLE ACTION PUMPS on BARROW for Watering Gardens, &c.

No. 49a. GALVANIZED SWING WATER CARRIERS, for Garden use.

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No. 4. CAST-IRON GARDEN, YARD, or STABLE PUMPS.

No. 39b. IMPROVED HOSE REELS for Coiling up Long Lengths of Hose for Garden use.

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ILLUSTRATED CATALOGUES CAN BE HAD ON APPLICATION.

DESCRIPTION.

THE "AUTOMATONS"

Are guaranteed to perform their work perfectly, and if not approved may be returned within a month. They are *easy to work, light in draught, almost noiseless;* and being driven by machine-made gearing *are not liable to get out of order.*

Illustrated Lists and Testimonials sent post free.

THE "AUTOMATON"



LAWN MOWER.

2400 Sold since 1867.

PRICES.

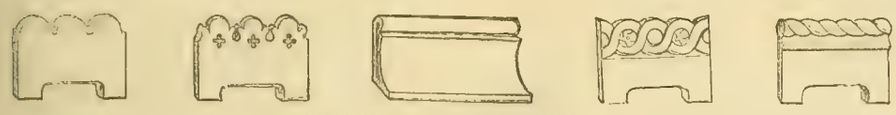
THE "AUTOMATONS."			
10 inch	£3	10	0
12 inch	4	10	0
14 inch	5	10	0
16 inch	6	10	0
18 inch	7	10	0
20 inch	8	0	0
GARDEN ROLLERS.			
16 inch	£1	15	0
18 inch	2	0	0
20 inch	2	10	0
22 inch	3	0	0
24 inch	3	10	0

Delivered Free to all the principal Stations in England.

RANSOMES, SIMS, AND HEAD, ORWELL WORKS, IPSWICH.

H. DOULTON & CO.'S GARDEN EDGING TILES

1. 2. 3. 4. 5.



THESE TILES ARE MANUFACTURED IN

VITRIFIED STONE-WARE AND IN TERRA-COTTA OF THE BEST MATERIAL,

WHICH IS BURNT TO AN EXTRA DEGREE OF HARDNESS,

AND WARRANTED IMPERISHABLE.

They will be found to be far preferable to Box and other Edgings, as they require no attention when once fixed, take up less room, and do not harbour Slugs, &c.

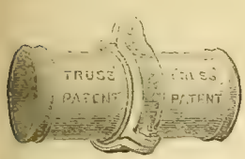
PRICE LISTS of the above, and also of TERRA-COTTA GARDEN VASES, FOUNTAINS, PENDANTS, FLOWER-POTS, FERN-CASES, &c., &c, may be had on application to

DOULTON AND CO., HIGH STREET, LAMBETH, S.E.

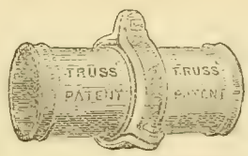
PORTABLE AND FIXED HOT-WATER APPARATUS,

FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH

TRUSS'S PATENT UNIVERSAL FLEXIBLE AND LEAKLESS PIPE-JOINTS.



T. S. TRUSS



Begs to state that the immense number of APPARATUS annually Designed and Erected by him in all parts of the kingdom, and for the ROYAL HORTICULTURAL SOCIETY at SOUTH KENSINGTON and CHISWICK, with unrivalled satisfaction, is a guarantee for skill of design, superior materials, and good workmanship; while the great advantages obtained by his IMPROVED SYSTEM cannot be over-estimated, consisting of perfectly tight joints with neatness of appearance; EFFECTS A SAVING OF 25 PER CENT. on cost of Apparatus erected compared with other systems; facility for extensions, alterations or removals without injury to Pipes or Joints; can be erected by any Gardener; an ordinary size Apparatus erected in one day; and PERFECTNESS of DESIGN SUPPLIED, INSURING NO EXTRAS. Complete Apparatus, of the best materials, delivered to any Railway Station in England, and Erected at the following prices. Erection beyond 25 miles of London, railway fare for one man additional. Considerable reduction on large works.

TWO FOUR-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
20 feet by 10 feet ..	£9 0 0 ..	£2 0 0	50 feet by 15 feet ..	£17 10 0 ..	£3 0 0
30 feet by 12 feet ..	11 15 0 ..	2 10 0	75 feet by 15 feet ..	20 0 0 ..	3 0 0
40 feet by 15 feet ..	15 0 0 ..	2 15 0	100 feet by 15 feet ..	26 0 0 ..	3 5 0

Bath and Gas Work erected in town or country. **The Trade Supplied.**

Price Lists, Plans, and Estimates forwarded on application to

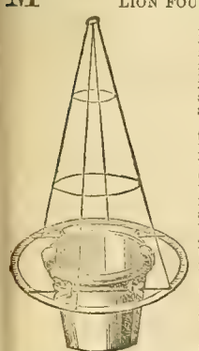
T. S. TRUSS, C.E., CONSULTING HORTICULTURAL ENGINEER, &c., SOLE MANUFACTURER, IRON MERCHANT, HOT-WATER APPARATUS MANUFACTURER, AND HORTICULTURAL BUILDER,

FRIAR STREET, BLACKFRIARS ROAD, LONDON, S.E.

The Packington Plant Trainer,

MANUFACTURED BY

MATTERSON, HUXLEY, AND WATSON, LION FOUNDRY, COVENTRY.



The Packington Plant Trainer is intended to facilitate the training of plants, to do away with the necessity of putting sticks into the soil of the flower-pot (which to a certain extent injure the root of the plant), and also saves time and trouble when it is necessary to re-pot the plant.

The base of the frame is fitted with two horizontal rods, screwed the whole length, and upon these slide two bands, which, by means of the fly-nuts, can be extended or contracted at pleasure, so that in repotting a plant all that is required is to slacken the nuts, draw away the bands; the pot can then be taken away and replaced by a larger one—the bands tightened to the large pot by means of the nuts—the plant remaining attached to the frame as before.

The Trainers are made either in Copper or Galvanised Iron, and to any size and pattern required, from 7*s.* 6*d.* to 21*s.* each.

Patterns and prices forwarded on application to the makers, Coventry, or at their London Offices, 4, Dowgate Hill, Cannon Street, E.C.

The Packington Plant Trainer is an exceedingly ingenious contrivance, adapted to any size pot, and readily shifted from one to the other. See report of address of J. Bateman, Esq., at the Royal Horticultural Society's Meeting, *Gardeners' Chronicle*, March 6, 1869.

Galvanised GARDEN EYES, for Wall Trees, made in four sizes, price 5*d.* per lb.

The ELASTIC TREE BAND, for securing newly-planted Trees, price 1 *s.* each.

MR. EDWIN COOLING, HORTICULTURAL VALUER, Mile Ash, Derby.

TO AGRICULTURISTS and OTHERS.—Persons of skill and experience who may be desirous of Renting a SEWAGE FARM are invited to communicate with Mr. EDWARD RYDE, Land Surveyor, 17, Parliament Street, Westminster, S.W.

Sales by Auction.

Bedding Plants.—A Large Collection of British and EXOTIC FERNS, BEGONIAS, and GREENHOUSE PLANTS.

MR. SHORTER will SELL by AUCTION, at the Railway Hotel, Caterham, on MONDAY, May 10, a COLLECTION of the above, with the GREENHOUSE and HOT-WATER APPARATUS, 24 feet by 12.

Catalogues on the Premises, and of the Auctioneer, Oxted, Surrey.

To Gentlemen, Florists, and Others,

MESSRS. BLAKE, SON, AND HADDOCK are instructed by the Proprietor to SELL by AUCTION, on the Premises, Croydon Lodge, North Park, Croydon, on WEDNESDAY, May 5, at 1 o'Clock, in convenient Lots, about 600 dozens of choice and well-grown BEDDING PLANTS, including 270 dozens of Mrs. Pollock, Bijou, Trentham Rose, Crystal Palace Gem, Golden Chain, Tom Thumb, Christine, and other named Geraniums; the remainder being Verbenas, Calceolarias, Lobelias, Chrysanthemums, Roses, &c.; about 15 dozens STOVE PLANTS, including fine specimens of Grandiflorus Stanhopea, &c., in baskets; one very large Stephanotis floribunda; also GARDEN CHAIRS, Tables, and Baskets, Tools, Ladders, Lawn Mower, by Samuelson, 26-inch Iron Roller; Bee House, with three of Neighbour's Patent Hives, and two Hives of Bees; small Cart, Garden Engine, Hose, 1-light Box; Barrows, Flower Pots, two Dog Kennels, Set of Brougham Harness, and various Effects.

On view the Afternoon prior to the Sale, and Catalogues had of RICHARD WHIBLEY, The Gardener, at Croydon Lodge; and of the Auctioneers, 32, Nicholas Lane, Lombard Street, E.C., and Croydon.

Highly Important Sale of Established Orchids.

MESSRS. J. C. STEVENS has been favoured with instructions from W. W. Buller, Esq., of Straits Raleigh, to offer for SALE, his entire Collection of ORCHIDS, by AUCTION, Without Reserve, on WEDNESDAY and THURSDAY, May 5 and 6, at Half-past One o'Clock precisely, at the Great Rooms, 38, King Street, Covent Garden, London, W.C. This Collection is perhaps unsurpassed for the variety and rarity of the plants cultivated. It includes many not only of Botanical but Botanical interest, and possesses some extremely rare, if not unique, specimens. It comprises selections from every importation of importance during the last seven years.

In Cattleyas and other Orchids subject to great variation, immense quantities have been purchased at different times, and after flowering the inferior varieties have been destroyed. The specimens now submitted for Sale comprise only the finest varieties, and therefore offer unusual advantages to buyers of this class of plants.

The following comprises some of the principal plants in this Collection:—

Masdevallia Veitchii	Dendrobium Veitchii
" Armini	" thyrsiflorum
" coccinea	" xanthophlebium
" Tovarensis	" chlorops
Ada aurantiaca	" Heyneanum
Angulos Ruckeri	" lituiflorum
Epidendrum cnemidophorum	Cattleya Warneri
" myrianthum	" Exoniensis
Cymbidium eburneum	" Wagneri
Trichopilia crispa	Anguecum arcuatum
" rostrata	" sesquipedale
" coccinea	Aerides Huttoni
Cattleya Schilleriana	" Schroederi
" labiata Sion House	Vanda Lowii
" bulbosa	" Batemanni
Naxodes Medusæ	Oncidium sarcodes
Cypripedium concolor	" fuscopetalum
" candatum roseum	Renanthera arachnites
" hirsutissimum	Phalænopsis grandiflora
" villosum	" amabilis
" Veitchii	" Schilleriana
" Lowii	" Lowii
Dendrobium microglaphys	" Parishii
" biggibum	Odontoglossum roseum
" lasioglossum	" Pescatorei
" Lowii	Brassia glumacea
" Wardianum	" Laurencæana longissima
" Macarthiæ	Pilumna fragrans
" Falconeri	Dendrochilum filiforme
" Bullerianum	

Also a new Cypripedium from Siam, and Hybrid Cattleyas Angulosa, and Calanthes, raised by Mr. Buller.—In the first days' sale will also be included (for a charitable purpose) a few of the rarest and most valuable ORCHIDS, from Mr. Bateman's collection.

On view the Morning of Sale, and Catalogues had.

Manor House, Shacklewell.

CLEARANCE SALE OF GREENHOUSE AND BEDDING PLANTS, &c.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Thomas Crowder, Esq., to SELL by AUCTION, without Reserve, on the Premises, Manor House, Shacklewell, N., on TUESDAY, May 11, at 12 for 1 o'Clock precisely, the whole of the GREENHOUSE and BEDDING PLANTS, consisting of choice Azalea indica, Veronica Hendersoni, Cytisus, Cinerarias, Fuchsias, Pelargoniums, &c.; about 5000 well-grown Geraniums; also a quantity of Calceolaria aurea, Intermediate Stocks, Verbenas, &c.; also some Large Chrysanthemums in Pots; Yuccas, Garden Implements, &c.

On view the day prior to Sale; Catalogues had on the Premises, and of the Auctioneers and Valuers, Leytonstone, Essex, N.E.

Alexandra Palace, Muswell Hill.

VERY EXTENSIVE SALE OF 100,000 BEDDING AND GREENHOUSE PLANTS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Alexandra Palace, Muswell Hill, N., adjoining the Wood Green Station, on the Great Northern Railway, on WEDNESDAY, May 12, at 11 o'Clock precisely, by order of the Directors of the Alexandra Palace Company (Limited), without reserve, the SURPLUS STOCK, about 100,000 BEDDING and GREENHOUSE PLANTS, comprising 40,000 Scarlet Variegated Zonal and other Geraniums, 1000 Fuchsias, 2000 Miscellaneous Greenhouse Plants, 5000 Carnations and Picotees in beds, 2500 Alyssum, 4000 Lobelia speciosa, 1000 Gazania splendens, 5000 Tropæolum, Jacobæa, Ageratum; 2000 Verbenas, 500 Lycopodium and Isolepis, 1000 Cerastium, 6000 Bedding Plants in Store Pots, &c.

May be viewed two days previous and Morning of Sale. Catalogues may be obtained 6*d.* each (returnable to purchasers) of Mr. MCKENZIE, on the Premises; and of Mr. THOS. DIXON, Secretary, Ethelburga House, 70, Bishopsgate Street, E.C.

PROTHEROE AND MORRIS'S PRELIMINARY NOTICE of FORTHCOMING SALES by AUCTION:—

MAY 17.—The NURSERY, FULHAM ROAD, HAMMERSMITH, W., by order of Mr. F. Herridge. 25,000 Bedding and Greenhouse Plants.

MAY 25.—The NURSERY, LEYTONSTONE, ESSEX, N.E. A large quantity of Bedding and Greenhouse Plants, including 7000 beautifully-grown Geraniums.

Richmond.—To Gentlemen, Florists, and Others.

MR. J. WILLMER begs to announce that he has received instructions from Messrs. G. & W. Steel, to SELL by AUCTION, on the Premises, Kew Road Nursery, Richmond, Surrey, S.W., on WEDNESDAY, May 5, at 11 o'Clock, in consequence of the number of Lots, upwards of 12,000 BEDDING and other PLANTS, in Pots, comprising 500 flowering Pelargoniums, 1000 Verbenas, of sorts; 2000 Calceolarias, 3000 Lobelia Paxtoni and speciosa, 4000 Tom Thumb Geraniums, 600 Mrs. Pollock, 500 Bijou, Flower of the Day, and Alma, 300 Cloth of Gold, and Golden Fleece, 300 Madame Vaucher, 300 Christina, 200 large Scarlet Geraniums for Vases; 500 Fuchsias, of sorts; Heliotropes, Hydrangeas, Gazanias, Deutzia gracilis; Iresine Herbstii, Lachenalia maculata, Variegated Arabis, Jasminum revolutum, Maurandia Barclayana, &c.

May be viewed the day preceding and Morning of Sale. Catalogues may be had on the Premises, and of the Auctioneer, Sunbury, Middlesex, S.W.

Wicken Park, near Stony Stratford.

IMPORTANT SALE OF FIRST-CLASS SHORTHORNS.

MR. STRAFFORD is honoured with instructions to announce for SALE by AUCTION, without reserve, on FRIDAY, May 7, at Wicken Park, Bucks, FIFTY HEAD of First-class SHORTHORN BULLS, COWS, and HEIFERS, from the Penrhyn Castle and Wicken Park Herds, bred by and the property of the Right Hon. Lord Penrhyn. Amongst them will be found the Darlington as well as the Wild Eyes tribes, and other good sorts, with some very superior Young Bulls, whose sires are of the famed Duchess family, such as the Duke of Geneva (19,614), 3*d* Duke of Wharfdale (21,619), 11th Grand Duke (21,849), &c.

Catalogues with Pedigrees may be had of Mr. STRAFFORD, 13, Euston Square, London; or Mr. DOIG, Lillingstone Hall, Buckingham; and of Mr. SMITH, Penrhyn Farm, Bangor.

Sale of Shorthorns at Ridlington, Rutland.

MR. JOHN THORNTON will SELL by AUCTION, without any reserve, at Ridlington, near Uppingham, on THURSDAY, May 13, Mr. Wortley's entire Herd of PURE-BRED SHORTHORNS, numbering between FIFTY and SIXTY HEAD, and comprising several animals of the fashionable Bates and Booth Blood, as well as others of the strain from which Mr. Baker reared his prize oxen. Imperial Count (24,183), and Highland Chief (24,142), of prize Booth blood, have recently been used.

Catalogues with pedigrees may be had of JOHN THORNTON, 15, Langham Place, London, W., or at Ridlington.

Sale of First-class Shorthorns and Prize Leicesters.

MR. JOHN THORNTON will SELL by AUCTION, without Reserve, on TUESDAY, May 18, at Costerton, Blackshiels, near Edinburgh, the Choice HERD of PURE-BRED SHORTHORNS and FLOCK of Celebrated BORDER LEICESTER SHEEP belonging to David Ainslie, Esq.

This Herd and Stock are bred from some of the best strains of fashionable blood. For the last seven years their success as prize Animals at the Highland Society and Border Union Shows has been unequalled, the Sheep having won in that period 57 Prizes.

Catalogues with pedigrees and full particulars may be had of JOHN THORNTON, 15, Langham Place, London, W.; or of THOMAS TAYLOR, the Steward at Costerton.

SHANKS'S PATENT LAWN MOWERS FOR 1869.

UNDER THE PATRONAGE
OF
HER MOST GRACIOUS MAJESTY
THE QUEEN,



AND MOST OF THE
PRINCIPAL NOBILITY
OF
GREAT BRITAIN.

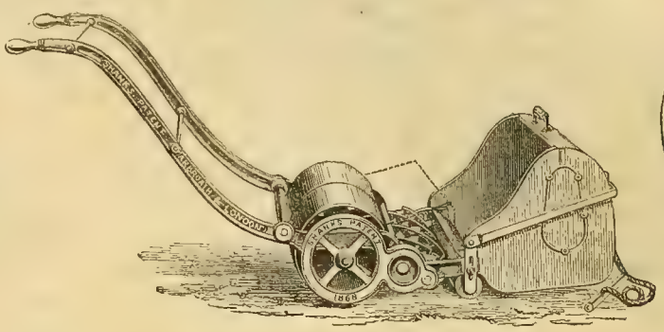
The Patent Improvements recently introduced give Shanks's Machine several important advantages possessed by no other Lawn Mower.

PATENT DOUBLE-EDGED SOLE PLATE, WIND GUARD, &c., &c.

THE UNPRECEDENTED SALE FOR 1868 BEARS TESTIMONY HOW MUCH THESE ADVANTAGES HAVE BEEN APPRECIATED.



THE FIRST PRIZE MEDAL
OF THE
INTERNATIONAL EXHIBITION,
LONDON, 1862.



HAND MACHINE.



THE FIRST PRIZE SILVER MEDAL
OF THE
UNIVERSAL EXHIBITION,
PARIS, 1867.

ALEXANDER SHANKS AND SON, in presenting their "PRICE LIST of LAWN MOWERS for 1869," have much satisfaction in intimating that among all the Exhibitors of Lawn Mowers at the Universal Exhibition of 1867, they are the only Firm to whom the Jury have awarded a Medal.

A. S. AND SON have, in addition to the PATENT DOUBLE-EDGED SOLE PLATE and WIND GUARD, made very great Alterations and Improvements in their Machine. These alterations, which were introduced last Season, have now undergone an effectual trial, and the result has been so successful as to enable A. S. AND SON to offer a Machine which far excels any other that has ever yet been offered, *whether for ease in working, certainty of action, or durability.* It has only to be compared with other Machines, when its superiority will be at once seen and understood.

PRICES—INCLUDING CARRIAGE TO ANY RAILWAY STATION OR SHIPPING PORT IN THE KINGDOM.

SHANKS'S NEW PATENT HAND MACHINE.

		Easily Worked
10-inch Machine	£3 10 0	*By a Lady*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*By a Boy*
16-inch Machine	£6 10 0	*By a Man*
19-inch Machine	7 15 0	*By a Man and a Boy*
22-inch Machine	8 10 0	*By Two Men*
24-inch Machine	9 0 0	

The Hand Machines are all with Silent Movement.

SHANKS'S NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* ,,
30-inch Machine	15 15 0	30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra.
Boots for Pony, 22*s.* per set.; Ditto for Donkey, 18*s.* per set.

SHANKS'S NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* ,,
42-inch Machine	26 0 0	40*s.* ,,
48-inch Machine	28 0 0	40*s.* ,,

Silent Movement, 20*s.* extra. Boots for Horse, 26*s.* per set.

SHANKS'S PATENT LAWN MOWERS

ARE THE ONLY ONES IN DAILY USE IN THE

ROYAL GARDENS AT KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, AND BALMORAL;
IN THE GARDENS OF THE ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON;
IN THE GROUNDS OF THE CRYSTAL PALACE COMPANY, AT SYDENHAM;
IN HYDE PARK, IN VICTORIA PARK, IN BATTERSEA PARK;

And in many hundreds of the principal Gardens in the Kingdom, as well as abroad, where their merits have been fully proved and their success firmly established.

Every Machine warranted to give ample satisfaction, and, if not approved of, can be at once returned.

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH,
AND
27, LEADENHALL STREET, LONDON.

27, *Leadenhall Street is the only place in London where intending purchasers of Lawn Mowers can choose from a Stock of from* 150 *to* 200 *Machines. All sizes kept there, whether for Horse, Pony, or Hand Power.*

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by James Matthews, at the Office of Messrs. Bradbury, Evans & Co., Lombard Street, Precinct of Whitefriars, City of London, in the Co. of Middlesex, and Published by the said James Matthews, at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—Saturday, May 1, 1869.

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 19.—1869.] SATURDAY, MAY 8. {Price Fivepence. {Stamped Edition, 6d.

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Foreign correspondence	202 b	St. Petersburg, exhibition and Botanical Congress at	498 a
— — Ballarat	511 c	Sweet William, the	498 c
Formation of mould by worms	501 c	Terra cotta statues	501 b
Foxes v rabbits	508 c	Tobacco for sick poultry	515 c
Garden memoranda	505 a	Town gardening	506 c
Gymnogrammas, novel forms of	498 b	Tulips at Belvoir	502 a
Land-law, English and Irish	507 c	Turban Ranunculus	502 a
Milk of the sow	511 a	Vegetable growing in north	501 a
Miscellaneous	505 c	Vine-borders, surface cropping	502 b
Plants, exhibition, smaller-sized pots for	497 b	Wheat, cause of rust in	511 c
Plants, new	498 c	Window gardening in towns	500 a
Poultry, economy in feeding chickens	515 b		

CRYSTAL PALACE.—GRAND FLOWER SHOW, SATURDAY, May 15. Exhibitors are particularly requested to forward their Entry Papers (by post) not later than Saturday, the 8th inst.

NOTE.—Entries for the Bouquet Exhibition may be made as late as Wednesday. 1. WILKINSON, Superintendent.

READING HORTICULTURAL SOCIETY.—The SPRING SHOW will be held on THURSDAY, May 27 (by permission of the Mayor), in the ABBEY RUINS, READING. A Band will attend as usual. The Show will be open to the holders of Subscribers Tickets at 1 o'clock, and to the Public at 4 on payment of 1s. All ENTRIES should be made on or before MAY 20, to CHARLES COLLINS, Hon. Sec, 31, Chain Street, of whom Schedules and all information can be procured.

GRAND HORTICULTURAL SHOW at COLCHESTER, on JUNE 15 and 16, in connection with the Essex Agricultural Exhibition. £150 in Prizes, including Special Prizes amounting to £85, open to all England, without entrance-fee. 12 Ornamental and Fine-foliage Plants, 1st, £12; 2d, £6; 3d, £3. 12 Stove or Greenhouse Plants, 1st, £12; 2d, £6; 3d, £3; and for Roses, Hand Bouquets, Ferns, Fruits, &c.
Prize Lists and all needful information may be obtained gratis of the Secretary, Mr. WM. HARRISON.

BIRMINGHAM ROSE SHOW, JULY 1 and 2.—For Prize Lists, apply to Mr. A. FORREST, Secretary, Cherry Street, Birmingham. ENTRIES CLOSE JUNE 26.

LEICESTERSHIRE HORTICULTURAL SOCIETY.—The GREAT SUMMER SHOW of this Society will be held at LEICESTER, on JULY 6 and 7 next, when Special Prizes will be given for Cut Roses and Collections of Bedding Plants, arranged for effect in pots, open to all England. Prizes will also be offered for British and Foreign Cage Birds.
Schedules and particulars may be had of the Secretary,
WM. PENN COX, 37, Market Place, Leicester.

CIRENCESTER HORTICULTURAL SOCIETY, 1869.—The ANNUAL SHOW of FLOWERS, FRUIT, and VEGETABLES will be held in Earl Bathurst's Park, at Cirencester, in connection with the Gloucestershire Agricultural Society's Exhibition, on THURSDAY and FRIDAY, August 5 and 6. Schedules of Prizes and Rules of the Society are now ready, and may be had on application to Mr. C. S. SMITH, Hon. Sec.; or of Mr. JAMES TRINDER, Sec., both of Cirencester.

SPECIAL PELARGONIUM SHOW at KENSINGTON, on the 22d inst.—FIVE POUNDS has been raised, to be offered as a PRIZE for the best ESSAY, by an Amateur, on the History, Future Changes, Points of Merit, and Cultivation of the highly-coloured Leaved Varieties of PELARGONIUMS.
Amateur Growers are respectfully invited to compete. The Essays must be sent in by the 17th inst., to the Sub-Committee of the Floral Committee, which has been appointed to adjudicate upon them.—For further particulars apply to Mr. T. MOORE, Botanic Gardens, Chelsea, S.W.

The Manchester Exhibition.

AAC DAVIES respectfully invites admirers of HODODENDRONS, who may be attending the above, to at his CHOICE SEEDLINGS, half an acre of which will N be in BLOOM. Railway from thence direct to his Nursery, Brook Lane, Ormskirk.

Azalea indica.

J. IVERY AND SON'S splendid Collection of the above is NOW in BLOOM, and will continue until the middle of June to be well worth inspecting, as will also their fine Collection of BRITISH FERNS. Dorking Nursery, May 3.

NEW ROSES of 1869.—A choice selection only, in fine plants, including Tea-scented, 30s. and 36s. per dozen.
DOWNIE, LAIRD & LAING, Forest Hill, S.E.

NEW ROSES.—Twelve of the best of 1869, in 6-inch pots, for 36s. Fine BEDDING PLANTS, including Mrs. Pollock, 25s. per 100, cash. Baskets and packing included.
GEORGE DAVISON, White Cross Nurseries, Hereford.

NEW ROSES of 1869.—All the best varieties; 2000 fine strong plants. DESCRIPTIVE LIST on application.
JOHN CRANSTON, Nurseries, King's Acre, Hereford.

EXTRA STRONG ROSES, in pots.—Several thousand Tea-Scented, Noisette, and Hybrid Perpetual varieties, together with the best NEW ROSES of 1868.
DESCRIPTIVE LIST on application.
JOHN CRANSTON, Nurseries, King's Acre, Hereford.

Roses.

JOHN CRANSTON will be happy to forward on application his DESCRIPTIVE CATALOGUE of ROSES for 1868 and 1869. For quality or quantity the stock is unsurpassed; the Manetti Roses especially are acknowledged to be the finest grown plants in the Trade.
Nurseries, King's Acre, near Hereford.

"Mr. PAUL's Roses * * * are things to see once and dream of for ever."—*Athenæum.*

WM. PAUL begs to announce that his CATALOGUE of ROSES is now ready, and will be forwarded free on application.
PAUL's Nurseries, Waltham Cross, London, N.

Gladioli, the most Extensive Collection.

BARR AND SUGDEN, 12, King Street, Covent Garden, W.C., have the finest and largest collection of GLADIOLI ever offered, prices varying from 2d. to 15s. per root. For particulars see pp. 68, 69, 70, and 71 of B. & S.'s SPRING SEED CATALOGUE.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

Choice Seeds, Gladioli, &c.

WM. CUTBUSH AND SON'S CATALOGUE of the above contains description and price of many very superior home-grown VEGETABLE and FLOWER SEEDS, and choice varieties of GLADIOLI, &c., all of which are highly recommended. Post free on application.
Highgate Nurseries, London, N.

Coleus, Coleus.

FOUR NEW GOLDEN COLEUS of the Royal Horticultural Society, 1869—Her Majesty, Prince of Wales, Princess of Wales, and Prince Arthur. The four free by post for 5s.
PHILIP LADDS, Nursery, Bexley Heath, Kent.

SIX GRANDEST COLEUS for BEDDING, for Six Shillings, viz.:—

Her Majesty	Prince of Wales
Bausei	Berkeleyi
Batemanni	Dixii

R. TANTON, F.R.H.S., The Nurseries, Epsom.

New Verbenas.

JOHN KEYNES will be ready to send out the 12 splendid VERBENAS (price 3s. 6d. each) raised by Mr. Eckford, on May 1. A Plate of six of these splendid Flowers will be sent on receipt of 16 postage stamps.
Salisbury, April 3, 1869.

New Verbenas.

WM. KNIGHT will be ready to send out his six splendid SEEDLING VERBENAS on and after May 1, at 3s. 6d. each. They were all awarded First-class Certificates at the Brighton September Show, 1868. The usual discount to the Trade.
Floral Nursery, Hailsham, Sussex.

OSBORNS' PURPLE BEDDING VERBENA.—Plants are now being sent out of the above at the following prices:—One plant, 2s. 6d.; 12 plants, 18s.; 50 plants, 60s.; 100 plants, 100s. For description and Testimonials, see previous Advertisements. The usual Trade discount.
OSBORN & SONS, Fulham Nursery, London, S.W.

Dahlias.

JOHN KEYNES, NURSERYMAN, Salisbury. Twelve splendid Show Flowers. Four Fancy ditto. Obtained First-class Certificates at many exhibitions. CATALOGUES ready.

WANTED, a Large Quantity of TOM THUMB and other GERANIUMS; also FUCHSIAS, VERBENAS, LOBELIAS, and all kinds of BEDDING PLANTS.
FLORIST, 21, Ray Street, Stalybridge.

PELARGONIUM, KENTISH HERO.—This was decidedly the best Gold and Bronze bedder in the trial ground at Chiswick last summer. First-class Certificate; the only one awarded in that Section. 24s. and 30s. per dozen in May.
DOWNIE, LAIRD & LAING, Forest Hill, S.E.

Bedding Geranium, from

JOHN KEYNES, NURSERYMAN, Salisbury: LITTLE PINKIE.—Salmon pink colour, fine close dwarf habit, most profuse bloomer. One of the greatest acquisitions for Bedding purposes ever yet produced; this will last for many years; has been fully proved. A perfect gem. The finest Bedding Geranium in the Trade. 18s. per doz. Fine Plants on May 1.

British Fern Catalogue.

ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, Sidcup Hill, Kent.

Gratis and Post Free.

DICK RADCLYFFE AND CO.'S LIST of BEDDING PLANTS, FERNS, FERN CASES, &c.
129, High Holborn, W.C.

JOHN STANDISH AND CO.'S SPRING CATALOGUE of NEW and RARE, SUBTROPICAL and BEDDING PLANTS is now ready. May be had post free on application.
Royal Nurseries, Ascot.—May 1.

Bedding Plants.

JOSEPH WESTLEY invites the special attention of the Trade and intending purchasers, to his large and fine stock of BEDDING and other PLANTS. Inspection invited.
CATALOGUES free on application.
The Floral Nursery, Blisworth, near Northampton.

To Persons Building Large Conservatories.

A NUMBER of LARGE CAMELLIAS, some 20 feet high; ORANGE TREES, and other Plants, to be Sold.—Apply, by letter, to P., Mr. David Walter, Bell Yard, E.C.

DWARF BOX EDGING, 4d. per yard. 1 yard sufficient to plant 3 yards.
JOHN CRANSTON, Nurseries, King's Acre, near Hereford.

HERBACEOUS and ALPINE PLANTS, of the best and most attractive. Prices very low. CATALOGUES free.
STEPHEN BROWN, Nursery, Sudbury, Suffolk.

ALLAMANDA WARDLEIANA.—This magnificent plant is NOW READY, at 21s. each.
A Coloured Plate by Andrews, taken in December, post free for 13 stamps.—R. TANTON, F.R.H.S., Epsom Nurseries, Surrey.

PINES, Fruiting and Succession.—Very fine, from a stock that never had scale. Surplus stock will be Sold, cheap.
M. ROCHFORD, Market Gardener, Page Green, Tottenham, N.

Pines.

B. S. WILLIAMS has all the best kinds, in splendid condition, warranted clean. Prices on application.
B. S. WILLIAMS, Seed Merchant and Nurseryman, Upper Holloway, London, N.

Royal Ascot or Perpetual Vine.

MESSRS. JOHN STANDISH AND CO. are now selling fine strong plants of this extraordinarily productive VINE at 21s., 42s., and 63s. each.
Royal Nurseries, Ascot, Berks.

ORCHARD-HOUSE TREES Fruiting in Pots.—Peaches, Nectarines, Apricots, Cherries, Plums, Pears, Apples, Vines, and Figs.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

ADAM FORSYTH'S CATALOGUE of New and Choice CHRYSANTHEMUMS for 1869 is now ready; containing also a practical Treatise on their Cultivation. Forwarded to all applicants for one stamp.
Brunswick Nursery, Stoke Newington, N.

New Chrysanthemums, Pyrethrums, &c.

JOHN SALTER AND SON beg to announce that they are now sending out their NEW JAPANESE and other CHRYSANTHEMUMS, PYRETHRUMS, &c. A DESCRIPTIVE CATALOGUE will be forwarded on receipt of two postage stamps.
Versailles Nursery, William Street, Vale Place, Hammersmith, W. (near Kensington Railway Station).

Sow Now.

TREE MIGNONETTE SEED, saved from exhibition plants, 2s. 6d. per packet.
R. TANTON, F.R.H.S., The Nurseries, Epsom, Surrey.

SCOTT'S SUPERB PRIMULA FIMBRIATA, 6 var., mixed, or each colour separate, 1s. 6d. and 2s. 6d. per pkt.
SCOTT'S SUPERB CINERARIA and CALCEOLARIA, 1s. and 2s. 6d. per packet.
SCOTT'S SUPERB EXHIBITION ASTERS, STOCKS, &c., &c.
See former Advertisments, or SEED CATALOGUE.
J. SCOTT, The Seed Stores, Yeovil, Somerset.

B. S. WILLIAMS' DESCRIPTIVE CATALOGUE of FLOWER, VEGETABLE, and AGRICULTURAL SEEDS, &c., is now ready; post free to all applicants.
Victoria and Paradise Nursery, Upper Holloway, London, N.

New Spring Catalogue.

CHARLES TURNER'S DESCRIPTIVE LIST of PLANTS for this season, including many new varieties now offered for the first time, is now ready.
The Royal Nursery, Slough.

General Catalogue.

WILLIAM ROLLISSON AND SONS beg to inform the Nobility, Gentry, and Trade that their NEW GENERAL CATALOGUE, consisting of upwards of 150 pages of letterpress, and containing nearly every Plant, Shrub, or Tree worthy of merit in cultivation, is now Published, and will be forwarded to applicants on receipt of eight postage stamps, and sent gratis to customers.
The Nurseries, Tooting, London, S.W.

Agricultural and Garden Seeds.

H. AND F. SHARPE'S SPECIAL PRICED LIST of HOME-GROWN SEEDS is now ready, and may be had on application.
Seed Growing Establishment, Wisbech.

EVERY GARDEN REQUISITE KEPT in STOCK at CARTER'S New Seed Warehouse, 237 and 238, High Holborn, London.

CARTER'S FARM SEEDS.—See large Advertisement at page 386 of *Gardeners' Chronicle*, April 10, 1869.
SEED GROWERS, MERCHANTS, and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

GRASS SEEDS: WHEN and WHAT to SOW.—For the fullest information on this subject, see CARTER'S ILLUSTRATED FARMER'S CALENDAR for 1869; post free, 6d.
JAMES CARTER & Co., Seed Growers, 237 and 238, High Holborn, London, W.C.

A SPECIAL PRIZE MEDAL, PARIS, 1867, was AWARDED to JAMES CARTER & Co., 237 & 238, High Holborn, London, W.C., for GRASS SEEDS, supplied for the Exhibition Grounds.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c.
Free for one postage stamp.
RICHARD SMITH, Seed Merchant, Worcester.

SUTTONS' GRASS SEEDS for ALL SOILS.
First Prize Silver Medal, Paris, 1867.

SUTTONS' PERMANENT MIXTURES		
For Pastures, 20s. to 32s. per acre.	For Parks, 18s. per bushel. Carriage Free.	For Lawns, 20s. per bushel.

SUTTON & SONS, Seedsmen to the Queen, Reading.

SUTTONS' CHAMPION SWEDE, the hardiest and best in cultivation. Lowest price per bushel on application.
SUTTON & SONS, Seed Growers, Reading.

SUTTONS' HOME-GROWN TURNIP SEEDS, NEW and UNADULTERATED.
SUTTONS' PRICED CATALOGUE of the above, and other FARM SEEDS, may be had on application.
All goods carriage free, except very small parcels.
SUTTON & SONS, Seedsmen to the Queen, Reading, Berks.

KENNEDY'S IMPROVED TURNIP SEEDS.—The Subscribers beg to call the special attention of Agriculturists to their extra selected stocks of Turnip Seeds, which for size, shape, and quality cannot be surpassed. Prices furnished on application, and free delivery as formerly.
THOMAS KENNEDY & Co., Seed and Nursery Establishment, Dumfries.

To the Trade.

HALL'S IMPROVED WESTBURY SWEDE, growth 1868, net; price, 20s. per bushel.
SCARLET RUNNER BEANS, fine sample, 1867 growth, 20s. p. bush.
FREDK. GEE, Seed Merchant and Grower, Biggleswade, Beds.

Mangel Wurzel Seed.

JOHN SHARPE can offer on good terms, from highly selected Stocks, and his own growing this year.
Bardney Manor, Lincoln.

To the Trade.

TURNIP and MANGEL SEEDS, growing crop of 1869, splendid stocks, various kinds.
FREDK. GEE invites attention to the above, and will be pleased to make special offers of the same on advantageous terms.
Seed Establishment, Biggleswade, Beds.

1868.—Mangel Wurzel Seed.

H. AND F. SHARPE can offer the Trade some splendid STOCKS of the above-named Seed, grown on their own Farm this season from picked Bulbs. The quality is very fine, and prices low. Samples may be obtained on application.
Seed Growing Establishment, Wisbech.

GIANT ASPARAGUS PLANTS, the best that money can procure, 2s. 6d. per 100. This delicious Vegetable does not require half the expense usually incurred in planting it.
See RICHARD SMITH'S SEED LIST for 1868.
Extra strong SEAKALE, 2s. per dozen.
RICHARD SMITH, Nurseryman, Worcester.

CARTER'S PRIMULA, CALCEOLARIA, and CINERARIA.

J. C. & Co.'s strain of Calceolaria is saved from plants that were awarded a 1st Prize at the late International Snow. The Cineraria and Primula stocks are also saved from the finest Prize Varieties, and cannot be surpassed.

CALCEOLARIA and CINERARIA.

Per packet—s. d.		Per packet—s. d.	
Calceolaria, finest hybrid ..	2 6	Calceolaria, Dobson's strain..	2 6
,, ,, spotted..	2 6	Cineraria, extra fine	2 6

PRIMULA.

Per packet—s. d.		Per packet—s. d.	
Primula, choicest mixed, fringed	2 6	Primula, choicest white fringed	2 6
,, ,, dark carmine, fringed	2 6	,, ,, Fern-leaved carmine	2 6
,, ,, rose, fringed	2 6	,, ,, white ..	2 6

CALCEOLARIA INTERNATIONAL PRIZE.—The Seed of this superb strain cannot fail to produce splendid varieties, as last season's plants took 1st Prizes wherever exhibited. Per pckt., 2s. 6d.

PRIMULA FIMBRIATA (New scarlet).—This is a decided novelty, being of a deep scarlet colour, and cannot fail to be much admired wherever grown. Per packet, 2s. 6d.

INDIA-RUBBER ROSE at Manufacturer's prices, 60 feet (with complete fittings), 25s.

JAMES CARTER & Co., The Royal Seedsmen, 237 and 238, High Holborn, London, W.C.

HOLLYHOCKS, 1-yr. old, from cuttings, of the choicest mixed double varieties.

CALCEOLARIAS, Spotted, a large quantity, in 3½ and 4-inch pots; also a lot extra fine, just showing for bloom, in 5-inch pots, at very reasonable prices per dozen or 100.

H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

SPLENDID HOLLYHOCKS.—Colonel Vassal, Cygnet, Decision, Edward Speed, El Dorado, Gladiator, Glory, Glory of Walden, Hercules, James Anderson, John Downie, Lady Polworth, Lady Paxton, Mrs. Bruce Todd, Mrs. Hastie, Lord Lyons, Rev. H. Dombrain, Willingham Defiance, Mrs. Todd, Desdemona. Any of the above, in fine Plants, 1s. 6d. each. Walden Primrose, Whitley King, William Craven, Rose d'Amour, Nobilis, Midnight, Gem, Lady Middleton, Favourite, Gem of Yellows—improved, 2s. 6d. each.

HENRY MAY, The Hope Nurseries, Bedale.

Superb Double Hollyhocks.

NOW IS THE TIME FOR PLANTING TO ENSURE GOOD SPIKES AND BLOOMS THIS SEASON.

WILLIAM CHATER'S CATALOGUE of his unrivalled Collection may be had upon forwarding one postage stamp. Choice Bloomed Seedlings, with colours attached, 40s. per 100. Unbloomed Seedlings, from finest named varieties, 25s. per 100. SEEDS, saved only from first-class flowers, in packets and collections, from 1s. to 10s. 6d.

Special prices for quantities to the Trade on application.

WILLIAM CHATER, The Nurseries, Saffron Walden.

Selling off at a Great Reduction.

DAHLIAS, HOLLYHOCKS and BEDDING PLANTS of every description.

JOHN HARRISON begs to inform his Friends and Patrons that he is now selling off the whole of his Stock of DAHLIAS and BEDDING PLANTS at prices that will defy competition, in order to make room for Roses, &c.

Darlington Nursery, May 8.

NEW DAHLIAS of 1868.—Albion, Caroline Tetterell, Flag of Truce, Hebe, Guardsman, John Kirby, Memorandum, Miss Turner, Purple Gem, Rosy Circle, Rosy Queen, Rosamond, Samuel Naylor, Vivette. The above, 9d. each. James Bennett (May), Golden Fleece (May), sent out May, 1869, at 1os. 6d. each.

CATALOGUES on application to HENRY MAY, The Hope Nurseries, Bedale, Yorkshire.

SPLENDID EXHIBITION DAHLIAS.—Alexandra, Andrew Dodds, Anna Keyes, Artemus Ward, Arthur, Aurora, Baron Taunton, Bellona, Bird of Passage, Blushing Fifteen, Bob Ridley, British Triumph, Bullion, Chairman, Charles Turner, Charlotte Dorling, Coronet, Clara Simmons, Criterion, Delicata, Donald Beaton, Earl of Pembroke, Earl of Shaftesbury, Epaulette, Fair Imogene, Fanny Purchase, Flossy Gill, Flambeau, Favourite, Freemason, Gazelle, George Wheeler, George White, Golden Admiration, Golden Drop, Golden Gem, Goldfinder, Harriet Tettorell, Harry, Helen Potter, Hero, Homer, Hugh Miller, Imperial, James Backhouse, Jenny Austin, Joy, John Downie, John Sladden, Juno, Lady Elcho, Lady G. Herbert, Lady J. Ellis, Lady M. Wilde, Leah, Lord Clyde, Lord Derby, Lord Palmerston, Lotty Atkins, Marquis of Winchester, Master of Arts, Mathilda, Miss Henshaw, Miss Roberts, Mr. Bushell, Mrs. Boston, Mrs. Savory, Mrs. Thornhill, Norfolk Hero, Paradise Williams, Peri, Picotee, Princess, Princess Alice, Stella Colas, Umpire, Valentine, Vice-President, Volunteer, William Dodds, Willie Austin, Yellow Triumph.

FANCY DAHLIAS.—Angelina, Attraction, Chang, Coquette, Ebor, Frank Tffin, Gem (Pope), Gem (Stafford), Harlequin, Hercules, Jeanne Deans, John Bunn, John Salter, Leopard, Nora Creina, Puno, Queen Mab, Salamander, Sam Bartlett, Startler, Summerfield.

Purchaser's selection from any of the above, 3s. per dozen.

HENRY MAY, The Hope Nurseries, Bedale, Yorkshire.

New and Choice Flower Seeds, Post Free.

B. S. WILLIAMS,
SEED MERCHANT AND NURSERYMAN,
Victoria and Paradise Nursery, Upper Holloway, London, N.

	Per packet.—s. d.
WILLIAMS' SUPERB STRAIN of PRIMULA.—B. S. W. can with confidence offer his superb strain of Primula as being the finest in cultivation.	
Red, White, or Mixed .. .. .. 2s. 6d., 3s. 6d., and	5 0
CINERARIA (Weatherill's extra choice strain) .. 2s. 6d. and	3 6
CALCEOLARIA (Neill's extra choice strain), 2s. 6d., 3s. 6d., and	5 0
,, (Daiketh Palace strain) .. ..1s. 6d. and	2 6
CARNATION, from Prize Flowers	1 0
CYCLAMEN (Wiggins' prize strain) .. 1s. 6d., 2s. 6d., and	3 6
POLYANTHUS (Wiggins' prize strain) .. .. 1s. 6d. and	2 6
BALSAM (Williams' superb strain) .. .. .. 1s. 6d. and	2 6
CLIANTHUS DAMPIERI (fresh imported seed)	1 6
GERANIUM LE GRAND .. .. 1s. 6d. and	2 6
SOLANUM (Weatherill's hybrids).—B. S. W. was awarded a Special Certificate for a Collection exhibited before the Floral Committee, December 15, 1868 2s. 6d., 3s. 6d., and	5 0
ECHEVERIA METALLICA (new Bedding plant)	2 6
HOLLYHOCK, from the best named sorts..	1 0
PANSY, from prize flowers	1 0
,, finest Belgian varieties	1 0
PINK, Double-fringed, very fine	1 0
PICOTEE (from prize flower)	1 0
SWEET WILLIAM, Hunt's Auricula-eyed .. 6d. and	1 0
OXALIS VALDIVIANA, quite hardy, the flowers are bright yellow and sweet scented, and produced in bunches of large size	1 0
PALAVA FLEXUOSA, very pretty annual (new)	1 0
MYOSOTIS AZORICA ALBA, the flowers are pure white, contrasting beautifully with the blue variety Celestina (new)	2 6
MYOSOTIS AZORICA var. CELESTINA, beautiful sky blue	1 6
AMARANTHUS SPECIOSUS AUREUS (New Golden Prince Feather)	1 0
ANTIRRHINUM ASARINA, very beautiful for rockwork (new)	1 0
HELICHRYSUM APICULATUM (new)	1 0
MIMULUS REPENS, this is a very distinct species, the flowers are of a pale blue-purple colour, the lower lip being prettily spotted with orange on a yellow ground (new) ..	1 0
ARGOVIA ARENARIA, the flowers are of a pure waxy yellow, deliciously scented, and produced in long succession (new)	1 0
ZINNIA ELEGANS TAGETIFLORA fl.-pl. (new)	1 0
ORNAMENTAL GRASSES, small packets	0 6
Imported GLADIOLUS, ASTERS, STOCKS, WALLFLOWERS, Zinnias, &c., in Collections, as imported.	

Victoria and Paradise Nursery, Upper Holloway, London, N.

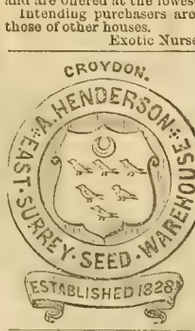
Vegetable, Agricultural, and Flower Seeds.

MISCELLANEOUS HARDY BEDDING PLANTS, SWEET VIOLETS, &c.

ROBERT PARKER begs to announce that his CATALOGUE, containing DESCRIPTIVE LISTS of the finest kinds in cultivation of the above-named, is now published, and will be forwarded to applicants. The stocks of Seeds have all been procured from the best possible sources; all are warranted genuine, and are offered at the lowest possible prices.

Intending purchasers are requested to compare the prices with those of other houses.

Exotic Nursery, Tooting, Surrey, S.W.



Bedding Plants.

ARCHD. HENDERSON'S DESCRIPTIVE and PRICED CATALOGUE of BEDDING PLANTS is now ready, containing all the novelties of the past two years. The Stock is in fine condition; for extent and vigour unsurpassed.

Purchasers are respectfully invited to inspect the Stock at Sion Nursery, Whitehorse Road, Croydon.

Special offers will be made for large quantities.

Catalogues to be had gratis, and post free on application.

New Golden Coleus.

H. WALTON having a fine stock of the following, is now prepared to send them, established in pots, or free by post when six or more are taken:—

	Each.—s. d.		Each.—s. d.
Albert Victor	2 6	Candollei	1 0
Beauty of St. John's Wood	2 6	Duke of Edinburgh ..	1 6
Princess Beatrice	2 6	Hendersoni	1 0
Prince Arthur	2 6	Masterpiece	1 0
Princess Roya	2 6	Model	1 0
Prince Leopold	2 6	Princess of Wales	1 0
Queen Victoria	2 6	Prince of Wales	1 0
Baroness Rothschild ..	2 6	Refulgens	1 0

The above eight for 18s. The above eight for 8s.

Edgend, Marsden, Lancashire.

New and Choice Stove Plants and Ferns.

JOHN H. LEY, NURSERYMAN, Croydon, begs to offer the following, at very low rates, for cash:—

	Each.—s. d.		Each.—s. d.
Alocasia Jenningsii ..	5 0	Eranthemum Andersoni,	
Allamanda Hendersoni ..	1 0	3s. 6d. and	5 0
Anthurium magnificum ..	2 0	Gymnogramma Laucheana..	1 6
Fittonia Argyroneura ..	1 6	Sanchezia nobilis variegata..	2 6
Eriocnema marmorata ..	2 6	Selaginella Poulterii	1 0
Anemia fraxinifolia	1 0	Croton interruptum	3 6
Cheilanthes hirta	1 6	Dracæna terminalis	1 6
Onychium japonicum ..	1 6	,, ferrea	1 0
Didymochlæna truncatula ..	1 6	Griffinia Blumenaria	2 0
Pteris tricolor	1 6	Eranthemum igneum ..	2 0
,, serrulata cristata ..	1 6	Alsophila australis (Tree Fern)	2 6
Gymnastachyum Pearcei ..	1 6	Lomaria gibba	1 6

Or one of each, hamper included, sent on receipt of Post Office order for 42s.

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HENRY WALTON begs to inform his Friends and the Public that his NEW SPRING CATALOGUE is now ready, containing all the newest and most select Pelargoniums, Tricolor, Gold and Bronze; Show and Fancy, Ivy-leaved and Double Geraniums; Fuchsias, Petunias, Verbenas, Dahlias, Show and Fancy; bedding and other New and Rare Plants, &c.

Edge End, Marsden, near Burnley, Lancashire.

To the Trade.

C. WHITEHOUSE, Brereton Nursery, Rugely, has to offer HOLLIES, 18 inches to 2 feet, 2 to 3 feet, 3 to 4 feet; also TREE BOX in sizes, YEWS, 3½ to 4 feet, well rooted and well furnished Plants, grown singly and stout; also 3-yr Seedling BERBERRIES, and 2-yr seedling YEWS. Price will be reasonable, as the stock is large.

Lilium Washingtonianum.

W. THOMPSON, SEEDSMAN, Tavern Street, Ipswich, respectfully begs to offer SEED of the above splendid NEW LILY, just received direct from California. It is of robust habit, growing 3 to 5 feet high, and produces very large, highly fragrant white flowers, spotted internally, and changing to blush before fading. Price 2s. 6d. per packet, post free. Price to the Trade per 1000 on application.

Cheap Bedding Plants, from 2s. per dozen.

J. SCOTT, Merriott, Somerset, has to offer the above, selected by purchasers from his Catalogue, which will be sent free to all applicants.

J. S. also offers the following, his selection, viz.:—100 GERANIUMS, sorted; 100 VERBENAS, do.; 100 CALCEOLARIAS, do.; 300 Mixed plants, do., including the NEW COLEUS of the Horticultural Society, at 12s. per 100, or half at 13s. per 100.

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THOMAS PERKINS, 42, Drapery, Northampton.

N.B.—Price to the Trade on application.

West of England Bedding Plant Establishment.

BEDDING PLANTS.

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Orders sent out in rotation.

PETER DRUMMOND, Manager.

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BLUE BELL.

First-class Certificate, 1868. "*It was decidedly the gem of the season, and was greatly admired.*"—Report of Pelargoniums grown at Chiswick in 1868.

WM. PAUL begs to offer good plants of the above magnificent BEDDING GERANIUM, which he believes to be the finest ever yet raised, on the following terms, on and after May 15:—Single plants, 1s. 6d. each; 12 plants, 12s.; 50 Plants, £2 2s.; 100 plants, £4.

Description.—Flowers bluish tinted rose, large and good shape, trusses large and close, habit dwarf and compact, but very free both in growth and flowering; very effective.

NEW GOLDEN VARIEGATED GERANIUMS.—Plutarch, 15s. each; Rouge-et-Noir, 15s. each; Goldfinch, 10s. 6d. each.

A NEW SET of BEDDING GERANIUMS, Beaton's race, 5s. each; 42s. per dozen.

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BEGS TO DRAW PARTICULAR ATTENTION TO

THE FOLLOWING PLANTS CONTAINED AMONGST OTHERS

IN HIS NEW CATALOGUE (No. 126).

NEW GESNERACEOUS PLANTS. IRESINE LINDENI.

ORNAMENTAL SHRUBS (in pots); ACER (Maples), variegated, purple, rose, &c.; Magnificent AUCUBAS; HOLLY (Ilex, 455), the prettiest and most miniature of all; Choice CONIFERS, HERBACEOUS NOVELTIES, DRABA VIOLACEA, GUNNERA MANICATA, Variegated TRICYRTIS, Terrestrial ORCHIDS, New Japanese ORANGES, SARRACENIAS, Large importation of blue and tricolor TROPÆOLUMS, DAHLIAS, ERYTHRINAS (new kinds), PANICUM MAXIMUM, PENTSTEMONS, PETUNIAS, PHLOXES, PRIMULAS, &c., &c.

IRESINE LINDENI (VAN HOUTTE).

To be sent out on May 20.

LOUIS VAN HOUTTE has much pleasure in offering to his numerous Patrons, for the first time, this exceedingly effective ornamental plant. The description given of it (see page 38 of Catalogue) by one whose judgment in these matters is undisputed, will, he is confident, be fully borne out during the ensuing season. The excessive heat of last summer in no way diminished the beauty and luxuriance of those which were planted in the open ground fully exposed to the sun. They were found to be equally unaffected by 5 degrees of frost (27 Fahr.).

The Iresine Lindeni has been awarded First Prizes at Liege, Brussels, and Louvain; a First-class Certificate by the Société Impériale d'Horticulture of Paris; Certificates by the Royal Botanic Society, Regent's Park; the Royal Horticultural Society, South Kensington; and an Extra Prize at the Crystal Palace, Sydenham.

The difficulty of preserving the Iresine Herbstii during the winter is but too well known; fortunately this disadvantage is not shared by the I. Lindeni. All that it requires in the winter months is a cold greenhouse, where its robust constitution enables it to pass the season successfully with but little attention.

ROYAL GHENT NURSERY, BELGIUM.

Established 1806.

T. HANDASYDE AND DAVIDSON have a large stock of DAHLIAS and ROSES in Pots. Special prices to the Trade on application.
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DRIVES, &c.—NOW BEING THE BEST TIME TO PLANT YEWS, HOLLIES, TREE BOX, &c.,

C. WHITEHOUSE, Brereton Nursery, Rugely, begs to offer stout bushy YEWS and HOLLIES, 1 to 4½ feet TREE BOX (always dry under for Pheasants, in wet weather) about 4 feet; and as he holds a very large stock of the above, the price will be very reasonable.

New Plants to be sent out by

M. J. LINDEN in the spring of 1869.
ALLOPLECTUS BICOLOR (Linden).
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BROWNEA ANTIOQUENSIS (Linden). [June 1.
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CYANOPHYLLUM SPECTANDUM (Linden), now being sent out.
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FICUS DEALBATA (Linden), ready for delivery.
FITTONIA GIGANTEA (Linden), to be sent out on June 1.
GODOYA SPLENDIDA (Planchon).
GRIAS ZAMORENSIS (Linden).
IRESINE LINDENI (Van Houtte).
MARANTA (PHRYNIUM) AMABILIS (Linden).
MARANTA (CALATHEA) CHIMBORACENSIS (Linden), ready for delivery on June 1.
MARANTA (PHRYNIUM) PRINCEPS (Linden), to be sent out on 1st June.
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MARANTA (CALATHEA) VIRGINALIS (Linden).
MARANTA VIRGINALIS, VAR. MAJOR.
MATISIA CORDATA (Humb. and Bonpl.).
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Royal Zoological and Horticultural Gardens, Brussels.

SUTTONS' GRASS SEEDS for ALL SOILS,
Carriage free.

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SEEDSMEN to the QUEEN,
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H.M. THE QUEEN. — have still on hand each variety of the various cleaned — H.R.H. THE PRINCE OF WALES.

PERMANENT PASTURE GRASSES and CLOVERS,
suitable for various descriptions of soils.

For PERMANENT PASTURES, 20s. to 32s. per acre, } Carriage
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Special estimates given for large quantities.
For further particulars apply to SUTTON & SONS, Reading, Berks.

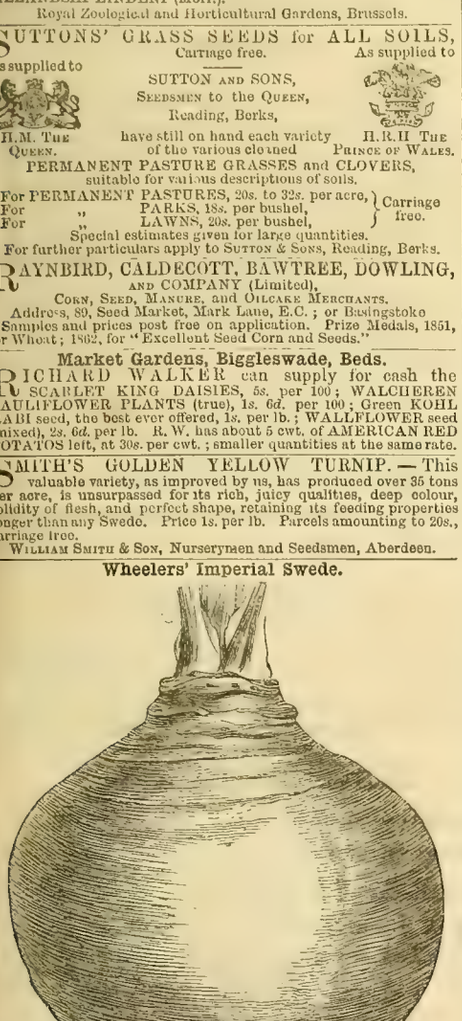
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CORN, SEED, MANURE, and OILCAKE MERCHANTS,
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke
Samples and prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Market Gardens, Biggleswade, Beds.

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WHEELERS' IMPERIAL SWEDE—Purple top, very hardy, very nutritious; large, handsome, and heavy.—1s. per lb., 45s. per bushel. Carriage free excepting small parcels under 20s. in value. Five per cent. discount for cash. For five consecutive years our Wheelers' Imperial has taken the 1st Prizes—open to all England—at the Gloucestershire Root and Grain Society, as the best Swede in cultivation. It is a sort especially to be recommended. Drill 3 lb. per acre.
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BEST and CHEAPEST, delivered to Rail for any part of England. Apply to
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These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom.
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NITRATE of SODA, SULPHATE of AMMONIA, and other Chemical Manures.
AMERICAN and other CAKES at market prices.
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Its Members are Cultivators of upwards of 50,000 Acres of Land, which has been for years under Management with Manures of their own Manufacture, consequently the consumer has the best guarantee for the genuineness and efficacy of the Manures manufactured by this Company.
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JOSEPH MEREDITH, The Vineyard, Garston, near Liverpool, after many years of Vine and Grape growing, is now induced to offer, for the first time, to the Horticultural world, the MANURE to which in a great measure he attributes the success that has attended his exhibitions of Grapes in England, Scotland, Paris, Brussels, Antwerp, and Maestricht. In doing so he is offering from experience the most valuable aid to both practical and amateur in not only securing fine fruit, but good flavour and high finish of colour, and to plants the greatest help towards vigour and successful cultivation ever met with. To be had in sealed bags of quarter cwt., 10s. 6d.; half cwt., 21s.; one cwt., 42s., with full directions for use. For further particulars see Circulars, to be had free on application as above.

The Best and Cheapest Vermin Killer.

Vide "The Gardener's Magazine," conducted by Shirley Hibberd Esq., F.R.H.S., of August 15, 1868.
UNDER PERMISSION OF THE HON. BOARD OF CUSTOMS.
THE LONDON GROUND TOBACCO (free of duty), for the Destruction and Prevention of the Grub and Blight in Plants. Sold in Tins, 1s. and 2s. 6d. each, by Seedsmen and Druggists,
POWDER DISTRIBUTORS, 2s. each.
Manufacturers: CORRY & SOPER, at their Bonded Warehouse, Shad Thames, London, S.E. [AGENTS WANTED.]



GISHURST COMPOUND.
Used by many of the leading Gardeners since 1850, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d.
Wholesale by
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The Cheapest and Best Insecticide.

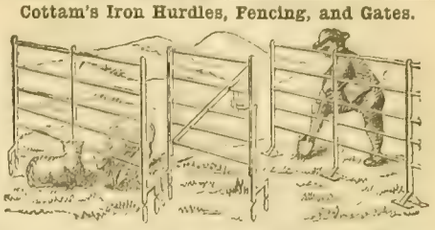
DUTY-FREE TOBACCO.
BY HER MAJESTY'S ROYAL LETTERS PATENT, AND BY PERMISSION OF THE HON. BOARD OF CUSTOMS.



POOLEY'S TOBACCO POWDER, for the Prevention and Destruction of Blight and other Diseases in Plants.
Sold by Nurserymen, Seedsmen, and Florists,
In Tins at 1s., 2s. 6d., and 5s.
Powder Distributors, 2s. 6s. and 3s. 6d. each.
"I find it exceedingly useful for killing the Aphides on Roses and other Plants."—GEO. EYLES, Superintendent, Royal Horticultural Gardens, South Kensington. May 7, 1868.
Sole Manufacturer, T. A. POOLEY, Bonded Warehouse, Sussex Wharf, Wapping, E.

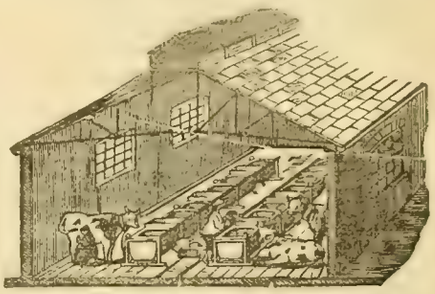
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Sold by all Seedsmen and Nurserymen, and by Messrs. ROBERTS & SONS, 112, St. John Street, Clerkenwell, E.C., of whom a Drawing of the same can be obtained; also TOBACCO TISSUE for Fumigating Greenhouses, price 3s. 6d. per lb.

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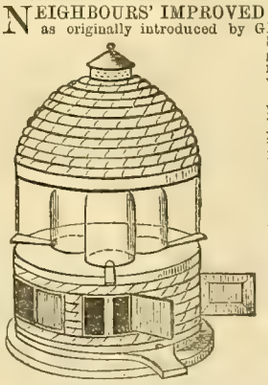
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Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rick dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of Iron. Prices of Fittings per Cow 55s.
Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

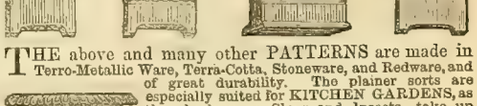
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NEIGHBOURS' IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR AND SONS, working three bell-glasses; is neatly and strongly made of straw; it has three windows in the lower hive.



This Hive will be found to possess many practical advantages, and is more easy of management than any other Bee-Hive that has been introduced.
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An Italian Alp Queen, with full directions for uniting to Black Stocks, £1 each.
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A newly-arranged CATALOGUE of other Improved Hives, with Drawings and Prices, sent on receipt of two stamps.
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GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability and superior finish, and in much variety of design.
F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.E. Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
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ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs. Likewise more elaborate designs. Pattern Sheets of Pavements, with prices, forwarded for selection.
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To be obtained of F. & G. ROSHER, at their premises as above.

SILVER SAND (REIGATE), at the above addresses—14s. per Ton, 1s. 2d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less. A coarser grained Sand 4s. per ton more. Samples of Sand by post on receipt of stamp.
FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEAT and LOAM supplied at lowest rates.
F. & G. ROSHER.—Addresses see above.
N.B. Orders promptly executed by Railway or Vessel.
A liberal discount to the Trade.

Spring Catalogue of New Plants for 1869.

JOHN AND CHARLES LEE'S CATALOGUE of SOFT-WOODED PLANTS is just published, and may be had post free on application. It contains accurate descriptions and prices of all the New Double Pelargoniums for 1869, New Zonals, New Tricolors, New Nosegays, New Gloxinias, New Coleus, New Chrysanthemums, and New Bedding Plants.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, W.

New Roses for 1869.

JOHN AND CHARLES LEE intend to send out the following TWO NEW ROSES the end of May:—

CLEMENCE RAOUX (Granger).—Blush, edged and spotted rose, very large, of perfect form and great substance; petals stout and enduring; habit erect and vigorous; flowers late in autumn. This is really a wonderful Rose when bloomed to perfection. A single flower of Clemence Raoux exhibited amid tens of thousands of other Roses attracted—by its immense size and novel colouring—the universal attention of the judges and amateurs at the Great Rose Show at Brie Comte Robert, in July 1867, when the Gold Medal was awarded to it as the finest Rose in the Exhibition. 15*s.*

EDWARD MORREN (Granger).—This splendid Rose is a great acquisition. The delicate yet brilliant colouring, the size, fine shape, and fulness of its flowers, combined with its bold erect habit, will render it a universal favourite. Monsieur Margottin thus described it:—"Edward Morren is in the way of Jules Margottin, but of a more delicate colour, of better form, more double, and much larger." The 1st Prize Gold Medal was awarded to it at the Exposition Universelle in Paris, in July, 1867. 15*s.*

Special offer to the Trade on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, W.

New Roses, &c., 1869.

WM. KNIGHT begs to offer the following Plants:—

12 NEW ROSES, Strong Plants .. .. .. 36*s.*
12 Finest NEW FUCHSIAS, Strong Plants .. 6*s.*
12 Finest NEW VERBENAS, Strong Plants .. 4*s.*
12 Finest COLEUS, Strong Plants .. .. .. 5*s.*
6 NEW PETUNIAS, Strong Plants .. .. .. 4*s.*

Or the above Collection, package included, for £2 10*s.*

CATALOGUE free.

Floral Nursery, Hailsham, Sussex.

New Plant.

MR. WILLIAM BULL is now sending out the beautiful

LASIANDRA MACRANTHA.

The flowers of this plant are truly marvellous, 1½ foot in circumference; are produced nearly throughout the year, and on plants when only an inch or two high. Some blooms of it were sent at Christmas to the Editor of the *Gardeners' Chronicle*, and the following remarks were made in the columns of that Journal, January 2, 1869:—

"We have before us fine blooming specimens of the noble Lasiandra macrantha, sent us by Mr. BULL, which shows that the flowers of this grand plant may be had in winter as well as in summer, which is an additional recommendation. Notwithstanding what may seem to be an unfavourable season, the blossoms are even now nearly five inches across, and are of the richest violet-blue, a tint which has not been reproduced in any of the illustrations which have yet appeared."

A DESCRIPTIVE CATALOGUE of other NEW PLANTS, just published, post free for 12 stamps.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

Beautiful Crimson-foliaged New Bedding Plant.

IRESINE ACUMINATA.

ONE of the GEMS of the SEASON.

Price 7*s.* 6*d.* each.

WILLIAM BULL, F.L.S., Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

DOBSONS' PRIZE FLOWER SEEDS,

Now ready, in sealed packets, post free.

DOBSONS' CELEBRATED PRIZE CALCEOLARIA.—This strain is if possible finer this season than we have ever had them; producing flowers of very large size, rich and varied in colour, and of dwarf habit. The plants from which we save all our seed are now in fine bloom, and will continue for a fortnight or three weeks, and may be seen any day except Sundays. Seed in sealed packets, 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.*

DOBSONS' PRIZE CINERARIA, 1*s.*, 2*s.* 6*d.*, and 5*s.*
Received 60 First Prizes in 6 years.
First Prize, Kensington, 1869.
Special Prize, Regent's Park, 1869.

DOBSONS' PRIZE PRIMULA.—Unsurpassed in the trade for fringe and colour. 1*s.*, 2*s.* 6*d.*, and 5*s.*

Donson & Sons, Woodlands Nursery, Isleworth.

WM. CLIBRAN will be glad to send Twelve CHRYSANTHEMUMS of 1868, including Japanese, for 4*s.*; 25 good old varieties, 5*s.* | 12 varieties of NEW COLEUS, 3*s.*
12 ZONAL and NOSEGAY PELARGONIUMS of 1868, 6*s.*
15 PELARGONIUMS for 8*s.* 6*d.*—Artemus Ward, Sophia Dumaresque, Perilla, Model, Aureum, Neatness, Mrs. Charles Barry, General Longstreet, Beauty, Glowworm, Beauty of Oulton, Gaiety, Madame Rose Charmeux, Triumph, L'Elegante.

Post or package free. Terms, cash. A CATALOGUE of Pelargoniums, Chrysanthemums, and other Plants, for one stamp.

Millbank Nursery, near Warrington.

Chrysanthemums.

ADAM FORSYTH begs to inform the Trade and the Public that he is now sending out the following NEW CHRYSANTHEMUMS, viz.:—

Blonde Beauty	Mr. Evans
Mr. Geo. Haskin	Miss Mary Morgan

He is confident they will give as great satisfaction as any others he has hitherto introduced. For description and price, see CATALOGUE, which contains also a Practical Treatise on the Cultivation of this noble Flower. Forwarded on application for one stamp.

Brunswick Nursery, Stoke Newington, London, N.

Verbenas, Verbenas.

PHILIP LADDS is now sending out new varieties of VERBENAS, 1868, at 1*s.* 6*d.* per dozen; Scarlet, White, Purple, and Pink Verbenas at 1*s.* 6*d.* per dozen; strong young plants, 6*s.* per 100, or £2 10*s.* per 1000.

12 New Varieties of COLEUS, Royal Horticultural Society, 1868, 2*s.* per dozen.

20 New Varieties of ZONAL GERANIUMS, 1868, for 10*s.*

Nursery, Bexley Heath, Kent.

Choice Primula Seeds.

B. S. WILLIAMS begs to call special attention to his superb strain of this universally admired Winter and Spring-flowering Plant. He can with confidence offer it as being unequalled in cultivation. Plants from this Seed have always been awarded First Prizes wherever exhibited. B. S. W.'s strain of Primula is so well known to all the principal Gardeners in the three kingdoms, that testimonials are unnecessary. In sealed packets, Red, White, or Mixed, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* each.

Victoria and Paradise Nurseries, Upper Holloway, London, N.

Cyclamen Persicum (Hybrids).

B. S. WILLIAMS has great pleasure in offering SEEDS of his superb varieties of CYCLAMENS, which are much superior to those sent out by him last season, being saved from the plants exhibited by Mr Wiggins, at the Meeting of the Royal Horticultural Society, at Kensington, on Tuesday, Feb. 16, when they were pronounced far in advance of any ever before raised, both in point of size of flower and richness of colour, which varies from pure white to maroon and deep red; many of them in addition being beautifully striped and spotted, and deliciously fragrant. Seeds sown in heat from the present time can be grown to produce flowers within 12 months.

B. S. W. having made arrangements for the supply of all Mr. Wiggins' Seed, it can only be had genuine in sealed packets bearing his name and address. In sealed packets, 1*s.* 6*d.*, 2*s.* 6*d.*, and 3*s.* 6*d.* each.

B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, N.

GENERAL PLANT CATALOGUE, ILLUSTRATED WITH COLOURED DRAWINGS.

JAMES CARTER & CO.'S

NEW PLANT CATALOGUE IS NOW READY,

and will be forwarded on application, ILLUSTRATED with FOUR COLOURED DRAWINGS of

TRICOLOR AND BICOLOR GERANIUMS,

AND CONTAINING FULL DESCRIPTIVE LISTS OF THE NOVELTIES FOR 1869.

ONE MILLION BEDDING AND OTHER PLANTS

Now ready for sending out, of which they invite inspection at their

CRYSTAL PALACE NURSERY, FOREST HILL, S.E.

JAMES CARTER AND CO., SEED MERCHANTS and NURSERYMEN,

237 and 238, HIGH HOLBORN, LONDON, W.C.; and CRYSTAL PALACE NURSERY, FOREST HILL, S.E.

BEAUTIFUL SUMMER BEDDING PLANTS,

FOR DECORATIVE GROUPS, LINES, AND SCROLL-WORK.

Achyrocline Saundersoni.

This in its style is one of the most elegant and effective plants, with silvery-surfaced foliage, for garden decoration yet offered to the notice of cultivators. It forms a very dwarf and compact densely-branched shrub, from 4 to 6 or 8 inches in height, being easily retained to any relative under-size required. Its leaves are narrowly lanceolate, close and densely set, the upper and under surfaces being alike silvery white, forming a beautiful contrast with opposite green leaf tints; and it retains its attractive character throughout the winter months for conservatory or greenhouse culture. Next to its clear and beautiful silver hue, is its remarkably short and low-branched habit, which never runs into exuberant vigour, but uniformly retains its undergrowth throughout the year, with nearly the same compactness and dense habit as the ordinary dwarf garden Box.

By these attractive features it will not fail to prove an invaluable acquisition for picturesque leaf groups, extensive ribboned lines, and marginal belts, and must eventually be considered as the most neat and effective plant in its class yet offered. 3*s.* 6*d.*

Awarded a First-class Certificate.

Gnaphalium tomentosus.

A very elegant low shrub, of free compact growth, ½ to 1½ foot in height, as required, with pure silvery-grey willow-like outline, snow-white stems, and under leaf surface. It is finely adapted for very effective third ribboned rows, between self-green, chocolate-red, or crimson leaf-tints, retaining its ornamental character throughout the year for conservatory decoration. In freeness of growth, neat habit, and bushy outline, it is superior to any other plant of similar growth and effect yet offered for summer beds. As an outward single or double belt to masses of evergreen shrubs, in extensive pleasure grounds, it is remarkably effective, and equally adapted for portable specimens, in pots, in the formation of temporary groups and beds, and for decoration in basket-work or terrace ornament. 3*s.* 6*d.*

Awarded a First-class Certificate.

Lobelia erinus (dwarf miniature section).

This is an extremely beautiful section, belonging to the group of which the once well known L. erinus compacta was the original type, and from which the L. pumila elegans of E. G. HENDERSON & SON was an improved form. The varieties of L. erinus pumila are distinguished by a remarkably dense compact growth of 2 to 4 inches in height, and literally covered with such a profusion of bloom that the leaf growth is scarcely perceptible.

L. PUMILA 'GRANDIFLORA is the most effective in its group, making a free, vigorous miniature growth previous to bloom, and forming the most densely compact tuft-like outline, which, during the summer months, is studded over with rich, deep azure-blue flowers. For small parterres, or artistic scroll beds, this charming plant will be found uniquely beautiful, and, whether planted in detached groups or marginal lines, circles or belts, it is a very valuable addition to the most select designs for summer decoration; flowers larger than the pumila elegans. 1*s.* 6*d.* each, 12 plants for 6*s.*

PUMILA "ALBA DELICATA."—White with blush tint, profuse bloom, densely compact.

PUMILA AZUREA.—Bright azure-blue, flowers profuse, densely compact and dwarf, effective and beautiful.

PUMILA "DISTINCTION."—Rich rosy-red, with large white centre, growth densely compact, profuse bloom. First-class certificate. 3*s.* 6*d.* each, six plants 16*s.*

PUMILA "FAIRY."—Flowers profuse, French white, remarkably dense in growth, distinct and effective.

PUMILA "MODEL."—Pure lilac, fine broad flower-lobes, profuse bloom.

PUMILA "ROSEA."—Pure lilac-rose, flowers profuse, growth densely compact.

E. G. HENDERSON AND SON respectfully offer the above as the most select and elegant plants in their class ever offered, and are first-class acquisitions to every garden of taste.

E. G. HENDERSON AND SON'S NEW DESCRIPTIVE SPRING CATALOGUE is now published.

WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.

H. LAURENTIUS, HORTICULTURIST,

THE NURSERIES, LEIPZIG, SAXONY,

BEGS TO OFFER THE FOLLOWING

NEW AND RARE PLANTS,

DESCRIBED AND PARTLY FIGURED IN HIS NEW CATALOGUE, No. 41:—

AGAVE HORRIDA NANA (figured in H. L.'s New Catalogue), £1 16*s.*
" " " var. LÆVIOR (figured in H. L.'s New Catalogue), £1 16*s.*

NEW TRICOLOR GERANIUM, LILY (figured in H. L.'s New Catalogue), 6*s.* each.

NEW STRIPED FLOWERING PELARGONIUMS.—Five very beautiful varieties (Dr. W. Neubert, Elsternixe, Kitlisch von Horn, Striata formosa, Théodor Rümpler), 5*s.* each; 15*s.* the set. For full description, see H. L.'s New Catalogue, page 211.

VIOLA ODORATA PENDULA, WEEPING VIOLET of NEW YORK.—Very attractive novelty; flowers large, full, sweet scented, and azure blue, 1*s.* 3*d.* each; 12*s.* per dozen.

AGAVE BESSERIANA LONGIFOLIA VIRIDIS (figured in H. L.'s New Catalogue), £2 5*s.*, £3, and £3 15*s.*
" " LONGIFOLIA GLAUCA (figured in the Catalogue), £2 5*s.*, £3 15*s.*, and £6.

NEW LOBELIA ERINUS, STAR of ISCHL.—Very compact dwarf growing, flowers larger than any new variety, bright azure blue, with a deep coloured shade, extremely free flowering throughout the whole season; 1*s.* 3*d.* each, 10*s.* 6*d.* per dozen.

NEW PINKS: KING JOHN of SAXONY, and PRINCE ROYAL of SAXONY.—Two extremely beautiful varieties, in every respect improvements of the esteemed P. Abbordfordianus, by whose hybridisation they have been obtained, 2*s.* each. For full description, see H. L.'s New Catalogue, page 28.

AMARYLLIS ALBERTI FLORE-PLENO (LAURENTIUS), true.—The full and bright scarlet-flowered Amaryllis, flowering by pairs. Strong flowering bulbs, 12*s.* each; middle sized bulbs, 4*s.* 6*d.* each.

ANECOCHILUS SPECTABILIS.—Leaves similar in colour to the A. setaceus, but much larger; £1 1*s.*

AGAVE UNIVITTATA.—Young plants, according to size, 4*s.* 6*d.*, 6*s.*, and 12*s.* each; stronger plants, 18*s.* each; very strong plants, £3 15*s.* each.

DICHORISANDRA MUSAICA, 7*s.* 6*d.* each; £3 per dozen.
" UNDATA, 3*s.* each; £2 4*s.* per dozen.

PASSIFLORA TRIFASCIATA.—New tricolor-leaved Passion-flower, 3*s.* each; £1 4*s.* per dozen.

DOUBLE-FLOWERED GERANIUMS.—The newest, 22 varieties. For descriptive List, see H. L.'s Catalogue, pp. 24, 25, and 212.

CORDYLINE VEITCHII.—Leaves with red midrib. Young plants, 1½ foot high, 15*s.* per dozen; £5 per 100.

FICUS SURINGARI.—Beautiful species, with purple-veined large leaves, 3*s.* each.

LAMPROCOCCUS LAURENTIANUS.—The most beautiful Æchmea, flowering from November to February, 2*s.* 6*d.* each; £1 7*s.* per dozen.

LILIUM PARTHENEYON.—New Lily, from Japan, £1 16*s.* For full description, see H. L.'s Catalogue, page 39.
" LEICHTLINI.—Likewise from Japan, £2 5*s.* each. For full description, see H. L.'s Catalogue, page 39.

LIRIODENDRON TULIPIFERA FOL. IN MEDIO AUREO PICTIS.—New effective variety, the leaves being adorned in the centre with a large yellow spot; 2-yr. grafts, 2 feet high, and cultivated in pots, 6*s.* each; £2 10*s.* per dozen.

LOMARIA CYCADÆFOLIA.—One of the most beautiful Tree Ferns. Strong stems, £2 4*s.* to £4 6*s.*; Seedlings of the above, 2-yr. old, 10*s.* 6*d.* per dozen, or 25 for 18*s.*

Choice of the best NEW ROSES for 1869.—23 varieties, vigorous plants, grafted on Manetti, £2 7*s.*; grafted on Wild Roses and Briars, Half Standards, 3½ to 4 feet, 23 varieties for £3 10*s.* For names and full description of these New Roses, see H. L.'s Catalogue, pp. 33, 34.

H. LAURENTIUS'S NEW CATALOGUE (228 pages), containing all the Novelties of the season, and many other valuable and Rare Plants, may be had Gratis and Post Free on application to his Agents,

MESSRS. BETHAM AND BLACKITH, COX'S QUAY, LOWER THAMES STREET, LONDON, E.C.

VARIEGATED PELARGONIUMS.

Louise Smith	Sophia Cusack	Moiro Antique
Edwinia Fitzpatrick	Madelino Schiller	Lady of Shallot
Caroline Longfield	Light and Shadow	Lady Cullum
Beauty of Calderdale	Glen Eyre Beauty	Lurline

16s.

CASHON & SON, Gravel Walk Nursery, Peterborough.

Cheap Tricolor Geraniums.

ALFRED FRYER offers 50,000 fine Plants, at the following low prices for cash. Package free.
LADY CULLUM, 13s., 18s., and 21s. per dozen.
SOPHIE DUMARESQUE, 7s., 10s., and 13s. per dozen.
SUNSET, 5s., 6s., and 7s. per dozen.
MRS. POLLOCK, 3s. 6d., 5s., and 6s. per dozen.
MRS. BENYON, 5s., 6s., and 7s. per dozen.
Remittance requested from unknown correspondents.
Address, ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

CHOICE BICOLOR and TRICOLOR GERANIUMS.

	Per doz.—s. d.		Per doz.—s. d.
Lady Cullum	10 0	Model	5 0
Sophia Cusack	15 0	Perilla	5 0
Sophie Dumaresque ..	6 0	Viceroy	10 0
Sunset	4 0	Luna	4 0
Beauty of Calderdale ..	6 0	Mrs. Pollock	4 0
Crystal Palace Gem ..	4 0	Refulgens	10 0
Her Majesty	10 0	Italia Unita	4 0

In good Plants, for cash, package included. Trade price on application.
THOMAS PESTRIDGE, Greenway Nursery, Uxbridge.

CHOICE BEDDING, BICOLOR, and TRICOLOR GERANIUMS.

	Per doz.—s. d.		Per doz.—s. d.
A. H. Wills	18 0	Model	4 0
Beauty of Calderdale ..	6 0	Perilla	4 0
,, Ribbiesdale ..	8 0	Princess Alice	6 0
Compactum	4 0	Refulgens	12 0
Her Majesty	12 0	Crystal Palace Gem ..	4 0
Lady Cullum	12 0	Sophia Cusack	15 0
Little Golden Christine ..	12 0	Sophie Dumaresque ..	6 0
,, Spread Eagle ..	12 0	The Sultan	12 0
Louise Smith	30 0	Viceroy	12 0

Cheaper by the 100 or 1000. Good Zonals, in sorts, 20s. per 100. The above are good plants, in 3-inch pots, package included.
A LIST, with prices of other choice Geraniums, can be had on application to
WM. POTTEN, Sissinghurst, Staplehurst, Kent.

The best Gold-leaved Pelargoniums of the Season are Golden Emperor and Golden Queen.

SALTMARSH AND SON are now sending out the above splendid varieties, in strong established plants, at 10s. 6d. each, with the usual discount to the Trade. They were awarded the 1st and 2d Prizes respectively in the Gold-leaved Class at the Royal Horticultural Society's Special Pelargonium Show in June last. For further particulars see previous Advertisements.
Moulsham Nurseries, Chelmsford.

Tricolor Pelargoniums.

J. WATSON, New Zealand Nursery, St. Alban's, begs leave to offer his two beautiful TRICOLOR PELARGONIUMS, MISS WATSON and MRS. DIX, unrivalled for freedom of growth and beauty of colouring, in good plants, 5s. each; also, PRINCESS CLOTILDE, 5s. each, or the three for 13s. 6d. Miss Watson and Mrs. Dix have received 17 First-class Certificates and Extra Prizes from the leading Horticultural Societies of the kingdom. Early orders solicited.

To Pelargonium Exhibitors.

WOOD AND INGRAM offer the following splendid Plants, just coming into bloom. They took the 1st Prize at the last May (Open) Show of the Cambridgeshire Horticultural Society, and were pronounced by the Editor of the "Gardeners' Magazine" as being "equal to any ever exhibited in London or the Provinces":—ADAM BEDE, 2 feet in height by 10½ feet in circumference; BEADSMAN and MADAME ROLAND, same size; ROSE CELESTIAL and APOLLO, 2 feet by 9 feet; MISS-IN-HER-TEENS, 2 feet by 9½ feet; EVENING STAR, 2½ feet by 9 feet; SILVER QUEEN and LORD RAGLAN, 1½ feet by 6 feet. Price 15s. each, package included.
The Nurseries, Huntingdon.
This Advertisement will not be repeated.

Geraniums, &c.

WOOD AND INGRAM offer fine Plants of the following separate kinds, and prices as in previous advertisements.
GOLD and SILVER TRICOLOR and BICOLOR, the set of 12 of either for 12s., or a set of each for 20s.
New ZONAL of 1868, 1s. each, or 9s. per dozen.
New PELARGONIUMS of 1868, the set of 16 for 32s., or 8 for 16s.; fine flowering plants.
Fine Flowering PELARGONIUMS, 12 varieties for 12s.
New HOLLYHOCKS of 1838 sent out by Mr. Chater, the set of Fine Show HOLLYHOCKS, 12 varieties for 12s. [12 for 24s.
All summer-struck thoroughly hardened plants.
GLOXINIAS, 6 fine varieties, flowering plants for 6s.
Package of the whole of the above included.
W. & I.'s NEW PRICED DESCRIPTIVE SPRING CATALOGUE is now ready, and will be sent free on application.
The Nurseries, Huntingdon.

Tricolor, Bicolor, and other Bedding Geraniums.

J. SCOTT, NURSERYMAN and FLORIST, Bathford and Batheaston, offers strong Plants of the following:—
SOPHIE DUMARESQUE, 6s. per dozen or 45s. per 100; large plants 12s.; plants that will make specimens, 18s. per dozen.
LUCY GRIEVE, 3s. 6d. each or 30s. per dozen, fine plants 42s. per dozen; plants with three or four branches, 60s. per dozen.
GLEN EYRE BEAUTY, 3s. 6d. each or 30s. per dozen.
LADY CULLUM, 2s. each or 18s. per dozen.
LOUISE SMITH, 2s. 6d. each or 24s. per dozen.
ITALIA UNITA, CRYSTAL PALACE GEM, and SUNSET, 4s. per dozen.
BRONZE, VANDYKE, MRS. CHARLES BARRY, and BRONZE SHIELD, 1s. each.
MADAME LEMOINE, double, 5s. each.
MDME. ROSE CHARMEUX, double, 2s. each.
GRAND DUKE, LORD DERBY, and ECLAT, 1s each.
One each of the above for 24s.
Remittances requested from unknown correspondents.

GERANIUMS, Gold, Bronze, and Tricolored, &c.—Beauty, Beauty of Calderdale, Beauty of Rivesdale, Compactum, Glowworm, Model, Princess Alice, Perilla, Little Golden Christine, Little Golden Spread Eagle, Countess of Tyrconnel, Gipsey Chief, Firebrand (Gill), Edwinia Fitzpatrick, Sophie Dumaresque. The above, 1s. 6d. each, or 12s. per dozen, hamper and packing included; cheaper by the 100.
NEW GOLDEN and BRONZE GERANIUMS:—Admiration Arthur H. Wills, Egyptian Queen, Empress Eugénie, Fascination, Her Majesty, Ebor, Viceroy, Painted Lady, Refulgens, Rosalind, The Sultan. The above 12 for 21s., hamper and packing included.
PELARGONIUMS, New Show Varieties of 1868:—Captain John, Empress, Firefly, Grandee, Heirloom, Hermit, Keepsake, King of Trumps, Magician, Needle Gun, Prince of Orange, Rob Roy, Victor, Woman in White. 2s. 6d. each, 24s. per dozen, or the set for 26s.
PELARGONIUMS, Show Varieties of 1867.—Beauty of Windsor, Betrothed, Congress, Favourite, Gold Button, International, King of Flowers, Lord Lyon, Milton, Mongini, Perfection, Prince of Orange. The above set for 18s.
FANCY PELARGONIUMS of 1867.—Duchess of Buccleuch, Marguerite, Memnon, Neatness, Princess Helena, Silver Mantle. 1s. 6d. each, or the set for 8s.
12 New FUCHSIAS of 1868, strong plants. 10s. to 12s. per dozen.
12 New PETUNIAS of 1868. 9s. to 12s. per dozen.
12 New VERBENAS of 1868. 3s. to 4s. per dozen.
12 Splendid New EPACRIS, covered with bloom. 12s. to 18s. p. doz.
12 Grand AZALEAS, well set with bud. 18s., 24s. and 36s. per doz.
CATALOGUES of the above and all the New Tricolored and Golden Bronze Geraniums, New and Rare Plants, &c., can be had on application to
HENRY WALTON, Edge End, Marsden, near Burnley, Lancashire.

CRYSTAL PALACE.—GREAT FLOWER SHOW of the SEASON, SATURDAY NEXT, May 15. One of the most Prominent Features of the London Season.

Grand Flower Shows at the Crystal Palace are always highly attractive, the number of Visitors annually ranging between 15,000 and 20,000.

The ample space at command for the Show and Promenade, all under cover, and protected from weather, enable arrangements wholly unattainable elsewhere to be carried out with certainty for the comfort of Visitors.

The Show of the present Season will be of unusual extent. In Stove and Greenhouse Plants, Azaleas, Orchids, Pelargoniums, and Pot Roses, large displays may be looked for. Entries close on May 8.

The novel feature of Prizes for the Three Classes of Bouquets, viz., WEDDING BOUQUETS, BALL BOUQUETS, VASE BOUQUETS (entries for which will be received at the Palace up to 6 o'clock on Wednesday Evening), will be most interesting, leading to great competition, not only amongst the English and Continental *Bouquetistes*, but also among the large number of Lady Visitors and other Private Cultivators, who from the entries being made (if wished) under initials, will have the opportunity of privately entering the lists, and giving the public some idea of the artistic ability and taste in the display of flowers which contributo so much to the refinement of the domestic circle.

That the Musical arrangements of the day are confided to the direction of Mr. Manns is a sufficient guarantee of their excellence.

The Ornamental Gardens of Rockhills will be open during the afternoon, to enable Visitors to inspect the great Wistaria sinensis, now in full bloom. The doors of the Palace will be open to the public at Ten o'Clock. The barriers enclosing the Flowers will be removed as soon as the Judges have concluded their awards—about Twelve o'Clock. The Show will continue open until Seven o'Clock.

Five Shilling Tickets of Admission will be on Sale up to and including Friday. After that day the price of admission will be 7s. 6d.

The Guinea Season Ticket admits free.—*** The Band of the Coldstream Guards and the Orchestral Band of the Company will perform during the day. Organ performances at intervals. Admission and Season Tickets at the Crystal Palace; at the Central Ticket Office, 2, Exeter Hall; and of the usual Agents.

July 19th to 24th, 1869.

THE ROYAL HORTICULTURAL SOCIETY'S GRAND EXHIBITION at MANCHESTER, in connection with the SHOW of the ROYAL AGRICULTURAL SOCIETY.

Amongst various Special Prizes,

A SILVER CUP (copy of the famous Cellini Cup), **VALUE £21** will be offered by the Proprietors of the GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE for the best COLLECTION of 5 FRUITS and 8 VEGETABLES, to be made up as follows.

In awarding the Prize, Marks will be adjudged according to the following scale, for the several subjects produced.

	Good.	Medium.	Inferior.
Grapes	6 marks	3 marks	1 mark
Melons (2 fruits)	6 ,,	3 ,,	1 ,,
Strawberries	3 ,,	2 ,,	1 ,,
Gooseberries	3 ,,	2 ,,	1 ,,
Currants	3 ,,	2 ,,	1 ,,
Cherries	3 ,,	2 ,,	1 ,,
Raspberries	3 ,,	2 ,,	1 ,,
Apples of 1868	6 ,,	3 ,,	1 ,,
(Any 5 of the above 8 subjects).			
Peas	3 ,,	2 ,,	1 ,,
French Beans	3 ,,	2 ,,	1 ,,
Broad Beans	3 ,,	2 ,,	1 ,,
Cauliflowers	3 ,,	2 ,,	1 ,,
Cucumbers (brace)	3 ,,	2 ,,	1 ,,
Summer Cabbages	3 ,,	2 ,,	1 ,,
Early Carrots	3 ,,	2 ,,	1 ,,
Turnips	3 ,,	2 ,,	1 ,,
Globe Artichokes	3 ,,	2 ,,	1 ,,
Onions	3 ,,	2 ,,	1 ,,
Spinach	3 ,,	2 ,,	1 ,,
Rhubarb	3 ,,	2 ,,	1 ,,
Potatos	3 ,,	2 ,,	1 ,,
Mixed Salading	3 ,,	2 ,,	1 ,,
(Any 8 of the above 14 subjects).			

This Prize is open for Competition amongst Amateurs and Gardeners of private families. The Fruit and Vegetables produced must be of *the Exhibitor's own growing;* and any article otherwise obtained will disqualify the Collection. It is expected that the several articles will be neatly and effectively displayed.

The Gardeners' Chronicle.

SATURDAY, MAY 8, 1869.

MEETINGS FOR THE ENSUING WEEK.

FRIDAY, May 14 to FRIDAY, — 21 } Manchester National Horticultural Exhibition.
SATURDAY, — 15—Crystal Palace (First Grand Flower Show).

No definite resolutions were adopted at the consultation between the Royal Horticultural Society and the exhibitors, held in reference to the question of reducing the sizes of pots used for the growth of EXHIBITION PLANTS. Nevertheless, we think it may be fairly gathered that the growers are favourably disposed towards the reduction of the classes for large specimens, and towards the introduction of classes for what may be designated "half specimen" plants —that is, young progressive specimens,—which would necessarily be shown in pots of more limited capacity than those generally used at the present day for stage plants. Our own opinion, as our readers are well aware, is quite in favour of the adoption of such a course. It is, however, very important that, in carrying out any such changes due safeguards for maintaining the high character of the shows should be provided, and that the schedule modifications should be adopted with some fixity of purpose, in order that growers may know what to set about, and may have some assurance that their labour may not, when the smaller specimens are forthcoming, be rendered nugatory by subsequent alterations.

While advocating revision in the direction above indicated, we must, at the same time, deprecate all rash and revolutionary changes. To improve the general effect of our shows by any of the changes proposed, can scarcely be hoped for, but it is possible, without much effort, to ruin them altogether. We hold it to be utterly impracticable to do away entirely, as some persons would appear to contemplate, with what are called "large specimens." They are the glory of the shows, and cannot, so far as flowering plants are concerned, be dispensed with on any consideration. The classes for these monster subjects, may, however, be curtailed in extent with much advantage, especially as regards what are called "fine-foliaged plants;" for it must be tolerably obvious to everyone that we are greatly overdone in this direction. The heavy prizes given for these Jack-in-the-greens, most of which are grown with the greatest ease, and may be exhibited with little trouble, beyond that attending their removal and transit, swallow up a large sum, that might far better be appropriated to more meritorious and attractive subjects. There seems in these matters to be a strong tendency to run to extremes. Formerly, before such plants were regarded as fitted for exhibition purposes, the blaze of colour, it was thought, was overpowering, and must somehow or other be toned down. Now it is toned down with a vengeance, and we could gladly dispense with some of the Palms and Cycads and Aroids, and even Ferns, which threaten to elbow choicer and brighter-looking subjects out of the shows. When the colour-fever was complained of, there was a want felt, but it has been met by passing to the opposite extreme of importing heavy masses of sombre green. This is the excrescence that just now wants paring down, and it must be done with a firm hand. Without adding to the expenditure, we have no doubt that means may thus be found for encouraging "half specimens" in the various classes of flowering plants, and for introducing larger groups (say 25 now and 50 hereafter) of plants of more varied character, and limited either as to the size of the plant or of the pot. Objections have indeed been raised to any restrictions as regards the size of the pots, but we think if limitation is desirable at all, the restriction of the size of the pots permitted to be used, as it affords the most definite means of limitation, may be permitted for the sake of convenience.

We have always hitherto argued in favour of the presence of "foliage plants" at exhibitions, and because we now object to their preponderance it must not be concluded that there is any inconsistency in our remarks in reference to this matter. Such plants are still necessary. We would, however, urge that a score or so of noble plants, well placed, would be more effective by far in exhibitions on the scale of those usually seen about London, than the long banks and huge masses that we now get; and these might be introduced without excluding a group here and there of the more elegant and attractive of their class. This view of the matter is suggestive of the possibility that it might be found to be a wise policy to dispense with a large proportion of bulky foliage plants as objects of competition, and to provide, by the more direct means of hiring or cultivating for the purpose, the comparatively limited number of "starers" which, judiciously placed, would form the dressing or setting-off of the display —a fine Palm here, a grand Fern there, and so on. It was this principle, it will be remembered, so tastefully acted on by Mr. GIBSON, which rendered the International Show of '66 so effective.

In the interests of all parties it must, moreover, be urged, that whatever course is adopted, the different societies which are concerned should act in concert, so that one body may not adopt regulations which exclude subjects admitted by others, for this would be to lay a double burden on the shoulders of the exhibitors. Our advice is, that a definite proposition should be adopted jointly by all the societies; and if this be founded on justice and equity, we cannot believe that the exhibitors will raise any unnecessary difficulties in the way of its adoption.

WE have from time to time in this Journal put upon record the results of the experiments which are being carried out in reference to the growth of CINCHONA in INDIA. The collection of the seeds and plants in South America, their transport to India, their culture in the Nilgherries, in the Sikkim Himalaya, and in Ceylon, are all points on which we have kept our readers informed. The publication of Mr. HOWARD'S work on the Quinology of India,* which forms a valuable supplement to his previous magnificent "Quinologia," affords us another opportunity of adverting to this very important matter. Mr. HOWARD is now enabled to confirm

* Folio, tab. col. 3. REEVE & Co.

and reiterate his previously expressed opinions that the Cinchonas cultivated in India "not only yield their normal proportion of alkaloid (quinine, &c.), but that, in some species at least, this is susceptible of a large increase."

At one time it was feared that the length of time needed for the trees to renew their coating of bark, after this had been partially removed, would have constituted a serious obstacle to the remunerative culture of Cinchonas in India. This difficulty has been removed by the process which Mr. McIVOR adopts of accelerating the production of new bark by the simple application of Moss kept continually damp. New bark forms under such circumstances rapidly, and in the manner that was so well described by M. TRÉCUL, long before the idea entered into Mr. McIVOR's mind.

With the latter gentleman the notion was no doubt a thoroughly original one, wholly independent of what the French botanists had previously written concerning the mode of growth of new bark on decorticated stems. What renders this process of renewal the more important is the fact that the quantity of alkaloid found in the bark of the third time of renewal is not only larger, but is in a state that is more easily purified, and better fitted for the extraction of quinine, than the bark in its normal condition. This circumstance, as well as the comparative analyses of various portions of the trees, seem to point to the bark as the seat of the formation of the alkaloid.

With regard to the mode in which the alkaloid is formed in the bark, Mr. HOWARD alludes to the observations and experiments of M. DECAISNE on the colouring matter of madder. The general result of these experiments goes to show that there is originally in the plant but a single substance, which assumes different characters according as it is exposed to or excluded from the action of light. There are, as is well known, two opposite modes of respiration in plants: one is carried on in the light and in the exposed parts of plants, and results in the elimination of oxygen and the fixation of carbon; the other manifested chiefly, but not entirely, in the night, and in those portions of the plant not exposed to the light. Now, M. DECAISNE'S experiments showed that by varying the conditions of growth it is possible to change at discretion the production of chlorophyll into the elaboration of colouring matter similar to that of the roots.

Mr. HOWARD surmises, with great probability, that the increased production of alkaloids in bark treated by Mr. McIVOR'S process is due to a similar replacement of one form of respiration by the other; in other words, by making the formative energy of the plant manifest itself in the production of alkaloids rather than in that of chlorophyll.

As to the particular part of the bark which is the chief seat of the formation and deposit of the coveted ingredient, Mr. HOWARD is decidedly of opinion that it is in the cellular portion of the bark, not in the wood or bast-cells, that the alkaloid exists chiefly—a conclusion that is so wholly reasonable, and in accordance with analogy, that it seems remarkable that the contrary view could have been held.

Another curious point established by Mr. HOWARD, for the Cinchonas at least, is the gradual diminution and obliteration of the latex ducts as the proportion of alkaloid increases.

We may say in conclusion, that the work of Mr. HOWARD is not only directly valuable for the information it gives as to the chemical history and microscopical structure of the Cinchona, as grown in India, but it is also valuable as showing how intimate is the relation between practice and science. It is rare indeed to find the latest discoveries in vegetable physiology pressed into the service, as they ought always to be, to account for the observed peculiarities of structure and composition, as well as to afford explanations of old methods of culture, and to suggest improvements on them. This is what is done by Mr. HOWARD, and to such an extent, that if one required to gain a summary view of certain points of vegetable physiology, and to see their application to arboriculture, we know not where such summary could be better obtained than in the work already mentioned.

—— WE have received the following additional particulars from Dr. REGEL respecting the INTERNATIONAL HORTICULTURAL EXHIBITION to be held at ST. PETERSBURG:—

1. In consequence of the exceptional many exhibitors the Russian Horticultural Society has resolved that the exhibition shall remain open for ten days instead of [illegible] days, and the [illegible]

2. In reply to many inquiries about the date of opening, and the difference between the Russian calendar and that adopted by most other countries, we may remark that the former is just 12 days behind the new style. Accordingly in the announcement that it is to open on the 5/17 May, the 5th of May is the Russian reckoning.

3. In respect to passes, we may observe that a passport must be produced on the Russian frontier.

4. In answer to inquiries as to the sorts of coin available, it may be stated that German, English, and French moneys should be changed for Russian either in Berlin or on the border, at Eydkuhnen and Wirballen.

5. The commission for the reception of guests announces that respectable rooms will be retained for gentleman visitors at the rate of one silver rouble (about three shillings) per day, including tea or coffee in the morning and service, and others of superior accommodation and corresponding rates may be had according to inclination. It is, however, intimated that, where possible, application should be sent in beforehand. Applications to be sent to the representatives of the Society. Those guests whom it is intended to invite to partake of private hospitality will receive timely intimation of the fact. A member of the Society will receive visitors at the St. Petersburg railway station, and men specially appointed, with conspicuous inscriptions on their hats, will be there to direct visitors, so that no time will be lost in obtaining all necessary information.

6. Inquiries regarding the reduction of fares and other facilities for travelling cannot yet be finally answered. Up to the present time only the Wurtembergian railways have granted a reduction of 50 per cent. on the fares of goods and passengers. Definite answers have not come in from the Russian and other companies, but all participators will be duly informed of the arrangements concluded when the cards are distributed. [The arrangements made since the date of this communication have already been made public. See p. 442.]

7. The general sittings of the Congress will be held in the evening, commencing at 7 o'clock, on the 18th, 20th, and 22d inst., thus giving visitors an opportunity of employing the day in excursions, inspections, &c.

8. The opening of the prize committee will take place on the 16th inst., at 10 A.M.

9. Houses will be appointed where social gatherings of the members of the Society and foreign guests can dine and sup cheaply during the period the exhibition is open.

10. Exhibitors, judges, and members of the Congress have been furnished with a list of all participators, with their travelling cards, to enable them to make arrangements to journey in company.

11. The directors of the Rhenish Railway Company at Cologne have conceded a reduction of 50 per cent. on the carriage, both ways, of objects for the exhibition.

12. At the instance of Mr. H. GAUTIER, of St. Catherine's, Brazils, through whom many beautiful plants have been introduced into Europe, the Russian Horticultural Society offers a medium and two small gold medals to be awarded to those travellers who have collected the most valuable novelties and for which the proprietors of gardening establishments shall be awarded prizes at the exhibition.

—— The following are the matters proposed to be discussed at the BOTANICAL CONGRESS to be held at ST. PETERSBURG:—

1. Circulation of the sap in plants.—Referees (*référendaires*), Professor WILLKOMM, of Dorpat; MM. THIELENS, of Tirlemont; S. ROSANOFF, of St. Petersburg.

2. On the influence of light on plants.—MM. MORREN, of Liège; COHN, of Breslau; BORODINE, of St. Petersburg.

3. On the improvement of cultivated races of plants.—MM. JÜHLKE, of Sans Souci; Count GOMER, of Amiens; BRECH, of Saratow; REGEL, of St. Petersburg.

The following communications are also announced:—

M. WILLKOMM—On the production of various forms of mildew by the higher Fungi. M. BALTET, of Troyes—On the culture of fruit trees. Mr. ANDREW MURRAY—On the Conifers of Northern Russia. M. LECOQ (Clermont)—On the fertilisation of Strelitzia and Hedychium. M. GELEZNOFF (Moscow)—On the amount of water contained in the Pine, the Fir, the Maple, and the Poplar at different periods of the year. On the structure and properties of the wood of Anabasis ammodendron. M. VERVAENE fils—On the improvement of Camellias and Azaleas, and on the diseases incidental to these plants. M. CASPARY—The forms of Nuphar which are native to the north of Sweden and Lapland. M. WEISS—On Agave Jacquiniana. Contributions to the knowledge of Diatoms; on the appearance of diatoms in living and fossil organisms. M. WALLIS—An account of his travels in Brazil. M. ORPHANIDES—On the flora of Greece in its relation to horticulture. Report on some new or rare plants of Greece. On the classical flora, or on the plants known to the ancients. M. PAU—Essay on ornamental and useful plants. M. GÖPPERT—On the inscriptions and marks found on living trees, and on their culture. M. C. KOCH—On the influence of the stock on the scion. M. ROGOVITSCH—Report on the flora of the Government of Kieff. M. CAMILLE BERNARDIN—On the culture of Roses at Brie Comte Robert, &c.

The Russian Society of Amateurs of Horticulture propose the following questions:—

What mode of training (*formes artificielles*) of fruit trees ought to be preferred for culture in Russia? On the causes of the appearances of parasites on cultivated plants, and on the means of exterminating them.

M. F. VON MÜLLER (Melbourne) draws attention to the necessity of publishing a synonymy of plants. M. HOFFMANN (Giessen) proposes the compilation of a scale showing the resistance to frost of trees and shrubs, and which should at the same time serve as a climatological chart. The Economic Society of St. Petersburg proposes the following:—

The amelioration of fruit trees in Russia, and the indication of the best foreign varieties. The best kinds of Grapes for culture in the south of Russia. The transplanting of trees in parks, boulevards, &c. Introduction of Conifers and deciduous trees for forest culture in Russia. The statistics of Russian horticulture.

—— From a letter of Professor OUDEMANS, of Amsterdam, in the "Revue Horticole," we learn that in Holland the American Water-weed (Elodea canadensis, Anacharis Alsinastrum, Bab.) is turned to good account. In that country, as may be well imagined, it is even a more serious pest than in England, but by way of compensation the Dutch make use of it as a manure for Potatos.

—— We have received from M. STELZNER, of Ghent, who seems to have made a speciality of GYMNOGRAMMAS, some very interesting novel forms, which well deserve the attention of cultivators. This family of Gold and Silver Ferns is indeed one in which the amount of variation seems unlimited, and in which the appearance of intermediate forms seems to afford some evidence of hybridisation. Whether hybrids or sports many of the new forms are very distinct and beautiful, and such is the case with some of M. STELZNER'S. One of the most striking is that called G. LAUCHEANA GIGANTEA, a richly-powdered variety of the chrysophylla group, growing to a large size, and having remarkably broad leafy pinnules. This will be found an extremely valuable decorative plant where Gold Ferns are prized. Another is G. AUREA PENDULA CRISTATA, a variety which has the same free-growing habit as the former, but with a fine multifid apex to the somewhat narrower fronds. Most of the crested varieties of Gold Ferns—G. Parsonsii for example—are of dwarf tufted habit, and rather shy growers, but here we seem to have a finely crested form, of large growth, and as free in habit as a Lady Fern. G. STELZNERI SUPERBA CRISTATA is another Golden Fern, more sparsely powdered, but very distinct and elegant. It has a multifidly-forked apex, the tips of the pinnæ are broadly fingered, and the pinnules are broad, and with a tendency to dilatation which shows an attempt to become crested there also. There are some other varieties, which we may probably have to notice on a future occasion.

New Plants.

STRUTHIOPTERIS ORIENTALIS, *Hooker*, 2d *Cent. Ferns*, t. 4. ONOCLEA ORIENTALIS, *Hooker*, *Sp. Fil.* iv. 161.

Fronds pinnate, not decrescent at the base; sterile ones ovate, the lower pinnæ oblong lanceolate, all acuminate, pinnatifid halfway down into oblong bluntish lobes; fertile ones oblong, the pinnæ thick, broadly linear, entire or lobed, wholly covered by the confluent sori; indusium shining brown, incurved so as to form two convex lines meeting over the back of the pinna, the margin attenuated and erose; caudex decumbent; stipes and rachides thickly clothed with lanceolate acuminate scales.

This fine hardy or half hardy Fern was introduced from Japan by Mr. Standish, in whose nursery at Ascot we first saw it fructifying in 1867. It would seem to be of a pale green colour, and in regard to the aspect of its sterile fronds it nearly resembles a short broad-fronded Filix-mas, or perhaps more closely the American Lastrea Goldiana. The fronds are about a foot and a half high, and a foot broad, spreading, peculiarly short as compared with their breadth, so that they have a broadly ovate outline. The fertile fronds are very stout, erect, with thick leathery pinnæ, green above, and entirely covered on the under side by the convex, glossy, dark chestnut-brown fructification. In the specimens figured and described by Sir W. Hooker, the fertile pinnæ and their investing indusia are quite entire, but in the Japan plant they become broken up into moniliform lobes near the base. The plant is perfectly distinct from either S. germanica or pennsylvanica, which are at once distinguishable by their erect fronds and decrescent lower pinnæ. A specimen was exhibited on the 4th inst., at South Kensington, by Messrs. Standish & Co., and received a First-class Certificate. It is certainly a most welcome addition to our collections of cultivated Ferns. *T. M.*

VANDA CŒRULESCENS, *Griffith*, *Posth. Pap.* 352, tab. eccli. *Lindl. Folia* Orch., art. *Vanda*, no. 19.

Foliis lineari-ligulatis apice emarginatis rotundatisve; pedunculo gracili elongato erecto apice racemoso; sepalis cuneato ovatis obtusis; petalis reversis subæqualibus angustioribus; labelli auriculis erectis triangulis acutis, lacinia media cuneato dilatata antice lobulata; carinis quinis erectis geminis medianis ima basi in angulum exountibus, externis juxta limbum labelli varicosis incrassatis ramentaceis; columna trigona, angulis anticis porrectis obtusis; anthera depressa apiculata caudicula lato ligulata.

This species was compared by the late Dr. Lindley to Vanda spathulata, though the leaves of this plant are much narrower, longer, and slightly bilobed. It ranks nearer to Vanda lamellata. We have specimens, both wild and as grown in the Royal Gardens, Kew, 20 years ago. The flower-stalk is almost erect, and bears a raceme of very pretty light blue flowers, though only half as large as those of the smallest varieties of Vanda cœrulea. The sepals are oblong, the petals narrower, reverse, the side lobes of the lip triangular, the middle one cuneate flabellate bilobed (not always), crenulated, with some ridges over the disc. The spur is narrow and acute, nearly as long as the lip, often incurved. The side lobes of the lip are pink inside.

There is what was intended for a representation of the plant in Griffith's work above cited, yet the representation is so fantastical that we would of course have made a new species of our plant if we were not fortunate enough to know Dr. Griffith's dried plant. A great multitude of published representations have had the advantage of procuring food for talentless draughtsmen, and the disadvantage of deluding men of science.

The plant has been long coveted by the Orchid growers, who were ambitious to have a second lovely blue Vanda, quite different to the old one. We feel extremely satisfied to state that we have now (February, 1869), at hand, a fresh inflorescence, from the Royal Exotic Nursery. Messrs. Veitch obtained the plant from the lucky Colonel Benson. *H. G. Rchb. fil.*

THE SWEET WILLIAM.

OF all the flowers that we have cultivated for profit or pleasure, none have held their ground more honourably, or retained their high reputation better, than those of the Dianthus family. When I first read "Hogg's Treatise on the Carnation," I could not help venerating an author who had lived and revelled among such charming flowers, and whose sole delight and aim seemed to be to encourage them by every art to put forth all their beauty. Carnations, Picotees, and Pinks are all decidedly within the pale of what are termed florist flowers, and no mere gardener is expected to be thoroughly initiated in all the minutiæ of the sister art. There is, however, one member of the Dianthus family that the florist does not lay claim to, and therefore I feel quite at liberty to state my "experience" in regard to this exceptional case. I must break cover at

once by quoting an old Scottish ballad, in which the lady, asking the name of her beau, is told it in Latin, but

"The Lady being well book-learned
She spelt it o'er again:
Gulielmus is the Latin o't
Sweet William is the name."

No one would endure the recital of the description of this plant; indeed it would be impossible to colour it, for it is pretty nearly of all hues; and if any one will take the trouble to magnify the individual petals of the flower by means of an ordinary pocket microscope, he will be handsomely rewarded by the gorgeous display of bright colours beautifully blended.

In all the ranks of horticulture there is no recruit so raw that he may not aspire to have the honour of growing Sweet Williams to perfection. An amateur in the Staffordshire Potteries once perpetrated in his garden a piece of "rockwork" of conglomerated bricks and other *débris* with which the locality abounded, and it acted as a salutary caution to all observers not to do the like again, for it claimed kindred with some hundreds of rubbish-heaps all over the district as one of themselves. Like many other questions, however, this had another side to it, or rather another face, and the owner, by way of filling up the interstices between the shrubs he had planted, sowed some seed of choice Sweet Williams, and thereby succeeded in making such a mound of bright blossoms as would have done credit to the best professsonal, for no part of the brown ware of which his "brick pile" had been made, could be seen, and the shrubs served as breaks and as a background to this gay little hill of sweet flowers.

What this gentleman accomplished by a random stroke may be readily done by transplanting this biennial into the sites where it is wanted to flower; and if there be plenty of manure about, or good fat earth, I warrant the cultivator will not be disappointed in his display of flowers, as nothing short of poisonous smoke affects these plants. It is on this account that I would bring them up for town gardening, and as I have given one example in the district of fire and smoke (not chemical works' effluvia, but honest burnt clay smoke), I will now come to the London window garden, and the courts and alleys, where poverty is an ingredient in the case, as well as smoke. Gardening for the rich is easy enough, but you circumscribe the area vastly, and shorten the catalogue to a very few names, when the article has to be headed "Gardening for the Poor." The hawker with his humble donkey team has to bring the plants ready grown to the door in spring, and, with or without pots, as the case may be, the poor man's garden wants must be supplied. I recollect right well the time when the respectable London nurserymen would have scorned to supply a hawker with Hyacinths in pots just opening into bloom, but the day for such ideas has long gone by, and thousands of plants are grown for hawkers now, to the great benefit of the three parties therein concerned, namely, the buyer, the grower, and the hawker. The Hyacinth, the Crocus, and the Narcissus, belong to the better class of buyers, and do not come within the range of the poor man's purse, for the bulbs being worth 6*d.* to 9*d.*, and the pot 1*d.* or 2*d.* more, the whole thing is quite a luxury, and we must give up the idea of making the poor man's home gay with such furniture as bulbs forced.

On coming down Highgate Hill one day, I was surprised to see a long string of greenhouses filled with Sweet Williams in full flower, and apparently treated with as much care as if they had been choice Pelargoniums. These were no doubt for the hawker, as well as to decorate halls and staircases for dancing parties and the like; and where masses of bloom have to be got up, nothing can be more gaudy under gaslight, or more fragrant, than the chubby, thick-set blooms of the Sweet William. Here then was a poor man's plant indeed; for if we take the pot at 1*d.*, and the plant and soil at a farthing, the grower and hawker will make a handsome profit if they can get the buyer to give the modest sum of 3*d.* for a good flowering plant of Sweet William in a pot; and where the pot is not wanted, half that sum will be a fair price for the plant only. I need scarcely remark that where the amateur has a patch of garden ground he can grow his own seedlings, and the cost of his seed will not be more than that of one pint of beer, for which small sum he may get a fair start with at least 200 plants.

The professional gardener will find the Sweet William a valuable friend in the reserve garden for cut flowers. Whilst other flowers are doing the exotic honours, the bulk of the work frequently falls to the lot of hardy flowers; and those are especially valuable which have the merit of being changeable in their colours. There is, moreover, nothing coarse in the looks of this humble Dianthus; and those who think lightly of it would do well to point out to us where we could find a substitute for the Sweet William, with the crowning virtue of cheapness, so essential in purveying for the windows and gardens of the poor in and around our large towns. *Alex. Forsyth.*

BOTANICAL DRAWING.—No. VIII.

The few hints given in my former communications, if applied practically, will, I hope, induce the beginner to proceed systematically in flower drawing, as he should do in any other pursuit. Then, by dint of zealous application, he may become qualified even to draw a dried specimen from the herbarium—an effort which will test his judgment, and call forth all his knowledge of perspective and adjustment.

It is not absolutely desirable (as some by their works would seem to imagine) that a drawing should exhibit any amount of evidence that it has been made from a dried specimen, but it is a curious fact that in drawings made from such materials some latent manifestation is seldom wanting, though the acute botanical critic would not hesitate to whom he should award credit for bad taste or ignorance—the plant or the artist. Sketching living plants is merely a species of copying, but dried specimens test the artist's ability to the uttermost; and by drawings made from them would I be judged as a correct draughtsman.

Having delivered myself of these truisms, and my humble opinion thereon, I shall venture to say something about the shading of plants, premising that I do not allude to the artistic treatment of which they are susceptible, but rather to theoretical shading.

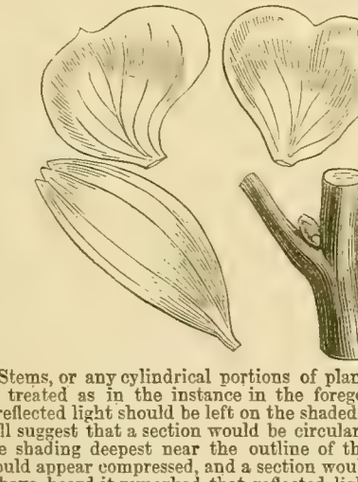
In drawings with a background all the shades require to be proportionally deeper than in those on white paper, and various effects of light and shade may be rendered which should be charily indulged in when the background is white, for in the latter case the tone may be as light or dark as suits the taste of the artist. In strictly botanical drawings a background is seldom given, and in most cases all the shading necessary is just enough to give unmistakable form to the parts, which should be all treated as if opaque. The transparency of the flowers may be slightly rendered, but the translucency of the leaves should never be attempted.

As a general rule in shading with pencil or with brown or black, if the drawing is not to be coloured, the shading should be faintly put in, and any attempt to supply the place of actual colour by tinting all the surface of a flower or leaf should be avoided as a useless waste of labour, and consequently in bad taste. I make an exception in the case of dark-coloured fruits or stems, they may be tinted and shaded deeper with good effect.

In using the lead-pencil it is of course necessary to produce the effect of shade by a series of touches, and unless the leaves be small, the lines should never be made in the direction of the midrib, but should follow the direction of the veins as shown in the following cut.



If the artist should have occasion to lithograph or draw for wood-engraving, he will find the advantage of proceeding in this manner, as the lines answer a double purpose, and impart both shade and texture. In the shadow of one leaf on another (an effect which should always be rendered in a coloured or highly-shaded drawing) the lines may be hatched, as it is technically termed, *i. e.*, crossed diagonally. In flowers the touches should blend with the visible or supposititious venation, for the shading, however finely done, if the lines be not systematically arranged, will never give the proper effect of shading. To make the lines of the shading harmonise with the venation may appear a very simple thing, but if the reader will test his skill in that respect, I venture to predict that he will discover it to be one of the most difficult exercises of the pencil.



Stems, or any cylindrical portions of plants, should be treated as in the instance in the foregoing cut—a reflected light should be left on the shaded side; this will suggest that a section would be circular, but were the shading deepest near the outline of the stem, it would appear compressed, and a section would be oval. I have heard it remarked that reflected lights are an artistic refinement in botanical drawings for scientific purposes, but as it is certainly effective and natural an artist may safely give the paper on which he draws some credit for reflection. *W. H. Fitch.*

BEDDING PLANTS GROWN AT CHISWICK: 1868.

(*Continued from p.* 444.)

§ III. Leaves Zonate (*continued*).

Leaves with Green Margin and Disc.

(b) Flowers narrower-petaled (Nosegays).

True Nosegays.

1. Flowers scarlet or crimson:—

Beyard. Dwarfish and free-growing; leaves lobate, dull-zoned; flowers crimson-scarlet, in large trusses. 1st class in 1868 as a pot plant.

Cybister. Moderately vigorous, with zoned leaves, and loose bright scarlet flowers. 1st class in 1865.

Hon. Gathorne Hardy. A striking variety of moderately vigorous growth, with dull zoned leaves, and ample trusses of bright crimson-scarlet flowers of large size. Brighter and larger flowered than Stella. 1st class in 1868.

Lady [illegible]. A bright looking variety, of moderate vigour, having flat, dark zoned leaves; flowers bright scarlet. 1st class in 1867.

Miss [illegible]. A variety of a dwarf habit, with a straggling mode of growth; leaves with faint zone; flowers scarlet. 1st class in 1866.

Stella. Moderately vigorous, with dull zoned leaves, and crimson-scarlet flowers. 1st class in 1867.

The Sultan. A robust close habited variety, with faintly zoned leaves, and free-showy flowers of bright red flushed with orange. 1st class in 1868 as a pot plant.

Waltham Scarlet. Moderately vigorous; leaves with faint zone; flowers rich crimson-scarlet; a fine and free-growing variety for either pot-culture or bedding. 1st class in 1866; confirmed in 1868 as a pot-plant.

Promising:—Crimson Queen, Glowworm, Godfrey, Mrs. Sinclair, Triomphe de Stella, Vesta.

Passed:—Adolphe Poullain, Baron, Black Dwarf, Black Prince, Cerise, Constant Nivelet, Firebrand, Grand Duke, Harkaway, Harry Hieover, Loveliness, Napoléon, Orange Bouquet, Red Robin, The Dwarf, Waltham Nosegay.

2. Flowers rosy-scarlet, magenta, &c.:—

Le Grand. Moderately vigorous; leaves with dull zone; flowers large, rosy-scarlet, in bold trusses. 1st class in 1866; confirmed in 1868.

Magenta. Moderately vigorous; leaves with dull zone; flowers bright magenta-crimson. 2d class in 1865.

Pink Pearl. Of compact growth, with flat faintly zoned leaves and rosy-crimson flowers in moderate sized trusses; a rather effective variety, having the colour of Lord Palmerston. 2d class in 1865.

Promising:—Magenta Queen, Mrs. Laing.

Passed:—Blanch Lefevre, Comet, Hermit, Lord Palmerston, Minnie Petch, Mons. Bouchard de Bussy, Mons. Massena, Omen.

3. Flowers salmon-coloured:—

Violet Hill Nosegay. Of compact habit; leaves zoned; flowers deep salmon. This variety was good early in the season. 1st class in 1867.

Baron de Stael. Dwarf and compact; leaves dark-zoned; flowers rosy-salmon; suitable for edgings; free-flowering. 1st class in 1868; also 1st class as a pot-plant.

Promising:—Birdie, suitable for edgings; Madame Janvier de la Motte.

4. Flowers rose-pink, &c.:—

Promising:—Lilac Rival, Rose Stella.

Passed:—Annulus, Cliveden Rose, Emeline, Fothergillii, Nil Desperandum, Pink Rosette, Premier, Souvenir de Sir J. Paxton, Stella's Spouse.

*** Semi-Nosegays.*

Amy Hogg. Moderate growth, with dull zoned leaves, and broad-petaled deep rosy flowers. 1st class in 1865.

Chilwell Beauty. Of vigorous habit; leaves faintly zoned; flowers of deep rosy tint; too nearly resembling Dr. Hogg in the flowers, but slightly paler in the zone. 1st class in 1868 as a pot-plant.

Comet. Vigorous in habit, with lobed wavy dark zoned leaves and large trusses of a dense and opaque bright orange-scarlet; showy. 1st class in 1868.

Countess of Strathmore. Of vigorous spreading habit, with faintly-zoned lobed leaves, and fine trusses of scarlet flowers having a slight rosy tinge. 1st class in 1868.

Dr. Hogg. Of moderately vigorous habit, with lobed leaves marked with a medium zone, and deep rosy flowers; a fine variety for pot-culture. 1st class in 1867.

Duchess. Compact in habit; leaves faintly zoned; flowers of a rosy-lake or magenta, very free. 1st class in 1865.

Eclat. A variety of vigorous spreading habit of growth, having the leaves marked with a dull zone, and very large trusses of fine large dark rosy-scarlet flowers. 1st class in 1868.

Fairy Queen. Compact growing, with dull zoned lobed leaves, and broad-petaled flowers of a rosy-crimson colour; it was good early in the season. 1st class in 1867.

Indian Yellow. Of spreading habit, the leaves dull zoned, and the flowers of a distinct shade of pale orange-red. 1st class in 1865.

King of Nosegays. Of moderate growth, with dull zone flowers large, freely produced, light scarlet. 1st class in 1868.

Mrs. Menzies. Of moderately vigorous habit; leaves with dull deep zone; flowers free, rosy-pink, in fine trusses. 1st class in 1868 as a pot-plant.

Rebecca. Moderately vigorous, with dull zoned leaves, and rosy-scarlet flowers. 1st class in 1867.

Oberon. Moderately vigorous, with zoned leaves; flowers broad-petaled, scarlet. 2d class in 1867.

Promising:—Rachel.

Passed:—Camera, Clio, Essex Rival, Evening Star, Fanny, Kingfisher, Leah, Lizzie, Nimrod, Orange Girl, Ornement des Massifs, Polly, R. Fish, Sue, Tilda Toots.

Leaves with Green Margin and Marbled Disc.

(a) Flowers round-petaled.

Sheen Rival. Moderately vigorous in habit; leaves marbled with light green and darkly zoned; flowers in fine trusses, bright light scarlet. 1st class in 1865.

Dr. Newham. Vigorous habit; leaves marbled, with dark zone; flowers carmine-rose, freely produced. 2d class in 1866.

Promising:—Flossy Fowle, Optima, Pigmy.

Passed:—Candidate, Criterion, Flambeau, Kingsburyana, Lucy, Magnificus, Rosette, Undergraduate.

(b) Flowers narrower-petaled (Nosegays).

Promising:—Talisman.

Passed:—American Flag, Chameleon.

Leaves with Yellow-green or Golden Margin and Disc.

Beauty. Close habit and moderate growth; leaves yellow-green, with well-defined, but not very dark, red-brown zone; flowers soft deep rose, affording a good contrast to the foliage. 1st class in 1866; confirmed in 1868.

Beauty of Calderdale. Fine vigorous habit; leaves large, yellowish-green, with a broad, dark, conspicuous zone; flowers scarlet. It is effective from its bold, well-marked zone, but not so yellow as some others. 1st class in 1868.

Beauty of Oulton. Free and of moderate vigour; leaves with dark zone; flowers scarlet. 1st class in 1865.

Kentish Hero. Free, bright, and of vigorous growth: leaves yellow, with well-defined chocolate-red feathered zone; flowers rosy scarlet. 1st class in 1868.

Mrs. J. Todd. Of compact habit; leaves yellow, with broadish red-brown zone, not very evenly marked; flowers rose-colour. 1st class in 1868.

James Richards. Of vigorous growth; leaves yellow with dark zone, effective, equal in appearance to Beauty of Calderdale; flowers bold scarlet, freely produced. 1st class in 1868.

Master Leonard. Of a neat and moderately vigorous habit, with painted leaves, which are of a yellow-green, flaked here and there with dark green, with a broad and well-defined zone of reddish brown, shaded with darker brown; flowers deep red. The leaves are of a marbled character. 1st class in 1868.

Gaiety. Of spreading and moderately vigorous habit; leaves

yellow-green, with a narrow feathery zone and wide margin; flowers scarlet, freely produced, and good. 1st class in 1865; 2d in 1868.

Gloriosum. Moderate in growth; leaves yellow-green, with narrow, dark, vandyked zone; flowers scarlet. 2d class in 1866.

Promising:—Beauty of Ribbledale, Circlet, Columbine, Constantine, Ebor, Edward George Henderson, Model, Mrs. Hugessen, Princess of Wales, Rev. W. F. Radclyffe.

Passed:—Arab, Catherine, Compactum, Countess of Kellie, Crown Diamond, Distinction, Eclipse, Egyptian Queen, Electric, Flora M'Donald, Her Majesty, Luna, Madeleine Schiller, Mary Lister, Minnie, Mrs. Maxwell Hutton, Mrs. Bass, Novelty, Oriole, Painted Lady, Prince Leopold, Princess Alice, Sensational, Venus, Viceroy, Zebra.

Leaves with Golden Margin and Green Centre.

Lady Cullum. Free and moderately vigorous; leaves yellow-edged, with broad, deep red zone; the finest of this series. 1st class in 1868.

Mrs. E. S. Constable. Free and moderately vigorous; leaves with yellow margin and dark red zone. 1st class in 1868.

Mrs. Pollock. Of vigorous growth; leaves bold, flat, yellow-edged, with dark red zone, rendering them very effective; flowers scarlet. 1st class in 1865; confirmed in 1868.

Mrs. Turner. Vigorous; leaves large, with broad yellow edge, and broad zone of bright dark red; a fine telling variety. 1st class in 1868.

Queen Victoria. Moderately vigorous; leaves large, flat, yellow-edged, with distinct red zone; flowers scarlet; the foliage of this is very effective. 1st class in 1868.

Sunset. Of spreading vigorous growth; leaves lobed, yellow-edged, with orange-red zone; flowers bright red. 1st class in 1865.

Promising:—Alhambra, Florence, Huntingdonian, Miss Maule, Mrs. Benyon, Mrs. G. Williams, Ruby King, Sophie Dumaresque.

Passed:—Lizzie, Meteor, Oberon, Queen of Tricolors, Red Gauntlet, Titania.

Leaves with Silver Margin and Green Centre.

Argus. Moderately vigorous; leaves with creamy-white edge and faint zone; flowers bright scarlet. 1st class in 1865.

Countess of Warwick. Of vigorous habit: leaves with creamy-white edge and faint dull brownish zone; flowers scarlet. 1st class in 1865.

Fontainebleau. Moderately vigorous; leaves with creamy edge and faint pink zone; flowers rose. 1st class in 1866.

Glen Eyre Beauty. Vigorous; leaves with creamy margin and broad showy red zone. In the early part of the season it was even superior to Italia Unita. 1st class in 1868.

Italia Unita. Of moderately vigorous spreading habit; leaves creamy white, with distinct rosy-pink zone; flowers scarlet. 1st class in 1868.

Velvet Cushion. Moderately vigorous; leaves flat, with green centre, creamy margin, and well-marked deep rosy zone; very pretty and effective. 1st class in 1868.

Promising:—Mrs. Chater, Picturatum, Prince Silverwings, the latter a free-growing and effective plant.

Passed:—Amelia Halphen, Attraction (Gaines'), Burning Bush, Cambridge Gem, Elegans, Empress, International, Lady Elena Mary, Little Beauty, Mrs. R. Wynn, Pearl, Rose Queen, Rosette, The Countess, Wassand Hall Beauty, White Lady.

(*To be Continued.*)

WINDOW GARDENING IN TOWNS.

I WAS highly gratified with "Una's" remarks upon this subject. On a recent visit to the commercial metropolis of Scotland I remarked the prevalence of the practice "Una" so vividly describes at p. 1291, 1868. In certain districts of Glasgow almost every window has its flower-box or window garden. Many are of the humblest description, others are furnished with many of the graces of art, and provided with admirable contrivances for successful cultivation. There are innumerable boxes, such as "Una" describes, mere wooden parallelograms, painted or unpainted, fitting into the window-sills, filled with earth and furnished with flowers of the commonest description, or bulbs, as "Una" points out, or penny packets of gay Annuals—with Maurandyas, Nasturtiums, Canary Creepers, or Convolvuli, hanging down gracefully over the heads of the passers-by, or climbing up the sides of the window, and shaping the sky line with a floral arch of beauty. Others again substitute tiles or stoneware, china, or ornamental iron boxes, for wood. Some of these window boxes are highly artistic, both in pattern and finish, and give a chaste finish to the front of the houses.

But the differences in the basement of these gardens is as nothing to the varieties in structure and form of the upper storeys. For it must be borne in mind that probably a majority of these gardens are not simply such, but green or hothouses to boot. For the double purpose of keeping out the blacks and improving the climate, immense numbers of them are converted into green or hothouses. The simplest mode of effecting this transformation is the following:—Squares of glass, of the desired height, are pushed firmly down into the soil along the fronts and ends of the window garden. A large square of glass is then carried across from the window to an inch beyond the glass side of the box. This forms the roof. It is held in position by two or three pieces of hoop iron being carried up from the side of the box to the height of the front of the roof, and ending with a bend to lay hold of the front edge of the glass. A splint of wood or a small bar of iron is also carried along parallel with the window for the top of this to rest upon. This is furnished with a hook at each end to prevent the roof sliding about lengthways, and to prevent it from being blown off. One of these hooks must be movable, to permit of the greenhouse being unroofed at pleasure. These simple arrangements complete the glazing, and keep all tight. Even ruder contrivances than this may be met with. Invention has been severely taxed in the matter of glazing. I believe every known method has been illustrated in these window gardens in Glasgow. And the modes of fixing in the glass can hardly be more varied than the shape of these tiny houses. You may see curves of all forms, lean-to's, spans, half-spans, ridge-and-furrows, domes, bells, glass steeples, quadrants—all shapes are pressed into use. The most elegant are perhaps the semicircular roof, sweeping down from the top or middle of the window to the surface of the garden. Very ingenious means are likewise used for ventilation, and most of the expedients known in gardens, from the removal of a pane of glass by hand, to the opening or closing of ventilating spaces, have been applied to these interesting miniature glass houses.

The most common height of the glazed window gardens reaches to the top of the bottom sash of the windows. The under sashes are capable of being slid up or doubled back throughout their entire length. The glass roof terminates the bottom of the upper sash, and is often attached to it. In that case the pure air must either come into the room through another window, or be admitted through the garden. The latter is objectionable, as it creates draughts among the plants, and runs the risk of vitiating the purity of the outside air. In rooms where each window is furnished with its garden, the glass should not be attached to the window frame, but to an extra bar; and the upper sash be left free to move at pleasure. It is important that the ventilation of the living room and of the window garden should be separate and distinct, otherwise the plants will often be in danger of getting a killing draught of biting air while their owners are asleep. The plants will either have too much, or the living room too little air, unless the one is rendered quite independent of the other. This danger guarded against, nothing can add more to the enjoyment of a home than these glazed window gardens. We have heard a good deal lately about portable greenhouses, but in these glazed window gardens we possess all the merits of the most perfect portability. We can actually bring our greenhouses, our gardens, into, or shut them out of, our living rooms or bed-rooms at pleasure. And not only is this power of shutting out and entering in a great element in the enjoyment of a window greenhouse, but it is also of the utmost importance to the health and beauty of the plants. Supposing, for instance, such a garden is furnished with tender Ferns, Lycopods, tropical fine foliage plants or Orchids—it will be absolutely necessary to confine the tropical heat and excess of moisture within its own limited area. On the other hand, if it is not heated, and the night is cold, throw up the window, and the heat of the room will preserve the plants from frost. But morning comes, and with it the sweep or the house-maid: down with the window, and preserve your plants from a dusky indigestible breakfast of soot and dust. The window garden, if glazed ever so closely, must never induce its owner to dispense with the window. This inner barrier of glass is needed to mediate between the two forms of life. Our object in placing the plants there is to have a maximum of enjoyment from them with the minimum of injury to the plants or ourselves. As to furnishing such gardens and tiny houses, almost any known plant may be made to grow in them. Their areas are necessarily limited, but, fortunately, mere bulk can hardly be recognised as an element of beauty, and it is almost the only quality of plants that cannot be developed in these window gardens, and even size may be had within reasonable limits.

It would therefore seem superfluous to enumerate lists of plants suitable for cultivation in such structures. Among tender plants few could be more suitable than the hardier Caladiums, Begonias, Ferns, and Mosses. Amid curious plants there are the Cacti, Melocacti, Echeverias, Mesembryanthemums, Saxifrages, and all the various races of succulents. For the general run of such gardens there are the Pelargoniums of all kinds and colours, forming a host in themselves, sufficient to fill all such gardens with beauty throughout the year. Then there are the Fuchsias, of which almost the same might be said; with Petunias, Balsams, Verbenas, Chinese Primroses, Chrysanthemums, Camellias, Indian Azaleas, and the easier grown Heaths, Cystisus, and Coronillas, all admirably adapted to enliven window gardens at the various seasons of the year. The whole host of bedding plants, whether grown for foliage or flowers, will thrive in such situations with proper care; while in the well-glazed little house Achimenes, Gloxinias, Gesneras, and all such plants will grow well, flower in summer, and give the lower half of the window a tropical richness, even though the upper half reveals the proverbial leaden skies of the northern parts of Britain. Almost every wild or common garden plant may be found in these window gardens, and I confess that I look upon the rough boxes of the poor and the struggling classes with most interest. There was something pathetic in noting the efforts of the poor to bring some fragment of the beauty, purity, and freshness of the country to brighten up the dark, close, stifling garrets, and dark, dreary cellars in which so many of them are doomed to dwell. I had the privilege, or pain—for it was both—of visiting some of the worst parts of Glasgow in company with a city missionary, and I found the love of flowers, as proved by their possession, to be almost universal among the lowest classes of society. It would have humbled the pride of many professional cultivators to have seen the fostering care bestowed upon some of the commonest weeds. This love for a living plant seemed in some wretched abodes to be the only common link that connected the inmates, sunk to the lowest depths of wretchedness, with ourselves. It was the one ray of hope amid the surrounding gloom. The love of flowers not only links man to man, but binds man to his Maker; and who can tell how many may have been drawn back by their gentle silent ministry to duty, virtue, and goodness, after all other ministries had failed.

But leaving the regions of wretchedness, and gladly ascending the social ladder to the ranks of industry, we seem to breathe the fresh air of a new world, and while we gratefully note how much clearer and purer it is, we cannot but be aware that it is likewise more heavily laden with the fragrance of flowers. The love for these among the working poor of Glasgow seemed universal. Much of their time at home is spent in cultivating, and most of their short holidays in collecting, flowers for the window garden. The following sample of flower-hunting, in which I shared, is given as a fair illustration of the means used to furnish these window gardens with beauty, and to keep them filled at a cheap rate throughout the year. One day a trip to Stirling was proposed, and I observed my Glasgow friend—every window in whose flat, storey, or floor had its window box or garden—was very particular about providing, before starting, two or three large pocket-handkerchiefs, and a huge clasp-knife. No sooner had we cleared the boundary of Stirling streets than the reason of such provision was observed. The first flowering plant we came to was dug up and bagged instanter with the facility of an expert. And this operation continued throughout the day. It was of no use remonstrating that that patch of Heath or that floating water-plant would not grow. My town friend knew better. Experience had taught him that it would live until he could have another run into the country, and that was all that he wanted. At all events it must be tried—yes, that water-plant must be fished out of the pond. He had had one, or something like it, before, and it had lived two months in the window and expanded two or three fresh flowers. We also hunted for Mosses, Lichens, and other odds and ends, to set off the "ither flowers we hae i' the windie." Some fine Daisies, Bachelors' Buttons, Polyanthuses, Auriculas, and Gardeners' Garters, had also been seen in the cotter's gardens, and a few of these "tame flowers, to mix wi' the ithers, mak' the windie gairden look mair like the auld place at hame." And the mixture looked better than if they were all either wild or tame. A word in praise of the cottage flowers, or an expression of recognition—"It 's jist the same as I grew years ago in the auld house at (say) Auchterarder"—was generally sufficient to transfer a bit of the old favourites from the cottage gardens to the ever-open handkerchief. Occasionally a bit of something wild was given in exchange, and more rarely a few coppers seemed to change hands during the transfer from the garden to the handkerchief. But the offer of these was sometimes met with the ever ready, "Hoot awa' man; ye're welcome to the bit flowers; it will please the bairns, and 'mind yer wifie o' a' the happy days she spent at Bonnie Bank side when she was a happy bit lassie, rinnin' wi' you aboot the braes and pu'in' the gowans fine." It then turned out that the cotter's wife had recognised the town lover of Nature, and "kent him brawly years ago, when wee Janet (now his wife) an' him played thegither as bairns in a hieland village." And thus the love of Nature works to make the whole world kin.

During the whole day a dual process had gone on. There had been the collection of plants, carried out with an energy and enthusiasm which the pen is totally unable to pourtray; and there had, associated with this, been a most zealous gathering together of cut flowers. At last the words, "It is enough," or, rather, "Weel, man, I dinna see hoo we can carry ony mair," are heard, and the start is made for the station. Studying my town friend's enthusiastic delight, I got a new reading of an old text, "He shall come again with rejoicing, bearing His sheaves with him." Talk of the exultation of great gardeners over their success at shows, or their splendid crops! why, this pleasure is the dregs of staleness and utter flatness compared to the delight of my friend. And then when we reached home and got in, tea welcomed us with its delightful odour, and accompanied by hot toast, sweet cakes, &c., I confess, for the moment, the tea-table had more attraction for me than the flowers. My friend seemed utterly unconscious of the tea-table presence. The flowers were instantly undone, and five or six pairs of little eyes seemed literally to shed new light and beauty over them. As many pairs of tiny hands were touching their stems with loving tenderness, or clapping together in sheer delight, while their little feet actually leaped, danced, and capered about for very gladness of heart; while the words "Oh you little dauty!" addressed to the flowers, were heard from tiny lips, and old ones too, in all directions. Every vase, glass, and even the old cracked and spoutless tea-pot were in instant requisition for the flowers and no sooner were all filled and duly watered than the overflowing handkerchiefs were made to reveal their treasures. That room, in the very heart of the great city of Glasgow, was transformed into a miniature representation of the flora of Stirling and its environs. I confess that, amid all these sights and sounds, I felt a gathering lump in my throat that completely subdued my cravings for tea; and possibly I regretted more than any one, when all this innocent admiration of the beautiful was at last changed for the more mundane pleasure of eating and drinking.

At last all were cleared away, with the distinct understanding that as they could not catch a professional every day I was to renew and fresh plant all the window gardens on the morrow. The business was undertaken with fear and trembling; however, I put a bold face upon it, and began to ring out the old denizens of the windows with right good will, as the preliminary to the ringing in of the new. My zeal in this matter, however, nearly brought me to grief, for most of the old half-dead-looking bits, as I soon discovered, were held sacred, or reverenced as household gods. This had been carried from the battle-field of Bannockburn, that been brought from Birnam Wood or Dunsinane Hill, and that little plant of a struggling Rose was a "wee bit o' the Maiden's Blush that covered the front o' the auld house at hame." None of these things must be disturbed nor injured. All the new had to be inserted without displacing any of the old, and room must be found for the whole of the new, and they "maun a' be made to grow." Here was a poser. The laying out or finishing of a new garden was nothing to it. I verily believe that I perspired more over these window gardens on that half day than I have done since over far larger matters. But the reward came at last, and it was admitted that the gardens had never "lookit sae pretty afore—they were very bonnie."

Every window garden is more or less a preacher

of righteousness, an aid to sobriety, and an antidote to vice. It is a most attractive recreation, supplies good motives, absorbs spare time, teaches by its mysteries, attracts by its dependence, and wins by beauty and sweetness. The window garden tends to level down the stiff barriers that sharply divide the town from the country, by bringing much of the freshness, greenness, and beauty of the country into the very heart of the dusty town. Window gardens are not only thus good in themselves, but they are often the pioneer of something better still—the foundation of true happiness. *Urbs.*

Home Correspondence.

Vegetable-growing in the North.—In the report of the Royal Caledonian Horticultural Society, in the *Gardeners' Chronicle* for April 17th, a great point is made of the display of vegetables, as upholding the views of the northern advocates in the recent discussion in your columns. The show, it seems, was held on the last day of March, and the vegetables enumerated by your correspondent consisted of Broccoli, Asparagus, French Beans, Mushrooms, Brussels Sprouts, new Potatos, Rhubarb, Spinach, Celery, Leeks, Radishes, Seakale, and Beet. Now, had the show been held at Christmas instead of on the 31st of March, there might have been some considerable merit in such an assemblage of good vegetables. As it was, I see no great proof of superior skill in the matter. With the exception of new Potatos there are but few large gardens in the south that do not provide such things throughout the winter. For years past I have been in the habit of sending in Asparagus, Seakale, and Rhubarb for Christmas dinner. Such things are very common in the south any time in March. It would appear from the report that there were neither Cucumbers nor forced Strawberries at the show. The climate of Scotland must likewise have undergone a considerable modification if good early Cabbages are considered too common to be shown at the period named. No vegetable is more prized in many families when it first comes in, crisp and sweet, tasting something between Asparagus and Cauliflowers. We in the south have certainly not arrived at that state of perfection that affects to despise Cabbage as too humble or common. And surely if the first horticultural society of Scotland, with the prefix "Royal," rightly retains Cabbages in its schedule, it ill becomes the most distinguished horticulturists to be above producing them in perfection at its early shows. *Observer.*

The New Flower Basket. — The new basket for gathering flowers is just the very thing that is wanted. (See p. 417.) Flowers are infinitely better grown, and their numbers have increased a thousand-fold, but little improvement has been effected in their modes of conveyance from the garden to the boudoir or drawing-room. And yet this passage is daily, almost hourly, made, and the number of flower-passengers are so numerous that the damage sustained by over-crowding is incalculable and irremediable. The carriages are so constructed as to render damage inevitable, and the more they are crowded the greater the injury. Unfortunately, too, no action for damages can be sustained on this line. How grateful, then, we should be for a new carriage, on an entirely new principle, for our floral passengers. Instead of any flower necessarily lying upon or leaning against its neighbours, as in the old ones, we are now offered a conveyance, divided into innumerable compartments, of which, in fact, any passenger may have the exclusive use, the heads being safely secured in one place, and the feet firmly fixed in another; thus all friction or crushing against each other is avoided. Such a boon is invaluable to flowers on transit, and cannot fail to be welcomed by those who grow, those who use, and those who love flowers. The principle of the basket, figured and described at p. 417, seems about perfect. The form and size are matters of taste and convenience. The balloon is a beautiful form, and not inconvenient, but, fortunately, any shape will answer the purpose. In regard to size, it may range from 3 inches across to 3 feet. From a foot to 18 inches in area of top and sides will form convenient and useful sizes. Another important point is the material of which the basket should be made. Brass wire, though admirably adapted for ladies' baskets, would prove too expensive for general use; any kind of wire will answer. Nor wire only, but any material used to make other baskets, such as Willows, strips of wood, thick shavings, and, in fact, everything combining the requisite stiffness and flexibility may be employed for these new flower baskets. This range of material will give a corresponding range of price. A shaving flower basket on this new principle might be made for 1*d.*, while a highly finished one, made of brass wire, might cost a guinea. The proposed basket will consist, as it were, of two bony skeletons, but as neither of them will be clothed with flesh, but furnished with willow or other surface finisher, the cost will not probably exceed that of a common basket of the same dimensions. As they will afford no harbour or resting-place for water, they will last much longer, whilst their usefulness for flower cutting and conveyance will far excel all others. Flowers might be readily carried in them with the utmost safety and security for hundreds of miles if a little damp moss were thrust in the centre of the inner frame, to keep their stems moist and cool, and an extra framework of a few wires were so placed as to clear the outer line of projecting flowers, and so prevent the necessary covering of paper or cloth from touching them. By some such simple addition as half-a-dozen of projecting wires the baskets could be made almost dust-tight, heat and air proof, whilst the flowers could drink from an internal fountain as an antidote for drooping. During very hot weather a few small atoms of ice dispersed among the moss would keep their drinking cistern cool for many hours. Mr. Mill's new basket has another great advantage in the facilities it offers for tasteful arrangement, in the mere act of cutting and collecting flowers. How often is the remark made that flowers never look so charming as in the hand, during the process of gathering or of transit from the garden to the house. Skilful fingers often reach a perfection of grouping by accident, as it were, beyond the reach of art. But hitherto such charming arrangements have been limited by a span. The ordinary baskets used for larger cuttings have provided no scope for the development of spontaneous taste. These new baskets invite instantaneous combinations of form or colour, and furnish scope for it over their entire areas. And doubtless many happy ideas for house and garden decoration will have their birth during the process of clothing the surface of these baskets with flowers. How the value of floral presents will be enhanced by being charmingly set up and off in their baskets, which latter will at once become indispensable to all who grow, gather, or love flowers. *Basket.*

Peaches, Nectarines, and Apricots on Open Walls.—I hear a dismal complaint on all sides. A spring-winter and winter-spring are not friendly to Persian and Armenian fruits on open walls. Glass-houses, if well managed, have the best of it this year. I took immense pains to get a crop of Peaches and Nectarines; but, by protecting them so early as November, I brought them into full bloom by February 1. The weather since, my readers know. For 10 weeks the "set" fruit remained about the size of a pin's-head, and when the sun, a few days back, came out with power, they withered away at the axils. Chancellor, with (after thinning) 29 fruits, is my best effort; the Prince of Wales and Bellegarde are the next best. Among Nectarines the best are seen in Red Roman, Victoria, and Pine-apple. The foliage of the trees here is a masterpiece. Messrs. Andrews and Fitch could not paint better. St. Ambroise and Peach Apricot—my only two—have lost all their fruit. We must hope for better times. I think, allowing for thinning and dropping during stoning, I shall have about 220 Peaches and Nectarines—a poor result for so much pains! Still, it is better than nothing, for a beggar once told me there was no taste in that article. I would rather have my trees and foliage in good health with little fruit than an abundance of fruit and miserable foliage. I have had several amateurs here this week. One said, "I never saw such beautiful foliage;" and another said, "I have looked over your trees for an aphis, and I cannot find one!" If you cannot command sun, you may, if you please, command water. My trees will be a pleasure to me all summer, by reason of their fine foliage and healthy shoots, and

> "The darkest day,
> Live till to-morrow, will have passed away."

W. F. Radclyffe.

Spring Gardening at Belvoir.—Once more you take us to this charming exhibition, and those who, like myself, have once been there, long to have the visit made annual in your pages, as the next best thing to taking the journey for themselves. I have run through the whole of your article, and visited each bed separately in its place, and realised all the freshness, beauty, and glory that you have described. Amidst it all I miss one favourite, which I thought I had forwarded to Mr. Ingram, and am surprised to find omitted from the notice of spring beauties. It is not only second to none that you enumerate, but I think fairly beats them all; I need hardly add that I allude to the Myosotis dissitiflora. We have a bank that has been in flower for the last two months, massed and variegated with this plant intermixed, with patches of common Primulas, the white variegated Arabis, Aubrietias of sorts, Violets white and blue, Anemones, &c. It is literally a sheet of the most exquisite blue, rivalling the deep azure of the sky itself, as the latter displays its deepest tints before a change in the weather, when heightened by the contrasting masses of white clouds that fringe the horizon like bleached mountains of riven marble. No Myosotis that I have ever grown comes anywhere near it in compactness or profusion of bloom, exquisite delicacy of habit, and proportion of flower to leaf. The leaves, in fact, are hardly seen at all, and the flower-stalks are so slender that they bend downwards, and display every blossom on their upper surface. M. sylvatica, with which many confound this gem, is not to be named on the same page in comparison with this beauty. I sent a basket to Mr. Eyles, and a few plants to others, last year, and should be glad to hear how it is doing about London. If there are any who still doubt the ornamental capabilities of this Forget-me-not, I invite all such to come here and judge for themselves; only let them come at once, as it will soon begin to fade. *D. T. Fish, Hardwicke, Bury St. Edmunds.*

Terra Cotta Statues.—They sell terra cotta statues, about 3 feet high, very cheaply at Leghorn (at 2*l.* 16*s.*), so that by common care they may be imported into England at 4*l.* apiece if more than one is taken. Now for such statues we have to pay 9*l.* apiece at Phillips' Pottery, Weston, which is the only place I know of where they are made in England, and we have very little choice of subject. Cement statues can be obtained to any extent at a very high price in London. Very good some of them are, but their colour is so very sombre that half their value is lost. Now I find that by covering up the terra cotta in October, choosing a dry time, and opening them in April, we do not get that green on them which is so objectionable. I have tried four for several years, and they are as free from it or frost cracks as at first, still keeping that valuable ruddy brown which contrasts so well with green. Terra cotta and cement go very soon in fountains, but the little zinc bronzed statues used for supporting French lamps stand any amount of wet or frost. I have a small one with a china plate as a tazza. Of course it is too small and too showy for anything but a greenhouse. *Somerset.*

Eel-worm.—Having read your comment on this novelty, the "eel-worm" (Megascolex diffringens), I may mention that, if new, it is already widely distributed, as I have noticed a worm in Scotland which I doubt not is the same, as it possesses all its eel-like attributes, is an inhabitant only of the stove or forcing-house, and is destructive in the superlative degree. *R. C., Herts.*

The New Rose—Madame la Baronne de Rothschild.—This fine variety is one of those Roses which are not likely to be overlooked, even in the most extensive collection, or to be forgotten after having once been seen. From observations made last season it was held, in this establishment, to be "the" Rose of the year; and the wonderfully beautiful blooms we have of it at the present time, not only confirm previous opinions but warrant me in affirming it to be the best flower of its colour in cultivation; for, beautiful as such Roses as Marguerite de St. Amand, Princess Mary of Cambridge, Monsieur Noman, &c., are, they must all yield the palm to the peerless beauty of Madame la Baronne de Rothschild, of which the following is a faithful description: Colour rich, clear silvery pink, exceedingly chaste and delicate; petals immensely large, very thick in texture, and perfectly smooth; flowers very large, globular, deep, double, and most exquisitely formed; habit remarkably robust, and short jointed; foliage fine and ample. It is quite distinct, and undoubtedly one of the most noble and beautiful of all Roses. *W. W.*

The Formation of Mould by Worms.—Since writing my chapter on worms, I am indebted to the courtesy of the author, for the paper read by Charles Darwin, Esq., before the Geological Society, and published in their Transactions for 1837, p. 505. Its perusal has scarcely modified the views I have already expressed, but it reveals a marvellous coincidence, inasmuch as this careful observer notices the two other modes of elevation of surface adverted to in my chapter, and dismisses them as inefficient, while he clearly and emphatically credits the worms with the whole of the work. And yet it would appear, from pages 506 and 507, that the soil found above the marl, &c., was not of the same quality as that found below it. I presume Mr. Darwin would attribute the difference to the fact of the earth having passed through the stomachs of the worms. In fact, this is obviously his theory, for he adds, that the surface soil would be more properly called animal than vegetable mould. I, however, would accept the fact of the difference in quality as a strong proof that the bottom soil had not been brought up by the worms, but brought down rather by the plants. The greater part of it has an atmospheric origin. Plants incarnate the sun himself in a visible body; this body is nurtured and sustained mainly by invisible food, produced by the atmosphere, and when it perishes part of it goes back to the air; but a large portion of it is spread out over the surface of the earth in the form of vegetable mould. And doubtless in this emptying of the invisible air down, as it were, in a solid mass of decomposing carbon annually, and hourly, in fact, over the surface of the world, through the instrumentality of every living plant, we have agents of sufficient energy, force, and persistency to cover the earth with vegetable mould without the assistance of manure. The amount of carbon utilised and converted from gases into solids in a single year is well nigh incalculable, and would account for all the elevations of surface so graphically described in the admirable paper of Mr. Darwin. It would be gratifying to many of your readers to know if this distinguished geologist still adheres to his original estimate of the usefulness and power of worms as earth-lifters and surface-elevators. Of this he may be assured, that I had no idea of running counter to any theory of so eminent and careful a naturalist when I began my chapter on worms. Even now I would gladly retreat, if I could consistently with the two rules that I have laid down for myself as a writer:—Is it true? then it ought to be spoken. Is it right? then it ought to be done. But what will Mrs. Grundy say? Well, what matters? No great man will ever respect a little one the less for speaking his mind freely, even though it may be in opposition to him. And truth has been said by some to have fallen from heaven down into the gutter, and the humblest—those closest to the gutter—sometimes find it first. *D. T. Fish.*

Dalechampia Roezliana rosea.—Many persons say this is a useless plant, not worth growing. I have a specimen preparing for exhibition which measures 3 ft. from the pot to the top, and 2 ft. 8 in. through, and which is covered with its beautiful floral leaves. The plant is a perfect picture, and the perfume from it in the daytime is as strong as that of the Stephanotis. I think it is the prettiest stove plant ever introduced. Has any one seen a better plant than this? *J. A., Evesham.*

Dendrobium Falconeri.—The Dendrobium race of Orchids is one of singular beauty, comprising some of the best and most beautiful forms, and the greatest variety of colours to be seen among flowers. The cultivation of the majority of them is attended with little difficulty, but there are a few that baffle the skill of some of our best cultivators, and chief among that few is D. Falconeri. Having seen the finest collections in the country, I am in a position to review what is, and what is not, cultivated as it ought to be; and because the species in question is what is generally considered a "difficult plant," I hasten to lay before your readers a plan by which success may be made easy. In the collection at Ferniehurst, owned by Mr. Salt, and managed by his gardener, Mr. Lorimer, there are several plants of this species actually growing like weeds. Now if their cultivation had depended only upon one or two years' success, I should not have instanced them as examples, but there are several of them that have been in Mr. Salt's nice collection for years, and

their growth is certainly the best that my eyes have seen—I will not even except Mr. Bateman's famous plant, and I know no other that can by comparison approach them. I hope that Mr. Salt will carry out his idea of exhibiting one of the plants at the meeting of the Royal Horticultural Society [see our report at p. 504], and I hope there will be a good attendance to see what this glorious plant is in the height of its inflorescence. The one, however, that delighted me most, was one that will not be exhibited, not having so many blooms as the fine imported plant that Assam would have difficulty in matching. Some of your readers will be thinking that I am giving vent to an unbounded and almost insane enthusiasm, in writing on this point so perfervidly, but I am only dwelling upon it thus explicitly because in the first place it is such a "grand thing," and in the next place because hundreds of plants have already been lost to the country through improper and injudicious treatment; and if any remarks of mine can set people thinking—for it is not easy advising orchidophilists, I find—some good may be the result. In the first place, the great majority of growers coddle the plant in too sweltering an atmosphere. The climate of the district from whence it comes shows that it must be grown in a very humid atmosphere, its roots attached to the minimum quantum of feeding stuff, and, last and not least, that it should not be subjected to a high, close temperature. Some of your readers will laugh and be apt to ridicule this plan of growing D. Falconeri, but, depend upon it, it is the right one, as I myself am beginning to see, and am determined to act upon. The Ferniehurst plants were growing in, and had never been moved from, the coolest end of a Cattleya house, and they were unexceptional. Moreover moisture is supplied largely for purposes of evaporation, as was clearly manifest from the number of subsidiary branches rooting part away from the base almost uniformly, and then the pseudobulbs were swollen up and the knots peculiar to the plant remarkably conspicuous. It was as green as a Rush, and as plump as the easiest and best grown of the Dendrobes are. Many of your readers know the value of this plant well enough, but when I tell those who know little of Orchid prices, that an imported piece last week brought 20 gs. at Stevens' Rooms, and an established plant the week previous 50 gs. down in the provinces, it will be readily conceived how advisable it is to hit upon the right method of culture, and how vastly appreciated sound advice ought to be. From the great enthusiasm of Mr. Salt, and his extreme delight in the Orchid family (he was up at 5 o'clock in the morning during my visit, as my time was limited, to have a chat), I am very pleased to know that he has hit upon a most excellent way, which will astonish even our clever friend and enterprising collector, Mr. James Veitch. The first thing for all to do, who will take advice, is to grow their plants of D. Falconeri upon oblong blocks of pottery-ware, or wood, but the former, in my opinion, is preferable; to keep them suspended near the glass, with a tank of water, for purposes of root and pseudobulb supply, as near them, vertically, as possible; and above and beyond all, to let them have the privilege of living in a far cooler temperature than most people think suitable. With attention to this, failure will be scarcely possible, and death from desiccation and drought, a thing that will be only remembered as a relic of the past. *Jas. Anderson.*

Tulips at Belvoir.—In your very interesting account, in the *Gardeners' Chronicle* (p. 441), of the winter and spring gardening as carried out at Belvoir, there is one point not clear, viz., are the Tulips, &c., which are grown in such small pots, planted out or plunged in the flower garden? It seems likely that if they were planted out, this operation, followed by taking up after they have bloomed, would give a serious check to the foliage. But if the pots are plunged till after the blooming period is over, then carefully lifted and turned out to mature their growth, they would sustain but little injury from the process. A brief answer in your correspondence column will oblige. *Spring Garden.* [To this question Mr. Ingram kindly replies as follows. EDS.:—"The Hyacinths and Tulips employed in the decoration of the beds in the spring garden at Belvoir are potted in small 60-pots in November, and are placed in some sheltered position, and covered with light soil; they remain thus covered until they begin to grow—probably until January. They are then removed to cold pits, and treated according to the season, so as to ensure the bulbs blooming in March. Some time in that month they are plunged, without being removed from the pots, into the beds arranged for them. At the end of April or early in May the bulbs are removed from the flower beds and turned out of pots and planted in the beds reserved for them. Treated in this way the bulbs receive no injury, and are fit for use the following year."]

Spring-planted Hyacinths.—On March 24, I planted three single yellow Hyacinths (La Reine d'Or), which had been kept in paper bags as imported. Now, two of the three are in full bloom, the other partly so, and the colour is as brilliant as in those planted in October last, while the spikes of bloom are as fine as any I have ever seen of this variety. *G. B. Dicks.*

Turban Ranunculus.—Can you explain the cause of several varieties of Turban Ranunculus not colouring properly this season? Three or four rows of the outside petals are true as to colour, but the inner or centre half of the flower, instead of being scarlet, golden, or yellow, are of a bright green; the petals are all fully developed, and the plants are very robust, and the flowers large, with a tendency to a second flower growing from the heart of the other, but there is no other special characteristic noticeable. This sport in the plant is by no means in a solitary instance, for there are beds in various localities all of the same character. *D. D.*

Spring in Devonshire.—We have now lovely spring weather, and vegetation of all kinds is making great progress. The various kinds of Lilac and Cratægus have been in full bloom since April 12th; the Oak is in full leaf, and is blooming at the same time; the Beech, the Elm, and many other trees have also been in full leaf for some days, and the Laburnum is now a good deal out in flower. It is in fact a very early syring, after the cold, cutting, but very seasonable March weather; and, after all, up to now, we have plenty of Peaches, Nectarines, and Apricots out-of-doors; Pears and other fruits also promise to be abundant. *James Barnes, Bicton, April 24.*

Surface Cropping Vine-borders.—This subject, instead of being debated on its merits, threatens to become a theme for gratuitous assertions. But for correcting Mr. Fish upon one or two points, I would have been contented to remain silent—at least until some attempt was made to clear up the question involved upon broad grounds. At the outset I must say that I think Mr. Fish's precept, promulgated at p. 332—that in the long run "They who assert the loudest and reiterate the longest will have the largest following,"—to be a dangerous one. It is dangerous to his opponents, for we all know he writes with an eloquent pen; and, only give him tether, he is not likely to be defeated in the admirable quality of perseverance. It must be, as it ought to be, somewhat consoling to "A." that the severe strictures of this writer's last rejoinder are prefaced with some honied congratulations. To borrow a seasonable sentence of Mr. Fish, "what I have written I mean to abide by, and have no desire to reiterate;" my critic must therefore excuse me from wandering over the beaten ground. The novelty of the practice furnishes Mr. Fish with a text for giving scope to his imagination, and we are treated with an admirable essay upon that point at my expense, the writer "taking his time" from Adam, and finishing with himself and "his neighbour." Now, I said the novelty and success of the practice had astonished me, and, I might add, probably everybody who saw it. What constituted the novelty? Mr. Fish asks. Let me put him up to answer the question himself, when he is investigating the matter calmly, and instructing your readers at p. 193. "The Vine-borders at Archerfield are exceptional. They have a run of 50 or more feet" (which, corrected, is found to be 48 feet), "and they are travelling like the negroes in their favourite song"—not further onwards, for it is scarcely possible that a Vine nine years planted could have reached that distance, but towards that extremity. If Mr. Fish had been as careful in reading at p. 1138, 1868, as he is evidently captious at p. 419, 1869, he would have "given me credit" for announcing in my first article that "it had taken 10 years to accomplish the work scheduled out by anticipation," and hence the whole auxiliary border was not and could not be occupied with Vine roots. I demur entirely, as an occasional contributor to your columns, to being expected to reiterate my remarks, or even to permit them to be garbled and distorted to square with the plea which any writer may set up. I insist upon their being correctly interpreted in their essence. The novelty of the practice, then, was in the movable border, contemporaneous with the "bedding-out herd:" that Mr. F. quite understood at p. 193, but—well, it slipped his memory at p. 419. A great deal is said about the breadth of the borders, and the soil of which they consist. Unfortunately, the width of the inside border is completely ignored; and about the soil itself, pray who is to be the judge? Who knows but the "common kitchen garden soil" was better than the soil from the crag? If we are to fall in with Mr. Thomson's idea, that the front rank is better worth attending to than the rear rank, it has presumptive evidence in its favour. That is matter worthy of dealing with and analysing—that is a fair question for argument, but my opponent is conspicuously quiet upon germane points, and directs his big gun against a phantom; but after all the noise, and when the smoke is dispersed, the principal enemy stands as prominent and defiant as ever. I only adduced Mr. Thomson's surface layer of dung as a subsidiary restorative for the "bedders," not at all courting silence upon the main point. I never imagined for a moment that the feeding tables were to be horizontal—in fact, my whole argument decidedly points otherwise. I do not believe in either a direct horizontal or a direct vertical line, but I believe that roots exercise the principle of selection—that the Vine roots, in short, and those of the herd referred to, may be embracing one another, and each living well. Why Mr. Fish should say at p. 304 that the Vine roots would be near the surface and many of them feeding upon the bedding plant food, and why he should say at p. 419 that they are eating at their leisure deep down without either rival or contest, I cannot well understand. I repudiate such a notion, and leave its inconsistency to be explained by, and fathered upon, the rightful owner. In conclusion, I have to ask a disinterested investigation into the question of surface cropping upon its merits. The introduction of personalities and little quibbles, however spicy, are anything but instructive; and Mr. Fish, I am sure, can employ his time and talents to much better advantage to himself, and to much better account for the good of the cause we are all labouring to promote. The only thing I do regret in the whole of this correspondence is the avowed loss of so distinguished a reader and *confrère* as Mr. Fish. It is to be hoped that in calmer moments he will reconsider his decision. *A.* [This correspondence must now cease. EDS.]

Foreign Correspondence.

GARDENING NOTES FROM RUSSIA: *St. Petersburg.*—From what I have seen of the Russian capital I must say that the cold here is not at all so severe as I expected to find it in winter. The glass has very rarely been down to 20° Reaumur, and during the whole season I should say it has not exceeded an average of 8° or 10°, and very often it was only at freezing point. Such a mild winter, of course, is not frequent, and last year, I am informed, the glass was generally as low as 30° and 35°. But what the Russians do not like, are the fogs, which prevail during two or three months. These fogs are not so dense, however, as those you have in London sometimes, only I think they are more constant; but lately the sun has begun to show its power, and at present, though everything was till lately covered with snow and ice, the weather is quite beautiful. Spring flowers, such as Hyacinths, Narcissi, Tulips, Azaleas, Crocuses, &c., are now plentiful enough in the plant and flower shops about the town, for I should tell you that here there is no Covent Garden as in London, or Marché aux Fleurs as in Paris, but there are a number of dealers in different parts of the town whose shops are always stocked with plants and flowers. Sometimes these shops, though having only one or two ordinary windows, are stocked quite full, and the plants are arranged with taste, so as to make the interior look like a greenhouse or conservatory, though the greater number of them cannot get much light. In Moscow especially there are a good many shops of this description. The gentry here are particularly fond of having their windows full of plants, whether in flower or not, and of course they find it more convenient to purchase at one of these shops, than drive two or three miles out of town to a florist's.

The site of the International Exhibition is almost in the very centre of the town, in a plot of ground about half an acre in extent, adjoining the Imperial Riding School. For some time carpenters have been at work constructing temporary greenhouses for the flowers and plants to be exhibited, and the rest of the court, for such it may be called, will be laid out as a small garden. The plant-house is about 100 feet long and 30 feet wide. It is about 10 feet high. Communicating with this at the centre is another house of much smaller proportions but a great deal higher, and which is evidently intended for the larger sorts of ornamental plants.

As yet the managers of this undertaking have made almost no public announcement, and it is certain that a great many of the nobility and gentry will leave the capital the first week of May, and who would most probably prolong their stay a few days in order to see the exhibition if it were advertised now and then beforehand. Excepting a line or two in the journals respecting the prices of admission, which were decided on some four or five weeks ago by the Horticultural Society, it is only in the *Gardeners' Chronicle* that I have seen any notice of it. They manage these things better—not in France, but in England.

For such of your readers as may intend coming to the exhibition, I may just state that the Agricultural Museum here is one of the most complete and extensive to be seen anywhere, and will well repay a visit. It is situated quite close to the Imperial Palace, and comprises not only the ordinary products and requisites of the farm, but everything that relates directly or indirectly to the cultivation of the soil, the breeding of cattle, the rearing of poultry, the brewing and distilling of drinks or liqueurs, the constructing of farmhouses, stables, barns, &c. Such a vast collection of machines, implements, tools, models, and diagrams of every kind, is an exhibition which cannot fail to interest every stranger. Here are to be seen samples of every product of the field, and the commercial or industrial use to which it is applied is clearly explained and illustrated. There is besides a reading stand in the centre of the hall, where all the best books and treatises relating to agricultural matters may be consulted. These books are fastened to the stand, but they may be perused conveniently enough for several hours every day, only they are all in Russian, and I do not notice, them for the benefit of your readers.

At the further end of the building there is a steam engine, which keeps a certain number of the machines in motion, to show their uses and the manner of working them. There is also a horticultural department, which illustrates the mode of pruning and training fruit trees, and contains besides some hundreds of fruit models, comprising the various varieties of Apples, Pears, Plums, Cherries, Peaches, Apricots, Strawberries, &c. A great number of the objects in this museum are of course shown in glass cases, but these are generally much too deep. The labels, too, are almost all written, and very often the writing is so small and obscure that it is difficult to make out the names, or read the explanations given. I consider that it would be a great improvement if at least the botanic names of plants and seeds were written, as well as the Russian names. There is another matter which seems to have been overlooked, and which is well worthy of attention. There is nothing to illustrate or explain the planting and general management of forest trees, yet there is plenty of room in the building for anything that might be done in this way. Of course it would be very easy to fill a large gallery with what strictly belongs to forestry, but this fact does not preclude the utility of giving a few lessons to farmers and country people generally, who happen to visit an agricultural museum, especially in a country where the peasantry have so much to learn. This exhibition is open four days a week free; a small fee is required on the other days.

The directors of the Society for the Protection of Animals have just issued the programme of a grand International Exhibition, to take place in August. It is to comprise all kinds of domestic animals, with whatever relates to their management, and will of course include the numerous varieties of poultry, pigeons, and even cage birds. This, I think, is likely to be a very popular and interesting exhibition.

The Botanic Garden is situated at a considerable distance from the more central parts of the capital, but it is much visited at present for its show of Camellias and other spring flowers. There are two large Camellia-houses: one is full of moderate-sized and rather lanky plants, the other, much more extensive, is occupied with beautiful specimens, which rather merit the name of trees, many of them having stems about 6 inches in diameter. In general they are planted in the ground, and some of them reach nearly 20 feet high. In this house there is a great profusion of bloom at present. Another house is chiefly filled with Hyacinths, Tulips, Crocuses, and similar sorts. There are also a few well-grown plants of Deutzia gracilis, Lilac, Azalea, and some few others. This is a long narrow lean-to house, and it is exceedingly well stocked with the usual spring flowers, although there is nothing out of the usual way; but it is quite a treat, as you may well imagine, to be among these pretty plants, after driving two or three miles through the snow. As I walked along the path, looking at one and then another, I was reminded of Pine-apple Place Nursery, and it struck me that perhaps the flowers were for sale, but on inquiry I was informed that they were cultivated for the pleasure of the public only, and that nothing in the establishment is sold.

The different plant-houses are at present in excellent order. Those occupied with the spring flowers, the tropical Ferns, the Camellias, and Rhododendrons are

exceedingly beautiful, but unfortunately the weather is not favourable for visitors. The Victoria-house here is one of the most spacious I have seen, but it is not likely to contain anything worth particular notice by the middle of the month, or even before June or July. The Orchid-house is of course considered as a *sanctum sanctorum*, and nobody is admitted without special leave. It may be seen, however, through the glass door, but it is of small size, and contains only a limited collection of plants.

There are, I am told, 24 houses here, but I do not mean to take you through them all at present. I should notice, however, that a good few of these houses are filled with such plants as in England and other countries do not require protection in winter. They are generally very long, at least from 40 to 50 paces; the Palm-house must be a great deal more, perhaps 100 paces. There are two spacious houses for tropical Ferns, Cycads, Agaves, Yuccas, Cordylines, &c., but the Ferns predominate, and many of them are what may well be called Tree Ferns, having trunks, if you will permit me so to describe them, from 4 to 6 feet high, and fronds about 6 feet long, so that the heads sometimes occupy at least a space of 12 feet. There is a singular example of a Balantium, which has a stem about 2 feet thick and from 3 to 4 feet high; when I first saw it during the winter it was quite bare, but at present about a dozen young fronds are shooting out, and I should think that in the course of a month or two it will be beautiful. What promises to be the most handsome of all the Tree Ferns, is one which is not named, and about which I have not yet succeeded in obtaining any information; the stem is fully 7 feet high and 10 inches in diameter. It has been nursed for some time, and is at present bound up with a little Moss; but the young fronds are shooting out nicely, and some of them are nearly 3 feet long.

There are several remarkably fine specimens of Dicksonia antarctica from Van Diemen's Land, Alsophila australis, Cibotium mexicanum, and similar sorts, with stems from 3 to 4 feet high, and fronds from 5 to 6 feet long. Besides these large and beautifully grown plants, there is an extensive collection of small plants on the benches or shelves near the glass all round.

Of the Agaves there are some eight or ten, about as large as any I have ever seen. Some of the Yuccas too are fine plants, from 3 to 7 feet high.

Among other plants remarkable for their handsome proportions, there are several specimens of Encephalartos Altensteinii and E. caffer; the latter has a stem 6 feet high, and the head is at least 8 feet through. Another large and beautiful Cycad is called Lepidozamia Peroffskiana (Regel); this plant is about 12 feet in diameter. It was introduced from Mexico by General Peroffsky, formerly director of this garden, and it is said to be the only one of the kind in Europe. One Cycas revoluta has a stem fully 6 feet high, and a head about 9 feet in diameter.

No doubt you are already acquainted with an Ivy which Dr. Regel has named Hedera Helix var. dentata. It grows here among the Ferns with several other species, as a climber. The leaves are about 6 inches in width, and furnished with minute prickles, not teeth, at the margin. Apart from its technical characters, this I consider one of the best Hederas in cultivation. There are also three others which deserve mention—Hedera algieriensis, and Hedera Helix var. maculata, the latter especially distinct in outline, and slightly variegated. H. Helix var. Wagneriana is a fine large sort, and is almost quite regular at the margin.

P.S.—Since I wrote you the other day I have had another look at the preparations for the Exhibition, and I am now better able to form an idea of their extent. I find that the house, or series of houses, which I noticed before are being arranged as stoves for the reception of plants which it is intended to flower before the opening of the Exhibition, which will itself occupy the whole of the riding school adjoining, a spacious and well-lighted hall, about 150 paces long, and perhaps 50 paces wide. A large doorway has recently been opened in the wall, which will serve as a communication between the Exhibition and the plant-houses. A considerable number of workmen are busy arranging the ground, which will be laid out as a garden. At one side a large rockwork and mound are being formed, from which the visitor may obtain a general view of the whole. But there is a great deal to be done yet before anything like design can be seen, for the carpenters and labourers have evidently been set to work only very recently. I should say there will be enough of light, for the windows are large and numerous, but it would have been a great advantage if the ceiling had been 10 or 15 feet higher. However, I think a better place for an exhibition of flowers and plants could not easily be found. The Neva has been quite free of ice for 8 or 10 days, and the bargemen are plying in every direction. The weather at present is beautiful, and I think this year the navigation will begin much sooner than usual, so that those who intend coming from England and other countries with flowers or plants to the Exhibition, are likely to be quite soon enough if they come by sea. *K.*

MARITZBURGH, NATAL.—The great want in this land is timber. Along the coast there is a belt of bush, and in the interior timber in the kloofs or ravines, but in the plains, for miles upon miles, not a tree is to be seen. Then you come to a thorn district, where the Mimosa, scattered about, gives the country a park-like appearance, as it has indeed all along the coast, where the scenery is sometimes very beautiful indeed. The native woods all grow very well at the same elevation, and with the same shelter as they have at home; but they won't do in the open. The Blue Gum and the Wattles and Willows of Australia will do well, but all require much care and cultivation. They will not do if left to take care of themselves; they may live, but they will not thrive, though if taken care of, their growth is rapid in the extreme. I have hundreds of Blue Gums raised from seeds and planted within the last three years, and many of these are more than 30 feet high. The tops of the hills (sandstone) are flat, table mountains being found all through the colony. The plains abound in trap, and so called iron-stone, and the soil is very ferruginous; these plains are not alluvial flats, but very much resemble the downs of Wiltshire. The only trees to be seen upon these plains are those planted by man, and that of late years. The character of the climate—for it is that, and not the richness of the soil, as some assert—may be gathered from this. I had to enclose my garden from the open "beldt" or common, and to break up and get the land in order, and have now in the fences and banks, Oak, Ash, Elm, Furze, Poplar (all English); Blue Gum, Willow, and Wattle (Australian); and Aloes and Prickly Pear (American). The Banana is in good bearing with the Walnut and Hazel close by, the Pomegranate and Raspberry alongside each other. The Fig and the Ribston Pippin, the Strawberry, and Chili, Arrowroot, and Cabbage—the latter the richest I ever ate. Cotton and Tobacco, the Peach and Pomegranate are grown together for fences, the former so plentiful that I feed my pigs on them, and yet with Sugar and Coffee on the coast, and Wheat, wool, skins, and stock of all kinds in the uplands, the colony is in an almost hopeless state of insolvency. *J.*

Societies.

ROYAL HORTICULTURAL: *May* 4.—James Bateman Esq., F.R.S., in the chair. At the conclusion of the usual preliminary business of the meeting, the Rev. J. Dix, in announcing the awards made by the Floral Committee, directed attention to the various objects of interest and beauty brought before them, and more especially to some flowers of Menyanthes trifoliata, a beautiful British plant, that is found growing in marshes, and which was sent to the meeting by Mr. Earley, gr. to F. Pryor, Esq., Digswell Park.

The Rev. M. J. Berkeley, in addressing the meeting, first referred to the announcements made respecting the prize for the best collection of Narcissus, and said that on consideration it was found impossible to get a great number of species in flower at the same time, in consequence of the flowering periods of the different species extending over a considerable time. He then informed the meeting that it had been decided to open the competition at the next meeting (May 18), from which time a record would be kept, until the termination of the contest at the first Tuesday meeting in April, 1870. He further stated, that when the prize was first offered it was not intended that garden varieties should be admitted into competition, but only true species; but it was now decided that all marked varieties should be included, and that it would be left at the option of the judges to disqualify those varieties that were not sufficiently distinct. He (Mr. Berkeley) then exhibited a specimen of what was called Narcissus biflorus, though it was not always two-flowered—as in some instances he had found five flowers, and sometimes only a single flower. In all probability the plant in question was a hybrid, as it appeared never to produce ovules. He then alluded to the new form of Coleus exhibited at the Floral Committee. Mr. Berkeley then called attention to the new × Dieffenbachia nebulosa, a cross between Weirii and picta, raised by Mr. Bause. In allusion to the Acer shown by Mr. Standish, Mr. Berkeley stated that some of the Maples possessed milky juice in their fruits, such as Acer campestre, and A. eriocarpum; while others, as A. platanoides, were destitute of it. With reference to the Rhododendron shown by Mr. Standish, Mr. Berkeley stated that out of 6000 seedlings raised between cinnamomeum and Minnie, only 12 resembled the female parent. Attention was then called to some sports of Croton variegatum, all produced on the same plant. Allusion was also made to an Ixora-like plant, called Toxicophlœa spectabilis, so named on account of its poisonous bark. It belongs to the same family as the Oleander, and the ordeal plant of Madagascar. A specimen of Usnea florida, a common Lichen, from Abyssinia, was then exhibited. Mr. Berkeley then repeated the observations made at former meetings, respecting the growth of Truffles; and with reference to the mildew on Roses, stated that it could be cured, as was also the case with the Hop and Vine Fungus, because the mould grew on the surface, and not within the substance of the leaf. Some flowers of the common Bachelor's Button (Lychnis dioica), in which the anthers were affected with Fungus (a species of Ustilago), were then shown. In this case Mr. Berkeley observed that the spawn must have traversed the whole plant. Alluding to the advertised nostrums for destroying smut, mildew, &c., Mr. Berkeley stated that these were in some cases fallacious. Bunt, Mr. Berkeley said, might be remedied, but mildew and smut could not; the ordinary threads of bunt were too large to enter the stomates of the plant, but the spores, in germinating, produced fine threads, capable of penetrating these apertures. The best remedy in the case of bunt had been found to be a mixture of Glauber's salts and quicklime. A Tulip was then shown with numerous excrescences upon its petals, of the same character as those so often seen on the leaves of Cabbages.

Mr. Bateman then made some comments upon the Orchids exhibited, and, in conclusion, informed the meeting that the band would play in the garden on every Tuesday and Saturday afternoon during the London season.

Scientific Committee: *May* 3.—Dr. Thomson, F.R.S., in the chair. Mr. Berkeley stated that he had examined the specimens of Sugar-cane alluded to at the last meeting (see p. 447). He had found that the ducts in the lower portions of the culm were more gorged with red gummy matter than those in the upper portions, so that the disease appeared to proceed from below upwards to the hearts of the young shoots, which it destroyed. Mr. Berkeley had found a Fungus, a species of Labrella, growing on it, but was unable to say whether it had any direct connection with the disease. Achillea Ptarmica was stated to be often affected by a similar Fungus. Mr. Berkeley considered it as possible that the disease might have originated from the canes having been grown on volcanic soil, containing sulphur, which, acting on sugar and the nitrogenous, or protein matters, might have caused the peculiar pink discoloration that was observable in the canes.

Specimens of diseased Peach shoots and of Vine roots, similar to those before alluded to, were shown. With reference to the latter, Mr. Berkeley stated that the insect attacking the leaf is different from that which injures the roots. The leaf-insect is not only itself larger, but its eggs are larger also. Specimens of the roots of Conifers were exhibited to show the effect of Fungus mycelium on them. In this case the spawn had developed into Polyporus versicolor, and the roots were killed. Vine roots were shown completely smothered with mycelium of the common Mushroom. Some specimens of Lime shoots, deprived of their bark to such an extent as to kill the trees, were also brought forward, but no conclusion was arrived at as to the cause of the disaster. It was supposed that insects burrowed in the bark, and that the birds in their search after the insects stripped off the bark. There was, however, nothing to indicate the correctness of this hypothesis.

Dr. Masters exhibited, on the part of G. C. Oxenden, Esq., some drawings representing a plant found wild in East Kent, and which was said to be Ophrys lutea, but which, far more probably, was a yellow-flowered variety of the Bee Orchis. The drawings differed materially from the true Ophrys lutea. In any case, the present is a singular variety, which has, as it seems, hitherto escaped observation.

A letter was read from Mr. Hanbury relating to the change in the position of some young leaves of the Papaw trees; in the morning it was stated that the blade was parallel with the stalk, but in the evening Mr. Hanbury had observed that the blade assumed a position at right angles to that of the stalk.

Mr. Isaac Anderson-Henry communicated the results of some of his interesting experiments on the hybridising of Primulaceæ, together with four of the plants which had been raised by him. The plants consisted of seedlings of which the pollen parent was a form of the hose-in-hose variety; the seed parent was a Polyanthus. Some of the progeny were of the Primrose type, others of the Polyanthus section, but almost all had large leafy calyces. Mr. Henry had not been enabled to succeed with the hose-in-hose variety as a seed parent. One of the forms mentioned by him formed an exception to the general rule, inasmuch as both stamens and styles were of the same length, and self-fertilisation seemed to occur in this case, as also in that of Primula denticulata. Primula sinensis obstinately resisted all foreign crossing with other species. Other experiments were recorded, some of a particularly interesting character, which will probably be printed in the Society's Journal, when we shall have another opportunity of alluding to the subject. The plants were placed in Dr. Masters' hands, that he might draw up a description of their peculiarities.

Dr. Masters laid on the table a report and tabular statement showing the condition of the seedlings in the experimental boxes at Chiswick, to which allusion will be made at a future time.

Floral Committee: *May* 4.— The conference between the Council of the Society and Exhibitors, in reference to the contemplated restrictions in the sizes of pots, was held in the Council room, the Rev. J. Dix in the chair. No definite settlement of the question was arrived at; but the prevailing opinion of the exhibitors seemed to be, that there would be no objection to the size of pot being reduced in certain cases, and that the classes for stove and greenhouse plants might be restricted, so that a smaller number of plants in the larger-sized pots could be exhibited than is the case at present, while an opening would thus be made for classes devoted to specimens of smaller size. The collection of plants shown was small but interesting. Messrs. Standish & Co. had a fine plant of a distinct new hardy Fern, Struthiopteris orientalis, a species which has been found on the mountains of India, but in this case was imported from Japan. It has broad ovate bipinnatifid fronds, and the fertile fronds, with their stout sori and usually entire involucres, have much the appearance of those of a Lomaria. Messrs. Veitch & Sons, Chelsea, showed the very distinct Vanda Dennisoniana, a new species, from Moulmein, with acutely and unequally bilobed leaves, and waxy flowers, of which the sepals and petals are obovate, whitish with a creamy tinge at the tips, and the lip is dilated and two-lobed at the apex, with a stain of yellow and a few red lines near the orifice of the spur. They also had Brassia Lawrenceana longissima, a Costa Rica plant, with the lateral sepals 6 inches long, greenish with dark blotches near the base, and a greenish yellow cordiform lip dotted with brown. The Society's Chiswick collection furnished × Dieffenbachia nebulosa, a hybrid between D. Weirii and D. maculata, remarkable for its stocky habit and spreading leaves, which are coloured in a clouded manner with yellowish green in the centre, darker green at the edges, and spotted here and there with white dots. From Mr. Bull, Chelsea, came Geonoma zamorensis, a good looking Palm, with a few pairs of broad pinnæ and a bilobed apex; also Podocarpus Maki variegata, a Japanese shrub, with linear leaves, edged with white. Mr. Sherratt, gr. to J. Bateman, Esq., contributed two handsome Dendrobiums—D. xanthophlebium, a species with slender stems, oblong acute leaves, and moderate sized, whitish flowers in pairs, having the three-lobed lip covered over with bright orange reticulations; and D. transparens, a fine plant, with four long pendent stems, clothed with its beautiful pallid purple-eyed flowers. Mr. Turner, Slough, exhibited a new Continental Azalea, named Madame Van der Cruyssen, a large bright rose flattish flower, of good shape, and well spotted on the upper lobes. Mr. C. Noble, Bagshot, produced some handsome forms of Clematis, bred between C. Standishii and C. Fortunei. One, called Albert Victor, had large smooth well-formed flowers of a shaded lavender-purple; another, called Miss Bateman, was also a full many-petaled flower, of a pure white.

These varieties are useful from their early-blooming properties. Finally, from Mr. Wadson, florist, Hammersmith, came a very handsome and useful pure white forcing Pink, named alba multiflora. All the foregoing—with the exception of the Podocarpus, which received a Second-class Certificate—were awarded Certificates of the first-class.

In addition to these there were many plants of interest shown. Mr. Shaw, Manchester, had Croton Wrigleyanum, a sport from variegatum, with large central blotches of yellow, instead of a yellow venation: it was mentioned that similar sports had proved inconstant With this came two good forms of Gymnogramma Wetenhalliana. Messrs. Standish & Co. had a fine Acer, provisionally named japonicum argenteum. It has large palmatifid leaves, which are variously edged or mottled with white, and promises to be very ornamental: the fruit is borne in a long loose raceme. They also produced some pale-coloured hardy Rhododendrons, bred between Minnie and cinnamomeum. One named Gipsy had loose trusses of blush white flowers, densely spotted; Emily had close trusses of small white flowers, with very dark spots; Louise was blush, spotted, and Mdlle. Christine Nilsson was pure white, nicely spotted, but thin in texture. They had, further, the following Pelargoniums:—Eugéne Buenzod, a very large rose pink, with white blotch, and fine trusses; Jean Sisley, a rich bold scarlet; Wilhelm Pfitzer, a very large double scarlet, and Mdlle. Marie Lemoine, a full double vivid rose-pink, with zonate leaves. A Peruvian Epidendrum, named syringothyrsum, from Messrs. Veitch & Sons, promised, when better established, to be a very handsome species. It has tall reedy stems, clothed with ligulate leaves, and terminating in a broad spike of bright rosy-purple flowers, which are set out on the long slender purple ovaries, and consist of stiff narrow sepals and petals, and a protruding fleshy lip, which is three-parted, and white towards the base. From the same establishment came Peperomia heterostachya, a neat dwarf stove herb, with dark bottle-green elliptic leaves, marked by five or seven pale ribs, and of remarkably free blooming habit; Croton variegatum aucubæfolium, with the leaves spotted with yellow; and a fine group of flowering plants, to which a Special Certificate was granted. From Mr. Bull's establishment came Chamærops arborea, a slender Palm in the way of gracilis; Encholirion Jonghei, a bromeliad with recurved leaves; the pretty dwarf Asplenium fernandeianum, the curious Pitcairnea tabuleformis, and Iresine acuminata, a plant coloured exactly like I. Herbstii, of which it appears to be a sport, but having flat, ovate, acuminate instead of bilobed puckered leaves, as in the form commonly grown. The same plant came also from Messrs. Veitch, as Achyranthes acuminata. Mr. Noble's group of Hybrid Clematises comprised several other showy kinds, besides those selected for Certificates, namely, Lord Napier, a pale reddish-tinted purple; Lady Emily Talbot, large blush, with white bar down the sepals; Lord Londesborough, a dark violet with reddish bar, and several unnamed ones. Mr. Edmonds sent, from the conservatory at Chiswick House, a number of cut specimens of Rhododendron Metropolitanum, a remarkably bold trusser of the arboreum breed, and, from its bright and attractive colour, most admirably suited for conservatory decoration. A Special Certificate was awarded for this exhibition. Messrs. E. G. Henderson & Son had a pretty group of small blooming plants of Blandfordia Cunninghamii, and a similar group of Ixora crocata rutilans, a remarkably free-blooming variety. From Messrs. J. & C. Lee came a basketful of their very handsome hardy Azalea altaclerensis, an orange-yellow, lit up with dashes of red, and altogether a most brilliant ornament for the American garden; this was bred between A. sinensis and A. pontica. Mr. Green, gr. to W. W. Saunders, Esq., sent a group of variegated plants, which was acknowledged by a Special Certificate. T. Cooper, Esq., of Reigate, sent Toxicophlæa spectabilis, an interesting evergreen shrub from Natal, remarkable for its close resemblance in general features to an Ixora, though belonging to a totally different family—the Apocynaceæ; it has elliptic dull green leaves, reddish on the under surface, and the white star-shaped flowers form close heads. Mr. Keynes sent Pelargonium Little Pinkie, a deep salmon-coloured sort, said to form excellent beds; and Mr. Turner showed a bright golden self, named Golden Attraction. One of the most beautiful objects in the room was a specimen of Dendrobium Falconeri, bearing a profusion of its lovely blossoms, from the collection of E. Salt, Esq. (see p. 502); and from the same source came a lovely tuft of Masdevallia Veitchiana, bearing five of its singular and richly coloured flowers. These both, as they well merited, received Special Certificates. Mr. Laing, of Stanstead Park Nursery, brought a beautiful but probably delicate sport of Coleus Blumei, showing silvery variegation. The margins, instead of being yellow, as in Telfordi, were of a creamy white, and the blotch, instead of being chocolate, was of a lovely rose-pink, the colours being analogous to those which appear in the Silver-variegated Zonal Pelargoniums. Beautiful small specimens of the new varieties of Coleus were sent from the collection at Chiswick; also a bush of a magnificent dark-coloured Lilac named Dr. Lindley, and a profusion of cut specimens of the very handsome variety named Charles X. It is surprising that these and other fine sorts now in cultivation are not oftener planted in preference to the very inferior older varieties of common Lilac, which they excel as much as the plant usually grown as Persian Lilac, but which appears to be the Rouen variety, does the comparatively puny-looking type of Syringa persica.

Entomological: *April 5.*—Mr. H. W. Bates, president, in the chair. Mr. Pascoe exhibited some new exotic Coleoptera of interest, including species of three European genera recently detected in New Holland—Apion, Attelobus, and Ellescus; also a new Curculio, with a long slender spine extending from the hind margin of the thorax over the suture of the elytra; also a new Diaperidian, having horns in front of the thorax in the place of those usually found on the head in this family. Prof. Westwood exhibited the curious Panorpa nematogaster, Java, from the Hopeian collection, recently described by Mr. M'Lachlan from a supposed unique individual in the British Museum; also a species of cockroach (Blatta melanocephala), which commits much injury in Orchid-houses by eating the young buds and shoots. It is a native of India and the adjacent islands, and was first communicated to the Professor by the late Sir Charles Lemon, from Carclew. Mr. F. Smith stated that a small British species is very abundant in tufts of Grass on the seashore in Norfolk, and that another small species is often beaten out of Oak trees by collectors, but it is not known upon what these species feed. Mr. F. Bond exhibited a new British Tortrix, Sciaphila communana, from Wicken Fen, Cambridgeshire, and carefully preserved specimens of Phyeita (Myelophila) cribrella. Mr. Druce exhibited two specimens of the singular new Papilio Zalmoxis, Hewits., from Old Calabar. Mr. F. Smith exhibited a remarkable series of different species of Humble-bees, and their mimetic parasites, belonging to the genus Psithyrus or Apathus, showing that whilst some species of Bombi vary very greatly in colour, others are found to be nearly uniform, and that the parasites in the former case exactly correspond with the varieties of the bee which they infest. He had observed that the parasites are allowed to enter the nests with perfect impunity even by B. subterraneus, which is very pugnacious, whilst the moss-working species very rarely use their stings. A paper by Mr. W. C. Hewitson was read, containing descriptions of new exotic butterflies of the genera Leptalis, Pieris, Catagramma, Heteronera and Harma, together with two new species of Papilio, from Ecuador; and a paper by Mr. Baly was also read, containing descriptions of new exotic species of Cassididæ and Hispidæ; also one by Mr. Wallace on the Eastern butterflies belonging to the genera Mynes and Prothoe, and a monograph of the British species of the Staphylinidean genus Homalota, of which 157 species were described, 29 being new to science.

Notices of Books.

Memoir of W. H. Harvey, M.D., F.R.S., &c. 8vo, Portrait. Bell & Daldy, 1869.

This memoir possesses all the charm of an unconscious autobiography, since it is entirely composed of the letters and diaries of its gifted subject, just connected by sufficient explanations to render them intelligible; and since Dr. Harvey wrote letters with peculiar grace and facility, the result is a most agreeable and readable book. The authoress is remarkably fortunate in finding so many of his letters preserved; she has thus been enabled to illustrate every event of his life, from his boyhood to his death, in his own words; and we are presented with a more vivid picture of the man, both in his inner and outer life, than could possibly have been given by any mere descriptions, besides being spared the hero-worship which disfigures so many biographies. It may be objected by botanists that but few of his purely scientific letters have been given; but what the book thereby loses in interest to the few, it gains to the many. For the work which he did, and the manner in which he did it, they must seek elsewhere; this volume but professes to introduce us to the man—his mode of life, his habits and thoughts. Of course, with one whose whole life was devoted to botany, almost every letter bears some allusion to his favourite pursuit, and we think, therefore, that the omission of technical and purely scientific discussions is judicious, since they would simply be skipped over by the larger proportion of readers.

A strong religious colouring pervades the book, nor could this have been omitted; for if it had been, but one-half of Dr. Harvey's character would have been shown, and those who knew him best would have felt that his life had been but partially described. Of most amiable and gentle character, and never obtruding his religious convictions on any one, the subject was nevertheless one on which he thought much, and had very decided opinions, as was evidenced by his deliberately leaving the Society of Friends, in whose tenets he had been brought up, and joining the Church of England, after some years of mature consideration.

From his earliest childhood Dr. Harvey was devoted to natural history, and his cherished dream was the obtaining of a professorship, which might enable him to give his whole time to it. At 16 we find him writing to his brother:—

"All I have taste for is natural history, and that might possibly lead in days to come to a genus called Harveya, and the letters F.L.S. after my name, and with that I shall be content." And at the same page he says:—"The utmost extent of my ambition would be to get a professorship of natural history. Indeed, only I must do something, I would rather be a quiet naturalist, and not be paid for teaching that science into whose depths I do earnestly desire to be admitted."

Many years elapsed before the desired goal was reached, and in the meantime he laboured cheerfully and unrepiningly at the work which fell to his lot, devoting every spare moment to botany, which he studied in the thoroughly conscientious manner which characterised everything he undertook, gradually increased his own stores of knowledge, and added to those of others, till he took his place in the ranks of the foremost botanists of the day, and especially as the first of living Algologists.

His life was not a particularly eventful one. A somewhat lengthened residence at the Cape of Good Hope enabled him to lay the foundation of his last important but unfortunately unfinished work, the "Flora Capensis," while the rest of his life was mostly passed in Dublin, only varied by one long expedition to Australia and the Pacific, and one short one to America.

Pleasant pictures of all these places are given us in his letters, and as a specimen we will select a description of his first landing at the Cape.

"*September* 17, 1835.—The whitest day in the calendar, and so let it be considered, henceforth and for ever. At three o'clock this morning, just as the night began to wane, Joseph went on deck, and lo! we were within two miles of the African coast, and grim and black it looked. I came up at six A.M., and there sure enough lay the African shore, stretched far and wide in the grim twilight, and at two or three miles distance the breakers dashing on the shore, and everything full of life and reality. The sun arose—the African sun—from a dense bank of mist, and smiled on us most lovingly. By eight o'clock we came off Table Bay, and the prospect was truly grand and noble. Table Mountain, the Lion's and the Devil's Mountains, and sundry others spread along the sea, a very bold range. No one was disappointed—it was finer than any of us expected. I write now during a shower of Cape rain, while waiting for a fair blast to get on shore; but that cruel Table Mountain has let fall his table-cloth and curtained the whole sky. But no matter, he was so civil as first to allow us a full view of all the wonders and beauties. Green Point, and the innumerable green cottages scattered over it; the town, handsome and regularly built, and the woods of white Broom (Protea argentea) on the hills above. Numerous boats put off to us, and Malays, beautiful in contour and colour, manned them, offering Oranges, porcupine quills, eggs, and crayfish! a sweet medley. I am not going to make this stupid journal a land account. It is ended when I land you in Cape Town, where I now write.

"We left the Carnatic in a fine yacht. The water was smooth, the wind gentle, and we had a pleasant sail. Every now and then a huge fragment of Laminaria buccinalis, the glory of Cape seaweeds, floated past me, refreshing to my eyes, but I disdained to grasp at it. We landed . . . . . What was it I saw first? As usual I looked to the ground, to see what I trampled on. 'Ha,' said I; 'is this my old friend, Coronopus didyma. What brings you here?' I stooped down to pluck and smell it, but gathered a stranger. I am yet ignorant what it was. . . . M. having left me, I wandered about by myself, and poked about here and there. I strolled toward one of the batteries. The ditch was dry, or nearly so, and into it I descended. Here were lots of Arum plants (Calla ethiopica) just coming into flower, and it was truly pleasant to see them *in statu quo*. Moreover I found a vast abundance of a lovely Oxalis, several kinds of Senecio, a beautiful upright blue Anagallis, and a number of other things of whose names I am still ignorant. On the walls of the fort I found a Moss quite new to me, but still too young to be examined. This is my first botanising trip, only a quarter of an hour, yet full of novelty and interest. What a charming field is about to open! May I be thankful for an opportunity of visiting it!"

Of course Dr. Harvey was at various times brought into contact with the principal scientific men of the day, especially botanists; and the little notices of these, scattered through his letters, are not the least interesting part of the book. The following description of the commencement of his acquaintance with Robert Brown will be read with interest. The introduction took place in 1834, shortly before his departure for the Cape:—

"Having just returned from my first visit to 'the greatest botanist in this or in any other age,' a visit of three hours, and not being disappointed in my expectations, I must give you the benefit of my lucubrations. What weak creatures we are! Nay, I was not grievously abashed, but actually felt more free with him than I have often felt in company which I thought measurelessly less about. He is tall, slight, and apparently about 50 years of age (he must be more); quite grey, but not bald, full of youthful vigour and strength of intellect. His eye is usually dull and unremarkable, but when he speaks and wishes to convey his meaning, it is full of depth and power, showing a remarkably shrewd, sharp observation; his voice low, and his mode of delivery careless and dripping—an odd expression—but I mean to say, like the uncertain tinkling of water—not a continued flow, but now strong, now small. He certainly struck me as the most learned botanist I have ever come across; but this, not by any display of knowledge on his part, but by chance observations that let you into his knowledge without himself seeming to know it. First, we talked Algæ, of course. These he had studied in his early days on the coast of New Holland, and on the north of Ireland. His knowledge appeared at once clear, comprehensive, and minute. I do not mean his knowledge of the present state of the science, for as to names and systems as now adopted he could not be expected to care much. But of what he had known then he appeared to have a clear remembrance, even of species. He showed me the famous Claudea, and some other highly curious things. He has not many Algæ, but all those he has are the most wonderful and rarest of the tribe. Many are unpublished, and will probably continue so till his death. We talked of Ferns: immediately he began to speak of the elastic rings of the capsules, of the forms they assume in different tribes, on the reticulation of the seeds considered as a generic character, and of the venation of fronds. On all these he made many observations which could only strike one who had deeply studied the subject. I felt myself miserably superficial. I mentioned a genus of Mosses: instantly he spoke of the curious structure of the cellules of the leaves, &c. No matter what subject we started, he fastened on the very inmost part of it. He showed me a large collection of fossil woods, many of them highly curious and beautiful. These he has dissected in the most exquisitely delicate manner, so that the most insignificant vessels can be distinctly seen under the microscope, and the fossils are cut so thin that they allow the perfect transmission of light. I cannot enter into all he said and showed of the little vessels in these antediluvian vegetables, but I may say that in one specimen he has detected a byssoid Fungus, which had grown on decayed wood, and had been petrified along with the wood it grew upon. Thus, one of the most fugacious of plants has been preserved *in statu quo* for thousands of years. He showed me the Rafflesia, and told me he was about to publish a paper upon it. All his papers are considered botanical gems. Then he talked of the Cape. I told him of my thoughts of settling there for some years, and of writing a flora of the colony. He said some of the pleasantest botanising he ever had was on Devil's Mountain, near Cape Town, and he thought I could not pitch on a more delightful field of study. Though the ground be trodden there, there is much to explore and to revive. I may reckon, he thinks, on fully 5000 species. Pleasant work!"

These extracts will give our readers some idea of the pleasant style of Dr. Harvey's letters, and the amount of observation and information contained in them; and should they be tempted thereby to read the entire volume, they will be enabled to form for themselves a very fair portrait of the writer, whose intelligence and excellent sense, no less than his kindness of disposition and genial and even playful character, endeared him to all who had the good fortune to know him. As a botanist, his loss is irreparable; as a friend, he is lamented by a large circle, who feel that his peculiar niche can never again be filled, and we cannot more fittingly close this brief notice than in the words with which the authoress concludes her preface:—

"As a piece of biography, the memoir is valuable chiefly as the record of a life thoroughly consistent to the end—and a remarkable life, too, for in Dr. Harvey were united a positivist's zeal for truths of fact, with an enthusiastic faith which had in it something mystical. Exactly what he determined in youth to accomplish he accomplished; the work which he took upon himself to do he did, honestly, and thoroughly; the fame which he desired to achieve he achieved. In life he was strengthened in every difficulty and trial by a trust in an overruling Providence, which never faltered and never betrayed him; in death sustained by a Christian fortitude, which remained calm and firm until death was swallowed up in victory."

The Proceedings of the American Pomological Society, Eleventh Session, is rather a bulky volume, principally composed of very full reports of the discussions, &c., at the meetings of the Society, which part might have been with advantage greatly condensed, as the same opinions are stated over and over again at full length. There are a few good essays on plant diseases, on the Pear, Vine, &c. We are sorry to learn that mildew is beginning to attack the native American Vines, which have hitherto been to a great measure exempt from that scourge.

In a country so naturally rich, of so great an extent, and of such a varied character, with a people who are naturally prone to exaggerate, a Society like this, composed of conscientious men, whose opinions are rubbed the one against the other, is calculated to do infinite good in disseminating useful knowledge respecting fruits throughout the country. The catalogue of fruits recommended by the Society, given at the end of the book, is evidently compiled with care, and arranged on a useful plan, the State being given in which each

variety is found to succeed the best. A curious fact is noted, giving some idea of the enormous extent of country—that of the Early Harvest Apple, which is reported as succeeding in almost every State in the Union—in one locality ripening in May, and in another in July or August—a difference of two months or more, and yet in every locality it is strictly an early summer Apple. No new fruit is entitled to the recommendation of the Society until its qualities have been ascertained by at least five years' experience in more than one locality, and in merit equal to varieties of the first rank already known. This is a very wholesome rule, if thoroughly acted upon. Of new fruits noticed and reported on in favourable terms, we note the following, viz.—Apples: Stynus, Democrat, Park, Family or the Laird's Family, Flake's Fall. Pears: Edmunds, Clapp's Favourite, Rutter, Ellis, Broux. Plums: Foote's New Orleans. Grapes: Concord, very highly spoken of; Iona. Gooseberries: Downing's Seedling; this is said to be the best American. Raspberries: Clarke's Belle de Pallnau. Blackberries, in which class of fruits the Americans are far ahead: Kittatinny and Wilson's Early are stated as being very superior, of which also we have before seen very favourable reports from other sources.

The Apiary.

Singular Case (from the *American Bee Journal*).—About the beginning of the month of July last, I caged a queen bee for the purpose of raising another. In the hurry of business this queen was overlooked for nearly a month. After Basswood blossoms were over I happened to examine that hive again, and found the queen alive, but both her wings were missing, and a young queen was also at liberty, which had just commenced laying; I concluded to divide the stock for an experiment. When this was done, I set the caged queen free in the queenless part. About 10 days afterwards I examined both stocks again, and in the hive in which I had placed the wingless queen I found a young queen just hatched, and several queen cells torn open, together with a large amount of brood of nearly all ages. Not finding the wingless queen, I concluded that she had been superseded by the workers. About a week later I re-examined the hive, and found the young queen very slender, and apparently unimpregnated, but the combs contained eggs, larvæ, and sealed brood in plenty. After a careful search I discovered my wingless queen on a brood comb, and immediately removed her. Two days later the young queen had commenced laying. All this, however, would not have presented anything strikingly curious to me. About nine days later I happened to think of this stock of bees, and concluded to take another look inside. I found the latter queen laying, with a large amount of larvæ and sealed brood, and a number of sealed queen cells. I removed the queen, and gave her to a queenless colony, but she was probably killed, as I found no trace of her afterwards.

Can any one explain the singular behaviour of this stock of bees? Were there two parties of bees in the hive, and did each maintain its independency? Or was the last taken queen imperfect, too, though not showing it in her appearance? *A. Grimm.*

Extraordinary Swarming.—The following is given in the *American Bee Journal*, from the pen of Mr. George Strickland:—"Last spring I had a hive of black bees, which produced an increase of 15 swarms in the following way:—The old stock swarmed May 4, 10, 18, and 20. These swarms were put in hives full of combs. The first, or prime swarm, sent off four swarms in May and June. These were hived and did well. The one that came off May 10 swarmed twice in June; the one that came off May 18 sent out two swarms; the one of May 20 sent off one swarm. The old stock again swarmed twice in August, and also gave me 50 lb. of honey. Twelve of these swarms stored honey enough to winter.

Garden Memoranda.

Bicton Gardens, the Seat of the Right Hon. Lady Rolle, Budleigh Salterton, Devonshire *(continued from p.* 478).—Walks diverge from the flower garden into the arboretum and American ground on either side. One of these proceeds through an avenue of Junipers into the pinetum. Returning to our starting point on the top walk, there is a kind of extension of the flower garden to the right. On this ground large masses of shrubs and beds of Dahlias surrounded a noble dome-roofed Palm-house, containing a rare collection of plants—particularly rich for a private garden. This is quite detached from the general range, so often adverted to as forming the upper boundary of the flower garden running through the latter. The early Grapes were of course cut, and the Peaches gathered, but the Vines and trees looked like business in the best style, while the whole of the plant-houses were admirably stocked with extensive collections or fine specimens in great health and luxuriance.

At the back of the glass the sheds, fruit room, &c., are situated; and in the centre is Mr. Barnes' house. Although placed behind the glass range it is by no means a back shed, as by far too many garden houses are. On the contrary it is a large, roomy, substantial, convenient, comfortable house, and within its walls the inspiring genius of the place and his excellent better-half delight in dispensing their genial hospitality.

Passing from these personal compliments, which are as heartfelt and sincere as they are well deserved, I hasten to note a wonderful plant of that grand old climber, Wistaria sinensis; of course it is perfectly hardy in this place, and has attained to a size that can only be correctly described by the word prodigious. Planted somewhere near Mr. Barnes' house, it runs along the coping of the chief range of glass, over a large space of garden walls, scrambles up and round chimneys, covers the roofs of sheds, tool-houses, filling up spaces to the north, south, east, and west in all directions; stretching across from the chief range to the dome of the Palm-house; the sheer length of stem is about 350 feet, and it is impossible to estimate without numerous measurements the square area covered with this wonderful plant. At 2 feet from the ground the stem measures 4 feet 6 inches round. From the variety of aspects on which the branches are displayed, the plant flowers from March to Midsummer, producing its second crop of blossoms from July through the autumnal months.

Close by here are a number of fine span-roofed plant-houses, the fruiting and succession Pine pits, a number of cold pits, and the Camellia-house; the latter is a fine lofty building, with tall front lights, and contains without exception the finest collection of the healthiest plants I have ever seen. They are planted out in the centre and along the sides, in rough turfy loam, and top-dressed with the same, I believe, annually. The roots run along among this rough turfy mass almost as large as goose-quills, and the leaves of the Camellias are of the deepest green, approaching a glossy black; the size and thickness of the leaves are wonderful. From end to end, and from front to back and floor to roof, there is not an unhealthy leaf nor a speck that I could see; and I should think pecks of flower-buds would have to be thinned off, and then thousands more would be left to furnish a dazzling blaze of beauty throughout the autumn and winter months.

The transition is natural and easy from Camellias to Oranges, though in this case the houses containing them are somewhat widely separated. The orangery is again at the mansion. On each side of the front door at Bicton two lofty ridge-and-furrow glasshouses, about 90 feet long by 60 feet wide and 20 feet high, are placed. One is converted into a picture gallery and the other into a noble orangery of fine trees, the roof being richly festooned or furnished in all directions with a splendid collection of climbers or loose growing plants; but the king amongst them all was the splendid Tacsonia Van Volxemi.

Mr. Barnes is so well known, and so justly famed as a master in Pine-apple culture, that it seems almost like an impertinence to write anything about it, and it will be sufficient to say that he continues to maintain his well-earned reputation. For cleanliness, health, and size of plants, and weight, symmetry, and quality of fruit, the Pines at Bicton left nothing to be desired. Next to their high excellence, the most surprising thing was the simple means used to produce those tree-like plants and fine fruits. In a sheltered place near the fernery there are three or four succession Pine-pits or frames, 27 feet long and 9 feet wide, with wooden sides about 6 feet high. About 6-feet spaces are left between the different ranges, and the pits are worked and heated wholly, as far as I remember, with dung, leaves, tan, or other fermenting material or garden refuse. The structures are so rough that some would object to grow even Melons in them. But it is in these rude contrivances that the foundation of all future success is laid. There is no coddling; I saw daylight through some of the chinks of the wood, but the Pines had a breadth of leaf and a robustness of stem equal to the production of 6 or 10-pounders at pleasure. The fruiting house is a span-roofed pit, 17 feet wide, divided into several compartments of convenient length. Surface and bottom-heat are provided by hot-water pipes. A chamber about 2 feet deep, with a double row of pipes all round it, is covered over with slabs of slate. On the slate a sufficient thickness of well-sweetened leaves is placed as the plunging medium. By means of a series of valves and cross pipes the bottom-heat of any department can be increased or diminished at pleasure. The most perfect control over the surface-heat is also provided. In this way limited numbers of plants can be pushed on or kept back as required. The subdivision of the houses is of the greatest practical use. The tendency of Pines is to come in by fits and starts. No one can consume a whole house of such fruit in rapid succession. Gluts when not wanted, and scarcities when they are, are among the most frequent complaints of Pine growers and eaters. Mr. Barnes, by this subdivision of his house, and complete control over his heating apparatus, can start or retard his fruit at will. His entire heating power is available for either surface or bottom warmth as wanted. This, combined with his consummate skill, enables him to command a supply of fine fruit throughout the year. His chief varieties are the Queen, Providence, Smooth Cayenne, Prickly Cayenne, Old Globe, Prussian Globe, Black Prince, Black Jamaica, Black and Brown Antigua, Enville, Montserrat, and Green Olive, besides a few other varieties. It has been a common thing for Mr. Barnes to cut Queens from 5 to 8 lb. each; Providences, from 11 lb. to 14 lb.; one Smooth Cayenne, 11 lb., the heaviest of that variety ever heard of; Black Prince, 11 lb., also the heaviest recorded, and others in proportion. It will also be remembered that he created quite a sensation some years ago by growing and ripening Pines in the open air.

I observed in the fruiting Pine house a wide slate shelf was carried all round, for the growth of Kidney Beans. For the production of other indoor fruits there are the Peach-houses at each end of the noble range at the top of the flower garden; also early Vineries in the same range, two other houses for succession, besides a fine range of glass in the kitchen garden, 244 feet in length, 18 feet in width, and 14 feet high at the top. This is divided into three divisions, thus: one for Figs, a second for general fruit culture, and the third a noble late vinery. All the trees were in the highest luxuriance, and the crops excellent. The Figs were planted near the back of the house, and trained loosely over a rough trellis, about 8 feet high and 7 feet wide. The trees are kept closely pinched in at every third or fourth leaf, and produce three or four crops in succession during the year. The varieties grown are chiefly the different Ischias, the Maltese, Royal Green, and Early Purple. In front of the trellis a 6-foot path is carried along, and against the glass a wide shelf is placed, on which a fine row of Capsicums, laden with their richly coloured fruit, were growing.

In the general fruit-house Peaches were trained on a roof trellis, and the back wall was furnished with Cherry trees in a loosish manner. By this semi-natural mode of training immense quantites of fruit are secured. In this house there are some fine trees and very large fruit of the late Admirable Peach, and the Stanwick Nectarine, the other varieties being the Royal George and Noblesse Peaches, and the Red Roman and Elruge Nectarines. The vinery was also well hung with fine Grapes—Hamburgh, Alicantes, Lady Downe's, &c.

As soon as the wood of the trees in these houses is ripened, the whole are pruned, and the entire floors are filled with Lettuce, Endive, Cauliflowers, Broccoli, Tarragon, Mint, &c., for winter use. The outside borders, and, I think, likewise some of the inside shelves, in the spring, are devoted to Violets. These are raised from seed every year at Bicton in enormous quantities, planted out in good soil, trained to single stems throughout the summer, and placed everywhere by the thousand throughout the gardens to gladden with their presence and perfume with their sweetness the winter and spring months. The chief portion of the shelves, however, if not the whole, are devoted to Strawberries in pots, of which large quantities are forced. At the time of my visit many of these shelves were filled with very fine plants of Capsicums, Tomatos, and the Cape Gooseberries. I observed that at Bicton and other gardens in Devonshire the Tomatos were well-grown and ripened as standards in the open ground. That most useful plant for winter and spring decoration, the Solanum Pseudo-Capsicum, was also grown in a similar way out-of-doors. However, the unusual success achieved in the cultivation of this most useful plant at Bicton deserves more than a passing notice. The old plants are kept over from year to year. About May they are cut back, stripped of the old leaves and berries, and planted out-of-doors in very rich soil. Here they are allowed to grow freely till the autumn, when they are again taken up and potted and placed in the different houses to exhibit their bright, lively berries throughout the winter and spring months. During the following summer they undergo the same treatment with equally satisfactory results. Many of the plants were huge bushes, from 3 to 4 feet high, and as much through, bearing a peck or more of their bright lively berries, almost as large as boy's marbles. They are really magnificent decorative plants when grown to this high state of perfection. Another class of plants that are very largely and well-grown at Bicton, are the Tree Carnations. These are cut either outside or in, almost any day in the year, and few plants can equal these in sweetness and beauty when grown to such perfection as they are at Bicton. For gentlemen's coats, ladies' bouquets, or vase decoration, they are unrivalled. *F.*

(To be Continued.)

Miscellaneous.

Saturday Half-holiday.—The members of "Carter's Cricket Club," *employés* of Messrs. Carter & Co., inaugurated the season with a cricket match on Saturday last, in Battersea Park. The match was played by the married and single members, and the former gained an easy victory.

Apples as Wall Trees.—We have been so accustomed to think of, and treat, the Apple tree as hardy and perfectly adapted to our insular climate, that the culture of superior varieties as wall trees has been neglected, except in the extreme north of our island, where the climate is not very favourable even to the culture of the Ribston Pippin as an orchard tree. The varieties most worthy of cultivation against walls in England, even in our most favoured counties with regard to climate, are mostly of American origin, the Continental varieties, with but very few exceptions, not being remarkable for goodness of quality. The best methods of cultivation are:—1. To have the trees trained as espaliers to low walls, as directed for Pear trees, the trees to be under summer pinching. 2. To plant five-branched upright cordons in the spaces so often found between wall trees in old gardens. 3. To plant single vertical cordons, against walls between established wall trees: these should have all the shoots and spurs cut off closely on one side of the trees, so that the stem may be easily fastened to the wall with a band or even two or three strong shreds. Single vertical cordon Apple trees grafted on the English Paradise stock and planted against walls 10 to 12 feet high, the trees well managed, by summer pinching, become amazingly prolific, and bear the finest of fruit. The varieties of Apples most worthy of wall culture are of American origin, viz., the Newtown Pippin, Washington, Bar's Apple, Melon, Northern Spy, Fall Pippin, Lady's Sweeting, and some others. *Rivers' Miniature Fruit Garden.*

Last days of French Naturalists.—Lamarck, in his work on invertebrated animals, described some of the species of shells from specimens in his own cabinet, and others from examples in the Museum of the Jardin des Plantes. This naturalist, who had a most wonderful faculty of perceiving natural groups and their relation to each other, and certainly was one of the most industrious of the votaries of natural science (for he not only published on zoology and botany, but on

other branches of science), in his old age became blind, and so reduced in circumstances that when I saw him he was living in a very small room, with scarcely any furniture, on the stair leading to the library of the museum, chiefly supported by the labours of his daughters, who were employed to place the plants in paper for the herbarium. I am glad to say that I never knew any man with even the slightest pretence to being a scientific student living in such a miserable state in this country; and to me it was a great distress to see two members of the Institute so illustrious as Lamarck and J. C. Savigny, who had done such good work while they had eyes to see, living, when they became blind and feeble by age, in such poverty and distress. To these names I might add a third conchologist, De Montfort; but his labours were small compared to the others', and his state of poverty more abject. The botanists of the Institute are not more fortunate or more cared for. I recollect with sorrow my visit to Louis Claude Richard, the author of the invaluable "Analyse du Fruit," and to M. du Petit-Thouars, a botanist who had done good work, and bears a name so celebrated in the naval annals of France. Our scientific men are rarely pensioners of the state, like the members of the Institute; but still they never come to such poverty, or die a lingering death from want of food and warmth, and at the same time are free to express any opinion, scientific, religious, or political, that they may conscientiously hold or wish to inculcate. *Dr. J. E. Gray, in "Annals of Natural History."*

Bougainvillea speciosa.—This plant is certainly, when properly treated, one of the most lovely of all stove climbers. A few days since I visited Sandbeck Hall, the seat of the Earl of Scarborough, and I then had the pleasure of seeing this Bougainvillea in the highest state of perfection. The plant was growing in a 15-inch pot, and was trained along the back and side of the stove, covering a space of 40 feet by 10 feet, and it was loaded with its festoons of bracts, some of them 4 feet in length, —indeed, it was a perfect mass of flowers, and the bunches of buds could be counted by the thousand. Mr. Hall states that he finds no difficulty in flowering it, providing the wood of last year's growth is thoroughly ripened, and that the plant receives absolute winter rest by withholding water, and is then gradually started into growth, and sparingly watered, until the bracts appear, when it is necessary that it should have a plentiful supply. *E. Bennett, in "Florist and Pomologist."*

Garden Operations

(For the ensuing week.)

PLANT HOUSES.

THE temperature of *Orchid-houses* proper should now be gradually advanced to the full growing maximum, which, during bright sunny weather, may reach to a mean of about 90° in the latter part of the day, supplying as much moisture as will keep the atmosphere dense and reeking with humidity. To treat this beautiful and delicate class of plants successfully a very decided and liberal treatment should be enforced. Sudden extremes of heat or cold, or excessive moisture and its reverse, dryness, are one and all to be most carefully guarded against, yet a careful variation of each of the above should be thoughtfully allowed, and as carefully and judiciously carried into effect. There should be in every 48 hours a growing period, a resting period, and a space intermediate between these, for the essential maturation of the growth formed during the plant's most active moments. From the small hours of the morning—the moments when the revivifying action of sunlight arrives, to about the tenth or eleventh hour of the day, according to the intensity or otherwise of the sun's rays, and the purity of the atmosphere, plants are at rest, excepting so far as they are collecting strength and stability wherewith to withstand the scorching influences of the mid-day sun, and its attendant dry air. From thence, through the heat of the day, the excessive tax on their whole capabilities materially tends to harden the fibres, and to mature the young growths previously made. A warm shower, with attendant cloudiness in the afternoon, or, failing these, the more condensed dews of early evening, next afford the growing period. Under artificial treatment, we are enabled, by closing up early, by "sprinkling down," and by the use of shading, to secure the former, and to maintain a lengthy time of growth on through the early part of night. Thus, if we take the gradually reduced minimum temperature of the early morning, and by giving air thoughtfully, a little at a time only, as soon as the power of the sun is felt, we arrive at the necessary maximum of heat at mid-day, without any unnecessary tax upon the plants; and by constantly keeping all cool surfaces damped down more and more as the day advances, we lessen even the tax thus necessarily enforced, and so merge into another period of activity and full growth. There are few more simple things in plant culture than giving air in the morning; and few practices which, if not carried out with judgment and forethought, are likely to carry more injurious consequences in their train. Negligence, or what is as bad, a want of forethought and study, sufficient to know that air is required, and should be given gradually in amount corresponding to the exterior warmth of the temperature and the permanency, or otherwise, of the sun's rays, are sure to act adversely, however carefully other equally necessary attentions are carried out. *Orchids upon blocks*, &c., should now be frequently dipped into vessels containing tepid water, and still more frequently syringed overhead. The delightfully fragrant citron-flowered *Cattleya citrina* will now be generally in bloom, and will require to be carefully dipped in water, so as to cause as little injury as possible to the flowers. Now that active growth has commenced, insects should be vigorously sought after and guarded against. Encourage all greenhouse plants by every possible means to make a quick yet firm growth.

FORCING HOUSES.

Vineries, in which Grapes are actively swelling in the first or earlier stage, should have a good brisk temperature during bright weather, of not less than 92° to 96° upon afternoons, together with a free use of the syringe. Those houses containing Grapes at a more advanced stage, whether they are actually ripening, or only in the process of "stoning," should not now be syringed, but receive what moisture they require by keeping the internal surfaces well damped down, as a nice moist atmosphere will amply suffice for all their wants at this stage. Late houses, such as are only now commencing to make active growth, should have precisely the same treatment as I have previously advised under such circumstances. Above all things give air early in the morning, and gradually increase it as the day advances, and as the sun continues bright. Pot on succession *Pine* plants at the earliest possible moment. Put in an additional supply of "crowns" or suckers in instances where, on account of the excessive heat of the past summer, plants have been forced into bearing prematurely, and the stock has in consequence become disarranged, so far as a proper successional supply is concerned. I have before referred to the necessity of affording a thin shading to all free-growing successionals during very bright dry weather. As this is the season when the sun's rays cause the foliage to become very brown in appearance, and as many growers have a great objection to having their plants presentable in any other than the green garb of healthiness, I again suggest that no delay should take place in the application of shading forthwith. During bright dry weather great care should be taken in watering plants which show any indication whatever of ripening. It is far better that the plants should suffer from drought than that the roots should be over-supplied with moisture at such a juncture. Where *Peaches* or *Nectarines* are so far advanced that the ripening process is near at hand, it will be necessary to remove such of the leaves as surround the fruit too closely, or indeed any which intervene between them and the sunlight, so as to admit of their receiving the full action of both light and air, as the flavour is very materially and favourably influenced by each. During calm, mild weather too much air cannot possibly be admitted throughout the whole house, provided at all times the temperature can be maintained at about 60°, and never be allowed to fall below 55°. Stop all gross growths, and pinch back the ends of all leading shoots which have been permitted to grow for the purpose of furnishing young wood, as soon as they have attained to the prescribed length of growth. *Cherries* now bearing fruit in an advanced stage should also have a plentiful supply of air and frequent sprinklings overhead with the syringe. *Early Melons* which have been pinched back as previously advised, will now be forming sub-lateral shoots, upon which the young fruits are already seen, and therefore it should be borne in mind that, only in proportion as we allow light and air in sufficient quantity into and amongst every part of each plant, can we expect full success in the production of a crop. Periodical and careful thinning out of both shoots and large leaves, which invariably form at the points, and upon all shoots so pinched back, will therefore be necessary to insure this desirable result. I find it best to do what pinching back may be required one day, and to remove all such gross leaves where they are unduly crowded together in a day or two afterwards; by proceeding thus the plants do not receive so great a shock as when the whole operation is performed at one time, which causes a great amount of violence to be committed. The plants, it should be remembered, have not only to contend against the sudden deprivation of foliage, but also against the full exposure to the full sun of those parts which previously were densely shaded. These facts will suffice in themselves to suggest that a little shading should be given for a day or two afterwards if bright sunny weather should occur.

HARDY FRUIT GARDEN.

The necessary thinning out and pinching back of the young shoots forming upon *Wall trees* generally must now be entered upon earnestly. *Peaches* and *Nectarines* should have all such superfluous growths as are not required to form fruiting shoots for next season removed, leaving a sufficient leaf-surface only to admit the full play of light and air into and amongst all.

HARDY FLOWER GARDEN.

Ordinary flower borders, if no spring display has been attempted by planting in them such early blooming subjects as are now in the height of their beauty, will have been dug over some time during the past winter, and have received at the same time such an amount of manure as was needed. These, if of a close stiff texture, should now be again well forked and turned over during a dry period, that time may be allowed for the air to act favourably upon the soil before planting-out time arrives. Those beds, or borders, which are, on the contrary, formed of very light, stony, or sandy soils (and I urge this as a matter of some importance), should not have their somewhat firm bottoms disturbed. If these are forked up now during a dry period the risk will be run of lightening them up to such a degree that a good staple hold for the roots of plants, such as now exists, will not again be formed during the whole of the ensuing summer. A good deep surface-hoeing will be all that is wanted in this case preliminary to planting out. Those beds which are filled with spring-flowering plants cannot be touched until such time as they are absolutely required for planting out the summer bedding stuff; when they are dug, or forked over, however, a small quantity of manure should be added.

KITCHEN GARDEN.

The remarks which I have offered above, concerning turning up or digging light open soils during very dry hot weather have equal, if not greater, force in connection with this department. All digging operations in such grounds, if they are light, should be proceeded with immediately after showery weather, and when the ground is moist. Stop the points of all leading shoots upon *Broad Beans* and *Peas* which are in the act of "podding." Clear off all weeds by hoeing, &c., whilst dry, favourable opportunities occur. Tie up *Lettuces* to blanch. Do not at this season, and when growth is so rapid, tie them too closely; but by performing the operation loosely, allow full space for extension, and so obviate all tendency to rot during the prevalence of extremes of weather, which they are very liable to. Harden off young plants of *Chili*, *Capsicum*, and *Tomato*, by full exposure, and continue to transplant during favourable weather all such things as require to be so treated. *W. E.*

TOWN GARDENING.

THE following hardy annuals will all succeed well if sown now in the manner I have previously directed. They will also produce their flowers in July, August, and September if the patches are frequently sprinkled during their growth:—Lupinus nanus, Candytuft (crimson and white), Nemophila insignis, Gilia tricolor, Collinsia bicolor, Cape Marigolds, Dwarf Tropæolum. Pansies are charming flowers for town gardens, and if planted now in beds, in separate colours, will flower nearly all the summer and make a great show. If plants are purchased from the markets, those that have the roots compressed should not be selected, for they are useless. Those only that have been merely lifted out of the ground will succeed, if planted firmly and well watered. Deciduous hedges and shrubs, such as Privets, Lilac, &c., have made strong growth, and should be trimmed in, otherwise they will drop after rain and injure many plants in the borders. Grass plots that have been sown or turfed should be well rolled and mowed after rain. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending May 5, 1869, as observed at the Horticultural Garden.

April and May.	Moon's Age.	Barometer.		Temperature. Of the Air.			Of the Earth		Wind	Rain.
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 29	17	30.245	30.154	61	32	46.5	53	50	N.E.	.00
Friday 30	18	30.101	30.096	64	37	50.5	52	50	E.	.00
Satur. 1	19	30.103	30.002	55	26	40.5	51	50	E.	.00
Sunday 2	20	29.989	29.943	62	41	51.5	51	49	E.	.00
Mond. 3	21	29.899	29.826	51	36	43.5	51	49	S.E.	.48
Tuesd. 4	22	29.946	29.745	50	35	42.5	51	49	E.	.34
Wed. 5	23	29.866	29.579	59	39	49.0	51	49	E.	.02
Average		30.021	29.908	57.4	35.1	46.3	51.4	49.4		0.84

April 29—Fine; clear and fine; overcast, cold wind.
" 30—Clear and fine; very fine; overcast.
May 1—Densely overcast; overcast; clear and fine.
" 2—Very fine; foggy and overcast; densely overcast.
" 3—Densely overcast; fine, slightly overcast; rain.
" 4—Rain; heavy rain; overcast, slight rain.
" 5—Cloudy; overcast, but fine; foggy, densely overcast.
Mean temperature of the week, 4 3-10 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending May 15, 1869.

May.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday.. 9	62.6	39.9	51.2	19	0.73 in.	3	10	8	1	5	13	3	—
Mon. ..10	62.4	40.1	51.3	21	0.60	5	9	6	2	6	8	4	2
Tues. ..11	62.4	40.9	51.6	19	0.52	6	7	9	1	6	7	3	4
Wed. ..12	62.9	40.5	51.7	20	1.14	2	11	6	4	3	9	6	3
Thurs. ..13	63.5	38.8	51.1	20	0.66	3	10	8	1	5	9	4	3
Friday ..14	63.2	40.3	51.7	16	0.46	4	12	3	2	9	9	3	1
Satur. ..15	64.8	40.7	52.7	15	0.46	6	7	7	—	3	14	4	2

The highest temperature during the above period occurred on the 15th, 1833—therm. 86 deg.; and the lowest on the 15th, 1850—therm. 25 deg.

Notices to Correspondents.

APPLES: *A Subscriber.* We do not know anything of the variety you mention. The name is probably a local one, and not known out of the district.

INSECTS: *A R.* The leader of your Mountain Ash tree was burrowed into by the half-grown caterpillar of the pretty and rather rare Wood Leopard moth, Zeuzera Æsculi.

NATIVE COUNTRY OF PLANTS: *W.* 1, Clerodendron Balfourii, a garden hybrid; 2, Dipladenia crassinode, Brazil; 3, Franciscea confertiflora, Brazil; 4, Ixora coccinea, Java.

NAMES OF PLANTS: *T B.* Rubus spectabilis.—*J G.* Serapias cordigera.—*J G T.* Jasminum hirsutum.—*C W Strickland.* Gladiolus recurvus.—*H T W.* 4, Myosotis cæspitosa; 5. Arabis albida fol. var.—*T Woodford.* Tecoma jasminoides.—*Ellesmere.* Veronica agrestis.—*E H.* Allium ursinum.—*J J.* Staphylea pinnata; Acer monspessulanum.

ORCHARD-HOUSE TREES IN POTS: *W E M.* One thing is very clear, and that is, your dose has been too strong. You have applied too much, and in too rank and strong a state. The compost having been prepared, it should have been allowed to sweeten for some time. At this season your trees are not able to stand such a strong dose as they would at a later period, when their tissues are more hardened.

ORCHIDS: *Spring Garden.* Your orchid blooms were not received here. The initials you mention referred to another correspondent.

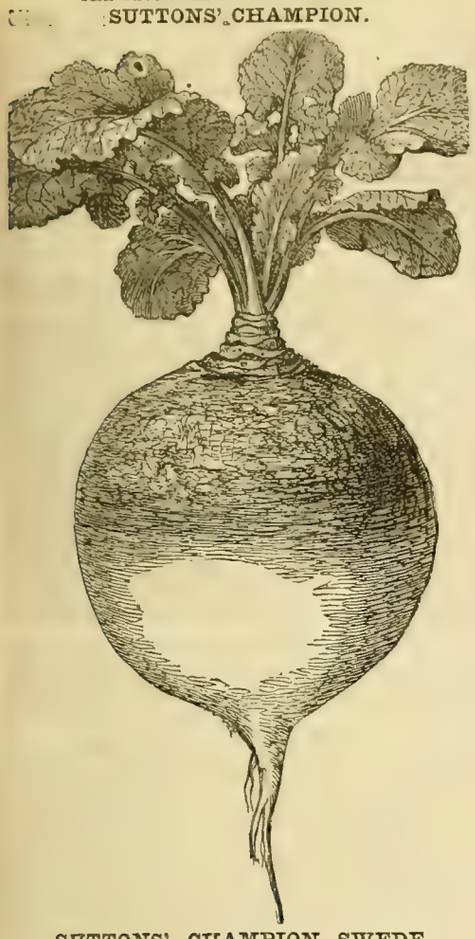
PEARS IN POTS: *P B.* Probably the article on this subject at p. 245 (March 18), 1865, is the one to which you want a reference.

SUNK PIT: *Novice* proposes to make an economical greenhouse by digging a hole, 4 feet deep, 12 feet long, and 9 feet broad, bricking it in, carrying the brickwork about 2 feet above ground, and then putting on lights with a slight incline, and wishes to know whether plants will grow in such a place. Such a structure would be neither more nor less than a sunk pit, and will serve for growing certain kinds of plants, provided the requisite heat is applied, and provision is made to secure ventilation, and to prevent the accumulation of damp. It will, of course, suit best for subjects requiring a comparatively close, moist atmosphere, and no great amount of light.

COMMUNICATIONS RECEIVED.—T. A. G.—W. S. D.—A Constant Reader—E. P.—J. G. B.—R. T.—W. C.—W. L.—Cornwall—S. M. O.—Dr. H. B.—R. B. F.—J. W.—R. D.—W. P. A.

SUTTONS'
HOME-GROWN FARM SEEDS,
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This maintains its character as the best Swede in cultivation. It is a very large purple-topped yellow variety, perfectly hardy, and stores exceedingly well. It is of fine globular shape, and remarkable for its small neck and freedom from coarse roots. It has taken for seven successive years His late Royal Highness the Prince Consort's Prize Cups, of the value of 20 guineas each. These same cups were last year awarded at the meetings of the Royal East Berks and South Bucks Agricultural Societies to crops of our Champion Swede, and other improved varieties of Agricultural Roots. Numerous other Silver Cups have been awarded to crops of this Swede, while it almost invariably obtains the first prize for pulled roots. Some very fine roots, WEIGHING UPWARDS OF 16 POUNDS EACH, grown by one of our customers in Ireland, and exhibited on our stand at the Smithfield Club Show in December last, attracted marked attention.

From GEO. RANSON, Esq., *Poplar House, Sproughton.*

April 21, 1868.—"I had this year 15 acres of your Champion Swede, the FINEST AND BEST grown in my neighbourhood. I am only now finishing them."

From J. ARNATT, Esq., *Manor House, Tingewick.*

April 16, 1868.—"I took several prizes last year with crops grown from your seed, and amongst them was a £10 prize for the best general crop. I think there is no better Swede than the Champion grown."

From A. M. WHARTON, Esq., *Gasthorpe Lodge.*

March 2, 1868.—"I believe you are aware this is a great seed district, particularly for Turnips, &c.; but your unrivalled Champion Swede is almost exclusively grown."

From J. C. MOORE STEVENS, Esq., *Winscott.*

April 2, 1868.—"I won a Ten-Guinea Silver Cup last year for Swedes grown from your Champion Seed."

From Messrs. DUKE & SON.

April 14, 1868.—"We grew some splendid Champion Swedes from the seed you sent us last year."

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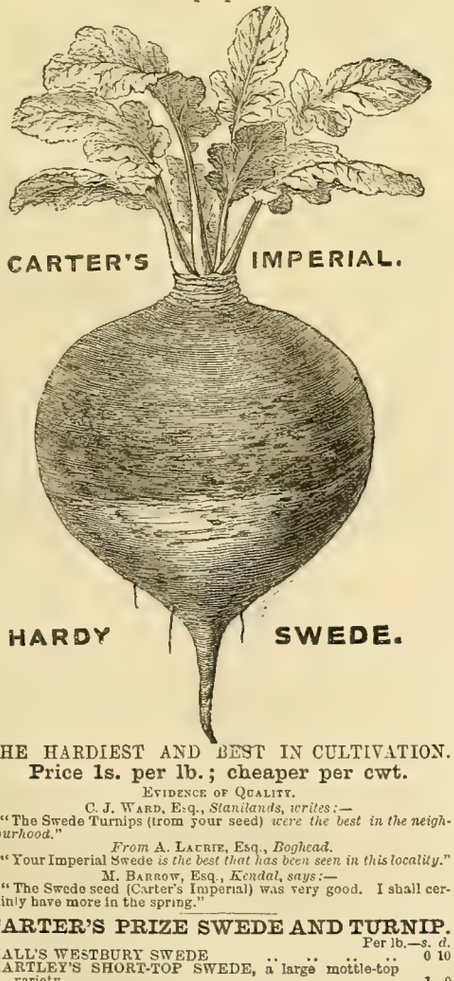
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"The Swede Turnips (from your seed) *were the best in the neighbourhood.*"

From A. LAURIE, Esq., *Boghead.*
"Your Imperial Swede *is the best that has been seen in this locality.*"

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"The Swede seed (Carter's Imperial) was very good. I shall certainly have more in the spring."

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For full descriptions of CARTER'S PRIZE STOCKS of MANGEL, TURNIPS, GRASSES, and other FARM SEEDS, harvested on their own Seed Farms, see "Carter's Illustrated Farmer's Calendar" for 1869. Post free, 6*d.* (gratis to purchasers.)

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(ESTABLISHED 1777) and
SOUTHERN COUNTIES ASSOCIATION,
For the Encouragement of AGRICULTURE, ARTS, MANUFACTURES, and COMMERCE.

Patron—H.R.H. The PRINCE OF WALES, K.G.
President—The Right Hon. the EARL OF CARNARVON.

The ANNUAL EXHIBITION of SHEEP, HORSES, PIGS, POULTRY, IMPLEMENTS, WORKS of ART, and HORTICULTURAL SPECIMENS will take place at SOUTHAMPTON on MAY 31, JUNE 1, 2, 3, and 4.

JOSIAH GOODWIN, Secretary,
4, Terrace Walk, Bath.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.

DR. VOELCKER'S RESEARCHES.

A Lecture, "On the RESULTS of CHEMICAL INVESTIGATIONS made during the PAST YEAR," will be delivered by Dr. VOELCKER, on MONDAY, May 10, at 2 P.M., at the Society's Rooms, 12, Hanover Square, W.

Members of the Society and their Friends, as well as other Gentlemen interested in the subject, are invited to attend.

H. M. JENKINS, Secretary.
12, Hanover Square, London, W.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.

MANCHESTER MEETING, 1869.

ENTRIES of HORSES, CATTLE, SHEEP, PIGS, BUTTER, and CHEESE, CLOSE on JUNE 1, and all Certificates received after that date will be returned to the sender.

H. M. JENKINS, Secretary,
12, Hanover Square, London, W.

The Agricultural Gazette.
SATURDAY, MAY 8, 1869.

MEETINGS FOR THE ENSUING WEEK.

May 10 { Royal Agricultural Society (lecture in the Society's Rooms, Hanover Square, by Dr. Voelcker, on "Results of Chemical Investigation."

IN the course of the recent Election Addresses one candidate, in speaking of the Irish Question, referred to the Land topic as one too lengthy and complicate for the popular treatment necessary on such an occasion, and intimated his purpose of entering into it in fuller detail on some more suitable occasion. We look upon all land subjects as our own; and we shall be glad to see the promise carried into effect.

It would be idle to attempt to hide from ourselves the fact that after the settlement of what is called the 'Irish Church question,'—(not very accurately; for, Establishment and Endowment are not the *Church*, but its official clothing, and habiliments,) that after this, must come the Land question: and it has already long become the fashion to say that this will prove the more difficult question of the two.

Very likely. But difficult or not, it must be met. For, what alternative is there? If there be evil to be remedied, or error to be amended, it *must* be *done*. England cannot afford, year after year, to

"Split itself,
And go to buffets with *the other half*"

in the person of that close-adjoining country whose relation with it must, like that of a wife, be either a vital element of national strength, or an essential weakness, a 'Thorn in the flesh,' close, constant, and besetting. It is not really a question of Party: be it Whig or Tory, Conservative or Liberal, it is a matter that *must* be dealt with. It cannot be done in a passion. It *can* only be dealt with by the most judicial treatment. In the present day, national justice *cannot* be denied, or deferred: and if it could, the Government of this country is not one that would deny, or delay the remedy of a proved wrong. We should not permit either in our own case; we *must* not in the case of our fellow subjects.

But there is one great difference between the Church and the Land Questions: and it is this; that whereas in the former case we are satisfied with the institution which we ourselves enjoy, and erred perhaps only in trying to force the cap that fits our head, upon another skull of widely different shape and size:—in the latter case, we have a system at home which is condemned by—we might almost go the length of saying—every one who has taken the trouble to understand it. Indeed, if we were asked what one thing is left for an Englishman to complain of, what one

grievance has not been redressed, nor bids immediate promise to be so, we should at once answer in one brief expression, his Land Laws.

Does it not sound strangely, that in the country of Magna Charta, the Bill of Rights, and the Reform Bill—in a country so well governed, so advanced in every political and social right—a country quoted as an exemplar of personal freedom by other civilised nations, there should exist unreformed and unredressed anything at once so fundamental, and so patent as a wrong in the matter of Land? We are free to confess that if it were asserted to one who had studied the English Laws and Constitution as a stranger, he would be unwilling at first to credit it. Yet it is true: and the cause of it is not far to seek: for strange to say the very source and kernel of our Constitutional freedom and good Government contains the germ of the mischief that clings to our land laws. *Law Books outlive Revolutions*, those great changes in the body politic which like a thunderstorm, or the process of fermentation, clear the elements they disturbed, yet leave behind them a deposit which survived the salutary change; and so it has been with that one exceptional residuum known by the title of 'Real Property Law.'

To understand it is the labour of a life: to spend a life in learning it is to work in a track, a groove which human nature mental cannot after a certain time of life get out of. Who that reads a page of any great lawyer's writing, from Lyttelton down to Sugden, can fail to see that a lawyer's mind works, like the Shaft-horse, in a line that while displaying all its power, it cannot govern, or with all its power, *get out of*. And thus it has come to pass that while legislation has touched with the hand of reform almost everything else that needed change, the Law itself has like the pivot point escaped the general movement proceeding around it, and in its most important branch, remained unchallenged by public notice and intelligence. We refer to that branch of the Law which relates to Land. But if it should be successfully shown that this is so; that a serious reform is needed in our own land laws as existing in England, let us pause for one moment at the threshold to ask How do we stand, in this matter, towards Ireland? "Physician cure thyself!"

This it is that makes the matter so pressing and important now. We see all sorts of plans and remedies put forward for dealing with the land question in Ireland: the doctors are become almost numberless, and each prescribes his own nostrum. 'Tenant right' is the favourite word perhaps, but in truth the pharmacopœia embraces almost every scheme from cottier holdings upwards. But what hope is there, what chance of a cure for the Irish land grievance out of our dispensary? What chance of a healthy circulation in the members, if all be not right at the heart and centre? Such is the question we can well imagine our candidate asking. Let us indulge the fancy, and think we already see how he attempts to deal with the subject.

"Do not imagine that I am going into a dry and learned dissertation. I shall talk the matter out on paper, just as I should endeavour to do in speaking, so as if possible to make any reader with ordinary attention understand it. And with this view I must, if you please, *begin at the end*, and work backwards up to the commencement, just as idle novel-readers peep forward to the end of the third volume to see the hero and heroine comfortably married, and then begin the *first*, to ascertain how it all came about. This is what learned people call the 'analytical' method. It is, in truth, the way in which *all* knowledge comes to us in life: and until our great English Philosopher made that *discovery* (!), the world was pretty well steeped in learned guess-work and ignorance.

"To proceed then. Let us suppose that an active Tradesman who has saved a little money, has in the course of some morning walk set his heart upon a bit of land, lying near his city: and suppose the owner to be quite willing to sell it. The price is asked; named; and finally agreed to: the intending purchaser writes a cheque for the amount, and hands it to the seller, takes his Receipt for the money, and——"

Here the writer is interrupted by 'shouts of laughter' from the chorus of—not the 'Frogs' (of Aristophanes) out of the ditch, but the one common throat of almost all the 'Conveyancing' Lawyers in England—*almost* all, observe, *not* all! not the best, not the highest,—not Lord Cairns, not Lord Westbury, not the Lord Chancellor himself. No! they won't laugh! for they and each of them have bent their noble strength to try to make it so, or nearly so. But if they—the 'upper Ten'—*don't* laugh, be sure the lower 'Thousand' will, with all their hearts—'mights' we mean, at the very idea, the bare *idea* of an acre of Land being bought and sold in this way! changing owners like a Hack in the stable or a Hunter in the Field, or a Brace of Pointers over the crisp wet Turnips.

But *why not?* The Hunter may be worth his hundred and fifty guineas, yet the buyer is content to pay his money and ride, or have him led, away, without asking troublesome questions. 'Where did you get him?' 'Did you steal him?' 'Whom did you buy him from?' 'How long have you had him?' 'Is there any debt unpaid upon him?' and so on. Yet surely all these suspicions *might* apply to a horse, which may be here to-day and fifty miles away to-morrow. Why do buyers and sellers settle these matters for themselves, in property liable to every risk of personation and false ownership; yet when a bit of land is in question, which of all things on the face of the Earth,—being in fact, a definite portion of that face!—is the most obvious and immovable, its ownership recognisable, and matter of record—all transaction between the principals—the buyer and the seller, is impossible, utterly *ridiculous*—and the whole matter must be relegated to two or more lawyers, and performed in their offices, and represented, not by a well-authenticated *Government Map*, but on sheepskin 'Deeds' upon which must be engrossed the history of that bit of land for sixty or seventy years back, with all the Family biography, Births, Deaths, and Marriages of the owner or successive owners!

We are 'so to the manner born' that the absurdity has ceased to strike us. But, in order to see its *likeness* as you cannot see *itself*—imagine for a moment all this 'legal coil' having to be gone through every time a valuable horse—or a Pearl Necklace worth a thousand pounds—or a Set of Brilliants worth ten thousand—changes hands, at Tattersall's, let us say, or Hunt & Roskell's! We name these costly things merely to show that intrinsic *value* has nothing to do with the matter. The Horse may have a pedigree reaching up to 'Childers,' or 'Eclipse': the Pearls, or the Diamonds, may have been in "my lady's Family" three hundred years and more, yet they change owners by a few words of bargain, a cheque, and a Receipt, and the transaction is ended, absolutely and legally complete.

What then is the difference? if neither value, nor length of ownership constitute it. What, we say, is the difference? The boy who sweeps the Lawyer's office can almost tell it you!—"Because," he answers, "the bit of land is Real-property, and these other things are *only* Personal-property!" That is the answer. Each, you see, is 'property:' that is, it *belongs* to somebody: *to him*, and nobody else: both are alike in this: yet there is a difference. The one is his, and he can sell it himself: the other is his too: but he *can't* sell it himself: somebody else to whom it does *not* belong, must do it for him: not to day, nor to-morrow, nor this week; perhaps not for some months to come: *perhaps*—not at all! and "this, this is the unkindest cut of all!"—however truly it may be his,—good to hold, and safe to plough and sow and manure, and talk of,—and pay rates and taxes for; but when he comes to selling—perhaps, *not at all!*

What does this mean? you well may ask. Well, the answer is a volume. It is a history, "Sir, a whole history!"

—— At Mark Lane on Monday the prices for Wheat of the previous week were fully maintained, and yesterday a short supply caused great firmness in the trade for English, and an advance of 1*s.* per quarter on the previous prices for foreign samples. Both white and red samples of ordinary quality are quoted at as low a figure as 42*s.* per quarter, the highest, excepting Talavera, being 47*s.* per quarter. Talavera stands at from 50*s.* to 51*s.* per quarter. Barley is making 44*s.* to 49*s.* per quarter. Thus home-grown Barley is more valuable than English Wheat. Maize, of which there has been an excessive supply, has realised a trifle more money.—The live stock and meat trade is increasing in activity in consequence of the shortness of food during the last nine months telling more and more on the supply. Something over 6*s.* per 8 lb. has been realised for prime fed oxen. Of the 3709 beasts in the market on Monday, 2267 were foreign.—In the seed trade there has been a fair business done in Mangel, Swede, Turnip, and Mustard seeds. Red Clover seed has recently come to hand in large quantities. It must now of course go into stock. This is an odd case of over-standing a good market.

—— It will be seen from the report of the Council of the Royal Agricultural Society, in another page, that all consideration of either reorganising or abandoning the work under their Education Grant has been postponed till November. Certainly there is nothing in the proceedings reported by the Education Committee to justify anything like dissatisfation with their previous proceedings. Eighteen agricultural students have presented themselves for examination, and ten have passed—two in the first class, thereby winning life membership of the Society, together with a prize of 50*l.* awarded between them—and eight in the second class receiving prizes of 10*l.* and 5*l.* for superiority in particular subjects, together with the Society's certificate of proficiency. The Highland and Agricultural Society cannot point to anything like such a list of candidates for the distinctions it annually awards, and yet we hear nothing of any proposal there to abandon the education scheme, which they have now for seven years prosecuted. Let us hope that their example of "patient continuance in well-doing" may influence our own authorities in their future dealings with this subject. Meanwhile, it is with great satisfaction that we record the fact that 8 out of the 10 successful candidates at the recent examination have been students at the Royal Agricultural College.

—— We learn from the *Dublin Farmers' Gazette* that Mr. Allan Pollok's great sale of farm stock on his Galway estate took place on Tuesday and Wednesday of last week, in the presence of buyers from all parts of the kingdom. Mr. Pollok is letting many of the farms, which he has hitherto held in his own hand. The range of prices may be gathered from the following statement:—Ewes, with their lambs, from 53*s.* to 45*s.*; hoggets, mixed lots, from 44*s.* to 30*s.*; ewe hoggets, from 37*s.* to 25*s.* 6*d.*; wether hoggets, 33*s.* to 27*s.*; fat wethers, 70*s.* to 51*s.*; hogget rams five guineas each. Store cattle, 16*l.* 10*s.* to 12*l.* Horses (farm) from 66*l.* downwards. Dairy cows, 25*l.* Yearling Shorthorn bulls from 32 gs. to 20 gs; average 23 gs. About 700 lots passed the hammer, and some idea of the magnitude of the sale may be gathered from the fact that between thirty and forty thousand pounds were realised.

—— In the course of the discussion following Mr. Corbet's clever paper on Foxes and Rabbits, read before the London Farmers' Club last Monday, and reported in another page, Mr. Acton informed us that in his district rabbits do no harm, as they live in poor open places. Foxes, however, and rabbits can live together, as the latter breed so fast that it is impossible for any number of foxes to keep them down where the soil is suitable for harbouring them.—Mr. Robert Leeds (Norfolk) said in his county there are as many foxes and rabbits as anywhere in England. But he lived under Lord Leicester, and had nothing to complain of. There were, however, many farms where half the produce of the land is eaten up by these vermin.—Mr. Wade said the rabbits are simply a question of the keepers.—Mr. Barton said the tenant is the best keeper—not, perhaps, in regard to rabbits, but in showing good honest English sport.—Mr. Edmunds, of Rugby, said: Some of the men who follow the fox are as objectionable to the farmer as the rabbits are. Some objection was made to this remark, but Mr. Edmunds thought that it was only fair to listen to what one Englishman had to say to another. He had seen "fields" of 500 or 600 horsemen in his neighbourhood, and he knew that farmers were asking this question: Are we to find land for men from Birmingham, Northampton, Leicester, and London, to ride over at the rate and in the numbers at which they now come? These men do not know what sport is, but they ride somewhere, not knowing whether the hounds had been after a fox, a hare, or a rabbit—and all they apparently thought was, "It is galloping," and all they said was, "Isn't it jolly!" This is a serious business to tenant farmers. Let us bring this fashion within reasonable limits. A few years ago crops were not sown so early. Now there are Peas and Barley sown in January and February. If landlords intend to exact their last penny, there must be an end to these sports. —Mr. Trethewy differed from Mr. Edmunds. He was sure that the damage done by riding over Wheat was not so serious as had been represented; but as regards spring crops, he quite agreed with the opinion that great injury was done. But the question is—Is fox-hunting to continue? His opinion was, that the tenant-farmer was largely benefited on the whole by the pursuit of this national sport.—Mr. Smithies agreed with Mr. Edmunds, and he was highly pleased with the courage shown by him, and the manly way in which he had spoken out against fox-hunting as carried on in many parts of this country. He then referred to the modern system of *battue* shooting, the results of which were published in the papers. By this publicity many men were induced to become heavy game-preservers when they would not otherwise have been incited to follow this fashion; but as regards fox-hunting, he lived under a cover belonging to the Quorn hunt; he had grass-land and some arable, and the "field" came across the arable. Not the country gentlemen depicted by Mr. Corbet; but 500 or 600 gentlemen from Manchester, and Birmingham, and other places. He denied that it was a good thing for Wheat and Clover and Peas to be ridden over. He could tell 10,000 hoofs in his fields, but not in one of them could he find a bit of live Wheat, or Peas or Clover. On the contrary, these spots were barren. The men who did this were the very men who had recently opposed our proposition to relieve local taxation.—Mr. Willson supported Mr. Smithies. It was most injurious to his neighbourhood, and fox-hunting was becoming very unpopular among farmers in consequence.—Mr. Thomas, Bletsoe, did not agree with Mr. Willson and Mr. Smithies; he had two litters of cubs on his farm, and if he knew that one of his men killed one he would discharge him. He considered it did as much

good as harm to ride over Wheat.—Mr. Hall, Havoring-atte-Bower, related a case where great injury was done when keepers were on an estate, and after they were discharged there were no rabbits. He preferred to have huntsmen come down from London to having a poor field.—Mr. Coussmaker approved fox-hunting, and as to rabbits, they were quite as injurious to landlords as they were to tenants.—Mr. Neile believed that if preserving game was left to the tenant, there would be ample sport. The undue preservation of game was a growing evil, and he thought it was a modern habit that ought to be condemned by the London Farmers' Club. At the same time we must meet the subject in a fair and liberal spirit.—Mr. Jasper More said that when in Parliament he had been disheartened at the coldness or indifference in the House of Commons on this question.—Mr. Howard, M.P., was sure that the preservation of rabbits was an unmitigated evil. He referred to the encouragement rabbits gave to poaching.—Mr. Read, M.P., would attempt to answer a question by Mr. Corbet. Mr. Corbet said the other night the farmers' M.P.'s were dumb, and other country members were absent. But this was a Scotch question; and when he once attempted to assist a Scotch member, he had so many letters to the effect that Scotchmen could take care of their own affairs, that he should be very cautious in again taking up Scotch subjects.—After Mr. Crosskill had cautioned the Club against depending on the law of trespass, and the Chairman had said Mr. Corbet had amply proved the great injury done by rabbits, and the great good which attended fox-hunting, Mr. Corbet made a spirited reply. As for the complaints about the damage done in the Rugby district, he should not attempt to answer the members from that quarter, but would allow them to go back to their neighbours to receive the proper answer there among themselves.

—— We greatly regret to announce the death of the Rev. Patrick Bell, the inventor of the reaping-machine, which took place on the 22d ult., at the manse of Carmyllie, Perthshire. As the *North British Agriculturist* remarks, by his decease a great benefactor of mankind has departed from among us. Whether his invention is regarded as having lightened the irksome toil of reaping the corn crops, or as the means whereby these can be cut cheaply and secured with celerity—especially where labourers are scarce—the name of the inventor of the reaping-machine will long be held in veneration.

—— At the Guildford Petty Sessions, the other day, the farmer and shepherd of North Wyke Farm, Worplesdon, were charged with cruelly ill-treating and torturing a number of animals, by withholding from them a sufficient quantity of food. On the 14th ult., Mr. A. Cherry, Government veterinary surgeon, accompanied by two officers of the Society for the Prevention of Cruelty to Animals, had visited the defendant's farm, and there found 70 sheep, 13 lambs, four horses, and some pigs, in a state of starvation and emaciation. In a field lay a cow, with bones almost protruding through its skin, and unable to rise; a sheep was also found in a dying condition, and several dead pigs, which had evidently died of starvation, were seen lying about, with hungry dogs around the carcases. There was a small Grass field, but no animals were there, and the defendant, who accompanied the officers round the farm, said it was "shut up for hay." He had no food to give the animals, and no money to buy any. All the food which the officer could discover on the farm was a little chopped straw, and a few quarts of Beans in a stable which contained three horses. The above facts having been fully corroborated, John May, a man formerly employed by the defendant, stated that the animals, while under his care, had been fed as well as practicable, and Mr. Evershed, veterinary surgeon, said that he had inspected them, and found them in a poor, but not a starving condition. This witness admitted that, 10 days having elapsed since the visit of the Society's officers to the farm, that interval of time was sufficient to effect an improvement in the condition of the animals by better feeding. The Bench, after a careful consideration of the evidence, convicted both the defendants. The farmer was fined 25*l*., and the shepherd, as accessory, 10*l*., which, with the addition of costs, raised the total sum to 39*l*. 4*s*. The defendants were allowed a fortnight for payment, or, in default, to be committed to prison for two months. The case created great interest in a crowded court.

OUR LIVE STOCK.

We beg to remind our readers of the Ridlington sale on next Thursday. Booth blood predominates in this herd, but there are some good animals of Kirklevington origin. Ridlington is three miles from Uppingham, five from Oakham, and fourteen from Stamford. The nearest railway station is Manton, on the Midland line, distant about three and a half miles from Ridlington. Conveyances will meet the trains on the morning of the sale day.

—— Mr. John Thornton has issued a catalogue announcing the sale of 35 females and 2 bulls, being the entire herd of the late Mr. G. W. Roberts, of King's Walden, Herts, on the 25th inst., the day before the Derby. The list contains the names of several very well bred animals; thus five females and both the bulls are representatives of the Telluria family, which boasts from 18 to 19 crosses of pure blood, among the earliest of which we find the time-honoured names of Favourite, repeated twice, and of Trunnell (659) Recently, Booth bulls have been in use; thus, *Miss Hopewell* (lot 4), of this tribe, is by General Hopewell (17,953), bred at Warlaby; and others are by Claxton (21,433), by Ravenspur (20,628). *Grizzy* (lot 1), by King Tom (20,071), a son of Hightborn (13,028), is of the well known Farnley Grizzy tribe, noted as good milkers and kind feeders. She has three daughters, two by Baron Torr (23,380), and one by Claxton. The stock are said to have suffered from last year's drought, and to be only now recovering; "they will, however, be found in healthy condition, and not pampered or got up for sale." For the convenience of purchasers, the stock will be removed to, and sold at, Hitchin, which is about 5 miles distant from King's Walden.

—— A fourth number of Thornton's Circular has made its appearance. Shorthorns are interesting to Shorthorn breeders, but Shorthorn "intelligence" or "news" is not a kind of literature to attract those not directly interested in the subject. We venture to express an opinion, however, that Mr. Thornton's remarks upon the early history of Durham cattle would entertain the most general reader. It is quite exciting to read of the keen competition manifested at the celebrated Barmpton sale in 1810, when Charles Colling's famous stock came to the hammer. We are told that when Comet (155) was brought into the ring, "he was put up at 600 gs. Thomas Newton, a small dairyman at Bishop Auckland, bid 850 gs., and Mr. John Wright, standing behind him, asked why he bid? 'To take in cows at a good profit,' said he; and whilst talking the glass run out at 1000 gs." Comet lived and died at Cleasby, near Darlington, and was buried in the middle of the paddock which he had for so long occupied, and a Chestnut tree was planted on his grave. Mr. Thornton, of Stapleton, purchased this field, stubbed up the tree in 1865, and laid open the grave. Many of the bones were found in good preservation, and are now kept in a glass case at Stapleton, near Darlington. The remaining portion of the Circular is devoted to important sales, past and future; to Shorthorn births and deaths, and to the usual list of animals for private sale. This last section contains the names and pedigrees of 110 well-bred Shorthorns, some of which have already been sold.

—— We learn from Thornton's Circular that the capital stock of Shorthorns, so long bred at Bromley, Northumberland, is to be sold in August, the day after the Northumberland Agricultural Society's meeting. This is said to be the oldest herd in the kingdom, having been bred upon one farm for 70 years. The pedigrees trace back direct to a cow by a son of Hubback (319), which bull Mr. Jobling bought from Mr. Charles Colling; the succeeding crosses were mostly bulls bred by Mr. Jobling, and full of Colling blood. Messrs. Angus have recently used bulls from Mr. Booth. It is also rumoured that Capt. Oliver's herd will be offered for sale during the ensuing autumn. This is a thorough Bates herd, and with the exception of two tribes, the Grand and Cherry Duchesses, will all be sold without reservation. The stock at Sholebroke Lodge, Towcester, comprises members of the Barrington, Wild Eyes, Foggathorpe, Bracelet, Sylph, and Frill families.

—— 4th Duke of Thornedale (17,750) was found dead in his stall at Weatherby Grange, on Sunday afternoon, the 18th ult. This famous bull, the sire of much splendid stock, was bred by Mr. S. Thorne, of Thornedale. He was by the well-known Duke of Gloucester (11,382), who realised 650 gs. at the Tortworth sale, and from *Duchess 66th*, a cow which was sold for the sum of 700 gs. It is needless further to trace his excellent pedigree; suffice it to say that even the most fastidious must allow it to be first-rate. 4th Duke of Thornedale was calved February 10, 1859.

—— 2d Duke of Collingham (23,730) is advertised to serve a limited number of cows at 25 gs. each, under certain necessary precautions for the defence of the noble herd which is now collected at Dunmore, as well as for the safety of the valuable bull himself. The above charge includes ten weeks' keep, and must be paid at the end of the tenth week after service. A certificate must be given by the owner of each cow or heifer that she has not been served by any other bull since her last calving, and that no infectious disease exists in the herd to which she belongs.

WHERE ARE WE?

[This was the quaint' title of a paper read before the Midland Farmers Club some weeks ago, to which we referred at the time, and of which we now extract the following report given in the *Midland Counties' Herald*.]

Without in any way wishing to detract from the importance of other branches of national industry, I claim a very forward place—if not the first—for agriculture; believing that the welfare and happiness of the masses depend very much on its prosperity. Agriculture is now in a fair position, with a probability of improvement; but it still has very much to get rid of. The old feudal habits, if not laws, hamper and hinder it, which is not the case in regard to trade and manufactures. It is to be feared that, during the last two or three years more has been lost than gained. But if farmers have not increased in wealth they have increased in intelligence. They meet and talk more than they did, and the result is improved action. Their homes and market habits are improving, and the taste for reading, writing, and music has increased. No doubt, the great want still is education—not of the labourer only, but of themselves; for our middle and low middle-class schools need improvement.

Another important question is, whether farmers are doing their duty towards their labourers. The agricultural labourer is now the pet man, and a large amount of trouble is taken to improve his condition. Earl Ducie had quoted authorities to show that the agricultural labourer was better off in the reign of Elizabeth than he is now. But had the agricultural labourer in the time of Elizabeth a dwelling even as commodious and healthy as he has now? Did he eat white wheaten bread? And how about butcher's meat and vegetables? Had he tea and sugar? Did his wife and daughters dress in good stuffs, and sometimes in silks, velvets, and artificial flowers—did he don good broadcloth? Could he travel to the neighbouring town by rail for a few pence? Could he write to his friend 100 miles off for a penny? There are some things, and good ones, he could not have had—stockings and Potatos, calico and flannel. Lord Ducie said the wages of the agricultural labourer in the time of Elizabeth were equal to 20*s*. of our money. It is certain that none of us would think 9*s*., 10*s*., or even 12*s*. a week, without considerable extras, enough to keep a family, and I presume no farmer here pays so little as the highest sum. The average wage of labourers for Staffordshire is 14*s*. a week, including extras, but not piecework or extra time. I myself have for some years paid to regular labourers about 40*l*. a year, and to the best hands, who could thatch, &c., 45*l*. Taking into account also the great saving to the farm labourer in the way of rent, that he has a garden, that he bakes his own bread, that his coals are drawn for him, and that he feeds a pig—which advantages are equal to 6*s*. 4*d*. a week—I come to the conclusion, that in fairly-paid counties the agricultural labourer is little worse off than the town workman. As to children, 11 years of age is early enough for them to be of much use on a farm; and if they are properly and continuously taught for four or five years, "the three R's" may be sufficiently instilled; but instruction should not be limited to the mere rudiments, if any aptitude existed for more. Night teaching during the winter months, if made sufficiently attractive, might be a valuable supplement to this knowledge. If some paid men were to itinerate with maps, diagrams, and perhaps an oxy-hydrogen microscope, and give popular lessons in geography, in the outlines of animal anatomy, in the rudiments of mechanics, or any subject that might be of use to village youths and men, much good would result. All children, rich or poor, should work, and be fitted as early as prudent for their future duties, but the work should be done not only for gain but for the good of the child. [The President next referred to the subject of village homes, observing that although in his own neighbourhood many families still live, as they say, "hucker mucker"—that was, anyhow—many new and good cottages are being built; and an agreement lately drawn up by a Staffordshire landlord provides that cottages of a certain class shall be erected, on application, where they are needed, the tenant paying half the rent.] The man who walks two miles to and from work increases his labour one-sixth, or subtracts an equal proportion of time which should be devoted to his employer, thus losing fully 2*s*. a week one way or the other.

In regard to their commercial position, farmers are improving their organisation for action and their position with their landlords. Chambers of Agriculture are productive of great benefit. Sometimes it was objected that the Chambers could not always agree. Precisely so, and they must agree to differ—antagonism being health. The danger was that the Chambers might drift out of the hands of tenant-farmers, and into the hands of politicians. [After referirng to the facetious reply of Mr. Bright to the deputation from the Central Chamber, asking for a Government Department of Agriculture, and suggesting that a cotton deputation would not have been so dealt with, the President proceeded to remark that the Scotch had made a move about game, and wanted hares and rabbits struck out of the game list.] The latter ought never to have been in, and the sooner the former are out the better; for it would tend to close the ever-widening breach between landlords and tenants. I would take Mr. Bright's advice, and not go to Government for tenant-right, but use every endeavour to get a standard custom for compensation for unexhausted improvements. The Chambers of Agriculture should take the matter up with an earnest desire to come to some definite agreement for the whole kingdom, or for each county.

The practice of killing very young sheep is increasing in this country, and must ultimately tell on the future weight of mutton produce. One fact is certain, that a very large increase both of meat and corn is needed every year. Partly to meet this want, great efforts are being made by foreigners to import meat as fresh as possible; whether freezing, acid, brine, or any other agent, is to be the preferred one, time alone can tell; but that an amount of success must attend constant and well-directed efforts all must allow. Our old enemy, the Malt-tax, still stares us in the face; he dies hard, but we must kill him.

After some remarks on the cultivation of Barley, an extract from the annual circular of Mr. J. B. Lawes on the growth of that grain after Wheat, on heavy land, Mr. May proceeded to discuss the relation of landlord and tenant. In all important transactions, particularly in taking a farm, or in making permanent improvements, have a clearly-expressed agreement in black and white; leave no more than you can help to chance; be liberal, but careful in spending money; pay good wages to good men; don't pay rent to grow rubbish; keep well-bred stock and treat them well; and be sure to ascertain annually your true position as out-going tenant.

My last heading, a short one, is "Politics"—an ignored question in most clubs. As I shall speak of it in the abstract, no fears need be felt. At the commencement of this paper I claimed for agriculture a forward place. Is our political influence equal to our business status? I think not, but very much to the contrary. Some one has said very wisely and well, "that agriculture should have a distinct policy, with farmers at least, above and before all party. It is owing to the want of this well defined policy, and of that union between agriculturists of opposite politics, that the farming interest has been so unjustly handled both in and out of Parliament for the past 25 years." In a reformed House of Commons, said to represent all

classes, one would expect to find several tenant-farmers; but do we? One or two good, thoroughly good men there are; but what are they among so many? All other important classes and interests are fully represented—the professions, the monied, railway, brewing, shipping, iron, cotton branches, and trade generally, have their influential and practical advocates. It may be said there are more landlords than any class. Yes, but the possession of land is only an accident of their position, and not their main interest; and how many landlords are there in the House who have any really practical knowledge of farming? Perhaps the thing is not to be expected, though very desirable; but in the absence of personal knowledge, would it not be for the interest of all that a few practical men who do know should be heard? I am aware the interests of landlord and tenant are not always identical, but they are not necessarily antagonistic. What is wanted is a few men who understand practically what they talk about, and who have sufficient wit and education to put their ideas into a popular form, and earnestness and ability to support them. Who can doubt that if the management of the cattle plague had been in the hands of practical men, much loss and suffering would have been avoided? Sharp and strange remarks are made and written about us. We are said to change our politics with our farms, that we are driven like sheep to the poll, and that we have no intelligent political faith. If it is so, it is to be regretted, but not anathematised; and though I am not inclined to give a high standard to tenant-farmer politics, I doubt if they follow their leaders more than a similar class in towns. Both read their favourite newspaper and no other, both derive their information from very narrow and one-sided sources, and both have unfortunately sucked in the creed with their mothers' milk, that town and country, like England and France, are born enemies. The sooner we get rid of such notions the better, and learn that in this country at least, where there is scarce elbow-room, all interests are in a sense identical, the greatest good of the greatest number being the paramount consideration.

Discussion.

Mr. Brawn said the position of the British farmer was not quite so comfortable as Mr. Bright and others would seem to believe. The Wheat crop of 1868 certainly exceeded that of 1867 by about one-third, but then the price was about one-third less, and the consumers of food had received the benefit derived from the extra yield. Since the adoption of free trade, the importation of foreign corn had increased in a ratio more than proportionate with the increase of population, and now that other countries which had never done so were about to send supplies, it behoved the British farmer to give his most earnest consideration to the subject. Statistics showed that for 20 years previous to its free importation the price of corn had exceeded that of the subsequent 20 years by 5*s.* 1*d.* per quarter. Taking the average annual consumption of each individual at 5½ bushels, the saving to the population of this country from free trade in corn had only amounted to something less than one penny per head per week for the entire population. The reason why greater advantage had not accrued was, in his opinion, due to the price of Wheat having at sundry times been reduced much below the cost of production, which had caused the British farmer to discontinue growing it. Mr. Caird said that when Wheat came to the low price of 50*s.* per quarter the farmer turned his attention to the production of some other crop, but he (Mr. Brawn) held the opinion that it seldom paid the farmer to grow anything else when it did not pay him to grow Wheat. The farmer, consequently, often allowed his land to lie down in Grass, not because he could gain a large return, but because he would thereby avoid a considerable loss. Another important fact to be remembered was that less animal food could be raised from land laid down in necessarily inferior Grass than if it had been kept in a proper state of cultivation as arable land. When Government took off the duty upon foreign corn they ought either to have levied a contribution upon the importers of corn when Wheat was below the price of production in this country, or they ought to have reduced the burden of the taxation laid upon the farmer to the lowest possible amount. It was not to the interest of the consumers of food themselves that the British farmer should be too heavily weighted with taxation, and it was therefore desirable that the pressure upon him of the local rates for the support of the poor, lunatic asylums, &c., should be lightened, so that he should only contribute his fair quota, and no more.

Mr. Wright said the question which had been brought before them was of equal importance and interest to the town communities as to the agriculturist. He attended various meetings of the Social Science Association, held some months ago in Birmingham, when the condition of the people dwelling in towns especially, and in one or two cases the condition of the people in the country districts, was taken into consideration. Although some very able papers were read by men and women who were entitled to the esteem and gratitude of the whole community, yet it was felt by many that, so to speak, they were only scratching the surface. He thought the questions with regard to agriculture were not so much where we are, as where we are likely to be, and whether, as was alleged in the case of social reformers, the farmers by their organisations were but scratching the suface? After much reading and reflection upon the subject, he was of opinion that very great changes must take place before the agriculture of this country would be in a position to confer all the benefits of which it was capable, not only upon agriculturists themselves, but upon the whole community. These were questions which were now being taken up by the ablest writers and thinkers. In the last number of the *Economist* reference was made to the opinion expressed by Mr. Masfen at the previous meeting of the Club, that it is security which is wanted in order to bring sufficient capital to the cultivation of the land. Of this there could not be the least doubt. The great question to be answered was whether any farm agreement giving compensation for unexhausted improvements would meet the case, or anything less than the system of long leases. He thought all the information elicited by discussion of the question tended to show that annual agreements were not sufficient. Take the case of a man employing a capital of 3000*l.* or 4000*l.* upon his farm, who received a notice to quit. No matter how liberal the agreement under which he farmed, that capital must be seriously reduced by a compulsory sale of his stock, if he were unable, as might be the case, to obtain another farm. Mr. Caird had shown that 30 years ago one-third of the whole population was engaged in agriculture; whereas now not one-tenth was so employed. This was a subject of great national importance, and it was necessary to speak out boldly in order that means might be devised whereby the land should employ a greater proportion of labour than at present. There was no question that if the whole of England were cultivated as well as the farms of the agriculturists who took a leading part in the work of that Club, the produce of this country would be more than doubled, and would be found sufficient to feed the whole population.

ROAD MANAGEMENT.

1. *Paved Roads.*—This mode of road-making is only used in large towns, and in the neighbourhood of harbours, docks, and railways, where the traffic is very great, and heavy weights pass along the road. The first cost of a well-constructed paved road is very large; but it is cheaper in the end than roads made on any other principle, where the traffic is great and heavy. In making a paved road it is necessary to have a stratum, or layer of some sort of substance, which will effectually cut off all communication between the subsoil and the bottom of the paving stones. Where stones can be cheaply procured, a bed of it broken very small would perfectly answer the purpose, or well-sifted gravel: and upon this, granite blocks of a rectangular shape, with joints made exactly to fit close to each other, are closely packed, and the joints filled with quicklime.

2. *Roads made with a Foundation of Pavement*, and a surface of broken stones, upon the level bed prepared for the road material, a bottom course, or layer of large stones, is to be set by hand, in the form of a close pavement. They are to be set on their broadest edges, lengthwise across the road. All the irregularities of the upper part of the said pavement are to be broken off with a hammer, and all the interstices are to be filled up with stone chips, wedged or packed by hand with a light hammer, so that when the whole pavement is finished there shall be a convexity of 4 inches in the breadth of 15 feet from the centre. The middle 18 feet of pavement is to be coated with hard stones to the depth of 6 inches, four of these six inches to be first put on, and worked in by the traffic along the road; and after it has become firm and consolidated, the other 2 inches are to be put on. The hard stone should be broken so small that the largest piece will pass through a ring of 2½ inches inside diameter.

3. *Roads made with a Foundation of Rubble Stones* and a surface of broken stones. A useful road may be constructed by making a foundation with rubble stones, and laying broken upon them. The stones should be reduced, so as not to have any of them more than 4 lb. in weight, and these should be laid in a regular bed, to the depth of 7 inches in the middle, and 4 inches at each side, supposing the road to be 30 feet in breadth. A coating of well-broken hard stones should then be laid on in the way directed when a pavement is used.

4. *Roads made wholly of Broken Stones.*—A road may be constructed, suitable for light carriages and little traffic, by forming a level bed on the natural soil, and putting upon it a body of broken stones of 12 inches in thickness in the middle and 6 inches at the sides. The stones should be laid on in successive layers, taking care to let each layer be well worked in and consolidated before another layer is laid on. Experience has fully established the unfitness of roads made on this plan in comparison with those made with a proper foundation. A road made on this plan will require for two or three years after it is considered finished the expenditure of large sums of money in new material to bring it into anything like a consolidated state. Such a road will always run heavy, and readily break up in severe frosts. All roads, on whatever principle they are made, should be well supplied with longitudinal and cross drains. They should be as nearly as possible straight, smooth, hard, and inelastic, with a convexity of 6 inches from the centre to the sides in 20 feet. The fences should be kept as low as possible, in order that they may not interrupt the rays of the sun and wind. Where stone is plentiful stone walls make the best road fencing, and next to them quickset hedges. Both in the making and repairing of roads the quality of the material should be of the first consideration. The hardest material should always be preferred. The best descriptions consist of basalt, granite, quartz, whinstone, and limestone. It should always be borne in mind that hard stones brought from a distance are found by experience to be cheaper in the end than those of a softer nature, which may be got near the road at a much lower price.

Legislation on Roads.—The roads commonly called parish roads in England, are generally in a very imperfect condition. This is owing chiefly to the law by which they are managed. Legislation on the highways of England, to be productive of any good, must be founded on a more enlarged view of the subject than at present attains. In the year 1835 an Act was passed, intituled "An Act to consolidate and amend the laws relating to highways in that part of Great Britain called England" (5 and 6 William IV., c. 50), by which all other Acts relating to highways were repealed. The principal alterations introduced into the law affecting highways by this Act are as follows, viz.: 1st. The surveyor under the old law was virtually selected by the magistrates; under this law he is chosen by the inhabitants in vestry assembled, at the same time as the overseers for the poor are appointed. He is chosen for one year. And in case the inhabitants fail to make such appointment, then the appointment may be made by the Justices in Special Sessions for the highways, either with or without a salary. 2d. It provides for the union of parishes into districts, for the appointment of district surveyors. A district surveyor to have all the powers of an elected surveyor, except to make rules; and he cannot spend any moneys levied in any one of the united parishes, except for the use and benefit of that parish in which it is levied. 3d. In large parishes, exceeding in population the number of 5000, Highway Boards may be formed for all the purposes of this Act. They are authorised to appoint a collector, surveyor, clerk, and treasurer, and have all the powers and authority of a person nominated and elected as surveyor of a parish. 4th. The surveyor may inspect the rate-book for the relief of the poor, for the purpose of making a rate; the rate to be made on the full annual value of the premises, and to include woods, mines, &c., which are not assessed to the poor. But no rate so levied and assessed shall exceed at any one time the sum of 10*d.* in the pound, or the sum of 2*s.* 6*d.* in the pound in the whole, in any one year, without the consent of four-fifths of the inhabitants of any parish contributing to the highway rate. This Act is still in force—it is not repealed; but from the fact of it having been found totally inadequate for the maintenance and repairs of the highways, it has been supplemented by an Act, intituled "An Act for the Better Management of the Highways in England (29th July, 1862), 25 and 26 of Victoria, c. 61;" and an Act, intituled "An Act to Amend the Act for the Better Management of the Highways in England" (29th July, 1864), 27 and 28 of Victoria, c. 101. The above-mentioned Acts shall be included under the short title of the "Highway Acts." The two last may be considered as one for our purpose. They are not compulsory. It is at the discretion of the Justices in Quarter Sessions assembled to put them in force or not. Any five Justices of a county may give notice that a proposal will be made to the Sessions "to divide the county, or some part thereof, into highway districts; or to constitute the whole, or some part thereof, a highway district." If the Justices make a provisional order to form such districts, they must appoint some subsequent court of Quarter Sessions, to be holden within a period of six months, for taking into consideration the confirmation of the provisional order by a final order. Upon the formation of a Highway District, the Highway Board shall consist of the waywardens, elected by the several parishes within the district, and of the Justices acting for the county, and residing within the district. The waywardens are to be elected in the same manner, and with the same provisions, as under the Act of 1835. The Highway Board of a district shall, at their first meeting, appoint a treasurer, clerk, district surveyor, and, if they think fit, an assistant-surveyor. If the Board neglect to appoint such officers, the Justices may in Quarter Sessions assembled, if they think fit, appoint a person to any of the said offices, and may fix the salary. The Highway Board may contract for the repairs of roads. They may borrow money to make improvements. The salaries of the officers appointed to each district, and any other expenses incurred by any Highway Board for the common benefit of the several parishes of the district, shall be annually charged to a district fund. But the expense of maintaining and keeping in repair the highways in each parish within the district shall be a separate charge in each. The mode of defraying the expenses of a Highway Board is by a precept to the overseers of the separate parishes, or when a parish or township does not maintain its own poor to the waywarden for the parish. No contribution to exceed 10*d.* in the pound, and the aggregate contributions not to exceed 2*s.* 6*d.* in the pound in any one year, without the consent of four-fifths of the ratepayers of the parish. The accounts of the Board are to be made up and audited every year, and a copy sent to the Secretary of State. There are hardly any provisions obtained in this Act which could not have been obtained under the Act of 1835. The chief difference is the making compulsory, after it is once adopted in a county, what was only optional in the Act of 1835. We certainly get rid of the annual appointment of surveyor, and we have provision for the auditing of the accounts; we may contract for the repairs of the roads, and may borrow moneys for improvements: but all the more obnoxious provisions of the old Act are retained. The number of waywardens to be chosen to form the Highway Board is too large—the separate rating in each parish is continued; and the appointment of only one surveyor, and one assistant-surveyor to each highway district, prevents the districts being made large enough to be economically managed; as we have found to our cost in this county.

The Act has been adopted in 36 counties, and I believe in no county has it so completely failed as it has done in this county. Our rates have been higher and our roads are in a worse condition than before the adoption of the Act. The great mistake we have made in this county is dividing it into too large districts. The Highway Boards are too large; the separate rating of the parishes gives rise to petty jealousies among the waywardens—each individual looks to his own parish, and strives as far as possible to keep down the rates, being satisfied with bad roads and low rates, and it is impossible for one surveyor and one assistant-surveyor to manage such large districts. In all the other counties where the Act has been adopted, there are no highway districts at all approaching those of Northumberland in size. The average of the highway districts throughout the country does not exceed 200 miles [square miles?], while in this county (before the subdivision of the districts was effected) the average was 578 miles. From information I have received from several friends in different parts of England, I find, where the districts are of moderate size, there is a marked improvement of the roads, but they all agree the system is worth extension. I conceive the chief objection to the Act is the great expense it entails in properly carrying out its provisions. Very soon all the roads throughout England will be under the provisions of this Act. Every year turnpike trusts are being discontinued, and the maintenance and repairs of the turnpike roads in future will be thrown upon the different parishes they pass through. The maintenance and repair of the turnpike roads throughout England amount to something like 1,500,000*l.*; a serious item, indeed, to be added to the already burthensome increase of the highway rates. It is most unjust that the whole burthen of maintaining and repairing the roads of the kingdom should be thrown entirely upon the agriculturists. We are all jealous of Government interference and centralisation; but, in my opinion, if there be one matter more than another that a Government should

take entirely under its own care, it is the maintenance and repairs of the roads of the kingdom. But in these times of retrenchment we can hardly expect any Government to take upon itself the responsibility of finding nearly three millions of money for such a purpose; but I would suggest that we should seek an amendment in the present law, to enable a county or a division of a county to be formed into one highway district, under the management of a County Board, and subject to Government control and supervision, half of the expenses of such Board to be paid by an equal rate over the whole of the district, and the other half to be paid out of the Consolidated Fund. *Mr. Wallis, at a recent meeting of the Hexham Farmers' Club.*

Home Correspondence.

Obstacles to Progress.—These are made known to me by conversations with farmers from various parts of the kingdom. One will say "My landlord is a kind and respected gentleman, wishing well to his tenants, but he has a great affection for little fields and plenty of trees, and does not seem to know that such a condition is totally opposed to profitable farming, and tends greatly to keep the tenant poor and unable to compete successfully either with foreigners or his own countrymen who are differently placed." Another landlord does not believe in drainage of stiff clays, and a third objects to covered yards, or a deviation from the old customs. Not unfrequently the tenant is the obstructive party, being strongly attached to the practices of his father and grandfather, or he very unreasonably expects to have everything done for him by his landlord without an increased rent. The grand desideratum is to get together as much as possible improving landlords and tenants, concurring in an equitable arrangement of such necessary improvement. The question of providing capitalists need be no impediment, for the land drainage and improvement companies are unable to find sufficient employment for the means at their disposal. My experience of 25 years has strengthened and fully confirmed my original views, that if we are to make the most of our land, and compete successfully with foreigners, we must give up our attachment to old customs and practices, once permissible to a primitive and pastoral period, when the people were few and the acres many; but no longer suitable to the overwhelming food demands of a tripled or quadrupled population, emerging rapidly from a comparatively rude and uncivilised condition, caused by the absence of that mighty power, steam, which has inaugurated a new and improved era, and will compel the adoption of larger, more liberal, more business-like, and more profitable practices in agriculture, both on the part of landlords and tenants. Everywhere, except in agriculture, we see evidences of increased wealth, power and progress. Manufactures are greatly reduced in price and improved in design, gigantic shops and business palaces indicate our commercial advance, our daily periodicals have changed from mere slips into broadsheets of universal intelligence. All this is due to steam power, which for every beneficial purpose, except the production of food, has enormously multiplied human power and comfort. Before we can ever hope to obtain that cheaply and abundantly there must be such a rectilinearism of our at present ill-shaped fields, and such a rearrangement of our farmeries, as will annihilate a whole host of antiquarian agricultural sentiments. All this must come, the sooner the better for us all. *J. J. Mechi, Tiptree Hall, April* 30.

The Milk of the Sow.—With the exception of the milk of the sow, the lacteal secretions of the domestic animals have been repeatedly analysed. Scheven appears to have been the only chemist who has published an analysis of sow's milk; but his results are so different from those of an analysis of sow's milk made by myself, that I am induced to publish my analysis. In the sow's milk examined by me there was six per cent. of fat, whilst in a specimen analysed by Scheven the proportion of that constituent was under two per cent. It is not very easy to procure a specimen of sow's milk, and perhaps this is the reason why it has not hitherto been frequently analysed. I endeavoured on several occasions to obtain a small quantity, but the sows appealed to at my instigation were obdurate—they would not yield a drop, even when subjected to the dexterous manipulation of the most skilful dairymaids. At length, about two months ago, a specimen of sow's milk came into my possession. I am indebted for it to Thomas Baldwin, Esq., the Superintendent of Irish Agricultural Schools, and Director of the Glasnevin Government Model Farm. On submitting it to analysis, the following results were obtained:—Specific gravity, 1041; colour white, without any bluish shade; flavour very rich, resembling that of the skimmings of cows' milk; reaction, very faint alkaline.

100 parts contained—

Water	81.80
Fats	6.00
Casein and other nitrogenous matters ..	5.30
Lactin	6.07
Mineral matter	0.83
	100.00
Total solids	18 20

The analysis was conducted as follows:—A. A weighed portion of the milk was acidulated with a little acetic acid to prevent the formation of a skin, mixed with pulverised quartz (which had been previously boiled in hydrochloric acid, washed and ignited), and evaporated in the water bath to dryness. B. The residue was treated with strong ether, by which the fats were dissolved. The ether was then evaporated and the residue of fats weighed. The fats were finally burned in a platinum capsule, and left no residue, proving the absence of mineral matter or casein. C. The substance from which the fats had been removed was subjected to a nitrogen combustion, and from the amount of nitrogen obtained the proportion of casein and other nitrogenous substances present in the milk was estimated in the usual manner. D. The proportion of lactin was found by difference, and also by the sulphate of copper method. E. Determination of the mineral matter (ash): 5 grammes of the milk were evaporated to dryness and the residue burned in oxygen gas. The amount of the solid matter obtained by desiccating a weighed quantity of milk was slightly in excess of the sum of the weights of the individual constituents. It must, however, be borne in mind that the mineral matter in the nitrogenous substance is weighed twice—first as a constituent of the casein, and, secondly, as an ingredient of the ash. Its amount, however, is trifling. A comparison of the milk of the sow with that of the cow and other animals will show how extremely rich is the former.

Composition of the Milk of different Animals. 1000 *parts contain*—

	Water.	Butter.	Cheesy Matter.	Sugar.	Mineral Matter.
Woman	889.08	26.66	39.30	43.08	1.30
Cow	864.20	31 30	48.80	47.70	6.00
Goat	844.90	56.87	35.14	36.91	6.18
Ewe	832.32	51.31	69.78	39.43	7.16
Mare	904.30	24.36	33.35	32.76	5.23
Ass	890.12	18.53	35.65	50.46	5.24
Sow	818.00	60.00	53.00	60.70	8.30

Proportions of Solids and Water in different Kinds of Milk.

	Woman.	Cow.	Goat.	Ewe.	Mare.	Ass.	Sow.
Water	889.08	864.20	844.90	832.32	904.30	890.12	818.00
Solids	110.92	135.80	155.10	167.68	95.70	109.88	182.00
	1000.00	1000-00	1000.00	1000.00	1000.00	1000.00	1000.00

The following particulars relative to the sow whose milk I have described were furnished to me by Mr. Baldwin:—"The sow whose milk I sent you is a pure Berkshire; she had pigged six days before the milk was withdrawn; she has a fair litter, and is an average nurse. She is receiving the sort of diet suited to her condition, namely, a mixture of small and damaged Potatos, pulped roots, and a little grains, the Potatos and roots being subjected to the action of steam. The food is not too rich, but just sufficient to keep herself and her young in a good healthy condition." Pig's milk is extremely rich, containing, as it does, nearly 50 per cent. more nutritive matter than is found in that of the cow. It is not unlikely that in certain forms of disease where a milk diet is prescribed the use of so concentrated a liquid food might prove serviceable. *Charles A. Cameron, Ph.D., M.D., Analyst to the City of Dublin; Dublin,* 102, *Lower Bagshot Street.*

The Bondager System.—I have had a letter from a friend in Kelso, suggesting that an emigration scheme ought to be set agoing to get rid of our surplus male labour. Mr. Skirving, in "Landlords and Labourers," asks:—

"How is it that Scotchmen should fly from Scotland in such numbers? How is it that the aged rustic should leave the scenes in which his life has been spent, to end his days in crowded streets and lanes, which he nevertheless loathes and shrinks from? How is it that the ploughman, whose life has been called by philosophers and by poets the happiest and healthiest of all the sons of toil, which has been praised by Adam Smith and sung by Burns—how is it that he should forsake the plough, and that the place that once knew him should know him no more? And how is it that our ploughmen should diminish in the midst of increasing wealth, and that year by year it should be more and more difficult to procure the requisite amount of labour for the efficient cultivation of the soil?"

Mr. Skirving answers his own question thus at page 39:—"Farmer office-bearers in the different sections of the Presbyterian Church are thus 'killing the geese that lay the golden eggs;' that is, this bondager system is driving the cream of the Presbyterian population in the border counties to American and other colonies." To show that it is not the surplus Presbyterian population that have left the rural districts, Mr. Skirving states, at p. 6:—

"The quality, so to speak, of a considerable portion of the population has deteriorated; and the falling off in the numbers would have been still more marked, as regards the south as least, had their places not been to a large extent supplied by immigration from Ireland. The boasted peasantry of Scotland, instead of advancing in numbers, has sensibly decreased, and the soil is now to no inconsiderable extent cultivated by the poorest, the most destitute, and too often, I fear, by the most degraded, class of Irish immigrants. The Hibernian invasion has in many respects stamped its impress upon the country. The regular ploughmen are still, with few exceptions, natives, but every extra hand is almost invariably an Irishman. Go, for example, into any field of drainers, where 20 or 30 men are at work, and you will find that the whole, with perhaps the exception of the contractor, are Irishmen. In any town or village, on a Sunday morning, you may see groups of persons hanging about in their working clothes, in most un-Scotch-like fashion; these are sure to be parties of our friends from the Green Isle; and local police reports are not unfrequently swelled on Monday mornings by such names as those of Pat Flynn, Mike Fury, or Dennis M'Lushy. In its south-eastern counties, Scotland is no longer, as it was formerly, exclusively Protestant. To take East Lothian as an instance: not very many years ago there was hardly a single Roman Catholic inhabitant. In the parish of Haddington there was one individual who professed that faith, and the fact was sufficient to give him a local celebrity. There are now two Popish chapels in the county, and that in the town which gave birth to Knox boasts of one of the largest congregations in Haddingtonshire."

Had East Lothian farm servant's sons, who are graduates of Edinburgh University, and clergymen in the several sections of the Presbyterian Church, acted with good faith towards the hinds, Mr. Skirving would not have required to ask these questions, nor make these statements of fact. For example, the renting occupier of the farm with the new one-room cottages which I referred to in the *Agricultural Gazette* of July 30, 1866, is a member of a Presbyterian congregation whose minister acted as a journeyman mason before he graduated at Edinburgh University. There are three farmers members of that congregation with one-room cottages on their farms. That clergyman has one brother, also a clergyman, who has since been appointed to a theological chair in Edinburgh; another brother is a professional teacher. This is one farm servant's educated sons, who have, I contend, done nothing beyond their professional duties to benefit this class. The turbulent condition of Ireland ought to open the eyes of the Scotch landowners as to what is in store for them, say 30 years hence, when the families of the Irish immigrants have ramified the different recesses not only in town, but, owing in a measure to this bondager system, in country also. You allowed me to show in the *Agricultural Gazette* of March 14, 1868, that were farmers on Tweedside to employ only half the number of men that a good many English farmers employ, there would not only be no need of this bondager system, but very little need of females being employed in farming operations. Mr. Skirving states at p. 39 of his book that East Lothian farmers, by renouncing the bondager system, "have their reward in the better class of servants they secure and retain." Farmers impose upon hinds the obligation of providing female workers, and refuse to engage as yearly servants those who have not daughters or sisters, or who will not provide a stranger with lodgings, in too many cases in a one-room cottage! Thus, too many hinds are compelled to expatriate themselves from their native districts. *T. W. Rutherford,* 12, *Drumdryan Street, Edinburgh.*

Foreign Correspondence.

Ballarat: *Feb.* 6.—*The Cause of Rust in Wheat.*—[We reprint, under this address and date, portions of a paper on this subject sent to us as read by Mr. J. Mitchell before the Agricultural and Pastoral Society of this place.] Rust in Wheat is by no means a novelty. On the contrary, whether the mists of the atmosphere have anything or nothing to do with causing its origin, certain it is that the date when this disease was first observed by tillers of the soil lies shrouded in the mists of antiquity. The ravages of this disease, in seasons favourable to its development, are on such a scale of sweeping magnitude, and produce such disastrous consequences, that it becomes not only the interest but the duty of cultivators, who are the first sufferers, to make themselves acquainted with every fact relating to the various symptoms and phases of its development—especially in the early stages—if we are ever to discover any means of checking or preventing these ravages. We have been told this,—"You cultivators may as well give up the rust-riddle, observation and science have done all they can for you and can't make it out. The thing's a mystery, therefore give it up and look on as calmly as you can whilst your crops, to the tune of millions sterling, are being swept off the face of the earth. It's no use trying to find out any means of cure or prevention—the cause is atmospheric—there's no help for it." Truly this is "cold comfort," compared with which there is a glow of genial warmth in the advice given by *Punch* to the poor Irish farmers in 1846, during an inquiry by scientific *savants* into the cause of the Potato disease. "Keep quiet, Pat," said he, "science is at work for you." Now I hope neither science nor common-sense has yet handed us over to the tender mercies of rust.

If, as asserted, certain conditions of atmosphere are alone the cause of rust attacking Wheat, how is it that all crops are not alike rusted when the supposed cause is present? How is it, for instance, as most of you must have observed, that even in the worst of rusty seasons, one field or portion of a field "is taken and another left," under precisely the same conditions of atmosphere? Is is not desirable to know what this condition of the plant is which enables it to withstand the attack of rust? Experience has shown—that crops grown on the richest soils suffer most and on the poorest soils least—that what are called "hard strawed" Wheats suffer less than the so-called "soft strawed" varieties—that Wheat grown on a soil composed of "small rubbly limestone, free and dry," even when "sheltered with scrub," was "perfectly clean when all around was badly rusted"—that the disease followed the course of a heavy shower of rain, but where the rain did not fall crops were clean and healthy even in the same section of land; and it has also been shown that in Chili, where they have no rain at all from March to September, and where cereal crops are grown by irrigation alone, one farmer by abstaining from irrigating his crop, when the atmospheric conditions were supposed favourable to rust, "whilst the crops of his neighbours fell a prey to red rust, his escaped scatheless." What are the facts? Let any one of you dibble a single row of Wheat in the centre of a 20-acre paddock, exposed to the drying influence of every wind that blows, and keep the soil in which this single row or plant is growing constantly saturated with weak liquid manure, the result will be thoroughly rusted plants under any conditions of atmosphere.

I have shown you, then—1st, that richness of soil increases rust; 2d, that poor soils are not so liable to rust; 3d, that the nature of the soil will prevent it; 4th, that the amount of moisture contained in the soil increases or modifies the ravages of rust under the same atmospheric conditions. In addition to this, I have also shown you that rust can be produced in the absence of the reputed cause of it, by the quantity and quality of the food given to the plant. Having done this, I think you will agree with me, that we must look further than to "atmospheric influences alone," if we wouldfind out the cause of the rust plant attacking the Wheat plant. I need hardly assert the generally recognised and distinctly proven fact that rust—known

to botanists by the name of Puccinia graminis — is a vegetable parasite, belonging to the lowest orders of vegetable life—Fungi. The individual plants, if they may be so called, are very minute, and the spores, or seeds, are like motes in a sunbeam, only to be seen by the aid of a powerful microscope. This wonderfully small and fearfully destructive little plant belongs to the same natural order as the Mushrooms and Toadstools with which we are all familiar. Like these, its growth is marvellously rapid under favourable climatic conditions—a close, warm, moist atmosphere. [Mr. Mitchell proceeded to describe the Wheat plant, and the mode of its growth.]

The more luxuriant the growth of the plant is, the greater is its power of abstracting food from the atmosphere, and the result is a rapid, or what is commonly called a "forced growth." The cellular tissue grows faster than the sap can be properly digested, consequently the woody fibre is not properly formed and the mineral matters contained in the sap are not secreted, hence there is nothing to give strength and solidity to the plant—"the coating of silex is wanting."* The functions of the plant are deranged, and its system is gorged with an over supply of crude undigested sap. This crude and undigested sap, it is my opinion, forms the requisite *pabulum*, or soil necessary for the germination of rust spores, and then it is that the rust plant attacks the Wheat plant. The after development of the rust plant, that is, whether its growth will be slow or rapid, depends upon the atmospheric conditions present. If the air is dry and the sky clear, the growth of the rust plant will be comparatively slow; but, on the contrary, if the air is moist and the weather cloudy, the debility of the Wheat plant will be increased and the growth of the rust plant become marvellously rapid, so much so that the destruction of the Wheat plant is certain.

Therefore I regard the presence of rust as due to an excess of combustible, and a deficiency of mineral or incombustible, substances, especially silica, in the Wheat plant; brought about, not necessarily by any deficiency of mineral matter in the soil—although this of itself is capable of producing disease—but by the combined influences of heat and moisture, acting upon the vegetable matter contained in the soil, in conjunction with the warmth of the soil and the warmth of the atmosphere, exciting and unduly stimulating vital action, and thereby producing an abnormal or diseased condition of the plant; and that the presence of this disease cannot be properly ascribed to "atmospheric causes alone" in the shape of "close, muggy weather." You will now be able to see why the richest soils suffer most—why soils poor in vegetable matter suffer less—why "dry rubbly limestone soils," owing to the presence of much mineral food, and inability to retain moisture, produce healthy crops—why withholding moisture from the soil will prevent rust, and also how it is that the disease can be produced by supplying abundantly liquid food, rich in nitrogen, to the plant. Hard-strawed Wheats possess a greater aptitude for the secretion of silica than soft-strawed sorts, and belong, in consequence, I think, to the "lean kine" of Wheat plants. The power of modifying to a limited extent these tendencies on the part of animals and plants rests with the breeder; and the raiser of new varieties of Wheat should pay particular attention to the selection of such as have, in common with other desirable qualities, great aptitude for the secretion of silica as a safeguard against the attack of rust. "Well, we have heard a good deal about the cause, now what about the cure?" Johnston says, "Salt, if not a complete preventive, is an effectual cure." The Rev. Edmund Cartwright, Tunbridge Wells, in 1818, cured a badly rusted crop, the rusting of which he had caused by over-manuring, by an application of salt water. "Salt," he says, "is instant death to the Fungus." Professor Voelcker says that an application of salt to cereals promotes the secretion of silica, and produces bright, hard, flinty straw. Lime, too, like salt, has the effect of strengthening the straw, and promoting the secretion of mineral matter in cereals. Both salt and lime exercise a "sweetening" influence on grass-land, and give brightness and hardness to the stems of Grasses; therefore, I think both may be used with advantage in the cure or prevention of rust. Anything that tends to promote perfect health in the plant will lessen the liability to rust. Forcing manures, such as Peruvian guano, should be carefully avoided; and bone-dust, superphosphate, or Malden Island guano, manures rich in phosphates but wanting in ammonia, will answer better for grain in our climate.

* It is doubtful whether a due amount of silica is taken up in the sap obtained from very rich soils.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Monthly Council: *Wednesday, May 5*, 1869.—Present—The Duke of Richmond, K.G., Vice-President, in the chair; the Earl of Lichfield, the Earl of Powis, Viscount Bridport, Lord Chesham, Lord Kesteven, Lord Tredegar, Lord Vernon, Lord Walsingham, the Hon. H. G. Liddell, M.P.; Sir E. C. Kerrison, Bart.; Sir. H. Vane, Bart., M.P.; Mr. Acland, M.P.; Mr. Baldwin, Mr. Barnett, Mr. Barthropp, Mr. Booth, Mr. Bowly, Mr. Bramston, Mr. Cantrell, Colonel Challoner, Mr. Clayden, Mr. Davies, Mr. Dent, M.P.; Mr. Druce, Mr. Edmunds, Mr. Brandreth Gibbs, Mr. Holland, Mr. Hornsby, Mr. Hoskyns, M.P.; Mr. Jonas, Colonel Kingscote, M.P.; Mr. Lawes, Sir A. K. Macdonald, Bart., Mr. Milward, Mr. Pain, Mr. Randell, Mr. Rigden, Mr. Sanday, Mr. Statter, Mr. Stone, Mr. Torr, Mr. Thompson, Mr. Turner, Mr. Webb, Mr. Wells, M.P.; Major Wilson, Mr. Jacob Wilson, and Dr. Voelcker.

The following members were elected:—

Agnew, Charles Swain, Springfields, Eccles, Manchester
Agnew, Thomas, jun., Hopeleigh, Eccles, Manchester
Agnew, William, Manchester.
Beck, Edmund, Sandringham, King's Lynn.
Blantern, George G., Hadnall, Shrewsbury.
Bultitaft, Henry, Bedwellhay Grange, Ely.
Bulwer, W. R., Randalstown, Co. Antrim.
Chamberlin, W., Adderbury East, Banbury.
Cholmley, Harry Walter, Newton Hall, Rillington.
Cobb, John, Sheldwick, Faversham.
Cosby, Robert G., Stradbally Hall, Queen's County.
Cottingham, James, 4, St. James's Square, Manchester.
Cousins, Richard, Whitehaven.
Dacre, William, Irtlington Vicarage, Carlisle.
Dann, Nicholas J., Elm Grove, St. Florence, Tenby.
Davies, G. Reynolds, Mere Old Hall, Knutsford.
Done, George T. S., Ebnal, Malpas.
Ducie, Earl of, Tortworth Court, Wootton-under-Edge.
Edmondson, Thomas G., Gresgarth Hall, Lancaster.
Faulkner, William, Brocton, Chester.
Firmstone, W. C., Rockingham Hall, Hagley, Stourbridge.
Guy, John Henry, Whitchurch, Aylesbury.
Harbord, Collett, Sandwich, Kent.
Harvey, George, Belton, Great Yarmouth.
Hicks, Leonard H., Paddock Lodge, Kentish Town, Middlesex.
Hollis, Henry W., Keele, Newcastle, Staffordshire.
Howard, C. J., Stockport, Cheshire.
Larkman, Robert, Belton Hall, Yarmouth.
Lewis, George, The Bank, Worthenbury, Wrexham.
Lewis, William, Shrewsbury.
Meller, J. Galloway, Cornbrook, Manchester.
Michell, E. W., jun., Inchmare, Fawley, Southampton.
Moore, Robert, Rye Hill, Church Eaton, Stafford.
Morgan, Thomas, Manchester.
Mumford, J. Aubrey, Chilton Park Farm, Thame.
Nicholson, Clement, Cheadle Hulme, Stockport.
Paske-Jones, George, 3, Euston Place, Leamington.
Pears, John, Mere, Lincoln.
Pearson, F. Fenwick, Storrs Hall, Lancaster.
Pigott, William, Brigg, Lincoln.
Robertson, James, 33, Queen Street, Whitehaven.
Robertson, James, 22, Mary Street, Dublin.
Singleton, Edward, Hallaton Grange, Hallaton, Uppingham.
Smith, Joseph, Cable Street, Lancaster.
Statter, Thomas, jun., Stand Hall, Whitefield, Manchester.
Silgoe, Zachariah W., Adderbury Grounds, Adderbury.
Storey, Joseph, Lancaster.
Swallow, William, Chapel Farm, Barton-on-Humber.
Tanner, James M., King's Nympton Park, Chumleigh.
Tattersall, William, St. Anthony's, Milnthorpe.
Tunnicliffe, Edwin T., Bromley Hall, Eccleshall.
Unite, John, 291, Edgware Road, Middlesex.
Wainman, Benjamin, Castle Farm, Worksop.
Webber, W. Downes, Kellyville, Athy, Queen's County.
White, J. Baker, Street End House, Canterbury.
White, Samuel, South Leverton, Retford.
White, William, Babworth, Retford.
Wilkins, R. U., Broadfield, Buntingford.
Williams, Thomas, Albrightlee, Shrewsbury.
Wood, Henry, Woolley House, Romsey.
Yeomans, J. Haynes, Stretton Court, Hereford.

Finances.—Viscount Bridport presented the report, from which it appeared that the Secretary's receipts during the past month had been examined, and were found correct. The balance in the hands of the bankers on April 30 was 4235*l.* 17*s.*, 3,000*l.* remaining on deposit at interest. The committee wished to bring the attention of the Council to the cases of those members who are in arrear of their subscriptions, they having been repeatedly written to by the Secretary and solicitor of the Society without effect. The committee therefore recommend that legal proceedings be taken against the following members:—James Ord, Newcastle; Joseph Hodgson, Blyth, Northumberland; David Kennedy, Oriental Club, W.; Henry Stanton, Coleman Street, London; Richard Hodgson, Chingford, Essex; Edwin Williams, Lenastone, Ross; H. W. Schneider, Lightburn House, Ulverston; John Hooker, Oatland Park, Walton-on-Thames; Benjamin Powis, Newnham, Tenbury.—This report was adopted, one vote only being given against it.

House.—Lord Bridport, chairman, reported the loss of a clock by robbery, and the recommendation of the committee that in future the front door should be furnished with a latch and bell in communication with the clerk's office.—This report was adopted.

Implement.—Col. Challoner, chairman, reported the recommendation of the committee that the Secretary be instructed to inform Messrs. Ransome & Sims, in answer to their inquiry, that the intention of the Council was to include in class 3 of the implement prize sheet all hay collectors other than horse-rakes.

Education.—Mr. Holland, chairman, reported that the examinations for the Society's educational prizes, which were held on April 13, and three following days, had been conducted in accordance with the arrangements authorised by the Council. Out of 21 candidates who had entered for the examinations 18 were present, and the reports of the examiners had enabled the committee to make the following classification and awards of prizes:—

First Class.

1. John J. Harle, Haydon Bridge, Royal Agricultural College.
2. C. G. Roberts, Hazlemere, do.

These gentlemen thus become life members of the Society, and in addition they each receive a prize for aggregate merit, the former of 30*l.*, and the latter of 20*l.*

Second Class.

1. A. R. Wallis, India, Royal Agricultural College.
2. Edwin Fox, Finchley, do.
3. H. Rivington, Finsbury Square, do.
4. G. Skipworth, Caistor, do.
5. G. R. Glendinning, Midlothian, Edinburgh University.
6. James Fowler, Durham, Royal Agricultural College.
7. G. Y. Wall, Durham, various schools.
8. L. W. Olive, Cheltenham, Royal Agricultural College.

Each of these gentlemen, who have passed in either class, will receive an appropriate certificate.

The following prizes have also been obtained by the candidates showing the greatest knowledge of individual subjects:—

Agriculture—J. J. Harle, 10*l.*; Mechanics—C. G. Robarts, 10*l.*; Chemistry—H. Rivington, 10*l.*: Botany—H. Rivington, 10*l.*; Veterinary Science—A. R. Wallis, 10*l.*; Bookkeeping—G. Y. Wall, 5*l*; Land Surveying—James Fowler, 5*l.*; Geology—H. Rivington, 5*l.*

The committee also reported that, with one exception, all the successful candidates intend to be either farmers or land-agents. This report was adopted, after a conversation respecting a paragraph relating to the future educational proceedings of the Council, which was ultimately withdrawn on the understanding that the subject would be fully discussed in November.

Showyard Contracts.—Mr. Randell, chairman, reported the recommendations of the committee—(1). That the contractor be authorised to make available two additional ladies' cloak-rooms, at a cost not exceeding 30*l.* (2). That a communication be made between the Society's showyard and that belonging to the Royal Horticultural Society, leading into the traction-engine yard; and that a space of 60 feet by 30 feet, divided by a fence into two equal squares, be left between the two pairs of turnstiles, one of which is to be provided by the Royal Horticultural Society. (3). That the numbers of the implement-stands be newly painted. (4). That the first payment of 1000*l.* to the Society's contractor be authorised, the surveyor having certified him to be entitled to that amount. (5). That the surveyor be authorised to have the necessary erections and fittings provided for two clocks in the showyard and one at the entrance, and to have a tent properly fitted up for the use of H.R.H. the Prince of Wales, K.G., President. (6). That a turnstile entrance be placed at the approach to the showyard, near the Trafford Hotel, and that the offer of Mr. Norton to supply the Society with six registering turnstiles be accepted.

Selection.—Mr. Thompson, chairman, presented the report of the committee, which recommended that the vacancy in the Council caused by the election of the Duke of Devonshire, K.G., as a Vice-President, shall be filled up by the appointment of some gentleman resident in Kent, and that, in order to afford time for making the necessary inquiries, the election be postponed until the next monthly Council. It was also recommended that his Grace the Duke of Devonshire, K.G., be invited to accept the office of President of the Society for the ensuing year. The Committee also reported that their attention had been called to that portion of the charter which regulates the election of trustees and vice-presidents; they submitted for the consideration of the Council the question whether the trustees and vice-presidents are permanently appointed, or whether it is necessary that they should be annually elected. This report having been adopted, it was unanimously resolved, on the motion of Mr. Thompson, to nominate his Grace the Duke of Devonshire, K.G., as President for the ensuing year. Some discussion having ensued on the question of the permanency of the offices of trustees and vice-presidents, the whole question of the bye-laws of the Society was, on the motion of Mr. Thompson, referred to the Committee of Selection, with power to take the opinion of counsel.

House List.—In conformity with the bye-laws the Council arranged by ballot the following election list, to be recommended by them for adoption at the ensuing general meeting on the 22d inst.:—

Attendances, from the rising of the Bury St. Edmund's Meeting, in 1867, to the Present Time.

Names.	Monthly Councils, 15.	Special Councils, 3	Weekly Councils, 0.	Committees. No. of Meetings.	Committees. Attendances.
Acland, Thomas Dyke, M.P., Sprydoncote, Exeter, Devon.	4	1	..	30	4
Baldwin, John (elected Dec. 4, 1867), Luddington, Stratford-on-Avon, Warwickshire.	11	1	..	4	1
Barnett, Charles, Stratton Park, Biggleswade, Beds.	9	1	..	37	21
Cantrell, Charles S., Riding Court, Datchet, Bucks.	13	2	..	38	23
Clayden, John, Littlebury, Saffron Walden, Essex.	5	1	..	30	9
Dent, John Dent, M.P., Ribston Hall, Wetherby, Yorkshire.	8	2	..	67	34
Kingscote, Colonel, M.P., Kingscote, Wootton-under-Edge, Glo'stershire.	10	1	..	25	18
Leeds, Robert, Lexham, Castleacre, Brandon, Norfolk.	..	..	..	..	..
Liddell, Hon. Henry George, M.P., Ravensworth Castle, Durham.	2	..	..	6	..
Lopes, Sir Massey, Bart., M.P., Maristow, Roborough, Devon.	6	2	..	5	..
Milward, Richard, Thurgarton Priory, Southwell, Notts.	11	3	..	53	40
Pain, Thomas, Ugford Cottage, Salisbury, Wilts.	8	..	..	5	3
Ransome, Robert Charles (elected March 4, 1868), Bolton Hill, Ipswich, Suffolk.	7	2	..	13	5
Ridley, Mr. White, M.P., Blagdon, Cramlington, Northumberland.	..	..	..	..	..
Rigden, William, Hove, Brighton, Sussex.	9	..	..	..	..
Stone, Nathaniel Chamberlayne, Aylestone Hall, Leicestershire.	10	..	..	17	9
Torr, William, Aylesby Manor, Grimsby, Lincolnshire.	15	2	..	68	66
Turner, George, Bramford Speke, Exeter, Devon.	6	..	..	..	..
Vane, Sir Henry Ralph, Bart., Hutton Hall, Penrith, Cumberland.	3	..	..	..	..
Vernon, Lord, Sudbury, Derby.	8	..	..	37	8
Webb, James, Spring Hill, Fladbury, Pershore, Worcestershire.	8	1	..	17	11
Western, Sir Thomas Burch, Bart., M.P., Felix Hall, Kelvedon, Essex.	6	..	..	..	..
Wilson, Major Fuller Maitland, Stowlangtoft Hall, Bury St. Edmund's, Suffolk.	10	2	..	17	9
Wilson, Jacob, Woodhorn Manor, Morpeth, Northumberland.	12	3	..	53	31
Wynn, Sir Watkin Williams, Bart., M.P., Wynstay, Rhuabon, Denbighshire.	5	1	..	..	..

Country Meeting of 1870.—The report of the committee appointed to inspect the site offered to the Society by the Corporation of Oxford having been

read, the Council were favoured by the attendance of the following gentlemen as a deputation from that city, introduced by the Right Hon. Edward Cardwell, M.P., Secretary of State for War, viz.:—His Worship the Mayor of Oxford, the High Sheriff of Oxfordshire, Vernon Harcourt, Esq., Q.C., M.P.; Colonel North, M.P.; Bernard Samuelson, Esq., M.P.; C. Neate, Esq.; Mr. Alderman Hughes, H. Middleton, Esq.; and — Bliss, Esq. These gentlemen having answered satisfactorily the inquiries made by the Council, the chairman informed them that the Society's country meeting for the year 1870 would be held at Oxford, whereupon his Worship the Mayor conveyed to the Council the desire of the Corporation to do all in their power to render the meeting as successful as possible. The draft of the report to be presented to the annual general meeting was discussed, amended, and authorised to be printed. The motions of which Mr. H. S. Thompson and Mr. J. Dent Dent, M.P., had severally given notice were, by mutual agreement, unanimously referred to a special committee, consisting of the Right Hon. Lord Walsingham, Major-Gen. Viscount Bridport, Hon. H. Liddell, M.P., D. R. Davies, Esq., Charles Randell, Esq., W. Torr, Esq., and the Journal Committee. On the motion of Mr. Torr it was unanimously resolved that a Council meeting shall be held every day during the Show at 1 o'clock. Samples of Flax grown in the vicinity of Buenos Ayres, and in the neighbouring Republic of Uruguay, forwarded by the President of the "Sociedad Rural Argentina," were exhibited to the Council. Letters were read from the Secretary of State for Foreign Affairs, accompanying the prize-sheet for 1869 of the "Société Agricole et Forestière de Namur;" documents relating to fluctuations in the price of guano in New York, and a report on the Swiss Cattle Show, held at Langenthal last September.

CENTRAL CHAMBER OF AGRICULTURE.

Monthly Meeting: May 4.—This Chamber held its May meeting on Tuesday at the Salisbury Hotel, when there was a large number of deputed members present, the importance of the subjects on the paper for discussion having no doubt induced the increased attendance. These subjects were the "Adulteration of Seeds Bill," "The best Substitute for the Malt-tax," to "receive a Report of the Sub-Committee on Local Taxation," and to consider the provisions of the "Valuation of Property Bill." Mr. C. S. Read, M.P., the President, occupied the chair. In opening the business of the day, he took the opportunity of saying a word or two on the question of separate markets for foreign stock. He was very much indebted to Mr. Forster, the Vice-President of the Treasury, for the courtesy and care he had shown in considering the propositions which had been made to him in connection with the Government Bill for regulating the traffic in home and foreign stock. He believed Mr. Forster was willing and anxious to do all in his power to procure the greatest possible safety for our own stock, so far as this could be done by keeping them apart. But there were many opponents of any interference with the free importation of foreign animals, and we must take care that the conceded separate markets for the sale and slaughter of imported cattle at the port of London did not degenerate into an empty and useless concession.

Mr. Welby, M.P., who had charge of the Adulteration of Seeds Bill, then introduced the communication from the Lincolnshire Chamber of Agriculture, in reference to the Bill, for which he asked the support and encouragement of the Central Chamber. He said it was admitted by members of the seed trade that adulteration was a regular custom in the trade, and that the practice had now got beyond the power of individuals to deal with it. One-third of the seed put into the ground by farmers is useless, or pernicious, or worthless rubbish. Mr. Welby then went over the various forms by which the practice of adulteration is carried on. There is a distinct branch of the trade, for the purpose of supplying killed seed for mixing with Swede and other seeds. Thus, seed worth 30*s.* a bushel is mixed with a large portion that is only worth 7*s.* or 8*s.* With Red Clover, which is worth 70*s.* or 80*s.* a cwt. Trefoil is mixed, at a cost of 15*s.* or 18*s.* a cwt. Mr. Welby had been greatly assisted by Professor Buckman, and he said it would be inoperative unless the Government, through the Board of Trade, appointed inspectors.—Mr. Sharpe wished to notice one or two remarks which had fallen from Mr. Welby. He did not think it was at all necessary to appoint a Government inspector. He believed that farmers could with ordinary inspection and care test the purity and germinating character of seed, and if this Bill became law there would be no difficulty in punishing dishonest dealers if they continued their nefarious trade.—After some further discussion the Chairman put the resolution in favour of a petition in support of the Bill, and it was agreed to unanimously.

Mr. Neile introduced the subject of the Malt-tax by moving the following resolution:—

"Considering the oppressive operation of the Excise restrictions upon the manufacture of malt and beer, the loss to consumers occasioned by the cumulative incidence of the malt duty, and the consequent discouragement given to the production of sound and wholesome beer and to the growth of Barley, this Chamber supports the recommendation of the House of Commons' Select Committee, and is of opinion, that, until the amount of the malt duty can be spared from the revenue, considerable benefit would ensue from repealing the tax on malt, and obtaining an equivalent in the least objectionable manner from beer."

In support of this resolution Mr. Neile said:—Since he had been in this room he had been reminded that you cannot tax and please. This was a saying of Burke's. He believed that when the great apostles of free-trade carried their measure, it was never thought otherwise than that the Malt-tax would be repealed. He believed in the common sense of the great mass of the people of this country; and he heard many men say, in the manufacturing district from which he came, that justice ought certainly to be done to the farmer. In regard to shifting the tax, he believed that 2*d.* a gallon would cover the present tax, and in a few years it would be doubled. There has been much said about selfishness being at the bottom of this question, but he denied that it was solely to the interest of farmers that the duty should be removed from the raw material, and put upon the manufactured article.—Mr. William Biddel believed that the repeal of this tax would be a gain in the process of brewing of 7 or 8 per cent. Much would be gained in time and interest of money; it would also give a better chance to growers of second qualities of Barley, which is often the result of high farming. They only asked that they might be placed on the same footing as distillers. They wanted the tax to be put on the manufactured article. After going over a few other points, he said he would not trouble the meeting with practical evidence in support of his views, but if any were in doubt he would refer them to the reports of the Parliamentary Committees. The shifting of the tax, in his opinion, from malt to beer was not to be reckoned as a final stage in the changes of this tax. As surplus after surplus was declared in the revenue, it was to be expected and to be pressed that Government would take off the tax gradually.—Mr. Gardener described his success in making beer with only a portion of malt. He had tried making beer from Barley, mixed with a small portion of malt. He had been assured that as good beer might be thus made as from all malt. Some chemists, among whom was, he believed, Dr. Voelcker, said that one-twentieth of malt would convert Barley into malt in the mash tun. Mr. Gardener then went into a description of his own practice, by which he made out that a considerable saving could be effected, and excellent ale produced from inferior Barley, and even from the sprouted grain of wet harvests.—After Mr. Masfen had spoken against the tax, and said that he had not a labourer on his farm who did not brew his own beer, it was related by Mr. Lett (North Riding Chamber) that a patent had been taken out recently for making beer from Maize. He had been informed on very good authority that Maize would make better beer than Barley. On this ground he thought that it would be advisable to let the question remain in abeyance till it was known how this new scheme would affect the price of Barley.—Mr. Knight said he had been in the House for 25 years, and he had always voted against the Malt-tax. But he found it was a subject which made but little progress, and for this reason, the farmers were not agreed upon it. Scotch, Irish, Welsh, and grass county farmers were not in favour of a repeal of the tax, nor did they care about its being shifted, as now proposed. He thought, therefore, it would be folly to attempt to make another great effort, as suggested.—Mr. Wade said Mr. Masfen's men, whom he had described as brewing their own beer, would have to pay a tax on their beer. This was at once dissented from by several of the members, upon which Mr. Wade said, not only would it necessarily be so if folks who bought beer had to pay a duty, but it was so suggested in the resolution, where it was said, "an equivalent in the least objectionable manner, from beer." Cider growers, he was ready to admit, cared nothing about the tax, simply because it tended to enhance the price of the article they produced.—Mr. Startin would propose that a slight alteration should be made. It was to leave out the words "cannot be spared from the revenue." He was sorry to find that the last speaker had revived protection.—Mr. Ford seconded the amendment.—Sir G. Jenkinson would not object to the poor man who brews his own beer paying something towards a tax. He would get his Barley free. Sir George then referred to a correspondence which had passed between Mr. Williams, Mr. Seaman, and the Inland Revenue department, in which the latter objected to sprouting Barley, as it would "involve a risk to the revenue." Sir George made some further remarks, which he ended by protesting against a tax which prevented farmers from being free to deal as they liked with the corn they grew.—Mr. Green said he happened to stand in the position described by Sir George Jenkinson, viz., as a great brewer. He had always walked out of the House when the Malt-tax was discussed. He knew farmers often looked upon what he said with suspicion. But he was sure the tax was in favour of the growers of fine qualities of Barley. If the tax was removed from Barley to beer, it would be folly to suppose that the poor man would be allowed to brew his beer without paying his share of the beer tax. He did not therefore see how it was this could be collected.—Mr. Fielding, M.P., asked to be allowed to say a few words, as he had been discussing this question all his life. He would term it an iniquitous tax—he used the term advisedly. He then referred to Sir Fitzroy Kelly's figures, which went to show that 7,000,000*l.* of taxation so multiplied that the consumer paid 20,000,000*l.* sterling in duty and extra costs. It would be a great mistake to tax beer. It was impossible to collect the tax on beer. It would not, however, be so if the substitute was in the form of a license to brew. The brewery trade was a large monopoly. And the large fortunes made by brewers was the result of this monopoly. He found that out of 52½ million bushels of malt made, 50 million bushels were used by brewers. He preferred a license to brew. You will approach the Government and the House of Commons with a better prospect of success if you go with a request to have a licence to brew instead of with a request to have the tax shifted from malt to beer.—Mr. Corrance came into the room unprepared to hear one word in favour of the Malt-tax; on the contrary, he was not prepared to hear one word in its praise. The subject had been discussed—and he had taken part in it for 10 years—until it had been exhausted. In the House of Commons there had not been a single valid argument against the repeal of the tax; it had always been looked upon as a matter of expedience. Well, then, what must be the substitute for this tax? This is the question which must be answered. He would like to hear how this licensing system would touch the cottage brewer. He looked upon this as a poor man's question. Therefore try and devise some plan for removing the odious tax from the working classes. The question is, how are we to liberate the poor man's beer, not as a section, but as a whole? The Chancellor of the Exchequer had furnished us with an additional argument by the repeal of the 1*s.* per quarter on foreign Barley and other corn. He concluded by urging the importance of pressing this question on any and every occasion.—Captain Craigie merely wished to allude to the deleterious compound which was sold in the roadside and village beerhouses. This he wished to do on the ground that it injured the physique as well as drugged the senses of the poor, and thereby caused a large addition to their improvidence, poverty, immorality and vices.—Mr. Read referred to the Budget. 350,000*l.* was all Wheat paid. Other corn had made up the difference between that sum and the 900,000*l.* realised on corn. If he could brew from Barley the Excise would very soon come down upon us and tax us as though it was malt.—After some other remarks the resolution was carried.

Sir Massey Lopes, M.P., as chairman of the special Committee, presented the report from a sub-committee appointed at the last meeting:—"That the feeling of the country should be taken through Poor-law guardians and others upon the inequalities of local taxation." A discussion followed the reading of this report, in consequence of a misapprehension on the part of several members who had received a circular in which it had been suggested by the sub-committee that paid lecturers should be sent about the country to agitate in favour of the movement. This paid-lecture proposition had however been abandoned, and the report was ultimately unanimously agreed to.

Mr. Willson, Leicestershire, then introduced the question of considering the provisions of the Valuation of Property Bill, and moved:—

"That while approving the principle of elective valuation Boards, and of a uniform table of deductions from gross value for obtaining a common basis of rateable value, as proposed by the Valuation of Property Bill, this Chamber is of opinion that the operation of the Bill should be limited to local taxation, that the clauses giving powers to the surveyors of taxes are objectionable; that the final court of appeal should be, not the county court, but the valuation Board, and that actual rent should not be fixed by the Act as the minimum of gross rating."

Mr. George Andrews seconded the motion.—Captain Craigie contended that the Bill was a step backwards, and, not as many took it to be, a step forward, and moved an amendment as follows:—

"That this Chamber approves of the object of the Valuation of Property Bill in aiming at uniformity of assessment, but in view of the opinions it has already expressed as to the great injustice in principle of the present entire rateal system, it must withhold its support from any measure which provides merely for the perpetuation of that system by a costly and cumbersome machinery."

Mr. Webber seconded the motion, which was supported by Mr. Long.—The Chairman quite agreed with the principles of the amendment, but he questioned its policy. The amendment was carried.

Subjects for the June meeting were then proposed. "County Financial Boards" was agreed to without a division. "The Over-preservation of Ground Game," on which Mr. Randell, Lincolnshire, proposed to move, "That Agricultural Produce should be protected from Ground Game," was put to the vote, when there were 18 in favour of the discussion and 1 against it.

Farmers' Clubs.

LONDON.

Foxes versus *Rabbits*.—On Monday evening, Mr. Henry Corbet, the secretary of the Club, read the following paper:—Many a good sportsman as I hope to meet in this room, I think I can say that during the past season I have witnessed a scene altogether unparalleled. Within the last month or two I have seen a fox broken up here, in Salisbury Square. But there was, alas! none of that glorious excitement we associate with the finish: no thrilling Who-Whoop! no triumphant reflection of well found and fairly killed. As I entered Dr. Voelcker's house, on the other side of the square, I nearly fell over a large hamper, in which fox and hound lay side by side with each other, while in the laboratory two of the Doctor's pupils were busy over the body of a rabbit. Surely, thought I to myself, such a theme as Foxes *versus* Rabbits was never so pointedly illustrated. The assassin had been at his old work: the dead fox was found with the poisoned rabbit; Lord Coventry lost a couple and a half of his hounds, and two keepers were discharged. It was a sad sight to watch these gentlemen dissecting the handsome young fox, as they tried for the deadly strychnine with which the bait had been dosed, and one that hardened my heart for the "delicate" duty I had accepted. And this is, perhaps, a delicate business to handle, but one that must be faced nevertheless. Indeed, such a topic as foxes and rabbits, or farmers and rabbits, is rarely introduced without some cautious person assuming a very grave look, as he shakes his head and thinks aloud that "it will be a great mistake to interfere with or run down the rural sports of this country." And I think so, too; but I must maintain in the outset that, by denouncing the excesses and abuses involved in my subject, we shall be doing everything to uphold, or I might almost say to save, the best and most wholesome of our national pastimes.

If there be a sport peculiar to Englishmen, if there be a sport the practice of which is attended with good to all who come within its influence, this is fox-hunting; and fox-hunting is at this moment in many

districts in difficulties. Never has there been so much evil report abroad as during the last season. Not only have hounds been poisoned both in England and Ireland, and foxes openly trapped, but meetings have been called, and countries of long standing almost abandoned. Masters have come to confess it is idle to draw certain quarters, and in others they are not permitted to do so. Noblemen have not hesitated to warn the hunters off! as others have given notice that the hounds must not come until the covers have been shot through. There is a bad tone in all this, a terrible falling away from the great moral principle, if I may so express it, that so eminently distinguished the country gentlemen of some half a century since. Who, in these days, would have thought of systematically killing foxes, or of giving orders to Masters of Hounds as to when they should or should not come? But we are gradually habituating ourselves to evil ways and coming to ignore the immunity of the chase; to encourage feelings of petty selfishness, and to commit acts of unsportsmanlike oppression. The life of a fox was once held to be sacred; but now men of position, who sign themselves "J. P." and so forth, coolly write to the public journals asking why they should be expected to preserve foxes for people who do not preserve their pheasants? actually putting the life and value of one against the other! The farmers, however, are, I am happy to say, amongst the first to denounce such conduct, and of this I will cite you a very remarkable instance.

At a dinner given a few weeks back at Windsor, by what is termed "the London Division," who hunt with her Majesty's staghounds, to the farmers whose land they ride over, Mr. E. Heathington was called upon to reply for the farmers of Berkshire, and in doing so he took the opportunity of asking General Seymour "to account for the scarcity of foxes in the royal forests. He did not know who was to blame for so many blank days, whether it was Prince Teck, Prince Christian, the Prince of Wales, or her Majesty, but somebody was to blame, and he would like General Seymour to find out who it was." Remember this was said under the very shadow of Windsor Castle, and a more straightforward question could not have been put, or, to a certain point, a more satisfactory answer have been given; for the explanation proved her Majesty to be a staunch fox-preserver. Major-General Seymour said, "In answer to Mr. Headington's inquiries about the absence of foxes in the royal forests, that he was in a degree to blame for not discharging keepers who had destroyed some, as he had special injunctions from her Majesty to preserve them, and to instantly discharge any keeper who was found killing a single fox. In future, any keeper so transgressing would have his *congé* directly." General Seymour considers himself in some degree to blame, whereas he must be almost altogether to blame; and if henceforth a royal keeper who kills a fox does not get his *congé* directly, it is pretty clear whose turn it should be next to go. What can General Seymour really say in his defence for not having hitherto promptly observed and acted upon her Majesty's injunctions in this matter? However, after Mr. Heathington's speech at Windsor, I do hope that no one here will ever hesitate to denounce any fox-killer in his own country.

A yet more curious case, perhaps, is that of a candidate for the division of a county, at the last election, who "thought it best to act in a fair and straightforward manner," and to give notice that, if things did not go on as they wished, they would "do their best to clear the country of foxes." This is after the manner of the spoiled child, who says, "If you don't make me King of the Castle, I'll go and tell my mother, and then she won't let you play at all!" Our fathers and grandfathers would have breathed very hard over such threats; and here, if you please, I will tell you a story.

Once upon a time, there was a worthy citizen, who, having made money by his business, thought that, by way of enjoying himself, he would go and live in the country, and teach the people how to farm. In due course, he bought a small estate accordingly, and, quite as a matter of course, in due time the "Co." ran down to see his old partner. On the road, for this was a very long time ago, he quietly made some inquiry as to how the new proprietor was getting on. Coachee's answer was, everything that could be desired. He was such a nice gentleman—they did such a power of good—everybody was so fond of them, and so forth. And as Mr. Co. found all this quite correct, and his visit altogether so pleasant, he in a few months volunteered for another. He got his seat on the box again; but Mr. Coachman scarcely seemed to recognise him: gave a half-sulky touch to his hat, and pulled away at his cigar in silence. At last came the customary inquiry as to how the squire was getting on at the Priory, but with now a very different answer: "O don't ask me, sir; I'd rather not say anything about them, if you please," which, of course, only made Mr. Co. the more curious. What was up? what had his old friend been doing? what was wrong? And still Mr. Coachman only shook his head, and looked graver than ever.

"He hasn't been drinking, I hope?"

"No, not he: I wish he had."

"Well, he isn't screwing down the tenants?"

"Why, bless you, he's a regular model landlord—pays what they ask, and when they ask."

"And he hasn't got to interfering in party politics?"

"No, no: he don't such a fool a that, sir."

"What, then?"

"Why, he—why, he shot a fox! shot a fox in broad daylight, on his own grounds: actually *a bodkin*. His character's gone, sir. The gentlemen won't sit in the same room with him; and the parson of the parish won't speak to him!"

And this is the kind of feeling we want to see revived. When a man kills foxes, or even talks of killing them, he should be a lost man, and the parson of the parish shouldn't speak to him. Nowhere, moreover, should the legal ethic be more strictly enforced: "*Qui* shoots him *per alium*, shoots him *per se*." A gentleman who gives a half-and-half order to his keeper that he 'shall expect them to find a fox here when they come," is a very shallow hypocrite at best. He knows very well that the keeper will know very well what he means; and the keeper is the greatest enemy the fox has.

In a paper, which I read before the members of this club, now nine years since, on the Over Preservation of Game, I said, "the roots are the keeper's perquisite: that is, the vermin which do the farmer the greatest injury are the animals these gentlemen, that the keeper has the most interest in maintaining a stock of. The vermin which the law declares the tenant has a right to destroy as vermin, the landlord transfers as a right to his servant." And again, "there is no greater self-deception, no finer piece of humbug than a game-preserver allowing his keeper to sell the rabbits, and telling him at the same time not to destroy the foxes." By this arrangement, you see, the keeper comes into direct antagonism with the farmer and the foxes. The farmers hate the rabbits, and the foxes like them; so that either way Mr. Plush may be deprived of some of his "rights," as of course the more rabbits the more money in his pocket. To the fox's credit be it recorded that he would live very much on rabbits, rats, mice, and such like small game if they would only let him, although he may occasionally surprise a sitting pheasant or give chase to a leveret. But these stories are pretty sure to be made the most of: for the fox in the country is, I may say, very much like the London cat, which runs off with the stray cigars, clears up the cold apple tart, and draws the corks of the bottled beer. So, if the old hens give over laying—the fox has frightened them; if the bull has broken out of bounds—the fox left the gate open; and if two or three sacks of kidney Potatos are unaccountably missing—of course the foxes had them. Nay, during one rather hard winter—if I remember right, it was in the Burton country—they got clean off one night with a couple 20-score bacon hogs! Even against such ravages as these shall I set off the good that foxes and fox-hunting establishments do in a district? The business that follows and the produce that is sold is an argument that is familiar enough to you all, as one that has been well handled ere now, although by none more so than by Mr. Warburton, the poet-laureate of the chase:—

"Good farmers! read, nor take amiss
The moral which I draw from this;
Grieve not o'er gap or broken gate;
The damage small, the profit great;
The love of sport to home brings down
Your landlord from the smoky town,
To dwell and spend his rents among
The tenantry from whom they sprung.
Though vainly, when he leads the chase,
His willing steed urged on apace,
When scent is good, and hounds are fleet,
Though vainly then you shout, "'Ware Wheat!"
That steed, perchance, by you was bred,
And yours the corn on which he's fed.
Ah! then restrain your rising ire,
Nor rashly damn the Hunting Squire!"

But I would go a step further than this. Nothing tends so much to a good understanding between landlord and tenant as these meetings in the field. It is here more than anywhere else that they really come to appreciate each other, and nowhere can the Squire more certainly or more agreeably learn the duties of his station. Besides, no thorough fox-hunter can be a bad man. I have been trying back through my memory, but I can hardly bring to my mind a black sheep in a red coat; while, on the other hand, what a goodly array could I give you of country gentlemen who have been Master of Hounds!—the Graftons, the Spencers, the Yarboroughs, the Knightleys, the Lane Foxes, the Sykes, the Drakes. Every one of us might name his own man, and that name be suggestive of liberal management and good farming—of thriving tenants and considerate landlords. And now to turn to the more business-like phase of the question, though here again our off-hand critic settles the matter in a moment; "The thing lies in a nutshell; it is simply a matter of agreement. If a man chooses to sign away his right to the rabbits and hares, he does so with his eyes open"—and so on. Nothing could sound better than this, and nothing could prove worse.

Let me assume that I am a young man from the country; that I have been crammed with science at Cirencester, and with practice in Norfolk, that I have plenty of capital, intelligence and "go" in me, and that I am on the look-out for a farm, for which I at length get the preference. I can have a lease or a tenant-right agreement; I can do this and do that. But the right to the game and the rabbits will be reserved to the landlord. And to this of course, as a young man from the country who does not mean that they shall get over me, I decidedly say no! I must make it a rule to reserve the game and rabbits to myself. And so, according to a careful mathematical calculation, it would be just about a hundred to one against my getting into that farm. There may be an exception here and there; but by strictly observing his rule, it is probable that Juvenis in search of a farm might write as big a book as "Japhet in Search of a Father," or "Caveat Emptor in Search of a Horse." If a man choose to sign away! Why, how can a man choose to do otherwise who really means to get to work? Only look to our great agricultural authorities, and the example they offer us! In the Journal of the Royal Agricultural Society for the year 1868, one of the leading papers is a prize essay on the Farming Customs and Covenants of England. In this essay the author gives a model agreement, which he "considers as complete as any he has seen:" and by this we find that the landlord reserves "all game, hares, fish, and rabbits, and the right to himself, friends, and servants, to preserve, shoot, or otherwise kill or attend to the same." To be sure, by a subsequent clause, the tenant is graciously permitted "to destroy rabbits at any time by ferreting or digging, but no dog to be used between the first day of April and the 1st day of September." This is the proper thing to do, according to the very latest dicta of the Royal Agricultural Society of England. Then in another of these precious model agreements, as offered to the farmers of South Wales, all the exclusive rights of shooting with game and rabbits are to be the landlord's, although the tenant may kill rabbits up to March 1, but not with a gun. The Royal Society says, you may kill rabbits occasionally, but not with a dog; the Carmarthenshire authority says, but not with a gun; and possibly, according to some other model man, not with a walking-stick—possibly by putting salt upon their tails, or smothering them with Onions! The very latest I have seen of these model agreements was one read down Gloucestershire way, the framer of which gets very cleverly out of the game and rabbit difficulty, for he never mentions one or the other. The Journal of the Highland and Agricultural Society of Scotland shows a still stronger disposition to preserve the rabbit, for in the very last number, as just issued, there is a prize paper by C. Y. Michie, forester, on "Trees not liable to be Destroyed by Rabbits," which opens after this fashion:—"The destruction of forest trees, shrubs, and hedges, &c., is so great, and in most cases such an increasing evil, as to call serious attention to the subject. From the circumstance of so much land being under cultivation, summer food is thereby abundantly provided; but when harvest is over, and the Turnip crops stored, or the fields occupied with shepherds and their dogs and flocks, rabbits and hares have no retreat but the plantation; and hither they repair both for safety and food, and the plantation suffers in consequence. The destruction of forest trees, shrubs, and hedges is much greater than appears to the cursory observer; but it is a subject which those who can best speak upon seldom do, from reasons unnecessary to be explained." This is certainly about the coolest thing I think I ever saw offered to the readers of an agricultural organ. In summer, with so much land under cultivation, "abundant" food is provided for the rabbits; but in the winter, when the harvest is in and the Turnips stored, rabbits and hares have nothing for it but to retreat to the plantations, and feed on the trees, shrubs, and hedges. What a shame it is that the farmer does not find "abundant" food for the poor things all the year round, instead of suffering them to destroy his landlord's shrubs.

I would suggest, however, to the Editor of the Highland Society's Journal that the subject is not yet exhausted, even after treating his subscribers to two articles on trees not liable to be destroyed by rabbits. Would it not be as well to offer another premium for an essay on plants and roots, for varieties of Wheat, Oats, and Turnips not liable to be destroyed by rabbits, and "the destruction of which is much greater than appears to the cursory observer?" But whatever the Scotch Society has been about, the Scotch farmers have been keenly alive to this monstrous evil, and "Down with the hares and rabbits!" was the county cry at the last election in Scotland, as it should have been in England; with, moreover, the immediate result, that honourable gentlemen who represent county constituencies in Scotland have come to see that they must take up this matter, as it is to be hoped county members in England may come to do—say, in a few years' time. Not but that this agitation has been opposed or answered, and by no less a man than Captain Horatio Ross, the famous rifle shot.

Captain Ross has written a long letter to the *Times*, which, as most of you must have seen, I need not give here, but the point of which is very readily put. "If," says Captain Ross almost in so many words, "if Scotland is to maintain her old renown, if the lairds are to be respected and the people thriving and contented, you may do away with tenant-farmers as soon as you please, but you must on no account do away with hares and rabbits!" To hares in moderation there can be no very great objection. I myself have had many a pleasant day with the harriers, and there are people who are said to be fond of coursing. But with the rabbits there can be no moderation; for, as Lord Granville said in his capital speech at Shrewsbury, "it is doubtful whether anything short of absolute destruction can keep the animals within proper bounds, as it is, with the exception perhaps of a hard-working curate, the most prolific creature on the face of the earth." I could, indeed, give you figures and facts to show that, like the nails in the celebrated horse-shoe problem, the rabbit doubles himself over and over again in less than no time. But this is an old story. In the great days of the Roman Empire the inhabitants of a conquered country petitioned the Emperor to free them, not from the soldiers, the priests, or even the taxes, but from the rabbits. They could do nothing against them; and really, as it seems to me, there are people even in these times who might petition to very much the same effect. And, then, as to the damage, I shall not take up the time of the members of this Club by telling them how much the rabbits consume or how much they spoil, how they poison and how they sour the land; but Mr. Sewell Read, a gentleman who now represents the farmers of England in Parliament, declared a year or two since in his own game-ridden county of Norfolk, that it was impossible to farm against hares and rabbits, and I hope soon to hear of his saying as much in "another place." Again, Sir George Wombwell, one of the best sportsmen we have, and who has just succeeded to the management of the York and Ainsty foxhounds, consequent on that lamentable accident on the Ure, said, a few months back, in an admirable address he delivered at the Boroughbridge Agricultural Society, on the relations of landlord and tenant, "About 12 or 14 years ago my estate was overrun with hares and rabbits, and I saw directly that if I wanted to get the estate into good order these animals must be swept away from the face of it, so accordingly I had them killed down." That is the speech of a good landlord and a good country gentleman, as well, remember, as of a Master of Hounds. Perhaps you will be content with just one of the latest of these "fearful examples," and for this I turn again to the Societies' journals." The Manchester and Liverpool Agricultural Society also publishes its own annual number, in which, amongst other matter, very useful reports are given by the inspectors on prize farms and prize crops, and here in the new Part I find it thus recorded: "To the tenant and occupier of not less than 80 acres, who shall have the best crop of any variety of Mangel Wurzel, not less than 3 acres, the prize of 5*l*., awarded to Mr. Henry Neild, of Worsley, near Manchester." And then follows the inspectors' report: "Claimants had 3¼ acres in Mangels. The soil, subsoil, and cultivation same as for the Swedes. Manured with 25 tons per acre of farmyard manure and 3 cwt. of guano, superphosphate of lime, and salt; 4 lb. of seed sown per acre, the first week in April. Three-fourths of this crop a regular full grown crop of fine bulbs. Would reach nearly 30 tons per acre. One-fourth of the crop near a plantation nearly all destroyed by rabbits." One of the inspectors, who has seen much of rabbits in his time, and of the ill-feeling created by them between landlord, tenants, and gamekeepers, is much surprised that any gentleman will have a rabbit on his estate. Hedgehogs, weazels, polecats, and foxes, are gentlemen in comparison to rabbits, which are mere vermin, and ought to be kept nowhere but on poor tracts of poor sandy land, fenced round by nets. Weazels, polecats, foxes, owls, and hawks, are intended, by Nature, to keep down rats, mice, and rabbits. But these are destroyed by gamekeepers. They also destroy the innocent hedgehogs, which live entirely on grubs, worms, and snails. The above crop inspected October 27, 1868.

Of course the fox is a gentleman—"one of Nature's gentlemen" I should call him, and one of the handsomest and truest-made gentlemen you will meet about. He may be a little wild, and do a little mischief at times, but we like him all the better for it—particularly when the old villain has got his head set straight away. And against him we are to pit the keeper and the rabbits! The landlord reserves to himself the right to the game and the rabbits—and the rats. A really zealous agent, who means to do his duty by his employer, or the framer of a model agreement who is advertising for more business, should certainly take care to fill in—and the rats. If the country gentlemen are to be kept amongst us in the homes of their forefathers, and not driven out to try "French translation and Italian song," let the rats by all manner of means be as strictly preserved in our ricks as the rabbits in our fields; for rat hunting, nine times in ten, is quite as good sport as rabbit shooting. As an old sportsman and popular writer that I knew very well has said, "Shooting in places where rabbits live, for the most part under ground, is the slowest of slow sports, and ferreting to nets is mere butchery. To put the hand into a contrivance such as they boil Cabbages in, and squeeze to death a soft little animal is certainly not a recreation worthy of a sportsman, nor is rabbit shooting the sport of a gentleman anywhere, save in wild woodlands, or in such rural districts as disencumber it of all notions of onion-sauce." That same onion-

sauce has a deal to answer for. Certainly a rabbit smothered in Onions is a dish which a man may enjoy by way of novelty, like boiled tripe or salt-fish, say once or twice in a life-time, but he is about the nastiest thing in the world to keep on with, and we had by far better leave him to the foxes. And here I will leave him. The late Mr. Robson, when about to deliver himself of something especially facetious, was wont to warn his audience that "this is not a comic song." With more cause I may say that this is not a paper treating on the damage done by game generally, for I have already under the auspices of the Club gone into that matter at some length, and not, I hope, without some effect. My object here has the rather been to show that the preservation or reservation of the rabbit by the landlord is inimical alike to good farming and good sport. The man who pays and overpays his keeper with such perquisites is committing an act not merely of injustice but of dishonesty, and I do trust that you will all about his own neighbourhood continue to talk him over. The day, I believe, is not far distant when the Legislature will seek to more strictly enforce the principle as to rabbits not being game, but in the interim a deal may be done by talking about it. Many landlords have, to their honour, voluntarily given up their claim to these pests of the farm, now that they know the great injury they cause, and others will have to follow so good a lead. The weak place, so far as England is concerned, is no doubt in the House of Commons; as only look at the front they offered there the other night. Mr. Green spoke in the highest possible terms of that Police-Gamekeeper Act; Mr. Newdegate mourned over the calumnies in circulation against game-preserving, and Colonel Brise said farmers were fond of sport. But not one of them denounced the hares and rabbits; for, as Lord Granville says, "none of the county members come within a hundred miles of such a question, and he only feared lest he should be regarded as occupying the position of the fool who rushed in where angels feared to tread." But these angels will most assuredly have to try their footing here, or it will get very hot for them hereafter; and when we find men like Lord Granville himself and Sir George Wombwell speaking out so strongly, we may be well warranted in looking about for more like them. And, then, as to the fox-killer, show him whenever you have a chance, as the Berkshire yeoman did the gentleman-in-waiting at Windsor, or cut him dead as the parson of the parish did; for no man who assassinates a fox can be ever worth knowing. And bear in mind, while these little wretches, the rabbits, are multiplying exceedingly, foxes in certain parts are getting very scarce, and we hear rumours of countries like the Rufford and the Bedale being given over, as half a kennel of hounds in Dorsetshire has just been sold simply from a want of foxes. Indeed, some of our national sports are in but a middling way. The turf is getting more and more to be a matter of business, and a bad business too; there is a growing practice of making bets and books on boat races and cricket matches, and noblemen have turned higglers and dealers in pheasants and hares. But as a man can hardly make wagers or make money by fox-hunting, let us try our best to keep one old English pastime amongst us pure and undefiled. We have scared the wolf from our woods and forests, we have banished the bustard from our plains, and the very grouse fly before the shepherd and his flock; but it will be a bad day for this country when a fox can no longer be routed from his lair to

"Die in the open, as a good 'un should do."

Reviews.

Cottage Plans; dedicated to the Landowners of Carmarthenshire and Pembrokeshire. By John Frederick Vaughan, Earl of Cawdor. W. Ridgway, 169, Piccadilly, W. 1869.

In this thin quarto are given 10 plans of cottages and other agricultural holdings. There is a plan of a pair of cottages with three bedrooms each—specification given—costing 131*l.* 15*s.* 7*d.* per pair!! The kitchen is 14 feet square; the bedrooms 11 by 7, 14 by 6, and 9 by 8 feet respectively; and there is a pantry 8 feet by 4: the rooms are 8 feet and 7½ feet high. In another plan, where everything is in the style of the best English cottage—kitchen 12 feet 3 inches square—back kitchen (with boiler and oven) 8 feet by 12 feet—pantry, lobby, and three bedrooms of good dimensions overhead—the pair, exclusive of haulage, are estimated at 205*l.* 4*s.* 3*d.*! The thing cannot be done at this price in English counties, whatever may be the possibilities of Carmarthenshire or Pembrokeshire. The contents of the volume include the particulars of 10 plans:—1. Minimum of accommodation: A cottage on this plan was built in 1868—walling, plastering, flooring, 15*l.* 4*s.*; carpenter, timber, slating, 35*l.* 10*s.*; haulage and everything finished, 17*l.* = 67*l.* 14*s.* No. 2: a better arrangement, costing 72*l.* 5*s.* 10*d.*, not including haulage. Nos. 3 and 4, the same accommodation, in different ways. No. 5—half of No. 6—prices applying to Pembrokeshire. No. 7, an English plan, costing, without haulage, 203*l.* No. 8 is a plan for a small farmhouse. Nos. 9 and 10 are also plans adapted probably to the circumstances of farming in the counties referred to.

We learn from the opening sentences of the volume that the plans were drawn by Lady Muriel Campbell, and the specifications and bills of quantities supplied by Mr. Rogers, Builder, Tenby.

Farm Memoranda.

Aylesby House, Chatteris, Cambridgeshire: *April* 28.—The cold and winterly weather of March was followed by a showery and growing April. Vegetation has made rapid advances, and the pastures appear all at once to have leaped from sterility and barrenness to luxuriance and abundance. One's memory is treacherous, but we find it difficult to remember a season when Grass has grown so much in a fortnight as it has done during the last two weeks. The same remark will apply also to the Wheats, and had the showery close weather of the last fortnight continued, they would have become soft and full of flag; but during the present week the wind has been blowing from the N.E., and we have had some bright sun, which is stiffening the Wheats, and giving them a stronger and better appearance. The nights are cold and rather frosty, which slightly affects some of the weak marly spots: those always suffer from April or May frosts followed by bright sun, however slight the frosts may be. Unless we get some serious check there is every probability that the harvest will be rather early. We have some Rye breaking in the ear, which is earlier than we remember to have seen any before. The Wheats generally are looking well; there are a few exceptions, but, regarded as a whole, we have the prospect of an abundant crop of straw; beyond this it would be folly to speculate; we may, or we may not, have an abundance of grain. A moderately dry season would undoubtedly be favourable to a yield of Wheat, especially where the plant is at all gross and strong. In travelling from Lincoln to Peterborough last week we saw the Wheats were looking too yellow and sickly, and were evidently suffering from an excess of moisture. Our fen soils are less prejudicially affected by heavy rains than most lands, and a moist winter and spring generally suit us. The Oats are now well up, and with the exception of a few suffering from the ravages of wireworms, are planting well, and the first sown are getting past the wean, and will soon begin to present a vigorous and luxuriant appearance, should the weather continue warm and growing. Our great enemy to the Oat crop is wireworm. We always suffer more or less from them, and sometimes very severely; and until the crop has reached that stage when their ravages close, we can never predict with any certainty what it is likely to be. Beans are well up, and ready for the hoe. The plant is good and healthy, and weeds are not so superabundant as we sometimes see them. A larger acreage of Peas than usual has been sown in consequence of the failure of the seeds, and at present the crop is fruitful and promising. Mangels and Kohl Rabi have been sown to a fair extent. Ours are just coming up, and from the abundance of moisture and the warm temperature, appear likely to plant well. We have steam cultivated 27 acres for Barley this spring. These lands were Wheat last year, and worked by steam immediately after harvest, and again last month. The Barley is up, and looks healthy and well. One field has the eleventh crop of corn in succession growing upon it, and all of them have been good ones, especially the last six grown under the steam management. We sow all our Oats and Barley with the water-drill and artificial manure, and last autumn sowed also about 50 acres of Wheat in the same way; and, judging from present appearances, should say with great success. The practice of water-drilling Wheat has been extending considerably during the last few years, and with most satisfactory results.

The fine weather occasioning such a rapid growth of Grass, combined with the present and probable future high price of beef, have made fresh beasts very good to sell, and the demand appears almost to exceed the supply. Poorer cattle have not been so good to sell, but these most likely will receive a stimulus ere long should the pastures continue to improve as they are now doing. We have from 50 to 60 fresh cattle to sell, chiefly Scots, which we value at from 15*l.* to 22*l.* per head. These have been kept on cake and straw all the early part of the winter, and latterly some have had a little Clover hay cut with the straw, and others a few Mangels. The quality of our new straw was unusually good, having grown and been harvested in such tropical weather. Generally we have so much blight and mildew about our fen Wheat straw, that it is miserably poor food for cattle. A good crop of Wheat last year is exerting its legitimate influence upon its value, and we appear likely to finish selling Wheat at 20*s.* per quarter less than we commenced. We need scarcely say seeds are a poor plant. Many were resown, a few successfully, but a great many far otherwise; hence we have a slow trade for lean sheep, a much smaller number than usual being required. *A. S. R.*

The Poultry Yard.

Economy in Feeding Chickens.—Those who keep chickens know very well that if all the feed that is given to them has to be purchased, the profit arising from keeping them is very small. It is true that at certain seasons of the year the necessities of the farm and garden require that they should be shut up, and of course almost fed wholly out of hand; and during winter, although they may be allowed to range, yet the amount of feed which they can pick up is but small. And yet our experience leads us to believe that the chief advantage arising from keeping chickens lies in their acting as save-alls. We have therefore adopted certain rules which are in a measure based upon this idea, and we find that just so far as we depart from them just so much do we lose. Our first rule is to keep as few chickens as possible during winter and the time when they must be shut up; or if we have a number on hand, they are mostly small, requiring little feed and not being very destructive. With the exception of a few old favourite hens kept for breeding, we keep but few hens over winter. During early summer, all the old hens in the country lay freely, and eggs are cheap. Early spring pullets commence laying early in fall, and furnish a good supply of eggs when prices are high. By the middle of October we proceed to fatten our chickens, and this we accomplish without cooping them up; but we do not commit the common error of giving our hens a "warm breakfast." Many of our chicken-keeping friends do this, and the consequence is that the chickens satiate themselves and go off to sun themselves in the shelter of some quiet bank. Our system is to give them a good hearty meal of some easily digested and easily picked up food just before they go to roost for the night. This enables them to resist the cold better; the food is digested while the birds are at rest, and they wake up in the morning strong and hungry and eager for forage. They then go to work as if they had to depend upon their own exertions for a living. In this way they pick up enough to live on, while all the food that we give them is so much extra and goes to make fat. Some wiseacres may object to giving animals a hearty meal just before sending them to bed. It would be easy to fill a column with arguments in favour of the practice, but it is unnecessary. Look at the plump little quail that has gone to roost in the shelter of a heap of brush. He is fat and sleek, and his health and strength are most excellent, as you will very likely find if you try your hand at capturing him; and yet he goes to bed every night with his crop literally stuffed with grain. All wild animals that we know anything of go to bed with full stomachs, and we never find that any evil consequences result. Who ever knew a lion with a fit of dyspepsia? We feed all our chickens in this way. We have no desire to fatten some to the exclusion of the rest. We never find that liberal feeding interferes with the laying of young birds and chickens that enter upon winter in good condition—they require less food, and come out better in spring than those that are stinted. Moreover, we must acknowledge that although we have heard glowing accounts of the practice, and have often tried it, we never could make it pay to fatten chickens in close coops.—*Albany Cultivator.*

Assisting Chickens out of the Shell.—I have read with much interest the poultry articles in your Paper for some time past. Last week's article contains these words—"We have hardly ever known the dry-handed assistance to be successful." That it is likely to be, and may be so, I am sure from this fact. About a month ago, having a hen sitting, as the usual 21 days had expired, I went to the nest, and, without removing the hen, took out nearly all the eggs. Some were going on well, and I put them back at once; from six or seven others I carefully picked away with a pen-knife part of the shell, beginning at the chipped point, so as to leave the membrane exposed in a band half way round, more or less. In one instance the shell was not cracked or chipped; and, as I heard a chick inside, I made a small hole in the shell, and took off part of it, as in the others. Two other eggs I opened in the same way, and found no indication of a chick. The result was that the next day 11 chicks were hatched; one has since died, apparently owing to its not being fully developed; the others are strong and healthy. On a former occasion I assisted two or three chicks out of their shells. *A Poultry Fancier in a Small Way.*—Like many of your correspondents I lost several of the chickens of our early hatches, from the toughness of the skin inside the egg-shell preventing their getting out. After this happened I had the eggs that were being sat upon daily sprinkled or dipped in warm water, which made a good deal of difference. The next hen set was put on a turf, and the hay nest formed on it. The eggs for the three last days of the 21 were each morning dipped in warm water, and all have hatched without difficulty. In hot weather I generally set the hens with a turf under the nest, as they appear to sit more steadily than those that have the hay and eggs placed on the boards. *G. E. O.*

The Quid of Tobacco.—Thanks to you and to "J. N.," of Colchester, for his letter, appearing in your Journal of February 27, on the efficacy of the "quid of tobacco." Allow me to bear testimony to this evidently good remedy. About 10 days since I had a favourite Dorking hen very ill; she confined herself to the fowl-house for four days, refusing all food. She had wasted greatly; her evacuations were but green water, and she seemed very likely to die soon. On the morning of the fifth day I compressed a piece of tobacco into a hard ball about the size of a large Spanish nut, and forced it down her throat. In about four hours she left the house and mopishly associated with the rest of the fowls. On the following morning she took her food in common with the rest, and by night seemed quite convalescent. She commenced to lay again about four days after. In future, when my fowls are "out of sorts," I shall at once have recourse to the "quid of tobacco." *M. A.*

Miscellaneous.

Emigration.—The class of people at home that would most immediately benefit themselves by emigrating to Canada are the agricultural labourers. I never held out a hope in my late intercourse with this class that by going to Canada they would have to work less, but that the same amount of labour would, in general, command more of the necessaries and comforts of life, with a prospect of becoming the occupiers, and even owners, instead of being the mere tillers of land. I often mentioned to these people instances that had come under my own observation in Canada, of men originally in their own position, but now the occupiers or owners of well-cleared-up farms, affording them and their families an abundance of the necessaries and many of the comforts and even luxuries of life. The fact is, that the majority of our now well-to-do farmers came to this country with little or no means. Often they commenced operations in the unbroken forest, and by the exercise, at first, of some self-denial, accompanied by frugality and persevering industry, they gradually won for themselves a solid independence, and made "the wilderness to blossom as the rose."

Another strong inducement Canada holds out to this class is in the facilities afforded to boys and girls of getting situations in which they can, from the first, maintain themselves, learn the ways of the country, and by degrees become prepared for commencing something on their own account. How many happy mothers of families have I seen in this fair Province of Ontario, surrounded by all the solid comforts of life, and with equally good prospects for their children, who, had they remained in the old country, would scarcely have had a chance of rising higher than becoming the wives of farm labourers, who must struggle hard for the barest means of physical existence. I told the people at home that Canada was pre-eminently the country for the poor man, who, possessing the qualifications of health and strength, sobriety and industry, need have no fear of making progress, although he might arrive among us without a penny. The experience of thousands will confirm this statement. But it must never be forgotten that success essentially depends upon the possession and exercise of the qualities before mentioned, and that this is no country for the frivolous, the idle, or the dissipated. People of this sort usually blame the country for their want of success, instead of blaming themselves, as they ought to do. *Professor George Buckland in the "Ontario Farmer."*

Mr. Smith, of Woolston, on the Drainage of Grass-Land.—My farm, containing 112 acres of arable and 60 of grass-land, consists of two distinct qualities of soil. The valley land is mixed gravel and clay. I have generally called it light land; it is, however, by no means light working land for ordinary horse culture; it always needed three horses to plough it. The hill land is very heavy clay.—On grass-land hereabouts the drained and undrained fields were both alike burnt up. I could not see that either of them had any advantage over the other in contending with the dryness of the summer. On arable land, that which was drained had the advantage, and greatly so in all cases,—in the Wheat crop, to the extent of more than a quarter per acre. All the crops on well drained land were fine and full, whereas all the crops on undrained land were thin on the ground, and nothing like so bulky when cut, yet they ripened well. The effect of drainage upon the Bean crop was very perceptible, for on the undrained lands they burnt up very early in the season; whereas on the well drained land they did not burn up so quickly: and on my own well drained and deeply cultivated lands they stood out to the last 10 days before harvest, and I had the honour of having the best Beans in the neighbourhood this dry summer, the result of drainage and deep steam cultivation. I can, however, give you one instance of drainage having done an injury to a good meadow. Forty years ago a mill in the adjoining parish was pulled down. I have a meadow that floods in the winter, and had always been mown. It is situated half a mile above this mill; and as soon as the mill was pulled down, this meadow gave a less produce than it had done before by more than a half a ton per acre yearly; and it continued to do so for 15 years, until a weir was put up holding the water to the height it stood at before the mill was removed; and then the meadow at once returned to its increased productiveness, and it has continued so ever since. Side main drains have been put in, so that the uplands are all well drained, although the water in the river stands at its former height.—The deep stirring of my land by steam-power has enabled it to withstand the drought better than shallow horse-worked land had done. This was clearly shown in my Bean crop. They were planted at the same time that the neighbouring horse-farmers planted theirs, yet they came up first and kept first. They stood 5 feet high, and were well corned, and kept green longer than those on horse-worked land did, and were much the best crop in the neighbourhood. *Journal of the Royal Agricultural Society.*

Calendar of Operations.

MAY.—*Kohl Rabi,* sown in beds or in drills in early spring are now transplanted, but this mode of cultivation is being superseded by that of sowing as for Swedish Turnips, with the liquid manure-drill, applying about 500 gallons per acre. Some only apply about 200 gallons, but the quantity is too small, as it only wets the surface, for vegetation is only started with nothing to support it below. For many soils in dry seasons 1000 gallons is too small a dose. Much depends upon the state of the land. If comparatively dry, 500 gallons may do, less than 200 gallons when the land is moist. The liquid should sink to the depth of 5 or 6 inches deep into the soil, so as to apply available nourishment to the rootlets, which very soon strike to this depth. If it only sinks an inch, the liquid is too strong, assuming that from 3 to 4 cwt. of superphosphate has been dissolved in 200 to 500 gallons of pond water. In judging how much water to apply, put a gallon of clean water into a watering pan, and then with the edge of a hoe open a drill, and ascertain how far it will moisten the soil to a proper depth, bearing in mind that the more widely the liquid spreads itself through the soil, the more economical and successful will the supply of food be, not only to the young plants, but also to the roots when they begin to swell. Having ascertained how far a gallon will go, it is easy to calculate how much will be required per acre. When the liquid-manure drill is at work, it is a poor saving to stint the land of water.

Rolling spring corn crops is general in this month in ordinary seasons, so as to make a smooth surface for the reaping machine. Before rolling strong ground it should be cleared of large stones brought to the surface, pieces of wood, as the points of hurdle and netting stakes left in the soil where Turnips have been eaten off by sheep; short pieces of hoop iron and such like, as the roller in passing over them very often tilts up one end, so as to come in contact with the knife of the reaping-machine. Land infested with Coltsfoot should also be carefully gone over, as the smallest bit left, when pressed in with the roller, will take root and spread. The roller not only smoothes the surface, but breaks crusty clay soils when sown broadcast, thereby supplying mould for tillering, &c. Such soils require a heavy roller, and heavier in some seasons than in others. To effect this difference of pressure, rollers are provided with means for increasing the weight as the land requires, as stones in a box, water in the roller, &c. Many pastures are the better to be rolled with a heavy roller at this season, so as to crush clods, worm-casts, and break hard soils, so as to induce the tillering of the Grasses and filling of the ground.

Farm-horses are said to be "soft" this month. A little extra corn and grooming is needed with the green food. The latter will sometimes bring away the bots better than drastic purgatives.

Weaning of Calves is a work of degrees. Before they are weaned they should be learned to eat sliced root, cake, corn, and hay; and if this is done, early calves which have been fed by the pail may now have their milk gradually taken from them. If they suck, their dams should be milked nearly dry, and finally dry, before they are put to them.

The Dairy.—As soon as milch cows are grass-fed, cheese-making comes into season as the calves are weaned; but until the cows are fairly taken with the Grass, so that their bowels and the secretion of milk are both in a healthy normal state, good cheese cannot be made. Sour whey (lactic acid) and saltpetre are sometimes dissolved in the milk, to prevent "heaving," but they lower the quality of the cheese; neither can good butter be made. The true plan is to correct the food of the cow, until she has fairly taken with the Grass. This done, good cheese and butter may be made. During this month, however, particular attention requires to be paid to the ventilation and temperature of the dairy. Dairies are generally kept too damp and cold during winter, and this, with the increase of temperature due to the season, accounts for much that is experienced, in the way of turning milk sour, and causing cheese to be variable, and at times inferior in quality, when other conditions are the same. The dairy should be kept dry at the proper temperature, and free from stagnant air. In butter dairies, there is a diversity of opinion as to the temperature of the milk-room for raising cream, the range being from 55° to 60°. The sudden chills which milch cows experience when first turned out to Grass, also injuriously affects the quality of their milk.

Wireworm and Slugs often play sad havoc in corn-fields and grass-lands in May. Some apply lime to Turnip fallows as a remedy, spreading a liberal dose out of the cart, or by broadcast sowing-machines; others sow soot and salt by hand, or broadcast sowing-machines. In each case the application of the lime, soot, and salt is followed by heavy rolling. The clod-crusher and land-presser are also used with less or more effect in crushing the enemy to death, and fixing the roots of the plants in the ground. In case of slugs, the lime, soot, or salt, is sown at night, when they are abroad feeding, and when followed by the roller immense numbers are destroyed. But wireworm is not so easily got rid of, as it is defended by a tough, leathery coat, and feeds more below the surface. Lime, soot, and salt, are obnoxious to the insect, so are nitrate and sulphate of ammonia; but unless applied in a soluble form, they do not reach the wireworm; consequently, it is only in moist weather, or when the land is sufficiently moist to dissolve them, that their application is effective. In dry weather, therefore, the water-cart should follow the broadcast sowing-machine, if the two are not combined in the form of a broadcast liquid manure-distributor. Where town sewage or water is laid on to the land for irrigation, a free use of either in time is doubtless the best mode of getting rid of both wireworm and slug, as it not only kills them, but promotes the growth of those plants which have been cut through to a single root, and the tillering of others less injured, thereby filling the ground. Blanks may be filled up by transplanting corn of the same kind from a different field, or from patches of the same field which have escaped the ravages of the insects. The work is best done in moist weather. Twelve inches apart each way will tiller and fill the ground, if rich and in good heat, and the expense of transplanting is far less than some may imagine who have never tried it. When grass-land is attacked by wireworm, as it sometimes is, the best time for applying salt, &c., is when the insect first begins its work of destruction, as it is then less strong, and hence more easily destroyed. When nothing is done to arrest its ravages at the commencement, it cuts its way between the roots and sod, so that over large patches of the field the latter becomes separated from the former. In bad cases bushels of wireworms may be collected. A rich compost of lime should then be spread over the bare places, and Grass seeds bush-harrowed and rolled down. When old grass-lands are suspected—as they justly may be when cockchafers, click-beetles, and daddy-long-legs abounded on the pastures the previous season—they should frequently be examined during March, April, and May, and, as soon as observed, active measures should be taken to soak the roots of the Grasses, on which they live, with liquid manure such as the land and Grass require, the application to be followed by the clod-crusher and roller when dry. *W. B.*

Notices to Correspondents.

TOP-DRESSINGS: *Nottingham.* The earthen compost with 10 or 12 bushels of bone dust per acre will bring up Clovers; the same with one cwt. of nitrate of soda, and two or three cwts. of guano, will promote the luxuriant growth of the Grasses.

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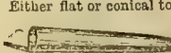
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6 ,, ,,	..	0 8	16 ,, ,,	..	3 6
7 ,, ,,	..	0 10	17 ,, ,,	..	4 0
8 ,, ,,	..	1 0	18 ,, ,,	..	5 0
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14½ by 11½	15 by 12	23 by 13	20 by 17						
15 by 11	15½ by 12½	18 by 14	22 by 17			14s 3d	16s 6d	18s 6d	20s 0d
15½ by 11½	16 by 12	22 by 14	24 by 17						
16 by 11	16½ by 12½	24 by 14	20 by 18						
21 by 11	17 by 12	22 by 15	22 by 18						
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Address, Benjamin Edgington (only), 2, Duke Street, London Bridge, S.E. No other Establishment.



H. BROOK and CO., Sole Manufacturers of the CHELTENHAM GARDEN ENGINE, which weighs only 3 lb. 1 oz., throws water in a continuous stream over 35 feet. To be had of all Ironmongers, and Wholesale only at 10, Featherstone Buildings, Holborn, London, W.C.
GARDEN HOSE and BRANCHES in great variety.

THE HYDRONETTE,
(Robins' Patent,) for Gardens, Greenhouses, Conservatories, Hotbeds, &c. Unrivalled ease of action, simplicity, convenience, and force.



The HYDRONETTE is a more useful, easy working, reliable, and convenient water-throwing machine than any other in use. It is made in five sizes, viz.:—No. 1, with 4 feet of Suction Hose, Strainer, Jet, and Rose, 12s. 6d.; No. 2, 15s. 6d.; No. 3, £1 1s.; No. 4, £1 5s.; No. 5, £1 10s. Extra Hose and Union Joints furnished to order. Forwarded on receipt of Post Office order by the Proprietors,
Haynes & Sons, 227, 229, and 231, Edgware Road, Paddington, W.

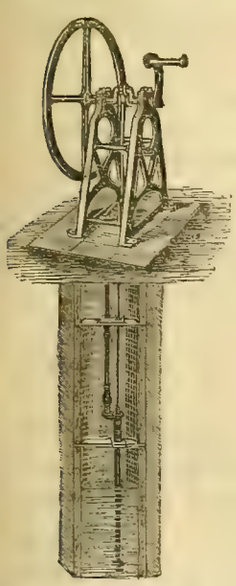
JOHN WARNER & SONS,

BELL AND BRASS FOUNDERS TO HER MAJESTY,

HYDRAULIC ENGINEERS,

8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

Illustrated and Priced Lists of WARNERS' HORTICULTURAL IMPLEMENTS, comprising GARDEN ENGINES, WATER BARROWS, PUMPS, SYRINGES, BRANCH PIPES, RUBBER HOSE, FOUNTAIN JETS, &c., will be sent upon application, or goods may be obtained from any Ironmonger or Seedsman at the Manufacturers' prices. Owing to the greatly increased demand for these engines during the last few years your early commands will oblige.



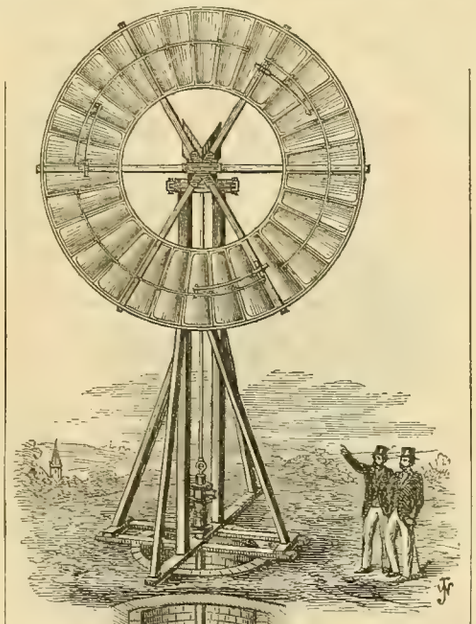
FRAMES & PUMPS FOR DEEP WELLS.



No. 35.

CAST-IRON PUMPS.

2½ inches	..	£1	8 6
3 ,,	..	2	1 0
3½ ,,	..	2	6 0
4 ,,	..	2	14 0

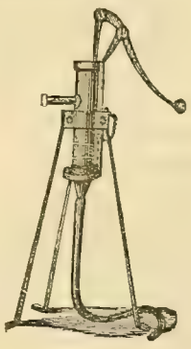


THE PATENT ANNULAR SAIL WIND ENGINE.

These Engines are adapted for Grinding, Chaff Cutting, &c., as well as for Pumping.

May be seen in action at their Factory as above.

Testimonials to the efficiency of Wind Engines for Pumping and other Agricultural purposes upon application. Drawing and Estimates for Wind Engines, Water Wheels, and Hydraulic Machinery of every description for Steam, Horse, or Hand Power will be forwarded upon application.

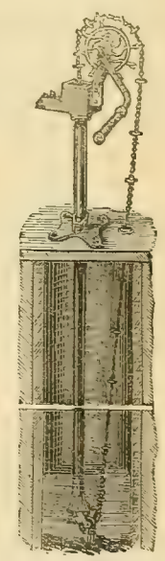


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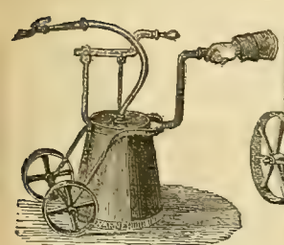
PORTABLE PUMP

With Improved Valves for Liquid Manure, £2 15s.

2-inch Flexible Rubber Suction Pipe, in 10, 12, and 15 ft. lengths, per foot, 2s. 5d.



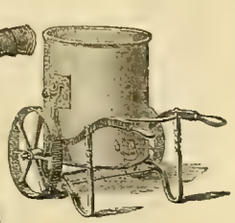
CHAIN PUMP FOR LIQUID MANURE.



No. 547B.

WARNERS' **GARDEN ENGINE**

Holds 6 gallons; is light, portable, and easily worked by a lady or child .. 50s.



No. 579½.

SWING WATER BARROW.

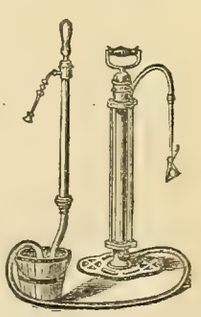
50 gallons	.. ..	£5	12 0
38 ,,	.. ..	3	17 0
30 ,,	.. ..	2	13 0
20 ,,	.. ..	2	2 0



No. 547A.

GARDEN ENGINE

28 gallons	..	£5	10 0
24 ,,	..	4	19 0
16 ,,	..	3	14 0
10 ,,	..	2	19 0



WARNERS' AQUAJECT

Useful for every variety of purpose—in watering or washing flowers or trees in Gardens, Conservatories, &c.; also, for washing Carriages or Windows, laying Dust, &c.

Price, complete .. £1 10 0
Small size for the hand, as an ordinary Syringe 0 15 0

NO IMPROVEMENTS OR ALTERATIONS FOR THE PRESENT SEASON, 1869,

IN

GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

THE Extraordinary Success of GREEN'S PATENT LAWN MOWERS is an established fact. During the last five years the demand has been unprecedented, which alone is a proof of their superiority over all others. The following are their characteristic features:—

1st. **Simplicity of Construction, every part being free of access.**
2d. **They are worked with far greater ease than any other Lawn Mower.**
3d. **They are the least liable to get out of order.**

From the fact that these MACHINES are so well known in Great Britain and Ireland, also on the Continent of Europe, T. GREEN AND SON do not deem it necessary to trouble the Public with a list of the numerous Testimonials that they have received from time to time, but would simply add,

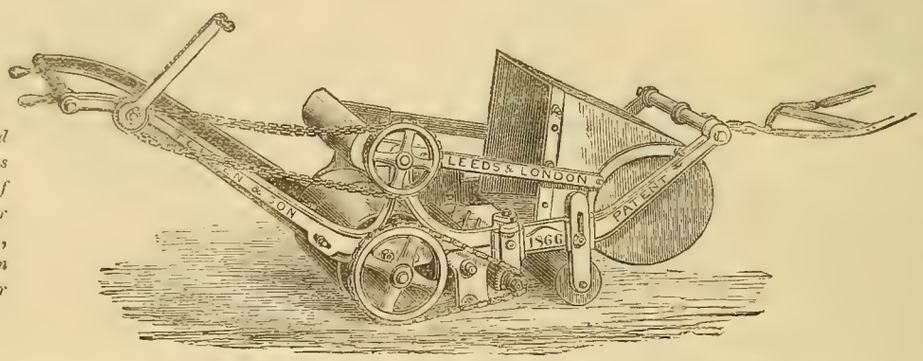
THEY ARE THE ONLY MACHINES IN CONSTANT USE AT

THE ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON
THE ROYAL BOTANIC GARDENS, REGENT'S PARK
THE CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM
BUCKINGHAM PALACE GARDENS
MARLBOROUGH HOUSE
THE HYDE PARK GARDENS
THE WINTER PALACE GARDENS, DUBLIN
THE DUBLIN BOTANIC GARDENS
THE LIVERPOOL BOTANIC GARDENS
THE LEEDS ROYAL PARK
THE HULL BOTANIC GARDENS
THE BOTANIC GARDENS, BRUSSELS
THE SUNDERLAND PARK
THE PRESTON PARK

AND IN MOST OF THE PRINCIPAL PARKS, SQUARES, ETC., IN THE UNITED KINGDOM.

HORSE, PONY, AND DONKEY MACHINE.

GREEN'S PATENT
LAWN MOWERS
have proved to be the best, and carried off every Prize that has been given in all cases of competition. Since the first year they were introduced (1856), *upwards of* 46,600 *have been sold, and* 25,000 *of that number during the last five seasons.*



T. GREEN & SON
warrant every Machine to give entire satisfaction, and if not approved of can be returned unconditionally.

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

PONY AND DONKEY MACHINES.

To Cut 26 inches	.. ..	.. £13 0 0	*Leather Boots for Donkey*, 18*s.* *Leather Boots for Pony*, 22*s.*
„ 28 „	.. .. ..	.. 15 0 0	
„ 30 „	.. .. ..	.. 17 0 0	

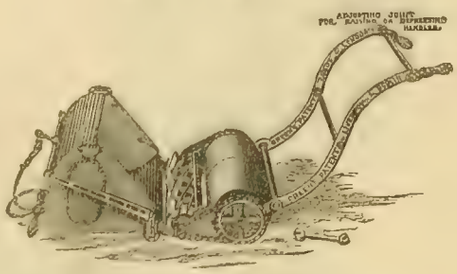
HORSE MACHINES.

To Cut 30 inches	.. ..	.. £21 0 0	*Leather Boots for Horse*, 26*s.*
„ 36 „	.. .. ..	.. 24 0 0	
„ 42 „	.. .. ..	.. 27 0 0	
„ 48 „	.. .. ..	.. 30 0 0	

Both the Horse, Pony, Donkey, and Hand Machines possess (over all other Makers) the advantage of Self-sharpening. The cutters being steel on each side, when they become dull or blunt by running one way round, the cylinder can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the Machine will cut equal to new. Arrangements are made that the cylinder can be reversed, by any inexperienced person, in two or three minutes.

HAND MACHINES.

To Cut 10 inches	.. £3 10 0	*Suitable for a Lady*	
„ 12 „	.. 4 10 0	„	„
„ 14 „	.. 5 10 0	*Suitable for One Person*	
„ 16 „	.. 6 10 0	„	„



To Cut 18 inches	.. £7 10 0	*Suitable for One Person.*	
„ 20 „	.. 8 0 0	*Suitable for Two Person s*	
„ 22 „	.. 8 10 0	„	„
„ 24 „	.. 9 0 0	„	„

Packing Cases are charged at the following low rates, viz.:—for the 10 and 12-inch Machine, 3*s.*; 14 and 16-inch, 4*s.*; 18 and 20-inch, 5*s.*; 22 and 24-inch, 6*s.* Parties providing themselves with Lawn Mowers are recommended to purchase the cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England, Ireland, and Scotland.

HORTICULTURAL and AGRICULTURAL IMPLEMENTS, GARDEN SEATS and CHAIRS, FOUNTAINS, VASES, PLAIN and GALVANISED WIRE NETTING, and ORNAMENTAL WIRE WORK of every description.

Having very extensive Premises in London, we are in a position to do all kinds of Repairs there, as well as at our Leeds Establishment.

Having a large quantity of MACHINES in stock at our Leeds and London Establishments, we are in a position to execute Orders on the day they are received.

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;
and 54 & 55, BLACKFRIARS ROAD, LONDON, S.

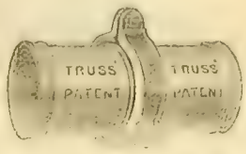
PORTABLE AND FIXED HOT-WATER APPARATUS,

FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH

TRUSS'S PATENT UNIVERSAL FLEXIBLE AND LEAKLESS PIPE-JOINTS.



T. S. TRUSS



Begs to state that the immense number of APPARATUS annually Designed and Erected by him in all parts of the Kingdom, and for the ROYAL HORTICULTURAL SOCIETY at SOUTH KENSINGTON and CHISWICK, with unrivalled satisfaction, is a guarantee for skill of design, superior materials, and good workmanship; while the great advantages obtained by his IMPROVED SYSTEM cannot be over-estimated, consisting of perfectly tight joints with neatness of appearance; EFFECTS A SAVING OF 25 PER CENT. on cost of Apparatus erected compared with other systems; facility for extensions, alterations or removals without injury to Pipes or Joints; can be erected by any Gardener; an ordinary size Apparatus erected in one day; and PERFECTNESS of DESIGN SUPPLIED, INSURING NO EXTRAS. Complete Apparatus, of the best materials, delivered to any Railway Station in England, and Erected at the following prices. Erection beyond 25 miles of London, railway fare for one man additional. Considerable reduction on large works.

TWO FOUR-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
20 feet by 10 feet ..	£9 0 0 ..	£2 0 0	50 feet by 15 feet ..	£17 10 0 ..	£3 0 0
30 feet by 12 feet ..	11 15 0 ..	2 10 0	75 feet by 15 feet ..	20 0 0 ..	3 0 0
40 feet by 15 feet ..	15 0 0 ..	2 15 0	100 feet by 15 feet ..	26 0 0 ..	3 5 0

Bath and Gas Work erected in town or country. **The Trade Supplied.**

Price Lists, Plans, and Estimates forwarded on application to

T. S. TRUSS, C.E., CONSULTING HORTICULTURAL ENGINEER, &c., SOLE MANUFACTURER, IRON MERCHANT, HOT-WATER APPARATUS MANUFACTURER, AND HORTICULTURAL BUILDER,

FRIAR STREET, BLACKFRIARS ROAD, LONDON, S.E.

SIR J. PAXTON'S PATENT HOTHOUSES for the MILLION, are cheap, substantial, and easily fixed.

Illustrated Price Lists, with sizes, &c., free on application.

ESTIMATES given for CONSERVATORIES, HEATING APPARATUS, &c.

A HANDBOOK of VINE and FRUIT-TREE CULTIVATION, post free, 13d.

HEREMAN & MORTON, 7, Pall Mall East, London, S.W.

Works in London, Gloucester, Coventry, and Scotland.

HOT-WATER APPARATUS of every description, fixed complete in any part of the country, for Warming Greenhouses, Conservatories, Forcing Pits, &c.

Plans and Estimates on application.

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HOT-WATER PIPES, BOILERS, &c., &c., delivered in London, Liverpool, Bristol, or equivalent.

Large stock kept at the Works.

	2-inch.	3-inch.	3½-inch.	4-inch.
	s. d.	s. d.	s. d.	s. d.
HOT-WATER PIPES—per yard	0 11	1 5	1 8½	1 11
ELBOWS .. .. .. each	1 4	2 1	2 6	2 9
TEES .. .. „	2 0	3 0	3 6	4 0
SYPHONS .. .. „	1 9	3 0	3 6	4 0
VALVES .. .. „	10 0	11 6	12 0	13 0

Nett cash prices on receipt of invoice.

GEORGE ROBINSON, The Dial Iron Works, Stourbridge; and Paddington Basin, 16 Wharf, three minutes' walk from Bishop's Road and Paddington Stations.

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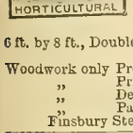
W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, S.E.

	2-inch.	3-inch.	4-inch
HOT-WATER PIPES, from stock—p. yard	1s. 0d.	1s. 6d.	2s. 0d
ELBOWS for ditto .. .. .. each	1 6	2 3	2 9
TEES .. .. „	2 3	3 6	4 6
SYPHONS .. .. „	2 3	3 6	4 6
THROTTLE VALVES .. .. .. „	10 0	11 6	13 0

Cash remittance with order.

N.B. All Goods of first-class manufacture. No second quality kept. Estimates given, and orders punctually attended to the same day.

W. H. LASCELLES' MACHINE-MADE MELON LIGHTS. Each.



6 ft. by 4 ft. Lights, 2 ins. thick, unglazed	£0 5 0
„ „ Primed and Glazed with 10 oz. Sheet	0 11 0
„ „ with stout Portable Box, not Painted..	1 3 0
„ „ Painted four coats, and Handles on	1 8 0
„ „ Packed and Delivered in Railway Van..	1 10 0
6 ft. by 8 ft., Double Lights, do.	2 15 0

GREENHOUSES. Per ft. super.

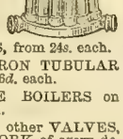
Woodwork only Prepared and Fitted	0 0 6
„ Primed and Glazed with 16 oz. Sheet ..	0 0 9
„ Delivered, and Fixed with Ironwork ..	0 1 0
„ Painted four coats, two sides, ready for use	0 1 3

Finsbury Steam Joinery Works, 121, Bunhill Row, E.C.

HOT-WATER APPARATUS Erected Complete, or the Materials Supplied for Heating GREENHOUSES, HOTHOUSES, CONSERVATORIES, CHURCHES, PUBLIC BUILDINGS, &c.

Peill's Conical. Tubular Boiler.





HOT-WATER PIPES at wholesale prices, Elbows, T Pieces, Syphons, and every other connection kept in stock.

WROUGHT and CAST IRON CONICAL, SADDLE, and IMPROVED PEILL'S and ELLIPTIC BOILERS, from 24s. each.

IMPROVED and EXTRA STRONG CAST IRON TUBULAR BOILERS, with or without Water Bars, from 52s. 6d. each.

CAST and WROUGHT IRON PORTABLE BOILERS on STAND, for use without brickwork, from 60s. each.

PATENT and IMPROVED THROTTLE and other VALVES, FURNACE DOORS, BARS, and FURNACE WORK of every description and size.

LYNCH WHITE,
Old Barge Iron Wharf, Upper Ground Street, London, S.E.
(Surrey side Blackfriars Bridge).

Price List on application.

JAMES WATTS AND CO., HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, 353, Old Kent Road, London, S.E.



200 CUCUMBER and MELON BOXES and LIGHTS, all sizes, Glazed and Painted complete, ready for immediate use, packed and sent to all parts of the Kingdom.

Strong ZINC HAND-GLASSES, all sizes.

References to the Nobility, Gentry, and Trade in most of the Counties in England.

HOT-WATER PIPES. CASH PRICES.

	2-inch.	3-inch.	4-inch.
	1s. 0d.	1s. 6d.	2s. 0d.
PIPES .. .. per yard			
ELBOWS .. .. each	1 6	2 3	3 0
TEES .. .. „	2 6	3 6	4 6
SYPHONS .. .. „	2 6	3 6	4 6
VALVES .. .. „	10 0	11 6	13 0

No credit will be given when Pipes, &c., are invoiced at the above prices.

J. JONES AND SONS,
6, Bankside, Southwark, London, S.E.

Price Lists, with terms for credit and for delivery at country stations, will be sent on application.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.

For particulars apply to JOHN FOWLER & Co., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

IRON HURDLES (Silver Medal of the Royal Agricultural Society):
SHEEP, 3s. 5d.; CATTLE, 4s. 2d.; OX, 5s. 11d.
List by post. GATES and FENCING of every description.
St. Pancras Iron Work Company, Old St. Pancras Road, London, N.W.

DINNEFORD'S FLUID MAGNESIA.—The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion; and the best mild aperient for delicate constitutions, especially adapted for Ladies, Children, and Infants.

DINNEFORD & Co., 172, New Bond Street, London; and of all Chemists throughout the World.

MR. EDWIN COOLING, HORTICULTURAL VALUER, Mile Ash, Derby.

MR. A. CHANDLER, HORTICULTURAL AGENT and VALUER, 10, Wynell Road, Forest Hill, S.E.

N.B.—Valuations made of Nursery Stock, Private Collections of Plants, and everything connected with Horticulture.

TO BE DISPOSED OF, with immediate possession, an established, well-stocked NURSERY, within three miles of the Metropolis and Covent Garden Market, with Lease, including four Dwelling-houses, producing £100 per annum. The ground comprises an area of about Two Acres, Hot-water Pits, Stable, &c., and every appliance suitable for carrying on a large business. Part of the Purchase-money many remain on mortgage.

For particulars apply to Messrs. MILLS & LOCKYER, Solicitors, 2, Brunswick Place, City Road, London, E.C.

Sales by Auction.

Annual Sale of Bedding and other Plants.

MR. W. ABRAHAM begs to announce he has received instructions from Mr. Kaile, proprietor of the Godalming Nursery, Surrey, to SELL by AUCTION, on the Premises, on TUESDAY, May 18, at 1 for 2 o'Clock punctually, nearly 20,000 BEDDING, STOVE and GREENHOUSE PLANTS, consisting of Scarlet, Variegated, Zonal, Double, and other Geraniums; Verbenas, Calceolarias, Petunias, Heliotropes, Perillas, Iresines, Coleus, with Collections for Window Decoration, Hardy Creepers, &c.

On view the day prior and Morning of Sale; and Catalogues to be had on the Premises, the "Red Lion," Guildford; and of Mr. W. ABRAHAM, Horticultural Auctioneer, Valuer, &c., Goldworth Nurseries, Woking, Surrey.

Coventry Nurseries.

MESSRS. PROTHEROE AND MORRIS respectfully inform the Public, that the COVENTRY NURSERIES and SEED BUSINESS, with the whole of the indoor and outdoor Stock, Greenhouses, Pits, and Entire Stock in Trade, as offered in one lot at Garraway's, Change Alley, Cornhill, on Thursday, April 29, was not sold, and may now be purchased by PRIVATE CONTRACT, at great advantage to an incoming Tenant.

For particulars, apply to Mr. OLDEN, on the Premises; or of the Auctioneers, Leytonstone, N.E.

Manor House, Shacklewell.

CLEARANCE SALE OF GREENHOUSE AND BEDDING PLANTS, &c.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Thomas Crowder, Esq., to SELL by AUCTION, without Reserve, on the Premises, Manor House, Shacklewell, N., on TUESDAY, May 11, at 12 for 1 o'Clock precisely, the whole of the GREENHOUSE and BEDDING PLANTS, consisting of choice Azalea indica, Veronica Hender-oni, Cytisus, Cinerarias, Fuchsias, Pelargoniums, &c.; about 5000 well-grown Geraniums; also a quantity of Calceolaria aurea, Intermediate Stocks, Verbenas, &c.; also some large Chrysanthemums in Pots; Vases, Garden Implements, &c.

On view the day prior to Sale; Catalogues had on the Premises, and of the Auctioneers and Valuers, Leytonstone, Essex, N.E.

Alexandra Palace, Muswell Hill.

VERY EXTENSIVE SALE OF 100,000 BEDDING AND GREEN HOUSE PLANTS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Alexandra Palace, Muswell Hill, N., adjoining the Wood Green Station, on the Great Northern Railway, on WEDNESDAY, May 12, at 11 o'clock precisely, by order of the Directors of the Alexandra Palace Company (Limited), without reserve, the SURPLUS STOCK, about 100,000 BEDDING and GREENHOUSE PLANTS, comprising 40,000 Scarlet Variegated Zonal and other Geraniums, 1000 Fuchsias, 2000 Miscellaneous Greenhouse Plants, 6000 Carnations and Picotees in beds, 2500 Alyssum, 3000 Lobelia speciosa, 1000 Gazania splendens, 2000 Tropæolum, Jacobæa, Ageratum; 2000 Verbenas, 500 Lagopodium and Isolepis, 1000 Cerastium, 6000 Bedding Plants in Store Pots, &c.

May be viewed two days previous and Morning of Sale. Catalogues may be obtained, 6d. each (returnable to purchasers), of Mr. MCKENZIE, on the Premises; and of Mr. THOS. DIXON, Secretary, Ethelburga House, 70, Bishopsgate Street, E.C.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at 38, Gracechurch Street, E.C., on THURSDAY, May 13, at half-past 12 o'Clock precisely, a Choice Collection of GREENHOUSE PLANTS, including PELARGONIUMS, GERANIUMS, AZALEA INDICA, CALCEOLARIAS, &c., in Flower; a Superb Assortment of Plants for Bedding, CARNATIONS and PICOTEES, RHODODENDRONS, KALMIAS, HARDY CLIMBERS, &c.

On view the Morning of Sale. Catalogues may be had at the Rooms, and of the Auctioneers and Valuers, Leytonstone, Essex.

Hammersmith, W.

IMPORTANT SALE OF ABOUT 25,000 BEDDING PLANTS, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Herridge, to SELL by AUCTION, without Reserve, on the Premises, The Nursery, Fulham Road, Hammersmith, W., on MONDAY, May 17, at 11 for 12 o'Clock precisely, about 7000 GERANIUMS of sorts, including Mrs. Pollock, Stella, Madame Hardy, Madame Vaucher, &c.; 4000 CALCEOLARIA AUREA, 5000 LOBELIA SPECIOSA, 3000 VERBENAS of sorts, 2000 INTERMEDIATE STOCKS, GOLDEN FYRETHRUM, HELIOTROPES, &c.; also about 1000 MISCELLANEOUS GREENHOUSE PLANTS, comprising Pelargoniums, Hydrangeas, Callas, Fuchsias, &c.

On view two days prior to the Sale; Catalogues may be had on the Premises and of the Auctioneers and Valuers.

Shepherd's Bush.

IMPORTANT SALE OF TRICOLOR GERANIUMS, NEW COLEUS, BEDDING PLANTS, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. T. Hawkins to SELL by AUCTION, without Reserve, on the Premises, Oakland's Nursery, Shepherd's Bush, on THURSDAY, May 20, at 11 for 12 o'Clock precisely, about 8500 GERANIUMS, consisting of Lady Cullum, Lucy Grieve, Sophie Dumaresque, Sophia Nassack, Sunset, Italia Unita, Beauty of Oulton, Beauty of Calderdale, Beauty of Ribbledale, Perilla, &c.; Baroness Rothschild and Princess Beatrice COLEUSES; also 500 Coleuses, bushy and well-coloured, suitable for immediate decoration; about 20,000 BEDDING PLANTS, consisting of Stella, Cybister, Rubeka, Dr. Lindley, Christine, Ellen Lindsay, and other Geraniums; Centaurea candidissima, Ageratums, Lobelia, Iresine Herbstii, &c.

May be viewed on days previous and Morning of Sale. Catalogues may be had on the Premises; and of the Auctioneers and Valuers, Leytonstone, N.E.

Preliminary Notice.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, American Nurseries, Leytonstone, on TUESDAY, May 25, a large quantity of GREENHOUSE and BEDDING PLANTS, including 7000 beautifully grown GERANIUMS, &c.

Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 13, at half-past 12 o'Clock precisely, CHOICE IMPORTED ORCHIDS, consisting of Saccolabiums, Cymbidiums, Aerides, Vandas, Cœlogynes, 250 Odontoglossum Ehrenbergii, Epidendrums, Lælias, 150 Cattleya Mossiæ, Stanhopeas, &c., &c.

On view the Morning of Sale, and Catalogues had.

Bedding Plants.—A Collection of Ferns, Begonias, and GREENHOUSE PLANTS, and a GREENHOUSE, 24 feet by 12 feet, with Hot-water Apparatus.

MR. SHORTER will SELL the above, at the Railway Hotel, Caterham, on WEDNESDAY, May 12, instead of Monday, at 2 o'Clock punctually.

May be viewed, and Catalogues had at the Hotel of Mr. SHORTER, Oxted, and at the Inns in the neighbourhood.

Thursday Next.—Cliveden, Maidenhead.

A LARGE ASSORTMENT of very CHOICE BEDDING and other PLANTS.

FAREBROTHER, LYE, AND WHEELER are instructed to SELL by AUCTION, on His Grace the Duke of Sutherland's Estate, on THURSDAY NEXT, May 13, at 12 o'Clock, several thousands of the choicest and newest varieties of GERANIUMS, also a numerous collection of FOLIAGE and other PLANTS, comprising Coleus, Centaureas, Caladiums, Variegated Pines, Palms, Ferns, &c.

May be viewed the day prior and morning of Sale, and Catalogues had of Mr. FLEMING on the Estate, at the *Express* Office, Windsor; the *Mercury*, Reading; the *Bucks Free Press*, Wycombe; and at the Offices of Messrs. FAREBROTHER, LYE & WHEELER, Land Agents and Auctioneers, 8, Lancaster Place, Strand, London, W.C.

Sale of Shorthorns at Ridlington, Rutland.

MR. JOHN THORNTON will SELL by AUCTION, without any reserve, at Ridlington, near Uppingham, on THURSDAY, May 13, Mr. Wortley's entire Herd of PURE-BRED SHORTHORNS, numbering between FIFTY and SIXTY HEAD, and comprising several animals of the fashionable Bates and Booth Blood, as well as others of the strain from which Mr. Baker reared his prize oxen. Imperial Count (24,183), and Highland Chief (24,142), of prize Booth blood, have recently been used.

Catalogues with pedigrees may be had of JOHN THORNTON, 15, Langham Place, London, W., or at Ridlington.

Unreserved Sale of the late Mr. G. W. Robert's Herd of Pure-Bred Shorthorns.

MR. JOHN THORNTON will SELL by AUCTION, at 3 o'Clock, on TUESDAY, May 25 (and not the 11th as advertised), at Hitchin, Great Northern Railway, the entire HERD of PURE-BRED SHORTHORNS belonging to the late Mr. G. W. Roberts, of King's Walden, Herts. It comprises about 40 Head of Highly Bred Animals, descended from the Wiseton and other famous herds. The Sires have been of prize Booth blood, and Baron Tour (23,320), the last bull used, will be included in the Sale.

Catalogues with Pedigrees may be had of JOHN THORNTON, 15, Langham Place, London, N.W.

SHANKS'S PATENT LAWN MOWERS FOR 1869.

UNDER THE PATRONAGE
OF
HER MOST GRACIOUS MAJESTY
THE QUEEN,

AND MOST OF THE
PRINCIPAL NOBILITY
OF
GREAT BRITAIN.

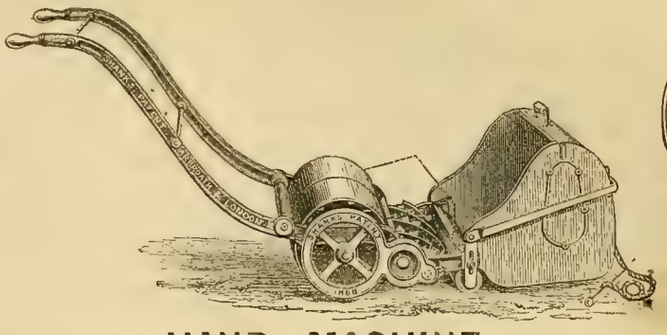
The Patent Improvements recently introduced give Shanks's Machine several important advantages possessed by no other Lawn Mower.

PATENT DOUBLE-EDGED SOLE PLATE, WIND GUARD, &c., &c.

THE UNPRECEDENTED SALE FOR 1868 BEARS TESTIMONY HOW MUCH THESE ADVANTAGES HAVE BEEN APPRECIATED.



THE FIRST PRIZE MEDAL
OF THE
INTERNATIONAL EXHIBITION,
LONDON, 1862.



HAND MACHINE.



THE FIRST PRIZE SILVER MEDAL
OF THE
UNIVERSAL EXHIBITION,
PARIS, 1867.

ALEXANDER SHANKS AND SON, in presenting their "PRICE LIST of LAWN MOWERS for 1869," have much satisfaction in intimating that among all the Exhibitors of Lawn Mowers at the Universal Exhibition of 1867, they are the only Firm to whom the Jury have awarded a Medal.

A. S. AND SON have, in addition to the PATENT DOUBLE-EDGED SOLE PLATE and WIND GUARD, made very great Alterations and Improvements in their Machine. These alterations, which were introduced last Season, have now undergone an effectual trial, and the result has been so successful as to enable A. S. AND SON to offer a Machine which far excels any other that has ever yet been offered, *whether for ease in working, certainty of action, or durability.* It has only to be compared with other Machines, when its superiority will be at once seen and understood.

PRICES—INCLUDING CARRIAGE TO ANY RAILWAY STATION OR SHIPPING PORT IN THE KINGDOM.

SHANKS'S NEW PATENT HAND MACHINE.

		Easily Worked
10-inch Machine	£3 10 0	*By a Lady*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*By a Boy*
16-inch Machine	£6 10 0	*By a Man*
19-inch Machine	7 15 0	*By a Man and a Boy*
22-inch Machine	8 10 0	*By Two Men*
24-inch Machine	9 0 0	

The Hand Machines are all with Silent Movement.

SHANKS'S NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* ,,
30-inch Machine	15 15 0	30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra.
Boots for Pony, 22*s.* per set.; Ditto for Donkey, 18*s.* per set.

SHANKS'S NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* ,,
42-inch Machine	26 0 0	40*s.* ,,
48-inch Machine	28 0 0	40*s.* ,,

Silent Movement, 20*s.* extra. Boots for Horse, 26*s.* per set.

SHANKS'S PATENT LAWN MOWERS

ARE THE ONLY ONES IN DAILY USE IN THE

ROYAL GARDENS AT KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, AND BALMORAL;
IN THE GARDENS OF THE ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON;
IN THE GROUNDS OF THE CRYSTAL PALACE COMPANY, AT SYDENHAM;
IN HYDE PARK, IN VICTORIA PARK, IN BATTERSEA PARK;

And in many hundreds of the principal Gardens in the Kingdom, as well as abroad, where their merits have been fully proved and their success firmly established.

Every Machine warranted to give ample satisfaction, and, if not approved of, can be at once returned.

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH,
AND
27, LEADENHALL STREET, LONDON.

27, *Leadenhall Street is the only place in London where intending purchasers of Lawn Mowers can choose from a Stock of from* 150 *to* 200 *Machines. All sizes kept there, whether for Horse, Pony, or Hand Power.*

Editorial Communications should be addressed to "The Editor," Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by JAMES MATTHEWS, at the Office of Messrs. BRADBURY, EVANS & Co., Lombard Street, Precinct of Whitefriars, City of London, in the Co. of Middlesex, and Published by the said JAMES MATTHEWS, at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, May 8, 1869.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 20.—1869.] SATURDAY, MAY 15. {Price Fivepence. STAMPED EDITION, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.
SPECIAL PRIZE and PELARGONIUM SHOW, on SATURDAY, May 22. Band of Royal Horse Guards from 4. Doors open at 2. Tickets of principal Musicsellers (bought before the 22d), Fellows' Friends, 2s. 6d.; Public, 3s. 6d.; or on the day, 5s.

ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.
NOTICE to EXHIBITORS.—In the Schedules for 1870, there will be CLASSES for STOVE and GREENHOUSE PLANTS, AZALEAS, and HEATHS, in pots limited to 12 inches, and for FERNS and FOLIAGE PLANTS, in pots limited to 14 inches.

ROYAL BOTANIC SOCIETY'S GARDENS, REGENT'S PARK.—FIRST SUMMER EXHIBITION of PLANTS and FLOWERS (Two Days), WEDNESDAY and THURSDAY NEXT, May 19 and 20. Tickets to be obtained at the Gardens, and of the Society's Clerk, Austin's Ticket Office, St. James's Hall, Piccadilly; on the orders from Fellows of the Society, price 5s.; and on the days of Exhibition, 7s. 6d. each.

LINNEAN SOCIETY, Burlington House, Piccadilly.—The ANNIVERSARY MEETING of this SOCIETY will be held on MONDAY, the 24th inst., at 3 o'Clock precisely, for the ELECTION of a COUNCIL and OFFICERS for the ensuing year.
GEORGE BUSK, Secretary.

READING HORTICULTURAL SOCIETY.—The SPRING SHOW will be held on THURSDAY, May 27 (by permission of the Mayor), in the ABBEY RUINS, READING. A Band will attend as usual. The Show will be open to the holders of Subscribers Tickets at 1 o'clock, and to the Public at 4 on payment of 1s. All ENTRIES should be made on or before MAY 20, to CHARLES COLLINS, Hon. Sec., 34, Chain Street, of whom Schedules and all information can be procured.

SPALDING HORTICULTURAL FETE, FLOWER, FRUIT, &c. SHOW.—The ANNUAL EXHIBITION will be held in the GROUNDS of AYSCOUGHFEE HALL, on THURSDAY, June 24. Schedules may be had on application. Band of the Royal Horse Guards,
GEO. F. BARRELL, Hon. Sec.

BIRMINGHAM ROSE SHOW, JULY 1 and 2.—For Prize Lists, apply to Mr. A. FORREST, Secretary, Cherry Street, Birmingham. ENTRIES CLOSE JUNE 26.

LEICESTERSHIRE HORTICULTURAL SOCIETY.—The GREAT SUMMER SHOW of this Society will be held at LEICESTER, on JULY 6 and 7 next, when Special Prizes will be given for Cut Roses and Collections of Bedding Plants, arranged for effect in pots, open to all England. Prizes will also be offered for British and Foreign Cage Birds.
Schedules and particulars may be had of the Secretary,
WM. PENN COX, 37, Market Place, Leicester.

NOTICE.—The AMERICAN PLANTS at KNAP HILL will be in their greatest beauty during the ensuing three weeks, and may be seen daily. The Nursery is readily reached by Train to the Woking Station.
ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.—May 17.

W. DILLISTONE, HORTICULTURAL AGENT, begs to offer his services as JUDGE to any of the forthcoming HORTICULTURAL EXHIBITIONS. Twenty-five years' practical experience. Sible Hedingham, Essex.

Pines.
B. S. WILLIAMS has all the best kinds, in splendid condition, warranted clean. Prices on application.
B. S. WILLIAMS, Seed Merchant and Nurseryman, Upper Holloway, London, N.

Royal Ascot or Perpetual Vine.
MESSRS. JOHN STANDISH AND CO. are now selling fine strong plants of this extraordinarily productive VINE at 21s., 42s., and 63s. each.
Royal Nurseries, Ascot, Berks.

ORCHARD-HOUSE TREES Fruiting in Pots.—Peaches, Nectarines, Apricots, Cherries, Plums, Pears, Apples, Vines, and Figs.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

CENTAUREA CANDIDISSIMA (Ragusina).
Price per dozen or hundred on application to
WM. DILLISTONE, Nurseryman, Sible Hedingham, Essex.

ALLAMANDA WARDLEIANA.—This magnificent plant is NOW READY, at 21s. each.
A Coloured Plate by Andrews, taken in December, post free for 13 stamps.—R. TANTON, F.R.H.S., Epsom Nurseries, Surrey.

Sow Now.
TREE MIGNONETTE SEED, saved from exhibition plants, 2s. 6d. per packet.
R. TANTON, F.R.H.S., The Nurseries, Epsom, Surrey.

Selling off at a Great Reduction.
DAHLIAS, HOLLYHOCKS and BEDDING PLANTS of every description.
JOHN HARRISON begs to inform his Friends and Patrons that he is now selling off the whole of his Stock of DAHLIAS and BEDDING PLANTS at prices that will defy competition, in order to make room for Roses, &c.
Darlington Nursery, May 8.

"MR. PAUL'S ROSES * * * are things to see once and dream of for ever."—*Athenæum.*
WM. PAUL begs to announce that his CATALOGUE of ROSES is now ready, and will be forwarded free on application.
PAUL'S Nurseries, Waltham Cross, London, N.

NEW ROSES.—Twelve of the best of 1869, in 6-inch pots, for 36s. Fine BEDDING PLANTS, including Mrs. Pollock, 25s. per 100, cash. Baskets and packing included.
GEORGE DAVISON, White Cross Nurseries, Hereford.

NEW ROSES of 1869.—Fine Strong Plants, ready for planting out, own selection, 18s. per dozen; purchaser's selection, 24s. per dozen.
J. HARRISON, North of England Rose Nursery, Darlington, May 13.

WANTED, large, extra strong ROSES in pots, for forcing next season, also Double DAISIES, PRIMROSES, POLYANTHUSES, &c., and other Hardy Plants suitable for early Spring decoration. State price and other particulars to
EDWARD BENNETT, Osberton Hall, Worksop.

Established 1806.
T. HANDASYDE AND DAVIDSON have a large stock of DAHLIAS and ROSES in Pots. Special prices to the Trade on application.
Seed Warehouse, 24, Cockburn Street, Edinburgh.
Nurseries, Brunstain Glen, Musselburgh.

VERBENAS, VERBENAS, VERBENAS.—By dozen, hundred, or thousand, extra strong plants, consisting of Scarlet, White, and Purple, &c.; well established, in 60-size pots. For price apply to
JOHN PERKINS, Sen., 52, Market Square, Northampton.

OSBORNS' PURPLE BEDDING VERBENA.—Plants are now being sent out of the above at the following prices:—One plant, 2s. 6d.; 12 plants, 18s.; 50 plants, 60s.; 100 plants, 100s. For description and Testimonials, see previous Advertisements. The usual Trade discount.
OSBORN & SONS, Fulham Nursery, London, S.W.

New Verbenas.
WM. KNIGHT will be ready to send out his six splendid SEEDLING VERBENAS on and after May 1, at 3s. 6d. each. They were all awarded First-class Certificates at the Brighton September Show, 1868. The usual discount to the Trade.
Floral Nursery, Hailsham, Sussex.

Verbenas, Verbenas.
PHILIP LADDS is now sending out VERBENAS and LOBELIAS, at 1s. 6d. per dozen.
8 NEW GOLDEN COLEUS, of the Royal Horticultural Society, 1869. The 8 for 6s., free by post.
12 NEW COLEUS of the Royal Horticultural Society, 1868, for 2s.
Nursery, Bexley Heath, Kent.

NEW COLEUS.—The 12 New Coleus of the Royal Horticultural Society, sent out in 1868, with other fine varieties, sent post free—12 fine varieties for 2s. 6d.; 12 cuttings, in 12 fine varieties, for 1s. 2d., from
B. W. KNIGHT, Florist, Battle, Sussex.

NEW DOUBLE GERANIUMS.—Twelve fine varieties Double Zonal Geraniums, including Madame Lemoine, for 18s.; 12 best New Zonal Geraniums of 1868 for 6s.; 12 fine varieties Gold and Golden Bicoloured Geraniums for 6s., package included, from B. W. KNIGHT, Florist, Battle, Sussex.

Specimen Tricolor and Bicolor Geraniums.
F. AND A. SMITH have a large stock of most of their varieties, in various sizes, suitable for exhibition, and now in good colour. An inspection respectfully invited.
The Nurseries, West Dulwich, S.E.

Bronze and Gold Geraniums at Bedding Prices.
T. L. MAYOS' CATALOGUE of NEW and CHOICE PLANTS is now ready, containing a Select List of the newest and best varieties of PELARGONIUMS, FUCHSIAS, DAHLIAS, &c., at greatly reduced prices. Forwarded to all applicants on receipt of one stamp.
Lugwardine, Hereford.

Special Offer to the Trade.
MADAME LEMOINE, the finest Double PELARGONIUM ever sent out, strong plants, in single pots, 12s. per dozen; GLOIRE DE NANCY, strong plants, 3s. 6d. per dozen.
Package included. Terms cash.
WILLIAM BADMAN, Cemetery Nursery, Gravesend.

Bedding Plants.
JOSEPH WESTLEY invites the special attention of the Trade and intending purchasers, to his large and fine stock of BEDDING and other PLANTS. Inspection invited.
CATALOGUES free on application.
The Floral Nursery, Blisworth, near Northampton.

Choice Seeds, Gladioli, &c.
WM. CUTBUSH AND SON'S CATALOGUE of the above contains description and price of many very superior home-grown VEGETABLE and FLOWER SEEDS, and choice varieties of GLADIOLI, &c., all of which are highly recommended. Post free on application.
Highgate Nurseries, London, N.

Gratis and Post Free.
DICK RADCLYFFE AND CO.'S LIST of BEDDING PLANTS, FERNS, FERN CASES, &c.
129, High Holborn, W.C.

JOHN STANDISH AND CO.'S SPRING CATALOGUE of NEW and RARE, SUBTROPICAL and BEDDING PLANTS is now ready. May be had post free on application.
Royal Nurseries, Ascot.—May 1.

New Spring Catalogue.
CHARLES TURNER'S DESCRIPTIVE LIST of PLANTS for this season, including many new varieties now offered for the first time, is now ready.
The Royal Nursery, Slough.

ARTHUR HENDERSON AND CO.'S GENERAL PLANT CATALOGUE is now published, containing Ferns, Greenhouse and Stove Plants, New and Rare Plants, Bedding Plants, best Pelargoniums, Dahlias, and other Decorative Plants for Summer Gardening; also Herbaceous Plants.
Pine Apple Place, Maida Vale, London, W.

General Catalogue.
WILLIAM ROLLISSON AND SONS beg to inform the Nobility, Gentry, and Trade that their NEW GENERAL CATALOGUE, consisting of upwards of 150 pages of letterpress, and containing nearly every Plant, Shrub, or Tree worthy of merit in cultivation, is now Published, and will be forwarded to applicants on receipt of eight postage stamps, and sent gratis to customers.
The Nurseries, Tooting, London, S.W.

British Fern Catalogue.
ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, Sidcup Hill, Kent.

FERNS.—Choice and Select EXOTIC FERNS and LYCOPODS, in great variety, are now offered in good plants, 12 fine varieties for 6s.; larger plants and more select kinds from 9s., 12s., 20s., to 30s. per dozen. Package included.
B. W. KNIGHT, Florist, Battle, Sussex.

Ferns, British and Exotic, at reduced prices.
A. STANSFIELD AND SON beg to state that their CATALOGUE, No. 8, is now ready, and will be forwarded on receipt of three stamps. The above Catalogue contains 40 pages of matter, including partial descriptions and cultural remarks.
Vale Nurseries, Todmorden, Lancashire.

ALSOPHILA EXCELSA.—The Subscribers offer a few plants of the above fine Tree Fern as follows:—Specimens with fronds 4 to 6 feet long, 10s. 6d. to 42s. each.
A. STANSFIELD & SON, Vale Nurseries, Todmorden, Lancashire.

Spring Flowers.
THOMAS S. WARE respectfully solicits an inspection of his SPRING FLOWERS. Upwards of 100,000 are now in full bloom, and can be seen daily.
Hale Farm Nurseries, Tottenham, Middlesex, N.E.

Azalea indica.
J. IVERY AND SON'S splendid Collection of the above is NOW in BLOOM, and will continue until the middle of June to be well worth inspecting, as will also their fine Collection of BRITISH FERNS. Dorking Nursery, May 3.

NEW CHRYSANTHEMUMS of 1868, including the New Japan, large-flowered and Pompon varieties, sent out in 1868, sent post free, 12 fine varieties, 2s. 6d.; 12 Cuttings in 12 fine varieties, 1s. 2d., from
B. W. KNIGHT, Florist, Battle, Sussex.

New Chrysanthemums, Pyrethrums, &c.
JOHN SALTER AND SON beg to announce that they are now sending out their NEW JAPANESE and other CHRYSANTHEMUMS, PYRETHRUMS, &c. A DESCRIPTIVE CATALOGUE will be forwarded on receipt of two postage stamps.
Versailles Nursery, William Street, Vale Place, Hammersmith, W. (near Kensington Railway Station).

Gladioli, the most Extensive Collection.
BARR AND SUGDEN, 12, King Street, Covent Garden, W.C., have the finest and largest collection of GLADIOLI ever offered, prices varying from 2d. to 15s. per root. For particulars see pp. 68, 69, 70, and 71 of B. & S.'s SPRING SEED CATALOGUE.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

Market Gardens, Biggleswade, Beds.
RICHARD WALKER can supply for cash the SCARLET KING DAISIES, 5s. per 100; WALCHEREN CAULIFLOWER PLANTS (true), 1s. 6d. per 100; Green KOHL RABI seed, the best ever offered, 1s. per lb.; WALLFLOWER seed (mixed), 2s. 6d. per lb. R. W. has about 5 cwt. of AMERICAN RED POTATOS left, at 30s. per cwt.; smaller quantities at the same rate.

EVERY GARDEN REQUISITE KEPT in STOCK at
CARTER'S New Seed Warehouse, 237 and 238, High Holborn, London.

CARTER'S FARM SEEDS.—See large Advertisement at page 386 of *Gardeners' Chronicle*, April 10, 1869.
SEED GROWERS, MERCHANTS, and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

GRASS SEEDS: WHEN and WHAT to SOW.—For the fullest information on this subject, see CARTER'S ILLUSTRATED FARMER'S CALENDAR for 1869; post free, 6d.
JAMES CARTER & Co., Seed Growers, 237 and 238, High Holborn, London, W.C.

A SPECIAL PRIZE MEDAL, PARIS, 1867, was AWARDED to JAMES CARTER & Co., 237 & 238, High Holborn, London, W.C., for GRASS SEEDS, supplied for the Exhibition Grounds.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c.
Free for one postage stamp.
RICHARD SMITH, Seed Merchant, Worcester.

SUTTONS' GRASS SEEDS for ALL SOILS.
First Prize Silver Medal, Paris, 1867.

SUTTONS' PERMANENT MIXTURES		
For Pastures, 20s. to 32s. per acre.	For Parks, 18s. per bushel.	For Lawns, 20s. per bushel.

Carriage Free.
SUTTON & SONS, Seedsmen to the Queen, Reading.

EARLY CORNISH BROCCOLI.—100 good Plants sent postage free for 2s. 6d. in stamps.
Apply to JOHN MITCHINSON, Seed Merchant, Truro.

Mangel Wurzel Seed.
JOHN SHARPE can offer on good terms, from highly selected Stocks, and his own growing this year.
Bardney Manor, Lincoln.

SUTTONS' CHAMPION SWEDE, the hardiest and best in cultivation. Lowest price per bushel on application.
SUTTON & SONS, Seed Growers, Reading.

To the Trade.
HALL'S IMPROVED WESTBURY SWEDE, growth 1868, net; price, 20s. per bushel.
SCARLET RUNNER BEANS, fine sample, 1867 growth, 20s. p. bush.
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Turnip Seed.
H. AND F. SHARPE will be glad to submit to the Trade special quotations for all the finest varieties of the above SEED, grown last season from the finest picked bulbs.
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H. AND F. SHARPE have fine samples of the above, which they can offer to the Trade at moderate prices.
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GIANT ASPARAGUS PLANTS, the best that money can procure, 2s. 6d. per 100. This delicious Vegetable does not require half the expense usually incurred in planting it.
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Extra strong SEAKALE, 2s. per dozen.
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GARDENERS' CHRONICLE NEWSPAPER

THE ROYAL SEEDSMEN.

GENERAL PLANT CATALOGUE,



ILLUSTRATED WITH COLOURED DRAWINGS.

JAMES CARTER & CO.'S NEW PLANT CATALOGUE

IS NOW READY, and will be forwarded on application, ILLUSTRATED with FOUR COLOURED DRAWINGS of

TRICOLOR AND BICOLOR GERANIUMS,

AND CONTAINING FULL DESCRIPTIVE LISTS OF THE NOVELTIES FOR 1869.

ONE MILLION BEDDING AND OTHER PLANTS

Now ready for sending out, as under, of which they invite inspection at their

CRYSTAL PALACE NURSERY, FOREST HILL, S.E.

LANDSCAPE GARDENING and ARCHITECTURE.—JAMES CARTER AND CO., having an experienced staff of qualified Men, will be happy to undertake the ALTERATION or IMPROVEMENT of GARDENS, DOMAINS, &c., and to furnish Estimates (after a personal inspection) WITH PLAIN OR COLOURED PLANS, as may be desired.

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INDIA-RUBBER HOSE at Manufacturers' Prices. 60 feet, with Fittings Complete, 25s.

JAMES CARTER AND CO., SEED MERCHANTS and NURSERYMEN, 237 and 238, HIGH HOLBORN, LONDON, W.C.; and CRYSTAL PALACE NURSERY, FOREST HILL, S.E.

JAMES & ROBERT THYNE,

NURSERYMEN AND SEED MERCHANTS, GLASGOW,

BEG MOST RESPECTFULLY TO CALL ATTENTION TO THEIR MAGNIFICENT AND VERY

COMPLETE STOCK OF FERNS, AND STOVE AND GREENHOUSE PLANTS.

J. & R. T. feel confident that their Collection will be found to be one of the FINEST in the Trade, embracing as it does almost every plant worthy of cultivation, together with all the new and rare introductions as they are brought before the public. Amongst others the undernoted will be found worthy of especial notice, the whole being in a remarkably healthy and vigorous state.

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&c. &c. &c.

Perhaps the finest Stock of IXORAS in the Trade.

FERNS IN GREAT VARIETY,

Which J. & R. T. can supply by the Dozen, Hundred, or Thousand, including—

TODEAS | DICKSONIAS | ADIANTUMS | LOMARIAS | CIBOTIUMS | PTERIS, &c., &c.

J. & R. T. would also intimate that they are now sending out a

VERY CHOICE ASSORTMENT OF BEDDING-OUT PLANTS,

Well-grown and well-rooted, and which may be relied on for a grand Summer and Autumn display. Selection left to J. & R. T., **20s.** to **30s.** per 100, including—

ANTIRRHINUMS
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GAZANIAS
GERANIUMS
HELIOTROPES
HOLLYHOCKS
LOBELIAS
PETUNIAS
SALVIAS
VERBENAS
&c. &c.

ROSES in great variety, 9s. to 18s. per dozen.

60, BUCHANAN STREET, and NORTH WOODSIDE NURSERY, GLASGOW.

PAUL'S BEDDING GERANIUM,

BLUE BELL.

First-class Certificate, 1868. "*It was decidedly the gem of the season, and was greatly admired.*"—Report of Pelargoniums grown at Chiswick in 1868.

WM. PAUL begs to offer good plants of the above magnificent BEDDING GERANIUM, which he believes to be the finest ever yet raised, on the following terms, on and after May 15:—Single plants, 1*s.* 6*d.* each; 12 plants, 12*s.*; 50 Plants, £2 2*s.*; 100 plants, £4.

Description.—Flowers bluish tinted rose, large and good shape, trusses large and close, habit dwarf and compact, but very free both in growth and flowering; very effective.

NEW GOLDEN VARIEGATED GERANIUMS.—Plutarch, 15*s.* each; Rouge-et-Noir, 15*s.* each; Goldfinch, 10*s.* 6*d.* each.

A NEW SET of BEDDING GERANIUMS, Beaton's race, 5*s.* each; 42*s.* per dozen.

NEW CLIMBING ROSE.—Prince Leopold, H.P., beautiful deep red, large, and of fine form. Plants in May, 5*s.* each.

All the best NEW FRENCH ROSES, 36*s.* per dozen.

NEW PHLOXES.—Conqueror and Beautiful, the two finest of recent introductions, 2*s.* each.

All the best VARIEGATED and ZONAL PELARGONIUMS, ROSES, DAHLIAS, PHLOXES, &c., first-rate plants, at reasonable rates.

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H. LAURENTIUS, HORTICULTURIST,

THE NURSERIES, LEIPZIG, SAXONY,

BEGS TO OFFER THE FOLLOWING

NEW AND RARE PLANTS,

DESCRIBED AND PARTLY FIGURED IN HIS NEW CATALOGUE, No. 41:—

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" " " var. LÆVIOR (figured in H. L.'s New Catalogue), £1 16*s.*

NEW TRICOLOR GERANIUM, LILY (figured in H. L.'s New Catalogue), 6*s.* each.

NEW STRIPED FLOWERING PELARGONIUMS.—Five very beautiful varieties (Dr. W. Neubert, Elsternixe, Kilisch von Horn, Striata formosa, Théodor Rümpler), 5*s.* each; 15*s.* the set. For full description, see H. L.'s New Catalogue, page 211.

VIOLA ODORATA PENDULA, WEEPING VIOLET of NEW YORK.—Very attractive novelty; flowers large, full, sweet scented, and azure blue, 1*s.* 3*d.* each; 12*s.* per dozen.

AGAVE BESSERIANA LONGIFOLIA VIRIDIS (figured in H. L.'s New Catalogue), £2 5*s.*, £3, and £3 15*s.*

" " LONGIFOLIA GLAUCA (figured in the Catalogue), £2 5*s.*, £3 15*s.*, and £6.

NEW LOBELIA ERINUS, STAR of ISCHL.—Very compact dwarf growing, flowers larger than any new variety, bright azure blue, with a deep coloured shade, extremely free flowering throughout the whole season; 1*s.* 3*d.* each, 10*s.* 6*d.* per dozen.

NEW PINKS: KING JOHN of SAXONY, and PRINCE ROYAL of SAXONY.—Two extremely beautiful varieties, in every respect improvements of the esteemed P. Abbordfordianus, by whose hybridisation they have been obtained, 2*s.* each. For full description, see H. L.'s New Catalogue, page 28.

AMARYLLIS ALBERTI FLORE-PLENO (LAURENTIUS), true.—The full and bright scarlet-flowered Amaryllis, flowering by pairs. Strong flowering bulbs, 12*s.* each; middle sized bulbs, 4*s.* 6*d.* each.

ANECOCHILUS SPECTABILIS.—Leaves similar in colour to the A. setaceus, but much larger; £1 1*s.*

AGAVE UNIVITTATA.—Young plants, according to size, 4*s.* 6*d.*, 6*s.*, and 12*s.* each; stronger plants, 18*s.* each; very strong plants, £3 15*s.* each.

DICHORISANDRA MUSAICA, 7*s.* 6*d.* each; £3 per dozen.

" UNDATA, 3*s.* each; £2 4*s.* per dozen.

PASSIFLORA TRIFASCIATA.—New tricolor-leaved Passion-flower, 3*s.* each; £1 4*s.* per dozen.

DOUBLE-FLOWERED GERANIUMS.—The newest, 22 varieties. For descriptive List, see H. L.'s Catalogue, pp. 24, 25, and 212.

CORDYLINE VEITCHII. — Leaves with red midrib. Young plants, 1½ foot high, 15*s.* per dozen; £5 per 100.

FICUS SURINGARI.—Beautiful species, with purple-veined large leaves, 3*s.* each.

LAMPROCOCCUS LAURENTIANUS.—The most beautiful Æchmea, flowering from November to February, 2*s.* 6*d.* each; £1 7*s.* per dozen.

LILIUM PARTHENEYON.—New Lily, from Japan, £1 16*s.* For full description, see H. L.'s Catalogue, page 39.

" LEICHTLINI.—Likewise from Japan, £2 5*s.* each. For full description, see H. L.'s Catalogue, page 39.

LIRIODENDRON TULIPIFERA FOL. IN MEDIO AUREO PICTIS.—New effective variety, the leaves being adorned in the centre with a large yellow spot; 2-yr. grafts, 2 feet high, and cultivated in pots, 6*s.* each; £2 10*s.* per dozen.

LOMARIA CYCADÆFOLIA.—One of the most beautiful Tree Ferns. Strong stems, £2 4*s.* to £4 5*s.*; Seedlings of the above, 2-yr. old, 10*s.* 6*d.* per dozen, or 25 for 18*s.*

Choice of the best NEW ROSES for 1869.—23 varieties, vigorous plants, grafted on Manetti, £2 7*s.*; grafted on Wild Roses and Briars, Half Standards, 3½ to 4 feet, 23 varieties for £3 10*s.* For names and full description of these New Roses, see H. L.'s Catalogue, pp. 33, 34.

H. LAURENTIUS'S NEW CATALOGUE (228 pages), containing all the Novelties of the season, and many other valuable and Rare Plants, may be had Gratis and Post Free on application to his Agents,

MESSRS. BETHAM AND BLACKITH, COX'S QUAY, LOWER THAMES STREET, LONDON, E.C.

LOUIS VAN HOUTTE

BEGS TO DRAW PARTICULAR ATTENTION TO

THE FOLLOWING PLANTS CONTAINED AMONGST OTHERS

IN HIS NEW CATALOGUE (No. 126).

NEW GESNERACEOUS PLANTS. IRESINE LINDENI.

ORNAMENTAL SHRUBS (in pots); ACER (Maples), variegated, purple, rose, &c.; Magnificent AUCUBAS; HOLLY (Ilex, 455), the prettiest and most miniature of all; Choice CONIFERS, HERBACEOUS NOVELTIES, DRABA VIOLACEA, GUNNERA MANICATA, Variegated TRICYRTIS, Terrestrial ORCHIDS, New Japanese ORANGES, SARRACENIAS, Large importation of blue and tricolor TROPÆOLUMS, DAHLIAS, ERYTHRINAS (new kinds), PANICUM MAXIMUM, PENTSTEMONS, PETUNIAS, PHLOXES, PRIMULAS, &c., &c.

IRESINE LINDENI (VAN HOUTTE).

To be sent out on May 20.

LOUIS VAN HOUTTE has much pleasure in offering to his numerous Patrons, for the first time, this exceedingly effective ornamental plant. The description given of it (see page 38 of Catalogue) by one whose judgment in these matters is undisputed, will, he is confident, be fully borne out during the ensuing season. The excessive heat of last summer in no way diminished the beauty and luxuriance of those which were planted in the open ground, fully exposed to the sun. They were found to be equally unaffected by 5 degrees of frost (27 Fahr.).

The Iresine Lindeni has been awarded First Prizes at Liege, Brussels, and Louvain; a First-class Certificate by the Société Impériale d'Horticulture of Paris; Certificates by the Royal Botanic Society, Regent's Park; the Royal Horticultural Society, South Kensington; and an Extra Prize at the Crystal Palace, Sydenham.

The difficulty of preserving the Iresine Herbstii during the winter is but too well known; fortunately this disadvantage is not shared by the I. Lindeni. All that it requires in the winter months is a cold greenhouse, where its robust constitution enables it to pass the season successfully with but little attention. The fact of the I. Lindeni having been discovered at a great elevation on the Andes is a proof of its hardihood.

COMMELINA DEFICIENS FOLIIS VARIEGATIS ("Flore," XVIII.).

A charming dwarf hardy plant, for bedding purposes. The foliage is beautifully variegated, and produces an admirable effect, when interspersed with plants of more sombre colours. It is also particularly suited for drawing-room decoration when grown in hanging baskets or ornamental vases. Price per Plant, 3*s.* 6*d.* The Trade supplied.

ROYAL GHENT NURSERY, BELGIUM.

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JOHN CRANSTON will be happy to forward on application his DESCRIPTIVE CATALOGUE of ROSES for 1868 and 1869. For quality or quantity the stock is unsurpassed; the Manetti Roses especially are acknowledged to be the finest grown plants in the Trade.

Nurseries, King's Acre, near Hereford.

New Roses, &c., 1869.

WM. KNIGHT begs to offer the following Plants:—

12 NEW ROSES, Strong Plants .. .. 36*s.*
12 Finest NEW FUCHSIAS, Strong Plants .. 6*s.*
12 Finest NEW VERBENAS, Strong Plants .. 4*s.*
12 Finest COLEUS, Strong Plants .. .. .. 5*s.*
6 NEW PETUNIAS, Strong Plants .. .. 4*s.*

Or the above Collection, package included, for £2 10*s.*

CATALOGUE free.

Floral Nursery, Hailsham, Sussex.

New Roses for 1869.

JOHN AND CHARLES LEE intend to send out the following TWO NEW ROSES the end of May:—

CLEMENCE RAOUX (Granger).—Blush, edged and spotted rose, very large, of perfect form and great substance; petals stout and enduring; habit erect and vigorous; flowers late in autumn. This is really a wonderful Rose when bloomed to perfection. A single flower of Clemence Raoux exhibited amid tons of thousands of other Roses attracted—by its immense size and novel colouring—the universal attention of the judges and amateurs at the Great Rose Show at Brie Comte Robert, in July 1867, when the Gold Medal was awarded to it as the finest Rose in the Exhibition. 15*s.*

EDWARD MORREN (Granger).—This splendid Rose is a great acquisition. The delicate yet brilliant colouring, the size, fine shape, and fulness of its flowers, combined with its bold erect habit, will render it a universal favourite. Monsieur Margottin thus described it:—"Edward Morren is in the way of Jules Margottin, but of a more delicate colour, of better form, more double, and much larger." The 1st Prize Gold Medal was awarded to it at the Exposition Universelle in Paris, in July, 1867. 15*s.*

Special offer to the Trade on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, W.

Spring Catalogue of New Plants for 1869.

JOHN AND CHARLES LEE'S CATALOGUE of SOFT-WOODED PLANTS is just published, and may be had post free on application. It contains accurate descriptions and prices of all the New Double Pelargoniums for 1869, New Zonals, New Tricolors, New Nosegays, New Gloxinias, New Coleus, New Chrysanthemums, and New Bedding Plants.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, W.

Echeveria metallica (Special Offer).

JAMES CARTER AND CO. beg to offer, in quantity, nice Seedling Plants of ECHEVERIA METALLICA, the singular and beautiful Shell Plant, very effective for Bedding purposes. Price per dozen, 6*s.*; per 100, 42*s.*; per 1000, £18—well-established plants, in small pots, with four to six leaves each. Larger, at usual Catalogue prices.

JAMES CARTER & Co., Seed Merchants and Nurserymen, 237 and 238, High Holborn, W.C.; and Crystal Palace Nurseries, Forest Hill, S.E.

Splendid Indian Azaleas.

WILLIAM BARNES' unrivalled Collection of AZALEAS is this season unusually fine, and in the highest possible health, loaded with strong bloom-buds from top to bottom, and the plants properly trained as Pyramids, but neither stiff nor formal; their average heights are from 2 to 5 feet, and beautifully clothed down to the pot. These plants cannot fail to please those who are either adding to their present collection or forming a new one. W. B. has also many thousands in smaller sizes, comprising all the newest and best of the older varieties, in the most beautiful and healthy condition. Prices and varieties may be had on application.

WILLIAM BARNES, Camden Nursery, Camberwell, S.E.—April 10.

Vegetable, Agricultural, and Flower Seeds.

MISCELLANEOUS HARDY BEDDING PLANTS, SWEET VIOLETS, &c.

ROBERT PARKER begs to announce that his CATALOGUE, containing DESCRIPTIVE LISTS of the finest kinds in cultivation of the above-named, is now published, and will be forwarded to applicants. The stocks of Seeds have all been procured from the best possible sources; all are warranted genuine, and are offered at the lowest possible prices.

Intending purchasers are requested to compare the prices with those of other houses.

Exotic Nursery, Tooting, Surrey, S.W.

Choice Primula Seeds.

B. S. WILLIAMS begs to call special attention to his superb Strain of this universally admired Winter and Spring-flowering Plant. He can with confidence offer it as being unequalled in cultivation. Plants from this Seed have always been awarded First Prizes wherever exhibited. B. S. W.'s strain of Primula is so well known to all the principal Gardeners in the three kingdoms, that testimonials are unnecessary. In sealed packets, Red, White, or Mixed, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* each.

Victoria and Paradise Nurseries, Upper Holloway, London, N.

New and Choice Flower Seeds, Post Free.

B. S. WILLIAMS,

SEED MERCHANT AND NURSERYMAN,

Victoria and Paradise Nursery, Upper Holloway, London, N.

	Per packet.—*s.* *d.*
WILLIAMS' SUPERB STRAIN of PRIMULA.—B. S. W. can with confidence offer his superb strain of Primula as being the finest in cultivation.	
Red, White, or Mixed .. .. .. 2*s.* 6*d.*, 3*s.* 6*d.*, and	5 0
CINERARIA (Weatherill's extra choice strain) .. 2*s.* 6*d.* and	3 6
CALCEOLARIA (Neill's extra choice strain), 2*s.* 6*d.*, 3*s.* 6*d.*, and	5 0
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CARNATION, from Prize Flowers	1 0
CYCLAMEN (Wiggins' prize strain) .. 1*s.* 6*d.*, 2*s.* 6*d.*, and	3 6
POLYANTHUS (Wiggins' prize strain) .. .. 1*s.* 6*d.* and	2 6
BALSAM (Williams' superb strain) .. .. .. 1*s.* 6*d.* and	2 6
CLIANTHUS DAMPIERI (fresh imported seed)	1 6
GERANIUM LE GRAND .. .. 1*s.* 6*d.* and	2 6
SOLANUM (Weatherill's hybrids).—B. S. W. was awarded a Special Certificate for a Collection exhibited before the Floral Committee, December 15, 1868 2*s.* 6*d.*, 3*s.* 6*d.*, and	5 0
ECHEVERIA METALLICA (new Bedding plant)	2 6
STOCK (White Ten-week Wallflower-leaved).—This is a splendid variety, the colour being so pure and the flowers very double	1 0
HOLLYHOCK, from the best named sorts..	1 0
PANSY, from prize flowers	1 0
" finest Belgian varieties	1 0
PINK, Double-fringed, very fine	1 0
PICOTEE (from prize flowers)	1 0
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PALAVA FLEXUOSA, very pretty annual (new)	1 0
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ANTIRRHINUM ASARINA, very beautiful for rockwork (new)	1 0
HELICHRYSUM APICULATUM (new)	1 0
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ORNAMENTAL GOURDS, splendid varieties	0 6

Imported GERMAN ASTERS, STOCKS, WALLFLOWERS, ZINNIAS, &c., in Collections, as imported.

Victoria and Paradise Nursery, Upper Holloway, London, N.

NEW GOLDEN COLEUS, 1869.

QUEEN VICTORIA, the finest of all, 3s. 6d.
ALBERT VICTOR, 2s. 6d.
BARONESS ROTHSCHILD, 2s. 6d.
PRINCESS ROYAL, 2s. 6d.
CARTERI, or BEAUTY of ST. JOHN'S WOOD, 1s. 6d.
PRINCESS BEATRICE, 2s. 6d.
The Set of Six for 10s.

JOHN & CHARLES LEE, Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

New Golden Coleus of 1869.

H. CANNELL has procured a large Stock of the above splendid Foliage Plants, in 18 varieties, and can now execute orders with strong, highest-coloured plants, either in pots or otherwise. See CATALOGUE, with prices, history, culture, and description, for 3 stamps. Each variety is now forming into specimens.

	Each.—s. d.		Each.—s. d.
Princess Louisa	1 0	Princess of Wales	1 0
Prince Leopold	1 0	Her Majesty	1 0
Empress	1 0	Albert Victor	2 0
Masterpiece	1 0	Prince of Wales	1 0
Model	1 0	Duke of Edinburgh	1 6
Refulgens	1 0	Prince Arthur	1 0
Umpire	1 0	Princess Beatrice	2 0
Queen Victoria	3 6	Baroness Rothschild ..	2 6
Princess Royal	3 0	Beauty of St. John's Wood	2 0

The usual discount to the Trade.

Amateurs are respectfully invited to inspect them. Also, H. C.'s Bicolor and other GERANIUMS, which are in splendid colour, and are now attracting the attention of all who see them.

Seventy trains stop at the Nursery daily (Dockyard Station), from Charing Cross and Cannon Street.

Florist, Woolwich.

Verbenas, 5s. per 100; 40s. per 1000.

WILLIAM BADMAN has to offer as under:—VERBENAS, Purple, White, Scarlet, Rose, Crimson, &c.; strong plants from store pots, 5s. per 100; 40s. per 1000.

LOBELIA SPECIOSA (true) from cuttings, 5s. p. 100; 40s. p. 1000.

PELARGONIUM CRYSTAL PALACE GEM, the finest golden leaf in cultivation, in small pots, 4s. per doz. 6 Finest Double Geraniums, including MADAME LEMOINE, 10s. Package included. Terms cash.

Cemetery Nursery, Gravesend.

Chrysanthemums.

ADAM FORSYTH begs to inform the Trade and the Public that he is now sending out the following NEW CHRYSANTHEMUMS, viz.:—

Blonde Beauty	Mr. Evans
Mr. Geo. Haskin	Miss Mary Morgan

He is confident they will give as great satisfaction as any others he has hitherto introduced. For description and price, see CATALOGUE, which contains also a Practical Treatise on the Cultivation of this noble Flower. Forwarded on application for one stamp.

Brunswick Nursery, Stoke Newington, London, N.

To the Trade.

HURST AND SON can still offer the following:—TROPÆOLUM CANARIENSE (at reduced price)

Trop. eolum Lobbianum	Henderson's Intermediate Scarlet Stock
New Golden Pyrethrum	True Purple Intermediate Stock
Abronia arenaria	True White Intermediate Stock
Viola lutea	Saponaria multiflora
Nierembergia frutescens	Cyclamen persicum
Tacsonia Van Volxemi	Ivery's Foxglove
Calceolarias, from the finest collections	Lobelia speciosa
Cinerarias	Pentstemon Jeffreyanum
Primula sinensis	Viscaria cardinalis
Double Portulacas	Imported German Double Wallflower
Pinks, from a choice collection	Saunders' splendid dark Wallflower
Turner's Selected Pansy	Tom Thumb Nasturtium (all the varieties)
Dean's Selected Pansy	
Hollyhocks (extra), in collections, or mixed	

HURST & SON, 6, Leadenhall Street, London, E.C.

CROYDON. A. HENDERSON. EAST SURREY SEED WAREHOUSE. ESTABLISHED 1828

Bedding Plants.

ARCHD. HENDERSON'S DESCRIPTIVE and PRICED CATALOGUE of BEDDING PLANTS is now ready, containing all the novelties of the past two years. The Stock is in fine condition; for extent and vigour unsurpassed.

Purchasers are respectfully invited to inspect the Stock at Sion Nursery, Whitehorse Road, Croydon.

Special offers will be made for large quantities.

Catalogues to be had gratis, and post free on application.

Cheap Bedding Plants, from 2s. per dozen.

J. SCOTT, Merriott, Somerset, has to offer the above, selected by purchasers from his Catalogue, which will be sent free to all applicants.

J. S. also offers the following, his selection, viz.:—100 GERANIUMS, sorted; 100 VERBENAS, do.; 100 CALCEOLARIAS, do.; 300 Mixed plants, do., including the NEW COLEUS of the Horticultural Society, at 12s. per 100, or half at 13s. per 100.

One Hundred Thousand Bedding Plants.

THOMAS PERKINS has great pleasure in offering the following, all strong, well established Plants, turned out of single pots, at 2s. per doz.:—VARIEGATED, SCARLET, ZONAL, and other GERANIUMS; CALCEOLARIAS, Verbenas, Heliotropes, Lobelias, Salvias, variegated Alyssum, Gazanias, Petunias, Perilla nankinensis, Pentstemons, Nierembergias, Ageratums, Golden Feather, Musk, &c. DESCRIPTIVE PRICED CATALOGUES post free on application to

THOMAS PERKINS, 42, Drapery, Northampton.

N.B.—Price to the Trade on application.

West of England Bedding Plant Establishment.

BEDDING PLANTS.

THOMAS SAMPSON, The Preston Road and Horsedowne Nurseries, Yeovil, Somerset, is now prepared to send out his unrivalled Collections of BEDDING PLANTS, for quantity, quality and cheapness by far exceeding any other Establishment in the County of Somerset or the West of England. T. S. flatters himself on having added to his already well-known Collection all the really good and choice things in each variety, and offers the same at prices that cannot be understood. Catalogues free on application.

T. S. is now sending out his Collections of Bedding Plants made up of varieties from each section, including many of the dearer and leading varieties. T. S.'s selection only.

No. 1 Collection.—25 dozen plants, basket and packing included £2 2 0
No. 2 Collection.—15 dozen plants, ditto 1 6 0
No. 3 Collection.—10 dozen plants, ditto 0 18 0
No. 4 Collection.—5 dozen plants, ditto 0 10 0

Orders sent out in rotation.

PETER DRUMMOND, Manager.

The Vineyard, Garston.

MEREDITH'S VINE, PINE, PEACH, and PLANT MANURE.

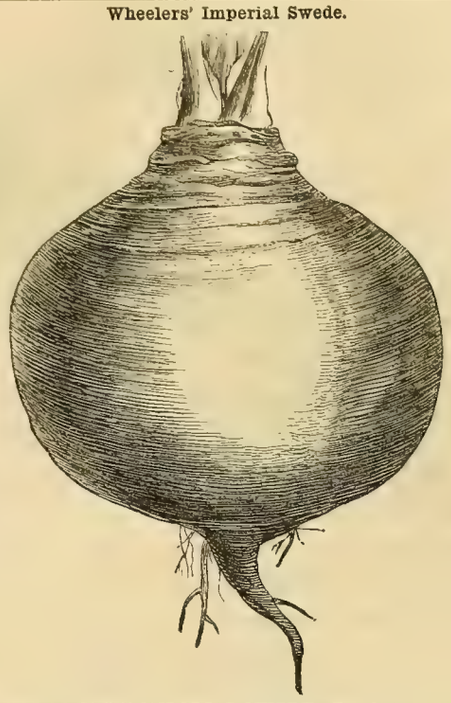
JOSEPH MEREDITH, The Vineyard, Garston, near Liverpool, after many years of Vine and Grape growing, is now induced to offer, for the first time, to the Horticultural world, the MANURE to which in a great measure he attributes the success that has attended his exhibitions of Grapes in England, Scotland, Paris, Brussels, Antwerp, and Maestricht. In doing so he is offering from experience the most valuable aid to both practical and amateur in not only securing fine fruit, but good flavour and high finish of colour, and to plants the greatest help towards vigour and successful cultivation ever met with. To be had in sealed bags of quarter cwt., 1os. 6d.; half cwt., 21s.; one cwt., 42s., with full directions for use. For further particulars see Circulars, to be had free on application as above.

Notice.—To Tulip Growers, Amateurs, and Others.

A VALUABLE COLLECTION of NAMED TULIPS, together with IRON FRAME, CANVAS COVERING, CABINET, &c., to be SOLD at a very low price.

On View from the 14th to 24th inst., at 4, Myrtle Place, North End, Fulham, S.W. (Five minutes from West Brompton Station.)

Wheelers' Imperial Swede.



WHEELERS' IMPERIAL SWEDE—Purple top, very hardy, very nutritious; large, handsome, and heavy.—1s. per lb., 45s. per bushel. Carriage free excepting small parcels under 20s. in value. Five per cent. discount for cash. For five consecutive years our Wheelers' Imperial has taken the 1st Prizes—open to all England—at the Gloucestershire Root and Grain Society, as the best Swede in cultivation. It is a sort especially to be recommended. Drill 3 lb. per acre.

J. C. WHEELER & SON, Seed Growers, Gloucester; and 59, Mark Lane, London, E.C.

LAWES' MANURES are now ready for delivery for present season, 1869.

LAWES' PATENT TURNIP MANURE.
" DISSOLVED BONES.
" SUPERPHOSPHATE of LIME.
" WHEAT, BARLEY, GRASS, and MANGEL MANURE.
" CONCENTRATED CORN and GRASS MANURE.

These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom.

GENUINE PERUVIAN GUANO direct from the importers. NITRATE of SODA, SULPHATE of AMMONIA, and other Chemical Manures.

AMERICAN and other CAKES at market prices.

Address, JOHN BENNET LAWES, 59, Mark Lane, London, E.C.; 22, Eden Quay, Dublin; and Market Street, Shrewsbury.

ODAMS'S NITROPHOSPHATE for CORN.
ODAMS'S NITROPHOSPHATE for ROOTS.
ODAMS'S DISSOLVED BONES.
ODAMS'S SUPERPHOSPHATE of LIME.
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THE PATENT NITROPHOSPHATE or BLOOD MANURE COMPANY (LIMITED).

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This Company was originally formed by, and is under the direction of, Agriculturists, circumstances that have justly earned for it another title, viz.:—

THE TENANT FARMER'S MANURE COMPANY.

Its Members are Cultivators of upwards of 50,000 Acres of Land, which has been for years under Management with Manures of their own Manufacture, consequently the consumer has the best guarantee for the genuineness and efficacy of the Manures manufactured by this Company.

Particulars will be forwarded on application to the Secretary; or may be had of the Local Agents.

C. T. MACADAM, Secretary.

Chief Offices—109, Fenchurch Street, London, E.C.

THE LONDON MANURE COMPANY
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Have now ready for delivery, in fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES.

Also Genuine PERUVIAN GUANO, and NITRATE of SODA ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c.

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Offices, 116, Fenchurch Street, E.C.

Wasps, &c.

SCOTT'S WASP DESTROYER will effectually destroy Wasps, Cockroaches, Crickets, and other Garden Pests, price 1s. 6d. and 2s. 6d. per bottle. See testimonials, &c., on application to J. SCOTT, The Seed Stores, Yeovil, Somerset.

PATENT OUT-DOOR FUMIGATOR, for Standard Roses and other Plants.—This useful Fumigator is introduced for the purpose of destroying Green-Fly and other Insects that infest Rose Trees and other Outdoor Plants. It is very simple in construction, and can readily be removed from one plant to the other, and easily adjusted to the height required. Price 17s. 6d.

Sold by all Seedsmen and Nurserymen, and by Messrs. ROBERTS & SONS, 112, St. John Street, Clerkenwell, E.C., of whom a Drawing of the same can be obtained; also TOBACCO TISSUE for Fumigating Greenhouses, price 3s. 6d. per lb.

The Best and Cheapest Vermin Killer.

Vide "The Gardener's Magazine," conducted by Shirley Hibberd, Esq., F.R.H.S., of August 15, 1868.

UNDER PERMISSION OF THE HON. BOARD OF CUSTOMS.

THE LONDON GROUND TOBACCO (free of duty), for the Destruction and Prevention of the Grub and Blight in Plants. Sold in Tins, 1s. and 2s. 6d. each, by Seedsmen and Druggists,

POWDER DISTRIBUTORS, 2s. each.

Manufacturers: CORRY & SOPER, at their Bonded Warehouse, Shad Thames, London, S.E. [AGENTS WANTED.]

The Cheapest and Best Insecticide.

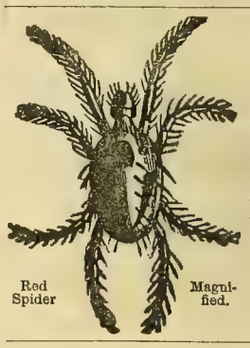
DUTY-FREE TOBACCO.

BY HER MAJESTY'S ROYAL LETTERS PATENT, AND BY PERMISSION OF THE HON. BOARD OF CUSTOMS.

POOLEY'S TOBACCO POWDER, for the Prevention and Destruction of Blight and other Diseases in Plants. Sold by Nurserymen, Seedsmen, and Florists, In Tins at 1s., 2s. 6d., and 5s. Powder Distributors, 2s. 6s. and 3s. 6d. each.

"I find it exceedingly useful for killing the Aphides on Roses and other Plants."—GEO. EYLES, Superintendent, Royal Horticultural Gardens, South Kensington. May 7, 1868.

Sole Manufacturer, T. A. POOLEY, Bonded Warehouse, Sussex Wharf, Wapping, E.



Red Spider — Magnified.

GISHURST COMPOUND.

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d.

Wholesale by
PRICE'S PATENT
CANDLE COMPANY
(Limited),
Battersea, London, S.W.

Bee-Hives.

TWO SILVER MEDALS AWARDED TO GEO. NEIGHBOUR & SONS, AT THE PARIS EXHIBITION OF 1867. THE ONLY ENGLISH EXHIBITORS WHO OBTAINED A SILVER MEDAL FOR BEE-HIVES.

NEIGHBOURS' IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR AND SONS, working three bell-glasses; is neatly and strongly made of straw; it has three windows in the lower hive.



This Hive will be found to possess many practical advantages, and is more easy of management than any other Bee-Hive that has been introduced.

Price, complete .. £1 15 0
Stand for ditto .. 0 10 0

THE LIGURIAN or ITALIAN ALP BEE being much in repute, G. N. & SONS supply colonies of Bees with genuine Italian Queens (which will shortly have wholly yellow Italian Alp Bees) at £3 3s. each.

An Italian Alp Queen, with full directions for uniting to Black Stocks, £1 each.

ENGLISH BEES.—Stocks and Swarms may be obtained as heretofore.

A newly-arranged CATALOGUE of other Improved Hives, with Drawings and Prices, sent on receipt of two stamps.

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AGENTS:—Liverpool: JAMES CUTHBERT, 12, Clayton Square. Manchester: J. WILSON, 50, King Street. Dublin: EDMONSTON BROTHERS, 10, Dame Street. Glasgow: AUSTIN & MCASLAN, 16, Buchanan Street.

SOFT-WOODED AND BEDDING PLANTS.

JAMES VEITCH & SONS

HAVE THE PLEASURE TO ANNOUNCE THAT THEIR

CATALOGUE OF SOFT-WOODED AND BEDDING PLANTS

For the present season, comprising a LIST of the BEST NOVELTIES, as well as a selection of the most approved kinds in general cultivation, IS NOW READY, and will be sent POST FREE ON APPLICATION.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, S.W.

Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the Corporate Mark, OBTAIN WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.

S. & C.'s PRUNING and BUDDING KNIVES are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

Rosher's Garden Edging Tiles.



THE above and many other PATTERNS are made in Terro-Metallic Ware, Terra-Cotta, Stoneware, and Redware, and of great durability. The planer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability and superior finish, and in much variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.E. Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E. Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs. Likewise more elaborate designs. Pattern Sheets of Pavements, with prices, forwarded for selection.

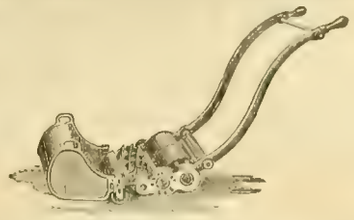
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.
To be obtained of F. & G. ROSHER, at their premises as above.

SILVER SAND (REIGATE), at the above addresses—14s. per Ton, 1s. 2d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less. A coarser grained Sand 4s. per ton more. Samples of Sand by post on receipt of stamp.

FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEAT and LOAM supplied at lowest rates.
F. & G. ROSHER.—Addresses see above.
N.B. Orders promptly executed by Railway or Vessel.
A liberal discount to the Trade.

BROWN'S FLORAL SHADING.
Sold by Nurserymen and Seedsmen.
No. 1. 36 inches wide, 20 yards long, at 4s. 6d. per piece.
No. 2. 38 " " 20 " " 4s. 10d. per piece.
No. 3. 30 " " 18 " " 7s. extra stout.
Samples on application to CHARLES BROWN, Greenheys, Manchester.

J. B. BROWN AND CO.'S NEW PATENT BB LAWN MOWER for 1869.
PRICES REDUCED AND THE MACHINE PERFECTED.



The B B LAWN MOWER (London make) is universally allowed to be, by practical judges, superior to any other—being the best designed, also of best material only, all parts liable to breakage being of malleable iron, and made to standard guage, all accurately numbered, and the entire Machine fitted and finished in a manner incontestably superior to any other Lawn Mower manufactured.

ALEX. MACKENZIE, Esq., Alexandra Park, Muswell Hill—appointed by the Metropolitan Board of Works to lay out their New Public Parks, and to plant the Thames Embankment, thus writes:—

"I have recommended your Lawn Mower to many of my friends, believing that the machine does its work better than any other, and combines strength superior to Shanks' machine, with the lightness of Green's. Having now four of your Lawn Mowing Machines in constant use on our grounds, and two of these having been in work over a year, I have never had cause to alter this opinion of your machine, which I now have pleasure in giving to you."

The B B LAWN MOWER was selected at the Paris Exhibition, in preference to all others, by the celebrated Engineer, Mons. Henry Schneider, of Creusot, and President of the French Legislative Assembly.

PRICES—NEW PATENT B B HAND MACHINE for 1869.

10-inch	For a Boy.	£3 5 0	18-inch	A Man and Boy	£7 0 0
12-inch		4 5 0	20-inch	Two Men	7 10 0
14-inch	A Man	5 5 0	22-inch		8 0 0
16-inch	A Man and Boy	6 0 0	24-inch		8 10 0

Prices of Hor and Pony Machines on application.

Every Machine warranted to give satisfaction, and delivered free.
J. B. BROWN & Co., 90, Cannon Street, E.C., and 148, Upper Thames Street, E.C.

PAXTON'S STRAWBERRY CRINOLINE.



The STRAWBERRY CRINOLINE is in the form of a table, made in halves, so as to be used without disturbing the plant. It is 16 inches in diameter, and stands 4 inches above the ground, galvanised. Its use is to preserve Strawberries from slugs, contact with the soil, superfluous moisture, and other nuisances. They are considered to last 10 years at least with care.

Price per Gross, £4.

The STRAWBERRY CRINOLINES are declared by all who use them to be of the greatest use in keeping the Fruit clean and assisting its growth—thus in the production of large crops. For particulars see Illustrated Catalogues, and Testimonials sent to us by our patrons last year.

The contrivance is by the late Sir Joseph Paxton, who, after testing them for one season in his own gardens, "Rock Hills," gave his approval of their usefulness. The right to Manufacture them was transferred to

R. HOLLIDAY, PRACTICAL WIRE WORKER, 2A, PORTOBELLO TERRACE, NOTTING HILL GATE, W.

Illustrated Catalogues of Horticultural Wire Work free on application.

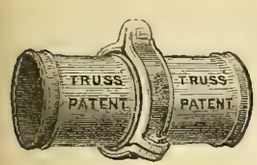
GARDEN ARCHES, ARCADES, VERANDAHS, ORNAMENTAL FENCING, TRELLIS WORK for CREEPERS, FLOWER STANDS, SUSPENDING BASKETS, AVIARIES, PHEASANTRIES, &c.

Every description of Wire Work for Gardens, Conservatories, &c.

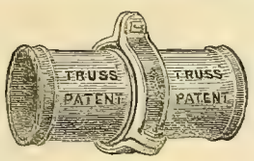
PORTABLE AND FIXED HOT-WATER APPARATUS,

FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH

TRUSS'S PATENT UNIVERSAL FLEXIBLE AND LEAKLESS PIPE-JOINTS.



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Begs to state that the immense number of APPARATUS annually Designed and Erected by him in all parts of the kingdom, and for the ROYAL HORTICULTURAL SOCIETY at SOUTH KENSINGTON and CHISWICK, with unrivalled satisfaction, is a guarantee for skill of design, superior materials, and good workmanship; while the great advantages obtained by his IMPROVED SYSTEM cannot be over-estimated, consisting of perfectly tight joints with neatness of appearance; EFFECTS A SAVING OF 25 PER CENT. on cost of Apparatus erected compared with other systems; facility for extensions, alterations or removals without injury to Pipes or Joints; can be erected by any Gardener; an ordinary size Apparatus erected in one day; and PERFECTNESS of DESIGN SUPPLIED, INSURING NO EXTRAS. Complete Apparatus, of the best materials, delivered to any Railway Station in England, and Erected at the following prices. Erection beyond 25 miles of London, railway fare for one man additional. Considerable reduction on large works.

TWO FOUR-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
20 feet by 10 feet ..	£9 0 0 ..	£2 0 0	50 feet by 15 feet ..	£17 10 0 ..	£3 0 0
30 feet by 12 feet ..	11 15 0 ..	2 10 0	75 feet by 15 feet ..	20 0 0 ..	3 0 0
40 feet by 15 feet ..	15 0 0 ..	2 15 0	100 feet by 15 feet ..	26 0 0 ..	3 5 0

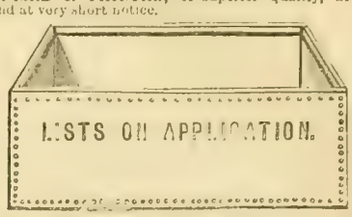
Bath and Gas Work erected in town or country. **The Trade Supplied.**
Price Lists, Plans, and Estimates forwarded on application to

T. S. TRUSS, C.E., CONSULTING HORTICULTURAL ENGINEER, &c., SOLE MANUFACTURER, IRON MERCHANT, HOT-WATER APPARATUS MANUFACTURER, AND HORTICULTURAL BUILDER,
FRIAR STREET, BLACKFRIARS ROAD, LONDON, S.E.

"Every Cottage should be provided with a Water Tank." *Disraeli.*

Iron Cisterns.

F. BRABY AND CO. having laid down more extensive and Improved Machinery on their Deptford premises (IDA WHARF), are prepared to supply WROUGHT-IRON TANKS, GALVANISED or PAINTED, of superior quality, at reduced prices, and at very short notice.



An Illustrated Price List of Galvanised Iron, and other of BRABY'S special Manufactures, sent on application.
F. BRABY & Co., Limited, Fitzroy Works, Euston Road, London; or through all respectable Ironmongers.
N.B. Open Tanks of different sizes packed one in another to save carriage.

JAMES PHILLIPS AND CO.
beg to submit their prices as follows:—
GLASS for ORCHARD HOUSES,
As supplied by them to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.
Each Box contains 100 feet. The prices only apply to the sizes stated.
Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.

	16 oz. to the foot.	21 oz.
Fourth quality	16s. 0d.	19s. 6d.
Third ditto	16s. 0d.	22s. 6d.
Seconds	18s. 6d.	26s. 0d.
English	20s. 0d.	27s. 0d.

The above prices include the boxes, which are not returnable.
HORTICULTURAL GLASS.
Stock sizes, 16-oz., in 100 feet boxes, boxes included.
These prices only apply to the sizes stated.

				4ths.	3rds.	2nd.
				s. d.	s. d.	s. d.
11 by 9	12 by 9	13 by 9	14 by 9	13 6	15 6	17 0
12 „ 10	13 „ 10	14 „ 10	15 „ 10			
13 „ 11	14 „ 11	..	..			
14 „ 12	15 „ 12	15 „ 11	16 „ 11			
18 „ 12	19 „ 12	16 „ 12	17 „ 12			
16 „ 13	17 „ 13	20 „ 12	..	15 0	16 0	18 6
16 „ 14	20 „ 13	18 „ 13	..			
	17 „ 14	18 „ 14	..	16 to 17 oz. to the foot.		
	20 „ 14					

SMALL SHEET SQUARES.
In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	12s. 6d.
8 by 6	8½ by 6⅝	9 by 7	9½ by 7½	
		10 by 8	10½ by 8½	13s. 6d.

Boxes 2s. each returnable at full price.
Painted and Glazed with 16-oz. Sheet Glass.
London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS.
PAINTS of various colours ground ready for use.
SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of Prices and Estimates forwarded on application to
JAMES PHILLIPS & Co., 180, Bishopsgate Street Without, E.C.

Horticultural Glass Warehouse.

THOMAS MILLINGTON AND CO.,
87, Bishopsgate Street Without, London, E.C.
NEW LIST for ORCHARD-HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.
ORCHARD-HOUSE SIZES.

in.	in.		4ths.	3rds.	2nds.	Best
20 by 12						
20 by 13						
20 by 14	Per 100 feet	15 oz.	14s 3d	15s 6d	18s 6d	21s 0d
20 by 15		21 oz.	19s 6d	22s 2d	25s 6d	26s 6d
20 by 16						

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7								
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½					12s 3d	13s 3d	16s 0d	18s 0d

Per 100 feet.

10 by 8	12 by 9	12½ by 10½	14½ by 10½								
10½ by 8½	12½ by 9½	13 by 10	15 by 10					13s 3d	14 6d	17s 3d	19s 0d
11 by 9	13 by 9	13½ by 10½	13 by 11								
11½ by 9½	12 by 10	14 by 10	14 by 11								

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
15½ by 10½	14 by 12	22 by 12	22 by 16						
16 by 10	14½ by 12½	17 by 13	24 by 16						
14½ by 11½	15 by 12	23 by 13	20 by 17						
15 by 11	15½ by 12½	18 by 14	22 by 17						
15½ by 11½	16 by 12	22 by 14	24 by 17	11s 3d	15s 6d	18s 6d	20s 0d		
16 by 11	16½ by 12½	24 by 14	20 by 18						
21 by 11	17 by 12	22 by 15	22 by 18						
13 by 12	18 by 12	24 by 15	24 by 18						

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.
SHEET GLASS.
In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	36s.	4ths quality, per 200 feet case,	36s.
3ds „ „	42s.	3ds „ „	42s.
2ds „ „	60s.	2ds „ „	60s.
Best „ „	75s.	Best „ „	75s.

SHEET GLASS is made only in the following substances, 15 oz. 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.
HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.
BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.
PAINTS, COLOURS, VARNISHES, &c.
STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.
WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a-half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.
IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4s. per gallon.

Per cwt.—s. d.		Per gallon.—s. d.	
GENUINE WHITE LEAD	30 0	LINSEED OIL	2 9
SECONDS WHITE LEAD	28 0	BOILED OIL	3 2
GROUND PATENT DRYERS, 3d. to 4½d. per lb.		TURPENTINE	2 9
„ OXFORD OCHRE, 3d. to 4½d. per lb.		LINSEED OIL PUTTY, 8s. per cwt.	
„ RAW UMBER, 4½d. to 6d. per lb. [per lb.		Fine OAK VARNISH, 10s. to 12	0
„ BURNT do., 6d. to 9d.		„ CARRIAGE do., 12s. to 14	0
GREEN PAINT, all shades, 28s. to 60	0	„ PAPER do. 10s. to 12	0
BLACK PAINT, 24s. to 36	0	„ COPAL	16 0
RED PAINT .. 28s. to 36	0	KNOTTING	10 0
		Patent GOLD SIZE ..	10 0
		„ BLACK JAPAN ..	12 0
		GLAZIER'S DIAMONDS and TOOLS	
		MILLED LEAD and PIPES	
GROUND BRUSHES. DUSTERS. SASH TOOLS. DISTEMPER BRUSHES.		OLD LEAD Bought or taken in exchange.	

The above are Net, for Cash, and as such cannot be booked.
Lists of any of the above on application.

NEW PLANTS FOR 1869.

JAMES VEITCH & SONS

BEG TO ANNOUNCE THAT THEY WILL SEND OUT ON AND AFTER MAY 21,

THEIR UNDERMENTIONED SPLENDID NOVELTIES.

Ampelopsis japonica.

A new hardy Virginian Creeper, sent to us from Japan by Mr. J. G. Veitch.

It is remarkable for its compact shrubby habit, and for the great beauty of its foliage during the autumn months, the colours surpassing those of the popular Virginian Creeper, A. hederacea.

After being exhibited before the Floral Committee of the Royal Horticultural Society in October, 1868, and awarded a First-class Certificate, it is thus described by Mr. Moore:—

"A bold habited and remarkably beautiful hardy deciduous climbing shrub, with broad ovate oblong leaves, which in autumn assume a rich orange-red tint, and are extremely beautiful. It was much admired."

Price 7*s.* 6*d.* each.

Begonia rosæflora.

This is one of the many beautiful Begonias discovered by the late Mr. Pearce, in the Andes of Peru, coming from an elevation of 12,000 feet. It is admirably suited for cool greenhouses, and is very nearly if not quite hardy, and may be safely planted in sheltered situations.

It is a stemless species, with orbicular reniform bullate radical leaves, and scapes supporting from three to five flowers of a bright rosy colour as large as those of Begonia Veitchii. It is figured in the "Botanical Magazine" for December, 1867.

Price, good plants, 10*s.* 6*d.* each; extra strong plants, 21*s.* each.

Croton (Codiæum) aucubæfolium.

One of the most distinct of the many fine varieties of Croton, found by our Mr. J. G. Veitch in the South Sea Islands.

It forms a handsome compact growing shrub, with oblong acuminate leaves 6 to 8 inches long, by 2 to 3 in width, tapering at the base. The surface of the foliage is of a beautiful dark glossy green, thickly studded with yellow, or somewhat crimson blotches, the midrib and veins being slightly tinged with pink. Bearing a strong resemblance to the well-known Aucuba japonica of gardens, it takes its name from that popular plant.

This plant was awarded a First-class Certificate at the Royal Botanic Society's Exhibition, June 6, 1868. Price 21*s.* each.

Croton (Codiæum) Hillianum.

Amongst the many Crotons introduced by our Mr. J. G. Veitch from the South Sea Islands, none are likely to be more useful and generally appreciated than this fine variety.

It is probably the most compact and close growing kind of the whole collection, and this characteristic, added to its beautiful shining variegated foliage, renders it a fine ornamental plant and peculiarly adapted for filling vases or for table decoration.

The foliage is oblong sub-spathulate acuminate, from 6 to 7 inches in length, by 2 to 3 in width, the upper surface being shining purplish green, the midrib and veins bright crimson, and the under surface dull purple. It is remarkable for the reddish-yellow effect of its foliage.

A First-class Certificate was awarded to this plant by the Royal Horticultural Society on July 7, 1868. Price 21*s.* each.

Croton (Codiæum) maximum.

This magnificent Croton is probably the finest variegated plant of the season, and certainly one of the most striking ever offered. It far surpasses all others hitherto known, and it affords us peculiar satisfaction to have been the means of introducing it through our Mr. J. G. Veitch, who discovered it during his trip to the South Seas.

It is one of the largest yellow leaved varieties, of a strong robust habit, and admirably suited for exhibition or general decorative purposes. The leaves are oblong lanceolate acute, from 12 to 14 inches in length, by 3 to 4 in width, of a rich golden colour, marked on each side the midrib with dark olive-green bands of irregular form.

It is one of the showiest stove variegated shrubs, and has only to be seen to be admired.

It has been figured in the "Floral Magazine," and awarded First-class Certificates by both the Royal Horticultural and Botanic Societies. Price 42*s.* each.

Davallia hemiptera.

A beautiful dwarf stove Fern, very similar in appearance to some of the fine Filmy Ferns.

It is exceedingly dwarf and compact in habit, easily grown, and producing an abundance of the most delicately cut fronds, from 4 to 6 inches in length.

This will prove a decided acquisition to all collections of Ferns.

It was awarded a First-class Certificate at the Royal Horticultural Society's Exhibition, July 7, 1868. Price 10*s.* 6*d.* each.

Dracæna Macleayi.

It affords us great pleasure to be able this season to offer two more of the beautiful Dracænas brought home by Mr. J. G. Veitch from the South Sea Islands.

This and the following are both very handsome additions to this useful class of plants, which have of late years become so deservedly popular for decorative purposes.

It is exceedingly robust and compact, with leaves from 15 to 18 inches long, by 3 to 4 in width, of a dark bronzy brown, with a decided gloss or metallic tint over the whole surface.

The peculiar habit and colour of foliage of this fine species renders it perfectly distinct from any other in cultivation. Price 42*s.* each.

Dracæna nigro-rubra.

This fine stove variegated plant forms a fitting companion to the foregoing.

It is of bold erect growth, with leaves from 16 to 20 inches in length, of a dark brown, with a bright rosy-crimson centre, the young foliage being, as a rule, entirely of the latter showy colour.

In habit it is very similar to Dracæna terminalis, but its striking shades of crimson render it quite distinct from that of any other species. We have no hesitation in recommending it as a desirable acquisition. It has been frequently exhibited, and received similar awards to the preceding.

Price 21*s.* each.

Dipladenia (Echites) Boliviensis.

This distinct and beautiful stove plant may be best described as a very free flowering White Dipladenia. In habit it is very compact, producing an abundance of flowers in a much smaller state than almost any other species. The foliage is medium in size, of a light glossy green colour. The flowers are somewhat smaller than those of D. crassinoda, pure white, with a distinct yellow centre.

It forms a pleasing addition to the already popular Dipladenias.

It has been frequently exhibited, and was awarded the First Prize (Silver Medal) as the finest new plant in flower at the Royal Horticultural Society's Exhibition, June 16, 1868.

Price 15*s.* each.

Eranthemum aspersum.

A beautiful stove flowering shrub, introduced from the Solomon Islands by Mr. J. G. Veitch.

It has glabrous branches, ovate oblong leaves, forming a long leafy inflorescence of very slender long-tubed white flowers.

Each flower has an expanded bilabiate limb of five segments, four of which are dotted with purple, and the fifth heavily blotched with the same colour, like the lip of an Orchid. It is of very easy growth, dwarf in habit, and an abundant bloomer.

It is figured in the "Botanical Magazine" for May, 1868.

Price 7*s.* 6*d.* each.

Hedaroma (Darwinia) fimbriata.

This very distinct and beautiful greenhouse plant was introduced from the south-west of Australia.

In character it closely resembles the well-known Hedaroma Tulipifera, but is dwarfer, and blooms more freely in a small state.

The flowers are of medium size, bell-shaped, of a bright rosy colour, and beautifully fringed round the outer edge. It is a decided addition to that useful and popular class of greenhouse or conservatory flowering plants.

It was awarded a First-class Certificate by the Royal Horticultural Society in May, 1864.

Price, good plants, 15*s.*; a few stronger plants, 31*s.* 6*d.*

Maranta (Calathea) tubispatha.

A beautiful stove plant, introduced by ourselves from Western Tropical South America. The following description is taken from the "Botanical Magazine" of November, 1865, in which number it is figured:—"A very graceful species. Its habit and prettily blotched leaves cannot fail to render it a valuable addition to our variegated stove plants."

The leaves are obovate, elliptical, shortly acuminate, from 8 to 12 inches in length, of a pale green colour, with a row on each side of the midrib of a pair of oblong deep brown blotches—the striking contrast between the lively green groundwork of the leaf and the brown blotches rendering this plant at once distinct and elegant. It has received a First-class Certificate from the Royal Horticultural Society. Price 21*s.* each.

Rhododendron Henryanum.

A seedling raised by that successful hybridiser, Isaac Anderson-Henry, Esq., of Edinburgh. It is a cross between the handsome Rhododendron Dalhousieæ and R. Sesterianum, of a pure white colour, very sweet scented, and in shape a medium betwixt the two parents. It forms another decided addition to the popular class of conservatory sweet-scented Rhododendrons.

It has been exhibited before the Floral Committee of the Royal Horticultural Society, and awarded a First-class Certificate. Price 10*s.* 6*d.* each.

Thibaudia acuminata.

A beautiful greenhouse shrub, introduced by ourselves from the Andes of Ecuador. It is thus described by Dr. Hooker in the number of the "Botanical Magazine" for January, 1869, in which it is figured:—"A very distinct, showy, free flowering shrub. Being a native of the loftier regions of the Andes (from 8 to 10,000 feet), it is well suited to a conservatory temperature, where its handsome green foliage, purple tinted young leaves, and brilliant red flowers, which are produced in great abundance, render it a very attractive plant."

In its native habitat it is said to be in flower during the whole year, and under cultivation it blooms almost constantly. Price 10*s.* 6*d.* each.

NEW ORCHIDS FOR 1869,

INTRODUCED DIRECT FROM THEIR NATIVE HABITATS BY MESSRS. VEITCH AND SONS.

Angræcum falcatum.

A very pretty, neat dwarf growing Orchid, from Japan. In habit it is remarkably dwarf and compact, seldom exceeding 9 to 12 inches in height, producing its charming spikes of white, sweet-scented flowers in great abundance. It remains a long time in bloom, and is of very easy culture, succeeding well in a cool intermediate house.

Price 21*s.* to 42*s.* each.

Cœlogyne (Pleione) Reichenbachiana.

The group of Pleiones has for many years sustained a high position in the estimation of all admirers of Orchids, being of easy culture, and, requiring only a medium temperature, it comes within the reach of almost all plant growers.

The species now under notice was discovered by our indefatigable correspondent, Colonel Benson, of Rangoon, and is thus described by Dr. Hooker, in the "Botanical Magazine," for February, 1869:—"This is decidedly the finest species of the Pleione group of Cœlogyne known; it is very distinct from any other, by the great size, peculiar shape, lobing, and reticulated coloration of the pseudobulbs."

The flowers are large, often measuring 2½ inches across; with oblong spreading rosy-lilac sepals, recurved petals, and a fringed emarginate lip, white, beautifully marked with deep magenta.

This lovely plant bears the name of Professor Reichenbach, the celebrated botanist.

Price 42*s.* each.

Dendrobium crassinoda.

One of the most remarkable Dendrobes hitherto discovered, whether we take the singularly formed stems or its distinct and beautiful flowers. The former are produced from 9 to 18 inches in length, and formed throughout of swollen internodes closely set together; giving them the appearance of rows of large beads.

The flowers are 2 to 2½ inches in diameter, abundantly produced from the upper nodes; white, with broad rosy tips to the sepals, petals, and lip, and a large bright yellow disc to the latter. In its native habitat it is described as producing as many as 22 of its charming flowers on one stem; thus rivalling the most beautiful of its genus. It is of very easy culture, and can be highly recommended to all lovers of Orchids.

The Floral Committee of the Royal Horticultural Society awarded a First-class Certificate on February 16, 1869. Price from 63*s.* to 105*s.* each.

Dendrobium macrophyllum Huttonii.

This beautiful plant is a white variety of the well-known D. macrophyllum. It was sent to us direct from the Moluccas, by our late collector, Mr. Hutton, after whom it has been named.

It possesses all the good qualities of the original species, being if possible a more profuse bloomer, and its handsome white flowers, which are deliciously scented, last during a long period in bloom.

Price, good plants, 105*s.* each; strong plants, 147*s.* each.

Masdevallia Veitchiana.

This most extraordinary and strikingly beautiful Orchid was introduced by ourselves from the Cordilleras of Peru. It is acknowledged by all who have seen it to be the *finest* Orchid of recent introduction; and we have no hesitation in saying it is *equal* if not *superior* to any hitherto known.

Coming from a high elevation, it thrives well under the coolest Orchid treatment, and is both a very free growing plant and *an abundant bloomer.*

No description can convey an accurate idea of the striking effect of this plant when in bloom, both the form and colour of the flower being entirely unique.

It has small oblong pseudobulbs, linear oblong, dark glossy green leaves and erect slender scapes, from 12 to 18 inches high, each bearing a single flower from 5 to 6 inches in length, by 3 to 4 in width.

Each flower consists of three broadly ovate sepals, extending into long tail-like points of the most *brilliant orange-scarlet* colour, delicately shot with purple; added to this there is a vivid hue produced over the *whole* flower, by the inner surface being studded with minute papillæ, of a brilliant cadmium-yellow.

It may be easily imagined from the foregoing description, and considering that each flower remains open from five to six weeks, that for striking beauty this plant is quite unsurpassed.

It has been figured in the "Botanical Magazine," and "Flores des Serres," and exhibited frequently at the Exhibitions of the Royal Horticultural and Botanic Societies, and also at the International Show held at St. Petersburg.

In every instance the highest Prizes have been awarded, and Messrs. VEITCH & SONS confidently recommend it as one of their *finest introductions.*

Prices on application.

Vanda insignis (true).

It affords us great pleasure to be the medium of introducing this splendid species, which has for so many years been sought after by European cultivators.

The Vanda is perhaps altogether the finest genus of Orchids, and we have no hesitation in saying that the true V. insignis is one of the *very finest* of its genus.

It is peculiarly distinct in every way, having the habit and foliage resembling those of Vanda suavis and tricolor, but, *unlike* those species, young plants only 9 to 12 inches produce spikes with from five to seven flowers.

The flowers continue open an unusually long time, and measure 2½ inches in diameter, having the sepals and petals of a bright glossy ochraceous brown colour, blotched with chocolate. The labellum forms the most striking feature of the flower, being an inch across, of great substance, and of the most beautiful lilac-pink colour.

This remarkable plant was sent to us from the Moluccas, by our late lamented collector, Mr. Hutton. It has received the *highest* awards ever bestowed on a New Plant, and is *universally admired.*

Prices on application.

ORDERS ARE NOW BEING BOOKED, AND WILL BE EXECUTED STRICTLY IN ROTATION.

A NEW ILLUSTRATED DESCRIPTIVE CATALOGUE

Of the above and many novelties sent out by other houses will be forwarded free on application.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, S.W.

Rhododendrons.

JOHN WATERER AND SONS beg to announce that their RHODODENDRONS are NOW FAST COMING INTO BLOOM, and will continue in great perfection throughout the month of June.

Their Annual Display of Rhododendrons at the Royal Botanic Gardens, Regent's Park, will be on view after the 18th inst.

The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

Now Ready.

HENRY WALTON begs to inform his Friends and the Public that his NEW SPRING CATALOGUE is now ready, containing all the newest and most select Pelargoniums, Tricolor, Gold and Bronze; Show and Fancy, Ivy-leaved and Double Geraniums; Fuchsias, Petunias, Verbenas, Dahlias, Show and Fancy; bedding and other New and Rare Plants, &c.

Edge End, Marsden, near Burnley, Lancashire.

VARIEGATED PELARGONIUMS.

Louise Smith	Sophia Cusack	Moire Antique
Edwinia Fitzpatrick	Madeline Schiller	Lady of Shalot
Caroline Longfield	Light and Shadow	Lady Cullum
Beauty of Caldordale	Glen Eyre Beauty	Lurline

15s.

CASHON & SON, Gravel Walk Nursery, Peterborough.

Tricolor Pelargoniums.

J. WATSON, New Zealand Nursery, St. Alban's, begs leave to offer his two beautiful TRICOLOR PELARGONIUMS, MISS WATSON and MRS. DIX, unrivalled for freedom of growth and beauty of colouring, in good plants, 5s. each; also, PRINCESS CLOTILDE, 5s. each, or the three for 13s. 6d. Miss Watson and Mrs. Dix have received 17 First-class Certificates and Extra Prizes from the leading Horticultural Societies of the kingdom. Early orders solicited.

The best Gold-leaved Pelargoniums of the Season are Golden Emperor and Golden Queen.

SALTMARSH AND SON are now sending out the above splendid varieties, in strong established plants, at 1s. 6d. each, with the usual discount to the Trade. They were awarded the 1st and 2d Prizes respectively in the Gold-leaved Class at the Royal Horticultural Society's Special Pelargonium Show in June last. For further particulars see previous Advertisements.

Moulsham Nurseries, Chelmsford.

Cheap Tricolor Geraniums.

ALFRED FRYER offers 50,000 fine Plants, at the following low prices for cash. Package free.

LADY CULLUM, 13s., 18s., and 21s. per dozen.
SOPHIE DUMARESQUE, 7s., 10s., and 13s. per dozen.
SUNSET, 5s., 6s., and 7s. per dozen.
MRS. POLLOCK, 3s. 6d., 5s., and 6s. per dozen.
MRS. BENYON, 5s., 6s., and 7s. per dozen.

Remittance requested from unknown correspondents.

Address, ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

CHOICE BICOLOR and TRICOLOR GERANIUMS.

	Per doz.—s. d.		Per doz.—s. d.
Lady Cullum	10 0	Model	5 0
Sophia Cusack	15 0	Perilla	5 0
Sophie Dumaresque ..	6 0	Viceroy	10 0
Sunset	4 0	Mrs. C. Barry	4 0
Beauty of Calderdale ..	6 0	Vandyke	4 0
Crystal Palace Gem ..	4 0	Refulgens	10 0
Her Majesty	10 0	Italia Unita	4 0

For cash, package included. Trade price on application.

THOMAS PESTRIDGE, Greenway Nursery, Uxbridge.

New Tricolor and Bicolor Geraniums.

F. AND A. SMITH are now sending out their new varieties of the above, amongst them the following sterling novelties:—

GOLDEN TRICOLORS.—Achievement, Coronet, Resplendent, Shakespeare, Sultan, &c.
SILVER TRICOLORS.—Exquisite, Miss B. Coutts, Sparkler, &c.
BICOLORS.—Arab, Criterion, Goldfinder, Sybil, &c.
ZONALS.—Acme, Flamingo, Lord Stanley, &c.

The NEW CATALOGUE, containing full descriptions of the above and other splendid novelties, is now ready, and may be had on application. The Nurseries, West Dulwich, S.E.

PELARGONIUMS, Show, Spotted, and Fancy, in 4-inch pots, blooming plants, 12 fine named sorts for 6s., 24 for 12s., 48 for 24s., package free.
GERANIUM Gloire de Nancy (fine double), good plants, 12 for 5s., 25 for 10s., 50 for 18s., package free.
GERANIUMS.—Nice plants of Sunset, Italia Unita, Attraction, Beauty of Oulton, Circlet, Burning Bush, Countess of Warwick, Golden Chain, Golden Fleece, Kenilworth, Mrs. Lennox, Mrs. Lonfield, Mrs. Milford, Queen of Queens, Stella variegata. Purchasers' selection, 4s. per dozen, package free.
Lemon-scented VERBENAS, 4s. per dozen, package free.
DAHLIAS, good named varieties, 50 for 12s. 6d., package free.

H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

New and Beautiful Variegated Geraniums,

FOR BEDDING OR POT CULTURE.

J. ELCOMBE AND SON beg to offer the following Varieties, by the dozen or 100, prices on application:—Beauty of Oulton, Beauty of Calderdale, Crystal Palace Gem, L'Elegante, Mrs. Pollock, Neatness, Rev. Mr. Radclyffe, Sunset, Countess of Craven, Louisa Smith, Edwinia Fitzpatrick, Lady Cullum, Queen Victoria, Sophia Cusack, Sophie Dumaresque, Italia Unita, Compactum, Model, Her Majesty, Beauty of Ribbledale, Mrs. Dix, Egyptian Queen, Zelinda.

DESCRIPTIVE CATALOGUE of all the best and Newest Varieties of Variegated, Zonal, and Nosegay Geraniums, Fuchsias, Verbenas, &c., forwarded free on application.

Nursery and Seed Establishment, Romsey, Hants.

Tricolor, Bicolor, and other Bedding Geraniums.

J. SCOTT, NURSERYMAN and FLORIST, Bathford and Batheaston, offers strong Plants of the following:—

SOPHIE DUMARESQUE, 6s. per dozen or 45s. per 100; large plants 12s.; plants that will make specimens, 18s. per dozen.
LUCY GRIEVE, 3s. 6d. each or 30s. per dozen, fine plants 42s. per dozen; plants with three or four branches, 60s. per dozen.
GLEN EYRE BEAUTY, 3s. 6d. each or 30s. per dozen.
LADY CULLUM, 2s. each or 18s. per dozen.
LOUISE SMITH, 2s. 6d. each or 24s. per dozen.
ITALIA UNITA, CRYSTAL PALACE GEM, and SUNSET, 4s. per dozen.
BRONZE, VANDYKE, MRS. CHARLES BARRY, and BRONZE SHIELD, 1s. each.
MADAME LEMOINE, double, 5s. each.
MDME. ROSE CHARMEUX, double, 2s. each.
GRAND DUKE, LORD DERBY, and ECLAT, 1s. each.

One each of the above for 24s.

Remittances requested from unknown correspondents.

New Tricolor Pelargoniums for 1869.

JOHN AND CHARLES LEE intend to send out in June, 1869, the two following fine NEW TRICOLOR PELARGONIUMS, which they can warrant to be of strong constitution, rapid growth, and brilliant colours. Mrs. John Clutton was raised from seed in the autumn of 1867, and will consequently not be two years old when sent out.

MRS. JOHN CLUTTON is a Silver Tricolor of a very striking and pleasing character, the broad bright crimson zone being well defined, and the white edge clear and distinct, with a good deep green centre. The habit is dwarf and very free, and is all that can be desired in a Silver Tricolor.

The First Prize was awarded to Mrs. John Clutton at the Special Pelargonium Show at South Kensington in June last, and a First-class Certificate was awarded to it by the Floral Committee of the Royal Horticultural Society.

EDWARD MILNER.—A beautiful Golden Tricolor, of robust habit and free growth. The centre of the leaf is bright green; the zone is a bright flame colour on black, and the margin clear gold. All the colours are clean and well defined, and are retained till the decay of the leaves. The glow of colouring in Edward Milner gives the plant a rich and distinct character.

Price 15s. each. Four plants will be sent for three ordered.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

New Plant.

MR. WILLIAM BULL is now sending out the beautiful LASIANDRA MACRANTHA.

The flowers of this plant are truly marvellous, 14 foot in circumference; are produced nearly throughout the year, and on plants when only an inch or two high. Some blooms of it were sent at Christmas to the Editor of the *Gardeners' Chronicle*, and the following remarks were made in the columns of that Journal, January 2, 1869:—

"We have before us fine blooming specimens of the noble Lasiandra macrantha, sent us by Mr. BULL, which shows that the flowers of this grand plant may be had in winter as well as in summer, which is an additional recommendation. Notwithstanding what may seem to be an unfavourable season, the blossoms are even now nearly five inches across, and are of the richest violet-blue, a tint which has not been reproduced in any of the illustrations which have yet appeared."

A DESCRIPTIVE CATALOGUE of other NEW PLANTS, just published, post free.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

Beautiful Crimson-foliaged New Bedding Plant.

IRESINE ACUMINATA.

ONE of the GEMS of the SEASON.

Price 5s. each.

WILLIAM BULL, F.L.S., Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

New Semi-double Gloxinias.

JAMES VEITCH AND SONS beg to announce that they are now sending out these fine Seedlings, which were raised by Mr. John Gray, Gr. to the Right Hon. Earl of Dartrey.

LADY CREMORNE.—Flowers erect, white, with a rich deep blue throat, the prolonged calyx which gives the flower the double appearance is pencilled with lines of deep lavender.

JOHN GRAY.—Flowers erect, rich dark crimson, shaded in the centre; the outside of the prolonged calyx is of a light crimson, lined with the same colour at the base.

The Royal Horticultural and Royal Botanic Societies have awarded Certificates to both these Novelties; and they are figured and fully described in the "Floral Magazine" for 1868, plate 404.

Price 5s. each.

Royal Exotic Nursery, Chelsea, S.W.

DOBSONS' PRIZE FLOWER SEEDS,

Now ready, in sealed packets, post free.

DOBSONS' CELEBRATED PRIZE CALCEOLARIA.—This strain is if possible finer this season than we have ever had them; producing flowers of very large size, rich and varied in colour, and of dwarf habit. The plants from which we save all our seed are now in fine bloom, and will continue for a fortnight or three weeks, and may be seen any day except Sundays. Seed in sealed packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s.

DOBSONS' PRIZE CINERARIA, 1s., 2s. 6d., and 5s.

Received 60 First Prizes in 6 years.
First Prize, Kensington, 1869.
Special Prize, Regent's Park, 1869.

DOBSONS' PRIZE PRIMULA.—Unsurpassed in the trade for fringe and colour. 1s., 2s. 6d., and 5s.

DOBSON & SONS, Woodlands Nursery, Isleworth.

CARTER'S PRIMULA, CALCEOLARIA, and CINERARIA.

J. C. & Co.'s strain of Calceolaria is saved from plants that were awarded a 1st Prize at the late International Show. The Cineraria and Primula stocks are also saved from the finest Prize Varieties, and cannot be surpassed.

CALCEOLARIA and CINERARIA.

Per packet—s. d.		Per packet—s. d.	
Calceolaria, finest hybrid ..	2 6	Calceolaria, Dobson's strain..	2 6
" " spotted..	2 6	Cineraria, extra fine	2 6

PRIMULA.

Per packet—s. d.		Per packet—s. d.	
Primula, choicest mixed, fringed	2 6	Primula, choicest white fringed	2 6
" " dark carmine, fringed	2 6	" " Fern-leaved carmine	2 6
" " rose, fringed	2 6	" " " white ..	2 6

CALCEOLARIA INTERNATIONAL PRIZE.—The Seed of this superb strain cannot fail to produce splendid varieties, as last season's plants took 1st Prizes wherever exhibited. Per pckt., 2s. 6d.

PRIMULA FIMBRIATA (New scarlet).—This is a decided novelty, being of a deep scarlet colour, and cannot fail to be much admired wherever grown. Per packet, 2s. 6d.

INDIA-RUBBER HOSE at Manufacturer's prices, 60 feet (with complete fittings), 25s.

JAMES CARTER & Co., The Royal Seedsmen, 237 and 238, High Holborn, London, W.C.

ROYAL HORTICULTURAL SOCIETY.—SHOW of POT ROSES and SPRING FLOWERS, May 8.

AWARDS of the JUDGES.

CLASS 1.—9 ROSES, in pots, distinct. (Nurserymen.)
1st Prize, Mr. W. Paul, Paul's Nurseries, Waltham Cross, N., £2.
2d, Mr. C. Turner, Royal Nursery, Slough, Bucks, £1 10s.
3d, Messrs. Paul & Son, Old Nurseries, Cheshunt, Herts, £1.

CLASS 2.—6 ROSES, in pots, distinct. (Amateurs.)
2d, Mr. J. James, Gr. to W. F. Watson, Esq., Isleworth, £1 10s.

CLASS 3.—12 NEW ROSES of 1867 or 1868, in pots, distinct. (Open.)
1st, Mr. C. Turner, £2. | 2d, Mr. W. Paul, £1 10s.

CLASS 4.—ROSE, single specimen, in pot. (Open.)
1st, Mr. C. Turner, 15s. | 2d, Mr. W. Paul, 10s.

CLASS 5.—9 AURICULAS, edged, distinct. (Open.)
1st, Mr. C. Turner, £1 10s. | 2d, Mr. J. James, £1.

CLASS 6.—9 AURICULAS, Selfs and Fancies, distinct. (Open.)
1st, Mr. C. Turner, £1 10s. | 2d, Mr. J. James, £1.

CLASS 7.—Collection of ALPINE PLANTS, in 6 boxes, each 1 foot square. (Open.)
1st, Mr. T. S. Ware, Hale Farm Nursery, Tottenham, N., £1 10s.
2d, Messrs. J. Salter & Son, Versailles Nursery, William Street, Hammersmith Road, W., £1.

CLASS 8.—6 POLYANTHUSES, distinct. (Open.)
1st, Mr. J. James, £1.

CLASS 9.—6 RHODODENDRONS, 3 kinds. (Open.)
1st, Mr. A. Wilkie, Gr., Addison Road, Kensington, W., £2.

CLASS 10.—RHODODENDRON, single specimen. (Open.)
1st, Mr. A. Wilkie, 15s.

CLASS 11.—8 PANSIES, in pots, distinct. (Open.)
1st, Mr. J. James, 15s.
2d, Mr. H. Hooper, Vine Nursery, Widcomb Hill, Bath, 10s.

CLASS 12.—6 Pots of LILY of the VALLEY. (Open.)
1st, Messrs. Reeves Brothers, Nurserymen, Notting Hill, W., £1 10s.
2d, Messrs. J. Salter & Son, £1.

CLASS 13.—MISCELLANEOUS COLLECTION of PLANTS in FLOWER. (Open.)
1st, Messrs. J. Standish & Co., Royal Nursery, Ascot, £1 10s.
2d, Mr. T. S. Ware, £1.
Equal, Mr. C. Turner, £1. | 3d, Mr. J. James, 15s.

EXTRA PRIZES.

Messrs. Paul & Son, Collection of Roses, in pots, £2.
Mr. William Paul's Collection of Cut Roses, £1 10s.
Mr. C. Turner's Collection of Cut Tulips, £1.
Mr. J. James' 6 Calceolarias, 15s.
Mr. H. Hooper, Stand of 36 Bedding Pansies, 15s.
Mr. C. Turner, Collection of Alpine Auriculas, 10s.
Mr. H. Hooper, Stand of 36 Bedding Pansies, 10s.
Mr. H. Hooper, Stand of 37 Pansies, 7s. 6d.
Mr. H. Hooper, 24 Ranunculuses, 7s. 6d.
Mr. J. James, Stand of 24 Pansies, 7s. 6d.

LEEDS HORTICULTURAL SOCIETY.—The GREAT EXHIBITION of PLANTS, FLOWERS, FRUITS, and VEGETABLES will be held in the LEEDS ROYAL PARK, on WEDNESDAY, THURSDAY, and FRIDAY, June 9, 10, and 11. PRIZES upwards of £500. In addition to those offered in the Schedules issued, the Mayor (T. W. George, Esq.), will give a splendid SILVER CUP, value Ten Guineas, to the Exhibitor who contributes most toward the beauty and embellishment of the Exhibition by the Collections of Plants staged in accordance with the Schedule. This Prize will be awarded by the Judges after having given their decision in the other Classes.

Crossgates, near Leeds. JAMES BIRBECK, Secretary.

NOTE.—The North Eastern, Great Northern, and Midland, Lancashire and Yorkshire, and London and North-Western Railway Companies will convey Plants, Flowers, Fruits, &c., at ordinary rates to the Show, and return them free if they remain the property of the Exhibitor. The Committee provide Assistants and Horses for Exhibition Vans coming by Rail, also Covered Spring Vans to convey Plants, &c., between the Railway Station and the Exhibition Grounds.

July 19th to 24th, 1869.

THE ROYAL HORTICULTURAL SOCIETY'S GRAND EXHIBITION at MANCHESTER, in connection with the SHOW of the ROYAL AGRICULTURAL SOCIETY.

Amongst various Special Prizes,

A SILVER CUP (copy of the famous Cellini Cup), VALUE £21

will be offered by the Proprietors of the GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE for the best COLLECTION of 5 FRUITS and 8 VEGETABLES, to be made up as follows.

In awarding the Prize, Marks will be adjudged according to the following scale, for the several subjects produced.

	Good.	Medium.	Inferior.
Grapes	6 marks	3 marks	1 mark
Melons (2 fruits)	6 "	3 "	1 "
Strawberries	3 "	2 "	1 "
Gooseberries	3 "	2 "	1 "
Currants	3 "	2 "	1 "
Cherries	3 "	2 "	1 "
Raspberries	3 "	2 "	1 "
Apples of 1868	6 "	3 "	1 "
(Any 5 of the above 8 subjects).			
Peas	3 "	2 "	1 "
French Beans	3 "	2 "	1 "
Broad Beans	3 "	2 "	1 "
Cauliflowers	3 "	2 "	1 "
Cucumbers (brace)	3 "	2 "	1 "
Summer Cabbages	3 "	2 "	1 "
Early Carrots	3 "	2 "	1 "
Turnips	3 "	2 "	1 "
Globe Artichokes	3 "	2 "	1 "
Onions	3 "	2 "	1 "
Spinach	3 "	2 "	1 "
Rhubarb	3 "	2 "	1 "
Potatos	3 "	2 "	1 "
Mixed Salading	3 "	2 "	1 "
(Any 8 of the above 14 subjects).			

This Prize is open for Competition amongst Amateurs and Gardeners of private families. The Fruit and Vegetables produced must be of *the Exhibitor's own growing;* and any article otherwise obtained will disqualify the Collection. It is expected that the several articles will be neatly and effectively displayed.

The Gardeners' Chronicle.

SATURDAY, MAY 15, 1869.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY,	May 18	Royal Horticultural (Fruit and Floral Committees), at South Kensington	11 A.M.
		Ditto (Scientific Committee)	1.30 P.M.
		Ditto (General Meeting)	3 P.M.
WEDNESDAY,	19	Royal Botanic (First Summer Exhibition	
THURSDAY,	20	of Plants and Flowers)	2 P.M.
SATURDAY,	22	Royal Horticultural (Special Prize and Pelargonium Show), at S. Kensington	2 P.M.

FEW men not actually engaged in the practice of Horticulture have done more to promote its interests than the late Sir CHARLES WENTWORTH DILKE. The main facts in the career of the deceased Baronet are given in another column. Those who had the privilege of his friendship, and those who were associated with him in everyday work, will best fill in the meagre outline there given. The general public appreciated his active business habits and tact, for the results were worthy of his labours. Horticulturists in particular will long remember that the success of the International Horticultural Exhibition of 1866 was due, to a very large extent, to the indomitable energy and consummate judgment displayed by Sir WENTWORTH as Chairman of the Committee. He retained his connection with this memorable event by holding the office of Trustee of the Lindley Library, which was established, it will be remembered, with the surplus funds arising from the Exhibition. The late Baronet's personal friends and associates will also long remember the genial courteous friend, always sensitive in his consideration for others, ever prompt to give counsel or aid when required.

THE present is a good time for saying a few words on a fault which too generally characterises our BRITISH FLOWER SHOWS, and one which has often been animadverted on, but which remains uncorrected to the present day. It is the almost total disregard which is generally paid to producing artistic effect with the materials sent for exhibition. No one can have visited a Continental show without having remarked the contrast exhibited in this respect with an English one. The general effect in a Continental show is almost without exception (we never met with the exception) a striking feature in the show. The plants are arranged in

groups, so that the bright colours of the flowers are brought out by the green of surrounding foliage. Those that are displayed singly are planted in smooth turf provided for the occasion —not a pot is to be seen. The pots of the plants which are staged are concealed by the foliage of other plants arranged in front of them, large masses are thrown together here, interrupted by smaller and lower lines there, until the whole assumes the aspect of a natural scene of beauty. Whether this can be said of our English shows, we leave our readers to say. Long rows of the same kind of plant are regimented, with their pots displayed in all their native hideousness—each individual flower a gem of beauty, perhaps far surpassing anything to be met with on the Continent; but in combination deteriorated in effect by their unvarying uniformity: modest flowers killed by the unrelieved glare of something that is called "a blaze of beauty" in their vicinity; and as to general effect, of course that is impossible where the show is parcelled out in different patches and exhibited in different places. There is nothing to prevent our producing as good an effect in our shows as our neighbours do. There is no mystery or difficulty in it. We did it in the great International Exhibition in 1866. The Rhododendron shows of the Royal Horticultural and Botanical Societies are examples where it is done every year, and now and then a more or less successful effort in the right direction has been made by these societies in their general shows, sufficient to prove that they can do it when they choose, and to remove every apology from them for not doing it always. A great show which was held last week in Berlin, has suggested the above remarks, and which may serve to indicate the way that we should go.

The show was held in a riding school, as is usual on the Continent, and the whole place had to be put into order, covered with soil, gravel, turf, staging, rockeries, waterfall, &c., in the space of three days. In these three days, too, while the work was going on, the plants were received and put in their places; and here is the point of difference between the English and the Continental practice, in which our chief difficulty lies. Our exhibitors send their plants in only on the morning of the day of exhibition, the Continental exhibitors three days before. But our horticulturists have shown themselves willing to part with their plants for two, three, or four days; some of our shows have lasted that time; would they then object to send them (if required) two days, or even only one day, before the show, if the show were not continued beyond two days after opening? We imagine not. Whether or not it would be practicable to fix different days for sending in different kinds of plants we do not know. We can easily imagine that it would be a convenience to some exhibitors who were sending more than one van-load to send some on one day and some on the next, and that others who had something of especial rarity or value would not like to send it until the last moment, and would not be willing to make two journeys for all that they had to show. But all that is a question of detail. If the mass of plants were in the hands of the officials a day before the opening, we venture to think we should inaugurate a new and better state of things. But another thing, not less necessary, is preliminary preparation. The plan of the campaign has to be arranged beforehand—the place of the great masses has to be fixed, and the plants to fill them provided. At the Berlin Show, the Botanic Garden sent all the large, massive, fine-foliaged plants. At home, the Horticultural, Botanical, and Crystal Palace establishments have all that within themselves. Each massive group could be prepared days beforehand, with holes left into which to pop the glowing Azaleas or bright flowering plants when they arrived, and thus, as at Berlin, each separate exhibited plant could be displayed with a thick framework of dark green foliage setting it off, and although thus mingled with other plants, the whole of one exhibitor's plants in that class kept by themselves. It would take a good deal more space, and would entail a great deal more trouble on the part of the officers charged with the exhibition. That we do not deny: but as our object is to make the exhibitions more effective, and more attractive to the public, that is surely worth the extra trouble.

One other point to be noted is, that the stages for the smaller plants, would require to be more nearly vertical than we are accustomed to make them. It is easy to see how these smaller plants may be arranged effectively and without showing the pots, if we once admit the idea that for almost every plant that is sent for exhibition there shall be another green foliaged plant to form the setting in which the exhibited plants are to be placed.

—— The National Horticultural Exhibition which opened yesterday at Manchester, is probably the finest show which has yet been held in that city. Mr. Williams' prize of 50*l*., for which there are two competitors, has brought together the finest group of 50 plants ever staged by one exhibitor in a single collection; and when we add that this group comes from the collection of H. Micholls, Esq., those who have witnessed Mr. Baines' style of growing plants will have little difficulty in realising something of the cultural merits of the subjects produced. Those grand Sarracenias, at which horticulturists gazed in sheer amazement a year or two since, are there, looking finer than ever; another conspicuous object in this group is a grand bush of Genetyllis tulipifera, robed in wondrous beauty. We remark throughout the show that in all cases the plant is more finely coloured than usual, which is probably owing to the thorough ripening of the wood, from the excessive heat of last summer. Mr. Williams himself exhibited something like a hundred specimen plants in the various classes. Orchids and Azaleas from various sources, Roses and Rhododendrons from Messrs. Lane, Ferns and Conifers, and the thousand miscellaneous subjects which go to make up a great flower show, are staged in profusion; and, altogether, this is, as we have said, one of the finest flower shows that Manchester has witnessed. It is to be desired that the weather may continue to be as propitious as it now promises to be, in order that the holiday folk may enjoy to the full the feast of flowers, which Mr. Findlay and the Manchester Botanical Society have spread out for their delectation.

—— We learn that the Botanic Garden, Manchester, is not available for the purposes of the Royal Horticultural Society's Exhibition, in July next. The arrangements between the two Societies have, as it appears, come to nought, owing to the Council of the Manchester Society demanding privileges for their Fellows to an extent beyond what the Horticultural Society can in reason accede to. Under these circumstances the Royal Horticultural Society had no option but to look about for another site, and we believe that a very eligible spot has been secured just beyond the Botanic Garden, and attached to the best portion of the Royal Agricultural Society's Show.

—— In accordance with a wish expressed by many exhibitors who intend to be present at the Special Pelargonium Show on the 22d inst., we believe that some arrangements are in progress by which they, as well as their friends who may be desirous of attending the discussion meeting, which is to take place in the Council-room during the time the awards are being made, may be served in the garden with a substantial breakfast. Messrs. Spiers & Pond will, we believe, be willing to cater for them, if they will take the trouble to provide themselves with a breakfast ticket (to be had at the refreshment stand) not later than 8 A.M. It is proposed that the breakfast should be served at 10 A.M. precisely, so that the meeting may take place at 11 o'clock, as already intimated (see p. 391).

—— Mr. W. Robinson's work on the Parks, Promenades, and Gardens of Paris, has just been issued by Mr. Murray, and forms a handsome volume of more than 600 pages, with 400 woodcuts, plans, &c. It is by no means a mere amplification of his former volume, but while it is in great measure devoted to the subject indicated in the title, it appears to comprise a complete account of the best and most noticeable features of French gardening in all its departments. Further examination will be needed before any opinion can be offered as to the technical merits of the book, but in the meantime we may safely commend it to the notice of all desirous of a richly illustrated *souvenir* of the French capital.

—— The first volume of Mr. Wilson Saunders' useful Refugium Botanicum is now completed. The last part is devoted mainly to species of Cotyledon (Echeveria). Of this we shall take occasion to speak more fully at another time. Meanwhile we tender the hearty thanks of all horticulturists and garden botanists to Mr. Saunders for his public spirit and welcome aid.

—— M. Alphonse De Candolle, the President of the Botanical Congress of London, 1866, has been elected one of the foreign members of the Royal Society.

—— The Chair of Botany in Erlangen, vacated by the death of Dr. Schnizlein, has been filled by the election of Dr. Kraus, formerly assistant to the Professor at Leipsig.

New Plants.

Vanda Denisoniana, *Benson* and *Rchb. fil.*

Foliis lorato-ligulatis apice inæquali obtuse bilobis (sine dente medio—an semper?); racemo valido pluriloro; sepalis cuneato-oblongis obtuse acutis; petalis magis cuneatis abrupte dilatatis subhastatis; labelli auriculis subquadratis, lamina pandurata, lacinula antica angusta basi æquali, anguste ac obtusangulo subsagittata, antice emarginata, carinis a basi in discum approximatis quinis obtusis, callo emarginato postposito, calcari conico valde brevi intus velutino. Flores lactei, apicibus flavoviridulo suffusis calcaris fundus ac regio circa ostium aurantiaca, lineis punctorum brunneorum geminis utrinque.

The white Burmese Vanda was one of the secret treasures of the Royal Exotic Nursery for a while. It has just flowered, and Messrs. Veitch have kindly placed in our hands the beautiful *spolia* of this striking novelty. The habit of the plant may be compared to that of Vanda Bensoni, though, as far as our recollection goes, the new one is much stronger. The leaves, Mr. Harry Veitch informs us, are wider; they are ligulate, unequally bilobed at the attenuate apex, and very shining. Our inflorescence is four-flowered—the flowers larger than those of Vanda Bensoni. Both sepals and petals are reflexed as in the majority of Vandas, very leathery, shining, cuneate-oblong, blunt acute, the leaves somewhat hastate, milk-white, with a light yellowish-greenish hue on the apex. The lip has quadrate auricles, and a broad pandurate lamina, with a short, bilobed, subhastate, anterior part, not broader than the base, not so much like a heath-cock's tail as that of the Vanda Bensoni. A peculiar feature is, that the superior limb of the anterior part has a very callous line springing from it. There are five elevated ridges on the disc of the lip, and a little bilobed callus at its base; the conical spur is very short, velvety inside, while the lip is white, yellowish-green at the end, deep orange around the mouth of the spur, over which stand two parallel oblique rows of points all around it.

We live in the days of novelties in Vandas, as some years ago in the days of new Phalænopsids. *Chacun à son tour.* There can be no doubt that this lovely plant will create a sensation among amateurs. We need scarcely say that it is one of Colonel Benson's most striking discoveries, though we should not care to be appointed the modern Paris, to decide which was the loveliest among the Bensonian fairies just now, having in hand another extraordinary Bensonio-Veitchian novelty. We have dedicated this Vanda to Lady Londesborough, naming it V. Denisoniana, in appreciation of Lord Londesborough's great and generous love for Orchids. Messrs. Veitch, who may be proud of their success, inform us that the new Vanda appears to be a free flowerer, as the same plant has just produced a new flower spike. *H. G. Rchb. f.*

NOTES ON BEDDING PLANTS.

"I write down my experiences," says an old author, "that men may see how life looks to one who has plucked its joys and tasted its sorrows, and has lived to be devoutly thankful for the experience of both." In some such way might one speak also of the experiences of bedding-out. I write mine down, narrating a success here, detailing a failure there, that others who bed-out may take heart again, or perhaps lose it altogether over something they have hitherto "looked on with longing eyes."

Bedding plants are numerous and varied enough for the most fastidious gardener—what to select is the grand desideratum. Here is a Heliotrope that all bedders-out who use the Heliotrope would do well to secure—the name Surpasse Guascoi, the colour pale lavender, the trusses simply immense—big enough for the breast of a drawing-room "jarvie," the habit strong, bushy, and free-blooming. I saw it last summer at Mr. John Fraser's, Lea Bridge Road, and made a note of it as a worthy joy to pluck. Not that Heliotropes are much used now-a-days for bedding purposes, for an early frost soon gives them the appearance of being in the undertaking line; yet this variety will make a most effective bed, and furnish plenty of cut bloom into the bargain.

Iresine aureo-reticulata has succeeded with no one, even with what would have been thought to aid it—a dry hot summer. Whether nursed in the sub-tropical department, or braving the vicissitudes of the more exposed flower garden, it has failed to tempt any one to praise it. It is a plant not to be despised, nevertheless, for it has its uses: one is, to be grown as a specimen in a warm house, and here, at this season of the year, it makes a good display among foliaged plants, the leaves being large and of a lustrous bronzy green hue, while the net-like marking of gold comes out very clear and striking.

Generally, the Golden Feather Pyrethrum is held to be a decided acquisition for bedding purposes, though some condemn it. Even these admit its effectiveness, but object to its proneness to flower, and the labour incurred in keeping the buds picked off. Particularly is this proneness to flower characteristic of autumn-struck plants, as they commence blooming, naturally enough, early in the summer. Seedling plants raised in the spring should be used, as they do not flower till quite late in the season, when it is to a great extent a matter of indifference. Failing raising plants from seed, use spring-struck cuttings. Is this plant hardy enough to stand the winter, and so be made useful in the spring garden? A wet season is more fatal to the golden Pyrethrum than a dry hard winter; excessive damp causes it to speedily decay, and if it were massed for effect most inharmonious gaps would ensue. The spring garden needs the hue of yellow much less than the summer flower garden, as of flowers it has the yellow Crocus, Alyssum saxatile, Oxyura chrysanthemoides (a most useful early flowering yellow annual, richly deserving to be much more generally grown than it is); Limnanthes Douglasii, Lasthenia californica, and the invaluable yellow Pansy. Viola lutea does not bloom early enough to make an effective display. Of yellow-foliaged plants there are Sedum acre aureum. "draped with gold," and invaluable for spring work and rockeries, if only properly appreciated; the golden blotched double Daisy, a perfect gem; several variegated forms of the Arabis, &c.

Coming back from this digression it may well be asked if any of the new variegated Pelargoniums, or those of the golden-leaved and gold and bronze sections, can be recommended for bedding purposes? In all my experiences of bedding-out during the last summer no variegated zonal Pelargonium that I saw could compare with Mrs. Pollock for effect. Everywhere it was good, finely marked, and vigorous. Places hitherto considered too moist to grow it in reflected its "sweet

leaves playing with the sunbeam," and the "diffusive spirit of the beautiful" hovered over many a bed of this plant, in its gay beauty so striking as to transcend even the most sanguine hopes of those who had reaped varying experiences in using it. Alas! there was no spot "too moist" to be found anywhere above ground in July and August; many a frizzled horticulturist sighed for it, and "sought but never found." Two varieties only of all the new kinds of variegated zonals that I saw being tried last season came near Mrs. Pollock for effectiveness; those were Perkins & Sons' Queen Victoria, and Lady Craven, and of the two I like the last best. They alike possess one great quality for bedding purposes—constitution. In a few instances beds of Lady Cullum were to be seen—a capital plant, making short stocky growth, but dull in appearance, showing too much of the dark zone.

Of the golden-leaved section, Crystal Palace Gem ranks high as an effective and durable bedder. The leaves are shaded with a darker colouring, giving them a blotched appearance, but not in a manner to detract from its usefulness. It is a decided improvement on both Golden Chain and Cloth of Gold, and stands exposure admirably. It is said to have originated at the Crystal Palace, as a sport from the old Lady Middleton or Trentham Rose, and, though dwarf in habit, blooms as profusely. It withstands rain and sun alike, and maintains its character with undeviating constancy right up to the expiration of the bedding season.

Of the somewhat numerous gold and bronze zonal section Kentish Hero, one of Messrs. Downie, Laird & Laing's new varieties, and the Rev. W. F. Radclyffe, one of Messrs. Windebank & Kingsbury's seedlings, are worthy the highest praise, while they are distinct enough for the last-named to be used as an edging to the former. In a remarkable degree has Kentish Hero a strong and vigorous constitution, and last autumn it was in one case allowed to remain out-of-doors until the cold rains came, and it nevertheless retained its original brightness almost unimpaired. To these can be added Ebor, a really fine and useful bedder; and Beauty, probably raised at Huntroyde, having excellent habit, compact growth, and bright leaves. Of the many new kinds tried at Chiswick, some, in spite of an adverse season, were very promising as bedders; but, to speak definitely of their usefulness in this respect, they require to be seen bedded-out in the usual manner. Of the white-edged variegated Pelargoniums, Mrs. C. J. Perry, a variety of dwarf and bushy growth, the leaves deeply tinged with white, cannot be too highly recommended. As an edging to large beds it is invaluable, as the compact and even growth of the plant gives a good surface of white—the leaves "rise white as wings," like a snowy mantle. Castlemilk is another capital kind, the leaves edged with a pale cream, the habit good; but for its distinctness, for its peculiar wiry habit, and for the contrast between the dark green of the body of the leaves and its edging of white, I give the palm to Albion's Cliffs. A note should be made of each of these varieties by bedders-out, who may be sighing for something new and something good as well. The new variegated ivy-leaved variety L'Elegante makes a capital edging plant, and stands exposure well. In some exposed positions of the north, and till quite late in the season, it was very effective, used as an edging for beds. In such a relation it should be pegged down, to preserve the symmetry of the line.

In the north likewise, Viola lutea was exceedingly effective, though in many places the drought and heat severely tested, and in some instances almost destroyed, its usefulness. It was during a very trying summer that opportunity was given to bed it out on anything like a large scale, and altogether opposite experiences have been recorded of this plant. In the north also (at the Upton Nurseries, Chester), I saw a bedding Pansy, bearing a profusion of greyish pale blue flowers, named Beau de Ciel, and which was supposed to be of French extraction. In size of flower it approached the Cliveden blue Pansy, in character of habit it came nearest to the bedding Violas, and I was told that it came into bloom as early as March, and continued to bloom during the summer months till late in the season. It had one advantage over the Cliveden blue Pansy, that during the hottest weather it did not become so pale as is too often characteristic of the latter.

The foregoing are only a portion of the newer bedding plants courting popular favour. There are yet others, and of these something shall be said. *Quo.*

REVIEW OF THE GENUS NARCISSUS.—II.

Group I. Magnicoronatæ: crown as long or rather longer than the divisions of the perianth.

Of the Narcissi which have the crown in the middle of the flower as long as the divisions of the flower, there are only three well-marked species, each of which corresponds to a genus of Haworth's, two of which are well known in cultivation, but the third, which is very rare in a wild state, is now, we fear, lost from our gardens. They may be distinguished from each other as follows, viz.:—

- Tube inversely conical, varying from as long to twice as long as broad, with the stamens from the bottom; divisions of the flower more or less distinctly ascending.
  - Filaments and style straight; divisions of the perianth linear-lanceolate, a line to an eighth of an inch broad at the base. — 1. Bulbocodium (Genus Corbularia, Haworth).
  - Filaments and style curved; divisions of the perianth oblong-lanceolate, 5—6 lines broad at the base. — 2. Pseudo-Narcissus (Genus Ajax, Haworth).
- Tube cylindrical, rather widened at the top, five or six times as long as broad; divisions of the perianth distinctly reflexed. — 3. Calathinus (Genus Assaracus, Haworth).

The following is a detailed description of the typical form of each, with its principal varieties and their synonyms:—

I. N. Bulbocodium (Linn. Sp. Plant. p. 417).—Bulb ovoid, ½—¾ inch thick; leaves two or three to a scape, subterete, 4—8 inches long, not more than a line broad, bright green, generally rather shorter than the scape; scape 4—8 inches high, slender, terete; flowering about London late in April or early in May, and never bearing more than a single flower, which is either ascending or horizontal, not drooping, with a pedicel within the spathe 3—9 lines long. Perianth gradually widened from the ovary to the mouth of the crown, 18—21 lines deep, exclusive of the ovary; the whole flower bright yellow, the lower part and the divisions of the limb rather deeper than the rest, the tube and crown very nearly equal in depth, the latter scarcely at all crisped, and very indistinctly toothed at the throat; the divisions of the limb ascending, linear, a line to an eighth of an inch broad at the base, narrowed gradually from the base to an acute point. Stamens, sub-biseriate from the base of the tube, the filaments filiform, reaching nearly or quite to the throat of the crown and decidedly upcurved, like the style, which is often slightly protruded. Anthers, linear, 2—2½ lines long. A native of Spain, Portugal, the opposite coast of Africa, and the south-west of France as far north as Bordeaux.

This, the 'hoop petticoat,' was divided into "species" by Herbert as follows, and we give references to the figures and Haworth's and some other synonyms; but we fear that, even taking the plants as slight varieties, they are barely distinguishable:—

C. Bulbocodium, Herb. Amar. p. 297.—Size as described above; corona slightly undulated, entire or slightly lobed; style shorter than the corona. Redouté, Lil. t. 24; *C. lobulata* and *serotina*, Haworth, Mon. p. 1—the latter figured Bot. Mag. t. 88; Sweet Flow. Gard. ser. 2, t. 164.

2. *C. conspicua*, Herb. Amar. p. 298.—A robust form, with a slightly repand corona and exserted style. Sweet Flow. Gard. ser. 2, t. 326; *N. aureus*, DeC. in Red. Lil. vol. 8; *C. gigas*, *conspicua*, and *aurea*, Haworth.

3. *C. tenuifolia*, Herb. Amar. p. 298.—A slender form, with erect shining leaves, a distinctly exserted style, and a distinctly lobed corona. *N. tenuifolius*, Salisb. Prodr. p. 222, Red. Lil. t. 486; Sweet Flow. Gard. t. 114; *C. tenuifolia* and *Bulbocodium*, Haw.

4. *C. obesa*, Herb. Amar. p. 298.—More slender than the type; leaves drooping; corona entire, inflated; style exserted. *N. obesus*, Salisb. Prodr. p. 222; *N. inflatus*, Haw. Linn. Trans. 5, p. 243.

The following are more striking varieties than any of the above:—

5. *N. nivalis*, Graells, Indic. Pl. Nouv. p 9.—Leaves 2—3, scape not more than 3—4 inches high; perianth not more than 8—9 lines long above the very shortly-stalked ovary, the divisons of the limb as long as the faintly crenate corona; the style, and usually both sets of stamens, exserted. Spain. Bourgeau, n. 2280. From this *C. hedræantha*, Webb and Held, in Blanc. Exsic. No. 220, differs only by its sessile ovary.

6. *C. Graellsii*, Webb in Bourg. Exsic. n. 2281.—Leaves 2—3, scape 4—6 inches long; perianth an inch long above the ovary, the divisions subpatent, with a brown keel, which is decurrent to the base of the tube; corona subentire; style and longer stamens exserted. Spain.

7. *C. monophylla*, Durieu in Duchartre Rev. Bot. 1847, p. 1847; *N. Clusii*, Dunal. Mem. Acad. Sc. Mont. p. 9, t. 6.—Leaf very slender (one-third of a line broad) usually solitary, ovary nearly sessile in the spathe; perianth nearly white, as is also the crenulate corona, 15—18 lines long above the ovary; the style exserted. Algeria. Balansa, n. 235.

II. N. Pseudo-Narcissus (Linn. Sp. Plant. p. 414).—Bulb ovoid, an inch or an inch and a-half thick; leaves five or six to a scape, glaucous, erect, flattish upwards, equalling, or rather shorter than the scape at the time of flowering, five or six lines broad. Scape about a foot high, with two prominent edges, flowering in the middle of March, before any of the other species. Flowers always solitary, nearly sessile, or with a very short pedicel within the spathe. Flower 18—20 lines long above the ovary, the obconical tube about half an inch deep, the divisions of the limb more or less ascending, sulphur-yellow, paler than the crown, oblong-lanceolate, 9—10 lines long, 5—6 lines broad at the base, the outer ones rather blunter than the others, the crown just equalling the divisions, deeper and more orange-yellow than the divisions, the mouth about an inch across, slightly plicate and inciso-crenate; filaments uni-seriate from the base of the tube, 7—8 lines long, flattened downwards, straight, the anthers linear, four lines long. Style above an inch long, straight, slightly exceeding the anthers. Extending as a wild plant from Sweden and England, to Portugal, Spain, Italy, and Transylvania.

Of this, the Daffodil, there are five well-marked varieties, which were known to, and described and named by, Linnæus; and which keep up their characters well enough under cultivation to stand as species for all garden purposes, as follows:—

1. *Pseudo-Narcissus*, Linn., the ordinary average form of which we have described above.—Reich, Germ. t. 816. *Ajax Pseudo-Narcissus* of Herbert and Kunth; *A. Pseudo-Narcissus*, Haworth (Eng. Bot. t. 17); *A. serratus*, Haw.; *A. nobilis*, Haw. (Red. Lil. t. 158); *A. Telamonius*, Haw. (Herb. Amar. t. 38, fig. 7); *A. lobularis*, Haw. (a form with a more spreading mouth to the crown, with six regular rounded lobes a quarter of an inch deep); *A. rugilobus* and *cambricus*, Haw. (near the last); *A. muticus*, J. Gay Bull, Bot. Soc. France, 7, p. 308 (divisions of the limb longer in proportion to the tube).

2. *major*, Linn. Sp. Plant. p. 415.—Larger in all its parts than the last; the leaves 6—8 lines broad, the flower 2—2½ inches long above the ovary; the divisions of the limb twice as long as the broadly obconical tube, the same colour as the crown, which slightly exceeds them, and spreads more at the throat (in an extreme specimen that lies before us whilst we are writing, an inch and a-half broad).—Reich, Germ. t. 817, Curt. Bot. Mag. t. 51; *A. luteus*, Herb. and Kunth; *A. maximus*, Haw. (*N. maximus*, Donn, Sweet Brit. Fl. Gard. ser. 2, t. 286); *N. grandiflorus*, Salisb. Prodr. p. 221; *A. propinquus*, Haw. (Bot. Mag. t. 1301, upper figure); *A. obvallaris*, Haw. (Bot. Mag. t. 1301, lower figure); *A. spurius*, Haw.

3. *minor*, Linn. Sp. Plant. p. 415.—Smaller in all its parts than the type; the whole plant when cultivated not above 6 or 8 inches high; the leaves a quarter of an inch broad, often only 3 or 4 inches long, the flower 12—15 lines long, exclusive of the ovary; the crown the same colour as the divisions, and slightly exceeding them, the divisions ± inch broad at the base. *Ajax minor*, Herb. and Kunth; *A. minor*, Haw. (Red. Lil. t. 480; *A. minimus*, Haw. (Bot. Mag. t. 6); *A. pumilus*, Haw. (Sweet Brit. Fl. Gard. ser. 2, t. 143); *N. exiguus*, Salisb. Prodr. p. 200; *N. pygmæus* and *cuneiflorus*, Salisb. Hort. Trans. 1, p. 343.

4. *bicolor*, Linn. Sp. Plant. p. 415.—Stature of the type and flower the same size, but the corona a full bright yellow, forming a conspicuous contrast with the very pale sulphur-yellow divisions of the limb. With us at Kew this flowers later than the other varieties, and the divisions are more decidedly spreading. Ait. Hort. Kew. edit. 2, p. 215; Bot. Mag. t. 1187; *Ajax bicolor*, Salisb. Herb. and Kunth.: *A. bicolor*, *lorifolius*, and *brevifolius*, Haw.; *N. Pseudo-Narcissus*, *var. bicolor*, Gren. and Godr. Fl. France, 3, p. 254.

5. *moschatus*, Linn. Sp. Plant. p. 415.—Flowers large, or middle sized, at first a very pale sulphur-yellow, finally nearly white, the divisions narrower and more lanceolate than in the type, the crown the same colour as the rest of the flower, equalling or slightly exceeding the divisions. Bot. Mag. t. 1300. *Ajax moschatus*, Haw. Herb. and Kunth (*N. candidissimus*, Red. Lil. t. 189); *A. tortuosus*, Haw. Herb. and Kunth (Bot. Mag. t. 924); *A. ceraunus*, Haw. Herb. and Kunth (Sweet Fl. Gard. ser. 2, t. 101).

All these five varieties are none of them very rare in cultivation in England at the present time, but 1 and 2 are very much the commonest, both being frequently seen "double" in gardens. N. Sabini, Lindl., Bot. Reg. t. 762 (Diomedes major, Haworth), is most like No. 5, but the corona is decidedly shorter than the divisions, and the filaments are inserted higher up in the tube, and scarcely exceed the anthers. Doubtless it is a garden hybrid.

III. N. Calathinus (Linn. Sp. Plant. p. 415).—Bulb ovoid, not more than half an inch thick. Leaves generally two to a scape; very slender, green, 1½—2 lines broad, concave on the face; scape 8—12 inches high, very slender, terete; flowers one or two to a stem, on pedicels 9—15 lines long, which equal or exceed the spathes, decidedly cernuous, 14—15 lines long, exclusive of the ovary; the tube half an inch long, less than a line thick in the lower half, the same colour as the rest of the flower, the divisions of the limb oblong-lanceolate, bluntish or sub-acute, 4—4½ lines broad at the base, decidedly reflexed when the flower is fully expanded, white, or a very pale sulphur-yellow; crown the same colour as the divisions, and the same length; the throat erecto-patent, scarcely at all plicate, with six shallow, rounded, subentire lobes; stamens biseriate, with straight filaments about half an inch long, the upper three inserted near the mouth of the tube, and reaching nearly to the throat of the crown; style filiform, reaching nearly or quite to the throat of the crown. Red. Lil. t. 40 and 177, Gren. and Godr. Fl. France, 3, p. 261; *N. reflexus*, Brot. Lus. 1, p. 550. Lois. Not. p. 165; *Ganymedes reflexus*, Herb. and Kunth; *Assaracus reflexus*, Haw.; *G. capax*, Herb. and Kunth; *A. capax*, Haw.

A very distinctly marked plant, easily known from the Daffodil and from N. Bulbocodium by its slender tube, biseriate stamens, long pedicels, and reflexed divisions; and from N. triandrus, which otherwise it very closely resembles, by its longer corona. We have seen wild specimens only from the Isle of Glenans, in Brittany, gathered by Gay and others; and from Portugal, gathered by Baron Paiva; and are not aware that it is now in cultivation in this country. We follow Redouté and De Candolle in regarding it as the Calathinus of Linnæus, but the plant figured in the "Botanical Magazine" under that name is very different, being a slight form of N. odorus. *J. G. Baker.*

Home Correspondence.

Indian Forest Appointments.—The discussion that has lately been going on in the columns of the *Gardeners' Chronicle* on this subject will doubtless do a great deal of good to both India and our native land. Many proprietors of waste land may be inclined to think that whilst we are training young men for India, a few trained for home service would do no harm. Training young men to manage Indian forests is very meritorious, and a step in the right direction. Let us have a few for home service. I think I may state, without fear of contradiction, that the forests of our English nobility are the worst managed part of their property. The result is a heavy loss of rental to the proprietor, and a general loss to the country. This result is in most cases owing to the ignorance of the person in charge of the forests. I refer to one of the largest estates in Staffordshire, which I give as an example of many more that I know. There have been three agents in about 20 years. No. 1 was an auctioneer, No. 2 a linen-draper, and No. 3 a Catholic priest: all three very nice men in their own line of business, but they knew little more of forest management than "the man in the moon." So long as our landowners leave vast tracts of valuable timber land in the care of such people, so long will our forests be anything but what they ought to be. It is often deplorable to see land being planted with trees entirely unsuited to the soil and situation — trees that delight in damp sheltered places planted on high, dry, exposed places, and *vice versâ*. The idea of sending young men to Germany to learn how to manage forests is simply ridiculous. The Germans are the worst foresters on the Continent, in fact they do not manage them at all, but leave them to Nature. I have lately had several long conversations with the ranger of one of her Majesty's forests. He has lately been over a great part of Germany, and he assures me that nothing can be much worse than the foresting. In France the forests are now much better managed than formerly. When I was last at Chambery in Savoy buying trees, I found the Government agent in the same nursery buying young forest trees by the million. He told me that the Emperor took great interest in the forests, also that thousands of acres were being planted every winter with young trees suitable to the soil and situation. The English send to Germany for Dogwood to make gunpowder, and leave square miles in Ireland, England, and Scotland unplanted, that would produce a better and cheaper wood. I may say the same of many marshes that would, if planted, produce large quantities of Willows for basket making and crate wood. I know one hill in my native county (Aberdeen) that formerly did not produce enough to keep a dozen geese. It was planted with Fir and Larch, about 20 years ago, and now produces a handsome yearly rental to the proprietor, besides giving employment to woodmen, sawyers, and carters. I could also give many instances where large sums have been spent in planting land with trees entirely unsuited to the soil and situation, and the natural result has been, dead loss and disgust to the proprietor. *John A. Watson, Campagne Lammermoor, Geneva, Switzerland.*

Calanthe Veitchii.—I am quite certain every Orchid grower will thank Mr. Anderson for teaching us how to manage the lovely Dendrobium Falconeri. A few

months ago I had the pleasure of paying a visit to Mr. Salt's establishment at Ferniehurst, and I was both surprised and pleased with his plants of D. Falconeri in particular, as well as with very many other well-grown examples, in his extensive and fine collection. In travelling through the provinces, as well as the metropolis, we frequently see remarkable instances of the most successful cultivation, sometimes arising from suitable houses, sometimes from the intelligent application of knowledge of the peculiar conditions under which plants are found in their native habitat, &c. And in an occupation like gardening, where so much remains to be learned from experiment, it is very important to be furnished with information (which is always acceptable) to guide us in our application of the best means of developing those beauties which it is our pleasing province to nurture and sustain. Sometimes we are impelled forward by seeing we are behind others, still we may go wrong by being satisfied with results below what it is possible to realise. No doubt some plants die out, and are lost because they are mismanaged, or their striking beauties never fully developed; and others, that remain in cultivation, we may at times find so very much finer than ever we expected to see them, that we then regret their beauties have not been before more fully developed. I might give an instance of the Calanthe Veitchii as a case in point; this is one of those superb hybrids which has resulted from the skill and perseverance, of Mr. Dominy—no winter-blooming Orchid can compare with this "King of Beauty." Now we find it described in books as a plant producing flower-spikes 18 inches in length, and as such it has been sold and accepted as a real gem; yet this magnificent Orchid has produced flower-spikes 5 feet long, branching, and covered with bloom, thus proving its capabilities to have been very much underrated, and that it is possible to grow it as above, by treating it as a terrestrial Orchid—potting it in rough peat and fibre, turfy loam, &c., with bottom-heat and liquid manure during the growing season. I do not say that small pseudobulbs can carry so much bloom at once, but I do assert that by perseveringly cultivating this lovely gem, we may still further realise how fascinatingly beautiful the Orchids are when well grown, and how desirable it is to note results at home, look about, and learn what can be done, for we may yet become convinced that many of the difficulties which surround Orchid culture are of our own creating, and that they may yet be grown with as much ease and certainty as any other exotic. *William Payne.*

Potatos.—I am induced to trouble you with a few lines, to ask if any of your numerous readers who are experienced Potato-growers, have often met with what is now, on a somewhat unusual scale, going on in my garden. About seven weeks ago I had planted eight short rows of the Mona's Pride Potato. They were taken from a hamper that had been kept in a dry cellar, and were somewhat freely grown, but in other respects very sound seed. Not showing themselves above ground excepting at rare intervals, I yesterday dug up two of them, and found that each set had produced young Potatos, some of which were of considerable size, nearly that of a hen's egg. From the appearance of but very few indeed out of the ground, I am inclined to think the same process is going on with a patch of Ashleaf Kidneys and Ashtop Flukes. I have inquired of a neighbour to whom I gave some seed of Mona's Pride, and I find there is the same entire absence of aboveground growth in at least nine-tenths of the seed, and the same underground progress. An experienced gardener, Mr. Reed, formerly at the Abbey here, tells me he has found instances of such growths before, but not on the scale they now are showing here. Can any reader of your columns kindly inform me if, this year, the growth I have described is common elsewhere, and what will be the probable crop under the circumstances of the absence of any growth aboveground? I may add that the seed had not been sprouted before being planted. *Edwd. Puttock, Flaxley.* [Will some of our friends kindly state their experience? Eds.]

Unfruitful Vines.—I have 10 Vines that have been planted (as far as I can learn) about 11 years, and which have not produced more than 50 lb. of Grapes. The borders in which these canes are planted, are composed of a strong clay loam, about 4 feet deep, and 20 feet wide, but I am told that there is no drain at the bottom of the borders, though there are plenty of stones, lime rubbish, &c. The Vines are now showing a few bunches, but I doubt if they will come to any size. Each cane is full of aërial roots, from the bottom to the top. The house in which they grow faces south-west, and very little heat has been given. Do you think it possible to get them into a fruitful condition, by taking them up and replanting them? The canes are not very strong. *Cornwall.* [Vines that have been planted 11 years, and have only produced 50 lb. of Grapes, are certainly not in a satisfactory condition. From your account there can be little doubt but that the border is in fault. In the first place the clay loam is too heavy, and 4 feet deep of it is almost double the depth required, and the drainage is imperfect. Your only remedy is to take up your Vines early in autumn, carefully renew your border, giving perfect drainage in the first place—a very important matter in your locality; then 2 feet of brick rubbish, and about 2 feet of soil composed of a good portion of porous materials. We would recommend you to have your border raised above the surrounding levels. You might work up some of the roots by judicious top-dressings, but we do not think you would be much benefited thereby. *B.*]

Adnation in Conifers.—I was interested in the remarks of the *Gardeners' Chronicle* some months since on my notes on "adnation in Coniferæ" before the Academy of Natural Sciences of Philadelphia. My paper on the subject was presented to the committee of the National Association for the Advancement of Science, and no copy was preserved. The verbal remarks I made at the meeting referred to, and reported by the secretary, are accurate so far as they go, but of course do not enter into the details of the subject so fully as the paper itself. The Transactions of the Society will not appear till next August; when it does I think the matter will be made clearer than is possible from the material at present made public. In the meantime the notice has suggested to me a few further points which may have an interest for the readers of the *Gardeners' Chronicle.* The theory sought to be established is, as the writer in the *Chronicle* correctly stated it, "that the power of branching in Coniferæ (perhaps in all other trees) is in proportion to vigour, and that in proportion to vigour are the leaves of Coniferæ adnate with the axis or stem." The writer in the *Chronicle* objects to the term "adnation." The cases cited, he thinks, are more properly instances of "imperfect separation." This criticism is just. If we are to follow classical Latin, and use the word as Pliny would in speaking of the adnation of the Mistleto to the Oak—as of something once distinct but now united—it is not right to employ the term to designate an union of parts which were never separate. Yet it may be excusable, as the term has been so used by others before me, and is so used in common every-day English. We say of the Siamese twins that they are two men "united" together, but as union implies adhesion of separate parts, and as these twins were never separate, the term as applied to them is not critically correct. We also say of an Apple that the calyx is adnate with the ovary, or of the anthers of Magnolia that they are adnate with the filament, in exactly the same sense as I say the leaves of Coniferæ are adnate with the stem. We use the term as implying a practical union of parts which are theoretically distinct. The writer thinks my point not well taken, in so far as I say that Thuja ericoides (Hort.) is less branching than the Thuja occidentalis (its parent) in its more advanced stage, and that the Glyptostrobus sinensis is more branching than Taxodium distichum. The remark that the "Glyptostrobus at Kew is not more branching than the Taxodium growing near it," shows that the difference between us is simply as to the meaning of the words we enploy. The writer in the *Gardeners' Chronicle* had "permanent branches" in his mind at the moment. I had "branchlets," most of which are deciduous at the fall of the leaf. The reviewer is right also in this as in the former objection. There is in the United States, as at Kew, little difference in the permanently brachiate character of the two; but in the branchlets to which I had reference the difference is very great, as will be readily seen in a shoot during the growing season. In Taxodium a branchlet springs from the axil only every eighth or tenth leaf, but the Glyptostrobus branches from nearly every one. In a paper presented to the Academy of Natural Sciences since the remarks referred to, I have been able to show in a series of forms—all raised from Taxodium—a regular gradation of the foliage to Glyptostrobus, and in all cases a gradation of this brachiate character regularly accompanied the other fact (see "Proceedings Ac. Nat. Soc. Phil.," October, 1868). With regard to Thuja ericoides its branching profusion is only apparent. It does appear as dense or more compact than the mature form, but the mature common form will be found to have branchlet from every other pair of axils, giving it in fact the well-known flabellate form. T. ericoides will be found to branch only at every eighth or tenth node, on the average. It seems as branching, because none of its branchlets are deciduous; the few it has remain, and so far makes the criticism just. As these branchlets are so many of them deciduous, it may be objected to that I regard them as parts of the axial system of the plant. Ought they not to be treated rather as of a phylloid character? I have shown ("Proceedings American Association," 1868), that the so-called leaves of Pinus are branchlets, and confirmed, by specimens exhibited with the paper, a previous observation of Dr. Dickson, of Edinburgh ("Proceedings of London International Botanical Congress"), that the so-called leaves of Sciadopitys will branch from their apices into perfect young plants. It might seem sufficient to prove that the deciduous branches of Taxodium and Thuja were rightfully branches rather than leaves, to point to the fact that some of them remain to be permanent branches; but to establish the fact that there is no organic reason why they are not all permanent branches, it is only necessary to go to the propagator. Every small particle of a flabellate shoot of Arbor-vitæ will graft and grow as readily as the strongest stem. I have not tried the branchlets of Glyptostrobus, but have no doubt they would propagate as well. The knowledge I have gained of the woody character of the so-called leaf fascicles in Pinus I have also turned to excellent practical account. By selecting extra strong shoots, and giving them by art a still greater vigour, I am enabled to make the axis develop in each fascicle. These fascicles are then taken out and budded on other stocks in the usual way of budding. (We do not take out the wood in budding in the United States.) I was only able to perfect this plan last year, so have not put it into varied practice; but I have Austrian Pines successfully worked on Scotch Pines in this way, and there is no reason why it may not be applied to any others, and rare Pines become as rapidly plentiful as new Roses or new Pears. My own propagators beg to have this fact kept as a trade secret, but I would rather use it in connection with these physiological discoveries, and if it, as I hope to live to see it, prove the means of hundreds being able to enjoy the beauty of many rare Pines now beyond their means, I shall have some reward. The "leaves" of Pines, and the deciduous "branchlets" of Thuja and Taxodium, being shown to be all of an axial or woody character, it may not be amiss to account for their deciduous leaf-like behaviour. Some years ago I took a measure once-a-week for three years of the rate of circumferential growth during the growing season of a tree of Populus monilifera. The results were published in the "Proceedings of the Philadephian Academy," and I believe have been briefly noted in the *Gardeners' Chronicle.* A result of this experiment was the learning the fact that the branch will often increase slightly in girth after all functional activity has ceased in the leaf. I could make no use of the fact at the time, but I have since found it of value in enabling me to account for the dry leaves of some trees remaining on all winter. I have two trees of Quercus robur pedunculata before my library windows. One holds most of its leaves all winter, the other sheds its leaves in due season. In the last the wood (or bark?) swells slightly after circulation has ceased in the leaf, and separation takes place by the unequal expansion of parts. In the other case the growth or expansion in the wood ceases before or at the same time with the cessation of vital function in the leaf, hence there is no power to throw off the leaf until the return of the regular expanding time in spring. The fall of the branchlets in Taxodium and Thuja is accomplished in just the same way. This is the mode in which they are thrown off; the reason why the sap stops just at this particular point or articulation has never been so clear to me. I had laid myself out at starting to give in this note some remarks on the change of form in other plants besides Coniferæ, particularly in Ferns, all in connection with suppression, adhesion, or "imperfect separation" of parts in relation to their several stages of vigour, constitutionally or otherwise; but am alarmed at the great length this note has already assumed. *T. M., Philadelphia, United States, America.*

The Formation of Mould by Worms.—As Mr. Fish asks me in so obliging a manner whether I continue of the same opinion as formerly in regard to the efficiency of worms in bringing up within their intestines fine soil from below, I must answer in the affirmative. I have made no more actual measurements, but I have watched during the last 25 years the gradual, and at last complete, disappearance of innumerable large flints on the surface of a field with very poor soil after it had been laid down as pasture. I have also purposely covered a few yards square of a grass-field with fine chalk, so as to observe the worms burrowing up through it, and leaving their castings on the surface, which were soon spread out by the rain. The Regent's Park in early autumn is a capital place to observe the wonderful amount of work effected under favourable circumstances by worms, even in the course of a week or two. My observations in Staffordshire were chiefly made on poor, sandy grass-land, and I think that Mr. Fish will find that the proportion by weight or measure of carbon in poor soil is but small, and that the decay of the Grass will account for but a small proportion of the matter successively deposited on the surface. Except when peat or peaty soil is forming, the carbon-compounds seem soon to be decomposed and disappear. Judging from the quick rate at which I have proved that the surface becomes covered with fine soil, if the mere decay of the Grass were as effective as Mr. Fish thinks, many feet in thickness would be formed in the course of a few centuries—a result which would be as surprising as delightful to the dwellers on poor land, or indeed on any land, which is never overflowed by mud-bearing water. In ordinary soils the worms do not burrow down to great depths, consequently fine vegetable soil is not accumulated to any inordinate thickness. *Charles Darwin. May 9.*

The Royal Caledonian Show.—Looking to the mass of matter of general interest that has to find a place in the *Gardeners' Chronicle*, correspondents, I presume, generally, and the writer among them, are compelled to epitomise—show reports particularly, and therefore many things worthy of notice are passed over. The Cucumbers shown by unsuccessful prize takers at the above show, commented upon by "Observer" at p. 501, were on that account not enumerated. The writer, in addition to that, fairly omitted noticing an excellent dish of Prince of Wales Strawberry, furnished by Mr. Thomson, of Dalkeith. Instead of "Seakale and Beet," as printed in the report, it should have read Seakale Beet, a palatable looking vegetable. While the writer had, and has, no wish to underrate the professional skill of southern men, he wished to show that the northerners, with a less hospitable winter and spring climate, can give a good account of themselves throughout the season—autumnal kitchen gardening not being their only *forte. Reporter.*

Dendrobium Falconeri.—Mr. Anderson gives as the grand secret of successful culture of this plant a low temperature and ample moisture. The temperature of the season of rest does not need discussion—that all will say should be low; let us, then, confine our attention to the season of growth. He advises the cool end of a Cattleya-house, but he does not tell us what is the heat, in figures, of either end. Now, the beginning and ending of my key to Orchid-growing made easy is, growing them in my Pine-house; if they are Cattleyas, they go there, and the Dendrobiums are equally honoured; and should the temperature run up to 120° I don't mind, so that it is upon a good bright hot day, and air is given; nor do the Orchids seem to dislike it any more than the Pines. Gardeners I do not require to get accustomed to such a heat—they can do their work before and after the heat and burthen of the day. We are now speaking specially of Falconeri, but albo-sanguineum, Devonianum, and formosum are said to be difficult of culture; the only one I have had trouble with is infundibulum, which I am trying with the Odontoglossums. Granted that those I have named require the most moisture, what amount of increased moisture can the atmosphere contain as it rises in temperature? and what is the summer temperature of the natural home of these Orchids? I should be very glad to know. Two years since I

wrote to a contemporary to ask this question, but got no answer, and my reason for asking was a good one, for there were some Orchids advertised as being cool growers; it was said that they came from an altitude of 10,000 feet, far above our snow line; but then it was upon the Cordilleras of Ecuador—that is, under the Equator—where they were found. I instanced my own experience in Swiss mountain walks as a positive proof upon my own back of the increased power the sun obtained as the air got clearer and more rarified; and then, for the benefit of those who only believe when the figures of thermometrical readings are given, I referred them to the "Scottish Journal of Meterology," where the full acconnt is given of the comparative heat in a valley, and upon a mountain called the Pic-du-Midi, 9439 feet high. From this we find, if we consider that the heat of the soil would be what an Orchid would experience if growing upon a tree where it was exposed to the sun, what great vicissitudes it would have to pass through. The soil indicated 126° at 11·30 A.M. on September 10, while at the same moment the air in the shade was only 55.8°. This mountain is one of the Pyrenees, in the south of France. The writer then goes on to explain the value of the sun's rays to alpine plants, giving as a proof that Mr. Ramond upon the Faulhorn in Switzerland, which is 8803 feet above the sea, has on a superficies of 3¾ acres 131 flowering plants; while M. Malmgren says the entire archipelago of Spitzbergen contains only 93, because, in spite of the continual presence of the sun above the horizon, the heat is absorbed by the thick atmosphere the rays have to traverse, and the soil is not raised above the temperature of the air. The nearer the tropics we go, the greater this difference must grow. A few words upon another subject, and then I have done for the present. Food and stimulants must be reciprocal; if you stimulate you must give extra food, and extra food without stimulant is bad. I say, I do not feed my goldfish upon distilled water, and so in the growing season, when I enter the Pine stove, if I cannot taste and smell the fermenting tan, things are not going well. How many of the hundreds of Falconeri that Mr. Anderson says have been killed, have nice clean hot-water pipes and evaporating pans filled with pure water to account for the loss? And would not our stoves succeed better if the tan pits in the centre were restored to them? The French are very fond of the word precision, they call a rifle an arm of precision, and I always think a pen should be a help to precision. Could Mr. Anderson, by way of helping to obtain a standard of growth for Dendrobium Falconeri, obtain the length and width of the leaves upon Mr. Salt's plant, also the diameter of the joints?—one of his mechanics would furnish a pair of callipers. *G. H.*

Protecting Apricots.—At the imminent risk of incurring the wrathful maledictions of our *chef de cuisine*, but which, happily, she can afford to retain, I forward for your inspection examples of fruit-laden Apricot shoots, in evidence of the utility and non-injurious effect of keeping a permanent covering of Frigi Domo canvass over the trees during the blooming and early stages of the fruit-formation periods. This system I have for several seasons adopted with almost uniform success upon one or two trees specially devoted to the experiment, thereby inducing me to favour it with more extended recognition; consequently the whole of our trees were so treated during the past unpropitious season, and has resulted in fair crops of fruit, the accompanying examples being selected from a host of similarly laden branchlets, and which I opine is sufficient to prove the system worthy of unlimited adoption, as it is far less troublesome than the customary mode of perpetually covering and uncovering the trees according to the vagaries of our insular spring climate. The trees were finally uncovered a few days ago, during bright sunny weather, and, so far as I could observe, the change did not affect them in the least appreciable degree; consequently the most timorous and sceptical need not be apprehensive of danger, should they be induced to adopt this procedure in future. *Wm. Gardiner, Gr., Eatington Park, Stratford-on-Avon, May* 11. [The branches were thickly laden with well-developed fruits. Eds.]

Double Pear.—The blossom I send with this was gathered from an old Pear tree now full of promise of fruit. I have an experience of 30 years, and never saw anything like this before. The blossom, as you will see, contains 21 leaves. *George Bubb.* [A similar occurrence has been noted at Chiswick this year. Eds.]

Bachelor's Button.—Which is the true Bachelor's Button, and whence originates the name? In your report of the meeting of the Royal Horticultural Society on May 4 (p. 503) Mr. Berkeley is stated to have made some remarks on the common Bachelor's Button (Lychnis dioica). Now this rather surprised me, as I fancied I knew the Bachelor's Button, but my Button is a totally different plant. I feel rather indignant also that after more than 30 years acquaintanceship I should find that I had been harbouring a sham. I appeal against such an insignificant flower as the Lychnis being dignified with such an office as a button for a bachelor, which ought in all conscience to be a good one, at least something substantial—the flowers of the Lychnis, on the contrary, are flimsy in the extreme; in fact, as a brother bachelor remarked to me, "No button at all." The name, I should suppose, had been applied to some flower on account of its resemblance to that useful article, which, in the case of a bachelor, are often wanting; and, if so, a flimsy thing like the Lychnis can possess no honest claim to the term. Being a little interested in this subject, I have been asking folks what they called the Bachelor's Button, or if they knew it; and, in reply to my inquiries, everyone knew it, and nearly everyone had a different plant to represent it. Some support your statement. In Essex and Kent the Lychnis seems to be the generally recognised representative, while in this neighbourhood (Middlesex) it is the double yellow Buttercup (Ranunculus acris), and in the north-east of Scotland the double white Ranunculus aconitifolius. It is, indeed, known there by no other name than Batchelor's Button. In Shropshire, again, the common white Daisy is so titled, and by some the common Corn-flower (Centaurea cyanus), and the Corn-cockle (Agrostemma githago), the Rose Campion, and the common Tansy, &c. Now, which of all these am I to select when I want a button? (a not unfrequent occurrence). I hate false pretences, I should like to have the true button, and one fitting for its position. If similarity to buttons has suggested the name, there is none more worthy of the designation than the pretty double white Ranunculus aconitifolius, an old hardy favourite plant of our grandmother's garden, the flowers of which very closely resemble the big "pearls" which so plentifully bedeck the plush vests of our friends the "carters." That is my Batchelor's Button. Am I right? *A Buttonless Bachelor.* [We advise our correspondent to *make his choice*, and release himself from his pitiable plight. Eds.]

Foreign Correspondence.

Gardening on the Genoese Riviera.—I left my winter quarters at Mentone rather earlier than usual this spring (April 10), as I wished to spend a month in Algeria and in the south-eastern regions of Spain, previous to returning to London. Before crossing the Mediterranean for Algiers, however, being desirous to ascertain what was doing in outdoor gardening at Nice, Cannes, and Marseilles, I paid a short horticultural visit to each of these towns. It will be remembered by those who perused my letters last year, that this region—that is, the coast line of the north shore of the Mediterranean from Toulon to Leghorn—is an undercliff, protected from the north by the Maritime Alps, and exposed to the full influence of a direct southern sun. It exhibits, botanically and horticulturally, what the influence of the sun can do in the 42d degree of latitude in winter, with back or north protection more or less complete, more or less immediate, according to locality, but always given by mountain ranges several thousand feet high. In my own garden at Mentone most of the spring flowers were going out of bloom, and Roses—monthly, Bengal, hybrid, Tea, multiflora, and Banksia—were beginning to blossom, although the month of March last had been unusually boisterous, characterised by an unusual amount of wind, rain, and cloud.

At Nice I examined the gardens of Count Margaria, M. Gastaux, and Baron Vigier. In all I found, as in my own, the ordinary spring flowers, Salvias, Iberis sempervirens, Silene, Hyacinths, Narcissus, Ranunculus, Virginian Stock, &c., going off; Roses coming on.

Count Margaria's garden is more especially remarkable for his cultivation of the Camellia in the open air. He has scores of large Camellia trees, from 10 to 15 or 20 feet high, such as are seen on the shores of Lake Como, all looking perfectly healthy, and covered with thousands of flowers. The Count told me that he has been cultivating Camellias for many years at Nice, and had obtained most of his trees from Como. They had given him great trouble. He had tried various artificial soils, the calcareous soil of Nice not suiting Camellias or fine-rooted plants in general. He had planted them in soils composed of charcoal, decomposed manure, and sand, and in chestnut leaf-mould, the usual soil selected in the south of Europe, but had never been satisfied with the results obtained until he imported soil from the neighbourhood of Lake Como, which he had done at a great expense. This soil is a rich loamy peat, more compact than the peat of the north of Europe, apparently containing a considerable amount of ordinary leaf-mould. It is more suited to the dry air and scorching sun of the Riviera and Nice climate than ordinary peat. It is the soil in which the Camellia grows to be a tree 20 feet high or more, and shows such surprising luxuriance on the shores of the Lake of Como. At first, said the Count, conforming to the usual idea on this subject, he planted the Camellias in the shade, but recollecting that the Como Camellias are planted in the open, in a blazing sun, quite as warm as that of Nice, he boldly threw aside all attempts at shading, removed or cut down all protection, leaving them in the full blaze of the sun, and that with decided advantage. I myself recollect being much surprised to see the large tree Camellia at Lake Como in full sunshine, for wherever I have been before or since I have always found half shade inculcated as a precept in their cultivation. I would remark that these large tree Camellias, covered with thousands of flowers, beautiful as they are, have one great disadvantage when compared with smaller plants. As the blossoms come into flower in succession, and not all at once, many must be fading. These faded flowers do not fall off for some time, and spoil the look of the tree unless taken off with the hand. This the gardener does in a conservatory, but it becomes impossible when the tree is covered with myriads of flowers. Thus, although it sounds very grand to hear of Camellias covered with thousands of blossoms, such trees in reality do not look as well when in flower as smaller, more manageable plants. The principal sorts cultivated were the Iride, alba plena, variegata plena, anemonæflora, incarnata, altnæiflora plena, Henri Fabre, Rival Rouge, pulcherrima, Printemps, and Grand Monarque Rouge.

In addition to the plants which I described last year as flowering in April in my own garden at this time of the year, I found at Count Margaria's perfectly healthy specimens of the following plants which had passed through the winter in the open air:—Dasylirion robustum, juncifolium, longifolium, gracile, glaucum, strictum, Alsophila excelsa, Ficus repens, Beaucarnea recurvata, Agnostus sinuatus, Grevillea alpestris, Chamærops excelsa, Bambusa Fortunei, Zamia villosa, horrida, Phormium tenax, Bignonia Reevesiana, Philodendron pertusum.

The garden of Baron Vigier, which rises by a gentle slope from the sea, looks full south-west, and is thoroughly sheltered from the north-east by the mountain of Villefranche. It contains many remarkable specimens of some of the above mentioned plants, growing luxuriantly in the open air, as also many others, amongst which I would name Yucca pendula, quadricolor, draconis; Dracæna Draco, guatemalensis, Greigia sphacelata; Ficus Chauveri, Porteana; Brahea dulcis; Dion edule, Chamærops Ghiesbreghtii, tomentosa; Aralia dactylifolia, Araucaria excelsa, glauca, robusta; Melaleuca ericifolia.

The garden of M. Gastaux contains many of the above plants, but is more especially remarkable for the magnificent specimens of the Musa Ensete and of the Araucaria which it contains. They grow alone or in groups on the lawn, and are all noble plants. The Araucarias (excelsa), two in number, have rapidly grown in a few years to an elevation of from 25 or 30 feet, and are perfectly splendid trees; their foliage glossy and bright, and each whorl of branches succeeding the other with mathematical precision. The soil and climate must suit them thoroughly. The former is a red calcareous earth, mixed with loam. The Musa Ensete might also be in its native Abyssinia; in three or four years the plants have risen to a height of above 20 feet, and constitute one mass of wide graceful leaves, not drooping as in the common edible Banana, or torn by the wind, as are always the leaves of the latter when planted in the open air, but intact and erect, folding gracefully one over the other.

M. Gastaux's garden is quite one of the curiosities of Nice. It occupies a large area a little above the sea level, and has been brought into thorough cultivation. Various avenues have been formed of Eucalyptus globulus, Schinus molle, Magnolia grandiflora, &c., and they are all growing with amazing vigour; the two former have become large trees in the course of three, four, or five years. The Eucalyptus, more especially, is being planted extensively all over this part of the Mediterranean shore, as also in Corsica and Algeria. The summer warmth, the mildness of the winters, and the dryness of the atmosphere appear to reproduce its native Australian climate, so that it grows with all its natural vigour. As the wood is hard and good—fit for building and ship purposes, notwithstanding its very rapid growth—it is likely to prove a very valuable acquisition to the arboriculture of the south of Europe.

On leaving Nice, I went over to Golf Juan, a few miles from Cannes, to see the gardens of M. Narbonnard, a well-known horticulturist in that region, who supplies most of the Cannes gardens. I found him fully alive to the capabilities of the soil, sun, and climate of this part of the north shore of the Mediterranean. He told me that the failures of most amateurs to raise many Palms, Dracænas, Dasylirions, Yuccas, &c., which would really grow and flourish in this region in the open air, were owing, as in my own case, to the specimens planted being received direct from hothouses. In his own establishment his plants raised from seeds in heat, and kept under cover for a year or two, were put out-of-doors gradually, kept entirely without protection for a year or two, and then only given to his customers. In that way he said he could rely on their standing, with care, the slight cold of the southern winter. He showed me a large collection of plants usually considered too delicate for outdoor cultivation, even in the south of Europe, which he could warrant to stand the winter cold between Toulon and Pisa. In nearly all this region the thermometer goes down to the freezing point, or to a degree or two above or below, several times in the winter. Among these were—Phœnix pumila, leonensis, reclinata; Cocos campestris, flexuosa, australis; Jubæa spectabilis, Seaforthia elegans, Corypha australis, Dion edule, Zamia horrida, Cycas revoluta, Chamærops elegans, Dracæna cordylina, Yucca aloifolia, gloriosa; Casuarina tenuissima, stricta, &c. He had a collection of healthy Araucaria excelsa, from 2 to 3 feet high, which he valued at from 2*l.* to 4*l.*

The next day (April 12) I was at Cannes, and went carefully over the garden of the Duke of Valombrosa, which is very sheltered from the north on a slope all but due south. I found vegetation quite as advanced as at Mentone, Nice, and Golf Juan. The Mesembryanthema flowed down the bank sides like rivers of purple and lilac. The Banksian and multiflora Roses were in full bloom, other Roses beginning to open, and also Spiræa, Cytisus, Fabiana imbricata, and Erica arborea. There were in the open, in a state of perfect health, large specimens of Cycas revoluta, Dion edule, Chamærops reclinata, Phœnix leonensis, Araucaria Bidwillii, Aralia Sieboldi, Musa Ensete, Dasylirion longissimum, Yucca tricolor, Alsophila australis, Rhopala corcovadensis, Dracæna indivisa. Indeed, the impression produced upon me by the careful examination of this beautiful and well-kept garden is, that although parts of the Genoese Riviera, or Mediterranean undercliff, may be more sheltered from disagreeable winds than Cannes, the amount of sun-heat received there, and of real protection from northern cold in favoured spots, must be nearly as great as in any other region. I may say the same of Hyères, which I visited two years ago, a little later on (April 22). I found vegetation pretty nearly, if not quite so advanced as at Nice or Cannes. Although more troubled with the *mistral*, or north-west wind, which is the pestilence of the South of France or Provence, it must share in the general protection which pertains to the coast regions protected by the Maritime Alps and by the Apennines, as proved by its vegetation.

From Cannes I proceeded to Marseilles, and, besides visiting the public garden, went over carefully the beautiful grounds and hothouses of M. Scaramoneya, an eminent Greek merchant, whose gardening establishment, I was told by horticulturists, is one of the best

and most complete in the vicinity of Marseilles. I was much struck (April 13) with the extreme difference between the vegetation of this garden and that of the protected coast line which I had just left. The recent presence, and the habitual presence, of winter, was evident everywhere. Although in the same latitude, the want of protection from the north showed itself in the complete absence of nearly all southern vegetation such as I have described. No Lemon or Orange trees, no Palms, no Draccenas, no Dasylirions, only the most hardy Yuccas. Even the spring flowers were backward, and Pelargoniums planted out recently in sheltered, sunny situations, had their leaves singed by frost. Deciduous trees scarcely showed any evidence of life, and there were many other evidences of recent severe weather. The gardener, a very intelligent man, was fully aware of the cause of this state of things. Marseilles has no real protection from the north winds, lying as it does at the bottom of the funnel down which the Rhone descends to the sea. Thus, in winter, the thermometer often goes down from 10° to 15° below the freezing point, whilst in summer, owing to its southern altitude, it is often burnt up by the scorching heat, reflected from the limestone mountains that surround it. Even in summer I was told that the thermometer occasionally descends below the freezing point at night. On the other hand, the south-west wind often blows from the sea so strongly as to bend and break trees and shrubs, or to despoil them of nearly all their foliage. The month of March this year had been unusually severe and boisterous, and many shrubs that had stood their ground for years have been killed. In the conservatories and hothouses, however, I found all the southern plants cultivated in my garden at Mentone, and in those at Cannes, Nice and Hyères in the open. These plants were all most luxuriant, and, as may be easily supposed, required much less attention and heating than in similar houses in the north of Europe.

From these facts may be deduced a conclusion which my researches into climate, as evidenced by vegetation in other regions of the south of Europe, have repeatedly demonstrated—viz., that thorough protection from north winds has an extreme influence on climate and vegetation, an influence which it requires many degrees of latitude to compensate. I am now on the eve of departure for Algeria, with a view to study this interesting subject in the north of Africa, and shall in a future letter give the results obtained. *Henry Bennett, M.D., Marseilles, April* 13.

Societies.

Royal Horticultural: *May* 8.—(*Third Spring Show.*)—Pot Roses formed the principal feature of the show, which was held in the Conservatory, and which, though not very extensive, was nevertheless fine in quality, and was numerously attended. A small plant of Rhododendron Nuttalli, now flowering in the Conservatory, attracted much notice. Of Roses, charmingly flowered specimens were exhibited by the three leading growers, Mr. William Paul, Mr. Turner, and Messrs Paul & Son, who each contributed in the class for 9, and were placed in the order in which their names are given. The competition was very spirited, many of the plants showing excellent cultivation. Mr. William Paul contributed well-grown plants, bearing magnificent blooms, of Anna Alexieff, Charles Lawson, Paul Ricaut, John Hopper, and Beauty of Waltham, the latter particularly fine; also a good specimen of Maréchal Niel, and of Cœur de Lion. Mr. Turner furnished Madame Victor Verdier, with fine blooms, Madame Eugène Oppert, Souvenir d'un Ami, a noble flowered specimen of Charles Lawson, Marguèrite de St. Amand, with large showy blooms; Léopold Hausberg, a large full bright carmine flowery Céline Forestier, very nicely bloomed; and Docteur Andry, a bright red, of fine cup-shaped form. Messrs. Paul & Son sent Souvenir d'un Ami and Charles Lawson, fine plants, covered with blooms; Beauty of Waltham, Paul Verdier, bright, and of good form; Céline Forestier, and Anna Alexieff; they were finely grown, but the blooms had sustained some damage. The only 6 plants exhibited in the amateurs' class came from Mr. James, gr. to W. F. Watson, Esq., who received the 2d prize. New Roses of 1867 or 1868 were contributed by Mr. Turner and Mr. William Paul. Mr. Turner's collection, which was awarded the 1st prize, contained some very fine blooms of Duchesse d'Aoste, a large flat Rose of good substance, of a bright rosy tint; Madame la Baronne de Rothschild, a large globular delicate pink, one of the gems of the show; Miss Ingram, pure blush white; Clotilde Roland, a fine-shaped peach blush flower; and Reine du Midi, light rose, pleasing, and very promising. Mr. William Paul, who took the 2d prize, contributed, amongst others, Madame la Baronne de Rothschild, a first-rate flower; President Willermoz, bright rose, good form; Madame Marie Cirodde, light rosy-peach; Reine du Portugal, medium sized, bright yellow; and Vicomtesse de Vezins, deep rose, with salmon-pink centre, large and full. In the class for a single specimen, Mr. Turner again came first, with a well flowered specimen of Madame de St. Joseph, pale salmon pink; and Mr. Wm. Paul was 2d with Le Rhone. Messrs. Paul & Son received an extra prize for a fine bank of Roses in pots, which comprised fine specimens of Alfred Colomb, Rubens, Mrs. Geo. Paul, Thérèse Levet, Monsieur Noman, Baroness Rothschild, François Fontaine, and Madame Willermoz. Mr. Wm. Paul sent a grand collection of cut Roses, which also received an extra prize. In the collection were boxes filled respectively with splendid blooms of Maréchal Niel, Gloire de Dijon, and Céline Forestier, and four dozens, filled with miscellaneous varieties, as Glory of Waltham, Souvenir, Goubalt, Charles Lefevre, Madame Furtado, La Reine d'Or, Belle de Bordeaux, the new Madame Marie Cirodde, Madame Pauline Labonte, light pink; Gloire de Vitry, a fine rose; and Madame Victor Verdier, all in exceedingly good condition.

Auriculas were shown in a very good condition by Mr. Turner, who took the 1st prize for edged varieties, with a collection in which were some fine flowers of Miss Geddings, Earl Greatheer, Smith's Waterloo, and Lightbody's Richard Headly. Mr. James was 2d with a very fair collection, though smaller in size. In the class for selfs and fancys, Mr. Turner again came in 1st, his collection comprising fine showy flowers of Artist, Mr. Hooke, Metropolitan, Charmer, and Gaiety; Mr. James was 2d with some good plants of Grand Monarque, Robert James, Novelty, and Volunteer. Mr. Turner also furnished an additional collection of alpine varieties, the most showy and attractive of which were Crystal, Leonidas, Conspicua, Gazelle, Superb, and Northern Star. Six nice pots of Polyanthuses were contributed by Mr. James, to whom the 1st prize was awarded.

The prizes offered for alpine plants in boxes brought forward a very interesting collection of these charming flowers, which materially contributed towards the variety and effectiveness of the exhibition. Mr. T. S. Ware, who took the 1st prize, contributed six boxes remarkably well filled; in this collection were several varieties of Phloxes, as P. stolonifera, subulata var. frondosa, setacea, and pilosa; a fine tuft of Aubrietia Campbelli, violet blue; Cheiranthus ochroleucus, yellow; the delicate rose-coloured Primula farinosa, P. verticillata; and Ranunculus speciosa. Messrs. Salter & Sons came 2d, with a small collection of variegated plants in boxes, carpeted with such plants as Saxifraga hypnoides minor, Sedum glaucum, and Arenaria balearica, &c. The latter firm also contributed a flowering specimen of the curious and showy yellow-flowered Sempervivum Bollei. Mr. Ware sent, in addition to the collection noticed above, a charming display of hardy spring-flowering plants, including three baskets of the bright yellow Alyssum saxatile compactum, a most valuable plant for spring beds; and the same of Phlox subulata frondosa; also, amongst others, plants of Erinus alpinus, rosy purple; Camassia esculenta, a pretty hardy bulbous plant, with blue flowers; Polemonium reptans, and Ranunculus aconitifolius fl.-pl.; together with several varieties of variegated-foliaged plants.

Rhododendrons in pots were shown by Mr. Wilkie, Addison Road, Kensington, who took the 1st prize, as also the 1st for a single specimen. In the latter class Messrs. Standish & Co. exhibited a grand plant of Regina, with rather small flowers, of a delicate pink, with deeper coloured edges, but from some informality this did not come into competition. Pansies in pots were shown by Mr. James in very good condition, by Mr. Hooper, of Bath, and by Mr. E. F. Kingston, Militia Barracks, Bath. Mr. James was placed 1st, and Mr. Hooper 2d. Extra prizes were also awarded to Mr. James and Mr. Hooper, for boxes of very fine blooms of bedding and Belgian Pansies; a collection of which was also furnished by Mr. Bragg, of Slough; an extra prize was also awarded to Mr. Hooper, for a fine collection of cut flowers of Turban Ranunculuses: and to Mr. Turner, for a brilliant display of cut Tulips. Lily of the Valley was exhibited in remarkably good condition considering the lateness of the season, by Messrs. Reeves Brothers, Notting Hill, who took the 1st prize with 6 well-filled pots; and by Messrs. Salter & Sons, who contributed excellent pots of the golden variegated variety.

Amongst miscellaneous subjects exhibited was a collection of plants from Messrs. Standish & Co., Ascot, to which a 1st prize was awarded, comprising four nicely berried half standard Aucubas, grafted on stems about 2 feet high; several varieties of variegated Acers, and also of double-flowered Pelargoniums; the seedling Rhododendrons, Emily, Gipsy, and Madame Christine Nilsson, shown at the last meeting of the Floral Committee; and another charming hardy variety named Beauty, a variety producing fine stiff trusses, and rosy-pink flowers of excellent form, marked with a white bar on each lobe, and with buff spots on the upper one—altogether a cheerful-looking and novel flower. A 2d prize was awarded to Mr. Turner, for a choice collection of plants, comprising the new Azalea Madame Van der Cruyssen, and a seedling Azalea named Mrs. Turner, a pale salmon-rose with white margin, and spotted on the upper petals; the new Coleus (Princess Royal) in splendid colour; the greenish-yellow foliaged Tropæolum ochroleucum; and two baskets of the pretty variegated Zonal Pelargoniums Madame Christine Nilsson, and Mrs. Headly. Mr. Kinghorn, Sheen Nursery, Richmond, sent some nicely furnished plants of his new seedling Azalea Lizzie. Mr. James, Isleworth, received extra prizes for a nice collection of British Ferns, and six well flowered specimens of herbaceous Calceolarias. Mr. Lockie, Court Gardens, Marlow, contributed a handsome brace of Blue Gown Cucumbers, which were equally as fine as the specimens of this variety exhibited by him at a former meeting of the Fruit Committee. From the Society's garden, Chiswick, came a collection of Palms, Draccenas, and other fine foliaged plants; a large and well flowered specimen of the old white Azalea, and another of the fine Lilac named Dr. Lindley.

Linnean: *March* 18.—G. Bentham, Esq., President, in the chair. F. E. Hulme, Esq., and J. Leatham, M.D., were elected Fellows. Dr. Cobbold exhibited portions of a Westphalian ham swarming with Entozoa. The slices had been sent to Dr. Prior by his nephew, Mr. F. H. Goldney of Chippenham, with the statement that the ham had been purchased at a grocer's for 19*s*. The "Measles" or Cysticerci were alive, and under the microscope presented the characteristic hooks, suckers, and calcareous corpuscles common to the larvæ of the armed tapeworm, Tænia Solium. Mr. W. G. Smith exhibited fresh specimens of a new British Peziza, P. (Discina) macrocalyx, found by Mr. J. A. Clarke, of Street, Somerset. The following paper was read:—*Monograph of the British Roses*, by J. G. Baker, Esq.

April 1.—G. Bentham, Esq., President, in the chair. D. J. French, Esq. was elected a Fellow. The following paper was read:—*On the Genus Boswellia, with Descriptions and Figures of Three New Species*, by G. Birdwood, M.D.; communicated by D. Hanbury, Esq. The author cited the ancients' notices of frankincense to prove that it was held by the Jews, Greeks, and Romans, and in later times by the Arabs, to be produced in Arabia, and in the country of the Soumalis. When Colebrook discovered that the Boswellia serrata of India yielded a gum-resinous exudation, like frankincense, the opinion was hastily adopted that India was the frankincense country; and the statement appears in all the popular encyclopædias and text-books, notwithstanding that Carter proved in 1847 that a frankincense tree was indigenous to Arabia, and Cruttenden, Kempthorne and Vaughan, in 1843-44, that one or more others also grew in the Soumali country, and yielded the bulk of the frankincense of commerce. These trees were figured and described in the present paper. They were named respectively Boswellia Carteri (Mohr-Madow of the Soumalis), and Boswellia Bhandajiana (Mohr Add of the Soumalis), and Boswellia Frereana (the Yegaar of the Soumalis).

April 15.—G. Bentham, President, in the chair. Sir James Tyler, J. Day, Esq., and H. Spicer, jun., Esq., were elected Fellows. The following papers were read:—I. *On the Fertilisation and Dissemination of Duvernoia adhatodoides*, by Mrs. Barber; communicated by Dr. Hooker. This very handsome Acanthad was obtained from Fort Bowker on the Bashee river, more than 200 miles beyond the colonial boundary. It forms a free evergreen shrub, 8 to 10 feet high, with quadrangular branches, broad, dark green elliptic acuminate leaves, and numerous spikes of large, white, pink-striped flowers; its blooming season extends over a period of three months. The flowers are, it is said, mainly, if not entirely, dependent upon insect agency for their fertilisation, and this work Mrs. Barber states is, so far as she has been able to ascertain, solely performed by the large black and yellow Carpenter Bee. The seeds are dispersed by means of the contraction of the capsules, which causes them to burst with a sound like the explosion of a small percussion pistol cap, and a force sufficient to throw the two valves to some distance from the plant.—II. *Ant Agency in Plant-Structure*, by R. Spruce, Esq.; communicated by C. Darwin, Esq. This paper explained various modifications in the structure of plants, caused by ants, by whose long-continued agency it was held that they had become hereditary, and had acquired sufficient permanence to be employed as botanical characters. In the forests of the Amazon and Orinoco, and elsewhere in tropical America, are found numerous plants belonging to very distinct orders, which have singular dilatations of the tissues and membranes, in the form of sacs on the leaves, or of hollow fusiform nodes on the petioles or branches (becoming tubers on the rhizomes), or of slender, inordinately elongated fistulose branches. All these apparently abnormal structures, Mr. Spruce believes, have been originated by ants, and to be still sustained by them; so that if their agency was withdrawn the sacs would tend to disappear from the leaves, the dilated branches to become cylindrical, and the lengthened branches to contract; and although the inheritance of structures no longer needed might in many cases be maintained for thousands of years without sensible declension, yet in some it is supposed it might rapidly subside, so that the leaf or branch would revert to its usual state. The paper was devoted to a description of cases such as those above referred to, which had been observed by the author in his travels. Having referred to the scrobiculate leaves of certain Cinchonas, the author concludes thus:—"These scrobicules, although I have no doubt of their origin by insect agency, are quite as good and permanent a botanical character as many others—as the sacciferous leaves of Tococa for example. What a vast length of time, compared with man's brief life, it must have taken to impress a character of permanence on the latter character and render it hereditary! Probably a period far longer than those we choose to designate 'historical,' or 'bronze,' or 'stone.' The inimitable researches of Mr. Darwin have rendered it, to my mind, almost certain that many of the deviations from symmetry in the form and direction of the parts of a flower have been brought about by the direct mechanical agency of insects; and that the origin of every obliquity, unequal-sidedness, and so forth, in any organ, is to be sought in the action of forces not only internal but also external to the plant itself."——III. *Notes on the Stictei in the Kew Museum*, by C. Knight, Esq.——IV. *Synonymia Muscorum Herbarii Linneani apud Societatem Linneanam Londinensem asservati*; exposuit W. Ph. Schimper.

May 6.—G. Bentham, Esq., President, in the chair. The Rev. J. M. Crombie was elected a Fellow; and M. Gustave Thuret, and Dr. Jeffries Wyman, were chosen foreign members. The following papers were read:—I. *Letter from Dr. R. C. Cunningham, Naturalist to H. M. S. Nassau, Surveying the Straits of Magelhaens, to Dr. Hooker.* On the pretty hill country bordering the bay of Avanco the author met with some beautiful trees of the Roble (Fagus obliqua) which appears to be rapidly undergoing extinction in the northern provinces of Chili. At San Carlos, Chiloe, the common Foxglove was flowering luxuriantly; Sarmienta repens adorned the stems of many of the trees; and the low trees of Tricuspidaria were loaded with their drooping rose-coloured flowers. On the tree trunks around Port Laguna, some beautiful flowering specimens of Callixene polyphylla were obtained, and Mitraria coccinea was in fine flower. The settlement at Sandy Point appears to be well adapted for the growth of Potatos and other green crops, which do not require much heat; and the hardier kinds of grain, as for example, Rye, might have a good chance of ripening. There is good pasturage for cattle.——II. *On Three New Genera of Verbenaceæ from Chile and its Adjacent Regions*, by J. Miers, Esq. The genera were Raphithamnus, Phelloderma, and Diostia. The type of the first is the Citharexylon cyanocarpum, figured in the Botany of Beechey's voyage, a plant mentioned in the author's Travels by the name of Duranta umbilicata. The fruit is a globular drupe, of a fine blue colour. One of the species, R. myrtifolius, is the Prickly Myrtle of the Chilian natives. Seven species were described. The type of Phelloderma is the Priva lævis of Jussieu, the only species. Of Diostia, which is allied to Verbena and Lippia, six species were described. The paper was accompanied by beautiful drawings of the three genera.

Notices of Books.

A History of the Vegetable Kingdom, &c. By William Rhind. Revised edition. Blackie. Super-royal 8vo, pp. 744, tab. 45, numerous cuts.

What this book was before revision we need not stop to inquire, but as it comes before us now it urgently stands in need of further revision. Were this done thoroughly by some competent person, the book would really be a valuable popular compendium. As it is, we can only regret that so much time and labour have been expended to so little result. The more strictly technical portions are too often untrustworthy, and the "comprehensive descriptions of the plants most interesting from their uses, applications, &c.," certainly do not in all cases comprehend recent discoveries.

As there are many good points about the work, and as it is well illustrated with beautiful steel engravings and coloured plates, the latter from the pencil of Mr. Fitch, it may be desirable to adduce evidence in support of the strictures we feel called on to make. Take the following description of the utricle:—"The utricle is a small and bladder-like capsule without valves, consisting of one cell and one seed, as seen in the Clematis and Cheropodium. In Gallium it is light, closely investing the seeds, in Adonis and Thalictrum it is loose. In Amaranthus it bursts horizontally in the middle, and in Cheropodium it is tender, as to be easily rubbed off with the finger:" a singular congeries of errors and misprints, after which we are not surprised to find the Strawberry classed among the berries.

The Cinchona is stated to have been originally confined to Peru, but is now very generally distributed over the equatorial region of America. Rather astounding intelligence this! Turning to the Aucuba, we still find the plant produces female blossoms only in this country, and that no mention is made of the male plants. Under the head of Australia, we find the following information, which will make Messrs. Ferdinand von Müller and Bentham feel as though their lives had been but as a dream, for does not our author tell us that very little has been done in describing the botany of that most interesting region since the time of Brown? We might cite very many more passages of this kind, showing the necessity of a thorough revision of a book which bears so pretentious a title.

Catalogues Received.—The following Plant Lists have been received:—W. Rollisson & Sons' General Catalogue, an extensive list of Novelties, Hard and Soft-wooded Plants, &c.—C. Turner's General Spring Catalogue: Pelargoniums, Dahlias, &c.—T. L. Mayo's Select Catalogue of Plants: Pelargoniums, &c.—T. Sampson's Catalogue of Bedding Plants.—E. G. Henderson & Son's Catalogue of Bedding and Soft-wooded Plants, New Plants, &c.—J. Morse's Catalogue of Cuttings.—A. Forsyth's Catalogue of Chrysanthemums, &c.—G. Rawling's Catalogue of Dahlias.—W. Bull's Retail List of New and Rare Plants.—W. Hooper's Plant Catalogue.—Carter's List of Bedding Plants, illustrated with chromoliths of four of the new Variegated Zonal Pelargoniums.

Of Foreign Plant Lists we have:—V. Lemoine's Prix-Courant 1869, including five new double-flowered Pelargoniums, said to be great advances on older sorts.—J. Linden's Catalogue and Prix-Courant pour 1869: in this some score of new plant

to be sent out this spring are described.—L. Van Houtte's Plantes de Plein air et de Serre froide, 1869: the new bedding Iresine Lindeni is herein offered for the first time; it is stated that this beautiful plant only requires a "cold greenhouse" in the winter, that it bore unaffected the excessive heat of last summer, and that it was unaffected by 5° of frost.—A. Verschaffelt's Prix-Courant pour le Printemps et Eté, 1869: containing descriptions of several novelties, including the new glaucous-leaved Sanchezia.

Florists' Flowers.

FLORICULTURAL millinery! We can find no better term to express our idea of a practice very commonly followed with regard to plants and flowers grown for exhibition, and on which we invite discussion. It is well known to practical horticulturists that most of the plants and flowers seen at our flower shows are more or less "dressed." Is this legitimate or not? and if legitimate, is it desirable? Legitimate we think it is, to a certain extent, although, perhaps, no two individuals would draw the line precisely in the same place. It is not, that we are aware of, absolutely forbidden by any Society, and precedent and usage may be urged in its justification. Desirable we think it is not, and that for various reasons which we shall state hereafter. Every cultivator who has grown plants and flowers for exhibition knows well that success depends chiefly on two fundamental points—(1) Skill in production, which premises knowledge and judgment in the choice and growth of individual plants and flowers; and (2) Taste and lightness of finger in the arrangement and dressing, much the same sort of skill as is required in tricking out a cap or a bonnet, and hence the term we have chosen to express it—floricultural millinery. Now, these two points, which are essentially distinct, are not in our judgment of nearly equal weight, the "skill" in production being of far more importance than the "taste and lightness of finger" in the arrangement or dressing. Yet our experience, derived from observation, compels us to say that we think the "finish and symmetry," which are due in great measure to "taste and lightness of finger," often exert an undue influence. The eye is pleased by it, and the judgment does not travel back so far as to inquire concerning the whence and whither. In making the above comparison we are well aware that a cap or a bonnet has to be made by hand—it cannot be grown, it is the work of an hour. On the contrary, a plant or flower must be grown by a long and thoughtful process. Produce, we say, by the best means of growth in your power the finest plants and flowers you can, but having done this, rest satisfied; do not supplement the effort of a year's thought and labour by the transient arts of millinery. We are free to admit that a plant must be tied up, and this is better done neatly and with taste than in a careless or bungling manner. Flowers, too, should be so placed in their stands that they may be well seen, and the colours should be so assorted and arranged that each may enhance rather than detract from the beauty and effect of its neighbour. Thus much we concede—nay, consider necessary and commendable. But the little tricks resorted to, to make a plant or flower look other or better than it really is, find no sympathy in our nature. The flattening of Pansies, by pressure, to meet the florist's canon that Pansies should be flat; the gumming and brushing of the petals of Pelargoniums; the artificial packing of the petals of Carnations; the building up of Dahlias; the pinning of Hyacinths—all these practices are, in our judgment, of questionable taste, and of even more questionable honesty. By the use of them we may approach more nearly to the florist's ideal, but we are reaching that ideal by trickery and deception, rather than by horticultural skill and honest labour. Do not let us be misunderstood. We are not here questioning the florist's canons, most of which we admit to be founded on common sense and correct taste; it is the means often adopted to reach them, that we take up the pen to do battle with. Is this "millinery" desirable? We think not, and on other grounds than those we have already advanced. It has always appeared to us that the decline in the cultivation of florists' flowers, or in what used to be popularly so called, is due in some measure to this floricultural millinery. A judge may be hoodwinked, a competitor may be jockeyed by it. But the public—how does it affect them? They view, admire, and purchase from these highly-dressed flowers; but in their hands, even under the most skilful cultivation, their antecedents are never realised. Hence disappointment ensues, a suspicion of deception is awakened, discouragement is the result, and the flowers themselves go out of fashion. We cannot but think, then, that in justice to the public, and in the interests of exhibitors themselves, this is a state of things which it is most desirable to remedy. And the remedy lies with the judges. If exhibitors find the arts above hinted at to tell with the judges, they will continue to practise them. Perhaps no rules of any society can be made clear or stringent enough to ensure the desired end. A horticultural society might justly intimate to exhibitors that the judges would be instructed to recognise the skill of the horticulturist rather than the mode of the artist; and if the judges carried out such instructions, this would doubtless soon work a beneficial change. *P., in "Florist and Pomologist."*

The Apiary.

THE WOODBURY HIVE.—I have for many years been a bee-keeper, and I think, if I may judge by comparison with my neighbours, by no means an unsuccessful one. My hives have been of a simple character, having provision made for supering. Being desirous of obtaining some improved hives, I wrote to an apiarian friend, who recommended and procured for me one of the Woodbury frame hives, most beautifully made with compressed straw panels fitted into a narrow framework of wood. On receiving the hive, I was disappointed to find that there is no window in the lower compartment. Also, on further examination, I am troubled to find out how the swarm is to be shaken into it, the frames occupying nearly all the space from the top to the bottom, thus leaving no room for the bees to fall through. I cannot imagine how the hive is to be stocked with a swarm. I am almost inclined to take the frames out, and leave a clear space in the stock hive. If you could give me any advice as to what I had better do, and any information as to the correct mode of manipulating these kind of hives, you will greatly oblige *A Lady of South Devon.*

[Many practical bee-keepers who use, almost exclusively, frame hives, attach little or no importance to their being furnished with any windows, believing them to be, to a certain extent, an evil, and preferring to become acquainted with the internal condition of their stocks by actual inspection of the combs by means of the movable frames. Still, to many less experienced operators, a window in a hive is a desideratum, and if required by any purchaser, should be specially ordered of the maker.

For information respecting the mode of managing the frames of these hives, our correspondent might be referred to papers which appeared in our columns in 1866 (see June 23, p. 591, and subsequent numbers), but a few separate directions may be more acceptable.

To people the hive with a swarm, let the bees be secured first in a common straw hive. Having unscrewed and removed the cover, and having previously run a little clean melted wax along the centre of the under side of each bar, or attached to them small pieces of clean worker combs place each frame in its proper position, and the hive on its permanent stand. As soon as the bees are pretty well settled in the straw hive, carry it to the stock hive, which has of course no cover on, lift the hive with the swarm above the centre of the frames; hold steadily, and, with a sharp concussion between both hands, shake out the bees on the top of the bars. Repeat the blows until all are down. The bees will spread over the top and sides of the hives at first, but will gradually descend. Any clusters that form may be lifted in by means of a sheet of zinc, or a broad stiff feather. The cover may soon be slipped gradually on from one side or corner, taking care not to lift it at all, to avoid crushing any bees; eventually, as the bees disappear beneath, pushing it quite home. The bees that take wing will join their companions at the entrance. We prefer doing this in the daytime, but, if preferred, the operation may be left until the evening. When the bees are kept in a bee house, perhaps it is safer to defer the transposing, as being less likely to cause a commotion among the other colonies.

In the course of about six or seven days the frames should be lifted out, and any combs that are not perfectly straight should be put right. This may generally be done by a gentle pressure of the fingers, but sometimes it is necessary to sever the attachment of the comb along a portion of the bar with a knife and, having bent the comb in a parallel line, retain it in its place with a temporary clamp or slip of thin wood. Care must be taken not to turn the comb over sideways, as, being at this time very soft, it would almost certainly break off. To remove the frames, begin at one side; shift two or three of the frames from their notches or rests, pushing them a little apart until room is made for one of the frames to be easily lifted out. Having examined this, rest it against the side of the hive; then take out the next frame, and when done with, put it in the place of the one first removed. So go through all the frames until reaching the other side, when that one must be put in the last space, having in fact quite changed sides. Many apiarians now alter the position of all their frames, so as to induce the bees to work straighter. A little of such care at this period of their progress, renders subsequent manipulation and removal of frames a very easy task.]

TO ALL WHO KEEP BEES, I can strongly recommend Cory's beehive. I have tried it for three years with great success. One advantage which it has is that you can take out the drawers of honey without annoying the bees; another is—the queen never lays eggs in the drawers, so that the very finest honey is obtained in that way. I took 28 lb. from one hive last year, and it is now one of the strongest stocks I have. The bees commenced working in the drawers more than a week ago. I shall be glad to give any further details respecting it. *Robert Manfield.*

[This hive may be all that Mr. Manfield says of it, but we have not seen any hive with arrangements of drawers for obtaining surplus honey that we approved of. The amount of honey—28 lb.—said to have been taken from one stock in a season is nothing extraordinary. From 12 frame hives we obtained 480 lb. of superlative honey, being an average of 40 lb. apiece, one stock giving 75 lb. in supers. All this also, be it remembered, without destroying any bees, and leaving the stock hives amply provided for the winter. Notwithstanding what we have just stated, we are not disposed altogether to run down the hive recommended by our correspondent. It may be one exactly suited to the capabilities of the more timid operators, and for ladies in particular. We should be glad of a few particulars respecting its construction, dimensions, and mode of management.]

Obituary.

SIR C. WENTWORTH DILKE, BART.

ON Monday last Sir CHARLES WENTWORTH DILKE died somewhat suddenly, at St. Petersburg, to which capital he had been invited as one of the English guests at the forthcoming Exhibition of the Russian Horticultural Society. He was the only son of Mr. Charles Wentworth Dilke, chief proprietor and some time Editor of the *Athenæum* (from which Journal we borrow most of this notice); a critic whose writings on Pope, on Burke, and on Junius are known to all students of our literary and political history. The deceased baronet was born on the 18th of February, 1810, and was educated at Westminster and at Trinity Hall, Cambridge. For a short time he studied law, in which he took his degree. In early life he took part in the literary labours of his father, whom he largely aided by his cultivated tastes, his wide range of information, sound judgment, and habits of business. He afterwards gave up his leisure to the affairs of three or four of the Learned Societies. He took a prominent part in the Society of Arts, of which he was for some years Chairman of the Council, and also in the Royal Horticultural Society. The resuscitation of the last-named Society is due, in no slight degree, to his exertions. At the Boards of these Societies he became acquainted with the Prince Consort, whom he assisted in carrying out many of the great schemes for public improvements which are associated with the Prince's name. He was one of the first projectors of the Great Exhibition of 1851, and acted as a member of the Executive Committee. On the conclusion of that brilliant success he was loaded with the favours of foreign countries and sovereigns, and was offered by our Queen the honour of knighthood, and by the Royal Commission a large pecuniary reward. The knighthood he declined, and the gift of money he refused. Her Majesty testified her sense of his services by presenting Mrs. Dilke with a handsome diamond bracelet.

In 1853 he was appointed by the Crown one of the Commissioners to represent this country at the American Industrial Exhibition in New York. A special report which he prepared was presented to the House of Commons, and ordered to be printed in the following year. As in the case of his previous labours, he declined any compensation.

When the second Great Exhibition—that of 1862—was proposed, the Government appointed him one of the five Royal Commissioners for conducting it; and on the Prince Consort's unexpected demise, her Majesty conferred upon him the honour of a baronetcy. He acted as chairman of the committee of the International Horticultural Exhibition in London in 1866, and by his active business habits and tact contributed in an eminent degree to the success of that undertaking. Sir C. Wentworth Dilke entered Parliament in 1865, as Member for Wallingford. He was a Justice of the Peace for the county of Middlesex, a Fellow of the Society of Antiquaries, a Fellow of the Linnean and of the Royal Geographical Societies, a trustee of the Soane Museum, and of the Lindley Library, and an active member of many other public and learned bodies.

For some time past he had been in failing health, and his friends had hoped that the trip to Russia would do him good; but the extreme inclemency of the weather in the north of Europe aggravated his disease. He married Mary, daughter of Capt. Chatfield, of the Madras Cavalry, by whom he has left two sons, Charles Wentworth and Ashton Wentworth—the former of whom (the Member for Chelsea) succeeds to his honours.

Miscellaneous.

Waterloo Broccoli.—This is decidedly a first-class late protecting Broccoli, and most desirable where Broccoli is always in demand. I believe the stock is in the hands of the Messrs. Stuart and Mein, of Kelso, who originally obtained it from the late lamented Mr. Stevenson, of Lambton Castle. Notwithstanding such an extraordinary season as the one we experienced last year, especially as regards the Brassica family, the few plants I managed to save of the Waterloo more than satisfy my most sanguine expectations, as regards a late Broccoli. I generally grow a few of the newest kinds, as well as all the good old varieties, and I find that, as a late Broccoli, Waterloo is quite distinct from all I have hitherto grown. This enhances its value, inasmuch as it fills up a most important gap in the supplies, before Cauliflowers are ready for cutting. Let me then advise all who value a good late protecting Broccoli to secure a packet of the Waterloo, for I feel confident it will not disappoint them. *J. Edlington, in "Florist and Pomologist."*

Garden Operations

(For the ensuing week.)

PLANT HOUSES.

Æchmeas, and their allies, *Tillandsias*, *Bilbergias*, &c., should receive more liberal treatment now that they are forming fresh growths. The greater portion of the plants comprising the natural order *Bromeliaceæ*, of which the above form part, are natives of tropical regions, hence a high temperature, and an atmosphere densely charged with moisture, will suit them during the period of active growth, at the termination of which the high temperature should still be maintained, but the atmosphere should be allowed to become drier and more sunny during the time required for the maturation of the young growth. *Æchmeas* may be flowered admirably in small 48-sized pots as single plants, if the young shoots are severed from the parent plant as soon as they have attained to their full size; the shoots should be removed with a portion of the root attached, and should then be firmly potted. There cannot be a more useful plant for indoor decoration, as they come into flower at a time of the year when very few really showy subjects are available for that purpose. Bulbs of *Polianthes tuberosa* (Italian Tuberoses) should now be potted.

They require a rather high temperature, and delight in a position where full exposure to the sun is secured. Be cautious, when first starting them into growth, not to give them too much water—if, indeed, any. A moist atmosphere, with a good brisk temperature, will suit them admirably. They seldom do better than when potted into 48-sized pots singly, and in a coarse stiff yellow loam, which should be firmly pressed around them. All plants of the genus *Kalosanthes* should now be fully exposed to the sun and air upon all favourable occasions; to ensure this they should be placed upon shelves or similar constructions in an ordinary greenhouse. I have previously stated that a little artificial heat is desirable to induce a free growth. Now that we are advancing to the warmer period, however, an ordinary greenhouse temperature will suit them well. If the plants were potted early in April the pots, which should never be very large, will now be getting pretty well filled with roots, therefore a little weak and perfectly clear liquid manure will be very beneficial to them, and especially if they are at this time in their flowering pots. Great care should be taken in staking them, that no unnecessary injury be done to the roots. The stakes should be well pointed, and as few used as possible consistently with furnishing an efficient support, and such a training as will ultimately afford the best display. It will be possible now to remove some few from amongst the hardier varieties of stove-flowering plants into a conservatory or similar cool house, where their wants can be attended to. The evil most to be guarded against is cold draughts in any form whatever, as these, if permitted to come in contact with such subjects, most assuredly give them such a chill that they often receive great injury, from which they are very slow to recover. *Cape Pelargoniums* will now want almost hourly attention in the matter of watering during bright sunny periods. If perfect success is looked for, let each plant be carefully examined during such periods at least two or three times a day.

FORCING HOUSES.

The temperature of later *Vineries* should be advanced progressively according to the growth of the Vines. Be careful in affording to the roots of all Vines which are growing in inside borders such an efficient watering, during the period when the Grapes are actually making their second swelling, that no portion of the border is left unmoistened. The water thus afforded should be of as nearly as possible the same degree of heat as the temperature of the house itself. Endeavour amidst the constant necessity which exists of pruning or pinching back lateral and sublateral shoots, &c., to keep and arrange the surface foliage in such a manner that the largest possible extent of leaf surface is placed in direct communication with the sun's light. Bear in mind the fact, that it is only possible to insure a good crop by keeping the foliage healthy to the last. In cases where the crop of Grapes has all been taken from the earliest house, resort should again be had to occasional syringing, not only as a preventive of red spider and other pests, but to assist in the more perfect maturation of the wood. In regard to *Pines*, I have before mentioned the fact that the past unusually hot season has forced successional fruiters to show prematurely. To assist in bringing the succession more regular, it would be advisable, instead of removing the suckers at the base of any plants which have already fruited, to permit them to remain on longer than usual, giving the old stools manure water and other inducements, to encourage a free growth, so that the suckers may attain to a larger size than ordinarily, which in the end will be time gained. Do not lessen the bottom-heat proper of Pine-pits, on account of the present warm weather; the warmer and more comfortably the upper growth can be maintained through natural means, so much the more need exists of a corresponding amount of heat at the roots. If through any cause the heat of the tan-bed falls to a lower temperature than is essentially necessary, it would be far better to pull the pots out of such material altogether, and so permit superficial warmth to influence all alike. Black Jamaicas, Cayennes, &c., intended for late autumn and winter fruiting, should now have their final shift into the fruiting pots with no further delay; of course newly potted plants must have a thorough comfortable and constant bottom-heat. A good maximum temperature may be permitted to pervade *Pineries* generally—up to 94° or 96°, after closing early in the afternoon, and with abundant humidity in the air. The night temperature should be some 20° less than the above in the ordinary way.

HARDY FRUIT GARDEN.

Generally speaking, cultivators are apt to leave the spring growths upon their *Pear trees*, and especially on such as are grown against walls, or as espaliers, until the young wood at their base has become so strong that a knife is necessary for its removal. I do not wish to enforce my own views too dogmatically on any of my fellow labourers in this, or any other department; but upon studying this matter a little closely, it cannot fail to be observed, that to permit a tree to grow wild-like in this manner for so long a period, and in such a manner that all the best wood is entirely shaded during the best season of growth, is, to say the least, injurious to the portion required for the ensuing season's crop. We habitually in practice leave these young shoots to grow to such an extent, that when we can cut them back, it is intended that flower-buds should form upon that portion of the wood which we leave—upon a short spur, in fact. So late is it, however, when this process is undertaken, and so thoroughly have we checked the growing powers of the parent tree, first, by permitting so extensive a wood formation, and secondly, by such sudden mutilation, that flower-buds seldom really form. In lieu, however, one or more strong wood-buds are insured, which eventually cause a formation of an increased number of young shoots. What I advise, therefore, is—and this I practise with some success—that the young shoots, which are at this time actively forming, be pinched back a few at a time to two or three leaves from the base; thereby air and light will constantly be admitted, the resources of the trees will not be drained away uselessly, and some amongst the shoots which we thus successively pinch back will be able to form fruiting buds, even if others break again into lateral shoots at the point. Besides, those stiff, dumpy, spur formations nearer to the main branches will assuredly form plump flowering-buds, whilst not a tithe of that rank crude sap will be pumped up by the roots into the branch, and which is so detrimental to a good fruit crop, and so injurious to good flavour.

HARDY FLOWER GARDEN.

It will now be quite safe to bed out. I have previously given some hints regarding the preparation of the ground for the plants, &c., and it will suffice now to say that with the ground in good order each plant should be pressed firmly into it when planted. Deep planting is not advisable, and too much overcrowding of plants at this season is sure to react injuriously upon the beds so planted ere the season is over. In regard to a proper distribution of plants, various colours, &c., it would require a volume of itself to give details. Distinctive colours should always, however, be placed in juxtaposition to each other. It is not always advisable to place two cold colours together; for instance, white and yellow may be sufficiently distinct in some people's ideas; these are both neutrals or cold colours, however, and hence a pleasing contrast cannot be obtained. Most other colours will contrast well with either, nevertheless. In a general way—owing no doubt to the great variety of Pelargoniums which we possess—we have too much scarlet in our combinations, which is not so much seen until the whole is fully displayed in the midseason of their beauty. This preponderance of scarlet we should endeavour to counteract when planting; we may do this by the use of blue and white Lobelias, and white variegated Pelargoniums, and by a slight addition of foliage plants.

KITCHEN GARDEN.

Tomatos, *Vegetable Marrows*, and *Ridge Cucumbers* may now be planted out, the latter on to mounds properly prepared with a slight amount of fermenting materials, and with hand-lights placed over them as part protection. A mat or two, or some other light substance, should also be thrown over these at night for a week or so. Another sowing should now be made of late spring *Broccoli*, and also of the Walcheren *Cauliflower*. Use the hoe vigorously during any fine drying weather which may follow the heavy rains we experience whilst I write. Forward all ordinary work to the utmost this week in every department, and so afford a fair and clear start in company with the newly-bedded out plants, as an earnest of a goodly summer display. *W. E.*

TOWN GARDENING.

DAHLIAS may now be planted out in the open borders. In the first place the holes should be made about 2 feet wide and 18 inches deep, a good mixture of rotted dung should then be added; this, when thoroughly incorporated with the soil, should be placed in the hole and be trodden down tolerably firm; the plants may then be put in, and a stake should be driven into the ground close to the roots, so that they may not be injured when they begin to grow. Window boxes should now be planted with autumn-sown Mignonette and Intermediate Stock, which will thrive well and flower beautifully if the boxes have a piece of board fixed on each end, sloping from the wall to the front of the box, which will in a great measure prevent the cutting winds from injuring them. *Cobœa scandens*, or *Convolvulus major*, if planted in the ends of the box and trained round the windows on fine wire, will make a pretty display as creepers. *Fern cases* should now be attended to in the matter of shading them a little from the sun, and they would be greatly benefited if a little water could be poured round them occasionally. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending May 12, 1869, as observed at the Horticultural Gardens.

May.	Moon's Age.	Barometer. Max	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 6	24	29.250	29.032	63	50	56.5	53	49	E.	.06
Friday 7	25	29.298	29.112	66	42	53.0	54	50	S.W.	.02
Satur. 8	26	29.595	29.260	68	42	55.0	54	50	S.	.06
Sunday 9	27	29.639	29.137	60	51	55.5	53	50	E.	.28
Mond. 10	28	29.528	29.115	68	47	57.5	55	51	S.	.00
Tuesd. 11	●	29.896	29.682	61	37	49.0	55	51	N.	.00
Wed. 12	1	30.123	29.981	63	31	47.5	54	51	N.	.00
Average		29.598	29.421	62.7	42.8	52.7	54.0	50.3		0.42

May 6—Densely overcast; overcast; clear and fine.
— 7—Overcast; cloudy, clear and fine, very mild.
— 8—Slight rain, showery, overcast and showery.
— 9—Overcast, very dull, foggy and overcast; heavy showers.
— 10—Showery, cloudy, very fine and clear at night.
— 11—Densely overcast, cloudy, but fine, densely overcast.
— 12—Very fine and clear, very fine; clear and fine, cold wind.
Mean temperature of the week, 1 7-10 deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending May 22, 1869.

May.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..16	66.0	43.3	54.1	15	0.34 in.	2	10	4	2	4	13	4	4
Mon. ..17	65.7	41.9	53.4	16	0.58	2	7	4	3	6	13	4	4
Tues. ..18	66.2	42.2	54.2	17	0.17	2	9	7	4	3	11	6	1
Wed. ..19	67.0	42.7	54.9	14	0.50	2	8	9	3	4	5	4	2
Thurs. ..20	66.9	43.4	55.2	20	0.76	2	7	9	3	4	12	1	5
Friday ..21	66.3	44.7	55.5	19	0.50	2	9	12	2	5	7	3	2
Satur. ..22	65.4	42.4	53.9	19	0.30	6	9	5	3	3	12	3	2

The highest temperature during the above period occurred on the 22d, 1847—therm. 89 deg., and the lowest on the 22d, 1867—therm. 28 deg.

Notices to Correspondents.

☞ Professor Reichenbach asks his correspondents, who send plants by "pattern or sample post," to write their names (or addresses, if not known to him) outside on the general address, without any other remark. Post-office officials under the liberal Prussian Government, peep, now-a-days, in all boxes, and make the Professor pay for the tin boxes, in a not very liberal manner, as heavy unpaid letters, whenever any remarks are put inside, names or numbers excepted.

APPLES: *G B.* King of the Pippins (Golden Winter Pearmain) is quite distinct from Emperor Alexander. The latter is a large, heart-shaped, handsome-looking Apple, only fit for culinary purposes, whilst King of the Pippins is a medium-sized fruit, Pearmain-shaped, serviceable either for the dessert or for kitchen use. The colour of the two does closely resemble each other.

BEDDING WALLFLOWER: *Messrs. Carter & Co.* Of good habit, clear orange-yellow flowers, altogether an acquisition.

BROCCOLIS: *W C.* Large, but coarse in flavour.—*Messrs. Hurst.* A fine sample, symmetrical, white, and delicate in flavour.

CUCUMBER DISEASE: *C H B.* We are sorry to say that though so much has been written on the subject of the disease in Cucumbers, of which you have forwarded a very characteristic example, no one seems to have arrived at any satisfactory conclusion as to its origin. There is no doubt that, like many other diseases, it is hereditary; and the best way is, wherever it has established itself, to get plants or seeds from a new source, taking care that it is one which is quite free from the malady. We certainly have never seen a worse case than yours, or one which requires more immediate stamping out. *M J B.*

DESTROYING SLUGS: *J. Harvey.* In such a case as yours, where these pests are so numerous, the most efficacious plan is to give the ground a good sprinkling over with fresh slaked lime, selecting for the time of performing the operation a late hour on a mild night, and sowing the lime against the wind. A great quantity may be destroyed by baiting them with bran, Cabbage leaves, &c., and then visiting the baits at night, armed with a lantern and a small pot of salt, and picking them from the baits into the pot of salt.

FUNGUS: *R T P.* Your Fungus is the common Polyporus squamosus, which sometimes attains enormous dimensions. —*W C.* Your Fungus is not dry rot, but the imperfect state of some Reticularia.—*J F A.* The spawn on the lumps of soil so closely resembles Mushroom spawn that we believe your case to be exactly similar to one which was brought before the Scientific Committee on May 4, where a number of Vines had been killed by what was known to be Mushroom spawn. If your Vines still live, the only chance is to dig the whole of the soil out and to prune off every affected root. It is very rarely that we are able to say what the perfect form of mycelium is. Several Conifers have lately been killed by mycelium which was found to belong to Polyporus versicolor. *M J B.*

INSECTS: *P G.* The two insects you have sent, which you say are devouring your Asparagus, and doing great mischief, are—1, the two-winged, orange-coloured fly, Bibio hortulana; and 2, the Asparagus beetle, Crioceris Asparagi, in the perfect state. The first feeds in the larva state on rotting vegetable matter under-ground, and certainly never injures Asparagus. The second is also, we believe, equally harmless, as a beetle, but it lays its eggs on the young shoots, which its larvæ devour. We know no better remedy than hand picking.—*A Constant Reader.* The spring foliage and bloom of Apples are attacked by so many different insects that we cannot possibly name a species from the inspection of a gnawed leaf—most probably the mischief has been done by a small green striped caterpillar of one of the Geometridæ, and hand-picking will be the only remedy until the moths appear; or the leaves have been gnawed after dark by a small weevil (Polydrusus mali or oblongus), in which case beating the branches over a sheet will cause the beetles to fall to the ground. "Maggots" is too indefinite a term for science.—*W L.* The smashed and scarcely recognisable insects which burrow in your garden walk are one of the numerous species of solitary bees (Andrena) which provision the nests in their burrows with pollen. The burrows, with dead flies and other insects, were probably the work of one of the sand wasps. The smaller insect sent is a Nomada, a genus which is parasitic in the nests of the Andrenæ. *W.—Beta.* The lady-birds only take shelter in your rooms until the fine weather brings out the green flies on the Roses, &c., on which they feed, when they immediately make their way to the garden. To destroy them, therefore, would be to kill your best friends. Open the windows, and they will soon quit. *W.*

NAMES OF FRUIT: *W S D.* Quite decayed, and impossible to determine in their present state.

NAMES OF PLANTS: *X Y Z.* 1 and 2 are varieties of Scilla patula; 3 and 4, of Scilla nutans.—*H Doubleday.* 1, Scilla campanulata; 2, Scilla nutans.—*C W.* 1, Cercis siliquastrum; 2, Tellima grandiflora; 3, not recognisable from the scrap sent.—*J C L.* Staphylea pinnata.—*C F.* Lepidium Draba.—*W F.* Lycaste plana.—*Leo.* Your plant is the true Mango.

PELARGONIUM SPOTS: *E H.* Yours is a case of the common Pelargonium spot, which we believe arises from a bad condition of the roots induced by an alternation of excessive drought and moisture. *M J B.*

PLANTS IN CONSERVATORY: *A Sufferer.* From the appearance of the blooms sent, we should think the plants were suffering from the loss of roots, through imperfect drainage. Try several kinds of Pelargoniums, as some are better adapted for flowering early than others. If the former instructions had been strictly adhered to, success should have followed. Try fresh soil, and use rain-water, as there might be some deleterious matter in that which you are now using. Give air early in the morning, and leave some on all night when the weather is mild. Get a fresh batch of plants; thoroughly cleanse the house, and there is no ordinary reason why you should not succeed.

PUSCHKINIA SCILLOIDES. Any correspondent having ripe seed-vessels of this plant, would confer a favour by sending a specimen to Mr. J. G. Baker, Herbarium, Royal Gardens, Kew.

SPOT ON VINE LEAVES: *E Wilson.* There is no doubt that it is an exaggerated state of what is called sun-spot, but which arises not from condensation of rays through knots in the glass, but through drops of water, which, in the first place, cool the subjacent tissues. The effect, however, is so extreme, that we conceive the Vines cannot be in a very healthy state, and probably the roots are in bad condition, and the drainage may not be good. *M J B.*

SURFACE CROPPING VINE-BORDERS: *A.* The matter assumed too much of a personal character.

VERBENAS DISEASED: *R T P.* There appears to be no insects on your Verbenas. Indeed the disease appears to be very common, and we have seen it very destructive under the best cultivation, without being able to assign the cause. As in disease in the human frame the causes of maladies in plants are often extremely obscure, and very frequently in consequence do not admit of remedy. *M J B.*

COMMUNICATIONS RECEIVED.—W. K.—T. M. C.—W. M.—T. W. —Arboriculturist —T. J. H.—T. C. A.—W. J E.—P. F.—A. R. H.—An Old Sub.—G. D.—J. S.—D. T. F.—M. C. C.—A. M.—Ophiopagon.—J. Mc.—J. H.

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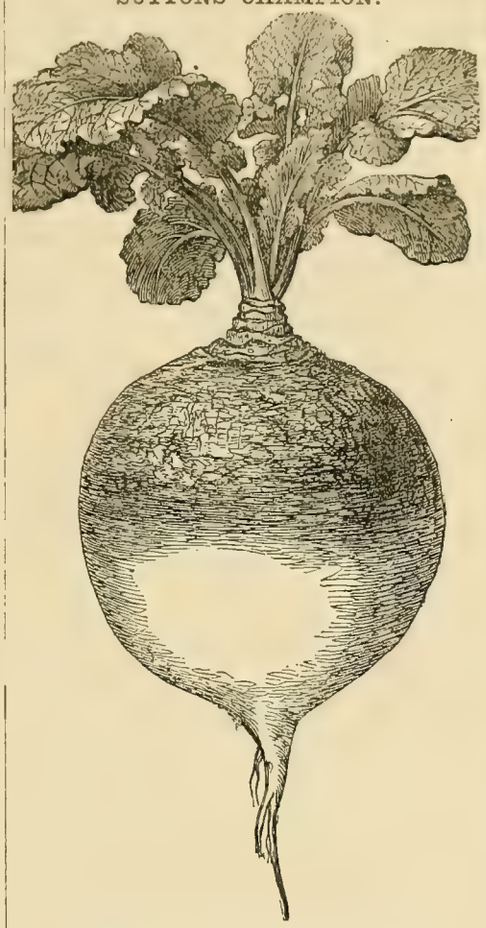
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From GEO. RANSON, Esq., *Poplar House, Sproughton.*
April 21, 1868.—"I had this year 15 acres of your Champion Swede, the FINEST AND BEST grown in my neighbourhood. I am only now finishing them."

From J. ARNATT, Esq., *Manor House, Tingewick.*
April 16, 1868.—"I took several prizes last year with crops grown from your seed, and amongst them was a £10 prize for the best general crop. I think there is no better Swede than the Champion grown."

From A. M. WHARTON, Esq., *Gasthorpe Lodge.*
March 2, 1868.—"I believe you are aware this is a great seed district, particularly for Turnips, &c.; but your unrivalled Champion Swede is almost exclusively grown."

From J. C. MOORE STEVENS, Esq., *Winscott.*
April 2, 1868.—"I won a Ten-Guinea Silver Cup last year for Swedes grown from your Champion Seed."

From Messrs. DUKE & SON.
April 14, 1868.—"We grew some splendid Champion Swedes from the seed you sent us last year."

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President—The Right Hon. the EARL OF CARNARVON.
The ANNUAL EXHIBITION of SHEEP, HORSES, PIGS, POULTRY, IMPLEMENTS, WORKS of ART, and HORTICULTURAL SPECIMENS will take place at SOUTHAMPTON on MAY 31, JUNE 1, 2, 3, and 4.
JOSIAH GOODWIN, Secretary,
4, Terrace Walk, Bath.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
A GENERAL MEETING of the MEMBERS will be held at the Society's Rooms, 12, Hanover Square, W., on SATURDAY, May 22, when the HALF-YEARLY REPORT of the COUNCIL will be read; the President, Trustees, and Vice-Presidents will be Elected, as well as Twenty-five Members of Council in place of those who retire by rotation, but are eligible for re-election.
H. M. JENKINS,
Secretary.
13, Hanover Square, W.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
MANCHESTER MEETING, 1869.
ENTRIES of HORSES, CATTLE, SHEEP, PIGS, BUTTER, and CHEESE, CLOSE on JUNE 1, and all Certificates received after that date will be returned to the sender.
H. M. JENKINS, Secretary,
12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, MAY 15, 1869.

MEETINGS FOR THE ENSUING WEEK.
May 18—Guernsey Agricultural Society, at Fairfield.
— 18, 19 } Cornwall Agricultural Society, at Penzance.
— 20—Jersey Agricultural Society, at St. Helier's.
— 22 } Royal Agricultural Society of England (General Meeting), at Hanover Square.

"TIME," said Lord Bacon, "is the greatest of Innovators." We all believe it: but we fail to realize it, and fear to act upon it. Our Yesterdays are treated as To-days; and we conservatively clutch the empty forms of things whose essence and material part have passed away, along that far-reaching wake that stretches out behind us into the illimitable Past.

It is a pleasant habit, and picturesque. As long as we go singing on, like Orpheus, the vision of past realities seems to follow us, even as we advance into the outer world, of life, and fact, and To-day. But the instant we turn round, and look it in the face, that which seemed most real loses its reality. And so it is with the feudal history of Land.

The time is not far back when Land was the only kind of 'property' that existed. When there were no Canals, no Railroads (nor any other roads except what a Pack-horse with its load on its back could brush along), no Banks, no National Debt, therefore no 'Funds,'—no writing, therefore no Bills—of Exchange, or Sale, or Lading; no form in fact in which personal Savings (the only source of 'property') could exist—except here and there a secret hoard, of gold or of jewels,—it will easily be understood that Land was the *only* property, the only thing that deserved, or bore, the name. Therefore when a warrior took possession of a country, as Norman WILLIAM did of this, he gave to his captains and followers all he had to give, the LAND; not for their own, but to hold under him in *Feudal tenure*. Except himself there was no such thing as a land-*owner*. They were all 'Tenants,' *holding* (the simple meaning of the word) under him as the Lord Paramount, or Suzerain (Sovereign).

That which was not their own of course they

could not sell. A Colonel might as well talk of selling his Regiment as a Tenant in chief (*in capite*) selling his *Fief* (or feudal estate). It descended from father to son — to the eldest of course, as being the first who could *discharge its duties*, in regular succession of 'primogeniture': a line never broken except when "some fair mischief," inconveniently occurring in the shape of a Daughter, was as matter of course immediately consigned to the first Favourite on the royal list who wanted—a Fief.

Remember—there was no Standing Army: no Navy: no Civil List: no Parliament to 'vote supplies.' The King had to do it all himself: and this network of *subinfeudation* which penetrated the whole body politic, say rather this pyramid, of which the sovereign was the summit, embraced at once his military power, and whole bond of government. The Land was the basis on which it all stood, the pivot on which the whole turned. War being the one occupation of life, —the 'natural pursuit' of man,—to follow to the field some warlike lord was the Rent which each vassal paid to his Superior, throughout all the links of the feudal chain.

But there was one class of Society which did *not* go to war. The Churchmen of those days (for Lawyers, like other national blessings, were of later birth) were the only scholars as well as the only landlords, in the land-*improving* sense of the word; and by degrees, invented modes of *leasing*, and then *re*-leasing land, which, gradually superseding the old fashion of *enfeoffment*, furnished one out of several ingenious and evasive modes of passing the actual *ownership* from one to another *in fee*: and, (in an evil day,) even of conveying it in *trust* to one man for the actual benefit, or *use*, of another, the latter thus enjoying what was called the *equitable*, while the former held the *legal*, estate.

But here let us take breath for a moment, and survey the jungle we have got into! Lord Suzerain, Tenants in Capite, Fiefs, and Feoffments, Lease and Release, Uses and Trusts, Legal and Equitable Estates, and Feudal Tenures in general! With such a vocabulary over its head by way of pedigree, will it now be wondered at, that that unhappy bit of land, about which those two citizens were last week complacently negociating, changed masters, under their simple Cheque-and-Receipt-book operations, about as effectively as if they had proposed to buy and sell the odd day out of the Week, or one of 'The Twins' out of the zodiac?

To modern eyes the power to Buy and Sell seems almost inseparable from the idea of ownership. That freedom and facility of transfer, which has during the past year enabled three and a half *Billions* Sterling to change owners at the London 'Clearing House,' is due solely to the growth of Trade, and Commerce, and Manufactures, those 'Younger Children' of national history, which as they rose to wealth and importance, obtained laws for themselves adapted to the stature and intelligence of the periods in which they attained to corporate existence and maturity. Laws are to a nation very like what Habits are to an individual: it is easier to make a new one than to alter an old one: and thus we must not be surprised to find the modern trade Interests of society clothing themselves with the legal habiliments of advancement and intelligence, while Land was still struggling in the fetters, say rather the swaddling-clothes of a system, which while studiously retaining the old appellation of *real* property, deprived it of that which is recognised as the best test of all proprietary right,—the power of disposal, or 'alienation.'

There is nobody to hang, or even to blame for this. It is not the fault of the lawyers. They did not make it. It *grew*. The poor old feudal system was a good one in its day; and suited to its day. It kept society together in a sort of chivalrous *inter*dependence, which was better than *in*dependent barbarism. The evil is, when a thing has lost its use and meaning, and become obsolete, when the candle has burnt down into the socket and grown mischievous, that the extinguisher is not put on to prevent its becoming—disagreeable.

But why, you will ask, if this obstructive system exist no longer in the other countries of Europe, once as subject to feudal laws as England, and has never existed at all in the American States, since they ceased to be a Colony—why does it still hold its ground in the United Kingdom of Great Britain and Ireland? Why have the efforts of our Legislature, as in the Act of 1832, which limited Land titles to twenty years, been unavailing? Why was Lord Westbury's Bill of 1864 for the registration of indefeasible titles, unavailing? Why was the proposal—perhaps the best of all,—to cut the Gordian knot by Insurance, buyers and sellers uniting to insure till the twenty years had run out, and the title run *in*,—unavailing?

If you ask the question of a layman, he will answer, smiling, with the aphorism that "No Craft reforms itself." And as the Public think they *can't* do it, and the Conveyancers *won't* do it, landed titles in England and Ireland can only wait patiently for another Deluge, or some terrestrial cataclysm like those which Sir Roderick Murchison and the Geologists tell of, to give us a fresh start altogether, and put us on a par with Holland, Denmark, Norway, Germany, Switzerland, the Tyrol, Italy, and Belgium, where no doubt some such convulsions must have happened, as *they* have made short work of Feudalism, and demoralised the conveyancers down to the vulgar doctrine of 'small profits and quick returns.'

But if you are not afraid to ask a Conveyancer himself about it, and he should chance to be one of

> "those better brothers
> Who think of something else beside the pen,"

he will probably ask you in return (also smiling, "like any christom child") "How on earth are we to enable you to sell land, like Horses? how would *you* set about selling a horse whose master had *settled* him in such a posture that his head was in this century, and his tail in the *next*, or *vice versâ*? If you could *sell* him, how would you *deliver* him? *We* have to deal in a kind of ware more far-reaching than the Atlantic Cable, more delicate than the electric brain-thread, the nerve that links on mind to matter! We are your only true spirit-'mediums.' They, poor bungling sciolists, only profess to bring the dead back to life, and evening parties, and round games. But our machinery, *our* dealings are with *the Unborn! They* are *our* real clients, those antenatals, 'in Remainder;' for they are always 'coming,' and *they* have got, and for ever and for ever hold, the *Fee*, while that poor breathing wretch, the 'life in being,' the 'Tenant for life' in *tail*, whom you ignorantly call the *owner*, and address as 'Esquire,' is a being whom we look upon as altogether at the wrong end of the Settlement, for any good, or harm, he can do, and as in our eyes, nobody at all! His life estate—his '*esse*' is daily diminishing, while the Remainder-man's '*posse*' is daily dilating, and enlarging on the view."

You say that that won't exactly do, for the purpose that the soil was made for, viz., its agricultural use; that it was meant to be cultivated like a garden *by somebody*, not tied up, like a Lettuce, for somebody *else's* future enjoyment, and that the land, if it be 'real property' ought also to have a real *owner* of some sort: that the proprietor ought to have some *Motive*, the Tenant some *Security*, the Labourer some 'place where he may lay his head,' after his hard day's work, and *near* it too: and you say that this long-winded system of entail on an *unborn generation* interferes with *all* of these, and sacrifizes the present to a future uncertainty, which the very instant it ceases to *be* future and uncertain, and comes into possession, is chained down in turn to the despised and despicable 'life estate,' and from that instant begins to

> "Lose the name of action."

Well! what can the Conveyancer do to help it? He has only to obey Instructions. 'The Family' asks it, and "the Law allows it." You say that it is written somewhere that "the earth was made for all"—that, *to this day* (and mark that,) it is as responsive to the Spade, as to the Steam Plough, *and more:* and that if a live dog is better than a dead lion, a living Naboth should be able to buy, and *hold*, his five acres (and without taking Sinbad's "old man of the sea" on his back, in the shape of a lawyer) as easily as Ahab to inherit his five thousand. It sounds dreadfully 'radical:' but it is the nature of things that *penetrate the soil* to be so. Yet how to 'disestablish' this unborn tyrant, and restore English and Irish earth to "any number of lives *in being*," as in America? Won't it give birth to a Revolution—*i. e.*, amongst the Unborn, whose 'vested interests' it so cruelly disendows? Ay! there's the rub!

But, happily, for every poison there's an antidote, and for "this Nettle danger," there is this Dock to soothe the sting—that the very moment the unborn rebel comes into life, he drops at once his objectionable character, and comes within our admitted circle of rightful and reasonable entail! Once establish this, 'any number of Lives *in being*, but no craning over into the unborn world!' and you get rid of *one* landed absurdity, one chapter of the 'history' that stifles the free transfer of British and Irish soil. Very terrible advice, no doubt. The only wonder is that such a restriction has not produced earthquakes in the before-named Continental kingdoms, and America! Thus bad begins, but worse remains behind: for it was not half a history but "Sir, a whole history," that our quotation spoke of.

—— The corn markets throughout the country have been without any important changes. English Wheat is firm at last week's prices, and the little business done in foreign Wheat was at a slight advance. ——In the meat and live-stock markets lower prices have been made, from the short supply at previous markets having induced large consignments for the season. The number of beasts on Monday was 4,620, of which 3,134 were foreign, and the highest prices made 5*s.* 10*d.* per 8 lb. Of sheep there were 32,600, nearly 13,000 being foreign, which sold at much lower prices. Prime lambs make 7*s.* per 8 lb.——But little is doing now in the seed trade. Some speculative exchanges have been made in the Clover seed market at a trifling advance in prices.

—— The Returns of the Chancellor of the Exchequer on Local Taxation were issued on Thursday, and they appear to be of more importance than anything which has been published on this grave and, of late, much vexed question. The amount said to be levied for the poor-rate, although it is not applied exclusively for the relief of the poor, was, in 1868, 11,061,502*l.*, as against 10,303,665*l.* in 1867—an increase on the year of 757,837*l.* In England the amount levied was 10,462,355*l.*, and in Wales 599,147*l.* The sums paid out of the poor-rate as contributions to county, borough, and police rates, amounted in the aggregate to 2,325,715*l.* in England, and 127,405*l.* in Wales; to Highway Boards, 614,855*l.* and 655*l.* respectively; to Burial Boards, 105,365*l.* and 3360*l.*; to baths and wash-houses (of which there are none in Wales), 11,398*l.*; and to fire brigades in England, 31,953*l.* Making these deductions, the exact cost of the poor, exclusive of Scotland and Ireland, is 8,834,871*l.*

—— Mr. Penny, the contractor for the annual show-yards of the English Agricultural Society during the five years which will end with 1871, is getting on with his work at Manchester. A space of 70 acres, some four times as long as it is broad, lying between the Manchester and Altringham Railway on the south, and the Manchester and Chester coach road on the north, is already enclosed. The familiar architectural elevation which greets the visitor on his approach is already in its place—the framework of most of the rows for implements is already planted—the long lines of shedding for machinery in motion are seen on either side as you get within the yard—at the farther end, divided off by a public highway (which will, however, be closed during the week of the show) so much of the shedding for cattle, sheep, and pigs as it is safe to put up before the closing of the entry list has declared how much exactly will be wanted, is already framed, and in position—the horse-boxes are in progress—the official apartments for judges, stewards, secretaries, &c., are very near completion — and Mr. Penny may be congratulated on his obvious resolution to have everything in perfect order long before the time to which his contract ties him. The land is flat, and at its eastern end, next Manchester, it is clayey; but ample care is being taken, by frequent large and shallow drains with many openings to the surface, to provide for the rapid drainage of surface water, if the weather should be wet. It cannot, however, be denied, that the risk of discomfort, if there should be any considerable rainfall during the show, is this year very much enhanced by the character of the land. Let us hope that what may be pronounced the usual good fortune of the Society may this year attend it, and that the multitude of spectators who await its arrival at Manchester may have the advantage of seeing its capital show under fortunate circumstances.

—— The Birmingham Horse Show is fixed for June 17—20, inclusive. At a meeting last week, presided over by Mr. T. B. Wright, several alterations were made in the prize list. The Earl of Coventry suggested by letter that "weight carrying" should be struck out of the conditions in regard to stallions for getting hunters. This suggestion was adopted. The class for "carriage horses" was struck out altogether. The classes for foxhounds were also expunged. An extra prize of 5*l.* is, however, added for the best tandem, and a new class for hunters not exceeding 15½ hands was agreed to, the prizes offered being 20*l.* and 10*l.* The prizes altogether are increased by 110*l.* over last year, and the guarantee amounted last week to 1100*l.*

—— A Bill for the institution of County Financial Boards has been introduced into the House of Commons by the Government during the past week, of which the following summary is given in the *Times*:— It is proposed that in the administration of county finances representatives of the ratepayers shall be associated with county magistrates. In each county a composite Board is to be formed, consisting of two elements. The *ex officio* members are to be the county magistrates, while the elective members are to be guardians of the poor chosen by the Union Boards to

which they respectively belong. The number which each Union is thus to delegate is to vary from one to four, according to its gross estimated rental; and the result, it is expected, will be to send to each Financial Board on the average one representative of the ratepayers to every five magistrates. But, as many of the magistrates on the roll do not attend, the strength of the two elements would in practice be pretty equal, and in the case of all committees of the Board equal numbers would be drawn from both classes. The Act is to be compulsory, so as to secure uniformity of system throughout the country, and to avoid those disputes which seem to be the inevitable result of a permissive measure.

—— "A Warning to Cattle Dealers" is the heading of a report of a singular action in the Sheriff's Court at Aberdeen. Mr. Charles Dallas, of Haughead, was sued for personal injury done in St. Andrew Street by an ox which was described in court as "running at large, and in a furious state, along that street." From the evidence, it appeared that the bullock was on the day in question, along with other eight bullocks, being driven, under charge of one man only, and ran off from its companions. It was attempted to be shown in defence that the injury to the pursuer was the result of a simple accident, occurring through the bullock having been barked at by a dog, and, when butting at the dog, slipping its foot, and coming down with its head on the street. The Sheriff gave judgment against the defendant. He held that the occurrence raised a presumption of fault on the part of the defendant which he must rebut, and that he had failed to do this. In the first place, the alleged fall of the bullock was only spoken to by the man who had charge of the cattle. No bystander—although there must have been many—had been called to substantiate it. Again, the defendant had tendered no evidence as to the previous character of the bullock, and he must assume that, had favourable evidence on that point been obtainable, it would have been presented to the court. Besides, it seemed to him that if a person chose to drive a number of bullocks through the streets of a city with only one man in charge, then, if harm happened to the public, the owner must be responsible. It might be that generally one man was found quite sufficient, and it was for the owner's interest to have only one driver, in order to save expense; but it was clear that when anything unusual occurred one man was not sufficient to control such a number of cattle; and if for his own purposes the owner had only one person in charge, then he, and not the public, must bear the attendant risks.

OUR LIVE STOCK.

Two important sales of Durham cattle have recently attracted attention among admirers of high-bred stock: one held at Wateringbury, Kent, on Thursday, the 6th inst., in which Mr. F. Leney offered for sale 23 heifers, all below two years old, and the same number of young bulls. The other, held at Wicken Park Farm, Bucks, when Lord Penrhyn disposed of 34 females and 18 bulls. Lord Penrhyn's cattle made the very excellent average of 60*l.* 10*s.* all round. Further inspection of the prices realised shows that the 34 cows and heifers averaged 67*l.* 2*s.* 9*d.*, while the bulls brought 47*l.* 19*s.* each. The Wild Eyes tribe were in the greatest demand, eight individuals making 90*l.* 19*s.* each. *Grand Duchess of Wales*, by 11th Grand Duke, of this tribe, became Lord Dunmore's property at 200 gs.; *Grand Duchess 3d*, by Duke of Geneva, and of Wild Eyes extraction, was purchased by the Hon. C. W. Fitzwilliam for 105 gs.; and *Grand Duchess 5th*, by the same sire, and from *Grand Duchess 2d*, was knocked down to Mr. F. Leney at the same figure. The Darlingtons also created much competition. *Darlington 12th* was bought by Mr. H. J. Sheldon for 105 gs., and Lord Kenlis secured the 15*th* and 17*th* of the name for 120 gs. each. The 11 members of this family averaged 75*l.* 10*s.* We hope on a future occasion to give a full list of the prices and purchasers.

—— We beg to remind our readers of the Cosserton sale of Shorthorn cattle and Leicester sheep which takes place on Tuesday next, under the superintendence of Mr. Thornton. Mr. David Ainslie's stock is of first-rate quality. The cattle we have noticed on a previous occasion; and we now add that the sheep have signalised themselves by carrying off a large number of prizes both at the Highland Society and Border Union shows. Cosserton, near Edinburgh, is eight miles from Dalkeith, and three from Tynehead Station.

—— Mr. R. Gibson, New York, has purchased two heifers and a bull from Mr. Booth, of Warlaby, for the sum of 2000 gs. It is some months since Captain Gunter disposed of his *Duchess 97th* to Mr. Cochrane, of Canada, for 1000 gs. The Booth blood on the present occasion has asserted its equality with that of Bates, *Bride of the Vale* having realised the same noble figure. The remaining heifer, *Merry Peal*, and the young bull Royal Briton, were sold for 500 gs. each. *Bride of the Vale*, a roan, is rather more than four years old, and is a daughter of *Soldier's Bride*, by Windsor (14,013), and Lord of the Valley. *Merry Peal*, calved in June, 1866, also a roan, is by Commander-in-Chief, the 1st prize aged bull at Leicester, and from *Lady Mirth*, of the Bliss family, by Sir Samuel (15,302). Royal Briton is still a calf; he is by Lord Blithe (22,126), and from *Royal Bridesmaid* by Prince Alfred (13,494), and therefore descended on the male side from the cow *Bliss*, and on both sides from Leonard, the sire of *Bliss*.

—— Mr. F. Leney's sale was even more successful than that of Lord Penrhyn, the general average being 64*l.* 1*s.* 6*d.* This figure was, however, greatly due to the sale of the Grand Duke of Kent, calved Dec. 23, 1868; a son of Lord Oxford 2d (20,215) and *Grand Duchess 9th*, and tracing back to *Grand Duchess* by Grand Duke (10,284), and previously through a long line of Duchesses to *Duchess 1st* by Comet. This splendidly bred calf was purchased for 500 gs. by Mr. Moore. Deducting this exceptionally high price from the catalogue, the average is lowered to 53*l.* 2*s.*, and the bull average is brought down to 32*l.* 6*s.* The same gentleman also became the owner of *Countess 2d* by Knightley of the Charmer tribe, for 235 gs., and of *Duchess* by Grand Duke 15th, also a descendant of *Charmer* by Little John, for 175 gs. The same blood had also attractions for Mr. J. P. Foster, who boldly bid 200 gs. for *Twin Duchess 3d* by Knightley. We append a list of the prices realised, and the names of the purchasers:—

Name of animal.	When calved.	Price.	Purchaser.
Females.		Gs.	
Garland 6th	July 5, 1867	30	The Queen
Twin Duchess 3d ..	Sept. 19 ,,	200	Mr. J. P. Foster
Beauty 3d	July 28 ,,	35	Mr. J. W. Larking
May Duchess 2d ..	Sept. 11 ,,	47	Mr. W. Arkell
Blanche 9th	Sept. 14 ,,	45	Major Stapylton
Sultana 6th	Sept. 23 ,,	40	Mr. S. Pilcher
Flora 9th	Dec. 3 ,,	38	Mr. J. W. Larking
Kent Butterfly 3d ..	Jan. 18, 1868	61	Major Stapylton
Countess 2d	Nov. 23, 1867	235	Mr. Geo. Moore
Lady Oxford ..	April 5, 1868	100	Mr. Gibson
Purity 2d	April 8 ,,	51	Mr. J. W. Larking
Jenny 14th	April 16 ,,	38	Mr. R. Russell
Jenny 15th	April 16 ,,	43	Mr. R. Russell
Fawsley 8th	May 31 ,,	32	The Queen
Oxford Jenny ..	June 6 ,,	34	Mr. R. Russell
Thorndale Blanche ..	Oct. 27 ,,	21	Mr. T. Purkis
Princess Royal ..	Oct. 2 ,,	82	Mr. J. W. Foster
Thorndale Butterfly .	Aug. 11 ,,	41	Mr. Attenborough
Thorndale Jenny ..	Sept. 11 ,,	43	Mr. Attenborough
Duchess	Nov. 1 ,,	175	Mr. Geo. Moore
Fawsley 9th	Dec. 11 ,,	26	Mr. B. Hall
Flora Duchess ..	Dec. 12 ,,	30	Mr. Musgrave
Rarity	Jan. 12 ,,	83	Mr. G. Moore
Bulls.			
Sir Rainald ..	Dec. 10, 1867	40	Mr. T. Purkis
Sir Walter ..	Dec. 21 ,,	36	Mr. T. Morris
Little John ..	Jan. 13, 1868	40	Mr. Waterman
D. of Wellington .	Jan. 20 ,,	31	Mr. Cottingham
Cherry Duke ..	April 16 ,,	35	Mr. F. Tappenden
White Knight ..	July 7 ,,	18	Mr. Ashdown
Knightley Butterfly	April 30 ,,	47	Mr. Tomkins
Waterloo	June 6 ,,	17	Mr. Watman, M.P.
Waterloo 2d ..	Oct. 1 ,,	25	Mr. R. Russell
Favourite	Sept. 19 ,,	18	Mr. C. Sturgeon
Eclipse	May 8 ,,	24	Mr. Cottingham
Duke of Kent ..	Sept. 15 ,,	66	Mr. J. B. White
Grand Duke of Wateringbury ..	Oct. 30 ,,	35	Sir G. Phillips
Duke of Sussex ..	Oct. 6 ,,	No bid	
Rob Roy	Oct. 20 ,,	do.	
Thorndale	Nov. 20 ,,	do.	
The Cardinal ..	Dec. 7 ,,	44	Mr. E. Lythall
Grand Sultan ..	Jan. 25, 1869	12	Mr. W. Arkell
Thorndale Bates .	Feb. 3 ,,	23	Mr. Russell
Duke of Wateringbury 2d	Dec. 19, 1868	15	Mr. W. Arkell
Grand D. of Kent .	Dec. 23 ,,	500	Mr. Geo. Moore
Baron Oxford 2d ..	Feb. 3, 1869	14	Mr. W. Arkell
Oxford Lad ..	March 1 ,,	45	Mr. E. Lythall

Average of 23 females ..	£70	5	2 =	£1615 19 0
Average of 20 bulls	56	19	3 =	1139 5 0
Grand total				£2755 4 0
General average				£64 1 6

—— We hear that the heifer calf dropped by *Kirklevington 12th*, which we recently noticed, has to be known in future as *Marchioness 1st*, and that all the produce of the Kirklevington and Siddington stock now at Dunmore will be designated Marchionesses and we presume also Marquises.

——Old *Moss Rose*, purchased at Killhow for 400 gs. by Mr. D. R. Davies, has produced a rich roan bull calf to Grand Duke 10th. *Cleopatra 5th*, of the same herd, has calved a white heifer to Grand Duke of Essex 4th.

THE CIRENCESTER SCHOOL OF ART.

[The following very beautiful address was lately spoken, on the occasion of an award of prizes at the School of Art in Cirencester, by Prof. Church, of the Royal Agricultural College.]

I should be glad to be allowed, in saying a few words to you to-night on the subject of Art, to ramble about a little in this wide domain. Only three days ago did I hear that I might perhaps be of some use here this evening, and since then my ordinary work has not permitted me to prepare such an address as would have satisfied your expectations and my wishes. Excuse then, I beg, my presumption in speaking at all in this place. Let my interest in Art and my desire to help, in any way at all possible to me, on such an occasion as this, be my excuse for standing before you and giving you, for a few minutes, some desultory talk. 1st. I would take up then as they come into my mind a few subjects of artistic moment about which I have often thought.

First among these stands the relation of science to art—its help and its interference more particularly being in my view just now. It has often happened that the period in a nation's history when art has attained its greatest perfection has not been distinguished for special moral excellence, or large literary achievement. Chinese colour is most lovely, its combinations and modes of application afford splendid examples of refinement of taste, yet the stereotyped character of Chinese civilisation is a by-word in Europe. In North Africa, again, we have several rough and half-civilised tribes possessed of a style of ornament which both as to design and colour is worthy, I will not say of imitation merely, but of the deepest study. A bit of Arabic inlay, such as some of the Meymar specimens just added to the South Kensington Museum, or a plate of Persian faience will show us that we must not disdain to learn from peoples far behind us in general civilisation—who know less, and certainly talked less than we do, but who seem to have felt more, and commonly achieved, in some art directions, greater successes than are usual amongst us. Looking back 300 years, we find in Western Europe the splendid structures of mediæval architecture, from A.D. 1200 to 1500, together with the perfect products of many kindred arts, coeval with a state of society, of feeling, and of general knowledge which in some points was absolutely barbaric. Was it then, I want to ask, the growth of science and the spirit of philosophic inquiry which deadened art then, or must we look to our own era before we can trace any great influence of this kind? I ask this question not because I can here answer it completely, but because it gives me the oportunity of mentioning one point of contact between science and art which leads often, in individual cases, to distinct failure. You know that men of science, who are always questioning Nature and learning her secrets, can now do at their will, and more perfectly than before, many things which men knew not the reason of formerly, and which came as it were hap-hazard, and now and then to the earlier workers. Take an example. When the great French potter Bernard Palissy was at work (he died in 1590), no knowledge of the real nature and affinities of the materials of pottery, its colours and glazes, was to be got. He struggled through years of experiments and years of disappointment, and achieved at last a success of no inconsiderable sort. During the last hundred years or more every problem that puzzled Palissy in glazing his ware has been solved by science. Invention and processes and improvements may even have been too abundant. Our manufacturers and those of Europe have done great things: but the ware may be perfect in texture and durability, the colours may be pure and bright as those of flowers, the glaze may have the polish of a jewel, but if there be lacking the artistic spirit to imbue the exquisitely-prepared body with true life, the finest porcelain-paste, and enamels, and glazes are worse than dead. Those old potters whose works are now-a-days preserved as precious, did not invent their materials first, and then begin to think of design and colour; and the idea of the form and the ornament had wrought itself into order, and then were sought by long-continued trials materials which should give it substance and adequately represent it. Now, a chemist, or experimenter, or manufacturer invents a new glaze, and must needs daub it over everything—he makes the vessels to show off the wonderful new glaze, and not the glaze that it may enhance the beauty of the vessels. (See, as example, the Belleek porcelain.) Science has brightened our colours, too, but lay on bright chemical pigments thick as you can, glaze them with the juiciest of glazes, and if feeling and art be wanting, science has not advantaged you but done you harm. Most modern majolica with its brilliant hues gives you no satisfaction after you have seen it once or twice, while of the old Italian pieces with their subdued harmonies of, it may be, poor colours, you never tire. In Josiah Wedgwood you have an illustrious example of a man who pressed into the service of his manufacture all the resources of science, and yet so used them that they served only to exalt the artistic merit of his productions. For to Wedgwood's ware chemistry gave the right composition, while mechanical skill gave truth and perfection of texture and form. By countless trials under scientific guidance Wedgwood improved his materials, not to display them as such, but in order worthily to represent the lovely designs of Flaxman and to reproduce the beauty of antique art. I have given you illustrations of the way in which science may help or endanger art; hundreds might be cited from painting or from architecture, where, especially, mathematical precision and mechanical hardness are too often quite fatal to beauty of effect; but I must rest content with having directed your thoughts to a question of such great importance as the right attitude of science to art.

I am naturally led to say a few words now on another topic, intimately connected with the last. We have seen, or may infer, that improvements in manufacture arising from increased knowledge of the intimate properties of the materials used may often aid and often damage art. If, for example, you make all your pigments pure and bright, you may have no repose as the result—what we may name temperance of colour may become impossible or difficult. Use but do not lavish the gifts that scientific progress offers. Take a Persian dish as an example. On a white ground is a beautiful arabesque of conventional ornaments from leaves and flowers. The designer used four colours only, a pale greenish-blue like the turquoise, a deep rich blue, a grey-like Indian ink, and lastly, a red—a peculiar tint—very dull and very dirty, not quite unlike that of a halfpenny stick of very bad sealing-wax or a poor sort of red lead. But this colour must not be brightened; only let a scientific man come in and suggest and substitute the last new chemical red, let him take the dulness out of the red and the beauty is taken out of the whole combination of colour. And then the Indian-ink colour, a smoke colour, is on these Persian plates for a similar reason. Often their borders have, besides ornaments in colour, hundreds of little spiral curls of grey, giving at once quietness and solidity to the edge or frame, and thus brightening the central design of the piece. Temperance in colour does not indeed mean dulness and dowdiness of colour: it means proper relief, combination, and modification of colour. Let some of those rarer tints be introduced among your blues and reds and yellows, which you cannot exactly name but which the watchful student of Nature may see trembling on the leaves of the Willow, or paving the autumn paths of the forest, or shining at sundown from the depths of the sky.

I hardly like to take up the third point about which I had wished to speak to-night: it would demand for proper treatment many illustrations and examples,

and far more time than is now at our disposal. The adaptation of natural forms to ornament is a wide subject, and our Schools of Art have accomplished already a noble work in diffusing juster notions of the meaning of ornament and decoration. Our manufacturers will persist I know in producing paperhangings, and chintzes, and carpets, of designs which, where they are not revoltingly ugly, are completely out of place and incongruous. But you can get a few good things now, while not many years ago it was impossible. Still, we see paperhangings which imitate granite and precious marbles put upon walls, where even the real materials represented would be at least inappropriate even if they could possibly be placed there. The other day I noticed in a shop a deal partition not an inch thick, papered to represent solid grey granite, and consequently of the presumed weight of some tons: how exquisitely inappropriate such an imitation is even if the practice of attempting such imitations be permissible. But the most prevalent and at the same time the most seductive form of false decoration is the direct representation of natural objects, especially plants and animals, with light and shadow, for the adornment of flat surfaces. I shall be met here with the rejoinder, "Are not all pictures such representations and imitations?" They are and usually ought to be. But pictures and decorations are distinct. Give as much roundness and atmosphere and depth and intricate detail and complex colour to your picture as you will, but do not cover your walls with 500 repetitions of it. You would not do this: it would be too absurd to hang up 500 copies of Millais' "Order of Release" in your drawing-room; and is it not quite as ridiculous to put up a paper with 5000 similar rosebuds on it, all exactly alike, and all casting the same shadow whether the light of the window came from one side or the other of the bud? To cover a wall with ornament, you must go to Nature and adopt some of her lovely forms, but as it is not every workman who can really imitate exactly, and as all materials and all fabrics are not adapted for similar decoration, so, in using natural forms for decoration, you must pursue some system. A carpet weaver imitating Roses has to contend with the difficulties which the nature of his material and the method of its manufacture involve. But, attempting to imitate, in his own way, the Natural form of the plant, he leaves out what should be kept, and keeps what should be left out. The essential features of the flower have been lost, its accidental characters probably retained. It has become false in the very attempt to represent it truly. But let any one dissect the flower and learn its distinctive characters, rejecting what is accidental and keeping what is essential, a beautiful decorative and not an imitative form is, obtained, quite true to the spirit of Nature. You may decorate your floors with such forms, and yet not think that you are crushing and ruining beautiful flowers by your tread. So also with your walls and paper hangings; you may adorn them with forms adapted from those of Nature, and suggesting to you, more or less distinctly, the forms and characters and colours of your favourite flowers, but not trying unsuccessfully, of course, to look like bouquets and blossoms of living plants stuck unsupported against the wall. Ornament your flat walls so as to keep them flat—don't destroy that most important character—for thus you will be able to display upon them with full effect your works of pictorial and realistic art. If you intend to display no such works, then your wall paper may be less sharply kept down to the essential forms of natural objects, and you may permit yourself fuller details and greater latitude of treatment both in form and colour. Thus this adaptation of natural forms for decorative purposes, which is often termed conventionalising, may differ in degree according to the object in view and the material to be used. The form that will be exquisite if carved in wood will not be suitable for engraving on glass; nor will that which is adapted for colour printing on paper be proper for weaving into the texture of a carpet. Our conventionalising is in fact an agreement to keep the essential and cast away the accidental characters of the natural objects which we employ, and it is modified by the material we work in and the purpose to which our manufacture is to be applied. When you conventionalise a flower you preserve the characteristics of the plant more or less completely, not the peculiarities of any individual blossom.

I have spoken of the attitude of science to art, of temperance in colour, and of the nature of ornament. I ought to add something concerning our special duties as Cirencester people, and of the special work of the Cirencester School of Art. I do not doubt that a school of applied science such as that to which I have the honour to belong, and a School of Art such as that which is flourishing in this town, exercise a wider influence than may be generally imagined. Such institutions bring out in many individuals latent powers quite unexpected, which would otherwise have remained idle. They appeal by the industry and enthusiasm of their members to the general public; such is specially the case with a School of Art. Many study in such schools not merely to improve their position and power in their several walks of life, but to improve and ennoble their mental and moral qualities. The appreciation of beauty is a gift, but it may be cultivated. It is a talent, but because it is not as weighty as some other talents have we any business to lay it up in a napkin and bury it? I see in the drawings in this hall many an evidence of taste cultivated, of the talent of artistic feeling put out to usury and yielding excellent interest. I see mastery over colour and form. I see thoughtfulness, and perseverance, and accuracy. I see signs of an open mind, ready to learn, ready to drink in from every source the nourishment of the artistic soul. Our Art School should be the centre and life of our art interests here. We have architectural and archæological memorials in Cirencester of high interest. I should like to see the studies of our old buildings, of the stained glass and wall decoration of neighbouring churches, of some of the best objects of ornament in our Romano-British Museum. I should like to see in this room studies of the beautiful scenery of Sapperton and Nailsworth, or Malmesbury Abbey with its ornamental details, and the Market Cross. I should like to see an effort made to improve the only artistic manufacture of our district—that of lace. For this you want better designs, a museum of examples, good light workrooms, and then the poor laceworkers, who now earn, I am told, but one farthing per hour, will do better work and enjoy some few more elements of life's happiness. I should like to see public evening lectures on science—popular, simple, thorough—started by the College, but given during winter evenings in the town. We ought also to have an art loan collection here. Possessors of splendid works of art are happily beginning to see that they hold them in trust, that the pleasure and benefit they afford to others are something to be more glad of than their mere possession. South Kensington will help us, our wealthy friends and neighbours will help us, and we might have an exhibition for a few weeks of hundreds of artistic objects, properly explained in a catalogue, and doing good in many ways to the inhabitants of the whole district. We must not wander through such a museum of art in an imbecile, incurious mood. We must earnestly study to gather some seeds of fructifying power from the memorials of the past for the work of the future. A rare treat such collections are to those who cannot hope to possess great artistic objects for daily study, though even a good print or a decorative piece of glass, or carving, or inlay, or metal work is within our reach at the cost of 2*s.* or 3*s.*

Art ennobles not only the student and the artist, but the mere beholder of artistic works, if only he will think a little and learn a little about the real nature and functions of the several kinds of art. The round of our daily occupations is apt to become, with some of us at least, dull, and mechanical, and dreary; we need something more to satisfy our longings than mere everyday duties. Bring these duties themselves before you in their right light in the grand order of the world, and you will have done something; but cultivate your other powers as well. Let your eye learn to discover beauties of form and intricate delights of colour; help others to enjoy what you appreciate; simple as our homes may be, let us get rid of what is false and meaningless, let us gather into our houses forms of beauty, let us put on our tables boughs and sprays of God's trees, and the Mosses and Violets which He has made so lovely, let us cease to consider eating and drinking and frivolous talk, and even our own lawful toil, to the exclusion of the recreative study of order and of beauty in Nature and in Art.

SUCCESSION OF GREEN CROPS.

The subject about to be discussed is eminently practical, and must have often occupied the attention of all farmers in its relation to the land they till. Stock, more especially in recent years, has been the most paying element of the farm. The farmer's success has consequently largely depended on the amount of stock his land has been able to carry, and much careful thought has been bestowed upon the means of obtaining the largest possible yield of vegetable food. The system which our thought and experience have led us to adopt appears to us to possess the double merit of providing a constant succession of green crops, and at the same time of bringing out the utmost productive powers of the land; the abundant supply of herbage enabling the largest possible amount of stock to be kept, and swelling the profits of the farm in this particular branch whilst largely increasing the general fertility of the farm and adding pleasantly to the receipts from corn.

Confining ourselves to arable land exclusively—for such we understand to be the only legitimate scope of this essay—we, at the very outset, feel embarrassed by three difficulties: 1. There is a difficulty of climate; 2. That of rotation; and 3. That arising from the widely-different kinds of stock for which provision may be required.

In regard to climate, it will at once be evident to any one practically acquainted with different parts of this island that what is possible and expedient in the warmer counties will often be unsuitable in those which are colder; plants which thrive well in one not being adapted for the other. A course of double cropping, which will be possible in average seasons in the south, will but rarely be practicable in the north; consequently, no rule can be laid down which will be found suitable in all places. And so with respect to rotations. The arrangement of green crops must be made to agree with the general system adopted on the farm, and thus the plan suitable for the four-course system will require some modification when applied to a rotation extending over a longer period.

The kind of stock for which provision is to be made must also modify any prescribed course of cropping. Some farmers prefer sheep, and some neat stock; some are breeders, while others graze, or unite the two systems, or keep principally dairy stock. We are encouraged, however, by the thought that if we can point out what is best in a certain climate and with a certain course of cropping, it will not be difficult for any experienced farmer to adapt such system to the peculiarities of his own particular occupation. We wish it to be distinctly understood that we call that system the best which unites the most abundant production possible to the land with the provision of a "continuous succession" of green crops; and further, that we recommend nothing which either entrenches upon the usual breadth of corn or which prejudicially interferes with its production.

We propose to deal with the four-course system, as being that most widely followed, and, as we believe, on the whole the best for most occupations, whilst it is also the system with which personally we are most practically acquainted. In respect to climate, the eastern counties will be our guide. It is in Suffolk that we are now pursuing the practices we are about to recommend.

It will be necessary for us to deal separately with light soils and those of a heavier texture, as what is suitable for the former is often quite unsuitable for the latter. We will illustrate the systems we advocate on either description of soil with an example of 200 acres of land, all arable.

Light Soils.

First, then, we start with 200 acres of light, tender soil, with either sand or gravel as the subsoil. Let us visit this farm in July, and, supposing it to have been managed as we commend, the respective shifts will be occupied as follows, viz.:—

Fifty acres with Wheat.

Fifty acres with roots, thus apportioned: 20 acres Beet after Rye; 26 acres Swedes after Trifolium; 4 acres Tares, followed with late common Turnips.

Fifty acres with Barley.

Fifty acres with Clover and Peas, viz., 25 acres Red Clover, with a little Rye-grass; 5 acres mixed layer (White Clover, Trefoil, and Rye-grass); 20 acres early Peas.

We will now describe the management of this farm for the ensuing year, in so far as the green crops are concerned.

The Peas, being of an early kind, will be fit to "make up" in July. This operation must not be delayed till the Peas are ripe, or some will be lost by "shelling out" in the necessary handling of them. Immediately the Peas have been "made up" they will be moved by hand into rows, while the intermediate land is ploughed and 2 pecks per acre of Mustard seed is sown broadcast and harrowed in. This being completed, the Peas will be shifted on to the newly-sown ground, while the land they have been lying on is also ploughed and sown. Thus the Mustard will get the earliest possible start, which in a dry season is an object of very great importance, as in such a season the greatest pinch of feed will be when the layers are fed bare and the Mustard is not ready to begin. It will be found that the Peas will "make" quite well on the fresh ploughed land, and that no appreciable injury will be done to the Mustard in carting them off. Some people prefer to cart the Peas, as soon as they are cut, on to an old layer or a pasture to let them "make" there; but this entails rather more labour.

It will be sufficient to deal thus promptly with about 6 acres first. If the rest of the Peas are not then ready to cart, proceed to deal similarly with 4 acres more. As soon as the Peas are carted, sow another 4 acres, and on the remaining 6 acres sow Coleseed instead of Mustard. A fitting succession of feed will then be provided. We have seen a good crop of common Turnips grown after Peas; but it is but rarely that Turnips will mature in time to allow of the land being planted with Wheat. Mustard will come to feed the most quickly of any plant we are acquainted with; it is usually ready in about six weeks from the time of sowing. It has the additional recommendation of being a remarkably healthy plant to feed off, and an excellent preparation for Wheat. For the information of those unaccustomed to the use of Mustard, we may say that it is best not to begin feeding it off until it begins to bloom. By that time it will often attain the height of 3 feet, and will keep running and blooming till it reaches another foot higher, and during all this time it is excellent food for sheep. A friend of ours this year mowed his Mustard, and carried it home to cut into chaff with straw, as food for neat stock, and he was very pleased with the result of his experiment.

As soon as the harvest is finished, work must be commenced on the Wheat stubbles. We should recommend that about 20 acres be ploughed and sown with Rye, which makes the earliest spring-feed of any similar plant. On 26 acres—the Grass having been first forked out—Trifolium should be sown. For this crop ploughing will not be necessary, the seed thriving best when sown right on to the stubble. If the seed can be obtained in the "cosh" (that is, still encased in the husk it grows in), it will be the most sure to grow. Sow this broadcast on the land, at the rate of about a 4-bushel sack to an acre (equal to 2 pecks of clean seed), and harrow it well in. If the land is too hard to admit of sufficient mould being raised to cover the seed, it will be best to use the cleaned seed and to drill it, harrowing well before and after. In a wet season the seed is sure to grow; but in a very dry season, unless it is covered, it is apt to be sprouted by the dew, and then to be dried up and to perish, under the influence of the sun and wind, before it has obtained a rooting in the soil.

We have now disposed of 46 acres of Wheat stubble, and have 4 remaining. Some time in September plough 2 acres, and drill in Tares, with a few winter Oats mixed to hold up the Tares. The remaining 2 acres plough and drill in the same manner in November; if possible, early in the month.

Having for the present disposed of the Wheat stubble, we will pass over the usual winter's work—which does not concern our subject—and suppose spring-time come. There will then be 20 acres of Barley stubble not sown with Clover, which will have to be ploughed and drilled with Peas; our own experience being favourable to the early "Haysal Pea," with which we have had good success.

Next will come Barley sowing. On those fields which were occupied by Peas four years previously, sow a mixture of Red Clover and Rye-grass, with a slight addition of White Clover; and on other 6 acres sow White Clover, Trefoil, and Rye-grass, mixed.

We will now return to the Wheat stubbles. The Rye must be finished feeding off by the end of April, so as to allow of Beet being sown by the first week in May at latest. On the Rye stubble sow about 3 cwt. of guano and 6 cwt. of salt, or other manure of equal value (from 45*s.* to 50*s.* per acre); plough once, roll, harrow, and drill in Beet, which we have always found thrive remarkably well after Rye, the land being ploughed but once and treated as we have described. The roots will attain a larger size, and the land will be more free from weeds than if no previous crop had been grown. The Trifolium can be either fed off or mown; but in either case the land should be cleared in time to allow of Swedes being sown before the month is out, as they will not often thrive well if sown later. Sow on 3 cwt. of guano and 4 cwt. of salt, or some other manure of equal value; plough and roll twice, harrow, and drill in Swedes. We have found the greatest success attend this plan during the last few years. We have mown the Trifolium, obtaining considerably heavier crops than of Clover and Rye-grass on the ordinary shift; and have then had Swedes to follow, which have quite equalled those grown on similar land around which has had no previous crop. The season of 1867 was specially trying for our system. For several weeks after the Trifolium was cut the weather was excessively hot and dry, consequently there was not moisture enough in the land to bring up a plant of Turnips; but when the rain at length came, the seed grew, and in the month of March we finished feeding off a capital piece of Swedes. We now feel assured that very little hazard attends this productive system in any season.*

The 4 acres of Tares we mow for horses. As the land is cleared we plough once, roll, harrow, and drill common Turnips.

We have thus sketched the needful operations connected with the herbage crop for the entire year, and may now pause to consider the succession of green crops we have provided.

January.—Swedes; we usually draw off one-third, feeding the rest on the land.

February.—The same.

March.—Beet; we usually draw off half; less on the poorer fields and more on the better. Towards the middle of the month Rye will be coming on. We either fold sheep on the Beet and give them a few hours' run on the Rye, or keep them on the Rye and take Beet to them there.

April.—Beet, Rye; towards the end of the month feed Trifolium or Clover.

May.—Clover, Trifolium, with still a few Beet, if possible.

June.—Clover, Trifolium, Tares, with still a few Beet, if possible.

July.—Clover, second-crop Clover. It is probable that a sufficient bite will not have sprung up after the scythe on the Clover layers by the time the Trifolium will be ploughed for Swedes; it will therefore be necessary to feed some of the Clover layer, so arranging that there shall be a bite on it between the time when the Trifolium is finished and the aftermath is getting ready. Tares will soon be good for horses.

August.—Second-crop Clover, and stubble-feed, and Tares.

September.—Second-crop Clover, stubble-feed, with night folds on Mustard as soon as it is ready.

October.—The same.

November.—Mustard and Coleworts. Beet may be used now in the stalls if required.

December.—Mustard, Coleworts, common Turnips, after Tares; Swedes, if required. In the stalls Swedes will now be available. If done gradually, stock will take no harm in being changed from Beet to Swedes, or *vice versâ*.

We have thus provided for the entire year, and we do not see how it is possible in any other way to produce an equal weight or value of food on such land as this. *Prize Essay by Mr. R. L. Everett, in the "Journal of the Royal Agricultural Society."*

(To be Continued.)

* Since writing this essay we have had the experience of the present remarkable season of drought. Finding that the Trifolium would be very short, we saved it for seed. This crop realised 10*l.* per acre, and the Turnips we have after it are but little inferior to the average of our neighbours. R. L. E.

FOX-HUNTING.

THE following is a report of the discussion on this subject last week before the London Farmers' Club:—

Mr. EDMUNDS (Rugby) thought that the question was really one of use and abuse. No man in England liked to see a pack of hounds in full cry better than he did, but it seemed to be forgotten that not the hounds and foxes, but the people who followed them, were regarded as a great nuisance in many parts of the country. He never killed a fox in his life, and would not allow one of his men to do so, although they bred within 150 yards of his own farmyard. He would not do so much to injure the sport of his neighbours. At the same time he thought that as this was a tenant-farmers' club it was only fair that some one in the discussion should say a word for the tenant-farmers who were in some parts much oppressed by fox-hunting. Personally he thought there was no sport equal to it; it was so thoroughly old English, but the same thing could be said of it as of game preserving—it was abused. That was the point to which he wished to address himself. Let the gentlemen present turn their memories back some 20 or 30 years. Then the tenant-farmers and their landlords hunted the foxes together, and had a perfect right to do so; they rode over one another's lands, and did so according to a kind of mutual bargain. How different things were now! Suppose you lived in some central place within easy reach of London, or Birmingham, or Leamington, or Northampton, and supposing, as was often the case within five miles of Rugby, a field of 500 or 600 assembled, and, as he had seen them do, went in a body over a Wheat field in wet weather, or galloped over the Peas just as they were coming through the ground—was that a very gratifying state of things? He could only assure the Club that the tenant-farmers in his neighbourhood were beginning to ask themselves whether there was not such a thing as the abuse of fox-hunting. He was quite aware he must be a bold man who, in an assembly such as that of the Farmers' Club, dared to get up and say anything against fox-hunting. Nevertheless, he repeated that the farmers were beginning to ask themselves whether they were to be called upon to find ground and crops for gentlemen to ride over in this fashion. Why should they? The gentlemen who trooped down as he described from London and Birmingham, and who did so much mischief, had very likely no more land than the little lawn in front of their houses. How was the thing to be prevented? In his own immediate neighbourhood they did not suffer any annoyance from game-preserving. A writer in the *Northampton Herald*, in alluding to a memorial to Captain Thompson, begging him to reconsider his decision, and to continue still to hunt the Pytchley, says, "But, alas! the petitioners will ever pray. Great changes have taken place since the day that Mr. George Payne and Mr. Osbaldeston hunted this country. Then special trains did not bring crowds of hard-riding gentlemen and even ladies from Leamington; galloping cornets from Coventry and Weedon came over, and while it was one man's place to ride to hounds, it required two to keep back the gallopers. It was all the same whether they chased a hare, a fox, or a red-herring." "That," concluded the writer, "that is the order now of a Pytchley Wednesday." He himself knew this to be no exaggeration, and he could say something of the bad effects of 500 or 600 horsemen of this kind going over a field of spring corn. This was what he called fox-hunting carried to excess, and when it was so it was as bad as the over-preservation of game. He assured the Club, from his own personal knowledge and experience, the evil of the one was as great as the evil of the other. It must of necessity be so. Remember, it was not the sportsmen who did the mischief. There was not an occupier of land in his neighbourhood who cared about what was done in a legitimate way; it was the people who came over from the towns who were at the bottom of all the mischief. Wherever they went you saw gaps, yards and yards wide, while there was a regular road right across the Peas and Beans, just as if a troop of soldiers had been marching over. When this kind of thing was repeated twice a fortnight, it really became a serious business for the farmers. Notwithstanding this he did not bring it forward as a reason why fox-hunting should be altogether denounced or put down. In a pastoral country very likely people might hunt and enjoy their sport without doing much harm, but in an arable country the sport required to be kept within proper limits. The old farmers' almanack told you that fox-hunting went out on the 1st of March, and 10 years ago no one dreamt of sowing Pers before that date. Now we found Peas put in as soon as the ground would permit after the turn of the year—January and February. It followed naturally then that if fox-hunting were kept up to the end of April or beginning of May, immense damage must be done to the crops. If fox-hunting were to be kept up in arable districts, it should never be continued after the end of February. He quite agreed with what had been said as to the rabbits, but was very much afraid that where there was one Lord Leicester there were 20 landlords who held different opinions.

Mr. H. TRETHEWY (Silsoe, Ampthill) said he could not hear fox-hunting decried without interposing with a few remarks.

Mr. EDMUNDS.—I did not decry fox-hunting. I distinctly said I spoke of its abuse.

Mr. TRETHEWY said no doubt a great deal had been said about the use and abuse, but how the sport of fox-hunting was to be pursued without riding over somebody's land, he could not for the life of him make out. It was quite true that there might be exceptional cases where meets happened within reach of London, when the state of things described by the last speaker was experienced, and when crowds came. But who could draw the line, and decide who was to hunt, and who was not? He did not agree either that hunting spoiled the Wheat crops. He remembered the first steeplechase in Herefordshire many years ago, and a farmer who owned the land over which the race took place had a piece of Wheat. He was paid 10*l.* by the committee for going over it; but the next year he came and said, "You may ride over my ground for nothing this time; I thought last year you were going to do me a great deal of mischief, but when harvest came I saw no difference whatever." Similar results he had himself witnessed many times. When however, it regarded spring crops, as the land became tender, he quite agreed with the remarks made; but we should generally find that sporting men of the true type avoided those fields as much as possible. The question seemed to come to this, Was fox-hunting to be continued? Whatever inconveniences and damages there might be in exceptional cases, he believed it was the feeling and wish of tenant-farmers generally throughout the country that fox-hunting should prosper. England was the only country where fox-hunting could be kept up at all. Where else could people be allowed to ride over the land of another as we did? This proved the sport was in the strict and best sense of the word national, and it therefore had to do with the national feeling. It was not every man who could shoot, or who possessed the privilege of shooting over land where game was; but every person who could ride a horse, and who conducted himself as a gentleman, had the privilege of riding to hounds: and he hoped as long as he lived he should never see that long-standing privilege abolished.

The Rev. E. SMYTHIES (Hathern Rectory, Loughborough) said he, for one, begged leave to express his hearty thanks to Mr. Edmunds for the manly straightforward way in which he had spoken of what must be a very unpopular mode of treating this subject. Probably no man could do a more unpopular thing than get up in a company of Englishmen, and say something which bore even indirectly against the sport of fox-hunting. There were many things which were popular and not true, and many that were true and not popular. As he had always been taught to uphold the truth, in preference to anything else, he should on this occasion disregard the popular. Therefore, he unhesitatingly followed in the wake of Mr. Edmunds. He occupied about 300 acres of land, a large portion of which ran under one of the best covers of the Quorn hounds. They often met at this cover; they found a fox three times out of four, and went away right across his farm. He had the pleasure, therefore, of seeing 400 or 600 persons ride across all the ploughed fields. It mattered not whether the crops were Wheat, Clover, or Peas—away they went; and he must say he stood by with very decided feelings as to this exhibition of the national sport of fox-hunting. No one had followed that sport more eagerly, or enjoyed it more than he had in his early life, and he had three boys now whom he was glad to mount on ponies, and see following the same hounds as the gentlemen who rode over his fields followed. He had 20 acres of Grass on one side and 25 on the other, and between them was a large arable field of young Wheat, or maybe Clover, and across this three-fourths of the people went in a body. When he came to analyse the crowd, what were they? The country gentlemen, of whom we heard such a pleasant description from Mr. Corbet, where were they? The reality hardly corresponded with the charming picture that was drawn: he did not find it was always the case that the country gentleman resided amongst his people, and spent his fortune amongst them. The country gentlemen in his neighbourhood, who had a stake in the country, went over the Grass. They were generally good sportsmen, and knew the advantage of saving horses at the beginning of a long run, instead of going up to their hocks through a rough ploughed field. But the rich brewer from Melton, the cotton lord from Manchester, the cloth lord from Leeds, the iron lord from Wolverhampton—these were the men who did not care what injury they did to the farmers. What were these people to the farmers, or the farmers to them? They did no good whatever in the country; but, on the contrary, a vast deal of mischief. As to whether the crops were injured by being ridden over, he was aware a great difference of opinion existed upon the point; but he suspected those who said there was no mischief were occupiers of light land, while those who held an opposite opinion spoke of an experience of heavy clay land. He could show them at this moment in two or three fields of Wheat at least 10,000 prints of horse-hoofs caused by the kind of fox-hunting of which he complained, and he would almost go so far as to say he would offer any gentleman who thought no injury was done by it a sovereign for every blade he would find in the footprints. If, however, it really was a *good* thing to have one's crops scuffled over in that way, he must say he would rather do the scuffling himself, and then he could do it regularly. But it was not a good thing, and he maintained boldly that it did infinite mischief, and caused immense loss in every respect, without yielding any *quid pro quo*. If, however, it was true that no harm was done to the crops by being ridden over in this reckless fashion, the argument might be carried a little further. Suppose, instead of hunting a fox, he took to hunting a butterfly, and in July or August rode for that purpose upon his best nag into these gentlemen's gardens and across their flower-beds, and when they ventured to remonstrate he were to say the beds would really be benefited, the Scarlet Geraniums, and the Verbenas, although now broken to pieces and trampled into the earth, would really flower all the better for it—what would they say? He apprehended they would not exactly see eye to eye with him. Yet the case was quite analogous. Formerly they had simply an assemblage of the landed proprietors and their tenants hunting together. They met early in the morning and galloped in company, killed their fox, rode home together squire and farmer, landlord and tenant together, and the consequence was an excellent feeling was generated amongst all. That had now passed away, and the hunts were made up of all kinds of people who had no connection with the county, and who were now opposing the efforts of the agricultural community to obtain a better method of rating and taxation. He therefore submitted they were not the people to be considered with regard to the national sport of fox-hunting.

Mr. T. WILSON (Knaptoft) said he happened to live upon one of the heaviest clay farms in the midst of the most popular hunt in the kingdom, and in order to bear out what Mr. Edmunds had said, there were two fox covers on his farm, and he could only say he would give 20*l.* for the last 10 years to the gentleman who would pay for the damage that had been done to his farm. This was done by men from a distance, who did not care where they rode, or what they did. Instead of 150 people in the field, as there used to be, there were now 300 or 400, from the duke to the chimney-sweep. He would repeat, they absolutely were careless what they rode over. His experience was that more harm was done to the winter Beans than to any other crop. No doubt there were two sides to this as to every other question, but the farmers upon heavy clay lands were beginning to see that if these troops of miscellaneous people went over the farm twice a week or fortnight, as the case might be, the harm would be almost incalculable.

Mr. JOHN THOMAS (Bletsoe, Bedfordshire) said he had been a tenant-farmer and fox-hunter for many years, and had farmed nearly 1000 acres of land. As to the damage done by fox-hunting, he found that with regard to Wheat in winter and the early months of the spring, sometimes more good than harm was done, but late in the spring there was some damage, but it was often only slight. When you came to ride over Beans and Peas late in the spring, of course there must be considerable injury; that was inevitable. He was a great enemy to rabbits, and thought it impossible that a man could keep rabbits and stock too. Although he was a tenant-farmer he was happy to say that at this time he had two litters of cubs upon his farm, and if one of his labourers destroyed a single cub he would be discharged at once. When the arrival of people from London and other large towns to hunt was spoken of in such strong terms, he must remind the Club that those gentlemen must have their sport as well as others. Why should they attempt to prevent them, or endeavour to confine the hunt to landlords and tenants? For himself, he never complained when his crops were ridden across: he accepted it for the sake of the sport, which was open to the enjoyment of all. The hunt went where they liked, according to custom, and necessarily there was a little loss following; but then in return they rode over other people's land, and the thing was therefore pretty equal all round. As to keeping up a certain amount of rabbits, no doubt where there were foxes a few rabbits should be kept; the great mistake people made was keeping too many, and allowing gamekeepers the privilege of having rabbits for their perquisites. Foxes lived upon hares as well as rabbits. Of this, however, there could be no doubt—something must be done if our national sport was to be kept up.

Mr. C. HALL, jun. (Romford), said he was much amused to hear the rev. gentleman who had addressed the Club acknowledge that he had three sons who galloped over his neighbours' crops. Could the rev. gentleman with much justice complain when he produced three-fold the very thing he denounced. In Essex fox-hunting was really appreciated, and they had a tenant-farmer who had been made master of the South Essex hounds. There they had no objection to fields of 300 or 400 strong; Londoners came down in considerable numbers and they subscribed very liberally, and if any damage was done, either by riding down crops or the eating of poultry by the foxes, ample recompense was given. A proper system of "capping" ought always to be adopted, because there were poor tenant-farmers who ought to be paid: in South Essex they were paid. The tenant-farmer to whom he had referred farmed 6000 acres of heavy land, yet he was master of the hounds. If the gentleman who had been depreciating fox-hunting would only come down they should have some sport, should ride over the heavy land if they liked, and should see that there would be no difference when harvest came round. It was impossible in May to talk about damaged Wheat—harvest was the time to consider that, and if they waited till then they would find in almost all cases that the Wheat which had been ridden over was not damaged in the least. He attended a hunt dinner the other day, and one of the speakers, a tenant-farmer, said that before foxes were preserved in his district they could not grow three quarters an acre; after they had been preserved a short time they somehow now grew five quarters.

After further discussion of the other points referred to in his paper—

Mr. CORBET, in reply, said he had flattered himself there was not a member of the Farmers' Club but would have a good word to say for the foxes and fox-hunting; and he must say that he had listened with considerable disappointment to the attack made on this sport by three speakers, one of whom had declared that fox-hunting in excess did as much damage as game preserving to excess, a statement which he (Mr. Corbet) did not for a moment believe could be substantiated, nor did he think the country would credit it. His mind, however, had been much relieved when he heard another of these opponents to sport liken the trespasses of fox-hunters to those committed by people breaking into gardens after butterflies.

This might have gone down at some scientific or *dilettanti* society, but it would never do in a company of farmers; and he (Mr. Corbet) was quite sure that the speaker who made such a comparison could have no proper idea of the glorious spirit which characterised the chase in England.

Home Correspondence.

Steam Cultivation.—Any communication in reference to steam ploughing, or cultivation, bearing the signature of William Smith, of Woolston, will always command attention, even from those who differ from him on this increasingly important subject. I would, however, draw his attention to this, that his remarks refer more to the cultivation of the soil only, and not to the many other uses, an engine, traction or otherwise, might be brought to aid in, in reducing the interest now chargeable to cultivation. I must admit half the interest on the engine is allowed for threshing and grinding, but beyond this he does not venture. A correspondent, "W. B.," p. 1297, 1868, has given some practical reasons why horse-power should be looked upon with a favourable eye, and concludes his interesting paper with the following:—"As a rule it may be admitted, that once over the ground by steam, whatever the nature of the soil may be, is more effective than once over the ground by horses, whether in ploughing, grubbing, or harrowing; but such a rule does not imply that steam culture involves fewer ploughings, &c., for in practice the requirements of the soil, season, &c., may demand the opposite rule, viz., more frequent ploughings with steam than with horses. We can readily perceive cases where frequent and effective tillage are both in favour of steam, and very probably this may be the rule in the vast majority of farms; but from such a rule we can also perceive many exceptions, where once over the ground with steam is more effective than twice over the ground by horses, while in not a few examples steam can enter the field successfully, finishing its work by one operation, when horses have to wait a more advanced season for favourable weather, at a sacrifice which the harvest following never fails to estimate at its true value." It is the desire to arrive at practical results that would induce any farmer to bring steam to his aid. He has come to the conclusion, and, no doubt, it must be admitted a correct one, that by a better pulverisation, a deeper moving of the soil, his crops are largely increased, involving more carriage in every respect. It is in regard to this carriage we must see what can be done. In the *Agricultural Gazette* for Jan. 2, p. 14, Mr. Smith gives us an estimate of work done, and what can be done, which, on the whole, is not altogether discouraging; but an alarm of fire is raised. "Ah! 'tis a good servant, but a bad master;" but can we not keep it in bounds?—for you will observe it is "fire" that is put forward as the only drawback. It has been remarked that, with proper deep cultivation, and other good management, our fields will yield to us larger and heavier crops, consequently we will still require aid from horses for reaping, if not for carrying. However, it does not imply that a crop, say of Wheat, yielding six quarters, would require double the time to reap it, as a three quarters crop would; it will be heavier to carry, and more bulky, but it is here we wish to bring a traction engine to our aid. I refer here to the reaping by machine, as it is a difficulty some will start, and will be put forward as an essential reason for retaining horses on the farm, in number more than can possibly be required. Mr. Smith shows by his "correct card" that his horses worked only on an average of 122 days each in the year—that is, three horses on 112 acres arable and 50 acres grass-land; but doubling the areas, say 224 acres of arable, coming to about the average recommended by the R. A. S. judges, would it be necessary to keep more than four horses? Mr. Howard's bailiff gives it as his opinion, (p. 177), that 10 or 12 horses are sufficient for 400 acres under the plough, aided by steam, but do they not seem too many? Assuming the work on 400 acres to be four times that in Mr. Smith's case, by mere matter of multiplication we certainly would arrive at the conclusion that 12 would be required, but is it so? There are always exceptions to the rule, let us hope that this instance is one, and that the work can be done by four or five horses on 224 acres arable. Allowing there is a pinch at haymaking and harvest, a horse might be purchased and again disposed of, if hiring is out of the question, but with a good class of farm-horse, one in which steam has inspired a rival spirit of activity, one horse to every 50 acres of land would be found sufficient. I will not here refer to the great, in fact immeasurable, advantage to be derived from the use of steam, thereby ensuring deeper and more effective cultivation, in the greater economy of manures, of labour, the aëration of the land, the increased efficiency of the drainage, but will try to gain fuller information, suggestions, &c., on this point, viz., Can a traction engine be made available for draft purposes at harvest time, or otherwise? Assuming we can muzzle our servant, "fire," what other obstacles can present themselves? No doubt the holders of unimproved farms will point to the small lands or stetches which the undrained and unpulverised state of their ground requires, to prevent, if possible, the crops being "water-logged," but steam cultivators know such are not requisite. There is certainly a great drawback in the hedges, timber, and small fields, but with a little management this might be overcome: the fact of their being obstructions will in very many instances cause their removal. Another use to which our engine might be put is in irrigating our fields with liquid manure or water. It is well known in farming that the root-producing portion of the farm has hitherto failed on the whole to pay its own expenses, and has, consequently, entailed a heavy charge on the corn-producing moiety. But liquid manure and irrigation would render them self-supporting, by furnishing at a diminished percentage of cost a greater increase. It may be remarked that this irrigation is a costly affair; but taking into consideration the value of the straw that is now trodden under foot in its conversion into, in many instances, so-called manure, does it not seem wrong that such waste should be continued? Is it not possible to consume the greater portion of straw, now so wastefully used on the majority of farms, in assisting to produce meat, the animals themselves being kept on sparred floors, thus producing a large quantity of liquid British guano? The appliances requisite for its conveyance to the fields—that is, pipes, &c.—may be roughly estimated at 70*s.* per acre, varying with the position of the homestead. It may be, and perhaps has been, asked, "Will not giving sheep cake, and assisting by artificial manures, restore fertility more cheaply?" and "There is no possibility of passing all through the stomach of the animals; for to do so, an immense number will be required." This is quite true; but given the pipes, &c., the fields whose fertility is kept up by sheep would derive immense benefit from irrigation, even from water alone, leaving out of question the feasibility of applying guano, nitrate of soda, and such like manures in a liquid state. How many farmers, of light land or otherwise, would have been thankful in the past season had their farms been held within the iron grasp of the 3-inch liquid manure or water-pipes? And it may be presumed that had it been so the words—ominous words to many a hard-working, painstaking man—"a total failure," would not so often have been written down by those gentlemen who kindly assisted you in placing a trustworthy statement of the crops before the public. Again, does the fact of a larger amount of capital being requisite justify our using a load of straw, worth in the neighbourhood from which this is written, on an average, 34*s.* per load on the farm, for the purpose of bedding or soaking up the liquid manure (which in many cases can hardly be so named, owing to the rainfall from buildings, &c.), getting in return manure of the value of 10*s.* or 12*s.*? Here we are met with, "Where is the money to come from?" If we will but for a moment consider the large sums that are invested in foreign and other railroads by many owners of land here, whose estates would be benefited by an outlay of 5*l.* or 6*l.* per acre for such improvements, it does seem surprising that the question can be asked so often without eliciting an answer in any way satisfactory. Risks will be incurred in a "London and Dover," or a "Mont Cenis" rail, on the mere report of the engineers of such undertakings, backed up by the opinion of some one who has had great experience in these matters, at the same time that, with some worthy examples for imitation of the immense good that can be done in "foraging for our own people," so little can be noted by way of advancement in the agricultural world. In conclusion, allow me to quote your correspondent "G. A. H.," p. 14:—"A 6-horse or an 8-horse would in my opinion be the most suitable size. If the farm required more, I would rather use two engines (meeting Mr. Smith's suggestion). For most farms a 6-horse engine would be ample. With suitable implements it would make a single furrow 13 inches deep and 18 inches wide, or a double furrow 9 inches deep, 24 inches wide, &c." Cannot such small-sized engines with the necessary requirements be obtained? thereby enabling a small holder to have a "little implement" of his own, even if it costs him 17*s.* more per acre than Mr. Smith's. *West Indian.*

Wireworm, and a Glance at Hampshire Farming.—Having just visited Hampshire, I was pained to see so many Oat and Barley fields almost or entirely destroyed by wireworm. All this might have been easily, cheaply, and certainly prevented by the sowing of about six bushels of salt per acre just as the plants were coming through. I have some land subject to this pest; but for several years, having used the salt I have prevented their ravages. "Oh, but," say or write many farmers to me, "I have placed wireworms in salt, and they continued as lively as grigs, and therefore, it is clear that salt will not kill them." My reply has been—"Did you put any water with the salt?" This soon changed their opinion. It won't do to wait for evidence of damage before you apply the salt, for the withering of the plant only takes place after the stem has been bitten through by the wireworm. In some cases wireworms are the best friends to farmers, that is, when they only destroy one-half or two-thirds of the too thickly sown plants, thereby teaching a wholesome lesson on thin-seeding. A Hampshire farmer told me the other day, as I looked over his wireworm eaten Oat fields, that last year he had despaired of getting any crop, but the few plants left by the wireworm, having plenty of room for ample development produced the most abundant crop he ever grew. I never drill more than 2 bushels of Oats per acre, and have grown a fine crop from only one bushel. Hampshire is rather noted for thick sowing, probably with a view to smother the weeds; for I was a good deal shocked, agriculturally, to find that it was not the custom, in the district I visited, to hoe out the weeds from the Wheat. This, in Essex, would be considered a culpable and unprofitable neglect. The Clovers would also pay for hoeing. I always hoe my Clovers in the spring, and find it a paying operation. On one part of a Wheat field, where a dung-heap had been removed, the Wheat was densely thick and greatly advanced in growth beyond the rest of the crop. Here was an instructive lesson. It teaches us that with very high farming or rich manuring one-fourth of our ordinary quantity of seed would be enough, and that the excess in this case would be ruinous to the crop; perhaps even two or three flaggings or decapitations could hardly save it from premature falling and rotting. I have always maintained, in despite of many opinions to the contrary, that land can never be too rich for Wheat, provided the proper or diminished proportion of seed be sown. When I am told that "we dare not feed off our Turnips with cake and corn, for we should have prematurely laid crops of Barley or Oats," I at once see that the proportion of seed sown is not duly reduced to the improved condition of the soil. We should do with corn as we do with roots or with trees, apportion the distance between them, according to the space the plant or tree is expected to occupy within a given time, which of course will depend on the richness or poverty of the soil. I almost envied our Hampshire friends the pellucid and fertilising waters of the beautiful Itchen, on whose banks the watered meadows give rich and frequently renewed food to fine flocks of sheep and lambs, as well as to cattle. The rich and exquisitely flavoured butter gives confirmatory evidence that water which will produce Watercresses abundantly, is highly fertilising for Grasses. I was glad to find instances where the love for queer-shaped fields, great hedges, and abundant timber, had given way to a more retilinear and more profitable formation. Hampshire scenery, with its clear and gushing streams and May-day vegetation, presented many charms to *J. J. Mechi, Tiptree, May 5.*

Foreign Correspondence.

Paris: *May.*—The main facts elicited by the agricultural inquiry recently carried on throughout France by a governmental Commission appear to be, that the great wants of the farmers are—first, scientific knowledge, and, secondly, a good supply of manures of the right sort—facts which, perhaps, it did not require a special Commission and two or more years' labour to find out. However, the Government seems determined to do all it can to assist agriculture, and that is a grand point gained. The increased and improved methods of education and training have already been mentioned in the *Agricultural Gazette*, we have to record the acts of the Government respecting the other great question, manure.

The Minister of Agriculture has ordered that in each of the agricultural establishments under his care an experimental field shall be devoted to trials of farmyard and chemical manures, separately, and in conjunction with each other. As these establishments number between 60 ond 70, distributed over various departments, and as experiments of this kind are carried on with great care by the scientific cultivators of France, the result of such a series of trials in so many different places ought to, and doubtless will, supply some very useful information.

The Minister of Public Instruction also has addressed a circular to the prefects of all the departments in France, in which, after referring to what has been done by his colleague mentioned above, namely, the formation of experimental fields in all the regional schools and farm schools of the empire, he says—"It will be useful that other schools, without entering into long experiments, the results of which may be uncertain or onerous, should not remain strangers to a movement which pre-occupies public opinion, and of which the consequences are likely to be considerable should the experiments, which are about to be undertaken in all quarters, confirm the new ideas with which they are connected. Our normal schools, spread over every region of France, and many even of our primary schools, might by means of similar experiments increase the mass of exact information which my colleague seeks to obtain upon a subject which it is most important should be fully elucidated.

The conclusions of the Superior Commission of Agriculture are said to be, unfortunately, in opposition to the opinion of the new Minister of Agriculture, M. Gressier, and, therefore, it is feared that some of the recommendations of the Commission, such as the establishment of an Agronomic Institute, somewhat like that which formerly existed at Versailles, may drop through or be deferred.

In the meantime the Minister of Public Instruction has organised a course of inferior agronomic education at the Jardin des Plantes. The programme includes geology, as applied to agriculture; organic and inorganic chemistry, as applied to agriculture; botany and vegetable physiology, cultivation, comparative anatomy, the study of fish, reptiles, and insects, physiological and economical history of worms, molluscs, and zoophytes, and general physiology. The programmes are drawn up by the most eminent professors in France, including MM. Chevreul, Becquerel, and Claude Bernard, but it is complained by practical agriculturists that all exhibit, more or less, a want of familiarity with rural matters.

These courses were to open on the first day of the present month, and the Minister has addressed a circular to the rectors of academies desiring them to select from amongst the pupils of the normal schools in the provinces a certain number of young men who exhibit an aptitude for agricultural studies, and who are to be sent to study for professors at the Jardin des Plantes, at the expense of the State.

A proposal, which obtained the support of 144 Deputies, was made in the Corps Législatif the other day for a special grant of 32,000*l.* for the organisation of superior agricultural education, the improvement of the regional schools, farm schools, and agricultural orphan asylum, and for the establishment of stations for agricultural experiments. The Government, however, opposed the motion, on the ground that the labours of the Superior Commission of Agriculture were not yet terminated. It will have been seen, however, by what is stated above, that the Ministers have already carried out a portion of the proposed measures.

The new Société des Agriculteurs de France seems to progress rapidly, and it is announced that M. Delano, a civil engineer, residing in London, is appointed agent of the Society for England.

The Comte de Kergorlay, a well-known agriculturist, is pursuing a series of careful experiments with manures—Peruvian guano, phospho-guanos, &c. The composition of the manures not being all given detracts somewhat from the value of M. de Kergorlay's results, which, however, seem to have been very decidedly in favour of what is called Bohart's Engrais type, which is stated to contain 8 to 9 per cent. of nitrogen, 18 per cent. of phosphates and biphosphates, 4 to 5 per cent. of nitrates of potash, corresponding with 5.92 per cent. of carbonate of potash, and costing 12*s.* per cwt. The general result of the experiments is thus stated in M. de Kergorlay's own words::—"I obtained an increase of 20 to 25 hectolitres of Wheat by an extra expenditure of 100 francs," that is to say, from 16*l.* to 20*l.* for an outlay of 4*l.* The Count is now carrying out a further series of experiments with great care, and promises to give the results after the harvest.

The Société Hippique Française is at present holding its annual exhibition in the Palais de l'Industrie, in the Champs Elysées. Last year the competition in trained horses only related to riding and carriage horses; this year trotting horses and hunters are added. The exhibition closes on the 15th instant. The enclosed space is laid down as a ride and drive, with a leaping bank, and during the fashionable hours of the day the scene is very gay.

A chemist, named Weiss, is said to have resolved a problem which Liebig has been working at for 30 years, namely, how to separate the pellicle from the nutritive part of grain without losing an atom of the latter. The method is not divulged, but we are told that it saves all the gluten, and that in the case of Wheat, as well as of Maize, after having been treated according to Mr. Weiss' plan, the whole of the ligneous pellicle detaches itself with the greatest facility, even by rubbing between the hands. After repeated experiments it has been found that by the new method the grain loses only about 2 per cent. of its weight, whereas the average loss in preparing fine flour in France is said to average 12 per cent. Of course any such result as this would be very important, but at the same time it must be borne in mind that gluten injures the whiteness of the flour, which is a quality in very great repute, though intrinsically of no value, but rather the contrary. The same chemist announces that the bran produced by his process works up admirably with other materials in paper-making. *G. W. Y.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

General Meeting, May 10.—Mr. Wells, M.P., in the chair. Among those present were Mr. Holland, Mr. Read, M.P.; the Hon. Mr. Charteris, Mr. Botley, Professor Morrison, &c. The meeting was held for the purpose of enabling Dr. Voelcker to place before the Society the results of recent chemical investigations.

Dr. Voelcker stated that during the past few months he had been much engaged in making chemical analyses of manures for the use of individual members of the Royal Agricultural Society. Within the last fortnight he had had no less than six different samples of nitrate of soda sent to him, which on examining he had found shamefully mixed with common salt. Some of the samples sent to him had been adulterated to the extent of 85 per cent., some to the extent of 30 per cent., and others to a lesser extent; and at the present moment he had under investigation no less than four samples of adulterated guano, besides several other cases of adulterated manure. He mentioned these facts to show how largely these kinds of artificial manures were adulterated at the present time, and that care ought to be exercised by farmers in buying them; and then proceeded to state that during the past season various interesting experiments had been made with reference to the suitability of manures for Clover seeds. He especially referred to experiments carried out in 1867-8 at Escrick Park, near York, by Mr. Coleman. In all his field experiments the same manuring substances were employed, namely, nitrate of soda, sulphate of ammonia, superphosphate, common salt, muriate of potash, sulphate of potash, and sulphate of lime. He was careful to have two plots in which no manure was employed. In preceding years he tried his experiments on heavy soils, wishing to see how far a supply of potash was beneficial to the land. The result was, that the increased produce on clay was not sufficiently marked to pay the cost of potash manure, and in many instances no improvement was visible at all. The fact was, that many clays contained besides a good deal of silicate of potash, and, under the influence of water and oxygen, they readily yielded potash.

	tn.	ct.	lb.
Where no manure was used there was produced per acre of green Clover	8	5	40
Where mineral phosphate alone was used	8	4	12
Where muriate of potash was employed	9	16	28
While where they used a mixture of superphosphate and muriate of potash, the result was a production per acre of	13	15	40

Nitrate of soda had an unmistakeable tendency to exhaust the land, for the second cutting on the land dressed with nitrate of soda weighed less than that on the unmanured plots, showing that nitrate of soda should not be used as a top-dressing on poor sandy soils, even with superphosphate, because it tended to the complete exhaustion of the land, and it did not even benefit the tenant-farmer who applied it for a season with a view of getting a larger produce; for it was an established fact, that on poor sandy soils purely nitrogenous manures not only rapidly exhausted the land, but the produce was very inferior. At the request of Mr. Coleman he examined the field which was manured in this way, and was much struck with its appearance. There was not a plant of Clover to be seen; the Italian Rye-grass, after the first cutting, was completely burnt up and the land quite exhausted, proving that nitrogenous manures were only good when the necessary mineral substances existed in the land; whereas heavy land benefited by their application. He was struck with the remarkable effects which the potash and superphosphate had on very poor and light land in producing a luxurious crop of Clover and Rye-grass. Experiments were made last season, and they confirmed the preceding ones, and showed that in dry seasons saline manures ought to be applied very sparingly, and very early in the spring. When top-dressings were applied to cereal crops it was necessary to apply them early in the spring, so that they should be thoroughly washed into the soil. Similar experiments were tried on Clover, grown without Rye-grass or other Grass seeds, by Mr. Kimber, at Tubney Warren, Abingdon, on naturally rather poor land, but which had been farmed extremely well. The Clover was sown with the Barley crop after roots grown with a good dressing of dung and 3 cwt. of superphosphate; the roots were fed off by sheep, which had corn with the roots; the result was, that this land was in excellent condition. In this case neither nitrate of soda nor sulphate of ammonia produced any effect. In the cases he had hitherto investigated, nitrate of soda and sulphate of ammonia had no effect on Clover. The Horticultural Society were now making experiments on Clover and other plants, in which the salts of potash and ammoniacal salts alone, and various other mixtures, were being tried; and he hoped interesting results would be obtained in these experiments. Another investigation had occupied much of his time, namely, that on the causes of the beneficial effects of Clover as a preparatory crop for Wheat. It was well known that if a farmer could first grow Clover on poor land it would put him in the way of getting a fair crop of Wheat the next year. It seemed surprising that they could remove so large an amount of mineral and organic matter from the soil in a crop of Clover, and yet get the land in a better condition for Wheat; however, the fact was, the more nitrogen was carried off in Clover the richer the land became for Wheat. This had deeply interested him, but only during last season was he enabled to account for the strange anomaly presented to them in the Clover crop as a preparatory crop for Wheat. In a purely chemical point of view Clover was the most exhaustive crop they could grow, but in a practical point of view it was the best help for Wheat. An acre of land yielding four tons of Clover-hay, which contained a large amount of nitrogen, lime, and phosphoric acid. In such a Clover crop they removed three times as much mineral matter, and six times as much of nitrogen, as in an average crop of Wheat. They would naturally think that Clover would be benefited by the application of nitrogenous matter, but that was not so; it was benefited by mineral manures, and left the land in better condition for a corn crop. A vast amount of mineral manure was rendered available for the corn crop which would have remained locked up in the soil but for the introduction of the Clover crop, for Clover penetrated by its long roots, and gathered up the phosphoric acid and potash, disseminated through much soil. When the land was ploughed the roots were left on the surface soil; and by their decay, as well as by the decaying leaves, much food was produced for the following corn crop. The accumulation of nitrogen in the soil after a Clover crop was very large, amounting to several tons, and the better the Clover the greater the amount of nitrogen. In a field where the Clover was poor, on the brow of a hill, he found in an acre of soil 1 ton 11 cwt. 99 lb., while at the bottom of the field where the Clover was stronger the quantity was 2 tons 2 cwt. 61 lb., and the yield of Wheat was also greater, owing to the larger amount of nitrogen left in the soil. There were some further experiments tried at Leighton Buzzard by Mr. Valentine, where the Clover was cut twice, and where it was mown only once and then left for seed. Generally speaking, running a crop to seed exhausted the land; but after growing Clover for seed a much larger quantity of nitrogen remained in the soil than when it was mown twice, and, strange to say, where the Clover was fed off by sheep the land was in a worse condition than when they mowed it. That was an anomaly, and a very curious one. When they could get a good crop of Clover they were always certain of a good crop of Wheat the next year; and it could only be accounted for on the supposition that Clover left a large amount of nitrogeneous matter in the land. His investigation had shown that the ammoniacal salts in soils were rapidly transformed into nitrates. If nitrate of soda was used it should be applied early in the spring, so that it might be thoroughly incorporated with the soil by the spring rain. One objection to applying nitrate of soda was, that it was very readily washed out of the soil, but Clover had to be regarded as a constant source of nitrate; and it mattered not if a little was washed away in that case. The great thing, then, was to get the land in such a condition as to produce good Clover, and if they could succeed in doing that there was no fear about the Wheat. The next point to which his investigations had been directed was the production of Sugar-Beet. They were aware that of late there had been a great stir with respect to the growth of Beet-root as a raw material for the making of sugar. He had examined nearly 200 specimens of Beetroots, some grown in Scotland, others in the south of England, others in the west, and others in the eastern counties; and experience had shown that the eastern counties were more favourable for growing Beetroots than the western. Indeed, he thought there was a very good chance of growing Beetroot successfully in the eastern counties of England. White Silesian Beet, perhaps, was the best variety to grow. They should avoid an excess of nitrogenous manure. It was not every climate, nor every description of soil, that would grow Beetroot. The climate best calculated to produce sugar in Beet was that in which there was a considerable rainfall in the early part of the year. In the spring and early summer the plant required to be grown a moderate size, and to be pulled up immediately it began to flag, when its sugar-producing qualities were at their highest; because, if it were allowed to remain in the ground after that and it began to throw out new leaves, a chemical change took place in the juice of the plants, and it would then produce less sugar. If they could be always certain of a dry autumn the climate of England would suit beautifully for the production of Sugar-Beet. Last year the amount of sugar averaged 10 to 12 per cent. It was very important of course to produce a small root with a high sugar-producing power, because it was obvious that it would be much more advantageous for manufacturing purposes. In some roots which he had examined from Lodge Farm, Barking Creek, the percentage of sugar was no less than 13 per cent., but the general average might be put at 9 to 10. It was of great importance to attend to the time of taking up the plants.

A short discussion took place after the lecture, in which the chairman, Mr. C. Read, M.P., Mr. Botley, and Mr. Holland took part, the speakers agreeing that the learned Professor's investigations would prove extremely valuable to the practical farmer in correcting their notions about manuring. The Chairman said that what had been stated in reference to Clover would be matter of very serious consideration with him.

A cordial vote of thanks to Dr. Voelcker, proposed by Mr. Read, and seconded by Mr. Botley, brought the proceedings to a close.

Farmers' Clubs.

WENLOCK.

The Ravages of the Turnip Fly.—A paper on this subject was read at a recent meeting of this Club by Mr. E. Roden, of Benthall, in which he said:—Were farmers to occupy no more ground than their capital would admit of cultivating in a masterly manner, they would soon be convinced of the great advantages arising therefrom. They would have no reason to complain of scanty crops, which are generally occasioned by some imprudent management, such as applying manures at improper seasons, or not adapted for the soil, or not sufficiently pulverising the ground, or the succession of impoverishing, without the intervention of ameliorating, crops, or the treading of corn after it is sown by frequent harrowings and rollings, to make the surface fine and even, when, at the same time, the under stratum is, for want of being sufficiently ploughed, and by the treading of the horses, so hardened as to entirely destroy the seed they tread upon (particularly in wet or stiff soils), or prevent the roots from extending themselves in search of food. Vegetables cannot, any more than animals, attain their growth and strength without sufficient nourishment. Daily observation convinces me that the best soils, when they are not properly pulverised, or sufficiently ploughed and harrowed, will produce very scanty crops; but let them have an extra ploughing, more particularly stiff lands, and it amply repays the farmer for the extra labour. In the year 1839 Peruvian guano was first imported into this country, that article being a most powerful fertiliser, and so portable, its use use greatly economised farmyard manure for other crops. Then draining on a most extensive scale was commenced on nearly every farm in the country; large Government grants of money, with an easy mode of repayment, were offered to all who wished to avail themselves of it; and drains were made from 2 feet to 6 feet in depth, and from 6 to 16 yards in breadth. And here permit me to make a remark on this subject, that in the opinion of some men expensive draining has so far interfered with the laws of Nature as to prevent the ground from retaining sufficient moisture to maintain—certainly not to promote—a vigorous vegetation during a three months' drought in summer, to wit, the general failure of our hay and Turnip crops during the last summer. But to return to our subject. The ingenuity and skill of the mechanic were brought to assist in this great work of resuscitation. Implements were invented for the more easy cultivation of the soil. Companies were formed, and erections built for the manufacture of a cheap and efficient manure ready for the farmers' hand. All these concomitants, in conjunction with his own indomitable perseverance and industry, have brought the English farmer to a comparative state of prosperity. We will now approach a little nearer the subject proposed for our evening's consideration. It has always been my opinion that every poison has its peculiar antidote, and for every disease, either in the animal or vegetable kingdom, there is a remedy and a means of cure. The gentlemen of the faculty have discovered names and palliatives, if not cures, for every disease the animal system is subject to; and it is, or should be, the duty and interest of every farmer (whose business it is to provide food for the country in which he lives) to discover the most efficient means of prevention and cure for every disease to which the crops and the animals his farm produces are liable.

We may, I think, consider the cultivation of the Turnip the basis of good farming in this country, and, if successful, every other crop in rotation is generally good. The preparation of the land for the seed is very laborious and expensive, which must be followed by a copious supply of good manure, and unremitting attention after the seed is sown, if good results are to follow. But no sooner does this important plant appear above the surface of the ground than it is surrounded with innumerable enemies, preying upon its very vitals almost to annihilation—first the fly, then the caterpillar and the anbury. These enemies are known to most farmers, but we scarcely ever hear of any one trying a remedy against their attacks. A gentleman many years ago tried the following experiments:—

On May 11, he says, "I sowed early Dutch Turnip seed on a bed in my kitchen garden, in drills 12 inches distant from each other, and nearly 2 inches deep. This bed had been

manured with rotten dung the year previous, and afterwards planted with Cabbages. The soil was a stiff loam, and the seed was steeped and mixed with sundries, as under, six hours before sowing, and each drill marked with stakes :—

"1. Seed without any preparation. Inferior.
"2. Dry seed mixed with soot. Third best.
"3. Steeped in Barton draining. Inferior.
"4. Water out of dunghill. Second best.
"5. Steeped in stale human urine. Very few plants appeared.
"6. Lime and Barton draining. No vegetation.
"7. Steeped seed, with soot and water. Second best.
"8. Ditto, soot, and Barton draining. Second best.
"9. Ditto, and elder-leaf juice. Third best.
"10. Ditto, elder-leaf juice, and Barton draining. Second best.
"11. Soot spread over the covered drills. Third best.
"12. Lime ditto. Third best.
"13. Seed mixed with slaked lime. Very few plants appeared.
"14. Soot scattered over, then covered. Third best.
"15. Lime ditto, ditto. Very few plants appeared.
"16. Elder bush drawn over the plants. Inferior.
"17. Seed steeped for six hours in hair oil. Superior to any others.
"18. Ditto in linseed oil. Superior to any others.

The linseed-oil was taken out of a bottle that had contained oil of turpentine for painters' use. The fly appeared on each experiment, but did no real injury to No. 17, which grew so luxuriantly as to produce rough leaves several days prior to the most flourishing of the others, and so continued to maturity. The leaves of No. 17, in particular, appeared to be fat, and twice as thick and strong as any others, except No. 18, which was very little inferior, owing, probably, to the small mixture of oil of turpentine that remained in the bottle. On June 29, in the same year, I drilled Queen of Norfolk Turnip-seed, nearly 2 inches deep, at 1 foot distance in the rows, on beds 8 feet 3 inches long and 2 feet wide. The soil is a stiff, unmanured loam, in the corner of a field, fronting the south. It had been winter and summer fallowed to the time of sowing. Weight of the seed, half a drachm to each bed, mixed or steeped with sundry articles, as follows, in order to endeavour to ascertain the most effectual remedy for preventing the fly destroying the plants. All the different experiments were mixed with a pint of sifted earth, immediately drilled, and marked with stakes, as follows :—

Nos.	Nos.
1. Mixed with soot, 1 ounce.	21. Brimstone and ½ oz. of train oil.
2. Soaper's ashes, &c., do.	22. Brimstone and Barton draining.
3. Wood ashes.	23. Linseed oil.
4. Pounded gunpowder.	24. Train oil.
5. Brimstone, 1 ounce.	25. Soot sowed over the bed.
6. Slaked lime, do.	26. Soaper's ashes sowed over do.
7. Soot and train oil, do.	27. Wood ashes sowed over.
8. Soaper's ashes, do.	28. Slaked lime do.
9. Wood ashes, do.	29. Linseed oil, and the covered drills scattered over with soot when the plants began to appear on the surface of the ground.
10. Gunpowder, do.	30. Train oil. The seed was steeped or mixed six hours in each ingredient, and the oil strained through a fine sieve.
11. Brimstone.	
12. Slaked lime, 1 ounce.	
13. Soot and linseed oil.	
14. Soaper's ashes and oil, 1 oz.	
15. Wood ashes and oil, ½ oz.	
16. Gunpowder, do.	
17. Brimstone, do.	
18. Slaked lime, do.	
19. Brimstone and saltpetre, well incorporated.	
20. Brimstone, and ½ oz. of linseed oil.	

On July 17, I particularly examined all the beds. None had entirely escaped the fly. The least injury was done to Nos. 30, 29, 24, and 23, which grew so luxuriantly as to produce rough leaves several days prior to the most flourishing of any of the other numbers, by which they were better enabled to withstand the fly's attack. The linseed-oil was the same as that used in the first experiment; its effect was inferior to that of train oil, which I impute to the drying properties of the turpentine. The leaves of the seeds steeped in the oils alone were of a much darker green, appeared twice as fat or thick, and the plants were a considerable degree larger than any of the others, and in point of luxuriance they stand as under. Accordingly, I presume that the smell of the soot must be disagreeable to the fly. As Nos. 30 and 29 remained the longest without being attacked, although the injury they did to 30, 29, 24, and 23 was scarcely perceptible, and did not at all impede their growth, Nos. 30, 29, 24, and 23 were far superior to all others. Nos. 3, 5, 11, 17, 22, 25, 26, 27, 7, 13, and 19, were more luxurious than any of the remaining numbers. On July 8, 19, 31, and August 14, I made several other experiments with Turnip seed, Barley, Wheat, Peas, and Beans, steeped, 6, 12, 10, 24 hours, and so long as 10 days; the seeds were sown broadcast, and drilled. In every experiment with Turnip seed I observed that what was steeped in the oil a less time than 24 hours, and immediately sown with sifted earth, vegetated much better than the seed that had been longer steeped; that steeped for 10 days vegetated less than the seed sown without any preparation. I found that oil in every experiment proved injurious to Barley, Wheat, Peas, and Beans, and that the grain sown in its natural state vegetated best."

From the foregoing experiments we may, I think, safely conclude that the seed steeped in oil was preferable to any others, nor do I think that it is at all a matter of importance as to a few hours' steeping. If the seed becomes well saturated with oil it will achieve two important objects, viz., the destruction of any insects or parasites that may be upon the seed, and also accelerate the growth of the plant out of the reach of its first enemy. But what can be done to ward off the attacks of that most formidable foe that proved so destructive to our Turnip crops last summer after the fly had left? Several times during the dry weather of last year my pigs got among the Potatos and Turnips. They rooted up both, but ate neither. They were searching after the arch enemy, the brown maggot or caterpillar, which they devoured with great avidity; but this method of cure was but little better than the disease itself, from the quantity of Turnips which they rooted up. I feel deeply convinced myself that farmers will have to use a larger quantity of lime on their ploughed lands than they have been in the habit of using for the last 20 years, lime being a powerful destroyer of insect life, and a most active agent in resuscitating the dying energies of a dormant soil.

The Chairman (Mr. Evan Davies, of Patton) said: Mr. Roden had not at all entered into the history or habits of the turnip beetle, or attempted to show any connection between the seed, the embryo, and the insect, whereby a steeping of the seed might be beneficial for its destruction. Some years ago this was the impression, and seed was advertised as having been steeped in brine, and the attack of the fly prevented. A Dr. Pearson, having submitted a lot of seed to the test of the microscope, discovered on several of the seeds white spots, and at once jumped to the conclusion that these spots were the eggs of the future fly; but the doctor, being a cautious man, tested the accuracy of the microscope by a practical illustration. He sowed part of the seeds with the white spots in the open ground, and part in a flower-pot, which he covered with a bell glass, to prevent the ingress of enemies from without. As soon as the Turnips were up in the open ground, there the fly was devouring away; but on referring to the bell glass, there the plants were growing unmolested by the dreaded enemy, so the white spots were not the eggs of the fly, but were accounted for more rationally. The seed-grower, after threshing his seed, placed it out to dry, and as earth, air, and water are teeming with life, there is no doubt some of these insect tribes prowling about traverse these seeds, and being unprovided with water-closets, leave the white spots behind them. But it is to the laborious researches of Mr. H. Le Keux that we are indebted for a correct insight into the economy and habits of the turnip beetle. Having secured several of these insects, he found that they paired from April to September, and when the rough leaf of the Turnip appeared the female commenced laying her eggs, confined to one egg per day, by piercing the under side of the leaf. These were hatched in about 10 days, when they begin to eat the fleshy part of the leaf, and are full fed in about six days, when they eat their way out, and burrow underground in the chrysalis state, in which they remain about a fortnight, when they emerge a perfect beetle, ready to fulfil the laws of Nature. Without close observation the workings of these minute caterpillars in the leaf can hardly be detected, as when full grown they are not more than 1-16th of an inch long, and about the size of sewing thread. I will not weary you by pursuing this subject further. It is a most interesting paper from which I have quoted, and well worth the attention of all who wish to get an insight into the history of this little pest to the Turnip crop. Now, it is evident from the researches of Mr. H. Le Keux that no steeping of the seed can have any effect in destroying the fly. The question then arises, What steps should be taken to secure the crop against these active enemies? Mr. Roden has satisfactorily shown us that by steeping the seed in oil the vegetating powers are greatly increased; but I fear this is impracticable. The seed soaked in oil, or any such glutinous substance, would, I should think, be unfit to pass through the drill with any degree of regularity. Certainly, everything should be done to facilitate a rapid growth of the young plants; and since the introduction of artificial manure there is very much more in our power than heretofore. But without a well-prepared seed-bed, manure will be of little avail, and the system which artificial manure has originated is, in my opinion, the very system to insure a failure of the crop, at least in any but very light land. I mean the system of sowing the seed on one ridging, for it must be evident that, unless the soil be reduced to an impalpable mass, the one-ridge system is nothing more or less than accumulating all the clods on the surface just under where the seed is deposited, and it is quite impossible that the tender rootlets of the young plants, except in very favourable seasons, can make much progress in such a seed-bed as to defy the attacks of the fly. Mr. Davies mentioned other means of preventing the destruction of the crop. Repeated horse-hoeings he found very effective as burying the fly for a while, during which period the plant was developing into the rough leaf. He had tried the experiment, too, of making a fire of rubbish on the side of the field, and he thought that a serviceable plan.

Reviews.

Journal of the Bath and West of England Society. 1868. W. Ridgway, 169, Piccadilly.

The current volume contains reports on the Falmouth show—papers on the Geology and Physical Geography of Cornwall, Somerset, and Devonshire; also one of Mr. Whitley's excellent meteorological essays—this time on the Temperature of the Sea, and its Influence on the Climate and Agriculture of the British Isles. Besides these, there are practical papers on Mangel Culture on Foot-rot, and on Dairy Construction; and a "Note-book," in which are collected a number of well-selected fragmentary essays from the various agricultural Journals of the year.

The most laborious and original, and, we hope, fruitful, of these essays is a report by Mr. W. Froude, steward of the implement department of the Falmouth show, in which he discusses at great length, and with great fulness, one or two of the classes of machinery whose exhibition he superintended. In particular he discusses the causes of draught in the mowing-machine, which he shows to be enormously in excess of what the work to be done necessarily involves. He first of all ascertains by experiment the power actually used in cutting Grass :—

"I have made a very intelligent workman of mine, who has had a great deal of hay-field experience, go through the form of mowing, and I have tested by a spring balance the force which from habit and recollection he was disposed to deliver on the blade of the scythe.

"According to this experiment, the space cleared at each stroke of the scythe was 5 feet in sweep and nearly 15 inches in width; and I was assured that even in a good crop of meadow Grass 15 inches was not too high an average; but my agricultural readers must form their own opinions on this point. The number of strokes of the scythe per minute was about 27, and the force impressed on the scythe was, on frequent trial, almost identically 8 lb. Each stroke of the scythe, therefore, must be rated at 40 foot-pounds; and in verification of this result I observe that if 27 strokes be made per minute, the result would be a duty of 1080 foot-pounds per minute. Now this, according to the rules accepted by the best authorities, certainly exceeds rather than falls short of the work which an able-bodied man is able to perform continuously; so that in relying on it as the basis of my calculation, I cannot be underrating the nett resistance per square foot offered by the Grass.

"If then each stroke may, as my workman assures me, be assumed to clear a space of 5 feet by 15 inches, the 40 foot-pounds of each stroke are distributed over 6¼ superficial feet, giving a result equal to 6.4 foot-pounds per square foot of surface cut, when the work is performed by a man with a scythe. And I must observe that this includes the labour, not relatively inappreciable, of dragging the cut Grass, from the space cleared, to the swathe."

Other experiments were addressed to the determination of the power used in reaping :—

"Bringing all the results together, I feel confident that the nett expenditure of power required for cutting each square foot of Grass (a good medium crop of meadow hay) cannot exceed 6.4 foot-pounds, and that required for each square foot of a good field of Wheat cannot exceed 4 foot-pounds; and a fair allowance for the resistance of the machinery and the dead-weight draught of the machine itself, is all that it should be necessary to add in each case, to make up the gross work performed by the horses in the field.

"But when I turn to the lucid reports of the admirably conducted dynamometric trials made by the Royal Agricultural Society in 1865, and the Yorkshire Society in 1866, I find that with mowers, each square foot cut, which as I have shown good reason to believe does not require an expenditure of more than 6.4 foot-pounds in useful effect, involved in fact an expenditure of 41.4 foot-pounds with the lightest-working machine, and 126 with the heaviest. And with reapers, while my experiments prove conclusively that each square foot cut does not involve in useful effect an expenditure of above 4 foot-pounds, it did in fact involve an expenditure of 14.2 foot-pounds with the lightest-working machine and 33.1 with the heaviest: the 14.2 foot-pounds was however regarded as an exceptionally, and indeed a surprisingly, favourable result."*

Mr. Froude accordingly comes to the conclusion that the power expended by existing mowers and reapers in the performance of their work, is out of all rational proportion in excess of the useful work performed. He thereupon discusses the cause of this waste, and believes he has discovered it, and to some extent pointed out a remedy. We strongly advise manufacturers of this machine to study his pages. The following is his summary :—

"To sum up what has been said :—

"The existence of some radical misconstruction—some deep-seated leakage of power—in these machines is shown—

"(1.) By the fact that when 'working dry' and cutting nothing, the draught is plainly almost as great as when cutting a full swathe.

"(2.) By the great and unwarranted differences in draught, which different machines, as tested by the dynanometer, exhibit when performing the same amount of work; and

"(3.) By the fact that the power expended per square foot of surface cut, is, even in the best machines, grossly in excess of that which, as direct experiment proves, is the utmost required for the simple performance of the work.

"To account for this :—

"(1.) I prove incontrovertibly that the reciprocating action imposed on the knife-bar and connecting-rod involves a stress upon the working parts, which at a maximum is nearly forty times, and, at a mean, twenty times as great as that which the performance of the useful work alone requires.

"(2.) I deduce from the collateral results of this stress that an excess of power is expended in friction and in backlash, the demonstrable amount of which as regards friction, and the presumable amount of which as regards backlash, taken together, make up at the very least almost as much waste as appears to exist in the best machines.

"(3.) Lastly, I point out a remedy which is demonstrably adapted to the precise correction of that abnormal stress, by the operation of which I have quantitatively accounted for the waste of power."

What his remedy is must be left to his own description of it in the pages of the Bath Society's Journal, which will, we hope, be carefully read and studied.

"* The simple fact that accredited machines of this description differ so very widely in the power expended per square foot of surface cut, is of itself a striking proof that somehow and somewhere they embody a cause of mal-performance, which is not understood by the makers; and as if markedly to emphasise the proof, the mower, by the same maker, whose reaper had performed its work with the exceptionally low expenditure of 14.2 foot-pounds per square foot cut—nay (if I rightly interpret the report of the Yorkshire Society, whose interesting record I am relying on), the very same machine which as a reaper had thus distinguished itself, when converted into a mower, was by no means light of draught, expending no less than 91.32 foot-pounds to the square foot, while some of its competitors expended only 80 and 82. Be the cause of the mal-performance which issues in these self-condemning anomalies what it may, its vitality must I think be partly due to the toleration accorded to the defective result by the purchasers, a toleration which seems not altogether unnatural when we recollect the very great economy which even the heaviest-working machines effect, by the improved speed with which a given lot of work is completed by their help, and by the very diminished costliness of horse labour as compared with human labour. Those who have, at a bound, gained so much, hesitate to cry 'Think nothing gained . . . till nought remains.' Yet when the customers are tolerant of fundamental defects, a main incentive to fundamental improvement is withdrawn from the makers."

Farm Memoranda.

West Gloucestershire: *May* 8.—Although the mildness of the winter led us to anticipate a very early spring (and indeed some things are very much earlier than usual), yet upon the whole the season is not so forward as it would have been had March been as mild as the preceding months. March however put a wholesome check upon all kinds of vegetation, and was a month of marvellous benefit to the agriculturist. It set in with a dry keen wind and with sunny days; a few gentle frosts at night were just sharp enough to slacken the rain-beaten surface of the long-soddened soil, and to make it more accessible to the pulverising influences of the sun and wind. The ground was thus brought into a better state for cultivation, and we have been enabled to sow many acres more of Beans and Peas (although rather later than usual) than could possibly have been got in had the month been wet instead of dry. Winter Beans are blossoming very promisingly, and if no frost or blight injure them we may reasonably expect an average yield. Most of the Barley is now sown, and in most cases it was got in in fair condition.

Oats are up, and look healthy. Wheat has now pretty well recovered from its sickly appearance, caused by so much wet in the winter, and is about as forward as it should be. It does not appear to have tillered so well as it did last year, neither is the plant so vigorous, especially upon the wet clay soils, but it is too early yet to give anything like an accurate opinion of what may be its future prospect. It has required a considerable amount of manual labour to clean it, the weeds having had such an opportunity to grow.

Our attention is now turned to the preparation of the root land, the cultivation of which has been greatly facilitated by the steady showers which have fallen during the past week. The land had got quite in want of a little rain upon the surface. Potatos are all planted, and in some instances are coming up; fears were entertained at one time as to the advisability of planting the seed selected from the crop of last year's growth in this neighbourhood, as they were so badly grown out, and many growers have taken the precaution to obtain fresh seed of either Scotch or Irish growth, and at very reasonable prices. Seed: Flukes, 13*s.* 6*d.*; Regents, 11*s.* 6*d.*; and Rocks, 9*s.* per sack; about an average breadth has been planted.

We are now busy sowing Mangels and early Swedes; the land was dunged in the autumn and ploughed up deep, and allowed to remain till the first week in April, when it was smashed up with a steam cultivator, on Mr. Smith's principle. Nothing could exceed the quality of the work performed, and the land is now in first rate order for roots. Grass has grown very rapidly since the rain, and will in a few days be quite ready for the cattle to be turned on to it. Many farmers turned them out upwards of three weeks ago, but where there was no old Grass among the new the cattle look worse than they did in the yards. The Grass was too succulent to stay in them; but there was no alternative, the hay being all consumed. There is every prospect of a full average crop of meadow hay; but of seeds there cannot be an average cut in this neighbourhood, as the plant is too thin upon the ground.

In-calf heifers have been selling at very high prices, ranging from 18*l.* to 30*l.* per head. Stirks, too, are very dear, good ones realising 12*l.*, and in some instances 14*l.* per head. Fat cattle are scarce, and maintain very high rates, from 74*s.* to 78*s.* per cwt. Mutton is rather easier to buy, at 7½*d.* to 9*d.* per lb. Bacon pigs, 11*s.* 6*d.* to 12*s.* Porkers 12*s.* to 12*s.* 6*d.* per score. Strong store pigs scarce, and very dear. *J. W.*

Middlesex Farms.—There are many large occupations on which the ordinary arable treatment is modified by the application of a market garden element to some part of the produce; in others, this element is scarcely to be traced.

Take, as an instance of the first of these, a farm within seven miles of Charing Cross, nearly equally divided between the London clay and the loam and gravel; consequently half grass-land and half arable. The grass-land is farmed on the system common in the county, and before described as hay-farming. Ten neat cattle and no sheep are kept, therefore a great proportion of the hay is sent to London, usually under contract or agreement for manure as back carriage. The short distance to London enables the teams to make two journeys, and return two loads of dung to one of produce. The same arrangement is made as to a part of the straw from the arable land, which is also sent to the London market.

The arable portion of the farm is on the gravel, not here covered with a great depth of the loam or brick earth, yet fertile and well fitted for corn and green crop cultivation. The rotation of crops is of a most elastic character. As the quality of Wheat and its straw is valuable, it is grown as often as may be in preponderance to other white corn crops. Tares, Rye, winter Barley, and Clover, are sold green to those who fetch them, and return manure in their place. Potatos, Mangel, and white Turnips are the chief root crops, and are drawn from the farm by the purchasers, in London and its suburbs, supplying food for man and beast; this being the great guiding principle in the management of this suburban farm. The rent is necessarily high. The anxiety of tending stock (or may be, its pleasure) is dispensed with, a great part of the produce is sold on the ground and removed by others, yet the arrangement of the course of cropping requires intelligence and skill, to make the most of the facilities and advantages of the power of production, by an unlimited command of manure from London.

Double the distance from Charing Cross, from seven to 14 miles, and the distance from the market reverses the whole system. The farm, over 600 acres, is with slight exception arable; part, where the loam is deeper; part, where it scarcely covers the surface of the gravel, corresponding in quality with the least fertile parts of Hounslow Heath. The occupier of this farm being a person of enterprise and energy, the latest improvements in machinery and other appliances are introduced. There are well-arranged farm buildings, feeding-sheds, piggeries (with a preference for pig stock as converters of part of the produce in straw, corn, and roots into manure), a stationary steam-engine with mill and threshing gear, and other appliances attached, together with steaming apparatus for the preparation of roots for stock. As few neat cattle are kept, the bulk of the root and green crop produce is consumed by a dry flock of over 600 sheep. Thus, with the exception of a part of the straw which is sold to jobbers, with return of manure, in this case the London markets have little influence on the cultivation and management of the farm, the communication with London being by road and railway not far distant. The land is flat and well adapted for steam cultivation, which has here been introduced, and which succeeds well in dry weather, though when wet the land yields too readily to the pressure of the machine. The key to the rotation of crops is the growth of Wheat every three years. Thus as a rule one third of the farm is under Wheat, one-third Barley and Oats, one-third Beans and Peas, Clover and roots. The favourite Wheat here and on the best of land in Middlesex is Chidham, varied with Golden Drop and others. On the inferior, or land near the gravel, the rotation is varied to fallow, Wheat, fallow, Oats, and Barley, fallow or a five course, with double fallow before the Wheat crop; showing by this variation in the cropping the great difference in the quality of the soil, due to the depth of the loam by which the gravel is covered, and on which the relative fertility of the whole district is ruled.

Another instance may be adduced in which the difference of management is due partly to the inclination and antecedents of the occupier, and partly to the relative proportions of Grass and arable—a farm of 350 acres, nearly half Grass, chiefly an extensive paddock, either mown, or fed by a herd of about 20 dairying cows. Notwithstanding the state of the London milk trade, the farmer's former occupation having been in a dairy district, butter is made in preference to the sale of milk, the cows being grazed in the summer, and in the winter having a run; as the soil is of a nature to carry stock throughout the year, nearly all the roots are consumed by the cows and younger neat stock, bred and raised on the farm; a considerable breadth of Potatos is grown, which, with Peas and Clover highly manured, are the preparation for the Wheat crop; the Peas, with Turnips grown in the intervals between the rows, which are sometimes taken green, are the only traces of garden cultivation, as a part of the hay and straw sold connect the cultivation with the London markets and London manure.

Though such farms as these are still to be found within the limits of the county of Middlesex, they are gradually giving place to the market garden cultivation, called forth by the increasing area and requirements of London. An increased rent, double and even treble the amount of that paid for arable farms under ordinary cultivation, is an inducement which landowners cannot well resist. Sometimes the land is planted as an orchard by the landlord, with Apple, Pear, Cherry, and other trees at wide intervals. The land when let is deep ploughed, with a heavy dressing of manure, planted with Potatos, Cabbages, or other coarser vegetables; French Beans or Peas with Brussels Sprouts in the intervals, winter or spring Onions, Lettuces, Wallflowers for decorations, and all sorts of garden produce fitted for the London market, are gradually introduced, and the arable farm becomes a market garden, the drawback of the distance from London not being a sufficient hindrance to the introduction of garden cultivation, which by degrees will more and more deprive the south-western limb of Middlesex of its agricultural character, so far as arable culture is concerned. *From the Rev. J. C. Clutterbuck's paper in the "Journal of the Royal Ayricultural Society."*

The Poultry Yard.

The paragraph which we inserted on Saturday last from the *Albany Cultivator*, treating of the feeding of poultry, deserves the careful attention of all breeders, especially of those who can give their chickens a certain amount of range. To those, however, who have only the pen, or court, or aviary, in which their birds live, the advice as to the morning meal must be taken cautiously. The owner of birds so confined can judge exactly of the quantity of food they are likely to find, independently of that which they get at his hands, and must regulate that which he gives them accordingly.

A fertile source of much disease among the birds, and of disappointment to the owners, is still common to a certain extent, and was formerly to a much greater: we allude to the practice of some hen-wives who are too old or too obstinate to learn or alter, of throwing down a quantity of hard corn to the birds as they leave the roosts in the morning. As the *Cultivator* says, they fill their crops, and go off to some sunny bank. The sunny bank we don't object to, and find generally that chickens which dust and sun themselves on a sunny spot in the hedge or dust-heap, grow and thrive well; but, when a bird early in the morning fills its crop with hard food, it generally seeks the nearest pond or water-vessel, and there drinks to its utmost capacity. Uncomfortable and gorged, the healthy appearance leaves it, and if asked to find a bird that had so fed we should look for it behind a gate, under a cart, or in any dull corner.

That which we have advised, and would still urge to those who have the care and feeding of fowls which have a range, is that, early in the morning, let the first meal be one that shall lead them away from the poultry house and yards on to a meadow, orchard, or fallow. If the feeder takes the vessel containing the food and walks away from the house on to the field calling the fowls, and when at a certain distance scatters the corn broadcast in the Grass, or stubble, or on the ground, as the case may be, the birds pick up the scattered pieces and wander on in search of more. We endorse fully all that our correspondent says as to the hearty supper that he recommends. We can only speak of the quail as we have known him in aviary life; we there like him much, and have found him a hardy and hearty feeder. We have yet to learn what an American fatted fowl is really like, the weights we hear of are far in excess of any attained by our English birds, and if the Transatlantic chickens attain them while at full liberty, we venture to say that if they could be transplanted to Sussex the system of coop-feeding as there practised would still further improve them.

"M. A." We are very glad to have your experience of the Tobacco cure, which, in the case of your hen, seems to have done wonders. That a hen so ill as yours should lay so soon seems unusual. We have heard of several instances in which the treatment has been very successful.

"A Poultry Fancier in a Small Way" and "G. E. O." both send the result of their treatment of hens when their broods were due. We think, taken together, they may be reckoned as a pleasing *critique* on the remarks in an article of a previous number quoted by the first-named correspondent. Sometimes it happens that the hens sit for 22 and even 23 days, and in the first case quoted it would seem that, but for the assistance given, the hen would have remained on another day; and then, possibly, the chick spoken of as having since died from not being fully developed, might have come into the world, as they say in Yorkshire, "with all his buttons on." The success of the brood, however, is a proof that, whether wet or dry-handed, the assistance was carefully and skilfully rendered, the question would be whether it was not given rather too soon.

We should call the management of the hen while setting, by "G. E. O.," very good, and hope that his experience may lighten the sorrows and complaints of many amateurs who now complain of small broods or total failures.

The present is an unusually good season for that rare and excellent bird, the Dotterel; as many as 30 have come to hand day after day, whereas last year we seldom saw more than two or three at a time.

The take of quails in Italy this year promises to be one of the largest ever known, and almost every day there are large arrivals of them; but at present, owing to the bad state of London trade, the sale of them is not brisk.

One constantly hears of the superiority and cheapness of Parisian poultry as compared with our own, but for first quality the price paid in Paris is always higher than with us, and at present Rouen ducklings are making 20 francs the couple, while our own Aylesbury or Oxfordshire ducklings, weighing at least 1½ lb. per couple more, only make 12*s.* and 13*s.* per couple retail.

The game prospects seem very good as regards the laying season for pheasants and partridges, but fears are entertained for the grouse, as they are now setting, and the snowstorms of which we hear may cause havoc among them.

Calendar of Operations.

May.—*Scotch Terms* are Whitsunday, May 26, and Martinmas, Nov. 22. Unmarried farm servants are engaged a week or so before each term, some by the year, the majority for only six months. Married servants are engaged by the year some time prior to Whitsunday, so as to enable them to arrange about their gardens and Potato-ground.

Whitsunday Entries to farms are—to the homestead, Turnip, and Grass lands in May, and to the arable land at the separation of the crop from the ground. The incoming tenant sows Grass seeds, sometimes works the fallow lands for Turnips, but more commonly pays the outgoing tenant for doing so. He takes the manure on the farm at a valuation, and sometimes the growing crops, including the hay, but the corn crops are more commonly sold. County customs are much less diversified than in England.

Swede sowing commences this month. In Scotland, the north of England, and Ireland some farmers begin about the middle of the month, others towards its close. In favourable weather, 3 lb. of seeds per acre are sown, but in dry seasons it is better to sow 4 lb. or more if the fly promise to be numerous. There will then be a thick braird to stand against their ravages if they come; if they do not, then hoe in time for singling by hand. In the southern counties of England it is common, and generally advisable, where guano and soluble manures are used, to defer sowing Swedes until a later period, as those sown in May are more liable to mildew than those sown towards the close of June. The liberal use of the water-drill in dry seasons will do much to obviate the fly in the early stage of the plant, and mildew at a subsequent period. The Swede is a slow grower at first, and, as a rule, the water-drill should be used to give it a fair start—success depending mainly upon a suitable supply of moisture below as a preventive of mildew. The land is manured for Swedes as directed last month for Mangels, &c.—from 2½ cwt. to 3½ cwt. of superphosphate being sown over from 15 to 20 loads of farmyard manure per acre; or the superphosphate may be applied in a liquid form, by means of the liquid manure

and seed-drill. On inferior soils, with less farmyard-manure, Peruvian guano should be sown over the dung, and the superphosphate applied in a liquid form along with the seed; or the guano and superphosphate may be both sown over the manure and river-water, applied by the drill, to start the seed into braird. In dry weather some farmers put a heavy roller over the drills after the sowing machines, thereby rolling them flat, and leaving the land as if it had actually been sown on the flat. But in moist seasons the drills or ridgelets are left high, as the land when moist supports the rollers of the machine better than when dry. This latter plan, however, is objectionable, for when the dry weather sets in the young plants and manure both suffer. As a general rule, therefore, farmyard-manure should be covered rather deeply—or, as it is sometimes termed, "down below the weather," and the drills rolled nearly flat after sowing—assuming that the land is thoroughly drained. The practice of high drills in wet seasons no doubt took its rise before land was drained, as they would then in some measure protect both manure and plants.

Live stock are said to begin their new year with May, the time for turning out to Grass being from the middle of April in the south, to the middle of May in the north. When first turned out from the homestead they require to be carefully attended to, as the nights are sometimes biting cold. This is more especially necessary with milch cows, brood mares, and all cattle that have shed their coats in warm stalls. It is a good plan to turn stall and box-fed cattle out to open yards for a week or ten days before they are sent to the pastures, and if there is green food, as Tares, or water-meadow Grass, they should be fed on such fodder in the yards, so as to prepare them for the permanent change to Grass. Milch cows and working horses are often taken from the fields at night during May.

Fatting Cattle and Sheep.—The remainders of winter-fed stocks are now disposed of, those ripe for the shambles being sold to butchers; those not fit for slaughtering being sold to graziers, who commence filling their parks or pastures from the middle to the end of the month, according as the weather and the forwardness of the Grass may allow.

Fat Lambs are now abundant north and south. In the north some farmers buy in draft-ewes (4-year-old Cheviots and 5-year-old blackfaced) in autumn, serve them with Leicester rams, and by the end of May many of the lambs are sold off, and the ewes then soon become fit for the shambles. The lambs of the remainder are drafted and sent to market, and their dams follow as soon as they are ready.

Dorset Ewes are served in the home counties from the beginning to the close of the month with Sussex Down or Hampshire Down rams, for early lamb. In many cases the ewes are brought and served purposely to get them and their lambs both ripe for the shambles together. The practice of buying in old ewes for a crop of early lambs is thus similar to that of May lambs in the north. Technically it is termed "lamb and dam fattening." Sussex and Hampshire Down ewes also have early lambs, but the horned Dorset ewe is generally preferred.

Lambing in May is common in the Highlands of Scotland—indeed it seldom terminates before the close of the month in late districts.

Castration of Lambs should be done in mild weather, when they are from 10 to 14 days old. Those fattening for the shambles need not undergo the operation. The whole lamb flock is generally docked and marked at the same time, some only brand or mark the ram lambs and ewe lambs selected for breeding—the marking of the others being left to those who may purchase them in the summer markets.

Weaning of lambs takes place with those dropped in February and March, and continues on to July as they come of a suitable age.

Sheep-washing and Shearing commences generally about the close of the month in our southern provinces, the month of June being more common in the north. Some flock-masters have small washing places built of stone or brick expressly for the purpose, the size allowing one or more sheep to be washed at a time, according to the size of the flock. Water is laid on from a pond or stream by means of a pipe. A few steps lead down to where the shepherd stands, the water being drained off below; others dam a running stream, the shepherd standing in a cask while washing; a third and an older plan is, to swim the sheep through and through a deep pool in a river or dam in a stream until clean. The poet Dyer appears to allude to this latter practice when he says—

> "Gay shearing time approaches. First, however,
> Drive to the double fold, upon the brim
> Of a clear river. Gently drive the flock
> And plunge them one by one into the flood."

As soon as the wool is dry, shearing commences. In the larger hill flocks of the North the shepherds join or club, shearing first one flock and then another, each flock being thus put through the shears in less time.

Bacon Hogs.—Young pigs intended for bacon are allowed to grow more steadily, and hence are fed on less nourishing food than those forced forward for the shambles as small porkers; but it is short-sighted economy to allow young pigs which are intended for bacon to lose their milk flesh.

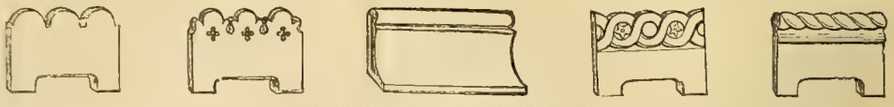
Breeding Sows that farrowed in February and early March will be dry, and coming forward to litter in August; they should be well kept, but not too fat, and this applies to those still nursing.

Notices to Correspondents.

NAME OF PLANT: *J. H. M.* Your plant is without flowers. Is it not the dark variety of Oxalis corniculata?

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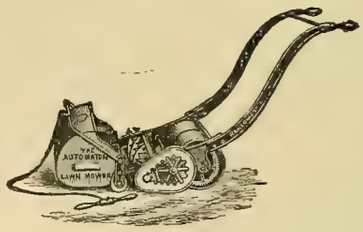
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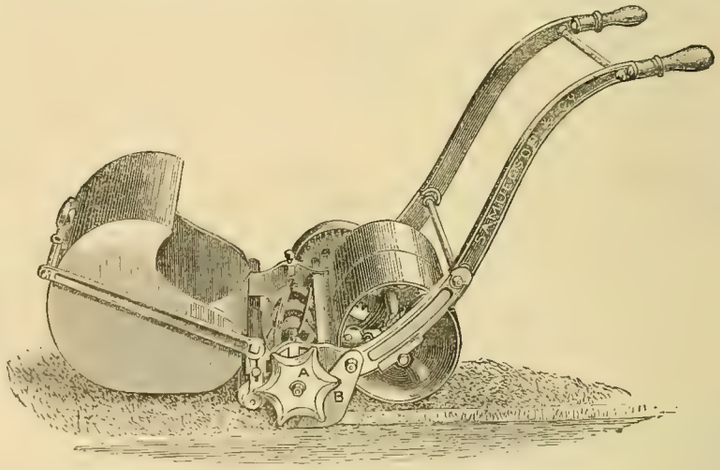
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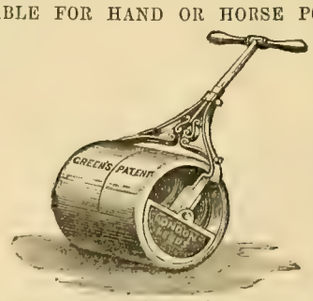
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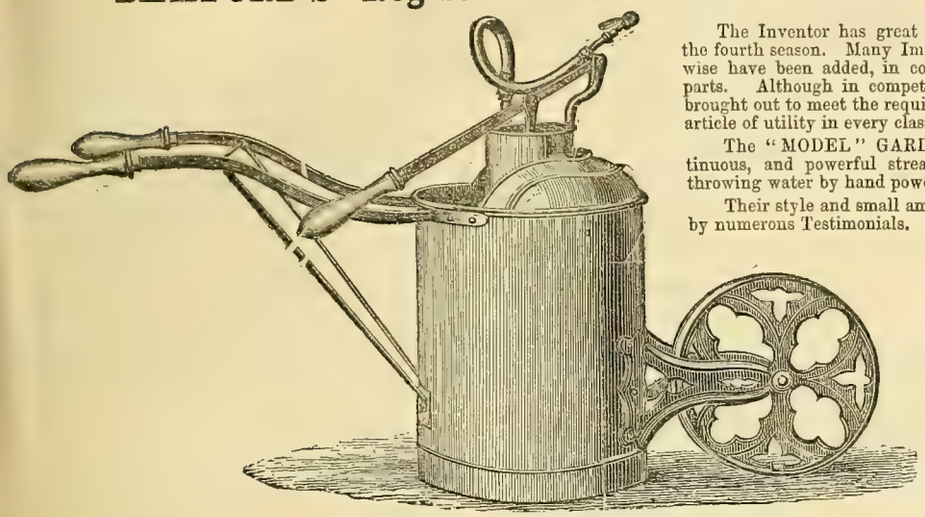
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No. 10, to hold 10 Gallons .. .. .. £3 5s.
No. 14, to hold 14 Gallons .. .. .. £3 17s.

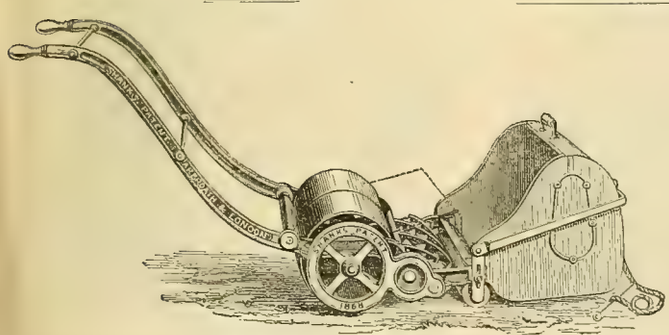
GUARANTEED TO GIVE SATISFACTION; IF NOT APPROVED, CAN BE RETURNED.
Sold by all respectable Ironmongers, and the Manufacturer,
HENRY BAMFORD, MARKET PLACE, UTTOXETER.
Illustrated Price Lists post free on application.

SHANKS'S PATENT LAWN MOWERS FOR 1869.

UNDER THE PATRONAGE
OF
HER MOST GRACIOUS MAJESTY
THE QUEEN,



AND MOST OF THE
PRINCIPAL NOBILITY
OF
GREAT BRITAIN.



HAND MACHINE.

SHANKS'S PATENT LAWN MOWERS

ARE ALL FITTED WITH

PATENT DOUBLE-EDGED SOLE PLATES, WIND GUARDS, AND SELF-SHARPENING REVOLVING CUTTERS.

Advantages possessed by no other Lawn Mowers.

The unprecedented Sale of SHANKS'S LAWN MOWERS for 1868 *forms the most convincing testimony of the value and success of the Improvements introduced last Season.*

PRICES—INCLUDING CARRIAGE TO ANY RAILWAY STATION OR SHIPPING PORT IN THE KINGDOM.

SHANKS'S NEW PATENT HAND MACHINE.

		Easily Worked
10-inch Machine	£3 10 0	*By a Lady*
12-inch Machine	4 10 0	*By a Lady*
14-inch Machine	5 10 0	*By a Boy*
16-inch Machine	£6 10 0	*By a Man*
19-inch Machine	7 15 0	*By a Man and a Boy*
22-inch Machine	8 10 0	*By Two Men*
24-inch Machine	9 0 0	*By Two Men*

The Hand Machines are all with Silent Movement.

SHANKS'S NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
25-inch Machine	£12 10 0	25s. extra.
28-inch Machine	14 10 0	30s. ,,
30-inch Machine	15 15 0	30s. ,,

Silent Movement, 12s. 6d. extra.
Boots for Pony, 22s. per set.; Ditto for Donkey, 18s. per set.

SHANKS'S NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
30-inch Machine	£19 0 0	30s. extra.
36-inch Machine	22 0 0	30s. ,,
42-inch Machine	26 0 0	40s. ,,
48-inch Machine	28 0 0	40s. ,,

Silent Movement, 20s. extra. Boots for Horse, 26s. per set.

Every Machine warranted to give ample satisfaction, and, if not approved of, can be at once returned without any expense to the buyer.

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH; and
27, LEADENHALL STREET, LONDON, E.C.

27, Leadenhall Street is the only place in London where intending purchasers of Lawn Mowers can choose from a Stock of from 150 *to* 200 *Machines. All sizes kept there, whether for Horse, Pony, or Hand Power.*

HORTICULTURAL IMPROVEMENTS.

READ'S NEW PATENT HYDRAULIC SUCTION PUMP.

This Pump is highly approved by the Nobility, Gentry, and by the principal Horticulturists, &c., throughout the Kingdom; also by Shirley Hibberd, Esq., F.R.H.S., the late Professor Lindley, and many others connected with Horticulture, &c.

R. READ HAS ALSO A

LARGE ASSORTMENT of GARDEN ENGINES, MACHINES, and SYRINGES,

Upon the most approved principle. Manufactured by the Patentee—

RICHARD READ, 35, REGENT CIRCUS, LONDON, W.

☞ *DRAWINGS POST FREE.*

*** *The Public are again respectfully informed that the Syringes advertised weekly by a London Firm as "READ'S" are NOT his Manufacture, but mere IMITATIONS of his Patent.*

NOTICE.

ROYAL HORTICULTURAL SOCIETY, London.
ROYAL ZOOLOGICAL SOCIETY, London.
ROYAL BOTANIC SOCIETY, London.
ROYAL BOTANIC GARDENS, Dublin.
ROYAL BOTANIC GARDENS, Liverpool.
ROYAL BOTANIC GARDENS, Cambridge.
ROYAL WINTER GARDEN, Dublin.
ROYAL DEPARTMENT OF SCIENCE AND ART, London.

It is with great gratification that we announce our permission to refer upon any occasion to the various Heating Apparatuses at the above, where our "ONE BOILER SYSTEM" has for years been subjected to the most critical tests with every satisfactory result. It is matchless for efficiency, and is working the largest Apparatus on record. These are no theoretical statements, but positive facts, and it is not too much to add, that no boiler can boast a parallel.

For List of Details, see "ILLUSTRATED BOOK of DESIGNS" (12th Edition), which can be obtained by addressing a note to

JOHN WEEKS AND COMPANY, HORTICULTURAL ENGINEERS, &c., KING'S ROAD, CHELSEA, S.W.

John Weeks & Co.

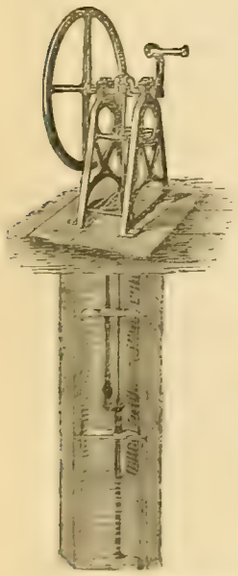
JOHN WARNER & SONS,

BELL AND BRASS FOUNDERS TO HER MAJESTY,

HYDRAULIC ENGINEERS,

8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

Illustrated and Priced Lists of WARNERS' HORTICULTURAL IMPLEMENTS, comprising GARDEN ENGINES, WATER BARROWS, PUMPS, SYRINGES, BRANCH PIPES, RUBBER HOSE, FOUNTAIN JETS, &c., will be sent upon application, or goods may be obtained from any Ironmonger or Seedsman at the Manufacturers' prices. Owing to the greatly increased demand for these engines during the last few years your early commands will oblige.



FRAMES & PUMPS FOR DEEP WELLS.



No. 35.

CAST-IRON PUMPS.

2½ inches	..	£1	8 6
3 ,,	..	2	1 0
3½ ,,	..	2	6 0
4 ,,	..	2	14 0



No. 39.

WARNERS' CRYSTAL PALACE

FIRE ENGINE, or PORTABLE FORCE PUMP.

Price on Barrow, with Branch Pipe, Spreader, Unions, and Suction Rose, £6.

1¾-in. 2-ply Rubber Suction Pipe, per foot, 2*s.* 2*d.*; 1¼-in. ditto Delivery Hose, 1*s.* 4*d.*

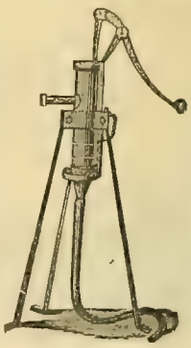
Crystal Palace, Sydenham, March 2, 1867.

MESSRS. WARNER & SONS.

"GENTLEMEN,—I feel great pleasure in stating that I was present at a trial of your small Crystal Palace Fire Engine, and was much pleased with its efficiency and simplicity. The Pump throws out a steady jet of water to a height of 50 feet with very little labour. The Pump we have is well made, very simple in its parts, and not likely, I think, to get out of order. The advantage of this pump is its being very portable. Besides being a good Fire Engine, it will make an excellent Garden Engine. "I remain, gentlemen, yours obediently,

"EDWIN ROSE, Engineer to the "Crystal Palace Company."

Drawing and Estimates for Wind Engines, Water Wheels, and Hydraulic Machinery of every description for Steam, Horse, or Hand-power will be forwarded upon application.

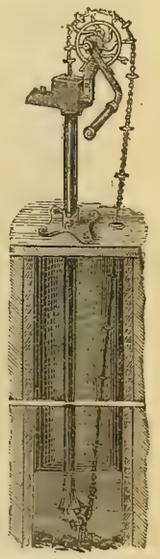


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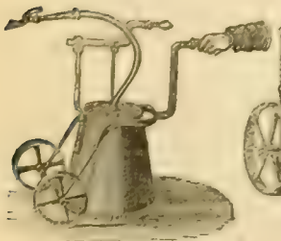
PORTABLE PUMP

With Improved Valves for Liquid Manure, £2 15*s.*

2-inch Flexible Rubber Suction Pipe, in 10, 12, and 15 ft. lengths, per foot, 2*s.* 5*d.*



CHAIN PUMP FOR LIQUID MANURE.



No. 547B.

WARNERS'

GARDEN ENGINE

Holds 6 gallons; is light, portable, and easily worked by a lady or child .. 50*s.*



No. 579½.

SWING WATER BARROW.

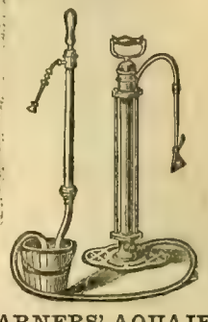
50 gallons	..	£5	12 0
38 ,,	..	3	17 0
30 ,,	..	2	13 0
20 ,,	..	2	2 0



No. 547A.

GARDEN ENGINE

28 gallons	..	£5	10 0
24 ,,	..	4	19 0
16 ,,	..	3	14 0
10 ,,	..	2	19 0



WARNERS' AQUAJECT

Useful for every variety of purpose—in watering or washing flowers or trees in Gardens, Conservatories, &c.; also, for washing Carriages or Windows, laying Dust, &c.

Price, complete .. £1 10 0
Small size for the hand, as an ordinary Syringe 0 15 0

Established 1833.



HANCOCK'S INDIA-RUBBER HOSE and TUBING, CARRIAGE, GIG, & DOG-CART APRONS, HORSE SINGEING APPARATUS, with GAS BURNERS, and INDIA-RUBBER TUBING. Improved INDIA-RUBBER DOOR STOPS, WATERPROOF CART and WAGGON COVERS made any size. HORSE-LOIN COVERS (Waterproof), with Straps complete. BELTING for SAW MILLS, THRESHING MACHINES, and FLOUR MILLS. Trade Mark. IMPROVED INDIA-RUBBER WEDGE-SHAPED GAS BAGS, or Microscopes and Dissolving Views; any size to order.

FLANGE TUBING, for excluding Draught and Dust, and preventing the Slamming of Glass Doors. SECTION.

VULCANISED INDIA-RUBBER BILLIARD CUSHIONS.

WATERPROOF BILLIARD TABLE COVERS.

Illustrated Price Lists on application.

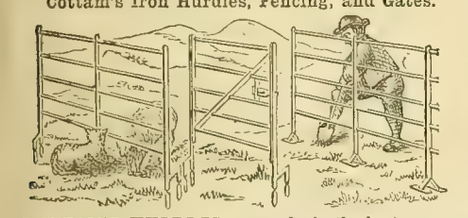
JAMES LYNE HANCOCK, Vulcanised India-Rubber Works, 200, Goswell Road, London, E.C.

THE HYDRONETTE, (Robins' Patent,) for Gardens, Greenhouses, Conservatories, Hotbeds, &c. Unrivalled ease of action, simplicity, convenience, and force.



The HYDRONETTE is a more useful, easy working, reliable, and convenient water-throwing machine than any other in use. It is made in five sizes, viz.:—No. 1, with 4 feet of Suction Hose, Strainer, Jet, and Rose, 12s. 6d.; No. 2, 16s. 6d.; No. 3, £1 1s.; No. 4, £1 5s.; No. 5, £1 10s. Extra Hose and Union Joints furnished to order. Forwarded on receipt of Post Office order. To be obtained through any Ironmonger or Florist, or of the Proprietors, HAYNES & SONS, 227, 229, and 231, Edgware Road, Paddington, W.

Cottam's Iron Hurdles, Fencing, and Gates.



COTTAM'S HURDLES are made in the best manner, of superior Wrought Iron, by an improved method. Illustrated Price Lists on application to COTTAM & Co., Iron Works, 2, Winsley Street, Oxford Street, London, W.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



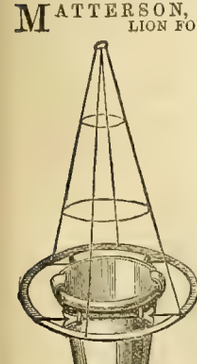
Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rick dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of Iron. Prices of Fittings per Cow 55s.

Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

The Packington Plant Trainer,

MANUFACTURED BY

MATTERSON, HUXLEY, AND WATSON, LION FOUNDRY, COVENTRY.



The Packington Plant Trainer is intended to facilitate the training of plants, to do away with the necessity of putting sticks into the soil of the flower-pot (which to a certain extent injure the root of the plant), and also saves time and trouble when it is necessary to re-pot the plant.

The base of the frame is fitted with two horizontal rods, screwed the whole length, and upon these slide two bands, which, by means of the fly-nuts, can be extended or contracted at pleasure, so that in repotting a plant all that is required is to slacken the nuts, draw away the bands; the pot can then be taken away and replaced by a larger one—the bands tightened to the large pot by means of the nuts—the plant remaining attached to the frame as before.

The Trainers are made either in Copper or Galvanised Iron, and to any size and pattern required, from 7s. 6d. to 21s. each.

Patterns and prices forwarded on application to the makers, Coventry, or at their London Offices, 4, Dowgate Hill, Cannon Street, E.C.

The Packington Plant Trainer is an exceedingly ingenious contrivance, adapted to any size pot, and readily shifted from one to the other. See report of address of J. Bateman, Esq., at the Royal Horticultural Society's Meeting, *Gardeners' Chronicle*, March 6, 1869.

Galvanised GARDEN EYES, for Wall Trees, made in four sizes, price 6d. per lb.

The ELASTIC TREE BAND, for securing newly-planted Trees, price 1s. each.

SHAW'S TIFFANY.

For Samples and Prices apply to J. SHAW & Co., 29, Oxford Street, Manchester.

SHAW'S TIFFANY, for Shading Conservatories and Hothouses; INDIA-RUBBER HOSE, SYRINGES, GARDEN ENGINES, LAWN MOWERS, &c., at The Garden Repository, 32, James Street, Covent Garden, W.C.

NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.—TANNED NETTING for Protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3d. per yard, or 100 yards, 20s.; 4 yards wide, 6d. per yard, or 50 yards, 20s. NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls: 2 yards wide, 6d. per yard; 4 yards wide, 1s. per yard; 4-inch mesh, 4 yards wide, 1s. 6d. per yard. Can be had in any quantity of EATON & DELLER, 6 and 7, Crooked Lane, London Bridge, E.C.

NEW GARDEN NETS, in great variety, for the protection of Fruit Trees, Seed Beds, &c.—also a good second-hand Tanned GARDEN NET—4 yards wide, 28s., 2 yards, 14s. the 100 yards run. RABBIT, BIRD, POULTRY, and FISHING NETS of every description.

J. ALLEN & SON, Net, Tent, Marquee, and Rick-cloth Manufacturers, 11, Seymour Street, Euston Square, London, N. W.

GARDEN NETTING (at Reduced Price), for the Protection of newly-sown Seeds from Frost, Blight, and Birds; also as a Fence for Poultry, Rabbits, and Sheep, 1d. per square yard, carriage free, in quantities of 250, 500, or 1000 yards.

SCRIM CANVAS, for Wall Fruit, Greenhouse Shades, Tulip Covers

HAYTHORN'S and WALLER'S NETTINGS, sample of material free on application.

RICK-CLOTHS, with Poles and Ropes complete, several Second-hand. Be particular,

FREDERICK EDGINGTON & Co., Marquee, Tent, Flag, and Rick-cloth Manufacturers, 60 and 62, Old Kent Road, London, S.E.

SECOND-HAND TENTS from ABYSSINIA, Cheap.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, and Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, Royal Gardens, Kew, &c.

The best Shading is "Frigi Domo" Netting,

White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for

PROTECTION from the COLD WINDS and MORNING FROSTS.

"FRIGI DOMO" NETTING, 2 yards wide, 1s. 6d. per yard run.

"FRIGI DOMO" CANVAS.

Two yards wide	1s. 9d. per yard run.
Four yards wide	3s. 6d. per yard.
An improved make, 2 yards wide ..	1s. 9d. per yard.
An improved make, 3 yards wide ..	2s. 8d. per yard run.

"SIR,—Please send me at once, by Midland Railway, 50 yards of Frigi Domo 2 yards wide, same as you sent me about this time last year, and which answered its purpose admirably.—Yours respect fully, "G. H. STRUTT.

"P.S.—We had 300 dozen Apricots last year on walls protected solely by Frigi Domo."

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom

FOR SALE, some SETTINGS of HOUDAN EGGS, from very pure Strains—imported from the Jardin d'Acclimatation, at Paris—at 10s. 6d. the Setting.

Apply to Mrs. MURRAY, Bramble Hill, Lyndhurst.

WANTED (near London preferred), a SMALL NURSERY or GARDEN, with GLASS.

Apply by letter, with particulars, to H. S., *Gardeners' Chronicle* Office, W.C.

TO BE LET, NURSERY and SEED BUSINESS, near London.

NURSERY and SEED BUSINESS, in the Country.

Full particulars upon application to Mr. W. DILLISTONE, General Horticultural Agency Offices, Sible Hedingham, Essex.

For Sale.—Exeter.—Leases to be Sold or Let.

TO NURSERYMEN, SEEDSMEN, and MARKET GARDENERS.

AN EXTENSIVE and OLD-ESTABLISHED BUSINESS to be DISPOSED OF, which has been carried on with success by the present Proprietor since 1827, and who now wishes to retire from the same. With the Wall Gardens (4 Acres) are Two good Dwelling Houses, Shop, Glass-houses, Frames, Stabling, with all other necessary Buildings, and a good supply of soft and hard Water. The situation is the best in the city of Exeter. This Property is held for a term, of which 12 years are unexpired. Also, a LEASE of 24 Acres of LAND, beautifully situated, within 1½ mile of Exeter, 18 years unexpired, with House and other Buildings. There are 20 acres of Market Garden, well Stocked with all the choicest sorts of Fruits and Vegetables—the remainder Orchard and Meadow, which can be converted into a Nursery, for which the land is well adapted. To be taken at a Valuation, and a portion of the money can remain on good security.

Apply to Mr. CHARLES SCLATER, Exeter.

Sales by Auction.

Sale of First-class Shorthorns and Prize Leicesters.

MR. JOHN THORNTON will SELL by AUCTION, without Reserve, on TUESDAY, May 18, at Costerton, Blackshiels, near Edinburgh, the Choice HERD of PURE-BRED SHORTHORNS and FLOCK of Celebrated BORDER LEICESTER SHEEP belonging to David Ainslie, Esq.

This Herd and Stock are bred from some of the best strains of fashionable blood. For the last seven years their success as prize Animals at the Highland Society and Border Union Shows has been unequalled, the Sheep having won in that period 57 Prizes.

Catalogues with pedigrees and full particulars may be had of JOHN THORNTON, 15, Langham Place, London, W.; or of THOMAS TAYLOR, the Steward at Costerton.

Annual Sale of Bedding and other Plants.

MR. W. ABRAHAM begs to announce he has received instructions from Mr. Kaile, proprietor of the Godalming Nursery, Surrey, to SELL by AUCTION, on the Premises, on TUESDAY, May 18, at 1 for 2 o'Clock punctually, nearly 20,000 BEDDING, STOVE and GREENHOUSE PLANTS, consisting of Scarlet, Variegated, Zonal, Double, and other Geraniums; Verbenas, Calceolarias, Petunias, Heliotropes, Perillas, Iresines, Coleus, with Collections for Window Decoration, Hardy Creepers, &c.

On view the day prior and Morning of Sale; and Catalogues to be had on the Premises, the "Red Lion," Guildford; and of Mr. W. ABRAHAM, Horticultural Auctioneer, Valuer, &c., Goldworth Nurseries, Woking, Surrey.

By Order of Trustees under a Deed of Assignment (Without Reserve).

To NOBLEMEN, GENTLEMEN, MARKET GARDENERS, FLORISTS, AND OTHERS

205, King Street, and Albion Road, Hammersmith, W.

A large stock of Greenhouses in various sizes, from 29 feet by 12 feet; 100 Pit Lights, Conical Iron Boiler, about 40 Deal Planks, single and double Light Frames, 6 cases of 16-oz. Sheet Glass, quantity of useful Timber and Unfinished Work, a useful Black Cob, a Bay Cob, Spring Van, Two Light Carts, Stone Truck, and numerous effects, together with about 160 dozen Choice Bedding-out Plants, including Geraniums (Dr. Lindley's Wiltshire Lass and all the best varieties), Lobelias, Herbaceous Calceolarias, Pelargoniums, &c.

MR. JAMES H. GREEN is instructed by the Trustees to SELL by AUCTION, on the Premises as above, on TUESDAY, May 25, at 1 for 2 o'Clock (without the slightest reserve), the WHOLE of the ABOVE STOCK.

To be viewed the day prior and Morning of Sale; Catalogues on the Premises, and at the Office of the Auctioneer, 72, King Street, Hammersmith, W.

Importation of Orchids from Borneo.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, May 22, at half-past 12 o'Clock precisely, splendid specimen plants of new DENDROBIUMS, CŒLOGYNES, CYPRIPEDIUM LOWII, and probably STONII. Several hundred plants in fine condition of ANŒCTOCHILUS LOWII, &c., just arrived from Borneo.

On view the morning of Sale, and Catalogues had.

An Importation of Choice Orchids from Assam,

IN THE FINEST POSSIBLE CONDITION.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 27, at half-past 12 o'Clock precisely, choice ORCHIDS, consisting of Dendrobium Wardianum, Falconeri, Chrysotoxum, Devonianum, Vanda cœrulea, Vanda cristata, Aerides Fieldingii, Saccolabium guttatum, &c.

On view the Morning of Sale, and Catalogues had.

Coventry Nurseries.

MESSRS. PROTHEROE AND MORRIS respectfully inform the Public, that the COVENTRY NURSERIES and SEED BUSINESS, with the whole of the indoor and outdoor Stock, Greenhouses, Pits, and Entire Stock in Trade, as offered in one lot at Garraway's, 'Change Alley, Cornhill, on Thursday, April 29, was not sold, and may now be purchased by PRIVATE CONTRACT, at great advantage to an incoming Tenant.

For particulars, apply to Mr. OLDEN, on the Premises; or of the Auctioneers, Leytonstone, N.E.

Hammersmith, W.

IMPORTANT SALE OF ABOUT 25,000 BEDDING PLANTS, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Herridge, to SELL by AUCTION, without Reserve, on the Premises, The Nursery, Fulham Road, Hammersmith, W., on MONDAY, May 17, at 11 for 12 o'Clock precisely, about 7000 GERANIUMS of sorts, including Mrs. Pollock, Stella, Madame Hardy, Madame Vaucher, &c.; 4000 CALCEOLARIA AUREA, 5000 LOBELIA SPECIOSA, 3000 VERBENAS of sorts, 2000 INTERMEDIATE STOCKS, GOLDEN PYRETHRUM, HELIOTROPES, &c.; also about 1000 MISCELLANEOUS GREENHOUSE PLANTS, comprising Pelargoniums, Hydrangeas, Callas, Fuchsias, &c.

On view two days prior to the Sale; Catalogues may be had on the Premises and of the Auctioneers and Valuers.

Shepherd's Bush.

IMPORTANT SALE OF TRICOLOR GERANIUMS, NEW COLEUS, BEDDING PLANTS, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. T. Hawkins to SELL by AUCTION, without Reserve, on the Premises, Oakland's Nursery, Shepherd's Bush, on THURSDAY, May 20, at 11 for 12 o'Clock precisely, about 8500 GERANIUMS, consisting of Lady Cullum, Lucy Grieve, Sophie Dumaresque, Sophia Cusack, Sunset, Italia Unita, Beauty of Oulton, Beauty of Calderdale, Beauty of Ribbledale, Perilla, &c.; Baroness Rothschild and Princess Beatrice COLEUSES; also 500 Coleuses, bushy and well-coloured, suitable for immediate decoration; about 20,000 BEDDING PLANTS, consisting of Stella, Cybister, Rubeka, Dr. Lindley, Christine, Ellen Lindsay, and other Geraniums; Centaurea candidissima, Ageratums, Lobelia, Iresine Herbstii, &c.

May be viewed on days previous and Morning of Sale. Catalogues may be had on the Premises; and of the Auctioneers and Valuers, Leytonstone, N.E.

Leytonstone, Essex.

IMPORTANT SALE OF BEAUTIFULLY-GROWN GREENHOUSE AND BEDDING PLANTS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the American Nurseries, Leytonstone, Essex, N.E., on TUESDAY, May 25, at 12 o'Clock precisely, about 25,000 GREENHOUSE and BEDDING PLANTS, consisting of 7000 Scarlet, Variegated, and Zonal Geraniums, including Mrs. Pollock and other leading varieties; also a large quantity of Verbenas, Calceolarias, Perillas, Pyrethrum aureum, Coleus, Tropæolum, with the usual miscellaneous assortment; likewise some fine Pelargoniums, Azalea indica, in choice variety, Ericas, Cytisus, Fuchsias, Rhododendrons, Kalmias, and Roses in pots, &c.

On view the day previous to the Sale. Catalogues had on the Premises of the Auctioneers and Valuers, Leytonstone, Essex, N.E.

Preliminary Notice.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. M. Cleall, to SELL by AUCTION, on the Premises, the Nursery, near the Church, Hornsey, N., a Choice Assortment of about 25,000 BEDDING PLANTS.

Catalogues, when ready, may be had of Mr. CLEALL, on the Premises; and of the Auctioneers and Valuers.

To Nursery Gardeners and Florists.

VALUABLE FREEHOLD PROPERTY.

MR. NATHANIEL TAYLOR will SELL by AUCTION (with immediate possession), at the Talbot Inn, Tything, Worcester, on MONDAY, May 24, at 4 for 5 o'Clock, a CAPITAL DWELLING-HOUSE in complete repair, with large NURSERY GARDEN, situate in Northwick Lane, in the Parish of Claines, in the County of Worcester, with Outhouses, Potting Sheds, two large Greenhouses, each 22 feet by 18; two Striking Pits, each 20 feet by 7 feet; Span-roofed Forcing Pit, 21 feet by 9 feet; and Boiler Pits—all supplied with Heating Apparatus, Frame against Greenhouse, 22 feet by 4 feet 6; six ranges of Brick Pits with Glass Lights complete, large Water Tank, and all other requisites for an extensive business of a Nurseryman and Florist, so successfully carried on by Mr. Thomas Ashcroft for many years.

There is now a large and capital Stock of GREENHOUSE PLANTS and ROSES, fit for Market, and which may be taken to at a valuation.

For particulars apply to Mr. MARTIN CURTLER, Solicitor, Sansome Place, Worcester; the Auctioneer, Shaw Street, Worcester; or the Proprietor, Mr. THOMAS ASHCROFT, Victoria Villa, North Barbourne, Worcester.

The Old-established Nursery, Sudbury, Suffolk,

IMPORTANT TO GENTLEMEN, NURSERYMEN, &c.

SALE OF CHOICE PLANTS.

MR. W. DILLISTONE has received instructions from the Proprietor, Mr. Stephen Brown, who is leaving the county, to SELL by AUCTION, without Reserve, on the Premises, on THURSDAY and FRIDAY, May 27 and 28, at 10 for 11 o'Clock each day precisely, the first portion of his Stock, comprising the whole of his valuable and choice Collection of STOVE, GREENHOUSE, and BEDDING PLANTS, consisting of many Thousands, in numerous varieties. Also his renowned Collections of HARDY HERBACEOUS and ALPINE PLANTS, JAPANESE PLANTS, CONIFERÆ, VINES in Pots, &c. Together with a portion of the GLASS-HOUSES, &c., and such other Stock as is now adapted for Planting. The valuable collection of Fruits, Conifers, and out-door Stock and effects, with remainder of Glass, will be Sold by Auction early in the Autumn, unless previously disposed of by Private Contract.

The Stock can be viewed Two days previous to the Sale on application to the Foreman, and Catalogues may be had on the Premises; at Mr. WRIGHT'S Printing Office, Sudbury; and post free on application to the Auctioneer, at his General Horticultural Agency Offices, Sible Hedingham, Essex.

High Beach, Essex.

ROSHERVILLE NURSERY (within an easy distance of Waltham and Loughton Stations, on the Great Eastern Railway).

To GENTLEMEN, NURSERYMEN, MARKET GARDENERS, &c.

MR. W. DILLISTONE is favoured with instructions to SELL by AUCTION, on TUESDAY, June 1, at 10 for 11 o'Clock precisely, on the Premises as above, and by direction of the Proprietor, Mr. James Crawford, the WHOLE of his valuable STOCK IN TRADE, consisting of 700 Gardenias of sorts, 5000 Bedding Plants, chiefly Geraniums; 2000 Fuchsias, 500 Azalea indica, 1000 Ferns, 1000 Stove and Greenhouse Plants, &c.; 3 capital Span-roof Houses, 46 by 12. Four Brick Pits and Lights, 46 by 12, all well-arranged and heated with capital hot-water apparatus; and a quantity of Lights and Frames. Also a capital ROAN MARE, 4-wheel Phaeton, Gig, Market Van, and Spring Cart, Harness, and about 30 loads of good Manure, and numerous other effects, which will be described in Catalogues, to be had prior to the Sale upon the Premises, and post free on application to the Auctioneer, at his General Horticultural Agency Offices, Sible Hedingham, Essex.

NO IMPROVEMENTS OR ALTERATIONS FOR THE PRESENT SEASON, 1869,

IN

GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

THE Extraordinary Success of GREEN'S PATENT LAWN MOWERS is an established fact. During the last five years the demand has been unprecedented, which alone is a proof of their superiority over all others. The following are their characteristic features:—

1st. Simplicity of Construction, every part being free of access.
2d. They are worked with far greater ease than any other Lawn Mower.
3d. They are the least liable to get out of order.

From the fact that these MACHINES are so well known in Great Britain and Ireland, also on the Continent of Europe, T. GREEN AND SON do not deem it necessary to trouble the Public with a list of the numerous Testimonials that they have received from time to time, but would simply add,

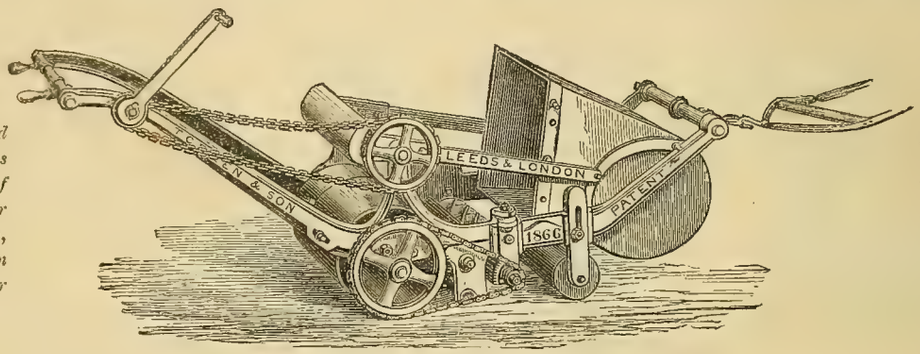
THEY ARE THE ONLY MACHINES IN CONSTANT USE AT

THE ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON
THE ROYAL BOTANIC GARDENS, REGENT'S PARK
THE CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM
BUCKINGHAM PALACE GARDENS
MARLBOROUGH HOUSE
THE HYDE PARK GARDENS
THE WINTER PALACE GARDENS, DUBLIN
THE DUBLIN BOTANIC GARDENS
THE LIVERPOOL BOTANIC GARDENS
THE LEEDS ROYAL PARK
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THE BOTANIC GARDENS, BRUSSELS
THE SUNDERLAND PARK
THE PRESTON PARK

AND IN MOST OF THE PRINCIPAL PARKS, SQUARES, ETC., IN THE UNITED KINGDOM.

HORSE, PONY, AND DONKEY MACHINE.

GREEN'S PATENT
LAWN MOWERS
have proved to be the best, and carried off every Prize that has been given in all cases of competition. Since the first year they were introduced (1856), *upwards of* 46,000 *have been sold, and* 25,000 *of that number during the last five seasons.*



T. GREEN & SON
warrant every Machine to give entire satisfaction, and if not approved of can be returned unconditionally.

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

PONY AND DONKEY MACHINES.

To Cut 26 inches	..	..	..	£13 0 0	*Leather Boots for Donkey*, 18*s*. *Leather Boots for Pony*, 22*s*.
„ 28 „ ..	..	..	..	15 0 0	
„ 30 „ ..	..	..	..	17 0 0	

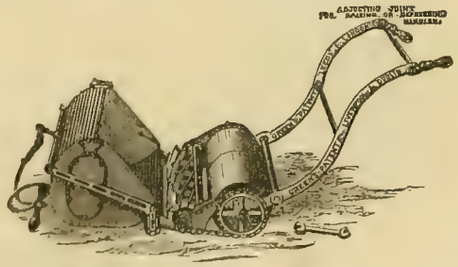
HORSE MACHINES.

To Cut 30 inches	..	..	..	£21 0 0	*Leather Boots for Horse*, 26*s*.
„ 36 „ ..	..	..	..	24 0 0	
„ 42 „ ..	..	..	..	27 0 0	
„ 48 „ ..	..	..	..	30 0 0	

Both the Horse, Pony, Donkey, and Hand Machines possess (over all other Makers) the advantage of Self-sharpening. The cutters being steel on each side, when they become dull or blunt by running one way round, the cylinder can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the Machine will cut equal to new. Arrangements are made that the cylinder can be reversed, by any inexperienced person, in two or three minutes.

HAND MACHINES.

To Cut 10 inches	..	..	£3 10 0	*Suitable for a Lady*	
„ 12 „	..	..	4 10 0	„	„
„ 14 „	..	..	5 10 0	*Suitable for One Person*	
„ 16 „	..	..	6 10 0	„	„



To Cut 18 inches	..	..	£7 10 0	*Suitable for One Person.*	
„ 20 „	..	..	8 0 0	*Suitable for Two Persons*	
„ 22 „	..	..	8 10 0	„	„
„ 24 „	..	..	9 0 0	„	„

Packing Cases are charged at the following low rates, viz.:—for the 10 and 12-inch Machine, 3*s*.; 14 and 16-inch, 4*s*.; 18 and 20-inch, 5*s*.; 22 and 24-inch, 6*s*. Parties providing themselves with Lawn Mowers are recommended to purchase the cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England, Ireland, and Scotland.

HORTICULTURAL and AGRICULTURAL IMPLEMENTS, GARDEN SEATS and CHAIRS, FOUNTAINS, VASES, PLAIN and GALVANISED WIRE NETTING, and ORNAMENTAL WIRE WORK of every description.

Having very extensive Premises in London, we are in a position to do all kinds of Repairs there, as well as at our Leeds Establishment.

Having a large quantity of MACHINES in stock at our Leeds and London Establishments, we are in a position to execute Orders on the day they are received.

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;
and 54 & 55, BLACKFRIARS ROAD, LONDON, S.

Editorial Communications should be addressed to "The Editor." Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by JAMES MATTHEWS, at the Office of Messrs. BRADBURY, EVANS & Co., Lombard Street, Precinct of Whitefriars, City of London, in the Co. of Middlesex, and Published by the said JAMES MATTHEWS, at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, May 15, 1869.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 21.—1869.] SATURDAY, MAY 22. {Price Fivepence. {STAMPED EDITION, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.
GREAT SHOW of the SEASON on WEDNESDAY and THURSDAY, June 2 and 3. Military Bands each day from Four.
Tickets for the First Day (which must be bought before June 2), to be had of all the principal Musicsellers, and at the Gardens—Fellows' Friends, 3s. 6d.; Public, 5s. Second Day, by payment at the doors, 1s.

READING HORTICULTURAL SOCIETY.—The SPRING SHOW will be held on THURSDAY, May 27 (by permission of the Mayor), in the ABBEY RUINS, READING. A Band will attend as usual. The Show will be open to the holders of Subscribers Tickets at 1 o'clock, and to the Public at 4 on payment of 1s. All ENTRIES should be made on or before MAY 20, to CHARLES COLLINS, Hon. Sec., 34, Chain Street, of whom Schedules and all information can be procured.

LEE and BLACKHEATH HORTICULTURAL and FLORICULTURAL SOCIETY.—The FIRST SHOW of the SEASON will be held on WEDNESDAY and THURSDAY, June 9 and 10, in the GROUNDS of the Misses LEWIS, Blackheath Park. A Band will attend. For Admission, &c., see Bills. LAST DAY for ENTRIES, JUNE 3. Schedules and all particulars may be obtained of G. R. CLISBY, Sec., 17, Turner Road, Lee, S.E.

GRAND HORTICULTURAL SHOW at COLCHESTER, on JUNE 15 and 16, in connection with the Essex Agricultural Exhibition. £150 in Prizes, including Special Prizes amounting to £85, open to all England, without entrance-fee. 12 Ornamental and Fine-Foliage Plants, 1st, £12; 2d, £6; 3d, £3. 12 Stove or Greenhouse Plants, 1st, £12; 2d, £6; 3d, £3; and for Roses, Hand Bouquets, Ferns, Fruits, &c.
Prize Lists and all needful information may be obtained gratis of the Secretary, Mr. WM. HARRISON.

ERITH and BELVEDERE HORTICULTURAL SOCIETY.—The ANNUAL SHOW will be held in Belvedere Park, on SATURDAY, June 26. Schedules of Prizes and every information will be forwarded.
Address R. W. CRADOCK, Hon. Sec., Belvedere, Kent, S.E.

LEICESTERSHIRE HORTICULTURAL SOCIETY.—The GREAT SUMMER SHOW of this Society will be held LEICESTER, on JULY 6 and 7 next, when Special Prizes will be given for Cut Roses and Collections of Bedding Plants, arranged for effect in pots, open to all England. Prizes will also be offered for British and Foreign Cage Birds.
Schedules and particulars may be had of the Secretary, WM. PENN COX, 37, Market Place, Leicester.

Days of Show Altered.
BIRMINGHAM ROSE SHOW, JULY 9 and 10.—For Prize Lists, apply to Mr. A. FORREST, Secretary, Cherry Street, Birmingham. ENTRIES CLOSE JULY 3.

W. DILLISTONE, HORTICULTURAL AGENT, begs to offer his services as JUDGE to any of the forthcoming HORTICULTURAL EXHIBITIONS. Twenty-five years' practical experience. Sible Hedingham, Essex.

New Roses of 1869.
PAUL and SON have an unusually fine Stock of the NEW ROSES of 1869, and, indeed, of all ROSES in POTS. NEW LISTS now ready.
The Old Nurseries, Cheshunt, N.

NEW ROSES.—Twelve of the best of 1869, in 6-inch pots, for 36s. Fine BEDDING PLANTS, including Mrs. Pollock, 25s. per 100, cash. Baskets and packing included.
GEORGE DAVISON, White Cross Nurseries, Hereford.

"Mr. PAUL'S Roses * * * are things to see once and dream of for ever."—*Athenæum.*
WM. PAUL begs to announce that his CATALOGUE of ROSES is now ready, and will be forwarded free on application.
PAUL'S Nurseries, Waltham Cross, London, N.

Sow Now.
TREE MIGNONETTE SEED, saved from exhibition plants, 2s. 6d. per packet.
R. TANTON, F.R.H.S., The Nurseries, Epsom, Surrey.

New Verbenas.
WM. KNIGHT is now sending out his six splendid SEEDLING VERBENAS at 3s. 6d. each. They were all awarded First-class Certificates at the Brighton September Show, 1868. The usual discount to the Trade.
Floral Nursery, Hailsham, Sussex.

Dutch Bulbs and Flower Roots.
H. T. DYKMAN, FLORIST, Haarlem, Holland, begs to inform Nurserymen and the Trade generally that his GENERAL WHOLESALE PRICE LIST of the above may be had gratis and post free on application.

Choice Seeds, Gladioli, &c.
WM. CUTBUSH and SON'S CATALOGUE of the above contains description and price of many very superior home-grown VEGETABLE and FLOWER SEEDS, and choice varieties of GLADIOLI, &c., all of which are highly recommended. Post free on application.
Highgate Nurseries, London, N.

Specimen Tricolor and Bicolor Geraniums.
F. and A. SMITH have a large stock of most of their varieties, in various sizes, suitable for exhibition, and now in good colour. An inspection respectfully invited.
The Nurseries, West Dulwich, S.E.

NEW DOUBLE GERANIUMS.—Twelve fine varieties Double Zonal Geraniums, including Madame Lemoine, for 12s.; 12 best New Zonal Geraniums of 1868 for 6s.; 12 fine varieties Gold and Golden Bicoloured Geraniums for 6s., package included, from B. W. KNIGHT, Florist, Battle, Sussex.

Special Offer to the Trade.
MADAME LEMOINE, the finest Double PELARGONIUM ever sent out, strong plants, in single pots, 12s. per dozen; GLOIRE DE NANCY, strong plants, 3s. 6d. per dozen.
Package included. Terms cash.
WILLIAM BADMAN, Cemetery Nursery, Gravesend.

STRONG TRICOLOR and BICOLOR GERANIUMS, hardened off, fit for bedding-out. Most of the sorts advertised in this paper, May 1, can still be supplied by the dozen or 100. Smaller plants can be supplied at lower prices. A liberal allowance to the Trade. A LIST with prices can be had on application to
WILLIAM POTTEN, Sissinghurst, Staplehurst, Kent.

To the Trade.
TWO THOUSAND GLOIRE DE NANCY, 3000 SILVER-EDGED, and 5000 ZONAL GERANIUMS, 5000 CALCEOLARIAS, 5000 VERBENAS. CATALOGUES and prices on application to
WILLIAM COCKS, Old Nurseries, Donington, Spalding.

HUSSEY and SON beg to offer strong, well-established plants of the following, at 14s. per 100, viz.:—TOM THUMB, BIJOU, STELLA, SHOTTESHAM PET, and MINIMUM GERANIUMS; and CALCEOLARIA AUREA FLORIBUNDA. Also GOLDEN CHAIN and FLOWER of SPRING GERANIUMS, at 16s. per 100.
Mile End Nursery, Eaton, Norwich.

Azalea indica.
J. IVERY and SON'S splendid Collection of the above is NOW in BLOOM, and will continue until the middle of June to be well worth inspecting, as will also their fine Collection of BRITISH FERNS. Dorking Nursery, May 3.

COLEUS, COLEUS.—Eight of the New Golden Coleus of the Royal Horticultural Society, 1869. The set of 8 for 6s., postage free.
PHILIP LADDS, Nursery, Bexley Heath, Kent, S.E.

NEW COLEUS.—The 12 New Coleus of the Royal Horticultural Society, sent out in 1868, with other fine varieties, sent post free—12 fine varieties for 2s. 6d.; 12 cuttings, in 12 fine varieties, for 1s. 2d., from
B. W. KNIGHT, Florist, Battle, Sussex.

Gratis and Post Free.
DICK RADCLYFFE and CO.'S LIST of BEDDING PLANTS, FERNS, FERN CASES, &c.
129, High Holborn, W.C.

JOHN STANDISH and CO.'S SPRING CATALOGUE of NEW and RARE, SUBTROPICAL and BEDDING PLANTS is now ready. May be had post free on application.
Royal Nurseries, Ascot.—May 1.

New Spring Catalogue.
CHARLES TURNER'S DESCRIPTIVE LIST of PLANTS for this season, including many new varieties now offered for the first time, is now ready.
The Royal Nursery, Slough.

ARTHUR HENDERSON and CO.'S GENERAL PLANT CATALOGUE is now published, containing Ferns, Greenhouse and Stove Plants, New and Rare Plants, Bedding Plants, best Pelargoniums, Dahlias, and other Decorative Plants for Summer Gardening; also Herbaceous Plants.
Pine Apple Place, Maida Vale, London, W.

General Catalogue.
WILLIAM ROLLISSON and SONS beg to inform the Nobility, Gentry, and Trade that their NEW GENERAL CATALOGUE, consisting of upwards of 150 pages of letterpress, and containing nearly every Plant, Shrub, or Tree worthy of merit in cultivation, is now Published, and will be forwarded to applicants on receipt of eight postage stamps, and sent gratis to customers.
The Nurseries, Tooting, London, S.W.

To the Trade.
RHODODENDRON DALHOUSIANUM. Fine strong young plants, in pots, 50s. per 100.
BURGESS & KENT, Penkhull Nurseries, Stoke-on-Trent, Staffordshire.

SPECIMEN PALMS for SALE.—Four splendid large plants; also a Pair of BAYS and TREE FERNS. Prices and full particulars on application to E. COOLING, Derby.

CENTAUREA CANDIDISSIMA (Kagusina). Price per dozen or hundred on application to
WM. DILLISTONE, Nurseryman, Sible Hedingham, Essex.

ALLAMANDA WARDLEIANA.—This magnificent plant is NOW READY, at 21s. each.
A Coloured Plate by Andrews, taken in December, post free for 13 stamps.—R. TANTON, F.R.H.S., Epsom Nurseries, Surrey.

ALSOPHILA EXCELSA.—The Subscribers offer a few plants of the above fine Tree Fern as follows:—Specimens with fronds 4 to 6 feet long, 10s. 6d. to 42s. each.
A. STANSFIELD & SON, Vale Nurseries, Todmorden, Lancashire.

Choice Exotic Ferns.
JOHN H. LEY, NURSERYMAN, Croydon, S., offers 12 very fine varieties of the above for 6s., 9s., 12s., and 24s. per dozen, hamper included, for cash.

British Fern Catalogue.
ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, Sidcup Hill, Kent.

FERNS.—Choice and Select EXOTIC FERNS and LYCOPODS, in great variety, are now offered in good plants, 12 fine varieties for 6s.; larger plants and more select kinds from 9s., 12s., 20s., to 30s. per dozen. Package included.
B. W. KNIGHT, Florist, Battle, Sussex.

Ferns, British and Exotic, at reduced prices.
A. STANSFIELD and SON beg to state that their CATALOGUE, No. 8, is now ready, and will be forwarded on receipt of three stamps. The above Catalogue contains 40 pages of matter, including partial descriptions and cultural remarks.
Vale Nurseries, Todmorden, Lancashire.

Pines.
B. S. WILLIAMS has all the best kinds, in splendid condition, warranted clean. Prices on application.
B. S. WILLIAMS, Seed Merchant and Nurseryman, Upper Holloway, London, N.

Royal Ascot or Perpetual Vine.
MESSRS. JOHN STANDISH and CO. are now selling fine strong plants of this extraordinarily productive VINE at 21s., 42s., and 63s. each.
Royal Nurseries, Ascot, Berks.

ORCHARD-HOUSE TREES Fruiting in Pots.—Peaches, Nectarines, Apricots, Cherries, Plums, Pears, Apples, Vines, and Figs.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

ORANGE TREES, just arrived, well set with fruit and bloom, from 12 to 15 inches high; bushy plants in pots, 2s. 6d. and 3s. 6d. each; and some, from 3 feet to 4 feet 6 high, from 5s. to 42s. each; and many rare FERNS and PALMS.
R. GREEN, Bedford Conservatories, Covent Garden Market.

Established 1806.
T. HANDASYDE and DAVIDSON have a large stock of DAHLIAS and ROSES in Pots. Special prices to the Trade on application.
Seed Warehouse, 24, Cockburn Street, Edinburgh.
Nurseries, Brunstain Glen, Musselburgh.

Gladioli, the most Extensive Collection.
BARR and SUGDEN, 12, King Street, Covent Garden, W.C., have the finest and largest collection of GLADIOLI ever offered, prices varying from 2d. to 15s. per root. For particulars see pp. 68, 69, 70, and 71 of B. & S.'s SPRING SEED CATALOGUE.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

NEW CHRYSANTHEMUMS of 1868, including the New Japan, large-flowered and Pompon varieties, sent out in 1868, sent post free, 12 fine varieties, 2s. 6d.; 2 Cuttings in 12 fine varieties, 1s. 2d., from
B. W. KNIGHT, Florist, Battle, Sussex.

New Chrysanthemums, Pyrethrums, &c.
JOHN SALTER and SON beg to announce that they are now sending out their NEW JAPANESE and other CHRYSANTHEMUMS, PYRETHRUMS, &c. A DESCRIPTIVE CATALOGUE will be forwarded on receipt of two postage stamps.
Versailles Nursery, William Street, Vale Place, Hammersmith, W. (near Kensington Railway Station).

Bedding Plants.
JOSEPH WESTLEY invites the special attention of the Trade and intending purchasers, to his large and fine stock of BEDDING and other PLANTS. Inspection invited.
CATALOGUES free on application.
The Floral Nursery, Blisworth, near Northampton.

Bedding Plants.
D. S. THOMSON has a quantity of the following varieties, which he can offer on reasonable terms, such as—GERANIUMS, Tom Thumb, scarlet; Christine, pink; Madame Vaucher, white; Bijou, Flower of the Day, and Flower of Spring. Also, LOBELIAS, and other varieties of Bedding Plants, all well hardened off, and in good condition for Bedding-out. Price on application. Nurseries, Wimbledon, Surrey, S.W.

Selling off at a Great Reduction.
DAHLIAS, HOLLYHOCKS and BEDDING PLANTS of every description.
JOHN HARRISON begs to inform his Friends and Patrons that he is now selling off the whole of his Stock of DAHLIAS and BEDDING PLANTS at prices that will defy competition, in order to make room for Roses, &c.
Darlington Nursery, May 8.

EVERY GARDEN REQUISITE KEPT in STOCK at
CARTER'S New Seed Warehouse, 237 and 238, High Holborn, London.

CARTER'S FARM SEEDS.—See large Advertisement at page 386 of *Gardeners' Chronicle*, April 10, 1869.
SEED GROWERS, MERCHANTS, and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

GRASS SEEDS: WHEN and WHAT to SOW.—For the fullest information on this subject, see CARTER'S ILLUSTRATED FARMER'S CALENDAR for 1869; post free, 6d.
JAMES CARTER & Co., Seed Growers, 237 and 238, High Holborn, London, W.C.

A SPECIAL PRIZE MEDAL, PARIS, 1867, was AWARDED to JAMES CARTER & Co., 237 & 238, High Holborn, London, W.C., for GRASS SEEDS, supplied for the Exhibition Grounds.

SUTTONS' HOME-GROWN TURNIP SEEDS.

SUTTONS' TURNIP SEEDS for the EARLY CROP.
See page 563 of this week's *Gardeners' Chronicle.*

SUTTONS' TURNIP SEEDS for the MAIN CROP.
See page 563 of this week's *Gardeners' Chronicle.*

SUTTONS' TURNIP SEEDS for the LATE CROP.
See page 563 of this week's *Gardeners' Chronicle.*

SUTTON and SONS, SEED GROWERS, Reading, Berks.

SUTTONS' CHAMPION SWEDE, the hardiest and best in cultivation. Lowest price per bushel on application.
SUTTON & SONS, Seed Growers, Reading.

Turnip Seed.
H. and F. SHARPE will be glad to submit to the Trade special quotations for all the finest varieties of the above SEED, grown last season from the finest picked bulbs.
Seed Growing Establishment, Wisbech.

Rape and Mustard Seed.
H. and F. SHARPE have fine samples of the above, which they can offer to the Trade at moderate prices.
Seed Growing Establishment, Wisbech.

EARLY CORNISH BROCCOLI.—100 good Plants sent postage free for 2s. 6d. in stamps.
Apply to JOHN MITCHINSON, Seed Merchant, Truro.

GIANT ASPARAGUS PLANTS, the best that money can procure, 2s. 6d. per 100. This delicious Vegetable does not require half the expense usually incurred in planting it.
See RICHARD SMITH'S SEED LIST for 1869.
Extra strong SEAKALE, 2s. per dozen.
RICHARD SMITH, Nurseryman, Worcester.

Roses.

JOHN CRANSTON will be happy to forward on application his DESCRIPTIVE CATALOGUE of ROSES for 1868 and 1869. For quality or quantity the stock is unsurpassed; the Manetti Roses especially are acknowledged to be the finest grown plants in the Trade.

Nurseries, King's Acre, near Hereford.

New Roses, &c., 1869.

WM. KNIGHT begs to offer the following Plants:—

12 NEW ROSES, Strong Plants	36s.
12 Finest NEW FUCHSIAS, Strong Plants ..	6s.
12 Finest NEW VERBENAS, Strong Plants ..	4s.
12 Finest COLEUS, Strong Plants	6s.
6 NEW PETUNIAS, Strong Plants	4s.

Or the above Collection, package included, for £2 10s.

CATALOGUE free.

Floral Nursery, Hailsham, Sussex.

Roses in Pots.

PAUL AND SON have now ready for immediate planting several thousands of ROSES in Pots, new and old. Their List marks those varieties of 1869 they have seen and recommend, and best Bedding Roses. Prices are as under:—

ROSES, New, of 1869, 36s. per doz.; New, of 1868, 18s. to 24s. p. doz.
BEDDING ROSES, on own roots, 12s. per doz.; 75s. per 100.
Extra-sized PLANTS, with several blooms, 30s. per doz.
TEA-SCENTED ROSES for present season planting, 18s. per doz.
STANDARD ROSES, in pots, 36s. per doz.

The above are healthy fine Plants.

PAUL & SON invite an inspection of their Roses in pots, and Tea-Rose House, now in bloom. The Hardy Deciduous Trees are now also interesting.

The Old Nurseries, Cheshunt, N.

New Roses for 1869.

JOHN AND CHARLES LEE intend to send out the following TWO NEW ROSES the end of May:—

CLEMENCE RAOUX (Granger).—Blush, edged and spotted rose, very large, of perfect form and great substance; petals stout and enduring; habit erect and vigorous; flowers late in autumn. This is really a wonderful Rose when bloomed to perfection. A single flower of Clemence Raoux exhibited amid tens of thousands of other Roses attracted—by its immense size and novel colouring—the universal attention of the judges and amateurs at the Great Rose Show at Brie Comte Robert, in July 1867, when the Gold Medal was awarded to it as the finest Rose in the Exhibition. 15s.

EDWARD MORREN (Granger).—This splendid Rose is a great acquisition. The delicate yet brilliant colouring, the size, fine shape, and fulness of its flowers, combined with its bold erect habit, will render it a universal favourite. Monsieur Margottin thus described it:—"Edward Morren is in the way of Jules Margottin, but of a more delicate colour, of better form, more double, and much larger." The 1st Prize Gold Medal was awarded to it at the Exposition Universelle in Paris, in July, 1867. 15s.

Special offer to the Trade on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith W.

Vines for Planting in a Growing State.

JOSEPH MEREDITH, The Vineyard, Garston, near Liverpool, has now ready for Planting fine extra strong YOUNG VINES, with 3 to 4 feet of extra strong Wood of this season's growth. Intending planters of Vines will save a whole year, and prevent disappointment by planting between now and August next. Planting in a Growing State ensures success. Packed to travel any distance with safety.

DESCRIPTIVE CIRCULARS of MEREDITH'S VINE MANURE free on application.

CARTER'S PRIMULA, CALCEOLARIA, and CINERARIA.

J. C. & Co.'s strain of Calceolaria is saved from plants that were awarded a 1st Prize at the late International Show. The Cineraria and Primula stocks are also saved from the finest Prize Varieties, and cannot be surpassed.

CALCEOLARIA and CINERARIA.

Per packet—s. d.		Per packet—s. d.	
Calceolaria, finest hybrid ..	2 6	Calceolaria, Dobson's strain..	2 6
" " spotted..	2 6	Cineraria, extra fine	2 6

PRIMULA.

Per packet—s. d.		Per packet—s. d.	
Primula, choicest mixed, fringed	2 6	Primula, choicest white fringed	2 6
" " dark carmine, fringed	2 6	" " Fern-leaved carmine	2 6
" " rose, fringed	2 6	" " white ..	2 6

CALCEOLARIA INTERNATIONAL PRIZE.—The Seed of this superb strain cannot fail to produce splendid varieties, as last season's plants took 1st Prizes wherever exhibited. Per pckt., 2s. 6d.

PRIMULA FIMBRIATA (New scarlet).—This is a decided novelty, being of a deep scarlet colour, and cannot fail to be much admired wherever grown. Per packet, 2s. 6d.

INDIA-RUBBER HOSE at Manufacturer's prices, 60 feet (with complete fittings), 25s.

JAMES CARTER & Co., The Royal Seedsmen, 237 and 238, High Holborn, London, W.C.

New and Choice Flower Seeds, Post Free.

B. S. WILLIAMS,
SEED MERCHANT AND NURSERYMAN,
Victoria and Paradise Nursery, Upper Holloway, London, N.

	Per packet.—s. d.
WILLIAMS' SUPERB STRAIN of PRIMULA.—B. S. W. can with confidence offer his superb strain of Primula as being the finest in cultivation. Red, White, or Mixed .. .. .. 2s. 6d., 3s. 6d., and	5 0
CINERARIA, choice mixed	1 0
CALCEOLARIA (Neill's extra choice strain), 2s. 6d., 3s. 6d., and	5 0
" (Dalkeith Palace strain) .. ..1s. 6d. and	2 6
CARNATION, from Prize Flowers	1 0
CYCLAMEN (Wiggins' prize strain) .. 1s. 6d., 2s. 6d., and	3 6
POLYANTHUS (Wiggins' prize strain) .. .. 1s. 6d. and	2 6
BALSAM (Wiggins' superb strain) .. .. .. 1s. 6d. and	2 6
CLIANTHUS DAMPIERI (fresh imported seed)	1 6
GERANIUM LE GRAND .. .. 1s. 6d. and	2 6
SOLANUM (Weatherill's hybrids).—B. S. W. was awarded a Special Certificate for a Collection exhibited before the Floral Committee, December 15, 1868 2s. 6d., 3s. 6d., and	5 0
ECHEVERIA METALLICA (new Bedding plant)	2 6
STOCK (White Tenweek Wallflower-leaved).—This is a splendid variety, the colour being so pure and the flowers very double	1 0
HOLLYHOCK, from the best named sorts..	1 0
PANSY, from prize flowers	1 0
" finest Belgian varieties	1 0
PINK, Double-fringed, very fine	1 0
PICOTEE (from prize flowers)	1 0
SWEET WILLIAM, Hortis Auricula-eyed .. 6d. and	1 0
OXALIS VALDIVIANA, quite hardy, the flowers are bright yellow and sweet scented, and produced in bunches of large size (new)	1 0
PALAVA FLEXUOSA, very pretty annual (new)	1 0
MYOSOTIS AZORICA ALBA, the flowers are pure white, contrasting beautifully with the blue variety Celestina (new)	2 6
MYOSOTIS AZORICA var. CŒLESTINA, beautiful sky blue	1 6
AMARANTHUS SPECIOSUS ACREUS (New Golden Prince's Feather)	1 0
ANTIRRHINUM ASARINA, very beautiful for rockwork (new)	1 0
HELICHRYSUM APICULATUM (new)	1 0
VIOLA LUTEA (yellow-flowered Violet) .. .. 1s. 6d. and	2 6
ARGEMONE ARENARIA, the flowers are of a pure waxy yellow, delicately scented, and produced in long succession (new)	1 0
ZINNIA ELEGANS LACINIFLORA S.-pl. (new)	1 0
ORNAMENTAL GRASS, several varieties	6 6

Imperial Collection of ASTERS, STOCKS, WALLFLOWERS, ZINNIAS, &c., in Collections, as imported.

Victoria and Paradise Nursery, Upper Holloway, London, N.

SOFT-WOODED AND BEDDING PLANTS.

JAMES VEITCH & SONS

HAVE THE PLEASURE TO ANNOUNCE THAT THEIR

CATALOGUE OF SOFT-WOODED AND BEDDING PLANTS

For the present season, comprising a LIST of the BEST NOVELTIES, as well as a selection of the most approved kinds in general cultivation, IS NOW READY, and will be sent POST FREE ON APPLICATION.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, S.W.

NEW PLANTS FOR 1869.

JAMES VEITCH & SONS

BEG TO ANNOUNCE THAT THEY ARE

NOW SENDING OUT THEIR SPLENDID NOVELTIES.

AMPELOPSIS JAPONICA, price 7s. 6d. each.
BEGONIA ROSÆFLORA, price, good plants, 10s. 6d. each; extra strong plants, 21s. each.
CROTON (CODIÆUM) AUCUBÆFOLIUM, price 21s. each.
CROTON (CODIÆUM) HILLIANUM, price 21s. each.
CROTON (CODIÆUM) MAXIMUM, price 42s. each.
DAVALLIA HEMIPTERA, price 10s. 6d. each.
DRACÆNA MACLEAYI, price 42s. each.
DRACÆNA NIGRO-RUBRA, price 21s. each.
DIPLADENIA (ECHITES) BOLIVIENSIS, price 15s. each.
ERANTHEMUM ASPERSUM, price 7s. 6d. each.
HEDAROMA (DARWINIA) FIMBRIATA, price, good plants, 15s.; a few stronger plants, 31s. 6d. each.
MARANTA (CALATHEA) TUBISPATHA, price 21s. each.
RHODODENDRON HENRYANUM, price 10s. 6d. each.
THIBAUDIA ACUMINATA, price 10s. 6d. each.

NEW ORCHIDS FOR 1869,

INTRODUCED DIRECT FROM THEIR NATIVE HABITATS BY MESSRS. VEITCH AND SONS.

ANGRÆCUM FALCATUM, price 21s. to 42s. each.
CŒLOGYNE (PLEIONE) REICHENBACHIANA, price 42s. each.
DENDROBIUM CRASSINODA, price 63s. to 105s. each.
DENDROBIUM MACROPHYLLUM HUTTONI, price, good plants, 105s.; strong plants, 147s.
MASDEVALLIA VEITCHIANA. Prices on application.
VANDA INSIGNIS (TRUE). Prices on application.

For full descriptions, see *Gardeners' Chronicle*, May 15, 1869, page 526.

A NEW ILLUSTRATED DESCRIPTIVE CATALOGUE of the above, and many NOVELTIES sent out by other houses, will be forwarded free on application.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, S.W.

H. LAURENTIUS, HORTICULTURIST,

THE NURSERIES, LEIPZIG, SAXONY,

BEGS TO OFFER THE FOLLOWING

NEW AND RARE PLANTS,

DESCRIBED AND PARTLY FIGURED IN HIS NEW CATALOGUE, No. 41:—

AGAVE HORRIDA NANA (figured in H. L.'s New Catalogue), £1 10s.
" " " var. LÆVIOR (figured in H. L.'s New Catalogue), £1 16s.
NEW TRICOLOR GERANIUM, LILY (figured in H. L.'s New Catalogue), 6s. each.
NEW STRIPED FLOWERING PELARGONIUMS.—Five very beautiful varieties (Dr. W. Neubert, Elsternixe, Killisch von Horn, Striata formosa, Théodor Rümpler), 6s. each; 15s. the set. For full description, see H. L.'s New Catalogue, page 211.
VIOLA ODORATA PENDULA, WEEPING VIOLET of NEW YORK.—Very attractive novelty; flowers large, full, sweet scented, and azure blue, 1s. 3d. each; 12s. per dozen.
AGAVE BESSERIANA LONGIFOLIA VIRIDIS (figured in H. L.'s New Catalogue), £2 5s., £3, and £3 15s.
" " LONGIFOLIA GLAUCA (figured in the Catalogue), £2 5s., £3 15s., and £6.
NEW LOBELIA ERINUS, STAR of ISCHL.—Very compact dwarf growing, flowers larger than any new variety, bright azure blue, with a deep coloured shade, extremely free flowering throughout the whole season; 1s. 3d. each, 10s. 6d. per dozen.
NEW PINKS: KING JOHN of SAXONY, and PRINCE ROYAL of SAXONY.—Two extremely beautiful varieties, in every respect improvements of the esteemed P. Abbordfordianus, by whose hybridisation they have been obtained, 2s. each. For full description, see H. L.'s New Catalogue, page 28.

AMARYLLIS ALBERTI FLORE-PLENO (LAURENTIUS), true.—The full and bright scarlet-flowered Amaryllis, flowering by pairs. Strong flowering bulbs, 12s. each; middle sized bulbs, 4s. 6d. each.
ANECOCHILUS SPECTABILIS.—Leaves similar in colour to the A. setaceus, but much larger; £1 1s.
AGAVE UNIVITTATA.—Young plants, according to size, 4s. 6d., 6s., and 12s. each; stronger plants, 15s. each; very strong plants, £3 15s. each.
DICHORISANDRA MUSAICA, 7s. 6d. each; £3 per dozen.
" UNDATA, 3s. each; £2 4s. per dozen.
PASSIFLORA TRIFASCIATA.—New tricolor-leaved Passion-flower, 3s. each; £1 4s. per dozen.
DOUBLE-FLOWERED GERANIUMS.—The newest, 22 varieties. For descriptive List, see H. L.'s Catalogue, pp. 24, 25, and 212.
CORDYLINE VEITCHII.—Leaves with red midrib. Young plants, 1½ foot high, 15s. per dozen; £5 per 100.
FICUS SURINGARI.—Beautiful species, with purple-veined large leaves, 3s. each.
LAMPROCOCCUS LAURENTIANUS.—The most beautiful Æchmea, flowering from November to February, 2s. 6d. each; £1 7s. per dozen.
LILIUM PARTHENEYON.—New Lily, from Japan, £1 16s. For full description, see H. L.'s Catalogue, page 39.
" LEICHTLINI.—Likewise from Japan, £2 5s. each. For full description, see H. L.'s Catalogue, page 39.
LIRIODENDRON TULIPIFERA FOL. IN MEDIO AUREO PICTIS.—New effective variety, the leaves being adorned in the centre with a large yellow spot; 2-yr. grafts, 2 feet high, and cultivated in pots, 6s. each; £2 10s. per dozen.
LOMARIA CYCADÆFOLIA.—One of the most beautiful Tree Ferns. Strong stems, £2 4s. to £4 5s.; Seedlings of the above, 2-yr. old, 10s. 6d. per dozen, or 25 for 18s.

Choice of the best NEW ROSES for 1869.—23 varieties, vigorous plants, grafted on Manetti, £2 7s.; grafted on Wild Roses and Briars, Half Standards, 3½ to 4 feet, 23 varieties for £3 10s. For names and full description of these New Roses, see H. L.'s Catalogue, pp. 33, 34.

H. LAURENTIUS'S NEW CATALOGUE (228 pages), containing all the Novelties of the season, and many other valuable and Rare Plants, may be had Gratis and Post Free on application to his Agents,

MESSRS. BETHAM AND BLACKITH, COX'S QUAY, LOWER THAMES STREET, LONDON, E.C.

THE GREATEST HORTICULTURAL NOVELTY OF THE DAY.

PATENT PLANT PROTECTORS.

BY HER MAJESTY'S ROYAL LETTERS PATENT.



PATENT GROUND VINERY.

LIST OF SIZES AND PRICES.

UPRIGHT PROTECTORS.

The following sizes, Nos. 1, 2, 3, 4, 5, and 6, will be found most valuable for growing Early PEAS, ASPARAGUS, LETTUCES, CAULIFLOWERS, and other VEGETABLES; and Nos. 7, 8, 9, 10, 11, and 12 for raising FLOWER and KITCHEN GARDEN SEEDS, &c., &c.:—

In giving Orders it will be only necessary to give the Numbers.

	Height in Front.	Height at Back.	Width and Weight of Glass.	Running Foot.—s.	d.
No. 1 Protector,	4 inches	6 inches	9 inches 15 oz.	0	10
„ 2 „	6 „	8 „	9 „ „	1	2
„ 3 „	8 „	10 „	9 „ „	1	6
„ 4 „	4 „	6 „	12 „ „	0	11
„ 5 „	6 „	8 „	12 „ „	1	4
„ 6 „	8 „	10 „	12 „ „	1	8
„ 7 „	4 „	7 „	18 „ „	1	2
„ 8 „	6 „	9 „	18 „ „	1	8
„ 9 „	8 „	11 „	18 „ „	2	0
„ 10 „	4 „	8 „	24 „ 21 oz.	1	6
„ 11 „	6 „	10 „	24 „ „	2	0
„ 12 „	8 „	12 „	24 „ „	2	6

The Glass is the usual quality used in Orchard Houses.

The last six Protectors, Nos. 7, 8, 9, 10, 11, and 12, will be found most valuable for all purposes for which Hand-Glasses are used, at less than one-fourth the price.

The ends of the Protectors are made of Glass, fitted into grooves. These will be supplied from 3*d.* to 1*s.* each, according to size.

UPRIGHT MINIATURE PROTECTORS,

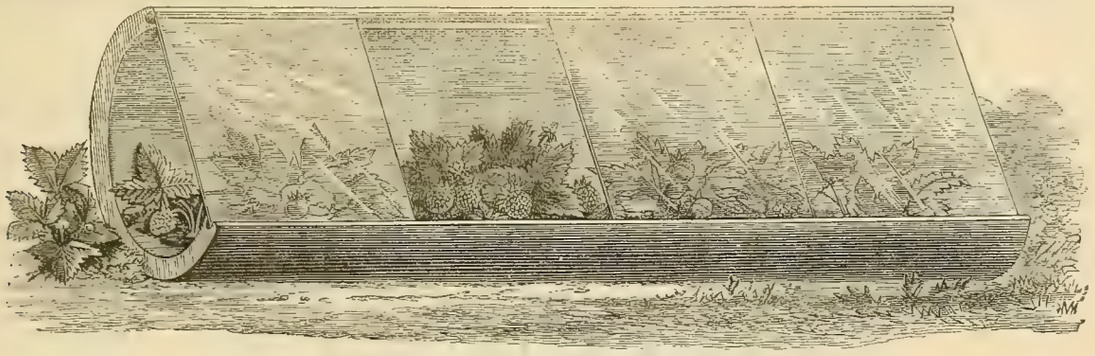
For Raising Flower Seeds, and for Protecting Young Plants in Ribbon Borders, &c.

	Height in Front.	Height at Back.	Width of Glass.	Per Running Foot.—s.	d.
No. 13.	2 inches	3 inches	6 inches	0	8

DOUBLE-GROOVED AND DOUBLE GLASS-TOPPED PROTECTORS.

These are made with a double groove, for taking one sheet of glass over the other. The effect of this will be that the heat from the sun will be retained during the night, even if the night should be cold and frosty.

	Height in Front.	Height at Back.	Width of Glass.	Per Running Foot.—s.	d.
No. 14.	8 inches	11 inches	18 inches	2	6



PATENT STRAWBERRY PROTECTOR.

UPRIGHT PROTECTORS FOR STRAWBERRIES.

	Height in Front.	Height at Back.	Width of Glass.	Per Running Foot.—s.	d.
No. 15.	8 inches	10 inches	12 inches	2	0
No. 16.	8 inches	11 inches	18 inches	2	3

These are made with Holed Tiles at the bottom for the Strawberries to grow through.

	Height in Front.	Height at Back.	Width of Glass.	Per Running Foot.—s.	d.
No. 17.	8 inches	10 inches	12 inches	2	6
No. 18.	8 inches	11 inches	18 inches	3	0

These are made with Galvanised Wire-work on the inside to keep up the fruit from the ground.

CIRCULAR PROTECTORS FOR STRAWBERRIES.

	Per Running Foot.—s.	d.
No. 19.—Circular, 10½ inches in diameter, Glass 10 inches wide	2	9

FRUIT TREES.

No. 23.—Protectors for nailing against Rough Hoarding, Walls, or Sloping Banks, 9 inches in height at back, and Glass 9 inches wide	2	6

SINGLE PLANT PROTECTORS (SQUARE.)

These can be produced any size, from 6 inches square to 2 feet square. The Prices by Special Contract.

GROUND VINERIES.

	s.	d.
No. 20.—Upright Protectors, Glass, 18 ins. wide; height in front, 8 ins.; height at back, 11 ins., fitted with Radiating Tiles and Wire Ropes (per r. f.)	2	6
No. 21.—Circular Protectors, with Wire Rope, 12 inches in diameter; Glass, 12 inches wide	3	0
No. 22.—Circular Protectors, with Wire Rope, 15 inches in diameter; Glass, 15 inches wide	4	0

Larger sizes can be made. Prices by Special Contract.

Estimates will be given for fitting up Vineyards on this system.

SINGLE PLANT PROTECTORS (CIRCULAR).

These are made like Seakale pots, and are fitted with a slanting glass on the top. These will be most useful for protecting Single Plants or Groups of Flowers or Vegetables, and the smaller sizes will be useful in the Greenhouse for Propagating purposes, and for raising tender and delicate Seeds.

		Each.—s.	d.
No. 1.	P.P. 6 inches in diameter, with Glass	0	5
No. 2.	P.P. 8 „ „	0	7
No. 3.	P.P. 10 „ „	0	10
No. 4.	P.P. 12 „ „ (with handles)	1	8

Larger sizes can be made. Prices by Special Contract.

SPECIAL CONTRACTS FOR FITTING UP LARGE ESTABLISHMENTS WILL BE GIVEN.

In consequence of the large demand for these Protectors, it will be necessary TO GIVE ORDERS AT ONCE, in order to ensure a supply for the Autumn. All Orders will be executed in strict rotation.

☞ These Protectors have been exhibited at the Exhibition of the Royal Horticultural Society, at Leicester; at the Royal Botanic Society, Regent's Park; and arrangements have been made for showing them at the Exhibitions of the Royal Horticultural Society, South Kensington; the Royal Horticultural Society, at Manchester; the Bath and West of England Horticultural Society, at Southampton; the Crystal Palace; and at various Provincial Horticultural Exhibitions. Specimens will also be exhibited by the regularly appointed Agents throughout the country—a list of whom will be shortly published.

AGENTS are IMMEDIATELY REQUIRED. Only one will be appointed in each City or Town. Applications should at once be made to the Patentee.

SPECIMENS can be seen any day at the Gardens of the Royal Horticultural Society, South Kensington, on application to Mr. J. C. Fox.

FOR FURTHER PARTICULARS, APPLY TO THE PATENTEE,

MR. W. E. RENDLE, 68, WELBECK STREET, CAVENDISH SQUARE, LONDON, W.

NEW COLEUS, BEAUTY of WIDMORE.—The prettiest variety yet sent out, distinctly tricolored; leaves small and beautifully shaped, of a dark bril iant maroon, belted with bright rose and green, and edged with silvery white; habit very dwarf; 5s. each: 4 will be sent when 3 are ordered. Price to the Trade on application.

DOWNIE, LAIRD & LAING, Stanstead Park, Forest Hill, London, S.E., and Edinburgh.

West of England Bedding Plant Establishment.

BEDDING PLANTS.

THOMAS SAMPSON, The Preston Road and Houndstone Nurseries, Yeovil, Somerset, is now prepared to send out his unrivalled Collections of BEDDING PLANTS, for quantity, quality and cheapness by far exceeding any other Establishment in the County of Somerset or the West of England. T. S. flatters himself on having added to his already well-known Collection all the really good and choice things in each variety, and offers the same at prices that cannot be undersold. Catalogues free on application.

T. S. is now sending out his Collections of Bedding Plants made up of varieties from each section, including many of the dearer and leading varieties. T. S.'s selection only.

No. 1 Collection.—25 dozen plants, basket and packing included	£2	2	0
No. 2 Collection.—15 dozen plants, ditto	1	5	0
No. 3 Collection.—10 dozen plants, ditto	0	18	0
No. 4 Collection.—5 dozen plants, ditto	0	10	0

Orders sent out in rotation.

PETER DRUMMOND, Manager.

New Semi-double Gloxinias.

JAMES VEITCH AND SONS beg to announce that they are now sending out these fine Seedlings, which were raised by Mr. John Gray, Gr. to the Right Hon. Earl of Dartrey.

LADY CREMORNE.—Flowers erect, white, with a rich deep blue throat, the prolonged calyx which gives the flower the double appearance is pencilled with lines of deep lavender.

JOHN GRAY.—Flowers erect, rich dark crimson, shaded in the centre; the outside of the prolonged calyx is of a light crimson, lined with the same colour at the base.

The Royal Horticultural and Royal Botanic Societies have awarded Certificates to both these Novelties; and they are figured and fully described in the "Floral Magazine" for 1868, plate 404.

Price 5s. each.

Royal Exotic Nursery, Chelsea, S.W.

DOBSONS' PRIZE FLOWER SEEDS,

Now ready, in sealed packets, post free.

DOBSONS' CELEBRATED PRIZE CALCEOLARIA.—This strain is if possible finer this season than we have ever had them; producing flowers of very large size, rich and varied in colour, and of dwarf habit. The plants from which we save all our seed are now in fine bloom, and will continue for a fortnight or three weeks, and may be seen any day except Sundays. Seed in sealed packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s.

DOBSONS' PRIZE CINERARIA, 1s., 2s. 6d., and 5s.

Received 60 First Prizes in 6 years.
First Prize, Kensington, 1869.
Special Prize, Regent's Park, 1869.

DOBSONS' PRIZE PRIMULA.—Unsurpassed in the trade for fringe and colour. 1s., 2s. 6d., and 5s.

DOBSON & SONS, Woodlands Nursery, Isleworth.

Splendid Indian Azaleas.

WILLIAM BARNES' unrivalled Collection of AZALEAS is this season unusually fine, and in the highest possible health, loaded with strong bloom-buds from top to bottom, and the plants properly trained as Pyramids, but neither stiff nor formal; their average heights are from 2 to 5 feet, and beautifully clothed down to the pot. These plants cannot fail to please those who are either adding to their present collection or forming a new one. W. B. has also many thousands in smaller sizes, comprising all the newest and best of the older varieties, in the most beautiful and healthy condition. Prices and varieties may be had on application.

WILLIAM BARNES, Camden Nursery, Camberwell, S.E.—April 10.

New Plant.

MR. WILLIAM BULL is now sending out the beautiful

LASIANDRA MACRANTHA.

The flowers of this plant are truly marvellous, 1½ foot in circumference; are produced nearly throughout the year, and on plants when only an inch or two high. Some blooms of it were sent at Christmas to the Editor of the *Gardeners' Chronicle*, and the following remarks were made in the columns of that Journal, January 2, 1869:—

"We have before us fine blooming specimens of the noble Lasiandra macrantha, sent us by Mr. BULL, which shows that the flowers of this grand plant may be had in winter as well as in summer, which is an additional recommendation. Notwithstanding what may seem to be an unfavourable season, the blossoms are even now nearly five inches across, and are of the richest violet-blue, a tint which has not been reproduced in any of the illustrations which have yet appeared."

A DESCRIPTIVE CATALOGUE of other NEW PLANTS, just published, post free.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

Cheap Bedding Plants, from 2s. per dozen.

J. SCOTT, Merriott, Somerset, has to offer the above, selected by purchasers from his Catalogue, which will be sent free to all applicants.

J. S. also offers the following, his selection, viz.:—100 GERANIUMS, sorted; 100 VERBENAS, do.; 100 CALCEOLARIAS, do.; 300 Mixed plants, do., including the NEW COLEUS of the Horticultural Society, at 12s. per 100, or half at 13s. per 100.

One Hundred Thousand Bedding Plants.

THOMAS PERKINS has great pleasure in offering the following, all strong, well established Plants, turned out of single pots, at 2s. per doz.:—VARIEGATED, SCARLET, ZONAL, and other GERANIUMS; CALCEOLARIAS, Verbenas, Heliotropes, Lobelias, Salvias, variegated Alyssum, Gazanias, Petunias, Perilla nankinensis, Pentstemons, Nierembergias, Ageratums, Golden Feather, Musk, &c. DESCRIPTIVE PRICED CATALOGUES post free on application to

THOMAS PERKINS, 42, Drapery, Northampton.

N.B.—Price to the Trade on application.

Vegetable, Agricultural, and Flower Seeds.

MISCELLANEOUS HARDY BEDDING PLANTS, SWEET VIOLETS, &c.

ROBERT PARKER begs to announce that his CATALOGUE, containing DESCRIPTIVE LISTS of the finest kinds in cultivation of the above-named, is now published, and will be forwarded to applicants. The stocks of Seeds have all been procured from the best possible sources; all are warranted genuine, and are offered at the lowest possible prices.

Intending purchasers are requested to compare the prices with those of other houses.

Exotic Nursery, Tooting, Surrey, S.W.

PAUL'S BEDDING GERANIUM,

BLUE BELL.

First-class Certificate, 1868. "*It was decidedly the gem of the season, and was greatly admired.*"—Report of Pelargoniums grown at Chiswick in 1868.

WM. PAUL begs to offer good plants of the above magnificent BEDDING GERANIUM, which he believes to be the finest ever yet raised, on the following terms, on and after May 15:—Single plants, 1s. 6d. each; 12 plants, 12s.; 50 Plants, £2 2s.; 100 plants, £4.

Description.—Flowers bluish tinted rose, large and good shape, trusses large and close, habit dwarf and compact, but very free both in growth and flowering; very effective.

NEW GOLDEN VARIEGATED GERANIUMS.—Plutarch, 15s. each; Rouge-et-Noir, 15s. each; Goldfinch, 10s. 6d. each.

A NEW SET of BEDDING GERANIUMS, Beaton's race, 5s. each; 42s. per dozen.

NEW CLIMBING ROSE.—Prince Leopold, H.P., beautiful deep red, large, and of fine form. Plants in May, 5s. each.

All the best NEW FRENCH ROSES, 36s. per dozen.

NEW PHLOXES.—Conqueror and Beautiful, the two finest of recent introductions, 2s. each.

All the best VARIEGATED and ZONAL PELARGONIUMS, ROSES, DAHLIAS, PHLOXES, &c., first-rate plants, at reasonable rates.

PRICED DESCRIPTIVE CATALOGUES Free by Post.

PAUL'S NURSERIES AND SEED WAREHOUSE, WALTHAM CROSS, LONDON, N.

THE ROYAL SEEDSMEN.

GENERAL PLANT CATALOGUE,



ILLUSTRATED WITH COLOURED DRAWINGS.

JAMES CARTER & CO.'S NEW PLANT CATALOGUE

IS NOW READY, and will be forwarded on application, ILLUSTRATED with FOUR COLOURED DRAWINGS of

TRICOLOR AND BICOLOR GERANIUMS,

AND CONTAINING FULL DESCRIPTIVE LISTS OF THE NOVELTIES FOR 1869.

ONE MILLION BEDDING AND OTHER PLANTS

Now ready for sending out, as under, of which they invite inspection at their

CRYSTAL PALACE NURSERY, FOREST HILL, S.E.

LANDSCAPE GARDENING and ARCHITECTURE.—JAMES CARTER AND CO., having an experienced staff of qualified Men, will be happy to undertake the ALTERATION or IMPROVEMENT of GARDENS, DOMAINS, &c., and to furnish Estimates (after a personal inspection) WITH PLAIN OR COLOURED PLANS, as may be desired.

CONTENTS OF CARTER'S PLANT CATALOGUE.

COLLECTIONS of PLANTS.
" CACTI and SUCCULENT PLANTS
" CHOICE GREENHOUSE do.
" CHOICE HARD-WOODED do. do.
" CHOICE STOVE do.
" CRYSTAL PALACE.
" GREENHOUSE FERNS.
" HARDY FERNS.
" HARDY PLANTS.
" JAMES CARTER AND CO.'S OWN.
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" SHOWY HARDY HERBACEOUS PERENNIALS.
" STOVE FERNS.
" SURPLUS BEDDING PLANTS.

FERNS, STOVE, GREENHOUSE, and HARDY.
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GERANIUMS.
" BICOLOR LEAVED Varieties.
" BRONZE VARIEGATED Varieties.
" DOUBLE FLOWERED Varieties.
" FANCY PELARGONIUM Varieties.
" GOLDEN TRICOLOR-LEAVED Varieties.
" IVY-LEAVED VARIEGATED Varieties.
" NOSEGAY Varieties.
" SHOW and SPOTTED PELARGONIUM Varieties.
" SILVER VARIEGATED-LEAVED Varieties.
" ZONAL or HORSESHOE-LEAVED Varieties.
GLOXINIAS.

GREENHOUSE PLANTS.
HOLLYHOCKS.
LILIUM AURATUM.
NEW and DESIRABLE STOVE, GREENHOUSE, CONSERVATORY and OUTDOOR PLANTS.
NEW ROSES for 1869.
ORCHIDS.
PENTSTEMONS.
PETUNIAS.
PHLOX.
STOVE PLANTS.
SUMMARY of ORNAMENTAL-FOLIAGED and FLOWERING BEDDING PLANTS.
VERBENAS.
VINES.

INDIA-RUBBER HOSE at Manufacturers' Prices. 60 feet, with Fittings Complete, 25s.

JAMES CARTER AND CO., SEED MERCHANTS and NURSERYMEN, 237 and 238, HIGH HOLBORN, LONDON, W.C.; and CRYSTAL PALACE NURSERY, FOREST HILL, S.E.

VARIEGATED PELARGONIUMS.

Louise Smith	Sophia Cusack	Moire Antique
Edwinia Fitzpatrick	Madeline Schiller	Lady of Shalot
Caroline Longfield	Light and Shadow	Lady Callum
Beauty of Calderdale	Glen Eyre Beauty	Lurline

15s.

CASHON & SON, Gravel Walk Nursery, Peterborough.

Tricolor Pelargoniums.

J. WATSON, New Zealand Nursery, St. Alban's, begs leave to offer his two beautiful TRICOLOR PELARGONIUMS, MISS WATSON and MRS. DIX, unrivalled for freedom of growth and beauty of colouring, in good plants, 5s. each; also, PRINCESS CLOTILDE, 5s. each, or the three for 13s. 6d. Miss Watson and Mrs. Dix have received 17 First-class Certificates and Extra Prizes from the leading Horticultural Societies of the kingdom. Early orders solicited.

The best Gold-leaved Pelargoniums of the Season are Golden Emperor and Golden Queen.

SALTMARSH AND SON are now sending out the above splendid varieties, in strong established plants, at 10s. 6d. each, with the usual discount to the Trade. They were awarded the 1st and 2d Prizes respectively in the Gold-leaved Class at the Royal Horticultural Society's Special Pelargonium Show in June last. For further particulars see previous Advertisements.

Moulsham Nurseries, Chelmsford.

Cheap Tricolor Geraniums.

ALFRED FRYER offers 50,000 fine Plants, at the following low prices for cash. Package free.

LADY CULLUM, 13s., 18s., and 21s. per dozen.
SOPHIE DUMARESQUE, 7s., 10s., and 13s. per dozen.
SUNSET, 5s., 6s., and 7s. per dozen.
MRS. POLLOCK, 3s. 6d., 5s., and 6s. per dozen.
MRS. BENYON, 5s., 6s., and 7s. per dozen.

Remittance requested from unknown correspondents.

Address, ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

New Tricolor and Bicolor Geraniums.

F. AND A. SMITH are now sending out their new varieties of the above, amongst them the following sterling novelties:—

GOLDEN TRICOLORS.—Achievement, Coronet, Resplendent, Shakespeare, Sultan, &c.
SILVER TRICOLORS.—Exquisite, Miss B. Coutts, Sparkler, &c.
BICOLORS.—Arab, Criterion, Goldfinder, Sybil, &c.
ZONALS.—Acme, Flamingo, Lord Stanley, &c.

The NEW CATALOGUE, containing full descriptions of the above and other splendid novelties, is now ready, and may be had on application. The Nurseries, West Dulwich, S.E.

DOWNIE, LAIRD, AND LAING are now sending out the following Novelties, which are great acquisitions. They have gained many Certificates, and are greatly admired by all who see them.

PELARGONIUMS (Gold and Bronze).—Black Knight, Crown Prince, Harrison Weir, Mrs. Alan Lowndes, Prima Donna, Red Ring, Stanstead Beauty. (Crown Prince is figured in the "Floral Magazine" for this month.)

PELARGONIUMS (Nosegay).—Kentish Fire, R. K. Bowley. (R. K. Bowley has been figured in the "Floral Magazine.")

For descriptions and prices of these and other choice Novelties, see our GENERAL CATALOGUE, which we send free by post on application.

Stanstead Park, Forest Hill, London, S.E.; and Edinburgh.

J. HOUSE, Eastgate Nursery, Peterborough, has a large stock of the following, which cannot be surpassed by any in the country:—

GERANIUM, MRS. POLLOCK, strong, in 24-size pots, 12s. per dozen; Autumn struck plants, 40s. per 100; Spring struck, 25s. per 100.
GERANIUM, CRYSTAL PALACE GEM, in 24-size pots, 8s. per dozen; Autumn struck plants, 30s. per 100; Spring struck, 20s. per 100.
PYRETHRUM GOLD FEATHER, 1s. to 2s. per dozen, 8s. and 16s. per 100.
VERBENAS, 10s. and 15s. per 100.
HOLLYHOCKS, Seedlings, 2s. per dozen; named sorts, 4s. to 6s per dozen.

PELARGONIUMS, Show, Spotted, and Fancy, in 4-inch pots, blooming plants, 12 fine named sorts for 6s., 24 for 12s., 48 for 24s., package free.
GERANIUM Gloire de Nancy (fine double), good plants, 12 for 5s., 25 for 10s., 50 for 18s., package free.
GERANIUMS.—Nice plants of Sunset, Italia Unita, Attraction, Beauty of Oulton, Circlet, Burning Bush, Countess of Warwick, Golden Chain, Golden Fleece, Kenilworth, Mrs. Lennox, Mrs. Lonfield, Mrs. Milford, Queen of Queens, Stella variegata. Purchasers' selection, 4s. per dozen, package free.
Lemon-scented VERBENAS, 4s. per dozen, package free.
DAHLIAS, good named varieties, 50 for 12s. 6d., package free.

H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

New and Beautiful Variegated Geraniums,

FOR BEDDING OR POT CULTURE.

J. ELCOMBE AND SON beg to offer the following Varieties, by the dozen or 100, prices on application:—Beauty of Oulton, Beauty of Calderdale, Crystal Palace Gem, L'Elegante, Mrs. Pollock, Neatness, Rev. Mr. Radclyffe, Sunset, Countess of Craven, Louisa Smith, Edwinia Fitzpatrick, Lady Cullum, Queen Victoria, Sophia Cusack, Sophie Dumaresque, Italia Unita, Compactum, Model, Her Majesty, Beauty of Ribbledale, Mrs. Dix, Egyptian Queen, Zelinda.

DESCRIPTIVE CATALOGUE of all the best and Newest Varieties of Variegated, Zonal, and Nosegay Geraniums, Fuchsias, Verbenas, &c., forwarded free on application.

Nursery and Seed Establishment, Romsey, Hants.

New Tricolor Pelargoniums for 1869.

JOHN AND CHARLES LEE intend to send out in June, 1869, the two following fine NEW TRICOLOR PELARGONIUMS, which they can warrant to be of strong constitution, rapid growth, and brilliant colours. Mrs. John Clutton was raised from seed in the autumn of 1867, and will consequently not be two years old when sent out.

MRS. JOHN CLUTTON is a Silver Tricolor of a very striking and pleasing character, the broad bright crimson zone being well defined, and the white edge clear and distinct, with a good deep green centre. The habit is dwarf and very free, and is all that can be desired in a Silver Tricolor.

The First Prize was awarded to Mrs. John Clutton at the Special Pelargonium Show at South Kensington in June last, and a First-class Certificate was awarded to it by the Floral Committee of the Royal Horticultural Society.

EDWARD MILNER.—A beautiful Golden Tricolor, of robust habit and free growth. The centre of the leaf is bright green; the zone is a bright flame colour on black, and the margin clear gold. All the colours are clean and well defined, and are retained till the decay of the leaves. The glow of colouring in Edward Milner gives the plant a rich and distinct character.

Price 15s. each. Four plants will be sent for three ordered.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

BEDDING PLANTS.—The following are offered at the prices annexed, turned out of pots, and securely packed—no charge for package:—

AGERATUM PRINCE ALFRED, the dwarfest and deepest blue out, 2s. per dozen.
ALTERNANTHERA PARONYCHOIDES and SPATHULATA, 2s. per dozen.
IRESINE HERBSTII and AUREO-RETICULATA, 1s. 6d. per doz.
PYRETHRUM PRINCE ARTHUR, the dwarfest and best double white out, 2s. per dozen.
PYRETHRUM GOLDEN FEATHER, 2s. per dozen.
LOBELIAS—Blue King, Queen of Whites, White Lady, and Little Gem, 1s. 6d. per dozen.
VIOLA CORNUTA ALBA, fine pure white, 2s. per dozen.
COLEUS VERSCHAFFELTII, GIBSONI, and other fine Bedding varieties, 2s. per dozen.
VERBENAS, the best varieties of 1868, 2s. per dozen.
FUCHSIAS, fine varieties of 1868, 4s. per dozen. [doz.
HELIOTROPIUMS and LANTANAS, for Bedding purposes, 2s. per
ZONAL GERANIUMS, of various shades of colour, for mixed beds, named, 3s. per dozen; unnamed, 2s. per dozen.

From S. W. KNIGHT, Florist, Battle, Sussex.

ROYAL BOTANIC SOCIETY.—SUMMER EXHIBITION of PLANTS, FLOWERS, and FRUIT, MAY 19 and 20.

LIST OF AWARDS.

MEDIUM GOLD MEDAL.

Mr. J. Ward, Gr. to G. F. Wilkins, Esq., Leyton, Essex, for 10 Stove and Greenhouse Plants.
Messrs. Glendinning & Son, Nurserymen, Chiswick, for 10 Stove and Greenhouse Plants.
Messrs. Glendinning & Son, for 8 Greenhouse Azaleas.
Mr. A. Wilkie, Gr., Oak Lodge, Kensington, for 8 Greenhouse Azaleas.
Mr. C. Turner, Nurseryman, Slough, for 10 Roses in pots.

GOLD MEDAL.

Mr. W. Chapman, Gr. to J. Spode, Esq., Hawkesyard Park, Rugeley, Staffordshire, for 10 Stove and Greenhouse Plants.
Mr. B. S. Williams, Nurseryman, Holloway, for 10 Stove and Greenhouse Plants.
Mr. J. Carr, Gr. to K. L. Hinds, Esq., Byfleet, Surrey, for 10 Foliage Plants.
Mr. E. Morse, Nurseryman, Epsom, for 8 Cape Heaths.
Mr. J. Ward, Gr., for 8 Cape Heaths.
Mr. B. S. Williams, Nurseryman, Holloway, for 8 Greenhouse Azaleas.
Mr. W. Chapman, Gr., for 8 Greenhouse Azaleas.
Mr. B. Peed, Gr. to Mrs. Tredwell, St. John's Lodge, Norwood, for 8 Exotic Orchids.
Messrs. J. Dobson & Son, Nurserymen, Isleworth, for 9 Pelargoniums.
Mr. J. Ward, Gr., for 9 Pelargoniums.
Mr. W. Paul, Nurserymen, Waltham Cross, for 10 Roses in pots.

LARGE SILVER-GILT MEDAL.

Mr. B. Peed, Gr., for 10 Stove and Greenhouse Plants.
Messrs. T. Jackson & Son, Nurserymen, Kingston, for 10 Stove and Greenhouse Plants.
Mr. D. Donald, Gr. to J. G. Barclay, Esq., Leyton, Essex, for 6 Stove and Greenhouse Plants.
Mr. D. Donald, for 10 Foliage Plants.
Messrs. T. Jackson & Son, for 8 Cape Heaths.
Mr. B. Peed, Gr., for 10 Cape Heaths.
Mr. C. Turner, for 8 Greenhouse Azaleas.
Mr. C. Wheeler, Gr. to Sir F. H. Goldsmid, Bart., Regent's Park, for 8 Greenhouse Azaleas.
Mr. G. Young, Gr. to W. H. Stone, Esq., Leigh Park, Havant, Hants, for 8 Exotic Orchids.
Mr. B. S. Williams, for 6 Exotic Orchids.
Mr. J. Hill, Gr. to A. Hanbury, Esq., Poles, Ware, Herts, for 6 Exotic Orchids.
Messrs. Paul & Son, Nurserymen, Cheshunt, for Miscellaneous Roses.
Mr. S. Wright, Gr. to C. C. Roberts, Esq., Avenue Road, for 12 Exotic Ferns.
Messrs. G. Glendinning, for 9 Pelargoniums.
Mr. D. Windsor, Gr. to J. Ravenhill, Esq., for 9 Pelargoniums.
Mr. T. Terry, Gr. to S. G. Fullen, Esq., Youngsbury, Ware, Herts, for 6 Roses in pots.

LARGE SILVER MEDAL.

Mr. D. Windsor, Gr., for 6 Fancy Pelargoniums.
Mr. A. Wilkie, Gr., for 10 Stove and Greenhouse Plants.
Mr. O. Rhodes, for 10 Stove and Greenhouse Plants.
Mr. J. Wheeler, Gr. to J. Phillpott, Esq., Stamford Hill, for 6 Stove and Greenhouse Plants.

SILVER-GILT MEDAL.

Mr. G. Wheeler, Gr., for 6 Stove and Greenhouse Plants.
Mr. A. Wilkie, Gr., for 10 Stove and Greenhouse Plants. (Open.)
Mr. G. Fairbairn, Gr., for 6 Stove and Greenhouse Plants, fine-foliage.
Mr. O. Rhodes, Nurseryman, for 8 Cape Heaths.
Mr. J. Wheeler, Gr., Stamford Hill, for 8 Cape Heaths. (Amateurs.)
Mr. O. Rhodes, Nurseryman, for 8 Greenhouse Azaleas.
Mr. W. Gill, Gr., Lambeth, for 8 Greenhouse Azaleas.
Mr. H. Eckford, Gr. to Earl of Radnor, for 8 Exotic Orchids.
Mr. W. Bull, for 6 Exotic Orchids.
Mr. J. Ward, Gr., for 6 Exotic Orchids.
Mr. Taylor, Gr. to J. Yates, Esq., for 12 Exotic Ferns.
Mr. Donald, Gr., for 6 Fancy Pelargoniums.
Mr. T. Godfrey, Gr., for 6 Roses.
Mr. Ware, for Group of Herbaceous Plants.
Messrs. Paul & Son, for Collection of Pot Roses.

SILVER MEDAL.

Mr. W. Kemp, Gr., for 6 Stove and Greenhouse Plants.
Mr. W. Taylor, Gr., for 6 Foliage Plants. (Open.)
Mr. A. Wright, Gr., for 6 Exotic Orchids.
Mr. A. Wilkie, Gr., for 12 Exotic Ferns.
Messrs. Dobson & Sons, for 6 Fancy Pelargoniums.
Mr. W. Paul, Nurseryman, for collection of Roses in pots.

SMALL SILVER MEDAL.

Mr. G. Wheeler, Gr., for 6 Stove and Greenhouse Plants.
Mr. W. Hooper, Vine Nurseries, Bath, for 36 Pansies.
Mr. E. F. Kimpton, for 24 Pansies.
Mr. T. Parsons, Gr., for collection of Lycopodiums.

BRONZE MEDAL.

Mr. J. James, Gr., for 24 Pansies.
Mr. E. Shenton, for 36 Pansies.

NEW PLANTS.

FIRST-CLASS CERTIFICATE.

Mr. W. Bull, for:—
Chamærops gracilis.
Ptychosperma elegans.
Geonoma zamorensis.
Geonoma imperialis.
Guzmannia fragrans.
Aspienium fernandeziana.
Ficus eburnea.
Vriesia Glaziouana.
Adiantum Seemanni.
Quercus concordia.
Martinezia Lindeni.
Coleus Duke of Edinburgh.
Coleus Her Majesty.
Coleus Princess Beatrice.

Mr. W. Bull, for:—
Coleus Princess Louise.
Coleus Princess Royal.
Coleus Queen Victoria.
Nothochlæna candida.
Cycas Armstrongii.
Encephalartos elegans.
Encephalartos grandis.
Bambusa argentea striata.
Livistonia rotundifolia.
Dæmonorops Lewisiana.
Geonoma pumila.
Ptychosperma nobilis.
Encholirion Jonghii.

Messrs. Veitch & Sons, for:—
Phormium Colensoi variegata.
P. tenax variegata Veitchii.
Davallia hemiptera.
Vriesia Glaziouana.
Pandanus gramineus.
Tillandsia Lindeni.
Nidularium splendens.
Nidularium pictum.

Messrs. Veitch & Sons, for:—
Dæmonorops melanochætes.
Martinezia Lindeniana.
Encholirion Jonghii.
Aspienium monte vidus.
Agave De Smetiana.
Agave Verschaffeltii.
Yucca De Smetiana.
Yucca applanta.
Dammara obtusa.

Mr. J. Carter, Forest Hill, for Echeveria metallica glauca.
Messrs. Veitch, for Sarracenia species.
Messrs. Veitch, for Lælia purpurata alba.
Mr. Charles Turner, Slough, for Coleus Princess Royal.
Mr. Charles Turner, for Azalea George Eyles.
Mr. B. S. Williams, for Cypripedium barbatum grandiflorum.
Mr. B. S. Williams, for Pteris serrulata corymbifera.
Mr. B. S. Williams, for Tillandsia Lindeni.
Messrs. E. G. Henderson, for Coleus Princess Teck.
Messrs. E. G. Henderson, for Calpergonium Howarth Ashton.
Messrs. E. G. Henderson, for Pelargonium Miss Beatrice.
Messrs. E. G. Henderson, for Pelargonium Beauty of Riverdale.
Messrs. James Carter & Co., for Pelargonium Marie Lemoine.
Mr. C. Turner, Slough, for Pelargonium Agrippa.
Mr. C. Turner, for Pelargonium Marmion.
Mr. C. Turner, for Pelargonium Heroine.
Mr. C. Turner, for Pelargonium Herald.
Messrs. Downie, Laird & Laing, for Coleus Albert Victor.
Messrs. Downie, Laird & Laing, for Coleus Baroness Rothschild.
Messrs. Downie, Laird & Laing, for Coleus Princess Beatrice.

SECOND-CLASS CERTIFICATES.

Mr. W. Bull, for Iresine acuminata.
Mr. W. Bull, for Podocarpus Neaki.
Mr. W. Bull, for Mesembryanthemum inclaudens nivalis.
Messrs. Veitch & Sons, for Iresine acuminata.
Messrs. Veitch & Sons, for Maranta Wallisii.
Messrs. Veitch & Sons, for Odontoglossum Richenheimii.
Mr. C. Turner, Slough, for Tropæolum ochroleucum.
Mr. C. Turner, for Azalea Reine Marie Henriette.
Mr. B. S. Williams, for Miltonia species.
Mr. B. S. Williams, for Oncidium species.

Echeveria metallica (Special Offer).

JAMES CARTER AND CO. beg to offer, in quantity, nice Seedling Plants of ECHEVERIA METALLICA, the singular and beautiful Shell Plant, very effective for Bedding purposes. Price per dozen, 6s.; per 100, 12s.; per 1000, £4—well-established plants, in small pots, with four to six leaves each. Larger, at usual Catalogue prices.

JAMES CARTER & Co., Seed Merchants and Nurserymen, 237 and 238, High Holborn, W.C.; and Crystal Palace Nurseries, Forest Hill, S.E.

New and Choice Stove Plants and Ferns.

JOHN H. LEY, NURSERYMAN, Croydon, S., offers the following at low rates, for cash:—

Alocasia Jenningsii	3s. 6d.	Eranthemum Andersoni	3s. 6d.
,, macrorhiza variegata	1 6	Sanchezia nobilis variegata	2 6
,, Lowii	2 6	Fittonia argyroneura	1 6
Fricdreichia marmorata	2 6	Lomaria gibba	1 6
Didymochlæna truncatula	1 6	Cheilanthes elegans	1 6

Or one of each, hamper included, for Post-office order for 18s.

Verbenas, 5s. per 100; 40s. per 1000.

WILLIAM BADMAN has to offer as under:—

VERBENAS, Purple, White, Scarlet, Rose, Crimson, &c.; strong plants from store pots, 5s. per 100; 40s. per 1000.

LOBELIA SPECIOSA (true) from cuttings, 5s. p. 100; 40s. p. 1000.

PELARGONIUM CRYSTAL PALACE GEM, the finest golden leaf in cultivation, in small pots, 4s. per doz. 6 Finest Double Geraniums, including MADAME LEMOINE, 10s. Package included. Terms cash.

Cemetery Nursery, Gravesend.

Chrysanthemums.

ADAM FORSYTH begs to inform the Trade and the Public that he is now sending out the following NEW CHRYSANTHEMUMS, viz.:—

Blonde Beauty	Mr. Evans
Mr. Geo. Haskin	Miss Mary Morgan

He is confident they will give as great satisfaction as any others he has hitherto introduced. For description and price, see CATALOGUE, which contains also a Practical Treatise on the Cultivation of this noble Flower. Forwarded on application for one stamp.

Brunswick Nursery, Stoke Newington, London, N.

Now Ready.

HENRY WALTON begs to inform his Friends and the Public that his NEW SPRING CATALOGUE is now ready, containing all the newest and most select Pelargoniums, Tricolor, Gold and Bronze; Show and Fancy, Ivy-leaved and Double Geraniums; Fuchsias, Petunias, Verbenas, Dahlias, Show and Fancy; bedding and other New and Rare Plants, &c.

Edge End, Marsden, near Burnley, Lancashire.

Spring Catalogue of New Plants for 1869.

JOHN AND CHARLES LEE'S CATALOGUE of SOFT-WOODED PLANTS is just published, and may be had post free on application. It contains accurate descriptions and prices of all the New Double Pelargoniums for 1869, New Zonals, New Tricolors, New Nosegays, New Gloxinias, New Coleus, New Chrysanthemums, and New Bedding Plants.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, W.

July 19th to 24th, 1869.

THE ROYAL HORTICULTURAL SOCIETY'S GRAND EXHIBITION at MANCHESTER, in connection with the SHOW of the ROYAL AGRICULTURAL SOCIETY.

Amongst various Special Prizes,

A SILVER CUP (copy of the famous Cellini Cup), **VALUE £21** will be offered by the Proprietors of the GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE for the best COLLECTION of 5 FRUITS and 8 VEGETABLES, to be made up as follows.

In awarding the Prize, Marks will be adjudged according to the following scale, for the several subjects produced.

	Good.	Medium.	Inferior.
Grapes	6 marks	3 marks	1 mark
Melons (2 fruits)	6 ,,	3 ,,	1 ,,
Strawberries	3 ,,	2 ,,	1 ,,
Gooseberries	3 ,,	2 ,,	1 ,,
Currants	3 ,,	2 ,,	1 ,,
Cherries	3 ,,	2 ,,	1 ,,
Raspberries	3 ,,	2 ,,	1 ,,
Apples of 1868	6 ,,	3 ,,	1 ,,
(Any 5 of the above 8 subjects).			
Peas	3 ,,	2 ,,	1 ,,
French Beans	3 ,,	2 ,,	1 ,,
Broad Beans	3 ,,	2 ,,	1 ,,
Cauliflowers	3 ,,	2 ,,	1 ,,
Cucumbers (brace)	3 ,,	2 ,,	1 ,,
Summer Cabbages	3 ,,	2 ,,	1 ,,
Early Carrots	3 ,,	2 ,,	1 ,,
Turnips	3 ,,	2 ,,	1 ,,
Globe Artichokes	3 ,,	2 ,,	1 ,,
Onions	3 ,,	2 ,,	1 ,,
Spinach	3 ,,	2 ,,	1 ,,
Rhubarb	3 ,,	2 ,,	1 ,,
Potatos	3 ,,	2 ,,	1 ,,
Mixed Salading	3 ,,	2 ,,	1 ,,
(Any 8 of the above 14 subjects).			

This Prize is open for Competition amongst Amateurs and Gardeners of private families. The Fruit and Vegetables produced must be of *the Exhibitor's own growing;* and any article otherwise obtained will disqualify the Collection. It is expected that the several articles will be neatly and effectively displayed.

The Gardeners' Chronicle.

SATURDAY, MAY 22, 1869.

MEETING FOR THE ENSUING WEEK.

MONDAY, May 24—Linnean (Anniversary) .. .. .. 3 P.M.

PRUSSIA has lent all her help to make the ST. PETERSBURG INTERNATIONAL HORTICULTURAL EXHIBITION and Botanical Congress a success. She joined hands on this occasion with the East of Europe to welcome the West. At Berlin the Professors and scientific men received with *empressement* the Belgian, French, English, and other botanists and horticulturists who passed in numbers through the city on their way to the capital of the CZAR. Professor ALEXANDER BRAUN was only convalescent from an attack of illness which had threatened to be serious, and therefore, although his reception of the visitors was not the less cordial, the more active part of the self-imposed duty of entertaining them fell on Professor KARL KOCH. The objects of most interest to the visitors were of course those connected with their pursuits, and the Botanic Garden, the private garden and Orchid-houses of M. BORSIG, whose name is well-known in connection with that of our own STEPHENSON as a maker of locomotives, &c., and the various gardens and palaces at Potsdam,

naturally occupied the first place. The latter seem to have been, on the whole, most appreciated. A large company of botanical and horticultural celebrities had, under the guidance of Prof. Koch, the privilege of seeing more than is usually opened to the public, and a more instructive contrast of the different schools of landscape gardening is nowhere to be met with.

The old gardens of Sans Souci, so far as they remain untouched (for some touch of Nature has been latterly here and there allowed to enter), are, according to our English taste, an admirable instance of "the frightful example" to be shunned and condemned. Penetrated to their core with the spirit of the French school of gardening, we here see how far Nature can be banished from a garden, and rules and conventionalities put in her place—the stiff formalities, the trifling finicalities, the bare rawness are to be seen in full blow to the present day, just as Frederick the Great left them, and one almost involuntarily expects to come upon an ancient courtier in full fig, posturing and grimacing like a French dancing-master, amidst the great Orange trees which were just being brought out of their houses under the influence of the delightful weather. What a contrast to all this is the treatment of the pleasure-grounds of Prince Charles, at Glienecke. There all is Nature, or at least seems to be so. It is Nature guided by Art. In saying this we allude only to the horticultural and arboricultural part of the grounds. There are various grottoes and temples decorated with fragments of antique buildings or statues, and the house itself, a delicious, modest, one-storeyed building, has many such fragments, which had been picked up by Prince Charles himself in his travels, built into its walls. We say nothing of this—some people like it, we don't—it is debateable ground, so are some monstrous flower-pots of the Chinese fashion, and fanciful seats and edgings of crockery. Our honoured Rev. M. J. Berkeley might, if so disposed, repose himself upon a gigantic Amanita muscorum, coloured after Nature, or puzzle even himself in determining the species of some new form of Fungus, like a planted lady's parasol. These are not what we allude to, it is the treatment of the woods and grounds of which we speak. That desideratum on the Continent—good turf—is made to grow by constant watering; the trees are luxuriant, of fine growth, and of the most beautiful kinds, and disposed in the most charming combinations; and every here and there a view is opened upon choice portions of the surrounding scenery. As some of our readers may know, most of these Royal palaces at Potsdam are situated on the banks or within sight of one or other of the seven lovely lakes which are there nestled amongst wooded hills. The palace of Prince Charles is on the bank of one of these, and the great charm of his grounds is the excellent cunning with which different views of the loveliest portions of these lakes and wooded heights are revealed to the spectator. It is impossible to convey by words any idea of the charm of these little landscapes framed in verdure. Suddenly out of a thick green screen a beam of brightness bursts upon the spectator, the bright blue sky and blue water flashing on the eye like the central object of a fine picture; and generally a château or other *point de vue* gives it interest and vitality. These charming pictures have obviously all been formed with consummate art, and, as we are informed, it is the Prince himself who has done it.

The commencement was indeed the work of one to whom—at least in Germany—is willingly conceded the title of first living landscape gardener of the day, Prince Puckler Muskau—the Prince of a small principality near Berlin, but a king in all that concerns art and taste. His mode was not that too often followed in the present day. It seems to be very generally supposed now that one can send to a landscape gardener for a plan for a place, as one might to a shoemaker for a pair of boots. "Fine places made to order with accuracy and despatch." But fine places cannot be made to order any more than they can be made in a day. You must first get your materials—trees and shrubs—together, and when they are well grown and established, bring them into shape.

The perfection of landscape gardening is opening up a view, not planting and leaving space for one. Prince Charles, when after long deliberation he had fixed where his picture should be, did not frame it by cutting out branches or trees, but tying ropes to branches drew them in the way he desired them to grow, and kept them there until in course of years they grew in the required direction, so that the setting of the gem was got into shape without any unseemly or abrupt amputations. In like manner Prince Puckler Muskau, when he planted, did not trust to paper plans or designs perfected before beginning, but would go out by moonlight and mark where the shadow of the existing trees reached, and their effect; and from the hints so received formed his plans, thrust in his staff at the place at the time, and arranged his plantations accordingly.

The gardens at Glienecke are a perfect study, and it is worth the landscape gardeners' while to travel long and far to visit them, especially if they have the advantage of the company of the intelligent garden superintendent, Mr. Giesler, a pupil of the Prince Puckler Muskau himself.

Of Mr. Borsig's garden, perhaps the most unusual feature is an iron Palm-house, constructed on the telescopic principle. It has pillars which can be drawn out and in, like the tube of a telescope, so that as the trees within grow, another stage can be added to it by pushing out joints from its pillars, and fitting windows to them. His Orchid-houses are full of rare plants, coming nearer those of Mr. Sigismund Rucker, at Wandsworth, for health and vigour, than any other we know of, although not for size.

In the Botanic Gardens, the collection of forest trees—the Palm-house and its magnificent inmates—an extraordinary collection of species of Marsileaceæ (one of the subjects to which Professor Braun has paid especial attention, and which—both the subject and the plants—he has cultivated with rare success), and more than one house full of the remarkable Sempervivums and Euphorbiaceæ of the Atlantic islands, are among the subjects which come uppermost to our minds. Last, but not least, we should like to have dwelt upon the instruction communicated to their visitors by the Berlin Professors and men of science; but this is neither the place for it, nor would it perhaps be becoming in us to do so.

—— The Prize of 5*l.* for an essay on the Variegated Zonal Pelargonium, to form a basis for discussion at a meeting of exhibitors and others, to be held this day, the offer of which prize was suggested in our pages some time since (pp. 391, 475) by Mr. Cannell, has been awarded to Mr. P. Grieve, of Culford, the author of an excellent treatise on this family of ornamental plants, of which indeed he may be designated the founder. We understand that seven essays were sent in, in response to the invitation to compete, and that, after the selection of the above, a second paper, by Mr. Jonathan Smith, of the Jersey National School, was considered sufficiently meritorious to be recommended for a second prize of 2*l.* The adjudicators were Mr. Morris, of Deptford; Mr. Andrew Henderson, of St. John's Wood; and Mr. F. T. Smith, of Dulwich, assisted by the Rev. J. Dix.

—— We lately recorded several instances showing the apparent Influence of the Scion on the Stock in the case of Abutilon. It was found by more than one cultivator that when the variegated Abutilon Thompsoni was grafted on a green-leaved stock of some other Abutilon, it often happened that shoots bearing variegated leaves were protruded from the stock. It was, of course, supposed that this was a case showing the influence of scion on stock, but it was pointed out that some Abutilons had a habit of producing shoots with variegated foliage, independently of any grafting. This is true; but what shall we say to the following illustration, sent us by M. Van Houtte. Like others, he found that when Abutilon Thompsoni was grafted, the stock produced variegated leaves—even more beautifully mottled than those of the scion; but when the graft was separated from the stock, the leaves on the latter became wholly green. In this case, then, it seems almost certain that the production of variegated leaves from the stock was in some way due to the scion, for when Harlequin disappeared from the graft Motley vacated the stock.

—— We are glad to find that at an important meeting of the Seed Trade held at Dublin in the Curator's office, Royal Dublin Society, on Tuesday last, it was decided to support the Bill for the prevention of the Adulteration of Seeds. The co-operation of members of Parliament was solicited, and various resolutions were passed, all tending to facilitate the progress of the Bill. Most of the Dublin firms were represented on the occasion. We may say that the second reading of the Bill is fixed for the 16th of June next. It behoves all who have the welfare of the customer and the honour of the dealer at heart, to support this attempt to do away with a practice universally condemned.

—— Many inquiries reach us as to Myosotis dissitiflora, the best of all the Forget-me-Nots for spring decoration. In many gardens it is known as montana or alpestris, from both of which it differs. For a full history of the plant and its differences from nearly allied forms, we refer to Mr. Baker's article in the *Gardeners' Chronicle* of 1868, p. 600. Like other Forget-me-Nots it is, unfortunately, subject to the attacks of mildew, which spoil its beauty, and sometimes destroy it.

—— Once more we are compelled to warn our readers against a Gardeners' and Agricultural Agent who preys on unwary advertisers. We have in our possession many letters from the same person, but under many names. Here are a few of the names assumed—Drew, Sugden, Bate, Ware, Fry. The residences of the gentleman are as numerous as the names he assumes. On the other hand the wording of the letter—the unfortunate lady at Windsor who is never suited with a gardener, the terms offered, &c., are singularly alike in all cases.

New Plants.

Dendrobium Jamesianum, *sp. n.*

(Nigro-hirsuta) grandiflorum, affine Dendrobio infundibulo, Lindl; sepalis triangulis, lateralibus in mentum extinctoriiforme extensis, ovario pedicellato brevius; petalis cuneato-ovatis obtuse acutis; labello cuneato flabellato trifido, laciniis lateralibus obtusangulis, antice minute denticulatis, venis omnibus antice saccharatis, lacinia media quadrata retusa antice dilatata, vix emarginata cum apiculo, toto limbo denticulato, disco inter lacinias laterales incrassato in basi laciniæ anticæ in juga quina exeunte; columna basi ampliata, apice utrinque argute auritæ.

We have at hand a sulcate stiff stem, two spans high. The flower is nearly as large as that of Dendrobium formosum; the sepals lanceolate-triangular, the lateral ones extended in an extinguisher-shaped spur. The petals are very large, oblong ovate, somewhat wavy. The lip is cuneate, trifid, the side laciniæ obtuse-angled, with little crenulations, while the surface of the side laciniæ is covered with little asperities. It is snow-white, and the lip, except the anterior lacinia, is of a cinnabar-red colour. The asperities of the side laciniæ are quite peculiar to our plant, distinguishing it at once from all the neighbouring species.

This is a glorious new introduction of Messrs. James Veitch & Sons, sent from Burmah by the indefatigable Colonel Benson. It is a grand novelty, on account of its very large flowers, of the purest colours.

It has been our misfortune to have to cancel the Dendrobium Veitchianum, dedicated by the late Dr. Lindley to Mr. James Veitch, and to reduce it to the Dendrobium macrophyllum, of A. Richard. We did, indeed, our best, when naming in honour of Mr. John Gould Veitch, a Dendrobium Johannis, and a Dendrobium Gouldii; yet the spirits of the chieftain of the Veitchian family may not be quite reconciled to the loss of the tiger-flowered Dendrobe with the hispid ovaries, and the shining leaves. *Corrigons la fortune!* Let us try to gratify the feelings of our highly valued correspondent by the dedication to him, under the above name, of this splendid novelty, certainly a dangerous rival of even the best Phalænopsids. *H. G. Rchb. fil.*

Cypripedium pardinum, *sp. n.*

(Acaulia tesselifolia) sepalo dorsali triangulo lato, sepalo inferiori angustiori labellum non æquanti; petalis oblongo-ligulatis acutis ciliatis, verrucis supra totam superficiem extensis; labelli laciniis posticis inflexis verrucosis, sacco superne utrinque triangulo; staminodio triangulo obtusangulo, postice emarginato, antice trilobo, lobis lateralibus obtusangulis cum dente medio (lobo medio).

This is a very beautiful Cypripedium, ranking amongst those of the second order. The dorsal sepal is white, with green nerves, while the under one is of same colour, but shorter. The petals are rich yellow, with a copper-coloured hue towards the apex, ciliate at the edge, with small prominent dark purplish brown warts. The lip is saccate, with inflexed triangular apical warts on the side laciniæ, yellowish, with green veins. Staminode obtusangled triangular emarginate, trilobed at the anterior border, the side lobes rounded, the middle lobe triangular minute.

It comes near the old Cypripedium venustum, but the staminode, the warts of the side laciniæ of the lip, the warts over the whole of the petals, and the colours, as well as the marks of the leaves, are widely different.

This nice addition was received from the Royal Kew Gardens by the Messrs. Veitch & Sons, with whom we saw it flowering in April last. *H. G. Rchb. fil.*

ABUSES IN HORTICULTURE.

A short time since a meeting was held to investigate certain alleged abuses in Horticulture. The Commissioners appointed (Mr. Botanist and Mr. Florist) were both present. Having taken their seats, the former, turning to those who had come prepared to give information, said: We hope the gentlemen who have favoured us with their presence to-day will confine themselves to relating abuses which they are prepared to substantiate, and will not take up the time of the meeting by adverting to irrelevant matters. After some other preliminary matters were disposed of, Mr. Acacia armata stepped forward (his very slender legs, and his enormous height, combined with scarcity of clothing, causing some little merriment), and feebly said—I am not at all surprised at the reception I have received; my appearance for many years has called forth—from those who know what I ought to be—more pity than I have received here. The Commissioners: Where do you live?—Mr. A.: I am an inhabitant of the big glass-house known as "The Conservatory," as my appearance shows that in my case it is a misnomer. The C.: How do you account for being so badly clothed?—Mr. A.: It is all through the "working out" of another misapplied word, viz., "effect;" there are some folks who appear to think a glass roof will grow anything, no matter where situated. Here Mr. A. paused, to recover breath, after which he continued: I was about to say, the real use of a house, the health of its

inmates, ought to be the first consideration in the "effect." Erecting glass-houses for the mere pleasure of looking at them externally, may do very well for the contractor, for the artist, and the admirers of "the noble structure," but, gentlemen, we want food, light, air—pure air, and all of these essentials in a sufficient degree all the year round, not a suffocating atmosphere in summer caused by extreme heat, or a cold humid one in winter. But what, gentlemen, is the use of light coming in from 15 to 20 feet above us, except to draw us out of ourselves in the attempt to get near it. We want light at our sides and at the lower parts, as well as at the top. Our case is often analogous to the Unions erected for the use of subjects of your kingdom, which are fine looking things outside, but—— The Commissioners here interposed, and reminded the speaker that he was getting out of order.—Mr. A.: I beg pardon. Of what use are the carved curbstones without sufficient soil inside them? the fantastical flower-stands, if nothing will grow in them? The C.: But where is the gardener in all this?—Mr. A.: He is at his wits' end, sirs. The C.: Do you ever flower?—Mr. A.: A little every year; but no one besides myself knows anything about it. How can I?—for, what with walls and trees, I have no sun except at the roof, and there my beauty is out of sight; and all this to have "effect." The C.: What companions have you?—Mr. A.: There are very few of my original companions left. I could, if strength allowed me, go into some melancholy details respecting their miserable existence—how they bitterly complained against shade, walls, trees, tall plants, creepers, architects, all in turn, but to no purpose; one after another they dwindled away, and died; but, gentlemen, I must content myself with adding that we who are left are past recovery, at least most of us, and my last will and testament shall be to call my house, what it has long been, a house of incurables. The Commissioners having thanked Mr. A., the latter sat down, almost exhausted. There was at this point a murmur apparently coming from a group of subjects of the "tendriled order;" after a few minutes, Mr. Epacris miniata was assisted forward: he, being a complete cripple, was accommodated with a seat, and when seated he said—I hope, gentlemen, you will bear with me if I cannot so fluently answer your questions as may be desirable; I have made a great effort to be present today. The C.: Where do you live?—Mr. E.: I have lived some time in a house known as a greenhouse. The C.: What has brought about your affliction?—Mr. E.: I owe it chiefly to badly constructed stages or stands, and want of room, as you see I am paralysed all the way up one side. Those miserable things called stages, which represent more than anything else a pair of steps, are altogether unadapted for the purpose of placing plants upon; we are so over one another and in one another for six months in the year, that we have no breathing room or light on one side. The C.: But you should move about?—Mr. E.: It is impossible; we are so cramped. At this season of the year too we are always overstocked with casuals, and to make room for them we are compelled to keep still, until our constitution is gone; if justice be done to one it is at the expense of another, but now it is too late, for we are all one-sided. A lean-to house should never be called a greenhouse—at least, never ought to be used for plant growing. The C.: What would you recommend?—Mr. E.: A span-roof, with flat stands, and no Vines or creepers to interfere. The C.: Have you heard any grievances other than those you have told us?—Mr. E.: O, yes; we have in company subjects from all climes: some complain of cold, others of heat—some of damp, others of drought. The C.: Have you any complaint against shade?—Mr. E.: Yes; and besides our shading one another, the Vine shades us, and, what is equally bad, drops on us any vermin he may have about him. Mr. E. having suddenly fallen down was assisted to the door. When the excitement had passed away, Mr. Vine bent forward and said: Gentlemen, I would merely suggest—to make it agreeable to all parties concerned—that there should be a plant-house for plants, and a Vine-house for Vines. I have no desire to interfere with any of my fellow subjects. The C.: Have you any grievances to complain of?—Mr. V.: It would be premature on my part to make complaints in the face of the efforts that are now being put forth on my behalf, still (putting on a smile) I would warn any one against practising such a crude notion as that of cutting away one's toes to fit the shoe. A better way surely would be to make the foot comfortable—to make the shoe fit the toes. (Laughter.) If I deserve a new shoe, spare me from such mutilation. I would also just say, in reference to the many tastes lately advocated in the dressing of my head—do not encourage such a break as to interfere with my feeding or my breathing organs, nor yet entirely divest me of my clothing until Nature comes to your assistance. I would say, learn of her. One word more: do not for a moment believe that I can produce fruit which will satisfy persons of the John Bull family, through the eyes only. If you do—from my experience of them—you will be miserably disappointed. (Laughter.)

Mr. Cucumber then coolly stepped forward, and with a hoarse voice, said: Gentlemen, I would just add to what Mr. Vine has said—a Cucumber-house for Cucumbers. A Voice: And a Heath-house for Heaths. The C.: If that gentleman will wait, we shall be glad to hear him presently: to Mr. C.: Have you any more information to give us?—Mr. C.: I wish to protest against my being put in such out-of-the-way places. The C.: Where do you live?—Mr. C.: They call it a forcing-house: it is span-roofed, having a large surface exposed to the cold, and the wind blows through the house which makes me shiver, the consequence of which in winter is certain death. The C.: But surely a better house could be found?—Mr. C.: There is no other house; one style of house must do for everything. The C.: But is there no gardener?—Mr. C.: We have only had one, and of course he would not stay to do impossibilities. Besides, I am put in company with a lot of vagabonds who are infested with insects of every description our race is heir to. The C.: Can you suggest any improvement?—Mr. C.: At this season of the year I should like a little low lean-to pit, with proper apparatus for heating the air, &c., and to have it all to myself. The C.: Thank you. Is there any other gentlemen who wish to say anything. Mr. Orchid stepped forward and said: I desire to offer my thanks to those gentlemen who have so kindly taken up our cause in days past; but as their efforts have not been heeded as they should have been in some quarters, I beg to say, by way of reviving the question, that we hope those who care about our well-doing will study our natural climate. The C.: We cannot undertake to convey thanks to any one.—Mr. O.: I will then merely add, that I am surprised at the dulness of the parties who profess to like us, in not understanding and appreciating the advice given; and for fear I may get into that state of feeling which I recommend as the character of our houses, I would say, endeavour to understand three terms—warm, warmer, warmest. The C.: It is quite evident you want a cooler atmosphere than this, Mr. O.—At that rebuke, Mr. O. became so unmanageable, that the Commissioners' advice was at once acted upon, and he was put out. The Commissioners again asked if any other gentleman present had anything to say, and there being no response, the meeting was adjourned. It afterwards transpired there were several representatives from the herbaceous subjects present who, through some delay or misunderstanding, had not arrived until late. This is not the first time they have found themselves "behind." From the conversation which ensued, it appeared that they had a heavy load of grievances to relate. "What!" said they, "are we no better than ground glass, or pounded bricks? Are we to be ousted by the culinary tribe?" Altogether they appeared to be quite enraged at the treatment they receive, loudly denouncing "those dots of gaudy colour," "painted earth," and "monster masses of colour without relief." The attendance was what might have been expected on such an interesting occasion, and some surprise was expressed at the difficulties needlessly thrown in the way of horticulture. *Your Reporter.*

BEDDING PLANTS GROWN AT CHISWICK: 1868.

(*Concluded from p.* 500.)

Pelargoniums.

§ IV. Leaves Angulate (P. peltatum, lateripes, &c.)

L'Elégante. A variegated ivy-leaved variety, likely to form a pretty edging-plant. 1st class in 1868.

Fuchsias.

These were grown as moderate-sized pot-plants, such as would be suitable for decorative purposes. They succeeded tolerably well in the earlier part of the summer, when the following notes were made; but, later in the season, were, like most other plants, affected by the excessive heat:—

Constellation. Of erect habit and vigorous growth, with Convolvulus-like flowers, with red sepals and pale violet, very much expanded, finely shaped corolla. 1st class in 1868.

Enoch Arden. Of free and elegant habit, with erect, refracted, red sepals, and very widely expanded deep blue corolla. 1st class in 1868.

L'Elisir d'Amore. Of moderately free habit; flowers large, with reflexed red sepals, and large, moderately expanded, purple corolla, marked with red stripes. 1st class in 1868.

Light Heart. Of elegant habit, with neatly shaped flowers; the reflexed sepals and short tube bright coral red, and the slightly expanded corolla very dark purple. 1st class in 1868.

Father Ignatius. Of dwarf compact habit, with broad, reflexed, red sepals, and a mottled blue somewhat spreading corolla. 2d class in 1868.

Roderick Dhu. Of dwarf branching habit, with short, broad, red, closely reflexing sepals, and a very much expanded violet corolla; free. 2d class in 1868.

Vainqueur de Puebla. Of fine habit, with rosy-scarlet reflexed sepals and double white corolla; a remarkably beautiful variety for vases and decorative purposes. 2d class in 1868.

Bland's Floribunda. Of small neat habit, in the style of White Lady, with reflexed rosy-scarlet sepals and moderately expanded white corolla; a free bloomer, and well adapted for beds or edgings. Commended.

Promising:—Comet, Fair Oriana, General Lee, Lady Heytesbury, Lord Elcho, Mrs. Marshall, Mons. Bruant, Perfect Cure, Reine Claude.

Passed:—Black Prince, Blue Beauty, Caledonian, Cloth of Gold, Count Cavour, Diadem, Julia, La Favorita, Lucy Mills, Majestic, Profusion, Rose of Denmark, Schiller, Sunshine, Universal, White Lady.

Petunias.

The following were all more or less of a free-flowering and showy character, the certificated sorts especially so:—

Elisa Fantasier. Double-flowered, dwarf, and of compact branched habit; flowers bright rose, becoming mottled with white. 1st class in 1868.

Fanty. Single-flowered and of fine shape, rose-colour, deeper towards the centre, and beautifully veined with dark red. 1st class in 1868.

La Coquette. Double-flowered and of excellent habit; flowers fine, rose-coloured, pencilled with violet and blotched with white. 1st class in 1868.

Albert Victor. Double-flowered and of good dwarf habit; flowers rather thin, but of a bright rose-purple.

Boule de Neige. Double-flowered, white, loose.

Favourite. Single-flowered, rich rosy purple.

Fresco. Single-flowered, with irregular rosy edge.

Le Nigre. Single-flowered, deep rosy-purple.

Louise Alexandre. Single-flowered, large pencilled lilac.

Madame Thibaut. Double-flowered; bright rose, mottled with white.

Marie Walden. Double-flowered, purple.

Marthe de Golbeny. Double-flowered, white, with dark purple stripes.

Striped Beauty. Double-flowered, purple, blotched with white.

Bedding Lobelias.

Of these useful little plants 14 varieties were cultivated, and the following were awarded First-class Certificates:—

Beauty of Ravensbourne. Free flowering, of a rosy-lilac colour; useful for its distinctness.

Little Gem. Free-flowering and dwarf; blue, with white eye.

Trentham Blue. Dwarf-habited; flower of a light blue; good.

Verbenas.

From amongst the Verbenas grown, and which generally, owing to the extreme heat and drought, flowered very indifferently, the following stood out so boldly, and with such attractive features, as to secure in each case a First-class Certificate. They were:—

James Birbeck. A crimson-flowered variety, remarkable for its freely developed blossoms, and especially for continuing in an effective condition throughout the season.

John Watson. A very free-flowering and good sort, the flowers of the colour of St. Margaret's, crimson, with a bluish tint in the centre.

Miss Winsett. A free bloomer; violet-blue with a white eye; stands both sun and rain better than most varieties of this colour.

Annuals.

Asters.—Of these beautiful autumnal flowers, Boltze's, Dwarf Chrysanthemum-flowered, New Dwarf French, and Newest Victoria were the most desirable; there were various colours of each:—

Boltze's New Bouquet. 4 inches to 6 inches high; beautiful dwarf, free-flowering varieties.

Dwarf Chrysanthemum-flowered. Dwarf and good.

New Dwarf French. Of dwarf growth, with small flower-heads and much-recurved florets; a very pretty type of Aster.

Newest Victoria. Generally very perfect flowers; the best formed in the whole series, and some of them models of symmetry and beauty.

Gilia laciniata. A dwarf, close-habited, Mexican species, producing a profusion of dark blue flowers in heads, in the way of those of G. capitata. 1st class in 1868.

Sweet Pea, Black Invincible. A decided improvement on the old Purple Sweet Pea, with large bold flowers, having a dark maroon standard, and deep purple wings. 1st class in 1868.

Sweet Pea, Scarlet Invincible. A most attractive variety, with abundant large showy flowers of a bright carmine colour, much finer than in the common Scarlet Sweet Pea. 1st class in 1868.

Tropæolum King of Tom Thumbs. A dark-foliaged variety, with very rich deep scarlet flowers. 1st class in 1868.

Tropæolum Tom Thumb cæruleum roseum. A free-flowering, dwarf, tufted growing variety, with very distinct-looking flowers, of a pretty rose-colour. 1st class in 1868.

POTATOS.

I was intending to write a few lines on Potatos, when Mr. Puttock's troubles met my eye. I hear that the old Ashleaf does not come up well, but forms tubers without haulm. Such Potatos are worthless. I have dug up one diseased Potato, a Fluke, with two young tubers attached, minus haulm. If the old Ashleaf, and some of the family, are planted before the scion starts; or, if the scion is broken off, it will form tubers without haulm. It is best to plant Potatos given to this failing, with a stick, after the eyes have started. Walnut-leaved sorts, such as the Birmingham Prizetaker, if planted in stiff soil before the eyes are started, will neither come up nor form tubers. Land cannot be made too light for Potatos; and, if it is in good condition, Potatos want no rain (except to cool the earth in very torrid weather) till just before digging-time, when a cooling shower will do them good, and prevent their being close and hot. As the ground here was very wet when I planted mine—beginning January 16, and ending February 11—I planted mainly with a stick. They all came up famously, and were earthed up by the time other people began to plant. Those planted in the usual way will be regular, but they did not come up so synchronously. The reason I planted so early was, because I object to breaking off the scions. If you cut a much-grown-out Potato in half you will find it has exhausted the matter of the Potato from the point of union forming a circle in the centre of the Potato. If you break off the scion, the only unexhausted portion of the tuber will be about an eighth of an inch round the whole of the outside. It is impossible to suppose that such treatment can be conducive to a good crop. Those who dug their super-tubers before they were ripe, and allowed them to grow out, so as to make it needful to break off the scion, will be very likely to find the same troubles as Mr. Puttock complains of. Pitted Potatos, I hear, have grown out a yard in length! To keep Potatos from growing out, I have them spread in thin layers, and keep them turned often. If you wish your Potatos to ripen early cut a piece off every whole "set." It will make some days difference in the ripening. Mind this—early ripening and late-keeping sorts are the ones to have. Yorkshire Hero, Taylor's Yorkshire Hybrid, and the Early Uprights are such, and first-rate. The first is an early ripening Lapstone, the second is a late keeping Ashleaf, and the third is an early ripening Fluke, but of better quality, and a sure cropper. It has never been "sent out," but was raised by a farmer from the Silver Skin, which was derived from the Fluke. They are, from their early ripening, late keeping, good quality, and other attributes, the three best Potatos in England, so far as my experience goes. The Royal Ashleaf is very valuable, and I expect to have young Potatos from it in a fortnight. I am eating Hero and Taylor's Hybrid, both perfectly good. The American Potatos, kindly sent by the Editors, are growing famously, viz., the Early Rose, Climax, Breese's Prolific, and his No. 4. The foliage of them all is broad and fine. *W. F. Radclyffe.*

INDIAN MAIZE.

As a good deal of interest seems to be exhibited regarding the use of Indian Corn, or Maize, as a vegetable for table use, I send over three good varieties for you to hand to any painstaking friend desirous of making a trial of them. I also send an ear of field corn, of the variety called "Early Dutton," which although of not very large size, is valuable as coming to maturity in a short time, and as being productive and of good quality. You will notice that the Maize used for table, or "Sweet Corn," as we call it, differs in appearance from the field corn—the grains being shrivelled instead of plump.

The variety marked "Extra Early Dwarf Sugar

Corn," is very tender and sweet; that called "Stowell's Evergreen Sweet;" is intermediate as to earliness, and is highly esteemed with us for general good qualities. "Trimble's Sugar Corn" I have not yet tried; but it is said to be very good.

In this country the dwarfer kinds of Maize are planted in hills about 3 feet apart; but with you they had better be put not less than 4 feet, in order to take advantage of all the heat of the sun. The soil should be light and well-drained. A good coat of manure must be dug in, and the "hills" formed by digging holes 8 or 10 inches deep and a foot square, which holes are to be filled nearly to the level of the ground with rank strawy manure from the horse-stable. Over the manure should be laid an inch or two of soil, and then five or six grains of corn (Maize) to each "hill," all covered with an inch or more of soil lightly pressed down. This planting in the open ground should not be made before the end of May, as a vigorous start cannot be expected unless in well-warmed soil. When the plants are 6 or 8 inches high, it would be well to leave only three in a hill. About this time, too, stir the earth slightly around them, drawing a little up to the plants; and this may be done to advantage once or twice again, until the corn stands 2 or 3 feet high.

Indian Corn is fit for the table as soon as the grains, although soft, are all plump and well filled up in the ear; and when, from the size of the ear, there is a suspicion that this is the case, an examination may be made by slightly pulling open the husk at the end. Half an hour's hard boiling will be quite enough to cook the corn for table use; and it should be served in the ear, and not cut off the cob. Some butter and salt, and, for those who like it, a little pepper, will be all the addition necessary to make a remarkably good dish. The sweetest part of the grains lies nearest the cob, and for this reason most persons bite the grains off the cob; but the ultra-refined, or those who fear to injure a delicate moustache, may run a sharp knife from one end of the ear to the other, and so cut off the greater part of the grains, and eat them like Peas.

I may here remark, that an ear of corn is the cob with the grains on, the cob itself being what remains after the grains are taken off. Most of your correspondents use the word "cob," I notice, when meaning "ear." Mention is made of "Six-weeks' Maize." Maize may possibly be had fit for table use in as short a time as six weeks, but none can reach maturity so soon as that. The "Early Dutton," of which I send you a perfectly matured ear, is about as early a kind as any, and this needs at least 85 days to reach the condition of perfect ripeness.

The few grains of "White Field" corn are of a fine variety, doing better in a heavier soil than the "Early Dutton" likes, and producing more to the acre. It needs, however, a week or two longer time to reach maturity. *G. Such, South Amboy, New Jersey, U. S. A.*

Home Correspondence.

The Flowering of Maiden French Cordon Apple Trees.—Without entering into the dispute about the different or best stocks for such trees, I wish to state two facts of great practical importance. During the winter I had some French cordon Apple trees. When they arrived I was particularly struck with the prominence of the buds all along their clean healthy stems. My usual practice with maiden trees of Apples and Pears intended for cordons, has been to leave the shoots at full length, or nearly so, as one of the most effectual means of throwing them into a fruitful habit. I had a double reason for doing so in this instance: the buds looked like fruit buds, and it would be an interesting and new thing to secure a crop of fruit the first season. My expectations have not been disappointed. The first stage of abundant fruit has been reached. The whole of the Calville Blanche, and nearly all the other sorts, are covered with blossom from base to summit, complete lines of beauty. Here is a wonderful proof of the effects of a superior climate, or of a particular stock, or of both. I was inclined at first to put down most of this early fructification to the climate. Here, thought I, is a clencher for those who contend that our climate is equal to the French. Did any one ever see English maiden trees conduct themselves in this manner? My illustration was the more striking from the force of contrast. During the winter of 1867 I planted over 60 English maiden Apples trees on the Paradise stock. They were treated in all respects as the French trees, but not a blossom was seen. What is even more provoking, notwithstanding the roasting they had last summer, there are not half-a-dozen blossoms on the whole lot this season, while their French neighbours are clothed from head to foot. The case on behalf of the French climate seemed complete, utterly unanswerable. But—oh these buts!—I had some other trees, warranted to be on the true French Paradise stock, from Mr. Meston, of Kentish Town, and these are flowering in the same manner, and to the same extent as the others. Now if they were imported plants my climate theory stands; but if not, of course it is shattered at once; and from the climate we must proceed to the stock, and credit it with the powers of inducing this precocious fruitfulness. [Mr. Meston informs us they were imported trees, obtained from Vitry, near Paris. Eds.] Yet perhaps, after all, the climate had a good deal to do with it; for what sort of a climate had we last summer—English, Parisian, Italian, or African? But why, then, did it not make my English trees of two years old fruit this summer? There's the rub—and it drives us back to the stock, to look for the solution. We have heard a good deal of late of the effect of the scion upon the stock, but the influence of the stock on the scion is a more important practical question, and I think the above facts may help us to a speedy decision thereon, as far as the Apple is concerned. If a stock can be got to induce fruitfulness the first season, it will give a new and powerful impulse to the cultivation of miniature fruit trees of all and every form. *Pomum.*

Double Pear Blossom.—As Pear trees, producing double flowers, seem to interest your correspondents, I write to say that we have had here, this season, the following in fine bloom, with the flowers as full and large as the double-blossomed Cherry, viz., Amadote (not to be confounded with Amadoute) which comes a little too near in orthography. Several of this kind, the Amadote, bloomed finely here, but the greatest number of the trees had only their usual normal blossoms. I see that the double flowers are well set, and possibly may get through the thousand-and-one accidents to which Pears, like men, are heirs to. My other double bloomers were Comte de Lamy or Beurré Curtet, as it is often called, and Double-fleur. The first is one of our best and surest bearing Pears, the last, although a handsome fruit, is not first-rate, hardly second-rate, to eat, but makes a fine *compote*. As an ornamental flowering tree it is very beautiful, its large, double, well-expanded blossoms highly recommend it for decorative purposes. There are a few single-blossomed sorts that deserve to be cultivated as ornamental, park, or pleasure ground trees, such as Hampden's Bergamot, Belle-et-Bonne, Catillac, and several others of the large-blossoming kinds. Our Pear prospects here are as yet good, but reading of snow-capped hills in your columns to-day rather gives one the fidgets, especially as some of my neighbours had their Potatos cut rather severely last Tuesday night. Apples, I think, will be plentiful here; the orchards look well and the blossom is highly coloured—a good sign of strength. I may say that I never recollect the bloom being so fine as it has been this season; it has caused me to stand at the end of some of my tree quarters and exclaim, "How gorgeous! what a glorious display of floral beauty!" And on now examining the trees closely, I think we shall have nearly as fine a display of fruit. On my Pear specimen row, in which there are 1000 sorts, I can count 460 with well set fruit, and with sorts from other portions of the grounds I think I can reckon on about 500 kinds. Last year I had about half-a-dozen sorts that fruited, viz., Chaumontel, Althorp Crassane, Monarch, Rousse Lench, Williams' Bon Chrétien, and Comte de Lamy. These six sorts are again this year full of fruit, proving them to be for adverse seasons reliable kinds. Chaumontel on the Quince is literally loaded, Beurré Rance shows well, so does Bezi de Louvain and Délices de Jodoigne, a fine and sure bearer; Beurré Capiaumont, which rarely misses, has dropped all its fruit this season from large trees, whilst young low trees have held on; this dropping of the fruit is not generally the case with high trees, as such often escape slight frosts, owing to the air being less dense the further we get from the ground. *J. Scott.*

Gas-tarring Orchard Trees.—I had some young trees planted for an orchard last autumn. During the winter some rabbits commenced to gnaw the bark, and my man, to stop them, has gas-tarred the stems about two feet up. This, I am told, is likely to kill the trees; indeed, although they have come into bud, they look very sickly. Is there any means of removing the tar? or can anything be done to save the trees? I should be obliged if any of your correspondents could give me information on this point. *John Lloyd, Kingsbury, St. Alban's.*

Dendrobium barbatum.—I have read with great interest the paper in your publication of the 8th inst. concerning Dendrobium Falconeri; but I do not find much difficulty in growing it, whereas I cannot manage Dendrobium barbatum, and should feel much obliged for a few hints about its management from any of your numerous correspondents. *H. R. D., Dublin.*

Names of Roses.—Can nothing be done to improve the naming of Roses? I have a tolerable acquaintance with the French language, but I find their names very troublesome—not to pronounce—but on repeating several I am apt to glide into French, and this appears ridiculous. If such is the difficulty in my case, what must be the difficulty with those not acquainted with that language! What frightful mutilation must be inflicted on it! Why cannot we say Marshal Niel, Marshal Vaillant, and General Jacqueminot, instead of Maréchal Niel, Maréchal Vaillant, and Général Jacqueminot? Why not Baroness Rothschild, instead of Madame la Baronne de Rothschild, just in the same way as we have Duchess of Sutherland and not her Grace the Duchess of Sutherland? A change even in such names would be a mitigation of the evil. Then sentimental Frenchmen take it into their heads to inflict on us their *souvenirs* of this or that person, or *infidélités* of another. For these, I suppose, there is no remedy but renaming, and to that there are serious objections. We live in an age in which time is too valuable for long names to remain in every-day use, and they must fall. Our railway porters teach us a lesson; they soon make a long name short, so short that it is difficult to make out what is the original, and that is precisely what happens with gardeners. A name short at first has a good chance of being preserved entire. As at this busy season you may desire to "cut me down," if not to "cut me up," I have been looking for a whacking signature, and I think I have found it. Trusting that you will chop off my tail rather than bruise my head or pull my beard, I subscribe myself, *Ophiopogon spicatus foliis argenteo-marginatis.* [One objection to our correspondent's proposal is that Baroness Rothschild may not be the same person as Mme. la Baronne de Rothschild. Eds.]

Forest Appointments in India.—Some time ago, a writer subscribing himself "Woodlands," drew considerable attention to the above subject by certain articles that he introduced into your pages. I, in common with many Scotch foresters, feel indebted to the writer for giving publicity to so important a subject; and I believe that, upon the whole, public discussion on this question will do much good. But at the same time I hold that there were certain allusions made by him to the standing and qualifications of foresters in Scotland so unwarrantable, and so contrary to fact, that common justice demands that they should not be lightly passed over; and now, in taking a part in this discussion, I beg to be allowed a small corner in your columns for the purpose of saying something in their defence. In his first letter I find the following statement:—"The standard of a forester's education in Scotland is a very low one indeed, which you will understand more fully when I tell you that there are not probably two in the whole country who receive a salary of 100*l.* a-year. The forester in Scotland is entirely subordinate to the agent or factor, who directs every important matter, leaving only minor details to the forester." Now, these statements are utterly groundless, as I shall attempt to prove. Touching the alleged low standard of their education, I think that any one who reflects for an instant on what "Woodlands" has advanced on this subject will discover, in the very nature of his argument, a strong presumption of the weakness and fallacy of his position. For who ever heard of a more irrational procedure than to try to found a charge of a low educational standard on the accident of emolument? Who, amid all the wild vagaries of this age, has ever yet dreamed of gauging intellect by the mere length of the purse? Again, we can easily see the futile character of this plea of "Woodlands" against the Scottish foresters when we look at the positive side of the question; and as a direct contradiction of the statement made by "Woodlands" as to our education, I would beg to call your readers' attention to the fact that there has been established among us now for nearly 20 years the Scottish Arboricultural Society, with such objects as the following:—"The object of the Society shall be the promotion of the science of arboriculture in all its branches by periodical meetings of the members for reading of papers, by offering prizes for essays and reports on practical operations of forestry, and the publication of the same; and by such other means as may be found advisable." Now does the fact of the existence of this Society in Scotland while there is none at all in England, prove that the standard of education with us is so much inferior to that of England? Does not the existence of this Society taken along with the fact that many foresters in England are regular members of it—attending its meetings and contributing papers to it—prove rather that it is the outcome of the superior intelligence and zeal and forward march of the North over the South? Further, I wish to point out the high character of the numerous essays contributed to the Transactions of the Society—all showing a clearness and fulness of scientific knowledge—a breadth and grasp of practical experience, and many of them a degree of literary ability, that would not disgrace the highest Association in the land. One other point is worth considering—that is, the lively interest that all the members take in the Society. At our last meeting in November upwards of 100 members were present, representing a sacrifice of time and money almost incredible, and very hard to reconcile with "Woodlands'" estimate of their poverty and want of culture. Again, "Woodlands" says "the forester in Scotland is entirely subordinate to the factor, or agent, who decides every important matter, leaving only minor details to the forester." This charge is also unfounded—at least when meant to apply exclusively to Scotland. Indeed, the charge may be brought against the position of the forester in England with far greater truth. For there it is the rule, while in Scotland it is the exception. I can speak for myself. In the management of the extensive woodlands under my charge, no one is suffered to come between my employer and myself; and many other Scottish foresters I happen to know are situated in the same way. Now, as to the question of salary, I have the privilege of knowing many leading foresters of Scotland, and I can assure you that I know some of them that have much more than double the salary "Woodlands" mentions. But "Woodlands" continues: "Forestry itself in England is really quite a subordinate branch of the education of a land agent, and requires no very great amount of skill to acquire all that is known on the subject." This is a very humbling admission for "Woodlands" to make, who had set out with the purpose of throwing Scotland into the shade. Now England appears even further behind in the study of the subject, and more subordinate as to its position, than Scotland, and I quite agree with this statement. I have been frequently employed to inspect and report on woodlands in England, and truly nothing could be more pitiable to see than the neglected state of the hedgerows and woodlands. "Woodlands" says, further, "When a serious discussion took place a few years back as to the management of the forests in England, it was not then considered necessary to call in a German professor or ober-förster, nor yet anyone from the Direction Générale des Fôrets in France, to settle the question." Quite true. But will "Woodlands" believe that when the controversy was at its height the opinion of a Scotch forester was asked, and that thereafter the subject was considered settled, and from that day to this the question has never been raised again? But "Woodlands" is so ignorant of the state of forestry in Scotland, that I really must take pains with him, and show him what is doing in this part of the kingdom. Within the last five years (not to go further back) I know one forester in Scotland who has had under training four pupils, each of whom had studied from two to four sessions at the Universities of England and Scotland,—three others, two of whom had served three years with land surveyors and civil engineers, and the other of whom had been a similar period in a solicitor's office; besides a number of farmers' sons, and other young men of good education and respectable position. Again, I consider that the discussion that has taken place on the new Education

Bill in Parliament has brought to the surface such evidence as to the state of education in Scotland as ought most effectually and for ever to dispel the disparaging statements which "Woodlands" has made on this subject. *Arboriculturist.* [As "Arboriculturist" and "Woodlands" have both the same objects in view—viz., the improvement of forestry, and the endeavour to wipe off the reproach implied by the fact that it is considered necessary that candidates for the forest service in India should receive almost the whole of their education in Germany or France—it seems a pity to raise an issue upon such points as those mentioned in the above letter. EDS.]

Bachelor's Buttons.—"Which is the true Bachelor's Button, and whence originated the name?" asks "A Buttonless Bachelor." Johnson, in his edition of "Gerarde's Herball" (1633) assigns it more especially to the double-flowered variety of the Red Campion (Lychnis diurna), which is common enough in cottage gardens, and says, "The similitude that these floures have to the jagged cloath buttons anciently worne in this kingdome gave to our gentlewomen and other lovers of floures in those times to call them Bachelour's Buttons." Gerarde himself calls Ranunculus bulbosus fl.-pl. and R. aconitifolius fl.-pl. "Batchelor's Buttons," and says they are generally so called about London. The double R. acris now bears the same name. The French call R. aconitifolius fl.-pl., "Boutons d'argent d'Angleterre." There is yet another claimant of the name which your correspondent does not mention: this is the Devil's-bit Scabious (Scabiosa succisa), which is so-called in two or three counties. *James Britten, High Wycombe.*

Potatos.—Your correspondent E. Puttock (p. 530) asks a question concerning the freaks of his early Potatos. With reference to Mona's Pride, I have always found it to be peculiarly liable to the particular freak of which he writes, more so, indeed, than any other kidney I have grown,—I say kidney, because I have never found this refusal to throw up haulm in any round kind, consequently we must look for the cause as it relates to the kidneys only. But, again, I have only found it amongst the early kidneys, and if the experience of other Potato-ologists (!) should prove to be the same as my own, the ground of our observations is necessarily greatly limited. With reference to my own crops this year, I have but little complaint to make concerning their growth: with few exceptions they have come well, and of these few I have, after examination, come to the conclusion that in most cases it is the result of frost. We had a few sharp white frosts just as the early kinds were coming through, and those that were sharply nipped right through the shoot died nearly back to the Potato, leaving the injured shoot still visible. In all these cases, the premature tuberation of which your correspondent complains had taken place. Did his get thus nipped, and he not aware of it? But I have also found planting too deeply will produce a like result in many cases, and especially in the case of Potatos that have been stored during the winter in a cellar, where the temperature is usually mild and even: here an early sprouting is induced, the shoots being necessarily weak and blanched; and these, if taken at once, without further exposure or hardening, and planted in cold ground, will very often have the sprouts destroyed, and no after-growth will follow. If Potatos are stored during winter where they can have plenty of light and air, failure in growth will seldom result. What does Mr. Puttock mean, when he first says that the seed in question was "freely grown," and later on adds, "that the seed in question had not been sprouted before planting?" If the former is correct, then it helps to bear out my last experience. *Alexander Dean.*

The Royal Horticultural Society's Show at Manchester.—I observe that in your last number you state that the proposed Royal Horticultural Exhibition in July next will not be held in the Botanic Gardens, "owing to the Council of the Manchester Society demanding privileges for their Fellows to an extent beyond what the Horticultural Society can in reason accede to." I beg to say in reply that our rules bind us to admit our subscribers and their families free on all occasions, and that the representatives were aware of this rule when the negotiation first commenced in last year, and that no objection was made until a few weeks ago. Our offer to the Royal Horticultural was to lend them the gardens, the plant, and our regular staff of servants, for the admission of our subscribers, and upon that understanding have they got all their promises of special prizes; and upon that understanding, I believe, the guarantee of 600*l.* was given by the local committee. As the show follows so soon upon the present one, we might also have been induced to keep up the framework of the large tent for the purpose. My colleagues think the terms far from unreasonable. The Royal Horticultural, on the other hand, offer us 300*l.* to exclude our subscribers; but to do so would require a special meeting and a two-thirds vote to alter the rule. And then, any objector who chooses to say, "I paid on the understanding of free admission at all times," would have a power of recovery against us. Such is the true position of the affair, and I think you will agree with me that the Council of the Manchester Society is not much to blame. *John Watts, Chairman.* [We have received other communications to the same effect. EDS.]

Bouquets at the Crystal Palace.—The very great interest manifested in the display of bouquets at the Crystal Palace Flower Show on the 15th inst., induces me to offer some remarks upon the subject. It was the most attractive feature in a show which was otherwise below the average excellence of those usually held there. Rows of visitors, four and five deep, were waiting their turn with exemplary patience to catch a tip-toe glimpse of the 73 bouquets which were competing for seven prizes. The large number of exhibitors naturally entailed a correspondingly large amount of personal interest in the breasts of their numerous friends, but this would account for only a small proportion of the throng that tried to see the bouquets. The probable explanation of this is, that bouquets of some kind or another are now-a-days almost indispensably connected with holiday-making and amusements, and are found in the hands of all classes, from the occupant of the opera-box down to the charity-boy. That which has once proved attractive at the Crystal Palace is nearly sure to be repeated there, and perhaps elsewhere also; and as every fresh show of bouquets is certain to be different from its predecessors, there will be a continuity of novelty, which will probably ensure its very frequent repetition. Where so many exhibitors compete for so few prizes, there is certain to have been much disappointment and not a little surprise at the awards of the judges; and if these observations should tend to explain what is now mysterious, and to prevent disappointment in future, my object in writing will be fully attained. Three prizes were offered for the best "single bouquet." But what is a bouquet? It is a nosegay, or bunch of flowers tied together, so that it may be handled without disarrangement of the flowers. Hence it will be seen why some nicely arranged vases of loose flowers, also a capital imitation of a bouquet, which turned out to be a saucer of clay into which flowers had been stuck, as well as one or two artistic arrangements suitable for table decorations, were passed by as not being bouquets at all, and were, therefore, never in the competition. The other four prizes were offered for a "group of three bouquets—a wedding bouquet, a ball bouquet, and a vase bouquet;" and in the same manner several of the exhibitors disqualified themselves by sending a glass dish or stand prettily arranged with loose flowers, instead of sending a bouquet suitable for a vase. In the event of future competition, I am of opinion that it would be better to offer several small prizes for each kind of bouquet, instead of prizes of greater value for a group of three kinds of bouquets. With amateurs there is often great difficulty in collecting a sufficient quantity of suitable flowers for three bouquets, when many would be able to provide enough for one; and I feel confident that if the Crystal Palace directors were to placard conspicuously in the building every day for a few weeks that on a certain day they will offer one 4*l.* prize, three 2*l.* prizes, and five 1*l.* prizes for the best arranged bouquet of flowers (not being loose flowers arranged in a vase), there would be such a display of amateur talent in floral arrangements as would be worth going many miles to witness. And this leads me to the suggestion to which I attach the most importance, and which I have designedly left to the last. It is, that there should be two classes of exhibitors—the professional and the amateur bouquet-makers, and that while an amateur shall be allowed to compete with the professional florist, a professional should not be permitted to show in the class for amateurs. The reasons for this ought to be obvious. The person whose business it is to sell flowers naturally puts as many as possible into a bouquet, in order that a higher price may be charged for it, and that more flowers may be sold. The object of the amateur is as opposite to that of the professional bouquet-maker as the North Pole is to the South. The amateur wishes to produce the best possible effect with the least possible detriment to the conservatory, in other words, with the smallest number of flowers. I would therefore propose that a florist's bouquet should be not less than 12 inches diameter, while an amateur's should not exceed 9 inches diameter. I would allow the florist the use of lace, stamped paper, feathers, or any other adjunct; but the amateur should be prohibited the use of any such artificial aid, of course excepting a bouquet-holder, or anything under the bouquet which is out of sight, and which may be desirable for protecting the glove or keeping the stems of the flowers cool and damp. As these remarks may possibly be of use to the managers of other flower shows besides those at the Crystal Palace, you will, I hope, not think them unworthy of a place in your columns. *W. T.*

Horticultural Exhibitions.—Undoubtedly this is a subject that can be discussed with profit to all in any way connected with them. I admit that there is plenty of room for improvement, and also that it is not desirable to repeat the same features year after year, but the question arises, how are these changes and improvements to be brought about? Will expunging the principal classes for "fine-foliage plants" from the schedules, and substituting others for collections of 25 or 50 small flowering plants, such as can be seen in any well kept conservatory, effect the desired result? The remarks at p. 497 would lead an unpractical mind to suppose that such plants as come under the denomination of fine foliage, of which Alocasias, Caladiums, Cycads, Crotons, Pandanads, Palms, Sphærogynes, and Yuccas may be taken as a type, require little or no skill to grow, and contribute little to the beauty and attractiveness of a horticultural exhibition. I will not enter at length into the question of skill or labour necessary to grow a collection of ornamental-leaved plants in a finished manner, because that point is now pretty well settled amongst those who have handled them in a way to do them credit. I am perfectly aware that a few growers even fancy that this class of plants will grow without much attention beyond the regular watering and air giving. It is to this fact that I attribute so many collections of these plants being presented at flower shows, which bear no greater resemblance to what they should be than the wretched examples of Azaleas and Pelargoniums that we meet with at obscure local shows are to the magnificent specimens of both these subjects which Mr. Turner annually brings forward. Supposing these "Jack-in-the-Greens" to require nothing beyond house-room, and water to grow them, in what way are they easier to exhibit than the usual run of flowering plants? I find—and I have no doubt the experience of other exhibitors coincides with my own—that more packing, and the same degree of carefulness is necessary to send a load of fine-foliage plants as is required by any of the flowering plants; Azaleas and Ericas, if properly trained, are not one half the trouble,—a few blocks to keep the pots steady is all that is required. I am aware that it is not suggested to dispense with everything that has leafage, graceful in outline, or rich in colouring, but, instead, it is proposed to obtain a few large-growing Tree Ferns, or Palms, by growing or hiring them. This plan has several advantages, one of the most important being the saving in the exhibitor's pocket, who may happen to get third, or be out of the race altogether. Notwithstanding this, would the adoption of hiring plants, for the exhibition tent, be within the province of any horticultural society, or satisfactory to its supporters? So far as my experience goes in these matters, I believe the banks of foliage to be quite as attractive as others which are decked with flowers, or why do we see the visitors to the exhibitions crowd round them in greater numbers than they do to any of the other groups, with the exception of the Orchids? [This is not according to our observations. EDS.] Is there no beauty in the graceful flowing outlines of the Beaucarnea and Palm, the massiveness of the Alocasia and Cycad, the gorgeous colouring of the Caladium, Croton, and Dracæna; or the delicate greenery of the Fern, that they should be ignominiously shut out to make way for a lot of half-specimen Azaleas, Heaths, Pelargoniums, &c.? I am no advocate for an undue prominence of plants with ornamental foliage over others with flowers, each should bear a proper proportion to the other. When that is done, it is entirely in the hands of the managers of the show whether they present "heavy masses of sombre green," or aid in relieving and toning down the glaring colour of the flowering plants placed in juxtaposition with them. Banks of foliage plants and Ferns are essential to all horticultural exhibitions, to afford a resting-place for the eye when dazzled with the brilliancy of the flowers. If the flowering plants are placed at one end of the exhibition and the foliage plants at the other, that is the fault of the management rather than that of the plants themselves. What can present a grander effect than that of the tent of the Royal Botanic Society at one of their great shows? and they have nearly every recess round it filled with these "Jack-in-the-Greens." Would it be an improvement to sweep them away and fill their places with half-specimens? Would the choice bits of colour at each point show better, or the tent have a better appearance by the change? I fancy not. I admit there are many other subjects that require encouragement besides those generally met with in schedules, but I do not see how it can be done at the expense of a most beautiful class of plants without the grandeur of the several exhibitions being materially lessened. A reference to the schedule of the exhibition at Kensington on the 2d of June last year will show how far the funds are swallowed up—about 160*l.* being devoted to them, whilst the flowering plants get no less than 500*l.*, and in schedules of many other societies they do not get so much as that. *An Exhibitor.* ["Exhibitor" writes as if we had proposed to banish fine-foliage plants from flower shows, but if he will look again he will see that we do no such thing. We say our exhibitions are overdone with monster plants, in the sense that they involve too heavy an expenditure; and to make both ends meet, we propose to diminish the number of such as these, leaving the more elegant and effective to be shown in groups as they are now. Does "Exhibitor" mean to say that a large Palm or Cycad shows as much cultural skill as a well-flowered Azalea or Rose. If he does, we differ from him *in toto*, as we do also on some other points. EDS.]

——Your leader of May 1 came upon us as a May morning ought to come—full of health and vigour, and foretelling that the good old days of plant cultivation are not quite forgotten. As the crack of the whip is always inspiring to the old coachman, so is a word about old favourites cheering to me. I had not read far, before I had the leading members of the West Kent school of plant-growers marshalled before me—Barnes and Hunt, May and Ayres, with lots of that plant-growing talent which enabled the leading men at that time to make or mar a London exhibition as they thought fit. Quickly in my mind's eye I traversed the tents at Chiswick, or the Park, scanned their treasures, watched the various trainers putting on the last touches to the several groups, and then waited anxiously—oh! those two hours of suspense allowed for judging; they appeared almost a week—for the awards. So neck and neck were the contests in those days, so effectually were the "Old Lady's" Pimeleas checkmated by Barnes' Ixoras, or Hunt's Boronias, or Gompholobiums; so closely was the race contested, that the best judges frequently could only decide by giving equal 1st prizes to the leading collections. Then I saw the rising school of growers—the Frasers, Cole, Dods, Speed, the Mays, and, though last not least, your humble servant, who, imbibing freely at the large-shift fount, marched forward to victory with a vigour which has no corresponding marks of enthusiasm in the present day. Then the ambition was not for huge bushes of easily grown plants, but nice specimens of things which few could grow at all—rare Heaths, scarce Chorozemas, difficult Burtonias and Hoveas, bushes of Leschenaultias, dense as a Box tree, a yard through, and a sheet of bloom. Now you can scarcely see these plants at all, much less purchase them. In fact, the apathy engendered by the make-shift way of exhibiting which has been permissible for some years, and only permissible from the fact, that if bloom failed, the collection could be made up with foliage, has thrown really good and meritorious plants so much out of cultivation, that cultivatable stock of many things cannot be procured at all. Far be it from my wish to ignore foliage plants alto-

gether. In their place, and in due proportion, they are chaste, necessary, and beautiful; but crowded together as we see them in some collections, they convert our flower shows into a shrubbery, and are no exemplifications of cultural skill. Given some good patches of Caladiums, Alocasias, Marantas, and the like, a suitable house with a command of bottom and atmospheric heat, and you have exhibitable specimens in a few weeks. Take the same number of Ixoras, Francisceas, Dipladenias, Rondeletias, and similar flowering plants, how long will it take you to grow a plant large enough for exhibition? and when you have one grown how much care and forethought will be required to bring those plants in to the day—to retard one truss of bloom, and forward another upon the same plant, to give brilliant colour to that plant by full exposure to sun and air, and to "paint the Lily" by placing another plant under conditions that will preserve and intensify the purity of its tintings. To do this requires forethought, tact, and experience, knowledge that can only be attained by patient study; but foliage plants, come to the hand as it were ready made, grown by the force of steam, dazzle for a period, die down, and are ready to start for another season. There are some exceptions to this rule—foliage plants that require real skill to grow them to perfection, but they are so rarely seen as, like the rare Heaths and difficult hard-wooded plants, not to be taken into calculation in the present argument. I think the Council of the Royal Horticultural Society is to be thanked for having taken the initiative in this reform of our flower shows. A change is much needed, and the proposed change is, I am convinced, in the right direction. I should be sorry to see large, and really good plants, whether foliage or flowering, excluded altogether from competition; but we have demonstrative proof that exhibitions, all elephants, will not take, and therefore, the sooner the new feature is introduced the better. *W. James Epps, Lewisham.*

Commelyna deficiens fol. var.—Last year I received two Commelynaceous plants, one under the name of Tradescantia repens vittata, the other under that of Tradescantia repens variegata. The first named, whose exact botanical name I do not know, seems to be a native of a hot country, as it requires a stove, and the variegation is very inconstant; but the T. repens variegata I planted out in a mass last year, and it was so ornamental, that I determined to have it drawn for the first part of the 18th volume of the "Flore de Serres," when I learnt that it was all dead, and that not a single plant remained. I grieved at this, because I had arranged that the plant should be represented with the Anæctochilus Dawsonianus, so combined that the varied colour of the one should be relieved by the sombre colours of the other. However, two days since one of my foremen passing the spot where the Commelyna deficiens fol. var. had been planted out last year, saw a plant of it coming up, beautifully variegated. This will be welcome news in England, as the plant may be used as a bedding plant, or to conceal flower pots, or as a basket plant, and will serve many other purposes as a decorative plant. Mr. Bull introduced the plant into England from the Continent in 1867, and received a certificate of merit for it from the Royal Horticultural Society, under the provisional name of Tradescantia repens variegata. Since that time it has been determined to be Commelyna deficiens fol. var., but neither name appears in any Continental or English catalogue. It would seem, therefore, that the plant has disappeared. At any rate it must be considered as an annual, reproducing itself by seed. *L. Van Houtte.*

Heating of Vine-borders.—I am glad you have brought this important subject within readable compass. In much that you have written I fully concur, but I do not accept some of your deductions. All gardening reforms, like social or political ones, to be real and deserving of public acknowledgment, must have economy for their basis, for if we only attain a certain end by an extravagant expenditure of money and labour, where is the profit? My reasons for propounding the drain system of heating Vine-borders were twofold; first, because I am convinced the platform system of making borders is extravagant and unnecessary; and secondly, because I was desirous of devising a plan of sub-heating which while it should answer the purpose intended, should also, without any additional cost, place a better system of ventilation at the command of the cultivator, for after all it is questionable whether a thorough system of aeration, the command of warmed air, moist or dry, is not of as much importance as bottom-heat itself. You say that, of the systems of giving border heat at present before the public, you prefer that of Mr. Thompson. If it is wise to expend pounds to carry out a system in which the media are inaccessible for purposes of repair, which, it is admitted, is dangerous in inexperienced hands, and which has been shown to be liable to very serious derangement, when the pipe system which I recommend can be put in at a quarter of the cost, and at the same time places an unobjectionable system of ventilation at the command of the cultivator, then you are right; but my experience, which is tolerably extensive, leads me to a different conclusion. There is no advantage in suspending the roots of plants "between earth and heaven," but there is an advantage in placing the soil so that the natural action of a properly-formed border shall not be interfered with. Capillary attraction, we have reason to believe, exerts great influence in dry seasons in preventing our borders from getting quite parched, as they are liable to become upon the platform system. You say the borders at Kingston have been condemned on account of expense. That was not my only objection to them. I say they are wrong in principle, as all cumbering must be. So certain I am I of this, that I would in no case, unless compelled, isolate a border, for, by so doing, we not only cut off necessary capillary attraction as to moisture, but we also intercept the heat which is ever escaping from the substrata, and which in many cases is much more considerable than we are aware of. With a concreted bottom, the rock for the plants to grow upon, a good drainage over it pierced with cement jointed stoneware pipes, and a constant flow of warmed air through them, I should have no fear of the most complete results. There is room enough "upwards," as Mr. Barnes many years ago remarked; so there is no reason why Vine and other borders should not be laid high and dry. As to the constant maintenance of considerable heat being objectionable, that is part of my plan. I propose that during the forcing season a continuous stream of warm air should be passing through the drains, not only for the purpose of heating, but also for the purpose of ventilation. I intend that the pipes that heat the border shall be considered part of the apparatus of the house, the pipes connected with them being stopped or opened, so as to regulate the temperature of the border to a nicety. Therefore I incur no extra expense for heating the border, but merely utilise the heat necessary for the house, depriving it of its aridity, and preparing it for the plants before it comes in contact with them. I hope to have my plan of bottom-heat in full working order this season, and until then shall say no more upon the subject. With reference to the advantage of bottom-heat, this is scarcely a debatable question, for unless we are prepared to ignore Nature's teachings, and our own experience, it is clear that where the Vine does best under natural conditions the heat is very much in advance of that (50°) which has been pronounced to be the right temperature. If we go to those places where the Grape succeeds the best under natural conditions, we find that in the country of the Sweetwaters (Paris) the ground temperature of the season of growth is 58°, that of ripening, 66°, and that of rest, 41°; while in Sicily, where the best Muscats are grown, the ground temperature of the season of growth is 66°, that of ripening, 80°, and that of rest, 58°. These are natural conditions, where light and heat are acting in concert, and if Nature provides such aids when starting vegetation in its natural season, how much more necessary it must be for us to do so, when we produce Grapes in April or May, reversing the natural order of growth, and starting Vines into action almost before they have gone to rest. When writing upon this subject (*Gard. Chron.*, 1847, p. 555), the late Dr. Lindley said: "In gardens, Vines are treated as a man would be, if exposed to a steam bath with his feet in ice." This only shows the obedient pliability of the Vine, and how much hardship it can endure, and yet produce good fruit. Exceptional cases ought never to be taken as rules of practice, and so in Grape culture the conditions under which the Grape succeeds the best without artificial aid must be our guide. The mean temperature of the earth near London in July and August, when the Grape rarely becomes eatable, is 62°, that of Marseilles 78°, and that of Bordeaux 77°. It is from the latter countries that we obtain our finest wines, so that the Grapes must be thoroughly matured. Facts like these demonstrate that not only should the earth heat be continuous, but that it should gradually increase, from the day of starting the Vine into growth up to the time of maturation; and that then it should gradually decrease to the resting temperature. This, there is no doubt, is the true theory of producing the finest Grapes, and its practical application I hope shortly to demonstrate. As to the necessity for forcing Grapes, that question might be well left to the arbitrament of the magical letters £ *s. d.*, for in a Covent Garden wholesale list now lying before me I note the following quotations:—"Old Grapes all gone;" "New Grapes 35*s.* per lb." Therefore if we do not have new Grapes, where is the girdle Mr. Miller speaks of? Some "links" in most gardens must be dropped. A new late Grape sent some weeks since to the Fruit Committee of the Royal Horticultural Society was pronounced to be worthless, owing to the sap having risen in the Vine; and I have recently tasted samples, the best which money could procure, not only indifferent in flavour, but some of them, though fine-looking Grapes, positively nauseous. If we are to keep Grapes upon the Vines later than March, we must have north houses, or the Grapes must be cut, and then they will shrivel; for nothing is so sure as that if left upon the Vines they will deteriorate in quality from the day the sap begins to rise. I go for new Grapes, and say that no well-appointed garden ought to be without them, after the end of March. They may not have the lusciousness of a shrivelled Muscat, but the sprightliness of flavour will always recommend them. *George Westland, Witley Court, April 6.* [Here this subject must close. Eds.]

Foreign Correspondence.

The Russian International Exhibition: *St. Petersburg.*—For four or five weeks, at least, the directors of the Horticultural Society here have been occupied with the necessary preparations for this exhibition, and it is now time for me to give you a statement of the result. As I mentioned in a previous notice, the Imperial Riding School, which the Government placed at the disposal of the Society, is about 300 feet long, and some 70 or 80 feet wide. If length and width only were enough, no better place could have been found for such an exhibition; but the roof is not more than 20 feet high, and this circumstance ought to have been sufficient to determine the nature of the interior arrangements. Imagine a painted landscape with the horizontal line nearly up to the top of the frame, and you have an idea of the taste that has been displayed by the architects here. At the extremity of the hall there is an immense structure, which is apparently intended to represent a sort of alpine elevation or rockwork, and which is accessible by means of steps at each side of the hall. But if the visitor did not perceive that the stalactite stones of which the rockwork is composed were secured by strong wire and nails to the woodwork underneath, it is perhaps questionable if he would venture to the top; for in general the *façade* of this structure is nearly quite perpendicular, and the stones seem as if they were merely stuck on by means of plaster. There is a secondary erection in the same way at the ceiling, but much smaller, and nearly square. This is intended, I suppose, to represent a sort of grotto, having an opening in front from which the visitor may obtain a general view. The ceiling of this grotto is quite even, and is composed of small blocks of wood, whitewashed, in imitation of stones; but the whole structure is very stiff and formal. At the right-hand corner, on the top of the concealed scaffolding—that is to say, near the ceiling—there is an imitation in size-coloured boards of something resembling a castle, with its strange windows and turrets, such as may sometimes be seen on the stage of a theatre. Probably the reservoir of water which supplies the fountains and cascades below is concealed in this mysterious and formidable fortress, which only wants one or two wooden cannons to keep off the enemy. Near the centre, but at the side of the hall, there is another rockwork, not quite so large, constructed in the same manner, and with similar materials; and at the top is a sort of pavilion, from which a general view of the plants below may be obtained. The sides of this rockwork are also quite even, and nearly perpendicular, but near the bottom a number of recesses, corners, and holes have been formed, all on wood, and which are mostly studded with flowers or plants. Perhaps it is intended to cover all the rockwork with creepers, but as yet there is nothing done in that way, and, indeed, it will require at least a week more before there is anything like order or arrangement. For so much time and labour have been expended—wasted, would perhaps be a more correct term—in order to produce a grand scenic effect, by means of unnatural gingerbread decorations, that now at the opening day there is no lack of confusion.

The two excellent stoves that were constructed for the reception of plants to be got ready for the exhibition are as yet nearly empty. About a dozen boxes with plants from Germany are not yet unpacked, and at least half of the space is unoccupied. Of course, it is no fault of the Society if exhibitors do not forward their plants in time; but, independently of this cause, the *mise-en-scène* is far from being so advanced as it ought to have been.

You might fancy that at least the ground would be laid out simply, and in keeping with modern taste, and a little soil, and a few patches of the much-prized lawn would be seen here and there. On the contrary, the whole space has been covered with boards in an uneven undulating manner. There are several basins of water, with as many rustic bridges, one or two strong enough to bear a locomotive; here and there small fountains with statues, and some enormous imitations of vases, in boards, covered with whitewash. It is to be hoped that the walks will be covered with some coarse stuff or another, as people here wear extremely thick boots, like clogs; and the noise produced by the tramping of a few hundred visitors is no slight matter. On the whole I must say that whether this exhibition pays its expenses or not—and I think this point is problematical enough—the evident straining after theatrical effect has not been successful. Rockwork, such as it is, has been a great deal too freely used, and, considering the lowness of the ceiling, it would have been much better to leave it out altogether. The attempt to give an alpine appearance to the ground is very well where there is plenty of space overhead, but here it is quite out of place. Something more beautiful and satisfactory, because not so pretentious, might have been produced with one-tenth of the labour and expense. *K., May 3* (15).

The following particulars, from another correspondent, have been received just as we are going to press:

"So far as the English contingent of the St. Petersburg International Horticultural Congress is concerned, it opens under melancholy auspices. Sir Wentworth Dilke, who has done so much for these *réunions*, has paid for his desire to assist at the present one with his life. A quinsey, caught on the way to St. Petersburg, was succeeded by erysipelas and typhus fever, which latter proved fatal in the short space of three days. Your readers may conceive the dismay with which the little detachment of our countrymen who represent England at St. Petersburg, learned on their arrival, that one whom they knew so well, and esteemed so highly, and whom they had so recently seen well and hearty in London, and whose co-operation and welcome they had looked forward to with pleasure, was so suddenly taken from them. This event has for them cast a gloom over the whole of the proceedings.

"The exhibition was opened on Sunday (16th), but it was still in a raw and unfinished state. Three waggonloads of plants, consisting of those of M. Linden and M. Verschaffelt, had not made their appearance; great blanks consequently existed in the exhibition, and apparently if they had arrived they could not have been in order, for even the others were only then being put in their places, and some of the juries had to arrest their labours in consequence of the plants not being numbered. However, the progress made even under these disadvantageous circumstances was rapid, and it was expected that everything would be in order by the next morning. The Congress met in the exhibition place, which, as usual, was in a riding school, only, like the streets and public buildings in St. Petersburg, on an unusually large scale. A Te Deum and benediction was performed in the building by three of the high priests (or whatever their proper designation may be), assisted by a capital choir. The singing was very fine, the priestly garments were very splendid, and the whole procedure interesting to the heterodox, and apparently satisfactory to the orthodox, whose familiarity with the proper times to bow and cross themselves readily distinguished them from the stiff-necked profane, who, however, were in a large majority. A *déjeûner* of the jury was held in the afternoon.

"The exhibition itself is in the Continental style, but somewhat exaggerated beyond that in Germany. A scenic effect is here and there attempted to be given by painted towers and battlements, with here and there Pine tree tops nailed against them, which were no doubt intended, and doubtless will appear as springing out of a mass of foliage below; but it has yet to be supplied. The hall is large, but is certainly not the better for being broken in two by a raised sort of pagoda in the centre; but the way in which the surface is varied and thrown into groups with rockeries, water, and fountains (instead of, as with us, being arranged like a row of medicine bottles in a druggist's shop) is very pleasing. This must have been a work of considerable difficulty, for everything is very far behind England in St. Petersburg at this season. It is only three weeks since the snow was cleared out of the streets. The buds are only now showing a little green, and as a French friend (whose accent seems to have been slightly Gallic) remarked to our correspondent, "It is only two or three days ago that they find eyes on the Neva." To provide turf for the floor, and green masses for the intervals from out-of-doors was therefore an impossibility. Moss did duty for the one, and exotic fine-foliaged plants for the other. The meetings of the Congress are fixed for the evenings of Tuesday, Thursday, and Saturday. *May 5* (17)."

Gardening Notes from Russia: *St. Petersburg.*—In looking through the houses at the Botanic Garden

I find a great many plants which are well worthy of notice. In one of the stoves is a remarkably fine specimen of Astrapæa Wallichii, about 12 feet in diameter. This is a tree which of course may be easily grown large enough to occupy much space, but one so large as this is not often seen. Colea Commersoni, from Madagascar, is a beautiful plant, fully 6 feet high, and distinguished for its large, pinnate, hard, leathery leaves. I have found it several times in different parts of Russia, but I have never seen it so large as it is here.

The central division of the Palm-house is stated to measure 36 archines, that is, about 80 feet, in height. There are here a great many trees of colossal dimensions, some of them so high that they seem as if they would soon make their way through the glass that protects them. This is particularly the case with Phœnix sylvestris, the trunk of which is more than 30 feet high; and though the glass has been considerably raised to give the leaves sufficient space, it will have to be raised again a good deal before long. Two specimens of this noble tree are growing together, apparently in the ground, but the division of the house in which they grow is only about 45 or 50 feet high. Strelitzia Nicolai, so named by Dr. Regel, is fully 10 feet high, having leaves about four times larger than those of reginæ. There are two samples of Cereus peruvianus, both remarkably robust; one of them must be nearly 30 feet in height. Arenga saccharifera, from Java, is a splendid tree, with leaves in the way of Phœnix dactylifera; the stalks at the base are fully 2 inches thick. The diameter of the trunk is nearly 20 inches. Sabal umbraculifera is remarkable for its luxuriant growth. It is nearly 20 feet high, having leaves 6 feet in width. This Palm, as is well known, is common in the islands of the Indian Archipelago, and it is justly considered as one of the most important of the order to which it belongs, owing to the many useful purposes for which it may be employed. Livistonia chinensis is an immense tree; the trunk at the base is about 2 feet in diameter. There are three majestic trees of Attalea princeps, from Brazil, nearly touching the glass in the highest part of the house. Diplothemium maritimum, from Brazil; Caryota Cumingii, Maximiliana regia, and Musa Ensete, from Abyssinia, are, among the other plants deserving particular notice in this house, which is exceedingly rich in tropical vegetation.

I may just mention that in the central division there are several galleries, but the highest, of course, are only for the convenience of the workmen. The lowest is in the form of a terrace, and it is substantial enough to admit of visitors obtaining a good view of the upper parts of the trees. There are some beautiful parrots in cages here and there, and if it were not the familiar faces of the people—men and women—occupied in cleaning and arranging the plants below, an imaginative visitor might fancy he was walking in an Indian grove. I think the picture, and perhaps the illusion, would be complete if a few negros were employed in such houses. I venture to throw out the hint.

In entering the library from the interior it is necessary to go through two or three houses, which are chiefly filled with what are called New Holland plants. In one of these houses, and just at the door leading to the library, there is a magnificent Araucaria excelsa, the largest I have seen for some years. It has been sunk about 5 feet in the ground, and the roof has been raised at least as much, but it is likely to require more space before long.

Though the snow and ice have quite disappeared, a cold north wind prevails, and the buds of the trees in the open ground are only beginning to swell; it is only on close inspection that the least tint of green may be noticed among the branches. Indeed it is colder at present than it was a month ago, and I am told by old inhabitants that the trees are rarely in leaf here before the middle of May, yet the sun is warm, and in general the weather is clear and dry, but the wind is keen and cutting.

The extent of the ground open to the public at the Botanic Garden may be about 30 acres. I have not learned the exact measurement. It is not, however, like the famed garden of the Chinese Emperor, (Bogdohan), which we are told was so large that even the gardener himself did not know the end of it. But I should observe that the private ground, where the public never go (for there is nothing to be seen in the way of plants and trees), must be about 10 or 12 acres. At present the garden is being put into order, and though still cold and naked, affords a good idea of its general features. It is very simple in its arrangement. There are several straight avenues, with good-sized Birches, Elms, Poplars, and Limes. There is a pond of moderate width in the middle, and something like a mound at the end of the central avenue. The common Lilac, Elder, the Yellow Laburnum, and a few lanky Thorns are the only shrubs at present visible, as having stood the winter without protection. Berberis Aquifolium, and Thuja orientalis, have only very recently been uncovered. The herbaceous department is laid out very tastefully, something in the way of an alpine scene, having a great many small lakes—some of them mere miniatures—rustic bridges, no end of rockwork narrow, crooked paths up and down, &c. No doubt, when all these fanciful figures are studded with flowers and plants, the pictorial effect must be very good; but at present, Erythronium dens canis, Hepaticas, and a few Crocuses, are the only flowers to be seen out-of-doors. The buds of Rhododendron hirsutum are just beginning to swell; only one or two Conifers, as P. sylvestris, P. Pichta, and Abies Larix, stand the winter here,—at least, no others seem to be tried; and in general, the very commonest trees only are to be seen. Betula alba is very plentiful, and it thrives well in the environs of the capital. Tilia europæa, though often planted, is evidently much too delicate for this climate. Besides the promenading ground and the herbaceous department several acres are reserved as a nursery for raising young trees, but no doubt the seedlings are protected, the first winter at least. *K., April 24 (May 6).*

Societies.

MANCHESTER BOTANICAL AND HORTICULTURAL: *May* 14.—We have already intimated at p. 528 that the National Exhibition held under the auspices of this Society, which opened on the 14th inst. and closed yesterday, was probably the best ever held in Manchester. It would be impossible to speak too highly of the splendid cultivation of many of the hard-wooded stove and greenhouse plants, while Azaleas, Heaths, Pelargoniums, Orchids, Ferns, and other classes of subjects furnished many examples quite up to the average of merit. One of the local papers, referring to some remarks of ours on the show of last year, observed:—"Those who are most competent to judge of the value of the display from a professional point of view say that the progress during the past twelve months has been enormous. Terrible things were said by the leaders of horticultural opinion in the metropolis, of the custom of many Manchester cultivators who trained out great specimen plants on flat trellises, the southern fashion favouring a more natural form, so that from whatever point viewed the plant has the same finished and natural appearance. Certainly, many of the gigantic Azaleas and Pelargoniums in the show are no longer trained out flat as if to fill windows, but are symmetrical in form. We shall hope for further improvement yet—for less rigidity, less harshness of contour, and a little more fresh green foliage dotted amongst the glowing flowers to afford the pleasing relief which Nature never neglects when left alone." And so say we.

The grand feature of the show was the competition for Mr. Williams' prize of 50*l.*, for a group of 50 plants. There were two competitors: Mr. Baines, gr. to H. L. Micholls, Esq., Bowden, and Mr. W. E. Dixon, Beverley, the former of whom took the 1st position with a collection of specimens such as were never probably before brought together in one group by any exhibitor. We might go through them and apply commendatory adjectives without stint, did our space permit, but we must confine our notice to a few of the most praiseworthy. The first place must be accorded to the wonderful masses of Sarracenias, of which four were included in the collection, viz., S. flava, and a form somewhat resembling it, but with much larger and more leafy caps to the pitchers; S. Drummondii, beautifully marked with its white venation; and the great mass of S. purpurea, nearly, or quite, 4 feet across, crowded with pitchers, which every season seem to reach a greater degree of perfection in size and colouring. These were marvels of perfect cultivation. Still keeping to the foliage division may be noted two great plumy masses, 4 feet through, of Gleichenia Speluncæ, dense as a bracken cover; a finely contrasting Verschaffeltia splendida; Alocasia metallica, from 5 to 6 feet across; and a dense, richly-coloured Croton variegatum, not less than 5 feet across. Turning to the flowering plants, one of the most lovely was Erica ventricosa coccinea minor, 4 feet across, and little more than half that height; a plant whose youthful limbs were clothed with a rosy mantle of exquisite workmanship. Another of the prominent floral gems was Genetyllis tulipifera; this plant formed a blunt cone some 4 feet high, and as much across the base, its tulip-shaped bracts almost touching each other, and richly mottled with crimson; Boronia pinnata, 4 feet high, was a flowing mass of rosy-lilac; Eriostemon neriifolius formed a globular bush 5 feet high; Ixora aurantiaca, with its salmony-orange blossoms, I. coccinea of a deeper red, and I. amboinensis showing a distinct tint of salmony-pink in its massive flower-heads, were severally most effective both for size and perfection of culture. Acrophyllum venosum formed a dense bush, 4 feet high and 5 feet across; and a mass of Clerodendron Balfourianum, trained on a globular trellis some 3 feet high, with its strongly contrasted panicles of crimson and white, formed a chaste companion to the fine specimens of Azaleas; these being well flowered and of large size added much to the brilliancy of the group, which, if at all deficient, was wanting in bright yellow tints, though the collection included a good dwarf bush of Erica depressa, flowing down the sides of the pot. The competing collection was many degrees inferior to this, but we noticed in it two elegant plants not commonly seen at exhibitions—Lomatia silæifolia, a mass of bipinnatifid leaves, and Cupania filicifolia. Standing nearly on a par as to merit with Mr. Baines' plants were those from the garden of Sir James Watts, the collection of 12 being altogether a grand lot. Here was a magnificent Genetyllis tulipifera 5 feet across, and a smaller, scarcely less beautiful example of G. Hookeri, looking quite brilliant with its bright orange-red involucres; Franciscea confertiflora, 3 feet by 4 feet; Dracophyllum gracile, 3 feet across; a finely bloomed Heath of the aristata breed, 2½ feet across, and about the same in height; with two good specimens of Aphelexis, and two Azaleas. The second lot from Mr. Stevenson contained a grand Eriostemon neriifolius, 5 feet by 5 feet; two large one-sided Azaleas, and Dendrobium nobile, literally a mass of flowers. In the smaller class of 6 plants, Mr. Kendal, who was 1st, had a fine conical Genetyllis, 4 feet high; Pimelea Hendersoni, 4 feet by 5 feet; a well-flowered Allamanda grandiflora, 5 feet high; and a compact Franciscea confertiflora, about a yard high. Mr. Hobson was 2d. In a group of 10 flowering plants from Mr. Williams, we noticed a good Leschenaultia biloba major, and capital examples of Boronia pinnata, and Eriostemon pulchellus. Mr. Williams' group of 10 foliage plants, which was placed 1st, included a grand Croton pictum, with finely coloured reddish-tinted leaves; a very effective Pandanus ornatus; Yucca aloifolia variegata, a pretty dwarf dense example; Dasylirion plumosum, Beaucarnea glauca latifolia, and a good Phœnicophorium sechellarum. Mr. Shaw, in a second group, had Croton variegatum, noticeably good. The 1st prize collection of 8 foliage plants from Mr. Schloss contained Alocasias metallica and Lowii, two Crotons and a good Yucca. The second lot from Mr. Stevenson had a large mass of Sanchezia nobilis, a plant which appeared in several collections, but was not very effective from not being sufficiently hardened off to stand the exposure without curling up its leaves; Alocasia macrorhiza variegata, and two Crotons. Passing over many smaller sets of good specimens, we come to a class for 12 miscellaneous plants, in which Messrs. Veitch & Sons were placed 1st. This collection comprised a grand Anthurium Scherzerianum, with about two dozen flower-spathes; the distinct and effective Pandanus Veitchii, with white-edged leaves; an exquisite mass of Todea pellucida, 2 feet across; Nepenthes Rafflesiana, with a dozen pitchers; Dieffenbachia Weirii; a fine specimen of Phormium tenax variegatum; the graceful Cocos Weddelliana; and a well-bloomed plant of Anguloa Clowesii. Other groups were shown by Mr. Williams and Mr. Shaw. Heaths were not numerous, but some good specimens came from Mrs. E. Cole & Sons. Of Cycads (8) there was one handsome group which came from Mr. Williams. Ferns, both tender and hardy, were shown in very good condition, but call for no special remarks beyond these, that Mr. Wrigley produced a grand mass of Goniophlebium subauriculatum with fronds 3 to 4 feet long, so finely grown and shown as to gain a special prize; and one exhibitor had adopted with several of his plants a mode of inducing a weeping character in the fronds, which, to say the least, was a questionable interference with their natural gracefulness.

Orchids were shown in considerable numbers, and included some well-managed specimens. Mr. T. Jones and Dr. Ainsworth were contributors of groups of 16; Mr. Fearnley, Mr. Bird, and Mr. Jones exhibited in the class of 8; and specimens were staged by Mr. Gottschalcke and Dr. Ainsworth. In the nurserymen's class of 10, Mr. Williams, Mr. Shaw, and Mr. W. E. Dixon exhibited. One of the most noticeable plants shown was a wonderfully fine and distinct variety of Vanda suavis, remarkable for its stouter stem, broader leaves, and larger flowers, which had the tip of the lip white, and the sepals and petals beautifully spotted. This came from Mr. Gottschalcke, and won the 1st prize as a single specimen. The other specimens were a Saccolabium præmorsum, with two well developed spikes, and a Cattleya Mossiæ, with 25 expanded flowers. The plants in the collections were generally not of large size, but well flowered. Mr. Jones had a richly-coloured Cattleya Mossiæ aurantiaca, with six flowers; Cannarotis purpurea, with 15 spikes, and a good Phalænopsis Lueddemanniana superba, with a beautiful flush of violet in the flowers; and in a smaller group he showed a nice little plant of Epidendrum vitellinum majus with three spikes. Dr. Ainsworth had fine examples of Dendrobium Parishii and Trichopilia marginata, with several species of Aerides and Saccolabium. Mr. Williams had the seldom-seen Cyrtopodium punctatum, with three dense panicles of yellow and red-brown flowers, and remarkable for the great lanceolate bracts being of the same rich colouring as the flowers. We also noticed in a miscellaneous group a charming mass of Dendrobium Devonianum, but without any exhibitor's name attached.

The first place in the competition for new plants was taken by Messrs. Veitch & Sons, of Chelsea, with a remarkably fine group, including the following: Dracæna magnifica from the Solomon Isles, with broad oblong stalked leaves of a reddish bronzy hue, and having a red margin—one of the finest of Dracænas: the Bornean Anæctochilus Dawsonianus, with olive-green leaves, marked with copper-coloured ribs, of which two on each side are simple, and the centre one feathered; Darwinia (Genetyllis) fimbriata, of erect habit, with fringed pink involucres; Pandanus Veitchii, from the South Sea Islands, a vigorous habited plant, with the leaves handsomely striped with white; Croton Hookerianum from Eromango, a beautiful plant, with smooth entire elliptic leaves, bright yellow in the centre; Croton Wisemannianum, with long narrowly lanceolate leaves coloured similarly to variegatum; a handsome Davallia from Borneo, with quadripinnate fronds; Alocasia Jenningsii, Maranta tubispatha, Aralia Veitchii. Phormium Colensoi variegatum, and the charming little stove basket Fern Davallia hemiptera. Mr. Williams had the 2d best group, which contained a large Cordyline (australis) sanguinea; Geonoma zamorensis, a fine new Palm; Cocos Weddelliana, and Pteris serrulata corymbifera, a very peculiar cristate variety, not at all suggestive of its parentage. In a 3d group from Mr. Dixon were Trichomanes Luschnathianum, Ficus eburnea, Phormium Colensoi variegatum, Cocos Weddelliana, and a splendid pan of Anæctochilus Lowii, containing 15 noble crowns—so fine, that a special prize was awarded to it. Mr. Shaw exhibited a good plant of the Croton Wrigleyanum, a sport from variegatum, with the leaves marked by a central yellow blotch.

There were several classes for Roses, but Messrs. Lane & Son were the only exhibitors; they had large plants of the old style of growth, generally well-bloomed, and including Lord Clyde, John Hopper, C. Lawson, and Gloire de Dijon. They were also 1st in the nurseryman's class for 10 kinds, and were the only exhibitors of 30 Roses in flower—small plants, the best of which were Baroness A. de Rothschild, Mons. Noman, Madame Baumann, Napoleon III., Madame Victor Verdier, Madeleine Nonin, Alba rosea, President, and Coquette des Alpes. The Roses contributed by amateur growers were very poor, and it is to be regretted that in a district like Manchester, where plants are generally so well grown, better amateur growers of this flower are not to be found.

Azaleas, which were fine, and a marked improvement on the one-sided plants exhibited last year, formed conspicuous features in the large tent, studded about in groups, relieved by the big ornamental-foliaged plants. Mr. Hanmer's group of 10 was placed 1st, and comprised Gem, Vesta, Juliana, Extranei, Iveryana, Perryana, Admiration, Illustris Nova, Empress Eugénie, Brilliant; in Sir Jas. Watts' group, placed 2d, there were, differing from the foregoing, Duc de Nassau, Striata formosissima, Napoleon III., Duchesse de Nassau, very fine; Stanleyana, Miltoni, and Gledstanesii formosa; these plants were severely formal in shape, nearly of a size, and of the same pattern. Sir James Watts was 1st with six kinds, namely Etoile de Gand, Juliana, Extranei, Præstantissima, Vesta, and Georgeana; and in the class for a specimen Azalea Mr. Hobson was 1st with a finely-flowered Iveryana; and Mr. J. R. Petch, gr. to Sam Mendel, Esq., 2d, with Empress Eugénie. In the nurserymen's class for 8 Azaleas, Mrs. E. Cole & Sons, Withington, were 1st with very fine examples; Mr. B. S. Williams being 2d; and for 12 plants in smaller pots, Messrs. Lane & Son were 1st, with an even and well-flowered lot.

Pelargoniums, both show and fancy, were well shown by amateurs; though not sufficiently in bloom, the growth was every way creditable. In point of bloom, the fancy varieties were inferior to the show flowers.

Variegated Pelargoniums were both well grown and coloured. With 8 kinds, Mr. Balstone, Altrincham, was 1st, with Countess of Tyrconnell, Edwinia Fitzpatrick, Mrs. Dix, Sophie Dumaresque, and Sophia Cusack, golden-edged; and Beauty of Guestwick and Italia Unita, silver-edged. Mr. R. Voss was 2d, with Lady Cullum, Sophia Cusack, Sophie Dumaresque, and Italia Unita, variegated zonals; and Model, Beauty of Calderdale, Compactum, and Princess Alice, of the gold and bronze section. Messrs. G. and W. Yates were 1st in the nurserymen's class for 10 variegated Pelargoniums, having capital and well-coloured plants of the following:—Lady Cullum, Florence, Lucy Grieve, Sophie Dumaresque, Queen Victoria, Lady Craven, Sophia Cusack, and Italia Unita. 2d, Mr. J. Watson, St. Alban's, with Florence, Sophia Cusack, Princess Clotilde, and Mr. Dix; and of the gold and bronze section, Compactum, Perilla, Beauty of Calderdale, and Model. Zonal Pelargoniums were well done by Mr. Fleming, gr. to R. Houghton, Esq., thought it was a pity three nosegays were included in so small a number. In this group William Underwood, a variety of a rich, glowing, pale-orange scarlet, a telling exhibition flower, and Softness, a free-blooming pale pink, were very effective.

An interesting display was made by Messrs. G. & W. Yates, in the class for a miscellaneous collection of bedding plants. They were shown in round pans, and the group comprised variegated, gold and bronze, golden-leaved, and ordinary zonal Pelargoniums, Centaureas, variegated Euonymus, some of the newer kinds of Coleuses, Echeverias, Tropæolums, Dactylis glomerata variegata, the Golden Feather Pyrethrum, Sedums, &c. Messrs. Yates were the only exhibitors. Two collections of 50 hardy alpine and herbaceous plants were staged, Messrs. Yates being again 1st, and Mr. R. Ashcroft 2d. These groups included the double and single white forms of Silene maritima, Dodecatheon Meadia, and Meadia alba; Phloxes frondosa, Nelsoni, and verna; Scilla peruviana alba, and S. campanulata carnea; Linum flavum, Orchis maculata, Gentiana acaulis, Viola pedata, and many other well known plants.

Large collections of hardy conifers were shown by Messrs. John Shaw, Lane & Son, and G. & W. Yates, the prizes being awarded in the order of their names. A group of elegant specimens of the rarer kinds was also contributed by Messrs. Lane & Son. Hardy Rhododendrons and Azaleas in flower

made a good display, the groups of the former being specially attractive. In each case Messrs. Lane & Son were 1st, and Mr. John Shaw 2d. The specimens of Lilium auratum were below the average, possibly it was somewhat early for them. The groups of Amaryllis were also inferior to those usually seen.

In the way of floral novelties but little was staged. Messrs. Downie, Laird & Laing had a basket of their new golden-leaved Alsines, which appeared to excite considerable attention, as also the following gold and bronze Pelargoniums as representing their fine strain:—Brilliancy, Mrs. Stevens, Prima Donna, Harrison Weir, Countess of Kellie, Kentish Hero, Black Knight, and Danaë (Morris). Extremely fine collections of cut blooms of show and fancy Pansies were also staged by the same exhibitors, some of the last being remarkable for the rich colours of the flowers.

The show of fruit was limited, but what was shown was of general good quality, the Grapes being extremely well coloured. A collection was staged by Mr. Geo. Miles, gr. to Lord Carrington, Wycombe Abbey, Bucks, and consisted of Black Hamburgh and Foster's Seedling Grapes, a smooth Cayenne Pine, excellent Elton and Black Circassian Cherries, Elruge Nectarines, Figs, Apples, and Strawberries. Mr. J. Simpson, gr. to Lord Wharncliffe, was 1st for two bunches of Black Hamburgh Grapes; Mr. T. Bannerman, gr. to Lord Bagot, was 1st for two bunches of White Grapes, with the Buckland Sweetwater. Two collections of 6 Pines were staged, but they were generally small and unripe; the single Pines were better, the best being a capital Black Prince. An excellent collection of 6 bunches of Black Hamburgh Grapes was shown by Mr. Simpson, gr. to Lord Wharncliffe, from Vines growing in an aërated border; the bunches were of medium size, but regular and well coloured. Seventeen brace of Cucumbers were staged in competition for the special prizes. The 1st prize went to Mr. Thomas Slatter, who had Telegraph, but somewhat darker in colour than is usually seen; Mr. John Cameron was 2d, with a seedling. Generally the fruit was of good quality.

Crystal Palace Show: *May* 15.—This was a fair average exhibition. Stove and greenhouse plants were some of them remarkably good, but the Pelargoniums were scantily shown; the Azaleas were numerous and generally in very fair condition; while the Roses, of which there was not a very large display, were not so bright and fresh as might have been expected. The Orchids, though not numerous, were fine, and attractive; and the Heaths were both plentiful and good. The competition in the classes for stove and greenhouse plants in flower was very keen. In point of perfection in growth, the collection furnished by Mr. W. Chapman, gr. to J. Spode, Esq., Rugeley, which took the 1st prize, was all that could be desired; the specimens, which were admirably grown, were for the most part of even size, and were very well flowered. Mr. B. Peed, gr. to Mrs. Tredwell, Lower Norwood, was 2d, with a very well grown lot, in which were fine plants of Acrophyllum venosum, Erica Cavendishiana, and Clerodendron Balfourianum. Mr. J. Wheeler, gr. to J. Philpott, Esq., Stamford Hill, was 3d; and Mr. W. Kemp, gr. to the Duke of Northumberland, Albury Park, Guildford, 4th. In the nurserymen's class for 10, Messrs. Glendinning & Sons, Chiswick Nurseries, came 1st, showing in their collection a fine specimen of Stephanotis floribunda, a magnificent plant of Pimelea spectabilis, and a well-bloomed specimen of the pinkish-flowered Erica suaveolens. Messrs. Jackson & Sons, of Kingston, who were 2d, had a very well flowered Erica ventricosa coccinea minor, and a very good specimen of Chorozema cordatum splendens; Mr. B. S. Williams, of Holloway, was 3d, showing in his collection a finely bloomed Dracophyllum gracile, and an admirably well-grown specimen of Clerodendron Thomsonæ, which was scarcely forward enough. Mr. O. Rhodes, Sydenham Park Nurseries, and Mr. R. Baxindine, the Nurseries, Guildford, were placed equal 4th. In the corresponding class for amateurs, Mr. Wilkie, Oak Lodge, Kensington, took the 1st prize, showing some fine Azaleas, a good specimen of Clerodendron Balfourianum, and a well-bloomed Genetyllis tulipifera. Mr. D. Donald, gr. to J. G. Barclay, Esq., Leyton, came in 2d, contributing the best grown and flowered specimen of Medinilla magnifica in the exhibition, and a very good plant of Rhynchospermum jasminoides, in fine condition. Mr. J. Carr, gr. to P. L. Hinds, Esq., Byfleet, and Mr. B. Peed, took the 3d and 4th prizes in the order named.

In the amateurs' class for 6, Mr. J. Ward, gr. to F. J. Wilkins, Esq., Leyton, furnished a magnificent specimen of Chorozema Chandleri, fully 4 feet through, and covered with bloom, the same of Erica Cavendishiana, and a remarkably well grown Clerodendron Balfourianum; Mr. Wright, gr. to C. H. Roberts, Esq., Regent's Park, was 2d; Mr. Wilkie and Mr. G. Wheeler, gr. to Sir F. H. Goldsmid, Bart., Regent's Park, securing the other prizes. In the open class for 12, the best collection came from Mr. R. Laing, gr. to P. W. Flower, Esq., Tooting, who contributed a nicely flowered plant of Mahernia verticillata; and Ixora coccinea, Pimelea Hendersoni, and Rhynchospermum jasminoides, &c., in nice condition. Mr. G. Young, gr. to W. H. Stone, Esq., M.P., came 2d, with a nicely-flowered Boronia tetrandra, well grown specimens of Gleichenia microphylla, Cycas revoluta, and Eriostemon buxifolius, &c. Mr. W. Foreman, gr. to G. Maule, Esq., Denmark Hill, and Mr. W. Gell, gr. to Mrs. Bradley, South Lambeth, were the other successful competitors, the latter of whom showed a remarkably well grown, though not brightly marked specimen of Sanchezia nobilis variegata. Mr. Wilkie took the 1st prize in the corresponding class for 6, with a very neat collection, in which were well-bloomed specimens of Erica Spenceriana and Azalea Rad Leopold; Mr. B. Peed, Mr. J. Carr, Mr. A. Wright, and Mr. J. Woodward, gr. to Mrs. Torr, Ewell, also being prize-takers, the latter two taking equal 4th prizes.

The Azaleas, which consisted chiefly of well known varieties, were not in such good condition as those which have been shown in former years. Mr. B. S. Williams had the best 8 in the nurserymen's class—Duke of Devonshire, Murrayana, and Magnet were in fine condition. Mr. Turner was 2d, with some well bloomed specimens, of which Belle Gantoise, Cedo Nulli, and Duchesse Adelaide de Nassau may be mentioned as being very effective varieties. In the corresponding class for amateurs the best came from Mr. S. M. Carson, gr. to W. Farmer, Esq., Cheam, who furnished some nicely-trained and well bloomed specimens—Mr. G. Wheeler, Mr. W. Gell, and Mr. B. Peed being the other successful exhibitors. For 6, Mr. W. Chapman, gr. to J. Spode, Esq., came 1st with some well grown examples; Mr. Wilkie was 2d; Mr. J. Woodward, gr. to Mrs. G. Torr, Garbrand Hall, Ewell, and Mr. G. Wheeler, securing the other prizes with some very fair plants. Mr. B. S. Williams was again placed 1st in the nurserymen's class for 6, with some well grown specimens. Messrs. Glendinning & Sons being 2d, showing some very good plants, though not quite forward enough.

Of Heaths there was a very large display, and many of the specimens were in very fine condition. In the nurserymen's class for 8, Mr. O. Rhodes, of the Sydenham Park Nurseries, was 1st, showing some well flowered specimens, amongst which were elegans, Cavendishiana, Beaumontiæ, and ventricosa minor; indeed, the specimens of the latter were profusely flowered throughout the exhibition. In Messrs. Jackson's, of Kingston, collection, which was awarded the 2d prize, were fine specimens of Victoria, ventricosa coccinea minor, Devoniana, and pictonia; Mr. E. Morse, Epsom, who was 3d, also contributed some fine specimens. In the amateurs' class for 8, the 1st prize was awarded to Mr. Ward, gr. to F. G. Wilkins, Esq., who furnished a magnificent collection, in which Candolleana, Eximia, the pretty Massoni major, and tricolor elegans were very conspicuous specimens. Mr. J. Wheeler came in 2d, showing in his collection very nice specimens of Victoria Regina and Albertii; the 3d went to Mr. W. Kemp, who had good plants of Westphalingia, albiflora, and Devoniann. In the class for 6, of which many of the former varieties were shown, the 1st prize was taken by Mr. B. Peed.

Of Orchids there was a fine collection of well-grown plants, which were greatly admired. Mr. G. Young, gr. to W. H. Stone, Esq., M.P., who was 1st for 20, had finely-coloured examples of Oncidium pulverulentum, and Vanda suavis; a good specimen of Oncidium sphacelatum, a nice plant of Aerides Feildingii, having two good spikes of bloom; Cattleya Mossiæ superba, very effective in point of colour; Phalænopsis Schilleriana, a fine spike about 3 feet long; Vanda tricolor, a finely-coloured Cattleya citrina, and others. Mr. B. Peed was 2d with an interesting collection, in which were a grand specimen of Oncidium ampliatum majus, having seven good spikes, finely coloured; Dendrobium formosum and chrysotoxum; Vanda insignis and tricolor; Oncidium flexuosum, some fine Cypripediums, and a large specimen of Rodriguesia speciosa, having several excellent spikes of bloom. In the nurserymen's class for 10, Mr. B. S. Williams took the 1st prize, showing some fine Aerides, Vandas, Cypripedium caudatum and barbatum, the latter having 15 finely expanded flowers; a finely-coloured Cattleya superba, Lælia purpurata var. Ellisiana, and the very curious Angulon uniflora. For 12 Orchids, Mr. W. Wilson, gr. to W. Marshall, Esq., Enfield, took the 1st prize with an extremely good collection, in which were the charming Odontoglossum Alexandræ, with five fine spikes; O. lutco-purpureum, Aerides crispum, Lælia grandis, Cypripedium villosum and caudatum, the latter a remarkably good specimen, having 9 fine flowers, some of the tail-like appendages of which were fully 2 feet long. Mr. H. Eckford, gr. to the Earl of Radnor, who was 2d, had in his collection some very good Saccolabiums, Oncidium leucochilum, a fine spike about 4 feet long, Cypripedium barbatum, a large specimen of Brassia Lawrenceana, and the delicate Dendrobium pulchellum, in beautiful condition.

Roses were not shown so numerously as might have been expected, nor were some of the flowers exhibited so fresh as could be wished for; nevertheless, in Messrs. Paul & Son's collection of 10, which took the 1st prize, there was a magnificent specimen of Victor Verdier, and good examples of John Hopper, Lord Clyde, and Madame Margottin; Mr. Turner, who took the 2d prize, had some well-grown and beautifully-flowered specimens of Charles Rouillard, Miss Ingram, Clotilde Roland, and Reine du Midi. For 12 varieties in 8-inch pots, Mr. Turner and Messrs. Paul & Son were placed equal 1st. The latter firm also contributed a large miscellaneous collection, which mainly consisted of the well-known kinds.

Pelargoniums, though few, were in fair condition. Messrs. Dobson & Sons, Isleworth, were the only exhibitors in the nurserymen's classes, and received the 1st prizes in both instances; their specimens of Maid of Honour, Marksman, Charles Turner, Statesman, and Beacon, and (among Fancies) of Lucy, Tormentor, Godfrey, and Roi des Fantasies, were especially well grown and abundantly flowered. In the amateurs' class for 12, Mr. Ward, gr. to F. G. Wilkins, Esq., exhibited some very large and well-bloomed specimens, of which the following were particularly showy:—Desdemona, Sir Colin Campbell, Lilacina, Garibaldi, Etna, and Madlle. Patti. For 6 Fancies in 8 in pots, Mr. D. Donald, gr. to J. G. Barclay, Esq., came 1st, with a very good collection; and the 3d was awarded to Mr. W. Foreman.

Amongst miscellaneous subjects exhibited were specimens of Thrinax gracilis and Areca nobilis, from Mr. B. S. Williams, to each of which First-class Certificates were awarded. The same award was also made to two seedling Pelargoniums, named Impératrice Eugénie and Danaë, from Messrs. Downie, Laird & Laing, and to Leotard and East Lynn, from Mr. Turner, of which more will be said on a future occasion. Mr. Turner also received a First-class Certificate for Alpine Auriculas, Gaiety, Superb, and Goliath. Collections of miscellaneous plants were also exhibited by Messrs. Downie, Laird & Laing, and Messrs. Carter & Co. Mr. T. S. Ware had also a fine collection of spring-flowering plants. A good collection of cut Tulips came from Mr. Turner, and a small collection of Rhododendrons, from Mr. G. Clark, Brixton Hill.

The show of bouquets, which formed one of the principal features of the exhibition, did not produce such an amount of competition as was expected, nevertheless there were a few tastefully arranged groups of 3, consisting of a vase bouquet, a bridal bouquet, and one suitable for the ball-room. Those shown by Mr. W. Howard, gr. to J. Brand, Esq., Balham, took the 1st prize; Mr. Dickson, Covent Garden, who is an artist in the manufacture of bouquets, came in 2d, with fine examples of taste and skill in arrangement; Mr. F. Perkins, of Leamington, was 3d; M. Van der Driessche, Leys, Ghent, being awarded a special prize. Single bouquets were exhibited by Messrs. Lucking Brothers, Westbourne Park; Mr. F. Perkins, Leamington, and M. Van der Driessche, Leys, Ghent, who carried off the prizes in the order in which their names are mentioned. Some of these were tolerably effective, but nothing was shown of striking merit.

Royal Horticultural: *May* 18.—W. Wilson Saunders, Esq., F.R.S., in the chair. The Rev. M. J. Berkeley referred to some fine examples of Mushrooms furnished by Mr. Earley; and to a very large specimen of field Mushroom exhibited by Mr. Barnard. Mr. Berkeley stated, in reference to its qualities, that he did not consider it to be wholesome when so yellow in colour, and further mentioned that whenever he had visited Covent Garden Market in the Mushroom season he had invariably found that the Mushrooms sold in the outside portion of the market belonged to *A. arvensis*, and that the true Mushrooms, *A. campestris*, were only to be bought in the shops in the Central Avenue, and these were mostly produced by artificial means. Mr. Berkeley then commented upon some Potatos, sent from the Society's garden, that were in a similar condition to those mentioned at p. 530, which at first had been thought to have been caused by insects, but which was not the case; the old tubers were composed of a peculiar hard and glassy substance, which was probably caused by over ripeness, owing to the heat and dryness of last season. He (Mr. Berkeley) was inclined to think that it was due to the same cause as the disease known in Scotland as curl. Mr. Berkeley then referred to some further specimens of diseased shoots of Peaches and Nectarines, alluded to in the report of the Scientific Committee. A variety of brown Cabbage Lettuce, sometimes called the Trout Lettuce, was then shown to the meeting, stated to be of good quality, but not likely to find favour with cooks owing to its colour. Mr. Berkeley then read an interesting communication respecting the best varieties and the culture of Indian Maize, which will be found in another column. With reference to the maple shown at the last meeting, under the name of Acer japonicum, Mr. Berkeley stated that he had examined the fine collection of Acers at Kew, and discovered that Mr. Standish's plant was a variegated form of Acer rufinerve. He (Mr. Berkeley) then announced that Lady Dorothy Nevill had kindly offered a 2d prize to be competed for, with species of Narcissus. A specimen of Rhododendron Beauty was next alluded to, as being a garden hybrid, the male parent of which was Minnie, and the female parent, Gem; and it was curious to observe that, in this case, the characters of the female predominated over those of the male, contrary to what was the case in those shown at the last meeting. Attention was next directed to a fine collection of Rhododendron blooms, sent from the gardens of J. L. Wynne, Esq., Coed-Coch, Abergele, amongst which was a remarkably fine truss of R. Falconeri, in which variety the stigma was unusually large; and Mr. Berkeley stated that the cause of failures in crossing these plants was sometimes attributable to the too large size of the pollen tubes, which, in consequence, were prevented from penetrating the tissues of the stigma. It was also worthy of notice that the pollen of the short stamens of both Rhododendrons and Pelargoniums produced very different results from that of the long stamens. Mr. Berkeley also stated that in Wales, Rhododendrons were found to do well on the slate formations, but not on the mountain limestone. Attention was also called to a variegated Hydrangea, the leaves of which had a milky appearance, owing to a formation of white cells over the green ones. In conclusion, Mr. Berkeley referred to the specimens of Golden Oaks, shown by Messrs. J. and C. Lee, of Hammersmith, which were in fine condition, and which were valuable acquisitions.—The Chairman then said that a new Orchid-house, about 40 feet long, had just been completed in the Society's Garden, to receive as fine a collection of cool Orchids as the country could show, which had been presented to the Society by James Bateman, Esq., and he (the Chairman) moved a vote of thanks to Mr. Bateman for his extreme liberality, which was carried unanimously.—Mr. Bateman, in returning thanks, paid a well-merited compliment to Mr. Eyles for his success as an Orchid grower, and after alluding to some of the Orchids exhibited, adverted to the sad loss which horticulture had sustained in the death of Sir C. Wentworth Dilke, Bart.

The Chairman then called attention to two inconspicuous Orchids—the one remarkable for its sweet perfume, and the other for its disgusting odour. He also alluded to some species of Agave which were exhibited, and stated that these plants were in great repute on the Continent, where large prices were paid for them. He proceeded to state, that in his opinion undue stress had been laid on the form of the leaves, in distinguishing one species from another, such characters being insufficient for the purpose.

Scientific Committee: *May* 18.—W. W. Saunders, Esq., F.R.S., in the chair. After the minutes had been read and confirmed, some Pears were exhibited almost completely destroyed by the larvæ of some dipterous insect.

Mr. Berkeley, alluding to the diseased Sugar-cane, exhibited at the last meeting, stated that he had since discovered on the leaves of the plant a species of Hysterium.

Dr. Thomson reported that he had observed a movement in the leaves of the Papaw at Kew similar to, but not to so great in amount as, that mentioned by Mr. Hanbury, at the last meeting. Other members of the Committee stated that they had observed the like phenomena in India.

Mr. Earley sent a specimen of the common white Lily in a diseased condition; it was supposed to have originated from excessive or irregular growth, or perhaps from an injury causing the stem to split on one side, and inducing gradual decay of the interior, and death of the leaves from below upwards. The bulbs appeared perfectly healthy.

Mr. Woodford, gr. at Eastwell Park, sent leaf-bearing shoots of Peaches, Nectarines, Apricots, &c. The leaves presented small circular patches of dead tissue, which in some cases fell out, leaving circular holes. Mr. Berkeley remarked that he had seen similar results from the sudden chill created by drops of rain falling on the leaves.

Some conversation then arose as to the nature of the Moss-like spots occasionally met with on paper, and referred by Lyngbye and others to Conferva dendritica. It was, however, stated that the spots, whatever they were, were not of organic origin.

Mr. Horne exhibited drawings of a fasciated branch of Mango, with a crest of leaves along the top, thus resembling a punkah or Indian fan.

A communication from M. Van Houtte relating to the influence of the graft on the stock was read (see p. 554).

Dr. Masters laid on the table a report on the present condition of the seeds in the experimental boxes at Chiswick.

The Chairman then exhibited drawings of the fruits of several wild Apples and Pears growing in the neighbourhood of Reigate. The fruits were variable in size, colour, and flavour, &c.; some might possibly be degenerate conditions from trees cultivated in former times, while others seemed, in the Chairman's opinion, to indicate an ameliorated condition of a wild form. Full details on this important matter will be given in the Journal of the Society. Mr. Berkeley remarked that, prior to the introduction of Mahogany, the wood of the service tree was frequently used in England for cabinet-maker's purposes. He also alluded to the fact that the Bess Pool Apple had been found originally growing in a hedge in Northamptonshire, and adverted to the large green crab which had been found wild by Major Trevor Clarke, and exhibited at one of the Society's meetings.

The Chairman exhibited a singular Cucumber, with a stalked leaf proceeding from the side. Dr. Masters remarked that a similar case had been figured and described many years since by Mr. S. J. Salter.

A conversation then arose as to the Paulownia, which is in full bloom in many places this spring. The general opinion of the Committee seemed to be that the abundance of bloom this season was due to the thorough ripening of the wood, which the hot season of last year had induced. Winter frost, it was considered, had less to do with the frequent dropping of the flower-buds before expansion than imperfect ripening of the wood in the previous summer. Dr. Welwitsch stated that in Portugal, where there were occasionally sudden and severe fluctuations of temperature, the flowering of the Paulownia was much impaired in consequence.

Floral Committee.—The Rev. J. Dix in the chair. The chief features of the display were a fine group of new plants from Messrs. Veitch & Sons: several baskets of Rhododendrons, &c., from Mr. Noble; and a collection of new varieties of Coleus from the Chiswick garden. Of important novelties, Messrs. Veitch contributed Vriesia Glaziouana, a bold massive-looking bromeliad, with broad erect glossy leaves, recurved at the tips; Martinezia Lindeniana, a very distinct Palm, with broad leaves, split at the apex, and jagged at the margin, and supported on glaucous stalks, furnished with long slender spines intertwined with shorter ones; Agave Verschaffeltiana, a handsome dwarf species, with short broad acuminate glaucous leaves, edged with spines variously directed, and set on marginal protuberances; Ladia purpurata alba, a variety with pure white sepals and petals, and a lip faintly tinted and veined with pale rose, and stained with yellow at the base; and Miltonia virginalis, a handsome plant, with large white flowers, having a broad flat lip, marked with deep rosy stripes. Mr. C. Noble, of Bagshot, sent Clematis Lady Londesborough, a variety of the same breed as those noticed at the last meeting, and producing large showy flowers of a pale lilac tint. Mr. Green, gr. to W. W. Saunders, Esq., sent a beautiful New Grenada Acineta, with large waxy clear yellow flowers, with an enclosed reddish-brown lip. The foregoing all received First-class Certificates. Odontoglossum Reichenheimii, a species with chocolate-spotted sepals and petals, and a rosy lip, white towards the tip; and a dwarf Sarracenia somewhat resembling S. flava, but with less dilated pitchers, and an erect sessile lid, both from Messrs. Veitch; and Rhododendron Beauty, from Messrs. Standish & Co., noticed at p. 532, severally received Second-class Certificates.

Among the other subjects exhibited, were the following from Messrs. Veitch:—Pandanus furcatus, apparently a strong-growing plant; Tillandsia Lindeniana, a neat plant, with recurved leaves striated with reddish-brown, but not sufficiently advanced; Nidularium splendens, with bronzy, shiny leaves, the centre ones bright crimson red at the base; N. marmoratum, having the leaves blotched with chocolate-brown; and N. pictum, a bolder species, with yellow green leaves spotted with deeper green; Dæmonorops melanochætes, a spiny-stalked, elegant, pinnate Palm; Maranta Wallisii, a miniature of zebrina; Agave applanata, a species with short glaucous leaves, terminating in a long spine, and with smaller red spines on the plain edge; and Rhaphis humilis, a neat Fan-Palm. Messrs. Carter & Co. sent a collection of variegated Pelargoniums, and plants of the silver-variegated Coleus Beauty of Widmore, the latter being also sent by Messrs. Downie, Laird & Laing; it is, we are informed, a sport of Lamontii. G. F. Wilson, Esq., sent the yellow-flowered Lilium Szovitzianum. From Mr. G. Turnell, Plumstead, came a nice example of Saccolabium curvifolium, which obtained a Special Certificate. Messrs. A. Henderson & Co. sent Lastrea Sieboldii variegata, a variety previously certificated, and Begonia Duchartrei, a French hybrid between B. Pearcei and subpeltata, but apparently of little value. A good plant of Cattleya Mossiæ, from the garden of the Rev. F. Beadon, Southampton, gained a special award. Messrs. Carter & Co. further sent samples of a bedding Wallflower of dwarf habit, with clear deep yellow flowers, called Tom Thumb, which it was recommended should be tested at Chiswick. In Mr. Noble's group were included Rhododendron The Queen, a handsome variety, with large trusses of blush-white smooth-edged flowers, spotted with buff; and R. Duke of Cambridge, a deep crimson, with black spots, in close trusses but rough; Clematis Duke of Buccleuch, a pale lavender flower; and C. Estelle Russell, a French white. Mr. Turner sent two Azaleas—Reine Marie Henriette, a large but rough pale flesh-pink, with white edge and deep spotting; and Mrs. Turner, a sort in the way of salmonea albo-cincta, of a pale salmon with white edge, spotted and flushed with rosy purple. A good specimen of Anthurium Scherzerianum, with 10 perfect spathes, from the Society's garden, had a Special Certificate. Messrs. J. & C. Lee contributed two handsome plants of the golden-leaved Quercus Rober Concordia, and two double Petunias. From Mr. Saunder's collection came several small-flowered Orchids. Mr. Morgan of Torquay sent Coleus Morgani, a variety too closely resembling Verschaffeltii. Miss Maby, Woolston, Southampton, sent some cut blooms of Fancy Pansies, remarkable for their rich and showy colouring. Mr. Harman, Denham, Uxbridge, sent an Ivy-leaved Pelargonium, called Mrs. Lambert, a strong-growing trailing plant, with rather coarse leaves, irregularly margined with white. Finally, from the garden of J. Lloyd Wynne, Esq., Coed Coch, Abergele, came some handsome cut trusses of Rhododendrons, and amongst them a splendid example of Rhododendron Falconeri.

Fruit Committee.—On this occasion Mr. C. Turner exhibited three remarkably fine specimens of Blue Gown Cucumber, one of which was 26 inches long, of fine symmetrical shape, with a splendid bloom, and of excellent flavour. A First-class Certificate was awarded to them. From Mr. Wm. Gardiner, gr., Eatington Park, Stratford-on-Avon, came a collection of fruit, to which a Special Certificate was awarded, consisting of finely-kept Apples, a dish of Elruge Nectarines, which were rather pale in colour and watery in flavour; one bunch each of Trentham Black and Black Hamburgh Grapes, of which the former was much the best flavoured; and a branch of Apricots laden with fruit, similar to those mentioned at p. 531. Mr. J. Miller, gr. to Lord Foley, Worksop Manor, sent some finely-coloured Violette Hâtive Nectarines, the flavour of which was rather poor; a nice dish of rather small Brown Turkey Figs, pale in colour, but of tolerably good flavour; and some good specimens of a Cabbage Lettuce named Grand Admiral. Mr. Earley, gr. to F. Pryor, Esq., Digswell, exhibited a very good dish of Mushrooms, for which he received a Special Certificate; and also a sample of young Potatos grown in the open air without any protection whatever, the haulm of which was very healthy and about 18 inches high. From the Society's Garden, Chiswick, came some Potatos, referred to by Mr. Berkeley at the meeting; and also some fine examples of Messrs. Nutting & Sons' Sugar-loaf Lettuce, a brown variety of the old Bath Cos Lettuce, which was considered to be a useful sort, and to which a First-class Certificate was awarded. A large Mushroom, said to be Agaricus arvensis, which was found growing with many other good-sized examples on the farm of Mr. S. Barnard, at Hemingford Grey, near St. Ives, was also exhibited; it measured 32 inches in circumference, and weighed 1¾ lb.

ROYAL BOTANIC: *May* 19 and 20.—This show, in so far as the plants shown were concerned, was a very successful one, but the weather on the opening day was most unpropitious.

In the amateurs' class for 10 stove and greenhouse plants, of which many of the specimens were the same as exhibited at the Crystal Palace, Mr. W. Chapman furnished splendid plants of Ixora coccinea, Erica ventricosa coccinea minor, &c. Mr. Wilkie had a grand specimen of Medinilla magnifica, Pimelea mirabilis, and Dracophyllum gracile, finely flowered. From Mr. J. Ward, gr. to F. G. Wilkins, Esq., came a well-grown collection, in which Tremandra ericæfolia, Clerodendron Balfouri nanum, Stephanotis floribunda, Erica tricolor, elegans, and Cavendishiana were in first-rate condition; as also were specimens of Pimelea Hendersoni, Azalea Criterion, and Eriostemon buxifolius, contributed by Mr. B. Peed. In the corresponding class for nurserymen, Messrs. Glendinning & Sons, Messrs. Jackson & Sons, Kingston; Mr. B. S. Williams and Mr. O. Rhodes, were the prize takers—each furnishing fine groups of admirably-grown plants. Mr. D. Donald exhibited some grand specimens in the class for 6, amongst which Adenandra fragrans, Clerodendron Thomsonæ, and a large, well-flowered Epacris grandiflora, were very conspicuous. Azaleas, Ericas, and Epacris miniata splendens, in good condition, were also contributed by Mr. G. Wheeler; and a very neat group came from Mr. W. Kemp. Fine-foliage and other flowering plants were furnished by Mr. Fairbairn, Syon House Gardens, who had a well-grown specimen of Maranta rosea picta, with very clear markings; a very large plant of Thamnopteris Nidus, Cocos mucifera, and the brownish-yellow flowered Oncidium altissimum. Mr. A. Wright contributed good plants of Pandanus ornatus, and P. javanicus variegatus; a remarkably well-grown specimen of Phænocoma prolifera was shown in the collection sent by Mr. J. Carr; and Mr. D. Donald furnished good specimens of Dipladenia amabilis, a fine specimen of Dracæna lineata, Clerodendron Balfouri nanum, and a well-grown plant of Cordyline indivisa. Mr. Peed, Mr. G. Young, and Mr. Wilkie also contributed very effective groups.

Cape Heaths were shown in beautiful condition in the nurserymen's class by Mr. B. S. Williams, Messrs. Jackson & Son, and Mr. Rhodes; and in the class for amateurs very nice groups were furnished by Mr. J. Ward, Messrs. J. & G. Wheeler, and Mr. Peed.

Azaleas were shown in very fair condition, but not nearly so good as on previous occasions. Messrs. Glendinning & Sons contributed the best 8 in the nurserymen's class. Mr. B. S. Williams furnished some nicely flowered specimens, and took the 2d prize. Mr. Turner and Mr. Rhodes were also competitors, and received the other prizes. In the amateurs' class for 8 Mr. Wilkie, Addison Road, Kensington, came 1st, with some well-grown and nicely-flowered specimens, of which Elegans superb and Magnificent were especially good, as also were Mars, Delecta, and Criterion, furnished by Mr. Chapman.

Of Orchids there was a good bank of well-grown plants. The best 6 in the nurserymen's class came from Mr. B. S. Williams, who had a grand specimen of Dendrobium densiflorum, having six spikes of bright orange flowers; a fine Cypripedium barbatum superbum, and the bright yellow Oncidium ampliatum majus. Mr. Bull, who was 2d, contributed a good plant of Angræcum sesquipedale, some nicely flowered Vandas, and Cattleya Mossiæ, finely-coloured. In the corresponding class for amateurs, Mr. J. Ward, gr. to F. G. Wilkins, Esq., Leyton, had a magnificent plant of the free-flowering Oncidium sphacelatum, the prettily-fringed Oncidium serratum, a fine spike; Mr. Hill, gr. to R. Hanbury, Poles, Ware, Herts, furnished a fine Lælia purpurata, with 11 very large flowers, and Cattleya lobata, in good condition; Mr. A. Wright sent Odontoglossum hastilabium, Aerides odoratum, and Trichopilia suavis, all nicely bloomed. In Mr. B. Peed's collection of 8 were some well-grown and beautifully-flowered Vandas, &c., and Oncidium ampliatum majus, with 6 fine spikes. In this class Mr. Eckford, gr. to the Earl of Radnor, also furnished some charmingly-flowered specimens of Saccolabiums, Oncidiums, and Cattleyas, &c.; while from Mr. G. Young, gr. to W. H. Stone, Esq., came a good collection, like that exhibited by him at the Crystal Palace; and a very interesting group was furnished by Mr. J. Wheeler, gr. to J. Phillpott, Esq., Stamford Hill.

Ferns, though not numerously exhibited, were shown in good condition by Mr. W. Taylor, gr. to J. Yates, Esq., Highgate, who had beautiful specimens of Cyathea excelsa and medullaris, Gymnogramma Mertensii, Davallia bullata, and Dicksonia antarctica; by Mr. Wilkie, who had Lomaria nuda, Cyathea dealbata and Gleichenia semivestita, a fine and exceedingly well-grown specimen of which was also shown by Mr. A. Wright, who furnished a very fine group. In addition to the Ferns exhibited, Mr. Parsons, gr. to R. Attenborough, Esq., Acton Green, contributed an admirably-grown group of Lycopodiums.

Of Pelargoniums, which formed one of the most attractive features of the show, admirable collections were shown both in the amateurs' and nurserymen's classes. In the former class especially, the 9 furnished by Mr. J. Ward, gr. to F. G. Wilkins Esq., which took the 1st prize, were remarkably well grown, the following sorts being the most effective:—Rose Celestial, about 4 feet through, literally covered with bloom; Lilacina, Madlle. Patti, Conqueror, and Caractacus. Mr. D. Windsor took the 2d prize with some very well-grown specimens. For 6 Fancies, Mr. Windsor was 1st with a finely-flowered collection, and Mr. D. Donald 2d with good specimens of the usual show varieties. Messrs. Dobson & Sons took the leading prizes in the nurserymen's classes, with some admirably-grown specimens, Messrs. Glendinning & Sons, of Chiswick, coming in 2d.

Roses were shown in a very good and fresh condition by Mr. Turner and Mr. Wm. Paul, who took the prizes in the nurserymen's class for 10-inch pots, not larger than 13 inches in diameter. In Mr. Turner's collection were magnificently flowered specimens of Vicomte Vigier, John Hopper, Paul Perras, Maréchal Vaillant, Souvenir de la Malmaison and Charles Lawson, a grand specimen, having about 50 nearly expanded blooms. Mr. Wm. Paul furnished admirable examples of Madame Charles Wood, Jean Goujon, Louise Odier, Madame Willermoz, Victor Verdier, and Paul Ricaut. Mr. J. Terry, gr. to A. G. Puller, Esq., Youngsbury, Ware, Herts; and Mr. T. Godfrey, gr. to J. Anderson, Esq., Inkerwyke House, Wraysbury, also contributed very nice specimens in the class for 6. Charming collections were also exhibited by Mr. W. Paul, who had Rev. H. Dombrain, Le Rhone, Madame Fillion, and Alba rosea, all in good condition, and by Messrs. Paul & Son, who furnished in a very nice lot a specimen of Michel Bonnet, a fine shaped bright pink flower. The latter firm also contributed 10 boxes, filled with a rich and varied collection of cut Roses, of mostly well-known kinds.

Amongst florists' flowers shown were some very fine seedling Pelargoniums from Mr. Turner, to some of which First-class Certificates were awarded. Messrs. Carter & Co., Messrs. E. G. Henderson & Son, and Messrs. Downie, Laird & Laing, also exhibited some fine zonal Pelargoniums, which will be more fully noticed at another time. Some remarkably fine boxes of Pansies were exhibited by Mr. James, Mr. Hooper, Mr. Davies (Willesden), Mr. Kingston, of Bath, and Messrs. Shenton & Co., the Botanic Nurseries, Biggleswade.

The new and rare plants shown were very numerous, large collections being staged by Messrs. Veitch & Sons and Mr. Bull, and smaller groups by Mr. Williams and others. These collections included a large number of new Palms, but many of them in an insufficiently developed condition. In Messrs. Veitch's group some of the more prominent subjects—which the pressure on our space forbids us to describe—were Cyathea Hookeri, Davallia hemiptera, Asplenium fernandezianum, Phormium Colensoi variegatum, P. tenax Veitchii variegatum, Vriesia Glaziouana, Tillandsia Lindeniana, Nidularium pictum, Dæmonorops melanochætes, Martinezia Lindeniana, Agaves De Smetiana, applanata, and Verschaffeltii; Yucca De Smetiana, the Sarracenia noticed in our report of the meeting at South Kensington, and a pretty delicate variety of Lælia purpurata named alba. In Mr. Bull's group we noticed Martinezia Lindeniana, Livistonia rotundifolia, Chamærops gracilis, Geonoma zamorensis, imperialis, and pumila; Ptychosperma nobilis and elegans; Dæmonorops Lewisianus, Vriesia Glaziouana, Encephalartos elegans and grandis, Cycas Armstrongii, Ficus elastica, Adiantum Seemanni, Nothochlæna candida, and Asplenium fernandezianum. Messrs. Carter & Co. had a basketful of the fine Echeveria metallico-glauca. Mr. Williams had a rather pretty Miltonia in the way of stellata, with creamy sepals and a broad rosy-striped lip resembling that of virginalis, of which it is probably a variety; Cypripedium barbatum grandiflorum, the largest-flowered variety yet obtained; the curious Pteris serrulata cerystibifera, and Tillandsia Lindeniana. Mr. Turner showed several Azaleas, of which one called George Eyles was a finely-formed orange-red, of large size, and Reine Marie Hortense was a distinct-looking, but, as shown, a rough flower, of a pale salmon-pink, freely spotted; also a yellow-leaved Tropæolum named ochroleucum. Messrs. Downie, Laird & Laing showed fine masses of Coleus Albert Victor, Baroness Rothschild, and Princess Beatrice; Messrs. E. G. Henderson & Son, a new Coleus called Princess Teck; Mr. Turner, the variety called Princess Royal; and Mr. Bull, Princess Louisa, Queen Victoria, Duke of Edinburgh, and Her Majesty. With one or two exceptions, the subjects we have mentioned above severally received First-class Certificates.

Mr. T. S. Ware had, as usual, a large and varied assortment of spring-flowering plants, which were unusually attractive from the tasteful manner in which they were arranged on a sloping bank of Grass. Mr. Dickson, of Covent Garden, also exhibited three bouquets, which were most splendidly made up of Orchids, &c, and here and there fine flower-spathes of Anthurium Scherzerianum were distributed through them, which gave them a rich and charming appearance.

The Apiary.

BEST ASPECT FOR BEES.—Will you please to give me your opinion in next number of *Gardeners' Chronicle* as to which is the best aspect to fix bee-hives for young swarms. *W. Kelway.* [Some diversity of opinion exists as to the best aspect for hives. A few years since we instituted a course of experiments with a view to the solution of this very problem. Having apiaries in three separate localities within a circle of about five or six miles, we placed hives in various positions, facing almost every point of the compass. We came to the conclusion that it mattered very little what aspect—excepting perhaps due north—the hives were placed in, provided that they were sheltered from cutting draughts and not exposed to too much sun, while, at the same time, the sun shone on or about them during some part of the day. A due western aspect has, on the whole, given the most satisfaction, if the results of the honey harvest prove anything. This was the case in two different apiaries. In both instances the hives were sheltered from the east by trees or a wall at the back. Thick evergreen bushes grew on the south side, so that they were not exposed to the full blaze of the noontide sun. There was no other protection from the north than was afforded by low trees or shrubs scattered about the lawn or garden of the respective localities.

On the other side of the lawn of the first apiary, exactly facing the hives just alluded to, there was a row of hives standing on separate pedestals, at intervals of about a dozen feet. Each stock occupied a small recess in the shrubbery, formed by thick evergreen bushes of about 10 feet in height, which at certain intervals projected beyond the background of higher bushes and trees which rose behind them; in fact, precisely reversing the condition of their opposite neighbours. These also did very well, but not so well as the others; both quantity and quality of the honey obtained in the supers were inferior. Then, again, in the same apiaries, other hives faced due south. These, as a rule, gave results only a little less satisfactory than those having a western aspect. In the third apiary hives were tried facing north and south, south-east and east. From peculiarities of the position of dwelling-houses and trees about this garden, the due eastern and southern aspects have, after many years' trial, proved the best for the welfare of the hives. In your choice of aspects be guided by the position of your garden. Avoid placing your hives facing the most prevailing cutting winds. If intended for depriving purposes more than for increase from swarms, do not place your hives close to a hot wall or corner facing due south. Shade, if possible, a little from the mid-day sun in summer. By facing them south-east or south-west, a thick bush or an upright wooden screen standing due south of them will prove of great benefit. If such modes of shading are impracticable, stretch some cloth a foot or two above and over the front of the hives. This will allow of a free circulation of air about them, and while warding off most of the intense rays of the sun, will not interfere with a due amount of light—an important matter.

While endeavouring to make available the shelter of bushes and low trees, do not stand your hives immediately underneath their boughs. They will suffer then from drip and dampness. If you can manage the room, let each hive be on a separate stand, placed not less than eight feet from its neighbour, having its own case and roof complete. This may prove rather more expensive than bee-houses to hold several hives, but affords much greater facilities for successful manipulation or management.

We think there may be an advantage in varying the aspect of hives located in the same garden. According to the time of the day that the sun's rays strike on the hives, so will the industry of their inmates be influenced. Some hives will commence work earlier in the morning, and some will sally forth later in the evening than others; and their respective periods of greatest activity during the day will also be influenced by their aspects and shading.]

Miscellaneous.

Testimonial to Mr. James M'Intosh.—A handsome testimonial has recently been presented to Mr. James M'Intosh, on the occasion of his retiring from the position he has for many years occupied as head gardener to the Duke of Buccleuch, at Drumlanrig.

Birmingham Rose Show.—We are requested to state that a change has been made in the days on which this show will be held. The date now fixed is Friday and Saturday, July 9 and 10.

Substitute for Green Peas.—There is an old custom still practised in some parts of Cheshire, as well as in other agricultural districts, of cooking new Wheat with milk, under the name of furmety. This milk porridge, or, as it would be called in the North, milk broth, was served up at the Wakes which, in the parish that I refer to, took place on the 29th of June, at which time the Wheat would generally be full, although still soft. I mention this to show that we Britishers, as the Americans call us, have actually eaten green corn cooked after our own fashion. Where Indian Corn is cultivated, the green corn is constantly used as we use green Peas, and there is very little trouble indeed with the cooking, as the corn is shelled in a few minutes, and the dish is then ready for boiling. I am well aware that it is not held "respectable" to copy the manners of the Americans, but the fact stands unquestioned, that the Englishman, when transplanted to America, eats freely of Indian Corn, cooked like green Peas. I have lately observed in an agricultural paper some instructions respecting the cultivation of Maize in this country, in which it was stated that the seed should be sown early in March. This might just chance to be right once, perhaps, in a century—for I have seen the Grass scorched by sunshine in March—but this has happened once only in a long lifetime. Some 20 years ago the Forty-Day Maize was freely advertised, and if I recollect aright, we paid 20*s.* for a small bag of the seed corn, the bag probably containing about 2 quarts of grain. There were very sensible instructions sent along with the seed. I succeeded in growing it, and it ripened to perfection in the climate of Devon. But the instructions were, that the seeds should not be sown until the earth had got warm, and the May-bug, blind beetle, and bumbledor had made their appearance. The instructions further stated, that the seeds were to be sown where they were to remain, as the plant would not suceeed well when sown in pots and transplanted. The seeds must, therefore, be sown about the middle of May, and be left to take care of themselves. The plant is a sturdy-growing variety of Maize, yet a gigantic Grass some 4 or 5 feet high, with fine broad leaves. It is a subtropical plant of the easiest culture, and if kept clear of frost, it has little else to fear in ordinary seasons. It requires no prop, like Peas, to support its stem, and will yield abundantly, being a sure cropper. If cottagers throughout the country had at this season a few seeds supplied to them, it would enable them in the course of the summer to compete with one another as to who should grow the best dish of green corn. And when our middle-class families once know the delicacy of this vegetable, it will, I am confident, often be found occupying its place as one of the corner dishes at the festive board. *A. Forsyth, in "Florist and Pomologist."*

Garden Operations.

(For the ensuing week.)

PLANT HOUSES.

Fuchsias, which are now at the height of their growing season, will require almost hourly attention, if they are to be treated successfully. At least three distinct changes should be admitted into the treatment of plants that are intended to form good specimens, from the time they are started into growth, whether as cuttings or old plants which have had a season's rest. The preliminary stage commences with the first potting and placing into moderate heat, advancing by a gradual and constant increase to a high and moist temperature at the full period of their growth. By constantly pinching back the points of the young shoots, as often as they push, to two or more pairs of leaves, the framework of the future specimen may be formed. During this stage, the condition of the roots should be particularly studied, and if these are numerous and strong there need be no fear but that an abundance of strong shoots will keep forming as often as they are pinched back. If however there is a deficiency of roots, no amount of skill can ensure a rapid and robust surface growth. And what is of equal importance, the progress of quick growth is greatly neutralized by the constant formation of flower-buds. These should be pinched out immediately they are discernible. If very large specimens are required, and the above conditions are complied with, these plants may, with shifts as often as is necessary, be continued growing onward until the requisite size is nearly attained. When it is desirable to commence flowering them, the final shift should be given, about a week or 10 days before removing them from this stage of active growth to a more exposed and airy position. There, whilst gradually inuring them to the full sun and air, a moderate growth may still be kept up, until, after pinching back once or twice, the shoots will have again pushed forth a multiplicity of side shoots, on which the flowers will form freely: thus the first stage is arrived at. In this condition, and with the roots well up to the inner sides of the pot, it becomes necessary to afford a constant supply of some liquid stimulant, and if possible a good thick surfacing of rotten dung should be given to each pot, when the second stage will be safely bridged over. The third and last stage is to protect and maintain healthy foliage upon each plant during its future flowering period, to which I hope to refer again at the proper time. Amongst the numerous varieties which were shown at Kensington last season, Fuchsia Garibaldi struck me as likely to prove an acquisition, judging by its flowers only. In form the sepals are broad, well recurved, and coloured crimson; the corolla, wherein the main feature consists, being in colour of a deep lavender blue, flaked or irregularly striped with bright purplish carmine. *Greenhouses* and *Conservatories* will now need a little moisture in the air. This must be afforded by occasionally sprinkling over all plants which are actively growing, and which have no flowers likely to receive injury, and by keeping all other surfaces constantly more or less moist. A moderate supply of night air may now be admitted also into all such structures.

FORCING HOUSES.

In many *Vineries* Grapes will be ripening apace, and a good high temperature should be studiously enforced, even up to 100°, with full sun, if all proper precautions are being taken to afford the necessary amount of air, sufficient, in fact, to neutralise all scorching tendencies. The only thing which requires study, however, on this point, is, that the inner air should be kept constantly moving, however slowly. It is invariably the immovability of the air, in conjunction with the fixity of the sun's rays, which causes scorching, and not the amount of heat. Especially is this discernible if moisture abound in the form of drops upon the foliage. Be particular even when so high a temperature is permitted during the day, not to allow too high an one by night, when it should be reduced by at least some 30° to 40°. In thinning out late Vineries be very cautious not to allow too large crops; more evils follow in the wake of this simple mistake than in those of even greater magnitude. Besides, the period when it is necessary to thin out those varieties which are intended to hang throughout the winter months is at hand, when even a more liberal thinning than ordinary will be required. In this instance, the better the bunches are thinned individually, so in proportion will be their keeping capabilities, as damp will not settle in amongst the berries nearly so much when air is permitted tolerably free access amongst them. In regard to *Pines* it would be difficult to fix upon any very exact date, when a general shift is desirable, without knowing the circumstances under which the plants have been hitherto growing. A general shift will very shortly be required by all forms of successionals; hence, the necessary materials should be partly prepared, and placed in an open shed or other similar position, where it will become tolerably dry, and the air will have free access thereto. Liquid manure, in a moderately clear and wholesome state, may now be afforded to all "fruiters," and those forwardest successionals which have already received their final shift. Be very particular not to allow any to become unduly crowded at this fast-growing season. And this applies to Pines in every stage. *Orchard-houses* proper must have all the air possible afforded now, without risking too great draughts in any part. Use the syringe freely into and amongst every part of each tree which is swelling its fruit in the earlier stages. Thinning out supernumerary shoots, pinching back all grosser ones which are necessarily retained for the perpetuation of young fruiting wood, &c., are matters too well understood for me to dwell upon, beyond giving a passing hint.

HARDY FLOWER GARDEN.

Roses are very injuriously affected by the maggot and other too well-known pests this season, and require almost daily attention if they are to be kept clean. The former of these can only be successfully destroyed by direct removal with the hand. As for aphis of various forms, resort must be had to some liquid admixture, such as Gishurst Compound, Fowler's Insecticide, soft soap, tobacco-water, &c., one or all of which are good destroyers, and should be used according to the conveniences or means of the operator. An admixture made up of all the above substances, with soap-suds, &c., would perhaps be the most instantaneous and effectual remedy. For use in a dry state, Pooley's tobacco-powder will also prove effective in this wise. Any or all of these, however, if the health of the trees is to be really taken into account, should be thoroughly washed off so soon as the purposes for which they are used has been effected, with perfectly clear water. Sow seeds of any choice kinds of *Hardy Perennials* in the open ground. These comprise, amongst many others, such sorts as Wallflowers, Sweet Williams, Pinks, Brompton Stocks, of the true old strain, &c. It will be advisable to make another sowing about this time of *Mignonette*, which will be very useful to cut from when that which was first sown has become rather shabby. Top-dress beds of *Ranunculuses*—the best material for this purpose is thoroughly decomposed leaf-mould. Propagate as far as is desirable all choice kinds of *Pansies*. Tie up *Carnations, Picotees*, and *Cloves*, &c., as they continue to spindle—the flower-stalks elongate apace now. Break off all seed-capsules from *Tulips* immediately the flowers are past their best, and loosen the soil between them with a hoe where planted in beds.

HARDY FRUIT GARDEN.

I fear it is in a too general way useless for me to say much about thinning the fruit upon either *Peaches* or *Nectarines* this season. By the use of extraordinary means in the matter of coverings, I can scarcely boast of having half a crop. Where the operation is necessary, however, the process should now be proceeded with, and brought to a close with all despatch.

KITCHEN GARDEN.

All kinds of young seedling crops, such as *Onions, Carrots, Beet, Parsnips, Turnips*, &c., should be thinned out with as little delay as possible. Those who sow such things in drill-rows will have little difficulty in doing this, as by the simple process of hoeing weeds may be killed, thick patches of seedlings may be reduced in number, and the soil freshened up between all, which is so conducive to vigorous growth. Sow successional crops of *Dwarf French Beans*, and *Curled Endive* for early autumnal use. Dig out and prepare the necessary trenches for *Celery*. Keep all nursery beds of these well watered and frequently sprinkled over during drying periods. Give to *Asparagus* plantations a good coating of salt as soon as the plants are permitted to grow freely, and if a manure tank is at hand, empty its contents freely over them. *W. E.*

TOWN GARDENING.

Clear the beds intended for Pelargoniums, Calceolarias, Ageratums, &c. Fork over the soil, add a portion of leaf-mould and sand, level the ground, mark out the rows at 9 inches apart, and put in the plants in diagonal rows 9 inches apart, pressing the earth closely around the roots, and well watering. The following varieties I have found all do well in town gardens:—Stella, Cybister, and Christine; Calceolaria aurea floribunda, Kayi, and Prince of Orange; Ageratum mexicanum; and for front rows and edgings, Cerastium tomentosum, Lobelia speciosa, Viola cornuta and lutea, and Gazania elegans, which last is very showy in sunny weather. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending May 19, 1869, as observed at the Horticultural Gardens.

May.	Moon's Age.	Barometer.		Temperature. Of the Air.			Of the Earth		Wind	Rain.
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 13	2	30.173	30.147	62	39	50.5	54	51	N.E.	.00
Friday 14	3	30.071	29.932	58	42	50.0	53	50	E.	.00
Satur. 15	4	29.847	29.745	63	44	53.5	53	50	E.	.00
Sunday 16	5	29.695	29.642	55	46	50.5	54	50	E.	.02
Mond. 17	6	29.594	29.538	66	40	53.0	53	50	S.E.	.00
Tuesd. 18	)	29.487	29.384	62	45	53.5	53	50	S.	.16
Wed. 19	8	29.626	29.389	53	34	43.5	54	50	S.	.22
Average.		29.785	29.685	59.8	41.4	50.6	53.4	50.1		0.40

May 13—Very fine, cold wind; clear, and very fine; starlight.
— 14—Overcast; dense clouds; densely overcast, cold wind.
— 15—Clear and cold; overcast; densely overcast.
— 16—Slight rain, densely overcast; cloudy and cold.
— 17—Densely overcast, foggy and overcast; clear and fine.
— 18—Slight rain; showery; cloudy, but fine; slight rain.
— 19—Densely overcast; thunder, lightning, and hail, 1 P.M.; heavy clouds.

Mean temperature of the week, 2 6-10 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending May 29, 1869.

May.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..23	67.3	43 6	55.5	15	0.53 in.	1	9	7	3	4	10	4	5
Mon. ..24	67.4	43.0	55.2	12	0.54	4	9	7	1	6	12	3	1
Tues. ..25	65.4	42.9	54.2	16	0.64	4	11	5	2	2	12	5	2
Wed. ..26	67.4	42.8	55.1	19	0.50	3	12	4	1	6	12	3	2
Thurs. ..27	66.5	44.7	55.6	22	0.62	2	10	6	3	3	13	3	3
Friday ..28	68.1	44.4	56.2	15	0.97	1	10	8	2	6	9	5	2
Satur. ..29	67.5	44.1	55.8	15	0.97	3	13	4	4	8	6	4	7

The highest temperature during the above period occurred on the 29th, 1847—therm. 91 deg.; and the lowest on the 23d and 24th, 1867, and 29th, 1865—therm. 25 deg.

Notices to Correspondents.

Camellias: *Croydon.* It is quite right to keep Camellias under glass during the period of growth, and a little extra warmth, with copious syringings, during that period, is desirable. If in a starved state watering with weak liquid manure made from cow-dung or sheep-dung will benefit them. When the young growth has become hard and set, the plants should be placed under canvas or under a north wall or hedge about the middle of June and during the months of July, August, and the first fortnight in September. If they lose their foliage in part, and the remainder looks pale and sickly, there is probably something wrong at the root; repot carefully, and pay stricter attention to watering. Camellias do not require very much water except when in a growing and blooming state. *W P.*

Chamberlin's Level: *H C.* We fear not. Probably any philosophical instrument maker would make one to order.

Lobelia: *A D.* Useful, but not the pure white which beddersout desire. Try to obtain a seedling without the tinge of blue.

Names of Plants: *J P M.* We cannot pretend to name plants from single leaves.—*Thos Record.* Embothrium coccineum.—*T P Bennett.* Callipteris ambigua.—*H T W.* Lithospermum fruticosum.

Paulownia: *Vale Lodge.* This tree blooms not unfrequently in the south of England, especially after hot summers such as the last.

Purple and Yellow Laburnum: *J D.* Your tree is the well-known Cytisus Adami, concerning which so much has been written in our columns and elsewhere.

Royal Caledonian Horticultural Society: *A G*, who complains of the management of this Society, must substantiate his statements by sending his name.

Royal Horticultural Society's Shows: *An Old Subscriber.* The Great Show, June 2 and 3; Great Rose Show, June 29; the Society's Large Show at Manchester, July 19 to 24.

Seedling Pelargonium: *P Fry.* Your Seedling Pelargonium, Ada Fry, is of a pretty and somewhat novel shade of rose-magenta, but the flowers were much crushed. As soon as you have a plant well in bloom, send it to one of the meetings of the Floral Committee at the Royal Horticultural Gardens, South Kensington.

Spot on Pelargonium Leaves: *A R H.* The dark spots on your Pelargonium leaves arise from drops of water resting on them, which have either chilled the underlying cells, or have been acted upon by the rays of the sun. Independently of this, however, the leaves indicate an unhealthy condition, which, perhaps, arises from their having been recently shifted. Were the roots in good condition when they were repotted? *M J B.*

Spot on Vine Leaves: *T C A.* The spot in question is caused through chill at the roots. It is impolitic to take the covering off your Vine-borders so early in the season, just when the roots are starting into action.

Vines Producing Aerial Roots: *E M.* Your border is at fault. It is in the first place too rich; and in the second, most likely badly drained. Your Vines are growing too luxuriantly to produce fruit, and the air roots are caused through the damp and soddened state of the border. Remedy that, then your wood will get better ripened, and you will not fail to have Grapes in plenty.

Communications Received.—Tyro.—H.—T. F.—J. D.—S. S.—W. G.—W. P.—J. F.—D. H.—B. D.—A. McA.—M. F.—A. C.—H. B.—D. P.—Stroud.—Old Sub.—J. M.—H. T. W.—J. H. C.—J. O. B.—W. J. E.—T. L.—D. T. F.—J. W.—W. S.—W. C.—J. A.

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YELLOW TANKARD.—Excellent for early feeding, and a certain cropper; but should not be allowed to stand after December. 1*s.* per lb., much cheaper by the bushel.

WAITE'S ECLIPSE.—A very fine purple-topped hybrid, of oblong shape. 1*s.* 3*d.* per lb., much cheaper by the bushel.

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SUTTONS' LINCOLNSHIRE RED PARAGON.—Very large, and of excellent feeding properties. Sow in June and July for autumn and winter use. 10*d.* per lb., much cheaper by the bushel.

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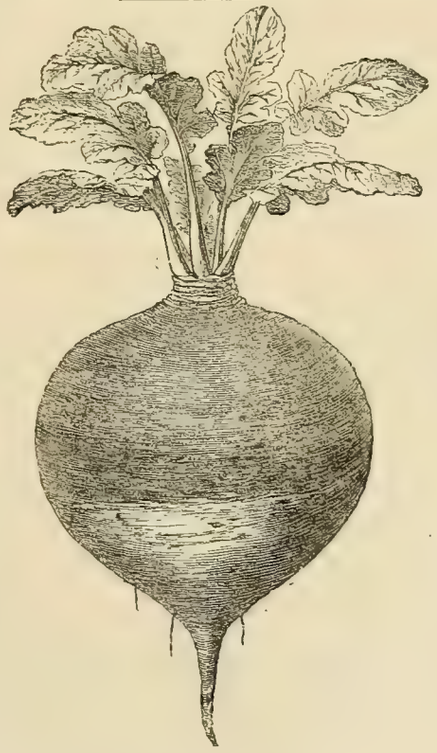
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ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.—The NINTH ANNIVERSARY FESTIVAL in AID of the FUNDS of the INSTITUTION will take place in the New Hall, Freemason's Tavern, on WEDNESDAY, June 9, at 6 o'Clock.

The Right Hon. Lord Robert Montagu, M.P., in the Chair.

Dinner Tickets, 21*s.*; Ladies' Tickets, 5*s.*; to be had of the Stewards; the Secretary, at the Office of the Institution; and at the Bar of the Tavern.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.—The ANNUAL ELECTION of PENSIONERS and CHILDREN will take place at the Freemason's Tavern, on WEDNESDAY, June 16, at 11·30 A.M.

All Subscriptions shall be deemed payable on January 1 in each year; and no Contributor shall Vote while the same is in arrears.

No. 55, Charing Cross, London, S.W.
C. BOUSFIELD SHAW, Secretary.

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JOSIAH GOODWIN, Secretary,
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ROYAL AGRICULTURAL SOCIETY of ENGLAND.

MANCHESTER MEETING, 1869.

ENTRIES of HORSES, CATTLE, SHEEP, PIGS, BUTTER, and CHEESE, CLOSE on JUNE 1, and all Certificates received after that date will be returned to the sender.

H. M. JENKINS, Secretary,
12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, MAY 22, 1869.

MEETINGS FOR THE ENSUING WEEK.

May 29 { Norfolk Chamber of Agriculture—County Financial Boards.
{ Horse Show, at the Agricultural Hall, Islington.

To those who have confidence in the Science of political economy it must afford matter of interesting thought to mark the occasional force of Circumstance in compelling obedience to laws which argument, however cogent or reiterated, had failed to demonstrate. When the late Sir ROBERT PEEL was still but half a convert to the long resisted doctrine of free trade, the formidable visitation of the Potato Famine in Ireland—foretold, years before, by COBBETT, and by MCCULLOCH—precipitated not only the abandonment of the 'Sliding Scale,' but the wholesale abolition of the Corn-laws. "The stars in their courses fought against Sisera." Events which to the great body of general observers come simply as 'accidents' are often neither less nor more than the practical self-vindication of Natural Laws, which however slow, are as certain in their operation—as certain to reach their culminating point, as the overflow of a dam by the silent accumulation of the stream,—or that retributive course, in the Moral laws, of which it has been so sternly sung,

"raro antecedentem scelestum
Deseruit Pœna pede claudo!"

It would be well for mankind, if their rulers believed in this salutary doctrine; better still if they believed in it themselves. But we go contentedly on violating the maxims of a Science which is, after all, but the 'horn-book' of natural law, a sort of grammar of factology "collected and arranged for the use of students"—a class whose limited demand will hardly pay the publication.

Were it otherwise, would the appeal now made to England on the Irish land-difficulty present the all but insuperable problem that it seems to do? Are we sure that in this question "our withers are unwrung?" Are we ourselves in a position—have we qualified ourselves to undertake—we will not say *the cure*—but even to estimate its features, or honestly to look it in the face?

We have said, and we repeat that—apart from every shade of political thought, from every turn of party views—we regard Land questions

as essentially our own. What would be the use, or end, of all we write and write on agricultural and landed topics—what would our office as journalists be worth—if when a question so vitally consequential as this is harrassing the minds not of landowners and legislators only, but of every thinking man who has his country's good at heart, we stood aloof, watching as mere lookers on the painful evolution of a problem whose elements touch the very marrow of our weekly task and study, and refusing to contribute our mite towards its solution?

We have spoken in two former articles of 'the laws' delay,' and cost, and difficulty, in the Transfer of land, amounting almost to a national scandal, but become inevitable under our complicate system of Entails, Executory devises, and the endless legal refinements interwoven with them. So long as these remain, involving dormant claims under old wills, and deeds, and unextinguished Terms, long Abstracts of title must and will be required, and long delays, and long bills of Costs, must follow. On this point what says the distinguished Economist to whom we are indebted for the best edition of ADAM SMITH'S great work. "By preventing the sale of land," says MCCULLOCH, "or placing it, as the lawers say *extra commercium*, Entails are obviously adverse to the spread of agricultural improvement, and property is hindered from coming into the hands of those who would turn it to the best account."

But entails are by no means responsible for the whole of the evil; nor is it, as will easily be seen, their use but their extravagance that needs correction. There is another cause, developed into more significance since MCCULLOCH wrote, and far more insidious in its operation upon the freedom of the soil; but so entrenched by public error that it almost baffles the fair assault of argument. Nor will we attempt to storm it, until MENENIUS-like we have shown it its own image, not in his immortal vein of allegory, "once upon a time," but by a simple tale of modern life.

In a certain street, at the extreme West-end of London, there lived, not long ago, a well-known householder, who became notorious for the odd fancy of never allowing his windows to be cleaned. Under the silent influence of the dust, if not 'of ages,' yet of years, which answer the same end in our metropolis, what should have let in light and life to the inmates, became an eyesore even to the passers by. No remonstance, or ridicule, of friend or relative had any influence on the obstinate man to abate the nuisance. Every form of appeal, before it had well begun, he stopped and smothered with the same retort: of which the burthen was that on the opposite side the street there stood a house, in which nearly every window-pane had been cracked, by the clumsy vehemence of the cleansing process, constantly repeated. The fact was true, unfortunately: for, no effort of discrimination could induce him to admit, or see, that between the extreme evils of fracturing every pane, and allowing them to become useless *within*, and offensive *without*, there was a very wide interval indeed,—of which, in fact, every other house in the street stood witness.

On the other side of the British Channel there lies a country where an imperial democrat made a law, which still remains in force, that no man should be able to make a will of landed estate except in such a proportion as permitted each of his children (male and female) to share equally with himself. If he had only one child, he could make a will of *half*; if two, of *one third*; if six, of one seventh; and so in the other cases. This pernicious law was intended by its shortsighted framer as a preventive of the growth of aristocracy: what it became was, and is, a preventive of *population*—(and this at the hands of one who said that "the greatest woman in France was she who furnished most sons"—to the Conscription!) But its evil influence does not operate in France alone:

> "like a mildewed ear
> Blasting its wholesome brother"

it has had the consequence on this side the Channel of rivetting the shackles of a law of *landed* intestacy, which has drifted down to us from feudal times, and which errs in the opposite extreme, and of arresting its very discussion with the panic cry—'Heaven defend us from the French *morcellement!*' 'Our opposite neighbours' panes have been cracked by the impulse of rude hands; let no finger disturb the dust, or let daylight into ours!'

Yet,—this landed exception apart,—in no country of the world has the 'daylight' gained, in other respects, a freer admittance. If a foreigner writing of England were describing the mode in which the Law disposes of the effects of an Intestate, he would speak of it as excellent beyond the reach of criticism. "On the death of any person without a will," he would say, "the Law divides his wealth amongst all his children, with an equal proportion to his widow, if living, and to the children of a deceased child, with an impartiality that seems to approach the perfection of justice. But let him have inherited or invested any of his money in *Land*,—then all is changed! the whole shall go to the eldest male to the exclusion of all the other children."—Thus there are two separate principles of distribution of property, diametrically opposed to each other, and that in the most commercial country in the world, where every kind of property is equally convertible under the hammer of the auctioneer, land itself included, so far as the act of sale is concerned.

It is, however, urged in reply that this law of 'primogeniture' comes very rarely into operation; that the devolution of land in this country is governed almost entirely by Trust Settlements, and family Deeds of Entail; so that if this exceptional *law* which feudal habits have drifted down to us, were laid hold of and extinguished to-morrow, the *custom* of landed inheritance by the first-born son would suffer no interference; people would only be more careful to make their Wills or Settlements, and landed property would remain unaffected by the change of the law.

'Why then alter it?' it is asked. If its operation is so trifling now, and would probably be still rarer afterwards, why alter it? The question is gravely asked, with all the persuasive emphasis with which men defend a system which they would never have dreamt of creating. As if the proof, or reproof, of the justice of a law were to be measured by the frequency of its operation! Would homicide once a year be more 'justifiable' or less *criminal* than once a month? or a law permitting it less censurable? The question is not of the frequency, or extent, but of the policy and justice of its action. Individuals may divide their property as they please. There is no good reason why any man should not devise, or settle, all his land upon his eldest son, and if he so please, bequeath all his railroad and other shares to his youngest daughter: it is simply a question of private will, and preference, and he must be trusted to make what provision he pleases for his widow, and his other children; and if he omit this duty, it is a matter with which the public and the Legislature, in a free country, cannot meddle: all such restraint would be an impolitic interference with the rights of property.

But it is still more important that THE LAW should not speak in two voices, nor make capricious exceptions, in this kind of property, or in that, to its own even-handed justice. It must be consistent with itself, and a Rule of Right. "No human laws" says the great Judge BLACKSTONE, "are of any validity if contrary to the Law of Nature; and such of them as are valid derive all their force and all their authority, mediately or immediately from this original."

The will, or settlement, of a Parent while ostensibly giving all the landed estate to the eldest son, charges it with, or makes other provision for the widow, and younger children. The *law*, in the case of land, does nothing of the kind: so that, as has been humourously said of it by a high living authority, "when it *does* make a will for a man, it makes one that any man would be ashamed to make for himself." But frequent or unfrequent as its private operation may be, this is a small part of the mischief of the law in question. Its real and public action is only to be seen and judged of in that artificial system of which it is the root, and of which 'Real' and 'Personal' as terms of distinction applied to different kinds, or rather conditions, of property, is the luxuriant growth. It is hardly possible to convey an idea of the history of Litigation which has grown up in our Courts of Law and Equity out of these two words, and the conflict of two discordant and irreconcilable systems—the Commercial and the Feudal, *simultaneously operating*, to which they have given the key-note, and remained the fundamental cause. The disputes between the 'Heir-at-law' and the 'Personal representative,' as they are called,—the respective champions of the two conflicting codes,—would, if the recountal of the tale of centuries were possible, surpass belief.

Through those centuries the dust has gathered, and no hand has essayed to lift it, and let the daylight in. But it is the darkest hour that precedes the Dawn.

Mr. W. SMITH, of Woolston, has resolved that he must for the future charge a fee for a visit to his farm. He can no longer give his time and labour to the promotion of steam cultivation so entirely as hitherto for nothing. Having walked and talked with thousands of his visitors—detailing his experience, and justifying his conclusions—teaching them with characteristic urgency, without remuneration for the information he was giving—he finds now that the labour has become excessive, and the tax unfair. A fee of five guineas is for the future to be charged for a farm lecture. His reasons for this charge are given in the following letter from himself:—

"I have shown my farm to thousands from all quarters by walking over it with them, and explaining my system, within the 14 years since my start, without netting a farthing for my trouble; and I have now made up my mind that I will not walk and talk for nothing any longer; the more especially as my facts are stronger than ever. There are my Bean crops on Nos. 1 and 4, heavy land, on seed-beds costing 7*s.* an acre, the strongest and best in the neighbourhood, with the land as clean as a garden, although it is the 14th crop without a fallow of any kind: yet under horse culture this very land needed a fallow every fourth year. Then there is my Wheat, on Nos. 2 and 3, heavy land, costing only 6*s.* 9*d.* an acre for seed-bed, beating everything on similar soils in the neighbourhood. No. 1, light land, similarly treated for Wheat, at a like cost, is quite the best in the neighbourhood; and these lands are as clean as those under Beans. Then there is my Barley, the third white crop in succession, on a seed-bed costing only 10*s.* an acre, worked a foot deep, as fine a plant as can be seen; and my other crops are all as good as they can be. And besides all this, I have just bought the farm adjoining my own, the heavy ploughed land running side by side with my farm, on which I shall be able to show, not only how productive I can make it at the end of 14 years, but in how short a time I can fetch it into first-rate condition by steam-power. Such are the facts of the case, and the public must in future pay me for them if they have them. You and others of the Press may, however, come and see for nothing whenever you like. The 14th crop—Wheat—on a seed-bed costing only 6*s.* 9*d.* an acre, on land that would cost for ploughing once over at least 14*s.* an acre (and I shall have to pay that sum for ploughing up the fallow land this year on the farm that I have just bought), is a fact that must sooner or later make a mark upon the landlords and farmers of England. It is not the cost of a set of tackle, or how small a farm can employ a set, that they need care much about, but their great concern must be how to apply it; and that is what my 14 years' practice has learned me."

We entirely sympathise with Mr. SMITH. He stands, we believe, on an altogether different platform from that which is occupied by any other of the promoters of steam cultivation in this country now remaining to us. Manufacturers cannot quote their large expenditure and costly efforts in the same direction with any chance of being placed by outsiders in the same rank in which our Woolston hero stands. That is a misfortune incidental to the nature of their contribution, valuable, efficient, and essential as it has been, to the success which we have now to record. No doubt it needed pluck as well as capital to follow as a manufacturer in the train of the farmer's first commission of a steam cultivating windlass; and we gladly acknowledge the public spirit which prompted and inspired the first efforts of the agricultural machine makers in the promotion of steam cultivation; but the manufacture has long since become abundantly profitable. Hardly anyone, unless it be the few pioneers who, each for himself, commissioned one of the early forms of steam cultivating machines, and lost by it, can say that steam cultivation is not now a profitable business to every one concerned in it. There is no one probably of those who have all these years been working at it, but has made a profit by it. And a most fit and proper ending of their efforts every one admits this to be. But those who are achieving this result, whatever be their rightful claims to our thanks as well, do not as a matter of fact receive that meed of honour and of gratitude which is awarded solely to the inventor and the teacher. Even an inventor, if he be also manufacturer, necessarily claiming money payment for his labour and his genius, submits to a different valuation of his services from that which we accord to others. And Mr. SMITH, the courageous originator, the persistent advocate, the confident and unconquerable leader in this particular department of agricultural improvement, stands now almost alone in the opinion of his contemporaries among living claimants of the highest rank.

This he owes perhaps rather to his unflinching tenacity of purpose, which neither neglect nor criticism, nor continually adverse fortune in showyards and in trial grounds could ever daunt—rather to his courageous and practical good sense than to any special genius as an inventor displayed by him. Seeking an end, which at the very outset he distinctly saw, he has applied the simplest means, and found them serve his purpose. His machinery, in 1869, is the same with which he started 14 years ago. Where he got the different parts of it, does but little affect our judgment of his services to English agriculture, or of the place he holds among the many to whom our gratitude is due in connection with the extension of steam cultivation. It is the clear-sightedness which saw the fitness of the Woolston "tackle," the vigour and the constancy which have pushed its adoption through every kind of rivalry and opposition, and the practical agricultural knowledge and experience on which the whole history is based,—it is these which have made Woolston the example farm of steam-cultivated England, and its tenant worthy of all our gratitude and honour.

No doubt he, like many another earnest man, whether successful or not, has been aware throughout of what is due from us in this respect! The amusing self-assertion in which he has indulged is of course part of the picture on which we have to look. There is, however, nothing in it to offend, that we can see—for, after all, it is based very much upon the truth. The letter given above is but an echo of one in our last year's volume in which Mr. SMITH referred to his imperfectly acknowledged services, and to a long-published challenge of his own, backing his system for 1000*l.* against all others.

"By my 14 years' practice," he declared, "I show that I am now making a seed-bed on my heavy, clayey, hilly, and uneven land, at a cost of 6*s.* 10½*d.* an acre a-year; and I challenge the "Royal" or anybody else to do the like, for 1000*l.* It is a vastly significant fact to find that this 1000*l.* thunder of mine rattling in their ears cannot make one of them pick up a pen to make a scratch against it. It is not the 1000*l.*, but it is the 6*s.* 10½*d.* an acre that they are frightened at. That is the thunder that staggers them, and well it may, when the contracting man tells us that it costs to the farmer 24*s.* an acre upon his plan—the job-cart system. Let our red-tapists reflect a bit over this. This is positive evidence that my 100-guinea stamp of honour* has never been tarnished; therefore I now proclaim for myself that I am king—yes, king—as the starter and 14 years' worker of practical, clean, deep, and cheap steam cultivation. The proclamation has gone forth; let any man stay it who can. My 6*s.* 10½*d.* seed-bed an acre a-year must be 'smashed,' or I shall remain king for ever."

This was written on November 26, 1868—no doubt at cock crow! like many others of his writings; but after we have indulged our laugh, it may be well to ask whether, after all, the fact is not very much as he declares it to be.

Anyhow, we are certain that a lecture on steam cultivation, showing the results which have been achieved on Woolston farm, is well worth the fee which is henceforth to be charged for it. And we believe that the appraisement of his future services, which Mr. SMITH has thus announced, will be generally considered a righteous and appropriate valuation.

* Early in his career Mr. SMITH had received from friends and neighbours a hundred-guinea salver, &c., with a testimonial to the value of his public services.

—— THE Wheat trade throughout the week has been in a most inanimate condition, at prices for hand-to-mouth parcels as nearly as possible the same as they were last week. In spring corn the trade has been similar. A slight exception, however, may be made in regard to Oats, which were a little more actively inquired after. The weather, in some parts of the country, has probably helped in some measure to check the late downward tendency of prices for all kinds of grain and pulse. In the Midland Counties, and in Yorkshire and Lancashire, so much rain has fallen during the last fortnight that the rivers and brooks have been twice swollen till they have over run their banks. As this unseasonable and excessive wet has been accompanied with cold east winds by day and occasional frosts by night, the corn crops have altered very much for the worse, excepting on dry soils in high condition. Wheat is "staring," and drill-rows may be seen for long lengths, and Oats and Barley have the blue appearance which is so unpromising. Our reports from the North of England and Scotland also describe the altered appearance of the corn crops from heavy cold rains and frosty nights. With our present stock of grain on hand, however, and the extraordinary flush of Grass, it would require a good deal more anxiety for the next crop of home-grown corn before breadstuffs and stock food will be likely to increase much in price. Grinding Barleys can now be purchased in provincial markets at from 26*s.* to 28*s.* per quarter, and 280 lb. of Maize may be obtained at the port of landing for about the same prices.——At the Metropolitan meat and live stock markets the trade has again been extremely active for all home-grown and other prime qualities. The top price for live beasts is again 6*s.* per 8 lb., and 2*d.* per pound above the highest quotations for sheep out of their wool. Foreign beasts, however, are coming in very thin condition, from foreign dealers having scoured the Continent for animals, that they may reap the advantages which our short home supplies just now allow them to benefit by. These foreign cattle are sold at as low as 3*s.* 6*d.* per stone, which leaves a margin in favour of our best home-grown cattle of 4½*d.* per lb. The supplies of foreign sheep have somewhat declined.——In the agricultural seed trade but little is doing, inquiries being limited to Mustard seed, Dwarf Rape-seed, and Spring Tares, all of which are scarce and dear. —— The foregin wool sales in Moorgate Street Buildings, London, are having a considerable influence on the home growth. The supplies for the May meeting amount to the great quantity of 239,585 bales. This is the greatest arrival which has ever occurred for the May series of sales; the decline in March has consequently been followed by another fall of quite 1*d.* per lb. on average qualities. Victoria fleeces have fallen 2*d.* per lb. in most instances, the exception being the cross-bred kinds, which have been improved by crossing with English rams. Other Australian consignments are 1½*d.* to 2*d.* per lb. cheaper. The effect of this on British fleeces is that only lustre wools, for imitation alpaca and mixing with silk, can be said to be firm in price.

—— Sir CHARLES DOMVILLE seeks English tenants on his Santry estate, near Dublin. The subsoil is generally calp limestone, the active soil a rich, deep, loamy clay: the roads are very good, and mostly level; there are no turnpikes; the poor-rate varies from 10*d.* to 1*s.*, of which the landlord pays half; the tithe is all paid by the landlord; the county rate is about 2*s.* in the pound of valuation. Labour is abundant, at from 8*s.* to 9*s.* per week. There are three market days in Dublin weekly, and 29 fairs are held in the county during the year. The county is peaceable and free from crime. The rainfall is from 25 to 28 inches in the year. A good deal of Wheat is grown; large quantities of field vegetables, and numbers of cattle are exported. Various other particulars are given in a printed paper which has reached us. The above are selected from them as being of public interest. We may add, that as the tillage of land near large towns usually requires capital, and perhaps a special knowledge, farmers accustomed to such tillage must be preferred.

—— Does any grass-land farmer remember, in any bygone year, his pastures in the month of May fuller of feed, or his meadows fuller of promise than they are this year? Spring-time, 1869, has not been especially genial or particularly promotive of luxuriance of growth; and yet wherever we have been the fields are fuller of Grass than we have ever known them. Is this universal?—and if so, is it traceable to the comparative rest of land during last year's drought?

—— It is with real sorrow that we see the death of Mr. HENRY WHITE, of Warrington, announced. For more than 20 years he had been a correspondent of the *Agricultural Gazette*, and during all that time in friendly intercourse with others similarly engaged. Not till Thursday of last week, however, had we ever met. He was then apparently in perfect health, and actively engaged in the duties of his profession. He died very suddenly on Sunday morning. A very useful life has thus abruptly ended. Through the Manchester and Liverpool Agricultural Society, through the Journal of the English Agricultural Society, through the columns of the *Agricultural Gazette*, and especially through a long and honourable career as land-agent, he had made a very considerable contribution to the agricultural progress of the past 30 years. He was a county and borough magistrate, had filled the office of mayor, and had been a Sunday-school teacher for 30 years.

OUR LIVE STOCK.

THE Ridlington sale came off on Thursday, the 13th inst., and was considered by those best able to judge to have been exceedingly successful, if not positively dear. The average obtained over the entire 62 head was 31*l.* 19*s.*—considerably over what was looked for. The 48 cows realised 32*l.* 7*s.*, and the 14 bulls 30*l.* 12*s.* each; the grand total being 1981*l.* 7*s.* A liberal luncheon was provided at 12 o'clock, and the sale commenced at 1 P.M. The prices given were exceedingly uniform, few of them varying very wide of the average. The highest figure was obtained for *Lenton Lady* by LORD SCARLET, and descended on the female side from Chilton stock. She was bred by Mr. George Saville, and is a handsome roan heifer, now 19 months old, with good hind-quarters, but deficient in girth. She was much admired while in the ring, and after some competition became the property of Mr. C. W. Harmer, of Hawick, for 65 gs. *Princess Gwynne*, a square, good, and heavy-fleshed cow, by DON WINDSOR, dam *Baroness* by PRINCE OF GWYNNE (20,572), was bought by Mr. Harmer for 60 gs. Mr. J. Morton purchased *Bonny Nelly*, by RED ROVER (20,648), for 56 gs.; and Mr. J. Edwards secured *Venus* by WINDSOR DUKE (25,457), decidedly the best 2-year-old heifer shown, for 53 gs. The descendants of *Active* by 4TH DUKE OF YORK did not realise large sums. *Amelia*, the first of this well-descended tribe, only made 22 gs.; and *Acomb*, *Annie Leslie*, *Annie Laurie*, and *Aurelia* were respectively sold for 30, 24, 31, and 15 gs. *Abundance*, by GENERAL NAPIER (24,023), dam *Acomb* (lot 18), by GOLDEN CROWN (21,835), made the highest price of this family, being sold to Mr. J. S. Jordan for 40 gs. The bulls sold very well, although the average was reduced by the low figures (10 and 4 gs.) obtained for two young calves dropped in April.

—— Last week we mentioned a few of the principal points of interest with reference to the Wicken Park sale, we now furnish our readers with the entire list of prices and purchasers:—

Name of animal.	When calved.	Price.	Purchaser.
Females.		Gs.	
Duchess	Nov., 1857	37	Capt. De Winton
Grand Duchess ..	Mar., 1858	29	Mr. T. Barber
Darlington 9th ..	July, 1859	33	Captain Oliver
Belinda	Mar., 1860	37	Mr. J. P. Foster
D. of Lancaster 5th ..	May, 1860	27	Mr. Johnstone
Grand Duchess 2d ..	Nov., 1860	28	Mr. T. Barber
Buttercorth	Nov., 1860	27	Mr. Brown
Sunshine	April, 1861	32	Mr. Dodd
Violante's Butterfly .	Nov., 1862	55	Lord Kenlis
Darlington 11th ..	May, 1863	22	Mr. C. Sturgeon
Darlington 12th ..	July, 1863	105	Mr. H. J. Sheldon
Darlington 13th ..	Jan., 1864	35	Mr. Dodd
Symmetry	April, 1864	45	Lord Southampton
China Rose	Jan., 1864	43	Lord Southampton
Grand Duchess 3d ..	April, 1865	105	Hon. C. W. Fitzwilliam
Grand Duchess 5th ..	July, 1866	105	Mr. F. Leney
Darlington 14th ..	July, 1866	73	Mr. B. Wainman
D. of Lancaster 9th ..	Aug., 1866	50	Mr. Heathcote
Grand Duchess 6th ..	Aug., 1866	145	Mr. J. P. Foster
Darlington 15th ..	Dec., 1866	120	Lord Kenlis
Rosebud	Dec., 1866	50	Mr. Heathcote
Sophy	Jan., 1867	50	Mr. Heathcote
Nancy	Feb., 1867	63	Major Stapylton
Destiny	Mar., 1867	Withdrawn	
Bloom	Nov., 1867	33	Lord Southampton
D. of Lancaster 10th .	Mar., 1867	42	M. Julien Arabin
G. Duchess of Wales .	Nov., 1867	200	Lord Dunmore
Darlington 17th ..	Jan. 29, 1868	120	Lord Kenlis
Roseleaf	Jan. 23 ,,	125	Lord Southampton
Bud	Oct. 20 ,,	35	Mr. Musgrove
D. of Lancaster 12th .	Oct. 27 ,,	30	Mr. Musgrove
Blush	Feb. 15, 1869	21	Lord Southampton
Seraph	Feb. 16 ,,	31	Mr. Brierley
Bulls.			
QUEENSBURY ..	Nov., 1867	32	Mr. Heathcote
D. OF GRAFTON 2D ..	June, 1867	130	Mr. Heathcote
E. OF CLEVELAND 2D	June, 1867	150	Mr. C. W. Holbech
JULIUS	Nov., 1867	37	Capt. De Winton
JASON	Jan. 28, 1868	41	Mr. Blackgrove
VALIANT	Mar. 17 ,,	41	Mr. Clarke
NEPTUNE .. .	Feb. 5 ,,	35	Mr. Simons
SULTAN	Mar. 28 ,,	43	Lord Southampton
E. OF DARLINGTON 2D	May 8 ,,	45	Mr. Smith
JULIAN	May 9 ,,	26	Mr. Langley
SENATOR	June 26 ,,	32	Mr. C. Harbidge
SNOWDON	July 28 ,,	16	Mr. Whitton
E. OF DARLINGTON 3D	Sept. 26 ,,	25	Rev. W. Biddle
D. OF WELLINGTON .	Sept. 26 ,,	50	Mr. Woodward
GRAND CROSS ..	Oct. 23 ,,	Not sold	
WHARFDALE WILD EYES	Oct. 28 ,,	31	Mr. Paxton
GAUNTLET	Nov. 30 ,,	50	Mr. E. Crouch
B. c. by 3d Duke of Wharfdale	—	18	Mr. Langham
B. c. by 3d Duke of Wharfdale	—	20	Mr. Peaco

Average of 34 cows ..	£67 2 9 =	£2232 14 0
Average of 18 bulls	47 19 0 =	863 2 0
Grand total	..	£3146 16 0
General average	£60 10 0	

—— On Tuesday, 25th inst., the entire herd of Shorthorns, the property of the late G. W. Roberts, of King's Walden, Herts, will be sold by Mr. Thornton. The animals are very well descended, and during late years Booth bulls have been in service. In our impression of the 8th inst., mention is made of the principal strains from which this herd has been derived. The stock is only now recovering from the effects of the long drought of last summer, but will, notwithstanding, appear in good healthy condition. The sale will take place at Hitchin, on the Great Northern Railway, at 3 o'clock P.M.

—— Mr. Strafford has advertised a very important sale for July next. The stock in question is the property of the executors of the late Thomas Crisp, Esq., of Butley Abbey, Woodbridge, Suffolk, and comprises 100 head of first-class Shorthorns, bred from the most fashionable strains of Booth, Bates, and other blood; a large number of valuable entire horses, both agricultural and thorough-bred, and 200 head of Black Suffolk, large and small Suffolks, Berkshire, and "large breed" pigs. We hope on a future occasion to give a more detailed account of this excellent stock.

—— On the 30th ult. the Thornville herd was increased by the birth of a heifer calf by PRINCE OF THE REALM, from *Bloom*, own sister of the Leicester prize bull BOLIVAR. We are informed that this is the tenth calf dropped at Thornville during the present year to PRINCE OF THE REALM. One of this number, a red and white heifer from Fanny 7th, died when a few days old from the effects of an injury received by the mother. The remaining nine calves consist of three red and white bulls and six promising heifers.

SUCCESSION OF GREEN CROPS.

(*Concluded from p.* 539.)

THERE are two or three other plants not yet mentioned which are often cultivated. On certain soils Lucerne and Sainfoin are very productive. Where there is no pasture on a farm, it may be well to keep a field laid down with one of these plants. They will both stand and be productive for several years without requiring renewal, and will often yield three or even four crops in the season; but they do not find much favour in the eastern counties, because they foul the land and derange the shifts. Lupins, too, are amazingly productive on poor sandy land, and though sheep do not like them, they will do very well upon them if fed off while in bloom. If a layer proves so thin in the first crop as not to be worth leaving for a second, the land may be ploughed and Lupins drilled in. They will

grow vigorously, be it ever so dry; but we do not recommend the crop for regular cultivation unless upon land so poor as to be almost sterile.

The system we have thus described is perhaps better suited for grazing than for breeding stock. Where a flock of ewes is kept, in the place of a few of the Swedes a few acres of late common Turnips would probably be provided for them to lamb upon; but we believe that any deviation from the plan we have described would lessen the amount of production. Still it is quite possible that with some kinds of stock a less weight of a different kind and at a different time might be of more pecuniary value.

Land farmed on this system of double cropping will need to be kept carefully clean: but it will be found that clean land may be kept clean in this way with very little expense.

Where a farmer has to do with *heavier* soils he will have to arrange a different system. He will not be able so easily and so surely to double-crop. For instance, if Rye is grown upon a tenacious soil, it will be very uncertain whether a proper tilth can be obtained when it is ploughed for Beet to be planted in, and the hazard of missing a plant of Beet will be greater than the value of the Rye. So neither can Trifolium and Swedes be depended on to follow each other. Unless copious showers fall most opportunely, the Trifolium stubble will be so hard that the plough will hardly break it up; or if ploughed, it will be so cloddy as to preclude any safe prospect of a plant of Turnips. We have seen the two crops grown in one year on mixed soiled land, and both of them good, but this has been in an unusually favourable season. We have found generally that Trifolium is a very difficult plant to cultivate on good mixed soil. It does not "plant" kindly. And when a "plant" is obtained the slug will sometimes clear it completely off. We have sown it on such lands again and again, and have failed in obtaining enough to be worth leaving for a crop.

There are two methods of dealing with the root shifts on such soils, which have commended themselves to our notice. The one is to devote almost the whole breadth to Beet; the other, to introduce on the largest half of the land the system of double cropping, only in this case our second crop must be common Turnips.

It appears to us that, at least in the southern half of England, the heaviest and most valuable production will be obtained by the former of these practices. Where a well-selected stock of the Yellow Globe Beet (and stock is everything with Beet) is cultivated with judgment, an enormous produce may be obtained. With use of proper means a full plant can always be secured; and with an application of 3 cwt. of guano and 3 cwt. of salt—that is, at a cost for manure of about 45*s.* per acre—some 30 tons per acre of cleaned roots will be grown in an average of seasons. In connection with a farmers' club, we have often seen this crop weighed, and also Swedes, in each case a quarter of an acre of cleaned roots being weighed. We found Beet to vary from 14 to 44 tons per acre, and Swedes from 10 to 25 tons. Here there is an enormous advantage on the side of the Beet crop, which has also the further advantage of being more certain, and, above all, the root will keep nearly all the year round.

A farm of 200 acres managed on this system will be thus apportioned:—

50 acres with Wheat.

50 acres with roots; thus—Beet, 45 acres; Tares, 5 acres.

50 acres with Barley.

50 acres with Clover and Peas; thus—Red Clover, 25 acres; Peas, followed with Mustard, 12 acres; White Clover and Rye-grass, mixed, 13 acres.

Our provision of herbage-food would then be as follows, viz.:—For January, Beet; for February, Beet; March, Beet; April, Beet, Clover, and Rye-grass; May, Beet, Clover, and Rye-grass; June, Beet, Clover, Rye-grass, and Tares; July, Clover and Rye-grass: second crop, Clover and Tares; August, Clover and Rye-grass: second crop, Clover and Tares; September, Clover and Mustard, and stubble feed; October, Clover and Mustard, and stubble feed; November, Mustard and Beet; December, Beet.

In the case of good land we draw off from one-half to two-thirds of the Beet crop, leaving the rest upon the land where it grows to be fed off, as we find that either sheep or lambs may safely begin feeding on Beet in the beginning of November. During this month and the next we feed them off just as they stand, as we rarely have frost to injure standing Beet before Christmas. Those required for the next month or two, or for as long as it is prudent to feed on this kind of land (having regard to the Barley that is to follow and its needful tilth and time of sowing), we have pulled, and heaped where they grew, in November, and covered with a little straw and earth. These, of course, we have to cut and consume in troughs. For such time longer as we wish to keep sheep, we feed them in the yard until there is Clover into which they can be turned to feed upon. Where grazing stock alone is kept, we believe this to be the best system possible.

But we will now detail the second plan we have spoken of, and which also has much to recommend it.

Example of 200 Acres of Good Mixed Soil.

50 acres Wheat.

50 acres roots; thus—10 acres Rye, followed with Beet; 10 acres Rye-grass, sown on the Wheat in Spring, and followed with common Turnips; 5 acres of Tares to feed, to be followed with common Turnips; 5 acres of Tares to mow, to be followed with Mustard (this will come earlier than the Mustard after Peas, which is a very important point); 20 acres Beet.

50 acres Barley.

50 acres Clover and Peas; thus—25 acres of Red Clover; 13 acres White Clover, and Rye-grass and Trefoil; 12 acres Peas, followed with Mustard.

Even on the stiffer mixed-soil lands it will usually be possible to obtain common Turnips after Rye-grass or Tares, as common Turnips will generally thrive if sown any time between the beginning of July and the end of August. In any ordinary season there will be rain enough in this long interval to prepare the land for the seed, however hard it may have been.

We shall thus have a continuous succession of green crops, as follows, viz:—In January, common Turnips and Beet; February, Beet; March, Beet and Rye; April, Beet and Rye and Rye-grass; May, Beet and Rye-grass and Clover, Tares; June, Rye-grass, Clover, Tares; July, Clover, first and second crop, and Tares; August, Clover, Tares; September, Mustard and Clover and stubble-feed; October, Mustard; November, Mustard, common Turnips, Beet; December, common Turnips and Beet.

In this plan there is less weight of roots provided, but there is greater variety of spring feed and more summer supply. Where a breeding flock is kept, this plan perhaps will be best, especially if there be no pasture on the farm.

In all the croppings we have sketched, we have estimated that we have supplied sufficient provision of Clover to keep up the usual requirement of "stover" for the horses, besides providing a constant succession of green crops for green food all the year round.

Where neat stock is kept through the summer, it is sometimes found convenient to grow a few acres of cattle Cabbages, to come in in August, September, and October, when the layers will be barest and the roots not ready. But from what we have seen we should not be much disposed to give Cabbages a place in our system of cultivation, or, if at all, only upon a very limited scale. A few acres,—some two or three, will perhaps be well. In a dry season second-crop Clover makes but a short "swath," and then a few Cabbages will be very useful. *Mr. R. L. Everett, in the "Journal of the Royal Agricultural Society."*

Home Correspondence.

Agricultural Items from the Reports of British Consuls in Foreign States.—*Taganrog, Russia.*—Foreign implements, threshing machines, &c., to economise manual labour, are being more and more brought into general use, and are now employed to some extent even by the small farmers and peasantry. The latter are rapidly rising into notice in various localities, so that at no distant space of time the production of grain is likely to be largely increased by their industry, as a prelude to which an augmentation of live stock, and the hire of grazing land from adjacent proprietors, has become prevalent. Indian Corn is the only new production observable in these parts. It has been cultivated in some of the Tchernamore districts within the last two or three years, and a few shipments made from the port of Yeisk. *Carthagena, Spain.*—All agrarian pursuits are in the most depressed state, the husbandmen being thoroughly disheartened through a succession of bad harvests, from the great scarcity of rain, and the present season could not appear worse, the ground having received no moisture for months; consequently whole districts remain untilled, and the farmer is obliged to abandon his land to obtain work elsewhere to enable himself and family to live. This district is free of cattle plague, nor does there exist any contagious or infectious disease amongst cattle. *J. R. J.*

Royal Agricultural College.—It is stated in the *Agricultural Gazette* of May 8, that 8 out of the 10 successful candidates at the recent examination of the Royal Agricultural Society have been students at the Royal Agricultural College. It should have been 9 out of the 10. G. F. Wall, who is entered as "of various schools," was to my knowledge at least two years at the Royal Agricultural College. *H. R., Brighton.*

The Cheapest Application of Steam-power to Cultivation.—Let me remind "West Indian" that I have always recommended that the threshing and grinding, &c., be done by the engine kept for cultivating purposes, and that the horses be reduced to the fewest possible quantity, just sufficient to cart the corn. Under horse-culture I used to need six horses to work my farm and cart my corn. Under steam-culture I have needed only three to cart my corn, and do the job work on my farm, and, as my "correct card" showed, those three have not been half employed, yet I have been obliged to keep them to make up a team to cart my corn. It gave me one in the field loading, one on the road, and one at the stack. With a less number than three I could not get on well. I never cart my corn all home at harvest, but some of it goes part of the way, and it is fetched the other part of the way when convenient by the horses and for threshing. I have just bought another farm, adjoining my own—70 acres arable, hilly, and very heavy, and 60 acres of grass-land. On this farm six horses have always been worked, and there are six working horses upon it now, with its dead fallow. I shall not use the buildings now on this farm, for they are a mile away from the arable land. I shall pull my heavy land buildings down and shall put up a set of new ones in the centre of the two lots of heavy land. Hereafter my occupation will be very nearly 200 acres of arable with 100 acres of grass-land. My engine on an average will get about 12 days a-year more work, and I shall need one more horse. With four horses I shall be able to cart my 200 acres of harvest work, and do all the job work throughout the year. Let me tell "West Indian" that I could not recommend less costly and less powerful tackle than I am now using, for if I were to cut down the cost the tackle would not be durable, and if I were to reduce the power the cost per acre would be increased more than people would like. Mr. Beards offered a two-furrow plough and a light set of tackle thus to the public:—

"Mr. Beard invites all agriculturists to inspect his steam-plough. It will be at work on Monday, 14th inst., and the five following days, at the Castle Farm, Stowe. Mr. Beard takes this opportunity of saying he has been greatly disappointed in witnessing many futile attempts to plough by steam, and doubts not but many other persons have been equally so. This makes him rather diffident to approach the subject, but as the matter is of the greatest importance to the British farmer, he feels himself justified in giving them an opportunity of witnessing the performance of one of the most simple and effective steam ploughs ever submitted to the public. *Stowe, Buckingham, Nov. 9, 1859.*"

I went to see this wonderful thing, and found nothing but a common double-horse plough (borrowed from a neighbour) being drawn across the field by a wire rope, about the size of my little finger, and worked by a steam-engine. For years after this Mr. Beard worked to make the old roll-over plough go with a light set of tackle, yet failed in proving the "effectiveness" of it, for at this time on the Castle Farm, Stowe, Smith's cultivator, worked by a 10-horse engine, is the most "effective." I am content with leaving well alone, as well as leaving it to others to point out what use a "traction engine" can be to us, and "West Indian" may see that the "multiplication" table will not do to apply to my three horses, when my farm is nearly doubled in size. The grand secret, to all who may apply steam power to the cultivation of the soil, is how to farm the deepest, cleanest, and at the least cost. The cost for tackle and the size of the occupation are secondary in comparison with that. I know this from practice, and I also know that a traction engine could not have been of any use to me down to this period, neither can it be after my occupation is enlarged at Michaelmas next. *William Smith, Woolston, Bletchley Station, Bucks, May 17.*

Water Mills and Land Drainage.—I have looked through Mr. Morton's paper in the Royal Agricultural Journal, on "Some of the Agricultural Lessons of 1868," and notice his remarks on my evidence upon draining. He is wrong altogether, and I can bring no end of evidence in this neighbourhood and elsewhere in support of my view of the case. If all the mills through the country were pulled down there would be no end of land damaged to full half its value. Side mains are what are wanted to drain the uplands. I have just completed one 14 miles off, near Buckingham, that people in the neighbourhood (that is, all who call themselves the best practical farmers) said could not be done, and if done would be of no use. Yet for all that I have convinced them that they are wrong. What I did, I did for nothing, on purpose to convince them. The meadows were not worth owning before; now, although done only six months, they are the best in the neighbourhood. If Mr. Morton will just run down here, I will give him a lesson upon the point that shall convince him. The worst meadows throughout the country are the dry meadows. To graze mine would be ruination to them His conclusion regarding the flood-water—"the top-dressings which the land obtained by winter floods which were lost when the obstruction to which they were owing was removed"—is entirely a mistaken one. For although the floods did not jump upon the land so quickly after rain, they did come; and regularly every winter all over this meadow during the whole of the 15 years after the removal of the mill; and if a loss did arise from their not jumping up so quickly, it was a loss to the land and to me. He says again: "It is by no means certain that a different management of them after the water had been permanently lowered would not have resulted in still greater fertility." The flooding character of this meadow forbids its being treated in another way than it has been, whether the mill be up or down. It is by no means a wet meadow, now the water is held in it. The worst meadows between Fenny Stratford and Newport, six miles, are the dry meadows. All the meadows that have the water held in them are capital ones, especially so on the side nearest the river. Upon this point they are very marked, although the floods pass as much over the side the furthest from the river as they do on the side close to the river. If Mr. Morton cannot come now, let him come in a month's time, when the meadows are mown and we can get all over them; and I will convince him that it would be a curse to the nation to knock the mills down. I have read lots of foolish writing upon that point. The stuff that has been written upon it proves that it has been written upon fancy. *W. Smith, Woolston.*

Foreign Correspondence.

Paris: *May* 11.—The Minister of Public Instruction has pursued his object of founding a complete system of scientific education for young men who intend to make agriculture their profession, with great determination and activity, and the courses of instruction at the Museum of Natural History, Jardin des Plantes, were last month definitely divided into two separate sections, one for naturalists, the other for agriculturists.

The pupils in the latter section are required to attend during two years the following courses of lectures:—1. Physics and Chemistry, Professor M. Becquerel, sen.; 2. Geology, M. Daubrée; 3. Inorganic Chemistry, M. Frémy; 4. Organic Chemistry, M. Chevreul; 5. Botany and Vegetable Physiology, M. Brongniart; 6. Cultivation, M. Decaisne; 7. Vegetable Physics, M. Ville; 8. Comparative Anatomy, M. Paul Gervais; 9. Physiological and Economical History of Mammalia, M. Milne Edwards; 10. Erpetology and Ichthyology, M. Duméril; 11. Entomology, M. Blanchard; 12. General Physiology, Hygiene and Pathology of Domestic Animals, M. Claude Bénard. To these will be added shortly a course on rural aptitude and zootechny.

The new section was inaugurated the other day by M. Milne Edwards, who said that the Professors of the Museum did not pretend to form agriculturists, but they believed that they might be useful to students in offering them the means of that scientific knowledge which was too often wanting, but which was indis-

pensable to the progress of a great industry. These expressions are considered as indicative of the intention of the Government to establish what is asked for by many eminent agriculturists and Professors, namely, a great central establishment for superior agricultural education, as a complement to the scientific education of the Museum.

The Government has just put forth a pamphlet on the Progress of Agriculture under the Empire, by which it appears that since 1851 the extent of land under cultivation, pasture and forest land not included, has been increased to the extent of 1,145,000 acres; the production of cereals, and other alimentary plants, by 33,000,000 hectolitres annually; that of wine by 35,000,000 hectolitres; the number of horned cattle by 249,141 head; of horses, mules, &c., by 442,178; forest products by more than half a million sterling; and the extent of coast land brought under cultivation by 82,500 acres. In addition to this, 150,000 acres of mountain land have been replanted with trees.

The third volume of the series of documents on foreign agriculture, collected by the Commission of Agricultural Inquiry, has just appeared; it consists of the replies of consular agents in Turkey, Egypt, Tunis, Morocco, and America, with some supplementary documents relating to various European countries.

The new Agricultural Society of France has also published the first volume of its Transactions. *G. W. Y.*

Societies.

CIRENCESTER.

A Discussion on the Lease.—The following is an abridgement of the discussion following Professor Wrightson's paper on this subject by the Cirencester Chamber of Agriculture, reported in these columns some weeks ago.

On the conclusion of Professor Wrightson's paper,

The CHAIRMAN said he thought Mr. Wrightson had given them great scope for discussion. He had pointed out that the want of security was the cause why capital did not flow into agriculture. He believed himself that there was no greater truth than this. He thought the tenant should be left to decide, in a great measure, in what way he should crop. He quite agreed that feudal notions ought to be abandoned, and that they ought to substitute mercantile principles for the feudal system. Unexhausted improvements was a subject which so changed with localities that it was impossible to speak of it so as to lay down a law. If they went into Surrey and then came back into Gloucestershire, they would find a different system pursued in the two counties. Mr. Wrightson had told them there were three sorts of landlords—he was sure they might be multiplied by ten. If it were in the tenant's power to buy land or even to mortgage, and work it upon his own account, he had no doubt it would answer remarkably well. Only it must be remembered that land on a large scale only gave a return of 2¼ per cent. He did not quite see how a combination of farmers in respect of taking land would act. They could not combine to buy a horse. That long leases were good must be apparent to everybody, and that no clause for cropping should be inserted unless at the end of the lease, provided a landlord had faith in his tenant to start with, and, as Mr. Wrightson had justly remarked, provided he farmed well. The artificial fertility of the soil was a question which required a long discussion, because he thought that by keeping their land in a good state for a number of years they would get what might be termed artificial fertility that would give them very great returns, which could not be got unless by a number of years good culture.

Mr. C. W. LAWRENCE appeared more in the capacity of a steward or agent than as a representative of tenant-farmers, but the advice he had always given to his employers as the best thing they could do to improve their estates and to consult their own interest, was to grant liberal leases to their tenants. He had often heard that leases were entirely for the tenant's benefit. He did not quite agree with that. He considered it the interest and duty of landlords to grant leases, as by that means they secured the improvement of their property; and although, as Mr. Wrightson had said, the result of granting leases would be that at the expiration of that term the landlord would increase the rent, all he could say was that they could not help that state of things. There was an indisposition of the landlord to grant leases for a sufficient number of years to give the tenant the advantage of improved cultivation, with proper compensation clauses at the end of the lease for—he would not say unexhausted improvements—he should have used the words unexhausted improvements in the shape of artificial manures used on the farm during the last two or three years of the lease. If they were to consider the state of the farm when the tenant first took to it, and the improvements caused by manuring, it was a question of unexhausted fertility which the valuers could not go into. As for the question of manuring for the last year, vouchers could be produced. With regard to the provisions of the lease, his practice had been to make them as simple as possible. In referring back he came upon such cumbrous forms as would cover several skins of parchment. His endeavour had been to put this covenant into a simple form, extending in the case of large farms perhaps over a couple of skins of parchment, but ordinarily only one. With regard to the cultivation clauses, he had always left that to the last four years of the lease. In a county where the four-years course of cropping was used, the lease was generally twelve years, or in some cases sixteen years, and his course had been that the tenant during the last four years of the lease should be restricted to the four-course system. He did not see why landlords should have any more objection to granting a lease of a farm than of a house. He had often himself, in reference to College holdings, granted leases, and at the expiration of a lease they had frequently made some increase of rent. If it appeared that the number of years a person had held a farm was not enough to compensate him, an allowance had been made him, and the full rent had not been demanded. One objection he had heard raised to leases on the part of landlords was, that although satisfied with the tenant at the time of taking the farm, they could not tell what might happen in the course of a few years. He himself might die, the property might go into the hands of executors, or he might be overtaken by some unfortunate failure, and the farm might go into other hands, and not be cultivated the same way the landlord expected at the hands of the tenant to whom he let the farm. These were contingencies to which they were all subject. The tenant was subject to the same contingencies himself with regard to the landlord, and therefore he thought a tenant taking a farm was fairly entitled to look to possible contingencies, and to require security for his capital.

Mr. SMITH (Bibury) thought arbitration should be carried to a greater extent than it generally was. His opinion was that they would be better without any lease at all than with a short one, but was in favour of long leases. At the end of a lease there was something to be said about raising the rent, but when the tenant went on from year to year there was nothing to be said. In the case of leases his opinion was that every tenant should, three or four years before the expiration of his lease, go to his landlord and renew that lease, and if the landlord was not willing to renew it, then the tenant was justified in taking out of the land what he had put in. He could then lay his money out on the land with safety.

Mr. R. A. ILES thought that the tenant should be repaid the advantage of any outlay, and that, on the other hand, the landlord should be protected against any injury. Of course, if a good system of agriculture was to be followed, the tenant must have security for the outlay, and therefore the great object of an agreement should be for that end. He had been a little surprised to hear one remark of Mr. Wrightson, that he put out of the question the words trust and confidence. He did not know whether people had got too highly polished for such things, but he thought if there was mutual confidence between landlord and tenant they would be likely to go on comfortably. An agreement, unless there was some stipulations in the lease by which the tenant should be able to demand repayment for the improvement—an agreement where there was mutual confidence between landlord and tenant would be better than a lease, unless a very long one.

Mr. ELLETT said the resolution merely affirmed that short tenancies and the insecurity of capital were calculated to act as obstructions in developing modern agriculture. It seemed to him that was only another way of putting, what of course they were all aware of, that the ownership of a short interest—simple interest—in property was not so valuable or so convenient as the ownership of the whole of it. Of course, if they were owners of an estate they would deal with it as they pleased; but if they were only owners of a limited interest in it, they must so deal with it as best to make that limited interest serve their purposes for the time they held it. And that brought them to a point which the Chairman saw, namely, that whilst no doubt it would be very convenient if they could only rent their own farms, they must bear in mind that the ownership of farms was a luxury in which only rich men could indulge. The rate of interest derived from farms was so small that only those could afford to invest in land who had a good deal of money. The farmer could not expect to have the same security for his capital as the landlord would have for the capital he had invested in land on a low rate of interest, and any attempt to place the two on the same footing must obviously fail. Therefore in affirming the resolution that "short tenancies and the insecurity of tenants' capital invested in land not his own are calculated to act as obstructions to the development of modern agriculture," which was obvious and palpable, he did not wish to be understood as casting—as it seemed to him some of the observations had cast—any reflections upon those who were the owners of land, as distinguished from the renters. As Mr. Wrightson had pointed out, the parties must make their own terms, and it was important they should treat the matter as a matter of business—deal with it, as the expression was, on mercantile principles. It appeared to him, with all respect, that Mr. Wrightson had been hardly followed by some of the subsequent speakers, and he quite agreed that the class who had to introduce mercantile principles into the dealings between landlord and tenant were the tenants and not the landlords. Singularly enough, at the moment when they were talking of the introduction of mercantile principles, Mr. Smith had given it as his opinion that three or four years before the expiration of a lease it should be renewed, so that if there was no term running out there would be less danger of a rise of rent. Was that the introduction of mercantile principles? If the price of sugar went up their grocer charged them for it, and if the price of land went up, why should they object to pay for it? Mr. Wrightson's resolution merely affirmed a proposition which landlord and tenant must concur in—the longer the term, the greater the security for the capital invested. There was only one other point which appeared to him to want more clear explanation, and that was the question of unexhausted improvements. He was not sure that the difficulty did not arise from the circumstance of a great deal being attempted to be drawn under the head of unexhausted improvements, which really was but the adding cultivation necessary at the present day. A tenant could not claim to be compensated for leaving a farm in a proper state of cultivation. Of course, if a tenant with the assent of his landlord went beyond that, either the landlord or the incoming tenant ought to pay for that. It was a matter easily enough made the subject of agreement at the time. One speaker had seemed in favour of arbitration at any time. He confessed his experience went the other way—it was calculated to cultivate a perpetual feud between landlord and tenant.

Mr. SMITH explained that arbitrators would not be wanted except when the farmer was going to leave. With respect to leases, he only meant that the tenant should have security for laying out his money on the land. But on the other hand, he did not say the landlord should not have the power to raise the rent. The landlord would have power then to raise it any year he may choose.

Mr. EDMONDS thought long leases were preferable. He did not see any objection to a rise in rent at the end of a lease. The question was—What rise? He thought they would be willing to give more rent if the farm were permanently improved, willing to give a certain amount more rent, but not the total value, unless they were paid for unexhausted improvements.

Mr. SNOWSELL thought that if a farmer took a farm for 21 years, at the end of that time he must be worth more money. He not see why the farmer should not participate with the landlord.

Professor WRIGHTSON, in replying, said there appeared to be some difficulty in understanding the meaning he attached to the term unexhausted fertility. He though that unexhausted fertility certainly existed. It would, however, be difficult to value such artificial fertility, but he thought the valuing of the means used in the form of manures and feeding stuffs, to produce this abnormal fertility, would meet the difficulties of the case. With respect to arbitration, it was evident it might take place frequently, but he did not see that that was an injury. He did not think the Evesham code with its arbitration was in a worse position than leases with resort to law. He had endeavoured to point out that they must work as much as possible by self-interest. He did not intend, as one of the speakers had seemed to think, to do away with trust and confidence. What he did mean was, that in such an important document as a lease, nothing should be left to trust and confidence. They asked for a receipt from a tradesmen, and he did not think that an insult upon his honesty. He thought the clearer every agreement was made the more likely it was that trust and confidence should be maintained. He agreed with Mr. Edmonds that the longer the lease the better. Mr. Mechi spoke of a 60 years' or a 90 years' lease, and he really did not see but that it would be a very good thing, if they could get them.

Farmers' Clubs.

MORAYSHIRE.

Rooks and Wood Pigeons.—At a late meeting of this Club, Mr. GEDDES (Orbliston) said: I believe it was the overwhelming increase in the number of crows that induced the committee to adopt this as the question for discussion upon this occasion. The increase in the number of crows has been felt so much within the last six months, that we find it almost impossible to get on without a continual herding of them, which, of course, is a very expensive matter; and when there is more than one field to herd upon a farm, it literally compels the expense of keeping two men or boys to save the seed of the Wheat crop. I know some fields—and I am sorry to say one of them is my own—that are thinned to such an extent that it will be a question at the close of the winter whether they are to be ploughed down in the spring, and sown with Oats or Barley. That being the case, and seeing the increase of crows has been enormous in this county of late, of course it was the interest of the members of this Club, and they should make it their business, to desire the proprietors in the county to put them down to a reasonable number. I believe that every one agrees that a reasonable number of crows are a necessity, not only for the killing of grub, but for many other things which I need not go into. The question comes to be, how is this reduction to be gone about? My own impression is that, as there are only a limited number of rookeries in the county, we ought, in the name of our Club, to request the various proprietors, upon whose grounds they exist, to give every facility for the killing of the birds and destruction of nests during the time of sitting, and during the period of incubation. It remains for others to suggest any other course, but it seems to me the simplest way is to ask proprietors to give permission to kill the crows, to do it ourselves, and to pay for it, either from the funds of the Club, or by a private subscription. I cannot see that any other means could be adopted, because we cannot go upon their grounds without permission. With regard to the wood pigeons, I know so little about them that I cannot suggest any plan further than that the landlords should kill them, or give permission to others to do so during the period of nesting. I do not, however, feel myself at all free to propose any plan for getting rid of the pigeons; but, with respect to the crows, I do not see that we can have any better plan than that of asking the proprietors to destroy them, or to permit us to do so.

Mr. GREGOR (Wester Alves) said that, so far as wood pigeons were concerned, the only way to reduce them was to breed squirrels. Since the squirrels came into the woods in his vicinity, there had not been one wood pigeon for a hundred that existed before.

Mr. MANTACH (Dundurcas) thought the crows did more good than evil. The only way to get them reduced was to go to their nesting places and destroy the nests.

Captain CULBARD believed wood-pigeons did a good deal of damage in the country, and if they would offer a small premium for their nests and eggs, the boys would soon bring them. He was opposed to the introduction of squirrels, because they destroyed the wood.

Mr. Lawson (Oldmill) thought that if every proprietor would follow the example of the Earl of Fife, their object would be very simply effected. Every spring, when the young birds were beginning to get out upon the branches, a few friends were asked by his lordship to come and shoot at the crows. His friend Bailie Culbard sometimes came, and they killed them by the thousand. The thinning of wood-pigeons was a more difficult matter. He did not see how it was possible to thin them, except by offering a premium for them. It was only occasionally one could get a shot at a wood-pigeon. A person going about shooting might get them occasionally; whereas, if they went out purposely to shoot them, they might not get one. If the gamekeepers were instructed, they could do most to keep them down.

Mr. Garden (Grangegreen) had spoken to his own proprietor on this subject, as he had a large rookery on his property. He thought the farmers were all wrong in seeking to destroy the crows; but, if they desired it, he had no objection. Every spring, about the end of April or beginning of May, when the young birds took wing, there had been a number of people collected, and he believed thousands of the young birds had been killed. Still they seemed to increase. The old birds appeared never to die, so that it did not matter though the young ones were killed. He had never seen so many crows as this season. They required a person to watch every field, and, after all, the birds were doing a great deal of harm. At Gordonston, Brodie, and Newton, there were large rookeries, and he thought the only way of successfully reducing them was to kill the birds before they took wing. Wood-pigeons were much more difficult to destroy, as they could not be got near. Two years ago there was a severe winter, and they were then got easily at; but, in an open season, it was different. The wood-pigeons breed in very retired places. There was a range of wood along the shore belonging to Moy, where they bred in thousands, and nobody went near them.

Mr. Yool (Coulardbank) said there was no doubt the crows were an enormous nuisance, and created an enormous expense. He had had four boys steadily employed in watching his fields. Last year he had about 14 acres he had sown with Wheat to plough up in spring. When the Wheat was coming through the ground he had neglected to watch it for two days, and there had been so many crows at it that it was not worth anything. They might imagine that a few fields destroyed in this way, here and there throughout the country, came to be a serious thing for the farmers. They should shoot down the old birds, and keep the hens off their nests for 12 hours or so at a time. Really he could not see any difference in the number after shooting. There was not much Wheat grown upon the hill-sides of the county, and in consequence the rooks came down to the lower parts of the country during winter, where they could get Wheat to peck at. Not only were they a great nuisance in preying upon the Wheat, but they were just as bad upon the Potatos, and they might be seen lifting Barley and Rye when it was brairding. Crows seemed to be very long-lived. One of our poets talks of the "many-wintered crow," and certainly they did seem to live to an enormous age, for they saw a great many old fellows with lumps below their bills. Though a few young birds were killed down, they were bound to increase, from the length of their age. He did not think Mr. Lawson's plan would be effectual. It had been carried out, and instead of the birds getting fewer they increased. If, however, they pulled down the nests, the rooks would fly away. If they got people to pull down the nests, that would be the most effectual plan. He did not think he had suffered much from wood pigeons, but to the west of his place, there was damage done by the pigeons. The only way they could do with them was to shoot when they got the chance, and get the proprietors to instruct their keepers to kill them. He did not think, however, that wood pigeons did so much damage as crows.

Mr. Mackessack (Ardgye) said it was quite evident, from the increase of crows during the last eight or ten years, that they were becoming a very serious evil. Mr. Yool said he had had three or four boys watching his Wheat, and he (Mr. Mackessack) had had the same for two or three years past on his places. Even with that care it was difficult to keep them from doing harm. The crows eat almost every kind of crop; and if there was snow, the stacks were attacked. If he had a field ripe a little earlier than his neighbours in harvest, it was impossible to keep the crows from it. The Potatos and Turnips they destroyed immensely. The increase of crows during the past ten years had been in the ratio of about ten to one. Some of the proprietors in the county rather encouraged them; and, unless they took steps for pulling down the nests during hatching time, they would not get clear of them. The committee of the Club should press upon those proprietors who have rookeries to destroy them, or, at any rate, to allow parties to go there at hatching time and destroy the nests. If this was done for several years, no doubt there would be a very large decrease in their numbers.

The Chairman was perfectly satisfied most of the proprietors in the county would give assistance to their tenants in getting rid of crows.

EAST LOTHIAN.

Stock Feeding in a Difficult Season.—At the late monthly meeting of this Club, Mr. Harvey, Whittinghame Mains, who acted as chairman, opened a discussion on "The most economical mode of bringing out store and feeding stock in a season like this, when the supply of Turnips is deficient." After referring to the poverty of the present Turnip crop, and stating that out of 50 acres which he had sown he had only got about 15 acres of Turnips, he proceeded—My reason for wishing to discuss this subject was the desire to elicit some information on a subject highly interesting to almost every farmer in the county. I may state what I have done myself with 200 hogs. They have not received any Turnips up to this time. I commenced to give them cake and hay early in November. For the first three weeks they received about half a pound of cake with fine hay continually in the racks. Early in December the cake was increased to 1 lb. each, and the hay to fully 2 lb. each, and from that time to this about one-half of the hogs kept in first-rate condition, and the other half not so good. The quantity of stuff consumed up to the 1st March will stand at something like the following:—9 tons 2 cwt. of cake at 10*l.*, with carriage, 91*l.*; 2000 stones of hay of fine quality, at 1*s.* 3*d.* per stone, 125*l.*—216*l.*; the amount per head expended, from the above calculation, being about 1*l.* 1*s.* 7*d.* up to the 1st March, independent of Grass consumed on the farm during the autumn. Fully half of the stock was bought in at St. Boswell's fair, and the remainder in the month of October—5½ score at St. Boswell's, July 18th, at 20*s.*, and 4½ at 17*s.* in October—average, 18*s.* 7½*d.* As regards my cattle I have little to say, further than that they have only received about half the usual quantity of Turnips, but have been supplemented by a large quantity of cake, and latterly by small Potatos, and have thriven remarkably well. As regards the hogs, my margin of profit will be very little. I think I had better never have seen them at all.

Mr. Douglas, Athelstaneford, then read a long and interesting paper on the subject under discussion. In the course of some preliminary remarks he noticed how utterly unsuccessful farmers were last year in the growing of the Turnip crop, owing entirely to the prejudicial influence of the weather.

They did not remember a season of so long-continued drought, except that of 1826, and even then the rainfall continued up to an advanced period of the season, so that the Turnip seed brairded; and although the crop was materially affected by the drought which followed, it was not upon the whole nearly so deficient as that of last year. Last season there was no rain after the middle of May up to the early part of the month of August; so that it was only on soils of deep mellow texture, which possessed the power to absorb and retain moisture, than even a portion of the braird was obtained. He believed that in a number of cases in the south and higher districts Turnips upon light suitable soils in good condition had done, generally speaking, much better, and that in some of these they were nearly an advantage; but there never was a season in which the Turnip crop so signally failed over such a wide area as last year. He believed that a greater breadth than usual was sown, and that England suffered even more severely than Scotland. It would naturally be asked—"What would be the ultimate result of this great failure of the Turnip crop?" 1st, there would be a great loss of money; for instead of the crop realising from 7*l.* to 10*l.* per acre, as it ought to have done by being eaten on the ground with sheep, from 1*l.* to 3*l.* would fully represent the value of the crop which brairded after the 1st of August, and which might be said to consist of three-fourths of the whole on every farm; 2d, the loss sustained by the land not being fully manured by sheep stock in consequence of the shortcoming of crop on it; 3d, the loss in a great measure of the artificial manure applied, and also the additional outlay for substitutes in order to make up for the deficiency, and enable the farmer to consume the straw into manure. This was a more serious matter than appeared at first sight. Take a farm which grew on an average 100 acres of Turnips, admit a fourth part was worth an average price and three-fourths worth only 50*s.*, the loss of money on the deficiency of 75 acres, with the loss of a portion of artificial manure employed in the cultivation, would amount to at least 500*l.* Mr. Douglas noticed the reduction of 10 per cent. which had been made by Mr. Robertson of Ladykirk on the rents of his tenants in consequence of the failure of the Turnips last year, and also a reduction of 10 per cent. to his tenants of grass parks when he saw that the crop had suffered from the severe drought. He stated that that spontaneous act on the part of Mr. Robertson was the most tangible proof of the interpretation that could be employed in carrying out and fulfilling in a spirit of integrity the relations which ought to exist between landlord and tenant, which were said to be identical, and ought to be reciprocal.

Mr. Douglas next proceeded to give an account of the progress he was making with the feeding of a lot of cattle with brewer's grains and other substances, having only 5 acres of Turnips to assist.

I bought (he said) in November last 61 cattle, principally 3-year-olds, at an average of 15*l.* 5*s.* per head. They were supplied the first two weeks with a daily allowance of 21 lb. of brewer's grains, mixed with 2 lb. of cummings and a little salt, with warm water added, and had also 7 lb. of Clover hay. The following four weeks the same allowance as at commencement, with the addition of 4 lb. of a mixture of oilcake, Wheat, Beans, and Oats (ground into meal)—the cake was in proportion of one-third of the whole; and the next four weeks as before, with an extra addition of 2 lb. of the mixture, making 6 lb. per day. At this stage I observed that the cattle were not making the progress I expected, and thereupon discontinued the draff and cummings, which I may state had risen in price from the time I commenced at 26*s.* 6*d.* per ton to 28*s.* 6*d.* and finally 31*s.* 6*d.* laid on rail at Edinburgh. The cummings were 5*l.* 10*s.* per ton. The cattle were now put on 30 lb. of cut Swedes, 28 lb. of Potatos, with the same allowance as formerly of hay, and 8 lb. of the mixture, and I find are now making rapid progress; and I intend to continue this allowance till the 1st of May, by which time I expect to have Clover fit to cut. The Grass will be given fresh twice a day in quantity they can eat without leaving anything over, with the addition of 10 lb. of oilcake and bean-meal in equal parts. After six weeks of this treatment I expect they will be prime fat—weighing from 60 to 70 stones imperial. The expense of keep during the first 10 weeks is an average of 7*s.* per week and will be during the remainder of the time—viz., 18 weeks—11*s.*; the food being calculated at the following prices:—Home-made oilcake, 13*l.*; and bean-meal, Wheat, and Oats, 10*l.* per ton; hay 1*s.* per stone of 22 lb.; Turnips 10*s.* per ton; and Potatos, consisting of second growth and small, 7*s.* per boll. The whole expense for food and attendance will be, during seven months, 13*l.* 15*s.*; and if this is added to the cost price of the cattle, it will amount in all to 29*l.* per head. Notwithstanding this great expense in feeding this season, if the beef markets improve as they have every appearance of doing at present, I shall be well enough paid in the end, besides having a very considerable value in the increase of manure of the best quality. It has been said that the dearest manure is that which is made on the farm, but with this view I entirely disagree. I believe if farmers were to use a great deal more auxiliary food for both cattle and sheep they would be well repaid in the long run. It is surely much better to increase our supply of farmyard manure in this way than to buy large quantities of artificial manures; for by using a considerable amount of extra food, and putting it through the stomachs of our animals, the manure is thereby enriched to a degree that tells in an unmistakable manner on the growth of crops. Farmyard manure thus made contains to a wonderful extent all the elements which nourish and build up plant life, and the residue goes to rottenness and forms soil, besides having a very beneficial tendency in keeping the soil from consolidating, and therefore in a better state to benefit by the action and influence of the atmosphere in supplying nitrogen and other agents. It is computed by some that a ton of well-made stable manure has a manurial value of 15*s.* I do not think this is overstated.

It is now pretty generally acknowledged that farmers have all along been following a beaten path, regardless whether they were progressing in the right direction or not, to their own loss, by employing in the feeding of cattle an excessive quantity of Turnips.

"The usual mode of procedure was—When the cattle came home (notwithstanding they were frequently in a weak and lean state), they were supplied with Turnips *ad libitum*, and perhaps a little Oat straw, of which they very seldom if ever ate; for they preferred the Turnips, and gorged themselves, so that eating fodder was out of the question, and afterwards were oppressed to such an extent that it amounted to positive suffering, until relieved by diarrhœa, which state of matters went on for weeks and weeks, the cattle the while making no advancement in the fattening process, and in a few cases even losing flesh, thereby incurring a great waste of food and loss of time, which is money. Now, however, a more consistent and rational practice is being ushered in. If, therefore, the failure of the Turnip crop of 1868 teaches us an improved system—how to use the crop with economy and profit—it will have proved a blessing, and the saying will be verified, 'out of evil cometh good.' I believe Turnips will always continue to form the basis of cattle feeding; but they should not be used in inordinate quantity, with the view of saving other food. It is an economy that leads to poverty; 50 lb. to 70 lb. daily will be found ample, if combined with from 28 lb. to 30 lb. Potatos, 7 lb. hay, and a mixture of second quality of grain ground into meal, along with a portion of the best oil-cake, in quantity suitable to the size of the cattle, and the object the feeder has in view as to the period of disposal. Rock salt and water at command should always be allowed, as animals fed in this manner will to a certainty avail themselves of the latter; and it is not too much to say that water alone contains a considerable percentage of feeding properties. Cattle are much benefited by a small quantity of hay per day; it has a very beneficial effect, promotes the chewing of the cud, insuring complete mastication, and is a great means of enabling the animal to thoroughly assimilate the food consumed, besides promoting a healthy action. The cattle are very fond of it, thereby giving a relish to their food; it does not require to be cut, only thoroughly shaken out, so that the animal can roll it like a sweet morsel under his tongue, and eat it up without waste. I venture to suggest that it would be found more profitable to consume hay in this manner than sell it off the farm. In speaking of the feeding of store stock, I believe a mixture, composed for the most part of French rape-cake, with a small portion of Carrot, Bean-pods, and oilcake, broken and mixed, is a very good substitute for what is termed 'half Turnips.' Some rape cakes are very acrid and bitter, so much so that cattle will rather exist on straw alone than take to them. The French cakes this season have been very good, and generally free from this objection. 4 lb. of this mixture per day will cost 2*s.* per week, and with a full supply of Oat-straw and water will keep a beast in health, and tolerably fresh to put on Grass. Half Turnips, or what may now be termed that—viz., 28 lb. daily, supplied at two meals, at an expense of 10½*d.* per week, or 14 lb. daily of small Potatos—would be equally suitable under the circumstances, and this food at 5*s.* per boll of 4 cwt. would cost 1*s.* 2*d.* per week. Now, if I am right in assuming that this quantity of Turnips or Potatos given to store cattle will carry them through the winter months in an equally fresh and healthy state, until the Grass is ready, as the mixture named, it will be seen that Turnips or Potatos are much cheaper. It has been affirmed that the manurial value of manure made from Rape is very high—equal to 4*l.* per ton, and twice the value of that made from the use of bean-meal—and that cattle are more healthy, also exempt from quarter-ill, and thrive better when put on Grass than if wintered on half Turnips. Now, taking Mr. Lawes' estimate of the manurial value of each ton of food consumed on the farm, we find bean-meal put down at 3*l.* 13*s.* 6*d.*; rape-cake, 4*l.* 18*s.*; and best oilcake, 4*l.* 12*s.* per ton. But I for one cannot believe that the manurial value of rape-cake after being used as food for cattle can be anything like this, not even best oilcake; and with regard to the doctrine that cattle thrive better on Grass when fed on Rape mixture than on a quantity of either Turnips or Potatos (irrespective of expense), the statement does not hold good in my practice. I admit it may have a certain effect in warding off quarter-ill in year-old cattle, but in the case of wintering cattle I find 2-year-olds answer best.

To enable the farmer to carry out the proper management and economy of the Turnip crop, much depends on ample and suitable accommodation in buildings.

Loose-boxes are best, and should be of proper size to enable the animal to move about at pleasure, which he will do and thoroughly enjoy himself with a perfect *abandon*; for he has no fear that a bully neighbour will invade his procincts and abuse him, and they conveniently allow an increase of food to be given to those which apparently require it. The boxes should each have a door opening from the open air to secure ventilation and facility in feeding and removal of manure, which is of much better quality than that made in open courts. Boxes, too, can be kept at the maximum of heat necessary to the economy of food and comfort of the cattle; whereas in open courts, during inclement weather, much food is wasted in the lungs to make up for the heat lost. A couple of feeding-sheds, with open courts, not too large, are, however, a great convenience on a farm for receiving refuse straw, cleanings of roads, &c., in which the cattle should not number more than six—four are preferable—and should have wooden knobs on their horns to prevent goring and abuse to one another. This lessens fear and watchfulness on the part of the cowed, and, of course, they feed better. I am happy to say that landlords generally have responded to requests in this direction, and that their own interests are involved in meeting it; for, by supplying their tenants with ample means of feeding stock, the condition of the land is improved.

Mr. Douglas then referred to Cabbages, Mangel Wurzel, Clover-grass (if it could be had early in the season—which could easily be accomplished by two top-dressings, say the first in the middle of February, consisting of 1½ cwt. of Peruvian guano, applied during fresh weather, and if possible accompanied with rain; the second a month afterwards, of 1 cwt. of nitrate of soda; while a few acres, to commence feeding with, might have a third top-dressing of 1 cwt. of sulphate of ammonia), winter and spring Tares and Potatos, as substitutes which might be got from the farm to assist the Turnip supply. In conclusion he said—We are all aware of the change taking place in the seasons. Some believe it partly arises from the influence of the Gulf

Stream and prevailing south-westerly winds; but at all events it would seem to be necessary on that account to sow earlier than formerly. All those crops of Turnips which have given anything like a crop last year were got in from the 1st to the 15th May; and I believe there are cases in the county where Turnips were sown in the end of April, and did not bolt or go to seed. This was not the case some years back. Fifteen years ago I sowed on 10 acres of land, on the 9th May, white globe and Skirving's purple-top yellow Turnip, intended for early use, and to be eaten on the Grass; a pretty sharp frost came, and every Turnip shot. It is rather an encouraging fact to notice that, notwithstanding the long-continued drought of last summer, and the great shortcoming of rainfall up till the middle of August, yet before the year was out the balance of rain was nearly made up all over the country, and in some districts the total of the year actually exceeded the average, and this has gone on up to the present time, and in greater proportion than the corresponding period of last year. If this continue, we shall have a good amount of moisture stored up in the soil to assist in germinating the Turnip seed; and the probability is we shall have another hot season, with less drought than last year. Whether this supposition be correct or not, let us still be hopeful of success in the cultivation of the Turnip crop, prepare the soil well for the reception of the seed, and treat it liberally with manures best adapted to its growth, and trust the rest to Providence; for it is said God helps those who help themselves.

Mr. Hope, Fenton Barns, said he thought they were all much indebted to Mr. Douglas for the paper he had read. In the general principles he had laid down he (Mr. Hope) most heartily agreed. He would just, perhaps, put the advice they had got in different words, but it came to the same thing. Mr. Douglas told them to limit the quantity of Turnips they gave to the stock, but his impression was that they should give them as many Turnips as they could eat, giving them at the same time something else which they had a preference for. He regarded linseed-cake and bean-meal as a good mixture; and he found that giving them one-half of each—say 3 lb. of linseed and 3 lb. of meal—was much better than a double quantity of either of them singly. He had been making experiments with regard to the feeding of winter stock with palmnut-meal. By pulping a few Turnips, and mixing them with the meal, he found that the cattle ate it remarkably well. He had continued the experiment for a couple of months, and found that, while one was as good as the other, the palmnut-meal was less than half the expense of the linseed-cake.

Mr. Smith, Whittinghame, said that he believed that as things stood at present, the Wheat produced on their own farms was the cheapest for feeding. He had used it himself for many years in feeding sheep when the price of Wheat was low, and he had found them thrive uncommonly. He fed them on the Grass without any other mixture.

Reviews.

The Distribution and Agricultural Use of Town Sewage. By William Hope, Associate. Read at the ordinary general meeting of the Institution of Surveyors, on May 3, 1867.

This is not, we believe, a publication; but having received a copy of the pamphlet, purporting to be Part XII. of the Transactions of the Institution during session 1868-69, we presume that it is permitted us to call the attention of our readers to Mr. Hope's very able and efficient exposition of the present condition of the sewage question, especially as to the commercial speculation involved in it. Mr. Hope, in the outset, explains his own special qualifications as a writer and speaker on the subject. He says:—

"I lived for some half-dozen years partly in Edinburgh, where I constantly witnessed the marvels of the Craigentinny sewage meadows, and partly in the neighbourhood of the two celebrated liquid manure farms in Ayrshire; and, as the latter formed the frequent topics of conversation in country houses, I was not only able to see with my own eyes the results which those gentlemen obtained, and the causes of their commercial failure, but I also heard those results and causes discussed and criticised. For the last eight years I have, as many gentlemen present are aware, studied deeply and carefully the question how to dispose of the sewage of London; and my pecuniary stake in the successful solution of this question has been and is so large, that it is, perhaps, the best guarantee that I have left no stone unturned in my endeavours to ascertain the truth. The various experiments conducted by the Metropolis Sewage Company, both at Barking Creek and on their experimental farm a little beyond Barking, as well as those conducted by myself on a smaller scale on my own land, have given me an opportunity of acquiring knowledge in this particular branch of agriculture, which, I believe I may safely say, no one else has enjoyed; and it is only the consideration of these exceptional advantages which has made me presume so far as to address the Institution of Surveyors on such a subject."

His address refers, in the first place, shortly to the subject of *Conveyance* of sewage; secondly, to the subject of its *Distribution;* and thirdly, to the subject of its *Application.* It is the third in which agricultural readers are especially interested, and it is from this part of the pamphlet that we shall make our extracts. After describing the laying out of land in ridges some 40 feet in the side, with a fall of 1 in 20, or thereabouts, from ridge to furrow, as the best form on which the sewage flowing in the carrier along the ridge line will naturally distribute itself, he says:—

"We will suppose, then, that as suitable a district as possible, both with regard to the quality of its soil and to the general lie of the land, has been chosen for the application of the sewage of a town, and that the land has been laid out in ridges, as I have described. There remains, then, the question over what area and to what crops to apply the sewage; and, clearly, the area on which it is applied must depend, in some measure, upon the crops selected. One important crop must always be Grass, because this is the only crop that is always on the ground, and always more or less in a growing condition. It is the only crop, therefore, to which sewage can be applied more or less usefully on all days in the year; and, whenever any large quantity of sewage is to be disposed of, there is always a population to consume grass, whether in the form of meat, or of dairy produce, or of horse labour. A very considerable quantity of the sewage of any town can, therefore, always be used in the production of Grass, without any danger of overstocking the market. The experience that we have had, both at the Lodge Farm, in the occupation of the Metropolis Sewage Company, and on my own experimental field, shows that sewage is equally applicable to cereal crops as to Grass, green crops, and vegetables; but, no doubt, a greater return per acre can be obtained by the production of the latter, because a greater quantity of sewage can be utilised by them than by cereals, and, therefore, it is desirable that the bulk of the sewage should be applied to either Grass, green crops, or market garden vegetables. But, in a case where sewage is carried to a considerable distance from a town, into a purely farming district, experience proves that sewage is quite as applicable to cereal crops as to any other during the periods of the year when it can be so applied; and in the early spring, before the summer green crops are sown, probably sewage may be more usefully applied to winter Wheat and Oats than to anything else. The third crop of Wheat, on the same land, the third year running, can now be seen growing, and apparently very healthy, upon a poor gravel at the Lodge Farm; and this result has been obtained exclusively by the use of sewage, and of a surprisingly small quantity. Last year there was a very fair crop indeed of 5½ quarters to the acre, and the sewage applied was only about 500 tons,—equal, in round numbers, at a penny a ton, to about a couple of guineas; and the first year that we tried sewage upon Wheat, it was put to one portion of the same field which looked particularly bad. Two portions of this field were carefully measured, and one was left as it was, and the other was sewaged with about the same quantity of sewage as mentioned before. The result was very remarkable. The unsewaged portion gave 3 loads of straw to the acre, and 3 quarters 5 bushels of grain; the sewaged portion gave, as was naturally to be expected, a large increase of straw, 4½ loads to the acre, or 50 per cent. of increase, and the figures of the grain were still more satisfactory,—namely, 5 quarters and 3 bushels to the acre.

"Oats and Rye have also been very successfully grown at the Lodge Farm with sewage alone; and, as a still further proof of the applicability of sewage to cereal crops, I may quote an experiment on a small scale which I conducted last year with Indian Corn. I was not able to sow the Maize until the end of June, and could give it no sewage until after the middle of July, by which time it had nearly perished from drought. It nevertheless grew in the following 33 days 96 measured inches, or nearly 3 inches per diem, and most of the cobs ripened perfectly. No doubt last season was exceptionally hot; but, had it been sown at the proper time and sewaged immediately, the Maize would have had a much better chance, even in a much worse season. I may mention that the theory which I wish to test, by the experiment which I made with this crop last year, and which I am going to make with the same crop this year, is to ascertain whether, by feeding it with a manure which it can so readily absorb as sewage, I can make it grow quick enough to bring the cobs forward sufficiently early to ripen during the dry hot weather which we always have—in the south of England at least—in August. Last year's experiment was so far encouraging, that not only was the growth unprecedentedly rapid, but so suitable did the sewage appear to be to this particular crop, that the cobs produced were larger and finer than the seed cobs from America. There is no question, therefore, that if the sewage of a town be carried sufficiently far to get into an ordinary agricultural district, its application would be found beneficial to cereal crops."

Mr. Hope then refers at length to the conversion of sewage into useful food through the agency of Grass. He objects to using it on natural Grasses, and some of the most vigorous perennial Grasses he also condemns—the Italian Rye-grass is the best agent for the purpose known to us. With regard to this "we are told by all the standard works on agriculture that its life is from three to four years, and that it will yield three or four crops in a season. But the true explanation of the habits of this plant, and I doubt not of all other similar forage plants, is, that the plant is capable of growing to a certain number of inches in total height, yielding a certain number of tons per acre in total weight, and making a certain number of efforts towards maturity. Hence, if by stimulating treatment, these efforts can be crowded into one season, the yield is obtained and the plant worn out in one season instead of in four. And this practically is the case with Italian Rye-grass treated properly with sewage. It should be sown in the middle or end of August, at the rate of 3 or 4 bushels to the acre. One light cutting should be obtained that autumn, which, besides giving a slight return, will have the effect of getting rid of the first thin delicate blades which the plants send up from the seed; and there will then be a strong vigorous plant upon the ground to resist the winter cold, and to yield a crop at the earliest possible moment in the following season.

"After this autumnal cutting, the Grass may be dressed at the rate of 400 tons per acre per month—making up a total dressing for the ensuing 13 months of a little more than 5000 tons.

"When the first crop will be obtained the following season depends, of course, greatly upon the length and severity of the winter. This year, for instance, the first cutting obtained at the Lodge Farm was on the 26th of January; last year, the first cutting was on the 12th of March. But the sewage should be applied even at the time when there is no apparent growth; for the ground, assuming it not to have been previously overburdened with sewage, can store up during the winter months anything that the plants do not utilise; and the plants utilise, even in winter, more than could well be believed without actual experience. Many persons imagine that sewage cannot be applied to any crop, without positive injury, during hard frosts or snow; but this is not the case. The sewage is always above the freezing point, and more so than ordinary running water. The actual contact with the sewage must, therefore, be beneficial to the plants in protecting them from cold. We, therefore, start in the growing season with vigorous young plants, which have been fed liberally all the winter, and which are panting to burst out as soon as the warm weather comes; and, astounding as it may seem, compared with the number of crops that are ordinarily obtained from Italian Rye-grass in one season, it is a fact that last year one plot of Italian Rye-grass on the Lodge Farm was cut no less than 10 times; and I believe Rye-grass, reasonably well treated, will always yield 10 crops in any season in the south of England. After such a return in the year following an autumnal sowing, the farmer can well afford to break up his Rye-grass; and therefore, to obtain the last crop, he can go on cutting it right into the cold weather in November, or even December, regardless of the effect of frost upon the roots of his worn-out plants.

"We have found that in the height of the growing season Italian Rye-grass, for the first 10 or 12 days after cutting, will grow at the rate of an inch a-day, and that it weighs, on the average, half a ton per acre for every inch in height. The early crops will probably grow 20 to 24 inches in height, or even a little more, weighing in this way 10 or 12 tons to the acre before the plants show signs of seeding; and I may mention that, in order to get good results, the ground laid out for Rye-grass should be so subdivided that the different subdivisions may be cut in rotation before they begin to seed. The effect of this treatment, however, is to render the plant more impatient to perform its natural function of reproduction, and this especially so in the very hot weather in July and August, when the crops must be cut at a length not exceeding probably 15 or 16 inches. Thus, 10 crops would be obtained in the season, ranging in weight from perhaps seven up to 12 tons, and a total produce may be looked for, by this treatment, of from 90 to 100 tons per acre. It is quite true that we have never yet exceeded 71 tons per acre at the Lodge Farm, but that is because the sewage has not been applied in sufficient quantities, and the Grass, as a rule, has been sown in the wrong months.

"The enormous produce that I have stated ought to be obtained from Italian Rye-grass, points to that crop as the one which can absorb the largest quantity of sewage. Its appetite may, therefore, be taken as the measure of the minimum area of land on which the sewage of a town can be applied in any one year, but it must be borne in mind that the Italian Rye-grass will by no means exhaust the manure contained in the sewage. Whether this is solely because sewage contains ammonia somewhat in excess of the requirements of the plant, or because the plant requires a certain minimum quantity of water to produce the results I have been describing, and, therefore, more liquid sewage has to be given than it can utilise the manure of, I cannot say, but I am inclined to think that, if 'dry weather' sewage were diluted for Italian Rye-grass with as much as 50 per cent. of water, the same results in produce could be obtained from two-thirds of the sewage, and that consequently there could of course be nothing like the same amount of manure left behind. But it will be time enough to try how far we can stretch the sewage, so to say, when we have left off throwing if away. At present we had better consider what should be done to extract the sewage left behind by the Rye-grass, and on this point we still require a good deal of experience.

"Last year, at the Lodge Farm, a very extraordinary crop of Oats was grown on a piece of land which, during the previous season, had received 4000 tons of sewage and had yielded 71 tons of Rye-grass to the acre; and such were the strength and luxuriance of the Oats, that they clearly did not succeed in exhausting the whole of the sewage: but the experiment is incomplete, inasmuch as that piece of land has been again laid down in Grass. I am inclined to think, however, that Potatos would be the most suitable crop to grow in the year following Rye-grass. We have had some experience in growing Potatos with sewage, and we grew them to a very great size and of very superior quality, but I do not imagine for a moment that they would have been of good quality in a wetter climate or a stiffer soil than those of the Lodge Farm. Therefore, I should consider it very desirable to obtain for the Potatos the peculiar manure contained in the sewage without the water in which that manure was originally conveyed. Whether a heavy crop of Potatos would be capable of exhausting the whole surplus sewage left by Rye-grass, I cannot say; but, assuming that it could, we should then find that the area of the land to which the sewage of a town can be applied must be at least double the minimum area of Rye-grass which can be grown in any one year."

Other crops are then referred to—Mangel Wurzel, Cabbages, &c., and experience at Lodge Farm, and elsewhere, is described. In conclusion, we have a discussion on the possible and probable commercial

value of town sewage; and 1*d.* per ton is estimated on various grounds to be the price which farmers will be able and willing to give. A discussion on this paper takes place before the Institute of Surveyors on Monday next; and we doubt not that credit will be given to Mr. Hope for the earnestness and persistent resolution with which he, more probably than any other man, has urged the importance of the sewage problem on the public attention—the ability with which he has contributed to the solution of it—and the industry which he has exhibited in seizing every opportunity, such, for example, as these meetings of the Institute of Surveyors, of arousing the interest of influential men in what is certainly one of the most urgent and interesting questions of the day.

Farm Memoranda.

BANFFSHIRE: *May* 12.—After an exceedingly good season for Oat sowing, which was finished in good time, we were favoured in April with fine warm weather; Grass made great progress, and the despairing farmer was cheered with the prospect of speedy relief to the poor starving animals. Unfortunately the fine weather has been succeeded by cold stormy days, hard frosts at night, and occasional showers of hail and snow, which have changed the appearance of the country. The Grass is now dark brown in colour, and looks as if it were retreating into the ground; the Oat braird is also a good deal destroyed, especially in mossy or damp land, where it is altogether disappearing. Potatos, which were aboveground, have also disappeared, and great fears are entertained for the blossom on fruit and other trees. Potatos are now all planted, and Turnip sowing has commenced. The past winter, although in itself mild, has been one of the most severe on record for the stock farmer. Straw everywhere was scarce, and not to be got for either love or money. Some little that was sold fetched 28*s.* per quarter, equal (owing to its shortness) to about 1*s.* 8*d.* per stone of 22 lb. Hay was also very scarce, and realised from 1*s.* 10*d.* to 2*s.* per stone of 22 lb. Where early sown and liberally manured the crop of Swedes turned out better than expected. Yellow Turnips with the best of treatment were, in a great many instances, all but a complete failure. Everywhere in this quarter want of keep has compelled the farmers to turn out their cattle to the fields, and the writer never saw so many starved looking animals; all are alike, and he is a fortunate man who can taunt his neighbour as to the poverty-stricken appearance of his cattle. Disease is more than usually prevalent; many cows, both before and after calving, have died from sheer weakness; red water, which for years has been seldom heard of, has been quite common, and often fatal; quarter-ill and rheumatic fever have added largely to the ordinary death rate, and a hide-buyer told the writer that in his experience of over 20 years he never got so many fallen hides in the same period as he did this year 'twixt the 1st January and the 1st May. Fat cattle have been realising good prices, but the quantity this year is far short of ordinary years. Grazing beasts are, considering the quality, realising good prices. Numerous lets of grass-parks have taken place at a general reduction on the rents obtained in former years: in many cases they are down from 15 to 20 per cent.

The county meetings are now all past—the Game Law Bills, and the Bill for the abolition of the Law of Hypothec, finding no favour with the landed proprietors in Aberdeenshire. Mr. Francis Edmond, trustee on the Earl of Kintore's estate, took the principal lead in the discussion, and, as you may be sure, his arguments in favour of the present law were delivered from a landlord's point of view. He represented that the abolition of the present law would be unjust, unreasonable, and disastrous in its consequences to all concerned; and instanced the law of retention, by which a watchmaker could keep a watch sent him for repairs till his bill was paid, a livery-stable keeper a horse till his claim was settled, and so on; but he never took notice, that although, were the proprietors on the same footing as ordinary creditors, they might lose a part, they never lost the riggs [land], while the ordinary creditors might lose all. This question will, I hope, be better ventilated by-and-by. While I write the country is white with hail. *F.*

HAMPSHIRE: *May* 13.—Since our last report the weather on the whole has been favourable for agricultural operations generally, the crops of Grass, both of meadow and arable produce, are very abundant, except in those cases where the seeds have partially failed, and many such fields would have paid better to have been ploughed up and seeded to Peas or Beans, according to nature of soil. Many parties object to the Pulse crop on light land, but this objection does not hold good if the land is cropped with Barley instead of Wheat after Pulse. All the fodder crops are unusually abundant and early, whether of Trifolium or Vetches, and these crops being so very succulent are best used cut into chaff in admixture with straw, both as a matter of economy and the well-doing of the animals, more particularly of cart-horses.

In our last report a great fall of lambs was somewhat anticipated, but now it is realised, and generally acknowledged to be the healthiest and most numerous fall of lambs ever known in this county; in consequence the price of store sheep will probably rule at moderate figures, although we may get an abundant root crop. Horned cattle also are reported healthy throughout the county, the fall of calves being good; and although cow stock were generally badly kept during the winter, they are now selling at prices satisfactory to the breeder—in fact, we never knew so few well-bred steers and heifers offering at this time of year. We trust the measures now before Parliament for the protection of our cattle and sheep against disease will be arranged upon such a basis as to prevent the introduction of disease without interfering with the foreign supply; and it is worthy of note that the Chambers of Agriculture and Farmers' Clubs appear to be fully alive to the gravity of the crisis, and are passing resolutions calculated to favourably influence the Government upon the most important points.

The corn crops upon the whole are promising, and the late fine rains have been of immense service to the Lent corn, and came most opportunely both as regards time and quantity. The plant of Wheat is unusually regular and thick, but yet it does not promise like it did at this period last year. It is generally thought that the month of March was not sufficiently dry for the Wheat plant, and we have noticed in bygone years it has often characterised the season; so that if March is dry and favourable to the Wheat crop the summer follows suit, even unto the harvest. The prices of corn having now receded to a rather low point, taking into consideration the weight and quality of the grain and the chances of the quantity and quality of our next crop being much below the past year, and the many circumstances which may occur to affect prices, has induced the opinion that Wheat of our own growth now in hand will not touch a lower point before harvest. We have, then, to consider the chances of the weather; and, if the past is any guide in the future, a difficult harvest is due, and will not for long be deferred, for in looking back to the harvest weather of the past 40 years Wheat has been sprouted in the field about once in eight years in this climate and county.

The present may justly be called a favourable season for preparing land for the various root crops, and a fine root crop may fairly be anticipated. A very large breadth of Mangel will be sown this year, and probably greater than has ever been seeded before. The reason of this is obvious. Parties now know better how to use the crop than formerly, and also that Lent corn succeeds better than Wheat as the succeeding crop.

Cabbage for the cattle, and also Kohl Rabi, are commanding increased attention, and a larger breadth is being cultivated this year, as they are found to succeed and alternate well with Swedes and Turnips The "curled Scotch Kale," too, is beginning to command some attention, being used as a substitute for Rape, and is found to be good for sheep, and not so dangerous as Rape; at the same time it is equally productive, and retains its leaf better, as Rape is so short-lived, and drops the leaf so quickly, that it is rarely the crop of a whole field is consumed in good season.

The Bath and West of England and Southern Counties Association Meeting, to be held at Southampton next month, may be looked forward to by the farmers as an excellent opportunity for continuing their education in agricultural matters, enabling them to make up their minds as to the live stock best adapted for their soil and climate, and also the implements best calculated to use in tilling the soil and effecting the various operations of the farm, now so much carried out by machinery. A visit to the trial ground at Testwood for the reapers and mowing machines and steam culture will prove especially interesting—and it is within easy distance of the town. *Joseph Blundell, Southampton.*

MERSE OF BERWICKSHIRE: *May* 15.—When the wind sits in the east and the frost is white o' mornings, there is little good to be said of any green thing. Grass suffers most, of course, being bitten in season and out of season; and even corn in many instances presents quite a contrast to the remarkably fine and speedy braird of mid-April. In most cases store cattle are now a-field, but we are not sorry to have ours still in the strawyard; and not being of the happy few who have their work-horses "out at grass," we are content to go to the haystack in the meantime. Early Potatos are cut down to the ground. Some Wheat we see turned quite yellow. Grubs are now moving among the Oats, and will soon leave their mark unless growing weather come immediately. Our last sown Barley is already half killed with cold and wireworm, but that is on moory land after Tares. The general crop which succeeds Turnips is looking tolerably well yet. Up to the 6th, fallows were working in capital order; and, according to the new fashion (which seems to be right, this time at least) a good deal of Swedes were sown—some brairded. Yet the first day's moderate rain was far from unwelcome if it had held with that; but, ere it was over, our stronger lands had more than enough; and now, after a week's rest, they are turning up very raw. Grass, too, is decidedly poorer since the rain. Lambs are numerous and healthy; ewes poor and casting their wool. Hogg fleeces are one-fourth lighter than last year. *J. T.*

FARMING IN THE WEST OF IRELAND: *Mr. Allan Pollok's System of Husbandry.*—Whilst attending at the monster sale which took place on Mr. Pollok's estate in the county Roscommon, I took advantage of the opportunity of familiarising myself with the prevailing system of cultivation pursued in the province of Connaught, and more especially on the farms situate on the Pollok property. Passing from Dublin in a westerly direction, *vid* the Midland line of railway, to the city of Tribes, the observer is presented with all descriptions of tillage, ranging from high farming to the most abortive attempts at husbandry. In the proximity of Dublin, where naturally fertile soils abound, and where a judicious system of farm management has been carefully carried out, the aspect of the fields and the promise in yield of cereal and Grass crops appear to be full of hopefulness,—the beautifully circumstanced fields, so neatly sheltered with Hawthorn hedges, and so well provided with water for supplying the herds of cattle, horses, and sheep here and there to be seen browsing within their limits. The dairy farms extending in this direction, and lying contiguous to the line of railway, present many features to commend, and little to condemn. As a rule the soil is rich in both organic and inorganic substances. A uniform state of fertility is maintained by studiously returning to the soil, in the shape of applying stable manure, top-dressing, or artificial fertilisers, an equivalent, if not more, of those substances extracted from it either by the grazing of the cattle, the removal of a hay crop, or those other crops produced in the ordinary system of cultivation. In many parts of the district a four-course shift is usually pursued, but the prevailing system seems to be that of allowing the land to remain in permanent pasture for years, and, when the growth of moss chokes the production of the natural herbage, to plough up the fields so infested, crop it with lea Oats laid down with artificial Grasses and then allow the land to return to its grass-producing capabilities again. In other districts less favourably suited to natural meadow land or heavy grazing tendencies, the custom usually pursued is—1st year, grain on the lea; 2nd year, a manured root crop, principally Potatos, Cabbages, or Turnips; 3rd year, grain with Grass seeds; and 4th, meadow, which, acording to the constitution of the soil, may be allowed to continue in this state for one or more years.

Within a radius of say six or eight miles of Dublin, no system of husbandry pays so well as that of growing vegetables for the supply of the local market and the export trade. The high prices which vegetables of all descriptions command now, and for some time past, in the market, have induced many extensive proprietors to abandon their accustomed course of management, and adopt that of market gardening. There may be some risks, which no doubt there are; nevertheless, the anticipations of a speedy return of capital and the certainty of having a market for successive crops are considerations too tempting not to insure for the system a wide field of patronage. Green soiling, especially winter Vetches and watered Italian Rye-grass, is to be seen here in profusion, and large supplies of both are being daily drafted into the Dublin markets. Winter-sown Wheat, spring Oats, and early-planted Potatos exhibit an unusually healthy, forward, and prolific appearance. The breadth of surface devoted to the growth of the Potato plant seems to have been excessive. The planting of the later varieties is still in active progress. Mangel cultivation is rather limited, and the same remark, but on a more modified scale, would apply to Turnip culture also. Owing to the high rent paid for the lands in this district, the occupiers pursue that system which entails the least outlay and ensures the maximum return for the capital invested.

Leaving Leinster behind, and crossing over the river Shannon, the traveller will find himself launched into the province of Connaught, to which in feudal times it was fashionable to transport the criminal. On the mind of the stranger, impressions more or less hostile and unfavourable become immediately contracted. Outskirts of the great Bog of Allan, the circuitous route of the river Shannon, with its numerous lakes, rivulets, and islands, the inundating tendency of the river Suck, and the humid nature of the climate, all combine to render an acquaintance with the western province more or less unpleasant. In many parts along the route, the highly fertile valleys, the beautifully wooded demesnes, the pictural landscapes, which present themselves, as well as the luxuriance of the herbage, tend to relieve the monotony of observation very materially. The composition of the soil is most variable, ranging from the brown bog, or shag, to the most stubborn rocky soil, and from rich alluvial deposits to pure argilaceous soils. As regards the system of management pursued, it must be admitted that the tenantry attempt only the mode of management which ensures the wherewithal to pay the rent, and house and feed the family. Nowhere, except in very few instances, has there been anything like systematic cropping adopted. The feeding of cattle, their pasturage, sale and reproduction, is the accustomed routine. Both soil and climate suit the extension of the grazing principle admirably. The humidity of the atmosphere in Connaught would render the growth of cereals unprofitable, while at the same time it might tend to promote the growth of root crops, hay and Grass most materially.

This being the fact, it is not to be wondered at, to use the words of a late Viceroy, "that portions of Ireland are destined to become the fruitful mother of flocks and herds."

Wherever the peasantry in the West attempt arable husbandry, the mode in which they carry it out, and the appliances with which they possess themselves for practising any sort of approved system, are simply ludicrous. No doubt they ought to understand Potato cultivation, yet the lazy-bed system, which they universally adopt, with zigzag furrows, uneven beds, and disproportioned widths, seems to be everywhere erroneously understood, and as disadvantageously practised. The want of skilled labourers, or, indeed, labourers of any sort, seems to operate as a great drawback in this direction Since Connaught workmen got more remunerating employment in England, they invariably flock thither, though their services at home are more needed. Already the several lines of railway from the West are drafting to the Irish capital the bone and sinew of the Connaught people of both sexes, and from thence they proceed to Liverpool, Glasgow, Edinburgh, or other seaport towns across the Channel, where remunerative employment is certain to be obtained, and where they remain until the gathering in of the harvest is completed. This drain from the otherwise available labour of this portion of Ireland leaves the employment of the residue of the helpless portion remaining at home at "par," and, as may be naturally presumed, from their inability to take part in farm-work, their employment becomes more and more a

matter of necessity than otherwise. The hereditary disposition on the part of the Irish peasantry to grow a Potato crop is significantly characteristic of the people in the west of Ireland. Being passionately fond of this favourite esculent, every stratagem is resorted to with a view to its growth being effected. Considering the monomania there seems to exist for its production, the wonder is that its cultivation is so poorly understood. We observed, even in the town parks along our journey, the extent of the absurd system of spreading the manure on the surface of the beds some days ere its covering could be effected, and thus allowing its very substance to escape, by being evaporated by the sun's rays.

As already stated, the cultivation of the land is only a secondary consideration with the occupiers of Connaught. They much prefer the production of beef and mutton as being less expensive to produce and more certain in its results. The labour list is always light on a Saturday evening, and if a good fair should happen the farmer has his stock ready cut and dry for a purchaser, either for the execution of home or foreign orders. The climate of the country inclines very much in favour of stock keeping and rearing and against alternate husbandry and arable farming. That the system pays the farmer best is the truest criterion whereby to estimate the extent to which it has found favour with the owners of the soil.

Amongst the wonderful curiosities which attract the attention of the curious agricultural visitors to Connaught, we cannot help mentioning in particular the *modus operandi* pursued by Mr. Allan Pollok, on his extensive holdings in the counties of Galway and Roscommon. These wide-spread districts of country were, prior to Mr. Pollok's ownership, farmed on the cottier system of management. The holdings were comparatively small, averaging about 30 or 40 acres each. The soil was of a very wretched description, being wet, badly fenced, and the cultivation crude, imperfect, and erroneous. Isolated patches of Potatos, with a little Oats and meadow, constituted the habitual mode of management pursued. The very worst and most uncouth implements of tillage prevailed, and the character of the farm-horses and general class of cattle bore a corresponding degree of indifferent quality also. The people, however, rested content with the nature of the husbandry pursued, as well as the appliances available to utilise the treasures of the badly cultivated soil. Those who eschewed the system of cropping themselves had recourse to the ruinous system of "con-acre," or the feeding of half-starved cattle for supplying the country fairs.

The humid climate of the country seemed to have agreed best with sheep, and circumstances led to the fair of Ballinasloe being regarded as the great emporium where the flock-masters of the United Kingdom resorted with a view of supplying their requirements in the sheep line. The horned cattle of the district, although not very fashionable as regards either blood or lineage, are nevertheless constitutionally hardy, and when fed off on better classes of soils pay for their purchase admirably.

Immediately on the estates coming into Mr. Pollok's possession, his first object was directed to effecting a thorough drainage of the land, the levelling of old fences, consolidating farms, amalgamating the small fields and holdings, and the tumbling down of the innumerable mud-wall and other cabins situated on the property. A vast deal of uphill work stared him in the face, but knowing the extent of the resources at his command Mr. Pollok caused the work of permanent improvement, almost amounting to a transformation, to be carried out with almost magical rapidity. Prejudice to an inconceivable amount beset his labours, and years rolled on before it became dispelled. There was no doubt a deal of expatriation all over the country. This, however, became a matter of necessity in view of the system which Mr. Pollok had chalked out for himself to adopt. The owners of the several holdings were fairly compensated for relinquishing all claims to their wretched holdings, and those who desired to avail themselves of the opportunity of labouring the land, found ample and remunerative work on the estates; others emigrated to foreign countries with a view of bettering their condition, whilst few remained at home, and after their little means became exhausted were obliged to seek refuge in the union workhouse, where they became permanent paupers on the union. Melancholy tales and tragedies have been unsparingly related in connection with the Pollok system of land management in Ireland. Time, however, combated these prejudices, and by degrees the antipathies smouldered away.

In the reclamation of the land, capital must have been expended with unsparing hand. How sufficient capital could be commanded to meet all the outlays incidental to drainage, building, fencing, road-making, and the numerous other works therewith connected, would appear sufficient to puzzle the most redoubtable political economist. The thorough drainage of upwards of 30,000 Irish acres of land, its fencing into immense fields, the making of suitable roads through the several farms and walling them in with round boulders, excavated from the bowels of the fields during the process of sub-soiling or deep cultivation, must have been an expensive process, not to speak of the enormous sums required in building farm-steadings, mills, and workshops scattered over the property.

After the drainage—land and arterial—was accomplished, and the land subsequently subjected to the operations of the sub-soiler, the plough, the harrow, the grubber, and the hoe, the land so reclaimed was subdivided into farms, varying in size from 1500 to 3000 acres each. On these, suitable farm-steadings, with a residence and convenient offices, were erected; steam-engines provided for expediting and facilitating labour, and other necessary appliances for the working of land made available, regardless of expense. Some of those farm-steadings are so very extensive that they are lighted with gas manufactured on the premises; the alleys in the byres so large and extensive that all feeding stuffs can be carted into the sheds, and deposited here and there so as to facilitate the feeding of the stock. These byres aroused such curiosity that they were visited, amongst others, by no less noted a personage than the Emperor of the French. [?] The cattle here are chiefly crosses from Shorthorn bulls with native cows, pure West Highland oxen, Herefords, and Durham cattle. They are of immense size, are speedily fattened, and readily purchased by Dublin, London, Belfast, Edinburgh, and Glasgow victuallers; they command the highest market price, after the nutritious feeding, with which they are supplied in *ad libitum* quantities. Many of them are never allowed out-of-doors from the period of their being calved up to their purchase by the butcher; they are housed up and fed in large stone-walled boxes, and there allowed to remain till their obese proportions admit of no further stage of development. [Oh!] The cattle fed by Mr. Pollok have been noted all over the cattle shows of the United Kingdom, where they have been invariably the champions of the yard. For the winter feeding of the store cattle immense quantities of Turnips, Cabbages, hay, Oats, linseed-cake cargoes, of which are imported direct, Mangels, &c., are always available. For the production of green crops immense quantities of farmyard manure have been manufactured, but the supply would fall far short of the requirements of the farms were it not for the cargoes of Peruvian guano directly imported by Mr. Pollok to aid in stimulating the growth of the crops and in promoting the fertility of the farm. The soil and climate are specially adapted for green-crop cultivation. The maximum returns of produce are realised, and the extent of land annually prepared for green-crop culture is measured, with a view of meeting the consumption in the byres. The Oats grown on the farm are consumed by the cattle, horses, and sheep. There is a local market for the Wheat crop, created by Mr. Pollok himself, who has erected large mills for its grinding, and the growers of this sort of grain in the adjacent country get the full market value of the corn.

The country is admirably suited for sheep pasturage. The class of sheep usually kept are the long-woolled Roscommon sheep, crossed with border Leicester rams. The progeny is very prolific, and the animals are of large proportions, yielding heavy fleeces, and when fattened sell at about 10*d.* per lb. All the produce grown on the farms is consumed on the premises, thus a market is created within its own resources, obviating the cartage to distant markets, and the restoration of the produce sold by the purchase of other substitutes. Thus it will be perceived that all the produce partakes of the very significant feature of being obliged to walk out of the farm instead of being conveyed, as in the ordinary way, by artificial means. This is what may be fairly termed high farming, and few would be disposed to credit the fact, that it is practised to such an extent in the province of Connaught. The appliances for tillage purposes are of the most comprehensive, varied, and costly description. There is no implement recognised in modern farming that is not to be found employed in the working of those farms.

The farm-horses are chiefly Clydesdale, Suffolk Punch, with occasional useful crosses with the Irish breed. No inconsiderable number are required to meet the nature and extent of the farming operations. They are well fed, well harnessed, and well cared for.

Mr. Pollok having thus reclaimed nearly all his estates in the West of Ireland, has now contemplated on letting a number of the farms to tenants, and in order to make room for the incoming of those who have rented the Cregg's portion of the estate, he caused to be sold off by public auction, last week, the entire of his own stock and plant on that portion of the property.

Whether the expensive system he has pursued has proved remunerative, is known only to Mr. Pollok himself. We should desire to get a peep at his balance-sheet. *Correspondent of the Mark Lane Express.*

The Poultry Yard.

It is curious to note the ebb and flow of success in poultry rearing. It would almost seem that different breeds of fowls (speaking of the generally known varieties) thrive in various degrees, and that the season which is all that could be desired for one breed does not suit another. We have noticed this year an unusually good hatch of Brahmas, and a very indifferent result with the Crèvecœurs. It has not been so much the failure of entire settings, but the general smallness of the broods, careful and clever hens coming off with two and three chickens only. The Brahmas have generally done remarkably well; grey Dorkings also. We have seen chickens in running condition weighing fairly 5½ lb. The earlier Cochin eggs hatched better than those a month later. The prospect for game fowls and Hamburghs seems a good one.

Great competition is to be expected this year in the light Brahma classes, and we may reasonably look for great improvement in them. The average quality is still far below that of many other varieties; and seeing the great zeal of some of the admirers of the breed, we must look for great progress.

There is great difficulty still experienced in breeding the Houdans of a quality and uniformity sufficiently close to satisfy the British amateur. The cock birds will not grow large enough, faulty feathers will crop out; uniformity of comb, shape of head and topknot, yet remain to be obtained; and the breed gives still evidence that it has been but indifferently cared for in France. The progress made in developing this useful breed of fowls must be considered as an earnest of what may be obtained rather than as a result; and we may confidently look for Houdans to take their place among our market poultry for table purposes at no distant period. Old writers on poultry have often written about a lark-crested, five-toed fowl of speckled plumage, as being common on the borders of Surrey and Sussex. Such a bird might be used, if still extant, to throw size into the Houdans, without destroying much the characteristics of the breed. Delicacy of constitution has been a great bar to the adoption of the La Flèche fowls in this country, and it also prevents their adoption to any extent in other parts of France than their own. In the few yards here where they are kept, they have this spring been among the most prolific layers, and the size of their eggs is very great.

Ducks and geese have hatched well, and the young ones have thriven. Forward goslings have now been in the market for some weeks.

Of turkeys we have not yet any account, and must be content to take no news as good news.

The summer campaign of poultry shows seems likely to open with unusual vigour, and one of the earliest *réveilles* sounded is by a trumpet of no uncertain sound—that of the Bath and West of England. The meeting this year will be held at Southampton, and a grand gathering may be expected. The Bath and West of England is not simply an agricultural show, it gives one the idea rather of a general emporium, so extensive and varied is the prize sheet. The show commences on the last day of this month. Prize lists and particulars may be had of Mr. J. Goodwin, 4, Terrace Walk, Bath. If poultry breeding does not receive increased attention at the hands of the dwellers in the south-western districts of England this year, it will not be for lack of encouragement in the way of shows; for, following close on the steps of the meeting above mentioned, the Hants and Berks Agricultural Society advertises its annual show to be held at Reading on the 15th proximo. This society commends itself to the support of all agriculturists in its district, by the excellence of its arrangements and the uniformly high quality of the stock exhibited. At last year's meeting many of the pens of fowls would have stood well at Birmingham or any of the principal shows. Mr. Henry Downs, of Basingstoke, is the secretary.

A Tyro would be glad if any correspondent would tell him, through these columns, the best kind of pigeon for him to keep on a farm. He has tried the ordinary dovecote pigeon, and finds it a slow breeder. He does not care so much for the appearance of the birds as for their breeding qualities; but he wants birds of quick flight.

Amy keeps Californian quails. Her hen bird has laid eleven eggs, and "Amy" would be glad of advice as to setting and rearing them.

Miscellaneous.

Mr. Henry Hudson's Remedy for the Short Supply of Cattle Food.—First by having horse-power to the chaff-machine, and keeping it daily in work with an intelligent careful man in care of it; cutting up as many varieties of fodder as possible, viz., hay, Clover, pea-straw, vetch-straw, wheat-straw—mixing a certain portion of wheat-chaff daily with the chop. Then by pulping Mangel or Swede roots, and mixing a certain portion of them over night with the chaff so as thoroughly to blend the food; thereafter by mixing Wheat, Beans, Peas, and tail Barley, grinding the mixture and putting a certain portion of the meal with the chaff at feeding-time. All this must be given regularly, for nothing injures stock so much as irregular feeding, whether as regards the time or food. I prefer the pulpers to be worked by hand rather than to be driven by horse-power, as we can then use them in different parts of the farm, which is more convenient and a great saving of haulage. Most farmers have two or three additional Wheat ricks this year, and one of them must be devoted to the stock on the farm; nothing is cheaper and nothing is so good for stock, young or old. All this may appear to be a troublesome and expensive process, but it is nothing of the kind; for well-trained youths, under proper supervision, will pulp the roots, mix the chaff with the roots, and put the whole handy for a more experienced person to feed the stock. The cutting of chaff and pulping roots will be of more advantage than anything else I can recommend,—and with attention to these matters I think we may get through the winter months far better than we expected. I have not yet alluded to the cutting up of a certain portion of wheat and barley-straw. The wheat-straw of this season is so good that the cattle will eat it without any other mixture, therefore it may be used more plentifully than usual, and the early harvested barley-straw is of immense value mixed with other fodder. Both feeding and store tegs will do better by eating the stubble Turnips and other Turnips on the land with plenty of chaff and corn kibbled, until they are all gone; and then, of course, they will be put to pulped Mangel or Swedes with kibbled corn. The working horses and young colts we are keeping almost entirely on chaff with bran and a little meal. The pigs are getting steamed Potatos with the mixed meal; and the poultry are daily fed on the same mixture. *Journal of the Royal Agricultural Society.*

Calendar of Operations.

Brood mares are generally timed to foal about the first of the Grass, the beginning of May being the general period. Mares are not very punctual to their time (11 months), but this is in some measure compensated for by the little trouble they give at foaling. Some work up to the time of foaling and yoke a few days after, the foal being kept from its dam. But neither practice is to be commended. Gentle exercise before foaling is in favour of a mare that has been accustomed to hard work, but a week before foaling it should be very gentle; at night she should be put in a loose box, and watched when the symptoms of foaling become manifest; afterwards, grazing in a paddock with her foal is the best exercise she can have.

Milch cows in some southern provinces do well in May. In the north the Grass is not so far advanced, and the nights are colder. Where there is irrigated meadow Grass, Lucerne, Sainfoin, or Tares, they should be fed in open yards, in preference to confined stalls. It is better to cut such green food into chaff along with a handful of hay, and to season the mixture with an allowance of bean-meal and mixing the meadow Grass and Tares with Lucerne or Sainfoin will be an improvement. In the absence of Sainfoin or Lucerne, Carob bean-meal and home-grown bean-meal form an excellent seasoning for meadow Grass and Tares, supplying elements of which they are often defective for producing rich firm butter and cheese. Milch cows, whether fed at the homestead or in the field, should be supplied with pure water to drink.

The Dairy.—"The cream of the Grass" is said to yield excellent butter and cheese, and the weather generally speaking throughout May is not unfavourable to dairy operations, the mean temperature being that of the milk-room. "Small churnings and small cheeses," however, is a good old rule. In other words, skim the morning milk in the evening, and the evening milk in the morning. Keep the cream jar in a warm place, and churn while sweet. The skimmed milk may be made into small cheese, either on the Parmesan or Dutch plan, or it may be converted into dairy pork. In dairies, where the whole milk is churned daily, it should not be allowed to cool below 62° to 65°, at which temperature it will soon be fit for the churn. New milk should be made into small cheeses at every meal, whether made on the Cheddar, Glo'ster, Cheshire, or Dunlop plans. Fine Stiltons are also made, but the cream added to the new milk (if this ever be now done) requires to be fresh. Rich cream cheese may also be made, likewise the various summer preparations of milk, as Corstorphine cream, clotted cream, and so on.

Dairy and Small Porkers are fed on the whey of cheese dairies, and also on the skim-milk of butter dairies. Some dairymen give the milk and whey fresh, mixed with meal, others allow the milk and whey to become sour; a third practice is to feed chiefly with fresh food, and allow so much sour daily. The latter practice is to be preferred, much sour food being unfavourable to early maturity and weight; at the same time a little sour food, or all the food a little sour, is favourable to the health of young pigs as well as old swine. To both, as the degree may suit their age, sour food is more easily digestible from the fermentation it has undergone; hence the quality of the pork is improved, and the weight, according to the food given, increased.

Paring and Burning, in the breaking up of old grass-lands, is carried on in May as in April and March. In late districts and wet seasons very little can be done before the beginning of the month; but when once the dry weather sets in, the sods dry rapidly, so that the two works of paring and burning go on together. In such cases the two operations, and also the spreading of the ashes, should be prosecuted with the greatest practicable expedition, so as to get the land ploughed and broken and rolled down with as much natural moisture as possible; for if allowed to become "roasted" and dry, it is difficult to get either Turnips or Rape to braird unless there is an ample command of water for application with the water-drill.

Notices to Correspondents.

AGRICULTURAL INSURANCE COMPANY: *H. O.* wishes to know the address of any good Agricultural Insurance Company in Scotland, and whether such a company would, in the case of dairy cows, allow him to insure up to a certain head, with liberty, as cows go out of milk, to sell and substitute a fresh cow in the place of that sold without effecting a fresh insurance? [We do not know of any such company. In the South we have several such companies. Apply to Mr. C. Painter, Golden Green, Hendon, N.W., who is secretary of one.]

COMPOST: *Subscriber.* Salt can be advantageously added to a compost of rotten turf, Couch, and gas-lime. It will tend to make the lime more active in reducing the mixed material to active serviceableness in the compost; and it may directly act as a fertilising ingredient in the manure. Do not use more than 1 cwt. per acre of the land to which the compost heap is to be applied.

HIGHWAY: *Potterne.* We fear you must consult your solicitor, but we may state the circumstances:—"A lane leading from two hard, or highway roads, each end of which is in the same parish, and a public thoroughfare, over a quarter-of-a-mile long; the ruts in which are filled in once or twice a-year by the parish; but no hard material used except for places where water crosses, which have always been repaired by the parish with hard material. A house is situated about midway between the two hard roads. The tenant owns and rents 160 acres of land, paying rates and taxes, and cannot use a conveyance, as the lane is impassable nine months out of the twelve. Question: Cannot he compel the parish to repair the lane with proper hard material?"

MILK: *A Subscriber* says—We have a large herd of cows, and all generally goes on well, but at this time, and sometimes after rain, when they have their run in the meadows, the milk goes to strings; it never turns sour, but a few hours after milking, if you run it down from a jug, you can have strings to almost any length. Can you, or any of your correspondents help us, not only to discover why it is so, but tell us the remedy? When the cows are stalled night and day nothing of the kind ever occurs. ["Accidents" of this kind happen frequently, in both stall and field, at times soon after calving.]

MOWERS AND REAPERS: *An Old-fashioned Farmer* says:—"There is hardly any town boasting of a market and market-place in which there is not to be found some enterprising individual who places, on market days, the usual farm implements before the eyes of the agricultural neighbourhood. Amongst others the mower and reaper stands at this season prominent. Will you, or any of your numerous readers, kindly give a few hints as to the one best adapted to a small holding. A one horse implement is advertised. How much work will it do in a day at cutting? Is it best to pay men by the day or acre? or can either be improved upon? Any information regarding the implement and its management, &c., will be of great service to others besides myself." [See Review of "Journal of the Bath and West of England Society," last week.]

VETCH: *J. Carter & Co.* The specimen sent presents an abundant leaf and stem, an unusually luxuriant succulent growth, with haulm almost as strong as that of a Pea.

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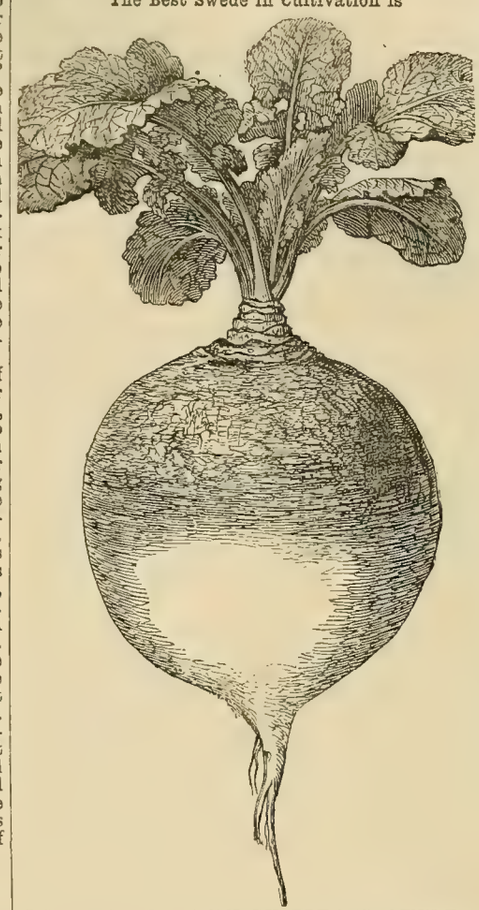
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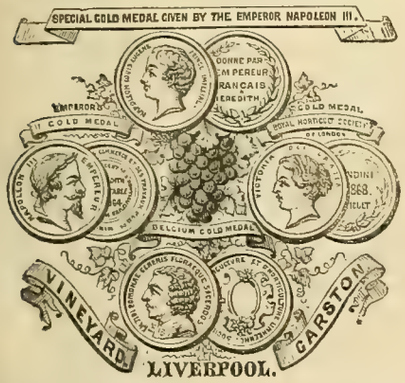
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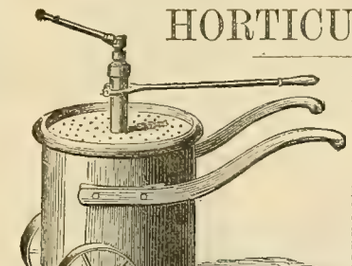
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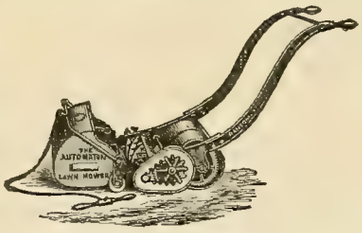
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RANSOMES, SIMS, AND HEAD, ORWELL WORKS, IPSWICH.

GREEN'S IMPROVED PATENT ROLLER,

FOR

LAWNS, DRIVES, BOWLING GREENS, CRICKET FIELDS, and GRAVEL PATHS.

SUITABLE FOR HAND OR HORSE POWER.

PRICES OF

HAND ROLLERS.

Diam.	Length.	£	s.	d.
30 inches	32 inches ..	7	10	0
24 inches	26 inches ..	4	10	0
20 inches	22 inches ..	3	10	0
16 inches	17 inches ..	2	15	0



PRICES OF

ROLLERS

FITTED WITH SHAFTS,
Suitable for Pony or Horse Power.

Diam.	Length.	£	s.	d.
30 inches	32 inches ..	10	0	0
30 inches	36 inches ..	10	15	0
30 inches	42 inches ..	11	15	0
30 inches	48 inches ..	13	10	0
30 inches	60 inches ..	15	10	0
30 inches	72 inches ..	17	10	0
30 inches	84 inches ..	19	10	0

These Rollers possess many advantages over all others; they are made in two parts, and are free to revolve on the axis, affording greater facility for turning, and the outer edges are rounded off, or turned inwards, thus avoiding the unsightly marks left by other Rollers. They are manufactured of the best materials, and are got up in a manner surpassing any ever yet brought out. The Rollers 24 by 26 inches, 20 by 22 inches, and 16 by 17 inches, are also made in one part, at a reduced price; and, for Rollers of that size, will be found to answer many requirements, as the handle can be reversed to either side of the Roller at pleasure.

PRICES—24 in. by 26 in., £4; 20 in. by 22 in., £3 2s. 6d.; 16 in. by 17 in., £2 10s.

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

THOMAS GREEN AND SONS, SMITHFIELD IRON WORKS, LEEDS;
54 and 55, BLACKFRIARS ROAD, LONDON, S.

NO IMPROVEMENTS OR ALTERATIONS FOR THE PRESENT SEASON, 1869,

IN

GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

THE Extraordinary Success of GREEN'S PATENT LAWN MOWERS is an established fact. During the last five years the demand has been unprecedented, which alone is a proof of their superiority over all others. The following are their characteristic features:—

1st. **Simplicity of Construction, every part being free of access.**
2d. **They are worked with far greater ease than any other Lawn Mower.**
3d. **They are the least liable to get out of order.**

From the fact that these MACHINES are so well known in Great Britain and Ireland, also on the Continent of Europe, T. GREEN AND SON do not deem it necessary to trouble the Public with a list of the numerous Testimonials that they have received from time to time, but would simply add,

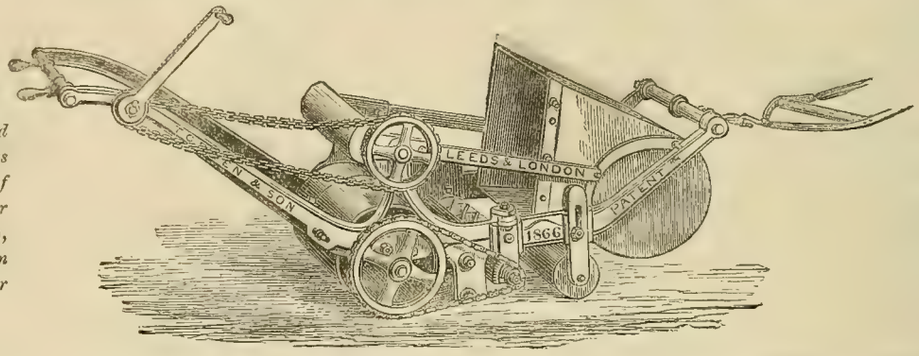
THEY ARE THE ONLY MACHINES IN CONSTANT USE AT

THE ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON
THE ROYAL BOTANIC GARDENS, REGENT'S PARK
THE CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM
BUCKINGHAM PALACE GARDENS
MARLBOROUGH HOUSE
THE HYDE PARK GARDENS
THE WINTER PALACE GARDENS, DUBLIN
THE DUBLIN BOTANIC GARDENS
THE LIVERPOOL BOTANIC GARDENS
THE LEEDS ROYAL PARK
THE HULL BOTANIC GARDENS
THE BOTANIC GARDENS, BRUSSELS
THE SUNDERLAND PARK
THE PRESTON PARK

AND IN MOST OF THE PRINCIPAL PARKS, SQUARES, ETC., IN THE UNITED KINGDOM.

HORSE, PONY, AND DONKEY MACHINE.

GREEN'S PATENT
LAWN MOWERS
have proved to be the best, and carried off every Prize that has been given in all cases of competition. Since the first year they were introduced (1856), *upwards of* 46,600 *have been sold, and* 25,000 *of that number during the last five seasons.*



T. GREEN & SON
warrant every Machine to give entire satisfaction, and if not approved of can be returned unconditionally.

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

PONY AND DONKEY MACHINES.

To Cut 26 inches	..	..	..	£13	0	0
„ 28 „	..	..	..	15	0	0
„ 30 „	..	..	..	17	0	0

Leather Boots for Donkey, 18*s*. *Leather Boots for Pony*, 22*s*.

HORSE MACHINES.

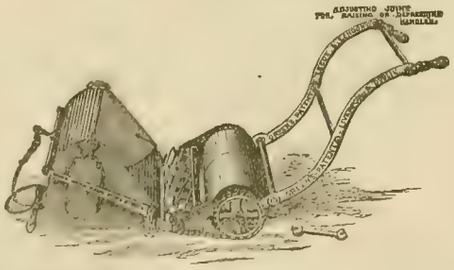
To Cut 30 inches	..	..	..	£21	0	0
„ 36 „	..	..	..	24	0	0
„ 42 „	..	..	..	27	0	0
„ 48 „	..	..	..	30	0	0

Leather Boots for Horse, 26*s*.

Both the Horse, Pony, Donkey, and Hand Machines possess (over all other Makers) the advantage of Self-sharpening. The cutters being steel on each side, when they become dull or blunt by running one way round, the cylinder can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the Machine will cut equal to new. Arrangements are made that the cylinder can be reversed, by any inexperienced person, in two or three minutes.

HAND MACHINES.

To Cut 10 inches	..	£3	10	0	*Suitable for a Lady*	
„ 12 „	..	4	10	0	„	„
„ 14 „	..	5	10	0	*Suitable for One Person*	
„ 16 „	..	6	10	0	„	„



To Cut 18 inches	..	£7	10	0	*Suitable for One Person.*	
„ 20 „	..	8	0	0	*Suitable for Two Persons*	
„ 22 „	..	8	10	0	„	„
„ 24 „	..	9	0	0	„	„

Packing Cases are charged at the following low rates, viz.:—for the 10 and 12-inch Machine, 3*s*.; 14 and 16-inch, 4*s*.; 18 and 20-inch, 5*s*.; 22 and 24-inch, 6*s*. Parties providing themselves with Lawn Mowers are recommended to purchase the cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England, Ireland, and Scotland.

HORTICULTURAL and AGRICULTURAL IMPLEMENTS, GARDEN SEATS and CHAIRS, FOUNTAINS, VASES, PLAIN and GALVANISED WIRE NETTING, and ORNAMENTAL WIRE WORK of every description.

Having very extensive Premises in London, we are in a position to do all kinds of Repairs there, as well as at our Leeds Establishment.

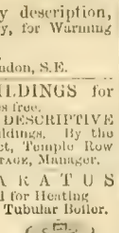
Having a large quantity of MACHINES in stock at our Leeds and London Establishments, we are in a position to execute Orders on the day they are received.

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;
and 54 & 55, BLACKFRIARS ROAD, LONDON, S.

HOT-WATER APPARATUS of every description, fixed complete in any part of the country, for Warming Greenhouses, Conservatories, Forcing Pits, &c.
Plans and Estimates on application.
J. Jones & Sons, 6, Bankside, Southwark, London, S.E.

CRANSTON'S PATENT GLASS BUILDINGS for HORTICULTURE. Plans and Estimates free.
Just Published, free for 30 stamps, Third Edition, DESCRIPTIVE BOOK, splendidly Illustrated from existing Buildings. By the Author and Patentee, James Cranston, Architect, Temple Row West, Birmingham. H. J. Growtage, Manager.

HOT-WATER APPARATUS
Erected Complete, or the Materials Supplied for Heating
Peill's Conical. GREENHOUSES, Tubular Boiler.
HOTHOUSES,
CONSERVATORIES,
CHURCHES,
PUBLIC BUILDINGS, &c.
HOT-WATER PIPES at wholesale prices, Elbows, T Pieces, Syphons, and every other connection kept in stock.
WROUGHT and CAST IRON CONICAL, SADDLE, and


IMPROVED PEILL'S and ELLIPTIC BOILERS, from 21s. each.
IMPROVED and EXTRA STRONG CAST IRON TUBULAR BOILERS, with or without Water Bars, from 52s. 6d. each.
CAST and WROUGHT IRON PORTABLE BOILERS on STAND, for use without brickwork, from 60s. each.
PATENT and IMPROVED THROTTLE and other VALVES, FURNACE DOORS, BARS, and FURNACE WORK of every description and size.
LYNCH WHITE,
Old Barge Iron Wharf, Upper Ground Street, London, S.E.
(Surrey side Blackfriars Bridge).
Price List on application.

Heating by Hot Water.
W. J. HOLLANDS, Iron Merchant,
31, Bankside, S.E.

	2-inch.	3-inch.	4-inch.
HOT-WATER PIPES, from stock—p. yard	1s. 0d.	1s. 6d.	2s. 0d.
ELBOWS for ditto .. .. .. each	1 6	2 3	2 9
TEES .. .. „	2 3	3 6	4 6
SYPHONS .. .. „	2 3	3 6	4 6
THROTTLE VALVES .. .. .. „	10 0	11 6	13 0

Cash remittance with order.
N.B. All Goods of first-class manufacture. No second quality kept. Estimates given, and orders punctually attended to the same day.

HOT-WATER PIPES.
CASH PRICES.

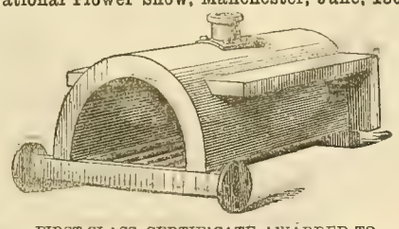
	2-inch.	3-inch.	4-inch.
PIPES .. .. per yard	1s. 0d.	1s. 6d.	2s. 0d.
ELBOWS .. .. each	1 6	2 3	3 0
TEES .. .. „	2 6	3 6	4 6
SYPHONS .. .. „	2 6	3 6	4 6
VALVES .. .. „	10 0	11 6	13 0

No credit will be given when Pipes, &c., are invoiced at the above prices.
J. JONES AND SONS,
6, Bankside, Southwark, London, S.E.
Price Lists, with terms for credit and for delivery at country stations, will be sent on application.

SIR J. PAXTON'S PATENT HOTHOUSES for the MILLION, are cheap, substantial, and easily fixed.
Illustrated Price Lists, with sizes, &c., free on application.
ESTIMATES given for CONSERVATORIES, HEATING APPARATUS, &c. A HANDBOOK of VINE and FRUIT-TREE CULTIVATION, post free, 13d.
Herbman & Monron, 7, Pall Mall East, London, S.W.
Works in London, Gloucester, Coventry, and Scotland.

JAMES WATTS AND CO., Hothouse Builders
and Hot-Water Apparatus Manufacturers,
353, Old Kent Road, London, S.E.

200 CUCUMBER and MELON BOXES and LIGHTS, all sizes, Glazed and Painted complete, ready for immediate use, packed and sent to all parts of the Kingdom.
Strong ZINC HAND-GLASSES, all sizes.
References to the Nobility, Gentry, and Trade in most of the Counties in England.

National Flower Show, Manchester, June, 1867.

FIRST-CLASS CERTIFICATE AWARDED TO
THE PATENT TERMINAL SADDLE BOILER,
with the following note :—
"The Judges consider this one of the most powerful and useful Boilers for general purposes."
See *Gardeners' Chronicle*, December 7, 1867.
See *Gardeners' Chronicle*, January 23, 1868.
See *Gardeners' Chronicle*, February 1, 1868.
See *Gardeners' Chronicle*, February 8, 1868.
See *Gardeners' Chronicle*, March 14, 1868.
See *Gardeners' Magazine*, June 15, 1867.
See *Gardeners' Magazine*, August 24, 1867.
J. Ireland, Edward Street, Broughton Lane, Manchester.

GRAY'S OVAL TUBULAR BOILER.
INTERNATIONAL EXHIBITION, Class IX., No. 2119.

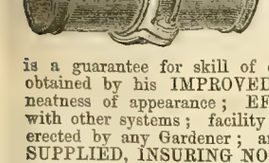
Mr. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his
NEW OVAL TUBULAR BOILER,
Acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May* 24, 1862, *page* 476.
"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. Gray's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

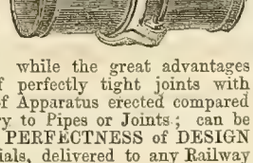
☞ *They are made of all sizes, which, with prices, may be had on application.*

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

PORTABLE AND FIXED HOT-WATER APPARATUS,
FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH
TRUSS'S PATENT UNIVERSAL FLEXIBLE AND LEAKLESS PIPE-JOINTS.



T. S. TRUSS



Begs to state that the immense number of APPARATUS annually Designed and Erected by him in all parts of the kingdom, and for the ROYAL HORTICULTURAL SOCIETY at SOUTH KENSINGTON and CHISWICK, with unrivalled satisfaction, is a guarantee for skill of design, superior materials, and good workmanship; while the great advantages obtained by his IMPROVED SYSTEM cannot be over-estimated, consisting of perfectly tight joints with neatness of appearance; EFFECTS A SAVING OF 25 PER CENT. on cost of Apparatus erected compared with other systems; facility for extensions, alterations or removals without injury to Pipes or Joints; can be erected by any Gardener; an ordinary size Apparatus erected in one day; and PERFECTNESS of DESIGN SUPPLIED, INSURING NO EXTRAS. Complete Apparatus, of the best materials, delivered to any Railway Station in England, and Erected at the following prices. Erection beyond 25 miles of London, railway fare for one man additional. Considerable reduction on large works.

TWO FOUR-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
20 feet by 10 feet ..	£9 0 0 ..	£2 0 0	50 feet by 15 feet ..	£17 10 0 ..	£3 0 0
30 feet by 12 feet ..	11 15 0 ..	2 10 0	75 feet by 15 feet ..	20 0 0 ..	3 0 0
40 feet by 15 feet ..	15 0 0 ..	2 15 0	100 feet by 15 feet ..	26 0 0 ..	3 5 0

Bath and Gas Work erected in town or country. **The Trade Supplied.**
Price Lists, Plans, and Estimates forwarded on application to
T. S. TRUSS, C.E., Consulting Horticultural Engineer, &c., Sole Manufacturer,
IRON MERCHANT, HOT-WATER APPARATUS MANUFACTURER,
AND HORTICULTURAL BUILDER,
FRIAR STREET, BLACKFRIARS ROAD, LONDON, S.E.

WARNER'S SILICATE of IRON PAINT,
A certain PREVENTION against DAMP WALLS,
Effectually PRESERVES IRON and WOOD,
Is unaffected by extreme HEAT and AMMONIA.
Has great Covering properties.
All Colours supplied and can be obtained through any Chemist or Ironmonger, of
Warner & Ashby, 17, Laurence Pountney Lane, E.C.

MR. A. CHANDLER, Horticultural Agent and Valuer, 16, Wynell Road, Forest Hill, S.E.
N.B.—Valuations made of Nursery Stock, Private Collections of Plants and everything connected with Horticulture.

Landscape Gardening.
MR. HENRY MAJOR, late of Knosthorpe, begs to announce that he continues to give PLANS for LAYING-OUT NEW PLEASURE GROUNDS, and the improvement of existing ones. Attendance to Stake out and Superintend Work on reasonable terms. A few Copies still remain of his two Works, viz., "The Theory and Practice of Landscape Gardening," and "The Ladies' Assistant in the Formation of their Flower Gardens," containing 20 designs.—8, Warwick Terrace, Leeds.

UPWARDS of EIGHTY ACRES of uncultivated FREEHOLD LAND, about 100 miles South of London, to be SOLD for £750. The Estate is beautifully situated, and has a large quantity of Peat suitable for Gardening purposes.
Apply by letter only to John Waller, 81, Fenchurch Street, E.C.

FOR SALE, a SMALL FLORAL NURSERY, in a good thoroughfare, on Freehold Land—well adapted for the Seed Business and Jobbing. Four Greenhouses.—Address, M. K., Post Office, Woolwich.

TO BE LET, NURSERY and SEED BUSINESS, near London.
NURSERY and SEED BUSINESS, in the Country.
Full particulars upon application to Mr W. Dillistone, General Horticultural Agency Offices, Sible Hedingham, Essex.

Sales by Auction.

Leytonstone, Essex.
IMPORTANT SALE OF BEAUTIFULLY-GROWN GREENHOUSE AND BEDDING PLANTS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the American Nurseries, Leytonstone, Essex, N.E., on TUESDAY, May 25, at 12 o'Clock precisely, about 25,000 GREENHOUSE and BEDDING PLANTS, consisting of 7000 Scarlet, Variegated, and Zonal Geraniums, including Mrs. Pollock and other leading varieties; also a large quantity of Verbenas, Calceolarias, Perillas, Pyrethrum aureum, Coleus, Tropæolum, with the usual miscellaneous assortment; likewise some fine Pelargoniums, Azalea indica, in choice variety, Ericas, Cytisus, Fuchsias, Rhododendrons, Kalmias, and Roses in pots, &c.
On view the day previous to the Sale. Catalogues had on the Premises of the Auctioneers and Valuers, Leytonstone, Essex, N.E.

Hornsey, N.
IMPORTANT SALE OF 25,000 BEDDING PLANTS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Nursery, near the Church, Hornsey, N., on THURSDAY, May 27, at 12 o'Clock precisely, by order of Mr. Tidsall, without reserve, about 25,000 BEDDING and GREENHOUSE PLANTS, including 1000 Geranium Mrs. Pollock, 3000 Christine, 2000 Tom Thumb, 1000 Lady Middleton, 2000 Stella, 1000 Flower of Spring, quantities of Crystal Palace Gem, Cloth of Gold, and other leading kinds; 3000 Calceolarias, 1000 Scarlet and White Intermediate Stocks, 3000 Verbenas, Fuchsias, Lobelias, Heliotropes, Gazanias, and the usual assortment of Plants for Bedding, Hardy and other Climbers in pots, &c.
On View two days prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, Leytonstone, E.

SALE THIS DAY AT HALF-PAST TWELVE PRECISELY.
Importation of Orchids from Borneo.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, May 22, at half-past 12 o'Clock precisely, splendid specimen plants of new DENDROBIUMS, CŒLOGYNES, CYPRIPEDIUM LOWII, and probably STONII. Several hundred plants in fine condition of ANÆCTOCHILUS LOWII, &c., just arrived from Borneo.
On view the morning of Sale, and Catalogues had.

Important Sale of Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 27, at half-past 12 o'Clock precisely, choice ORCHIDS, imported from Assam in the finest condition, comprising:—Dendrobium Farmeri, Wardianum, Devonianum, and Chrysotoxum; Vanda cærulea, Aerides Fieldingii, Saccolabium guttatum, &c. Also a small collection of ESTABLISHED PLANTS in FLOWER, consisting of Cattleya Warneri, Mossiæ, and Acklandiæ; Trichopilia crispa, Cypripedium hirsutissimum, Odontoglossum citrosmum, Epidendrum atropurpureum, &c.
On view the Morning of Sale, and Catalogues had,

Unreserved Sale of the late Mr. G. W. Robert's Herd of Pure-Bred Shorthorns.

MR. JOHN THORNTON will SELL by AUCTION, at 3 o'Clock, on TUESDAY, May 25, at Hitchin, Great Northern Railway, the entire HERD of PURE-BRED SHORTHORNS belonging to the late Mr. G. W. Roberts, of King's Walden, Herts. It comprises about 40 Head of Highly Bred Animals, descended from the Wiseton and other famous herds. The Sires have been of Prize Booth blood, and Baron Torr (23,380), the last bull used, will be included in the Sale.
Catalogues with Pedigrees may be had of John Thornton, 15, Langham Place, London, N.W.

The Old-established Nursery, Sudbury, Suffolk.
Important to Gentlemen, Nurserymen, &c.
SALE OF CHOICE PLANTS.

MR. W DILLISTONE has received instructions from the Proprietor, Mr. Stephen Brown, who is leaving the county, to SELL by AUCTION, without Reserve, on the Premises, on THURSDAY and FRIDAY, May 27 and 28, at 10 for 11 o'Clock each day precisely, the first portion of his Stock, comprising the whole of his valuable and choice Collection of STOVE, GREENHOUSE, and BEDDING PLANTS, consisting of many Thousands, in numerous varieties. Also his renowned Collections of HARDY HERBACEOUS and ALPINE PLANTS, JAPANESE PLANTS, CONIFERÆ, VINES in Pots, &c. Together with a portion of the GLASS-HOUSES, &c., and such other Stock as is now adapted for Planting. The valuable collection of Fruits, Coniferæ, and out-door Stock and effects, with remainder of Glass, will be Sold by Auction early in the Autumn, unless previously disposed of by Private Contract.
The Stock can be viewed Two days previous to the Sale on application to the Foreman, and Catalogues may be had on the Premises; at Mr. Wright's Printing Office, Sudbury; and post free on application to the Auctioneer, at his General Horticultural Agency Offices, Sible Hedingham, Essex.

High Beach, Essex.
ROSHERVILLE NURSERY (within an easy distance of Waltham and Loughton Stations, on the Great Eastern Railway).
To Gentlemen, Nurserymen, Market Gardeners, &c.

MR. W. DILLISTONE is favoured with instructions to SELL by AUCTION, on TUESDAY, June 1, at 10 for 11 o'Clock precisely, on the Premises as above, and by direction of the Proprietor, Mr. James Crawford, the WHOLE of his valuable STOCK IN TRADE, consisting of 700 Gardenias of sorts, 5000 Bedding Plants, chiefly Geraniums; 2000 Fuchsias, 500 Azalea indica, 1000 Ferns, 1000 Stove and Greenhouse Plants, &c.; 3 capital Span-roof Houses, 46 by 12. Four Brick Pits and Lights, 46 by 12, all well-arranged and heated with capital hot-water apparatus; and a quantity of Light and Frames. Also a capital ROAN MARE, 4-wheel Phaeton, Gig, Market Van, and Spring Cart, Harness, and about 30 loads of good Manure, and numerous other effects, which will be described in Catalogues, to be had prior to the Sale upon the Premises, and post free on application to the Auctioneer, at his General Horticultural Agency Offices, Sible Hedingham, Essex.

SHANKS'S PATENT LAWN MOWERS FOR 1869.

UNDER THE PATRONAGE
OF
HER MOST GRACIOUS MAJESTY
THE QUEEN,



AND MOST OF THE
PRINCIPAL NOBILITY
OF
GREAT BRITAIN.

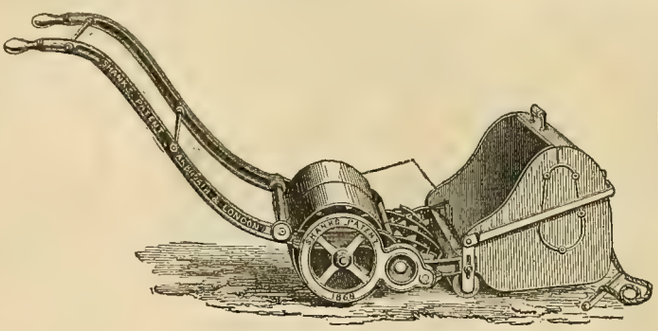
The Patent Improvements recently introduced give Shanks's Machine several important advantages possessed by no other Lawn Mower.

PATENT DOUBLE-EDGED SOLE PLATE, WIND GUARD, &c., &c.

THE UNPRECEDENTED SALE FOR 1868 BEARS TESTIMONY HOW MUCH THESE ADVANTAGES HAVE BEEN APPRECIATED.



THE FIRST PRIZE MEDAL
OF THE
INTERNATIONAL EXHIBITION,
LONDON, 1862.



HAND MACHINE.



THE FIRST PRIZE SILVER MEDAL
OF THE
UNIVERSAL EXHIBITION,
PARIS, 1867.

ALEXANDER SHANKS AND SON, in presenting their "PRICE LIST of LAWN MOWERS for 1869," have much satisfaction in intimating that among all the Exhibitors of Lawn Mowers at the Universal Exhibition of 1867, they are the only Firm to whom the Jury have awarded a Medal.

A. S. AND SON have, in addition to the PATENT DOUBLE-EDGED SOLE PLATE and WIND GUARD, made very great Alterations and Improvements in their Machine. These alterations, which were introduced last Season, have now undergone an effectual trial, and the result has been so successful as to enable A. S. AND SON to offer a Machine which far excels any other that has ever yet been offered, *whether for ease in working, certainty of action, or durability.* It has only to be compared with other Machines, when its superiority will be at once seen and understood.

PRICES—INCLUDING CARRIAGE TO ANY RAILWAY STATION OR SHIPPING PORT IN THE KINGDOM.

SHANKS'S NEW PATENT HAND MACHINE.

		Easily Worked
10-inch Machine	£3 10 0	*By a Lady*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*By a Boy*
16-inch Machine	£6 10 0	*By a Man*
19-inch Machine	7 15 0	*By a Man and a Boy*
22-inch Machine	8 10 0	*By Two Men*
24-inch Machine	9 0 0	

The Hand Machines are all with Silent Movement.

SHANKS'S NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
25-inch Machine	£12 10 0	.. .. 25*s.* extra.
28-inch Machine	14 10 0	.. .. 30*s.* ,,
30-inch Machine	15 15 0	.. .. 30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra.
Boots for Pony, 22*s.* per set.; Ditto for Donkey, 18*s.* per set.

SHANKS'S NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
30-inch Machine	£19 0 0	.. .. 30*s.* extra.
36-inch Machine	22 0 0	.. .. 30*s.* ,,
42-inch Machine	26 0 0	.. .. 40*s.* ,,
48-inch Machine	28 0 0	.. .. 40*s.* ,,

Silent Movement, 20*s.* extra. Boots for Horse, 26*s.* per set.

SHANKS'S PATENT LAWN MOWERS

ARE THE ONLY ONES IN DAILY USE IN THE

ROYAL GARDENS AT KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, AND BALMORAL;
IN THE GARDENS OF THE ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON;
IN THE GROUNDS OF THE CRYSTAL PALACE COMPANY, AT SYDENHAM;
IN HYDE PARK, IN VICTORIA PARK, IN BATTERSEA PARK;

And in many hundreds of the principal Gardens in the Kingdom, as well as abroad, where their merits have been fully proved and their success firmly established.

Every Machine warranted to give ample satisfaction, and, if not approved of, can be at once returned.

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH,
AND
27, LEADENHALL STREET, LONDON.

27, *Leadenhall Street is the only place in London where intending purchasers of Lawn Mowers can choose from a Stock of from* 150 *to* 200 *Machines. All sizes kept there, whether for Horse, Pony, or Hand Power.*

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 22.—1869.] SATURDAY, MAY 29. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.
GREAT SHOW of the SEASON on WEDNESDAY and THURSDAY, June 2 and 3. Military Bands each day from Four.
Tickets for the First Day (which must be bought before June 2), to be had of all the principal Musicsellers, and at the Gardens—Fellows' Friends, 3s. 6d.; Public, 5s. Second Day, by payment at the doors, 1s.

ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.
SCHEDULE of PRIZES for the GREAT FLOWER SHOW to be held at MANCHESTER, from JULY 19 to 23, now ready, and can be had on application to JAMES RICHARDS, Royal Horticultural Society, South Kensington.

MANCHESTER EXHIBITION.
SPECIAL NOTICE TO EXHIBITORS.
The Council of the Royal Horticultural Society have great pleasure in announcing that, through the liberality of the Directors of the Midland, London and North-Western, and Great Northern Railway Companies, all Plants, &c., conveyed over their lines will be carried from the Show (provided they remain the property of the person who transmitted them to the Exhibition) free of all charge.

ROYAL BOTANIC SOCIETY GARDENS, Regent's Park.—AMERICAN PLANTS.—The EXHIBITION of these PLANTS will be OPENED on TUESDAY NEXT, June 1, and will be continued till June 14. Tickets of admission, 2s. 6d. each. The ordinary privileges of the Fellows of the Society will be as usual. A Band will play on the Wednesday afternoons.

CRYSTAL PALACE.—The SECOND GRAND FLOWER SHOW, SATURDAY, June 5. Entries should be at once forwarded to I. WILKINSON, Superintendent.
SPECIAL PRIZE offered for TABLE DECORATIONS.

LEE and BLACKHEATH HORTICULTURAL and FLORICULTURAL SOCIETY.—The FIRST SHOW of the SEASON will be held on WEDNESDAY and THURSDAY, June 9 and 10, in the GROUNDS of the Misses LEWIS, Blackheath Park. A Band will attend. For Admission, &c., see Bills. LAST DAY for ENTRIES, JUNE 3. Schedules and all particulars may be obtained of G. R. CLISBY, Sec., 17, Turner Road, Lee, S.E.

GRAND HORTICULTURAL SHOW at COLCHESTER, on JUNE 15 and 16, in connection with the [illegible] Exhibition. £150 in Prizes, including Special [illegible] open to all England [illegible] without entrance-fee. [illegible] £6; 3d, £3. 3d, £3; and for [illegible] tained gratis of [illegible] SON.

EAST of ENGLAND ROSE SHOW, HEREFORD, JUNE 24.—For PRIZE LISTS apply to the Rev. C. H. [illegible]ER, M.A., Credenhill Rectory, near Hereford. ENTRIES [illegible] JUNE 19.

SPALDING HORTICULTURAL FETE, FLOWER, FRUIT, &c. SHOW.—The ANNUAL EXHIBITION will be held in the GROUNDS of AYSCOUGHFEE HALL, on THURSDAY, June 24. Schedules may be had on application. Band of the Royal Horse Guards.
GEO. F. BARRELL, Hon. Sec.

LEICESTERSHIRE HORTICULTURAL SOCIETY.—The GREAT SUMMER SHOW of this Society will be held at LEICESTER, on JULY 6 and 7 next, when Special Prizes will be given for Cut Roses and Collections of Bedding Plants, arranged for effect in pots, open to all England. Prizes will also be offered for British and Foreign Cage Birds.
Schedules and particulars may be had of the Secretary, WM. PENN COX, 37, Market Place, Leicester.

W. DILLISTONE, HORTICULTURAL AGENT, begs to offer his services as JUDGE to any of the forthcoming HORTICULTURAL EXHIBITIONS. Twenty-five years' practical experience. Sible Hedingham, Essex.

Pines.
B. S. WILLIAMS has all the best kinds, in splendid condition, warranted clean. Prices on application.
B. S. WILLIAMS, Seed Merchant and Nurseryman, Upper Holloway, London, N.

ORCHARD-HOUSE TREES Fruiting in Pots.—Peaches, Nectarines, Apricots, Cherries, Plums, Pears, Apples, Vines, and Figs.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

ORANGE TREES for SALE, at Bramshaw House, near Lyndhurst, Hampshire.—Twelve large ORANGE and LEMON TREES, many in Fruit and Blossom, a great ornament to a Nobleman's or Gentleman's lawn. Price 150 guineas. Bramshaw is 6 miles from Totton Station, London and South-Western Railway.

Catalogues Nos. 126 and 127.
LOUIS VAN HOUTTE'S GREENHOUSE and STOVE PLANT CATALOGUES are now ready, and may be had from his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.
Royal Nursery, Ghent, Belgium.

Specimen Tricolor and Bicolor Geraniums.
F. AND A. SMITH have a large stock of most of their varieties, in various sizes, suitable for exhibition, and now in good colour. An inspection respectfully invited.
The Nurseries, West Dulwich, S.E.

NEW DOUBLE GERANIUMS.—Twelve fine varieties Double Zonal Geraniums, including Madame Lemoine, for 12s.; 12 best New Zonal Geraniums of 1868 for 6s.; 12 fine varieties Gold and Golden Bicoloured Geraniums for 6s., package included, from B. W. KNIGHT, Florist, Battle, Sussex.

To the Trade.
TWO THOUSAND GLOIRE DE NANCY, 3000 SILVER-EDGED, and 5000 ZONAL GERANIUMS, 5000 CALCEOLARIAS, 5000 VERBENAS. CATALOGUES and prices on application to
WILLIAM COOKS, Old Nurseries, Donington, Spalding.

STRONG TRICOLOR and BICOLOR GERANIUMS, hardened off, fit for bedding-out. Most of the sorts advertised in this paper, May 1, can still be supplied by the dozen or 100. Smaller plants can be supplied at lower prices. A liberal allowance to the Trade. A LIST with prices can be had on application to
WILLIAM POTTEN, Sissinghurst, Staplehurst, Kent.

HUSSEY AND SON beg to offer strong, well-established plants of the following, at 14s. per 100, viz.:—TOM THUMB, BIJOU, STELLA, SHOTTESHAM PET, and MINIMUM GERANIUMS; and CALCEOLARIA AUREA FLORIBUNDA. Also GOLDEN CHAIN and FLOWER of SPRING GERANIUMS, at 16s. per 100.
Mile End Nursery, Eaton, Norwich.

Sow Now.
TREE MIGNONETTE SEED, saved from exhibition plants, 2s. 6d. per packet.
R. TANTON F.R.H.S., The Nurseries, Epsom, Surrey.

To the Trade.
CALCEOLARIA AUREA FLORIBUNDA, extra strong plants, at 12s. 6d. per 100, or £5 per 1000. Special offer given for larger quantities.
WARD BROS., the Nursery, Crabb Marsh, Wisbeach.

To the Trade.
G. FARNSWORTH has to offer a quantity of BEDDING PLANTS. Prices on application at the Nurseries, Matlock.

Dahlias, Dahlias, Dahlias,
C. E. ALLEN has a large surplus stock of all the new and older varieties, at low prices. CATALOGUES on application.
Norfolk Nursery, Shacklewell, N.E.

NEW COLEUS.—The 12 New Coleus of the Royal Horticultural Society, sent out in 1868, with other fine varieties, sent post free—12 fine varieties for 2s. 6d.; 12 cuttings; in 12 fine varieties, for 1s. 2d., from
B. W. KNIGHT, Florist, Battle, Sussex.

New Golden Coleus of 1869.
WILLIAM BADMAN offers the Horticultural Society's set of the above beautiful COLEUS, the set of Eight for 5s. Package included. Terms cash.
Cemetery Nursery, Gravesend.

"Mr. PAUL'S Roses * * * are things to see once and dream of for ever."—*Athenæum.*
WM. PAUL begs to announce that his CATALOGUE of ROSES is now ready, and will be forwarded free on application.
PAUL'S Nurseries, Waltham Cross, London, N.

Roses.
JOHN CRANSTON will be happy to forward on application his DESCRIPTIVE CATALOGUE of ROSES for 1868 and 1869. For quality or quantity the stock is unsurpassed; the Manetti Roses especially are acknowledged to be the finest grown plants in the Trade.
Nurseries, King's Acre, near Hereford.

New Roses of 1869.
PAUL AND SON have an unusually fine Stock of the NEW ROSES of 1869, and, indeed, of all ROSES in POTS. NEW LISTS now ready.
The Old Nurseries, Cheshunt, N.

Established 1806.
T. HANDASYDE AND DAVIDSON have a large stock of DAHLIAS and ROSES in Pots. Special prices to the Trade on application.
Seed Warehouse, 24, Cockburn Street, Edinburgh.
Nurseries, Brunstain Glen, Musselburgh.

Sarracenia Drummondii & Psittacina from Florida.
W. CUTTER having just imported 150 Roots of each of these New Plants, begs to offer them to the Trade at a moderate price.
35, Great Russell Street, Bloomsbury, W.C.—Naturalist Agent.

Iresine Lindeni, and
VAN HOUTTE'S NEW GESNERACEOUS PLANTS are now being sent out. See CATALOGUE No. 126.
Royal Nursery, Ghent, Belgium.—May 29.

SPECIMEN PALMS for SALE.—Four splendid large plants; also a Pair of BAYS and TREE FERNS. Prices and full particulars on application to E. COOLING, Derby.

ALLAMANDA WARDLEIANA.—This magnificent plant is NOW READY, at 21s. each.
A Coloured Plate by Andrews, taken in December, post free for 13 stamps.—R. TANTON, F.R.H.S., Epsom Nurseries, Surrey.

ALSOPHILA EXCELSA.—The Subscribers offer a few plants of the above fine Tree Fern as follows:—Specimens with fronds 4 to 6 feet long, 10s. 6d. to 42s. each.
A. STANSFIELD & SON, Vale Nurseries, Todmorden, Lancashire.

Gladioli, the most Extensive Collection.
BARR AND SUGDEN, 12, King Street, Covent Garden, W.C., have the finest and largest collection of GLADIOLI ever offered, prices varying from 2d. to 15s. per root. For particulars see pp. 68, 69, 70, and 71 of B. & S.'s SPRING SEED CATALOGUE.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

Choice Seeds, Gladioli, &c.
WM. CUTBUSH AND SON'S CATALOGUE of the above contains description and price of many very superior home-grown VEGETABLE and FLOWER SEEDS, and choice varieties of GLADIOLI, &c., all of which are highly recommended. Post free on application.
Highgate Nurseries, London, N.

EVERY GARDEN REQUISITE KEPT in STOCK at CARTER'S New Seed Warehouse, 237 and 238, High Holborn, London.

CARTER'S FARM SEEDS.—See large Advertisement at page 386 of *Gardeners' Chronicle*, April 10, 1869.
SEED GROWERS, MERCHANTS, and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

GRASS SEEDS: WHEN and WHAT to SOW.—For the fullest information on this subject, see CARTER'S ILLUSTRATED FARMER'S CALENDAR for 1869; post free, 6d.
JAMES CARTER & Co., Seed Growers, 237 and 238, High Holborn, London, W.C.

A SPECIAL PRIZE MEDAL, PARIS, 1867, was AWARDED to JAMES CARTER & Co., 237 & 238, High Holborn, London, W.C., for GRASS SEEDS, supplied for the Exhibition Grounds.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c.
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Seed Growing Establishment, Wisbech.

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To the Trade.
HALL'S WESTBURY SWEDE TURNIP SEED, true, nett. Grown last season from transplanted roots. For samples and prices, apply to
WILLIAM COOKS, Seed Grower, Donington, near Spalding.

SUTTONS' CHAMPION SWEDE, the hardiest and best in cultivation. Lowest price per bushel on application.
SUTTON & SONS, Seed Growers, Reading.

The Best Turnip for Early Sowing,
TO FEED OFF FOR WHEAT, IS
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SUTTONS' PURPLE-TOP MAMMOTH, very solid, heavy, and of quick growth. Sow in June for Early Feeding, and August for Ewes and Lambs in Spring. 1s. 6d. per lb.; much cheaper by the bushel. Carriage free.
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Market Gardens, Biggleswade, Beds.
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British Fern Catalogue.
ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, Sidcup Hill, Kent.

FERNS.—Choice and Select EXOTIC FERNS and LYCOPODS, in great variety, are now offered in good plants, 12 fine varieties for 6s.; larger plants and more select kinds from 9s., 12s., 20s., to 30s. per dozen. Package included.
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Ferns, British and Exotic, at reduced prices.
A. STANSFIELD AND SON beg to state that their CATALOGUE, No. 8, is now ready, and will be forwarded on receipt of three stamps. The above Catalogue contains 40 pages of matter, including partial descriptions and cultural remarks.
Vale Nurseries, Todmorden, Lancashire.

NEW CHRYSANTHEMUMS of 1868, including the [illegible] New Japan, large-flowered and Pompon varieties, sent out in 1868, sent post free, 12 fine varieties, 2s. 6d.; 2 Cuttings in 12 fine varieties, 1s. 2d., from
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Now Ready, Post Free to all Applicants.
B. S. WILLIAMS' CATALOGUE of NEW and RARE PLANTS, 1869, containing the most beautiful and select of the latest introductions and Supplementary Lists of the General Collection.
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DAHLIAS.—CATALOGUES of the above are now ready, comprising the newest and best varieties in cultivation. Strong healthy plants, all true to name, on application to
JAS. FAIRHEAD & SON, Seed Growers and Nurserymen, 7, Borough Market, and Braintree, Essex.

Catalogue No. 128.
LOUIS VAN HOUTTE'S NEW CATALOGUE of BULBS is now in the Press.
Royal Nursery, Ghent, Belgium.—May 29.

Gratis and Post Free.
DICK RADCLYFFE AND CO.'S LIST of BEDDING PLANTS, FERNS, FERN CASES, &c.
129, High Holborn, W.C.

JOHN STANDISH AND CO.'S SPRING CATALOGUE of NEW and RARE, SUBTROPICAL and BEDDING PLANTS is now ready. May be had post free on application.
Royal Nurseries, Ascot.—May 1.

New Spring Catalogue.
CHARLES TURNER'S DESCRIPTIVE LIST OF PLANTS for this season, including many new varieties now offered for the first time, is now ready.
The Royal Nursery, Slough.

General Catalogue.
WILLIAM ROLLISSON AND SONS beg to inform the Nobility, Gentry, and Trade that their GENERAL CATALOGUE, consisting of upwards of 150 pages of closely printed matter, containing nearly every Plant, Shrub, or Tree worthy or useful in cultivation, is now Published, and will be forwarded to applicants on receipt of eight postage stamps, and sent gratis to customers.
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ONE PENNY NEWSPAPER

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THOMAS METHVEN

HAS SECURED THE STOCK OF THIS GRAPE,

Which was raised by Mr. Thomson, of Dalkeith, from the Black Lady Downe's. The Vine is of the same vigorous habit of growth as the parent, equally fruitful, sets more freely, requires less heat, and is not liable to scald as the black variety is; keeps as long, if not longer; and has fully as good a flavour. It is guaranteed to be the latest keeping White Grape in cultivation. It received First-class Certificates at the Edinburgh Show on March 20, 1867, and at Glasgow on the 27th of the same month. It will be Exhibited next Spring at all the March and April Shows.

ORDERS ARE NOW BEING BOOKED TO BE SENT OUT NEXT SEPTEMBER.

Strong Planting Canes, 21s. and 42s. each; Extra Strong Fruiting Canes, 63s.

LEITH WALK NURSERIES, and 15, PRINCES STREET, EDINBURGH.

HUGH LOW & CO.

HAVE PLEASURE IN OFFERING

HEALTHY PLANTS OF THE UNDERNAMED CHOICE ORCHIDS

ON VERY FAVOURABLE TERMS.

THEY CAN BE SUPPLIED IN QUANTITY, AND WHEN THUS REQUIRED SPECIAL QUOTATIONS WILL BE MADE.

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,, BULBOSA or WALKERIANA ..	,,	1	1	0	,,	7	10	0	,, ,, splendid specimens, with from 30 to 200 bulbs. Prices on application.								
,, CITRINA	,,	0	10	6	,,	5	0	0	ONCIDIUM BIFOLIUM	each,	£1	1	0	per doz.,	£10	0	0
,, LEOPOLDI	,,	0	10	6	,,	5	0	0	,, ,, splendid specimens, with from 25 to 250 bulbs. Prices on application.								
,, MOSSLÆ	,,	0	10	6	,,	5	0	0	,, CRISPUM	each,	£0	10	6	per doz.,	£4	0	0
CYPRIPEDIUM CAUDATUM	,,	1	10	0	,,	15	0	0	,, LIMINGHI	,,	0	10	6	,,	4	0	0
,, LOWII	,,	1	1	0	,,	9	0	0	,, PAPILIO MAJOR	,,	0	10	6	,,	5	0	0
,, STONEI	,,	0	15	0	,,	8	0	0	,, SARCODES	,,	5	5	0				
EPIDENDRUM PRISMATOCARPUM ..	,,	1	1	0	,,	8	10	0	PAPHINIA CRISTATA	,,	1	5	0				
LÆLIA PURPURATA	,,	0	10	6	,,	5	0	0	TRICHOPILIA COCCINEA	,,	0	15	0	,,	5	0	0
MILTONIA MORELLIANA	,,	1	1	0	,,	10	0	0	,, GAELEOTTIANA	,,	0	10	6	,,	4	10	0

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ONE MILLION BEDDING AND OTHER PLANTS

Now ready for sending out, as under, of which they invite inspection at their

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LANDSCAPE GARDENING and **ARCHITECTURE.**—JAMES CARTER AND CO., having an experienced staff of qualified Men, will be happy to undertake the ALTERATION or IMPROVEMENT of GARDENS, DOMAINS, &c., and to furnish Estimates (after a personal inspection) WITH PLAIN OR COLOURED PLANS, as may be desired.

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NEW and DESIRABLE STOVE, GREENHOUSE, CONSERVATORY and OUTDOOR PLANTS.
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SUMMARY of ORNAMENTAL-FOLIAGED and FLOWERING BEDDING PLANTS.
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VINES.

INDIA-RUBBER HOSE at Manufacturers' Prices. 60 feet, with Fittings Complete, 25s.

JAMES CARTER AND CO., SEED MERCHANTS and NURSERYMEN, 237 and 238, HIGH HOLBORN, LONDON, W.C.; and CRYSTAL PALACE NURSERY, FOREST HILL, S.E.

NEW COLEUS, BEAUTY of WIDMORE.—The prettiest variety yet sent out, distinctly tricolored; leaves small and beautifully shaped, of a dark brilliant maroon, bolted with bright rose and green, and edged with silvery white; habit very dwarf; *5s.* each: 4 will be sent when 3 are ordered. Price to the Trade on application.

DOWNIE, LAIRD & LAING, Stanstead Park, Forest Hill, London, S.E., and Edinburgh.

NEW COLEUS, BEAUTY of WIDMORE.—The prettiest variety yet sent out, distinctly tricolored; leaves small and beautifully shaped, of a dark brilliant maroon, bolted with bright rose and green, and edged with silvery white; habit very dwarf. *5s.* each. Four will be sent when three are ordered. Price to the Trade on application.

JAMES CARTER & Co., Seed Merchants and Nurserymen, 237 and 238, High Holborn, W.C.; and Crystal Palace Nurseries, Forest Hill

New Golden Coleus of 1869.

H. CANNELL has procured a large Stock of the above splendid Foliage Plants, in 18 varieties, and can now execute orders with strong, highest-coloured plants, either in pots or otherwise. See CATALOGUE, with prices, history, culture, and description, for 3 stamps. Each variety is now forming into specimens.

	Each.—*s. d.*		Each.—*s. d.*
Princess Louisa	1 0	Princess of Wales	1 0
Prince Leopold	1 0	Her Majesty	1 0
Empress	1 0	Albert Victor	1 6
Masterpiece	1 0	Prince of Wales	1 0
Model	1 0	Duke of Edinburgh.. ..	1 6
Refulgens	1 0	Prince Arthur	1 0
Umpire	1 0	Princess Beatrice	1 6
Queen Victoria	2 0	Baroness Rothschild ..	2 0
Princess Royal	1 0	Beauty of St. John's Wood	1 0

The usual discount to the Trade. The 18 post free for 15*s.*

Amateurs are respectfully invited to inspect them. Also, H. C.'s Bicolor and other GERANIUMS, which are in splendid colour, and are now attracting the attention of all who see them. Present prices on application. Seventy Trains stop at the Nursery daily (Dockyard Station), from Charing Cross and Cannon Street.

Florist, Woolwich.

Special Offer to the Trade

Of NEW VERBENAS, 1869, and FUCHSIAS, COLEUS, &c., 1868.

KNIGHT'S Six splendid NEW VERBENAS for 6*s.*, all gained First-class Certificates.

KEYNES' 12 New Varieties, 8*s.* | TURNER'S 12 New ditto, 8*s.*

12 Finest FUCHSIAS of 1868, strong plants, 9 to 12 inches, 4*s.*

12 varieties of COLEUS, extra strong, 20*s.* per 100.

ROSES, New and Old, every variety worth growing. For prices see CATALOGUE.

W. KNIGHT, Floral Nursery, Hailsham.

Azalea indica.

J. IVERY AND SON'S splendid Collection of the above is NOW in BLOOM, and will continue until the middle of June to be well worth inspecting, as will also their fine Collection of BRITISH FERNS. Dorking Nursery, May 3.

Splendid Indian Azaleas.

WILLIAM BARNES' unrivalled Collection of AZALEAS is this season unusually fine, and in the highest possible health, loaded with strong bloom-buds from top to bottom, and the plants properly trained as Pyramids, but neither stiff nor formal; their average heights are from 2 to 5 feet, and beautifully clothed down to the pot. These plants cannot fail to please those who are either adding to their present collection or forming a new one. W. B. has also many thousands in smaller sizes, comprising all the newest and best of the older varieties, in the most beautiful and healthy condition. Prices and varieties may be had on application.

WILLIAM BARNES, Camden Nursery, Camberwell, S.E.—April 10.

New Roses for 1869.

JOHN AND CHARLES LEE are now sending out the following TWO NEW ROSES:—

CLEMENCE RAOUX (Granger). — Blush, edged and spotted rose, very large, of perfect form and great substance; petals stout and enduring; habit erect and vigorous; flowers late in autumn. This is really a wonderful Rose when bloomed to perfection. A single flower of Clemence Raoux exhibited amid tens of thousands of other Roses attracted—by its immense size and novel colouring—the universal attention of the judges and amateurs at the Great Rose Show at Brie Comte Robert, in July 1867, when the Gold Medal was awarded to it as the finest Rose in the Exhibition. 15*s.*

EDWARD MORREN (Granger). — This splendid Rose is a great acquisition. The delicate yet brilliant colouring, the size, fine shape, and fulness of its flowers, combined with its bold erect habit, will render it a universal favourite. Monsieur Margottin thus described it:—"Edward Morren is in the way of Jules Margottin, but of a more delicate colour, of better form, more double, and much larger." The 1st Prize Gold Medal was awarded to it at the Exposition Universelle in Paris, in July, 1867. 15*s.*

Special offer to the Trade on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith W.

CARTER'S PRIMULA, CALCEOLARIA, and CINERARIA.

J. C. & Co.'s strain of Calceolaria is saved from plants that were awarded a 1st Prize at the late International Show. The Cineraria and Primula stocks are also saved from the finest Prize Varieties, and cannot be surpassed.

CALCEOLARIA and CINERARIA.

Per packet—*s. d.*		Per packet—*s. d.*	
Calceolaria, finest hybrid ..	2 6	Calceolaria, Dobson's strain..	2 6
" " spotted ..	2 6	Cineraria, extra fine	2 6

PRIMULA.

Per packet—*s. d.*		Per packet—*s. d.*	
Primula, choicest mixed, fringed	2 6	Primula, choicest white fringed	2 6
" " dark carmine, fringed	2 6	" " Fern-leaved carmine	2 6
" " rose, fringed	2 6	" " white ..	2 6

CALCEOLARIA INTERNATIONAL PRIZE.—The Seed of this superb strain cannot fail to produce splendid varieties, as last season's plants took 1st Prizes wherever exhibited. Per pckt., 2*s.* 6*d.*

PRIMULA FIMBRIATA (New scarlet).—This is a decided novelty, being of a deep scarlet colour, and cannot fail to be much admired wherever grown. Per packet, 2*s.* 6*d.*

INDIA-RUBBER HOSE at Manufacturer's prices, 60 feet (with complete fittings), 25*s.*

JAMES CARTER & Co., The Royal Seedsmen, 237 and 238, High Holborn, London, W.C.

New and Choice Flower Seeds, Post Free.

B. S. WILLIAMS, SEED MERCHANT AND NURSERYMAN,

Victoria and Paradise Nursery, Upper Holloway, London, N.

	Per packet.—*s. d.*
WILLIAMS' SUPERB STRAIN of PRIMULA.—B. S. W. can with confidence offer his superb strain of Primula as being the finest in cultivation. Red, White, or Mixed .. .. .. 2*s.* 6*d.*, 3*s.* 6*d.*, and	5 0
CINERARIA, choice mixed	1 6
CALCEOLARIA (Neill's extra choice strain), 2*s.* 6*d.*, 3*s.* 6*d.*, and	5 0
" (Dalkeith Palace strain) .. ..1*s.* 6*d.* and	2 6
CARNATION, from Prize Flowers	1 0
CYCLAMEN (Wiggins' prize strain) .. 1*s.* 6*d.*, 2*s.* 6*d.*, and	3 6
POLYANTHUS (Wiggins' prize strain) .. .. 1*s.* 6*d.* and	2 6
BALSAM (Williams' superb strain) .. .. .. 1*s.* 6*d.* and	2 6
CLIANTHUS DAMPIERI (fresh imported seed)	1 6
GERANIUM LE GRAND .. .. 1*s.* 6*d.* and	2 6
SOLANUM (Weatherill's hybrids).—B. S. W. was awarded a Special Certificate for a Collection exhibited before the Floral Committee, December 15, 1868 2*s.* 6*d.*, 3*s.* 6*d.*, and	5 0
ECHEVERIA METALLICA (new Bedding plant)	2 6
STOCK (White Ten-week Wallflower-leaved).—This is a splendid variety, the colour being so pure and the flowers very double	1 0
HOLLYHOCK, from the best named sorts..	1 0
PANSY, from prize flowers	1 0
" finest Belgian varieties	1 0
PINK, Double-fringed, very fine	1 0
PICOTEE (from prize flowers)	1 0
SWEET WILLIAM, Hunt's Auricula-eyed .. 6*d.* and	1 0
OXALIS VALDIVIANA, quite hardy, the flowers are bright yellow and sweet scented, and produced in bunches of large size (new)	1 0
PALAVA FLEXUOSA, very pretty annual (new)	1 0
MYOSOTIS AZORICA ALBA, the flowers are pure white, contrasting beautifully with the blue variety Cœlestina (new)	2 6
MYOSOTIS AZORICA var. CŒLESTINA, beautiful sky blue	1 6
AMARANTHUS SPECIOSUS AUREUS (New Golden Princes Feather)	1 0
ANTIRRHINUM ASARINA, very beautiful for rockwork (new)	1 0
HELICHRYSUM APICULATUM (new)	1 0
VIOLA LUTEA (yellow-flowered Violet) .. .. 1*s.* 6*d.* and	2 6
ABRONIA ARENARIA, the flowers are of a pure waxy yellow, deliciously scented, and produced in long succession (new)	1 0
ZINNIA ELEGANS TAGETIFLORA fl.-pl. (new)	1 0
ORNAMENTAL GOURDS, splendid varieties	0 6
Imported GERMAN ASTERS, STOCKS, WALLFLOWERS, ZINNIAS, &c., in Collections, as imported.	

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GIANT ASPARAGUS PLANTS, the best that money can procure, 2*s.* 6*d.* per 100. This delicious Vegetable does not require half the expense usually incurred in planting it.

See RICHARD SMITH'S SEED LIST for 1868.

Extra strong SEAKALE, 2*s.* per dozen.

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To the Trade.

ALFRED LEGERTON, SEED MERCHANT, 5, Aldgate, London, E., has on hand large Stocks of the following, all fine samples, and good Stocks:—

TURNIP.

Pomeranian White Globe	Purple-top Yellow Scotch
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AGRICULTURAL MUSTARD (fine sample).

DWARF ESSEX SOWING RAPE.

Special quotations (which are low) will be sent upon application, for either or all.

THE LONDON MANURE COMPANY

(ESTABLISHED 1840)

Have now ready for delivery, in fine condition,

CORN MANURE, for Spring Use

DISSOLVED BONES, for Dressing Pasture Lands

SUPERPHOSPHATES of LIME

PREPARED GUANO

MANGEL and POTATO MANURES.

Also Genuine PERUVIAN GUANO, and NITRATE of SODA ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c.

E. PURSER, Secretary.

Offices, 116, Fenchurch Street, E.C.

LAWES' MANURES are now ready for delivery for present season, 1869.

LAWES' PATENT TURNIP MANURE.

" DISSOLVED BONES.

" SUPERPHOSPHATE of LIME.

" WHEAT, BARLEY, GRASS, and MANGEL MANURE.

" CONCENTRATED CORN and GRASS MANURE.

These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom.

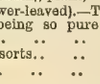
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Its Members are Cultivators of upwards of 50,000 Acres of Land, which has been for years under Management with Manures of their own Manufacture, consequently the consumer has the best guarantee for the genuineness and efficacy of the Manures manufactured by this Company.

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SCOTT'S WASP DESTROYER will effectually destroy Wasps, Cockroaches, Crickets, and other Garden Pests, price 1*s.* 6*d.* and 2*s.* 6*d.* per bottle. See testimonials, &c., on application to J. SCOTT, The Seed Stores, Yeovil, Somerset.

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Agents, the Garden Repository, 32, James Street, Covent Garden.

The Best and Cheapest Vermin Killer.

Vide "The Gardener's Magazine," conducted by Shirley Hibberd, Esq., F.R.H.S., of August 15, 1868.

UNDER PERMISSION OF THE HON. BOARD OF CUSTOMS.

THE LONDON GROUND TOBACCO (free of duty), for the Destruction and Prevention of the Grub and Blight in Plants. Sold in Tins 1*s.* and 2*s.* 6*d.* each, by Seedsmen and Druggists.

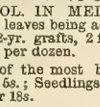
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BY HER MAJESTY'S ROYAL LETTERS PATENT, AND BY PERMISSION OF THE HON. BOARD OF CUSTOMS.



POOLEY'S TOBACCO POWDER, for the Prevention and Destruction of Blight and other Diseases in Plants.

Sold by Nurserymen, Seedsmen, and Florists,

In Tins at 1*s.*, 2*s.* 6*d.*, and 5*s.*

Powder Distributors, 2*s.* 6*s.* and 3*s.* 6*d.* each.

"I find it exceedingly useful for killing the Aphides on Roses and other Plants."—GEO. EYLES, Superintendent, Royal Horticultural Gardens, South Kensington. May 7, 1868.

Sole Manufacturer, T. A. POOLEY, Bonded Warehouse, Sussex Wharf, Wapping, E.

TOBACCO TISSUE, for DESTROYING RED SPIDER, MEALY-BUG, THRIP, GREEN and BLACK FLY, without the aid of a Fumigator.—This article having been before the Public for the last three years, and being now used by many of the leading Horticulturists—from several of whom Testimonials have been received as to its efficacy,—the Manufacturers beg to recommend those who have not used it to give it a trial, feeling confident when they have done so they will use nothing else, as it is far superior to paper or rag, and will not injure the plants. Sold in 1 lb. packets and upwards; price 3*s.* 6*d.* per lb., carriage free. A reduction in price for large quantities.

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Weeds Eradicated from Lawns.

WATSON'S LAWN SAND, sprinkled upon Lawns, rapidly destroys Dandelions, Daisies, Clover, Rib-grass, &c., and at same time promotes the growth of Grass. 28*s.* per cwt.; 4*d.* per lb.

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H. LAURENTIUS, HORTICULTURIST,

THE NURSERIES, LEIPZIG, SAXONY,

BEGS TO OFFER THE FOLLOWING

NEW AND RARE PLANTS,

DESCRIBED AND PARTLY FIGURED IN HIS NEW CATALOGUE, No. 41:—

AGAVE HORRIDA NANA (figured in H. L.'s New Catalogue), £1 16*s.*

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VIOLA ODORATA PENDULA, WEEPING VIOLET of NEW YORK.—Very attractive novelty; flowers large, full, sweet scented, and azure blue, 1*s.* 3*d.* each; 12*s.* per dozen.

AGAVE BESSERIANA LONGIFOLIA VIRIDIS (figured in H. L.'s New Catalogue), £2 5*s.*, £3, and £3 15*s.*

" " LONGIFOLIA GLAUCA (figured in the Catalogue), £2 5*s.*, £3 15*s.*, and £6.

NEW LOBELIA ERINUS, STAR of ISCHL.—Very compact dwarf growing, flowers larger than any new variety, bright azure blue, with a deep coloured shade, extremely free flowering throughout the whole season; 1*s.* 3*d.* each, 10*s.* 6*d.* per dozen.

NEW PINKS: KING JOHN of SAXONY, and PRINCE ROYAL of SAXONY.—Two extremely beautiful varieties, in every respect improvements of the esteemed P. Abbordfordianus, by whose hybridisation they have been obtained, 2*s.* each. For full description, see H. L.'s New Catalogue, page 28.

AMARYLLIS ALBERTI FLORE-PLENO (LAURENTIUS), true.—The full and bright scarlet-flowered Amaryllis, flowering by pairs. Strong flowering bulbs, 12*s.* each; middle sized bulbs, 4*s.* 6*d.* each.

ANECOCHILUS SPECTABILIS.—Leaves similar in colour to the A. setaceus, but much larger; £1 1*s.*

AGAVE UNIVITTATA.—Young plants, according to size, 4*s.* 6*d.*, 6*s.*, and 12*s.* each; stronger plants, 18*s.* each; very strong plants, £3 15*s.* each.

DICHORISANDRA MUSAICA, 7*s.* 6*d.* each; £3 per dozen.

" UNDATA, 3*s.* each; £2 4*s.* per dozen.

PASSIFLORA TRIFASCIATA.—New tricolor-leaved Passion-flower, 3*s.* each; £1 4*s.* per dozen.

DOUBLE-FLOWERED GERANIUMS.—The newest, 22 varieties. For descriptive List, see H. L.'s Catalogue, pp. 24, 25, and 212.

CORDYLINE VEITCHII. — Leaves with red midrib. Young plants, 1½ foot high, 15*s.* per dozen; £5 per 100.

FICUS SURINGARI.—Beautiful species, with purple-veined large leaves, 3*s.* each.

LAMPROCOCCUS LAURENTIANUS.—The most beautiful Æchmea, flowering from November to February, 2*s.* 6*d.* each; £1 7*s.* per dozen.

LILIUM PARTHENEYON.—New Lily, from Japan, £1 16*s.* For full description, see H. L.'s Catalogue, page 39.

" LEICHTLINI.—Likewise from Japan, £2 5*s.* each. For full description, see H. L.'s Catalogue, page 39.

LIRIODENDRON TULIPIFERA FOL. IN MEDIO AUREO PICTIS.—New effective variety, the leaves being adorned in the centre with a large yellow spot; 2-yr. grafts, 2 feet high, and cultivated in pots, 6*s.* each; £2 10*s.* per dozen.

LOMARIA CYCADÆFOLIA.—One of the most beautiful Tree Ferns. Strong stems, £2 4*s.* to £4 5*s.*; Seedlings of these ove, 2-yr. old, 10*s.* 6*d.* per dozen, or 25 for 18*s.*

Choice of the best NEW ROSES for 1869. — 23 varieties, vigorous plants, grafted on Manetti, £2 7*s.*; grafted on Wild Roses and Briars, Half Standards, 3½ to 4 feet, 23 varieties for £3 10*s.* For names and full description of these New Roses, see H. L.'s Catalogue, pp. 33, 34.

H. LAURENTIUS'S NEW CATALOGUE (228 pages), containing all the Novelties of the season, and many other valuable and Rare Plants, may be had Gratis and Post Free on application to his Agents,

MESSRS. BETHAM AND BLACKITH, COX'S QUAY, LOWER THAMES STREET, LONDON, E.C.

Verbenas, 5s. per 100; 40s. per 1000.

WILLIAM BADMAN has to offer as under:—VERBENAS, Purple, White, Scarlet, Rose, Crimson, &c.; strong plants from store pots, 5s. per 100; 40s. per 1000.

LOBELIA SPECIOSA (true) from cuttings, 5s. p. 100; 40s. p. 1000.

PELARGONIUM CRYSTAL PALACE GEM, the finest golden leaf in cultivation, in small pots, 4s. per doz. 6 Finest Double Geraniums, including MADAME LEMOINE, 10s. Package included. Terms cash.

Cemetery Nursery, Gravesend.

New Plant.

MR. WILLIAM BULL is now sending out the beautiful

LASIANDRA MACRANTHA.

The flowers of this plant are truly marvellous, 1½ foot in circumference; are produced nearly throughout the year, and on plants when only an inch or two high. Some blooms of it were sent at Christmas to the Editor of the *Gardeners' Chronicle*, and the following remarks were made in the columns of that Journal, January 2, 1869:—

"We have before us fine blooming specimens of the noble Lasiandra macrantha, sent us by Mr. BULL, which shows that the flowers of this grand plant may be had in winter as well as in summer, which is an additional recommendation. Notwithstanding what may seem to be an unfavourable season, the blossoms are even now nearly five inches across, and are of the richest violet-blue, a tint which has not been reproduced in any of the illustrations which have yet appeared."

A DESCRIPTIVE CATALOGUE of other NEW PLANTS, just published, post free.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

Bedding Plants. Bedding Plants.

JAMES HOLDER can supply strong Plants of the following:—Scarlet and Variegated GERANIUMS, CALCEOLARIAS, VERBENAS, FUCHSIAS, DAHLIAS, CUPHEAS, HELIOTROPES, LOBELIAS, COLEUS, IRESINES, &c., &c.

Eight Dozen for 20s., or Four Dozen for 10s. 6d. Hamper and packing included. Crown Nursery, Reading.

Bedding Plants.

D. S. THOMSON has a quantity of the following varieties, which he can offer on reasonable terms, such as—GERANIUMS, Tom Thumb, scarlet; Christine, pink; Madame Vaucher, white; Bijou, Flower of the Day, and Flower of Spring. Also, LOBELIAS, and other varieties of Bedding Plants, all well hardened off, and in good condition for Bedding-out. Price on application. Nurseries, Wimbledon, Surrey, S.W.

Cheap Bedding Plants, from 2s. per dozen.

J. SCOTT, Merriott, Somerset, has to offer the above, selected by purchasers from his Catalogue, which will be sent free to all applicants.

J. S. also offers the following, his selection, viz.:—100 GERANIUMS, sorted; 100 VERBENAS, do.; 100 CALCEOLARIAS, do.; 300 Mixed plants, do., including the NEW COLEUS of the Horticultural Society, at 12s. per 100, or half at 13s. per 100.

One Hundred Thousand Bedding Plants.

THOMAS PERKINS has great pleasure in offering the following, all strong, well established Plants, turned out of single pots, at 2s. per doz.:—VARIEGATED, SCARLET, ZONAL, and other GERANIUMS; CALCEOLARIAS, Verbenas, Heliotropes, Lobelias, Salvias, variegated Alyssum, Gazanias, Petunias, Perilla nankinensis, Pentstemons, Nierembergias, Ageratums, Golden Feather, Musk, &c. DESCRIPTIVE PRICED CATALOGUES post free on application to

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Hardy and other Bedding Plants.

ROBERT PARKER begs to offer the under-named, all of which can be supplied in strong, healthy plants:—

	Per doz.—s. d.		Per doz.—s. d.
Dactylis glomerata elegantissima	4 0	Pansy, Cliveden Purple ..	3 0
Echeveria metallica, 6s. to	30 0	,, ,, Yellow ..	3 0
,, pumila ..	9 0	,, Great Eastern ..	3 0
,, secunda glauca	9 0	,, Imperial Blue ..	18 0
Lithospermum prostratum (fruticosum)	9 0	Sempervivum californicum	4 0
Pansy, Cliveden Blue ..	3 0	Tritoma grandis	12 0
		,, uvaria glaucescens	9 0
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Special quotations may be had, if required, for the above, and many other kinds, by the 100, or in larger quantities.

Exotic Nursery, Tooting, Surrey, S.W.

CROYDON. A. HENDERSON & SON. EAST SURREY SEED WAREHOUSE. ESTABLISHED 1828.

Bedding Plants.

ARCHD. HENDERSON'S DESCRIPTIVE and PRICED CATALOGUE of BEDDING PLANTS is now ready, containing all the novelties of the past two years. The Stock is in fine condition; for extent and vigour unsurpassed.

Purchasers are respectfully invited to inspect the Stock at Sion Nursery, Whitehorse Road, Croydon.

Special offers will be made for large quantities.

Catalogues to be had gratis, and post free on application.

BEDDING PLANTS.—The following are offered at the prices annexed, turned out of pots, and securely packed—no charge for package:—

AGERATUM PRINCE ALFRED, the dwarfest and deepest blue out, 2s. per dozen.

ALTERNANTHERA PARONYCHIOIDES and SPATHULATA, 2s. per dozen.

IRESINE HERBSTII and AUREO-RETICULATA, 1s. 6d. per doz.

PYRETHRUM PRINCE ARTHUR, the dwarfest and best double variety out, 2s. per dozen.

PYRETHRUM GOLDEN FEATHER, 2s. per dozen.

LOBELIAS—Blue King, Queen of Whites, White Lady, and Little Gem, 1s. 6d. per dozen.

VIOLA CORNUTA ALBA, fine pure white, 2s. per dozen.

COLEUS VERSCHAFFELTII, GIBSONI, and other fine Bedding varieties, 2s. per dozen.

VERBENAS, the best varieties of kind, 2s. per dozen.

FUCHSIAS, fine varieties of kind, 1s. per dozen.

HELIOTROPIUMS and LANTANAS, for Bedding purposes, 2s. per [doz.

ZONAL GERANIUMS, of various shades of colour, for mixed beds, named, 2s. per dozen; unnamed, 2s. per dozen.

From B. W. KNIGHT, Florist, Battle, Sussex.

West of England Bedding Plant Establishment.

BEDDING PLANTS.

THOMAS SAMPSON, The Preston Road and Houndstone Nurseries, Yeovil, Somerset, is now prepared to send out his unrivalled Collections of BEDDING PLANTS, for quantity, quality and cheapness by far exceeding any other Establishment in the County of Somerset or the West of England. T. S. flatters himself on having added to his already well-known Collection all the really good and choice things in each variety, and offers the same at prices that cannot be undersold. Catalogues free on application.

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No. 1 Collection.—25 dozen plants, basket and packing included £2 2 0

No. 2 Collection.—15 dozen plants, ditto 1 5 0

No. 3 Collection.—10 dozen plants, ditto 0 18 0

No. 4 Collection.—5 dozen plants, ditto 0 10 0

Orders sent out in rotation.

PETER DRUMMOND, Manager.

GOLDEN CHAMPION GRAPE.

We are now able to supply strong Plants of the above-named remarkable GRAPE, suitable for inarching on the young wood of established Vines, by which means fruit may be obtained next season.

Price 30s. each.

OSBORN AND SONS, FULHAM NURSERY, LONDON, S.W.

MYOSOTIS DISSITIFLORA, TRUE.

"The best of all the Forget-Me-Nots for Spring decoration. In many Gardens it is known as montana, or alpestris, from both of which it differs."—*See Gardeners' Chronicle, May* 22, 1869.

We shall be prepared to send out Plants the middle of June of the above-named charming Spring Flower, identical with that grown by Mr. Fish, and which is so truly described by him in the *Gardeners' Chronicle*, May 8, 1869.

Price 9s. per dozen, or 60s. per 100.

OSBORN AND SONS, FULHAM NURSERY, LONDON, S.W.

SUTTONS' NEW AND UNADULTERATED SEEDS.

SEEDSMEN BY APPOINTMENT. Sutton AND Sons.

STAND 187.

SOUTHAMPTON MEETING

OF THE

BATH AND WEST OF ENGLAND SOCIETY

AND

SOUTHERN COUNTIES ASSOCIATION.

SEEDSMEN BY APPOINTMENT. Sutton AND Sons.

SUTTONS' GRASS SEEDS FOR ALL SOILS.

SUTTONS' HOME-GROWN TURNIP SEEDS FOR PRESENT SOWING, &c.

SUTTON AND SONS, SEEDSMEN to the QUEEN, Reading, Berks, invite inspection of their STAND, in the Show Yard, containing a general Collection of AGRICULTURAL and HORTICULTURAL PRODUCE, including

GRASSES in their GROWING STATE. | FINEST SAMPLES of GRASS SEEDS.

SELECTED STOCKS of SWEDISH and other TURNIPS for PRESENT SOWING.

Orders will be received at the Stand at very moderate prices, and despatched the following day from Reading, Carriage Free, except very small parcels.

SUTTON AND SONS, ROYAL BERKS SEED ESTABLISHMENT, READING.

NEW PLANTS FOR 1869.

JAMES VEITCH & SONS

BEG TO ANNOUNCE THAT THEY ARE

NOW SENDING OUT THEIR SPLENDID NOVELTIES.

AMPELOPSIS JAPONICA, price 7*s.* 6*d.* each.

BEGONIA ROSÆFLORA, price, good plants, 10*s.* 6*d.* each; extra strong plants, 21*s.* each.

CROTON (CODLÆUM) AUCUBÆFOLIUM, price 21*s.* each.

CROTON (CODLÆUM) HILLIANUM, price 21*s.* each.

CROTON (CODLÆUM) MAXIMUM, price 42*s.* each.

DAVALLIA HEMIPTERA, price 10*s.* 6*d.* each.

DRACÆNA MACLEAYI, price 42*s.* each.

DRACÆNA NIGRO-RUBRA, price 21*s.* each.

DIPLADENIA (ECHITES) BOLIVIENSIS, price 15*s.* each.

ERANTHEMUM ASPERSUM, price 7*s.* 6*d.* each.

HEDAROMA (DARWINIA) FIMBRIATA, price, good plants, 15*s.*; a few stronger plants, 31*s.* 6*d.* each.

MARANTA (CALATHEA) TUBISPATHA, price 21*s.* each.

RHODODENDRON HENRYANUM, price 10*s.* 6*d.* each.

THIBAUDIA ACUMINATA, price 10*s.* 6*d.* each.

NEW ORCHIDS FOR 1869,

INTRODUCED DIRECT FROM THEIR NATIVE HABITATS BY MESSRS. VEITCH AND SONS.

ANGRÆCUM FALCATUM, price 21*s.* to 42*s.* each.

CŒLOGYNE (PLEIONE) REICHENBACHIANA, price 42*s.* each.

DENDROBIUM CRASSINODA, price 63*s.* to 105*s.* each.

DENDROBIUM MACROPHYLLUM HUTTONI, price, good plants, 105*s.*; strong plants, 147*s.*

MASDEVALLIA VEITCHIANA. Prices on application.

VANDA INSIGNIS (TRUE). Prices on application.

For full descriptions, see *Gardeners' Chronicle*, May 15, 1869, page 526.

A NEW ILLUSTRATED DESCRIPTIVE CATALOGUE of the above, and many NOVELTIES sent out by other houses, will be forwarded free on application.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, S.W.

Roses in Pots.

PAUL AND SON have now ready for immediate planting several thousands of ROSES in Pots, new and old. Their List marks those varieties of 1869 they have seen and recommend, and best Bedding Roses. Prices are as under:—

ROSES, New, of 1869, 36s. per doz.; New, of 1868, 18s. to 24s. p. doz.
BEDDING ROSES, on own roots, 12s. per doz.; 75s. per 100.
Extra-sized PLANTS, with several blooms, 30s. per doz.
TEA-SCENTED ROSES for present season planting, 18s. per doz.
STANDARD ROSES, in pots, 30s. per doz.

The above are healthy fine Plants.

PAUL & SON invite an inspection of their Roses in pots, and Tea-Rose House, now in bloom. The Hardy Deciduous Trees are now also interesting.

The Old Nurseries, Cheshunt, N.

New Chrysanthemums, Pyrethrums, &c.

JOHN SALTER AND SON beg to announce that they are now sending out their NEW JAPANESE and other CHRYSANTHEMUMS, PYRETHRUMS, &c. A DESCRIPTIVE CATALOGUE will be forwarded on receipt of two postage stamps.

Versailles Nursery, William Street, Vale Place, Hammersmith, W. (near Kensington Railway Station).

Spring Catalogue of New Plants for 1869.

JOHN AND CHARLES LEE'S CATALOGUE of SOFT-WOODED PLANTS is just published, and may be had post free on application. It contains accurate descriptions and prices of all the New Double Pelargoniums for 1869, New Zonals, New Tricolors, New Nosegays, New Gloxinias, New Coleus, New Chrysanthemums, and New Bedding Plants.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, W.

J. HOUSE, Eastgate Nursery, Peterborough, has a large stock of the following, which cannot be surpassed by any in the country:—

GERANIUMS.—Mrs. Pollock, strong, in 32-size pots, 10s. per doz.; autumn-struck plants, 40s. per 100; spring-struck, 25s. per 100. Crystal Palace Gem, in 32-size pots, 8s. per dozen; autumn-struck plants, 30s. per 100; spring-struck, 20s. per 100.

PYRETHRUM GOLD FEATHER, 1s. to 2s. per doz., 8s. and 16s. per 100. VERBENAS, 10s. and 15s. per 100. HOLLYHOCKS, Seedlings, 2s. per dozen; named sorts, 4s. to 6s. per dozen.

VARIEGATED PELARGONIUMS.

Louise Smith	Sophia Cusack	Moire Antique
Edwinia Fitzpatrick	Madeline Schiller	Lady of Shalot
Caroline Longfield	Light and Shadow	Lady Callum
Beauty of Calderdale	Glen Eyre Beauty	Lurline

15s.

CASBON & SON, Gravel Walk Nursery, Peterborough.

Bicolor Pelargoniums.

T. L. MAYOS invites the special attention of the Trade and other purchasers to his extensive stock of BRONZE and GOLD PELARGONIUMS, JAPANESE and CHINESE CHRYSANTHEMUMS, FUCHSIAS, and other plants, at the lowest prices yet quoted for cash. Extras thrown in against carriage.

DESCRIPTIVE CATALOGUES free on receipt of one stamp.

Lugwardine, Hereford.—May 25.

The best Gold-leaved Pelargoniums of the Season are Golden Emperor and Golden Queen.

SALTMARSH AND SON are now sending out the above splendid varieties, in strong established plants, at 10s. 6d. each, with the usual discount to the Trade. They were awarded the 1st and 2d Prizes respectively in the Gold-leaved Class at the Royal Horticultural Society's Special Pelargonium Show in June last. For further particulars see previous Advertisements.

Moulsham Nurseries, Chelmsford.

New Tricolor and Bicolor Geraniums.

F. AND A. SMITH are now sending out their new varieties of the above, amongst them the following sterling novelties:—

GOLDEN TRICOLORS.—Achievement, Coronet, Resplendent, Shakespeare, Sultan, &c.
SILVER TRICOLORS.—Exquisite, Miss B. Coutts, Sparkler, &c.
BICOLORS.—Arab, Criterion, Goldfinder, Sybil, &c.
ZONALS.—Acme, Flamingo, Lord Stanley, &c.

The NEW CATALOGUE, containing full descriptions of the above and other splendid novelties, is now ready, and may be had on application. The Nurseries, West Dulwich, S.E.

Cheap Tricolor Geraniums.

ALFRED FRYER offers 50,000 fine Plants, at the following low prices for cash. Package free.

LADY CULLUM, 13s., 18s., and 21s. per dozen.
SOPHIE DUMARESQUE, 7s., 10s., and 13s. per dozen.
SUNSET, 5s., 6s., and 7s. per dozen.
MRS. POLLOCK, 3s. 6d., 5s., and 6s. per dozen.
MRS. BENYON, 5s., 6s., and 7s. per dozen.

Remittance requested from unknown correspondents.

Address, ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

First Prize Bronze Pelargoniums.

DOWNIE, LAIRD, AND LAING have great pleasure in announcing that they are now sending out the following unrivalled sorts, which were awarded the First Prize at the Special Show, South Kensington, May 22, viz., BLACK KNIGHT, 10s. 6d.; CROWN PRINCE, 21s.; MRS. ALAN LOUNDES, 15s.; PRIMA DONNA (Morris), 15s.; RED RING, 15s.; and STANSTEAD BEAUTY, 10s. 6d. Also, Nosegays, R. K. BOWLEY, 7s. 6d., and KENTISH FIRE, 5s.—two splendid varieties. Drawings of Crown Prince and R. K. Bowley free by post for 18 stamps.

We regret we cannot supply any more Harrison Weir till September next.

Forest Hill, London; and Edinburgh.

Tricolor Pelargoniums.

J. WATSON, New Zealand Nursery, St. Alban's, begs leave to offer his two beautiful TRICOLOR PELARGONIUMS, MISS WATSON and MRS. DIX, unrivalled for freedom of growth and beauty of colouring, in good plants, 5s. each; also, PRINCESS CLOTILDE, 5s. each, or the three for 13s. 6d. Miss Watson and Mrs. Dix have received 17 First-class Certificates and Extra Prizes from the leading Horticultural Societies of the kingdom. Early orders solicited.

GERANIUM, GLOIRE DE NANCY (fine double), good plants, 12 for 5s., 25 for 10s., 50 for 18s., package free.

GERANIUMS.—Nice plants of Sunset, Italia Unita, Attraction, Beauty of Oulton, Circlet, Burning Bush, Countess of Warwick, Golden Chain, Golden Fleece, Kenilworth, Mrs. Lennox, Mrs. Lonfield, Mrs. Milford, Queen of Queens, Stella variegata. Purchasers' selection, 4s. per dozen, package free.

DAHLIAS, good named varieties, 50 for 12s. 6d., package free.

H. & R. SHEZAKER, Skerton Nurseries, Lancaster.

New Tricolor Pelargoniums for 1869.

JOHN AND CHARLES LEE intend to send out in June, 1869, the two following fine NEW TRICOLOR PELARGONIUMS, which they can warrant to be of strong constitution, rapid growth, and brilliant colours. Mrs. John Clutton was raised from seed in the autumn of 1867, and will consequently not be two years old when sent out.

MRS. JOHN CLUTTON is a Silver Tricolor of a very striking and pleasing character, the broad bright crimson zone being well defined, and the white edge clear and distinct, with a good deep green centre. The habit is dwarf and very free, and is all that can be desired in a Silver Tricolor.

The First Prize was awarded to Mrs. John Clutton at the Special Pelargonium Show at South Kensington in June last, and a First-class Certificate was awarded to it by the Floral Committee of the Royal Horticultural Society.

EDWARD MILNER.—A beautiful Golden Tricolor, of robust habit and free growth. The centre of the leaf is bright green; the zone is a bright flame colour on black, and the margin clear gold. All the colours are clean and well defined, and are retained till the decay of the leaves. The glow of colouring in Edward Milner gives the plant a rich and distinct character.

Price 15s. each. Four plants will be sent for three ordered.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

ROYAL HORTICULTURAL SOCIETY.—

SPECIAL PRIZE and PELARGONIUM SHOW, May 22.

AWARDS of the JUDGES.

PRIZES OFFERED BY HIS GRACE THE PRESIDENT.

CLASS 1.—9 GREENHOUSE AZALEAS in Bloom. (Open.)

1st Prize, Messrs. S. Glendinning & Sons, Nurserymen, Chiswick, W.
Extra, Messrs. J. & C. Lee, Royal Vineyard Nursery, Hammersmith
Extra, Mr. A. Wilkie, Gr., Addison Road, Kensington, W.

CLASS 2.—9 ROSES in Pots in Bloom. (Open.)

1st, Mr. C. Turner, Royal Nurseries, Slough.
Extra, Mr. W. Paul, Paul's Nurseries, Waltham Cross.
Extra, Messrs. Paul & Son, Old Nurseries, Cheshunt.

CLASS 3.—6 Double-flowered Zonal PELARGONIUMS, not fewer than 3 kinds, in Bloom. (Open.)

1st, Messrs. J. Standish & Co., Royal Nursery, Ascot.

PRIZES GIVEN BY THE SOCIETY.

CLASS 4.—6 NEW PLANTS sent out in 1867 or 1868. (Open.)

1st, Messrs. J. Veitch & Sons, Royal Exotic Nursery, Chelsea, Silver Flora Medal.
2d, Messrs. J. Veitch & Sons, Bronze Flora Medal.

CLASS 5.—6 NEW PLANTS sent out in 1869. (Open.)

1st, Messrs. J. Veitch & Sons, Silver Flora Medal.
2d, Messrs. J. Veitch & Sons, Bronze Flora Medal.

CLASS 6.—NEW PLANT, shown for the first time in Flower in Great Britain. (Open.)

1st, Messrs. J. Veitch & Sons, for Dendrobium Jamesianum, Silver Flora Medal.

CLASS 7.—NEW FOLIAGE PLANT, shown for the first time in Great Britain. (Open.)

1st, Messrs. J. Veitch & Sons, for Croton Hookerianum, Silver Flora Medal.
2d, Messrs. J. Veitch & Sons, for Dracæna magnifica, Bronze Flora Medal.

CLASS 8.—NEW GARDEN SEEDLING, of any kind, in Flower. (Open).

1st, Messrs. J. Veitch & Sons, for Rhododendron "Lady Rolle," Silver Flora Medal.
2d, Mr. J. W. Wimsett, Ashburnham Park Nursery, King's Road, Chelsea, for Pelargonium (Ivy-leaved) "Willsii rosea," Bronze Flora Medal.

CLASS 9.—Group of FOLIAGE and FLOWERING PLANTS, 3 of each. (Open.)

1st, Mr. C. Turner, £5.
2d, Messrs. S. Glendinning & Sons, £3.

CLASS 10.—6 STOVE and GREENHOUSE PLANTS, distinct, in Flower, in 12-inch pots. (Open.)

1st, Mr. G. Wheeler, Gr. to Sir F. H. Goldsmid, Bart., M.P., St. John's Lodge, Regent's Park, N.W., £5.
2d, Mr. A. Wilkie, £3.

CLASS 13.—1 Golden Variegated Zonal (Tricolor) PELARGONIUM. (Open.)

1st, Messrs. E. G. Henderson & Son, Nurserymen, St. John's Wood, "Peter Grieve," 15s.
2d, Messrs. J. Carter & Co., Nurserymen, Forest Hill, "Prince of Wales," 10s.
Equal, Mr. C. Turner, Nurseryman, "Mrs. Headley," 10s.
3d, Mr. C. Turner, Nurseryman, "Achievement," 5s.

CLASS 14.—1 Silver Variegated Zonal (Tricolor) PELARGONIUM. (Open.)

1st, Mr. C. Turner, Nurseryman, "Excellent," 15s.
2d, Mr. C. Turner, Nurseryman, "Lady B. Bridget," 10s.
3d, Mr. J. Coomber, Gr. to Lieut.-Col. Wilkinson, Fitzroy Park, Highgate, "Mrs. Col. Wilkinson," 5s.

CLASS 15.—1 Gold and Bronze Zonal (Bicolor) PELARGONIUM, (Open.)

1st, Messrs. Downie, Laird & Laing, Nurserymen, Forest Hill, "J. W. Morris," 15s.
2d, Messrs. Downie, Laird & Laing, Nurserymen, Forest Hill, "Red Ring," 10s.
3d, Messrs. Downie, Laird & Laing, Nurserymen, Forest Hill, "Empress Eugénie," 5s.

CLASS 16.—1 Golden-leaved (Self) PELARGONIUM (Open).

1st, Mr. C. Turner, "Pillar of Gold," 15s.
2d, Messrs. J. & C. Lee, "Golden Nugget," 10s.
3d, Mr. C. Turner, "Carrie Fowler," 5s.

CLASS 17.—1 Silver-edged PELARGONIUM. (Open.)

1st, Mr. C. Turner, "Bright Star," 15s.
2d, Mr. C. Turner, "May Queen," 10s.
3d, Mr. C. Turner, "Mrs. Cutler," 5s.

CLASS 18.—1 Ivy-leaved PELARGONIUM in Bloom. (Open.)

1st, Mr. J. W. Wimsett, "Willsii rosea," 15s.
2d, Mr. J. Stevens, "L'Elegante," 10s.

CLASS 19.—1 Nosegay PELARGONIUM in Bloom. (Open.)

1st, Messrs. Downie & Co., "Fire King," 15s.

CLASS 20.—1 Zonal PELARGONIUM, in Bloom. (Open.)

1st, Messrs. F. & A. Smith, "Acme," 15s.
2d, Mr. G. Smith, "Ruby," 10s.
3d, Messrs. F. & A. Smith, 5s.

CLASS 21.—6 Golden Variegated Zonal (Tricolor) PELARGONIUMS, distinct. (Open.)

1st, Messrs. J. Carter & Co., £2.
2d, Mr. C. Turner, £1 10s.
3d, Mr. J. Stevens, Ealing Terrace, Ealing, W., £1.

CLASS 22.—6 Silver Variegated Zonal (Tricolor) PELARGONIUMS, distinct. (Open.)

1st, Mr. C. Turner, £2.
2d, Messrs. E. G. Henderson, Nurserymen, St. John's Wood, £1 10s.
3d, Messrs. F. & A. Smith, Nurserymen, Dulwich, £1.

CLASS 23.—6 Gold and Bronze Zonal PELARGONIUMS, distinct. (Open.)

1st, Messrs. Downie, Laird & Laing, Nurserymen, Forest Hill, £2.
2d, Messrs. J. Carter & Co., £1 10s.
3d, Messrs. F. & A. Smith, £1.

CLASS 24.—12 Zonal PELARGONIUMS, distinct, of any class, having Ornamental Foliage. (Nurserymen.)

1st, Messrs. J. Carter & Co., £4.
2d, Mr. C. Turner, £3.
3d, Messrs. F. & A. Smith, £2.

CLASS 25.—6 Zonal PELARGONIUMS, distinct, of any class having ornamental foliage. (Amateurs.)

1st, Mr. J. Welch, Gr. to D. Rutter, Esq., Hillingdon, £2.
2d, Mr. H. Townsend, Gr. to J. E. Mappin, Esq., The Ferns, King's Road, Clapham Park, £1 10s.
3d, Mr. J. Janes, North Road, Highgate, £1.

CLASS 27.—6 Zonal PELARGONIUMS, distinct, in bloom. (Amateurs.)

3d, Mr. G. Wheeler, £1.

CLASS 28.—6 Nosegay PELARGONIUMS, distinct, in bloom. (Open.)

1st, Messrs. Downie, Laird & Laing, £2.

MISCELLANEOUS.—EXTRA PRIZES.

Mr. W. Bull, Nurseryman, Chelsea, for Collection of Plants, £2.
Mr. Williams, Nurseryman, Holloway, for Collection of Plants, £1 10s.
Messrs. Paul & Son, for Collection of Cut Roses, £1 5s.
Messrs. Paul & Son, for Collection of Roses in Pots, £1.
Mr. W. Paul, for Collection of Cut Roses, £1 5s.
Mr. W. Paul, for Collection of Cut Pelargoniums, £1.
Messrs. J. Salter & Son, Versailles Nursery, William Street, Hammersmith, for Collection of Ornamental Succulents and Hardy Variegated Plants, £1.

Echeveria metallica (Special Offer).

JAMES CARTER AND CO. beg to offer, in quantity, nice Seedling Plants of ECHEVERIA METALLICA, the singular and beautiful Shell Plant, very effective for Bedding purposes. Price per dozen, 6s.; per 100, 12s.; per 1000, £18.—Well-established plants, in small pots, with four to six leaves each. Larger, at usual Catalogue prices.

JAMES CARTER & Co., Seed Merchants and Nurserymen, 237 and 238, High Holborn, W.C.; and Crystal Palace Nurseries, Forest Hill, S.E.

Vines for Planting in a Growing State.

JOSEPH MEREDITH, The Vineyard Garston, near Liverpool, has now ready for Planting fine extra strong YOUNG VINES, with 3 to 4 feet of extra strong Wood of this season's growth. Intending planters of Vines will save a whole year, and prevent disappointment by planting between now and August next. Planting in a Growing State ensures success. Packed to travel any distance with safety.

DESCRIPTIVE CIRCULARS of MEREDITH'S VINE MANURE free on application.

Exhibition of American Plants.

ANTHONY WATERER begs to announce that the AMERICAN PLANTS at Knap Hill are NOW in PERFECTION. The Nursery is readily reached by Train from Waterloo to Woking, where capital conveyances may be obtained.

ANTHONY WATERER also invites inspection of his EXHIBITION in the HORTICULTURAL GARDENS, South Kensington, and at the CRYSTAL PALACE.

Knap Hill Nursery, Woking, Surrey.

New Golden Caladiums.

THE DIRECTORS of the CHISWICK GARDEN of the ROYAL HORTICULTURAL SOCIETY desire to apprise the GROWERS of NEW PLANTS, that they are willing to RECEIVE OFFERS for the PURCHASE of the above-named fine novelties, the beauty and constancy of which have never been fully proved. The Plants are in a well-developed condition, and may be seen, and further particulars obtained, on application to Mr. BARRON, at the Garden.—May 28.

July 19th to 24th, 1869.

THE ROYAL HORTICULTURAL SOCIETY'S GRAND EXHIBITION at MANCHESTER, in connection with the SHOW of the ROYAL AGRICULTURAL SOCIETY.

Amongst various Special Prizes,

A SILVER CUP (copy of the famous Cellini Cup), **VALUE £21** will be offered by the Proprietors of the GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE for the best COLLECTION of 5 FRUITS and 8 VEGETABLES, to be made up as follows.

In awarding the Prize, Marks will be adjudged according to the following scale, for the several subjects produced.

	Good.	Medium.	Inferior.
Grapes	6 marks	3 marks	1 mark
Melons (2 fruits)	6 ,,	3 ,,	1 ,,
Strawberries	3 ,,	2 ,,	1 ,,
Gooseberries	3 ,,	2 ,,	1 ,,
Currants	3 ,,	2 ,,	1 ,,
Cherries	3 ,,	2 ,,	1 ,,
Raspberries	3 ,,	2 ,,	1 ,,
Apples of 1868 (Any 5 of the above 8 subjects).	6 ,,	3 ,,	1 ,,
Peas	3 ,,	2 ,,	1 ,,
French Beans	3 ,,	2 ,,	1 ,,
Broad Beans	3 ,,	2 ,,	1 ,,
Cauliflowers	3 ,,	2 ,,	1 ,,
Cucumbers (brace)	3 ,,	2 ,,	1 ,,
Summer Cabbages	3 ,,	2 ,,	1 ,,
Early Carrots	3 ,,	2 ,,	1 ,,
Turnips	3 ,,	2 ,,	1 ,,
Globe Artichokes	3 ,,	2 ,,	1 ,,
Onions	3 ,,	2 ,,	1 ,,
Spinach	3 ,,	2 ,,	1 ,,
Rhubarb	3 ,,	2 ,,	1 ,,
Potatos	3 ,,	2 ,,	1 ,,
Mixed Salading (Any 8 of the above 11 subjects).	3 ,,	2 ,,	1 ,,

This Prize is open for Competition amongst Amateurs and Gardeners of private families. The Fruit and Vegetables produced must be of *the Exhibitor's own growing;* and any article otherwise obtained will disqualify the Collection. It is expected that the several articles will be neatly and effectively displayed.

The Gardeners' Chronicle.

SATURDAY, MAY 29, 1869.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, June 1—Royal Horticultural (Fruit and Floral Committees), at South Kensington .. 11 A.M.
Ditto (Scientific Committee) .. .. 1.30 P.M.
Ditto (General Meeting) .. .. .. 3 P.M.
WEDNESDAY, — 2 Royal Horticultural (Great Show of the
THURSDAY, — 3 Season), at South Kensington .. .. 2 P.M.

THE Horticultural Society of London, as is proved by its charter, was established to promote the science of cultivation, and the improvement of our gardens. To that end the periodical EXHIBITIONS of GARDEN PRODUCE were established nearly 40 years ago; and though the shows were small at the beginning, they have now assumed proportions which may truly be described as leviathan. True, however, to its charter, the Society has uniformly encouraged the cultivator rather than the collector; and those who, like ourselves, can trace the exhibitions back for the last quarter of a century, will see that the cultivator in the long run has always beaten the collector. We might give names to substantiate that fact, but the sudden manner in which exhibitors of large plants have appeared upon the field, and as suddenly disappeared, will illustrate what we mean. Money may make fine plants go together in a rather mysterious manner, but money never yet, except when backed by practical ability, made such gardening hold together for many years. We therefore consider the Council of the Society is perfectly justified in the course it is taking with regard to the exhibitions of future years. Large plants have certainly had their day as a leading feature, especially as too frequently they lack both novelty and variety. Look to the reports:—A. sends Hedaroma and Pimelea, B. contributes Pimelea and Hedaroma, and the same wearisome tautology runs through every class in the exhibition, while through the number

of plants in the leading classes being so limited there is really no variety at all. Who among the regular *habitués* of our shows has seen for the last 10 years a plant of Styphelia tubiflora? Where are the Podolobiums, Oxylobiums, and Pultenæas? What has become of the rare Chorozemas, Gompholobiums, Zichyas, and other climbing plants? Would not the bit of blue of Sollya linearis and Drummondii be acceptable? Has anybody seen any grand old plants of Gloriosa superba or Plantii? or, to descend still lower, what has become of the fine masses we used to see of Gardoquia Hookeri, and Lisianthus Russellianus? True, many of these were not all-the-year-round plants—that is, they would not serve for all the conflicts of a three-months' campaign, but the majority of them are brilliant gems, which, seen once properly grown, must be a joy for ever.

It is then to bring these neglected plants once more into cultivation, and to encourage the introduction of similar good plants, that the new movement of the Horticultural Society has been inaugurated, and as the means at present set forth are open to criticism, we think a few remarks upon the subject may be timely, and not out of place.

According to the advertised intentions it appears that prizes next year will be offered for various flowering and foliage plants grown in "12-inch" pots, by which, we believe, is meant pots not exceeding 12 inches. The limitation to one definite size might be correct enough for the mere class-showing of Azaleas, and some other plants, as no doubt by proper feeding with manure-water they may be kept in exhibitable condition for several years, but for general collections of stove and greenhouse plants, an absolute restriction to 12 inches would not answer, as no careful cultivator would like to remove or shift a plant before the proper time, into a 12-inch pot, for the sake of showing it, neither would it answer his purpose to give it a temporary shift for the day of show, and then put it back into the original pot. Such expedients will not do for delicate-rooted hard-wooded plants; therefore we are glad to know that there is to be limit, with license, as to the size of pot in which miscellaneous collections of plants are to be shown. Besides this, each collection must be of sufficient extent to give the desired variety of subjects. There are plenty of rare and difficult hard-wooded plants that may be shown in fine condition in 9-inch pots, and to remove these to 12-inch pots before the proper time would be certain destruction. Small pots do not necessarily imply small plants. In Pelargoniums the plants are quite as large as they were when larger pots were allowed; and much the same result may acrue from using smaller pots for hard-wooded plants. The growth of the latter class of plants under the proposed restrictions will be gradual, and by a proper system of stopping they may be made exceedingly bushy and attractive. There is, however, one difference between hard and soft-wooded plants which must not be lost sight of. The latter may be ripened off, cut back, shook out, and grown on again for years, and may start annually with renewed vigour; but with hard-wooded plants there can be no such renewal—once started the growth must be progressive until the maximum is attained, and when shook out, it must be at the rubbish heap. Therefore the plants must be allowed to grow on and on, and when a specimen gets too large for the limited collection, then it will pass into the final or large-pot section. In this way the cultivator would have encouragement to make the most of his plants; but if the attempt were made to restrict him to one uniform size of pot, the collections would at once be reduced to mediocrity. Such a proposition would be altogether impracticable. Heaths or Azaleas in pots not exceeding 12 inches in diameter may be all very well, but an arbitrary fixing of the size in the case of hard-wooded plants would not do at all.

With progressive potting and a 21-inch limit, we have not the slightest doubt plants may be just as well grown as they are at the present time, and of much superior quality. Of late the feeling has been to obtain size of plant, and for that object they have been allowed to grow almost without control. Thus, it is no uncommon thing to see such plants as Epacrises, Boronias, Heaths, Dracophyllums, &c., tied in in the most formal manner to wire cages. Even in the leading collections, plants such as we have enumerated may be found with sadly too much of this "facing" about them; and, fine as they may look while sheeted with bloom, they are but wretched skeletons when the flower has faded. A cramped Epacris or Boronia may be a fine example of floricultural "millinery," but no judge, we should hope, would allow such a plant, however large it may be, to compare with a free-growing, healthy young specimen, each branch a foot to 18 inches long, and a complete wreath of finely-coloured flowers. Size obtained at such a price has no merit in our eyes; and, if we cannot find good healthy foliage within a few inches of the main stem, the plants have few charms for us.

We are glad to find, therefore, that, in the interest of sound cultivation, the Council do not, as has been supposed by some of our correspondents, fix an arbitrary limit. The question of the future of plant growing is much too important to be passed over without due consideration. A false step now may push our exhibitions further into the background.

—— THE Russians seem determined that their character for munificent hospitality shall not suffer. We hear that the visitors to the ST. PETERSBURG EXHIBITION, whose inauguration we alluded to last week, have been imperially received in more senses than one. Three *déjeûners* in one day must have been a trial even for members of the Fruit Committee. It is significant of the difference between Continental Governments and our own, that while in this country and in Holland the reception of the guests was left to private individuals—to the people, as it were—in Belgium, and to a more marked degree in Russia, it is the Sovereign who crowns the hospitality of his subjects by his own courtesy. We refer to another column for details as to the Exhibition, and may remark that, although we have as yet received no official intimation of the fact, the *grand prix* has been awarded to M. A. VERSCHAFFELT of Ghent. Mr. WARNER and Messrs. VEITCH well sustain the honour of England; the former has been awarded no less than six medals—an honour which will recompense him for the extraordinary "pluck" which induced him, as an amateur, to convey so large a collection of valuable Orchids from Chelmsford to St. Petersburg. At the first meeting of the Congress, Professor FENZL of Vienna presided, supported by a goodly array of botanists, one from Tiflis even. The first subject treated of was the action of light on plants, a matter introduced by Professor MORREN, and discussed by MM. BORODINE, GOPPERT, LECOQ, ROSANOW, A. MURRAY, and others. At the second meeting of the Congress Dr. HOOKER was chosen, by ballot, as President of the meeting, and when the result was made known, the applause was, we are told, "*long et bruyant.*" At this meeting the question of the amelioration of cultivated plants was discussed by MM. JUHLKE, BRECH, and REGEL. M. ANDRÉ called attention to M. CARRIÈRE'S experiments on Radishes (see p. 415). M. WILKOMM then treated of some matters in Cryptogamic Botany, and M. ORPHANIDES called attention to the Flora of Greece as a source of supply for novelties and plants of great beauty for our gardens. We shall on another occasion allude to the further proceedings of the Congress.

—— We are glad to hear that the MANCHESTER NATIONAL SHOW has been again a financial success, though the weather during the holiday week was wretched, four days being wet. The following amounts were taken on the repective days:—

Friday, at 10*s.* 6*d.* each	.. ..	£95	10 0
Saturday, at 2*s.* 6*d.*	.. ..	426	0 0
Monday, at 1*s.*	.. .. ..	208	16 0
Tuesday, at 1*s.*	.. .. ..	100	14 0
Wednesday, at 1*s.*	.. .. ..	105	0 0
Thursday, at 1*s.*	.. .. ..	274	0 0
Friday, at 1*s.*	.. .. ..	292	15 0
Total	.. .. ..	£1502	15 0

In addition to these solid receipts, the Society, we are informed, secured a large extension of membership. The amount of prizes awarded was 770*l.* 9*s.* 6*d.*

—— We are glad to learn that, on the occasion of the ROYAL HORTICULTURAL SOCIETY'S GREAT SHOW AT MANCHESTER in July next, the London and North-Western, the Midland, and the Great Northern Railway Companies have severally agreed to return all plants sent for exhibition, free of charge, under the usual restrictions.

—— Something akin to consternation will be felt among horticulturists and naturalists at the mere mention of the severance of the connection between BARNES and BICTON. The glories of the place (frequently mentioned in our columns, and recently pourtrayed by our correspondent "F."), and which are so largely and in so special a manner due to Mr. BARNES, as well as the personal qualities of the man himself, will preserve the association in the minds of all lovers of the beautiful, the true, and the good. This association, and the knowledge that he possesses the sympathy and respect of all his compeers, will tend in some degree, let us hope, to soften the disappointment and sorrow that Mr. BARNES must feel in quitting a place with which he has for so long a time and so honourably been connected.

—— Lovers of the CALCEOLARIA will do well to pay an early visit to the show-house for that plant at Messrs. DOBSON'S nursery at Isleworth. Rarely, if ever, have we seen a finer display as regards colour and size of the flowers, while great improvement has been attained in the habit of the plants, now as dwarf as is desirable. There is one drawback to the culture of the plants, in the mysterious disease which attacks suddenly particular branches of particular plants, leaving the rest unaffected. Fortunately the disease is limited in its ravages, and does not impair the splendour of such a display as that of Messrs. DOBSON.

—— It will be seen by a reference to our advertising columns that the GOLDEN CALADIUMS, raised at Chiswick, are offered to the notice of those of the trade who are interested in the distribution of new plants. They are most effective plants for grouping with the ordinary green-leaved and dark-tinted kinds.

New Plants.

ADIANTUM DECORUM, *Moore, sp. n.*

Fronds triangular-ovate, glabrous, membranaceous, tri-sub-quadripinnate; pinnæ elongate ovate; pinnules small, various in form, the basal ones roundish and subequal, the intermediate rhomboid and oblique, the terminal ones cuneate, all stipitate and slightly but unequally lobate; sori 3—6 on each pinnule, rather large, roundish-reniform, with a more or less open sinus, one or two on each lobe; indusium membranaceous entire; stipes rather stout, and, as well as the rachides, shining and ebeneous.

This, we believe, will prove one of the most useful to cultivators of the several new species of Adiantum which, within the last few years, the Messrs. Veitch & Sons, of Chelsea, have introduced to our gardens. In its aspect it is suggestive both of A. concinnum and cuneatum, having in fact much the same outline of frond as the latter, and bearing pinnules of about the same size, only in this case they are more variable as to form; while in comparison with the former, there is the same tendency in the pinnules to overlie the main rachis, which is so strikingly seen in that plant, from which, however, the triangular, not elongate form of the frond quite separates it. The stout stipites and rachides, too, give to A. decorum a more erect habit than is met with in either of the plants above alluded to, and will render it especially useful as a decorative plant; for though stiffness may at first sight seem opposed to elegance, it is by no means so in this case, the small parts of the frond, and their pleasing arrangement securing all that is desirable on that head, while the stalks are just firm enough to hold the fronds fairly up to view, and to permit of the plants being handled and removed from place to place with less risk of damage than if they were of a weaker character.

Like several of the other species we have noticed, the plant is a native of Peru, and was sent home by the late Mr. Pearce. It has been exhibited before the Floral Committee, and gained a First-class Certificate in recognition of its special adaptability to decorative gardening. *T. M.*

THE PELARGONIUM CONGRESS.

THOUGH rather a high-sounding designation for an unpretentious meeting, the above is one which, since it has been used in reference thereto, we prefer to retain. It was a meeting most praiseworthy in its object, that of providing something interesting and instructive to occupy the waste time intervening between the "turning-out" and the "re-admission" of exhibitors on a show morning.

As a first meeting, that held on the 22d inst. at South Kensington, when the prize essays alluded to at p. 554, were read and discussed, was a satisfactory one. The Rev. Mr. Dix occupied the chair, and among those present were Rev. H. Dombrain, Dr. Masters, Dr. Denny, Messrs. F. T. Smith, Barron, Cannell, Groom, Laing, Grieve, Casbon, Ford, and others. It was announced that the prizes of 5*l.* and 2*l.*, which had been subscribed by the Royal Horticultural Society, and by gentlemen interested in the show, had been awarded to Mr. Grieve and Mr. Jonathan Smith.

After the formal business was concluded, Mr. Grieve proceeded to read his essay, which was as follows:—

On the History, Future Changes, Points of Merit, Cultivation, &c., of the Ornamental-foliaged Pelargoniums.

The Pelargoniums (which by some inexplicable perversity are better known as Geraniums) are mostly indigenous to the southern, while the true Geraniums are chiefly natives of the northern hemisphere. They are nearly all natives of the Cape of Good Hope; and Pelargonium zonale and inquinans, from which the ornamental-foliaged varieties have no doubt descended, appear to have been introduced into this country about the year 1710. It may not be possible to state the precise date when the first variegated variety of these plants appeared; but Sir Thomas More, Bart., in a work entitled "The Flower Garden Displayed," and dated 1734, mentions the bringing into England from the Paris gardens of a variety, the leaves of which were edged with cream colour, and which, he says, made a beautiful shrub amongst greenhouse plants. It is quite possible that this may have been the same variety as was afterwards known as Miller's Variegated Geranium. Previous to 1848 there were in cultivation two or three varieties of silver-margined Pelargoniums, apparently allied to the Nosegay section, the best and most useful of them being Mangles' Variegated. With this exception they were of little merit, and when, during the year 1847 or 1848, Mr. Kinghorn originated the variety called Flower of the Day, the first broad-petaled variegated Pelargonium which had been produced, it created quite a sensation among horticulturists. The late Mr. Donald Beaton, in writing upon the subject, said he had been told that before long another variety would appear which would make him "claw his head"—one whose foliage would contain no less than three distinct colours. It is possible that this prediction may have referred to the variety afterwards known as Attraction, which was produced by the same raiser, and was introduced to the public some two years after the advent of Flower of the Day. This variety was, I think, the first of the silver tricolors or silver variegated zonals.

I will now refer to the golden variegated zonals, or golden tricolors as some call them. Up to the year 1855, I think, no golden margined Pelargonium existed, with the exception of the well-known Golden Chain, and possibly one or two inferior sorts. It is not known how, when, or where Golden Chain originated, but it is probably a sport from P. inquinans. I have the authority of H. Turner, Esq., of Beech Hill, Bury St. Edmund's, for stating that a plant of this variety existed in the plant stoves of the Botanic Garden of that town as early as

the year 1822, and the plant looked at that time sufficiently venerable to have induced the belief that it had seen the close of the last century.

To the late Mr. D. Beaton is due in a great measure the credit of bringing this ornamental Pelargonium into notice as a bedding plant, and this he did with excellent effect in the famous gardens at Shrubland Park as early as the year 1847 or 1848. From about this time until the year 1855 gardeners, professional and amateur, appeared to be quite satisfied (as they well might be) with the neat and ornamental foliaged Golden Chain for bedding out, and other decorative purposes in the flower garden, &c. It is just possible that this state of contentment might have lasted for some time longer, had not a certain "restless individual," observing the great advances which had been made in the improvement of the silver-margined sorts (and to which improvement he had in some degree contributed), fancied that something similar might also be effected with the golden-margined variety. Accordingly, a cross was effected between Golden Chain and a heavily zoned green-leaved sort, which was known by the name of Cottage Maid. The two best of this batch of seedlings had the honour to be named Golden Tom Thumb, and Golden Cerise Unique. Again, employing the last-named varieties, chiefly as pollen parents, and using a strong-growing zonal seedling, afterwards named Emperor of the French, as the seed-bearer, Gold Pheasant was produced; and a union between this variety and the Emperor of the French produced the celebrated Mrs. Pollock, and also Sunset. It will thus be seen that the work was, and will no doubt continue to be, progressive in its development.

It may be necessary to notice the advent of another distinct race or section of ornamental-foliaged Pelargoniums, which are variously known as "bronze zonals," "bicolors," &c. They possibly owe their distinctive character to a similar cause to that which produced the variegated varieties, viz., abstraction [non-production] of chlorophyll, or green colouring-matter, from their foliage, but in this case the abstraction affects the entire surface of the leaf, and does not, as in the case of the variegated varieties, apply to the margins only. Although these plants are but of comparatively recent introduction, there is nevertheless some degree of uncertainty as to their origin. One thing, however, respecting them is certain, viz., that they had no existence previous to the introduction of the golden variegated zonals. If a batch of seedlings be raised between green zonals and golden variegated zonals, a percentage of bronze zonals will usually be obtained; and if seeds be saved from the latter, without artificial impregnation having been resorted to, about one half of the progeny will prove to be bronze zonals, and the remainder green zonals, with most probably not one variegated zonal amongst them.

It is difficult even to conjecture what may be the future of these varieties or tribes of ornamental-foliaged Pelargoniums. Some people go so far as to say that they have already reached their extreme limits, and that little if any further advance can be expected. I am scarcely prepared to submit to this dictum, as I certainly believe that there still exists considerable space for improvement. As has already been exemplified in their case, Nature evidently cannot be induced to take very wide strides as she pursues the path of improvement, but when fairly set in motion it is hard to say when or where she may be brought to a standstill. Moreover, in addition to the straight-forward march of improvement, which may still, I believe, be followed out with success, there are also probabilities of divergence from that path, in the form of sports or *lusus naturæ*, which may form the base or starting point of lines which may ultimately lead to new and desirable developments, distinct from, and possibly superior to, existing varieties. Without indulging in expectations of advantages likely to be secured from contingencies which may not occur, there is still, I repeat, abundance of room for progressive improvement in these interesting plants; and I earnestly beg to impress upon the raisers of them the necessity of resisting all inducements to introduce to the public varieties which are found upon trial not to be superior to sorts already known.

In a code of properties by which to judge of the merits of these plants, which appeared in the *Gardeners' Chronicle*, 1867, p. 515, and which was, I believe, from the pen of Mr. Thomas Moore, vigorous constitution is very properly, as I think, placed as the first desideratum, for this is certainly one of the most essential and necessary conditions to be desired. I will endeavour in as few words as possible to show how I consider this condition is most likely to be secured. It must of course be borne in mind that the presence of variegation has a natural and inevitable tendency to diminish vigour; consequently, something like a compromise must be made in order, as far as possible, to secure both desired conditions, viz., vigour, constitution, and variegated foliage. The best and most likely method of securing these qualities, so far as my observation goes, is to use, as the seed-bearing parent, a strong, vigorous, well-habited green zonal, in which the zone or horse-shoe is well defined; and if the green disc or centre exceeds one-half of the diameter of the leaf—that is, more than the combined zone and marginal belt—I consider this circumstance to be an advantage. Let such plants be fertilised with pollen taken from variegated varieties possessed of the most desirable properties, at the same time it must be remembered that it will be hopeless to attempt to fertilise them by pollen taken from very weakly sorts, even should they be possessed of every desirable property, vigour excepted. In such cases it is preferable to endeavour to secure in two, or even three generations, what evidently cannot be effected in one.

By pursuing the method I have recommended as regards the seed-bearing parent, it will be found that a less percentage of variegated seedlings will be secured than would have been the case had variegated sorts been made the seed-bearing parents; but one variegated seedling, so secured, will generally be found to be of more value in all respects than a much greater number produced from seed ripened upon variegated varieties. It may scarcely be necessary to allude to the propagation of these plants, this being so easily accomplished, and the matter, moreover, being so generally understood; but when they are required in very large quantities as bedding plants (a purpose for which they are so well adapted), it becomes desirable to know how to increase them with the greatest rapidity, and with the least possible loss of material, and on this account I would unhesitatingly recommend the practice of inserting the cuttings in the open border, for a less percentage of cuttings will be lost by this than by any other mode with which I am acquainted. One condition is, however, necessary, and that is that they must be put in not later than the first week in August; if done earlier, so much the better.

When it is intended to commence the culture of these plants in pots for decorative purposes, exhibition, &c., select some of the most promising from the autumn-struck cuttings, or, if they can be had, plants which occupied the flower-beds during the previous summer, and which were repotted in October. These should be shifted about the middle of February into pots one size larger than those they have been wintered in, and ought to be grown upon a stage as near to the glass as possible, and in a temperature not under 45°. They must be frequently turned round to expose all parts of the plant alike to the influence of solar light; and over-watering, as well as placing them in a cold draught, must be carefully avoided. The latter is exceedingly injurious to them, and on that account it is perhaps advisable not to admit air by the front lights during the winter months. Early in May most of the plants will require to be shifted into pots a size larger than that in which they have been wintered. Let the pots be quite clean, and allow ample drainage, using a somewhat rich soil composed principally of turfy loam, with the addition of a small portion of well rotted hotbed manure, or leaf mould. After this time, if intended for exhibition, they will generally be found to succeed best when grown in a cold pit, and kept as near to the glass as possible, and they must be gradually inured to exposure to full sunshine and moderate rainfall, protecting them of course from thunderstorms, hail, or prolonged rains. By the middle of June the plants so treated ought to become beautiful objects for exhibition, or for the decoration of the conservatory or drawing-room. It is not, however, to be expected that these plants will have already attained large dimensions, as it must be remembered that they are not yet 12 months old, but they ought to be dwarf compact plants, with highly coloured foliage, occupying 6-inch pots, and many prefer them to specimens of larger size. As, however, it is generally desirable to have a few larger specimens of these Pelargoniums, let the most promising plants be slightly cut back, and carefully wintered, and they will during the following summer form specimens of any desired dimensions.

These attractive and interesting Pelargonia have been hitherto principally regarded as suitable objects for exhibition, for the decoration of the conservatory, &c., and for summer bedding, and for all these purposes they are certainly admirably adapted. But an extended acquaintance with them has also revealed other properties, viz., their great value as objects for winter decoration. It is possible that a knowledge of this circumstance may have induced some raisers and growers of these plants to object to the practice of judging of the merits of all varieties in accordance with what they term the "bedding plant standard." But, on a second view, I think that there will be found to be less in this objection than may at first sight appear to be the case, and I confess that I am still inclined to adhere to this mode of testing and selecting varieties. I am unacquainted with any variety which succeeds well as a bedding plant—that is, a plant possessed of a sufficiently vigorous constitution to enable it to brave with impunity the vicissitudes of our climate during the summer months, or, in short, to thrive in the open air—which does not make a better pot plant for either summer or winter decoration than those varieties whose delicacy of constitution does not enable them to successfully withstand this ordeal. Where this debility or lack of constitutional vigour exists, no amount of cultural skill, or stimulants in the shape of soils or manures, will ever enable the variety to compete successfully with the more robust sorts. This being the case, it is very desirable that weakly varieties should not be introduced to the public.

It has been very frequently regretted that the delightful effect produced by the various tribes of bedding plants—and to which effect these ornamental-foliaged Pelargoniums have of late years in no small degree contributed—should be of so short a duration as only to be enjoyed for some four months out of the twelve. This fact must of course be admitted, but it is certainly some consolation to find that under the protecting influence of a glass structure the interesting development and beautiful leaf-tints of these charming Pelargoniums can be watched with equal, or it may be with increased interest, throughout the entire winter and spring. Any object, be it flowers or foliage, which tends to enliven the dreary and monotonous aspect of a garden or plant structure during the dull months of winter and early spring, must necessarily be very acceptable; and there are few recent introductions which go further towards supplying this desideratum than those ornamental-leaved Pelargoniums which, when judiciously interspersed with the ordinary inmates of the conservatory or greenhouse, tend to illuminate the entire structure, producing altogether a very pleasing effect.

These beautiful plants are no doubt exceedingly useful for the purposes I have just mentioned. Still it is in structures entirely devoted to the purpose of growing them as a collection that the most charming and unique effects are to be produced; and I confess myself sanguine enough to believe, that possibly the day is not very far distant when a "tricolor-house," if I may use the term, will be considered as an indispensable adjunct to every extensive horticultural establishment. Those who have had the pleasure of seeing a structure exclusively devoted to this particular purpose during the winter and spring months, and containing a well-assorted collection of these plants in healthy and vigorous condition, will, I think, be willing to admit that it is a sight to be seen once, and to be thought of and dreamt about for a long time afterwards.

It is necessary, however, to observe and adhere to a few simple conditions, in order to successfully cultivate those plants during the winter and early spring months, and these conditions I will endeavour as succinctly as possible to point out. In the first place, I will assume that it is the intention of the cultivator to devote a house or an erection of some sort exclusively to the accommodation of these plants during winter and early spring. This structure may be a lean-to, or, what is much better, a span-roofed erection of some sort. It may, of course, be of any desired dimensions, and it is by no means necessary that it should be lofty, but rather the reverse, as it is desirable that the plants should be so placed as to be to some extent looked down upon, otherwise their beauty will in part at least be concealed. I can conceive nothing better adapted to the purpose in view than a moderately low span-roofed erection, with the ends, if possible, facing north and south, and constructed upon as light and elegant a principle as is consistent with sufficient strength and security.

The principal path ought to be in the centre of the house, and of sufficient width to admit of comfort and freedom in attending to and examining the plants, as it necessarily detracts greatly from the pleasure to be derived from the contemplation of beautiful objects of nature or of art to be compelled to do so in a constrained or uneasy position, or in an atmosphere or temperature rendered uncomfortable by an excess of either heat or cold. The shelves on which the plants are to be placed should be on either side of the passage or pathway, at a height of some 2½ or not exceeding 3 feet above the level of the path. Ornamental brackets might with advantage be placed on any available spaces on which to place choice specimens, but I would not advise the placing of a shelf under the apex of the roof, as is sometimes done in structures similar to what I am recommending, as this throws an objectionable shade upon the principal shelves, and also detracts from the elegance of the structure itself. This structure ought to be provided with the necessary means of affording both the required temperature and thorough ventilation, and it might also be an advantage to have the means of applying shade when this was found to be desirable.

Preparations for furnishing such a house as I have endeavoured to describe with the necessary supply of suitable plants for winter and early spring decoration, ought to commence early during the previous spring, say about the middle of February or early in March, when a careful selection of plants should be made from the various suitable varieties which had been struck as cuttings during the previous autumn; and, if comparatively large specimens are also desired, let a selection be made at the same time from plants which had occupied the flower beds during the previous summer. Let all be shifted from the pots in which they may be growing into pots one size larger, and treated as regards soil, drainage, &c., in all respects as has been recommended in the earlier part of this paper. Early in the month of May following, they may be placed in cold pits, keeping them pretty near to the glass, and giving abundance of air when the weather is at all fine; and early in June, should the weather be favourable, they may be fully exposed night and day, having, however, the means of protection at hand should it at any time be required. Continue to give small shifts from time to time, as may be found necessary, up to the end of August, giving at the same time ample and efficient drainage. This condition is absolutely necessary in preparing these plants for winter decoration. It is also advisable to remove flower trusses as they appear, for their development tends to the exhaustion of the plants, and the desideratum in this case is the production of healthy and highly-coloured foliage, the effect of which is not enhanced by the presence of flowers. Use every possible means to keep the plants steadily progressing, and carefully avoid anything approaching a check, either from want of water or from any other cause. Regulate and train the shoots as may be required, in order to lay, as it were, the foundation of well-formed specimen plants; and when they have had what is intended to be their last shift for the season, some of the strongest shoots may, if it be found necessary, be tied, or in some way fastened to the rim of the pots, so that the use of stakes may be in a great measure dispensed with. Indeed, by judiciously selecting plants from varieties most suited for the purpose of winter decoration—viz., sorts known to possess a stiff, bushy, and compact habit of growth, and avoiding those of loose or straggling habit—very little staking will generally be required.

The soil to be used for the last, or final shift, ought to be composed principally of rich turfy loam, further enriched by about one-fifth part of well-rotted hotbed manure. Let this be well mixed and laid under cover sometime previous to being used, in order to become somewhat dry. When about to be used, sift out the fine portion of the soil, using for this purpose a quarter-inch sieve; reject the portion so sifted out, and add to the rougher portion (more or less, according to the quality of the loam used) some sharp sifted road drift, or silver sand. When the compost or prepared soil is sufficiently dry, and in a proper state to use, let the plants be potted, making the soil moderately firm; and in addition to ample drainage, which has already been insisted upon, it is advisable to introduce amongst the soil used a few pieces of charcoal about the size of walnuts, and this should more particularly be done in cases where anything approaching a large shift is intended.

Frequent repottings have been recommended, with a view to prevent any check to the progressive development of the plant, but over-potting must be carefully avoided; and as a final shift it will seldom be necessary to use pots exceeding 8, or, at most, 10 inches in diameter. Large specimens can be grown in pots not exceeding this size, and it is quite possible that well-grown plants in 6-inch pots will be found to be the most useful of any, being of convenient size for table decoration or similar purposes.

About the middle of September, or soon after that period, the plants ought to be placed in the house intended for their reception, and of course will require careful attention as to water, &c. The position of the plants ought to be occasionally varied, in order to keep them duly balanced. After this period avoid the frequent wetting of the foliage; or if it be found necessary occasionally to use the syringe, to remove dust or other accumulations, let it be done on the mornings of fine days, when air can be freely admitted to dry up the moisture before night sets in. Give during each day abundance of air when the state of the weather will admit of doing so, but always avoid placing the plants in a draught.

By careful treatment such as I have endeavoured to describe the plants will continue to progress steadily, and will, if the weather keeps moderately fine, require little or no artificial heat until about the last week in October. After this period, solar influence being rapidly diminishing, it will be advisable to use very moderate fires daily, more with the view of dispelling damp, and preventing a stagnant state of atmosphere, than to increase the temperature, which ought not, however, to be allowed to fall much under 55° as a minimum, or to exceed 60°, unaccompanied by abundance of air. In an earlier part of this paper 45° has been named as a minimum, but in that case the desired object was merely to preserve the plants in a state of health but of comparative inaction; whereas the desideratum in this case is vigorous though moderate progression. A high temperature, however, at this season, is by all means to be avoided, as tending to produce attenuation and deficiency of colour; while a cold and stagnant state of atmosphere, on the other hand, induces damp, disfigurement, and loss of foliage. By maintaining a temperature, &c., similar to what I have recommended, by the judicious admission of air whenever the external atmosphere will permit, and by a diminished supply of water during sunless weather, the plants will be induced to progress slowly, and continue to develop their beautiful leaf-tints, somewhat subdued in intensity, it is true, as compared with their more gorgeous midsummer array in the open air, but by no means less interestingly beautiful.

As regards the silver-margined section of variegated zonals, it is possibly only under such conditions as I have just described that their beauty is most strikingly developed, as when cultivated in the open air (especially should the weather prove in any degree cold or wet), their foliage is apt to become crumpled, from the contraction of the colourless margins, a circumstance which detracts greatly from their beauty; but under the protection of glass, this defect does not occur, and the foliage, on the contrary, maintains a perfectly flat or level surface, while in the many fine varieties of this section the well-defined and richly coloured zone comes out to great advantage.

Altogether I am inclined to think that the "tricolor-house" during the winter and spring months will be found to be one of the most enjoyable, as well as most interesting structures in a horticultural establishment, in consequence of the striking beauty of its inmates, their entire dissimilarity to all other ornamental plants, their ever-varying aspect, and the vast variety of shades of colour presented by their foliage, as developments succeed each other, and in some measure also in consequence of a circumstance too important to be by any means overlooked or lightly estimated, namely, that the temperature and atmosphere most favourable to their culture, and to the healthy development of their uniquely-ornamental foliage, is also precisely that most suited to the health and comfort of the majority of their cultivators and admirers. *P. Grieve, Culford.*

A discussion then ensued, in which Mr. Smith, of Dulwich, the Rev. H. Dombrain, Mr. Cannell, and other gentlemen took part. The subjects discussed were principally as to the best mode of culture, upon which point there was a general agreement, except in some slight matters of detail, with Mr. Grieve's remarks. For the most part the employment of manure was deprecated, although one of the speakers stated that he had been successful in developing rich colours by using sewage water. Mr. Smith, of Dulwich, considered 2 feet from the ground to be quite high enough for the stage for the plants to show them to the best advantage; and that the last shift should not be later than the first week in August, nor should the pots be large. The sap and colour were then concentrated, and the latter remained unchanged till January. He recommended the plants to be kept moving slowly in a temperature of from 50° to 55° till March, and when growth began, to shift not earlier than the end of February, or, better, the first or second week in March. The shifts might be large; he would not object to put a cutting in an 8 or 10-inch pot at once, provided care were used in watering. The best compost to pot them

in was the top spit of a turfy pasture, laid up for from six or nine months, chopped roughly, and used in a coarse state. He considered the best time for syringing to be between 3 and 4 P.M., when the weather was mild and dull, the sun having a disastrous effect on the wet foliage, and he would use a little fire-heat to dry the leaves. As to the comparative strength of the issue of green-leaved and variegated female parents, plants from the former were generally, but not always, the stronger; and those from the latter generally, but not always, the weaker. As regards future progress, he thought we should be able to obtain yellows yellower, higher-coloured zones, and blacks blacker, but he did not believe that we should be able to secure a striped-leaved variety. He had, moreover, found varieties raised from the same stock extremely variable, and he had at the present time 300 seedlings which were equal to Mrs. Pollock, that the public would never see. As to the form of leaf, Mr. Smith was not an advocate of formality, but urged that the natural form of the leaf should be taken as a guide; he preferred a slightly convex leaf, as the dust was more easily wiped off. Mr. Dombrain, on the other hand, upheld the florist's canon, and preferred a perfectly circular leaf. These and other matters depended very much upon whether the plants were intended for indoor or outdoor decoration. The very dark-zoned varieties were not suitable for the latter purpose. Some conversation arose as to the nomenclature in these varieties, and the general impression seemed to be that the terms "tricolor" and "bicolor" should be retained, even though not strictly accurate. Mr. Laing said, in answer to a question, that if too much red was introduced into the bicolors, the plants would not grow; and remarked that he did not consider that there was any difficulty in introducing colour into any of the varieties, providing the plants will bear seed. Mr. Smith asked if any of the gentlemen present had had any experience in raising seedlings that were crossed with the white-flowered sorts, such as Madame Vaucher, as he found that those raised from white-flowered varieties were deficient in constitution. Mr. Grieve said that he had observed the same effect, but added that he could obtain strong white-flowered kinds, by continuing the cross through three or four generations; and further remarked that yellow and white sports would not grow, if propagated by cuttings, though they would grow for a time on their own roots.

Some conversation then ensued as to the origin of the bronze zonal section. Mr. Smith said that he obtained his by crossing for tricolor varieties, and Mr. Laing stated that the first plant that he possessed of this race was the result of a cross between Mrs. Milford and a green-leaved variety; and that he believed that Mrs. Milford, which was said to have been raised by the Bishop of Winchester's gardener, was the first variety of the bronze zonal class that was introduced.

We shall print Mr. Smith's Essay next week.

A NEW VEGETABLE.

At a meeting of the Horticultural Society of Geneva, held in the Musée Roth, on December 16, 1868, Mr. Berger read a paper on the culture of what was to me, and most of the members present, an entirely new vegetable—the "Scolime d'Espagne."

The "Scolime" is cultivated largely in many parts of Spain, where it is esteemed a great luxury, as well as a profitable and wholesome vegetable. When growing it looks like a line of Thistles, only rather more handsome than the emblem of Scotland. The root somewhat resembles an ordinary-sized Altringham Carrot, but is white in colour. M. Berger brought a good basketful of the roots, which he distributed to any one who wished to taste them. I took four of them home, and next day had them cooked in the same way as we cook a Turnip or a Potato. With a little melted butter, the Scolime tasted like well blanched Seakale.

The mode of culture is the same as we practise for Carrots or Parsnips, except the time of sowing. The seed must not be sown before about June 15, or else it will bolt into flower, and the roots will be as tough as leather. By June 15 some of the earlier kitchen garden crops are generally cleared off the ground, and as the Scolime only takes four months to come to maturity, it will (as soon as it is better known) prove to be a valuable second crop. It is perfectly hardy, and keeps good for use from October till March. And being of easy culture, it will be a help (by way of a change) to gardeners with limited means of men and acres, who have to face an angry French cook during the winter months, with a list of vegetables so "limited" that he will tell you he can make no change in his "bill of fare."

Modern seed lists are now so long and ridiculous, that I am a little nervous in advising seed merchants to add one more name to them. Still I will, at the risk of being laughed at, advise adding the Scolime d'Espagne. Permit me here, *en passant*, to remark, that the fault of modern seed lists is not so much that of the seedsmen as of those who give orders. Twenty years ago I was a junior assistant in one of the largest seed businesses in London. My duties were to keep the shop clean, and mix the old Carrot seed with the new, &c. One morning an order came from a gardener for 12 sorts of early Peas. The proprietor was bewildered; but the manager of the garden seed department was equal to the occasion, and got over the difficulty by serving the 12 sorts out of a sack of Early Charltons.

If a modern seed-man now-a-days (with a first-class selected stock of seeds) sends out a modest autumn catalogue, he has little chance against another who sends out a catalogue, about the size of an old Scotch family Bible, containing the names of all kinds of rubbish, known and unknown, since the days when our first parents were happy in the garden of Eden. *John A. Watson, Campagne Lammermoor, Geneva, Switzerland.*

Home Correspondence.

Dendrobium Falconeri.—I mentioned incidentally, when writing upon Mr. Salt's Dendrobium, that orchidophilists were hard to advise, and "G. H.'s" utterances at p. 530 in some measure verify my statement. He evidently is dissatisfied with the estimate I formed of the plant under criticism, and, with what seems very like a sneer, introduces the word "precision;" and, after showing some anxiety to obtain a standard of growth, gratuitously drags in one of Mr. Salt's mechanics with a "pair of callipers" to give precise measurements for his satisfaction. Now, querists in search of information should not only show some tact, but a little politeness, if they desire to learn. I am therefore not surprised at the silence of a contemporary two years ago, if "G. H." put his questions in the same offensive way. I may state for the benefit of the general reader, that since I wrote at p. 501, I have seen Mr. Bateman's plant referred to, which is in excellent condition, and by-and-by will be in an admirable state of inflorescence; but with regard to the growth of Mr. Salt's plant, and any other that has come under cognisance, my published opinion remains unchanged. In corroboration of my remarks, I may here further state that at Mr. Mendel's I saw a plant growing in an East Indian, and another in a Cattleya house, the latter greatly eclipsing the former, and yet both, I was told, were started under as nearly equal conditions, physically, as is possible for the eye to estimate. *James Anderson.*—The ideas of Orchid-growers, with regard to the cultural treatment of this lovely plant, have been so long and so closely associated with the high temperature of the East Indian house, that it is not to be wondered at if some, to whom the idea is an entire novelty, are inclined to cavil at the mode of treatment recommended by Mr. Anderson, and suggested to him by the condition of the plants whose appearance pleased him so much when visiting here. In reply to the queries of "G. H.," and by way of supplementing Mr. Anderson's remarks, I beg to state that the temperature maintained in the Cattleya house, where the plants have been grown, ranged during the growing season from 60° to 65° by night, and from 70° to 75° by day, rising to 80° with sun-heat—being pretty nearly, I think, what is generally considered sufficient for that class of plants to which the house is chiefly devoted. Like almost all others who have attempted the cultivation of this Dendrobe, we have tried it in great heat and failed. In the beginning of last growing season all the plants were removed from the Cattleya house to the East Indian house, but the growths made there were so weak and unsatisfactory, that, after three or four weeks, they were returned to their old quarters, where the comparatively cool and very moist atmosphere soon showed its effects in the swelling of the nodes up to their former plump and robust condition. As showing how much cold it will bear, or rather how little heat it requires to grow in, I may mention that one of the smaller plants has been wintered in the Odontoglossum house where the temperature at night averaged from 45° to 50°, and yet it never entirely ceased growing, owing doubtless to the moisture contained in the atmosphere, and it is now in as fine condition as can be wished, though owing to want of thorough rest it has not flowered with the others. With regard to the plant particularly mentioned by Mr. Anderson as having been in Mr. Salt's collection for a considerable time, the chief difficulty has been to get it to rest, indeed it may be said never to have been completely at rest since it has been in Mr. Salt's possession, and for that reason has never flowered well. It is now in bloom, and while I write has 24 flowers, all nearly expanded, each measuring on an average 3½ inches across the expanded petals, measuring from tip to tip, with other parts in proportion, and though few in number their size and brilliant colouring render the plant a most beautiful object. Such is the condition of the plant which called forth Mr. Anderson's remarks, and the comments of "G. H.," who, if I understand him aright, seems to think that this, in common with the Dendrobes, will do as well, or better, in a Pine stove with the temperature sometimes at 120°. Now, although we all know that many Orchids, especially of the two families he instances, might, if necessity compelled, be treated according to his "key to Orchid growing," surely that is no reason why no attempt should be made to improve their circumstances, and, if possible, get them to grow better. Had Mr. Anderson met with D. Falconeri growing luxuriantly in a Pine stove, I am sure he would have been as ready to chronicle the fact as he was to recommend its cool treatment. If "G. H." will be induced to give a trial to the system which has proved thus far successful here, he will never have cause to regret the abundant use of evaporating pans; and I hope he may yet be led to confess that, whatever losses the free use of hot-water pipes have caused, in this case at least plenteous atmospheric moisture has little to answer for. *Jas. Lorimer, Gr., Ferniehurst.*

Myosotis dissitiflora.—Since writing my last notice of this charming plant in the *Gardeners' Chronicle*, I have been quite embarrassed with correspondence concerning it. As I cannot possibly give private replies to all the inquiries, I crave permission to give a general response through your columns. There is no question whatever but that my plant is the true dissitiflora, as my whole stock has been raised from cuttings from one plant. The specimens forwarded by me to Mr. Baker were so named by him, and my plants perfectly agree with the descriptions given at p. 600, 1868. So much at least is quite certain, that if it is not this, it is, if possible, something better. As to cultural directions, I have little to add to those given in the *Gardeners' Chronicle* for April 18, 1868, p. 406, under the heading of Myosotis alpestris. Incessant subdivision, and free growth on rich soil fully exposed to the sun, is the secret of healthy plants, and sheets of blossom. The plant exults in a rich diet, and generous treatment. No putting away in quiet places behind high walls will command success. In such positions it becomes the victim of mildew and other maladies. In favourable positions the old plants will live for several years. But none of them must be trusted to. If they bloom at all, they will bloom late and sparsely. The entire stock must be renewed every year by division or cuttings. If the former is adopted to any great extent, the pieces must be inserted so deep that new roots will be formed on the young stems, after the manner of layering; in fact, with single plants, layering is a good mode of increase. The plants should not be propagated in the ground where they are flowered, but in fresh positions. But then are they not, like other beauties, coy? Well, not here, although a certain percentage of them will generally prove stunted and worthless for the show ground, by growing weak and developing flowers of a puny size, and a pink colour, as pointed out by me at p. 406, 1868, and noticed by several of my correspondents. I know of no perfect remedy for this perverse tendency. I think I directed the attention of the Scientific Committee to it at the time, but they made no report. I should be glad if they would help us in this matter. Practically I get rid of the blots caused by this frailty in our favourite by growing the plants in one place, and flowering them in another. When transporting them to their final quarters all the weak and suspicious ones are left behind, and thus the display is formed of only perfect plants. I have never found a plant of the right hue and robustness of leaf in December or January ever fall back into the crippled state. A good deal has also been done to rid ourselves of this evil by careful selection and only increasing the healthy plants, so that our chief display has never been blotted in the manner of those so pathetically lamented by several correspondents. As regards seed, which some of my correspondents have asked to be supplied with, I may state that I have never yet succeeded in ripening any that proved sound. Generally, after flowering so profusely for three months, the plants have seemed so distressed that the seed-stems were cut over to renovate the roots and induce an up-growth of cuttings, but singularly enough those left to ripen have not grown well. I intend to grow some this year, somewhat differently, specially for seed, and will note the result. As to plants, I have forwarded a good many for botanical purposes, and likewise for comparing, but it is quite impossible for me to distribute plants to the south and the north, the east and the west, as requested; neither is it needful, for Messrs. Osborn, of the Fulham Nurseries, had some of my stock, all sprung from the one same plant, and will doubtless be prepared to aid in its distribution through the usual channels. I hope the many ladies and gentlemen and nurserymen who have written to me, and whose letters I may not have answered privately, will not consider me discourteous if I beg them to accept this as a reply to their interesting communications. *D. T. Fish, F.R.H.S.* [Messrs. Backhouse, of York, were the original introducers of the plant into commerce, and still possess it. Eds.]

What Sized Pot?—This question is deserving of the most careful consideration. I therefore desire to thank you for your two leaders upon the subject, and especially your second, which will allay any alarm in the minds of exhibitors that might have become excited by the first. Never was caution more needed than in making any such changes as those contemplated. Four parties at least are entitled to a hearing in the matter, viz., the various societies, the public at large, the exhibitors, and the jurors. As I can speak in each of these capacities I hope a few observations from me will neither be considered presumptuous nor superfluous. The public doubtless is prepossessed in favour of large plants. Of course there are many exceptions to this rule. The general public is familiar with the sight of small plants at home, and in the gardens of neighbours or nurserymen; but these huge specimens draw by their massiveness, and the wonder and excitement they create is astonishing. And while such continues to be the case no doubt the promoters and managers of flower shows will be found catering for the public taste, and satisfying it with big things. Neither can they be blamed for this, for, with the exception of some of our more important horticultural and botanical societies, who may be credited with promoting such shows for the advancement of science or the improvement of practice, doubtless the majority of societies are influenced chiefly by other motives. These may be said briefly to be—pleasure, and financial success; therefore, if the public taste demands large plants, it will be most pleased by having that demand provided for in the specimens exhibited. And, further, this accommodation of the public taste will be the likeliest road to financial success; so that we can scarcely expect the horticultural societies to take the lead in the matter. We now arrive at the exhibitors. Looking at this class in its widest sense, doubtless it would be to their advantage to show smaller plants. The labour and expense of growing, training, removal, transit, and arrangement would be lightened, and the difficulties in the way of having a first-class exhibition would not be so great as now. The reduction in the size of the plants would doubtless increase the number of exhibitors. Numbers would bring variety, and thus would the societies and the public alike be reimbursed for any necessary diminution of size. But, on the other hand, it must be borne in mind that the exhibitors have a vested interest in things as they are. Virtually, the present growers have a monopoly of showing. The space and time requisite to get up such huge plants are so great, that but few are willing to undertake it; and the fewer the number of prizetakers, the more money each will secure for himself. Besides, the exhibitors have some claim to tender consideration. They have bent all their talents in that direction that was most likely to gratify the public, and strengthen the hands and fill the purses of the various societies, and it would be manifestly unjust that their huge starers should be suddenly dispensed with, without due warning. If a change is to be made, we must glide gradually from the one state of things to the other. But what say the judges? Well, jurors ought to be perfect men if they are not, and many of them, I believe, are well nigh perfect in the discharge of their duties. Nevertheless, judges are but

men, and they are infected by the prevailing foibles, fancies, or virtues of those around them. If the public, the growers, and the societies all run after hugeness of size, the judges catch the infection also. And as a matter of fact they have caught it. I could point to many societies where size carries nearly all before it. "Merit, sir, in what does merit consist?" asked an old stager of a juror of another who presumed to question the wisdom of his award. "Merit consists in high cultivation, perfect health, cleanliness, form, vividness of colouring, and profusion of blossom." "And size, sir—where do you put size?—you have forgotten that." "Oh, yes. Well, I would give one point to that, and two to all the others." "Oh, indeed, sir. Well I would put size first, sir, size last, and size in the middle, and pack in your trifles between them." And this retort was received with peals of laughter by the other judges, and the committee and secretary, who were within hearing; and of course size won all through the day. Such scenes are not uncommon at provincial shows. Large tents are engaged at a great expense, and large plants must be had to fill them. Every one knows this, and the public, society, exhibitors, and judges act accordingly. Thus, the question is pertinent, why propose any change? Several answers might be given. It is desirable to break up the exhibitors' monopoly of showing; to cultivate a greater variety of plants, to subdivide the prizes more, to destroy the present family likenesses which distinguish all flower shows, and bring out more cultural skill. Size measures time and means rather than skill, and the possessor of the biggest plants is not necessarily the best grower. Granting, then, that it is desirable to have more smaller plants, what is the best mode of doing it? You have expressed strong opinions in favour of limiting the sizes of the pots to so many inches cube. On this point I agree with "W. P." (p. 475). We should be guided by the quality of the plants, and not carried away by their size, nor fettered by so many inches of pottery. I have seen some humiliating incidents arising from these pot measurements—able judges spending hours with tape line and rule, and disqualifying the best plants for a quarter of an inch expansion in the kiln, while 8-inch pots, 8 inches across, have carried off prizes, though made specially to enlarge their capacity to 12 inches deep. All overpotted plants ought to lose one or two points in consequence, and this would act to keep down the sizes of the plants. Judges should be instructed in the value of size as an element of perfection, and if my two-to-one standard were adopted, size would speedily find its proper level. But we cannot do without large plants. The best remedy, I think, for the undue preponderance given to mere bulk, is its separate and distinct recognition. Let us have classes for the largest plants, just as our Lancashire friends have for the heaviest Gooseberries, and in these let size be the chief point—and the biggest and best plants win. In all other classes let quality count two to one against size, and many of the huge specimens would be seen no more. No great injustice could thus be done to any one. The holders of large specimens are strong enough to assert their rights; the interests of the societies lie in conceding them; and a gradual change might be effected, which would provide fresh and new sensations of pleasure to the public, while cultural skill would be still further improved, developed, and rewarded. *An Occasional Exhibitor and Judge.*

Potatos.—Your correspondent, Mr. Puttock, has directed attention to a curious, but not uncommon, development, a Potato tuber from sets which had failed to produce leaves aboveground. His statement, however, appears to be somewhat contradictory, as in one part of his communication he says that his sets, which were Mona's Pride, "were taken from a hamper that had been kept in a dry cellar, and were somewhat freely grown, but in other respects very sound seed;" but the article is concluded with the remark—"I may add that the seed had not been sprouted before being planted." Perhaps I am right in concluding that the sets had sprouted in the cellar, but that the chimps had at some time been removed, and that they were planted before being sprouted again. My neighbours and friends are everywhere complaining of the same results. Some had young Potatos, two or three inches in length, growing beneath the surface, although no leafage was present; and this is occurring in most sorts to a greater or less extent, a result doubtless arising from the super-tuberation which prevailed to such an extent with the crop of 1868. Some five years since our whole crop of Ashleaf Kidneys grew in the same manner, and scarcely a set in ten showed any sign of leaves; and in this case we made use of the young Potatos from day to day, and found them to be a palatable treat some time earlier than usual. The tubers for these, I have no doubt, had been "chimped" before I bought them, and since then I have ever been particular to preserve the started buds free from injury. Those who are suffering in a like manner from planting super-tuberated Potatos, have doubtless to refer to a similar cause for the mischief, which I take to be the loss of power by the previous partial growth, whether in chimping or in super-tuberation, and I shall consequently expect to have much of this kind of mischief during the present year. I would therefore advise your readers not to wait too long before earthing up their Potatos, on account of the failure in the rows, but earth them all equally, and long before the main crop is ripe the vacant spaces may yield young Potatos, which will be far from unsatisfactory. As a practical matter in the growth of sprouted Potatos, when the new growth is unusually long, we delay planting them as long as possible in order to avoid frost, and then we plant them with the chimps, however long, above the ground; and in such cases I have usually observed them to soon turn to stems and green leaves, which may then be earthed up. I have in this way grown a good crop of Mr. S. A. Daintree's Early Potato, and not been late either, when their chimps had grown to more than a foot in length. *J. B.*—— Your correspondent, Edward Puttock (p. 530), asks about the non-appearance of Potatos aboveground. His case is exactly mine with regard to Mona's Pride; not one in ten has grown, although good seed was used. Other sorts show symptoms of the same kind, but not to anything like the extent Mona's Pride does. Here, all sorts of Potatos, less or more, show symptoms of weakness, and ours is a Potato-growing place, hundreds of acres being under the crop. My best, and it is always my best, is Fortyfold; they have come very strong, and will, I have no doubt, come to fruition soon. No sort, in my opinion, is better as an early or a second early—always white, mealy, and good when cooked, till February. I have paid much attention to the growth of this root, and have, in my time, grown two or three hundred sorts, and out of all these there are but a very few that I could recommend as kinds for universal cultivation. I think Paterson's Victoria and Jersey Blue may be so recommended, with Fortyfold as an early and for midwinter consumption. Thirty-five years ago, when the Potato disease first began to make an appearance, I recollect that our early Potatos were just in the same state as Mona's Pride is now. Since then I have watched the Potato with anxiety—for I do not go in with old Cobbett, but think the loss of the root would be a national calamity, which we may all pray may be averted. I lifted my Potatos this season in the middle of August, and I think no man could have had finer than mine have been,—floury, mealy, and white as need be wished for. In conclusion, let me remind cooks to always boil their Potatos fast; they cannot be boiled too fast; the best Potato may be spoilt by slow boiling. *J. Scott.*—— Referring to the communication of the Rev. Edward Puttock, Flaxley, about Potatos, I beg to inform you that I have a patch of Mona's Pride presenting exactly the same apearance as there described, and on trying them this morning I find that those plants which have not appeared above the ground have expended their energy in producing tubers. I tried one or two weakly-looking plants which had also several small Potatos formed, but not nearly so large as the others: some of the tops look strong and healthy, and on examining them I found them all right. I have other plots of Myatt's Early Ashleaf Kidney, Early Oxford, Wheeler's Milky White, and Dalmahoy, which all appear to be doing well. *Wm. W. Platt, Old Trafford, Manchester.* ——In reply to Mr. Puttock (see p. 530) I may state that my Potatos are in a somewhat similar condition to his. Last year about one-third of both my Ashtops and Mona's Pride did not come through the ground, but formed young tubers on the old ones. This year I planted some of both kinds in January, February, and March, choosing all my best and largest Potatos of both sorts for the first two plantings, but not one-tenth of them showed aboveground, but formed plenty of young tubers on the old ones—some of them 3 inches long. Those planted in March were the culls (not chats) left after the first two plantings, and about one-third of them has come up strong and vigorous, and are far better in appearance than any of the others, which I attribute to the small sets not being so ripe or matured as the large ones. For the last two seasons those I kept for seed were not lifted until the haulm was quite ripe—formerly I was always short of both sorts and had to lay by the undersized ones for seed as they were lifted for use every day. Of course our seed was never fully ripened, and always when planted came up fine and evenly above ground. I believe it is best to lift those Potatos intended for seed when the haulm is quite green. I never cut any of my early Potatos, and am very careful in storing those intended for seed; always spreading out my Ashtops and Monas on flat benches exposed to the light, where they form nice plump buds; and in planting them I take care that the buds are not broken off by putting some sifted ashes over each lot before covering with mould. *David Hackney, Milford House, Limerick*—— I am sorry to state that Potatos in the adjacent neighbourhood, both early and late, are in the same condition as those described by your correspondent, Mr. Puttock, at p. 530. I should be glad to know at what date his seed was taken from the earth last season, also whether they were tubers of the first formation, or from the super-tuberated growth that subsequently followed. We took up and stored away in the third week of July the following varieties:—Wheeler's Milky White, Baker's Beauty, Rivers' Royal Ashleaf, Walnut-leaved Kidney, Early Queens, Myatt's Prolific, and the Early Creeper, sometimes named the Australian Kidney. These were grown on the same piece of ground, in drills 2 feet apart, and 70 feet in length. I planted 46 uncut sets in each drill. Wheeler's Milky White produced the heaviest crop, and they were of excellent quality. This is undoubtedly a first-class second early variety, and ought to be grown in every garden. Rivers' Royal Ashleaf was the first that came to maturity. It is a good cropper, and of excellent quality. The Early Creeper attains a large size quicker than any variety known to me, but is much longer than the last-named in coming to perfection; it is a good cropper, but at all times inferior in flavour. It is no doubt a good variety for market gardeners, as they can be sent to market early, and realise a good price. There was not the slightest indication of a second growth on any of the above varieties when taken up; they, however, commenced growing out much earlier than usual. This season we planted them out with strong shoots on them in the second week in February, and have all come up very regular, and up to the present look very flourishing. The late varieties only present a very poor prospect here; in fact, very few indeed have as yet made their appearance aboveground. On examining the old tubers, I find they have formed plenty of young ones, many of which have commenced growing; some are even forming small Potatos, and others are throwing small minute foliage above-ground. The seed of the late varieties were of last year's second growth, which appears to me had not come to maturity; and to this cause I attribute these failures. I fear the crop of the present season is past redemption, but further evidence on this subject would undoubtedly teach us a lesson in the selection of our seed, and more especially should a season similar to that of 1868 again occur. *T. W. Foote, Gr., Haldon House, near Exeter.* —— As to the liability of kidney Potatos especially to imperfect growth, my own limited experience quite confirms what Mr. Dean says of the round early kinds in growing haulm freely. I planted on the same ground, and by the side of the Monas, a dozen of Milky Whites, and a dozen of a round kind. All these came up beautifully, the latter the first and best in the whole garden. I don't know the sort, as they were given me as very good ones by an invalid parishioner, as he said, "to put a grand name to them." I don't think frost had anything to do with the failure in growth of the Monas and other kidneys, because some few have thrown up high, but in many cases single haulms. As to my writing that the seed in question was "freely grown" before planting, and then again the seed in question "had not been sprouted before planting," there is some ambiguity, but the common term here for taking off the sprouts before planting is "spurting," or, as I suppose more correctly, "sprouting." I think in my letter I put the word in inverted commas. A Potato is said to sprout actively, and passively to be "spurted," or "sprouted," when such sprouts are taken off. I would add that I have a forlorn hope only—after Mr. Radclyffe's dictum, "Such Potatos are worthless,"—that my freakishly grown tubers will not prove so; but of this you shall be duly informed. *Edw. Puttock, Flaxley, Newnham-on-Severn.*

The Royal Caledonian Show.—I should not have obtruded my opinion upon the matter in dispute between your Reporter and "An Observer," but for a mistaken view evidently held by both parties, namely, that the articles exhibited at the show in question were a fair representation of northern cultivation. Now it is well known in Edinburgh that many of our best cultivators, from want of confidence in the management of the Royal Caledonian, are dropping out of the list of its competitors; indeed, many gardeners are so placed that they cannot afford to compete in some classes. The "black mail" system, (sometimes done upon the Rob Roy fashion) does not work well with gardeners whose fruit is not over plentiful, or whose employers are strict. Other causes combine to prevent the Royal Caledonian shows being a faithful medium through which the northern growers may be viewed. The less said about the last spring exhibition (competition it could not be called), the better for those more immediately concerned. *Gardener, The Hall.* [From this and other letters which have reached us, it is pretty evident that discontent is fermenting in the North, and it may do good to give it vent. Doubtless the Caledonian Society's Council is fully able to justify its management. EDS.]

The Royal Horticultural Society's Show at Manchester.—I notice in your issue of Saturday a communication from Dr. Watts, as chairman of the Council of the Botanical Society, giving his reasons for the exhibition of the Royal Horticultural Society not being held in the Botanical Gardens; he goes on to state that "our offer to the Royal Horticultural Society was to lend the gardens, the plant, and regular staff of servants for the admission of our subscribers, and upon that understanding they got all their promises of special prizes, and also upon that understanding, I believe, the guarantee of 600*l.* was given by the local committee." Without going into the previous arrangements of the two Councils, I may say that being present when at least 300*l.* of the amount was promised, I can distinctly state that the money so promised was for the object of special prizes only, and not in consideration of the exhibition being held in the gardens, and that Dr. Watts had no grounds for such a statement. With the exception of a note from Mr. Findlay withdrawing the names of two parties who had promised him five guineas each, and two in the trade of the same amount, no others have intimated their intention to withdraw. No doubt the Garden is the proper place for the exhibition, and every one must regret its being held adjacent to instead of in the Garden. I know that at all reasonable times shareholders and their families must be admitted, but not so with subscribers. Had this been arranged at the general meeting, all obstacles would have been overcome, for it may be seen at a glance that the admission of such a large number of subscribers, free, would be sure to result in a loss to the Royal Horticultural Society. *John Shaw, Manchester.* ——Allow me to correct the statement made by Dr. Watts (p. 557), in reference to the Royal Horticultural Society's coming show at Manchester. Dr. Watts' statement conveys the idea that the special prizes promised were conditional upon the show being held in the Manchester Botanic Garden. Such a construction would be a very doubtful compliment to those who have promised prizes, inasmuch as it would imply that the prizes were given to the Manchester Botanic Garden more than for the promotion of horticulture. Having taken an active part in obtaining those prizes, I distinctly state that, for 300*l.* out of the 365*l.* promised, such is not the case, and I believe the same applies to the whole. In soliciting subscriptions it was incidentally mentioned to some, and only to some, that the show would probably be held in the Garden, but not a single shilling was promised on that condition. Neither was the guarantee given by the local committee on these grounds. As to the framework of the large tent which Dr.

Watts mentions, or its calico covering, I consider the use of it would be a very doubtful advantage, as it is at the mercy of every gust of wind or shower of rain—plants of a tender character suffering in it to an extent I never saw in any place devoted to the purposes of exhibition. I could say much more on the Royal Horticultural Society's side of the question, but refrain from doing so from the conviction that nothing should be done to widen a breach that ought never to have existed. Suffice it to say that the Royal Horticultural Society have taken the only course open to them, unless they were prepared to hold an exhibition at a certain pecuniary loss. *T. Baines, Summerfield, Bowdon.* [It would be well if the unfortunate differences which have sprung up could be forgotten under the pressure of united efforts to advance and elevate the cause of Horticulture. EDS.]

Gas-tarring Orchard Trees.—The cheapest and readiest solvent for applying to dried tar is oil. If your correspondent, Mr. Lloyd, will well oil his young trees, using a brush, so as to work it into the courses of the bark, and, after a short time, take a bucket of common soda or potash and water, and a suitable scrubbing brush, there is no doubt but that he will be able to arrest the mischief which is now being done. Sweet oil, or common fish oil as the cheaper article, will do better than the more costly neatsfoot or linseed-oil, as the former will take less alkali to neutralise it, or convert it into soap, so that both the tar and the oil may be washed off together. The solution thus formed will do no injury at the roots of the trees; indeed, if potash be used, it will have a contrary effect by acting as a fertiliser in the same way as common "soap-suds" of the washing-tub are known to do. There is another point of this extraordinary dressing, or rather of the effect of it, which may require attention. I have seen the result of this tarring on trees of all ages, for a friend of mine partly replanted and then turned an old market garden into a Grass orchard, that he might have a place for weaning calves, and ewes with young lambs. Both the calves and the ewes begun to bark the trees, the one for amusement, or perhaps, for no purpose whatever, and the other for the relish which milking-ewes long for in the winter, when they cannot get wild Ivy and other hedge-row plants. Ewes probably eat the bark of the trees when they have plenty of other food, from the same motive as cats and dogs eat Grass. But this is incidental. The effect of this tarring is to close the pores of the bark, and therefore to stop the circulation of sap, and, consequently, growth. The result of this—as shown on my friend's trees, when I saw them in the following autumn—is to cause the outer bark to crack, and eventually to flake off in the same way as Oriental Plane trees shed their rind, as the trees swell inside it. Some of the young trees died, and all were more or less injured, according to their vigour, by this rigidity of bark, caused, as explained, by the tar. Now, if your correspondent finds on examination that the outer bark of his trees is in the same condition, and therefore acting like a band of iron around them, would it not be advisable to ascertain the thickness of this outer bark, and then draw a sharp knife from the bottom to the top of the part of the trees tarred? This is done sometimes with trees that are hide-bound, although it is a practice which modern gardeners look upon as a barbarous remedy. But in the case in question, where a most clumsy blunder has been committed, some special remedy may be essential to cause the young trees to renew their vigour. Only the outer bark of the tarred trees would require nicking; and to be sure that nothing more was done, the point of a knife might be worked through a piece of soft wood, so as to project as far as the thickness of the outer bark. This would be an effectual guard against the knife penetrating beyond the rigid rind, and unnecessarily mutilating the soft skin. Whether one or more nicks to a tree would be advisable, can only be determined by inspection. The bark came off the old trees referred to in flakes a yard long, and in some cases a foot wide. If either or both these suggestions should be adopted, I should like Mr. Lloyd to give the result. *W. W. G.*

Vines not Setting their Fruit.—Have you heard any complaints about the Muscat of Alexandria Grape not bearing as well as usual this season? Here (the county of Cork), so far as I can learn, it is impossible to find a good bunch of it. I have two Vines of it, and have not got one bunch on them. The Vines are looking very healthy, and all the other Vines are bearing heavy crops. We have had no frost here this winter, but a great deal of rain during the autumn and winter. Would the wet weather affect the Muscat of Alexandria, and not affect the other Grapes? With me the canes of this variety are showing fruit on the laterals. Will it injure the Vines to allow them to bear a few bunches? *W. J. E.* [We have heard no complaints of the failure of the Muscat of Alexandria this season. It is a variety rather more tender in constitution than some others, so it is just possible that the excessive wet during the autumn prevented the wood from being thoroughly ripened, and hence the absence of fruit. Since they are now showing on the laterals, you may secure a crop from them. It makes no difference to the Vine whence the fruit comes. It is indeed a common practice with some to depend entirely on the fruit so produced with the Canon Hall Muscat, which is often a bad setter. The bunches on the laterals, on the contrary, set very freely.]

Loss of Fruit Crops.—I have never seen such quantities of blossom as I have had this season upon all my fruit trees; on some the blossoms were so thick that it was impossible to see any wood, and I am now much disappointed to find that I have not got more than a quarter of a crop of fruit on the best of my trees, and half the trees without any fruit at all setting on them. The garden is very much exposed to the easterly wind, and during the time the trees were in blossom easterly winds were very prevalent. Would this destroy the blossom? Some pyramid Pear trees that were covered with tiffany half-way down the trees are no better off than those that were not covered at all. Is it a good practice to thin the blossoms of all fruit trees when very thick? Does it assist the setting of the fruit? *W. J. E.* [The continued cold easterly winds have a deal to answer for this season in respect to the loss of a great portion of our fruit crops. We have numerous complaints, especially of the scarcity of Peaches, Apricots, &c., which we can ascribe to no other cause. The blossom with us, as in your case, was abundant; but, whether on trees protected or unprotected, or even under glass in cold houses, the crop is almost *nil*. Apples and Pears on dwarf trees are abundant, but on the tall standards, where exposed, very scarce. It is a good plan to thin the blossoms where they are very thick, as flowers exhaust the strength of the trees considerably, and those left have then a better chance. We doubt, however, if any such operation would have prevented your loss this season.]

Late-kept Grapes.—I observe that Mr. Westland remarks in his paper in last week's *Gardeners' Chronicle*, that the rise of the sap in spring destroys late-kept Grapes, and cites the case of the seedling I sent to the Fruit Committee of the Royal Horticultural Society last spring as an example of it, and most certainly it was such; but this case led me to the discovery of a remedy which may be made effective up to a given period, that is, till the general flow of the sap begins, when it would be injurious to the Vines if applied. Experience teaches that there are spasmodic flows of the sap before the general one, and this we had noticeably last February, when the sun was hotter than it has been in May, and it destroyed the flavour of all our late Grapes, except a few bunches of Lady Downe's. The laterals on which these grew I three parts severed from the parent stem with a pair of pruning scissors, which not only preserved their flavour intact, but very much improved it. When packing the Grape, which is a white seedling from Lady Downe's, I sent a man to cut a bunch of Black Lady Downe's to send with it, that the members of Committee might taste both, as I considered their flavours nearly identical. I sent off the Grapes, and was surprised to learn that the Black Lady Downe's was very fine flavoured, and the white insipid. I expected both were, to some extent, spoilt by the rise of sap. This led to a scrutiny, which made the whole matter plain. The bunches that had not their surplus of sap cut off were worthless as far as flavour was concerned, white and black varieties alike; but those few bunches of the Black Lady Downe's that had, were excellent in flavour, though a little shrivelled; and I then discovered that it was one of those I sent with the white variety,—hence the relative positions they obtained in the estimation of the Committee in regard to their flavour. *Wm. Thomson, Dalkeith Park, May* 25.

Dendrobium barbatulum.—Your correspondent "H. R. D." evidently means D. barbatulum when he speaks of barbatum—a name unknown in the family of Dendrobes. It is popularly called Fytchianum in collections, and is certainly hard to grow. It shows a disposition to do well in a limited compass of root-feeding material, and growers will therefore succeed best with it either in pots or wooden baskets, where water can pass freely through, and air currents act with as little obstruction as possible. It requires to be wintered in a quiet temperature of about 50° to 60° minimum, and kept only moderately moist until it shows signs of growth. Then the great panacea for success is to prevent the appearance and propagation of thrips. These little pests are its most determined foes, and once get a footing there is scarcely a possibility of extirpating them without injuring the plants by the antidote employed. Keep the growing East Indian atmosphere in spring, treated to mild applications of ammoniacal vapour, which is far more effective and beneficial if timeously applied than any of the many articles employed for doing good by means of fumigation. I may state that a solution of guano or manure water from the byre, poured in the troughs of the evaporating pipes, will serve the purpose. Avoid, however, extreme doses, else the fine tissue of the growing leaves of the whole family is apt to be destroyed. To cure requires judgment in prescribing the dose, and hence apply the remedy with caution, and take heed by the motto applied elsewhere, but applicable to the case in point—"Ye maun creep afore ye gang." *J. A.*

The Treatment of Trees.—In walking through Torquay, I have been very much struck with the unsightly manner in which the trees of the public walks and of some private villas have been cut. Moreover, this manner of cutting has no utility whatever, but rather seems expressly invented to kill the trees. I allude to the fact that when a branch is removed, it is almost invariably cut off at a short distance from the trunk, too short to furnish leaves and too long to allow of the closing over of the wound. The effect is this: In the Spring there are no leaves in that part to attract the sap and to prepare it to form wood in its descent, and, further, the descending sap from the other part of the tree, follows principally the law of gravity, and descends vertically. The stump of the branch is left then without sap, and consequently dies. Now, it is a well ascertained fact that there is never any real union between living and dead wood; witness the numerous loose black knots that everyone must have seen in deal planks, and which result from dead branches round which the living wood has grown without forming body with them. The remedy is simple. Firstly, trees should be cut as little as possible. Secondly, when cut, the branch should be cut off flush with the trunk, and by means of a sharp-cutting instrument. If a saw be used, the surface should be rendered smooth afterwards by means of some cutting tool, so as to prevent the absorption of wet. Further, with the same object the wound should be covered with coal-tar. In this way it is true that the wound is larger, but it is exactly in a state to be healed, for the descending sap which forms the wood must pass by it, and in passing by will deposit a fresh layer every year all round the borders of the wound, advancing steadily towards the centre until it completely covers it over. In the other case, the wound, though smaller, is incurable, for the dead stump of the branch remains and effectually prevents the healing. Moreover, this dead branch generally becomes rotten, and forms a canal by which the moisture passes into the middle of the tree and renders it rotten, hollow, and finally hastens its death. In the French Exhibition there were sections of wood for the purpose of showing the evil results of the bad cutting of trees, and others to show the contrast when the operation had been skilfully performed. These sections were extremely instructive and more forcible than any argument could be. Another point, too, requires attention. The bark should not be allowed to strip off round the edge of the wound, but should be left adhering tightly to the wood, whereby the healing is much facilitated. This is another reason for using a sharp cutting instrument. I do not know who it is that has the care of the trees in the public walks; but for a town like Torquay, where invalids resort and where the shade and the ornament are alike desirable, I think this matter deserves attention. *A. P.* [Torquay is by no means the only place where the lesson here inculcated is required. EDS.]

Viola lutea.—My attention having been drawn to the interesting and copious notes on bedding plants at p. 528 by your intelligent correspondent, "Quo," and amongst which special reference is made to the Viola lutea, permit me to inform "Quo" that my experience of the spring-blooming attributes of this lovely flower is somewhat opposed to his, inasmuch as I have had it in full bloom here for the past two months or more in resplendent beauty. The plants had been in the cutting state, under the partial protection, of handlights during the winter, and through the early part of March, and from which they were subsequently transplanted to the parterre, at about 5 inches apart from plant to plant—since when they have continued to display their effulgent flowers in telling array, and doubtless will continue so during the summer months, if I may judge from the somewhat limited experience I had of its attributes last year, sufficient however for me to augur for it a distinguished career when its merits shall have become better known. *Wm. Gardiner, Gr., Eatington Park, Stratford-on-Avon.*

Foreign Correspondence.

THE RUSSIAN INTERNATIONAL HORTICULTURAL EXHIBITION: *St. Petersburg.*—The inaugural ceremony took place on Sunday, the 16th inst., at 10 A.M., when a *Te Deum* was sung, and the Exhibition was blessed, as already recorded in your columns. Subsequently General Greig, president of the Horticultural Society, addressed the jury, and after welcoming them to Russia, observed:—"When I look on this striking group, in which science is represented in so brilliant a manner by many eminent men, whose renown has long since passed our frontiers, I cannot repress a feeling of humility, very sincere, I assure you, for I do not feel worthy to preside over your deliberations. That which sustains me, however, is the conviction that the moral responsibility in which I shall have to participate will not be heavy to bear. The immensity and variety of knowledge—the fruits of long indefatigable study—which you bring together, warrants me in believing that you are competent judges, and your high honourableness assures me that you will be impartial."

At 1 P.M. on Monday, the 17th, the high dignitaries of the empire, the Foreign Ministers, and foreign exhibitors, the members of the Botanical Congress, and of the Imperial Horticultural Society of St. Petersburg, as well as a large number of ladies being assembled, his Majesty the Emperor, accompanied by the Césarévitch and other members of the Imperial family, arrived, and was conducted through the exhibition by General Greig and the members of the committee, M. Regel, director of the Botanic Garden, and vice-president of the Horticultural Society, having the honour to point out the most remarkable objects which were shown. Several exhibitors were honoured by being presented to his Majesty.

In giving a general outline of the leading features of the exhibition, I have been guided by those rules of taste which experience has proved to be the most correct. But this principle does not render it unnecessary to consult the opinions of others, and since sending you my last despatch I have had an opportunity of talking with several of the visitors who have seen similar exhibitions in other countries. The result has been that so far from giving me any reason to suspect that I might have made an exaggerated statement, they have fully confirmed me in the justice of my views. In particular, they consider the substitution of moss for lawn, the endless profusion of rockwork and stones, and the wooden walks and stairs, to be in the very worst taste.

Since I last wrote a great deal has been done towards putting things in a presentable form for the admission of the public, which took place on the 5th (17th inst.); but still there remains much to be accomplished, and some days must elapse before there is anything like finish. Several more collections of Azaleas, Roses, Rhododendrons, Cinerarias, Camellias, &c., have been added. There is a good collection of Orchids, Lycopodiums, &c., in one of the stoves. The Roses I noticed before (there are two collections) as being badly placed, have been raised on pots, so that they may now be seen to advantage. In general the Roses are very good. The same may be said of Azaleas, and I should add that the new-comers are well grown in the standard fashion, though they are only of moderate size. There

are two or three pretty collections of Cinerarias, small, but neatly grown. The Pelargoniums are the poorest I have seen at an exhibition. The Calceolarias are very ordinary, and the Gloxinias just passable. There is a pretty fair specimen of Epacris, but I have not noticed any Heaths. Of that class which in English prize schedules are called stove and greenhouse plants there are none, and indeed the floral department of the exhibition is altogether on a very limited scale. As yet neither the names of the varieties nor the owners of the collections have been given, except in the case of Mr. Warner and Messrs. Veitch, of London, and it is difficult to ascertain whether some plants belong to exhibitors or not, for it is certain that a good number, especially of those not in flower, have been brought from the Imperial gardens. Messrs. Veitch are almost the only exhibitors of seeds and garden implements. There are, however, several collections of miscellaneous articles, as aquariums, ornamental vases, bouquets, Grecian fruit, &c. All these I shall briefly notice, and to commence, I shall give you a few details of plants, beginning with those that are new or rare.

New Plants.—It is only at the last minute that some of the best collections have arrived. This is particularly the case with those from Belgium, comprising the beautiful Azaleas of M. A. Verschaffelt, and the newly-introduced plants of M. Linden, of which there are a great number exhibited.

One of the most remarkable among the novelties shown is unquestionably a plant called Lycopodium tetrastichum (according to its own label), from Java. It resembles nothing I have yet seen in cultivation of this genus, being of a bold upright habit, quadrilateral, and perfectly regular in outline; the branches are about the thickness of a common pencil or pen-holder. I have not as yet been able to obtain any information as to its owner, or further details respecting it.

In the collections from Belgium, sent by MM. Dallière, Linden, and Verschaffelt, there are some beautiful and interesting species, as—Aucuba Victor Emmanuel, from Japan, which has the leaves ovate acuminate, and deeply serrated; they are much larger, and much more richly-coloured than in A. japonica Welfia regia from the Amazon; this is said to be a magnificent Palm. Dieffenbachia eburnea, from the same river, has beautifully variegated leaves, about 12 inches long. Phormium Colensoi variegatum, from New Zealand, has slender leaves, with pale yellow and red lines. Tillandsia Lindeni, from Peru, bears dark green leaves, having numerous purple lines which issue from the base and become gradually finer towards the margin. Ficus eburnea, from New Grenada, is apparently one of those free-growing plants which require a good deal of space; the beautiful leaves on the plant shown are about 15 inches long, and ovate acuminate in outline. Croton intermedium, from New Caledonia, is a handsome plant, with slender leaves about 7 inches long; according to growth they assume various hues between light and dark green, the mid-vein is sometimes yellow and sometimes red. This species is evidently well suited for a single position in a conservatory or saloon. Dracæna regina, from New Caledonia, shows a stout habit, with the leaves of a good green colour, and slightly marked at the margins with white. Lomaria gibba Bellii, also from New Caledonia, has the pinnæ much notched, and all the fronds are subdivided at the apex. Cryptomeria elegans variegata is apparently of dwarf habit, and is distinguished by the cream-coloured ends of its branches. Croton irregulare, from New Caledonia, is a species of considerable merit; it is evidently of bushy habit, and its leaves are of a rich dark green, profusely marked with yellow at the mid-vein; there are also numerous small spots of the same colour over the rest of the surface. Ficus dealbata, from the Amazon, appears to be a large and handsome species, having dark green ovate-acuminate leaves, which, on the under side, are covered with white silken hairs. Dieffenbachia media picta, from Brazil, is in the way of the old species, but the leaves are finely marked with pure white on a cream-yellow ground, especially near the midrib. Dracæna lutescens striata, from Africa, is distinguished for its rich green, inclined to variegation; a broad band of dark green runs down the middle, or along one side. Peperomia Verschaffeltii, from Brazil, is a low herbaceous plant of very ordinary merit, having dark ovate leaves marked with grey between the veins. Dracæna vittata from the Mauritius shows nothing particular in respect to foliage, which has the habit of turning down and inwards. Dieffenbachia nobilis, from Brazil, is a handsome plant with large ovate acuminate leaves marked with grey in the middle, there are numerous patches of yellowish green all over the surface. Hoteia japonica variegata, from Japan, is a neat herbaceous plant, with panicles of small white flowers, and variegated leaflets about an inch long. Sanchezia glaucophylla, from Brazil, has large ovate-acuminate leaves, veined with yellow, the mid-vein has besides a line of red; both sides of the leaves are coloured in this way. Quercus striata japonica, from Japan, has the leaves ovate-lanceolate and serrated, rather hard, and variegated with greenish yellow. Ficus Decrœni (Lind.), from Peru, is a plant of vigorous habit, with large ovate-lanceolate acuminate leaves, slightly hairy on the under-surface. On Dioscorea El Dorado (Lind.), from Minas Geraes, there are seven leaves, all very beautiful, but not two of the same colour; one is brown, another light green, a third dark green, and so on. They are all freely marked with whitish-grey near the leading veins; the under-side is of a rosy tint. This is altogether a lovely plant. Xanthosoma Wallichii (Lind.), from Antioquia, has the hastate leaves of a rich dark green, but the veins are all white, or nearly so. Passiflora (n. sp.) from Ecuador, is a singular and beautiful plant, owing to the vespertiliioid form and the colour of the leaves, which are of a fine dark green, about 6 inches in length, and have the stalk near the middle. [Probably Passiflora coriacea, the P. difformis of gardens. Eds.] Drymonia turialvæ (Hanst.), from Costa Rica, is a Gesnerad of robust habit, with firm dark green dentate oblong leaves, and variegations of a lighter tint, the under surface being red. Philodendron spectabile (Lind.) is a large soft-wooded plant of vigorous habit, remarkable for its large velvety or silky cordate leaves, from 12 to 15 inches long, and nearly as broad. Sphærogyne imperialis (Lind.) from Peru, has leaves of a dark rich green, with the leading veins reddish at the base, and having a rich silk velvety surface. Philodendron Pearcei, in Mr. Veitch's group, is a beautiful plant, remarkable for its large cordate dark green silky leaves. Pandanus Veitchii, from the New Hebrides, is distinguished by its rich green leaves, which are beautifully marked with white, particularly at the margins. Alocasia Sedeni, a garden hybrid, is distinguished for the glossy surface of its large cordate leaves, the leaf-stalks of which are red and covered with pale green fleshy hairs. Fittonia gigantea (Lind.), from Ecuador, is a stove herbaceous plant, of vigorous habit, having ovate acuminate leaves, marked with red veins. Carludovica (sp.), from Ecuador, is a small Pandanaceous plant with Palm-like leaves, which offers nothing requiring particular notice. Fourcroya Lindeni (Jacobi), from Columbia, is a small Agave-like plant, having dark green leaves streaked with pale yellow along the margins. In some leaves there are even one or two secondary lines of a darker tint. Pothos spectabilis, from Brazil, if there is not some mistake, might be taken for Philodendron Mellinoni, so closely do they resemble each other. Begonia Rex var. fol. aureo-variegata, is really one of the most beautiful Begonias I have ever seen; though the plant is not in good condition, it is easy to see that this is a most valuable acquisition—the leaves are large, and exquisitely coloured. Alocasia Jenningsii, now well known in England. Didymopanax Houlletii (Lind.), a handsome species from Mexico, with lanceolate-palmate leaves. Clusia Mellinoni is distinguished for its bold erect habit, and its large, firm, obovate-spathulate leaves. Calamus sp., from Penang, is an elegant Palm, with dark green, firm, pinnated leaves, which turn gracefully outwards; the branches are studded with prickles, which at the base of the plant form a series of rings round the stem. Zdaceæ sp. is another handsome erect Palm, with bright green leaves. Cocos sp., from Rio Branco, and Bactris sp. are ordinary looking Palms. There are also several Marantas, but only two of them—M. speciosa and M. setosa—merit special mention; the former is about 6 feet high. Anthurium araliæfolium, from New Caledonia, is a remarkably handsome plant, with large, firm, upright, three-lobed leaves. Singularly enough there happens to be placed near this a new species of Aralia from Central Australia, with lanceolate, undulated leaves, 12 inches long, and which have no resemblance whatever to those of the Anthurium. Agave Regeli is a distinct dwarf species, with hard lead-coloured prickles at the margin. There is a collection of new or rare Palms from M. Verschaffelt, of Ghent, which contains Phœnicophorium sechellarum viridifolium, distinguished by its orange-coloured leaf-stalks and mid-veins. The other species offer nothing particular.

In a collection, sent by Mr. Warner, of London, there is a pretty species, unnamed as yet, of Scuticaria, from Demerara; the thick wire-like leaves are 15 inches long, and the interior of the petals is of a lightish brown colour, becoming darker at the base, where the colour is broken up by patches of light yellow, while the lip is whitish, beautifully streaked with light rose and yellow. Though there are only two flowers on the plant, it is easy to see that when well cultivated this must be a very beautiful Orchid. Miltonia sp., from Brazil, has the flowers about 2 inches in diameter; the lip and petals are white, but the latter is prettily tinted and streaked with red. Epidendrum sp., of which there is only a very small plant with one flower, has the inner surface of the petals of a purplish colour, and the outer surface green; the lip is large and wavy at the margins, having a few rosy dots and lines at the base; this promises to be a really valuable acquisition. Dendrobium Bensonæ, from Moulmein, sent by Messrs. Veitch & Sons, has the petals of a clear white, the lip being also white at the margin, but the rest of it yellow. Judging from the small plant here this promises to be a profusely flowering species, for there are no fewer than seven blossoms on one spike, and the plant is only some 7 inches high. Masdevallia Veitchiana, from South America, has suffered considerably from the voyage, but it is still possible to see that this species has many attractions; the flowers are orange-red, and remarkable for their singular form. Vanda Bensoni, from Rangoon, is a beautiful species, the flower-stalk and outer surface of the petals light pink or lilac, the lip being of a richer and deeper tint of the same; the inner surface of the petals is profusely marked and dotted with dark red on a greenish yellow ground. This is really a beautiful and delicately-tinted species.

Orchideæ.—Of this class the only large collection shown is that sent by Mr. Warner, of London. The plants are generally in good order, considering the great distance they have travelled. One or two are of course no longer fresh, but still these exquisite and delicately-tinted flowers have naturally enough elicited universal admiration, and I may even add astonishment, for here they are but little known. If I were writing for a Russian paper a whole page such as yours would not contain all I should have to say about them; but as I happen to be writing for English readers, to whom such plants are no novelty, I shall only mention a few of the best, and these are as follows:—Dendrobium densiflorum, a finely grown plant, with 12 spikes of its rich yellow flowers; Dendrobium macrophyllum giganteum, a plant at present with only four or five spikes of flower, but others will be in bloom in the course of a day or two; Odontoglossum nævium majus, a small but pretty plant, and quite fresh; Vanda suavis. 4 feet high, with three spikes of beautiful flowers; Phalænopsis Schillerianum, a beautiful mass, profusely flowered, and remarkable for its large variegated leaves; Odontoglossum Reichenheimii, small, but very pretty, and quite fresh; Oncidium leucochilum, with two large spikes, profusely flowered. There are three Cypripediums, the best being C. villosum, which is large and well grown, having about 20 flowers. Anguloa uniflora superba is well worthy of its name, owing to the exquisite tint of its petals. Another group not intended for competition includes Odontoglossum maculatum aureopurpureum, remarkable for its large red and yellow flowers; O. membranaceum Warnerii, a pretty variety, with rose-coloured flowers, marked at the base with reddish-brown; Dendrobium secundum, a pretty rosy-flowered species. With these there is a good plant of Anthurium Scherzerianum, with three of its singular and brilliant red spathes; this is decidedly a strange plant, and as beautiful as strange. There is a magnificent specimen of it from some other exhibitor, whose name is not given; for I should notice that it is the custom here to put only numbers to the plants and collections, and to give all other details in a printed catalogue, which is not out as yet. There are no official cards to indicate to what class the different collections belong; and it is only in a few collections that the plants have exhibitors' labels written or printed.

In the class of new and rare plants I ought perhaps to include a collection of Orchids sent by M. Linden, of Brussels. These are as follows:—Oncidium Lindleyanum, a very beautiful species, certainly one of the best; the lip is large and white, with spots of purple at the base; the petals are also white at the margin, and pale purple at the middle. Oncidium cucullatum flavidum is a very pretty species, but of a different colour: the lip is purple, verging to white at the margin; the petals blotched with brown on a dark yellow ground. Miltonia radiata has flowers 4 inches in diameter, the petals and lip white, the latter streaked with a colour between lilac and purple. Oncidium nubigenum is a small but pretty species, with a white lip, which is rose at the base; the petals are of a light purple. Odontoglossum Pescatorei has pretty large white flowers. Miltonia Warscewiczii is a fine red-flowered species, the lip in particular being beautifully coloured. Odontoglossum nævium has slender white petals blotched with purple. Warscewiczella discolor is a pretty white and blue species, with the lip of a rich dark violet colour. Trichopilia crispa, a small plant, having 15 white and red flowers. Cypripedium concolor, a small plant, with three beautiful yellow flowers, profusely dotted with purple. Oncidium serratum, well grown but with only one large spike of flowers. There is a good plant of Cypripedium (Selenipedium) caudatum superbum, but the flowers are not yet open. This remark is equally applicable to plants of Mesospinidium sanguineum and of Aerides japonicum. Nasonia punctata completes this collection; it is a miniature plant, with equally small but pretty red flowers. M. Linden has also sent two large and well-grown specimens, about 4 feet high, of Vanda suavis and V. bicolor; these, of course, are not shown as either new or rare, but rather as examples of this superb Orchid, and they very justly excite general admiration. One has three and the other six spikes of flowers, in excellent condition, notwithstanding the unusual length of time the plants were in a state of package.

The Azaleas having been on the road nearly a week longer than they ought to have been, owing to some inexplicable delay, did not arrive very fresh; but still they are in tolerably fair condition, and it must be owned they are very beautiful, both in respect to cultivation and variety. They are, almost without exception, all from Belgium, and some of them are very large and well grown in the parasol fashion; several measure from 3 to 4 feet in diameter. Among the best varieties are Reine Louise, white; Alba floribunda barbata, rose; Etendard de Flandre, Prince Albert, Extranei, &c. There are many large specimens of all forms, distributed here and there about the rockwork and elsewhere. There are also a goodly number of smaller plants from the garden of the Prince Imperial Nicolas Nicolaivitch; these form a large and pretty clump near the centre of the building. There are besides a considerable number of standard Azaleas, but only a few of them are well grown.

Two very passable clumps of small Rhododendrons are, unfortunately like many more, badly placed for light. The best are Prince of Wales, Rosa Mundi, Mars, and Verschaffeltii. These are all that are worth notice in this class.

There is a small and very ordinary collection of Lilium lancifolium album. Some very fair Begonias occupy another corner near one of the walks. There is a collection of Hyacinths near the entrance, which have been really beautiful, but they have lost much. A considerable number of Camellias, composed of small but neatly grown plants, are generally admired. Here and there are small collections of Tulips, Heliotropes, Reseda, Iris, Deutzia gracilis, and similar subjects, but, though pretty enough, they merit no particular mention. Cinerarias are numerous, and in general the varieties are pretty, and the plants well grown. There is a pretty hybrid variety of Clematis, with large lilac petals and oblong leaves, about 3 inches in length; and a really charming rose-coloured Azalea, also raised from seed.

Of single specimens, besides the Vandas I have already noticed, there are in the stoves only a few that require notice. The best is unquestionably Medinilla magnifica, a splendid plant, about 4 feet in diameter. Two large examples of Anthurium Scherzerianum, each with a dozen bright crimson flowers, also merit particular mention. Clerodendron Balfourianum, though not trained with much taste, is a large and pretty plant, being quite covered with beautiful white flowers. Gastonia Candollei, an Araliaceous plant, about 3 feet high, nearly 2 feet long hanging straight down, but whether or not fruit or unopened flowers it is too far off for me to make out. One or two pretty fair Tropæolums are objects of general observation. They are trained in parasol fashion. Selaginella cæsia arborea is remarkable for the length of its branches, which reach nearly 5 feet. I think, however, that this plant might be much better grown if confined to a single stem. Genetyllis Hookeriana is a large and well-grown specimen, but its flowers are not showy, especially when contrasted with a fine plant near it, about two feet high, of Epacris miniata. Viburnum macrophyllum about five feet high, is well grown, and covered with its pretty white flowers. There is only one tolerable good tree Rhododendron; it is about 8 feet high, and profusely flowered.

In the garden part of the Exhibition there are of course a vast number of large specimens of every kind. Most of these are, as might be expected, from the gardens in the environs of the capital, but there are also some from other countries, particularly Belgium, which has contributed some of the best. The lion, or at least one of the lions of the Exhibition is unquestionably a new species of Alsophila, a magnificent Tree Fern, having a thick straight trunk about 9 feet high from the top of the tub. The fronds are fully 4 feet long, so that the head is at least 8 feet in diameter. This noble tree is not so well placed as it might have been, but it is still one of the most beautiful objects exhibited. There is another new Tree Fern, equally remarkable, though not so handsome as the preceding. No name is given, but some person has pencilled on the card attached to it "Todea barbara." Whether it is this or not, it is a singular and beautiful object. The trunk is about 3 feet in diameter, and fully 4 feet high, having a profusion of fronds 3 feet long. There is a splendid example of Todea rivularis, about 8 feet high; the trunk is nearly 3 feet in diameter. Cyathea medullaris, at one of the corners on the rockwork, is a magnificent Fern, fully 12 feet in diameter, and 8 feet high. Not far from this are several very beautiful examples of Dicksonia antarctica, about 8 feet in diameter, and remarkable for the rich tint of their fronds. Dasylirion serratifolium, an interesting Bromeliaceous plant, is fully 7 feet high, and altogether very handsome, but like Cyathea medullaris it occupies an unfavourable position.

Of Palms, one of the most striking is Chamærops arborescens, which reaches at least 10 feet in height, having a stem fully 6 feet long. Livistonia chinensis is about the same height, and in its general outline the whole tree is exceedingly handsome. Near one of the walks leading to the rockwork at the end, is a good example of Arenga saccharifera, with numerous branches from 10 to 12 feet long. A group of Palms, shown by M. Dallière, of Ghent, contains some hand some plants, particularly a large Wallichia, remarkable for the silver colour of the under surface of its leaves.

Almost touching the ceiling at one corner of the same rockwork is a remarkably fine Ceroxylon andicola. A great many Cycads, large and small, are freely distributed in different parts of the building. Several of these are from 10 to 12 feet in diameter. One or two of C. revoluta have stems 2 or 3 feet high. Cycas circinalis is particularly remarkable for its noble proportions. In one of the central clumps there is a magnificent example of Encephalartos Altensteinii, having a stem fully 4 feet high. Of other plants, Philodendron pinnatifidum and Alocasia zebrina are the most handsome and well grown. But the most numerous of all are some superb standards of Laurus nobilis, trained in beehive form, with heads from 5 to 6 feet through. Two near the entrance have a pyramidal form, and are nearly 10 feet high. There is also a beautiful Buxus, about as large. Two standards of Viburnum Tinus are exceedingly handsome, being about 10 feet high, and more graceful in outline than some of the others, which have been too regularly trimmed. There are some good examples of Araucaria excelsa and A. imbricata, one of the latter is especially robust and handsome.

There are many Agaves, but none requiring particular notice. Fourcroya vivipara, however, in this class, is a beautiful specimen, having a large thick stem and upright lanceolate leaves, about 6 feet in length. I ought also to mention a noble Pandanus odoratissimus, 10 feet high, having a remarkably thick stem. There is a singular plant, or rather branch, of Araucaria excelsa trained in the form of a fish-bone. It is nearly 10 feet high, and may be taken as an example of what can be done by cultivation.

Of Coniferæ in general there are numerous large collections, chiefly from the gardens of the Grand Duke Nicholas Nicolaivitch, the Grand Duchess Ellena Paulovna, General Gromoff, and from other gardens of the Russian nobility. There is, however, but little to be said respecting them. The most remarkable comprise a handsome Araucaria Bidwilli, 12 feet high; and two superb examples of A. lanceolata, of the same dimensions; several large and well grown specimens of A. Cunninghamii, A. excelsa, and Thujopsis dolabrata, the latter remarkable for its fine bushy habit. Some of the best sorts, and such as do not abound in the other collections, are shown by

Messrs. Smith & Co., of Hamburg. These comprise moderate sized plants of Pinus Cembra, Cedrus Deodara, Pinus monticola, Abies grandis, and A. nobilis argentea. Among those contributed by the Botanic Garden of St. Petersburg, the most remarkable is a beautiful Libocedrus chilensis, fully 15 feet high.

There is but little to be said of the fruit. A collection of Oranges, Lemons, and Citrons, from the National Nursery of Athens, contains a great number of varieties, but none of them merit particular mention, unless it is Citrus medica hispanica, which measures from 6 to 7 inches in diameter, and is remarkable for its irregular outline. Other collections from Lyons and Wurtemburg are composed chiefly of Apples. There are also a few dishes of Pears, including good examples of Belle Angevine, which might be called the giant of Pears. The Plums (Coe's Golden Drop), though not numerous, are well grown, and nearly ripe. There are also a few dishes of Cherries, Strawberries, Apricots, and Grapes, but they are of ordinary quality. One dish of Grapes, however, contains some beautiful fruit of white and black sorts. Some eight or nine Pine Apples are also shown, but these are not ripe, and only one or two as large as the Queen Pine. Vines in pots are very poor.

There are several collections of vegetables, comprising Potatos, Cucumbers, Asparagus, Beet, &c., but they contain nothing requiring particular mention. This department of the Exhibition might have been much better.

Of miscellaneous objects, there are, as might be expected, a great number; but I shall only notice a few. It would be unfair not to allude to the beautiful collection of aquariums shown by M. Zimmermann of St. Petersburg. I have not seen anything in this way more tastefully arranged than some of these exquisite drawing-room ornaments. The collection of garden tools and implements shown by Messrs. Veitch I have already mentioned; but there is another extensive exhibitor in this class whose name I have not been able to learn. There is a large painting in oil of the interior of a Palm-house, which really makes a very pretty picture. I cannot say much for a large album of water-coloured drawings of choice or rare Orchideæ. The plans of gardens are not numerous, and show nothing out of the usual way; but the drawings of aquariums by M. Zimmermann are exquisitely and artistically finished. A great many other things might be noticed, did time and space permit. But to conclude, I may just state that the English and Belgians have been the most successful. The Emperor's Gold Medal has been awarded to M. Linden for his new plants. M. A. Verschaffelt has justly received the Society's extra gold medal for his numerous and beautiful Azaleas. Another gold medal of the same value has been taken by Mr. Warner for his Orchideæ, and Messrs. Veitch have been awarded a gold medal for their new plants. *K.*

Societies.

Royal Horticultural *Special Prize and Pelargonium Show*): *May* 22.—This proved a very interesting exhibition in many of its features, while to the fanciers of Variegated Pelargoniums it was a veritable feast, for a very large number of these were staged. The President's special prize for 9 greenhouse Azalcas brought several collections, but only of average excellence. Messrs. Glendinning & Sons were 1st with Lateritia, Eulalie Van Geert, Madame Miellez, Extranei, Optima, Iveryana, Duke of Devonshire, Perryana, and Petuniæflora. An extra prize was awarded to Messrs. J. & C. Lee, who had Marie Louise, Perryana, Toilette de Flore, Eulalie Van Geert, Coronata, Punctata rosea, Iveryana, Duke of Devonshire, and Murrayana. The five best plants were staged by Mr. A. Wilkie, Addison Road, Kensington, he having very good examples of Alba Magna, Triumphans, Broughtoni, Magnificent, and Elegans Superba; but the group was sadly marred by the presence of a bad Sinensis, and two others that were little better than sorry examples. The President also gave special prizes for 9 Roses in pots and 6 double-flowered Zonal Pelargoniums, not fewer than three kinds. The former went to Mr. Turner, who had very fine examples of Charles Lawson, Souvenir d'un Ami, Victor Verdier, Anna Alexieff, Souvenir de Malmaison, Vicomte Vigier, Juno, Paul Perras, and Maréchal Vaillant. Extra prizes were awarded to Mr. William Paul and Messrs. Paul & Son. The former had capital plants of Louise Odier, General Jacqueminot, Céline Forestier, Anna Alexieff, Souvenir d'un Ami, Madame Villermoz, Paul Perras, Victor Verdier, and Caroline de Sansal; the latter Madame de St. Joseph, Souvenir d'un Ami, Victor Verdier, Maurice Bernardin, Ladia, Senateur Vaisse, and Anna Alexieff. Messrs. Paul & Son also contributed a group of Roses in pots; and both they and Mr William Paul showed capital boxes of cut Roses. Amongst those contributed by the latter, was the new hybrid perpetual Princess Christian, a globular-shaped Rose, of the colour of Maiden's Blush, and which received a First-class Certificate. The only exhibitors of double-flowered Pelargoniums were Messrs. Standish & Co., Ascot. The plants were uneven in size, two or three of unusual proportions, and not well bloomed. The varieties were Madame and Marie Lemoine, Gloire de Nancy, and Capitaine L'Hermite—there being duplicate plants in two instances.

Among new plants were some fine things. Messrs. Veitch & Sons took both the prizes offered for the best 6 sent out in 1867 and 1868 with the beautiful Dendrobium Bensonæ, having upwards of 50 flowers; Alocasia Jenningsii, Retinospora filifera aurea, Sanchezia nobilis variegata, the true Vanda insignis, and the green and white variegated Dracæna regina. The collection which took the 2d prize consisted of a nicely variegated pan of the motley Abutilon Thompsoni, Begonia Rex-cucullata, Nepenthes hybrida, Acalypha tricolor, Phormium Colensoi variegatum, and the graceful Davallia parvula. For the best 6 new plants sent out this year, Messrs. Veitch were again 1st with Maranta tubispatha, Dracæna Madeayi, a dark reverted glossy-leaved variety; Croton maximum, one of the largest yellow leaved varieties, extremely handsome; Croton Hutchinsii, a compact growing kind, with reddish yellow leaves; Dracæna nigro-rubra, an erect growing sort, with dark leaves and bright rosy centre; and Davallia hemiptera. The same firm were also 2d in this class with Dieffenbachia Wallisii, Maranta princeps, M. chimboracensis; Croton angustifolium, Tetra (Lopezpteris) Wilkesiana, which received a First-class Certificate, and Dawsonia fimbriata, to which a Second-class Certificate was awarded. The best new plant shown for the first time in flower in Great Britain was Dendrobium Jamesianum, from Messrs. Veitch, of which a full description will be found at p. 554, a First class Certificate was awarded to it. The prizes offered for the best new ornamental foliage plant shown for the first time, were again carried off by the Messrs. Veitch, the first with Croton Hookerianum, a very pleasing and attractive plant, having an orange-coloured stem, and fine greenish foliage, with variegated bright yellow centre, and the 2d with Dracæna magnifica, a strong, broad leaved brownish red species, both of which received First class Certificates. Dracæna albicans, a green and white variegated variety, introduced from the Solomon Isles; and Alocasia Sedeni, a hybrid between A. Lowii and A. metallica, were also exhibited by the above firm.

The best new garden seedling of any kind in flower was Rhododendron Lady Rolle, a white flower, the upper petals of which are densely spotted with crimson; sent by the Messrs. Veitch. The 2d best was the new hybrid Pelargonium, Willi rosea, exhibited by Mr. Wimsett, of the Ashburnham Park Nursery; this also received a First class Certificate. It is one of the most remarkable hybrid Pelargoniums that has been produced, having been raised by Mr. Wills, who has been 15 years in effecting the cross, which is between the old Ivy-leaved and a zonal variety. Messrs. Veitch also showed in competition the beautiful Dichorisandra mosaica, the small white-flowered and sweet-scented Angræcum falcatum, and Dracæna Chelsoni, an introduction from Banks' Island, which was honoured with a First-class Certificate.

Among the subjects which came more immediately under the notice of the Floral Committee, were a fine collection of Orchids and ornamental-foliage plants from Mr. Bull, who showed in flower, among the Orchids, Anguloa Clowesii, Odontoglossum pulchellum grandiflorum, Cypripedium Lowii and purpureum grandiflorum, Cœlogyne pandurata, Vanda suavis superba, and Odontoglossum niveum majus; and the following new plants, which were each awarded a First-class Certificate:—Encephalartos grandis, Latania rubra, Acer polymorphum palmatifidum, Ptychosperma nobilis, Hyophorbe Verschaffeltii, Nothochlæna candida, and the pink double-flowering Pelargonium Madame Lemoine.

The best group of foliage and flowering plants, three of each, was furnished by Mr. Turner, who had admirably flowered specimens of Azaleas, Iveryana, and Glory of Sunninghill; a magnificent plant of Rose Charles Lawson, and remarkably healthy and good specimens of Dracæna australis, Pandanus utilis, and Aralia palmata. Messrs. Glendinning & Sons came 2d with a nice group, consisting of good specimens of Theophrasta imperialis, Pandanus ornatus, Croton variegatum, and Aphelexis macrantha purpurea, Pimelea spectabilis, and Polygala oppositifolia, in nice condition. Mr. Wilkie and Mr. G. Wheeler also contributed some well-grown specimens. For 6 stove and greenhouse plants in flower Mr. G. Wheeler came 1st, and Mr. Wilkie 2d. Messrs. Glendinning & Sons also exhibiting some well-grown examples, in comparatively small-sized pots.

The Pelargoniums were so numerous as to fill a great portion of the northern arcade. In the class for one Golden Variegated Zonal there were 34 competing groups, three plants of each variety being required. Messrs. E. G. Henderson & Son were 1st with Peter Grieve, a robust growing variety of excellent habit, with slightly convex, smooth, and well-rounded leaves, a vandyked fiery zone, and leaf margin of yellow. In point of habit, and also of shape of leaf, this variety marks a decided advance, though there was a want of life in the colouring. Mr. C. Turner and Messrs. Carter & Co. were placed equal 2d; the former with Mrs. Headley, the latter with Prince of Wales; both apparently identical in character, having large and finely-coloured leaves, the yellow leaf-margin of which very soon turns white, which destroys its effectiveness. This is a manifest defect in many of the finely-coloured kinds. Mr. Turner was placed 3d with Achievement, by no means in such good condition as when first exhibited. In the class for one Silver Variegated Zonal, Mr. C. Turner was 1st and 2d, the best being Excellent, a capital habited variety with a high-coloured carmine zone shaded with dark; the next, Lady B. Bridges, a distinct and well marked variety with smooth but somewhat convex leaves, and good habit. Mr. Comber, of Highgate, was 3d with Mrs. Col. Wilkinson, a finely marked variety of a robust short-jointed habit, the leaves concave and rough.

In the class for Gold and Bronze Zonals Messrs. Downie, Laird & Laing had it all their own way, staging a valuable lot of plants. They were 1st with J. W. Morris, and 2d with Red Ring, two kinds not without some similarity of character, but yet sufficiently distinct, both having a golden leaf-ground with a well defined lively bronze zone, the leaves smooth and of excellent shape. The 3d prize went to Empress Eugénie, a very bold-looking and robust kind, having large golden leaves and a broad striking zone of reddish bronze; the leaves had a blistered appearance, and caused the plant to look somewhat coarse and rough. Golden-leaf Self Pelargoniums were poorly represented, and there appears to be plenty of room for improvement in this respect. Mr. Turner was 1st with Pillar of Gold, and 3d with Carrie Fowler; and Messrs. J. and C. Lee 2d with Golden Nugget.

Mr. Turner staged some fine things in the class for Silver-edged Pelargoniums, and was placed first with Bright Star, a short-jointed robust variety, with a broad edging of creamy white, and finely-formed orange-scarlet flowers; 2d, with May Queen, a well-known and fine kind; 3d, with Mrs. Cutler, also a capital variety, broadly edged with white, and of excellent habit. The class for Ivy-leaved Pelargoniums was but poorly represented. Mr. J. W. Wimsett was 1st with Willsii rosea, one of the fine new hybrid varieties raised by Mr. Wills, having deep green leaves, with a faint dark irregular zone, and bright violet rose-coloured flowers; 2d, Mr. Stevens, Ealing, with L'Elegante. Messrs. Downie, Laird & Laing were placed 1st with one Nosegay variety, having three large and finely-bloomed plants of Fire King, a brilliant crimson-flowering variety. The 2d and 3d prizes were withheld. The only other exhibitor was Mr. Thomas Laxton, Stamford, who had Densiflorum, a rosy salmon-coloured kind, with small flowers.

The larger classes of six and 12 plants brought a good competition, the plants generally, in so far as the variegated kinds were concerned, being of more than average excellence. With six Golden Variegated Zonals Messrs. Carter & Co. were 1st, with Mrs. Dunnett, Prince of Wales, Sultan Abdul Aziz, Princess of Wales, Sir Robert Napier, and Edith Steel. Mr. Turner came next with Lucy Grieve, Lady Cullum, Mrs. Headley, Mrs. Turner, Sophia Cusack, and Grand Master. The group to which the 3d prize was awarded had, differing from the foregoing, Sophie Dumaresque and Countess of Tyrconnell, the last a robust growing variety of some promise. With 6 Silver Variegated Zonals, Mr. Turner was 1st, with Miss Stevens, Italia Unita, Excellent, Lucy, Mabel Morris, and the Hon. Mrs. Fortescue; 2d, Messrs. E. G. Henderson & Son, with Charming Bride, Silver Cloud, Glen Eyre Beauty, Italia Unita, Caroline Longfield, and Silver Star. Mr. H. Cannell also furnished a group in this class. With 6 Gold and Bronze Zonals, Messrs. Downie, Laird & Laing were 1st, with Harrison Weir, very fine; Stanstead Beauty, Mrs. Alan Loundes, Prima Donna, Crown Prince, and Red Ring. 2d, Messrs. Carter & Co., with Egyptian Queen, Black Prince, Cleopatra, Danaë, Ada, and Southern Belle. 3d, Messrs. F. & A. Smith, with Tom Brown, Arab, Sybil, Criterion, The Moor, and Hannibal. Messrs. Carter & Co. were again 1st in the nurserymen's class for 12 Zonal Pelargoniums having ornamental foliage, with Aurora, Fairyland, Sir R. Napier, Sultana Valide, Victor, Mrs. Dunnett, Louisa Smith, Emperor, Cleopatra, Sophia Cusack, Daybreak, and Royal Standard, all belonging to the Golden Variegated Zonal section. 2d, Mr. Turner, the best in his group being Sophie Dumaresque, Mrs. Turner, and Sophia Cusack, golden-edged; and Miss Poole, Beauty of Guestwick, Excellent, and Impératrice Eugénie, Silver-edged Variegated Zonals. Messrs. F. & A. Smith also exhibited. In the amateurs' class for six kinds, Mr. Welch, gr. to D. Rutter, Esq., Hillingdon, was 1st with Sophia Cusack, Lucy Grieve, Sophie Dumaresque, and Lady Cullum, all golden-edged; Italia Unita, silver-edged; and Circuit, one of the Gold and Bronze section; 2d, Mr. Townsend, gr. to J. E. Mappin, Esq., Clapham Park, with L'Empereur, Jetty Lacy, Defiance, Lady Cullum, Louisa Smith, and Italia Unita.

The two classes for the ordinary Zonal Pelargoniums may be dismissed in a few words. The nurserymen's class did not fill, while the plants shown by amateurs were of the floricultural pan-cake style, destitute alike of natural freedom or elegance. With 6 Nosegay Pelargoniums, Messrs. Downie, Laird & Laing appeared to be the only exhibitors, having very good examples of Duchess of Sutherland, Emmeline, Countess of Strathmore, Rose Stella, Mrs. Laing, and King of Nosegays.

Miscellaneous groups of hardy variegated and succulent plants, as well as a lot of cut blooms of very showy double Pyrethrums, were staged by Mr. Salter, Hammersmith. Mr. Pearson, of Chilwell, also furnished a group of Zonal and Tricolor Pelargoniums. His Tricolors Edith Pearson, W. Sandy, and Major Ellison are fine varieties, though not shown in good condition here; E. J. Lowe and Reynolds Hole, amongst the bedding kinds, are very effective varieties, but were not seen to advantage, the blooms being much damaged. Corporal Brown, R.E., of the Ordnance Survey Office, received a well-merited Special Certificate for two baskets of Tricolor Pelargoniums raised by himself, one of which, the Hon. Mrs. Le Poer French, was exhibited by him on a former occasion. The Corporal may be congratulated on his success in window gardening, in which he has proved himself to be an adept. Rhododendrons and Pelargoniums were sent by Messrs. Standish & Co., and the former by Mr. C. Noble, Bagshot; cut Pansies by Messrs. Hooper, Bath; and Shenton & Cowley, Biggleswade; and cut Rhododendrons by Messrs. Paul & Son.

Notices of Books.

The Parks, Promenades, and Gardens of Paris, Described and Considered in Relation to the Wants of our own Cities and of Public and Private Gardens. By W. Robinson, F.L.S., &c. With upwards of 400 Illustrations. London: Murray. 8vo, pp. 664.

The first impression produced on our minds, on an inspection of this book, was, that it was fully twice as large as it need have been. Even now, after more thorough examination of its contents, we cannot but regret that the author did not bethink himself of the adage, which says a great book is a great evil. Certain it is, that in his endeavours to present his readers with a true image of the present state of gardening in and around Paris, the author has been led into the very common error of saying too much. It becomes difficult to see the forest by reason of the trees. Instead of presenting us with a general view of his subject, set off by descriptions of the more salient and noteworthy features, we have a vast mass of details. On this account the book becomes somewhat wearisome to peruse, and would be far more so were it not for the light, pleasant style in which it is written. And now, having, after the fashion of people hard to please, pointed out what we consider to be the worst fault of the book, let us hasten to acknowledge its merits. Let us first glance at the principal topics treated of in this volume. In so doing, if we confine ourselves mainly to exposition, it is because very many of the points raised by Mr. Robinson have already been made the subject of criticism, sometimes of a somewhat fierce nature.

Who is there that has set foot in the Place de la Concorde, and looked on the one hand towards the Tuileries, and on the other up the long vista of the Champs Elysées, but has been struck with the magnificence of the scene. Every tourist, all the guide-book writers, go into raptures over it, and not without reason. No wonder then that our author makes it his *point du départ*, and gives us, in somewhat guide-book fashion, an account of the *sergens de ville*, the *cafés chantants*, the *carousels*, the *cirques*, the pigeons, and —no, we don't think it is mentioned—the *Marronier du Vingt Mars*. Well deserved praise is given to the roadway and asphalted paths bordered by that detestable gritty gravel, if gravel it can be called. From the Champs Elysées it is a natural transition to the Bois de Boulogne, and accordingly our author, with a few graphic touches, conveys an idea of this vast and varied park, and by the way discusses, for the most part very sensibly, on some of the requirements of landscape gardening as at present practised. The Bois de Vincennes, the Parc Monceau, and the Parc des Buttes Chaumont, next come under notice, the latter a piece of cockney gardening on a gigantic scale, suggestive of the bumps on the surface of a well-baked pie. Versailles, St. Cloud, and Fontainebleau—dreary, fatiguing places for the most part, so far as their gardens are concerned —also find a place in Mr. Robinson's book. The latter place gives occasion to speak of M. Souchet's famous Gladiolus grounds. From the Jardin des Plantes, and that of the Luxembourg—recently altered much for the worse—our author passes to the consideration of the numerous pretty squares and places with which Paris now abounds.

In regard to these matters Mr. Robinson is a great advocate for what has been termed "Haussmannising" London. What he says on this matter is very sensible. A large portion of his volume is devoted to it. He returns to it again and again, and in view of the magnitude of the issues involved, and of the urgent necessity for improvement, we cannot say that he speaks one whit too strongly, or too often. Not for mere ornament—not alone for the sake of the refining influences of fresh air and green leaves, but for very life's sake do we need in our crowded towns the open spaces, the broad streets, the girdle of gardens which Mr. Robinson advocates. Strange that while we each individually and instinctively have so vivid a sense of the importance of self-preservation and self-defence, we in our collective capacity have so strong a tendency towards self-destruction and the gradual extinction of others. In the case of London we all know the why and wherefore of the existing state of things, we know the higgledy-piggledy jostling of houses and streets and alleys from which Wren tried to rescue us when London was not so big as Paris now is. We know the vested rights, the privileges, the conflicting interests, and the other enormous obstacles in the way of making London what it ought to be. We are familiar with the spasmodic efforts, with the really imposing results that are obtained, though in so isolated and disconnected a way as practically to lose much of their value. We can realise, especially when the bills come in—the enormous cost of what has been done, we can deplore the money wasted in architectural display in places where, from the nature of the locality, it is impossible for the passer-by to see it. We can grieve

over the ill-conditioned schemes by which hundreds of pounds are spent for the adornment of places whose denizens least of any citizens stand in need of such expenditure,—while, on the contrary, comparatively little, or even nothing at all, is done to let God's light and air find their way into the squalid haunts of misery and vice. As our author says—

"The change must be radical. We want a plan with the Thames Embankment for its backbone. (Do plans have backbones, and is the Thames Embankment a vertebral column?) There is nothing to prevent us having the best embellishments seen in continental cities, minus their trees in tubs, and paltrier features. But to have them, it is indispensable that we first have breadth and room, that the street traffic may circulate without abrading them away. Footways and roads, wide and open, are the first and greatest necessaries, and they ought to be planted with trees, which do better in London than in Paris. No fancy gardening; no expenses for vases, grilling, water squirting—nothing whatsoever of that type—should be tolerated until the pure free air be enabled to search its way into the heart of the town through open verdure-bordered roads."

Pursuing this part of his subject, Mr. Robinson goes on to describe the vast establishment of La Muette, and some of the other nurseries whence the municipality of Paris derives its supplies of "subtropical" and other plants. When, a few years since, this establishment was described by our author in our own columns, certain stay-at-home travellers considered that some exaggeration had been indulged in. The Exhibition of 1867 afforded an opportunity for several of our gardeners to judge for themselves, and to confirm the accuracy of Mr. Robinson's statements. A chapter is devoted to the consideration of the best trees and shrubs for planting in towns. For the most part we entirely agree with our author's remarks, especially with reference to the Plane, the Ailantus, the Robinia, the Oak, some of the Maples, some Poplars, the Hickory, and the Naples Alder (Alnus cordata). At the same time he has hardly been explicit enough in drawing the distinction between trees that will set at defiance the polluted atmosphere of the most densely crowded parts of our cities, and those that can only be grown in the more airy spots. While the Plane and the Ailantus do perfectly well in the former situation, the Thorns (Cratægus), the species of Pyrus, especially those with woolly leaves, require a pure, less soot-laden, and gas-tainted atmosphere.

The chapter on "sub-tropical" gardening, and the plants best adapted for that system of culture, is copiously illustrated, but demands no especial notice at our hands.

A chapter is also devoted to the plants most suitable for growth in living rooms and in conservatories, in which the author very justly condemns the want of taste and real love of plants which restricts their employment to a few Cinerarias, Pelargoniums, Azaleas, and the like, when many more equally beautiful and more interesting plants can be as readily, if not more easily, cultivated. We must defer further notice of the latter portions of this volume till another time, but we have already said enough to commend the book to the notice of all interested in Parisian gardening in general, or in æsthetic and sanitary matters in particular.

The Apiary.

As much interest attaches to the cultivation of Clovers and Clover allies, in relation to the economy of Bees, I purpose giving a few practical notes on some of the species.

That the Red Clovers, Trifolium pratense, T. pratense var. perenne, and T. medium, are much visited by bees, is well known; but as large cultivators of the T. incarnatum—Crimson Carnation Clover—I am bound to say that I have not observed bees to frequent it to any great extent; neither does it afford the same amount of aroma, either in the growing or the dried state, as characterises our commoner British Red Clovers, and it is therefore but a comparatively nutritive or stimulative plant. But being rapid and early in its growth, it affords a feed for sheep just before May, when as yet Grass is scanty, and Turnips are finished, besides offering the advantage of being cleared off in good time for the growth of a crop of Turnips.

If I may be permitted a bit of practical agriculture in this place, I would advise, in the sowing of Carnation Clover, to mix about 1 lb. of Rape-seed per acre with it, as I find a small proportion of Rape greatly adds to its feeding value, without at all lessening, but perhaps increasing, the bulk of food. The White Clover, T. repens, is, when in flower, a much-relished bee food. It perhaps holds better on poor sands than any of the other species, and for sheep pasture is highly valuable. At the same time, I am not inclined to think highly of its feeding properties. Left down for two years it allows even poor soils to afford a tolerable crop of Wheat or Oats.

The most bee-loved plants among the Clover allies are the Melilots; of these, I have long grown three forms,—

1. Melilotus officinalis—Yellow Melilot.
2. Melilotus alba—White Melilot.
3. Melilotus alba, var. gigantea.—Larger White Melilot.

1. The Yellow Melilot I have found to be so general as in many cases to be a troubesome weed; but still, there is reason to think that it is not a native plant, but has spread from former cultivation which was somewhat general; no doubt, also, it found its way into our crops as an agrarian weed from admixture with foreign seeds. This and its congeners get their generic names from their being favourites with bees, and there is no doubt that the bee-master would find his account in the cultivation of them.

2. The White Melilot, like the yellow, is an agrarian weed, and doubtless was introduced in the same manner; but I have never found it so abundant or so frequent as the yellow.

3. I have received seed of this form of White Melilot from the East, under the names both of Bokhara and Cabool Clover. It is larger in its stems and foliage than any British species, frequently growing as much as five feet in height. Its flowers are, if anything, smaller than those of the M. alba. Having grown all these, I find them to be much resorted to by bees, which would seem to be as much attracted by the strong smell of the foliage as by the scent of the flowers. The flavour of the whole plant is due to the same principle as that of the Anthoxanthum odoratum—Sweet Vernal Grass—a Grass principally concerned in imparting the peculiar fragrance to good meadow hay. This principal is, by the chemist, called Coumarine, and is the same volatile oil that gives fragrance to the Tonka Bean.

Now, I have grown these Melilots in my mixtures of seeds or artificial Grasses, with a view of imparting to them the flavour of meadow hay; and, in as far as my experience has gone, I have found such Hay to be both more relished and more nutritious. I mix about a quarter of a pound of Melilot seed with the seed for each acre of Clover, or mixed Clover and Grass seeds. The bee-master, then, who farms may improve his artificial fodder while he provides for his bees, through the medium of Melilot; and if he does not farm, I hope he will not fail to propagate, as I have endeavoured to do, these principles among his friends. *B.*

Garden Memoranda.

Bicton Gardens, the Seat of the Right Hon. Lady Rolle, Budleigh Salterton, Devonshire (*concluded from p. 505*).—The kitchen gardens contain about 2 acres within the walls, and the same outside the main compartments—for the outside is likewise walled in. The whole of the walls inside and out are admirably furnished with healthy and fruitful trees. On the north side there is an excellent frame and forcing ground, also walled in. This ground is open to the south, and contains three ranges of admirable pits and one range of frames. These are the great producing machines for Cucumbers, Melons, Asparagus, Seakale, Rhubarb, Salading, &c. Besides, there are numbers of turf pits for the growth of early Potatos, Radishes, Carrots, Lettuces, and from 20 to 30 lights of Neapolitan Violets. In winter, again, they are used for storing Cauliflower, Cape Broccoli, Endive, Lettuce, &c. In summer these pits are filled with Cucumbers, Melons, Vegetable Marrows, Capsicums, &c. The pits are in a different part from the frames or forcing grounds, and are surrounded on three sides with a thick Laurel hedge, that affords excellent shelter. At the back of these again are the soil, manure, and compost yard, where every forcing and potting requisite is neatly stacked and carefully stored. The supply of water is abundant, and its distribution perfect. It is readily accessible at any point where it can possibly be needed, being conveyed in pipes all over the garden. Only those who have to maintain a constant struggle with drought, without the means of combating it, can appreciate the full cultural importance of such a statement. The garden inside is thrown into convenient-sized compartments, by means of well-made gravel walks, edged with cleanly-looking pebbles. The walks are bounded with 4-feet borders, on which espaliers or circular-trained trees are planted. The change of form from the hard and fast lines of the straight espaliers to the flowing curves of the circular trees is pleasing. Apples, Pears, Plums, &c., do well under this treatment, and, in fact, all the trees, of whatever shape, looked remarkably healthy, and were laden with heavy crops.

Mr. Barnes has been eminent as a kitchen gardener for nearly half a century. His mode of cultivating the earth has, therefore, the sanction of a long experience, and is justified by the most successful results. From Loudon's days till now, it has commanded more than usual attention, and perhaps few more useful services could be rendered to your younger readers than to lay his mode of vegetable culture briefly before them.

Had I to define Mr. Barnes' mode by one phrase, I should call it the express mode of cultivating the earth. The soil is the carriage-way on the great railroad of time, and the crops are the trains started upon it. The first necessity then for despatch is smoothness of way. There must be no obstacles to obstruct rapidity of transit. These obstacles on our railway, the earth, are of various kinds. They, however, may be classified under two general heads—natural and accidental. The natural obstacles may be said to be "texturial," the accidental, "insectorial." Mr. Barnes sets himself to remove both. Smoothness and evenness of crop-way is obtained by incessant movement and aëration. This is also found the best remedy against accidental obstructions by the form of insects.

Having thus removed such obstacles, or reduced their obstructive force to a minimum, the next point in the development of a large traffic on the express principle is to start plenty of trains. This Mr. Barnes is most careful to do. No sooner is one crop out of sight than another is planted on its heels. This, on our line, can never produce collisions. The eye sees the ground clear, and the signal is instantly given for another crop to be started. No one, however, can have travelled by railway without discerning that another element is needed to insure success or safety by express train. The axle-boxes must be replenished with grease. What the grease-box is to the carriage-axle, manure is to the earth. It causes the machinery of growth to move easily and smoothly, and prevents the soil from being worn out. A smooth soil, a rapid succession of crops, and frequent enrichment by the addition of manure, both in a material and gaseous form, is the philosophy that I think underlies Mr. Barnes' great success as a kitchen gardener.

The ground may be said to be worked upon the ridge-and-furrow principle. It is trenched deep after every crop, and if it only lies for 24 hours idle—and it is seldom bare for a longer period either in summer or winter—it is thrown up as roughly as possible, to catch enriching gases from the atmosphere. The crops are all grown upon such ridges, varying from 6 to 10 feet in width, if I remember rightly. After every crop the ridge is split down the middle, the crown being thrown into the furrow, and the furrow elevated into the crown of the new ridge. Thus the relative position of the soil is altered, and its whole substance stirred and moved. The ridge form likewise affords a great variety of aspects and positions for the different crops. The great depth renders it independent of drought, while its high degree of porosity prevents it suffering from a glut of stagnant water.

No rake on the surface is another of Mr. Barnes' canons of kitchen-garden culture. A smooth surface, unless for seed sowing, is wholly avoided. At all times, when the weather allows, the hoe is kept in motion among the crops, to open up rough fresh raw portions of the soil to the pulverising action of the atmosphere—to admit the air and moisture freely into its mass. This is most beneficial to the luxuriant growth of all vegetables, and, to use his own words, "is opposed to the growth of weeds, and acts with terribly destructive force against the health, comfort, breeding, or thriving of all vermin, and preventing any of them making their home thereabouts."

This great horticulturist has studied to good practical purpose the profound theory of the correlation of force. He has impressed upon the soil the great art of giving, and yet increasing. Cropping is the cultural weight that imparts stability to the earth's inexhaustible storehouses of growing power. The one thing to guard against is an unclothed surface. Give the earth work to do, and it will never flinch from its accomplishment. Mr. Barnes' first efforts go to secure mass or bulk of soil. He does not believe in the motive power of light or small bodies; he goes for the impetus acquired by mass. Hence no mere surface scratching of the earth suffices for him. Down, down, deeper down, is his watchword, until he obtains a tilth to work with of from 3 to 5 feet in depth. This is his grand storehouse of cultural force, from which his momentum for propelling vegetation is obtained; this his mass of earth that works with such might and energy in the manufacture of such an astonishing bulk of sweet and crisp vegetable matter. We have seen the first elements of his productive energy, we will now try to unearth his second agency—heat. How does he enlist this transcendant power into his service? Chiefly in three ways. First, by conserving the heat already in the ground; by freely admitting fresh supplies, and by creating new sources of heat within the earth itself. Thorough drainage is the great conservative power of heat; it bars up the widest doors, through which it is ever ready to escape. A dry surface or well drained mass of earth stops the loss of heat by evaporation, and it is well known to every one that evaporation is the most powerful known robber of heat. By allowing the water a free passage downwards instead of upwards the greatest amount of heat is preserved in the earth with the minimum loss. Next to thorough drainage, a covered surface is the best means of keeping heat in the ground. The crops arrest the escape of warmth, and return a large portion of the heat back to the earth. They erect a barrier against the energy of radiation outside. I advance another step here with more diffidence. It is this, that life itself—the mere vitality of vegetation—becomes a source of heat to the earth. The temperature of plants has often been observed to be considerably higher than the surrounding air or earth. Thus probably every living plant becomes a conserver of the heat of the earth of lesser or greater power, or a generating centre of heat. Another mode of increasing the temperature of the earth is by the free admission of heat, by texturial management, and a frequent inversion of the surface soil. A friable soil may heat more gradually, but it retains the warmth longer than one of the opposite character, and if fresh surfaces are continually turned up, and exposed fully to the sun, and the heat so acquired be persistently turned in, it is astonishing how much may thus be done to raise the temperature of the ground.

The last plan to be noted is the direct creation of heat within the earth itself. This is accomplished by the addition of decomposing matter. It is too much the fashion to look upon such materials as possessing only an enriching or manurial value. The term stimulant would, however, be more correctly descriptive of their powers. It is by the performance of quickening functions that the worth of many so-called manures ought to be measured, and they stimulate less by their feeding properties than by their heating powers. Wherever decomposing matter and air meet together, either within the earth or out of it, heat is the product of their union. Thus every atom of matter undergoing decomposition becomes a centre of warmth. Infinitesimally small as the heating power of each centre may be in itself, yet their powerful aggregate strength makes up for their individual littleness; and their combined energy may be, and I believe is, sufficiently potent very sensibly to raise the temperature of the earth. And it is probably as direct creators of heat that our rougher manures are most useful; so much at least is quite certain, plants cannot feed upon manures until they are decomposed and taken to pieces. The process of dismantling the vegetable or animal structures generates heat. This heat is imparted to the soil, and is, doubtless, as useful in building up the structure of living plants as it was in breaking down the fabrics of dead ones. This fact at least must be admitted, that manures do raise the

temperature of the earth in the exact ratio of the energy and rate of their decomposition.

Here, then we have mass and its weight—a mass, be it noted, full of the rudiments of plant food, and, grasped by the potent power of the mightiest of all known forces—heat, brought to bear upon vegetable production. Now these facts are, I believe, at the bottom of Mr. Barnes' success as the originator, I had almost said, of the great art of perpetual cropping and vegetable growing by express. The powers that he enlists in his service are illimitable, and hence the fertility of his soil is inexhaustible. Every crop adds to the volume and richness of the mass, and secures a larger measure of his quickening motive agent, heat; hence every successive crop adds to the richness of the soil, and furnishes it with new powers for converting its *energia* by a series of marvellous exchanges, into the most useful produce.

Right or wrong in these theories, the fact remains that perpetual cropping is the rule in Bicton Gardens, and has been so for many years. As soon as the crop is cleared off, double digging or trenching, either with or without manure, follows on the heels of the retiring crop, and another generally takes its place before the day is out; and so on throughout the year, and for many years together; and the results are, increased fertility and accumulated force of production.

The weight, sweetness, crispness, and rapidity of growth of the crops is the best commentary upon the wisdom of Mr. Barnes' mode of culture. It is a species of forcing in the open ground, and doubtless the system resembles closely, if it is not identical with, that of the market gardening round London. Last season afforded striking proof of the immense advantages of deep culture. Terribly withering as the drought of the past summer has been, it had scarcely made a mark upon the Bicton kitchen garden.

But these notes must have an end, though I have by no means exhausted the riches, or even indicated all the beauties, of Bicton. Time and space would alike fail, to advert to the extent or fine clothing of the noble park; the number and high character of the lodges; Mr. Barnes' farming; Lady Rolle as a church and school builder; the magnificence of the mansion, or the size of the estate, sweeping back from the open sea, and nestling round among the far-off hills in the distance. Of Bicton, as well as its accomplished manager, your readers may be assured that not more than one half has been told them, for, take them for all in all, it would be difficult to match the like anywhere. *F.* [It will be seen from another column that the account of Bicton, now concluded—as it were serves for the life-history of its late manager, who in retiring from his active duties carries with him the admiration and esteem of all lovers of gardening. EDS.]

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

THE delightfully fragrant *Luculias* should now receive particular attention, and especially if they are grown in pots. In the first place, if to have fine plants furnished with numerous heads of bloom be a consideration, the young shoots which have now formed should be stopped or pinched back, to induce them to break and make a more regular and compact growth. When these plants are cultivated in pots they require a moderate shift two or three times during their season of active growth. They thrive best in a compost consisting of one part of good fibrous peat, two parts of good turfy loam, with one of decomposed leaf-mould, and a good sprinkling of silver sand and potsherds broken moderately small. Good drainage is of the utmost importance. It is not advisable to repot those that are not thinning or have not a good supply of young healthy roots, a good surface-dressing will suffice for these until such time as a quantity of young roots are formed. They succeed best when the pots are plunged into a moderate bottom-heat, with the top temperature about equal, and an occasional supply of air and a moderate amount of atmospheric moisture. When the flowering pots are pretty well filled with roots, full exposure to both sun and air should be afforded, by placing the plants upon an airy stage in an ordinary greenhouse. In this position the leaves may assume a rather ripened autumnal tint, but that circumstance should not alarm the cultivator, for in that condition they are capable of withstanding cold better, and will bloom far more freely in consequence. Cape and other *Pelargoniums*, now that they are flowering, will require a little shading during bright days, taking care that the full sun does not act upon them much later than 9 A.M. Give occasional waterings with clear liquid manure, and afford a plentiful supply of pure water throughout the day, as often as the balls show symptoms of becoming dry. Afford to *Orchids* that are growing upon blocks of wood or in hanging baskets copious syringings with tepid water, now that they are growing freely. *Cockscombs*, *Balsams*, *Coleus*, sweet-scented foliaged plants, and other similar subjects, which will shortly be in demand for decorative purposes, should now be potted on as often as a shift is required. Give to specimen plants of *Hydrangeas* that are growing in pots, and which have not been fresh shifted, a liberal supply of liquid manure; they may also be greatly benefited by receiving a good surface-dressing of stiff loam and leaf-mould. This is a favourable period for the propagation of any choice varieties of *Begonias*. Cuttings put in now will make nice little plants for potting-off at an early date, and by pinching back they may be made to form fine bushy stuff by the autumn. Put in a successional batch of *Chrysanthemum cuttings*, as these will come in very useful where various-sized plants are in demand.

FORCING HOUSES.

Keep up a high range of temperature in *Vineries* where the Grapes are ripening, and particularly see that the necessary supply of fresh air is given, the more the better, with plenty of heat. *Late Vineries* which have set their crops should again be treated to a goodly supply of moisture and an increase of 5° to 8° of heat. Let the leading shoots upon all young Vines and the lateral shoots of older canes grow as much as possible at this period, and be particular to stop all laterals, &c., upon those spurs which are actually producing fruit. A little extra growth, where it can be insured at this time, in the manner alluded to, will prove a great incentive to a fresh and healthy root formation, so desirable to carry each plant successfully through the fruiting period. Be on the look-out for insects, and especially for such troublesome pests as the red spider. Use flowers of sulphur plentifully, dusting cool surfaces freely over, as an additional security against it. Stop the young shoots upon *Figs*, as previously advised, and if no fruit is actually ripening, syringe the foliage freely with tepid water.

HARDY FLOWER GARDEN.

Examine the buds of *Ranunculuses*, which are this season rather numerously infested with a very objectionable grub. Protect the flowers with some sort of shading where they are cultivated in beds, and opportunity offers to do so. Continue the propagation of *Pansies* by cuttings, especially the Blue and Yellow Cliveden varieties. If an early spring display is required transplant all semi-hardy annuals, such as *Tobacco plants*, *Variegated Indian Maize*, *Antirrhinums*, *Asters*, *French Marigolds*, *Larkspurs*, *Ten-week Stocks*, and the double varieties of *Zinnias*, which have been grown in pots or boxes, during a moist period, and by means of lime, wood-ashes, or some similar materials strewn around them, endeavour to protect them from nocturnal and other insects.

HARDY FRUIT GARDEN.

Remove all superfluous and needless growths and suckers from *Filberts*. Look carefully over each tree after caterpillars, which are rather plentiful in some localities. That dire pest, the Gooseberry caterpillar, is also making sad havoc in some places, and should be sought after incessantly when once it is known to exist on any trees until thoroughly eradicated. A large saving of labour will be effected by looking closely after them during their earlier stages of growth before they become distributed amongst the branches; each separate colony bred by the parent insect is thickly placed upon individual leaves alone, and consists of from 10 to 15 young caterpillars. They are readily detected as soon as they become sufficiently large for mischief, by the various minute punctures, increasing in size daily, which are discernible alone upon those leaves, upon the under surfaces of which they are safely ensconced. By removing these leaves at this stage the insect is readily seen, and can be easily destroyed; whilst to leave them later, necessitates the removal of those of larger size one or more only at a time, and this often after the trees have been greatly disfigured. Thin out all superfluous suckers attached to *Raspberry* stools; from three to five young shoots will be ample, from which to secure wood for fruiting in the ensuing year.

KITCHEN GARDEN.

Continue to make periodical sowings of any choice varieties of Peas, according to the demand for such in the early autumn. To keep up a constant successional supply, I have frequently intimated that each successional sowing should be made immediately the preceding one shows through the ground. *Broad Beans*, and tall growing Marrow Peas, ought, however, to be sown for the last time, within a week or so of this date, according to the aspects they are to occupy, and the warmth or coolness of given soils. Keep the hoe constantly at work as long as there are any weeds left, as few things enhance the beauty of a garden more than clean trim walks. *W. E.*

TOWN GARDENING.

Carnations and *Picotees*, which are now commencing to show their flower-buds, should have their stems neatly tied up as they advance in growth, and all the lateral buds should be removed if fine flowers are to be secured, leaving only the terminal bud on each stem. The branching Larkspur, if planted out now in the front of beds and borders, and afterwards pegged down, furnishes a nice edging plant, which thrives well where many other subjects would fail. All flower beds should now be kept free from weeds by hand-picking them in wet weather, and by using the Dutch hoe in fine dry periods, which will stir the surface, and so benefit the plants. Window-boxes, if made about 6 inches wide inside, should now be planted with a row of Pelargoniums and Calceolarias alternately, and a row of blue Lobelias in front will make a pretty show. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending May 26, 1869, as observed at the Horticultural Gardens.

May.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs 20	9	29.649	29.535	66	28	44.0	53	50	N.W.	.00
Friday 21	10	29.793	29.678	66	44	55.0	51	50	N.	.00
Satur. 22	11	30.011	29.908	62	37	49.5	53	50	N.W.	.00
Sunday 23	12	29.931	29.787	64	44	54.0	55	51	N.W.	.00
Mond. 24	13	29.909	29.780	68	51	59.5	55	52	S.	.00
Tuesd. 25	○	29.733	29.578	70	52	61.0	58	53	S.E.	.10
Wed. 26	15	29.522	29.474	70	46	58.0	58	54	S.	.00
Average.		29.825	29.705	66.0	43.8	54.1	54.7	51.4		0.10

May 20—Densely overcast, cloudy and cold, clear and fine.
— 21—Clear and fine, cloudy, densely overcast, mild.
— 22—Overcast, but fine, overcast, cloudy, cold wind.
— 23—Fine, slightly overcast, cloudy, dense clouds.
— 24—Clear and fine, very fine, overcast, slight rain.
— 25—Overcast, very mild, densely overcast, slight rain.
— 26—Densely overcast, very fine, clear and fine at night.
Mean temperature of the week, ½ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending June 5, 1869.

May and June.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..30	68.4	44.7	56.6	17	0.34 in.	3	8	6	4	4	10	4	4
Mon. ..31	69.4	44.8	57.1	16	0.48	2	9	7	4	5	9	5	2
Tues. .. 1	68.4	45.9	57.2	15	0.76	1	11	6	1	5	13	3	3
Wed. .. 2	68.9	45.1	57.0	19	0.87	1	4	4	5	4	12	6	6
Thurs. .. 3	69.4	44.2	56.8	21	0.91	1	6	5	1	5	16	4	5
Friday .. 4	69.3	44.4	56.9	15	1.02	2	6	2	2	5	13	9	4
Satur. .. 5	70.5	47.3	58.9	24	0.90	2	8	2	2	7	12	8	8

The highest temperature during the above period occurred on the 5th, 1846—therm. 90 deg.; and the lowest on the 5th, 1856—therm. 33 deg.

Notices to Correspondents.

BOOKS: *Summerseat* — Thompson's "Gardener's Assistant," both for the subjects you mention, and many others of equal importance.—*A W H.* Brown's "Forester," and Grigor's "Arboriculture." Consult your booksellers.

CATTLEYA DOWIANA: *C W Strickland.* See p. 237, March 7, 1868. Mr. Howard's letter on the Eucharis, at p. 636, July 7, 1866, is probably the one you are seeking for.

COTTAGE GARDENING. The author of a little work on cottage gardening wishes to obtain the addresses of the secretaries of societies established for the promotion of cottage gardening, in order that he may present them with copies of his work. We shall be happy to forward any addresses that may be sent to us.

FUNGUS: *Tyro.* We do not see anything wrong about the Mushroom which you have sent, except that it is very tough; but this may be owing to the length of time that has elapsed before it reached us. We suspect that the gills of your Mushrooms are more or less obliterated by a parasitic Fungus belonging to the genus Hyphomyctees, and if this is the case the specimen you have sent may be impregnated with some of its spawn. It is, however, impossible to speak decidedly without better materials.—*An Old Subscriber.* The young state of Phallus impudicus. *M J B.*

GOLD FISH: *W R.* Apply to Mr. Kennedy, Piazza, Covent Garden Market.

GOOSEBERRY CATERPILLARS: *A B.* We do not remember anything of the recipe you mention. Try the following:—Get a large watering-pot that will hold about four gallons, put one quart of soft water into it, a common tablespoonful of spirits of turpentine, and one of soft soap, stir up the mixture until the soap is dissolved, then fill up the pot with water, and apply the liquid to the trees with a syringe. Dusting the trees with powdered Hellebore, if fresh and good, is said to kill the pest. There is no doubt but that the most effectual remedy is to pare off the surface soil around each plant to the depth of 3 or 4 inches, and about 2 feet in diameter, in January, and afterwards either to burn the soil or to bury it in a trench about 18 inches deep.

INSECTS: *A McA.* Your Vine leaves are infested by the insect allied to Aphis, lately described and figured in our pages, and respecting which further information will shortly be given. Strong fumigation would most probably prove effectual in destroying them. *W.—Myosotis.* The plants are covered with Aphis, which perhaps may partly account for their condition. There seems, however, to be an affection to which some of the species are subject this year which seems independent either of insects or mould, the latter having in some cases done serious injury. The Aphides, of course, may be attacked with tobacco, the mould with sulphur, but as the cause of the other malady mentioned is unknown, we cannot suggest a remedy. *M J B.*

MANY-FLOWERED TULIPS: *B & S.* We have seen several instances of this. Old writers mention and figure a Tulipa serotina πολυανθὸς (minor).

NAMES OF PLANTS: *G H.* 2, Cystopteris fragilis; 3, apparently Pleopeltis Phymatodes.—*Cheddar.* The variety seems distinct, and, if constant, might be called eroso-decurrens. We do not remember the specimens of last year.—*G H.* 1, Corydalis lutea; 2, Phlox frondosa; 3, Cardamine pratensis, fl.-pl. —*G D.* 1, Lycaste Harrisonæ; 2, Zygopetalum maxilare. Begonias were in very bad condition. No. 4 appears to be B. nitida, and No. 3, B. semperflorens.—*Amphion.* Your flower is Cantua dependens. We do not know any such name as Myrtenia elegans.—*E H B.* Cercis Siliquastrum.—*P A.* Convolvulus Cneorum.—*P C.* Viburnum Lantana.—*M D.* Dianella ensifolia.—*C A.* Allium ciliatum.—*J T H.* Pernettya mucronata.—*S E.* Onychium japonicum.

PLANTS FOR SHADY PLACES, &c.: *W M.* Berberis Aquifolium; Hypericum calycinum; Ruscus aculeatus; Sambucus laciniatus, and some of the Ivies.

PRUNING PLUM TREES: *Hampshire.* Certainly, in all cases where Plum trees are habitually winter-pruned, and not permitted, by a natural system of extension, to modify and economise the annual supply of sap; and more especially when, in the run of seasons, a tree happens to have a short crop of fruit. The very art and essence of cultivation consists in warding off, or otherwise easing a plant during periods of violent fluctuations. To have resort to such a violent and sudden system of mutilation as we have referred to, in process of pruning, is theretore not good in practice. *W E.*

FREMONTIA: *Sine qua non.* Sterculiaceæ. Other people find it as difficult to propagate as yourself.

SPOT ON PEACHES: *Senex.* Without specimens we are unable to discover what spot is alluded to, or the cause thereof. *B.*

VINE BORDERS INFESTED WITH WORMS: *B D.* 1. We do not anticipate much harm will be done to your Vines by the worms, excepting they are extremely abundant. Their existence in any great numbers shows a somewhat rich and moist (perhaps soddened) condition of your borders. 2. Nothing could be better for watering Vines than manure-water from a cow-shed, applied in moderation—say once a week during the growing season. 3. Now is the proper time for clipping Box edgings.

VINE LEAVES DESTROYED: *C B.* We frequently find Vine leaves affected similar to those you send in the cold, shady parts of houses, where the shoots are rather thick. We have always attributed its cause to chills. Cold water resting on the leaves, combined with a lowness of temperature at night, and great excitement during the day. Chills at the roots will also help it. It most often occurs with gross growing sorts, such as Trebiano, Alicante, &c. Allow your foliage a greater influence of air and sunshine.

VINE LEAVES DISEASED: *T S.* It is a very common affection of Vine leaves, and depends on some bad condition of the roots and a damp atmosphere. Yours seems to be an aggravated case, but in a less degree it does not seem to injure the crop. *M J B.*

ERRATUM.—In the report of the Manchester Horticultural Exhibition, given last week at p. 559, Mr. J. R. Petch, gr. to Sam Mendel, Esq., was credited with having obtained the 2d prize for a specimen Azalea. This we have since been informed was an error on the part of our reporter, and one which we hasten to correct.

COMMUNICATIONS RECEIVED.—W. H.—W. A. W.—Alexander. —A Sub.—W. W.—I. S.—W. M.—W. P.—A. S.—G. S.—J. M. M.—C. R.—Enquirer.—H. & Son.—A. C.—J. P.—G. H. P.—Lingley.—R. T.—Woods.—J. R. P.—E. G.—Mina. —W. Thompson.

ADDRESS: *G. Bailey.* Nancy, France.

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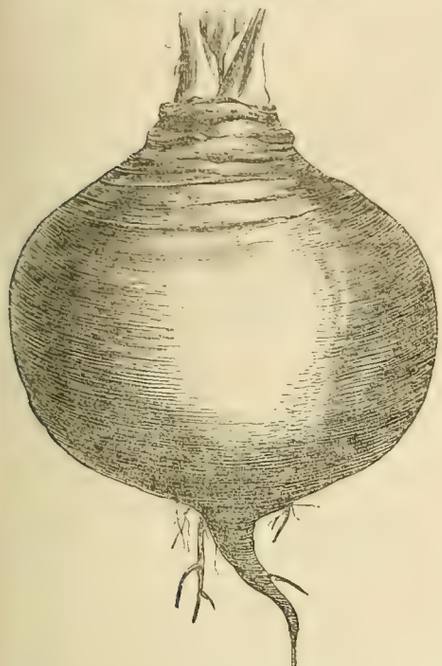
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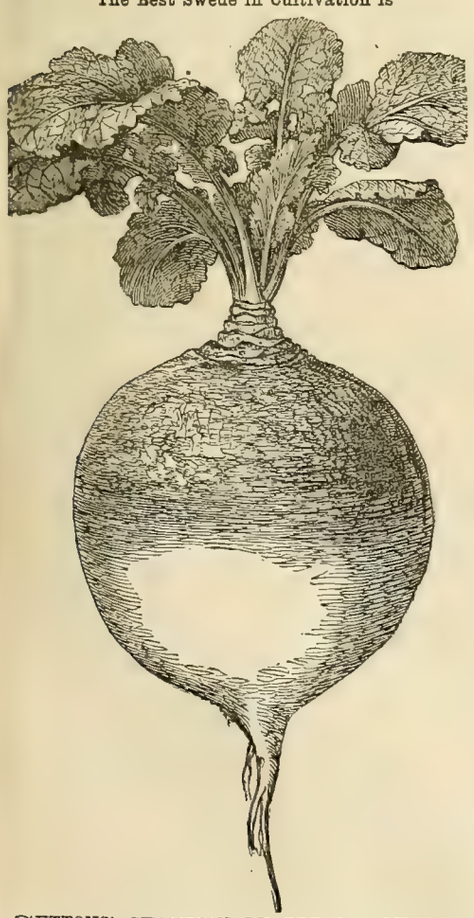
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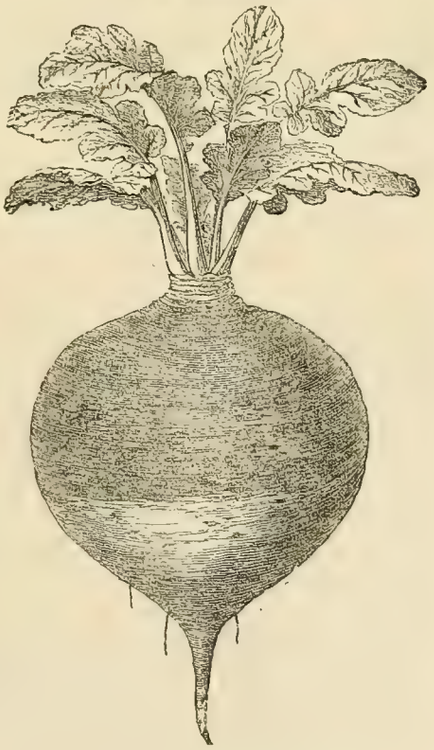
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Every information to be had of the Secretary, by whom Subscriptions and Donations will be thankfully received.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.—The NINTH ANNIVERSARY FESTIVAL in AID of the FUNDS of the INSTITUTION will take place in the New Hall, Freemason's Tavern, on WEDNESDAY, June 9, at 6 o'Clock.

The Right Hon. Lord Robert Montagu, M.P., in the Chair.

Dinner Tickets, 21s.; Ladies Tickets, 5s.; to be had of the Stewards; the Secretary, at the Office of the Institution; and at the Bar of the Tavern.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.—The ANNUAL ELECTION of PENSIONERS and CHILDREN will take place at the Freemason's Tavern, on WEDNESDAY, June 16, at 11·30 A.M.

All Subscriptions shall be deemed payable on January 1 in each year; and no Contributor shall Vote while the same is in arrears.

No. 55, Charing Cross, London, S.W.

C. BOUSFIELD SHAW, Secretary.

ROYAL AGRICULTURAL SOCIETY of ENGLAND

MANCHESTER MEETING, 1869.

ENTRIES of HORSES, CATTLE, SHEEP, PIGS, BUTTER, and CHEESE, CLOSE on JUNE 1, and all Certificates received after that date will be returned to the sender.

H. M. JENKINS, Secretary,
12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, MAY 29, 1869.

MEETINGS FOR THE ENSUING WEEK.

Monday, May 31 to Friday, June 4 } Bath and West of England and Southern Counties Agricultural Society's Annual Show, at Southampton.
Monday, May 31 to Friday, June 4 } Horse Show, at the Agricultural Hall, Islington.
Wednesday, June 2—Royal Agricultural Society of England—Noon.
Saturday, — 5—Norfolk Chamber of Agriculture, at Norwich.

On some late occasions we have endeavoured to point out, as familiarly as the subject will admit, the faulty features of our English land laws, features retained in this country, after almost every other European State, with one well-known exception, has got rid of them. Even while we have been writing, this exception has begun to disappear. Austria, the once backward, but now progressive Austria, has actually set about amending her land laws, after the Prussian—we may almost say the European pattern, and has recognised at last the wisdom and policy of freedom for the land,—freedom of Transfer, freedom from prolonged Entail, freedom from exceptional laws of Intestacy.

The opponents of this freedom in England are of two classes, consisting on the one hand of Landowners themselves, and, on the other, of Lawyers of the land-agent, and lower conveyancing classes. The opposition of the landowners is rather passive than active: it really consists in a backwardness and indisposition to help themselves, arising out of a kind of timorous individuality that shrinks from allowing its own wound to be probed or known. Unfortunately, too, there is such a thing as the Timidity of Ignorance, a not uncommon complaint, which has the effect of peopling the dark unknown, or the twilight *half known*, with all sorts of spectres, so brain-born and unsubstantial as to elude all *fixity* for the purpose of examination, or the detective power of argument. One of the commonest of these, in the present instance, is a visionary theory about subdivision of land and 'peasant proprietors;' which are assumed as being the object of those who ask for Land-Emancipation; and also assumed as being unfavourable to agriculture. Both assumptions are groundless, and untrue; but they are repeated, from print to print, and from mouth to mouth, with a persever-

ance that makes one often wonder *what interest it is* that sets on foot, and underlies doctrines so gratuitous, and beside the mark; which usually begin with assertions of the evils of small *proprietorships*, and end by illustrations of the evil of small *tenancies*, ignoring, in the mid passage, the very essence of the matter in discussion, and a distinction which embodies *all the difference*. The immense extent to which land is held in *tenancy*, instead of ownership, in all parts of the United Kingdom, is a necessary consequence of the aggregation which is swallowing up the smaller estates, and capitalising the soil at a rate that is startling to witness. But we have no more right to ask the advocate of free Land, "are you then in favour of small properties?" than to say to the supporter of a pure currency, "are you then in favour of small banking accounts, or limited incomes?"

The mischief of artificial laws is not simply, or even primarily, the evil they set up, but the good they prevent, by interfering with those Natural Laws whose salutary action they intercept. It ought to be superfluous to say that what is wholesomest for every country and every *part* of every country, is that there should be both large wealth and small wealth, and wealth of every intermediate size, without hindrance from the blundering agency of factitious rules and theories. The same is true, absolutely and precisely true, of that wealth which takes the form land. It *is not* true that small estates are bad things, or that large estates are bad things: but it *is* true that artificial restrictions, and exceptional laws directed to produce either extreme, whether in England, or France, or any other country, *are* bad; and far more mischievous than is commonly supposed. They damage not only the immediate subject matter of their operation, but disturb the whole relations of society connected with it. And of nothing is this so true as of the land. Volumes might be written upon that fatal phrase, 'agrarian law': and each chapter might take for its theme a different *action* on the political and social development of life, as traceable to this original. There is not a class of society unaffected by it, scarcely a destination of life which it does not reach.

Whoever doubts this, or imagines the proposition too sweeping, let him pause for a moment, and call thoughtfully to mind the fact, that the Earth is, literally, '*the leaf we feed on*,'—the original source of all Wealth, and of the whole machinery of human action, consequent thereon. Let him ask himself, candidly, whether it is *likely*, that an error in the laws that profess to govern it, should be a trifling matter, a mere mistake, of small moment, or limited action, involving no *consequences* that interpenetrate the body politic in its vital relations: whether, if it be true that there are *inherent laws* belonging to, and in the very structure of created things, presiding over their organisation,—just as each plant, or tree, though growing in the same soil, develops its own special foliage and individual form, in accordance with the law of its being,—whether, if this be true, it is a safe or prudent responsibility, to go dogmatising on, with man-made theories and conceptions, taking such childish form of expression as "being *in favour of* small estates" or "large estates" in land; when the trodden experience of daily life ought sufficiently to demonstrate that the mere tendency of a 'law' to produce either extreme is, at once, its condemnation.

It *is* true that the Napoleonic law, in France, compelling subdivision, is impolitic and injurious: it *is* true that the triple action of the land-intestacy, and entail laws, and obstructed Transfer resulting from them, intercepting land-commerce in England, is impolitic and injurious. Which is the *worse* extreme, is simply one of those matters of speculative opinion on which men will take this side, and that side, as long as "the sun, and the moon, endureth." To some lands, and to some peoples, one system is better adapted,—for instance, where attachment to the soil is little, and capital for vicarious employment on it, large,—where men look solely to annual profit, and would *rather* rent of another, than cultivate, or ornament, their *own*,—there, the '*grande culture*' of territorial Estates *farmed* by large *tenants* is sufficiently indicated. On the other hand, where the land is loved, like an heir-loom, for its own sake,—where capitals are small, and adapted to a smaller class of produce, as Poultry and *Eggs*,* Milk, Butter, Cheese, and other Dairy belongings (not forgetting the omnivorant tribe of pigs), where even the Beehive and the Honeycomb are not gone out of fashion—who that can discriminate at all will refuse to see the sign of a small-scale cultivation, and the dearer tie, and claims, of ownership, in the soil?

But all this is utter superfluity when treated as matter for opinionative decision, or factitious State action; and is as much beside the mark as it would be to pronounce upon the proportion of Exchequer Bonds that men may choose to hold or buy, or the proper extent of their banking balances. Never do folks "talk wisely, and in the street too!" in a vein of more presumptuous folly on landed topics than when they argue preferentially for 'large,' or 'small' holdings, 'grande culture' or 'peasant-proprietorship.' The one true and simple rule is,—Free the Land; *let it alone;* to find its own Natural Equilibrium, of *Ownership*, and *Tenancy*, of *large* holdings, and *small*. Must we have King CANUTE back again, and reverse his chair, and his lesson, in order to explain that the LAND is governed by its own eternal and irrefragable laws, as well as the SEA? and that nothing but the obtuseness of courtier skulls, and the narrowness of sycophant thought, would essay or propose to wield with human hand the Supreme Sceptre—"So far shalt thou go, and no further!"

But, for our other class of objectors,—the Lawyers,—what shall we say to them? Must we invoke the shade of COBDEN, and furbish up and re-adapt the old machinery to an 'Anti-*Land*-law-League'? and wind up the old chimes to sing out again the weary peal about the folly of Protection? Is it come to this, that the 'Landed Interest' must now be in their turn the 'doctrinaires', and set about explaining that the seventy or eighty millions of British and Irish acres are not going to *run away*, like a half-trained colt, the instant the Lunging-Bit and the Dumb-Jockey are removed? Can it really be necessary to argue that the sum of Land transactions will not be less, nor the quotient likely to come out in fewer figures when activity and freedom are the *factors?* It is hard, they say, to persuade men against their interest: how often has modern experience shown it quite as hard to guide them in the true path of it? But modern experience is a history of legislative success, beyond all expectation, or even hope: and it is little likely that a class, not behind the highest intelligence of the community, will long be urged, like a column, by the timorous counsels its rear, when it has at its head the knowledge, the will, and the power to confer on British soil the greatest boon it shall ever have received since the time of its great statutory emancipation in the days of CHARLES the SECOND.

THE ninth anniversary festival in aid of the funds of THE ROYAL AGRICULTURAL BENEVOLENT INSTITUTION will take place at the New Hall, Freemasons' Tavern, on Wednesday, June 9—next Wednesday week—the Right Hon. Lord ROBERT MONTAGU, M.P., in the chair. The annual election of pensioners and children will be held at the same place on the following Wednesday, June 16, at 11·30 A.M. There will then be elected on the list of the society's annuitants 12 male pensioners, at 26*l.* per annum, 6 married pensioners at 40*l.* per annum, 12 female pensioners at 20*l.* per annum, and 12 orphan children, to be maintained and educated by the Institution. These numbers will thus be added to a list on which 126 names have been already placed, 18 married couples and 90 single men and women having been elected during the past eight years to the benefits of the charity founded by Mr. MECHI. And how large the distress which it has in so many instances alleviated, is plain from an enumeration of the candidates who have each year sought election. The following is the list:—

	Number of Candidates.				Number Elected.			
	Male.	Married.	Female.	Total.	Male.	Married.	Female.	Total.
1861..	19	4	9	36	9	3	5	20
1862..	30	9	23	71	4	2	5	13
1863..	39	14	31	98	4	2	4	12
1864..	47	21	38	137	4	2	5	13
1865..	39	16	45	116	4	2	5	13
1866..	41	14	60	129	4	2	6	14
1867..	41	10	67	128	4	2	7	15
1868..	41	13	66	133	8	3	12	26
1869..	47	15	64	141	12	6	12	36

Here is evidence enough of distress—evidence, too, of very considerable serviceableness in the midst of all this trouble. Losses in stock—bad debts—personal ill health—cattle disease—wet seasons on undrained land—family affliction—suretyship—have reduced to poverty men who had farmed hundreds and even thousands of acres—even men who had farmed hundreds of acres of their own; so that the annuity of 20*l.*, 26*l.*, and 40*l.* offered by Mr. MECHI's charity has become a real godsend to many a once wealthy man. But, notwithstanding the large amount of help thus granted, the list of candidates pleading heavy trouble and distress who seek these small annuities has been every year increasing; and the charity is therefore one for which any one may plead as well deserving the support of both landowners and tenants. A very considerable amount of support it has indeed already received; nearly 34,000*l.* has been subscribed during the past eight years, and we hope that no criticism it may receive in our columns will ever check the goodwill towards it of the benevolent.

We have now, however, to comment upon the management of the funds of this Institution. Seeing that for many years 100 claims for help have annually failed, one would certainly expect that the most careful management has been observed, if haply another annuity or two might be eked out of the existing funds by economy of administration. Such an expectation, however, if ever entertained, has not been realised. The Royal Agricultural Benevolent Society has received large gifts for the relief of agricultural distress—for the provision, according to its prospectus, of "pensions to *bonâ fide* farmers, their widows, and unmarried orphan daughters, and to maintain and educate the orphan children of farmers." It has actually given 8485*l.* 13*s.* 4*d.* in these ways up till the beginning of this year; but it has spent 6993*l.* 7*s.* 7*d.* in accomplishing this task! Besides these sums, it has invested 17,311*l.* 10*s.* 8*d.*, during these years, in the purchase of stock; and on January 1, 1869, it had 1163*l.* 0*s.* 3*d.* at its bankers. And these sums make up 33,953*l.* 11*s.* 7*d.*—the amount which, in donations, subscriptions, bequests, and dividends, it had received during the years 1861-8. Out of every 100*l.* which the Society has received, it has thus hoarded 54*l.* 8*s.*; and of the remainder it has spent 20*l.* 14*s.* in giving away 24*l.* 18*s.* We ought in strictness perhaps rather to have said, that of the 45*l.* 12*s.* remaining after its investments, 20*l.* 17*s.* has been spent in administration, and only 24*l.* 18*s.* has been actually devoted to the purposes which the subscribers contemplated.

The following are the accounts taken out and arranged from the last eight years' reports. It will be seen that salaries, incidental and travelling expenses, and commission or collectors' poundage have amounted during the eight years to no less than 3113*l.* 17*s.* 2*d.*; that printing, stationery, books, postage, and advertising have cost 2087*l.* 11*s.* 11*d.*; that rent and coal and furniture, and gas, &c., have cost 668*l.* 15*s.* 9*d.*; that anniversary expenses, including the expense annually of the two days whose anniversary has suggested our remarks, have amounted to 442*l.* 2*s.* 7*d.* Divide these amounts by eight, and you have the average annual expenditure. We recommend the friends of the Institution to study these figures in detail:—

I.—RECEIPTS.

	Donations.	Subscriptions.	Bequests.	Dividends.	Total.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1861 ..	894 12 10	2004 5 2	..	100 18 9	2999 16 9
1862 ..	1148 1 4	1881 16 0	..	153 11 3	3183 8 7
1863 ..	764 3 0	2323 11 6	..	188 18 9	3276 13 3
1864 ..	1143 12 8	2044 13 8	100 0 0	255 15 0	4444 1 2
1865 ..	961 6 11	3251 3 8	..	370 5 0 19 3 4	4601 18 11
1866 ..	607 19 6	3283 5 3	500 0 0	428 10 0	4819 14 9
1867 ..	1272 11 3	3588 6 8	..	507 10 0	5368 7 11
1868 ..	820 2 6	3839 15 6	..	599 12 6	5259 10 6
Total..	7612 10 0	23,116 17 3	600 0 0	2624 4 7	33,953 11 10

II. EXPENSES OF MANAGEMENT.

	Anniversary.	Salaries and Wages, &c.	Incidental and Commission.	Printing, Postage Advertising, &c.	Rent, Coal, Gas, Furniture
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1861 ..	67 6 7	*	*	*	*
1862 ..	81 17 0	248 11 0	125 18 2	293 18 8	77 14 0
1863 ..	74 6 0	252 0 0	141 5 3	290 5 8	92 14 8
1864 ..	35 15 0	272 10 0	171 13 7	288 3 0	95 3 2
1865 ..	38 8 0	278 0 0	180 11 9	198 1 1	89 3 10
1866 ..	51 16 6	278 0 0	189 8 5	317 10 2	125 3 5
1867 ..	76 3 6	459 4 3	18 16 6	337 6 9	94 3 0
1868 ..	16 10 0	464 0 0	33 18 3	362 7 0	94 13 8
Total..	442 2 7	2252 5 3	861 11 11	2087 11 11	668 15 9

* Add for salaries and other expenses in 1861, 681*l.* 0*s.* 2*d.*

* The Importation of foreign *Eggs*, last year, amounted (in round numbers) to 500 millions, value nearly 1,500,000*l.*

III.—Outlay.

	Total Expenses of Management as per Table II.			Pensions granted.			Purchase of Stock.			Total.			Stock Purchased.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
1861	748	6	9	292	13	4	1823	11	0	2864	11	7	2000	0	0?
1862	827	18	10	556	0	0	1405	9	9	2840	8	7	1568	1	10
1863	850	11	7	809	0	0	1330	11	11	2990	3	6	1481	18	2
1864	863	4	9	974	0	0	2707	10	0	4544	14	9	3000	0	0
1865	784	4	8	1134	0	0	2710	12	6	4628	17	2	3000	0	0
1866	961	18	6	1249	10	0	2615	0	0	4826	8	6	3000	0	0
1867	985	13	7	1475	0	0	2768	15	0	5229	8	7	3000	0	0
1868	971	8	11	1995	10	0	1890	0	0	4856	18	11	2000	0	0
Tot.	6993	7	7	8485	13	4	17311	10	8	32790	11	7	19000	0	0‡
Dec. 1868.	Balance at Bankers † ..									1163	0	3			
	Total									£33963	11	10			

These figures are well worth careful study. Lord Robert Montagu will preside next Wednesday week at the annual festival of the Institution; we hope that before that day he will inquire into the accuracy of our statement. His lordship cannot too confidently advocate the claims of an institution which offers help to brother farmers and even brother landowners, who have by no fault of their own fallen into poverty. But we trust that he will direct his attention earnestly to the possibility—the easy possibility we must pronounce it—of very materially cheapening its management. Let us hope that he will be able to assure intending subscribers not only that their contributions are really needed, but that their gifts will all go to their intended end. Nothing can so check the ardour with which one would naturally desire to help the Agricultural Benevolent Association as the knowledge that, according to the whole expenditure of eight years, 10*s.* 6*d.* out of every 20*s.* given by each subscriber have been stored away in the bank, 4*s.* have been *spent*, and only 5*s.* 6*d.* have been given as he intended! Even according to the expenditure of 1868 it still costs 4*s.* to get and spend the pound; but 8*s.*, or rather more, are now given, and rather less than 8*s.* are hoarded. The excessive cost of which we are complaining is a real hindrance to the income of the charity; in proof of this we quote the letter of a leading man in the agricultural world, written last December:—

"I fully intended to subscribe last year, but before doing so, or making up my mind as to the amount, I determined to get the accounts and see how the business was conducted; and I send you a copy of a letter which, in consequence of what I found, I wrote to a subscriber, who I thought likely to make some inquiry about it, which, of course, I was not entitled to do. I shall probably, notwithstanding, subscribe; but I confess to considerable repugnance to contribute towards such extravagant management."

With this illustration of the influence of the existing management in checking subscriptions, we for the present conclude. The annual festival of the Society does not take place till after next Saturday, so that we shall have another opportunity before that meeting of discussing the methods by which the cost of managing the affairs of the Institution may be diminished.

* See Table II.—681*l.* 0*s.* 2*d.*, added for salaries, &c., in 1861.

† The balance at the bankers, at the close of 1868, is stated at 1163*l.* 0*s.* 5*d.* But a comparison of the published accounts of 1866 and 1867, proves that it has been put 10*l.* too much—the accountant having misquoted in the latter account the balance to his credit in the former. The outlay thus amounts to 33,953*l.* 11*s.* 7*d.*, which is the sum of the receipts.

‡ We presume that there must have been 2000*l.* in hand before 1861, from the declaration that the property of the Society now amounts to

Consols	£13,000	0	0
3 per Cents. reduced	8,000	0	0
	£21,000	0	0

—— The corn trade has been in a quiet state throughout the country, but the large amount of rain in the north and midland counties, and a pouring day in London, with a north-east wind yesterday, had some influence at Mark Lane, and prices advanced 1*s.* per quarter for home-grown Wheat. Grain and pulse for stock food are now so little called for, as green food is abundant, that no alteration has yet occurred in this class of produce. —— The meat trade is in about the same state as it has been for some weeks; the highest price for British oxen is 6*s.* per stone, and for sheep, 5*s.* 10*d.*——In the agricultural seed trade there is but little doing.

—— The Metropolitan Horse Show for 1869 commences to-day. The prizes offered for competition in the several classes of horses amount to nearly 1,000*l.* In the first class of hunters—weight-carriers of not less than 15 stone—three prizes of 80*l.*, 40., and 20*l.* respectively will be awarded. In class 2, for hunters, no condition as to weight-carrying power being required, the prizes will be 50*l.*, 25*l.*, and 15*l.* respectively; in class 3, for hunters not exceeding 15 hands 2 inches high, two prizes of 40*l.* and 20*l.* respectively; and in class 4, for hunters four years old, two prizes of 50*l.* and 25*l.* respectively. In addition to these awards the Agricultural Hall Company give a gold medal, value 25*l.*, which will be adjudged to the best of the first four prize horses in the four classes specified above. In class 13, for thoroughbred horses, the first prize will be 50*l.* in addition to a medal given by the Agricultural Hall Company; and in the classes in which stallions exclusively are enumerated the prizes will be 30*l.*, 15*l.*, and 10*l.* respectively. Three prizes ranging in value from 20*l.* to 5*l.* are offered in each of the following classes:—Riding horses, harness horses, park hacks, and ladies horses, cover hacks, roadsters, park cobs, and ponies. Agricultural, cart, and dray horses are not this year included in the Metropolitan Show.

—— The Bath and West of England Society's meeting at Southampton promises to surpass all its previous shows. At a general meeting of the committee which was held at the audit-room, the mayor presiding, it was stated that expenses to the amount of 1820*l.* had been incurred, and a sum of 200*l.* more was required. It was also resolved that the bands of the 1st Hants Engineers, and the 2d Hants Rifles, should be engaged during the fine days of the show, and that the avenue be decorated with bannerets. Thus great trouble is being taken to make the show attractive to townsfolk as well as agriculturists, and if the weather be favourable there can be no doubt that the show will be largely visited. The general arrangement for the exhibition, including the building of the shedding, was completed last week, and so great was the influx of machinery and other articles, that Messrs. Chaplin & Horne sent down 20 extra draught horses to convey the machinery, &c., from the railway station to the showyard. The officers of the Society pronounce the showyard to be the prettiest and the best adapted for the purpose of any they have ever had; and it will be unusually well filled. There are 193 entries of cattle, 187 entries of sheep, 67 entries of horses, 81 entries of pigs, making a total of 528, against 292 of last year, and a very few short of the great Bristol exhibition in 1864. The implement exhibition will be immense, far exceeding that of Bristol. At Bristol there were 35 steam-engines at work; at Southampton there will be 56. The Society make the Dolphin Hotel their head-quarters.

—— Mr. C. S. Read, M.P., has addressed a circular to Chambers of Agriculture, calling their attention to the Government Cattle Diseases Bill, and desiring their opinion on certain amendments which he proposes. He says:—The Government amendments are now incorporated in the Bill, and the promise of a separate market for foreign stock is in a measure redeemed. The amendments apply chiefly to London. To secure this foreign market, the Corporation are first threatened and then bribed. If they do not finish the new market by '72 they will lose their monopoly as sole market authority in the metropolis; and should it be opened within the specified time, the tolls in the Islington market are to be nearly doubled. It is only reasonable to suppose that a market will be built, but there are no provisions that it shall be conveniently situated, or sufficiently extensive. Still there is no reason to doubt the good faith of the Corporation, and I believe they will forthwith provide good and ample accommodation. But I see nothing in the Bill which will compel foreign stock to go to the new market. True, the Privy Council may order every head to go there; but it is equally true that they may not. I am confident that Mr. Forster will send some; his successor may send all; a future Privy Council none. Setting aside the danger to our flocks and herds, is this uncertainty fair to the importers, to the trade, or to the Corporation? Certain parts of the Continent are seldom free from cattle-plague or sheep-pox. Animals from those regions, and from the countries through which they pass to us, must ever be regarded as suspicious; and should always go to these separate markets. To make some such regulations permanent, I have given notice of an amendment which I trust will meet the approval and secure the support of your Chamber. The matter must come before the Central Council at the June meeting; and I need not add that a resolution in favour of the principles of the amendment will greatly strengthen the hands of those members of Parliament who have kindly promised us support. If the agricultural interest in the House be united, we shall succeed in making this a really useful measure. Should my amendment fail, we must then try to pass Lord Robert Montagu's resolutions, which make it imperative upon the Privy Council to define the port, &c.: the Bill now simply says, they may if they think fit.

—— In last Tuesday's *Times* Mr. Turner, of Richmond, gave the following opinion of our prospects for the coming harvest:—

"The weather last autumn was favourable for farm culture, and a greater breadth of land than usual was sown with Wheat in a very satisfactory manner. The winter proved mild, and where the ground had been properly cultivated Wheat got good hold, tillered well, and up to the end of April looked generally very promising. May brought us cold north and east winds, and although upon first-class land Wheat still maintains a vigorous appearance, yet upon middling and strong undrained clays the cold weather has told very injuriously, and changed the colour of the plant from a pleasant healthy green into a sickly yellow. It is, of course, too early to form a precise opinion about the Wheat harvest; but two points may be regarded as tolerably certain—there cannot be an early harvest, and the crop on the average cannot be a great one. Land worked tolerably well for the seeding of spring crops; though in some districts it was damp and sour, those crops have all brairded fairly. Upon good old grass-land there is plenty of food, and after such a dry summer as last we may confidently look for capital pastures if the season is at all favourable. Potatos have been largely planted. Swedes have been extensively sown in the northern counties, but the land wants sunshine to make the seed braird strongly."

—— The last duty on corn will cease to be paid on Tuesday next; the fire insurance duty will come to an end at Midsummer; tea licences are abolished from and after the 5th of July; and the assessed taxes will be converted into licence duties, to be levied and received at the uniform rates already announced, under the control of the Board of Inland Revenue. All these alterations follow on the passing of the Customs and Inland Revenue Duties Bill, which passed through Committee on Thursday evening.

—— The following letter from Mr. C. Nevill, of Thooney, Newark, on the important subject of Agricultural Cottages, has lately appeared, and deserves all the prominence that we can give it. He says:—

"I confidently expect, after 40 years' experience, that very good agricultural cottages, judiciously built, will pay as high a rate of interest as any other investment, equally secure. I have lately built a double cottage as good as any labourer in one of our best paid counties need wish to live in. They cost rather under 170*l.* per pair; they are let to pay 5 per cent., which is rather more net interest, calculating everything, than buying either land or Consols. The great difficulty has always been as to the three sleeping-rooms. Either the living room and scullery must be larger than necessary or the bedrooms must be very small indeed. If half the number of cottages have three bedrooms and the other half two, the supply of bedrooms is ample, and an idea struck me that a pair of cottages might be built having five bedrooms, the middle bedroom being thrown to either cottage as required. This arrangement has been admirably carried out by Mr. Goddard, architect, of Lincoln. These cottages have been examined by the President of the Royal Agricultural College, Cirencester, and by one of our largest land agents, and they have both expressed a most favourable opinion of them. They have everything an agricultural labourer can want, and nothing he does not want. I allot to all my cottages half an acre of garden ground at a full rent, they all pay 5 per cent. on the cost, and in 40 years I have never lost one shilling by any arrears. I am persuaded that not one of the tenants would accept a cottage two or three miles from his work without a garden rent-free, and this disposes of the objection that with low wages these rents cannot be paid. Some years ago I made a great number of bricks at 16*s.* 6*d.* per 1000, and as I paid 22*s.* per 1000 for the bricks in these cottages, 5*s.* 6*d.* per 1000 might have been saved. A plan and detailed account of cost can be obtained of Mr. Goddard for 5*s.*, including postage, and all the work was done by measurement and valuation, and not by contract. I shall be happy to show them to any one."

—— Traction-engines have become so numerous that any legal decision in regard to using them is of importance to agriculturists. At Mildenhall (Norfolk), Mr. John Griffin, of Burwell, owner of a traction-engine, appeared last week in answer to a summons, which was issued on the grounds set forth in the following evidence:—P. C. Orford said on the night of the 7th he was at Exning, and at 1.30 P.M. he heard the noise of a traction-engine. The night was very dark, and he saw the sparks flying from the engine-box. There was no signalman in front, as required by Act of Parliament, neither were any lights exhibited on the engine. Three men were with the engine—the driver, steerer, and one man walking by the side. Mr. Griffin said he regretted extremely what had occurred; he had been unable lately to attend to business, through illness, but his driver had been three years in his service, and well knew what was required. The Bench regarded this offence as a serious one, and fined the defendant 40*s.*, and 12*s.* 6*d.* costs, informing him at the same time that the Act of Parliament allowed the owner to deduct the amount from the wages of his men.

OUR LIVE STOCK.

The sale of Mr. David Ainslie's cattle and sheep took place on Tuesday, 18th inst. The Costerton herd has been well known to fame for about nine years, its first triumph having taken place at the Dumfries meeting of the Highland Society, when Mr. Ainslie secured the 1st prize for bulls. Since then many marks of distinction have been awarded to animals of this stock, among which may be mentioned two 1st, one 2d, and one 3d prize at the Aberdeen meeting of the above-named society in 1868. Booth blood abounds in most of the animals recently disposed of. The fair average of 35*l.* 4*s.* 8*d.* over the 27 head of cattle sold was realised, the 19 females selling for 39*l.* 1*s.* 4*d.*, and the eight bulls for 26*l.* 2*s.* 4*d.* each. Some good prices were given for the most superior cows and heifers, many of which fell into very good hands. *Queen of the East*, by Mr. Sadler's Star of the East (18,923), and descended from Mr. Stewart's Brilliant tribe, is seven years old; she became the property of Mr. C. W. Brierley, the purchaser of Mr. Meadow's Bolivar, for the sum of 41 gs. The same spirited buyer gave 70 gs. for *Midsummer*, by Duke of Tyne (17,751), a daughter of *Queen of the East*, and winner of the 1st prize at Aberdeen last year. This heifer is clear of calf, and was pronounced by a good judge present at the auction to be "very first-rate." *Henrietta*, calved May 20, 1867, is allowed to have been the best heifer shown. She is a daughter of *Ferooza*, by Knight Errant (18,154), and Duke of Tyne, and became the property of Sir W. S. Maxwell, Bart., at 70 gs. The highest price for bulls was given by Mr. Wilkie, who purchased Bonnie Dundee, calved June, 1867, a son of *Florence* (lot 1) and Duke of Tyne, for 57 gs.—The Costerton Border Leicester flock was dispersed the same day, and although barely 300 in number, excluding lambs, brought the respectable sum of 1694*l.* The following is a summary of the prices made:—

					Highest Price.			Lowest Price.		
105 ewes, at	£5	0	8	= £528	15	0	£10	5	0	£2 10	0
42 gimmers, at	6	15	5	= 284	7	6	10	5	0	2 15	0
96 hogs, at ..	4	1	10	= 392	15	0	14	0	0	2 15	0
56 tups, at ..	8	14	4	= 488	2	6	50	0	0	3 2	6
				£1694	0	0					

Mr. Thornton, of Langham Place, acted as auctioneer, and the result of the sale was, upon the whole, satisfactory.

—— The Kings Walden sale was held on Tuesday last. The average of 29*l.* 6*s.* 8*d.* over 37 animals was somewhat lower than we have been able to report in

the case of other Shorthorn sales this year; nevertheless, the result was, we believe, considered satisfactory. In our review of the catalogue a few weeks ago, we mentioned the representatives of Earl Spencer's Telluria family, which boasts a pedigree of 12 excellent crosses, carrying us back through Chilton stock to Trunnell (659), and Favourite (252). The first member of the tribe, *Miss Hopewell* by General Hopewell (17,953), although at present very poor, is sweet-looking and full of character. She was sold at 45 gs. to Mr. Chaloner, of King's Fort, Kells, Ireland. *Medora* by British Baronet (17,453), considered to be the best cow shown, was secured by the same well known breeder for 50 gs., as was also *Medora 2d*, a daughter of *Medora* and Albert Edward (23,291). This heifer has many excellent points, and is especially good at the shoulders. She was bought very cheap for 31 gs. These three true-bred Shorthorns will, we hope, form the nucleus of as good a herd at King's Fort as that recently disposed of. *May Dew* and *May Queen*, both by Claxton, and also of the Telluria strain, brought respectively 27 and 42 gs., and the bull Baron Tore, by British Baronet, and from *May Queen* by Master Rembrandt, g.d. *Telluria 2d*, by Horatio (10,335), was disposed of for 56 gs. He is a fine, well-grown Shorthorn, of good masculine appearance. *Bertha* and *Blush*, both by Claxton, and from cows descended from *Carnation* by Joe Miller (10,355), brought respectively 41 and 40 gs., the first being purchased by Mr. S. Ashton, and the second by C. W. Griffin.

—— Mr. Francis Moore, of Great Hadham, Herts, has communicated an interesting case of successful treatment of milk fever by means of stimulants. The animal affected was a young Ayrshire cow, which "dropped" on the 15th day after calving. After having been given up by the veterinary surgeon, Mr. Moore, by the advice of a medical friend, adopted a treatment in which brandy was largely used. No less than three bottles of brandy were administered in the course of 12 hours—the first and second bottle having been given in two successive doses, the second two hours after the first; and the third bottle was administered in gruel at intervals through the night. The effect of this vigorous treatment was the recovery of the cow, although she had been most confidently pronounced to be in a dying state by the veterinary surgeon in attendance. A stimulating treatment has long been in ordinary use in cases of milk fever; but the prompt and successful course adopted by Mr. Moore is not, for that reason, the less instructive.

—— All entries of live stock for the Royal Agricultural Society's show at Manchester must be made before the 1st of June, and all certificates received after that date will be returned to the senders.

Sheep.—The weaning of lambs is a subject worthy of attention at the present time. Mr. Powlett, a few years since compared two lots of lambs, the first of which was weaned on June 10, and the second on July 10. During this interval the lot weaned early increased in weight more than the lot weaned in July, and further in the succeeding February the first weaned lambs still were the heavier. Before weaning lambs should be accustomed to dry food, about 2 oz. of cake per day; and this, if continued throughout the summer, will be attended with great advantage. In the management of lambs, frequent changes of food and a supply of water will be found essential to success. In hurdling lambs, do not attempt to take them over the same ground twice.

TIPTREE HALL FARM

ON THE 22ND MAY, 1869.

A walk over this farm suggests reflections, some of them very grave and painful. Here is a plot of land naturally of a very inferior description, and much below the average of the kingdom, yet teeming with luxuriant crops that may compare favourably with the richest in the kingdom, while the word profit seems written on nearly every field. Seeing this, it is impossible to avoid coming to the painful conclusion that by far the largest portion of the United Kingdom is barely half farmed, drained, stocked, manured, or cultivated, and that its food-producing powers, in various ways, are not yet half developed; so that we have before us an immense field for the profitable investment of labour and capital. But ere this will be done, what a mountain of prejudices and old customs will have to be removed and changed, both on the part of landlords and tenants! And how much will have to be learned! Twenty-five years or more ago I drained all this land, and doubled the depth of its cultivation. I swept away miles of fences and trees, and now 128 acres are free and open, growing corn and other produce up to the very edge of the farm roads—where once one walked between two high wooded hedges, now, before harvest, we are walled in by standing crops of food for the people. Can we then do otherwise than pity those unfortunate farmers whose little fields are embedded in fences and timber, and whose profits must consequently be meagre? As we pass through the country by rail, how distinctly do we see the pale sickly and starving plants almost imploring to have a drier bed, better food, more and deeper cultivation, and a removal of their hungry competitors, the weeds. Want of knowledge is a costly omission in agriculture as in other things. Such an insect-producing year as the last super-heated season, should have warned us to prepare for and guard against an incursion of wireworm and other destructive insects which have already done great damage. Independently of other means, 6 bushels of common salt per acre, sown broadcast when the plants were just pushing through, would destroy wireworm or prevent their ravages; so would finely broken rape-cake, so would my Crosskill's roller, loaded at the back of the frame with an additional 5 cwt. of iron to balance the shafts. It has done work for me for 25 years. A neighbour tried it this spring at 1*s.* per acre. The 40 acres Crosskilled are free from wireworm, while his un-Crosskilled fields are seriously damaged. We ought also to salt our grass-lands (where drained); for those who read Mr. Curtis' admirable papers on the various species of wireworm and other insects (Royal Agricultural Society's Journal, Vol. V., p. 180), will find how various and destructive are their species. Mangel plants, where salted, have escaped wireworm; but in many cases, where the salt was not applied, have been destroyed. My 9½ acres of Mangel are a full and strong plant, already once horse-hoed by a Garrett hoe. I always sow salt for Mangel. Beans were much injured last year by worm (see Curtis) and many were light and unfit for seed, so that the plant is in many cases very imperfect. In my case I used a powerful blower, and so blew away 4 qrs. out of 10, using only the heavy and uninjured Beans, and thus have a full and vigorous plant. I use the blower for all my seed corn. It shows one how much inferior corn we grow, especially in thick sowing. I used the Crosskill on my light land before drilling the Wheat; the consequence was, that owing to its being less deeply deposited by the drill than in the ordinary way, the larks soon found out that the seed was within reach of their little bills, and we literally swarmed with them, having to keep the gun going; we ought to have pressed the drill-coulters deeper, but still we have a sufficient plant. No fear of wireworm after such a Crosskilling.

How instructive is this season as regards thick or thin sowing. Although I only drill 6 pecks of Barley per acre, I have already been obliged to mow or rather flag some of it, which is at least twice or thrice too thick. The bushel of Barley seems ample. I shall also have to flag some portions of the Wheat, which is much too thick with 1 bushel of seed per acre—drilled. Where we drilled 2 pecks per acre, the crop is going ahead of the 1 bushel, and is amply thick. The peck of Wheat per acre will most probably be a full crop. A bushel of Mr. Hallett's Oats per acre look better than the adjoining 2 bushels, which is my usual quantity, and his 1 bushel of Barley also. Depend upon it, the thick-seeders will catch it this year, especially where they farm high, on well-conditioned land. There never was a more weed-growing winter than the last, and the frequent spring rains have made it difficult to eradicate them—especially among winter Beans, which, in my case, are a most luxuriant and richly blossomed crop. We should have been in a pretty pickle without Garrett's horse-hoe and plenty of hand-hoers; as it was, our winter Beans cost 18*s.* per acre for hand-hoeing only—a profitable investment. This has been an unfavourable spring for the labourer; so much rain caused him to lose much time, especially where there was no under-cover work in chaff-cutting, &c. Wages are lower, having followed the decline in the price of Wheat. My impression as to the crops is that Barley and hay promise to be abundant, although somewhat late, owing to the many cold nights; that Wheat will be by no means so good a crop as last year; that Beans and Peas promise abundantly; that probably there will be a fair general crop—which is much more profitable to the farmer and to the country than a single extraordinary crop (as of Wheat last year); and all others, including cattle crops, very deficient. This is a very fine season for winter Tares and Trifolium. We have been cutting Italian Rye-grass for three weeks; altogether, all my crops promise amply, and many most abundantly. It would be well for thick-sowers to visit my farm some time in July, or earlier if they please. It will do them and the country much good. Let every farmer try, on a moderate scale annually, various quantities of seed, and thus arrive at safe conclusions, according to his soil and climate. Depend upon it, what is called high farming (draining, deep and clean cultivation, plenty of manure from fattening animals, and moderate seeding) is the sure road to profit. The Wheat within 40 feet of the hen-house is so thick that although sown with only 1 bushel of seed per acre, some of it will require flagging. Two hundred and fifty fowls have had free access to this from the time the plants appeared.
J. J. Mechi.

MR. SMITH OF WOOLSTON.

It was at just about this season of the year that Mr. Alderman Mechi, with that open-handed hospitality for which the citizens of London are so proverbial, was wont to issue his general invitation—Tiptree Hall farm is now on view—the young Wheats are looking famously, and so forth. This was, of course, altogether irrespective of that high holiday in July, when people invaded the place by hundreds; whereas keen observers might perhaps learn more by running down previously, in little parties of two or three. If we remember aright, they could go whenever they chose to do so, for Tiptree Hall was but another name for Liberty Hall, with a hearty welcome insured, and somebody ever in waiting to show you round. And now, just at this very same period, with everything only longing for a little sun to burst forth into brightness and look its best, the owner of another model farm slams his door in our faces, as witness this advertisement:—

"I respectfully inform the public that I will not show my farm, and explain my system of steam cultivation, for nothing again. Hereafter, I will charge five guineas a lesson—that is, for a walk over my farm, and an explanation of my system—to all, excepting the Press, and I will have three days' notice at least. (Signed)

"William Smith, Woolston, Bletchley Station, May 12, 1869."

For our part, we are rather inclined to regret this determination. And we speak with some experience, for we have been over Woolston with one of the most practical deputations which was ever arranged for such a visit. This was for the Farmers' Club, and within a month or two afterwards the Chairman of the Club stated, at one of the meetings, that "they had walked over the farm, and found the system pursued to be most efficacious; for he, for one, never saw land better broken up in his life." Mr. Owen Wallis, another member of the deputation,—

"Was happy to have that opportunity of saying a few words with regard to the very satisfactory character of that visit. He was quite sure all who accepted Mr. Smith's invitation would agree with him in stating that they saw a most interesting and a well-cultivated farm. They saw land cultivated by steam-power which he, for one, should have thought altogether impracticable for such cultivation. The soil was, in some parts, of a stubborn and tenacious character, and there was a great irregularity of surface; yet the work of the steam-cultivator was done in a most satisfactory manner. The land had evidently been deeply cultivated and well ridged, and the crops cultivated were in every respect as good, he believed, as any that had been seen on land of the same description. He was now speaking of Mr. Smith's clay land and his strong soil. Upon his better description of soil, which exhibited all the characteristics of garden-farming, the cultivation was very deep; indeed, he never saw any so deep: he never saw land so friable, and with so beautiful a tilth for the reception of any class of plants which it might be thought desirable to grow."

And, again, Mr. Thomas, of Bletsoe, "as one of the deputation who paid a visit to Woolston, was not merely pleased, but astonished at the beautiful manner in which Mr. Smith's heavy clay land was laid out. He had no doubt but, upon clay lands, steam cultivation would be a considerable advantage to farmers, whether practical or amateur. He could corroborate all that Mr. Wallis said with regard to Mr. Smith's farm. The superiority of the land, compared with other land in the neighbourhood, was very marked indeed; and that was saying a great deal." Let us bear in mind that all this was said just nine years since, long before the merits of deep cultivation and a beautiful tilth were so generally acknowledged, or at any rate acted on. But this visit was attended with a still more practical compliment to the then comparatively novel system inspected. Every one of the members of the Club we have quoted—and they all "spoke with authority"—very shortly afterwards, as we believe, had applied steam-power to the cultivation of his own farm. Hence, then, Woolston itself was about the best advertisement for the Woolston system; as at this very moment the Messrs. Howard can use no more forcible argument or inducement with a customer than a drive up from the works to the Britannia farms.

Unfortunately, however, Mr. William Smith is not in the trade. He is an enthusiast, a man of genius, and hence it has possibly come about that other people may have been reaping the greater reward. To no man does the advent of steam cultivation owe so much, as rarely indeed have energy and determination been more successfully employed in developing an object. But Mr. Smith as a genius is eccentric, intolerant of control, and impatient of correction. It has so happened that he has refused to swim with many of the tides that lead on to fortune. He has broken with and denounced the Royal Agricultural Society of England. He has thrown his hat high in the air, and ridiculed the judges when they hesitated to award him the first prize. He has quarrelled with the manufacturers of his implements, and denounced the *Mark Lane Express* for declining the insertion of some of the more intemperate of his letters. As a consequence he has been put again very much to his own resources, and the greatest of these resources, the finest proof he can offer, is his own farm. When we have men like the leading members of the Farmers' Club speaking as they did of Woolston, and when we know how well merited these good words were, we can only repeat our regret at hearing of the determination, in common parlance, to "shut up the shop." For it will come very much to this. Few people in these days will care to pay a fee of five guineas for a walk over a steam cultivated farm, when the report of the Royal Agricultural Society's Commissioners is simply a guide to some scores of such farms that may now be readily seen for the asking. Not that in saying this that we would attempt to deny any of the credit due to Mr. Smith, for the immediate effect which must follow from the excellence of his notion is that it will be adopted by others. As with Mr. Owen Wallis and Mr. Thomas, of Bletsoe, the example has not been thrown away, and Woolston has long since become merely a matter of multiplication. Under these circumstances a charge of five guineas is virtually a warning to keep off the premises, and Mr. Smith, as we have said, loses the advantage of his best advertisement.

It is easy enough to understand that for want of tact, or temper, or commercial habits, Mr. Smith has not had his deserts, as that, where others have made fortunes, he himself has realised comparatively nothing. But this is an old story, and the country which Columbus discovered took its title from somebody who followed him. Mr. Smith, at any rate, enjoys his title undisputed, if nothing more, but our wish would be to see his rights more directly recognised. As a practical farmer he has done much for farmers, and blotting out his amusing vanities and irascibilities we would ask if he be not worthy of their thanks? Bearing in mind only these weaknesses of his former colleague, we think it was Mr. James Howard, who with very questionable taste recently termed Mr. Smith "a silly man;" while, on the other hand, we cannot but consider him a very able man, and perhaps, after all, more sinned against than sinning. When at a dinner in Aylesbury, Mr. Disraeli in a better spirit referred to their neighbour at Woolston, as a man the Buckinghamshire farmers should be proud of, the room took it up with with a cheer in testimony of his worth. When the deputation returned to the Farmers' Club each member told of his visit in terms that are of themselves something of a testimonial. But we would wish to see this feeling more generally evinced. Almost unfortunately Mr. Smith received very early in his career a small present of plate from his immediate friends and neighbours, as this no doubt has stood in

the way of anything more. Seeing the "base uses" to which they are frequently turned, it is not often that we should propose to start a testimonial to a man; but if there be an exception, we would make it here. To any other class, indeed, it would be scarcely necessary to suggest so much. Let the five guineas inspection fee be abandoned, for it is altogether a mistake, and likely only to tell against Mr. Smith's own interests; but on the other hand, let Agriculture, for whom he has done so much at so much cost of means and brains, offer a zealous servant something really worthy of his labours and acceptance. He is certainly a man who has done much, if perhaps "a silly man" who has done more for others than for himself. *Mark Lane Express, May* 20.

DR. VOELCKER'S CHEMICAL INVESTIGATIONS (1868).

[The lecture delivered by Dr. Voelcker, at Hanover Square, the other day, on his chemical investigations in 1868, was reported in a very condensed form in our columns at the time. We are now able to give a fuller report, which the lecture well deserves.]

My chief object to-day will be to give you an abstract of some results of investigations which have already been published in a great measure in the Journal of the Society. I am afraid that my papers share the fate of many others which appear in that publication; that is, that they are not read by the great majority of the agricultural community. I cannot, however, blame the farmers of England for not reading chemical papers; for how can a man understand chemical language if he do not—as is the case with many of the older farmers, those who have passed the meridian of life—understand the chemical alphabet? I trust that as time advances we shall succeed in our efforts to extend scientific education. For my own part I am exceedingly anxious to lend every possible assistance in the extension of scientific knowledge, not only on my own subject but in all branches of such knowledge. I am sure that no man will ever take up geology without being led to study chemistry also. A man cannot be a successful cultivator of botanical or of geological science without acquainting himself to some extent with chemistry; and if farmers are acquainted in some degree with chemical science, I shall have the gratification of having my chemical papers which appear in the Journal more extensively read than they are at present. The chemical work with which I am entrusted by the Society divides itself chiefly into three branches. In the first place I am engaged in making numerous analyses for the private use of members. Many of the reports of chemical analysis which I send out are interesting in various respects; but it is not possible always to communicate them to the public at large, as they refer to matters in which discretion is required on the part of the chemical professor who is consulted, while some analyses are interesting only to the individual who sends a substance for investigation. I shall not, therefore, say much under this head, especially as you will find some of the more generally-interesting details in the chemical report which appeared in the last part of the Journal. Before I pass on, however, to speak more strictly of the scientific investigations with which I am occupied, I would just observe that at the present time the work which I have in hand for members of the Society is very extensive; and I believe this is in a great measure owing to a lecture delivered by me a short time ago at the Central Farmers' Club, in which I pointed out the enormous extent to which adulteration in manures and in food is now being carried on. I may here state that during the last fortnight I have had before me no less than six different samples of nitrate of soda shamefully mixed with common salt. A hope which I expressed at the Central Farmers' Club, that the eyes of farmers generally would be opened to the extent to which this evil prevails, seems to have been fulfilled. At any rate I have received during the last fortnight no less than six samples of nitrate of soda adulterated with common salt, some to the extent of 75 per cent., others of 30, and others in a smaller degree. At the present time I have in the laboratory four samples of adulterated guano, the analyses of which are not yet completed, and I have other cases of adulterated manures in hand. I mention this point, not because I am over anxious to get analyses to perform for members of the Society in my laboratory; indeed, I may say that I here speak from a truly unselfish motive, because, so far as I am concerned personally, the smaller the number of analyses I have for members of the Society the better I am off in pocket; and I am afraid that if the number increases as it has done lately I shall be obliged to apply to the Chemical Committee for additional assistance. However, in such a matter one ought not to take a narrow view; and, indeed, I believe that the more useful a man tries to be the more successful he will be ultimately. I am, therefore, quite prepared occasionally to make analyses at a non-paying rate.

But leaving this branch of the duties with which I am entrusted by the Society, I would observe that the second portion of my chemical duties consists in instituting experiments throughout the country. We have excellent machinery in operation for conducting experiments in various parts of the kingdom. I am happy to say that I have been connected for the period of 14 years with the Royal Agricultural College, where, in the midst of a purely agricultural district, I have enjoyed much of country life, and received much encouragement in my professional labours; and I can truly say that my sojourn in the country prepared me for greater and more extended usefulness now that I am resident in London. Although thoroughly inured to town life, I have not given up my old love; but whenever I have an opportunity of doing so, I fly to the country, where I do everything I can to encourage field experiments; and I may add, that if I can at any time be instrumental in aiding gentlemen who are members of this Society, or who may become members of it, I shall be most happy to lend them a helping hand in instituting field experiments.

The third branch of my duty is connected with purely scientific laboratory experiments. But let me in the first place give you a brief account of some of the field experiments which have been carried on for a number of years chiefly by former pupils of mine, who are now members of a club which may be called the field club of the Royal Agricultural College at Cirencester. Now I would refer especially to a series of experiments on Clover, some of the results of which were published in the last part of the Journal. Without wearying you with many details, I would allude to a series of experiments carried out in the year 1867-68 at Escrick Park Home Farm, near York, by my friend and former colleague, Mr. Coleman. In all my field experiments, I may remark, the same manuring substances, or their mixtures, were employed in the several localities in which the experiments were tried. They were the following:—Nitrate of soda, sulphate of ammonia, mineral superphosphate, common salt, muriate of potash, sulphate of potash, and sulphate of lime. I am always careful to have two plots upon which no manure is used. In preceding years I tried these various substances on heavy soils; one of the objects which I had especially in view being to ascertain under what circumstances the artificial supply of potash was attended with practical benefit to the farmer. Speaking generally, I may say, the result was not favourable to the artificial supply of potash on most of the heavy soils. In the majority of cases the increase of produce was not sufficiently striking to repay the greater portion of the outlay attending the purchase of potash manure; while in many instances I could see no beneficial effect whatever resulting from the application of potash manures to heavy land. Now if we look at the chemical composition of clays of a better description, we shall find that most of them abound in silicate of potash, and under the decomposing influence of atmospheric action they readily yield soluble potash. Indeed, in some of the experiments, the result of which I published some time back in the Journal, on the effect of water passing through the soil, it appeared that some kinds of liquid manure—very dilute liquid manure, containing but little potash, in passing through clay soils, actually became charged with potash, the drainage waters possessing more potash than the liquid manure contained in its natural condition. This shows clearly that on certain clay soils the application of potash manure is not desirable. I here allude more especially to such soils as the excellent one—I use the word "excellent" in a surely chemical point of view—of Mr. Mechi's farm at Tiptree. Mr. Mechi had to deal with a very unproductive clay soil; but as it is full of mineral matters, he found the more he worked his land the better became his crops. In his case there was actually more potash removed from the land by passing the tank liquid through the soil than was contained in that liquid itself. Here we have a ready explanation of the fact, that in good clay soils an artificial supply of potash is not attended with any benefit to the person using it. I have, therefore, been anxious during the last year or two to try experiments, mainly in light soils, and a capital opportunity was afforded for this purpose in the case of the extremely poor soil of the Home Farm, belonging to Lord Wenlock. I gave the analysis of this soil in the Journal. It there appears that that soil contained as much as 91.8 (that is, nearly 92) per cent. of quartz sand, an exceedingly small quantity of potash, a mere trace of phosphoric acid, and very little lime. That soil was ascertained to be poor in every description of mineral matter which is necessary to bring agricultural produce to perfection; but I had the gratification of finding that on such a soil the supply of the mineral food required for the Clover crop is attended with the most beneficial results. Incidentally I had occasion to make some observations with respect to the utility of nitrogenous manures; and I believe that such manures will prove very useful to the practical farmer who has frequently to deal with a variety of soils, and ought therefore to be in a position to judge what description of manure is best suited to particular classes of soils. Now, reverting to the experiments which were made at Escrick,

I find that whilst common salt—that is, chloride of sodium—had no effect on the produce, muriate of potash, that is, the compound of chlorine with potassium, materially increased it. Soda is frequently a mere accidental constituent, which, in the form of chloride of sodium, indirectly tends to introduce food into the vegetable organism, but which in its turn is eliminated from the ripe produce. I find that chloride of sodium circulates in many plants, but that it does not enter into the chemical composition of the perfected seed of the plant. In perfectly ripe Wheat you will find no chloride of sodium; in perfectly ripe Beans and seeds, and many other plants, you find hardly any chloride of sodium; while this substance circulates very freely in the green plant, and is productive of very great advantage to the general condition of the vegetation. The case is, however, different as regards potash. Potash enters into actual union with many parts of plants, and it is absolutely necessary to bring the plant to perfection. To show you the difference between the physiological effects of potash and soda in this respect, I would just mention that, whereas you can wash out chloride of sodium with water from a substance like the root of the Mangel, or the leaf of the Beetroot, or the stalk of Wheat, or from Grasses, you cannot remove potash so as to show its presence simply by the mechanical process of washing; you cannot prove its existence before you have incinerated the plant, destroyed its organic structure, and thus reobtained the potash in the ash. It has, in fact, entered into an organic combination, from which it cannot be removed by the mere mechanical process of washing. On one of the experimental plots of the Escrick Park I used mineral superphosphate alone, and, to my astonishment, no effect whatever was produced by its application. This is an interesting result, seeming, as it does, to indicate that the great deficiency of potash, which is characteristic of the soil in that experimental field, entirely prevented the display of the usual functions which we know perfectly well superphosphate of lime discharges on land of a better character than that at Escrick. The superphosphate (or rather the phosphoric acid) in that manure did not act, simply because potash was not present to form part of the substance of the Clover plant. You can, I think, readily understand that. Place before a man all the dry food which tends to entice the appetite, and at the same time withhold from him drink, and you will find that he cannot assimilate the dry food. You may give him every description of dry food that can tempt him to eat, but if you keep from him for any long time that unimportant substance, as we are too apt to consider it—though it is, in fact, a most essential thing—water, he will ultimately perish. Potash is non-essential as regards many clay soils, because many clay soils contain abundance of potash; but it is most essential on poor, sandy soils, because, generally speaking, these soils are very deficient in the necessary amount of potash which is required to bring Clover crops, and I may also say root crops, to perfection. The mixture of potash salts and superphosphate yielded the largest weight of Clover and Rye-grass per acre which was obtained on any of the experimental plots. Further, it was astonishing to notice that not only was the weight of the first cutting larger in the case of this particular plot than on any of the others, but the second cutting also yielded a much larger quantity. Let me give you the actual figures as respects the produce on these particular plots. With no manure whatever the soil yielded per acre of fresh Clover 8 ton 5 cwt. 40 lb.; mineral phosphates alone gave 8 ton 4 cwt. 12 lb. Thus there was actually a rather smaller result; but then you must make allowance for variations of soil in the field, and avoid thinking too much of small differences of results. Practically speaking, the produce was the same in the case of the plot manured with superphosphate as in that of the plot which had no manure. The extent of the plot was 1-20th of an acre in each case, but the yield is calculated at so much per acre. Well, muriate of potash gave 9 tons 16 cwt. 28 lb., while the mixture of superphosphate and muriate of potash gave 13 tons 15 cwt. 40 lb., showing a great increase of produce above that of the unmanured portion of the field—that is, in the total amount of produce. This was distributed over two cuttings. The first cutting from mineral superphosphate and muriate of potash gave 9 tons, the second cutting nearly 5 tons; whereas, the first cutting on the unmanured portion of the field gave 5 tons 9 cwt. 72 lb., and the second one only 2 tons 15 cwt. 80 lb. Thus you will observe that, although through the application of manure a larger amount of produce was obtained, yet the agricultural condition of the land after the application of superphosphate and potash was better than it was when no manure whatever was applied. On the other hand, I find that nitrate of soda had an unmistakeable tendency to exhaust the soil of both the plots in which it was used, the second cutting weighing less than that of the unmanured plot. It is true that the first cutting weighed rather more than that of the unmanured plot, but the second actually weighed less; showing clearly that nitrate of soda has an exhausting effect, which tells badly on poor land, and that this effect is produced rapidly. From these experiments we may learn that nitrate of soda alone, or even in combination with superphosphate, should not be used as a top-dressing for artificial Grasses on very poor sandy soils, not even with superphosphate, because it does not supply the needful alkali potash. Indeed nitrate of soda, and, to a considerable extent at least, ammoniacal salts are the worst manures that can be used on poor soils. They tend rapidly to the complete exhaustion of such soils, and do serious injury to the land, while they do not even benefit the tenant-farmer who may apply them for a season with the view of obtaining a very large produce. On very poor sandy soils not only do purely nitrogenous manures rapidly exhaust the land, but the produce also becomes very inferior. My friend Mr. Coleman was so much struck with the appearance of a particular field that he asked me to go down and inspect it. I did go down, and I must say that never in my life was I more struck with the aspect of a field which had been manured with these different fertilising agents. On the land manured for Clover with sulphate of ammonia and nitrate of soda there was not a plant of Clover to be seen, and, quite contrary to my expectation, the true Grasses, the Italian Rye-grass, &c., which should have been very luxuriant after the first cutting, were quite wanting. The land was, in fact, completely burnt up. I should have thought that the soil would stimulate the growth of Italian Rye-grass, and that a second crop would grow luxuriantly; but, contrary to my previous expectations, not even Rye-grass would grow—clearly showing that, although ammoniacal manures may be very useful for the production of Grass and corn crops under many circumstances, yet they are not useful when there is an insufficient supply of mineral food in the land, and that the poorer the land is the more rapidly it becomes unproductive when salts of ammonia alone are applied, even as regards those plants which in the ordinary course of farming are decidedly benefited by the use of ammoniacal salts or nitrate of soda. In fact, the application of nitrogenous manures in this case evidently tended to the complete exhaustion of the land. On the other hand, I was struck with the remarkable effects which potash applied in conjunction with phosphatic manures produced upon the Clover plant. You

could see to a line where the potash and superphosphate had been used. There the Clover plant was growing luxuriantly and healthy, and keeping in check the Italian Rye-grass with which it had been sown. So much, then, with regard to these experiments. I will not detain you by referring to similiar experiments which were made last season. I will only observe that they fully confirm the results of the experiments of the preceding season, and at the same time show that in very dry seasons it is most desirable to apply saline manures sparingly, and also to apply them early in the spring.

Allow me to impress upon you that when you apply top-dressings to pasture, or to artificial Grasses, or to cereal crops—Wheat, Oats, or even Barley—you should apply them early in the spring, in order that the manure may have a chance of getting thoroughly distributed through the soil by being washed into it. I tried similar experiments on Clover—a mixture of Clover seeds of different kinds being sown without Rye-grass or any other Grass seeds. The experiments in that case were undertaken by Mr. Kimber (a former pupil of mine), on land which was naturally rather poor, but which had been done extremely well. The Clover was sown in the preceding year with a Barley crop coming after a good crop of Swedes, being well manured with dung and drilled in with 3 cwt. per acre of superphosphate of lime, and fed off by sheep. In consequence of the applications of good dressings of farmyard manure, of the artificials used for the Turnip crop, and of the feeding off the Swedes by sheep, with corn being given to them at the same time, the soil seems to have been in excellent agricultural condition. Neither nitrate of soda nor sulphate of ammonia produced any effect on the Clover; and that appears to indicate either that the land must have been in an excellent agricultural condition, as I believe it was, or that the Clover plant is not benefited by nitrogenous manures. On this latter point we have no conclusive evidence. I have been extremely anxious to ascertain under what circumstances, if any, ammoniacal salts, or nitrogenous organic substances, or nitrates, benefit the leguminous tribes of plants. Some years ago I made some experiments which seemed to indicate that nitrogenous manures have no beneficial effect on the Clover tribes, and probably none either on other leguminous plants. At any rate I could never see where sulphate of ammonia had been applied to Clover, nor could I notice any beneficial result from the application of ammoniacal salts to Peas and Beans; whereas I could perceive minutely the effects of nitrogenous manures when they had been applied to Wheat or Barley, or any of the graminaceous family of plants. I was anxious therefore to ascertain whether nitrogenous manures have any effect on Clover. In the experiments which were conducted by Mr. Kimber, at Tabney Warren, near Abingdon, the nitrate of soda and the sulphate of ammonia had no beneficial effect whatever on the Clover.

At the present time the Scientific Committee of the Horticultural Society is engaged in making experiments on special plants. Amongst these are several varieties of Clover on which we intend to try the effect of ammoniacal salts alone, and of various mixtures, and I hope the result will be to bring out some useful information on the subject. It is sometimes difficult to conduct experiments on a large scale with sufficient scientific precision; I therefore strongly recommend the committee of the Horticultural Society to institute some experiments in boxes. A number of boxes are now set out at Chiswick, and I hope that on a future occasion I shall be able to give you the results of the observations which we are making there with respect to the peculiar action of some special fertilising agents, such as potash and nitrate of soda.

(To be Continued.)

Home Correspondence.

Land-law, English and Irish.—Your remarks on the importance of diminishing the difficulty in the transfer and sale of land in England are very just; but the question of land in Ireland is of a totally different nature. In Ireland, since the Incumbered Estates Court, there is not often much difficulty in the sale of land. It can be obtained at a very moderate price, and the legal impediments do not, as in England, oppose numerous obstacles to the transfer. The question which in Ireland is now agitated is simply—to whom should the land belong?—to the present proprietor, who obtained it under unjust circumstances, and does very little to give it value, or to the native inhabitant, from whom it was taken, and to whose exertions it owes its price? In Ireland the popular idea is that land should not—at least in large blocks—be the exclusive possession of one, but that the tiller of the soil should have a co-partnership in it, and that the principal object should be, not to extract the greatest produce from the soil, but to support the greatest number of people. Hitherto it was never believed that any English Government would be willing even to discuss these opinions, but of late hopes have sprung up, and an idea is undoubtedly entertained that some measure will be soon passed, giving to the tenant a perpetual tenure at a moderate rent, and even in some cases without rent. Game presents no difficulty in Ireland, and leases on the Scotch system would be rejected. Few, if any, landlords refuse to allow that a law which secured to the tenant the full value of *bonâ fide* improvements when he leaves his farm is desirable; but the difficulty is that no landlord likes to have to pay for "improvement" which he did not authorise, and which he thinks injure his property. Unless the latter was conceded, the former would be regarded by the Irish farmers as totally insufficient. Of course the solution of this question in a manner agreeable to all parties is impossible—unless, indeed, as the *Spectator* proposed, the English Parliament should agree to vote a large sum of money to compensate Irish landlords for their "goodwill." This, I need hardly say, no Parliament is likely to do. It is difficult, I confess, to see that if it is wrong one man should have exclusive possession of property in land, it is right a manufacturer should have exclusive possession of property in machinery, and not be forced to associate in its profits the hands, on whom it rests to make it valuable. And it also seems to me very unreasonable that, if Irish farmers are by successful agitation to obtain great advantages, farmers of an adjoining land, superior to them in energy, intelligence, and industry, are not to be considered—unless, indeed, those who shrink from no crime to obtain their ends deserve more favour than those who refuse to break the law. Until this question of ownership is decided, it is useless to consider what mode of cultivation and character of agriculture is best suited to Ireland. It is the opinion of most practical men that small farming does not pay; but it will certainly maintain, as Irishmen live, the largest population. In the meantime, the people of England, and artisans of Scotland, are left out of thought. They have an interest in obtaining the largest supply of meat they can from Ireland, which Nature seems to have intended to produce this food. And I should have thought any change which is likely to diminish rather than increase this supply would not be received by them with pleasure. What practical farmers in England and Scotland think on this matter I hardly know, but I am often surprised, in the discussions in English clubs, how moderate and reasonable their views are. English property has been obtained, though at an earlier date, much as Irish property was, and I suspect much good Saxon blood tills the soil seized by a Norman robber. English farmers are also attached to their homes, and yet they do not shoot the landlord who thinks himself justified in removing one of them for a better tenant. *Brinsley Marlay, May* 24.

Emigration.—Times are now so bad in this country, that it is almost impossible to continue in business without entailing a heavy loss. I am a gentleman farmer, but have only limited means at my disposal—some 300*l.* or 400*l.*—and my family is a young one, brought up at a home of comfort and plenty. Finding, however, that expenditure is nearly equal to my receipts, and that it is impossible to save money, or to realise a competency, I have determined to emigrate,—being young and active, with a good constitution, and not afraid of hard work. I am wishful to learn which is the best British colony suited to my circumstances, and shall feel truly grateful if some of your numerous correspondents, whose experience enables them to give it, will supply the information, which will be of the greatest service to many others similarly situated to myself. *A Gentleman Farmer, Shropshire, May* 26.

The Contagious Diseases (Animals) (No. 2) Bill, is likely to become the "law of the land." I rejoice that this salutary protection is to be accorded us. It will prove a great boon and safeguard to stockowners, and a truly good acquisition to the general public. There will no longer remain any doubt or uncertainty in any part of the Continent respecting the free access to British markets, consequently confidence will be restored and maintained, and every foreign grazier will feel at liberty to supply this country with his stock, just as it suits his inclination to send them. The same confidence and freedom will be established in this country. So long as all imported foreign animals are kept distinct from our own, and on no account to be permitted to mingle, the necessity for restrictions will cease, and all home-fed animals will be at liberty to be removed to any part of the country where they may be required for consumption. This will be a great benefit to graziers and consumers. At present all cattle are, and most likely sheep too will, if small-pox prevails, be prevented leaving the metropolitan district alive. The effect of this restriction has been to cause a most meagre show of home-fed cattle to be exhibited at this great market, and a wonderful increase in the dead meat trade. Graziers are very reluctant to send their cattle to the metropolitan market, because they know that, when once there, they are irremovable, and must be sold at what they will fetch. If country butchers could, as in times gone by, go to this great show and supply themselves as heretofore, the trade would resume its natural course, and the graziers would at once take advantage of it, and the weekly supplies would soon attain their former position. Just notice the other day's supplies of cattle, a sample of several previous markets. Beasts, 4620—*i. e.*, home-fed, 1486, foreign, 3134. Of sheep, too, the foreign supplies were large, *i. e.*, 12,910, which will no doubt be increased with restored confidence. There can be no great difficulty in providing this separate market for foreign stock in London or near it, and in enforcing slaughter. If I am not misinformed such markets and slaughter-houses are provided at other appointed landing ports—Newcastle, Hull, &c. It is the contention with the City authorities which seems the great hindrance. I am glad, therefore, that clause 28 provides "that if the mayor, aldermen, and commons of the city of London do not before the 1st day of January, 1872, provide and open for public use a market for the purposes of this Act, to the satisfaction of the Privy Council (declared by Order), then, on and after that day, the following consequences shall ensue," namely, the Corporation shall no longer remain the exclusive authority, and section 15 of the Metropolitan Market Act, 1857, shall no longer prevent any person from establishing a cattle market within seven miles from St. Paul's Cathedral. This difficulty will therefore be got over. Should the Corporation decline or neglect to provide the market, there is abundant spirit, and plenty of capitalists who would only be too ready to undertake such a prospective advantage. There are several matters in the various clauses that seriously affect graziers and all stockowners, *e.g.*, the officer or inspector of the local authority may seize and destroy any horse or animal affected with glanders, cattle plague, or sheep-pox, or he may order that the animal, "if affected with any other contagious or infectious disease, be removed to some convenient and isolated place, and be there kept for such time as he thinks expedient." The Bill provides for the supply of food and water on long transit of stock by railway, &c.; and there is a new clause going back as far as 1866:—"Where before the 20th February, 1866, any person suffered so great a loss of cattle by cattle plague as to entitle him after the passing of this Act, in the opinion of the local authority, to a remission in whole or in part," "such remission may be granted by the local authority." Many of these clauses require diligent attention on the part of stockowners, who ought to aid in making the Bill perfect. *O. F.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

At the half-yearly general meeting on Saturday last the chair was taken by Sir Archibald Macdonald, Bart. After the election of members of Council, including two new names, viz., Mr. Robert Leeds, of Castleacre, Brandon, Norfolk; and Sir Matthew White Ridley, Bart., M.P., Mr. Dent, M.P., proposed his Grace the Duke of Devonshire as President for the ensuing year. The Society were going next year to pay a visit to Oxford, the place at which their first meeting was held, and a great seat of learning; and he proposed the Duke of Devonshire as their President, not only as being himself an enlightened agriculturist, and as taking great interest in the affairs of the Society, but as having fulfilled a most distinguished University career. Sir Walter Stirling seconded the motion, which was agreed to. The Secretary read the following:—

REPORT OF THE COUNCIL.

Since the general meeting in December, four governors and 48 members have died, the name of one governor has been transferred to the list of members, and the names of 212 members have been removed from the list; 2 governors and 194 members have been elected, so that the Society now consists of 75 life governors, 73 annual governors, 1417 life members, 3864 annual members, 17 honorary members, making a total of 5446, being a decrease of 15 names, as compared with this time last year.

His Grace the Duke of Devonshire, K.G., has been elected a vice-president in the room of the late Sir J. V. B. Johnstone, Bart., M.P.; and Sir Thomas Hesketh, Bart., M.P., of Rufford Hall, Lancashire, and Thomas Statter, Esq., of Stand Hall, Whitefield, Manchester, have been elected members of the Council to fill the vacancies caused by the resignation of Clare Sewell Read, Esq., M.P., and the election of his Grace the Duke of Richmond, K.G., as a vice-president.

The half-yearly statement of accounts to the 31st December, 1868, has been examined and certified by the auditors and accountants of the Society. This statement has been published in the last number of the Journal, together with the Leicester country meeting accounts and a balance-sheet for the whole year 1868.

The funded capital of the Society still remains 16,027*l.* 19*s.* 7*d.* in the New Three per Cents., the sum of 3000*l.* lies on deposit with the Society's bankers, and the cash balance in their hands on the 1st inst. was 4235*l.*

His Highness the Pasha of Egypt has been unanimously elected an honorary member of the Society, in recognition of his generous aid to British Agriculture, and his interest in its progress.

His Excellency M. Drouyn de Lhuys and M. Edouard Lecouteux, the first President and Secretary of the "Société des Agriculteurs de France" have also been unanimously elected honorary members of the Society.

The Society resolved last year to hold its country meeting for 1870 at some town in the division comprising Berkshire, Buckinghamshire, Hampshire, Kent, Oxfordshire, Surrey, and Sussex. A memorial having been received from the Corporation of Oxford, and the arrangements made by the authorities appearing to meet the requirements of the Society, the Council have to announce that the country meeting for 1870 will be held at Oxford.

After inviting nominations from members of the Society, and after correspondence with the principal county agricultural societies, new lists of judges and stock and of implements have been prepared.

Memorials signed by several breeders of Oxfordshire, Shropshire, and long-woolled sheep, requesting the Council to abolish the system of inspection, as well as all restrictions on the shearing of sheep, have been received. A full reply has been given to the statements in the memorials, and the Council have endeavoured to render inspection more thorough and efficient by appointing an additional inspector.

The country meeting to be held at Manchester, under the presidency of his Royal Highness the Prince of Wales, K.G., from the 19th to the 24th of July, promises to be unusually attractive. The Society's showyards for implements and live stock will contain upwards of 60 acres. The entries for implements and machinery, &c., which closed on the 1st inst., show that this department will be even more extensive than the large display of last year, and it may confidently be expected that the show of live stock will be on an equally large scale. A schedule of prizes to the amount of 4120*l.* has been issued for live stock and implements.

The local committee have also announced their intention of holding a show of hounds and an exhibition of leaping of hunters; and the Royal Horticultural Society will hold a flower show adjacent to the Society's yard.

The Society already possesses in its Journal valuable reports on the agriculture of most of the English counties. Several years, however, have elapsed since many of these reports were written, and the Council feel sure that in the more advanced state of agricultural practice and science, there is still much of interest to record in different localities; they have therefore thought it advisable to obtain more detailed information as to the management of particular districts, and for this purpose special farms have been selected, to which gentlemen deputed from the Council have recently paid visits. In the next number of the Journal it is intended that ample reports of these farms shall appear; and it is hoped that these reports will not only record anything peculiar in the system pursued upon the farms themselves, but will also contain much useful practical information, and prove interesting to the general readers of the Journal.

The examinations for the Society's educational prizes and certificates were held on the 13th of April and following days, when 18 candidates, out of 21 who had entered, presented themselves for examination in the several subjects. According to the scheme authorised by the Council, a candidate, in order to obtain a certificate, was required to satisfy the examiners in practical agriculture and book-keeping, as well as in one of

the two following subjects, viz., in Mechanics as applicable to Agriculture, or in Land Surveying; and to enable him to take a place in the first class he was also required to pass in Chemistry. Candidates had also the option of offering themselves for examination in one or more of the following subjects, viz., Botany, Geology, and Veterinary Science; and those who passed in any one or more of them had the marks thus obtained placed to their credit in the general classification.

In the examination of this year 200 marks were allotted to Agriculture, Mechanics, Chemistry, and Book keeping respectively; and 100 each to Land Surveying, Veterinary Science, Geology, and Botany; the pass number being one-half the number of marks allotted to the essential subjects.

Successful candidates have been placed in two classes, in each of which they have been arranged in order of merit, and they have been rewarded as follows:—To each of those placed in either of the classes an appropriate certificate has been granted, specifying the subjects in which he has passed; the two candidates who have obtained first-class certificates have been made life members of the Society, and two prizes of 30*l.* and 20*l.* respectively have been awarded to them for aggregate merit. Prizes have been awarded to those candidates who showed the greatest knowledge of each individual subject of examination, irrespectively of his place in the general classification.

The result of the examinations this year has been most satisfactory, and has enabled the examiners, in conjunction with the Education Committee, to make the following classification and awards of prizes:—

First Class.—John J. Harlo, Haydon Bridge, and C. G. Roberts, Hazlemere, both of the Royal Agricultural College.

These gentlemen become life members of the Society, and, in addition, the former receives a prize of 30*l.*, and the latter one of 20*l.*

Second Class.—A. R. Wallis, India; Edwin Fox, Finchley; H. Rivington, Finsbury Square; G. Skipworth, Caistor, all of Royal Agricultural College. G. R. Glendinning, Mid-Lothian, Edinburgh University. James Fowler, Durham; G. Y. Wall, Durham; L. W. Olive, Cheltenham, all of Royal Agricultural College. It is to the Council a matter of congratulation that, with one exception, all the gentlemen who have obtained certificates intend to be either farmers or land agents.

The prizes offered to those candidates who should show the highest merit in each subject have been awarded as follows:—In Agiculture, 10*l.* to J. J. Harlo; Mechanics, 10*l.* to C. J. Roberts; Chemistry, 10*l.* to H. Rivington; Botany, 10*l.* to H. Rivington; Veterinary Science, 10*l.* to A. R. Wallis; Book-keeping, 5*l.* to G. Y. Wall; Land Surveying, 5*l.* to Jas. Fowler; Geology, 5*l.* to H. Rivington.

The report was adopted on the motion of Colonel Towneley.

Mr. Dent, M.P., regretted that so small a number of members were present, because the affairs of the Society being frequently discussed, as it struck him, not in a very friendly spirit, by writers in agricultural journals, would benefit by the presence of these and other gentlemen to criticise and comment upon what had taken place. Turning to the report, after expressing his regret that Mr. Sewell Read had resigned his position in the Council, he directed attention to the paragraph which related to the Society's Journal. He believed that the Journal contained very useful reports, and a great deal of valuable information connected with the agriculture of different English counties. At the same time it should be observed that since these reports were written a great deal more had been done and considerable progress made. It appeared, therefore, to the Journal Committee that, instead of offering prizes for agricultural essays, it would be far better if a certain sum were devoted every year for reports, written or compiled by practical men, on particular farms in various localities. Some eight farms had, in consequence, been selected for inspection this year; it should be clearly understood that they had not been selected because they were considered to be the best, or with any idea of writing up any particular farms, but with the larger purpose of finding out the peculiarities connected with the several districts; how, for example, different climatic influences acted upon the agriculture of England in the north, and in the south, in the east, and in the west; how different a dairy farm was from the purely feeding farm, and whether there was anything peculiar or striking in the management. All these things he trusted to find recorded in the Journal reports. Two motions were now before the Council, one by Mr. Thompson, and the other by himself (Mr. Dent), and the object of both was for them to carry out this system. Mr. Thompson suggested that they should institute a system of travelling scholarships, like that in connection with the Universities; that, selecting young men who showed educational ability in the science of agriculture, they should send them into particular districts upon which they should write reports; and that, if these were satisfactory, they should be inserted in the Journal, hoping thereby to get valuable papers for the Journal, and to add to the agricultural education of those who wrote them. The motion of which he (Mr. Dent) had given notice was to the effect that they should seek out practised men, men with greater knowledge of agriculture, and not confine their visits for the purpose of inspection entirely to our own country, but, following the example of the late Mr. Curwen, have papers on Scotch and Irish agriculture, and upon the agriculture of Belgium, and other foreign countries; and he could not but think that if such papers were written by thoroughly practical men, men conversant with agriculture, and men of the world, they would prove valuable sources of information, and be of very great interest. Take Ireland, for instance, at this moment; without touching on Irish politics, what could be a more interesting subject than the agriculture of Ireland. They had heard a great deal about the wonderful advance that had of late years been made in the material prosperity of Ireland; and of that they might judge for themselves by the stock which came to English fairs and markets, and which they saw grazing in such large numbers in the northern and midland counties. Those showed what a wonderful improvement had taken place in the breeding of stock in Ireland; but it was difficult to get from Irishmen anything like an accurate account of what was going on in their country. But there were agriculturists in England, cool, clear-headed men, who, if they were to spend a month or six weeks in Ireland, and looked at matters from an English rather than an Irish point of view, would no doubt be able to contribute most valuable papers to the Society's Journal. One of the best papers he ever remembered seeing in the Journal was a paper on farming in the Lothians. At the present moment he believed steam cultivation was being extensively applied in that part of the world, and he should very much like a good man to be sent down to tell them what steam cultivation was doing for agriculture in that district. These matters had been referred to a select committee of the Council, and he could have wished to provoke a discussion, with a view to obtaining the opinion of members of the Society with regard to them. A few words now with respect to education. There was no doubt that the examination this year had, according to the report of the examiners, been a very satisfactory examination, probably the most satisfactory they had yet had. The worst of it was perhaps, that when they looked at the list, they found that all the first and second class prizemen, with one exception only, had been educated at the same place. He would like to see the field from which their candidates were taken somewhat more extended. He believed one of the prizemen was of the mature age of 29 or 30. Now he scarcely thought that they ought to give educational prizes to young men of that age, men who had gone regularly into the practice of agriculture. It was a question for consideration—first, whether these examinations were to be carried on another year, and if so, next, whether they ought not to put some limit to the age of those who took part in them. Another question was, whether the gold medal of the Society of the first class, and a silver medal of the second class, with a certificate, might not be a sufficient inducement to the gentlemen to come up for examination. This was the day for the election of additional members of the Council, and he had a very strong feeling that they did not introduce anything like enough new blood into the Council. He had frequently urged that one-half the list should retire, and be ineligible for re-election. No doubt they might lose some of the most useful and practical men in the body. Still, there were as good fish in the sea as those which had already been caught, and he thought that if possible they ought to do something to get more new members into the Council.

Reviews.

On the Art of Valuing Agricultural Land, and on the Indications of the various Qualities of Soils. By Philip D. Tuckett.

This is another of the papers read before the Institution of Surveyors, and printed in their Transactions for the session 1868-69. It is a detailed and careful examination of a subject which stands in the very front rank of agricultural importance. We shall deal with it as with Mr. Hope's paper on sewage last week, enabling the author to tell his tale to our readers as he did to his auditors some eight or nine weeks ago in Great George Street—by frequent extracts from his pages.

The amount of rent claimable from a tenant of land is theoretically to be arrived at only as the late Robert Baker, of Writtle, in his edition of "Bayldon on Rents and Tillages," suggests—by estimating the expenses incurred and the profits arising during the whole course of one rotation of crops on different soils; and he very justly observes, that the land valuer must be constantly alive to the changes in the market price of the various articles of produce, and, he might now have added, to the supply of agricultural labour in the various localities.

Mr. Tuckett acquiesces in this view only to the extent that the sound plan is to go carefully into these calculations as to the best and worst qualities of both light and heavy arable and pasture land, so as to form and keep a well settled scale of values, to be filled up on going over each estate.

A knowledge of the rents actually given for land by good tenants is also, he admits, a most important practical test of the accuracy of such individual calculations, and is gradually acquired by the negotiations incident to the practice of a land agent; but whatever the method by which the valuer fixes in his mind his scale of rental value, what he has to do in looking at any particular field or estate, is to obtain such indications of its quality as will enable him unhesitatingly to give it its true place in this scale.

We now proceed with our extracts:—

1. *On the Indication of Value afforded by Trees and Plants.*—"Although it is exceedingly dangerous to attempt to judge of the quality of a soil from the crops grown upon it in one particular year only, still many most useful indications may be obtained from its more permanent products, especially from the trees and Grasses. Most of our ordinary forest trees have special proclivities for the various soils on which they flourish, and a careful observation of their growth, and of the hedgerows, affords information which will seldom mislead. A really thriving Elm tree or Hazel cannot be found where there is not a good mixed soil, whilst an abundance of Oak and Blackthorn are indications of heavy land; and the growth of the trees will generally correspond with the depth and quality of the soil. The Alder and the Willow are only found in wet places, chiefly by the water-side, and the Poplar usually in wet places. On the other hand, Coniferous trees prefer the lighter soils, and the Scotch Fir grows on thin lands which will produce nothing else except Heather; and the Beech, though it will grow elsewhere on good land, is usually indicative of a calcareous soil. The Sycamore is partial to light or sandy soils, whilst the Walnut, and I believe I may say the Maple also, usually grow on good mixed loams. The Ash is scarcely a sign of any particular kind of land; if it is of rapid growth, it indicates good land; in poor stiff clay it is constantly met with, but is of slower growth and often stunted. The Whitethorn, if it grows rapidly, is a sure indication of good land; and one never sees a strongly-grown Quick fence on inferior soils.

"The various permanent Grasses which make up the swards of an old pasture, and even the weeds found in the land, and the character of the growth of both, form most valuable indications of the quality of the land.

"This part of the subject is treated in great detail in a long and admirable essay by Mr. Bravender, published in the fifth volume of the Royal Agricultural Society's Journal, to which I would refer those who desire a greater amount of botanical detail than I can afford space for in this paper.

"It is estimated that the distinct species of natural Grasses, natives of this country, are in number about 150 or 160, whilst those which are recognised as covering the surface of good old pasture land number, I believe, only about 18. It is said that a square foot of old pasture or meadow land contains about 1100 plants, a square foot of water-meadow about 1800, and a square foot of a crop of Grass seeds on arable land only about 80. The species of the best permanent Grasses being so moderate in number, it is worth while to learn their names, and also to recognise them at sight when in flower.

"They are as follows:—

Dactylis glomerata	Cock's-foot Grass
Alopecurus pratensis	Meadow Foxtail
Festuca pratensis	Meadow Fescue
Festuca duriuscula	Hard Fescue Grass [Grass
Phleum pratense	Greater Meadow Cat's-tail
Anthoxanthum odoratum	Sweet-scented Vernal Grass (which gives its scent to hay)
Avena pratensis	Meadow Oat-grass
Avena flavescens	Yellow Oat-grass
Cynosurus cristatus	Crested Dog's-tail Grass
Holcus avenaceus, or Arrhenatherum avenaccum	Tall Oat-like soft Grass
Hordeum pratense	Meadow Barley-grass
Lolium perenne	Rye-grass [Grass
Poa annua	Annual Meadow or Suffolk
Poa trivialis	Rough-stalked Meadow do.
Poa pratensis	Smooth-stalked Meadow do.
Trifolium pratense perenn	Perennial Red Clover
Trifolium repens	White or Dutch Clover
Vicia sepium	Creeping Vetch

"All really good pastures are composed chiefly or almost entirely of the above Grasses; leafy plants take up so much space in proportion to their produce, that they are necessarily wasteful, even when not otherwise injurious. The proportion in which these best Grasses occupy the surface is a pretty sure indication of quality.

"Mr. Bravender, in the paper above mentioned, gives several lists of flowering plants and natural Grasses, with their several indications; but, with a view to condensation, I shall confine myself to selecting only a few specimens and arranging them into two very important divisions—a few of the principal plants indicating cold, wet land, and a few of those found on very dry soils; because, as the valuer visits the land in all sorts of weather, and at different seasons, he may be principally dependent on vegetation to tell him whether a field is injured by excessive wet in its ordinary condition, or, on the other hand, whether light land is excessively dry and likely to burn, whilst of almost everything else he can always judge by other means; and because, if one attempts to extend such lists too far, the indications intended to be derived from them become less clear and simple. It is a very curious fact that the herbage of a wet grass-field almost entirely changes when it is drained. This is the reason why people used to say that grass-land could be easily over-drained, and was often injured by draining. The fact is, wet grass-land is injured by draining for two or three years, the old Grasses dying off, and the better ones not having yet fully taken their place.

Plants Indicating Cold, Wet Land.

Agrostis palustris	Marsh Bent Grass
Aira aquatica	Water Hair Grass
Aira cæspitosa	Tufted Hair Grass
Alopecurus geniculatus	Floating Foxtail Grass
Carex	Carnation Grass
Centaurea calcitrapa	Blue Bottle or Star Thistle
Cnicus palustris	Marsh Plume Thistle
Hippuris vulgaris	Mare's Tail
Potentilla aserina	Silver Weed
Primula veris	Cowslip
Rhinanthus cristi galli	Yellow Rattle
Scabiosa succisa	Devil's Bit Scabious, or Blue Button
Tussilago farfara	Coltsfoot

Plants Indicating very Dry Light Soils.

Agrostis vulgaris	Common or Fine Bent Grass
Aira flexuosa	Wavy Mountain Hair Grass
Aira cristata	Crested Hair Grass
Campanula glomerata	Canterbury Bells
Campanula rotundifolia	Heath Bell Flower
Erica vulgaris	Common Heath, Ling, or Heather
Festuca ovina	Sheep's Fescue Grass
Galium verum	Yellow Ladies' Bed Straw
Onobrichys sativa	Wild Sainfoin
Thymus serpyllum	Wild Thyme

"In addition to the species of Grasses, a good deal may be learned by the character of their growth. On good land the blade grows full and broad; on poor wet land it often looks stunted, whilst on thin sandy soils it is apt to be thin and wiry. When pasture land contains a large proportion of the Mosses it is a sure sign of poverty, and more often of poverty caused by constant mowing and the want of manure than of natural barrenness. On commons and unreclaimed land the common Brake or Fern (Pteris aquilina) generally grows on the best land, and Irish Gorse, Heather, &c., on the inferior portions.

"The general colour of the surface of pasture land is also some guide to its quality. The colour of all pastures changes with the season, and no land is green all the year round (though the best land looks green the longest), and a fresh green colour is often dependent on recent manuring; but in winter, when the frosts have stopped the growth of the Grass, poor cold grass-land turns brown, whilst good sound pastures are never brown, but assume a whitish hue."

On this last point we remember a happy remark of the late Mr. John Morton, when about to complete the purchase of an estate near Thornbury for the late Earl of Ducie. Referring to the quality of its undrained pastures, he told the solicitor who was conducting the sale, "There is an instrument termed the cyanometer—a circular card of varying shades of blue—by which the meteorologist, holding it between him and the sky, determines the depth of colour in the heavens for record in his register. Now, the last time I rode by this land, having on an old brown great-coat, I bethought me of this test, and, looking at the pasture fields over the arm held up between me and the Grass, I found the agreement in the colour perfect. Your 'poor cold grass-land' had turned brown. It is not worth the 30*s.* at which you value it."

Take now another extract, on a subject of which Mr. Morton was an original student and one of the earliest writers:—

2. *Relations of Geology to the Value of Land.*—There is one science which is often spoken of as having an important bearing on the profession of a surveyor, but I have never seen any

practical suggestion of how it can be rendered really available in the valuation of land; and that is, the science of geology. I am, however, myself, fully convinced that although a very complete knowledge of the science in all its details is not needful for the purpose, a knowledge of its general laws—the distribution of the strata, their order, thickness, general direction and dip, and a sufficient acquaintance with each to recognise it in passing across the country—is exceedingly useful in land valuing, provided the surveyor knows how practically to apply it. Mr. Bravender, in the paper before referred to, has taken great pains in preparing a careful and interesting enumeratfon of the soils found on each formation, and states whether they are barren or fertile; but as the practical result is that almost all the formations contain both barren and fertile soils, I fear that all the information we derive from that mode of treating the subject, if we consult a geological map before setting out on a valuation, is only a general idea of the sorts of land we are likely to find; but no real assistance in actually valuing it. It must be borne in mind that geological classification is chiefly paleontological and not mineralogical; and, even if it were, the various beds do not always come to the surface, but are overlain by all sorts of surface deposits, from small accumulations of soil in hollows to vast deposits of overlying drift. And the surface soils are often so mixed and varied, that most of the formations have both fertile and barren soils, according to the various mechanical conditions resulting from the accident of their particular position. I have been led to think, in the course of my observations of the soils on the various strata, that this subject is susceptible of an entirely different treatment; and the use to which I propose to apply geology in land valuing is to correct and modify the results of a direct examination of the soil, according to certain known characteristics of the various formations. Thus, to begin with the clays and heavy soils, which are the most easily compared. These consist principally of alluvial clays, the London and plastic clays of the Tertiary system, the Weald, Kimmeridge, Oxford and Lias clays, and the new red marl of the secondary system; the clays of the coal measures, and those weak clay soils devoid of lime, found amongst the Silurian and Cambrian systems, besides the purer clay formed by the decomposition of granite. Now clay soils, on each of these formations, comprise a considerable range of difference, as respects consistency of texture, and depth; and it is not difficult to find specimens of soils in different formations, which, in these respects, and even in colour, and in everything that can be judged of by touch or sight, are as nearly as possible alike. What I have observed and am disposed to allow for in making valuations, is, that under these circumstances, there are certain formations, the soils on which will be of better quality, and others where they will be worse than they appear. The alluvial clays are, no doubt, the most fertile, even when judged by this standard, as one may well be led to suppose likely, considering the large proportion of organic matter which they generally contain. Next to them I should place the Lias clay. This formation comprises some very stiff, poor, thin-skinned land, as well as much that is better, and some of the best Leicestershire pastures; but when it is bad it always looks so, and is, I believe, always more fertile in proportion to its texture and depth than some to be afterwards mentioned. It will be recollected, that this formation is associated with the Lias limestone containing all the great saurian fossils, and a very small percentage of phosphate of lime, in addition to an ample supply of the carbonate, may possibly account for what I have observed. The London clay also, though not in so great a degree, may be said to incline to fertility; and it will be noticed that this also rests upon a carbonate of lime in the form of chalk, though it does not possess the same supply of fossils. The Oxford clay, on the contrary, which bears the same relation to the middle oolitic series that the Lias does to the lower one, is certainly of a barren nature in comparison to either it or the London clay; *i.e.*, a soil on the Oxford clay will be found slightly less productive than one of the same consistency and depth on either the Lias or London clay. I can offer no satisfactory explanation of this fact, but I feel sure it is a fact. Still more are the clay soils of the Weald of Sussex and Kent of an infertile nature; although they contain small deposits of shelly limestone, called Petworth or Sussex marble, this deposit is, probably, generally deficient in lime, whilst it is often associated with ironstone; but whatever the cause, I know that, stiff and poor as it often looks, the Weald clay is often less fertile than its texture would indicate; and that a valuer, accustomed to other formations, will do well to make his calculations with great caution on entering the Weald. Of the other soils mentioned, the red Marls are among the most fertile; the plastic and Kimmeridge clays do not occupy large areas, but most nearly resemble the London and Oxford clays respectively; the clays of the coal measures are often very poor, and those on the slate rocks especially so

"The lighter soils are not so easily compared, because they do not so closely resemble each other in appearance and texture. The similarity between two different clays is much closer than, for instance, that between a light soil resting on the chalk containing flints and made up chiefly of sand, gravel, and chalk, and one resting on the oolitic rock, containing small pieces of brown limestone, which, though a light thin soil, is in reality composed of particles of clay mixed with limestone, with only a small proportion of sand. Still, I think, some comparison may be made; and, I believe, it will be found that the same fertility observed in the Lias clay is preserved throughout the whole of the lower oolitic series, even to the great or Bath oolite; although Mr. Bravender, whose residence is near the worst part of it, instances this as a noted specimen of barren land. But, although its average rental value along the Cotswold Hills is low (probably considerably below 1*l.* per acre), if its extremely shallow soil, lying on a hard rock for subsoil, on the top of these hills, be considered, I think it is evidence of the wonderful property of this rubbly rock for retaining moisture, that the crops are not burnt up, as they certainly would be with a gravel or sandy subsoil, with only a similar depth of soil, which on the chalk would form hardly more than downland, and on slate rocks be almost worthless. And on other parts of its range, on Lincoln Heath, not to say in Oxfordshire and Nottinghamshire, its rental value rises to very respectable figures.

"The narrow belt of inferior oolite sand between the Bath oolite and the Lias, which runs through England from Guisborough in Yorkshire, to near Crewkerne, Sherborne and Yeovil in the south west, is everywhere singularly fertile, and forms some of the best light deep arable land in the kingdom. This formation again is singularly full of fossils, and like the adjoining Lias I suspect that it contains a trace of phosphate of lime. The sandstone of this formation contains the celebrated Cleveland iron, and I believe it is, in great measure, due to its containing a certain portion of lime that the iron can be made from it so economically, although it is not enough to supersede the use of other lime-stone as a flux. The Greensand also, associated with the lower Chalk, is essentially fertile, whilst the Hastings sand and a portion of the Weald of Sussex are essentially barren."

Mr. Tuckett somewhat abruptly terminated his discussion of the relations of geology to the value of land, and referred shortly in conclusion to other points on which the opinions of the valuer must depend—the mechanical composition, depth, and quality of soil and subsoil, the botanical and geological corrections of an opinion formed on these—also the agricultural equipment of the soil with buildings, fences, roads, aspect, elevation, &c. A discussion ensued, in the course of which many other points were mooted as deserving examination by a valuer, and the thanks of the meeting were cordially voted to Mr. Tuckett for his very valuable paper.

[Perhaps the opinion of another valuer not present at the meeting may be usefully added here upon the subject of the essay. Mr. Saunders, of 11, Pall Mall, writes as follows to *Bell's Messenger*, on Mr. Tuckett's paper.] The subject, he says, is one of the most important connected with agriculture, and closely affects the interests of the tenant-farmers, as well as surveyors. There are not a few who practise "the art" whose sole training has been in an office, and who in early life have had no field training to acquire a knowledge of the capabilities of different soils, or of the various branches of agriculture, essential to a knowledge of land valuing. Hence it is not surprising that serious errors are often committed, and that owners and occupiers, as well as sellers and purchasers, of land, suffer therefrom. I regret I am obliged to say at the outset, that there are few of the propositions laid down by Mr. Tuckett, with which I concur, and that there is nothing in the paper calculated to stimulate inquiry on the part of the experienced, or in the least degree to assist the uninitiated. The writer says, "I think the sound plan is to go carefully into these calculations as to the best and worst qualities of both light and heavy arable and pasture land, so as to form and keep a well settled scale of values, to be filled up on giving over each estate." Now, there can be no such thing as a settled scale of values, as new modes of farming, new appliances, which lighten labour, expenditure, and many other circumstances, make the value of the land to change. Apart from this, a scale of values is quite impracticable, as the rental value of land varies from 6*d.* to 10*l.* per acre, so that an enormous schedule would be required to fill up the intermediate values. Besides, one field differs so much in many respects from another, that no correct description of a field, prior to an inspection of it, could be put against a given value. The writer of the paper under consideration, however, would make his book to suit the field he surveys, and not the field to furnish the proper description for his book. Mr. Tuckett says that the various permanent Grasses indicate the quality of the land. This is quite true; but the writer give no illustration of its truth, and does not give the varieties adapted to different soils. A list of the best permanent Grasses is merely given, and in that list Suffolk Grass, and Sweet-scented Vernal Grass are included. I confess I once considered these Grasses of some value, but recent experiments have proved to me that the former in rich pastures is simply a weed, and that the latter, from its early maturity and wiry nature, is of little or no value. Equally important is the next subject, viz.:—"Weeds as Indications of Land." Among the plants indicating cold wet land are included Star Thistle, Blue Button, Coltsfoot, and Silverweed—plants not unfrequently produced by the driest soils; while among the plants which are said to indicate dry soils are Sheep's Fescue and Mountain Hairgrass, plants which often grow on wet soils. On the important subject—perhaps the most important in connection with land valuing—"Of Weeds as Indications of Poor and Rich Soils," the author does not at all touch. He states that "on commons and unreclaimed land, the common brake generally grows on the best land, and Heather on the inferior portions." This is contrary to my experience; the common Fern grows on a deep soil, but the soil is almost invariably what farmers not inaptly term deaf, and the best Oat producing land I know of was at one time covered with Heather. The author makes the astounding statement that "there is no difficulty, with a good walking-stick, in ascertaining the depth, nor in judging of the texture of the soil." I walked over 50,000 acres last summer, no part of which the strongest stick ever made could penetrate; while, on the majority of soils, no stick could tell where the surface soil ends, or where the subsoil begins. Besides a large area of land has an artificial pan formed by the tread of horses, and also a considerable area has a natural pan, each of which no stick can pierce, so that a valuer without a spade could not ascertain the depth or texture of the soil, the nature of the pan, or the character of the subsoil. Anomalies unaccountable by surface appearance are by the use of the spade explained, and the valuer thereby arrives at a correct value, as he will put a lower figure if he discover a gravel instead of clay subsoil. I may remark here that depth of soil is not always a criterion of value; fen land with a foot deep of surface soil incumbent on clay is of greater value than the same variety of land having a surface soil 3 feet deep. The author compares the soils of different geological formations, but gives little information on many points of great practical value. The questions—How is it that on the granite formation there is the richest as well as the poorest land? Why does chalk not burn? Why is land in the coal measures poor? Why the greywacke formation produces superior fattening Turnip crops?—are left unexplained. The colour of soils is scarcely noticed, and, therefore, the reader is left to solve the questions, why are the darkest fen and chalk soils the poorest, the reddest sandstone soil the best, and the darkest of all other soils than those named the richest. Another important point, viz., the crops land is fitted to produce, is not noticed. Will it grow Wheat and Beans only, or will it produce cereals, roots, and Clovers? Will it yield malting Barley or only grinding? Is it fitted for store or fattening stock? These, and many similar points must be considered by the valuer. But the most important omission is that of the condition under which land is held as an element of value. Is the occupier allowed to crop as he chooses, or is he bound by restrictive covenants, and thereby prevented from fully developing the resources of the land? Is he merely a tenant from year to year, and thereby prevented from making that outlay which the successful cultivation of the farm requires? Or has he the security of a lease, and therefore the certainty of being compensated for his outlay, energy, and industry?—are questions, although entirely ignored in Mr. Tuckett's paper, of the greatest moment to a land valuer.

Farm Memoranda.

FOULNESS: *Admission of Tidal Water into Ditches.* The Commissioners of Sewers for the Island of Foulness met at Southend, on Wednesday, for the purpose of considering two counter memorials which had been presented to them on the admission of salt water into the island for sanitary and other purposes. The first memorial was signed by eight gentlemen, owners and occupiers of 4,772 out of the 6,304 acres of land which the island contains, and stated that the petitioners had long been deeply sensible of the great injury they had sustained through the admission of salt water. They prayed that no more might be admitted, and that all the gutters used for the purpose might be taken out. The second memorial, to which 45 signatures were attached, was as follows:—

"We, the undersigned inhabitants, householders and occupiers of lands in Foulness, being informed that application has been made to you to prevent salt water coming into the island as heretofore, request that you will permit it to come in during the months of May, June, July, August, and September as it will be very beneficial to the inhabitants and occupiers of land in the said island."

Mr. GEPP, clerk to the commissioners, read some evidence which was received upon the subject at the last court. Mr. Parsons, who has been 38 years on the island, and holds more than 300 acres of land, said the land was divided by ditches, which, without the admission of salt water, could not be kept full; moreover, salt water had no prejudicial effect upon the land. Mr. John Allen, holder of 950 acres, said that if the salt water gutters were closed the farms would be rendered unsuitable for grazing purposes. Dr. Willing, who has lived on the island since 1865, was of opinion that the gutters should be regularly flushed, or salt water excluded. Mr. I. W. Stallibrass thought the admission of salt water injurious, and in this belief he was supported by Mr. C. Page and Mr. Chas. Harvey.

Mr. J. WOOD, agent for Mr. Finch, the largest owner of land in the island, who desired that the inlet gutters for salt water might be retained, because if the ditches were done away great expense would have to be incurred for fences, said there were 6,304 acres of land in the whole island, of which 4,318 acres (including 600 acres of pasture land) were owned by Mr. Finch. Mr. Finch's rental was a little over 6,000*l.*, his rateable value 7,013*l.*; the rateable value of the whole island was 10,175*l.* Mr. Finch's tenants were all yearly tenants.

Mr. JOHN PAGE (one of the most uncompromising opponents of the salt-water system) said, before men knew better it was the custom to have nine or ten gutters to let salt water into Foulness Island. As a true knowledge of agriculture extended these gutters were one by one extinguished until there were only three now left. Land draining—a far better system—succeeded, and there were now 607 acres of land in the island with pipe drains. Were salt water introduced here this drainage would be destroyed, and he thought the commissioners would hesitate before discouraging in such a manner people who were taking the van in agriculture and endeavouring to introduce improvements. Those who advocated the letting in of salt water had nothing at stake; they had no land drainage to spoil and no private investment to sacrifice. With regard to the health of a people, that of course depended, in a great measure, upon the drainage and the condition of their dwellings. The cottages at Foulness were generally surrounded by ditches, into which the sewage and the refuse of the houses were cast. At the end of these ditches salt water was admitted, and its admixture with the sewage produced a smell offensive beyond description. Obstructions were frequently caused by matter thrown into these ditches, and they were thereby converted into a succession of little pools, in which the water stagnated and became excessively offensive. The effect upon the public health was naturally the reverse of good. He proposed to call Mr. Charles Harvey before the commissioners, and he asked them to pay particular attention to the evidence of that gentlemen. Mr. Harvey would speak not only of the operation of the salt-water system in an agricultural point of view, but also as it affected the public health. On these points he was well qualified to speak, for he had devoted much of his time, and much of his money too, in bettering the sanitary and the moral condition of the people. With respect to Mr. Finch, no man stood more highly in the estimation of his tenants. Being only yearly occupiers they were not bound to him for a very long time, but they were bound to him by a much stronger tie than that, produced by the generous principles which had distinguished his life. There was not one tenant but would do all he could to improve Mr. Finch's estate; indeed his tenants were improving his estate almost in defiance of him. The truth was that had Mr. Finch better understood the condition of the island and the feeling of his tenants he would never have written the letter which had been read from him.

Mr. CHARLES HARVEY then tendered evidence, being examined by Mr. Page. Six out of the nine salt-water gutters on the island, he stated, were now disused; the disuse of these gutters was to be ascribed, he believed, to the extended knowledge and the improved social habits of the people; as good farming increased, salt-

water gutters diminished; land draining followed, and it was beneficial alike to the land and the health of the people. Witness was a tenant of Mr. Finch; it was impossible for a man to improve his farm while salt water was admitted; he thought the system had harmed the cottages, because they had looked for the salt water to remove that which they ought to have put away themselves. He said that if the present ditches (which, in consequence of the introduction of salt water, smelt very unwholesome) were removed, the cottages at Foulness could be surrounded with quickset fences as in other places. The population of the island was about 750.

Mr. Fulford, Mr. I. W. Stallibrass, Mr. Henry Matthams, Mr. John Bumble, and Mr. Philip Patmore—all occupiers of land on the island—stated that they concurred entirely in the evidence which had been adduced by Mr. Harvey.

Mr. PARSONS took charge of the other side of the question. Having lived nearly 30 years on the island, he thought he could form a little opinion as to what was beneficial or injurious to it. From time immemorial salt water had been let in to the island, and it seemed somewhat remarkable that it should have been discovered all at once that it was hurtful to the soil. Occupiers had always had the power of rejecting the salt water, but none was ever stopped till Mr. Page stopped it on New Marsh Farm, by Mr. Stallibrass's consent. It was said that the ditches cast off an unwholesome effluvium and rendered the island unhealthy. If salt water were not permitted to run in once a fortnight they would surely be worse. Besides, he found that if he did not keep salt water in his ditches, the soil, which was of a sandy nature, absorbed the water of his ponds. He had two ponds near his yards. Last year, as soon as he was deficient of salt water in his ditches, away went the water from his ponds. Surely, this question should be decided in the interest of those who resided in the island, rather than of those who occupied largely in it and lived out of it. In Cote End, the most populous part of the island, the ditches used to prevent the fresh water sinking into the earth. Last year the people there were entirely destitute of fresh water and had to pay for every pail they used. He was sure if salt water were admitted during the summer months it would benefit the public health and be to the advantage of farming operations as well.

Dr. HILLIARD remarked that they had had some very experienced testimony adduced; Mr. Page was a large landlord and held a good deal of land under Mr. Finch as well, the amount of his ownership and letting being nearly 2,000 acres. Why not let him do as he pleased with reference to the admission of salt water, and why not give farmers of a different belief the same liberty? He did not think the commissioners could order all the salt water to be excluded from the gutters.

Mr. KNOX said the question appeared to be a matter between landlord and tenant. He believed the feeling of the commissioners was that there was a preponderance of evidence in favour of Mr. Page's ideas, but under the circumstances he did not think they would be at all justified in making any order, and he proposed that no order should be made, leaving the admittance or exclusion of salt water to the choice of the occupiers as heretofore.

Mr. TABOR seconded this proposition, and it was carried by five votes against four. *Chelmsford Chronicle.*

CLONMEL.—*A Conversation on Tenant Right.*—"It so happens," he said [a gentlemen not connected with land, but with commerce]—"it so happens that this very neighbourhood of Clonmel affords a test case by which the principles that you have been discussing may be tried." He took down Young's "Tour in Ireland," vol. 1, and asked me to read the following:—

"Sir Wm. Osborne, who resides near Clonmel, in the county of Tipperary, has made a mountain improvement, which demands particular attention, being upon a principle very different from the common ones. Twelve years ago he met with a hearty looking fellow of 40, followed by a wife and six children in rags, who begged. Sir William questioned him upon the scandal of a man in full health and vigour supporting himself in such a manner. The man said he could get no work. 'Come along with me, and I will show you a spot of land on which I will build a cabin for you, and if you like it you shall fix there.' The fellow followed Sir William, who was as good as his word. He built him a cabin, gave him 5 acres of a heathy mountain, lent him 4*l.* to stock with, and gave him when he had prepared his ground as much lime as he would come for. The fellow flourished; he went on gradually; repaid the 4*l.*; and he has at present 12 acres under cultivation. His name is John Connory.

"The success which attended this man in two or three years brought others, who applied for land, and Sir William gave them as they applied. In this manner he has fixed 22 families, who are all upon the improving land, the meanest growing richer; and they find themselves so well off that no consideration will induce them to work for others—not even in harvest. Their industry has no bounds, nor is the day long enough for the revolution of their incessant labour. He has informed them that they will be charged something for the land, and has desired that each will mark out what he wishes to have. They have accordingly run divisions, and some have taken pieces of 30 to 40 acres. He has little doubt but they will take among them the whole mountain, which consists of 900 acres. He has great reason to believe that nine-tenths of them were Whiteboys, but are now of principles and practice exceedingly different from the miscreants who bear that name. This shows that the villany of the greatest miscreants is all in situation and circumstances. Employ—don't hang them. Let it not be in the slavery of the cottier system, in which industry never meets its reward. By giving them the fruit of their labours teach them to be laborious."

Having read the passage, he asked who I thought was the creator of this wealth. No doubt, he went on to say, Sir William Osborne was the legal proprietor of the mountain—the instrument from which the wealth was made—and his was the directing head and helping hand; but the instrument was not his work; the directing head and helping hand would have been of no avail to change the barren and heathy mountain into valuable property, without the rude labour of the once ragged and criminal "miscreants." Suppose that Sir William Osborne was a strict economist and purely selfish man, and that he said to these tenants, "You have made this land very valuable, but the land being mine, everything that you have put into it is mine also. Your labour inheres in my property, and cannot be dissassociated from it. I need not allow you to remain on the land at all, but I shall not exercise my full legal rights. You must, however, give me three-fifths or five-sixths of the produce. If you do not agree to this you must go; there are others who will accept my proposal." Would you blame the tenantry if they grumbled at a contract of this kind, and would it not rather be an abuse of terms to call such a proposal by the name of a contract? He might go further, and impose other conditions. He might say, as it has been said, it is the "essential duty of a landlord to keep down population." Therefore I shall not permit a tenant's son to marry, and live in the same house as his father; I shall not allow two families to live under the same roof; I shall require you to vote for my friend at every election, &c. Sir William Osborne did not act in this way, but he might and could have acted in this way. His son or his grandson might have taken an extreme view of their rights; he might have become extravagant and indebted, and to meet his indebtedness or extravagance he might put the "screw" on the tenants, and say to them, "You know you are in the hands of the law." In that case, I remarked, the tenants would probably answer, "I am in the hands of the Lord."

I cannot but think it is the bounden duty of the Legislature to interfere, without loss of time, between these extreme pretensions on one side and the other. At present the great mass of opinion lies in the middle, but the longer a fair Bill on the question of land tenure is delayed, the greater will be the difficulty of dealing with it. I have before me a mass of evidence in the shape of letters, which proves that certainty of tenure for a definite number of years, with compensation for improvements, would satisfy the expectations of the people. I have not yet met with any one, of whatever politics or class, that does not admit the necessity of an alteration of the law. It ought not to be a task above the capacity of Parliament to pass a measure that would reconcile conflicting, and now almost hostile, pretensions. The relations between landlord and tenant will drift into a "shapeless mass of anarchy" if matters are allowed to proceed as they are. I have travelled during the last two days over a beautiful district almost wholly devoted to pasture. There was not 1 acre in 500 under tillage. I asked, "Where are the Potato fields? where are the corn lands? how are the people fed?" The answer was, "The Potatos are brought from town markets, 12 and 14 miles distant; flour is imported; and mouths are diminishing." I know the latter to be perfectly true, as wherever I go I find emigrants on the move. *Daily News.*

The Poultry Yard.

IN reply to a correspondent in last week's Number, we give a few details as to the Californian crested quail. We know no bird better suited for a lady's pet—hardy, familiar, and handsome, easily reared, and far from particular in its diet.

This pleasing little bird has been known for many years, and living specimens were brought to England in the early days of our Zoological Society. For some time they did well and then died. They then became so completely forgotten, except in the records of the society, that when again they were brought to Europe they were generally hailed as a new bird. At the Concours Agricole held by the Emperor at the Palais d'Industrie, in the year following the first French Exhibition, one pair of these birds was exhibited, and formed a most attractive feature. The hen laid almost daily, and her eggs sold freely as curiosities.

For a year or two the California quail sold freely at high prices. Then came a fall. Three or four large lots were imported, and the Belgians were very successful in breeding them. They were brought over here in considerable numbers, and deservedly became great favourites. It was an idea, and it may yet become a fact, that this quail is likely to be a valuable addition to our game birds. In some parts of the kingdom it has been turned out, and has thriven well, especially on the west coast of Scotland, in Bedfordshire, and some parts of Hampshire. The migratory instinct, so strong in all birds of the quail tribe, has been very much against the extension of the experiment; but we heard a few days since a pleasing instance of the return of a cock bird after a disappearance of some months. This took place in Yorkshire. A gentleman who was very successful with them in Essex used to put their eggs in partridges' nests. When they are kept in confinement as aviary birds or pets, any ornamental design of cage will answer, provided it has a gravelled or shingled bottom, which must have the grit of sufficient depth to enable the birds to dust and bask. They are very fond of basking. Their best food is Buckwheat, Millet, Rape-seed, Wheat, Barley, Oats, in fact any grain except Hemp-seed. They require a good deal of green food, and eat it greedily. Their bill is very strong, and is formed like the mouth of a turtle, the two mandibles overlap sufficiently to cut a leaf or plant. Water-cress, Endive, Lettuce, young Clover, and growing plants, they are very fond of. They are very nimble, and have many pleasing and attractive habits to those who watch them. They are very gregarious, and at the same time very quarrelsome. They are curious in their way of hiding in small trees. In a dwarf Fir tree, not more than 3½ or 4 feet high, 20 or 30 of these birds will completely hide themselves.

Where they are kept in confinement for breeding, there is no better model for a pen for them than a Cucumber frame, putting a false top of wire netting to it. The glass top is not necessary; a plain board shutter will answer every purpose. If made without a bottom the coop can be drawn along on to fresh Grass or gravel from time to time. The hen lays an egg very pointed at one end and thick at the other. It is about the size of a common partridge's egg, but with a much thicker shell. The ground colour of it is white, with blotches of a chocolate colour on it. The hen will lay sometimes as many as from 17 to 30 eggs. She hardly ever makes any nest, and the eggs should be gathered from day to day and some of them placed under bantams. The little ones, when first hatched, are very quaint and curious-looking little birds, very quick and lively. They require some chopped egg and bread crumbs, with a little bruised Hemp-seed rubbed into it. To this may be added by degrees oatmeal or barleymeal, and the egg withdrawn. As they get older they thrive on exactly the same food and treatment as young pheasants and partridges.

In answer to "Tyro," in last week's *Agricultural Gazette*, we have found no pigeons breed as constantly as some of the German toy varieties. They breed quite true to colour (with few exceptions), and form a very pretty and effective flight, while they supply plenty of young ones for kitchen purposes. The fantails are also excellent breeders, as are the Antwerps.

Miscellaneous.

The Zero of Fraud.—Is it come to this? Under the head of "Notices of Motions," in a programme of "Parliamentary Business," recently printed, there was the following entry:—

"LORD ELCHO.—I call attention to the adulteration of manures; and to move that, in the opinion of this House, it is desirable that the attention of the Board of Trade should be directed to this subject."

Has commercial rascality descended even to the adulteration of manures? Why, this is worse than Tennyson's conception of the pharmaceutical rogue "pestling a poisoned poison." It is the lowest conceivable depth of dirty dishonesty. British mercantile morality must, indeed, be at a low ebb if Lord Elcho has reason for bringing the adulteration of manure itself before the House of Commons. What will Parliament do to prevent it? We can imagine what the collective wisdom of our ancestors would have done. It would have doomed the debaser of manure to stand in the pillory, and be pelted with his own wares—purified. *Punch.*

The Amateur Farmer.—I have employed my farm as an amusement and a means of health to myself, but this might have been done without sacrificing profits. It has failed to be an example to my neighbours. It is not enough to deepen the soil, to drain it, to give it abundance of manure, to raise better crops per acre than is usual. Farmers look on and say—"You have money to spend, and do not depend for a living on the returns of your farm. We cannot afford good farming unless it pays." They are right. Gentlemen who sport fancy farms might be of great service to farmers of moderate means, if they would subject the farm to the same vigorous financial treatment that they do their factory, their ship, or their store—oblige it to pay. I regard my farming, in so far as its influence on others is concerned, as a great failure, inasmuch as I have not demonstrated that thorough tillage is profitable, and that it is better to be an enterprising farmer than one of mere routine. *H. Ward Beecher in "Ontario Farmer."*

The Milk Business.—The *modus operandi* of conducting the milk business on the line of Harlem railroad is as follows. There are two things that are indispensable. First, an ample supply of cold water. Some farmers pump the water into large vats, say 10 by 3½ feet, sunk in the ground, in which the cans are set. From wells of the temperature of 45°, this will preserve milk very well, but it is attended with much care and labour, as the water should be changed a number of times daily in the warm weather. Springs of never failing water abound on almost every farm on the eastern hills of Duchess county, with a temperature ranging from 48° to 55°. Water at 50° is as high as will insure milk that is transported say five miles to a station and 70 by rail, and this is about the standard of the springs in this vicinity. Second, the vessels (40 quart cans are generally used) must be thoroughly cleansed, and a want of proper care in this particular is the cause of much milk becoming sour and a pecuniary loss. The milk-house should be kept clean and well ventilated, and the animal heat gotten out as quickly as possible after milking, which is greatly facilitated by gently stirring it. Warm milk should never be mixed with the cold. The milk train runs nightly, and the milk of the evening and the morning is daily forwarded to the city, making the milk of the preceding evening 36 hours old when served to the consumers. Occasionally it is reported sour by the milk dealer, and on investigation one of the two following things is certain; either Bridget has been in too great haste in washing her cans, or, which is the more probable, there is an excess of milk in market, that enables the milk dealer to buy at a less figure than the price he has agreed to pay the producer. The average price for 1868 was about 5 cents (equal to 2½*d.*) per quart. *Albany Country Gentleman.*

Calendar of Operations.

Stifle-burning in small heaps on the surface is successfully prosecuted during the month of May on land intended for Turnips. If finished in the beginning of the month the land may be ready for Swedes.

Clay-burning in large heaps or in pits is carried on, and the ashes when cool carted and laid on the land in small heaps, the spreading of the ashes and the

manuring and seeding of the land being similar to what is described under "paring and burning."

Liming Turnip fallows continues up to the time of sowing, the lime being spread and well harrowed into the land prior to its being set up in drills for the manure. Instead of the shells being laid down in small heaps upon the land, and covered up with earth to slake it is emptied in heaps of several cartloads on the headland, or near where there is water to slake it, and the slaked lime then spread with shovels from the tail of the cart. This practice neutralises acrid qualities, which destroy the germinating power of small seeds in "sour" soils. Potato land is also limed from the cart, and hoed in with the horse-hoe and hand-hoe in hoeing. When Potatos are aboveground the lime should be applied in dry weather, as the slight dusting of the lime will then do the stems comparatively no harm, particularly if the hand-hoes follow so as to shake it off. In moist weather, or on dewy mornings, it does harm to the wet leaves, although not to the extent which some farmers imagine.

Weevils in great variety now begin to emerge from their winter quarters, where they have lain in a chrysalis state, and to enter upon active life, depositing their ova in Parsnips, Carrots, Cabbages, Beans and Turnips. Parsnips and Carrots become cracked, Turnips have anbury, or finger-and-toe, and Cabbages and Beans are club-rooted. The Turnip fly attacks the young braird before it gets into rough leaf; and as the plants become sickly and rot, they form food and breeding ground for other varieties. They are more numerous and destructive in dry seasons than in wet ones, and in land that has become "tired" of growing any of the above crops; in other words, when crops begin to degenerate they are liable to be infested with insects. But the most healthy Cabbages, &c., in virgin soil are attacked. The Curculionideæ are vegetable feeders, but they live chiefly on the decaying remains of plants, while others subsist on animal matter in the soil; hence they are seldom found in a healthy fertile soil, where such matters undergo immediate decomposition. Hence, also, the best plan of getting rid of these insect tribes is the use of active manures, especially in a liquid form, and of a quality such as the crop to be grown requires.

Hop-gardens furnish employment in hoeing, digging, and tying of bines. It is never too late to apply guano and fish manure in a liquid form, much diluted, in dry weather, if the bines require it. In moist or wet weather the manure may be sown dry, when it will be washed in by the rain. Hoeing will bring it to the roots, if the hills are sufficiently moist to dissolve the manure when applied.

"*Wheat flagging*," when necessary, should be done in time, or before the ear rises to be in the way of the scythe or reaping hook, and while the young plants grow erect. When blanching or etiolation takes place, the stalks become not only weakly, bend and "knee" at the bottom, but the broad heavy leaves also become weakly, and bend so as to be below the edge of the scythe; they are also more difficult to cut; but when growing erect they are easily cut. A very small bit from the point of a leaf will effectually check exuberant growth, and let in the light to the bottom. The scythe or reaping-hook requires to be kept sharp and evenly drawn across the tops; but an experienced hand finds no difficulty in doing this. The work is best done in rather moist weather, and in the morning, if the weather is dry, as under the influence of a burning sun the leaves bend and do not stand up to the scythe. *W. B.*

Notices to Correspondents.

BARLEY FOR SEED: *T. S.* We fear that, under the circumstances, no jury would give you damages.

CABBAGE: *Cæ.* Early Yorks, sown in July and August, will be ripe in May. Then pull every fourth Cabbage, and transplant Drumheads sown in February. They will be ready in November, and will keep till January; and if you sow in April again, you may have a crop which will be good food in January and February.

COTTON CAKE: *Inquirer* writes:—"Will any one who has been in the habit of giving cotton cake to cows, say if he has any reason to suppose it has prevented them from being in calf?"

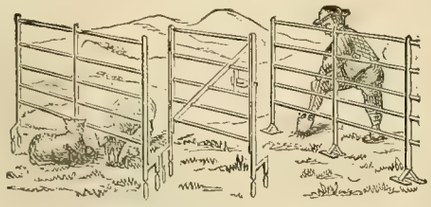
DISEASE IN SHEEP: *R*, Llanelly, Carmarthenshire, writes as follows:—"Can you, or any of your correspondents, inform me what is the disease of which eleven sheep died near here lately, and of which the following are the symptoms: The sheep (part of a flock of about 60) appeared very healthy until a short time before they died. They were feeding upon high land, dry, adjacent to the sea-shore. They appeared heavy and dull, frothing at the mouth and nose; drank water. On being opened it was found that the heart was swollen; the tongue black; teeth, in some, loose; inner coat of stomach came away when handled; smelt badly internally; swelled under the jaw. The eleven died in a few days; several more were affected, but recovered after being moved to another part of the farm. The lambs of the dead sheep are healthy." [The disease, judging from your description of it, is one of those blood affections of which splenic apoplexy is the type. It occurs generally on undrained and retentive soils, which have been much fed over, or otherwise highly manured. We have met with the disease on all kinds of pastures where the herbage, from any cause, was luxuriant and of rapid growth. Without knowing more of your system of management, and the general condition under which your stock are placed, we cannot advise you beyond suggesting the obvious course of keeping sheep off the dangerous ground while the herbage is springing.]

HIGHWAY: *Patience* should apply to a Justice of the Peace, who could, under the General Highway Act, sect. 44, summon the surveyor of the parish before the Justices at some special sessions for the highways, when the said Justices may appoint some competent person to view the road, or may view it themselves, and direct the surveyor to meet them upon the spot; and if it shall appear that the road is not in a state of thorough repair, the Justices may order it to be done within a given time, and if the surveyor neglect their orders, they may fine him 5*l.*; and if he should be inattentive to this, they may fine him again to the extent of the actual cost of the repairs needed. *A Surveyor of Thirty Years' Standing, who keeps the Law at his Fingers'-ends.*

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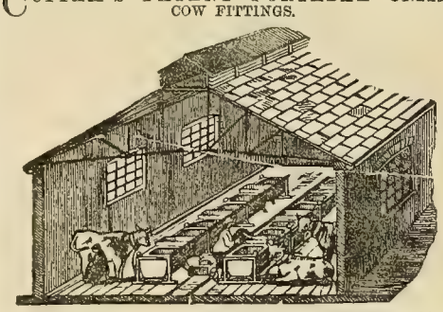
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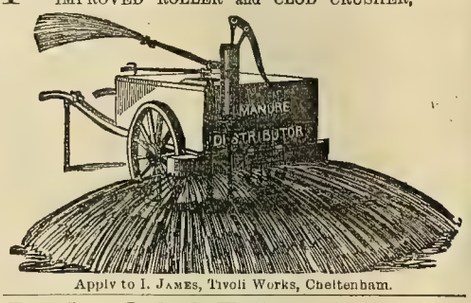
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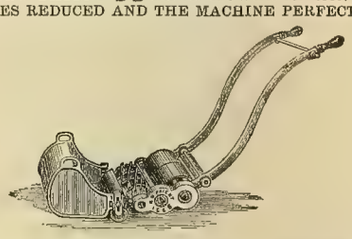
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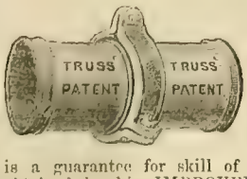
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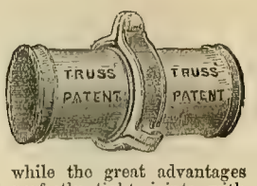
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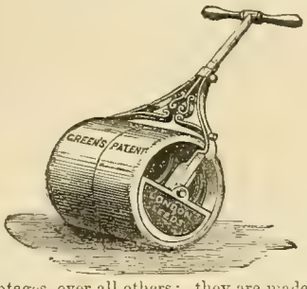
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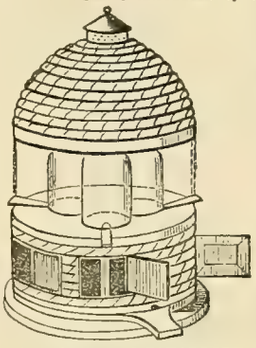
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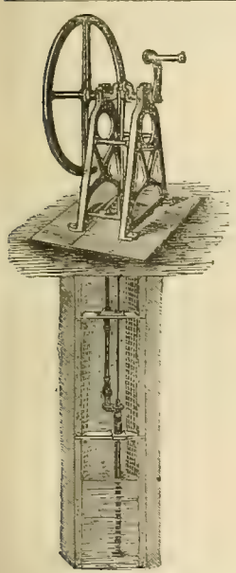
JOHN WARNER & SONS,

BELL AND BRASS FOUNDERS TO HER MAJESTY,

HYDRAULIC ENGINEERS,

8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

Illustrated and Priced Lists of WARNERS' HORTICULTURAL IMPLEMENTS, comprising GARDEN ENGINES, WATER BARROWS, PUMPS, SYRINGES, BRANCH PIPES, RUBBER HOSE, FOUNTAIN JETS, &c., will be sent upon application, or goods may be obtained from any Ironmonger or Seedsman at the Manufacturers' prices. Owing to the greatly increased demand for these engines during the last few years your early commands will oblige.



FRAMES & PUMPS FOR DEEP WELLS.



No. 35.

CAST-IRON PUMPS.

2½ inches	..	£1	8 6
3 ,,	..	2	1 0
3½ ,,	..	2	6 0
4 ,,	..	2	14 0



No. 39.

WARNERS' CRYSTAL PALACE

FIRE ENGINE, or PORTABLE FORCE PUMP.

Price on Barrow, with Branch Pipe, Spreader, Unions, and Suction Rose, £6.

1¾-in. 2-ply Rubber Suction Pipe, per foot, 2*s.* 2*d.*; 1¼-in. ditto Delivery Hose, 1*s.* 4*d.*

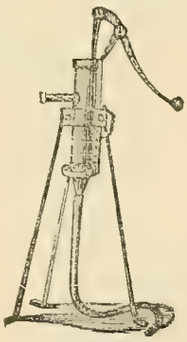
Crystal Palace, Sydenham, March 2, 1867.

Messrs. WARNER & SONS.

"GENTLEMEN,—I feel great pleasure in stating that I was present at a trial of your small Crystal Palace Fire Engine, and was much pleased with its efficiency and simplicity. The Pump throws out a steady jet of water to a height of 50 feet with very little labour. The Pump we have is well made, very simple in its parts, and not likely, I think, to get out of order. The advantage of this pump is its being very portable. Besides being a good Fire Engine, it will make an excellent Garden Engine. "I remain, gentlemen, yours obediently,

"EDWIN ROSE, Engineer to the "Crystal Palace Company."

Drawing and Estimates for Wind Engines, Water Wheels, and Hydraulic Machinery of every description for Steam, Horse, or Hand-power will be forwarded upon application.



No. 42.

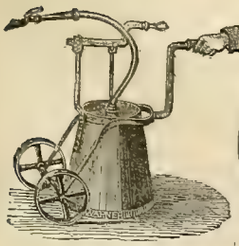
PORTABLE PUMP

With Improved Valves for Liquid Manure, £2 15*s.*

2-inch Flexible Rubber Suction Pipe, in 10, 12, and 15 ft. lengths, per foot, 2*s.* 5*d.*



CHAIN PUMP FOR LIQUID MANURE.

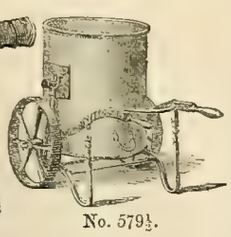


No. 547B.

WARNERS'

GARDEN ENGINE

Holds 6 gallons; is light, portable, and easily worked by a lady or child .. 50*s.*



No. 579½.

SWING

WATER BARROW.

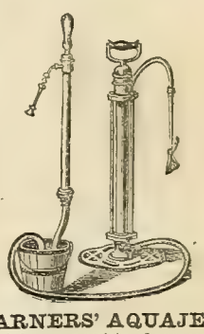
50 gallons ..	..	£5	12 0
38 ,,	.. ..	3	17 0
30 ,,	.. ..	2	13 0
20 ,,	.. ..	2	2 0



No. 547A.

GARDEN ENGINE

28 gallons ..	..	£5	10 0
24 ,,	..	4	19 0
16 ,,	..	3	14 0
10 ,,	..	2	19 0



WARNERS' AQUAJECT

Useful for every variety of purpose—in watering or washing flowers or trees in Gardens, Conservatories, &c.; also, for washing Carriages or Windows, laying Dust, &c.

Price, complete .. £1 10 0
Small size for the hand, as an ordinary Syringe 0 15 0

GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT, MANUFACTURER



TO HER MOST GRACIOUS MAJESTY THE QUEEN.

THE Extraordinary Success of GREEN'S PATENT LAWN MOWERS is an established fact. During the last five years the demand has been unprecedented, which alone is a proof of their superiority over all others. The following are their characteristic features:—

1st. Simplicity of Construction, every part being free of access.
2d. They are worked with far greater ease than any other Lawn Mower.
3d. They are the least liable to get out of order.

IMPORTANT NOTICE.

Trial at the London Horticultural Society's Gardens, Chiswick, June 5, 1857; four competitors: — First Trial on level ground; Second Trial on undulated; Third Trial on intricate places, around trees, &c.,—when GREEN'S PATENT was unanimously declared to be the best in each Trial by COLONEL CHALLONER, DR. LINDLEY, and G. MCEWEN, Esq., the appointed Judges, and on every subsequent Trial to the above have GREEN'S PATENT LAWN MOWERS carried off every Prize that has been given in competition for superiority in every point.

PRIZE MEDALS AWARDED TO GREEN'S PATENT LAWN MOWERS.

FIRST PRIZE MEDAL AT THE INTERNATIONAL EXHIBITION, LONDON, 1862.
FIRST PRIZE MEDAL AT THE INTERNATIONAL EXHIBITION, DUBLIN, 1865.
FIRST PRIZE MEDAL AT THE NAMUR EXHIBITION.
FIRST PRIZE MEDAL AT THE GAND EXHIBITION.
FIRST PRIZE MEDAL AT THE LAEKEN EXHIBITION.
FIRST PRIZE MEDAL AT THE LINEENE EXHIBITION.
FIRST PRIZE MEDAL AT THE BRUSSELS EXHIBITION, *on two occasions.*
FIRST PRIZE MEDAL AT THE HAMBURG EXHIBITION.

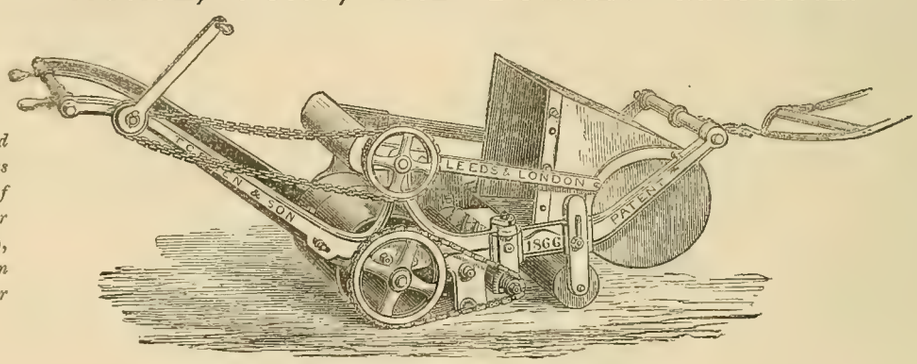
THEY ARE THE ONLY MACHINES IN CONSTANT USE AT

THE ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON
THE ROYAL BOTANIC GARDENS, REGENT'S PARK
THE CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM
BUCKINGHAM PALACE GARDENS
MARLBOROUGH HOUSE
THE HYDE PARK GARDENS
THE WINTER PALACE GARDENS, DUBLIN
THE DUBLIN BOTANIC GARDENS
THE LIVERPOOL BOTANIC GARDENS
THE LEEDS ROYAL PARK
THE HULL BOTANIC GARDENS
THE BOTANIC GARDENS, BRUSSELS
THE SUNDERLAND PARK
THE PRESTON PARK

AND IN MOST OF THE PRINCIPAL PARKS, SQUARES, ETC., IN THE UNITED KINGDOM.

HORSE, PONY, AND DONKEY MACHINE.

GREEN'S PATENT **LAWN MOWERS** *have proved to be the best, and carried off every Prize that has been given in all cases of competition. Since the first year they were introduced* (1856), *upwards of* 46,600 *have been sold, and* 25,000 *of that number during the last five seasons.*



T. GREEN & SON *warrant every Machine to give entire satisfaction, and if not approved of can be returned unconditionally.*

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

PONY AND DONKEY MACHINES.

To Cut 26 inches	£13	0	0	*Leather Boots for Donkey*, 18*s*. *Leather Boots for Pony*, 22*s*.
„ 28 „	15	0	0	
„ 30 „	17	0	0	

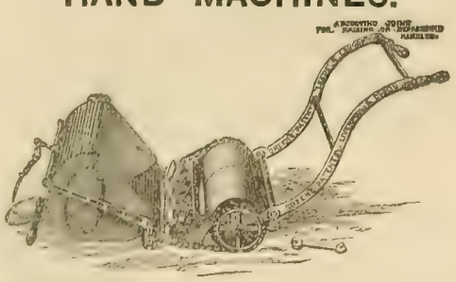
HORSE MACHINES.

To Cut 30 inches	£21	0	0	*Leather Boots for Horse*, 26*s*.
„ 36 „	24	0	0	
„ 42 „	27	0	0	
„ 48 „	30	0	0	

Both the Horse, Pony, Donkey, and Hand Machines possess (over all other Makers) the advantage of Self-sharpening. The cutters being steel on each side, when they become dull or blunt by running one way round, the cylinder can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the Machine will cut equal to new. Arrangements are made that the cylinder can be reversed, by any inexperienced person, in two or three minutes.

HAND MACHINES.

To Cut 10 inches ..	£3	10	0	*Suitable for a Lady*
„ 12 „ ..	4	10	0	„ „
„ 14 „ ..	5	10	0	*Suitable for One Person*
„ 16 „ ..	6	10	0	„ „



To Cut 18 inches ..	£7	10	0	*Suitable for One Person.*
„ 20 „ ..	8	0	0	*Suitable for Two Persons*
„ 22 „ ..	8	10	0	„ „
„ 24 „ ..	9	0	0	„ „

Packing Cases are charged at the following low rates, viz.:—for the 10 and 12-inch Machine, 3*s*.; 14 and 16-inch, 4*s*.; 18 and 20-inch, 5*s*.; 22 and 24-inch, 6*s*. Parties providing themselves with Lawn Mowers are recommended to purchase the cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England, Ireland, and Scotland.

HORTICULTURAL and AGRICULTURAL IMPLEMENTS, GARDEN SEATS and CHAIRS, FOUNTAINS, VASES, PLAIN and GALVANISED WIRE NETTING, and ORNAMENTAL WIRE WORK of every description.

Having very extensive Premises in London, we are in a position to do all kinds of Repairs there, as well as at our Leeds Establishment.

Having a large quantity of MACHINES in stock at our Leeds and London Establishments, we are in a position to execute Orders on the day they are received.

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;
and 54 & 55, BLACKFRIARS ROAD, LONDON, S.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, and Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, Royal Gardens, Kew, &c.

The best Shading is "Frigi Domo" Netting.

White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for

PROTECTION from the COLD WINDS and MORNING FROSTS.

"FRIGI DOMO" NETTING, 2 yards wide, 1s. 6d. per yard run.

"FRIGI DOMO" CANVAS.

Two yards wide	.. ..	1s. 9d. per yard run.
Four yards wide	.. ..	3s. 6d. per yard.
An improved make, 2 yards wide	..	1s. 9d. per yard.
An improved make, 3 yards wide	..	2s. 8d. per yard run.

"Bridgehill, Bolper, Feb. 13, 1869.

"SIR,—Please send me at once, by Midland Railway, 50 yards of Frigi Domo 2 yards wide, same as you sent me about this time last year, and which answered its purpose admirably.—Yours respect fully,

"G. H. STRETT.

"P.S.—We had 300 dozen Apricots last year on walls protected solely by Frigi Domo."

ERASMUS THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom

---

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

GLASS for ORCHARD HOUSES,

As supplied by them to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.

Each Box contains 100 feet. The prices only apply to the sizes stated.

Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.

	16 oz. to the foot.	21 oz.
Fourth quality	15s. 0d.	19s. 6d.
Third ditto	16s. 0d.	22s. 0d.
Seconds	18s. 6d.	26s. 0d.
English	20s. 0d.	27s. 0d.

The above prices include the boxes, which are not returnable.

HORTICULTURAL GLASS.

Stock sizes, 16-oz., in 100 feet boxes, boxes included.

These prices only apply to the sizes stated.

				4ths.	3rds.	2nd.
				s. d.	s. d.	s. d.
11 by 9	12 by 9	13 by 9	14 by 9	13 6	15 6	17 0
12 „ 10	13 „ 10	14 „ 10	15 „ 10			
13 „ 11	14 „ 11	..	..			
14 „ 12	15 „ 12	15 „ 11	16 „ 11			
15 „ 12	16 „ 12	16 „ 12	17 „ 12			
16 „ 13	17 „ 13	20 „ 12	..			
16 „ 14	20 „ 13	18 „ 13	..	15 0	16 0	18 6
	17 „ 14	18 „ 14	..	16 to 17 oz. to the foot.		
	20 „ 14					

SMALL SHEET SQUARES.

In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	12s. 6d.
8 by 6	8½ by 6⅔	9 by 7	9½ by 7½	
		10 by 8	10½ by 8½	13s. 6d.

Boxes 2s. each returnable at full price.

Painted and Glazed with 16-oz. Sheet Glass.

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS. PAINTS of various colours ground ready for use.

SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of Prices and Estimates forwarded on application to JAMES PHILLIPS & Co., 180, Bishopsgate Street Without, E.C.

Horticultural Glass Warehouse.

THOMAS MILLINGTON AND CO., 87, Bishopsgate Street Without, London, E.C.

NEW LIST for ORCHARD-HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD-HOUSE SIZES.

in.	in.		4ths.	3rds.	2nds.	Best
20 by 12						
20 by 13		15 oz.	12s 3d	15s 6d	16s 9d	18s 0d
20 by 14	Per 100 feet					
20 by 15		21 oz.	18s 0d	20s 0d	22s 0d	24s 0d
20 by 16						

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7					11s 3d	12s 6d	14s 0d	15s 6d
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½								

Per 100 feet.

10 by 8	12 by 9	12½ by 10½	14½ by 10½					11s 9d	14s 9d	15s 3d	17s 6d
10½ by 8½	12½ by 9½	13 by 10	15 by 10								
11 by 9	13 by 9	13½ by 10½	13 by 11								
11½ by 9½	12 by 10	14 by 10	14 by 11								

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
15½ by 10½	14 by 12	22 by 12	22 by 16					12s 3d	15s 6d	16s 9d	18s 0d
16 by 10	14½ by 12½	17 by 13	24 by 16								
14½ by 11½	15 by 12	23 by 13	20 by 17								
15 by 11	15½ by 12½	18 by 14	22 by 17								
15½ by 11½	16 by 12	22 by 14	24 by 17								
16 by 11	16½ by 12½	24 by 14	20 by 18								
21 by 11	17 by 12	22 by 15	22 by 18								
13 by 12	18 by 12	24 by 15	24 by 18								

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.

In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	34s.	4ths quality, per 200 feet case,	34s.
3ds „ „	40s.	3ds „ „	40s.
2ds „ „	60s.	2ds „ „	60s.
Best „ „	75s.	Best „ „	75s.

SHEET GLASS is made only in the following substances, 15 oz. 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.

HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.

BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.

STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a-half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.

IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4s. per gallon.

	Per cwt.—s. d.		Per gallon.—s. d.
GENUINE WHITE LEAD	30 0	LINSEED OIL	2 9
SECONDS WHITE LEAD	28 0	BOILED OIL	3 2
GROUND PATENT DRYERS, 3d. to 4½d. per lb.		TURPENTINE	2 9
„ OXFORD OCHRE, 3d. to 4½d. per lb.		LINSEED OIL PUTTY, 8s. per cwt.	
„ RAW UMBER, 4½d. to 6d. per lb.		Fine OAK VARNISH, 10s. to 12	0
„ BURNT do., 6d. to 9d.	[per lb.	„ CARRIAGE do., 12s. to 14	0
GREEN PAINT, all shades,		„ PAPER do. 10s. to 12	0
	28s. to 60 0	„ COPAL	16 0
BLACK PAINT,	24s. to 36 0	KNOTTING	10 0
RED PAINT ..	28s. to 36 0	Patent GOLD SIZE ..	10 0
		„ BLACK JAPAN ..	12 0
		GLAZIER'S DIAMONDS and TOOLS	
GROUND BRUSHES.		MILLED LEAD and PIPES	
DUSTERS. | SASH TOOLS.		OLD LEAD Bought or taken in exchange.	
DISTEMPER BRUSHES.			

The above are Net, for Cash, and as such cannot be booked. Lists of any of the above on application.

Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the Corporate Mark, OBTAIN WARRANTED, without which none are genuine.

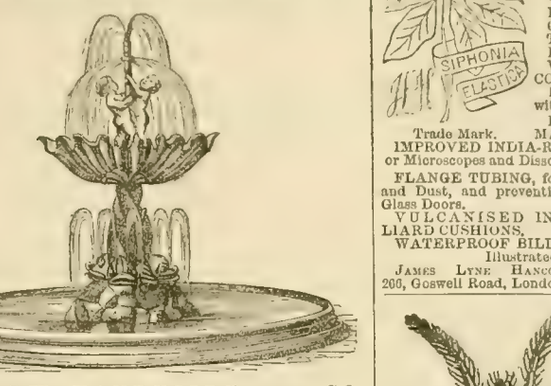
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make all of which are warranted both by Sellers and Makers.

S. & C.'s PRUNING and BUDDING KNIVES are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

Vases and Fountains,

FOR THE GARDEN AND CONSERVATORY.



ANDREW HANDYSIDE AND CO., Britannia Foundry, Derby. | 32, Walbrook, London.

The Britannia Iron Works have for the last 40 years been well known for the production of fine Iron Castings. The use of Cast-iron permits a delicacy of outline, and smoothness of surface, impossible in cheap Stone or Terra-cotta. Cast-iron Vases, if occasionally painted, are imperishable, and will not crack when exposed to wet or frosty weather.

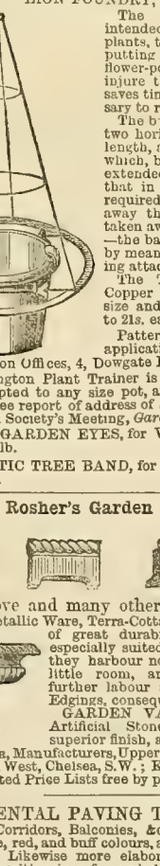


Lithographed Sheets of Designs and Price Lists post free on application.

The Packington Plant Trainer,

MANUFACTURED BY

MATTERSON, HUXLEY, AND WATSON, LION FOUNDRY, COVENTRY.



The Packington Plant Trainer is intended to facilitate the training of plants, to do away with the necessity of putting sticks into the soil of the flower-pot (which to a certain extent injure the root of the plant), and also saves time and trouble when it is necessary to re-pot the plant.

The base of the frame is fitted with two horizontal rods, screwed the whole length, and upon these slide two bands, which, by means of the fly-nuts, can be extended or contracted at pleasure, so that in repotting a plant all that is required is to slacken the nuts, draw away the bands; the pot can then be taken away and replaced by a larger one—the bands tightened to the large pot by means of the nuts—the plant remaining attached to the frame as before.

The Trainers are made either in Copper or Galvanised Iron, and to any size and pattern required, from 7s. 6d. to 21s. each.

Patterns and prices forwarded on application to the makers, Coventry, or at their London Offices, 4, Dowgate Hill, Cannon Street, E.C.

The Packington Plant Trainer is an exceedingly ingenious contrivance, adapted to any size pot, and readily shifted from one to the other. See report of address of J. Bateman, Esq., at the Royal Horticultural Society's Meeting, *Gardeners' Chronicle*, March 6, 1869.

Galvanised GARDEN EYES, for Wall Trees, made in four sizes, price 5d. per lb.

The ELASTIC TREE BAND, for securing newly-planted Trees, price 1s. each.

Rosher's Garden Edging Tiles.



THE above and many other PATTERNS are made in Terro-Metallic Ware, Terra-Cotta, Stoneware, and Redware, and of great durability. The planer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability and superior finish, and in much variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.E. Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E. Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs. Likewise more elaborate designs. Pattern Sheets of Pavements, with prices, forwarded for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.

To be obtained of F. & G. ROSHER, at their premises as above.

SILVER SAND (REIGATE), at the above addresses—14s. per Ton, 1s. 2d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less. A coarser grained Sand 4s. per ton more. Samples of Sand by post on receipt of stamp.

FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEAT and LOAM supplied at lowest rates.

F. & G. ROSHER.—Addresses see above.

N.B. Orders promptly executed by Railway or Vessel. A liberal discount to the Trade.

Indestructible Terra-Cotta Plant Markers.

MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c. MAW & Co., Benthall Works, Broseley.

BROWN'S FLORAL SHADING. Sold by Nurserymen and Seedsmen.

No. 1.	34 inches wide,	20 yards long,	at 4s. 6d. per piece.
No. 2.	38 „	„ 20 „	„ 4s. 10d. per piece.
No. 3.	39 „	„ 18 „	„ 7s. extra stout.

Samples on application to CHARLES BROWN, Greenheys, Manchester.

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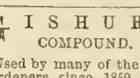
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Catalogues can be had of Mr. WOOLER, and Mr. JOHN WETHERELL, Auctioneer, Richmond, Yorkshire.

Harmondsworth, Middlesex.

MESSRS. E. AND C. NEWMAN, will SELL by AUCTION, by order of John Corney, Esq., at the Chequers Inn, Uxbridge, W., on THURSDAY, June 17, at 2 o'Clock, a VALUABLE FREEHOLD, tithe free and land tax redeemed, Arable Field of 13a. 1r. 7p., well suited for Market Gardening, or, with its extensive frontage and brick earth, for Building purposes Desirably situate on the Hath Road, to which it has a frontage of 898 feet, and near the 14th mile stone; in the occupation of Mr. Hunt.

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NOTICE TO THE PUBLIC.

JOHN JOSEPH MECHI respectfully informs his Friends, his Customers, and the Public, that, owing to the death of his late Partner, he has resumed the whole of the business at No. 112, Regent Street, and will (assisted by his Son) conduct it in his own name, with his original spirit and vigour, the main principles being superior quality, combined with moderate prices adapted to the present times. First-class workmen are employed in every department, so that the various fittings, Cutlery, Brushes, &c., of the Dressing Bags and Dressing Cases, shall be perfect for use and of warranted quality. Although this has become an age of beards (now, however, going out), those who still indulge in a clean shaven chin will find comfort in his celebrated Razors and Magic Strop and Paste, that have stood the test of 41 years. Mr. Mechi invites his old friends and customers to inspect his immense stock, which presents an ample variety of utilities and elegances, suitable for presentation, including all the newest fashions in the various departments. While manufactures of great elegance and cost, and in great variety, are submitted for the luxurious and wealthy, Mr. Mechi wishes it to be clearly understood that articles of everyday use, at most moderate prices, are in ample supply and variety. For instance, the very best quality of Blade in a neat PENKNIFE of Buck's Horn or Ivory Handle at 1s. each; best TOOTH BRUSHES (not ivory), at 9d. each; and other things in proportion, all warranted in quality, though cheap in price. Attention is particularly requested to a variety of splendid Exhibition articles, which will be sold a bargain, much under cost price, to close accounts.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 23.—1869.] SATURDAY, JUNE 5. {Price Fivepence. {Stamped Edition, 6*d*.

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ROYAL BOTANIC SOCIETY GARDENS, Regent's Park.—NEXT EXHIBITION of PLANTS, FLOWERS, and FRUIT, JUNE 30 and JULY 1. Tickets 5*s*. each. AMERICAN PLANTS, daily, from June 1 to 14. Tickets 2*s*. 6*d*. each. Tickets to be obtained at the Gardens, and of the Society's Clerk, Austin's Ticket Office, St. James's Hall, Piccadilly, by Vouchers from Fellows of the Society.

LEE and BLACKHEATH HORTICULTURAL and FLORICULTURAL SOCIETY.—The FIRST SHOW of the SEASON will be held on WEDNESDAY and THURSDAY, June 9 and 10, in the GROUNDS of the Misses LEWIS, Blackheath Park. A Band will attend. For Admission, &c., see Bills. LAST DAY for ENTRIES, JUNE 3. Schedules and all particulars may be obtained of G. R. CLISBY, Sec., 17, Turner Road, Lee, S.E.

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Schedules and particulars may be had of the Secretary,
WM. PENN COX, 37, Market Place, Leicester.

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British Fern Catalogue.

ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, Sidcup Hill, Kent.

FERNS.—Choice and Select EXOTIC FERNS and LYCOPODS, in great variety, are now offered in good plants, 12 fine varieties for 6*s*.; larger plants and more select kinds from 9*s*., 12*s*., 20*s*., to 30*s*. per dozen. Package included.
B. W. KNIGHT, Florist, Battle, Sussex.

Ferns, British and Exotic, at reduced prices.

A. STANSFIELD AND SON beg to state that their CATALOGUE, No. 8, is now ready, and will be forwarded on receipt of three stamps. The above Catalogue contains 40 pages of matter, including partial descriptions and cultural remarks.
Vale Nurseries, Todmorden, Lancashire.

SPECIMEN PALMS for SALE.—Four splendid large plants; also a Pair of BAYS and TREE FERNS. Prices and full particulars on application to E. COOLING, Derby.

ALLAMANDA WARDLEIANA.—This magnificent plant is NOW READY, at 21*s*. each.
A Coloured Plate by Andrews, taken in December, post free for 13 stamps.—R. TANTON, F.R.H.S., Epsom Nurseries, Surrey.

An Opportunity seldom met with.

T. COOPER, Holmsdale Road, Reigate, Surrey, has a large Collection of SUCCULENT PLANTS, including above 500 species of Cacti, also Agaves, Aloes, Haworthias, &c., and offers them at much less than their real value. Also a number of new and interesting Plants, raised from South African seeds.

Sow Now.

TREE MIGNONETTE SEED, saved from exhibition plants, 2*s*. 6*d*. per packet.
R. TANTON F.R.H.S., The Nurseries, Epsom, Surrey.

NEW DOUBLE GERANIUMS.—Twelve varieties Double Zonal Geraniums, including Madame Vaucher, for 12*s*.; 12 best New Zonal Geraniums of 1868 for 6*s*.; 6 varieties Gold and Golden Bicoloured Geraniums for 6*s*., post included, from B. W. KNIGHT, Florist, Battle, Sussex.

To the Trade.

TWO THOUSAND GLOIRE DE NANCY, 3000 SILVER-EDGED, and 5000 ZONAL GERANIUMS, 5000 CALCEOLARIAS, 5000 VERBENAS. CATALOGUES and prices on application to
WILLIAM COCKS, Old Nurseries, Donington, Spalding.

Specimen Tricolor and Bicolor Geraniums.

F. AND A. SMITH have a large stock of most of their varieties, in various sizes, suitable for exhibition, and now in good colour. An inspection respectfully invited.
The Nurseries, West Dulwich, S.E.

New Nosegay Geranium Charley Casbon.

CASBON AND SON are now sending out the above beautiful GERANIUM. It is of dwarf spreading growth; the flowers, which have broad petals, are freely borne in immense trusses. Colour, the richest scarlet of any variety known. Strong plants 6*s*. each. The usual allowance to the Trade.
Gravel Walk Nursery, Peterborough.

STRONG TRICOLOR and BICOLOR GERANIUMS, hardened off, fit for bedding-out. Most of the sorts advertised in this paper, May 1, can still be supplied by the dozen or 100. Smaller plants can be supplied at lower prices. A liberal allowance to the Trade. A LIST with prices can be had on application to
WILLIAM POTTEN, Sissinghurst, Staplehurst, Kent.

To the Trade and Others.

SEVERAL THOUSAND TRICOLOR and BICOLOR GERANIUMS to be cleared out, in fine strong plants of all the leading sorts. List and prices on application to
N.B.—100 large specimens of choice GOLD and BRONZE to be Sold Cheap.
HENRY WALTON, Edge End, Marsden, near Burnley, Lancashire.

Echeveria metallica (Special Offer).

JAMES CARTER AND CO. beg to offer, in quantity, nice Seedling Plants of ECHEVERIA METALLICA, the singular and beautiful Shell Plant, very effective for Bedding purposes. Price per dozen, 6*s*.; per 100, 42*s*.; per 1000, £18—well-established plants, in small pots, with four to six leaves each. Larger, at usual Catalogue prices.
JAMES CARTER & Co., Seed Merchants and Nurserymen, 237 and 238, High Holborn, W.C.; and Crystal Palace Nurseries, Forest Hill, S.E.

New Zonal Pelargoniums.

CHARLES TURNER strongly recommends the following:—
EXCELLENT, Silver Tricolor.—Was awarded the 1st Prize in this class at the great Pelargonium Show, May 22.
MAY QUEEN, pure white edges with novel pink flower.—This superior variety took the 1st Prizes in its class at the great shows in 1868 and 1869, at Kensington.
Price 15*s*. each, less if taken in numbers.
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BARR AND SUGDEN, 12, King Street, Covent Garden, W.C., have the finest and largest collection of GLADIOLI ever offered, prices varying from 2*d*. to 15*s*. per root. For particulars see pp. 68, 69, 70, and 71 of B. & S.'s SPRING SEED CATALOGUE.
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Choice Seeds, Gladioli, &c.

WM. CUTBUSH AND SON'S CATALOGUE of the above contains description and price of many very superior home-grown VEGETABLE and FLOWER SEEDS, and choice varieties of GLADIOLI, &c., all of which are highly recommended. Post free on application.
Highgate Nurseries, London, N.

Bedding Plants. Bedding Plants.

JAMES HOLDER can supply strong Plants of the following:—Scarlet and Variegated GERANIUMS, CALCEOLARIAS, VERBENAS, FUCHSIAS, DAHLIAS, CUPHEAS, HELIOTROPES, LOBELIAS, COLEUS, IRESINES, &c., &c.
Eight Dozen for 20*s*., or Four Dozen for 15*s*. 6*d*. Hamper and packing included. Crown Nursery, Reading.

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SCOTT'S SUPERB PRIMULA FIMBRIATA, six varieties mixed, or each colour separate, 1*s*. 6*d*. and 2*s*. 6*d*. p. pkt. SCOTT'S SUPERB CINERARIA and CALCEOLARIA, 1*s*. and 2*s*. 6*d*. per packet.
J. SCOTT, The Seed Stores, Yeovil, Somerset.

DAHLIAS.—CATALOGUES of the above are now ready, comprising the newest and best varieties in cultivation. Strong healthy plants, all true to name, on application to
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Established 1806.

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NEW COLEUS.—The 12 New Coleus of the Royal Horticultural Society, sent out in 1868, with other fine varieties, sent post free—12 fine varieties for 2*s*. 6*d*.; 12 cuttings, in 12 fine varieties, for 1*s*. 2*d*., from
B. W. KNIGHT, Florist, Battle, Sussex.

NEW COLEUS, BEAUTY of WIDMORE.—The prettiest variety yet sent out, distinctly tricolored; leaves small and beautifully shaped, of a dark brilliant maroon, belted with bright rose and green, and edged with silvery white; habit very dwarf. 6*s*. each. Four will be sent when three are ordered. Price to the Trade on application.
JAMES CARTER & Co., Seed Merchants and Nurserymen, 237 and 238, High Holborn, W.C.; and Crystal Palace Nurseries, Forest Hill

NEW COLEUS, BEAUTY of WIDMORE.—The prettiest variety yet sent out, distinctly tricolored; leaves small and beautifully shaped, of a dark brilliant maroon, belted with bright rose and green, and edged with silvery white; habit very dwarf; 6*s*. each: 4 will be sent when 3 are ordered. Price to the Trade on application.
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SUTTONS' CHAMPION SWEDE, the hardiest and best in cultivation. Lowest price per bushel on application.
SUTTON & SONS, Seed Growers, Reading.

The Best Turnip for Early Sowing,
TO FEED OFF FOR WHEAT, IS
POMERANIAN WHITE GLOBE. Price 10*d*. per lb.; much cheaper by the bushel. Carriage free.
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The Largest Turnip known is
SUTTONS' PURPLE-TOP MAMMOTH, very solid, heavy, and of quick growth. Sow in June for Early Feeding, and August for Ewes and Lambs in Spring. 1*s*. 6*d*. per lb.; much cheaper by the bushel. Carriage free.
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To the Trade.

HALL'S WESTBURY SWEDE TURNIP SEED, true, nett. Grown last season from transplanted roots. For samples and prices, apply to
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To the Trade.

TURNIP and MANGEL SEEDS, growing crop of 1869, splendid stocks, various kinds.
FREDK. GEE invites attention to the above, and will be pleased to make special offers of the same on advantageous terms.
Seed Establishment, Biggleswade, Beds.

To Farmers, Gardeners, and Others.

EXCELLENT strong Spring-sown CABBAGE, CAULIFLOWER, BROCCOLI, SAVOY, BRUSSELS SPROUTS, and various other plants on offer, price on application. SCARLET RUNNER BEANS, fine sample, 1867 growth, 20*s*. per bush.
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Extra strong SEAKALE, 2*s*. per dozen.
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EVERY GARDEN REQUISITE KEPT in STOCK at
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A SPECIAL PRIZE MEDAL, PARIS, 1867, was AWARDED to JAMES CARTER & Co., 237 & 238, High Holborn, London, W.C., for GRASS SEEDS, supplied for the Exhibition Grounds.

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Free for one postage stamp.
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NEWSPAPER

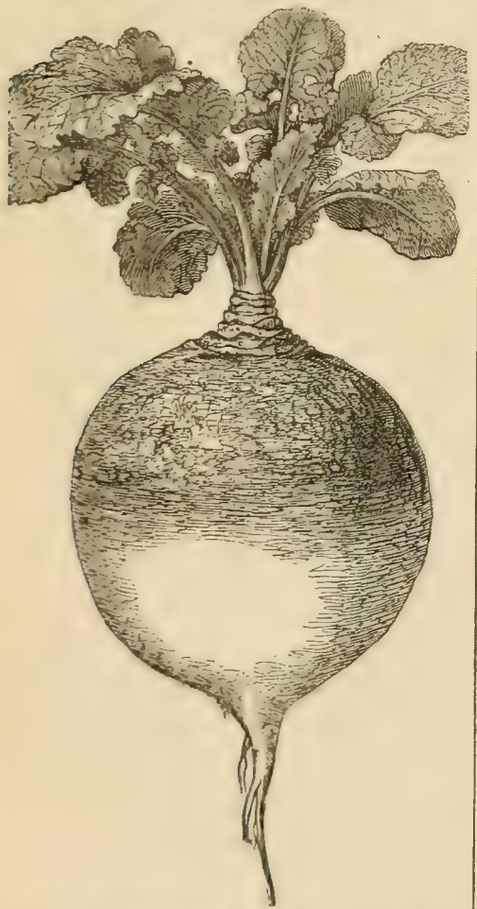
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W. RUSHFORTH, NURSERYMAN, Leeds, offers as under:—
LILIUM AURATUM, strong, 30s. per dozen
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ARABIS ALBA and VARIEGATA, 12s. per 100
ASPERULA ODORATA, 12s. per 100
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SUTTONS' GRASS SEEDS for ALL SOILS,
Carriage free.
As supplied to H.M. THE QUEEN. SUTTON AND SONS, SEEDSMEN to the QUEEN, Reading, Berks, have still on hand each variety of the various cleaned As supplied to H.R.H. THE PRINCE OF WALES.
PERMANENT PASTURE GRASSES and CLOVERS, suitable for various descriptions of soils.
For PERMANENT PASTURES, 20s. to 32s. per acre, For ,, PARKS, 18s. per bushel, For ,, LAWNS, 20s. per bushel, } Carriage free.
Special estimates given for large quantities.
For further particulars apply to SUTTON & SONS, Reading, Berks.

SWEDE, TURNIP, &c., from well selected Transplanted Bulbs, nett growth of 1868:—
HALL'S WESTBURY, per lb., 9d.; per bushel of 50 lb., 30s. MARSHALL'S IMPROVED PURPLE TOP, 8d. p. lb.; p. bush., 28s. SKIRVING'S IMPROVED, 8d. per lb.; per bushel, 28s. OLD PURPLE TOP, 8d. per lb.; per bushel, 28s. TURNIP, GREEN TOP, or BARREL, 7d. per lb.; per bushel, 20s. LINCOLNSHIRE RED, 8d. per lb.; per bushel, 28s. WHITE STONE, 9d. per lb.; per bushel, 30s. RAPE, per bushel of 52 lb., 11s.; per 4 bushels, 40s. White MUSTARD, per bushel, 16s.; per 4 bushels, 60s. Sacks 1s. 4d. each; Bushel Bags, 8d. Remittances to accompany all orders.
CHRISTMAS QUINCEY, Seedsman, Peterborough.

The Best Swede in Cultivation is



SUTTONS' CHAMPION PURPLE-TOP SWEDE.—SUTTONS' Champion, price 1s. per lb., much cheaper by the bushel, carriage free. Lowest price per bushel on application.
SUTTON & SONS, Seedsmen to the Queen, Reading, Berks.

PLANTS for the GARDEN and the FARM:—White BROCCOLI, per score, 1½d.; per 1,000 (of 50 scores), 6s. BRUSSELS SPROUTS, per score, 1½d.; per 1,000, 4s. SAVOY CABBAGE, per score, 1d.; per 100, 3s. Green KOHL RABI, per 1,000, 3s.; per 10,000, 25s. Early ENFIELD MARKET CABBAGE, per 1,000, 3s.; per 10,000, 25s. DRUMHEAD or SCOTCH, per 1,000, 2s. 6d.; per 10,000, 20s.; per 100,000, 180s.
Free on rail. Remittances to accompany all orders.
CHRISTMAS QUINCEY, Seedsman, Peterborough.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY (Limited),
CORN, SEED, MANURE, and OILCAKE MERCHANTS.
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke
Samples and prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

The Cheapest and Best Insecticide.
DUTY-FREE TOBACCO.
BY HER MAJESTY'S ROYAL LETTERS PATENT, AND BY PERMISSION OF THE HON. BOARD OF CUSTOMS.

POOLEY'S TOBACCO POWDER, for the Prevention and Destruction of Blight and other Diseases in Plants.
Sold by Nurserymen, Seedsmen, and Florists,
In Tins at 1s., 2s. 6d., and 5s.
Powder Distributors, 2s. 6s. and 3s. 6d. each.
"I find it exceedingly useful for killing the Aphides on Roses and other Plants."—GEO. EYLES, Superintendent, Royal Horticultural Gardens, South Kensington. May 7, 1868.
Sole Manufacturer, T. A. POOLEY, Bonded Warehouse, Sussex Wharf, Wapping, E

SHELL GRAVEL for Gardens, Conservatories, and Terraces; clean, dry, and neat in appearance, used in the Parks and the Horticultural and Botanic Gardens.
Sold by FRANCIS & Co., Surrey (foot of Vauxhall Bridge), London.

Weeds Eradicated from Lawns.
WATSON'S LAWN SAND, sprinkled upon Lawns, rapidly destroys Dandelions, Daisies, Clover, Rib-grass, &c., and at same time promotes the growth of Grass. 28s. per cwt.; 4d. per lb.
May be ordered through any respectable Seedsman, or direct from Agent, W. D. BARBOUR, 6, East Parade, Leeds.


Red Spider Magnified.

GISHURST COMPOUND.
Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d.
Wholesale by
PRICE'S PATENT CANDLE COMPANY (Limited),
Battersea, London, S.W.

DIPLADENIA AMŒNA.

J. W. WIMSETT
HAS GREAT PLEASURE IN ANNOUNCING THAT HE HAS PURCHASED
THE WHOLE STOCK OF THE ABOVE BEAUTIFUL PLANT,
Raised by Mr. Tuke, of Bramley, near Leeds, who also raised the lovely Dipladenia amabilis. A Figure of the beautiful D. amœna is given in the "Florist" for April, 1868. Plants now ready for distribution.
Price 1½ Guinea each. Strong Half Specimens, 5 and 7 Guineas each.
ASHBURNHAM PARK NURSERY, KING'S ROAD, CHELSEA, S.W.
May 1. J. WILLS, F.R.H.S., Manager.

THE ROYAL SEEDSMEN.
GENERAL PLANT CATALOGUE, ILLUSTRATED WITH COLOURED DRAWINGS.
JAMES CARTER & CO.'S
NEW PLANT CATALOGUE IS NOW READY,
and will be forwarded on application, ILLUSTRATED with FOUR COLOURED DRAWINGS of
TRICOLOR AND BICOLOR GERANIUMS,
AND CONTAINING FULL DESCRIPTIVE LISTS OF THE NOVELTIES FOR 1869.

ONE MILLION BEDDING AND OTHER PLANTS
Now ready for sending out, of which they invite inspection at their
CRYSTAL PALACE NURSERY, FOREST HILL, S.E.

LANDSCAPE GARDENING AND ARCHITECTURE.
JAMES CARTER AND CO. having an experienced staff of qualified Men, will be happy to undertake the ALTERATION or IMPROVEMENT of GARDENS, DOMAINS, &c., and to furnish Estimates (after a personal inspection), with Plain or Coloured Plans, as may be desired.

CARTER'S TRICOLOR, BICOLOR, and DOUBLE-FLOWERING GERANIUMS received Five Prizes and Two Certificates at the Royal Horticultural Society's Show at South Kensington, May 22; Two First-Class Certificates at the Royal Botanic Society's Show, May 19 and 20; and Special Prize at the Crystal Palace Show, May 15, 1869.
New Tricolor Coleus, Beauty of Widmore, 5s. each.
Echeveria metallica, 1s. 6d. each; 12s. per dozen.

INDIA-RUBBER HOSE at Manufacturers' Prices. Sixty Feet, with fittings complete, 25s.

JAMES CARTER AND CO., SEED MERCHANTS and NURSERYMEN,
237 and 238, HIGH HOLBORN, LONDON, W.C.; and CRYSTAL PALACE NURSERY, FOREST HILL, S.E.

THOMSON'S WHITE LADY DOWNE'S GRAPE.

THOMAS METHVEN
HAS SECURED THE STOCK OF THIS GRAPE,
Which was raised by Mr. THOMSON, of Dalkeith, from the Black Lady Downe's. The Vine is of the same vigorous habit of growth as the parent, equally fruitful, sets more freely, requires less heat, and is not liable to scald as the black variety is; keeps as long, if not longer; and has fully as good a flavour. It is guaranteed to be the latest keeping White Grape in cultivation. It received First-class Certificates at the Edinburgh Show on March 20, 1867, and at Glasgow on the 27th of the same month. It will be Exhibited next Spring at all the March and April Shows.
ORDERS ARE NOW BEING BOOKED TO BE SENT OUT NEXT SEPTEMBER.
Strong Planting Canes, 21s. and 42s. each; Extra Strong Fruiting Canes, 63s.
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WILLIAM ROLLISSON & SONS

BEG RESPECTFULLY TO INFORM THE NOBILITY, GENTRY, AND TRADE THAT THEIR

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EXTENDING OVER 150 PAGES OF LETTERPRESS,

Is now Published, and will be forwarded to all applicants on receipt of 8 Postage Stamps, and sent Gratis to Customers.

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NEW VARIEGATED PLANT FOR THE FLOWER GARDEN,

ABUTILON THOMPSONI.

MESSRS. VEITCH & SONS

DESIRE TO CALL PARTICULAR ATTENTION TO THIS

DISTINCT AND BEAUTIFUL VARIEGATED FOLIAGE PLANT.

The ground colour of the leaf is a light green, which is profusely shaded and mottled with bright yellow, producing quite the appearance of mosaic work. It is a most effective ornamental plant, and from its free growth peculiarly suitable for bedding purposes. During the summer of last year it proved a most valuable addition to our gardens, and when plants from the open ground were exhibited at the Floral Committee Meeting of the Royal Horticultural Society, held September 1, 1868, it was awarded a First-class Certificate as "a charming addition to our decorative plants." It attains a height of about 1½ foot, is of compact habit, and is strongly recommended.

Price 30s. to 36s. per dozen.

CATALOGUES of SUBTROPICAL and other PLANTS are now ready, and will be sent Post Free on application.

ROYAL EXOTIC NURSERY, CHELSEA, S.W.

NEW PLANTS FOR 1869.

JAMES VEITCH & SONS

BEG TO ANNOUNCE THAT THEY ARE

NOW SENDING OUT THEIR SPLENDID NOVELTIES.

AMPELOPSIS JAPONICA,
price 7*s.* 6*d.* each.

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price, good plants, 10*s.* 6*d.* each; extra strong plants, 21*s.* each.

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price 10*s.* 6*d.* each.

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price 42*s.* each.

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price 21*s.* each.

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price 15*s.* each.

ERANTHEMUM ASPERSUM,
price 7*s.* 6*d.* each.

HEDAROMA (DARWINIA) FIMBRIATA,
price, good plants, 15*s.*; a few stronger plants, 31*s.* 6*d.* each.

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price 21*s.* each.

RHODODENDRON HENRYANUM,
price 10*s.* 6*d.* each.

THIBAUDIA ACUMINATA,
price 10*s.* 6*d.* each.

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INTRODUCED DIRECT FROM THEIR NATIVE HABITATS BY MESSRS. VEITCH AND SONS.

ANGRÆCUM FALCATUM,
price 21*s.* to 42*s.* each.

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price 42*s.* each.

DENDROBIUM CRASSINODA,
price 63*s.* to 105*s.* each.

DENDROBIUM MACROPHYLLUM HUTTONI,
price, good plants, 105*s.*; strong plants, 147*s.*

MASDEVALLIA VEITCHIANA.
Prices on application.

VANDA INSIGNIS (TRUE).
Prices on application.

For full descriptions, see *Gardeners' Chronicle*, May 15, 1869, page 526.

A NEW ILLUSTRATED DESCRIPTIVE CATALOGUE of the above, and many NOVELTIES sent out by other houses, will be forwarded free on application.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, S.W.

HER MAJESTY'S GARDENER USES

FOWLER'S GARDENERS' INSECTICIDE.
Invaluable to Nurserymen, Fruit and Vine Growers.

INSECTS, BLIGHTS, and MILDEWS easily and effectually destroyed without injury to the most delicate plants.

A GREAT SUCCESS is FOWLER'S GARDENERS' INSECTICIDE.—See the Testimonials from eminent Gardeners throughout the kingdom. Sold by all Nurserymen and Seedsmen.

HER MAJESTY'S GARDENER SAYS:—"I am satisfied that the Insecticide will kill any insect that it comes into contact with, without injury to the plant."—*Vide Mr. George Wyness' Letter.*

THE FOLLOWING ARE MOST IMPORTANT:
Mr. THOMAS MOORE, Botanic Gardens, Chelsea, says:—"We have formed a very favourable opinion of Fowler's Insecticide as a remedy for many of the insect pests of plants. It effectually destroys White and Brown Scale, Thrips, Red Spider, and the Green and Black Fly; at the same time it does not injure the plants."
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Messrs. WM. WOOD & SON, Maresfield, say:—"We have tried it on Roses affected with Mildew, Calceolarias covered with Green-fly, and Aucubas and Oleanders infested with Scale, and we have much pleasure in stating the plants are now perfectly clean and healthy."
Mr. F. R. PEARSON, Chilwell, says:—"It is by far the most effectual remedy I have tried for our insect enemies. A plant covered with Brown Scale is cleaned at one dip; Ants, the different kinds of Aphis, and in fact everything, Black and White Thrip amongst the number, are settled at once."

NOTICE to the TRADE.—
In consequence of the popularity of
FOWLER'S GARDENERS' INSECTICIDE,
and to supply the increasing demand, the Manufacturers have been compelled to open a London Depot at
35, Great Dover Street, Borough, to which Address all Orders should be sent.

FOWLER'S GARDENERS' INSECTICIDE,
for Washing, Syringing, and Dipping Plants, 1*s.* 6*d.*, 3*s.*, 5*s.* 6*d.*, and 10*s.* Jars.
Sold by all Nurserymen and Seedsmen.

FOWLER'S TOBACCO POWDER
for Dusting Plants, 1*s.*, 2*s.* 6*d.*, and 5*s.* Canisters.
SOLE MANUFACTURERS:
G. AND T. FOWLER,
35, Great Dover Street, Borough, London, S.E., and North Street, Brighton.

The Best and Cheapest Vermin Killer.
Vide "The Gardener's Magazine," conducted by Shirley Hibberd, Esq., F.R.H.S., of August 15, 1868.
UNDER PERMISSION OF THE HON. BOARD OF CUSTOMS.
THE LONDON GROUND TOBACCO (free of duty), for the Destruction and Prevention of the Grub and Blight in Plants. Sold in Tins 1*s.* and 2*s.* 6*d.* each, by Seedsmen and Druggists.
POWDER DISTRIBUTORS, 2*s.* each.
Manufacturers: CORRY & SOPER, at their Bonded Warehouse, Shad Thames, London, S.E. [AGENTS WANTED.]

TOBACCO TISSUE,
for DESTROYING RED SPIDER, MEALY-BUG, THRIP, GREEN and BLACK FLY, without the aid of a Fumigator.—This article having been before the Public for the last three years, and being now used by many of the leading Horticulturists—from several of whom Testimonials have been received as to its efficacy,—the Manufacturers beg to recommend those who have not used it to give it a trial, feeling confident when they have done so they will use nothing else, as it is far superior to paper or rag, and will not injure the plants. Sold in 1 lb. packets and upwards; price 3*s.* 6*d.* per lb. carriage free. A reduction in price for large quantities.
To be had of MESSRS. ROBERTS AND SONS, Tobacco Manufacturers, 112, St. John Street, Clerkenwell, E.C., of whom Samples and Testimonials may be obtained; and of all Seedsmen and Nurserymen.

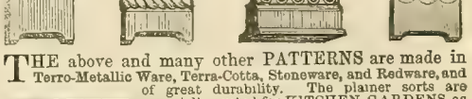
W. H. LASCELLES' MACHINE-MADE MELON LIGHTS.



	Each.
6 ft. by 4 ft. Lights, 2 ins. thick, unglazed	£0 5 0
„ „ Primed and Glazed with 10 oz. Sheet	0 11 0
„ „ with stout Portable Box, not Painted	1 3 0
„ „ Painted four coats, and Handles on	1 8 0
„ „ Packed and Delivered in Railway Van	1 10 0
6 ft. by 8 ft., Double Lights, do.	2 15 0
GREENHOUSES.	Per ft. super.
Woodwork only Prepared and Fitted	0 0 6
Primed and Glazed with 16 oz. Sheet	0 0 9
„ Delivered, and Fixed with Ironwork	0 1 0
„ Painted four coats, two sides, ready for use	0 1 3

Finsbury Steam Joinery Works, 121, Bunhill Row, E.C.

Rosher's Garden Edging Tiles.



THE above and many other PATTERNS are made in Terro-Metallic Ware, Terra-Cotta, Stoneware, and Redware, and of great durability. The plainer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability and superior finish, and in much variety of design.
F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.E. Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs. Likewise more elaborate designs. Pattern Sheets of Pavements, with prices, forwarded for selection.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.
To be obtained of F. & G. ROSHER, at their premises as above.

SILVER SAND (REIGATE), at the above addresses—14*s.* per Ton, 1*s.* 2*d.* per Bushel; 2*s.* per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1*s.* per Ton less. A coarser grained Sand 4*s.* per ton more. Samples of Sand by post on receipt of stamp.
FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEAT and LOAM supplied at lowest rates.
F. & G. ROSHER.—Addresses see above.
N.B. Orders promptly executed by Railway or Vessel.
A liberal discount to the Trade.

Hardy and other Bedding Plants.

ROBERT PARKER begs to offer the under-named, all of which can be supplied in strong, healthy plants:—

	Per doz.—s. d.		Per doz.—s. d.
Dactylis glomerata elegantissima	4 0	Pansy, Cliveden Purple ..	3 0
Echeveria metallica, 6s. to	30 0	,, ,, Yellow ..	3 0
,, pumila ..	9 0	,, Great Eastern ..	3 0
,, secunda glauca	9 0	,, Imperial Blue ..	18 0
Lithospermum prostratum (fruticosum)	9 0	Sempervivum californicum	4 0
ansy, Cliveden Blue ..	3 0	Tritoma grandis	12 0
		,, uvaria glaucescens	9 0
		Viola lutea semperflorens	4

Special quotations may be had, if required, for the above, and many other kinds, by the 100, or in larger quantities.
Exotic Nursery, Tooting, Surrey, S.W.

Cheap Bedding Plants.

FIELD BROTHERS, Tarvin Road Nursery, Chester, beg to offer the following, in strong and good plants, from single pots:—STELLA GERANIUM (Autumn-struck), 2s. per doz., 12s. per 100; LOBELIA SPECIOSA (from cuttings), 12s. per 100; VERBENAS, Firefly, Purple King, Mrs. Healford, 12s. per 100; AGATHEA CELESTIS VARIEGATA, 12s. per 100; GAZANIA SPLENDENS, 16s. per 100; SALVIA PATENS, 2s. 6d. per dozen; CALCEOLARIAS, Victor Emanuel, 3s. per dozen; Prince of Orange, 2s. per dozen; choice DAHLIAS, 3s. per dozen. Plants added for carriage.

CROYDON. A. HENDERSON. EAST SURREY SEED WAREHOUSE. ESTABLISHED 1828.

Bedding Plants.

ARCHD. HENDERSON'S DESCRIPTIVE and PRICED CATALOGUE of BEDDING PLANTS is now ready, containing all the novelties of the past two years. The Stock is in fine condition; for extent and vigour unsurpassed.

Purchasers are respectfully invited to inspect the Stock at Sion Nursery, Whitehorse Road, Croydon.

Special offers will be made for large quantities.

Catalogues to be had gratis, and post free on application.

BEDDING PLANTS.—The following are offered at the prices annexed, turned out of pots, and securely packed —no charge for package:—
AGERATUM PRINCE ALFRED, the dwarfest and deepest blue out, 2s. per dozen.
ALTERNANTHERA PARONYCHIOIDES and SPATHULATA, 2s. per dozen.
IRESINE HERBSTII and AUREO-RETICULATA, 1s. 6d. per doz.
PYRETHRUM PRINCE ARTHUR, the dwarfest and best double white out, 2s. per dozen.
PYRETHRUM GOLDEN FEATHER, 2s. per dozen.
LOBELIAS—Blue King, Queen of Whites, White Lady, and Little Gem, 1s. 6d. per dozen.
VIOLA CORNUTA ALBA, fine pure white, 2s. per dozen.
COLEUS VERSCHAFFELTII, GIBSONI, and other fine Bedding varieties, 2s. per dozen.
VERBENAS, the best varieties of 1868, 2s. per dozen.
FUCHSIAS, fine varieties of 1868, 4s. per dozen. [doz.
HELIOTROPIUMS and LANTANAS, for Bedding purposes, 2s. per
ZONAL GERANIUMS, of various shades of colour, for mixed beds, named, 3s. per dozen; unnamed, 2s. per dozen.
From B. W. KNIGHT, Florist, Battle, Sussex.

Special Offer to the Trade
Of NEW VERBENAS, 1869, and FUCHSIAS, COLEUS, &c., 1868.

KNIGHT'S Six splendid NEW VERBENAS for 6s., all gained First-class Certificates.
KEYNES' 12 New Varieties, 8s. | TURNER'S 12 New ditto, 8s.
12 Finest FUCHSIAS of 1868, strong plants, 9 to 12 inches, 4s.
12 varieties of COLEUS, extra strong, 20s. per 100.
ROSES, New and Old, every variety worth growing. For prices see CATALOGUE.
W. KNIGHT, Floral Nursery, Hailsham.

CARTER'S PRIMULA, CALCEOLARIA, and CINERARIA.
J. C. & Co.'s strain of Calceolaria is saved from plants that were awarded a 1st Prize at the late International Show. The Cineraria and Primula stocks are also saved from the finest Prize Varieties, and cannot be surpassed.

CALCEOLARIA and CINERARIA.

Per packet—s. d.		Per packet—s. d.	
Calceolaria, finest hybrid ..	2 6	Calceolaria, Dobson's strain..	2 6
,, ,, spotted..	2 6	Cineraria, extra fine	2 6

PRIMULA.

Per packet—s. d.		Per packet—s. d.	
Primula, choicest mixed, fringed	2 6	Primula, choicest white fringed	2 6
,, ,, dark carmine, fringed	2 6	,, ,, Fern-leaved carmine	2 6
,, ,, rose, fringed	2 6	,, ,, ,, white ..	2 6

CALCEOLARIA INTERNATIONAL PRIZE.—The Seed of this superb strain cannot fail to produce splendid varieties, as last season's plants took 1st Prizes wherever exhibited. Per pckt., 2s. 6d.
PRIMULA FIMBRIATA (New scarlet).—This is a decided novelty, being of a deep scarlet colour, and cannot fail to be much admired wherever grown. Per packet, 2s. 6d.
INDIA-RUBBER HOSE at Manufacturer's prices, 60 feet (with complete fittings), 25s.
JAMES CARTER & Co., The Royal Seedsmen, 237 and 238, High Holborn, London, W.C.

New and Choice Flower Seeds, Post Free.

B. S. WILLIAMS,
SEED MERCHANT AND NURSERYMAN,
Victoria and Paradise Nursery, Upper Holloway, London, N.

	Per packet.—s. d.
WILLIAMS' SUPERB STRAIN of PRIMULA.—B. S. W. can with confidence offer his superb strain of Primula as being the finest in cultivation. Red, White, or Mixed .. .. .. 2s. 6d., 3s. 6d., and	5 0
CINERARIA, choice mixed	1 6
CALCEOLARIA (Neill's extra choice strain), 2s. 6d., 3s. 6d., and	5 0
,, (Dalkeith Palace strain) .. ..1s. 6d. and	2 6
CARNATION, from Prize Flowers	1 0
CYCLAMEN (Wiggins' prize strain) .. 1s. 6d., 2s. 6d., and	3 6
POLYANTHUS (Wiggins' prize strain) .. .. 1s. 6d. and	2 6
CLIANTHUS DAMPIERI (fresh imported seed)	1 6
GERANIUM LE GRAND .. .. 1s. 6d. and	2 6
SOLANUM (Wrightii hybrid).—B. S. W. was awarded a Special Certificate for a Collection exhibited before the Floral Committee, December 15, 1868 2s. 6d., 3s. 6d., and	5 0
ECHEVERIA METALLICA (new Bedding plant)	2 6
HOLLYHOCK, from the best named sorts..	1 0
PANSY, from prize flowers	1 0
,, finest German varieties	1 0
PINK, Double-fringed, very fine	1 0
PICOTEE (from prize flowers)	1 0
SWEET WILLIAM, Hardy Auricula-eyed .. 6d. and	1 0
OXALIS VALDIVIANA, quite hardy, the flowers are bright yellow and sweet scented, and produced in bunches of large size (new)	1 0
MYOSOTIS AZORICA ALBA, the flowers are pure white, contrasting beautifully with the blue varieties (new)	2 6
MYOSOTIS AZORICA var. CŒLESTINA, beautiful sky blue	1 6
ANTIRRHINUM MAJORINA, very beautiful for rockwork (new)	1 6
VIOLA LUTEA (Yellow-flowered Violet) .. .. 1s. 6d. and	2 6
TAGETES VAN VOLXEMII, a beautiful pure white	2 6
WALLFLOWER (Marshall's), fine dark variety	1 0

Victoria and Paradise Nursery, Upper Holloway, London, N.

ROYAL HORTICULTURAL SOCIETY.

GREAT FLOWER SHOW, JUNE 2 and 3.

AWARDS OF THE JUDGES.

CLASS 1.—9 GREENHOUSE AZALEAS, distinct. (Open.)
1st Prize, Mr. S. M. Carson, Gr. to W. R. G. Farmer, Esq., Nonsuch Park, Cheam, Surrey, £10.
2d, Messrs. J. & C. Lee, Royal Vineyard Nursery, Hammersmith, W., £7.
3d, Messrs. J. Ivery & Sons, Nurserymen, Dorking, Surrey, £5.

CLASS 2.—6 GREENHOUSE AZALEAS, distinct. (Nurserymen.)
1st, Messrs. S. Glendinning & Sons, Nurserymen, Chiswick, W., £6.
2d, Messrs. J. & C. Lee, £3.
3d, Mr. B. S. Williams, Victoria and Paradise Nurseries, Upper Holloway, N., £2.

CLASS 3.—6 GREENHOUSE AZALEAS, distinct. (Amateurs.)
1st, Mr. G. Wheeler, Gr. to Sir F. H. Goldsmid, Bart., M.P., St. John's Lodge, Regent's Park, £6.
2d, Mr. A. Wilkie, Addison Road, Kensington, W., £3.

CLASS 4.—6 GREENHOUSE AZALEAS, in pots not more than 12 in diameter. (Amateurs.)
1st, Mr. A. Wilkie, £3. | 2d, Mr. G. Wheeler, £2.

CLASS 5.—GREENHOUSE AZALEAS, in pots not more than 12 inches in diameter, not fewer than 5 varieties. (Open.)
1st, Messrs. J. Ivery & Sons, £7.

CLASS 6.—9 ROSES, distinct, in pots not more than 13 inches in diameter. (Open.)
1st, Messrs. Paul & Son, Old Nurseries, Cheshunt, Herts, £9.
2d, Mr. William Paul, Paul's Nurseries, Waltham Cross, £7.

CLASS 7.—6 ROSES, distinct, in pots not more than 13 inches in diameter. (Open.)
1st, Mr. C. Turner, Royal Nurseries, Slough, Bucks, £6.

CLASS 8.—6 NEW ROSES, not sent out previous to 1863 or 1867, in any sized pot. (Open.)
1st, Mr. C. Turner, £3. | 2d, Messrs. Paul & Son, £2.

CLASS 9.—SHOW PELARGONIUMS, distinct, in pots not larger than 8 inches in diameter. (Nurserymen.)
1st, Messrs. J. Dobson & Sons, Woodlands Nursery, Isleworth, W., £8.
2, Messrs. S. Glendenning & Sons, £4.

CLASS 10.—6 SHOW PELARGONIUMS, distinct, in pots not larger than 8 inches in diameter. (Amateurs.)
1st, Mr. J. Ward, Gr. to F. G. Wilkins, Esq., Leyton, Essex, £5.
2d, Mr. D. Windsor, Gr. to J. R. Ravenhill, Esq., Leytonstone, Essex, £3.

CLASS 11.—6 FANCY PELARGONIUMS, distinct, in pots not larger than 8 inches in diameter. (Nurserymen.)
1st, Messrs. J. Dobson & Sons, £5. | 2d, Mr. C. Turner, £3.

CLASS 12.—6 FANCY PELARGONIUMS, distinct, in pots not larger than 8 inches in diameter. (Amateurs.)
1st, Mr. D. Windsor, £5.

CLASS 13.—6 ZONAL PELARGONIUMS, distinct, Nosegay and Variegated sorts excepted. (Amateurs.)
2d, Mr. G. Wheeler, £3.

CLASS 15.—6 NOSEGAY or HYBRID NOSEGAY PELARGONIUMS, distinct. (Open.)
1st, Messrs. Downie, Laird & Laing, Nurserymen, Forest Hill, S.E., £5.
2d, Mr. G. Wheeler, £3.

CLASS 16.—6 FUCHSIAS, distinct, in pots not larger than 13 inches in diameter. (Open.)
1st, Messrs. J. Dobson & Sons, £4.

CLASS 17.—6 HERBACEOUS CALCEOLARIAS. (Open.)
1st, Messrs. J. Dobson & Sons, £3.
2d, Mr. T. Welch, Gr. to D. Rutter, Esq., Parkfield House, Hillingdon, £2.

CLASS 20.—12 EXOTIC ORCHIDS, distinct. (Open.)
1st, Mr. G. Young, Gr. to W. H. Stone, Esq., Leigh Park, Havant, £12.
2d, Mr. T. Burnett, Gr. to W. Terry, Esq., Peterborough House, Fulham, £10.
3d, Mr. B. Peed, Gr. to Mrs. Tredwell, St. John's Lodge, Lower Norwood, £7.

CLASS 21.—10 EXOTIC ORCHIDS, distinct. (Nurserymen.)
1st, Mr. B. S. Williams, £9.

CLASS 22.—6 EXOTIC ORCHIDS, distinct. (Amateurs.)
1st, Mr. J. Ward, £5.
2d, Mr. A. Wright, Gr. to C. H. C. Roberts, Esq., Regent's Park, £4.
3d, Mr. G. Young, £3.

CLASS 23.—Specimen EXOTIC ORCHID. (Open.)
1st, Mr. J. Douglas, Gr. to Sir F. H. Waterlow, Fairseat House, Highgate, N., £2.
2d, Mr. R. Parker, Exotic Nursery, Tooting, S., £1.
3d, Mr. S. M. Carson, 15s.

CLASS 24.—12 STOVE or GREENHOUSE PLANTS, distinct. (Open.)
1st, Mr. B. Peed, £12. | 2d, Mr. A. Wilkie, £10.
3d, Mr. J. Wheeler, Gr. to J. Phillpott, Esq., Sramford Hill, N.W., £7.

CLASS 25.—6 STOVE or GREENHOUSE PLANTS, distinct. (Nurserymen.)
1st, Mr. B. S. Williams, £5. | 2d, Messrs. S. Glendinning & Sons, £4.

CLASS 26.—6 STOVE and GREENHOUSE PLANTS, distinct. (Amateurs.)
1st, Mr. J. Ward, £5.
2d, Mr. J. Carr, Gr. to P. L. Hinds, Esq., Byfleet, Weybridge, £4.
3d, Mr. A. Wright, £3. | 4th, Mr. B. Peed, £2.
Equal 4th, Mr. W. Kemp, Albany Park Gardens, Guildford, £2.

CLASS 27.—6 STOVE and GREENHOUSE PLANTS, in pots not larger than 12 in. diameter. (Amateurs.)
1st, Mr. Kemp, £4. | 2d, Mr. A. Wilkie, £3.
3d, Mr. G. Wheeler, £2.

CLASS 28.—1 Specimen STOVE or GREENHOUSE PLANT. (Open.)
1st, Mr. A. Wilkie, £2. | 2d, Messrs. J. & C. Lee, £1.
Equal 2d, Messrs. S. Glendinning & Sons, £1.

CLASS 29.—8 GREENHOUSE ERICAS. (Open.)
1st, Mr. J. Ward, £7. | 2d, Mr. B. Peed, £5.
3d. Mr. E. Morse, Original Nursery, Epsom, £3.

CLASS 30.—6 GREENHOUSE ERICAS, distinct. (Amateurs.)
1st, Mr. J. Ward, £5. | 2d, Mr. J. Wheeler, £3.
3d, Mr. W. Kemp, £2.

CLASS 31.—6 GREENHOUSE ERICAS, in pots not larger than 12 inches in diameter. (Amateurs.)
1st, Mr. J. Ward, £3. | 2d, Mr. J. Wheeler, £2.
3d, Mr. W. Kemp, £1.

CLASS 32.—12 AMARYLLIS, distinct. (Open.)
1st, Mr. E. Baxter, Gr. to C. C. Kieser, Esq., Broxbourne, Herts, £3.
2d, Mr. J. Burley, Nurseryman, Bayswater, £2.

CLASS 33.—Collection of 12 HARDY ALPINE PLANTS, in boxes 1 foot square each, distinct. (Open.)
1st, Mr. T. S. Ware, Hale Farm Nursery, Tottenham, £3.

CLASS 34.—9 FINE-FOLIAGED STOVE and GREENHOUSE PLANTS, distinct, including Variegated Plants. (Open.)
1st, Mr. G. Fairbairn, Gr. to his Grace the Duke of Northumberland, Syon House, Isleworth, W., £7.
2d, Mr. W. Taylor, Gr. to J. Yates, Esq., Lauderdale House, Highgate, £5.
3d, Mr. J. Burley, £3.

CLASS 35.—6 FINE FOLIAGED STOVE or GREENHOUSE PLANTS, distinct, including VARIEGATED PLANTS. (Amateurs.)
1st, Mr. W. Taylor, £5. | 2d, Mr. G. Fairbairn, £3.
3d, Mr. A. Wright, £2.

CLASS 36.—12 COLEUS, distinct, in pots not larger than 8 inches in diameter. (Open.)
1st, Messrs. Downie, Laird & Laing, £3. | 2d, Mr. C. Turner, £2.
3d, Messrs. E. G. Henderson & Son, Nurserymen, St. John's Wood, £1.

CLASS 37.—6 ECHEVERIAS, in or out of Flower, distinct. (Open.)
1st, Mr. R. Parker, £3.
2d, Messrs. J. Salter & Son, Versailles Nursery, William Street, Hammersmith, £2.
3d, Messrs. J. Carter & Co., Nurserymen, Forest Hill, £1.

CLASS 38.—1 Pair of GREENHOUSE YUCCAS or BEAUCARNEAS, &c. (Open.)
1st, Mr. B. S. Williams, £3.

CLASS 39.—1 Pair of DRACÆNAS or CORDYLINES. (Open.)
1st, Mr. B. S. Williams, £3. | 2d, Mr. G. Young, £2.
3d, Mr. A. Wilkie, £1.

CLASS 40.—6 AGAVES, distinct. (Open.)
1st, Mr. R. S. Williams, £3.

CLASS 41.—6 VARIEGATED ZONAL PELARGONIUMS, distinct. (Open.)
1st, Messrs. F. & A. Smith, Nurserymen, Dulwich, £5.
2d, Mr. C. Turner, £3 | 3d, Messrs. J. Carter & Co., £2.
Equal 3d, Mr. J. Stevens, Ealing Terrace, Ealing, £2.

CLASS 42.—12 STOVE or GREENHOUSE FERNS, distinct. (Open.)
1st, Mr. A. Wright, £6. | 2d, Mr. W. Taylor, £4.
3d, Mr. A. Wilkie, £3.

CLASS 43.—6 STOVE or GREENHOUSE FERNS, distinct. (Amateurs.)
1st, Mr. J. Carr, £3. | 2d, Mr. A. Wilkie, £2.
3d, Mr. C. Smith, Gr. to C. Walton, Esq., Manor House, East Acton, £1.

CLASS 44.—12 HARDY FERNS, Species or Varieties, distinct. (Open.)
1st, Messrs. J. Ivery & Sons, £3. | 2d, Mr. C. Smith, £2.
3d, Messrs. J. Salter & Son, £1.

CLASS 45.—1 Pair of TREE FERNS. (Open.)
1st, Mr. B. S. Williams, £4.

CLASS 46.—Collection of 12 Hardy VARIEGATED ALPINE PLANTS, in boxes 1 foot square each, distinct. (Open.)
1st, Mr. T. S. Ware, £3. | 2d, Messrs. J. Salter & Son, £2.

CLASS 47.—6 NEW PLANTS, of any description, in or out of Flower, distinct. (Open.)
1st, Messrs. J. Veitch & Sons, Nurserymen, Chelsea, Silver Flora Medal.
2d, Messrs. J. Veitch & Sons, Nurserymen, Chelsea, Bronze Flora Medal.

CLASS 48.—1 NEW PLANT, shown for the first time in Flower. (Open.)
1st, Messrs. J. Veitch & Sons, Begonia Sedeni, Silver Flora Medal.
2d, Messrs. J. Veitch & Sons, Masdevallia coccinea, Bronze Flora Medal.

CLASS 49.—1 NEW PLANT, in or out of Flower, not found in commerce. (Open.)
1st, Messrs. J. Veitch & Sons, Davallia Moorei, Silver Flora Medal.
2d, Messrs. J. Veitch & Sons, Croton Veitchii, Bronze Flora Medal.

CLASS 52.—MISCELLANEOUS PLANTS or FLOWERS not specially invited in the preceding sections. Open.)
1st, Messrs. J. & C. Lee, £3 | 2d, Mr. J. Burley, £2.
3d, Mr. Parsons, Gr. to R. Attenborough, Esq., Acton Green, £1 10s.
4th, Mr. T. S. Ware, £1. | 5th, Mr. R. Parker, 10s.
Equal 5th, Mr. C. Noble, Nurseryman, Bagshot, Surrey, 10s.

FRUIT.

CLASS A.—PINE-APPLE, any variety.
1st, Mr. G. Ward, Gr. to T. N. Miller, Esq., Bishop's Stortford, £2.
2d, Mr. J. Budd, Gr. to F. G. Dalgety, Esq., Oakland Park, near Stockbridge, Hants, £1 10s.
3d, Mr. J. Wallis, Gr. to J. Dixon, Esq., Astle Park, Congleton, £1.

CLASS B.—GRAPES, BLACK, single dish.
1st, Mr. J. Douglas, Gr. to F. Whitbourn, Esq., Loxford Hall, Ilford, Essex, £2.
2d, Mr. T. Bannerman, Gr. to Lord Bagot, Blithefield, Rugeley, Stafford, £1 10s.
3d, Mr. G. Sage, Ashridge Park Gardens, Great Berkhampstead Herts, £1.
4th, Mr. W. Miller, Gr. to Earl of Craven, Coombe Abbey, near Coventry, 10s.
Equal, Mr. E. Eadey, 33, Turner Road, Lee, Kent, 10s.

CLASS C.—GRAPES, white, single dish.
1st, Mr. J. Douglas, £2. | 2d, Mr. W. Miller, £1 10s.
3d, Mr. J. Tegg, Gr. to the Duke of Newcastle, Clumber, Worksop, Notts, £1.

CLASS D.—PEACHES, single dish.
1st, Mr. W. Lynn, Gr. to Lord Boston, Hedsor, Maidenhead, £2.
2d, Mr. G. Sage, £1 10s. | 3d, Mr. A. Wilkie, £1.

CLASS E.—NECTARINES, single dish.
1st, Mr. W. Lynn, £2.
2d, Mr. G. Mills, Gr. to Lord Carrington, Wycombe Abbey, High Wycombe, Bucks, £1 10s.
3d, Mr. W. Gardiner, Gr. to E. P. Shirley, Esq., Eatington Park, Stratford-on-Avon, £1.

CLASS G.—FIGS, single dish.
2d, Mr. J. Day, Gr. to A. Seymour, Esq., Norton Hall, Daventry, 15s.
3d, Mr. G. Miles, 10s.

CLASS H.—CHERRIES, single dish.
1st, Mr. G. Miles, £1.

CLASS I.—STRAWBERRIES, single dish.
1st, Mr. J. Douglas, £1. | 2d, Mr. J. Wallis, 15s.
3d, Mr. G. Young, 10s.

CLASS J.—MELON, Green-fleshed.
1st, Mr. W. Lynn, £1. | Mr. G. Miles, 15s.

CLASS K.—MELON, Scarlet-fleshed.
1st, Mr. W. Carmichael, Gr. to H.R.H. the Prince of Wales, Sandringham, Norfolk, £1.
2d, Mr. G. Miles, 15s.

CLASS L.—MISCELLANEOUS, for Fruit not mentioned in Schedule
1st, Mr. W. Miller, Cluster of Banana (Musa Cavendishii), £1.
2d, Mr. J. Budd, 12 Tomatos, 15s.
3d, Mr. J. Douglas, 4 dishes of Grapes, 10s.
Extra, Mr. E. Gardiner, Peaches and Nectarines, £1 10s.

MISCELLANEOUS, EXTRA PRIZES.
Mr. W. Paul, Collection of Roses in pots, £1 10s.
Mrs. Bray, Chelsea, case of Skeletonised Leaves, £1.
Mr. C. Turner, Collection of New Pelargoniums, £1.
Mr. F. Stanton, Silk Mills, Greenwich, Specimen Rhododendron Standishii Perfection, 10s.
Mr. T. A. Dickson, Florist, &c., Covent Garden, three Bouquets of Flowers, 10s.

AWARDS OF THE FLORAL COMMITTEE.

FIRST-CLASS CERTIFICATES.
Mr. C. Turner, for Pelargonium Lady Carrington.
Mr. C. Turner, for Pelargonium Marmion.
Mr. C. Turner, for Pelargonium Maid of Honour.
Mr. C. Turner, for Pelargonium Corsair.
Mr. C. Turner, for Pelargonium Her Majesty.
Mr. C. Turner, for Pelargonium Pretender.
Mr. C. Turner, for Pelargonium Sultana.
Mr. C. Turner, for Pelargonium Bright Star.
Mr. C. Turner, for Clove (White) The Pride.
G. W. Hoyle, Esq., for Pelargonium Bonnie Charlie.
G. W. Hoyle, Esq., for Pelargonium Gratulation.
G. W. Hoyle, Esq., for Pelargonium Holkar.
E. J. Lowe, Esq., F.R.S., for Scolopendrium vulgare var summum.
E. J. Lowe, Esq., for Scolopendrium vulgare var. dividendum.
E. J. Lowe, Esq., for Scolopendrium vulgare var. alloketon.
E. J. Lowe, Esq., for Scolopendrium vulgare var. ornamentum.
E. J. Lowe, Esq., for Scolopendrium vulgare var. korumbosphoron.
E. J. Lowe, Esq., for Scolopendrium vulgare var. gloriosum.
E. J. Lowe, Esq., for Scolopendrium vulgare var. Babingtonii.
E. J. Lowe, Esq., for Scolopendrium vulgare var. Thomsoni.
E. J. Lowe, Esq., for Athyrium Filix-femina Rickettsiæ.
E. J. Lowe, Esq., for Athyrium Filix-femina kallistron.
E. J. Lowe, Esq., for Athyrium Filix-femina kalon.
Messrs. J. Ivery & Sons, for Lastrea Filix-mas cristata crispa.
Mr. B. S. Williams, for Littonia modesta.
Messrs. J. Veitch & Sons, for Lælia marginata.
Messrs. J. Veitch & Sons, for Begonia Sedeni.
Messrs. J. Veitch & Sons, for Davallia Moorei.
Messrs. J. Veitch & Sons, for Croton Veitchii.
Messrs. J. Veitch & Sons, for Masdevallia coccinea.

SECOND-CLASS CERTIFICATE.
Messrs. F. & A. Smith, for Pelargonium Lord Stanley.

New Roses for 1869.

JOHN AND CHARLES LEE are now sending out the following TWO NEW ROSES:—

CLEMENCE RAOUX (Granger).—Blush, edged and spotted rose, very large, of perfect form and great substance; petals stout and enduring; habit erect and vigorous; flowers late in autumn. This is really a wonderful Rose when bloomed to perfection. A single flower of Clemence Raoux exhibited amid te s of thousands of other Roses attracted—by its immense size and novel colouring—the universal attention of the judges and amateurs at the Great Rose Show at Brie Comte Robert, in July 1868, when the Gold Medal was awarded to it as the finest Rose in the Exhibition. 15s.

EDWARD MORREN (Granger).—This splendid Rose is a great acquisition. The delicate yet brilliant colouring, the size, fine shape, and fulness of its flowers, combined with its bold erect habit, will render it a universal favourite. Monsieur Margottin thus describ it:—"Edward Morren is in the way of Jules Margottin, but of a more delicate colour, of better form, more double, and much larger." The 1st Prize Gold Medal was awarded to it at the Exposition Universelle in Paris, in July, 1867. 15s.

Special offer to the Trade on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith W.

CALCEOLARIAS, Bedding, in 12 varieties, including Sparkler, Amplexicaulis, Sultan, Beauty of Herts, Golden Mantle, King of Sardinia, Aurea floribunda; nice plants, free by post, 2s for 4s., or 12s. per 100.

DAHLIAS, in 50 choice varieties, at 2s. per 100; less quantities at the same rate, package free.

GERANIUMS, bedding varieties of Scarlet, Zonal, and Nosegay, in 40 choice sorts, 15s. per 100, package free.

GERANIUMS, of Silver Tricolors and Golden-shaded, in good sorts, 25s. per 100, package free

HELIOTROPES, AGERATUMS, SALVIAS, CINERARIA MARITIMA, LOBELIA SPECIOSA, GAZANIAS, GNAPHALIUM LANATUM, ALYSSUM (Koniga) VARIEGATA, CUPHEAS, any of these from 14s. per 100, package free.

H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

Vines for Planting in a Growing State.

JOSEPH MEREDITH, The Vineyard, Garston, near Liverpool, has now ready for Planting fine extra strong YOUNG VINES, with 3 to 4 feet of extra strong Wood of this season's growth. Intending planters of Vines will save a whole year, and prevent disappointment by planting between now and August next. Planting in a Growing State ensures success. Packed to travel any distance with safety.

DESCRIPTIVE CIRCULARS of MEREDITH'S VINE MANURE free on application.

DOBSONS' PRIZE FLOWER SEEDS,

Now ready, in sealed packets, post free.

DOBSONS' CELEBRATED PRIZE CALCEOLARIA.—This strain is if possible finer this season than we have ever had them; producing flowers of very large size, rich and varied in colour, and of dwarf habit. The plants from which we save all our seed are now in fine bloom, and will continue for a fortnight or three weeks, and may be seen any day except Sundays. Seed in sealed packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s.

DOBSONS' PRIZE CINERARIA, 1s., 2s. 6d., and 5s.

Received 60 First Prizes in 6 years.

First Prize, Kensington, 1869.

Special Prize, Regent's Park, 1869.

DOBSONS' PRIZE PRIMULA.—Unsurpassed in the trade for fringe and colour. 1s., 2s. 6d., and 5s.

Dobson & Sons, Woodlands Nursery, Isleworth.

J. HOUSE, Eastgate Nursery, Peterborough, has a large stock of the following, which cannot be surpassed by any in the country:—

GERANIUMS.—Mrs. Pollock, strong, in 32-size pots, 10s. per doz.; autumn-struck plants, 40s. per 100; spring-struck, 25s. per 100. Crystal Palace Gem, in 32-size pots, 8s. per dozen; autumn-struck plants, 5s. per 100; spring-struck, 20s. per 100.

PYRETHRUM GOLD FEATHER, 1s. to 2s. per doz., 8s. and 16s. per 100. VERBENAS, 10s. and 15s. per 100. HOLLYHOCKS, Seedlings, 2s. per dozen; named sorts, 4s. to 6s. per dozen.

The best Gold-leaved Pelargoniums of the Season are Golden Emperor and Golden Queen.

SALTMARSH AND SON are now sending out the above splendid varieties, in strong established plants, at 1s. 6d. each, with the usual discount to the Trade. They were awarded the 1st and 2d Prizes respectively in the Gold-leaved Class at the Royal Horticultural Society's Special Pelargonium Show in June last. For further particulars see previous Advertisements.

Moulsham Nurseries, Chelmsford.

Tricolor Pelargoniums.

J. WATSON, New Zealand Nursery, St. Alban's, begs leave to offer his two beautiful TRICOLOR PELARGONIUMS, MISS WATSON and MRS. DIX, unrivalled for freedom of growth and beauty of colouring, in good plants, 5s. each; also, PRINCESS CLOTILDE, 5s. each, or the three for 13s. 6d. Miss Watson and Mrs. Dix have received 17 First-class Certificates and Extra Prizes from the leading Horticultural Societies of the kingdom. Early orders solicited. A liberal allowance to the Trade. Price on application.

First Prize Bronze Pelargoniums.

DOWNIE, LAIRD, AND LAING have great pleasure in announcing that they are now sending out the following unrivalled sorts, which were awarded the First Prize at the Special Show, South Kensington, May 22, viz., BLACK KNIGHT, 10s. 6d.; CROWN PRINCE, 21s.; MRS. ALAN LOUNDES, 15s.; PRIMA DONNA (Morris), 15s.; RED RING, 15s.; and STANSTEAD BEAUTY, 10s. 6d. Also, Nosegays, R. K. BOWLEY, 7s. 6d., and KENTISH FIRE, 5s.—two splendid varieties. Drawings of Crown Prince and R. K. Bowley free by post for 18 stamps.

We regret we cannot supply any more Harrison Weir till September next.

Forest Hill, London; and Edinburgh.

New Tricolor and Bicolor Geraniums.

F. AND A. SMITH are now sending out their new varieties of the above, amongst them the following sterling novelties:—

GOLDEN TRICOLORS.—Achievement, Coronet, Resplendent, Shakespeare, Sultan, &c.

SILVER TRICOLORS.—Exquisite, Miss B. Coutts, Sparkler, &c.

BICOLORS.—Arab, Criterion, Goldfinder, Sybil, &c.

ZONALS.—Acme, Flamingo, Lord Stanley, &c.

The NEW CATALOGUE, containing full descriptions of the above and other splendid novelties, is now ready, and may be had on application. The Nurseries, West Dulwich, S.E.

New Tricolor Pelargoniums for 1869.

JOHN AND CHARLES LEE intend to send out in June, 1869, the two following fine NEW TRICOLOR PELARGONIUMS, which they can warrant to be of strong constitution, rapid growth, and brilliant colours. Mrs. John Clutton was raised from seed in the autumn of 1867, and will consequently not be two years old when sent out.

MRS. JOHN CLUTTON is a Silver Tricolor of a very striking and pleasing character, the broad bright crimson zone being well defined, and the white edge clear and distinct, with a good deep green centre. The habit is dwarf and very free, and is all that can be desired in a Silver Tricolor.

The First Prize was awarded to Mrs. John Clutton at the Special Pelargonium Show at South Kensington in June last, and a First-class Certificate was awarded to it by the Floral Committee of the Royal Horticultural Society.

EDWARD MILNER.—A beautiful Golden Tricolor, of robust habit and free growth. The centre of the leaf is bright green; the zone is a bright flame colour on black, and the margin clear gold. All the colours are clean and well defined, and are retained till the decay of the leaves. The glow of colouring in Edward Milner gives the plant a rich and distinct character.

Price 15s. each. Four plants will be sent for three ordered.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION. Instituted 1838.

The TWENTY-SIXTH ANNIVERSARY FESTIVAL will take place at the London Tavern, Bishopsgate Street, London, on WEDNESDAY, June 23. His Grace the Duke of ARGYLL, K.T., has kindly consented to preside upon the occasion.

STEWARDS.

George Child, Esq., *Chairman.*
Henry Huggins, Esq., *Vice-Chairman.*
His Serene Highness the Prince of Teck.
The Right Hon. Lord Egerton of Tatton.
The Right Hon. Lord George Hamilton, M.P.
The Hon. Robert W. Grosvenor, M.P.
The Baron Lionel de Rothschild, M.P.

D. M. Aird, Esq.	William Harrison, Esq.
James Bateman, Esq.	Saml. Heath Head, Esq.
E. J. Beale, Esq.	Andrew Henderson, Esq.
H. Bollen, Esq.	William Holmes, Esq.
Robt. Broadwater, Esq.	William Hurst, Esq.
W. P. Brook, Esq.	Charles Lawson, Esq.
J. B. Brown, Esq.	John Lee, Esq.
John T. Burnell, Esq.	John Mackintosh, Esq.
E. W. Cathie, Esq.	R. Marnock, Esq.
Thomas Charlesworth, Esq.	Horatio E. Norfolk, Esq.
William Child, Esq.	The Rev. Chas. F. Norman
Allen Henry Clarke, Esq.	Thos. Osborn, Esq.
John Corke, Esq.	G. William Petter, Esq.
John Crispe, Esq.	J. E. Richard, Esq.
William Davis, Esq.	H. D. Rawlings, Esq.
Mr. William Earley	W. H. Smith, Esq., M.P.
F. J. Graham, Esq.	Richd. Smith, Esq.
John Ames Gilbert, Esq.	Chas. Turner, Esq.
B. T. Brandreth Gibbs, Esq.	Anthony Waterer, Esq.
	Josiah Willey, Esq.

Dinner upon Table at Six o'Clock precisely. Tickets, 21s. each. Ladies' Tickets for the Gallery, 7s. 6d., for whom a Handsome Collation is provided. EDWD. R. CUTLER, Secretary.

14, Tavistock Row, Covent Garden, W.C.

July 19th to 24th, 1869.

THE ROYAL HORTICULTURAL SOCIETY'S GRAND EXHIBITION at MANCHESTER, in connection with the SHOW of the ROYAL AGRICULTURAL SOCIETY.

Amongst various Special Prizes,

A SILVER CUP (copy of the famous Cellini Cup), **VALUE £21** will be offered by the Proprietors of the GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE for the best COLLECTION of 5 FRUITS and 8 VEGETABLES, to be made up as follows.

In awarding the Prize, Marks will be adjudged according to the following scale, for the several subjects produced.

	Good.	Medium.	Inferior.
Grapes	6 marks	3 marks	1 mark
Melons (2 fruits)	6 ,,	3 ,,	1 ,,
Strawberries	3 ,,	2 ,,	1 ,,
Gooseberries	3 ,,	2 ,,	1 ,,
Currants	3 ,,	2 ,,	1 ,,
Cherries	3 ,,	2 ,,	1 ,,
Raspberries	3 ,,	2 ,,	1 ,,
Apples of 1868 (Any 5 of the above 8 subjects).	6 ,,	3 ,,	1 ,,
Peas	3 ,,	2 ,,	1 ,,
French Beans	3 ,,	2 ,,	1 ,,
Broad Beans	3 ,,	2 ,,	1 ,,
Cauliflowers	3 ,,	2 ,,	1 ,,
Cucumbers (brace)	3 ,,	2 ,,	1 ,,
Summer Cabbages	3 ,,	2 ,,	1 ,,
Early Carrots	3 ,,	2 ,,	1 ,,
Turnips	3 ,,	2 ,,	1 ,,
Globe Artichokes	3 ,,	2 ,,	1 ,,
Onions	3 ,,	2 ,,	1 ,,
Spinach	3 ,,	2 ,,	1 ,,
Rhubarb	3 ,,	2 ,,	1 ,,
Potatos	3 ,,	2 ,,	1 ,,
Mixed Salading (Any 8 of the above 14 subjects).	3 ,,	2 ,,	1 ,,

This Prize is open for Competition amongst Amateurs and Gardeners of private families. The Fruit and Vegetables produced must be of *the Exhibitor's own growing;* and any article otherwise obtained will disqualify the Collection. It is expected that the several articles will be neatly and effectively displayed.

The Gardeners' Chronicle.

SATURDAY, JUNE 5, 1869.

MEETING FOR THE ENSUING WEEK.

MONDAY, June 7—Entomological .. .. 8 P.M.

THE ST. PETERSBURG EXHIBITION is at an end; the plants which so lately graced its now empty space are being borne by ship and railway to the various quarters in Europe from which they came; and before the freshness of the impression it has made fades away from our memory, it may be well to cast a retrospective glance over it, knit up any links that we may have dropped, correct any errors that we may have made, and draws any practical inference for future use that its events may suggest.

After all the prizes had been determined, the Exhibition was wound up by a grand public ceremonial of distribution of prizes. The Minister of Domains, M. ZELENOI, had, as we should word it, kindly consented to give away the prizes; or, as the Russians prefer to phrase it, had had the great condescension to undertake the distribution of the prizes. We think the recognition of position which is implied in this phraseology is carried to a much greater extent in Russia than with us, and we incline to like the principle of it, as it has decidedly the advantage of heightening the apparent value of the thing agreed to be done.

The ceremonial took place in a fine large hall, the Library of the Ministry of Marine. The first step in the proceedings was to invest the delegates or Presidents of Juries with the insignia of certain Russian Orders. The English delegates were alone omitted. This appears to have arisen from some mistaken notion that English subjects cannot accept foreign decorations without the QUEEN's permission. But it is not so; whatever may be the practice—and it is various—any English subject may accept a decoration, although he may not wear it in England without special permission. He may wear it abroad, or leave it as a *souvenir* to his family. It may be thought that it would have been better, seeing that so many men of science from other countries accepted this recognition of their scientific eminence at the hands of the EMPEROR, that our delegates should have done the same without making any demur about it. We understand, however, that it was done under the advice of Dr. HOOKER, who doubtless knows more about what is usual and proper in such cases than we do. For our own parts, in a scientific point of view, we would prefer a recognition from an Academy of Sciences to any mere Imperial decoration.

The President, Aide-de-Camp General GREIG, next made a suitable address. The President speaks admirably well; all his speeches—and he has had no end of them to make—having been exceedingly clever, appropriate, and *spirituel*. The presentation of prizes followed, and the *Io triumphe!* flourish of a military band added force and dignity to the loud acclaim of popular applause with which the more successful candidates were successively greeted; who on their part supplied the spectator with a not uninteresting study of human nature, by their varied demeanour under the process, from the swelling port of the self-believer, to the shrinking diffidence of the timorous man who blushed to have his merits so brayed forth. A brief final address from the President followed, and the Great International Horticultural Exhibition and Botanical Congress of St. Petersburg was at an end.

We understand that a pecuniary success has been obtained, and that the EMPEROR, by the munificent donation of 10,000 roubles, secured the undertaking from any chance of actual loss. It is in a horticultural and botanical point of view, however, that its success is most important. It was a bold and daring thought for a country such as Russia, untried as she was in such adventures, to enter the lists with the western nations in an enterprise of such difficulty. That thought emanated from Dr. REGEL, and it seemed to be universally admitted by those acquainted with the progress of the scheme, that but for his energy and perseverance it would have been a *fiasco* in spite of the high protection it received. It was Dr. REGEL's persistence, energy, and powers of labour, coupled with his ability, which carried it through; and it would be most unhandsome to forget all this for the purpose of dwelling upon trifling shortcomings or accidental errors. In addition to his own work, he again and again had to undertake to execute, at the eleventh hour, work which had been undertaken by others, but which they had deserted or neglected. If to this be added the difficulty in Russia of getting the right man for such work, it is not difficult to see that the encomiums lavished on Dr. REGEL were thoroughly well deserved.

We may add, in conclusion, a few remarks on the competition, and the prizes which were awarded.

Among these, of all the foreign exhibitors, M. LINDEN, of Brussels, stood *facile princeps*. The large gold medal (value 150 roubles) was gained by him for "a collection of six different plants introduced into Europe by the exhibitor himself, and not yet in commerce." In fact he gained this twice. There were only three competitors, and the two lots of plants to which the first and second medals were awarded turned out to be both from M. LINDEN. His competitor was M. VERSCHAFFELT, but the plants which he had to oppose to these great guns were not nearly of such heavy metal, but were thought worthy of an extra silver medal, which was recommended by the jury, and awarded by the Congress.

The second and third extra gold medals, offered for a collection of three plants introduced into Europe by the exhibitor himself, and not in commerce, were next carried off by M. LINDEN (the 1st prize having fallen to Messrs. VEITCH). He also carried off the first gold medal for the best single plant introduced by the exhibitor, and not in commerce, with Cochliostema Jacobianum. Then the first gold medal for the best collection of 15 plants introduced since January, 1867. A large silver medal (1st prize) for a plant in flower, not in commerce, next fell to his Rudgea nivosa (S. Catherine's, 1867). He next gained a large silver medal (1st prize) for a plant "remarkable for the beauty of its foliage, and not in com-

merce," Philodendron spectabile being the winning horse here. The 1st prize (a large gold medal) for a collection of exotic fruit trees or plants useful in industry also fell to him. One or two others not mentioned in the catalogue seem, from the labels, to have also gone to the same exhibitor.

Nor is this all. The extraordinary gold medal, given by the EMPEROR himself to the foreign exhibitor who most contributed to the beauty and embellishment of the exhibition, has been awarded to M. LINDEN. The competition for this excited the liveliest interest. The other prizes were awarded by the juries of the different sections, but this, and a similar prize given by the EMPRESS to the Russian exhibitors, were decided by the votes of the presidents of the different juries. The struggle lay between M. LINDEN and M. VERSCHAFFELT. The nature of M. LINDEN's claims may be guessed at from the lists above given; M. VERSCHAFFELT's were the contribution of a shipload of beautiful flowering plants, Azaleas, &c., without which, according to our view of the matter, the exhibition would have lost half its beauty. M. LINDEN's plants occupied a part of a small side heated house attached to the exhibition, but not visible in the main exhibition; and although most attractive to the eye of the botanist or the visitor acquainted with their value and interest, *caviare* to the general public. The question thus resolved itself very much into whether the beauty and embellishment meant beauty and embellishment in the eye of the public, or beauty and embellishment in the botanical or scientific eye; and then another question arose, for if it was to be beauty and embellishment in the eye of the expert, there was Mr. WARNER's collection of Orchids in flower to be pitted against M. LINDEN's collection of fine-foliaged plants—the latter naturally occupying twice the space of the former, but not giving one-half the effect or actual beauty. According to our view the prize clearly and distinctly belonged to M. VERSCHAFFELT, as having contributed most to the beauty and embellishment of the exhibition—or, if rarity and value were to be taken into account as well as beauty and effect, then to Mr. WARNER. The majority of the presidents of the juries, however, thought otherwise. An attempt was made by those who thought M. LINDEN entitled to the prize to have the decision regulated by a principle which it seems has been adopted in Belgium for settling such questions, namely, that he who had gained most prizes should be held to have most contributed to the beauty and embellishment of the exhibition. This was overruled, very properly as we think, for many of the prizes offered had no relation whatever to beauty or embellishment. We expected that this overruling would have been equivalent to a decision in favour of M. VERSCHAFFELT, but on taking the votes by ballot, M. LINDEN was found to have a majority of 15 to 9.

M. LORGUS was the successful competitor for the similar prize given by the EMPRESS to the Russian exhibitors. He carried it nearly unanimously—27 to 5 (the 5 being divided into 3 and 2 for other exhibitors). M. LORGUS contributed a collection of Roses, which were a great feature in the show, and the quantity of other plants which he had sent was something quite extraordinary.

Of our countrymen, Messrs. VEITCH and Mr. WARNER both obtained ample recognition. Mr. VEITCH got the 1st gold medal for three plants introduced by the exhibitor, and not in commerce; also a small gold medal for a hybrid between Alocasia metallica and Alocasia Lowii. Messrs. VEITCH owe this recognition of Mr. DOMINY's ability to Dr. HOOKER, who suggested it to the general meeting of juries, as an instance of horticultural skill which should not be passed over. Mr. VEITCH also obtained a small gold medal for Vanda insignis in flower.

Mr. WARNER must also be well satisfied. Everything he has offered for exhibition has been decorated. He has got the large gold medal, the middle gold medal, the small gold medal, and the large silver medal what more could have been given him. The large gold medal was for the best collection of ten Orchids. His ten consisted of magnificent plants in fine flower of Phalænopsis grandiflora and P. Schilleriana, Dendrobium macrophyllum var. giganteum, D. densiflorum, Vanda tricolor and tricolor, Odontoglossum maculatum and Reichenheimii, Oncidium cerratum and leucochilum. The prize for three new species was gained by an undescribed species of Epidendrum, one of Miltonia, and one of Scuticaria. The prize for the finest specimen in flower was gained by Trichopilia crispa. We have not space to go over more of them; but we have said enough to show the reader that the honour of England was well maintained.

The GREAT SHOW AT KENSINGTON, which has taken place during the past week, and of which full particulars will be found in another column, was certainly one of the finest, both as to extent and quality, which has been seen since the International, and wanted only a better place for its display to have been also one of the most effective. We notice it specially in this place for the purpose of remarking, that when reforms are proposed, and provision is made for giving them effect, the exhibitors themselves ought in their own interests to appreciate the movement, and endeavour to support it. In the present case, notwithstanding that so much has been urged during the past few years in favour of small-pot classes—notwithstanding, moreover, that the introduction of such classes is manifestly and admittedly a benefit to all parties, and that similar classes have been introduced for some years into the schedules in one form or other—it is certainly remarkable that the exhibitors do not respond to the invitations to exhibit in them, as they ought to do. It must be known, and is known, that the objects which it is desirable to bring in under this head are fresh, young specimens in all the glow and vigour of juvenility; instead of which we find such plants as these scarcely represented at all, but the classes filled with ordinary conservatory-furnishing stuff, or with such imbecile senility as may fairly be designated rubbish in association with a flower show. This is so manifestly the case in some groups—Heaths form an honourable exception—that the result is dispiriting; and but for having announced such classes for another year, it might be feared that the Society would drop them altogether out of its schedule. This, however, is the very point to which we wish to draw attention. It is most desirable that managers should persevere in pointing out the right way, though the results may seem against them. Iteration is absolutely necessary. The new and more excellent way must be indicated by line upon line, precept upon precept, before it will be trodden. It is from the occasional want of fixity of purpose amongst schedule-makers that some very desirable changes in old classes, and some important novel propositions which have from time to time been made, have eventually proved failures. Some new classes for the Royal Horticultural Society's provincial show, which, owing to the late issue of the schedule, cannot be fairly responded to this year, stand in this unfortunate position; and we urge on the authorities that they should be repeated under more propitious conditions another season.

The addition of Mr. ANTHONY WATERER's grand show of American plants, to the ordinary attractions of a great flower show, made of last Wednesday a red-letter day at South Kensington. This glorious exhibition, made up of the gems of perhaps the finest collection of Rhododendrons in existence, is, we think, more attractive this year than it has ever yet been, and it is fortunate that, though it is so effective now, it has not yet reached its culminating point; so that during the ensuing week there is a rich floral feast spread out for those who are fortunate enough to be able to avail themselves of it. We understand that on Wednesday the DUCHESS of CAMBRIDGE honoured Mr. WATERER with a special visit. We shall ourselves make further allusion to this show next week, but in the meantime we advise all who can appreciate an eye-feast of this kind to look in upon it during the next few days.

—— THE following is the LIST OF DECORATIONS which his Excellency the Minister of Domains has presented, in the name of the EMPEROR, to the persons whose names follow, viz.:—The Order of St. Anne of the Second Class to M. DE CANNAERT D'HAMALE, Senator, delegate of the Belgian Government; M. OPPERMANN, delegate of the Prussian Government; Dr. ED. FENZL, Professor in the University of Vienna, delegate of the Austrian Government; Dr. CHARLES KOCH, Professor in the University of Berlin, delegate of the Prussian Government; Dr. GOEPPERT, Professor at Breslau. The Order of St. Stanislas of the Second Class, with the decorated insignia of the Imperial Crown, to M. J. LINDEN, honorary director of the Royal Zoological Garden of Brussels, delegate of the Belgian Government. The Order of St. Stanislas of the Second Class to M. DE BRAUW, Member of the States-General of the Netherlands, delegate of the Netherlands Government. The Order of St. Anne of the Third Class to M. AMBROISE VERSCHAFFELT, horticulturist, delegate of the Belgian Government; M. EDWARD MORREN, Professor in the University of Liege, delegate of the Belgian Government; M. TH. ORPHANIDES, Professor in the University of Athens, delegate of the Greek Government; M. J. H. KRELAGE, President of the Society of Horticulture of Haarlem, delegate of the Government of the Netherlands. The order of St. Stanislas of the Third Class, to M. MAX. KOLB, Inspector of the Botanical Garden of Munich, delegate of the Bavarian Government; M. KEGELJAN, delegate of the Belgian Government; M. PARLATORE, Professor at Florence, delegate of the Italian Government; M. R. DE VISIANI, Professor at Padua, delegate of the Italian Government; M. JUHLKE, Inspector of the Royal Gardens at Potsdam, delegate of the Prussian Government; Dr. AHLES, Professor at the Technological Institute, delegate of the Wurtemberg Government; Dr. RAUWENHOFF, Professor at Rotterdam, delegate of the Netherlands Government; M. C. BOUCHÉ, Inspector of the Gardens of Berlin, delegate of the Prussian Government. The English subjects not being allowed by their Government to accept foreign decorations, his Majesty the EMPEROR has deigned to mark by a special present his *haut bienveillance* to Dr. J. DALTON HOOKER, Director of the Royal Gardens, at Kew, as well as to Dr. HOGG and Mr. ANDREW MURRAY, delegates of the British Government. A large gold medal was also awarded by the Society to Dr. REGEL and M. WOLLKENSTEIN, who had done so much to promote the success of the Exhibition.

—— We had occasion at p. 1169 of our volume for 1867, to allude to the extraordinary voyage undertaken by MADAME TINNE in the region of the White Nile, a voyage undertaken from the highest motives, but which unfortunately proved most disastrous, and which deprived the heroic lady and several of her companions of their lives. One result of this voyage was the publication of a splendid volume illustrative of the more interesting plants collected during the expedition, and brought home by Mademoiselle ALEXANDRINE TINNE, who, with her brother, sought in the publication of the "Plantæ Tinneanæ" to commemorate their mother's exertions, and to render service to botanical science. Undaunted by the fatal events of the previous journey, Mademoiselle TINNE again set out for Africa. Starting from Tripoli, which she left in January last, with a numerous retinue of Arabs and negroes, she arrived at Sokna, in Fezzan, in March, and intends to traverse the Soudan, and return by way of Egypt. According to the papers the adventurous lady took out a velocipede, but finding the vehicle ill adapted for so rough a country, she presented it to the Bey of Tripoli, and trusts to a stud of some 70 camels to transport herself and her baggage into the interior.

—— There are certain plants which have an unfortunate history. Napoleona is one of these. No two botanists have described it in precisely the same terms. FREMONTIA is another. The discrepancies arise from natural variations in the plants, but chiefly from the examination of imperfect materials. The beautiful yellow-flowered shrub Fremontia, at present so little known in gardens, was first of all placed among the Mallows, till an examination of fresh not "mummified" specimens clearly showed the plant to belong to Sterculiaceæ, and not to Malvaceæ. But even up to this time the plant is described as destitute of corolla (the yellow portion being considered as calyx). This view, however, is quite negatived by recent specimens, before us as we write, and in which there is a small five-leaved calyx outside the large yellow corolla. This calyx, however, or rather the greater portion of it, speedily falls off, and hence at first sight of a fully developed flower there appears to be no calyx. The stamens are opposite to the sepals and alternate with the petals—a circumstance which might have suggested the notion that the yellow segments were truly petals. The early shedding of the calyx is due to the formation of a very large quantity of thin-walled oblong cells, which readily disintegrate, allow the sepals to fall off at the slightest touch, and leave exposed a quantity of white mealy material. The same thing takes place even in a more marked degree at the base of the column of stamens, which becomes ultimately detached from the base of the petals. There seems to be some difficulty in the propagation of the Fremontia, which is the more to be regretted, as it is calculated to be one of the brightest ornaments of the shrubbery.

—— The experiment tried last year in TRAFALGAR SQUARE of placing a few STANDARD BAYS in tubs in that locality has been repeated on a larger scale this year. The trees are now disposed at regular intervals all about the square. We are so thankful for the sight of a few green leaves in that situation that we feel it ungracious to criticise, nevertheless we fear the wags will compare the closely cropped Bays to the Turk's-head brooms, known to housemaids, or to those remarkably constant shrubs which were wont to adorn the toy menageries of our childhood. We are, as we have before said, grateful to the powers that be for this concession, but we cordially and thoroughly endorse the views of Mr. ROBINSON, as when, in commenting on this matter in the Introduction to his "Parks, Promenades, and Gardens of Paris," he remarks on the costliness of this mode of decoration, the attention required, both in summer and winter, and shows how the same, and to our thinking, better results, could be had at a tenth of the cost and labour, by planting hardy trees in town squares and similar situations. If it be objected that the tortured closely-cropped form of the Orange or the Bay assorts best with the architectural lines of the surrounding buildings—a proposition we do not wholly

assent to, we may point out that there are trees whose natural form would agree quite as well or perhaps better with the architectural features of the locality than that of these clipped Bays.

—— The following circular relating to the SEED ADULTERATION BILL has been addressed to the principal seedsmen throughout the country. We hope all our friends who may have it in their power, will jog the memories of their representatives, and induce them to give their votes in favour of this greatly needed measure:—"We beg to inform you that the second reading of the Seed Adulteration Bill will be moved in the House of Commons on Wednesday, the 16th inst. We shall be glad if you will bring the provisions of the Bill under the consideration of your county and borough members, and point out its importance, with a request that they will give it their support. C. & H. TAHOUEDIN, Solicitors to the Bill."

—— Among the more successful of our PROVINCIAL HORTICULTURAL SOCIETIES that at Leeds is not unworthy of special mention. In point of extent it is little inferior to Manchester, and the prizes offered are liberal, and in general keenly competed for. Last year table decorations and bouquets formed a leading feature, and occasioned a good deal of interest, one large tent being quite filled with them. The next exhibition will be held in the Leeds Royal Park on Wednesday, Thursday, and Friday next, when, in addition to special prizes amounting to 550*l.*, the mayor, T. W. GEORGE, Esq., will give a silver cup, value 10 guineas, to the exhibitor who contributes the most towards the beauty and embellishment of the exhibition, by the display of plants staged in accordance with the schedule.

—— Mr. MORSE, of Dudley, recently forwarded us a bloom of the plant known in gardens as TACSONIA BUCHANANI, but which is more properly called PASSIFLORA VITIFOLIA, of HUMBOLDT and BONPLAND. Under whatever name it be known, there is no question as to the splendour of the flowers, the intense scarlet colour of which is more like that of Anthurium Scherzerianum than any other we can call to mind.

—— We are pleased to announce that at the meeting of the Council of the Royal Horticultural Society on Tuesday last, the large Gold Medal of the Society was unanimously awarded to Mr. ANTHONY WATERER, for his splendid exhibition of Rhododendrons, now being held in the Gardens at South Kensington.

New Plants.

DENDROBIUM CARINIFERUM, *sp. n.*

(Nigro-birsuta), caulibus elongatis sulcatis cylindraceis, foliosis, superne adhuc floridis nigro-hispidis; foliis oblongo-ligulatis apice bilobulis, junioribus etiam hispidulis; flore expanso majusculo eboraceo nitido, ovario triquetro pedicellum superante, mento extinctoriiformi curvo ovarium pedicellatum non omnino æquante; sepalis oblongo-ligulatis acutis, valde extus supra nervum medium carinatis; petalis cuneato-oblongis acutis planis; labello cuneato late flabellato, laciniis lateralibus obtusangulis, lacinia media obovata crispula cum apiculo, tumore elongato incrassato a basi in basin laciniæ anticæ, venis omnibus incrassatis asperis in laciniis lateralibus, venis elevatis papulis filiformibus absitis a basi laciniæ anticæ in ejusdem discum; columna medio valde prona forniculis geminis sub fovea, androclinii processu postico filiformi, processubus lateralibus angulatis, anthera basi barbata.

Flos lacteus. Sepala apice et calcar ochraceo lavata. Labelli lacinia antica sordide lactea, omnia reliqua aurantiaca, callo subcinnabarino flavo. Columna lactea, infra foveam aurantiaca. Anthera alba.

Once more a new nigro-hirsute Dendrobe. "An old one, no doubt," some would say, but we have at hand specimens of all the species hitherto described, and among them there are but two we can compare with our plant, viz., D. xanthophlebium (Lindl.) and D. Williamsoni (Day and Rchb. fil.). These two only have a bearded lip—the first-named species at the base, the second at the anterior part, but neither of the two has such a thick long callosity running over the whole disc and middle line of the lip. Hence we give a new name to the plant.

We have before us a stem a span high, as thick as a stout goosequill, the younger part clothed with short black hair. The leaves are nearly those of Epidendrum imatophyllum, ligulate, bilobed at the end, the youngest still showing some stiff short hairs. The flower equals that of D. Draconis, Rchb. f., and is of a thick leathery texture, very shining, while the keels on the three sepals are highly developed, much more so than those of D. Williamsoni. The dorsal sepal is ligulate acute, and the lateral ones broader, running out in a curved slender spur. The petals are cuneate oblong, acute, reflexed. The three-lobed lip is only whitish at the apex, elsewhere orange, nearly cinnabar-red on the long thick ligulate callous middle line. Some veins on the anterior lobe are bearded, and the elevated veins of the lateral lobes are rough, having here and there some single filaments. The column is white, orange-red under the stigmatic hollow. The anther is bearded at its base. The flower is very sweet scented.

We have to thank Mr. Marshall, of Enfield, for the interesting plant. *H. G. Rchb. f.*

HOULLETIA WALLISII, *Lind. Rchb. f.*

Sepalis oblongis obtuse acutis, lateralibus semiconnatis; petalis cuneato-oblongis acutis; labello tripartito, laciniis posticis dolabriformibus margine externo obliquis trilobis, cum limbo externo parallela medio incrassato callosis, callo superiori tumido; hypochilio in laciniam retusam involuto base transversam supra epichilii unguem exeunte, callo parvo triangulo in basi, carinis incrassatis utrinque ternis; epichilio late unguiculato, triangulo, semiovato, apiculato, retrorsum aristate sagittato; columna superne pone foveam utrinque excisa.

A mystery that this showy plant was discovered. It has much of the character of a Houlletia, and something of that of an Acineta. Or is it a mule? Whether that may be so or not, it is highly interesting, and is dedicated to the energetic and happy discoverer, *H. G. Rchb. f.*

THE PELARGONIUM CONGRESS.

WE continue our account of this interesting meeting by the publication of Mr. Smith's essay, referred to at p. 584.

On the Varieties of Pelargoniums with highly-coloured Leaves, their History, Future Changes, Points of Merit, Cultivation—and the Mode of Raising them.

HISTORY.—The whole race of what are commonly called Scarlet or Bedding Geraniums—whether they have scarlet, pink, or white flowers—whether their leaves are pale green, zoned, or variegated—tricolors, bicolors, or unicolors—from Tom Thumb to Mrs. Pollock, has descended from two species, obtained from the Cape of Good Hope, viz., Pelargonium inquinans, the plain-leaved Cape Scarlet, and Pelargonium zonale, the Horse-shoe Geranium. It is even probable that the latter was originally only a sport from the former; at all events, their descendants have been so married and given in marriage that, like the Saxons and Normans, they are now become one race.

According to Philip Miller (curator of the Chelsea Gardens from 1722 to 1768), the Horse-shoe-leaved Geranium had already in his time given rise to "one with fine variegated leaves," and he adds, that it was accidentally raised from seed. From this notice, it has been called "Miller's Variegated," and is interesting to us as the first variegated Pelargonium ever seen in this country; and also because it was one of the distinguished company that opened the ball when the modern massing, or bedding-out, system of garden decoration was originated, about the year 1825, by Lady Grenville at Dropmore; while in 1861 it was still gay enough to hold a levée on the Rose Mount at the Crystal Palace. Among the other Pelargoniums used at Dropmore—which to modern gardeners should be classic ground—was the variegated Ivy-leaf (Pelargonium lateripes); this is of course of a different family, and not at all related to the modern tricolors; though, I believe, an alliance has lately been formed (under the auspices of Mr. Wills) between Mr. Horse-shoe-Pelargonium, and Miss Ivy-leaf; and their children will no doubt be very willing to make rich matches with the golden and silver tricolors.

To return to Miller's Variegated Zonal Pelargonium, its greatest point of interest to us is that it was probably the remote parent of all the white-edged varieties of zonals we now possess. The next variegated Pelargonium obtained was Golden Chain, and it contrasted in a most singular way with Miller's Variegated. It was produced, not from Pelargonium zonale, but from Pelargonium inquinans; it was a sport and not a seedling; and it was yellow-edged, while Miller's was white-edged. There is some doubt as to the exact date when this sport first appeared, but it is affirmed that there was in the Botanic Gardens, Bury St. Edmund's, a large and seemingly old plant of it in 1822 or 1823. Now Golden Chain possesses the greatest interest to us all, to-day, as it was certainly the parent of the golden tricolors; 40 years ago, therefore, we were in possession of the parents of the two sections of tricolors, the white-edged and yellow-edged, or, as they are fondly called, silver and golden. Now I do not wish to insinuate by this that our fathers might have had their tricolors had they been as wise as their wonderful children, and that these 40 years have been thrown away; on the contrary, they laboured, and we have entered into their labours—they were building the bridge over which we have passed, in this as in all other lines of progress. It is by no means certain that the pollen of Golden Chain (a sport or variegated branch of the original wild species, Pelargonium inquinans) would have fertilised a flower of the other wild species, Pelargonium zonale, or of Fothergillii or any other zonate seedling then in existence; on the contrary, it seems to have been necessary first to break down the wall of separation, and unite the two species, and this was their part of the work.

Now let us return. Lee's Variegated Scarlet with white-edged foliage, origin unknown, was the next variegated Pelargonium of any interest. It was sent out by Messrs. Lee, of Hammersmith, and from it in 1848 Mr. Kinghorn raised the popular Flower of the Day, with well-shaped scarlet flowers (which was a novelty), and white-edged leaves. It has been, and probably is still, more used for bedding than any other variegated Pelargonium—perhaps excepting Bijou, which has a whiter edge, and was raised soon after by Mr. Westwood. Flower of the Day was soon succeeded and outshone (in beauty though not in general usefulness) by Attraction, which had a white edge and a pink zone. The credit of raising this variety, the earnest of the lovely silver tricolors, also belongs to Mr. Kinghorn, who followed up his success by soon after sending out Countess of Warwick, also a silver tricolor, and a better grower than Attraction, though not so pretty, its zone being too black, and its edge too creamy. About the same time Mr. Lenox raised Perfection, Mrs. Lenox, Jane, and (some time later) Venus and Cheerfulness, all having white-edged foliage, and Jane a red zone, the best of them being probably Mrs. Lenox. Contemporary with the latest of these, Mr. Elphinstone raised St. Cloud, Hôtel de Cluny, and The Queen's Favourite, all silver tricolors; and Mr. Grieve raised Culford Beauty, Rainbow, and, last and best, Italia Unita in the same section.

It cannot have escaped notice that all these varieties, which were raised in the 10 years between 1848 (when Flower of the Day was distributed) and 1858, were white-edged; the only difference in their foliage being that some had a red zone. It is evident that they were all descended from Flower of the Day (by pollen or by seed); indeed, Mr. Grieve has stated publicly that Flower of the Day, fertilised with the pollen of Tom Thumb, produced Culford Beauty; and that Cottage Maid, fertilised with the pollen of Kinghorn's Attraction, produced Rainbow. Thus the tide of crossing has borne us along from Miller's Variegated to Italia Unita. I take it for granted all are agreed that however variegation originated, it can now (in this class of Pelargoniums) be produced from seed, after the manner of Culford Beauty or Rainbow.

During these 10 years, in which so many white-edged varieties were raised, no yellow-edged variety seems to have been raised, or at all events sent out; and Golden Chain, the old sport from inquinans, was still the best, if not the only yellow-edged Pelargonium we had, among the numerous varieties raised from Pelargonium inquinans and P. zonale. It is true that a correspondent, who signs himself "M.," Deptford, writing in the "Journal of Horticulture" of April 25, 1867, says that "the first golden tricolor was raised by Mr. Baskett, of Blackheath, 15 or 20 years ago, and named Rainbow"—not the white-edged Rainbow of the catalogues, which was raised by Mr. Grieve; but if so it must have remained almost unknown, and was certainly never in general cultivation. Again, we learn from Mr. Wills, that "Mr. Elphinstone, of the Sprowston Nurseries, Norwich, exhibited the first tricolor (yellow-edged I suppose) at the Horticultural Society's rooms in Regent Street in 1851," but that "it was never sent out—Mr. Veitch, to whom it was sold, having lost it."

Having thus cleared the ground, I come to the real originator of the golden tricolors, Mr. Peter Grieve. In the summer of 1855, he tells us in his "History of Variegated Zonal Pelargoniums," he fertilised blooms of Cottage Maid, an old dark-zoned variety, with pollen taken from Golden Chain, the produce of the cross being the varieties Golden Tom Thumb and Golden Cerise Unique. In 1856 he fertilised blooms of another zonal, Emperor of the French, with pollen from Golden Tom Thumb, and thus produced a variety called Golden Pheasant; with Emperor of the French again as the seed-bearer, and with pollen from Golden Pheasant, he obtained in the two following years Mrs. Pollock and Sunset; and with pollen from these (still using Emperor of the French and similarly-zoned seedling varieties as seed-bearers), the still more beautiful Lucy Grieve, Lady Cullum, and Victoria Regina, were produced. I need hardly remind you of the enthusiasm created by the advent of Mrs. Pollock, which has gone on increasing with each new seedling until the tricolor has surpassed the famous Tulip mania—not in the price obtained for a single plant, perhaps (though I am not even sure of that, as, fortunately for many of us, Pelargoniums are more quickly propagated than Tulips, and prices rule accordingly), but in the general appreciation of their beauty, and the universal anxiety to obtain them. It would be a most unthankful, tedious, and profitless task to follow the fortunes of each new tricolored Pelargonium to the present time, when they are more numerous than "leaves in Vallambrosa;" I will therefore spare both you and myself.

Perhaps I ought to add one word here respecting the gold (self-coloured) and the gold and bronze sections; but their history is altogether wanting in interest, as they have been obtained without any special difficulty. In truth, these classes are chiefly composed of what a chemist would call "by-products" in the manufacture of golden tricolors; for I have rarely seen a pan of seedlings, say from the pollen of Mrs. Pollock, that did not contain more or less of them. The first of these, Mrs. Milford, was sent out by Messrs. E. G. Henderson in 1862; and this was followed by Luna, raised by Mr. Saltmarsh; and Sceptre d'Or, sent out by Messrs. Downie, Laird & Laing. Since then, the varieties have so increased (in name at all events) by the contributions of Messrs. Wills, Downie, Saltmarsh, Smith, &c., that they are three times as numerous as the tricolors.

THE PRACTICAL OPERATIONS OF CROSS-BREEDERS.—So many thousands of these variegated seedlings have been raised, and by so many different hands, on different soils, and under different circumstances, that there can now be no doubt that variegation (in Pelargoniums, at all events) may be, and is, reproduced from seed. There is no difficulty in performing the operation of cross-breeding; nothing can be easier. Every lady in the land may raise an improved Mrs. Pollock, or any quantity of them, with her own hand; it is simply necessary to remove the anthers from the flower chosen to bear the seed (before the pollen is displayed), and then, as soon as the little horns of the pistil curl backwards, to apply to them the pollen from the flower chosen as the male parent. It will have been noticed that Mr. Grieve, in all the examples given (with one exception, and that his first attempt), chose a dark-zoned variety for the seed-bearer, and fertilised it with the pollen from a variegated sort—Mrs. Pollock, for example. In the exceptional case, he had simply reversed this. There is no doubt at all that the first plan is the best, and by "best" I mean that it will yield a far greater percentage of variegated seedlings, and of better quality. I think, also, I have a glimmering of the reason of this, thanks to the late Donald Beaton, whose loss in this particular field of research is almost irreparable—and perhaps I may be pardoned for straying so far from my text as to say, that though I never even saw him, I learned to love him by sitting humbly at his feet, and that I mourned his death as that of a dear friend. Well, Beaton proved over and over again, some thousands of times, that in the races of Pelargoniums from which the tricolors have been raised, the leaf is always like that of the pollen parent, and he gives the following example:—"Cross Tom Thumb with the pollen of a horse-shoe variety, and the seedlings will all have the horse-shoe leaf; cross the deepest-marked horse-shoe variety with the pollen of Tom Thumb, and all the seedlings are plain-leaved." How is it, then, that Mr. Grieve was able to raise Culford Beauty (a variegated seedling) from Flower of the Day by pollen from Cottage Maid, a green zonal?—that Mr. Aldred raised Sophie Dumaresque from Sunset by the pollen of the green zonal Excellent; and that many other cross-breeders have been successful by the same process? In the limits of an essay it is impossible to do more than indicate possible answers; indeed, a perfect answer remains to be found. Again, I must call Beaton to my aid; he has proved that the pollen of the strongest plant (or coarsest, as some would say) takes the lead in influencing the progeny. If, for instance, the pollen of a weak-growing variety be placed on four of the five divisions of the style, and pollen from a stronger-growing variety be placed on the fifth division, the seedlings will all have foliage like the stronger. Does not this show that, to insure a given result, something more is required than simply placing pollen upon the style? May not the disease (or affection) called "variegation" be able so far to overcome the power of the pollen from the coarser-growing zonal, as to transmit itself to the seedlings in certain cases, as, when the pollen-bearing plant is a weaker grower; or not in prime health, if a stronger grower; when the pollen itself is immature, or produced by the anthers of the short stamens—anything, in fact, which should just sufficiently restrain the power of the pollen? Whatever may be the cause, the fact remains that the best plan is to let the green zonal be the seed bearer, and this is the plan adopted by cross breeders generally. Nor is this all: the pollen borne upon the two shortest stamens seems to have special power in increasing the tendency to variegation, but with one drawback, that it also dwarfs the seedlings.

To obtain the best possible results from crossing, attention should be given to the preparation of the parent plant. The necessity for this may be illustrated by the following example:—Beaton, for a particular purpose, wished to obtain seed from Scarlet Defiance; but year after year he failed, for seven consecutive years. At last he succeeded, by keeping the plant for the previous 18 months as near starvation point as could be; it was planted in the poorest sandy soil, and no more water given to it than would lift the leaves after letting them flag. It was of a gigantic habit, and this suggested the proper course. It is not meant that others should go and do exactly the same, irrespective of circumstances. This is merely given as a proof that the health and condition of the parents have a direct and important influence in crossing; and as a hint that those who would surpass others in respect to the quality of their seedlings, must depend upon extra care, thought, and judgment, and not upon blind chance. Nature will only yield to persistent wooing; and never unveils herself save to those who have deserved it by earnest loving devotion. *Revenons à nos—mères!*

The plant intended to be the seed-bearer should be two years old, and must not have suffered from free-flowering in the previous year; it should have made all its roots, and have its pot brimfull of them. Not more than one truss of bloom should be allowed on each strong branch; the two or three first and last blooms should be discarded; all the blooms to be crossed on one plant should be done as nearly as possible at the same time, and the plant should be carefully stopped from the first day of crossing. These are the directions given by Beaton—he calls them his "secrets," and we need wish for no better guide. Lastly, do not be in a hurry to throw away those plants which show no sign of variegation early in life, as eventually they may prove the best; for precocity in plants, as in man, is too often the sure forerunner of an early death, or of a premature old age.

(To be Continued.)

EVERGREEN BERBERRIES.

HAVING paid much attention to the cultivation of this beautiful family of shrubs during the last few years, perhaps the result of my experience may prove interesting to some of the readers of the *Gardeners' Chronicle*. I shall begin by noticing those species which are best worth cultivating, and which are found to be hardy, or nearly hardy, in this part of the country —the neighbourhood of Canterbury; and end with a few observations on certain valuable species fit for a conservatory or cold greenhouse. With regard to cultivation, the majority of the species appear to delight in a rich well-manured soil, but some of them require the addition of a portion of sand. Where botanical descriptions are given at full length, they are generally quoted from Professor Lindley's articles in the Journal of the Horticultural Society.

B. Aquifolium (N. America).—This species requires but little notice, as it is grown in most shrubberies, and is generally admired for its highly varnished leaves and abundant flowers. It may, however, be observed, that there have sprung up of late years many mongrel varieties that have been honoured with various high-sounding names, but most of which are far inferior to the original species, the leaves of these varieties being characterised by their dull surface. There are, however, two exceptions that may here be noticed, viz., that known by nurserymen as B. floribunda, which is very handsome in growth; and another called B. nitens—first raised at Exeter—remarkable for the extremely glossy appearance of the old leaves, which when young are of a rich bronze, changing to a dark green. This variety is of a dwarf and compact habit; it requires a shady situation, and a compost of peat, loam, and sand. I am informed by Mr. Masters that seeds from the same plant will produce plants, some with nine leaflets, others with five. Again, the surface of some will be dull, that of others bright.

B. aristata (Nepal).—A handsome, fast-growing evergreen, with reddish-brown branches, named as above from its leaves being usually fringed with bristle-pointed, fine close serratures. The leaves vary much in this species, both in form and size; on the same plant are found leaves with four or five spiny teeth, some wholly destitute of toothing at the sides, and others with the fine, close serratures above noticed. The berries are red and oblong. The species is perfectly hardy, and grows well in ordinary garden soil.

B. Bealii (China).—Of the hardy species this is perhaps the finest, being beautiful at all seasons of the year, either as regards foliage or flower, while the fruit in colour and size surpasses that of any other species. The leaflets of B. Bealii vary in size to an extraordinary extent, even on the same plant, some measuring as much as 5 inches in length, and 3½ in breadth, the average size being about 3 inches in length and 2 in breadth. They also differ considerably in form, some being nearly square, with 5—6 coarse spiny teeth, and others long and rather narrow, with a very stiff triangular point. This species requires very careful cultivation to do full justice to its merits; shade, shelter from gusts of wind, and rich soil, being absolutely necessary. Not only ought the ground to be well manured at the time of planting, but every winter a mulch of half-rotted stable manure should be placed on the surface of the ground, around the plant. The so-called varieties, B. japonica and B. intermedia, belong to this species; the former rather absurdly so named, as the species is not a native of Japan. B. Bealii will defy the rigour of any winter likely to be experienced in this country; a convincing proof of which is, that during the very severe frost of January, 1867, many plants were in full flower in this neighbourhood, and not a blossom was injured. By pruning to a single stem, B. Bealii may be made to assume a Palm-like character, which is very effective. This species is easily propagated from seed, a single berry frequently producing three plants.

B. Darwinii (S. America).—One of the best known, and one of the most useful and ornamental of the small-leaved species. Nothing can be finer than the sight it presents in spring, with its beautiful orange-coloured flowers and highly varnished leaves, which are not more than ¾ inch long, with three large spiny teeth at the end and one or two more on each side near the middle, or without any at the sides. The branches are covered with reddish, weak, straggling hairs. It occasionally makes enormous shoots, and generally suffers from this luxuriance of growth, many of the branches dying off without any other apparent cause. To remedy this, and to keep the plant in good health and vigour, the frequent application of half-rotted manure to the surface of the ground above the roots is strongly recommended. It would make a beautiful and effective fence, being of quick growth and quite hardy. There is a valuable hybrid between B. Darwinii and B. empetrifolia named B. stenophylla, the leaves somewhat resembling those of the latter species, and the flowers vieing in beauty with those of Darwinii. This hybrid is handsome as a bush or trained against a wall, is a free growing plant, quite hardy, and flourishes in a mixture of rich loam, peat, and sand. Cuttings taken in autumn strike readily under glass.

B. dulcis (Magellan).—A pretty sub-evergreen, and one of the best known of the genus. The leaves are bluish green, small, and generally without any toothing; the flowers very abundant, and of an amber-yellow colour. Some individuals of this species retain their leaves the whole winter, whereas others speedily become bare. Another species, viz., B. buxifolia, is sometimes confounded with B. dulcis. The latter-named species is quite hardy, and appears to thrive in a mixture of peat and sandy loam.

B. fascicularis (California and Mexico).—Remarkable for its very prickly but not shining leaflets. Very handsome, but, unfortunately, not quite hardy, requiring the shelter of a wall during very severe winters. Care should be taken to obtain the true species, as there are some hybrids closely resembling it. It is easily propagated from layers and cuttings, and thrives in a mixture of leaf-mould and sandy loam. There is a hybrid between this species and B. Aquifolium, which, being very handsome and rapid in growth, is a favourite in shrubberies, and known by the name of fascicularis hybrida. The leaflets of this hybrid are more regularly toothed than those of Aquifolium, but without their lucidity. It is much more hardy than its parent fascicularis, and is said to attain the height of from 10 to 12 feet. It is not particular as to soil.

B. Fortunei (China).—This species is figured in vol. i. of the "Journal of the Horticultural Society, and there described as follows:—"This shrub forms a deep green smooth bush, with from three to four pairs of leaflets, and an odd one to each leaf. The leaflets are about 4 inches long, narrowly lanceolate acuminate, with shallow distinct spiny serratures." Mr. Shirley Hibberd, in "Floral World," August, 1862, has noticed "the peculiar tone of pure green" to be observed in this plant. This species is handsome when well grown, but rather difficult of cultivation, and liable to injury from very severe frosts. It probably would thrive better in a conservatory or cold greenhouse than out-of-doors. *O.*

(To be Continued.)

CINCHONAS.

ANOTHER instance of the successful cultivation of the Cinchonas in a foreign soil reaches us from St. Helena. In that small but interesting island, through the recommendation of Dr. Hooker, and the great interest taken in the matter by the Governor, Sir C. Elliott, as much as by Mr. J. C. Melliss, the Cinchonas have been introduced, and, under the care of Mr. George Chalmers, the Government gardener, upwards of 5000 plants have already been raised, and these are all strong and healthy, some about 18 inches high, many of which have already been transplanted to a site selected for a Cinchona plantation in the neighbourhood of Diana's Peak.

Mr. Chalmers, formerly of Kew, only arrived in St. Helena in the month of May last, and the Governor, in a report to the Colonial Secretary, dated November, 1868, says—"We have already more than 2000 young plants, set out in boxes, and thriving vigorously, raised from seed of several approved descriptions of the tree, for which we are indebted to Dr. Hooker's kind and lively interest in this undertaking. These plants will all be permanently set out in the course of the next four or five months. Beyond this number, at least 4000 more have germinated, and are doing well from seed sent from Kew at more recent dates than the first supply, and planted at different times as it reached St. Helena. Amongst these are plants of C. succirubra, C. Pahudiana, C. officinalis, C. Calisaya, C. Condaminea, &c." Sir Charles Elliott further asserts as his belief, judging from the result of careful observations as to the time required for the germination of the seed, that if their resources for preparing the ground and fencing in the young plants were increased, they could have, in less than a year, 20,000 young plants *in situ*. The portion of ground selected for these plantations on the recommendation of Dr. Hooker, lies along the inclines of the ridge of which Diana's Peak forms the culminating point, the general elevation of which is between 2500 and 2700 feet, the mean annual temperature rather below 60°, and the soil composed, to a depth of several feet, of vegetable mould. At the above elevation this rich deposit is bathed in moisture for at least three days of every week in the year, and thus favoured has become covered with a luxurious growth of Ferns, and other plants of a similar nature to those usually found in the native seats of the Cinchonas. The very interesting report, from which the foregoing information has been gathered, proceeds to say that it is proposed carefully to test the lowest elevation at which different descriptions of Cinchonas will succeed in St. Helena, so remote from great masses of heated land that the mean temperature is probably cooler at 2000 feet than it would be at 3000 feet in tropical continents. In well-sheltered situations in St. Helena, some of the Ferns thrive at 1700 or 1800 feet, and perhaps that may prove to be the case with the Cinchonas.

Sir C. Elliott draws attention to the importance of introducing these invaluable plants in all soils and climates where there is any possibility of success, and remarks that "both Dr. Hooker and the late Sir W. J. Hooker strongly advised the formation of Cinchona plantations in St. Helena. Dr. Hooker especially has pointed to a fact of high interest connected with the subject. It was found, he says, during the late disastrous fever at the Mauritius, that the Cinchona leaf contained a powerful febrifuge principle, so that for distances of no great length, as between St. Helena and the coast of Africa, it would be easy to transport large means of abating the dreadful scourge at very moderate prices compared with that of quinine. In five or six years the plantations would be sufficiently advanced and of sufficient value to maintain themselves."

While on the subject of Cinchonas, it may not be without interest to notice how the cultivation of the plants is progressing in other countries where they have been introduced. From Jamaica we learn that about 30,000 plants are by this time ready for planting out, a plantation of 50 acres having been prepared for their reception. Amongst this large number all the most valuable species occur, as C. succirubra, C. Calisaya, C. officinalis, &c. The accelerated formation of this plantation will be most advantageous to the island, as it will enable the authorities there to devote their attention to propagating the plants for sale, so that with the assistance of private enterprise their cultivation will become more widely distributed.

The success of the plants in the East Indian plantations has become such an established fact that it appears almost needless to refer to the subject, but the receipt at the Kew museum of specimens of the bark of several of the most valuable species from plants grown at Ootacamund, from one of which the unprecedented amount of 7.3 per cent. of sulphate of quinine has been obtained, again arouses our interest. Mr. Broughton, the Government analyst at Ootacamund, says that the plants yielding this valuable bark were raised from seed received from Mr. Cross, who had charge of the first batch of Cinchona plants from their native soil to their first trial ground in India. This plant, Mr. Broughton thinks, is specifically distinct from its companions. It has markedly lanceolate leaves (almost like those of a Peach tree in shape). In a letter from Mr. Broughton he also draws attention to the fact that among the varieties of C. officinalis there are innumerable gradations between the typical forms, so that among the many thousand plants on the Ootacamund plantation it requires a search to find specimens which possess all the characters of the variety required by the published description of authorities. Thus, for instance, some of the distinctive peculiarities of var. crispa are conjoined with those of var. Bonplandiana; and Mr. Broughton, as a chemist, says he does not find any essential or constant chemical peculiarity to justify the distinction of so many varieties. With regard to the formation of the alkaloid in the plants, it may be interesting to give Mr. Broughton's own remarks. He says:—"I have some reason at present for thinking that the alkaloids are formed in the cells of the tissues in which they are found and are not elaborated elsewhere. The alkaloids are not found to any appreciable extent in the leaves and the very young bark. They are not found, as far as I at present can make out, in the liquid that fills the lacticiferous vessels. When bark is removed without injuring the cambium, a liquid is poured out by the latter which coagulates and soon becomes a layer of protecting cells; as these grow they become bitter and contain quinine, although there is no perceptible communication with any part of the plant besides the cambium. The wood I have found to contain alkaloid, but in small quantity, and of this the heartwood is richer. The liquid that the cambium first secretes is not in the least bitter." Mr. Broughton appears also to have made an analysis of the leaves of the Cinchonas, to test their medicinal value, which has been by some highly spoken of, as in the case of the fever at the Mauritius before alluded to. He found that they contain a minute quantity of dubious amorphous alkaloid, but that they owe their bitterness mainly to the presence of quinovin; he considers that they are of little or no medicinal value, and that sulphate of quinine cannot be prepared from them. It is probable that, as the plants get more widely distributed and more perfectly naturalised in places where they are now introduced, we shall learn more about the value or uselessness of the leaves as a febrifuge. *John R. Jackson, Kew.*

Home Correspondence.

The Royal Horticultural Society's Show at Manchester.—I quite agree with your foot-note at the end of Messrs. Shaw and Baines' letters (p. 585). In reply to Mr. Shaw's remarks, I shall feel obliged if you will insert Rules 9 and 16:—

"IX. That persons who desire the privilege of attending the gardens without being proprietors, be admitted by payment of the usual annual subscription, but that such persons take no part in the business meetings of the Society.

"XVI. That, Sunday excepted, every member have free admission to the gardens for himself or herself, and the resident members of his or her family, including resident tutors and governesses, and for persons having no place of abode or business within ten miles from the gardens, except on exhibition days, when the members only and their families shall be admitted on producing their tickets or signing their names, when required, in a book to be kept for that purpose at the lodge."

Another point in Mr. Shaw's communication is answered in your issue of last Saturday, for, be it remembered, our members and their families have admission when our own exhibitions are held, and yet we have always a large balance in our favour from receipts at the gates; so that I confess I cannot "see at a glance" how the admission of our subscribers to their own garden would have resulted in a financial loss. I am aware that certain "special meetings" were called some years ago in connection with the Manchester Botanical Society, the result of which was nearly to put an end to the Society; and I would ask whether it would have been wise to upset the constitution of our Socity for such an evanescent affair as a flower show, and that in a locality where a great horticultural show is no novelty? Respecting the special prizes, there can be no doubt but that the majority have been promised under the impression that the show was to be held in the Manchester Botanic Gardens. The Royal Horticultural Society has thought it prudent to hold its show elsewhere, and it has a perfect right to do so. I think it has taken a wrong step, but that shall not prevent me from doing what little I can to make the meeting in Manchester an agreeable and prosperous one. I conclude, as Mr. Baines did, by remarking, "I could say much more, but refrain from doing so from the conviction that nothing should be done to widen a breach that ought never to have existed;" but, however, let us forget all differences, and do what we can to make the forthcoming meeting successful. *Bruce Findlay, Botanical Gardens, Manchester.*

Ground Vineries.—The shoots of strong Vines, which have been planted three or four years, appear to be sometimes difficult to get down to the floor of ground vineries without their being broken. A Black Hamburgh, whose shoots were easily pegged down, after they had become a little hardened at the base, for the first three years of its growth, proved this year quite

intractable. With all the waiting that was possible, it was impossible to get the shoots down without breaking them off, and five accordingly went one after the other—one that started straight upright being snapped in the middle by the frame being lowered. Long wire crooks, instead of hair-pins, were tried to catch the shoots and draw them only a little; but besides that the joints of the slates often did not answer for these, a small stone was quite sufficient to prevent them going into the earth between the slates; and if a place was found, and the wire thrust down, it came up again five times out of six from the pull of the shoot. The difficulty at first appeared insurmountable, but has been got over thus:—Galvanised wire, as thick as thin whipcord, was cut into convenient lengths, a crook for the shoot was turned upon one end, and the other for 4 or 5 inches was bent at a right angle for a stone or piece of brick to lie upon. This allowed the shoot to be bent only as much at first as could be done without risk of breaking at the base, and by degrees the lower end of the wire was shortened with ease. What was before a tremendous bother now became a pleasure and a certainty, and I was even enabled without risk to draw over strong shoots from the opposite side to fill up a gap. Those who have only young Vines have no occasion to resort to this contrivance, as all the while the Black Hamburgh of four years' growth was baffling me, several younger companions beside it presented no difficulty. By waiting till their shoots were a little hardened, they were easily and safely laid down by a piece of tile, or a flat stone, with a pebble on the other side of the shoot for it to rest on. *A. B., Narberth.*

Potatos.—At p. 530 you express a wish to be informed as to the growth of Potatos this year. In this parish, and, indeed, in this neighbourhood generally, persons complain of their coming up very irregularly. Racehorse Kidney, Ashleaf, Early Oxford, seem alike in this respect; Warminster Frame, a new round Potato, said to be as early as the Ashleaf, is hardly showing, though planted more than two months. My man tells me the missing roots are growing underground. This is a bad country for fruit of all kinds, owing to the cold winds and spring frosts—on the 8th June, 1868, a row of Kidney Beans was killed in a neighbour's garden. I have Pear, Apple, Plum, and Cherry trees as dwarf standards; there are few walls; they were covered with bloom, but in many cases after apparently setting, the fruit has dropped, in all cases to some extent, though I have sheltered with elm boards supported on two or three stakes. Pears have suffered most. Out of two dozen, one has 30 Pears, two 8 or 9, the rest about one apiece, most of them none at all. You kindly advised me at the end of September, 1866, about Apples, which I find are likely to succeed best of any fruit. I should feel obliged if some of your correspondents would give me a list of half-a-dozen of the hardiest Plums. I have a Denyer's Victoria grafted on the Sloe, hardly the size of a Currant bush, with three dozen Plums on. *The Shepherd of Salisbury Plain.*

Weed Destroyer.—A few days ago I saw on a large panel at one of the London stations the following advertisement:—"Weeds extirpated from lawns. Watson's lawn sand, or weed destroyer, sprinkled upon lawns, rapidly and effectually destroys Dandelions, Daisies, Clover, Ribgrass, and other weeds; at the same time makes the Grass grow, and gives it a most healthy appearance. Price, 28*s.* per cwt., or 4*d.* per lb." What marvellous discriminating application is this! which kills such deep-seated weeds as Dandelions, and at the same time "makes the Grass grow." *W. M.* [Marvellous, if true. EDS.]

Amateur Gardening.—There are many persons who, like myself, are fond of gardening on the small scale practicable by amateurs of moderate means, some of whose flower gardens may contain borders along walls or fences, and surrounding lawns or croquet grounds, filled with shrubs such as Laurels, Bays, Laurustinus, Rhododendrons, &c., and even trees, and which are particularly difficult to bed-out in, or even to keep in a showy condition throughout the summer, on account of the drip and shade of the shrubs they contain. Such persons will be, as I have been, probably unwilling to widen these borders to any great extent, so as to afford room for a high background between the stems of their shrubs and the flowers they wish to see encircling their lawns; for they will not like to encroach upon the Grass,—perhaps for fear of impeding croquet; and they find that a moderately wide border, say four or five feet from the stems of the shrubs, always looks ragged at the back, and is difficult to get on to trim or cut flowers from. It may be worth their while to try the plan of a detached border such as has suggested itself to me. Instead of having an earthen border of 4 or 5 feet wide, I advise them to grow Grass as close to their shrubs as may be, filling up around their roots with Ivy, Periwinkle, St. John's Wort, or any other plants that will continue the green right through to the wall, and will also conceal the stems of the shrubs; then to cut their border for flowers out of the turf, so as to leave 1 foot of good sound Grass behind it. The inner edge of this border will be not more than 3 feet from the stems of the shrubs if they be well-grown, and if made 2 or 2½ feet wide, it will give ample space for a very bright display. The Grass edge and Ivy behind the border will improve the brightness of the flowers, and facilitate their culture, and the effect will be far greater than if a plain, uninterrupted border of 5 feet had been employed. I may add that, during the extremely hot summer of last year, I derived great benefit from having turned into my flower-beds plenty of long litter. The ends of the straws peeping out were certainly a dissight until the plants grew; but the aëration they produced, and the absence of surface-caking due to their affording a free passage for water to the roots, was quite surprising. I found, too, that Mignonette, sown broadcast over beds and borders, kept them cool and moist, and was especially valuable for Calceolarias, and its quiet tone enhanced the beauty of foliage and flowers, while its sweet fragrance was no mean addition to their scent. *R. E.*

Rainfall in Nottinghamshire.—On Wednesday night, May 26, in 24 hours my rain gauge registered 1 inch; it rained heavily and steadily from six o'clock on Wednesday morning until the forenoon of Thursday, with the wind north-east, the barometer standing at change, the lowest temperature being 39°, and the highest for that day 45°. This soaking has well washed the blight off the Roses, and all filth off the fruit trees, and started all our early Peas off in racing style. I generally sow the crack sorts at three seasons, as the weather suits, viz., at the beginning of November, December, or January, and early in February, and often pick the first dish off all three sowings. In 1865, I pulled my first dish on June 22; 1866, I pulled on June 18; 1867, I pulled on June 13; and last year, 1868, I pulled on May 29. Although my Peas are podding now, and looking remarkably well, unless a great change takes place in the weather, I do not expect that I shall be able to pull any before the middle of June. I have scarcely ever seen Peas looking so well. Laxton's Supreme is a strong grower; the other new sorts are strong and vigorous. French Beans and Scarlet Runners are just aboveground, but I don't expect the sowings of them will do any good, sodden as the ground is. With the exception of these, I give my respective seedsmen great credit for supplying me with first-class seeds. The committees and the cooking of the last dry summer have done them more good than harm. Small fruit is with us plentiful. Strawberries are apparently going to flower well, and if proper attention is paid to mulching, the late rain will do them good. *J. Miller, Worksop Manor.*

Bedding Plants.—From my experience I can confirm "Quo's" notes (p. 528) respecting the Pyrethrum Golden Feather as a bedder, and its being not so free-blooming when grown from seed; also respecting Pelargonium Crystal Palace Gem being an "effective and durable bedder." I would add a word respecting one or two other things which I have found good. Pelargoniums come first, and amongst the golden tricolors Louisa Smith has a first place. Mrs. Pollock is an old favourite, and is cheap, and must be grown either for auld lang syne or its cheapness, which is the powerful consideration with the multitude; but I am confident that when Louisa Smith is seen growing with Mrs. Pollock it will be found quite as good a "doer." At Reading, where I saw it in one place, it was doing much better, both being planted out together. I also saw it near Weymouth, where it was splendid, having grown into a large plant; and, indeed, wherever I have seen it, the opinion seems to be that it is quite as good a grower, and it is much brighter in colour than the older sort; the leaf is also a finer shape, being rounder, and the green does not run so much outside the zone. I am informed by those who have seen it—I have not—planted out at its home, the Dulwich Nurseries, that it is very fine there also. Lady Cullum is a first-rate grower, and very distinct, but not sufficiently effective for bedding-out; the zone is all, or nearly all, quite black, and the margin is so narrow that it has no effect. Among common zonal varieties, Glorious, rich deep vermilion-scarlet; Rebecca, cherry; and Vesuvius, bright scarlet, with a white eye, are worthy of every praise; habit, flowers, truss, and profuseness of bloom are unsurpassed—perfect balls of bloom all the season. Tropæolum Mrs. Treadwell is unique as a bedder, the flowers such a rich crimson, the leaves such a dark green, and so profuse; moreover, a fine winter bloomer. For the few who can afford it, Achyrocline Saundersonii (E. G. Henderson & Son) will be a valuable acquisition amongst white-foliaged plants, being of a beautiful silvery tint and exquisite in habit; and moreover, useful all the year round. In the same way is Artemisia Stelleriana, first-rate for bedding, and perfectly hardy. From what I have seen of all the above, I am sure they will give every satisfaction as bedders if they only get a fair field and no favour—favour has given not a few things a bad name, and nearly killed Mrs. Pollock—fair play is all they want. *Alexander, 29, Union Road, Cambridge.*

Gas-tarring Orchard Trees: Canker.—Your correspondent, John Lloyd, p. 556, seems to have injured his fruit-trees by an overdose of gas-tar. I have before now had to resort to the same expedient, and a very useful one it is, but when applied all round the tree, as Mr. Lloyd seems to have done, it is almost certain to produce a bad effect. I only daub a little here and there on the stems and about on the ground; this serves to scare away the rabbits and hares, as they do not like to get their face soiled by such a bad-smelling thing as gas-tar. If Mr. Lloyd will carefully pare off most of the tarred bark, hurting the inner bark as little as possible, and then paint his trees with a mixture of cow-dung and clay, I think that they will soon recover their pristine healthiness. He need have no fear to well peel his trees, as no injury will accrue to them by doing so. I have been for some years in the habit of peeling, in spring, to counteract the bad effects in frost-bitten, cankered, or hide-bound fruit-trees. I generally commence at the ground, removing all the outer bark to a considerable height, and then prune back the branches either close to the tree or as far back as there is any blistered or cankered places, then painting the tree with the composition recommended above. It often happens after severe winters, such as 1860 and 1866, that fruit-trees get frozen through—at least a great many do—by which canker is induced, which is certain destruction to the health of the trees so affected; in fact, they often become a mass of canker. In all such cases I resort to peeling, and have never found it fail in restoring my trees to health. When the trees have been very much frozen, it is well to cut all the branches clean off and head down the tree to about two-thirds of its height; then peel and paint. Many, I may say most, people attribute canker to the roots going too deep into poor cold soil; but for one cankered tree so produced, I think 99 per cent. are cankered by frost, and all that can be laid to the charge of the cold soil is its tendency to cause the tree to grow too much, and so produce crude, unripened wood—a great drawback to fertility in all kinds of plants; hence the cold or frost acts with double force upon the watery tissues, and disruption and canker follow. I do not recollect ever hearing any one speak of frozen trees, nor have I ever seen the subject mentioned in books. It is always bad soil that bears the blame if a tree gets cankered. I have had hundreds of fruit-trees killed by frost in my soil, but never one by the roots penetrating too deep. The Kingston Black Apples here in 1860 were all rendered so cankered and so injured, that I have abandoned its cultivation. At the time I speak of I had over 5000 trees of this kind, as it is much esteemed in this neighbourhood as a cider fruit; all were more or less injured. There are not many Apple trees so tender as this, but yet there are several others that might be mentioned—Reinette du Canada, for instance Baltimore, &c. Of Pears the tender ones are far more numerous, such as Forelle, Glou Morceau, Louis Bonne of Jersey, Seckle, Belle Angevine, Duchesse de Mars, and Citron des Carmes, are sorts that occur to me, on the spur of the moment, as being very tender and easily cankered by frost. I have a fine tree of Flemish Beauty, now loaded with fruit, which was very much frozen in 1860; for about 2 to 3 feet up the stem, all the branches were beginning to get cankered; I skinned it all round for about 3 feet above the ground: the result was, the branches are become healthy, and it is, as I have said, loaded with fruit. One bad result of frost-bite is, the trees whilst under its influence never produce good fruit, it is generally speckled with Fungus and other marks—in fact, my Forelle trees, where they have not been peeled, do not produce an eatable fruit. Those of them I have peeled are this season perfectly healthy, and were loaded with fruit, but, like all other early-flowering-sorts, they dropped it, from being affected by the few frosty nights we had in April, when our glass went down to 25°. I may say that nearly all the kinds that flowered later have fruit upon them, although many of these have been sorely tried by the cold prevailing all through May. I do not know whether this letter will throw any light upon the subject of cankered trees; if it does, it will be a pleasure to me to have contributed in a small degree to turn people's thought in the right direction, and also to have shown that there is a ready and sure cure for so destructive a malady. *John Scott.*

Spring Gardening.—A few days ago I had the pleasure of calling at Crabwood establishment, near Southampton, the residence of Rolles Driver, Esq., to see my friend Mr. Higgs, the gardener, there, who has for some years past paid considerable attention to spring gardening, and to selecting the best subjects for that purpose. Mr. Higgs has now for several seasons been able to produce very pleasing and harmonious results from simple means, and those, too, of a very inexpensive nature; so much so, that the materials employed by him are within the reach of every person who has a garden, and is able to devote a portion of it to ornamental purposes. The gardens at Crabwood are on a small scale, but in small gardens we often meet with meritorious results. The flower beds here are close to the south side of the mansion, at perhaps a dozen yards or so distant from the windows; a gracefully curved walk intervenes between the beds and the house, which winds along until passing out of sight amongst the shrubs beyond the flower garden. This flower garden has about 14 beds cut out in Grass, having ample space between the beds for promenading with ease, and beyond the beds there is enough space to allow of the modern game of croquet being played; beyond this there is an irregular and diversified outline of shrubbery, which when seen from the mansion seems, as it were, to hold and encase this little gem of spring flower gardening in a living frame of shrubs. There is one great point to be observed in connection with spring gardening, viz., that the plants employed must all be in flower about the same time; and to secure this end, Mr. Higgs principally uses the following four:—Silene pendula, pink; Myosotis sylvatica, blue; Limnanthes Douglasii, yellow; and Saxifraga granulata, white. These four are those principally used in the flower beds. In some of the borders a small yellow Cheiranthus Marshallii, and a scarlet Daisy, which yields an abundance of flowers, are used. In the largest beds Mr. Higgs uses three colours; for instance, next to the Grass is the yellow Limnanthes Douglasii; next is the blue Myosotis sylvatica, having the taller-growing and more showy pink Silene pendula in the middle of the bed. Some plan the white Saxifrage in the middle, but in any bed where the Silene is used it grows too high to allow of the Saxifrage being seen to good advantage. These plants are all hardy, and when in flower, a shower of rain or a moderate amount of frost does not detract from the beauty of their display. *G. Dawson, Shirley, Southampton.*——I had the pleasure of walking through the gardens at Osberton last week, and I say Mr. Bennett may well be proud of his spring bedding, for it is certainly a grand success. As the Osberton gardens are so well known to most of your readers, I may be allowed to offer a few remarks on the spring bedding, &c. In the kitchen garden was a ribbon-border of Cerastiums, Primroses, Variegated Kale, and Wallflowers, which looked well. A design with coloured walks in front of the conservatory was arranged with Viola cornuta, Primroses, Tulips, and Hyacinths; some little diamond-shaped beds at each end of the conservatory being planted with a few choice flowers, and edged with that little gem the blue Gentian. Leaving the conservatory and Rose garden we entered upon a long walk

with beds on each side, a round and a long one alternately; the round ones are planted with purple, blue, and yellow Pansies, Hepaticas, Daisies, Polyanthus, Euonymus, and a fine hardy plant named Heuchera, which will be much sought after for spring bedding, and edged with Cerastium; the long beds are filled with similar materials, with the addition of Silene Myosotis, and Arabis alpina; and the whole of the beds on either side are planted to match. This is the most charming display in spring-bedding I have seen. Passing over the bridges, and through the Rhododendron grounds, &c., we reached the top terrace, covered with spring flowers, which I need not enumerate, as every sort of spring flower is brought into requisition at Osberton. Leaving this garden we have a peep at a little one enclosed with Yew hedges, where the same lovely sight presents itself—flowers everywhere. I could almost have fancied that it was summer, and we were in the height of the bedding season. In addition, I may mention that the general stock of plants in the houses, and especially some fine specimens of Crotons, Sanchezias, Dipladenias, Allamandas, &c., pot Vines, Melons, and Cucumbers, looked remarkably well. Strawberries are forced extensively here, the favourite being President. The Pines are showing fruit nicely, and the Peaches are swelling their fruit vigorously. *J. H. C.*—Having read with much interest from year to year the articles in your pages describing the beauties of Cliveden and Belvoir in the spring of the year, I have often wondered and regretted that we had nothing of the sort to see in this country. Lately, however, I was agreeably surprised to learn that in the neighbourhood of Dublin, at the marine residence of Lord Gough, "spring gardening" had been carried out to a large extent for some years since. Recently I took the opportunity of calling, and was so much pleased with what I saw that I am induced to send you a few particulars, which may be of interest to some of your readers. St. Helen's, which was the late Lord Gough's favourite residence, is situated close to Booter's Town, on the south shore of Dublin Bay. The mansion stands on elevated ground facing the north-east, and is surrounded by a demesne of 120 acres, densely wooded, especially to the east and north-east. The ground undulates in the most picturesque manner. The terrace and flower garden, which is 400 feet square, lies directly under the north-east front of the mansion. Standing here on the upper terrace we get a full view of the "spring bedding." The second terrace, which is composed of two square Grass plats, has a large circular bed in the centre of each square, with four oval and four circular beds round the edges of the squares. The large central beds at once challenge attention, and are effectively filled with crimson Beet as a centre, surrounded by scarlet Anemones, and next three circles of colour composed of Myosotis sylvatica, Alyssum compactum, and Aubrietia purpurea, the latter very effective indeed. The other eight beds in each square are bedded so as to produce various designs in corresponding pairs, and are planted with Golden Drop Wallflower, Iberis sempervirens, Polyanthus, Arabis variegata, double and variegated-leaved Daisies, Alyssum compactum, Aubrietia purpurea, Cerastium, Cliveden Blue Pansy, dark Wallflower, Stachys lanata, and Myosotis sylvatica. There is a chain of beds on each side of this terrace, each bed being filled with plants of distinct colours, viz., double white Daisy, Saponaria calabrica, Alyssum, Arabis variegata, Myosotis, and Aubrietia variegata. The angles at the back of this chain are filled with dark Wallflowers edged with Cerastium, the front angles being dark crimson Beet and Arabis variegata. The straight chain of beds on this terrace correspond with a half circle chain of 20 beds on the lower terrace; each bed has a centre plant of Box 18 inches high, and are separately filled with Alyssum compactum, Iberis, Myosotis, Cheiranthus, Aubrietia, Polyanthus, Arabis variegata, Nemophila, Saponaria, &c. The back angles are filled with Wallflowers and variegated Arabis, the front ones being very effectively arranged with crimson Beet, edged with Stachys lanata. The two corners beyond this half circle of beds are elegantly ornamented with chain arbours, each arch being covered with climbing Roses. These terraces, which are bounded and raised by a handsome granite wall, have three borders 400 feet long, which are very effectively planted with large clumps, 2 feet wide each, of Aubrietia purpurea, Alyssum compactum, Arabis variegata, and Cheiranthus Marshallii. The east and west borders are edged with Myosotis sylvatica, and the north border is edged with Stachys lanata. The effect of these large clumps of telling colours is very striking and beautiful. A flight of steps on the north side opens on to an ornamental croquet ground, from which a lovely view of Dublin Bay is commanded, with the "Hill of Howth" to be seen in the distance. Mr. Webly deserves great praise for having in a few years brought this place to its present excellent condition, as it formerly had the reputation of being an almost neglected wilderness. *A. C., Dublin.*

Pelargoniums.—The past week has put to the test the cold-enduring powers of the tricolor and bicolor Pelargoniums; for doubtless many, like myself, were tempted by the genial state of the atmosphere of last Monday week to venture upon bedding them out. It was stated by Mr. Grieve, at the discussion on the 22d ult., that they required a high temperature—in fact, that they should not be exposed to a lower one than 50° to 55°. Could anything possibly be more trying for them than after only four days' removal from a warm house to have been exposed (perfectly unprotected) to such a day of bitter cold rain as Friday last, followed by three successive nights of frost, the thermometer registering 4° of frost on the very bed they stood in, which bed, numbering 240 plants, consisting of the best of the old tricolors and bicolors, viz., Lucy Grieve, Lady Cullum, Sophia Cusack, Sophie Dumaresque, Queen Victoria, Edwinia Fitzpatrick, Countess of Tyrconnell, Jock o' Hazledean, Louisa Smith, Italia Unita, Sunset, Mrs. Pollock, &c., with very many seedlings of my own, both tricolors and bicolors, some of which are but a few months old and a few leaves high. All seem to have passed through this awful ordeal almost uninjured; the bicolors seem to have felt it more than the tricolors; here and there a young leaf upon them is slightly touched. It would be interesting to know if Pelargoniums of these classes have stood equally well in other and more exposed situations, because, if so, it would make one question whether we are not coddling them too much—making them, in fact, more tender than they otherwise would be; and whether they are or would not under other treatment prove to be a much more easily managed and valuable class of plants for bedding than we give them credit for being. *John Denny, Stoke Newington, June 2.*

Foreign Correspondence.

THE RUSSIAN INTERNATIONAL HORTICULTURAL EXHIBITION: *St. Petersburg.*—Notwithstanding the want of order and arrangement at the beginning, every day added an improvement, and it would be unfair not to state that on the whole the exhibition turned out to be very creditable. I propose now to offer a few concluding remarks. I consider that the Russian gardens have contributed the greatest number of ornamental plants, such as Palms, Conifers, &c. The collections from the Imperial Botanic Garden alone were very numerous; but perhaps the best and most varied, as they included many showy groups of Rhododendrons and Azaleas, were from the gardens of the General Doornovo, the Grand Duke Nicolas, and the Grand Duchess Ellena Pavlovna. Nearly all the Roses were from the Imperial garden at Tsarkoy Selo. These were exceedingly beautiful, and it is to be regretted that they were not named. The best Rhododendrons were furnished by General Doornovo's gardener, to whom the Empress's large gold medal has been awarded. By far the greater number of foreign contributions of flowering plants were from Belgium, particularly the town of Ghent, which has also contributed a considerable number of beautiful Palms, and other tropical plants of great merit. M. Linden, of Brussels, and Mr. Warner, of London, had all the honours for Orchideæ. M. Goegginger, of Riga, and M. Croux, of Sceaux (France), were the chief exhibitors in the fruit-tree department, which has lately been arranged in the court outside the building. Here there was a collection of Apple trees, stated to be grown in the open air, without protection in winter, at St. Petersburg. There was also a poor collection of plants suitable for living fences. These were planted in a line, and tied to a low fence of wood. But what are most needed in Russia are not merely plants, but living models of hedges in different stages of growth. I consider that this question ought to have received more attention, for I cannot conceive how a taste for hedges is to be promoted in this country by showing a few scrubby, leafless plants trained to a paling.

Besides those I have already noticed, there were good collections of seeds, tools, and implements shown by Messrs. Carter & Co., of London; Dittmar, of Wurtemburg; Booth, of Hamburg; Hudspith, of Haltwhistle, England; and the Director of the Agricultural Museum of St. Petersburg.

In general, the labelling of the plants was much neglected. The Russian collections, and particularly those from the Botanic Garden, were especially faulty in this respect. The best labelled were those from Belgium, England, and Hamburg.

I must say that I consider the plan of putting numbers to the plants, and giving names and other particulars in a catalogue, exceedingly inconvenient and unsatisfactory. When the exhibition is only to last about 15 days, at least the half of that time must elapse before the catalogue is ready. All the plants in the collections here were named and numbered in the catalogue, but there were neither corresponding names nor numbers to the plants, as in the case of the Roses, Rhododendrons, Cinerarias, and some others. Many collections, too, of a miscellaneous kind not required in a catalogue—as common herbaceous plants, dried specimens, garden tools, &c., as well as a great number of plants which only served to fill up—have been minutely inserted, and occupy several pages; while some of the most important, as the beautiful Orchideæ of Mr. Warner, are dispatched with a single line.

But this is not all. The highest number given in the catalogue is 596, while the number of the collections mounts at least to 740; so that, apparently, a great many have been omitted, and in numerous cases the numbers do not correspond with those attached to the plants named in the catalogue. When I took the liberty the other day of drawing the attention of one of the acting members of the committee to a glaring mistake of this kind, he merely shrugged his shoulders, stretched out his chin, and went away saying it was no business of his.

New Plants.—There are several plants in this class which, though not very recently introduced, are "not yet in the trade," and therefore it may be worth while adding them to the list of those I have already noticed. Anthurium Martianum (C. Koch et Kolb), native of Surinam (1868). This is a showy plant of robust erect habit, having large leathery lanceolate leaves, about 2 feet long, somewhat undulating in outline; this species is only remarkable for its fine foliage, the spathes being green. Anthurium trilobum (Lind.) obtained from Peru in 1867. The leaves of this species are large, and, as its name implies, three-lobed, supported on slender purple leaf-stalks, about 4 feet in length. Dieffenbachia Wallisii (Lind.), received from Peru in 1867. This species is of low growth, having ovate lanceolate leaves, which are profusely variegated, particularly at the mid-vein. Rudgea nivosa (Lind.) introduced from Southern Brazil, in 1866. Though, no doubt, known to many of your readers, this is still a rare plant, and I think if well-grown it might be both handsome and showy. Its leaves are ovate acuminate, dark green, and glossy. The flowers grow in terminal clusters; they are about an inch and a half long, pure white, and covered with soft downy hairs; its general habit is bushy and elegant. Cochliostema Jacobianum (Koch et Lind.), introduced from Ecuador in 1867. There are three large plants of this species. The leaves are long and lanceolate, becoming broader at the middle, and gradually merging to a sharp point. The flowers issue in large panicles at the base of the leaves, and are of the same colour as those of Cattleya Skinneri, that is, a delicate mixture of lilac and rose. Maranta Mazelli (Lind.), introduced from Peru in 1869, does not differ much from one or two of the common species already well known.

In an interesting group of Cycadeæ, shown by M. de Ghellinck, of Ghent, there are several new species of Zamia. The most distinct and beautiful has bright green leaflets about 10 inches long, and an inch and a half broad. This I think is one of the best species yet known. It was obtained from Mexico, and has not yet been named. The leaves have some resemblance to those of Ceratozamia Miqueliana and Encephalartos longifolium, only this has a few short spines at the margins. Another species is of upright and noble aspect, having dark green linear lanceolate leaflets marked with bright yellow towards the ends. A third species, quite distinct, has light green lanceolate leaflets, 10 inches long, and about an inch broad. The others in this group are Zamia Baraquiniana, Z. Ghellinckii, and Z. plumosa; with these may be mentioned Cycas aurea and Katakidozamia sp. A gold medal was awarded for this collection.

There was a handsome Raphis, "nova sp.," from Japan. The plant was about 2 feet high, with pretty light green palmate leaves, but the number attached to it did not correspond with that given in the catalogue.

The following species, in the collection of M. Linden, may be added to those I have already noticed:—Ficus dealbata, introduced from the Amazons in 1867. This is a very distinct and beautiful plant, having ovate acuminate leaves about 12 in. long, dark green above and downy and white below. This must be a really handsome plant when well grown, and I am not surprised to find that it is marked "sold." Spathiphyllum macrophyllum (Lind.) introduced from Peru in 1867; a large Orontiaceous plant, having entire ovate-acuminate leaves fully 2 feet long, supported on leaf-stalks of about the same length. Tillandsia Lindeni (Mor.), introduced from Peru in 1867. This plant is generally admired, owing to its beautiful blue three-petaled flowers, which emerge one or two at a time from a pretty rose-coloured ovate distichous spike of imbricated bracts. The leaves are dark dull green, channelled, stiff, and turn down. Episcea tessellata (Lind.), introduced from Peru in 1868. An herbaceous plant, with large dark-reddish oval leaves; it is apparently of vigorous growth, but in the absence of flowers it is chiefly conspicuous for the unusual colour and uneven surface of its leaves. Dichorisandra mosaica, a Commelynaceous plant of free growth, having obovate acuminate leaves, slightly sheathing at the base, and much marked with small horizontal bands of light green on the surface, purple underneath. The singular Lycopodium tetrastichum, which I previously noticed, was shown by M. Willinck, of Amsterdam, by whom it was introduced from Java.

M. Jean Verschaffelt had a collection of 12 Coniferæ, which in the catalogue are given as new and rare. The plants were generally small, and comprised Abies firma, A. Hookeriana, A. polita, Araucaria Rulei, Cryptomeria elegans, Juniperus excelsa stricta, Retinospora leptoclada, R. lycopodioides, R. obtusa aurea nana, Sciadopitys verticillata, Thuja orientalis lutea, and Thujopsis lætevirens. These were all fine species, but a clear description would be too tedious, and perhaps it is not necessary. A small gold medal was awarded to this collection.

I have since found that "Doctor Regel" is the name of the Azalea I mentioned in a previous communication. It is certainly one of the most beautiful rose-coloured varieties I have seen, and is inclined to be double. [The great fault of the Belgian breed, the petaloid filaments spoiling the symmetry of the flower. EDS.] It is shown by M. Vervaene, of Ghent. M. A. Stelzner, of the same town, had three new varieties of Rhododendron. The best were Surprise, the flowers of which are large, lilac, and spotted with purple; The Queen, a fine white variety tinged with pink, and having the upper petal marked with yellow at the base; the third had pink flowers of moderate size. In a collection of Rhododendrons, probably shown by M. Dallière, of Ghent, occurred a beautiful large-flowered white species, called Veitchii, but it was not mentioned in the catalogue. There was another which had also large white and somewhat tubular flowers, but no name was given.

Dr. Regel contributed some new varieties of Pelargonium zonale, obtained by crossing. They were all finely variegated, but not in flower. They were General Greig, Gloire de Russie, Grosfürst Nicolai, Bella, Freund Buck, and F. Siessmeyer.

A fine collection of Roses, stated to be of recent introduction (since 1868), was shown by M. Grunerwald, gr. to the Grand Duke Nicolas, but as they were not named except by tallies stuck in the pots out of sight, I cannot notice some of the best varieties.

Perhaps I omitted to mention Messrs. Veitch's Alocasia Sedeni, a cross between A. metallica and A. Lowii. It has large cordate leaves, about 15 inches long, dark green above and purple below, and is remarkable for the singular disposition of its veins. *K.*

THE SPRING IN ALGERIA.—On the 13th of April I left Marseilles for Algeria, the weather being very fine, the sky blue and clear, with wind N.E., and the barometer high; a hundred miles from the French coast, the wind still the same, the sky became cloudy and the sea rough. We passed the next day near the island of Minorca, skirting it for some hours, in a calmer sea. The shores, formed by a high cliff, are surmounted by level plains, cultivated, but apparently all but devoid of tree vegetation. Once the friendly shelter of Minorca lost, we got into a very troubled sea, with cloudy sky, and on nearing the shores of Africa saw the Atlas peering high into the sky, but covered with mist and clouds. The wind had been S.W. from the time we left Minorca. Thus we left brilliant sunshine on the north shore of the Mediterranean, with a blue sky and a dry atmosphere, under the influence of a north-east or continental wind, to find on the south shore of the Mediterranean a cloudy sky and moist atmosphere, the result of the collision of the north-east and south-west winds. This, I was told at Algeria, was very frequently the case throughout the winter.

Algiers, situated latitude 36°8', is on the west side of a fine bay, turned directly northwards. The town itself thus looks north-east, whilst Mustapha Superior, the favourite eastern suburb, and the Jardin d'Essai, which is on the shore at its feet, look directly north.

My first visit was to the Jardin d'Essai, of which I had heard much, and I was truly delighted with what I there saw. This garden was commenced some 20 years ago by Government as a botanical experimental garden. Within the last year, however, it has been sold to a company, which is doing much for Algeria, the Compagnie Thalabot. All the plans of the

Government are being continued by this company, on the system of a vast nursery or horticultural establishment meant to pay its expenses by the sale of plants, shrubs, and trees. The soil is a mixture of loam with micaceous and siliceous sand. The most remarkable feature in the garden is a splendid avenue of Chamærops humilis, Latania borbonica, and Dracæna Draco, alternating on each side for a distance of nearly half a mile. The Chamærops are at least 9 or 10 feet high, the Latanias and Dracænas higher still, quite trees. The effect of this wide tropical avenue of Palms is perfectly magical. They are in splendid health and beauty, although many of the leaves have been damaged by the severe weather of March. It would appear that the weather had been as bad this year during March in Northern Africa as in Southern Europe—constant winds from the north, with hail, and a low temperature. The Palms, I was told, had suffered unusually, but were only damaged in foliage, not in condition. There is also a fine avenue, and a small thicket of noble specimens, of the Phœnix dactylifera.

One large border devoted to hardy Palms, capable of growing with perfect health in the climate of Algeria, filled me with admiration. There I saw growing freely, luxuriantly, to the height of from 10 to 20 or 30 feet, in the full perfection of health, many Palms that I had never seen before out of Palm-houses, always excepting those I mentioned in my last letter, as grown in the open on the Riviera. Thus I noted the Phœnix pumila, reclinata, spinosa, leonensis; Sabal Adansoni; Chamærops humilis, Martiana, tomentosa, Palmetto, excelsa, elegans, hystrix, Birrhus; Copernicia cerifera; Corypha australis; Latania borbonica, immense; Brahea conduplicata; Thrinax speciosa, radicata, argentea; Rhaphis flabelliformis; Ceroxylum niveum; Chamædorea speciosa, lepidota, scandens, elegans; Oreodoxa regia; Cocos Datil, speciosa, botryophora, lapidea, australis, coronata; Jubæa spectabilis; Attalea speciosa; Caryota Cumingii, furfuracea, urens; Arenga saccharifera, and several others, the names of which I did not note.

There were also beautiful beds of Cycadeaceæ, Bonaparteæ, or Dasyliriæ, Dracænas, and Yuccas. Among others I may mention Dion edule, Encephalartos horridus, Caffra, Lehmanni, longifolius, Cycas Rumphii, circinalis, revoluta—all large plants, 2 or 3 feet high, Zamia fusca, latifolia; Musa Ensete, Strelitzia ovata; Dracæna indivisa, Draco, umbraculifera; Cordyline congesta, brasiliensis, cannæfolia; Yucca aloifolia, gloriosa, Draconis, filifera, augustifolia, Parmentieri, canaliculata, &c. All these trees and plants are remarkable for the perfection of their development, making due allowance for the winds and cold of March, which, as stated, have damaged the leaves in some cases. The Cocos botryophora, the Cocos speciosa, and the Oreodoxa regia are above 30 feet in height, although young trees—the siliceous soil evidently suits them. The Sabal Adansoni are very fine plants, one mass of leaves, but these leaves are so torn by the wind that they have lost all claim to beauty. Even the Latania borbonica, magnificent as it is as a tree 15 feet high, is not so handsome as when well grown in a stove, with plenty of room to develop each leaf.

The first impression produced by the sight of these beautiful Palms, Cycadeaceæ, Zamiæ, and Bonaparteæ, was that I had landed in a truly tropical country, and I cast my eyes around to see if it was not really so. To my surprise I found on all sides the evidence of the "past winter," of a winter apparently as severe as the one we pass through on the north shores of the Mediterranean, in a latitude 4° more north, but protected from north winds by the Maritime Alps. The deciduous trees, Mulberry, Fig, Plane, Pomegranate, Willow, were only just beginning to show signs of life (April 15). The Vines were throwing forth their first leaves, the flowers not yet developed. There were but few Roses out, and those principally the hardy Monthly Rose. Spring bulbs were going or gone out of flower, but the Ranunculus, the Sparaxis, and Ixia were in full and profuse bloom. I had seen orchards of the edible Banana on my way from Algiers, evidently cultivated for the fruit, but they were mere leafless one or two year stems, torn and battered by the winter, and just showing at their extremities the first new leaf. On the other hand, there were scarcely any Orange trees or Lemon trees, either in the Jardin d'Essai or in the gardens of the country houses at Mustapha Superior, a hilly suburb of Algiers, where are most of the country houses of the rich Algerines, and the favourite residences for invalids.

In a word, there was conclusive evidence that vegetation suffers more from the influence of winter at Algiers than in the Genoese undercliff, and that spring was not then (April 15) more advanced. The only deduction I could make was that the plants enumerated were hardy enough to pass through the degree of winter cold experienced on the protected Riviera, 4° more north, but that the greater heat of the summer in Algiers secures to them a more luxuriant exuberant life and growth. This is more especially shown by the Banana, which grows anywhere on the Riviera, but only gives ripe fruit in very exceptionally warm corners, such as the bays between Mentone and Monaco; whereas it is evidently cultivated extensively in the vicinity of Algiers for the sale of its fruit, and that fully exposed to the north.

These facts are easily understood when we consider the position of Algiers. Being exposed due north and north-east on the south shore of the Mediterranean, on the slopes of a crescented hill some 500 or 600 feet high (the Sahel), the north-west and north-east winds, which reign during the winter, arrive cool and loaded with moisture. They thus bring moderate cold and a moist atmosphere, the moisture of which often falls as rather cold rain, condensed by the hills and mountains behind Algiers. The town being north-east and north, the sun in winter, when low in the horizon, cannot shine with the same power as on the north shore of the Mediterranean, where its rays impinge directly all day on the undercliff. On the 20th of April, even at 12 o'clock, the front of the houses at Mustapha Superior were in the shade, and being built on the north slope of a hill looking towards the beautiful bay, they are naturally built to face the sea. Moreover, as the north winds are necessarily moist from having crossed over the entire width of the Mediterranean, or having come from the Atlantic, the sky is white, not so dry and blue as on the north Mediterranean shore—a fact which still more diminishes the power of the sun's rays.

It is certain that there is nothing like the luxuriance of winter vegetation at Algiers that is observed between Nice and St. Remo. The Orange and Lemon trees cannot stand north sea winds even in latitude 36°, although they do not mind south sea winds in latitude 41°; so they are absent, except in sheltered nooks and corners, where they grow well enough. Even the Olive tree does not seem to flourish when freely exposed to these north winds at Algiers. It has to seek sheltered valleys and nooks where the wind does not reach it. There is nothing like the Olive groves of Mentone to be seen at or near Algiers. Nor is it surprising, when we consider that these same north-east and north-west winds, loaded with moisture, bring cold rain and snow to the mountain regions of the Atlas, 150 miles further south, and even to the oases of the desert, a couple of hundred miles still more to the south than the last ridges of the Atlas. In the contest between "latitude" and "protection," it is clear that thorough protection from the north can hold its own against many degees of latitude.

I do not for one moment pretend to say that the winter climate of Algiers is a cold one—the thermometer is there to prove that it is not; but the spring vegetation also proves that there is a great deal of cool winter weather and cool rain there, owing to exposure to the north without any protection whatever. These cool winds and rain, notwithstanding the lower latitude and greater summer heat, evidently unfit Algiers proper for the free cultivation of some delicate plants, such as the Lemon, which require sunshine, heat, and immunity from north winds winter and summer; whereas these same plants thrive perfectly in a more northern but more protected region.

The high medium temperature of Algiers during the winter months, as given by observers, is probably owing, in a great measure, to the nights being warmer than they are on the sheltered north Mediterranean shores, such as the Genoese Riviera, where the air at night is more cooled by down draughts from the mountains that protect it from the north (the Maritime Alps). *Henry Bennett, M.D., Algiers.*

Societies.

ROYAL HORTICULTURAL: *June* 1.—James Bateman, Esq., F.R.S., in the chair. The Rev. J. Dix announced the awards of the Floral Committee; and G. F. Wilson, Esq., the chairman of the Fruit Committee, said, with reference to the various examples of Potatos furnished by Mr. Fenn, that some of the experiments were of such practical importance, that he had requested Mr. Fenn to put the details upon paper, to be printed in the Society's Journal.

The Rev. M. J. Berkeley, in addressing the meeting, first referred to some fine blooms of various species of Æsculus, sent from Chiswick; at which place Mr. Berkeley said there was a very fine collection, of which Æsculus californicus was a most beautiful variety, having extremely long trusses of white and red flowers. Mr. Berkeley then said, that in consequence of the very hot weather last year many of the varieties, including the one mentioned, had ripened seed, from which a fine batch of seedlings had been raised. He added, that he had been informed by Mr. Lee, that he propagated the Æsculus californicus by budding, but though Mr. Lee was very successful in its propagation, many others had failed. A variety of the common Hawthorn, sent by W. W. Saunders, Esq., was then noticed, and Mr. Berkeley said that the tree in question was raised from seed of the common white Hawthorn; and it was a most curious fact that the first year of its blooming it produced pure white flowers, the second year it was tinted pink, and this year the flowers were quite pink. At a distance of about 60 yards from this tree there was a pink May tree, and Mr. Berkeley thought it was possible that the flowers of the former had been impregnated with the pollen of the latter. Mr. Berkeley then alluded to the specimens of Lilium Thunbergianum and Szovitzianum, sent by G. F. Wilson, Esq., and directed attention to a specimen of Cyclobothra alba, sent by W. W. Saunders, Esq., remarking of the latter that there was at one time a good collection of this interesting genus in the gardens at Chiswick, sent from North America, which was now entirely lost, and that there were at present only a few specimens of it in this country. With reference to a free-flowering dwarf Pink sent from Chiswick, Mr. Berkeley said that he had ascertained from Major Clarke, who sent the seed to Chiswick, that he believed it was a double variety of Dianthus alpinus. Specimens of Pinus Douglasii, which were killed by frost, were then alluded to, and it was remarked that if one side only of the tree were frozen it would live for some years, but would eventually die. The speaker recommended that seeds for growth in this country should be obtained from the high regions above Vancouver's Island, as those grew better and were hardier than those obtained from the humid portions of the Californian valleys. J. H. Burr, Esq., Aldermaston, here observed that he had three trees of the Douglas Pine which were raised from seed in a cool frame, and were afterwards planted-out at about 15 paces apart, and that the lower branches of the most southern tree was much injured by frost, though luckily the top had passed unscathed. The Chairman stated, with reference to the Cyclobothra alba referred to by Mr. Berkeley, that though it was very pretty, it was the ugliest of its class, and remarked that Mr. Douglas, one of the best collectors that the Society had ever sent out, had sent home some specimens, which flowered, and were figured in the Society's Transactions about 30 years ago. He then expressed a wish that any gentleman travelling through Mexico or California, and the districts lately visited by Sir Charles W. Dilke, M.P., would not forget that there were many lovely gems to be found. Mr. Bateman then, after reviewing the Orchids exhibited, commented upon some new forms of pots, &c., which he had made, for the more successful cultivation of Orchids, and which he believed would be of great utility.

Scientific Committee: *June* 1.—G. F. Wilson Esq., F.R.S., in the chair. After the transaction of the formal business, Dr. Gilbert reported that the quantity of paper marked with dendritic spots, referred to him on a former occasion for examination, was too small to enable him to come to any definite conclusion as to the nature of the spots in question. Rev. M. J. Berkeley exhibited—1. Specimens of leaves of Periwinkle (Vinca) affected with Puccinia Vincæ. 2. Specimens of a pink-flowered Hawthorn produced by a seedling from the common white form. 3. Specimens of Pinus Douglasii, killed by frost. 4. "Blistered" leaves of Almonds. This hypertrophied condition is usually attributed to chill, but in this particular case there was present a parasitical Fungus, Ascomycetes bullata. 5. Apple shoots killed by a species of Oidium. 6. Pear leaves studded with tubercles, supposed to be the work of an Acarus.

Mr. Edgeworth exhibited some specimens of "green-eyed" or prolified Roses, a condition more frequent in some varieties than in others, and resulting, in the opinion of Dr. Masters, from any circumstance that tended to promote active vegetative growth.

Dr. Voelcker exhibited samples of a manure for Vines, said to induce early maturity, and the production of fine fruit. On examination he had found that the manure in question was composed of the boiled bones used in the manufacture of glue. These were afterwards ground to powder, and sold at a price far exceeding their real value. Bones that have been boiled were considered preferable as a Vine manure, inasmuch as they contained a relatively larger amount of phosphate of lime, and a smaller quantity of nitrogenous matter, the which latter tended to favour the production of leaves at the expense of fruit. In the course of conversation on this matter it was stated that in the south of France it was the custom to apply but little nitrogenous manure to the Vines, as the flavour of the Grape is supposed to be injuriously affected by such application. In the Rhine districts, on the other hand, the growers avail themselves of every particle of manure that they can procure—a difference of treatment to be explained, perhaps, by the difference in soil and climate of the two localities.

Dr. Masters exhibited, on the part of Mr. D. T. Fish, two plants of Myosotis dissitiflora, the one of luxuriant growth, fine rich-coloured foliage, and large flowers; the other small and stunted in habit, and with small pinkish flowers: "The two plants grew side by side in the same row, and were both weak, though not stunted when planted in December. They were not strong enough for the show bank, and were planted in a row in the kitchen garden. The weak plant sent is the only one that has assumed this appearance in the entire row. The plants have all been in flower since the end of January, and the strongest one seems inclined to flower on through the summer." The only remedy suggested by Mr. Fish is that of "stamping out" all the weaker plants. Some of the dwarf plants have, however, occasionally thrown out vigorous shoots, and given origin to plants as healthy as the strongest. Associated with the stunted habit is the change of colour from blue to pink. Dr. Masters stated that the same peculiarity had occurred to plants grown by himself, and received direct from Mr. Atkins, who originally introduced the plant. As there was no trace of disease in the plants, the peculiar stunted condition could only be attributed to constitutional peculiarities resulting in a dwarf variety, but as to the cause of its production little or nothing could at present be said. Mr. Bennett remarked that some species of Myosotis thrived much better on limestone soil than elsewhere, and that possibly a change in the nature of the soil would account for the peculiarities observed; but this still leaves open the difficulty arising from the fact that only certain plants are thus affected.

Dr. Masters exhibited from Mr. Sharp, gr. at Longmead, Bishopstoke, some variegated leaves produced on a sucker from an Elm. The foliage was very beautiful, but Mr. Sharp had not been able to propagate the variety.

Dr. Masters described a Calceolaria which he had gathered in the collection of Messrs. Dobson, and in which, instead of one lip-shaped petal, there were four of about equal size, with four equal stamens at the base. This was the case of an habitually irregular flower becoming regular by the increase of its irregular portions. Dr. Masters suggested that such a flower should be watched for by the florist, with the view if possible of perpetuating so remarkable a deviation.

In conclusion, Dr. Gilbert, on the part of Mr. Lawes, invited the members of the Committee to Rothamsted, on Tuesday, June 8, to inspect the experimental plots in the park and farm.

Floral Committee.—The Rev. Joshua Dix in the chair. The meeting, owing to the incidence of the Great Show on the following day, was comparatively a small one. Messrs. Veitch & Sons sent Alocasia Sedeni, a hybrid between A. metallica and A. Lowii, partaking a good deal of the character of the latter kind. This was awarded a First-class Certificate. With it came several promising-looking novelties, but they were not sufficiently developed; they consisted of Maranta princeps and M. chimboracensis, the latter apparently a dwarf-growing picturated sort, the former taller, with yellow-green dark

centred and dark margined leaves; Dieffenbachia Wallisii, with greyish mottled leaves; Fittonia gigantea, more robust than Gymnostachyum Verschaffeltii; Alloplectus bicolor, Cyanophyllum spectandum, and a group of the new Iresine Lindeni, certificated last year, and which promises to be a very useful red-leaved bedder. Gymnogramma chrysophylla maxima and G. Calomelanos maxima, two noble free-growing gold and silver Ferns, from Messrs. Carter & Co., received First-class Certificates. They were accompanied by Lissochilus speciosus, a Natal terrestrial Orchid, with large yellow flowers, which received a Second-class award. Messrs. Downie, Laird & Laing sent the new French sport of Coleus called C. Sansoni, belonging to the Veitchii section; it had very beautiful leaves marked with a broad edging of white, and in the centre a large patch of deep rose breaking out into lines and spots, and having in its centre a dark blotch of greenish-chocolate colour. They also produced Pelargonium Victor Lemoine, one of the best doubles yet shown, a brilliant scarlet, with full and large flowers, the plant having soft green indistinctly-zoned leaves. Both these received First-class Certificates. A Special Certificate was voted to Messrs. E. G. Henderson & Son for a fine bushy plant of Coleus Telfordii, grafted with some six or eight of the recent new varieties; the plant was brightly coloured and attractive, and such as might be sparingly introduced with good effect in warm conservatory decoration. With it came Canna marmorata, with motley variegated leaves of cream colour and green, tinged with red. Messrs. Rollisson & Sons sent a grand bank of Orchids, which received a Special Certificate. It included three fine Vandas; the blush orange-eyed Dendrobium Farmeri; Cypripedium Schlimii and concolor; several plants of Epidendrum vitellinum majus, one of which was remarkable for its broad petals; two plants of the pretty lilac-eyed Ionopsis Gardneriana, together with several others. Mr. George, of Putney, produced some seedling Pelargoniums and Tropæolums, which were passed over. Mr. Bowman, gr. to Sir J. Hawley, showed a fine example of the British Orchis fusca. A very interesting group of novelties and curiosities from Mr. Green, gr. to W. W. Saunders, Esq., received a Special Certificate. Amongst them were Anthurium bellum, from Bahia, a dwarfish species, with fine smooth, leathery, ovate-acute leaves, tapered below, and having a clear and bold aspect, without coarseness; Orchis foliosa, a beautiful specimen, with eight spikes; Masdevallia chlorina, with greenish-yellow flowers; a small green-flowered Bletia, from Madagascar; and the rarely-seen Cyclobothra alba. G. F. Wilson sent a plant of Lilium Thunbergianum, and cut specimens of L. Szovitzianum (colchicum) and other kinds. Cut blooms of Orchids came from Mr. Mitchell, gr. to Dr. Ainsworth, of Manchester; and a useful dwarf hybrid Pink from the Chiswick garden.

Fruit Committee.—On this occasion Mr. Fenn, The Rectory, Woodstock, sent a boxful of Potatos, of the growth of 1867, to show the vitality of the esculent after severe sprouting for two years—and to illustrate the process of "clubbing," which is so prevalent this season. He also contributed fine samples of the following varieties:—Haigh's Kidney, a fine old second early sort, from which the Lapstone Kidney originated; Almond's Yorkshire Hero, a fine late sort; the old Walnut-leaved Kidney, the eyes of which were cut out, with the exception of one, to show Mr. Fenn's method of preparing the seed to prevent clubbing; a large specimen of Paterson's Victoria, which super-tuberated in the ground last year, and which, if planted this season, would certainly result in clubbing; Hogg's Early Coldstream, the Early Ashleaf Kidney, Fenn's Onward, &c. Messrs. Barr & Sugden furnished fine examples of Lettuce that have stood the winter in their trial ground. Of Cos varieties the Paris Grey, Field's Winter White, Prince of Wales, and the old Paris Green Cos; and the Brown Dutch, Stanstead Park, Eclipse, and Victoria, among Cabbage sorts, were very good. They were grown in very rich soil, and were transplanted from the seed-bed in October.

Great Show: *June 2 and 3.*—This was in all respects a very fine exhibition—indeed, the best the Society has had for some time, and the weather being favourable it was numerously and fashionably attended.

Azaleas were rather numerously shown, but, as a whole, were not in first-class condition. The best 9 in the open class came from Mr. Carson, gr. to W. R. G. Farmer, Esq.; Messrs. J. & C. Lee were 2d, and Messrs. Ivery & Son, Dorking, 3d. In the nurserymen's class for 6, Messrs. Glendinning & Sons came 1st, with some large specimens of well-known kinds; and the 2d was taken by Mr. B. S. Williams, with a well-bloomed group. In the corresponding class for amateurs, Mr. G. Wheeler was 1st, and Mr. Wilkie 2d. For 15, in 12-inch pots, the best came from Messrs. Ivery & Son.

New Roses were shown in good condition by Mr. Turner and Messrs. Paul & Son. In the former's collection Paul Verdier, Souvenir de Monsieur Boll, Horace Vernet, and Princess Mary of Cambridge were in fine order. The best nine came from Messrs. Paul & Son, who had good specimens of Juno, Victor Verdier, La Reine, Maréchal Vaillant, Céline Forestier, &c. For 6 distinct varieties in 13-inch pots, Mr. Turner took the 1st prize with well-grown and admirably flowered plants of Comtesse de Chabrillant, John Keynes, Souvenir d'un Ami, &c., and Mr. Wm. Paul the 2d, with Catherine Guillot, Lædia, Madame Charles Wood, Comte de Nanteuil, Auguste Mie, and Madame Clémence Joigneaux.

Orchids were both numerous and good. In the class for 12, Mr. G. Young, gr. to W. H. Stone, Esq., M.P., was 1st, with a good specimen of Brassia verrucosa, with about 18 well-developed pseudo-bulbs, a nicely coloured Cattleya amethystina, Aerides Lindleyanum, &c. Mr. T. Burnett, gr. to W. Terry, Esq., Peterbrough House, Fulham, came 2d, with Saccolabium praemorsum, a good spike; Lycaste cruenta; a fine plant of Cattleya Mossiæ, and a very good Cypripedium barbatum. And Mr. B. Peed, gr. to Mrs. Treadwell, was 3d, showing amongst his collection some fine Cypripediums, Epidendrum macrochilum, Vandas, Aerides, &c. The 1st prize in the amateurs' class for 6 was taken by Mr. J. Ward, gr. to L. C. Wiltshire, Esq., who had Cattleya Mossiæ and labiata, finely coloured, Vanda suavis, &c. Mr. A. Wright, gr. to J. C. Bowles, Esq., came 2d, with Odontoglossum hastilabium, two good spikes, and Aerides odoratum. Cattleya Mossiæ, &c., and Mr. G. Young 3d. The only competition shown in the nurserymen's class came from Mr. B. S. Williams, to whom the 1st prize was awarded. In his collection were a large specimen with three fine spikes of Cypripedium pubescens, Saccolabium macrantha, with large and handsome blooms; a grand specimen of Oncidium ornithorhynchum, Odontoglossum hastilabium, &c. The best single specimen was a well-flowered Cattleya Mossiæ, sent by Mr. J. Douglas, gr. to Sir T. H. Waterlow, Highgate. The 2d was Vanda suavis, furnished by Mr. Parker, of Tooting, and the 3d a fine plant of Cypripedium barbatum grandiflorum, from Mr. Carson, gr. to W. R. G. Farmer, Esq., Cheam.

Stove and Greenhouse, Flowering, and Fine-foliaged Plants, formed one of the main features of the exhibition, and were well represented in the various classes. Mr. B. Peed was 1st for 12, with good specimens of Franciscea calycina and confertiflora, Pimelea Hendersoni, a good Erica Cavendishiana, a beautifully grown and flowered Allamanda grandiflora, and Ixora coccinea, and Eriostemon buxifolius, in fine condition. Mr. Wilkie was 2d with Dracæna gracilis, nicely flowered, Pimelea mirabilis, a good specimen of Erica depressa, Franciscea confertiflora, &c.; and Mr. J. Wheeler came 3d, with well-bloomed specimens of Erica Cavendishiana, Epacris miniata splendens, Aphelexis rosea, and Darwinia (Genetyllis) tulipifera, &c. In the nurseryman's class for 6, Mr. B. S. Williams came 1st with a fine Azalea Brilliant, a well-grown well-flowered Boronia pinnata, Pimelea mirabilis, and a good specimen of Phœnocoma prolifera, &c.; and Messrs. Glendenning & Sons 2d, with Polygala oppositifolia, Eriostemon buxifolius, Aphelexis macrantha purpurea, and Stephanotis floribunda, in good condition. The 1st for 6 was taken by Mr. J. Ward, with good specimens of Bougainvillea glabra, Clerodendron Balfourianum, Stephanotis floribunda, Aphelexis macrantha purpurea, &c., all grand and well furnished specimens. Mr. Carr, gr. to P. L. Hinds, Esq., was 2d with fine young vigorous specimens, among them an admirable bush of Phœnocoma; and Mr. A. Wright, who had fine specimens of Pimelea mirabilis, Ixora coccinea, and Dipladenia amabilis, &c., was 3d. Mr. W. Kemp was placed 1st for 6 in 12-inch pots, with tolerable examples of Leschenaultia formosa, Aphelexis humilis rosea, Erica ventricosa coccinea minor, and Azalea rosea superba, &c. Mr. Wilkie came 2d, and Mr. G. Wheeler 3d, with plants of a very inferior character. The best specimen stove or greenhouse plant was an admirably-grown freely flowered Medinilla magnifica, exhibited by Mr. Wilkie. Messrs. J. & C. Lee took the 2d prize with a monster specimen of Erica Cavendishiana, and an extra prize was awarded to Messrs. Glendinning & Sons, who had a large and finely-flowered Pimelea spectabilis.

The best 9 fine-foliaged plants came from Mr. Fairbairn, Syon House Gardens, who had a good specimen of Alocasia metallica, Ficus Porteana, a well-grown plant; and a similarly healthy-looking Theophrasta imperialis, Cocos nucifera, very large; Phœnix farinifera, and a grand Thamnopteris Nidus, &c. Mr. W. Taylor, gr. to J. Yates, Esq., Highgate, was 2d. In his collection were well-grown specimens of Rhopala corcovadensis, Curculigo recurvata, Encephalartos Caffra, Dracæna lineata, and Dion edule; and Mr. Burley, Albert Nursery, Bayswater, 3d, with a well-grown Aralia Sieboldii variegata, Chamærops Fortunei, very large, a very good Dracæna indivisa, Dicksonia antarctica, Eurya latifolia variegata, &c. For 6, the first prize was taken by W. Taylor, who had admirably grown specimens of Littæa juncea, Croton variegatum, Cycas revoluta, &c. Mr. Fairbairn was 2nd with Thrinax elegans, Latania borbonica, Anthurium acaule, and a well-grown Maranta rosea picta, &c.; and Mr. A. Wright, 3rd, showing amongst his group admirable specimens of Pandanus ornatus, and Cupania filicifolia, &c.

Of *Heaths*, there were some finely-flowered specimens, that were very attractive. In the amateurs' class for 6 in 12-inch pots, the best came from Mr. J. Ward, who had the following in exceedingly good condition:—eximia superba, tricolor impressa, Massoni major, Candolleana, tricolor flammea, Juliana rubra, &c. For 6 distinct varieties, without any restriction as to size of pot, Mr. J. Ward was 1st, with large and beautifully flowered tricolor Wilsoni, tricolor elegans, Fairrieana, &c.; Mr. J. Wheeler was 2d, and Mr. W. Kemp 3d, with very good specimens. Mr. J. Ward was 1st in the open class for 8, with an admirably grown group, and the same may be said of the 2d and 3d prize collections furnished by Mr. Peed, and Mr. E. Morse, Epsom.

Show Pelargoniums were staged in excellent condition by Messrs. Dobson & Sons, who came 1st in the class for 9, with Mary Hoyle, Pericles, Beacon, Caractacus, beautifully grown and flowered to perfection. For 6, Mr. J. Ward came 1st, and Mr. D. Windsor 2d, both contributing finely-grown plants of the usual show kinds. Messrs. Dobson & Sons were again placed 1st in the class for 6 Fancies, with the following:—Roi des Fantasies, Annie, Ann Page, Godfrey, Lucy, and Celestial. Mr. Turner was 2d with plants of Fanny Gair, Mrs. A. Wigan, Princess Teck, &c., covered with bloom.

Ferns were numerously exhibited, and the collections generally were very effective. For 12 stove or greenhouse varieties, Mr. A. Wright was 1st, with beautifully-grown specimens of Gleichenia semivestita, Brainea insignis, Blechnum corcovadense, Adiantum cuneatum, Cibotium Schiedei, &c. Mr. W. Taylor was 2d with a very effective group, in which Cyathea princeps, Gymnogramma ochracea, Adiantum formosum, Cyathea medullaris, Microlepia strigosa, Davallia bullata, &c., were well-grown examples. Mr. J. Carr was 1st for 6, with good specimens of Alsophila excelsa, Adiantum Farleyense, &c.; Mr. Wilkie 2d, showing Lomaria gibba and nuda, Cyathea dealbata, &c.; and Mr. C. Smith, who had good specimens of Woodwardia radicans and Adiantum cuneatum in his collection, was 3d. In Hardy Ferns, Messrs. Ivery & Son, Dorking, were 1st with a group of charming plants, while well-grown plants of Adiantum Capillis-Veneris, Onoclea sensibilis, Polystichum angulare var. proliferum, &c., were shown by Mr. C. Smith, gr. to C. Walton, Esq., Acton; and Messrs. Salter & Son contributed Struthiopteris pennsylvanica, Osmunda Claytoniana, regalis rubra, and spectabilis, Lastrea Standishii, &c., in excellent condition. For the best 6 Agaves, the 1st prize was taken by Mr. B. S. Williams, who had nicely furnished specimens of geminiflora, filifera, longifolia, densifolia, americana medio-picta, &c.

Twelve varieties of *Coleus*, in 8-inch pots, was contributed by Messrs. Downie, Laird & Laing, who took the 1st prize with Princess Beatrice, very showy; Albert Victor, very distinct; Bansei, Prince Consort, Baroness Rothschild, and Her Majesty; and by Mr. Turner, who came 2d, with Princess of Wales, Telfordi, Princess Royal, Pretender, and Royal Purple, a dark variety, after the style of Berkeleyi. Messrs. E. G. Henderson and Messrs. Carter & Co. also exhibited small though well-coloured plants of the now well-known varieties. These prove to be very effective plants for exhibition purposes.

New Plants were not so numerous as on the last occasion. Messrs. Veitch were 1st and 2d for the best 6 with Thunia Bensoniæ, Darwinia fimbriata, Masdevallia Veitchiana, Nepenthes rubra, Iresine Lindeni, Anaectochilus Dawsoni, &c. The same firm were also 1st and 2d for 1 new plant shown for the first time, taking the 1st with Begonia Sedeni and the 2d with Masdevallia coccinea, to both of which First-class Certificates were awarded. For 1 new plant not found in commerce, the Messrs. Veitch were again placed 1st and 2d, with Davallia Mooreï and Croton Veitchii, which were also honoured with First-class Certificates, as also were Littonia modesta, with orange coloured flowers, and Lælia marginata, a pale-flowered variety with purple edges, sent by Mr. B. S. Williams, who also had the curious yet beautiful Epidendrum pentotes in flower. E. J. Lowe, Esq., Highfield House, near Nottingham, sent a numerous collection of seedling British Ferns, of which the following were deemed worthy of First-class Certificates:—Scolopendrium vulgare var. summum, corumbosphoron, Thomsoni, dividendum, gloriosum, and ornamentum, Athyrium Filix fœmina var Ricketтsiæ, kalsistron, and kalon, &c.

Of *Miscellaneous Collections of Plants* there was as usual a most numerous display, amongst which the following may be mentioned:—A nice group of Palms from Mr. Burley, Albert Nursery, Bayswater; a collection of stove and greenhouse plants from Messrs. Lee; some fine Roses from Mr. W. Paul; large and effective collections of hardy herbaceous plants from Messrs. Salter & Son, and Mr. T. S. Ware, who also furnished boxes of cut blooms of various species of Iris, Pæonies, &c.; fine boxes of cut blooms of Pansies and Ranunculuses from Mr. Hooper, of Bath; some excellent blooms of hardy Pyrethrums from Messrs. Salter & Son; a well-grown collection of Lycopodiums from Mr. Parsons, gr. to R. Attenborough, Esq., Acton; 6 nicely-flowered plants of Spiræa japonica from Mr. C. Smith; a group of well-bloomed Rhododendrons from Mr. C. Noble; and 3 beautiful bouquets, contributed by Mr. Dickson, Covent Garden.

Of *Fruit* there were some fine Peaches and Nectarines, Grapes, Figs, &c. The best Pine-apple was a well-grown Enville, weighing 7lb., sent by Mr. Ward, gr. to T. N. Miller, Esq., Bishop's Stortford; the second, a very good Queen, about 4lb., from Mr. Budd, gr. to F. G. Dalgety, Esq.; and the third, Black Prince, furnished by Mr. Wallis, gr. to J. Dixon, Esq., Astle Park, Congleton. The 1st prize for the best dish of black Grapes was taken by Mr. J. Douglas, gr. to F. Whitbourn, Esq., Loxford Hall, Essex, who had three exceedingly well finished bunches of Black Hamburgh, which was the only variety shown in this class; the 2d was taken by Mr. Bannerman, gr. to Lord Bagot, Blithefield, with small but nicely coloured bunches; and Mr. Sage, Ashridge Park Gardens, came 3d; while equal 4th prizes were awarded to Mr. Miller, Combe Abbey, and Mr. Eadley, Lee, Kent. Mr. Miller's three bunches were large and well filled, but wanting in colour. For the best dish of White Grapes, Mr. J. Douglas again came 1st with nice bunches of Buckland Sweetwater in good condition. Mr. Miller, Combe Abbey, was 2d with Golden Hamburgh, large good-shaped bunches and good berries, but deficient in colour; and Mr. Tegg, gr. to the Duke of Newcastle, Clumber, was 3d with fair bunches of White Frontignan. Of Peaches, good dishes of Royal George were shown by Mr. Lynn, gr. to Lord Boston, Hedsor; Mr. Sage, Ashridge; and Mr. Miller, Combe Abbey. Mr. Wilkie had a nice dish of Early York; Mr. Tillery, the Red Magdalen; Mr. Tegg, Bellegarde; and Mr. Carmichael, gr. to his Royal Highness the Prince of Wales, some well-coloured examples of Stirling Castle. The 1st prize was awarded to Mr. Lynn, the 2d to Mr. Sage, and the 3d to Mr. Wilkie. Mr. Lynn also came 1st for Nectarines, with a very fine dish of Violette Hâtive; the 2d being taken by Mr. Miles, gr. to Lord Carrington, with a good dish of Elruge, which was also shown in fair condition by Mr. Hill, Keele Hall Gardens; Mr. Carmichael, and Mr. Gardiner, gr. to E. P. Shirley, Esq., Eatington Park, Stratford-on-Avon, Good dishes of Pitmaston Orange, furnished by Mr. J. Miller, gr. to Lord Foley; Hunt's Tawny, from Mr. Tillery, and Brugnon from Mr. Tegg, may also be mentioned as deserving of notice. Mr. Carmichael took the 1st prize for the best scarlet-fleshed Melon, with a well-ripened Scarlet Gem; and Mr. Miles, the 2d, with a well-grown Royal Ascot, which latter variety was also sent by Mr. Lynn, who came 1st in the green-fleshed class with a good-flavoured hybrid Cashmere, Mr. Miles being 2d with Victory of Bath. Good examples of Queen Emma and the Worksop Prize-winner were also contributed, the former by Mr. Gilbert, Burghley Park Gardens, and the latter by Mr. Miller, gr. to Lord Foley. Three boxes only of Strawberries were shown; a fine box of British Queen, sent by Mr. J. Douglas, taking the 1st prize; Mr. Miles coming in 2d with well-coloured and good sized Sir J. Paxton; and Mr. G. Young 3d, with Kimberley. A dish each of Black Eagle and Elton Cherries were contributed by Mr. Miles, who took the 1st prize. For the best dish of Figs no 1st prize was awarded, the 2d going to Mr. J. Day, gr. to A. Seymour, Esq., Norton Hall, Daventry, who had White Marseilles; and the 3d to Mr. Miles, for Brown Turkey.

In the *Miscellaneous Class*, the 1st prize was awarded to Mr. Miller, Combe Abbey, who sent a fine cluster of Musa Cavendishii; the 2d to Mr. Budd, for some good-sized and beautifully-coloured Tomatos; and the 3d to Mr. H. Whiting, Battersea Rise, for 8 tolerably well-fruited pots of Sir C. Napier Strawberries.

SHOW OF RHODODENDRONS AT SOUTH KENSINGTON.—This grand show of Rhododendrons and American plants, furnished by Mr. Anthony Waterer, of Knap Hill, was opened to the public on Wednesday last, and proves to be a most successful exhibition. Most of the larger specimens of the better known varieties are in full bloom, but the newer and more recent introductions are as yet scarcely forward enough to be seen to advantage, so that we must defer further comment upon them until next week.

Notices of Books.

Reports on the Pruning of Forest Trees and on Hedge-row Trees. By John Morrison, Cowey Park, Stirling.

Report on the General Management of Plantations. By C. Y. Michie, Forester, Cullen House, Cullen. (From the "Transactions of the Highland and Agricultural Society of Scotland," 1868 and 1869).

It is now some two or three years since the Highland Society made an important alteration in the mode of publishing its "Transactions." They used to be published for the Society, but not distributed gratuitously to the Fellows. Both public and Fellows had to pay for them. They are now distributed gratuitously to all those Fellows who intimate their desire to have them. This, we think, is the proper course for all societies to follow, but it is more especially so for such a Society as the Highland Society, whose peculiar purpose and aim it is to disseminate technical knowledge among the body composing it. In matters of pruning and forestry we are especially pleased to see that sound views are making some progress. The old belief in the efficacy and importance of pruning as a "medicine" or "fetish," is passing away, and in the papers we have placed at the head of this notice the principle is acknowledged, although in different degrees, that pruning is only allowable in exceptional cases and for special purposes. At the same time, notwithstanding that both Mr. Michie and Mr. Morrison have obtained prizes from the Society for these Essays, and both within the space of twelve-months, a very material difference exists in their practice and also in their theory, and we are happy to see that Mr. Michie's Essay is decidedly in advance in respect to what we consider the proper view to be taken of the question. Mr. Morrison's papers are an improvement upon what used to be regarded as the orthodox belief on the subject, and Mr. Michie's is again an advance upon Mr. Morrison's.

Mr. Morrison still announces that "one of the most effective means to be employed for promoting the healthy condition and increasing the value of plantations is pruning," and fortifies his opinion by the argument that the necessity for, and advantages of, pruning forest trees may be urged and supported by reference to the beneficial results attending the pruning and training of fruit trees." Mr. Morrison seems not to be aware that these very results are used by the opponents of pruning as one of their chief arguments against the practice. The purpose for which the fruit trees are pruned is totally different, and directly opposed to that which foresters have in view in pruning forest trees, and what is good for the one must almost as a necessity be bad for the other. Mr. Morrison adheres, too, to what we cannot but consider the erroneous idea, that it is the forester's business to try

to prevent the tree growing to branches instead of to stem. "The chief object of pruning is to prevent the vital energy of the tree being wastefully expended, and to direct it into the proper and natural channels, so that it may become profitable."

Now, putting out of view any question as to the actual results of this system, that being a disputed matter of fact which must necessarily take the place of assertion on one side, and counter-assertion on the other, we would wish those who adopt the views followed by Mr. Morrison to remember, on the point of theory and principle, first, that every branch must *ex necessitate* make a contribution to the stem before it can contribute to its own growth; and second, that each tree has a habit of its own conferred on it by Nature, into which it will grow if men will only let it alone. Foresters are tormented by the fears of what will happen, if this branch is allowed to stand or that bud permitted to push forth. They see a tree in its young state with branches springing an inch from the ground. They assume that if they allow these to remain they will always retain the same relative proportion to the stem which they have now. But it is a perfectly gratuitous fear. If the plant is a tree its stem will grow, and the low side branches will be thrown off after they have served their present purpose of bearing leaves for the sustenance and life of the plant. The pruner anticipates Nature and removes the twigs before their proper time, depriving the tree of the advantage of their temporary presence. Nature has diverse ends to accomplish, for which different means are necessary, and she uses her apparatus when she requires it, and throws it away when she has done with it. The pruner disregards the present requirements of the tree, and looking only to making the most shapely skeleton out of the materials he has, or expects to have, before him, he takes upon himself the office of Nature's journeyman, and makes journeyman's work of it. The difficulty in convincing foresters of the mischief of pruning lies in the fact that it is almost impossible to produce anything on either side but hypothetical experience. Thus, Mr. Morrison makes the following statement of what will follow from a particular course of treatment:—"In the case of an Oak 40 or 50 years old, and which has had no kind hand in the course of that period to check its wild luxuriance, the trunk will be found comparatively only a few feet high, with numerous leaders, all striving for the mastery, the entire of its immense head and dwarfish stems being almost valueless either for wood or bark."

Mr. Michie seems to understand the value and use of branches better. In speaking of some particular instance he says: "The best skill in future management can never restore it, seeing that the evil consists almost entirely in a deficiency of branches—a circumstance to which little importance is generally attached, but wherein consists the principal cause of success and failure in the cultivation of forest trees, more especially in reference to the age of the tree when the branches have been checked." But Mr. Michie is not in all points so sound. He argues for a certain amount of pruning, and gives his reasons for it. If he must go by the rules of Procrustes, we should recommend him, instead of shortening the branches on the thick side, in order to balance the tree, rather to apply himself to pulling out and cherishing those on the other. It is as easily done, and has the merit of taking nothing from the tree. Other reasons chiefly resolve themselves into special cases, as removing second leaders, shortening branches that seem likely to break from snow or wind, or otherwise do mischief—as to which a discretion must always be left to the forester, but in exercising it he should always remember that a discretion is not an option. He has the power to prune, but it is not always well to exercise it. "'Tis excellent to have a giant's strength, but tyrannous to use it like a giant."

Mr. Morrison touches slightly on the pruning of Conifers. He is perfectly aware that he is on dangerous ground, and treats the kind of pruning which he recommends as exceptions to the general rule, not to touch them with the knife. We cannot agree with him in the view he takes of these exceptions. For instance, he recommends pretty free pruning for Abies Douglasii. "When young, the side shoots often come away very strong, and form themselves into leaders; so that, unless checked at this stage, they take more the habit of bushes than trees. But they are easily kept under, and stand the knife well when applied to the young branches; are of very free growth; and when they attain about 6 feet in height, there is less fear of the side shoots overtaking the leaders." Mr. Morrison's precautions against Douglasii becoming a shrub are very unnecessary. If anything could make it one, it is the very course of procedure adopted by him to prevent it; but it is a giant that, like Samson, will burst the fetters man would impose. The vigorous growth of the side shoots, which has disquieted him, is the character of the tree when it has room to spread, and is one of its great beauties.

Notwithstanding these and some similar differences of opinion from the views held by our authors in regard to pruning, we think highly of the papers in question, and subscribe without qualification to much that is recommended by both. Mr. Michie's paper being on the general management of plantations gives him most scope; and he is obviously a sound adviser, whose recommendations may be safely relied on.

Florists' Flowers.

THE return of the great exhibitions is the occasion for the production of NEW FLORISTS' FLOWERS, and these are putting in appearance with wonted profusion. At the exhibition of the Royal Botanic Society on the 19th ult., Mr. Turner was strong with new Continental Azaleas, the majority of them partaking of fiery hues. The darkest was Eclatante, deep red, a fine and strong hue of colour much wanted, the flowers small and somewhat cupped. Next came President A. Verschaffelt, salmon-red, spotted with purple on the upper segment, a bold but somewhat loose flower. Duke of Buccleuch, was in the same way, but slightly paler. Frederick II., paler still, of a pale salmon-red hue, the upper segments plentifully marked with small blotches of rosy purple; a very free-blooming variety. George Eyles, still paler, and of a softer hue, a bold and showy stout and well-formed flower; awarded a First-class Certificate for its undoubted good qualities. Le Paix, a light rosy-purple flower, something in the way of Charmer, and certainly not equal to it. Reine Marie Henriette, pale pink, with narrow margin of white, the upper segments heavily marked in a striking manner with deep violet-rose—in the case of a few flowers, one or more of the segments marked with pale scarlet, a fine and bold flower, though somewhat rough-looking—awarded a Second-class Certificate; and Mrs. Turner, a thin and somewhat flimsy-looking form of Criterion, scarcely so good in colour.

Here, too, was seen the first representatives of the new show Pelargoniums of the season. Mr. Turner had Northern Star (Foster), the lower petals glowing orange, red, with slight dark blotch in each; dark upper petals, with irregular margin of fiery orange; flowers small and somewhat rough; a valuable high-coloured decorative variety, of vigorous habit. Needle Gun (Hoyle), a showy painted flower, the lower petals violet-rose overlaid with orange, and painted dark red; upper petals good, regularly margined with a slight edge of pale rosy-crimson; free blooming and showy. Herald (Foster), lower petals deep or orange-rose, heavily painted with dark, glossy dark top petals, with regular narrow edge of rosy-crimson; free-blooming and good habit. Heroine (Foster), soft rich pink lower petals, large pure white throat, upper petals blotched with dark close to the throat, broad margin of deep pink lit up with orange; good habit. Lady of Lyons (Foster), delicate pink lower petals, with very slight blotches of rose; dark top petals, margined with fiery orange, and slight edge of pink; a large and somewhat rough flower. That grand variety, Troubadour (Foster), was shown in excellent condition by Mr. Turner. Of Fancy Pelargoniums, Mr. Turner had Marmion, a very fine dark purplish-rose self flower, very slightly edged with white, and white throat; a striking exhibition variety. Excelsior, shaded rose upper petals, with a kind of blotch of violet towards the centre of the flower; lower petals rose, dashed with violet, and veined with white, and narrowly edged with the same, white throat. Leotard, a deep violet-pink self flower, slightly edged with white, and large white centre; very fine and free. Agrippa, white lower petals pencilled with pink, violet-pink upper petals, margined with white, free blooming and showy. A capital silver-edged Pelargonium named Bright Star was also shown by Mr. Turner; the leaves are edged with creamy white, and the plant has bright orange-scarlet flowers, larger and much finer in quality than is generally seen in this class. Miss Ingram Rose also received a First-class Certificate; it was shown in fine condition, the flowers nicely expanded, and of a delicate blush-white, with a tinge of deep blush in the centre. Fancy Pansy Magpie, from Mr. Hooper, of Bath, represented as a bedding kind, has large flowers of a bright purple ground, blotched and margined with pure white; it is certainly novel in character, the flowers large, and of good shape and substance.

The Special Prize and Pelargonium Show at South Kensington on the 22d inst. was the means of bringing together a goodly number of new florists' flowers, in addition to the new Variegated Pelargoniums. Mr. Mann, of Brentwood, brought a batch of fine Zonal Pelargoniums, which quite maintained his reputation as a raiser of new kinds; and the Floral Committee acted with great discretion in only awarding Certificates to flowers of undoubted superiority. First-class Certificates were awarded to Duchess of Abercorn, of Mr. Mann's batch, a flower of a rosy-salmon hue, shaded with orange on the upper petals, large circular well-shaped flowers, nearly 1½ inch in diameter, dark zonate foliage; and to Illuminator, rich bright orange-scarlet, large, and very showy, and having dark zonate foliage and good habit. Other good flowers in this group were Lady Hope, pale salmon; Charmer, salmon-rose; Ariosto, bright orange-scarlet; Christabel, pale salmon, shaded violet; Lord Stanley, bright crimson; Challenger, salmon; Prince Teck, a fine scarlet variety, of a brighter hue than Lord Derby; Prima Donna, orange-salmon and rose, large and showy; Princess Teck, pale salmon, with light centre; Beauty of Brentwood, salmon-rose, a fine flower; Pandora, salmon-scarlet, flushed with orange; and Ambition, orange-scarlet, very fine. Mr. Groom showed Mrs. Sach, white, tinted with pink about the centre. Mr. Thomas Laxton, Stamford, had a batch of promising bright flowers, the best being Sophia Clapton, salmon-rose, shaded with violet, large and showy; Consequence, deep orange, very bright; Imprimis, orange-crimson, showy and striking; Vivid, in the way of Sophia Clapton, but darker; and Nisi Prius, vivid orange-crimson, with dark zonate foliage. First-class Certificates were awarded to the following double-flowering Pelargoniums:—Wilhelm Pfitzer, with large and full-fringed flowers, full and of good shape, and having a dwarf, compact habit of growth; and Marie Lemoine, flowers large and full, and of a soft pale pink, habit good, a promising variety for pot culture. The same award was made to Mr. Harman, Denham, for a Variegated Ivy-leaf Pelargonium, named Mr. Lambert, a great deal in the way of Duke of Edinburgh, but with more yellow in the variegation; habit robust and variegation good. The same award was made to Ivy-leaf Pelargonium Willsii rosea, one of the best of Mr. Wills' new hybrids, yielding flowers of a fine hue of rose, smooth, and quite as circular in shape as those of the ordinary zonal kinds. Mr. Turner contributed some new Pelargoniums similar to those described above, and First-class Certificates were awarded to Heroine (Foster), shown in fine condition; and to fancy Pelargoniums Excelsior and Agrippa, described above. The same award was made to Mr. William Paul for a silver-edged Pelargonium named Waltham Bride, the mode of growth somewhat resembling that of Flower of the Day, and producing pure white flowers; habit good.

Some Gold and Bronze and Zonal Pelargoniums were furnished by Mr. J. R. Pearson, Chilwell, a raiser who has distributed some fine things in this way. Two of the latter are very promising, viz., Principal, having a fine shade of magenta-rose; and Margaret Wilson, salmon-scarlet, lit up with orange; both varieties of good habit, and having dark zonate foliage.

Two Roses received First-class Certificates, viz., climbing Rose Duchesse de Mecklenburg, with pale salmon rose-coloured flowers, from J. H. Arkwright, Esq., Hampton Court, Leicester; and to H. P. Mons. Woolfield, bright pink, suffused with rose in the centre of the flowers, which were large and full, a beautiful and delicate flower; this came from Mr. Turner. A much darker coloured flower was shown by Messrs. Paul & Son under the same name; the flowers appeared to be deeper in the build, and less globular in shape. It was thought that differences in the mode of cultivation might have had caused this divergence, though by some it was fancied that they were two distinct flowers, one incorrectly named. *R. D.*

The Apiary.

CLOVERS.—An interesting paper by "B." on Clovers and their relative value to bees as honey plants, which appeared in your last week's number, contained two or three statements to the correctness of which I feel bound to take exception.

1. "B." writes "that the Red Clovers, Trifolium pratense var. perenne, and T. medium, are much visited by bees, is well known." If this applies to the ordinary Red Clover cultivated by farmers, I must beg to differ with him. It is pretty generally understood by apiarians that the Red Clover is of little or no use to hive bees; and, from many years' observation, I am convinced they are correct in their belief. The larger humble bees can and do extract honey from the blossoms; and it is possible that, in unfavourable seasons for the secretion of honey by ordinary bee-plants, the hive bees may follow the wild bees, and attempt to extract honey, chiefly by taking advantage of small holes pierced in their bases by the stronger mandibles of the latter. This is precisely what is done by the hive bees in respect to the Kidney Bean and Fuchsia blossoms. I do not assert that this is the case as regards the Red Clover blossoms; in fact, I have never yet, during my many opportunities for observation, seen them visited by more than a small number of bees; and these, after one or two vain attempts, acted very speedily, as if they had made a mistake, by flying away.

2. "B." does not consider the Trifolium incarnatum to be much sought after by bees. I am surprised at this statement, as I have long believed that a large field or two of this cattle or sheep food grown in the vicinity of an apiary to be an enormous boon to the bee-master. I once visited a field of Trifolium incarnatum situated about two hundred yards from my garden. The moment I entered the gate I observed bees busily at work. Going a little further into the field, I measured out with my eye a square yard, on which the foragers were very numerous. I had previously been much surprised at the rapid increase of combs and honey in my supers, and was now satisfied that I had discovered the true source of plenty. In subsequent seasons the hives in that apiary always did well in the short period during which this crop was allowed to be in flower by the farmer. *S. Bevan Fox.*

Miscellaneous.

Cricket.—On Saturday last the *employés* of Messrs. Beck, Henderson & Child, 221 and 222, Upper Thames Street, played a cricket-match on Duppas Hill, Croydon, between the married and single members, in which the latter were victorious by seven runs.

Plum-trees as Cordons.—There is a method of cultivating a few kinds of Plums as vertical cordons practised here which is likely to be popular; it is simply selecting the proper sorts (first catching your hare), then planting them in ground not too rich,—say a calcareous sandy loam, and then pinching in, during the summer, all the young shoots, and trusting to this to restrain the growth of the trees, without either root-pruning or removal. The varieties adapted to this mode of culture, are as yet but few, viz:—Oullin's Golden Gage, Reine Claude de Bavay, Belgian Purple, Large Black Imperial, Cluster Damson and Prince Engelbert, of the latter kind upwards of 1000 trees are planted here for fruit bearers, they are now five years old, and, are becoming compact, fertile, Cypress-like trees. In the course of time, there will doubtless be many kinds of Plums adapted to this mode of culture, for here we have 2000 seedling Plums all raised from choice varieties, and likely to give kinds as well adapted to our climate as is the Early Rivers or Early Prolific, well known to be the hardiest Plum known, but yet only the first removed, by seed, from one of the most tender French varieties, Précoce de Tours Plum. These vertical cordon Plums should be planted from 4 to 5 feet apart, row from row, and the same distance tree from tree, the former distance will allow of 2700 trees per acre, the latter 1700; and, as far as I can see, many years will elapse before they will require thinning, and they will bear many bushels of fruit per acre. *Rivers' Miniature Fruit Garden.*

Obituary.

"THE Rev. JOHN SMITH, D.D., died at the Manse, Ecclesmachan, at 12.30 A.M., on the 30th ult." We learn with sorrow, from this brief announcement, the loss of a venerated friend, and a valued occasional contributor to our columns, and also to the pages of the "Florist and Pomologist." Dr. Smith was the son of the late Mr. Smith, of Hopetoun, a name familiar in the annals of Scottish horticulture, and in early life acquired such an intimate knowledge of practical gardening as enabled him, when dealing with horticultural matters as a relaxation from his ecclesiastical duties, to wield his pen with a force and precision which has seldom been equalled, and perhaps never excelled. This will be admitted by those who were readers of the "Scottish Gardener" during the period that publication was under his supervision. Of late years Dr. Smith's ecclesiastical duties had so far multiplied as to leave him comparatively little leisure to enter the arena of horticultural discussion, though he retained to the last his love for gardening, and an abiding interest in all that was passing in the world of horticulture. He was one of those sterling unassuming men, whom to know was to admire and esteem.

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

IN plant houses proper, sun-heat will now have attained to nearly its highest maximum range during bright, cloudless weather; a judicious system of shading should therefore by enforced, if success in the culture of rare plants is desired. Many of our choicer cultivated plants, though natives of tropical regions, are nevertheless often densely shaded by more robust members of the vegetable kingdom. This shading is an essential feature in their well-being, as very frequently the delicate surface tissue of their leaves is ill adapted to withstand the scorching influences of excessive sun-heat. By the term shading, however, the amateur, and others who are not thoroughly initiated into the art of cultivation, should thoroughly understand that all we need is to ward off the sun's rays when in the meridian of power, and for an hour or two before and after. It is not only necessary, but indeed is of the first importance, that we allow the sun free access into all structures in the early morning —until say nine or ten o'clock, and the same again in the afternoon. The management of most structures, however they may vary, may be somewhat alike in the early part of the day, the sun's warmth and influence being tempered to the wants of cool structures by the simple process of giving air, more or less according to circumstances, &c. In the afternoon, however, the treatment varies greatly. The cooler houses should have somewhat of the sun's rays admitted as it wanes, about five o'clock, or before. The stove and all other similar houses should be thoroughly damped down within, every light or other aperture closed, and the blinds or shading medium withdrawn wholly about three or half-past three; thus it will be seen we imitate the greater growing period of a moist tropical summer or active growing season. When the shading is removed from the cooler houses, it may be remarked that the air should be "left on." This will be found a good time to proceed with the propagation of any choice hard-wooded greenhouse plants. In a general way, however, it will be as economical to purchase the few that are needed of those who give their time and a proper amount of room for the purpose. *Indian Azaleas* which have now made a good show of growth in high, moist temperatures, should be gradually inured to the full sunlight and a free current of air, in order to bring the wood to a well-ripened and proper stage of maturity. Be very particular at such a juncture not to let any suffer through want of water, of which they will then absorb a large quantity. Continue to top any prominent specimens of greenhouse plants which need such attention, and especially soft-wooded varieties, which are now growing rapidly. This should be especially attended to in the case of young plants being worked up into specimens.

FORCING HOUSES.

In the hopes of finer weather, and with more constant sun-heat, it will now be advisable to remove the litter which may still remain upon any outdoor *Vine-borders*. It is customary with some cultivators when they remove this, to leave sufficient of it to form a mulching during any future drying and excessively hot periods which may occur. With the material as a mulching I perfectly agree; not so, however, with this easy way of turning some of the old covering to account without giving some additional attention to the surface of the border itself. What I would suggest is, that this decayed, or partly decayed, material, which is intended for use as a mulching, be wholly taken off, if it be only thrown off the border into a heap, or as a ridge for the time; and then that the surface crust of the border, which has of necessity become more or less hardened and compressed, be lightened up, slightly or otherwise, according to the depth at which the surface roots are known to exist. Even if a good surface-hoeing alone be admissible, it will be readily seen that this will prove very beneficial to the Vines, because it will allow freer access of the fresh air to the border. The mulching may then be returned lightly and evenly, without in any degree submitting the lightened surface to be trodden upon. In regard to routine, I may repeat former advice. Be particular not to syringe Grapes after they have swelled to about half their natural size. Continue to stop all sublateral and other minor shoots which form, except a few at the apex of the Vines. That some growth be permitted constantly in this latter way will become more and more important, as the fruit verges on maturity, and the wood is becoming pretty well developed, and more or less ripened. At such a stage, if a moderate amount of growth be not permitted at or near the apex, some danger will exist that the principal buds, those in fact that are intended for next season's crop, will push, or, to say the least, will become too prominent. Afford to all indoor borders a very liberal sousing of water periodically as required, and until the berries in any house have nearly finished swelling in the green state. By the time these suggestive remarks are published we may be in the enjoyment of much finer weather; otherwise, if it continues as it is while I write, it will be necessary to continue the use of fires in all structures where a nice buoyant moist amosphere has to be kept up. This, of course, in reference to vineries with a moderate supply of air at all proper times. Keep the air constantly dry in all houses where the Grapes are colouring In regard to the *Early Vineries*, where ripened fruit is still hanging, the temperature by day should average from 72° to 78°, under similar conditions to those just named. *Pot Vines*, the Grapes upon which are just acquiring the first tinge of colour, should have alternate waterings with nice soft water and liquid manure of about the same warmth as that of the house itself. Those Muscats which are now actively making the final swelling succeeding the stoning process, should have upon all proper occasions a good high range of temperature. Ordinarily speaking, these require some 8° to 12° more heat during such a process than the Black Hamburgh, &c. In regard to *Pines*, be very careful, when a return to bright cloudless weather occurs, to afford a proper amount of shading, as they quickly assume a yellow hue, betokening negligence, if any oversight of this kind occurs. Persist in removing all useless suckers, and superfluous gills. Even in instances where young suckers are wanted it will be advisable to thin out any where they are too thickly growing together. Fruiters having fruit actively swelling should be frequently watered with manure water, besides having the floors and other cool surfaces in their immediate vicinity constantly kept moist. *Figs* upon which the shoots have formed a good leaf-surface, even in instances where properly pinched back some time ago, may now require tying, or otherwise properly securing, in their places. Keep the young shoots which may form properly thinned out, and stop them back also at the third or fourth leaf. Gradually raise the heat if possible in all *Melon-pits* or frames where the fruit has finished swelling, and by "netting," &c., show symptoms of an approach to the ripening state. Keep all gross luxuriant shoots down, and by properly thinning out the foliage and any young shoots which form, allow the light to penetrate freely into every part of each plant.

HARDY FLOWER GARDEN.

This will be found a good month, and especially during moist showery weather, to clip *Box edgings*. Some *Hardy Perennials*, such as *Double Wallflowers*, *Rockets*, &c., may now be propagated by means of cuttings. Make fresh plantations of *Violets* where needed. The smallest division will form a plant if dibbled into fresh soil at this season. The Czar is a very hardy and free-flowering variety, and deserves a place in every garden. It does not need to be annually transplanted, however, as it makes a far finer show when left untouched for two or three seasons. Thin out any stools of *Herbaceous Plants* in instances where they may have become disproportionately large, and secure all that need support by means of stakes, &c. *Phloxes* of the decussata varieties are greatly benefited by having the shoots upon each stool thinned to the strongest. This is likely to be a favourable season for them to make a good display, and especially if such aids as this be given them. Propagate the lovely little *Daisy* named aucubæfolia, and any variety of *Arabis* of which a larger supply will be needed.

HARDY FRUIT GARDEN.

Young shoots upon *Wall-fruit trees* generally will now need nailing or tacking to the wall, an operation that should not be put off, when required: a wind-storm, in connection with their own weight, may otherwise suddenly do them much damage. Give preference to all branches required to fill vacancies near the base of the tree in preference to others, should any further thinning-out be necessary. Pinch back any very gross shoots which may push, if it is necessary they should be retained at all, and so induce them to bring their robust forms to a better state of maturity.

KITCHEN GARDEN.

Where a good crop of *Parsley* has not been secured it will be necessary to make another sowing immediately. This will also be a good time in which to sow a successional crop, when the earlier sowing has done well, which will then come in well for late March and April uses. Another sowing of *Turnips* should likewise now be made for midsummer and early autumn use. In some few instances early sown Turnips have not come up well. It will therefore be advisable, should any symptoms of a short crop exist, to transplant any which may be growing in irregular batches, as they sometimes will do. Thus treated during showery weather these do well. Transplant into their permanent winter quarters the earlier sown *Brussels Sprouts*, red, or *Pickling Cabbage*, *Cauliflowers*, Snow's, Walcheren, and other varieties of early autumn *Broccoli*, *Lettuces*, *Endive*, &c. I have previously urged the desirability of planting the former of these in good firm ground; especially should this fact be borne in mind in regard to all light soils, as nothing can be more injurious to a good crop than to plant such subjects on to fresh dug ground of a kind which is light in texture. Endeavour always therefore to plant these varieties upon fallow ground dug up some time since, and which is more or less hardened through laying. Make successional sowings in the open ground of *Herbs* of such varieties as are likely to be needed, such as *Basil*, *Chervil*, *Purslane*, *Summer Savory*, &c. *W. E.*

TOWN GARDENING.

Mow and edge the Grass lawn once a week, or at least once a fortnight. Go over the beds and take off all decayed flowers and leaves; this proceeding gives life and vigour to the remaining. Aphides and thrips will now be infesting many plants, and after trying most nostrums for their destruction, I still find the old one the cheapest and most effectual for outdoor plants. I get an ounce of common shag tobacco, put it in a jar, and pour about 2 quarts of boiling water on it, shut it close down, and when cold strain it off; and after a fine hot day the tops of most plants can be dipped into it. This proves a sure cure. Syringing the plants with the liquid through a fine rose, will prove nearly as effectual. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending June 2, 1869, as observed at the Horticultural Gardens.

May and June.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind	Rain.
Thurs. 27	16	29.735	29.679	60	44	52.0	54	54	E.	.44
Friday 28	17	29.944	29.826	57	42	49.5	54	54	N.E.	.36
Satur. 29	18	30.132	30.028	54	27	40.5	52	52	N.E.	.00
Sunday 30	19	30.099	30.051	63	38	50.5	52	52	N.W.	.00
Mond. 31	20	30.189	30.033	62	30	46.0	54	52	N.	.20
Tuesd. 1	21	30.207	30.171	66	42	54.0	55	53	W.	.00
Wed. 2	(	30.147	29.987	71	51	61.0	58	53	S.W.	.10
Average.		30.065	29.968	61.9	39.1	50.5	54.1	52.9		1.10

May 27—Densely overcast; overcast, cold wind; rain at night.
— 28—Rain; heavy rain; clear, cold wind.
— 29—Overcast; densely overcast; clear and fine.
— 30—Overcast; very fine; densely overcast.
— 31—Densely overcast; stormy; fine and clear.
June 1—Very fine; fine, cloudy; densely overcast, brisk wind.
— 2—Cloudy, but fine; overcast, fine; densely overcast.
(Mean temperature of the week, 6 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending June 12, 1869.

June.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday.. 6	69.9	47.6	58.8	22	0.28 in.	5	7	2	2	4	14	6	3
Mon. .. 7	69.3	46.5	57.9	26	0.53	3	9	1	5	3	14	4	5
Tues. .. 8	70.6	46.4	58.5	15	0.45	4	8	2	1	3	18	5	3
Wed. .. 9	70.8	47.2	59.0	20	1.48	1	7	4	2	6	16	4	3
Thurs. ..10	69.6	46.9	58.3	19	0.95	1	10	3	2	4	9	9	5
Friday ..11	72.1	47.6	59.9	13	0.47	2	7	3	3	7	10	11	—
Satur. ..12	71.4	46.1	58.8	21	0.78	—	8	3	2	7	15	5	3

The highest temperature during the above period occurred on the 6th and 7th, 1846—therm. 90 deg.; and the lowest on the 11th, 1865—therm. 30 deg.

Notices to Correspondents.

*** We are requested by the Rev. W. F. Radclyffe to state that, while he feels gratified at the compliment paid him by raisers of seedling Potatos sending him samples for trial, he cannot in future undertake to grow them or to report on their merits unless his consent be obtained previously. It is to be hoped that so reasonable a request will be acceded to, otherwise the forwarding such samples is really an unwarrantable intrusion upon the time, convenience, and good nature of our esteemed contributor.

AMERICAN BLIGHT: *H.* There are numerous compositions, such as Gishurst Compound, Fowler's Insecticide, &c., adapted for the destruction of American blight. The difficulty lies in its application—in getting at the insects, which lie concealed underneath the pieces and in the cracks of loose bark, so that any outward application is powerless against them. These multiply so fast that the tree is soon overspread again. We have found repeated and continuous application of a powerful syringe with clear water very effectual. It dislodges and destroys the insects; a portion of the surface soil should be scraped off after each syringing and burnt. By great perseverance and attention in this way, the pest may be overcome. The application of salt and water was very injudicious; independently of its injuring the foliage, it will penetrate to the roots of the trees and kill them. Take away as much of the old salted soil as possible, and renew it with fresh.

BUDDING ON MANNETI STOCKS: *Lingley.* You may bud your Manetti stocks in the old wood close to the ground.

CHAMÆROPS: *W P.* We fear not. Some of these species are unisexual.

FOWLER'S INSECTICIDE: *J G N.* asks:—Has any correspondent tried this or any other preparation effectually for destroying Gooseberry caterpillar?

INSECTS: *J J D.* The Elm twigs which you have sent us from Gothenburg, Sweden, are badly infested with female Scale insects (Coccus Ulmi, Linn.), at the present time filled with eggs, which will shortly hatch, and the young in myriads will creep to the fresh shoots, which they suck, and consequently the trees will be reduced to disease and ultimately to death. You will find a fine memoir on these insects by Dalman in the Transactions of the Royal Swedish Academy for 1825. The only way of getting rid of these pests is to rub them off by hand, or smash them with the nail, or with a small hard brush washing the infested part with soft soap dissolved in lime water, gas-tar water, or other obnoxious liquid. *W.*

NAMES OF PLANTS: *Woods.* 1, Acanthophippium bicolor; 2, Dendrobium aduncum; 3 and 4, varieties of Vanda suavis. *G S.* 1, Lælia cinnabarina; 2, Epidendrum glumaceum; 3, Oncidium ramosum; 4, not determinable, the specimens sent were too small and withered. *C R.* Pawlownia imperialis.—*C H M.* 1. Looks like a small variety of Oncidium bifolium, but as there are several hundred kinds of Oncidium, and you have given us neither the habit nor the habitat of yours, we can only guess at its name; 2. Cœlogyne pandurata.—*A W.* Orchis fusca, Polygala vulgaris.—*C P.* Silene pendula. — *Woods.* 1. Aerides Lobbii; 2. A. odoratum.

REMOVAL OF FRUIT TREES, &c.: *Inquirer.* It depends upon what arrangements were made in the lease.

STOVE FOR GREENHOUSE: *Subscriber* asks for the best stove for heating a small greenhouse, without flues or pipes. We don't like heating by stoves, but an Arnott's stove is as good as any.

ERRATUM.—In our report of the Pelargonium Show last week, the 3d prize in class 16 was inadvertently mentioned as being awarded to Mr. C. Turner for the Golden-leaved (self) Pelargonium Carrie Fowler, instead of Messrs. Carter & Co., by whom the plant was exhibited.

COMMUNICATIONS RECEIVED.—W. S.—H. M.—J. H.—C. F.—J M.—J. C.—A. H. E.—T. R.—A. W.—W. J.—Senex.—E. L. C.—W. J. E.—J. A.—R. S.—S. V.—G. H.—C. P.—H, K.—C, McD.—W. G. H.—A. J.—J. A.

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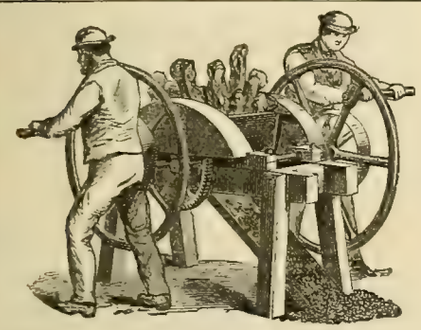
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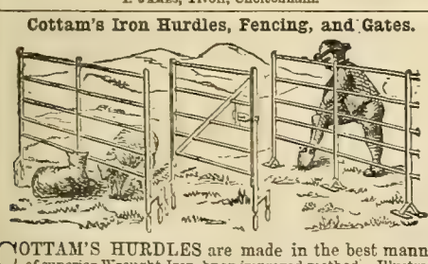
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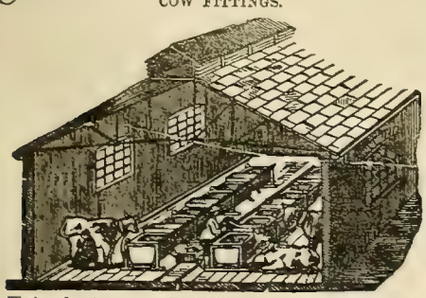
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The Right Hon. Lord ROBERT MONTAGU, M.P., in the Chair.
Dinner Tickets, 21*s*.; Ladies Tickets, 5*s*.; to be had of the Stewards; the Secretary, at the Office of the Institution; and at the Bar of the Tavern.

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All Subscriptions shall be deemed payable on January 1 in each year; and no Contributor shall Vote while the same is in arrears.
No. 55, Charing Cross, London, S.W.
C. BOUSFIELD SHAW, Secretary.

The Agricultural Gazette.
SATURDAY, JUNE 5, 1869.

MEETINGS FOR THE ENSUING WEEK.

June 8 { Central Chamber of Agriculture (to consider County Financial Boards, Ground Game, &c.) at Salisbury Hotel—11 A.M.
— 9 { Oxford and Banbury Agricultural Society's Show at Oxford.
Royal Agricultural Benevolent Institution (Annual Dinner), at Freemasons' Tavern.

No one has a better right than Mr. MECHI to speak for THE ROYAL AGRICULTURAL BENEVOLENT ASSOCIATION. But what is the explanation which he offers of its expenditure, to which we last week called attention? "My experience," he says, "has taught me that the stream of charity does not always rise and flow spontaneously, but has to be sought for and pumped up at considerable cost, and it is not always the cheapest management that produces the largest result; but rather on the contrary." But we submit to him that the expenses, whatever they may be, connected with the Royal Agricultural Benevolent Association, are carefully and explicitly published in the accounts of the Society. There is no need whatever, we presume, of referring in general terms to the inevitably heavy costliness of managing benevolent associations; for the amount under every division of the outlay is stated, and may be submitted to analysis and discussion. Last year, for example, when 5259*l*. 10*s*. 6*d*. was received, we are glad to know that the anniversary expenses were only 16*l*.—a good deal less than they had been in any previous year—an exceptional economy which will, we hope, guide the practice of 1869, and all years to come. We know, too, that the salaries and collector's poundage, commission, &c., together with incidental expenses, amounted in 1868 to 497*l*. 18*s*. 3*d*.—rather more than they had been in any former year. Of this we presume, from previous entries, that 278*l*. is the amount of salaries and wages; but even here, where a degree of uncertainty exists, there is no justification of Mr. MECHI's hazy indefiniteness of assertion on the general subject of the costs of charity. In printing, stationery, postage, advertisements, again, the cost last year was 362*l*. 7*s*.; and in rent and gas and furniture, 94*l*. 13*s*. 8*d*. Each of these items can be carefully investigated, and instead of general and indefinite assertion, tending rather to justify costliness of management, it is the part of every well-wisher to this institution to desire that every department be taken one by one into special examination,

remembering that every 20*l.* saved makes another annuity available. The total cost last year was close on 1000*l.*—the amount spent in pensions was close on 2000*l.*, and stock to the amount of 2000*l.* purchased. Here, then, is the division of the pound contributed into 8*s.* *hoarded*, 8*s.* used, and 4*s.* *spent*, of which we complain. Is this an economical method of administering the contributions of the benevolent subscribers to the Agricultural Benevolent Society?—we do not think it is.

Another correspondent, whose letter follows Mr. MECHI'S, suggests a much simpler and much better way. In place of funding property he would buy annuities from the National Debt Commissioners for those who are elected on the foundation of the Society. The Secretary of the Society would be the recognised attorney for all the annuitants—receiving and transmitting their quarterly allowances on receipt of the necessary proof of life. The interests of the pensioners would thus be absolutely and permanently safe. The property of the Society would be absolutely secured: and the whole of it, barring annual expenses, would be *used* as the contributors contemplated and desired.

And these annual expenses might certainly be very much reduced by the plan which our correspondent suggests. Anniversary expenses need not, we presume, be ever more than they were last year. And if postage, printing, advertising, commission, poundage, and house rent were brought within reasonable limits by any secretary who should set himself energetically to save the annuities of another dozen pensioners out of the existing cost of management, we do not suppose that anybody would begrudge his, in that case, well-earned salary. But certainly it is plain upon the face of it that the expenditure is at present excessive.

Will anybody give us, for example, the justification, if any, for a jump made in these costs between 1864 and 1866? The annual charges stood at 850*l.*, or thereabouts, during the three years 1862-3-4; in 1865 they fell to 784*l.*; in 1866-7-8 they have stood at about 970*l.* What is the reason of this jump of rather more than 100*l.*? It is not explained by any unusual increase in the number of the annuitants, who indeed might very well be dealt with at the rate of four days' work per annum for every hundred of them. It is not explained by any increase in the amount of the Society's income, that was 4444*l.* in 1864, 4600*l.* in '65, 4800*l.* in '66, 5360*l.* in '67, and 5260*l.* in '68. What, then, is the explanation to be offered of a clean leap over 100*l.* in the annual expenditure at that time, by which the annuities were swallowed up of five expectant pensioners in just that class which is both most numerous and most helpless?

If, as our correspondent suggests, the cost of management could be reduced one half, or to 500*l.* a-year, we should have about two dozen additional pensions at once available; and surely there is no one knowing the poverty and trouble coming under the notice of the Association who will not welcome the idea that, by a little better organisation or more economical management, so great an addition to the serviceableness of the Institution may be made. Let us hope that Lord ROBERT MONTAGU may be able next Wednesday to assure the annual meeting of members and subscribers that no consideration whatever will hinder the Council, on whom the responsibilities of the Institution rest, from instituting the sharpest possible inquiry into the possibilities of economy.

CONSTITUTIONAL tendencies of a physical kind, like qualities of the mind, cannot be accounted for, they can only be investigated in respect to their nature and consequences. Nor can what is called HABIT IN PLANTS be understood, except in the same limited sense. Acquaintance with these habits is necessary to the cultivator; it is that special knowledge which enables him to give each plant or crop the treatment it requires. Without this knowlege he is not a duly qualified practitioner. Every successful farmer understands precisely the various little details of management which result in a heavy crop; the method becomes a more exacting routine on bad soils than on good, but the same end is always in view. It is the object of the routine of tillage, and need not be much interrupted even by the exigencies of cleaning the land. It is skilfully kept in view, though not discussed and apparently not recognised, by the plain practical farmer. To the agricultural student the habit of plants is worthy of systematic study. The first stumbling-block of an amateur farmer is his ignorance of special knowledge: he departs from the beaten path without the knowledge necessary for his guidance in a new one. He is unacquainted with the ordinary routine; he does not understand its aim and object, and consequently cannot estimate its merits or detect its defects. Ignorance may be prejudiced, but there is no opposition so blind and unreasonable as that of fancied or mistaken knowledge. The scientific education of the amateur does not enlighten him much on practical subjects, and he is frequently led astray by some plausible theory, which further information would have led him to reject. Science interprets natural laws—practice complies with them; and in agriculture, when practice halts, as it does with indifferent farmers, it is from neglect, and seldom from absolute ignorance. In the practice of farming an approved system seldom leads far wrong.

The best period for sowing Wheat, as it depends on the habit of that plant, must be decided by practice. It is found that this crop thrives best when sown in autumn, in a moist, cool seed-bed; a rapid early growth seldom proves sound and healthy. The theorist may properly watch this practice and put it to the proof; and we have known some practical farmers do so too, by sowing a month earlier than usual, in a warm seed-bed, each grain being deposited with much learning and solemnity, singly, and at proper intervals. This was done with the most scientific objects in reference to light, air, circulation, space, food, &c. But our Wheat turned out badly; it became blighted and mildewed, and for the future we shall be less precise in measuring the elements of a proper dietary for cereals. Space and air are very excellent, no doubt, so are milk and bread and butter, but there may be too much of a good thing. Experience is the best nurse. In these purely practical matters, any very wide departure from custom generally proves a mistake. Plants have special habits of growth which experience can alone discover. We are taught this by numerous striking examples in gardens.

A garden is the best field for observation on the principles of plant culture; it is in fact a handy experimental ground. There is no need for formal experiments; there are, among the borders and beds, and in the greenhouse, hundreds of plants under treatment, more or less artificial, whose cultivation requires great nicety to accommodate their special habit. A course of such gardening would not be thrown away on an intelligent pupil. He would observe much in the active management of a garden which he could usefully apply on the larger scale of a farm, and knowing that the same general laws govern the whole family of vegetables, whether they grow in fields or gardens, he would learn a great deal of what we will call practical physiology, that would have a direct influence on his management as a farmer, and would help to prevent that apparent running after error which often marks the course of the unpractised farmer.

We know a highly intelligent agriculturist, living in a dry warm county, who believed he could rival the successful Potato-cultivation of the Lothians, living as he did one-twelfth the distance from the London market. His soil was suitable; but he failed, for want of the cool, moist, Scotch atmosphere. There is no analogy in the cultivation of a farm which could teach him this unexpected effect of climate. In the garden, such observations are forced on the attention by the cultivation of plants in the greenhouse and hothouse. The alternate drought and deluge of the plains of South Africa and Mexico must be reproduced in the cultivation of the African Lilies and the Cactus. The Palm requires its desert heat and dryness; the tropical Ferns and Water Lilies their steaming swamps, and the Vine its alternations of warmth and cold, of activity and rest. These are very general characteristics: but there are cultural refinements in horticulture, and fine shades of difference in the treatment of delicate plants, and to learn these thoroughly would make us gardeners, not farmers. The Vine should be only transplanted when the roots are active, as it dies if moved in the dead of winter; thus we find our root crops have more vitality, and power to resist frost, when they are rooted in the ground than after their separation. On the same principle any plant transplanted in autumn, as Turnips for seed, should be allowed time to "get hold" of the ground. Plants in gardens do not blossom freely while their growth is excited by water and space for their roots to extend in; a slight check to their growth throws them into flower, and this effect is part of the gardener's art, which he constantly practises. The tendency of plants in this respect is of interest to an arable farmer, since the most important part of his business is to produce blossom, or rather to grow seeds of one sort or other, and that at a low ruling price. These garden observations explain why thin corn does not seed freely except in very favourable years, why a full plant of corn is soundest and ripens most equally, why Mangel crops under certain conditions run to stalk in early autumn. Some greenhouse plants, and even many British plants, take kindly to heat, and bear forcing well; the Pelargonium, on the contrary, requires sufficient heat for protection from the frost, but the least attempt at forcing is injurious to it. The Onion prefers a hard, firm, seed-bed; the Cabbage one that is more porous: some plants revel in abundance of manure, and produce their fruit or seed freely; others yield only leaves and stems under such circumstances. In pot culture, several plants thrive best when the soil is rammed in with a rammer, others must be potted loosely. In short, the infinite variety in the treatment of plants shows that their requirements in cultivation demand close attention to their special habit.

A truly scientific cultivator will not adopt conclusions founded on theory. The garden, or other means of acquiring information, will teach him the nice requirements of plants as to soil and climate. He will know how to suit the crop to the country. A Kentish Hop grower, paying 5*l.* an acre for his land, determined to find cheaper land, as well as labour, in Essex. But instead of the delicate aroma of the East Kent Hop, his new gardens only yielded a coarse, unsaleable Hop. Custom had fixed on Kent, and had avoided Essex; and the original selection was not an accidental one. The analogy of the Vine teaches us how greatly flavour depends on nice differences of soil and aspect. The best and the worst wines are grown on adjoining ground, in one vineyard—Tokay; in the next, the common wine of Hungary! On some soils white Wheat cannot be grown; if sown, it becomes red in a few years. Let us recommend to the practical man, knowledge to guide him; and to the theorist, practice to carry a lantern in front!

—· THE rise of 1*s.* to 2*s.* per quarter on Wheat at Mark Lane on Monday has been sustained in London and the provinces throughout the week. Yesterday the market was firm, without any alteration in prices. Beasts and sheep are again on a par as regards value per lb., the highest price for both being 6*s.* per stone.—— The agricultural seed trade is merely moving.——Wool still has a downward tendency. Southdown first clip at 1*s.* 1*d.*, and half-bred ditto at 1*s.* 2*d.* are the present quotations.

—— On the subject of the breeding of horses, and the present demoralised state of the "turf," "Eastboro'" communicates the following pertinent strictures and suggestive notions to the *Times*:—"I think a great deal can be done, even in these gambling days, to improve the quantity and quality of the useful classes of horses bred in this country. If the noblemen and gentlemen of influence who feel interested in the matter were to provide sound, powerful, and useful thoroughbred horses to serve mares in their own neighbourhoods at a small sum, the farmers and others would, from their innate love of horseflesh, soon avail themselves of the opportunity of gratifying a hobby natural to most Englishmen. The great difficulty now experienced by a farmer wishing to breed from a favourite mare is to find a horse fit to use, except a few of the crack animals of the day, which can command any price for thoroughbred mares. Of course, the mare should be approved by the owner of the horse, and any constitutional defect debar the privilege of using the horse."

—— Agricultural statistics were brought before the House of Commons again on Friday, May 28. Mr. C. S. READ asked the President of the Board of Trade if it was the intention of the Government to continue the annual collection of agricultural statistics after the present year? Mr. BRIGHT believed that the statistics collected by the Government must be of very little advantage to the ordinary weekly and monthly transactions of trade; at the same time, taking a wider view of the question, it was desirable that statistics should be given from year to year, showing the progress of agriculture, and there was, therefore, no intention on the part of the Government to discontinue their collection.

—— Farm servants were also a subject of conversation in the House of Commons on Tuesday last, when the Chancellor of the Exchequer, in reply to Viscount GALWAY, informed the House that farm servants, whether residing with the master or elsewhere, would be exempted from the tax on servants. But if farm servants were employed as under-gardeners, they would

be taxed as such. The Act, however, did not contemplate that sweeping or moving gravel was within the catagory of under-gardener's work.

OUR LIVE STOCK.

Mr. Carr's herd, so long associated with Stackhouse, will henceforth be spoken of in connection with Gale Cottage, Ambleside, a locality famous for beautiful scenery, and a never-failing supply of Grass. Mr. Carr recently sold the Stackhouse estate, which for many generations had belonged to his ancestors.

—— Mr. Hugh Aylmer has recently disposed of eight cows and heifers to a German agriculturist, and an excellent young bull, Prince Leiningen, to a gentleman in Prussia. This herd has lately been enriched by the birth of five cow-calves, and one bull-calf, all by Prince Christian (22,581).

—— After a season of considerable activity in the Shorthorn world, we have arrived at a period of comparative tranquillity, so far as important sales are concerned. Many of our readers will during the next few weeks be visitors at some of the many exhibitions of live stock, which are the pride of this country. In no department of industry can greater triumphs of patience and skill be exhibited than in the best examples of our improved races of domestic animals. Like many of our most valued discoveries, the capability for improvement possessed by cattle has been known for only a comparatively short time, 100 years scarcely having elapsed since attention was called to the wonderful plasticity they exhibit when subjected to the modifying influences of careful breeding, and conditions suitable for their complete development. Hence the *improved* Durham, Hereford, Devon, and Scotch breeds of cattle are of very recent origin, owing their improvement to the labours of men of the present and last generation. These improvements form an interesting chapter in the history of British agriculture, upon which cattle breeders love to dwell; and, fortunately, we in most cases possess the necessary information for tracing the various links connecting the cattle of our day with those looked upon as the patriarchs of our high-bred races. Not less interesting, but much less easy, is the inquiry as to how our cattle first became domesticated; in what relation they stand to the domesticated cattle of foreign countries, and to the allied wild species which now roam the forests and prairies of distant lands. The place in the animal kingdom assigned to cattle is that of a group of the Bovidæ, a well-defined genus of the order Ruminantia. The general characteristics of the whole order, in which are ranked deer, antelopes, sheep, &c., need not here detain us; neither is it necessary to speak of the common points of resemblance between the various members of the Bovidæ, or ox tribe. This tribe has been divided into four groups as follows:—Cattle and buffaloes, which have 13 pairs of ribs, and bisons and the yack, which have 14 pairs of ribs. In MM. Moll and Gayot's excellent work on cattle, the points of difference between these four groups is ably discussed. These gentlemen inform us, that cattle are distinguished by horny papillæ upon the tongue, by rings at the base of the horns, and by the teats of the female being arranged in the form of a square. This group includes the common ox, and the variety known as wild or park cattle; the zebu, or humped ox of India, and the gour and gayal of India, both remarkable for a bony and fleshy development of the withers.

The buffaloes and bisons differ from ordinary cattle and from each other, and are neither of them to be considered as the wild representatives of our herds. The former has been domesticated both in Asia and in Europe, and is found in Italy and Spain. He is completely black in colour, and covered thinly with hair; his form is massive, his horns wide-spreading and low placed, his voice unlike that of oxen, and his gait and appearance clumsy. The latter is found wild in the forests of Moldavia, and a second species, differing but slightly from his European relative, is the famous North American bison. These magnificent animals have been frequently spoken of as the progenitors of domesticated cattle, a theory which, however, is absolutely unfounded. The massive fore-quarters, the shaggy mane, low placed head and the number of ribs, at once distinguish European or American bisons from either buffaloes or common cattle. The yack has not been long known in Europe, although he may now be seen in the Jardin des Plantes at Paris, and we recently examined one exhibited in Edmunds' travelling menagerie. This animal is very unique in its appearance. He is smaller, lighter, and more agile than our cattle, and is humped like the gayal and the gour. The hump is caused by a bony development of the dorsal vertebra, and differs in this respect from that of the zebra, which is composed of flesh. The most distinctive feature of the yack is his long coat, reaching down almost to the ground. This hairy covering consists of two portions, one long and coarse, and the other forming a close and fine wool, used in Thibet in the manufacture of some of the finest fabrics. The yack is exceedingly useful as a beast of burden, and also as a source of flesh and milk, as well as of wool. He is exceedingly hardy, and well fitted to withstand the rigours of the Himalaya highlands.

Although escaped cattle occur in many parts of the world, we may consider it as settled that a true wild ox, a representative of the wild ancestors of our native cattle does not now exist; the investigation, therefore, of his probable habits, appearance, and geographical distribution must be more or less a matter of speculation, although it is a subject upon which scientific research has thrown a ray of light. In making this statement we have not forgotten the so-called wild cattle of Chillingham and Hamilton Parks, so often spoken of as truly wild cattle. That they can only be looked upon as comparatively wild is, however, obvious, not only because of the restricted area over which they have liberty, but because a kind of rough selection has been for long exercised by the keepers, who only allow those animals to arrive at maturity that exhibit the appearance which is considered to be characteristic.

THE ROYAL AGRICULTURAL BENEVOLENT ASSOCIATION.

[We have received the following letters on this subject.]

(1.) We shall all agree that it is desirable to husband the resources of this thriving Institution—that is, to obtain the largest return at the smallest percentage of cost. I sincerely believe that this has been done, and that this charity may compare favourably with others of its own age. Its expenditure is about 25 per cent. of its income, which is about the average of well-managed charities. Any suggestions for its improvement would, I know, receive due attention from the Council. My experience of charitable contributions (which as a sheriff and alderman of London has not been a small one) has taught me that the stream of charity does not always rise and flow spontaneously, but has to be sought for and pumped up at considerable cost, and it is not always the cheapest management that produces the largest result, but rather on the contrary. In our case scarcely 30 dinner tickets are sent out gratuitously, while with many other charities almost every dinner or guinea ticket is sent out gratuitously to those who are likely to attend and contribute. I remember a worthy, wealthy, and charitable retired citizen who I frequently met at public charity dinners, who remarked to me on more than one occasion, "When they make me a present of my guinea dinner ticket I always give them ten guineas, but I only give five guineas when I have to pay for my dinner ticket." Very few who receive a dinner ticket free would think of attending except as benefactors to the charity. The great point is to induce many to attend, for under the influence of a good dinner, good company, good music, and good example, the heart warms and the purse more freely opens. The pride of competition in good works frequently effects wonders on such occasions. I remember a case where an issue of circular appeals was substituted for the so-called costly dinner—the result was a miserable failure and a heavy loss to the charity. There was nothing heart-warming in the circulars. Of one thing I can speak with certainty, I mean the great personal and pecuniary sacrifices made by most members of our Council in behalf of this charity. It would be improper to individualise the living members, but I may speak of my dear departed friend Richard Garrett, of Leiston, who, when on the Council, obtained at great cost and personal trouble a considerable sum for the charity. I have done a trifle that way myself, for, last year, I wrote, printed, stamped, and addressed a letter to each of a thousand Editors of newspapers in the United Kingdom, with a view to enlist more subscribers by making the charity more generally known. A more earnest, judicious, and efficient Council it would be difficult to find. The Institution is quite safe in their hands. I write this paper entirely as an individual, and without the knowledge of any one of the Council. Invitations to the annual dinner should, in my opinion, be sent to many hundreds of our landowners, legislators, and farmers, who appear to be unaware of the existence of this much required charity.

We have about 5,000 subscribers. Of these, 40 are of the House of Commons, and 86 are peers of the realm. The total number of our peers being 463, the number subscribing form a much larger percentage than that of any other class. Although there are about 600,000 Irish farmers, we have only one subscriber. England, Scotland, and Wales number 400,000 farmers; so that we have a vast field of charity not yet cultivated. *J. J. Mechi, Tiptree, May* 31.

(2.) The thanks of the whole landed interest are due to you for your leader on the affairs of the Royal Agricultural Benevolent Institution, wherein you clearly show the benefits of this Society so kindly and usefully originated by Mr. Mechi. Comparing the annual dividends arising from its funded property added to its annual receipt in subscriptions, with the number of those pensioners (126) who receive its alms, one cannot help feeling surprise that more, many more, are not added to the list.

No doubt the committee of management must consider carefully the ages of those who are admitted as annuitants, so that, in the event of subscriptions failing, the capital in hand may produce sufficient money to discharge the annuities morally contracted for immediately pensioners are added to the list. The only dependable source for perfect security would be the National Debt Commissioners, and, if the finance of the Society is thus dealt with no one can complain, although this plan may seem to limit the present advantages, and exclude those who are so anxious to receive them. Perhaps some clearer financiers may propound some other way of securing the admitted annuitants, but no speculation should be for one moment allowed.

The committee may, and I think are bound to alter the costs of management which your tabular statements and explanation show to be most extravagant, viz., 870*l.* per annum. You have properly divided them as under:—

1. Anniversary costs	£55 per annum.
2. Salaries, wages, &c.	300 ,,
3. Incidental and commission	130 ,,
4. Printing, postage, advertising ..	285 ,,
5. Rent, coals, gas, furniture	100 ,,
Total	£870

It appears to me that one officer alone is required to carry out the entire business, and that no establishment is required, and hence no establishment charges. The general manager might be an old and valued banker's clerk, whose principals would rejoice to have the opportunity of seeing him able to improve his income without infringing on the time necessary for the work he has to do for them. This gentleman should be resident somewhere between Salisbury Square and St. James's Palace, and reply to all letters and see applicants, if necessary, before 10 or after 4, and apply to all who did not pay their subscriptions to the bankers. If subscribers were supplied with a printed form for their signature, authorising their bankers to pay their subscriptions for them on January 1, in each year, much trouble in many ways would be saved if this plan were carried out. A similar plan is practised by many of the club houses.

The general manager would keep all accounts, conduct all correspondence, collect all subscriptions, register all the work of the committee, and provide a room in which to hold their meetings; and if tenders were sought for from a trustworthy gentleman to do this business properly, many would be found ready and able for the matter at no very high salary, which salary would cover the second, third, and fifth divisions of the charges.

The room for the anniversary meeting must be paid for, and if the cost of this were added to the cost of the dinner ticket, it would be then cheerfully paid without any charge to the Society.

Postage, printing, and advertising must remain and be as carefully controlled as possible. The present annual payment on this account, 285*l.*, seems very high; but without looking over what has been done it would be unfair to bring any charge against the management of this division. At any rate it is hoped the total expenditure may be kept within 500*l.* per annum, and, if so, and the subscriptions are kept up, 370*l.* would remain to cheer the homes of some 15 of the aged and distressed persons who are very desirous to obtain, and many are very deserving of, such help. With such an object in view every means to economise should be adopted. It is fair to observe that the division for incidentals and commission averaged 161*l.* in the five years of 1862-3-4-5-6, and only 26*l.* in the two years of 1867 and 1868, and possibly here some reform may have already arisen; and the same remark should be made as to the first division, which in seven years averaged 53*l.* per annum, and last year only 16*l.* was expended. The effect of these two alterations in expenditure amount to 172*l.* 10*s.* per annum. May this continue, and spread over the other three divisions, and then all will have to thank you again for having brought this matter before the public. *An Old Farmer and Original Subscriber.*

DR. VOELCKER'S CHEMICAL INVESTIGATIONS (1868).

[The following is the conclusion of Dr. Voelcker's lecture, partly reported last week.]

In close connection with these field experiments I have undertaken to investigate the causes of the benefits which result from growing Clover as a preparatory crop for Wheat. It is well known to most practical farmers that if they can succeed in growing a good crop of Clover they are almost certain to get a good paying crop of Wheat. You see how all agricultural matters depend upon each other. If we can by chemical means enable the farmer, on land which otherwise would not grow Clover, to produce a good crop of Clover, we shall thus place him in the very best position for afterwards obtaining paying crops of corn. I have come to the conclusion that the very best preparation, the very best manure, if you will allow me thus to express myself, is a good crop of Clover. Now, at first sight nothing seems more contradictory than to say that you can remove a very large quantity of both mineral and organic food from the soil, and yet make it more productive, as in the case of Clover. Nevertheless it is a fact, that the larger the amount of mineral matter you remove in a crop of Clover, and the larger the amount of nitrogen which is carried off in Clover hay, the richer the land becomes. Now here is really a strange chemical anomaly, which cannot be discarded, and invites our investigation; and it is an investigation which has occupied my attention, I may say, for more than 10 years. I first took it up in my leisure hours when I lived at Cirencester. In the paper which I published in the Journal last year, you will find analyses of Clover roots and Clover soils on the College Farm at Cirencester. This Clover investigation has very much interested me for a great number of years; but only during the last season have I been able to bring it to anything like completion, so as thoroughly to explain the strange anomaly that is presented to us in the growth of Clover as a preparatory crop for Wheat. The explanation is very simple, though puzzling when you know not the chemical points that are involved in the investigation. I cannot deny myself the gratification of showing to you in a few figures that, in a thorough chemical point of view Clover is the most exhausting crop that you can possibly grow, whilst in a thorough practical point of view it is the most restorative crop, and the best preparation for Wheat that you can possibly grow. Now if we examine what is taken from the land in the shape of Clover we shall find that, assuming an acre of land to yield 4 tons of Clover hay, these 4 tons of Clover hay will remove 672 lb. of mineral constituents, and not less than 224 lb. of nitrogen, which is equal to 272 lb. of ammonia. Four tons of Clover hay, the produce of 1 acre, must contain a large amount of nitrogen, and remove from the soil an enormous quantity of mineral matters abounding in lime, potash, and also much phosphoric acid. Now, comparing what is removed by a crop of Wheat, we find that, in a Clover crop, we remove fully three times as much of mineral matter, and a great deal more, six times as much, I believe, of nitrogen, as we do in a crop of Wheat. The total —to give the exact figures—of mineral matters removed in an average crop of Wheat amounts to

175 lb. an acre; that is, taking in both the grain and the straw, the total amount of nitrogen removed in the grain of Wheat amounts to only 26.7 lb. per acre (not quite 27 lb.), and in the straw of Wheat 19.2 lb.; or in both together 46 lb. of nitrogen, which is only about one-fifth of the nitrogen contained in the produce of an acre of Clover. We should, therefore, naturally expect that Clover, which removes so much more nitrogen from the soil, would be greatly benefited by the application of nitrogenous manures; but the reverse is the case. Wheat, it is well known, is benefited by the application of nitrogenous matters, but Clover is not. On the other hand, Clover is benefited by mineral manures; and at the same time it leaves the land in even a better condition in this respect for the succeeding corn crop than it is without the intervention of Clover. I believe a vast amount of mineral manure is brought within reach of the corn crop by growing Clover. It is rendered available to the roots of the corn crop, while otherwise it would remain in a locked-up condition in the soil, if no recourse were had to the introduction of the Clover crop. Clover, by means of its long roots, penetrates a large mass of soil. It gathers up, so to speak, the phosphoric acid and the potash which are disseminated throughout a large portion of the soil; and when the land is ploughed the roots are left in the surface, and in decaying they leave in an available condition the mineral substances which the Wheat plant requires to enable it to grow. Although in clover-hay these mineral matters are removed in great quantity, yet the store of mineral food that we have in 6 or 12 inches of soil is so great that it is utterly insignificant in comparison with what remains: in other words, the quantity of mineral matter which is rendered available and fit for use for the succeeding corn crop is very much larger than the quantity which is removed in the Clover hay. But the accumulation of nitrogen after the growth of Clover in the soil is extremely large. Even when the Clover crop is insignificant a large quantity of nitrogen amounting to tons is accumulated in the surface soil, and the better the Clover crop the greater is the accumulation of nitrogen. In one of my experiments I tried to determine the amount of nitrogen which is left in the portion of a field when the Clover was, comparatively speaking, poor; and I found that on the brow of the hill in that field (for it had a considerable declivity) the Clover was weak, the produce to an acre being 1 ton 11 cwt. 99 lb.; whilst at the bottom of the hill, where the Clover was stronger, there being more soil, it was 2 tons 2 cwt. 61 lb. Observe, too, that at the bottom of the field the Wheat was always better. Now, it is in virtue, I believe, of this accumulation of nitrogen that the Wheat grew so much more luxuriantly.

I had another experiment tried two seasons ago upon land on which Clover grew tolerably well. The experiments to which I refer were tried at Leighton Buzzard upon the farm of Mr. Robert Valentine. We had a capital field of Clover, and I thought I should have a good opportunity of ascertaining whether there was more nitrogen accumulated in the soil after the Clover crop was cut twice, or whether more was accumulated when the Clover was mown once, and then allowed to run to seed. At first sight you would think that the land was in a worse condition when the crop is grown for seed. We know, indeed, that this is generally the case; but in the case of Clover we have a remarkable exception to this rule; and I find, on looking into this matter, that, after growing Clover for seed, a very much larger quantity of nitrogen remains in the surface soil—in the first 6 inches of soil as well as in the second 6 inches—than when the Clover is mown twice. I have ascertained that when you feed off Clover by sheep, when it is still young, and everything is returned to it as it is removed from it, the land is in a worse condition than when you take off the Clover hay. This is an anomaly. You say it is against all principle and against all reason. But when you see positive evidence in our fields, I think no scientific man has a right to say that it is against all reason and against all principle. It is certainly not against fact. All who are practically acquainted with the subject must have seen that Wheat invariably grows less luxuriantly when you feed it off quite young, and that the best crop of Wheat is produced when you grow Clover for seed. I have repeatedly seen it. When we see a plain matter of fact, our simple business is to investigate it carefully and conscientiously. Then we shall find frequently, as I have found in other departments of chemical investigations—I allude to my investigations in farmyard manure—that a practice which is at first sight contrary to all theory, at least with what we call theory, but not against true science, on being investigated is found to agree perfectly with the established observations of good agriculturists, and that there are really good causes which fully explain apparent anomalies which sometimes are very puzzling. Referring to those Clover investigations, I would just give you the total amount of nitrogen which I found in different layers of soil in the same field, and upon one-half of which the Clover was mown twice, and upon the second half of which the Clover was mown only once, and then left for seed. The percentage of nitrogen in the Clover soil twice mowed, for the first 6 inches amounted to '168; in the second 6 inches to '092; and in the third 6 inches to '064. Thus you see that it becomes very much less the deeper you go down. The accumulation takes place chiefly in the surface soil, and I believe it is principally due to the dropping of the leaves. When we grow Clover for seed those leaves continually drop and enrich the surface soil; and if it be the case, which I think is likely, that the Clover tribe of plants is satisfied with the ammonia which exists in the atmosphere, we can at once account for the accumulation of nitrogen in the soil. The Clover plants take the nitrogen from the atmosphere, and manufacture it into their own substance, which, on the decomposition of the Clover roots and leaves, produces abundance of ammonia. In reality, the growing of Clover is equivalent, to a great extent, to manuring with Peruvian guano; and in this paper of mine I show that you obtain a larger quantity of manure than in the largest dose of Peruvian guano which a farmer would ever think of applying; that there is a larger amount of nitrogen accumulated in the first 6 or 12 inches of soil than there is in the heaviest dose of Peruvian guano that any person would think of using. On Clover soil once mown and left for seed I found in the three layers of soil a larger percentage of nitrogen than where the Clover was mown twice. In the first 6 inches it was '189, in the next 6 inches '134, and in the lowest 6 inches '089. Now the total quantity of nitrogen calculated per acre for 12 inches of soil amounted on the portion of the field mown twice for Clover to 5249½ lb.; whereas the total amount of nitrogen in 12 inches of soil on that portion of the field which was mown only once and then left to stand for seed was 8126½ lb., thus producing an excess of nitrogen on an acre of soil 12 inches deep calculated as ammonia on the part of the field mown once, and then seeded, amounting to 3592 lb. A very large quantity of nitrogen was accumulated when the Clover was left for seed; and the total amount of large Clover roots was much greater in the part where the Clover was grown for seed; for the longer it is left in the soil the more the roots extend. In the different layers of the soil also in every instance more nitrogen was found where the Clover was left for seed than where it was twice sown. There was, as just mentioned, upon one acre 3592 lb. more ammonia in the land where the Clover seed was grown than on the other portion where the Clover was made entirely into hay. An enormous amount of nitrogenous organic matter is left in the land after the removal of the Clover crop, and this gradually decays and furnishes ammonia, which at first, during the colder months of the year, is retained by the well-known absorbent properties which all good Wheat soils possess. An investigation which I have now in hand however shows me that the ammoniacal salts in the soil are rapidly transformed into nitrates. Gradually, the oxidation of the ammoniacal salts which are produced from the decomposition of the Clover roots takes place, and nitrates are eliminated; but the benefit that we derive from the growth of Clover is very much greater than that derivable from the direct application of nitrate of soda, because if we use nitrate of soda, we must just hit upon the right point when it will be beneficial to the growing crop. If there is not sufficient rain or water to wash the nitrate of soda into the soil it does no good, but rather may do harm by burning up the land. If there is too much rain, it may pass into the drains. Nitrate of soda is not retained by the land—not even by clay soils. It passes through them as through a sieve: therefore, it is the most precarious kind of manure that you can use. It is well if you can hit upon the right time; and this you must find out for yourselves. By observation, you will find out the right time in the particular locality where you are placed. You may go wrong once, but for a number of years you will generally hit upon the right time. Speaking generally, I would say that about the middle of February, in most localities, is the right time for the application of nitrate of soda; but, useful as nitrate of soda may be in some special cases, I think the less you use it on poor soils the better. I should like more indirectly to accumulate nitrogen on my land, and not go to any great expense in buying nitrate of soda when my land is in poor condition. It is well if you have very good land, but under ordinary circumstances it is perhaps better not to rely upon this source of supply. Nitrate of soda may readily be washed out; but you will notice that the benefit that you obtain from Clover roots is that you have a continuous source from which nitrates can be produced. It does not matter if some of the nitrates pass away in the drain; you have an enormous accumulation of decaying organic matter. The Clover roots and leaves are not all at once changed into ammonia; but there is a gradual transformation of the organic matter, first, into ammoniacal salts, and a gradual change from ammoniacal salts into nitrates, and you have a complete series of chemical transformations which is highly conducive to the gradual development of the Clover plant. Whereas, by using nitrate of soda, you run the risk of getting it washed away into your drains. Thus, there is more certainty of growing a good crop of Wheat through the instrumentality of Clover than through the direct supply of nitrate of soda. These, then, are the chief points which have been established, I believe, by my chemical experiments in the laboratory with respect to the chemical history of the Clover crop.

During the last season I have also been actively engaged in investigating the variations in the amount of sugar in the Sugar-Beet. There is a great desire at the present time to grow Sugar-Beet in this country, with the view of supplying the sugar manufacturer with the raw material from which he is to make his sugar. In the course of the last season I examined nearly 200 specimens of Beetroot, some grown in Scotland, others grown in the south of England, some grown in the west of England, and others grown in the eastern counties; and without wearying you by entering at length into the details of the results, I should like to say a few words on the growth of Sugar-Beet in this country. I think that the cultivation of Sugar-Beet is at any rate a hopeful one. In the eastern counties, where we have so much less rainfall, I believe there is a very good chance of growing Beetroot successfully as a raw material for the manufacture of sugar. Not so in Ireland, or in the western part of England. The cultivation of Beetroot, I need hardly say, is very much better understood on the Continent than in this country. Perhaps I should rather say, the conditions favourable to the production of a large quantity of sugar in Beetroot are better known on the Continent than they are here. With respect to the practical cultivation of Beetroot, there is very little mystery about it. You may grow Beetroot just as you do Mangel. Get your land in a good state of preparation; let your seed be the true seed—White Silesian is the best; get it early into the land, and keep it well stirred whilst growing. Plant rather more thickly than you do with Mangel. Perhaps from 12 to 18 inches will be a sufficient width between the rows, and avoid any excess of nitrogenous manure. If possible, you should have got your land into good agricultural condition for the previous crop. In other words, do not manure directly for the Beetroot crop, if you can possibly avoid it. Now, in these few words are really summed up the chief matters for the consideration of the agriculturist. But there are some other points which deserve to be considered when you propose to introduce Beetroot culture with the view of supplying the manufacturer of Beetroot sugar with the raw material. For it is not every climate, nor every description of soil which is calculated to produce a large amount of sugar in Beet. In some climates you would never get a large percentage of sugar in Beetroot, do what you like. In some soils also, unless they are in a first-rate state of preparation, you do not get a high percentage of sugar.

Let us, then, inquire what is the climate most conducive to the development of sugar in Beetroot, and what are the soils which are best calculated to produce much sugar in that crop. Now, the climate best suited for Beetroot is that in which you have a good deal of rain falling in the early period of the year, in the spring months, and in the early summer months, when the Beet is in an active state of growth and of leaf development; for you must lay the foundation of the apparatus by which the plant is to manufacture sugar. You must rapidly develop, first, the leaf organs of the Beetroot, and it is essential for this that you should have sufficient rain. I make this observation because it is useful to remember it, for in considering the future application of sewage to the raising not only of Beetroot, but of all root crops, I think there is a great future in store. People have an idea that they have nothing to do but to irrigate, no matter when, and no matter in what quantities; but we have yet to learn everything as regards the successful application of sewage. Now, I believe that when sewage is used on light land, or even on land with a moderate amount of clay in it, so as not to be too stiff—land that may be called a good loamy soil—on such land we can irrigate with sewage with the greatest advantage for Beetroot, for Mangel, and, indeed, for all root crops, if we apply the sewage in large quantities at first in the earliest stages of growth, and then withhold it. Our experience in the North of Germany is this, that the amount of sugar produced from an acre of land in Beet can be calculated, within some limits of course, from the rainfall during the early summer months, and from the absence of rain during the succeeding months. We want a good deal of rain in the early summer months, and a dry autumn. Some people have an idea that we have not sufficient heat in England. It is not the want of heat that beats us; it is the excess of moisture in the autumn. That is my only fear. If you could only secure a dry autumn, the climate of England would suit you beautifully for the culture of Beetroot, for last year I analysed Beetroots which yielded as high a percentage of sugar as any grown in France or Germany. Experiments upon roots sent from Holland and upon roots grown in the neighbourhood of Lavenham, in Suffolk, showed that the English roots contained more sugar than the Dutch. They were grown for the use of sugar manufacturers; and, speaking generally, we grew in England last year Beetroots which contained on an average 10 to 12 per cent. of sugar, which is as high a percentage as you get in the Beetroot districts of France. In the North of Germany we grow rather more sugar, and there is a good reason for it, because we pay taxes not according to the percentage of sugar which an acre produces, but according to the weight of the roots. It is, therefore, to the advantage of the sugar manufacturer to get as high a percentage of sugar in his roots as he possibly can; for he pays no more tax for a root that contains 15 per cent. of sugar than he does for a root that contains only 5 or 6 per cent. of sugar. This has induced the manufacturer of sugar to go very minutely into the circumstances which tend to raise the percentage of sugar, and during the last three years a vast amount of useful information has been accumulating, through the works of agricultural chemists who have specially worked in this direction. In the North of Germany we can to a very great extent regulate the production of sugar in our root crops, by withholding certain kinds of manures. I may mention them. For example, by withholding in a great measure ammoniacal manures, fresh farmyard manure, guano and such-like nitrogenous manures, and by putting upon the land superphosphate of lime, or similar phosphatic manures which promote early maturity, and produce a much larger percentage of sugar in the roots than otherwise we should obtain. I look forward, then, with great hope to the cultivation of Beetroot in this country being successful. I look forward with considerable hope also to the time, which I believe is not far distant, when a good use will be made of sewage. The great point is to apply it at the right time; to apply it early, and then to withhold it when the ripening process begins. It is a remarkable fact that of all the roots which I examined during the past season, those which were grown at the Lodge Farm, Barking Creek, contained the highest percentage of sugar; one of them had as much as 13 per cent. of sugar. But to give you an idea of how variable the percentage of sugar is in roots of different sizes, I may mention that I had another off the same farm which yielded only 6 per cent. of sugar. The weight of the root which produced 13 per cent. of sugar was 2 lb. 2½ oz.; whilst that which yielded 6 per cent. of sugar off the same farm weighed 4 lb., or double the other. It was not of the same crop, and it was a differ-

ent variety also. It is however very difficult to make any general deductions when you are not acquainted with the particulars that have much influence; but here we have the fact that the larger root grew less sugar. That, too, we know from our ordinary experience to be the case with Mangels. I have some curious examples which show the excess of water contained in large roots. Here is one analysis of a root which contained as much as 92 per cent. of water and only 2 per cent. of sugar. That root weighed 11 lb. 6 oz., and there the sugar disappeared to a great extent. Our endeavour must be, if we wish to grow Beetroot for supplying sugar manufacturers with the raw material, to grow them close together, so as not to produce bulbs of too large a size. Perhaps we may succeed in growing from 15 to 18 tons an acre of Beetroots rich in sugar. Of course it is a much smaller produce than that which we are in the habit of growing of Mangel; but the question is simply one of pounds, shillings, and pence, or which pays you best. Does it pay you better to grow a moderate weight of roots per acre, for which you get a higher price? or does it pay you better to grow a heavy crop which possesses less nutritive properties, and is not so valuable? It is simply a question of expense, and it must be settled in the only way that it can be settled—in a practical manner. The country, I think, is greatly indebted to Mr. Duncan for his enterprise and experiments at the present time in the manufacture of Beetroot sugar in this country, and the encouragement he has imparted to the growth of the root in Suffolk, where the soil is by no means a good soil. He will, I have no doubt, be instrumental, if not in growing Sugar-Beet as a permanent crop, in giving encouragement to an improved system of farming. Beetroot should be gathered at the end of September, before it is fully ripe. It ought not to be allowed to become over ripe. Now an indication of this is afforded by the appearance of the tops. When they begin to flag then you are to take them up. They ought not to be left a day longer, but be taken up at once. Then the roots will keep. If you leave them longer in the soil to form a second crop of leaves, the leaves are formed at the expense of the sugar in the root, and a serious injury is thereby done to the root itself, not only by the elimination of sugar which is transformed into the substance of the second leaf, but also by setting the juices in the root in motion, so that the sugar which is in the root will not keep well; in short, the root is in the condition of an over-ripe Pear, from which the saccharine matter gradually disappears. It is, therefore, of the greatest importance to attend to the proper time for taking up Beetroots from the land.

Mr. S. Read, M.P.: Don't you think that the hot and dry autumn of last year was favourable to a large development of sugar in Beetroot?

Dr. Voelcker: I am rather inclined to think that last year was not a favourable season, because the roots which I have seen made a second growth; and a confirmation of what I am saying is afforded in the practical experiments of Mr. Duncan. I find that from his roots which he has worked up into sugar already—for the whole operation has to be carried on very rapidly—he obtained no more than 8 per cent., though the proper average should have been 11 per cent. It is quite a mistake, therefore, to suppose that last season was a good one, the fact being that it was one of the very worst for the manufacture of sugar, because a second crop of leaf was formed, and a portion of the sugar was transformed into the substance of the leaf, whilst the sugar that remained was in an active state of transmutation. On that account it was an unfavourable season.

Discussion.

Mr. Holland: With regard to Clover, have you ever in your investigations taken into consideration the amount of root which belongs to the Clover—that is, after being mown or fed off?

Dr. Voelcker: No; that I have not done.

Mr. Holland said his idea was, that feeding off might possibly kill a good deal of Clover by the animals biting it too near the ground, and that consequently there would not be so much root left afterwards. In mowing, on the other hand, the scythe or the knife did not go so low, so that a great many of the young shoots would grow again, and there would be additional matter remaining in the ground.

Dr. Voelcker believed that that was the case.

Mr. Holland asked whether that was not likely to influence the succeeding Wheat crop?

Dr. Voelcker replied in the affirmative, and was induced to do so as the result of experiments made in the mowing and feeding off of Clover produce. Referring to the experiments in hay-making he found that very much less produce was obtained by feeding sheep upon it during two-thirds of the year than by letting it grow to a certain height and then mowing it; because, as the plant developed itself in the upward direction, there was a corresponding development in the downward direction. Even supposing that, where sheep were fed off it, the Clover plant was not pulled up, less organic matter accumulated than when the crop was allowed to grow a certain height, and then mown. He was not prepared to assert that potash, in the shape of potash salt, would be remunerative. He was rather inclined to think that the indirect supply of potash by the consumption of good cake, Beans and Peas, would pay better than to apply potash in a direct manner as muriate of potash. There might be particular localities where the application of potash would answer. In the case of Lord Wenlock's farm, for instance, it paid well; and he believed there were other localities also where its direct application would pay. The cheapest form in which to apply it was as crude muriate of potash, worth about 4*l.* a ton, and guaranteed to contain about 30 per cent. of muriate of potash.

Mr. Charteris asked when it should be applied to the crop?

Dr. Voelcker: Quite early in the spring; in the beginning of February, or even in the autumn.

Mr. S. Read, M.P.: Would the potash cure Clover-sick land? In Norfolk they had almost ceased to grow Clover, in consequence of its failing in the spring.

Dr. Voelcker: In some particular instances it might perhaps act as a cure. The question why Clover would grow upon some soils and not upon others was a complicated one. In some cases it would be due to the absence of phosphoric acid, potash, and lime. Wood ashes contained these three elements, and if applied in quantities produced a good crop of Clover; but if they had to be supplied by the means of purchased manures—muriate of potash, bones, and marl—the cost would probably be more than the value of the Clover grown.

Mr. Read said that on his farm in Norfolk, which varied from a stiff calcareous clay to quite a light sand, Clover sickness was general. He did not think, therefore, that the quality of the soil had much to do with it. He had tried all sorts of manures and forms of cultivation. He had ploughed very deeply and very lightly; he had experimented with a very free seed-bed, and a very hard seed bed, and, notwithstanding he always got a good plant, it invariably fell off between February and April the following year. You don't think potash would help me? I have never tried it.

Dr. Voelcker: It is certainly worth a trial.

The Secretary observed that Mr. Bamford had told him that, if Barley were taken after Wheat stubble, the land did not get Clover sickness.

The Chairman said that in his neighbourhood there were clays and poor peaty soils, which nitrate of soda and nitrogenous manures would not benefit. He hoped the Professor would turn his attention to Clover sickness with a view to providing a remedy. It was an old subject, but its importance to the Wheat crop had invested it with additional interest.

Mr. Read had great pleasure in moving a vote of thanks to Professor Voelcker for his interesting, and to him (Mr. Read) most tantalising lecture. For whilst they were told of the great benefit derived to Wheat from a good plant of Clover, unfortunately in Norfolk they could not grow Clover at all. Still he felt much indebted to Dr. Voelcker for his lecture, and especially that portion of it which related to the cultivation of Beetroot, the introduction of which he trusted would be a godsend to the eastern counties.

The Chairman asked Dr. Voelcker whether in Germany they ever used the Sugar-Beetroot crop for feeding purposes, or always applied it to the manufacture of sugar?

Dr. Voelcker: Always for sugar-making purposes; the pulp of Beetroots remaining in the presses after extraction of the sugary juice, however, was largely used both in France and Germany, and with much benefit, as a feeding material. He should like to see the cultivation of Beetroot tried in the present year on a pretty wide scale. The farmer would run no great risk; for even if he could not dispose of the root to the sugar manufacturer, he would get a good feeding material. Speaking roughly, one ton of Beetroot ought to be worth fully a ton and a-half of Mangels. They could not, therefore, go wrong in trying the experiment of growing Beetroot.

The motion was then agreed to, and the meeting broke up.

Home Correspondence.

The Royal Agricultural Society.—Mr. Dent appears to have hit the right nail on the head when he suggested that one-half the retiring Council should not be eligible for re-election (I presume for a limited period) in order to introduce fresh blood into the Council, of which it stands so greatly in need. The miserable attendance at the annual meeting, although, no doubt, in some means to be attributed to the inconvenient hour at which it was held, is owing still more to the want of interest in the Society's proceedings entertained by the members generally. Why should they put themselves to the trouble of coming when they know full well that their suggestions will not be listened to; that all power will still be exercised by the chosen few who appear to hold the reins, and who do not wish to be interfered with? Is it not well known, that if a member of the Society distinguishes himself by his writings or his essays, good care is taken that he shall not be elected on the Council; so, likewise, if a judge at the shows exhibits particular ability (the "upper ten" excepted), can render a reason for his judgment, offer practical suggestions for improvement, and write a report of his department, he becomes a marked man, and is no longer considered as an obedient slave of the ring. It was quite a misfortune to lose from the Council such men as Mr. C. S. Read and the late Mr. Fisher Hobbs. In addition to the alteration recommended by Mr. Dent, I would recommend an increase in the number of the Council, so as to keep up the interest of the Society by a little of the representative system. *S.*

Agricultural Education.—At the general meeting of the Royal Agricultural Society last Saturday, Mr. Dent, on behalf of the Council, expressed a wish to know more of the opinion of the outer world on the points to be discussed in committee. While your columns are open to contributors, I hope the members of the Society will not withhold the aid of suggestion to those who at considerable expense of time and trouble are seeking to serve their interests, and to advance that which is declared by our charter to be the seventh national object to be prosecuted by the Society. Our opinions are specially invited to two suggestions already referred to a committee—the first, made by Mr. Thompson, that travelling scholarships should be instituted for the double purpose of advancing the education of young men who had shown agricultural ability, and of deriving from their reports matter for insertion in the Journal; the second, offered by Mr. Dent, that older and practised men should be employed to visit and report on the agriculture, not only of England, but also of foreign countries. As a means of promoting agricultural education, each of these schemes is probably inferior to that of periodical examinations, already tried with success by our Society: but, while the national disgrace continues, that in this great country there should be but one good school of agriculture, it may be urged that the prizes might almost as well be given at once to the best men at Cirencester without the cumbersome and expensive process of a separate examination. Not all civilised nations, however, are in the same backward state as ourselves in this matter, and we may perhaps reap some advantage from their superiority in this respect, by a modified combination of the schemes already under discussion. Let competitive scholarships be founded by the Society for certain foreign schools of agriculture giving, say, 40*l.* per annum towards the maintenance of the successful candidate during two years of study at the appointed school. In this way we might every year have one young English farmer trained in one of the excellent and numerous German schools of agriculture; another attending the course of agricultural lectures lately founded by the French Government in the Jardin des Plantes; and a third acquiring a knowledge of American culture at Yale College. Thus at moderate cost results of national value might, in the end, be obtained from having always a few trained farmers *en rapport* with the scientific agriculture of other nations. The examination for each scholarship should require a knowledge of the language spoken at the school, and it might be well to stipulate that the scholars of the Society should spend some part of the two years in travel, and should send home a report on some topic of agricultural interest. Many of our members would like to have one or more such scholarships founded for the College at Cirencester, which, though at first started as a proprietary school, now vies with older colleges in the pride and public spirit of its real founders. If we cannot afford this, we might confer the privilege of life membership on some of those who take either the diploma at Cirencester or that given by the Highland and Agricultural Society of Scotland. By a very slight supplementary examination we might ascertain, if need be, that none of these should fall below the standard of qualification required for the first class in the late examinations held at Hanover Square. This sort of reward has the advantage of being more valuable to the recipient than it is costly to the Society. *Strebor, May* 26.

Adulteration of Seeds.—There has been much writing and talking lately about the adulteration of seeds, and no doubt some truth has been elicited which will survive the mass of conjecture which has been indulged in. I am an old seedsman, well acquainted with the trade, and those connected with it, and if a few simple remarks from me are thought of any value, you are welcome to make use of them. Perhaps they may assist to reassure the public, who have been lately terribly frightened about the adulteration of seeds. The mixing of old and new seeds is not by any means a new thing, caused by the excessive competition of modern times. The ancients were not averse to try their hands at it, and perhaps the practice is as old as the trade itself, being a perfectly necessary concomitant of it. The more modern refinement (?) of killing and dyeing a cheap kind of seed, to make it pass for another sort of much greater intrinsic value, is quite a different matter, and cannot be justified on any pretext whatever, being simply a fraud. Seed of various years' growth may be mixed with advantage to the public, if the merchant is enabled thereby to supply his customer with a more uniform growth; but sellers of seed which has been killed and dyed to represent another kind of greater value commit a fraud, and they ought to be punished. It will at once be seen, however, that the only culprits within cognisance of the law are those who are detected in the very act of preparing the seed in this fraudulent manner, and that no Act of Parliament can reach all the parties in whose possession such seed is found. It will take a clever expert to detect such seed, either separate or in mixture, and an honest seedsman may buy it unwittingly, and believe it to be a genuine article. Seedsmen cannot always estimate their requirements so exactly as to be independent of the open market, and an unexpected increase in the demand for any particular seed may exhaust their own guaranteed stocks, and compel them, especially at the end of the seed season, to seeks supplies from other sources. In such a case a small provincial seedsmen may be imposed on, and induced in the press of business to buy a doubtful article for the sake of supplying the urgent demands of impatient customers. A large proportion of the adulteration of seeds is caused by the public themselves, and I can tell them plainly that they have the remedy very much in their own hands. If people will insist on getting their seeds at a lower price than respectable seedsmen offer them, and will risk their crops of Turnips, Clover, &c., for the sake of a paltry saving of a few shillings, there will always, as long as the world remains as it is, be plenty of unscrupulous seedsmen ready to humour them. Better far to pay a penny more per pound to a well known respectable seedsman who has fairly earned his right to public confidence by a long course of fair dealing. If the proposed Bill to prevent the adulteration of seeds passes into law, it may with all its imperfections strengthen the hands of honest dealers; but the public can protect themselves very much by avoiding dealers who profess to sell cheap seeds. *W. B. S., Edinburgh, May* 27.

Agricultural Statistics.—[Mr. Sanderson has sent us a copy of the following letter, recently addressed by him to the President of the Board of Trade.] I trust that the agricultural statistics will be in future, as they are now, collected annually, and not, as Mr. Pell recently proposed in the House of Commons, quinquennially. Mr. Pell's objections to their annual collection are, firstly, "that they are of a speculative character," secondly, "that they had failed because the area was but an imperfect measure of what the fields would yield to the granary," and thirdly, that they were faulty because they "left out all wood, waste, and garden ground." With respect to the speculative character of the returns, it is evident that they tend to lessen speculation, inasmuch as they make known to all alike the food-producing area of the country. Speculation is based generally, not upon what is known, but upon what is uncertain. But I need not dwell on this point, as Mr. Pell has successfully answered himself by stating that, "as corn dealers are heedless of statistics, therefore the returns are of no speculative value." The second objection, which virtually means that as the returns only give the area under different crops and not the acreage yield, therefore they are imperfect. It would doubtless be more satisfactory if returns of the acreage yield, as well as of the different areas under crops, could be obtained, but it by no means follows that because there are difficulties in obtaining the one the other ought to be abandoned. Experienced observers can give an approxi-

mate estimate of yield, but any estimate of area must necessarily be vague and uncertain. The return of last year showed an excess of acreage under Wheat of 311,000 acres over 1867, or an increase of yield from an increase of area alone of 1,300,000 quarters, being one-tenth of the average Wheat produce of the United Kingdom. It was, therefore, these returns, together with a knowledge of the acreage yield, that made British producers and consumers cognisant of the fact that they were this year dependent on foreign aid for not more than 6,000,000 quarters of Wheat. Moreover, I cannot imagine what good would result from the collecting of agricultural statistics every fifth year. The machinery for collecting would become rusted; farmers would be heedless of making returns to which they were unaccustomed, and as the returns of 1874 with respect to the Wheat crop alone might vary 600,000 acres from those of 1869, such statistics would only mislead. As to the third objection, wood does not strictly come under agricultural statistics. Waste land does not influence either production or consumption; and as the produce of what Mr. Pell calls "garden ground" is chiefly horticultural, and as the collecting of statistics of the same would be so costly, the omission of that area in the agricultural returns is an advantage. I now write, however, chiefly with respect to the forms for the agricultural returns. One of the forms to be filled up is, "bare fallow, or uncropped arable land." This has led to much confusion, and many farmers return under the heading, "newly broken-up mountain land that is undergoing a preparatory course for cropping." Hence it is that the actual acreage under bare fallow is less than the returns shown. "Bare fallow under rotation," would prevent any ambiguity. Permanent pasture is explained to be meadow, down, or Grass not broken up in rotation. The explanation tends to mislead, as no practical farmer would dream of permanent pasture being broken up in rotation. Besides, down land is incorrectly included under this head, and would be more appropriately classed with heath and mountain land. The heading, therefore, ought to be "permanent pasture or meadow" exclusive of down, heath, or mountain land. An additional column, headed "land reclaimed from mountain, coppice, or sea-shore," would be a vast improvement, as it would show the extent of land that is being annually added to our food-producing area. *James Sanderson*, 11, *Pall Mall East*, *May* 28.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL: *Wednesday*, *June* 2, 1869.—Present—H.R.H., the Prince of Wales, K.G., President, in the chair; the Duke of Devonshire, K.G., the Earl of Lichfield, Viscount Bridport, Lord Chesham, Lord Kestevin, Lord Brecon, Lord Walsingham, the Hon. H. G. Liddell, M.P., Sir E. Kerrison, Bart., Sir A. Macdonald, Bart., Sir T. Western, Bart., M.P., Sir Watkin W. Wynn, Bart., M.P., Mr. Baldwin, Mr. Barnett, Mr. Booth, Mr. Bowly, Mr. Cantrell, Colonel Challoner, Mr. Davies, Mr. Dent, M.P., Mr. Druce, Mr. Brandreth Gibbs, Mr. Holland, Mr. Wren Hoskyns, M.P., Mr. Jonas, Colonel Kingscote, M.P., Mr. Lawes, Mr. Milward, Mr. Randell, Mr. Sanday, Mr. Shuttleworth, Mr. Statter, Mr. Stone, Mr. Thompson, Mr. Torr, Mr. Wallis, Mr. Webb, Mr. Wells, M.P., Major Wilson, Mr. Jacob Wilson, Professor Simonds, and Dr. Voelcker.

The following members were elected:—

Bixio, Maurice, C.E, 26, Rue Jacob, Paris.
Borie, Victor, 1, Rue Casinier, Paris.
Buat, Count du, Château de la Liebradière, Mayence.
Chenard, Baron, 6, Place St. Sulpice, Paris.
Densy, Ernest, Château de la Pacaudiere, Lucay-le-Mâte.
Grandeau, Louis, Nancy, Meurthe.
Ronna, Antonio, C.E, 26, Rue Jacob, Paris.
Tachard, Albert, 97, Rue de Lille, Paris.
Vibrage, Marquis de, Château de Chaverny, Loire et Cher.
Vogué, Marquis de, 2, Rue Fabert, Paris.
Vogué, Count Ch. de, 37, Rue de Bourgoyne, Paris.
Ackers, B. St. John, Prinknash Park, Painswick.
Bate, John, 10, St. Mary's, Manchester.
Bell, Henry, Hempshaw Brook, Stockport.
Bennett, William, Yate, Chipping Sodbury.
Buck, J. Augustus, Manchester.
Brady, Charles Alldis, Cale Green Farm, Stockport.
Brunskill, Stephen, Sand Area House, Kendal.
Cholmley, Sir George, Bart., Howsham, York.
Comber, Thomas, Rainhill, Prescot.
Daglish, Robert, Aston Hall, Preston Brook.
Dalton, Pattinson, Cummersdale, Carlisle.
Davis, Evan Harris, Patton, Much Wenlock.
Delano, William Henry, 4, Cheapside, London, E.C.
Duncombe, the Hon. Admiral, Kilnwick Percy, Pocklington.
Eckersley, Nathaniel, Standish Hall, Wigan.
Elwes, H. F., West Hoathley, East Grinstead.
Fair, Jacob Wilson, Lytham.
Fawcett, James, Scaleby Castle, Carlisle.
Fletcher, Charles Edward, Dimple Egerton, Bolton-le-Moors.
Follows, F. W., 9, Walnut Street, Cheetham, Manchester.
Fox, William, St. Bee's Abbey, St. Bee's.
Frost, Robert, Lime Grove, Chester.
Gilbert, F. W., Little Eastley, Bishopstoke.
Gimson, John, Ponsonby, Calder Bridge, Whitehaven.
Hankey, George A., Fernev Hill Farm, Barnet.
Hardy, Joseph, Baguley House Farm, Northern.
Hobson, Thomas, Pownall Hall, Wilmslow.
Holland, Robert, Mobberley, Knutsford.
Hutchinson, T. H., Manor House, Catterick.
Juckes, George, Beslow Hall, Wroxeter, Salop.
Kirby, Thomas, Crewe Hall Farm, Crewe.
Lea, Richd. N., Vernon's Oak Farm, Doveridge, Stoke-on-Trent.
Lister, Charles, Coleby Lodge, Lincoln.
Lyon, William, jun., Charlwood, Crawley.
Mewburn, William, Wykham Park, Banbury.
Murray, William, Lower Broughton, Manchester.
Nelson, Ambrose, Gorleston, Yarmouth.
Newall, Henry, Hare Hill, Littleboro', Manchester.
Newton, Thomas, Oldfield, Altrincham.
Noble, Alfred, Creeting St. Peter, Needham Market.
Phillips, Zachariah, Birchmoor Manor, Woburn.
Pickworth, W., Dapping Bank, Crowland.
Pott, J. Manger, Nottingham.
Prince, John, Home Farm, Foston, Derby.
Quy, Edward, Goldhanger, Essex.
Rowell, John, Ramsey, Hunts.
Simpson, George, Wray Park, Reigate.
Smith, William, Manchester.
Staveley, Simpson, Tibthorpe Manor, Driffield.
Stevens, Alfred Henry, Farnham, Surrey.
Turner, Robert, Bishopfield, Bawtry.
Wallworth, Joseph, White Hall, Wilmslow.
Walmsley, George, Rudston House, Bridlington.
Watterson, W. Craven, The Thorns, Bowdon, Altrincham.
Willett, Richard, Shavington, Nantwich.

FINANCES.—Major-General Lord Bridport presented the report of the committee, from which it appeared that the Secretary's receipts during the past month, amounting to 1,257*l.* 10*s.*, had been examined by the committee and found correct. The balance in the hands of the bankers on May 31, was 3379*l.* 12*s.* 10*d.*—The report was adopted.

JOURNAL.—Mr. Thompson (chairman) reported that an application for a set of the Society's Journal had been received from the Secretary of the Nottingham Free Library, and that the committee recommended the presentation of the back volumes of the second series, as well as future numbers of the Journal, to that institution. It was also recommended that the numbers of the Journal necessary to complete their set be presented to the library of the Geological Society. The committee further suggested that the Director-General of the Geological Survey be requested to obtain the permission of the Government to present to the library of this Society a set of the maps which show the surface geology of England and Wales.—This report was adopted.

CHEMICAL.—Mr. Wells, M.P. (chairman), reported that Dr. Voelcker was preparing a paper on chemical investigations connected with the cultivation of Sugar-Beet, which will appear in the next number of the Journal; and that the field-experiments which have been in progress for some time, especially those connected with the growth of Clover and root-crops, are being carried out this year on an extensive scale. It was also announced that Dr. Voelcker had given a very interesting lecture, on May 10, on the results of his recent chemical investigations; the committee expressed their regret that the attendance of members was very small, and suggested the desirability of the Council considering what arrangements, if any, should be adopted for the future.—This report was adopted.

VETERINARY.—Mr. Dent, M.P., presented the following report:—

"The Veterinary Committee have received the annual report from the Governors of the Royal Veterinary College, which calls attention—1st. To the establishment of a matriculation examination for students entering the College, so as to prevent the admission of those whose primary education is so defective as to preclude their profiting by the professional instructions afforded in the College. 2dly. To the importance of sufficient time being granted for quarantine at the ports where foreign cattle are landed, in order to render the veterinary examination more thorough and satisfactory. 3dly. To Professor Simonds' report, which states that during the past year 120 lectures on cattle pathology were delivered, 63 students have passed their examination and received their diploma, and 65 new students have entered the College.

The Professor calls special attention to the cases in which scrofulous deposits have been found existing in different organs of the body in cattle. This disease appears at present particularly rife in the Shorthorn and Devon breeds. A few years since scrofula prevailed to a considerable extent amongst animals brought forward at our different shows, but was then checked by stringent veterinary inspection; and the Professor thinks it may be necessary to recur again to this practice, in order to check the spread of so dangerous a disease.

"Pleuro-pneumonia has increased since the removal of the cattle plague restrictions on travelling; it has generally been traced to the purchase of new animals, and has been very prevalent among Irish stock. Experiments have been carried out for its treatment by carbolic acid, which have not proved successful, although the use of carbolic acid as a disinfectant has been shown to be of high value.

"The cattle plague exists with much severity in Eastern Europe, but happily the rumours of an outbreak in Holland were unfounded.

"Several cargoes of sheep affected with small-pox have been stopped and slaughtered at the ports, and some affected sheep which were taken into the metropolitan markets were fortunately seized and slaughtered there.

"The continued existence of parasitic diseases in animals is a constant subject of interest and anxiety to veterinarians.

"Poisoning of cattle by deleterious substances introduced into cakes has been frequent; and during last autumn several cases occurred of poisoning from cattle or sheep consuming excessive quantities of acorns. Experiments then made led to the conclusion that acorns eaten to excess contain a powerful vegetable poison.

"Experiments on foot-rot in sheep have led to the conclusion that under favourable circumstances mere contact of the discharge with the skin will suffice to develop the disease. It is, however, established by other experiments that no such disease will follow if the animals are kept on dry ground, and allowed natural exercise; and, further, that the most advanced form of the disease will quickly give way, and ultimately yield entirely, to such means as these, without the application of any remedies to the affected feet.

"Lastly, the Governors of the Veterinary College request the assistance of the Royal Agricultural Society in their efforts to maintain the position of the diploma of the Royal Veterinary College as superior to the certificate of any separate school."

The committee suggested that this report be referred to the Journal Committee, and recommended the publication of Professor Simonds' report in the next Journal.—This report was adopted.

GENERAL, MANCHESTER.—Lord Walsingham presented the report of this committee, which contained the following recommendations:—(1). That the secretary be instructed to communicate with the North Staffordshire Railway Company, with a view of enabling visitors to the showyard from that district to go and return in one day. (2). That non-transferable season-tickets for the week be issued at half a guinea each, admitting the holder once on each day only. (3). That arrangements be made, if possible, to enable visitors to pass to and fro between the Society's showyard and that of the Royal Horticultural Society. (4). That the local committee be empowered to make a charge of 6*d.* each person for admission to the trial-ground (except to members of the Society), and to carry out such arrangements for its collection as they may consider necessary. (5). That the printer in the showyard be allowed to issue a daily programme at his own expense, charging for the same 1*d.* per copy.—This report was adopted.

The draft of the programme of the Manchester meeting, as arranged by the committee, having been read, a discussion ensued on the recommendation that the charge of admission should be 2*s.* 6*d.* on both Wednesday and Thursday, and Sir Edward Kerrison, Bart., proposed, and Mr. Torr seconded, an amendment that there be three 1*s.* days in lieu of two. The original proposition was supported by Lord Chesham, Colonel Challoner, Lord Walsingham, Mr. Davies, and Mr. Randell, on the ground that the local committee had made their arrangements for the show of foxhounds under the impression that the proposed programme had been definitely settled; while the amendment was advocated by Mr. Thompson, Mr. Dent, M.P., the Hon. H. Liddell, M.P., and Mr. Shuttleworth, on behalf of the large number of working men who would be desirous of visiting the showyard on shilling days. The question having been put by his Royal Highness the President, the amendment was carried by 20 votes against 10. The charges for admission will therefore be 5*s.* on Monday and Tuesday, 2*s.* 6*d.* on Wednesday, and 1*s.* on Thursday, Friday, and Saturday.

SHOWYARD CONTRACTS.—Mr. Randell (chairman) reported that the contracts for the supply of refreshments had been entered into, and that the contractors had agreed to the plans prepared by the surveyor, and previously approved by the committee. It was also reported that the railway companies are preparing the necessary accommodation for the requirements of the meeting, that all the work undertaken by the local committee is progressing most satisfactorily, and that the contractor's work is in a very forward state.—This report was adopted.

SELECTION.—Mr. Thompson (chairman) reported that the committee having carefully considered the question referred to them respecting the annual re-election of the trustees and vice-presidents, they are of opinion that clauses 6 and 7 of the charter, make it imperative that the trustees and vice-presidents should be annually elected or re-elected at the general meeting of the Society on May 22. They consider that this opinion is confirmed by the wording of bye-law No. 32, and by the uniform practice of the Society from the time of its foundation, the election of the trustees and vice-presidents having always been made by a show of hands at the Society's general meeting in May. It was further stated that the committee propose to report on the bye-laws to the monthly Council in November, a course which will not be productive of any unnecessary delay, as no alteration in any bye-law can be made before the first Wednesday in December.—This report was adopted.

COMMITTEE TO OBTAIN REPORTS ON SCOTCH, IRISH, AND FOREIGN AGRICULTURE.—Mr. Thompson (chairman) reported that the committee recommend their being authorised to expend 100*l.* in obtaining for insertion in the February number of the Journal a report on Belgian agriculture, to be written by some well-qualified person, after inspection of some of the best-farmed districts of that country. This report having been received, Mr. Thompson gave notice that at the next monthly Council he would, on behalf of the committee, move for a grant of 100*l.* to enable them to carry the above recommendation into effect.

On the motion of Mr. Jacob Wilson, a committee, consisting of the Stock Prizes and Implement Committees, with Mr. Statter, was appointed to recommend judges of stock, implements, butter and cheese, as well as inspectors of sheep.

His Royal Highness the President ordered a special Council to be convened on Tuesday, the 15th inst., to receive the report of the above committee.

A letter was read from Mr. Cole, C.B., and the accompanying prize-sheet and regulations of the Agricultural and Industrial Exhibition to be held at Altona, from the 3rd to the 7th of September.

A letter was read from M. Drouyn de Lhuys, expressing his thanks to the Society for his election as honorary member, and for the proffered interchange of publications with the "Société des Agriculteurs de France."

The first number of the "Comptes Rendus des Travaux de la Société des Agriculteurs de France" was laid before the Council, and the Secretary was instructed to express the thanks of the Society for the same.

The Right Hon. the Earl of Lichfield gave notice that, at the next monthly Council, he would move the following resolution:—"That the attention of the Council having been drawn to the increasing adulteration of manures and feeding cakes, especially guano, nitrate of soda, ground bones, and linseed-cake, Dr. Voelcker be requested to submit to the Council, monthly, a report on the various samples forwarded to him by members of the Society, and that such report, together with the names of the dealers, be published monthly in the agricultural journals."

THE BATH AND WEST OF ENGLAND, AND SOUTHERN COUNTIES ASSOCIATION.

Southampton.—This meeting has been attended with great success. The management appears to have been excellent, and the result was one of the prettiest showgrounds we have ever seen. A large share of praise is undoubtedly due to the secretary, Mr. Goodwin, and other officials, for the efficient manner in which everything was done, and the attractions that were held out to tempt visitors. In a pecuniary sense this meeting will also be a good one for the Society. On Monday the sum taken at the turnstiles, at 2*s.* 6*d.* each, was 194*l.*, but this small sum was due, no doubt, to a deluging shower about noon. On Tuesday the sum taken was 736*l.* 7*s.* 6*d.*; on Wednesday upwards of 900*l.*; on Thursday, at 2 o'clock, the time we

left, the Finance Steward informed us that about 20,000 had entered. Thursday was the first shilling day. As regards the stock and machinery this is undoubtedly the best meeting this Society has had, although the number of the stock was not quite so great as at Bristol, in consequence of there being no extra classes here. The exact numbers are—Bristol, 545 head; Southampton, 528 head. The machinery had increased greatly, in both the number and value of the articles.

Cattle.—The Shorthorns were a collection that did credit to this breed of large heavy cattle. The 1st prize in the aged class was awarded to the Messrs. Garne, for an immense beast, that had muscle in abundance and quality enough for any reasonable connoisseur. The 2d was Mr. Stratton's, also a heavy animal, with plenty of flesh. In the class for bulls under two years of age there was much evidence of over-feeding. The 1st prize reminded us of First Fruits, the Babraham 1st prize at Battersea in '62. Lord Sudeley was the winner here, and his young bull was within a week or so of two years of age. He is a most attractive animal, taking him as he is, but when we come to consider the effect his perfect fat-ox ripeness must have on his constitution and that of his issue—if he ever be capable of being a sire—it is clear that it is the duty of every influential society to disqualify animals so fed. It is an insult to the practised judges of this country to make up a bull into the form of the 1st prize at Southampton with a view of securing a prize. It is also a degradation to any society to allow a bull that is intended for stock purposes to leave their yard with the highest honour, instead of bearing the censure which such treatment of any young animal merits. This is what we must come to, and the sooner any great society comes to a determination on the subject, and sticks to it, the greater will be the honour which the authorities of the society will gain. The 2d prize is evidently the result of the way in which his parents had been produced and got up for show; for he shows signs of degeneration in the family to which he belongs. He is excellent for his symmetry, no doubt, but he has lost the character for which this breed has hitherto been looked upon as so valuable. Mr. Garne's, of Chipping Norton, is a bull which for size and character for his age was undoubtedly the most valuable bull in his class for legitimate profit. His outline is immense, and his fair feeding has not spoiled him. He was only Highly Commended. But between this and the 2d prize animal, there was another young bull of great promise, unnoticed altogether by the judges. His colour is a rich strawberry, and he has a beautiful long silken coat. These animals were in the condition in which breeding stock ought to be sent, and considering the length and form of this strawberry bull, he ought certainly to have met with some favour at the hands of the authorities. He was sent by Mr. Walter, M.P., of Barewood Park, Berks; and we hope to see him in good company again this year, and go before judges who will take into consideration the views we have urged.

There is no calf class at this show. This may not be altogether a mistake perhaps, for calves alter so much in a year or two that we do not see the good of showing calves for prizes. Calves may be valued by the parentage they come of, but it is next to mere guesswork to attempt to say which calf will be the best animal when he has come to maturity. This after all is, or ought to be, the object of public judging and awarding prizes. And as judges are supposed to know nothing of parentage or pedigree, how is it possible they can do justice to a class of calves?

The cows and heifers were not numerous. We cannot endorse the judging in the class of aged cows. The 2d prize cow is an animal which retains the true character of a Shorthorn dam, wide hips and expansive pelvis and rump, and therefore ample width between the thighs for carrying a full bag of milk; a cow's chine, a long thin neck, and a long face below the eyes. These are the kind of cows that we now need to have publicly stamped with the approbation of judges. The 1st prize may be adapted for breeding broad-shouldered and heavy-necked bulls, but if the race of females must be sacrificed for this purpose, we had better think no more about the breeding and milk-giving characteristics of our herds. But rather than this should happen we should be better without excessively broad-shouldered and heavy-necked bulls.

The yearling heifers were more numerous, and there were a few excellent animals, but here the judges were evidently guided by the prejudice and fashion which has been established of late years, during the infatuation which has beset some of the wealthy men of this country who have taken to Shorthorn breeding for amusement. The difficulties into which many herds are now merging ought to be obviated now that we have ample trustworthy data to guide us in the art of breeding.

The Devons were placed first in the yard, and so far as form and quality go, they were a most attractive part of the show. They were 22 in number. Nothing could be more admirable than were the animals sent by Mr. Walter Farthing, Mr. Buller, Mr. Nixey, and Mr. Burton. As we have remarked before, however, there is an undersize in the specimens of this breed which are brought to publicity, and it is a great question whether the course pursued by the leading breeders has been a judicious one, so far as the staying or lasting character of their herds may be considered. The 1st and 2d prize bulls were pictures, however, and some of the cows were as handsome as they could possibly be moulded. But if this breed goes on decreasing in size as it has done during the last few years, we shall be able to find models or imitations of Kerry and Bréton and Jersey cows for family purposes in our own climate and on our own soil.

The Herefords were not strong, and the main strength of these animals was displayed in a magnificent bull and cow, the former sent by Mr. Arkwright, and the latter by Mr. Allen, as set forth in our prize list. The bull is an extraordinary fellow; but beyond him there was nothing worth notice in the aged class; for the 2d prize was a narrow, irregular fore-quartered beast, with a deal of poddiness, which gave him anything but an improved or improving appearance. The cow, however, to which we have referred as being naturally a grand creature, has been greatly over-done with rich or fattening food. The injury of this is clearly shown in the size of the calf a few days old by her side, for it is just one of the diminutive things which looks to be too good to knock on the head, but which it is clear would cost twice as much to rear it and feed it for the butcher as it would be worth when full grown.

The Sussex bulls were in bad condition, their coats being full of scurf and dust. This negligence is unaccountable. If it had not been for two or three great and good cows, and a few handsome and well-grown or growing heifers, this breed would have been a discredit to the show as well as to the county of Sussex.

The Channel Islands cattle were upwards of 80 in number, and a finer collection of this peculiar breed of animals we never saw out of their native islands. The prizes of the society brought the whole of the islands into competition, and as there is as much dissimilarity between the Alderney and Jersey and the Guernsey breeds, as there is between North Wales runts and South Wales cattle, it was not possible to give even the usual amount of satisfaction among the somewhat Frenchified and excitable island exhibitors. The Jersey men object so much to the Guernsey breed that they will not allow a single one of them to pass the landing wharf at St. Helier's. We may add, the Guernsey breeders are even more strict than this, for they will not allow a single Jersey animal to be imported into Guernsey. Mr. Le Sueur's 1st prize was considered by some of the Jersey breeders to be but a fourth or fifth-rate one, because he was leggy, light in colour, and otherwise favoured the Guernsey type. This decision was more objectionable to most of the Jersey men, because what they considered the best bull was only Highly Commended. This animal is Mr. Elias Nicolle's, Trinity, Jersey; the dam, too, of this bull was awarded the 1st prize at the Royal meeting at Plymouth, and 100 gs. were then offered for her to be taken to America. The decisions among the cows and heifers gave even more dissatisfaction, and there certainly was a large amount of inconsistency in class 23; for if the light sandy colour, Guernsey type of heifer, be the right stamp of animal for the 1st prize, the very neat and beautiful fawn-coloured heifer, with black points, was not suited, with so much choice and excellence, to receive the 2d prize. But this may be accounted for from the fact that a Jersey man and a Guernsey man, and an English resident in Guernsey, were the judges. Prejudice in these cases will not give way, so the judging probably proceeded on the principle of "giving and taking."

The following are the awards in the cattle classes:—

DEVONS.

JUDGES—Devon and Sussex cattle—Messrs. Ford and Tremain; Herefords and Shorthorns — Messrs. Thomson and Baldwin.

CLASS 1. For the best Bull, exceeding 2 and not exceeding 4 years old on the 1st June, 1869.—25*l.*, Mr. Walter Farthing, Stowey Court, Bridgewater; 10*l.*, Mr. James H. Buller, Downes, Crediton, Devon.

CLASS 2. For the best Bull, not exceeding 2 years old on 1st June, 1869.—20*l.*, Mr. Walter Forthing; 10*l.*, ditto.

CLASS 3. For the best Cow in calf.—15*l.*, Mr. W. G. Nixey, Upton Court Farm, Slough, Bucks; 10*l.*, Mr. Walter Farthing.

CLASS 4. For the best Heifer in calf, not exceeding 3 years old on the 1st June, 1869.—15*l.*, Mr. Nixey; 10*l.*, Mr. J. H. Buller.

CLASS 5. For the best Heifer not exceeding 2 years old on the 1st of June.—10*l.*, Mr. R. Burton, Place Barton, Broadclyst, Devon; 5*l.*, Mr. W. Farthing. Commended: Mr. J. H. Buller.

SHORTHORNS.

CLASS 6. For the best Bull, exceeding 2 and not exceeding 4 years old on 1st June, 1869.—25*l.*, Messrs. Garne & Son, Broadmoor, Gloucestershire; 10*l.*, Mr. R. Stratton, Burderop, Swindon, Wilts. Highly Commended: Lady Pigot, Branches Park, Suffolk.

CLASS 7. For the best Bull, not exceeding 2 years old on 1st June, 1869.—20*l.*, the Right. Hon. Lord Sudeley, Toddington House, Winchcombe; 10*l.*, Mr. R. Stratton, Swindon. Highly Commended: Mr. G. Garne, Churchill Heath, Chipping Norton, Oxon.

CLASS 8. For the best Cow in calf.—15*l.*, Lady E. Pigot; 10*l.*, Mr. J. Atkins, Barton Peverill, Bishopstoke.

CLASS 9. For the best Heifer in calf, not exceeding 3 years old on 1st June, 1869.—15*l.*, Mr. James How, Broughton, Huntingdon; 10*l.*, Mr. G. Garne. Highly Commended: Mr. G. Garne.

CLASS 10. For the best Heifer, not exceeding 2 years old on 1st June, 1869.—10*l.* and 5*l.*, Mr. R. Stratton. Highly Commended: Lady E. Pigot.

HEREFORDS.

CLASS 11. For the best Bull, exceeding 2 and not exceeding 4 years old on the 1st June, 1869.—25*l.*, Mr. J. H. Arkwright, Hampton Court, Leominster; 10*l.*, Mr. W. Rossiter, Strangways, Marnhull, Blandford.

CLASS 12. For the best Bull, not exceeding 2 years old on the 1st June, 1869.—20*l.*, Mr. N. Benjafield, Short's Green Farm, Motcombe, Shaftesbury; 10*l.*, Mr. W. B. Simonds, M.P., Abbotts Barton, Winchester.

CLASS 13. For the best Cow in calf.—15*l.*, Mr. J. D. Allen, Tisbury; 10*l.*, Mr. W. Tudge, Adforton, Leintwardine, Herefordshire. Highly Commended: Mr. J. H. Arkwright.

CLASS 14. For the best Heifer in calf, not exceeding 3 years old on 1st June, 1869.—15*l.*, Mr. W. Tudge; 10*l.*, Mr. J. H. Arkwright, Leominster. Highly Commended and Commended: Mr. J. W. James, Blandford.

CLASS 15. For the best Heifer, not exceeding 2 years old on the 1st June, 1869.—10*l.*, Mr. W. Tudge; 5*l.*, Mr. J. W. James, Mappowder, Blandford.

SUSSEX STOCK.

CLASS 16. No entry.

CLASS 17. For the best Bull, not exceeding 2 years old on the 1st June, 1869.—20*l.*, Mr. T. Smith, Beckley, Staplehurst; 10*l.*, Messrs. J. and A. Heasman, Angmering, Arundel.

CLASS 18. For the best Cow in calf.—15*l.*, Mr. W. Botting, Hurstpierrepont; 10*l.*, Mr. T. Smith. Highly Commended: Mr. G. Jenner, Rye. Commended: Messrs. Heasman.

CLASS 19. For the best Heifer in calf, not exceeding 3 years old on the 1st June, 1869.—15*l.* and 10*l.*, Messrs. Heasman.

CHANNEL ISLANDS.

JUDGES—Mr. J. James, Guernsey; Mr. M. Gibaut, Jersey; and Mr. Middleton, Cutsdowe, Oxford.

CLASS 21. For the best Bull, not exceeding 4 years old on the 1st June, 1869.—10*l.*, Mr. T. Le Sueur, Maufant, St. Saviour's, Jersey; 5*l.*, Mr. F. Pittis, Newport, Isle of Wight. Highly Commended: Mr. Elias Nicolle, La Fontaine, Trinity, Jersey.

CLASS 22. For the best Cow in calf.—10*l.*, Mr. T. Maindonald, St. Peter Port, Guernsey; 5*l.*, Mr. N. Arthur, St. Mary's, Jersey. Highly Commended: Capt. F. A. Maxse, R.N., Holly Hill, Southampton. Commended: Mr. Arthur.

CLASS 23. For the best Heifer, not exceeding 2 years old on the 1st June, 1869.—10*l.*, Mr. J. Dorey, St. Martin's, Jersey; 5*l.*, Mr. J. D. Sheraton, Bramshaw, Lyndhurst. Highly Commended: Mr. D. Le Cheminant, Sablons, Guernsey. Commended: Mr. P. Gaudin, St. Helier's, Jersey.

Sheep.—The sheep were a good show as a whole, although there were some very inferior animals present. The Leicesters were placed 1st on the list, and Mr. Sanday, of Holmepierrepont, took the two 1st prizes in the ram classes with sheep that were of an excellent form and of a creditable size as Leicesters now go. These sheep, as we have often remarked, are not thrifty enough in either muscle or wool for this go-a-head age. But we hope the great value of the sheep as a pure breed, and for improving Lincoln and Northamptonshire sheep, and for crossing with Hampshire Downs, will long be appreciated, as it would undoubtedly prove to be a great loss to the country if this woolly tribe were merged entirely into other breeds, or become altogether extinct.

Of Cotswolds there were only nine lots, but they were of their usual large, fine, and white character—excepting one, however, for Mr. Raynbird sent as great a brute as was ever consigned early in life to a dog-butcher.

Southdowns for show without Lord Walsingham's name being associated with the exhibition is an oddity, after the success which has attended his lordship's continuous efforts for several years. Mr. Rigden and Mr. Heasman here had it nearly all their own way. The Southdowns were, however, a long list. There were 34 entries of shearling rams, and 16 of any other age. Mr. Rigden, Mr. Heasman, and Sir W. Throckmorton, Bart., took two prizes each in these classes. Mr. Rigden's two-shear ram is excellent for form and substance, and the ewes of both Mr. Heasman and Sir W. Throckmorton were remarkably beautiful for symmetry and fine white wool. The Highly Commended pen sent by Mr. R. Neville-Grenville, M.P., were also excellent, and but little, if any, inferior to the prize sheep.

The Hampshire Downs were sure to be in strong force. A more valuable collection of sheep we never saw together, no matter what may have been the breed. The 1st prize ram had a back which was not surpassed for its touch in the yard. The weight of this sheep, too, although he was not excessively fat, was great. This is one of the valuable traits of these sheep: they contain so much lean. Some of them are still coarse in appearance, but this view applies more to their big head and their large hairy legs than anything else. Mr. W. E. Fitt had a fit of weakness when he sent No. 249, for he had the appearance of one of the German Noah's Ark toys magnified a few hundred times; and some one who rejoices in the name of Mr. Frederick Sigismund Schwann, sent an animal similar in outline, but which had a stomach twice as large or doubly distended with wind. The ewes were a capital class, and the large entry and character of ram-lambs, 20 in number, some of which had their mother by their side, did credit to this breed, which is rapidly coming to the front, now that we can get a superabundance of wool from foreign countries. These animals grow meat, and they will increase in popularity when some of the present fine and fashionable flocks are neither seen at Royal shows nor thought anything of in their own district or county.

The Shropshires have found their way all this distance south, but only in small numbers. Lord Chesham, however, had a pen of ewes which, for smartness of appearance and uniformity of character, their legs and face being black, we have seldom seen surpassed. His lordship's 1st prize ram was also of the same character, but neither the ewes nor the ram would be considered large enough for the old-established Shropshire breeders. However, taking them as they are, they are very beautiful sheep. Mr. Horton sent two, and Mr. Wood, of Romsey, Hants, sent four rams and a pen of ewes—three of the rams, however, were bred in Shropshire. This breeder has taken a liking to this breed, and it does not appear that his fancy has been at all misplaced, while his success shows that the supposed suitability of these sheep for almost any soil or climate has some sound foundation.

The Somerset and Dorset breed, with their long white curly horns and white wool, were well represented, and they readily reminded one of the first lamb of the season, for producing which their value is great, and fully appreciated in this neighbourhood and the Isle of Wight. There were, too, some Exmoor sheep, which have a similar form as regards horn and frame, but as they have apparently been on the high hill-sides of the moor after which they are named, they are very small. According to Mr. Tucker, in the Strand, there is no sweeter mutton than they produce, and they live where nothing else except goats would exist. They are, therefore, worthy of the position in which they stood at the Society's show, which embraces their native ground.

The following is the list of awards:—

LEICESTER.

JUDGES—Leicesters, Cotswolds, and Oxford Downs—Messrs. Payne & Twitchell; Southdowns, Hampshires, and Shropshires—Messrs. Canning, Hart, and Cureton.

CLASS 24. For beast[yearling Ram.—12*l.*, Mr. Sanday, Holmepierrepont; 6*l.*, Messrs. J. & A. E. Gould, Poltimore, Exeter. Commended: Mr. Sanday.

CLASS 25. For the best Ram of any other age.—5*l.* and 3*l.*, Mr. Sanday.

CLASS 26. For the best pen of 5 yearling Ewes.—10*l.*, Messrs. Gould; 5*l.*, Mr. J. B. Corner, Longforth, Wellington.

COTSWOLD.

CLASS 27. For the best yearling Ram.—12*l.* and 6*l.*, and Commended, Mr. T. Gillett, Farringdon.

CLASS 28. For the best Ram of any other age.—No entry.

CLASS 29. For the best pen of 5 yearling Ewes.—10*l.*, Mr. J. Gillett.

SOUTHDOWN.

CLASS 30. For the best yearling Ram.—12*l.*, and Highly Commended, Messrs. J. & A. Heasman, Angmering; 6*l.*, Mr. Rigden, Hove, Brighton.

CLASS 31. For the best Ram of any other age.—5*l.*, Mr. W. Rigden; 3*l.*, and Highly Commended, Mr. H. Humphrey, Hurstpierrepont. Commended: Mr. Rigden and Messrs. Heasman.

CLASS 32. For the best pen of 5 yearling Ewes.—10*l.*, Sir W. Throckmorton, Bart., Faringdon, Berks; 5*l.*, Messrs. J. & A. Heasman. Highly Commended: Mr. R. Neville-Grenville, M.P., Glastonbury, Somerset.

HAMPSHIRE DOWN.

CLASS 33. For the best yearling Ram.—12*l.*, Mr. A. Morrison, Fonthill House, Tilbury; 6*l.*, Mr. W. F. Bennett, Chilmark, Salisbury. Highly Commended: Messrs. R. & J. Russell, Dartford, Mr. J. Barton, jun., Hackwood Farm, Basingstoke; Mr. A. Morrison, Tisbury; Mr. R. Coles, Middleton Farm, Warminster, and Mr. J. Rawlence, Bulbridge.

CLASS 34. For the best Ram of any other age.—5*l.*, Messrs. R. & J. Russell, Horton-Kirby, Dortford; 3*l.*, and Highly Commended, Mr. J. Rawlence, Bulbridge; Mr. John More, Littlecot Farm, Pewsey, Wilts.

CLASS 35. For the best pen of 5 yearling Ewes—10*l.* and Highly Commended, Mr. J. Rawlence; 5*l.*, Mr. W. F. Bennett, Chilmark, Salisbury.

SHROPSHIRE.

CLASS 36. For the best yearling Ram.—12*l.* and 6*l.*, the Right Hon. Lord Chesham, Latimer, Bucks. Highly Commended: Mr. T. Horton, Harnage Grange, Shrewsbury.

CLASS 37. For the best Ram of any other age.—5*l.*, Mr. T. Horton, Harnage Grange, Shrewsbury; 3*l.*, Mr. H. Wood, Pucknall Farm, Romsey.

CLASS 38. For the best pen of 5 yearling Ewes.—10*l.*, the Right Hon. Lord Chesham; 5*l.*, Mr. H. Wood.

OXFORDSHIRE DOWN.

CLASS 39. For the best yearling Ram.—12*l.*, Mr. F. Gillett, Upton Downs, Burford, Oxon; 6*l.*, Mr. A. F. M. Druce, Burghfield, Reading.

CLASS 40. For the best Ram of any other age.—5*l.* and 3*l.*, Mr. G. Wallis, Old Shifford, Bampton, Faringdon, Oxon.

CLASS 41. For the best pen of 5 yearling Ewes.—10*l.*, Mr. F. Gillett, Oxon; 5*l.*, Mr. G. Wallis.

SOMERSET AND DORSET HORN.

CLASS 42. For the best yearling Ram.—12*l.* and 6*l.*, Mr. A. Bond, Huntstile, Bridgewater, Somerset.

CLASS 43. For the best Ram of any other age.—5*l.*, Mr. Henry Mayo, Coker's Frome, Dorchester; 3*l.*, Mr. A. Bond, Huntstile.

CLASS 44. For the best pen of 5 yearling Ewes.—10*l.*, Mr. A. Bond; 5*l.*, Mr. H. Mayo, Coker's Frome, Dorchester.

EXMOOR AND OTHER MOUNTAIN.

CLASS 45. For the best Ram of any age.—10*l.*, Mr. E. Maunder, jun., North Molton, Devon.

CLASS 46. For the best pen of 5 Ewes of any age.—5*l.* and 3*l.*, Mr. E. Maunder, jun.

SPECIAL PRIZES.

(Offered by the Right Hon. the Earl of Portsmouth, and Alfred Morrison, Esq., Fonthill House, Tisbury).

CLASS 47. For the best Hampshire Down Ram.—10*l.* and 8*l.*, Mr. C. Long, Ratfin Farm, Amesbury, Salisbury. Highly Commended: Mr. J. Rawlence.

Horses.—These animals were less numerous than we expected to find them, but the southern and western counties are more celebrated for their sheep and cattle than for horses. Even the special prizes offered for New Forest ponies were so little thought of that no real response was made. The cart-horses were scarcely a show at all. The stock-horses were scarcely worth notice except for breeding ordinary local farm-horses. For this purpose there were three or four active and hardy animals. The entries altogether in the 14 classes were under 70 head, and a large share of these were colts, hacks, and ponies. The 1st prize hunter, sent by Mr. Hambro, M.P., of Milton Abbey, Blandford, was a strong, active, good-looking chestnut; so was Mr. Battam's 4-year-old bay mare; but beyond these and two or three others, which possessed gentility with strength and activity, they were common and carty. The hacks and ponies were only of local interest.

The following are the awards:—

FOR AGRICULTURAL PURPOSES.

Judges—Messrs. Thornall and Howard.

CLASS 48. For the best Stallion, foaled before 1867.—25*l.*, Mr. W. H. Gale, Burbage, Marlborough; 15*l.*, Mr. Edward Gibbs, Chitterne, Wilts.

CLASS 49. For the best Stallion, foaled in 1867.—20*l.*, Mr. J. Feaver, Stony Littleton, Wellow, Bath; 10*l.*, Mr. Gale. Commended: Mr. J. Rose, Marston, Devizes.

CLASS 50. For the best Mare and Foal, or in foal.—15*l.*, Mr. W. E. Fitt, Littleton, Winchester.

CLASS 51. For the best Filly, foaled in 1867.—10*l.*, Mr. G. Hampton, Findon, Worthing; 5*l.*, Mr. J. Gay, Attwater, Salisbury. Commended: Mr. E. Gibbs.

HUNTERS.

CLASS 52. For the best Mare or Gelding, foaled before January 1, 1865.—25*l.*, Mr. C. Hambro, M.P.; 10*l.*, Mr. M. Grant, Gillingham. Highly Commended: Mr. G. B. Battams, Kitcombe, Bottesford.

CLASS 53. For the best Mare or Gelding, foaled in 1867.—25*l.*, Mr. G. B. Battams; 15*l.*, Mr. C. Chippendey, Theale, Wells.

CLASS 54. For the best Filly or Gelding, foaled in 1866.—15*l.*, Mr. G. B. Battams; 5*l.*, Mr. H. Barnes, Heath House, Andover.

CLASS 55. For the best Colt or Filly, foaled in 1868.—10*l.*, Mr. H. Humphrey, Hurstpierrepoint; 5*l.*, Mr. R. Coles, Yeovil.

HACKS.

CLASS 56. For the best Mare or Gelding, not more than 6 years old, not exceeding 15 hands high, calculated to carry not less than 12 stone.—15*l.*, Mr. H. Barnes, Andover; 5*l.*, Mr. J. Gater, West End, Southampton.

PONIES.

CLASS 57. For the best Mare or Gelding, not exceeding 14 hand high. No competition.

CLASS 58. For the best Mare or Gelding, not exceeding 13 hands high.—10*l.*, Mr. J. Michelmore, Berry Pomeroy, Totnes, Devon; 5*l.*, Mr. F. L. Popham, Bristol.

Pigs.—Pigs that appear at shows now-a-days are nearly all alike, and there is but little room for criticism, in consequence of their uniformity and goodness. The hairless scaly-skinned pigs which were once thought much of are scarcely noticed, much less purchased, by any one. The unfortunate possessors of such a degenerate stock wisely, so far, at least, keep them at home. The Messrs. Duckering, of Lincolnshire, who have been great exhibitors of late, met here with their usual success; and the Messrs. James & Frederick Howard, who have now become as enterprising in pigs as they have long been in machinery, had some hardy and symmetrical pigs in the yard, for which they received honours at the hands of the judges. The other exhibitors were the Rev. Mr. Bailey, of Swindon; Mr. Walter, M.P., the Marquis of Ailesbury, the Earl of Radnor, Sir William Heathcote, and many others of local standing.

The following are the awards:—

LARGE BREED.

JUDGES—Messrs. Painter and Twitchell (large pigs); and Messrs. Canning, Hart, and Cureton (small pigs).

CLASS 59. For the best Boar, above 1 year, and not exceeding 2 years old on June 1, 1869.—5*l.* and 3*l.*, Messrs. R. E. Duckering & Son, Northorpe, Kirton Lindsey, Lincolnshire. Highly Commended: Mr. H. Humphrey, Shrivenham, Berks.

CLASS 60. For the best Boar, not exceeding 1 year old on June 1, 1869.—5*l.*, Mr. H. Humphrey; 2d, Messrs. J. and F. Howard, Bedford. Commended: Sir W. Heathcote, Bart.

CLASS 61. For the best breeding Sow in farrow, or exhibited with her litter.—5*l.* and 3*l.*, Messrs. Duckering & Son. Commended: Mr. J. H. Clark, Altwood, Maidenhead, Berks, and Mr. H. Humfrey, Shrivenham.

CLASS 62. For the best pen of 2 breeding Sows, not exceeding 9 months of age on June 1, 1869.—5*l.*, Mr. H. Humfrey; 3*l.*, Mr. J. H. Clark. Commended: Messrs. Duckering & Son.

SMALL BREED.

CLASS 63. For the best Boar, above1 year, and not exceeding 2 years old on 1st June, 1869.—5*l.* and 3*l.*, Messrs. Duckering & Son.

CLASS 64. For the best Boar, not exceeding 1 year old on 1st June, 1869.—5*l.*, Mr. J. S. Davey, Redruth, Cornwall. Highly Commended: the Right Hon. the Earl of Radnor. 3*l.*, Mr. J. B. W. Fleming, Chilworth Manor, Romsey. Commended: Mr. M. Portal, Micheldever, Hants; and Mr. E. Coles, Yeovil. Highly Commended: Mr. T. Chamberlayne, Cranbury Park, Winchester.

CLASS 65. For the best Breeding Sow in farrow, or exhibited with her litter.—5*l.* and 3*l.*, Messrs. Duckering & Son. Highly Commended: Mr. T. R. Cornish, Bishop's Teighnton; and Mr. M. Portal.

CLASS 66. For the best pen of two Breeding Sows, not exceeding 9 months of age on the 1st June, 1869.—5*l.*, Mr. J. S. Davey; 3*l.*, the Right Hon. the Earl of Radnor. Commended: Messrs. Duckering & Son.

Special Local Prizes.—The following are the awards of the prizes offered by the Southampton committee:—

JERSEY CATTLE,

Bred in the Island, and to have been in the possession of Exhibitor nine months previous to the first day of the Exhibition.

CLASS 67. For the best Bull, not exceeding 4 years old.—5*l.*, Mr. T. Le Sueur, Maufant, St. Saviour's, Jersey; 3*l.*, Mr. W. Alexander, Trinity, Jersey.

CLASS 68.—For the best Cow in calf or in milk, having had a calf within six months next preceding the 1st June, 1869.—7*l.*, Mr. H. Compton, Lyndhurst; 3*l.*, Mr. N. Arthur, St. Mary's, Jersey. Commended: Mr. John Gater, Southampton.

CLASS 69. For the best Heifer, not exceeding 2 years and a-half old on the 1st June, 1869.—7*l.* and 3*l.*, Mr. C. P. Le Cornu, Trinity Manor, Jersey.

GUERNSEY CATTLE,

Bred in the Island, and to have been in the possession of Exhibitor nine months previous to the first day of the Exhibition.

CLASS 70. For the best Bull, not exceeding 4 years old.—7*l.*, Mr. T. Maindonald, St. Peter Port, St. Andrew's, Guernsey; 3*l.*, Mr. J. Le Page, St. Andrew's, Guernsey.

CLASS 71. For the best Cow in calf, or in milk, having had a calf within 6 months next preceding 1st June, 1869.—7*l.*, Mr. E. A. De Putron, St. Peter Port, Guernsey; 3*l.*, Mr. John Bronard, Courtil au Preel, St. Peter Port, Guernsey. Highly Commended: Mr. P. Blampied, St. Peter Port, Guernsey. Commended: Mr. T. B. Le Page, St. Andrew's, Guernsey.

CLASS 72. For the best Heifer, not exceeding 2 years and a half old on 1st June, 1869.—7*l.*, Mr. U. Wakeford; 3*l.*, Mr. J. Rougier, Guernsey. Commended: Mr. D. Le Cheminant, Sablons, Guernsey.

CHANNEL ISLANDS CATTLE,

Bred out of the Islands, and to have been in the possession of the Exhibitor 9 months previous to the first day of the Exhibition.

CLASS 73. For the best Channel Islands Bull, not exceeding 3 years old.—5*l.*, Mr. J. B. W. Fleming, Chilworth Manor, Romsey; 2*l.*, Mr. R. C. Priddle, North Stoneham, Southampton.

CLASS 74. For the best Guernsey Cow in calf or in milk. No entry.

CLASS 75. For the best Jersey Cow in calf or in milk, having had a calf within six months next preceding 1st June, 1869.—3*l.*, Capt. F. A. Maxse, R.N., Southampton; 2*l.*, Mrs. L. Malcolm, Totton, Southampton. Highly Commended: Mr. John B. W. Fleming.

CLASS 76. For the best Channel Islands Heifer, not exceeding 24 years old on the 1st June, 1869.—3*l.*, Mr. H. Compton, Manor House, Lyndhurst; Mr. G. Digby, Sherborne. Commended: Mr. A. C. Sayers, Bishopstoke.

HAMPSHIRE DOWN SHEEP.

CLASS 77. For the best pen of 10 yearling Ewes, being a draft from a flock of not less than 800 breeding ewes, one-fourth of which shall consist of yearling ewes.—5*l.*, Mr. J. Rawlence.

CLASS 78. For the best pen of 7 yearling Ewes, being a draft from a flock of not less than 600 breeding ewes, one-fourth of which shall consist of yearling ewes. No competition.

CLASS 79. For the best pen of 4 yearling Ewes, being a draft from a flock of not less than 400 breeding ewes, one-fourth of which shall consist of yearling ewes.—5*l.*, Mr. W. E. Fitt.

CLASS 80. For the best pen of 5 Ram Lambs.—5*l.*, Mr. W. F. Bennett, Chilmark, Salisbury.

FOREST HORSES.

CLASS 81. For the best Hack Stallion, not exceeding 15 hands, calculated to improve the breed of Forest ponies for saddle and harness. No award.

CLASS 82. For the best New Forest Mare for saddle and harness. No entry.

CLASS 83. For the best New Forest Pony, not exceeding 13½ hands, for saddle and harness.—5*l.*, Mr. J. Fletcher, Eling, Southampton.

Implements and Machinery.—This department of the showyard has been so often described, that it would be difficult to say anything new by way of generalising upon it; and the names of all the leading makers are so well known, that it is quite enough to say they were all there. There is no striking novelty in the yard, but there are several improved adaptations of mechanical principles to machines which have been hitherto less perfectly constructed. From the length, however, to which our report has already extended, we must defer the few remarks that we have to make—supposing that it is in any way necessary to make them now we are so near the Manchester meeting of the Royal. The number of machines here is larger, we are informed, than has ever been collected at the meeting of the Bath and West of England Society. But if this be not so, there are certainly enough specimens for every practical and profitable agricultural purpose.

The trial fields presented far more room for consideration and argument; for here we came in contact with a great and influential society, which has acted differently to the Royal Society of England, inasmuch as no prizes have ever been competed for under its auspices, although public trials have continually been made. These trials on this occasion took place at Testwood, about five miles from the showyard; and the machines which were this year publicly worked were reapers and mowers. But we cannot discuss the merits and demerits of those public trials on this occasion. They are, in our opinion, too important to gloss over without due consideration, or to attempt to cram noticeable points into the space at our disposal. We may say, however, that nine firms sent one or more reapers and mowers or combined machines for doing both operations. These were Messrs. Howard, the Beverley Company, Mr. Walter Wood, Messrs. Samuelson, Messrs. Picksley & Sims, Mr. Kearsley, of Ripon, Messrs. Foster & Sons, and Mr. Page. Mr. Bamlett, of Thirsk, was shut out, from his inadvertently making an informal entry.

The work which most of the machines did was certainly of a most excellent character, according to what was required to be done by each individual machine. But it is on the general management and result of these trials that we may have a few words to say, for the makers are quite capable of taking care of themselves if they have given them a fair open and clear field and no favour.

Messrs. Howard also worked a steam-plough and digger with one of their cross boiler 12-horse traction engines, and they did some most excellent work, although this was pursuing a public exhibition under the greatest difficulties that we ever saw encountered.

Messrs. Tasker & Son had their excellent windlass at work in the roundabout system. The implement they worked was one of Messrs. Fowler & Co.'s four-furrow balance ploughs. But the work done was not satisfactory at the ends, although it was fairly turned after the plough got to the work.

Pirie's remarkable three-wheeled double-furrow plough was also at work with three horses; and as good work was done with it at about 6 inches deep, with three horses, as any one need see.

THE HORSE SHOW.

Agricultural Hall, Islington.—The sixth London Horse Show was opened here on Saturday last, and brought to a close yesterday. Exhibitions of this character appear to grow more and more in public favour. The attendance during the "private view" on the first day was anything but what is understood by that term, for the large additional number of reserved seats, price 5*s.*, 2*s.* 6*d.*, and 1*s.*, were nearly all "taken," if not occupied; and the ring was lined with interested and animated spectators, four, six and eight deep. It is needless therefore to say the place was inconveniently crowded.

The hunter and hackney classes were about a good average of Rotten Row in the more select period of the season. But little exception need be made to this general statement; for some of the best hunters in the country do the gentle second duty of affording horse-exercise in London. And if good hacks and cobs and ponies are not to be seen about Hyde Park Corner, where are they to be found? and what would be the good of farmers trying to breed them?

But a few words on the classes. Mr. David MacIntosh, of Havering Park, Romford, sent three as good horses as any man ever exhibited at a public show. These were all different in character, and yet they were all hunters. The 80*l.* prize for "hunters equal to 15 stone," was awarded for his ST. CLARE, a son of ST. CLARE, dam by LITTLE KNOWN. This horse is a bay, with three white heels, 16½ hands high, and his flat wiry legs and muscular arms and thighs, make him an animal of great power in a highly attractive form. Mr. Potter's HARKAWAY, an Irish chestnut, is a splendid horse to look at, and this is supported by fine style and substance. The 3d prize was not, we thought, so judiciously awarded, though KILDARE is no doubt a plucky, showy, and wiry little horse.

In class 2, for "hunters, without conditons as to weight," Mr. MacIntosh's BARONET was eminently—we thought pre-eminently—conspicuous for both form and style. It is seldom more perfect galloping and perfect steadiness are combined. Nothing besides, as regards appearance, need be better than his bright bay form. It is as well, however, not to be, comparatively, too successful. Major Quentin was awarded the 1st prize for PLACID, a thoroughly good horse, both for form and style, and of immense power. Captain Barlow was 2d with TOPSTALL, an animal which was in no way inferior; and Mr. Sanders, of Bampton Hill, Northampton, was 3d with PLAYMATE, a bay. DARKY, a "black chestnut," as this colour has been lately termed, also sent by Mr. Sanders, is an elegant and excellent mover for a light weight. Mr. Sotham sent a high-trotting tear-away brown mare into this class. She is a capital mare, no doubt; she would "shoot away" to market in a

heavy dogcart at "11-an-hour," or trot around a farm, and to the village blacksmith's or cow-doctor's, and back in a little more than no time at all; and there is no doubt that she would be somewhere not far behind with any one on her back to stick to her if she had her head turned after a pack of hounds in full cry—in fact this Buckinghamshire mare seems to be a good anythingarian, particularly if the anything wants to be done in a hurry; but the first step over a stable threshold might tell half a judge that the hunter classes were not her proper place. Mr. John Hardy, M.P., sent an excellent grey gelding, which had a heavy or carty appearance as he walked and was held to that pace. But when the galloping commenced he showed himself to be in the right place, as he is a sober and fine, easy moving, and immensely powerful weight-carrying hunter.

Class 3 was an uneven lot. These were not to exceed 15 hands 2 inches. Mr. MacIntosh's 3d horse was here conspicuous for his good old-fashioned style and form. He is a compact and powerful black, with a thin firm neck and beautiful head, and his short squared tail give him the character of many a similar animal that could "go and do it" a quarter of a century ago. Mr. Mott, of Birmingham, was awarded 1st prize, and Messrs. Stamford, Steyning, Sussex, 2d.

It was for class 4, however, to be the possessor of the favourite of the day. Mr. Joseph Casson, Burley-by-Sands, Carlisle, sent COMMISSIONER, a 16-hand 4-year-old horse, by MOTLEY by TOUCHSTONE. His style, form, and movements required no hesitation as to his position among his classified competitors. And when the four 1st prize hunters were subsequently brought together, this young horse was almost unhesitatingly awarded the gold medal for the best animal in the hunter classes. He has rare quarters certainly, and such a chest and "heart-place" as are seldom seen. The 1st, as we have said, was awarded for COMMISSIONER to Mr. J. Casson, of Burley-by-Sands, Carlisle; and the 2d to Mr. L. Lywood, master of the East Sussex foxhounds, for his HANDCUFF, 15 hands 2 inches high, by WILD DAYRELL, dam *Furbelow*.

Of thoroughbred stallions there were 12 entries, one of which, Mr. Saville Middleton's, of Water Newton, Wansford, was not named. Besides WHITBY, the horse for which the prize was awarded, there were the following names, most of which are well known,—viz., BROOMIELAW, THE EARL OF DERBY, THE STUDENT, CARLTON, DALESMAN, THE CZAR, ACONITE, IVANHOFF, NARBONNE, and NASEBY.

The other stallions, the cover hacks and roadsters, the park hacks and ladies' horses, the park cobs (high steppers), the carriage horses, and the ponies, large and small, were of about the same average character which exhibitions of this kind now attract.

Subjoined is the prize list:—

JUDGES.—The Earl of Macclesfield, Viscount Combermere, Captain Percy Williams, Colonel Kingscote, C.B., M.P., and Captain Bastard.

CLASS 1. Hunters, weight carriers, 15 stone.—1st, Mr. M'Intosh, Romford, for "St. Clare;" 2d, Mr. T. W. Potter, Cheltenham, for "Harkaway;" 3d, Mr. J. Bredon, Liverpool, for "Kildare."

CLASS 2. Hunters, without condition as to weight.—1st, Major Quentin, for "Placid;" 2d, Captain F. Barlow, Woodbridge, for "Topstall;" 3d, Mr. Henry Sanders, Brampton Hill, Northampton, for "Playmate."

CLASS 3. Hunters, without condition as to weight, and not exceeding 15 hands 2 inches high.—1st, Mr. J. Stanly Mott, Birmingham, for "Mischief;" 2d, Mr. E. A. O. Stamford, Steyning, Sussex, for "Spanton."

CLASS 4. Hunters, 4 years old.—1st, Mr. J. Conor, Carlisle, for "Commissioner;" 2d, Mr. Leonard Lywood, Master of the East Sussex Fox-hounds, for "Handcuff."

CLASS 5. Riding horses, fine action and quality essential, of any height exceeding 15 hands 2 inches high.—1st, Mr. Harvie Farquhar, for "Champagne Charlie;" 2d, Mr. Robert Cambbell, Army and Navy Club, for "The Peer;" 3d, Captain Thomas Hargreaves, Reading, for "Oxford."

CLASS 6. Cover Hacks and Roadsters, weight carriers, not exceeding 15 hands 2 inches high.—1st, Mr. Charles Beart, Downham Market, Norfolk, for "Polly Brown;" 2d, Mr. Thomas Perceval, Wansford, for "Card Sharper."

CLASS 7. Park Hacks and Ladies' Horses, not exceeding 15 hands 2 inches high.—1st, Mr. George David, Badham, of Bulmer Tye, Sudbury, for "Eclipse;" 2d, Mr. G. J. Tanton, Westminster Bridge Road, for "Joe Lovell;" 3d, Mr. George Holmes, Beverley, for "Charley Boy."

CLASS 8. Horses not exceeding 15 hands 2 inches.—1st, Mr. J. Hornby, for "Sambo;" 2d, Mr. R. Campbell, Army and Navy Club, for "The Peer."

CLASS 9. Park Hacks and Ladies' Horses, not exceeding 15 hands 1 inch high.—1st, Mr. Harry W. Chomley, Rillington, York, for "Belinda;" 2d, Mr. G. M. Sexton, for "Cream;" 3d, Mr. M. N. Williams, Tredna, Cornwall, for "Beeswing."

CLASS 10. Park Cobs, not exceeding 14 hands high.—1st, Mr. Lionel Lawson, Brook Street, Hanover Square, for "Beauty;" 2d, Captain T. Hargraves, Reading, for "Hero;" 3d, Mr. R. Glynes, Ilford, Essex, for "Polly."

CLASS 11. 1st, Mr. L. Lawson, Brook Street, Hanover Square, for "Beauty;" 2d, Mr. Thos. Howdle, Hull, for "Frank;" 3d, Miss E. Hunt, Deeping St. Nicholas, Lincolnshire, for "Black Diamond."

CLASS 12. Ponies.—1st, Mr. T. Howdle, Cottingham, Hull, for "Brown Tommy;" 2d, Mr. W. Whitehead, Yaxley, Peterborough, for "Fan;" 3d, Mr. W. J. Adams, Chislehurst, Kent, for "Tommy."

CLASS 13. Stallions, thoroughbred.—The Agricultural Hall gold medal and 50*l.*, Mr. George Holmes, Beverley, for "Whitley," by Barnton, brother to Voltigeur.

CLASS 14. Stallions, not less than 15 hands high.—1st, Mr. John Abell, for "Young Phenomenon;" 2d, Mr. Charles Beart, Downham Market, for "Ambition."

CLASS 15. Stallions, under 15 hands high.—1st, Lady Ann Speirs, Eton Place, for "Farhan;" 2d, Mr. Adrian E. Hope, Cavendish Square, for "Pasha."

CLASS 16. Stallions, not exceeding 13 hands high.—1st, Colonel Astley, Elsham Hall, Brigg, for "Tradesman."

Reviews.

Address to Agricultural Machine Manufacturers. By the Mecklenburg Patriotic Society.

A "Patriotic Society" appears at first sight to be an odd term to use in connection with agricultural machinery. This, however, is not an English, but a German appellation, and there may be a more extended meaning in it than British manufacturers would imagine. But the increased demand on the part of this country for European agricultural produce, and the increased profit which has accrued to Continental producers, have stimulated manufacturers in Germany and France into extraordinary activity. As evidence of this, we have before us a novel publication, which has been sent out by the secretary (H. Pogge) to the above named Society, the purport of which will be gathered from the introductory sentence.

"On behalf of the section of the Mecklenburg Patriotic Society for agricultural machinery, I take the liberty of sending the annexed memorial, with a sketch, including—A. A general resolution respecting an agricultural machinery exhibition. B. A general regulation for the trial of agricultural machinery on exhibition, with the request that you will give the subject your attention, and suggest any improvement you may think fit."

The "memorial" consists of a series of questions, opinions, suggestions, resolutions, and arguments, which have been made, adopted, and used by the authorities representing this "Patriotic Society." The first question asked is, "Are trials at an exhibition necessary or desirable?" "This," we are told, "is often denied by manufacturers, and this opinion has caused the establishment of markets of machinery, which of late have been held annually at Breslau." Thus, it will be perceived there is a difference of opinion in other countries as well as our own on the subject of public trials. Manufacturers here differ, as some of them prefer to send a machine or apparatus to do actual work, and invite neighbouring farmers to watch its performances. Others prefer to send their ploughs to such local matches as can scarcely be called exhibitions. Farmers, again, in many cases prefer to make their own selection to following judges at public exhibitions, the Royal Society's trials being to them no exception. And if Mr. Smith, of Woolston, as a practical farmer, were asked his experience, we fear he would not be very eulogistic in favour of any public trials for prizes or honorary awards. Subsequently to the above question and answer, this "memorial," however, continues:—

"The 'section' could not confirm this opinion so far as doing away with trials. That trials at exhibitions are defective, and, in consequence of the great expenditure of time and money, will remain defective, is certain, because there is not sufficient time for a complete trial. But even these incomplete trials, when carried on with the greatest care, are of a high value, and are not so much to the interest of the manufacturer as to the buyer. Every maker is convinced more or less of the excellence of his machine, as he has spent his industry, intelligence, and money upon it; but in most cases he is not in a position to judge of its merits when at ordinary work, as would be desirable for both him and the purchaser. When he has the opportunity therefore of trying his machine by the side of those of other makers before competent judges, it can only serve to show him the value of his, and to bring up its good and bad points."

This "memorial" came to our hands through an eminent firm of English manufacturers, to whom it was addressed for the purpose stated. But after the above positive conclusions and strong opinions, we fear manufacturers will not be disposed to "suggest any improvements," as they are asked to do by this "memorial." And so far as we are concerned, we are inclined to think that the authorities of the Mecklenburg Patriotic Society have gone far enough into the subject of agricultural machinery to have resources of their own to rely upon, and that they had better trust to their own genius, the natural conditions their country presents, and to their own practical trials for a solution of the questions which have been raised in their "memorial."

The utility and character of judges, trials, honorary awards, prizes in money, advantages of great meetings, small shows, and the dynamometer, are all separately considered and fully discussed. There are further grounds for believing that these German inquirers need no help from England for their guidance.

Appended to the "memorial" is—

"*A Sketch of an Agricultural Machinery Exhibition.*"

This is divided into 15 sections, all of which are more or less fully considered, viz.:—1. Portable engines; 2. Threshing machines (*a*, for steam-power, *b*, for horse-power); 3. Horse-gear; 4. Mowing and Reaping machines; 5. Ploughing implements; 6. Chaff-cutting machinery for steam, horse and hand power; 7. Mills, crushers, oilcake-breakers, and root cutters; 8. Sowing machines (*a*, broadcast sowing machinery, *b*, seed drills); 9. Corn-dressing machines; 10. Butter-making machines; 11. Cooking machines and boiling apparatus; 12. Fire engines; 13. Pumps; 14. Brick and drain-pipe machines; 15. Weighing machines.

The only modern machines which do not appear to have received attention by this Patriotic Society are traction-engines and ploughs and cultivators to be used by steam-power. Probably, therefore, some of our British manufacturers of these articles may be disposed to favour the Mecklenburgers with the result of their experience. The following section of this "sketch" will give any communicative Englishman an idea of the way the Mecklenburgers enter into the spirit of public trials, as well as show how much or little they stand in need of the "education" solicited in their "memorial" to English manufacturers. We select No. 4, on mowing-machines, as this class of implement will form a part of the public trials to be made next month by the authorities of the Royal Society during the Manchester meeting:—

"1. Mowing machines can only be tried at a time when the Grass is ready for mowing, or the corn is ready for reaping Care must be taken that a given strip of land be mowed early in the spring, so that it may be ready for mowing again by the time the reaper trials take place, so that both mowers and reapers may be tried at the same time.

"2. The trial of reapers must be appointed at latest by the autumn of the previous year. Announcements must be made three months before the trial, and the necessary preparations made as early as possible.

"3. Each machine is to mow or reap a piece of land before the trial, and with as much care as at the trial.

"4. For the trial each machine will have an equal-sized piece of land measured off, at least 500 rods, and the time required to mow or reap it noted.

"At the Banhof trial, Gustraw show, 1862, seven machines did the work in from 1 hour 32 minutes to 2 hours 15 minutes. It is desirable that the machines work upon another strip of equal size of another kind of corn; for instance, one strip of winter corn and one of summer corn. In working the strip round a great deal must be mown by hand, so that the machine can only nominally begin the work. Each strip to have two men to mow, if necessary, all the sharp corners by hand.

"5. The ground to be so chosen that the machines do not have to work too hard. The field must be one without stones (these having been collected together and taken off at the proper time) and ditches. Water-furrows are somewhat desirable, although not in great number. The ground itself must be solid.

"6. Each machine during the trial to be accompanied by the juror appointed for that purpose, who has to report upon the trial.

"7. Every interruption during the trial to be noted, and it is to be decided whether the cause is accidental or the fault of the machine.

"8. If possible all machines must be tried at the same time, because the time of day, and the dampness of the corn to be cut, produce a great difference in the facility with which the corn can be cut,—for instance, morning and evening dew, heat of mid-day, rain, &c. If it is desirable, each or any machine must be tried again in the presence of the jurors.

"9. Should a machine work so badly that a considerable loss of corn ensues, the jurors have the right to prohibit any further working of the machine. They may also, under their control, institute a preliminary trial, and afterwards decide whether the trial shall continue.

"The jurors are to particularly take notice:—

"10. Whether the corn has to be raked by the man attending to the machine, or if it is self-raking, and how this is done.

"11. How laid corn is reaped and raked by the machine. Corn lying flat: inquiry need not be made respecting this.

"12. Whether the machine cuts uniform stubble at different heights, and if it presses down the corn.

"13. Whether the machine beats out any corn.

"14. Whether the machine works without vibration.

"15. Whether any danger attends the working of the machine to the men.

"16. If the machine is easily transported when not at work.

17. After the required strip has been reaped, a dynamometer is to be added, and, by reaping in the same manner as during the trial, amount of draught is ascertained. The draught of the machine also to be ascertained when not at work, so as to find out the actual power of the machine.

"It is further to be observed:—

"18. Width of the cutting gear, the width of the strips cut at each round by the machine during the trial. This is shown by the stubble.

"19. The length traversed by the horses per minute during the trial. This is reckoned by the number of rounds traversed during the allotted time of trial. A nominal estimate of the work required to be done may be stated at 360 lb. per foot per second.

"20. The number of movements of the cutting knife within a given distance. All that is said with reference to the reaping machines applies to the grass mowing-machines, with the exception of that specially referring to corn."

This address, issued apparently for limited circulation, is, taking it altogether, a remarkable production.

Whether our English manufacturers will respond candidly and freely to the solicitations thus put, or whether they will consider we have more to learn from the Mecklenburg Patriotic Society than we can teach them, are questions that we must leave to the manufacturers themselves. From the notice we have given of this challenge on the part of the Mecklenburgers, our readers will be fully convinced that foreigners have not been asleep of late years as regards agricultural machinery. And now that they have advanced as far as the above extracts show they have done, it is quite clear they will soon be powerful rivals as machine makers for themselves and other countries. As regards public trials, so far as care and close observation go, our own opinion is that, in some important particulars at least, they do these things better in—Mecklenburg.

The Poultry Yard.

THE BATH AND WEST OF ENGLAND POULTRY SHOW.—A busy week for the busy and important port of Southampton. The growing and precocious eldest child of the Royal Agricultural Society of England celebrates its birthday in her precincts. The annual meeting of this Society is always a success, and the present one forms no exception. As the Show is still open at the time we write we can only give a cursory report of it at present. The number of birds this year exhibited is considerably in excess of last: the average quality of them very high. Sussex took the 1st prize for Dorkings. Not often does the county to which the breed so much belongs thus distinguish itself, and we hope the present case is a good beginning for the

coming exhibition season. Mr. Smith, of Shillinglea, won 1st, and we thought the old Linton Park blood well represented by Mr. Martin, although he now hails from Worcester instead of Kent. He took 2d and 3d, while many well-known exhibitors took "H. C.'s" and "C.'s." Mrs. Hartwell took both prizes for white Dorkings. If there be one Show more than another at which we expect to find good Spanish is at this Show. The remembrance of the birds formerly exhibited by Messrs. Rake and H. D. Davies comes prominently before us, and their mantle is worthily worn by Messrs. Jones, Lane, and others.

The Cochins were very good indeed, more especially the buffs; Mr. Mapplebeck and Miss Milward (the winners of 1st and 2d) may be congratulated on the condition in which they sent their birds. We were sorry to hear great exception taken to the award in the class for brown and partridge-feathered Cochins; it seemed that size had outweighed colour and points. In Brahma Pootras Mr. Dowsett was 1st, and Mrs. Thynne 2d and 3d. Mr. Crook added one more to a list of prizes already numerous for light Brahmas, Mr. Maynard taking 2d, Mr. Pares coming 3d only. Those who did not attend the Show will hardly understand the black-breasted red game class when they find such exhibitors as the Rev. Mr. Cruwys and Messrs. Loe and Matthews following exhibitors comparatively unknown in the breed. In the class for duckwings the prizes are taken by Messrs. Matthews, Loe, Cruwys, and the Duke of Sutherland. It must be considered as a step backwards that only two prizes were allotted to the French breeds. These were taken by Mr. Fowler for Crèvecœurs, and Captain Robin for La Flèche, in the order in which we mention them. The Hamburgh classes remind one of the irregular verbs, difficult to find the beginning of, but almost impossible to wade through. In the classes for pencilled, the Duke of Sutherland and Mrs. Ailsopp took 1sts. In spangled, the same nobleman and Mr. Pittis took the 1st. For Polish fowls, as of yore, Mr. T. P. Edwards was the winner for the black, while Mrs. Pettat and Mrs. Procter carried off the honours for the golden and silvers. In the heart-breaking class "for any distinct variety," a good pen of black Cochins was 1st, followed by Andalusian and Malays.

Miscellaneous.

A Chamber of Commerce on Sheep-shearing.—The President of the Bradford Chamber of Commerce has addressed a circular to the President of the North Riding Chambers of Agriculture in the interests of the grower as well as of the consumer of wool. Mr. Behrens congratulates the agricultural community on having combined for the protection of their interests in the same manner as the commercial body has done, and that the sentiments of the Bradford Chamber of Commerce are that its members cannot conceive the possibility of agricultural and commercial interests being antagonistic, but that they must suffer or prosper in an equal degree. United action on all common questions, and co-operation of the Bradford Chamber when required, are promised. Mr. Behrens then addresses Earl Feversham as follows:—"The Council of the Bradford Chamber of Commerce have, for years past, had brought under their notice cases of negligent or fraudulent winding of wool, from which disputes of an unpleasant nature have arisen. The Council have, therefore, decided (on the recommendation of their Wool Supply Committee) to issue this circular, calling the attention of all flockmasters to the injury caused to their own interests wherever such practices exist. Wool is sometimes shorn in places containing chopped straw or chaff, when particles of the latter get mixed, and cannot afterwards be separated from the wool, to the great deterioration of its value; but the Council refer more particularly to cases of a more reprehensible character. Thus, loss arises from the sheep not being properly docked or clagged before clipping; from the dockings and cots being sometimes wound up in the fleeces; and from want of proper attention in cleaning the fleeces when clipping, so as to keep them free from tar, stones, sand, earth, clay, dung, straw, Grass, or other substances. This, which many years ago it was found necessary to guard against by special Acts of Parliament, frequently remains undiscovered for months, until the wool goes into consumption, and a notion has prevailed that by the repeal of those Acts of Parliament the buyer has been deprived of his legal remedy. The Bradford Chamber of Commerce have, however, in conjunction with the Worsted Committee of Yorkshire, Lancashire, and Cheshire, taken the opinion of an eminent counsel on this matter, and they are assured that the purchaser of such wool has a remedy at common law quite as effective as he formerly had by statute. Actions have been brought, and damages recovered, both in the Assize and County Court. It is to be hoped that flockmasters will take due precautions against the recurrence of these acts of negligence on the part of their servants, which tend to destroy that confidence which should exist between the growers and consumers of wool."

Calendar of Operations.

JUNE.—Turnip seed-time is the distinctive designation of this month. In the north of England and Scotland Swedes are generally got in during the close of May, but in the southern counties of England and in Ireland the Swedes are more commonly sown in June, and even in the north sowing is seldom completed until the first week of the current month. The sowing of yellow-fleshed Turnips, Globes, and Tankards follows, the white-fleshed varieties being the last sown in the south. In the north the white-fleshed Globe and Tankard are sown before the yellows, in order to be consumed before the early frosts set in, more especially the large white Globes and red and green-top Tankards. In the southern counties these latter white-fleshed varieties are more commonly sown in July than in June.

Turnip fallowing is, therefore, the initiating work of the month. It is advisable to have the land ready a month or 14 days before the work of manuring and sowing begins, but this cannot always be complied with, while in wet seasons there are many exceptions to the rule. The nature of the season and of the land determines the details of practice to be carried out, assuming the most improved implements to be in use. If the surface has been pulverised by frost during the winter and early spring, heavy land and light land are both easily cleaned and got ready in dry weather for the manure and seed, the land being rolled down hard to keep in the natural moisture. But if there is an excess of moisture in the soil, or the immediate prospect of rain, rolling had better be deferred. In such a case roll after the rain as soon as the land will permit. In open winters, when the surface has not been pulverised by frost, it requires active and well directed practice to secure a proper tilth on much of the heavy clay land now under Turnip culture in northern districts, where Mangels cannot be profitably grown. They are generally termed good Bean soils; and in open winters, when the prospects in spring of a Turnip crop are not very promising, Beans are sown. In other examples, when the land cannot be got into a proper state for Turnips, it is summer fallowed for Wheat. But with the aid of steam-power, under proper drainage, a summer fallow has become an exception, even in backward seasons, very heavy clay soils being now reduced to a fine Turnip tilth by means of the cultivator and harrows. When the surface is inclined to clod, work the bottom between the wet and the dry, until it is sufficiently fine. Less working is required by steam than by horse-power, owing to the trampling of the feet of the teams. In wet seasons, or so long as the land retains an excess of moisture, small clods on the surface will do no harm, so that rolling is unnecessary. In such cases the bottom and surface will break down together. But the moment dry weather sets in, and the surface begins to dry too rapidly into hard crusty clods, the timely use of the clod-crusher, roller, and harrow is indicated. In unsettled weather, when heavy showers occasionally fall, the land may require to be well grubbed immediately after rolling, so as to allow the rain to pass readily to the drains, and thus prevent the land running together. Half the art of growing Turnips lies in the retention of plenty of moisture in a fine deep tilth, and the other half in getting in the manure with the moisture and the seed sown.

Liming continues up to the opening of the drills for manure on land which requires it, and not unfrequently the two operations go on together, the spreading and harrowing in the lime keeping ahead of the manuring and seeding. A very great loss is sustained in neglecting to lime land that requires it, and a much greater area of land, under our present system of high farming, or forcing green crops, requires lime than is generally imagined. Experiment is the best guide. Some clayey soils require a large dose to produce the desired effect, while some light soils work with a small one, the former running from 200 to 500 bushels of shells from the kiln, the latter from 30 to 100 per acre.

Farmyard manure some farmers cart to the field, and turn it in forming the dunghills; or afterwards, if carted out in winter. Others turn in the yards, while not a few farmers do not turn at all, the manure being spread fresh in the drills. Those who follow this latter practice do so on the ground that they get the manure covered in with more moisture without the waste experienced during fermentation when it is turned. There is another fact in favour of the practice of direct application, viz., with its then moist and supple state the manure spreads more evenly in the bottom of the drill. Some of these advantages, however, are perhaps more imaginary than real, for it is only when the manure undergoes an incipient fermentation in the yard that the practice is successful; for the unrotted litter, however full of moisture in the yard, is very liable to dry-rot in the ground in dry seasons. On the other hand, if the dunghills that have been turned are thoroughly soaked with liquid manure from the tank, a short time before the manure is carted on to the land, it is easily broken in the bottom of the drill, while it retains a greater percentage of sap than the less rotten manure that has not been turned; and the turned manure is not only more rotten, but more equally rotten; so that the Turnips braird, and grow more equally along the drills. The getting of the manure spread in the bottom of the drills while newly opened, and the earth is fresh and moist, is a great thing. For this purpose, the opening and closing of the drills should be as close upon each other as the getting in of the manure will permit; and some are so particular, that the opening team are unyoked half-an-hour earlier on Saturday, so as not to have open drills lying over Sunday, starting half-an-hour earlier on Monday morning, so as to have fresh drills ready for the manure. The sowing of the seed is also kept close up to the covering of the manure in dry weather. In moist weather the sowing may have to be deferred until the surfaces of the drills are sufficiently dry to permit the rollers of the machine working; but it never does well to let the sowing fall behind. *W. B.*

Notices to Correspondents.

LAND VALUATION: *Cor.* Your remarks on the judging of soils by their weeds reminds me of a story current in my county (Norfolk). A farm being to let, a man drove over in his donkey cart to look at it; takes the animal out in the yard, and says to the boy, "I say, bor, just you turn my dickey where there's some Thistles." "There ain't no Thistles—there's lots o' Brake." "Um!" says the man, puts his donkey in the shafts again, and drives off without further inquiry or inspection. Land that did not grow Thistles would not suit him!

RICK-CLOTHS, NEW and SECOND-HAND, with POLES, PULLEYS, &c., complete.
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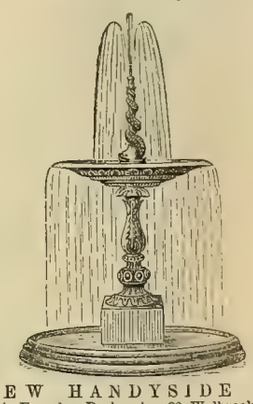
BENJAMIN EDGINGTON'S CRICKET TENTS, GARDEN TENTS, TENTS FOR FLOWER SHOWS.



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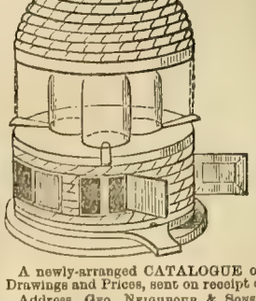


The HYDRONETTE is a more useful, easy working, reliable, and convenient water-throwing machine than any other in use. It is made in five sizes, viz.:—No. 1, with 4 feet of Suction Hose, Strainer, Jet, and Rose, 12s. 6d.; No. 2, 16s. 6d.; No. 3, £1 1s.; No. 4, £1 5s.; No. 5, £1 10s. Extra Hose and Union Joints furnished to order. Forwarded on receipt of Post Office order. To be obtained through any Ironmonger or Florist, or of the Proprietors, HAYNES & SONS, 227, 229, and 231, Edgware Road, Paddington, W.

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Stand for ditto .. 0 10 0

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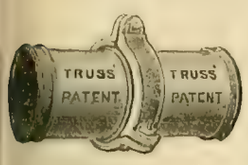
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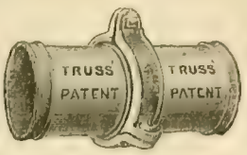
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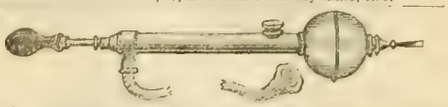
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Bath and Gas Work erected in town or country. **The Trade Supplied.**

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A certain PREVENTION against DAMP WALLS,
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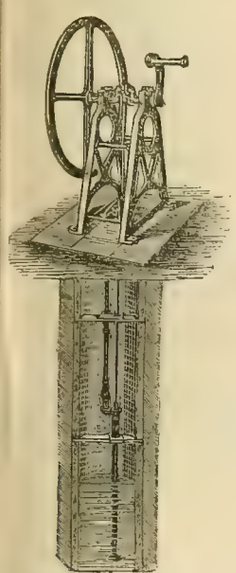
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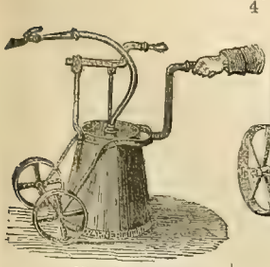
FRAMES & PUMPS FOR DEEP WELLS.



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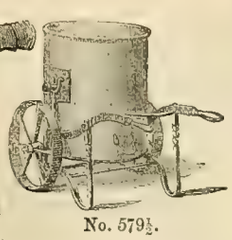
CAST-IRON PUMPS.

2½ inches ..	£1	8 6
3 „ ..	2	1 0
3½ „ ..	2	6 0
4 „ ..	2	14 0



No. 547B.

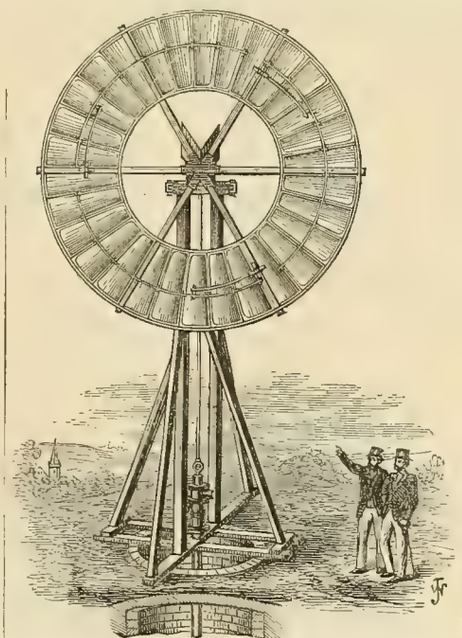
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Holds 6 gallons; is light, portable, and easily worked by a lady or child .. 50*s.*



No. 579½.

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50 gallons ..	..	£5	12 0
38 „ ..	..	3	17 0
30 „ ..	..	2	13 0
20 „ ..	..	2	2 0

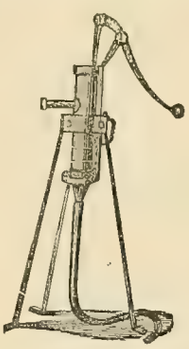


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These Engines are adapted for Grinding, Chaff Cutting, &c., as well as for Pumping.

May be seen in action at their Factory as above.

Testimonials to the efficiency of Wind Engines for Pumping and other Agricultural purposes upon application. Drawing and Estimates for Wind Engines, Water Wheels, and Hydraulic Machinery of every description for Steam, Horse, or Hand Power will be forwarded upon application.



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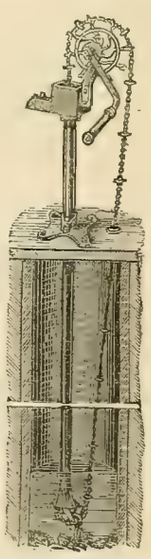
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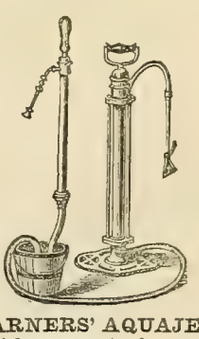
No. 547A.

GARDEN ENGINE

28 gallons ..	..	£5	10 0
24 „	..	4	19 0
16 „	..	3	14 0
10 „	..	2	19 0



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FOR LIQUID MANURE.



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Useful for every variety of purpose—in watering or washing flowers or trees in Gardens, Conservatories, &c.; also, for washing Carriages or Windows, laying Dust, &c.

Price, complete ..	..	£1	10 0
Small size for the hand, as an ordinary Syringe		0	15 0

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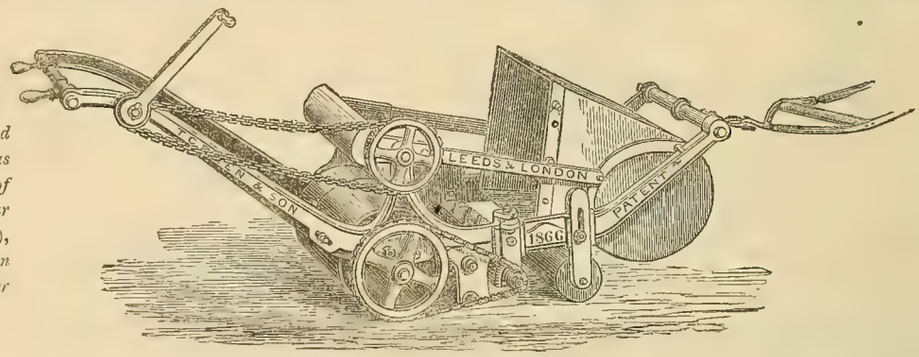
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THE WINTER PALACE GARDENS, DUBLIN
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THE LIVERPOOL BOTANIC GARDENS
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AND IN MOST OF THE PRINCIPAL PARKS, SQUARES, ETC., IN THE UNITED KINGDOM.

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GREEN'S PATENT LAWN MOWERS *have proved to be the best, and carried off every Prize that has been given in all cases of competition. Since the first year they were introduced* (1856), *upwards of* 46,600 *have been sold, and* 25,000 *of that number during the last five seasons.*



T. GREEN & SON *warrant every Machine to give entire satisfaction, and if not approved of can be returned unconditionally.*

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

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To Cut 26 inches	.. ..	.. £13	0	0	*Leather Boots for Donkey*, 18*s.* *Leather Boots for Pony*, 22*s.*
,, 28 ,,	.. ..	.. 15	0	0	
,, 30 ,,	.. ..	.. 17	0	0	

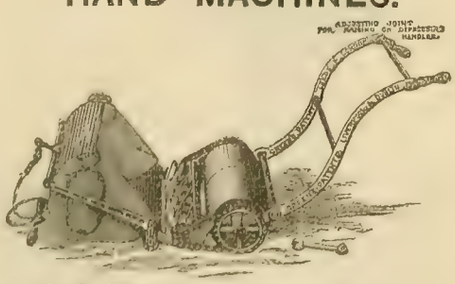
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To Cut 30 inches	.. ..	.. £21	0	0	*Leather Boots for Horse*, 26*s.*
,, 36 ,,	.. ..	.. 24	0	0	
,, 42 ,,	.. ..	.. 27	0	0	
,, 48 ,,	.. ..	.. 30	0	0	

Both the Horse, Pony, Donkey, and Hand Machines possess (over all other Makers) the advantage of Self-sharpening. The cutters being steel on each side, when they become dull or blunt by running one way round, the cylinder can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the Machine will cut equal to new. Arrangements are made that the cylinder can be reversed, by any inexperienced person, in two or three minutes.

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To Cut 10 inches	.. £3	10	0	*Suitable for a Lady*	
,, 12 ,,	.. 4	10	0	,,	,,
,, 14 ,,	.. 5	10	0	*Suitable for One Person*	
,, 16 ,,	.. 6	10	0	,,	,,



To Cut 18 inches	.. £7	10	0	*Suitable for One Person.*	
,, 20 ,,	.. 8	0	0	*Suitable for Two Persons*	
,, 22 ,,	.. 8	10	0	,,	,,
,, 24 ,,	.. 9	0	0	,,	,,

Packing Cases are charged at the following low rates, viz.:—for the 10 and 12-inch Machine, 3*s.*; 14 and 16-inch, 4*s.*; 18 and 20-inch, 5*s.*; 22 and 24-inch, 6*s.* Parties providing themselves with Lawn Mowers are recommended to purchase the cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England, Ireland, and Scotland.

HORTICULTURAL and AGRICULTURAL IMPLEMENTS, GARDEN SEATS and CHAIRS, FOUNTAINS, VASES, PLAIN and GALVANISED WIRE NETTING, and ORNAMENTAL WIRE WORK of every description.

Having very extensive Premises in London, we are in a position to do all kinds of Repairs there, as well as at our Leeds Establishment.

Having a large quantity of MACHINES in stock at our Leeds and London Establishments, we are in a position to execute Orders on the day they are received.

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;
and 54 & 55, BLACKFRIARS ROAD, LONDON, S.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

MR. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

Acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in GARDENERS' CHRONICLE *of International Exhibition, May* 24, 1862, *page* 476.

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY'S variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

☞ *They are made of all sizes, which, with prices, may be had on application.*

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

PAXTON'S STRAWBERRY CRINOLINE.



The STRAWBERRY CRINOLINE is in the form of a table, made in halves, so as to be used without disturbing the plant. It is 16 inches in diameter, and stands 4 inches above the ground, galvanised. Its use is to preserve Strawberries from slugs, contact with the soil, superfluous moisture, and other nuisances. They are considered to last 10 years at least with care.

Price per Gross, £4.

The STRAWBERRY CRINOLINES are declared by all who use them to be of the greatest use in keeping the Fruit clean and assisting its growth—thus in the production of large crops. For particulars see Illustrated Catalogues, and Testimonials sent to us by our patrons last year.

The contrivance is by the late Sir Joseph Paxton, who, after testing them for one season in his own gardens, "Rock Hills," gave his approval of their usefulness. The right to Manufacture them was transferred to

R. HOLLIDAY, PRACTICAL WIRE WORKER, 2A, PORTOBELLO TERRACE, NOTTING HILL GATE, W.

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Every description of Wire Work for Gardens, Conservatories, &c.

For TESTIMONIALS, see large Advertisement in *Gardeners' Chronicle*, May 1, page 469.

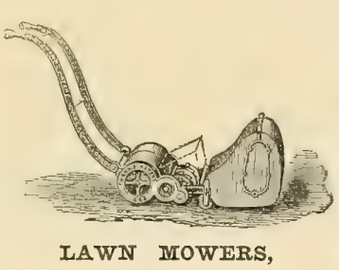
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LAWN MOWERS .. from 42*s.*
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SPADES, FORKS, SCYTHES, &c.
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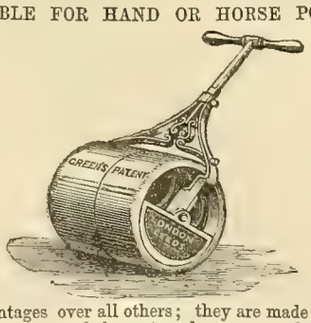
LAWNS, DRIVES, BOWLING GREENS, CRICKET FIELDS, and GRAVEL PATHS.

SUITABLE FOR HAND OR HORSE POWER.

PRICES OF

HAND ROLLERS.

Diam.	Length.	£	s.	d.
30 inches	32 inches ..	7	10	0
24 inches	26 inches ..	4	10	0
20 inches	22 inches ..	3	10	0
16 inches	17 inches ..	2	15	0



PRICES OF

ROLLERS

FITTED WITH SHAFTS,
Suitable for Pony or Horse Power.

Diam.	Length.	£	s.	d.
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30 inches	42 inches ..	11	15	0
30 inches	48 inches ..	13	10	0
30 inches	60 inches ..	15	10	0
30 inches	72 inches ..	17	10	0
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These Rollers possess many advantages over all others; they are made in two parts, and are free to revolve on the axis, affording greater facility for turning, and the outer edges are rounded off, or turned inwards, thus avoiding the unsightly marks left by other Rollers. They are manufactured of the best materials, and are got up in a manner surpassing any ever yet brought out. The Rollers 24 by 26 inches, 20 by 22 inches, and 16 by 17 inches, are also made in one part, at a reduced price; and, for Rollers of that size, will be found to answer many requirements, as the handle can be reversed to either side of the Roller at pleasure.

PRICES—24 in. by 26 in., £4; 20 in. by 22 in., £3 2s. 6d.; 16 in. by 17 in., £2 10s.

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

THOMAS GREEN AND SONS, SMITHFIELD IRON WORKS, LEEDS; 54 and 55, BLACKFRIARS ROAD, LONDON, S.

BRADFORD WOOL.—We receive Wool for Sale on Commission either by Private Contract or at our Monthly Sales by Auction. Market Reports, with latest information, and any other particulars, on application. Sheets supplied.
LOCKS & SON, Wool Brokers, Bradford.

PURE-BRED SHORTHORNS for PRIVATE SALE.—Young Cows and Heifers, and Bulls of fashionable blood, and selected from first-rate herds.
Apply to JOHN THORNTON, 15, Langham Place, London, W.

Sales by Auction.

Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, June 9, at half-past 12 o'Clock precisely, the remaining portion of the well-known Collection of established ORCHIDS of W. W. Buller, Esq., of Strete Raleigh—comprising

Odontoglossum Pescatorea	Calanthe Veitchii
„ Alexandræ	Vanda Hookeri
„ triumphans	„ violacea
„ luevium	Aerides Thibaudiana
„ crocatum	„ maculosum
„ angustatum	Oncidium cucullatum
„ retrantum	Galeandra devoniana
„ fuleipetalum	Saccolabium ampullaceum
Dendrobium Jamesianum	Lelia anceps var. Dawsoni
„ xanthophlebium	Cuytroglossa Marke Leonis
„ infundibulum	&c., &c., &c.

On view the Morning of Sale, and Catalogues had.

Choice Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, June 15, at half-past 12 o'Clock precisely, ESTABLISHED ORCHIDS, the property of John Day, Esq., of Tottenham, being a further portion of his extensive and well-known Collection. A great proportion of the Plants will be in flower; purchasers will therefore have the opportunity, so rarely afforded, of knowing the exact varieties they are buying. Amongst them will be Cattleya mossiæ and Cattleya labiata in great variety, Cattleya Dowiana showing bloom, Lælia purpurata, Lælia elegans, Aerides quinquevulnerum, Vanda cœrulea, V. Lowii, Ada, Aurantiaca, Nanodes Medusæ, Phalænopsis Schilleriana, P. amabilis, Cymbidium eburneum, Masdevallia coccinea, Sobralia macrantha, Wolley's Variety, Oncidium Phalænopsis, &c.

May be viewed the Morning of Sale, and Catalogues had.

Specimen Stove and Greenhouse Plants.

MR. J. C. STEVENS has received instructions from E. C. Rudge, Esq., to offer for SALE, without reserve, at the Gardens, Abbey Manor, near Evesham, Worcestershire, on WEDNESDAY, June 16, at 3 o'Clock precisely, 13 Magnificent AZALEAS, IXORAS, ALLAMANDAS, DIPLADENIAS; a very fine Plant of CYCAS REVOLUTA, &c. Also two very First-rate EXHIBITION VANS, nearly new, with Patent Axles, and finished in the best possible manner.

Catalogues may be had of Mr. J. C. STEVENS, 38, King Street, Covent Garden, W.C.; and of Mr. RUDGE, Abbey Manor, Evesham.

Important Sale of Established Cool Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, June 23, at half-past 12 o'Clock precisely, without reserve, a Collection of Established ORCHIDS, the property of a Gentleman giving up their cultivation, comprising—

Calanthe Veitchii	Odontoglossum Alexandræ
Cattleya bulbosa	„ Bluntii
„ marginata	„ Dawsoni
Cypripedium caudatum	„ Hallii
„ Schlimii	„ nævium majus
„ Pearcei	„ Pescatorei
Oncidium aurosum	„ Phalænopsis
„ cucullatum	„ triumphans
„ Marshallianum	„ zebrina
„ nubigenum	„ Wagnerii, &c.

On view the Morning of Sale, and Catalogues had.

Superior Shorthorn Cattle for Sale, near Darlington.

MR. JOHN WETHERELL will SELL by AUCTION, at Sadberge Hall, on TUESDAY, June 8, at 3 o'Clock P.M., the valuable HERD of SHORTHORN CATTLE, the property of W. A. Wooler, Esq., consisting of 14 Bulls, Cows, and Heifers, from pure strains of blood from the noted herds of Kirklevington and Warlaby.

Catalogues can be had of Mr. WOOLER, and Mr. JOHN WETHERELL, Auctioneer, Richmond, Yorkshire.

Harmondsworth, Middlesex.

MESSRS. E. AND C. NEWMAN, will SELL by AUCTION, by order of John Corney, Esq., at the Chequers Inn, Uxbridge, W., on THURSDAY, June 17, at 2 o'Clock, a VALUABLE FREEHOLD, tithe free and land tax redeemed, Arable Field of 13*a.* 1*r.* 7*p.*, well suited for Market Gardening, or, with its extensive frontage and brick earth, for Building purposes. Desirably situate on the Bath Road, to which it has a frontage of 898 feet, and near the 14th mile stone; in the occupation of Mr. Hunt.

Printed particulars may shortly be had of Messrs. WOODBRIDGE & SONS, Solicitors, Uxbridge; and of the Auctioneers, at their Offices, Uxbridge, W., and Harlington, Middlesex.

To Shorthorn Breeders.

IMPORTANT SALE OF SHORTHORNS.

MR. GEORGE LANGRIDGE has been favoured with instructions from C. Leney, Esq., to DISPOSE OF by AUCTION, at the Court Lodge Farm, West Peckham, Kent, on WEDNESDAY, June 23, at 1 for 2 o'Clock, the entire HERD of Valuable SHORTHORNS, comprising 43 head of BULLS, COWS, HEIFERS, and CALVES, principally bred by himself from Stock selected from some of the best known Shorthorn herds. Also, at the same time, 12 Prime Shorthorn STEERS.

West Peckham is situated 6 miles from Tunbridge Station, on the South Eastern Railway, and four miles from Wateringbury, on the Paddock Wood and Maidstone Branch of the same Line.

Catalogues with particulars and pedigrees may shortly be had of C. LENEY, Esq., Hadlow Place, near Tunbridge, Kent, at the Salisbury Hotel, Salisbury Square, Fleet Street, at all the principal Hotels in the neighbourhood, and of the Auctioneer, 2, Lansdowne Place, Tunbridge Wells, and Mereworth, Kent.

Butley Abbey, Woodbridge, Suffolk.

VERY IMPORTANT SALE of the BUTLEY ABBEY HERD of SHORTHORNS, the MAGNIFICENT AGRICULTURAL and THOROUGH-BRED STALLIONS, and the FAMED CHOICE ABBEY SWINE of VARIOUS BREEDS.

MR STRAFFORD and Mr. BOND (who are jointly concerned), have been favoured with instructions from the Executors of the late Thomas Crisp, Esq., to SELL by AUCTION on WEDNESDAY and THURSDAY, July 14 and 15 next, at Butley Abbey, the entire Herd of about 100 Head of Shorthorn BULLS, COWS, and HEIFERS, bred with great judgment through a long course of years, from the most fashionable sources, and possessing "Bates," "Booth," and other blood of the highest repute.

Nine magnificent AGRICULTURAL STALLIONS, embracing the very celebrated young horse, Cupbearer, the winner of many hundreds of pounds in Royal and other prizes; and Duke, Prince, Captain, May Duke, &c., also successful prize-takers.

Fifteen thorough-bred and other excellent HORSES, including the noted thorough-bred Stallion, Fandanguero, the winner of a large number of prizes, and in 1868 the winner of the prize at the Norfolk Show, beating all the Norfolk trotters; also, the thorough-bred Stallion, Tom, and many young Horses of great merit.

Two Hundred Head of very choice BOARS and SOWS, known as the "Butley Abbey" breed; and embracing the Black Suffolks, large and small Suffolks, Berkshires, and the "large Breed," in which are comprised many of the celebrated Black Diamonds, Snowballs, and other superior Swine, of the rarest quality and symmetry. Many thousands of pounds have been won by this first-class Stock in Royal, Continental, and Local Prizes.

Catalogues in due course, and further particulars may be obtained at the Auctioneers' Offices, 13, Euston Square, London, N.W.; 86, King William Street, London, E.C.; 10, Queen Street, Ipswich; and at the place of Sale.

SHANKS'S PATENT LAWN MOWERS FOR 1869.

UNDER THE PATRONAGE
OF
HER MOST GRACIOUS MAJESTY
THE QUEEN,



AND MOST OF THE
PRINCIPAL NOBILITY
OF
GREAT BRITAIN.

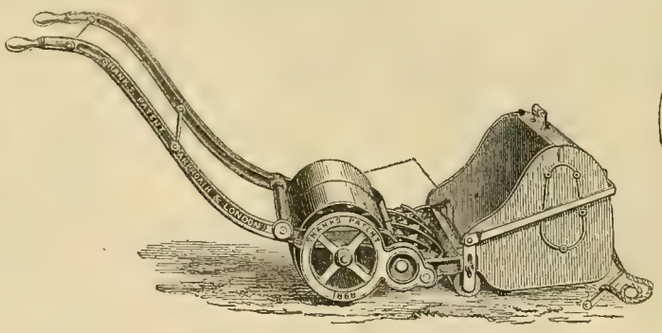
The Patent Improvements recently introduced give Shanks's Machine several important advantages possessed by no other Lawn Mower.

PATENT DOUBLE-EDGED SOLE PLATE, WIND GUARD, &c., &c.

THE UNPRECEDENTED SALE FOR 1868 BEARS TESTIMONY HOW MUCH THESE ADVANTAGES HAVE BEEN APPRECIATED.



THE FIRST PRIZE MEDAL
OF THE
INTERNATIONAL EXHIBITION,
LONDON, 1862.



HAND MACHINE.



THE FIRST PRIZE SILVER MEDAL
OF THE
UNIVERSAL EXHIBITION,
PARIS, 1867.

ALEXANDER SHANKS AND SON, in presenting their "PRICE LIST of LAWN MOWERS for 1869," have much satisfaction in intimating that among all the Exhibitors of Lawn Mowers at the Universal Exhibition of 1867, they are the only Firm to whom the Jury have awarded a Medal.

A. S. AND SON have, in addition to the PATENT DOUBLE-EDGED SOLE PLATE and WIND GUARD, made very great Alterations and Improvements in their Machine. These alterations, which were introduced last Season, have now undergone an effectual trial, and the result has been so successful as to enable A. S. AND SON to offer a Machine which far excels any other that has ever yet been offered, *whether for ease in working, certainty of action, or durability.* It has only to be compared with other Machines, when its superiority will be at once seen and understood.

PRICES—INCLUDING CARRIAGE TO ANY RAILWAY STATION OR SHIPPING PORT IN THE KINGDOM.

SHANKS'S NEW PATENT HAND MACHINE.

		Easily Worked
10-inch Machine	£3 10 0	*By a Lady*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*By a Boy*

		Easily Worked
16-inch Machine	£6 10 0	*By a Man*
19-inch Machine	7 15 0	*By a Man and a Boy*
22-inch Machine	8 10 0	*By Two Men*
24-inch Machine	9 0 0	

The Hand Machines are all with Silent Movement.

SHANKS'S NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
25-inch Machine	£12 10 0	.. .. 25*s.* extra.
28-inch Machine	14 10 0	.. .. 30*s.* ,,
30-inch Machine	15 15 0	.. .. 30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra.
Boots for Pony, 22*s.* per set.; Ditto for Donkey, 18*s.* per set.

SHANKS'S NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
30-inch Machine	£19 0 0	.. .. 30*s.* extra.
36-inch Machine	22 0 0	.. .. 30*s.* ,,
42-inch Machine	26 0 0	.. .. 40*s.* ,,
48-inch Machine	28 0 0	.. .. 40*s.* ,,

Silent Movement, 20*s.* extra. Boots for Horse, 26*s.* per set.

SHANKS'S PATENT LAWN MOWERS

ARE THE ONLY ONES IN DAILY USE IN THE

ROYAL GARDENS AT KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, AND BALMORAL;
IN THE GARDENS OF THE ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON; | IN THE GROUNDS OF THE CRYSTAL PALACE COMPANY, AT SYDENHAM;
IN HYDE PARK, IN VICTORIA PARK, IN BATTERSEA PARK;

And in many hundreds of the principal Gardens in the Kingdom, as well as abroad, where their merits have been fully proved and their success firmly established.

Every Machine warranted to give ample satisfaction, and, if not approved of, can be at once returned.

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH,
AND
27, LEADENHALL STREET, LONDON.

27, *Leadenhall Street is the only place in London where intending purchasers of Lawn Mowers can choose from a Stock of from* 150 *to* 200 *Machines. All sizes kept there, whether for Horse, Pony, or Hand Power.*

Editorial Communications should be addressed to "The Editor." Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by JAMES MATTHEWS, at the Office of Messrs. BRADBURY, EVANS & Co., Lombard Street, Precinct of Whitefriars, City of London, in the Co. of Middlesex, and Published by the said JAMES MATTHEWS, at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, June 5, 1869.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 24.—1869.] SATURDAY, JUNE 12. {Price Fivepence. {STAMPED EDITION, 6d.

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ROYAL BOTANIC SOCIETY GARDENS, Regent's Park.—An EXTRA and SPECIAL FETE will be held in the Gardens on WEDNESDAY NEXT, June 16, at 4 o'Clock. The usual Exhibition Tickets will be admitted on this day.

ROYAL BOTANIC SOCIETY GARDENS, Regent's Park.—NEXT EXHIBITION of PLANTS, FLOWERS, and FRUIT, JUNE 30 and JULY 1. Tickets 5*s.* each. AMERICAN PLANTS, daily, from June 1 to 14. Tickets 2*s.* 6*d.* each, to be obtained at the Gardens, and of the Society's Clerk, Austin's Ticket Office, St. James's Hall, Piccadilly, by Vouchers from Fellows of the Society.

CRYSTAL PALACE.—GREAT ROSE SHOW and FASHIONABLE PROMENADE, NEXT SATURDAY. Half-Crown Admission Tickets are now ready at all Agents, at the Palace, and 2, Exeter Hall, W.C.

WEST of ENGLAND ROSE SHOW, HEREFORD, JUNE 24.—For PRIZE LISTS apply to the Rev. C. H. BULMER, M.A., Credenhill Rectory, near Hereford. ENTRIES CLOSE JUNE 19.

SPALDING HORTICULTURAL FETE, FLOWER, FRUIT, &c. SHOW.—The ANNUAL EXHIBITION will be held in the GROUNDS of AYSCOUGHFEE HALL, on THURSDAY, June 24. Schedules may be had on application. Band of the Royal Horse Guards.
GEO. F. BARRELL, Hon. Sec.

BRIGHTON and SUSSEX HORTICULTURAL SOCIETY.—GRAND ROSE and FRUIT SHOW, THURSDAY, June 24, at the Royal Pavilion and Eastern Lawn. First Prize, the Railway Cup, £10, for 72 varieties, distinct, one truss of each; also 46 Prizes in 12 classes. For Fruits, 42 Prizes in 13 classes. Open to all England. Schedules on application to the Secretary, 96, St. James's Street, or E. SPARY, Superintendent of the Exhibitions, Queen's Graperies, Brighton.
N.B.—AUTUMN SHOW, SEPTEMBER 8 and 9.

BIRMINGHAM ROSE SHOW, JULY 9 and 10.—For Prize Lists, apply to Mr. A. FORREST, Secretary, Cherry Street, Birmingham. ENTRIES CLOSE JULY 3.

LEICESTERSHIRE HORTICULTURAL SOCIETY.—The GREAT SUMMER SHOW of this Society will be held at LEICESTER, on JULY 6 and 7 next, when Special Prizes will be given for Cut Roses and Collections of Bedding Plants, arranged for effect in pots, open to all England. Prizes will also be offered for British and Foreign Cage Birds.
Schedules and particulars may be had of the Secretary,
WM. PENN COX, 37, Market Place, Leicester.

New Seeds for Present Sowing.
SCOTT'S SUPERB PRIMULA FIMBRIATA, six varieties mixed, or each colour separate, 1*s.* 6*d.* and 2*s.* 6*d.* p. pkt. SCOTT'S SUPERB CINERARIA and CALCEOLARIA, 1*s.* and 2*s.* 6*d.* per packet.
J. SCOTT, The Seed Stores, Yeovil, Somerset.

Now Ready, Post Free to all Applicants.
B. S. WILLIAMS' CATALOGUE of NEW and RARE PLANTS, 1869, containing the most beautiful and select of the latest introductions and Supplementary Lists of the General Collection.
Victoria and Paradise Nursery, Upper Holloway, London, N.

Gratis and Post Free.
DICK RADCLYFFE AND CO.'S LIST of BEDDING PLANTS, FERNS, FERN CASES, &c.
129, High Holborn, W.C.

JOHN STANDISH AND CO.'S SPRING CATALOGUE of NEW and RARE, SUBTROPICAL and BEDDING PLANTS is now ready. May be had post free on application.
Royal Nurseries, Ascot.—May 1.

New Spring Catalogue.
CHARLES TURNER'S DESCRIPTIVE LIST of PLANTS for this season, including many new varieties now offered for the first time, is now ready.
The Royal Nursery, Slough.

Choice Seeds, Gladioli, &c.
WM. CUTBUSH AND SON'S CATALOGUE of the above contains description and price of many very superior home-grown VEGETABLE and FLOWER SEEDS, and choice varieties of GLADIOLI, &c., all of which are highly recommended. Post free on application.
Highgate Nurseries, London, N.

Gladioli, the most Extensive Collection.
BARR AND SUGDEN, 12, King Street, Covent Garden, W.C., have the finest and largest collection of GLADIOLI ever offered, prices varying from 2*d.* to 15*s.* per root. For particulars see pp. 68, 69, 70, and 71 of B. & S.'s SPRING SEED CATALOGUE.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

General Catalogue.
WILLIAM ROLLISSON AND SONS beg to inform the Nobility, Gentry, and Trade that their NEW GENERAL CATALOGUE, consisting of upwards of 150 pages of letterpress, and containing nearly every Plant, Shrub, or Tree worthy of merit in cultivation, is now Published, and will be forwarded to applicants on receipt of eight postage stamps, and sent gratis to custom.
The Nurseries, Tooting, London, S.W.

New Nosegay Geranium Charley Casbon.
CASBON AND SON are now sending out the above beautiful GERANIUM. It is of dwarf spreading growth; the flowers, which have broad petals, are freely borne in immense trusses. Colour, the richest scarlet of any variety known. Strong plants 5*s.* each. The usual allowance to the Trade.
Gravel Walk Nursery, Peterborough.

HUSSEY AND SON can still supply Tom Thumb, Bijou, Shottesham Pet, and Minimum GERANIUMS, strong plants, at 1*s.* per 100. Trade price on application.
Mile End Nursery, Eaton, Norwich.

NEW DOUBLE GERANIUMS.—Twelve fine varieties Double Zonal Geraniums, including Madame Lemoine, for 12*s.*; 12 best New Zonal Geraniums of 1868 for 6*s.*; 12 fine varieties Gold and Golden Bicolor Geraniums for 6*s.*, package included, from B. W. KNIGHT, Florist, Battle, Sussex.

To the Trade and Others.
SEVERAL THOUSAND TRICOLOR and BICOLOR GERANIUMS to be cleared out, in fine strong plants of all the leading sorts. List and prices on application to
N.B.—100 large specimens of choice GOLD and BRONZE to be Sold Cheap.
HENRY WALTON, Edge End, Marsden, near Burnley, Lancashire.

The best Gold-leaved Pelargoniums of the Season are Golden Emperor and Golden Queen.
SALTMARSH AND SON are now sending out the above splendid varieties, in strong established plants, at 10*s.* 6*d.* each, with the usual discount to the Trade. They were awarded the 1st and 2d Prizes respectively in the Gold-leaved Class at the Royal Horticultural Society's Special Pelargonium Show in June last. For further particulars see previous Advertisements.
Moulsham Nurseries, Chelmsford.

Tricolor Pelargoniums.
J. WATSON, New Zealand Nursery, St. Alban's, begs leave to offer his two beautiful TRICOLOR PELARGONIUMS, MISS WATSON and MRS. DIX, unrivalled for freedom of growth and beauty of colouring, in good plants, 5*s.* each; also, PRINCESS CLOTILDE, 5*s.* each, or the three for 13*s.* 6*d.* Miss Watson and Mrs. Dix have received 17 First-class Certificates and Extra Prizes from the leading Horticultural Societies of the kingdom. Early orders solicited. A liberal allowance to the Trade. Price on application.

NEW COLEUS.—The 12 New Coleus of the Royal Horticultural Society, sent out in 1868, with other fine varieties, sent post free—12 fine varieties for 2*s.* 6*d.*; 12 cuttings, in 12 fine varieties, for 1*s.* 2*d.*, from
B. W. KNIGHT, Florist, Battle, Sussex.

NEW GOLDEN COLEUS of 1869.—The finest 12 yet sent out for 10*s.*, or free by post for 11*s.*

Albert Victor	Her Majesty	Princess Beatrice
Baroness Rothschild	Prince Arthur	Prince of Wales
Beauty of St. John's Wood	Princess Royal	Queen Victoria
Duke of Edinburgh	Princess of Wales	Refulgens

JAMES COCKER, Sunny Park and Froghall Nurseries, Aberdeen.

NEW COLEUS, BEAUTY of WIDMORE.—The prettiest variety yet sent out, distinctly tricolored; leaves small and beautifully shaped, of a dark brilliant maroon, belted with bright rose and green, and edged with silvery white; habit very dwarf; 5*s.* each: 4 will be sent when 3 are ordered. Price to the Trade on application.
DOWNIE, LAIRD & LAING, Stanstead Park, Forest Hill, London, S.E., and Edinburgh.

NEW COLEUS, BEAUTY of WIDMORE.—The prettiest variety yet sent out, distinctly tricolored; leaves small and beautifully shaped, of a dark brilliant maroon, belted with bright rose and green, and edged with silvery white; habit very dwarf. 5*s.* each. Four will be sent when three are ordered. Price to the Trade on application.
JAMES CARTER & Co., Seed Merchants and Nurserymen, 237 and 238, High Holborn, W.C.; and Crystal Palace Nurseries, Forest Hill.

JOHN SALTER AND SON beg to announce that their Collections of PÆONIES, PYRETHRUMS, and IRIS are NOW in BLOOM, and may be seen every day (except Sunday.)
Versailles Nursery, William Street, Vale Place, Hammersmith Road (near Kensington Railway Bridge).

CENTAUREA RAGUSINA, strong, 25*s.* per 100, in pots; CALCEOLARIAS, Yellow and Dark, 8*s.* per 100, do.; 100 Strong BEDDING PLANTS, including GERANIUMS, for 10*s.*, in or out of pots, as desired.
W. DILLISTONE, Nurseryman, Sible Hedingham, Essex.

Sarracenia Drummondi and Psittacina from Florida.
W. CUTTER, having just imported these rare Plants, begs to state he has 50 only of each remaining, for the Trade, at a very moderate price.
35, Great Russell Street.—Naturalist's Agent.

Dahlias, Dahlias, Dahlias.
CLEARANCE SALE OF THE ABOVE.
C. E. ALLEN having a few thousands on hand, can supply good mixtures at 21*s.* per 100, package included, on receipt of Post Office Order.
Norfolk Nursery, Shacklewell, London, N.E.

Bedding Plants. Bedding Plants.
JAMES HOLDER can supply strong Plants of the following:—Scarlet and Variegated GERANIUMS, CALCEOLARIAS, VERBENAS, FUCHSIAS, DAHLIAS, CUPHEAS, HELIOTROPES, LOBELIAS, COLEUS, IRESINES, &c., &c.
Eight Dozen for 20*s.*, or Four Dozen for 10*s.* 6*d.* Hamper and packing included. Crown Nursery, Reading.

"MR. PAUL'S Roses * * * are things to see once and dream of for ever."—*Athenæum.*
WM. PAUL begs to announce that his CATALOGUE of ROSES is now ready, and will be forwarded free on application.
PAUL'S Nurseries, Waltham Cross, London, N.

Roses.
JOHN CRANSTON will be happy to forward on application his DESCRIPTIVE CATALOGUE of ROSES for 1868 and 1869. For quality or quantity the stock is unsurpassed; the Manetti Roses especially are acknowledged to be the finest grown plants in the Trade.
Nurseries, King's Acre, near Hereford.

New Roses of 1869.
JOHN HARRISON begs to inform the Trade that he is now sending out fine well-grown plants, ready to plant out, at 18*s.* per dozen. Also MARECHAL NIEL, strong plants in pots, 12*s.* per dozen, 75*s.* per 100. CALCEOLARIA AUREA FLORIBUNDA, strong, well established plants from pots, 10*s.* per 100, 80*s.* per 1000.
North of England Rose Nursery, Darlington, June 9, 1869.

Pines.
B. S. WILLIAMS has all the best kinds, in splendid condition, warranted clean. Prices on application.
B. S. WILLIAMS, Seed Merchant and Nurseryman, Upper Holloway, London, N.

FOR SALE, Fruiting and Succession PINE PLANTS, the best kinds. They are perfectly clean, healthy, and well-grown.—Apply to W. EGGLETON, Sudbury, Derby.

GOLDEN CHAMPION GRAPE.—We are now able to supply strong Plants of the above-named remarkable Grape, suitable for inarching on the young wood of established Vines, by which means fruit may be obtained next season. Price 30*s.* each.
OSBORN & SONS, Fulham Nursery, London, S.W.

NEW CHRYSANTHEMUMS of 1868, including the New Japan, large-flowered and Pompon varieties, sent out in 1868, sent post free, 12 fine varieties, 2*s.* 6*d.*; 2 Cuttings in 12 fine varieties, 1*s.* 2*d.*, from
B. W. KNIGHT, Florist, Battle, Sussex.

DOBSONS' PRIZE SEEDS.—PRIZE CALCEOLARIA (unequalled), 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* PRIZE CINERARIA, 1*s.*, 2*s.* 6*d.*, 5*s.* PRIZE PRIMULA, 1*s.*, 2*s.* 6*d.*, 5*s.*
J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

DAHLIAS.—CATALOGUES of the above are now ready, comprising the newest and best varieties in cultivation. Strong healthy plants, all true to name, on application to
JAS. FAIRHEAD & SON, Seed Growers and Nurserymen, 7, Borough Market, and Braintree, Essex.

Established 1806.
T. HANDASYDE AND DAVIDSON have a large stock of DAHLIAS and ROSES in Pots. Special prices to the Trade on application.
Seed Warehouse, 24, Cockburn Street, Edinburgh.
Nurseries, Brunstain Glen, Musselburgh.

Grand Subtropical Plant.
ECHEVERIA METALLICA, fine handsome plants, 6*s.* per dozen.
R. TANTON, F.R.H.S., The Nurseries, Epsom.

SPECIMEN PALMS for SALE.—Four splendid large plants; also a Pair of BAYS and TREE FERNS. Prices and full particulars on application to E. COOLING, Derby.

TO BE SOLD, a SHADDOCK TREE.—It stands about 10 feet high, and is in good foliage, with several fruit on it.—Apply to Mr. HOPLEY, King Sterndale, Buxton.

British Fern Catalogue.
ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, Sidcup Hill, Kent.

FERNS.—Choice and Select EXOTIC FERNS and LYCOPODS, in great variety, are now offered in good plants, 12 fine varieties for 6*s.*; larger plants and more select kinds from 9*s.*, 12*s.*, 20*s.*, to 30*s.* per dozen. Package included.
B. W. KNIGHT, Florist, Battle, Sussex.

Ferns, British and Exotic, at reduced prices.
A. STANSFIELD AND SON beg to state that their CATALOGUE, No. 8, is now ready, and will be forwarded on receipt of three stamps. The above Catalogue contains 40 pages of matter, including partial descriptions and cultural remarks.
Vale Nurseries, Todmorden, Lancashire.

EVERY GARDEN REQUISITE KEPT in STOCK at
CARTER'S New Seed Warehouse, 237 and 238, High Holborn, London.

CARTER'S FARM SEEDS.—See large Advertisement at page 386 of *Gardeners' Chronicle*, April 10, 1869.
SEED GROWERS, MERCHANTS, and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

GRASS SEEDS: WHEN and WHAT to SOW.—For the fullest information on this subject, see CARTER'S ILLUSTRATED FARMER'S CALENDAR for 1869; post free, 6*d.*
JAMES CARTER & Co., Seed Growers, 237 and 238, High Holborn, London, W.C.

A SPECIAL PRIZE MEDAL, PARIS, 1867, was AWARDED to JAMES CARTER & Co., 237 & 238, High Holborn, London, W.C., for GRASS SEEDS, supplied for the Exhibition Grounds.

SUTTONS' GRASS SEEDS for ALL SOILS.
First Prize Silver Medal, Paris, 1867.
SUTTONS' PERMANENT MIXTURES
For PASTURES, | For PARKS, | For LAWNS.
Prices and full particulars on application.
SUTTON & SONS, Seedsmen to the Queen, Reading.

SUTTONS' CHAMPION SWEDE, the hardiest and best in cultivation. Lowest price per bushel on application.
SUTTON & SONS, Seed Growers, Reading.

The Best Turnip for Early Sowing,
TO FEED OFF FOR WHEAT, IS
POMERANIAN WHITE GLOBE. Price 10*d.* per lb.; much cheaper by the bushel. Carriage free.
SUTTON & SONS, Seedsmen to the Queen, Reading, Berks.

The Largest Turnip known is
SUTTONS' PURPLE-TOP MAMMOTH, very solid, heavy, and of quick growth. Sow in June for Early Feeding, and August for Ewes and Lambs in Spring. 1*s.* 6*d.* per lb.; much cheaper by the bushel. Carriage free.
SUTTON & SONS, Seedsmen to the Queen, Reading, Berks.

To the Trade.
TURNIP and MANGEL SEEDS, growing crop of 1869, splendid stocks, various kinds.
FREDK. GEE invites attention to the above, and will be pleased to make special offers of the same on advantageous terms.
Seed Establishment, Biggleswade, Beds.

To Farmers, Gardeners, and Others.
EXCELLENT strong Spring-sown CABBAGE, CAULIFLOWER, BROCCOLI, SAVOY, BRUSSELS SPROUTS, and various other plants on offer, price on application. SCARLET RUNNER BEANS, fine sample, 1867 growth, 20*s.* per bush.
FREDK. GEE, Seed Merchant and Grower, Biggleswade, Bedfordshire.

Biggleswade Market Garden and Seed Farm.
CELERY PLANTS, in any quantity, are now ready; price per 100 and 1000 on application. DRUMHEAD CABBAGE PLANTS, the best and cheapest in the trade, price per 1000 2*s.* 3*d.*; not to be undersold by any house in the kingdom.
RICHARD WALKER.

New Verbenas and Golden Coleus.

WILLIAM BADMAN offers NEW VERBENAS of 1869, including Perry's, Eckford's, and Henderson's, in single pots, 3s. per dozen.
NEW GOLDEN COLEUS of 1869, in pots, 3s. per dozen.
Six finest Double PELARGONIUMS, including Madame Lemoine, for 5s. [for 5s.
Twelve finest ZONAL PELARGONIUMS, including Lord Derby, PELARGONIUM, Crystal Palace Gem, 3s. per dozen. Package included. Terms cash.
Cemetery Nursery, Gravesend.

SHELL GRAVEL for Gardens, Conservatories, and Terraces; clean, dry, and neat in appearance, used in the Parks and the Horticultural and Botanic Gardens.
Sold by FRANCIS & Co., Surrey (foot of Vauxhall Bridge), London.

Weeds Eradicated from Lawns.

WATSON'S LAWN SAND, sprinkled upon Lawns, rapidly destroys Dandelions, Daisies, Clover, Rib-grass, &c., and at same time promotes the growth of Grass. 28s. per cwt.; 4d. per lb.
May be ordered through any respectable Seedsman, or direct from Agent, W. D. BARBOUR, 5, East Parade, Leeds.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)
Have now ready for delivery, in fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES.
Also Genuine PERUVIAN GUANO, and NITRATE of SODA ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c. E. PURSER, Secretary.
Offices, 116, Fenchurch Street, E.C.

LAWES' MANURES are now ready for delivery for present season, 1869.
LAWES' PATENT TURNIP MANURE.
" DISSOLVED BONES.
" SUPERPHOSPHATE of LIME.
" WHEAT, BARLEY, GRASS, and MANGEL MANURE.
" CONCENTRATED CORN and GRASS MANURE.
These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom.
GENUINE PERUVIAN GUANO direct from the importers.
NITRATE of SODA, SULPHATE of AMMONIA, and other Chemical Manures.
AMERICAN and other CAKES at market prices.
Address, JOHN BENNET LAWES, 59, Mark Lane, London, E.C.; 22, Eden Quay, Dublin; and Market Street, Shrewsbury,

ODAMS'S NITROPHOSPHATE for CORN.
ODAMS'S NITROPHOSPHATE for ROOTS.
ODAMS'S DISSOLVED BONES.
ODAMS'S SUPERPHOSPHATE of LIME.
ODAMS'S PREPARED PERUVIAN GUANO.
ODAMS'S GRASS and CLOVER MANURE.
MANUFACTURED BY

THE PATENT NITROPHOSPHATE or BLOOD MANURE COMPANY (LIMITED).
Chief Offices—109, Fenchurch Street, London.
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This Company was originally formed by, and is under the direction of, Agriculturists, circumstances that have justly earned for it another title, viz.:—
THE TENANT FARMER'S MANURE COMPANY.
Its Members are Cultivators of upwards of 50,000 Acres of Land, which has been for years under Management with Manures of their own Manufacture, consequently the consumer has the best guarantee for the genuineness and efficacy of the Manures manufactured by this Company.
Particulars will be forwarded on application to the Secretary; or may be had of the Local Agents.
C. T. MACADAM, Secretary.
Chief Offices—109, Fenchurch Street, London, E.C.

MASTIC L'HOMME LEFORT (the new French Cold Grafting Wax), indispensable for Budding, Grafting, Healing, Stopping Bleeding, &c. In tins, 6d., 1s., 2s., 4s., and 6s., of all Seedsmen, and
HOOPER & Co., Covent Garden Market, London, W.C.

Wasps, &c.

SCOTT'S WASP DESTROYER will effectually destroy Wasps, Cockroaches, Crickets, and other Garden Pests, price 1s. 6d. and 2s. 6d. per bottle. See testimonials, &c., on application to J. SCOTT, The Seed Stores, Yeovil, Somerset.

The Best and Cheapest Vermin Killer.

Vide "The Gardener's Magazine," conducted by Shirley Hibberd, Esq., F.R.H.S., of August 15, 1868.
UNDER PERMISSION OF THE HON. BOARD OF CUSTOMS.
THE LONDON GROUND TOBACCO (free of duty), for the Destruction and Prevention of the Grub and Blight in Plants. Sold in Tins 1s. and 2s. 6d. each, by Seedsmen and Druggists.
POWDER DISTRIBUTORS 2s. each.
Manufacturers: CORBY & SOPER, [illegible] Bond Warehouse, Shad Thames, London, S.E. [AGENTS WANTED.]

The Cheapest and Best Insecticide.

DUTY-FREE TOBACCO.
BY HER MAJESTY'S ROYAL LETTERS PATENT, AND BY PERMISSION OF THE HON. BOARD OF CUSTOMS.

POOLEY'S TOBACCO POWDER, for the Prevention and Destruction of Blight and other Diseases in Plants.
Sold by Nurserymen, Seedsmen, and Florists,
In Tins at 1s., 2s. 6d., and 5s.
Powder Distributors, 2s. 6d. and 3s. 6d. each.
"I find it exceedingly useful for killing the Aphides on Roses and other Plants."—JOHN EWING, Superintendent, Royal Horticultural Gardens, South Kensington. May 7, 1868.
Sole Manufacturer, T. A. POOLEY, Bonded Warehouse, Sussex Wharf, Wapping, E.

TOBACCO TISSUE, for DESTROYING RED SPIDER, MEALY-BUG, THRIP, GREEN and BLACK FLY, without the aid of a Fumigator.—This article having been before the Public for the last three years, and being now used by many of the leading Horticulturists—from several of whom Testimonials have been received as to its efficacy,—the Manufacturers beg to recommend those who have not used it to give it a trial, feeling confident when they have done so they will use nothing else, as it is far superior to paper or rag, and will not injure the plants. Sold in 1 lb. packets and upwards; price 2s. 6d. per lb. carriage free. A reduction in price for large quantities.
To be had of MESSRS. ROBERTS and SONS, Tobacco Manufacturers, 112, St. John Street, Clerkenwell, E.C., of whom Samples and Testimonials may be obtained; and of all Seedsmen and Nurserymen.

The Hop Grower's Friend.

"FOWLER'S HOP WASH" and "HOP DUST."
SAFE—EFFECTUAL—CHEAP.

Destroys and prevents all the various Insects and Blight infesting Hops. Its advantages over the usual preparations are
I. Much greater effectiveness in destroying and preventing the Insects and Blights.
II. Will not harm the Plants, but strengthen and invigorate their growth.
III. A cost not exceeding 5s. per 100 Gallons of the Solution.

PRICE.

Hop Wash, in 3-cwt casks, £32 per ton. Sample 2s, 5s, and 112-lb. kegs 2s. per cwt. extra.
Hop Dust, 42s. per cwt. Sample bags, 2s and 56lb.

In consequence of the increasing demand for this most valuable remedy, the Manufacturers have opened a London Depot and Works, at 35, Great Dover Street, Borough, to which address orders should be sent.
Sold throughout the Hop Districts; and where no Agents are yet appointed, application should be made at once to G. & T. FOWLER.
The Works—Great Dover Street, Borough.

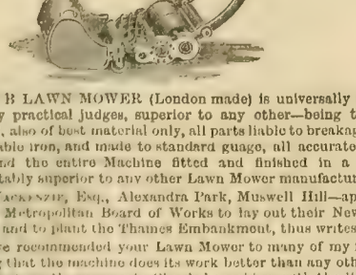

Red Spider Magnified.

GISHURST COMPOUND.
Used by many of the leading Gardeners since 1869, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d.
Wholesale by
PRICE'S PATENT CANDLE COMPANY (Limited),
Battersea, London, S.W.

THE HYDRONETTE,
(Robins' Patent,) for Gardens, Greenhouses, Conservatories, Hotbeds, &c. Unrivalled ease of action, simplicity, convenience, and force.


THE HYDRONETTE is a more useful, easy working, reliable, and convenient water-throwing machine than any other in use. It is made in five sizes, viz.:—No. 1, with 4 feet of Suction Hose, Strainer, Jet, and Rose, 12s. 6d.; No. 2, 15s. 6d.; No. 3, £1 1s.; No. 4, £1 5s.; No. 5, £1 10s. Extra Hose and Union Joints furnished to order. Forwarded on receipt of Post Office order. To be obtained through any Ironmonger or Florist, or of the Proprietors, HAYNES & SONS, 227, 229, and 231, Edgware Road, Paddington, W.

J. B. BROWN AND CO.'S NEW PATENT BB LAWN MOWER for 1869.
PRICES REDUCED AND THE MACHINE PERFECTED.


The B B LAWN MOWER (London made) is universally allowed to be, by practical judges, superior to any other—being the best designed, also of best material only, all parts liable to breakage being of malleable iron, and made to standard guage, all accurately numbered, and the entire Machine fitted and finished in a manner incontestably superior to any other Lawn Mower manufactured.
ALEX. MACKENZIE, Esq., Alexandra Park, Muswell Hill—appointed by the Metropolitan Board of Works to lay out their New Public Parks, and to plant the Thames Embankment, thus writes:—
"I have recommended your Lawn Mower to many of my friends, believing that the machine does its work better than any other, and combines strength superior to Shanks' machine, with the lightness of Green's. Having now four of your Lawn Mowing Machines in constant use on our grounds, and two of these having been in work over a year, I have never had cause to alter this opinion of your machine, which I now have pleasure in giving to you."
The B B LAWN MOWER was selected at the Paris Exhibition, in preference to all others, by the celebrated Engineer, Mons. Henry Schneider, of Creusot, and President of the French Legislative Assembly.

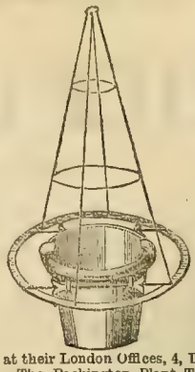
PRICES—NEW PATENT B B HAND MACHINE for 1869.

10-inch	For a Boy.	£3	5	0	18-inch	A Man and Boy	£7	0	0
12-inch		4	5	0	20-inch		7	10	0
14-inch	A Man	5	5	0	22-inch	Two Men	8	0	0
16-inch	A Man and Boy	6	0	0	24-inch		8	10	0

Prices of Hor and Pony Machines on application.
Every Machine warranted to give satisfaction, and delivered free.
J. B. BROWN & Co., 90, Cannon Street, E.C., and 148, Upper Thames Street, E.C.

The Packington Plant Trainer,

MANUFACTURED BY
MATTERSON, HUXLEY, AND WATSON, LION FOUNDRY, COVENTRY.


The Packington Plant Trainer is intended to facilitate the training of plants, to do away with the necessity of putting sticks into the soil of the flower-pot (which to a certain extent injure the root of the plant), and also saves time and trouble when it is necessary to re-pot the plant.
The base of the frame is fitted with two horizontal rods, screwed the whole length, and upon these slide two bands, which, by means of the fly-nuts, can be extended or contracted at pleasure, so that in repotting a plant all that is required is to slacken the nuts, draw away the bands; the pot can then be taken away and replaced by a larger one—the bands tightened to the large pot by means of the nuts—the plant remaining attached to the frame as before.
The Trainers are made either in Copper or Galvanised Iron, and to any size and pattern required, from 7s. 6d. to 21s. each.
Patterns and prices forwarded on application to the makers, Coventry, or at their London Offices, 4, Dowgate Hill, Cannon Street, E.C.
The Packington Plant Trainer is an exceedingly ingenious contrivance, adapted to any size pot, and readily shifted from one to the other. See report of address of J. Bateman, Esq., at the Royal Horticultural Society's Meeting, *Gardeners' Chronicle*, March 6, 1869.
Galvanised GARDEN EYES, for Wall Trees, made in four sizes, price 6d. per lb.
The ELASTIC TREE BAND, for securing newly-planted Trees, price 1s. each.

The Greatest Horticultural Novelty of the Day.

PATENT PLANT PROTECTORS.
By Her Majesty's Royal Letters Patent.

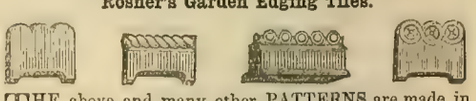


IMPORTANT NOTICE.—In order that this invention shall be UNIVERSALLY ADOPTED IN EVERY GARDEN, the Patentee has made arrangements to supply the Upright Protectors without the glass, of one uniform size, 4 inches at the back and 2½ inches in the front; these can be fixed on ordinary bricks, and can, therefore, be placed to ANY HEIGHT or ANY WIDTH.
Price only Three Pence each, if 500 are taken at one time.
Special contracts for fitting up large establishments will be given.
The extra earliness and value of the Crops will pay for the Protectors the first Season.
In consequence of the large demand for these Protectors, it will be necessary TO GIVE ORDERS AT ONCE, in order to ensure a supply for the Autumn. All Orders will be executed in strict rotation.
☞ These Protectors have been exhibited at the Exhibitions of the Royal Horticultural Society at Leicester; at the Royal Botanic Society, Regent's Park; and arrangements have been made for showing them at the Exhibitions of the Royal Horticultural Society, South Kensington; the Royal Horticultural Society, at Manchester; the Bath and West of England Horticultural Society, at Southampton; the Crystal Palace; and at various Provincial Horticultural Exhibitions. Specimens will also be exhibited by the regularly appointed agents throughout the country—a list of whom will be shortly published.
AGENTS are IMMEDIATELY REQUIRED. Only one will be appointed in each City or Town. Applications should at once be made to the Patentee.
SPECIMENS can be seen any day at the Gardens of the Royal Horticultural Society, South Kensington, on application to Mr. J. C. FOX.
For further particulars, apply to the Patentee, Mr. W. E. RENDLE, 68, Welbeck Street, Cavendish Square, London, W.
Specimens can be seen, and a List of Prices obtained from the following Agents:—

	First List of Agents.
London	Messrs. Brown Brothers, 470, Oxford Street.
	Messrs. Deane & Co., London Bridge.
	Mr. J. C. Fox, Royal Horticultural Gardens, South Kensington.
	Messrs. W. Cutbush & Son, Nurserymen, Highgate.
Abergavenny	Mr. J. Walters, Seedsman.
Biggleswade	Messrs. Shenton & Cowley, Botanic Nurseries.
Boston	Mr. Wm. Barton, Ironmonger.
Brackley	Messrs. Clark & Son, Ironmongers. [Road.
Brighton	The London Circulating Library Co., 80, King's
Bury St. Edmund's	Mr. Robert Pettit, Botanic Gardens.
Cambridge	Messrs. E. Headley & Son, Ironmongers.
Cardiff	Mr. Wm. Treseder, Nurseryman.
Cork	Messrs. Mackenzie & Co., Seed Merchants.
Darlington	Mr. John Harrison, Nurseryman. [Market.
Ipswich	Mr. Alfred Wrench, Ironmonger, 17, Butter
Leicester	Messrs. Hunt & Pickering, Ironmongers.
Macclesfield	Mr. John Gregory, Seedsman, 38, Market Place.
Nottingham	Mr. Arthur Cleaver, Ironmonger, Leen Side.
Plymouth	Plymouth Book Society, 15, Devonshire Terrace
Southampton	Southampton Book Society, 178, High Street.
Tewkesbury	Messrs. Heyward & Son, Ironmongers.

Agents are required in all Cities and Towns in the United Kingdom. Early application to the Patentee is necessary.

Rosher's Garden Edging Tiles.


THE above and many other PATTERNS are made in Terro-Metallic Ware, Terra-Cotta, Stoneware, and Redware, and of great durability. The planer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.


GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability and superior finish, and in much variety of design.
F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.E. Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E. Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs. Likewise more elaborate designs. Pattern Sheets of Pavements, with prices, forwarded for selection.
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TO HER MOST GRACIOUS MAJESTY THE QUEEN.

THE Extraordinary Success of GREEN'S PATENT LAWN MOWERS is an established fact. During the last five years the demand has been unprecedented, which alone is a proof of their superiority over all others. The following are their characteristic features:—

1st. **Simplicity of Construction, every part being free of access.**
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Trial at the London Horticultural Society's Gardens, Chiswick, June 5, 1857; four competitors: — First Trial on level ground, Second Trial on undulated; Third Trial on intricate places, around trees, &c.,—when GREEN'S PATENT was unanimously declared to be the best in each Trial by COLONEL CHALLONER, DR. LINDLEY, and G. MCEWEN, Esq., the appointed Judges, and on every subsequent Trial to the above have GREEN'S PATENT LAWN MOWERS carried off every Prize that has been given in competition for superiority in every point.

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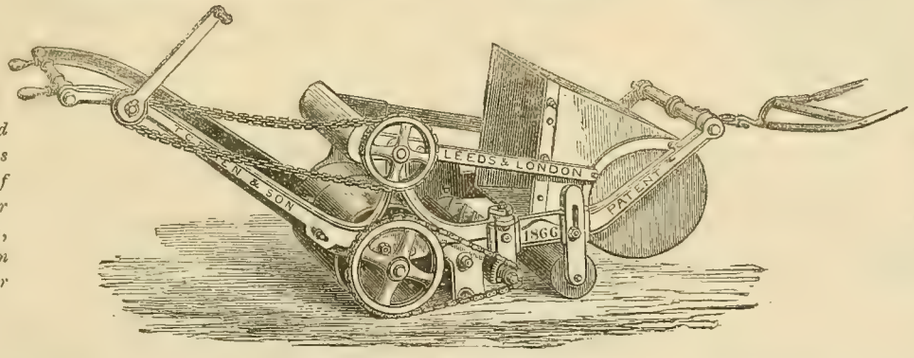
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GREEN'S PATENT **LAWN MOWERS** *have proved to be the best, and carried off every Prize that has been given in all cases of competition. Since the first year they were introduced* (1856), *upwards of* 46,600 *have been sold, and* 25,000 *of that number during the last five seasons.*



T. GREEN & SON *warrant every Machine to give entire satisfaction, and if not approved of can be returned unconditionally.*

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

PONY AND DONKEY MACHINES.

To Cut 26 inches	.. ..	.. £13 0 0	*Leather Boots for Donkey*, 18*s.* *Leather Boots for Pony*, 22*s.*
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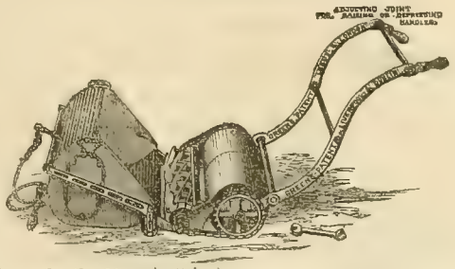
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To Cut 10 inches	.. £3 10 0	*Suitable for a Lady*	
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Packing Cases are charged at the following low rates, viz.:—for the 10 and 12-inch Machine, 3*s.*; 14 and 16-inch, 4*s.*; 18 and 20-inch, 5*s.*; 22 and 24-inch, 6*s.* Parties providing themselves with Lawn Mowers are recommended to purchase the cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England, Ireland, and Scotland.

HORTICULTURAL and AGRICULTURAL IMPLEMENTS, GARDEN SEATS and CHAIRS, FOUNTAINS, VASES, PLAIN and GALVANISED WIRE NETTING and ORNAMENTAL WIRE WORK of every description.

Having very extensive Premises in London, we are in a position to do all kinds of Repairs there, as well as at our Leeds Establishment.

Having a large quantity of MACHINES in stock at our Leeds and London Establishments, we are in a position to execute Orders on the day they are received.

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and 54 & 55, BLACKFRIARS ROAD, LONDON, S.

New Zonal Pelargoniums.

CHARLES TURNER strongly recommends the following:—

EXCELLENT, Silver Tricolor.—Was awarded the 1st Prize in this class at the great Pelargonium Show, May 22.

MAY QUEEN, pure white edges with novel pink flower.—This superior variety took the 1st Prizes in its class at the great shows in 1868 and 1869, at Kensington.

Price 15s. each, less if taken in numbers.

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PRINCE OF WALES GERANIUM (TRICOLOR.)

JAMES CARTER AND CO. regret their inability to supply more plants of the above splendid novelty this spring. A fresh stock will be ready for distribution in September, from which orders now received will be executed, in strict rotation.

LILIUM AURATUM.—JAMES CARTER & Co. invite an inspection of their fine collection of Lilium auratum. Upwards of 1000 plants now coming into bloom at the Nursery.

JAMES CARTER & Co., 237, 238, & 261 High Holborn, London, W.C.

Zonal Pelargoniums.

FOUR THOUSAND ZONAL and NOSEGAY PELARGONIUMS, the new varieties of 1867, all the best sorts.—Extra strong autumn-grown plants at 2s. per dozen; 14s. per 100.

CALCEOLARIAS.—Strong, healthy, bushy plants, 1s. 6d. per dozen; 8s. per 100.

The new SILVER, GOLDEN, and BRONZE TRICOLOR and BICOLOR PELARGONIUMS at very low rates. Also all other Plants for Bedding.

LEWIS S. WOODTHORPE, Munro Nursery, Sible Hedingham, Essex.

First Prize Bronze Pelargoniums.

DOWNIE, LAIRD, AND LAING have great pleasure in announcing that they are now sending out the following unrivalled sorts, which were awarded the First Prize at the Special Show, South Kensington, May 22, viz., BLACK KNIGHT, 10s. 6d.; CROWN PRINCE, 21s.; MRS. ALAN LOUNDES, 15s.; PRIMA DONNA (Morris), 15s.; RED RING, 15s.; and STANSTEAD BEAUTY, 10s. 6d. Also, Nosegays, R. K. BOWLEY, 7s. 6d., and KENTISH FIRE, 5s.—two splendid varieties. Drawings of Crown Prince and R. K. Bowley free by post for 18 stamps.

We regret we cannot supply any more Harrison Weir till September next.

Forest Hill, London; and Edinburgh.

New Tricolor Pelargoniums for 1869.

JOHN AND CHARLES LEE intend to send out in June, 1869, the two following fine NEW TRICOLOR PELARGONIUMS, which they can warrant to be of strong constitution, rapid growth, and brilliant colours. Mrs. John Clutton was raised from seed in the autumn of 1867, and will consequently not be two years old when sent out.

MRS. JOHN CLUTTON is a Silver Tricolor of a very striking and pleasing character, the broad bright crimson zone being well defined, and the white edge clear and distinct, with a good deep green centre. The habit is dwarf and very free, and is all that can be desired in a Silver Tricolor.

The First Prize was awarded to Mrs. John Clutton at the Special Pelargonium Show at South Kensington in June last, and a First-class Certificate was awarded to it by the Floral Committee of the Royal Horticultural Society.

EDWARD MILNER.—A beautiful Golden Tricolor, of robust habit and free growth. The centre of the leaf is bright green; the zone is a bright flame colour on black, and the margin clear gold. All the colours are clean and well defined, and are retained till the decay of the leaves. The glow of colouring in Edward Milner gives the plant a rich and distinct character.

Price 15s. each. Four plants will be sent for three ordered.

Royal Vineyard Nursery and Seed Establishment, Hammersmith London, W.

New Golden Coleus.

SECOND PRIZE at the CRYSTAL PALACE for the TEN BEST.

H. CANNELL can supply the following splendid foliage plants, in 18 distinct varieties:—

Princess Louisa, true	Queen Victoria	Duke of Edinburgh, true
Prince Leopold	Princess Royal, true, very scarce	Prince Arthur
Empress	Princess of Wales	Princess Beatrice
Masterpiece	Her Majesty	Baroness Rothschild
Model	Albert Victor	Beauty of St. John's Wood
Refulgens	Prince of Wales	
Umpire		

Strong established plants, in pots, at 1s. each, or the set for 15s., package included; smaller, 12s., and Cuttings, 7s. 6d., both post free. Usual discount to the Trade. Special prices for quantities for bedding. The above are in splendid condition and colour, and cannot fail to give satisfaction.

New Florist Flower, and Florist Flower Seed Merchant, Woolwich.

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JOHN AND CHARLES LEE are now sending out the following TWO NEW ROSES:—

CLEMENCE RAOUX (Granger).—Blush, edged and spotted rose, very large, of perfect form and great substance; petals stout and enduring; habit erect and vigorous; flowers late in autumn. This is really a wonderful Rose when bloomed to perfection. A single flower of Clemence Raoux exhibited amid tens of thousands of other Roses attracted—by its immense size and novel colouring—the universal attention of the judges and amateurs at the Great Rose Show at Brie Comte Robert, in July 1867, when the Gold Medal was awarded to it as the finest Rose in the Exhibition. 15s.

EDWARD MORREN (Granger).—This splendid Rose is a great acquisition. The delicate yet brilliant colouring, the size, fine shape, and fulness of its flowers, combined with its bold erect habit, will render it a universal favourite. Monsieur Margottin thus described it:—"Edward Morren is in the way of Jules Margottin, but of a more delicate colour, of better form, more double, and much larger." The 1st Prize Gold Medal was awarded to it at the Exposition Universelle in Paris, in July, 1867. 15s.

Special offer to the Trade on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith W.

New and Choice Flower Seeds, Post Free.

B. S. WILLIAMS,

SEED MERCHANT AND NURSERYMAN,

Victoria and Paradise Nursery, Upper Holloway, London, N.

	Per packet.—s. d.
WILLIAMS' SUPERB STRAIN of PRIMULA.—B. S. W. can with confidence offer his superb strain of Primula as being the finest in cultivation.	
Red, White, or Mixed .. .. .. 2s. 6d., 3s. 6d., and	5 0
CINERARIA, choice mixed	1 6
CALCEOLARIA (Neill's extra choice strain), 2s. 6d., 3s. 6d., and	5 0
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ECHEVERIA METALLICA (new Bedding plant)	2 6
HOLLYHOCK, from the best named sorts..	1 0
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Victoria and Paradise Nursery, Upper Holloway, London, N.

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Dactylis glomerata elegantissima	4 0
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" Great Eastern ..	3 0
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Special quotations may be had, if required, for the above, and many other kinds, by the 100, or in larger quantities.

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THE WHOLE STOCK OF THE ABOVE BEAUTIFUL PLANT,

Raised by Mr. Tuke, of Bramley, near Leeds, who also raised the lovely Dipladenia amabilis. A Figure of the beautiful D. amœna is given in the "Florist" for April, 1868. Plants now ready for distribution.

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TRICOLOR AND BICOLOR GERANIUMS,

AND CONTAINING FULL DESCRIPTIVE LISTS OF THE NOVELTIES FOR 1869.

ONE MILLION BEDDING AND OTHER PLANTS

Now ready for sending out, of which they invite inspection at their

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LANDSCAPE GARDENING AND ARCHITECTURE.

JAMES CARTER AND CO. having an experienced staff of qualified Men, will be happy to undertake the ALTERATION or IMPROVEMENT of GARDENS, DOMAINS, &c., and to furnish Estimates (after a personal inspection), with Plain or Coloured Plans, as may be desired.

CARTER'S TRICOLOR, BICOLOR, and DOUBLE-FLOWERING GERANIUMS received Five Prizes and Two Certificates at the Royal Horticultural Society's Show at South Kensington, May 22; Two First-Class Certificates at the Royal Botanic Society's Show, May 19 and 20; and Special Prize at the Crystal Palace Show, May 15, 1869.

New Tricolor Coleus, Beauty of Widmore, 5s. each.
Echeveria metallica, 1s. 6d. each; 12s. per dozen.

INDIA-RUBBER HOSE at Manufacturers' Prices. Sixty Feet, with fittings complete, 25s.

JAMES CARTER AND CO., SEED MERCHANTS and NURSERYMEN,

237 and 238, HIGH HOLBORN, LONDON, W.C.; and CRYSTAL PALACE NURSERY, FOREST HILL, S.E.

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DESCRIPTIVE CIRCULARS of MEREDITH'S VINE MANURE free on application.

MYOSOTIS DISSITIFLORA, TRUE.—"The best of all the Forget-Me-Nots for Spring decoration. n many Gardens it is known as montana or alpestris, from both of which it differs."—See *Gardeners' Chronicle*, May 22, 1869.

We shall be prepared to send out Plants the middle of June of the above-named charming Spring Flower, identical with that grown by Mr. Fish, and which is so truly described by him in the *Gardeners' Chronicle*, May 8, 1869. Price 9*s.* per doz., or 60*s.* per 100.

OSBORN & SONS, Fulham Nursery, London, S.W.

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Of NEW VERBENAS, 1869, and FUCHSIAS, COLEUS, &c., 1868.

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KEYNES' 12 New Varieties, 8*s.* | TURNER'S 12 New ditto, 8*s.*

12 Finest FUCHSIAS of 1868, strong plants, 9 to 12 inches, 4*s.*

12 var eties of COLEUS, extra strong, 20*s.* per 100.

ROSES, New and Old, every variety worth growing. For prices see CATALOGUE.

W. KNIGHT, Floral Nursery, Hailsham.

Now is the time to Sow

DOBSONS' SPLENDID HYBRIDISED CALCEOLARIAS.—New Seed, saved from the plants exhibited by us, and so much admired by the thousands of visitors, and were awarded the First Prizes and Special Extra Prizes at the Royal Horticultural, Royal Botanic, two Crystal Palace Shows, Reading, and Oxford, and so favourably noticed by the Editor of the *Gardeners' Chronicle*, p. 582. The flowers have been unusually large, brilliant, and varied in colour, with dwarf habit, and the strain altogether cannot be equalled. Seed, in sealed packets, 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.*

J. DOBSON & SONS, Woodlands Nursery, Isleworth, W.

NEW HARDY PLANT, to be sent out in September, 1869. For plate and full description, see "Botanical Magazine," t. 5726, No. 285, in which Dr. Hooker says:—SPIRÆA PALMATA, "by far the handsomest species of the genus hitherto imported, and certainly one of the most beautiful hardy plants in cultivation; the deep purple-red of the stems and branches, passing into the crimson-purple of the glorious broad corymbs of flowers, contrasts most exquisitely with the foliage, which in autumn assumes beautiful tints of brown and golden-yellow. Spiræa palmata is a native of Japan, and has proved itself perfectly hardy in the most exposed position."

CHARLES NOBLE having the entire Stock of this fine Plant, intends sending it out next September, at 21*s.* each. Orders are requested early, as the Stock is limited.—Bagshot, June, 1869.

Bedding Plants.—Surplus Stock.

THOMAS PERKINS, 42, Drapery, Northampton, has great pleasure in offering the following strong, healthy Plants, turned out of pots, at 12*s.* per 100:—GERANIUMS, Scarlets, of sorts; CALCEOLARIAS, Aurea floribunda, Prince of Orange, and Mrs. Burns; VERBENAS, Scarlet and Purple; HELIOTROPES, GAZANIAS, PETUNIAS, NIEREMBERGIA GRACILIS, PENTSTEMONS, AGERATUMS, Scarlet SALVIAS, Variegated ALYSSUM, and LOBELIA SPECIOSA.

N.B.—The usual discount to the Trade. Terms cash.

CALCEOLARIAS, Bedding, in 12 varieties, including Sparkler, Amplexicaulis, Sultan, Beauty of Herts, Golden Mantle, King of Sardinia, Aurea floribunda; nice plants, free by post, 25 for 3*s.*, or 12*s.* per 100.

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J. C. & Co.'s strain of Calceolaria is saved from plants that were awarded a 1st Prize at the late International Show. The Cineraria and Primula stocks are also saved from the finest Prize Varieties, and cannot be surpassed.

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Per packet—*s. d.*	Per packet—*s. d.*
Calceolaria, finest hybrid .. 2 6	Calceolaria, Dobson's strain.. 2 6
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PRIMULA.

Per packet—*s. d.*	Per packet—*s. d.*
Primula, choicest mixed, fringed 2 6	Primula, choicest white fringed 2 6
,, ,, dark carmine, fringed 2 6	,, ,, Fern-leaved carmine 2 6
,, ,, rose, fringed 2 6	,, ,, white .. 2 6

CALCEOLARIA INTERNATIONAL PRIZE.—The Seed of this superb strain cannot fail to produce splendid varieties, as last season's plants took 1st Prizes wherever exhibited. Per pckt., 2*s.* 6*d.*

PRIMULA FIMBRIATA (New scarlet).—This is a decided novelty, being of a deep scarlet colour, and cannot fail to be much admired wherever grown. Per packet, 2*s.* 6*d.*

INDIA-RUBBER HOSE at Manufacturer's prices, 60 feet (with complete fittings), 25*s.*

JAMES CARTER & Co., The Royal Seedsmen, 237 and 238, High Holborn, London, W.C.

New Plant.

MR. WILLIAM BULL is now sending out the beautiful

LASIANDRA MACRANTHA,

Price 2 guineas each.

The flowers of this plant are truly marvellous, 1½ foot in circumference; are produced nearly throughout the year, and on plants when only an inch or two high. Some blooms of it were sent at Christmas to the Editor of the *Gardeners' Chronicle*, and the following remarks were made in the columns of that Journal, January 2, 1869:—

"We have before us fine blooming specimens of the noble Lasiandra macrantha, sent us by Mr. BULL, which shows that the flowers of this grand plant may be had in winter as well as in summer, which is an additional recommendation. Notwithstanding what may seem to be an unfavourable season, the blossoms are even now nearly five inches across, and are of the richest violet-blue, a tint which has not been reproduced in any of the illustrations which have yet appeared."

New Hardy Golden-yellow Grass for Bedding, ALOPECURUS PRATENSIS AUREO-VARIEGATIS, 5*s.* each.

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FLOWER SHOW, to be held at ATTLEBOROUGH HALL, NORFOLK, on the days of the Agricultural Society's Meeting, at the same place, on THURSDAY and FRIDAY, June 24 and 25. No charge for Staging the Plants, and Open to All Comers.

Class	Description.	1st Prize	2d Prize	Donors of Special Prizes.
		£ *s.*	£ *s.*	
1	Roses—Collection, 36 varieties, 3 of each .. Cup	5 5	2 0	H.R.H. The Princess of Wales
2	Do. do. 24 varieties, 3 of each..	3 0	2 0	Ladies of South
3	Do. do. 12 varieties, 3 of each..	2 0	1 10	Norfolk
4	Pelargoniums, in pots—6 tricolor, 6 variegated, 6 zonal Cup	5 0	1 0	Lady Sondes
5	Do. Cut Blooms—12, in vars. ..	2 0	0 10	Mrs. Wyrley Birch
6	Ferns—Exotic, established in pots, 10, in varieties .. Cup	5 0	1 0	Lady Walsingham
7	Do. British do., do.	3 0	1 10	Ladies of Kimberley
8	Stove or Greenhouse Plants, in varieties, 12 .. .. Cup	5 0	1 0	Lady Louisa Charteris
9	Do. do., in varieties, 6	2 0	0 10	Mrs. Wyrley Birch
10	Groups of Fruit and Flowers, for decoration of dinner table (set of 3)—beauty, test of merit .. .. .. Cup	5 0	1 0	Lady Buxton, Shadwell Court
11	Groups of Flowers, for decoration of Drawing-room (set of 4)—beauty, test of merit Cup	5 0	1 0	Lady Bagge
12	Pot Plants (Basket of) .. Cup	5 0	1 0	Ladies of Attleborough
13	Orange Shaddock, or Lemon-tree	1 0	0 10	Ladies of Wymondham
14	Fuchsias, in pots—4 varieties..	1 0	0 10	
15	Sweet Williams—Collection, 12 bunches	1 0	0 10	
16	Verbenas—6 bunches, distinct varieties	1 0	0 10	
17	Cut Flowers—12 bunches, distinct varieties, Herbaceous Plants	1 0	0 10	

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N.B.—Observe increased Prizes.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION. Instituted 1838.

The TWENTY-SIXTH ANNIVERSARY FESTIVAL will take place at the London Tavern, Bishopsgate Street, London, on WEDNESDAY, June 23. His Grace the DUKE of ARGYLL, K.T., has kindly consented to preside upon the occasion.

STEWARDS.

George Child, Esq., *Chairman.*
Henry Huggins, Esq., *Vice-Chairman.*
His Serene Highness the Prince of Teck.
The Right Hon. Lord Egerton of Tatton.
The Right Hon. Lord George Hamilton, M.P.
The Hon. Robert W. Grosvenor, M.P.
The Baron Lionel de Rothschild, M.P.

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Dinner upon Table at Six o'Clock precisely. Tickets, 21*s.* each. Ladies' Tickets for the Gallery, 7*s.* 6*d.*, for whom a Handsome Collation is provided. EDWD. R. CUTLER, Secretary.

14, Tavistock Row, Covent Garden, W.C.

The Gardeners' Chronicle.

SATURDAY, JUNE 12, 1869.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY,	June 15	Royal Horticultural (Fruit and Floral Committees), at South Kensington ..	11 A.M.
		Ditto (Scientific Committee)	1.30 P.M.
		Ditto (General Meeting)	3 P.M.
WEDNESDAY,	— 16	Royal Botanic (Extra and Special Fête)..	4 P.M.
THURSDAY,	— 17	Linnean	8 P.M.

ON Thursday last a large and influential deputation waited on the Right Hon. JOHN BRIGHT, the President of the Board of Trade, with a view to obtain his sanction and support of the Bill for preventing the ADULTERATION of SEEDS. We give elsewhere the names of the gentlemen composing the deputation. From this it will be seen that all parties concerned in the suppression of the dishonest practices alluded to were represented, except the Royal Horticultural Society. The absence of any member of the Council on this occasion is the more to be regretted, as the Society was almost the first in the field in the recent attempt to put a stop to these dishonest practices. We believe, however, that the absence of any member to represent the Society arose, not from any objection to the principles of the Bill, but from the absence from London of those members who have taken the most active part in the sub-committee appointed by the Society to investigate this matter.

The following statement was read by Mr. SHARPE, of Sleaford, and it, as well as the clauses of the proposed Bill, were discussed by Mr. BRIGHT and the members present:—

"The system of adulterating seeds, which the Bill is intended to remove, exists at the present time on a large scale; it has increased and is increasing with the intensity of competition in the seed trade. The grievances which have long been complained of are these: Large quantities of Rubsen or German Rape-seed and inferior samples of English Rape-seed are killed by a process of steaming and kiln-drying, for the purpose of mixing with English-grown Turnip-seed; seeds of the cheaper kinds of Brassicas are prepared in a like manner for adulterating the seeds of those varieties which have a higher value. Trefoil, a cheap and inferior kind of Clover, is killed and dyed for mixing with Red Clover and Cow-grass; and inferior old samples of Clover-seeds are coloured and dyed for the adulteration of seeds of a higher value—this process of killing and dyeing generally destroying to a great extent the germinating power of the seed so treated. There are other cases which might be mentioned, but these constitute the principal evils.

"Now, to carry out this system of adulteration there exist in London and other places manufactories for the preparation of seed for adulteration, their sole business being to kill and colour seed for the uses of the trade.

"The Bill proposes to inflict a penalty upon any person engaged in this business of preparing seed for adulteration, and it is anticipated that this clause alone will do much to prevent the practices complained of. Penalties are also imposed upon the persons selling adulterated seeds. Further than this the Bill does not propose to go. It does not deal with admixtures of seeds which have been kept too long, or which are simply of an inferior description, as the seeds of weeds, for in neither of these cases is the presence of bad seed necessarily the result of intentional fraud, at which alone this Bill is directed; the rest may fairly be left between the dealers and the consumers, without much fear of injustice to the public.

"The passing of this Bill must be for the public good; the adulteration is a direct fraud upon the consumers, who are unable of themselves to detect it: they expect a genuine article and obtain a spurious one: by reason of adulteration more seed is required, and the consumer increasing the quantity of seed he sows, hoping thus to secure a better crop, only leaves an opening for the dealer to increase the proportion of killed seed. A portion of the seed committed to the ground being silent and without result, it must be considered as a dead loss to the consumer, whose money is withdrawn from him by false representation. In case of disappointment and failure of crop, proof that it has been caused by tampering with the seed is necessarily difficult, and the remedy at present provided by law is so tedious and expensive, that even in cases where distinct proof of fraud could be adduced the victim often prefers to put up with his first loss in silence.

"The Bill must also prove advantageous to the grower of seeds, because in case of bad seasons and short crops, he is prevented from realising a remunerative profit in consequence of the quantity being increased by an extra infusion of killed seed; and it may be stated that when seeds are expected to be dear, from the crop being known to be a failure, there is often a heavier stock left over than in more plentiful seasons.

"The seed dealers throughout the three kingdoms (so far as the promoters have been able to ascertain) are unanimous in support of the Bill, because they will be freed from a system which they know to be dishonest, and which entails considerable trouble, annoyance, and responsibility—a system bequeathed to them by traditional custom, and which is so thoroughly rooted in the trade, that the frequent attempts which they have made to rid themselves of it have failed, and they now feel it necessary that their hands should be strengthened by the present Bill, to enable them to eradicate a practice which is indefensible on any grounds. Especial care has been taken by the proviso in the 6th clause, that the operations of the Bill shall not be wider than they profess to be, and that no legitimate operation of trade shall be in the smallest degree interfered with. The honest trader, who sends out genuine seeds, is unable to compete with the seller of adulterated seeds, because the great body of purchasers are men who are unable to discriminate between adulterated and unadulterated seed.

"We trust that we have now shown that all the interests concerned—the public or consumers, the grower and the dealer, and the various Royal societies, except such as are prevented by their charter, but represented in this room—are unanimous in favour of the Bill becoming law. A copy has been sent to every known dealer throughout the kingdom, also to the public Press, and not a single adverse criticism has been made upon the principle of the Bill, or an objection raised to it."

It would be a breach of confidence to report the discussion that ensued; but we may state that Mr. BRIGHT paid very great attention to the representations made to him, and by his criticisms showed that he had mastered the *pros* and *cons* of the matter. The general impression left on the minds of the members of the deputation was, that many of the objections raised in the course of the discussion were removed by the explanations given, and that no strong opposition would be offered on the part of the Board of Trade to the proposed measure.

For our own parts we have not heard a single argument against the Bill that might not be alleged against all legislation whatever. We have not yet arrived at the halcyon days when legislation will be unnecessary. It will be observed that the proposed Bill creates no new

offence, that its main object is to prevent fraud, to strengthen the hands of the honest dealer and leave the dishonest one out in the cold; to protect the weak and the ignorant against the fraudulent devices of the knaves. To say that it is useless because it fails to meet all possible cases is merely an admission that knavery sometimes outwits the law, but it does not prove the badness of the law, nor offer an argument against putting it in force when practicable.

It is the small consumers in remote districts especially who require the protection of such a law. They should at least be able to know, or readily have the means of knowing, what they are buying, and then if they buy an inferior article with their eyes open, they must of necessity take the consequences. As matters are at present they are entirely at the mercy of unprincipled dealers. The larger consumer has a better chance of protecting himself against imposition, as he can go, money in hand, to the largest and most respectable house, who for its own credit's sake will not deal in adulterated materials further than it is compelled by existing trade practices to do. We trust, therefore, that this Bill, with any amendments that may be thought necessary as it passes through Committee, will become law, and, if it does nothing else, at least it will sift out the honest from the fraudulent dealers. At present they are so mixed up that no one can say where the line is to be drawn.

THE interest manifested in the recent PELARGONIUM EXHIBITION and CONGRESS at South Kensington is a pleasing sign, and shows that this popular family of decorative plants is not only likely to retain its popularity, but to increase it to an extent of which we have little conception. When it is measured by a retail standard of guineas for a small plant, we cannot dispute the intrinsic value of many of the popular favourites that are now offered to the public for the first time; but when "Mrs. Pollock" is pronounced by a competent authority to be the best "tricolor" bedding Pelargonium of the past dry season, it may be questioned whether the market is not being glutted with varieties of questionable distinctive excellence. The law of supply and demand must, however, regulate these things, for if the public rush foolishly into the market, their demand is sure to be met. The wonderful increase in the variegated varieties within the last five years shows what may be done with an idea when properly worked out; and in the Geraniaceæ there are other fields only partly explored, which would very probably yield a rich return for further cultivation.

Extravagant as the prices now appear, we can call to mind that DAVEY, of the King's Road, Chelsea, had 500 subscribers, at a guinea each, before he would part with Daveyanum. A few years later Mrs. MOORE obtained a corresponding price for Moore's Victory. To descend to more recent times, we may recal that DENNIS' Perfection and Speculum Mundi were the leading gems of our prize collections, and that more recently still the opening of the high road to success was at the time when Mr. CATLEUGH sent out the great Clewer seedlings—Sylph at five and Fosteri rosea at three guineas. It will thus be seen that good plants, that is good sorts, have always commanded a good price, and must continue to do so. What, however, we wish particularly to direct attention to, is the fact that the large family of Pelargonium contains nearly 100 species, and if the few that have been worked have yielded such a rich harvest of beautiful varieties, why should we not start again in a direct line, and try what can be done with the hybridising and cross-breeding of other species? At first the progress would be slow, difficult, and no doubt uncertain, but once establish a break between any two distinct and dissimilar species, and the progress will be certain, and possibly very profitable. Of course there are many who will turn an unwilling ear to this suggestion, and not a few who will say the experiment has been tried and failed. To such we would say, perseverance properly directed never yet went without its reward. Who that knows anything of cross-breeding, and has examined the splendid material illustrated in the plates of "SWEET'S Geraniaceæ" would doubt for a moment that, if he had this or that sort, he could present some unique and distinct things; but this material is lost, and therefore there is no resource but to begin again at the beginning, and work from the original species. Many of these, too, are not to be had, but many good ones may yet be procured, and the others might soon be imported if some person had spirit to set about the work in earnest. At the Manchester Exhibition Mr. WILLIAMS sent a plant of Campylia holosericea, which created quite a sensation, and we well know the interest that used to be manifested in the Cape species, that were exhibited years back at Chiswick and the Regent's Park by Mr. PARKER, Mr. WHITING, of the Deepdene, and, we think, Mr. BECK and Mr. STAINES. These are plants of a dissimilar and elegant style of beauty. They may not present the glare of the modern varieties, but they are continuous bloomers, and some of them have intense colour. Let any one procure half a dozen of the best of these species, grow them speedily—for luxuriant growth is antagonistic to seed-bearing—and if in a few years he has not something to show for his trouble we shall be much mistaken. It may be said that they are shy pollen bearers, and very difficult to seed. This is quite true, and suggests greater caution, and the preservation of every atom of pollen that may be produced. For this purpose let the operator provide himself with half a dozen very soft camel-hair pencils—he will buy them for 2*d.*—and placing the name of a plant upon each, let him collect all the pollen produced by the plant upon that pencil, and store it either in silver paper or in a small box, with divisions made for the purpose. The reason for this is, that sometimes the plants will produce pollen when they will not bear seed, especially in the early part of their blooming; but if the pollen is collected it may be used at any time that may appear most suitable. Thus it will be found that, when the first flush of bloom is over, when the plant is a little weakened, is the best time to induce seed-setting, and if the pollen has been preserved it may generally be used at that season with success. Pelargonium pollen, if kept dry, we know, will preserve its fertility for two years, and how much beyond that time we cannot tell; therefore, how necessary is it for the experimenter to take time by the forelock, and always have some pollen from his choicest plants in reserve. Any persons who may follow out this suggestion will find a much more certain harvest than those who only interest themselves in zonals, tricolors, &c. Those fields are now fully occupied, and as the most successful raisers, the GRIEVES, SMITHS, TURNERS, &c., never part with the stock of a seedling until such time as they have raised a better one, or perhaps several, the race is a hopeless one for the new beginner. To open up a new path is a much more certain way to distinction.

Where in the whole race of Pelargoniums have we more useful decorative plants than the Oak-leaved varieties, especially Rollisson's Unique, Quercifolium superbum, Moore's Victory, and their allies? These may be had in bloom throughout the year, and from the two former there has not been a day since September last when we could not from two fine specimen plants have cut, if we wished it, one or more trusses of bloom, and recently handsful at a time. The value of this class of Pelargoniums for winter decoration and "button-hole" work is not half known. If any person would collect the best varieties of this section together, and breed from them, he would find the speculation profitable. Then, why should not the sweet-foliaged varieties bring pretty flowers, and some of the pretty flowers more elegant foliage? Some of the sweet-scented kinds have foliage scarcely less elegant than the Ferns! A good step in this direction was made nearly 20 years ago—viz., the production of nice flowers with sweet foliage, but the experimenter lost the plants, and hence his success had a premature ending.

— THE DEPUTATION to the President of the Board of Trade, respecting the ADULTERATION of SEEDS, before referred to, was introduced by the Right Hon. Henry Brand, M.P. The Chambers of Agriculture were represented by Mr. W. E. Welby, M.P., and Mr. C. S. Read, M.P.; the Royal Agricultural Society of England, by Mr. Dent, M.P., member of the Council; the Royal Dublin Society, by Alderman Mackey, Dublin; the Royal Agricultural Society of Ireland, by Mr. Purdon; the Royal Horticultural Society of Ireland, by Mr. John Farrell, of the firm of Fergus Farrell & Sons, Dublin; the promoters of the Bill, by Mr. Chas. Sharpe, of the firm of Charles Sharpe & Co., Sleaford; the wholesale houses of London, by Mr. Wm. Hurst, of the firm of Hurst & Son, 6, Leadenhall Street, and Mr. Kennedy, of the firm of Thornton, Kennedy & Hey, 2, St. Thomas Street, Borough; the country seed trade, accompanied by Charles Seely, Esq., M.P., by Mr. M. Sutton, of the firm of Sutton & Sons, Reading, and Mr. A. Dickson, of the firm of F. & A. Dickson & Sons, Chester; the wholesale seed trade of Ireland, by Mr. G. I. Alexander, Dublin; the retail seed trade of Ireland, accompanied by Mr. Pim, M.P., Mr. Sherlock, M.P., and Mr. Jas. Robertson, of the firm of Hogg & Robertson, Dublin; the wholesale seed trade of Scotland, by Mr. R. Edgar, Edinborough; the retail seed trade of Scotland, by Mr. W. Mein, of the firm of Stuart & Mein, Kelso; growers of seeds, by Mr. Jas. Watts, Hythe, Kent, and Mr. Hy. Sharpe, Leverington, Wisbech, Cambridgeshire. The public interest was represented by the Press, in the persons of the Editor of the *Gardeners' Chronicle*, London; the Editor of the *Irish Farmers' Gazette*, Dublin; the Editor of the *Farmer*, Edinburgh. The agricultural interest was further supported by Mr. McCombie, M.P., Mr. Chas. Bramley, and Mr. Rich. Young, late M.P. for Cambridgeshire. Earl Grosvenor, M.P., likewise attended the deputation, who retired after a lengthened interview with the Minister, with whose courtesy and frankness they were much pleased.

— At the next Tuesday meeting of the Royal Horticultural Society, on the 15th inst., the following prizes will be open to competition:—For 12 herbaceous plants, in flower, distinct, to be exhibited in pots or boxes (offered by W. WILSON SAUNDERS, Esq.), 1*l.* 10*s.*, 1*l.*, 10*s.* For 24 Pinks, cut blooms, distinct (nurserymen), 1*l.* 5*s.*, 1*l.*, 15*s.*; and for 12 Pinks, cut blooms, distinct (amateurs), 15*s.*, 10*s.*, 7*s.* For 6 Calceolarias, distinct, in bloom (open), 2*l.*, 1*l.* 10*s.*, 1*l.* For 6 double-flowered Zonal Pelargoniums, 3 sorts, in bloom (open), 2*l.*, 1*l.* 10*s.*, 1*l.*; and for 1 double-flowered Zonal Pelargonium, in bloom (open), 15*s.*, 10*s.*, 5*s.* In connection with the above announcement we may mention that we believe there is some scheme in contemplation by which, in future years, the Spring Shows may be blended with what are now called the Tuesday Scientific Meetings, the object being to throw additional interest into these latter, which are the most pleasant and useful of the Society's meetings; and by this concentration to lessen in some degree the demand upon the time and attention of those who, as members of the various committees and sub-committees have to attend on all these public occasions. Should the scheme be carried out it will virtually be an extension of the system of special prizes, of which an example occurs in the above announcement. We understand that Wednesday has been suggested as the day of meeting, as being, while likely to be equally convenient for horticulturists, a better day than Tuesday to secure the attendance of general visitors. This proposed change seems to us a beneficial one, as, while it will somewhat reduce the number of show days, it will increase the interest of the best meetings the Society holds, and will economise the time both of exhibitors and committee-men.

— We learn from the "Journal of Horticulture" that the *souvenirs* presented by the Emperor of RUSSIA to the English DELEGATES to the ST. PETERSBURG CONGRESS, are a pair of jasper vases to Dr. HOOKER, and a slab of malachite, adapted for a console table, to Dr. HOGG and Mr. MURRAY respectively.

— We have lately received from Colonel CHARLTON two handsome hybrid CACTI, which seem to possess considerable merit, and are described as crosses between a white and a scarlet Cactus. One, bearing the name of × PHYLLOCACTUS CHARLTONI, is said to be about 2 feet high, and to have large broad flat "leaves," quite destitute of spines, by which we infer that crenatus was one of its parents. It would seem to be free blooming, two flowers having been sent from so small a plant. The colour is a pinkish-rose, the flower tube about 4 inches long, and the petals about ½ an inch broad and 2½ inches long. The cut flowers have collapsed slowly, which seems to indicate that when on the plant the blossoms would last for some time in beauty. The other, of the same parentage, and from the same fruit, has stout three-winged stems, and large crimson flowers, with a purple centre, and as large as Cereus speciosissimus. This has been named × PHYLLOCACTUS PARZII, after Colonel CHARLTON'S nephew. They are both good additions to this showy family, which does not receive in these days so much attention as it deserves.

— We hear that Mr. NOBLE, of Bagshot, intends exhibiting SPIRÆA PALMATA at the Royal Horticultural Society's meeting on Tuesday next. Perhaps it is not too much to say, that this is one of the finest hardy herbaceous plants ever introduced—an estimate of its merits which will, we think, be admitted by those who saw it on the only occasion on which it appeared in public last year.

— We learn from our correspondent in St. Petersburg that the lowness of the ceiling and the want of light in the Riding School have been painfully felt during the Horticultural Exhibition; and it is stated that the Russian Government intends to have a suitable and permanent building erected for such purposes. The cost of this PALAIS D'INDUSTRIE will be at least 200,000 roubles, and it will be ready by the month of May next year, when a grand exhibition (probably International) of manufactures will take place, and most likely the Imperial Horticultural Society's annual exhibition will be connected with it. We hope that this project may be carried out, as it will unquestionably be a great advance in the right direction.

— The proper preservation of Fruit through the winter has always been a matter which has engaged the attention of the gardener, and various plans have been adopted for preserving it in good condition. In the matter of STORING SEED POTATOS, however, it is considered sufficient either to put them into pits, or to store them in dark lofts or cellars, with no further care or attention. M. GAUTHIER advocates another and, as we should suppose, a better plan. This consists in placing the Potatos, as soon as dug, on light shallow

trays, made of laths or strips of wood, with intervals between each, so that the air has access to all the Potatos. These trays are so made as to be stacked one over the other in a dry cellar, or other place, protected from frost. In this way, says M. GAUTHIER, premature sprouting is avoided, and, on the other hand, when planted, the Potatos sprout sooner, and come to maturity earlier than those kept under ordinary circumstances. The early maturity obviates the tendency to disease, and increases the relative proportion of starch in the tubers. Another advantage claimed for this method of preservation is, that the trays may be carried into the field or garden direct, and the Potatos can be planted at once without being transferred to barrows or baskets, and thus exposed to injury. The trays are easily constructed, in sizes of about 2 feet in length, 1 foot in width, and 5 or 6 inches in depth.

—— ADVERTISEMENTS run into extremes—the vendor has the most marvellous things at the lowest price, or the purchaser requires, in his turn, the best of every thing at the lowest figure. What sort of greenhouse plants must they be, to be entrusted to the individual who is sought in the following advertisement? "Wanted a GROOM! who understands greenhouse plants and can MILK, also make himself generally useful. Apply by letter, &c." It is not uncharitable to wish, &c.! For such a CRICHTON 200*l.* a year would be small wages.

GARDENING UNDER DIFFICULTIES.

[The following passages are extracted from a paper read at a meeting of the Glasgow Southern Horticultural Association, by Mr. James Anderson, March 22, 1869.

AFTER some preliminary observations, Mr. Anderson addressed himself in the following terms to the consideration of two points—what to grow, and what to avoid growing, in and around the city:—

Having so far cleared the ground, it becomes a duty to give some advice upon the flowers and flowering plants that should occupy your attention. In the first place let me say that some of the more prominent of florist's flowers should be selected for cultivation. If they cannot be dealt with in the aggregate, from a disinclination on the part of some to live and thrive in a dreary, soot-impregnated atmosphere, there are some few that well repay attention to cultural precepts. Chief among them is the Dahlia. It is astonishing what that plant will endure, and yet yield a respectable array of flowers. There is less need for drawing the special attention of the members of this Association to the Dahlia, owing to the gratifying success with which their labours have been crowned at many of the exhibitions in and around the city. The muck-heap, the manure tank, and Loch Katrine water, judiciously applied, work wonders in the proper culture of the Dahlia; it is, indeed, one of the very foremost of city plants. The Hollyhock, although not quite so much run upon, because of the extra cost and trouble of procuring first-rate sorts, is also a plant that shows a disposition to grow and flower in the midst of tall chimneys. As a rule, however, in such a situation it is all the better propped up against a wall—southern exposure, as, independently of the plants "basking in the sunshine," they are less exposed to the questionable influences of blacks. Pentstemons and Antirrhinums do also moderately well, if good strong plants are procurable in April.

Few, however, in the pent-up gardens and squares of the city could speculate either upon Carnations and their allies, upon Pansies, or, with regret be it spoken, upon England's emblem, the Rose. The foliage becomes wrinkled up, and, what with partial and premature defoliation in the height of growth, and poor, half-starved flowers, the plants are much better out of sight. The urban amateur may well sigh over this want, but he has the consolation of knowing that he is no worse off than his neighbour. Accordingly, city amateurs, if they wish to feast their eyes on Roses, must resort to the rural rosarium.

Next in importance for keeping up the interest that ambition and rivalry awaken, are the Annuals. Chief among those that have what might be called an unqualified round of success are the Asters. There is now such a variety of them that the amateur's time might be very profitably employed for a whole hour daily, during the period of inflorescence, inspecting and comparing their merits. The bouquet Aster, the hedgehog Aster, and, indeed, the whole of the Truffaut Asters, comprise a most beautiful and variously coloured lot. The quilled Aster is the great favourite with the Scotch gardener and amateur, as the visitor to any of the exhibitions will see, and a most beautiful stand can be made of it, if the plants are kept free from insects, and are statedly submitted to an irrigation process. The town sewage, or a portion of it, would do admirable duty to this and some of the other gross-growing annuals. Then there are Marigolds, both French and African, that make excellent growth, and produce flowers in respect of size and substance according to the treatment they at first receive, and the stimulating process afterwards. Stocks of all kinds must not be omitted, although the pale-coloured flowers take on the blacks to such a degree as to mar their appearance considerably; still they cannot be omitted, and their fragrance at nightfall, if mixed with the odour of a patch or two of Mignonette, is grateful in the extreme. The Poppy, too, although a neglected plant, because it bears a common name, and seeds and reproduces itself without any manual trouble or care, is a plant that merits a better fate. Many of the flowers, when from selected seeds, are of the most decorative character, and many fairly vie with the best Marigolds producible; the variety in the shades and the soft tones of colour are alike agreeable. Then of those classes among the lesser fry—Virginian Stocks, Convolvuluses of sorts, Candytufts, and Collinsias, are among the choicest of city annuals, growing and blooming in spite of all surrounding difficulties.

Among biennials and perennials, select Wallflowers, Sweet Williams, Canterbury Bells, Evening Primroses (Œnothera), Valerian, Alyssum, and Stone-crops, all suit well. The Dandelion-leaved variety of Œnothera (taraxacifolia) is one of the very foremost of town plants, growing away as if it were setting the elements, both natural and artificial, at defiance, and then its great Convolvulus-like flowers expand in the evening when business-men rest from their daily toils. All the more appreciable is the subject that, concealing its beauty during the height of day, unfolds itself to the admiring eye of its patron and conserver in his evening rounds. Far more gaudy and more giant-like in stature are Œ. macrocarpa and Lamarckiana. Both of these flower profusely in autumn, and from their rich crop of flowers, taken together with their size individually, they have few rivals for effect.

Some people have tried and failed with Delphiniums, even with Digitalis, which has too flimsy a leafage to withstand smoke, and is therefore unable to carry the rich racemes of flowers with which the plants are generally adorned. Even the Daisy looks miserable as a weed in the grass-plats of the town squares, and not much better looking are the great double white and pink sorts which are objects of so much attraction at the cottage walk sides. Most of the Primroses, the herbaceous Pæony, and the choice Saxifrages will not succeed satisfactorily in your borders.

Time will not permit me to dwell upon points of importance that might otherwise be adverted to, else I should have had something to say about suitable shrubs and climbers; but there is the great and growing host of bulbous plants that must have passing notice. Nearly every one of them is particularly qualified for city decoration. The Snowdrop and the Crocus, the latter in particular, will live, grow, and flower anywhere, only it is very impatient of being disturbed with the spade in the process of dressing the borders. The ripening of the foliage is of more consequence than seems generally to be appreciated, judging by the summary action taken. With due attention on this point, something like an annual success may be expected. Tulips constitute one of the chief of the subjects which flower in cities with the greatest success; only stick to the hardy old sorts, whose constitution has not been impaired by cross-breeding, as some of the choicer novelties have been. Duc Van Thol, Rex rubrorum, Tournesol, and the purely florist's flower Tulips, are the kinds I would recommend. A mixed plantation of cheap Hyacinths presents a respectable array of beauty, and they can be had; only when the amateur adds up all the little wants he is astonished to find what an aggregate sum they represent, and cutting down has often to be the order of the day.

With all the drawbacks attendant upon your position as city lovers and cultivators of flowers, there is fortunately much pleasure to be derived from a host of things that do prosperously, if not quite so much so as in rural districts, where the air is not vitiated and contaminated by the hostile gases that proceed from public works, the smoke that issues in indefinite volumes over the district and settles more or less upon the choice objects that are selected for their beauty of growth and flowering qualities. With the aid of frames and fermenting materials for exciting germination and growth, and unpretending greenhouses reared at a minimum of cost, there can really be an astonishing outcome, if superintended by the watchful eye and the persevering mind of the tenant.

There is yet another style of gardening that I very much wish to be taken in hand by city men, because I am convinced of its decorative importance, of its suitability for displaying to the best advantage the various plants with which it may be adorned, and of the extraordinary variety, in a limited compass, which it is bound to represent. It is the displaying of certain plants upon a more natural basis than what is customarily resorted to—in fact, upon an artificial rockery. I cannot go into details and show how this might be planted with plants suitable to any given district; but let me give a skeleton of the plan whereby a thing of the kind may be reared with the utmost regard for economy. First collect all the *débris* come-at-able for forming a groundwork or drainage upon the site that may be selected. These sites may be within the little railed-in squares that you pass in thousands along the more private streets, or may be in your enlarged holdings, within the precincts of which no operative mason, in the exercise of his daily duty, dare venture to enter. Next, strive to get possession of some grit, some peaty earth, or black mould, some good loam abounding in fibre, and a goodly proportion of sand—white sand is the best, but even gritty sands of any colour will do quite well. Incorporate these ingredients, and you can attempt any form that ambition and taste may prompt, the material at command being of course duly estimated. All rockeries should have an undulating outline, because, independent of desirableness and correctness in point of taste, there are nooks and corners presented that suit better for one kind of plant than another, some preferring a large quantity of moisture, such as St. John's Worts, Butterworts, Mimuluses, &c., while others like to bask in sunshine with their roots certainly well cared for, but their position tolerably dry and exposed. Saxifrages, Arabis, Dianthus, especially the alpine Pink, which thrives well in exposure, and might be turned to advantage in suburban gardening, and the stemless Rose Campion, are all plants that prefer exposed sunny positions. The amateur will therefore readily comprehend why undulating and diversified surfaces are of importance to alpine and other plants.

Then, as to what the outward facing should be, there are a variety of things beside stones, that might readily be utilised. There is the *scoria* of furnaces, which in its lumpy, fused state, need yield the palm to no other thing brought into requisition, and it is within the reach of many in almost every town in the kingdom, for if it cannot be had in the shape of the more common slag in one or other of its forms round all our mineral centres, it can be got from any cupola where the fusion of pig-iron is going on. Once let there be a disposition evinced to follow out this system of decorative gardening, and the means and articles will be forthcoming to carry it out on a more or less ambitious scale.

The great matter for all city and suburban amateurs is to grow only such plants as will yield some sort of growing and flowering return for the labour spent. Whenever circumstances intervene to war against the success of any plant, however much of a favourite it may be, it is folly to persevere and be periodically defeated. Much better that the display, however common (so-called) to gardeners and amateurs who are well-up in the matter, should be select, and suited to the particular locality in which you reside. The very air you breathe is contaminated, and is to a certain degree inimical to human life. It has a corresponding effect upon plant life—not that always it is essential to have the same atmospheric conditions for ministering to the mutual well-being of both, but both are decidedly averse to a dark and dim atmosphere, accompanied, as is the disagreeable accompaniment of all manufacturing towns, by columns of smoke dispersing in all directions, affecting the lungs in the one case, and shutting up the leaf stomates in the other. The pure air of heaven is as necessary for prolonging the life of plants as it is for that of man or beast. Some, physically, are strong enough to resist with a certain degree of impunity a combination of these evils, which, all must admit, have a deteriorating influence; and such, when once you have fairly proved them, should be noted down, and recommended not only with fair individual influence, but with the united influence of your Association. Depend upon it that experience of this kind fairly given is of the most valuable nature, not only to your own district, but to many others similarly situated, with their tens of thousands of anxious inquirers.

If there be one thing more than another that will stamp the action of your Association with the die of sterling worth, it will be the amount of valuable practical instruction that has been mutually conveyed.

THE PELARGONIUM CONGRESS.

(*Concluded from p.* 611.

On the Varieties of Pelargoniums with Highly-coloured Leaves, their History, Future Changes, Points of Merit, Cultivation—and the Mode of Raising them.

SUGGESTIONS FOR FUTURE CHANGES.—The principal attraction in these plants is their leaf-colouring, and to this cross-breeders should first direct their attention. The different zones of colour must be as bright as possible and distinct, not running into one another. They should be even throughout, not jagged or irregular. The edge of each zone should run parallel with the edge of the leaf. It would probably be more pleasing, and certainly more symmetrical, if the leaf were quite round, each zone forming a circle round a green centre. The zones would give greater variety if they were not all of the same width. The first great step will no doubt be to obtain the yellow (or white) edge, red zone, and green centre—fulfilling the above conditions, or the most important of them. There will be still one more task—to give us a third belt of brown, black, or purple between the red zone and the green centre. The colours must be permanent, *i. e.*, the leaves must retain their beauty when fully developed, and to insure this they must be of good substance and have a sufficiency of green. We must have them of all habits but a bad habit—dwarf and running for beds, which we may soon hope to obtain from the new Ivy-leaf hybrids; more upright and branching for pots and vases; and giants, for pyramids to decorate our terraces and entrance halls; but each must be vigorous in its own fashion. The flowers must, in due course, be of perfect shape and of all colours, though they may wait till the other properties are secured. Lastly, if possible, the ladies especially would like the leaves to be sweet-scented! The gold and bronze, and the gold (self) sections should aim at as many of these improvements as it is possible for them to fulfil especially is it necessary that the yellow should be less green, and the zone of a more decided, brighter colour. What a marvellously beautiful bicolor would be one with a white ground and a rose or pink zone! Yet, extravagant as it may seem, Lady Slade, raised by Mr. Tirebuck of Luton, is described as being pure white, scarcely a tinge of green on a leaf or two, and as having maintained that character for more than a twelvemonth: and I am myself witness that a seedling of the same character—except that it had a lovely broadish pink zone—was raised here in Jersey by an enthusiastic amateur, in 1864, which gladdened his eyes and astonished those of his friends for several months, but eventually perished. What is, however, more likely soon to be accomplished (from the bicolor section) is a scarlet self leaf! and sooner still, a good deep orange self; and then—perhaps before—we must have from the unvariegated zonal section a purple self, bright and deep as purple Beet!

POINTS OF MERIT.—1. That the coloured zones be bright, well-defined, and permanent. This is a *sine quâ non*, and I should give it the first place, as it insures, in addition, substantial leaves and corresponding vigour.

2. That each zone be entirely distinct from its neighbour without running; perfectly even throughout, not jagged or irregular, and running parallel with the edge of the leaf.

3. That each full-grown leaf be quite round, of a medium size, and flat (or slightly convex), each zone forming a circle round a green centre. In bicolors the ground inside the zone should be of the same colour as outside.

4. Habit vigorous and branching, whether for bedding, for pots, or for pyramids.

5. Other things being equal, a plant producing better-shaped flowers in larger trusses, or of a new colour, would be preferred; for example, a white flower on a white-edged plant: but it is to be remembered that these classes of Pelargoniums are essentially foliage plants.

CULTIVATION.—1. *Soil.*—There are two opinions as to the proper soil for these plants, and they are diametrically opposed to each other—one party, holding that the soil can hardly be too rich, recommend that at least half of it be decomposed manure; while the other party, thinking the soil can hardly be too poor, withhold manure altogether. Both plans have their advantages: by the first, luxuriant growth is secured, but it is at the expense of brilliant colour; by the second, the bright zones appear in all their beauty, but the leaves are small and the growth unsatisfactory.

As they are strictly foliage plants, we cannot afford to sacrifice either property to obtain the other; we must have a

full-sized leaf, not a rampant one, and we must have, if possible, perfect colour: the latter for preference in any event. Tulip-growers (now, alas! few and far between) have always had the same difficulty, only in a much higher degree, for the colour of the Tulip is still more impatient of manure. They overcame it by using old, well-aired, and decomposed cow manure, and I would do the same. Our compost, then, shall be three parts of very fibrous loam (obtained, if possible, from an old pasture, where the Grass is fine—the sods stacked just long enough to kill the Grass, and then pulled to pieces), one part of old cow manure, one-half a part of sandy peat, and one-half a part of pounded oyster-shells. This last addition is the suggestion of Mr. Singleton, florist, of Jersey, who has a splendid collection of above 100 varieties of tricolors, raised by himself during the last five years, and selected from thousands of seedlings, and whose suggestion is therefore worth listening to. He was led to use it by noticing how the roots seemed to fasten upon the oyster-shells he sometimes used instead of drainage, and he has found it improve both the growth and colouring. If reasoning from analogy be of any use in such matters, he is right; for Mr. Thos. Rivers has pointed out that calcareous matter improves the colouring of Apples and Pears.

2. *In Beds.*—"What is worth doing at all is worth doing well;" "Do not lose the ship for the sake of a ha'p'orth of tar." Applying these wise old maxims to bedding-out tricolor Pelargoniums, I think the following plan will give the most satisfactory result:—Having fixed upon the position of the bed (which if possible should be fully exposed to the sun, and sheltered from the north and east), remove the old soil to the depth of 2 feet: then fill in for about 6 inches with stones, brick-bats, clinkers, &c. (the largest at the bottom), to secure good drainage: cover these with a layer of sods, grass downwards, or, failing these, with a thin layer of brush-wood, or short straw, &c., next, rough riddlings from the potting-shed; then, fill up to some 2 inches higher than the intended level, with the compost recommended above, or imitate it as nearly as convenient—*e.g.*, hot-bed manure (after doing duty, not before) may be substituted for the cow-manure, and may be applied in rather larger proportion than in pot culture, for which the compost given is more especially meant. A large bed here, last summer, planted after the above fashion, was really magnificent; the plants, small when put out, soon made vigorous growth, and never flinched throughout the particularly hot, dry summer, affording many dozens of cuttings; while in the same garden and aspect, and within 10 feet of the same spot, plants of the same size and varieties, but planted in the ordinary unprepared garden soil, made no progress at all, and were taken up in autumn no longer than when planted out, without having yielded a single cutting. The cuttings alone from the large bed repaid the cost of labour and materials.

3. *In Pots*—from the cutting to the exhibition table.—I will begin by taking off a good, mature cutting, the best time for doing so for our purpose being about the middle of April—by all means avoid the 1st. Put it into a thumb-pot, in equal parts of loam, peat, and silver sand; then place it in a cold frame, and shade from sun till rooted. When the roots reach the sides of the pot, re-pot into a 60 in the compost given under the head "soil," and return it to the cold frame. Shade it for a day or two, till re-established, and then give plenty of air. When the plant has six mature leaves, pinch out the growing point, and when the roots again reach the sides, re-pot into a 32-sized pot, and return the plant to the cold frame. Continue to stop it when needful—having in view the future finished plant—and above all things avoid the knife. If any shoot threaten to grow too rampant, it may be brought to reason by bending it gently down for a time, and a weakly one may be encouraged by placing it more upright. When the weather will permit, take the lights off all night; this and the nearness to the glass will give colour to the leaves. In the hot season, syringe the plant freely every night after removing the lights, and see that it neither lacks water nor becomes sodden. By the time autumn arrives, the pot will be filled with roots and prepared for the winter, which it should pass on a high shelf, close to the glass, at the back of the greenhouse. In February, turn the plant out of its pot, trim the outside roots, run the fingers gently through the ball, and place it in the same sized pot. Now, put it into a close frame, having a gentle bottom-heat, and shade from sun till again established, when it may be returned to its place in the greenhouse. Continue the stopping and training as the growth advances; and, as soon as the roots have again filled the pot, shift into its exhibition home, a "No. 24." Place it in a close frame, slightly heated, for not more than a week, and then return it to its old shelf in the greenhouse, when it must be carefully tended, stopped, trained, and regularly turned round, to avoid its growing out of shape. By no means drive sticks through the best roots, but train with matting to a wire round the pot, or some such contrivance. At least a month before exhibition, cease stopping, and remove the plant to a cold frame. Diffuse the sun's rays by means of stretched tiffany, or something equally transparent; give plenty of air, and at night remove the lights whenever the weather will allow. During this finishing month clear weak soot-water, or sulphate of ammonia (1 oz. to 8 gallons of water), may be given twice a-week.

The plant will now be ready for the exhibition table, to conquer or be conquered, its exhibitor being "equal to either fate." And now my labour of love is completed. *Jonathan Smith, Jersey National School, Don Street, Jersey.*

Home Correspondence.

Dendrobium Falconeri.—I must needs ask you for a small space to answer Mr. Anderson's notice of my letter, more particularly as he appears to have wrongly understood my remarks, and even goes so far as to say that I have introduced the word precision with something like a sneer. Now I did not write it in a sneering mood, but simply with a desire to elicit some further information, and I made my remarks as short as I could that I might not take up space in your pages which my standing as a gardener or a writer upon gardening did not entitle me to; and thus my letter might carry an appearance of abruptness. First let me notice that I did not impugn Mr. Anderson's own gardening experience, nor did I wish to appear to doubt the facts he gave us; I simply asked for more precision of expression; and being an employer of mechanics, and accustomed to the use of callipers in measuring small diameters, I asked for the measures, as I would have given them had I been asked. I am afraid I am again going to run the risk of being misunderstood, but that I cannot help, further than by disclaiming such intention. D. Falconeri is distinct in many ways, and in one important one is, I think, singular,—the bulbs do not thicken as they grow longer, even if good part of a yard long, and having many fresh points of departure added each year. Each joint in the bulb depends for its size upon the leaf that forms it; if the leaf gets damaged it remains smaller than the others, and perhaps neither forms a flower nor becomes the starting point of a fresh bulb. Such being the case, any average growing growth is a good sample of the strength of the plant; first, there is the leafless part; then come five or six green joints, with the leaves still on, and so many of them should become points of departure when growing strongly. Dr. Lindley tells us a flower shoot is a stunted growth only. Mr. Anderson says this plant is as green as a Rush, the moisture it has lived in has preserved the leaves, and the leaves have kept that part of the bulb green, and the new growths are wood buds and not flower buds. I have one that has done the same thing, remained green all winter, the three oldest still green joints commencing fresh growths, and I conclude they never will flower; or, as far as growing is concerned, the treatment appears identical; but I must still press the question as to the size of the joints, &c. I thank Mr. James Lorimer for his answer, and the temperatures he has given me. I can only express my continued surprise at the tremendous speed at which Orchids are killed off. Now this should not be, and though I confess I put as a contrast to Mr. Anderson's cool treatment the highest temperature my house is likely to attain, I gave it no higher than it often has been in July and August. From 70° to 80° is enough for Pines as a rule, and is a heat that I believe Orchids require. Our grand question yet is to flower Falconeri, not to grow it; and I think that if Mr. Lorimer will read my letter again he will see we only differ in the mode of raising the required moisture; the atmosphere in my house is as near saturation as the heat at which it stands will permit. I have not the rule, I wish I had, but I believe it will contain nearly half as much again at 75° than it can at 55°. The paper I mentioned as having written about two years since was not an answer to any one, it was an attempt to start a discussion upon the meteorological requirements of Orchids, as shown by the paper I mentioned in the Journal of the Scottish Meteorological Society. Orchids want the warm rain condensed by the high elevations at which they are found, but they also need the hot sun to ripen the bulbs to the required flowering point; for what plant or tree has this tendency induced by cold?—and when I add that support should be given with the stimulating heat and moisture, I have again gone over all the points I wished to draw attention to in my last letter. *G. H.*

Our Fruit Prospects.—So many friends, both at home and abroad, have written to me on the above subject—the spring having been so peculiar—that I am, with permission, induced to give the result of my observations in your columns; and to be as methodical as possible, I give it alphabetically. For the sake of foreign friends, or perhaps I ought to say colonial friends, some of whom have seen this place, and appear always to take a warm interest in it, and many others who have heard of this corner of Hertfordshire yet are never likely to see it, I may perhaps be allowed to give a short description of site and soil and climate. Sawbridgeworth, a rural parish on the Great Eastern line of rail, lies about 20 miles in a direct line to the north-east-by-east of London, and at the extreme eastern end of Hertfordshire: its climate is cold, sunny, and dry; summer heat 2° or 3° less than that of Chiswick; winter and spring frosts not so severe by 2° or 3°—so that we are cooler in summer and not so cold in winter as that central point of horticultural observations; for instance, on the 1st May last 6° of frost were registered at Chiswick, but here only 3°. With regard to site, we have those pretty undulations peculiar to the county, with its brooks and springs and watercourses, the latter bordered with rich alluvial loams, mixed with alumina and carbonate of lime; these clayey loams, with occasional fields with subsoils of calcareous sand, are disposed over a large district—this parish alone containing 7000 acres,—and are most fertile arable lands, often producing 8 quarters of Barley, and, last year, upwards of that quantity of Wheat per acre; yet, oddly enough, our pastures, unless heavily manured, are not rich, and have but little fattening power even under the highest culture. Apple trees, in the orchards of the farmers, succeed well, and have not that wretched, mossy, scraggy appearance they have in Devonshire, nor are they as luxuriant as they are in the Worcestershire and Herefordshire orchards. The crop this season on standard orchard trees of some 30 to 50 years old is very scanty. Such sorts as Dumelow's Seedling, Rymer, Sturmer Pippin, and others, are almost or quite bare, while, curiously enough, dwarf bushes, or pyramids on Paradise stocks, whether English, French, or Dutch, are crammed with fruit,—little bushes, from 12 to 18 inches high, will require a large portion of their fruit thinned out or they will die under the pressure. I have never thought more highly of these little trees than at present: they require no wires or stakes, and but little trouble, merely that required by pinching-in their young shoots during the summer. Too much cannot be said in favour of them for small gardens, as they may be planted 3 feet apart, in rows or squares, and even less. Apricots on standards in the open air are quite bare of fruit; they bore large crops in 1867 and 1868. Trees trained against walls are also bare of fruit, as are the majority of those in orchard-houses: the exception here is some tall standard trees in pots in the central border of one of our large orchard-houses; their heads were in a comparatively warm dry atmosphere, and the pollen consequently dry and active. Cherries are a most abundant crop, more so than I have witnessed for many years; boys have been employed for many days in clipping off the fruit from pyramids, more particularly those of the Duke tribe, such as the May Duke and Empress Eugénie—the ground is literally strewed with bushels of fruit, just on the point of colouring, causing some regret that they could not be suffered to ripen their beautiful fruit, but unless removed the rooks destroy the trees. These trees, some thousands in number, are on the Mahaleb stock (Cerasus Mahaleb), which is at home in the calcareous loam. Cherries on standard trees in orchards are equally abundant. Currants and Gooseberries are a most abundant crop. Figs on walls are really loaded with fruit, a rare occurrence here, as the winter generally destroys all the young Figs formed in autumn, even when the trees are protected. I saw the other day in the Isle of Wight, and also near Portsmouth, large bush-like trees in the open ground weighed down with the quantity of fruit. [We can confirm this. EDS.] Grapes never were more abundant; bushes in the open borders, Vines trained to walls, those under ground vineries, and in houses where they are planted in the borders ("vineyards under glass"), all are full of fruit; the latter are coming into bloom; these pyramidal Vines will one day be popular. I may add that those trained under the roofs in cool vineries are also showing abundance of fruit. Peaches and Nectarines may be reckoned almost a total failure. Trees trained to walls in the open air and protected by lights placed against them, and those on the same wall protected with the newly-invented glass screens, also those on the same wall left unprotected for an experiment, all are bare of fruit. Peaches and Nectarines in unheated orchard-houses are, with few exceptions, as bare of fruit as those on walls; the exceptions here are tall standard trees in pots standing with the Apricots I have mentioned, and some three or four dozen of dwarf bushes in pots which were placed in gentle heat in January; they are full of fruit, which is now ripening. My oldest trees, some 15 years old, and which never before failed, are fruitless. It appears to me that the dull moist weather in March glued the pollen to the anthers, so that in shaking a tree when it was full of beautiful blossoms no dust, as usual, flew off; the stigmas were, therefore, not properly impregnated; the fruit appeared to set freely, and after a seeming attempt to swell dropped off. Still there are some strange anomalies, for I observe some Peach and Nectarine trees, neither old nor young, and mostly seedlings, standing among those that are fruitless, that are loaded with fruit. Pears on standards, orchard trees, are for the most part an abundant crop; Williams' Bon Chrétien, Beurré de Capiaumont, and other hardy kinds, have set large quantities; the fruit is now swelling fast; still they are not yet safe, for the old market garden saying occurs to me, viz., that "Fruit is never safe till in the basket." The exception to crops of Pears on standard trees here is the total failure of Marie Louise; my trees are some 30 years old, and they are quite bare of fruit, but oddly enough, some standard trees of the same sort, double-grafted on trees on the Quince stock, are full of fruit. Pears on Quince stocks are this year a great triumph; bushes and pyramids are for the most part set thickly with fruit; cordons near the ground have not done so well. The most gratifying sight I have seen since 1857 is a plantation of Louise Bonne Pears, 5000 in number; these are from 5 to 25 years old, the former planted 3 feet apart, the latter about 6 feet. The old trees set such immense quantities of fruit that we have been compelled to cut off with a sharp knife millions of fruit, and still there are ten times more than can be suffered to remain. The little trees, some only 3 or 4 feet in height, were, like the old ones, masses of blossom—a most beautiful sight; these, lacking age and strength, have set only moderate quantities, but they are charming objects. Plums are, with some exceptions, a good crop; the exceptions are the Greengage, Jefferson, and all the Damsons; which, although every twig was full of blossoms, are a total failure. The Diamond Plums—or, to use a Borough Market phrase, the "Black Diamonds"—blossomed abundantly, and set immense quantities of fruit, which has since dropped off, leaving but a "sprinkling." Victorias and the varieties of Greengage Reine Claude de Bavay, and Oulin's Golden Gage, are bearing fine crops; but the most satisfactory of all Plums in this district is the Early Prolific, the trees of which, many hundreds in number, from 5 to 20 years old, are full of health, full of fruit swelling fast, and apparently quite safe. Prince Englebert (Engelbert of the Dutch), generally a great bearer, has partially failed this year, as has also the Belgian Purple, a most prolific sort. Plums of all kinds in orchard-houses have set large quantities of fruit, they are now placed out-of-doors, and the pots plunged. Cherries in my Cherry-house are most abundant, and the early kinds, such as Guigne Tres Précoce and Early Purple Guigne are dead ripe; many other kinds are also fully coloured, and approaching to ripeness: the house is full of beauty. *Thos. Rivers.*—Would any of your correspondents kindly inform me what are the prospects of the Peach and Nectarine crop in orchard-houses this season (without fire-heat). Myself and several of my neighbours have experienced a failure, owing, I believe, to the cold, damp, sunless weather when the trees were in bloom. I cannot account for it in any other way, as the trees are doing remarkably well. *A. H. E.* [A general complaint. EDS.]

The St. Petersburg Exhibition.—One point on which dissatisfaction seems invariably to arise at all international exhibitions is the arrangements with the railway companies. The managers of the exhibitions are naturally anxious to obtain some reduction of the fares for their expected visitors, and of the freight of the plants which they invite to be sent for exhibition, and these have been agreed to by the railway companies, and announced to the public; but when they come to be acted on, it is found that the privilege is so fenced in with stipulations, so encumbered with formalities, so hampered with trouble, that without going the length of charging the railway companies with intentionally breaking faith with the public (a charge which has been freely made by many of the victims), the practical result is that the exhibitor or visitor has not profited by

the concession to the extent promised him, and on the faith of which, it may be, that he undertook the journey, or sent his plants. It was so in Belgium. I remember I was there denied the return privilege on the way back, and to secure it by representation or remonstrance would have involved a delay and expense exceeding its value. Something of the same sort took place in Holland, and now again it has been repeated in St. Petersburg, and that in spite of a payment having been actually made by the exhibition for the concession, and in spite of the special protection and favour of Count Strogonow, the Minister in charge of the railway department in Russia, who, by an arbitrary exercise of his power, which would probably be possible nowhere else, redressed such complaints as came under his personal cognisance. It is plain from these experiences that the present system of dealing with railways for a reduction of prices does not answer, and I think most people will agree with me, that it would be better that it should be altogether abandoned unless it can be put on some better footing. There is no insuperable obstacle in the way of doing this. The present evils arise chiefly from the arrangement being almost always of an exceptional nature, and very generally a matter of favour. The managers of railways in their official capacity have no knowledge of, or favour for, horticultural exhibitions. Their *raison d'être* is, not to promote horticulture, but railway dividends, and they have no right to sacrifice a penny of the gains they might make for any extraneous object, however praiseworthy. If they can be convinced that, by reducing the fares or freights, they will secure an additional source of temporary revenue they may reduce them; or if by offering them (as I believe was done at St. Petersburg) a money payment for the reduction, they may make it. The first, the additional traffic brought for a week or two by a horticultural exhibition, is too brief and too trifling to have much weight. The second is the right way, but it will never work so long as the concession is arranged as an exceptional arrangement, for which special instructions have to be given to all the railway officials on all the different lines. It is these special arrangements that do all the mischief. Before they can be completed, and the staff properly instructed, the travellers or goods begin to arrive; in the absence of instructions of course full prices are charged, and the mischief is done. To secure its working properly the concession must be given in a shape that will not require any new machinery, or the issuing of any fresh instructions to the railway clerks and guards. Most, we suppose all railway companies, have already sufficient machinery in regular daily operation (at all events in the summer time) to which the demands of an international or other exhibition could be easily adjusted. The monthly excursion tickets or books supply it ready made. By previous arrangement the excursions could be made to suit the routes required by the exhibition, and any number of these tickets could be supplied to the exhibition at so much per head "on sale or return." This would impose on the managers of the exhibition the necessity of retailing these tickets to their members in advance at such prices as they might fix—perhaps at different prices to the different kinds of members, as jurors, exhibitors, members, &c. The trouble would not be great, however. Circulars require to be sent at any rate, and a paragraph adding that if a ticket is wanted at the reduced rate, the price must be remitted in advance, would only entail a second postage. One very great advantage of this plan would be that in the routes allowed by the excursion, all the most interesting places in the neighbourhood might be included, the journey going and coming might be varied, and the opportunity might lead many to come for the sake of the cheap excursion and the exhibition together, who would not have come for either by itself. Such an arrangement, of course, would not apply to the conveyance of plants, and it is not easy to see how any general plan could be adopted with regard to them. On the whole I would suggest that, instead of dealing with the railway companies, the exhibition should deal with the exhibitors themselves. Let all attempts at reduction of freight, drawback, or returns be given up; and rather let the exhibition make such slump allowances to the exhibitors, in proportion to the cost of conveyance of their plants, as their funds will allow. Sure am I that these drawbacks and returns only lead to trouble, mystification, and disappointment. There is another point in the conduct of these exhibitions wherein some improvement seems possible. It is one of some delicacy, and which I approach with hesitation, and rather with the wish to hear what others think on the subject than to press any ideas of my own. It will not be disputed that such reunions as these international exhibitions are, are somewhat mixed. We are not born in the purple, and unhappily, as in all other chemical mixtures so here, the scum always comes to the top. It occurs to me that it might be worthy of consideration whether it would not be as well to have a full and ample general committee of the more eminent members who might represent the Congress on those occasions when it was not desirable that a great crowd should invade the domains of any distinguished host, who desired to extend his hospitality or protection to the Congress, but did not bargain for a tumultuous invasion of hungry locusts. It is in the interest of the Congress and exhibition itself that I write, for it is plain that if we make ourselves unpleasant, whether by our numbers or our manners, we shall be less and less likely to be favoured with such invitations in the future. *Visitor.*

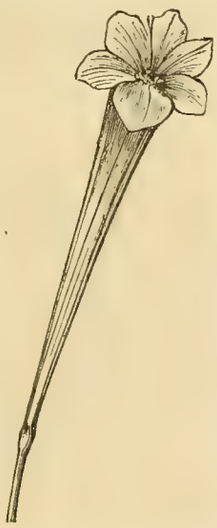
Picea Webbiana.—Can any of your readers inform me if it is usual for this tree to bear cones in a very young state? If it is common for it to do so, it is certainly very desirable to cultivate it, for the dark brilliant purple hue of its cones makes it highly interesting. There is here a plant of it 5 feet high, which has 11 cones upon it; I attribute this in a great measure to its having been transplanted last autumn, and also to the great drought of last summer. Picea nobilis, 8 feet high, transplanted at the same time as Webbiana, has seven cones upon it. *J. Pearson, Rangemore Gardens, Burton-on-Trent.*

Variegated Elm.—I enclose two branches from a Chinese Elm 30 feet high. The green branch is the natural colour, which it produced till within the last five or six years. Now the entire tree is, with the exception of some young shoots from near the ground, variegated as in specimen enclosed. Can this change be accounted for? *H. H.* [We are sorry to have no other answer for you than "we do not know." Eds.]

Cyrtanthus McKenii.—This pretty bulbous plant was discovered at Port Natal, by Mr. Mark J. McKen, and was sent by him to Dr. Hooker, who has named it.



It is described as a semi-aquatic, and seems to be extremely free-flowering; nearly all the bulbs received in the spring of 1868, though very small, having flowered in the autumn. The stronger plants produce from 7 to 8 flowers on a scape. The plant requires to be cultivated like Imantophyllum; and, blooming late in autumn, and being very sweet-scented, like Hyacinth, it may be recommended to florists. *Haage & Schmidt, Erfurt.* [A neat and interesting, though not a showy plant, evidently growing and flowering freely. The flowers are white, and are represented of the natural size in the detached figure shown in the margin. Eds.]



Rhododendron Falconeri.—It may perhaps be interesting to some of your readers to know that this beautiful Sikkim Himalayan Rhododendron is flowering here in the open ground. It was raised by my employer about 20 years ago from seed which he received from the late Sir W. Hooker, and was planted out when very small; the plant is now 7 feet high, and the branches spread 19 feet in circumference: the flowers, which are of great substance, are creamy white, and average about 25 in the truss, of which there are 15 on the plant; its noble foliage and massive branches make it quite a conspicuous object. We have also R. Dalhousiæ and Edgworthii in flower, but they don't appear to be so hardy; R. barbatum has been gay all the winter with its compact brilliant scarlet trusses, and appears to be as hardy as R. ponticum; R. Thomsoni does remarkably well also, and has flowered profusely through the winter. *W. Johnstone, gr. to W. Shilson, Esq., Tremough House, Penryn.*

Roses.—I hear the Roses are in a sad condition in various quarters. Mildew, honeydew, Orange fungus, and black stains in the leaves are the chief causes of the complaints, to which I fear may be added Aphides. I have had to contend with all these foemen. The Rose trees here are however in very fair condition, and I hope to gratify "D." of Deal, who promises me a visit on June 22. I have cut out the Orange fungus, and killed the Aphides; the black stained leaves are removed, and now honeydew is very rife both here and elsewhere. To-day (June 7) I have two men employed to wash it off the leaves, and also to water the plants. There are two great errors with regard to honeydew. The first is, that it falls from the skies. If this were the case all trees would be affected alike, and the tops of trees more so than the base. The other error is, that because where honeydew is, insects congregate, the honeydew is occasioned by the insects. Sycamore trees, Hornbeam, and Roses are the most liable to it of any trees. It is nothing more than the viscous secretions of the tree after a long continuance of N.E. or E. winds and cold nights. It must be washed off before it is dried on the leaves, the pores of which it will stop. I write this hoping I may be in time to save some of the Roses of England. The trees may not die, but if they are seriously affected, they will do nothing more for you this year, and the same remark applies to Orange fungus. Usually this last evil does not affect the trees observably till August. Once more, you must cut it out and burn it! In a few days I will send an account of some of the Roses of the last two or three years. Paul Verdier is very beautiful here. *W. F. Radclyffe.*

Fruit Prospects in France.—I learn, from the "Revue Horticole," that not only in the centre or north of France new Almonds, Peaches, and Apricots have failed, but a letter from M. Glady of Bordeaux states that a like failure has occurred in the south and the south-west of France; for he says that in his visits to his neighbours he remarks the total absence of Almonds, Apricots, and even of Peaches; a few only of the two latter are to be found here and there in isolated places. Pears are, however, an abundant crop, as are Cherries and Plums, the former having set as many fruit as they showed flowers. Apples at the period when M. Glady wrote (May 5), gave great hopes of an abundant crop; and the Figs were showing, as in this country, a heavy fruit crop; and he adds, that Vines everywhere show such a quantity of bunches as to give hopes of a fabulous crop. It is curious to note the failure of Apricots and Peaches over such a large extent of Europe, and in a climate where, one would have thought a bright sun, so unlike our cloudy spring, would have insured a different result. *T. R.*

Myosotis dissitiflora.—In reply to several inquiries respecting the above, pray, as the original introducer of this lovely plant (see *Gardeners' Chronicle*, pp. 599, 600, 1868), afford me space just to say that I have never found the least difficulty in its culture or propagation. As regards the former, Mr. Fish's directions, I dare say, will succeed very well; but the fact is, it is a plant for everybody, rich and poor alike, much more likely to be nursed and managed to death, than to die of neglect. No doubt it will thrive with moderately generous treatment. It loves a pure air, and an open situation with a free light soil, and if it has these it will thrive anywhere, in sun or in shade (I do not mean directly under the drip of trees): in our cottage gardens it luxuriates beautifully with very little culture. With respect to propagation, it proves in most situations to be a most abundant seeder, indeed so much so that for the last 12 years or more I have never thought it worth while to save seed, but destroy all the plants as soon as the beauty is on the decline, trusting to the numerous seedlings which are sure to spring up in the borders, as it sheds its early seed freely before the beauty is exhausted. As before remarked (*Gardeners' Chronicle*, p. 600, 1868):—"It has become quite a weed in the gardens about here," and this from seed. I do know of one or two localities where it does not reproduce itself so abundantly. As regards the many failures spoken of I attribute most of them to the practice of propagating from cuttings, and that sometimes from unhealthy plants, and also endeavouring to save the old plants over after flowering—they are never so good as fresh from seed. That Mr. Fish's plant is identical with mine there can be no reasonable doubt. I sent up specimens from my garden for examination (which are alluded to at p. 600, 1868) about the same time as Mr. Fish, and believe I can trace his plant originally from my stock in a pretty direct line. I take the opportunity of correcting an error or misprint of one locality for it—instead of *B*ogelberg it should have been *V*ogelberg in your former notice. *Jas. Atkins, Painswick.*

Foreign Correspondence.

The Spring in Algeria.—Since I wrote from Algiers, I have visited rapidly a considerable portion of Algeria, posting from seven in the morning until six in the evening. This is a favourable mode of progression, inasmuch as it not only gives time for a minute inspection of the main characteristics of the country, geological and botanical, but admits of a stoppage on the road whenever any feature of interest presents itself. The survey I have made may be divided into three sections: firstly, an expedition to the East, to Fort Napoleon, at the base of the granitic or primary mountains of Jurjura, the highest point of Mount Atlas; secondly, an excursion to the entrance of the Desert of Sahara at Teniel el Haad, and to one of the summits of Mount Atlas (5500 feet high), in the middle of the range, where it assumes the form of rocks of transition—mica-schistic; thirdly, a journey from Milianah, at the base of this region, to Oran, through a limestone and tertiary range, corresponding to the cretaceous period, and to the Italian tertiary limestones. Singularly enough, I could find no work on the geology of Algeria at Algiers or Oran, and the various French guide-books do not allude to such a science, nor do they give any account of the nature of the rocks or soils in the different regions they describe. I was told that the only work on the subject is an expensive report of a Government Commission, published in quarto, with map, issued by the School of Mines many years ago, but I could not get a copy. In the catalogues of books on Algeria, published by the various booksellers in Algiers and Paris, there was not the mention of even a pamphlet on the subject—a most singular fact, when we consider the bearing geological formations have on agriculture, and on the botanical aspects of a country. It would seem as if the study of, and the interest in, geology in France, even in its application to agriculture, were confined to the scientific men professionally connected with it. Having no authorities by me, what I state is thus entirely derived from my own observation. I believe, however, that I am right in dividing the Atlas range, from the province of Constantine to the frontiers of Morocco, into three sections; East, granite; Middle transition, mica schist and sandstone; West, cretaceous; and it will be seen that vegetation follows strictly these geological divisions, as is everywhere the case.

I think it best to mention at once the deductions which I have drawn from this survey of the spring

vegetation of Algeria, as they will give the key to what I have to state hereafter. It is a remarkable fact that they are so consonant with the laws of physical geography, as elucidated by the labours of Captain Maury, Mr. Keith Johnston and others, that, given the data, they could be arrived at without leaving London or Paris.

The Atlas range constitutes a series of mountains, valleys, and contained plains, extending from the Atlantic Ocean westward, to the frontiers of Tunis eastward, and from the very shores of the Mediterranean northward, to the Desert of Sahara southward—that is, a distance from north to south of about three degrees or 200 miles, more or less. This region is a second Switzerland, a mountain region in its entire extent. The highest ranges, however, are not very high, nowhere rising above 7500 feet (the Jurjura), and generally much less. Thus, there are no large glaciers as in the Alps, the Himalaya, and the Andes, to form the sources of mighty rivers.

To the north we have the great inland sea, the Mediterranean, about five degrees of latitude or 300 miles across; to the north-east the basin of the Mediterranean in its entire breadth; to the north-west the great Atlantic, to the south the great burning Desert of Sahara, which extends over a considerable part of the African continent.

The atmosphere which lies on this immense rainless tract, or desert, becoming heated both in winter and in summer, must rise into the higher atmospheric regions, and thus form a vacuum which the cooler and heavier air of the Mediterranean basin rushes down to fill. The latter is thus positively "sucked in" over the summits of the mountain region of the northern shore of the Atlas range. Consequently, in Algeria the regular winds must be and are either north-east or north-west winds, and south winds can and do only reign exceptionally. These northerly winds coming from the sea or the ocean are moist winds, and when they come in contact with the Atlas hills and mountains on the very shore are at once in winter cooled, and deposit their moisture in copious and frequent rain over the entire Algerine or Atlas region, and right into the Desert of Sahara itself, for 250 miles or more from the sea. This takes place from October or November to April or May. In summer the very mountains themselves become so heated with a nearly tropical sun and with the breath of the desert that the moisture of the northerly winds, when they blow, is no longer dissolved, but passes over them and into space.

Thus is explained the climate of Algeria. It is a tract of mountains, valleys, and contained plains, abundantly watered by cool northern rain clouds during nearly six months of the year, which makes it a garden of fertility. Although burnt up by a blazing and all but tropical sun during the summer, owing to its low latitude on the one hand and to its proximity to the great Desert of Sahara on the other, owing to its rain being thus brought by north winds it does not appear by its vegetation to possess a much warmer winter climate than the protected regions of the north shore of the Mediterranean, such as the undercliff from Cannes to Leghorn; but there is more rain, more atmospheric moisture, and the nights are warmer. This latter fact is explained by the heat being more the result of latitude than it is say at Nice and Mentone, where it is principally produced by the direct rays of the sun impinging on the land from the south, with shelter from the north behind. At the same time the intense heat of the summer, greater than on any part of the continent of Europe, explains the greater luxuriance of some forms of vegetable life. Having thus cleared the way, I will next briefly describe what I saw.
H. Bennet, M.D.

(To be Continued.)

Societies.

THE ST. PETERSBURG CONGRESS.—At the third meeting, presided over by M. Bunge, of Dorpat, Professor Gœppert, of Breslau, exhibited a number of interesting specimens of what we may call over-growths of letters or numbers cut into the wood of living trees, and afterwards covered over by subsequent growth, and of foreign objects, such as nails, bits of chain, &c., grown over and quite enclosed in the substance of the timber.

The first of these consisted of two pieces of wood, on one of which an inscription and date had been cut while the tree was still living, and the other was the wood which had since grown over it, the new wood gradually growing over and filling up the space left by the inscription. By the date of these inscriptions on trees we may verify the fact that in them one annual layer of woody fibre only is really deposited in a year. In the specimen exhibited, the date carved on the tree was 1811. The tree was cut down in 1864, and 53 rings were seen to have been deposited over the carving.

Men generally choose trees with a smooth bark like the Beech to cut their names upon. In this specimen, which was of Beech, there was first a cross, then below it letters which were probably the initials of the carver, then the date Dec. 8, and under it the words "Conceptio Virginis Mariae." This specimen was found in the forest of Glatz in Prussian Silesia. Another similar specimen, also exhibited, was on a Beech from Krummendorf in Silesia. It contained only the date 1835, and was obtained by the Professor last year; 33 yearly rings had been deposited over that mark. In the well-preserved bark of the stem that cutting is still easily to be recognised. But the figures of the date are expanded to twice their breadth, because the tree increased in breadth but not in length, as has sometimes been supposed; thus the once finished stem of a tree is never lengthened in height.

A chain in a Poplar tree, very closely covered in; a lead ball in a Fir tree; and the metatarsal bone of a horse in an Oak stem, were among the specimens exhibited. Strange bodies like these, when they get into the wood of the trunk, are enveloped by the later deposits of woody fibre, and are often found in the midst of the wood, giving rise to much astonishment, although quite natural. Several instances of branches walled up in the stem of trees were shown. As in the carved letters, so all other wounds on a tree always remain, and can be afterwards discovered in the body of the wood. Nature only covers a wound gradually over—overflows it, but never heals it.* Ere this is completed, however, the timber that is laid bare begins to decompose, or even becomes rotten. The same happens in the cutting off of branches, consequently, except in case of absolute necessity, let there be no injury done to the bark, no cutting off of branches.

Fruit trees are in this respect still frequently indiscreetly handled, whence from their mutilation they die prematurely. In some of the examples exhibited the walling-up was complete, but the interior of the tree had begun to decompose. In one specimen of walling-up in the Oak, the branch under the complete cicatrix was encircled by a separation or folding, where decomposition had begun. These sections showed that rotten or decomposed parts in a tree never disappear. It is such mouldering and rotting parts that so often appear in the heart of otherwise perfectly sound and firm timber, and seriously diminish the value of the timber for building purposes. Their origin has not hitherto been known, but is a warning against the prejudicial effect of a fashion which has recently come into vogue with foresters of removing knots.

Several other specimens illustrated the same point. There was a longitudinal section of an Oak stem with a branch walled in, a Fir-tree stem with inclosed splinters, and another of a wholly walled-in stem of Pinus Abies by P. Picea.

Another mode of over-growth is the union of two stems into one, or of a branch to a stem, forming a hook or elbow, of which various specimens were also shown. A figure caused naturally by the splitting and rupture or other injury of the wood through frost, was also shown.

* The Professor here is alluding only to wounds by abstraction of some portion of the substance. Nature's action in grafting, budding, &c., shows that if nothing is taken away, or an equivalent be given in place of what is taken away, she can and does heal a wound.

CRYSTAL PALACE (*Second Great Show*): *June 5.*—The principal feature in this exhibition, and a particularly attractive one, was the competition for the prizes offered for *Table Decorations*, which brought forward no less than 23 exhibitors. To our minds many of the competitors erred greatly in not considering the proportion between the arrangement of their subjects and the size of the table upon which they were to be placed: thus the 1st prize table, furnished by Mr. Dickson, of Covent Garden, in which the choicest of flowers were most exquisitely arranged in a handsome service of glass, from the show rooms of Mr. W. S. Dobson, 19, St. James Street, nearly covered the table without any regard to the space required for the more substantial creature comforts. Equal in point of merit were tables gracefully decorated by Mr. J. W. Chard, gr. to Sir F. Bathurst, Bart., Clarendon Park, Salisbury; and Mr. W. L. Buster, Goring, Sussex, to whom 2d prizes were awarded; and equally 3d were Mrs. Weeks, Bromley, and Mr. G. Surman, Red Hill. Several other extra prizes were awarded, and a beautiful collection of artificial flowers, from M. C. Benezet, Paris, was highly commended by the judges. The table which commanded the most attention and admiration was one contributed by Messrs. Phillips & Pearce, which consisted of beautiful works of art in glass, set off by a magnificent service of porcelain, tastefully adorned with flowers and fruit; but the latter, which were badly made examples of wax-work Strawberries, Grapes, &c., greatly marred the effect, and undoubtedly caused this otherwise grand display to be passed by the judges. Another error on the part of some of the exhibitors, which should be guarded against in future, is the too free use of light-coloured flowers, which never show to advantage by gaslight, however well put together. A new and beautiful feature in table decoration, which was designed by the Crystal Palace Company's efficient superintendent of flower-shows, Mr. Wilkinson, was also greatly admired and appreciated. It was arranged in the ante-room of the stage, and consisted of a shallow sunken tank, along the centre of the table, the sides of the tank being carpeted with fresh green moss which was ornamented at alternate intervals, with small clusters of flowers and shells. In the centre of the tank was an ornamental glass pedestal on which two or three tiers of beautiful flowers were arranged, and at each end small spray fountains were fixed in miniature rockwork, which, when playing, caused a continual trickling of water, that gave the whole a delightful and refreshingly cool appearance. This beautiful and novel arrangement was not exhibited for competition, but we may remark that the judges expressed their opinion of Mr. Wilkinson's taste and skill in terms of high approbation.

Next in point of interest were the *Stove and Greenhouse Plants*, which, though not numerously shown, were generally of a very fair description, especially when we consider that many of the specimens had already appeared in public some four or five times. First in the nurserymen's class for 10, came Mr. B. S. Williams, with good specimens of Clerodendron Thompsonæ and Phenocoma prolifera; Anthurium Scherzerianum, with 13 nicely expanded spathes; and a well grown Pimelea decussata, not fully in bloom. Messrs. Jackson & Sons were 2d; having a finely flowered Pimelea Hendersoni, a good and profusely bloomed Rhynchospermum jasminoides, and Genetyllis fuchsioides, in good condition, which were the best in their collection. Mr. J. R. Tanton, Epsom, was 3d, and Messrs. Glendinning & Sons 4th. The former had a grand Aphelexis macrantha purpurea, and good specimens of Allamanda grandiflora and Bougainvillea glabra nicely flowered. In the corresponding class for amateurs, the best came from Mr. B. Peed, who had a remarkably good Allamanda grandiflora beautifully bloomed, good specimens of Ixora coccinea and Eriostemon microphyllus, a grand bush of Erica Cavendishiana, a large freely-flowered Franciscea confertiflora, and a smaller specimen of the larger flowered F. calycina. Mr. D. Donald came in 2d with a collection in which were a well-furnished Phenocoma prolifera, a well bloomed Clerodendron Balfourianum, a very large Erica Cavendishiana, a beautifully flowered Stephanotis floribunda, and the same may be said of his Rhynchospermum jasminoides. Mr. Wilkie, who was 3d, had amongst his collection the large specimen of Medinilla magnifica, which, however, had lost its former freshness, and the remainder have already been referred to elsewhere. For 6 distinct plants exhibited by amateurs, Mr. J. Ward was 1st with a grand specimen of the beautiful Bougainvillea glabra; Erica Cavendishiana, Aphelexis macrantha purpurea, and Clerodendron Balfourianum, in first-rate condition; a remarkably well furnished Dracophyllum gracile, and a well grown and flowered example of Stephanotis floribunda. Next came Mr. Carr, gr. to P. L. Hinds, Esq. Mr. W. Kemp was 3d. The plants exhibited were nearly the same as those shown by Mr. Ward. In the open class for 6, the 1st prize was taken by Mr. B. Peed with a small but beautifully grown Allamanda grandiflora, a very good and evenly flowered Clerodendron Balfourianum, and a fine bush of Eriostemon buxifolius, &c. Mr. J. Wheeler came 2d, Mr. A. Wright was placed 3d, and Mr. G. Wheeler 4th. In another collection, staged by Mr. B. Peed, was a small specimen of Acrophyllum venosum, in a 12-inch pot, admirably grown and remarkably well flowered; most of the flower-stems were about 6 inches long, and densely studded with its beautiful and delicate white flowers. The best 12 fine foliage or variegated plants, and plants in bloom, came from Mr. J. Carr, who had a well-grown and well-flowered Polygala Dalmaisiana, a well-furnished and beautifully variegated Croton angustifolium, a very healthy Draœna ferrea, with four good stems, about 3 feet high, clothed to the bottom; a grandly flowered Erica ventricosa magnifica; a small well-grown Croton variegatum, and a very fine Cocos nucifera, &c. The only other lot in this class was sent by Mr. W. Foreman, gr. to G. Maule, Esq., Denmark Hill, which came 2d. In this collection there was a large well-grown Alocasia metallica, particularly well-coloured; a fair specimen of Mussænda frondosa, very attractive from the abundance of its charming white sepals; specimens of Cissus discolor, and of Anthurium regale, in passable condition, and Anthurium Scherzerianum, with nine very poor spathes, &c. In the open class for 6, Mr. A. Wright staged the best, having a tall, nicely-furnished specimen of the graceful-foliaged Cupania filicifolia, a remarkably nice Gleichenia semivestita, a small but well-bloomed Aphelexis macrantha purpurea, and a very good Croton variegatum, &c. Next came Mr. D. Donald, gr. to J. G. Barclay, Esq., with a small plant of Latania borbonica, a good Cordyline indivisa, Pandanus elegantissimus, in good condition, and a bad Ixora javanica floribunda, &c. Mr. J. Carr was 2d; his collection included the pretty blue-flowered Leschenaultia biloba major, but it was but a poor specimen.

Of *Heaths*, there was a fine display of well-flowered groups. First in the nurserymen's class for 8 came Messrs. Jackson & Son, Kingston, with mostly well-grown and admirably flowered specimens, but including a grand plant of tricolor dumosa, which, however, was not well-bloomed. Mr. E. Morse, Epsom, came 2d with medium-sized admirably-bloomed specimens of well-known kinds. Mr. B. S. Williams obtained the 3d prize. Mr. B. Peed showed the best 8 in the amateurs' class, with good specimens of favourite kinds; Mr. J. Ward was 2d, and had well-grown examples in comparatively small sized pots; Mr. W. Kemp was 3d, with an evenly grown and beautifully flowered collection of the usual varieties. Mr. J. Ward was placed 1st in the open class for 6; the 2d was taken by Mr. J. Wheeler. Mr. E. Morse, Mr. Kemp, and Mr. B. Peed also exhibited admirable collections.

The *Azaleas* were a very poor lot, being in nearly every instance decidedly past their best; and it will suffice here to mention that the principal prizes were taken by Mr. S. M. Carson, gr. to W. R. G. Farmer, Esq.; Mr. G. Wheeler, Mr. Wilkie, and Mr. B. Peed.

Amongst *Orchids* there were some very good things. Mr. B. S. Williams, who was the only exhibitor in the nurserymen's class, had a grand pot of Cypripedium barbatum nigrum, a large showy-flowered variety with beautifully variegated foliage; Oncidium obrizatum, with six good spikes of bright yellow and brown flowers; Anguloa uniflora, with four finely developed white flowers; a grand Aerides odoratum, with 11 good spikes, not fully expanded; a profusely flowered Cattleya Mossiæ, paler than usual in colour; Cyrtopodium punctatum, with large panicles of yellow flowers spotted with crimson, rather past its best, but very effective on account of its long finely curved leaves; and a specimen of Cypripedium Stonei, with four magnificent flowers. In the amateurs' class for 8, Mr. W. Wilson, gr. to W. Marshal, Esq., Enfield, took the 1st prize with Cattleya Mossiæ, with 15 finely developed and beautifully coloured flowers; the beautiful Indian Dendrobium Dalhousianum, in excellent condition; Eriopsis rutidobulbon, with two grand spikes of orange-coloured flowers; Phalænopsis Luddemanniana, with nine charming flowers; Cypripedium caudatum, with eight grand flowers, and some of its tail-like appendages fully 18 inches long, and a finely-flowered Lælia purpurata. Mr. G. Young, gr. to W. H. Stone, Esq., M.P., was 2d, with Vanda tricolor, elegans, and gigantea, in good condition. Mr. J. Woodward, gr. to Mrs. Torr, Ewell, came 3d with Anguloa Clowesii, with three noble yellow flowers, a beautiful and numerously-flowered Lycaste aromatica, and Dendrobium densiflorum, with seven beautiful spikes of rich yellow flowers, &c. Mr. Wilson also came 1st for 6, with a good Cattleya Mossiæ superba, with 14 fine rich flowers; the lovely Odontoglossum Alexandræ, with two remarkably fine spikes; Dendrobium densiflorum album, with four charming spikes of bloom; a beautifully-coloured Cattleya Warneri, and Lælia purpurata and Vanda suavis, in good condition. Mr. J. Ward, gr. to F. G. Wilkins, Esq., was 2d with excellent examples of Cattleya Mossiæ and labiata, also a good specimen of Vanda insignis, and Phalænopsis grandiflora, &c.; Mr. A. Wright, who had well-flowered specimens of Cattleya Mossiæ, Aerides odoratum majus, and the tricolored Odontoglossum hastilabium, &c., in excellent condition, came in 3d.

Pelargoniums, with few exceptions, were much below the average. Messrs. Dobson & Sons were the only exhibitors in the nurserymen's classes for show and fancy varieties in 8-inch pots; and the general excellence of their specimens, which we have before referred to, was sufficient to secure them the 1st prize. The best 12 show varieties in 8-inch pots, amateurs, came from Mr. J. Ward, who had a grand group of oft-repeated varieties. Mr. D. Donald was 1st for 6 fancies in 8-inch pots with a well-grown group. The rest were only very ordinary examples. Messrs. Downie, Laird & Laing took the 1st prize for 6 Zonal varieties with the same collection as was shown at Kensington; and the 2d and 3d prize collections from Mr. W. Foreman and Mr. H. Townsend were small but very fair examples of old and well-known sorts. Another bad set of 6 were staged, probably to fill up, as the show card was turned over as if to hide from the public the owner's name.

Roses were shown in 13-inch pots by Mr. Turner and Messrs. Paul & Son, who took the prizes in the order named. In the latter collection was Madame Julie Daran, a fine dark Rose, of good form and in excellent condition. Mr. Turner was the only exhibitor of 20 in 8-inch pots, and to him the highest award was given. The following may be mentioned as being particularly good:—Madame George Paul, Miss Ingram, Monsieur Woolfield (a beautiful Rose, that has recently been honoured with a First-class Certificate), Felix Genero, Thérèse Levet, Reine du Midi, &c. The 1st prize for 50 distinct varieties of cut Roses was taken by Mr. J. Mitchell, Piltdown Nurseries, Sussex; and the 2d by Messrs. Paul & Sons, each showing admirable examples of the best varieties. The 1st for 25 (amateurs), was awarded to Mr. J. Bristow, gr. to Mrs. Orme, Worthing, with a nice collection; the others were only moderate. For 24 (open), Mr. Turner was 1st, Mr. J. Bristow 2d, and Mr. J. W. Chard 3d, with admirable collections of good varieties.

Of *Coleuses* there was a fair show, and we expect this beautiful family of decorative plants, when large well-grown specimens are attainable, will be a prominent feature at future exhibitions. Messrs. Downie, Laird & Laing took the 1st prize, with a similar collection to those shown at Ken

sington; Mr. H. Cannell, of Woolwich, was 2d; and Mr. Turner 3d, with good varieties, though the plants were not quite up to exhibition standard.

Amongst *Miscellaneous* subjects, of which there were numerous exhibitors, a collection of succulent and other plants from Mr. Parker, Tooting, stood 1st; this contained the curious, compact, cockscomb-shaped Sedum virens monstrosum; Quercus nigra, a dark purple leaved variety; and the equally effective white variegated Quercus Cerris, the densely white-spined Opuntia tunicata, nicely flowered specimens of so-called Vanda insignis, and Trichopilia crispa, &c. Mr. B. S. Williams had a nice collection of Orchids, Palms, &c., of which the following were very conspicuous: the orange coloured Littonia modesta, the small-flowered Oncidium roseum, Dendrobium transparens, a good Cattleya Warneri, and a beautifully flowered Bougainvillea glabra, with specimens of Sarracenia flava, picta, and Drummondi, &c. Messrs. Downie, Laird & Laing, and Messrs. Carter & Co., had each beautifully decorated stands of choice varieties of the various Pelargoniums, Coleuses, Sedums, and other bedding novelties; Mr. Ware had a choice assortment of cut flowers of hardy herbaceous plants, which were very attractive, but Mr. Ware, for his own interest, would do well to name the plants instead of numbering them. Mr. Turner had a numerous collection of show and fancy Pelargoniums, to several of which Certificates were awarded. In addition to the above, an effective display of Rhododendrons furnished by Mr. Anthony Waterer, Knap Hill, may be mentioned, as being an additional source of attraction.

SHOW OF RHODODENDRONS AT SOUTH KENSINGTON.—This splendid show of Rhododendrons, furnished by Mr. Anthony Waterer, of Knap Hill, of which a short notice was given in our last, is now in excellent condition, and has been daily patronised by a large and fashionable attendance during the past week. It occupies the monster tent, on the eastern side of the garden, and is laid out and arranged on the same principle as last year, when it was so much admired. As a display of floral beauty it is indeed far superior to the other shows of the same kind that have been held in the garden,—an opinion entirely concurred in by the Council, who, as mentioned at p. 611, unanimously awarded the Society's Gold Medal to Mr. Waterer. In consequence of the large number of varieties shown, we are compelled to pass over many old and estimable favourites, whose praises have heretofore been loudly sung. Of new kinds, the following, which were sent out from the Knap Hill Nurseries, deserve especial mention, as being very distinct and beautiful:—Lady Armstrong, light rose, much spotted, a beautiful flower; Mrs. Milner, rich crimson, a first-rate sort; Old Port, fine plum colour, good habit, and very distinct; Scipio, bright rose, with a fine deep spot, an excellent variety; Charles Dickens, dark scarlet flowers, fine foliage, and very handy; James Bateman, rosy crimson, fine shape, and good habit; Mrs. G. H. W. Heneage, a very pleasing purple, with a white centre, and fringed flowers, and, moreover, a very free bloomer; and Charles Bagley, a bright cherry-red variety, fine truss, and good habit. Mr. Thomas Wain, which has light rosy flowers, with a deep brown blotch, is very distinct, and altogether a very desirable variety; as is Caractacus, a rich purplish crimson, and a splendid trusser; Lady Clermont, rosy-scarlet, intensely blotched with black, fine shape, good habit, and a decided acquisition among the dark kinds; and Mrs. R. S. Holford, a beautiful rich salmon—a new colour in Rhododendrons, with a large fine truss. Of older and better known varieties, the following were in excellent condition:—Candidissimum, a blush-coloured flower, which changes to white; Fastuosum flore-pleno, a fine lilac-coloured semi-double sort, which continues in bloom a long time, and has very good foliage; Delicatissimum, a blush-white, faintly edged with pink, distinct and good; Nero, a very dark rosy-purple, richly spotted, a fine trusser, and a first-rate sort for planting in collections to give variety in colour; Nigrescens, a very remarkable variety, with very dark plum-coloured flowers, almost black, and good habit; and Minnie, a fine blush white, having the upper petals spotted with light chocolate colour, a very distinct and attractive variety.

MESSRS. JOHN WATERER & SON'S SHOW OF RHODODENDRONS.—This fine exhibition, which is now being held as usual in the Royal Botanic Society's Gardens, Regent's Park, is now in full bloom, and should be visited at once by all who have the opportunity of enjoying such a treat. The principal mass of bloom of all shades of colour is furnished by varieties that are mostly well known, therefore we refrain from alluding to them, and proceed to mention a few of the best of the new sorts. First among varieties, only recently named, is Sir Roundell Palmer, a fine deep rose, flowers large, and a good truss; Mrs. Thomas Brassy, white centre, bright crimson margin, very fine, a beautiful truss; Tamerlane, dark maroon, of good substance, large truss, a fine late-flowering sort; Quadroona, a very bright rose, of excellent form, and good foliage; Narcissus, clear bright rosy-scarlet, dark margins, and good truss; Sir William Armstrong, bright crimson, good truss, and fine form; Bylsianum, bright cherry, with striking and effective pale centre, good form; Madame Masson, fine clear white, with deep yellow blotch on the upper petals; Monsieur D'Offoy, dark crimson, fine large truss. An unnamed seedling, of which a fine specimen is exhibited, may be classed amongst the finest whites yet raised, putting the old established favourite Minnie quite in the shade, as regards size of truss and individual blooms. Amongst older kinds the following maintain their reputation as excellent varieties:—Joseph Whitworth, a great acquisition amongst the dark varieties; Michael Waterer, bright scarlet, spotted on the upper petals, good form, and excellent habit, altogether a grand late-blooming sort; Mrs. John Penn, soft rose, with a light throat, and bright lake edging, a fine truss, and splendid flowers from 3 to 4 inches across; Sir James Clarke, dark crimson shaded with purple; and Princess Mary of Cambridge, white centre, rosy-purple edgings, fine attractive truss, and good foliage. We learn that the exhibition has already been well attended, as indeed it well merits, from the effective manner in which the plants are arranged, and the good condition in which they are shown.

Notices of Books.

British Conchology. Vol. V., pp. 258, tab. ex. By J. Gwyn Jeffreys, F.R.S., &c. London: J. Van Voorst. 1869.

This is the concluding volume of a most important work, which we have noticed regularly during its progress, and is the more interesting inasmuch as it contains excellent figures of almost every British species, exclusive however of those naked mollusca which have been so admirably illustrated in the beautiful monograph by Messrs. Alder and Hancock, published by the Ray Society. The supplement contains additional synonyms and notes on the species already described, with characters of such new species as have occurred since each volume was completed.* The annual dredging expeditions, which were partly supported by a grant from the British Association, have added every year a few interesting contributions to our Fauna, and it was with great regret that the Association, in the existing state of its funds at the Norwich meeting, did not feel itself at liberty to continue the grant. This was the more to be regretted, as though the species of mollusca new to the Fauna which turned up each year were few in number, there were always many other objects of interest, even amongst vertebrata, which rewarded the researches of our author and his colleagues, which were carried on at no small sacrifice of personal labour and hard cash, and were not unattended with a certain amount of danger. The observations too, which the talented members of the expedition were enabled to record, were often of great importance, in a geological point of view, and threw much light on the habits and organisation of many of the lower members of the animal world.

Something, however, we are happy to say, has been done in this direction by Government. The Admiralty has placed a steamer (the Porcupine) at the service of the Royal Society for the purpose of exploring the sea-bed at great depths on the British coasts, and ascertain the Fauna, as well as the temperature, direction of the currents, and other particulars. The expedition will start in a few days, or will have already started before the appearance of this notice, and will last three or four months. Our author is to have the first cruise or charge off the west of Ireland; then Professor Wyville Thomson will take his place, and explore the Rockall Bank; after which Dr. W. B. Carpenter will take the last charge in August, and investigate the sea-bed north of the Hebrides and Shetland. Each cruise will be for five or six weeks, so that we may expect important results, not only as regards marine animals in general, but as to our author's own especial branch of investigation.

The greater part of the subjects included in the volume before us does not relate to the common contents of the conchological cabinet, but it will be extremely welcome to those naturalists who wish to be acquainted with all the forms of mollusca which they meet with during their autumn sojourn off the coast. Many of the naked mollusca are of extreme beauty, and amply repay investigation, while they are charming members of the aquarium, and yield a host of subjects for the pencil. One or two of the Cephalopoda are eaten by the fishermen, and afford excellent baits. The cuttle-fish on our own coasts do not attain the enormous size they exhibit in warmer countries, where, setting aside the fabulous tales which appear in our older authors, they are sometimes veritable giants. An authentic account of one was given a few years ago, of which a translation appeared in a review of the former portion of this work in "Frazer's Magazine," which makes a very near approach to some of the recorded marvels. In themselves the Cephalopoda are most interesting, and will amply repay minute investigation. The eyes are extremely beautiful, and there are many points in their structure which may well arrest our attention. Our author very truly informs us that the notion that Indian ink was derived from the dark fluid which they secrete is erroneous, as it is made of a fine kind of lamp-black mixed with some perfume. The musky smell of ambergris is supposed to owe its origin to Cephalopoda swallowed by the whales, in whose intestines it is found, as it sometimes contains traces of the bill-like bodies with which the mouth is furnished. The inky fluid, however, yields sepia, which is sometimes admirably preserved in fossil species, so as to be fit for use.

The volume contains, finally, some excellent hints for collecting and arranging, more especially for dredging, —a process which requires some experience to carry it on effectively. The common oyster dredge will not do for delicate investigations.

"In bays and sheltered parts of the sea, where the depth does not exceed 20 or 30 fathoms, a small sailing boat, or one with oars, with 50 to 100 fathoms of line, and two or three men, will answer the purpose; for deeper water, a larger vessel and a proportionate supply of rope, with a more numerous crew, is necessary. In the latter case, if a sailing vessel be employed, she is made to lie to (the helm being put up) with shortened sail, and her head close to the wind. Do not attempt to dredge against tide: you may dredge with or across it. When the ground is rough the dredge is likely to catch in a stone, and may be easily lost. To prevent such an accident the end of the rope is fastened, not to the ring which holds the arms together, and forms the point of the triangle, but to one side of the dredge; and the ring is attached to the rope by a 'stop' or bit of spunyarn, which is slack enough to break in case the dredge catches: the stop is then snapped asunder, and the dredge, hanging on one side, is set free and hauled up. In order to give timely warning of the dredge being caught, and to ascertain the degree of tension to which the rope is subjected, the upper part of the rope is attached to the bulwarks by india-rubber springs called 'accumulators.' When the dredge has been working from half-an-hour to two hours (the time being regulated by the depth and nature of the ground), the rope is passed through a movable block, fixed to the shrouds, and hauled in by a double winch or drum; in a boat this is done by the hand."

Happy those who are able to endure the peculiar odour which the contents of the dredge give off when raised. For ourselves, we always got on very well till the dredge was raised, but that was always the finishing stroke, and we were too glad to steer homewards, reserving our spoils for investigation on dry land. Personal attendance on the dredge is, in most cases, indeed, indispensable, as we can seldom get sailors to put up the whole contents of the dredge, who content themselves with picking out the larger and more common species, throwing the mud which contains the more interesting subjects into the sea. On more shallow coasts a number of rare seaweeds will often reward the collector amongst the animal spoils.

* We may ourselves be allowed to add a little note. The specimen received from Mr. Lowe, and described in the Zoological Journal as Dentalium Gadus, proved to be the young of Ditrupa subulata; a circumstance which was recorded, but which escaped the notice of Mr. Jeffreys, and was therefore correctly assigned to Annelides.

Garden Memoranda.

KNOWSLEY, THE SEAT OF THE RIGHT HON. THE EARL OF DERBY.—Those who may have visited Knowsley four or five years ago, would not have been much struck with its grandeur or extent from a horticultural point of view. The fine Peach and Pear walls, and also the extensive kitchen garden, may have excited admiration, but the structures for the cultivation of fruits and flowers under glass were quite inadequate, and belonged more to the primitive periods of horticulture than to the present day. Now, a very different state of things is seen. The liberality and taste of the noble Earl, and the energy and talent displayed by Mr. Freeman, have completely altered, and that in a very short period of time, the general character of the gardens and fruit-houses, which are teeming with almost every choice variety of fruit in cultivation. Most of the old structures have been cleared away, and are replaced by new houses, adapted to the improved system of horticulture. The sashes taken from the old houses are formed into numerous ranges of cold pits and frames for protecting Strawberry plants, early vegetables, saladings, bedding plants, and the numberless other things required in an establishment of this kind; for this purpose they are nearly as good as new, indeed they will probably last quite as long as new ones, for our forefathers built their horticultural and other structures of better wood than can be procured in the present day.

Ample provision has been made at Knowsley for the Vine, and, judging from the appearance of the Vines, there is good reason to believe that very fine Grapes will be grown there. Nothing likely to benefit the Vines seems to have been forgotten, and with the number of houses at command, there is little doubt that Mr. Freeman will be able to produce a splendid and continuous succession of Grapes throughout the year; while now that we have such fine varieties for late keeping as Mrs. Pince's Muscat, Lady Downe's Seedling, and Black Alicante, he will be able to do this without early forcing.

I believe Mrs. Pince's Muscat will prove to be the most useful and extraordinary Grape in cultivation, judging from the house of it I saw, in pots, at Mr. Meredith's, on the 25th March (they had just then been thinned), and from the wonderful Vine of this variety, which has been frequently mentioned in these pages. This Vine had young shoots then on it about 3 inches long, and their appearance was more like that of young Brussels Sprouts, unfolding in early spring, than Vine shoots, while in the centre of each there appeared two or three bunches of Grapes, very much resembling the tops of strong Asparagus shoots. It was one of the most extraordinary sights I have ever seen. The heavy crop (22 bunches) that this Vine was allowed to carry last year, does not seem to have impaired its vigour in the slightest degree; and if it does not produce some of the finest bunches of Grapes ever seen, I shall be much astonished. I have digressed from my subject to show how Mr. Freeman intends to maintain a grand display of Grapes through the winter and early spring months, without impairing the health of the Vines in his permanent vineries by early forcing, thus saving a large outlay in fuel and labour, and much disappointment; for I maintain that it is next to impossible for any gardener, however skilful he may be as a Grape grower, to keep his Vines in good vigorous health, and insure a fair average crop of fruit year after year, if he forces them into growth at an unnatural season, when they should be resting in accordance with the laws of vegetation. If he does succeed in getting an average crop ripe, say, in April, let him place a dish of them on his employer's table, by the side of well-kept bunches of Lady Downe's or Mrs. Pince's, and see which will be preferred. The new Grapes may perhaps look a little fresher, but the old ones will have the flavour.

On March 27 I saw at Knowsley beautiful bunches of Black Alicante Grapes, without a speck or blemish, hanging on the Vines; they were the last of what had been a remarkably fine house of Grapes, and there were at that time Grapes enough to last till the end of March, by which time Mr. Freeman's new Grapes would be nearly ready. Next year he will be able, with the assistance of Mrs. Pince's Grape, to keep up a full succession of old Grapes, till the end of April or the second week in May. A long span-roof pit on the east side of the gardens, shaded from the sun by large trees, is planted with the variety just named; and I found the canes well ripened, and, at the time of my visit, without the slightest sign of moving, but quite dormant, with the wood as hard as ebony. If these can be kept from starting into growth till the end of April—of which there is little doubt—it will be late in October before the Grapes will be ripe; and they could be kept with perfect ease to succeed the latest house, from the first week in April to the second week in May, by which time Grapes could be had in fine condition from Vines started with the new year.

Grapes grown under these conditions will be produced at comparatively small cost, and the gappy and untidy appearance often presented by early vineries, in consequence of some of the Vines being perodically removed by reason of their premature death—brought about by hard forcing at an unnatural period of the year, will be avoided. Instead of this we shall see our graperies filled with noble Vines of sturdy growth, increasing in size and vigour year after year, and annually producing abundant crops of well matured fruit. To enable them to do this, their roots must be allowed free and ample scope, and nothing in the shape of surface cropping must be allowed to interfere with their appropriation of the soil for a distance of 60 or

70 feet from the stems of the Vines; beyond this distance the roots may take their chance. Indeed, if only one-half or a third of the above-named area has been at some time well prepared as a Vine-border, and the whole of the space, after it was found that the roots had taken possession of it, was kept sacred to their use by annually feeding them on the surface with some appropriate sustaining matter, such as half-inch bones, or the Vine manure alluded to at p. 388—if this space has been kept undisturbed, except by having the surface slightly stirred during the summer months to keep down weeds, and to prevent cracking during hot weather, large quantities of rootlets will be annually emitted from the base of the stem and the larger roots, and will in succession take possession of the space allotted, until the whole area becomes one complete mass of roots. A better instance of this cannot be found than at Harewood, near Leeds, where a noble Muscat Vine fills a house 60 feet by 20 feet, and annually produces between 400 and 500 bunches of Grapes, which for colour and flavour can scarcely be surpassed, as the fine samples cut from this remarkable Vine, and exhibited before the Fruit Committee on the 19th of January last, abundantly proved.

As the cultivation of the Vine is to be one of the principal features of interest at Knowsley, I may be pardoned for wandering so far away from the subject which forms the heading of this paper. My only apology for doing so is my wish to throw in a small ray of light upon Vine growing, and the heating and surface cropping of Vine-borders, so much discussed of late in your pages. I purpose in my next to enumerate the various horticultural structures at Knowsley, stopping only to notice the most prominent and striking objects they contain. *J. Wills, F.R.H.S.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

Ferns, both British and exotic, are now making active growth, and according to the way in which they are cared for, so will be the size and quality of individual fronds, and the beauty of the plants. We are very prone, in our anxiety to get fine plants, to coddle them far too much, especially during what should be a period of rest. Take, for instance, the delicate and fragile *Adiantums*, and I here allude especially to A. cuneatum, A. macrophyllum, and other kindred species; though few, if any, plants delight in a period of rest more than do these and similar kinds, how very seldom do we meet with specimens in a resting state? If such a period be insured, and the roots be healthy, not a tithe of the warmth, moisture, and forcing routine is necessary that is usually employed. Take, as an example, ordinary British Ferns, and see their robust growth, stimulated as it is by the very moderate amount of heat and moisture of our March and April. So robust a growth, under a purely artificial *régime* is not possible. What a lesson is here inculcated. In Fern growing, under artificial circumstances, very much depends on the manner in which they are potted. Few things delight in crude soils more than do Ferns, but it must be so afforded each plant that nothing whatever in the way of sodden matter comes near them They delight in an open porous soil, as opposed to a close one of small grains, or adhesive texture. And yet they thrive well in soils containing an extraordinary amount of moisture. To secure these necessary conditions it will be requisite, first of all, to obtain and to maintain a perfectly constructed and an efficient drainage. Next, a soil so beaten, and hence divested of its more retentive earthy matter, that the now quickly decaying fibrous material chiefly, or alone remains. Porous crocks, broken up from the softest baked potsherds; portions of soft and moderately burnt red brick, and pieces of charcoal, moderate in size, should be freely mixed with the soil. The whole then should be pressed firmly down, and a portion of smaller particled or more retentive soil should be used for the final surfacing process, with a view to counteract too free evaporation during the drier periods of a summer season. In our treatment of Ferns we are too prone to souse them too often "over head and ears" with water. This often causes the delicate young fronds of some of the more fragile-leaved varieties to damp or fog off. A nice moisture-laden atmosphere, of moderate warmth, and where no cold chilly draughts are permitted, is alone suited to all ordinary varieties. The old, but most lovely and neglected species, *Didymochlæna truncatula*, and its fair ally, *D. pulcherrima*, will be found to thrive remarkably under such a treatment, as indeed will most others. Air, both by night and day, must now be admitted into greenhouses more and more plenteously, until, by a proper gradation, all the quantity possible be admitted without draught. Keep up a nice moisture in the atmosphere surrounding the plants, by damping down all cool surfaces as frequently as necessary. By placing some of the more hardy subjects in the most exposed situations, they may be hardened somewhat preparatory to being turned out. I am an advocate for partially depriving them of their accustomed supply of root moisture, for a week or so previous to turning them out. I consider that, by so doing, the leaf fibre becomes somewhat more hardy, and will the better withstand the very decided effects which attend on full and sudden exposure to light and air. I do not, however, advocate the plan to be carried to such an extent as to cause the plant to flag perceptibly, &c. An actual tax is easily levied on any well-nourished plant, without resorting to such a system of torture as this.

FORCING HOUSES.

Fires may be dispensed with in *Vineries*, the plants in which are now finally ripening their Grapes, except in instances where haste in ripening is of the first importance. Under such conditions, however, the atmosphere must be kept dry. A good high range of temperature may be afforded by the sun's heat by day, with plenty of air. But the house should not be closed too suddenly or too early, or whilst bright sunshine penetrates directly into it, as it invariably causes moisture to rise in the form of vapour, and this condenses afterwards and settles freely on all around, and does mischief if the night temperature be low. Those vineries from which the fruit has all been used, should have a plentiful supply of air from this time. In regard to *Pines*, it is a practice followed by some growers at this hot drying period to place a fresh surfacing of tan upon the tan-pit into which the pots are plunged: this for a double purpose. It not only increases the warmth of the mass contained therein, but also, by being placed well up to the rims of the pots and occasionally over the whole ball, tends to keep the balls more moist, and to do away with very frequent waterings, &c. One word about *Melons* before I finish with this department for the present. If there be no decided and obvious change from dull sunless weather to a brighter period by the time this appears, I must advise that less water than I have ordinarily suggested be afforded the roots. If the upper crust or soil upon which the vines rest be kept too constantly wet, the plants will not succeed thoroughly. Have resort therefore to tubes, which may be formed of moderate-sized drain tiles or bottomless garden pots, which when sunk in the soil will prove an easy means of affording bottom moisture to the roots without too frequently moistening the whole surface soil. Be particular, once the fruits are set, to elevate them upon some dry surface, in order to insure them against an excess of moisture, which will frequently cause them to rot off if they are permitted to lay in direct communication with the damp soil.

HARDY FLOWER GARDEN.

Those who make a practice of layering *Chrysanthemums* should now peg down the long shoots which have been formed, that they may turn their heads up preparatory to the proper layering process. *Tulips* may now be taken up out of the ground. Lay them carefully on to a cool moderately dry surface, that the fibres which remain attached to the bulbs may ripen off finally. Do not store or pack them away into a close place until this is thoroughly done. *Bedding plants*, which may have had a tolerably good shower of rain upon them, and the beds in which they are planted will now be very quickly benefited by having the surface soil carefully loosened with a hoe. It will be necessary afterwards in some instances to secure such plants as *Verbenas*, *Petunias*, &c., against the ill effects of wind waving, by pegging them down, or other similar means. Finish transplanting all early *Asters* and other similar tender annuals. *Foliage plants*, adapted to outdoor work, may also be safely put out now. Where any of the newer varieties of *Clematis* are bedded out or made to furnish hoops, &c., they will need constant care and attention in regard to pegging down, tying them in, and so on. These are rather averse to any sort of restraint, and being very brittle, need care in the handling. *Roses* in small pots should be shifted into pots a size or two larger, and so be encouraged to make a good summer's growth. *Auriculas* should now receive a slight amount of shading when the sun is at the hottest, about midday; keep them scrupulously clean, and where necessary pot off choice seedlings. Remove all old seed-vessels from *Rhododendrons* immediately the flowers are over, and so aid the young shoot formations in making a good growth.

KITCHEN GARDEN.

The first showery weather should be taken advantage of to transplant out into permanent quarters different varieties of *Borecole*, *Broccoli*, and successional batches of *Brussels Sprouts*, all of which will have grown freely, and thus become fitter for the operation during the past warm period. Those who neglect making free use of the hoe during bright weather, will hereafter find to their cost the additional and unnecessary labour which such negligence entails. *W. E.*

TOWN GARDENING.

CHRYSANTHEMUMS, both large-flowered and pompons, now require attention in the matter of staking and tying. The tall-growing sorts should receive this attention at once, unless they are required or preferred dwarf, in which case they should be laid down, but the tops of the shoots should not be taken off. The leading shoots of the Pompons should now be removed, and these, if stuck in the ground in a shady place, will readily make roots, and grow into dwarf bushy pot plants before autumn. Watering is now one of the most important operations in town gardening, and especially during dry weather, the water-pot should therefore be used freely. Instead of using the latter, a more effectual plan for large places is to have the water supplied by a water company to a plug, on which a hose can be attached, as by this means the trees can be readily and beneficially washed, and a good soaking given to the ground at convenience. *J. D.*

STATE OF THE WEATHER AT CHISWICK,

During the last 43 years, for the ensuing Week, ending June 19, 1869.

June.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..13	71.9	47.4	59.6	20	0.56 in.	1	5	6	1	2	11	10	3
Mon. ..14	72.6	47.9	60.3	19	0.48	1	3	7	1	7	12	9	3
Tues. ..15	72.8	48.2	60.5	19	0.38	2	7	7	2	6	11	3	0
Wed. ..16	72.6	48.3	60.4	18	1.16	4	6	8	1	10	7	5	3
Thurs. ..17	72.9	47.3	60.1	23	0.89	2	5	4	—	7	11	7	7
Friday ..18	72.3	50.4	61.3	21	0.81	1	4	4	4	6	7	11	3
Satur. ..19	70.8	48.6	59.7	22	0.62	2	5	3	2	4	16	8	3

The highest temperature during the above period occurred on the 19th, 1846—therm. 93 deg.; and the lowest on the 15th, 1850—therm. 30 deg.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending June 9, 1869, as observed at the Horticultural Gardens.

June.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind	Rain.
Thurs. 3	23	29.975	29.917	69	46	57.5	58	54	N.W.	.00
Friday 4	24	29.953	29.856	62	43	52.5	59	55	S.W.	.00
Satur. 5	25	30.132	30.029	73	40	56.5	59	55	S.W.	.00
Sunday 6	26	30.183	30.165	83	50	66.5	59	55	S.	.00
Mond. 7	27	30.147	30.043	88	49	68.5	63	56	S.	.00
Tuesd. 8	28	30.194	30.108	74	42	58.0	65	58	N.	.00
Wed. 9	29	30.114	29.975	73	43	58.0	65	60	N.W.	.00
Average		30.097	30.015	74.4	44.7	59.6	61.1	56.1		0.00

June 3—Densely overcast; overcast, brisk wind; fine at night.
— 4—Overcast, fine; overcast, brisk wind; densely overcast.
— 5—Fine; very fine; clear, and fine at night.
— 6—Very fine, exceedingly fine; very fine, hot air at night.
— 7—Very fine; exceedingly fine and hot; clear and fine.
— 8—Overcast; very fine, brisk wind; clear and fine.
— 9—Very fine; overcast, but fine; clear, cold wind.
Mean temperature of the week, 1 6-10 deg. above the average.

Notices to Correspondents.

APPLE SHOOTS INFESTED WITH OIDIUM: *A J.* The Apple shoots are infested with an Oidium. The malady is too common this year. You can either dust the twigs with sulphur, or, what is better, cut all the affected shoots out, burning them immediately. *M J B.*

CALCEOLARIA AUREA FLORIBUNDA: *Mina.* Calceolarias are all more or less liable to go off, canker, and decay, previous to bedding-out times, and after as well, in some strange way, the causes of which are as yet unknown. In some gardens, of late years, they have become so difficult of management, and so uncertain in their lives, that their cultivation has almost been abandoned. More injury, we believe, is done to them through over kindness than through neglect. Some varieties also—and notably that under notice—appear more tender in constitution, and are more liable to die off, than others.

CUCUMBER LEAVES SCALDED: *S O.* The blotches on your Cucumber leaves and cotyledons are evidently scald, but, from the colour of the leaf sent, there seems to be a want of vigour, which is, perhaps, constitutional, about the plants. Try a *pinch* of guano on the soil. This has sometimes a wonderful effect when plants are weak. *M J B.*

CUNNINGHAMIA SINENSIS: *C D.* Undoubtedly the fragment you send from Bicton belongs to the species, and not to Araucaria Cunninghamii.

DRAWING: *A Young Gardener.* Apply to James Richards, Esq., Assistant Secretary, Royal Horticultural Society, South Kensington, W.

FERNERIES: *W E.* In type.

GOOSEBERRY CATERPILLARS: *A B.* One foot radius is quite sufficient for small bushes; larger sized ones, however, should be treated according to the surface area covered by the bush.

GRAPE BUNCHES DECAYING BEFORE FLOWERING: *L D.* It is entirely owing to chills; cold water resting on them, combined with a lowness of temperature at one time, and great excitement following. It is of very frequent occurrence in late houses with little artificial heat, where the Vines are growing vigorously, but more common than usual this season, which is remarkable for cold chilly nights. See also answer to *C B*, at p. 590.

HERBARIUM: *Alpha.* Get some coarse paper, lay the plants on a sheet, and arrange them as carefully as possible. On this place half-a-dozen more sheets, then more plants, and so on. If frameworks of thin laths, nailed at a little distance apart, can be inserted here and there amid the papers, so much the better. The pile completed in this way, place a heavy weight on the top. After a day or two remove the damp paper and put dry in its place. The frequency of changing the paper depends on the succulence of the plants, on the state of the atmosphere, and other causes, which experience will soon teach. When dry the specimens may be carefully fastened down with thin glue on to sheets of white paper of uniform size, and duly labelled and arranged. If brushed over with a solution of corrosive sublimate (poison) in methylated spirit insects will not attack the specimens.

INSECTS: *Wm. Dean.* Your insect is Otiorhynchus sulcatus. Shake the rods at night, placing a cloth under them, and in a few nights you will destroy every individual. *M J B.*

JUDGING PELARGONIUMS: *W F.* It is often impossible to determine positively which of the collections shown in an undefined class are most entitled to the award. Such indefinite classes, which are a great annoyance both to exhibitors and censors, are generally determined by the custom of the neighbourhood, or the views of the managers. If, as you put it, A. shows 25 distinct equally-grown plants, and B. shows 60 plants, including 25 as good and distinct as A.'s, the rest being duplicates and smaller plants, we do not see how, since B.'s collection is equal to A.'s and something more, the judges can avoid placing B. first as having the "best collection," unless, indeed, there are such blemishes amongst his duplicates as may fairly be counted as bad marks against him. This conclusion in the case cited does not alter the fact that indefinite classes should never be introduced into a schedule when there is to be competition for prizes. Had the schedule you quote from required a collection of 25 distinct sorts, all the uncertainty would have been avoided, and A.'s group would have been strictly comparable with B.'s, because each must have staged 25, and no more.

MIMULUS: *W Bull.* A very interesting batch of seedlings, combining the quaint spotting of the older kinds with the rich coppery-red of M. cupreus. Those which may be described as much enlarged forms of cupreus with spotted palate, are particularly showy, and have most novelty.

NAMES OF PLANTS: *T S P.* Abies Douglasii.—N.B. Please not to make us pay postage, and name plants into the bargain.

PEACH LEAVES DISEASED: *Clericus.* Your Peach leaves are much crushed, but sufficient remain to make it more than probable that they are affected with the parasitic Fungus, Ascomyces deformans, which is very common this year on Almond trees. No remedy is known. *M J B.*

PEARS ATTACKED BY INSECTS: *T B.* Your Pears are exactly in the same state as some which were submitted to the Scientific Committee two or three weeks since. The larva is undoubtedly Dipterous, and information is promised respecting the species, but has not at present been received. *M J B.*

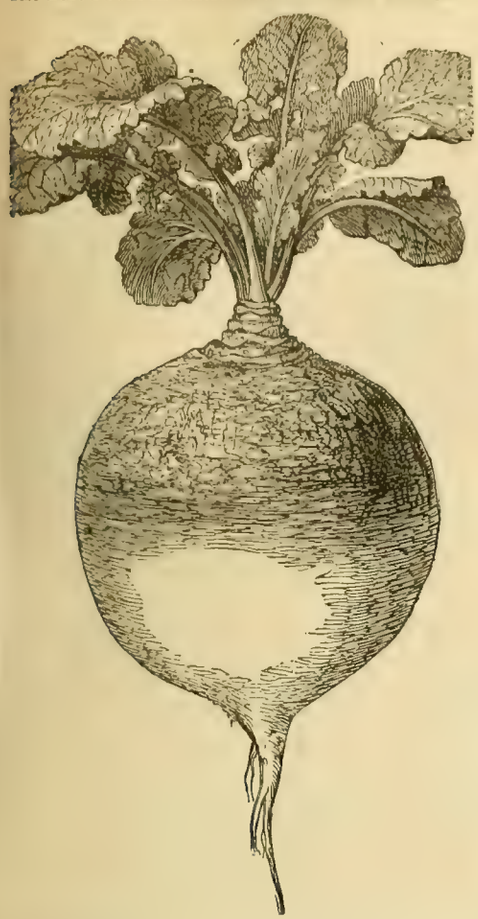
RHODODENDRON: *T K & Co.* The flower was smashed in transit, but in no case can we undertake to name florists' varieties.

SPOT ON PEACHES: *Senex.* It is a sort of gumming which all stone fruits are more or less subject to, and is caused through a little unhealthy action of the roots of the tree; possibly your soil is a little soured—cold and soddened, and not at all in harmony with the temperature of the house.

STEPHANOTIS: *J S.* We advise you not to try experiments with the fruit. The plant belongs to a bad lot, as far as poisonous effects are concerned.

COMMUNICATIONS RECEIVED.—J. D. C.—R. H. P.—Old Sub.—S. T.—E. S.—A. J.—C. M. H.—T. B.—H. H.—G. R. C.—F. M.—W. A. P.—J. J.—Pal,—F. E.—J. A.

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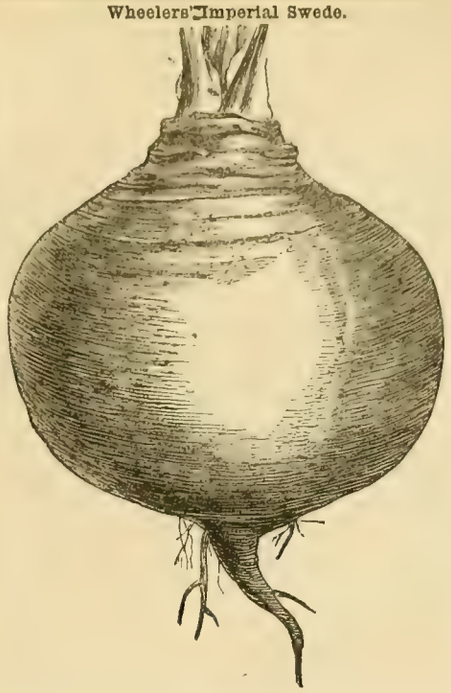
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The Agricultural Gazette.

SATURDAY, JUNE 12, 1869.

MEETINGS FOR THE ENSUING WEEK.
June 15—Hants and Berks Agricultural, at Reading.
— 15 } Essex Agricultural, at Colchester.
— 16 }
— 16—Thorne Agricultural, at Thorne, Doncaster.

THE history of every branch of scientific knowledge is marked by an identity of character. Its early investigators have always wandered into error; for the ray of truth which first enlightened the mind, instead of being prized as an individual principle, has generally been too hastily made the foundation-stone of a theory. In this manner the original truth has almost invariably become intermixed with a mass of confused and incorrect ideas, and subsequently, when the theory has been rejected because proved to be fallacious, we find the truth and the error treated with equal contempt. Thus has many a truth been hidden for centuries after its original discovery. It need not, therefore, be a matter of surprise that the science of agriculture should have the same difficulties to encounter. There is reason to hope that those who are now engaged in promoting it will learn wisdom from the past to guide them for the future.

It is for this reason that recent scientific investigators have avoided in a great measure the formation of agricultural theories. Their primary object has been to prove, by careful observation, certain fixed principles, and from these we learn the laws which govern animal and vegetable life. As these truths become established and recognised, the sphere of inquiry widens, and thus the discovery of one truth prepares the way for its successors. Those who have promoted our sciences have been patient and diligent searchers after truth—persons who have accumulated facts, and from the evidence of facts have deduced the laws which had been in operation. When a number of these laws are discovered it is quite possible we may be able to form an opinion of their combined action, but this can never be done with any degree of safety until we are fully acquainted with all the primary laws which are in operation, and even then caution should characterise our proceedings.

It is by no means uncommon to hear of science being placed in opposition to practice. Science cannot contradict practice—theory may do so, and if it be incorrect it must of necessity do so. What is science? It is knowledge. A knowledge of the facts of Nature can never be opposed to the effects produced by her laws. The farmer carries out the tillage of the land, and all his operations come under the influence of the laws of Nature, and it is these laws which determine the result. Hence a knowledge of these laws can never oppose the experience of practical men; or, in other words, science cannot contradict practice. If, however, from want of full information, we form an imperfect or incorrect theory, the experience of practice must prove it to be wrong.

The agriculturist in his daily operations is, as it were, asking questions of Nature, and she replies to them by the measure of success or failure which attends his proceedings. If he be an observant man he gains after a series of years a certain amount of experience, containing much truth, intermixed with more or less error. Hence we see the folly of those sweeping censures which have been passed upon the practice of entire districts. Long established local customs are always entitled to respect, and an entire disregard of them produces failure. It is true that in many instances there is much that is worthless intermixed with the true principle which is concealed within, and he who would improve the farming of any district, whilst he may winnow away the chaff from local customs, must be sure that in doing so he does not lose the corn which is amongst it. As, however, the value of all experience must depend upon the observer's judgment in connecting effects with their causes, so it is evident that he whose mind is prepared for its task by a knowledge of the laws of Nature, combined with that systematic arrangement of his ideas which only a good education can impart, will draw the most correct conclusions, and his experience will give truth in a purer form than the observations of another destitute of these advantages.

There are few if any, of the great causes of modern times which have not been damaged to a greater extent by the indiscretion of their advocates than by the opposition of their opponents. Amongst these the cause of agricultural improvement forms no exception. How frequently have the failures of theoretical men been brought forward as an argument against the advantage of science to the farmer. It must, however, be admitted that in many instances these results did not arise so much from the modified practice being incorrect as from the incompetency of those carrying them out; they being destitute of that practical knowledge, without which even approved operations could not succeed. For several years past there has been a steady increase in the number of farmers who possess, not only a practical acquaintance with the cultivation of the soil, but a knowledge of science which enables them to take advantage of improvements which are introduced. The time has now come when the numbers of such men must be largely increased, and the progressive movement which has taken place amongst other classes of society will spread with equal rapidity throughout the agricultural body. "Onward" is the motto of the day, and those who mean to maintain an honourable position must not content themselves by pointing at the failures of others, but rather profit by their experience. In ancient times seamen were afraid to lose sight of the shore, and hence their voyages were long and circuitous; but when the mariner's compass came to their aid, they soon began to make their voyages in a more direct line. This sometimes brought them upon "sand banks and hidden rocks," which caused loss and decay, but as these became known they were recorded on charts as warning for other. Science is the farmer's magnetic needle, it will lead him to attain the results he has in view by a more direct and economical course of procedure. The early adventurers will, without doubt, sometimes find "sands and rocks" in their career, but let them be marked and recorded, so that others may derive advantage therefrom. Thus even our failures will become valuable to ourselves and others, if we gather from them the lessons they are calculated to yield.

The duties of the agriculturist bring him in

contact with the operations of Nature, and their agencies are not only beyond his control, but he is subservient to them. It is beyond his power to alter their mode of action according to his will, but it is quite possible for him, by a knowledge of their nature, to modify his own operations, so as to enlist their aid, instead of combating with their opposition. If, therefore, the arts of life have been advanced by the aid of science, even where the influence of Nature is less felt, may we not hope for still greater advantages from its more complete association with agriculture. The advantages of a knowledge of chemistry and mechanics are known and appreciated in all the manufactures of the land, and under their aid results have been gained which would appear incredible, did not our every day observation render us so familiar with them that we lose sight of their magnitude. Take, as a single instance, that marvel of science, the steam engine. By this agency we produce in England a power far greater than the combined strength of every human being in the world, and yet it represents a force completely under control. Then, again, we see how this power may be multiplied by the aid of machinery, for in some of our factories one man is by this assistance enabled to do as much as 200 or 300 men could do without its aid, and we cannot fail to be struck with wonder at those sciences which enable man to increase his power to such an extraordinary degree, and which has given mind such control over matter.

An art may reach a high state of perfection without any knowledge of principles, but it will be reached slowly, laboriously, and with a vast expenditure of time and money. The application of scientific principles to an art, by indicating the causes of failure and success, and by pointing to new and shorter methods of arriving at the same results, will rapidly raise it to a position which only ages could give it, without such assistance. Indeed, it is a well-known fact that the arts have made more progress during the last century than they ever did before, and this doubtless arises from the sciences being better known and more usefully applied. Agriculture itself yields strong evidence upon this subject. The practice of agriculture, which the Romans introduced into this country 1800 years since was very similar, and in some respects it was superior, to that adopted in some large districts of England a century ago. It is therefore satisfactory to know that the co-operation of men of science has in no small degree contributed to the fact, that more progress has been made in the art of agriculture within the last 50 years, than during the preceding 1800 years.

It is, however, singular that there has generally been great reluctance on the part of those engaged in the arts of life to accept the assistance which science is ever ready to give. Any feeling of this kind which may have existed amongst the agriculturists of this country is now rapidly disappearing, and they are, as a body, preparing themselves for further improvements, which cannot fail to be beneficial. Many are the improvements which have been brought to a high degree of perfection during the last ten years, and operations are now economically performed by machinery which were at that time looked upon as mere speculations. A cordial desire for co-operation exists between men of science and the agricultural community generally, which will without doubt be productive of good results. It is no new principle that knowledge is power. It is as much so to the agriculturist as to any other person. That man who has a reason for all he does must of necessity be in a better position than another who adopts a certain course of procedure as a mere matter of routine. If a person tutors his mind not to do anything without seeking a reason for the same, he will carry out the same habit of thought in watching the plans adopted by others, and thus he will extract sweets from many a flower, and store his mind with many truths of Nature, which will be valuable to himself and others in after times. The education of the rising generation of farmers should be such as will train their minds to habits of thought and reflection, and if to this is added a knowledge of the sciences they will be put in a position to judge for themselves upon all they see around them, and gather from the book of Nature that instruction which will be of the greatest practical benefit. Nor will this be the only beneficial result; it will make them not only more successful agriculturists but better denizens of the world, for as they ascend the hill of knowledge they will attain higher and purer views of the work of Nature; and, seeing every arrangement so complete for promoting the happiness and well-being of man, they will become more humble in their own estimation; and goodwill to those around them will characterise all their actions.

[And from all this we infer that the Royal Agricultural Society of England will be acting in direct contravention of all the purposes for which it has been constituted, if, abandoning its efforts for the promotion of professional and scientific education among farmers, it shall divert its education grant to other less important purposes.]

—— AT Mark Lane the Corn Market has again relapsed into the previous rates, the hot days and the warm nights of the latter part of last week having greatly improved the appearance of both Wheat and spring-sown crops. On Monday the decline was about 2*s.* per quarter, and this fall has been followed throughout the provinces.——Feeding stuffs are much easier now that an abundance of Grass is general. Foreign Beans are obtainable at 36*s.* per quarter, Oats at from 21*s.* to 28*s.*, Linseed cakes at 10 gs. to 12 gs. per ton, according to quality, and Maize at about 28*s.* for 480 lb. ——At the Metropolitan Cattle Market previous high prices brought a large supply of beasts, and prices gave way 4*d.* a stone on Monday, but a more proportionate supply on Thursday caused a rally to 4*s.* 10*d.* per stone for animals of the first quality. Sheep on Monday were worth 5*s.* 8*d.*, and on Thursday 6*s.* per stone. Lambs have been in excess of the demand, and they have generally been in very fine close-coated condition. Lambs are worth about 6*s.* and calves 5*s.* 4*d.* only per stone.

—— During the meeting of the Bath and Southern Counties' Agricultural Society, held last week at Southampton, an address was given by Mr. W. C. SPOONER, in the Town Hall there, to the Hampshire Chamber of Agriculture, on the very important subject of cattle importation. The Contagious Diseases (Animals) (No. 2) Bill, as introduced by the Government and amended by committee, was described as follows:—It consists of 10 parts and 128 clauses. Part 1 is preliminary; part 2 relates to the local authorities, the inspectors, and officers; part 3 is devoted, with its 15 clauses, to foreign animals, and the rules by which their importation is to be regulated; part 4 refers to the discovery and prevention of disease; part 5 to the slaughter in cattle plague and compensation; part 6 relates to Orders in Council and local authorities; part 7 to the acquisition of land for the purposes of the Act; part 8 to expenses of local authorities; part 9 to offences and legal proceedings; part 10 to Scotland. There are also 10 schedules, which refer to the details by which the Act is carried out. The much-contested subject of the foreign market has resulted in this—that the Corporation are to have a period of three years to provide it, and on their doing so they are to be allowed to increase their charges in Islington market; but failing to do so their present monopoly over a radius of seven miles is to be taken away. Foreign cattle are to be allowed to go into Islington market, and to travel by railway, provided they come from countries that have been free from rinderpest for the space of three years, and are not countries of transit from places where the cattle plague has existed. Mr. SPOONER does not think, however, there is any particular magic in the number 3; he believes if it were altered to 1 or 2 it would be equally effectual. "Let us suppose," he says, "this was an exporting instead of an importing country, should we not think it rather hard that, because the rinderpest had existed here within three years, it was therefore to be considered as a suspected country, and subject to various restrictions, when we know that it has been long free from the disease? During a space of twenty-four years not one single diseased beast had ever been imported into Southampton; and would it be right, therefore, to destroy that portion of the trade of the port for a fancied evil, more particularly when scientific authority was directly opposed to it?" —Mr. HEDGER, the dockmaster, said the cattle trade of Southampton was very different from that carried on with London, Hull, and other ports. Those interested in the trade in Southampton sought only to improve what might be termed the natural trade of the port—the importation of fat cattle from Brittany, Normandy, France, Spain, and Portugal, where the disease was unknown. They were landed within a defined area, and under very careful inspection. If intended for the London market, they were loaded, after 12 hours' rest, in railway trucks, and conveyed direct to the metropolitan market, Copenhagen Fields. The ships which brought them over were all well ventilated, roomy, and clean. They were under very careful inspection, and under a heavy bond not to have been employed during the previous three months in any other cattle trade. In addition, too, to that bond by the shipowner, the master of the ship had to give a bond to the Customs at the port of landing that he had not called at any other port since he took the cattle on board. The railway trucks that conveyed the cattle to London were cleaned and disinfected after every trip. They could not leave the metropolitan market until they were cleaned and sprinkled with a disinfecting fluid. In the present year, up to May 31, 2718 oxen and 131 cows had been landed at Southampton, out of which 1309 oxen and 54 cows had been sent to the metropolitan market, and 1409 oxen and 77 cows had been taken in Southampton for local consumption. None had been placed in quarantine. —MR. SPOONER regarded the restriction as to animals coming out of London alive as one of the best securities against the introduction and spread of the rinderpest, far exceeding in importance the question of foreign cattle markets. He concluded by arranging the points on which he believed they were all agreed:—1st. That with reference to the two principal diseases, the grand thing is to keep them out of the country. 2d. Whilst doing this effectually, we should accomplish our purpose with as little interference as possible with the freedom of trade, and the supply of animal food for the people. 3d. That these purposes can be most effectually accomplished by limiting the importation of cattle to the metropolis, and to certain specified ports where suitable accommodation can be afforded, not only for the landing, but the housing of imported cattle, the retaining of them in quarantine for several days, and the slaughter of any that may be sold on the spot. 4th. On the indication of any infectious disease, the whole of the animals will, of course, have to be slaughtered on the spot, the place disinfected, and not again used for a fortnight at least. 5th. During the quarantine any of the animals should be allowed to be sold and slaughtered on the spot, and the remainder after the expiration of the quarantine, and should be submitted to a second examination, and then allowed to travel alive on the railway to the metropolitan market. 6th. No cattle or sheep should be allowed to leave London alive, except calves not exceeding a month in age.—Mr. BLUNDELL could not agree to the exemption of young calves from the prohibition with respect to the removal of live cattle from London. They knew very well that the rinderpest was disseminated in this country by the young calves that were allowed to go out of London.—Mr. SPOONER'S resolution, with a few unimportant variations, was ultimately adopted.

—— The Anniversary Banquet of the Royal Agricultural Benevolent Association was held last Wednesday evening—Lord ROBERT MONTAGU in the chair. His lordship announced the subscription list of the past year as having amounted to 3839*l.* He was of opinion that the Council were wise in investing a considerable portion of their income, and not trusting too unreservedly to the permanence of benevolence. Men gave more according to those who have than to those who want. He added that there are 250,000 farmers in Great Britain, and 1*s.* from each would triple or quadruple the Society's income. Mr. MECHI defended the expenditure on the Society's operations. "You should print," he said, "advertisements in every county paper. You should advertise everywhere, and, notwithstanding the expense, you should hold meetings in every part of the country." Many large counties, Mr. MECHI told us, are hardly represented on the subscribers' lists. Even Yorkshire, to its shame, is one of them. Mr. CANTRELL, too, desired that no expense should be spared. He had sent out the green book of the Society far and wide, and every 6*d.* thus expended had brought him in a guinea. He thought the Society had now sufficient property hoarded, and that the pension list ought to be increased. The thanks of the Society were due to the Secretary, Mr. SHAW, who announced a subscription list amounting to about 4000*l.*——Mr. MECHI has sent us a memorandum on the expenditure of the past year in connection with the management of the Royal Agricultural Benevolent Society. He says:—

"I have made a minute investigation of the last balance-sheet, and find that the actual total expenditure for working the Institution is barely 18½ per cent. on its annual income—5145*l.*:—

Per cent.		
9	Salaries and wages	£464
4½	Books, stationary, and printing	234
1½	Rent	75
1¼	Postages	65
1¼	Advertising, coals and gas	62
1	Election and petty expenses	50
18½		£950

I trust that such a statement will be satisfactory to the subscribers. Collecting subscriptions from 4900 persons widely scattered is no easy task, and would be impossible but for the zealous and untiring aid of our honorary (unpaid) local secretaries, to whom we must all feel very much indebted."

—— The Central Chamber of Agriculture held its June meeting at the Salisbury Hotel on Tuesday last. The business to be done consisted of four topics. The first was a report of the sub-committee on the subject of local taxation, which Sir MATHEW LOPES, the chairman, read. In moving this report, Sir MATHEW LOPES said he desired to impress upon every Chamber the importance of the question. And not only would he do this, but he called upon all landlords to subscribe to a special fund for the purpose of thoroughly ventilating this great question. Mr. WHITAKER, of Worcestershire, seconded the adoption of the report, and in doing so urged the importance of further subscriptions by local Chambers. Mr. CLARK explained, in reply to Mr. WHITAKER, and as a member of the North Cheshire Chamber, that provincial Chambers had been dilatory with subscriptions because they had understood that a number of messengers or missionaries were to be sent about the country for the purpose of agitating the public on this question. Sir MATHEW LOPES explained that the project referred to by the last speaker had been abandoned. The report was then unanimously adopted. —The second subject related to the Contagious Diseases (Animals) Bill. Mr. MASFEN moved, and Mr. WILLSON seconded, the following resolution:—

"That this Chamber re-affirms its resolutions of April 6th as to the provisions essential for rendering the 'Contagious Diseases (Animals) (No. 2) Bill acceptable to the agriculturists of the kingdom; and considers that, if the moderate amendments of which Mr. C. S. READ has given notice should fail to be carried, the most determined opposition should be given to the Bill."

Upon this Mr. MYAT, of North Cheshire, wished to call the attention of the meeting to Lord ROBERT

GROSVENOR'S proposed amendment to the Bill, which referred to the "discharge of loans," and was as follows:—

"Where before the passing of this Act a local authority has borrowed money from the Public Works Loan Commissioners under 'The Cattle Diseases Prevention Amendment Act, 1866,' and any part thereof remains unpaid at the passing of this Act, the local authority shall, within six months after the passing of this Act, levy in their district a local rate of 9*d.* in the pound, and shall pay the amount produced thereby, without deduction, to the Public Works Loan Commissioners, who shall accept the same in full discharge of the principal money so borrowed, and of all interest thereon."

Mr. MYAT contended that Cheshire not only suffered more than any other county from the plague, but it was now labouring under additional difficulties from the drought of last year, and also from the depression in the silk and cotton trade; and, therefore, on these grounds he urged that the excess of debt, after a payment of 9*d.* in the pound, ought to fall on the whole country. Mr. FEITH seconded this proposition, and Mr. NIELD, Lord EDGERTON, and Colonel LEE, M.P. for North Cheshire, supported it. The amendment of Lord ROBERT GROSVENOR was apparently approved, and the resolution was unanimously adopted, as was the following:—

"That a petition in support of Mr. C. S. READ'S amendments shall be signed by the Chairman on behalf of the Chamber, and presented to the House of Commons."

On the third subject, County Financial Boards, Mr. NIELD moved:—

"That this Chamber approves the principle of the 'County Administration Bill' in introducing the representation of ratepayers into the administration of county finance, but considers that the proportion of elected members should be greater than is proposed by the Bill."

This was seconded by Mr. TRINDER, and a long and somewhat smart discussion followed, which was taken part in by Mr. BARROW, M.P.; Sir MATHEW LOPES, M.P., who proposed an amendment to the resolution; Mr. CORRANCE, M.P., Mr. RANDELL, Lincolnshire, Mr. CHADWICK, M.P. for Macclesfield; Captain CRAIGIE, Captain PARKER, M.P., the Rev. C. W. HOLBECK, of the Banbury Chamber; Mr. NIELD, who proposed an addition; Mr. ANDREWS, who proposed that the subject should be postponed for further consideration; Colonel CORBET, M.P., Mr. WILLOUGHBY WOOD, and others. Ultimately the original resolution was carried almost unanimously.—The long-talked-of Game Question was then brought on by Mr. RANDELL, of Lincolnshire, in the following terse terms:—

"That agricultural produce ought to be protected by law against the ravages of ground game."

Mr. DUCKHAM seconded this resolution, after which Captain CRAIGIE moved as an amendment:—

"That this Chamber regards the over-preservation of ground game as an unmitigated evil, but considers that it would be undesirable to introduce into this question legislative interference between landlords and tenants."

This was seconded and supported in a manly and spirited speech by Mr. WHITAKER, of the Worcestershire Chamber, and, after having been similarly supported by Mr. SEARLY, of Lincolnshire, and by Colonel CORBETT, M.P., Colonel RUGGLES BRISE, M.P., Mr. MASPEN, Mr. LONG, and Mr. NIELD, the Chairman tersely summed up the discussion. The amendment was then put, and 20 members voted for it, the resolution being supported by a show of four hands only. The proceedings occupied three and a half hours.

—— On the Southampton meeting of the Bath and West of England and Southern Counties Society, we have a few additional remarks to make. The practice of giving no prizes or medals for machines, or for work done by machinery, is a part of the agricultural faith of this institution, even in its increased strength from the union of two societies. We have not a word to say against this belief or practice. Any honorary notice is just as good for both makers and buyers as a presentation of coin. The trial, however, ought to be quite as severe and carefully conducted; but there was no attempt to keep proper order among onlookers, and the furrows of Messrs. Howards' steam ploughing, and the bed of soil made by the prongs of their "diggers," and also the swathes of Grass from the mowers, and green Rye from the reapers, were at once overrun and trampled into forms which did away with any possibility of estimating the quality of the work done. This flocking of uninterested men, women, and children into the trial fields did no one any good, and the object of the trials consequently altogether miscarried. There is, however, another point to which we would direct the attention of the above Society. Although we do not advise any established system of prize-giving, still we must say that so influential a society as this ought to institute an organised plan for placing machinery under fair and open public competition; that is to say, if they admit any public trials whatever. As the Southampton trials were carried out, however, the whole affair was neither a satisfactory advertisement for manufacturers, nor a trustworthy display for intending purchasers. To return to the showyard, we forgot to make a special and deserved reference to the seed stands of Messrs. SUTTON & SONS, of Reading, and Messrs. CARTER & Co., of Holborn, London. These firms are most energetic in honourable rivalry; we never saw their display of seeds and specimen plants surpassed. Of the attendance in the showyard, we may say, the result must have fully satisfied the officials of the Society. The numbers admitted and money taken were as follows:—Monday, 1612; Tuesday, 6173; Wednesday, 7555; Thursday, 30,140; Friday, 10,953. Total, 56,433. Receipts:—Monday, 195*l.* 5*s.*; Tuesday, 736*l.* 6*s.*; Wednesday, 902*l.* 9*s.*; Thursday, 1436*l.* 9*s.*; Friday, 503*l.* 1*s.* 6*d.* Total, 3773*l.* 6*s.* 6*d.* The price of admission on the three former days was 2*s.* 6*d.*, and on the two latter 1*s.*

—— The Contagious Diseases (Animals) (No. 2) Bill was once more a subject of conversation in the House of Commons on Thursday evening, when, in reply to Lord ROBERT MONTAGU, the Vice-President of the Treasury said, although the Bill named was the second order for Monday evening, he did not imagine it would be possible to obtain a discussion in Committee before next Thursday.

—— Travellers by the Great Western Railway may have observed this week, as they approached the junction of that line with the South-Western and South-Eastern, at Reading, two pieces of Trifolium growing on Messrs. SUTTONS' trial farm; the ordinary early variety and the "late red." This latter, though sown at the same time as the old variety, was only just showing its colours when the other was in full bloom, thus clearly exhibiting the advantage of sowing both kinds where a succession of green food for cattle is desired.

—— The adulteration of seed was brought before the President of the Board of Trade on Thursday last, by an influential deputation of members of Parliament and gentlemen interested in agriculture, horticulture, and the seed trade. Full particulars of the meeting will be found on the other side.

OUR LIVE STOCK.

THE purchase of Booth Shorthorns, by Messrs. Walcott & Campbell, of New York, through the agency of Mr. R. Gibson, recently attracted considerable attention. It was therefore with no common interest that we received the catalogue just issued by Mr. Thornton, recording the pedigrees and history of the six animals which e'er this have landed on American soil. First on this list is the name of ROYAL BRITON, a fine young bull of rich roan colour, which, although only nine months old at the time of his sale, realised 500 gs. ROYAL BRITON is large for his age, exceedingly well coated, and carries a handsome head. He is by LORD BLITHE, own brother to *Lady Fragrant* of Leicester notoriety, and from *Royal Bridesmaid* by PRINCE ALFRED (13,494). Without further tracing his pedigree, we may mention that he is of the Strawberry family, a tribe only found in Mr. Booth's hands, but well known as having produced some good sires, as, for instance, LEONARD (4210), LORD OF THE VALLEY (14,837), and ROYAL SOVEREIGN (22,802).

Bride of the Vale, sold for 1000 gs., is rather over four years old, and was bred at Warlaby. She is a magnificent cow, possessing both style and substance, an attractive combination of good qualities. Her colour is a lovely roan. She is of great length, and is also wide and very deep. She is by LORD OF THE VALLEY (14,837), of the Strawberry family, and from *Soldier's Bride*, by WINDSOR. Her mother is an old prize-taker, having secured a first place as a yearling at the great Yorkshire show in 1860, and similar honours as a 2-year-old at the meeting of the Royal Agricultural Society at Leeds in 1861, and as a cow at the same Society's show held at Worcester in 1863. Omitting the previous generation in *Bride of the Vale's* pedigree, we next find *Vivandiere*, by BUCKINGHAM (3239), mother of the first-rate bulls PRINCE ARTHUR, PRINCE ALFRED, and PRINCE OSCAR, all by CROWN PRINCE. Further, we find the genealogy extending back to *Young Moss Rose* by MATCHEM, and *Moss Rose* by PRIAM. *Bride of the Vale* is more than six months gone in calf to COMMANDER-IN-CHIEF.

Merry Peal, the third and last of Mr. Booth's Shorthorns, is a good heifer, of lovely colour and excellent quality, with her head set on rather low. She is by COMMANDER-IN-CHIEF, and sprung on the mother's side from the Bliss or Broughton family. Mr. Grove Wood sold four heifers, descended from a daughter of Bliss, for 1200 gs., and Mr. Bolden sold *Bridecake*, *Britannia*, and *Blissful*, for high prices. Descendants of the last-named cows are to be found at Knowlemere, and have distinguished themselves in the prize ring.

The remaining portion of the catalogue referred to is devoted to the pedigrees and other points of interest connected with *Jolly Queen*, bred by Mr. Logan, but lately in the possession of Mr. How, an excellent Shorthorn, and only second at Leicester to *Lady Fragrant*, good in many points, but on the whole wanting in style; *Empress of Acomb*, bred by Mr. Jolly, but also lately owned by Mr. How, and *Fair Maid of Hope*, the last of the six animals selected by Mr. Gibson to cross the seas. *Fair Maid of Hope* is a capital heifer, with grand hindquarters. She was bred and reared by Mr. Chaloner, of King's Fort, and realised the highest price (150 gs.) at the recent sale of Mr. Chaloner's stock. This heifer is four years old, and is a daughter of GENERAL HOPEWELL (17,953) and *British Maid*, g.d. *Village Rose*, the mother of Mr. Chaloner's famous bull SOVEREIGN, winner of the 155*l.* Towneley Challenge Cup at Dublin in 1867, of the 150*l.* Railway Challenge Cup at the same show in 1868, and of both these cups again in 1869. This family originally were conveyed from Houghton to Cumberland, from thence to Burley in Yorkshire by Mr. Whittaker, and many years afterwards it came into the possession of Mr. Torr, of Aylesby, who sold it to Mr. Chaloner.

Horses.—The Messrs. Tattersall have recently been intrusted with several important sales of horses. Her Majesty's yearlings were sold as usual in the Royal paddock, on Saturday, the 5th inst., when 27 animals were disposed of. The high average of 165*l.* 8*s.* was realised, the highest price being given for the filly by Orlando, out of Himalaya, which made 441*l.* The colts by St. Alban's out of The Arrow, and by Ely out of Eulogy, brough 1400 gs. each. Nineteen yearlings bred by Sir L. Newman, were offered for sale on the same day, but only 12 of them were sold, cheaply, at an average of about 88.. each.

On Thursday, the 3d inst., the sale of the horses in training of the Dukes of Hamilton and Newcastle took place. The Duke of Hamilton's horses sold exceedingly well. Pibroch became the property of Captain Machell at 1000 gs., and The Baron, by King Tom, was bought by Mr. Foy for the extraordinary sum of 1500 gs. Other high prices were given, and the 20 horses realised 7113*l.* The Duke of Newcastle's horses sold well, notwithstanding the fact that they were disposed of without their engagements. Silenus, as was expected, brought the most money, and was sold for 740 gs. The Duke of Newcastle's 16 horses were sold for 3300 gs.

HISTORY OF STEAM CULTIVATION AT WOOLSTON.

[The following particulars of Mr. Smith's career, as the advocate of steam cultivation, should be read in connection with an article at page 591.]

ON March 18, 1855, Mr. Smith had matured his plan for applying steam power to the cultivation of the soil. On March 19, he patented his combined ridging plough and subsoiler and his grubber. The drawings and specification of that date show and explain the two forms. On June 26 he tried the combined ridging and subsoiler on some Clover lea with horses, and found that it worked well. It was made by his own blacksmith, under his own supervision and directions.—On July 23 he went to the Royal Agricultural Society meeting at Carlisle, to provide for himself an engine and windlass to work it with. On October 13, the engine was started from Ipswich, and October 23 is the date of the receipt for the money for it. On December 15 he received the windlass, two wooden anchors, and three wooden snatchblocks; and on December 17, 1855, the tackle was tried, making use of a stile in the hedge for a third anchor, without which it could not have been worked. The engine and windlass had been wrongly "speeded," the implement was driven too fast at starting. The implement had one rope in front and the other behind, and when the field was crossed it was great labour to turn it, so an S hook was used to hook the back rope to the stem of the front wheels; and when thus arranged the engine pulled the implement round the land's-end, and saved all the labour. The anchors, however, were bad, holes had to be dug 3 feet long 2 feet deep and 1 foot wide to put them in every time the implement crossed the field; so the now well-known Woolston anchors were devised and made, and another snatchblock and also a turning bow.—This was the first year's work.

On January 3, 1856, started again, and all went well. On January 11, the turning bow, or rather the principle of turning at land's-end, was patented. On January 30 Mr. Smith was present at a meeting of the Society of Arts, where, as we well remember, he showed the model of his implement, and explained what he had done.—We extract from the Journal of the Society of Feb. 1:—"The engine was stationary. By planting it in the centre of a 40-acre field, he found that by running out sufficient rope to do one part of that he required 15 lb. of steam from the engine to put the rope in motion without moving the implement. The power was conveyed from the engine by an endless rope by means of a windlass to which, by two pulleys, a backward and forward motion could be given. The rope was supported from the ground on rollers, and when drawing the plough was quite above the ground. The engine when working at 45 lb. pressure indicated 7-horse power. Working at a pressure of 35 lb. it would cut a piece of ground 30 inches wide and 7 inches deep. He did 23 acres with that implement during the last month, and found that he could do 10 acres to the right and 10 acres to the left with only one shift of the tackle, and 40 acres could be done with only one move of the engine. The plough could be varied, they could go any depth upon that principle, it being only a question of a little coal and a little higher pressure. They had no extra labour. He could do an acre in about 2½ hours. The rope travelled at the rate of about 1½ or 2 miles an hour. The cost per acre, allowing for wear and tear, was 8*s.* 4*d.* Four acres could be done within 10 hours at an actual cost of about 25*s.*; but if he allowed one-fourth for wear and tear, the cost per acre would be 8*s.* 4*d.*, as previously stated. That was the result of the experiments he had made with his implement, and it remained only for him to add, that a man could manage it without his (Mr. Smith's) assistance after the first two days as well as he could manage a team of horses. The time lost in turning was 30 seconds, sometimes, indeed, only 15 seconds."

In March, 1856, Mr. Smith worked 12 acres of Oat stubble twice over for Peas. In the July following he showed his implements and tackle at the Royal Agricultural Society's meeting at Chelmsford, when they gave the "smasher" a short trial. In the autumn following he worked his tackle again on his own farm, and then wrote and published thus:—"I have since harvest ploughed by steam the whole of my farm except a bit of Wheat stubble left to try an experiment upon in the spring, and a bit of Clover lea ploughed with horses. It may be interesting to some of your readers to know the result. I find that the implements exhibited by me at Chelmsford are perfect; that an ordinary 7-horse engine is sufficiently powerful for every useful purpose; that any cold clay, hilly, or uneven field may be ploughed; that in ploughing my Bean and Pea stubbles at a depth of 6 inches I did an acre in one hour and 13 minutes, and an average of 5 acres a day, including the time for shifting from field to field, at an average cost of 5*s.* 2*d.* per acre, including men, coal, water, and horses for shifting; and that in ploughing my Wheat stubbles at a depth of 8 inches on the heavy, and 10 inches on the light land, I did an acre in two hours, and an average of 3 acres per day, including time for shifting from field to field, at an average cost of 8*s.* 8*d.* per acre, including men, coal, water, &c., as above; to this must be added interest of money and wear and tear, say 1*s.* 6*d.* per acre, which will be the outside, the tackle coming in nearly as good as it went out."

In the autumn Fowler's plough was taken to Boxted Lodge and tried again by the Royal Agricultural Society's judges, when they said that it did not do work enough for the money. On the 18th December, in the *Times*, "J. A. C.," found fault with the Royal Agricultural Society for not awarding a prize to Fowler; and on the 19th December Mr. Smith replied in the same paper in the following terms:—"And now, in order to test the sincerity of my arguments and assertions, I am ready, with the implements exhibited by me at Chelmsford, to farm cold clay land, hilly and uneven, for four years, against any steam cultivating implements exhibited at Chelmsford, for a prize or, if necessary, for a wager of 500*l*., the conditions to be these:—The land to be hilly, clayey, and uneven, no manure whatever to be used, the horse-power not to exceed the ordinary 7-horse engine manufactured by Ransomes; and the total produce, cost, and condition of the land at the end decide the result."

In October, 1856, he showed his tackle at work in the Duke of Bedford's park at Woburn, at the Bedfordshire Agricultural meeting, where Lord Hatherton's steward saw it, who reported to his lordship what he saw, after which his lordship ordered a set to be supplied in the following spring.

In April, 1857, Mr. Smith showed his implements at work for two days on his own farm, when many hundred gentlemen witnessed the operations.

In the July following he gave another public trial day, when from 1500 to 2000 gentlemen came from all parts of England to witness the working of the implement, and walked over the farm. And in the October following he showed his implements at work publicly at Lathbury, near Newport Pagnell, where the Royal Bucks Agricultural Society meeting was held; and he had shown his implements at work publicly in the preceding September at Nuneaton, at the Sparkenhoe Show, where thousands of people saw them at work.

On February 10, 1858, at the Society of Arts, after Mr. J. A. Clarke had read a paper on Steam Cultivation, Mr. Fowler exclaimed, "Who was to try all the experiments? Were the inventors to bear the whole brunt of that which was a national benefit? The landlords hitherto had done little; the Royal Agricultural Society had given no help." Whereupon Mr. Smith characteristically declared that he would not cry for aid, but stand or fall upon his own merits.

In July, 1858, his tackle was shown at the Royal Agricultural Society's meeting at Chester, by Messrs. Howard, of Bedford. Fowler got the grand 500*l*. prize for tackle that did not stand the test of time; and the Messrs. Howard got a Gold Medal of honour for showing Mr. Smith's tackle. On the same day on which that prize was awarded, Mr. Smith's neighbours and friends presented him with 100 guineas' worth of plate for having brought the application of steam-power to the cultivation of the soil to a practical issue.

During the Smithfield Club Show of 1858, he showed his tackle at work on the Flemish farm, Windsor, to the late Prince Consort, who allowed the matter to be public, and many were present. In the autumn he opened a steam-plough office in London; and after sticking to it for a time, he found it more costly than his pocket would allow, so he discontinued it.

In March, 1859, Lord Hatherton invited Mr. Smith and Mr. Fowler to show their tackle at work at Teddesley. In April, Mr. Smith gave a trial on his farm to a number of interested men from various parts of the country. In July, a prize of 50*l*. was offered to the best application of steam-power, by the Royal Agricultural Society. Mr. Smith showed his tackle at Warwick by Messrs. Howard.

The judges reported:—

"1. That Smith's cultivator did 114 perches per hour, using 11¼-horse power, and that his tackle could be shifted in 30 minutes. Cost 555*l*.

"2. That Fowler's four-furrow plough, or cultivator, did 105 perches per hour, using 11½-horse power, and that it could be shifted in 57 minutes. Price 703*l*.

"3. That Fowler's three-furrow plough, or cultivator, did 100 perches per hour, using 7¾-horse power, and that it could be shifted in 57 minutes. Price 589*l*.

"Lastly. That the trials were carefully conducted, and that the judges were unanimously of opinion that Mr. Fowler's apparatus is the best application of steam-power to the cultivation of the land."

Mr. Smith vigorously protested that the trial was unfair—that the alleged facts had not been verified—and that the conditions of the experiment had not been observed.

On April 20, 1860, a deputation from the Central Farmers' Club visited Woolston farm—Mr. Coussmaker, Mr. C. Howard, Mr. W. Shaw, Mr. S. Skelton, Mr. John Thomas, Mr. Owen Wallis, and Mr. H. Corbet, the secretary. In the June following some of them told us what they saw after the reading of a paper by Mr. Wells, on Steam-power in Agriculture.

On June 19, after the reading of Mr. Wells' paper, Mr. Smith wrote a letter to the *Mark Lane Express*, discussing two points in it—"The want of skilled labour, and the poverty of the farmers of England."

On August 2, 1861, Mr. Smith announced that the Messrs. Howard would cease to be the manufacturers of his steam cultivators. In the course of subsequent correspondence Mr. Smith admitted publicly that he had received 3000*l*. in royalties for the manufacture of his machine; but he also showed that he had spent every penny of it in the promotion and spread of steam cultivation.

For a time this break with Messrs. Howard appeared to smother Woolston, but by-and-by the following advertisement appeared in the leading agricultural papers:—"1000*l*. upon the Woolston system against any other system of cultivation."

On December 2, 1861, Mr. Hutchinson showed that he had done at Deuton Lodge, with a second-hand set of Smith's tackle, 751 acres in 133 days, averaging 5 acres 2 roods 23 perches per day, the cost not exceeding 4*s*. 6*d*. an acre, exclusive of wear and tear.

In February, 1862, Mr. Smith brought into work a combined cultivator and drill. It did its work well, at a cost of 5*s*. an acre, cross cultivating the land and drilling in the Beans at one operation. In 1862 he showed it at Battersea with the rest of his tackle, after showing the latter at Bury St. Edmund's at the Suffolk agricultural meeting, and on the occasion of the public exhibition of steam cultivators under the auspices of the English Agricultural Society he got put into the back settlements at Farningham, or rather in the parish of Horton Kirby, at least two miles away from the railway station, and where but comparatively few people found either him or his tackle.

On December 3, 1862, Mr. Hutchinson came forward again to declare that he had done 774 acres in 131½ days, at a cost, inclusive of interest of money and wear and tear, of 6*s*. 2*d*. an acre.

In April, 1863, Mr. Smith perfected a new combined cultivator and drill, much more efficient and light in work than his first machine, weighing half a ton less than the first.

In July, 1863, he showed his tackle and implements, including the newly combined cultivator and drill, at Worcester. The prizes offered were—1st prize, 50*l*., to the best application; "2d prize, 50*l*., for the best application of steam power which may be effectively and safely adapted for small occupiers." The work done by his implement was well done, and in a letter dated July 29, 1863, he declared a good seed-bed could have been easily made by horses without a second steam operation. The prize was awarded thus:—25*l*. to Fowler, 15*l*. to Smith, 10*l*. to Howard. Mr. Smith would not accept this award, and as soon as the 15*l*. came he returned it.

In the autumn of 1863 Mr. Smith worked his new combined cultivator and drill, working up his Bean stubbles, and drilling in the seed Wheat at one operation.

On January 28, 1864, he wrote to the Council of the Royal Agricultural Society, giving reasons why he would not show his tackle at Newcastle in 1864.

In 1864 he continued to use his steam cultivator and drill, also in 1865 and in 1866; during the wet season, however, he did not get on so well, for the Knot Grasses, &c., began to appear, and so he at length discarded its use altogether, being of opinion that it tries at too much, and that if he had continued to work it his farm would soon have been out of condition upon the point of cleanliness.

On March 19, 1868, Mr. Smith wrote to the Council of the Royal Agricultural Society, giving reasons why he would not show his tackle at Leicester, offering, however, to do all his autumn work under the supervision of a commission, if they would send one down to enable them to report to the world how he did his work, with all the costs and particulars. A second letter was also sent, winding up with a challenge of 1000*l*. against all the tackle that might be shown at Leicester. No notice was taken of this communication by the Council, so after having done nearly all the work he proposed to do under the supervision of a commission of the Society, he published in detail all the particulars in the *Times* and other papers, as well as explaining and showing the work to visitors from 17 counties on the 15th October, 1868. On November 17, 1868, after he had done all his autumn work, he wrote a letter to the Council, giving a summary of all their doings at and since the Chelmsford meeting, as well as showing to them that his average cost of seed-bed was 6*s*. 10½*d*. an acre, challenging them for 1000*l*. to produce the like by any machinery excepting his own. The results were shown in our columns the other day:—Wheat on seed-beds costing 6*s*. 9*d*. an acre, the best in the neighbourhood.—Barley on seed-bed costing 10*s*. an acre, worked a foot deep, as fine as can be seen.—Beans on heavy clay land, as fine or finer than can be seen on such land, on a seed-bed costing only 7*s*. an acre.

THE LAW OF HYPOTHEC.

WE, the undersigned, in view of the coming debate in the House of Commons on the Bill for Abolishing the Law of Hypothec, beg to bring under the notice of members of the Legislature the following extract from a speech by Lord Elcho in defence of the law, and the answer thereto, in the form of a letter to his lordship, by Mr. James C. Cunningham, merchant, Edinburgh.

JAMES MELVIN, farmer, Bonnington.
JOHN H. HOPE, farmer, South Elphinstone.
JOHN FORMAN, farmer, Duncrawhill.
A. AINSLIE, farmer, Dodridge.
GEORGE HOPE, farmer, Fentonbarns.
A. HOWDEN, farmer, Lawhead.
J. HARPER, farmer, Snawdon.
A. TWEEDIE, farmer, Coats.
J. HYSLOP, farmer, Stobshield.

The following is an abstract from the speech of Lord Elcho delivered at Haddington on the 26th November, 1868, copied from the *Haddingtonshire Courier* of November 27:—

"There is another party whose interests are said to be mixed up with this question, and that is the merchant—the manure merchant. (Hear, hear, and applause.) I wish to say a word upon that. I utterly and entirely repudiate this argument. It is said with regard to the manure merchant that he should share and share alike with the landlord in the proceeds of the tenant's effects when the tenant unhappily becomes bankrupt. Now I utterly and entirely repudiate the justice of this argument. (Hisses and uproar.) I see that a distinguished tenant-farmer shakes his head. (Laughter.) Let me give a reason. I will assume a case. I assume that a man dies, and he leaves three sons, to each of whom he gives 10,000*l*. The first son, wishing security for his property, and for such enjoyment as land can give, invests his 10,000*l*. in land, for which he receives, according to the authority of Mr. Bright, 3 per cent. The second invests his money by lending it out to traders and bankers on security at 5 per cent. The third son, who is of a speculative turn of mind, is not satisfied with the security at 3 per cent., or even 5 per cent., he becomes——. (Great noise.) Hear the argument. (Hissing.) I think you see what is coming, and you don't like it. (Laughter and hisses.) The third son invests his money as a manure merchant, at profits varying from 5 to 15 per cent. (Hisses, groans, and cheers.) I say, then, that those who are prudent should derive the benefit, and those who speculate should run the risk; and that there is no justice in putting it, as an abstract question of justice, that the man who speculates from 5 to 15 per cent. should be put on an equal footing with the man who invests his money for 3 per. cent. (Cheers and hisses.) I therefore repudiate wholly the justice of the argument as to the manure merchant." (The patience of the audience at this point seemed rapidly giving way, and the interruption grew louder and louder.)

TO THE RIGHT HON. LORD ELCHO.

Edinburgh, December 10, 1868.

My Lord,—I read your speech on the nomination day at Haddington with great interest, and my attention was arrested by your remarks on the law of hypothec. As I am particularly interested in having this law abolished, and as your lordship brought into prominence the special branch of commerce in which I am engaged—viz., the portable manure trade—and placed the claims of those who follow this trade in opposition to the rights of the owners of land, I trust your lordship will pardon me for addressing you on the subject.

I feel your position to be so untenable, and the measure of justice you would mete out to me and others so scant, that I can only suppose your remarks on hypothec were made without that calm consideration which the subject demands. I can partly understand your position, as some years ago my own opinions were not unlike those of your lordship, as expressed on the hustings; but a careful perusal of the evidence before the Commission on Hypothec convinced me of my error, and I now believe that the law is indefensible, and must soon be abolished.

Your present opinions and mine are in direct opposition. Thus, you say the law is just and good; I say it is unjust and bad. You say the claim of the owners of the soil is all-in-all, and must be satisfied in full at all hazards; I say the claim for rent is no greater and no less than the claim of any other member of the community. You illustrate your position by an assumed case—'A certain man had three sons, A, B, and C, and when he died he left each 10,000*l*.; A buys land, which can only yield 3 per cent.; B lends his on security at 5 per cent.; C becomes a manure merchant, and gets from 5 to 15 per cent.' You argument is—because A only gets 3 per cent., that, in the event of his tenant becoming insolvent, he is justly entitled to be paid in full out of the bankrupt estate; and that he who has supplied the manure for the improvement of the land must stand back, and only get his share after A has got 20*s*. in the pound.

In my opinion there is a fatal flaw in this argument, and it is this—Who compelled A to invest his money in land at 3 per cent.; was he not free to do as B did, or as C did? Till you can show that A acted under compulsion, there can be no reason why A should, by law, have privileges and preferences over the bankrupt of his tenant greater than his butcher, his baker, or his manure merchant.

A moment's calm reflection may convince your lordship of the justice of this view of the question; and I hope, as you are again a member of the Imperial Parliament, and may shortly be called upon to legislate on this question, that you will take a more just view than that you expressed during the worry and excitement of a contested election—that you will see that the claim for rent ranks no higher than any other just claim on a bankrupt's estate, and that, therefore, the law is unjust and must be abolished.

But I do not think your lordship put the whole matter fairly before the electors of East-Lothian, as, though the case you put may occur, it does so very seldom. Will you allow me to state a case, which is not an assumed one, and unhappily not without parallel, in illustration of the practical working of the law? The owner of one of the largest estates in Scotland lets a farm to a man who never had half the capital necessary to farm it. The land is undrained, but the landlord will neither drain it himself nor enable the tenant to get Government money to do so. The tenant must, therefore, not only stock the farm, but, out of his totally inadequate capital, drain it, as his only chance of success. He then gets into difficulties; never pays a rent in full, goes on for some years accumulating debts, and leaving every year a large sum of arrears of rent due to the landlord. The cause of all this is evident. He has sunk all his capital in drains, which is a permanent improvement, and has left himself nothing for the proper daily work of the farm, and now he only struggles on in the hope that some extra good years would give him relief. But, unfortunately for himself and others, a few bad years come instead. The landlord or factor sees the case is hopeless, and, without warning, puts his legal rights under the law of hypothec into force, roups off the poor man's crop and stock, and not only takes payment in full of all rent to which he is by law entitled (while his creditors get 1*s*. 6*d*. per 1*l*.), but also re-lets the farm at a rise of rent based upon those improvements which have been made partly by the tenant's own capital, and partly by that of his other creditors. What does your lordship, as a legislator pledged to make just laws, say to this not assumed case? Is the law still just and righteous; or is it unjust, and ought it to be abolished?

But I take still further objections to your lordship's assumed case. Are all investments in land limited to a return of 3 per cent., and do all manure merchants make 15 per cent.? I leave out of view the 5 per cent. to 15 per cent., as your lordship puts it; because if a manure merchant only makes 5 per cent., I presume your argument will fall to the ground. I hold that there are great prizes to be got in the land market, if due attention be paid to it, and I can give instances where immense profits have been made by purchasing land. I know a property in Mid-Lothian that will give a return from minerals in 20 years greater than the whole purchase money; and is it not a fact that the value of land has risen, and is still rising? I can point to land in East-Lothian, bought in 1779 for 4000*l*., and let a few years ago at 1000*l*. per annum; to another portion sold in the same year for 17,000*l*., and again sold in 1797 for 45,000*l*., and which would not now be parted with for almost three times that sum. Is it fair, then, to argue that land only gives 3 per cent.? And, on the other side, is a manure merchant sure of 15 per cent? I think no one acquainted with the subject will say so. How many have lost their all in the struggle; and if those who remain do sometimes realise 15 per cent., will anyone say that a commerce which, to be successful, must stretch to almost every country in the world, is overpaid with an occasional return of 15 per cent? Your lordship does not seem to be fully aware of the very important position the manure merchant and cake importer occupies in regard to the Scotch tenant-farmer. The rents now exacted by landlords

not be paid without his agency. The sum expended on
es and manures by almost all good farmers is not less than
-half the rent, and often greater than the whole; so that
man who supplies these manures and feeding stuffs almost
ys as important a part in enabling the tenant to produce
crop as the landlord himself. When a breakdown
es place, why should they not share and share alike? I
st further add I consider the hypothec law is the great
rier to the advancement of agriculture. Your lordship
not know as I do the great deficiency of capital in the
nds of tenant-farmers as a class. Men who have large
ital will not become farmers, because they have to offer for
ms against men who, with little money, offer large rents,
sting to a few good years to help them; and if disappointed
this, hope to get a reduction of rent from the laird. Thus
n of capital are kept back, and the rents of neighbouring
ing tenants are unjustly raised, and so the onward progress of
tish agriculture is arrested. I have no hesitation in saying
t, if hypothec were abolished and the Game Laws modified,
agricultural produce of this country would, I doubt not, in
years be increased from 30 to 40 per cent.

regret that my remarks have extended to so great a length;
looking, as I have done, for many years on your lordship as
anxious to frame laws according to justice, I cannot refrain
m giving you the results of my own reflections, on the work-
of the law of hypothec. Trusting you lordship will pardon
liberty I have taken,

I am, my lord, your obedient servant,

JAMES C. CUNNINGHAM, Manure Merchant.

AGRICULTURAL STATISTICS.

[is subject came under discussion in the House of Commons some nights ago. The following is a report of the debate.]

MR. C. S. READ said that some time ago his hon. end the member for South Leicestershire placed on paper a motion to the effect that statistics should collected every fifth year instead of annually. That tion came on for discussion at a very late hour one ning, but the debate was adjourned, and the order fortunately becoming a lapsed one, no day was open it before June 30. His hon. friend in the course of statement objected to agricultural statistics on the und of their expense, which amounted, he said, to a t to the country of 20,000*l.* per annum. The acreage, given, his hon. friend admitted to be fairly accurate, t he was opposed to the constant worry to which the mers were subjected, and expressed it to be his belief t if they were allowed a few years' rest they would more willing to give information, and that the urns would be furnished much more correctly. He r. Read), however, felt quite sure that the mere fact the large increase in the acreage of Wheat last year s a proof that annual agricultural returns were cessary. We had, he believed, within two years perienced the greatest variation which we could have the acreage of Wheat. In 1867 there was a very r, and in 1868 a very large, acreage; but our experi- e of those years only served to show that the greatest ent of difference in acreage we were likely to have s 8 per cent., and an increase of acreage of 1 per cent. uld only give two days' consumption. What was difference caused by the yield? One bushel per e made a difference of half a million quarters, and ing the difference in the average yield as between a lly good harvest and a really bad one at 14 bushels acre, or 7,000,000 quarters of Wheat, it would ount to about our average importation, or 124 days' sumption. That difference might be produced in yield, whereas the greatest difference which would produced by the difference of acreage was 20 days' sumption. It was not so difficult, he might add, to ss the acreage as the yield, and the wonderful uracy of the estimate given by Mr. Caird in the *nes* of 1850 showed how easy it was to ascertain the eage.

There were several important matters connected h the question which ought, in his opinion, to be eed upon before agricultural returns could be pected to be of any great value. The average yield his kingdom was estimated at 26 bushels per acre, it had been put by an equally good authority as h as 32 bushels. Then the consumption of Wheat l been put as low as 5½ bushels, and as high as ushels per head. It was contended by some that in r years there was a great economy in the consump- n of bread by the poor, but he, on the contrary, intained that in every dear year there was a larger sumption of bread by the poor, and for the following son:—Let him suppose that a man earned only 15*s.* eek, the average wages of a working-man. If that n spent 10*s.* on bread when things were very dear, would naturally have but little left to spend on beef other articles of consumption; whereas, if Wheat s very cheap, and he only spent 6*s.* on it, he would e a much larger sum remaining to spend on meat; l the more meat he ate the less bread he would uire. He had been informed on Saturday last by a ker in Norwich that flour was at this time last year a sack dearer than it was at present; and yet, ugh there was, he believed, a slight increase in the sperity of Norwich, the consumption of bread was v considerably less. When statisticians estimated consumption of bread by the poor, they entirely out of consideration the fact that, when corn was y cheap, there was an immense consumption of it the farmer for his cattle, and also for malt, while re were other circumstances which must enter into calculation which were beyond control. Hon. mbers had heard the evening before of there being quarters in one year, but the farmers had last year harvests in 51 weeks, and there were such things good and bad yields.

The farmers had in his opinion great cause to com- in of the statistics which were collected by the vernment. He referred to the corn returns, which e taken in 150 of the chief market towns in the gdom. He made inquiry of the Board of Trade as what corn was returned in the averages furnished, he was informed in reply that it was the opinion he Board that none but English corn came into the urns. On the next Saturday, however, he went to Norwich market, and there made inquiries of the three principal dealers in corn as to their practice in making their returns. The first told him that he returned everything he bought, including the foreign trade; the second that he never returned his foreign trade, and the third said that he believed he was liable to a penalty for not returning the grain which he bought from the merchant, but that he made it a rule never to make any return of that which he had not obtained direct from the grower. That man, though he may have laid himself open to a penalty, was, he felt sure, right in equity, and he would ask the President of the Board of Trade to have the returns made out of the corn which was actually bought from the grower. Of all figures those which dealt with agricultural statistics were, he believed, the most contradictory if they were used without due consideration. From our live stock returns Mr. Caird made out that we derived from foreign sources one-fifth of the meat supply of this kingdom. His hon. friend the member for Bedford, in the excellent speech which he had made about a month ago, had placed the figures at 1-20th, and he could not help thinking that he was right, and that Mr. Caird was wrong.

The imperfect statistics which we had were, he might add, used to the disadvantage of the farmer. In 1866 the statistics were taken in the month of March, and in 1867 in the month of July. The consequence was that an immense increase in the number of sheep was made to appear, because one return was made before the lambs were born, and the other after. The gentlemen in Bradford thereupon, acting upon the assumption that there were so many more sheep and pounds of wool, tried to pull down the price of wool, and for two or three months they succeeded. It was said that we must be worse off for meat than they were in France, because in that country, with 37,000,000 people, they had 14,000,000 cattle, while in the United Kingdom we had 30,000,000 of population and only 9,000,000 of cattle. But it must be remembered that the cattle in France were chiefly milking cows and old working stock, and were not to be compared in quality with our own. Then it was said that in France 17,000,000 acres of Wheat were cultivated annually, and in England only 4,000,000. But people who dwelt on this fact sometimes forgot that we grew 28 bushels of Wheat an acre, while in France they only grew 14. He denied that these statistics were a guide to the farmers in their business. Farmers could not and ought not to be speculators. The small farmers must sell in order to realise their rent; and if the large farmers had sold their corn directly after harvest last year, taking advantage of the high price, the result would have been to bring down the price, and instead of attending to their autumnal tillage and providing green crops which had saved their herds from starvation, they would have employed horses and men in threshing corn.

Well, then, these statistics were no guide to merchants, the majority of whom were not even aware of their existence. The merchants thought much more of the flying correspondence of the *Times*, of Mr. Caird's and Mr. Lawes' experiments, and such reports as appeared in the *Gardeners' Chronicle* or the *Mark Lane Express*. They looked at the number of vessels afloat with corn cargoes, and when it was known that contracts for foreign corn were made three, four, and even six months in advance, it would be seen that the acreage of England had nothing to do with these speculations in corn. It was curious, but true, that it was of more importance to us to know the yield of corn in France than the yield at home. In the corn-growing districts of the two countries there was practically the same climate, and both were buyers in years of short crops. But there was this remarkable fact—that here 1 bushel per acre made a difference of 500,000 quarters, while in France it made a difference of 2,000,000 quarters; and that sometimes France sent us as little as 30,000 quarters of corn a year, and she had repeatedly sent over 2,000,000. The statistics of Ireland showed a gradual decline of cereals in that country. A similar decrease had occurred in Scotland. According to statistics furnished by the Highland Agricultural Society, 243,000 acres of Wheat were under cultivation in Scotland in 1857, while the Board of Trade returns showed only 110,000 acres in 1867. Thus, there was a wonderful decrease of no less than 133,000 acres during these 10 years, and it now appeared that Norfolk grew 85,000 acres more of Wheat than they did in the whole of Scotland. He had always advocated agricultural statistics if the country demanded them, but he did wish that they should be accurate, and should also be collected with as little trouble as possible. In a paper read by him last year before the statistical department of the British Association, he said:—

"I question the use of these returns beyond strictly statistical purposes. The yearly variation in the acreage of crops will not cause anything like the difference in the amount of Wheat grown as a week's rain or a summer night's frost, and I do not believe that estimates of the yield of the growing crops, even if given by farmers, can ever be thoroughly relied upon. My own impression is, after the accuracy of the present returns has been tested for a short series of years, agricultural statistics need only be collected at given intervals—to be, in fact, a regular stock and crop census."

He would now ask whether it was the intention of the Government after the present year to continue the annual collection of agricultural statistics.

Mr. BRIGHT said the hon. gentleman had stated some interesting facts, but he did not know exactly what reference the speech had to the question. The argument of the hon. gentleman appeared to be rather against agricultural statistics at all because he had shown that they were not of much use to his friends, and would not enable farmers to judge when they should sell, buy, or speculate. Now, he (Mr. Bright) agreed with those who thought that the statistics collected by the Government were, and must necessarily be, a very bad guide for the ordinary weekly or monthly transactions of persons in trade. What was true of cotton statistics applied equally to those of corn and cattle. He was sure that the figures furnished by the cotton brokers of Liverpool were much more to be relied on from week to week than anything furnished by the Government, and he believed that the efforts now made to help the transactions of persons in the cotton trade by statistics were efforts of no value. Probably, however, if they took a wider view and looked to the desirability of having information from year to year of the progress of our manufactures and agriculture, it might be very desirable to have these statistics, and the Government, therefore, did not intend to discontinue the collection of agricultural statistics after the present year. The hon. gentleman was not perhaps in the House when Mr. Caird brought forward this question some years ago. The Government of the day was not strongly in favour of his proposal, which, if he were not mistaken, was carried in spite of the opposition of the Government. He believed that the hon. gentleman himself was not more intelligent upon questions of agriculture, nor indeed more entirely a friend of agriculture, than Mr. Caird was. The proposal for the collection of these statistics was, therefore, introduced to the House on very high authority; it was supported by a majority of members sitting on both sides of the House; it was enforced upon the Board of Trade of that time, and the Board of Trade since then had endeavoured, through many difficulties, to obtain the information required.

He was surprised at one phrase used by the hon. member, who said that these incessant annual applications to the farmers were a subject of irritation, and even of torment, to them. Surely that was too strong a phrase on such a subject. The farmers of Scotland were as intelligent as any in England, and many of them farmed as extensively. In Ireland these statistics had been collected for several years with much greater minuteness than they were in Scotland, and yet no complaint had been made by the Irish farmers. He believed, therefore, that as the English farmers became a little more accustomed to give the facts required they would give them with less unwillingness, and from year to year the collection will be more accurate, and—as far as statistics could be useful at all—more useful. It was true that the effect of the seasons, of rain and sunshine at the proper time, was infinitely greater than the effect produced by difference of acreage. But the fact was known when Mr. Caird proposed to collect these statistics, and when the Board of Trade undertook the collection. It did not follow, however, that the question of the acreage was not important because it was not so important as the question of the seasons. Considering the universal belief in almost every country as to the advantage of these facts, it would be very foolish to shut themselves out from a source of information which, though probably of no great advantage to the market transactions of farmers, must yet be of great importance to thoughtful men who look from year to year at the progress of the country. It was therefore sufficient to say that the question of discontinuing these returns had not been mooted, and he hoped they would be continued, and would every year become more accurate and more valuable.

THE DISEASES OF ANIMALS.

[Mr. Finlay Dun's valuable paper on this subject before the Banbury Farmers' Club some weeks ago must be placed on record here. We give the following abridged report.]

HE commenced by saying that much of the sickness and mortality of domestic animals was distinctly dependent on preventible causes, and that few animals reached the natural term of their existence. According to the returns of the Live Stock Insurance Companies the annual mortality of healthy animals from accident and disease was believed to vary from one to two per cent. The pleuro-pneumonia epizootic was estimated to destroy every year upwards of 20,000 head of cattle, and this enormous mortality had continued for upwards of 20 years. Calculating each beast thus destroyed to be worth 15*l.*, that would represent an annual national loss of 300,000*l.* The value of sheep dying every year from preventible causes was probably even greater than that of cattle. The deaths amongst our flocks had been variously estimated at from three to 30 per cent. This latter high figure was given by Professor John Gamgee. Taking, however, the lower amount—and most flock-masters certainly lost more than three out of every 100—one million was thus abstracted from the 33 millions, the estimated number according to the returns of 1868. If each sheep lost was of the value of 20*s.*, the total would exhibit a shortcoming of one million sterling yearly. Horses suffered from ignorance and mismanagement as seriously as any of the other lower animals. Even on the turf thousands were so strained and over-taxed by severe early training that they were weak, weedy, and worthless before they were five years old—before, indeed, they reached maturity.

Mr. Dun deprecated the training of horses at two years old, whereby soundness, substance, and endurance were absurdly sacrificed to precocious fleetness at catch weights over short courses. Enumerating the causes of lameness, he alluded to the evil effects of clumsy, heavy, badly put on shoes, and of the fashion of ruthlessly cutting away the frog and sole of the foot. Badly ventilated stables, insufficient care in thoroughly drying the animals when wet, or allowing them to stand out in the open air when heated, were fruitful sources of internal disease. Among farm-horses colic, acute indigestion, and inflammation of the bowels were provokingly prevalent. Such diseases, however, were rarely met with amongst hunters and hacks or the better class of carriage horses, where the food was tolerably concentrated and given carefully and regularly. They were most common during the close of summer and throughout the autumn months, when

bulky green food was being freely used, and again when horses were first transferred to their winter fare. Much mortality likewise occurred from allowing horses undue quantities of boiled, steamed, or short-chopped food, which was apt to be swallowed too rapidly, with insufficient mastication and insallivation, and hence troublesome indigestion was produced. From the free use of the Wheat chaff or cut straw, both of which were this season unusually dry and indigestible, such cases of indigestion—with mechanical impaction, colic pains, torpidity of the bowels, and dulness—had this winter been particularly common. Pre-eminent amongst the causes of disease of the digestive organs in farm-horses were long hours of labour with eight or ten hours' fasting, for which a hard-wrought horse was by organisation and habit quite unfitted.

Mr. Dun strongly condemned the practice of administering doses of antimony, arsenic, sulphuric acid, and other poisons, which injured the health, and sometimes sacrificed the lives of the horses; and also that of blood-letting in the spring, when the poor beasts operated upon were generally in more need of having blood put into them than losing any. Frequently drugs and nostrums were prescribed to carry off some imaginary humours; the prescription not unfrequently carrying off the horse as well. Such evils and losses must be prevented by the promulgation alike amongst farmers and labourers, and indeed amongst all classes, of some elementary knowledge of the laws of health. What was perhaps chiefly desiderated was better stabling, in which he would include more head room, more cubic space, more light—for darkness surely engendered dirt—and more thorough drainage; a more liberal and better regulated dietary; reasonable labour, fitted for the age and condition of the animal; more attention to grooming, whereby the important purifying functions of the skin were maintained; and a fair proportion of regularly recurring rest. As many of the diseases to which horses are subject are hereditary, agriculturists should be more careful in the selection of mares for breeding, and not employ for that purpose animals which are not fit for anything else. The animals used should be sound and of good constitution; and those which were flat-ribbed, weak-loined, ill-thriven, or afflicted with scrofulous diathesis, coughs, rheumatism, and such defects, should be sedulously avoided.

Mr. Dun referred to the good which had been done by the Society for the Prevention of Cruelty to Animals, and remarked that Martin's Act might with advantage be more widely and stringently carried out. Cruelty, whether in the way of overwork, starvation, neglect, overcrowding, or using weakly or diseased horses, should be summarily punished. Horses were subject to some catching diseases, and the exposure of one having the mange in any public stable, yard, or market place ought certainly to be an indictable offence.

As agriculturists those present were perhaps more fully interested in the diseases of cattle than of horses; and the fact that they had so recently got rid of the cattle plague, together with the present high price of meat, ought to increase their interest in cattle diseases. The rinderpest, which greater care and skill might have prevented or stamped out readily on its first landing in England, swept away in little more than 18 months nearly 300,000 head of stock. In Great Britain and Ireland it was estimated that upwards of 30,000 cattle annually suffered from epizootic contagious pleuro-pneumonia, and for nearly 20 years this enormous loss had year by year been sustained. In many breeding localities 10 per cent. of the young stock perished from black-leg; thousands of young calves were poisoned by the united influence of stale milk and want of cleanliness; in some seasons abortion tithed the herd; on some of the strongest and best land splenic apoplexy was still very destructive; hundreds of good milch cows in their prime of years and profit were annually lost from milk fever; throughout the Grass districts of the midland counties thousands of young cattle died during the winter season from what was technically termed anæmia or bloodlessness, or more popularly familiar as poverty or running out. The poor things were kept out at Grass without shelter or dry food after autumn nights were long and chill, and the herbage had lost its nutritiveness. Similar treatment in woodland districts, or where old pastures were left rough during summer, favoured the production of thread worms in the respiratory or digestive organs. Again, during the winter months cattle were transferred from green succulent herbage to hard, dry, comparatively indigestible straw. Much of the condition acquired in summer was thus lost in winter, and with the loss of flesh also came indigestion, hide-bound, various parasites infesting the skin; and, more fatal still, several forms of blood-poisoning and local congestion. These and various other diseases of cattle, if they could not be altogether got rid of, might, by rational management, be greatly reduced and circumscribed. An end so devoutly to be desired would not only be a great boon to individual farmers, but a national annual benefit probably to the extent of some millions sterling. Calves and young cattle should be regularly and liberally fed, so that they might make continual progress, and not experience any of those checks which are so dangerous to health. Care should also be taken in protecting sheep and cattle from the inclemency of the weather.

Mr. Dun dilated at length upon the various contagious diseases to which cattle and sheep are liable, and made the following suggestions with regard to pleuro-pneumonia, which depends upon contagion alone, and which, like its disastrous sister rinderpest, he was sanguine enough to believe, might be permanently banished from this island:—"Immediate intimation of the outbreak of pleuro, or of any disease like it, should be made without delay to the local authority or the acting veterinarian. A single case appearing in any herd had better be summarily slaughtered. Whilst the disease exists, and until a clean bill of health can be granted by competent professional authorities, the diseased, tainted, or suspected stock should remain under proper inspection. Sick animals must be separated from the sound, which should be kept, if possible, in small isolated lots; separate attendants should, if possible, be provided for the sick and the sound. No stock must be moved alive from any dairies, farms, or localities, in which pleuro exists or has recently occurred. Thorough cleansing and disinfection of infected places must be enjoined, and a period of at least six weeks permitted to elapse after the removal or death of the last case of pleuro before any premises in which pleuro has raged can be declared clean, or any stock allowed to be passed out of them alive. Pains and penalties should be inflicted in punishment of any contravention of such provisions. * * * Whilst endeavouring to expatriate these contagious disorders from the United Kingdom, careful provision should necessarily besides be made to prevent the importation from abroad of these or other such diseases. To guard against such importation of disease, foreign stock should be admitted into Great Britain and Ireland only at licensed ports, and after careful veterinary inspection. They would be permitted to come to us only from localities which could show a clean bill of health. Consuls and other Government officials in Europe and elsewhere would be instructed to forward early intimation of the outbreak or spread of any contagious disease. Cattle, sheep, and pigs should be received in this country only when conveyed in properly constructed vessels licensed to carry so many head of any distinct descriptions of stock, and subject at any time to Government inspection. Store cattle should be placed under still further restrictions before being permitted to mix with home stock. When forwarded from uninfected countries, inspected before they are shipped and again on landing, they ought further to be taken under orders to the licensed premises of the importer, remain there in quarantine for at least 28 days, and be the while examined at definite intervals, and if then sound they may safely be treated as homebred stores." Mr. Dun, in conclusion, discussed the proposal for the opening of separate markets for home and foreign stock, which he condemned as costly and inefficient. Instead of separate home and foreign fat markets, what was greatly more required, alike for convenience and prevention of disease, were separate markets for fat stock, for dairy animals, and for stores. Such a sub-division had been carefully considered and approved by the Scottish Chamber of Agriculture.

Home Correspondence.

Red Clover.—I am an old farmer, reduced or elevated to a rosarian, fragrarian, or grower of Peaches and Nectarines. I believe we live in a world of paradoxes, and yet there is, no doubt, a reconciliation of those things which appear to be paradoxical. I have read with great interest Dr. Voelcker's lecture on Clovers. A great deal of his lecture—that which relates to chemistry—is out of my realm, but I can thoroughly endorse this statement, that Clovers seeded will produce better Wheat than Clovers fed off. You will get better Wheat if you cut Clover hay, and then seed it, than you will if you feed it off *ab initio*. This, of course, is startling, but I know it to be true. The root of the Clover in decay, and also the decayed seed-leaves, are most conducive to Wheat. In order to understand this, we must enter into the phenomena connected with the growth of plants, whether arboreal or herbal. I suppose they are much alike. I know that if you curb a tree all over after its leaves are out, you will estop root action in the same ratio as you curb. The leaves, and branches, and roots of a tree answer to each other as face answers to face in a glass. A tree by its stomata (or the mouths of its roots) takes up food in solution, which makes water so necessary to vegetative life. The food becomes sap, ascends the tree, and is elaborated in the leaves (the lungs) of the tree; it then descends, leaving a residuum, which increases the bulk of the tree, a part passes off into the atmosphere, and a small portion of the elaborated sap descends into the roots, and increases their volume. Now apply this to Clovers fed off: nothing of the kind can take place. The volume of the roots under feeding is not so extensive as under seeding; hence, as the decaying root is the food of Wheat, the Wheat cannot be so good after feeding as after seeding. Moreover, the decayed leaves of seed Clovers, no doubt, supply *pabulum* to the Wheat, which it likes. In a word, the greater the volume of Clover roots decayed and leaves dropped, the better the Wheat. Every experienced farmer knows that a good Clover crop is a sure Wheat crop. But why do Clovers seeded produce a better Wheat crop than Clover fed off? It is palpable when Clover is fed off, the root is weakened, as the juices from the root have never had a chance of being elaborated in the leaves; there is, therefore, not that return to the roots which exists in an unnibbled plant. The nature of the roots must therefore be somewhat different. Here I must leave the subject. I will, however, supply what I know to be true. Always alternate Cow-grass with Red Clover; that is, whether you sow every four, five—or, what is a sure card—every eight years, sow Clover and Cow-grass alternately. In order to prove this, sow your field, now in Clover, the next turn (half of the field) with broad Clover, and half with Cow-grass. I will wager an estate that the Cow-grass will beat the broad Clover, and *vice versâ*. The reasons why Clovers frequently fail are, the ground is not got close enough (it seldom fails on the headlands), and it is often harrowed in too deep. Roll in your Clovers. Leguminous plants cannot be buried too shallow; but Clovers, when they come up well, are often smothered by Barley, and starved by Hop and Dutch Clover, and Grass seeds. Sow your broad Clover or Cow-grass pure where your Wheat after Turnips has been fed off, and Rape has been eaten off; and it will succeed better with Wheat than Barley, because the ground is firmer, and it gets more light and air, which is essential to the welfare of leguminous plants. Whether, however, you sow Clovers with Wheat or Barley, roll heavily after the crop is off, and again before winter sets in; and mind this—never feed off your young Clover! Do not buy "trio!" *W. F. Radclyffe, Okeford Fitzpaine, June 7.*

Emigration.—Like your correspondent, "Gentleman Farmer," I am going to emigrate, and as I have had the advantage of spending two long holidays in travelling through Canada and the United States, I shall be most happy to give him the result of my own inquiries, if he will communicate with me. My own choice would be Iowa, Southern Wisconsin or Northern Illinois, for though by no means a Yankee, but an arrant John Bull, the advantages of these States over Canada for the gentleman settler are too great to be overlooked. The more distant colonies are too far off, and the man who emigrates to them becomes an exile, but the well-to-do settler in Canada or the States thinks nothing of a run over to England to spend a month with his relatives. The chief advantages of the States I have named over Canada are in soil, climate, society, markets, and general progress. Let me give your readers a brief account of an ordinary Wisconsin farming district—Ripon, in Fond-du-Lac, for instance. The Ripon scenery is much like that of Kent, the prairie being hilly, and interspersed with forest; the hill-sides are clothed with Hops, Wheat, and Indian Corn. The price of "improved" farms of say 240 acres, with good house, barns, &c., is now 10*l.* an acre close to the town. Twenty years ago the land was worth 5*s.* an acre, eight years ago 4*l.* an acre. The town is just 20 years old, and the farmers are now beginning to manure the somewhat exhausted soil, or to seed it down in Clover. There are now from 4000 to 6000 inhabitants, four churches, a college with its corps of professors and 300 students; there are two banks, three newspapers (I send you one), and a flourishing Young Men's Christian Association. The inhabitants are quiet, peaceable people, with a fair sprinkling of persons of education and good breeding. In the course of a fortnight's stay in the neighbourhood, I found four English gentlemen amongst the farmers, and many most respectable English settlers. I was present at an evening party, and with regard to the ladies, the music, and the supper, I might have imagined myself in an English country town, though certainly it was rather a surprise to meet the man whom I had seen the day before selling Onions in the market-place, and to find on cultivating his acquaintance that he was an educated English gentleman. The English settlers invariably spoke well of their position, and to the question—How did you get on during the war? the reply was "As quietly as if we had been in England." The climate is far less severe than that of Canada, though equally healthy. This town is only an ordinary specimen of hundreds of towns, in all stages of growth, now rising rapidly on the vast prairies of Wisconsin and Iowa. For my own part, I should recommend the new settler to go to a younger town than the one I have described, and by giving 3*l.* or 3*l.* 10*s.* an acre for his land, he may secure at all events the necessary comforts of a gentleman, with a doctor, a parson, a grocer, a carpenter, a blacksmith, and half-a-dozen families with whom he can associate. Canada is a magnificent country for the man whose only wants are good wages for very hard work, but no small capitalist should go there to farm unless he prefers the life of a "wild man of the woods." I trust I have not trespassed too far on your valuable space. *H. M. Collison, Admiralty, Somerset House, June 5.*

Judging at Southampton.—In your remarks on the Channel Islands cattle at the Bath and West of England, you have fallen into an error with regard to the appointment of the judges, than which, when you hear the facts, you must acknowledge nothing could possibly be fairer. The local committee, you will observe, gave away no less than 80*l.* in prizes to Channel Islands cattle, and in nearly every instance divided the Jersey and Guernsey into separate classes, and they wished the Council of the Society to do the same—the two breeds being quite distinct—but the Council declined. Two names from each island were submitted to the local committee, who forwarded the same to the Council, with a request that one name from each island might be selected. This was accordingly done, the third judge being chosen by the Society from this side. The Guernsey judge was a native of Scotland, but residing in Guernsey, where he farms his own land. As these judges, supposed in your remarks to have a bias for Guernsey, gave the champion prize to a Jersey heifer, the accusation implied can scarcely hold, being without point. *W. C. S.* [We are unable to follow the roundabout way at which "W. C. S." arrives at his conclusion. We made no "accusation." We however left it to be inferred that, in the classes which came under the decision of the Council of the Society, it was impossible for the judges to satisfy themselves or any one else. It would have been just as consistent to have put Highland and polled Scotch cattle into the same classes, as it was to put Guernsey and Jersey cattle together at Southampton. "W. C. S." has simply done two things—shown that the local committee were wiser than the Society's Council, and unwittingly justified our remarks. EDS.]

Mangel Cake and Sewage Farming.—The experience we have already gained from sewage culture points conclusively to Italian Rye-grass and Mangel Wurzel as the two most productive and profitable crops that can be grown by sewage farming. The difficulty which has hitherto presented itself, more particu-

larly with the latter crop, Mangel, is its bulky form. Suppose we have a farm of 1200 acres, if one half were devoted to this crop, the immense yield could neither be sold in the neighbourhood nor used on the lands. By a process I have invented and patented, this difficulty is entirely overcome. I convert it into cake, in which state it is as easily transported as oilcake, and experiments in feeding, most conscientiously and carefully made, have proved that Mangel cake is little, if at all, inferior to that highly prized article, oilcake. Analysis points to the same fact. It takes eight tons of Mangel to make one ton of cake. Mangels, as we all know, contain 89 per cent. of water, and 11 per cent. of dry substance, five of which are pure sugar. One ton of Mangel cake contains, therefore, 88 per cent. of dry feeding substance, of which 40 are sugar. Experienced farmers tell that the utmost feeding value of roots, either Mangels or Swedes, is not more than 5*s.* or 6*s.* per ton, and yet analysis tells us that 1 ton of roots contains one-eighth the quantity of the same feeding materials as are contained in 1 ton of the very best Barley. Now, the feeding value of 1 ton of such Barley cannot be put at less than 5*l.* or 6*l.* One ton of roots ought, therefore, to be worth from 13*s.* to 15*s.* per ton, instead of 5*s.* or 6*s.* How is this discrepancy to be accounted for? Simply thus—the food contained in Barley is in a nearly dry state, only 12 per cent. of water being present, whilst roots contain 89 per cent. of water. The cost of coal necessary to drive off this great and deleterious amount of water, is 2*s.* 6*d.* for every ton of roots; thus for 5*s.*, the feeding value of 1 ton of roots, and 2*s.* 6*d.*, the cost of fuel, 1 ton of roots can be converted into a feeding substance, worth from 13*s.* to 15*s.* This is no mere theoretical idea. I have actually proved by a most carefully made experiment, that roots converted into a concentrated root food will actually give a money return in the shape of mutton of 1*l.* per ton for their feeding value, less 2*s.* 6*d.* the cost of coal—that is to say, with 4 tons of roots concentrated I made 4*l.* worth of actual carcase meat, valuing the price of such meat at 5*s.* per stone of 8 lb. Now, if after this farmers tell me that feeding stock does not pay, I tell them it is their own fault. But, says a farmer, admitting all you advance to be true, what are we to do to fill our animals' or sheep's bellies with if you convert all the roots into this concentrated food? Fill their bellies with? What do you fill them with by giving them raw roots? Why, with water. Have you nothing on your farm better than this to fill them with? Look at the great stacks of straw standing year by year, as if they had no real value, or as if their only value was to be trod into manure. Fill their bellies with this, which has an actual feeding value which water has not, and whilst doing so you not only fill the belly, you extract the feeding value contained in the straw, and at the same time greatly increase the manurial value of the straw [?]. You may then go to the pump or stream, as the case may be, and give your stock water. Water was made to answer that intention, to assimilate the food and not to fill the belly. I tell farmers this plainly: convert all your roots into a concentrated form, cut up all your straw into chaff to mix with it, give to your stock only so much water as they elect to drink, and then you will find that fattening stock will prove the most profitable part of all your farming operations; or go on still as you are now doing, and waste your valuable root crop; but if manufacturing beef and mutton at from 4*s.* to 5*s.* per stone does not pay, do not complain, because the remedy lies in your own hands. Adopt my system, the oilcake bill will disappear, stock fattening will become an absolute source of gain, instead of loss; you will consequently increase the amount of your feeding operations, which will tell its tale not only in your banker's book, but, by adding to the fertility of the soil, will increase in a corresponding degree the value of your cereal crops. The loss of stock consequent on the watery nature of the root crop in its raw state as now given, is not to be lightly disregarded. *Hugh Smith*, 21, *Westbourne Terrace Road, London, W.*

Foreign Correspondence.

CANADA: *The Season and Crops.*—We have a somewhat late spring; a circumstance that by no means, in this climate, foreshadows a scanty harvest. Winter Wheat is but little injured by frost, and has generally a strong and promising appearance. It is by the alternate freezing by night and thawing by day, in March, and sometimes during the early part of April, that Wheat is mostly injured, gradually heaving the roots out of the ground, and ultimately killing the plant. All accounts concur, from the Wheat-producing portions of the British provinces and the United States, that the present Wheat prospects are encouraging. It is yet, however, too soon to feel absolute assurance in this matter, as the Wheat plant of late years has been peculiarly liable to the attack of midge, Hessian fly, and rust (mildew), each of which has often blighted, in a short time, the fairest prospects. These scourges, however, have of late been mostly on the decline, and, with better culture, Wheat growing is again becoming more certain and profitable. Spring grain has generally been sown in good condition, and with the rains we have recently had, accompanied by a warmer temperature, will make a rapidity of progress of which British farmers have no experience. Spring Wheat, which is sometimes sown, in backward seasons and districts, late in May, will ripen in August, or the beginning of September.

Owing to the deficiency of autumn pasture, occasioned by the severe drought of last summer, and the comparative failure of root crops, both cattle and sheep are in a low condition; yet there has, as yet, been no lack of beef and mutton, of good quality, at tolerably remunerating prices. We have now, here and there, scattered over the better settled portions of Ontario (Upper Canada), flocks and herds of highly bred animals that would not rank second-rate even in England; and it is encouraging to observe how the use of superior male animals is surely, if not rapidly, raising the standard of our live stock generally.

The number of immigrants, many of whom are from her Majesty's dockyards, that have already arrived, is much larger than usual, and they find no difficulty in getting employment. Farm labourers and female servants are much wanted everywhere, and of these classes there is no likelihood of the supply exceeding the demand. When the great North-West is taken into the Dominion, and a good direct communication opened up with this province—a consummation about being realised—there will be ample room for millions even of industrious people, to settle on land, much of which occupies the highest rank in the scale of natural fertility on this continent, and in a climate remarkable for its salubrity, and adaptation to nourish a strong and hardy race. *George Buckland, Bureau of Agriculture, Toronto, May 24th.*

Societies.

DERBYSHIRE.

Pleuro-Pneumonia.—At a recent general meeting of this Society, Mr. GILBERT MURRAY read a paper on this subject, from which we make the following extracts:—

Pleuro-pneumonia first made its appearance in England in the year 1840 or 1841, and spread with great rapidity. During the first year after its appearance it proved extremely fatal, sweeping off entirely thousands of valuable herds on many farms, not leaving a single animal alive, and reducing many respectable and industrious families to a state of poverty. Since then the country has never been entirely free from its ravages.

When once an animal has become severely attacked it rarely recovers under the most skilful treatment.

The veterinary surgeon seldom has a fair trial to exercise his skill in treating the disease, especially when it comes on slowly and insidiously, in which case the lungs have become too far decayed to admit of restoration before his advice is obtained.

Close observation is necessary in order to detect the first symptoms of the disease. The appearance of the coat is a sure index to the state of the animal's health: the coat stares from the skin, becoming dry by the stoppage of perspiration. If, with this, a short husky cough is heard as the animal moves about, it should immediately be removed from the rest of the herd to the most distant part of the farm, and kept separate from all the other stock, and no time should be lost in calling in the aid of a well-qualified veterinary surgeon, whose instructions should be strictly carried out.

We think on all farms there should be a sort of small hospital or infirmary as far distant from the homestead as possible, and to which all animals suffering from disease could be removed at once, and the person in attendance on them I would prohibit from milking, feeding, or in any way coming into contact with the healthy portion of the stock.

Ever since the first appearance of pleura in this country, this and the adjoining counties have suffered heavier losses than any other locality. This has been attributed to various causes; by some to drainage, and others to the extensive use of bones and other artificial manures on the grass-lands. We think neither a valid reason, as other counties have adopted these improvements even to a greater extent without experiencing any ill effect. Whether climatic influences or the peculiar geological formation exercise any injurious effects on the health of the stock, is a question open to scientific investigation, as also that of the sanitary condition not only of the towns and villages, but also of the homesteads of England, as regards the comfortable housing of the farmer's stock. That this last subject is now occupying the thoughts of many busy minds we are daily seeing practically demonstrated by the improved buildings erected on every hand, and still there is ample room for more.

In towns and villages where fevers and other contagious diseases prevail, where do they first make their appearance? Is it not in the badly drained, ill-ventilated, crowded dwellings of the poor? If this be the case of beings endowed with the powers of speech and reason, may not similar causes be productive of similar results amongst our domesticated animals?

We think few intelligent men are believers in spontaneous generation. To produce an effect there must be a cause, and we hold that contagious diseases are propagated by contact, either directly or indirectly; yet animals are much more susceptible of diseases in some states than they are in others, as milking cows, or cows in milk and in calf, if fed on a scanty allowance of unnutritious food, and daily exposed to the recurrent changes of a variable climate, and at night immured in a low, ill-ventilated hovel, with the bare stones of the floor for a bed. If stock treated in this way should be attacked and struck down by pleura or other contagious diseases, need the owner wonder?

Although pleuro-pneumonia, like most other diseases, attacks animals more readily when reduced by want of proper food, and other conditions which minister to the general health and vigour of the system, yet the most liberal system of management will not insure an immunity from the malady if animals suffering from the disease are pastured or allowed to occupy the same sheds as those in health.

I wrote to Professor Armitage, of the Glasgow Veterinary College, asking him his opinion as to the subject of contagion. This is his reply:—

"The contagious nature of pleuro-pneumonia is frequently denied, and this has led to positive error, as well as having had the effect of clogging the legislative machinery, to the great loss of the nation. There being in this disease a specific poison circulating in the blood, consequently all the secretions contain portions of this poison, which is being constantly eliminated; the breath and exhalations from the skin are loaded with it; it follows, therefore, that wherever there are substances on which that virus has fallen, the seeds of the disease may be conveyed and propagated if cattle come in contact with it. An instance recently occurred where a person was called in to examine cattle suffering from the disease, went into his own cowshed, and 17 out of 30 either died or were slaughtered in various stages of the disease. Such cases as this show that we cannot be too careful, and every precaution should be used where the least suspicion exists. I know it is a most difficult matter for a farmer to keep his stock separate; yet, if possible, I would place all cattle purchased at fairs and markets in a separate yard or inclosure for at least ten days."

There are farms which are said to have never been clear of pleura for the last 20 years; such farms inevitably gain a bad reputation, and are said to produce it spontaneously. I think you will agree with me that this cannot be the case if all the buildings on the farm are well whitewashed with quick-lime, the manure all removed from the yards, and, if possible, ploughed into the land; all the stalls and mangers disinfected with Condy's fluid, and the land left without stock for 30 days, as in such cases the disease would be eradicated under ordinary circumstances.

We pay far too little attention to the sanitary state of our farmyards; the whole of the buildings should once every year receive a coat of lime-wash; it is done at small cost, and adds much to the appearance as well as contributing to the health and comfort of the stock.

The only authentic statistics I can give you are those of the Harleyan dairy at Port Dundas, where, before the cattle plague made its appearance, the number of cows kept varied from 1500 to 1700, and the annual losses from pleura were, on an average, one-fourth.

Those who are best informed estimate the loss in the United Kingdom at 40,000 head yearly, which, at the moderate compensation of 12*l.* per head, shows that nearly 500,000*l.* of the capital of the tenant farmer is annually irretrievably swept away by this disease alone; and the loss does not always end here, as in numerous instances the produce often of the best part of the season is sacrificed as well. The shipowner or the merchant by the payment of a small premium can insure his property against all risks, either by land or sea; the farmer cannot do this. I think nearly all cattle insurance societies have come to grief. Although the loss falls first and heaviest on the tenant-farmer, yet I think it presses more or less on all classes of the community. For the last 28 years the disease has been prevalent in this country, and during the whole of that time the dairy counties have always suffered the greatest losses, consequently it has affected the income of the landlords by reducing the value of their lands.

From various causes this county is peculiarly adapted for dairy farming, and much of the land would not produce an equal return under any other system and management.

It likewise trenches on the income of the consumer by lessening the supply and consequently enhancing the prices of butcher's meat and the produce of the dairy. It is often a most puzzling and difficult matter to trace or account for contagion reaching previously sound stock; as a rule we generally find it to break out first amongst stock grazing near public roads much frequented by cattle passing from fairs and markets, or near large railway depôts where cattle are constantly being landed from all parts of the country. Farmers who are frequently changing their stock cannot possibly long be without it. A few out-of-the-way places where the farmer breeds all his own stock and never has occasion to purchase, may for a long time escape. Pleura differs from rinderpest in that the former may remain for several weeks in an incubative or latent state, whilst the latter will not so remain for as many days.

It is during the earlier stages of the disease that the greatest injury is done, as it is then as contagious as in a more advanced stage, although beyond the detection of the most practised veterinary surgeon. Cattle are seldom exposed in a public market when the disease has become so far advanced to admit of its being easily detected.

When once the disease makes its appearance on a farm, every means should be used, and the most prompt measures at once adopted, in order, if possible, to arrest its progress. I have very little faith in medical treatment. A few years ago, having then the management of a valuable herd of cattle amongst which the pleura broke out, thinking then it could be cured, I tried every remedy and consulted many eminent veterinary surgeons, and out of upwards of 20 cases only one cow was saved, and she was only slightly attacked. If little can be done by way of cure, I think a great deal may be done to prevent the disease spreading even after it has made its appearance amongst the stock of a farm. If the disease be in the neighbourhood, or any purchases at fairs or markets have recently been made, I would endeavour to impress on the farmer the utility of keeping a vigilant eye upon his stock, particularly early in the morning and late at night, when he will more readily discover if anything is amiss; on the least suspicion, the animal should at once be removed from the rest of the herd, and as far from them as possible.

I would then set to work at once and limewash and deodorise the whole of the cattle sheds on the farm. Should the malady from which the beast is suffering prove to be pleura, I would immediately send for a butcher, and have it slaughtered at once, as the first loss generally proves the least.

Whilst the cattle plague restrictions were in force it was generally admitted that even the counties most subject to pleura had not been so free from it for many years. Since those restrictions have been withdrawn, it has been steadily on the increase, and I do not think it ever was more prevalent than it is at the present time; the rinderpest, which proved even more contagious than

pleura, was completely subdued, and banished from these isles, and this leads me to think that if the same stringent measures were carried out all over the country in the case of pleura, in less than two years there would not be a single animal in the United Kingdom suffering from the disease.

Then comes another most important question, that of compensation for cattle which under those regulations would inevitably be slaughtered. Independent of any Government aid, would it not be more beneficial to the interests of the tenant-farmer to have his stock placed under the most stringent regulations for 30 days with every chance of stamping out the malady by probably sacrificing a part of his stock to that of running the risk of losing the entire number? and, under present circumstances, when he re-stocks his farm he has no means of protecting himself from again introducing the disease in some of the animals he purchases.

Many are in favour of certificates of health being issued and passed along with all cattle when removed to fairs or markets, or passing from one owner to another. This certificate should contain a clear description of the animals, and be signed by the owner and one other person fully competent to judge of the state of health of the stock to which this certificate refers, that they have been at least 30 days in the owner's possession, and no contagious disease has been on the farm for the past three months. If such cattle are taken to a market and sold, the certificate is endorsed by each successive owner; if sold to various purchasers, a copy of the original document would be required for each lot. I think if some regulation of this kind could be carried out it would be a great security to purchasers.

Clause 53 of the Contagious Diseases Bill of the present session is thus put:—"Where an inspector finds pleuro-pneumonia to exist within his district, he shall forthwith make a declaration thereof under his hand, and shall deliver a notice under his hand of such declaration to the occupier of the field, stable, cowshed, or other premises where the disease is found, and thereupon the rules set forth in the sixth schedule to this Act (in this Act called the pleuro-pneumonia rules of this Act) shall have effect in relation to such field, stable, cowshed, or other premises until the determination and declaration of the local authority relative thereto in this Act provided for. 54. Where an inspector makes a declaration of the existence of pleuro-pneumonia, he shall with all practicable speed send a copy thereof to the Privy Council, and deliver the declaration to the local authority, who shall inquire into the correctness thereof, and if it appears to them that pleuro-pneumonia existed, as declared by the inspector, they shall so determine and declare, and thereupon the pleuro-pneumonia rules of this Act shall continue to apply to the field, stable, cowshed, or other premises, to which the declaration relates; but if in any such case it appear to the local authority that pleuro-pneumonia did not exist as declared by the inspector, or that a fresh case of pleuro-pneumonia has not occurred for 10 days in such field, stable, cowshed, or other premises, then the local authority shall so determine and declare, and the pleuro-pneumonia rules of this Act shall cease to operate in relation thereto."

After citing clauses 1 to 4, in Schedule 6, which deal with the removal of animals, hay, manure, &c., Mr. Murray gave it as his opinion that if some provision had been made to compensate the owners in cases of compulsory slaughter, it would have been much more satisfactory to the owners of stock throughout the country.

MR. COLEMAN said the first question raised was that of prevention; cure, he believed, and most of them believed, there was none. Mr. Murray had told them how to prevent it. He had been into many cowhouses in Derbyshire in which cows got very much heated at night, being very often turned out in the cold in the middle of the day; he counselled them to keep their animals shut up in cold weather, and to give them more air. In the Contagious Diseases Bill there was no provision for remunerating men whose cattle were compulsorily slaughtered. He did not think the people of England could be got to agree to a proposition to compensate them either. He agreed with Mr. Roe that landlords and tenants might combine and secure some kind of insurance. But what they wanted most was, to prevent the moving about of affected animals. He deprecated the buying of poor stock, and said a man who went into the market and bought the poorest and cheapest beasts he could find would ruin an insurance society. If they could get restrictions, call in inspectors, and isolate herds, he thought they might then adopt some system to insure owners from loss, and measures might be taken against spreading the disease. In conclusion, he thanked Mr. Murray for his paper.

MR. CROMPTON added his thanks to those of Mr. Coleman to Mr. Murray for the able manner in which he had brought this matter forward. It had always struck him that the present system of forcing dairy cows to give a large quantity of milk by the administration of bran, chop, grains, and other food cut into very small pieces, was so entirely contrary to the habits of cows, that it could not be persevered in without bringing a punishment in the shape of disease; and he could not help feeling that to the proximity of this district to that very fruitful source of grains, Burton-on-Trent, could be traced a very considerable portion of this disease. If they took human subjects, healthy men, and submitted them to a different system of food for a number of years, they would so debilitate them that it would manifest itself by falling upon the most sensitive organ they possessed, the lungs. And he said that by our long continued treatment of our dairy stock in this way, the constitution became debilitated, and hence the disease. If these remarks of his were not true let them be refuted, but it would not be sufficient for him for a man to say that he had pursued the system of feeding cows on the kind of food he had described: but they must take the whole district round, and there were few gentlemen who had not suffered. The Bill before them seemed to go to the root of the matter. They knew that at the time of the rinderpest the doctors failed, and medicine failed, but when the slaughtering of cattle was adopted they soon got rid of it, and he believed they would be obliged to adopt something of that kind with regard to the disease under discussion. He thought men sometimes sacrificed their dairies when disease was amongst their cattle, and by selling the animals dispersed them and the disease over the country together.

Farm Memoranda.

SOUTH STAFFORDSHIRE: *June* 7.—Some two or three months since, Laura's address to Beppo on his return home was, with a slight alteration, applicable to our corn crops:—

"Bless me! did I ever! No: I never
Saw a man grown so yellow! How's your liver?"

However, they are now improved and improving. A good dose of calomel, in the shape of hot sun, has changed their complexion, and there possibly may be an average crop under favourable circumstances. More there cannot be; less, we hope not. Too much of the Wheat is very spindling, and—

"Some is with green bunches spotted o'er,
Like ant-hills on a meadow's face,
Or pimples on a drunkard's chin."

The Barley has suffered more than the Wheat, and a great many crops look very middling indeed.

Oats, Beans, and Peas have fared better, but a tithe has been taken off the two latter by hoeing. Mangels are mostly horse-hoed, and early sown Turnips will soon be in rough leaf.

Pastures, where not stocked early, are full of Grass, and mowing will soon begin.

Sheep come out of the wool in fair condition, but it is thought the clip will prove light. There are more ticks than I ever remember to have seen, probably last summer's temperature hatched a larger quantity of eggs.

The wool trade is flat. Good heifer beef sells well, and mutton too is high. The lamb trade has been slow. At present the prospect of meat making is hopeful, stock is pretty healthy and in forward condition. If Wheat does not go lower, and we get a good Turnip year, some leeway may be made up. *G. A. M.*

NORTH RIDING OF YORKSHIRE: *June* 9.—After two months of most ungenial weather we have now a change to fine summer temperature. The continuous range of low temperature had retarded the growth of the grain crops, and on the poor soils the Wheat plant had assumed a very sickly hue; but the warmth of the last few days has wonderfully resuscitated the seemingly exhausted blade, and generally our fields are again exhibiting every sign of vigorous growth. Up to this date we have plant abundantly thick, on the whole healthy, and in an average state of forwardness. Under such circumstances, to give an opinion as to a late or early harvest, or a short or abundant crop, would be very much like taking a leap in the dark. So far, the situation is not unfavourable, and everything now will depend on the weather. Upwards of 3 inches of rain fell in May, which rendered the preparing land for Swedes a tedious process, and scarcely the average quantity has been sown. Those who were fortunate enough to get them in have been rewarded by an early and vigorous braird, and so far have escaped from the ravages of the fly.

Our meadows are full of promise, and abundant crops of Grass for hay seem tolerably certain. Although the meadows have grown well, notwithstanding the wet cold weather, the pastures have done badly, which was probably occasioned by the treading of the stock during the wet. Owing to the backward state of the pastures the demand for grazing cattle has been slow, and to effect sales a sacrifice in prices has been made.

Fat stock had maintained a high range of prices up to the beginning of this month, and although our markets are supplied with animals few in number and not in prime condition, yet prices have a downward tendency. Fat lambs are coming to market in average numbers, but condition indifferent.

Little has yet been done by our farmers in the wool trade, but the clip will certainly average much less than those of the last few years. *W. J. M.*

The Poultry Yard.

ACCORDING to the earlier writers on poultry, there was no part of a fowl that had not a use, and an important one, in the service of mankind. In the eyes of many very respectable and erudite ancients, he who kept a well-stocked poultry yard was, so to speak, quite independent of medical aid, and in a position to sneer at Galen and his disciples.

The clever and amusing articles from the pen of a well-known Norfolk clergyman, which appeared in this Journal some years since, were among the first to draw general attention to poultry. Many of his quaint and classical quotations, pungent as they were, as applied to his subject, will be fresh in the memories of some of our readers. The domestic cock, according to the ancient Romans, was a bird of general utility, and was held in equally high estimation by the Greeks. In the present day he is probably appreciated as nearer his real value than formerly, and it is curious to note the different destinations of his respective portions when he meets death in a proper condition at the hands of the higgler, who kills him for market. Beginning at the top of him, his comb is the first article: this, when cut from the head of a young and well-fatted fowl, attains great size. When the bird reaches market and is exposed for sale the comb is cut off, and becomes the profitable perquisite of the salesman. Sold at per lb. to the poulterer, the combs are by him scalded and blanched, and again sold by him to those who know and like good cookery. The final appearance of the cockscomb is on table, where it forms a distinguished part of a *Vol au vent* or *Financière*; or, impaled on a silver skewer with a gigantic truffle and a crayfish, it forms part of the *decor* of a *pièce montée*.

The head and neck, which are, or should be, cut off when the fowl is prepared for cooking, are sold at the close of the day by the poulterers to the poor and others who care to buy them, and who make from them a succulent and toothsome dish. The gizzards, livers, and hearts are generally sold with them unless used with the fowls. The intestines are carefully separated from the fat adhering to them, and these, with the nails, trimmings of the liver and gizzard, and whatever scraps may remain, are collected by people who boil them down for pig feeding. The fat is much sought after by perfumers for their pomatum. The feathers are sorted into bundles according to their nature and size. The hackles are sold to fishing-tackle makers and *plumassiers*; the tail feathers to the military accoutrement makers and outfitters; the quills from the wings are sold by themselves, and the body feathers are sorted into divers qualities for bed-making purposes. Douglas Jerrold's "Story of a Feather" is doubtless familiar to many, but the real uses to which the feathers are put may be seen from the foregoing, and some of the more exceptional from the following, which we heard while standing in a poulterer's shop:—"The captain's compliments, and could ye give him a bundle of feathers to clean his pipe?" this from an upright six-footer—an officer's servant. Then a much shriller and more subdued request from a little breathless girl—"Please, sir, can you give me one or two stiff feathers to moisten baby's lips with?—he is dying!" Then the corduroy-clad urchin, who wants a wing from which to build a shuttlecock, and who won't take no for an answer. The hackles of an old cock, taken off carefully with the skin when the bird is killed, make a very nice plume for a riding-hat.

Inquirer, Liverpool, who asks, "What disease is it that causes a hen to gasp for breath, and accompany the gasping with a cough?" is recommended to keep apart from his birds which are in good health all those affected as he describes. If he can put them on a Grass run so much the better. A tablespoonful of castor oil given to each bird at night, three times a week, will be found very beneficial. The diet should be light and easy of digestion, and limited in quantity. Hard corn should be avoided. If any ulcers are to be seen inside the mouth they must be scraped off with knife or scissors, and the mouth washed out with vinegar and water. Plenty of vegetable food and but little water. We have found excellent results from putting wormwood and camphor in the water, and it would be worth the experiment to try the tobacco treatment mentioned in these columns some few weeks since.

Miscellaneous.

The Agricultural Society and the Agricultural College.—Mr. Dent, M.P., in his speech at the annual meeting of the Society on the agricultural education question, said: "The worst of the matter was, that when they looked over the list they found that, with one exception, all the first and second-class prizemen were educated at the same place. He should like to see the field from which candidates are taken widely extended." Why "the worst," Mr. Dent? *Palmam qui meruit ferat:* let the fastest horse win if he can. So long as the competition is fair and open—and we suppose it is open to all England, or the whole world, for that matter—what does it signify who carries off the prizes? Let the best men have them. The object of prize-giving is either to stimulate ability or to discover the best article. If all the prize-winners come from one place—with the single exception of one candidate from Edinburgh—that only proves the excellence of the institution which can thus send out so many good men; and that our Cirencester College gives by far the best kind of education which these prizes were intended to promote. By all means "extend the field for candidates" as much as you please, so long as you give fair play to all equally; it will be a pleasure to Mr. Constable and his staff to maintain the reputation of the Royal Agricultural College against all comers. As to the greater age of one of the prizemen, that may possibly be a better objection. A man of 30 brings a more matured brain to the study of a subject, and may possess some undue advantage over younger competitors. A limitation in this respect—writing in the Derby week we would say "weight for age"—might perhaps be desirable. *Wilts and Gloucester Standard.*

Calendar of Operations.

Liquid manure drilling in dry weather has much to commend it in general practice. Some liquid manure drills have seed-sowing apparatus combined with them, so that the two operations of liquid-manuring and seed-sowing are performed together by the combined machines. They also drop the liquid manure and seed at regular intervals, corresponding to the required distances between the Turnips in the rows. Other liquid manure drills are only constructed for drilling in the liquid, or for applying water or liquid manure to drilled crops. They are adapted for applying a larger quantity of liquid per acre than the combined liquid manure and seed drills. The sowing of the seed follows by a separate machine. The use of them also gives rise to a difference in the covering of the manure. Thus, some cover the manure as when the combined liquid and seed drill is used, others only half cover the manure. By the first plough an opening is left on the top of the drill for the liquid manure; a second plough follows the liquid-manure drill, setting up the ridgelet or drill in the usual way for the seed-drill. By this practice a much larger dose of liquid per acre may be applied, and the seed is got better in than with the combined machines—advantages which do more than pay for the extra team required to cover the manure. Liquid manure from the common water-cart has also been applied over the newly spread manure in the bottom of the drill, but the wheels of the water-cart do harm to the manure; and when applied before the manure is spread, the wheels of the manure-cart and the feet of the spreaders poach and injure the land.

Manuring and watering newly-brairded Mangels, Carrots, &c., is common in the warm, dry climate of the United States of America. As soon as the young plants begin to appear aboveground, or rather when

they begin to break the surface, the water-drill is yoked, applying the liquid to two rows at a time. If the field is not more than a mile from the tank at the homestead, a man and cart with an active horse will do two acres a day, and if only half a mile, four acres per day. The application not only secures an abundance of plant in the rows, but also prevents the ravages of Turnip-fly. As the Swedes and common Turnips braird they may also be watered, and if a small quantity of liquid or gas-ashes from the gas-works is dissolved in the liquid, the application will be the more effective against the fly.

Hoeing and Weeding of spring corn crops, if not finished in May, should be so in the early part of the month. Docks, Coltsfoot, Turnips, &c., when pulled by the hand, should be carried to the headland, and the ground loosened in pulling them should be consolidated by the foot.

Beans, Peas, and Potatos, should be gone over. If too far advanced for hoeing, any weeds left should be pulled by the hand. Earthing up with the double mouldboard-plough is the last operation, and the horse-hoe occasionally precedes it.

Hemp, when sown in drills, should be hoed as soon as the plants and weeds appear, and hand-weeded if sown broadcast. After the crop covers the ground, it effectually kills or smothers weeds; but the weeds which braird with the crop have many of them time to ripen and sow their seeds, which should be prevented by the timely use of the hoe.

Flax requires to be carefully hand-weeded as soon as it is an inch above the ground. Weeds are easiest pulled when young, and more readily seen when the Flax is short than when long and bending with the wind. A trained hand goes rapidly over the ground without doing comparatively any harm with his feet. The harm done is by the twisting of the foot in turning, which should not be allowed. Go straight forward, taking on no more breadth at a time than you can weed; lifting the feet, and setting them down evenly on the Flax, without any heeling, toeing, or twisting on the tread. If this is done, the footprints will disappear in a day or two.

Lupine.—Continue to sow up to the middle of July. The first-sown crops will require hoeing in June, draw the earth up to the plants as in hoeing Beans and Peas.

Carrots (Belgian).—Horse and hand-hoe, singling out the plants to 6 inches apart in the rows. Keep the earth well up to the plants, as it is liable to go the other way when the crop is grown on ridglets.

Chicory, when grown as a substitute for Coffee, horse and hand-hoe as Carrots, leaving the plants rather closer in the rows.

Mangel Wurzel.—Horse and hand-hoe; 27 inches between the rows is, perhaps, the common distance, but the distance between the plants in the row is more diversified, some singling out only 8 inches apart, while others make twice the distance; 12 inches apart is common, but not so much so perhaps as formerly, since an equal size of medium weight has been found the most profitable crop, from its containing more sugar. Thus, with 27 inches between the rows, and singled out to 6 inches apart, there would be 38,720 Mangels per acre, which, at 3 lb. per root, would yield over 50 tons per acre. But to carry out this method of estimating a crop, and for the sake of perspicuity, the result of various distances and weights may be reduced to a tabulated form:—

Distance between Rows.	Distance between Plants.	Number of Plants per Acre.	Weight of each Root.	Weight per Acre.
Inches.	Inches.		Lb.	Tons cwt.
27	6	38,720	8	138 8
27	8	29,040	8	103 14
27	9	25,813	8	92 14
27	10	23,230	8	82 16
27	11	21,120	8	75 8
27	12	19,360	8	69 4
27	16	14,520	8	51 17

Of course such an average weight is never got under the circumstances of close planting.

Sugar Beet.—Horse and hand hoe, singling out the plants from 5 to 6 inches apart in the rows. In hand-hoeing keep the earth up to the roots as in hoeing Carrots. At 27 inches between the rows, the number of plants per acre, at 6 inches apart in the rows, is 38,720, and at 4 lb. each the weight per acre is 69 tons 4 cwt. But to reduce this crop to a table, as above, it will stand as follows:—

Distance between Rows.	Distance between Plants.	of Plants per Acre.	Weight of each Root.	Weight per Acre.
Inches.	Inches.		Lb.	Tons cwt.
20	5	62,726	4	112 0
20	6	52,272	4	93 6
24	5	52,272	4	93 6
24	6	43,560	4	77 19
27	5	46,460	4	82 16
27	6	38,720	4	69 4

Notices to Correspondents.

FARM BUILDINGS, &c.: *W H R., Tunbridge Wells.* The information will be communicated by letter within a day or two.

TRIFOLIUM INCARNATUM: *M L., Worcestershire.* According to the condition, as you describe it, of your heavy clay soil, it would not be prudent to leave the field down for after feed. Better to plough a 5 or 6-inch furrow at once, harrow and roll, according to weather, to cover all the live plants, and let it lie untouched—excepting a harrowing and rolling, if required—for three weeks or a month, when the land will break into fine mould, and, with a little judicious cultivation, become a fine bed for Rape, or Rape and Mustard, for feeding off or ploughing in for Wheat as the season may allow. There is no better preparation for Wheat (excepting Clover) on heavy clay land than Rape ploughed in. A weak bottom of Trifolium incarnatum, and the weeds which accompany such a crop, is about the worst preparation for Wheat.

H. DOULTON & CO.'S

GARDEN VASES, FLOWER POTS, FERN CASES, FOUNTAINS,

GARDEN EDGING TILES, &c.



MANUFACTURED IN TERRA COTTA, OF THE BEST MATERIAL, AND WARRANTED IMPERISHABLE.

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The value of Terra Cotta in the ornamentation of Public Gardens, Parks, &c., and for Indoor Floriculture, has long been recognized; but its large cost has prevented its universal adoption. The articles manufactured by H. D. & Co., while second to none in quality, are offered at prices so low as to place them within the reach of all classes.

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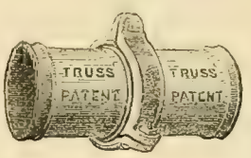
PRICE LISTS Free on application to

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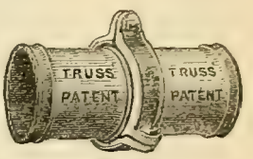
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Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
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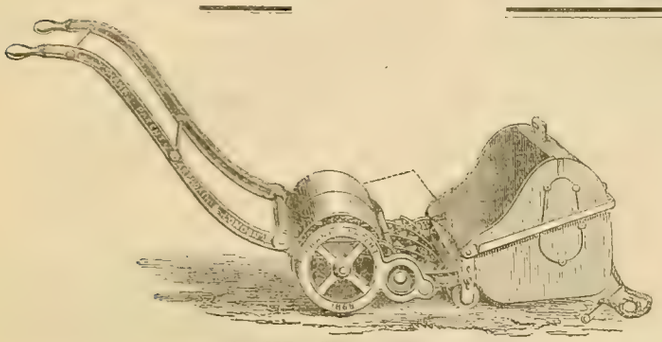
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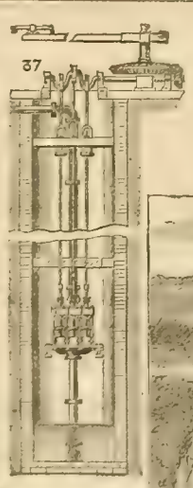
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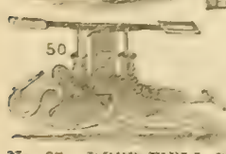
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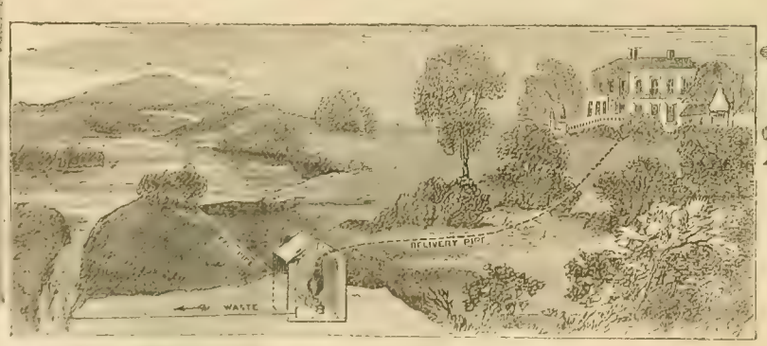


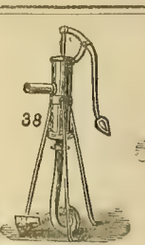






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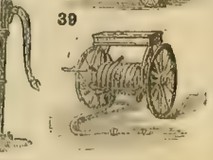


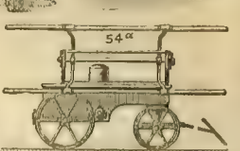












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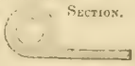
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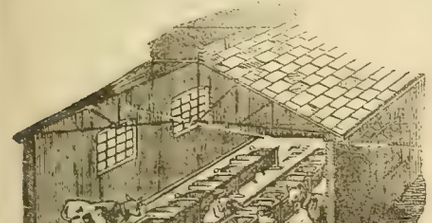
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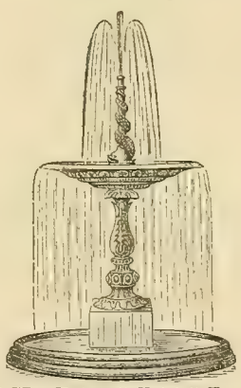
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TO NURSERYMEN, SEEDSMEN, and MARKET GARDENERS.

AN EXTENSIVE and OLD-ESTABLISHED BUSINESS to be DISPOSED OF, which has been carried on with success by the present Proprietor since 1827, and who now wishes to retire from the same. With the Wall Gardens (4 Acres) are Two good Dwelling Houses, Shop, Glass-houses, Frames, Stabling, with all other necessary Buildings, and a good supply of soft and hard Water. The situation is the best in the city of Exeter. This Property is held for a term, of which 12 years are unexpired. Also, a LEASE of 24 Acres of LAND, beautifully situated, within 1¼ mile of Exeter, 18 years unexpired, with House and other Buildings. There are 20 acres of Market Garden, well Stocked with all the choicest sorts of Fruits and Vegetables—the remainder Orchard and Meadow, which can be converted into a Nursery, for which the land is well adapted. To be taken at a Valuation, and a portion of the money can remain on good security.
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May be viewed the Morning of Sale, and Catalogues had.

Specimen Stove and Greenhouse Plants.

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Catalogues may be had of Mr. J. C. STEVENS, 38, King Street, Covent Garden, W.C.; and of Mr. RUDGE, Abbey Manor, Evesham.

Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, June 17, at half-past 12 o'Clock precisely, an importation from New Grenada of ODONTOGLOSSUM LINDLEYANA, BLUNTII, PESCATOREI, TRIUMPHANS, &c.; ONCIDIUM WELTONI and KRAMERI, &c.; also a Consignment of ORCHIDS from Mexico, containing splendid masses of Odontoglossum nebulosum and cordatum, in the finest possible condition. Orchids from Borneo, Seeds from India, &c.
On view the Morning of Sale, and Catalogues had.

Important Sale of Established Cool Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, June 23, at half-past 12 o'Clock precisely, without reserve, a Collection of Established ORCHIDS, the property of a Gentleman giving up their cultivation, comprising—

Calanthe Veitchii		Odontoglossum	Alexandræ
Cattleya bulbosa		,,	Bluntii
,, marginata		,,	Dawsoni
Cypripedium caudatum		,,	Hallii
,, Schlimii		,,	nævium majus
,, Pearceii		,,	Pescatorei
Oncidium aurosum		,,	Phalænopsis
,, cucullatum		,,	triumphans
,, Marshallianum		,,	zebrina
,, nubigenum		,,	Wagnerii, &c.

On view the Morning of Sale, and Catalogues had.

Kingston-on-Thames, S.

HIGHLY IMPORTANT CLEARANCE SALE of GREENHOUSE and STOVE PLANTS, GREENHOUSES, PITS, FRAMES, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by William Hardman, Esq., to SELL by AUCTION, without reserve, on the Premises, Norbiton Hall, Kingston-on-Thames, S., on MONDAY, June 28, at 12 o'Clock precisely, the whole of the STOVE and GREENHOUSE PLANTS, including many handsome specimens, likewise fine examples of EXOTIC FERNS, large DOUBLE CAMELLIAS and AZALEA INDICA, about 1000 FRUITING and SUCCESSION PINES, pronounced to be the best in the country; also the several GREENHOUSES, in all about 7000 feet super. of Glass, 2000 feet of 2, 3, and 4-inch Hot-water Pipe, powerful Tubular and Flat Boilers, GARDEN POTS, a quantity of TRELLIS-WORK, 40 dozen TURF BENDERS, and numerous other effects.
On view the day previous to the Sale, Catalogues may be obtained on the Premises of Mr. GRAY, and of the Auctioneers and Valuers, Leytonstone, Essex.

Harmondsworth, Middlesex.

MESSRS. E. AND C. NEWMAN, will SELL by AUCTION, by order of John Corney, Esq., at the Chequers Inn, Uxbridge, W., on THURSDAY, June 17, at 2 o'Clock, a VALUABLE FREEHOLD, tithe free and land tax redeemed, Arable Field of 13a. 1r. 7p., well suited for Market Gardening, or, with its extensive frontage and brick earth, for Building purposes Desirably situate on the Bath Road, to which it has a frontage of 898 feet, and near the 14th mile stone; in the occupation of Mr. Hunt.
Printed particulars may shortly be had of Messrs. WOODBRIDGE & SONS, Solicitors, Uxbridge; and of the Auctioneers, at their Offices, Uxbridge, W., and Harlington, Middlesex.

Bulbridge Ram Sale.

THE SALE by AUCTION of RAMS and RAM LAMBS, the property of Mr. James Rawlence, will take place on FRIDAY, July 30.
Auction and Estate Agency Offices, Endless Street, Salisbury.

To Shorthorn Breeders.
IMPORTANT SALE OF SHORTHORNS.

MR. GEORGE LANGRIDGE has been favoured with instructions from C. Leney, Esq., to DISPOSE OF by AUCTION, at the Court Lodge Farm, West Peckham, Kent, on WEDNESDAY, June 23, at 1 for 2 o'Clock, the entire HERD of Valuable SHORTHORNS, comprising 43 head of BULLS, COWS, HEIFERS, and CALVES, principally bred by himself from Stock selected from some of the best known Shorthorn herds. Also, at the same time, 12 Prime Shorthorn STEERS.
West Peckham is situated 6 miles from Tunbridge Station, on the South Eastern Railway, and four miles from Wateringbury, on the Paddock Wood and Maidstone Branch of the same Line.
Catalogues with particulars and pedigrees may shortly be had of C. LENEY, Esq., Hadlow Place, near Tunbridge, Kent, at the Salisbury Hotel, Salisbury Square, Fleet Street, at all the principal Hotels in the neighbourhood, and of the Auctioneer, 2, Lansdowne Place, Tunbridge Wells, and Mereworth, Kent.

WILLIAM S. BURTON,

GENERAL FURNISHING IRONMONGER,

BY APPOINTMENT TO H.R.H. THE PRINCE OF WALES,

SENDS A CATALOGUE GRATIS AND POST PAID.

It contains upwards of 700 Illustrations of his unrivalled Stock, with Lists of Prices, and Plans of the

TWENTY LARGE SHOW-ROOMS,

AT 39, OXFORD STREET; 1, 1A, 2, 3, AND 4, NEWMAN STREET; 4, 5, AND 6, PERRY'S PLACE, AND 1, NEWMAN YARD, LONDON, W.

THE PERFECT SUBSTITUTE

for SILVER.—The real NICKEL SILVER, introduced more than 30 years ago by WILLIAM S. BURTON, when Plated by the Patent Process of Messrs. Elkington & Co., is beyond all doubt the very best article next to sterling silver that can be used as such, either usefully or ornamentally, as by no possible test can it be distinguished from real silver.

A small, useful Set, guaranteed of First Quality and for finish and durability, as follows:

	Fiddle or Old Silver	Bead.	Thread.	King's or Shell and Thread.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
12 Table Forks	1 10 .	2 1 .	2 2 .	2 5 .
12 Table Spoons	1 10 .	2 1 .	2 2 .	2 5 .
12 Dessert Forks	1 2 .	1 7 .	1 10 .	1 11 .
12 Dessert Spoons	1 2 .	1 7 .	1 10 .	1 11 .
12 Tea Spoons	. 14 .	. 19 .	1 1 .	1 2 .
6 Egg Spoons, gt. bowls..	. 9 .	. 12 .	. 13 .	. 13 6
2 Sauce Ladles	. 6 .	. 8 .	. 8 .	. 8 .
1 Gravy Spoon	. 6 .	. 8 6	. 9 .	. 9 6
2 Salt Spoons, gt. bowls..	. 3 .	. 4 .	. 4 .	. 4 6
1 Mustard Spoon, gt. bwl.	. 1 6	. 2 .	. 2 .	. 2 3
1 Pair of Sugar Tongs ..	. 2 6	. 3 6	. 3 6	. 4 .
1 Pair of Fish Carvers ..	. 19 6	1 3 .	1 3 .	1 3 .
1 Butter Knife	. 3 .	. 4 .	. 4 .	. 4 3
1 Soup Ladle	. 10 .	. 12 .	. 14 .	. 15 .
1 Sugar Sifter	. 3 .	. 4 .	. 4 .	. 4 6
Total	9 1 6	11 16 0	12 8 6	13 2 6

Any article to be had singly at the same prices.

An Oak Chest, to contain the above, and a relative number of Knives, &c., £2 15*s.*

A Second Quality of Fiddle Pattern

Table Spoons and Forks ..	£1 2 0	per doz.
Dessert Spoons and Forks ..	0 16 0	,,
Tea Spoons	0 10 0	,,

Tea and Coffee Sets, Dish Covers and Corner Dishes, Cruet and Liqueur Frames, &c., at proportionate prices.

The largest stock in existence of Plated Dessert Knives and Forks, and Fish-eating Knives and Forks and Carvers.

All kinds of Re-plating done by the Patent Process.

FENDERS, STOVES, KITCHEN

RANGES, FIRE-IRONS, and CHIMNEY-PIECES.—Buyers of the above are requested, before finally deciding, to visit WILLIAM S. BURTON'S SHOW-ROOMS. They contain such an assortment of Fenders, Stoves, Ranges, Chimney-pieces, Fire-irons, and General Ironmongery, as cannot be approached elsewhere, either for variety, novelty, beauty of design, or exquisiteness of workmanship. Bright Stoves, with ormolu ornaments, £3 8*s.* to £33 10*s.*; Bronze Fenders, 3*s.* 9*d.* to £5 12*s.*; Steel Fenders, with rich ormolu ornaments, from £2 18*s.* to £18; Chimney-pieces, from £1 8*s.* to £100; Fire-irons, from 3*s.* 3*d.* the set to £4 10*s.*

The BURTON and all other PATENT STOVES, with radiating hearth-plates.

GARDEN WIRE WORK, consisting

of ARCHES, BASKETS, FLOWER STANDS, &c.

GARDEN SYRINGES	4*s.* 6*d.* to 26*s.*
GARDEN ENGINES	26*s.* 0*d.* to 105*s.*
GARDEN WATER BARROWS	45*s.* 0*d.* to 90*s.*
GARDEN ROLLERS	35*s.* 0*d.* to 70*s.*
GARDEN CHAIRS	6*s.* 6*d.* to 30*s.*
GARDEN SEATS	16*s.* 0*d.* to 90*s.*

GARDEN TOOLS and WATERING POTS.

PATENT LAWN MOWERS	70*s.* 0*d.* to 130*s.*
To cut 10 inches	£3 10 0
,, 12 inches	4 10 0
Suitable for a Lady.	
To cut 14 inches	£5 10 0
,, 16 inches	6 10 0
Suitable for a Man.	

WILLIAM S. BURTON has a very handsome assortment of the above on his premises.

BEDDING MANUFACTURED on the

Premises, and guaranteed by WILLIAM S. BURTON.

For Bedsteads, Wide	3 Feet.	4 Feet 6 Inches.	5 Feet.
	£ s. d.	£ s. d.	£ s. d.
Best Straw Paillasses	. 12 .	. 15 .	. 18 .
Best French Alva Mattresses	. 11 6	. 16 .	. 18 .
Best Cotton Flock Mattresses	. 16 .	1 2 6	1 6 .
Coloured Wool Mattresses	. 17 .	1 5 .	1 8 6
Best Brown Wool Mattresses	1 1 6	1 11 6	1 14 6
Good White Wool Mattresses	1 8 6	2 3 .	2 7 .
Extra Super Do. Do.	2 10 .	3 13 .	4 1 .
Superior Hair Do.	2 . .	2 18 .	3 6 6
Extra Super Do.	2 14 .	3 18 .	4 10 .
German Spring Hair Stuffing	3 5 .	4 7 6	4 15 .
Extra Super Do.	4 . .	5 10 .	6 . .
French Mattress for use over spring ..	2 . .	2 17 .	3 4 .
Extra Super Do. Do.	3 7 6	5 . .	6 11 .
Beds, Poultry, at 1*s.* per lb.	1 11 .	2 7 .	..
Do. Best Grey Goose, at 2*s.* 2*d.* per lb.	3 . .	5 . .	5 13 .
Do. Best White, at 3*s.* per lb.	4 . .	6 17 .	7 12 .

Feather Pillows, 3*s.* 6*d.* to 14*s.*; Bolsters from 6*s.* to 29*s.* 6*d.*
Down Pillows from 10*s.* 6*d.* to 17*s.* 6*d.*
Blankets, Counterpanes, and Sheets in every variety.

FURNITURE, in complete suites

for Bedroom, of Mahogany, Birch, Fancy Woods, Polished and Japanned Deal, always on show. These are made by WILLIAM S. BURTON, at his Manufactory, 84, Newman Street, and every article is guaranteed. China Toilet Ware in great variety, from 4*s.* Set of Five Pieces.

THE BEST SHOW of IRON BED-

STEADS in the KINGDOM is WILLIAM S. BURTON'S. He has EIGHT LARGE ROOMS devoted to the exclusive show of Iron and Brass Bedsteads and Children's Cots, with appropriate Bedding and Bed-hangings. Portable Folding Bedsteads, from 10*s.*; Patent Iron Bedsteads, fitted with dovetail joints and patent sacking, from 11*s.*; and cots, from 14*s.* 6*d.*; handsome Ornamental Iron and Brass Bedsteads, in great variety, from £1 8*s.* to £30.

DISH COVERS and HOT-WATER

DISHES, in every variety, and of the newest and most recherche patterns, are ON SHOW at WILLIAM S. BURTON'S. Block Tin, 14*s.* 6*d.* the Set of Six; elegant Modern Patterns, 25*s.* to £3 19*s.* the Set; Britannia Metal, with or without Silver-plated Handles, £3 2*s.* to £6 8*s.* the Set of Five; Electro-plated, £9 to £26 the Set of Four; Block Tin Hot-water Dishes, with Wells for Gravy, 12*s.* to 30*s.*; Britannia Metal, 21*s.* to 80*s.*; Electro-plated, on Britannia Metal, full size, £5 5*s.*; ditto on Nickel, full size, £10.

LAMPS of ALL SORTS and PAT-

TERNS.—WILLIAM S. BURTON invites inspection of this Season's SHOW of LAMPS. The collection of French Moderateur Lamps, carefully selected at Paris, defies competition. The prices vary from 8*s.* to £17. Each Lamp is guaranteed perfect, but to ensure their proper action, WILLIAM S. BURTON supplies

Pure Colza Oil at the Wholesale Price, 3*s.* 5*d.* per gallon. Moderateur Globes, full size, 2*s.* 6*d.* each; Chimneys, 6*d.* each; Cotton Wicks, 3*d.* per doz. Lamps of all other descriptions are on Show in great variety.

GASELIERS in GLASS or METAL.

—The increased and increasing use of Gas in private houses has induced WILLIAM S. BURTON to collect from the various Manufacturers in Metal and Glass all that is new and choice in Brackets, Pendants, and Chandeliers, adapted to Offices, Passages, and Dwelling Rooms, as well as to have some designed expressly for him; these are ON SHOW over his TWENTY LARGE ROOMS, and present, for novelty, variety, and purity of taste, an unequalled assortment. They are marked in plain figures, at prices proportionate with those which have tended to make his Establishment the largest and most remarkable in the Kingdom, viz., from 12*s.* 6*d.* (two-light) to £23.

CUTLERY, WARRANTED.—The

most varied assortment of TABLE CUTLERY in the world, all warranted, is on Sale at WILLIAM S. BURTON'S, at prices that are remunerative only because of the largeness of the Sales.

Ivory Handles.	Table Knives per Dozen.	Dessert Knives per Dozen.	Carvers per Pair.
	s. d.	s. d.	s. d.
3¼-inch ivory handles	13 .	10 6	5 .
3½-inch fine ivory handles	18 .	14 .	5 9
4-inch ivory balance handles	21 .	16 .	5 9
4-inch fine ivory handles	28 .	21 .	8 .
4-inch finest African ivory handles	34 .	27 .	12 .
Ditto, with silver ferules	42 .	36 .	13 6
Nickel electro-silver handles, of any pattern	25 .	19 .	7 6
Silver handles, of any pattern	84 .	64 .	21 .

PAPIER MACHE and IRON TEA-

TRAYS.—An assortment of TEA-TRAYS and WAITERS, wholly unprecedented, whether as to extent, variety, or novelty.

New Oval Papier Mâché Trays,
per Set of Three .. .. .. from 25*s.* to 10 guineas.
Ditto Iron ditto .. .. from 11*s.* 6*d.* to 4 guineas.
Convex-shape ditto .. .. .. from 7*s.* 6*d.*
Round and Gothic Waiters and Bread Baskets equally low.

TEA URNS of LONDON MAKE

ONLY.—The largest assortment of London-made TEA URNS in the world (including all the recent novelties, many of which are registered) is on sale at WILLIAM S. BURTON'S, from 30*s.* to £6.

KITCHEN REQUISITES (including

BRUSHES and TURNERY).—WILLIAM S. BURTON has every Article for the FURNISHING of KITCHENS arranged in Four Sets, each complete in itself.

	1	2	3	4
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Kitchen Utensils	68 12 2	24 9 4	10 12 9	3 18 1
Brushes and Turnery to suit ..	21 1 6	15 1 6	7 19 6	3 2 5
Total per Set	89 13 8	39 10 10	18 12 3	7 0 6

No. 1 suitable for any Mansion.
,, 2 ditto 2d-class Houses.
,, 3 ditto 3d-class ditto.
,, 4 ditto 4th-class ditto.

Any single article may be had at the same price quoted for it in the different Lists.—For particulars see Illustrated Catalogue, which can be had free by post.

BATHS and TOILET WARE.—

WILLIAM S. BURTON has ONE LARGE SHOW-ROOM devoted exclusively to the display of BATHS and TOILET WARE. The Stock of each is at once the largest, newest, and most varied ever submitted to the Public, and marked at prices proportionate with those that have tended to make his Establishment the most distinguished in this country. Portable Showers, 8*s.*; Pillar Showers, £3 to £5 12*s.*; Nursery, 18*s.* to 38*s.*; Sponging, 6*s.* to 32*s.*; Hip, 13*s.* 3*d.* to 33*s.* A large assortment of Gas Furnace, Hot and Cold Plunge, Vapour and Camp Shower Baths. Toilet Ware in great variety, from 11*s.* 6*d.* to 45*s.* the Set of Three.

REFRIGERATORS, or PORTABLE

ICE-HOUSES, constructed on the same principles as those recommended by the Wenham Lake Ice Company.

	Long.	Wide.	High.	Price.
No. 0. ..	1 ft. 11 ins.	1 ft. 6 ins.	1 ft. 10 ins.	£3 3 0
No. 1. ..	2 ft. 6 ins.	1 ft. 11 ins.	2 ft. 0 ins.	4 4 0
No. 2. ..	2 ft. 10 ins.	2 ft. 0 ins.	2 ft. 0 ins.	4 15 0
No. 3. ..	3 ft. 4 ins.	2 ft. 0 ins.	2 ft. 0 ins.	6 5 0
No. 4. ..	3 ft. 9 ins.	2 ft. 3 ins.	2 ft. 0 ins.	7 10 0

A Small Size, with Water Tank, £2 10*s.*; a Large Cabinet ditto, £14 14*s.*; Ice Pails or Pots, 8*s.* to 30*s.*; Ice Moulds, 6*s.* 6*d.* to 13*s.*; Ice-making Machines, 35*s.* to 130*s.*

THE VANS DELIVER GOODS IN LONDON AND ITS SUBURBS AS UNDER:—

TWICE DAILY:—Bayswater, Camden Town, St. John's Wood, West End (all parts).

DAILY:— { Belsize Park / Brompton | City / Chelsea | Haverstock Hill / Highbury | Holloway / Islington | Kensington / Kentish Town | Kilburn / Notting Hill | Pimlico / Shepherd's Bush

MONDAY, WEDNESDAY, and FRIDAY:—Fulham, Hammersmith

TUESDAY, THURSDAY, and SATURDAY:— { Borough / Brixton | Camberwell / Clapham | Herne Hill / Kennington | Lambeth / Peckham | Tulse Hill / Walworth | Wandsworth

WEDNESDAY and SATURDAY:—Dalston, Hackney, Hampstead, Holloway (Upper), Highgate, Kingsland.

☞ Goods beyond the above-named places delivered by special arrangement. With the present RAILWAY FACILITIES, the cost of delivering Goods to the most distant parts of the United Kingdom is trifling. WILLIAM S. BURTON will always, when desired, undertake delivery at a small fixed rate.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 25.—1869.] SATURDAY, JUNE 19. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.
GREAT ROSE SHOW, on TUESDAY, June 29. Bands of First Life Guards and Royal Horse Guards, from Three. Tickets, which must be bought prior to 29th, and can be had of all principal Music-sellers—Fellows' Friends, 3*s.* 6*d.*; Public, 5*s.*; or on the day, 7*s.* 6*d.*

ROYAL HORTICULTURAL SOCIETY'S GRAND PROVINCIAL SHOW at MANCHESTER, from JULY 19 to 24. Schedules of Prizes can be had on application to H. WHITWORTH, Esq., 96, King Street, Manchester; or J. RICHARDS, South Kensington.
SPECIAL NOTICE.—The Council have decided that the price of admission on the 19th and 20th shall be the same, viz., 7*s.* 6*d.* (or 5*s.* if the Tickets are bought prior to the 19th), instead of 2*s.* 6*d.* on the 20th; on 21st, 2*s.* 6*d.*; 22d, 1*s.*; 23d and 24th, 6*d.*, as printed on the Schedules.

THE SUMMER SHOW of the REIGATE ROSE ASSOCIATION will be held at the New Public Hall, Reigate, on TUESDAY, June 22. Admission by Members' Tickets at 1 o'Clock; and after 2 o'Clock to the Public on payment of One Shilling. Close at 6 o'Clock.

BRIGHTON and SUSSEX HORTICULTURAL SOCIETY.—GRAND ROSE and FRUIT SHOW, THURSDAY, June 24, at the Royal Pavilion and Eastern Lawn. First Prize, the Railway Cup, £10, for 72 varieties, distinct, one truss of each; also 46 Prizes in 12 classes. For Fruits, 42 Prizes in 13 classes. Open to all England. Schedules on application to the Secretary, 90, St. James's Street, or E. SPARY, Superintendent of the Exhibitions, Queen's Graperies, Brighton. N.B.—AUTUMN SHOW, SEPTEMBER 8 and 9. EDWARD CARPENTER, Sec.

ZOOLOGICAL GARDENS, CLIFTON.
SECOND HORTICULTURAL MEETING.
The ROSE SHOW, THURSDAY, July 1.—Schedules can be had on application to the Lodge-Keepers, at the Gardens, or by letter addressed to the Secretary, Zoological Society, Clifton.

LEICESTERSHIRE HORTICULTURAL SOCIETY.—The GREAT SUMMER SHOW of this Society will be held at LEICESTER, on JULY 6 and 7 next, when Special Prizes will be given for Cut Roses and Collections of Bedding Plants, arranged for effect in pots, open to all England. Prizes will also be offered for British and Foreign Cage Birds. Schedules and particulars may be had of the Secretary, WM. PENN COX, 37, Market Place, Leicester.

SLEAFORD FLORAL and HORTICULTURAL SOCIETY.—This Society will hold its ANNUAL SHOW on the Grounds of Miss Peacock and T. Parry, Esq., on THURSDAY, July 15, when the following Prizes, Open to All England, will be given:—For the best Twelve Stove, Exotic, Greenhouse, Ornamental Foliage, and Flowering Plants, 1st Prize, £5; 2d, £3; 3d, £1 10*s.* Calceolarias, Fuchsias, Orchids, Pelargoniums, and Achimenes are excluded from the above class of Stove and Greenhouse Plants.
Twenty-four Roses, distinct, 1st Prize, £3; 2d, £2; 3d, £1.
Collection of Fruits, 8 varieties, Pines excluded, 1st Prize, 10*s.*; 2d, 7*s.* 6*d.*
Further particulars may be had on application to J. C. BROWN, Sec.

Pines.

B. S. WILLIAMS has all the best kinds, in splendid condition and wanted clean. Prices on application.
B. S. WILLIAMS, Experienced Merchant and Nurseryman, Upper Holloway, London.

GOLDEN CHAMPION GRAPE.—We are now able to supply strong Plants of the above-named remarkable Grape, suitable for inarching on the young wood of established Vines, by which means fruit may be obtained next season. Price 30*s.* each.
OSBORN AND SONS, Fulham Nursery, London, S.W.

POT VINES.—My Fruiting Vines in pots are better even than last season. Having houses covering about 7900 square feet devoted to their cultivation, the stock is large.
J. B. PEARSON, Chilwell Nurseries, Nottingham.

NEW VINES for INARCHING &c.—Strong Canes, 8 to 10 feet long, of MADRESFIELD COURT, 15*s.* and 20*s.* each; and MRS. PINCE'S BLACK MUSCAT, 7*s.* 6*d.* and 10*s.* 6*d.* each.
J. HOUSE, Eastgate Nursery, Peterborough.

To the Trade.
NEW ROSES of 1869, with FINE LONG SHOOTS.
JOHN CRANSTON offers carefully selected varieties of the above, with shoots 2 to 5 feet long, giving an abundance of buds for immediate working. Lists of prices on application.
Nurseries, King's Acre, near Hereford.

"Mr. PAUL'S Roses * * * are things to see once and dream of for ever."—*Athenæum.*
WM. PAUL begs to announce that his CATALOGUE of ROSES is now ready, and will be forwarded free on application.
PAUL'S Nurseries, Waltham Cross, London, N.

Strong Dwarf Roses in pots, for planting out.
FRANCIS & ARTHUR DICKSON & SONS have a *large* and *fine* stock of the above, in fine vigorous healthy plants of the *best leading* kinds, including the new varieties of 1869. This is a most advantageous time for planting out Roses. The DESCRIPTIVE LIST of kinds, with prices, sent post free on application. "Upton" Nurseries, Chester.

CHOICE TRICOLOR and BICOLOR GERANIUMS.
LADY CULLUM, 8*s.* per doz. | PERILLA, 4*s.* per doz.
SOPHIA CUSACK, 12*s.* p. doz. | MODEL, 6*s.* per dozen.
In strong plants, for cash.
THOMAS PESTRIDGE, Greenway Nursery, Uxbridge, W.

NEW DOUBLE GERANIUMS.—Twelve fine varieties Double Zonal Geraniums, including Madame Lemoine, for 12*s.*; 12 best New Zonal Geraniums of 1868 for 6*s.*; 12 fine varieties Gold and Golden Bicolor Geraniums for 6*s.*, package included, from B. W. KNIGHT, Florist, Battle, Sussex.

New Nosegay Geranium Charley Casbon.
CASBON AND SON are now sending out the above beautiful GERANIUM. It is of dwarf spreading growth; the flowers, which have broad petals, are freely borne in immense trusses. Colour, the richest scarlet of any variety known. Strong plants 5*s.* each. The usual allowance to the Trade.
Gravel Walk Nursery, Peterborough.

To the Trade and Others.
SEVERAL THOUSAND TRICOLOR and BICOLOR GERANIUMS to be cleared out, in fine strong plants of all the leading sorts. List and prices on application to
N.B.—100 large specimens of choice GOLD and BRONZE to be Sold Cheap.
HENRY WALTON, Edge End, Marsden, near Burnley, Lancashire.

NEW COLEUS.—The 12 New Coleus of the Royal Horticultural Society, sent out in 1868, with other fine varieties, sent post free—12 fine varieties for 2*s.* 6*d.*; 12 cuttings, in 12 fine varieties, for 1*s.* 2*d.*, from
B. W. KNIGHT, Florist, Battle, Sussex.

NEW GOLDEN COLEUS of 1869.—The finest 12 yet sent out for 10*s.*, or free by post for 11*s.*

Albert Victor	Her Majesty	Princess Beatrice
Baroness Rothschild	Prince Arthur	Prince of Wales
Beauty of St. John's Wood	Princess Royal	Queen Victoria
Duke of Edinburgh	Princess of Wales	Refulgens

JAMES COCKER, Sunny Park and Froghall Nurseries, Aberdeen.

NEW COLEUS, BEAUTY of WIDMORE.—The prettiest variety yet sent out, distinctly tricolored; leaves small and beautifully shaped, of a dark brilliant maroon, belted with bright rose and green, and edged with silvery white; habit very dwarf; 6*s.* each: 4 will be sent when 3 are ordered. Price to the Trade on application.
DOWNIE, LAIRD, AND LAING, Stanstead Park, Forest Hill, London, S.E., and Edinburgh.

NEW COLEUS, BEAUTY of WIDMORE.—The prettiest variety yet sent out, distinctly tricolored; leaves small and beautifully shaped, of a dark brilliant maroon, belted with bright rose and green, and edged with silvery white; habit very dwarf. 6*s.* each. Four will be sent when three are ordered. Price to the Trade on application.
JAMES CARTER AND CO., Seed Merchants and Nurserymen, 237 and 238, High Holborn, W.C.; and Crystal Palace Nurseries, Forest Hill.

NEW GOLDEN COLEUS.

Queen Victoria.	Princess Royal.
Albert Victor.	Baroness Rothschild.
Duke of Edinburgh.	Beauty of St. John's Wood.

In small pots, for 6*s.*, package included.
COLEUS of 1868, 12 varieties, 2*s.*
DOUBLE GERANIUMS.—Andrew Henderson, Madame Lemoine, Triumph, and Double Tom Thumb; strong plants, the four for 5*s.*
EDWIN HILLIER, Nurseryman, Winchester.

COLEUS.—New and Select Coleus—25 Varieties, including the 12 new kinds of the Royal Horticultural Society sent out in 1868, sent post free for 4*s.*; 50 Coleus, in 25 Varieties, 7*s.* 6*d.*; 100 Coleus, in 25 Varieties, 14*s.*, post free. Larger Plants of the above at the same prices, fit for immediate planting out, turned out of pots and securely packed (no charge for package). New Coleus of 1869, in 20 select Varieties, including the New Golden kinds of the Royal Horticultural Society, sent post free; 12 select Varieties for 6*s.*
From B. W. KNIGHT, Florist, Battle, Sussex.

Bedding Plants. Bedding Plants.
JAMES HOLDER can supply strong Plants of the following:—Scarlet and Variegated GERANIUMS, CALCEOLARIAS, VERBENAS, FUCHSIAS, DAHLIAS, CUPHEAS, HELIOTROPES, LOBELIAS, COLEUS, IRESINES, &c., &c.
Eight Dozen for 20*s.*, or Four Dozen for 10*s.* 6*d.* Hamper and packing included. Crown Nursery, Reading.

DOBSONS' PRIZE SEEDS.—
PRIZE CALCEOLARIA (unequalled), 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.*
PRIZE CINERARIA, 1*s.*, 2*s.* 6*d.*, 5*s.*
PRIZE PRIMULA, 1*s.*, 2*s.* 6*d.*, 5*s.*
J. DOBSON AND SONS, Woodlands Nursery, Isleworth, W.

For Present Sowing.
SUTTONS' CHOICE CALCEOLARIA.
SUTTONS' CHOICE CINERARIA.
SUTTONS' CHOICE PRIMULA FIMBRIATA.
Each 1*s.* and 2*s.* 6*d.* per packet, post free. Saved from the choicest strains in cultivation.
SUTTON AND SONS, Seedsmen to the Queen, Reading.

Seeds Direct from the Growers, the most Effectual Means of Preventing Disappointment.
SUTTON AND SONS, SEED GROWERS, deliver their Home-grown Seeds, Genuine as Harvested, to all parts of the kingdom. Carriage free (except very small parcels).—Prices and full particulars on application.
SUTTON AND SONS, Seed Growers, Reading.

WANTED, good strong RHODODENDRON STOCKS, trimmed to a single stem, *that lift with balls.* State quantity and price to FRANCIS & ARTHUR DICKSON & SONS, "Upton" Nurseries, Chester.

FERNS.—Choice and Select EXOTIC FERNS and LYCOPODS, in great variety, are now offered in good plants, 12 fine varieties for 6*s.*; larger plants and more select kinds from 9*s.*, 12*s.*, 20*s.*, to 30*s.* per dozen. Package included.
B. W. KNIGHT, Florist, Battle, Sussex.

Ferns, British and Exotic, at reduced prices.
A. STANSFIELD AND SON beg to state that their CATALOGUE, No. 8, is now ready, and will be forwarded on receipt of three stamps. The above Catalogue contains 40 pages of matter, including partial descriptions and cultural remarks.
Vale Nurseries, Todmorden, Lancashire.

British Fern Catalogue.
ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, Sidcup Hill, Kent.

NEW VERBENAS of 1869.—Now ready to be sent out, 50 Varieties of New Verbenas, Perry's, Eckford's, W. Knight's, Continental and Italian striped, sent post free; 12 select Varieties for 3*s.*
From B. W. KNIGHT, Florist, Battle, Sussex.

NEW CHRYSANTHEMUMS of 1868, including the New Japan, large-flowered and Pompon varieties, sent out in 1868, sent post free, 12 fine varieties, 2*s.* 6*d.*; 2 Cuttings in 12 fine varieties, 1*s.* 2*d.*, from
B. W. KNIGHT, Florist, Battle, Sussex.

JOHN SALTER AND SON beg to announce that their Collections of PÆONIES, PYRETHRUMS, and IRIS are NOW in BLOOM, and may be seen every day (except Sunday.)
Versailles Nursery, William Street, Vale Place, Hammersmith Road (near Kensington Railway Bridge).

DAHLIAS.—CATALOGUES of the above are now ready, comprising the newest and best varieties in cultivation. Strong healthy plants, all true to name, on application to
JAS. FAIRHEAD AND SON, Seed Growers and Nurserymen, 7, Borough Market, and Braintree, Essex.

Now Ready, Post Free to all Applicants.
B. S. WILLIAMS' CATALOGUE of NEW and RARE PLANTS, 1869, containing the most beautiful and select of the latest introductions and Supplementary Lists of the General Collection.
Victoria and Paradise Nursery, Upper Holloway, London, N.

Gratis and Post Free.
DICK RADCLYFFE AND CO.'S LIST of BEDDING PLANTS, FERNS, FERN CASES, &c.
129, High Holborn, W.C.

JOHN STANDISH AND CO.'S SPRING CATALOGUE of NEW and RARE, SUBTROPICAL and BEDDING PLANTS is now ready. May be had post free on application.
Royal Nurseries, Ascot.—May 1.

New Spring Catalogue.
CHARLES TURNER'S DESCRIPTIVE LIST of PLANTS for this season, including many new varieties now offered for the first time, is now ready.
The Royal Nursery, Slough.

Choice Seeds, Gladioli, &c.
WM. CUTBUSH AND SON'S CATALOGUE of the above contains description and price of many very superior home-grown VEGETABLE and FLOWER SEEDS, and choice varieties of GLADIOLI, &c., all of which are highly recommended. Post free on application.
Highgate Nurseries, London, N.

Gladioli, the most Extensive Collection.
BARR AND SUGDEN, 12, King Street, Covent Garden, W.C., have the finest and largest collection of GLADIOLI ever offered, prices varying from 2*d.* to 15*s.* per root. For particulars see pp. 68, 69, 70, and 71 of B. & S.'s SPRING SEED CATALOGUE.
BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.

General Catalogue.
WILLIAM ROLLISSON AND SONS beg to inform the Nobility, Gentry, and Trade that their NEW GENERAL CATALOGUE, consisting of upwards of 150 pages of letterpress, and containing nearly every Plant, Shrub, or Tree worthy of merit in cultivation, now Published, and will be forwarded to applicants on receipt of eight postage stamps, and sent gratis to customers.
The Nurseries, Tooting, London, S.W.

An Opportunity seldom met with.
T. COOPER, Holmsdale Road, Reigate, Surrey, has a large Collection of SUCCULENT PLANTS, including above 500 species of Cacti, also Agaves, Aloes, Haworthias, &c., and offers them at much less than their real value. Also a number of new and interesting Plants, raised from South African seeds.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY (Limited),
CORN, SEED, MANURE, and OILCAKE MERCHANTS.
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

EVERY GARDEN REQUISITE KEPT in STOCK at
CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

CARTER'S FARM SEEDS.—See large Advertisement at page 386 of *Gardeners' Chronicle*, April 10, 1869.
SEED GROWERS, MERCHANTS, and NURSERYMEN, 237 and 238, High Holborn, London, W.C.

GRASS SEEDS: WHEN and WHAT to SOW.—For the fullest information on this subject, see CARTER'S ILLUSTRATED FARMER'S CALENDAR for 1869; post free, 6*d.*
JAMES CARTER AND CO., Seed Growers, 237 and 238, High Holborn, London, W.C.

A SPECIAL PRIZE MEDAL, PARIS, 1867, was AWARDED to JAMES CARTER & CO., 237 & 238, High Holborn, London, W.C., for GRASS SEEDS, supplied for the Exhibition Grounds.

PARIS, 1867. | SUTTONS' GRASS SEEDS for ALL SOILS. A PREMIER PRIX SILVER MEDAL for GARDEN SEEDS, GRASSES, and GRASS SEEDS, was Awarded to SUTTON AND SONS, SEEDSMEN to the QUEEN, Reading, Berks.

Improvement of Grass-lands at from 4s. 6d. to 9s. per Acre.
SUTTONS' RENOVATING MIXTURE should be sown after the Hay is carried. From 6 to 9 lb. required per acre. Price 9*d.* per lb., 8*s.* per cwt. Carriage free.
SUTTON AND SONS, Seedsmen to the Queen, Reading.

Cabbage Plants.
W. VIRGO AND SON can supply strong DRUMHEAD or CATTLE CABBAGE PLANTS; also DRUMHEAD SAVOY PLANTS, at 3*s.* per 1000.
Wonersh Nursery, near Guildford.

To the Trade.
TURNIP and MANGEL SEEDS, growing crop of 1869, splendid stocks, various kinds.
FREDK. GEE invites attention to the above, and will be pleased to make special offers of the same on advantageous terms.
Seed Establishment, Biggleswade, Beds.

To Farmers, Gardeners, and Others.
EXCELLENT strong Spring-sown CABBAGE, CAULIFLOWER, BROCCOLI, SAVOY, BRUSSELS SPROUTS, and various other plants on offer, price on application.
SCARLET RUNNER BEANS, fine sample, 1867 growth, 20*s.* per bush.
FRED. GEE, Seed Merchant and Grower, Biggleswade, Bedfordshire.

GARDENERS' CHRONICLE NEWSPAPER

MYOSOTIS DISSITIFLORA, TRUE.—"The best of all the Forget-Me-Nots for Spring decoration. In many Gardens it is known as montana or alpestris, from both of which it differs."—See *Gardeners' Chronicle*, May 22, 1869.

We shall be prepared to send out Plants the middle of June of the above-named charming Spring Flower, identical with that grown by Mr. Fish, and which is so truly described by him in the *Gardeners' Chronicle*, May 8, 1869. Price 9*s.* per doz., or 60*s.* per 100.

OSBORN AND SONS, Fulham Nursery, London, S.W.

CARTER'S PRIMULA, CALCEOLARIA, and CINERARIA.

J. C. & Co.'s strain of Calceolaria is saved from plants that were awarded a 1st Prize at the late International Show. The Cineraria and Primula stocks are also saved from the finest Prize Varieties, and cannot be surpassed.

CALCEOLARIA and CINERARIA.

Per packet—*s. d.*		Per packet—*s. d.*
Calceolaria, finest hybrid .. 2 6	Calceolaria, Dobson's strain.. 2 6	
„ „ spotted .. 2 6	Cineraria, extra fine 2 6	

PRIMULA.

Per packet—*s. d.*		Per packet—*s. d.*
Primula, choicest mixed, fringed 2 6	Primula, choicest white fringed 2 6	
„ „ dark carmine, fringed 2 6	„ „ Fern-leaved carmine 2 6	
„ „ rose, fringed 2 6	„ „ „ white .. 2 6	

CALCEOLARIA INTERNATIONAL PRIZE.—The Seed of this superb strain cannot fail to produce splendid varieties, as last season's plants took 1st Prizes wherever exhibited. Per pckt., 2*s.* 6*d.*

PRIMULA FIMBRIATA (New scarlet).—This is a decided novelty, being of a deep scarlet colour, and cannot fail to be much admired wherever grown. Per packet, 2*s.* 6*d.*

INDIA-RUBBER HOSE at Manufacturer's prices, 60 feet (with complete fittings), 25*s.*

JAMES CARTER AND CO., The Royal Seedsmen, 237 and 238, High Holborn, London, W.C.

Now is the time to Sow

DOBSONS' SPLENDID HYBRIDISED CALCEOLARIAS.—New Seed, saved from the plants exhibited by us, and so much admired by the thousands of visitors, and were awarded the First Prizes and Special Extra Prizes at the Royal Horticultural, Royal Botanic, two Crystal Palace Shows, Reading, and Oxford, and so favourably noticed by the Editor of the *Gardeners' Chronicle*, p. 582. The flowers have been unusually large, brilliant, and varied in colour, with dwarf habit, and the strain altogether cannot be equalled. Seed, in sealed packets, 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.*

J. DOBSON AND SONS, Woodlands Nursery, Isleworth, W.

New Roses for 1869.

JOHN AND CHARLES LEE are now sending out the following TWO NEW ROSES:—

CLEMENCE RAOUX (Granger).—Blush, edged and spotted rose, very large, of perfect form and great substance; petals stout and enduring; habit erect and vigorous; flowers late in autumn. This is really a wonderful Rose when bloomed to perfection. A single flower of Clemence Raoux exhibited amid tens of thousands of other Roses attracted—by its immense size and novel colouring—the universal attention of the judges and amateurs at the Great Rose Show at Brie Comte Robert, in July 1867, when the Gold Medal was awarded to it as the finest Rose in the Exhibition. 15*s.*

EDWARD MORREN (Granger).—This splendid Rose is a great acquisition. The delicate yet brilliant colouring, the size, fine shape, and fulness of its flowers, combined with its bold erect habit, will render it a universal favourite. Monsieur Margottin thus described it:—"Edward Morren is in the way of Jules Margottin, but of a more delicate colour, of better form, more double, and much larger." The 1st Prize Gold Medal was awarded to it at the Exposition Universelle in Paris, in July, 1867. 15*s.*

Special offer to the Trade on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith W.

New Plant.

MR. WILLIAM BULL is now sending out the beautiful

LASIANDRA MACRANTHA,

Price 2 guineas each.

The flowers of this plant are truly marvellous, 1½ foot in circumference; are produced nearly throughout the year, and on plants when only an inch or two high. Some blooms of it were sent at Christmas to the Editor of the *Gardeners' Chronicle*, and the following remarks were made in the columns of that Journal, January 2, 1869:—

"We have before us fine blooming specimens of the noble Lasiandra macrantha, sent us by Mr. Bull, which shows that the flowers of this grand plant may be had in winter as well as in summer, which is an additional recommendation. Notwithstanding what may seem to be an unfavourable season, the blossoms are even now nearly five inches across, and are of the richest violet-blue, a tint which has not been reproduced in any of the illustrations which have yet appeared."

New Hardy Golden-yellow Grass for Bedding, ALOPECURUS PRATENSIS AUREO-VARIEGATIS, 5*s.* each.

New Hardy Silvery-white Grass for Bedding, HOLCUS LANATUS ALBO-VARIEGATIS, 5*s.* each.

Adiantum Seemanni, 21*s.*	Anectochilus Dawsonianus, 1 and 2 guineas.
Bambusa argenteo-striata, 10*s.* 6*d.*	Bifrenaria aurea, 21*s.*
Clerodendron speciosum, 21*s.*	Bifrenaria inodora, 21*s.*
Cyrtodeira Chontalensis, 7*s.* 6*d.*	Bolbophyllum Bowmanni, 21*s.*
Dendrobium Falconeri, 3, 6, 8, and 10 guineas.	Brassia Lanceana, 21*s.*
Ficus eburnea, 21*s.*	Cattleya Mossiæ, 21*s.*
Iresine Lindeni, 5*s.*	Cattleya Trianæ, 21*s.*
Pithecolobium bubalinum, 10*s.* 6*d.*	Cœlogyne cristata, 21*s.*
	Cœlogyne Dayana, 21*s.*
	Cœlogyne Parishi, 21*s.*
	Cœlogyne speciosa, 21*s.*
	Cœlogyne Wallichiana, 21*s.*
	Cypripedium Lawrenceanum, 21*s.*
	Cypripedium Spicerianum, 21*s.*
	Dendrobium Devonianum, 21*s.*
	Dendrobium Farmeri, 21*s.*
	Dendrobium Jamesianum, 21*s.*
	Dendrobium Wardianum, 21*s.*
	Epidendrum Wallisii, 21*s.*
	Lælia autumnalis, 21*s.*
	Lælia Dayana, 21*s.*
	Lælia elegans, 21*s.*
	Lælia Perrinii, 21*s.*
	Lycaste Skinneri, 21*s.*
	Masdevallia Harryana, 21*s.*
	Masdevallia Lindeni, 21*s.*
	Masdevallia Veitchiana, 21*s.*
	Miltonia Clowesii, 21*s.*
	Miltonia Regnellii, 21*s.*
	Miltonia spectabilis, 21*s.*
	Odontoglossum Alexandræ, 21*s.*
	Odontoglossum Andersonianum, 21*s.*
	Odontoglossum Cervantesii, 21*s.*
	Odontoglossum crispum, 21*s.*
	Odontoglossum Pescatorei, 21*s.*
	Oncidium Cavendishianum, 21*s.*
	Oncidium Lanceanum, 21*s.*
	Oncidium Papilio, 21*s.*
	Oncidium Rogersii, 21*s.*
	Oncidium sphacelatum, 21*s.*
	Oncidium tigrinum, 21*s.*
	Phalænopsis amabilis, 21*s.*
	Phalænopsis Schilleriana, 21*s.*
	Saccolabium giganteum, 21*s.*
	Sobralia macrantha, 21*s.*
	Stanhopea eburnea, 21*s.*
	Stanhopea Wardii, 21*s.*
	Vanda cærulea, 21*s.*
	Vanda suavis, 21*s.*
	Zygopetalum Mackayi, 21*s.*

A DESCRIPTIVE CATALOGUE of these and other NEW PLANTS, just published, post free.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

New and Choice Flower Seeds, Post Free.

B. S. WILLIAMS, SEED MERCHANT AND NURSERYMAN,

Victoria and Paradise Nursery, Upper Holloway, London, N.

	Per packet.—*s. d.*
WILLIAMS' SUPERB STRAIN of PRIMULA.—B. S. W. can with confidence offer his superb strain of Primula as being the finest in cultivation. Red, White, or Mixed .. .. .. 2*s.* 6*d.*, 3*s.* 6*d.*, and	5 0
CINERARIA, choice mixed	1 6
CALCEOLARIA (Scott's extra choice strain), 2*s.* 6*d.*, 3*s.* 6*d.*, and	5 0
„ (Dobson's Prince strain) .. ..1*s.* 6*d.* and	2 6
CARNATION, from Prize Flowers	1 0
CYCLAMEN (Williams' prize strain) .. 1*s.* 6*d.*, 2*s.* 6*d.*, and	3 6
POLYANTHUS (Williams' prize strain) .. .. 1*s.* 6*d.* and	2 6
CLIANTHUS DAMPIERI (fresh imported seed)	1 6
GERANIUM LE GRAND .. .. 1*s.* 6*d.* and	2 6
SOLANUM (Wrattenii's hybrids).—B. S. W. was awarded a Special Certificate for a Collection exhibited before the Floral Committee, December 15, 1868 2*s.* 6*d.*, 3*s.* 6*d.*, and	5 0
ECHEVERIA METALLICA (new Bedding plant)	2 6
HOLLYHOCK, from the best named sorts..	1 0
PANSY, from prize flowers	1 0
„ Show Bouquet varieties	1 0
PINK, Double-mixed, very fine	1 0
PICOTEE (from prize flowers)	1 0
SWEET WILLIAM, Hurst's Auricula-eyed .. .. 6*d.* and	1 0
OXALIS VALDIVIANA, quite hardy, the flowers are bright yellow and most scented, and produced in bunches of large size (new)	1 0
MYOSOTIS AZORICA ALBA, the flowers are pure white, contrasting beautifully with the blue variety Celestina (new)	2 6
MYOSOTIS AZORICA var. CELESTINA, beautiful sky blue	1 0
ANTIRRHINUM ASARINA, very beautiful for rock work (new)	1 0
VIOLA LUTEA (Cream-coloured Violet) .. .. 1*s.* 6*d.* and	2 6
TACSONIA VAN VOLXEMII, a beautiful greenhouse climber	2 6
WALLFLOWER (Scott's), fine dark variety	1 0

Victoria and Paradise Nursery, Upper Holloway, London, N.

New Hardy Plant,

To be sent out in September, 1869. For plate and full description, see "Botanical Magazine," t. 5726, No. 285, in which Dr. Hooker says:—

SPIRÆA PALMATA,

"By far the handsomest species of the genus hitherto imported, and certainly one of the most beautiful hardy plants in cultivation; the deep purple-red of the stems and branches, passing into the crimson-purple of the glorious broad corymbs of flowers, contrasts most exquisitely with the foliage, which in autumn assumes beautiful tints of brown and golden-yellow. Spiræa palmata was introduced by Mr. Fortune from Japan, and has proved itself perfectly hardy in the most exposed position."

CHARLES NOBLE having the entire Stock of this fine Plant, intends sending it out next September, at 21*s.* each. Orders are requested early, as the Stock is limited.—Bagshot, June, 1869.

Improvement of Grass Lands.



SUTTONS' RENOVATING MIXTURE of fine GRASSES and CLOVERS should be sown after the Hay is carried.

From 6 to 12lb. of seed required per acre. Price 9*d.* per lb.; 80*s.* per cwt., carriage free.

This is the best Mixture to improve the quality and quantity of Grass; and for Pastures destitute of bottom herbage it is invaluable.

SUTTON AND SONS, Seed Growers, Reading, Berks.



SUTTONS' NEW and UNADULTERATED TURNIP SEEDS, for sowing in June, July, and August.

Lowest price per Bushel on application.

IMPROVED HARDY WHITE SWEDE.—For late Spring Feed it is invaluable, and may be sown as late as the end of July with certainty of a crop.

SUTTON'S PURPLE-TOP YELLOW HYBRID TURNIP.—A very superior variety; if sown in July and August it will produce a heavy crop, scarcely inferior to Swedes.

IMPROVED GREEN-TOP YELLOW SCOTCH TURNIP.—An excellent variety, very hardy and nutritious.

POMERANIAN WHITE GLOBE TURNIP.—This is the best Turnip for early feeding, and comes off in time for Wheat sowing. Sow in June.

SUTTONS' IMPERIAL GREEN GLOBE TURNIP.—The best Turnip in cultivation; very heavy cropper, and of valuable feeding properties. Sow in June and July for the main crop, and August for winter and spring feed.

SUTTONS' PURPLE-TOP MAMMOTH TURNIP.—The largest Turnip known. A new and distinct variety, very free grower. Sow in June for early feeding, and August to stand the winter.

SUTTONS' IMPROVED GREEN TANKARD TURNIP.—The best of the Tankard varieties, and particularly suitable for early feeding. Sow in June.

For prices of MUSTARD, RAPE, and other genuine Farm Seeds, apply to SUTTON AND SONS, Seed Growers, Reading.

The Royal Seedsmen.

James Carter & Co.
Seed Growers

237, 238, and 261, HIGH HOLBORN, LONDON, W.C.

SEED FARMS:

JUPE'S HILL FARM, DEDHAM, ESSEX;
GOD'S HOUSE FARM, ARDLEIGH, ESSEX;
EAST HOUSE FARM, DEDHAM, ESSEX;
THE SEED FARM, ST. OSYTH, ESSEX.

CARTER'S GRASS SEEDS, as supplied to H. M. G. MAJESTY the QUEEN, and H. R. H. the PRINCE OF WALES.

Finest quality, per acre, 28*s.* to 35*s.*

For full particulars see CARTER'S FARMER'S' CALENDAR for 1869 (Illustrated). Post free, 6*d.*; gratis to customers.

CARTER'S IMPERIAL HARDY SWEDE,

The hardiest and best in cultivation. Price 1*s.* per lb.; cheaper per cwt.

EVIDENCE OF QUALITY.

C. J. WARD, Esq., Stanilands, writes:—"The Swede Turnips (from your seed) *were the best in the neighbourhood.*"

From A. LAURIE, Esq., Boxhead:—"Your Imperial Swede *is the best that has been sown in this locality.*"

M. BARROW, Esq., Kendal, says:—"The Swede Turnip (Carter's Imperial) was very good; I shall certainly have more in the Spring."

CARTER'S PRIZE SWEDE AND TURNIP.

	Per lb.—*s. d.*
HALL'S WESTBURY SWEDE	0 10
HARTLEY'S SHORT-TOP SWEDE, a large mottle-top variety	1 0
CARTER'S CHAMPION HYBRID TURNIP, fine quality	1 3
CARTER'S DEVONSHIRE GREYSTONE TURNIP ..	1 6
CARTER'S EARLY NIMBLE or SIX-WEEK, a very quick-growing variety	1 0
POMERANIAN WHITE GLOBE, a handsome variety ..	0 10
IMPERIAL GREEN GLOBE, a heavy cropper	0 9
LINCOLNSHIRE RED GLOBE (very hardy)	0 10

Cheaper per cwt. or bushel.

For full descriptions of CARTER'S Prize Stocks of Mangel, Turnips, Grasses, and other Farm Seeds, harvested on their own Seed Farms, see "Carter's Illustrated Farmer's Calendar for 1869." Post free, 6*d.* (gratis to purchasers.)

JAMES CARTER AND CO., 237, 238, & 261, High Holborn, London.

WILLIAM CHATER'S superb DOUBLE HOLLYHOCKS.—The simplest and safest way to raise them from seed is to sow in the open ground in June, July, and August, and transplant in September. Seed from finest strains, that will produce flowers equal to choice named varieties.

Collection No. 1.—Twelve named varieties, extra fine, 10*s.*
Collection No. 2.—Six named varieties, extra fine, 5*s.*
Collection No. 3.—Twelve named varieties, fine, 7*s.* 6*d.*
Collection No. 4.—Six named varieties, fine, 4*s.*
Mixed seed, finest quality, per packet, 1*s.*, 2*s.* 6*d.*, and 5*s.*

WILLIAM CHATER, Nurseries, Saffron Walden.

Fine Specimen Azaleas for Sale.

T. TODMAN begs to offer 14 large Plants of the above, from 3 feet to 3½ feet through, and from 4 feet to 5 feet in height, all in good condition. The above have taken many First and Second-class Prizes. To be Sold cheap, in one or more lots.

T. TODMAN will be disengaged in July, to treat with any Nobleman or Gentleman requiring a thorough practical GARDENER. First-class references. 129, Clapham Park Road, S.W.

New Tricolor Pelargoniums for 1869.

JOHN AND CHARLES LEE intend to send out in June, 1869, the two following fine NEW TRICOLOR PELARGONIUMS, which they can warrant to be of strong constitution, rapid growth, and brilliant colours. Mrs. John Clutton was raised from seed in the autumn of 1867, and will consequently not be two years old when sent out.

MRS. JOHN CLUTTON is a Silver Tricolor of a very striking and pleasing character, the broad bright crimson zone being well defined, and the white edge clear and distinct, with a good deep green centre. The habit is dwarf and very free, and is all that can be desired in a Silver Tricolor.

The First Prize was awarded to Mrs. John Clutton at the Special Pelargonium Show at South Kensington in June last, and a First-class Certificate was awarded to it by the Floral Committee of the Royal Horticultural Society.

EDWARD MILNER.—A beautiful Golden Tricolor, of robust habit and free growth. The centre of the leaf is bright green; the zone is a bright flame colour on black, and the margin clear gold. All the colours are clean and well defined, and are retained till the decay of the leaves. The glow of colouring in Edward Milner gives the plant a rich and distinct character.

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Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

PURSUANT to a Decree of the High Court of Chancery, made in a cause "Fairhead against Fairhead," the CREDITORS and INCUMBRANCERS on the real estate of THOMAS BLOMFIELD FAIRHEAD, late of No. 7, Borough Market, Southwark, in the county of Surrey, seedsman, deceased (who died in or about the month of February, 1869), are, on or before the 14th day of July, 1869, to send by post, pre-paid, to Messrs. Woodbridge & Sons, of No. 3, Clifford's Inn, Fleet Street, London, the solicitors of the defendant Nancy Fairhead, the administratrix of the deceased, their Christian and surnames, addresses, and descriptions, the full particulars of their claims, a statement of their accounts, and the nature of the securities (if any) held by them; or, in default thereof, they will be peremptorily excluded from the benefit of the said decree. Every creditor holding any security is to produce the same before the Master of the Rolls, at his chambers, situated in the Rolls Yard, Chancery Lane, Middlesex, on Wednesday, the 28th day of July, 1869, at 11 o'clock in the forenoon, being the time appointed for adjudicating on the claims.—Dated this 14th day of June, 1869. E. B. CHURCH, Chief Clerk.

WOODBRIDGE AND SONS, 8, Clifford's Inn, London, Plaintiff's Solicitors.

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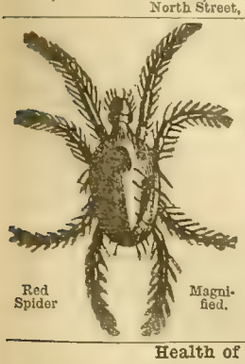
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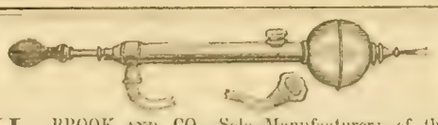
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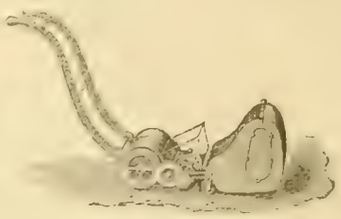


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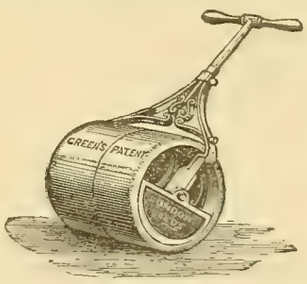
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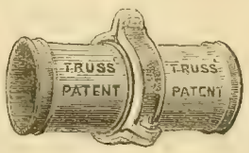
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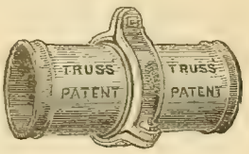
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Zonal Pelargoniums.

FOUR THOUSAND ZONAL and NOSEGAY PELARGONIUMS, the new varieties of 1867, all the best sorts.—Extra strong autumn-grown plants at 2*s*. per dozen; 14*s*. per 100.

CALCEOLARIAS.—Strong, healthy, bushy plants, 1*s*. 6*d*. per dozen; 8*s*. per 100.

The new SILVER, GOLDEN, and BRONZE TRICOLOR and BICOLOR PELARGONIUMS at very low rates. Also all other Plants for Bedding.

L. S. WOODTHORPE, Munro Nursery, Sible Hedingham, Essex.

Tricolor Pelargoniums.

J. WATSON, New Zealand Nursery, St. Alban's, begs leave to offer his two beautiful TRICOLOR PELARGONIUMS, MISS WATSON and MRS. DIX, unrivalled for freedom of growth and beauty of colouring, in good plants, 5*s*. each; also, PRINCESS CLOTILDE, 5*s*. each, or the three for 13*s*. 6*d*. Miss Watson and Mrs. Dix have received IV First-class Certificates and Extra Prizes from the leading Horticultural Societies of the kingdom. Early orders solicited. A liberal allowance to the Trade. Price on application.

Vines for Planting in a Growing State.

JOSEPH MEREDITH, The Vineyard, Garston, near Liverpool, has now ready for Planting fine extra strong YOUNG VINES, with 3 to 4 feet of extra strong Wood of this season's growth. Intending planters of Vines will save a whole year, and prevent disappointment by planting between now and August next. Planting in a Growing State ensures success. Packed to travel any distance with safety.

DESCRIPTIVE CIRCULARS of MEREDITH'S VINE MANURE free on application.

Special Offer to the Trade

Of NEW VERBENAS, 1869, and FUCHSIAS, COLEUS, &c., 1868.

KNIGHT'S Six splendid NEW VERBENAS for 6*s*., all gained First-class Certificates.

KEYNES' 12 New Varieties, 8*s*. | TURNER'S 12 New ditto, 8*s*.
12 Finest FUCHSIAS of 1868, strong plants, 9 to 12 inches, 4*s*.
12 varieties of COLEUS, extra strong, 20*s*. per 100.
ROSES, New and Old, every variety worth growing. For prices see CATALOGUE.

W. KNIGHT, Floral Nursery, Hailsham.

New Verbenas and Golden Coleus.

WILLIAM BADMAN offers NEW VERBENAS of 1869, including Perry's, Eckford's, and Henderson's, in single pots, 3*s*. per dozen.

NEW GOLDEN COLEUS of 1869, in pots, 3*s*. per dozen.

Six finest Double PELARGONIUMS, including Madame Lemoine, for 5*s*. [for 5*s*.

Twelve finest ZONAL PELARGONIUMS, including Lord Derby, PELARGONIUM, Crystal Palace Gem, 3*s*. per dozen. Package included. Terms cash.

Cemetery Nursery, Gravesend.

Hardy and other Bedding Plants.

ROBERT PARKER begs to offer the under-named, all of which can be supplied in strong, healthy plants:—

	Per doz.—*s. d.*		Per doz.—*s. d.*
Dactylis glomerata elegantissima	4 0	Pansy, Cliveden Yellow ..	3 0
Echeveria metallica, 6*s*. to	30 0	" Great Eastern ..	3 0
" pumila ..	9 0	" Imperial Blue ..	18 0
" secunda glauca	9 0	Pachyphytum bracteatum	12 0
Lithospermum prostratum (fruticosum)	9 0	Sempervivum californicum	4 0
Pansy, Cliveden Blue ..	3 0	Tritoma grandis	12 0
" Purple ..	3 0	" uvaria glaucescens	9 0
		Viola lutea semperflorens	4 0
		" cornuta alba	4 0

Special quotations may be had, if required, for the above, and many other kinds, by the 100, or in larger quantities.

Exotic Nursery, Tooting, Surrey, S.W.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION. Instituted 1838.

The TWENTY-SIXTH ANNIVERSARY FESTIVAL will take place at the London Tavern, Bishopsgate Street, London, on WEDNESDAY, June 23. His Grace the DUKE of ARGYLL, K.T., has kindly consented to preside upon the occasion.

STEWARDS.

George Child, Esq., *Chairman.*
Henry Huggins, Esq., *Vice-Chairman.*
His Serene Highness the Prince of Teck.
The Right Hon. Lord Egerton of Tatton.
The Right Hon. Lord George Hamilton, M.P.
The Hon. Robert W. Grosvenor, M.P.
The Baron Lionel de Rothschild, M.P.

D. M. Aird, Esq.
James Bateman, Esq.
E. J. Beale, Esq.
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John T. Burnell, Esq.
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B. T. Brandreth Gibbs, Esq.
William Harrison, Esq.
Saml. Heath Head, Esq.
Andrew Henderson, Esq.
William Holmes, Esq.
William Hurst, Esq.
Charles Lawson, Esq.
John Lee, Esq.
John Mackintosh, Esq.
R. Marnock, Esq.
Horatio E. Norfolk, Esq.
The Rev. Chas. F. Norman
Thos. Osborn, Esq.
G. William Petter, Esq.
J. E. Richard, Esq.
H. D. Rawlings, Esq.
W. W. Saunders, Esq.
W. H. Smith, Esq., M.P.
Richd. Smith, Esq.
Chas. Turner, Esq.
Harry J. Veitch, Esq.
Anthony Waterer, Esq.
Josiah Willey, Esq.

Dinner upon Table at Six o'Clock precisely. Tickets, 21*s*. each.
Ladies' Tickets for the Gallery, 7*s*. 6*d*., for whom a Handsome Collation is provided. EDWD. R. CUTLER, Secretary.
14, Tavistock Row, Covent Garden, W.C.

FLORAL and HORTICULTURAL FETE, to be held on the RACE COURSE, NORTHAMPTON, in connection with the Northamptonshire Agricultural Society's Annual Show, on FRIDAY, July 2.

Silver Cups and Premiums to the amount of TWO HUNDRED and FIFTY POUNDS will be offered for competition. Open to all England. Prizes to be Paid on the Day of Exhibition.

President: The Worshipful the MAYOR OF NORTHAMPTON.
Treasurer: Mr. MARK DORMAN. | *Hon. Sec.:* Mr. THOS. L. CORDEUX.

CUT ROSES, Open to all England.

No. 29.—48 Roses, three trusses, distinct kinds—Silver Cup or 1st prize, £6; 2d, £3; 3d, £1.
No. 30.—24 Roses, three trusses, distinct kinds—1st prize, £3; 2d, £2; 3d, £1.
No. 31.—24 New Roses (such as have been sold for not more than two years to be accounted new)—1st prize, £2; 2d, £1; 3d, 10*s*.
No. 32.—24 Cut Roses, single blooms, distinct (Gardeners and Amateurs only)—Silver Cup or 1st prize, £5; 2d, £2; 3d, £1.
No. 33.—12 Cut Roses, single blooms, distinct kinds (Gardeners only)—1st prize, £2; 2d, £1; 3d, 10*s*.
No. 34.—12 Cut Roses, single blooms, distinct kinds (Amateurs only)—Silver Cup or 1st prize, £4; 2d, £2; 3d, £1.
No. 35.—6 Cut Roses, single blooms distinct kinds (Gardeners only)—1st prize, £1; 2d, 10*s*.; 2d, 5*s*.
No. 36.—6 Cut Roses, single blooms, distinct kinds (Amateurs only)—1st prize, £1; 2d, 10*s*.; 3d, 5*s*.
No. 37.—12 Cut Roses, Tea-scented, single blooms, distinct kinds (open)—1st prize, £1; 2d, 10*s*.
No. 38.—12 Cut Roses, of any other kinds, single blooms (open)—1st prize, £1; 2d, 10*s*.

Schedules on application to the Honorary Secretary; or of F. PERKINS, 2, Gold Street, Northampton.

July 19th to 24th, 1869.

THE ROYAL HORTICULTURAL SOCIETY'S GRAND EXHIBITION at MANCHESTER, in connection with the SHOW of the ROYAL AGRICULTURAL SOCIETY.

Amongst various Special Prizes,

A SILVER CUP (copy of the famous Cellini Cup), **VALUE £21** will be offered by the Proprietors of the GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE for the best COLLECTION of 5 FRUITS and 8 VEGETABLES, to be made up as follows.

In awarding the Prize, Marks will be adjudged according to the following scale, for the several subjects produced.

	Good.	Medium.	Inferior.
Grapes	6 marks	3 marks	1 mark
Melons (2 fruits)	6 ,,	3 ,,	1 ,,
Strawberries	3 ,,	2 ,,	1 ,,
Gooseberries	3 ,,	2 ,,	1 ,,
Currants	3 ,,	2 ,,	1 ,,
Cherries	3 ,,	2 ,,	1 ,,
Raspberries	3 ,,	2 ,,	1 ,,
Apples of 1868	6 ,,	3 ,,	1 ,,
(Any 5 of the above 8 subjects).			
Peas	3 ,,	2 ,,	1 ,,
French Beans	3 ,,	2 ,,	1 ,,
Broad Beans	3 ,,	2 ,,	1 ,,
Cauliflowers	3 ,,	2 ,,	1 ,,
Cucumbers (brace)	3 ,,	2 ,,	1 ,,
Summer Cabbages	3 ,,	2 ,,	1 ,,
Early Carrots	3 ,,	2 ,,	1 ,,
Turnips	3 ,,	2 ,,	1 ,,
Globe Artichokes	3 ,,	2 ,,	1 ,,
Onions	3 ,,	2 ,,	1 ,,
Spinach	3 ,,	2 ,,	1 ,,
Rhubarb	3 ,,	2 ,,	1 ,,
Potatos	3 ,,	2 ,,	1 ,,
Mixed Salading	3 ,,	2 ,,	1 ,,
(Any 8 of the above 11 subjects).			

This Prize is open for Competition amongst Amateurs and Gardeners of private families. The Fruit and Vegetables produced must be of *the Exhibitor's own growing;* and any article otherwise obtained will disqualify the Collection. It is expected that the several articles will be neatly and effectively displayed.

The Gardeners' Chronicle.

SATURDAY, JUNE 19, 1869.

THE Bill for the prevention of the ADULTERATION of SEEDS, to which we have already referred on more than one occasion, was read a second time on Wednesday last, with an understanding that certain clauses should be reconsidered and modified, so as to make the Bill as certain in its operation as possible. So far well, and, with the object of aiding the cause, we venture to adopt the Socratic mode, and propound a few questions. These questions naturally arise out of the discussion that has taken place in our own columns, in the publications of the Royal Horticultural Society, and last, but not least, in the House of Commons. As our space is limited, we shall not pretend to reply to all the questions raised, but we shall endeavour to put them in such a form that the reader may answer them for himself from the facts that have already been made public. First of all we must repeat the question that we asked in the outset—Can the trade deny the existence of the practices complained of? We go further now, and we ask how many of the most "respectable" firms can deny it? Would they, in the event of their being put into the witness-box, as it is not unlikely they may be, venture to declare that they—we won't say kill the seeds themselves, for we know that they do not, but that they have not connived at these practices—that they have not up to the present time regulated their business transactions accordingly? Are the seed houses ready to state publicly what instructions they have given to their travellers, as to the offers they are to make to their customers? We make no imputations, and cast no aspersions, we simply ask questions. We know quite well that the vast majority of the seed trade is desirous to put an end to the practices complained of — no matter who practises them. We ask the respectable members of the trade whether it is or is not true that they have in council assembled, formally recommended that every means be taken to prevent the use of "prepared" seed? Whether they have not, thought that, before sending out "nett seed," the country, in its turn, should be "prepared" for the change? We fancy the country will, in the light of the present discussion, be quite "prepared" to welcome the change which must follow from the ventilation of this question. But to proceed with our interrogations. We ask the seed trade —we ask the promoters of the present Bill— we ask the Royal Horticultural Society, the President of the Board of Trade, or any other man, to "devise a form of words" to meet the acknowleged difficulties of the case; and if they cannot, or will not, we beg them not to allow such inability to prevent them from doing what justice they can to the consumer. "Will the Bill be of use?" asks Mr. BRIGHT. If the seed trade will tell Mr. BRIGHT what instructions they have given, or are about to give, to their employés, we imagine Mr. BRIGHT'S question would be pretty well answered, if it be not already, by the highly interesting document read to the House of Commons by Mr. WELBY, wherein some oppressed individual pleads *ad misericordiam*, because his business is likely to be injuriously affected by the discussion on the question of the adulteration of seeds! We would ask if prevention be not always better than cure—whether it is not better to prevent a man from committing what Mr. READ calls "unmitigated rascality" than to punish him when he has done it? We would inquire whether it be not wise legislation to do away with all excuse for respectable firms soiling their hands, directly or indirectly, with dirty work, which they, as well as all other upright people, loathe? At least, let us have some measure whereby the honest trader may conduct his business honestly, without being absolutely compelled to sanction, to a greater or less extent, practices best described by the forcible epithet of the member for Norfolk. Of the Royal Horticultural Society, we may inquire whether they think the course they have followed with reference to the Bill has not greatly imperilled the success of the cause they have at heart? If we were now treating the matter on scientific grounds alone, we would ask them if they think that the very few experiments they have instituted are sufficiently numerous to be at all trustworthy, and how it is that a great scientific body (we must call it so now, in the face of recent efforts to vindicate its claim in this direction) should have ignored, as they have done, the only experiments worthy of the name that have been instituted to ascertain how long the vitality of different seeds will endure. We allude to the experiments carried on for a long series of years at the Botanic Garden, Oxford, and elsewhere, under the auspices of the British Association.

We are compelled to put these questions, because it is clear that the President of the Board of Trade has been unduly influenced by the representations made to him by individual traders on the one hand, and the Society on the other, whose experiments and tests, though all well enough as far as they go, are nevertheless very defective as pieces of scientific evidence. One or two firms, however respectable and long-established, have no right to put themselves in opposition to the great majority of the trade, as represented by the supporters of the Bill, in such a manner as to preclude the possibility of refuting their statements. If it be true that it is difficult for outsiders to detect counterfeit seeds, we can hardly suppose that there is any great difficulty for any members in the trade to distinguish good from doctored seed. Surely they know their own business. Seed that has died a natural death does present some difficulties in the way of legislation, as the Royal Horticultural Society states; but we ask once more whether it would be profitable to any one to keep seed till it lost its vitality, say, in some cases, 8 or 10 years, or for a time measured by the centuries that have elapsed since skilful embalmers made mummies of the Pharaohs? Again, it is a great mistake to say, as the President of the Board of Trade did, that the Bill does not deal with the adulterated seeds imported from the Continent. Nor can we see the absolute necessity for appointing inspectors, because those most interested in the matter will be the most proper parties to see that the provisions of the Bill are fairly carried out. There is still time for all to combine to amend this Bill, so as to insure its becoming law during the present session. Rogues there will be to the end of time, in spite of all or any enactment; but for goodness' sake let us help the defrauded victims of a bad system, let us help to reinstate in public estimation a body of merchants at present disgraced by trade customs from which, as it seems, they are not strong enough to emancipate themselves; let us help them to discard the dead seeds from their sacks, and from their consciences the dead weight of deceit and fraud.

—— WE have great pleasure in inserting the following communication from an excellent practical gardener, Mr. WILLIAM EARLEY, and we trust that his appeal on behalf of the aged and enfeebled members of his craft may meet with a satisfactory response both in the matter of fruit and of finance. It must be remembered that the GARDENERS' ROYAL BENEVOLENT INSTITUTION is no mere charity, but is to a large extent based upon that co-operative principle which secures to the subscribers assistance in the time of need in consequence of the forethought and self-reliance exercised by them under previous more favourable circumstances. The Institution is deserving the support of all gardeners and of all employers of gardeners:—"Permit me to draw the attention of all gardeners and lovers of horticulture to the fact that the 26th anniversary festival of the Gardeners' Royal Benevolent Institution will take place at the London Tavern, Bishopsgate Street, on Wednesday next, June 23, when his Grace the Duke of ARGYLL, K.T., has kindly consented to take the chair. It is very desirable that those who may assemble to support the noble Chairman, and aid the good work, should see abundant examples of the gardener's skill and perseverance placed upon the table in the form of fruit, that not only may the success of the annual dinner be upheld in regard to the display of garden products, but that an additional incentive be given to all visitors who may assemble to subscribe more liberally to an institution, upon the funds of which so many rely for support in their old age. I venture, therefore, to ask all employers and gardeners who may be able to aid the committee, to do so by forwarding presents of fruit for the occasion. If all will help to form a dessert, it will be readily understood that no small item in the expense of the dinner will be provided for. I may add that this Institution has been instituted to afford aid, by means of a pension of 16*l.* per annum, to gardeners in their old age, and of 12*l.* per annum to their widows. The gardener's life is spent amidst alternations of heat, cold, and damp, and too often ends in ill-health and enfeebled powers. His pay is generally small; hence, however intelligently and industriously his days may be spent, it is but too generally beyond his power to save a competency for "the rainy day." The committee therefore earnestly invite subscriptions or donations in aid of the charity. These may be addressed to Mr. CUTLER, the Secretary, 14, Tavistock Row, Covent Garden, W.C., of whom also tickets may be had for the dinner. Permit me, in conclusion, to ask those friends who will kindly aid the Institution with presents of fruit for the dinner, to send them not later than Tuesday morning (the 22d inst.) to the Secretary, at the office of the Institution above-mentioned."

—— We are indebted to Mr. FORTUNE for the following account, read at the last Tuesday meeting of the Royal Horticultural Society, of the beautiful and hardy SPIRÆA PALMATA, which was described by THUNBERG in his "Flora Japonica" nearly 100 years ago (1784):—"There is a plant of this name in our gardens, but it is very inferior to that exhibited by Mr. NOBLE, and which is, no doubt, the true S. palmata of THUNBERG. The plant is found cultivated in almost every garden in the more northern parts of the Japanese empire, and is a most beautiful object when in full bloom. Dr. HOOKER, who has figured it in the "Botanical Magazine," describes it as "by far the handsomest of the species of the genus hitherto imported, and certainly one of the most beautiful hardy plants in cultivation; the deep purple-red of the stems and branches, passing into the crimson-purple of the glorious broad corymbs of flowers, contrasts most exquisitely with the foliage, which in autumn assumes beautiful tints of brown and golden-yellow." Like all the Japanese plants cultivated in, or indigenous to, the more northerly parts of the empire, S. palmata is perfectly hardy in England, and will form a valuable addition to our list of hardy herbaceous plants. The East has already favoured us with some herbaceous plants of great beauty, such for example as Anemone japonica and Dielytra spectabilis; and the Spiræa now exhibited will prove a fitting companion to these beautiful and useful species.

—— M. FOURNIER has recently addressed to the French Académie des Sciences a communication respecting the FERNS of MEXICO. Of 605 species considered by M. FOURNIER as forming the Fern flora of Mexico, 178 only are special to that country. Of the others, 230 are found also in the South American Andes, 113 in the West Indies, 59 in Venezuela and Guiana, and 117 in Brazil. The most interesting group is one of 12 members only, distributed through Mexico, the West Indies, the Azores and Canary Islands, the Mediterranean region, and the mountains of Abyssinia, Persia, and India. Pteris longifolia extends as far as Ischia, P. cretica is met with in Corsica, Woodwardia radicans in the mountains of the Asturias, Adiantum Capillus in the Tyrol, near a warm spring, Gymnogramma leptophylla at Brest; while Cystopteris fragilis, a protean species, extends throughout Europe, and grows on the slopes of the Alps. The author considers this group as confirmatory of the conjecture of the previous existence of an "Atlantis."

—— We are informed that the successor to Mr. BARNES at BICTON is Mr. BEGBIE, late of Castle Martyr, the seat of the lamented Earl of SHANNON, whose tree lore was as great or greater than that of any arboriculturist of the time.

—— The exact nature of the inflorescence and of the fruits and ovules of CONIFERS is a fertile source of controversy. M. VAN TIEGHEM, the latest writer on the subject, confirm's BROWN'S views, that the ovules are really not enclosed within any ovary, but are formed upon the dorsal surface of a leaf, borne by a branch that is axillary to the bract.

—— All the world loves Roses, half the world grows them; some account therefore of a novel method of growing them will be sure to be acceptable. There is in the gardens of F. PEYOR, Esq., of Digswell, Welwyn, which are under the able management of our excellent correspondent, Mr. WILLIAM EARLEY, a ROSE HEDGE about 280 feet long. This hedge skirts one of the principal walks in the kitchen garden, and notwith-

standing the heavy showers of rain and hail of the preceding day, presented on Wednesday last a charming mass of bloom. The hedge was originally a row of half standards, of which the crimson Boursault formed the mass; this row was afterwards trellised over with wire to the height of about 4 feet 6 inches, and 4 feet in width at the bottom. Many of the original trees were then removed, and some of the best of the old and well known sorts were planted in their place. They have all since been grown on what Mr. EARLEY aptly calls the "extension system." Plenty of wood is left in, and this is tied to the trellis, and all vacant spaces are filled by budding. The whole of the row is now completely covered with growth, and literally loaded with blooms in all stages of development. The following varieties, which form the principal mass, seem to be admirably adapted for the purpose:—Charles Lawson, fine flowers and a very free bloomer; Lord Raglan, Comtesse de Chabrilland, first rate; Blairii, No. 2, beautiful flowers, very free; Gloire de Dijon, profusely bloomed; Jules Margottin, grand; General Jacqueminot, Caroline de Sansal, Chênedolé, Anna Alexieff, all first-rate; the yellow and copper-coloured varieties of the Austrian Briar; and last, though not least, the Manetti, now so much in favour as a stock, and which gives relief and variety to its more showy rivals. That this method of cultivation is a very successful one there can be no doubt, as the result of Mr. EARLEY'S skill amply proves this. As the trellising can be made to any height or width, the plan cannot be too strongly recommended for furnishing tall or dwarf edgings along the walks of either kitchen or flower gardens, or even to form back rows in ribbon borders, and there is no doubt it would succeed equally well on the outskirts of shrubberies, which sometimes present a very rough appearance near the ground.

—— To complete our account of the honours received by our countrymen at the late INTERNATIONAL HORTICULTURAL EXHIBITION at ST. PETERSBURG, we may say that in addition to the awards made to the Messrs. VEITCH, that have already been announced, that firm also took the 1st prize, a gold medal, for three new Orchids, and two large silver medals, for a collection of seeds and an assortment of garden tools. Mr. W. HUNDSPATH of Haltwistle, Northumberland, also received a gold and a silver medal for a collection of ornamental garden pots. Mr. FORD, gardener at Leonardslee, Horsham, sent a splendid collection of Apples and Pears, which, had they not arrived too late, would no doubt have secured the 1st prize.

New Plants.

SARCANTHUS CHRYSOMELAS, *sp. n.*

Foliis lato lorutis apice inæquali bilobis; panicula ampla; bracteis triangulis ovaria pedicellata longe non æquantibus; sepalis oblongis, petalis subæqualibus; labelli laciniis lateralibus triangulis aristatis, arista ascendente, lacinia media triangula, calcari extinctoriiformi recto, septo a basi postica calcaris in anticam currente, usque in labelli laciniam mediam, ibi abrupte excurrente; callo oblongo utrinque bicruri sulcato subcolumnæ gracilis basi puberuli.

In the way of Sarcanthus paniculatus and racemifer, with splendid foliage, and a large inflorescence of Saundersian flowers, yellowish, with the disc of the sepals and petals, blackish purple. Sarcanthus paniculatus has a trifid anterior lacinia to the lip. S. racemifer (Saccolabium racemiferum, Lindl., Sarcanthus pallidus, Lindl.) has a totally different column, another callus, and different side laciniæ to the lip.

Sent by the indefatigable Colonel Benson, from Moulmein, to Messrs. Veitch, who kindly forwarded me a leaf and inflorescence. *H. G. Rchb. f.*

HOTHOUSE BOILERS.

WHEN a young man I was always anxious to see the processes of manufacture, as carried on in large establishments. In looking over the great Butterley Ironworks near Derby, I remember having been struck with the first reverberatory furnace I came to. Though I knew chemists considered the flame to be the hottest part of a fire, and though I was not ignorant of the effects of the blowpipe, I was still surprised to see the flame alone employed in melting iron. This was a lesson I never forgot.

Having 21 houses, some of them 100 feet long, and 21 to 30 feet wide, I have had a good deal of experience in heating; and have nine different kinds of boilers in use, but I have never been satisfied with any of them, for it has always appeared as if the makers had ignored the power of flame. As I had seen flame melt iron, I could not think it well employed when striking against a brick wall.

Of all the boilers invented, I think the tubular ones are the worst, and the most unphilosophical. No doubt the tubes in a locomotive boiler suggested the idea; but because fire carried through tubes surrounded by water is found to heat that water quickly, it does not at all follow that water contained in tubes which enclose a fire should be rapidly made hot. A boiler on this plan can be made of any size, and will hold any amount of fuel, and this I conceive is its only advantage. The flame must pass by and between but few of the tubes into the flue, and the heat will be to a great degree wasted. A tubular boiler must be surrounded by brickwork, and were it fed with small coal and slack, would be choked; it is, therefore, necessary in practice to use large coke, a most expensive fuel. Moreover it requires a very deep hole to stand in, and the Royal Horticultural Society has just paid 30*l.* for setting one. Such a boiler is dear at a gift. Then, again, each tube being caulked into a ring of metal at each end, the large number of joints acted upon by the fire is sure to give rise to leakage in time; if not, the unequal expansion of the metal is likely to crack it. I have known so many tubular boilers already taken out, though their introduction is so recent, that even if it were a good form of boiler to heat water, and economical in fuel, I should hesitate to use one. To put hard water into a hot-water apparatus at all is very bad policy, but it must very quickly destroy a tubular boiler. The water-way is so very small that any incrustation must soon fill it up, and it will in that case soon burn or crack, and I have never heard of any attempts to mend one when once damaged.

My last objection is common to nearly all boilers, namely, that they are necessarily surrounded by brickwork, which must become red hot; the return pipes must pass through such bricks before entering the boiler, and, unless special precautions are taken to prevent it, return currents will be set up, and the circulation will be impeded. These objections do not apply to some of the improved wrought-iron boilers, but wrought-iron boilers rust so rapidly, particularly when not at work, that this circumstance alone is a very grave objection to their use.

Impressed with these ideas, I have for years been trying to induce Mr. Foster, who builds my houses, to make me a boiler, and at last I have got into work one of which I append sketches. Fig. 1 shows the front of the boiler, the lower door being the ash-pit,

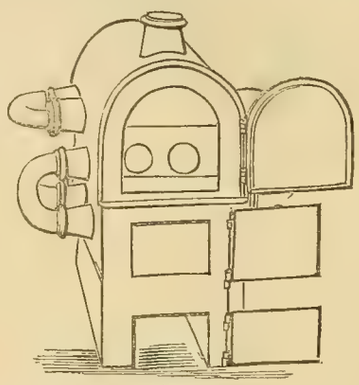


Fig. 1.

the middle door is the fireplace, and the large upper door is for cleaning out the soot. Fig. 2, is a side view, and also shows the back, against which the flame strikes

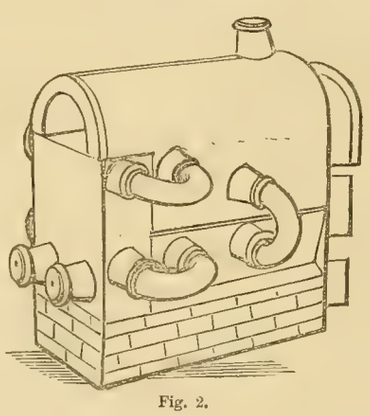


Fig. 2.

in the first instance, returning through the two holes seen in fig. 1, and again returning under the arched dome to the back of the boiler, and so into the flue or chimney. In fig. 2 is also shown the flow-pipe at the top, and two return pipes at the back, with three of the six bent connections uniting the different sections of the boiler. Fig. 3 shows the four sections

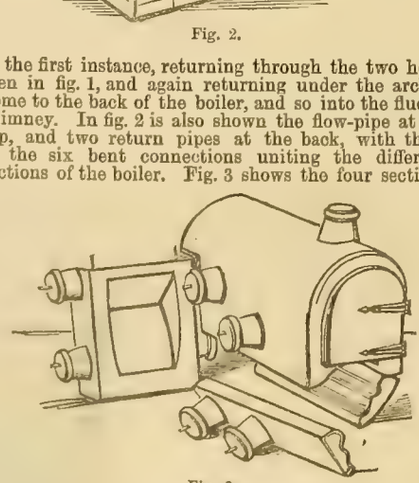


Fig. 3.

of which the boiler is composed. It quite equals my expectations, in fact I have seen nothing like it for quickly heating a large body of water. The boiler is 3 feet 9 inches in length, and as the fire never comes in contact with anything but iron backed by water, and traverses it three times from end to end, it must be most powerful. Supposing such a boiler to be badly used—slated up with lime-water for instance, and in time injured, being made in four sections, the sides next the fire-bars, which would be the parts sure to suffer, could be replaced at a small cost. No bricks are required above the fire-bars; and even if it be convenient to surround it with bricks, such bricks would only become warm, not hot. Every joint being outside, the boiler is safe from the action of fire. The only objection to mine at present is, that having only 800 feet of 4-inch pipe to work, it is too powerful. It is fed with slack and cobbles mixed, costing here about 6*s.* a ton, and yet the ashpit door has almost always to be closed, and generally a heap of ashes is put against it to stop the draught. I believe if all my boilers were on the same plan, I should save half my coal bill. I hope Mr. Foster will soon advertise his invention, and make it known. Of its value I have no doubt. *J. B. Pearson, Chilwell, Notts.*

Home Correspondence.

Our Fruit Crops.—We have again arrived at that season of the year when we can form a tolerably correct estimate of our fruit crops. From all I have seen and heard the fruit crop in this part of Yorkshire is, on the whole, a satisfactory one, for though below the average it is very much better than was expected, considering that the crops of fruit of all kinds last year, with the exception of Black Currants, were very heavy. Owing, no doubt, to the hot weather last summer, so favourable to the ripening of wood, especially on trees on strong soils, there was plenty of blossom on all kinds of fruit trees this spring; and though much, through being weak and imperfect, fell off without setting, especially from trees that were either heavily laden last year, or which suffered from the drought on light soils, a good deal of it set, so that there is more fruit of all kinds than was looked for. Apricots are a very irregular crop, though, on the whole, I do not think it will be much below the average: in some places thin, in others moderate, and in some instances heavy,—even on the same wall they have set irregularly. On two trees here there was sufficient fruit set to make a fair crop for half-a-dozen trees. The trees came into flower about the beginning of March. There was plenty of blossom, but it was weaker than usual, and much of it fell off without setting. Peaches and Nectarines are in some places a heavy crop, especially on trees in heavy soils; on trees in light soils they are thin—the tree having suffered much last summer from the drought. Here Peaches are a splendid crop on most of the trees. I have had to thin the fruit very freely, and more will have to be taken off yet. The trees were protected at night whilst they were in flower, but there was no frost to do them any injury, as I find they have set well in other places unprotected. Trees on light soils showed a good deal of blossom, but much of it was weak and imperfect, and fell off without setting. I believe there will be fully an average crop, if not more, this season. Cherries are abundant and fine everywhere. Pears are a good crop in most places, both on walls and in the open ground: here there is a good crop. Some standard trees of Aston Town, Williams' Bon Chrétien, Beurré Bosc, Beurré Diel, &c., are a beautiful sight, being laden with fruit. These trees I planted 18 years ago, and they have regularly borne crops for the last 12 or 14 years, and I believe that this year the crop is above the average. Apples will be rather below the average: here the crop is a fair one, and the fruit will be fine. Some trees are heavily laden, on others there is a fair sprinkling of fruit; and some old trees that bore heavy crops last year, have little or no fruit on them. Plums are a thin crop. There was plenty of blossom, but the fruit did not set well, which was not caused through the weather, as it was fine and more favourable whilst the trees were in flower than it was last year, and the crop of last year was a very great one. Gooseberries in some places are a thin crop, especially the sorts that come into bloom early; late sorts are better, but the crop will be below an average. Currants are most abundant everywhere; also Raspberries, though they suffered much, especially on light soils, from the drought last season. Strawberries will be an average crop. Some of the early sorts suffered greatly last summer from the drought, and the plants promised badly, but the fine rains we had during May brought them up wonderfully. Here old beds of Keen's Seedling and British Queen are rather thin, but young plantations are fine. On the whole, Strawberries will be fine and large, if not so abundant as they were last year. From the foregoing review it will be seen that our fruit prospects this year, in this part of Yorkshire, are, so far from being discouraging, very cheering and satisfactory, and especially so when we consider the very heavy crops of all kinds of fruit we had last year; and further, when we consider how, owing to the heat and drought of last summer, and the mildness of the autumn and winter, everything was in a very forward state at the commencement of the season, and in consequence exposed to injury from the inclemency of the weather. Some people attribute the failure of our fruits to our variable climate, but it is wrong to do so. In some seasons, very severe spring frosts may do some injury to the blossoms, but it is very seldom indeed that the whole crop is thus destroyed. Through bad management trees are allowed to get full of wood, full of spurs, full of buds, and full of blossoms, and when there is a crop, it is so excessively heavy, that the trees become exhausted in bringing it to maturity, and then require a year's rest to store up matter for another crop. In orchards this is the case almost everywhere. After trees attain a certain size and age, and where no attention is paid to pruning or thinning out either the wood or buds, they seldom bear heavy crops of fruit two years consecutively. I am convinced, from long practical experience, that our much-abused climate is not the cause of the failure of our fruit crops. When the soil and locality is favourable for fruit growing, good management will, in six seasons out of seven, secure favourable returns. Apricots, Peaches, and Nectarines cannot be grown without walls, but on these, if properly managed and well protected whilst the trees are in flower, good crops can with great certainty be obtained six seasons out of seven. We occasionally have extraordinary seasons, such as the one of 1860, when ripe wood cannot be obtained, and a failure to some extent is sure to follow; but these exceptional seasons only occur occasionally. From what I have seen in this part of the

country, and from all I hear, I believe the crops in orchard-houses are in many places a failure this year. We can hardly over-estimate the importance of fruit culture if we consider the great consumption of fruit there now is in this country, and, in addition to the home-grown supply, the great quantity of fruit that is annually imported to meet this consumption. I have occasionally for some years stated the results of my experience in the *Gardeners' Chronicle*, and in the "Florist and Pomologist," and of the many who have visited these gardens in the fruit season, not one has ever questioned my statements. Last year the fruit crops of all kind were very heavy, and circumstances prevented me from thinning the fruit, and in consequence many of the trees carried too heavy crops. The crops this season, in consequence, are lighter than they otherwise would be. Still the crops this year, taken altogether, are good, and the fruit will be fine; and I have little fear but that the crop next year will be good, if the season be an ordinary one. *M. Saul, Stourton, York.*—I can confirm Mr. Rivers' estimate of our fruit prospects. Upon the whole they are not very bright. With Apricots, Peaches, and Nectarines all but *nil*, the best fruits must be scarce; and in reference to all but the complete failure of the three former, I do not attribute it to the dull weather so much as to an imperfection in the ovary, observed in the autumn, at the fall of the leaf. My attention was directed to the state of the flower by my man Friday, and quantities of them were dissected. The top of the pistil was perfect in most instances, but towards its base a portion seemed unformed, and the bud itself in hundreds of cases seemed imperfect, as if a portion had never been formed. In the spring, while the flowers expanded, these deficient portions became more apparent, so much so that all hope of a crop vanished. I dissected hundreds of blossoms, and they all seemed the same. I attribute this structural defect to the intense heat of the past summer, which scorched as it were the vital portions of the succeeding crop in the embryonic state, and hindered their perfect development. The same excessive heat would influence trees in houses in a similar manner, though not to the same extent; and as a matter of fact we find the failure almost as general in houses as out-of-doors —though there are exceptions, and those, probably, where a crop has been secured. Mine have been subjected to special treatment to keep down the temperature. It is well known that, with perfect facilities for ventilation, trees in such a summer as the last could be kept much cooler under glass than out-of-doors; and it would be interesting to know whether, where good crops are found under glass this year, any special means were used to keep down the temperature last summer. This much I have found by direct observation, that the failure has arisen as much, or more, from structural imperfections in the blossom than from the prevalence of ungenial or dull weather. On examination I found plenty of pollen, but the pistils and ovaries were unable to turn it to fruit-bearing account. Under glass we have a very good crop, but I hear of large Peach, Apricot, and orchard-houses absolutely bare. It would be useful to have the experience of your readers generally upon the state of blossoms of fruit trees in the autumn of 1868 and the spring of 1869. *Eastern Observer.*

The Sikkim Species of Rhododendron.—I have read with much interest the remarks of Mr. Johnstone, on the blooming of several species out-of-doors in Cornwall, and I am sorry these highly ornamental shrubs are not sufficiently hardy to be more generally grown in places where extensive collections of the hybrid class have been made, and I cannot but think there are many places where they might succeed. Some years ago I saw a very fine R. Thomsoni in full bloom amongst a collection of other kinds, at a private place in Kent, and it certainly far outshone all its neighbours. Other species were grown there, but they were not in bloom when I saw them. The waxy appearance of the one alluded to, as well as of some others that are met with under glass, certainly contrast favourably with the more flimsy substance of the corolla of our more common hybrid varieties, belonging to the arboreum breed, but there certainly exists an amount of apathy amongst Rhododendron growers about the Sikkim and Bhootan species which ought not to be, as I found on making inquiries about the otherwise fine collection of Rhododendrons exhibited at the Royal Horticultural Gardens, that there were none of the Himalayan species there. Assuredly one or other of the species would have been attractive, and shown a wider distinction than many of the others did; but apart from the neglect with which they are treated, the different species appear to be only imperfectly known, as I have seen more than one species dubbed Falconeri, while I have more than once hopelessly made inquiries after a species called by some lilacina. Perhaps some of your botanical correspondents, who have cleared up the mist that hung over the Forget-Me-Nots, will take this genus also in hand, and give us a rough outline of the various species that are or ought to be known in this country, not forgetting to describe what is by no means too well known, the old R. arboreum, the true species being much more scarce than is often allowed. *L. M. N.* [The Sikhim Rhododendrons have been worked up by Dr. Hooker in his magnificent work on the subject. EDS.]

Diseased Limes.—I send you herewith some specimens of Lime shoots affected with a disease which in my opinion is exactly the same as that which affected the Peach shoots which I sent on a former occasion. Of the cause I am as ignorant as ever. Site makes no difference. Trees in exposed and sheltered situations are equally affected, the leaves fall by thousands, indeed under nearly the whole of the Lime trees in this locality the ground is literally covered with fallen leaves as though it was October. Mr. Berkeley stated, in reference to the shoots of Peaches sent by me to the meeting of the Horticultural Society, that "he had seen similar results from drops of rain chilling the leaves." He may have seen spots from that cause, but not whole trees stripped of their leaves, and of course killed. Since sending to Kensington I have sent more specimens to the Rev. W. F. Radclyffe. His reply is: "That it is neither rain nor frost, but canker [What is canker?], from some cause at present a mystery, as the trees are, from the vigour of the shoots, evidently in very good soil and aspect." For my own part, the more I see of it the more I am puzzled. I enclose a few leaves from a Rivers' Victoria Nectarine planted in November, 1865; anything more healthy could not be, it has never been touched by disease, while on the very spot it now stands there stood a Roman Nectarine that was killed by disease, and every other tree for some 20 yards on either side of it. I can only add, as to cause I am in utter darkness. *Thos. Woodford, Gr., Eastwell Park, Ashford.*

Rhododendron Culture.—The Rhododendron trusses and blooms, recently forwarded for inspection, were gathered from plants grown by Messrs. Stanton, Armoury Mills, Greenwich, near the Lewisham Junction Station. The system adopted for the successful cultivation and treatment of this magnificent collection of plants is so simple and excellent, that it cannot fail to be interesting and instructive to your readers. I will, in the first place, endeavour to give a description of some of those plants that most struck me for their beauty and perfection, averaging from 4 to 6 feet in diameter, clothed with vigorous foliage, stout limbs and sturdy joints, studded with noble trusses, varying from 6 to 9 inches in diameter, and some of the blooms measuring 3 to 4 inches over. No plants can possibly do better, considering the difficulties they have to contend against, surrounded with the smoke and sulphureous and destructive gases continually descending from the railway engines and large chimneys in the neighbourhood. The success is entirely owing to the simple and judicious treatment they receive from Mr. Moon, the gardener, who thoroughly understands their nature, and what he is dealing with. I do not see why these beautiful plants should not be grown under similar treatment in many of the gardens in London or any large town. I am sure Mr. Broome would be equally as successful with these as with his Chrysanthemums, much to the delight and pleasure of the pent-up citizen. The varieties I allude to are as follows:—Chionoides, pure white, marked with lemon spots; Everestianum, lilac, light green spots, compact and attractive; Blatteum, noble truss, rosy purple; Alfrida, habit and truss perfection, of rosy purple; Exquisite, truss 9 inches in diameter, deep rose, dark maroon spots; General Cabrera, crimson, blotch of dark purple spots, a splendid variety; Ingramii, pale blush, lemon spots, flowers 4 inches over; Nelsoni, rosy-lake, very desirable colour; Papilionaceum, blush-white, a noble flower; Princess Mary of Cambridge, centre light pink, with bright deep rosy-pink margin, form and substance of flower excellent—one of the very best; Schiller, bluish-purple, blotch of jet black spots, a most distinct and attractive variety; Perfection—truly named, very light rose, yellow spots, perfect shape and truss—all that can be desired; this plant is about 5 feet through, and its beauty is almost beyond description. Verschaffeltii, rosy-lilac, deep claret spots, flowers stout; a first-class variety. The simple and successful way Mr. Moon has grown these plants is as follows:—The bed in which they are grown is 160 by 18 feet, of an irregular form, made of common soil, without preparation; holes of sufficient size were made to take the ball of the plant, at the bottom of which 3 inches of peat, mixed with one-third of sandy turfy loam was laid, and upon this the plant was placed, filling up the sides and interstices around the ball with the like compost and thickness, and very firmly pressed in by the foot. The peat is covered over with common soil, which prevents the roots growing and exposing themselves on the surface; a concave circle is formed to receive the water, which the plants are thoroughly supplied with when needed. The following season fresh compost was added in like manner, but with many plants it was not required till the next year. In fact, the plants are treated as we do those grown in pots, giving them fresh food when they require it. In the spring and growing season Mr. Moon disbuds, leaving only one at about 9 inches or a foot apart, throwing all the vigour and sap into this stem, which never fails to set for bloom; the foliage, where the disbudding takes place, is profuse and strong. It is very remarkable that if a second growth takes place the bloom-bud maintains its character, and only an elongation of the stem is produced. As the plants grow and become large and crowded, they are removed to fresh quarters, giving them the same treatment as before described. Just before blooming time Messrs. Stanton erect a light span-roof frame throughout the whole bed, which is covered with Shaw's tiffany; the sides are opened with frames made of the like material, hung on the uprights or supports of the roof. This enclosure is necessary to protect the bloom from the scorching sun and wind, also from the soot and blacks which frequently descend in clouds, but it does not exclude rain. By this means the flowers and foliage are kept clean, and the time of flowering is prolonged. Messrs. Stanton take great pleasure in showing any one their unrivalled collection, and giving every information as to the treatment, &c., which their intelligent and persevering gardener, Mr. Moon, is giving them. One cannot do better than go, see, and judge for himself. *W. Jas. Epps, Lewisham.* [Noble trusses. EDS.]

Culture of Alpine Plants (*Myosotis dissitiflora*).—In my cultural notes concerning this plant at p. 584, I omitted to state that the plant is impatient of water resting on its leaves or flowers during very severe weather. For this reason I have found raised banks the best position for winter and early spring flowering. On these the water is dismissed at once, the frost, unless very severe, has no destructive power upon leaf or flower, and the plants escape that greatest of all enemies, mildew, until they are completely exhausted by flowering. Accustomed as many of us have been to take our cultural cue of the Myosotis from the semi-aquatic M. palustris, we are only too apt to put the whole family into stuffy damp beds. Though even dissitiflora will submit to this during the hot summer months, and reward us with late blooms, such treatment is wholly opposed to early flowering or to the health and vigour of the winter and spring stock. The entire sylvatica group, of which dissitiflora is decidedly the best and earliest, are not denizens of the muddy ditch or sluggish stream-bottom, but of the free mountain-top and bleak hill-side, where they venture to lace the snow with their azure trimmings, and put forth their leaves and flowers to the rough accompaniments of the howling blast and a running chorus of battering hailstones. These last excepted, the nearer we can assimilate our artificial conditions to those of their natural habitats the better. We throw up mounds and fill up rocks to form suitable ground for the cultivation and picturesque setting of the feathery fronds of our Ferns, while we thrust our alpine plants into dark dreary pits or damp shady borders on the flat, where they sigh or pine their life away for their mountain home, or yield themselves up willing sacrifices to the mealy-mouthed fiend, mildew. As these plants nestle together in glorious patches or acre-sized masses, in cosy nook, rocky dell, or high mountain peak, cradled and nurtured with the dews of heaven, the red-hot glare of the sun, the sweep of the hurricane, the roar of the mountain torrent, and the dash and foam of the waterfall—there, on flecks of soil hardly thick enough to clothe the protruding rocks, these gems of the earth and sky weave such dense robes of matchless beauty as can be found nowhere else. Oh for rocks and water, and the hand of art as well as men at command, *ad libitum*, to form a worthy home for alpine plants! Almost every form of mountain scenery might be imitated without any ruinous expense, as the earth itself might form the foundation, thus reversing the order of Nature. Having thrown up the earthy base into every conceivable and inconceivable form of mountain scenery, then the rocky foundations must be laid for mountain and torrent, pool and stream, slow cool trickling drops of water falling over slimy stones, and impatient torrents scooping out their rocky beds while taking a run-race, as the schoolboys used to call it, for the wild leap over a precipice. But enough: my theme is Myosotis, and already I am lost amid the mazes of artificial alpine regions for the exhibition and culture of the alpine flora of the world. I may possibly return to the subject, unless, indeed, I am forestalled by my friend Mr. W. Robinson, who has just given us such an elegant and exhaustive work on the parks, promenades, and gardens of Paris. This gentleman promises us before the year is out a work on alpines, with a special reference to their natural habitats, and illustrations of alpine scenery. This is just what is needed. Alpine plant cultivation will never become fashionable while they are grown on the flat. Many of the hardiest will not endure our winters on the level ground. Place them on the top or brow of a hill or mound, and they set frost, hail, and snow at defiance, and grow away cheerfully even in the very teeth of the east wind. This Myosotis dissitiflora, for instance, ought to be perfectly hardy, and, as a rule, it has proved itself to be so. But a good deal depends upon the position in which it is placed, as well as the previous preparation of the plants. Last season part of my stock was used to throw out a back row of Cloth of Gold Crocus, the fourth line from the front of a ribbon-border of spring bulbs. The winter and spring months were, upon the whole, very mild; yet this row of plants was so much pinched that it flowered but little till the middle of March, and never equalled those plants grouped on mounds so steep as to throw off all the water that falls upon them with a rush. On raised banks, too, the true beauty of the plant is seen; the flowers, as it were, spring forth to meet you, and then droop back, as if blushing at their own beauty. As to the preparation of the plants, a happy mean of growth is the most favourable to the durability of their beauty and the preservation of their health. I have recommended a good staple and a well spread table, well lighted, but there must be no over-gorging of the plants with food. Frequent subdivision and replantings will throw most of the stamina of the plant into blossom-buds. The plant may be grown so rank and tender as to be killed by the first frost. Compactness of texture, and not grossness of leaf or stem, must be studied for all the early stock. The mere differences of condition may make a difference of a month or six weeks in the time of flowering. With a happy medium of diet, midway between cramming and starvation, a judicious selection of plants, and a wise choice of ground for the final blooming, the display cannot fail to charm every beholder. I have been thus minute on these points because so many inquiries have reached me, and several accounts of partial or complete failure in bringing out the beauty of this favourite. Neither is it hardly possible to add a line too many, as the plant is so exquisite in itself, so charming as a contrast to others, anticipating the season of the other Myosotis by several months; thus enabling us to girdle the year round with these true lovers' knots of beauty and romance, and to snatch a fresh joy, and to cull a charming blue favour from the harsh, cold grasp of dull dreary winters, and inconstant, ungenial, and comparatively flowerless springs. *D. T. Fish.*

Roses.—We have been trying to grow Roses here for some time, and last year I was not ashamed of them. But this year nothing can be worse. They are half developed, the leaves black with

stains, and, as is nearly always the case, a prey to aphides. Roses are grown in this district with considerable difficulty. It cannot be altogether the atmosphere, for about Kensington they do better: but even these are not what they should be. As this queen of flowers is in bloom just when flowers are wanted in London, it is a great pity; and I live in hopes some kinds may prove some day hardy enough to bear the different elements of impurity which surround their fragile beauty. Perhaps Mr. Radclyffe, or some other eminent rosarian, may be willing to give a hint on the subject. The heart of one who is tender to the woes of flowers must be moved at the sad plight in which the Rose in the neighbourhood of the metropolis generally languishes. *Brinsley Marlay, St. Katharine's Lodge, Regent's Park.* [We sent the above to Mr. Radclyffe, who kindly obliged us with the following remarks:]—The black stain in the leaves of Roses is general in the country, and more prevalent than I ever knew it to be. It arises, I believe, from the long-continued cold north-east winds, and morning frosts, when the leaves are young. I never saw it under glass. Some of my trees have been badly affected. As regards aphides, people must begin to kill them in February or March, and keep the trees syringed. People may grow hardy, free-blooming Roses in London as well as anywhere else, if they will give the plants water, and keep the foliage cleansed from dust, smuts, and other estoppels of the pores of the leaves. I have picked off here a bushel of fine buds with green centres, and also as many which have stuck fast. If the leaves have dropped off, the bud will be no good—cut it off below all the black stains in the stem. I have watered my trees twice, and washed their leaves twice this spring, and I think their condition is better than any other that I have seen. Although nights may be cold, if there is a hot sun and piercing easterly wind, evaporation from the whole plant is so great that it is necessary to give the trees water at the roots and over the leaves. Honeydew is the exudation of viscous juices (viscous evaporation), which must be washed off, or it will stop the exits and introits of the leaves, and sicken the tree. You may not see the sickness this year, but in the spring injury done to the lungs in the previous year will manifest itself in the skin of the trees, which, instead of being a healthy green, will be yellowish (chlorosis) green or speckled. It is of no use persons attempting to grow Roses if they will not supply the plants with an adequate quantity of water at the roots and over the foliage. Moreover, the ground must always be kept stirred—lightly over the roots, and as deep as you can between the plants, even in the hottest weather. *W. F. Radclyffe.*—Like an old hunter, I always prick up my ears to hear what Mr. Radclyffe has to say about Roses. I am thankful to say that at present we are exceptionally free from all the evils he enumerates. We were considerably pestered with the "worm i' the bud" early in the spring. Frequent picking has got rid of their gnawing, and we have seen scarcely anything of mildew, honeydew, and nothing of the orange fungus, or black spot. I think of doing away with the Géant des Batailles Rose. It is constantly affected with mildew. Is there any remedy for this constitutional tendency in certain localities? No other varieties are affected here, except Lord Raglan. As to honeydew, is our friend assuredly right? [We venture to express our own doubts. EDS.] Is it absolutely certain that honeydew is not caused by the punctures of insects? Otherwise, how do the north-east and east winds let the viscous secretions flow from the inside to the outside of the leaves? And is not honeydew often displayed when there is no cold wind? In the softest balmiest air it often envelopes the cleanest leaves in its sticky meshes, and threatens to smother their life out in its smeary sweetness. Again, do the aphides precede or succeed the honeydew? The latter being present, do the aphides increase the secretion or diminish it by feeding upon it? *Enquirer.*

The Edinburgh June Show.—At this exhibition some plants of the Purple and White Intermediate Stock were shown in pots. The plants, 2½ feet through and 18 inches high, struck me as wonderfully fine for early decorative work. These were exhibited by Mr. Thomas Campbell, of Trapain, and should be generally grown for spring decoration. Pansies were fine and in large quantities, but wretchedly staged. Messrs. Downie, Laird & Laing had some fine flowers, both fancy and show varieties. J. L. Fleming and Dux, selfs, and Robert Burns, a grand flower; George Wilson and Roderick Nicholson, yellow grounds, were all fine. Mr. Thomson, of Dalkeith, sent two plants of a magnificent variety of Vanda teres, which deserves a distinctive name; and Golden Champion Grape was shown in fine condition by Mr. Thomson. Cut Rhododendrons were fine, Messrs. Peter Lawson & Son's collection especially so. *O. K.*

Golden Champion Grape.—Those who have taken an interest in this new Grape, and have planted it, will be pleased to hear that at the June exhibition at Edinburgh, where fruit formed a feature of the exhibition, this Grape was assigned the position of honour amongst white Grapes of any kind, beating superb bunches of the Buckland Sweetwater. Two bunches exhibited in Mr. Wm. Thomson's collection of 6 varieties of fruit, which took the 1st prize, formed the most striking object in the collection. Judging by the examples exhibited by Mr. Thomson, this new Grape may be regarded as a valuable acquisition, and we shall no doubt have abundant testimony in its favour as the season advances. *Vitis.*

Dendrobium Veitchianum *versus* macrophyllum.—Professor Reichenbach, in identifying the two Orchids bearing these specific names (p. 554), has fairly thrown a bombshell among the Dendrobes. I always looked upon D. Veitchianum as not only a most distinct growing plant, but specifically distinct from the one which it is now referred to—at least, as cultivated in English collections. In habit it is totally distinct, being more closely allied to D. chrysotoxum than to any of the family. Its upright growths present a marked dissimilarity to those of D. macrophyllum, so-called, tapering towards both extremities, base and apex, and quite as much swollen and as solid as chrysotoxum. The latter sort is of drooping habit, yielding long flagelliform pseudobulbs, from the ripening nodes of which the flowers come in pairs or in trios from half way down the stem to the apex; whereas on the one to which it is likened, the flowers come in short racemes from a coronal eye of the pseudobulb. The flowers, too, in colour and in form of labellum, differ widely from D. Veitchianum of Lindley. Surely there is some mistake! In the face of our greatest living authority in Orchid nomenclature it seems presumption to criticise; only, if these two species, hitherto regarded as so distinct, are to be merged, pray what is to become of hundreds of others bearing specific names in a greatly worse predicament as to similarity? What is to become of Vanda suavis, tricolor, and insignis, or of Odontoglossum Alexandræ, Bluntii, Pescatorei and crispum? How many species will be referred to the variety column of an authenticated catalogue? This announcement of the learned Professor in your columns may unsettle, nay, revolutionise, Orchid nomenclature. It is of the greatest importance to simplify the growing host of names by referring them to proper divisional distinctions, but there surely ought to be some allowance made for entire diversity of habit over and above mere floral resemblances, else we shall get into a sort of chaotic confusion that will perplex and puzzle every botanical student, however well up in his nomenclature. Can it be the D. Veitchianum, Lindl., from the Malayan Archipelago that Professor Reichenbach refers to the D. macrophyllum, Rich., from New Guinea, at least 40° further east, although both seek a home closely towards the equatorial line? I have not seen Richard's diagnosis of macrophyllum, and am therefore unable to take a positive position in the discussion. Only it would be very desirable to know what the so-called macrophyllum of our garden collections is, if Veitchianum and it are synonymous. I have hitherto looked upon anosmum and Dayanum of Lindley and Reichenbach as varieties of macrophyllum. Will Professor Reichenbach kindly explain matters, and help us out of the dilemma? *J. A.* [We believe the explanation is, that D. macrophyllum of Lindley and of gardens, and D. macrophyllum of Richard, are very different plants. The latter Professor Reichenbach has ascertained to be the plant which Dr. Lindley called D. Veitchianum, which name, being a later one, necessarily lapses; for as D. macrophyllum of Richard has precedence over D. macrophyllum of Lindley, it is the latter which has to give way, and for it Reichenbach substitutes that of D. superbum. EDS.]

Progress of Horticulture at St. Helena.—At p. 612 I gave some notes on the cultivation of Cinchonas in the island of St. Helena, gathered from a report by the Governor, Sir C. Elliott. In that report are some other items of horticultural interest, which may also be worth recording. Since the appointment by the Government of a practical gardener for the island, attention has been directed to the introduction and cultivation of tropical and subtropical fruit trees and other economic plants. The Cherimoyer (Anona Cherimolia) grows well in St. Helena; but a difficulty has hitherto been experienced in protecting the young seedlings from the ravages of different descriptions of grubs and destructive insects, but since the erection of the small forcing-houses for raising the Cinchonas, the young plants of the Cherimoyer have also been protected, and have grown quickly and plentifully; so that in a few years it is expected there will be thousands of this valuable fruit tree in the middle portions of the island, where it flourishes vigorously. It is also intended to revive the valuable Lemon and Orange orchards which formerly existed in St. Helena. In short, the Governor looks forward with hope, and indeed believes that the time is not far distant when St. Helena will be well able to pay for the food and clothing of the body of the inhabitants, when most of the articles of daily necessity and comfort will be derived from native soil; as, for example, by the extension of the growth of fibrous plants, the cultivation of Coffee, which is said to be little if at all inferior to Mocha in flavour; of Tobacco, the finer descriptions of which, as the Syrian and Persian, have been proved to succeed well in the island. Besides the extended cultivation of economic plants it is proposed to introduce the silkworm, the first experiment to be made with the Oak feeders, Japanese, and Indian species. *John R. Jackson, Kew.*

Influence of Stock upon Scion.—Seeing in your valuable paper a discussion going on in reference to the influence of scion upon stock and stock upon scion, I venture to give you a description of a Marie Louise Pear I have growing in my grounds. The tree I refer to has been grafted two years last March. The first season the tree assumed the form of a weeping Ash and the two main shoots attained the length of 2½ feet, the three minor shoots about 2 feet. Last season the shoots did not lengthen more than 6 to 9 inches, the two years' wood becoming covered with fruit-buds; the shoots were shortened in the pruning season—No. 1 to about 20 inches, 11 Pears; 2, to 15 inches, 20 Pears; 3, to 18 inches, 19 Pears; 4, to 12 inches, 9 Pears; 5, to 15 inches, 20 Pears; number of fruits, 79. The above are all set and healthy in appearance, which, for a two years' graft of Marie Louise is, to say the least, unusual, as I have not met with a similar instance during 30 years' experience. The stock is a seedling Pear, or what is usually termed a free stock worked standard high; others grafted from the same tree are different in appearance, and have grown freely, but there is no fruit on them, as a rule. The Marie Louise sets badly with me on trees five times the age, and I have no hesitation in saying a Marie Louise tree, which has been planted these 10 years, has not set 79 Pears during the time. The conclusion I come to is, that the stock on which the graft is worked has an action similar to that of the Paradise stock in Apples. *John Watson. St. Alban's.*

The Royal Caledonian Society.—Under this heading in the *Gardeners' Chronicle* of May 29 an anonymous writer, designating himself "Gardener," at "The Hall," brings some charges against the management of the Royal Caledonian Horticultural Society, which, in order to prevent misapprehension by those at a distance, the Council of the Society consider it their duty to notice. The writer states, that "it is well known in Edinburgh that many of our best cultivators, from want of confidence in the management of the Royal Caledonian, are dropping out of the list of its competitors." The reply to this is, that during the last 12 months 20 of the most respectable gardeners in Scotland have been added to the membership of the Society, and not a single name has been withdrawn during the same period. Some two or three members have been struck off the list because they were years in arrear with their subscriptions, and only paid them when they were able to exhibit, so as to make a profit by the transaction. The competitors at the exhibitions of the Society fluctuate [in number], as they do at all others of the same character, but the Council are not aware of a single individual having discontinued exhibiting through dissatisfaction with the management. The anonymous writer also refers to what he is pleased to term the "black mail" system, which, he says, "does not work well" with the "best cultivators, whose fruit is not over plentiful." What is thus alluded to is not very clear, as the Council is not aware of what the writer actually refers to as "black mail." It is presumed that it implies a sort of tax on the fruit of the exhibitors for the benefit of members of the Society. If this is the meaning, all that the Council can say is, that it is without their knowledge, and they will do all in their power to prevent any such attempts at extortion. It is right to explain, however, that when fruit is staged for exhibition a tabling card is given to its owner, or the person in charge of it, on the production of which at the hour of removal his fruit is handed over to him; and if, after that, he yields to the solicitations of his friends, and disposes of his fruit, that is his affair, with which the Society has no concern. On the occasion of the International Fruit Show of 1865, one exhibitor, who left town before the close of the exhibition, gave his tabling ticket for some Pears to a waiter in a hotel, who sent a man for them with a carpet-bag. This individual was caught in the act of stealing Grapes and other fruit, and was ignominiously turned out of the hall. Events such as this may take place, but the Society takes every precaution against them. No better evidence can be adduced of the confidence felt in the management of the Society than the large increase of new members and subscriptions it has obtained during the current year; only one individual has laid a formal complaint before the Council. It was that one exhibitor was allowed to take two prizes in the same class for Hyacinths, and that another person was allowed to stage his plants after the hour named in the schedule. The reply to the former charge was that other societies allowed the same thing. Yet a rule has been framed to preclude this for the future. To the other, that though the plants were not staged they were in the room, and were staged as soon as space could be found for them. As to whether the Society is a "faithful medium through which the northern growers may be reviewed," that is a matter of opinion, and the Council leave its determination in other hands. The Council have considered it right to answer the present attack, but they will not take any notice of such anonymous attacks in future. *John Stewart, Secretary, Edinburgh, June* 10.

Bladder Plums.—By the post I have sent you a sample of what our standard Plum trees are producing as fruit in this part of the country. Most of the trees are covered with these Bean-like pods (some of them much larger than those sent), which turn yellow about the end of June, and fall off. I am told the trees bore somewhat similar pods a few years back, but not at all to the same extent as this. Do you think it is caused by an insect or fly, as some of the pods have holes in them? Perhaps the blackbirds have pecked them. Could any of your readers give me any remedy, or advise me how to prevent the evil coming on in the future, or tell me what I should do to the trees at present? Last year they bore an excellent crop of good fruit of a large red variety, but have not been properly pruned since they were planted 15 years ago, merely left to themselves, and growing on the south side of an orchard. *Armagh.* [See our report of the proceedings of the Scientific Committee in another column. EDS.]

Early Peas.—Carter's First Crop, sown at the foot of a south-east wall on November 24, and gathered May 26, and plentifully since, beating Ringleader by 10 days. This is the finest and truest stock of early Peas that I have ever grown. Beck's Gem will be fully a fortnight later. *Quercus.*

Foreign Correspondence.

THE SPRING IN ALGERIA *(continued from p. 642).*—The entire country that I visited between the 20th and 30th of April, from east to west, from the frontiers of the province of Constantine nearly to those of Morocco, from the Mediterranean seashore to the Sahara Desert, which lay at my feet when on one of the highest summits of Mount Atlas (5500 feet), at Teniel, was clothed with the most luxuriant vegetation,—the mountain sides, the valleys, the plains, were all covered with trees, shrubs, flowers, or grasses. The entire country might and must have been irrigated or well watered by Nature, every few days for months; no other atmospheric condition could explain such widespread, such universal luxuriance of vegetable life.

Behind the bay, on which is situated Algiers, rises a

crescent-formed hill, from 400 to 600 feet high, about 30 miles long, and one or more broad. Indeed, the city of Algiers itself, and its health suburb Mustapha Superior, are built on a north-eastern slope of the hill, the Sahel. It is formed by the remains of sections of each of the three formations which constitute the Atlas—the granitic, the schisto-mica-calcareous, and the calcareous and tertiary. The soil of the Jardin d'Essai is composed of loam mixed with sand, formed by the break up of granite and mica-schist, whence, no doubt, one reason why it succeeds so well with the Palm tribe, which seems to like silicious soils. On the Genoese Riviera at Bordighera, where the Date Palm is more luxuriant in growth and numbers than in any region of Algeria that I have seen on the north side of the Atlas—the Algiers Jardin d'Essai excepted—the soil is a mixture of silicious sand and of loam, although the coast line of rocks is calcareous. But the Roya River, which comes down the valley of that name from the Col de Tende, where the mountains are granitic, has brought, in the course of ages, enough sand to form at its outlet several miles of sandy delta, or alluvium, which extends to the Bordighera Palm groves. Not that Palms will not succeed well in other soils, for they thrive in the calcareous soils of Nice and Mentone, but they certainly appear to grow most luxuriantly in silicious soils. In the Great Desert, where they are in their native home, where they ripen their fruits and thrive most luxuriantly, they are in silicious sand mixed with vegetable soil, and abundantly irrigated—their feet in the water and their heads in the fire, as the Arabs say. The Date Palm is not a feature of the landscape in Algeria, as is generally supposed and stated. It is only seen here and there as an isolated ornamental tree. The fruit not ripening out of the desert, there was and is but little inducement to the inhabitants to plant it. In partly civilised regions very little is done for the ornamental, and the trees or shrubs that have not a direct practical purpose to serve, are seldom seen except in the wild state. Thus the Date Palm is more common in the south-east of Spain as a relic of the Moorish civilisation of former days, than in Algeria north of the Atlas.

Between this coast line of hills and the foot of the Mount Atlas range, there is a low plain, called the Mitidja, the seat of exuberant fertility in the days of the Romans, but which subsequent possessors had allowed to fall into a state of Nature. The rainfall of the mountains which limit it to the south, prevented by the Sahel hills from passing directly to the sea, had saturated nearly its entire extent, and made it an unhealthy marsh. But since the French took possession of Algiers they have been steadily draining and reclaiming this really fertile plain at great expenditure of money and life, and have succeeded in rendering a considerable portion of it, especially the highest ground near Ishdal, both fertile and healthy.

On leaving Algiers, April 20, for Fort Napoleon, we passed due east through an area of partly reclaimed and cultivated land for some miles. The bearded Wheat crops were vigorous and healthy, above 2 feet high, and the ear fully formed. The artificial Grasses were equally luxuriant and healthy. Then we began to rise, and came to a region where cultivation was only partial, the ground being covered with natural Grasses and plants, mingled with Dwarf Palms, and with patches of grain here and there, planted by the Arabs of the Mitidja. Wherever the land was not under cultivation, the principal plants were the Dwarf Palm, or Chamærops humilis, and the Scilla maritima. The Chamærops had appeared by the roadside and between fields ever since we left Algiers, but here it occupied the ground in dense masses, along with its friend, the maritime Squill, called by the inhabitants the wild Ognon. Left to itself the Chamærops Palm grows in tufts, throwing out side shoots, and spreading in every direction. If these side shoots are cut off, the main stem rises to a height of from 6 to 8 feet, but this it never does in a state of nature, always throwing out side shoots instead. This Palm covers the plain of the Mitidja in most places, and extends high up into the mountains. Formerly it existed in the South of France, and is still found wild in the south-eastern regions of Spain. It is the principal obstacle to the cultivation of the Mitidja, as it can only be extirpated at an expense of 8*l.* an acre, so deep and matted are its roots. Although an obstacle to agriculture, it is a great ornament to the landscape. The bulb of the maritime Squill (the Squills of druggists) varies from the size of the fist to that of a child's head, and it is perhaps the commonest plant in Algeria. It extends all over the country up the highest mountains, in the driest, sandiest, hottest regions, and passing over the Atlas descends into the desert itself, where it is nearly the last plant seen. This fact corresponds with my experience of it at Mentone, where it grows vigorously on the hottest driest rocks. It seems equally at home in sandy mica-schistic or calcareous soil. It is not used, being considered poisonous by the inhabitants.

Rising gradually out of the plain we come to poor sandy soils, where I was reminded of the "maquis" of Corsica. Here were the Cistus or Rock Rose, the Cytisus, both in the full beauty of their yellow bloom; the Lentiscus, also in bloom; the prickly Broom, the Cork Oak, the Ilex or evergreen Oak, but not the Mediterranean Heath, and rarely the Myrtle. Wherever sand, sandstone, or mica-schist appeared near the surface throughout my travels, this peculiar vegetation also appeared in full luxuriance, rendering the hillsides, as in Corsica, a very garden of yellow and white and rose blossoms. This same "maquis" covers the Estrelle Mountains, near Cannes (micaschist), and a small sandstone tertiary ridge in the Mentone amphitheatre (S. Lucia), as well as Corsica and Sardinia, and evidently connects in a most remarkable way the vegetation of the South of Europe with that of the North of Africa. It is the peculiar vegetation of the entire Atlas range wherever the soil is formed by the break-up of primary rock, disappearing on the calcareous ranges; its presence in wild luxuriance, and its general disappearance as soon as the nature of the soil becomes cretaceous, although climatal conditions are the same, is a remarkable illustration of the natural adaptability of plants to certain well-defined soils. Along with these plants also appeared in great profusion our garden flower, the Pheasant's Eye (Adonis) just coming into bloom. This plant is evidently a native, and, like the Silene pendula, then in full bloom, is found everywhere in Algeria.

This "maquis," *broussaille* the French call it, as we rose above the sea, penetrating into the lower mountain ranges, gradually gave way to cultivation. The Kabyles, who inhabit these mountains, are numerous, and a laborious agricultural race, tilling the ground with great skill and intelligence. They have only recently been subjugated by the French, and appear to have cultivated their country in this way from time immemorial. The mountain slopes and valleys, which constitute the Kabylia, are covered with much good and fertile soil. They are dotted with densely inhabited villages, and are a scene of universal luxuriance. Corn covers the slopes wherever the land admits of its being grown, and the Fig and Olive tree are seen everywhere. Sheltered from the north sea breezes by the shore, mountains, or hills, both the Fig and Olive tree attain an enormous size, and are much finer than at Algiers. But the Olive is always seen on the south side of the hills, seldom or never on the south. The fruit of the Fig is one of the principal elements of food in the south, and, in a late famine, caused by a year's drought, and by a spring invasion of locusts from the desert, it contributed to save the Kabyles. The first crop was eaten up by the locusts, but a second crop formed and was saved. Many mountain Ashes are also seen, both in the Kabylia mountains and all over Algeria. This tree is evidently cultivated for its shade and its timber, but grows wild in the thickets. It seems very hardy, growing with equal luxuriance in the plains as at 5000 feet high on the sides of the Atlas, and does not appear particular as to soil. As the Kabyles are Mussulmans and do not drink wine, they have not planted the Vine. It succeeds, however, very well in Algeria, and is planted everywhere they go by the wine-drinking French. The Kabyle villages are generally surrounded with groves of the Opuntia, or Barbary Fig, which is seen throughout Algeria.

The streams and rivers are fringed on both sides by the Oleander, or Rose Laurel, and by the Tamarisk. The Oleander forms dense bushes, which must be very lovely when in flower. It lines, in more or less abundance, most of the mountain watercourses in the Atlas, becoming more and more luxuriant as we advance inland. The Tamarisk is its faithful companion, for they generally appear together; on the more inland streams the Tamarisk becomes quite a tree. These two plants are evidently indigenous to the country, as is our old and irrepressible friend the Blackberry, which here as elsewhere delights in all soils, in all altitudes, luxuriates in the plains at the foot of Mount Atlas, in the valleys on his side, climbs up to his summit, and probably descends into the desert. I often saw it climbing over the Lentiscus and other bushes, and even entwining its branches among the prickles of the Barbary Fig, which no other plant or climber seemed audacious enough to do. The Smilax, or Sarsaparilla, the Clematis, the Wild Vine, are common, as on the Riviera and in Corsica. I repeatedly also found the Hawthorn in wild mountain regions, where it could not have been planted, in full bloom.

My journey in this direction ended at Fort Napoleon, about 80 miles south-east of Algiers. This fort has only recently been constructed, on the summit of a spur 2700 feet high, at the foot of the Jurjura, in the midst of the Kabylia, and is garrisoned by a strong force to awe the recently conquered mountaineers. I then returned to Algiers, from whence I again started on April 23 for Teniel el Haad, one of the "gates of the desert," by Blidah and Milianah. *H. Bennet, M.D.*

(To be Continued.)

TORONTO HORTICULTURAL SOCIETY.—The spring exhibition of this Society was held on Thursday last, but, the season being late, the display of vegetables and open-air plants, though good in quality, was somewhat small in quantity, the chief productions being from the greenhouse and conservatory, comprising a very interesting collection, which was, on the whole, of more than ordinary merit. In addition to the Coleuses was a magnificent foliage plant from St. Domingo, Theophrasta imperialis; and some fine specimens of Digitalis, in full blossom, pleasantly reminded many visitors of the green hedges of dear but distant England. There was a good display of Roses, Fuchsias, Verbenas, Azaleas, Calceolarias, &c. A bouquet of native wild flowers, notwithstanding the late character of the season, afforded a beautiful illustration of the vernal flora of Canada. A few orchard-house trees, comprising the Peach, Apricot, and Nectarine, with fruit well set and advanced, indicated skilful attention to culture. Orchard-houses have of late been very much extended, and where proper care has been exercised, the results have been satisfactory. A dish of fresh-looking Isabella Grapes, which had kept perfectly through the winter, having been packed between layers of dried leaves, as also several sound specimens of the choicer kinds of Apples, deservedly attracted attention.

The prospect of fruit this season is encouraging, for at this late date we shall in all probability escape night frosts. Standard Peaches, in the open air, promise well. Grape culture is steadily extending, and we have in Ontario (Upper Canada) several vineries, from an acre or two up to twenty, in successful operation.

This being the anniversary of her Majesty's birthday, it is our custom to celebrate the event by a public holiday, which all classes of her subjects are now enjoying according to their own tastes and wishes. *Geo. Buckland, Bureau of Agriculture, Toronto, May 21.*

Societies.

ROYAL HORTICULTURAL: *June* 15.—Lord Londesborough in the chair. After the usual preliminary business of the meeting was concluded, the Rev. J. Dix, in announcing the awards of the Floral Committee, especially referred to a charming collection of admirably executed artificial plants and flowers, exhibited by M. Baulant, Rue Marsolier, 15 (Théâtre Italien), Paris, and to whom a Special Certificate was awarded by the Committee, and a silver medal by the Council. The Rev. M. J. Berkeley, in proceeding to address the meeting, first read a paper from Mr. Fenn, relating to the Potatos, mentioned in our last report of the Fruit Committee, and further alluded to in the report of the Scientific Committee in our present number. A small specimen of Godoya was exhibited by W. W. Saunders, Esq., at a former meeting, which Mr. Berkeley then thought was a Sapindaceous plant, but he had since found that it had been figured and described as Godoya splendida in the 5th vol. of Hooker's "Journal of Botany." A group of Rhododendrons, furnished by Mr. Noble, next came under notice, in which was a curious specimen of a seedling with semi-double flowers, precisely like those of the male parent, flowers of which were sent for comparison. This case serves to illustrate the way in which monstrosity may be handed down from one generation to another. Mr. Berkeley then called attention to a Pelargonium, sent by W. W. Saunders, Esq., that was rapidly being destroyed by a species of Orobanche, somewhat similar to the one that is so destructive to Peas in Italy. A fine collection of Liliums from the Society's garden, Chiswick, next came under review, and in which was a white variety originally from Peru, and which Mr. Berkeley at first thought was distinct, but which was no doubt a form of L. candidum that was cultivated in most Catholic countries as an emblem of the Virgin Mary. Mr. Berkeley then alluded to the beautiful specimens of Spiræa palmata contributed by Mr. Noble, of which further particulars are given at p. 661. The Fungus which was attacking the Apple trees in some parts of the country at this time was said by Mr. Berkeley to be of a similar nature to the Oidium of the Vine. Another Fungus produced the singular Bladder Plums, further alluded to under the head of the "Scientific Committee." Specimens of Allium ciliatum, from the garden of Major Trevor Clarke, were next shown to the meeting, as having pretty white flowers, but possessed of a strong garlic odour. Mr. Berkeley, in conclusion, referred to a small specimen of the rarely seen Mantisia saltatoria, or "Opera Girls'" plant, so named from its flowers presenting some resemblance in figure and apparel to ballet dancers; it belonged to the natural order Zingiberaceæ, of which Cannas and the Ginger plant were also members. W. W. Saunders, Esq., said, with reference to an article on the hybridisation of Pelargoniums which appeared in our last (p. 638), that he had for the last 30 or 40 years been collecting the known members of this genus, and now possessed about 200 Cape species, some of which had large and beautiful flowers of the most exquisite colours; and further stated that if any one connected with horticulture was desirous of carrying out the experiments suggested in that article, he would be most happy to give as many plants or cuttings or as much pollen as he could spare, for the furtherance of that object. Major Trevor Clarke next called attention to a class of Pelargoniums, known as the Uniques, the flowers of which were admirably adapted for buttonhole work; and, with reference to the latter, said that a prize would be offered at their next meeting on Tuesday, July 6, for the most artistically arranged Buttonhole bouquet, of which further conditions will hereafter be given.

Mr. Bateman, before proceeding to comment upon the Orchids, read a short paper from Mr. Fortune on the Spiræa palmata (see p. 661), and added that the charming pink flowers of this species, and also the white-flowered S. japonica, were admirably adapted for bouquet-making. Instead of reviewing all the Orchids present, Mr. Bateman first alluded to a specimen of Epidendrum arbusculum, which he had never seen exhibited before, sent to the meeting by Messrs. Rollisson & Sons; and stated that he was pleased to see the collections of Orchids exhibited by this firm increasing in quantity at every meeting. He then proceeded to make some observations on the genus Masdevallia and its structural peculiarities, which were so singular that it had been suggested by Prof. Reichenbach that the genus should be classed among the "funny Orchids." The extraordinary forms assumed by the flowers of these plants is shown to some extent by the names that have been applied to them, such as the Elephant-headed Masdevallia, the Lion's-tongue, the Mastodon, the Dinotherium, &c. While the form was singular the colouring was also often equally remarkable, as in M. rosea, M. coccinea, and specially in M. Veitchiana, the tints of which it was impossible for any artist to imitate, much less exaggerate. Mr. Bateman, alluding to the great number of species still to be introduced from the Andes, advised collectors to turn their attention to these plants, as not only would the venture be very profitable, but there would be comparatively little trouble, as the plants were so readily portable. In illustration of the cost of these plants, Mr. Bateman stated that a small plant of M. Veitchiana had recently been sold for its weight in gold, including in the balance not only the plant but the pot in which it was growing. In concluding his remarks Mr. Bateman recommended, on the score of ready portability, the culture of Orchids in "jardiniers" in drawing-rooms.

Scientific Committee.—W. W. Saunders, Esq., F.R.S., in the chair. After the transaction of the formal business of the Committee, a letter was read from Mr. Deavin, gr. at Porter's Park, Barnet, relating to some Peach leaves which were perforated with small holes. Shortly after the appearance of the holes gum oozes from the trunk, the leaves and most of the young fruits drop off, often the young shoots die also. After this state of things has gone on for some time there is a short interval, and then the buds below the spot where the gum has exuded commence growing vigorously, and in a short time the trees are full of healthy-looking young wood, and what fruit is left attains a large size. Mr. Berkeley considered the phenomenon thus described to be due to the effect of cold, as explained at former meetings of the Committee. Some specimens of Lime shoots from Mr. Woodford, Eastwell Park, were exhibited, showing similar diseased conditions of the leaves (see p. 663). An interesting communication was read from Dr. Ferdinand von Müller, relating to the effect of frost on plants in the vicinity of Melbourne. No doubt this valuable contribution will be printed in full in the Journal of the Society, hence we confine ourselves to the statement that on July 12, 1868, the thermometer recorded 27°.4 Fahr. in the air, and 21 on the grass, a degree of cold never before observed in that locality. Long lists of plants, more or less affected by the frost, were appended.

The Chairman remarked that he had found the most convenient and efficient mode of protecting trees from frost was to thrust in among their branches masses of Fern or small evergreen boughs, the effect of which, in obviating the ill effects of frost, was most remarkable.

Mr. Horne gave some details as to the extraordinary fertility of some English white Oats, observed near Bengeo. One plant on good soil, and which had been well watered, measured 3 feet 6 inches in height, had 35 stalks, and bore 1180 grains. Other illustrations of a like character were given.

A letter from Mr. Fenn, as to the "clubbing" of Potatos, was read. The substance of this communication has been already given (p. 616). Mr. Fenn further remarked that when the Ribston Pippin Apple was grafted on the Blenheim Orange, the flavour of the Ribston was much impaired, but at the same time its value as a culinary fruit was greatly enhanced.

Dr. Thomson exhibited specimens of Bladder Plums from a hedge in Northamptonshire. The fruit here presents none of its ordinary succulent character, the stone is not formed, and the ovule is more or less atrophied. Sometimes a second carpel is produced. The phenomenon in question is due to a parasitic Fungus, Ascomyces deformans. In India a particular form of the Bird Cherry is pretty constantly affected in this way, and the plant has in consequence received the name of Cerasus cornuta. A species of Rhus was also stated to exhibit a similar deformity.

Dr. Masters exhibited a series of malformations, none of them of very uncommon occurrence, but affording good illustrations of particular changes. They consisted of fasciated stem of Carduus palustris, from Dr. Moore of Glasnevin; double flowers of Apple, looking more like Roses than Apples; the "calyx tube" was not developed so that the carpels were superior, and the petals increased in number and size: flowers of Epacris from Mr. Poynter of Taunton, in which the pistil was wanting, and its place supplied by a leafy shoot, which thus appeared to be prolonged through the flower; and regular cup-shaped flowers of Digitalis purpurea, arising from the fusion of several flowers into one: the axis in this case also was prolonged through the centre, and bore flower-buds on its side.

Mr. Bennett exhibited fasciated specimens of a species of Willow.

Major Trevor Clarke showed a specimen of Pelargonium, to show the effect of artificial manures in developing the leaves. It was also stated, that a series of experiments as to the effect of manures on the coloration of the leaves of zonal Pelargoniums was about to be tried at Chiswick, Messrs. Lawes and Gilbert having kindly offered to provide the requisite manures for the purpose.

Rev. M. J. Berkeley remarked that in most instances the coloration of the leaves of the Pelargonium depended on the superposition of various layers of cells over the red pigment cells, whose colour was thus apparently altered, but in the case of the bronze zonals the substratum was really bronze-coloured, and not red.

The Chairman explained that the pink-flowered Cranagus alluded to by him at a previous meeting was taken from a plant originally a seedling from a white-flowered variety, and itself produced white flowers for several years, but latterly it had borne pink flowers. Considerable interest was also manifested in some specimens of Oats shown by the Chairman, and stated to have been grown on well-manured and well-drained stiff clay soil. These Oats produced short stout stems, with a great tendency to develop stolons from the base. The foliage was unhealthy, and the stem never grew much in height, and never produced ears. No conclusion was come to as to the cause of this unpleasant peculiarity, which was stated to appear in some seasons and be absent in others.

Some ears of Crepis biennis were shown with swollen stems, produced by the larva of some dipterous insect. Various other subjects were brought under the notice of the Committee, and the meeting then adjourned till after the recess.

Floral Committee.—The Rev. J. Dix in the chair. This was a [illegible] and several highly meritorious [illegible] were awarded. Mr. William [illegible] had a [illegible] Pelargoniums, named Calmet Villiers, with [illegible] petals [illegible] cherry [illegible]. Mr. Cripps of Tunbridge Wells, showed a fine double-flowered Cineraria of the cruenta breed; it was named Excelsior, and [illegible] petal-like sepals, with a tuft of short petals occupying the centre in the place of stamens; the colour was almost purple, the sepals marked with a reddish central bar. Mr. Wm. Paul, of Waltham Cross, showed a handsome Rose, of the group of pillar or climbing perpetuals called Prince Leopold; it is a fine showy Rose, of a rosy-purple colour, full and symmetrical, and, from samples of the stems exhibited, evidently a free-growing variety. A handsome Miltonia, probably festiva, or a finely-coloured variety of spectabilis, came from Mr. Findlay, Botanic Gardens, Manchester; this has blush sepals and petals, and the lip marked with bars of deep red. Adiantum excisum Leyi, from Mr. Ley, nurseryman, Croydon, is a sport from A. excisum multifidum, and is remarkable for its dwarf, close-tufted, and densely cristate habit. Messrs. Rollisson & Sons, Tooting, in a very pretty group of flowering plants, showed the true Epidendrum vitellinum majus, under the name of superbum. × Phyllocactus violaceus, a cross between speciosissimus and Ackermani, came from Messrs. F. & T. Smith; it is a dwarf, free-blooming sort, with three winged stems, and large crimson flowers, shot with purple in the centre, and very closely resembles the × P. Parzii noticed at p. 638. A very handsome Ivy-leaved Pelargonium, named Gem of the Season, came from Mr. Ford, gr. Leonardslee, near Horsham; it has large and abundant salmon-pink blossoms, and is remarkable for its variable leaves, which show the lobed form of the Ivy-leaved sorts, and are, some green, some with dark green, and others with pale green centres, and some almost golden. Mr. Ford must be congratulated on obtaining this plant, which is one of the most valuable acquisitions of the year, and was awarded a First-class Certificate.

Amongst the other subjects brought forward was a curious semi-double Rhododendron named Fra Diavolo, from Mr. Noble, a whitish flower with coppery blotch and petaloid filaments; Mr. Noble also sent the beautiful Spiræa palmata. A seedling Rose named Earl of Eldon came from Mr. H. Coppin, Shirley, Croydon; it was a cross between Cloth of Gold and Gloire de Dijon, and was of a creamy buff tinted with rose, but had the defect of "quartering." Messrs. Veitch & Sons sent an interesting collection of plants, which received a Special Certificate; as did also Messrs. Rollisson's collection, and some boxes of fine Roses from Mr. Turner and Messrs. Veitch. In a group from Mr. Williams was a noble plant of the Aralia Sieboldi aureo-marginata, a fine variety, quite distinct from the common variegated form; Thrinax grandis, and Pandanus glaucophyllus, with the base of the leaves covered with white powder. Messrs. E. G. Henderson & Son, Wellington Road Nursery, exhibited several grey-leaved plants recommended for bedding purposes, namely, Gnaphalium tomentosum and Achyrocline Sanderseni, both of compact shrubby habit, the latter with something the aspect of a Lavender bush, and with the leaves clothed with a greyish down; and Cineraria acanthifolia, with oblong inciso-lobate leaves, apparently of a neater habit than C. maritima: with these were some Golden Variegated Zonal Pelargoniums with such unwieldy names as Pleasures of Memory, Love me Long, &c. From Messrs. J. & C. Lee came Pelargonium Golden Brilliantissimum, of compact habit, with yellow-edged leaves, and numerous but thin vermilion-coloured flowers. A further collection of Mr. Foster's seedling Pelargoniums was staged by Mr. Turner. A First-class Certificate was awarded to a finely-finished flower named Admiration, having pink lower petals, veined with and having slight blotches of rose; dark blotch on top petals, with broad margin of orange-red, into which the dark slightly runs, and outer edge of pink: and a Second-class Certificate to Polly, a somewhat novel dark flower, the lower petals rich crimson, heavily veined with dark; dark top petals, with a narrow edge of bright rose; dwarf and good habit, very free blooming; the flowers small and somewhat rough. The others were—Rebecca, pink lower petals, slightly veined with rose; dark blotch on top petals, with broad margin of fiery orange, and edge of pink; a pleasing flower, but having a spare habit: Brigantine, violet-pink lower petals, overlaid with dark; dark top petals, with narrow edge of rosy-pink; white throat, good habit: Black Prince, orange-rose lower petals, veined heavily with dark; dark top petals, with narrow edge of rosy-pink, white throat, and spare habit: Plantagenet, soft pink, with slight veins of carmine, dark blotch on top petals, with broad margin of fiery orange, and broad outer edge of pink; a pleasing soft flower, free blooming, and good habit: Flower of the Day, lilac-pink lower petals, with veins of rose; dark blotch on top petals, with broad margin of pale fiery carmine, and edged with pink: Florence, violet-carmine lower petals, with slight dark veins; dark blotch on top petals, with broad margin of fiery orange, and edge of pink; good habit, and free blooming: and Prime Minister, pale pink lower petals, with slight pencillings of rose; dark blotch on top petals, with fiery red margin run into with dark, and edge of pale pink; good habit. In addition, Mr. Turner had Corsair and Maid of Honour, both very fine indeed, the former splendidly coloured; these also are of Mr. Foster's raising. Mr. James, gr. to W. F. Watson, Esq., Isleworth, exhibited a very promising yearling variegated zonal Pelargonium, named Mary James. The green leaf ground, fiery zone, and golden edges, were well defined; the leaves were of circular shape and growth—quite a contrast to some other new kinds staged at the same time, the leaves of which were so rough as to have the appearance of a sadly-troubled floricultural sea on a small scale. There was a very interesting competition for the special prizes offered on this occasion. The 1st prize for the best six double-flowering zonal Pelargoniums was taken by Messrs. Carter & Co., who had Marie Lemoine, Madame Lemoine, Wilhelm Pfitzer, and Gloire de Nancy, beautifully flowered. Messrs. Standish & Co. were 2d with Marie Lemoine, Gloire de Nancy, Wilhelm Pfitzer, Capitaine l'Hermite, large specimens, but not fully in bloom. Mr. C. Turner took the 3d prize with Victor Lemoine, Double Tom Thumb, and Surpasse Gloire de Nancy. For single plants of double zonal Pelargoniums, the 1st prize also went to Messrs. Carter, for Marie Lemoine; Mr. Turner, who had Madame Lemoine, coming in 2d. Pinks were shown in admirable condition by Mr. Turner, who was 1st for 24, and also by Mr. Hooper, Bath, who was 2d, and Mr. Bragg, Slough, 3d. For 12, Mr. Pizzey, gr. to Sir E. Perry, was 1st; Mr. Kingston, Militia Barracks, Bath, 2d; and Mr. James Smith, Bath, 3d. For six Calceolarias, the 1st prize was taken by Mr. James, gr. to W. F. Watson, Esq., Isleworth, with large specimens in splendid bloom; and the 2d by Messrs. Dobson & Son, of Isleworth. Mr. W. Wilson Saunders' prize for 12 hardy herbaceous plants in flower was taken by Mr. Ware, of Tottenham, the only exhibitor, who had the following:—Aster alpinus, Gaudbeca marginata, Silene alpestris, Calceolaria Kellyana, Hesperis matronalis purpurea flore pleno, Onosma taurica, Delphinium abpecuroides, D belladonna, Lilium umbellatum, Lychnis fulgens, Funckia albo-marginata, and Orchis latifolia maculata.

Fruit Committee.—Very few subjects were brought before the Committee on this occasion. Mr. Stevens, gr. to his Grace The Duke of Sutherland Trentham, sent a nice dish of Calville Blanc Apples, and also a dish of an unnamed seedling, which was considered by the Committee to be of some merit, but as the specimens had been kept too long, they could not decide upon their merits. Very fine samples of hardy Brown Cos Lettuce were sent by Mr. J. M'Ronald, Nurseryman, Chichester, who also furnished some unmistakable examples of that dire pest, the Potato disease. Messrs. Barr & Sugden, King Street, Covent Garden, also contributed several varieties of Lettuce, amongst which a variety named Covent Garden White Dutch may be mentioned as being a large fine Cabbage Lettuce, of good substance and excellent flavour, and which was said to be the best Cabbage variety that this firm had in their trial grounds during the past season. From Mr. Hallett, gr. to Colonel Graham, Cossington House, Bridgewater, came two fruit of the Madras Citron, which, considering that they were produced by trees grown in pots, were remarkably large and fine.

Yorkshire Gala: *June* 16–18.—The Flower and Fruit Show, in connection with the Grand Yorkshire Gala, has been held in York during the past week. This exhibition has now been established for 11 years, and is one of those grand country horticultural gatherings which go far to rival, even if they do not in some of their features excel, the floral exhibitions of the metropolis. Not a little of this success is probably due to the hearty and cordial manner in which the whole arrangements are carried out. The show, which opened on Wednesday, notwithstanding the unpropitious nature of the weather, was a fine one in every respect. It was arranged in a large circular central tent, from which radiated four long tents of ample size, and all these were filled to overflowing with the choicest productions. We are glad to bear testimony to the excellence of this exhibition, which is not so well or so generally known southwards as it deserves to be; and though our space does not permit us to give a detailed report of it, we propose briefly to indicate its more prominent features. The central tent was devoted to collections of stove and greenhouse plants, both of the flowering and ornamental foliage class, and here the place of honour was occupied by Mr. Baines, of Bowdon, who had a capital selection of his well-known model specimens of hard-wooded plants. One long tent was filled with further contributions to the ornamental foliage class, and to Ferns, of which some very excellent groups were shown, Mr. Baines again taking the first place. This tent was bordered by Roses, on one side in pots, and on the other by cut blooms, amongst which latter Messrs. Paul & Son, Cheshunt, occupied the leading position, with various of noble and exquisite flowers, which enabled them to take all the leading prizes. A second long tent was nearly filled with Pelargoniums, among which the large-flowered show varieties from the Sheriff of York were magnificent examples of high-class cultivation. There was a large competition amongst zonals and nosegays, the plants far better than any which have this season made their way to the London shows, though still admitting of improvement; and one long table was occupied by variegated zonals, amongst which Messrs. F. & T. Smith's plants stood pre-eminent. Some of the pot Roses shown in this tent were remarkably good, being dwarf and bushy, with healthy foliage to the base, and well bloomed. A third long tent was filled with Heaths, of which some grand examples from the Withington establishment were staged; new plants, and a goodly array of specimen plants. A fourth similar tent was occupied mainly by fruit and Orchids, of each of which the display was of a really meritorious character. This show is one of the great holidays in the north of England, numerous excursion trains bringing in visitors from the various manufacturing towns by thousands. As a horticultural show it occupies a very high position. We should not omit to mention that a fine group of new and rare plants was contributed by Mr. Williams of Holloway.

Glasgow and West of Scotland Horticultural: *June* 2.—This exhibition, which was held in the City Hall, Glasgow, was without doubt one of the finest midsummer shows that the Society has ever organised. Although we missed the names of some of the great competitors in former times, we noticed an infusion of new blood of no less power. On this occasion the tables of plants furnished by Mr. Dickson, gr. to Mr. Thomas Coats of Ferguslie; by Mr. Methven, gr. to Colonel Campbell of Blythswood; from the Glasgow Botanic Gardens; by Messrs. J. & R. Thyne, and by Messrs. Smith & Simons, contributed much to invest this show with the title of greatness. But while paying a due meed of praise to these exhibitors, the names of Messrs. Peter Denny, Dumbarton; David Tod, Ironbank; T. D. Findlay, of Easterhill; J. R. Reid, of Woodburn; Captain Campbell, of Castlemilk, and others, may be mentioned, whose lots were entered for competition, and more or less conspicuous for beauty and value.

Royal Caledonian Horticultural: *June* 9.—This was one of the smallest shows in point of entries we have seen for years in Edinburgh. But for the specimen plants from Dalkeith, from The Glen, and from a very few of the competitors the tables would have been comparatively bare. The nurserymen came out in strong force, and by this means helped to give a furnished appearance to the Music Hall. Mr. Thomson, gr. to the Duke of Buccleuch, Dalkeith, furnished several good Orchids, chief among which was a magnificent variety of Vanda teres, much larger and higher coloured than any that we have seen either in private establishments or upon the exhibition table.

Scottish Pansy Society.—The 25th annual competition of this Society was held in connection with the above show. The season has been peculiarly unfavourable for Pansy growing, but notwithstanding there was a large amount of competition, and some of the specimens shown were very rich and beautifully tinted. Messrs. Downie, Laird & Laing had a specially noteworthy collection, and deservedly took the first place in every class in which they competed. The best six seedlings (open to all) came from Messrs. Downie, Laird & Laing. Fancy Pansies were well shown by Messrs. Downie, Laird & Laing, who had the best among nurserymen; by Mr. John Beveridge, who was 1st in the gardeners' and amateurs' class. H. W. Adair, Esq., who was 1st in the amateurs' class also took the special prize for 12; and F. Lightbody, Esq., the same award for 6. Mr. Adair, Hampton Terrace, took the Ladies' Prize for the most tastefully arranged bouquet of Pansies.

Notices of Books.

The Parks, Promenades, and Gardens of Paris. By W. Robinson, F.L.S. Murray. (Second notice).

From matters of taste and the domain of the beautiful we naturally turn to the regions of utility. Our neighbours across the Channel are an artistic people. They have done much to please the eye, but they have a lively sense that man is an eating as well as a seeing animal; and their love of art does not end with their gardens, buildings or parks. They concern themselves also in the provision for, and arrangement of their daily bread. It is needful to bear in mind that this expression has a somewhat different meaning in France to what it has in England. Even at home daily bread is a generic phrase, often including all we eat. Generally in England the phrase would be taken to mean bread and meat. In France it would be more generally understood as bread and fruit, soup, or vegetables. This fact at once explains why our author has written so much upon the fruit and vegetable culture of the Parisians. In France fruit is not only the luxury of the few, but is an important portion of the daily bread of the many. The same holds true of vegetables; these are not merely used as condiments to meat, as with us, but as substitutes for it;

and under the magic of French cookery very savoury and nourishing substitutes they become.

The character of the work is thus largely determined by the idiosyncracies of the people. The first 12 chapters are devoted to pen and pencil delineations of the beautiful. But after all this magnificence and grandeur, which has been told so often, but which we must say is marshalled before us in the first 13 chapters in language so precise and yet so picturesque that Paris seems to pass before us as in a moving panorama, the second 12 chapters are devoted to the important part which horticulture plays in satisfying the hunger of the Parisians. Through the whole of these chapters devoted to the utilitarian side of horticulture, there runs like an undercurrent the question, which will be best understood from the second title of chapter 14, which is—"Fruit Culture: how are we to improve it?" Before summarising the author's answer to this question, it is only just to state that a true record of the best practice of our neighbours, such as is given in this work, is one of the likeliest modes of improving our own. Doubtless in the more general cultivation of fruit and vegetables, and improved methods of making the most of them in a dietetic sense, we have a good deal to learn from the French. And works like this, so full of details of how they do these things, will ultimately teach us to do likewise. This is the more needful at the present time, as it is the opinion of many that butcher's meat will never again be cheap in England, hence the national importance of providing more nourishing food in the form of fruits and vegetables. And doubtless the tendency of this work is strongly in this direction, and probably a gradual and partial change in our national diet may not be the least useful service that Mr. Robinson can render to his country. Returning to chapter 14, the author proceeds to answer his query, How are we to improve our fruit culture? thus—by an extended and improved system of orcharding, growing more pyramids on the Quince, cheap walls, wired, and growing only a careful selection of the best varieties.

Then follow the author's views upon cordon training for Apples, his estimate of the French and English climates, Peach growing, modes of protection, training, orchard culture of fruits; followed by a list of the best kinds of fruits suited for standard orchard trees.

The 14th chapter concludes with recommending the cultivation of fruit on railway embankments and other waste places.

The 15th and 16th chapters are devoted to the cordon system of fruit growing, the different varieties of Apple stocks, the palmette and pyramidal modes of training, and the short pinching system—about 40 pages, profusely illustrated with perfect examples of the different forms.

The 17th chapter discusses Fig culture in the neighbourhood of Paris, the French mode of preserving Grapes in water, kept sweet with animal charcoal, described by the author in our own pages, and practised successfully by several of our readers; and Vine culture at Thomery.

The 18th chapter is devoted to the fruit and forcing gardens at Versailles, and the new fruit garden of the city of Paris, established and kept up by the municipality as a school of horticulture. Chapter 19 is occupied with a detailed account of Peach culture at Montreuil, with which the author has made the public familiar in our pages. The next chapter describes market gardening around Paris; the size of the gardens, the social position of masters and men, the rent, mode of cultivation and produce, are all passed in review. The barefooted labourers, by the way, rather controvert some views that have been expressed through the *Gardeners' Chronicle* upon wages in France. The holdings range from 1 to 3 acres, the rent from 24*l.* to 33*l.* per acre, and as much as 200*l.* to 600*l.* is often paid for fixtures and stock in trade, &c. The market gardens are walled in, provided with a cottage and a few sheds. The author proceeds to show that the cultivator must dig deep, manure heavily, and water copiously to raise such rents, and get returns for such large investments in such small areas. The chief cultural superiority of the French consists in the larger application of water. Not that our London market gardeners are wholly wanting in this matter. Every garden has its well and pump, and all of any size are provided with hose for the distribution of water. With such appliances they conquer the drought, and stock the market with the juiciest vegetables in the most parching seasons. At p. 467 the author remarks:—

"The year 1867, for example, was anything but a dry one; yet, in passing through the central markets at Paris during the month of July, 1867, with an excellent cultivator who has every convenience and good ground in the prettiest and richest part of Surrey, he was more surprised with the Radishes and young Turnips than with anything else. 'We cannot get anything like these at this season,' said he. Of course not, and simply because we do not take the simplest precautions to secure them. We have them when the weather is dewy and favourable, and where the soil and climate are moist; but a few weeks of dryness puts an end to all such luxuries, and should the drought continue, everthing becomes worthless and uneatable, as during the past season. But are we in a position to boast of our horticulture while this is the case? Does the routine work, which merely waits upon the seasons, thus deserve the name of skill? I think not, and morever, that it is absurdly unsatisfactory to reflect that the very things which our watery and cloudy clime is supposed to be most favourable to are to be found in greatest perfection with the French, in the drier and, for vegetables, less favourable climate of Paris! The secret of it all is, that the French market gardener, in addition to tilling and enriching his ground in the best manner, waters thoroughly and repeatedly every crop that requires water for its perfect development."

A good illustration of how much is got out of the ground in one season occurs at p. 469:—

"In the earliest spring the ground was occupied by Cos Lettuce, and from between them a crop of Radishes was gathered. Cauliflowers were planted early among the Cos, and as they approached maturity, the ground was of course wholly occupied by them, as one could not well put anything beneath a crop of perfectly grown Cauliflowers. When they were cut in May and June, an opportunity occurred of giving the ground that thorough culture and preparation which such a course of heavy cropping demands. Then a crop of Spinach was sown, and in the Spinach Cos Lettuce. As soon as the Spinach was cleared off, a crop of Endive was placed after natel; with the Cos. Then small Cauliflower plants were put in, yielding a fine crop in the autumn, and after them a small quick crop like Corn salad, and afterwards the ground was covered with frames."

A good many controverted points will be found in these chapters on fruit-growing, and some of the author's statements are too sweeping. An instance occurs at p. 436. Adverting to the French mode of protecting espaliers, such practice is declared to be "a thing that has never yet been attempted by British fruit growers." Many of our gardeners have used canvas screens for such purposes before the author was born, and some infinitely prefer them to the French straw mats. Still, it is readily conceded that protecting expedients might be multiplied with manifest advantage, and result in the greater fruitfulness not only of espalier, but of wall trees, pyramids, and cordons. Neither is our object here so much criticism as "chroniclism," or a running commentary on the contents of the work. Without by any means endorsing the whole of it, this much must, however, be stated in justice to the author, that he has presented the public with a mass of valuable information on Continental fruit culture, spanned the entire distance between the bud or scion to the perfectly formed fruitful tree; and shown that, as a rule, the distance between the two conditions of maidenhood and motherhood is less in France than in England. The whole of the dispute about stocks, &c., is included in this statement, and so far the balance of evidence seems in favour of the author's views.

Chapter 21 is devoted to Mushroom growing underground and upon the surface of the earth—two positions where their cultivation is seldom attempted in this country. It must not be supposed, however, that either of these modes of culture is absolutely unknown in England, as some of the finest Mushroom beds probably ever grown in this country were seen, by the light of a lamp, in a cave in London, a quarter of a century since, and from that period till now Mushrooms have been grown in every conceivable and inconceivable place, from a cellar to a hayloft. As to out-of-door culture, it was a constant practice for years to spawn the ridges on which the Gherkins and Vegetable Marrows were grown out-of-doors, the overshadowing leaves bleaching the Mushrooms to the most snowy whiteness. In fact, Mushrooms may be grown anywhere where frost and wet can be shut out, and a temperature of between 50° and 60° commanded. If the manure is previously sweetened, and its offensive effluvium shut in under a layer of the best of all deodorisers, the earth, this delicious morsel may be grown in pots in a ladies' boudoir without offending the most refined senses of the fairest occupant.

Notwithstanding all this, however, our markets are woefully understocked with Mushrooms, and probably one of the most useful chapters in Mr. Robinson's book is that devoted to the illustration and description of their modes of growth in quarries, mines, cellars, shelves, and the bottom of old casks. The plates and illustrations in this chapter are charming, and will excite the enthusiasm of thousands who have chalk pits, old quarries, mines, caves, &c, at command. The author doubts whether Mushrooms would succeed in coal or iron mines, and adverts to the ruinous results of rusty nails. But the matter is worth trying, and doubtless there are thousands of waste spaces in Britain, both underground and upon the surface, where millions of Mushrooms might be grown to the enrichment of the cultivators and the increase of the food and luxuriance of the nation. The author points out with great clearness of description and minuteness of detail how all this may be done.

It seems the stable manure is used in the rough, with all the straw left in it, thrown up into masses and watered to induce fermentation, turned over several times, five or six weeks being occupied in the preparation. It is then built up into beds 2 or more feet in thickness, firmly pressed down and watered. When this begins to ferment, in about a week it is again turned over, thrown up into ridge-shaped beds, and spawned in about a week after. The spawn used is what is termed maiden, or it might be called growing spawn. It is often found in dunghills naturally, and when not so found certain beds, formed in all respects like the others, are devoted to its production. But as soon as, or before, any Mushrooms appear, these beds are broken up, and all the flaky growing spawn saved for other beds. This is placed in the beds in small parcels, taken up with the finger and thumb, and inserted about 2 inches deep and 1 foot apart. The bed is then covered with 6 inches or so of litter, and left for 10 or 12 days; the litter is then removed, and the bed examined. If the spawn has risen, they are at once soiled; if not, they are spawned afresh. The soil used is a whitish looking clay, mixed with silver sand, about an inch deep, smoothed off and beat down with a shovel. In gathering, the Mushrooms are pulled out root and branch—a point that we have found of great importance, and the holes left are carefully filled up with fine sand—a practice quite new to us, and likely to be useful. The chapter concludes with the following plain practical directions for the cultivation of Mushrooms in the open ground:—

"In a market garden they may stretch over a considerable extent, their length being determined by the wants of the grower. The beds once made of a firm, close-fitting texture, the manure soon begins to warm again, but does not become unwholesomely hot for the spread of the spawn. When the beds have been made some days, the cultivator spawns them, having of course ascertained beforehand that the heat is genial and suitable. Generally the spawn is inserted within a few inches of the base, and at about 13 inches apart in the line. Some cultivators insert two lines, the second about 7 inches above the first. In doing so, it would of course be well to make the holes for the spawn in an alternate manner. The spawn is inserted in flakes about the size of three fingers, and then the manure is closed in over, and pressed firmly around it. This done, the beds are covered with about 6 inches of clean litter. Ten or twelve days afterwards the growers visit the beds, to see if the spawn has taken well. When they see the white filaments spreading in the bed they know that the spawn has taken; if not, they take away the spawn they suppose to be bad and replace it with better; but, using good spawn, and being practical hands at the work, they rarely fail in this particular; and when the spawn is seen spreading well through the bed, then, and not before, they cover the beds with fresh sweet soil to the depth of about an inch or so. For cover, the little pathway between the beds is simply loosened up, and the rich soil of the market garden applied equally, firmly, and smoothly with a shovel. With these open air beds they succeed in getting Mushrooms in winter. A covering of abundance of litter is put on immediately after the beds are earthed, and kept there as a protection. They have not long to wait till the beds are in full bearing, and when they are in that state it is thought better to examine and gather from the beds every second day, or even every day where there are many beds. And thus they grow excellent Mushrooms, and in great quantity, all the further attention required being to renew the covering when it gets rotten, and an occasional watering in a very dry season."

Chapter 22 is devoted to the culture of salads, in which the French are acknowledged greatly to excel. The next chapter deals with the preparation of the ground and cultivation of Asparagus. Chapter 24 is brimful of useful observations on small Carrots, Cardoons, forcing Cauliflowers, the Sweet Potato, early Potato, culture of the Oleander and Orange, forcing the white Lilac, and Rose-showing in France.

Chapter 25 deals with the market for flowers, fruits, and vegetables, gives lists of places best worth seeing, and compares the climates of London and Paris.

Chapter 26 occupies over 40 pages with a description of horticultural machines, implements, and appliances used in France, many of them but little known and less used in this country.

The last chapter is filled with instructive notes of a horticultural tour through a large portion of France, in which everything of interest relating to the theory or practice of gardening seems carefully noted and truly described. This brings up our knowledge of French gardening to the present time, and furnishes many an example of cultural skill and expert manipulation.

We venture to recommend the author in future to be more liberal in his acknowledgments of the sources whence his information and his illustrations are derived. Very many of the latter seem, unless we are mistaken, to be reproductions of those published in the very splendid volume of M. Alphand, now in course of publication, and which is almost entirely ignored by Mr. Robinson, though he is under considerable obligations to it. In conclusion, we may say that we hardly know a better mode of answering the author's inquiry of: How are we to improve? than by placing his book in the hands of every gardener in the kingdom—and where employers are liberal, or even worldly-wise, doubtless this will speedily be done.

The Apiary.

CONVENTION OF BEE-KEEPERS AT DARMSTADT, 1868.—We extract from the American "Bee Journal" a few notes of the proceedings of the second day's meeting:—

"It was decided by the Convention that, as compensation for making public his method of securing the pure fertilisation of queens, the Rev. M. Köhler was entitled to receive the contributions of German bee-keepers, deposited in the hands of the Editor of the *Bienenzeitung*.

"*Introduction of Strange Queens.*—The President then presented a letter from M. Uhle, communicating a process for the safe and speedy introduction of queen bees, which is substantially as follows:—Remove the queen of a colony, and feed the bees with diluted sugar, freshly scented with grated nutmeg. When the bees have freely partaken of this, dip the queen intended to be introduced into the scented solution, and immediately set her at liberty among the bees on a brood comb. This should be done in the evening, just before dusk, because the bees are then naturally more disposed to accept an offered stranger than earlier in the day; and because the odour of the scented sugar-water might attract robbers if fed either in the morning or at noon. The queen is to be dipped into the scented sugar-water, primarily to impart the same smell which the bees have acquired from it, but likewise to tame and subdue her, so that she may not act wildly and attempt to escape when introduced among the bees, but be, as it were, constrained to accept the caresses and homage of her new subjects.

"When introducing a queen, she should not be seized or held by the wings, but be grasped gently by the thorax with the thumb and forefinger. A queen held by the wings is apt to struggle and rush rashly among and over the bees when let go; and thus deporting herself as a stranger, she incurs the risk of being regarded and treated as such by the bees, and may be either mutilated or killed. If the bees are in top-opening hives, the scented sugar-water may be poured directly into the cells of one side of every partially empty comb, and the feeding and scenting of them may thus be promptly effected, even while the operator is searching for the queen intended to be removed. This process, of course, admits of variations and modifications, such as will readily suggest themselves to intelligent bee-keepers.

"*The Honey-emptying Machine* was highly extolled, as the complementary invention which placed within reach of the bee-keeper a supply of empty combs, which the movable comb system had made a desideratum, and as conducing to the further improvement and advancement of practical bee-culture. The Rev. M. Köhler remarked that as the introduction of movable combs was an improvement in the ratio of two to one, so the invention of the honey-emptier

might be considered as a further advance in the ratio of four to one. The inventor, Major von Hruschka stated that he had made some recent improvements in his invention, and among them was an arrangement for warming the combs by means of a spirit lamp, which enabled him to operate the machine in cool weather, and even in winter, and he doubted not that he could thus extract candied or viscid honey. By a further improvement now in progress, he expected to be able to dispense with the uncapping of the cells, and thus a troublesome and tedious operation would be got rid of.

"Major von Hruschka was requested to report the results of his experiments in the *Bienenzeitung*, which he promised to do if he succeeded in rendering the uncapping unnecessary.

(*To be Continued.*)

Miscellaneous.

Scientific Slanging.—A gentleman, who has made a rockwork, and planted it with Ferns, in the front of his house, near Winchester, has set up the following notice, and finds it efficient: "Beggars, beware! Scolopendriums and Polypodiums are set here." This will remind some readers of O'Connell's famous passage of tongues with a fishwoman, when he replied to all her epithets with scientific terms, and ultimately shut her up by calling her an hypothenuse. *Builder.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

Ericas and *Epacrises*, more especially young plants which are not in flower, should now be removed into cool pits or frames that have the bottoms covered with cinder-ashes. An aspect due north, if not too much shaded, should be chosen, or one as near thereto as possible. Now that their growing period has arrived, an occasional sprinkling overhead with tepid water will materially assist them, and especially during bright sunny weather. A waterpot having a light spray will be found the best for that purpose. Some of the more densely branching varieties, especially of the Heaths, are often at this season attacked with mildew, which is very prevalent this year. This malady works sad havoc amongst them if not stopped immediately. Dusting all the affected parts lightly with flowers of sulphur is the best of all remedies. This should be repeated occasionally at intervals until all symptoms of the disease are gone. Be very particular at this, the flowering season, in watering all larger specimens. The least neglect will often cause the finest specimen to droop and die outright with no warning whatever. If fine specimens are cultivated there must be an almost hourly supervision, so as to supply their individual requirements. Pot off lately-struck cuttings of *Euphorbia jacquiniflora*, and by giving them a liberal treatment, encourage a goodly growth preliminary to the winter blooming. *Gesneras*, in their several varieties, should, where they have not been started very early, and where they are already in flower, receive their final shift into the blooming-pots without further delay. Large shifts are objectionable; the plants delight in an admixture composed mainly of peat and leaf-mould, and require potting moderately firm. Stove and greenhouse *Jasminums* of the early-flowering sorts should now receive a shift, and be encouraged to make a further summer's growth. The same remarks apply to most other spring or early summer flowering plants, such as *Sonerilas*, *Impatiens*, *Eschynanthus*, &c. Keep the stove temperature as nearly as possible up to a mean of 77° or 80° by day, with a corresponding decrease of some 10° or 12° by night. Generally speaking, it may be permitted to advance from 10° to 15° by actual sun-heat. The former, however, should now be maintained—however much the weather may fluctuate. Give late *Gloxinias* their final shift into the flowering-pots. I do not include in these remarks cuttings and plants which are being struck by other means. All such should be potted on as soon as they have become sufficiently large to handle, after they have made somewhat of actual surface growth. Others which form shoots but slowly, and especially such as are put in after this date, will be better left in the cutting-pots, there to mature their young buds and remain until next week. *Caladiums*, which are now making their final effort at furnishing the full-grown specimens of a season's growth, will be very much benefited by a rather plentiful supply of guano-water of moderate strength. The more delicate little C. argyrites, and one or two other more delicate ones, such as C. Belleymei, should, however not have so much of this as most others which are more robust in their habit. The proper strength is rather less than one full ounce to the gallon.

FORCING HOUSES.

Late Vineries, or such as are bearing Grapes for late winter or early spring use, should have the thinning-out of the bunches completed without delay immediately the berries become sufficiently large to handle, and it is possible to determine the probable size of each bunch. I have previously advised that a rather more liberal thinning should be given to all late keeping Grapes than is sometimes necessary with such as ripen in or about midsummer, and during the most favourable seasons. This applies especially to such meritorious sorts as black St. Peter's, Lady Downe's, Kempsey Alicante, or of newer varieties, such as Madresfield Court Black Muscat, and Mrs. Pince's ditto, &c. Some few varieties, such as the Muscat of Alexandria, Canon Hall, Bowood, &c., require a higher range of temperature during the final swelling and ripening period than do most others; with a proper treatment, therefore, the thermometer may in a bright sun be permitted to run up to 95° and 100° in the early afternoon. One thing must, however, be borne in mind, and strictly acted on in reference to this high temperature, which is, that when such a maximum heat is permitted, the whole treatment in regard to temperature should receive more attention and study at our hands. For instance, cold air, or indeed the raw outer atmosphere, even if not particularly cold, should not be allowed too free access to the house, whether in the form of a direct draught or otherwise, and especially in the early morning; or some slight chill may endanger the whole. In the early morning, therefore, be very particular not to give air anywhere but at the apex of the roof, beginning with a little and increasing it gradually with the increasing heat of the sun. When the outer air has attained to a mean of about 60° to 65°, the air may with proper judgment be permitted to pervade every part more freely. Continue to shift all early successional *Pines* immediately they are at a stage likely to be benefited in their onward growth by such a course. Owing to the unusual heat of last summer many stocks have, as I have before intimated, been brought into bearing rather prematurely, hence it will be necessary, even in those places where a regular routine in regard to periodical potting is observed, to pick out and push on, by means of potting and such-like helps, a few of the most forward successionals. Preparations must be made, besides, for the general potting next month. *Cucumbers* which have been in bearing for some time in pits or frames should receive a root soaking with liquid manure of moderate strength from this date onward through the season, about once in every 8 or 10 days. Thin out the vines, and remove any old leaves, the general texture or surface-tissue of which have become debilitated in their functions. To keep up good cropping and a healthy leaf-surface combined, it will be necessary to allow them to have a growing and a fruiting period with periodical regularity. Generally the shoots require stopping constantly at or about one leaf from the fruit or flower. When the plants have, through a run of successional bearing, become rather weakly in their growth, it will then be necessary to allow each shoot to grow away freely, until each one has formed at least five or six strong young leaves. They should then be stopped. The lateral growths formed upon these will then afford a supply of fruit finer than before.

HARDY FLOWER GARDEN.

During dry periods it will not be advisable to mow the Grass upon lawns too frequently, for, if kept cut too closely, at such times it is apt to become very brown and unsightly. Should no rain fall, or not sufficient to soak all newly planted beds, at frequent intervals resort must be had to artificial waterings, for if they are allowed to become too dry at any time far more labour will be needed to soak them effectively than would have been the case had they been attended to earlier. Besides, the plants will have also suffered somewhat in the interval. Especially should all edgings of the lovely blue *Gentians* be attended to in this wise. Mulch *Dahlias* over with thoroughly decayed manure, and attend carefully to tying them and guarding them against the many insect pests which habitually attack them.

HARDY FRUIT GARDEN.

Continue to fasten young shoots upon *Peaches*, *Nectarines*, or *Apricots* into their proper places against the walls as frequently as any become by growth sufficiently long so to do. Where recently planted fruit-trees have not already been mulched, as previously advised, it will be necessary to give them a good soaking at the roots, should the present dry weather continue. Do not neglect to lay a little manure upon the soil around the boles immediately afterwards. Procure any *Strawberry Runners* which may be needed as soon as possible, and especially where early plants are needed for forcing.

KITCHEN GARDEN.

The general crop of *Potatos*, which are now growing apace, may be very much benefited by having the soil between the rows broken up, and afterwards drawn ridge-like up around the haulms. This I advise in addition to the ordinary earthing-up, as it proves so very beneficial in aiding the tubers to swell. The operation is performed very quickly with a heavy tool, not unlike a three-tined fork. The tines being bent back in the form of a pick, or hoe, the soil can be broken up with dispatch, the moulding-up being done with equal expedition. It will now be advisable to make small sowings of *Cabbage* seeds for ulterior use, or Coleworts; Little Pixie will be found an excellent variety for such a purpose. Sow *Cauliflower* seed upon a rich open border for a successional supply. Sow also *Lettuces*, and make further sowings of *Peas*. These should consist of some intermediate sorts, and such as come in tolerably quick, as it is now getting full late to sow the larger kinds. Transplant into the permanent trenches a row or more of *Celery* for early autumn uses; the trenches, prepared as previously advised, should, in all instances where light soils have to be treated, be well trodden down first; this, of course, after the necessary amount of good strong manure has been forked into them. Immediately the plants are in they should be trodden moderately firm, and have such a soaking of water that every particle of the soil may become well moistened, and set well around and upon the roots. Beautiful rains have fallen here of late; those, therefore, who have followed my suggestions, given in this department last week, "to take advantage of the first showery weather to transplant various subjects," will have made a material advance in cropping operations. *W. E.*

TOWN GARDENING.

NAIL close the leading shoots of the Virginia Creeper, and cut the laterals close in where they are not required to cover. The White Jasmine should be treated in the same way, retaining as many shoots as possible, as the flowers are produced from the young wood; and Jasminum nudiflorum should be thinned out and nailed close. The Ivy will also require to be nailed, and all straggling shoots taken off. If not already done, finish planting out such annuals as the French and African Marigolds, Castor Oil, Marvel of Peru, Sultan, Ten-week Stocks, &c. Let them be planted with as much earth about their roots as possible, and as soon as planted let them be well watered, not forgetting to water occasionally those trees and shrubs that were planted in the spring. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending June 16, 1869, as observed at the Horticultural Gardens.

June.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind	Rain.
Thurs. 10	●	30.086	30.083	63	36	49.5	63	59	N.	.00
Friday 11	1	30.082	29.982	67	41	54.0	60	58	N.	.00
Satur. 12	2	29.873	29.634	67	46	56.5	62	58	S.	.00
Sunday 13	3	29.530	29.472	69	50	59.5	61	58	S.	.56
Mond. 14	4	29.708	29.480	63	38	50.5	60	58	N.W.	.12
Tuesd. 15	5	29.740	29.523	63	44	53.5	58	57	W.	.06
Wed. 16	6	30.248	29.918	61	32	46.5	57	57	N.W.	.06
Average.		29.867	29.727	64.7	41.2	52.9	60.1	56.4		0.80

June 10—Very fine; cloudy, cold wind; dense clouds, cold air.
— 11—Cloudy, but fine; very fine; fine, cloudy and cold.
— 12—Very fine; clear and fine; densely overcast.
— 13—Overcast; very fine; densely overcast.
— 14—Heavy rain; cloudy; clear and fine at night.
— 15—Stormy; boisterous, with rain; clear, brisk wind.
— 16—Boisterous, with rain; densely overcast; cold wind.
Mean temperature of the week, 6 8-10 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending June 26, 1869.

June.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..20	72.3	48.6	60.4	20	0.66 in.	2	6	2	2	7	13	9	2
Mon. ..21	74.4	50.5	62.4	18	0.58	1	4	4	3	2	22	4	1
Tues. ..22	73.6	48.8	61.2	17	0.59	—	5	2	1	2	19	—	—
Wed. ..23	72.7	47.1	59.9	17	0.44	1	3	4	2	3	18	7	5
Thurs. ..24	74.1	48.9	61.5	15	0.72	1	3	5	1	2	16	10	5
Friday ..25	73.0	49.1	61.1	20	0.72	—	4	6	2	5	15	7	4
Satur. ..26	74.3	49.2	61.7	20	0.69	1	4	7	2	2	14	10	3

The highest temperature during the above period occurred on the 22d, 1846—therm. 93 deg.; and the lowest on the 20th, 1865—therm. 30 deg.

Notices to Correspondents.

BOOKS: *P Barker.* Williams' "Select Ferns."

CALEDONIAN HORTICULTURAL SOCIETY: *G.* You should not send us disparaging statements as to the management of this Society without appending your name and address, not necessarily for publication, but as a guarantee of good faith.

GRAPES: *An Inquirer.* Your Grapes are affected with rust, for which there is no cure, but prevention. See answer to "F. M.," below.—*A J, Four Elms.* It is somewhat of a disputed question, as to whether the spot in question is caused through chilling at the roots with cold water, or through scalding. We are inclined to attribute it to a little of both influences combined, but chiefly to the latter. Lady Downe's and Muscat of Alexandria are all very apt to be so affected. Keep up a warmer temperature, yet with a free and airy atmosphere in your house at all times, and admit air early in the mornings, so that the dews may be dried off the berries before the sun has power to affect them. Lady Downe's is not a forcing Grape.

INSECTS ON SYCAMORE SHOOTS: *W A P.* Your Sycamore shoots are infested by a parasitic Fungus, the early stage of some Nectria, the Poplar shoots by Valsa nivea. How far the Fungi are the cause or effect of decay is a very difficult question, which we believe no one at present is prepared to solve. *M J B.*

MALFORMED CUCUMBER: *J Marshall.* The leaf at the side of the Cucumber depends upon one of two causes—either the adhesion of a leaf to the side of the fruit, or part of the fruit itself becomes leafy. Judging from the photograph, yours comes under the first category, but it is impossible to tell without cutting the Cucumber across above and below the leaf.

MILDEW AND RUST ON GRAPES: *F M.* The berries were rubbed too much for us to discover any mildew on them. The rust on your Black Hamburghs is caused by either too strong an application of sulphur during the time the Grapes were in flower, or by their being subjected to cold currents of air when in a young state.

NAMES OF PLANTS: *B B.* 1, Cercis Siliquastrum; 2, Deutzia scabra; 3, Muscari comosum; 4, Tilia heterophylla; 5, Ajuga reptans.—*C J B.* Not the true Oriental Plane, probably P. acerifolia.—*T S P.* Thanks. 1, apparently Taxodium sempervirens; 2, Cryptomeria japonica. It is difficult to advise you, but in our own case we should retain the Douglas Fir. We fear that the others would not move well.—*S D.* The Judas-tree, Cercis Siliquastrum.—*John Porter.* 1, Bossiea linophylla; 2, Daviesia alata; 3, Leptospermum scoparium.—*C F.* One of the forms of Pyrus aria.—*W Muir.* 4, Iberis sempervirens; 5, Lobelia Paxtoniana; 6, Viola, apparently a form of V. lutea.—*C M H.* Pyrus aria.—*Newry.* Veronica agrestis, Stellaria holostea.—*E S, Pontefract.* Clematis montana.—*J D G.* 3, Muscari comosum. The others next week.

PEARS ATTACKED BY GRUBS: *W S.* See answer to "T. B." in our Notices to Correspondents last week, also former reports of the meetings of the Scientific Committee.

SCOLIME D'ESPAGNE: *Meath.* Apply to MM. Vilmorin et Cie., Quai de la Megisserie, Paris.

STRAWBERRY PLANTS ATTACKED BY GRUBS: *A Subscriber.* You do not say which grub it is which is so destructive to your Strawberry plants—whether the common grub which preys on Cabbages so much, or that of the large cockchafer. In either case we can do no better than recommend you to hunt for them and catch them, and if very troublesome you must renew your plantations.

TEA ROSES: *J G.* Shift moderately, if necessary, not otherwise, and prune only to keep the bush in good form. Consult Paul's "Rose Garden."

VINES: *Amateur.* The reason why your canes bear the best fruit at the top is because the wood is generally the best there, in consequence of the sap always rising to the most elevated parts with the greatest force; and the top of the house generally being the hottest, the wood is better ripened. The answer to your second question is, Thomson on the Vine.

WOODLICE: *A A W.* Dust about their haunts with some of the prepared tobacco powder, such as Pooley's. If they are in your Cucumber or Melon houses, in addition to using the above, sink some glass bottles into and level with the soil, first breaking off the necks of them. Put a little oatmeal into the bottle, and sprinkle a little on the soil around the top of the bottles.

COMMUNICATIONS RECEIVED:—W. A. W.—J. H.—G. McG.—R. T.—J. M. D.—S. T.—C. J. B.—G. S.—J. M.—Lymington,—W. B.

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WIRRAL AGRICULTURAL SOCIETY.—The ANNUAL SHOW of HORSES, HORNED CATTLE, SHEEP, PIGS, POULTRY, DOGS, IMPLEMENTS, FARM and HORTICULTURAL PRODUCE, &c., will be held at BIRKENHEAD, on AUGUST 25 and 26, when ABOVE SEVEN HUNDRED POUNDS will be offered in PREMIUMS. Prize Lists, &c., may be had on application to the Secretary, WILLIAM HENDERSON, 2, Market Cross, Birkenhead.

N.B. All ENTRIES CLOSE on AUGUST 3.

The Agricultural Gazette.

SATURDAY, JUNE 19, 1869.

MEETINGS FOR THE ENSUING WEEK.

June 24 } Norfolk Agricultural, at Attleborough.
— 25 } North-East of Ireland Agricultural, at Belfast.
— 24 }
— 25 } Agricultural Meeting at Nancy.
— 26 }

THE discussion on the Seed Adulteration Bill, of which a report is given on another page, is a curious illustration of the conservatism and *vis inertiæ* of official personages, even when the class is represented by a man of such vigorous independence as Mr. BRIGHT. The difficulties, even the disadvantages, of legislation for the removal of an acknowledged evil, were never more ably stated by an advocate of the "good old times" than they were the other night by the Right Hon. the President of the Board of Trade. "A measure levelled at the crime of mixing killed seeds with living, in order that the purchaser might be cheated in the dark, would be unserviceable unless it could also save the customer from buying seed which had died a natural death. A certain percentage of loss and failure was inevitable, even in the case of perfectly honest dealing. The practice complained of was dying out without the interference of the law. A new corps of inspectors would be called for; and ultimately one-half of the country would be employed under the Home Office in looking after the other half." To this was added, by Mr. MORRISON, the assertion that if farmers chose to combine—"co-operate"—and become their own seed growers and seed dealers, the remedy was in their own hand, and no legislation would be needed.—We are glad, nevertheless, to see that Mr. BRIGHT admits the existence of a great evil—one which urgently demands a remedy. It is also a most satisfactory thing that the seed trade generally are cordially supporting this attempt at legislation for the suppression of rascality. If it should fail, we may then perhaps be disposed to adopt Mr. MORRISON'S suggestion, and see if, like the trade in the heavier and bulkier seeds of the farm, that in Grass seeds, Clover seeds, Turnip seeds, Lucerne, Mangel seeds, &c., cannot be conducted at the ordinary weekly market—transferred from the charge of a community who are themselves, it seems, helplessly liable to be cheated, to that of the farmer who in each locality may undertake the provision of the wants of a known list of clients and customers with whom arrangements had been made during the previous season.

Mr. MORRISON'S plan of "co-operation" is a very good second horse on which to depend upon this course. We hope, however, to win with Mr. WELBY'S Seed Bill, which, as ably supported by Mr. C. S. READ, M.P., will, we hope, meet the case which he described:—"There is a marked difference," he said, "between the case of adulterating seeds and other things—feeding stuffs for instance. The farmer knows his oilcake is not all Linseed, but adulterated with bran; that his nitrate of soda is mixed with salt, and his ground bones with oyster shells; but little harm results in these cases beyond that of short measure. The case of adulterated seed is different. The failure of a crop may ruin a small man."—The roguery which exposes, especially the small farmer, to such risks as this, is certainly a proper subject for vigorous legislation.

IF "catch," or snatch crops did not interfere with the main crop of roots, stock farmers would no doubt find two green crops instead of one, within the year, exceedingly convenient. But in this country the climate is slow and uncertain, spring is cold and variable, and summer is generally a long time coming. A farmer who grows intermediate crops is often disappointed; sometimes cold or drought in May stunts his Trifolium, and it never gets high enough to hide a hare—as it happened last year; or inclement weather and a backward spring delay the crop, which is consequently being fed off when the land ought to be ploughed, and in good order for the roots that are to follow. The "snatch" crop itself, though often useful, seldom produces more than a fifth the weight of a good crop of Swedes, and if the latter is injured by it, the extra outlay incurred proves a loss instead of a gain; the farmer, in short, falls between two stools.

It is easy to understand why a good many agriculturists, particularly beginners, should have attempted the double crop, and should have abandoned it at last, finding that in the long run one good crop pays better than two bad ones. But the truth is, the practice is only suited to the warmest, earliest land. In Surrey, that sunniest of counties, which derives its name from being near the south and the sun, we have seen it succeed under energetic, clever management, but this was on the warm land of the "greensand," where the sheep farms are very favourably situated for the intermediate forage crop, because harvest is early, and the crop is ready to fold 10 days sooner than in the eastern counties—and the root crops may be sown later. No precise formula can be laid down for the successful management of these crops; it is not a lesson that can be learned by rote. The common rotation in the district is the four-course; the intermediate crops—Trifolium, Tares, Rye, Mustard, stubble Turnips, and early Peas—are not grown on any formal system. The maxim of the Surrey farmers who cultivate the sands and loams of Godalming, Bramley, Albury, or Abinger, seems to be to keep on sowing; which they do, with a thorough knowledge of all details, and a shrewd calculation of what the results will be in average seasons. In the case of Mangel, a foreign crop is seldom interposed, though Rye is occasionally taken. It is then gradually fed, giving a useful bite for ewes and lambs, at the end of March; on May 4 we have seen it as high as the hurdles, and it then soon grows stalky and worthless. Italian Rye-grass, sown in the spring corn with Trefoil for bottom feed, follows immediately after. Trifolium blossoms about the third week in May; it is useful before Tares, the earliest of which come on by about May 20, but food better than either of these affords precedes them, for milking ewes and their young lambs. Turnip-tops and Rape are ready to fold before Rye, and generally run to blossom and become worthless between the middle of April and the end of May. These two crops are by far the most useful for early feed, and as the autumn-formed bulb is a storehouse of the nutriment which helps to form greens in spring, they are less dependent on the soil; consequently, we find Turnip-tops and Rape as a spring provision for milking ewes on almost all sheep farms, and even in backward districts on soils where Rye and Italian Rye-grass yield but little food. They are the common spring crops on the sheep farms of Cambridgeshire, Hampshire, &c., and on chalk soils elsewhere which are too cold for the other early crops referred to. Another forage crop preferred to Rye on the colder soils, and following Turnip-tops, is winter Barley; after which Trefoil and mixtures sown in the spring corn carry on the flock, together with successional crops of spring Tares. Constant shifting of the flock among these succulent green crops, with corn, brings the south and west country lambs to the autumn fairs in blooming condition.

Snatch crops which last but a short time are of little service; for this reason Mustard, which is fit for folding in eight weeks, is little grown, because, though a good preparation for Wheat, it lasts but a fortnight, and is gone by the time the sheep are accustomed to it. Fresh food sometimes does mischief; we remember a farmer defending Mustard from the charge of being but poor diet, by declaring that three of his ewes had "turned up" on it during the week.

On warm soils forage grows fast, and so do weeds; and in bad hands we have seen the intermediate crops fail through the fouling of the land, but this was not the fault of the system. The following is a record of the number of crops grown in a single rotation in one of the parishes named above: the seasons were unusually favourable and the crops successful:—

1854. Wheat, stubble ploughed once and sown with Rye.
1855. Rye, followed by Turnips, after three ploughings.
1856. Canadian Oats, stubble ploughed once and sown with Turnips.
1857. Peas, followed by Turnips.
1858. Wheat, stubble ploughed once and sown with Rye.
1859. Swedish Turnips, after one ploughing.

The most common cause of mischief to the next crop arises from the dry harsh state of the land when ploughed. Swedes are often lost after Trifolium through evaporation, the immense leaf surface exhausting the soil of its moisture. Tares have a similar effect, from the same cause; and on the heavier soils especially, this crop when fed by sheep leaves the land in a state which, if satisfactory to the eye, proves "unkind" to Turnips. Success or failure in farming hinges on these small points, and that is why a skilful practical farmer is able to avoid blunders which his more "enlightened" neighbour falls into.

We need not point out the gain in time and the other advantages derived from having the land in high condition; nowhere has this been more striking than at the sewage farm at Barking, where a heavy crop of Rye is cut so early that the after-crop is never injured by the want of moisture in the soil. Practically the system of intermediate crops is unsuitable to any but warm early soils, and even then only to a part of the fallow break; it is entirely unsuited to cold soils. If the agricultural statistics were collected in January instead of June it would be found that the area covered by these crops, even in the south of England, is not considerable.

—— AT Mark Lane the Wheat trade has recovered the fall of last week, the boisterous weather, accompanied with heavy rains and hailstorms, having caused some speculative purchases. Other grain and feeding stuffs remain unchanged.——A short supply of prime British stock has kept both beef and mutton as high as 6*s.* per stone, but large numbers of coarse and thin foreign animals keep the lowest quotations at 3*s.* 8*d.* per stone.——In the seed trade there is but little doing.

—— On Tuesday last we were riding over high lands in the Craven district of the West Riding, through sheets of hail and rain, and blasts of north and north-west winds, reminding one of November rather than of June; and the just shorn sheep were cowering under whatever scanty shelter of plantation, fence, or wall they could find. We hear, however, that great loss was suffered in the county during the Tuesday night. Sheep clipping in June is, in the uplands of the northern counties, always attended with more or less danger, and the northern escarpments of the wolds felt the full force of Tuesday's gale; and it is on these hills that the great loss has occurred, fat sheep and ewes alike dying from the cold and exposure. Sheep clipped on Tuesday were turned out into the rain and cold to be found dead under the hedges next morning. The losses from sheep already dead have been more severe than farmers will admit, one farmer alone having sent a load of 17 dead sheep to the manure works. In some other cases the starved sheep have been housed, but many will die.

—— A conference, called by the local authorities of Salford, and attended by the members of Parliament for 44 boroughs, and the counties of Chester and Lancaster, was held at the Westminster Palace Hotel the other day, under the presidency of Mr. CAWLEY, for the purpose of considering the provisions of the Contagious Diseases (Animals) (No. 2) Bill. One of the features of the Bill most strongly objected to was that it re-enacted those provisions which exempt towns having quarter sessions from the county rating.

The views of the conference will be submitted to the Government at an early date.

—— The annual general meeting of the governors of the ROYAL AGRICULTURAL BENEVOLENT INSTITUTION was held at the Freemason's Hall on Wednesday, under Mr. MECHI'S chairmanship. In opening the proceedings he congratulated the meeting on the satisfactory position of the Society's affairs at the present time, there having been no less than 300 new subscribers during the past year. He might be unreasonable, but he was not satisfied even with that satisfactory position, considering the extent of the field they had to cultivate. The amount which the Society would be enabled to dispense for the year 1868-69 was 3,500*l.* The Secretary read the report, which stated that the operations of the Society during the past year were very satisfactory, and that there was a sum of 22,000*l.* funded. The ordinary business having been gone through, the meeting then proceeded to elect 36 pensioners, consisting of 12 males at 26*l.* per annum, 6 married couples at 40*l.* per annum, and 12 female pensioners at 20*l.* per annum, and to the election of 12 orphan children. The election had to be made from a list of about 100 names, all deserving cases, showing the claims which the charity had on public sympathy and support in its endeavours to meet the requirements of that class for whose benefit it was established.

—— Mr. R. H. ALLNATT thus calls attention in the *Times* to the folly of weather prophecy, as illustrated by the inclemency of our current "summer" weather:—

"Some weeks ago an anonymous correspondent, after advancing some safe platitudes about 'electric storms,' which did or did not occur, assured your readers that 'on the 25th of May we should settle down into a summer similar to that of last year,' and that in consequence an unwonted luxuriance of vitality would pervade the animal and vegetable kingdoms. Let us see by comparison with subsequent facts how your correspondent's prediction has been in this instance fulfilled: The mean temperature of the 16th day of June for 50 years is 59°. The coldest day of June in the last half century happened on the 9th of June, 1816, when the thermometer registered 43.5°. Last year on the 16th the shade temperature rose to 71°, and at noon in sun to 144°. On the 18th the shade-heat attained its maximum, and registered 81°, and the remainder of the month was greatly above the ordinary average. During the present month, from the 10th to the 16th, there has been, with one trifling exception, a consecutive run of abnormally low temperature. To-day (16th) the mean is 48.5°, which is below the average of 50 years by 10.5°, and below that of last year on the same day by 22.5°, and only exceeds the frigid day of 1816 by 5°. Thus may it fare with all impromptu weather prophets, *vari avates in gargite vasto!*"

OUR LIVE STOCK.

THE small but exceellent herd for some years carefully bred by Mr. W. A. Wooler, of Sadberge Hall, Darlington, was dispersed on Tuesday, the 8th inst., Mr. John Wetherell, of Richmond, officiating as auctioneer. The 14 animals disposed of are chiefly of Warlaby and Kirklevington extraction. Eight of the number are descended from Mr. A. L. Maynard's stock through *Duchess of Richmond* (lot 1) by DUKE (17,700), DUKE being by the Maynard bull OXFORD (15,035), and from *Duchess*, by DUKE OF RICHMOND, also the grandmother of the cow, whose pedigree we are tracing. She is, therefore, well and closely bred from stocks of undoubted worth; from her are descended five *Abergeldies* and two ABYSSINIAS, all by well-bred bulls, in which Maynard blood largely predominates. *Duchess of Richmond* (lot 1), age not stated, was sold to Mr. Singleton for 30 gs.; her daughter *Abergeldie*, by HIS GRACE, became the property of the Hon. P. Dawnay for 50 gs.; and her grand-daughter, by GAY LAD (21,800), passed into the same hands at 41 gs. Of the remaining animals three are from *Creole* (lot 6), bred by Mr. Nesham, late of Haughton-le-Skerne, Darlington, and by GENERAL, bred also by Mr. Nesham. The average price realised was close upon 29*l.*, and the sale was considered to be fairly successful.

—— Few herds more happily combine milking and feeding properties, largeness of size, and vigour of constitution than that of the Messrs. Angus, of Bromley, in Northumberland. A few weeks ago we mentioned the fact that this stock, so long bred by its present owners, would be sold in August. The day is now fixed for the 11th, immediately after the Northumberland show. The Bromley herd was first established by the grandfather of the present Mr. George Angus, who occupied the adjoining farm to Mr. Jobling, of Styford, and they used Collings bulls for some years, between them. Mr. Angus declined farming in 1801, and sent the whole of his heifer calves to Bromley, which farm had just been entered by his son, the father of the present Mr. George Angus. Bulls were then hired from Mr. Jobling, the following sires being consecutively employed—SURLEY, SIR HARRY, and WELLINGTON (643). Subsequently LEOPOLD was purchased from the same breeder, and later Mr. Donkin's AJAX, Mr. Wood's REFORMER, Mr. Crofton's BRILLIANT, and Mr. Booth's BENEDICT, with other Booth bulls, were used. The herd at present comprises from 50 to 60 animals, which we hear are in very good and improving condition.

—— We hear that Mr. Stratton has sold, for good prices, two handsome heifers, *Ariel* and *Camilla*, which lately secured the 1st and 2d prizes in their class at Southampton. Although exceedingly good-looking these animals owe much, and, according to some judges, too much, of their beauty to the high condition in which they have been sent to the showyard. No one can blame a breeder for exhibiting his stock in the condition most likely to attract the attention of the judges, and so long as prizes are awarded to overfed animals overfed animals will appear. Wrong as it doubtless is to pamper breeding animals to such an extent as to injure their fecundity, it yet will be persisted in so long as the standard of beauty laid down by judges appears to require it. Reverting to Mr. Stratton's heifers, the first and older is *Ariel* by BUDE LIGHT (21,342), from *Miranda* by KNIGHT OF THE LAGAN (20,083). She is a great beauty, and of fine touch. The younger, *Camilla*, is an exceedingly good heifer, very neat and of great substance. She is by 8TH DUKE OF YORK (23,808), dam *Cashmere* by DUKE OF WINDSOR (19,651).

—— The 5th volume of the "Devon Herd Book," edited by Captain Tanner Davy, is now ready. It contains the names of the breeders, and the ages and pedigrees of animals up to the close of last year, as well as a list of the prizes they have won.

ADVICE TO LABOURERS.

THE following is a portion of the address of the Rev. Canon Girdlestone at the 50th anniversary, on Monday, the 17th ult., of the Halberton New Inn Friendly Society. The first part of the address gave the statistics of the Friendly Society, which appears to be in very good condition, and which the rev. gentleman strongly advised the young men of his parish to join:—

I now pass on to a second advantage which I think has been conferred upon you during the last 50 years, and there are at least half a dozen of those advantages which I shall allude to. I shall call attention to the restoration of your church. Of course I did not see your church in ancient times, but I am told it was then in a very ruinous and miserable condition. Now, however, I have no hesitation in saying that I believe you might go through the whole length and breadth of the country and not find a village church in a more beautiful condition than the church of this parish is. I take no praise to myself, because I found it so. The praise is due to those who preceded me, but I am none the less willing to give praise to whom praise is due. You have an excellent parish church, and there is excellent accommodation for you there, for the labourers actually get the best part of the church, the centre being all free; and I would strongly urge upon you the advantage—I won't say duty—of making a diligent and careful use of that church.

3. Another thing has happened in this parish during the last 50 years—the building of your schools and setting them on foot. Now, with the building of those schools I had nothing whatever to do either; they were built by those who preceded me many years, therefore, if I say a word in praise of them, understand, I am not praising myself in any way. But I should like to tell you a little about these schools, and it is right that you should know it. There are on the books 150 children, and we have a regular attendance of 130 every day. However, it is no use for children to go to school unless they learn something, and no school can be of any value unless it is a good school. I want to tell you something of your schools, compared with other schools in other parts of the country. From Government statistics I find that if you take the whole of England and Wales, the average of those who, during the last year, failed in reading, in writing, and in arithmetic is this—in reading, 8 out of every 100; in writing, 16 out of every 100; and in arithmetic, 20 out of every 100. Now, come to Halberton. Her Majesty's Inspector came down in February, and out of the whole number presented to him for examination there were only two failures in reading, not a single failure in writing, and only one in arithmetic. You see what an immense contrast this is with the average state of education in other schools throughout the country. I am proud to say that I believe that if you look through the list of schools under the Committee of the Privy Council throughout England and Wales, you will not find a single school that stands in the same position as ours at Halberton. I mention this to show you that the education given here is of a really sound and wholesome kind. There is something which I have introduced into this school here, which I think will be of great value to your children—that is, the art of letter-writing. When your children go away to distant parts, as many do, it is very natural you should wish to hear from them; and when they send you a letter, you naturally wish to hear what they are doing. You don't want a letter saying merely, "I hope this will find you well, as it leaves me at present. God bless you; good-bye." You knew all that before you sat down to read it. But you want to know what Bob, and William, and Sukey, and Molly are doing; what sort of a place they are living in, what their employment is, what sort of food they get, whether they get more beef than you do, and all that sort of thing. Very well. We have set on foot some instruction in this art of letter-writing. We dictate to the children in the different classes letters—as if they were at a distance—to their fathers, mothers, brothers, and sisters. I have not yet got any letter from Sukey to her young man, but I am not sure that I shall not have one on that subject likewise. Well, this interests the children very much, and I am glad to say that it interests the parents very much. I think it very desirable to bring the art of writing to some useful and practical purpose. We don't want merely to be able to write, but we want to write for some useful purpose; and there is no more useful thing in the class of life to which you belong, when you are separated from one another—parents from children, brothers from sisters, and sweethearts from sweethearts—than that you should be able to write to each other something to the point. Then with respect to sewing, in which the children passed extremely well. Sewing, depend it, is a very good thing. You fellows, you want your shirts made, I guess, don't you? Very well. We teach these girls to cut out shirts, shifts, petticoats, and all those kinds of things, and to sew them together; and I beg leave to say that the Inspector stated that we passed extremely well in the sewing department. Certainly some of the needle-work exhibited, which my own wife and daughter saw, could scarcely be surpassed. I mention all this to show you that the education given in these schools is a really sound and good education. I need not remind you, my friends, of the value of education. First of all, what a value it is, even as a source of pleasure! Now I often visit old folks in this parish, and if there is one thing some of them deplore more than another, it is that they have never been educated. There they are, in a state of helpless old age, with nothing to pass away their time; they cannot read a word, and for any information they may obtain they are entirely dependent upon any casual visitor. Even, then, as a pleasure, being able to read and to inform yourselves on the various subjects abroad in these stirring times, and to be able to improve your own minds—even as a pleasure, I say, of what great value education is! But, mind you, education is also of a very large commercial value. The cry in these times is not merely for labourers, but for educated and skilled labourers. I have heard it said, over and over again, that Devonshire men are not the skilled labourers the men in the North are; and if you want to earn large wages, you must become well educated and skilled. I don't mean to say it is likely that old men will turn over a new leaf—that cannot be done, but most of you have got children, and I say that if you are sensible men you will give up, as far as you are able, the small pittance that your children can gain when young, and you will make any sacrifice, and undergo any self-denial, in order to send your children to school, that they may obtain that education which will constitute them skilled labourers, and enable them to compete with others in the race of life, and to obtain the large wages which are now obtained in other parts of the country by those who have been better educated and are more skilled than you. I do not believe that, physically, Devonshire men are any worse than the Yorkshire or Lancashire labourers. I have proved that myself. I have many letters at the present time, telling me that the labourers I sent at first were very weak, and utterly unable to do a day's work alongside a Yorkshire or a Lancashire man. "Well," I said, "it's very likely they've got no beef in them, and it's not very likely that they can be very strong." But the same correspondent wrote me another letter six months afterwards, and he said, "You never saw such a change as has come over the men you sent me. They have had six months' beef in their bellies, and now they are able to do a day's work against a Yorkshire or a Lancashire man, just as well as if they were natives." Well, then, I say that the institution of these schools in Halberton has conferred, during the last 50 years, a great advantage upon this parish.

4. I come to the fourth advantage, and that is the railway, which has been made within the past half century, and which passes through this parish. Before railways were made, as you know very well, travelling was uncommonly slow and expensive. It is well that we should have before our eyes a specimen of what travelling used to be in the days before railways were constructed, and I don't think that I can hold up a better specimen than the trap, the pony, and the man himself—"Old Poster" they used to call him—who carries the letters between Tiverton and Sandford. Now it appears to me that her Majesty left that remarkable vehicle and all its accessories in order that it may be a specimen to the inhabitants of Halberton of the mode in which, 50 years ago, all persons used to travel. I don't suppose anybody who has seen Mr. Strong go through the village would wish to travel to London by the same conveyance. But now, with the railway close to your doors, for 1*d.* a mile you may go to London quickly and comfortably. And you may go a great deal further than London, because you must recollect that this railway which runs so close to your doors is in connection with railways that branch into every branch of this great country, that the railways go to the different ports, and that those ports are in connection with large ocean steamers, in which you may proceed to India, to Australia, to America, or to any part of the world. It is hardly possible to measure the value and advantage which a railway is to the country, and to every parish through which it passes. Therefore, I say that the bringing of the railway to this parish, which has been done within the past 50 years, has conferred an inestimable boon upon every inhabitant of the parish, and not least upon the labourers of the parish, and those who are members of this Society. Think how it brings your letters to you. We could not have had the introduction of the penny post, we could not have had our letters taken to their destinations quickly, easily, and cheaply, but for the railway. What a comfort it is, when friends are at a distance, when children, husbands, wives, brothers, and sisters are separated from each other, to be able for a penny to have a long letter from them, describing all the circumstances of their position. It is just the same with photography. I remember that 50 years ago you could not get a likeness of any one of your friends for less than 10*l.* Now, by the means of photography, you can get the likeness of any of your friends for 6*d.* or 1*s.* For instance, there is one of your children living in London, or even in India—he gets a likeness done for 6*d.* or 1*s.*, and sends it to you through the post for 1*d.* So that for a very few pence you may get the portrait of any one you love, wherever they may be. All these are great advantages.

5. Now, then, I have to speak a few words about a fifth advantage which has been conferred upon you since the establishment of this society, and that is, cheap literature. Books, periodicals, papers, were so immensely dear 50 years ago that they were quite beyond the reach of the labouring classes altogether—it was quite impossible for them to purchase anything of the sort. Well, now, here are our friends on my right hand, representatives of three different newspapers, in any one of which, for the small sum of one penny, you will read an account not only of what goes on at this meeting, but of the debates in Parliament, and of every other subject that can interest you. And if you take the magazines, the cheap re-publications of some of the best and most standard works of this country, all these are brought within reach of the labouring classes; and that has been done during the last 50 years. In fact, there is no knowing what a cheap and well-conducted press has done for the advantage of the labouring classes. I ought to mention to you, in connection with this, that we have in our schoolroom a loan library, in which there are 550 volumes, treating on all sorts of subjects—philosophy, travels, voyages, tales, and stories of every sort; and, for a very small subscription, any person can take the books out on loan. I commend that to you very much. There is no use in having the power of reading unless you make use of it: and there is no better way in the world in which young men, who have left school with the power of reading, can keep up that power and make it practically useful to them, than by taking out books from a well-supplied and well-conducted loan library, such as ours. We allow all the children of our Sunday schools to take the books for nothing, and they are open to other persons for a very small payment. I refer now to the clothing club. We all know what a difficulty it is for labourers to pay for clothing themselves and their wives and children. It is a very difficult thing for them to save money for that purpose; but a clothing club enables persons to do it with great facility. On paying a certain sum weekly, that is retained for you as in a bank; and, at the time of repayment, a certain percentage is added to it, and you may spend it all at once yourselves, in any shop you choose—either at Tiverton or here—in obtaining such clothing as you may want for yourselves and your families. We have a great many subscribers to the club. I don't know that I want it to be too full, because as I have to pay the percentage out of my own pocket, I may become bankrupt if the members should become too numerous. However, it is a very good thing. There is another plan, which one of my daughters instituted last year, and which, I believe, is going on at the present moment. She calls it a "mother's meeting." Every woman brings with her a piece of material, or, if she prefers, she purchases some material at a reduced price, and they all sit and sew together, while some entertaining book is read to them. They are taught to cut out different articles of clothing and sew them up together; and when the article, whatever it is, is completed, they take it away, having given them one penny out of every shilling of the cost of the material.

6. I might mention a great many other advanges which have been conferred upon you during the last 50 years, many of them the work of my predecessors—some few the work of myself and those who have taken part with me. Of this I wish to say nothing. But I think I have said enough to show you, my friends, the labourers and members of this friendly society, that you have before you the elements of a very improved condition of life. But let me tell you this: I think that that which lies at the root of all the misery of a labourer's life is what I may call dependence, and principally dependence upon the Poor Law. I am quite an advocate for the Poor Law in this respect, that the country should be bound, as it is, to give relief—only I would have that relief much more liberal than it is—to those who, by no indolence or vice of their own, but by sickness or old age, have been reduced to a state of great distress. But what I think lies at the root of the misery of the labouring classes of this country is too much

dependence upon what the Poor Law is to do for them. That leads a great deal to improvident management. Young men marry—I have married many a couple—who have not a single shilling before them. This is very improvident; but they think that if they come to grief, there is the Poor Law to fly to. We don't do that in the station of life which I occupy. A young man in my station must not dream of marrying until he has something to marry upon. This is the sort of independence I should like to create in all your minds. Depend upon it, a young man would not spend all the money he had in the public house if he had not the Poor Law to fly to in the end, when he should be in want. If young men knew that unless they saved their money when they were young and unmarried, they must come to starvation when infirm-aged and old, they would be sure to save. But they don't save, because they have always got that miserable ghost of the Poor Law parading before their eyes, thinking they may always have recourse to that. What I want to create in your minds is a feeling of independence. I am quite aware that married men, with wives and young children, cannot save—it is a difficulty to keep, much less to save—but if you young men would only begin to save, the habit of saving would grow upon you, and you would soon be of the same mind as I am, that anything one earns by the sweat of his own brow, or by his own economy, is ten thousand times more sweet to eat and drink than what comes by indolence and intemperance.

Now, I think, I have set before you six of the great advantages which have been conferred upon you during the past 50 years, and I have no hesitation in saying that if you would make use of these advantages—for instance, societies such as this, of your church and other places of worship, of the schools, of the railways—for railways have great use in enabling you to go to places where wages are better, and in enabling you to see what people do in different parts of the country: of cheap literature, of clothing clubs, and the like—I am confident that if, instead of spending your money in idleness, amusements, and intemperance, you would devote yourself to the use of the advantages which I have now enumerated to you, and which have been conferred upon you during the last 50 years, since this friendly society was first set on foot, then you would attain to a much greater degree of independence than you have ever attained before. "Independence" is the word I want to mark upon your minds this afternoon. As long as you are dependent, so long you are sure to be oppressed. Once become independent and you can assert your own rights, and go your own way. More than that, depend upon it that as you become independent and better educated you will become more skilled, and those who are in the relation of employers to yourselves will be only too glad to give you higher wages, because you have become more useful servants than you were before to them. Therefore, I do most thoroughly commend to your minds' atttention this day the principle of independence. Let that be your motto. As the motto of this society is, "Let brotherly love continue," so let the motto of every man in this room, and especially of every young man, be "Independence."

LUCERNE HAY.

This plant flourishes in its greatest perfection in the rich, deep, well-drained alluvial soils on the banks of our rivers and streamlets. It is hardly necessary to observe that, its habit being to strike deeply downwards with a strong tap-root, 5 or 6 feet straight down, often considerably deeper, and stagnant wetness being immediately fatal to it, no plot of Lucerne can continue to flourish unless the land be friable enough to permit those strong tap-roots to establish themselves, and so drained, naturally or by artificial means, that after long-continued rains water cannot stagnate about them to rot them after they are formed. It is stagnant water that this plant cannot bear, for it will endure and even grow most rapidly in a soil usually very damp, so long as any excess of moisture be in motion, however slowly and imperceptibly. But the produce in soils so damp is apt to be rank and spongy, and not comparable to the finer, though still most luxuriant produce, of a deep, rich, but at the same time thoroughly drained soil. In such as these Lucerne is a very long-lived plant, and may last, producing fine crops, 12 to 15 years.

In respect to the treatment; it is desirable, in the first place, to have the land in a high state of tilth, rich in the elements of fertility, either naturally or by suitable additions, and free from weeds, to have a close bottom of plants produced by seeding from 18 lb. to 30 lb. of seed per acre. "Well planted," at first, in a suitable soil, Lucerne will soon bid defiance to weeds, indeed where fineness and quality is valued as well as quantity, especially when to be made into hay, the bottoms of plants can hardly be too close. If young Lucerne plants be mown easily, say when 5 or 6 inches high, the season not being unsuitable, the plot will come to a full, close, and abundant crop much sooner than if left to grow on without being mown.

For hay, in ordinary seasons, it is desirable to cut the crop just as the flower is beginning to become well developed; at this stage it is in the greatest perfection for hay—left longer it may yield a little heavier crop, but it loses its leaves extensively and becomes woody in stem, with a great loss of nutritive matter. But in dry weather, or on soils naturally too dry, it often becomes requisite to mow Lucerne before it reaches the flowering stage, or, in fact, whenever it ceases to grow—for it may be taken as a rule, that whenever the growth of the stalks has, through dry weather, totally ceased for a few days, they will grow no more, however favourable the weather may become; therefore, no matter how short, the sooner they are cut down and removed the better, for if left, the growth of the next crop when rain comes will be most materially interfered with. Suppose in a dry spring a plot of Lucerne with a growth of only six to eight inches, and all progress to be then stopped for want of moisture; suppose part of the plot to be mown, leaving another portion uncut, and that sufficient rain should then come—the portion which had been mown would rapidly overtop and treble in produce the uncut portion. Lucerne, then, should always be growing, and when the season forbids that, it should be mown, or closely fed off. Wherever this valuable fodder plant is extensively grown it is most desirable that mowing-machines and horse-rakes should be kept; without them it is hardly a manageable crop; with them a large breadth can, in suitable weather, be rapidly made into capital hay. Once cut down, the produce should in a few hours, fine weather being always understood, be placed in moderate "swaths" or "wind rows," kept loose and light and well off the ground, and as it "makes" be put into "grass-cocks" or small hay-cocks, to be simply turned over and "lightened" up with the fork as often as necessary. The principle to be kept in view being to "hay" as little as possible in the sun, after the first few hours, and expose as little surface as may be to night dews, but to trust to the circulation of air through the numerous small rows or cocks—only in exceptional cases ought Lucerne in the making to be risked in large cocks. It will absorb every drop of a passing shower, and then if in large masses may become difficult to manage. As soon as fit it should be carried to the stack—a very little rain damages it, and too much exposure to hot weather makes it dry and brittle. For the stacking a certain though slight amount of toughness should be preserved in the hay in order that a thorough good warming should take place in the stack. To guard against excess of heating and danger, a Lucerne stack should be well raised from the ground, with draft of air underneath, and as it proceeds, have chimneys or air-shafts carried up perpendicular as high nearly as the ridge, to be kept open until the heating begins to subside sensibly. To ascertain the condition of a freshly-built hay-rick, it is proper to use pieces of ⅝ or ¾ round iron, 8 or 9 feet long, drawn to a point, and turned round into a strong ring at the other extremity to fit a stout round T-handle of wood. These testing-irons being thrust into the parts of a rick suspected to be over-heating, and allowed to remain some minutes before being withdrawn, indicate its condition. So long as the heat is not greater than the hand can bear, there is rarely risk, but if of higher temperature than this, it may be advisable to adopt some of the various means calculated to let off the accumulating heat before it reaches the dangerous stage. A small sprinkling of common salt upon the hay as it is placed on the stack, but not exceeding 30 lb. to 50 lb. per ton, checks the tendency to violent heating, and renders the hay more palatable and more wholesome to stock. When a rick of Lucerne has been put together in good order, it will cut out of a rich, bright, dark brown colour, compact as a cake, with a clammy, oily feel, and such an agreeable fragrance that animals in the neighbourhood are immediately attracted to it. This is the sort of condition which in England is so much prized in Clover hay, which here the producers should strive to attain, and the buyers to encourage by giving it the preference in their purchases. Lucerne hay so made, besides being more palatable to the animal, is at the same time rendered more soluble and easily digested, as well as more nutritive. In a given weight of it there will be less insoluble woody fibre than in an equal portion of the same crop, but dried without being so fermented in the stack.

But although the production of well-made, highly-fermented Lucerne hay is so strongly to be advocated, what shall we say of the green clammy bales of pressed hay which, too often, are piled upon our wharves. Is it true, as reported, that the hay in many of these bales, which has none of the fragrance of hay, is found to be mouldy within? that it has never undergone fermentation in the stack at all? that it, or some of it, has never been moved from the field where it was produced, but gathered into large cocks, and in crude condition it has at once been pressed into large bales for sale—a free use of salt and saltpetre being made to check heating and putrefaction? Let our agricultural friends on the Lower Hunter look well to this, and unite to discourage such sophistication. In the long run it can never pay. Let them reflect that already a load of loose well-made Lucerne hay from the Windsor or Richmond districts will, in Sydney, fetch 20 to 30 per cent. better price than an equal weight of the best looking bales from the Hunter? Why should this be? The quality being the same, the pressed hay should be of more value than that in loose trusses. Does not the difference, then, express the mistrust of the buyer—the risk he feels that he runs in finding half-made, mouldy stuff inside?

If the practice be persisted in to any extent, instead of better prices for pressed hay, it will become almost unsaleable. *Journal of New South Wales Agricultural Society.*

TO ERADICATE MOSS FROM GRASS-LAND.

[The following paper was read by Mr. Charles M'Donald, Woodstock, at a late meeting of the Kilkenny Farmers' Club. Mr. M'Donald illustrated his paper by specimens of various sods on which the Grasses and Mosses were growing.]

If we look over any considerable breadth of grazing land in this county, it will be observed that greater ignorance and negligence prevail in the treatment of grass-land than in any other department of agriculture. It is not easy to estimate the loss that arises from Moss taking hold as we find it on many pastures; to illustrate this in a small degree, I place on the table two small sods, each 6 inches square. The square marked "Bull Field" is from a permanent pasture at Woodstock, under good management, but the soil is not deeper than ordinary fields on the farm. This specimen, taken as an average, contains about 780 distinct Grass roots, about 50 White Clover, and a few Crowsfoot plants to the square foot. The specimen which I dissected to count the roots was as near as possible like the one now on the table, and the Grasses were chiefly of Poa annua, Crested Dogstail, and Festuca duriuscula.

The specimen sod marked "Back lawn" is from land that has been drained and subsoiled, and is in a favourable position to produce an average sward, but the ground has been for many years mown for hay, and has been treated more for ornamental effect than for agricultural value. The Grass not being sufficiently manured, Moss has taken hold of the ground to the depth of some inches, as you will perceive from the sod before you, which is not a bad sample. This sod contains about 80 Grass roots, 1 Red Clover, and 10 weeds to the square foot. Here we find a difference of more than 9 to 1 in favour of the Grass in the Bull Field, and that composed of good nutritive Grasses, against tall Oat Grass, Holcus, and Airas—all inferior sorts.

Causes of Moss.

I will consider two chief causes as to Moss increasing on grass-land; the first is bad or insufficient drainage, the second is shallow soil combined with exhaustion. The natural place of Mosses in vegetable creation clearly indicates that they should not exist in an appreciable degree on reclaimed land, in the present advanced state of agriculture. In the clothing of the earth's surface, Mosses come after Lichens in the lowest stage of vegetation; they are simply attached to the earth, rock, or tree by the root, and nourished by the leaves, and, unlike other field herbage, decay underneath. Now, bear in mind this when thinking of the influence of Moss dominating over Grass. Grass naturally decays from the surface, and in the fall of the year, when Mosses begin to luxuriate; and this exuberance of growth draws up and blanches the crowns of the finer Grasses, which soon give place to the coarser-growing varieties and weeds.

In Ireland there are 35 genera, and about 240 described species of Mosses, which are found growing in every possible position, from the bottom of streams, where we find the Fontinalis antipyritica, to the perpendicular rock at 2000 feet elevation, where the Andræa alpina is met with. But I am not aware of any variety of the Mosses being eaten by animals—not even by goats.

Although Mosses seem to have a precarious hold of the soil, and often seem as if withered away, they rapidly revive by moisture. The dampness of our climate, while it is a great source of vegetable wealth and vegetable beauty, favours the growth of inferior plants, such as Lichens and Mosses, to a remarkable degree; the vast Atlantic clouds that drop fertility on our pastures will continue to favour the winter growth of Mosses, and we must steadily resist the encroachment of such injurious vegetation on our grazing lands; and draining is one of the most potent remedies.

Remedies.

Drainage is now so thoroughly understood and believed in as essential to the proper culture of tillage land, that I need only name the subject to find its value admitted; but drainage is not so generally admitted to be valuable in pasture land, and I have heard it keenly discussed whether draining was not a probable injury to grass-land. From all that I have seen, I believe that thorough drainage is as valuable in pasture land as it is in tillage land; the finer and more nutritious Grasses will not continue to grow on ill-drained land. I do not think the higher temperature arising from thorough drained land is yet fully recognised in agricultural writings; the power of absorption is much connected with fertility, as the evaporation in the day is counteracted by the attraction of aqueous vapour from the air during the night. The most fertile soils possess always the greatest absorbing power—thus does the absorbing power of water become an indicator of the fertility of the soil, and the effects of tillage in improving this power are very striking. The nature of the subsoil influences also in a great degree the absorbing and retaining power of the surface soil. Since commencing to write this paper I have examined many places on pasture land where Moss appears in excess, and in every case I found the subsoil wet to saturation.

Mr. M'Candless has already well discussed before the Club the subject of natural Grasses, which makes it unnecessary for me at this time to treat on certain Grasses which are best adapted for soils. Where Moss prevails, I may, however, just remark that I fully believe we are in the very alphabet of education in how to lay down Grasses intended for permanent pasture in this country. We are certainly far in advance of Dr. Richardson's estimate of pasture Grasses, when he recommended the Fiorin-grass as the very best of pasture Grasses, which is now considered a compound of all the Couchy Grasses, and one of the most favourable to the growth of Mosses.

In considering the subduing of Moss on exhausted land, we ought to examine if there is a useful quality of Grasses on it. It is a great waste to attempt to improve pasture without duly estimating the quality and fitness of the Grasses. Another important point is to take into account depth of soil, and only encourage the growth of such Grasses as light soil will carry to maturity. On some light, fertile soils, particularly on the lime formation, we find a sweet bite; but this won't fatten your bullock, or six prime sheep, per acre; it is only on sufficient depth that first-rate pasture Grasses can be sustained. I have proved that the roots of the Crested Dogstail Grass will send down roots into a forced soil 20 inches in less than two months. On light land, even in this fine climate, without top-dressing, an average pasture cannot be maintained—the Grasses when hard-eaten give way to weeds and Mosses—the top-dressing furnishes material to enable the crowns of the Grasses to tiller, and prevents Moss dominating over the herbage. In the matter of top-dressing, I have tried every manure in common use for the purpose of preventing or eradicating Moss. At Kingsweston, near Bristol, I saw a large old pasture field cleaned of Moss by one application of urine from a tank attached to the hunting stables at that place. The field was gone over in pieces as the tank filled, and after the application of liquid the quantity of worms that came to the surface to die was surprising. Strong liquid manure will prevent Moss growing to any

perceptible extent. Nitrate of soda is the best of all dry manures that I have tried to subdue Moss and increase the verdure. I have decided proof that nitrate of soda, in combination with earth, will improve a Mossy sward to a degree that requires to be seen to be fairly understood. By the application of manure it is easy forcing up a surface herbage for a season, but without taking account of the tillering of Grasses, such feeding will have but a limited effect in preventing Moss growth. I maintain that fresh earth ought to be a chief material in top-dressing exhausted land; and where charred earth can be had in conjunction, the improvement will prove most decided. To any one acquainted with soils and the nature of Grasses it must be evident that Grasses, by their growth, gradually exhaust the soil of its most nutrient parts, and that those can be re-supplied only by the addition of materials of a lasting nature, and which favours the tillering of the true Grasses. Manures must be extremely attenuated to enter the absorbent vessels of Grasses; powders in their most impalpable forms are unable to do so; they must be reduced to a state of complete solution before this can be effected. Manures, therefore, can act only by furnishing solid or gaseous matters, capable of being dissolved by water, for such substances as pass off into the atmosphere are soon diffused and lost.

All my experience and observations lead me to recommend frequent top-dressing, and a chief part earth, to sustain Grass and prevent Moss increasing.

Regarding surface manuring on permanent pastures, I would beg to call the attention of this club to a series of experiments now being carried out in the home park of Rothamsted under the direction of Mr. Lawes and Dr. Gilbert. Some account of these experiments appeared last year in the *Agricultural Gazette*, and more recently in the Journal of the Royal Agricultural Society of England: these experiments I consider of the first importance to occupiers of grass-land over the United Kingdom. The results already published are most valuable. Rothamsted Park has been under Grass for ages, and the herbage consists of about 50 species of Grasses and other plants usually found in permanent pastures; these elaborate experiments have been continued over a period of 12 years. There are 20 plots under experiment, and so many manurial conditions. The results prove that plants of certain orders may almost be excluded under certain conditions, well defined; and others increased in a striking degree. On the plants on which complex mineral manure is applied —consisting of salts of potash, soda, magnesia, and sulphate and phosphate of lime—the number of species of plants is but little changed, but on the plots where salts of ammonia and nitrate of soda are applied the number of species in the herbage greatly diminished; in some instances on the manured plots the diminution of species amounted to nearly one half from that on which purely mineral manures were applied. For instance, the weight of the true Grasses from plots dressed with mineral manure in round numbers amounted to 60 per cent. of the whole produce; dressed with nitrate of soda and other purely nitrogenous manures, the herbage yielded from 70 to 80 per cent. of the whole weight of graminaceous plants. The effect of nitrogenous manure in increasing the growth of the true Grasses, and a corresponding diminution of inferior plants in the produce, is most striking and instructive in these experiments.

On the other plots it was found that salts of potash and phosphate of lime favoured the growth of Clovers and greatly increased the weight of leguminous plants.

In calling attention to these invaluable experiments at Rothamsted Park, I would fain hope that some of the gentlemen connected with the Kilkenny Farmer's Club will take up this subject, and make it visible in the meadows around Kilkenny, and give us the sweet pleasure of complimenting a benefactor who makes two blades of Grass grow where only one grew before; at any rate, I hope the members will allow me to say, as a farmers' club we heartily appreciate the valuable service done to agriculture in these experiments by Messrs. Lawes and Gilbert.

The last point I have to consider is to eradicate Moss from a pasture when it has taken hold of the surface to a considerable depth. The breaking up of such pasture to remedy the evil of Moss is not within the scope of this paper, and I will not refer to that plan of improvement.

From what has already been stated regarding the natural character of Mosses, it will be inferred that it is not difficult to destroy Moss for a season when practically gone about; but in eradicating Moss we must aim at more than the mere killing of Moss. It is required to produce a good sward of sound herbage. In treating land overgrown with Moss, I have seen nothing so effectual and so magic-like as setting fire to the mossy surface. In the case I refer to it was done in a dry time in the month of March, and the rapidity with which the Grass sprung up after the surface scorching was miraculous. I am convinced this plan of eradicating Moss on old pastures will yet receive more attention, as there can be no remedy at once so easily carried out, and so effectual for the end sought. Gas water I have used, and seen it used, to kill Moss on lawns, in proportion of one gallon of gas water to three of plain water; this killed Moss and improved the growth of the Grasses.

Quick-lime is often used to destroy the growth of Mosses, but before applying caustic lime the surface should be well broken up by bush-harrowing, and this should be completed by top-dressing and sowing Grass seeds; on poor land, or where it is inclined to damp subsoil, there is, perhaps, no Grass so suitable for this purpose as the rough Cocksfoot Grass, from which, as here advised, I have seen splendid results.

Until agriculturists cease to sow what is termed "mixed Grasses" there is no hope of raising our pastures to the highest standard.

Heavy rolling is another means of destroying Moss, and if this is attended to in frosty weather it will be found very effective.

You are all, I am sure, familiar with the superior and abundant herbage observed on moderately beaten paths—often seen in pasture fields. To conclude this subject, I now beg your attention to two specimen sods on the table; the sods are from Woodstock Park, one from such a path as I have spoken of, and the other cut from the immediate side of the broad trodden path: to practical men the positive value of the one sod over the other is too obvious to require comment.

THE SEED ADULTERATION BILL.

THE following is an abridgement of the discussion on this Bill, which was read a second time in the House of Commons on Wednesday last:—

MR. WELBY stated at some length the facts which rendered legislation necessary. The farmer of an arable farm was greatly dependent upon purchased seed, particularly of the kinds in respect of which he was most likely to be imposed upon, and of which he had the least knowledge. Constantly in the habit of handling samples of corn and of observing it in all stages of its growth, the farmer became as good a judge of it as any professional man; but with smaller seeds, the variety of which was infinite while the resemblances were very close, he was almost entirely at the mercy of seedsmen; and this was true of the small farmer very much more than of the large farmer. The latter could deal with seedsmen of established reputation, but the small farmer was obliged to go to retailers in the neighbourhood, or to those who would give him credit. It might be taken as an established fact that 90 per cent. of well-preserved new seed would germinate, and that only 60 or 70 per cent. of market seed was capable of germinating. Ten years ago a series of experiments were made by Professor Buckman, and of 10 picked samples of Turnip seeds 92 per cent. germinated, while of 10 market samples only 68 per cent. came up. The results of experiments with samples obtained from nearly all wholesale dealers were as follow:—Of white Turnip seed 74 per cent. came up; of yellow Turnip seed 66 per cent. did; of Cauliflower and Broccoli 51 per cent.; and of Carrots less than 40 per cent. It came to this, that at least one-third of the seed sold to farmers was worthless rubbish; and this was shown indirectly by the fact that a farmer would usually sow one-third less of seed which was of his own growing. One of the complaints against the seed trade, then, was that a great deal of seed that was sold would not germinate; and another was that a great deal of seed was not what it was represented to be. With genuine seeds were mixed spurious sorts, sometimes mere weeds, which so closely resembled the more valuable sorts as to be undistinguishable from them by the ordinary purchaser. In cases in which the resemblance was natural, or in which the seed had lost its vitality naturally, the Bill did not interfere. He had been strongly urged to deal with these cases, but the vitality of plants varied so much that he had been unable to meet the difficulty. The object of the Bill was to suppress practices which were beyond denial, and which, beyond contradiction, were wilful and fraudulent. The practices were the killing of inferior sorts of seeds which bore a close resemblance to the better sorts, simply on the principle that "dead men tell no tales," in order that they might be mixed with the better seeds, and the doctoring and colouring of seeds to produce the like resemblance. It had become notorious that these practices constituted a separate and distinct branch of the trade. He believed there were six or eight manufactories exclusively devoted to doctoring seed, and seed so tampered with was well known and recognised in the trade. Legislation was necessary, because adulteration had become a traditional custom of the trade, and purchasers were not sufficiently enlightened to discriminate, so that dealers who stood out against the custom would ruin themselves without conferring any corresponding advantage on the public. Any change must be compulsory, and of universal application, and that made the members of the trade the most active and warm supporters of the Bill. The present legal remedy against these practices—viz., a civil action—was tedious, expensive, and practically unavailable, and it was believed that summary conviction would be more effective.

MR. COLLINS hoped the Bill would be read a second time, but, inasmuch as the subject was entirely new to Parliament, recommended that the Bill be sent to a Select Committee, that the House might be informed as to the facts of the case. He understood that kiln-dried seed was used for food, and there might be other cases in which processes, illegitimate if used for fraud, would be perfectly legitimate if designed and executed for an innocent purpose. A Select Committee would be able to furnish the House with evidence upon such points, and prevent Parliamentary condemnation of perfectly legitimate processes.

MR. SHAW LEFEVRE said it was impossible to deny that the evils the hon. member hoped to put an end to by his Bill were of a very serious character, demanding legislation of some sort. But the true cause of all this fraud was the gradual lowering of the standard of seeds, and the remedy was to be found in some process of raising the standard, as had been done by the Highland Agricultural Society with respect to manures. This society had adopted the practice of testing the manures and rejecting what was adulterated with satisfactory result; he therefore recommended some similar process to check the adulteration of seed in preference to the adoption of criminal proceedings, the expediency of which he doubted, especially as they had not proved satisfactory in dealing with the adulteration of food. Very few prosecutions were carried on under the Acts for the suppression of adulterating food, and it was questionable whether a system of inspection and State prosecution would not have to be resorted to in such cases.

MR. READ hoped the Bill would be read a second time and proceeded with by the House, instead of being sent to a Select Committee. The facts were notorious among those interested in the seed trade, and amounted to a system of unmitigated rascality. To send the Bill to a Select Committee would be to shelve it for the session. Admitting that people could not be made honest by Act of Parliament, he observed that the evil they sought to put a stop to was that hundreds of quarters of seeds were annually killed in large manufactories put up for the purpose. He would rather see coiners of false money at large than permit this great wrong to continue, because in the case of a counterfeit coin the loss was apparent and definite, but in the case of seed the loss was not discovered until the farmer found he had no crop; besides this, the injury was continued for several years, with more or less effect. The smaller farmers were especially open to this fraud, because a spirit of false economy led them to give low prices and deal with small men, who knew no more about seed than he did about law. Much had been said about old seeds, but it was a fact that seeds properly kept retained their germinating power for years; he at present had a crop of Turnips coming up well from seed seven years old; and if the House wished to apply the test of age to seeds it would have to go back to the time of the Pharaohs. There was a marked difference between the case of adulterating seeds and other things, feeding stuffs for instance. The farmer knew his oilcake was not all Linseed, but adulterated with bran; that his nitrate of soda was mixed with salt, and his ground bones with oyster shells; but little harm resulted beyond that of short measure. The case of adulterated seed was different; it might even go far to ruin a small man. With reference to the proceedings of the Royal Highland Agricultural Society in their detection of adulterated manures, he observed that they stopped short at an important point, and omitted to publish the names of those firms selling the spurious article. He believed no thorough remedy would be obtained until we had a public prosecutor, but in the meantime he hoped the Government would assist the passage of this Bill, and in the name of the farmers he demanded it as a right.

MR. HENLEY said the evil the Bill sought to put an end to could hardly be exaggerated either in nature or the extent to which it prevailed; but he doubted whether the Bill would remedy it, because of the difficulty of proof. Would it be easy to prove that any killed seed had been heated purposely by a kiln, or naturally in the rick, or in the ship which brought it here? Without desiring to oppose the second reading, he pointed out this difficulty of proof, and hoped the hon. member would do his best to find a means of overcoming it.

MR. MORRISON said they had some experience which might throw light on this question in connection with the Adulteration of Food Act, which they all knew had proved a dead letter. If the farmers of England chose to combine in order to purchase seeds they had the remedy in their own hands. There was no excuse for adulteration on the ground of small profits, because the profit made by the retailer on the wholesale price was over 30 per cent., and it was known from experiment that the average adulteration was about 50. The question was a serious one in this respect, that the tendency of adulteration was to drag down the honest to the level of the dishonest dealer. He believed that there was in the seed trade a real desire among respectable houses to put down this practice, and he had no doubt they would do their utmost to make the Bill work successfully; but he had the greatest possible doubt whether, like the Adulteration of Food Act, it would not prove a failure. Then it was a question whether the publication of the analysis with the name of the vendor might not render the parties who published it open to a charge of libel. Even the publication of an analysis of the adulterated article would be of no use unless side by side with it there was also published another analysis showing what the genuine article should be composed of. The publication of an analysis ought to be made a privileged publication. When strong language was used between a dealer and a farmer who found himself taken in, the seedsman might threaten an action for libel, and the farmer was generally so much afraid of law that he would not go further.

MR. BRIGHT said he had no doubt from the statements made to him by two very important deputations that there was a grievance of considerable magnitude, and if it were possible to legislate to put a stop to it, it would ill become him to ask that it should not be dealt with as well as any other grievance. It was remarkable that this Bill did not refer at all to what the Royal Horticultural Society described as the great portion of the evil. It related only to seeds killed intentionally for purposes of adulteration and deception, but not at all to the keeping of the seed until it had become old and lost its germinating power. The hon. gentleman who had moved the second reading and the hon. member for Norfolk must know much more than he did about this subject, but the deputations had informed him a certain farm was very much better than that of another, and that it varied from causes which we could not only not control, but could not even comprehend. There were cases in which it might not be possible to say whether the seed had been killed or had died by a natural process. Seeds in different seasons would be of different colours, and it would be impossible to say whether some had been coloured by the circumstances of the harvest or for purposes of deception. When the seed failed, and the farmer was disappointed, it was no longer in his possession, and it was impossible for him to tell whether the failure might not have been caused by some peculiarities of the soil and season. He would undertake to say that an honest seedsman or honest farmer would admit that he might take seeds from the same sack and put them into two different fields not a quarter of a mile apart, and yet, from causes which could not be explained, the produce of one field would be double that of the other. He mentioned that to show that this was not a simple, but a very complicated question, about which the scientific men of the Horticultural Society were as much puzzled as he was himself. The Horticultural Society, at the close of their report, explained a plan by which farmers before putting seed into the ground could easily ascertain whether it was good or not—it was to place the seeds between folds of moist flannel, and keep them in a kitchen or warm place for a few days, to see whether they would germinate. It appeared from a trial made upon 100 seeds that 75 had turned out to be good and productive. The simple method he had mentioned gave these results—25 seeds germinated on the third day, 23 on the fourth, 16 on the fifth, 9 on the sixth, and 3 on the seventh; making a total of 76. That is to say, 100 seeds, producing 75 fruitful seeds in the earth under the most careful circumstances, had produced 76 fruitful seeds when tried between these layers of moist flannel; and the Council recommended that this plan should be made as widely known as possible. He had seen that morning one of the most extensive seedsmen in the kingdom, and he had reason to believe one of the most honourable, and that gentleman said that the evils complained of were greatly diminishing, and with regard to some particular branches of the trade, might be said to be altogether extinct. He also said that legislation would not be necessary, that its effect would be to bring several thousands of persons into a peril from which they had been altogether exempt, and that it would be unsatisfactory not only to the dishonest but to the honest tradesman. One gentleman wrote to him to say that he had sued a farmer for 19*s.*, a small debt of three years' standing, and the farmer retaliated by bringing an action charging him with having sold 14*l.* worth of Swedish Turnip seed which was adulterated. In defending the action the gentleman spent 166*l.*; the farmer claimed 100*l.* damages, which the seedsman said was rather more than the fee simple of the acre and a half in which the seed was sown; and a Dorsetshire jury gave him a verdict for 12*l.* One deputation said that there was a place in London where no less than 1,000 tons of seed had been killed in a year. (MR. READ.—"Quarters.") Other authorities told him that this was a gross exaggeration; that there was probably only one known place in London where this was done, and that generally the practice was dying out. But how were they to manage to grapple with that evil unless by employing inspectors? and by-and-by it would come to pass that we should have one half the country inspectors looking after the other half, and there would be no end to the patronage of his right hon. friend at the Home Office. With regard to the fourth clause it was proposed that if any person should "knowingly" sell, &c. Now, that word "knowingly" was very like "corruptly" in the Corrupt Practices Act—it vitiated the entire Bill. The question was what the House ought really to do. He admitted that there was a great evil existing; at the same time there were most honourable seedsmen. He had that very day received a letter from gentlemen supposed to be the oldest seedsmen in London—namely, Nash

and Nash, in the Strand. No one would deny that they were respectable. They and their predecessors had been in the business for 200 years, and what they said was this, that one man would get a good crop and another almost a failure from the same bulk of seed; it would be, therefore, an intolerable nuisance that a man should go before a magistrate and say that they had sent him adulterated seed, and throw upon them the burden of making out their case, which it would be impossible to do, seeing that the seed might have come from Germany, and have gone through a dozen hands. The result of this discussion would, he hoped, do something. The delay till next year would not be very long, and some were very anxious that there should be no legislation on the matter which was not maturely considered. He hoped, therefore, if the Bill was read a second time—and he should not oppose it—that it would be referred to a Select Committee.

Mr. HUNT said he was glad, notwithstanding the strong speech which the President of the Board of Trade had made against the Bill, that he was prepared to support the second reading; and if the ability which the right hon. gentleman had shown in discussing the measure were applied to improving it, he had no doubt that they might pass the Bill this session without any complaint on the part of those affected by it. The right hon. gentlemen had mentioned the different circumstances which might affect the reproductive character of the seeds, and pointed out the difficulties which might arise if all persons who sold seeds which did not germinate were liable to a criminal process. But this Bill did not profess to deal with seeds the failure of which in productiveness arose from circumstances over which the vendors had no control. The Bill only dealt with seeds "knowingly" destroyed or coloured, and therefore the objections of the right hon. gentleman, though exceedingly plausible, did not really apply to the particular provisions of the Bill. He had no doubt that under the third clause there would be very little difficulty in locking up the establishments set up for carring on this fraudulent trade.

Mr. WALTER said he was aware of the great difficulties with which this question was surrounded, and it had often struck him in walking through one of those magnificent displays of seeds seen in agricultural exhibitions how it came to pass that the practice of adulteration did not prevail to a much greater extent. Any one who walked down through the long rows of bags of various kinds of seed displayed in these exhibitions, must have an extremely practised eye to be able to distinguish one from another. But there was no doubt that a grievance existed of a most cruel and abominable character, which it was impossible for that House not to do all it could to put an end to. He was glad that no opposition was offered by the Government to the second reading of the Bill; but the question was really how to give effect to it, and if his right hon. friend the member for Northamptonshire had not already made the suggestion, he should have ventured to recommend that the Board of Trade should take counsel with the hon. member who had charge of the Bill, and see whether or no any other machinery could be devised for giving effect to the measure without at the same time exciting unnecessary litigation and throwing the whole trade into confusion.

Mr. WELBY rejoiced to perceive that there existed so general a concurrence of opinion that some early legislation on that subject was desirable. If it should be deemed requisite, he should not object to the Bill going before a Select Committee, provided the committee were instructed to confine its attention to the recasting of the clauses of the measure.

The Bill was then read a second time.

Home Correspondence.

Our Summer Prospects.—In the absence of any trustworthy agricultural statistics of "our summer prospects" it devolves upon individual observation and effort, and the conductors of the agricultural Press, to provide the best information they can collect of the opinions and judgment of those in whom they have confidence upon a subject of such high importance. The *Agricultural Gazette* has hitherto stood prominent before the public in obtaining and diffusing this most valuable information, and as an old contributor I venture to give my views upon the present summer prospects. The winter was one of the driest and mildest ever known, consequently the crops of Wheat and winter Beans tided through it without injury to any extent, nor did they become "winter proud," *i. e.*, become too forward in growth. The whole of our country crops passed the winter ordeal in a healthy and satisfactory state. Farm stock, too, passed equally well through the winter. The cost was great, owing to the summer's drought destroying the green crops, but the casualties were kept at a minimum with very few exceptions. We then commenced the spring with a good plant of corn and an unusual and largely increased show of farm stock, more particularly of store stock. This was owing to the smaller number which graziers were enabled to fatten in the winter, and now await the summer grazing. The spring sowings of corn have not been altogether satisfactory. The early sown Barley and Peas progress remarkably well, and fields of Oats here and there look well, but many crops of the later sown of each kind, *i. e.*, Barley, Oats, Peas, and Beans, look thin in plant, and the cold May month prevented their kindly progress. Wheat, too, was much retarded in growth during the month, and the crops looked thin and yellow, but all is now recovering both colour and general appearance, and they bid fair to produce an average harvest, but not more. There is no prospect of an early harvest, or of one equal to last year's, and taking into account the too thin crops on the clays and hot gravels, the chances are against a full average yield. The root crops are various and uncertain. Many of the Potato crops are thin in plant and very backward, and a much less breadth is planted than last year. The tubers being too much heated and grown, both in field and in grove, caused the thinness of plant. Mangels are good where early sown, but the late sown are very thin and unpromising. Turnips are not all sown, but the soil is in good state to receive the seed, and they are going on satisfactorily. There can be no hesitation in pronouncing "our summer prospects" in grain to be good, and of roots a fair average. Farm stock being abundant, graziers have supplied themselves to a larger extent than usual, owing to the unexampled growth of Grass during the month of April. The pastures seldom, if ever, exhibited a finer apperance in the early spring than in the past season, consequently they were stocked early, and upon the whole the stock has progressed well, so that the markets are already supplied with spring-fed cattle and sheep. Prices still range high; but as the markets are increasing in supplies they must in some measure give way, but to no great extent. Pigs are unusually dear as stores, and pork maintains a high price. Vast numbers have been fed from last year's diseased Potatos, which probably causes the scarcity. Wool is making a fair start. It is good in quality, being well maintained through the mild winter, and of a beautiful colour. The staple is rather short, owing to the drought of last summer preventing the sheep's progress. *O. F.*

Law of Hypothec.—It appears to me that Mr. Cunningham, in his letter on this subject, endorsed by nine farmers, has mistaken the ground of objection to Lord Elcho's views. The matter does not depend on the selection of investment being free from compulsion. Choice of investment is regulated by the consideration of advantages, which weigh very differently with different minds. The investment in land at 3 per cent. is chosen, amongst other reasons, on account of its security—security in one respect: for there are two elements of doubtfulness in all purchases. 1. Whether the thing purchased is in itself worth the price given. 2. Whether the returns promised will be realised. It is in this first respect alone that land is a subject of commercial speculation, and there is seldom much room for this cause to operate. As regards the second, land is taken out of the sphere of uncertainty by a privilege which elevates it above (or depresses it beneath) the region of commercial speculation. All privileges are special advantages conceded by the community, on the ground that in some way their existence is, upon the whole, beneficial to the community. It may be a mistaken view—and opinion sets with force against class legislation, and tends to restrict and repress privilege. It is the consideration that in practice the privilege has been and may be abused to the perpetration of the grossest iniquity that makes it fair to call for its modification or abolition. Granted that the Law of Hypothec is a privilege which ought to be abolished. Let it be so; but in the meanwhile there is no general infringement of equity in its observance, because it is a part of our social compact. Rather the present landowners might claim with greater show of equity some compensation, if the security, on the strength of which they made their investments, is abolished; but it would probably be felt that the free trade principle, *i.e.*, the operation of a natural law, would compensate them sufficiently, for most surely, other things remaining as they are, if the certainty of recovering rent was taken away, rents would rise. *I. S. I. S.*

Clover: Cow.—In Mr. Radclyffe's interesting comment on Dr. Voelcker's important statements as to the value of Clover root to the subsequent Wheat crop, he says, "never feed off your young Clover." Here we think it necessary to eat it close down, say through May, before letting it stand for seed, and on this plan I have grown sometimes 4 or 5 tons of Welsh Red Clover seed of excellent quality. Does Mr. Radclyffe mean to say that the crop will yield more, and ripen as equally and earlier, if left to grow in May without being eaten down? To make it perfectly level we usually pass the scythe over it when the cattle are taken off. Does Mr. R. advise its being left entirely alone from harvest to harvest?—Allow me to add, as I am writing, that I have had a cow, which on the night of Wednesday, the 2d inst., gave birth to still-born calf; on Thursday morning, perhaps eight or nine hours after, to another; and on Sunday, the 6th, about 10 A.M., a third was taken from her. She was much reduced, but is doing well. All the calves were before their time. *Exile.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

SPECIAL COUNCIL: *Tuesday, June* 15.—Present: Lord Walsingham, Vice-President, in the chair; the Earl of Powis, Viscount Bridport, Lord Kesteven, Lord Tredegar, Sir E. Kerrison, Bart., Sir A. K. Macdonald, Bart., Mr. Cantrell, Mr. Dent, M.P., Mr. Druce, Mr. Brandreth Gibbs, Mr. Hornsby, Mr. Wren Hoskyns, M.P., Colonel Kingscote, M.P., Mr. Milward, Mr. Statter, Mr. Torr, Major Wilson, and Mr. Jacob Wilson.

FINANCE.—Major-General Viscount Bridport (Chairman) reported that, with reference to the cases of those members against whom legal proceedings have been taken, two defended cases, viz., Henry Stanton, of Coleman Street, London, and Richard Hodgson, of Chingford, Essex, were heard in the Westminster County Court on June 3, when the former was decided in the Society's favour, the latter being adjourned until July 1, to enable the Society to produce its original charter; and the committee now recommend that the Secretary be authorised to produce the same before the court, and his agreement as Secretary to the Society; as well as such other documents as the Society's solicitor may think fit. The committee are happy to state that in no less than five cases of defaulting members the arrears and costs have been paid; the two remaining cases, of the nine authorised by the Council to be proceeded against, are at present in abeyance, one member being in Canada and the residence of the other not yet ascertained.—This report was adopted.

GENERAL, MANCHESTER.—Lord Walsingham reported that the committee recommend that the sum granted for advertising the Manchester meeting be increased to 600*l.*, on condition that the local committee pay any amount spent in excess of that sum, and that the Secretary be instructed to apply for double the usual force of London police.—This report was adopted.

JUDGES' SELECTION.—Major-General Viscount Bridport presented the report containing the proposed list of judges of live stock and implements at Manchester.—This report was adopted.

On the motion of Mr. Torr, it was resolved that the Society's small dynamometer be lent to the Lincolnshire Agricultural Society, immediately after the Manchester meeting, that Society undertaking to pay all expenses.

On the motion of Mr. Brandreth Gibbs, it was resolved that four new exit turnstiles be procured, and that the number of entrance turnstiles be increased to 16.

The Honorary Director was empowered to make such alterations in, and additions to, the showyard plant as he may deem necessary.

ESSEX AGRICULTURAL.

Colchester: June 15 *and* 16.—This meeting has been held under the most inauspicious conditions of weather. On Tuesday it was stormy early in the morning, and at intervals during the day heavy hail-storms fell from clouds which were driven up so suddenly before gusts of wind, that ladies had to run for it from the horse-ring to the cattle tents, 50 yards or so distant. Towards evening it turned bitterly cold, as the strata of air in which the hail was congealed then seemed to have descended to the surface; and there seemed no end to the variations of climate. Wednesday promised to be even worse, and the morning signs were verified up till nearly three in the afternoon, for heavy storms, with streams of cold rain, were varied by gusts of wind which tried the whole of the shedding in the showyard, and made many tents yield to the force of the nor'-wester. When we arrived in the showyard, about 11 o'clock, the stallions were being led about to keep them warm, mares and foals had been taken out because their shedding had either given way or the cold blast had made their coat stare, and the attendants in more favoured spots were standing beside their animals "flanking" their hands and stamping their feet to prevent the blood from stagnating in the extremities.

If the Essex Agricultural Society be intended to be a show, that is, a show of doing something, while everyone who looks on is to be kept in a happy, or an irritated condition of ignorance in regard to the classes they bring together, its authorities cannot do better than continue their method of making entries, the formation of classes, and the arrangement of the catalogues, repeating it in time to come in the exact form in which all these things were done at Colchester. The coolest head and the sharpest wits at figures and facts could not comprehend in a week the subtleties of two, three, and four different numbers over the head of many animals, and the several classes which they formed a part of in the catalogue.

The Horses were placed first in the catalogue, and so far as the agricultural classes went they were a grand show.

There were 29 stallions, young and aged, in the yard, as stock horses for agricultural purposes, and nearly all of these were of the Suffolk breed. We will not venture to be critical under the conditions which we have described. Mr. Wolton, Mr. Ward, Mr. Winch, Mr. Salmon, Mr. Tomlin, M.P., Mr. Badham, Mr. Boby, Mr. Bott, and other well-known owners and breeders of Suffolk horses, were exhibitors in the stallion classes; and we need say no more to indicate that the show in this department was a good one, and that the competition was close and the task of judging arduous.

The geldings, mares, and fillies in this department were equally good, the former especially, and particularly when they were shown in "teams" of four. There were five of these teams—Mr. Winch's, Mr. Hallum's, Mr. Frost's, Mr. Green's, and Mr. Badham's. The premium was fairly awarded to Mr. Green's four chestnuts, for a more magnificent line of strong and active horses, with good form and symmetry to make them attractive to look at, we never saw. The other four teams were scarcely second to them in either appearance or usefulness. This was the best collection of the kind that we ever saw at any show.

The entire thoroughbred horses and the hackneys and roadsters were more of a character for discussion in sporting journals. Too often, however, we might with truth have exclaimed, "weedy," "weedy," "weedy," as lines of thoroughbreds and not thoroughbreds passed.

We cannot quit this part of the proceedings at Colchester, without once more condemning the "jumping" innovation which has been introduced to the horse ring by this and some of the other less experienced societies. If there were any use in it, as regards testing the capacity of horses, there might not be so much to say against it; but to adopt this practice as a mere "draw" is a most short-sighted and otherwise senseless policy, as it cannot fail to shake the stability of any agricultural association, by lowering the hunter and hackney classes to a horse-dealer's and jockey's show and sale arena. It was very amiable and well intended, no doubt, for the town committee to give a "Colchester Town Prize Cup, 10*l.*," for the best "jumper;" but this is an agricultural association, and it is for farmers to say whether they will have these business meetings turned into cooped-up furze-hurdle, and water-jumping tomfoolery. It is unfair to exhibitors in every other class, as their animals or machines are liable to be neglected, and thus the instruction which these meetings are intended to impart is almost altogether superseded or thrown away.

The Cattle are nearly confined to "pure Shorthorns" and "Shorthorns (without pedigree)." The only exceptions are a few Channel Islands cattle. The pure Shorthorns are a great and good show. Mr. Tippler's DUKE, by SINECURE (22,888), dam *Duchess*, is a long and heavy red and white bull, with ample muscle in his fairly-fed condition. Mr. Clear's MONARCH is a flat-ribbed white, of fair size, and a good head; and Mr. Cooper's HOGARTH 2D, by ROYAL BUTTERFLY, dam *Rue*, is a very handsome and well-grown strawberry and white; he presents a splendid front, his back is straight and level, and his whole outline, from a side view, is very fine. With the exception of his twist and lower rounds he might be described as an animal as near perfection as possible. When we add that he was

deservedly chosen for the 20*l.* premium, open to all England, in preference to Lady Pigot's great prizetaker, CHARLES LE BEAU, our readers will be confident that he is a good one. The attendant of Lady Pigot's animal, by the way, has been so unused to defeat, that he would scarcely believe he was beaten; and when he had fully realised the fact he, Englishman like, consoled himself with some such an expression as "Never mind; we shall come together again next week!" From which we gathered that the two animals are entered for the Norfolk show at Attleborough. In the younger bulls, Mr. C. Sturgeon's 1st prize is a very promising dark red, his condition being good, and his hardy, fleshy appearance a great contrast to some young bulls of this breed which we have lately seen.

The 1st prize cow is short, fat, and thick, and the 2d small of bone and stature, and so fat and patchy that she recalled to our memory sights of past days, which we had hoped were gone for ever. And between these two there stood a great and good cow, which did justice to the breed she represented; with the exception of a slightly high chine, which detracts from her appearance, she is in every respect a cow with a true female form: she was commended only. Lord Braybrooke also sent a good cow, eight years of age, and so did Mr. Piggot, of Buckingham Hall, both of which received a high commendation. The 2-year-old heifers are a mean class. Mr. Christy's yearling, however, is a big and muscular red; and Mr. Macintosh's first calf has grown well up to its age of seven months, while his second is more of the fancy, or "refined" stamp and substance.

The premium of 20*l.* for "bull, cow, and calf, their offspring, of any pure breed, open to all England," was awarded to Mr. Cooper—the 1st prize bull, above-named, again appearing here; and it was clear that his influence decided the judges, although the card was attached to the cow and calf. The other competitors in this class are Mr. James Christy and Mr. John Clayden.

The "Shorthorns (without pedigree)" are good, but only of local interest. The 1st prize, Alderney cow, however, is a perfect creature with a splendid bag—which, by-the-by, was cruelly left unmilked till, at mid-day, the poor animal was bellowing with pain. Mr. Gilbey, of Stanstead, also sent a very large Alderney, of fine and true character, while Mr. Samuel Courtald sent a cow of more Jersey form; and as she is entered as "bred by exhibitor," we conclude that her more beefy appearance is due to the influence of English soil and climate.

The Sheep are neither numerous nor good. The Southdown aged rams are only five, and the best of them is nothing to boast of. The shearlings are of the same number, and about the same in character. For the Longwool Ram premium, open to all England, there are only three entries, all of which were sent by one breeder!—these are Cotswolds. Then there is a class for Cotswold, Lincoln, Leicester, Oxfordshire, or Shropshire rams. The two Cotswold and one Oxford Down which made up the class are, however, so inferior, that the 1st prize is withheld. The short-woolled ram class (open to all England) is, with two exceptions, merely a mix-up of rams shown in previous classes. Mr. Green, of Stradishall, entered five; Lord Braybrooke entered the same number. But one of the two special entries is Mr. Rigden's, who fairly walked over with his Southdown; Captain Tomlin's, M.P., being very small and light, as are Lord Braybrooke's; while Mr. Green's Suffolk Downs, with their big black heads, low shoulders, and high rumps and backs, are as ugly as any admirer of primitive productions could desire to inspect.

The ewes are insignificant, with one exception: this consists of a pen of five ewes with their ten lambs by their side. These are grand ewes, of the stamp between Sussex Downs and Norfolk sheep, which the Norfolk farmers think so much of for breeding and folding purposes. The lambs are extraordinary. They were bred and fed by Mr. Cant, near Colchester. Mr. Giblin's pen of Cotswolds and five lambs are also fine in both respects; and Mr. Nickol, of Lawford Hall, is deservedly presented with a high commendation for his pen of cross-bred ewes. There are two other pens in this interesting class.

The Pigs are not many, but they are unusually good. Messrs. Duckering are here, and they have, as usual of late, been successful,—in one case, the small-breed boar class, they were so to the great annoyance of Mr. Stearn, who protested against the pig of his Lincolnshire competitor, on the ground that, as it was much larger than the Suffolk pig, it was a cross between the larger and smaller breeds. The protest, we understand, has been courteously received by the secretary and chairman, and there the grievance at present rests. Messrs. Howard, of Bedford, sent some good pigs, for which they are highly commended. The other principal exhibitors are Mr. Charles Sturgeon, South Ockendon; Mr. Badham, Bulmer Tye; Mr. Griggs, Romford; and Mr. W. Thompson, Thorpe.

As a parting word we may say, many of the animals appeared in two or three classes, and in one case a horse turned up in four different places; and, as we have shown, in more than one case as many as five animals were entered by one exhibitor to compete for one premium. As an illustration of the working of this practice, we may say there are 29 entire cart horses on the ground, but on adding the number of entries in the several classes together they tot up to 72! Thus in this class, as in several others, the "entries" are more than double the number of animals. This is certainly a good way of putting a good face upon the "progress" of the Society, for in an official "comparative statement of entries" since the commencement of the Society's shows, eleven years ago, we find the horses at the second meeting in this town numbered 109, but now, by the above ingenious method of double and treble entries, the number is swelled up to 193. This is a laxity that amounts to the ridiculous.

The best horse, or bull, or cow, or ram, or boar, or anything else, of a particular breed, is a good selection to make for a special prize, but to allow these double or treble chances to be general, is too great an absurdity to be passed by without censure.

The monetary success of the show was far greater than the weather would have led us to expect, for the sum taken was upwards of 570*l.*

The following is a list of the principal prizes:—

JUDGES.

Cart Horses.—Capt. Barlow, Woodbridge; Mr. J. Thomas, Bletsoe, Beds.; Mr. G. Varnell, Belton, Yarmouth.
Riding Horses.—Mr. J. E. Bennett, Rugby; Mr. G. Higgins, Castle Close, Beds.; Mr. R. B. Aylmer, Brandon.
Cattle.—Mr. C. Howard, Biddenham, Beds.; Mr. J. Ellis, Guildford; Mr. F. Tallent, Midhurst.
Sheep and Pigs.—Mr. H. Overman, Brandham; Mr. H. Fooks, Blandford, Dorset; Mr. E. Little, Chippenham, Wilts.
Implements.—Mr. F. Whitlock, Great Yeldam; Mr. W. Impey, Chelmsford.

CLASS 1.—Horses for Agricultural Purposes.

Cart Stallion—20*l.*, Mr. W. Bott, Broomfield; 10*l.*, Mr. A. Chisnall.
Entire 2-year-old Colt—15*l.*, Mr. W. Prentice, East Mersea; 7*l.*, Mr. G. Norfolk.
Cart Mare, not under 4 years—8*l.*, Mr. D. A. Green, Donyland Place; 5*l.*, ditto.
Colchester Town Prize: Cart Mare, 4 years old and upwards—10*l.*, Mr. D. A. Green. Cart Filly, under 4 years—10*l.*, Mr. W. Wilson, Baylham Hall.
Gelding—5*l.*, Mr. W. H. Wrinch, Ramsey.
Two-year-old Filly—8*l.*, Mr. J. Ward; 5*l.*, Mr. D. Sewell.
Yearling Colt—6*l.*, Mr. W. Prentice; 4*l.*, Mr. J. Scott.
Yearling Filly—6*l.*, Mr. T. Taylor; 4*l.*, Mr. J. Ward.
Foal—5*l.*, Mr. A. B. Croxon; 3*l.*, Mr. T. Taylor.
Pair of Plough Horses—10*l.*, Mr. D. A. Green; 5*l.*, Mr. T. G. Hallum, Wormingford Grove.
Colchester Town Prize: Teams—30*l.*, Mr. D. A. Green.
Cart Stallion—25*l.*, Mr. C. Boby.
Colchester Town Prize: Cart Stallion—20*l.*, Mr. C. Boby.
Entire Colt—15*l.*, Mr. S. W. Kesgrave.

CLASS 2.—Riding and Coaching Horses.

Colchester Town Prize: Hunter—20*l.*, Capt. F. Barlow, Hasketon.
By T. W. Nunn, Esq.: Essex and Suffolk Cup, 10*l.*—Weight-carrying Hunters—Mr. D. McIntosh.
Thorough-bred Stallion—25*l.*, Capt. F. Barlow.

CLASS 3.—Cattle—Pure Shorthorns.

Bull—15*l.*, Mr. W. Tippler, Roxwell; 10*l.*, Mr. A. P. Clear, Maldon. Highly Commended: Mr. R. Chaplin, Ridgwell.
Two-year-old Bull—10*l.*, Mr. J. Christy, jun., Roxwell; 6*l.*, Mr. J. Upson, Rivenhall. Highly Commended: Colonel Brise, M.P., Braintree. Commended: Mr. Catchpool, Feering.
Yearling Bull—10*l.*, Mr. J. Christy, jun.; 6*l.*, Mr. Hutley, Rivenhall. Highly Commended: Mr. Chas. Sturgeon. Commended: Mr. Jas. Christy, jun.
Shorthorn Cow—10*l.*, Mr. J. Upson; 6*l.*, Mr. G. E. Frere, Roydon Hall, Diss. Highly Commended: Lord Braybrooke, Mr. Clayden, Mr. J. A. Piggot. Commended: Mr. C. Barnard.
Two-year-old Heifer—8*l.*, Mr. J. R. Chaplin; 5*l.*, Mr. G. E. Frere.
Yearling Heifer—7*l.*, Mr. J. Christy, jun.; 5*l.*, Mr. J. Clayden. Highly Commended: Mr. W. Tippler, Mr. J. Clayden.
Heifer, not exceeding 12 months, and not under 6 months old—6*l.*, Mr. D. McIntosh, Havering Park; 4*l.*, ditto.
Bull, not exceeding 12 months—6*l.*, Mr. C. Sturgeon; 4*l.*, Mr. C. Barnard.
Bull—20*l.*, Mr. Kersey Cooper, Euston, Thetford. Highly Commended: Lady Pigot, Mr. N. Catchpole, Whitton, Bramford.
Colchester Town Prize: Bull and Cow, with Calf—20*l.*, Mr. Kersey Cooper.
Colchester Town Prize: Yearling Bull and pair of Yearling Heifers—20*l.*, Mr. J. Christy, Jun.

CLASS 6.—Dairy Cattle.

Cow or Heifer—8*l.*, Mr. G. Cant; 5*l.*, Mr. N. F. Cobbold, Colchester.

CLASS 7.—Fat Cattle.

Fat Ox or Steer—5*l.*, Mr. D. A. Green, Donyland Place.
Fat Cow or Heifer—5*l.*, Mr. J. Christy, Jun.

CLASS 8.—Sheep.

Southdown Ram—10*l.*, Mr. J. Clayden; 5*l.*, Lord Braybrooke. Highly Commended: Mr. John Clayden.
Ram—1st prize withheld; 4*l.*, Mr. J. M. Green, Stradishall.
Cotswold, Lincoln, Leicester, Oxfordshire, or Shropshire Ram—10*l.*, Mr. J. Giblin, Little Bardfield; 5*l.*, ditto.
Shearling Southdown Ram—1st prize withheld; 5*l.*, Lord Braybrooke.
Shearling, Cotswold, Lincoln, Leicester, Oxfordshire, or Shropshire Ram—1st prize withheld; 5*l.*, Mr. J. Giblin.
Shearling Down Ewes—6*l.*, Mr. J. Claydon; 4*l.*, Lord Braybrooke.
Shearling Short-woolled Ewes—1st prize withheld; 3*l.*, Mr. Portway.
Shearling Long-woolled Ewes—5*l.*, Mr. Joseph Giblin.
Ewes and Lambs—6*l.*, Mr. G. Cant; 4*l.*, Mr. J. Giblin.
Fat Shearling Short-woolled Wethers—5*l.*, Lord Braybrooke.
Fat Shearling Cross bred or Long-woolled Wethers—5*l.*, Mr. D. A. Green; 3*l.*, ditto.
Long-woolled Ram—10*l.*, Mr. J. Giblin.
Short-woolled Ram—10*l.*, Mr. W. Rigden.

CLASS 9.—Pigs.

Boar—5*l.*, Mr. D. Robertson, Aveley Hall; 3*l.*, Mr. G. D. Badham.
Boar—5*l.*, Mr. G. Griggs; 3*l.*, Mr. G. D. Badham.
Sow in Pig—5*l.*, Mr. C. Sturgeon; 3*l.*, Mr. W. Thompson, jun.
Sow with her Pigs—5*l.*, Mr. J. Giblin; 3*l.*, Mr. G. Griggs.
Boar—10*l.*, Messrs. Duckering & Son, Northorpe, Kirton-in-Lindsey.
Boar—10*l.*, Messrs. Duckering & Son. Commended: Mr. S. G. Stearn, Brandesdon.
Sow—5*l.*, Messrs. Duckering & Son. Highly Commended: Messrs. James & Frederick Howard.
Sow—5*l.*, Messrs. Duckering & Son. Highly Commended: Mr. G. D. Badham, Mr. S. G. Stearn (2).

The implements are undoubtedly the best collection that ever appeared at this county meeting. All the principal makers are either on the ground or largely represented by country agents. Messrs. Coleman and Morton, of Chelmsford; Mr. Bentall, of Weybridge; Messrs. Hunt, of Earls Colne; and Messrs. Davey, Paxman & Davey, are on their own ground, and had extensive stands. Messrs. Ransome, Sims & Head are also here; as are Messrs. Richmond & Chandler, who here attended this show for the first time. A few pounds have been distributed in prizes as follows:—

Best collection of implements, the *bonâ fide* property of the exhibitor—Messrs. Joslin, Colchester.
Best improvement in any implement in use—Messrs. Foster & Sons, Witham, for their "Star" Reaper.
Best new implement—Messrs. Davey, Paxman & Davey, Colchester, for their Corn-Drying Machine.
Best general collection of implements, manufactured by the exhibitor (in Essex)—Mr. Hunt, Earls Colne.
The collection of Messrs. Catchpool & Thompson (Colchester) was Highly Commended.

TARPORLEY.

Present System of Hiring Farm Servants.—Mr. THOS. OULTON lately read a paper on this subject before this society. He said:—I have not quite presumption enough to think that I have ability to introduce any scheme that will be sufficiently perfect to meet with your entire approval, on so general and important a subject as the one I am about to introduce; but I trust, however feeble the attempt, you will accept it as a sincere effort on my part to enlist the sympathies of those who are more able to work out the problem I have taken in hand, viz., "The disestablishment of Rag Fair," or a re-adjustment of the present system of hiring farm servants.

It will be admitted by all present, and in fact by agriculturists generally, that the labour question has of late become almost paramount in importance to anything else farmers have to contend with. The great and rapid progress which is now taking place in agriculture is naturally bringing with it increased risk and expenditure; hence arises the necessity for more skilled and trustworthy labourers; therefore the loud and urgent appeal to us as employers to do everything we possibly can to improve their position and make them better qualified to fulfil the more important duties which are now required from them. Rag Fair is one which has been held from time almost immemorial, but I contend, however old or long-established anything may have been, if it can be proved that it is injurious or damaging in its effects to those interests it was intended to benefit, the sooner its disestablishment is brought about the better. My first attempt will be to try to do away with the very foolish and inconvenient custom of farm servants all leaving their places at the same time, viz., Christmas, which to my mind is attended with many objections, I might say evils, a few of which I will now endeavour to enumerate. I scarcely need name the inconvenience which farmers themselves are put to on account of this entire absence of their servants; that will not in the least compare with the embarrassing position in which many of the cottagers must be placed in their desire to make provision for anything like a comfortable or proper accommodation for their children,—to the shame of this age be it said that this should be the case. Then there is the unnecessary waste of the time they have at their disposal; unnecessary, because it cannot be spent either to their pleasure or comfort, for want of proper accommodation. How do they spend it? I wish it to be understood here that I would be the last amongst you to say or do anything to deprive our servants of any enjoyment or rational pleasure which would in any way tend to their happiness or well-being; but it is well known how many powerful and pernicious agencies are set at work at Christmas to allure and ensnare these young people to spend their money. I am strongly of opinion that if the question could be asked our young men who indulge in habits of intemperance, what was the first cause of their doing so, the majority of them would attribute it to these Christmas pastimes and amusements. 1st. I would abolish the present custom of giving a week's holiday at Christmas; and in order to do that I would alter the system of hiring. But I feel I am now about to deal with a more difficult class than the servants, viz., their employers; for if there is one class of the community who are less united than any other it is, to our great disadvantage be it said, the farmers. It is a very general opinion, and was freely expressed at the Chamber of Agriculture held at Crewe a short time ago, that it is to a very great extent the farmers' own fault that they are now labouring under so many difficulties with their servants,—the very lax or loose way in which I may perhaps say the majority of servants have been engaged, and afterwards allowed to run almost wild, having no stipulated time for being in at night, or if any, paying little or no regard to it, entirely forgetting the responsibility which rests upon them as their guardians while in their service. It should be a distinct understanding that we all adopt one given plan or rule in engaging our servants. It is most desirable that no servants should be engaged without first inquiring into their character in their last place. Perhaps my simplest way will be to suppose a case: I want a servant. Having seen into her character, I engage her for the year, subject to the following conditions:—In consideration of her agreeing to give up the week's holiday at Christmas, and having an equivalent time during the year, either at separate times, or altogether, which would be most agreeable and convenient to both of us, I will undertake to pay her wages quarterly instead of at times as before—the first quarter to be paid on the 30th or end of April, which would leave one month's wages in hand, and so on to the end of the year; and as in many cases the first quarter's money would not be required, I would advise her to place it in the Post Office Savings' Bank, which I think would tend to incite her to careful and saving habits; I would try to impress upon her the advantage she would derive by placing a portion—if receiving 10*l.*, the half, which I think would be quite possible for her—in the savings' bank. At the end of four years she will have saved the nice sum of 25*l.* or more, for I have no doubt, having once commenced, she would increase her deposits every year. If I might offer her a little advice (and I think we are wanting on this point in not doing so oftener), I would say, have a mutual undertaking with your lover to be content with single blessedness until you have jointly saved 50*l.*—which they would do in three or four years by adopting the plan I have just laid down. How much happier they would feel in going into their cottage comfortably

furnished, and all paid for, besides having a few pounds left in the bank in case of sickness or any other emergency; instead of, as is too often the case now, nothing saved either for furnishing, rent, or anything else, but having to deprive themselves of almost the common necessaries of life to get into a house in any way, and often proving a burden to their parents, who have also to make great sacrifices to help them. I think, if we would take a little trouble to show them, and try to persuade them it is in their interest we wish them to adopt this change, I cannot but believe there are a goodly number of our servants who would avail themselves of it. If each gentleman in this room would make it a personal matter and try to persuade his servants to adopt it—if only a few succeeded, I am persuaded the influence they would exert would soon have a practical effect upon the whole class, and the little leaven would soon leaven the whole lump. And we should bear in mind it would not only benefit the servants, but it would have a material effect in reducing our poor-rates, which I contend are a great deal higher than they would be, especially in our rural districts, if the labouring classes were more frugal in their habits and would properly husband their earnings.

Let us not be afraid to make a little advance to our servants because we fear some might take advantage of it; if we make no advance we shall commit a great error, and most deservedly bring censure upon ourselves. I would have an understanding that November 30 should be the fixed time for hiring or re-engaging. The present custom of engaging servants two or three months before Christmas is, I contend, very objectionable and attended with many disadvantages. The month of December would give quite time enough for all parties to suit themselves, they might then leave their places on December 31, and go direct to their new situations. I would here strongly condemn a practice which I am sorry to say is too often indulged in, viz., that of tempting servants to leave their situations by offering them higher wages. This, to my mind, is mean beyond measure, and all who are guilty of it deserve public exposure. Lastly, if we rightly feel our obligations, and properly estimate the responsibilities which rest upon us as employers, one of the most important of our duties is this, that we enforce, both by example and requirement, a proper regard for and observance of the sabbath day, ourselves attending some place of worship; we might require attendance once at least, and where practicable twice: and I think it most desirable that as far as possible servants should attend the same church as their employers, especially when it will not interfere with liberty of conscience or a decided preference. We ought not to allow anything to be done that is not absolutely necessary or that will interfere with regular attendance at a place of worship. Perhaps I may be thought a little presumptuous here, but I am emboldened to speak, convinced as I am that my remarks will apply in too many instances. A well spent sabbath will often prove a profitable monitor for the ensuing week.

I will now suggest what I believe would prove, if thoroughly acted upon, a most valuable adjunct to our hiring system; it would be a very simple and yet an efficient way of gaining information. I would have a register kept in every parish, say at the post-office, which perhaps is the most convenient place—something after this plan: In a book specially provided—one for farmers wanting servants, and one for servants wanting situations—just the name and address in either case, and the kind of servant or situation wanted, would be all that would be required, to be open for inspection by either party on payment of one penny. If the registrar was not thought sufficiently remunerated, the 1*s.* which it has been the custom to give to the servant as the hiring 1*s.* should be paid to the registrar and considered as a bond of agreement, which I think would in some measure help to check the present frequent practice of sending back the 1*s.*, which often causes great inconvenience and annoyance. By this plan the servant would simply have to call at the register office, and by paying one penny could enter her name, and also learn who were wanting servants. The employers could do the same; and if it were adopted in every parish how easy it would be to go round to the different post-offices and see the register. How often it occurs that servants are out of place for weeks, when they might have been in situations, just for the want of the information a register of this kind would afford them.

DISCUSSION.

The CHAIRMAN said—Mr. Oulton had proposed that the hiring should take place on November 30, as a general rule, and it would be interesting to have the opinions of practical men upon this point. There would be no question that the scenes at what was called "Rag Fair" were most discreditable in every way.

Mr. J. ASTON hoped that that meeting would be the means of bringing about a better state of things in this county in regard to the management of servants. It was a very difficult matter to break through old customs, although it might be shown that they had a very injurious influence upon society. For a very long time past it had been an established rule in this county for the hired servants to have a short release at the close of the year from their labours, and when the different branches of families who may have been living at a considerable distance from each other meet together at their parents' houses, and spend a few days in conviviality and recreation; and, provided there was sufficient accommodation for them, and they kept within the bounds of moderation, he saw no harm in it. But such is not the case. The cottages at those times are overcrowded, and the sons and daughters of our labouring classes too often spend their holidays in wantonness, debauchery, and drunkenness. The custom had very much changed now to what it was some years ago. He could well remember the time when servants were not unfrequently hired in the months of August and September, and even in the months of June and July; but whether they engaged them on November 30 or September 30 it did not alter the character of the servants; certainly if Mr. Oulton's suggestions were carried out it would be the same for one farmer as another. With regard to having a register in each parish he (Mr. Aston) considered it a very good suggestion, and it deserved adoption, as it often happened that servants were in search of places, and masters were in search of servants, unknown to each other. There is a great lack of good and faithful servants at the present time, and a mighty work will have to be accomplished before they are forthcoming. It has been said that education is the great lever of the day. Education has been tried, and, he was sorry to say, has failed to yield the supply we so much require at the present time, for, he believed, it is admitted on all hands that servants are not so good now as they were formerly, although the facilities for learning are very much better. He found that the best and most faithful servants are the children of those parents who are honest, sober, and industrious, whether they possess educational requirements or not, and all the better if they do. What we want is more home education; we want parents to teach their children habits of thoughtfulness and industry—to teach them to be faithful and obedient when they enter upon servitude.

Mr. R. BECKETT, in adding his quota to the discussion, said, there was very much of what Mr. Oulton had said with which he agreed, but there were one or two things which he thought would hardly bear the test of practical working. Mr. Oulton, and Mr. Aston too, seemed to forget the class they sought to benefit were as much a class of society as themselves, and that anything in the shape of compulsion or distinct legislation was objectionable. The proposal to deprive servants of their Christmas holidays was very repugnant to him (Mr. Beckett). Admitting that 75 per cent. were bad and abused this privilege, he did not see that they were justified in depriving the other 25 of what was dear to them. It did seem like compelling servants to forego this Christmas gathering, and no true-born Englishman liked to be compelled to do anything except to keep the laws of the land. The moment you told an Englishman you would compel him to do a certain thing he turned up his cuffs and said "I won't." We were apt to over-rate our authority, and under-rate the willingness of our servants to obey. Mr. Oulton had referred to cottages. If they would have good cottages they must begin themselves. It was a tenants' question, and till they paid their labourers such a rate of wages that they could afford to pay the rent which would remunerate those who chose to build them, they would fail in getting good cottages. As to the question of character, he coincided with Mr. Oulton, but it required two persons to a character, the one who gave it as well as the one who received it. Was it not a fact that these characters were sometimes like warranties for horses, not worth the paper they were written upon? It was easier to find fault than to suggest anything better, and if they did it would have the character of patchwork. The piece he had to contribute he would call the bonus pattern. If he engaged a servant, say for 12*l.*, and she conducted herself to his satisfaction during 12 months, he would give a bonus. He had never tried it, but thought pounds, shillings, and pence had a good deal to do with the conduct of a servant.

Mr. R. BATE said it was no wonder we lacked good and faithful farm servants when we could travel over a good many townships and see broad acres by hundreds, but no cottages. The great want in Cheshire was being to some extent obviated by Lord Binning, Mr. Tollemache, and a few others; but landlords and farmers had much neglected the supplying of cottages near to where their men had to toil. A good deal attached to the house in which the labourer was located. If we had better houses for the agricultural labourers, then we might expect a better class of domestic servants. We found fault with them for going to public-houses and spending their time there in that which was immoral. Could we not supply them, say in such a place as the saddle-room, with a comfortable fire-place, a warm room, and a few cheap papers like the "British Workman," which would not cost much? He took it that farm-servants would avail themselves of such an advantage, instead of walking a mile or a mile and a half to a public-house in the cold and wet. They were social, like ourselves, and needed amusement and recreation. There were some farms where this sort of thing had been adopted, and attended with the best results.

Mr. H. SIDDORN had tried the bonus plan suggested by Mr. Beckett, and he had found that the ideas of himself and of his servants as to whether they deserved a bonus differed. It always happened that they thought they had behaved well when he thought they had behaved middling, and at last they expected it as if it was due to them. He had tried it; was trying it again this year, and was afraid it would fail again. He could not say that much good would result from a change in the time of hiring. He had been annoyed by the shilling being sent back: but it was not so much a matter of shortening the time as this—that if unprincipled farmers offered them more they would go. They were like us, they looked after themselves. With respect to the festivities at Christmas, he did not see how they could possibly get over it. They knew that where families were separated, some being east, west, north, and south, they would so plan it as to meet together, and naturally so, too. He could not see much in the quarterly payment of wages. If his servants asked for half, he gave it them, unless they were unruly and could not be trusted with it; but it did not make much difference whether they had money quarterly or half-yearly. If they could instil habits of industry and prudence, so much the better, but compulsory measures would not act, and to enforce rules the employers would defeat their own ends.

Mr. CAWLEY said a matter should be considered which had been tried by some but had failed—that was, to have a contract which would be really binding. Contracts, as now entered into with farm servants, came within what was known as the Statute of Frauds, passed in the reign of Charles II., whereby a contract to be performed within a year was void unless in writing. Now, he had no doubt the hiring-shilling was first given to take the contract out of the Statute of Frauds, and was really considered as part payment of the wages. But as it now was, the farmer gave the servant a shilling, which was not payment on account, but looked upon as a sort of payment. It did not bind the contracting parties, and it would be well to consider whether it was not worth while to have a binding contract with every servant. It was not very pleasant for those who had engaged servants for the year to find, before the current year expired, the shilling sent back and all their arrangements set aside; and this might be avoided by a binding contract, which, when once made, would prevent a man's neighbour from engaging his hired servant, and would subject him to a penalty if he did so. As to sweethearting, he suggested that they should afford facilities, say once a week, for lovers seeing their servants, which would prevent clandestine meetings; and in reference to the bonus plan, he thought it was much better to present a small honorarium every time when servants were heavily pressed and did their duties well.

Mr. OULTON congratulated the meeting on there being so many "Constitutionalists" present, for it seemed that these Christmas festivities were a part of the constitution, and it was impossible or would be hard to interfere with them. Now he did not propose to do away with the festivities of servants, but with the evil tendencies connected with them, and therefore he suggested that servants could still go home at stated times to have their gatherings and parties. He was surprised to hear his friend Mr. Beckett mention the word compulsion. All he (Mr. Oulton) had advocated was persuasive force, to show servants that it was to their own interest, and for their own temporal welfare and happiness, that they should adopt some such plan as he recommended, and to which his own servants had readily agreed. He condemned the custom for its injurious influences and practices, and said it was open to them to suggest a better plan. Mr. Aston did not think it was of any consequence whether the hiring took place in November or earlier. It was in this way: If they were engaged to go somewhere else three months before their time had expired, they became very unsettled; and, further, he (Mr. Oulton) was anxious to do away with the practice of farmers going to where they knew good servants were kept, and engaging them without the knowledge of their masters or mistresses, which was a very contemptible thing, as it was the duty of every farmer seeking a servant to know first whether it was the wish of the farmer to re-engage the servant, for whose welfare it was to remain. Mr. Beckett's suggestion to put the register of servants wanting places and masters wanting servants in the public Press was a good one, and a monthly publication might supplement the plan he proposed. Mr. Oulton endorsed all Mr. Bate had said as to the necessity of better cottage accommodation. He was sorry the subject had not been more warmly taken up, but if anything he had said tended to the improvement of the labouring classes, he would feel amply rewarded for any little trouble he had taken.

Farmers' Clubs.

WEST CUMBERLAND.

Guano: its Origin, Composition, and Uses.—At the late bi-monthly meeting of this Farmers' Club, Mr. TOWERSON read the following paper:—

Genuine Peruvian guano should contain 16 to 19 per cent. of ammonia, and 7 to 10 per cent. alkaline salts. In 12 samples of Peruvian guano the average quantities of ammonia, &c., stand thus—Ammonia, 16.10; earthy phosphate, 23.0; alkaline salts, 8.0. It can only be procured direct through a single English firm, Messrs. Thomson, Bonnar & Co., of London.

There is, perhaps, no article of which large quantities are sold more liable to adulteration. The limited supply, the consequent high price of the article, and the eagerness with which purchasers take the bait of cheapness, are no doubt the combined causes of the extensive practice.

The substances with which the guano is adulterated are clay, chalk, gypsum, &c., large quantities of which are sent from our immediate neighbourhood to Liverpool and other places, and so skilfully are these compounds prepared that the most experienced buyers are often imposed upon; the proportions, of course, depending upon the conscience of the compounder, and on the presumed gullibility of the purchaser. I have met with beautiful-looking samples sold for Peruvian which did not contain one particle of real guano [?], whilst others have been mixed with half their weight of ground clay, gypsum, or sand, of no value whatever as manure.

It unfortunately happens that there are no simple means by which the farmer can detect this kind of fraud. Peruvian guano, when pure, is of a uniform light grey colour, and contains lumps, which, when broken, are found to be of a lighter hue, and generally of a crystalline structure.

An imperial bushel weighs about 69 or 70 lb. If adulterated with light substances, which is seldom the case, it will weigh less. If clay, sand, &c., have been used, the weight will be much increased. With this test gross adulterations will be easily detected.

But the only trustworthy method of detecting adulteration is chemical analysis. The farmer should never purchase guano without a guaranteed analysis, and if it turn out in any way inferior, return it to the seller, and compel him to pay all expenses. Farmers have the means of detection in their own hands; they have only to be united, and they will be supported by every respectable dealer, who will be glad to have his manure so tested.

Uses of Guano.—The mode in which guano is applied to various crops is a subject upon which practical farmers widely differ. It should be finely pulverised, and if not to be used with any other artificial manure, it should be mixed with an equal bulk of turf mould, ashes, or salt. This not only renders it more easy of application, but it serves to fix in a great measure the valuable volatile element it contains, whilst, on the other hand, lime, or anything of a caustic nature, should be avoided as having the contrary effect. Its utility as a fertiliser is manifest in the rapid promotion of the growth of almost every description of plant. This is, in my opinion, almost solely attributable to the large percentage of ammonia which it contains, and were not the sale of it a monopoly, there can be no doubt but its commercial value would be regulated by its analysis. Its utility, then, I infer, as a fertiliser is almost entirely due to the large quantity of ammoniacal salts it contains; and agriculturists, in selecting manure for their land, should always bear in mind that to ensure perfect success in the results, they ought to consider in what condition the land is before applying their manures. There is no rule without an exception, but, as a general rule, guano is not necessary in conjunction with farmyard manure, unless the land may be very poor indeed, and the quantity of dung insufficient. Again, on very stiff clay soils, where a rapid growth of the Turnip plant in its earliest stages is much to be desired, to push it beyond the reach of the fly, a liberal allowance, even along with a good dunging, may be advantageous. But if you apply the same treatment to light soils in good condition, you are apt to over-stimulate the growth of the plants. The consequence will be coarse, spongy, unsound bulbs, which will not keep, and which contain very little nutriment compared with those grown with a phosphatic manure on similar soils. As the quantity to be used per acre must solely depend upon the nature of soils, it is scarcely necessary to notice it here. On clay soils the application of 2 to 3 cwt. per acre for Oats after lea will generally pay well. In fact the increase in the bulk of straw will often remunerate the farmer for his outlay. Again, on a friable mould, where an ample bulk may be expected without any extra manuring, its use would be hurtful rather than beneficial, as the crop might be ruined by overluxuriance and lodging, through being too much stimulated in its earliest stages.

The use of guano on grass-land will always be remu-

nerative, unless continued through a succession of years without any other manures. In applying it to Grass the best time is when there is rapid growth, or in showery warm weather. If applied in cold dry weather or during hot summer, its efficacy is lost for want of moisture.

The classes of land most requiring this fertiliser, as a top-dressing for Grass, are cold clays or limestone soils, which are richer in alkaline salts and soluble phosphates than most other soils. Gravelly or sandy soils, freestone or light loams, and alluvial or meadow soils, will be mostly benefited by being treated with phosphatic manures in the shape of lime, composts of lime and earth, or dissolved bones.

Mr. ROBERT JEFFERSON agreed with Mr. Towerson in his opinion that guano should not be used alone. He himself generally used it with farmyard manure; and if he had not sufficient farmyard manure he used it with phosphates of some kind. He, however, thought guano might be used by itself in top-dressing with very good effect. Some years ago he saw a number of experiments made in a field adjoining his barn. Equal values of farmyard manure, guano, lime, and other substances were tried. The guano proved the best the first year, and he believed it was the best yet. The soil was all the same, poor and light.

Mr. RAWLINSON considered guano as a stimulant more than anything else, and well suited for top-dressing—very good for Oats and Barley, but, as he understood, not so good as a top-dressing for Wheat. Bones would last longer than guano.

Mr. HUTCHINSON then at some length stated his experience with regard to different kinds of artificial manure. Some kinds of guano he described as rubbish, and urged that they should have an analyst in connection with the Club, so that farmers might know what they were buying. For Turnips he thought guano should be mixed with phosphatic manures. So far as Wheat was concerned in Lowside Quarter it was impossible to get a good crop of Wheat unless they manured the land specially for it and top-dressed afterwards. He had tried different kinds of top-dressing for Wheat, and he had never found guano to answer. That was one reason why the Club should have some books on chemistry, so that they might learn why one particular manure would answer and another would not. There was one manure he never knew to fail—that was, the sulphate of ammonia. Guano, applied for Wheat, increased the quantity of straw, but not the yield of grain. Sulphate of ammonia, he thought, did not make the straw much longer, but it made it harder, and increased the yield of Wheat immensely.

Mr. JEFFERSON had tried guano and sulphate of ammonia, and he had always been able to obtain as good a crop from the latter as from guano, but the result was that it was more searching, and left the land proportionately poorer.

Mr. NELSON had made a number of experiments with manure, cost for cost. From these experiments, he arrived at the conclusion that guano was the cheapest manure. He considered that it left the land in a better state. There was one article he did not pinch—namely, bones—which he applied at the rate of 2 tons per acre; but the bones turned out worse than any other of the manures he tried. If he wanted the heaviest crop from an artificial manure he would try guano. He did not approve of guano for a single crop or for laying down the land. Some of his grass-land had got nothing but ammonia. He did not approve of sulphate of ammonia.

Mr. R. JEFFERSON said that for the last 12 years he had experimented a great deal with different kinds of manure; and the guano generally turned out the worst. It appeared Mr. Nelson had found it the best. That showed the different effects on different kinds of soil; and proved beyond a doubt that it was the paramount duty of all agriculturists to study the nature of the soil under cultivation, and also the kind of manure best suited to that soil.

Mr. ROBERTSON knew one field that had had nothing else but guano for 28 years. He had tried all kinds of manures, but never found anything for growing Turnips to equal guano. The field to which he referred lay upon a conglomerate limestone, and he dared say the soil was much charged with lime.

Mr. DALZELL maintained that Wheat sown with guano produced the best crop. On their farm they used as much as 4 cwt. to the acre, and it generally lasted about five years. He contended that nitrate of soda impoverished the land too much.

Mr. MCCAW was connected with a society that engaged a chemist. They made experiments, in which they found that a mixture of different manures—guano being the principal component part—gave the best return for the money expended. On sandy light soils they found nothing equal to bone manure for keeping up the fertilising power of the soil.

Mr. GUNSON said that when he used guano as a manure he always mixed it with some other manure, and generally with a supply of farmyard dung. In the district that he farmed in they generally had better crops by mixing the guano with bones. In answer to a question, Mr. Gunson said that for his prize crop he used 1½ cwt. of guano to 4 cwt. of bones. As to the quantity of farmyard manure, he used "so many cart-loads to the field."

Reviews.

On Harvesting Corn in Wet Weather. Prize Essay. By W. A. Gibbs, Esq., of Gilwell Park, Essex. W. Trounce, 9, Cursitor Street, Chancery Lane.

This essay has reached a third edition, and is republished just at the time when its subject is likely to be interesting. If 1868, with its unrivalled harvest season, checked interest in the question of artificial harvesting and haymaking, the present season seems likely to again direct anxious attention to the subject. We extract the following passage from the appendix, in which special reference is made to the application of Mr. Gibbs' machinery to the purpose of making hay out of half dried Grass:—

"The results of recent experiments upon corn and hay drying with a horse-gear in lieu of the steam-engine, indicate conclusively that the former may be employed with perfect success when the latter is not at hand. Wheat that had been purposely exposed to heavy rains, and artificially wetted, rank Grass freshly cut, and wet hay, were all dried with equal thoroughness and rapidity by the one means as by the other. It therefore only remains for me to describe the change in the arrangements by which the hot-blast fan and Wheat-house may be adapted to an ordinary horse-power.

"The only matter absolutely essential to the working is a furnace for burning coke or malting coal. This may be constructed in two ways, either by sinking a trench in the earth, or by using a portable stove above ground; but whichever of these two be preferred, the peculiarity of construction is equally simple and effective. By the use of a slight iron frame to support earthen tubes (such as ordinary drain pipes), the highest economy in the matter of fuel is attained, for, the sides and top arch of these furnaces being composed wholly of such pipes, and the fire-bars being also hollow tubes (of iron), when the fan is set in motion streams of air pass above, below, around, and through the fuel, and entirely absorb every particle of heat, and utilise it to the end in view. There is thus no loss by radiation or absorption, but the whole effective drying power of the fuel consumed is sucked away, and delivered upon the Wheat, or Grass, or whatever else it is desired to dry.

"The sizes of these stoves must of course be determined by the probable quantity of the crop to be dried, and the speed at which it is wished to dry it, but a good average size is about 6 feet long by 16 inches broad, and 18 inches from the fire tubes to the crest of the arch; this would supply heat enough to deal with about 8 or 10 acres of wet Wheat or half-made hay in 24 hours, whilst three horses will give power enough to drive the hot blast and the lever hay-fork. The action of this hay-fork will, I think, be understood by reference to a drawing, which shows it set in action by a band passing from the flyers-shaft of the hot-blast on to a cart-wheel. A lever and cross-bar being attached to this wheel, every revolution that it makes gives a slow "pumping" kind of action to a rope or chain, which, passing through the roof of the drying-house, is adjusted to the fork, which by this up-and-down movement lifts great masses of the wet hay. Thus, the man stands outside the building, and, by means of the far end of the fork-handle, shakes the hay loose as it is lifted by the tines, so as to let the hot air penetrate equally through all parts of it; and this he is enabled to do with great ease, and without being obliged to stand in the line of the hot air. Of course the expedient of an ordinary cart-wheel for obtaining this movement is only a temporary one, and I am now adapting a spur-wheel and pinion to accomplish the same object in a more compact manner; but my reason for describing this "rough and ready" plan is that it has answered perfectly well through a great number of experiments, and if a farmer preferred to utilise an old cart for this purpose rather than incur expense for additional machinery, I will answer for it that it will do its work well in that way. Very many ingenious forms of machinery have been tried by me, and suggested by others, for doing away with hand labour altogether, but there are two conclusive reasons why machinery is never likely to do this—1st. The time taken to dry hay of an average wetness by the hot-blast is so short, that before any sort of moving apparatus (as, for example, a hay tedder, or endless band with tines, or a wire-net cylinder) could be fully charged, it would be time to empty it again. 2d. The exact point of dryness at which the hay should be sent away from the blast can only be judged of by the constant supervision of an experienced workman, and he can only safely judge of this by its increased lightness as it falls from the fork. I think, therefore, that the hay-fork will never be superseded in this particular operation, and that all that can be done is to give it increased power, so as to relieve the workmen of the greater part of the labour, and to protect them from all excess of heat."

Farm Memoranda.

WEST GLOUCESTERSHIRE: *June* 11.—Summer has now come, and every growing plant has already benefited by it. The cold chilly weather throughout May sadly retarded the healthy progress of vegetation, and kept back the Wheat from coming into ear fully a fortnight later than last year. It is now, however, just beginning to burst out, and in a few days some of the early sorts will be in full ear. Our attention during the last month has been chiefly directed to the preparation of the land for, and the sowing of, Swedes and early Turnips. Many acres of these have been well got in, the earliest sown are up, and show a very vigorous plant, having escaped the ravages of the fly, which, by the way, has not been so very troublesome hereabouts till within the last few days. Our plan for counteracting its ravages for years has been to sow broadcast over the young plants (very early in the morning, while the dew is upon the leaf), quicklime and gas lime, mixed together, and finely riddled; the dusty particles of the ormer settle thickly upon the seed leaf, while the latter gives off a strong sulphureous smell: we use from 6 to 8 bushels per acre, and it has proved as effective as it is simple.

Clover haymaking is now general. There is a considerable quantity of shed corn amongst the crop, or it would not be so bulky as it is; nevertheless there is a better crop than we at one time anticipated, but still below an average. Sainfoin is generally pretty good, and a few good pieces of Trifolium have been cut. Very little meadow hay has yet been cut in this neighbourhood. Some farmers in the vale have begun already to cut it, but their reason chiefly is to get an early change for their milch cows, in order to keep up their milk. Cheese is selling well, the opening price for spring-make being as high as 63*s.* per cwt.

Sheep shearing has been diligently carried on, and most of the flocks are now clipped, the fleeces will be about an average weight. The wool trade is not very brisk, but good sorts are worth from 1*s.* 2*d.* to 1*s.* 3*d.* per lb. The fall of lambs has been remarkably good in this neighbourhood, and they have kept very healthy. Stock of all descriptions are doing well, there being an abundant supply of Grass for them. *J. W.*

The Poultry Yard.

THE Berks and Hants Agricultural Society's annual meeting was held on Tuesday last at Reading, when the competing pens of poultry formed a great attraction. It is a tradition that at Reading that which is done is generally well done; and the present show was no exception. The arrangements were good, and were well carried out by the staff and committee. In grey Dorkings, the first class on the catalogue, the 1st prize was taken by Colonel H. B. Lane, of Lily Hill; the 2d by Mr. W. B. Boxall, of Strathfieldsaye. The high commendation went to Messrs. Fowler, Sargent, Shaw, and the Rev. G. F. Hodson, all names of mark in the poultry world. The condition of the birds was, for the time of year, wonderfully good.

Mr. Fowler, of Aylesbury, won the 1st for Cochins, Mr. Dawes, of Birmingham, 2d, while Mr. Godfrey, of Hammersmith, was highly commended for a pen of blacks. This variety, formerly a favourite one, has of late become very scarce on account of the difficulty experienced in breeding cock birds of the colour. To the amateurs of the Cochin fancy the grand birds of the late Mr. Calvert, of Beeby, near Leicester, and Mr. Fairlie, then of Cheveley, will have been familiar, and we may wonder that so few are left. They made for the time enormous prices, and were keenly bought up for France and Germany.

That well-known exhibitor of game fowls and bantams, the Rev. G. J. Cruwys, won the 1st prize for black and other reds; Mr. Stagg, of Pewsey, took the 2d; Messrs. Matthew and Loe were commended.

Class D, for game fowls of any other colour, provided another prize for Mr. Cruwys, and a commendation for Mr. Loe. Hampshire is very strong in Poland exhibitors, and in class E, for Polands of all varieties, the 1st prize was won by Mrs. Pettat, of Ashe; and the 2d by Mr. T. P. Edwards, of Lyndhurst.

An unusually good class of Spanish fowls awaited the judge, and Mr. James, of Peckham, was the winner, followed by the Revds. Simmonds and Lascelles.

The classes G and H, for pencilled Hamburghs, did not fill. The breed is not popular in the south, and the competition is never keen. Years ago a good many pencilled Hamburghs were kept in the Isle of Wight, but of late they have given place to more popular varieties.

The spangled Hamburghs are greater favourites, but even they do not come up to the birds in the north. A Cheshire firm—Messrs. S. & R. Ashton—sent down a pen of golden, which came in first. The silvers all came from the district: Mr. Pittis took 1st, Mr. Davis, of Reading, 2d.

The Brahma Poutra classes were well filled with good birds, the light variety having slightly the advantage in point of numbers. John Pares, Esq., of Postford, eook 1st and 2d; Messrs. Dowsett, Ridley, and Maynard commendations. For the pencilled variety the Rev. J. Ellis was 1st, Colonel Lane 2d, so that both prizes went into the same town. Mr. Dowsett was highly commended, as was also Colonel Lane.

Class M. Game bantams.—The Rev. G. Raynor took 1st prize, Mr. James 2d. The birds were not of the very high quality one would expect from the birds formerly kept in South Hants in the days when Mr. Kelleway exhibited them. They all drooped their wings too much. The other varieties of bantams had to fight it out in one class, in which Mrs. Pettat won 1st with silver-laced, Mr. Walker, of Manchester, 2d, for blacks; Messrs. Sutton, Cruwys, and Wyllie taking the commendations.

The French breeds had one class only, and we suggest to the committee of management to reduce the prizes given to the Hamburgh classes, and add to those of the French birds. Mr. Harman, of Oxford, was 1st with an excellent pen of Crèvecœurs; Colonel Wortley 2d, with the same breed. The Houdans exhibited were not good, and the one pen of La Flèche did not merit distinction. In class P, "any other variety," Mr. Hollis, of Reading, took the 1st prize with a pen of excellent Malays; Mr. Walker, of Dentry, Manchester, was 2d. The black Hamburghs were much admired. Mr. Fowler, of Aylesbury, was the winner of the 1st prize for ducks, with a pen of very fine Aylesburys; Messrs. Milward, of Newton St. Loe, 2d, with Buenos Ayrean. Mr. Baily, of London, was judge.

Miscellaneous.

Security of Tenure.—"Upon my observing," says Boswell, in the course of the Tour in the Hebrides, "that there must be something bad in a man's mind who does not like to give leases to his tenants, but wishes to keep them in perpetual wretched dependence on his will, Dr. Johnson said—'You are right; it is a man's duty to extend comfort and security among as many people as he can. He should not wish to have his tenants mere ephemeræ—mere beings of an hour.' Boswell—'But, sir, if they have leases, is there not some danger that they may grow insolent?' Johnson—'Depend upon it, sir, a man may always keep his tenants in dependence enough, though they have leases.'" *Boswell's "Life of Johnson"* (Croker's 8vo. edition, vol. ii., p. 532).

Fine Flavour in Butter and Cheese.—At the annual meeting of the Canadian Dairymen's Association, held in Ingersoll last month, Mr. X. A. Willard spoke on the important question, how to secure choice flavour in butter and cheese:—"With all our knowledge and experience in New York we have not been able the past year to avoid having some bad, off-flavoured cheese during the hot weather, especially in July. I took some pains to study this question, and I found by examining farms in numerous instances, that stagnant, putrid water, was one of the leading causes There were other causes, but this one was invariable. In one instance, the cause was attributed to the milk of one of the patrons, whose cows had been drinking from frog ponds; this man changed his fences so as to get good water, and so the trouble ceased. In the private dairies of New York and England, particular attention is paid to this matter. I wish I could impress this thought upon every dairyman present, as it is one of the faults which will have to be corrected before the highest standard of excellence can be reached. On farms where springs are deficient, the

defect is to be overcome by digging a well and applying wind power for pumping, which can be inexpensively erected, and made durable. Another point on which the old dairy farms are in error, and which is the cause of great impurity in milk, is the bad construction of milking stables, most of which are little better than pest-houses, owing to bad ventilation. So bad are some of them that I have seen delicate women faint away in them in hot weather. Follow the milk which comes from these places to the factory, after having been confined in the can under a close-fitting cover, and you will find it most offensive in odour and putrid. If there is any manufacturer present who can make clean flavoured goods from such milk, I should like to see him and hear his process. In this respect the English farms are ahead of ours. Their milking stables are open on one side, cool and well ventilated, and milking is made a pleasure to animal and milkmaid. I must say the new dairy districts are in advance of the old in this respect. I beg of you not to fall into the errors of the old dairy districts. After you have provided a clean, well ventilated milking stable, let each milker take a pail of water and towel into the stable, wash the cow's udder and wipe it dry with the towel, and then proceed to milk; you will then have no filth dropping into the pail, and water is so cooling and grateful to the animal, that she is quieted, gives down the milk at once, and will yield enough more during the season to pay the whole cost of milking. On the subject of milking, Mr. Willard gave a description of the structure of the udder, and then went on to say: Preparatory to milking, the teats ought always to be well washed with a sponge and cold water. This is not only a cleanly habit, but it keeps the teats in good order, and frequently prevents inflammation, and in certain cases restores the flow of milk by warm applications. A cow that has always been treated kindly will generally stand quietly, and appears to enjoy the operation. Milking should always be done by one and the same person, and I am in favour of women as being more tender, cleanly, and more patient of temper than men. Heretofore attention has been chiefly directed to the manipulations of cheese and butter-making, now the necessity of having good milk is forcing itself upon us. To insure the delivery of pure, sweet milk, he urged the Convention to adopt the following rules, to be posted on the door of every factory, and addressed to the patrons, saying:—"This is the unanimous voice of the Dairymen's Convention of 1869:"—1. That no milk is good which is made from filthy, stinking waters of slough and frog ponds. 2. That no milk is good that comes from cows dogged or over-driven, in hot weather, from the pasture to the stable. 3. That no milk is good that comes from cows pounded or kicked and cruelly treated by brutal men. 4. No milk is good that comes from diseased cows—cows that have sores filled with pus, or that have udders broken and running with corruption. 5. No milk is good that comes reeking with manure and filth from the stable. *Ontario Farmer.*

Highland and Agricultural Society, at Edinburgh.—At a meeting of the General Committee of Management of the Edinburgh show of the Highland and Agricultural Society, held on Wednesday, it was announced that up till that day there had been entered as for exhibition about 300 cattle, 200 horses, 250 entries of sheep, 50 entries of swine, 120 poultry, and 1000 implements. As some of the entries of sheep are in pens of five, it is impossible to arrive at the actual number till the certificates are properly classified. The swine in two classes are shown in pens of three, and the poultry in coops of three. A large number of schedules had been issued, and as these were still being returned, there was no doubt the show would be a very large one. The premiums offered for the show amount to nearly 1500*l.*, which may be materially increased by the number of gold medals, which may be awarded for 1st prize animals at the last three shows of the Society, and by the amount which may be awarded for implements. The yard will be open for the reception of stock on Monday and Tuesday, July 26 and 27, and between six and eight o'clock on the morning of Wednesday, 28th, after which no stock can be admitted. The implements may be placed in the yard from July 20 till the evening of the 27th.

Calendar of Operations.

Parsnips.—Horse and hand-hoe, singling the plants to 6 inches apart in the rows.

Sainfoin and Lucerne, spring-sown crops, will both require hoeing, the former, perhaps, the second time in moist seasons. Both crops, although hardy on soils that suit them, are easily injured by weeds, and therefore much of the success of their culture depends upon keeping them clean. The old forage crops should likewise be carefully gone over after every mowing, so as to clear the drills of any Grass or weeds.

Cabbages are planted after spring Tares are removed. Some farmers manure heavily on the stubble, plough in, harrow, and plant on the flat. If this plan be adopted, a slight sprinkling of lime should be sown from a broadcaster immediately after the plough, and at once harrowed in, so that the acrid or "sour" juices from the Tare roots may be neutralised before the plant has to rely on the soil for food. If Turnips be sown without lime after a crop of Tares—unless the soil has been well aërated—the seed will be poisoned during germination. Others give the Tare stubble a clean fallow, setting up the land in ridges 27 to 30 inches apart for the manure, when lime might not be required, but even in this case a dust of it is advisable. The farm-yard manure should be well soaked with liquid manure, and artificial manures should be applied well diluted with the liquid manure drill. Some defer planting until rain falls; others use the watering-pan freely in dry weather to start the plants. In the latter case the ground about each plant requires to be well soaked to the roots and manure, as a small dribble on the surface is worse than none. The early planted crops now hoe and hand-hoe, keeping the earth well up to the plants and loose about the roots by frequent hoeings. The more advanced crops will require the double mouldboard-plough by the close of the month, or as soon as the plants begin to heart and cover the ground.

Rape.—Sow as directed last month. The first sown in drills horse and hand-hoe, giving the plants a rough singling out. If sown broadcast and too thick use the harrows.

Hop Plantations.—Finish the second digging, suit the poles to the bines, earth up and loosen with the beck, and keep the nidget going between. Apply guano and fish manure in a liquid form where required.

Hay harvest commences this month, beginning with Rye-grass and Clover and irrigated meadows. The harvesting of the two crops differs widely in details, and therefore they may be described separately.

Rye-grass and Clover-hay when made in bright sunny weather is very liable to "roast," more especially the Clover, and therefore should be carefully turned so as not to break it. It is usual to mow Rye-grass before it begins to flower. When mown on the old plan, by the scythe, the swathe is easily turned by the fork or rake handle, but the great bulk of the crop is now cut with the mowing machine, which leaves it behind the knife in a broad flat swathe somewhat more contracted and compressed at the one side than the other by the "track clearer," so that it does not make equally. It is more exposed to the sun and weather than in the scythe swathe, and is frequently made into bastard cocks without turning. In other cases the thick half of the swathe is turned over upon the thin half with a common hand-rake, and when ready put up into small cocks. These are gently spread out next day, turned, and then two or three bastard cocks are put into a larger one, sometimes termed a "hand cock," in which the hay remains until ready for the tramp cock or cole. In this latter it remains until fit for the haystack. Some leave the swathes until they are ready for being gathered into windrows with the hay rake, when it is put into hand cocks, and subsequently into tramp cocks and the haystack. Under this practice much of the hay is often wasted from roasting—the leaves of the Clover, and much of the Rye-grass, being burnt to "tinder" or "snuff."

Sainfoin and *Lucerne* should be used green, but they are sometimes made into hay, when grown separately as forage plants. They are, however, more frequently made into hay when grown with Rye-grass in the place of Clover, especially the former, Sainfoin. From its being more succulent than Clover, it takes longer time to dry, and hence is more liable to roast in the sun and to become mouldy in wet seasons. In other respects the work of making hay is similar to Clover. Sainfoin is sometimes carried when very little made, and stacked in layers with straw, to which it imparts much of its fragrance, the two, when cut into chaff, being wholesome and relished by cattle.

Meadow-grass is cut when the bulk of the crop is in flower. Some Grasses flower in May, others in June, July, and August, so that some sacrifice of the early and late has to be made, but in the field there is no difficulty in determining what should be done. Under the old plan a boy followed each scythe, shaking abroad the swathe evenly over the ground. With the modern mowing machinery the tedding machine follows as close as the condition of the newly-cut Grass requires. The hay-rake comes next, gathering the half-made hay into rows for bastard cocking. The bastard cocks are shaken out in the morning into windrows, which may be turned by reversing the action of the tedding machine. In this manner the work proceeds until the hay is fit for stacking. Some stack green, others carry with a sufficiency of sap to produce fermentation or heating, so as to turn out brown hay. Something depends upon how the hay is to be used. If for horses and sheep alone, the more it retains its natural greenness the better; but if to be cut up into chaff along with straw, a little brownness will be in its favour. In making hay two extremes should be carefully avoided when it is possible, viz., roasting in sunshine, and blanching in rainy weather.

Stacking is a nice operation when the hay is properly shaken out and mixed in the stack. Rye-grass and Clover from tramp cocks is often stacked in a single day, seldom more than two being required to finish the stack; but meadow hay when heated requires to be carried so much daily, so that a number of days is required to finish a large stack. Hence on large farms two or more stacks may proceed together so as to avoid too great a depth of fresh hay being put upon one at a time, the stack being under canvas rickcloth at night, or when rain falls.

Thatching should never be delayed. Thatch should be in readiness, and stacks of Rye-grass and Clover-hay may be thatched as soon as they are built, if the weather is unsettled. But if there is no appearance of rain the stack may be allowed to settle down. Meadow hay requires the heat to be nearly out of the stack before the thatch is put on. There are two ways of thatching—dry straw and straw ropes, and wet straw, with a small end along the eaves, ridge, and ends of the roof. The former is the more common practice in Scotland, the latter in England. *W. B.*

Notices to Correspondents.

INDIAN CORN: *M & T.* Maize is referred to by an enthusiastic cultivator of it in Blackie's "Cyclopædia of Agriculture." For information about suitable seed, apply to Messrs. Orange Judd & Co., 245, Broadway, New York.—Mr. Hope, of Parsloes, Barking, grew Indian Corn successfully last year by the aid of sewage. But it is only in exceptional years, like 1868, when its cultivation is successful here.

WHEAT PLANT: *To Correspondents.* A box, containing a magnificent specimen of April Wheat, lies at the office; but we have no information regarding it, either by letter or by message.

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11 by 9	13 by 9	13¾ by 10½	13 by 11						
11½ by 9½	12 by 10	14 by 10	14 by 11						

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in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
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16 by 10	14½ by 12½	17 by 13	24 by 16					
14½ by 11½	15 by 12	23 by 13	20 by 17					
15 by 11	15½ by 12½	18 by 14	22 by 17					
15½ by 11½	16 by 12	22 by 14	24 by 17					
16 by 11	16½ by 12½	24 by 14	20 by 18					
21 by 11	17 by 12	22 by 15	22 by 18					
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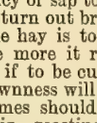
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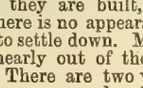
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6 " "	0 8	16 " "	3 6
7 " "	0 10	17 " "	4 0
8 " "	1 0	18 " "	5 0
9 " "	1 2	19 " "	6 0
10 " "	1 4	20 " "	7 0
11 " "	1 6		

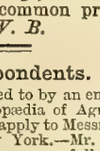
BEE GLASSES, with ventilating hole through knob.

4 inches in diameter	0s. 6d.	9 inches in diameter	1s. 8d.
5 " "	0 8	10 " "	2 0
6 " "	0 10	11 " "	2 6
7 " "	1 1	12 " "	3 0
8 " "	1 4		

Either flat or conical tops.

CUCUMBER  GLASSES.

24 inches long	2s. 0d.	16 inches long	1s. 4d.
22 "	1 10	14 "	1 2
20 "	1 8	12 "	2 6
18 "	1 6		

HAND GLASSES,  WITH OPEN TOPS.

	Each.—s. d.		Each.—s. d.
12 inches	6 6	18 inches	9 6
14 "	7 6	20 "	10 6
16 "	8 6	22 "	11 6
		24 "	12 6

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS. PAINTS of various colours ground ready for use.

SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of Prices and Estimates forwarded on application to JAS. PHILLIPS AND CO., 180, Bishopsgate Street Without, E.C.

GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT, MANUFACTURER



TO HER MOST GRACIOUS MAJESTY THE QUEEN.

THE Extraordinary Success of GREEN'S PATENT LAWN MOWERS is an established fact. During the last five years the demand has been unprecedented, which alone is a proof of their superiority over all others. The following are their characteristic features:—

1st. **Simplicity of Construction, every part being free of access.**
2d. **They are worked with far greater ease than any other Lawn Mower.**
3d. **They are the least liable to get out of order.**

IMPORTANT NOTICE.

Trial at the London Horticultural Society's Gardens, Chiswick, June 5, 1857; four competitors: — First Trial on level ground, Second Trial on undulated; Third Trial on intricate places, around trees, &c.,—when GREEN'S PATENT was unanimously declared to be the best in each Trial by COLONEL CHALLONER, DR. LINDLEY, and G. McEWEN, Esq., the appointed Judges, and on every subsequent Trial to the above have GREEN'S PATENT LAWN MOWERS carried off every Prize that has been given in competition for superiority in every point.

PRIZE MEDALS AWARDED TO GREEN'S PATENT LAWN MOWERS.

FIRST PRIZE MEDAL AT THE INTERNATIONAL EXHIBITION, LONDON, 1862.
FIRST PRIZE MEDAL AT THE INTERNATIONAL EXHIBITION, DUBLIN, 1865.
FIRST PRIZE MEDAL AT THE NAMUR EXHIBITION.
FIRST PRIZE MEDAL AT THE GAND EXHIBITION.
FIRST PRIZE MEDAL AT THE LAEKEN EXHIBITION.
FIRST PRIZE MEDAL AT THE LINEENE EXHIBITION.
FIRST PRIZE MEDAL AT THE BRUSSELS EXHIBITION, *on two occasions.*
FIRST PRIZE MEDAL AT THE HAMBURG EXHIBITION.

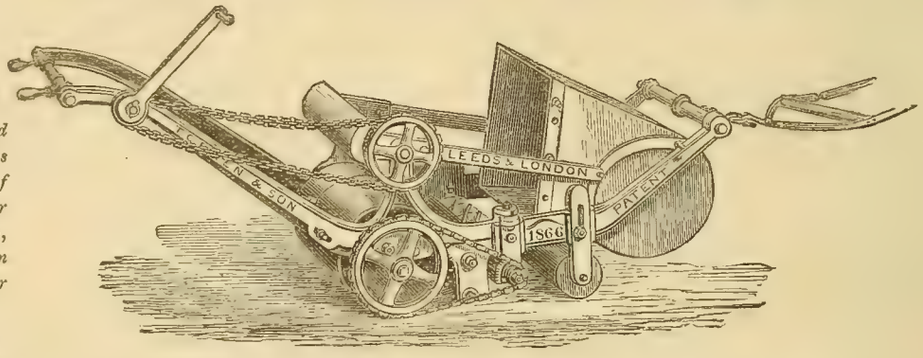
THEY ARE THE ONLY MACHINES IN CONSTANT USE AT

THE ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON
THE ROYAL BOTANIC GARDENS, REGENT'S PARK
THE CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM
BUCKINGHAM PALACE GARDENS
MARLBOROUGH HOUSE
THE HYDE PARK GARDENS
THE WINTER PALACE GARDENS, DUBLIN
THE DUBLIN BOTANIC GARDENS
THE LIVERPOOL BOTANIC GARDENS
THE LEEDS ROYAL PARK
THE HULL BOTANIC GARDENS
THE BOTANIC GARDENS, BRUSSELS
THE SUNDERLAND PARK
THE PRESTON PARK

AND IN MOST OF THE PRINCIPAL PARKS, SQUARES, ETC., IN THE UNITED KINGDOM.

HORSE, PONY, AND DONKEY MACHINE.

GREEN'S PATENT **LAWN MOWERS** *have proved to be the best, and carried off every Prize that has been given in all cases of competition. Since the first year they were introduced* (1856), *upwards of* 46,600 *have been sold, and* 25,000 *of that number during the last five seasons.*



T. GREEN & SON *warrant every Machine to give entire satisfaction, and if not approved of can be returned unconditionally.*

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

PONY AND DONKEY MACHINES.

To Cut 26 inches	..	..	..	£13 0 0	*Leather Boots for Donkey*, 18*s.* *Leather Boots for Pony*, 22*s.*
„ 28 „	..	..	..	15 0 0	
„ 30 „	..	..	..	17 0 0	

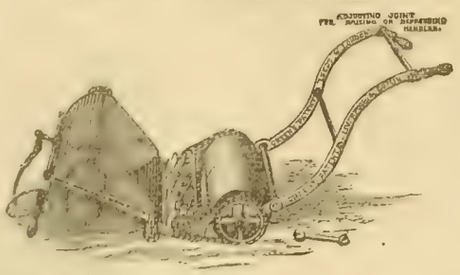
HORSE MACHINES.

To Cut 30 inches	..	..	..	£21 0 0	*Leather Boots for Horse*, 26*s.*
„ 36 „	..	..	..	24 0 0	
„ 42 „	..	..	..	27 0 0	
„ 48 „	..	..	..	30 0 0	

Both the Horse, Pony, Donkey, and Hand Machines possess (over all other Makers) the advantage of Self-sharpening. The cutters being steel on each side, when they become dull or blunt by running one way round, the cylinder can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the Machine will cut equal to new. Arrangements are made that the cylinder can be reversed, by any inexperienced person, in two or three minutes.

HAND MACHINES.

To Cut 10 inches	..	£3 10 0	*Suitable for a Lady*	To Cut 18 inches	.. £7 10 0 *Suitable for One Person.*
„ 12 „	..	4 10 0	„ „	„ 20 „	.. 8 0 0 *Suitable for Two Persons*
„ 14 „	..	5 10 0	*Suitable for One Person*	„ 22 „	.. 8 10 0 „ „
„ 16 „	..	6 10 0	„ „	„ 24 „	.. 9 0 0 „ „



Packing Cases are charged at the following low rates, viz.:—For the 10 and 12-inch Machine, 3*s.*; 14 and 16-inch, 4*s.*; 18 and 20-inch, 6*s.*; 22 and 24-inch, 6*s.* Parties providing themselves with Lawn Mowers are recommended to purchase the cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England, Ireland, and Scotland.

HORTICULTURAL and AGRICULTURAL IMPLEMENTS, GARDEN SEATS and CHAIRS, FOUNTAINS, VASES, PLAIN and GALVANISED WIRE NETTING and ORNAMENTAL WIRE WORK of every description.

Having very extensive Premises in London, we are in a position to do all kinds of Repairs there, as well as at our Leeds Establishment.

Having a large quantity of MACHINES in stock at our Leeds and London Establishments, we are in a position to execute Orders on the day they are received.

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;
and 54 & 55, BLACKFRIARS ROAD, LONDON, S.

THE HYDRONETTE,
(Robins' Patent,) for Gardens, Greenhouses, Conservatories, Hotbeds, &c. Unrivalled ease of action, simplicity, convenience, and force.

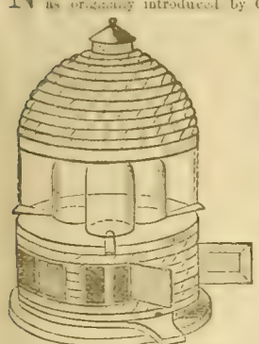


The HYDRONETTE is a more useful, easy working, reliable, and convenient water-throwing machine than any other in use. It is made in five sizes, viz.—No. 1, with 4 feet of Suction Hose, Strainer, Jet, and Rose, 12s. 6d.; No. 2, 15s. 6d.; No. 3, £1 1s.; No. 4, £1 5s.; No. 5, £1 10s. Extra Hose and Union Joints furnished to order. Forwarded on receipt of Post Office order. To be obtained through any Ironmonger or Florist, or of the Proprietors, HAYNES AND SONS, 227, 229, and 231, Edgware Road, Paddington, W.

Bee-Hives.

TWO SILVER MEDALS AWARDED TO GEO. NEIGHBOUR & SONS, AT THE PARIS EXHIBITION OF 1867. THE ONLY ENGLISH EXHIBITORS WHO OBTAINED A SILVER MEDAL FOR BEE-HIVES.

NEIGHBOURS' IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR AND SONS, working three bell-glasses; is neatly and strongly made of straw; it has three windows in the lower hive.



This Hive will be found to possess many practical advantages, and is more easy of management than any other Bee-Hive that has been introduced.

Price, complete..£1 15 0
Stand for ditto .. 0 10 0

THE LIGURIAN or ITALIAN ALP BEE being much in repute, G. N. & SONS supply colonies of Bees with genuine Italian Queens (which will shortly have wholly yellow Italian Alp Bees) at £3 3s. each.

An Italian Alp Queen, with full directions for uniting to Black Stocks, £1 each.

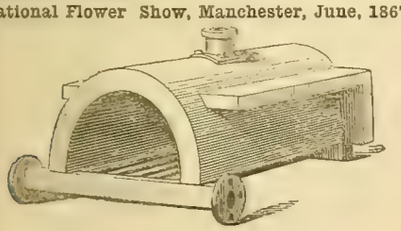
ENGLISH BEES.—Stocks and Swarms may be obtained as heretofore.

A newly-arranged CATALOGUE of other Improved Hives, with Drawings and Prices, sent on receipt of two stamps.

Address, GEO. NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London.

AGENTS:—Liverpool: JAMES CUTHBERT, 12, Clayton Square. Manchester: J. WILSON, 50, King Street. Dublin: EDMONSTON BROTHERS, 10, Dame Street. Glasgow: AUSTIN & MCASLAN, 16, Buchanan Street.

National Flower Show, Manchester, June, 1867.



FIRST-CLASS CERTIFICATE AWARDED TO
THE PATENT TERMINAL SADDLE BOILER,
with the following note:—
"The Judges consider this one of the most powerful and useful Boilers for general purposes."
See *Gardeners' Chronicle*, December 7, 1867.
See *Gardeners' Chronicle*, January 25, 1868.
See *Gardeners' Chronicle*, February 1, 1868.
See *Gardeners' Chronicle*, February 8, 1868.
See *Gardeners' Chronicle*, March 14, 1868.
See *Gardeners' Magazine*, June 15, 1867.
See *Gardeners' Magazine*, August 24, 1867.
J. IRELAND, Edward Street, Broughton Lane, Manchester.

W. H. LASCELLES' MACHINE-MADE MELON LIGHTS. Each.



6 ft. by 4 ft. Lights, 2 ins. thick, unglazed £0 5 0
" " Primed and Glazed with 10 oz. Sheet 0 11 0
" " with stout Portable Box, not Painted.. .. .. .. 1 3 0
" " Painted four coats, and Handles on 1 8 0
" " Packed and Delivered in Railway Van.. .. .. 1 10 0
6 ft. by 8 ft., Double Lights, do. 2 15 0

GREENHOUSES. Per ft. super.
Woodwork only Prepared and Fitted 0 0 6
" Primed and Glazed with 16 oz. Sheet .. 0 0 9
" Delivered, and Fixed with Ironwork .. 0 1 0
" Painted four coats, two sides, ready for use 0 1 3

Finsbury Steam Joinery Works, 121, Bunhill Row, E.C.

HOT-WATER APPARATUS
Erected Complete, or the Materials Supplied for Heating
Peill's Conical. GREENHOUSES, Tubular Boiler.





HOTHOUSES,
CONSERVATORIES,
CHURCHES,
PUBLIC BUILDINGS, &c.
HOT-WATER PIPES at wholesale prices, Elbows, T Pieces, Syphons, and every other connection kept in stock.
WROUGHT and CAST IRON CONICAL, SADDLE, and IMPROVED PEILL'S and ELLIPTIC BOILERS, from 24s. each.
IMPROVED and EXTRA STRONG CAST IRON TUBULAR BOILERS, with or without Water Bars, from 62s. 6d. each.
CAST and WROUGHT IRON PORTABLE BOILERS on STAND, for use without brickwork, from 60s. each.
PATENT and IMPROVED THROTTLE and other VALVES, FURNACE DOORS, BARS, and FURNACE WORK of every description and size.
LYNCH WHITE,
Old Barge Iron Wharf, Upper Ground Street, London, S.E.
(Surrey side Blackfriars Bridge).
Price List on application.

THE TANNED LEATHER COMPANY,
Arnott Works, Greenfield, near Manchester.
TANNERS, CURRIERS, and MANUFACTURERS of IMPROVED TANNED LEATHER DRIVING STRAPS for MACHINERY
PRIME STRAP and SOLE BUTTS.
Price Lists sent free by post.
Warehouse: 81, Mark Lane, London, E.C.

RICK-CLOTHS, NEW and SECOND-HAND, with POLES, PULLEYS, &c., complete.
An Illustrated Catalogue post free on application



BENJAMIN EDGINGTON'S CRICKET TENTS, GARDEN TENTS, TENTS FOR FLOWER SHOWS.
BENJAMIN EDGINGTON'S WAGGON CLOTHS, HAY CLOTHS, GARDEN NETTING, FLAGS.
Address, BENJAMIN EDGINGTON (only), 2, Duke Street, London Bridge, S.E. No other Establishment.

"Every Cottage should be provided with a Water Tank." *Disraeli.*

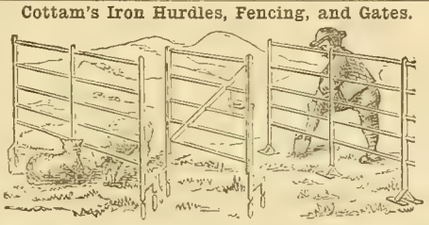
Iron Cisterns.

F. BRABY AND CO. having laid down more extensive and Improved Machinery on their Deptford premises (IDA WHARF), are prepared to supply WROUGHT-IRON TANKS, GALVANISED or PAINTED, of superior quality, at reduced prices, and at very short notice.



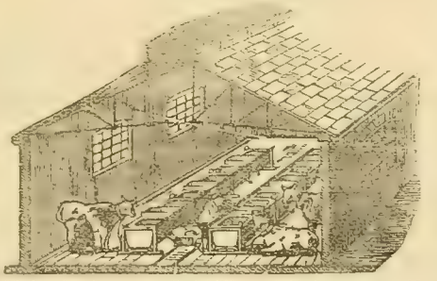
An Illustrated Price List of Galvanised Iron, and other of BRABY'S special Manufactures, sent on application.
F. BRABY AND CO., Limited, Fitzroy Works, Euston Road London; or through all respectable Ironmongers.
N.B. Open Tanks of different sizes packed one in another to save carriage.

Cottam's Iron Hurdles, Fencing, and Gates.



COTTAM'S HURDLES are made in the best manner, of superior Wrought Iron, by an improved method. Illustrated Price Lists on application to COTTAM AND CO., Iron Works 2, Winsley Street, Oxford Street, London, W.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rick dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of Iron. Prices of Fittings per Cow, 55s.
Prospectuses free of COTTAM AND CO., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

BRADFORD WOOL.—We receive Wool for Sale on Commission either by Private Contract or at our Monthly Sales by Auction. Market Reports, with latest information, and any other particulars, on application. Sheets supplied.
LOUIS AND SON, Wool Brokers, Bradford.

TO BE LET, NURSERY and SEED BUSINESS, or the LEASES to be DISPOSED OF, or would be LET separately. JAMES OVER, 116, High Street, Clapham.

Dissolution of Partnership.
WHITTINGTON NURSERY, HIGHGATE HILL (4 miles from London Markets).

TO BE SOLD, STOCK, LEASE, and GOOD-WILL of this valuable NURSERY, comprising 2½ Acres of Ground, with Dwelling-house, Seed Shop, Greenhouses, Frames, and Outbuildings. Term of Lease, 14 years. For full particulars apply to McGREGOR AND MIDDLEMISS, on the Premises.

Sales by Auction.

To Shorthorn Breeders.
IMPORTANT SALE OF SHORTHORNS.

MR. GEORGE LANGRIDGE has been favoured with instructions from C. Leney, Esq., to DISPOSE OF by AUCTION, at the Court Lodge Farm, West Peckham, Kent, on WEDNESDAY, June 23, at 1 for 2 o'Clock, the entire HERD of Valuable SHORTHORNS, comprising 43 head of BULLS, COWS, HEIFERS, and CALVES, principally bred by himself from Stock selected from some of the best known Shorthorn herds. Also, at the same time, 12 Prime Fat Shorthorn STEERS.
West Peckham is situated 6 miles from Tunbridge Station, on the South-Eastern Railway, and four miles from Wateringbury, on the Paddock Wood and Maidstone Branch of the same Line.
Catalogues with particulars and pedigrees may be had of C. LENEY, Esq., Hadlow Place, near Tunbridge, Kent; at the Salisbury Hotel, Salisbury Square, Fleet Street; at all the principal Hotels in the neighbourhood; and of the Auctioneer, 2, Lansdowne Place, Tunbridge Wells, and Mereworth, Kent.

Kingston-on-Thames, S.

HIGHLY IMPORTANT CLEARANCE SALE of GREENHOUSE and STOVE PLANTS, GREENHOUSES, PITS, FRAMES, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by William Hardman, Esq., to SELL by AUCTION, without reserve, on the Premises, Norbiton Hall, Kingston-on-Thames, S., on MONDAY, June 28, at 12 o'Clock precisely, the whole of the STOVE and GREENHOUSE PLANTS, including many handsome specimens, forming fine examples of EXOTIC FERNS, large DOUBLE CAMELLIAS and AZALEA INDICA, about 1000 FRUITING and SUCCESSION PINES, pronounced to be the best in the country; also the several GREENHOUSES, in all about 7000 feet super. of Glass, 2000 feet of 2, 3, and 4-inch Hot-water Pipe, powerful Tubular and Flat Boilers, GARDEN POTS, a quantity of TRELLIS WORK, 40 dozen TURF BENDERS, and numerous other effects.
On view the day previous to the Sale, Catalogues may be obtained on the Premises of Mr. GRAY, and of the Auctioneers and Valuers, Leytonstone, Essex.

Shacklewell.

IMPORTANT TO NURSERYMEN, FLORISTS, AND OTHERS

MESSRS. PROTHEROE AND MORRIS are instructed to offer by PUBLIC AUCTION, at Messrs. Garraway's, 'Change Alley, Cornhill, on THURSDAY, July 2, the valuable LEASES, with possession, upon Four Brick-built Dwelling Houses, all occupied by respectable tenants, and known as Norfolk Place, Shacklewell; also the NORFOLK NURSERY adjacent, with the whole of the valuable Erections of Greenhouses, Show House, Ranges of Pits, &c., particulars of which are being prepared, and when ready may be obtained on the Premises, of Messrs. MILLS AND LOCKYER, Solicitors, 2, Brunswick Place, City Road, London, E.C.; and of the Auctioneers and Valuers, Leytonstone, N.E.

Important Sale of Established Cool Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, June 24, at half-past 12 o'Clock precisely, without reserve, a Collection of Established ORCHIDS, the property of a Gentleman giving up their cultivation, comprising—

Calanthe Veitchii		Odontoglossum Alexandræ	
Cattleya bulbosa		,,	Blunti
,,	marginata	,,	lawsoni
Cypripedium caudatum		,,	Hallii
,,	Schlimii	,,	nævium nobis
,,	Pearcei	,,	Pescatorei
Oncidium aurosum		,,	Phalænopsis
,,	cucullatum	,,	triumphans
,,	Marshallianum	,,	zebrina
,,	nubigenum	,,	Wagneri, &c.

On view the Morning of Sale, and Catalogues had.

Bulbridge Ram Sale.

THE SALE by AUCTION of RAMS and RAM LAMBS, the property of Mr. James Rawlence, will take place on FRIDAY, July 30.
Auction and Estate Agency Offices, Endless Street, Salisbury.

To Market Gardeners, Florists, and Others.

MR. HENRY BENINGFIELD will SELL by AUCTION, at the Corn Exchange, Ware, Herts, on THURSDAY, June 24, at 3 o'Clock precisely, an exceedingly productive, FREEHOLD, WALLED FRUIT or NURSERY GARDEN, in which is a recently erected brick built and slated Cottage, Grapery, Greenhouse, Peach House, Cucumber House, Pinery, a range of Succession Pine Pits, all expensively fitted with boiler and hot-water pipes; Tool House, Store Room, and Potting Shed; choice Wall and Standard Fruit Trees in full bearing: the whole containing about 2 acres. Also 13¾ ACRES of rich GARDEN or BUILDING LAND, DWELLING HOUSES, MALTINGS, COTTAGES, and other property, situate in and adjoining the Town of Ware.
Particulars of Sale may be had of Messrs. SPENCE AND HAWKS, Solicitors, Hertford; and of Mr. HENRY BENINGFIELD, Auctioneer and Surveyor, 3, Bartholomew Lane, London, and Corn Exchange, Ware, Herts.

To Market Gardeners, Wheelwrights, and Others.

MR. HENRY BENINGFIELD will SELL by AUCTION, at the Priory Farm, Hertford, by order of Mr. G. Hale, who is giving up his Market Gardening Business, on SATURDAY, June 26, at 2 for 3 o'Clock, a capital SPRING VAN on patent axles, Four SPRING CARTS, Nine COULTER CORN and SEED DRILLS, LAND ROLL, HARROWS, DRESSING MACHINE, &c.; a powerful young CART MARE; fine framed COW, in full profit; a 3-Horse-power STEAM ENGINE, Four-wheel CHAISE; also the SURPLUS STOCK of a WHEELWRIGHT.
May be viewed on the Morning of Sale, and Catalogues had of the Auctioneer, 3, Bartholomew Lane, London, E.C.; Waltham Abbey, Essex, N.; and Corn Exchange, Ware, Herts.

The Royal Nursery Grounds, Slough, Bucks,
And LEASEHOLD BUSINESS PREMISES, in MAY FAIR, LONDON, W., held for 99 years, at a Peppercorn rent, formerly the Property of the late Mr. Gould.

MESSRS. CLEAVE AND UNDERHAY beg to announce they have received instructions from the Devisees in Trust, to SELL by AUCTION, on WEDNESDAY, June 30, at 12 o'Clock, at the Auction Mart, Tokenhouse Yard, E.C., opposite the Bank of England, that most important and valuable ESTATE at SLOUGH, known as THE ROYAL NURSERIES, with the superior Residence, Seed Rooms, Offices, Conservatories, Pits, Stabling, and Sheds, in the occupation of Mr. Charles Turner; the whole containing about 8 acres, 4 acres freehold and the rest copyhold of the manor of Upton-cum-Chalvey, at a nominal quit rent; possessing extensive frontages to the main road, Wexham Road, and Wellington Road, and offering a safe investment of capital, or for a good building speculation. The Land is presumed to contain a considerable depth of brick earth. It is let on lease for 21 years, determinable at the end of the first 7 or 14 years, to Mr. Charles Turner, from Midsummer-day, 1865, at £300 per annum.
Also, TWO VALUABLE BUSINESS PREMISES, situate and being 46, Curzon Street, May Fair, W., and 10, Sun Court, W., both adjoining, and in the occupation of Mr. Grimmond, baker, and Mr. Moye, greengrocer, and are underlet to Mrs. Wyld on lease for a term of 21 years from Christmas, 1860, at the low rent of £140 per annum, but are of the estimated rental of £250 per annum.
The Properties may be viewed by permission of the tenants; and particulars had 14 days prior to the Sale of W. DAY, Esq., Solicitor, 1, Queen Streeet, May Fair, London, W.; at the Mart; and at the Auctioneers' Offices, 2, Sheet Street, Windsor, and 9, Upper Baker Street, Regent's Park, London, N.W.

Butley Abbey, Woodbridge, Suffolk.

VERY IMPORTANT SALE of the BUTLEY ABBEY HERD of SHORTHORNS, the MAGNIFICENT AGRICULTURAL and THOROUGH-BRED STALLIONS, and the FAMED CHOICE ABBEY SWINE of VARIOUS BREEDS.

MR STRAFFORD and Mr. BOND (who are jointly concerned), have been favoured with instructions from the Executors of the late Thomas Crisp, Esq., to SELL by AUCTION on WEDNESDAY and THURSDAY, July 14 and 15 next, at Butley Abbey, the entire Herd of about 80 Head of Shorthorn BULLS, COWS, and HEIFERS, bred with great judgment through a long course of years, from the most fashionable sources, and possessing "Bates," "Booth," and other blood of the highest repute.
Nine magnificent AGRICULTURAL STALLIONS, embracing the very celebrated young horse, Cupbearer, the winner of many hundreds of pounds in Royal and other prizes; and Duke, Prince, Captain, May Duke, &c., also successful prize-takers.
Fifteen thorough-bred and other excellent HORSES, including the noted thorough-bred Stallion, Fandanguero, the winner of a large number of prizes, and in 1868 the winner of the prize at the Norfolk Show, beating all the Norfolk trotters; also, the thorough-bred Stallion, Tom, and many young Horses of great merit.
Two Hundred Head of very choice BOARS and SOWS, known as the "Butley Abbey" breed; and embracing the Black Suffolks, large and small Suffolks, Berkshires, and the "large Breed," in which are comprised many of the celebrated Black Diamonds, Snowballs, and other superior Swine, of the rarest quality and symmetry. Many thousands of pounds have been won by this first-class Stock in Royal, Continental, and Local Prizes.
Catalogues with Pedigrees and other particulars will shortly be issued, and may be had on application to Mr. STRAFFORD, 13, Euston Square, London, N.W.; or of Mr. BOND, 86, King William Street, London, E.C.; 10, Queen Street, Ipswich; and at the place of Sale.

SHANKS'S PATENT LAWN MOWERS FOR 1869.

UNDER THE PATRONAGE
OF
HER MOST GRACIOUS MAJESTY
THE QUEEN,



AND MOST OF THE
PRINCIPAL NOBILITY
OF
GREAT BRITAIN.

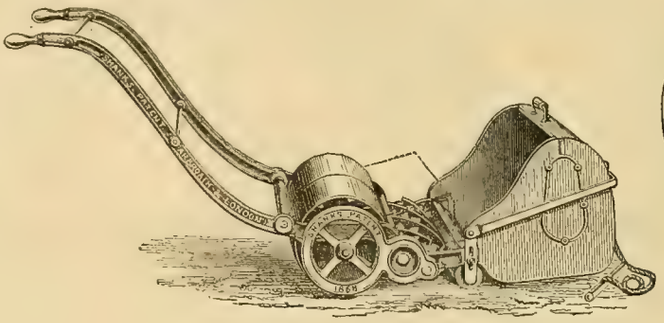
The Patent Improvements recently introduced give Shanks's Machine several important advantages possessed by no other Lawn Mower.

PATENT DOUBLE-EDGED SOLE PLATE, WIND GUARD, &c., &c.

THE UNPRECEDENTED SALE FOR 1868 BEARS TESTIMONY HOW MUCH THESE ADVANTAGES HAVE BEEN APPRECIATED.



THE FIRST PRIZE MEDAL
OF THE
INTERNATIONAL EXHIBITION,
LONDON, 1862.



HAND MACHINE.



THE FIRST PRIZE SILVER MEDAL
OF THE
UNIVERSAL EXHIBITION,
PARIS, 1867.

ALEXANDER SHANKS AND SON, in presenting their "PRICE LIST of LAWN MOWERS for 1869," have much satisfaction in intimating that among all the Exhibitors of Lawn Mowers at the Universal Exhibition of 1867, they are the only Firm to whom the Jury have awarded a Medal.

A. S. AND SON have, in addition to the PATENT DOUBLE-EDGED SOLE PLATE and WIND GUARD, made very great Alterations and Improvements in their Machine. These alterations, which were introduced last Season, have now undergone an effectual trial, and the result has been so successful as to enable A. S. AND SON to offer a Machine which far excels any other that has ever yet been offered, *whether for ease in working, certainty of action, or durability.* It has only to be compared with other Machines, when its superiority will be at once seen and understood.

PRICES—INCLUDING CARRIAGE TO ANY RAILWAY STATION OR SHIPPING PORT IN THE KINGDOM.

SHANKS'S NEW PATENT HAND MACHINE.

		Easily Worked
10-inch Machine	£3 10 0	*By a Lady*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*By a Boy*

		Easily Worked
16-inch Machine	£6 10 0	*By a Man*
19-inch Machine	7 15 0	*By a Man and a Boy*
22-inch Machine	8 10 0	*By Two Men*
24-inch Machine	9 0 0	

The Hand Machines are all with Silent Movement.

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Width of Cutter.		If with Patent Delivering Apparatus
25-inch Machine	£12 10 0	.. .. 25*s.* extra.
28-inch Machine	14 10 0	.. .. 30*s.* ,,
30-inch Machine	15 15 0	.. .. 30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra.
Boots for Pony, 22*s.* per set.; Ditto for Donkey, 18*s.* per set.

SHANKS'S NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
30-inch Machine	£19 0 0	.. .. 30*s.* extra.
36-inch Machine	22 0 0	.. .. 30*s.* ,,
42-inch Machine	26 0 0	.. .. 40*s.* ,,
48-inch Machine	28 0 0	.. .. 40*s.* ,,

Silent Movement, 20*s.* extra. Boots for Horse, 26*s.* per set.

Every Machine warranted to give ample satisfaction, and, if not approved of, can be at once returned without any expense to the buyer.

SHANKS'S PATENT LAWN MOWERS

ARE THE ONLY ONES IN DAILY USE IN THE

ROYAL GARDENS AT KEW, WINDSOR, BUCKINGHAM PALACE, HAMPTON COURT, OSBORNE, AND BALMORAL;
IN THE GARDENS OF THE ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON;
IN THE GROUNDS OF THE CRYSTAL PALACE COMPANY, AT SYDENHAM;
IN HYDE PARK, IN VICTORIA PARK, IN BATTERSEA PARK;

And in many hundreds of the principal Gardens in the Kingdom, as well as abroad, where their merits have been fully proved and their success firmly established.

Every Machine warranted to give ample satisfaction, and, if not approved of, can be at once returned.

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH,
AND
27, LEADENHALL STREET, LONDON.

27, *Leadenhall Street is the only place in London where intending purchasers of Lawn Mowers can choose from a Stock of from* 150 *to* 200 *Machines. All sizes kept there, whether for Horse, Pony, or Hand Power.*

Editorial Communications should be addressed to "The Editor," Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 26.—1869.] SATURDAY, JUNE 26. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.
GREAT ROSE SHOW, on TUESDAY, June 29. Bands of First Life Guards and Royal Horse Guards, from Three. Tickets, which must be bought prior to 29th, and can be had of all principal Musicsellers—Fellows' Friends, 3s. 6d.; Public, 5s.; or on the day, 7s. 6d.

ROYAL HORTICULTURAL SOCIETY'S GRAND PROVINCIAL SHOW at MANCHESTER, from JULY 19 to 24. Schedules of Prizes can be had on application to H. WHITWORTH, Esq., 96, King Street, Manchester; or J. RICHARDS, South Kensington.
SPECIAL NOTICE.—The Council have decided that the price of admission on the 19th and 20th shall be the same, viz., 7s. 6d. (or 5s. if the Tickets are bought prior to the 19th), instead of 2s. 6d. on the 20th; on 21st, 2s. 6d.; 22d, 1s.; 23d and 24th, 6d., as printed on the Schedules.

ROYAL BOTANIC SOCIETY GARDENS, Regent's Park.—NEXT EXHIBITION of PLANTS, FLOWERS, and FRUIT, WEDNESDAY and THURSDAY NEXT, June 30 and July 1. Tickets to be obtained at the Gardens, and of the Society's Clerk, Austin's Ticket Office, St. James's Hall, Piccadilly, by Vouchers from Fellows of the Society, price 5s. each; on the days of Exhibition, 7s. 6d. Gates open at 2 o'Clock.

ZOOLOGICAL GARDENS, CLIFTON.
SECOND HORTICULTURAL MEETING.
The ROSE SHOW, THURSDAY, July 1.—Schedules can be had on application to the Lodge-Keepers, at the Gardens, or by letter addressed to the Secretary, Zoological Society, Clifton.

BIRMINGHAM ROSE SHOW, JULY 9 and 10.—For Prize Lists, apply to Mr. A. FORREST, Secretary, Cherry Street, Birmingham. ENTRIES CLOSE JULY 3.

Paul's Roses.
"Mr. PAUL's Roses * * * are things to see once and dream of for ever."—*Athenæum.*
WM. PAUL begs to announce that his ROSES are NOW in BLOOM. Inspection respectfully invited. Trains from London, Bishopsgate Station, to Waltham, Great Eastern Railway, 13 times daily.
PAUL'S Nurseries & Seed Warehouse, Waltham Cross, London, N.

Strong Dwarf Roses in pots, for planting out.
FRANCIS & ARTHUR DICKSON & SONS have a *large* and *fine* stock of the above, in fine vigorous healthy plants of the *best leading* kinds, including the new varieties of 1869. This is a most advantageous time for planting out Roses. The DESCRIPTIVE LIST of kinds, with prices, sent post free on application. "Union" Nurseries, Chester.

To the Trade.
NEW ROSES of 1869, with FINE LONG SHOOTS.
JOHN CRANSTON offers carefully selected varieties of the above, with shoots 2 to 5 feet long, giving an abundance of buds for immediate working. Lists of prices on application.
Nurseries, King's Acre, near Hereford.

Seeds Direct from the Growers, the most Effectual Means of Preventing Disappointment.
SUTTON AND SONS, SEED GROWERS, deliver their Home-grown Seeds, Genuine as Harvested, to all parts of the kingdom. Carriage free (except very small parcels).—Prices and full particulars on application.
SUTTON AND SONS, Seed Growers, Reading.

Myosotis dissitiflora (Atkins).
WM. FOSTER, NURSERYMAN, &c., Stroud, Gloucester, has growing Seed of the above to offer. Packets 1s. 6d. and 3s. 6d. post free.

TO GENTLEMEN, GARDENERS, and OTHERS, having to DISPOSE of CHOICE FRUIT or FLOWERS They may meet with a ready Sale by applying to
A. IRETON, Covent Garden Market, W.C.

Ferns, British and Exotic, at reduced prices.
A. STANSFIELD AND SON beg to state that their CATALOGUE, No. 8, is now ready, and will be forwarded on receipt of three stamps. The above Catalogue contains 40 pages of matter, including partial descriptions and cultural remarks.
Vale Nurseries, Todmorden, Lancashire.

British Fern Catalogue.
ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, Sidcup Hill, Kent.

New and Rare Ferns.
JOHN H. LEY, NURSERYMAN, Croydon, will send the following six for 14s., package included:—ADIANTUM CONCINNUM LATUM (new, 1868), ATHYRIUM GORINGIANUM PICTUM, DIDYMOCHLÆNA SINUOSA, ALSOPHILA AUSTRALIS (Tree Fern), BRAINEA INSIGNIS, GYMNOGRAMMA PARSONI.

Pines.
B. S. WILLIAMS has all the best kinds, in splendid condition, warranted clean. Prices on application.
B. S. WILLIAMS, Seed Merchant and Nurseryman, Upper Holloway, London, N.

New Vines for Inarching, &c.
STRONG CANES, 8 to 10 feet long, of MADRESFIELD COURT, 15s. and 20s. each; and MRS. PINCE'S BLACK MUSCAT, 7s. 6d. and 10s. 6d. each.
J. HOUSE, Eastgate Nursery, Peterborough.

GOLDEN CHAMPION GRAPE.—We are now able to supply strong Plants of the above-named remarkable Grape, suitable for inarching on the young wood of established Vines, by which means fruit may be obtained next season. Price 30s. each.
OSBORN AND SONS, Fulham Nursery, London, S.W.

Vines for Planting in a Growing State.
JOSEPH MEREDITH, The Vineyard, Garston, near Liverpool, has now ready for Planting fine extra strong YOUNG VINES, with 3 to 4 feet of extra strong Wood of this season's growth. Intending planters of Vines will save a whole year, and prevent disappointment by planting between now and August next. Planting in a Growing State ensures success. Packed to travel any distance with safety.
DESCRIPTIVE CIRCULARS of MEREDITH'S VINE MANURE free on application.

For Present Sowing.
SUTTONS' CHOICE CALCEOLARIA.
SUTTONS' CHOICE CINERARIA.
SUTTONS' CHOICE PRIMULA FIMBRIATA.
Each 1s. and 2s. 6d. per packet, post free. Saved from the choicest strains in cultivation.
SUTTON AND SONS, Seedsmen to the Queen, Reading.

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Versailles Nursery, William Street, Vale Place, Hammersmith Road (near Kensington Railway Bridge).

NEW VERBENAS of 1869.—Now ready to be sent out, 50 Varieties of New Verbenas, Perry's, Eckford's, W. Knight's, Continental and Italian striped, sent post free; 12 select Varieties for 3s.
From B. W. KNIGHT, Florist, Battle, Sussex.

Specimen Tricolor Geranium.
F. AND A. SMITH have a very extensive collection of fine Plants, in splendid condition for Exhibition. All the best varieties, names, prices, &c., on application.
The Nurseries, West Dulwich, London, S.E.

CHOICE TRICOLOR and BICOLOR GERANIUMS.
LADY CULLUM, 8s. per doz. | PERILLA, 4s. per doz.
SOPHIA CUSACK, 12s. p. doz. | MODEL, 5s. per dozen.
In strong plants, for cash.
THOMAS PESTRIDGE, Greenway Nursery, Uxbridge, W.

To the Trade and Others.
SEVERAL THOUSAND TRICOLOR and BICOLOR GERANIUMS to be cleared out, in fine strong plants of all the leading sorts. List and prices on application to
N.B.—100 large specimens of choice GOLD and BRONZE to be Sold Cheap.
HENRY WALTON, Edge End, Marsden, near Burnley, Lancashire.

New Nosegay Geranium Charley Casbon.
CASBON AND SON are now sending out the above beautiful GERANIUM. It is of dwarf spreading growth; the flowers, which have broad petals, are freely borne in immense trusses. Colour, the richest scarlet of any variety known. Strong plants 5s. each. The usual allowance to the Trade.
Gravel Walk Nursery, Peterborough.

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J. WATSON, New Zealand Nursery, St. Alban's, begs leave to offer his two beautiful TRICOLOR PELARGONIUMS, MISS WATSON and MRS. DIX, unrivalled for freedom of growth and beauty of colouring, in good plants, 5s. each; also, PRINCESS CLOTILDE, 5s. each, or the three for 13s. 6d. Miss Watson and Mrs. Dix have received 17 First-class Certificates and Extra Prizes from the leading Horticultural Societies of the kingdom. Early orders solicited. A liberal allowance to the Trade. Price on application.

Special Notice.
PRINCE OF WALES GERANIUM (TRICOLOR.)
JAMES CARTER AND CO. regret their inability to supply more plants of the above splendid novelty this spring. A fresh stock will be ready for distribution in September, from which orders now received will be executed, in strict rotation.
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JAMES CARTER AND CO., 237, 238, & 261, High Holborn, London.

NEW GOLDEN COLEUS of 1869.
The finest Twelve yet sent out.

Albert Victor	Her Majesty	Princess Beatrice
Baroness Rothschild	Prince Arthur	Prince of Wales
Beauty of St. John's Wood	Princess Royal	Queen Victoria
Duke of Edinburgh	Princess of Wales	Refulgens

Sent post free for 4s.
JAMES COCKER, Sunny Park and Froghall Nurseries, Aberdeen.

NEW COLEUS, BEAUTY of WIDMORE.—The prettiest variety yet sent out, distinctly tricolored; leaves small and beautifully shaped, of a dark brilliant maroon, belted with bright rose and green, and edged with silvery white; habit very dwarf. 5s. each. Four will be sent when three are ordered. Price to the Trade on application.
JAMES CARTER AND CO., Seed Merchants and Nurserymen, 237 and 238, High Holborn, W.C.; and Crystal Palace Nurseries, Forest Hill, S.E.

NEW COLEUS, BEAUTY of WIDMORE.—The prettiest variety yet sent out, distinctly tricolored; leaves small and beautifully shaped, of a dark brilliant maroon, belted with bright rose and green, and edged with silvery white; habit very dwarf; 5s. each. Four will be sent when three are ordered. Price to the Trade on application.
DOWNIE, LAIRD, AND LAING, Stanstead Park, Forest Hill, London, S.E., and Edinburgh.

COLEUS.—New and Select Coleus—25 Varieties, including the 12 new kinds of the Royal Horticultural Society sent out in 1868, sent post free for 4s.; 50 Coleus, in 25 Varieties, 7s. 6d.; 100 Coleus, in 25 Varieties, 14s., post free. Larger Plants of the above at the same prices, fit for immediate planting out, turned out of pots and securely packed (no charge for package). New Coleus of 1869, in 20 select Varieties, including the New Golden kinds of the Royal Horticultural Society, sent post free; 12 select Varieties for 6s.
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JOHN STANDISH AND CO.'S SPRING CATALOGUE of NEW and RARE, SUBTROPICAL and BEDDING PLANTS is now ready. May be had post free on application.
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Choice Seeds, Gladioli, &c.
WM. CUTBUSH AND SON'S CATALOGUE of the above contains description and price of many very superior home-grown VEGETABLE and FLOWER SEEDS, and choice varieties of GLADIOLI, &c., all of which are highly recommended. Post free on application.
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EIGHTY ACRES of FLOWER and VEGETABLE SEEDS for DISPOSAL. Contracts taken for TURNIP and MANGEL, &c. Apply to the Grower, HERBERT H. NICHOLSON Great Clacton, Essex, four miles from Weeley Station.

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Improvement of Grass-lands at from 4s. 6d. to 9s. per Acre.
SUTTONS' RENOVATING MIXTURE should be sown after the Hay is carried. From 6 to 9 lb. required per acre. Price 9d. per lb., 80s. per cwt. Carriage free.
SUTTON AND SONS, Seedsmen to the Queen, Reading.

DRUMHEAD CATTLE CABBAGE PLANTS and SAVOYS, &c., very fine, true, and well-rooted. Carefully packed and delivered to the Railway Station at 3s. per 1000.
S. WELLAND, Surrey Gardens, near Godalming, Surrey.

RICHARD WALKER has to offer, for cash, ENFIELD MARKET CABBAGE PLANTS, 2s. 6d. per 1000; ROBINSON'S CHAMPION DRUMHEADS, 2s. 3d. per 1000; WALCHEREN CAULIFLOWER PLANTS, 6s. per 1000, true.
Biggleswade Market Gardens.

Cabbage Plants.
W. VIRGO AND SON can supply strong DRUMHEAD or CATTLE CABBAGE PLANTS; also DRUMHEAD SAVOY PLANTS, at 3s. per 1000.
Wonersh Nursery, near Guildford.

Cabbage Seed, New and Unadulterated.
SUTTONS' IMPERIAL, ENFIELD MARKET, NONPAREIL, IMPROVED EARLY OX-HEART, and other varieties, for sowing during the next two months, at very moderate prices. Lowest price per lb. on application to
SUTTON AND SONS, Seed Growers, Reading.

To the Trade.
TURNIP and MANGEL SEEDS, growing crop of 1869, splendid stocks, various kinds.
FREDK. GEE invites attention to the above, and will be pleased to make special offers of the same on advantageous terms.
Seed Establishment, Biggleswade, Beds.

To Farmers, Gardeners, and Others.
EXCELLENT strong Spring-sown CABBAGE, CAULIFLOWER, BROCCOLI, SAVOY, BRUSSELS SPROUTS, and various other plants on offer, price on application.
SCARLET RUNNER BEANS, fine sample, 1867 growth, 20s. per bush.
FRED. GEE, Seed Merchant and Grower, Biggleswade, Bedfordshire.

The Best Pea for Present Sowing is
CARTER'S FIRST CROP.
"Quercus," in the *Gardeners' Chronicle*, June 19, 1869, writes:—"Carter's First Crop, sown November 24, was gathered May 26, bearing plentifully since, and beating Ringleader by 10 days. This is the finest and truest stock of early Peas that I have ever grown. Beck's Gem will be fully a fortnight later."
CARTER'S FIRST CROP PEAS, per quart, 6s.
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GARDENERS' CHRONICLE NEWSPAPER

New Hardy Plant,

To be sent out in September, 1869. For plate and full description, see "Botanical Magazine," t. 5725, No. 286, in which Dr. Hooker says:—

SPIRÆA PALMATA,

"By far the handsomest species of the genus hitherto introduced, and certainly one of the most beautiful hardy plants in cultivation; the deep purple-red of the stems and branches, passing into the crimson-purple of the glorious broad corymbs of flowers, contrasts most exquisitely with the foliage, which in autumn assumes beautiful tints of brown and golden-yellow. Spiræa palmata was introduced by Mr. Fortune from Japan, and has proved itself perfectly hardy in the most exposed positions."

CHARLES NOBLE having the entire Stock of this fine Plant, intends selling it out next September, at 21s. each. Orders are requested early, as the Stock is limited.—Bagshot, June, 1869.

ECHLERIA METALLICA.—Fresh new seed of this handsome bedding plant now ready, price 1s., 2s. 6d., 5s., and 10s. 6d. per packet, with directions for raising and growing. Now is the time to sow.

N.B. Strong CENTAURÉA RAGUSINA, 15s. per 100, in pots.

WM. BILLISTONE, Nurseries, Sible Hedingham, Essex.

Improvement of Grass Lands.



SUTTONS'

RENOVATING MIXTURE

of fine GRASSES and CLOVERS

should be sown after the Hay is carried.

From 6 to 12lb. of seed required per acre. Price 9d. per lb.; 80s. per cwt., carriage free.

This is the best Mixture to improve the quality and quantity of Grass; and for Pastures destitute of bottom herbage it is invaluable.

SUTTON AND SONS, Seed Growers, Reading, Berks.

SUTTON'S HOME-GROWN SEEDS

A FIRST PRIZE



SILVER MEDAL, PARIS, 1868.

SUTTONS' NEW and UNADULTERATED TURNIP SEEDS, for sowing in July and August.

Lowest price per Bushel on application.

IMPROVED HARDY WHITE SWEDE.—For late Spring Feed it is invaluable, and may be sown as late as the end of July with certainty of a crop.

SUTTONS' PURPLE-TOP YELLOW HYBRID TURNIP.—A very superior variety; if sown in July and August it will produce a heavy crop, scarcely inferior to Swedes.

IMPROVED GREEN-TOP YELLOW SCOTCH TURNIP.—An excellent variety, very hardy and nutritious.

POMERANIAN WHITE GLOBE TURNIP.—This is the best Turnip for early feeding, and comes off in time for Wheat sowing.

SUTTONS' IMPERIAL GREEN GLOBE TURNIP.—The best Turnip in cultivation; very heavy cropper, and of valuable feeding properties. Sow in July for the main crop, and August for winter and spring feed.

SUTTONS' PURPLE-TOP MAMMOTH TURNIP.—The largest Turnip known. A new and distinct variety, very free grower. Sow in August to stand the winter.

SUTTONS' IMPROVED GREEN TANKARD TURNIP.—The best of the Tankard varieties, and particularly suitable for early feeding.

For prices of MUSTARD, RAPE, and other genuine Farm Seeds, apply to SUTTON AND SONS, Seed Growers, Reading.

The Royal Seedsmen.

James Carter & Co.
Seed Growers

237, 238, and 234, HIGH HOLBORN, LONDON, W.C.

SEED FARMS:

JUPE'S HILL FARM, DEDHAM, ESSEX;
GOLD'S HOUSE FARM, ARDLEIGH, ESSEX;
EAST HOUSE FARM, DEDHAM, ESSEX;
THE SEED FARM, ST. OSYTH, ESSEX.

CARTER'S GRASS SEEDS,

Supplied to H. M. G. MAJESTY the QUEEN, and H. R. H. the PRINCE of WALES.

Finest quality, per acre, 28s. to 35s.

For full particulars see CARTER'S FARMER'S CALENDAR for 1869 (illustrated). Post free, 6d.; gratis to customers.

CARTER'S IMPERIAL HARDY SWEDE,

The hardiest and best in cultivation. Price 1s. per lb.; cheaper per cwt.

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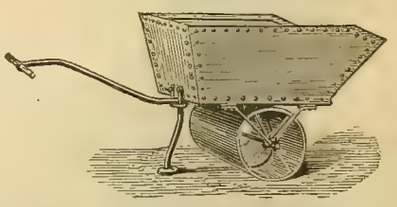
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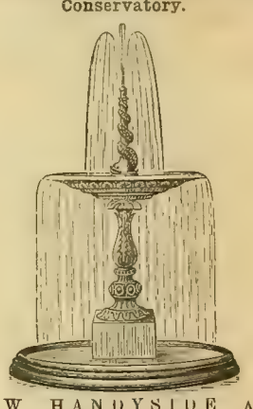
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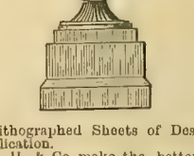
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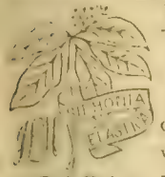
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For Samples and Prices apply to
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Reduced Prices.
TANNED GARDEN NETTING, for Preserving Seed Beds, Fruit, Strawberries, from Frost, Blight, Birds, &c., and as a Fence for Fowls, &c. One yard wide, 1d.; two yards, 2d.; three yards, 3d.; and four yards 4d. per yard in any quantity. May be had of CHAS. WRIGHT & CO., William Street, Newark-on-Trent, or their Agents, Messrs. HOOPER AND CO., Covent Garden Market, London.

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The HYDRONETTE is a more useful, easy working, reliable, and convenient water-throwing machine than any other in use. It is made in five sizes, viz.:—No. 1, with 4 feet of Suction Hose, Strainer, Jet, and Rose, 12s. 6d.; No. 2, 15s. 6d.; No. 3, £1 1s.; No. 4, £1 5s.; No. 5, £1 10s. Extra Hose and Union Joints furnished to order. Forwarded on receipt of Post Office order. To be obtained through any Ironmonger or Florist, or of the Proprietors, HAYNES AND SONS, 227, 229, and 231, Edgware Road, Paddington, W.

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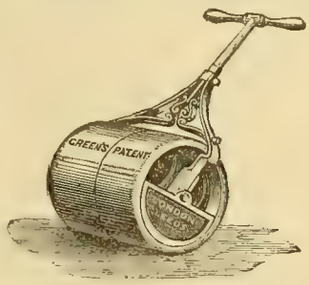
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30 inches	32 inches ..	7	10	0
24 inches	26 inches ..	4	10	0
20 inches	22 inches ..	3	10	0
16 inches	17 inches ..	2	15	0



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ROLLERS

FITTED WITH SHAFTS,
Suitable for Pony or Horse Power.

Diam.	Length.	£	s.	d.
30 inches	32 inches ..	10	0	0
30 inches	36 inches ..	10	15	0
30 inches	42 inches ..	11	15	0
30 inches	48 inches ..	13	10	0
30 inches	60 inches ..	15	10	0
30 inches	72 inches ..	17	10	0
30 inches	84 inches ..	19	10	0

These Rollers possess many advantages over all others; they are made in two parts, and are free to revolve on the axis, affording greater facility for turning, and the outer edges are rounded off, or turned inwards, thus avoiding the unsightly marks left by other Rollers. They are manufactured of the best materials, and are got up in a manner surpassing any ever yet brought out. The Rollers 24 by 26 inches, 20 by 22 inches, and 16 by 17 inches, are also made in one part, at a reduced price; and, for Rollers of that size, will be found to answer many requirements, as the handle can be reversed to either side of the Roller at pleasure.

PRICES—24 in. by 26 in., £4; 20 in. by 22 in., £3 2s. 6d.; 16 in. by 17 in., £2 10s.

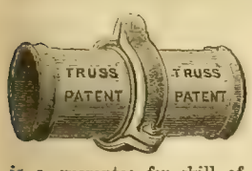
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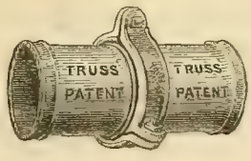
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Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
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30 feet by 12 feet ..	11 15 0 ..	2 10 0	75 feet by 15 feet ..	20 0 0 ..	3 0 0
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SHEEP, 2s. 6d.; CATTLE, 4s. 2d.; OX, 5s. 11d.
List by post. GATES and FENCING of every description.
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GARDEN NETTING (at Reduced Price), for the Protection of newly-sown Seeds from Frost, Blight, and Birds; also as a Fence for Poultry, Rabbits, and Sheep, 1d. per square yard, carriage free, in quantities of 250, 500, or 1000 yards.
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SECOND-HAND TENTS from ABYSSINIA, Cheap.

JAMES PHILLIPS AND CO.
beg to submit their prices as follows:—
GLASS for ORCHARD HOUSES,
As supplied by them to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.
Each Box contains 100 feet. The prices only apply to the sizes stated.
Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.

	16 oz. to the foot.	21 oz.
Fourth quality	15s. 6d.	19s. 6d.
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The above prices include the boxes, which are not returnable.
HORTICULTURAL GLASS.
Stock sizes, 16-oz., in 100 feet boxes, boxes included.
These prices only apply to the sizes stated.

				4ths.	3rds.	2nd.
				s. d.	s. d.	s. d.
11 by 9	12 by 9	13 by 9	14 by 9	13 6	15 6	17 0
12 „ 10	13 „ 10	14 „ 10	15 „ 10			
13 „ 11	14 „ 11	..	..			
14 „ 12	15 „ 12	15 „ 11	16 „ 11			
15 „ 12	16 „ 12	16 „ 12	17 „ 12			
16 „ 13	17 „ 13	20 „ 12	..	15 0	16 0	18 6
16 „ 14	20 „ 13	18 „ 13	..			
	17 „ 14	18 „ 14	..	16 to 17 oz. to the foot.		
	20 „ 14					

SMALL SHEET SQUARES.
In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	.. 12s. 6d.
8 by 6	8½ by 6½	9 by 7	9½ by 7½	
		10 by 8	10½ by 8½	.. 13s. 6d.

Boxes 2s. each returnable at full price.
Painted and Glazed with 16-oz. Sheet Glass.
London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS.
PAINTS of various colours ground ready for use.
SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of Prices and Estimates forwarded on application to
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Horticultural Glass Warehouse.
THOMAS MILLINGTON AND CO.,
87, Bishopsgate Street Without, London, E.C.
NEW LIST for ORCHARD-HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.
ORCHARD-HOUSE SIZES.

in.	in.		4ths.	3rds.	2nds.	Best
20 by 12						
20 by 13		15 oz.	12s 3d	15s 6d	16s 9d	18s 0d
20 by 14	Per 100 feet					
20 by 15		21 oz.	18s 0d	20s 0d	22s 0d	24s 0d
20 by 16						

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7				11s 3d	12s 6d	14s 0d	15s 6d
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½							
Per 100 feet.										
10 by 8	12 by 9	12½ by 10½	14½ by 10½							
10½ by 8½	12½ by 9½	13 by 10	15 by 10				11s 9d	14s 9d	15s 3d	17s 6d
11 by 9	13 by 9	13½ by 10½	13 by 11							
11½ by 9½	12 by 10	14 by 10	14 by 11							

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
15½ by 10½	14 by 12	22 by 12	22 by 16						
16 by 10	14½ by 12½	17 by 13	24 by 16						
14½ by 11½	15 by 12	23 by 13	20 by 17						
15 by 11	15½ by 12½	18 by 14	22 by 17						
15½ by 11½	16 by 12	22 by 14	24 by 17			12s 3d	15s 6d	16s 9d	18s 0d
16 by 11	16½ by 12½	24 by 14	20 by 18						
21 by 11	17 by 12	22 by 15	22 by 18						
13 by 12	18 by 12	24 by 15	24 by 18						

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.
SHEET GLASS.
In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	34s.	4ths quality, per 200 feet case,	34s.
3ds „ „	40s.	3ds „ „	40s
2ds „ „	60s.	2ds „ „	60s.
Best „ „	76s.	Best „ „	75s.

SHEET GLASS is made only in the following substances, 15 oz. 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.
HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.
BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.
PAINTS, COLOURS, VARNISHES, &c.
STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. Is is mixed with rain or pure river water.
WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a-half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.
IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4s. per gallon.

Per cwt.—s. d.		Per gallon.—s. d.	
GENUINE WHITE LEAD	30 0	LINSEED OIL	2 9
SECONDS WHITE LEAD	28 0	BOILED OIL	3 2
GROUND PATENT DRYERS, 3d. to 4½d. per lb.		TURPENTINE	2 9
„ OXFORD OCHRE, 3d. to 4½d. per lb.		LINSEED OIL PUTTY, 8s. per cwt.	
„ RAW UMBER, 4½d. to 6d. per lb. [per lb.		Fine OAK VARNISH, 10s. to 12	0
„ BURNT do., 6d. to 9d.		„ CARRIAGE do., 12s. to 14	0
GREEN PAINT, all shades,	28s. to 60 0	„ PAPER do. 10s. to 12	0
BLACK PAINT,	24s. to 36 0	„ COPAL	16 0
RED PAINT ..	28s. to 36 0	KNOTTING	10 0
		Patent GOLD SIZE	10 0
		„ BLACK JAPAN	12 0
GROUND BRUSHES.		GLAZIER'S DIAMONDS and TOOLS	
DUSTERS. SASH TOOLS.		MILLED LEAD and PIPES	
DISTEMPER BRUSHES.		OLD LEAD Bought or taken in exchange.	

The above are Net, for Cash, and as such cannot be booked.
Lists of any of the above on application.

PRIMULA SINENSIS.

WINDEBANK AND KINGSBURY'S Strain.

"By far the most varied and interesting set which has come under our notice."—Editor of the *Gardeners' Chronicle*, Jan. 30, 1869.

"Our best lot are from Windebank & Kingsbury's strain."—Editor of the *Gardeners' Magazine*.

New Seed now ready, *2s. 6d.* per packet.

Bovers Valley Nursery, Southampton.

Fine Specimen Azaleas for Sale.

T. TODMAN begs to offer 14 large Plants of the above, from 3 feet to 3½ feet through, and from 4 feet to 5 feet in height, all in good condition. The above have taken many First and Second-class Prizes. To be Sold cheap, in one or more lots.

T. TODMAN will be disengaged in July, to treat with any Nobleman or Gentleman requiring a thorough practical GARDENER. First-class references. 129, Clapham Park Road, S.W.

MYOSOTIS DISSITIFLORA, TRUE.—

"The best of all the Forget-Me-Nots for Spring decoration. In many Gardens it is known as montana or alpestris, from both of which it differs."—See *Gardeners' Chronicle*, May 22, 1869.

We shall be prepared to send out Plants the middle of June of the above-named charming Spring Flower, identical with that grown by Mr. Fish, and which is so truly described by him in the *Gardeners' Chronicle*, May 8, 1869. Price 9*s.* per doz., or 60*s.* per 100.

OSBORN AND SONS, Fulham Nursery, London, S.W.

New and Choice Flower Seeds, Post Free.

B. S. WILLIAMS,

SEED MERCHANT AND NURSERYMAN,

Victoria and Paradise Nursery, Upper Holloway, London, N.

	Per packet.—*s.* *d.*
WILLIAMS' SUPERB STRAIN of PRIMULA.—B. S. W. can with confidence offer his superb strain of Primula as being the finest in cultivation. Red, White, or Mixed	2*s.* 6*d.*, 3*s.* 6*d.*, and 5 0
CINERARIA, choice mixed	1 6
CALCEOLARIA (Neill's extra choice strain), 2*s.* 6*d.*, 3*s.* 6*d.*, and	5 0
,, (Dalkeith Palace strain)	1*s.* 6*d.* and 2 6
CARNATION, from Prize Flowers	1 0
CYCLAMEN (Wiggins' prize strain)	1*s.* 6*d.*, 2*s.* 6*d.*, and 3 6
POLYANTHUS (Wiggins' prize strain)	1*s.* 6*d.* and 2 6
CLIANTHUS DAMPIERI (fresh imported seed)	1 6
GERANIUM LE GRAND	1*s.* 6*d.* and 2 6
SOLANUM (Weatherill's hybrids).—B. S. W. was awarded a Special Certificate for a Collection exhibited before the Floral Committee, December 15, 1868	2*s.* 6*d.*, 3*s.* 6*d.*, and 5 0
ECHEVERIA METALLICA (new Bedding plant)	2 6
HOLLYHOCK, from the best named sorts	1 0
PANSY, from prize flowers	1 0
,, finest Belgian varieties	1 0
PINK, Double-fringed, very fine	1 0
PICOTEE (from prize flowers)	1 0
SWEET WILLIAM, Hunt's Auricula-eyed	6*d.* and 1 0
OXALIS VALDIVIANA, quite hardy, the flowers are bright yellow and sweet scented, and produced in bunches of large size (new)	1 0
MYOSOTIS AZORICA ALBA, the flowers are pure white, contrasting beautifully with the blue variety Cœlestina (new)	2 6
MYOSOTIS AZORICA var. CŒLESTINA, beautiful sky blue	1 6
ANTIRRHINUM ASARINA, very beautiful for rockwork (new)	1 0
VIOLA LUTEA (yellow-flowered Violet)	1*s.* 6*d.* and 2 6
TACSONIA VAN VOLXEMII, a beautiful greenhouse climber	2 6
WALLFLOWER (Saunders), fine dark variety	1 0

Victoria and Paradise Nursery, Upper Holloway, London, N.

Choice Primula, growth 1869.

PONSFORD AND SON beg to offer this year's Seed of one of the finest strains of FIMBRIATED PRIMULA in cultivation. In packets of 50 growing seeds, 2*s.* 6*d.*

In packets of 110 growing seeds, 5*s.*

Special packets for the Trade, 5*s.*, 10*s.* 6*d.*, 21*s.*

PRIMULA FILICIFOLIA, true, 2*s.* 6*d.* per packet.

Also some Continental Novelties in CHINESE PRIMULAS, highly recommended, 2*s.* 6*d.* per packet. Choice CINERARIA and CALCEOLARIA, &c., for present sowing.

Nurseries, Loughborough Park.

Seed Department, Brixton Place, Brixton, Surrey, S.W.

New Golden Coleus.

SECOND PRIZE at the CRYSTAL PALACE for the TEN BEST.

H. CANNELL can supply the following splendid foliage plants, in 18 distinct varieties:—

Princess Louisa, true	Queen Victoria	Duke of Edinburgh, true
Prince Leopold	Princess Royal, true, very scarce	Prince Arthur
Empress	Princess of Wales	Princess Beatrice
Masterpiece	Her Majesty	Baroness Rothschild
Model	Albert Victor	Beauty of St. John's Wood
Refulgens	Prince of Wales	
Umpire		

Beauty of Widmore, 4*s.*

Fruticosus, green variety, for grafting, sent gratis with all orders.

Strong established plants, in pots, at 8*d.* each, or the set for 10*s.*, package included; smaller, 7*s.* 6*d.*, and Cuttings, 5*s.*, both post free. Usual discount to the Trade. Special prices for quantities for bedding and for present sale. The above are in splendid condition and colour, and cannot fail to give satisfaction.

New Florist Flower, and Florist Flower Seed Merchant, Woolwich.

Hardy and other Bedding Plants.

ROBERT PARKER begs to offer the under-named, all of which can be supplied in strong, healthy plants:—

	Per doz.—*s.* *d.*		Per doz.—*s.* *d.*
Dactylis glomerata elegantissima	4 0	Pansy, Cliveden Yellow	3 0
Echeveria metallica, 6*s.* to	30 0	,, Great Eastern	3 0
,, pumila	9 0	,, Imperial Blue	18 0
,, secunda glauca	9 0	Pachyphytum bracteatum	12 0
Lithospermum prostratum (fruticosum)	9 0	Sempervivum californicum	4 0
Pansy, Cliveden Blue	3 0	Tritoma grandis	12 0
,, ,, Purple	3 0	,, uvaria glaucescens	9 0
		Viola lutea semperflorens	4 0
		,, cornuta alba	4 0

Special quotations may be had, if required, for the above, and many other kinds, by the 100, or in larger quantities.

Exotic Nursery, Tooting, Surrey, S.W.

CROYDON. A. HENDERSON'S EAST SURREY SEED WAREHOUSE ESTABLISHED 1828

Bedding Plants.

ARCHD. HENDERSON'S DESCRIPTIVE and PRICED CATALOGUE of BEDDING PLANTS is now ready, containing all the novelties of the past two years. The Stock is in fine condition; for extent and vigour unsurpassed.

Purchasers are respectfully invited to inspect the Stock at Sion Nursery, Whitehorse Road, Croydon.

Special offers will be made for large quantities.

Catalogues to be had gratis, and post free on application.

CARTER'S PRIMULA, CALCEOLARIA, and CINERARIA.

J. C. & Co.'s strain of Calceolaria is saved from plants that were awarded a 1st Prize at the late International Show. The Cineraria and Primula stocks are also saved from the finest Prize Varieties, and cannot be surpassed.

CALCEOLARIA and CINERARIA.

Per packet—*s.* *d.*	Per packet—*s.* *d.*
Calceolaria, finest hybrid .. 2 6	Calceolaria, Dobson's strain.. 2 6
,, ,, spotted .. 2 6	Cineraria, extra fine 2 6

PRIMULA.

Per packet—*s.* *d.*	Per packet—*s.* *d.*
Primula, choicest mixed, fringed 2 6	Primula, choicest white fringed 2 6
,, ,, dark carmine, fringed 2 6	,, ,, Fern-leaved carmine 2 6
,, ,, rose, fringed 2 6	,, ,, white .. 2 6

CALCEOLARIA INTERNATIONAL PRIZE.—The Seed of this superb strain cannot fail to produce splendid varieties, as last season's plants took 1st Prizes wherever exhibited. Per pckt., 2*s.* 6*d.*

PRIMULA FIMBRIATA (New scarlet).—This is a decided novelty, being of a deep scarlet colour, and cannot fail to be much admired wherever grown. Per packet, 2*s.* 6*d.*

INDIA-RUBBER HOSE at Manufacturer's prices, 60 feet (with complete fittings), 25*s.*

JAMES CARTER AND CO., The Royal Seedsmen, 237 and 238, High Holborn, London, W.C.

New Roses for 1869.

JOHN AND CHARLES LEE are now sending out the following TWO NEW ROSES:—

CLEMENCE RAOUX (Granger).—Blush, edged and spotted rose, very large, of perfect form and great substance; petals stout and enduring; habit erect and vigorous; flowers late in autumn. This is really a wonderful Rose when bloomed to perfection. A single flower of Clemence Raoux exhibited amid tens of thousands of other Roses attracted—by its immense size and novel colouring—the universal attention of the judges and amateurs at the Great Rose Show at Brie Comte Robert, in July 1867, when the Gold Medal was awarded to it as the finest Rose in the Exhibition. 15*s.*

EDWARD MORREN (Granger).—This splendid Rose is a great acquisition. The delicate yet brilliant colouring, the size, fine shape, and fulness of its flowers, combined with its bold erect habit, will render it a universal favourite. Monsieur Margottin thus described it:—"Edward Morren is in the way of Jules Margottin, but of a more delicate colour, of better form, more double, and much larger." The 1st Prize Gold Medal was awarded to it at the Exposition Universelle in Paris, in July, 1867. 15*s.*

Special offer to the Trade on application.

Royal Hineyard Nursery and Seed Establishment, Hammersmith W.

Magnificent New Plant,

GESNERA EXONIENSIS.—This is acknowledged by all who have seen it to be the finest winter-blooming plant ever yet offered. The colour of the flowers is an intense orange-scarlet; the leaf is of a dark velvety texture, studded with minute red hairs like plush; nothing can be imagined more brilliant than the mass of bloom, which, when well grown, is 20 inches through. Fine tubers, that will bloom this year, at 5*s.* and 7*s.* 6*d.* each, sent free by post.

LUCOMBE, PINCE & Co. respectfully beg to call attention to their unsurpassed strain of CINERARIA SEED, embracing the most magnificent varieties, whether for compactness of habit, variety, richness of colour, abundance of bloom—is unequalled. Saved this season from the finest flowers, which have been the admiration of all who have seen them. Price 2*s.* 6*d.* per packet.

Superb New Late GRAPE, MRS. PINCE'S BLACK MUSCAT, may now be seen in full perfection. This is acknowledged to be the finest Grape extant. Splendid Canes, now ready for immediate planting, 7*s.* 6*d.* and 10*s.* 6*d.* each. Fine planting Canes of other kinds, a List of which can be sent on application.

L., P. & Co. also call special attention to their fine stock of TURNIP SEEDS.

Genuine Seeds of all the best kinds may be had at the lowest possible cost. PRICED LIST on application.

Exeter Nursery, Exeter.

PURSUANT to a Decree of the High Court of Chancery, made in a cause "Fairhead against Fairhead," the CREDITORS and INCUMBRANCERS on the real estate of THOMAS BLOMFIELD FAIRHEAD, late of No. 7, Borough Market, Southwark, in the county of Surrey, seedsman, deceased (who died in or about the month of February, 1869), are, on or before the 14th day of July, 1869, to send by post, pre-paid, to Messrs. Woodbridge & Sons, of No. 8, Clifford's Inn, Fleet Street, London, the solicitors of the defendant Nancy Fairhead, the administratrix of the deceased, their Christian and surnames, addresses, and descriptions, the full particulars of their claims, a statement of their accounts, and the nature of the securities (if any) held by them; or, in default thereof, they will be peremptorily excluded from the benefit of the said decree. Every creditor holding any security is to produce the same before the Master of the Rolls, at his chambers, situated in the Rolls Yard, Chancery Lane, Middlesex, on Wednesday, the 28th day of July, 1869, at 11 o'clock in the forenoon, being the time appointed for adjudicating on the claims.—Dated this 14th day of June, 1869. E. B. CHURCH, Chief Clerk.

WOODBRIDGE AND SONS, 8, Clifford's Inn, London, Plaintiff's Solicitors.

DIPLADENIA AMŒNA.

J. W. WIMSETT

HAS GREAT PLEASURE IN ANNOUNCING THAT HE HAS PURCHASED

THE WHOLE STOCK OF THE ABOVE BEAUTIFUL PLANT,

Raised by Mr. Tuke, of Bramley, near Leeds, who also raised the lovely Dipladenia amabilis. A Figure of the beautiful *D. amœna* is given in the "Florist" for April, 1868. Plants now ready for distribution.

Price 1½ Guinea each. Strong Half Specimens, 5 and 7 Guineas each.

ASHBURNHAM PARK NURSERY, KING'S ROAD, CHELSEA, S.W.

May 1. J. WILLS, F.R.H.S., Manager.

THE ROYAL SEEDSMEN.

GENERAL PLANT CATALOGUE, ILLUSTRATED WITH COLOURED DRAWINGS.

JAMES CARTER & CO.'S

NEW PLANT CATALOGUE IS NOW READY,

and will be forwarded on application, ILLUSTRATED with FOUR COLOURED DRAWINGS of

TRICOLOR AND BICOLOR GERANIUMS,

AND CONTAINING FULL DESCRIPTIVE LISTS OF THE NOVELTIES FOR 1869.

ONE MILLION BEDDING AND OTHER PLANTS

Now ready for sending out, of which they invite inspection at their

CRYSTAL PALACE NURSERY, FOREST HILL, S.E.

LANDSCAPE GARDENING AND ARCHITECTURE.

JAMES CARTER AND CO. having an experienced staff of qualified Men, will be happy to undertake the ALTERATION or IMPROVEMENT of GARDENS, DOMAINS, &c., and to furnish Estimates (after a personal inspection), with Plain or Coloured Plans, as may be desired.

CARTER'S TRICOLOR, BICOLOR, and DOUBLE-FLOWERING GERANIUMS received Five Prizes and Two Certificates at the Royal Horticultural Society's Show at South Kensington, May 22; Two First-Class Certificates at the Royal Botanic Society's Show, May 19 and 20; and Special Prize at the Crystal Palace Show, May 15, 1869.

New Tricolor Coleus, Beauty of Widmore, 5s. each.
Echeveria metallica, 1s. 6d. each; 12s. per dozen.

INDIA-RUBBER HOSE at Manufacturers' Prices. Sixty Feet, with fittings complete, 25*s.*

JAMES CARTER AND CO., SEED MERCHANTS and NURSERYMEN,

237 and 238, HIGH HOLBORN, LONDON, W.C.; and CRYSTAL PALACE NURSERY, FOREST HILL, S.E.

THE ROYAL HORTICULTURAL SOCIETY of LONDON.

GRAND AUTUMN FRUIT and FLOWER SHOW.

This Exhibition will be held upon Land adjoining the Royal Agricultural Society's Show Yard, at Old Trafford, from MONDAY, July 19, to SATURDAY, July 24, inclusive.

All ENTRIES must be made before JULY 5.

The Exhibition will be Open to Visitors at 3 o'Clock P.M. on Monday the 19th, and on the remaining days at 10 A.M.

TERMS of ADMISSION.—Monday, Tuesday, and Wednesday, 5*s.* each day; Thursday and Friday, 1*s.* each day; Saturday, 6*d.*

SEASON TICKETS (not transferable), giving admission for the whole period, may be had up to Monday the 19th, price 10*s.* 6*d.* each. Any Ticket transferred will be forfeited.

Arrangements have been made with the Royal Agricultural Society for Visitors to pass and repass from one Show to the other after payment at each.

The Band of Her Majesty's 1st Life Guards, as also that of the 68th Regiment of Infantry now stationed at Manchester, have been specially engaged to play on each day of the Show.

His Serene Highness the Prince of Teck will distribute the Prizes in the Show Ground on Wednesday, July 21, at 5 P.M.

By Order. JAMES RICHARDS, Assistant Secretary.

Kensington, 21st June, 1869.

FLORAL and HORTICULTURAL FETE,

to be held on the RACE COURSE, NORTHAMPTON, in connection with the Northamptonshire Agricultural Society's Annual Show, on FRIDAY, July 2.

Silver Cups and Premiums to the amount of TWO HUNDRED and FIFTY POUNDS will be offered for competition. Open to all England. Prizes to be Paid on the Day of Exhibition.

President: The Worshipful the MAYOR OF NORTHAMPTON.
Treasurer: MR. MARK DORMAN. | *Hon. Sec.:* MR. THOS. L. CORDEUX.

CUT ROSES, Open to all England.

No. 29.—48 Roses, three trusses, distinct kinds—Silver Cup or 1st prize, £6; 2d, £3; 3d, £1.

No. 30.—24 Roses, three trusses, distinct kinds—1st prize, £3; 2d, £2; 3d, £1.

No. 31.—24 New Roses (such as have been sold for not more than two years to be accounted new)—1st prize, £2; 2d, £1; 3d, 10*s.*

No. 32.—24 Cut Roses, single blooms, distinct (Gardeners and Amateurs only)—Silver Cup or 1st prize, £5; 2d, £2; 3d, £1.

No. 33.—12 Cut Roses, single blooms, distinct kinds (Gardeners only)—1st prize, £2; 2d, £1; 3d, 10*s.*

No. 34.—12 Cut Roses, single blooms, distinct kinds (Amateurs only)—Silver Cup or 1st prize, £3; 2d, £2; 3d, £1.

No. 35.—6 Cut Roses, single blooms distinct kinds (Gardeners only)—1st prize, £1; 2d, 10*s.*; 3d, 5*s.*

No. 36.—6 Cut Roses, single blooms, distinct kinds (Amateurs only)—1st prize, £1; 2d, 10*s.*; 3d, 5*s.*

No. 37.—12 Cut Roses, Tea-scented, single blooms, distinct kinds (open)—1st prize, £1; 2d, 10*s.*

No. 38.—12 Cut Roses, of any other kinds, single blooms (open)—1st prize, £1; 2d, 10*s.*

Schedules on application to the Honorary Secretary; or of F. PERKINS, 2, Gold Street, Northampton.

July 19th to 24th, 1869.

THE ROYAL HORTICULTURAL SOCIETY'S GRAND EXHIBITION at MANCHESTER, in connection with the SHOW of the ROYAL AGRICULTURAL SOCIETY.

Amongst various Special Prizes,

A SILVER CUP (copy of the famous Cellini Cup), **VALUE £21** will be offered by the Proprietors of the GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE for the best COLLECTION of 6 FRUITS and 8 VEGETABLES, to be made up as follows.

In awarding the Prize, Marks will be adjudged according to the following scale, for the several subjects produced.

	Good.	Medium.	Inferior.
Grapes	6 marks	3 marks	1 mark
Melons (2 fruits)	6 ,,	3 ,,	1 ,,
Strawberries	3 ,,	2 ,,	1 ,,
Gooseberries	3 ,,	2 ,,	1 ,,
Currants	3 ,,	2 ,,	1 ,,
Cherries	3 ,,	2 ,,	1 ,,
Raspberries	3 ,,	2 ,,	1 ,,
Apples of 1868	6 ,,	3 ,,	1 ,,
(Any 5 of the above 8 subjects).			
Peas	3 ,,	2 ,,	1 ,,
French Beans	3 ,,	2 ,,	1 ,,
Broad Beans	3 ,,	2 ,,	1 ,,
Cauliflowers	3 ,,	2 ,,	1 ,,
Cucumbers (brace)	3 ,,	2 ,,	1 ,,
Summer Cabbages	3 ,,	2 ,,	1 ,,
Early Carrots	3 ,,	2 ,,	1 ,,
Turnips	3 ,,	2 ,,	1 ,,
Globe Artichokes	3 ,,	2 ,,	1 ,,
Onions	3 ,,	2 ,,	1 ,,
Spinach	3 ,,	2 ,,	1 ,,
Rhubarb	3 ,,	2 ,,	1 ,,
Potatos	3 ,,	2 ,,	1 ,,
Mixed Salading	3 ,,	2 ,,	1 ,,
(Any 5 of the above 14 subjects).			

This Prize is open for Competition amongst Amateurs and Gardeners of private families. The Fruit and Vegetables produced must be of *the Exhibitor's own growing*; and any article otherwise obtained will disqualify the Collection. It is expected that the several articles will be neatly and effectively displayed.

The Gardeners' Chronicle.

SATURDAY, JUNE 26, 1869.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, June 29 | Royal Horticultural (Great Rose Show), at South Kensington .. .. .. 2 P.M.
WEDNESDAY, — 30 | Royal Botanic (Exhibition of Plants,
THURSDAY, July 1 | Flowers, and Fruit) .. .. 2 P.M.

SATISFACTORY as is the condition of the ROYAL GARDENS AT KEW, and great as has been the improvement in some of the departments of late years, the ORCHIDS in that establishment could never be pointed to as illustrations of first-class cultivation. With that laudable activity which pervades all departments of our great national garden, attempts have from time to time been made to remedy this state of things, and recently, as has been already mentioned in these columns, p. 865, 1868, a new Orchid-house has been built, forming a portion of a new range which, when completed, will be a valuable addition to the garden. But on looking at the newly erected house, we are diposed to doubt if it be well suited for the growth of Orchids.

There are many reasons why, in a large public establishment, the same amount of success as is attained in the more important private collections of Orchids, is hardly to be looked for. The continual ingress and egress of visitors, and the continual opening and shutting of doors, and the consequent currents of cold air, are in themselves very disadvantageous circumstances.

With open doors, in addition to the ordinary mode of ventilation, the necessary moisture during the day is licked up, and the very life blood of the plants is positively stolen away at every opening and crevice. Many of the plants, in spite of the greatest skill, can scarcely recoup themselves by the evaporation and condensation of moisture in the evening and during the night. Plants are capable of enduring a certain amount of fatigue, but a too liberal off-hand mode of dealing with them is liable to lead to disastrous consequences. The question arises, what should be done under such circumstances? The British public is so sensitive over national affairs, and public parks and gardens in particular, that to attempt to shut up the Orchid-houses might perhaps be the signal for another Hyde Park demonstration in miniature. Moreover the present Government would not care to incur the responsibility of sanctioning what might be considered to be a purely conservative measure, even were it desired by the managers of the garden—a very unlikely thing. We must look in some other direction for a scheme whereby the public will not be denied the privilege of inspection, and one in which the interests of the plants can be studied also.

Two modes seem to us practicable—the one to encase the existing Orchid-houses, and the other to distribute the plants in what may be called growing and flowering houses.

The first plan is open to this objection—that it is exclusive; for it might well be argued that peering in at either door would be about as satisfactory as walking round a glazed promenade and straining the eyes to catch a glimpse of any floral treasure within. Moreover the present houses are not adapted for carrying such a plan into effect advantageously; for their width and form would present an almost impenetrable barrier to anything like a satisfactory inspection in the way indicated. If this outer corridor were thought of, all the flowering plants would require to be arranged on the side tables to bring them within sight of those outside, but many of the plants, on account of their stature, could not be so placed. Any arrangements for accommodating the public after this fashion would require to be well considered before a plan of building was adopted at all; and failing this plan, either a block of new Orchid-houses could be built, and the present houses utilised for other purposes, or the plan of distributing the plants into growing and flowering houses could be adopted.

Upon the whole this latter plan seems to us by far the best of the two, for it preserves the existing order of things, and only stipulates for auxiliary growing houses with closed doors. The present houses may remain and do duty as show houses, but they are quite unsuited for the permanent growth and well-being of a general collection of Orchids. It is found quite practicable in many private collections to move plants from their growing quarters to cooler houses wherein to display their flowers, but it would be the height of folly to have them exposed to a fluctuating atmospheric condition where air currents were uncontrolled. The season of rest of most of the Orchideæ begins with the wane of the inflorescence, and therefore open doors during the few weeks the plants are in bloom would not be of material consequence; but when the season of growth approaches, every advantage in the shape of proper temperature, duly modulated air currents, and sufficient moisture, must be husbanded, else the day of grace passes away, and the life of the plants vanishes along with it. By this separating system both the public and the plants would have justice done them. Moreover, it would be far more interesting to a general observer to see the plants together in flower, relieved, as they would probably be, by an admixture of some suitable Ferns. The interest would be increased if such an arrangement were carried out, and to the visitor there would be always some novelty to inspect and admire.

As a growing house the new Orchid-house at Kew is much too lofty for the majority of the plants in the collection. As a rule this great family delights in a rather confined atmosphere, and most of its members show special luxuriance in proximity to the glass covering. On that account, and on that alone, many of the plants in the new Orchid-house are not likely to grow and thrive to the best advantage. On the other hand, a limited atmosphere and low roof are injurious to the flowers, for the condensation of moisture destroys many of their beautiful tints. Hence the wisdom of providing a suitable habitation for the plants, both in their growing and flowering state.

The green glass employed seems to us, as far as most Orchids are concerned, to be more a theoretical than a real acquisition. It may be, and evidently is, useful for many plants, such as the economic plants that are ranged in the new buildings near to the Orchids, as obviating the necessity for close shading, but it cannot divert the rays of the sun from acting injuriously upon Orchid life. Shade is requisite; and, when shading is required, the permanent interposition of any colour to intercept light cannot have any good practical result. During the dark days we want all the light at command; and unless at that period the green glass could be exchanged for the clear, translucent glass in everyday use, it appears to us that, instead of securing a benefit we are contracting a loss, and placing our position in point of light and darkness by so much the nearer to the state of affairs at the North Pole.

—— THE 26th anniversary festival of the GARDENERS' ROYAL BENEVOLENT INSTITUTION was celebrated on Wednesday evening last, at the London Tavern, under the presidency of his Grace the Duke of ARGYLL, K.T., who was supported by JAMES BATEMAN, Esq., F.R.S.; G. F. WILSON, Esq., F.R.S.; Professor OWEN, R. WRENCH, Esq., A. HELPS, Esq., Mr. Alderman MECHI, and a large number of well-known horticulturists, including Mr. EYLES, Mr. FORSYTH, Gunnersbury; Mr. JUDD, gr. to Lord HILL, Hawkstone, Salop; Mr. EARLEY, gr. to F. PEYOR, Esq.; Mr. SMITH, gr. to C. B. PETTER, Esq., Norwood, &c. The tables were tastefully decorated with flowers and fruit. Of the former, a very fine Lælia and an equally handsome Anthurium Scherzerianum were very conspicuous; while at the back of the chair was a charming group of flowering plants, tastefully arranged, and which were liberally contributed by Messrs. LEE, VEITCH, TURNER, and WILLIAMS. Some fine fruit came from the gardens of his Royal Highness the PRINCE of WALES, at Sandringham; from those of Baron ROTHSCHILD, of Gunnersbury; and from those of Mrs. DIXON, of Stanstead Park, Emsworth, and others. After the usual toasts, the noble Chairman proposed the toast of the evening, viz., "Prosperity to the Gardeners' Royal Benevolent Institution," and in so doing referred to the objects of the Institution, which were to provide a pension for the members of the gardening profession in their old age; and said that in this Institution the pensioners were allowed to live with their friends, which was an advantage not shared by many other similar establishments. Another rule of the Society commented on by his Grace the Chairman is, that those who subscribe to the fund for 15 years take precedence over subscribers for shorter periods in obtaining the pension. After adverting to the manner in which the funds of the Institution were raised, the Chairman remarked, that if every gardener would subscribe yearly, the funds could be easily raised without the necessity of being dependent upon the subscriptions of outsiders; and he referred, as an illustration, to the manner in which large sums of money were subscribed to the various trade societies Gardeners, as a body, labour under certain disadvantages, through being scattered in remote districts throughout the country, and consequently there could not be the same amount of co-operation amongst them that existed in other cases; and as many gardeners but seldom go out of their own districts, that was a sufficient explanation of the deficient co-operation in their case. Nevertheless, he earnestly recommended gardeners to subscribe more freely to the funds of this Institution, and thus provide a maintenance for themselves when aged and infirm. The Chairman then expressed his admiration of the manner in which the market-gardeners around London catered for its immense population in the shape of vegetables and fruit: as regards the latter, he stated his belief that this country was better supplied than any other, and said that the tables of the EMPEROR of the FRENCH, and a large number of the nobility of France, were supplied with the produce of the English gardeners' skill. As regards flowers, the Chairman referred to the remarks on the vegetation in foreign countries contained in Mr. WALLACE's "Malay Archipelago," and made some very flattering comments on the skill of the gardener in producing flowers, and on the science of gardening as carried on in this country. The Chairman afterwards gave "Physiological Science," and coupled with the toast the name of Professor OWEN, who responded in a very able speech. A. HELPS, Esq., then gave "The Horticultural and Botanical Societies," which was suitably responded to by Mr. BATEMAN. Other toasts were given, including those of the Treasurer, responded to by Mr. WRENCH, and the Secretary, Mr. CUTLER, who read a list of donations amounting to nearly 500*l*. Mr. Alderman MECHI proposed "The Nursery and Seed Trade," to which Mr. HURST responded. "The Ladies" were then given by the noble Chairman, after which the proceedings terminated.

—— We have authority for stating that the Bill for the PREVENTION OF THE ADULTERATION OF SEEDS is to be referred to a Select Committee, for the purpose of collecting evidence as to the facts of the case, and to recast certain clauses of the Bill. The promoters of the measure, we believe, have acceded to this course with a view to meet any possible objections that might be raised by the Board of Trade or other parties if such a plan were not adopted. As the proposed legislation is of somewhat novel character, it is perhaps as well that the senators should for themselves have an opportunity of ascertaining the magnitude of the evils. It is considered that sufficient evidence can be brought forward to satisfy the Committee as to the necessity for legislative interference without going into very elaborate details, and without compromising the position of the respectable seed firms.

—— In a recent number (p. 609) we stated that we understood that the British representatives at the ST. PETERSBURG EXHIBITION did not accept decorations like those awarded to the representatives of other nations, owing to advice given by Dr. HOOKER. We now learn from Dr. HOOKER, and are requested by him to state, that he gave no such advice, that he was never consulted on the subject of giving decorations to jurors or delegates, and that he would naturally have shrunk from doing anything of the kind without consulting his compatriots. As the proceedings at St. Petersburg seem to have been very informal and confused, there is no room for surprise at the misunderstanding on our part.

—— We understand that the Floral Decorations at Buckingham Palace, on the occasion of the visit of the VICEROY of EGYPT, have been supplied by Mr. WIMSETT, of the Ashburnham Park Nursery, Chelsea.

—— Those interested in City Gardening will be glad to learn that the new SOUTHWARK PARK was opened to the public on Saturday last by Sir JOHN THWAITES, the Chairman of the Metropolitan Board of Works. The land selected formerly belonged mainly to Sir WILLIAM GOMM, and comprises an area of 63 acres, situated on the south-west of Deptford Lower Road, and reaching in that direction as far as Jamaica Level, Rotherhithe. It has been converted from a market garden to a pleasure ground, and will prove an inestimable benefit to a poor and populous district, at a cost of about 95,000*l*. The ground, which has a very flat appearance, has been laid down with Grass; large open spaces are left for promenading, and along the sides of the principal paths and other prominent positions large mounds of earth have been thrown up, which are planted with Rhododendrons and various other shrubs

The laying-out of this new park was carried out under the superintendence of Mr. M'KENZIE, of the Alexandra Park. Sir JOHN THWAITES, Mr. LOCKE, M.P., Mr. LAYARD, M.P., and Mr. CHARLES WESTERTON, as Deputy Chairman of the Parks and Open Spaces Committee, each planted a Holly tree at different parts of the ground, and the ceremony was witnessed by a large company.

—— We are glad to learn that it is in contemplation to present a TESTIMONIAL to Mr. BARNES, late of BICTON, in appreciation of his abilities and useful labours as a gardener and horticulturist. As the subscriptions need not be large, it is hoped that all who have profited by the example and writings of Mr. BARNES will contribute. Subscriptions may be paid to the Editor of the *Devon Weekly Times*, Exeter.

—— Mr. BAINES' employer may well be proud of his gardener, and of his success in PLANT-SHOWING. Without referring to the class prizes, in the category of which Mr. BAINES generally stands well, and referring only to the great shows held in the provinces, we may note that at Manchester the prize of honour (Mr. WILLIAMS' 50*l.*) fell to him; while at Leeds a prize offered by the Mayor, to the exhibitor who contributed most to the general effect of the exhibition, and at York a prize offered for a similar object by Mr. WILLIAMS, were severally awarded to him. Such results speak for themselves. We understand that Mr. MICHOLLS is about to remove to the neighbourhood of London; and we hail the coming amongst us of so spirited a patron of horticulture, and of so successful a cultivator as his clever gardener, as being likely to stir up a spirit of emulation amongst our plant-growers such as has not been witnessed since the Lawrencean era, and as likely moreover to have a most important influence on the future of metropolitan exhibitions.

—— The admirers of rare Orchids have a treat in store for them. By far the finest specimen of ONCIDIUM MACRANTHUM which has yet been produced, will, through the kindness of E. SALT, Esq., of Ferniehurst, be exhibited on Tuesday next, at South Kensington, and will, we understand, remain there while it continues in flower. This grand plant, which we had the pleasure of seeing a few days since, has a spike fully 10 feet long, furnished with eight branches, and bearing 28 flowers. No such plant has yet been seen in public. It appears to be the same variety as that shown last year from the collection of Lord LONDESBOROUGH.

—— It is satisfactory to be able to record that the GARDENERS' EXAMINATIONS are keeping up their tone and interest. Thus we learn from the *Journal of the Society of Arts* that the following young gardeners have been judged worthy to receive Certificates and Prizes at the recent examination conducted under the auspices of that Society:—

Floriculture.

Society of Arts 1st prize (5*l.*) } Michael Middleton, aged 22,
Royal Hort. Soc. 1st prize (5*l.*) } Richmond Parochial Library
Society of Arts 2d prize (3*l.*) } Richard Irwin Lynch, aged 19,
Royal Hort. Soc. 2d prize (3*l.*) } Richmond Parochial Library

Fruit and Vegetable Culture.

Society of Arts 1st prize (5*l.*) } Michael Middleton, aged 22,
Royal Hort. Soc. 1st prize (5*l.*) } Richmond Parochial Library
Society of Arts 2d prize (3*l.*) } Alfred Bradley, aged 26, Dept-
Royal Hort. Soc. 2d prize (3*l.*) } ford Local Board.

The prizes offered by the Proprietors of the *Gardeners' Chronicle* were not awarded, no candidate having fulfilled the required conditions. The following candidates obtained Certificates:—

	Floriculture.	Fruit and Vegetable culture.
A. Bradley, Deptford (26)	1	1
B. Cargill, Liverpool (27)	3	—
C. Fryer, Lambeth (28)	3	—
F. Hartisty, Edinburgh (26)	2	2
J. C. Higgs, Southampton (28)	2	—
C. Lawton, Hull (25)	1	2
R. I. Lynch, Richmond (19)	1	—
J. Macpherson, Southampton (23) ..	—	3
M. Mitchison, Richmond (22)	1	1
W. Nettleton, Huddersfield (31)	2	—
W. Parkinson, Liverpool (28)	3	3
W. Ritchie, Edinburgh (22)	—	2
J. Smith, Richmond (27)	1	1
T. Smith, Hull (18)	3	2

—— We are pleased to learn that the two days' flower show (June 11 and 12), held by the BIRMINGHAM HORTICULTURAL SOCIETY, has proved the most successful this Society has ever had. The Pelargoniums were magnificent, many of the specimens were 15 feet in circumference, and the blooms, which were well distributed on each plant, were very large and numerous. We believe that the Society in question had no difficulty in inducing local exhibitors to send their specimens for the two days. The tents were closed to visitors at 6 on the Saturday evening, and in an hour and a half the whole of the specimens were repacked, and out of the grounds.

—— Mr. W. ROBINSON, the author of PARKS, PROMENADES, and GARDENS of PARIS, tells us, in extenuation of our remarks as to his obligation to the work of M. ALPHAND, see p. 667, that our criticism is not applicable, inasmuch as the few cuts copied from that book were purchased for a considerable money payment, of which he adduces satisfactory evidence. We never supposed that the omissions referred to were anything more than inadvertencies; at the same time, in justice to the public if not to the authors (publishers can take care of themselves!), we must demur to the conclusion that a money payment from an author to a publisher wipes off all obligations. Courtesy has not always a money value, and we should be exceedingly sorry to see it assessed as a trade article. In a work evincing so much industry, accuracy of observation, keenness of perception, correct judgment, and one so richly illustrated withal as Mr. ROBINSON'S, it would have been a little matter for the author to have more freely acknowledged the sources whence some of his *materiel* was derived, even though duly paid for.

—— The Annual SCIENCE EXAMINATIONS of the Science and Art Department were brought to a close on Saturday, May 29. This was the ninth general examination that has been held since the establishment of the system of aid to instruction in science in 1859. The examinations are superintended by local committees. They were in this way held at 437 centres this year, whilst last year they were only held at 261. At that time there were about 15,000 students under instruction, this year there were 25,000, and the number of papers worked shows a similar increase, having risen from 13,112 to 23,997. The number of candidates in the various subjects was as follows:—In geometrical drawing there were 2547, last year there were 1337; in machine drawing 2997, last year 1671; in building, construction, and naval architecture 1993, last year 1206; in elementary mathematics 2302, last year 1390; in higher mathematics 85, last year 33; in theoretical mechanics 631, last year 353; in applied mechanics 284, last year 167; in acoustics, light, and heat 1350, last year 769; in magnetism and electricity 2480, last year 1038; in inorganic chemistry 2166, last year 964; in organic chemistry 210, last year 123; in geology 609, last year 309; in mineralogy 67, last year 38; in animal physiology 2227, last year 1182; in zoology 303, last year 298; in vegetable anatomy and physiology 144, last year 112; in systematic and economic botany 90, last year 73; in mining 48, last year 41; in metallurgy 120, last year 81; in navigation 303, last year 219; in nautical astronomy 107, last year 86; in steam 148, last year 106; and in physical geography 2786, last year 1516. This is the first examination at which the scholarships of 100*l.* per annum, founded by Mr. WHITWORTH, have been competed for. There have been about 120 candidates for them, and as soon as the results of all the theoretical examinations have been made known the practical examination will be proceeded with in the manner detailed in the minute of the Lords of the Committee of Council on Education.

—— We do not vouch for the authenticity of the subjoined paragraph relating to the INFLUENCE of the STOCK on the SCION, and which is taken from a German newspaper (*Colonie Zeitung*) published at Santa Catharina, Brazil:—"With regard to the grafting of fruit trees it is generally believed that the stock exercises no altering influence over the scion in conjunction with it, but experiments made here testify to the contrary. We have raised a number of seedlings from a tree of the Laranja selecta Orange, whose spherical somewhat flattened fruit is very large and sweet, and remarkable for its thick oleaginous rind. Some of these seedlings—which bear good fruits of themselves—were budded, but only two of them so treated produce similar fruits to that from which the buds were taken. The remainder differ materially from one another and from the parent, and are not recognisable as descendants of one sort. They are all distinguishable from the fruit of the original stock, especially in possessing greater sweetness and less acidity. A bud of Laranja selecta worked upon Citrus decumana produced a very peculiar fruit, of an oblong form and large size, and almost flavourless."

—— We are requested to announce the return from Central America of Dr. BERTHOLD SEEMANN. Though much occupied with other affairs, Dr. SEEMANN has contrived to forward some interesting novelties for our gardens, and which are, we believe, in the hands of Mr. W. BULL.

New Plants.

DENDROBIUM HUTTONI, *sp. n.*

Caule gracili teretiusculo distiche foliato; vaginis arctis, lamînis cuneato oblongo-lanceolatis acuminatis, apice bidentatis (æqualiter seu inæqualiter); inflorescentia terminali, bifora; bracteis triangulis, ovariis pedicellata multoties brevioribus; sepalo dorsali triangulo, sepalis lateralibus majoribus in mentum postice obtusangulum extensis; petalis cuneato oblongis acutis sepalo dorsali longioribus; labello cuneato flabellato apice trifido, laciniis lateralibus triangulis serrulatis, lacinia media semiovata serrulata; callo triangulo retrorso retuso postice, disco brevi; columna apice bicorni, postice unidentata.

A very pretty species, with long stems covered with neat distichous lanceolate acuminate leaves, in the way of some Epidendrums, and bearing a terminal raceme of flowers much like those of Dendrobium sanguinolentum; they are light whitish crimson, the petals crimson, the lip with a deep crimson tip, the lateral lobes being deeper. There is a strong reflexed green tooth at the base, and some rows of little purplish dots and yellow shadows over the disc of the lip. There is no small difficulty in placing the species, the habit being that of the Eudendrobia or Stachyobia, yet the inflorescence is terminal. Perhaps we may hereafter hear of lateral inflorescence. We always expect to see the buds of new inflorescences under the leaves, perhaps only to be developed when the leaves have fallen off. We have to thank Messrs. Veitch for this curiosity, discovered in the Malayan Archipelago by their late collector, Mr. Hutton, who was very successful in his researches. He met an early death from an attack of fever,—one of the last martyrs for horticulture. *H. G. Rchb. f.*

REVIEW OF THE GENUS NARCISSUS.—III.

Group II. MEDIOCORONATÆ: crown half as long as the divisions, or in one or two exceptional cases three-quarters as long.

OF this group there are seven leading types known, five of which appear to be species in the broad botanical sense, and are known definitely as wild plants, whilst the other two, though tolerably well known in horticulture, and keeping up a distinctly marked individuality, are not known anywhere in a native state.

Divisions of the perianth distinctly reflexed. } 4. TRIANDRUS.
Divisions of the perianth spreading at a right angle from the base of the crown.
  Large-flowered; the divisions 9—12 lines long, and the corona 5—6 lines.
    Divisions of the limb white:
      Crown white, half as long as the divisions. } 5. POCULIFORMIS.
      Crown bright yellow, three-quarters as long as the divisions. } 6. MACLEAII.
    Crown and divisions of the limb both yellow:
      Flower always solitary; leaf 6—7 lines broad, glaucous. } 7. INCOMPARABILIS.
      Flowers 1—2; leaf 3—3½ lines broad, bright green. } 8. ODORUS.
  Small-flowered; the divisions 3—6 lines deep, and the crown half as long.
    Divisions and limb bright yellow; leaf green, cylindrical. } 9. JUNCIFOLIUS.
    Divisions and limb white; leaf glaucous, flattish. } 10. DUBIUS.

IV. N. TRIANDRUS (Linn. Sp. Plant. p. 416).—Bulb not more than half an inch thick. Leaves very slender, semi-cylindrical, 6—8 inches long, green, 3—4 to a scape, under a line broad. Scape very slender, 6—12 inches long, one or two-flowered. Spathe 6—9 lines long, the pedicels of the solitary or the uppermost flowers equalling or exceeding it. Flowers produced in its native localities in the south of Europe in April, horizontal or cernuous, measuring 9—10 lines from the top of the ovary to the top of the crown, the tube cylindrical, under half a line thick in the lower half, pure white, like the reflexed divisions of the limb, which just equal it in length, and are lanceolate, acute, 1½—2 lines broad at the base; crown pure white, obconical, 2½—3 lines deep, erecto-patent and entire at the throat. Stamens distinctly biseriate, the three lower ones inserted low down in the tube, the three upper ones near the top of the tube, the filaments straight, 3—4 lines long, sometimes, as is the style, slightly exserted from the corona. *Ganymedes triandrus* and *albus*, Haworth; *N. coronatus* and *Coorneï*, De C. in Redouté Lil. vol. 8; *Ganymedes Linnæi*, Kunth, Enum. 5, p. 719; *Illus triandrus*, Haw. Mon. p. 4; *N. pallidulus*, Graells in Bourg. Exsic. Hisp., No. 2282.

A native of Spain, not, so far as we know, in cultivation in this country. From the other plants of this group it is distinguishable at a glance by its very slender habit and the reflexed divisions of the perianth, in both of which it exactly corresponds with N. calathinus, of the group treated in our last paper, from which the difference in the size of the corona separates it. The name triandrus originated in a misconception, Linnæus having overlooked the three stamens of the lower row, which sometimes remain hidden down in the tube, whilst the outer three, which rise from the top of the tube, are conspicuous. The following are the principal varieties:—

1. *pulchellus*, 3—4 flowered, the corona white, the divisions bright yellow. *N. pulchellus*, Salisb. Prodr. p. 223; *Ganymedes pulchellus*, Haworth and Kunth, Sweet Brit. Flow. Gard. ser. 2, t. 99; *N. triandrus var. luteus*, Bot. Mag. t. 1262.

2. *cernuus*, 1—2 flowered, the flower pale yellow, the crown a rather deeper yellow, and both divisions and crown rather larger than in the type. *N. triandrus*, Bot. Mag. t. 48; *N. cernuus*, Salisb. Prodr. p. 223; *Ganymedes cernuus*, Salisb., Haw., Herb., Kunth.

3. *concolor*, 2—4 flowered, the divisions and crown a concolorous pale yellow, the same size as in the type. *Ganymedes concolor*, Haw., Herb., Kunth., Sweet Brit. Flow. Gard. ser. 2, t. 113.

4. *nutans*, 2—3 flowered, the crown a deeper yellow than the divisions, crenulate. *N. trilobus*, Bot. Mag. t. 945; *Ganymedes nutans*, Haw., Herb., Kunth.

V. N. POCULIFORMIS (Salisb. Prodr. p. 224).—Bulb an inch thick. Leaves 4 or 5 to a scape, flattish, glaucous, ¼—¾ inch broad, rather shorter than the scape. Scape a foot high, with two not very prominent edges, one or two flowered, flowering early in April. Pedicel generally equalling, or, if there are two flowers, that of the uppermost exceeding the spathe, which is about an inch long. Flower cernuous, pure white, odorous, 18—21 lines long above the ovary; the tube cylindrical, shorter than the divisions (9—10 lines), a line thick in the lower half; the divisions an inch long, oblong-lanceolate, acute, often slightly twisted, three-eighths or even half an inch broad at the middle; the crown the same colour as the rest of the flower, half an inch deep, uniform in texture throughout, moderately plicate and crenulate at the throat. Stamens subuniseriate from high up in the tube, the filaments scarcely longer than the anthers, the latter exserted from the tube, but standing down deep in the corona. *Queltia montana*, Herb., Kunth; *N. montanus*, Lindl. Bot. Reg., t. 123; *Tros poculiformis* and *galanthifolia*, Haw.

This a plant which has long been well known in garden cultivation, but which has never been satisfactorily matched with wild specimens, and which, as it is said never to produce seed, is in all probability a garden product. Judging purely from its characters, the plants most likely to have produced it are those which Herbert suggested, N. dubius and Pseudo-Narcissus var. moschatus. In both habit and characters it looks a good deal like a white-flowered variety of incomparabilis, but the leaves are not quite the same, the flower is cernuous, and frequently two are produced, and it is sweet-scented.

VI. N. MACLEAII (Lindl. Bot. Reg. t. 987).—Bulb an inch or more thick. Leaves 5 or 6 to a scape, 8—10 inches high, bright green, concave on the face, 5—6 lines broad. Scape about a foot high, subcompressed and slightly two-edged, bearing one or rarely two flowers early in April. Pedicel of the solitary flowers considerably shorter than the spathe, which is 15—18 lines long. Flower ascending as in the Daffodil, 15—16 lines deep, exclusive of the ovary; the tube cylindrical, 7—8 lines long, an eighth of an inch thick white tinged downwards with green; the divisions milk-white, spreading at a right angle from the base of the crown, oblong lanceolate, much imbricated, 8—9 lines long, 4½—6 lines broad bluntish or subacute. Crown 5—6 lines deep, bright yellow, very slightly plicate, half an inch broad at the mouth, slightly lobed. Stamens subuniseriate from above the middle of the tube, just reaching into the corona. Style ¾—¼ inches long, included in the corona. Bot. Mag. t. 2588. *Queltia Macleana*, Herb., Kunth; *Diomedes minor*, Haworth.

This also, like the last, is known only in cultivation.

It flowered well at Kew this year, both in No. 4 house and in the borders, and our description is taken from the living specimens. It resembles most the bicolor variety of Pseudo-Narcissus, from which it may be known by its smaller size, bright green leaves, and crown not more than half an inch long. Is it a hybrid between Tazetta and some of the varieties of the Daffodil? The N. super-Pseudo-Narcisso-poeticus [!], of Grenier (Fl. France, 3, p. 255) corresponds with it, judging from the description, but we have not seen specimens.

VII. N. INCOMPARABILIS (Curt. Bot. Mag. t. 121).—Bulb ovoid, 12—18 lines thick. Leaves 3 or 4 to a scape, about a foot long, bluntly keeled, 6—7 lines broad, slightly glaucous. Scape a foot or sometimes 15—18 inches high, compressed and distinctly two-edged. Flower always solitary, produced about London late in March or early in April, more or less distinctly ascending. Pedicel 6—9 lines long, always considerably exceeded by the spathe. Expanded flower 2½—2¾ inches broad, not sweet-scented, the tube nearly or quite an inch deep, cylindrical, 1½—2 lines thick at the middle, 3 lines at the throat, the divisions spreading, slightly imbricated, an inch long, generally a rather paler yellow than the crown, oblong-lanceolate, 6—8 lines broad. Crown 6—7 lines deep, orange-yellow, nearly erect, much plaited at the throat, and furnished with six deep imbricated lobes; the mouth 8—9 lines across. Stamens subuniseriate, inserted about the middle of the tube, the filaments and anthers each 3 lines long, the filaments reaching to the top of the tube. Style 13—14 lines long, reaching about half way up the crown. Reich. Fl. Germ. t. 819; *Q. [illegible]*, Haworth; *Q. fœtida*, Herb. Am. p. 311, Kunth, Enum. 5, p. 725; *Q. angl.*, Salisb.; *N. Gouani*, Roth.; *N. [illegible]*, Haw. (form with a more spreading and more deeply lobed crown); *Q. concolor*, Haw.

Var. 1, *[illegible]*.—A robust form with the crown orange, but the divisions a pale (sulphur) yellow. *N. aureatus*, Schult. Syst. 7, p. 948; *N. Gouani*, Redouté Lil. t. 220; *Queltia Gouani* and *[illegible]*, Haworth, Mon. p. 5. Flore-pleno forms of this are the "Nonpareil" and "Butter and Eggs" of English gardens. In one specimen from Messrs. Barr & Sugden, the flower quite 3 inches across.

Var. 2, *albus*.—The crown still orange, but the divisions a very pale sulphur-yellow or milk white. *N. albus*, Spach; *Queltia alba*, Haw.; *N. albidus*, Schult.; *Q. fœtida var. grisea*, Herb. and Kunth. The flore-pleno form is the "Orange Phœnix" of the gardens.

Extending as a wild plant from Spain and the south-west of France to the Tyrol, and nearly or quite as common as the Daffodil in cultivation. It quite corresponds with the Daffodil in the leaves and general habit, but even through the double-flowered forms may always be known by the crown being not more than half as long as the divisions of the limb. Herbert produced a plant which is figured at tab. 38 of vol. 29 of the "Botanical Register," which is exceedingly like the var. albus, by fertilising one of the varieties of the Daffodil with the pollen of N. poeticus. We cannot distinguish N. Bernardi of Henon, judging of it from Henon's figure, and from copious dried specimens, by any definite character from incomparabilis; but Prof. Grenier, in his excellent and full account of the French Narcissi in the "Flore de France," keeps up incomparabilis as a species, but regards Bernardi as a hybrid between the Daffodil and poeticus. If this view be correct we have a true and a hybrid incomparabilis barely distinguishable from one another, like the true and hybrid Oxlip.

VIII. N. ODORUS (Linn. Sp. Plant. p. 416).—Bulb ovoid, 12—15 lines thick. Leaves 3—4 to a scape, nearly a foot long, 2¼—3 lines broad, very concave on the face and convex on the back, bright green or very slightly glaucescent. Scape 12—15 inches high, scarcely at all compressed or two-edged, producing early in April 1—4, generally two flowers, which are sweet-scented and horizontal or ascending, the pedicel of the upper one nearly or quite equalling the spathe, which is more than an inch long. Perianth bright yellow, 15—21 lines deep, exclusive of the ovary, the tube 6—9 lines long, more slender than in incomparabilis, ¾ inch thick in the lower part, but wider at the throat, the divisions 9—12 lines long, oblong-lanceolate, acute, very slightly paler than the corona, a fresh bright yellow, 5—8 lines broad in the middle, usually imbricated for the lower half or third. Crown 5—6 lines deep, not so much plaited as in incomparabilis, the throat suberect, more or less distinctly 6-lobed, ½—⅝ inch across; stamens subuniseriate in the tube, the filaments and anthers both about the same length (2½—3 lines), the latter reaching out of the throat of the tube. Style 10—12 lines long, reaching about half way up the corona. Red. Lil. t. 157, Reich. Fl. Germ. t. 818; *N. trilobus*, Linn. Sp. Plant. p. 417; *N. calathinus*, Bot. Mag. t. 934, non Linn.; *N. infundibulum*, Poiret, Ency. 4, p. 427; *Queltia odora*, Herb. Amar. p. 313, Kunth, Enum. 5, p. 725; *Philogyne Campanelli, calathina, rugulosa, interjecta, terminalis*, and *trilobæ*, Haworth.

Var. *lætus*.—Flowers smaller, the divisions shorter and blunter, scarcely more than half as long again as the crown. *N. lætus*, Salisb. Prodr. p. 224, Reich. Fl. Germ. t. 820; *N. odorus*, Curt. Bot. Mag. t. 78; *Philogyne Curtisii*, Haw. Mon. p. 6.

A very distinct and well-marked plant, deservedly common in our gardens, extending in a wild state from Spain through the south of France to Italy and Dalmatia. Neither the divisions nor the crown, so far as we have seen, vary materially in colour, being always both of them a decided bright yellow. It comes nearest the typical incomparabilis, but the leaves are quite different, and the flowers are rarely solitary, and possess a decided fragrance. It was in order to mark the contrast in this latter point between the two that Herbert changed the name incomparabilis to fœtida, an alteration which, of course, is quite inadmissible.

IX. N. JUNCIFOLIUS (Requien in Lois. Not. p. 14).—Bulb ovoid, about half an inch in thickness. Leaves 3—4 to a scape, of a bright green, quite cylindrical and rush-like (whence the name) in shape, 4—6 inches long. Scape scarcely exceeding the leaves, very slender, and not at all two-edged. Flowers one or two, rarely three, produced in England about the middle of April, nearly sessile in the spathes, or elevated on pedicels 6—12 lines long; tube 7—9 lines long, very slender, cylindrical, scarcely more than half a line in thickness; divisions bright yellow, patent, obovate, ⅜—½ inch long, ¼ inch broad, cuspidate, decidedly imbricated. Crown the same colour as the divisions, obconical, faintly crenulate, 2½—3 lines deep, 4½—5 lines in diameter at the mouth. Stamens subsessile, biseriate, the upper anthers at the throat of the tube, the lower three a short space below it; style scarcely exceeding the tube. Gren. Fl. France, 3, p. 257; *Queltia juncifolia*, Herbert and Kunth; *N. Requieni*, Roem. Amaryll. p. 236; *Philogyne minor*, Haworth, Mon. p. 6; *Q. pusilla*, Herb. Amary. t. 43, fig. 2; *N. assoanus*, Dufour in Schult. Syst. 7, p. 962; *Queltia assoana*, Kunth, Enum. 5, p. 739; *N. apodanthus*, Boiss. and Reut. Diagn. p. 25.

Var. *gaditanus*.—Flower smaller, the divisions being scarcely longer than the crown, which is the same size as in the type. *N. gaditanus*, Boiss. and Reut. Diagn. 1, p. 36, Willk. Bot. Zeit. 1860, p. 104; Bourg. Pl. Exsic. Hisp. No. 2042.

A native of Spain and the South of France. This is one of the smallest plants in the genus, and is too small to be generally popular. It is in cultivation at Kew, and we have seen it lately in two private collections. It is very like the Jonquil on a smaller scale, and may be readily distinguished by the crown being half as long as the divisions.

X. N. BULBOCODIUM (Gouan. Illust. 22).—Bulb ovoid, 9—12 lines in thickness. Leaves 4—6 to a scape, concave on the face, glaucescent, 5—6 inches long, 1½—3 lines broad. Scape, 6—9 inches long, slender, decidedly compressed, and two-edged; flowers 2—6, the pedicels of the upper ones considerably exceeding the spathe. Tube cylindrical, pure white, 5—6 lines long, about a line in thickness. Expanded flower, 6—9 lines across, the divisions pure white, ovato-oblong, 3 lines long, 2—2½ lines broad, imbricated, patent or slightly reflexed, subobtuse or cuspidate. Crown pure white, obconical, ⅛th of an inch deep, slightly crisped and crenulate at the throat, which is not more than 3 lines across; stamens, biseriate, subsessile, the upper three reaching into the corona. Style about as long as the tube. Reich. Fl. Germ. t. 812; Gren. Fl. France, 3, p. 260; Moggridge, Cont. Flor. Mentone, t. 71; *N. pallidus*, Poir, Ency. 4, p. 424; *Hermione dubia*, Haworth, Herbert, and Kunth.

A native of the South of France, about Toulon, Marseilles, Avignon, and Nice. We have not seen it in English gardens, but there are excellent figures in the works of Reichenbach and Moggridge, which we have quoted. On the one hand it resembles juncifolius, but the leaves and stem are quite different, and the flowers are a uniform pure white, instead of a bright yellow. On the other hand, it comes exceedingly near some of the multiform varieties of Tazetta, of which I shall have to treat in my next paper. *J. G. Baker.*

NEW VINE DISEASES.

FROM information which has reached us from various quarters since January 30 last, (when we published our illustrated article on certain Aphideous insects which had attacked the young roots and also the leaves of the Vine), we regret to learn that the mischief caused thereby is widely spreading both at home and abroad. On March 27 (p. 332) Mr. Berkeley reported that specimens of Vine roots infested by the root insect had been forwarded to him by a correspondent, and that he had recognised in it the insect which we had figured from the leaf-gall; adding, however, that it was possible that a second species belonging to the same genus might exist, as he had found such a great difference in the comparative size of the eggs. In support of the opinion that the leaf insect is



Fig. A.—Young of Vine-leaf Gall Insect.

specifically different from that of the root (although structurally we could discover no specific distinction between them, *i.e.*, between the wingless female state —not having seen the males, which will doubtless be winged and afford better specific characters), we may remark that the French observers of the root species make no mention of the simultaneous attack upon the leaves; and indeed the first notice in England of the appearance of the insect on the Vine leaves in France was recorded in the *Standard*, and in our own pages of April 17 last, when "a new disease in the Vine, attributed to vermin which are found on the leaves" is mentioned as having broken out in the district of Orange (Vaucluse) where 3500 Vines were destroyed by it on an estate of 25,000 acres. At Sarrians few plants remained in a healthy state; at Roquemaure the loss amounted to one half, and the disease was spreading on all sides. Lastly, in our issue of May 29, p. 590, an answer to a correspondent will be found who had sent us a Vine leaf infested with these insect-galls from south-east Sussex, and to whom we recommend fumigation as a means of eradication. Of course this remedy would be entirely inapplicable to outdoor vineries, as in France; but we have no doubt but that the smoke of Tobacco would reach the insects within the galls (as they are open on the upper surface of the leaf), and be as effectual in destroying them as it is in killing external-feeding Aphides, such as the Rose Aphis or common green-fly. We have had no opportunity of confirming Mr. Berkeley's observation as to the different size of the eggs deposited respectively by the root and leaf-gall females; but we may observe that in both cases the fluids of the Vine are sought after by the insect, whose rostrum is thrust into the young rootlets or the tender leaf; and that it is the vegetable action of the different parts of the plants which are attacked which constitute the great apparent difference of the two insects. Some curious observations on this head have recently been made by two independent observers. Mr. F. Smith, of the British Museum, who has devoted the careful attention of many years to the study of hymenopterous insects, has noticed that whilst the root-galls on the rootlets of the Oak, made by the deposition of eggs by the female Cynips aptera, resemble bunches of currants, the galls on the base of the stem of the tree aboveground are consolidated, and form a solid mass (Proc. Ent. Soc., Feb. 1, 1869); in like manner, Mr. Walsh, of Illinois, has just recorded the fact, that he has reared insects which cannot be distinguished, *inter se*, from Cynips Quercus spongifica from two different kinds of galls upon two distinct kinds of Oak (Proc. Ent. Soc., May, 1869). In the woodcut (A) at the head of this article we have figured the very minute larva of the leaf-gall specimens soon after leaving the egg. The two dots within the small circle above the insect are about twice the size of the insect at this period, and the upper figure represents its foot, the thickened base of the tarsus evidently representing the distinct basal joint which is observed at a later state of growth, as seen in the lower detached figure, which clearly exhibits also the two terminal hooks or ungues of the feet,—thus negativing its relationship to the Coccidæ. The upper detached figure represents the antennæ of the young larva, the extremity of the proboscis or sucker of which is seen extending between the first and second legs on the lower side of the chief figure.

From an excellent memoir by Dr. Shiner, published in the "Proceedings" of the Academy of Natural Science of Philadelphia, for January 29, 1867, it appears that the Vine leaves in the United States have been attacked by an insect in a manner so similar to that which takes place with us, that we should have been tempted to consider them as identical, but Dr. Shiner's description and details of structure will not allow such an approximation. He has formed for this insect a new genus, which he terms Dactylosphæra, from certain globular pedunculated appendages at the extremity of the feet (of which no trace is found in our species). In the accompanying woodcut (B) the lower figure represents one of the legs of D. vitifoliæ, with two of these appendages (*a*), and the upper figure (with six of these appendages, *a*, *a*) represents one of the legs of a second species, found on the Pig-nut Hickory (Carya glabra). In the fig. *b b* represent the terminal ungues. The woodcut (C) represents the wings of the perfect male insect. The author, both in the memoir above referred to, and in the "Practical Entomologist," vol. 2, p. 17, has entered very fully into the manners and habits of this species, from which we have only space for the following short extract:—"The young larva leaves the gall usually soon after being hatched, and resorts to the tender leaf as it is expanding from the bud, fixes its location where it feeds by puncturing the leaf and sucking the juices; this irritation causes an abnormal development of the leaf, and thus produces a cup or bottle-like excrescence or gall, in which the insect now develops to a mother, and where she resides, laying eggs during the remainder of her life. From 50 even up to 5000 eggs may be found with her at once, and one female may be the progenitor of many millions in one season, even 10,000,000,000,000,000. Sometimes a few of the female larvæ, from some cause, appear to remain in the gall until maturity; at other times the galls are so closely located, that two or three are blended into one irregular gall, with as many primary parents." *I. O. W.*

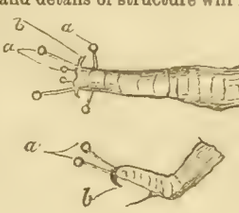


Fig. B.

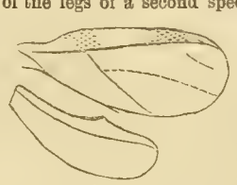


Fig. C.

Home Correspondence.

Oncidium altissimum.—A splendid specimen of this showy Orchid was exhibited a few days ago at the show of the Bitterne Horticultural Society, near Southampton, by John Lancaster, Esq., of West End. The plant, which was very healthy and clean, and growing in a tub, must have been nearly 3 feet in diameter, and had ten large flower spikes, with an aggregate of one thousand expanded flowers besides buds. The plant has been in Mr. Lancaster's possession about six years. Large growers of Orchids may perhaps see nothing of unusual importance in the proportions of this specimen, but forming as it does one of a small collection of plants in Mr. Lancaster's possession, cultivated in a mixed house in the midst of other plants, the fine development of this specimen deserves record. *R. D.*

Gas-tar for Trees.—Better let it alone. If tar is used at all, Stockholm is less injurious; but neither sort is safe. I saw a quantity of nice healthy Poplars killed outright last winter through being tarred to keep the stock from rubbing against them. As antidotes to game or stock a thick painting of cow-dung, cloacal matter, sulphur, &c., is effectual, and nourishes the trees while protecting its bark. Tar is always injurious. Even patches of it injure every patch of bark they smear, and although the sap can find its way between the patches, all such interference is injurious in proportion to the number and size of the patches. Mr. Scott's peel and paint prescriptions belong to the age of horticultural barbarisms, which it was hoped had for ever passed away. Nature does not produce bark to be peeled off and coated over with clay or other emollients. I can hardly conceive of any advice that could be given more likely to prove disastrous to amateurs and young gardeners than that recorded at p. 613 for the instruction of Mr. Lloyd—"He need have no fear to well peel his trees, as no injury will accrue to them by doing so." No injury! Then Nature has made a mistake, and trees had better have their nakedness, that is, their inner tissues, exposed, or be muffled up under a hideous covering of clay and cow-dung. And this, from the times of the boot and the thumb-screw, set forth as serious in the *Gardeners' Chronicle* for June 5, 1869. Oh! *Lynx Eye.* [The

outer bark consists of dead tissue, and may be removed with impunity in many cases. The practice is followed in India in the case of the Cinchonas, with the effect of producing new bark with more quinine than the old. EDS.

Herbaceous Calceolarias.—For those who have neither time, means, nor opportunity of seeing for themselves, I will simply describe a house of these gorgeous flowering plants—a house, the like of which, I believe, is not in existence—that I saw at Dalkeith Gardens the other day. Fancy 800 of these plants growing in 6 to 9-inch pots in one dense mass, forming a wavy cloud-like outline, of the most gorgeously coloured flowers, from pure white to dark purple, spotted and shaded in every conceivable manner. The individual flowers are of great substance and size and the colour perfect. What seemed a most remarkable characteristic of the strain, which Mr. Thomson told me he had been improving for 30 years, and which may therefore be termed the "Dalkeith" or Thomson's strain, was that the leaves were as green and healthy as Spinach, which is rarely the case with such high-class flowers as these. The foliage is too often of a yellow sickly cast, with long weak flower-stems requiring supports; whereas the Dalkeith strain is robust and self-supporting, as all decent plants should be. When I saw them they were in full bloom, and Mr. Thomson said they had been so for a month, and would remain so for another. So struck was I with such a magnificent sight at this season, when our Azaleas, Cinerarias, and early forced flowers are over, that I have determined to have an entire house of them myself another year. *H. Knight, Floors Garden, June* 15.

Rabbits.—The undersigned would be much obliged for any information as to the best mode of preventing the ravages of rabbits on his garden and lawn. His garden is on a chalky stratum, and the rabbits breed in the chalk, and it is difficult even with ferrets to dislodge them. Is there any poison harmless to dogs, or any good sort of trap? Any information will oblige. *G. S.*

Myosotis dissitiflora alba.—I can fully endorse all that Mr. Fish has said of the beauties of the charming Myosotis, but I would remind those who are thinking of trying it, that while poor, niggardly treatment will not suit this gem, those who will treat the plant according to Mr. Fish's instructions will, I am certain, be rewarded for all the trouble they may bestow on it. I have a row here that has been a perfect blaze of beauty for the last two months. Amongst them I have two plants of exactly the same habit, shape of flower, and free-blooming qualities, as the rest, but which are of pure white, instead of blue, as the rest are. I am saving the seed of this variety, as I think it will make a good companion for the blue one; in any case I intend using it extensively with the other, another season. The plants were all raised from seed sent me by a friend, who is a great admirer of this class of plants; but, what is most singular, he has never had a white one on the place. The seeds sent nearly all grew, and I planted them out in due time in well-prepared soil, as recommended by Mr. Fish, and am thoroughly pleased with the returns. The white one I propose to call dissitiflora alba. To those who can obtain seed of the true variety—dissitiflora—the present is a good time to sow it in rich soil, slightly shaded during the heat of the day. As soon as large enough to handle, the plants should be transplanted into a more open place in rich soil; they will then make good plants by November, when they could be planted wherever they are wanted to bloom. *John May, Gr. to Mrs. Sandeman, Westfield, Havant, Hants.*—In reference to Mr. Atkins' remarks at p. 641 of the *Gardeners' Chronicle*, I can only say that I have had no experience with seedlings, but it would be folly in those who wish for such displays as I have described to trust to chance seedlings for it. If they will procure the true stock, and proceed as I have pointed out, they will not be disappointed. Of course there is a wide difference between chance seedlings in a border, and masses of beauty many yards square without a flaw. With me one of the widest differences between sylvatica and dissitiflora is that while the former invariably sheds sufficient seed to reproduce itself without trouble, the other has not yet done so at all. The shade of trees is likewise sudden death to dissitiflora as soon as the trees get into leaf. My correspondents point to many failures: hence my particular instructions concerning this exquisitely beautiful plant. *D. T. Fish.*—Mr. Fish's description of the requirements of this plant must certainly tell seriously against its general use, for a plant for the spring decoration of our flower beds to require those beds thrown up into mounds, more or less irregular, is out of the question altogether. In most cases where its uses would have been acceptable, it must either adapt itself to the general level or custom of the existing position intended for it, and not require a site prepared in the way described by your able but versatile correspondent. What in a general way is wanted of such plants as this Forget-Me-Not and other spring flowering ones, is a hardy constitution that will endure transplanting in November, and withstand either wet or frost in winter, and, in fact, adapt itself at once to the beds that have just been cleared of Pelargoniums and such like. If this Forget-Me-Not will not do this, and also bloom early in the spring, it certainly falls short of what a spring flower ought to be, and which I expected the plant in question was, until Mr. Fish's letter of the 19th inst. implied that an elevated position was necessary to its well-being. Not having grown it myself, although I have some others, I feel reluctance at trying it from Mr. Fish's description of it, and would rather content myself with the common one I have, which nothing seems to kill except the tool of the workmen, only it does not bloom so early as I would like it. It is, however, much earlier than the variety called Impératrice Elizabeth, and another, said to be a distinct species, M. azoricum cœlestinum. From the interest, however, now taken in these plants I expect in a year or two to see much improvement in them, for the common one of the cornfields is a sturdy plant, and presents a respectable appearance in mid-winter, which is not the case with all spring flowering things. If M. dissitiflora requires nursing, as Mr. F. describes, it will, I think, be of very little use as a flower garden ornament. *F. N. B.*—I can fully endorse all that Mr. Atkins has said about Myosotis dissitiflora. I have used it to enliven spots which would not grow anything else, and my stock has always been raised from seed. One bed I have, which has been in flower every year three months out of the twelve, is under the shade and drip of a small Elm, and at the foot of a Thorn hedge. The only attention the bed gets is, once a year it is dug up and enough of the self-sown plants planted to stock it again. The Myosotis does well there, but still I know that under more generous treatment it is finer. *William Foster.*

Mistleto-seed Growing in the North.—I have tried to get these seeds to grow for several years past by placing them on the bark of the Apple, Thorn, Oak, Lime, Mountain Ash, Black Italian and Lombardy Poplars, &c., but never till this season did I observe any symptoms of growth. It occurred to me, by closely inspecting last year's operations, that the seeds had never attempted to grow; from which I deduced that they were either unripe, or that too much of the glutinous mucilage had been left, and so prevented the seed from coming into direct contact with the bark; or, lastly, that January, February, and March, the months in which I generally made my experiments, were too early in the season, and that in consequence the weather had destroyed the vitality of the seed. In 1868, 1867, and 1866, I planted many hundreds, in the chance of some one of them growing, as I was determined to succeed, if possible. I find that many others in this county (Durham) had failed like myself, although at Bishop Oak, near Walsingham, 12 or 14 years ago, a seed placed on an Apple tree trained on a wall, and situated in a very sheltered and protected corner of the garden, had grown; also that Mr. H. J. Marshall, on the banks of the Wear, close to the city of Durham, had met with great success on the Mountain Ash and Poplar; but these situations were sheltered and protected. Again at Darlington, Mr. George Stephenson had some seeds which grew on the Black Italian Poplar for one year, but were destroyed the next year by the trees being removed. Upon reflection, I this season determined to keep the berries on the branch hung up in a dark corner of the potting shed, and to pay greater attention by rubbing the berries gently in fine soil or earth, so as to remove most of the gummy substance from the seed, and particularly not to commence planting till the month of April had set in, and to continue to do so at intervals during that month and into May. The result is, that I find although many of the seeds have been removed either by the rain or birds, yet all the others have swelled, and, I think, are likely to grow. I simply placed the seeds on the surface this year, or in cracks, and one seed planted on an Ash, about the middle of April, has thrown out the usual two green fangs from the side of the berry, which is not in contact with the tree, and to reach the bark of the tree, instinctively has grown in a bow, and as soon as they have arrived at the bark have rather enlarged. As these two fangs are circular in section, they present an appearance of suckers; some of the other seeds have so expanded without any fangs appearing, that I fancy these first appendages may be only produceable from one of the two flattened sides of the seeds, and are, therefore, from the first unconnected with the tree. *W. A. Wooler, Sodberge Hall, Darlington.*

Transplanting Hollies.—Having frequently seen discussions in your valuable paper as to the best month to move Hollies, I may state that we have one here that was transplanted in November, 1864. Its height is 24 feet, its girth, at 3 feet from the ground, 2 feet 7 inches, and the branches are proportionately large. The summer of 1865 was hot and dry, and it had a severe trial to undergo, but with care it passed safely through it, and has continued to improve every year since. I should like to know whether any of your correspondents have succeeded in transplanting Hollies as large, for they are known to be trees rather impatient of removal, more particularly when they are old. *J. Brown, Gr. to G. Goldney, Esq., M.P., Beechfield, near Chippenham.*

Surface Cropping of Permanent Crops.—On the 15th March, 1868, I planted two new Asparagus beds, made exactly of the same materials, of the same depth, placed side by side, with only an alley between, with exactly the same description of plants, chosen promiscuously from the same sowing: they were two-year-old plants, planted in the usual manner. Our ground being limited for the extent of the demand, it was determined to take a surface crop off both beds, merely a sprinkling of Lettuces off the one, and a gathering of Radishes from the other. The Radishes came up but thinly, and were speedily drawn. The Lettuces produced a full crop, and were allowed to stand until fully and well grown. No. 1 bed was sprinkled all over with Radishes, and about one-tenth of a crop was drawn off it. No. 2 bed was wholly Lettuces, with the exception of a small portion at one end, which was scattered over with Radishes like No. 1. I observed a considerable difference in the growth of the two latter, last season; but as the drought prevented either from doing well, but little notice was taken of this circumstance. My attention was, however, forcibly arrested by a great difference between the two beds this season. No 1 bed not only broke away much stronger, but now (June 2) is almost as vigorous again as No. 2. The case is the more striking from the fact that the Radished part of No. 2 is equal to No. 1, whereas the Lettuced portion is so much weaker. I wish there had been a third bed not surface cropped at all, and then the facts gleaned would have been even more valuable. But, as it is, the testimony is strong against cropping Asparagus with Lettuce. I have made a bed this season in all respects like the other two, and have not surfaced crop, and will record the result. Meanwhile you have my authority to give my address to any one interested in such matters, who may apply for it, as I shall be happy to show the bed to all such, and thus enable them to form their own conclusion. *Observer.*

The Oakley Pollard at Mottisfont.—This truly wonderful Oak is found at Oakley, a small hamlet not far from Mottisfont Abbey, Hampshire, the ancient seat of Lady Barker Mill, widow of the late Rev. Sir John Barker Mill, Bart. The circumference of the trunk of this tree at 5 feet from the ground measures 32 feet, and at about 14 feet from the ground there are the trunks of three huge limbs, bearing the marks of many a stout wrestle with the storms of bygone times. From these old trunks spring young and vigorous branches, in the full flow of youth and freshness, and resemble childhood linked to decrepid age. At the base of the tree, and all round it, is seen a curious development of growth, as it is circled with bark-like protuberances reaching in some instances 4 and 5 feet outwards from the base of the trunk, just as if there had been at some time or the other a vegetative eruption, the excresence partaking of the character of a woody lava that had welled up from the roots of the tree in past times. Within the trunk, which is so hollowed out by decay that but little else than the lining of the bark remains, a dozen men could congregate with the greatest ease. The present vigorous growth of the branches (giving it the appearance in the distance of being a young tree) can perhaps be accounted for from the fact that a branch of the river Test (which is supposed to have been diverted from the parent stream by the "monks of old," in order to secure a supply of water immediately contiguous to the abbey, the Test being nearly a quarter of a mile distant) runs very near this old tree, and no doubt its roots have found their way to the bed of the stream. This district is very moist, even in the driest weather. There are in the grounds of the abbey some remarkably fine specimens of the Plane tree, which had suffered severely from the late spring frosts, all the young growth of the present season being quite scorched as by fire. As the visitor enters from the Romsey Lodge, one of these trees presents itself: at 3 feet from the ground the circumference of the trunk is 20 feet, the diameter of the spreading branches about 91 feet. The finest specimen is close to the abbey, and a short way from the ground it branches out into a double tree. Half way between the ground and the two huge branches the circumference of the trunk is 32 feet. The largest branch is 17 feet in circumference, the smallest 13 feet, and the diameter of the branches 98 feet. From what I have seen in several places the Plane trees have suffered severely from the visitation of frost; and even in what are regarded as warm and early districts the appearance of the trees is the same. *Richard Dean.*

Potatos.—Having seen several extracts in your paper last year about the American Early Rose Potato, I wrote to New York for a bushel of them, which I received in due time from Messrs. B. K. Bliss & Son, of that city. I now beg to hand you a sample of Early Rose, hoping that you will report upon the flavour. It is evidently a large and early cropper, and a very large-sized tuber. Even in their present immature condition, I think the flavour good. It is well to state that they were planted on February 25, on a south border, of dry sandy soil, without manure. Climax, Breeze's Prolific, and Breeze's No. 4, as well as Early Rose, have magnificent smooth-leaved haulms. *J. Muir Downie, West Kirby, Cheshire.* [Pretty-looking Potatos, but when cooked they were very watery. EDS.]

Lateness of the Season.—A very good illustration of the extreme lateness of the season is to be found with respect to the ripening of Strawberries. We should have May Queen Strawberries, this season there will be few June Queens unless the weather changes. The commencement of the Strawberry season in this district is usually the end of the first week in June. Here we are at the end of the third week, and unable to pick a dish. A few are just ripening, and by the 1st of July the general crop will be about ripe, quite a fortnight later than in ordinary seasons. Last year Doyenné d'Eté and Citron des Carmes Pears were fully ripe and falling from the trees on the 1st of July, 10 days earlier than the usual period. This season, from appearances, they do not seem as if they would be ripe before the 1st of August. Altogether this has been a remarkably strange and erratic season, succeeding an uncommonly mild winter. Fruit trees in the end of January were in full bloom, and everything betokened a very early season. Then succeeded a very cold period, during which nothing progressed, while April was exceedingly warm for the season; then again cold, which has continued more or less up to the present time, giving us, instead of an early season, one of the latest on record. *B.*

Coldness of the Season.—Here we are in the middle of summer. No, not exactly. It is, indeed, midsummer according to the almanacs, and as it used to be, yet it is strangely different. To-day is said to be the longest day. It is certainly one of the blackest and coldest. It might very well pass, barring its length, for the shortest. What a contrast from the June of last year! Twelve months ago we were sweltering under the effects of a scorching sun and a tropical climate: this season we are obliged to sit by the fireside all day, shivering, gloomy, and dispirited, listening to the mournful wail of the keen north-east winds, and the cold and pitiless rains. If the English climate has many faults, want of variety is certainly not one of them; just now, however, a real warm June day is sadly wanted. From

one extreme it suddenly passes to the other, so that a fair general average temperature is maintained. If by any means we could mix the weather of last June with the present, what a capital month it would make. Meteorological tables tell us that it is in temperature from 8° to 10° below the average. Judging by one's feelings, it would seem to be 30° below. For several nights in succession the thermometer has been below 36°, and one night 31°. Thus it did freeze at midsummer in 1869. *A. P. B., June* 22.

Tropæolum polyphyllum.—Mr. Atkins, of Painswick, has recently obliged me with specimens, showing the great value of this as a trailing rock plant. It is a very distinct looking subject, whether in or out of flower, the leaves glaucous and almost Rue-like in tone and orbicular in outline, but cut up into 10 or 11 divisions or leaflets, which overlap each other. These leaves are densely crowded on a stem a quarter of an inch thick, at least when the plant is well grown; and when planted on a warm sunny rockwork these stems creep about, snake-like, through the vegetation around, some to 3 or 4 feet in length. The flowers are a deep yellow, and produced as freely as the leaves. It is a tuberous-rooted kind, quite hardy in dry situations on rockwork and banks, where it should not be often disturbed. It is a native of high mountains in Chili, and well deserves attention from lovers of hardy plants. *W.*

Cultivation of Strawberries in Egypt.—It may be interesting to some of your readers to know that Strawberries succeed well at this place. I have grown them with great success for the last two years, and find that young plants produce the best crops and the finest fruit. I put out young plants in September and October, and have gathered ripe fruit since Christmas up to the present time, from the open ground. The plants are now in a healthy and vigorous state, producing plenty of flowers and fruit of excellent quality. I have no doubt they will continue to produce fruit for the next two months, thus stretching over a period of seven months in full bearing. Is this not something extraordinary? [Yes.] The varieties are Ajax, British Queen, Keens' Seedling, La Constante, Omar Pasha, Admiral Dundas, and Sir C. Napier. *James Hardie, Palace Gardens, Gazeereh, Cairo, Egypt, June* 2.

Foreign Correspondence.

THE SPRING IN ALGERIA *(continued from p. 665).*—There is a railroad from Algiers to Blidah, which turns round the eastern extremity of the Sahel hills, a few miles from the town, skirts the southern base for about 15 miles, and then crosses the Mitidja. As soon as the railroad has placed these hills between it and the north, the advantage of protection is at once apparent. The Olive trees become more numerous and finer, Orange and Lemon trees appear; and it becomes clear that, with cultivation, a much more luxuriant and southern vegetation could be obtained on this, the southern slope of the Sahel, than on the northern or Algerine. The plain, part scrub (Chamærops, Lentiscus, Cistus, Squill), part cultivated, is crossed by a gentle rise towards the base of the Atlas until Blidah is reached at an elevation of about 500 feet. Protected from the wind of the desert, or sirocco, by the Atlas, from all northern winds by the Sahel, on rising ground which prevents stagnation of moisture, with good deep soil, and abundance of water for irrigation, Blidah (lat. 36°), and that part of the Mitidja which surrounds it, presents every necessary element of fertility, and has become, since the French occupation, a very garden or orchard of agricultural products—cereals, grasses, Vines, fruit trees, &c. It is here for the first time that the Orange tree appears in real luxuriance. There are groves, thickets of Orange trees, some several hundred years old, covering nearly 300 acres of ground, and producing excellent fruit. But even here these orchards are protected from the winds by walls of tall Cypresses a foot apart. These Oranges are renowned all over Algeria and France, and their very superior quality shows that the Orange tree is capable of being cultivated anywhere in Algeria with success, always provided a situation be chosen protected from north winds, or, indeed, any wind, with good soil and plenty of water. This is the only point of Algeria where I found any Orange trees to be compared in point of size or beauty with those of Nice or of the sun-warmed and sheltered Genoese Riviera generally. Elsewhere they are only met with as isolated specimens, and these seldom in a flourishing state. At Algiers, if of any size, they are hidden behind houses, and planted in well-like declivities. Evidently the winter north winds are too much for them. The Lemon trees are also numerous and healthy at Blidah, but neither as large nor as luxuriant as on the north shore of the Riviera, about Monaco, Mentone, and St. Remo. At Blidah I saw, as at Algiers, many healthy Aloes, but they are not general in Algeria.

From Blidah I made an excursion to the valley of the Chiffa, a most picturesque cleft or deep ravine in the first Atlas mountain, through which passes the Chiffa river and the military road to Medeah. This deep and narrow valley, with its small river brawling at the bottom, some 50 feet below the road, with sides some 1500 feet high, is most picturesque, and resembles the description given of the Abyssinian valleys traversed by our troops. About three miles from the entrance is a tributary stream, roaring down a side valley, which I visited with intense interest. The sides of the main valley are clothed more or less densely, according to the degree of acclivity, with the Chamærops Palm, Lentiscus, Broom, Cytisus, Wild Olive, Carouba, Cork Oak, Ilex, Aleppo Pine; whilst the bed of the stream is fringed with Oleander, Tamarisk, and Willows in full leaf. The vegetation of the tributary gorge, called the Monkey Torrent, from the number of monkeys which inhabit its borders, is still more luxuriant. In addition to the trees and shrubs named I found the Weeping Willow, Thuja articulata, Laurus Apollo, Micocoulier (Celtis australis), Viburnum longifolium, Erica arborea, all freely watered by an abundant stream of crystal water rushing over the rocks, and bound in one inextricable mass by a host of climbing plants, wild Vine, Clematis, Smilax, our friend the Blackberry, and last in order, although first in power and wild luxuriance, the beautiful large-leaved African Ivy. The latter had grown with such vigour in these favourable conditions of heat, moisture, and shade, that his trunk was often as large as that of the tree that he embraced. In such cases he appeared to take complete possession of the tree which gave him support, to clothe every branch with thick masses of dark glistening verdure, hanging in green loops and in masses of foliage, from limb to limb, until the identity of the supporting tree was absolutely lost in the luxuriant garb of his clinging friend. Indeed one could not but reflect that there is such a thing as being actually overpowered, smothered, by the affectionate clinging of a friend. Next in luxuriance, without any doubt, was the Blackberry, which seemed equally to revel in this lovely gorge, creating such masses of branches and foliage that they sometimes nearly choked the ravine. The African Ivy is a most valuable variety, for although thus delighting in moisture and shade it can stand the glare of a fierce southern sun and feel comfortable. It is being extensively adopted in the gardens of the Riviera on that account. Under the shade of these shrubs and trees, and under that of the classical Acanthus, I found for the first time in Algeria banks of Lycopodium, and quite a collection of Ferns; among others Scolopendrium, Asplenium Adiantum-nigrum, A. Trichomanes, A. fontanum, and Grammitis. In the centre of this happy valley there was a small experimental Tea plantation, established two years ago by Government. The plants were alive, but did not look very flourishing. The gardener in charge, however, was satisfied with his success, and was about to put out a large number of additional plants which had been raised in frames during the winter at Blidah. As an instance of the exuberant growth of plants in this warm, sheltered, and moist valley he showed me a Eucalyptus globulus that had grown 30 feet in two years.

The next stage was a drive of about 40 miles direct west, through the Mitidja at first, and then over two or three low spurs and ridges of the Atlas to Milianah, a town situated 2700 feet above the sea, on an esplanade on the southern slope of a mountain at least as many feet higher. Here was again evidenced the advantage of protection from the north, and of exposure to the south, *vice* altitude and latitude. At Milianah, at an elevation which, even in this latitude, allows snow to fall and ice to form in winter, vegetation was more advanced, owing to the southern exposure than at Algiers. In the public garden all kinds of Roses, the perpetual or hybrid, as well as Banksia, multiflora, monthly, and Bengal, were in full and luxuriant bloom, which was by no means the case at Algiers. A Chromatella Rose was covered with hundreds of large blossoms, and had climbed all over a tree 20 feet high. I saw nothing like it in any part of Algeria. Various other garden flowers were equally in advance. From the terrace of this garden, looking full south, we saw on the horizon, on the other side of a plain 15 miles across, and 1000 feet below, the chief range of the Atlas mountains, rising in three successive tiers. Beyond the last was the great Desert of Sahara, which I intended at least to look at from the summit of one of these mountains, as I had not time to explore it.

Early on the morning of the 25th, descending 1000 feet, we crossed the rich valley of the Cheliff, which takes its name from the river so called. This valley is a singular feature in the geography of Algeria. It rises on the south side of the Atlas, on the borders of the desert, thus showing how high the first plains of the desert are, passes through a cleft or gorge in the main range, runs through the wide valley which takes its name, and finally throws itself into the Mediterranean east of Oran, after a course of 200 miles. It thus offers a circuitous funnel, or passage, by which the wind of the desert, the south-east, or sirocco, can, and does, pass right through the mountains until it reaches the fertile plains of the provinces of Algiers and Oran. Here its scorching breath in May or June occasionally destroys in one day or night the most magnificent crops. As we descended from Milianah on its south side we found a most luxuriant cultivation — rich orchards of Almond, Pear, Cherry, Mulberry trees, as well as the usual Fig, and abundance of pure water. At first I thought it would make a good winter sanitarium, but then there is the chance of a sirocco at any time from the south, and of rain and snow from the north. The plain was evidently a mine of agricultural wealth, as evidenced by the depth of the alluvial soil, shown in the furrows made by the watercourses. The cultivated patches of cereals, numerous near Milianah, scanty as we receded, were very vigorous and healthy, in full ear. There were no trees but those recently planted along the road—Acacia and Carouba, which were doing well. After crossing the plain, the road wound through deep valleys and over easy ridges for some 40 miles, when we reached our destination at the head of the pass in the last range, Teniel el Haad. The rocks and soil from the plain to this point are everywhere sandstone, gravel, and mica schist, and the vegetation is all but identical with that of the same soils in Corsica—Lentiscus, Arbutus, Ilex, Cork Oak, very large wild Olives, Aleppo Pine, Juniper, Genistas, Cytisus, Mountain Lavender, Cistus, white and rose, Willow, Smilax, Mountain Ash, Asphodel, Ferula, with the addition of some other plants which I did not observe in Corsica, although they may be there; Chamærops, Thuja articulata, Oleander and Tamarisk, fringing the rivers or torrents, and Scilla maritima. Whilst progressing leisurely through this lovely mountain scenery, in the glow of a southern sun, we had a specimen of what the sirocco is, for it blew from the desert, and the thermometer was for several hours at 92° Fahr. —a most oppressive heat. *J. Henry Bennet, M.D.*

(To be Continued.)

Societies.

EDINBURGH BOTANICAL SOCIETY: *April* 8.—Dr. Cleghorn in the chair. The following communications were read:—1. *Notes on Forage Plants, their Manurial Value.* By Professor Dickie. There are two effects which the diminished supply of light at great depths may be expected to produce upon Algæ—increase of size and modification of colour. The proportion of light necessary for the germination of the spores, and subsequent development, rarely receives the attention of physiologists. The influence of the law, that in water there is a limit of obliquity beyond which transmission into the air cannot occur, giving rise to total reflection, and the unequal absorption exerted on the different separable rays of light, can only be hinted at here in relation to this subject. Further, it is very notable that, in high northern latitudes, where thick ice covers the surface of the sea during great part of the year, and where, moreover, the absence of direct sunlight for several months together produces very peculiar conditions, nevertheless seaweeds abound, the number of species is not more than 30, but some of large size, and most of them individually plentiful. The late Professor E. Forbes adopted the following zones in relation to the distribution of marine organisms on the British shores:—1st, Littoral zone, comprehending the space between tide marks; 2d, The Laminarian, from low-water mark to 15 or 20 fathoms; 3d, The Median zone, from 15 or 20 fathoms to 50; 4th, The Infra-median; and 5th, The Abyssal. In the first two of these seaweeds are abundant, they are rare in the lower part of the median zone, and very rare indeed beyond it. In recording habitats of British Algæ (as in the "Phycologia" of the late Professor Harvey), the expression "cast up from water" is often used, it is somewhat indefinite, nevertheless, as many delicate species are thrown on shore in very perfect condition, they cannot have come from any great distance; and if we examine the tidal chart in "Johnson's Physical Atlas," where depths round the British and Irish shores are also given, it will be seen that the line of 10 fathoms on the general coast is very narrow, but is wider in bays and arms of the sea; and as these localities yield many species, 10 fathoms may be considered a common bathymetrical range. The following may be mentioned as reaching to or beyond 15 fathoms:—Chorda filum, Cutleria multifida, Zonaria parvula, Polysiphonia parasitica, Chylocladia kaliformis, Melobesia calcarea, Rhodymenia cristata, Phyllophora rubens, Phyllophora Brodiæi, Peysonnellia Dubyi, and species of Delesseria. Several of these are also found in the littoral zone. It is of interest, however, to ascertain the absolute limit of vegetable life on our own shores, and the only case which has come under my own notice is the following:—About 10 years ago, in company with the late Mr. Hyndman, of Belfast, and Mr. Waller, when dredging near the Maiden Rocks, coast of Antrim, our dredge got fast on rocky bottom at a depth of about 80 fathoms. With some difficulty we recovered it. On examination it contained a fine mollusca, abundance of living zoophytes, and two red Algæ, the largest being Phyllophora Brodiæi, quite fresh, and of the usual colour. It appeared to have been recently torn from its site; still, as it is not unfrequently cast up on the Antrim coast, it is just possible that the specimen may have been loose, and accidentally entangled in the dredge. Regarding the other species, I have no doubt it was attached near the base of one of the living zoophytes, and although not more than a quarter of an inch in length, without doubt it could be referred to Delesseria sinuosa, a species very widely distributed along the British and Irish shores. In vol ii., p. 454, of the "Antarctic Flora," Dr. J. D. Hooker states, that "8 to 10 fathoms are the utmost depth at which, judging by our experience, submerged seaweed vegetates in the South Temperate and Antarctic Oceans." This may be the general limit, but Macrocystis pyrifera is reported in the same work as attached to the bottom in 40 fathoms, though most of the very long stem—700 feet—lies near the surface. Lamouroux speaks of the Algæ growing at 100 or 200 fathoms, but the statement is more than doubtful. Humboldt records Fucus vitifolius (Caulerpa vitifolia, Lamx.; Chauvinia vitifolia, Kutzing), as growing in 30 fathoms, and quite green. In "Nereis Americana," Anadyomene stellata is stated to grow in 20 fathoms, and of the usual green colour, in the Gulf of Mexico. In his report on the Ægean Sea, the late Professor E. Forbes states that Constantinea reniformis, P. and R., occurs at 50 fathoms, and he considered this as the greatest depth, accurately observed, at which Algæ vegetate. In a recent number of Silliman's Journal, Count Pourtales states that Centroceras clavultaum came up in a dredge which had been at the bottom in 270 fathoms; this species is stated in "Nereis Americana" as abundant at Key West, everywhere near low-water mark. I doubt very much whether this plant was brought from the bottom; most likely it was caught by the dredge in its progress towards the surface. In the supplement to Capt. Inglefield's "Summer Search for Sir John Franklin," 1853, there are some cases which were recorded by myself in the Botanical Supplement to the work. They were given on the authority of Dr. P. Sutherland, from whom I received the specimens, viz.:—

	Fathoms		Fathoms
Fucus vesiculosus	40 to 50	Chætopteris plumosa	25 to 30
Desmarestia aculeata	80—100	Ectocarpus Landsburgii (?)	70—80
Dictyosiphon fœniculaceus	50—100	Euthora cristata	98—100
Agarum Turneri	10—100	Ptilota serrata	30—40
Laminaria longicruris	50—100	Kalymenia Pennyi	20
Chordaria flagelliformis	80—100	Conferva Melagonium	20

Respecting the greater depths in the above lists, I have much doubt. It is a well-established fact that masses of Algæ are set adrift by the action of the ice in summer, and are seen floating in great masses. Under such circumstances, though the dredge may have been at the bottom in 100 fathoms, it is rash to conclude that all its contents, especially Algæ, have been growing at that depth. During the voyage of the "Fox," under command of Sir L. M'Clintock, Dr. Walker dredged Rhodomenia interrupta at the east end of Bellot Strait, in about 60 fathoms, as estimated; the plant is now known to be an arctic form of Phyllophora Brodiæi, and this is of some interest in relation to the probable existence of the plant at 80 fathoms on the Irish coast, already alluded to. Captain Thomas Mitchell, late commander of the "Queen of Nations," belonging to Aberdeen, gave me some material which came up adhering to the sounding lead, from the Abrolhos shoal, in lat. 18° 11 sec. S.; long. 37° 43 min. 15 sec. W., 30 miles from the nearest part of the coast of Brazil. Most of it consisted of a species of Melobesia, much decayed, but partly also fresh and entire; adhering to it, growing on it in fact, there is a solitary specimen of an Alga of bright crimson. On examination, I had no hesitation in referring it to the genus Peysonnellia. Finally, it is worthy of notice, that species

* In "Annals of Natural History," Dec. 1868, there are some remarks by Mr. Jeffreys regarding various Mollusca, with bright-coloured shells and well-developed eyes, at depths from 200 to more than 1500 fathoms.

which reach the lowest depth where Algæ vegetate are all Rhodospermeæ; next in order the olive-coloured; the Chlorospermeæ prevail chiefly in the littoral and upper part of the laminarian zones. Diatomaceæ are usually considered to rank among the lower forms of Algæ. I may close with a brief reference to their range. Although some few species have been certainly brought up from the greatest depths reached by the dredge, it does not necessarily follow that they live and propagate there. Many of the marine species adhere to the higher forms of seaweeds, and necessarily have a limited range, while not a few of the free species occur at or not far below the surface. Along with the Dalmatia already mentioned as growing at 80 fathoms, I only detected three Diatoms—viz., Melosira marina, Coscinodiscus radiatus, and C. excentricus. It is to be hoped that in future more attention will be paid to this subject. Exact records of depth will add to the interest pertaining to the Algæ procured, besides contributing to a department of inquiry very much overlooked. In this respect zoologists are far in advance of algologists.—II. *Remarks on Species proposed*. By A. G. More, Esq.—III. *Notes on the Varieties of Tea cultivated in Assam*. By Mr Wm. Bell. Whether Thea Bohea of botanists, and T. viridis be distinct species, or only varieties dependent on soil and climate for their existence, matters but little to the Indian tea manufacturer. So far as my experience goes, any variety of that commonly known as the China Tea plant which produces leaves suitable for the manufacture of a first-class black tea, is equally suitable for the production of a first-class green tea. In some districts I am told that a custom prevails, as restrictive as *caste* is in India, which prevents men from engaging in more than one kind of work. For instance, a box maker is not permitted to try his hand at sheet-lead making, or lining, or soldering down; neither is he permitted, even if out of employment, to try his hand at manufacture. Nor is a man who has served an apprenticeship to the manufacturing of green tea permitted to try the manufacturing of black. These facts may to some extent account for the plausible supposition, that green and black teas are the produce of two altogether different plants. There are, no doubt, a great number of varieties of T. Bohea in cultivation, some of them of little value—not worth cultivating, as a small papery leaf is not well suited for making a fine tea. Some of the small myrtle-leaved varieties are said to have a hardier constitution, and are therefore better adapted for cultivating at high altitudes than any of the large-leaved varieties, which are best suited for low, moist, warm localities. All of these different varieties cross intermix or cross readily with each other; at least there is now a greater number of varieties in cultivation than were originally recognised. The specimen No. 1 is from one of the plants first introduced into India. It is an excellent variety, and still unsurpassed by any of the recent introductions. The other specimens of the original stock are from younger plants, and lately pruned, merely illustrative of the quality of leaf required for the manufacture of good tea. No. 2 is T. assamica, a well-marked species, differing from the China plant in size, habit, foliage, and flower. The tea made from it also differs from the China tea. By some it has been considered—I suppose without a trial—as worthless rubbish; but, to my taste, it is superior to the other. The Assam was originally neglected for the China plant, but it has long since been found that the yield is greater in quantity, and the quality better, than that from the China plant when cultivated in Assam. It seems to have a rather tender constitution for the climate of the north-west and the Punjab. In the Deyrah Dhoon the points of the young wood are often killed back by the frost, besides losing nearly all their leaves. If not in a sheltered situation, the young leaves get scorched during the months of May and June by the hot winds that generally then prevail, although they are nothing compared to those experienced on the plains. For these reasons it is doubtful if it can ever be cultivated with success in North India. They cultivate extensively in Assam a well-marked variety generally known as the hybrid. I have tried to cross T. assamica with T. Bohea for the male parent; also T. Bohea with T. assamica for the male parent, but never could get a single fruit to set. However, some suspect that the so-called hybrid is only a sport from the original one, with a more compact habit and broader, thicker leaves. T. assamica is said to be not so well suited for the manufacture of green tea as the China plant; but whether that be a fact or only a supposition I cannot say. In testing samples of tea manufactured from the Assam and China plants, weight for weight, the Assam surpasses the China both in strength and colour of the infusion; in flavour, some think that of the China more delicate and agreeable. The [illegible] infusion of the Assam plant is much paler and generally more uniform than that of the China; perhaps also the fact, that in manufacturing it ferments more quickly and readily than the China does. Specimen No. 3 is a plant that differs not less from the Assam than it does from the China plant. From the latter it differs in habit and leaves, also in the flavour of the tea. I cannot say anything regarding the strength of the infusion or the out-turn, as I have never made an infusion of it. From the Assam plant it differs in habit, foliage, and flower. I have heard it said that it was imported from some where or other, but this supposition, this assertion was based, I could not learn. A Chinaman told me—and I have not the slightest reason for doubting his statement, he was a most shrewd, intelligent, and truthful man—that the plant now spoken of was well known in China, but the leaves were only used for medicinal purposes. In India it is used in cases of venereal disease. The plant has been of [illegible] I understand, sent from China by Mr [illegible] Hooker, and the seeds germinate well; [illegible] plant in its character, and seems [illegible] from all of any variety of the China, also [illegible] of the Assam plant, both the typical and the [illegible] I [illegible] cuttings of some of the best marked [illegible] to see whether they retain the peculiarities of [illegible] varieties in cultivation [illegible] bases for tea-making purposes than [illegible] again, results from some of the [illegible] for tea-making purposes not unfrequently fall far short of such points, not in the [illegible] but in the [illegible] of the manufacture. I attribute, in that I [illegible] to [illegible] but in the [illegible] of the leaf when fresh. Small thin-leaved varieties [illegible] by careful the manufacture may be [illegible] large-leaved varieties [illegible]—IV. *Notes on Rubi and Rosæ found in Scotland in* [illegible] By Messrs. Babington and Baker, Esqs.—V. *Notes of Plants Recently Recorded for the Gold and Tweed*. By Gilbert C. A. [illegible], Esq. Many of the plants noticed by the author as new to Scotland, most of them as occurring in England, are evidently recent introductions to Great Britain. The author considers that the plant must be [illegible] by the word [illegible] to the [illegible]—VI. *On some Rare Plants* [illegible]. By [illegible]—VII. [illegible] *Mosses*. By Mr. James [illegible]—VIII. *Remarks on the Oak-like Fructification of the Red Pine*. By Mr. M[illegible]. Since the last meeting of the Botanical Society, Mr. Lees, to whom it has been very much indebted for the purchase of his right temperature, on 14 mornings only was the thermometer seen above the freezing point of 32°. The lowest mornings were on the mornings of March 24th, 25th, 27th, 28th, 29th, 30th, and 31st, when the readings were 29°, 26°, 26°, 28°, 24°, 28°, and 28°. The highest early morning temperature was 44° on the 5th April. Arborescent vegetation, which advanced rapidly during the month of February, has made comparatively little progress since that time, and is considerably behind what was reported last year. Notwithstanding the dry cold season, herbaceous plants are flowering much about the same dates as last year, which may be accounted for by the forward state of the plants, owing to the mildness of the month of February. The following table exhausts my usual list—March 10, Narcissus moschatus; 18, Corydalis bulbosa rubra and Adonis vernalis; 24, Fritillaria imperialis, Muscari racemosum; 27, Narcissus Pseudo-Narcissus; 28, Triteleia uniflora and Corydalis tuberosa alba; 29, Narcissus bicolor, Ornithogalum exscapum; April 1, Carex montana, Pulmonaria virginica, and Menziesia empetriformis; 2, Epimedium rubrum, Saxifraga virginica, and Ornithogalum montanum; 3, Primula ciliata purpurata, and Anemone nemorosa; 4, Menziesia cærulea; 6, Pulsatilla vernalis.

CRYSTAL PALACE ROSE SHOW: *June* 19.—In comparison with former exhibitions of this character, the show on Saturday last was greatly below the average, both in the number of competitors, and generally in the quality of the flowers shown. This was doubtless owing to the severe showers of hail and rain, and boisterous weather of the preceding week, which damaged the flowers to a great extent, so much so that many well-known amateurs and others were prevented from putting in an appearance. Nevertheless, some of the bloom staged by Mr. Turner and Messrs. Paul & Son were first-rate, and helped materially to make an effective display.

In class 1 for 72 varieties, single trusses of each, Mr. Turner came 1st, with a very fair collection, in which the following were most noticeable, from their bright colours and good forms:—Duke of Edinburgh, Maréchal Niel, Jean Lambert, Charles Lefevre, Dr. Andry, Jean Goujon, Duc de Wellington, Charles Rouillard, Marie Baumann, Général Jacqueminot, Triomphe de Caen, Emile Bernardin, &c. Messrs. Paul & Son, who came in 2d, had good blooms of Madame Furtado, Maréchal Vaillant, Alfred Colomb, Lord Clyde, John Hopper, Duke of Edinburgh, Pierre Notting, Camille Bernardin, Achille Gouod, Monsieur Noman, and Elie Morel; Mr. J. Mitchell, of Piltdown, who was 3d, had nice flowers of Miss Ingram, Madame Bolle, Horace Vernet, Madame Charles Wood, and Napoleon III., &c. Mr. Keynes, Salisbury, took the 4th prize, and an extra prize was awarded to Messrs. Francis & Co., Hertford.

In class 2, for 48 varieties, 3 trusses of each, Messrs. Paul & Son stood 1st, and Mr. Turner 2d, both showing excellent blooms. In Messrs. Paul's collection, flowers of Francis Lacharme, Exposition de Brie, Devoniensis, Maréchal Niel (fine), Lord Clyde, Dr. Andry, Camille Bernardin, and Charles Verdier were very conspicuous, as were also blooms of Dr. Andry, La Ville de St. Denis, Miss Ingram, Madame Victor Verdier, Princess Mary of Cambridge, and Lord Raglan, from Mr. Turner; Mr. Keynes, who had fair examples of Jules Margottin, Madame Vidot, John Hopper, Maurice Bernardin, and Madame Rivers, was 3d, and Mr. J. Mitchell, 4th.

In the class for 3 trusses of 24 varieties, Messrs. Paul & Son again came 1st with admirable blooms of Michel Bonnet, Charles Lefevre, Madame H. Jacquin, Duke of Edinburgh, splendidly coloured; Madame C. Joigneaux, and Charles Rouillard, &c.; Mr. Turner was 2d with, amongst others, Louis de Savoie, Marie Baumann, Miss Ingram, very fine; John Hopper, Madame Victor Verdier, and Princess Mary of Cambridge, in very good condition; Mr. Keynes was 3d.

In class 4 for single trusses of 24 varieties, Mr. Cant, of Colchester, was 1st, showing some good blooms of Maréchal Niel, Comte de Nanteuil, Charles Lefevre, Pauline Lansezeur, and Lord Raglan; Mr. Keynes was 2d with capital blooms of Madame de St. Amand, Monsieur Noman, and Sénateur Vaisse; Mr. Turner came 3d with a nice collection; and Mr. Mann, Brentwood, 4th.

In the various classes for amateurs, the blooms were generally of a very poor description. Mr. Moffatt, gr. to Earl Rossiyn, Easton Lodge, Essex, took the 1st prize for 48 varieties, 1 truss of each, with fair examples of Beauty of Waltham, Madame Crapelet, Coupde Hébe, and Maréchal Niel; Mr. Exell, gr. to J. Hollingworth, Esq., Maidstone, was 2d, and Mr. Terry, gr. to A. G. Puller, Esq., Youngsbury, 3d; Mr. Stoddart, gr. to J. Gurdon Rebow, Esq., Wivenhoe Park, Colchester, took both 1st prizes in the classes for single blooms of 36 and 24 varieties, with very fair examples of Devoniensis, Empereur de Maroc, Maréchal Niel, John Hopper, Maurice Bernardin, Madame Charles Wood, Duc de Rohan, Camille Bernardin, and Sénateur Vaisse; Dr. Cooper, The Limes, Slough, was 2d for 36, and Mr. Soder, gr. to O. Hanbury, Esq., Brentwood, for 24, &c. For 12 varieties, one truss of each, the 1st prize was taken by Mr. Soder, with tolerably good blooms of Maréchal Niel, Duke of Wellington, Madame C. Wood, Jean Goujon, &c. Mr. W. Cant, Myland Cottage, Colchester, was 2d with Général Jacqueminot, Charles Verdier, Géant des Batailles, and John Hopper, &c., in fair condition; Mr. W. Ingle, gr. to Mrs. Round, Colchester, came 3d, and Mr. R. B. Postans, Brentwood, 4th.

Messrs. Paul & Son took the 1st prize for 12 trusses of any new Rose of 1867, with fine flowers of Duke of Edinburgh, and Elie Morel, light rose, with pink edges, and fine form; Mr. B. R. Cant was 2d, and Mr. Keynes, 3d, both showing good blooms of Vicomte de Vesin, a large full flower of a bright rose colour. Messrs. Paul & Son also came 1st for 24 new Roses of 1867 and 1868 with some good blooms; and in class 11, for a collection of any varieties, contributing 9 boxes of excellent flowers, amongst which were boxfuls of Sénateur Vaisse, John Hopper and Monsieur Noman, &c.; Mr. J. W. Chard was 2d. Of yellow Roses, Mr. B. R. Cant contributed fine blooms of Madame Falcot, Sofrano, Boule d'Or, Madame Margottin, and Maréchal Niel; Mr. W. Cant showed a fine boxful of Maréchal Niel and Cloth of Gold. The former took the 1st prize, and the latter the 2d Mr. Stoddart being 3d, and Mr. Keynes 4th; Mr. Keynes was 2d in class 10; and Mr. H. Coppin 3d. In the amateurs' class for 12 Tea-scented or Noisette Roses the 1st prize went to Mr. Exell, who had Madame de St. Joseph, Souvenir d'Elise Vardon, Vicomtesse de Cazes, Triomphe de Rennes, and Souvenir d'un Ami, in good condition; Mr. R. B. Postans came in 2d with nice blooms of Triomphe de Rennes, Madame Falcot, Maréchal Niel, and Rubens, &c.; Mr. J. B. Bristow was 3d, and Mr. W. Ingle and Mr. W. Cant were placed equal 4th. The best 100 flowers of any Rose came from Messrs. Paul & Son, who had a charming basket of Marguerite de St. Amand; Mr. Turner was 2d, and Mr. J. Parker, Rugby, 3d, with a nice lot of Gloire de Dijon. The former, also, took the 1st prize for 20 new Roses in 8-inch pots with, amongst others, Christine Nilsson, Duke of Edinburgh, Boule de Neige, a good white; Triomphe de Soisson, &c., in fair condition. Mr. Turner also had a collection of Roses in small pots. Messrs. J. & C. Lee had a fine boxful of the new Rose, Edward Morren; and Mr. W. Paul had fine blooms of the new climbing Rose, Prince Leopold, and the pale coloured Princess Christian, which latter received a First-class Certificate.

Amongst miscellaneous subjects exhibited were a collection of zonal Pelargoniums from Mr. Mann, of Brentwood, consisting of Lord Derby, Countess of Derby, Chieftain; Christabel, flowers light pink, shaded with crimson; and Amiable, a bright scarlet; also a nicely coloured plant of a tricolor variety named Masterpiece. Messrs. Downie, Laird & Laing contributed a fine collection of unnamed seedling bicolor Pelargoniums, many of them having very clear and well defined zones. Messrs. Carter & Co. exhibited a collection of beautifully grown and flowered double Pelargoniums, and also several varieties of the tricolor section. From Mr. J. Gordon, Crystal Palace, came a promising seedling Tropæolum, named Spotted Gem, with yellow flowers, blotched with deep crimson, to which a First-class Certificate was awarded.

LEEDS HORTICULTURAL.—This exhibition was opened on the 9th inst., in the Royal Park, and continued till the 11th. The floral display took place in a series of tents supplied by Mr. Fussey of Hull. In the centre stood a circular tent, 100 feet in diameter, and from it radiated eight other tents, varying in size from 90 feet by 50 feet to 130 feet by 50 feet, each being accessible from the centre. This was both an effective and convenient mode of arrangement, while the tents themselves, made of striped blue and white canvas, were excellent in point of size, quality, and appearance. In the central one were staged the collections of stove and greenhouse plants contributed by Mr. Baines, of Bowden; Mr. Kendal, of Manchester; J. G. Marshall, Esq., and Mr. Dixon, of Beverley. All the collections were exceedingly good. Foliage and flowering plants were well represented, Mr. Baines again holding the place of honour. The display of Ferns was not large, but Mr. Baines had grand plants of Gleichenia flabellata, G. Speluncæ, Dicksonia antarctica pendula, and Cyathea dealbata. Cape Heaths were well represented. Orchids, though not numerous, were clean and healthy. Of specimen plants the best and the most meritorious plant in the exhibition was Erica ferruginea superba, a grand bush, nearly 3 feet in diameter, studded with finely coloured flowers, from Messrs. Cole & Sons. Mr. B. S. Williams sent a fine group of rare plants, including Cattleya Mossiæ, with 18 flowers; Anthurium Scherzerianum, with nearly 20 of its vermilion flower-spathes; and a variety of Palms and other plants. Messrs. Lane & Sons sent a large group of Rhododendrons and hardy Azaleas, in fine bloom, and also some good pot Roses. Mr. Baines sent his group of Sarracenias in fine condition. New plants were not numerous, and were confined almost exclusively to Ferns. Mr. E. J. Lowe received First-class Certificates for seven varieties of Scolopendrium vulgare, viz., curiosum, illustre, dichotomum, mirabile, summum, allokoton, Babingtonii. Mr. Edwards, nurseryman, of Nuttall, sent Padley's plumed variety of Asplenium marinum, a very scarce Fern; also Pteris serrulata magnifica, a robust growing abnormal variety, of considerable decorative interest, growing to the height of 18 inches, and forming a dense mass of finely cut tassels, many of them being as broad as one's hand. A finer display of Pelargoniums has been rarely seen. The first prize in the show class was awarded to Mr. C. J. Perry, who had matchless plants of Exhibitor, Bello of the Ball, Conqueror, Rose Celestial, Formosa, and Prince of Wales; it would be difficult to produce plants in finer order than these were. They were, however, surpassed in interest by the zonals; indeed nothing could excel in point of style, bloom, and cultivation, the group of zonals sent by Mr. Tetley; each plant formed a depressed zone, about 18 inches in height and 3 feet in diameter, densely sheeted with trusses of fresh perfect flowers; among them were Madame Blanche, a grand white; Glow, intense orange-scarlet; Mrs. W. Paul, admirably bloomed; Lord Derby, and Sambo, an intense scarlet. These plants may be described by a single word, "perfection." Of Fruit the best collection came from the garden of Lord Zetland, and comprised a Providence Pine, Melon, Hamburgh and Chasselas Musqué Grapes, and finely grown highly coloured Peaches and Nectarines. Table Decorations and Bouquets formed a very attractive feature of the show, and filled a tent 90 feet long.

UNITED HORTICULTURAL: *June* 14.—At this meeting, which was held at the Green Dragon Hotel, Bishopsgate Street, a very interesting paper on the cultivation of the Azalea was read by Mr. G. Baker. Messrs. E. G. Henderson & Son, of the Wellington Road Nurseries, St. John's Wood, exhibited the new golden tricolor Pelargonium Victoria Regina, a variety in the style of Mrs. Pollock, but more compact in habit, to which a First-class Certificate was awarded; also a new silver tricolor variety, named Lass o' Gowrie, in the way of Italia Unita, but much stouter and thicker in habit, with brighter zone, and in every way superior to that variety. This also was awarded a First-class Certificate. Achyrocline Sandersoni and Gnaphalium tomentosum, both silver-foliaged bedding plants for edgings, which have previously received First-class Certificates, were also shown in good condition, the specimens well maintaining their former character; as was a very nicely marked Arundo Donax variegata, which is said to be a very fine plant for single specimens on lawns, and might be useful for table decorations.

ENTOMOLOGICAL: *May* 3.—H. W. Bates, Esq., President, in the chair. The Secretary announced the publication of a new part of the Society's Transactions. Mr. S. Stevens exhibited a collection of Coleoptera, taken between Hong Kong and Shanghai, and two Melolonthæ from Japan. Mr. Butler mentioned that the grasshopper captured off the coast of Africa, and exhibited on the 17th of February, was still alive, although it had eaten nothing since that day. Professor Westwood exhibited some British and exotic species of Epyris, a remarkable genus of Hymenoptera, and other nearly allied insects, including a beautiful species of Calyoza, with pectinated antennæ, known hitherto only by a specimen in Gum Animé. Mr. F. Smith exhibited males and females of Cynips quercus spongifica, sent by Mr. Walsh, of Illinois, to Mr. C. Darwin. The males of this genus had hitherto been unknown; they differ from the female in having 15 instead of 13 joints to the antennæ. From the same species of gall is produced, at a later period of the year, females only, of a form which has been termed Cynips aciculata; but a still more curious circumstance is that from a different kind of gall upon a different species of Oak, both males and females identical with C. q. spongifica were reared at the end of June. Mr. Horne gave the result of his observations in India as to the different species of insects which he had noticed to be especially subject to, or free from, the attacks of birds, lizards, and small quadrupeds. Mr. McLachlan exhibited specimens of a white ant brought from St. Helena, where it had committed much damage. It was supposed to have been imported from Brazil or the West Indies, being allied to Termestenius. He also exhibited a number of minute black Poduræ, found on a pond, like a quantity of gunpowder; also a number of a small white species of the same genus found floating in the saucer of a flower-pot at Lewisham. The Secretary noticed the capture of Cetonia aurata on the 11th April. Mr. S. Stevens read a notice concerning the Coffee-tree borer in India. The two following memoirs were also read—"Notes on Eastern Butterflies (genus Diadema)," by Mr. A. R. Wallace; and "Descriptions of New or little known Forms of Diurnal Lepidoptera," by Mr. A. G. Butler.

Notices of Books.

Vegetable Teratology: an Account of the Principal Deviations from the usual Construction of Plants. By Maxwell T. Masters, M.D., F.L.S.; with numerous Illustrations by E. M. Williams. (Ray Society.) London: Hardwicke. 8vo, pp. 534.

We can only call attention to the publication of this volume—under the auspices of the Ray Society—and indicate the nature of its contents. As its title implies, the work professes to give an account of the various

irregularities of growth in plants. These are grouped into subdivisions according as they affect, principally or entirely, the arrangement, form, colour, number or size of the several organs of the plant. Under the head of "altered arrangement" are included cases of union and disunion, displacement, prolification, altered sexual characteristics, &c. Alterations of form include changes arising from arrest and excess of development, as well as from metamorphosis. Changes in number and size again are arranged according as they are due to exalted or defective development.

In this manner the principal of the hitherto recorded changes (exclusive of those diseased and as it were amorphous growths resulting from insect or fungous agency) are alluded to, and their peculiarities explained. Copious references to books and memoirs, and long lists of plants ascertained to be the subjects of the changes in question, are given. The reader in search of results rather than of details will find in the introduction, in the summaries to some of the chapters, and in the general conclusions some remarks on the bearings of vegetable teratology on other branches of botanical science, and on many of those matters concerning which, at the present day, there exists a difference of opinion among botanists. The author has largely availed himself of the labours of his predecessors, and especially of Moquin-Tandon, Engelmann, and Morren. Moreover, he is in no slight degree indebted to the contributors of the *Gardeners' Chronicle*. Many of the illustrations, and of the facts cited, are taken from the pages of this Journal. The following extracts may serve to show in what spirit the author has worked. Alluding to the bearings of his subject on the explanations usually given of certain points in the ordinary structure of plants the writer remarks:—

"Already teratology has done much towards showing the erroneous nature of many morphological statements that still pass current in our text-books, though their fallacy has been demonstrated again and again. Thus organs are said to be fused which were never separate, disjunctions and separations are assigned to parts that were never joined, adhesions and cohesions are spoken of in cases where, from the nature of things, neither adhesion nor cohesion could have existed. Some organs are said to be atrophied which were never larger and more fully developed than they now are, and so on. So long as these expressions are used in a merely conventional sense, and for purposes of artificial classification or convenience, well and good; but let us not delude ourselves that we are thus contributing to the philosophical study either of the conformation of plants or of the affinities existing between them. What hope is there that we shall ever gain clear conceptions as to the former, all the time we tie ourselves down to formulas which are the expressions of facts as they appear to be, rather than as they really are? What chance is there of our attaining to comprehensive and accurate views of the genealogy and affinities of plants all the time we are restricted by false notions as to the conformation and mutual relation of their parts?"

How singular some of the changes met with are, and how remarkably they show that the several organs are intrinsically not so different one from another, as they appear to be, is shown in the following passage:—

"The most singular instances of morphological identity are those relating to the sexual organs. We have seen the gradual transition of stamens to pistils, and of pistils to stamens, the development of ovules on the edges of the anther, the co-existence of pollen with ovules on an antheroid body, and, stranger still, the actual development of pollen within the tissues of the ovule itself! From such facts, in addition to what we know of the relative position, internal structure, and mode of development of the organs, it is impossible to avoid coming to the conclusion that, however distinctly these parts may, under ordinary circumstances, be set apart for the performance of distinct functions, yet morphologically they are homologous."

Very many of the subjects treated on are of direct practical importance to the gardener. The great numbers of "sports," "fancies," "improvements," "breaks," and "monsters" submitted to the Floral and Scientific Committees of the Royal Horticultural Society, as well as to the gardening journals, afford sufficient evidence as to this point. Indeed, it may be said with truth, that while in a scientific point of view these productions are of the greatest interest, as revealing the architectural plan upon which flowers are constructed, in an æsthetic sense they serve to show the "florist" what forms he should endeavour to secure as consistent with harmony, fitness, and beauty, and what he should discard as meaningless, inappropriate, formal, or absolutely ugly and monstrous. Such lessons seem to be required by the florist far more than by the raiser of things to tickle the palate. This may arise from the somewhat humiliating fact, that there is a much greater concordance of opinion as to what is good to eat, than there is as to what is good to look at. How teratology may serve the purposes of the gardener and the florist, may be gleaned from the following extract, with which we close our notice of this book:—

"The practical applications of teratology deserve the attention of those cultivators who are concerned in the embellishment of our gardens, and the supply of our tables. The florist lays down a certain arbitrary standard of perfection, and attempts to make flowers conform to that model. Whether it be in good taste or no to value all flowers in proportion as they accord with an artificial and comparatively inelastic standard of this kind, we need not stop to inquire; suffice it to say that, taking the matter in its broadest sense, the aim of the florist is to produce large, symmetrical flowers, brightly and purely coloured, or if parti-coloured, the colours must be distinct, harmonious, or contrasted. When all this is done the flower, in most instances, becomes 'monstrous' in the eyes of the botanist, though all the more interesting to the student of morphology on that account. In like manner the double flowers, the 'breaks,' the 'sports' which the florist cultivates so anxiously, are all of them greater or less deviations from the ordinary form; while the Broccolis, the Cabbages, and many other products of our kitchen-gardens and fields, owe the estimation in which they are held entirely to those properties which, by an unhappy application of words, are called monstrous by the botanists. Grafting, layering, the 'striking' of cuttings, the formation of adventitious roots and buds, processes on which the cultivator so greatly relies for the propagation and extension of his plants, are also questions with which teratology concerns itself. Again, the difficulty experienced occasionally in getting Vines, Strawberries, &c., to set properly, may sometimes be accounted for by that inherent tendency which some plants possess of exchanging an hermaphrodite for a unisexual condition."

Florists' Flowers.

So far, the exhibiting of new Large-flowered PELARGONIUMS has been confined to Messrs. Hoyle of Reading, and C. Turner, Slough—the last-named having Mr. Foster's flowers as usual. Some 12 or 15 years ago it used to be thought characteristic of the strains of these two famous raisers, that Mr. Foster should produce small, but finely-formed and high-coloured flowers; while to Mr. Hoyle appeared to have been committed the improvement of the larger flowers having rose-coloured and pink hues. Of late years, however, these two raisers have to some extent taken each others' ground, and both alike have come to raise not only flowers of the styles named above, but have also struck out into new paths, each now appearing to cover the whole area of Pelargonium improvement. The great show at South Kensington on June 2, brought from each of these raisers groups of new flowers illustrative of the position just advanced, though Mr. Foster's seedlings were a larger, more varied, and generally finer lot—three First-class Certificates going to Mr. Hoyle's, while five were awarded to Mr. Foster's flowers. Eight First-class Certificates for large-flowered Pelargoniums at one meeting is something remarkable, especially as certain floricultural sceptics have asserted that the progressive improvement certificates mark has been almost exclusively confined to the get-up of the certificate. The flowers so distinguished are as follows:—Corsair (Foster), brilliant deep rose lower petals, with large white throat; dark top petals lit up with fiery orange, the dark slightly running out into it, and edged with pale rose; flowers very fine, well-proportioned, and smooth; habit excellent, and very free-blooming. Maid of Honour (Foster), a large, bold, and showy flower; lower petals salmon-pink; large white centre; small dark blotch on upper petals, with broad margin of salmon-rose lit up with orange, except on the extreme edge of the flower. Her Majesty (Foster), lower petals like those of Maid of Honour, but with less of salmon and more of lilac, the upper petals having a dense dark blotch, margined with fiery carmine, into which the dark runs in the form of faint lines, and extreme edge of pink—a decided advance; flowers fine, stout, and bold; the habit a little spare. Pretender (Foster), a rich-coloured and striking flower, but wanting, as all these high-coloured flowers more or less do, the size and massiveness of the rose-coloured kinds; pale orange-red lower petals, with a slight dark blotch on each, and lines of the same; fine dark top petals, with regular and narrow edge of bright crimson; fine and showy. Warrior (Foster), dark orange-carmine lower petals, slightly pencilled with dark lines, irregular dark blotch on top petals, margined with fiery orange, and narrow rose edge; a showy-looking flower, and forming a fine decorative plant; habit spare. Sultana (Foster), lilac lower petals, with small dark blotch on each, and lines of dark; large white centre, dark top petals, and narrow edge of pink; excellent habit, free-blooming, fine and striking. The certificated flowers in Mr. Hoyle's batch were:—Bonnie Charlie, a dark painted flower, rose lower petals, dashed with orange, and heavily painted with dark; rich glossy dark top petals, with very narrow edge of bright crimson; flowers fine, but rather rough; habit good and free-blooming. Holkar, rose lower petals, heavily suffused with pale purple and stained with dark; dark top petals, with narrow line of bright deep rose as an edging; a taking flower though a little thin. Gratulation, violet-rose lower petals, slightly shaded with orange, and small dark blotch, with faint dark lines; dark top petals, the blotch on the upper side fiery and bright, and narrow pink edge.

There are always certain flowers that must go uncertificated, and some of these were staged on this occasion. Of these, the following will no doubt be sent out:—Heroine (Foster), and Harold (Foster), both described at p. 617, the latter under the name of Herald. Plantagenet (Foster), soft pink lower petals, white throat; upper petals of great size, having irregular dark blotch broken into by fiery crimson, and edged with the same; a fine but somewhat rough flower. Velutina (Hoyle), fiery orange lower petals, stained with dark; dark top petals; flowers small, rough and crumpled. Llewellyn (Hoyle), orange-crimson lower petals, with slight lines of dark; dark top petals, with narrow rose margin, and white throat. Claribel (Hoyle), a pretty delicate flower, pure white, with violet-rose blotches on top petals; free blooming and good habit. Mr. Turner also received First-class Certificates for the following fancy Pelargoniums, viz., Marmion, deep rose, shaded with dark, and slight white margin, pure white throat; fine and showy, good habit, and very free-blooming; and Lady Carrington, soft pink, with white throat and margin; very free and showy, a pretty exhibition variety. Mr. Turner also exhibited Lady Carrington in his group of six fancy Pelargoniums, having beside this the following new varieties:—Brightness, Fanny Gair, Mrs. A. Wigan, Excelsior, and Princess Teck, the last the prettiest and best formed pale flower ever sent out. A First-class Certificate was also awarded to Mr. Turner for silver-edged Pelargonium Bright Star, a robust-growing variety, the leaves broadly edged with white, and having showy orange-scarlet flowers. A second-class award was made to Messrs. F. & A. Smith for zonal Pelargonium Lord Stanley, for its brilliancy of colour, being of the richest deep orange-scarlet, and forming immense globular trusses of bloom, though the individual flowers were somewhat undersized; dark zonal foliage. Mr. Turner on the same occasion gained a First-class Certificate, for White Clove The Bride, flowers large and very full, the centres slightly tinged with sulphur; a fine addition to these showy flowers.

At the second great exhibition of the Crystal Palace Mr. Turner exhibited most of the Pelargoniums above-named, of these the following were awarded First-class Certificates:—Heroine, Sultana, Corsair, Warrior, Her Majesty, and Harold; also to fancy Pelargoniums Leotard, rosy-carmine, suffused with violet, the flowers of large size, smooth and of fine substance; to silver-edged variegated Pelargonium Bright Star; and to White Clove The Bride. Second-class Certificates were awarded to Maid of Honour, and to fancy Pelargoniums Lady Carrington and Marmion, all previously described.

The Apiary.

NOTES IN SOUTH DEVON.—A neighbour of mine had a large swarm early in June. In shaking the cluster, about one-half of it fell down on the ground; the bees rose again, and clustered in a Currant bush. The owner hived the two clusters in separate straw hives, both of which stand in his garden, and work well. He will warrant the issue to have been a first or prime swarm, having watched the bees too closely to have missed the first swarm. Each hive has undoubtedly a queen. It is, I suppose, simply a case of delayed swarming, the young queen having come out before the old one had left, and going off at the same time as she did. My bees are swarming this season, so far, rather than working.

I had a case of regicide the other day. Outside a fine stock, full of bees, healthy and strong, I noticed a cluster of bees, the rest being wild and excited. I carefully separated the bees in the small cluster, and found their queen closely encased. I offered her carefully to her subjects, but they would not have her, and killed her outright. I searched minutely over the combs three times; there was no queen; and shortly afterwards a great stir arose among the bees who were looking for the queen they had murdered. Queen cells have been raised since then. Why did the bees thus destroy their queen, not then having any immediate prospect of her place being supplied by a successor?

My hybrid Egyptian queen breeds good yellow bees, but black drones, without a shade of colour. Is not this strange?

I had a swarm which went back again after being hived. I found the queen on the ground close to the front of the hive. I ought to have killed her then and there, but put her back again. I thought she could not fly, as she had ragged wings. The next day the swarm went off again, and pitched high up in an Elm tree, and I had some considerable trouble in cutting off the branch and bringing the bees down. They were successfully hived, but at 4 P.M. they again left, and this time clustered in a hedge of brambles and nettles close under the tree. I imagine that the queen could not have been in the hive at all, but, when the swarm took wing in the morning, had fallen amongst the brambles, where the bees at last found her out. Why, if this was the case, did they stay so long in the hive, viz., from 10 A.M. till 4 P.M.?—or did the queen leave and return to the place? I had very difficult work in hiving the bees amongst the nettles, and was dreadfully stung—by the nettles, but not by a single bee, though without having on any protection of veil or gloves. My square glass hive threw off a splendid swarm a few days ago, and is now apparently as crowded as ever. *South Hams.*

[We do not think the divided swarm first alluded to by "South Hams," in which both divisions have a queen, to have been a case of delayed swarming in the sense he imagines. It is much more probable that the old queen was lost in a prior attempt of the bees to swarm, or that she was removed by the bees for some real or imaginary defect; the swarm then might very naturally be accompanied by two or more young queens.

Is not the queen, named by our correspondent as the hybrid Egyptian queen, a common black queen, impregnated by an Egyptian drone? If, as we imagine, this is the case, it would be surprising indeed if she bred any other than black drones, as it would upset all the theories of Dzierzon and Von Siebold, now universally accepted by scientific apiarians. If, on the other hand, the queen was an Egyptian princess, hybridised by an English drone, then it is strange that she breeds black drones.

It is not an unusual circumstance for a queenless swarm to remain for many hours apparently contented in the hive into which they are shaken. A few years ago a very large swarm, which we had domiciled in a unicomb hive, remained quiet for about 12 hours, when the bees suddenly rushed out of the hive, and pitched in a high tree close by. They were secured in an ordinary straw hive, and appeared contented until 12 o'clock the following day, when they deserted. They were accommodated with another habitation, remained quiet as before during that day, but left about the same time on the following. We had suspected that the queen had been lost in some manner while the swarm was being transferred into the unicomb, and now we were determined to ascertain whether this was the case. The bees were fumigated, and every one passed separately under our observation, but no queen was there. The bees were then united to another stock, and all afterwards went on satisfactorily.]

Miscellaneous.

Presentation to Mr. Wilson.—At the recent exhibition at York, the opportunity was taken by those gentlemen who have been in the habit of attending the show, as exhibitors and judges, to present to Mr. Wilson, the secretary, a handsome gold watch and chain, as a mark of their appreciation of his courtesy on all occasions. Mr. Wilson, who has filled the post of secretary for 10 years, has laboured hard in the interests of the exhibitors to raise special prizes. In 1862 he interested himself in getting up a citizens'

prize of 25*l.* for stove and greenhouse plants; in 1863, a 12*l.* prize for similar plants; and in 1865, a special subscription for a prize of 20*l.* for Roses; in 1868, Mr. Wilson was the means of a citizens' prize of 25*l.* being offered for stove and greenhouse plants, and in the same year a citizens' prize of similar amount for ornamental and fine foliage plants. In 1869, he promoted ladies' prizes of the value of 15*l.* For four or five years past he has been a donor of an annual 5*l.* prize for white and yellow Roses. The sum of 40*l.* was subscribed to the testimonial by about 50 exhibitors and judges. The watch bore the following inscription:—"Presented to Mr. Wilson by some of the exhibitors and judges of the York Gala Exhibition, as a souvenir of the high esteem they have for him, and an acknowledgment of his courtesy and kindness as secretary during a period of 10 years. 1869."

Cherries as Single Vertical Cordons.—The varieties best adapted for this very interesting mode of culture are those of the Duke tribe, such as the May Duke, Arch Duke, Empress Eugénie, Royal Duke, Nouvelle Royale, Duchesse de Palnau, and some others. Young pyramidal trees three feet apart should be planted in rows, and their side shoots pruned in to within two inches of their stems. They require the same summer pinching as that recommended by me for vertical cordon Pears, and should not be allowed to exceed eight or ten feet in height. Nothing can be more charming than these cordon Cherry trees. I have at this moment trees five years old, of the Duke tribe, with their bright ripe fruit hanging close to the stem, and shining through the net that protects them from the birds. The best of all protection, both from birds and wasps, is, however, Haythorn's netting, or coarse muslin, formed into a narrow bottomless bag, which should be let down gently over the tree, so as to leave the leading shoot out, and tied at the bottom and top; Duke Cherries may thus be preserved till August. I may mention here, that with these Cherry cordon trees, root-pruning or removal is seldom required, their vital force is so reduced by continuous pinching of the young shoots; but if a rich soil gives too much vigour, it may be practised. There are a few kinds of Plums, of upright growth, which may also be cultivated as vertical cordons. *Rivers' Miniature Fruit Garden.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

Climbing plants that are growing either in stoves or greenhouses and conservatories now claim our attention in the matter of pruning, training, tying, &c. Some of the gross or growing kinds in stoves require a rather free but judicious use of the knife, if they are wanted to flower well, especially varieties of *Passiflora*, such as quadrangularis, Buonapartea, edulis, &c. These generally flower better upon moderate sized young shoots than upon those of more robust growth; such alone should therefore be retained, and so trained that as much light as possible may be admitted to the entire leaf surface. Then there are *Allamandas* of the old A. cathartica class, which are still grown in old establishments; these plants require the gross young shoots which frequently push from around the base to be removed, retaining only those which push from well-matured wood of one or more summer's formation. Too much, however, cannot be said for the newer varieties of this gorgeous class of plants, such, for instance, as grandiflora, Schottii (true), and violacea, besides others of even more recent introduction. *Combretums*, now so seldom seen, the delicate Orchid-like yellow-flowered *Stigmaphyllon ciliatum*, and *Ipomœa Horsfalliæ* all require growing more upon the extending principle, as their flowers are produced more freely when grown in that manner. Such plants as *Bougainvilleas*, *Clerodendrons*, and the strong growing shrub-like *Abutilons*, which do well turned out into borders and trained up trellises or pillars, should all be permitted to make as much growth as possible, in consequence of the flowers forming upon young shoots of the current season's growth. The more freely they are allowed to grow and extend themselves the better they will bloom. Strictly speaking, there are few greenhouse or conservatory climbers which do not require to be grown freely before they begin to show blooms; more especially does this apply to *Tacsonias*, such as the truly beautiful Tacsonia Van Volxemi, the many varieties of *Rhynchospermum*, *Solanum*, *Sollya*, *Kennedya*, and last, though not least, *Lapageria*, which should all be permitted to make as free a growth as possible, a judicious system of training alone being necessary in their case. In almost all plant houses green-fly will now be found more or less plentiful, indeed this season seems to be peculiarly favourable for their production. Fumigation should, therefore, be frequently resorted to. Two moderate smokings, allowing a short interval between each, are far preferable to one heavy application. Attend to the necessary potting of Chinese *Primulas*, the double-flowered varieties especially will now require this attention. This class of plants frequently does remarkably well when planted out into a light rich border in a shady position; such a spot, however, should be free from the "drip" from overhanging branches. Seed of the ordinary Primula sinensis, if sown at the time I advised some weeks since, will now have formed plants fit for potting, which should now be done, by putting them into thumb-pots in a compost of good, rich, light soil, and afterwards placing them in a close, warm frame until they have fairly rooted. Should the weather be more favourable next week than at present, it will be safe to make arrangements for the removal of some of the hardier sorts of greenhouse plants into the open air, otherwise a further delay will be imperative. Many *Orchids* are at this season in full bloom, or nearly so, amongst which few are more lovely than Saccolabiums, Vandas, and Aerides. To retain these as long as possible in all their beauty, it will be necessary to remove them into cooler houses than those in which they have been grown. This may be done with certain immunity from injury, if they are only safely guarded from draughts, which are very injurious to them.

FORCING HOUSES.

If the present cold, and for the time severe weather, continues, it will be necessary to maintain a goodly warmth in the pipes contained in *Vineries* where fruit is swelling, or otherwise ripening, in a somewhat advanced stage. This being necessary, we should always aim at maintaining the proper volume of heat in the atmosphere by maintaining as uniform a warmth in the pipes as possible. It will be found that by this means a higher range of temperature is not only attainable with less labour and fuel, but that, being less harsh and dry, it is far better suited to the requirements of the plants. As regards the necessary degree of heat, I would remark—do with as little artificial heat as possible, but such an amount should always be maintained as will insure a perfectly free and buoyant atmosphere. Few things are so injurious to artificial fruit forcing as a sluggish atmosphere, none more detrimental to the flavour of the fruit. In fact, I maintain that, next to the sun's warmth and light, free access of air is of the utmost importance. With sun-heat a high temperature may be permitted with great advantage, and if it is not allowed to rise too suddenly, a range of 95° to 100° may be permitted for a short time each day. These remarks apply equally to *Pines*—at this particular date and season especially. Attend to the bottom-heat of all pits into which these are plunged. Sometimes a waning heat can be sufficiently resuscitated for the time being, by simply placing a layer of fresh tan over the surface. If it is found necessary to renovate the mass contained in any pits, let the plants in process of removal and being replaced be handled very carefully. It not unfrequently happens that Pines, potted sufficiently long ago to be now requiring another removal, may have made fresh roots around the "collar," which may be injured to a great extent in process of removal. For this reason I am averse to tying the heads together in the manner generally practised. I am aware that in a too general way the pits and other places constructed to grow Pines in are as ill adapted as possible for the hard and heavy operations which have to be carried on within them, the doorways and the rafters, even where the lights will bear removal, being so narrow as to scarcely leave room to pass the pot through above. In all such cases the best must be made of the worst state of things. Though I have so recently and so frequently referred to *Melons*, I must still urge that all plants which have fruit netted, or which are in the last stage of netting, should receive little or no water. Indeed, once they have fairly completed the process above alluded to, it will be better to withhold it altogether. Any material deviation from this rule will assuredly induce the cracking or bursting of the fruits before they approach to the ripe state, and the loss of crops, however fine they may otherwise be, will be the consequence. Maintain a nice degree of artificial warmth around them at all times in dull weather where practicable.

HARDY FLOWER GARDEN.

Tulips generally should now be taken up and stored away in an open airy shed, or other similar situation where the air can reach them freely, and so ensure a perfect state of ripeness ere they are stored away. Finish transplanting or pricking-out *Asters* into their flowering quarters. I may here mention that those who may not have sown spring-blooming annuals, &c., at the time I suggested a few weeks since, had better do so forthwith. Even now it is to be feared they will not bloom so early in the spring by some weeks as those sown before, many of which are now up. These remarks are equally applicable to the attainment of other sorts of plants which are generally propagated by means of cuttings. The sooner the cuttings are put in, the better and stronger the plants will be to withstand the hardships of winter. The staking and tying of *Dahlias*, and other requisites for their culture, demand only a passing notice at this time. Make all necessary preparations to commence piping *Pinks*, &c., as soon as these have done flowering. The summer flower garden will now require almost hourly attention in some way or another. The surface soil should receive periodical hoeings, for the purpose of freshening it after showers, and to benefit the plants, independently of destroying weeds. Many subjects, such as *Petunias*, *Verbenas*, the prostrate-growing Ivy-leaved *Pelargoniums*, the variegated *Chrysanthemum*, &c., and many other plants which require to be kept low, will need this attention frequently, as it is not well to let them grow away too strongly before they are bent down into their proper places. The seed vessels should be removed from all the varieties of *Viola cornuta* as soon as the flowers begin to decay. This has hitherto been a season very favourable to this plant, and only according as we attend to this simple matter can we afford it a fair chance of carrying us through the summer. *Cerastiums* will require constantly picking over. The points of the shoots, if they become too rambling, and all flower-buds which form, must be repeatedly removed, either by clipping it over with shears, or a quick use of knife and thumb. *Calceolarias*, which have been rather troublesome of late years, may be materially aided by placing a mulching of partly decomposed leaf-mould over the surface of each bed containing them. Finish clipping *Box edgings* whilst a moist, showery period prevails; and during intervals of dry weather push on vigorously with the destruction of *Weeds*, wherever necessary.

KITCHEN GARDEN.

Mould or earth up the forwardest *Brussels Sprouts*, and so aid them by this and all other means to make fine long stalks. The Brussels Sprout seldom receives that amount of attention at our hands which it deserves from its exceeding fertility when well grown, and its delicate flavour. The final planting should now be made of these also. A batch dibbled out at this date into moderately poor soil will afford a supply of sprouts later in the ensuing spring than will the forward ones, which come in for midwinter and late autumn use. Where a constant successional supply of young *Carrots*, whether short or French Horn, are in demand, another sowing should now be made upon good rich ground. *Asparagus* must now be permitted to run or grow freely; and if the strength of the plants is taken into account, not another blade should be removed. A good sprinkling of salt will now benefit these more than at any other time. Remove anything in the form of flower shoots which push forth upon plantations of *Seakale*. *Cabbages* will have been cut very generally by this time; so soon as the stalks are headed down, therefore, cut away from them any leaves which remain, otherwise the whole strength of the roots will go towards the enlargement of these, in place of forming successional sprouts. *W. E.*

TOWN GARDENING.

THE *Pink* thrives exceedingly well in towns, and should now be propagated by cuttings. The operation is commonly called piping, and is performed in the following manner:—Take off the young shoots of this season's growth, and cut them off at the third or fourth joint with a sharp knife, at the same time remove the lower leaves and shorten those at the apex of the shoots. The pipings will then be ready for putting in the ground, which should be prepared for them by sifting some fine soil on it. This should be covered with a layer of sand, and afterwards be well watered, allowing it to become somewhat solid before putting in the cuttings. These points being attended to, the cuttings may then be thrust gently into the ground up to the leaves, and about an inch apart. A gentle watering should then be given to settle the earth around them. When dry, cover the cuttings with a glass or paper cover, and shade them from the mid-day sun; they will then require nothing more till struck, which will be in about five weeks, when the cover should be lifted for a few days prior to their being planted out. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending June 23, 1869, as observed at the Horticultural Gardens.

June.	Moon's Age.	Barometer. Max	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 17	☽	30.200	30.126	56	42	49.0	54	55	W.	.20
Friday 18	8	29.997	29.921	64	39	51.5	56	55	N.W.	.04
Satur. 19	9	29.905	29.894	62	38	50.0	57	55	N.	.00
Sunday 20	10	29.990	29.925	62	40	51.0	56	55	N.	.00
Mond. 21	11	29.995	29.979	67	47	51.5	57	55	N.W.	.12
Tuesd. 22	12	30.113	30.086	67	44	55.5	56	55	N.	.00
Wed. 23	13	30.177	30.117	67	39	53.0	57	55		.00
Average.		30.052	30.007	62.0	41.3	5..6	56.1	55.0		0.36

June 17—Densely overcast; showery; overcast, cold wind.
— 18—Overcast; showery; clear and fine at night.
— 19—Very fine; cloudy; overcast, and cold.
— 20—Cloudy; dense clouds, cold wind; overcast.
— 21—Densely overcast; rain; densely overcast.
— 22—Densely overcast; overcast, but fine; densely overcast.
— 23—Clear and fine; overcast; densely overcast.
Mean temperature of the week, 8 9-10 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending July 3, 1869.

June and July.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..27	72.8	48.2	60.5	15	0.80 in.	4	4	2	2	4	17	6	7
Mon. ..28	73.7	49.1	61.4	10	0.65	3	3	7	1	3	13	6	7
Tues. ..29	73.2	48.5	60.8	12	0.62	3	6	3	1	—	17	7	6
Wed. ..30	73.1	48.3	60.7	14	0.80	—	7	4	1	5	12	7	7
Thurs. .. 1	74.8	50.8	62.8	20	1.18	3	6	7	4	4	11	10	5
Friday .. 2	73.4	51.2	62.3	17	0.22	3	5	3	—	5	11	11	5
Satur. .. 3	74.0	50.2	62.1	19	0.78	—	6	2	1	3	13	11	6

The highest temperature during the above period occurred on the 27th—therm. 93 deg.; and the lowest on the 28th, 1841, and 30th, 1863—therm. 34 deg.

Notices to Correspondents.

BOOKS: *F A C.* Thompson's "Gardeners' Assistant."

CALCEOLARIA: *H C.* Apparently of a neat shrubby habit; flowers numerous, small but well inflated, and of a pretty mottled yellow and red-brown colour; in its colouring and marking resembling some of the fine spotted herbaceous sorts. A very pretty thing, quite a novelty among bedding plants, and extremely useful for pot culture as a decorative plant.

CUCUMBERS: *M B.* The excessive production of female flowers has been attributed to too low a temperature.

EXHIBITIONS: *Messrs. F. & A. Smith.* We do not undertake to notice everything that may be shown, even if they obtain Certificates.

FLORAL COMMITTEE: *R B W.* Inquire of the secretary, Mr. George Eyles, Royal Horticultural Society, South Kensington, W.

FOXGLOVES: *R D.* A remarkably fine strain.

NAMES OF PLANTS: *Lymington.* Lycasto aromatica.—*F D.* The common Liverwort, Marchantia polymorpha, which always grows in damp confined places. Take the hint.—*J D G.* 1, Leucothoe floribunda; 2, Erysimum Perowskianum; 3, Muscari comosum.—*S T.* 1, Geranium molle; 2, Ranunculus arvensis; 3, Vicia sativa; 4, Centaurea scabiosa.—*J P.* 1, Spiræa prunifolia flore-pleno; 2, Gentiana verna.—*Carter & Co.* Lathyrus sativa.—*Pteris.* 1, Pteris tremula; 2, Litobrochia aurita. The others are Pteris argyræa, Asplenium Adiantum nigrum, Asplenium Veitchianum, and Cystopteris fragilis; but they were all detached from their numbers, so that we cannot indicate which is which.—*Constant Subscriber.* Anthriscus sylvestris.

COMMUNICATIONS RECEIVED:—J. P.—T. W.—A. B.—W. F. R.—F. D.—W. M.—An Old Sub.—G. S.—Inquirer.—R. B.

ERRATUM.—The Phyllocactus violaceus, shown at the last Tuesday meeting, was exhibited by Messrs. F. & A. Smith (of Dulwich), not by Messrs. F. & T. Smith.

WIRRAL AGRICULTURAL SOCIETY.—The ANNUAL SHOW of HORSES, HORNED CATTLE, SHEEP, PIGS, POULTRY, DOGS, IMPLEMENTS, FARM and HORTICULTURAL PRODUCE, &c., will be held at BIRKENHEAD, on AUGUST 25 and 26, when ABOVE SEVEN HUNDRED POUNDS will be offered in PREMIUMS. Prize Lists, &c., may be had on application to the Secretary, WILLIAM HENDERSON, 2, Market Cross, Birkenhead.

N.B. All ENTRIES CLOSE on AUGUST 3.

THE ROYAL AGRICULTURAL SOCIETY of ENGLAND.

President—His Royal Highness the PRINCE of WALES, K.G.

MANCHESTER MEETING, 12th to 24th JULY, 1869, inclusive.

PROGRAMME.

MONDAY, July 12, to Friday, July 16, inclusive.—Trial of Reaping, Mowing, and Haymaking Machines, Horse Rakes, &c., in the fields adjoining the Show Yard. Admission, 6*d.* each person.

FRIDAY, July 16, and Saturday, July 17.—The Implement Yard only. Open from 9 A.M. to 6 P.M. Admission, 2*s.* 6*d.* each person.

MONDAY, July 19, and Tuesday, July 20.—The entire Show Yard. Open from 9 A.M. on Monday, when the Judges commence inspecting the Live Stock and in making their awards. Admission, 5*s.* each person.

WEDNESDAY, July 21.—Admission, 2*s.* 6*d.* each person.

THURSDAY, 22, Friday, 23, and Saturday, July 24.—Admission, 1*s.* each person.

SPECIAL NOTICES.

SEASON TICKETS.—Non-transferable Tickets, price 10*s.* 6*d.*, admitting the holder, once on each day, to the Show Yard, from July 19 to 24, inclusive, may be obtained from the Secretary, 12, Hanover Square, not later than Saturday, July 10, and afterwards at the Secretary's Office, near the entrance to the Show Yard, or at 96, King Street, Manchester, from and after June 25.

TRIAL OF HUNTERS.—The Trial of Hunters will take place in an enclosed space adjoining the Show Yard at 2.30 daily, commencing on Tuesday the 20th. Admission to this ground, 1*s.* per day each person. Admission to the enclosed stands on Tuesday and Wednesday, 4*s.* each person; and on each of the other days, 1*s.* 6*d.* each person. Season tickets, price 10*s.* 6*d.* each, may be had at 96, King Street, or at the Local Committee's tent, in the Show Yard—giving the holder admission to the leaping ground and the stands at any time on any day, from the 20th to the 24th, inclusive. Governors and Members of the Society are, however, reminded that they have not free admission to the Trial of Hunters.

HOUND SHOW.—An Exhibition of Fox-hounds will be held in the enclosure for the Trial of Hunters, adjoining the show ground, on Wednesday and Thursday, July 21 and 22. Admission, 1*s.* The holders of Season Tickets for the Trial of Hunters have free admission to this Exhibition.

HORTICULTURAL SHOW.—Arrangements have been made to enable persons to pass and repass from the Royal Agricultural Show Yard to the Exhibition of the Royal Horticultural Society, after separate payment at each.

REFRESHMENTS.—Provision has been made for first and second class Refreshments upon the ground, at a reasonable charge.

LODGINGS.—Persons at a distance wishing to obtain information as to Lodgings, are requested to address Mr. John Duffield, Essex Street, King Street, Manchester, at whose office a Register of particulars and prices is kept, and by whom printed lists will be supplied, or inquiries answered on application.

GENERAL NOTICES.

No person can be admitted to the Show Yard after 7 o'Clock in the evening.

The Show Yard will be cleared of visitors each evening at 8 o'Clock.

The Parade of Cattle in the Rings will take place at 10 o'clock A.M., and of the Horses at 12 o'clock at noon, on each day after Monday.

A Plan of the Show Ground may be purchased at the Printing Office, in the Show Yard.

There are two Entrances to the Trial Fields, one by Seymour Grove, and the other by the Military Exercise Ground, both at Old Trafford. Access can be had by no other approach.

The Agricultural Gazette.

SATURDAY, JUNE 26, 1869.

MEETINGS FOR THE ENSUING WEEK.

July 1 } Northamptonshire Agricultural Society, at Northampton.
— 2 } Suffolk Agricultural Society, at Ipswich.

THE Clover plant is in itself so valuable as a farm crop, and affords such a good preparation for the growth of Wheat, that any notes upon its growth can hardly be other than useful; we propose, therefore, to offer a few observations upon the cultivation of common broad Clover on a somewhat extended scale.

In 1864 a 50-acre field of Barley was sown down with Rye-grass and broad Clover. Now, though in that extraordinarily dry summer the hay grasses grew very well, the Clover was entirely destroyed, so that in the whole field scarcely a dozen Clover plants survived; and it was accordingly concluded by most people that the land was "Clover sick."

In 1867 the same field was smashed up and crossed with HOWARD'S double engine steam tackle for roots, which were very good. These were followed with Barley, sown down with broad Clover and a small admixture of Hop Trefoil (Medicago lupulina). This, which was considered a bold experiment by most of our neighbours, is so far justified that at the present moment we have as large and fine a cut of Clover as we have ever grown—broad-leaved Clover indeed, inasmuch as the leaflets are not uncommonly over 2½ inches long, and 1½ inch broad.

Now it will be recollected that last summer was almost, if not quite, as dry as the summer of 1864, so that we cannot attribute our failure of 1864 altogether to the season; but with regard to the present crop, it may perhaps be reasoned that the extension of time between it and a former crop of Clover, together with steam cultivation, have aided in bringing about the observed difference. But, while admitting that these may have something to do with the matter, we can by no means agree in considering the failure due to Clover sickness, as in that year much Clover was smothered out by a good close crop of Barley, and more killed by a succeeding cold winter—and perhaps the seed was from a foreign stock not used to these vicissitudes; so that when time, tillage, climate, and seed can all exert such powerful influence, the evidence that land is so sick of Clover as to refuse to grow it is by no means to be relied upon.

The next crop we shall advert to was also one of 50 acres, consisting partly of broad Clover alone, and partly of this mixed with perennial Rye-grass. This field was sown down with Barley in 1866. In the following year the Clover or "seed" crop was partly fed off with sheep, the rest mown, and on the whole was a very good crop. About 5 acres of the Clover, the second growth, was left for seed. Now this 50-acre piece, like that of a few years since, consisted of many different fields. These were farmed by different people, and we are informed were cropped with Clover at different times. But besides this the soil facing the hill slope is very variable, the highest portion having a subsoil of the stone brash of the inferior oolite, the brow of the hill being the inferior oolitic sands, and the lower slope fuller's earth, a stiff clay, brought down some 70 feet by a "fault." With all these variations the seed crop was wonderfully uniform, and, for the district, unusually good. There was no sign of Clover sickness, but this large field had been treated alike from one end to the other, having been steam cultivated for roots in 1865, when the Swede crop, weighed by judges—to quote the award of the prize of a silver cup which they obtained,—"was estimated at 41½ tons for several acres." In this case we attribute our good root crop to steam cultivation, stirring up the land for many inches deeper than it had ever been done before—loosening the brash in the stony part, and breaking up the sand much below the vegetable soil, which sand, though not so hard, is for farming purposes as much an impenetrable rock to the roots of plants as a stratum of stone itself—nay, more so, as roots can penetrate between the joints of stone, while sand is unjointed. Here, then, good roots aided in the production of a goodly Barley crop, and at the same time sustained a good plant of Clover. The Barley was perhaps the best grown in a good Barley district; its quality may be judged from the fact that it fetched 54*s.* a quarter, and so uniform was it throughout that the winnowing-machine followed by Boby's sieve only separated 5 per cent. of tail.

We would now offer a few remarks on the Wheat crop which succeeded the Clover. The Wheat crop of last year was the best we have had for some time, but had we not read, as well as had some little experience upon the subject, we should hardly have been prepared for the fact that where Clover hay had been taken and followed by a crop of seeded Clover, our Wheat crop, "White Hoar," averaged 12 sacks an acre, whilst that which had been fed off by sheep hardly attained to nine sacks. Over the whole of the grazed portion the Wheat was attacked by what we took to be the larvæ of a small species of Stephalinus, which were probably bred in the sheep's dung, and afterwards, somewhat contrary to their usual habits, attacked the young Wheat by eating it all round just below the surface soil; this no doubt thinned the crop: but that the ground was in good condition was shown by the circumstance, that in places where the grub had greatly thinned the plant, specimens were not uncommon with from 20 to 25 ears to a single root. Still, taking the case altogether, it is no bad illustration of the advantage that Clover roots are to the Wheat crop, and it is, indeed, this fact which makes Clover additionally valuable as a farm crop.

Our last year's seed crop consisted of Hop and Rye-grass, and was a very heavy one; this was chosen because in 1863 the field of 32 acres was mostly in Clover, which was seeded. However, by way of experiment, 2 acres were sown with broad Clover and Rye-grass, 10 lb. of the Clover seed to the acre. This, in as far as the Clover was concerned, was a total failure; but as this small quantity of seed was sent for from a neighbouring town, and used, contrary to our usual custom, without examination, much less testing, we are inclined to think it might not have been over good, for as this field had been steam ploughed, we felt justified in expecting better results, even though Clover was grown but five years before. In the same field we tried a space of about 50 yards in length, by about 12 yards wide, with the so-called new Clover, Trifolium striatum; but it, too, was a total failure, not a plant making its appearance. The Hop, with the Rye, was a good crop, cutting over 2 tons of hay to the acre. Our present crop is from a fine bold seed, germinating to the extent of 96 per cent.; the bulk was clean, and so free from Plantain that not a specimen, as far as we know, can be found in the 50 acres.

In practice we have found that the mode of sowing Clover seed is important to insure its proper growth. Thus, when the roots have been got off so late that the Barley sowing is done in a hurry, and the ground is rough and in hard knobs, neither the Barley itself nor its accompanying seeds get on well, especially in a dry season. Clover seed, indeed, is as much sown in stony places, and as readily dies away after germination in hard knobs not broken down by wet, as the seed in the parable. In so small a seed care should be taken to roll the soil before sowing as firm and smooth as possible. As a proof of the recognition of this fact we here append a labourer's report on our Barley crop, made April 18 of last year:—

"When the ground is mellum (mellow) and sumple (supple) it da come altogether suant-like (even), but when clitty (clinging) and doubledy (lumpy) it alaise comes onregular."

We have seen many a crop of roots perilled for want of a fine tilth. Curiously enough, if we lose Clover plants under these circumstances we say the land is Clover sick, but one never hears the term Swede sick or Mangel sick. We hence conclude that, as there are so many circumstances affecting the well-being of the Clover crop, the idea conveyed by the term "Clover-sick" land is not only indefinite but doubtful; and long and often as the Clover crop has been a failure, yet observation and experiment are still wanting to determine the cause.

ON Saturday last the Rothamsted Experimental Farm was visited by M. DUMAS, the distinguished French chemist, and by a large number of the leading scientific men of this country. Mr. LAWES and Dr. GILBERT accompanied the party round the fields, and explained the treatment which each plot of land had received during many previous years; and the crop itself at this season of the year was a sufficiently obvious answer to the question, as to both the positive and relative effect of the varying manures that had been applied. Our readers already know generally on what a scale and with what intelligence and patience the leading questions in agricultural chemistry have been put to soil and plant and animal at Rothamsted. That which in other countries has been done by Governments or National Societies has in England been even more successfully accomplished by an individual agriculturist and chemist. And upon a more elaborate plan and over a greater area, and with a longer-continued perseverance than has anywhere else been exhibited, Mr. LAWES and Dr. GILBERT have here devoted themselves to the investigation of the whole field of agricultural chemistry. While in the midst of their research a large sum of money, contributed by the agriculturists of this country to express their sense of the professional and national value of their labours, was spent in the erection of a laboratory at Rothamsted, and presented to Mr. LAWES, in the name of a body of subscribers, including all the leading landowners and farmers of the country. In this laboratory the company first assembled last Saturday, and here Dr. GILBERT invited attention, among other things, to a case of specimens illustrating in a very striking way the original and the altered botanical compositions of a pasture after 14 years of various treatment. The kinds and quantities of the several grasses and other plants contained in a given area of each of the experimental plots was represented by actual portions of each plant in the proper relative quantity. And thus we could see at a glance how the whole produce of a plot had altered in quantity, and how that produce had changed in character as well as quality at the end of 14 years' treatment. It was seen in this collection of dried plants just as it was afterwards more strikingly seen in the field, how ammonia, salts, and mixed manures of various kinds (each of them applied year after year to the same plot) had at length worked upon the original pasture changes as great as if the several beds had been sown with altogether different mixtures. The changes thus exhibited had been produced, not only by the increased vigour given to the coarser and bulkier Grasses, enabling these to crowd and hustle out the more delicate species, but also (as shown for example by the curious effect produced on the relative

quantities of the two species of Poa) by the special fitness of the several manures as food for particular plants.

In the corn fields as well as in the park, pasture plots are left unmanured as a datum line from which to measure the result upon the other plots of the treatment each receives. Among others of these corn crop experiments, one may be mentioned here in illustration of the dexterity with which conditions are contrived and provided by which to test the criticisms to which these researches have of course been exposed.

In one of the Wheat fields are two plots receiving respectively "mixed alkalies" and "superphosphate" alone, and mixed alkalies and superphosphate with 400 lb. per acre of ammonia salts. The crop of the latter had always been very much superior to that of the former, and the experimenters had been rebuked by LIEBIG for attributing the result wholly to the treatment of the current year, forgetting that large quantities of mixed material for several previous years must have been accumulating in the soil and subsoil. They, therefore, have adopted the simple expedient of transposing the manuring of these plots year by year; and they have found the result to be a complete reply to LIEBIG's criticism—the crop invariably following the dressing which it individually receives, altogether independently of the character of the previous dressings given to its predecessors.

We shall hereafter give the particulars put into the hands of Mr. LAWES' visitors last Saturday. Our present purpose has been simply to place on record here a note of M. DUMAS' visit to our great English agricultural chemist, and to recall to recollection the services rendered to English agricultural progress by the proprietor of Rothamsted.

In addition to the experimental fields at Rothamsted, there is a farm of 300 acres of whose cropping and management an accurate record has been also kept for many years. It is interesting to the general farmer perhaps, chiefly because of the large extent to which artificial manure is used upon it, and the large proportion (this year 230 acres) of the land which it is thus possible to crop with corn every year.

—— THE Wheat trade was so influenced on Monday by the weather of the previous week, that an advance of from 3s. to 4s. per quarter occurred in London, which rise has been responded to in provincial markets. But business was dull at Mark Lane yesterday, from both buyers and sellers being apparently in doubt about the weather.——Prime Beef is still making 6s. per 8 lb. Mutton has been rather more plentiful, and is a trifle lower, but 5s. 10d. per stone is obtainable for fairly fed sheep. The weather has kept the lamb trade in a very heavy state, mutton prices having been barely exceeded.——The seed trade is confined to a few speculative bargains.——Wool excites but little attention; the trade in foreign is very depressed, and in home-grown there is but little doing.

—— It is announced that his Royal Highness the PRINCE OF WALES was last week elected an honorary member of the Société des Agriculteurs de France.

—— In the House of Commons on Wednesday, Mr. MACLAGAN's Game Bill was withdrawn on the understanding that Government would introduce a Bill on the subject next year—not, however, without a vigorous protest from Mr. M'COMBIE, that his constituents would not be satisfied until the whole Game Law system, root and branch, was swept from the statute-book.

—— It was announced on Thursday that Mr. FORSTER's Bill—Contagious Diseases (Animals) (No. 2)—will come on for discussion next Friday.

—— The Council of the Society of Arts have this year awarded their Albert Gold Medal to Baron JUSTUS VON LIEBIG, Associate of the Institute of France, Foreign Member of the Royal Society, Chevalier of the Legion of Honour, &c., "for his numerous valuable researches and writings, which have contributed most importantly to the development of food-economy and agriculture, to the advancement of chemical science, and to the benefits derived from that science by arts, manufactures, and commerce." This medal was instituted to reward "distinguished merit in promoting arts, manufactures, or commerce," and has been awarded in previous years as follows:—In 1864, to Sir ROWLAND HILL, K.C.B., "for his great services to arts, manufactures, and commerce in the creation of the penny postage, and for his other reforms in the postal system of this country, the benefits of which have, however, not been confined to this country, but have extended over the civilised world." In 1865, to his Imperial Majesty the EMPEROR OF THE FRENCH, "for distinguished merit in promoting, in many ways, by his personal exertions, the international progress of arts, manufactures and commerce, the proofs of which are afforded by his judicious patronage of Art, his enlightened commercial policy, and especially by the abolition of passports in favour of British subjects." In 1868, to Professor FARADAY, D.C.L., F.R.S., for "discoveries in electricity, magnetism, and chemistry, which, in their relation to the industries of the world, have so largely promoted arts, manufactures, and commerce." In 1867, to Mr. W. FOTHERGILL COOKE and Professor CHARLES WHEATSTONE, F.R.S., in recognition of their joint labours in establishing the first electric telegraph. In 1868, to Mr. JOSEPH WHITWORTH, F.R.S., LL.D., "for the invention and manufacture of instruments of measurement and uniform standards, by which the production of machinery has been brought to a degree of perfection hitherto unapproached, to the great advancement of arts, manufactures, and commerce."—In 1869, as above stated, it is given to Baron LIEBIG—and agriculturists are thus at length especially represented in that annual expression of gratitude to the pioneers of human progress, which was founded in honour of the Society's late President, H.R.H. the PRINCE CONSORT.

—— The annual meeting of the Norfolk Agricultural Society was held yesterday at Attleborough. There was a large and excellent show of live stock. The 1st prize for the best Shorthorn bull was won by Mr. KERSEY COOPER, of Euston, with HOGARTH 2D; and that for the best Shorthorn cow by Mr. J. HOW, of Braughton, Hunts, with *Lady Anne*. Major BARLOW won the principal prize for the best thoroughbred stallion with DALESMAN. Most of the Southdown sheep prizes were won by Lord WALSINGHAM and Lord SONDES. His Royal Highness the PRINCE of WALES took the 1st prize for the best pen of 10 Southdown ewe lambs. Mr. T. BROWN, of Marham, won most of the long-woolled sheep prizes. Messrs. DUCKERING, of Lincolnshire, and Mr. STEARN, Suffolk, secured the pig premiums. A prize for the best assorted collection of implements was awarded to Messrs. HOLMES, of Norwich. The exhibition was numerously attended.

—— At a recent meeting of the Agricultural and Horticultural Co-operative Association, Westminster, Mr. MORRISON, M.P., cautioned farmers to beware that reductions in the price of manures were not accompanied by reductions in value. He could illustrate that by a reference to the trade in guano. He knew something of the mysteries of the trade. Guano was not unfrequently offered to members at prices as low as the association could purchase it from the agents of the Peruvian Government. Now as there was only one wholesale price to all the trade, they knew in such cases that some trick was being played. A relative of his own bought some guano guaranteed as being genuine and unadulterated. It turned out upon analysis to be damaged by sea-water. This was sold off by the Peruvian Government's agents to contractors at a greatly reduced price, and he believed much care was taken to prevent its getting into the hands of the trade as best Peruvian guano; but it found its way to the public in some cases as the genuine article. That was the least of the frauds. A common trick was to adulterate guano with guano. Mixtures were made up of inferior guanos and all sorts of compounds, and sold sometimes as genuine guano. At Liverpool, moreover, there is a convenient deposit of yellow loam in the Mersey, which, with plaster of Paris and brick-dust and sand, enables certain dealers to supply the country with Peruvian guano at any price required. The practice is well understood in the trade. The skill of rogues who mix exceeds the detective skill of the buyers, as an incident he recently saw reported would show. A Scotch agriculturist, lecturing upon the matter to his club, produced before his audience two samples, and asked the farmers present to judge between the genuine article and the adulterated one. A majority gave a preference to the mixture. Some agents and dealers relied so implicitly upon the ease with which their customers could be caught by bargains, that they simply kept a stock of appropriate sand in their warehouses, or on board the barges which carried their supplies home, and cheapened the article as the grocers are said to cheapen their sugar.

—— A committee of the British Association for the Advancement of Science, consisting of Mr. BAILEY DENTON, Dr. GILBERT, Mr. R. B. GRANTHAM (Chairman), Mr. J. T. HARRISON, Dr. B. H. PAUL, and Dr. R. A. SMITH, have been for some time occupied in collecting information on the sewage question, and will report upon it at the next meeting of the Association, which is to take place at Exeter. The inquiries of the committee are directly specially to the local circumstances of each case, such as extent of district, population, number of houses, &c., the character of the sewage and water supply, and the quantity of sewage to be disposed of, the mode of disposing of the sewage, description of works for the purpose, and their cost; the results obtained in each case, as regards both the sanitary state of the districts and the cost of the system adopted. It may be expected that the report of this committee will contain matter of considerable interest to medical men, sanitary engineers, and the public at large.

—— The Staffordshire Agricultural Society will meet this year at Burton-on-Trent, the time for the show being fixed for September 21 and 22. A long list of prizes appears in the programme of the Society, but these seem to be confined to too limited an area, for no animal is allowed to be put in competition if its owner lives more than 16 miles—an odd line to draw—beyond the borders of the county. Surely it would be better to make the show proper a real county affair, and have special prizes open to all England. For implements and the poultry this is the case, as we are told in a note "the prizes for implements and poultry are open to all England."

OUR LIVE STOCK.

Two young bulls have just left this country for Bessarabia. They have been purchased, at fair prices, for M. Casso, a gentleman who owns a domain of gigantic area in South Russia, and who intends to see the effect produced by the best Durham blood upon the native cattle in a province of great fertility, where the usual grain crops flourish, and rich fruits and wine are produced; where a large portion of the land is pasturage, and tallow, wool, cheese, and cattle are exported largely.

The first of the two animals selected is WARRIOR CHIEF, calved June 19, 1868, and bred by Mr. W. Torr, of Aylesby. He is by MOUNTAIN CHIEF (20,383), and from *Water Daisy* by BREAST PLATE (19,337), g.d. *Water Cress* by DR. MCHALE (15,887). The second, COMMANDER, was bred by Mr. G. M. Tracy, and was calved March 2, 1868. He is of handsome roan colour, and altogether a good Shorthorn. An examination of his pedigree shows that he is by THE CORSAIR (25,291), dam *Sweetheart 14th* by DUKE OF ALBEMARLE (21,560), g.d. *Sweetheart 3d* by DAYBREAK (11,338), g.g.d. *Sweetheart* by ACCORDION (5708): and so on, back to the Milcote Charmers, and to *Sylph* by SIR WALTER. Russian laws are very stringent, and the son of a practical farmer has charge of these bulls, with *viséd* passports to Hamburgh, through Prussia, Poland and Austria, to the Russian frontier, where their passage on foot commences. It will be interesting from time to time to hear of the doings of these animals and their progeny; particularly regarding the effect of the climate upon their appearance, hair, and general quality.

—— Mr. Chas. Leney's sale, postponed from April, took place on Wednesday at West Peckham, Kent. Excellent arrangements had been made to give the sale an importance; and the cattle, not to be behindhand, were brought out in the best possible form, though the order of the lots was slightly different to the usual custom of these sales, family groups following each other instead of the order of age. A bountiful lunch, nicely done, and well presided over by Mr. J. T. Noakes, preceded the business of the day; the company was, however, hardly so numerous as the provision set forth. Mr. Langridge proceeded with the sale soon after the time advertised, and Mr. Love bought the first and third cows of old Strickland blood at 34 gs. and 42 gs. each, the second cow, *Naomi*, by 4TH DUKE OF THORNDALE, falling to a Mr. Goodwin. Mr. Cheney, of Gaddesby, bought a capital heifer, *Elizabeth*, at 44 gs., and a wee roan calf, out of the 4TH DUKE OF THORNDALE cow, for 21 gs. *Red Rose*, for which 330 gs. were paid at Betts' sale, had done nothing for two years, and was set down in the list March 6th, by CAMBRIDGE DUKE 3D; a reserve of 150 gs. was placed on this animal, and she was passed out unsold. The same reservation was fixed on her son, CAMBRIDGE DUKE 3D, a really fine 3-year-old bull, but he still keeps possession of his old stall. Another crack lot, *Lady Louisa's Duchess*, with three Duchess bulls in her pedigree, was not forthcoming, but her dam went, down calving, to Mr. Fred. Leney, for 48 gs. and her sister, a red yearling heifer by CAMBRIDGE DUKE 3D, 53 gs., was also bought by him. Many of the other lots had but two or three crosses of blood, and sold remarkably well. A good yearling bull from *Naomi* became Mr. Gibbs' property at 61 gs., and Sir Norton Knatchbull also was a purchaser.

—— Recently we very briefly sketched the position of our domestic cattle in the animal kingdom, and we found that they composed a group of the Bovidæ, a genus of the order Ruminantia. Domestic cattle, although allied to buffaloes, bisons, and the yack, must be considered distinct, and as having sprung from a distinct ancestry. It has also been shown that a truly wild representative of the progenitors of our cattle does not exist. The question as to their origin has been ably discussed by Mr. Darwin. The first conclusion this distinguished naturalist arrives at is that domestic cattle are descended from more than one wild form in the same way as has been shown to be the case with our dogs and pigs. Naturalists have generally made two main divisions of cattle; the humped kinds inhabiting tropical countries, called in India zebus, to which the specific name of *Bos Indicus* has been given, and the common non-humped cattle generally included under the name of *Bos Taurus*. The humped cattle were domesticated, as is seen on the Egyptian monuments, at least as early as 2100 B.C. They differ from common cattle in several osteological characters, in general configuration, in being born with the teeth projecting through the gums. They also differ in voice and in habits. Mr. Blythe in the "Indian Field" sums up emphatically, that the humped and humpless cattle must be considered as distinct species. The European breeds of humpless cattle are numerous. The number of British races is well known; even the small Channel Islands have their breeds and sub-breeds, and Moll and Gayot describe and figure no fewer than 55 European species. The origin of these closely allied, yet evidently well marked tribes has been traced by Nilsson and Rütimeyer. Following the latter authority we may mention *Bos Primigenus*, the ancestor of some of the larger Continental races, as the Friesland and the Hungarian cattle, the Pembroke in Britain, and which no doubt now exists, in a degenerate form, as the wild ox of Chillingham Park.

Besides *Bos Primigenus* there are two other species of the genus from which our European cattle are supposed to have been descended. The first of these, *Bos Longifrons* or *Brachyceros*, was of small size and short-legged. The Highland and some of the Welsh breeds are supposed by Professor Owen to have been descended from this species. Remains of *Bos Longifrons* have been found associated with those of the elephant and rhinoceros. The last species, *Bos frontosus*, existed in the same late geological period, and is believed by Nilsson to have been the progenitor of the mountain cattle of Norway, distinguished by a bony protuberance on the skull between the horns.

We see, therefore, that at least three distinct species of *Bos* have been domesticated in Europe. Besides

these we find the zebu, yack, buffalo, and gayal domesticated in various parts of the world. The uniform colour of the Chillingham cattle has always been one of their best marked peculiarities. In general the colour may be described as white, with reddish-brown inside the ears. This uniformity of colour is to be observed in some domesticated foreign breeds, and it has been ascertained that cattle, which have run wild in the Ladrone Islands and the Falkland Islands, have assumed a similar light or white colour, with black ears and occasional black heads. Other instances might be given to show the tendency of escaped cattle to become white with coloured ears, while in other cases a uniform dark brownish-red hue has been assumed.

THE SEWAGE QUESTION

Is in much the same position as were once the questions of gas and railways; disbelief, doubt, and hesitation, created by a want of knowledge of the facts, obstruct its progress and prevent its use. Several of our towns and villages required 40 to 50 years ere they arrived at the use of gas as a useful and economic light. Thirty years ago the fear of the horrid railway engine, with its noise and smoke, caused our towns and cities to oppose its approach to their neighbourhood, and it was not until years had passed away that they felt the pangs of regret and repentance resulting in the necessity for making branch lines to reach the once detested main line which should have brought them to their doors; so it is now with sewage. Twenty-five years ago, when I first agitated this question, I was set down as a nasty fellow for even alluding to the subject, and many years elapsed ere our journalists dared venture upon a cautious allusion to the necessity and advantage of its utilisation. No agriculturist ever doubted the value of the sheep-fold, but the man-fold was abhorred as a nuisance. Fortunately sanitary considerations and the Court of Chancery have stepped in to hasten a more satisfactory conclusion. Drain-pipes ousted the cesspools, and so poisoned our rivers that "What is to be done with our sewage?" has become the imperative question of the day. There can be no doubt as to the effect of discharging it at one point in our beautiful river Thames. The daily residuum of the consumption of food and drink for 3,500,000 people and a proportionate number of horses, dogs, cats, and canary birds, is so vast in bulk that it must inevitably enlarge the river banks and encroach upon and narrow the water-way, much as was done to the Tiber by the great Cloaca Maxima, or sewer of Rome, thousands of years ago. Can any one doubt this who observes the mountain of consumables brought daily into the metropolis by rail, by canals, by river, and by sea? Long trains of farm animals are melted down daily, with cargoes of corn, tea, and sugar, in the human crucible.

A corn factor in Mark Lane assures me that the London horses consume from 70,000 to 80,000 sacks of Oats weekly, besides a proportionate quantity of hay, much of it deposited in our streets. In fact, 6,000,000 of acres, or more, are annually denuded of their produce for the feeding of London alone.

Then comes the question—What is to be done with the sewage if it is not to go into the river? That question has been answered satisfactorily by some of our provincial towns and cities, and must soon be solved for the metropolis and other vast cities. Norwich, for instance, with its 150,000 inhabitant, has taken 1300 acres of land, and is about to pump all its sewage on that land, so that utilisation, fertilisation, and purification shall precede its entry into the river. So it is with other towns, after a hard fight about increased rates to meet the cost of such an operation. But where is apathetic agriculture all this time?—no sign made from landowner or tenant—no belief. Thank God! it will come in time, and within another 50 years. When the precious fluid will have been appropriated on small areas, great will be the wonderment that agriculturists had never before appreciated its value, and sad will be the disappointment at having let it slip through their fingers. So far as the difficulty of distribution is concerned, it is a simple engineering question of a pump and a pipe, nothing more; but it is of no use carrying water, gas, or sewage to those who see no profit in its use, and so decline to receive and pay for it. It came out in evidence on Lord Robert Montagu's committee that 1000 tons of sewage, equal to a rainfall of 10 inches per acre, could be raised 300 feet high for 13*s.* to 14*s.*, so that, in fact, with a fall of 5 feet per mile, it might flow to lands 40, 50, or 60 miles distant. A pipe 4 feet in diameter brings into Glasgow daily some 22 milions of gallons of water from Loch Katrine, which is 40 miles distant, the fall being 5 feet per mile or 200 feet. The cost of this was about 800,000*l.* We have expended 4,000,000*l.* to cast our treasure into the river. There never was so great a national suicide or more gigantic mistake. It is true that a company was proposed, a grant of the North London sewage obtained, and an Act passed to carry it to the Maplin Sands, but the public money will not come forth for such an undertaking, so there is a dead-lock. The experimental Lodge Farm at Barking should convince every landowner and farmer how profitably sewage might be made available, but the agricultural mind is, as I before said, yet unprepared to receive and utilise that great fact. Common sense would point out that supply pipes might underlie our common and almost unused public roads, and thus return to the fields the fertilising elements of the crops they had once produced and which London has consumed; but we must leave this to time, and our hope must be in the future.

I have pumped sewage on my land for 20 years, and can appreciate its value, but we have to make it at much cost, and I deeply regret that I cannot dip my suction pipe into a town sewer, or connect my iron supply pipes with a main always charged with the precious stream. Let us hope that the proofs produced by every town and village (for they will all soon be compelled to utilise it) will open the eyes of agriculture as to the great advantage of its more extended application to the production of our food. *J. J. Mechi, Tiptree, June* 21, 1869.

P.S. It appears to me that if every farmer on the line of pipe could receive enough sewage for a tenth portion of his occupation, he would not only thus obtain ample food for his horses and a number of cattle, but, concurrently, manure enough from the consumption of the Rye-grass to enrich one-fourth of the farm annually. I have found practically that after two years sewaged Italian Rye-grass (which is a biennial) I can take a good crop of green Peas for the London market, followed the same year by a crop of white Turnips fed off, and then in the same year (December) sow Wheat, which on my light land last year produced 6 quarters per acre; Barley follows the Wheat.

WEATHER: LIVE STOCK: CROPS.

To hear of newly-clipped sheep frozen to death towards the close of May in our southern counties, is a startling thing. In the northern highlands no shepherd would think of shearing his flock so early, frosty nights and cold blasting winds during the day being common up to the end of June, so that shearing is seldom finished before July. And even then some precaution is necessary to prevent harm when sheep are first denuded of their warm winter clothing. And if this is the case with the hardy black-faced and Cheviot breeds, in their native walks, it is not surprising that the more delicate breeds of the south should suffer, as many of them have done, from the inclemency of the present season. It would no doubt have been better to have deferred the shearing until the present month (June). But it is easy being wise behind the time, for, on the other hand, heavy sheep begin to suffer much from their coats when the warm weather of May sets in; hence the common practice of washing and shearing towards the close of the month in the southern provinces.

Washing sheep when newly shorn has been found in some places an excellent preventive against catching cold. Thus washed flocks have sustained no loss from the cold nights often experienced so late as the beginning of July in the north, while unwashed flocks adjoining have had numerous deaths. But more than washing is at times necessary to keep the blood of the newly-shorn sheep circulating, for the shepherd requires to be up and stirring about to see that they have a dry sheltered lair, otherwise they must be shifted to one, or to feeding-ground, a short walk and a little food putting things to rights. It must also be borne in mind that by July the nights are very short, there being no darkness at all in the extreme north, and that light is favourable both to feeding and keeping up the circulation.

In the north, the hardy mountain breeds are simply driven once or twice through the washing pool of some running stream, care being taken that their skins shall be dry before night sets in, and that the newly-shorn sheep shall have exercise afterwards, which they generally receive in being driven to their dry lairs; and also that, in being slowly moved through their feeding-ground to their night's quarters, they shall fill their bellies: for to turn out a fasting sheep to the hill-side in a cold, frosty night, is certain death. Newly-shorn sheep require more food for a short time to keep up animal heat. In the polar regions the inhabitants consume fat of every kind that comes in their way, in quantity that would kill those who live at the equator, or even in temperate regions; and the reason does not require to be told, for, deprive an Esquimaux of his warm coat and fat, and the consequences would be fatal in the short space of a few hours. Just so is it with newly-shorn sheep—the more cold they experience externally the more food they require internally to supply the equilibrium of temperature of the body. A well-fed newly-shorn sheep will stand the cold better than a lean one, the fat of the body being a deposit for keeping up the temperature of the system. Milk ewes suffer most, as by shearing time they have, if good milkers, seldom much loose fat within to generate heat. Those shorn in the early part of the day may have time to fill their bellies before nightfall, but it is otherwise with lean ewes that leave the shears fasting at the close of the day for damp pastures and a frosty night—the long dreary night of May in the south; for if newly washed, their skins would not be dry before nightfall if driven through a running stream, as in the north. In short, the two cases, north and south, are so different, that the practice must also be different.

Some flockmaster will no doubt ask—How is all this to be done by the shepherd? How is he to get through the entire labour? In the north where the shepherds of adjoining flocks club together, first shearing one flock and then the other, the dogs almost do the simple process of washing, with some one of the elder men and boys to guide them. But in the south it would be otherwise. In this, however, we cannot speak from experience, having hitherto deferred shearing a breeding flock until the more settled weather of June, but we have tub-washed newly shorn fat sheep and tups as early as the latter end of April and beginning of May, and we see no difficulty in the way of its general application.

Newly-shorn sheep often suffer much from the blistering effects of the sun, and to screen them from this natural or artificial shade is requisite. In our highland walks the blackfaced sheep creeps under the shade of a moss-bank, rock, large stone, bush, or whatever will shelter it from the rays of the noonday sun. When the flock has the opportunity and is permitted it will be found at mid-day on the north side of the hill, where the rays fall at a considerable angle, not a few hills being sufficiently steep on the north side to afford complete shade up to mid-afternoon.

Ought not Art to do something more to provide shelter for sheep than Dame Nature in these piping times of agricultural progress? and could not the shelter thus provided afford protection, not only to newly-shorn sheep from chill at night and blistering suns during day, but also to ewes and lambs, &c.?—in short, shelter to the flock at all times when it was needed? If the long heath overhanging a moss-bank, a rock or big stone with a ledge overhanging the base, a bush eaten under by the tooth of the sheep itself, afford each and all the shelter required, can we not improve upon the artless lesson which Dame Nature thus teaches, and without incurring any very heavy expense? There are numerous evergreen hedge plants suited for every climate, which can be clipped almost into any form.

The ungenial weather of the past month has been very much against neat cattle, more especially herds that were allowed to remain in the pastures all night, when newly turned out from warm stalls. The coats of cattle wintered in open yards grow long and thick, such being a natural provision purposely to defend the body from the inclemency of the weather. But the reverse is the case with indoor stock, their coats being thinner and shorter than naturally; so that when first turned out to lie all night on a wet, cold lair, with a frigid atmosphere, their condition may be conceived. Milch cows and calves suffer most. In some places they are never allowed to remain out all night until July, and not even then in some parts of the north, being housed or kept in open yards during night, when they receive a plentiful supply of Grass, Clover, Tares, or green forage of some kind on their return to the homestead. Others allow their milch cows to remain out all night during July and August, but take them home for a short time at mid-day from the flies and sun. In the south frosty nights are seldom experienced from the end of May to November 1, so that cattle suffer more from flies and the sun during day than from cold at night; and the loss sustained from flies and sun is far greater than is generally imagined, as very few farmers and graziers have any experience in the housing of stock during the heat of the day in June, July, August, and September. By the months of October and November the coats of the cattle so grow as to defend them from the cold nights, which then begin to set in. But it is otherwise in May with stock that have been well housed during winter. The improved drainage of pastures has greatly tended to provide dry lairs during night, and also to increase the temperature of the land, but exceptional seasons like the past bring with them a corresponding train of consequences, which call if possible for a preventive remedy.

When the pastures adjoin the homestead, it is easy to give cattle access to the yards whenever they require shelter, night or day; but it is otherwise when they are situated at a distance, too far to drive home every night during the month of May, and at mid-day during the period of flies and burning suns. In wet seasons, shelter under trees in May is objectionable in a two-fold sense, the ground furnishing a cold, wet lair, and the winds that whistle under the branches being chilling even at noonday. Trees in meadows and pastures are ornamental, and this is about the most that can be said in their favour, for the Grass under them is often worthless. Shelter to cattle, however, is essentially necessary to successful stock management, and therefore such ought to be provided, at the expense of the land, suitable to the requirements of the place. What suits one place may not suit another, while very many bullock grazings are badly laid out for the erection of permanent buildings of any kind to afford the necessary shelter the stock require which graze in them. The common hovels of hoarding, with nearly the whole of one side open, are ugly affairs generally, and besides, they are too expensive, taking into account the limited amount of accommodation they actually afford. The work of providing shelter must be gone into much more economically, and on a wholesale scale. Thus we have seen the master bullock of a herd stand in the entrance, so as to prevent any of the others entering the hovel. Now, according to this rude old plan, we have the short-sighted economy of a large hovel for one bullock only. There may be whole herds of good-natured animals, so docile that they would not injure each other, but they are the exception, so that, taking bullock nature in common, the more economical plan is to subdivide hovels into boxes or stalls, one for each animal, so that they can be soiled with Tares or green fodder, should circumstances so require. Burnt ashes, clay, peat earth, dry mould of any kind, or straw, may be used for litter. If situated where three or four fields meet, it would be cheapest to make one building serve the whole, as one herdsman could attend to the whole of the stock in taking them in, feeding, watering, and turning them out, and in littering and keeping the place clean. A barn should adjoin the hovel. As to the expense, we reason thus: A box or stall for each acre of grazing, would not add much to the landlord's rent, while it would evidently leave something over to the grazier for the increase in the produce of beef, dairy produce or breeding stock, as the case may be, over and above that obtained from the same grazings on the old plan.

Ungenial as the months of June and May have been, crops, so far as we have seen, have not suffered to an extent corresponding to the weather. That the low temperature and rapid changes have checked the progress of growth and done harm in many ways cannot be denied, but the balance of facts is nevertheless favourable on the whole. It must be borne in mind that in April many farmers dreaded an over-luxuriant vegetation, should May prove mild and growing throughout. We can point to a great many Wheat fields where farmers at the commencement of June were thankful. Others, doubtless, have suffered too

great a check of growth. Spring crops of every kind have suffered less or more, but in estimating losses, more now depends upon the weather to come than upon the ungenial month that has passed away with a diversity of temperature such as will long be remembered, and which has had but few, if any, parallels hitherto. It is very possible that the little harm done is mainly attributable to the improved drainage of land and deeper cultivation, in comparison to what we have seen, in times gone by, before such improved modes of agriculture existed. Improved seeding and manuring of the land, according to the requirements of the different kinds of crops, have no doubt also done much to account for the present state of things, as the different parts of plants grow more uniformly, healthy, and natural, and are thereby more hardy and able to bear the vicissitudes of weather recently experienced; and for a similar reason they are in a more promising state for future progress to maturity. *W. B.*

Home Correspondence.

Paper and Spinning Material from Bog-land in Ireland.—I beg your attention to this subject, it being one of national importance as regards reproductive employment for the labouring population on the Western Coast of Ireland, inasmuch as my plans will, if carried out, bring forward at home a supply of cheap material for the manufacture of paper and for spinning and weaving. I depend on man to plant and Nature alone to finish the work, whereby thousands of acres of arable land can be made from the swamps and marshy surface of the many miles of bog-land, upon which nothing but the feathered tribe dare place a foot, in the province of Connaught, and this accomplished by growing the Phormium tenax (New Zealand Flax), which plant I discovered growing (as I was informed, for eight years) in the open air, in the College Garden in Galway, from 5 to 6 feet in length, although it cannot be grown in Kew Gardens but under glass. By growing this plant marshy soil must year after year become consolidated, just as it does in New Zealand, by the deep and wide-spreading roots. If planted about 4 feet apart, in rows 8 feet wide, in three or four years the roots will meet and cross each other like network, so that, with the spade, surface-rooted plants may be introduced between the rows, which will feed, as well as the Phormium tenax plant will clothe, the now half-starved, half-naked, and unemployed. I brought to London some of the Irish-grown leaves, cut off the plant without any injury being done to its continued growth, and in working them by my machines and liquid I found them far superior in strength to any I had sent to me from Kew Gardens; and so satisfied has the Earl of Arran been respecting the advantages I have brought out by working my machines in his presence, on several occasions, that he has now had collected a quantity of seed, with a view to the planting of this productive and cheap drainer of the bog-land, for which, his lordship told me, he could not get 2*s.* per acre without great expense for draining in the usual way. Now, as the price I can obtain for Flax and similar fibres, when prepared by my machines and process, is more than double the price ordinary Flax will fetch for linen manufactures, and as I propose working the Phormium tenax and similar fine fibres in the same way, I would respectfully say that I ought to be supported in carrying out the object I aim at, namely, the introduction of a never-failing supply of the raw material, which must take the place of cotton rags, if not of Esparto also, an article so largely in use by paper-makers. I have, however, been engaged lately in preparing Esparto fibre also, with a view to its being so softened by my machines that the silica can be nearly got rid of without caustic soda, &c, and the long fibres brought into use for twine and rope-making purposes, also for canvas and carpet yarns, it being a stronger and better material than jute. The low price of Esparto is a great inducement to prepare it for spinning purposes. Already I have got twine and rope made from it, and it has been valued at from 20*l.* to 25*l.* per ton by brokers in the City, in the combed state, unbleached, and not so free of silica as I expect to have it. If planted, as I hope to have it, on the Western Coast of Ireland, and it turns out, on trial, that the soil and climate will suit it as well as the Phormium tenax, I shall have it attended to by a Scotch friend of mine who feels deeply interested in such specimens of production as I have placed before him, and there shall be nothing left undone by way of trial in order to develop the resources of the most neglected portion of Ireland, which, in my opinion, is by far superior by Nature for Flax cultivation to any part of the country. The Indian Rheea plant having been, as I am told, often grown to perfection in the open air in Regent's Park Gardens, if the winter happened to be mild, I have every reason to believe that it may be grown on the Western Coast of Ireland as well as the Phormium tenax, and I shall have a trial made as soon as I can procure the seed. I hope that these facts and advantages in favour of reclaiming marshy and unprofitable soil in Ireland, thus giving reproductive employment, and the great benefit that must arise from additional home production of material for the trade of the country, will plead my excuse for entering into such a lengthy detail on a matter of so much national importance. *J. Hill Dickson.*

Foreign Correspondence.

NEW ZEALAND: *Pourerere, Hawkes' Bay.*—I have forwarded to your address, per steamer Ruahini, a small box containing a plant of Wheat, of which I should be very glad to have your opinion. I am told it is only common Rivetts, but I cannot see that it is so, as I selected the kind from a field of smooth-chaffed Wheat, which Wheat, to my certain knowledge, had not grown near any bearded kind for several years. It is a very heavy cropping kind, for, with our bad farming, it has produced 75 bushels of 62 lb. weight from one acre. The only fault I have to find with it is that the grains are small, and, I fancy, rather thick in the bran.

Do you think Mr. Hallett would like to try it? and is that stout enough in the straw for Mr. Read? Why I ask is because I saw a remark of his in your Journal some time ago "that they would never get heavier crops of corn until they strengthened the straw," or words to that effect. *Henry Nairn.* [The plant sent appears to us to be a very well-grown and vigorous specimen of the common Rivetts, or "Cones" Wheat.]

Societies.

CIRENCESTER.

The Improvement of the Temperature of the Soil in connection with Cultivation.— At a meeting of this Chamber of Agriculture, held January 7, this subject was opened for discussion by Mr. D. Greig, of Leeds. Mr. GREIG said: I am satisfied from practical observation that this subject, more than any other in connection with agriculture, demands our investigation and consideration; and this fact I tender as my apology for offering remarks on a subject involving great scientific and chemical research. The remarks I intend to submit have been suggested by close observation of the result of the crops on steam-cultivated land and garden husbandry, compared with that on land cultivated in the ordinary way by horses. The improvement of the temperature of the soil is directly accomplished by the improvement of its drainage, its aëration, and its power of absorption and evaporation. I think it unnecessary to refer to the drainage, as most farmers are alive to the great advantages to be derived from it. I shall rather confine myself to contrasting or comparing the different kinds of cultivation as assisting in completing drainage, allowing aëration, facilitating absorption and evaporation, and thus securing a higher and more uniform temperature of the soil. It will be convenient to consider the subject under two heads. First, in its relation to heavy land: and secondly, in its relation to light land,—each of these conditions of the soil, in my opinion, requiring different treatment. In

The Cultivation of Heavy Land.—I am of opinion that the great benefit from the action of the atmosphere on it, in its loose and cultivated state, is not duly considered and taken advantage of. Take, for instance, a piece of heavy clay land—a Wheat stubble—which is intended for a green crop the following year. My impression is, that in no case should any subsoil be brought to the surface; but that the land should be stirred to the greatest depth possible, and after being thus stirred, that it should not be touched again during that autumn—the manure, of course, being applied before the cultivation, so as to become thoroughly mixed with the soil by the process of stirring. In the spring, I consider, that all green crops on this sort of land should be sown entirely on the frosted mould, and that at that season all treading should be avoided; the reason for this precaution being that the land, although beautiful on the top, is in such a state at the bottom that every footmark of the horses will compress the subsoil and leave a place for the reception of the water, and its accumulation in pools under the surface. When this is the case, it must be quite clear to every mind, that the temperature of the land will be seriously unequal, and that the roots of the crops will naturally avoid those places which are thus trodden. It is of the utmost importance that all land should be kept in as even a temperature as possible, which cannot be the case when horses' footmarks exist. After having prepared the land and sown the crops entirely without the use of horses, it will be found that the next autumn's work will be done with one half the power otherwise required; the land will be in an uniform condition and free from clods. Of course there is no objection to the use of horses for the hoeing of green crops, provided the land be perfectly dry; but if it be in the least wet, by all means avoid using them. It is occasionally argued that horses are necessary for treading and consolidating strong land: from this I strongly dissent. Cereals and Clover crops doubtless do better on a firm surface, but this can be secured without the treading of horses' feet, which otherwise do so much damage. From what I have observed I believe the best method of putting in cereal crops is merely to scratch the surface, loosening no more soil on the top than is required to cover the seed, but of course I am supposing that the land has been thoroughly loosened for the previous green crop. A perfectly even and consolidated bottom is thus obtained, always taking into account that no horses are allowed to trample on the land, for if they are, it may be necessary to loosen the land to a considerable depth to take out the hard footprints. This point of merely scratching or combing the ground for cereal or Clover crops will, in my opinion, be found to be of much greater importance than is at present anticipated, and will tend considerably to lessen the number of operations required in cultivation. The cultivation of clay land is a matter of which we are almost entirely ignorant at present. By forethought and management the deep work can all be done in a few weeks in the year, and if the land is never touched when wet, one-fourth of the cultivation at present required will be quite sufficient; and I am of opinion, it will be found that clay land properly managed with ample force at a given time, will be much more profitable, and much more easily cultivated than what is ordinarily considered the finest land in the kingdom. It serves no good purpose to use rollers or clod-crushers in cultivating such land; all must be done by Nature, and those who study most to pulverise and bring their land into a seed-bed condition by exposure will succeed the best. Nothing could be worse than cultivating clay land when wet. I have seen land so cultivated not recover the treatment for years. A high temperature of the soil materially assists the growth of plants, and that temperature cannot be kept uniform except by deep cultivation and an equal looseness of the bottom soil. This deep stirring breaks up the "pan" formed by the horse-treading, and allows all superfluous water free exit. I have this season seen fields of Wheat turned completely yellow, in three or four days, arising in my opinion from shallow cultivation; the water not getting beyond the horse-beaten surface of the subsoil, thus producing a low and injurious temperature. The case is altogether altered if you cultivate very deep and break up this "board" or "pan," and so allow the water to get into the drains. With such a quantity of loosened soil as I recommend (say down to 2 feet), it must be obvious to every one, that so long as the excess of water can pass readily away it will not cool the land, but will, on the contrary, rather tend to heat it, and leave in the soil its ammoniacal properties. In cultivating this description of soil no time should be lost after harvest, as I consider that the effects of the atmosphere at that season on stiff clay land are worth at least 1*s.* per acre per day. This may appear a somewhat theoretical statement; it has, however, been suggested by practically observing that wherever a field is broken up early in the season, while the sun still has power, a good crop invariably follows, and comparatively little seed is required for that crop, provided the soil be clean and care be taken in spring to avoid disturbing the subsoil, so as to use the frosted mould only. Secondly, in dealing with

Light Land.—Although the case is rather different, I may remark that here the results of very deep cultivation have been more quickly seen than in heavy soils. Light land frequently has a pan under it, owing to which a great variety of temperature, to which I have already referred, prevails to a yet greater extent than in heavy land. My impression of the reason why light land exhibits the beneficial results of deep cultivation sooner than heavy is, that by the scarifying and breaking of the pan to which allusion has been made, the roots spread much more; that any excessive supply of water is allowed to pass away more freely; that the soil retains a proper temperature for a longer period, and the plants penetrate much deeper than would otherwise be the case; thus receiving proper moisture for a greater length of time. There is consequently less variation in the temperature, and the growth of the plant is not stopped in a dry time. In all light land cultivation, deep loose aërated soil is necessary. When speaking of deep cultivation, I mean that the land should be stirred and loosened deeply and only partially brought to the surface with a great degree of caution. Indeed, I would almost venture to say, that provided any class of soil be thoroughly loosened, it need not be brought up at all. In the cultivation of light land much more expense will be incurred than in the cultivation of heavy land. The soil will be much more liable to grow weeds, and will require more operations in its cultivation. To overcome this difficulty I am of opinion that land of this nature should be continuously covered with crops of some kind: say, for sheep food, ploughing down, or hay. In the case of light land it is important to get it very open, so that the atmosphere may act upon it; and owing to the rapidity with which light land closes on the surface one result of keeping it full of crops is, that it will receive much more benefit from the atmosphere than would be possible in a bare state. Dr. Voelcker tells us that the roots of an acre of Clover plants are equal to 8 cwt. of guano as manure, and from experience I am satisfied that such is the case; indeed, I am quite certain that the roots of all plants contain a large amount of nourishment, and convey from the atmosphere to the land qualities of a similar kind. Hence in the case of light land it is important that the soil should be kept continually covered and growing something or other (always excepting weeds). With regard to the respective merits of ploughing and cultivating, I am fully persuaded that the plough is needed in dealing with the surface, and that no plough should go below 4 or 5 inches deep. I don't for one moment consider that the plough should be altogether dispensed with, as in damp seasons you must turn under weeds and other green crops, but in no case, I repeat, should the plough be used above 4 or 5 inches deep. When putting in cereal crops where the surface is clean and there is no necessity for ploughing, I consider that the scratching or combing of the land is all that is required, supposing, of course, that horses have not trampled the ground. In this way a solid foundation will be left for the root, and no board or pan will exist to prevent their downward course, and in cases where manure has been applied they will follow it in their almost instinctive ramifications. By only just working or scratching 3 or 4 inches deep the amount of labour required will be reduced. There is no necessity for the soil being deeply cultivated for each successive crop, as, by the treatment suggested, land will assume the condition most favourable to early and healthy vegetation. Another point to which I wish to ask your attention is that of putting in seed. It is important that all seeds (whatever the state of the land) should be sown with some kind of manure specially suitable to such seeds. For the successful growing of any plant it is indispensable that it should obtain a large supply of nutriment at the precise time that the innate force of the seed is exhausted. The early development of all plants is of the greatest value to their after growth, and if you once get the root to take good hold of the soil, the probability is that the crop will be healthy and luxuriant. On this account I consider it unnecessary to apply to the land more manure than is required for the production of one crop, and it is erroneous to complain of manures becoming exhausted during the first year, and a practical mistake and loss to apply manures intended to serve for more than a single crop. In such

a case the interest of the money is lying in the land, and there is a great waste of manure before it is available for the next crop. To each crop should be applied only the manure required for its production, and that manure should be distributed in such a manner as to facilitate a continuous supply of further nourishment, and in no case should it be applied all at once. To sum up my remarks, let me say: Firstly—That deep cultivation is the great point, and deep ploughing is injurious. Secondly—That exposure of the soil to the weather, and the cultivation of the land only when it is dry, are essential to success. Thirdly—That by keeping horses from treading the land, one-half only of the labour will be required. Fourthly—That by deep cultivation there is a greater certainty of getting crops into a healthy condition, the result of an even temperature in the soil,—the temperature of the air being of less moment to the healthy state of the plants than the temperature of the soil itself. Fifthly—That the early development of plants is of vital importance to their future growth. Sixthly—That in heavy land such crops as Clover, Tares, or any crop which has a large amount of roots, should be grown so as to keep the soil in a proper condition and mechanical state. Seventhly—That in light land the surface should be continually covered by crops bearing as much leaf as possible, so as to convey to land from the atmosphere its manuring properties.

DISCUSSION.

The Chairman, Mr. E. RUCK, said Mr. Greig had spoken of deep cultivation as injurious, but he had modified that statement by saying that deep cultivation should not be done hastily, and he had alluded to the exposure of the soil to the weather, and the cultivation of the land only when it was dry as essential to success, that is, they should never cultivate unless the land was in a proper state for cultivation. He took that to be a great matter. He believed that if it were done at the proper time and in the proper way the expense of cultivation would be reduced considerably.

Professor WRIGHTSON—Some three years ago he had corresponded with a considerable number of agriculturists upon the point of cultivator *versus* plough, and the practical effect would seem opposed to what they found in books and agricultural periodicals; that was to say, that the use of the cultivator had not, in the cases which he inquired into, been followed by very satisfactory results. The answer he got was something of this kind,—that land was not in such good condition after the cultivator as if it had been cultivated by the plough as well as the cultivator. He understood that when the cultivator was used instead of the plough, weeds, such as Coltsfoot, Thistles, and Docks were rather apt to ecome a difficulty to the farmer. Such was the result of bisb inquiries with regard to the cultivator *versus* plough, and he found many farmers had gone back to the plough who formerly used the cultivator as a substitute. It seemed to him the difficulty might be got over in this way. He believed there were many cases in which the horse cultivator could not take the place of the plough. But the question assumed an entirely different character when the steam cultivator came. Probably from delicacy Mr. Greig had not spoken of the steam cultivator. The fact was that the steam cultivator was such a much more powerful implement that it did the work more completely, and he believed by its use the plough would be in a great measure dispensed with. With reference to the assistance deep cultivation was to the drainage of the land he thought there could be no question at all upon that point. There was one question not entirely brought out by Mr. Greig, to which he should like an answer. From what inquiries he had made he did not find that steam cultivation was absolutely cheaper than horse work—it seemed to him to be somewhat dearer, so that the advantages of steam cultivation are to be looked for in the superior quality of the work and the larger crop. At the same time there was a class of land which it was difficult to see how it could be improved in that way, even by steam cultivation. It appeared to him that light lands were as cheaply worked by horse as by steam. Were they not also as perfectly worked? Were not these lands as deeply worked by horse as they need be? Was not the amount of pressure from the horses sometimes of absolute use? And was not the state of the soil as good or even better than after steam cultivation? It was a point upon which he should like information. It seemed to him in the case of clay land although the steam cultivator would not plough it any more cheaply than by horses, although it was more expensive upon stiff land, yet there were many advantages—the lightness of the soil which was produced by the steam cultivator—the depth of the cultivation—which made it clear that it was the very thing for clay land, but he wanted to know if there was any evidence to induce light land cultivators to adopt deep steam cultivation

Mr. PORTER said he had a piece of Barley on the side of a hill facing the Cheltenham Road in which there was a little corner of about a quarter of an acre which they could not get the cultivator into. When the Barley got ripe he walked across to this corner, and noticing the difference, he went to the shepherd and told him he had never put the sheep in that corner. But the shepherd said he had. The difference was, that the corner was horse cultivated and the other was steam cultivated. There was from a sack to 6 bushels per acre, in proportion, less on that quarter of an acre than on the rest of the field. It was said that steam cultivation was dearer. If they went and ploughed 3 inches deep and then went and cultivated 6 inches deep, of course it was.

Mr. SMITH, Bibury, said it would be impossible upon a great deal of land to cultivate deeply. The pan in many cases was on the rock, and more difficult to break up than that floor—how would they cultivate that? His own opinion was that deep cultivation and steam cultivation upon strong land was very good. Where four horses were required to draw a plough those four horses made a pan which required to be broken up; and the greatest advantage, in his opinion, of steam cultivation was to keep the horses' feet off that land. But upon light land, where two horses could draw the plough with a strong boy, they could not do it so cheaply or so well as that pair of horses and boy could do it. Or if they could they must have better tackle and better men than ever he had seen yet. He had never seen any cultivation that had been done thoroughly well—the purchase was so far off that they "jolted," and if it was right to plough land 6, or 8, or 9 inches deep, it ought to be done all over, but he had seen one furrow ploughed several inches deeper than the other. He had never yet seen any land cultivated true and level with steam, and he was sure they could not cultivate land by steam where a pair of horses could go with a boy and plough an acre a day. Mr. Greig had made a remark that they ought to grub in the autumn instead of plough. He had seen a piece of land every day that spring which had been cultivated instead of being turned over, and it was as green as a meadow, there was four times the work to do now than if it had been ploughed in the autumn. That was in Barnsley parish. If that had been ploughed in, the vegetable matter would have manured the land. Now it would take a great deal of expense to get it out, and it had become a nuisance too. It was Grass he had seen growing thereon—simply Grass,—overrun with Grass, and it was up in heaps all over the field and had become a great deal of trouble.

Mr. PORTER would not allow it to go before the public that they did not make a level bottom by steam. He said they could cultivate as level by steam as by horses. Mr. Smith was talking of steam some years back. He was happy to say Mr. Greig's people had made some great improvements. They could make as true a bottom by steam as by horses.

Mr. SMITH had never seen it yet.

Mr. EDMONDS said the point seemed to be—Was it better to plough or cultivate? He thought ploughing was to be condemned, especially by steam. With horses, they could not plough too deeply. The time to cultivate deeply was in the autumn, and that was the only time when they ought to cultivate deeply. They got rid of the Docks and Thistles with the cultivator quite as much as they did with the plough. The only time when the plough should be used, in his opinion, was in the autumn, and then it should be ploughed only about 4 inches deep. He thought in the spring of the year care should be taken on light land not to cultivate too deeply. Last autumn he had a piece dug up—light common stone brash—intending it for roots, but afterwards he altered his plan, and put in Barley this spring instead of roots. Then in spring he merely dragged it down with a steam drag and then harrowed it, and let it lay a month or six weeks. It was drilled about Good Friday. Ever since it came up there was a difference in it, and in walking over they could see every inch of the drag wheel. Wherever the drag wheel went, there the Barley was longer, thicker, and now it was of a yellow character; beyond these places it was rather too thin, but of a good colour. What the reason of that was he did not know. It appeared as if that land had wanted some kind of firming. With regard to ploughing and cultivating, he thought there had been a great mistake made, and a great hindrance to the introduction of steam had been caused by too deep ploughing and scarifying. Persons who used to plough 3 inches, as soon as they got steam ploughed 6 inches. It was the greatest mistake in the world, especially in the spring of the year.

Mr. GREIG, in his reply, said the discussion had taken a different turn to what he had expected. He had carefully avoided touching upon steam cultivation, and the whole discussion had turned upon steam cultivation. Mr. Wrightson had spoken of the horse cultivator. He (Mr. Greig) considered the horse cultivators as little better nor worse than as planters of Twitch. They went about half the depth of the Twitch—cut it off, and propagated it. Twelve miles from there he could show them a cultivator going through 2 feet deep. He differed slightly with Mr. Wrightson with regard to the weeds—he thought the cultivator brought less weeds to the top than the other, especially if they plough deep, because there were certain weeds the seeds of which would lie in the ground for six or seven years, and the moment they were brought up they came upon them at once. Still they ought not to be there. On the subject of ploughing light land he did not agree with Mr. Smith or Mr. Wrightson. He could give them an instance of 200 acres ploughed in two weeks with one steam plough. The first week 125 acres were ploughed, the next 95. If Mr. Smith and Mr. Wrightson would calculate the number of horses and men only that would have been required to do that, no doubt they would come to the conclusion that steam was rather the cheapest. The cost of ploughing was a matter of calculation, and if he could displace as many horses on the light land as he could on the heavy land, he might be quite sure that the expense would be the same on either. Mr. Smith had spoken of rock. They did not intend to begin stirring up rock, but he had been dealing with a farm on rock for seven years, much harder rock than Mr. Smith's or any in that neighbourhood, and the soil on that farm was at that moment 3 inches deeper than when they started, and it was producing better. Another part of Mr. Smith's argument was that the steam plough did not plough level. Land ought to be cultivated four or five years by the steam plough before a judgment was come to. The speed at which the steam implement went necessitated a looser furrow, and left it not so nice to the eye, which was all the better. If they took some varnish and varnished themselves, they would soon be out of that world, and that was what they did with a horse plough. Gentlemen should find out, before making any allusion to the subject of the present position of steam cultivation, what that position really was. If they had travelled on the Great Western Railway 20 years ago they would have found that it was necessary sometimes to stop and grease the bearings. It was so with steam cultivation. If any gentleman would come to Leeds and see the present position of steam cultivation, he would be better able to speak from its present position.

The CHAIRMAN read the following resolution:—"That deep cultivation is essential to the profitable cultivation of the soil, and deep ploughing by steam is injurious; exposure of the soil to the weather, and the cultivation of the land only when it is dry, are essential to success;" which was taken as carried, there being no opposition.

HEREFORDSHIRE CHAMBER OF AGRICULTURE.

The Over-Preservation of Ground Game.—At a recent meeting of this Society "The Over-preservation of Ground Game" was discussed.

Mr. R. APPERLEY said as a small holder he suffered, perhaps, as much as any there from the depredations committed by game, but he did not think it was a question which the Legislature could deal with. The landlord had a right to do what he liked with his land, and the tenant took the land with his eyes wide open. He had suffered, and he did suffer; but he agreed with the Chairman that it was a question between the landlord and the tenant.

Mr. PARTRIDGE said he was sorry that so important a discussion as that should have had such a sorry opening. He regarded Mr. R. Apperley's remarks as cowardly, and as a little bit of home-made toadyism. It had been said that there was nothing to complain of, but he said there was a good deal. He was as ready and as willing as any farmer to meet his landlord upon this question. He did not speak personally, because he was not a sufferer from the over-preservation of ground game; but, as farmers, they were prepared to meet their landlords in an equitable spirit. It was very easy to say that if a farmer did not like the preservation of game he could leave. They must remember that the farmer had rolling stock, he had capital in the soil, and he could not move except at a sacrifice. They were, therefore, obliged to treat as they best could, and the treating was very often conducted while the tenant-farmer was labouring under disadvantage. They were told that the middle class was behind in education, and, therefore, on that account the tenant-farmer came forward to treat at a disadvantage. The landlord and his agent were educated men, and in their treating with the tenant their better education was a great advantage to them. They knew the quality of the land, and there was otherwise a disproportion in the position of the two parties which was not in favour of the tenant's interest. There was an injustice in the first instance, supposing that a "give-and-take" principle could be adopted. If a man had set himself under an agreement, he must abide by it, but he did not think that if a man had made a bad bargain he should go and make another. A tenant-farmer had a family to maintain, he had capital invested in the soil, and if he found that owing to an over-preservation of ground game he was greatly suffering, and he was not able to make that profit he had a right to expect, he was perfectly justified in complaining. He did not think there was any one present going to contradict him upon that point, and also when he said that the over-preservation of ground game had assumed dimensions, of which he would say honest men ought to be ashamed. He had seen families ruined; he had seen many brought to beggary; he had seen the children obliged to go out as servants, through the losses sustained from the over-preservation of game. He was sorry that the landed proprietors had not met together and taken the words out of their mouth, and then one gentleman would not have come there and said what was worse than nothing. He said that they had a good deal to complain of. Again he would remind them that he did not speak personally, because he was not a sufferer; but he would say this, that no man could take a horse and trap and travel over 20 miles of country without seeing how the land was overrun with vermin. But he knew too well how things were to be at all mistaken with regard to this matter. He knew those who had suffered severely, and he hoped some measure would be adopted by which such a course might be stopped. The Assessment Act said that the land should be rated at its full value. Now, did a land proprietor let it at the absolute worth of the land, or did he let it knowing that he was going to let on it a crop of game? If he did the former, knowing that game would be preserved, it was not an honest transaction; and if he did not do so, he did not see how the Assessment Act could be acted upon, unless they rated him at more than the land was worth. It would relieve the tenant if the landlord were rated, but he thought it would be a disagreeable taxation for the Assessment Committee to set about. He hoped he should live to see a measure passed which would practically deal with this question. The over-preservation of ground game was the "agricultural curse," and it was far more important than any subject yet brought forward.

Mr. J. BOSLEY said he knew what Mr. Partridge's opinions were, and he was sorry he should accuse their friend Mr. R. Apperley of anything like toadyism. He did not think Mr. Apperley had favoured the landed proprietors in a dishonest manner at all. He (Mr. B.) was a tenant-farmer, and had been for nearly 40 years. The first land he occupied he rented under a gentleman who had a very large preserve, and he unfortunately could not live on that estate himself, and he underlet it. The gentleman who took the manor took very little interest in the tenants upon the estate, but he was glad to say that the landlord did take an interest, and he let the land at its fair value, irrespective of the game. He must say, on looking round the county, that it appeared to him that those landlords who preserved the most had some of the most respectable and important men in the county as their tenants—men who had flourished and did flourish, and he thought would still continue to flourish with that large head of game upon these estates. This proved that those estates must be let in a very fair and equitable manner. He thought that Mr. Partridge had cast a slur upon his brother farmers. He said that they were not so well educated as the agent on the property. Now he thought and believed, looking around the county, that they would find as many intelligent men amongst the farmers as they would in any other occupation in the city or county of Hereford. He did feel rather "nettled" to think that Mr. Partridge, who he did give credit for a good deal of common sense, and who could manage business as well as any man, should cast a slur upon his friends and neighbours. It was very important to keep gentlemen at home upon their estates, and he suspected that if their friend Mr. Partridge were a landed proprietor, he would like to see a good head of game.

Mr. PARTRIDGE: Partridges, I should.

Mr. BOSLEY said he thought they should give their landlords an opportunity of enjoying themselves at home, instead of them going out of the country. He considered it was quite a bargain between the landlord and the tenant.

Mr. DUCKHAM felt that the over-preservation of game had become a great and serious national question, one that was decreasing the annual produce of the soil of England, and causing a great amount of the wealth of the country to be sent abroad to obtain that food which should be produced at home. But if they could not bring it home to the conviction of the landlord to see the injury he was doing to his fellow men by the over-preservation of ground game, it would be difficult for the Legislature to teach him. Mr. Bosley had said something about little damage being done. Now some short time ago he knew a friend who rented a small estate (some 200 acres), and he rented it under one of the most kind-hearted and liberal men in the county. He had no hesitation in giving up the full power to his landlord to preserve the game. He was as proud as others would be to see his landlord come over and have a day's sport. But the landlord went upon the Continent, and before going he let the game upon the estate to another gentleman. In a short time that man's crops were so over-run with rabbits that they threatened to bring him to beggary. In one year, upon those 200 acres, there were no less than 3000 rabbits killed. Thus this man had to sustain great loss, without hope of remedy, because he had taken the farm with full confidence that things would continue as he had known them before. After further remarks, Mr.

Duckham moved, "That in the opinion of this Chamber the over-preservation of ground game seriously decreases the produce of the soil, by lowering the standard of its cultivation, and by the destruction of the crops; that it demoralises the habits of the people, increases crime, and thereby tends to pauperise the industrial classes."

Mr. WREN HOSKYNS, M.P., said he saw that the subject for discussion was simply named "the over-preservation of ground game." He thought that that was a very good subject, but the way in which it had been put had left him in some little difficulty as to the form in which the discussion was to be taken—whether it was a question as between the landlord and the tenant, or whether it was the question of the Game Laws in general, and their effects in producing poachers, and thereby increasing the rates, producing crime and pauperism, or was aimed at the preservation of game generally, and looked upon as ground for discouragement of game as a country pursuit. Now, inasmuch as the game by the common law belonged to the tenant, the persons who would be the subjects of reprimand if the game was too great in quantity would, in the first instance, be the tenant, he not having defended himself in his agreement with his landlord from having too much game or none at all. It was his property and his business upon taking the farm to determine to whom that property should belong, and in what way it should be treated. As most of the farms were held from year to year, it came into the hands of the tenant once a year to say whether there should be game or not upon the estate. He did not say that to anticipate the discussion, but that might be taken upon it to show that in reality the remarks of the Chairman in opening this question touches the very point which probably would be found most convenient for landlord and tenant, as being a kind of arrangement between them, and because he was afraid that the tenant would find it rather difficult to get out of the blame to himself as being the chief partner in it himself. He was not himself a preserver of game, neither, he believed, was the Chairman. He, therefore, felt at liberty to speak with some degree of fairness and impartiality upon this question; and he must say that his own experience, as far as he could look back, had always been that there was quite as warm and encouraging a feeling upon the part of the tenants, where they were upon good terms with their landlords, as on the part of the landlords themselves. He had himself been almost blamed by tenants because he was not as keen for sport as his tenants would have liked to have seen him. Where there was not some very special arrangement made by the landlord with the tenant for the preservation of the game, it was absolutely once a year in the power of the tenants to renew their contract with the landlord and to complain. Of course the answer would be that in practice the applications for farms were made under circumstances where there might not be quite that degree of large choice which enabled a man to make a bargain as he would like to make for himself. He thought there was a good deal in that; and he though there was a good deal in the remarks which fell from Mr. Partridge—that the tenant-farmer had to deal with the landlord and his agent, and that he often made a bad bargain, or one that turned out to be a bad bargain. But if they made bad bargains they must not go and ask Parliament to make bargains for them. They must not go to the Legislature to ask them to enable them to make good bargains. Therefore it was that he felt some doubt when he saw the terms in which the question was put, as to whether it was put as a question for legislation, or merely as a matter for discussion at that meeting as a question between landlord and tenant. He should not have been sure had it not been for the motion of Mr. Duckham. He should say, looking at the subject free of prejudice, either as a favourer or a disfavourer of game, he would say that it was entirely according to the mode in which the land was let in England—it was entirely a question between landlord and tenant, and which they alone were competent to decide upon. He was happy to say that in the great majority of cases it was a question which was pretty well arranged between them. He differed from Mr. Duckham so far that he thought the exceptions he had named were the exceptions to the rule. He did not, however, think that Mr. Duckham had spoken too strongly on the mischief which did arise where there was a great quantity of game kept, and when it had a tendency to induce crime. He should endorse a sentiment which was expressed by some one at the end of the debate on this question in reference to Scotland, "I think the best conclusion we can come to is, the ground game to the tenant, and the winged game to the landlord." He should subscribe to that entirely. He would rather not move an amendment, or any opposition to the motion; but as a matter of opinion he did not think that this subject could be looked upon as one for legislation, because it was within the competency of the two parties, in reviewing their contract once a year, to make what alterations they pleased. In Scotland the land was let by auction. The landlord was an absentee, and the farm was let for 19 years, and by the common law the game belonged to the landlord. In that case it became absolutely important that the matter should be decided when the farm was taken. He could not look upon this as anything but a social question, a question between landlord and tenant in England, because in a vast majority of English tenancies there was that easy feeling between landlord and tenant that they were content to have annual holdings; and these being capable of renewal once a year, if either party had cause to complain against the other it could be stated, and an arrangement made. He looked with much regret upon the whole history of the Game Laws. They were derived from those ancient forest laws, which were the greatest exhibition of cruelty from one class in this country to another that had, perhaps, ever been practised. The laying of the whole of the New Forest in the south, and the whole of the forests in the north, by the Norman conquerors was the beginning of the teaching in this country of that tyranny which could be practised for the sake of recreation by conquerors. From that day down to the present time the forest laws had gradually come under the name of Game Laws, and he, for one, should be glad to see the recreation both of the landlord and the tenant carried on in the county in the absence of the very name of Game Laws; and that, under some other and more suitable denomination, the rights of property and of pleasure and amusement should be carried out without anything which should recall the words which brought to their recollection that which they would rather not remember in the history of their country.

Mr. PARTRIDGE said he must remember his friend upon his left (Mr. Bosley), and reply to him. He wished to say that he had not the least idea of saying anything disparaging to his brother farmers. As regards what had been said by some of the previous speakers, he did not see why legislation should not be applied to ground game. One thing would be certain, viz., if the law could be applied to ground game, the preservation of that vermin would no longer rest with the landlord. He did not agree with those speakers who put the landlord and the tenant on the same footing when treating for a farm or making any bargain. Every tenant must employ his capital and keep his family, but the landlord might be said to stand in an independent position. He would second Mr. Duckham's motion.

Mr. EDWARDES (Broadward) said he entirely agreed with the view Mr. Wren Hoskyns had taken of this matter, viz., that it was not a subject for legislation, but a question between the landlord and the tenant. They did not wish to Irishise England; they did not wish to send the landowners to seek for sport in foreign lands. They wanted as many gentlemen as they could get to reside in their midst, to buy their horses, hay, and corn, and to enjoy the sport the preservation of game provided. As to over-preservation, he thought that was a great mistake; but there were so many questions upon both sides, that it was a matter between landlord and tenant. Holding this view, he would propose a little amendment—"That it is the opinion of this Chamber that the ground game question had better be left to the consideration and good sense of the landlord." He might say that if he were a tenant who suffered from the over-preservation of game, he should invite his landlord to luncheon, and then take him over the farm. The landlord's own good sense would see that the game was spoiling his crops, and he would take it into consideration.—The amendment fell to the ground, there being no seconder. The Chairman then put Mr. Duckham's motion to the meeting, and it was carried almost unanimously, only two or three hands being held up against it.

NORWICH.

Small-pox in Sheep.—A meeting was held here on Saturday of last week to consider and oppose an amendment to the Contagious Diseases (Animals) (No. 2) Bill which was promoted by the Central Chamber of Agriculture, Mr. C. S. Read, M.P., in the chair.

Mr. BROWN said:—By the Government Bill any farm on which the small-pox broke out would be declared an infected place; and that it must be clear of the disease for 28 days before it could be declared uninfected. Mr. Read intended to amend this clause by putting the sheep-pox in the same category as cattle-plague; that is to say, that if any sheep brought it out, the whole flock was likely to be slaughtered. There were several of them who doubtless recollected the outbreak of sheep-pox in 1848, and would well remember that it raged in the latter part of May or the beginning of June in that year. At Marham, out of 739 hoggets in one field, he had 21 cases. As soon as attacked the sheep were removed from the field, and placed in the bullock yard, where they received proper food and attention; and the result was that 14 died and seven recovered. He had also one ewe attacked out of 267, but it recovered and returned to the field. Out of 400 shearlings not one was affected. If Mr. Read's proposals had been carried out, 1006 sheep would have been killed, perhaps 1406 instead of 14. The late Mr. Edward Wineals had 18 cases out of a flock of 500; and on another farm in the same neighbourhood three were attacked out of 659—one died and two recovered. Mr. Thompson had no case, neither had the late Mr. R. G. Wineals; but he inoculated 50, and the greater part of them died. Taking the first three instances only, if Mr. Read's proposed amendment had been carried out, there would probably have been 1600 sheep—possibly 2500—killed in the place of 24. In the adjoining parish of Shouldham, Mr. Bird and Mr. Leamon, jun., had one case each: the former killed and buried, the latter attended to and cured. Mr. Aylmer had one case out of 1000 sheep, and that recovered. Mr. Flatt, of Eastmoor, who said it would be monstrous to slaughter, had 35 out of about 520 ewes and 500 hoggets and only lost about a score. Mr. Hugh Aylmer, whose rams were spread throughout the whole of the county at the time, after the rams were returned had several cases and not a single sheep died. He thought he had said sufficient to show that the sheep-pox was not to be compared with cattle-plague; and that it was not nearly so destructive as pleuro-pneumonia. He therefore thought the Bill of the Government was amply sufficient to meet the case with regard to sheep-pox. True, there would have been "compensation." How such a word could have been intended to describe such a thing was beyond his comprehension. He had heard of "composition;" but "compensation" could have nothing to do with the question. Suppose the disease broke out in a flock of 1000 ewes while it was in lamb—suppose the whole of that flock to be slaughtered, as they would be liable to be, how was their value to be estimated; how would it be possible to replace them? He purposely avoided saying anything about the consequences to the ram breeder. His impression was, that such a case as that to which he had alluded would be quite vexatious enough without the consequences to the ram breeder. The results would not only be disastrous to the breeder, but would be a loss to the consumer and to the public in general, and would be greatly detrimental to the interests of the public at large. He had reason to believe that Mr. Read would meet what he had deduced by saying the amendments were not his, but those of the Central Chamber of Agriculture, and that he, as president of that body, felt it to be his paramount duty to carry out the wishes of that Chamber. But he trusted they would say he had also another duty to perform, and that was a duty to his brother farmers and the country. He would not trespass further on their time, but he thought he might fairly claim to say that there were proofs that with ordinary care and attention sheep-pox was but slightly contagious; that with much care and attention it would not occasion any serious loss, although some trouble, and that it quickly died out and was very easily eradicated. Sheep-pox was very easy of detection, as it invariably broke out under the arms or thighs of the sheep, consequently making them lame, or so that an owner or shepherd with half an eye could detect every case brought forward, even before the symptoms were fully developed. He would propose, "That this meeting is of opinion that the clauses of the Government Contagious Diseases (Animals) (No. 2) Bill, relating to sheep-pox, are amply sufficient for the protection of the British flockmaster."

Mr. S. K. GAYFORD seconded the motion.

Mr. ENGLAND said he was very much obliged to Mr. Read for having taken the chair, so that the movement which was now being taken simply in defence of the British flockmaster might be quite clear of any political move against Mr. Read. He could not help expressing his feeling that it was a great pity that the opinion of this large county—in which so many flocks were kept, and so many sheep bred—should not have been expressed before the Central Chamber of Agriculture, as it might have had an influence upon their deliberations, and might have brought about a different issue than what it had to-day. He thought it would be a terrible thing that the flocks should be subjected to the same treatment as cattle if the disease should break out; and he hoped the resolution would meet with the approbation of the meeting.

Mr. WOODS was quite sure that if they were to insert that clause, and that if the sheep-pox were unfortunately to break out in this county, it would be more disastrous to flockmasters and mutton-consumers in this country than many persons were aware of. It would not only have a disastrous effect upon localities, but he held it would have a national effect. The finest flocks of this country would be slaughtered, and that they would never be replaced during the present generation. He did not go so far as Mr. Brown in saying that sheep-pox was not contagious, but it was easily governable. He thought they should ask Mr. Read to represent to the delegates of the Central Chamber of Agriculture how very detrimental it would be to the interests of this country if those clauses were carried into law.

Mr. GAYFORD well remembered the year 1848, when sheep-pox broke out. He visited several flocks, and went into Essex, Cambridge, Suffolk, and Norfolk. The owners consulted with him as to what was to be done, and, unfortunately, they came to the conclusion that they would inoculate. He himself inoculated between 800 and 1000, and his loss was very trifling; but with some people it was very heavy. Out of the sheep he inoculated he thought he lost 14, 15, or 16, but he would not confine himself to one sheep. The system he pursued was that on every morning he went round, if he discovered any sign of sickness, he had them removed and put away, and kept by themselves. Consequently, his loss was very light. He and the others who inoculated were very justly found fault with. Adjoining his occupation was a large pool of water, and in the month of June sheep to the number of 35,000 came down to it, and no mischief arose. Mr. Smith had only one sheep attacked, and at Larling there was but one case. That sheep was directly removed, and no further case appeared; and they then found from experience that the only thing they had to do was to remove the sheep as soon as they were diseased, and it was marvellous—after they ceased inoculation and gave proper attention to them—how quickly it died out, and how little was thought of it.

Mr. FLATT said that in 1848 unfortunately he had what was usually termed sheep-pox. There were then 520 breeding ewes and 500 hoggets on the farm. He had 35 ewes which were attacked, and did precisely as Mr. Gayford did. All his sheep were drawn out every morning, just as Mr. Gayford had said. That was in the month of November. There were 35 sheep taken, and out of the 35—they were nursed as much as they could be—he lost 20 or 21, but he would not be certain to one sheep. To be told that a man who had a large number of sheep on his farm was to have them slain in this way because a few were affected, was certainly the most preposterous thing he had ever heard of in his life.

Mr. R. LEEDS could only state his own case. In 1848 he had only a few cases of small-pox. There were about six cases out of about 1000 sheep. He lost three and three recovered. He separated the diseased sheep and he had no further cases. He thought they ought to be very much obliged to Mr. Read for attending there that day.

[After some further discussion Mr. Brown's resolution was unanimously carried. The amendment, which it condemns, has been since withdrawn by Mr. Read.]

Reviews.

Our Daily Food: being a Second Paper on the Agricultural Statistics and Food Supplies of the United Kingdom. By James Caird.

We called attention to this paper at the time it was read by Mr. Caird before the Statistical Society last March. In its published form it is accompanied by a map illustrating the capital point to which its author referred when pointing out the increasing dependence of our population on other countries for their bread:—

"Wheat, which forms the great staple of the food of civilised man outside the tropics, occupies of all cereals the widest region suited to its cultivation. The importance of this fact cannot be overrated. If the Wheat region had been of small extent the increase of population would have been quickly limited to the food resources of each country. A continued development of mining and manufacturing enterprise in Great Britain would have been impossible. For nothing can be done without bread. Wheat is the common food the real staff of life. The hardworking poor are far more dependent on and much larger individual consumers of it than the rich. If its price, like that of most other commodities, had risen, or was likely to rise, with the increasing demand, no political foresight, no more equable arrangement of the burden of taxation, no reduction even in public expenditure could have long availed us. But the Wheat region has been designed apparently to be co-extensive with the progress of civilised man, and the more regular and extensive the demands upon it the more ready and continuous becomes the supply."

We again call attention to this publication at a time when many a tenant-farmer may be doubting whether he shall send in the returns for which the Board of Trade has been this week asking him. The paper read by Mr. Caird contains a conclusive proof of the national importance of possessing accurate records of our agricultural progress. We entirely agree with him in his concluding sentence:—

"I think it will be generally admitted that the agricultural returns have proved most useful and most instructive, and considering the ever increasing demands of our population on the resources of agriculture, I trust that nothing will be permitted to interfere with their continuance, and with that greater development which further experience may render it desirable to introduce."

The Country Gentleman's Magazine. For June. Simpkin, Marshall & Co.

There is a lot of good and useful agricultural reading thrown together in these pages. Having received their editorship in other columns previously, but little has been done to fit them for their more permanent position here; but that much of what appears in our excellent contemporary, the *Farmer*, deserves this permanent position we very cordially admit, and we hope that a new set of readers and subscribers are interested and instructed by this republication. It is, however, somewhat of a medley of small portions to which the original "Quarterly Journal of Agriculture" has thus come, and it can hardly be doubted that the important northern representative of agricultural literature which we remember 30 years ago has lost somewhat of its dignity and weight.

The present number begins with an article on deer forests, and ends with one on bouquets, and every variety of subject is discussed between. We shall best illustrate the character of the pamphlet by making a corresponding variety of extracts.

Deer Forests.—"It has been calculated that, if the deer forests were turned into sheep-walks, it would add about 400,000 sheep to the permanent stock of the country. It is, no doubt, true that they bring a considerable revenue to the proprietors of them, but it has been urged with some reason that they act prejudicially by draining away the population from districts which otherwise might support many stalwart Highlanders and their families. These, however, are questions for the political economist to settle, and with him we leave them for the present."

Potatos in the Last Century.—"Dr. Keith, of Keith Hall, writes that he had 12½ tons of excellent Potatos on the acre, as far back as the year 1772; and be it remembered that there were then no stimulating manures to bring away and increase the crops. In an able and systematic work of three 8vo volumes, written in the end of last century by Mr. Donaldson, of Dundee, he says that there is not an old woman in North Britain who is not as good a cultivator of Potatos as the most expert farmer. The culture of Potatos appears then to have been a simple matter; but the industrious wife of the farm-servant, having for the most part digged and planted the Kale-yard attached to her dwelling, would by long practice in a small way pick up as much experience as the farmer, who then had no greater breadth in the field than what supplied his household. In minute attention to circumstances, exactness of execution, and economical management, she would in all probability excel the farmer. The collections in the ash-pit not far from the cottage door would amply dress the adjoining garden with the best of manure—consisting, among other enriching ingredients, of the ash of Broom and Whins, and also of turf and peat. The manure would thus contain abundance of potash, one of the chief mineral substances that enters into the composition of Potatos."

Turnip Culture.—"Soon after harvest the stubble is ploughed with a deep furrow, and left in that condition till the spring. As soon as the season brings dry weather, so that the soil can be properly worked, the grubber is sent across the autumn-formed ridges, which loosens the soil and tends to drag the weeds to the surface, in place of merely cutting them asunder, as done by the action of the common plough; the land is then rolled to crush the clods, and harrowed to collect the weeds. These processes of grubbing, rolling, and harrowing are then repeated as frequently as necessary, till the soil is brought into the proper condition of tilth. Drills are then opened with one furrow of the common plough, dung spread in the spaces, covered by another turn of the plough. The seed is then sown by the drill, after which the roller is passed over, completing the process."

M. Struckmann's Experiments in Cattle-feeding.—"The food which produced the most milk was 5½ lb. of rape-cake, 36 lb. of Mangel, and 25 lb. of oat-straw. Further, 1 lb. of rape-cake produced on an average 1½ lb. of milk, and that 1 lb. of brewers' grains produced about a quarter of a pound of milk. Thus 1 lb. of rape-cake is equal to 4 lb. of brewers' grains in its milk-producing powers. And lastly, which is a noteworthy point, while the milk produced by the rape-cake was richer in butter, the butter produced by the grains was more delicate in flavour."

A Continental Cure for Laid Crops.—"This consists in sowing a field, not as one does generally, with one kind of corn, but with a mixture of several varieties of corn. M. Biard mentions, to support his system, very conclusive experiments, and affirms, moreover, that the crop of mixed Wheat has been very superior, as well in straw as in seeds, to that even of corn sown separately. The mixture, to obtain the result sought, ought to be composed of corn having short and long stalks."

Rape-cake as Food.—"Where rape-cake is used in conjunction with other food, and steamed or cooked, it is worthy of observation that if it (the rape-cake) is treated with boiling water, or the mixture heated beyond the boiling point, all acridity disappears, and the animals eat with avidity. Mr. C. Lawrence, of Cirencester, was the first to notice this—at least to draw public attention to it, and on his representation Dr. Voelcker carefully examined some rape-cake, and furnished the following report:—'I believe the pungent principle in rape-cake arises from the presence of Mustard seed, which is often contained in considerable quantities in foreign rape-cake. Mustard and Rape seed belong to the same family of plants, and in Germany, at least, I am sorry to say, our Rape fields are often very foul with Mustard. That boiling water prevents the pungent acrid smell is fully explained by the chemisty of Mustard-seed.'"

The Magazine is sufficiently illustrated; the figures, however, like the text, we have seen before.

Farm Memoranda.

WEST SUSSEX: *June* 15.—We are now in the midst of haymaking, and the weather is anything but favourable, and there is a good deal lying that was nearly ready to carry before the rain came. The crop is the best that we have had for a long time, but some of it will be spoiled. The Wheat crop will not be so heavy as we expected at one time, the cold May has checked it very much; in many places it is far from promising, and will be later than usual. Barley looks better, but may go a little too much to straw, some of it is already laid; Oats look very well, but the wireworm has done mischief in many places. Potatos at present look promising, but much rain is not the thing we like to see for them. Peas are generally a good crop. Beans are said to be a good deal blighted. Mangels are up and look well, though rather backward: very few Swedes are sown. We have been behind with our work about a fortnight all through the spring, and are not able to overtake it now, owing to the stormy weather; the land does not work well, and we are likely to have a good deal of labour to keep it clean during the summer.

Although during the winter there were more hands than appeared to be wanted they are none too many now. The mowing machines are at work in many places, and the crops being heavy they are more tried than usual, and where the Grass is laid, which it is in many places, they are unable to get through it; and this is a serious hindrance to their use, as the feeling towards them among the labourers is not very favourable, and perhaps there is a quiet satisfaction in seeing them beaten, and the owner must look pretty well after them himself if he is determined that they shall succeed; perhaps this applies to most machinery. But the knowledge of mechanics is extending, and it is impossible for any one to be well acquainted with machinery without taking an interest in it, so that the use of it will no doubt steadily increase. But machinery has many obstacles to contend with in the field; what with deep furrows, crooked fences, tree roots, and small fields, it is astonishing that it has succeeded so well. The day, no doubt, will come when there will be a war waged upon those obstacles, and the rough places will be made a little smoother, and when it will be admitted that land exists for the sustenance of its inhabitants — when art will assist Nature with all her power in the treatment of land, as well as in the cultivation of the human intellect. But the legislature has some little alteration to make before that can happen. Transfer of land may have to be simplified, and Game Laws altered; and as that will not be all done without a struggle, a little time will be required to bring it about. *G. S.*

FRECKLETON, NEAR PRESTON.—There is here a farm of 550 acres recently embanked from the northern bank of the Ribble, in the hands of that rare form of agency in agriculture—a farming company. The right of pre-emption which belongs to the riparian proprietor in the event of any reclamation of the foreshore was not exercised here, mainly because the land along the shore was just at this spot under a sort of co-operative ownership, so that the property acquired by the embankment has remained in the hands of the Ribble Navigation Company, and the Preston Farming Company has been constituted to take the land on lease. A rent of 3*l.* an acre is given, and with a sufficient subscribed capital, buildings have been erected, roads made, arterial drainage completed, a great deal of levelling done, and the whole brought into good working order. This has been done under the direction of Mr. D. Ashcroft, the company's resident agent, who has this year of his 525 acres no less than 200 acres in corn crops, the remainder being in Potatos, Turnips, Clover, and pasture, with a considerable area in market garden.

The land is a rectangular oblong, and the buildings, including large barn with engine-room and workshop, stabling, cow-house, covered yard, &c., are placed tolerably centrically. Here, too, is the commencement of a considerable extent of market garden ground, where Asparagus and Seakale, both sea-side plants, are successfully cultivated, and where other garden crops, for which a good market is found at Preston, will be cultivated. The whole of the land side of the farm is a tolerably heavy alluvial soil; the seaward side is more silty, and in many parts of the farm there is considerable patchiness of land exhibited by the recent levelling operations required by the way in which the land had been cut up by water channels and ravines.

It is the lower part of the land next the embankment which will be the most suitable part of it for receiving the sewage of Preston if ever an outfall shall be sought for it on the land. The surface here slopes seaward and provides fall enough to enable the distribution of liquid manure by irrigation. Hitherto the land has had, in its natural fertility, store enough on which to draw without much expense in manure or stock; but hereafter it will be necessary to take pains to replenish the soil by the addition of artificial and natural fertilisers. The work of the farm has been done by about 15 horses, together with Fowler's steam plough. When we walked over the land the other day the Wheat crop, especially on the landward side of the farm, was very promising; the Clovers were a bulky crop, Oats looked backward, Potatos—about 80 acres—were just coming through, and the appearance of things in the plot allotted as market garden was satisfactory. We understand that the financial success of the company hitherto has been entirely satisfactory; and from the present appearance of the farm we should judge it likely to prove a successful speculation in the long run. A considerable portion of the subscribed capital has been invested in the erection of buildings; but the value of these, up to 2000*l.*, will be repaid to the company on the expiry of the lease. On the other hand, nothing seems more safe than the security given by the embankment which keeps the tide off most of the land. A very capital bit of engineering in the shape of an embankment 20 feet high in some places, with a slope of 1 in 5 seawards, and 1 in 2 landwards, and about 3 miles long, is of course the datum or foundation of the whole venture. From the top of this long reach of straight line we see at low water the Ribble confined within its straight and narrow channel in the midst of a wide expanse of mud, bounded by an immense stretch of marsh and mud upon the further side—the same, we suppose, as that which from a similar standing ground could once have been seen behind us. This has now been turned to profitable account, and is covered with crops of corn, and roots, and Clover, and *that* will no doubt one day be similarly utilised,—the sea kept out by embankment, and the mud and silt drained and cultivated. One of the greatest economies carried out upon the farm is that of the labour of carriage by means of portable railways. Iron rails laid down from the farm buildings enable the carriage of manure to distant fields and save a good deal of horse labour.

The following we extract from the *Preston Guardian* of 1867, where it appeared in a description of the trial of implements, of the Lancashire Agricultural Society, which took place on the Preston Farming Company's farms then recently enclosed:—

"Some remarks as to the history of the reclamation and subsequent cultivation of the land on Freckleton Marsh may neither be out of place nor uninteresting here. As already intimated, the land has been reclaimed by the Ribble Navigation Company. It is contiguous to the Ribble, and by road is seven or eight miles from Preston. The village of Freckleton is situated close to the rear, on the western side; Clifton is not far distant on the north side; Kirkham stands still more in the rear in a westerly direction; and Preston rises with its chimneys and spires on the eastern side. Each of the places named can be seen more or less from the land: and when the air is clear, the sight forms a beautiful panoramic treat. The reclaimed land is situated in the townships of Freckleton and Newton. It is 555 acres is extent, and is effectually protected from the waters of the estuary by a high substantial embankment about three miles long, which was constructed under the engineering supervision of Messrs. Garlick, Park, and Sykes, of Preston. After the land had been duly reclaimed, some negotiations took place between the Corporation of Preston and the Ribble Navigation Company with the view of making the ground serviceable for the purpose of sewage utilisation; but the respective bodies, or their representatives, could not agree upon terms, and eventually the land was let to a number of gentleman who formed themselves into the Preston Farming Company (Limited). They took the ground upon a 21 years' lease. Originally there were nine gentlemen in the company—nine shareholders we ought rather to say—but one of them has since, we believe, sold out. The shares are of an important character in respect to their money value—between 600*l.* and 700*l.*, we understand. The land was taken possession of by the company in March, 1866, and at this time a good deal had to be done in the way of draining the ground and levelling the surface in different places. Previously, the Ribble Navigation Company had formed two main drains, with valves and pipes, for outlet purposes, through the embankment. Owing to the lateness of the spring, when the company commenced their operations, they could only prepare a portion of the land for crops; they used about half of it for Oats, Potatos, Turnips, Beans, &c., and their success was, it is said, of a very fair character. The ground was opened up originally with Fowler's plough. In July of the same year some farm buildings on the western side were commenced, and they are now near completion. They include stabling for 20 horses, cart-houses, granaries, implement sheds, piggeries, blacksmiths' and wheelwrights' shops, a harness room, and a capital farmhouse, which stands to the front o the other buildings, and is occupied by Mr. D. Ashcroft, the

company's manager. The implements on the farm consist of two of Fowler's steam ploughs, with 14-horse engines; a cultivator, capable of working 25 acres per day; a digger; four furrow ploughs; one set of steam harrows, 18 feet in width; a portable threshing machine, reapers, mowers, sowers, Turnip and chaff-cutters, pulpers, &c. There are also on the premises carts and waggons and 18 horses. The company do their own work with smiths, joiners, and fitters, and they have lathes and circular saws. The crops sown for this year on the farm consisted of 118 acres of Wheat, 291 acres of Oats, 100 acres of Beans, 30 acres of Potatos, 8 acres of Turnips, and a similar quantity of Carrots. At present the company have got about 100 acres of Wheat and 100 acres of corn cut. It is said that the crops this year will be excellent—that there will be none like them in this part of the country."

This was in 1867. To it we add that the crops in 1868 were magnificent, the Wheat crop almost unprecedented, and the Clover capital; and the crops this year promise very fairly.

ROXBURGHSHIRE, TWEEDSIDE: *June* 16.—The Turnip crop has now been got in under conditions the most favourable: the ground in most cases was easily reduced, and was full of moisture without being too wet, the result being the general braird has not been so good for a number of years. The early-sown Turnips have been through the ground for three weeks, and are now in the rough leaf, but will not be ready to thin for some time, unless we have warmer weather than it has been during the last month. Yesterday and to-day there has been an abundant supply of rain, which we stood a good deal in need of, especially for the pastures and the hay crop. The latter has a very poor appearance at present; we fear that the rain may have been too long in coming to bring it forward to anything like a fair crop. The pastures have been very bare, and will require heat to bring them forward. The grain crops are all looking well, but especially the Wheat, which has a very vigorous appearance.

The lambs are not very numerous, and promise to sell dearer than last year. On some farms there will be an average number, but on others very far short of it. More than usual have gone down with swung backs, and on the hill pastures many are bad with the louping ill. At the farm sales last month ewes and lambs sold very well, Leicesters with twin lambs bringing from 66*s.* to 80*s.*, and half-breds from 56*s.* to 70*s.* *H.*

BANFFSHIRE, BOYNE DISTRICT: *June* 7.—The weather is the general topic of conversation when two or three husbandmen meet, and it has been the same story for the month of May—"cold," cold and frost at night, which has told its own tale on the Grass and grain crops, from want of heat and moisture. The hay will not be above half a crop in many places, and a great deal of the Oats have a brownish appearance and appear stunted, but for the last two or three days we have had some genial showers, which has given it a start, and if genial weather continue we may have a good crop of Oats. Although our hay be gone Wheat looks well in most cases, and promises an abundant crop of straw.

The cold dry weather of May was favourable for cleaning land for Turnips, which is now all concluded in this district. Swedes were generally commenced about the middle of May, and Yellows about the 26th, which is considered the best season for them in Banffshire. A deal of money has been expended on artificial manures this year, as the dung would not go but a small distance. Mixed bones have been in great request and the bone mills in the district have had a busy time, working night and day, but there is no lack of other manures of every kind and colour to be had.

Pasture-grass is very bare, as the cattle had to be put on it early, and after the first flush was eaten off the cold dry winds never let it grow, but we hope June will make some amends for its predecessor. Flocks and herds are all healthy, and fat stock are selling at great prices, but the country is mostly cleared of them. The last few days being warm and moist, the Turnips are brairding beautifully, and we hope we have seen the last of the cold weather for some time. *W. J.*

The Poultry Yard.

A POULTRY show was held at Colchester on the 15th and 16th inst., and brought a good collection of birds from the different parts of England. Essex should be our first poultry county. Fowls, geese, ducks, and turkeys are fed in it in enormous numbers for the London markets. At the local markets the poultry forms an important item. The new route to Holland and Germany *viâ* Harwich brings poultry *en masse* through the county. Nearly all of the officers and crews of the steamers trade more or less in birds on their trips, and the numbers of geese annually brought over to be fattened in Essex is very great. In spite of all these chances and inducements, the quality of the Essex poultry as it comes on the London market remains the same, and makes no advance. Possessing the great advantage of reaching London by road direct, the higglers bring their goods up themselves, and see them laid up on the stalls, where they suffer terribly in competition with the Surrey and Sussex poultry. Essex is well adapted for poultry; all fowls thrive there, and some of the finest specimens of the principal breeds of fowls have at various times come therefrom. The growth and development of the Cochins date in a great measure from the pains and attention devoted to them years ago by Messrs. Sturgeon at Grays.

Few Dorkings have ever surpassed the beautiful birds bred by the late Mr. Fisher Hobbs, exhibited by him at Baker Street, and claimed for her Majesty by the late Prince Consort. Good birds yet abound in the yards of amateur breeders, but they do not get spread over the county, so as to improve the breed of fowls generally. The Essex fowl proper still remains the same bird that looks half game, half mongrel, and yet improvement is within easy reach, *vide* the fine birds exhibited last week by residents of the county. Mr. Tippler, of Chelmsford, was awarded 1st prize and cup; Mr. Lingwood, well known in the Birmingham prize-sheet, taking 2d and 3d. Dr. Campbell, of Brentwood, one of the most successful Dorking breeders of the day, and Mr. Frost, of Farham, near Woodbridge, were commended. In the second class for this breed, Mr. Parlett, of Great Baddow, Mr. Lingwood, and Dr. Campbell were the prize winners. Game fowls have always been favourites among the East Anglians, and the native exhibitors have generally hitherto managed to hold their own, but this year, although they do well as to the number of prizes taken by them in the various game classes, yet the prize *par excellence*, the cup, went to Tamworth, taken by Mr. Gilliver, and the 2d prize to Beverley, with Mr. Boyes. The Rev. F. Watson and Mr. Matthew divided the larger portion of the other prizes for the various classes of other varieties of game fowls.

The Brahma Poutras were shown in four classes. The cup awarded to them was taken by Mr. Leech of Rochdale, for pencilled birds. Mrs. Hurt, of Belper, was 1st for the other class of dark Brahmas, and Messrs. Maynard & Dowsett took the 1st for light ones. Mrs. Woodcock, of Rearsby, near Leicester, took 1st, Mr. Fowler, 2d, and Mr. Rust, 3d. In the class for chickens, Mrs. Burrell, of Ipswich, Mrs. Christie, of Glynde, and Mrs. Felgate, Ipswich, took the honours. The prizes for Spanish were scattered far and wide, the first going to Yorkshire to Mr. Pickles, who was followed by Messrs. Jones, of Fulham; Hellen, of Springfield; Bourdillon, of Colchester, &c. The introduction of the French breeds seems to have damaged the reputation of the Spanish more than any other variety, by taking away so many admirers of the breed, who, constant to it for years, now desert it for more modern favourites,—thinking, and with truth, that they are gainers in produce by the change.

Eight classes of Hamburghs, and two of Polands brought a great variety of plumage under the notice of the judges and visitors.

The French varieties were exhibited together, as at Reading; Colonel Wortley took one 1st for Crèvecœur, and the Hon. W. C. Fitzwilliam the other, for La Flèche. It is much to be regretted this last-named breed is not more frequently met with. The size and number of the eggs, and the great delicacy of the meat, should recommend it to all poultry keepers. There were five classes of bantams, four of them allotted to game. The fifth contained Sebrights, Japanese, black, &c. In the variety class for fowls, Mrs. Pattison received 1st prize for a pen of black Hamburghs, and Mrs. Burrell, 2d, for silkies. It might almost remain set up in print that the prizes for geese and ducks were taken by Mr. Fowler and Mrs. Seamons; but this time, although for the former they did so, yet for Aylesbury ducks they were beaten by Mrs. Burrell.

Mrs. Mayhew, of Chelmsford, won for turkeys; but it is a very bad time of year at which to exhibit them. That very useful class, both to some as a means of increasing their stock, and to others for disposing of their surplus—the selling class—was a great point of attraction. Dr. Campbell headed the list with Dorkings, followed by white Dorkings, black-red game, Aylesbury ducks and Cochin-Chinas.

Miscellaneous.

Causes of Pauperism.—It appears to me that the kernel of the whole system, and the cause of great expense is, that pauperism is thought to be a fixed quantity, and that if you reduce it you will solve the problem. I think that theory is a delusion. There will always be a great amount of pauperism, but it should be reduced to a minimum; and to do that, it is of great importance to remove the cause. I think *drunkenness* is a very common cause of pauperism. I investigated the matter in the parish of Liberton, and I found that there were 33 public-houses in the parish when I went there. I went to the Board of Excise, and obtained from them a list of the amount of spirits consumed in these 33 houses per annum. I found that it amounted to 9000 gallons, the population being, in round numbers, 4000. Following up this investigation, I sent, in 1851, a circular to a great many of the leading parochial boards of Scotland, asking what was the leading cause of pauperism, and I found that nearly all of them gave me the same report—that drunkenness was the leading cause. I found out also that pauperism, when once established, becomes, to a large extent, hereditary, so that paupers produce paupers. In the city of Aberdeen, I found that more than one-half of those on the roll were the relatives of paupers, and that drunkenness was mainly the cause of their poverty. The inspector of Greenock wrote me that one-half of the pauperism there could be traced either directly or indirectly to intemperance, and the inspector of Crieff stated that seven-tenths of the cases were attributable to drink. Bailie Greig, who was at one time chairman of the Parochial Board of Edinburgh, also informed me that out of 2700 cases, he believed that 2000 of them had been made paupers by drink. Then, I am confident that *the state of the houses of the people* has a very important bearing upon the question of pauperism. Some of the gentlemen here are aware that, in connection with the census of 1861—partly owing to a suggestion from myself, and others—there was a column added to the returns, setting forth the state of the houses, the number of rooms in each house, and also whether they had a window or not. That return was not fully published, but it was made public so far as Glasgow and Edinburgh are concerned. It appeared that there were 28,269 houses in Glasgow, and 13,209 in Edinburgh which had only one room; in Glasgow, 241, and in Edinburgh 121 had no window; and it appeared also that a large proportion of these one-roomed houses had a population of from six to fifteen people living in them. Everyone knows that that tends directly to disease and demoralisation; and it also tends to drunkenness in this way, that people who have no comfortable home are under a strong temptation to fly to the whisky shop. That is the state of matters in towns, and the rural districts are not much better. *The bothy system* has a most direct tendency to produce pauperism, in the form of bastardy and other forms. Then the bondager system which prevails in the south of Scotland, and by which a man is compelled to board an unmarried woman in his house to work on the farm, produced the very same deplorable results. When I speak of this system tending to pauperism, I produce this general fact in proof of it. There are two districts of Scotland in particular, which have been proved to be fruitful in illegitimacy—namely, the north-eastern and the south-western. The north-eastern is where the bothy system exists, and the south-western is where the farm-kitchen system prevails—the unmarried men sleeping in the stable-loft, and the women in a room off the kitchen: in short, it causes a complete break-up of the family system, which lies at the foundation of all social progress and improvement. Then, of course, *ignorance* is a great cause of pauperism; and in that view it is of vast importance to have a universal system of education. Now, men who have no education, and no means of intellectual enjoyment, have a strong tendency to betake themselves to physical enjoyments which tend to degrade them, and thus ignorance fosters pauperism. In the first place, it seems to me there is a great want of legislation in the right direction as to houses for the people. In Edinburgh, 400 or 500 workman's houses have been built by the people themselves; and I think every facility should be given to people to have houses of their own, because they would be sure in that case not to come upon the poor-rates. But there are two great difficulties. One has reference to the acquiring of land, and I think the Legislature ought to make some arrangement by which land might be got in and around cities at such a price as would induce people to get houses of their own. In the rural districts something also should be done. I think there ought to be a couple of cottages for every plough required upon a farm, and they ought to be built at the expense of the proprietor. I submit this opinion with great deference, but I hold it myself very strongly, and I believe that until this problem is solved you will never be able effectually to check pauperism. *Rev. Dr. Begg, before the House of Commons' Committee.*

Weeds on the Farm.—If we examine any of our fine old pastures, especially where the Grass has been eaten the closest, what do we find? Not simply Grasses and Clover only, but a tangle of tiny weeds, such as Medic, Milfoil, Crowfoot, Dandelion, &c., and if we pluck and taste these weeds we find them bitter, aromatic, and astringent, in fact, with a good deal of that flavour which, either by the use of condiments or similar bitter plants, we should endeavour to infuse into a salad before eating it; and we should do that not only to please the palate, but also because we believe the plants used to exercise some beneficial medicinal influence upon the food we eat. Just the same is it with the lower animals: the herbs of the field are their medicines, and they go instinctively to consume them. Though not an herbivorous animal, the dog, when he requires an emetic, will eat fresh Grass until it has the desired effect; the cow, when first turned into a fresh pasture, will eat greedily of the acrid leaves of the Crowfoot; and sheep daintily pick out those plants that are most agreeable to them. The faculty of selection is largely developed in animals, and many of them—goats for example—will eat greedily of plants that would be poisonous to other animals. All this tends to prove that weeds have their places upon the farm, and that their power for good or evil may be regulated as we think fit. If we take a sheep or other fat animal from a rich and luxuriant pasture, where the Grasses are fresh and luxuriant, and slaughter it, the stomach, when opened, will smell strong and offensive; but if we place another animal upon a poor pasture for a week—a pasture where the Grass is short, and sweet, and full of herbs—we shall find the stomach, comparatively speaking, quite a bouquet. This difference must arise entirely from the properties of the food taken into the stomach, and it is fair to believe that food exercises some influence upon the flesh of the animal. A butcher we dealt with for many years, who resides in a village a few miles out of London, whose business lay principally among well-to-do families, kept regularly a score or two of sheep feeding upon the village common, a poor gravelly soil clothed with dwarf Grasses, largely intermixed with wild Thyme, Medic, and Milfoil, the former scenting the air as you walked over it. Thinking fat animals must lose flesh upon such a pasture, we said as much to the butcher. He admitted the fact; they did lose weight, but the flesh was so much improved in quality, he could readily obtain 1½*d.* to 2*d.* per lb. more for it; in fact, he sold it for Southdown or mountain mutton. This is a significant fact, and shows the direct influence of the food upon the quality of the flesh of the animal. The finest beef that can be eaten is that of a mature animal, four to five years old, Grass fed, without artificial food; and if the flesh is accumulated from a large and poor pasture, rather than from a rich and luxuriant one, it will be better flavoured in consequence. From an animal of that age you will get the rich brown gravy which follows the knife when you cut into a joint, a sign of maturity which you never can obtain in the flesh of a young root and cake-fed animal. *Notts Guardian.* [Nevertheless, the place for weeds, we must believe, is not upon the farm, but "off" the farm.]

Rabbits and Hares in Turnips.—It is easy to distinguish between the damage done by hares and that by rabbits Hares peel the Turnips, allowing the skin to

fall down; rabbits eat right before them from the side, eating skin and all. Rabbits generally (indeed always, unless they are very little disturbed) eat only at the side of the field next the cover. Hares go over all the field, and they prefer Swedes to yellows. A rabbit eats the whole root right on, and the hare peels a part at the side, and then hollows it out, leaving the outside standing. The rabbit eats the green part as well as the root, and the hare often leaves the green top standing over a hollowed-out root. *Report of recent Game Case.*

Calendar of Operations.

Soiling horses and neat cattle of any kind is common in summer, and the practice every year is becoming more and more extended. Irrigated meadow and sewage Grasses, Sainfoin, Lucerne, Rye-grass, Clover, and Vetches, are mown and carted to the homestead daily as required. Those who have not straw for litter use dry earth, or ashes from stifle or clay-burning. In this way large quantities of the richest manure are made. In fine weather horses and cattle prefer open yards to houses to feed and lie in during night, morning, and evening, but they must have cover to go under at mid-day and during bad weather. They should have a plentiful supply of pure filtered water to drink.

Grazing Stock may now begin to suffer from the mid-day sun and flies in pastures devoid of shade. Where they have trees to go under they fill their bellies in the morning, and by 11 o'clock will be found ruminating at ease in the shade. Some farmers, who have no shade for their cattle, take them home to the yards at mid-day, turning them out again in the afternoon. Watering troughs should be regularly washed out and kept clean, whether at the homestead or in the field.

The Dairy.—This is one of the best months for the dairy farmer, provided milch cows are properly attended to as to food, and shelter from the scorching rays of the sun. "A cow is made by that which goes in at the mouth," says the old proverb, and during June green food is in its prime. Whether the herd is soiled at the homestead or grazed in the pastures, on no account should milch cows be roasted in the sun or tormented with flies, as thereby their milk is reduced in quantity and depreciated in quality. Some natural grazings yield rich milk, but, generally speaking, richer butter and cheese can be produced by soiling than by grazing, provided the cows are properly fed. All green food should be given fresh, and no more at a time than they lick up clean, and a mixture of the forage plants is better than one sort only. Sainfoin, Lucerne, Lupin, and Tares do well for mixing with irrigated meadow and sewage Grasses, and in the absence of such food a sprinkling of pea or beanmeal may be substituted, to supply a proper proportion of albuminous elements.

Sheep-folding on Tares, &c., answers well during this and the subsequent summer months on the heavier class of soils; also on light land, which is benefited by trampling. Some farmers allow the sheep to eat off the ground, taking in small plots at a time; others either mow and feed in cribs or racks in the field, or else soil in open yards at the homestead. Fatting sheep on Tares will require about a pound of corn daily. On irrigated meadows rot has to be guarded against. For this purpose a sprinkling of salt should be mixed in beanmeal, and if there is green Clover, Sainfoin, Lucerne, Lupin, or Chicory, a small quantity cut into chaff should be used, the meal and salt to be well mixed in it. By thus attending to the dietary and the healthy action of the digestive organs, much may be done to obviate sheep rot.

The Fly is another enemy that requires watching. It is easy to know when a sheep is struck, and therefore the eye of the shepherd should be continually abroad over the pastures, and a little mineral wash, diluted carbolic acid, or "ointment," when necessary, applied.

Sheep Washes.—The skin of the sheep is liable after shearing to get into an unhealthy state. Ticks and lice follow, and to kill or prevent these sheep are dipped in various solutions poisonous to such insects, some of which dressings are, however, less or more injurious to the sheep also.

Sheep Washing and Shearing of our Cheviot and black-faced hill flocks continue, northwards, up to the middle of next month. Both breeds are active and excellent swimmers, more especially the latter, and from being annually washed for four or five years become accustomed to the operation. A deep pool in a running stream, from 20 to 30 yards broad, with a clean pebbly shore, is chosen for washing. When one sheep takes the water the others follow, one after the other, jumping in between the shepherds as fast as allowed, swimming across, and walking out at the other side. Three or four times across the pool completes the process of washing, without a single hand being laid upon a sheep. In the course of a week they are ready for shearing.

Newly-shorn Sheep are washed by some of our best hill shepherds once across the pool, for the twofold purpose of cleanliness and a healthy action of the skin. Many shepherds wash their own heads regularly every time they get their hair cut, to avoid catching cold, and so forth; but they never give the application of the practice to their newly-shorn sheep a single thought. Sheep, also, when newly shorn, suffer from the rays of the sun during days, and from cold dews at night. More food requires to be consumed to keep up animal heat than when in the wool, and that food requires to be of a different quality, so as to stimulate a healthy action of the skin; shade during mid-day is, therefore, necessary, and hill sheep instinctively betake themselves to the shelter of rocks, large stones, moss-banks, or bushes of any kind; and at night they select high and dry lairs. In lowland enclosures stone walls often afford better shelter to sheep than hedges and trees. Under the latter there is frequently a cold draught that is very injurious to newly-shorn sheep; hence on such occasions they should not be allowed to lie too long under them. To drive them from one tree to another, or to the shade of trees under which there is no draught, will keep up a healthy state of the insensible perspiration of the skin, whereas two hours in the cold draught will produce the contrary. Where there is a close paddock, or ground specially adapted for newly-shorn sheep, it should be set apart for them for a week or ten days.

Ewe flocks for early lambs require attention as last month. There is seldom much difficulty in getting Down ewes dry when their lambs are sent to market, but it is sometimes advisable to turn great milkers, the lambs of which are generally the first sold, into barer pasture for a few days, where they will be less forced, and can be more easily attended to, if required. Lambs selected for breeding purposes are now weaned as they come of age.

Drafting of ram and ewe lambs for breeding calls for the best exercise of the flockmaster's skill. Purity of blood and symmetry both require attention. Some of our improved breeds are kept on walks not naturally adapted for them, so that when art fails to make up the difference, less or more degeneracy is experienced, and the falling off is often greater in size than in form.

Swine require to be attended to as last month—the demand for pure air in the stye increasing as the weather gets warmer and warmer. For farrowing sows June is a favourable month for a single litter, and it is, therefore, sometimes chosen for young sows to bring forth their first litter; but a second litter after June is too late under ordinary management.

Sundry works now claim attention. As rivers and their tributaries begin to fall low, their channels should be cleaned. They should also be straightened and deepened where necessary. It should always be borne in mind that straightening a watercourse increases its fall and capacity for the conveyance of water. Narrow places also tail back the water, so that widening lowers the surface level. Roads and fences of every kind should be gone over. From such cleanings a vast amount of rich earth and vegetable matter may be collected for compost. On steep inclinations the lower headland is apt to increase in depth, so that a spit may be carted off without doing any harm. As soon as the Turnips are sown, the teams may be employed in carting marl or chalk for application when the crops are harvested, or this may be applied directly to land that has been pared and burned, or to Vetch stubbles, Rye-grass, and Clover stubble intended for Wheat. Clay may also be applied to light sandy soils, either by carting or by artificial warping. Applied to poor sandy, gravelly, and chalky pastures, clay is easily broken down at this season with the clod-crusher, and rolled and bush or chain-harrowed in. Clay warp may also be applied to a large area of soft bog-land more profitably than during the winter. Farm buildings should be repaired, or new ones built, and stackyards and thatch got ready for corn harvest. *W. B.*

Notices to Correspondents.

AGRICULTURAL EMIGRANT: *T O.* The following extract from a pamphlet entitled "Emigration to Canada," issued by the authority of the Government of Ontario, may help you:—"Farm indoor servants, who are generally treated as members of the family, from 10 dols. to 14 dols. a month, by the year. Female servants, from 4 dols. to 6 dols. a month, by the year. In the country places, wages are somewhat lower. The demand is constant for both these classes throughout the province, and superior servants will sometimes get higher wages than the largest amounts above stated. Labourers, from 75 cents to 1 dol. 25 cents a day with board. During harvest, wages have often risen to 1 dol. 50 cents. to 2 dols. a day with board. Boys of 12 years of age and upwards readily get employment at proportionate wages. During three or four months of winter, farm work becomes scarcer, and wages consequently lower, and in extreme weather but little can be done out-of-doors, except chopping, and preparing rails for fencing, &c. But people who are apt and ready usually find something advantageous to do within doors. For professional gardeners there is but little demand; but an emigrant possessing a practical knowledge of gardening, in addition to that of farm work, will generally find such an acquisition advantageous." A dollar is 4*s.* 2*d.*, a cent ½*d.*

GAS LIME: *J W.* Turn it over and over in compost with vegetable matter, and apply it on stubble in autumn, so that it may have a chance to become thoroughly oxidised by exposure through winter. If applied fresh it is caustic, and may be mischievous. After ample exposure, it has become a mixture of chalk and gypsum.

LEVELLING SOIL AND GRASS GROWING: *B & S, Middlesex.* The case which you describe as "a very singular partial failure of Grass," is not at all uncommon. It frequently occurs where old fences are clumsily levelled, by simply throwing the bank pell-mell into the ditch. By this plan, all the aërated soil, and whatever vegetable manure there may be in the form of decayed leaves, and other fallen vegetation, are placed 2 or 3 feet deep where the ditch was, and the crude soil, which lay under the bank, is left bare. This part is therefore in the same condition as a cultivated field would be if 2 or 3 feet of the surface were removed, and the subsoil left for cultivation. In the latter case neither cereals nor the more hardy natural grasses would grow regularly before the newly-exposed soil had been enriched, if poor sand, or stirred and disintegrated by frost, rain, and so on, if a clay. No mechanical application will perfect this work, although frequent stirring may facilitate the process. The proper way of levelling either a bank or an irregular surface, for a lawn or park, is to carry on a systematic plan of double digging, whereby the upper or aërated soil may still be kept on the surface for the future cultivated plants to take root in during the earlier stages of their growth. It is in this way that the case referred to by "B. & S." is probably explained. If this surface was intended for cultivation, or for producing heavy crops, it would be far better to till it through the autumn, and lay it up rough for the winter, preparatory to sowing in the spring. As, however, ornamentation appears to be a greater object than weight of produce, a green face may perhaps be obtained by the use of guano or nitrate of soda, and by watering during drought.

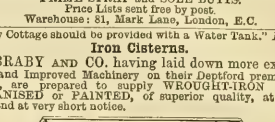
RED CLOVER: *Exile.* Mr. Radclyffe thus replies to "Exile:"—"My meaning was, 'Do not feed off your young Clovers after the corn is carried.' When people are hard up for keep they often let sheep gnaw the crowns of the plants. If a severe and early winter occurs the plants die. I have had no experience as regards the feeding-off Clovers in the spring before seeding."

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.
For particulars apply to JOHN FOWLER AND CO., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

FOR SALE, an 8-Horse Power PORTABLE ENGINE and THRESHING MACHINE, by Clayton & Shuttleworth, in thorough good repair. Price moderate. Will be Sold together or separately.
Apply to BROOKS AND SHOOBRIDGE, Engineers, Guildford.

THE TANNED LEATHER COMPANY, Armit Works, Greenfield, near Manchester.
TANNERS, CURRIERS, and MANUFACTURERS of IMPROVED TANNED LEATHER DRIVING STRAPS for MACHINERY.
PRIME STRAP and SOLE BUTTS.
Price Lists sent free by post.
Warehouse: 81, Mark Lane, London, E.C.

"Every Cottage should be provided with a Water Tank." *Disraeli.*
Iron Cisterns.
F. BRABY AND CO. having laid down more extensive and Improved Machinery on their Deptford premises (IDA WHARF), are prepared to supply WROUGHT-IRON TANKS, GALVANISED or PAINTED, of superior quality, at reduced prices, and at very short notice.



An Illustrated Price List of Galvanised Iron, and other of BRABY'S special Manufactures, sent on application.
F. BRABY AND CO., Limited, Fitzroy Works, Euston Road London; or through all respectable Ironmongers.
N.B. Open Tanks of different sizes packed one in another to save carriage.

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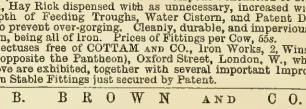
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Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rick dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of Iron. Prices of Fittings per Cow, 65*s.*
Prospectuses free of COTTAM AND CO., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

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PRICES REDUCED AND THE MACHINE PERFECTED.



The B B LAWN MOWER (London made) is universally allowed to be, by practical judges, superior to any other—being the best designed, also of best material only, all parts liable to breakage being of malleable iron, and made to standard guage, all accurately numbered, and the entire Machine fitted and finished in a manner incontestably superior to any other Lawn Mower manufactured.
ALEX. MACKENZIE, Esq., Alexandra Park, Muswell Hill—appointed by the Metropolitan Board of Works to lay out their New Public Parks, and to plant the Thames Embankment, thus writes:—
"I have recommended your Lawn Mower to many of my friends, believing that the machine does its work better than any other, and combines strength superior to Shanks' machine, with the lightness of Green's. Having now four of your Lawn Mowing Machines in constant use on our grounds, and two of these having been in work over a year, I have never had cause to alter this opinion of your machine, which I now have pleasure in giving to you."
The B B LAWN MOWER was selected at the Paris Exhibition, in preference to all others, by the celebrated Engineer, Mons. Henry Schneider, of Creusot, and President of the French Legislative Assembly.
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10-inch	For a Boy.	£3 5 0	18-inch	A Man and Boy	£7 0 0
12-inch		4 5 0	20-inch		7 10 0
14-inch	A Man	5 5 0	22-inch	Two Men	8 0 0
16-inch	A Man and Boy	6 0 0	24-inch		8 10 0

Prices of Hor and Pony Machines on application.
Every Machine warranted to give satisfaction, and delivered free.
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	2-inch.	3-inch.	4-inch.
HOT-WATER PIPES, from stock—p. yard	1*s*. 0*d*.	1*s*. 6*d*.	2*s*. 0*d*.
ELBOWS for ditto .. .. .. each	1 6	2 3	2 9
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THROTTLE VALVES .. .. „	10 0	11 6	13 0

Cash remittance with order.
N.B. All Goods of first-class manufacture. No second quality kept.
Estimates given, and orders punctually attended to the same day.

HOT-WATER PIPES.
CASH PRICES.

	2-inch.	3-inch.	4-inch.
PIPES .. .. per yard	1*s*. 0*d*.	1*s*. 6*d*.	2*s*. 0*d*.
ELBOWS .. .. each	1 6	2 3	3 0
TEES .. .. „	2 6	3 6	4 6
SYPHONS .. .. „	2 6	3 6	4 6
VALVES .. .. „	10 0	11 6	13 0

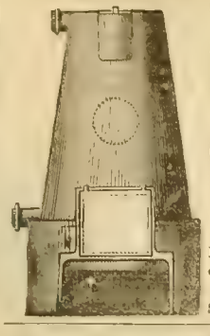
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TEE PIPES .. .. .. „	2 0	3 0	3 6	4 0
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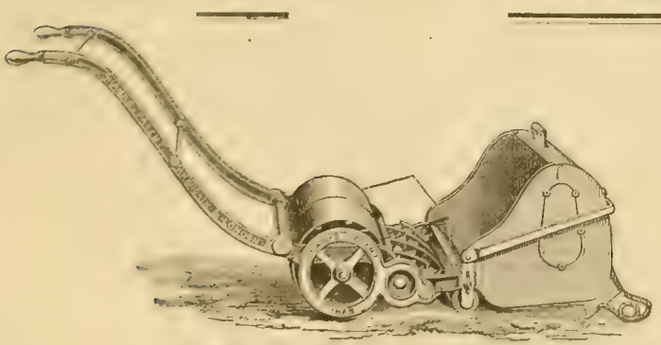
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"SIR,—Will you be good enough to send me 50 yards of Frigi Domo, 2 yards wide, of your improved make, 1*s*. 9*d*. per yard run. You can foward it per London, Tilbury, and Southend Railway. I had some of you several years since, but have not found any substitute so good for Greenhouse and Stove Shadings.—I am, Sir, yours respectfully, "GEORGE WOOD (Solicitor, Rochford).
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10-inch Machine	£3 10 0	*By a Lady*
12-inch Machine	4 10 0	
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16-inch Machine	£6 10 0	*By a Man*
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The Hand Machines are all with Silent Movement.

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Width of Cutter.		If with Patent Delivering Apparatus
25-inch Machine	£12 10 0	.. .. 25*s*. extra.
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Silent Movement, 12*s*. 6*d*. extra.
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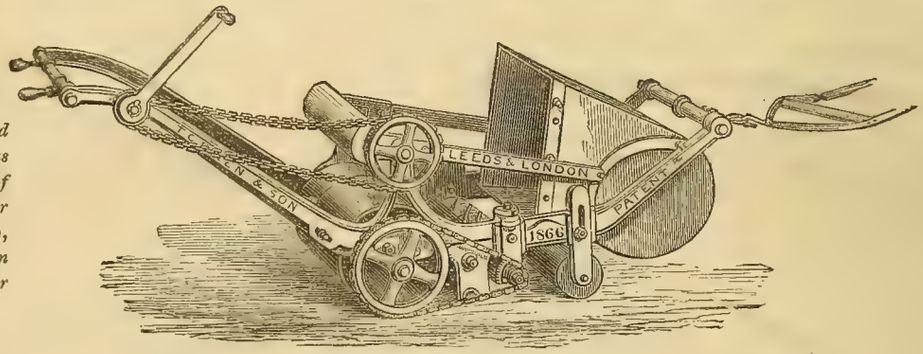
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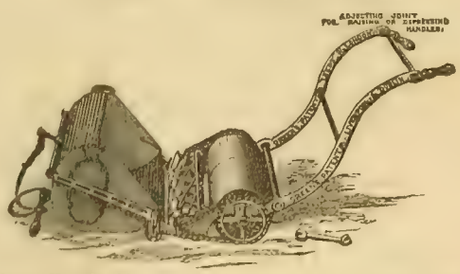
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ROYAL HORTICULTURAL SOCIETY.
MANCHESTER EXHIBITION.

Special Notice to Exhibitors.—The Show will be open from the 19th to the 24th JULY, both days inclusive. Cut Flowers and Fruit will be received up to 11 in the morning of the 19th. All must be staged by noon on that day. Prices of Admission:—Monday and Tuesday, 5s.; Wednesday, 2s. 6d.; Thursday and Friday, 1s.; Saturday, 6d. By Order of the Council.
JAMES RICHARDS, Assistant Secretary.

BIRMINGHAM ROSE SHOW, JULY 9 and 10.—For Prize Lists, apply to Mr. A. FORREST, Secretary, Cherry Street, Birmingham. ENTRIES CLOSE JULY 3.

LOST, at the Crystal Palace Flower Show, held on May 15 last, Half Specimen Plant, CORDYLINE INDIVISA. Any Person having removed such Plant by mistake, or who can give any information relative to its disappearance, will oblige by communicating with B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, London, N.

Ten Guineas Reward.

STOLEN, from the Royal Horticultural Gardens, South Kensington, on June 29, or from the Royal Botanic Gardens, Regent's Park, on June 30, a BRANCH of the new Pelargonium, WALTHAM BRIDE. The above Reward will be given to any one who may give such information as may lead to the conviction of the offender or offenders. As the above, however mutilated, can be sworn to, any one in whose possession it may be found will be prosecuted.—WILLIAM PAUL, Paul's Nurseries, Waltham Cross, N.

TO GENTLEMEN, GARDENERS, and OTHERS, having to DISPOSE of CHOICE FRUIT or FLOWERS, &c. They may meet with a ready Sale by applying to
A. IRELON, Covent Garden Market, W.C.

200,000 Roses Now Coming into Magnificent Bloom.

WM. WOOD AND SON beg to announce that their ROSES were never finer than they are this season.
Woodlands Nursery, Maresfield, Sussex.

Roses in Bloom.

MITCHELL'S RENOWNED ROSES are NOW in MAGNIFICENT BLOOM.
Pilt Down Nurseries, near Uckfield, Sussex.
N.B.—These Nurseries are 2¼ miles from the Uckfield Station.

Strong Dwarf Roses in pots, for planting out.

FRANCIS & ARTHUR DICKSON & SONS have a *large* and *fine* stock of the above, in fine vigorous healthy plants of the *best leading* kinds, including the new varieties of 1869. This is a most advantageous time for planting out Roses. The DESCRIPTIVE LIST of kinds, with prices, sent post free on application. "Upton" Nurseries, Chester.

To the Trade.

NEW ROSES of 1869, with FINE LONG SHOOTS.
JOHN CRANSTON offers carefully selected varieties of the above, with shoots 2 to 5 feet long, giving an abundance of buds for immediate working. Lists of prices on application.
Nurseries, King's Acre, near Hereford.

Paul's Roses.

"Mr. PAUL'S Roses * * * are things to see once and dream of for ever."—*Athenæum.*

WM. PAUL begs to announce that his ROSES are NOW in BLOOM. Inspection respectfully invited. Trains from London, Bishopsgate Station, to Waltham, Great Eastern Railway, 13 times daily.
PAUL'S Nurseries & Seed Warehouse, Waltham Cross, London, N.

Roses.—Grapes.

H. LANE AND SON'S extensive Collection of ROSES is NOW in FULL BLOOM; and the VINERIES, containing over 2000 bunches of 40 leading varieties of GRAPES, are worthy the inspection of their Patrons and Friends.
The Nurseries, Great Berkhamsted, Herts.

GOLDEN CHAMPION GRAPE.—We are now able to supply strong Plants of the above-named remarkable Grape, suitable for inarching on the young wood of established Vines, by which means fruit may be obtained next season. Price 30s. each.
OSBORN AND SONS, Fulham Nursery, London, S.W.

PINES.—All the best sorts, Fruiting and Succession, very strong and fine, from a stock that never had Scale.
Apply to M. ROCHFORD, Market Gardener, Page Green, Tottenham, N.

Pines.

B. S. WILLIAMS has all the best kinds, in splendid condition, warranted clean. Prices on application.
B. S. WILLIAMS, Seed Merchant and Nurseryman, Upper Holloway, London, N.

New Vines for Inarching, &c.

STRONG CANES, 8 to 10 feet long, of MADRESFIELD COURT, 15s. and 20s. each; and MRS. PINCE'S BLACK MUSCAT, 7s. 6d. and 10s. 6d. each.
J. HOUSE, Eastgate Nursery, Peterborough.

Seeds Direct from the Growers, the most Effectual Means of Preventing Disappointment.

SUTTON AND SONS, SEED GROWERS, deliver their Home-grown Seeds, Genuine as Harvested, to all parts of the kingdom. Carriage free (except very small parcels).—Prices and full particulars on application.
SUTTON AND SONS, Seed Growers, Reading.

For Present Sowing.

SUTTONS' CHOICE CALCEOLARIA.
SUTTONS' CHOICE CINERARIA.
SUTTONS' CHOICE PRIMULA FIMBRIATA.
Each 1s. and 2s. 6d. per packet, post free. Saved from the choicest strains in cultivation.
SUTTON AND SONS, Seedsmen to the Queen, Reading.

NEW VERBENAS of 1869.—Now ready to be sent out, 60 Varieties of New Verbenas, Perry's, Eckford's, W. Knight's, Continental and Italian striped, sent post free; 12 select Varieties for 3s.
From B. W. KNIGHT, Florist, Battle, Sussex.

NEW CHRYSANTHEMUMS of 1868, including the New Japan, Large-flowered, and Pompon varieties sent out in 1868, sent post free; 12 fine varieties, 2s. 6d.; 12 Cuttings, in 12 fine varieties, 1s. 2d., from
B. W. KNIGHT, Florist, Battle, Sussex.

ALTERNANTHERA AMABILIS.—This fine new variety, the best of all the Alternantheras, can now be supplied, in good plants, at 4s. per dozen, post free, from
B. W. KNIGHT, Florist, Battle, Sussex.

ECHEVERIA METALLICA.—Fresh new seed of this lovely bedding plant now ready, price 1s., 2s. 6d., 5s., and 10s. 6d. per packet, with directions for raising and growing. Now is the time to sow.
N.B. Strong CENTAUREA RAGUSINA, 5s. per 100, in pots.
WM. DILLISTONE, Nurseries, Sible Hedingham, Essex.

Gratis and Post Free.

DICK RADCLYFFE AND CO.'S LIST of BEDDING PLANTS, FERNS, FERN CASES, &c.
129, High Holborn, W.C.

Gladioli, the most Extensive Collection.

BARR AND SUGDEN, 12, King Street, Covent Garden, W.C., have the finest and largest collection of GLADIOLI ever offered, prices varying from 2d. to 15s. per root. For particulars see pp. 68, 69, 70, and 71 of B. & S.'s SPRING SEED CATALOGUE.
BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.

Choice Seeds, Gladioli, &c.

WM. CUTBUSH AND SON'S CATALOGUE of the above contains description and price of many very superior home-grown VEGETABLE and FLOWER SEEDS, and choice varieties of GLADIOLI, &c., all of which are highly recommended. Post free on application.
Highgate Nurseries, London, N.

General Catalogue.

WILLIAM ROLLISSON AND SONS beg to inform the Nobility, Gentry, and Trade that their NEW GENERAL CATALOGUE, consisting of upwards of 150 pages of letterpress, and containing nearly every Plant, Shrub, or Tree worthy of merit in cultivation, is now Published, and will be forwarded to applicants on receipt of eight postage stamps, and sent gratis to customers.
The Nurseries, Tooting, London, S.W.

Now Ready, Post Free to all Applicants.

B. S. WILLIAMS' CATALOGUE of NEW and RARE PLANTS, 1869, containing the most beautiful and select of the latest introductions and Supplementary Lists of the General Collection.
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NEW COLEUS.—The 12 New Golden Coleus of the Royal Horticultural Society, sent out in 1868, sent post free for 2s. 6d.; 8 New Coleus of 1869, sent out by W. Bull and E. G. Henderson, post free for 1s. 9d.; the set of 20 varieties post free, for 4s., from B. W. KNIGHT, Florist, Battle, Sussex

NEW COLEUS, BEAUTY of WIDMORE.—The prettiest variety yet sent out, distinctly tricolored; leaves small and beautifully shaped, of a dark brilliant maroon, belted with bright rose and green, and edged with silvery white; habit very dwarf. 5s. each. Four will be sent when three are ordered. Price to the Trade on application.
JAMES CARTER AND CO., Seed Merchants and Nurserymen, 237 and 238, High Holborn, W.C.; and Crystal Palace Nurseries, Forest Hill, S.E.

Special Notice.

PRINCE OF WALES GERANIUM (TRICOLOR.)
JAMES CARTER AND CO. regret their inability to supply more plants of the above splendid novelty this spring. A fresh stock will be ready for distribution in September, from which orders now received will be executed, in strict rotation.
LILIUM AURATUM.—JAMES CARTER & Co. invite an inspection of their fine collection of Lilium auratum. Upwards of 1000 plants now coming into bloom at the Nursery.
JAMES CARTER AND CO., 237, 238, & 261, High Holborn, London.

NEW DOUBLE GERANIUMS.—Twelve fine varieties Double Zonal Geraniums, including Madame Lemoine, for 12s.; 12 best New Zonal Geraniums of 1868 for 6s.; 12 fine varieties Gold and Golden Bicoloured Geraniums for 6s., package included, from B. W. KNIGHT, Florist, Battle, Sussex.

To the Trade and Others.

SEVERAL THOUSAND TRICOLOR and BICOLOR GERANIUMS to be cleared out, in fine strong plants of all the leading sorts. List and prices on application to
N.B.—100 large specimens of choice GOLD and BRONZE to be Sold Cheap.
HENRY WALTON, Edge End, Marsden, near Burnley, Lancashire.

New Nosegay Geranium Charley Casbon.

CASBON AND SON are now sending out the above beautiful GERANIUM. It is of dwarf spreading growth; the flowers, which have broad petals, are freely borne in immense trusses. Colour, the richest scarlet of any variety known. Strong plants 5s. each. The usual allowance to the Trade.
Gravel Walk Nursery, Peterborough.

Tricolor Pelargoniums.

J. WATSON, New Zealand Nursery, St. Alban's, begs leave to offer his two beautiful TRICOLOR PELARGONIUMS, MISS WATSON and MRS. DIX, unrivalled for freedom of growth and beauty of colouring, in good plants, 5s. each; also, PRINCESS CLOTILDE, 5s. each, or the three for 13s. 6d. Miss Watson and Mrs. Dix have received 17 First-class Certificates and Extra Prizes from the leading Horticultural Societies of the kingdom. Early orders solicited. A liberal allowance to the Trade. Price on application.

British Fern Catalogue.

ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 28 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, Sidcup Hill, Kent.

Ferns, British and Exotic, at reduced prices.

A. STANSFIELD AND SON beg to state that their CATALOGUE, No. 8, is now ready, and will be forwarded on receipt of three stamps. The above Catalogue contains 10 pages of matter, including partial descriptions and cultural remarks.
Vale Nurseries, Todmorden, Lancashire.

An Opportunity seldom met with.

T. COOPER, Holmsdale Road, Reigate, Surrey, has a large Collection of SUCCULENT PLANTS, including above 500 species of Cacti, also Agaves, Aloes, Haworthias, &c., and offers them at much less than their real value. Also a number of new and interesting Plants, raised from South African seeds.

Myosotis dissitiflora (Atkins).

WM. FOSTER, NURSERYMAN, &c., Stroud, Gloucester, has growing Seed of the above to offer. Packets 1s. 6d. and 3s. 6d. post free.

MYOSOTIS DISSITIFLORA, TRUE.—"The best of all the Forget-Me-Nots for Spring decoration. In many Gardens it is known as montana or alpestris, from both of which it differs."—See *Gardeners' Chronicle*, May 22, 1869.
We are now sending out plants of the above-named charming Spring Flower, identical with that grown by Mr. Fish, and which is so truly described by him in the *Gardeners' Chronicle*, May 8, 1869. Price 9s. per dozen, or 60s. per 100.
OSBORN AND SONS, Fulham Nursery, London, S.W.

Now is the time to Sow

DOBSONS' SPLENDID HYBRIDISED CALCEOLARIAS.—New Seed, saved from the plants exhibited by us, and so much admired by the thousands of visitors, and were awarded the First Prizes and Special Extra Prizes at the Royal Horticultural, Royal Botanic, two Crystal Palace Shows, Reading, and Oxford, and so favourably noticed by the Editor of the *Gardeners' Chronicle*, p. 682. The flowers have been unusually large, brilliant, and varied in colour, with dwarf habit, and the strain altogether cannot be equalled. Seed, in sealed packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s.
J. DOBSON AND SONS, Woodlands Nursery, Isleworth, W.

New Hardy Plant,

To be sent out in September, 1869. For plate and full description, see "Botanical Magazine," t. 5726, No. 285, in which Dr. Hooker says:—

SPIRÆA PALMATA, "By far the handsomest species of the genus hitherto imported, and certainly one of the most beautiful hardy plants in cultivation; the deep purple-red of the stems and branches, passing into the crimson-purple of the glorious broad corymbs of flowers, contrasts most exquisitely with the foliage, which in autumn assumes beautiful tints of brown and golden-yellow. Spiræa palmata was introduced by Mr. Fortune from Japan, and has proved itself perfectly hardy in the most exposed position."
CHARLES NOBLE having the entire Stock of this fine Plant, intends sending it out next September, at 21s. each. Orders are requested early, as the Stock is limited.—Bagshot, June, 1869.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY (Limited),
CORN, SEED, MANURE, AND OILCAKE MERCHANTS.
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

EVERY GARDEN REQUISITE KEPT in STOCK at
CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

GRASS SEEDS: WHEN and WHAT to SOW.—For the fullest information on this subject, see CARTER'S ILLUSTRATED FARMER'S CALENDAR for 1869; post free, 6d.
JAMES CARTER AND CO., Seed Growers, 237 and 238, High Holborn, London, W.C.

A SPECIAL PRIZE MEDAL, PARIS, 1867, was AWARDED to JAMES CARTER & Co., 237 & 238, High Holborn, London, W.C., for GRASS SEEDS, supplied for the Exhibition Grounds.

PARIS, 1867. | SUTTONS' GRASS SEEDS for ALL SOILS. A PREMIER PRIX SILVER MEDAL for GARDEN SEEDS, GRASSES, and GRASS SEEDS, was Awarded to SUTTON AND SONS, SEEDSMEN to the QUEEN, Reading, Berks.

Improvement of Grass-lands at from 4s. 6d. to 9s. per Acre.

SUTTONS' RENOVATING MIXTURE should be sown after the Hay is carried. From 6 to 12 lb. required per acre. Price 9d. per lb., 80s. per cwt. Carriage free.
SUTTON AND SONS, Seedsmen to the Queen, Reading.

Cabbage Seed, New and Unadulterated.

SUTTONS' IMPERIAL, ENFIELD MARKET, NONPARIEL, IMPROVED EARLY OX-HEART, and other varieties, for sowing during the next two months, at very moderate prices. Lowest price per lb. on application to
SUTTON AND SONS, Seed Growers, Reading.

Cabbage Plants.

W. VIRGO AND SON can supply strong DRUMHEAD or CATTLE CABBAGE PLANTS; also DRUMHEAD SAVOY PLANTS, at 3s. per 1000.
Wonersh Nursery, near Guildford.

RICHARD WALKER has to offer, for cash, ENFIELD MARKET CABBAGE PLANTS, 2s. 6d. per 1000; ROBINSON'S CHAMPION DRUMHEADS, 2s. 3d. per 1000; WALCHEREN CAULIFLOWER PLANTS, 6s. per 1000, true; MANCHESTER RED CELERY PLANTS, 1s. per 100.
Biggleswade Market Gardens.

TURNIP SEEDS, of excellent Stocks, for SALE:—Purple-top Swede, the King of the Swedes, and Bangholm Swede, &c. Apply to WM. KINGHORN, Dunse, N.B.

To the Trade.

TURNIP and MANGEL SEEDS, growing crop of 1869, splendid stocks, various kinds.
FREDK. GEE invites attention to the above, and will be pleased to make special offers of the same on advantageous terms.
Seed Establishment, Biggleswade, Beds.

To Farmers, Gardeners, and Others.

EXCELLENT strong Spring-sown CABBAGE, CAULIFLOWER, BROCCOLI, SAVOY, BRUSSELS SPROUTS, and various other plants on offer, come on application. SCARLET RUNNER BEANS, fine sample, 15s. per cwt., 2s. per bush.
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GARDENERS' CHRONICLE PERMANENT NEWSPAPER

PRIMULA SINENSIS.
WINDERBANK AND KINGSBURY'S Strain.
"By far the most varied and interesting set which has come under our notice."—Editor of the *Gardeners' Chronicle*, Jan. 30, 1869.
"Our best [illegible] are from Winderbank & Kingsbury's strain."—Editor of the *Gardeners' Magazine*.
New seed now ready, 2s. 6d. per packet.
Berry's Valley Nursery, Southampton.

The Cheapest and Best Insecticide.
DUTY-FREE TOBACCO.
BY HER MAJESTY'S ROYAL LETTERS PATENT, AND BY PERMISSION OF THE HON. BOARD OF CUSTOMS.

POOLEY'S TOBACCO POWDER, for the Prevention and Destruction of Blight and other Diseases in Plants.
Sold by Nurserymen, Seedsmen, and Florists,
In Tins at 1s., 2s. 6d., and 5s.
Powder Distributers, 2s. 6d. and 3s. 6d. each.
"I find it exceedingly useful for killing the Aphides on Roses and other Plants."—GEO. EYLES, Superintendent, Royal Horticultural Gardens, South Kensington. May 7, 1868.
Sole Manufacturer, T. A. POOLEY, Bonded Warehouse, Sussex Wharf, Wapping, E.

A Boon for Grape Growers.
MEREDITH'S VINE, PINE, PEACH, and PLANT MANURE.
JOSEPH MEREDITH, The Vineyard, Garston, near Liverpool, after giving world-renowned proofs of his excellency over all others in Vine and Grape growing, is now induced to offer to the Horticultural world the above MANURE, to the ingredients of which, in a great measure, he attributes the success which has attended his exhibitions of Grapes in England, Scotland, Paris, Brussels, Antwerp, and Maestricht. In doing so he is offering from experience the most valuable aid to both practical and amateur in not only securing fine fruit, but good flavour and high finish of colour, and to plants the greatest help towards vigour and successful cultivation ever met with. To be had in sealed bags of quarter cwt., 10s. 6d.; half cwt., 21s.; one cwt., 42s.; with full directions for use. For further particulars see Descriptive Circulars, to be had post free on application as above.


Red Spider Magnified.

GISHURST COMPOUND.
Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d.
Wholesale by
PRICE'S PATENT CANDLE COMPANY (Limited),
Battersea, London, S.W.

Gratis and Post Free on application.
MEREDITH'S DESCRIPTIVE CIRCULARS of his VINE, PINE, PEACH, and PLANT MANURE.
JOS. MEREDITH, The Vineyard, Garston, near Liverpool.

HER MAJESTY'S GARDENER USES

FOWLER'S GARDENERS' INSECTICIDE.
Invaluable to Nurserymen, Fruit and Vine Growers.

INSECTS, BLIGHTS, and MILDEWS easily and effectually destroyed without injury to the most delicate plants.

A GREAT SUCCESS is FOWLER'S GARDENERS' INSECTICIDE.—See the Testimonials from eminent Gardeners throughout the kingdom.
Sold by all Nurserymen and Seedsmen.

HER MAJESTY'S GARDENER SAYS:—"I am satisfied that the Insecticide will kill any insect that it comes into contact with, without injury to the plant."—*Vide Mr. George Wyness' Letter.*

THE FOLLOWING ARE MOST IMPORTANT:
Mr. THOMAS MOORE, Botanic Gardens, Chelsea, says:—"We have formed a very favourable opinion of Fowler's Insecticide as a remedy for many of the insect pests of plants. It effectually destroys White and Brown Scale, Thrips, Red Spider, and the Green and Black Fly; at the same time it does not injure the plants."
Mr. SHIRLEY HIBBERD says:—"Fowler's Insecticide is a sure remedy for American Blight; it will clear off the horrid vermin, and do no harm to the bark, or even to the young leaves... the trees are now as clean as polished walking sticks."
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NOTICE to the TRADE.—
In consequence of the popularity of
FOWLER'S GARDENERS' INSECTICIDE,
and to supply the increasing demand, the Manufacturers have been compelled to open a London Depot at
35, Great Dover Street, Borough, to which Address all Orders should be sent.

FOWLER'S GARDENERS' INSECTICIDE,
for Washing, Syringing, and Dipping Plants, 1s. 6d., 3s., 5s. 6d., and 10s. Jars.
Sold by all Nurserymen and Seedsmen.

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for Dusting Plants, 1s., 2s. 6d., and 5s. Canisters.
SOLE MANUFACTURERS:
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POTATO BLIGHT.—To FARMERS and GARDENERS.—On receipt of 5s. in postage stamps, the Advertiser will forward a Recipe for Top-dressing, for the Cure of this Disease.
Address J. SLEATHORN, Paul's Farm, Leigh, Tunbridge, Kent.

WASPS, WASPS.—Any place may be immediately cleared of these pests by the use of SCOTT'S WASP DESTROYER. Price 1s. 6d. and 2s. 6d. per bottle.
Mr. C. HAZEL, Gardener to Sir R. G. Glyn, Bart., says:—"Before I heard of your Mixture, we bought many pounds worth of Tiffany to protect the houses and walls of these pests, but none of it has been required, and it lies unused.... I am happy to say it completely cleared the place.... Her ladyship replied:—'Hazel, it is a capital thing; it has quite cleared my room.'"
Mr. Pyper, Gardener to Lord Hastings, says:—"I found it very good, and soon cleared the Vineries of the pests."
Other Testimonials may be had on application.
J. SCOTT, The Seed Stores, Yeovil, Somerset.
LONDON AGENTS:—Messrs. HURST & SON, 6, Leadenhall Street, E.C.; and Messrs. HOOPER & Co., Covent Garden, W.C.

LABELS, LABELS.—PARCHMENT or CLOTH LABELS.—Tree or Plant Labels, punched parchment, 4 inches long, 4s. per 1000, or 10,000 for 35s., cash on delivery. Sample Label sent on receipt of a postage stamp. Orders delivered free in London by JOHN FISHER AND CO., Label Works, Boston, Lincolnshire.

MAW AND CO.'S PATENT TERRA COTTA PLANT MARKERS.—A cheap and permanent substitute for Wooden and Zinc Tallies.

SHAW'S TIFFANY, for Shading Conservatories and Hothouses; INDIA-RUBBER HOSE, SYRINGES, GARDEN ENGINES, LAWN MOWERS, &c., at
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SHAW'S TIFFANY.
For Samples and Prices apply to
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BROWN'S FLORAL SHADING.
Sold by Nurserymen and Seedsmen.
No. 1.—38 inches wide, 20 yards long, at 4s. 6d. per piece.
No. 2.—38 inches wide, 20 yards long, at 4s. 10d. per piece.
No. 3.—39 inches wide, 18 yards long, at 7s., extra stout.
Samples on application to CHAS. BROWN, Greenheys, Manchester.

NETTING for FRUIT TEEES, SEED BEDS, RIPE STRAWBERRIES, &c.—TANNED NETTING for Protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3d. per yard, or 100 yards, 20s.; 4 yards wide, 6d. per yard, or 50 yards, 20s. NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls: 2 yards wide, 6d. per yard; 4 yards wide, 1s. per yard; ¾-inch mesh, 4 yards wide, 1s. 6d. per yard. Can be had in any quantity of
EATON AND DELLER, 6 & 7, Crooked Lane, London Bridge, E.C.

GARDEN NETTING (at Reduced Price), for the Protection of newly-sown Seeds from Frost, Blight, and Birds; also as a Fence for Poultry, Rabbits, and Sheep, 1d. per square yard, carriage free, in quantities of 250, 500, or 1000 yards.
SCRIM CANVAS, for Wall Fruit, Greenhouse Shades, Tulip Covers
HAYTHORN'S and WALLER'S NETTINGS, sample of material free on application.
RICK-CLOTHS, with Poles and Ropes complete, several Second-hand. Be particular,
FREDERICK EDGINGTON AND CO., Marquee, Tent, Flag, and Rick-cloth Manufacturers, 60 and 62, Old Kent Road, London, S.E.
SECOND-HAND TENTS from ABYSSINIA, Cheap.

SCRIM CANVAS, 72 inches wide, from 7½d. per yard; and HESSIAN, 74 inches wide, at 7¾d. per yard, is the best and cheapest material for Protecting Fruit Trees or Shading Greenhouses. Samples forwarded on application.
BLIND TICKING, SAIL CLOTH, and FORFAR SHEETING at the lowest prices.
Estimates given for outside SHOP BLINDS, fitted on the improved self-acting spring roller.
JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London.

SEED BAGS and SACKS, and BAGS of every description in use, supplied at the lowest possible prices. ARCHANGEL and TAGANROG MATS of good quality, for Covering, Tying, or Shading; also Petersburg and Prussian DUNNAGE MATS. Price-list forwarded post free on application.
JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London.

RICK-CLOTHS, NEW and SECOND-HAND, with POLES, PULLEYS, &c., complete.
An Illustrated Catalogue post free on application.

BENJAMIN EDGINGTON'S CRICKET TENTS, GARDEN TENTS, TENTS FOR FLOWER SHOWS.



BENJAMIN EDGINGTON'S WAGGON CLOTHS, HAY CLOTHS, GARDEN NETTING, FLAGS.

Address, BENJAMIN EDGINGTON (only), 2, Duke Street, London Bridge, S.E. No other Establishment.

WARNER'S SILICATE of IRON PAINT,
A certain PREVENTION against DAMP WALLS,
Effectually PRESERVES IRON and WOOD,
Is unaffected by extreme HEAT and AMMONIA.
Has great Covering properties.
All Colours supplied and can be obtained through any Chemist or Ironmonger, of
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TANNERS, CURRIERS, and MANUFACTURERS of IMPROVED TANNED LEATHER DRIVING STRAPS for MACHINERY.
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		2-inch.	3-inch.	4-inch.
PIPES	per yard	1s. 0d.	1s. 6d.	2s. 0d.
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SYPHONS	.. ,,	2 6	3 6	4 6
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No credit will be given when Pipes, &c., are invoiced at the above prices.
J. JONES AND SONS,
0, Bankside, Southwark, London, S.E.
Price Lists, with terms for credit and for delivery at country stations, will be sent on application.

JAMES BOYD AND SONS, HORTICULTURAL BUILDERS, Paisley, N.B., Manufacturers of CONSERVATORIES, GREENHOUSES, VINERIES, and every description of HOTHOUSE in Wood or Iron; also of HOT-WATER HEATING APPARATUS for Horticultural Buildings, Churches, Mansions, Warehouses, &c.
JAMES BOYD & SONS beg to call attention to the superior facilities they possess for executing all orders entrusted to them, in a first-class style, at a moderate price, and with despatch. Their works are fitted up with the most improved machinery, specially adapted for this trade. Their system of ventilation gives the least possible trouble, each range of sashes or ventilators opening by one movement without the risk of cords breaking, as in sliding sashes, and thorough ventilation is secured during wet weather, without admitting the rain. Plans and Estimates on application.

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GENERAL PLANT CATALOGUE, ILLUSTRATED WITH COLOURED DRAWINGS.

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NEW PLANT CATALOGUE IS NOW READY,

and will be forwarded on application, ILLUSTRATED with FOUR COLOURED DRAWINGS of

TRICOLOR AND BICOLOR GERANIUMS,

AND CONTAINING FULL DESCRIPTIVE LISTS OF THE NOVELTIES FOR 1869.

ONE MILLION BEDDING AND OTHER PLANTS

Now ready for sending out, of which they invite inspection at their

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JAMES CARTER AND CO. having an experienced staff of qualified Men, will be happy to undertake the ALTERATION or IMPROVEMENT of GARDENS, DOMAINS, &c., and to furnish Estimates (after a personal inspection), with Plain or Coloured Plans, as may be desired.

CARTER'S TRICOLOR, BICOLOR, and DOUBLE-FLOWERING GERANIUMS received Five Prizes and Two Certificates at the Royal Horticultural Society's Show at South Kensington, May 22; Two First-Class Certificates at the Royal Botanic Society's Show, May 19 and 20; and Special Prize at the Crystal Palace Show, May 15, 1869.

New Tricolor Coleus, Beauty of Widmore, 5s. each.
Echeveria metallica, 1s. 6d. each; 12s. per dozen.

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HORTICULTURAL BUILDERS and HOT-WATER ENGINEERS,

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CONSERVATORIES and HORTICULTURAL STRUCTURES of every description designed and erected (in Wood or Iron), and Heated on the most approved principles with the

PATENT TUBULAR SADDLE BOILER,

the cheapest and best Boiler constructed.

No. 1 size, to heat 400 feet, 4-inch pipe	£5	10	0
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Including Furnace Doors, Bars, Dead Plates, Damper, Soot Door, and Draw-off Tap.

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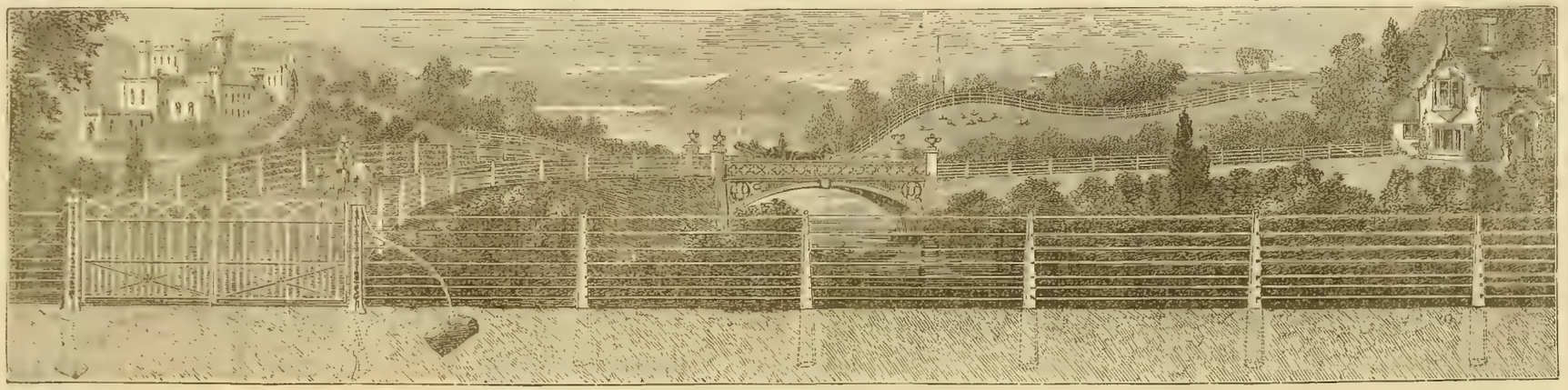
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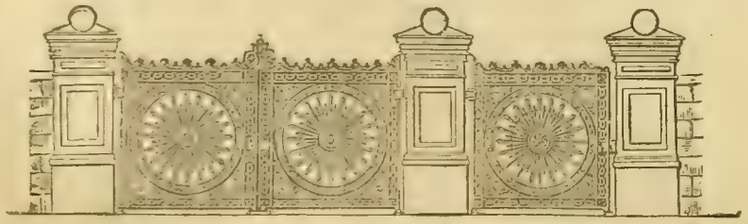


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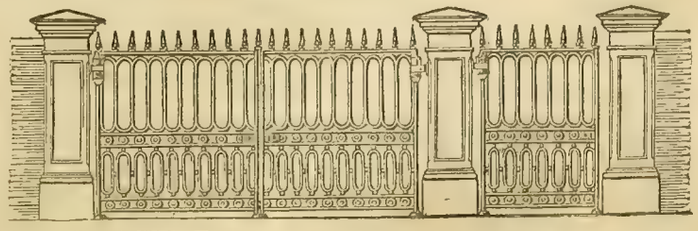
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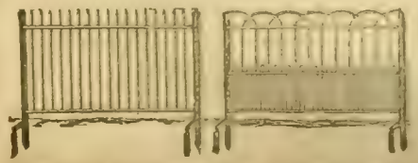


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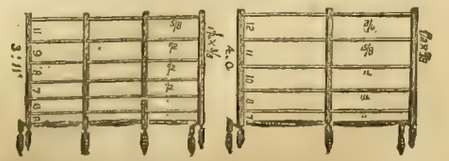




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WILLIAM CHATER'S superb DOUBLE HOLLYHOCKS.—The simplest and safest way to raise them from seed is to sow in the open ground in June, July, and August, and transplant in September. Seed from finest strains, that will produce flowers equal to choice named varieties.

Collection No. 1.—Twelve named varieties, extra fine, 10s.
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Mixed seed, finest quality, per packet, 1s., 2s. 6d., and 5s.
WILLIAM CHATER, Nurseries, Saffron Walden.

Choice Flower Seeds for Autumn Sowing.

DOWNIE, LAIRD, AND LAING have the pleasure of offering the following choice Flower Seeds:—
CALCEOLARIA, Hybridised, saved from a superb First Prize Collection, 2s. 6d., 3s. 6d., 5s. per pkt.
CINERARIA, extra choice, saved from an unequalled assortment of named flowers, 1s. 6d., 2s. 6d., 3s. 6d. per pkt.
HOLLYHOCK, extra fine, saved from our own magnificent collection, in 12 colours, 5s. per collection.
HOLLYHOCK, extra fine, saved from our own magnificent collection, mixed, 1s., 2s., 3s. 6d. per pkt.
PANSY, Show, saved from our unrivalled Exhibition Flowers, 1s., 1s. 6d., 2s. 6d. per pkt.
PANSY, Fancy, saved from a selection of the most beautiful colours, 1s., 1s. 6d., 2s. 6d. per pkt.
PRIMULA, Fringed (Red and White), saved from the finest strain in cultivation, 2s. 6d., 3s. 6d., 5s. per pkt.
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Stanstead Park, Forest Hill, London, S.E.; and at Edinburgh.

Magnificent New Plant.

GESNERA EXONIENSIS.—This is acknowledged by all who have seen it to be the finest winter-blooming plant ever yet offered. The colour of the flowers is an intense orange-scarlet; the leaf is of a dark velvety texture, studded with minute red hairs like plush; nothing can be imagined more brilliant than the mass of bloom, which, when well grown, is 20 inches through. Fine tubers, that will bloom this year, at 5s. and 7s. 6d. each, sent free by post.

LUCOMBE, PINCE & Co. respectfully beg to call attention to their unsurpassed strain of CINERARIA SEED, embracing the most magnificent varieties, whether for compactness of habit, variety, richness of colour, abundance of bloom—is unequalled. Saved this season from the finest flowers, which have been the admiration of all who have seen them. Price 2s. 6d. per packet.

Superb New Late GRAPE, MRS. PINCE'S BLACK MUSCAT, may now be seen in full perfection. This is acknowledged to be the finest Grape extant. Splendid Canes, now ready for immediate planting, 7s. 6d. and 10s. 6d. each. Fine planting Canes of other kinds, a List of which can be sent on application.

L., P. & Co. also call special attention to their fine stock of TURNIP SEEDS.

Genuine Seeds of all the best kinds may be had at the lowest possible cost. PRICED LIST on application.
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ARCHD. HENDERSON'S DESCRIPTIVE and PRICED CATALOGUE of BEDDING PLANTS is now ready, containing all the novelties of the past two years. The Stock is in fine condition; for extent and vigour unsurpassed.

Purchasers are respectfully invited to inspect the Stock at Sion Nursery, Whitehorse Road, Croydon.

Special offers will be made for large quantities.

Catalogues to be had gratis, and post free on application.

Vines for Planting in a Growing State.

JOSEPH MEREDITH, The Vineyard, Garston, near Liverpool, has now ready for Planting fine extra strong YOUNG VINES, with 3 to 4 feet of extra strong Wood of this season's growth. Intending planters of Vines will save a whole year, and prevent disappointment by planting between now and August next. Planting in a Growing State ensures success. Packed to travel any distance with safety.

DESCRIPTIVE CIRCULARS of MEREDITH'S VINE MANURE free on application.

New and Choice Flower Seeds, Post Free.

B. S. WILLIAMS,
SEED MERCHANT AND NURSERYMAN,
Victoria and Paradise Nursery, Upper Holloway, London, N.

	Per packet.—s. d.
WILLIAMS' SUPERB STRAIN of PRIMULA.—B. S. W. can with confidence offer his superb strain of Primula as being the finest in cultivation.	
Red, White, or Mixed .. .. .. 2s. 6d., 3s. 6d., and	5 0
CINERARIA, choice mixed	1 6
CALCEOLARIA (Neill's extra choice strain), 2s. 6d., 3s. 6d., and	5 0
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CARNATION, from Prize Flowers	1 0
CYCLAMEN (Wiggins' prize strain) .. 1s. 6d., 2s. 6d., and	3 6
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CLIANTHUS DAMPIERI (fresh imported seed)	1 6
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SOLANUM (Weatherill's hybrids).—B. S. W. was awarded a Special Certificate for a Collection exhibited before the Floral Committee, December 15, 1868 2s. 6d., 3s. 6d., and	5 0
ECHEVERIA METALLICA (new Bedding plant)	2 6
HOLLYHOCK, from the best named sorts..	1 0
PANSY, from prize flowers	1 0
,, finest Belgian varieties	1 0
PINK, Double-fringed, very fine	1 0
PICOTEE (from prize flowers)	1 0
SWEET WILLIAM, Hunt's Auricula-eyed .. 6d. and	1 0
OXALIS VALDIVIANA, quite hardy, the flowers are bright yellow and sweet scented, and produced in bunches of large size (new)	1 0
MYOSOTIS AZORICA ALBA, the flowers are pure white, contrasting beautifully with the blue variety Coelestina (new)	2 0
MYOSOTIS AZORICA var. CŒLESTINA, beautiful sky blue	1 6
ANTIRRHINUM ASARINA, very beautiful for rockwork (new)	1 0
VIOLA LUTEA (yellow-flowered Violet) .. .. 1s. 6d. and	2 6
TACSONIA VAN VOLXEMII, a beautiful greenhouse climber	2 6
WALLFLOWER (saunders), fine dark variety	1 0

Victoria and Paradise Nursery, Upper Holloway, London, N.

EDWARD PARKE FRANCIS.—Pursuant to the Act of Parliament of 22 and 23 Victoria, cap. 35, intituled "An Act to further Amend the Law of Property and to Relieve Trustees." Notice is hereby given that the CREDITORS and all PERSONS having any CLAIMS or DEMANDS against the ESTATE of EDWARD PARKE FRANCIS, late of Hertford, in the County of Hertford (who died on the 12th day of January, 1869, at Hertford aforesaid, and whose Will was proved in Her Majesty's Principal Court of Probate on the 28th day of April by John Stuck Barnes, George Bagot Francis, and Kershaw Francis, the Executors thereof), are to send in the particulars in writing of such Claims or Demands to the said Executors, at the Offices of the Undersigned, on or before the 5th day of August next, at the expiration of which time the said Executors will distribute the Assets of the said Testator among the parties entitled thereto, having regard to the Claims of which they then shall have notice; and that the said Executors will not be liable for the Assets or any part thereof so distributed to any person of whose Debt or Claim they shall not then have had notice.

Dated the Twenty-sixth day of June, 1869.

J. S. BARNES, Colchester (one of the Executors).

DIPLADENIA AMŒNA.

J. W. WIMSETT

HAS GREAT PLEASURE IN ANNOUNCING THAT HE HAS PURCHASED

THE WHOLE STOCK OF THE ABOVE BEAUTIFUL PLANT,

Raised by Mr. Tuke, of Bramley, near Leeds, who also raised the lovely Dipladenia amabilis. A Figure of the beautiful D. amœna is given in the "Florist" for April, 1868. Plants now ready for distribution.

Price 1½ Guinea each. Strong Half Specimens, 5 and 7 Guineas each.

ASHBURNHAM PARK NURSERY, KING'S ROAD, CHELSEA, S.W.

May 1. J. WILLS, F.R.H.S., Manager.

ROYAL BOTANIC SOCIETY.

SECOND EXHIBITION of PLANTS, FLOWERS, and FRUIT,

WEDNESDAY and THURSDAY, JUNE 30 and JULY 1.

AWARDS OF THE JUDGES.

MEDIUM GOLD MEDAL.

Mr. Chapman, Gr. to S. Spode, Esq., Rugeley, Staffordshire, for 10 Stove and Greenhouse Plants.
Mr. R. Tanton, Nurseryman, Epsom, for 10 Stove and Greenhouse Plants.

GOLD MEDAL.

Mr. Baines, Gr. to H. Michells, Esq., Summerfield, for 10 Stove and Greenhouse Plants.
Mr. B. S. Williams, Nurseryman, Holloway, for 10 Stove and Greenhouse Plants.
Mr. Ward, Gr. to F. G. Wilkins, Esq., Leyton, for 8 Cape Heaths.
Messrs. Jackson, Kingston, for 8 Cape Heaths.
Mr. Ward, Gr. to F. G. Wilkins, Esq., for 9 Pelargoniums.
Messrs. Dobson & Sons, Isleworth, for 9 Pelargoniums.
Mr. B. S. Williams, for 10 Foliage Plants.
Mr. Fairbairn, Gr., Sion House, for 10 Foliage Plants.
Mr. W. Miller, Gr. to Earl Craven, Combe Abbey, Coventry, for Collection of Fruit.
Mr. Wilson, Gr. to W. Marshall, Esq., Clay Hill, Enfield, for 8 Orchids.

LARGE SILVER-GILT MEDAL.

Mr. D. Donald, Gr. to F. G. Barclay, Esq., Knot's Green, Leyton, for 10 Stove and Greenhouse Plants.
Messrs. Jackson & Son, Kingston, for 10 Stove and Greenhouse Plants.
Mr. J. Ward, Gr., for 6 Stove and Greenhouse Plants.
Mr. B. Peed, Gr. to Mrs. Tredwell, St. John's Lodge, Norwood, for 8 Cape Heaths.
Mr. E. Morse, Nurseryman, Epsom, for 8 Cape Heaths.
Mr. Burley, Pembridge Road, Bayswater, for 10 Foliage Plants.
Mr. T. Baines, for 12 Exotic Ferns.
Mr. B. S. Williams, for 12 Exotic Ferns.
Mr. A. Johnson, Gr. to the Marquis of Aylesbury, Savernake Forest, for Collection of Fruit.
Mr. J. Catlin, Gr. to Mrs. Lermitte, Sen., Finchley for 6 Scarlet Pelargoniums.

LARGE GOLD MEDAL.

Mr. A. Wilkie, Gr., Oak Lodge, Kensington, for 10 Stove and Greenhouse Plants.
Mr. G. Fairbairn, for 6 Foliage Plants.
Mr. J. Wheeler, Gr. to J. Philpot, Esq., Stamford Hill, for 6 Stove and Greenhouse Plants.
Mr. D. Windsor, Gr. to J. R. Ravenhill, Esq., for 6 Fancy Pelargoniums.
Messrs. Dobson & Son, Isleworth, for 6 Fancy Pelargoniums.
Mr. J. Stevens, Nurseryman, Ealing, for 10 Tricolor Pelargoniums.
Messrs. Henderson, Wellington Nursery, for Group of Plants for Flower Garden.
Mr. T. Bannerman, Gr. to L. Bagot, Esq., Blithefield, Rugeley, for Collection of Fruit.

SPECIAL PRIZE.—SILVER-GILT MEDAL.

Mr. W. Carmichael, Gr. to H.R.H. The Prince of Wales, Sandringham, for Collections of Fruits.

SILVER-GILT MEDAL.

Mr. A. Wright, for 6 Stove and Greenhouse Plants.
Mr. T. Baines, for 10 Foliage Plants.
Mr. J. Hill, Gr. to R. Hanbury, Esq., Poles, Herts, for 6 Foliage Plants.
Mr. Kemp, Gr. to the Duke of Northumberland, Albury Park, for 8 Cape Heaths.
Mr. B. Peed, for 8 Exotic Orchids.
Messrs. Jackson & Son, for 6 Exotic Orchids.
Mr. A. Wright, Gr. to H. C. Roberts, Avenue Road, for 6 Exotic Orchids.
Mr. W. Taylor, Gr. to J. Yates, Esq., Lauderdale House, Highgate, for 12 Exotic Ferns.
Mr. W. Filce, Gr. to J. Stutter, Esq., Oak Lodge, Clapham, for 6 Fuchsias.
Mr. Donald, for 6 Fancy Pelargoniums.
Mr. Wilson, Gr., for 6 Scarlet Pelargoniums.
Mr. Ware, Hale Farm Nurseries, Tottenham, for Group of Plants.
Messrs. Paul & Sons, for Collection of Roses in pots.
Mr. James Mitchell, Piltdown, Sussex, for 50 Roses, cut blooms.
Mr. H. Exell, Gr. to J. Hollingworth, Esq., Turkey Mills, Maidstone, for 25 Roses, cut blooms.
Mr. W. Davis, Friern, Barnet, for 12lb. of Grapes.
Mr. Henderson, Gr. to H. Beaumont, Esq., Cole Orton Hall, Ashby de la Zouch, for Dish of Black Hamburgh Grapes.
Mr. T. Bannerman, for Dish of West's St. Peter's Grapes.
Mr. W. Cole, Gr. to J. S. Budgett, Esq., Ealing Park, for Dish of any kind of Grape.
Mr. T. Jack, Gr. to the Duke of Cleveland, Battle Abbey, Sussex, for 4 Dishes of Peaches and Nectarines.
Messrs. F. & A Smith, Dulwich, for 10 Tricolor Pelargoniums.
Mr. Parker, Nurseryman, Tooting, for 6 Exotic Orchids.
Messrs. Paul & Son, for 50 Roses, cut blooms.
Mr. Miller, for 4 Dishes of Peaches and Nectarines.

SILVER MEDAL.

Mr. Cole, Ealing Park, for 10 Foliage Plants.
Mr. A. Wright, Gr. to C. H. C. Roberts, Esq., Avenue Road, for 6 Foliage Plants.
Mr. A. Wright, for 12 Exotic Ferns.
Messrs. Dobson & Sons, for 6 Fuchsias.
Messrs. Bell & Thorpe, Nurserymen, Stratford-on-Avon, for 6 Scarlet Pelargoniums.
Mr. C. Turner, Nurseryman, Slough, for 10 Tricolor Pelargoniums.
Mr. J. Wheeler, Gr., for 6 Exotic Orchids.
Mr. J. Fraser, Lea Bridge Road, Leyton, for 50 Cut Roses.
Mr. G. Marlow, Gr. to James Wigan, Esq., Cromwell House, Mortlake, for 25 Cut Roses.
Mr. G. Wheeler, for 6 Stove and Greenhouse Plants.
Mr. G. Miles, Gr. to Lord Carrington, High Wycombe, for Collection of Fruit.
Mr. G. Ward, Gr. to T. Miller, Esq., Bishop Stortford, for Queen Pine-apple.
Mr. G. Ward, Gr. to T. Miller, Esq., for any kind of Pine-apple.
Mr. J. Douglas, Gr. to F. Whitbourne, Ilford, for Dish of Black Hamburgh Grapes.
Mr. O. Goldsmith, Gr. to Sir W. Farquhar, for Dish of Black Prince Grapes.
Mr. W. Kemp, for Dish of Muscat Grapes.
Mr. J. Douglas, for Dish of any kind of Grape.
Mr. G. Masters, Gr. to Earl of Macclesfield, Isleworth, for 4 Dishes of Peaches and Nectarines.
Mr. C. Allen, Gr. to C. B. Clegg, Withington Hall, Cheshire, for 2 Dishes of Peaches and Nectarines.
Mr. Parker, for Collection of Plants.
Messrs. Ivery & Son, for Collection of Hardy Ferns.

SMALL SILVER MEDAL.

Messes. Ivery & Son, for Collection of Rare British Ferns.
Mr. W. Day, Gr. to E. Lawson, Esq., Grove House, Walthamstow, for 25 Cut Roses.
Mr. C. Turner, for 24 Pinks.
Messrs. Downie, Laird & Laing, for 36 varieties of Pansies.
Mr. T. Bailey, Gr. to T. T. Drake, Shardiloes, Amersham, for Providence Pine-apple.
Mr. T. Bailey, for Queen Pine-apple.
Mr. B. S. Williams, for Collection of Plants.
Mr. T. Bailey, for Pine-apple of any sort.
Mr. B. S. Williams, for Green-fleshed Melon. [Melon.
Mr. A. Johnson, Gr. to the Marquis of Aylesbury, for Scarlet-fleshed
Mr. Miller, Gr. to Earl Craven, for Dish of not less than 12lb. of Grapes.
Mr. Bannerman, for Dish of Black Hamburgh Grapes.
Mr. J. Simpson, Gr. to Lord Wharncliffe, for Dish of Black Hamburgh Grapes.
Mr. E. Sage, Gr. to Earl Howe, Gopsal Hall, Atherstone, for Dish of Black Prince Grapes.
Mr. J. Simpson, for Collection of Fruit.
Mr. T. Bailey, for Dish of Muscat Grapes.
Mr. J. Douglas, for Dish of any kind of Grapes.
Mr. Turner, Slough, for 2 Dishes of Peaches or Nectarines, distinct.
Mr. J. Douglas, for 4 Dishes of Strawberries.
Mr. C. Turner, for 24 varieties of Roses, cut blooms.
Mr. D. Piggin, Gr. to Sir G. Perry, Slough, for 12 Pinks.

BRONZE MEDAL.

Mr. Godfrey, Gr., for 10 Achimenes.
Mr. Kingston, Bristol Road, Bath, for 12 Pinks.
Mr. J. Cranston, King's Acre, Hereford, 24 Cut Roses.
Mr. Hooper, Bath, for 24 Pinks.
Mr. Hooper, Bath, for 36 varieties of Pansies.
Mr. Turner, Slough, for Cut Verbenas.
Mr. J. Douglas, for Green-fleshed Melon.
Mr. C. Clarke, Gr. to J. Clifton Brown, Esq., Holmebush House, Horsham, for Scarlet-fleshed Melon.
Mr. Perry, for 24 Verbenas.
Mr. C. Turner, for Dish of Black Cherries.
Mr. J. Hill, for Dish of White Cherries.
Mr. J. Hill, for 4 Dishes of Strawberries.
Mr. J. Ackhurst, Gr. to T. Copestake, Highgate, for Queen Pine-apple.

CERTIFICATE.

Mr. J. Hill, for Dish of Black Cherries.
Mr. O. Goldsmith, for Dish of White Cherries.
Mr. J. R. Hale, Town Court Farm, Orpington, for 4 Dishes of Strawberries.
Mr. Henderson, Cole Orton, for 12lb. of Grapes.
Mr. A. Ware, for 2 Baskets of Cut Flowers.
Mr. A. Ware, for Collection of Plants.
Mr. J. Laurence, for 3 Orchids.
Mr. H. Cannell, for Collection of Coleus.
Mr. H. Hooper, for Stand of Carnations.

FIRST-CLASS CERTIFICATES OF MERIT.

Messrs. A. Henderson & Son, for Begonia weltoniensis.
Messrs. A. Henderson & Son, for Zalacca edulis.
Messrs. A. Henderson & Son, for Acer ornamentatum.
Messrs. J. Veitch & Sons, for Davallia Moorei.
Messrs. J. Veitch & Sons, for Alocasia Chelsoni.
Messrs. J. Veitch & Sons, for Caladium Duc de Ratisbon.
Messrs. J. Veitch & Sons, for Begonia Sedeni.
Messrs. J. Veitch & Sons, for Vanda insignis.
Messrs. J. Veitch & Sons, for Croton undulatum.
Messrs. J. Veitch & Sons, for Croton tricolor.
Mr. R. Parker, Tooting, for Cheilanthus Matthewsii.
Mr. R. Parker, Tooting, for Sempervivum canariense.
Mr. R. Parker, Tooting, for Sempervivum cuneatum.
Mr. R. Parker, Tooting, for Sempervivum calcaratum.
Mr. R. Parker, Tooting, for Sempervivum urticans.
Mr. R. Parker, Tooting, for Wallichia caryotoides.
Mr. R. Parker, Tooting, for Echeveria grandiflora.
Mr. R. Parker, for Echeveria glauco-metallica.
Mr. R. Parker, for Echeveria secunda glauca major.
Mr. R. Parker, for Saxifraga longifolia vera.
Mr. R. Parker, for Sempervivum glaucum.
Mr. R. Parker, for Geonoma fenestralis.
Messrs. J. Ivery & Son, for Lastrea dilatata polydactyla.
Mr. W. Bull, Chelsea, for Martinezia caryotæfolia.
Mr. W. Bull, for Dracæna nobilis.
Mr. W. Bull, for Maranta princeps.
Mr. W. Bull, for Anæctochilus Dawsonianus.
Mr. W. Bull, for Traversia sundaica.
Mr. W. Bull, for Bactris Maraja.
Mr. W. Bull, for Trithrinax mauritiæformis.
Mr. W. Bull, for Geonoma Verschaffeltii.
Mr. W. Bull, for Zalacca edulis.
Mr. W. Bull, for Thrinax grandis.
Mr. W. Bull, for Macrozamia Denniseni.
Mr. J. Lawrence, Gr. to the Bishop of Winchester, for Acineta sella
Mr. J. Burley, for Cocos flexuosa plumosa. [turcica.
Mr. B. S. Williams, for Cibotium Schiedei furcans.
Mr. B. S. Williams, for Lomaria dura.
Mr. B. S. Williams, for Aralia Sieboldii aureo-variegata.
Mr. B. S. Williams, for Calamus ciliaris.
Mr. B. S. Williams, for Pandanus glaucophyllus.
Messrs. Downie, Laird & Laing, for Pelargonium Empress Eugénie
Messrs. J. Carter & Co., for Pelargonium Victor Lemoine.
Mr. D. Windsor, Gr., for Pelargonium The Bride.
Messrs. J. Veitch & Sons, for Pelargonium Gem of the Season.
Mr. G. Smith, for Pelargonium Mr. Gladstone.
E. B. Foster, Esq., for Pelargonium Corsair.
Mr. W. Hoyle, for Pelargonium Claribel.
Mr. W. Appleby, Gr., for Lobelia seedlings.
Mr. C. J. Perry, for Verbena J. Lawdon.
Mr. C. J. Perry, for Verbena Kate Lawdon.
Mr. C. J. Perry, for Verbena J. Sandon.
Mr. W. Paul, for Rose Princess Christine.

SECOND-CLASS CERTIFICATES OF MERIT.

Messrs. E. G. Henderson & Son, Wellington Road, for Canna marmorata.
Messrs. A. Henderson & Son, Pine-apple Nurseries, for Acer albophyllum reticulatum.
Messrs. J. Veitch, Chelsea, for Croton Hillii.
Messrs. Ivery & Son, for Lastrea Filix-mas var. cristata crispa.
Mr. B. S. Williams, for Sarracenia species.
Mr. B. S. Williams, for Palumbina candida.
Mr. W. Bull, Chelsea, for Curculigo recurvata striata.

Choice Primula, growth 1869.

PONSFORD AND SON beg to offer this year's Seed of one of the finest strains of FIMBRIATED PRIMULA in cultivation. In packets of 50 growing seeds, 2s. 6d.
In packets of 110 growing seeds, 5s.
Special packets for the Trade, 5s., 10s. 6d., 21s.
PRIMULA FILICIFOLIA, true, 2s. 6d. per packet.
Also some Continental Novelties in CHINESE PRIMULAS, highly recommended, 2s. 6d. per packet. Choice CINERARIA and CALCEOLARIA, &c., for present sowing.
Nurseries, Limehouse, Middlesex.
Seed Department, Brixton Place, Brixton, Surrey, S.W.

CARTER'S PRIMULA, CALCEOLARIA, and CINERARIA.

J. C. & Co.'s strain of Calceolaria is saved from plants that were awarded a 1st Prize at the late International Show. The Cineraria and Primula stocks are also saved from the finest Prize Varieties, and cannot be surpassed.

CALCEOLARIA and CINERARIA.

Per packet—s. d.		Per packet—s. d.
Calceolaria, finest hybrid .. 2 6	Calceolaria, Dobson's strain.. 2 6	
,, ,, spotted .. 2 6	Cineraria, extra fine 2 6	

PRIMULA.

Per packet—s. d.		Per packet—s. d.
Primula, choicest mixed, fringed 2 6	Primula, choicest white fringed 2 6	
,, ,, dark carmine, fringed 2 6	,, ,, Fern-leaved carmine 2 6	
,, ,, rose fringed 2 6	,, ,, ,, white .. 2 6	

CALCEOLARIA INTERNATIONAL PRIZE.—The Seed of this superb strain cannot fail to produce splendid varieties, as last season's plants took 1st Prizes wherever exhibited. Per pckt., 2s. 6d.
PRIMULA FIMBRIATA (New scarlet).—This is a decided novelty, being of a deep scarlet colour, and cannot fail to be much admired wherever grown. Per packet, 2s. 6d.
INDIA-RUBBER HOSE at Manufacturer's prices, 60 feet (with complete fittings), 25s.
JAMES CARTER AND CO., The Royal Seedsmen, 237 and 238, High Holborn, London, W.C.

Hardy and other Bedding Plants.

ROBERT PARKER begs to offer the under-named, all of which can be supplied in strong, healthy plants:—

Per doz.—s. d.		Per doz.—s. d.
Dactylis glomerata elegantissima .. 4 0	Pansy, Chivoden Yellow .. 3 0	
Echeveria metallica, 6s. to 30 0	,, Great Eastern .. 3 0	
,, pumila .. 9 0	,, Imperial Blue .. 18 0	
,, secunda glauca 9 0	Pachyphytum bracteatum 12 0	
Lithospermum prostratum (fruticosum) 9 0	Sempervivum californicum 4 0	
Pansy, Chivoden Blue .. 3 0	Tritoma grandis 12 0	
,, ,, Purple .. 3 0	,, uvaria glaucescens 9 0	
	Viola lutea semperflorens 4 0	
	,, cornuta alba 4 0	

Special quotations may be had, if required, for the above, and many other kinds, by the 100, or in larger quantities.
Exotic Nursery, Tooting, Surrey, S.W.

ROYAL HORTICULTURAL SOCIETY.—GREAT ROSE SHOW, JUNE 29, 1869.

AWARDS of the JUDGES.

CLASS 1.—72 CUT ROSES, distinct, 1 truss of each. (Nurserymen.)
1st Prize, Messrs Paul & Son, Nurserymen, Cheshunt, £6.
2d, Mr. C. Turner, Royal Nurseries, Slough, £4.
3d, Mr. J. Keynes, Nurseryman, Salisbury, Wilts, £3.
4th, Messrs. E. P. Francis & Co., Nurserymen, Hertford, £2.

CLASS 2.—48 CUT ROSES, distinct, 3 trusses of each. (Nurserymen.)
1st, Messrs. Paul & Son, £6. | 3d, Mr. C. Turner, £3.
2d, Mr. J. Keynes, £4. | 4th, Messrs. E. P. Francis & Co., £2.

CLASS 3.—24 CUT ROSES, HYBRID PERPETUALS only, distinct, 3 trusses of each. (Nurserymen.)
1st, Messrs Paul & Son, £4.
2d, Mr. C. Turner, £3. | 3d, Mr. J. Keynes, £2.
4th, Mr. J. Cranston, Nurseryman, King's Acre, Hereford, £1.
Extra, Mr. J. Fraser, Nurseryman, Lea Bridge Road, 15s.

CLASS 4.—24 CUT ROSES, distinct, 1 truss of each. (Nurserymen.)
1st, Mr. B. R. Cant, St. John's Street, Colchester, £3.
2d, Mr. J. Keynes, £2.
3d, Mr. C. Turner, £1. | 4th, Mr. J. Cranston, 10s.

CLASS 5.—48 CUT ROSES, distinct, 1 truss of each. (Amateurs.)
1st, Mr. J. W. Chard, Gr. to Sir F. H. Bathurst, Bart., Clarendon Park, Salisbury, £5.
2d, Mr. A. Moffat, Gr. to the Earl of Rosslyn, Easton Lodge, Dunmow, Essex, £4.
3d, Mr. W. Ingle, Gr. to Mrs. Round, Birch Hall, Colchester, £3.
4th, Mr. H. Exell, Gr. to J. Hollingworth, Esq., Turkey Wells, Maidstone, £2.
Equal 4th, T. Laxton, Esq., Stamford, £2.

CLASS 6.—36 CUT ROSES, distinct, 1 truss of each. (Amateurs.)
1st, Mr. J. W. Chard, £5. | 2d, Mr. W. Ingle, £3.
3d, Mr. P. Stoddart, Gr. to J. R. Rizzow, Esq., Wivenhoe Park, Colchester, £2.
4th, Mr. A. Moffat, £1 10s.
Extra, Dr. Cooper, The Limes, Slough, 15s.

CLASS 7.—24 CUT ROSES, distinct, 1 truss of each. (Amateurs.)
1st, Mr. W. Cant, Myland Lodge, Colchester, £4.
2d, Mr. P. Stoddart, £3. | 3d, Mr. H. Exell, £2.
4th, Mr. J. Stretton, Manningford, Marlborough, Wilts, £1.
Extra, Mr. W. Soder, Gr. to O. Hanbury, Esq., Howe Hatch, Brentwood, 10s.
Extra, Mr. W. Tranter, Upper Assendon, Henley-on-Thames, 10s.

CLASS 8.—12 CUT ROSES, distinct, 1 truss of each. (Amateurs.)
1st, Mr. W. Cant, £2. | 2d, Mr. W. Soder, £1 10s.
3d, Mr. J. C. Quinnell, Brentwood, Essex, £1.
4th, Mr. J. Marsh, Jun., Stratford sub Castle, Salisbury, £1.
5th, Mr. J. Stretton, 10s.

CLASS 9.—12 NEW ROSES of 1867 or 1868, single trusses, distinct kinds. (Open.)
1st, Messrs. Paul & Son, £2. | 3d, Mr. B. R. Cant, £1.
2d, Mr. J. Keynes, £1 10s. | 4th, Mr. C. Turner, 15s.

CLASS 10.—12 TRUSSES of any NEW ROSE of 1867. (Open.)
1st, Mr. B. R. Cant, £1 10s. | 2d, Mr. J. Keynes, £1.

CLASS 11.—6 TRUSSES of any NEW ROSE of 1868. (Open.)
1st, Messrs. Paul & Son, £1.

CLASS 12.—12 YELLOW ROSES, single trusses, not fewer than six kinds. (Open.)
1st, Mr. B. R. Cant, £1 10s. | 3d, Mr. J. Keynes, 10s.
2d, Mr. P. Stoddart, £1. | 4th, Mr. J. W. Chard, 5s.

CLASS 13.—The best EXHIBITION of YELLOW ROSES, one or more kinds, not fewer than 24 trusses. (Open.)
1st, Mr. B. R. Cant, £3.
2d, Mr. P. Stoddart, £2. | 3d, Mr. J. W. Chard, £1.

CLASS 14.—12 TEA-SCENTED and NOISETTE ROSES, single trusses. (Amateurs.)
1st, Mr. W. Ingle, £2. | 3d, Mr. P. Stoddart, £1.
2d, Mr. W. Cant, £1 10s. | 4th, Mr. H. Exell, 10s.

CLASS 15.—12 TEA-SCENTED and NOISETTE ROSES, single trusses. (Nurserymen.)
1st, Mr. B. R. Cant, £1 10s.
2d, Messrs. Paul & Son, £1. | 3d, Mr. J. Keynes, 15s.

CLASS 16.—12 ROSES, distinct, single blooms. (Open.)
1st, Mr. B. R. Cant, £1 10s. | 3d, Mr. C. Turner, 15s.
2d, Mr. J. Keynes, £1. | 4th, Mr. J. Cranston, 7s. 6d.

CLASS 17.—VASE or BASKET of ROSES. (Open.)
1st, Mr. W. Soder, £3. | 2d, Mr. J. W. Chard, £2.

CLASS 18.—SIX BOUQUETS of ROSES, six distinct kinds, five trusses to each Bouquet. (Open.)
1st, Mr. B. R. Cant, £2.
2d, Messrs. Paul & Son, £2. | 3d, Mr. J. W. Chard, £1.

CLASS 20.—24 ROSES in pots, not fewer than 10 distinct kinds, the pots not to exceed 8 inches in diameter. (Open.)
1st, Messrs. Paul & Son, £6.
2d, Mr. C. Turner, £4. | 3d, Messrs. E. P. Francis & Co., £3.

CLASS 21.—20 NEW ROSES of 1865, 1867, or 1868, in pots, not fewer than 10 distinct kinds, the pots not to exceed 8 inches in diameter. (Open.)
1st, Messrs. Paul & Son, £6.

MISCELLANEOUS.

COLLECTION of PINKS, PANSIES, &c.
Extra, Mr. H. Hooper, Vine Nursery, Widcomb Hill, Bath, 10s.

THE ROYAL HORTICULTURAL SOCIETY of LONDON.

GRAND FRUIT and FLOWER SHOW.

This Exhibition will be held upon Land adjoining the Royal Agricultural Society's Show Yard, at Old Trafford, from MONDAY, July 19, to SATURDAY, July 24, inclusive.
All ENTRIES must be made before JULY 5.
The Exhibition will be Open to Visitors at 3 o'Clock P.M. on Monday the 19th, and on the remaining days at 10 A.M.
TERMS of ADMISSION.—Monday and Tuesday, 5s.; Wednesday, 2s. 6d.; Thursday and Friday, 1s. each day; Saturday, 6d. Monday and Tuesday's Tickets may be had at 1s. each, up to Saturday, the 17th, at 50, King Street.
SEASON TICKETS (not transferable), giving admission for the whole period, may be had up to Monday the 19th, price 10s. 6d. each. Any Ticket transferred will be forfeited.
Arrangements have been made with the Royal Agricultural Society for Visitors to pass and repass from one Show to the other after payment at each.
The Band of Her Majesty's 1st Life Guards, as also that of the 68th Regiment of Infantry now stationed at Manchester, have been specially engaged to play on each day of the Show.
His Serene Highness the Prince of Teck will distribute the Prizes in the Show Ground on Wednesday, July 21, at 5 P.M.
By Order. JAMES RICHARDS, Assistant Secretary.
Kensington, 21st June, 1869.

July 19th to 24th, 1869.

THE ROYAL HORTICULTURAL SOCIETY'S GRAND EXHIBITION at MANCHESTER,

in connection with the
SHOW of the ROYAL AGRICULTURAL SOCIETY.
Amongst various Special Prizes,
A SILVER CUP (copy of the famous Cellini Cup), **VALUE £21**
will be offered by the Proprietors of the
GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE
for the best COLLECTION of 5 FRUITS and 8 VEGETABLES, to be made up as follows.

In awarding the Prize, Marks will be adjudged according to the following scale, for the several subjects produced.

	Good.	Medium.	Inferior.
Grapes	6 marks	3 marks	1 mark
Melons (2 fruits)	6 ,,	3 ,,	1 ,,
Strawberries	3 ,,	2 ,,	1 ,,
Gooseberries	3 ,,	2 ,,	1 ,,
Currants	3 ,,	2 ,,	1 ,,
Cherries	3 ,,	2 ,,	1 ,,
Raspberries	3 ,,	2 ,,	1 ,,
Apples of 1868 (Any 5 of the above 8 subjects).	6 ,,	3 ,,	1 ,,
Peas	3 ,,	2 ,,	1 ,,
French Beans	3 ,,	2 ,,	1 ,,
Broad Beans	3 ,,	2 ,,	1 ,,
Cauliflowers	3 ,,	2 ,,	1 ,,
Cucumbers (brace)	3 ,,	2 ,,	1 ,,
Summer Cabbages	3 ,,	2 ,,	1 ,,
Early Carrots	3 ,,	2 ,,	1 ,,
Turnips	3 ,,	2 ,,	1 ,,
Globe Artichokes	3 ,,	2 ,,	1 ,,
Onions	3 ,,	2 ,,	1 ,,
Spinach	3 ,,	2 ,,	1 ,,
Rhubarb	3 ,,	2 ,,	1 ,,
Potatos	3 ,,	2 ,,	1 ,,
Mixed Salading (Any 8 of the above 14 subjects).	3 ,,	2 ,,	1 ,,

This Prize is open for Competition amongst Amateurs and Gardeners of private families. The Fruit and Vegetables produced must be of *the Exhibitor's own growing;* and any article otherwise obtained will disqualify the Collection. It is expected that the several articles will be neatly and effectively displayed.

The Gardeners' Chronicle.

SATURDAY, JULY 3, 1869.

MEETINGS FOR THE ENSUING WEEK.

MONDAY,	July 5	Entomological	7 P.M.
TUESDAY,	— 6	Royal Horticultural (Fruit and Floral Committees), at South Kensington	11 A.M.
		Ditto (General Meeting)	3 P.M.

DR. WALLACE'S report on the CULTURE of the JAPANESE SILKWORM (Bombyx Yama-maï) in 1867-68 is a record of disaster, and, like all such records where difficulties have been ingeniously and perseveringly met, and are unflinchingly faced, it carries along with it the sympathies and good wishes of the reader.

The disaster has not come, however, from the quarter from which we anticipated it. We have always been afraid that the flaw in the proceedings of those who, like Lady DOROTHY NEVILL, M. GUÉRIN MÉNEVILLE, and Dr. WALLACE, have been labouring to introduce the culture of new silkworms as a commercial industry in Europe, lay, not in the incapacity to rear the worms, but in the inferior quality of the silk they produced—that although all their efforts might be crowned with success, and the new Bombyces might feed, grow, spin, and become naturalised in France and England, and produce as much silk as the mind of woman could desire, it would not be worth having or using, after she had got it. As far as it has gone, certainly the results have not been encouraging; and we cannot divest ourselves of the fear that the labour of our friends may, after all, be thrown away—that is, so far as regards the specific purpose and aim which they have in view. In Japan itself, where the Yama-maï is and has for long been already cultivated by the natives, its silk fulfils only an inferior purpose, being coarse and fluffy, and chiefly used for making raised badges, flowers, &c., on coats and dresses. If it is to be no better than that, we are afraid that our friends have been putting the cart before the horse. We are, nevertheless, happy to see that steps are at length being taken to consider whether the matter be likely to be remunerative or no, at least as regards the Ailantus worm. The following notice is given at the end of Dr. WALLACE's book (p. 64):—

"THE AILANTUS SILKWORM, B. CYNTHIA.—Notice: A gentleman in Paris, Mr. Henry Campbell, 30, Rue Richer, writes me as follows: 'I wish to make a trial of a certain quantity of Ailantus cocoons, to enable persons wishing to cultivate the Ailantus to have the certainty of obtaining a paying price for the cocoons. To make a fair trial I should require 500 lb. at least; and to begin, I can pay 2s. 1d. the English pound weight on board in any port. Messrs. GUÉRIN MÉNEVILLE, GIVELET, and GEOFFROY ST. HILAIRE, have kindly given me their support, but up to the present I have only been able to collect about 100 lb. of these cocoons. If you can forward 500 lb. or any larger quantity at the above price (2s. 1d. per lb.), I will have the cocoons spun, and a tissue made; and if the result is successful, as I hope, the question of Ailantus growing will be resolved, and a great boon conferred on all Europe, where these cultivations have been tried.' I shall be happy," continues Dr. WALLACE, "to receive cocoons from any experimenter in Ailanticulture to add to my store, which I propose shortly to forward to Mr. Campbell. I trust he will soon obtain sufficient numbers to enable him to carry out his experiments, and thereby remove the greatest stumbling block to the spread of Ailanticulture, viz., the hitherto unsolved question of price, or, in other words, of the remuneration to the sericiculturist."

We do not wish to be unnecessarily critical, but we cannot shut our eyes to the fact, that as both the Ailantus worm and the Yama-maï are cultivated in Japan, the stumbling-block referred to by Dr. WALLACE could have been very easily removed, before embarking in the industry, by getting a supply of the silk or cocoons from Japan for trial for manufacturing at home. And we cannot resist the conclusion that so self-evident a precaution must have actually been taken by some one or other of the many wealthy and shrewd men of business in the silk trade in France, when the very existence of the staple of their trade was threatened by the disease. We know also that some commercial trials of the silk of the Indian varieties of the same moths have taken place. Dr. ROYLE records them in his "Report on the Resources of India, as exhibited at the French Exhibition of 1855;" and as, notwithstanding these, the silks have sunk and made no sign, our wishes are stronger than our anticipations of the success of Mr. CAMPBELL's experiment.

But although we take a somewhat gloomy view of the chance of any practical return, in the shape of a valuable fabric, being obtainable from the culture of the Ailantus, or the Yama-maï, we are far from regarding the experiments of Dr. WALLACE and his friends as thrown away. They are interesting in themselves, and may be of great importance in assisting physiologists to ascertain the true nature of the pebrine or silk-worm disease, which has been so fatal of late years to the silk trade. For, singularly enough, the disease has now extended to the worms of the Yama-maï, and Dr. WALLACE's broods, tried here in 1867 and 1868, chiefly succumbed to that disease. He had thus ample opportunity of studying it, and although its study was not the special purpose he had in view, the careful daily notes which he made, and has now published, of every circumstance connected with the breeding of these insects, their health, and the influences affecting it, supply the very information which would have been asked from those making a study of it. Among these we find various important facts bearing on the question of contagion. Some of his correspondents who were entrusted with, or were engaged in the task of, rearing the caterpillars, express their conviction that the disease is not contagious, referring the simultaneous deaths to the occurrence of a common cause affecting all alike; others are equally decided that it is infectious. There are certainly various facts among those mentioned by Dr. WALLACE, and recorded by others, which would seem to indicate something more than a common epidemic. Thus, the disease in Dr. WALLACE's broods of Yama-maï first showed itself in eggs of French extraction. Now, it so happens that in 1866 (the year before Dr. WALLACE got his eggs), the disease showed itself in France with as great virulence in the caterpillars of the Yama-maï as in those of the Bombyx Mori, or common silkworm, and almost entirely destroyed the whole stock in France. From the few that survived a small supply of eggs was obtained, some of which Dr. WALLACE got in the spring of 1867. He subsequently, in the same year, obtained a larger supply from Japan, where the disease has not yet made its appearance. On the 19th of June the disease appeared in Dr. WALLACE's lot, among the French ones; on the 6th of July he says:—"July 1—Two more dead, others peppered; very hot weather (temperature given separately). July 2—Another peppered. July 3—Others blotched (all French). The Japanese seem

healthy and feeding rapidly." But this did not last long. On the 6th of July the Japanese showed signs of disease, and the end was that he lost the whole of both, only one having gone into the chrysalis state, from which, however, it never emerged. In 1868 he was not more fortunate, although he had a much larger stock (of Japanese eggs) to work with, and his experience was that of a multitude of other amateurs, whose observations he gives. There were some exceptions to the general fatality, to which we shall immediately refer, but let us first observe that in 1868 the disease in some instances extended itself to the caterpillars of other species of Lepidoptera which were being bred along with them.

One correspondent writes: "I am sure the disease was infectious and communicated to Paphia, Polyphemus, and other worms." Another wrote: "We remarked that a few of our Bombyx Mori died of the same disease." Another remarked: "Several other broods of larvæ, especially N. trepida and N. lunaria, which were kept in close proximity, died in a similar way, and I never remember such an occurrence before." Another: "I think the disease infectious; it extended to my B. Cynthia (the Ailantus worm), and many of them died in the same way." Again: "My B. Cynthia have died this summer after the rate of 70 per cent., apparently of the same disease that the Yama-maï died of." Lady NUGENT says: "I am inclined to think the disease which was the cause of the death of the Yama-maï worms (being highly infectious) has been caught by the Ailantus worms," and "I am the more inclined to think this to be the case, from a tray of common silkworms (of my little daughters) having the same symptoms of illness, while another tray kept in another room came to full perfection, and two (which we kept back in ice, and have only recently hatched) are also quite healthy," and so on. On the other hand, those who take the opposite view support it by equally acute observations. One of Dr. WALLACE's correspondents mentions the curious fact that he "was horrified one day to find a diseased worm in close embrace with a healthy one; he separated them at once, but the healthy one spun its cocoon and subsequently emerged." Another fact not to be lost sight of, although the inference may be used against both views, is that in 1857 and 1858, when the disease of the common silkworm was especially virulent, M. DE QUATREFAGES, and various other observers, noticed that the wild caterpillars were attacked apparently by the same disease as the silkworms. The epidemic has remained for Bombyx Mori, but departed as regards the others.

Last year (1868) was a very exceptional year for heat, and the concurrent testimony of almost all the experimenters seems to refer much of the mortality to that cause, but Dr. WALLACE was as unfortunate in 1867, and the French as much so in 1866. That a particular state of the weather has something to do with the appearance of the disease seems more than probable. So is it with all diseases; but when it has once established itself, that it may be (not necessarily must be) communicated by breathing the same vitiated air, seems tolerably well proved by the observations above quoted. Dr. WALLACE's book should be carefully studied by those interested in the subject. Notwithstanding his bad success in 1867 and 1868, we see no reason to think that, so far as regards the mere rearing of the larvæ, if the epidemic were out of the way, there is any insurmountable obstacle in the way of the enterprise. In 1867, while he lost every larva, his friend Mr. GASCOYNE reared every one of his, "without a single instance of disease, or the slightest check." His, it should be mentioned, were of the Japanese lot, and had not been vitiated by proximity to the French ones; and whether he is right or not in ascribing Dr. WALLACE's failure to too great care—in fact, to having "killed them with kindness," it is certain that what one man has done another may do, and it only requires time, instruction, and observation to enable others to manage them as well as Mr. GASCOYNE. That, as we have already said, is not the rock ahead which we fear. If the silk were of as good a quality as that of Bombyx Mori, we should invest in eggs of the Yama-maï to-morrow.

—— We are requested to remind those gentlemen who have PAPERS in hand for the MANCHESTER Congress that it is now time they were sent in, in order that they may be included in the programme.

—— We understand that arrangements are being made by some of our Manchester friends to hold a HORTICULTURAL DINNER during the exhibition of the Royal Horticultural Society. We shall announce particulars of the proposed festival hereafter.

—— The following PRIZES are offered for competition at the meeting of the Fruit and Floral Committees to be held on Tuesday, July 6th, viz.:—For 24 Carnations, cut blooms, distinct (nurserymen), 1*l.* 5*s.*, 1*l.*, 15*s.*; for 12 Carnations, cut blooms, distinct (amateurs), 15*s.*, 10*s.*, 7*s.*; and for 6 Carnations, cut blooms, distinct (amateurs), 10*s.*, 7*s.*, 5*s.* For 24 Picotees, cut blooms, distinct (nurserymen), 1*l.* 5*s.*, 1*l.*, 15*s.*; for 12 Picotees, cut blooms, distinct (amateurs), 15*s.*, 10*s.*, 7*s.*; and for 6 Picotees, cut blooms, distinct (amateurs), 10*s.*, 7*s.*, 5*s.* For 36 Carnations, Picotees, and Cloves, mixed, cut blooms (nurserymen), 1*l.* 10*s.*, 1*l.*; and for 12 Carnations, Picotees, and Cloves, mixed, cut blooms (amateurs), 15*s.*, 10*s.*

—— The Bill for the PREVENTION OF THE ADULTERATION OF SEEDS may now be said to have received the support, in principle at any rate, of all the members of the seed trade. Meetings were held on Tuesday last by two different committees, representing to some extent different interests. The resolutions adopted at these meetings were uniformly in favour of the passing of the present Bill, subject to such modification of points of detail as may, after discussion, be thought desirable. We congratulate the seed trade upon this highly satisfactory unanimity of opinion.

—— The EXPERIMENTS on the action of certain manures on Grasses and other plants at CHISWICK, carried out under the auspices of the Scientific Committee, are now supplemented by a similar series of experiments on the growth and coloration of PELARGONIUMS. The varieties chosen for the experiment are Mrs. Pollock, for ascertaining the effect of the manures on the colour of the leaves; and Herald of Spring, for investigating the variations in the colour of the flowers. Four plants of each of the kinds named are placed in a box, and there are six boxes for each variety—12 in all. The manures used are the same as in the case of the Grasses, viz., for box No. 2, a mineral manure, consisting of definite proportions of salts of potash, lime, sodium, and bone ash treated with sulphuric acid; for box 3 a mixture of sulphate of ammonia and chloride of ammonia is employed; for box 4 nitrate of soda; for box 5 a combination of the manures used in 2 and 3; and in box 6 a like admixture of the ingredients used in boxes 2 and 4. Box No. 1 is in both cases left unmanured. All 12 boxes are to be treated in as nearly the same manner as it is possible to do. What with these experiments, those on grafting, and the more immediately practical trials of bedding-plants, fruits, vegetables, &c., the Society, and its several committees and officials, have plenty of work on their hands—work, too, of a character likely to be very serviceable both to the theory and to the practice of horticulture. Chiswick is gradually becoming what we have so often longed for—an experimental garden.

—— Twenty-one years in succession the Messrs. JOHN WATERER & SONS have exhibited their Rhododendrons at the Gardens of the ROYAL BOTANIC SOCIETY, REGENT'S PARK, and at a meeting on Saturday last the Council of the Society awarded these well-known nurserymen the Gold Medal, for the superiority of this year's display, and for the many novelties introduced by them this season.

—— We are informed that Mr. SALT's magnificent ONCIDIUM MACRANTHUM is to be exhibited on Tuesday next at South Kensington, instead of Tuesday last. At the same meeting Mr. BATEMAN will deliver a short lecture on the Coco de Mer, or double Cocoanut of the Seychelle Islands. We learn also that Messrs. VEITCH & SONS intend to exhibit a new CYPRIPEDIUM, from Assam, in some points resembling C. Lowii, in others C. lævigatum, but quite distinct.

—— The experiment of prolonging the DURATION of a PROVINCIAL SHOW for two days has been recently tried at BURY, but with little success in a financial point of view, owing, as it seems, to the days being badly chosen. The chief features of the show in question were the cut Roses, for which Mr. NICOLL and Mr. D. T. FISH carried off the honours. For bedding plants, Mr. GRIEVE was awarded the palm.

—— How to KEEP ASPARAGUS fresh. The plan recommended in the "Revue Horticole," is to "stratify" the cut sticks in slightly damp earth thus:—First, a layer of Asparagus, then a stratum of earth, Asparagus again, and so on. The method is recommended in cases where the bed is so small that sufficient cannot be obtained for a dish at any one time. By storing the Asparagus in the way just mentioned, that which has been cut for some days is said to be as fresh as that recently cut.

—— All sorts of wild notions have at one time or another been held as to the nature and uses of the PITH. Of late years, however, we have settled down into the belief that the pith serves as a reservoir of nourishment for the buds and young shoots. These latter become hard-hearted as they grow older, as some human beings do. The pith, no longer of use, loses its office, and either disappears entirely or remains a lifeless shadow of its former self. Such are, in general terms, the ideas concerning the pith as taught by M. GUILLARD, and accepted by vegetable physiologists. But now comes another French botanist, M. GRIS, to disturb our equanimity by classifying the pith as "moelle hétérogène, mêlée, reticulée, diaphragmatique et hétérogène proprement dite." A rather alarming statement this at first sight. On closer inspection the matter resolves itself into this—that in place of considering the mass of the cells of the pith as becoming in course of time inert (unless it be those at the very edge of the pith-cylinder), we must henceforward bear in mind, that in most cases there is an admixture of living, active cells with the dead ones. M. GRIS' terms apply to the variations in the way in which active and passive cells are combined together. These diversities of arrangements, says M. GRIS, are characteristic of certain natural families. Even certain genera may be distinguished from their allies by characters taken from the pith. Sorbus and Malus may be thus recognised as distinct from Pyrus, the Hazel (Coudrier) from the rest of the Oak family (Cupuliferæ), and so on. Here is employment for those of our readers fond of the microscope—few things easier than to verify or disprove M. GRIS' statements by comparative examination of the pith in various stages of its growth in different parts of the same plant, and in large numbers of different plants.

New Plants.

CYMBIDIUM DAYANUM, *sp. n.*

Foliis longissimis (4-pedalibus), angustis (vix quartam pollicis latis) coriacco-pergameneis apice nunc inæquali altero latere acutis, nunc æqualiter bidentatis, inferne suberosis; racemo pluriloro; vaginis scariosis acutis basi vaginato; rhachi angulata, bracteis triangulis acuminatis ovariis pedicellatis multo brevioribus, mento subevanido; flore carnosiusculo; sepalis linearibus acuminatis; petalis sublatioribus, brevioribus; labello medio trifido, laciniis lateralibus semiovatis, acutangulis, lacinia media oblongo-triangula acuminata; carinis geminis parallelis approximatis velutinis, usque ad basin laciniarum lateralium altioribus, dein humilibus, ante apicem confluentibus.

An elegant species, bearing very long narrow leaves, and an inflorescence of yellow-white flowers, marked with port-wine coloured streaks on the middle lines of sepals and petals, and such a border and numerous small streaks on the lip. It was imported from Assam by J. Day, Esq., to whom it is inscribed as a new token of a long and most pleasant acquaintance. We have compared the types of all the described species, from all of which the present plant differs. *H. G. Rchb. fil.*

EPIDENDRUM KARWINSKII, *sp. n.*

Rhizomate annulato; vaginis magnis triangulis obtusis; pseudobulbis compressis oblongo fusiformibus ancipitibus diphyllis glaucis; foliis cuneato oblongis obtuse acutis glaucis, vagina spathacea ancipiti; pedunculo elongato, superne longe racemoso, bracteis squamaccis minutis; sepalis petalisque cuneato oblongis acutis, labelli trifidi liberi seu subliberi laciniis lateralibus quadratis, lacinia media rhombeo; callis ligulatis excavatis parallelis geminis in disco; columna tridentata.

Epidendrum squalidum, Lindl. Folia Orchid. Epid. n. 20, non Llav. (Ll. & Lex. p. 24: "foliis retusis," "scapo flexuoso," "labelli lamina reniformis trisulcata emarginata," "laciniis lateralibus linearibus," "bulbi basi squamulis scariosis tecti, tenelli.")

This is a rather rare plant. We only possess it from Oaxaca, gathered by Karwinsky, and from Inquila, by Jürgensen in Coll. Galeotti, 5313! It is quite like Epidendrum vitellinum in growth, but the flowers are totally different, ochre-coloured, with a deep brown disc, the lip white, ochre-coloured at its base. The late Dr. Lindley, who only knew a few flowers, was not very correct in referring it to Llave's species, as the quoted words of this Mexican author will afford evidence. Messrs. Veitch introduced the species from Mexico, with a quantity of Epidendrum vitellinum. *H. G. Rchb. fil.*

DENDROBIUM (DENDROCORYNE) HEXADESMIA, *sp. n.*

Caule basi attenuato baculiformi; ovario pedicellato elongato, sepalo summo oblongo fornicato; sepalis lateralibus ovatis acutis in mentum perulare antrorsum extensis; petalis ovatis retusis; labello lineari ligulato antice dilatato, subbilobo, per axin medium sulcato, antice carnoso; columna apice utrinque angulata, postice aristata; anthera obtusa apiculata; columna utrinque ampliata.

A modest species, with the bulbs nearly of Hexadesmia crurigera, and little terminal yellowish-green flowers bearing a long lip, yellow at its apex. We saw the plant lately at the Royal Exotic Nursery of Messrs. Veitch. *H. G. Rchb. fil.*

PESCATOREA WALLISII, *Lind., Rchb. fil.*

Sepalis oblongis obtuse acutis; petalis rhombeis obtusangulis; labello bene unguiculato oblongo apice retusiusculo, lateribus baseos elevatis, disco sulcato lamellato in basi, callo septemlamellato in medio, callis approximatis quinis utrinque, toto disco ceterum lævi; columna antice pilosula, ima basi apiculata.

Pedunculus uniflorus; sepala cuneato oblonga obtuse acuta, lactea apice violacea; petala subæqualia; labellum unguiculatum, basi utrinque angulatum, foveatum, antice oblongum, pars inferior alba carnosa carinis parallelis 17, medianis medio elevatis, pars antica lævis violacea; columna trigona, basi dilatata, utrinque angulata, alba, inferne antice pallide violacea, puberula; apiculus in ima basi columnæ medianus.

Zygopetalum Wallisii.

This is a very interesting and very beautiful novelty, bearing a large cream-coloured flower, equalling that of Pescatorea cerina, having the anterior third of sepals and petals, and the base of column, of a deep violet. It is very different from the old Pescatorea triumphans, only known from a single specimen in the Reichenbachian collection. That has the whole surface of the anterior lip covered with warts. Our plant is one of Mr. L. Wallis' discoveries, no doubt from Western N. Grenada or Ecuador, and it has just flowered in M. Linden's collection. *H. G. Rchb. fil.*

EVERGREEN BERBERRIES.

(*Continued from p.* 612.)

B. glumacea (N. America).—An extremely pretty dwarf shrub, with compound leaves, and useful for the front of beds and borders. It is of very slow growth, but produces an abundance of pale yellow flowers, succeeded by round purple berries. In the "Botanical Register" it is remarked, that "although perfectly hardy, this little plant cannot bear that the extremity of its shoots be removed. It seems to have little power of developing new axillary buds, if the terminal one is destroyed, so that if injured it either dies outright, or remains in a stunted state." However, when the top of the shoot is injured it sometimes produces suckers,

from which a new set of plants may be secured. Some experienced nurserymen have given up growing this species, in consequence of not being able to keep it in health. The plant, however, is so very pretty that it is worth a trial in every garden, and certain situations may surely be found to suit it. The leaves of this species often change in autumn to several beautiful colours, varying from orange-brown to deep purple. It seems to like a mixture of peat and sandy loam, and is perfectly hardy.

B. Hookeri (Nepal).—A very handsome, rather free growing small leaved shrub, bearing a general resemblance to B. Wallichiana, the difference, according to the *Gardeners' Chronicle*, being, that the leaves of the former are "sinuato-dentatis," and those of the latter "spinuloso-serratis." It is said to be of garden origin. This shrub stood the severe winter of 1866-7 without injury in the open ground in this neighbourhood. It thrives in a rich loam with a little sand, and is not an uncommon species. Figured in "Floral World" August, 1862, and in the "Illustration Horticole."

B. Jamesoni (Peru).—One of the most beautiful of the genus, and particularly adapted for pot culture in the conservatory or cool greenhouse, although well able to stand any ordinary winter in the open air. For the following botanical description I am indebted to Dr. Masters, to whom I forwarded specimens:—"Shrubby, branches cylindrical, smooth or in the younger portions sulcato-striate. Leaves fascicled, fascicles alternate, springing from the axil of a deeply divided spine, whose three segments are linear, acutely pointed, smooth and channelled on the under surface. Lower leaves 2—3 inches long, ½—⅝ wide, more than twice as long as the spine, very shortly stalked, elliptic-lanceolate, spinoso-serrate, leathery, smooth, shining above, paler beneath. Upper leaves similar, but smaller and nearly entire at the margin." The flowers are in close, somewhat erect, panicled racemes, about three inches long. Figured in "Floral World" August, 1862.

B. Knightii (Magellan).—A very curious little shrub, unlike any other species, although Mr. Osborne and other botanists consider it to be allied to B. actinacantha (Magellan). There appears to be very little known of the history of this species, but it is supposed to have been introduced by Mr. Anderson—the collector attached to Captain King's expedition—from the Straits of Magellan. Professor Lindley has described it as follows:—"It is a little, tufted, erect shrub, scarcely more than a foot high, with slender downy shoots and orbicular, somewhat cordate flat leaves, fringed with slender spines, and seated upon downy stalks, more than twice as long as themselves; they are pale green, and only a little darker on the upper than on the under side." A mixture of peat and sandy loam seems to suit this little shrub, which is very hardy.

B. trifoliata (Mexico).—This is a very handsome species, remarkable for its colouring, with very prickly, deeply scalloped leaves of a bluish green, very glaucous, in threes at the end of a stalk. As this plant is said to flourish in its native country in company with Cacti it might be inferred that a sandy peat soil would just suit it, and this with the addition of a little loam has actually been found to answer. This species stands ordinary winters very well in the open air, but was slightly injured in this neighbourhood in the severe winter of 1866-7. A cold greenhouse or conservatory would of course suit it admirably. It is not a common species, but can be obtained from some of the nurseries. It ought to be in every collection of choice evergreen shrubs, but there is a doubt if it will stand our severe winters under ordinary circumstances.

B. Wallichiana (Nepal).—There are two varieties known under this name, one of which, called B. macrophylla (mountains of Java), has much larger leaves than the other, with paler coloured wood; a handsome plant, and much more scarce than the common variety. The more generally known plant of this name, that sent out by most nurserymen, somewhat resembles B. Hookeri, but with larger leaves, which are "spinuloso-serratis." It is a very handsome shrub, a free-grower, perfectly hardy, and is figured in "Botanical Magazine," vol. 78, tab. 4656, from which the following description is taken:—

"An upright growing shrub, in its native country attaining a height from 6–10 feet. Branches long and spiny. Spines ¾ of an inch to 1 inch long, deeply tripartite, segments equal in length, slender but rigid, subulate. Leaves in alternate fascicles, evergreen, 2—3 inches long, nearly sessile, spreading or recurved, lanceolate, sinuato-serrate, penninerved, the serratures and apex tipped with harsh spiny points. From the centre of the fascicles of leaves spring the aggregated pedunculs of drooping flowers, 6—8 or more, in a cluster."

In the above description the length of the leaves is exaggerated, they seldom exceed 1½ inch in length. This species was originally found near the summit of the mountain Sheopur in Nepal, by Dr. Wallich's collectors; it is by no means scarce, and grows well in a mixture of loam, sand, and peat.

B. Wallichiana alias *macrophylla* (Java).—This very handsome shrub, originally described in the "Journal of the Horticultural Society," vol. v., part 1, has become exceedingly rare, and it is doubtful whether it can be obtained at any of the nurseries. This plant is well named macrophylla, for its leaves are longer and broader than those of any other simple-leaved species, with perhaps the exception of B. hypoleuca, some of the leaves on the writer's specimen measuring 4½ inches in length by 2 in breadth. As the species has become so rare, and is really very beautiful, the following description by Dr. Lindley may prove useful as a guide to collectors desirous of procuring specimens:—

"B. macrophylla (from the mountains of Java), obtained for Messrs. Veitch by Mr. T. Lobb. An evergreen of most beautiful aspect, with brown branches, a very dark green, dense foliage, and long slender three-parted spines. The leaves grow in clusters, are above 3 or 4 inches long, with a sharp, prickly point, and numerous fine serratures, ending in a straight point on each side; on the upper side they are a rich bright green, turning to a claret colour in the autumn, and remarkably netted; on the other side they are pale green and shining."

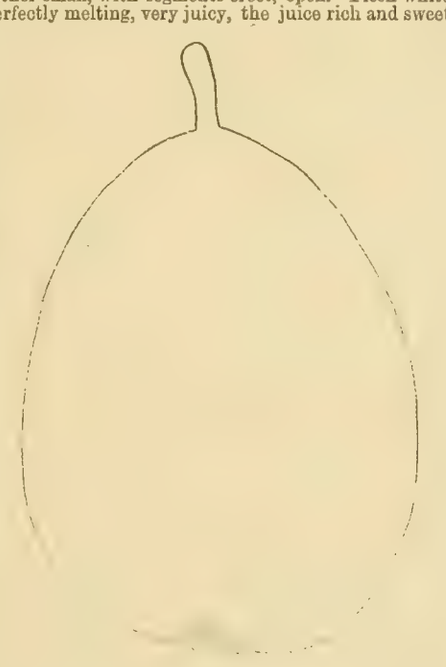
The writer hears from Mr. Lobb, through Messrs. Veitch, of Exeter, that this species will be found much more tender than the common B. Wallichiana, and that in fact it is often killed to the ground. Should this beautiful species be ever reintroduced for general cultivation, it ought certainly to be named B. macrophylla, without any *alias*. The venation of this is distinct from all the Berberies I have seen, for the primaries unite with the tertiaries in one confluent mass to one quarter the distance to the margin, and then break up and branch in very bold divisions. In addition to those already noticed, there are a few valuable hardy species that appear to have gone out of cultivation in this country, although they may possibly still exist at Kew.

J. J.

(To be Continued.)

WASHINGTON PEAR.

THIS is a small early Pear, of more than average merit as regards flavour, hardiness of constitution, fruitfulness, and general usefulness. For flavour and the texture of its flesh it is altogether first-class. In appearance, however, it is greatly wanting, the fruit in general being small and rather scrubby, the outline here given being that of a full-sized fruit, while many of them are considerably smaller. It may be thus described:—Fruits below medium size, obovate, regular in outline, surface even. Skin smooth, of a pale green colour, slightly speckled with russet, like the Doyenné Blanc. As the fruits ripen after being gathered, the colour in most cases changes to a uniform pale yellow. Stalks about half an inch long, moderately stout. Eye rather small, with segments erect, open. Flesh white, perfectly melting, very juicy, the juice rich and sweet,



a little musky, very refreshing, and grateful to the palate. Tree hardy, and a prolific bearer as an orchard standard. Season, beginning of September to middle and end of month. The fruits ripen in succession, like the Seckel, as they fall from the tree; it is however, better to gather them when they begin to fall, as by that means their season is prolonged, and they are also of better flavour than if allowed to ripen on the tree.

This is a Pear of American origin, as its name implies, and rather an old one too; yet it has somehow or other been strangely neglected, and is at the present time almost unknown, having been passed over for more showy but less worthy varieties. To our knowledge it has never yet been figured or described. We have, however, three manuscript notices of it, beginning with that of Mr. Thompson in 1829, all speaking of it in the highest terms. To this we add our own experience of it for several years, and heartily recommend it as a good and useful early Pear. *B., in "Florist and Pomologist."*

COOL TREATMENT OF ORCHIDS.

GROWERS of Orchids, and especially of such Orchids as will bear cool treatment, are on the increase; it is well, therefore, that there should be a proper understanding what this so-called cool treatment exactly means, and, I opine, not the worst way of arriving at satisfactory data is to have a temperate investigation of the whole question, based, of course, upon practical experience. Looking at the matter as it has been presented to the public in your columns from time to time, and elsewhere, there have been much truth or safe advice propounded, and some error—a good deal of argument based, as the sequel has shown, upon unsupportable premises, and consequently the outcome or result is by no means so auspicious as its propounders and devotees anticipated. Far be it from the writer to claim anything like the mantle, not indeed of an inspired writer, but of seeming perfectness in essaying and debating upon doubtful points; the best of us must be aware of our shortcomings in dealing at all with subjects that are best governed by the natural laws. On the other hand, it would not only be impolitic but improper, in the interests of horticultural progress, for all to remain silent when advice, if it were tendered, might be a means of doing good, both directly and indirectly—directly as bearing upon the subject under consideration, and indirectly as having a tendency to stimulate minds to reflection, and carrying the theories turned over in the individual mind to probably a good practical issue.

The best written and digested treatise on the subject that has come under my observation is that of the Messrs. Backhouse, which, so far back as p. 171, 1865, called for some pointed editorial remarks, and obtained a distinguished place in your columns. Again it is reproduced, under peculiar circumstances, at p. 109, 1869, and undoubtedly it has exercised a certain effect upon the young Orchid grower. It is because I take exception to a few of its teachings that I ask you to give me space to meet them, upon the following grounds.

First, I hold it to be no criterion of cultivation in its widest and broadest sense, that because certain plants can be exposed to a few degrees of frost for a day or two, or even for a week or two, that similar treatment is what should be aimed at under our artificial system of cultivation. Second, I hold that different localities, with corresponding temperatures, engender a widely different constitution, and that the period of growth and the period of rest start precise difficulties as to a common line of treatment, particularly as regards temperature. Third, the cool-house system of the writer of the remarks under consideration is, to put it mildly, too ambitious, for if he does not exactly essay to "grasp the ocean with a span," his cool house is open to a very large tract of land; for as advised it is not only suitable for some, or even for "many," but for "perhaps most of the Orchids from Brazil, Mexico, Peru, New Grenada, Nepal, Khasya, China, and Australia;" vouching that the Orchids from these countries "will bear a temperature close upon the freezing point without injury."

The cultivators of cool Orchids in this and other countries have certainly erred in exposing many a rich and valuable lot to a degree of heat, unaccompanied by sunshine, that was damaging in the extreme to the constitution of the plants. The Messrs. Backhouse, to my thinking, are erring in the opposite direction. Every cultivator knows that Epidendrum vitellinum will withstand quite as much cold as Odontoglossum nebulosum, but it is highly imprudent to make a practice of an experiment however successful for the nonce, but which, if repeated, might turn out eventually to be a damaging and probably a dangerous one. True, some plants under certain circumstances will undergo and come out of an ordeal of exposure to cold that under slightly altered management they would succumb to. "Previous management" has much to do with creating a constitution. Peruvian plants from high altitudes are hardy enough, certainly, but the artificial treatment to which they are subjected is widely different in this country, and clearly, therefore, the leading ought to be in a safe direction. A little extra warmth may do much good, a little extra cold may do much harm. But it is not solely on the principle of begging the question that I demur to the findings of the writer; I even presume upon higher ground. Take any of the Orchids that have been proved to do best under superlatively cool treatment, and I will guarantee to any grower who has a good *rationale* of practice that the plants can not only be much more safely managed, but equally if not better cultivated, say at the moderate minimum figure of 40° Fahrenheit. If winters were upon a par with that of 1860-61, then the minimum might be reduced to 34° or 35°, rather than have an excess of the best artificial heat producible. It is sufficiently known that Epidendrum erubescens, Lælia majalis, Odontoglossum nubigenum, Oncidium bifolium, and the two species above noticed, from a comparative point of view, might be very safely left in an atmosphere oscillating between 35° and 30°, if the pseudobulbs and roots happened to be in the dry order, as we professionally dub it; but I should have great doubts of leaving them in an atmosphere of that kind if their physical condition were of an opposite character. I, as an individual, most emphatically aver that mild winter temperatures will in no way incommode the constitution of these plants, but most decidedly warm summer temperatures will do so. There have been more plants sacrificed by the heat of summer *plus* fire-heat, as applied in one or other of its forms, than ever have been killed by moderate winter or resting temperatures. Therefore, I hold that it is higher wisdom to err 5° on the warm side during our winters, than the same number on the cold side. The Messrs. Backhouse, with the additional experience of the last year or two, evidently have seen proper to change their opinion in favour of the moderately cool system, for in one of the last issues of their Catalogue they state that Orchids may be grown in a greenhouse or vinery in cases where the temperature "is not allowed to fall much below 45° in winter, for although many have survived several degrees of frost, a lower temperature than that stated has not been found advantageous."

As to the second objection, trenching upon the physical character of the climate, and its attendant peculiarities upon that portion of Flora on which we are debating, there can scarcely be two opinions. Although the writer has not travelled over the ground, and consequently has been deprived of the pleasure of noting its physical character, it is notorious that similar altitudes in similar longitudes present considerable variety of climate, and that consequently plant life and health are governed and promoted by the attendant peculiarities of such variation. Take the Peruvian climate, for instance—and it is one of the most peculiar—portions of it on the low ground along the coasts being scantily supplied with moisture, and the lofty plateau between the two ranges of the Cordilleras rising to a height of between 10,000 and 14,000 feet above the level of the sea, subject to great fluctuations from a moisture

point of view. Compare and contrast this with that mild, moist, and withal cool region all around Bogota, in the province of New Grenada, from which some of the most beautiful Orchids have been taken; and while the mean temperature does not greatly vary, the plants present widely different constitutions, and demand treatment in their artificial homes of a corresponding diversity. Take that portion of Mexico whose climate, from a thermometrical point of view, is nearly allied to the hilly regions of Peru and New Grenada, and what do we find? Great fluctuations as to drought and moisture—so great, indeed, that many of the plants indigenous to the regions with which it is compared, would not only refuse to grow, but to live. Instances of this kind might be multiplied were it necessary, and did your space permit.

But let us inquire how plants themselves that show a disposition to be of a hardy constitution, capable of standing a fair degree of cold, may be affected under various conditions. Take the Flor de Mari of the Mexicans (Lælia majalis), and the Flor de San Joseph (Epidendrum erubescens), and how comes it that with impunity they can resist so much cold? The answer, by the practical man, who has never even seen or read of the localities which yield them to us, is simple and at his tongue's-end: Because the plants rest during our winter. Their pseudobulbs are ripened like the mature wood of the Grape-vine, but like it their young growths would no more resist even a stated temperature of 40° than would a Vine shoot in the height of its growth. The same remarks are applicable to the Peruvian Oncidium macranthum, the Buenos Ayres Oncidium bifolium, the Australian Dendrobium speciosum, and the Mexican Cattleya citrina. All these named may not exactly be "left out in the cold," but from the finished state of their growths during our dark, dull, resting season, they may be safely treated to a minimum of 40°. Now observe my experience of their fellows from precisely similar localities. The Peruvian Odontoglossum roseum, one of the gems among recent introductions, because it is in the habit of maturing its growth during autumn and winter, and yielding its inflorescence at the "turn of the day," will not successfully resist the amount of cold that its compeer, Oncidium macranthum, will. Neither will the Mexican Lælia albida and its varieties and allied species, nor the New Grenadan* Odontoglossum coronarium, although it revels under cool summer treatment, nor O. Alexandræ, O. nævium majus, nor, in fact, any one of the lot from that locality, because they are all growing in some degree during our winter. It is therefore absurd and inconsiderate advice to tell those who trust for information to the leading journals, that such plants are best cultivated and wintered in houses of low temperature.

There is no rule without exception, however, and I have been a good deal puzzled why the Mexican Epidendrum vitellinum, the Guatemalan Odontoglossum nebulosum, and the Peruvian Oncidium nubigenum, unlike all their compeers of the respective regions, should grow on during our winter without the slightest symptom of being incommoded or affected by extreme cold. One can readily understand plants at rest being all the better fitted for sending forth energies of growth on the return of their spring, but these species have capabilities of endurance beyond the ordinary run of plants living in temperate localities. The young growths seem to revel in the cold, and are invested with a vigour and power of inflorescence which to the Orchidophilist and the Orchid culturist must seem equally amazing. Any one might subject these three particular plants to the lowest temperature that ever epiphytal Orchids were treated to, and come off victorious. Both to the interested and uninterested reader it must seem that the constitution and peculiarities of the Orchid family must be submitted to a crucial test at home before any extreme practice is resorted to.

As to the third and last objection raised, it is too wild to demand anything like a closely reasoned debate. But let it be again fairly put. "There is every reason to believe that many and perhaps most of the Orchids from Brazil, Mexico, Peru, New Grenada, Nepal, Khasya, China, and Australia, will bear a temperature close upon the freezing point without injury." Of course it is qualified by the expression that the writer does not recommend it to be tried, but if it was his belief there was no need for promulgating it, more especially as it might have a tendency to mislead a few, probably many, whose efforts at cultivation have been conspicuous by failure, and who gladly catch at any bait to get at a successful practice. Besides, and above all, these provinces and places enumerated represent nearly all the climates of the earth, from extreme heat to perpetual cold. It would have been, therefore, more convincing and better understood by the novice if particular altitudes, rather than great stretches of country vastly differing in physical configuration, had been referred to. Let any one follow the advice which, if not actually given, may be understood to be inferred from the article which has called forth the above criticism, and a house of Cattleyas will be in a lamentable plight on the return of summer. But it is not only Cattleyas, it is Miltonias, Lycastes, Lælias, Epidendrums, Oncidiums, whatever may be their constitution and character under treatment at home—all that is necessary to vouch, according to the ideas of this writer, is that they have come from one or other of the countries above named, and that consequently they may be placed in cool houses, and treated accordingly, with some few exceptions.

Some Orchids are not difficult to cultivate; it takes a good deal of indifferent practice to kill any of them, but once let them get out of a first-rate healthy condition, and I know nothing in the range of horticultural subjects that requires more time and patience, and skill if you like, to induce a better state of things. One year's bad management requires three years' good management to get the plants corrected, and up to their former selves again. A wave of cold sustained for any length of time upon a house of even cool Orchids does not take immediate effect, if one were to judge by immediate results; it only becomes apparent weeks, and months possibly, after the infliction. Several people to my certain knowledge have been visited with a mishap of this kind, and did not know the cause, results having tarried so long before manifesting themselves. Is it not, therefore, incumbent upon us all, especially in the interests of those who have recently drifted into Orchid culture, to raise a warning voice, ere it be too late, within hearing of such votaries as have their spurs to win? *J. Anderson, Meadow Bank.*

* This has been found in later times in Peru, according to Messrs. Veitch's Catalogue, by Mr. Pearce, at an elevation of 9000 feet, and will live in an extremely cool house.

ABUSES IN HORTICULTURE.

(*Continued from p. 554.*)

THIS inquiry was further gone into at another sitting. The Commissioners having taken their seats, an elderly gentleman was seen moving to the front, who turned out to be Mr. Aster Rigidus. He said: Gentlemen, through an infirmity (which I am sorry to say has got hold of so many of my set) I was not in time at your last sitting, but being an old member of a large family, I am deputed to-day to protest against the practice of casting us to the hedges and ditches, where many of us have gone out of the world outright, and all this to satisfy the mania for colour. Take my word for it, gentlemen, these showy things will wear out; I have lived long enough to see many things twisted about. Instead of receiving due attention, so as to improve us, we are ignored; and by-and-by, when again we are wanted—as I believe we shall be—we shall be found to have fallen half a century behind. The C.: Have you a remedy to propose?—Mr. A.: Yes, two. In order to satisfy the clamour for relief, let large beds be introduced in those fashionable mazes of colour, in which we may be planted, and then we shall relieve the mind as well as the eye, and refresh the senses as well as cool the glare. Otherwise, let us have a garden to ourselves: then, as of yore, there shall be a flower when needed, of every shade, the year through—aye, said the old gentleman, with emphasis, and with odour too. Visitors will not then be content to view their beds from their windows, or, like the painter, go back at a distance to see, but will do as they used to do—come down among us, study our habits, admiring our varied colours and pencillings, breathing in our perfume, and we in turn giving back health with pleasure. But, gentlemen, individuality now is nothing, it must be a mass; anything or nothing—let there be colour. In conclusion, I wish to say—and I believe I have the whole floral world with me when I say—that in a flower garden, in the place for flowers, nothing should be found but what produces a flower. Gentlemen, as I have said before, things will have a twist.—The old gentleman, who had been by many almost forgotten, was listened to throughout with the attention due to his age, and, receiving the thanks of the Commissioners, sat down.

Mr. Erica Cavendishii, who seemed to be the leader of a large number of fellows, was anxious to say a few words. He said: Gentlemen, it has been with some difficulty that I appear before you, and I fear I shall give pain to all those who listen to me, through my extreme height and size: indeed this is the burden of my request, that we be not grown into such monsters. As we grow larger, our admirers grow less. One is put to the trouble of fetching a pair of steps to see just one side of us, and in the attempt has fallen down: another has so stretched his neck to get a sight of us that in him we have lost a friend; while both ridicule such spoliation of beauty. Why, gentlemen, should the pleasure which many derive from us, be attained through so much trouble and pain? Let us be grown so that we can be seen as a whole, in pots that can be easily lifted about, and we shall get more admirers, be a credit to horticultural skill, nor seem so much trouble at home or abroad. All present were evidently glad when Mr. E. had retired. Mr. Vine now again made his appearance; though at times perplexed, he made some straightforward remarks. He said: Gentlemen, I question whether amid all the queer doctrines laid down, and the quackery practised to make my fruit pleasant to the eye or eatable, even his Majesty the Bramble would consent to thrive. One goes in for steaming the bottom, another for steaming the top; at one place my feet are hot, while my legs are unprotected; at another I have plenty of air at the bottom, while the top is suffocated by heated and poisoned air, which has passed through me again and again; at another place I am forced out of myself at the top, while my feet are freezing; at another my bed is gaily dressed, as if to keep visitors outside. Gentlemen, I must enter my protest against such practice. ("Hear, hear," from Mr. Peach, who, when requested to keep in order, said, with an unusual melancholy look, he wished to enter the same protest with regard to himself.) Mr. V. continuing: Gentlemen, those gaudily dressed rascals are thieves in disguise. Who will tell me they rob no heat? sirs, they are worse than robbers, they leave the germs of death behind them in the form of Fungi. I say, keep these rogues away, and people need not—if the other things which I have to say be attended to—linger outside, but rush within to see what they have heard so much about. The C.: Well, Mr. V., what have you to say with regard to other matters you have hinted at?—Mr. V.: It would be, gentlemen, quite impossible to give advice suitable for all places, and under all circumstances. I can therefore only make a few general remarks. In the first place I would say, whatever I am to do in riper years, begin early to give me attention. Let me not be cramped and distorted, with all my sap channels contracted, by starvation in youth. If wanted to yield my fruit in spring, train me from my youth up. Give me the necessary warmth in autumn and winter, as if nothing was doing out of the ordinary course, viz., summer heat at the bottom, and summer heat at the top. Provide the necessary appliances to keep my roots in as natural a condition as possible, and no more. Keep my roots as dry as possible from the time my fruit is ripe until the sap is wanted again. You would be surprised, gentlemen, to know how we like this. I have been without water for months, and none the worse for it, but better. A sweet bed, gentlemen, and good food—two most important essentials—can only be secured by a full knowledge of the local circumstances by which we are surrounded. Whatever these circumstances are, we must have them, or our owners must have disappointment. If wanted only in the natural way, assist Nature as much as possible, but do not make it so troublesome when we are really not. We want no expensive piping or draining; provide only what will carry off all superfluity of water, and give all the air and sun on our surface possible; keep us out of what we don't like, and what we like let us have to ourselves: although we do not altogether feed on air, let us have a drain, not to give air alone, but to take off moisture. Mr. V., receiving the thanks of the Commissioners, retired. He was listened to with great attention. There being no response to the call of the Commissioners for further evidence, the Commission was declared closed for the present. There were, however, complaints outside, that the Commission did not include arboriculture, gardeners' grievances, &c., in its inquiry. Mr. Aster Rigidus was loudly cheered on leaving by the bystanders. *Your Reporter.*

Home Correspondence.

Honeydew.—Mr. Radclyffe's remarks on Roses are always read with great interest by lovers of these beautiful flowers, as coming *ex cathedrâ*, but your excellent correspondent has not manifested his usual acuteness of observation in forming his theory on honeydew. I trust, therefore, that he will pardon me for the remarks I am about to make. Various theories have been advanced to account for the phenomenon of the production of honeydew. Pliny called honeydew "the sweat of the heavens," and "the saliva of the stars," and was inclined to believe that it is formed in the atmosphere during the process of its purification. Others have supposed that it is generated in the atmosphere, and that it falls like dew upon the leaves of plants. But this cannot be the case, because it is always most abundant on the lower leaves, that are overshadowed by the upper ones. It has been ascribed to a peculiar haze or mist loaded with miasmata, that stimulates the leaves to make a morbid viscid secretion. Neither can this be the case, because it appears upon perfectly healthy leaves. It has also been ascribed to an electrical change in the atmosphere, and many other theories and absurd notions have been entertained respecting this very simple natural phenomenon, and which show how far men may be led astray by theorising without opening their eyes. Some have supposed honeydew to be extravasated sap, caused by the great heat of summer, producing an increased action of the secretory system; and Mr. Radclyffe now says that he considers "it is nothing more than the viscous secretions of the tree after a long continuance of N.E. or E. winds and cold nights." These two last mentioned theories, which are as opposite as the poles, or as the N.E. to the S.W., are alike unsupported by proof. All the before-mentioned theories being untenable, the question arises, What, then, is the true cause of honeydew? I answer, without hesitation, that it is assuredly produced by aphides, and by them alone. These insects, although individually very minute, are able collectively to produce gigantic effects, even to cover all the leaves of all the trees of a forest with their viscid and saccharine secretions, and thus provide an abundance of sweet food for other insects. Honeydew is only to be found where aphides are or have recently been, for they always precede its formation. These insects puncture the plants and suck up their juices, from which they extract what is needful for their own sustenance, and eject the viscid saccharine residue from their bodies, and that with considerable force, so as that it may not touch the leaf upon which they are feeding. This residue falls in minute liquid globules upon the leaves or any other object beneath the insects, and becomes honeydew. I have observed on the leaves these small round liquid drops as they have just fallen, and which soon became more viscid, and lost their globular appearance as they spread and coalesced with other drops, and assumed a speckled look. I have noticed also the plants and stones under the trees speckled in the same manner with honeydew drops. Professor Rennie, by means of a lens, actually saw the aphides eject the honeydew drops. He also tried the experiment of wiping off the honeydew from a leaf, and placing over it a piece of writing-paper, which became in a few hours sprinkled all over with honeydew, but no more was formed on the leaf whilst protected. I have repeated this experiment so far as placing pieces of paper under the aphides on Currant and Rose trees, and with a like result: the pieces of paper in one day became sprinkled all over with minute round glistening spangles of honeydew. I have observed also that tree leaves partially covered by other leaves resting closely upon them, have had no honeydew under the leaves that protected them, but on the exposed parts of these partially covered leaves honeydew was abundant. I think, therefore, there can be no doubt of what is the true cause of honeydew. Mr. Radclyffe's theory of honeydew seems to have misled him as to the object of ants in haunting Peach trees where aphides are abundant. If I remember rightly, he recommended some time ago that ants ought not to

be destroyed, because they are the enemies of aphides, and devour them. This, however, is not the case; on the contrary, ants are the friends of aphides, and would protect them for the sake of the rich nectar they distil, and of which the ants are remarkably fond. The ants may be seen on the trees busily supping up, close to the aphides, the honeydew expelled by them, but without injuring the aphides. I therefore destroy ants when I have an opportunity, because they are great devourers of fruit. *A. Thompson, June* 29. [Our correspondent expresses the general belief among naturalists as to this matter. Our readers will be glad to see the statements of Prof. Westwood on this point, appended to the following letter from Mr. Radclyffe. Eds.]——When the honeydew prevailed here some few days back, there was not an aphis about the place. The insects which assemble where honeydew is, are the consequence, and not the cause, of the honeydew. Bees are very fond of it. A year in which honeydew abounds is always a good honey year. Extreme heat, with alternations of cold cutting winds, absence of rain, or insufficiency of water, I believe, produce it. It always makes its appearance first on the trees on the south frontage. The same was the case at Rushton. The sun is the most powerful attracter in the world, and the juice from the disturbed economy of the tree is drawn by the sun through the pores to the upper surface of the leaves. After rain it always disappears. How could 1900 Rose plants be more or less smeared in one night by aphides when there was not an aphis about the place? "Inquirer" is right about Géant des Batailles. I gave it up four years ago, on account of its mildewy propensities. *W. F. Radclyffe.* [We submitted the above to Professor Westwood, who kindly replies: "That aphides secrete a saccharine fluid which is eagerly sought after by ants is known to everybody; that this fluid is discharged by the aphides, independently of the ants, is equally true, and if there are leaves underneath the twig infested by the aphides, these leaves become coated with the fluid, which soon catches the dirt, and renders greenhouse plants, not subject to the cleansing action of rain, filthy. Within the last few days, my young outdoor Rose shoots have been infested by the aphides, and on looking at the plants it is easy to see many leaves perfectly free from the insects, yet coated with the shining sticky fluid; and it was only necessary to lift the eye to the shoots immediately above the leaves, to discover from whence the exudation had fallen, the other leaves being quite free and clean. That the action of the sun upon leaves (of which, by-the-by, we have yet had so little this summer as scarcely to allow it to be supposed that that can have been the cause of honeydew lately observed) would draw out a similar fluid from the pores, I am not prepared to deny. Indeed, we know that the extravasated sap of Elm trees, for instance, oozes out of the trunk, and attracts wasps, beetles, and flies in great numbers."]

Myosotis dissitiflora.—I fully agree with Mr. Fish (p. 688), that "it would be folly for any one to depend on chance seedlings of Myosotis dissitiflora for their stock," where very many are required. I recommended no such thing, but simply mentioned my practice as a proof of its free seeding properties. As regards the luxuriance and beauty of my plants, grown with no more than ordinary care, I can confidently appeal to the Editors of the *Gardeners' Chronicle*, to Dr. Masters, Mr. Robinson, and others. Mr. Fish's elaborate directions for growing it appear to have deterred some correspondents from attempting it. I can only repeat, that after many years of extensive cultivation, I have always found it of the easiest culture—as hardy as a Dandelion; and if they will follow the plain, simple directions of Mr. May (p. 688), I have no doubt of their success. Trust not to plants from cuttings when you can have seedlings. I regret being unable to furnish very numerous correspondents with seed, not being in the practice of saving more than just sufficient to supply a few personal friends. The plant certainly behaves better with me than with Mr. Fish, for though I do not recommend such situations, there is now a fine patch of it in full bloom under the shade of a spreading Apple-tree within a few yards of where I am writing, and which has annually reproduced itself from seed for the last seven years at least, without the slightest culture; so that "sudden death" is not always the consequence of shade. *James Atkins.*——I congratulate Mr. May upon his good fortune. The white one will prove invaluable, as it has been difficult hitherto to find a white plant to match the delicacy and elegance of the blue. The Arabis is so different in habit, the white Violet is not suitable, and now we have the prospect of matching each colour by its contrast, while the plants are in all other respects alike. My fingers itch to handle it, and I trust to have one of the first modicums of seed of the white variety. Your correspondent "F. N. B." seems to have misunderstood me. I cannot see how exposure upon banks, or previous cultivation, can be called nursing. As to Impératrice Elizabeth, it is not worthy to be named with dissitiflora. The only Myosotis that can hold the candle to this is sylvatica, blue or white, and these are generally two months later. Dissitiflora is also hardier than sylvatica, so that "F. N. B." need have no fear of growing it on the flat. But on mounds it is earlier, and I think more beautiful. Finally, I plead Not Guilty to the charge of versatility made by "F. N. B." Like wiser men, I may outgrow some opinions; but change, unless for the best of reasons, conviction of error, is certainly no trait of my character. When I neglect my present pet, and run over the common and scramble in the muddy ditch after new Forget-Me-Nots, as your correspondent indirectly advises, then the charge of versatility may lie—not otherwise—nor till that happens. *D. T. Fish.* [We bear willing testimony to the vigour and beauty of Mr. Atkins' plants, no less than to those of Mr. Fish. Our own, derived from Mr. Atkins, have also been very fine, except one plant, which was stunted in the manner indicated by Mr. Fish. Eds.]

Zinc Edge for Flower-beds on Grass.—Graceful curvilinear beds on lawns are often much distorted after a time in consequence of the encroachment of the Grass round their edges, and without much care in cutting it is almost impossible to keep the original design. I have therefore much pleasure in laying before your readers a simple plan to remedy this, and effect a saving of labour. The thought struck me that some kind of metallic lining would answer the purpose, and about 12 months ago I tried the experiment in my home garden, the result of which is very satisfactory. The following are the instructions:—Edge round your flower-beds with a perfectly even upright cut in the Grass, 2 inches deep; let into this cut a strip of stout zinc the same depth, bending and fitting it exactly to the shape of the bed on a level with the surrounding grass. To keep the zinc firmly in its place, drive down some small, square, red deal pegs about a foot apart, driving them low enough for the tops to be covered by the soil of the bed. With a little brown paint brush the zinc edge, which should be left 1 inch deep after the soil is replaced. These strips might be painted and sanded on one side before they are put down; they cost about ¾*d.* per foot run, and are cut from 8-feet sheets of zinc, of No. 12 thickness. The mowing machine will cut over this edge, and the stray blades of Grass that escape can be very easily clipped off; so that even a lady gardener with a pair of scissors may keep the edges of her beautiful scroll-work parterres in perfect order. *Henry Curtis, Devon Rosary, Torquay.*

Manure for Transplanted Shrubs.—Will you kindly tell me, in your next Number, whether I could use with advantage highly diluted artificial manure, such as ammonia, or guano, or nitrate of soda, to the roots of large shrubs. About a year ago I removed a number of very large Hollies, Yews, Box, &c., and, though by dint of constant watering, I kept most of them alive through last summer, they still seem very feeble and unable to make a vigorous start again. I infer the cause to be the loss of many of their roots, a loss which even with the greatest care in removing a large shrub, must occur. Some sorts of chemical manures are known to promote the formation of fibres at the roots of plants. I reason, that if I can cause my shrubs to make fibres at root, I shall cause them to make leaves and recover their health. But will you kindly tell me whether I can with safety make the experiment, and which is the best manure to use for this purpose? If you can give me a hint or two, you will greatly oblige *An Old Subscriber.* [We should, under the circumstances you mention, be inclined to put more faith in liberal watering, or in mulching the roots with cocoa nut fibre, than in the use of manure. Perhaps superphosphate of lime, ¼ to ½ oz., forked into each square foot of soil round the shrubs, might be of service. Eds.]

Large Mushrooms.—Eighteen genuine Mushrooms, some not quite opened, at an average of 8¾ inches in diameter, one 10¾ inches, were brought to me on the 23d June from the meadows adjoining the Great Western Railway. Have you or any of your correspondents a record of any of similar size? *E. B., Ardington, Wantage.* [Is our correspondent sure that they were genuine Mushrooms, and not Agaricus arvensis? Eds.]

Phormium tenax.—The following particulars respecting a plant in my possession may be interesting. In 1866 it became too large to be sheltered in the greenhouse, and therefore was left out in a pot standing on gravel till Jan. 3, 1867, the thermometer the previous night registering 15°. It was then in its frozen state put into an empty cottage, where it remained until May, 1867. Not seeming a bit the worse for its unkind treatment, it was repotted and replaced in its former position on the gravel, where it has remained up to the present time. The pot was broken in December last, and left the roots exposed on one side, but the winter was not severe enough to injure them in the least. The plant was repotted in March last, and has now four flower-stems, 6 feet high, the flowers on which are just expanding. *William Foster, Stroud.*

Abies Morinda.—I am induced to offer a few particulars as to the size of a specimen of this noble Fir, which is growing in the grounds of Mr. Joseph Smith, Shelsley Walsh, Worcestershire, near to the river Teme. It is a graceful and magnificent specimen, developed in all its beauty, and sparkling in the sunshine with hundreds of its vivid green cones, from 6 to 8 inches long. It measures 9 feet in circumference at 4 feet from the ground, 51 feet in diameter in its branches on the ground line; height, 110 feet: the bole rises 28 feet without a bough, then branches out with great strength and vigour, giving to the trunk the appearance of a greater girth than above quoted. The branches bend gracefully down and kiss the ground, and on one side dip into the waters of a rill which is constantly running, and flows from the wooded heights behind. The side branchlets hang down to the length of 15 to 20 feet, which gives a very elegant effect. The soil is clay, and of great depth. The situation is sheltered from the north and west, but perfectly exposed to the south-east. This tree is supposed to have been planted for upwards of 300 years [?]. In some situations this tree is subject to have its young shoots destroyed by early spring frosts. Notwithstanding all drawbacks of this sort, I believe there is to be found in every garden in Great Britain a situation suitable where the Morinda will be found to do well, and display its great beauty as an ornamental tree. *G. Westland, Witley Court, June* 28.

Gigantic Arum from Nicaragua.—The paragraph, extracted from one of my letters, which you published on the 27th of February last, about the gigantic Aroid discovered by me in the mountains of Nicaragua, has had the good fortune to make the rounds not only of the English and Continental papers, but also of the American, and been commented upon in many ways, even by your facetious contemporary "Punch." I daresay some thought, when reading of the dimensions of the plant, that I, when penning that paragraph, allowed my imagination to run riot, and was dishing up a mere traveller's tale. But I took the precaution to preserve the flowers in spirit, and to send Mr. William Bull two fine rhizomes of the plant. Both of the latter are now growing, and one of them, received in England only on the 17th of April, is now in a fair way of proving that I rather understated than overstated the case. It is in a pot of only 11 inches in diameter, and on the 28th of June the petiole of the leaf (the plant has only one leaf at a time) was 7 feet high and 9 inches in circumference! The blade is not yet developed, and I believe that before this communication sees the light the petiole will have attained more than 10 feet, the height it had in Nicaragua. It looks like some huge snake (beautifully mottled) standing bolt upright at the command of some eastern charmer. I may add that the leaf in the present state already exceeds the largest recorded dimensions of all other Aroideæ with a like habit, and, when fully developed, it will turn out to be what I said, the largest Aroid, both in leaf and flower, of which we have cognisance. The flowers being hermaphrodite, not diclinous, the giant in question cannot be referred to Amorphophallus, Conophallus, or allied genera of the Eastern hemisphere, but will on closer investigation prove to be either a genuine Dracontium, or the representative of a closely allied new genus, which "Punch" has asked me to name after Gog and Magog. It would not be the first barbaric name we have in botany, and probably not the last either; and who knows what, after due consultation with the City Corporation, I may do! *Berthold Seemann.*

Foreign Correspondence.

The Spring in Algeria *(continued from p. 689).*—Teniel is a fortified military outpost and station, occupied by about 3000 men, the settlers who minister to their wants, and a few farmers, or colonists as the French call them. I estimated it to be 4000 feet high with the barometer. From this point the road descends into the desert. Five miles beyond all tree or shrub vegetation ceases, with the exception of a few wild Jujube bushes. This shrub had shown itself all along, even in the Mitidja, as a mass of slender, naked, thorny branches, twined in and in, and lying on the ground like dead brambles here and there. It followed us to the top of the Atlas, and we were told that, along with the 'Squill, it was the last plant to disappear in the desert. It is clearly the thorn Solomon speaks of that crackles when burnt. It is cut and used by the Arabs as a protection to their camps in this state. Later it throws out leaves, and becomes a pale green bush. A couple of miles to the west of Teniel there rises a mountain peak, 1600 feet high, the noble flanks of which are occupied by a magnificent Cedar forest, similar in all respects to that which clothes the Mount of Lebanon. A drive of about 12 miles by a humbler road took me and my companions into the midst of this truly mighty forest, and then a climb of 1000 feet brought us to the summit of one of the highest peaks of the Atlas range. A truly glorious sight was there unfolded to our sight. On the north the grand old Cedars covering the mountain's flanks, the two lower ridges we had crossed the day before, the plain of the Chefell, and the high mountain on the south side of which Milianah is situated; on the north a slope at our feet, covered for a few miles with scrubby, dwarfed Ilex, then gentle undulating green with Grass and corn, then a green flat plain, and then about 15 or 20 miles beyond us the real desert, a flat yellow sea of sand. On the far-off south-east horizon was a ridge of low mountains, several days' journey off in the desert, and inhabited by the wild Touareng Arabs, the conductors or pillagers of the caravans. The abundant winter and spring rains, precipitated by old Atlas, had clothed even the high plains which form the margin of the desert with fugitive grasses and verdure, but no shrub or tree could stand the glare and heat of the summer sun and the breath of the desert lower than about 1000 feet beneath where I was standing. Protection from the south had now become a question of life. If the Date Palm can bear his rays even further south, in the desert itself, it is only on condition of profuse and constant irrigation during the summer. A Date Palm oasis can only exist and thrive if there is an abundant supply of water, sufficient to irrigate constantly every tree. The Cedars are most majestic and venerable. They cover an extent of 6000 acres. Some we found from 24 feet to 30 feet in circumference, or from 8 to 10 feet in diameter. The forest belongs to Government, and many trees are being cut down to make sleepers for the railways, a rather sacrilegious use for massive beams of Cedar wood. The ground underneath was enamelled with flowers—Hyacinths, Narcissus, Buttercups, wild Roses, Daisies, Pansies; whilst the Honeysuckle and Bramble grew vigorously from cavities in old Cedars. Perhaps the seeds of these plants, the Hawthorn for instance, may have been brought by some bird of passage from the far north, for I recognised the note of birds that regularly visit the Pine forests of Norway during the summer. Snow still filled the ravines, 200 or 300 feet from the summit, whilst the thermometer, even at Teniel, was 86°. We heard the toucan sing, and saw many jays and crows. There were many deciduous Oaks of considerable size, just beginning to put forth their new leaves. In a word, whilst sitting under the shade of a Cedar tree, and looking into the great desert of Sahara, we were surrounded by the vegetation of an English wood in May, and enjoying the delightful coolness of an English spring. The soil was a deep rich leaf-mould, the result of vegetable decay for thousands of years. On passing

it through my hand I most ardently wished I had an unlimited supply of it in my rocky garden at Mentone. What Camellias, Azaleas, and Rhododendrons I could then raise! We were right sorry to leave the grand Cedar forest of Mount Atlas, and to return to the Corsican "maquis," beautiful as it is at this time of the year, with its myriads of flowers, among which predominate the profuse yellow spikes of the Broom and Cytisus.

The last part of Algeria I examined was the region that extended from Milianah to Oran, by Orleansville and Relizane. This occupied two days' driving, and one day by railroad, about 150 miles from east to west. During two-thirds of that distance we followed the river Cheliff, passing through its fertile and wide valley. Very soon after leaving Milianah, the geological character of the mountains changes; they become calcareous, rising on both sides of the valley in gentle sweeps 1000 or 2000 feet high, with higher ridges of the same character behind, both northwards to the sea, and southwards towards the desert. The valley itself contained a bed of vegetable soil, 10, 20, or 30 feet deep, resting on limestone or gravel. Gradually, as the geological formation changed, so did the vegetable. Nearly all the plants named as so common on the sandstone, gravel, and schistic soils, from the Chamærops to the Cistus, become less frequent, then sparse, and ultimately disappear. The Jujube Thorn alone remained, and here in a lower latitude it had become covered with fresh green leaves, and was quite an elegant shrub, instead of a mass of apparently dead thorns. The hill-sides ceased to grow trees, with the exception of a few small Ilex or wild Olive, sparsely scattered. The rich alluvial plain was a mere rolling prairie or steppe covered with rich rank herbage and wild flowers where not cultivated; not a tree to be seen for miles. Along the road and near the villages were some farms, and here and there the Arabs had tilled and cultivated patches of corn. Wherever the labour of man had broken the ground most exuberant fertility had followed, and the trees he had planted near farms and small villages—Mulberry, Carouba, Acacia, Plane, Apricot, &c.—all seemed to thrive and flourish. The puzzle to me was, and is, why did not Nature do her own planting in these rich alluvial plains as elsewhere, as on the sandy schistic rocks? The grasses were 2 or 3 feet deep, and mingled with myriads of flowers, Corn-flowers of various kinds, Ox-eyed Daisies, Dandelions, Buttercups, Pheasant's Eye, Marigolds, Vetches, wild Peas, Mustard, Convolvulus (major and minor), Thistles, Mallows of various kinds, &c. These flowers were not disseminated here and there, but growing in masses, knee-deep, as if artificially planted, until their bloom coloured the ground for miles. The fields of Wheat, the bearded variety, were turning yellow, and were rendered scarlet by masses of Corn Poppy. Here, on every side, was evidence of abundant winter and spring rains, which had brought to life and fostered so much luxuriance, and which would continue to do so were cereals or grasses planted by man. But I was told that in six weeks or two months there would not be a blade of grass left, that all would be burnt up by the summer sun and heat, and that there was no remedy, as there was no available water in the country. That of the river is not good, and not easily attainable, for it runs in a canal or furrow often 30 feet deep, worn in the alluvial soil. The wells are often 50 or 80 feet deep, and then do not always reach good water. So for want of the power of irrigation the land has to be left to itself until the winter rains return in October or November.

It is easy to understand why the sides of a limestone hill should not be clothed with timber, for the roots of trees and shrubs cannot and will not pierce chalk or limestone, as they can and will pierce sand, gravel, sandstone, or schistic shales. But it is difficult to understand why the seeds of trees dropped by birds or thrown by the wind into the crevices of good deep soil, cracked by summer heat, and well watered for months in winter, should not germinate and grow, as they do when planted by man; and yet, as in the American prairies, in Algeria we see this plain of the Cheliff, 200 miles long and from 10 to 30 wide, with its deep rich loam, profusely watered for six months of the year, all but entirely devoid of spontaneously planted trees or shrubs.

Arrived at Oran, my exploration of Algeria ceased for want of time to continue it; but my object has been fulfilled. I have satisfied myself, by the study of its spring vegetation, that winter reaches Algeria with nearly as much severity as it does the south of Europe, and that there is much more rain, a moister atmosphere, and altogether a moister climate than in the sheltered and drier parts of the south of Europe. I have learnt that 5° of S. latitude do not make up, in climate questions, for want of protection from north winds, which every winter crown the ridges of Mount Atlas with snow, and bring cold and even frost far into the very desert of Sahara.

SPRING VEGETATION IN SOUTH-EASTERN SPAIN.—Leaving Oran on the 30th of April I reached Carthagena the following morning, in 15 hours. The passage was rough, owing to a strong west or north-west wind from the Atlantic, which was hurrying south to fill the vacuum caused by heat over the Desert of Sahara, sucked in by that great natural furnace. This wind was carrying with it dark rain-loaded clouds to water and fertilise Algeria. It lulled as we neared the south-east coast of Spain—our destination, and there was all but a calm when we entered the magnificent port of Carthagena, the Plymouth of Spain. I rubbed my eyes with astonishment on looking round at the high limestone rocks and mountains which form the coast line, and surround the port. Not a shrub, not a blade of Grass, not a vestige of vegetable life of any kind or description was there to be seen on the cliffs, or ashore inland. Scorched, browned by the sun, the rocky coast might have come that very day out of Pluto's laboratory. I was subsequently told by the French Consul that it seldom rained at Carthagena, and that they had then been eight months without any rain at all, that is, during one of the rainiest winters on record in Europe generally, as well as in the north of Africa. I took a walk on the ramparts, and in the vicinity of the town, but found no more vegetation than on a brick kiln, with one exception, a small herbaceous plant, from 6 to 12 inches in height, with green fleshy leaves, which grew sparsely here and there, and of which no one knew the name. Seeing nothing in this sunburnt, dirty, miserable town to deserve attention, with the exception of the port and fortifications, I left that very day for Murcia, described in books of travel as an Eden of fertility and beauty. The railroad at once entered upon a plain gradually rising to the north, the aspect of which was peculiar. It was carefully ploughed and furrowed, but not the vestige of any crop was there to be seen,—nothing but the naked earth. On inquiry, I learnt that the land had been fully prepared, and seed sown, but that as no rain had fallen since last September, the seed sown had never come up. Such a scene must be witnessed to be believed—30 miles of ploughed land without a blade of Grass on it, for want of moisture. This I was told was the case two years out of three; all hope of harvest for this year was lost; even if rain came it would now be too late; the sun had become too powerful, and would burn up the grain, even if it germinated. As it was nearly ripe in other regions, this would be easily understood. There was not, however, an entire absence of vegetable life, as at and near Carthagena, for the plain was sparsely dotted with Fig, Olive, Carouba, Almond, Mulberry, and Pomegranate trees, the latter in flower. They were all small and miserable in their leaf development, owing to the drought and to the poverty of the soil—a mere calcareous rubble, varied by apparently stiff clays. In this arid desert, the like of which I never witnessed in Algeria, I repeatedly saw tufts of the Chamærops humilis, which established its right of domicile in Europe. I also saw it, later, between Murcia and Alicante. Near the houses or farms occasionally met with were clumps of Opuntia or Barbary Fig in flower. The species grown is one without spines, which the cattle can eat, otherwise there was no scrub nor "maquis," no brushwood, no grasses, nothing for mile after mile but plains carefully ploughed and sown by the labour of man, all to no avail. On each side of the wide plain rose limestone mountains, apparently presenting basaltic flaws here and there, and diminishing in height as the railroad gradually ascended. At about 1800 above the sea, some 30 miles from the shore, where the desolation had become, if possible, fiercer—for even the Carouba and Olive trees had given in—the line turned to the west, passed through a kind of gorge, and then began to decend into the plain of Murcia.

The plain of Murcia is an alluvial plain, in the form of a delta, between two ranges of limestone mountains, some 2000 or 3000 feet high, and is rendered fertile by the presence of a small river, and by a system of irrigation which dates rom the time of the Moors, and transforms a barren wilderness into a perfect garden. The mountain side continued to present exactly the same features of barren desolation as near Carthagena, until a level was attained which enabled the water to be used, and then the transformation was magical. By the means of canals of deviation taken at a higher level in the valley, a very considerable extent of the sloping ground even is brought under the beneficial influence of water, and at once smiles with fertility. From the barometer I should say that the irrigation begins about 1000 feet above the sea level. Instantly the naked, barren, furrowed fields give place to Wheat crops, which increase in luxuriance as we descend, and as the red ferruginous lime soil becomes deeper and richer in humus produced by centuries of previous cultivation and vegetation, the Caroubas, the Olives, the Fig trees become larger—more flourishing; the Vines, up to then, mere dry gnarled roots, rising 1 foot from the ground, show leaves; Mulberry trees make their appearance, then Pomegranates in flower, and Date Palms in considerable numbers, in groups of two, three, or more, principally near the farms. When the level plain was reached, a couple of miles from the town of Murcia, the luxuriance of vegetation was extreme. Caroubas, Opuntias, and Olives all but disappeared, the land had become too valuable for them. Fig trees had become large forest trees, many feet in diameter; the Mulberry was planted thickly along the side of the road and around the fields, whilst the ground was principally occupied by thick luxuriant crops of Wheat, 3 feet high, just turning colour, with here and there patches of Flax, Beans, Peas, and more Palms, from 20 to 70 or 80 feet high. This luxuriant vegetation owed its existence entirely to irrigation, for here, as at Carthagena, I was told that it had not rained for six or eight months; but an entire river had been diverted from its course and used up. Every plot of cultivated ground was surrounded by an irrigation ditch, every field by a raised earth bank, some 10 inches high, and by this means there was the power of throwing water over every inch of this artificially fertile region—the river itself rising in the mountains of the interior, where plenty of rain falls, the supply of water is never wanting, however great and continuous may be the drought, even if it lasts for years. Thus, the fertile plain of Murcia is independent of the seasons. With a never failing supply of sunshine, heat, and water, it has been, from the time of the Moors, who first established the system of irrigation, a mere market garden, like those at Battersea, and cultivated in the same way, one crop succeeding another in rapid succession. As a result of this profuse production of the necessaries of life in a southern climate—oil, wine, bread, Dates, vegetables, fruits—a large town has grown up in the midst of it (Murcia, 45,000 inhabitants), living and fattening on Nature's bounty. From the cathedral tower is seen clearly the immense delta, with its base on the sea, enclosed between two limestone mountain ranges, entirely covered with the vegetation I have described, and dotted with groups of tall Palms, which give a very oriental appearance to the scenery.

Whilst at Murcia I went to see the summer residence of Lord Howden, formerly our ambassador at Madrid. Some 12 years ago he bought a plot of this rich land, about a mile from the town, built a house, and made a garden. The latter is very interesting as an evidence of the rapidity of growth in such a climate, with rich earth and water *ad libitum*. If what his bailiff told me be correct, the Date Palm planted under such conditions is by no means a slow growing tree, as usually stated. Palms only six years old from the seed were 5 feet in the stem, whilst others, 12 years old, were 12 or 15 feet, quite young trees. They are planted in profusion, but nearly always in beds or ditches, sunk 2 feet below the level, so as to admit of water being turned in, and of their being thus literally drenched. This, I was told, was repeatedly done during the summer or growing time. In the garden (May 1st) there was a profusion of monthly, multiflora, Bengal, Banksia, and Centifolia Roses; very few hybrids: also Hollyhock, Delphinium, Poppy, white Lily, yellow Jasminum revolutum, Petunia, Carnation, Pink, Stock, with Bignonia jasminoides and Passion Flower as climbers. In the public garden at Murcia I found the same flowers, that is, with the exception of the two last named, our early summer flowers. I was rather surprised to find in a large conservatory at Lord Howden's, plants in pots, which I should have thought would have done well out-of-doors—Pelargoniums, Lantanas, Latania borbonica, Abutilons, Heliotropes—a fact which seemed to imply cold nights and slight frost in winter. With all its luxuriance this valley must then have a very winterly look, when the Mulberry, Fig, Pomegranate, Almond, and Vine are all devoid of leaves. The Orange trees are numerous in the district, but they are generally planted in orchards and not as ornamental trees. Moreover, they are treated in a manner which much diminishes their beauty. When young the stem is cut near the ground, and the numerous shoots which spring up are preserved, so that the tree grows up as a bush and remains so; graceful enough as an evergreen bush, 10 or 15 feet high, but losing all the dignity and beauty of the Orange tree when fully developed, as on the Genoese Riviera or at Blidah in Algeria. *J. Henry Bennet, M.D., Grosvenor Street.*

(To be Continued.)

GRAAF REINET, SOUTH AFRICA.—Since I last wrote I have in the course of a trip across the Snieuwbergen made the ascent of the Compassberg, which you doubtless know is the highest peak in South Africa. It is a strange fact that although so many scientific travellers have visited this part of the world the height of this remarkable peak has never been ascertained, or if ascertained, it has not been published. Drége (I have seen it somewhere quoted in "Flor. Cap.") put it down at 7200 feet; but I think there is some mistake about this, as there is no mention made of the peak in the table of heights prefixed to E. Meyer's commentaries on Drége's plants. Then Dr. Atherstone, who, I believe, took up a mercurial barometer, put it down at 10,250 feet; unfortunately I could not get a mercurial barometer, but took a marine aneroid, which, however, we found not reliable. Guided partly by this and partly by estimation (knowing the height of Graaff Reinet—2470 feet, and of the mountains close to it which are in sight of Compassberg), we estimated the latter as under 9000 feet. I do not believe it will prove to be more than 8700 or 8800 feet. This estimate was also made by Professor Guthrie, B.A., London University, a very careful observer, who was with me; but it differs widely from Dr. Atherstone's measurements. Having climbed all the mountains near here, rising from 1000 to 2000 feet above the town, and of which the heights are known, I do not think the estimate formed by our party will prove to be far out. I regret that the time of year (April 10) was very unfavourable for collecting. However, I got several additions to my herbarium. On the summit, in or out of flower, I recognised Helichrysum trilineatum, (DC.), Crassula bergioides, Hebenstreitia dentata (L.), Asplenium Trichomanes, a Myrsiphyllum (sp. ?), a grass out of flower, probably some Bromus; and a Carex. Lower down a little, but still much higher than the highest neighbouring mountains, were, within 200 or 300 feet, Cineraria aspera, Senecio asperulus, Passerina (?), Rubus Ludwigii; somewhat lower (within 800 feet of summit), Euryops trilobus (Harv.), which I only knew from the description of the species in the Kew herbarium, sent from the same spot by Dr. Atherstone, and which it would seem has been hitherto met with nowhere else; Senecio tanacetioides (Loud.), Allosorus consobrinus, Sparaxis pendula, Chænostoma halimifolium, Lyperia pinnatifida, and Crassula acutifolia. At this height the foregoing were nearly all the plants growing there. There were only a few others, out of flower, which I did not recognise.

The next zone of 500 or 800 feet would give a large additional number of plants. The rock is basaltic, and commands a magnificent view—somewhat too vast to be beautiful. When I tell you that from its summit can be clearly seen in fine weather the Cockscomb Mountain, near the sea, which cannot be less than 115 miles distant (in a straight line), to the south-eastward the Amatola Peaks, and to the northward, far beyond the Orange River, you may form a good idea of its commanding view, and of the astonishing clearness of the atmosphere. As a wonderful instance of the latter in this country, I may mention that I once saw distinctly at Graaf Reinet, long after sunset, when stars of the third magnitude were visible, the outline of the Cockscomb Mountain against the southern horizon,

the distance being about 85 to 90 miles in a straight line. The atmosphere, it is true, was particularly clear, but in such a degree as is not very rare, and there was no mirage or similar phenomenon. To such an extent has the Prickly Pear (Opuntia vulgaris) spread in this part of the country that many farms are seriously depreciated in value by it. One large valley, 20 or 30 miles from here, is almost filled with it; it has choked off everything but a few Thorns (Acacia horrida) here and there, and perhaps a few other large shrubs, and almost entirely covers several thousand acres. Nothing but cattle can be kept there, they eat it and fatten on it; sheep and goats are greedily fond of it and eat it, but soon suffer from the laceration of their mouths with the Thorns, and ultimately die. To my knowledge, a well-to-do farmer living 40 or 50 miles south-west from here, in the Karroo, took up a loan of 4000*l.* on mortgage, for which he had to pay 8 per cent. per annum, for the sole purpose of extirpating this pest, and he paid this amount to a contractor for clearing half his farm. It is killed with difficulty, roots readily wherever it is lopped off or felled, and is generally thrown into pits or heaps and covered with earth. During two months of the year the idler natives almost live on the fruit. It creeps into the Snieuwbergen wherever it can, up the sheltered valleys, but cannot bear a very severe frost, and consequently is less common on the great plateau north of the Snieuwbergen range. There are said to be two varieties or species, one called "the good," which cattle can eat, its spines being fewer and softer; the other, "the bad," being more formidable, and which it is asserted nothing can eat. The fruit, though at first usually disliked by Europeans, is, curiously enough, after a short residence generally eaten and much enjoyed by them.

The Xanthium spinosum is gradually working its way, I fear, in despite of "an Act" for its extirpation. Another foreigner which I have found recently at home in our neighbourhood is Argemone mexicana.

S. Africa.

Societies.

Royal Horticultural: *Great Rose Show, June* 29.—This exhibition of the Royal Horticultural Society, with which the National Rose Show is incorporated, may fairly be said to have been as good, if not better, than any heretofore held at South Kensington. The favourable condition of the weather of the few preceding days produced a wonderful effect on the colour and size of the blooms shown on this occasion, which were in all respects admirable. The weather on the day of the exhibition was all that could be desired, and notwithstanding the counter attractions at the Crystal Palace on the occasion of the visit of the Viceroy of Egypt, this show received, as it richly deserved, a large and fashionable attendance, including her Royal Highness the Princess of Teck and suite.

Of the choicer varieties of Roses, as may be imagined, there was a grand display, principally of well-known kinds. Good new varieties were not shown so plentifully as usual, nor were they of such excellent quality as have formerly been noticed.

In the class for 72 single trusses, Messrs. Paul & Son took the 1st prize, with a splendid collection, in which the following were especially fine:—Léopold Hausburg, Marie Baumann, Madame Fillion, Antoine Ducher, Le Rhone, Maréchal Vaillant, Prince de Porcia, Pierre Notting, Sénateur Vaisse, Jean Cherpin, Beauty of Waltham, Marie Rady, Centifolia rosea, Xavier Olibo, Duchesse de Caylus, Duke of Edinburgh, Maréchal Niel, Monsieur Noman, Madame Furtado, La Fontaine. Mr. Turner came 2d, with, amongst others, good examples of Triomphe de Caen, Maurice Bernardin, Dr. Andry, Prince Camille de Rohan, Marie Baumann, Narcisse, Antoine Ducher, Général Jacqueminot, Souvenir de Comte Cavour, Napoléon III., Madame Fillion, Horace Vernet, and Madame Chas. Wood, &c. Mr. Keynes, who was 3d, had in his collection fine specimens of Gloire de Vitry, Lord Macaulay, Fisher Holmes, Comtesse de Chabrilland, Général Jacqueminot, Marie Baumann, Duke of Wellington, Madame Fillion, &c. Messrs. Francis & Co., Hertford, were 4th.

In the class for 3 trusses of 48 varieties, Messrs. Paul & Son again came 1st with good illustrations of well-known kinds, Mr. Keynes was 2d, Mr. Turner 3d, and Messrs. E. P. Francis & Co. were 4th.

In the class for 24 hybrid perpetuals, three trusses of each, the 1st prize was taken by Messrs. Paul & Son, who furnished fine trusses of Marguérite de St. Amand, Beauty of Waltham, Jean Cherpin, Baroness Rothschild, Monsieur Noman, Sénateur Vaisse, Marie Baumann, Madame Rivers, Dr. Andry, La France, Madame Thérèse Levet, Marguérite Dombrain, Lord Clyde, Antoine Ducher, &c. Mr. Turner came 2d, with good blooms of Exposition de Brie, Marie Baumann, President Willermoz, Impèratrice Eugénie, Paul Verdier, Duke of Wellington, Victor Verdier, Antoine Ducher, Horace Vernet, Monsieur Noman, Madame C. Joigneaux, John Hopper, and Charles Lefèvre, in this collection; Mr. Keynes was 3d, and Mr. J. Cranston, Hereford, was 4th; and to Mr. Fraser, Lea Bridge, an extra prize was awarded. Mr. H. Coplin, Shirley, Croydon, also exhibited in this class.

In the class for single trusses of 24 varieties, the 1st prize was awarded to Mr. B. R. Cant, Colchester, with, amongst others, admirable blooms of La Ville de St. Denis, Marie Baumann, La Duchesse de Morny, Céline Forestier, Madame Bravy, Maréchal Vaillant, Maréchal Niel, Xavier Olibo, Baronne de Rothschild, Madame Willermoz, Le Rhone, Duke of Wellington, Duchesse de Caylus, Madame Vidot. Mr. Keynes was 2d, Mr. Turner stood 3d, and Mr. Cranston, King's Acre, Hereford, was 4th. Mr. H. Coplin, and Mr. J. Mann, Brentwood, also showed fair collections.

The best stand in the amateurs' class for 48 single trusses was furnished by Mr. J. W. Chard, gr. to Sir F. Bathurst, Salisbury, who had very fine blooms of Fisher Holmes, Charles Lefèvre, Madame Caillot, Madame Boutin, Madame C. Wood, Duc de Rohan, La Boule d'Or, Coupe d'Hebe, and Maréchal Niel, &c. Mr. A. Moffatt, gr. to Earl Rosslyn, Easton Lodge, Essex, was 2d; Mr. W. Ingle, gr. to Mrs. Round, Colchester, was 3d; and Mr. H. Exell, 4th. Mr. J. W. Johnson, Uxbridge, contributed nice stands, but was precluded from competing from the fact that there were two examples of La Brillante in his collection. T. Laxton, Esq., Stamford; Mr. J. Smith, Lyncombe, Bath; and Dr. Cooper, Slough, also exhibited in this class.

The best 36 came from Mr. J. W. Chard, who had Comtesse de Chabrilland, Madame Boutin, Fisher Holmes, Sénateur Vaisse, Camille Bernardin, Lord Macaulay, Maréchal Niel, Madame Hector Jacquin, Céline Forestier, &c. Mr. W. Ingle came in 2d. Mr. P. Stoddart was 3d, and Mr. A. Moffat 4th, Dr. Cooper receiving an extra prize. For 24, Mr. W. Cant was 1st, with the following in his collection:—Marie Baumann, Maréchal Niel, La Ville de St. Denis, Dr. Andry, Triomphe de Rennes, Beauty of Waltham, Comtesse de Chabrilland, Maréchal Vaillant, and Général Jacqueminot. Mr. P. Stoddart was 2d, and Mr. H. Exell 3d. The best 12 were contributed by Mr. W. Cant, who had excellent examples of Marie Baumann, Cloth of Cloth, Charles Lefèvre, La Ville de St. Denis, Maréchal Niel, Madame Moreau, Madame Clémence Joigneaux, John Hopper, and Pauline Lansezeur; Mr. W. Soter was 2d., Mr. J. C. Quinnell 3d, and other prizes were awarded to Mr. J. Marsh, Stratford sub Castle, and Mr. J. Stretton.

Messrs. Paul & Son were 1st for 12 new Roses of 1867 or 1868, with Elie Morel, Duke of Edinburgh, Dupuy, Jamain, Enfant d'Amengeny, Hardy Frères, Christine Nilsson, Mons. Poiteau, Baroness Rothschild, Madame Soniset, &c.; Mr. J. Keynes came 2d with Pitord, bright crimson, darker edges; President Willermoz, Duchesse d'Aoste, Madame Cirodde, &c.; Mr. Cant was 3d, and Mr. Turner 4th. Mr. Cant was 1st with any new Rose of 1867 with good blooms of La France, and Mr. Keynes 2d with Elie Morel. Messrs. Paul & Son were 1st for any new Rose of 1868, with Duke of Edinburgh.

Yellow Roses were shown by Mr. Cant, who was 1st for 12 with fine blooms of Triomphe de Rennes, Maréchal Niel, Gloire de Dijon, Céline Forestier, Vicomtesse de Cazes. Mr. P. Stoddart was 2d, Mr. Keynes was 3d, and Mr. Chard 4th. Mr. Cant also took the 1st prize for the best collection of yellows, with a grand box of Maréchal Niel, Céline Forestier, Safrano, Madame Falcot, Triomphe de Rennes, and Gloire de Dijon. Mr. Stoddart was again placed 2d, and Mr. Chard was 3d.

Tea-scented and Noisettes were well represented by Mr. W. Ingle, who came 1st in the amateurs' class for 12 with Maréchal Niel, Bougere, Gloire de Bordeaux, Rubens, Cloth of Gold, Madame Bravy, and Céline Forestier, &c. Mr. W. Cant was 2d with similar varieties, and Mr. Stoddart 3d. Mr. Exell, Mr. Stretton, Mr. Chard, and T. Laxton, Esq., also contributed some good flowers. Mr. B. R. Cant had the best stand in the corresponding class for nurserymen, consisting of Souvenir d'un Ami, Niphetos, Souvenir d'Elise, Céline Forestier, Devoniensis, Maréchal Niel, Marquise de Forcauld, Rubens, &c. Messrs. Paul & Son were 2d, and Mr. Keynes 3d.

The best 6 bouquets of Roses, of distinct kinds, five trusses of each, came from Mr. B. R. Cant, who had some fine trusses of Le Rhone, Charles Lefèvre, Marguérite de St. Amand, Marie Baumann, Céline Forestier, and Souvenir d'Elise. Messrs. Paul & Son were 2d, and Mr. J. W. Chard 3d.

For 20 new Roses of 1866, '67, or '68, in 8-inch pots, Messrs. Paul & Son were awarded the 1st prize, for small well-grown plants, with large and beautifully coloured blooms of Baroness Rothschild, Antoine Ducher, Francois Treyve, Boule de Neige, Duke of Edinburgh, and Annie Wood, &c. The Messrs. Paul were also 1st for 24 plants of 10 distinct kinds, in 8-inch pots, with a collection in which Louise Odier, Léopold Hausburg, Triomphe de Soissons, John Hopper, Dr. Andry, Lord Clyde, Anna de Diesbach, Louise Margottin, and Sénateur Vaisse, were in remarkably fine condition. Mr. Turner was 2d with a very good group, and Messrs. E. P. Francis 3d, with smaller specimens.

Amongst Miscellaneous subjects were a splendid stand of 50 blooms of John Hopper, from Mr. R. B. Postans, and a fine box of Monsieur Noman from Mr. Cranston, King's Acre Nursery, Hereford. Mr. W. Paul showed blooms of the new Roses Prince Leopold and Princess Christian; also a variety of Phlox named Beautiful, with fine white flowers with pink eye, and of good form; and several varieties of zonal Pelargoniums, &c. Mr. J. Mann and Messrs. F. & A. Smith had also stands of Pelargoniums.

Royal Botanic, *June* 30 and *July* 1.—This was in all respects a fine exhibition, the various classes were well filled, and notwithstanding the lateness of the season, the plants were generally in good condition. The Orchids sent from the collection of A. Turner, Esq., Leicester, were remarkably fine, and the group formed one of the principal attractions of the show, which was largely and fashionably attended.

In the amateurs' class for 10 stove and greenhouse plants, the best came from Mr. Chapman, gr. to J. Spode, Esq., Hawkesyard Park, Rugeley, who had a magnificent bush of Phænocoma prolifera, about 5 feet through, and beautifully flowered; a large and finely-bloomed Pimelea diosmæfolia, well-furnished specimens of Erica tricolor Holfordiana, and E. Parmentieriana, the latter a handsome bush about 3 feet through; Polygala cordata, large, and covered with flowers; an equally well-grown and flowered Dracophyllum gracile, and a very good Ixora coccinea, &c. Mr. T. Baines, gr. to H. Micholls, Esq., Bowden, Cheshire, was 2d, and contributed a nicely-flowered specimen of Ixora javanica, about 5 feet high; a large Bougainvillea glabra, covered with blooms; a magnificently furnished specimen of Darwinia (Hederoma) tulipifera, with flowers of remarkable size and colour; a grand bush of Erica obbata, and Ixora coccinea, &c. Mr. D. Donald, gr. to J. G. Barclay, Esq., came 3d, with, amongst others, a well-furnished specimen, about 3 feet over, of Kalosanthes Frederick Dubois, a mass of bloom; a well-grown and flowered Ixora amboynensis, a very good specimen of Phænocoma prolifera, about 4 feet through; Echites splendens, in good condition; and a healthy plant of Allamanda grandiflora, not fully in bloom, &c. Mr. Wilkie was 4th, and Mr. W. Kemp and Mr. B. Peed also exhibited some good specimens. In the corresponding class for nurserymen, Mr. Ransley Tanton, of Epsom, was 1st, showing a well furnished and finely flowered Aphelexis macrantha purpurea, a very good Allamanda Hendersoni, about 5 feet high; a splendid specimen of Kalosanthes miniata splendens, not fully in bloom; Allamanda grandiflora, in good condition; Stephanotis floribunda, a good specimen, nicely flowered; and a smallish, though remarkably healthy, Phænocoma prolifera Barnesii. Mr. B. S. Williams was 2d with very good specimens of Ixora javanica, Allamanda cathartica, Stephanotis floribunda, and Anthurium Scherzerianum, with 20 of its brilliant scarlet spathes, &c. Messrs. Jackson & Son, Kingston, were 3d. The best 6 in the amateurs' class came from Mr. J. Ward, gr. to F. G. Wilkins, Esq., who had a beautiful Allamanda grandiflora, about 5 feet high and 4 feet through, well flowered; also Clerodendron Balfourianum and Bougainvillea glabra, both well flowered; a nicely grown and flowered Phænocoma prolifera Barnesii, Ixora amboynensis, and Dracophyllum gracile, in good condition. Mr. J. Wheeler was 2d with a very good example of Aphelexis rosea, a small, though well bloomed, Clerodendron Balfourianum, a good Bougainvillea glabra, and a neat pyramidal bush of Ixora javanica floribunda, &c.

The best 10 fine foliaged plants, in the nurserymen's class, came from Mr. B. S. Williams, who had a small but fair specimen of Sanchezia nobilis, nicely coloured examples of Croton pictum, large and fine Latania borbonica, Theophrasta imperialis, Yucca quadricolor, and Cordyline indivisa, &c. Mr. J. Burley stood 2d with a good Cordyline indivisa, Chamærops humilis Fortunei, Yucca aloifolia, Dicksonia antarctica, &c. In the corresponding class for amateurs Mr. Fairbairn, gr. to the Duke of Northumberland, Sion House, took the 1st prize with a fine group, amongst which were a grand Thamnopteris Nidus, Anthurium acaule, Alocasia metallica, and A. macrorhiza variegata, in good condition. Mr. W. Taylor, gr. to J. Yates, Esq., came 2d, showing in his collection nice specimens of Littæa juncea, Encephalartos latifrons, Dion edule, and Cycas revoluta, &c. Mr. T. Baines was 3d with, amongst others, a grand mass of Sarracenia purpurea, a large and well-grown Gleichenia Speluncæ, Croton pictum, and Alocasia Veitchii, &c. Mr. Fairbairn was also 1st for 6 with good specimens of Phœnix farinifera, Anthurium cordifolium, Alocasia zebrina, Theophrasta imperialis, Croton variegatum, and Cocos sp. An excellent group also came from Mr. A. Wright.

Cape Heaths were not numerous, but of a very fair description. Messrs. Jackson & Sons, Kingston, were 1st amongst nurserymen, with nicely flowered specimens of Aitoniana rosea and Turnbulli, jasminiiflora alba, Shannoniana, tricolor dumosa, speciosa, and depressa, &c. Mr. E. Morse, Epsom, came in 2d with a very uniformly grown lot, though small; in this collection were splendidly flowered examples of ventricosa grandiflora and ventricosa hirsuta. The best 9 in the amateurs were shown by Mr. J. Ward, who had very good plants of obbata, Fairriana, Aitoniana turgida, Parmentieriana rosea, Cavendishiana, eximea, Paxtoni, and Thomsoni, &c. Mr. B. Peed was 2d, and Mr. W. Kemp 3d.

Of Orchids there was a fine display, occupying the usual position devoted for their reception. First and foremost in the whole collection stood the 8 sent by Mr. W. Archer, gr. to A. Turner, Esq., Leicester, consisting of Cattleya Skinneri, a grand specimen, about 3 feet through, covered with its beautiful rosy purple flowers; a large and well bloomed Cattleya Mossiæ, with fine flowers, though rather pale in colour; a magnificent Cypripedium barbatum, covered with flowers too numerous for us to count; a finely coloured Lælia purpurata, Saccolabium guttatum, with 10 good spikes; Phalænopsis grandiflora, with three spikes of large flowers; and a well-flowered specimen of the charming Odontoglossum Pescatorei, &c. Mr. Wilson, gr. to W. Marshall, Esq., Enfield, came 2d, showing a very good Lælia purpurea, Cattleya Leopoldi, with one good spike; Aerides Larpentæ, a beautifully-flowered Odontoglossum Alexandræ, Cypripedium Stonei, with two nice spikes; and Dendrochilum filiforme, a small but well-flowered specimen, remarkable for its gracefully drooping greenish-yellow lace-like flowers. Mr. B. Peed, came 3d, showing in his collection a well-grown Aerides odoratum, scarcely forward enough; a well-bloomed Oncidium sessile, Cypripediums, &c. For 6, the 1st prize was taken by Mr. I. Hill, with, amongst others, Cattleya Aclandiæ, Trichopilia tortilis, and Aerides Fieldingii, charmingly-flowered, &c. Mr. J. Wheeler had Oncidium leucochilum, with a good spike about 5 feet long; and good specimens of Odontoglossum hastilabium and Epidendrum atropurpureum. Mr. J. Lawrence, gr. to the Bishop of Winchester, Farnham Castle, showed a small plant of Trichopilia turialvæ, having 14 beautifully whitish-yellow flowers distributed regularly around the rim of the pot; small nicely-flowered specimens of Odontoglossum caudatum and Epidendrum vitellinum, and the curious "Turk's saddle" Acineta, A. sella turcica. The best 6 in the nurserymen's class were furnished by Mr. B. S. Williams, who had a good well-clothed Sobralia macrantha, with nine good blooms; a fine Aerides odoratum majus, with 16 spikes not yet fully expanded; and Saccolabium guttatum, with two fine spikes, &c. Messrs. Jackson & Son were 2d, contributing Dendrobium Dalhousianum, with one spike: Odontoglossum citrosmum, Epidendrum phœniceum, and a nice spike of Oncidium obryzatum, &c. Mr. Parker, of Tooting, was placed equal 2d with the above; in his collection were Cypripedium superbiens, with four grand flowers; two good spikes of Oncidium divaricatum, and Lælia Brysiana, with five fine flowers.

Ferns formed a very effective display. The best 12 in the nurserymen's class came from Mr. B. S. Williams, who had in his group excellent examples of Todea africana, Marattia elegans, a grand mass of Gleichenia Speluncæ, Cibotium Schiedei and princeps, and Lomaria gibba. Mr. T. Baines stood 1st amongst amateurs, with splendid bush-like masses of Gleichenia flabellata and Speluncæ, admirable specimens of Davallia bullata and tenuifolia, &c. In Mr. W. Taylor's 2d prize collection were nice specimens of Gymnogramma ochracea, Asplenium Fabianum, Adiantum formosum, and Microlepia strigosa, &c. Mr. A. Wright was 3d. First for hardy British species came Messrs. Ivery & Son, Dorking, with a large and exceedingly well-grown collection, comprising many fine varieties of Athyrium Filix-fœmina, Polystichum angulare, and Scolopendriums, &c.

Of Fuchsias there was a very scanty display—as there usually is at metropolitan exhibitions; two collections only were shown, and neither of these were considered worthy of the 1st prize; Mr. H. Filce, gr. to J. Stutter, Esq., Oak Lodge, Clapham Park, took the 2d; and Messrs. Dobson & Son the 3d.

Show Pelargoniums were fairly represented by Messrs. Dobson & Sons, who took the 1st prize for 9 in 8-inch pots in the nurserymens' class, with Viola, Conflagration, Publicola, Maid of Honour, Purity, Constance, John Hoyle, Favourite, and Perdita. Mr. J. Ward was 1st in the corresponding class for amateurs, with some similar varieties to the above, and Bacchus, Sunny Memories, Desdemona, Beacon, and Caliban. Messrs. Dobson were also 1st for 6 Fancies in 8-inch pots, with good examples—Zoe, Eleanor, Delicatum, Marionette, Madame Sainton-Dolby, and Neatness. Mr. D. Windsor came 1st for the best 6 amongst amateurs, with well-grown and flowered specimens of similar sorts; Mr. D. Donald was 2d. Mr. J. Catlin, Finchley, was 1st for 6 scarlets, with admirable specimens, about 4 feet across, of Madame Vaucher, Rose Rendatler, Clipper, Mons. Rendatler, Cliver, and Excellent; Mr. W. Wilson was 2d with well-flowered examples; Messrs. Bell & Thorp were 3d with a small but neatly-grown collection. Of tricolor Pelargoniums the best 10 came from Messrs. E. G. Henderson, who had Lady Cullum, Charming Bride, Sophie Dumaresque, Silver Star, Duke of Edinburgh, Lass o' Gowrie, Victoria Regina, Princess of Teck, Duke of Cambridge, &c., in very fine condition. Mr. Cannell, Messrs. Carter & Co., Mr. Mann, Mr. Turner, and Messrs. F. & A. Smith, also exhibited some finely-grown and well-coloured varieties.

The best group of plants arranged in flower-garden style was furnished by Messrs. E. G. Henderson, whose collection was tastefully set out on a gently sloping bank, with a very pretty effect. The first and outer row consisted of dwarf bushy plants of Gnaphalium tomentosum; next a line of blue Lobelias; then came a row of Coleus; then a wider row of such plants as Centaureas, Alternantheras, Sedums, Coleus, and Pelargoniums, arranged alternately in square masses; in the fifth row the same arrangement was followed with Iresine; a fine Heliotrope, named Jersey Beauty, and other subjects; and the whole was backed up by a miscellaneous collection of greenhouse and bedding plants. Mr. T. S. Ware was 2d with a neatly arranged assortment of hardy plants, &c.

New and rare plants were shown by Mr. B. S. Williams, who had Barkeria spectabilis, Odontoglossum Blunti, Cœlogyne pandurata, &c., in bloom; the beautiful little Australian Pitcher-plant, Cephalotus follicularis, and a fine specimen of Aralia Sieboldi aureo-variegata, to which a First-class Certificate was awarded; by Messrs. Veitch, who had Vanda insignis, true, × Begonia Sedeni, Croton undulatum (showing both red and yellow spotted leaves on the same plant), Croton tricolor, Davallia Moorei, Caladium Duc de Ratisbon, Alocasia Chelsoni, Blandfordia nobilis, Dendrobium crystallinum, and Bensoniæ, to many of which First-class Certificates were awarded. Mr. W. Bull exhibited a large collection, amongst which were a small specimen of Drosera Menziesii, to which a Second-class Certificate was awarded; Maranta princeps and Martinezia caryotæfolia, to which First-class Certificates were given; Nepenthes Rafflesiana, a finely-bloomed Cypripedium superbiens, Cryptomeria japonica variegata, a fine white variegated variety; a new shrubby Calceolaria named Leon Hubert, with good sized yellow and velvet crimson coloured flowers, and several varieties of Petunias, &c. Messrs. A. Henderson & Co., Pine-apple Place, received First-class Certificates for Acer ornamentatum and albophyllum reticulatum, Zalacca edulis, and × Begonia weltonensis, &c. Messrs. Ivery & Son also showed three new hardy Ferns, named Lastrea Filix-mas

cristata crispa, Lastrea dilatata polydactyla, and Scolopendrium sagittatum, to each of which First-class Certificates were awarded.

Florists' flowers were rather numerously shown by Mr. Turner and others; most of the subjects exhibited have already been noticed in these columns. Amongst miscellaneous plants, Mr. Baines had a collection of his famous plants of Sarracenias; and from Mr. Parker, of Tooting, came a large and interesting collection of succulent and other plants, &c. Cut blooms of Roses were shown by Mr. Mitchell, of Piltdown, and Mr. Fraser, Lea Bridge, who were 1st and 2d, for a collection of 50; Mr. H. Exell was 1st for 25, Mr. Turner was 1st and Mr. Cranston 2d for 24, all showing some good blooms. A fine collection of Verbenas came from Mr. Turner, who also showed a good stand of Pinks. Mr. Hooper, of Bath, also exhibited some fine Pinks and Pansies; and Messrs. Shenton & Cowley had a fine stand of a new white forcing Pink, named Primrose Queen, with fine large flowers.

Of Fruit there was a fine display. Peaches and Nectarines were numerously shown, as also Melons, Grapes, and Pines. In the class for miscellaneous collections of fruit, the 1st prize was awarded to Mr. Miller, gr. to Earl Craven, Combe Abbey, this being the third year in succession that Mr. Miller has taken this prize. In his collection were two very nice Queen Pines, fine dishes of Black Hamburgh and Foster's White seedling Grapes, a large well-coloured fruit of Chichester Prize Melon, fine and well coloured fruit of Royal George Peaches and Elruge Nectarines, a dish of Cherries, of the kind known as the Waterloo, and a good dish of British Queen Strawberries. Mr. Johnson, gr. to the Marquis of Salisbury, was 2d, showing a fine Providence Pine, and a very useful-sized Queen, a good specimen of the Trentham Hybrid Melon, one dish each of Black Hamburgh and Tottenham Muscat Grapes, Violette Hâtive Peaches, Elruge Nectarines, and a fine dish of La Constante Strawberries; Mr. Bannerman, gr. to Lord Bagot, was 3d with two good Queen Pines, very nice Black Hamburgh Grapes, Trentham Gem and Meredith's Hybrid Cashmere Melons, Royal George Peaches, Elruge Nectarines, Cherries, and Strawberries; Mr. Miles, gr. to Lord Carrington, came 4th, showing good examples of Buckland Sweetwater and Black Hamburgh Grapes, Victory of Bath and Royal Ascot Melons, Barrington Peaches, Pitmaston Orange Nectarines, Strawberries, and Cherries; and Mr. J. Simpson, gr. to Lord Wharncliffe, Wortley, was 5th. Mr. Carmichael, gr. to H.R.H. the Prince of Wales, Sandringham, also staged a nice collection, in which were two Melons named Prince of Wales (green-fleshed) and Princess of Wales (scarlet-fleshed), and some very good bunches of Black Hamburgh Grapes, which, however, were much rubbed in carriage.

Of Pine-apples, the best Providence was a fine fruit, about 6 lb. in weight, which came from Mr. Bailey, gr. to T. T. Drake, Esq., Shardiloes; and a nicely-developed specimen was shown by Mr. Miles. The best Queen, which weighed 4½ lb., came from Mr. J. Ward, gr. to T. N. Miller, Esq., Bishop's Stortford. Good examples of the latter were also contributed by Mr. J. Hepper, gr. to J. Walmsley, Esq., The Elms, Acton; Mr. W. Cole, gr. to J. S. Budgett, Esq., Ealing Park; Mr. C. Berry, gr. to J. Da Silva, Esq., Burntwood, Wandsworth; Mr. J. Ackhurst, gr. to J. F. Copestake, Esq., Highgate; and Mr. B. S. Williams, Holloway. Mr. J. Ward also took the 1st prize for a single fruit of any other sort with a fine Prickly Cayenne, which weighed about 5 lb.; Mr. Bailey was 2d with a good specimen of the same kind; and other varieties were shown by Mr. Ingram, gr. to the Duke of Rutland, Belvoir; Mr. C. Ross, and Mr. J. Ackhurst.

Melons were numerously shown, but as a whole were below the average merit in point of flavour; the best scarlet-fleshed kind was Standish's Perfection, shown by Mr. Johnson; the second was Clarke's hybrid, exhibited by Mr. E. Clarke, gr. to J. C. Brown, Esq., Horsham; and a variety called Princess of Wales, from Mr. Carmichael, was third. Mr. B. S. Williams took the 1st prize for the best green-fleshed Melon, and Mr. J. Douglas, gr. to F. Whitbourne, Esq., Loxford Hall, Ilford, the 2d, the latter showing a very good Meredith's Hybrid Cashmere; the 3d went to Mr. T. Crane, gr. to the Rev. L. Deedes, Bramfield, Herts, who had a good example of the variety known as Queen Emma.

For Grapes, any variety, in quantity not less than 12 lb., the 1st prize was taken by Mr. Miller, Combe Abbey, with beautifully finished Black Hamburghs; and Mr. Davies, Friern, Barnet, was 2d with good well-coloured bunches of Muscat of Alexandria; whilst Certificates of Commendation were bestowed on Mr. Henderson, of Cole Orton, who showed the Black Hamburgh, and Messrs. Standish & Co., who contributed the Royal Ascot; Mr. C. Ross, gr. to C. Eyre, Esq., Welford Park, Mr. G. Thomas, gr. to Mrs. Child, Whetstone, and Mr. Osborn, Finchley, also exhibited good baskets of Black Hamburgh. The best single dish of the latter kind was sent by Mr. Henderson, of Cole Orton, who had three rather small bunches, but the berries were remarkably fine in size, well coloured, and showing a splendid bloom; Mr. J. Douglas was 2d with very fine examples, and the other prizes were taken by Mr. Bannerman and Mr. J. Simpson. Messrs. Standish & Co. stood 1st for Muscats with three nicely-finished bunches of Muscat of Alexandria; the same variety was shown by Mr. Kemp, gr. to the Duke of Northumberland, Albury Park, and Mr. Bailey, who took the 2d and 3d prizes respectively. The three bunches shown by the latter exhibitor were very fine in size and shape, but were evidently not quite ripe. Mr. Bannerman was 1st for a single dish of Black Prince, with three good bunches; Mr. O. Goldsmith was 2d, and Mr. Sage, gr. to Earl Howe, Gopsal, 3d; Mr. Lynn, gr. to Lord Boston, also exhibited in this class. Mr. Cole, gr., Ealing Park, was 1st in the class for a single dish of any other kind, with Buckland Sweetwater; Mr. Bannerman was 2d with excellent examples of Grizzly Frontignan; and Mr. J. Douglas was 3d with Buckland Sweetwater.

In the class for 2 dishes, each distinct kinds, of Peaches and Nectarines, Mr. Miller, of Combe Abbey; and Mr. Jack, gr. to the Duke of Cleveland, Battle Abbey, were equal 1st, the latter having well coloured Elruge and Violette Hâtive Nectarines, and Royal George and Bellegarde Peaches, some of the latter weighing 14 ounces; the former showed Elruge and Oldenburgh Nectarines and Grosse Mignonne and Royal George Peaches, in very fine condition. Mr. G. Masters, gr. to Earl Macclesfield, Tetsworth, was 2d with similar varieties; and Mr. C. Allen, gr. to Captain Clegg, Withington Hall, Cheshire. Fine dishes of Royal George Peaches and Hunt's Tawny Nectarines were contributed by Mr. Turner, and Royal Charlotte, Grosse Mignonne, Noblesse, and Violette Hâtive Peaches by Mr. Osborn, of Finchley.

Of Cherries, the best black kinds were Black Circassian, from Mr. Turner; Tartarian, from Mr. Hill, gr., Poles, Ware, Herts; and May Duke, from Mr. J. Budd, gr. to H. D. Barclay, Esq., Eastwick Park. Mr. Hill was 1st for Whites, Mr. J. Hepper, and Mr. W. Dobson, gr. to C. H. Mills, Esq., M.P., Sevenoaks, also contributed nice dishes.

For 4 varieties of Strawberries, the 1st prize was taken by Mr. J. Douglas, who had very fine fruit of Sir Harry, President, Premier, and La Constante. Amongst miscellaneous subjects exhibited were four very nice Queen Pines from Mr. J. Hepper; three good bunches of a handsome-looking Black Grape named Black Mammoth, from Mr. Henderson, Cole Orton, were greatly admired,—it was said to be a seedling sent to this country from Australia by the late Mr. Wood, of Nottingham. The bunches were nicely finished, berries large and oval, somewhat resembling the Black Morocco, though perhaps longer, and not quite so bluntly ended as that variety. Messrs. Standish & Co. exhibited the Royal Ascot Grape growing in pots, trained on the umbrella fashion, averaging about six bunches each. Mr. B. S. Williams had a fine brace of Holloway Rival Cucumbers, and Mr. Turner three fine fruits of the new sort named Blue Gown.

LINNEAN: *May* 24 (*Anniversary*).—G. Bentham, Esq., President, in the chair. A letter was read, from Lady Smith, offering for the acceptance of the Society a beautifully carved rhinoceros horn, which had been sent to Linnæus from China, by M. Lagerström. The thanks of the Society were returned to Lady Smith for this valuable addition to the memorials of Linnæus. The cordial thanks of the Society were voted to G. Busk, Esq., on his retirement, for the eminent services which he had rendered to the Society as its Secretary for the last 12 years. A financial statement was read, from which it appeared that the balance in favour of the Society on the years' account was 245*l.* 5*s.* 7*d.* The Secretary reported that since the last anniversary the Society had lost by death 16 Fellows and two foreign members, and by withdrawals six Fellows, while 28 new Fellows, and two foreign members had been elected. At the ballot for council and officers, Dr. Collingwood, Sir John Lubbock, R. MacLachlan, Esq., J. Miers, Esq., and St. George J. Mivart, Esq., were removed, and their places filled by Dr. Bastian, A. Grote, Esq., Dr. Prior, H. T. Stainton, Esq., and Dr. Thomson. The following gentlemen were elected as office-bearers for the ensuing year:—G. Bentham, Esq., President; W. Wilson Saunders, Esq., Treasurer; Frederick Currey, Esq., and H. T. Stainton, Esq., Secretaries. The President's address and the Secretary's obituary notices were then read, the thanks of the meeting being afterwards voted to both officers, and a request made that the papers might be printed.

June 3.—G. Bentham, President, in the chair. The President nominated J. J. Bennett, Esq., G. Busk, Esq., J. D. Hooker, M.D., and W. W. Saunders, Esq., Vice-Presidents for the ensuing year. Edward Saunders, Esq., was elected a Fellow. The following papers were read:—I. *Notes on the Thysanura*, part 4, by Sir J. Lubbock, Bart.——II. *Monograph of the genus Polymorphina*, by Messrs. H. B. Brady, W. K. Parker, and T. R. Jones.——III. *Letter from Herr Fritz Müller to Mr. Darwin on the transformation of stamens into stigmata in a species of Begonia*, communicated by C. Darwin, Esq.

June 17.—W. Wilson Saunders, Esq., Vice-President, in the chair. J. Tanner, M.D., and G. R. Tate, M.D., were elected Fellows. Mr. Redhead exhibited a specimen of Leptopetion alexandrinum, Schott, found by Mr. Hurst, at Ramleh, near Alexandria. Mr. W. G. Smith exhibited specimens of a new British Agaric, the Agaricus (Tricholoma) brevipes, Fries, collected by the Rev. H. H. Gillett, at Melton Mowbray, where it is eaten in large quantities. The following papers were read:—I. *Enumeration and Description of Plants of the Order Bignoniaceæ, collected by Mr. Joaquim Correa de Mello, in the Province of San Paulo, Brazil*, by Edward Bureau, M.D.; communicated by D. Hanbury, Esq. The species of the Bignoniaceæ observed by Mr. de Mello, amounted to 53, of which 42 were climbers, and 11 were of erect or arborescent habit.——II. *On Gœtzia and Espadea*, by J. Miers, Esq. Gœtzia, first described by Wydler in 1830, was referred by him to Ebenaceæ. Espadea, established by Richard in 1838, was by him classed in Verbenaceæ. After giving a detailed description of these plants, and noticing the points in which they agreed or disagreed with various natural orders, Mr. Miers stated as his own conclusions that no known order affords them a fitting restiug-place, and that we must either make a distinct family for them, or place them in a tribe (Gœtzieæ) to be attached to some existing order; but, he added, as I cannot find one in which such a tribe can be admitted, the former alternative cannot be evaded. "The leading characters of such a group —Gœtziaceæ—are hermaphrodite flowers, a tubular calyx and corolla, each with a valvate æstivation, exserted stamens fixed near the base of the corolla, equal in number to and alternate with its lobes, a simple style and stigma, a superior bilocular ovary, half embedded in a large, partly free, fleshy, hypogynous disc, having a raised lobed margin, the lobes sometimes enlarged with long mellifluous appendages, the collateral ovules in each cell fixed at the base of the dissepiment, and a 2-celled fleshy fruit, with membranaceous endocarp and dissepiment. This group, if adopted, might, it was suggested, stand until a more fitting place could be found for it near Convolvulaceæ, through Maripa and Humboldtia, or near the Apocynaceæ through Hancornia and Rauwolfia, but having no close intimacy with either family.——III. *Contributions towards a Knowledge of the Curculionidæ*, by F. P. Pascoe, Esq.

Notices of Books.

Les Promenades de Paris, &c. Par A. Alphand. Chromo-lithographs, plans and woodcuts. Imperial folio. Paris: J. Rothschild.

Several numbers of this magnificent publication are before us. The epithet "magnificent" is justified by the typography, the engravings, and the plans, if not by the letterpress. The latter we may characterise by the same epithet as we should apply to much of the modern French style of landscape garden—"frittered." With a view to completeness, every little detail of cost and mode of construction is dilated on to an extent often disproportionate to their importance. Such minutiæ are of course highly requisite and important to the working engineer, landscape gardener, or architect, but are unnecessary for the public, for whom this work seems specially designed. We had written general public, but erased the adjective in view of the necessarily costly nature of so sumptuous a publication as the present.

As its title indicates, the work is devoted to an account of the public parks, gardens, squares, &c., of the city of Paris, their history, formation, renovation, and present condition. Copious details are given as to the mode and cost of construction and maintenance of these establishments and their architectural adjuncts. Illustrative woodcuts, plans, and steel engravings, are supplied in profusion, so that the landscape gardener or garden architect will find this book valuable as supplying hints that he may turn to good account. Numerous woodcuts of trees and shrubs are given, but these not so characteristic and highly finished as some others of French origin that we have had occasion to notice. The chromo-lithographs are chiefly devoted to subtropical and other plants, and though they add to the appearance of the book as an *ouvrage de luxe*, they are of little service to the botanist or gardener. Some details as to the planting of avenues, &c., may be of interest to our readers. Thus, we have a calculation as to the average cost of planting avenue trees (*arbres d'alignement*), amounting for each tree to 16 fr. 50 c.; thus—7 fr. 50 c. for the tree, 5 fr. for two square yards of vegetable soil, 3 fr. 85 c. for a tree guard, 5 fr. 15 c. expenses of removal of earth, and maintenance for two years.

For the removal and transplanting of larger trees in the Bois de Boulogne, three sizes of transplanting machines, according to the dimensions of the trees to be moved, were employed. The smallest cost 700 fr., a size larger was constructed for 1100 fr., while the largest truck, constructed of iron and fonte, was built at a cost of 8500 fr.

The following Table gives some interesting particulars as to the use of these machines:—

Diameter of the balls.	Diameter of the trunk.	Height of the tree.	Machine employed.	Number of horses required in transporting the tree.	Cost of transit; average distance 3—4 kilometres.
m. m.	m. m.	m.			Francs.
0.80—1.00	0.05—0.08	6—10	Small wooden truck, with a windlass (treuil).	1	20—40
1.00—1.30	0.10—0.20	6—12	Middle-sized wooden truck, with windlass.	2—3	40—75
1.30—2.50	0.20—0.80	6—20	Large iron, with windlass and cog-wheels	7—9	75—120

So that a small tree 18 to 30 feet high, whose trunk has a diameter of 2 to 3 inches, and a ball of 3 feet in diameter was moved a distance of 3 to 4 kilomètres, at a cost of 20 to 40 fr.; while a tree of 60 feet in height, with a ball between 5 and 6 feet across, was moved by seven or nine horses the same distance, at a cost of 75 to 120 fr.

The machines used consist of a strong framework on four wheels; the hinder bar of the frame is movable on a hinge, so as to allow of the trunk of the tree being encircled by the framework. Two stout windlasses mounted on the frame allow the ball, properly compressed and bound with bands of iron or wooden hoops, to be lifted out of the hole by means of chains. The trunk is steadied by ropes passing from it to the bars of the truck. The larger trucks are constructed on the same principles, but are of iron, and the place of the windlass is supplied by a crank and cog-wheel apparatus. So much has been said about the size of the trees transplanted by these machines that we had expected the French machines to be better and simpler than our own; but without in the least depreciating them, we may say that to all appearance our own are quite as good, if not better.

As to the landscape gardening now in vogue in Paris, we are bound to admit that it looks better on the ground than on the small scale in which it can be shown on paper. The purposeless curves of the walks destroy all breadth of effect, and give a frittered, piecemeal appearance, which is quite at variance with the art as practised by our best English landscape gardeners of the last generation, upon whose practice the modern French style professes to be an improvement. If we must draw comparisons, however, we must say that we prefer the modern French to the modern English style of landscape gardening, but—*chacun à son goût.*

Facts and Arguments for Darwin. By Fritz Müller. Translated from the German by W. S. Dallas. (Murray.)

It has been from the first felt by those who earnestly desired that the validity of the Darwinian theories should be as throughly tested as possible, that one of the best methods of attaining this end would be to study certain well defined groups of plants or animals with special reference to this point. If the facts elicited were conformable to the theory, all the better for it. If they were inconsistent with Darwin's views, or contradictory to them, science would still be the gainer. In this spirit has Dr. Müller worked, and Darwinism has in consequence gained an accomplished advocate, and science a host of valuable facts. The most important of these discoveries are those relating to the development of the Crustaceæ; or, in other words, the changes in form which are manifested by these animals in their passage from the fœtal to the adult state. The metamorphoses of insects are sufficiently remarkable, but those of Crustaceans seem yet more so. Not the least singular fact is "the confusion of developmental forms, now so totally different in the nearest allies, now so surprisingly similar in members of the most distant groups."

If there was one point more than another that could be considered as a satisfactory standpoint, the proposition summed up in Agassiz' words, "the ovarian eggs of all animals are identical, composed of small cells with vitellus or yolk germinal vesicle and germinal spot." But, says Müller, they can be considered identical only by noticing what is common to them and by leaving out of consideration the differences between them; which he then goes on to show are very considerable. Indeed, in some instances, among the Crustaceæ the differences in the ovarian eggs are so great as to furnish excellent characters for the discrimination of species of the same genus. We cannot pretend to follow Dr. Müller throughout his argument, or to offer criticism on his statements; to do so one must be as thoroughly versed in the knowledge of the Crustaceæ as the author himself. We do not know where such a one is to be found, and hence we can only commend this small, but weighty, volume to the notice of those readers not averse to recondite treatises and philosophical arguments. Mr. Dallas deserves the thanks of British naturalists for placing Dr. Müller's work before them in as readable a form as possible under the circumstances.

Gardening for the Cottage, &c. By S. Wood. (Ridgway.) A shilling pamphlet, setting forth the

method of growing "window and other plants, and fruits and vegetables for prizes." The practical directions are good, but the chapters on "Plants useful as Medicine," on "Botany made easy," (!) and specially the Glossary, contain more stupid blunders in the space they occupy than it has ever been our lot to see in any other publication. Let the writer expunge all this matter in his next edition, or get some competent person to rewrite it for him.

The Apiary.

CONVENTION OF BEE-KEEPERS AT DARMSTADT (*continued from p. 668*).—*Making Artificial Colonies.*—Dr. Pollman said he would communicate his process:—"I have only one apiary, though I make artificial colonies. I usually make them with the queen. I take from a populous colony several combs with brood, on one of which the queen is seen. I transfer these to an empty hive, add some empty combs, and set the hive on the stand of the parent stock, removing the latter to some other part of the apiary. If this is done when the weather is fine, and while the bees are flying briskly, we may feel assured that before night all the old bees will have left the parent hive, and joined the new colony. This latter has the queen and a supply of empty combs, in which she may at once proceed to deposit eggs, and the old workers may forthwith store honey. The parent hive, too, is speedily recuperated from the brood it contains, which is maturing from day to day; and as in the best days of summer the queen lays from 2000 to 3000 eggs daily, a corresponding number of bees will issue, and thus speedily repopulate it, though all the old bees that leave fail to return. In the course of a week it will have recovered its normal number, and resume its pristine activity."

M. Hempel remarked that, with some modification, he regarded the process just described as one of the best in use. "I have," said he, "for some time past, made my artificial colonies mainly in this manner, though for convenience I make some changes. I do not remove the parent hive, because in some cases that would be difficult, if not impracticable; but I remove all the combs,—that is, I transfer all the combs from the parent stock to an empty hive, catching the queen and returning her to the old hive, and placing her among the bees remaining there. All the bees which had previously flown out will speedily return to the parent hive, and, with those remaining there, soon constitute a strong swarm, which I am careful to furnish with plenty of worker guide comb. An artificial colony thus made will build as freely and rapidly as a natural one. The transferred stock, too, placed on a new stand in another part of the apiary, though the bees cease flying for a few days, will thrive satisfactorily, having a store of honey, and nearly all the young bees, with plenty of maturing brood from which its numbers will be rapidly reinforced. When old stocks thus treated are as populous as they should be to justify division, artificial colonies can in this way be best and most easily made, no second or distant apiary being required."

M. Dzierzon observed that it was hardly possible to say which is the most unexceptionable mode of making artificial colonies, as in every case much depends on the kind of hive employed, and on various attending circumstances. "I have," said he, "several objections to the mode just recommended, by which the combs are transferred, and the older bees return to their late home, uniting with the artificial colony there, which retains the queen. I have learned from experience that a queen so situated is apt to be killed by some of her own bees, returning from the new location on the second or third day. The most advantageous mode unquestionably is that which most closely resembles natural swarming, namely, driving or drumming out, when the driven swarm can be sent to a distant apiary. If this cannot be done, other modes must of course be resorted to, such as that proposed by the second speaker, as we then have the queen and bees together immediately, and need not of necessity wait for a gradual accession of numbers to constitute a colony."

M. Hempel remarked that, of course, he made his artificial colonies only on days when the bees were flying briskly, when assuredly very few old bees will remain with the transferred stock, because the absence of the queen causes alarm and excitement among them, inducing them to leave and return to their old stand on the same day. Long as he had practised this method, he had never lost a queen thereby.

The Best Form and Size of Hive was one of the subjects which engrossed a considerable amount of time and discussion. German ideas on this subject differ considerably from our English notions. M. Klepstein, after describing what he considered to be the requisites of a complete hive, gave it as his opinion that the dimensions suitable for safe wintering, early and extensive brooding, ease of management, and suitable storage room, should be nearly 10 inches square in the clear, and at most 14 inches high. M. Dathe stated that formerly, while residing in Saxony, he used hives 10 inches square and 15 inches high; but when he removed to Hanover he found that such hives were too large for profitable bee-culture there. He had reduced his hives to 9 inches square and 14 inches high in the clear.

M. Hempel, using bars instead of frames, considered that hives 10 inches wide and 12 inches high were the most suitable in his district. He had formerly used them only 10 inches high, but his bees wintered badly in them, as they could not store sufficient honey overhead for winter consumption. M. Deuhart said he had been governed by the experience of M. Dzierzon, and had adopted the dimensions of 9½ inches for their breadth, and 14 inches for their height. In such hives his bees uniformly wintered well.

Other matters of interest occupied the time of the Convention, for notice of which we have not space. This Convention—the 15th—comprised 384 members. Of these, 53 were exhibitors; and 24 prizes, amounting to 250 florins, were awarded by the committee.

Garden Memoranda.

GRIMSTON PARK, the seat of Lord Londesborough, is situate about nine miles south-west of York, in one of the most fertile districts of England. The mansion is placed on rising ground, overlooking a wide extent of level country, and the park is nicely wooded. From a horticultural point of view Grimston is chiefly remarkable for its pleasure grounds, and its extensive and admirably grown collection of Orchids; though its supplies of necessaries in the shape of fruits and vegetables are by no means of a limited character, and evince a thorough mastery of the art of production on the part of Mr. Denning, the intelligent gardener.

The mansion is flanked on two sides by flower gardens. That on the principal front is an extensive one, enclosed by a balustrading from the cricket ground beyond, which it overlooks. It is traversed by gravel paths, and forms a series of designs occupying the greater portion of its surface, the beds being on Grass, and the Grass encompassed and separated by dressed stone edgings. The gardens on the side of the mansion is smaller, and on a lower level, and is a good deal occupied by Roses and American shrubs; it also contains a fine massive basin with fountain. On the same side of the house is an elegant conservatory, which leads from the drawing-room to the level of the upper terrace walk. A broad promenade sweeps down the centre of this building from the drawing-room windows to the doors leading on to the terrace, the plants being arranged in two banks right and left, so that from the house a gaily-coloured avenue conducts the eye to the more expanded flower garden without. There is at Grimston a considerable range of pleasure ground and well-wooded walks, which must be very enjoyable both in summer and winter. Extensive blocks of pruned Laurels occur in various directions, and are introduced with very good effect, while here and there one comes on some secluded nook, forming an episode of interest and beauty. An instance of this occurs in what is called the Emperor's walk, a straight stretch of gravel with green sward on either side, and terminated by an architectural halting place on rising ground, the name referring to a series of marble busts set on pedestals representing several of the Roman Emperors, and which are ranged along the two sides of the walk.

The kitchen garden with the forcing houses is at the opposite extremity of the mansion. Here are six vineries, three Peach-houses, four Orchid-houses, and one or two other structures allotted to plant culture. The Grapes and Peaches were all that could be desired. The chief supply of vegetables is drawn from a separate kitchen garden some distance away.

It is in the Orchid-houses, however, that we find the chief treasures of the establishment. Both Lord and Lady Londesborough take great interest in Orchids, which are much in demand as cut flowers; and while their cultivation is liberally encouraged, it is gratifying to be able to record that it is most successfully carried out. It is seldom that so extensive a collection is met with in such excellent health, and the freshness of the growing Sphagnum about the roots of the plants indicated unmistakably that their wants were duly cared for. Many of the plants are magnificent specimens, such as would create a new sensation if we could but get them brought out to our shows. Indeed as the Manchester exhibition of the Royal Horticultural Society takes place in the middle of July, when the risk to these choice specimens must be reduced to a minimum, and Manchester itself is but a comparatively short journey from York, we may venture to hope that some of these plants may be permitted to put in an appearance there. In a somewhat hasty glance through the collection some fortnight since, we noted amongst others in flower, of Dendrobiums—transparens, Bensoniæ, secundum, crystallinum, with nearly three dozen flowers; Devonianum and Parishii; Bletia Shepherdi, with very rich dark purple flowers; Aerides odoratum—a plant which had borne 54 spikes, some of which had been cut; Aerides Dayanum, a variety of virens, with four fine spikes; a lovely Aerides affine with nine vigorous and freely-branched spikes, and other plants of the same nearly equally fine; a grand Aerides maculosum superbum, Anguloa Clowesii with 19 buds; a fine Oncidium obryzatum; the charming little Nasonia cinnabarina in free growth, with half-a-dozen flowers; Epidendrum vitellinum majus, with five sturdy spikes of bloom; Mesospinidium sanguineum; Brassia verrucosa, with three fine spikes; several plants of Lælia purpurata; the true Cattleya Warneri; a fine variety of Odontoglossum Phalænopsis, with several flowers, and many others which space forbids us to mention. Nor can we even attempt to set down all the rare and choice kinds to be seen, for this would be to catalogue the entire collection. Dendrobium Falconeri, the lovely, was doing well; D. Jenkinsi, a fine mass, had borne 200 flowers, and must then have been a glorious sight; Vanda teres Andersoni, the finely coloured sort shown last year from Grimston, has this season had 48 flowers expanded at one time; Dendrobium Wardianum was a fine plant, in luxuriant health; of D. Bensonæ, a variety was blooming with flowers twice the ordinary size; the Aerides, of which genus there are many examples, comprised several noble plants; the Pleiones were growing as freely as weeds; and, finally, in the Cattleya house was brought together a grand lot of Cattleyas, which, in their flowering season, must prove a magnificent sight. Such results as these, and we have by no means exaggerated them, must be extremely gratifying to the noble proprietor of Grimston, and will, we may hope, long induce him to remain in the ranks of the leading devotees of Orchid culture. *M.*

Miscellaneous.

Trees in the City.—We have a few good gardens in the City of London,—gardens, too, that have histories of their own; spots made classic by events and personages associated with them. We have also two or three respectable churchyards, which are visited by crowds of people to whom City trees and flowers are unwonted sights. Yet, alas! we have many hideous wastes, many shamelessly neglected graveyards, and many occupied sites that might with advantage be "disestablished" for the purpose of being converted into gardens. We ask why, or how it is, that a population really possessed of rural tastes, the great proportion of whom are gardeners when at home—or, at all events, have gardens, and love them—should allow many opportunities for the embellishment of the City with trees and grassy spaces to lie unused, and as though they were not? We have asked this and similar questions before, and our readers will remember that we have attributed to the peculiarities of our system of local administration the evils, ethical and sanitary, that attend life in a great city where such embellishments are almost unknown. We shall have to return the same answer to the question to-day, and if we do not sigh for a Haussman, or for Imperial rule, or for an unlimited exchequer and an uncontrolled and irresponsible commission of architects and horticulturists, we may reasonably sigh for the establishment of municipal unity, which we believe would tend directly and beneficially to a re-modelling in respect of outward aspects and fitness for habitation of this great city. *City Press.*

Ground Vineries.—In gardens where these glass ridge roofs are not wanted for Vines or fruit-tree culture, they will be found most useful. They may be placed on any warm border on bricks; and early Peas French Beans, and many other early vegetables requiring protection from spring frosts, be grown under them with advantage. For the cultivation of early Strawberries they are invaluable, as they not only hasten the ripening period, but protect the fruit from heavy summer showers, often so injurious to the crop, and also from birds. Strawberry plants, to be cultivated in ground vineries, should be planted early in autumn in narrow beds of two or three rows, the plants close together in the rows, so as to take full advantage of the glass-covered space. The rows should be nine inches apart, and the plants in the row the same distance from each other; the beds should be made every season on a fresh piece of rich soil; and as much fruit as can possibly be grown in such a limited space must be the aim of the cultivator. If the ridges are devoted to strawberries only, much care is required in their culture, the runners should be carefully removed and the glass ridges taken off after the fruit is gathered, and not replaced till November; the plants will require water and surface manure during the summer. In all cases the ridges should be placed on bricks, with spaces between them. Ventilation is then secured; and even Cauliflower plants in winter will do well without the constant attention to "giving air," so necessary in the old garden frame culture. Lettuces, for early salads, succeed admirably in these structures; they should be planted in October. In gardens that are confined and very warm, I repeat it may be necessary to have a small opening left at the top, just under the ridge, to let out the heated air, and two rows of bricks should be used instead of one; but my vineries stand in a very exposed place, and do not require it. Management of the vines:—It is now (1868) ten years since ground vineries were invented, so that time enough has elapsed to know their utility or the converse. My vines are now from seven to nine years old, and as it may interest distant readers, I will endeavour to describe them:—My oldest and finest Vine is the Trentham Black; this occupies seven 7-feet lengths, and is 50 feet long; this put forth a vast number of bunches this season, of which about 100 are left to ripen their fruit. My second in age is a Black Hamburgh—the variety called Belle Bruxelloise in Belgium; it is a great bearer and a little earlier than the old sort; this runs through four 7-feet lengths, is consequently 28 feet long, and is loaded with fruit. My third vine is the Buckland Sweetwater, which occupies four 7-feet lengths, and is also full of fruit. These three Vines have never failed in giving and ripening nice crops of fruit, ever since they were planted: there are many other kinds of Grapes cultivated here with success under these simple structures, but the above are the oldest and best established. I may add that it is as yet difficult to place a limit to the growth of a Vine under a ground vinery if the soil be favourable, viz., calcareous sandy loam, or even calcareous clay if well drained: I fully believe that a planter not too far past his fourth decade may live to see his Vine 200 feet long, and covered with fruit from end to end, the artificial climate created by the glass ridge seems so highly favourable to the development of the plant. There is a most essential rule to be observed:—the Vine must be covered with its glass ridge all the year round, with the exception of a week or two in autumn. *Rivers' Miniature Fruit Garden.*

Protecting Choice Young Specimen Trees.—There is much to be done by a judicious selection of the sites in which young specimens of newly-introduced and choice trees are to be planted. After they had become inured to our climate, and we can save seed and raise seedlings, they may be planted like other things—anywhere; but in the case of all newly-introduced or tender trees, &c., my rule is, that if I have not natural shelter from south-east round by north to west, or south-west, I

make a temporary screen, and only admit the sun on the plants in winter after it has got round near to the south. Thus the hoar frost—that great enemy to all fruits, vegetables, trees, and shrubs—is subdued, and by the time the sun reaches the plants the atmosphere becomes changed, no injury takes place, but the trees, &c., have the real benefit and enjoyment of being well dried and made warm and comfortable, by sundown. It is astonishing to see how the new Japanese plants grow and luxuriate through adopting this simple method; in fact, anything, whether hardy or not, can thus be made to thrive, and the first year after planting may be induced to start into a luxuriant state, which is afterwards maintained. What is the use of making a careful preparation for a healthy thrifty plant of any kind, and yet to plant it without affording it necessary shelter? The secret of our having here such numbers of fine and rare trees is that I always adopt the rule of planting rather high, on raised mounds, according to soil, climate, exposure and situation; and that I always form a temporary shelter at once, by means of any easily comeatable evergreen boughs, branches of Furze, &c. The method is remarkably simple. If I have not got stored up, as I generally have, bundles of evergreen prunings, I go to the nearest shrubbery and thin out some branches; these are stuck into the ground at the required distance, in a circle around the plant, and are then bent down, and the tops interwoven together. Thus, in less than five minutes, I have a perfect screen of basketwork of, say, 3 feet high, for the newly-planted young tree. If the shelter is required to be of a greater height than this, it is only necessary to stick another tier of branches into the rim of the basketwork, and interweave them as before. Then, when winter comes on, I stick another row of branches into the rim, pull them together at the top, and give them one tie with an osier or piece of ropeyarn, and in a couple of minutes I have a dome formed over the top, which, if too thick on the side where the sun is to be admitted, can be cut with the knife or pruning scissors to the desired thickness. In this way we have provided in a very few minutes a neat sheltering screen, which will afford just as much air and light as may be desired. By this simple mode of protection almost any plant may be made to thrive, and in two years it will have made more healthy luxuriant growth, and become better established, so as to show more of its true character, than a neighbouring unsheltered plant would have done in ten years. A friend to whom I sent some choice young conifers, and whom I advised to protect them in the way above explained, failed, attributing his discomfiture to the climate. He had, it seems, stuck in some loose boughs, which the wind twisted about so that they did more harm than good. But when he came and saw how the thing was done here, he threw up his arms and scratched his head, in sheer astonishment at its simplicity and efficacy. *James Barnes, Bicton, in "Florist and Pomologist."*

Garden Operations.

(For the ensuing week.)

PLANT HOUSES.

Aquaria, and especially the larger tanks, such as the *Victoria regia* is grown in, still require to be artificially heated if the weather continues as cold as it is at the time at which I write. The more artificial heat the water requires to keep it up to a proper temperature, so much the more air should be afforded to the structure. This should at all times be admitted as near the apex of the structure as possible. I do not advise that too large an amount of heat be maintained. The water should seldom, if ever, exceed a mean of 80° by artificial means alone. If the water feels at all comfortable to the hand, it will amply suffice. The same remarks are precisely applicable to tanks of smaller form, whether used as objects of ornament within doors or otherwise. Cleanliness is of the utmost importance in connection with the successful culture of all aquatic plants when confined within structures the air of which is of necessity not so pure as that out-of-doors, and where night air, so purifying in its nature, and so wholesome, cannot be freely admitted; hence I advise periodical cleanings at regular intervals. In regard to the larger tanks, there is no way of cleaning them so effectually as by stepping into them, and plying a good scrubbing-brush, or some similar tool, over all the internal surface, the soil upon the mound itself excepted. Previously to commencing operations, the operator should don suitable attire, and a good fire must be made, and the warmth in the pipes within the tank and in the house should be freely increased, with the object of heating the fresh water which it will be desirable to admit into the tank, in lieu of the dirty water that it will be requisite to let out. A matter of some moment in the culture of all "water plants" is to keep up a constant agitation in the water itself. Sluggish water is not the best for the growth of this kind of vegetation. Motion, however small the fluctuations, or ripples, gives buoyancy to the whole, and admits of such an admixture of the elements as cannot fail to be beneficial. A small fountain, or other simple contrivance, so fixed that it can be applied at will, is an essential thing in tanks of moderate dimensions, as also in larger ones. Yet another suggestion ere I conclude these remarks for the present. Be very particular in regard to shading such structures during bright sunny weather. The direct action of the sun's rays upon leaves floating upon the water, especially after a period of dull weather, will invariably cause scorching. Bear in mind that the tender epidermis upon the leaves—on young leaves especially—may be materially injured and the functions of the leaves disarranged with very few external signs. Choose now cuttings of such *Stove plants* as it is desirable should be increased for the production of young plants for next season's flowering. Many old plants suggest themselves for this purpose, such as *Justicias*, *Clerodendrons*, and the old *Pentas carnea*. Bring a first batch of such old plants of Poinsettia as were stowed away to rest some months ago into the light again, and by affording water, a little at a time, until the old balls are moistened through, induce them to form young shoots, which, when sufficiently large and properly matured, will be needed early in September to strike as cuttings, and to form the earliest flowering plants for early winter flowering. By those whose chief aim is to form fine massive heads, irrespective of a dwarf form, the whole stock should be so treated forthwith. The *Greenhouse* and *Conservatory* may, now that a period has arrived when a dry absorbent air may be expected, be daily damped over with the syringe. Night air must also be fully admitted, which will tend to give the plants within greater health and strength.

FORCING HOUSES.

Those *Vineries* which have all the fruit cut and used must still receive attention. Keep the foliage as healthy as possible to the last. Thus only can well-developed and thrifty wood be secured. Frequent syringings will therefore be necessary during dry periods. The past weather not having been at all favourable for ripening wood, it will be well for those who value their laurels to give particular attention to the state of the wood in all such houses as I have referred to, and where a want of hardness or proper ripeness is discernible, to see whether it may not be advisable to keep up a good maximum temperature by early closing, &c., some week or two longer for the purpose of securing this. The roots must be cared for in all instances where such suggestions as these are acted on. When, with a view of more properly ripening the wood, a little extra attention is afforded by closing the lights for a time in the afternoon—and this is important, do not omit to afford plenty of air by night, and to allow one or two young shoots at the apex to continue growing, otherwise some of the young buds which should remain at rest may be induced to "push" prematurely. In regard to *Pines*, it will be necessary to push them along freely at this time, as a due and proper elaboration of the sap contained in the young growths formed can only be attained by the aid of a prolonged sunny period, the shortened days of autumn being less favourable in this respect than those near to midsummer. Continue to water all *Peach* or *Nectarine borders* which are within doors, and to ply the syringe to all surface leaves. It is only by such attention, properly afforded at this time, that due success can be looked for in the ensuing year.

HARDY FLOWER GARDEN.

Where *Dahlias* have not been properly mulched as previously suggested, let the operation be completed without further delay. Make sowings of *Ten-week* and *Brompton Stocks*, *Aquilegias*, *Pentstemons*, *Hollyhocks*, &c. Do not sow all the Brompton Stock seed this time, as it will be advisable to make another sowing at a somewhat later period. I need add little to my suggestion regarding making all necessary preparation for putting in Pink pipings contained in last week's Calendar under this heading, as my excellent compeer, "J. D.," has lately, under the heading "Town Gardening," given all necessary instruction in regard to them.

HARDY FRUIT GARDEN.

Out-door *Vines*, in whatever form they are grown, will now need especial attention. Pinch back the points of all young shoots which have flowers showing about one or two leaves or joints beyond the joint whereon the upper flower-spike is situated, excepting in instances where a greater extension of the plant is premeditated in view of filling vacancies. Those smaller shoots upon which no flowers are forming should be removed at about one or two leaves from the base, if a sufficiency of leaf surface does not exist. Where abundance of leaves are forming many may be taken off much closer to the main or parent rod. Secure all fruiting shoots to the wall neatly, at regular distances apart, and in such a manner that both light and air may have full play amongst them. Fix the young crowns upon the ends of *Strawberry runners* to the ground, by placing a stone upon each, or by a peg of wood. Many grow them into plants in small pots, a desirable way when it is necessary to keep them through the winter under some sort of shelter for planting out in the early spring or to form plants early, for the purpose of growing on for forcing. Under such treatment, there must be no lack of moisture, but the small pots must have a thorough soaking, at least twice upon every hot sunny day. Where the runners are simply wanted to form fresh plantations in the autumn, and time is of importance the former method is the most convenient. The plants, besides, will suffer little, if at all, in process of transplantation into their permanent quarters, if a showery moist period is chosen in which to perform the operation.

KITCHEN GARDEN.

Bright sunny days and a warmer temperature have wonderfully improved the appearance of this department since I last wrote. And, as was suggested last week, where the destruction of weeds has been rigourously carried out, a full growing period may be insured all subjects having uninterrupted possession of the soil. Bear in mind that the free and deep use of the hoe is not only destructive to weeds, but the air is freely admitted into the upper strata of the soil, and a larger amount of moisture is maintained therein in consequence. I have previously suggested that one or more rows of *Celery* should be planted out for early use. As it is much more convenient to prepare the trenches, and to wheel the necessary amount of manure thereinto, during dry weather, I advise that further attention be given to this subject. Generally such is the scantiness of room, that the full supply of Celery cannot be planted out until the first crops of Peas are off. As these are very late this season, this fact will cause no little inconvenience to many. Where there is no space or fallow ground to spare, the earlier crop must be got off quickly after this date; this we shall be able to do if we have a good stock of successionals to follow. The later the date at which any given trenches of this be planted, so much the narrower and more shallow may they become, providing the surrounding soil is in good heart. Make a successional sowing of *Spinach*, *Turnips*, *Cauliflowers*, *Radishes*, *Endive*, and *Lettuces*, and finish thinning out all *Carrots*, *Beet*, &c., forthwith. *W. E.*

TOWN GARDENING.

Dahlias should now be mulched with rotten dung, tied to the stakes as they progress in growth, and traps should be set for the earwigs. The best traps I have found, next to beanstalks, which are seldom to be had in town, are lobster claws placed on the top of the stakes [even more ornamental than the customary flower-pot!], and emptied every morning into boiling water, or small flower-pots lightly filled with hay or moss. All plants that require to be kept low should now be pegged down, and I may here remark that to get sufficient pegs at this season is a difficult matter, and the plan I adopt is to save all my old birch-brooms during the season and cut them up for that purpose. These make good pegs, and suffice for my wants. Keep the Dutch hoe and water-pot at work among the bedding plants and borders, for nothing is so essential to the health of plants in town as attention to these matters. Evergreens and flowering shrubs that have made strong growth should now be pruned to shape. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending June 30, 1869, as observed at the Horticultural Gardens.

June.	Moon's Age.	Barometer.		Temperature. Of the Air.			Of the Earth		Wind	Rain.
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 24	○	30.091	30.058	70	41	55.5	57	56	N.	.00
Friday 25	15	30.086	30.078	70	38	54.0	59	57	N.E.	.00
Satur. 26	16	30.083	30.058	74	38	56.0	59	57	N.E.	.00
Sunday 27	17	30.201	30.131	77	48	62.5	61	57	E.	.00
Mond. 28	18	30.221	30.199	69	35	52.0	61	57	E.	.00
Tuesd. 29	19	30.199	30.134	67	43	55.0	62	57	N.E.	.00
Wed. 30	20	30.168	30.131	64	53	58.5	59	57	N.E.	.00
Average.		30.149	30.113	70.1	42.3	56.2	59.7	56.8		0.00

June 24—Foggy; overcast, but fine; densely overcast.
— 25—Overcast; cloudy, but fine; clear and fine.
— 26—Very fine; exceedingly fine; overcast.
— 27—Very fine; fine and hot; clear and very fine.
— 28—Fine and clear; cloudy; clear and fine, cold air.
— 29—Overcast; very fine; fine, and very clear.
— 30—Cloudy; densely overcast, brisk wind; overcast.
Mean temperature of the week, 4 9-10 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending July 10, 1869.

July.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday.. 4	76.1	50.2	63.2	15	0.33 in.	1	2	4	1	10	13	11	2
Mon. .. 5	77.1	50.2	63.7	17	0.59	1	1	—	3	6	13	9	3
Tues. .. 6	76.0	50.8	63.4	19	0.48	1	1	5	2	7	15	7	5
Wed. .. 7	73.7	50.8	62.2	22	0.34	3	3	4	4	6	14	7	2
Thurs. .. 8	74.0	50.0	62.0	20	0.48	—	4	5	2	3	15	8	6
Friday .. 9	74.1	49.4	61.8	18	0.82	4	3	4	1	3	10	11	7
Satur. .10	74.7	50.3	62.5	16	0.48	2	3	3	2	4	13	7	8

The highest temperature during the above period occurred on the 5th, 1852—therm. 97 deg.; and the lowest on the 9th, 1863—therm. 33 deg.

Notices to Correspondents.

BOOKS: *Inquirer*. Your bookseller will get you the "Pinetum" if copies are still to be had. Those who have goods to sell should make them known.

CALCUTTA LEMON SEED: *Inquirer* asks where he can procure seeds of this. We do not know to what our correspondent alludes.

DIGITALIS: *T. Hopgood*. Your flower is a compound of several joined together. It is not very unusual. Such cases have been figured in our columns, and a full account of such malformations is given in Dr. Masters' recently published work on "Vegetable Teratology." Another time do not enclose a letter in a sample packet. By so doing you have obliged us to pay double postage.

EARLY PEAS: *Messrs. Sutton & Sons*. There is no doubt that true "Ringleader" and true "Carter's First Crop" are one and the same. Our correspondent "Quercus" no doubt received a different Pea under the name Ringleader, hence the discrepancy.

GRAPES AFFECTED WITH MILDEW: *D N*. The mildew on your Grapes is caused by keeping the atmosphere cold and damp. Give a little more heat, and more air. Dust the affected parts with flowers of sulphur, and paint the pipes with sulphur mixed in milk.

HOW TO DESTROY ANTS: *J H H*. See p. 1019 of our volume for 1868.

NAMES OF PLANTS; *G S*. 1, Oncidium hians; 2, Maxillaria aureo-fulva.—*Dugald*. Common Tansy, Tanacetum vulgare. *J Hudspeth*. Polypodium vulgare bifidum, and Arabis procox variegata.—*F B*. Barkeria melanocaulon.—*M D*. 1, Phyllocactus phyllanthoides; 2, Mesembryanthemum inclaudens; 3, M. spectabile.—*Thomas Woolford*. Tecoma jasminoides.—*Arthur Bates*. 1, Polypodium (Phymatodes) pustulata. The others next week.—*Subscriber*. Phajus grandifolius.—*N S*. 1, Platyloma rotundifolium; 2, Goniophlebium subauriculatum; 3, Polystichum proliferum, apparently; 4, Cyrtomium caryotideum.

PEARS ATTACKED BY INSECTS: *C W S*. Pears similarly affected are very common this season. The mischief seems due to the larva of some dipterous insect.

PELARGONIUMS: *B B S*. Rose Rendatler is not a Nosegay. Rebecca belongs to the group called semi-nosegays or hybrid Nosegay, a very unsatisfactory group, which will have to be abandoned. They are the result of intermixing the old true narrow-petaled Nosegays with varieties having what the florists call "better" formed flowers.

ROSE-LIKE APPLE BLOOMS: *G A*. Your flower was shown at the last meeting of the Scientific Committee, see p. 666. A similar one was figured in our columns 1865, p. 554. An account of such flowers is given in Dr. Masters' recently published work on "Vegetable Teratology."

SEED QUESTION; *D T F*. The letter referred to was a private communication.

VINES: *W S*. The leaves sent appear as if scalded by hot vapour rising from the pipes.

COMMUNICATIONS RECEIVED:—W. H.—W. B.—J. T.—X. Y. Z.—W. S.—B. D.—A. W.—F. M.—A. Forsyth.—F. T. Smith.—Hythe.—Stuart & Mein.

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SUTTONS'
RENOVATING MIXTURE
of fine GRASSES and CLOVERS
should be sown after the Hay is carried.

From 6 to 12lb. of seed required per acre.
Price 9d. per lb.; 80s. per cwt., carriage free.

This is the best Mixture to improve the quality and quantity of Grass; and for Pastures destitute of bottom herbage it is invaluable.

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Reading, Berks.

SUTTON'S HOME-GROWN SEEDS
A FIRST PRIZE
SILVER MEDAL, PARIS, 1867.

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Lowest price per Bushel on application.

IMPROVED HARDY WHITE SWEDE.—For late Spring Feed it is invaluable, and may be sown as late as the end of July with certainty of a crop.

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SUTTONS' PURPLE-TOP MAMMOTH TURNIP.—The largest Turnip known. A new and distinct variety, very free grower. Sow in August to stand the winter.

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M. BARROW, Esq., Kendal, says:—"The Swede Turnip (Carter's Imperial) was very good; I shall certainly have more in the Spring."

CARTER'S PRIZE SWEDE AND TURNIP.

	Per lb.—s.	d.
HALL'S WESTBURY SWEDE	0	10
HARTLEY'S SHORT-TOP SWEDE, a large mottle-top variety	1	0
CARTER'S CHAMPION HYBRID TURNIP, fine quality	1	3
CARTER'S DEVONSHIRE GREYSTONE TURNIP	1	6
CARTER'S EARLY NIMBLE or SIX-WEEK, a very quick-growing variety	1	0
POMERANIAN WHITE GLOBE, a handsome variety	0	10
IMPERIAL GREEN GLOBE, a heavy cropper	0	9
LINCOLNSHIRE RED GLOBE (very hardy)	0	10

Cheaper per cwt. or bushel.

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CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
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MANGEL and POTATO MANURES.
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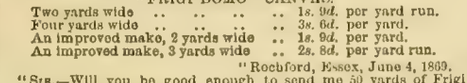
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Two yards wide	1s. 9d. per yard run.
Four yards wide	3s. 6d. per yard.
An improved make, 2 yards wide	1s. 9d. per yard.
An improved make, 3 yards wide	2s. 6d. per yard run.

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"SIR,—Will you be good enough to send me 50 yards of Frigi Domo, 2 yards wide, of your improved make, 1s. 9d. per yard run. You can forward it per London, Tilbury, and Southend Railway. I had some of you several years since, but have not found any substitute so good for Greenhouse and Stove Shadings.—I am, Sir, yours respectfully, "GEORGE WOOD (Solicitor, Rochford).
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WIRRAL AGRICULTURAL SOCIETY.—The ANNUAL SHOW of HORSES, HORNED CATTLE, SHEEP, PIGS, POULTRY, DOGS, IMPLEMENTS, FARM and HORTICULTURAL PRODUCE, &c., will be held at BIRKENHEAD, on AUGUST 25 and 26, when ABOVE SEVEN HUNDRED POUNDS will be offered in PREMIUMS. Prize Lists, &c., may be had on application to the Secretary, WILLIAM HENDERSON, 2, Market Cross, Birkenhead.
N.B. All ENTRIES CLOSE on AUGUST 3.

THE ROYAL AGRICULTURAL SOCIETY of ENGLAND.
President—His Royal Highness the PRINCE of WALES, K.G.
MANCHESTER MEETING, 12th to 24th JULY, 1869, inclusive.
PROGRAMME.
MONDAY, July 12, to Friday, July 16, inclusive.—Trial of Reaping, Mowing, and Haymaking Machines, Horse Rakes, &c., in the fields adjoining the Show Yard. Admission, 6d. each person.
FRIDAY, July 16, and Saturday, July 17.—The Implement Yard only. Open from 9 A.M. to 6 P.M. Admission, 2s. 6d. each person.
MONDAY, July 19, and Tuesday, July 20.—The entire Show Yard. Open from 8A.M. on Monday, when the Judges commence inspecting the Live Stock and making their awards. Admission, 5s. each person.
WEDNESDAY, July 21.—Admission, 2s. 6d. each person.
THURSDAY, 22, Friday, 23, and Saturday, July 24.—Admission, 1s. each person.

SPECIAL NOTICES.
SEASON TICKETS.—Non-transferrable Tickets, price 10s. 6d., admitting the holder, once on each day, to the Show Yard, from July 19 to 24, inclusive, may be obtained from the Secretary, 12, Hanover Square, not later than Saturday, July 10, and afterwards at the Secretary's Office, near the entrance to the Show Yard, or at 90, King Street, Manchester, from and after June 25.
TRIAL OF HUNTERS.—The Trial of Hunters will take place in an enclosed space adjoining the Show Yard at 2.30 daily, commencing on Tuesday the 20th. Admission to this ground, 1s. per day each person. Admission to the enclosed stands on Tuesday and Wednesday, 4s. each person; and on each of the other days, 1s. 6d. each person. Season tickets, price 10s. 6d. each, may be had at 90, King Street, or at the Local Committee's tent, in the Show Yard—giving the holder admission to the leaping ground and the stands at any time on any day, from the 20th to the 24th, inclusive. Governors and Members of the Society are, however, reminded that they have not free admission to the Trial of Hunters.
HOUND SHOW.—An Exhibition of Fox-hounds will be held in the enclosure for the Trial of Hunters, adjoining the show ground, on Wednesday and Thursday, July 21 and 22. Admission, 1s. The holders of Season Tickets for the Trial of Hunters have free admission to this Exhibition.
HORTICULTURAL SHOW.—Arrangements have been made to enable persons to pass and repass from the Royal Agricultural Show Yard to the Exhibition of the Royal Horticultural Society, after separate payment at each.
REFRESHMENTS.—Provision has been made for first and second class Refreshments upon the ground, at a reasonable charge.
LODGINGS.—Persons at a distance wishing to obtain information as to Lodgings, are requested to address Mr. John Duffield, Essex Street, King Street, Manchester, at whose office a Register of particulars and prices is kept, and by whom printed lists will be supplied, or inquiries answered on application.
GENERAL NOTICES.
No person can be admitted to the Show Yard after 7 o'Clock in the evening.
The Show Yard will be cleared of visitors each evening at 8 o'Clock.
The Parade of Cattle in the Rings will take place at 10 o'clock A.M., and of the Horses at 12 o'clock at noon, on each day after Monday.
A Plan of the Show Ground may be purchased at the Printing Office, in the Show Yard.
There are two Entrances to the Trial Fields, one by Seymour Grove, and the other by the Military Exercise Ground, both at Old Trafford. Access can be had by no other approach.

The Agricultural Gazette.

SATURDAY, JULY 3, 1869.

MEETINGS FOR THE ENSUING WEEK.

July 6—Ripon and Claro Agricultural, at Ripon.
July 6 to July 11—Royal Danish Agricultural, at Copenhagen.
— 7—Peterborough Agricultural.

IN one of his pamphlet letters lately addressed to Mr. CHICHESTER FORTESCUE, Lord RUSSELL in writing of the IRISH LAND QUESTION says, "It will not do to dismiss such questions with the superficial remark that 'the laws are the same in Ireland as in England.'"

A few weeks ago we referred to an electioneering speech in which the Candidate remarked that "the English Land laws are condemned by every one who has taken the trouble to understand them."

The two remarks contain a curious, and perhaps the best commentary on each other. If both be true, the 'superficiality' would be something rather different to that intended by Lord RUSSELL, whose own remarks upon the land topic (unlike those upon the Church question) are indeed superficial to a degree that, in so old a statesman, could hardly have been believed, were it not for the fact we have before so often noticed that of all political subjects there is no one on which so little accuracy of information, or idea, and in their place so much of prejudice—appears to exist. Scarcely a conception is generally entertained of the fact that the aggregation of land into few hands, in this country—the virtual confiscation of the soil in favour of the very rich—is not a mere passive fact, but that it is *a movement*, going on, as it were under our feet, in powerful and active progress: and that, in the nature of things, it cannot be stationary. *Crescit eundo.* Given these three conditions—1st, a law enabling every owner of a certain article of limited supply to maintain, by Will or Settlement, in his own family descent, all that he is master over, for many lives of the existing generation, *and twenty-one years afterwards;* 2ndly, a law which seizes every atom that escapes, either by intestacy or the accident of broken entail, and throws it back into bondage: and 3rdly, a law-supported system which basing itself on those two premises, forbids Buyer and Seller to complete a contract except through a third party whose interest depends on the amount of obstruction that can be interposed, thus paralysing commerce in the article by

delay and cost equivalent to a law-suit and with most of its characteristics, and pressing *in inverse ratio with the extent* of the transaction,—heaviest upon the smallest;——and what other result *could* there be than that which is exhibited by every evidence we possess?

The actual number of land *owners* in England has been estimated at different periods down to the present time, from very imperfect data, and with varying results: but one feature in the computation is uniform and unvarying; the decrease, at each successive period, is the one thing most remarkable. The silence, the insidiousness of the operation, conceal it from the public view. To the mass of the community it is as insensible as the earth's diurnal movement, or the Nutation of the Poles. Freedom of trade, and a reduced Tariff, instead of exposing and bringing it to notice, actually help to disguise it, by supplementing to any extent from other lands *under other laws*, the deficient produce, both in kind and quantity, of our own: we say *deficient* because it is not pretended, at least by any one who has studied the capacity of the soil, that the large-scale cultivation gives anything like the same absolute produce with the small.

What is asserted for it is that the acreable return is greater *relatively with the amount of labour employed:* a doctrine and phraseology borrowed—with cruel misapplication, from Manufactures to the Soil; which is not a dead machine of human fabric and invention, whose virtue lies in the amount of manual labour it displaces, but a living agent and partner to the hands and brain and motive in league with it:* which, like the Cow's udder, gives more the more urgently it is entreated, but dries off to a scantier yield in proportion as the pressure becomes relaxed, or artificial. Or, indeed, we might amend the simile by contrasting the incomparably more abundant yield which the animal affords to the reiterated importunity of her own offspring, against the daily dole more rudely withdrawn by the hard hand of the milkman as he hurries through the Dairy-herd. The Earth was made before man, and "was made for *all*:"—we do not say for 'peasant-proprietors,' nor for Norfolk squires and Lincolnshire lords farming their three or four thousand acres,—not for either of these, alone, but for *all* comprised by these two extremes, themselves open perhaps, like all extremes, to some objections not applying to their intermediates.

The truth is that the machinery-doctrine of 'most produce by least labour' is simply, as applied to the soil, the doctrine of starvation and dispossession: and instead of belonging to the advance of knowledge and civilisation, is a retrogression towards the time when a 'knight's fee' included a whole Wapentake or Hundred, and a Count was territorial lord over a County. It is this error which underlies the ills of the agricultural Labourer, and in conjunction with our universal system of 'Tenancy,' makes it nobody's interest to find him a cottage that will pay for the building; *that is*, for which his wages will enable him to pay the rent. The farm-tenant cannot do so: the land is not his to build it on, nor the permanent interest his, to care to sprinkle the land with dwellings that might furnish hands for acres, to those who come after, or even, it may be, for *next year:* for who can tell what a *six months' notice* may bring forth? And the Landlord cannot do it: for what, in fact, has he to do with the matter? He lets his land for the most that another man's capital and skill can make of it, by any means not forbidden in the 'agreement for a year.' It is the Tenant's business, and natural endeavour, to make the most that he can, and in the shortest time: and if he could cultivate his farm *entirely* by machinery, without employing a single labourer upon it, it would be worth his while even to sacrifize a further subtractional percentage from the acreable yield, to purchase a saving so economical to an occupier from whose point of view each cottage is a standing threat upon *the Rates*, subject to which he rents his farm. There is in China a refined method of capital punishment called 'slow mangling,' by which the culprit is gradually flattened out and attenuated between *two hard surfaces*, upper and nether, just as a baker rolls out dough: the head alone is spared, lest the victim's life should be destroyed before he has had full time to appreciate the whole process. Whether there are any Union-Houses in China for the last polishing-off or 'Finish' we are not accurately informed. There ought to be; to make the parallel complete.

Such is the English Land tenure system, as represented by three *dramatis personæ*—1. A Tenant-for-life under Settlement, whose *landed annuity* (for such it is), after meeting every outgoing of the estate (we will not burthen the text by an attempt to enumerate them), must be devoted to the education and provision for his younger children, who, taking nothing hereafter, are the first claimants for every spare shilling that can be saved from it by the present 'Life-in-being.' 2. A yearly Tenant, *farming* the land, for the speediest profit that can be made from it, by the most compendious machinery, with the least outlay in manual labour. 3. A Labourer, of whose interest in the soil, or relation to it, or to either of the before-named parties, it is difficult to find words properly descriptive. Perhaps his truest definition, and the shortest, is by negations. He is *not* his landlord's Servant, and he is *not* his employer's Tenant;—*i.e.*, the man who employs, cannot house, and the man who could house, does not employ him. Dependence has its advantages, and Independence its charms: but his lot is cast in a sphere equidistant from either. The proposals to improve his condition by education rather bring to mind that of the Bourbon Princes who wondered why the famishing poor in Paris, if they were short of bread, did not use Pastry. Education, which enhances the sensibility to suffering, also, happily, tends to emancipate the sufferer; and an *educated* Farm-labourer is, in nine cases out of ten, a farm-labourer no longer. When we are considering the problem how to *improve the Nest*, you will hardly help us much by merely showing the birds how to fly out of it. The question as to his cottage accommodation becomes, under such a system, one of those detached problems that fall into the waste-basket of 'pure philanthropy.' Whence he comes, in the morning to his work, or whither he goes, in the evening, when he has done it, provided he *has* done it—what is that to his employer? who has no cottage to give him, nor means of building one: and if nothing to *him*, what is it to the landlord? who has no motive for spending the portions of his younger children in making questionable additions to the inheritance of his eldest, by putting up a class of buildings that *don't pay?*

Such is the system; described in the abstract: not, of course, as it is modified and ameliorated, *in England*, by kind resident landlords, and enterprising Tenants, confident in their holdings under the title of a 'good understanding.' What we have to consider when examining a system, is its *absolute* elements and structure, not the dress it may be made to wear under special and long established circumstances,—a resident proprietary almost partnering their Tenants' interests, a national love of country life, agricultural pursuits, field sports, and 'local self-government.' Taken in conjunction with all this, the system finds plenty of advocates, who think they see in it the ultimatum of 'agricultural prosperity;' men whose view never for one instant has penetrated this outward dress and *filling-up*, to the skeleton within—the bare and forbidding form that presents itself wherever these consoling adjuncts are altogether absent,—as instanced in a non-resident proprietary, estates of enormous extent—twenty—forty—sixty thousand acres life-owned by a titled absentee, and committed to the vicarious charge of an agent, himself non-resident, and acting for *several such 'properties'* at once,—in a word, all that is comprised in "The Realities of Irish Life."

In vain you tell its defenders that (with the now diminishing exception of Russia,) there is no other country in the world where such a system prevails. They even find in this a compliment, and tell you that is because other countries don't understand Farming as well as we do. In fact, the world's area should, according to them, be laid out on the pattern of a couple-of-thousand-acred Norfolk farm; and those who don't happen to be either large landowners or large Tenants must 'get out of the way.'

"Solitudinem faciunt,—*Eundem* appellant."

It is not difficult to see that in a prosperous commercial and manufacturing country, where the displaced agricultural population can find employment in the Towns, such a system can go on, and prevail, *for a considerable time*, without challenge. The crowding and other evils it creates in thousands of narrow streets and alleys, the miserable cellars and garrets, reeking with a population that ought to be scattered over the smiling country districts, are indeed sad to think of; but there is one sadder thought—that of the ignorance that cannot, and the obtuseness that will not see that the cause of all this is to be found in laws which prejudice defends, and it is thought unpatriotic to call in question.

* "For thou shalt be in league with the stones of the field."—*Job* v. 23.

THE Contagious Diseases (Animals) Bill, No. 2, now before the House, provides for an important alteration in the present system of regulating the foreign cattle trade. According to the law now in force importations of cattle and other animals, or of substances connected with cattle, can only be prevented by order of the QUEEN in Council. The Bill proposes to obviate the inconvenience and delay to which this necessity has sometimes given rise, by conferring on the Privy Council the power, "by order, to prohibit landing," "in relation to foreign animals, or to any specified kind or class of foreign animals." With this exception everything is left very much as it was, and the various clauses of the Bill, divested of their technical phraseology, amount in effect to regulation of the foreign cattle trade in the way which the Privy Council may from time to time deem necessary. It is conceded that a very considerable range of power is desirable to enable their Lordships to meet emergencies, but it does not appear to be generally determined to what extent the power should go: the Bill at once disposes of the whole question by making the power absolute; so that by Order of Council importation of animals from any country may be prohibited or permitted; cattle and sheep from certain countries may be landed and treated as native cattle, and it is for the Privy Council to determine to what classes of animals this privilege shall be extended, and what other classes shall be landed within defined parts of ports, and there be sold and slaughtered.

Whether these provisions be effective or abortive depends entirely upon the capacity of the Privy Council to decide when restrictions are necessary, and its energy in enforcing them. One thing is quite certain, the Bill, as at present amended, does not meet the views of the home producers, while its provisions are too stringent to accommodate those who advocate unrestricted trade in foreign stock. The first complain that all the most effective regulations of the measure are directed to the stamping-out of infectious diseases when they have already attacked our live stock, and that nothing is attempted in the way of protecting us against the introduction of such maladies from abroad. On the other hand, those who represent the consumer contend that the proposed restrictions will be quite sufficient to hamper the trade and keep up the price of meat, even if they do not seriously diminish our supplies. Meanwhile the idea of a "separate market for the sale and slaughter of foreign stock" has undergone a change; the agricultural interest, as represented by the Chambers of Agriculture, formerly required "safety markets" for all imported cattle and sheep, now the demand is limited to the establishment of such markets for animals which are brought from "infected countries," and the principle of free movement for animals which are imported from countries where cattle plague or small-pox has not existed for a certain time, is accepted.

Upon the subject of separate markets for foreign animals the Bill is permissive, not peremptory; "the local authority may," not "shall," establish markets in defined parts of ports, is the language of the clause relating to the material point. At the outports, where foreign animals are landed, the authorities have established markets, and in respect of the metropolis the Corporation has agreed to construct a separate market for the reception of all foreign stock which is imported from "non-excepted countries." So far the "safety market" question may be considered as settled; but the infinitely more important question, What animals are likely to be sent to it? remains to be answered. Knowing something of the details of the foreign cattle trade, we can quite understand that the number of cattle which will be landed in the "defined port" will be extremely limited. With Spain, Normandy, Brittany, and probably Sweden and Denmark free to send cattle without restriction to this country, we may fairly anticipate a considerable falling off in the supply of stock from the "infected or transit countries,"

Importers are in a great degree masters of the situation, and we are much mistaken in our estimate of them if they do not use their influence and capital for the development of that branch of the foreign trade which will have least concern with the "safety market" arrangements. The Bill has yet, however, to stand a cross fire of amendments. On the one side the "Chambers of Agriculture" will attempt to introduce provisions in favour of the "separate market system," while the "trade" will contend for a more liberal definition of "free countries," so as to render the "foreign market" as unreal as possible in practice. One amendment proposes to make Hamburgh a free port, which simply means admitting nearly the whole of the stock of Central Europe, without any restrictions beyond those which are imposed on native cattle; the fate of such a proposition it is not difficult to foresee. Our own conviction is, that the Bill will ultimately assume such a form, that the metropolis will be placed practically on the same footing as the outports; cattle from France and Spain, and possibly one or two other countries, will be, as now, imported free; and all the foreign animals which are now kept within the limits of the Board of Works district, will be further restricted to the area of a "separate market" by the waterside. The clauses which relate to the home cattle trade are, with few exceptions, in accordance with those views which we have often advocated. Cattle affected with pleuro-pneumonia are not to be removed from premises, and the transit or exposure for sale of animals affected with any contagious disease is interdicted. The exception we take to this provision is in favour of "mouth-and-foot disease." Cattle suffering from or infected with this malady should not, we contend, be removed from premises, but owing to the short period of incubation it is impossible to legislate more stringently in regard to the affection. An ox may leave one market without any sign of the disease, and on his road to another in two days' time it may be developed; under such circumstances it would be manifestly unfair to inflict punishment upon the owner or drover, and it would scarcely lessen the hardship to compel him to kill the animal in the middle of the road. Some amendments will doubtless, however, be introduced into the measure, and, then, if only steps are taken to enforce the provisions, we may hope that these destructive maladies will be brought under control, if they are not absolutely eradicated.

—— THE corn trade generally has been influenced by the finer weather of the past 10 days, and the price of Wheat has declined 1*s.* per qr.——The meat trade, except for prime qualities, has also declined, a fall of a halfpenny per pound having generally taken place, from home Grass-fed beasts being more plentiful. The supply is now about half British half foreign.——The weather has caused some speculation in sound Clover and Trefoil seeds.

—— On Wednesday the debate on Mr. PELL'S motion to reduce our collection of agricultural statistics to a quinquennial return, was resumed in the Commons.—Mr. M'LAGAN having had communications with corn merchants on the subject, has found that every one was favourable to the collection of annual statistics. As to the two last years for which we had returns, the statistics showed that in 1868 there were 280,000 more acres under Wheat than in 1867, which was equivalent to one month's consumption of bread in the country. Could anyone have estimated such a difference in the growth of Wheat between 1867 and 1868 if the returns were made only once in five years? It would be found that alterations in cropping, instead of being gradual, are most variable, indeed spasmodic. His hon. friend the member for South Norfolk had said it was as important to know the state of the crops in France as in this country. He quite admitted it, and it might be useful to know how they managed these things in France. Two returns were made annually in that country, the first of the acreage and the second of the yield per acre; and not only that, but there were in addition reports as to the state of the weather and the crops coming regularly to Paris from every part of the empire, so that the French were able at any time to know what their crops would produce, and were in a position to take advantage of the markets of the world, whilst we in this country sat with our arms folded. It was urged that the annual collection of those statistics was expensive, but whether they cost 5000*l.* or 50,000*l.*, their immense importance was not to be measured by any such outlay, seeing that in one season alone England spent 20 millions upon foreign corn, and that in 1847 a sum of 100,000*l.* might have been saved by priority of information on a single day's transaction, for this country had to compete with other nations in the markets of Europe and America.—Mr. ASSHETON said agricultural statistics were useless unless they were accurate; and, under the present system of collecting them in this country, they were not only worthless, but delusive. The only way in which those statistics could be made really useful was by having them collected from house to house, and properly verified by the Government. People did not like this sort of *espionage*, but he did not see why agricultural statistics should not be collected and published as accurately as the returns we possessed of bales of cotton and other commodities.—Colonel BARTTELOT thought that, to be of advantage not only to the country but to the agriculturist himself, these returns must be collected annually and not merely once in every five years. The objections which had been taken by agriculturists to them were unsound, and many of them absurd. The Government gave the farmers very little trouble to make out the returns, which he thought ought in future to include agricultural horses.—Mr. HOSKYNS dwelt on the great value of these statistics to the agriculturist, as illustrated by the fluctuations in the price of corn in the years 1846 and 1867, and maintained that they ought to be taken annually. He hoped the returns would be rendered with increasing accuracy every year; and he believed that ultimately the farmers themselves would generally admit the benefits of the system.—Mr. SHAW-LEFEVRE said that since the system had been introduced only three annual collections had been made; and it was surprising how very accurate the returns had been. In England alone out of 392,000 farmers all but 22,000 had given in their returns. In Scotland—where the farmers were generally acknowledged to know their own interest better than in other parts of the country—the number who had declined to make returns amounted only to a half per cent. In England the percentage of those who declined varied greatly in different counties. In Yorkshire, Lancashire, and Northumberland only 1 per cent. declined; in Cumberland only a half per cent.; while, on the other hand, in Hertfordshire, Huntingdonshire, and some other places as many as from 30 to 37 per cent. declined. He believed the fact to be, that in some counties the large proprietors had taken a prejudice against the making of the returns, and advised the farmers not to fill them up. In one county he was sorry to see that one leading proprietor gave notice publicly that he would not allow the collector of the returns to come upon his property. The refusals were, he believed, owing to the prejudice of the proprietors rather than to that of the farmers, because it was difficult to see how the interest of the farmers in the matter could be different in Hertfordshire from what it was in Cumberland. The general accuracy of the statistics might be relied on, and, at all events, for the purposes of comparison between one year and another, they were of great value. If any one desired to form an estimate of their great value and importance it would only be necessary for him to consult the returns for last year, which showed that of land sown with Wheat there was an excess of 300,000 acres over the previous year. The hon. member for Norfolk might perhaps allege that it was generally known among agriculturists that there was an excess, but it was clear that the most experienced men had not the least idea of its extent, because one of the highest authorities on agriculture had published a pamphlet in which he estimated the excess of land sown with Wheat at only 100,000 acres. If, however, the real fact had been made known in time we should have been relieved from the necessity of importing into this country no less than 1,200,000 quarters of Wheat. He need not dilate further upon this point, because it must be obvious to everybody that a fact of such great importance ought to be ascertained as soon as possible.—Mr. READ, on behalf of the hon. member for South Leicestershire, withdrew the motion, as he felt assured that his hon. friend would be content with having had this matter fully debated, and in all probability set at rest, at least for some years to come. Replying to some of the arguments adduced in the course of the discussion, he pointed out that the objections directed against quinquennial returns were equally applicable to the taking of the population census once every 10 years; and as an instance of some of the practical difficulties in the way of filling up the circulars, he mentioned that at present he had not finally decided what he should sow on a portion of his own farm. It should also be borne in mind that it was the yield, and not the number of acres sown, which was the really important point. He believed the acreage of Wheat would be much less this year than it was last year; that the acreage of Barley would be somewhat larger than it was last year; that the acreage of Peas and Beans would be larger than had ever been known. If there were the same amount of wet in July and August as there had been in May and June, we should, he believed, grow 100 days' consumption less of Wheat this year than last; and under no possible circumstances could the deficiency be less than 50 days' consumption. The prejudice entertained by some farmers as to making the returns had been caused to some extent by the action of the Government, and he might remark that there was an apprehension among farmers that they might hereafter be called upon to pay a tax on horses used in agriculture. The present CHANCELLOR of the EXCHEQUER was so extremely fond of uniformity that he would make the costermonger's pony pay the same tax as the nobleman's carriage horse, and if it had not been for the exertions of the right hon. gentleman in the chair every brood mare in the country would probably have been taxed.—The motion was then withdrawn.

—— The first annual meeting of the Lincolnshire Farmers' Association was held last week, and the report in another column explains what this Association has done for farmers and for agriculture in its county. The employment of artificial manure is no longer a mystery with the farmers of Lincolnshire. They now know what they are using, and they get exactly what they bargain for. The same manure, so far as the name goes, but of inferior quality, much of it indeed altogether worthless, cost only a year ago 6*l.* 10*s.* per ton. The Lincolnshire Farmers' Association have their "superphosphate," containing close on 30 per cent. of soluble phosphate, delivered 80 miles from Lincoln *free* by rail at 3*l.* 18*s.* in bulk on the Great Northern Railway, and they hope in another contract to extend their free delivery to any line of railway. They take as their motto Dr. VOELCKER'S pithy maxim, "Pay only for soluble phosphates;" and guaranteeing so much of this, and selling it so low in price, they deserve, if not that their manure should be everywhere purchased, at least that their example should everywhere be followed.—We see that the subject of manure adulteration came before the House of Commons on Thursday evening on a motion of Lord ELCHO'S, afterwards withdrawn, that the attention of the Board of Trade should be directed to it. The experience of Dr. VOELCKER, as Professor of Chemistry to the Royal Agricultural Society, was quoted in detail, to illustrate the enormous extent of the fraud, both as regards manures and feeding stuffs; and Mr. WELBY called attention to the proceedings of the South Lincolnshire Association as worthy of being followed by farmers generally who desired to defend themselves. The Under-Secretary of the Board of Trade, while asserting that the true remedy was thus in the hands of the farmer himself, was glad that this discussion had come on so soon after the debate on the adulteration of seeds, because it was possible that the committee to which the Adulteration of Seeds Bill had been referred might be able to devise a remedy applicable to the present case also. Lord ELCHO had said that the small farmers were unable to protect themselves, but the information he had received pointed to an opposite conclusion. He had received a letter from a gentleman of great experience within the last few days, pointing out that in various districts of Scotland the farmers were sufficiently protected by combining and forming associations among themselves. One instance was given of a district in which in the beginning much bad seed was sold; but the members of the association ceased to purchase from those who sold bad articles, and one by one inferior vendors were weeded out. That would show that the farmers had the means of protecting themselves, and even of stamping adulteration out of a district. Let it be known that there was an analytical association within the district and adulteration would cease.

OUR LIVE STOCK.

THERE seems to be a pretty general complaint among breeders of high-bred stock of the difficulty of getting the animals this season into a breeding state; this is more noticeable in those districts that suffered much by the hot, dry summer of last year. Animals got into an unnatural state by the excessive heat, and the effect thereof is being more or less felt at the present time. The inclement weather of the last and this month may also have something laid to its charge. Sheep have felt it. Those ewes close shorn and turned out have died by scores in the north, and lambs have not thriven. Breeders in the Lothians and north of England have complained of their cows and heifers not holding, and the same difficulty is being felt in the midland counties. High feeding may probably have some effect, and the want of exercise in the male animal is often a cause of infertility. Bulls should have more exercise than is generally allowed them, combined with nutritive food, and not merely the hay and water diet so frequently given; moreover, it is unadvisable to use a young bull so much as the present fashion of the day requires; a yearling should be used very sparingly, especially if the stock be required vigorous and of good constitution. Bulls of three years or more are now discarded, unless they are of highly fashionable blood, whereas, if they were well exercised, and fed with food to develop muscle instead of fat, stock of a stronger kind might be expected, and little risk run in breaking valuable animals down. There are cases where bulls are hired, and every possible chance of a calf is got out of them before the season expires. Old breeders were alive to this, and limited their bulls to a certain number of cows only. By this means the hirer often got a better crop of calves, and the lender had the use of a valuable sire for years afterwards.

—— It appears to us that no time is so fitting for the notice of a Shorthorn herd as the publication of a catalogue, containing the pedigrees of its animals. Either the herd has so increased that a list of its animals is necessary for better understanding its members, some of the cattle may be on sale, or an important event in the district may attract many visitors, when a catalogue is the most convenient thing to have. We think that we shall not be far wrong in attributing the issue of Mr. D. Reynolds Davies' catalogue to these reasons: the herd numbers 40 head, there are 11 bulls, and the forthcoming Royal meeting at Manchester may draw many visitors 13 miles away to Mere Old Hall, Knutsford, Cheshire. Before noticing the contents of the catalogue, it may not be uninteresting to give a brief sketch of the rise of a herd that stands, in its own and several of the adjoining counties, pre-eminent for high breeding and for its fashionable blood. The first recollection we have of Mr. Davies as a purchaser was in Monmouthshire, on a raw damp day in February, 1862, at Capel Hanbury Leigh's sale, where several useful but small animals were bought. A few cows and heifers were got at the much-talked-about Jolly's sale in Yorkshire, whence the good bull EBOR came, and a few were purchased from Mr. Hales, at North Frith, Kent. High-bred Shropshire sheep are also kept, and at a ram sale, a year or two after the first Shorthorn purchases were made, Mr. Preece sold a few odd animals of inferior breeding. In 1864, however, Mr. Strafford's services were required, and a larger number, some 33, were brought out, realising an average of 31*l.*, a young bull selling for 120 gs. In the meanwhile Mr. Davies still increased his herd

by more judicious purchases, and that fine old bull GARIBALDI (17,919), of Cambridge Rose blood, was used. The dire effect of the plague in the county in 1865-6 necessitated the greatest vigilance; the cattle were housed until the middle of June, when, tempted by one hot bright day, they were turned out to grass; in the course of a few hours sickness appeared, and in a week or two the larger part of the herd was swept away at a great loss. Old GARIBALDI and a few others survived, and, nothing daunted, as soon as the county was healthy, Mr. Davies was again in the market, and the pedigrees of his more recent purchases are before us.

The cattle are arranged in families. At their head stands *Moss Rose*, one of the best known and most public cows in the country, a 400 gs. purchase at the Killhow sale last year; beside her stands her white heifer, two years old, by 4TH DUKE OF THORNDALE. Then comes *Wellingtonia*, from Havering Park, a Waterloo, and her roan heifer by 12TH DUKE OF THORNDALE; below these stands *Surmise 4th*, six years old, by a Cambridge Rose bull. These pedigrees, given on pages 2 and 3, are of good Bates blood. Turning over we have five *Cleopatras* from Holker, full of Princess blood. A Knightley cow, *Harmony*, from Milcote, succeeds them, and is paged with four *Roses of Thorndale*, all descendants of Mr. John Wood's Garland or Rose family. Pages 8 and 9 are filled with *Candidate's Duchess*, and her roan cow calf; these are of the old Colling Lady tribe; at their foot pedigrees of two *Charlottes* from Mr. Logan's are placed—a tribe better known for personal merit than for fashionable descent. On turning over we have two of the Kirklevington or Sockburn *Blanches*, and two *Leonoras* from Mr. Jolly's that survived the plague. The last pages of females contain three *Princess Royals*, and three *Flirtations*, both of short pedigree, but bred originally in the neighbourhood of Thirsk, Yorkshire.

The bulls are headed by 12TH DUKE OF THORNDALE, the imported American bull of 1867; GRAND DUKE OF ESSEX 4TH, a high-priced animal of the Barrington blood at the Havering Park sale, and *Moss Rose's* young roan son by 10TH GRAND DUKE. These three bulls are, and will be in use; the eight others are of the same families as the heifers, and range from four months to two years old; all are by Bates' bulls, and of various colour, and for which, probably, in sale language, "no reasonable offer will be refused." GARIBALDI and GRAND DUKE OF ESSEX 4TH are the sires of most of the younger animals, and three are accredited to the Thorndale bull. The herd will probably receive many visitors during the great show week, and will no doubt give as much satisfaction as the pedigrees, which not only read well, but are nicely printed on the toned catalogue issued from Langham Place.

PRESENT APPEARANCE OF THE CROPS.

BERKSHIRE.—I am sorry I cannot speak favourably of the growing crops in this neighbourhood. Wheat and Barley especially have been injuriously affected by the large quantity of rain and lowness of temperature we have had during the months of May and June. Oats, Beans, and Peas promise at present to produce the best crops. *James Hulbert, Streatley, near Reading, June* 30.

DEVONSHIRE.—The Wheat crop is not so promising as last year, although this fine hot weather is improving it much on all weak lands. It is coming into ear very unevenly, and with a small ear. The cold ungenial weather in May was injurious to both Wheat and Barley, and the latter will not be a great crop. Oats are looking very well. Peas are blighted. Beans will be a great crop. Mangel Wurzel does not grow well, and Swedes are only just sown. Grass feed is plentiful, but the hay crop is light. *George Turner, Cadbury, Tiverton, June* 28.——Wheat is again the best cereal, and promises a full yield. Barley: short, inferior; suffering from drought. Oats: short, rusty, unpromising. Potatos: field crops not looking well, no luxuriance; growth arrested by the very dry weather. The blight has again appeared in the earlier crops. Mangel: a good regular braird, and the plants flourishing. Swedes: patchy. Hay: good crops, and well saved. Orchard: Apples one-third of a crop. *P. Cowan, Barnstaple, June* 29.

DORSET.—In reply to your letter of yesterday, respecting the present prospect of our crops in this neighbourhood, on much of the Wheat on the wet, and also on the poor soils, which are not highly maintained, the plant in the early spring ran up very spindly and thin, and where it was not harrowed about and rolled down it did not tiller out, consequently it looks thin, and will be a lighter crop; it is now just out in ear, it looks very uneven, and I am of opinion that, even with a good turn, the yield must be about four sacks less per acre than last year. The Barley and Oat crops look well, and promise for a good crop on most of the good soils, except on very wet land, where it was put in during the time the land was very wet and did not work well. The Mangel plant looks very well, and Turnips and Swedes are taking well. The disease has made its appearance in many places about here in the early Potatos, which we are now beginning to make use of. *T. H. Saunders,*——Grass is abundant, the hay crop in the meadows over an average, and is being well secured; Clover, average. The appearance of Wheat on clay is much under average. Barley, Oats, and Peas, a prospect of a good crop; Turnips, an excellent plant; Potatos, a good prospect at present. *W. J. Voss, West Bucknowle, Corfe Castle, June* 26.——The fine weather during the last ten days has raised the spirits of the agriculturists in this locality very much, and has enabled them to secure a large crop of hay, of fine quality, in good condition. The Wheat (much lighter in straw than last year) has improved, and the ears are much more even than I expected they would be ten days ago: we shall not have so large a crop as last year, still I hope there will be very nearly an average one. Of the Barley I cannot speak confidently, as it is not sufficiently forward. The winter Oats appear to be a most promising crop, although the straw is struck with rust. Flax a heavy crop. Mangel plants regular and promising. Swedish Turnips very hopeful. Potatos partially affected with disease. On the whole I see no cause for despondency, but opinions vary much. *Symondsbury, June* 28.

HANTS.—The appearance of the crops of corn in this neighbourhood is not very satisfactory. The Wheat crop appears to have suffered very much from the cold wet weather in May and the low temperature prevailing up to this time, especially upon cold heavy land and light soils in low condition; and upon the whole the Wheat crop is not likely to produce an average should the weather prove favourable, and the harvest will be something like three weeks later than last year. Oats and Barley may produce an average, but much will depend on the weather, as a large portion of the crop has suffered from the cold wet weather, but not to the same extent as the Wheat plant. Beans and Peas are generally well spoken of, and bid fair to exceed an average produce. The hay crop has been very abundant, except in those cases where the seeds were deficient; about a third of the crop has been stacked in good condition, the remaining portion is injured by the late rains, but not seriously. The meadows and upland pastures have above an average produce, only requiring favourable weather from this time. All kinds of fodder crops are very abundant, as also Grass in the grazing land. A large breadth of Mangel has been sown under favourable circumstances, and never promised better. Swedes and Turnips have also planted remarkably well, with but little injury from the fly. Potatos promise well, without any appearance of disease at present. *Joseph Blundell, Land Agent, Southampton, June* 25.——The Wheat crop is bad on wet land and poor thin clays, and far from good on loamy and gravelly soils. It is best on chalk soils, but the ears are not large. Although much will depend on the weather during July, yet in any case the harvest must be backward and under an average. Barley varies, but is about an average; Oats over average; Beans and Peas good; Mangels a good promise; Swedes and Turnips an excellent plant. *W. C. Spooner, Eling, near Southampton, June* 28.

KENT.—I am getting my bustle over with my seeds, and have commenced my usual walks by the footpaths to inspect the crops. There are in this great corn county only a few fields of Wheat that will yield an average crop. On all sands, gravels, chalks, &c., there is not half an average crop, the Wheat not being knee high, and has been as yellow as gold. As to Barley, there is not one good field in fifty, many not 1 foot high, and others not knee high: not half an average crop. Peas are bad, and many not the seed again. Beans a very partial crop. Oats, but few grown. On the whole I cannot see half the crop of corn of last year, nor half the straw. The old Sainfoins are a great crop; those sown last spring are like the Clovers—mostly Wheat and Barley from the shedded corn last harvest. A great crop of hay. A more unproductive crop of corn I have not known for many years. The weather has been, all the spring and summer thus far, unhealthy. A general blight on all fruits; no wall fruit, and but little other kinds of fruit. The year 1860 was a wet harvest, and I did not finish carting my Wheat till October 2. There is a great breadth of Potatos; at present not the least appearance of blight; they are selling well, at 8*s.* a bushel. When I have made my annual inspection, and make my report, I shall be able to give you a more correct report. I expect the harvest here one month later than last year. I have seen about 1000 moons, and upwards of fourscore years, and I still see a deal of England every year, visiting, as I do, previous to harvest, so many of my old friends, staying two or three days with each of them; they drive me about to see every improvement in their localities: for instance, the fens of Cambridgeshire, Norfolk, &c.—the greatest improvement in all England—which, when the roads are complete, costing 300*l.* a mile, will, in the course of time, be studded with farm-houses, with resident tenants, which is so much required in most parts of England, thereby making homes for hundreds, increasing the produce of this dependent England, and also doubling and trebling the value of the land. England is not half farmed; with a few things, such as security of tenure, &c., as I have pointed out to several M.P.'s, the produce of England might be doubled. Leases of 14 years are not sufficient; let any man take a beggared farm, it will take him seven years to restore it: he has then only four years to himself, and the remainder to ask himself a few questions as to a fresh leases. *Robt. Matson, Wingham.*——The Wheat crop about here does not look so well as we should like to see it. The cold weather keeps it back. Where it is out in ear the ears are small. Barley is not a good colour, and Oats are in many places much eaten with the wireworm. I consider, under present appearances, our corn crops will be under an average. The Sainfoin has been got up, but not very well, there has been so little sun; the cut was light. Mangel Wurzel is thin in plant, there being great complaints that they are eaten either by wireworm or the grub. Turnips are coming nicely, but want warm weather. *Mark Sandford, Martins, near Dover, June* 29.

LANCASHIRE.—Wheat, below average; thin and light of straw, and late. Barley, not much grown, but where grown good. Oats, generally good; occasional fields may have yellowed a little, but upon the whole promise well. Potatos: the principal crop of the district is good, and promises largely; plenty of tubers at the roots, and only requiring warm weather to develop them. Turnips, not grown except after early Potatos. Rye-grass hay, a fair good crop; deficient in Clover, but will bulk largely. Meadow hay: early meadows are good, and an abundant crop, and are even cutting up better than anticipated; late ones also promise well, but will not bear heavily. Beans: this crop is not much cultivated; an occasional field may be seen, some very good and others indifferent; about an average, perhaps, upon the whole. *Wm. Forrester, Northbrook, Leyland, June* 25.

SUSSEX.—The weather up to the present time has been very bad for the growing crops; only a week ago frost cut down the Potatos and French Beans in particular spots. To-day is better, over half a day's sunshine; the longest day here was more like a December day, very dark and gloomy. The Wheat crop is bad, much of it cannot be, under any circumstances, over half a crop; the early Wheat has had a very hard blooming time,—I trust there is a better time for the late. You see occasionally a good piece of Wheat, but it is quite the exception this year. The best Wheat in our district is on the early good sandy land, but I fear the cold nights and sunless days will tell badly on them. Barley is very much the same as Wheat, but will no doubt improve very much if the present fine weather continues. Oats promise good, being strong and healthy. Beans good, I hear; the winter Beans are blighting. Peas good, some are suffering from the wet and some from blight; a large breadth sown. Mangel coming on very well; Swedes and Turnips doing pretty well, but rather later on account of the wet. Hay, Clover, and the mixed Grasses, under an average crop, and deficient acreage owing to the failure of the seed, considerably damaged by rain. Meadows a good crop, early much damaged; a large quantity yet to be made, which will depend on the weather. Pastures bare, cattle and sheep have not done well,—too wet and cold. On the whole, Wheat must be a bad crop; would be very much improved by fine warm weather. Barley may be an average, but, like Wheat, needs fine warm weather. Oats, Beans, and Peas, promise good. *James Eames, Lynch, Midhurst, June* 26.

WOMEN AND CHILDREN EMPLOYED IN AGRICULTURE.

THE following is an abridged report of Mr. Fawcett's speech on this subject in the House of Commons last Friday:—

MR. FAWCETT moved—"That, in the opinion of this House, the education of agricultural labourers is in general in so unsatisfactory a condition that immediate legislation upon the subject is imperatively demanded; this House, therefore, thinks that the Government ought to legislate upon the subject during the next session of Parliament." The Commissioners appointed to inquire into the subject had not yet completed their labours, but enough had been done to enable the House to draw some accurate conclusion as to the general condition of the country; and those conclusions were that education was generally most unsatisfactory, that wages were most inadequate, and that the cottages were in a most miserable condition. He believed that little could be done by Parliament directly; but he believed that this House could exercise an important indirect influence in raising wages and improving the condition of dwellings. The educated labourer could produce a larger degree of wealth than the uneducated labourer; and if they gave them that refinement of mental culture, they would refuse to live in the miserable hovels in which the ignorant labourers were contented to dwell. Good schools were not sufficient to secure the education of the rural population, if the parents were not sufficiently educated themselves, and there was a large demand for juvenile labour. Formerly there was more time for school; now the children were removed at too early an age. The question was, how these two evils were to be cured. Some, no doubt, would say that compulsory education was anti-English, and contrary to the free spirit of the nation; but the time for such a plea had passed away, and to the honour of the great Conservative party they destroyed it 20 years ago by enforcing compulsory education in manufactories. They, therefore, could not be surprised when the manufacturers found that the evils they predicted from the system had not been realised, that they should do their best to confer the same blessing on agriculture. They had extended the Factory Acts to every branch of industry except agriculture, and the principle had been laid down that no child be employed until he was eight years of age, and that between eight and 13 years of age every child so employed should attend school a certain number of hours daily. If, therefore, they were to have Parliamentary interference, what was the best form for it to assume? Compulsory education had been employed in two forms. In almost every branch of industry, except printworks, the half-time principle had been laid down; but where it had not been adopted, the plan was that for every child employed under 13 years of age the attendance at school should be so many hours a-year. The half-time system had been a great and extraordinary success, whereas the system adopted under the Printworks Act had been incomplete and disastrous failure.

The Half-time System.—The child who was at work half-time and at school half-time worked better and learned better than the child who was wholly at work or wholly at school. But if they only enforced a certain number of hours a-year for attendance at school, and they were gathered into three months, and the child worked nine months continuously, the child forgot in the nine months what he had learned in the previous three months. The assistant Commissioners to whom he had alluded had pointed out the difficulties of applying the half-time system, or any modification of it, to agriculture. He would ask the House whether there were not greater disadvantages associated with any other scheme that could by any possibility be suggested. They must bear in mind the impossibility there was of imposing legislative interference on any particular industry without causing some temporary disturbance and hardship; and he thought it would be impossible to impose any scheme upon agriculture without causing some amount of temporary disturbance and hardship. They had, therefore, to consider whether that trouble and hardship would not be more than compensated by the advantages that would ensue from it. The scheme that had found most favour in connection with agriculture was the forbidding a child to be employed in that industry until he was 10 years of age, by which time he would have received a sufficient amount of education. He, however, thought that the slender education which a child of 10 years of age would have acquired would, when he went to work, soon pass away; but there was the further difficulty—how were they to get the child to school until he was 10 years of age, because it must be borne in mind that hitherto their legislation had been in reference to those who were at work only, and not to those who were not at work. Without, therefore, they took some security that the child should attend school until he was 10 years of age, they would confer greater injury than benefit on him by not permitting him to work under 10 years of ago. Without it there would be no guarantee that the child would not be sent to some

other branch of industry where the restriction did not arise. Such a course would inflict great injury on agriculture; the labour market would be disturbed, and an undue proportion of the juvenile agricultural labour would be drawn into other employments. Therefore that plan could not be defended unless they were prepared to carry out a compulsory system of education, but of a far wider and more extensive character than that now in operation, viz., the compulsory attendance of all children, whether at work or not. Now he should like to see an enactment that no child should be permitted to work in any branch of industry until he was 13 years of age, and that between 10 and 13 years a certain amount of school attendance should be enforced. It was very important that our legislation upon this subject should be uniform, because, otherwise, parents would be induced to send their children to those branches of industry where restrictions did not exist, which would have the effect of disturbing labour, and thereby a great and serious injury be done to the country. The best modification of the half-day system was that which had been adopted by Mr. Paget, of Nottingham, for something like 20 years, and which might easily be applied to agriculture. Mr. Stanhope, one of the assistant Commissioners, had carefully investigated the subject, and he had arrived at the conclusion that the system was eminently satisfactory. That gentleman stated that the children, who were at work and at school on alternate days, when they arrived at the age of 13, were well fitted to undertake any agricultural operation, and they were better able to perform their duties, from their increased intelligence, than children who had been continuously at work. He also stated that the alternate days served to relieve each other; that the children worked better and learned better in consequence; and, so far as that gentleman could discover, children who were educated under this system were quite as forward when they left school at 13 as those children who had been at school continuously up to that age; and he had received no less than 20 letters from employers who had taken boys so educated, speaking in the strongest possible terms of the advantages that had resulted from the system. He further said that he saw no less than 20 letters which had been written by persons who had taken advantage of this system of education for a limited period, when they were under 10 years of age; and that it was impossible to see better or more admirably-written letters amongst persons of the same class. He thought, then, that they were entitled to say that the alternate day system, if generally adopted, would be a great success and lead to good practical results. But it might be said that under such a system they would greatly diminish the number of children for field-work, and the amount of juvenile labour would be rendered scarce. He, however, thought that the alleged scarcity of labour would be more imaginary than real. The farmers, instead of employing boys of about 10 years, would no doubt be able to obtain a sufficient number of youths of 15 or 16 years of age to supply the place of the former.

The Poverty of Labourers.—He would now proceed to consider what was regarded as the most formidable difficulty in legislating in this direction. That was the poverty of this class of persons. Now, they should recollect that this difficulty of poverty applied with unequal force to different parts of the country. There was no branch of industry in which there were such variations of wages as in agriculture. While in Wiltshire and Dorsetshire the wages of the agricultural labourers were only 9*s.* or 10*s.* a week, in Lancashire, Yorkshire, Northumberland, and other counties, they were about 16*s.* or 18*s.* a week. And these differences were not accidental, but permanent. Wages in these agricultural districts were not controlled by the general markets of supply and demand, but rather by the particular circumstances of the immediate locality. In Northumberland, for example, they could no-morrow introduce the half-time system without causing any hardship to the labourers. Indeed, as Mr. Henley remarked, there was a great desire for education among the Northumberland peasantry: therefore the question of poverty was not of much importance as affecting the educational system in Northumberland. If, however, they considered the position of the poor labourers of Dorsetshire and Wiltshire, he submitted that under the educational system their loss would not be so great as at first sight it would appear to be. In the first place, the withdrawal of juvenile labour from the market would probably increase the wages generally of the labourers who were available. The farmers of those counties, it appeared, paid their labourers the minimum amount of wages on which it was possible for them to maintain life. He could prove from past experience that the wages in the well-to-do paying counties of England invariably fluctuated with the price of Wheat. Two years ago the wages paid in Wiltshire rose to 11*s.*, because Wheat was dear. In the following year, in consequence of a bountiful harvest, the wages were reduced to the old standard of 9*s.* or 10*s.* a week. Now the circumstance of a fine harvest ought not, according to the accepted principles of political economy, to make one iota of difference in the standard of wages. But what was the case on the occasion referred to? The farmers of Wiltshire talked over the subject in the market. They said that last year their labourers received 11*s.* wages because the 8 lb. loaf was dear; that loaf was now reduced in price, and consequently their labourers could afford to do with less wages. The labourers accepted that reduction because, in their ignorance, they felt they could not help themselves. Now, what was to take place if Parliament placed some restrictions upon the labour of children? It would appear that the withdrawal of these children from the labour market would deprive the parents of the usual earnings of these children. But the farmers, according to their own system of calculation, in Wiltshire and Dorsetshire would know well that the labourers with large families could no longer live upon that minimum on which heretofore it was possible for them to sustain life, and the result would be that they would be compelled to increase their wages. The labourers, therefore, would not suffer any considerable loss from the absence of the usual earnings of their children. There was one thing certain—it was absolutely impossible for that House to make the condition of the labourers of Wiltshire or Dorsetshire worse than it at present was in the winter months. But what was the recompense which the farmers would receive for this temporary burden of improved wages to their labourers? He believed that this question of the education of agricultural labourers was far more a farmers' and landlords' question than a labourers' question. If the labourers were educated, the farmers and landlords would gain the most advantage from the circumstance.

The farmer, if a candid man, would say it was impossible to exaggerate the losses which he suffered from having ignorant labourers to deal with. Agriculture was every year becoming more and more a skilled industry, and being so, it was most important in the interest of the farmer that he should have intelligent and educated labourers to deal with. In Yorkshire, Lancashire, and other counties, where the education of the people had much advanced, the farmers received the largest profits whilst paying their labourers the highest wages. It appeared to him that many problems would be solved if they could secure the advantages of education to the labouring class. There would then be no need of emigration schemes, the intelligent labourer would have a mind of his own, and would know when and where to emigrate, without any promptings or inducements from other parties. And as to pauperism, if they wished really to diminish it, they should strike a blow at the causes which produced it. He believed that the Poor-law had done a permanent harm to the poor, and that it was a great encouragement to idleness and improvidence. So long as we had an ignorant people we could not expect them to prepare against the vicissitudes of life. And as to the question of drunkenness, against which they were endeavouring to legislate, if a man could not read or write what could he do with his evening? He must go somewhere. Wherever education was disseminated amongst the people idleness and drunkenness decreased. Amongst the educated peasantry of Northumberland, Mr. Henley said, drunkenness was unknown. Educate the people, and their own intelligence would suggest many schemes to their advantage. They would establish co-operative societies and other economical arrangements for their improvement. Under the existing condition of things he considered the poor labourer as becoming each year more divorced from the soil which his labour and industry helped to enrich.

The labourer was simply a man for hire. Formerly, that was not the case. In feudal times the personal relations between the lord and his vassals were of a more binding and reciprocal character. When those times passed, they were succeeded by a state of things which gave the labourers generally, either directly or indirectly, some interest in the soil which they cultivated. The farms were small, and the labourers felt that at some future day they would probably become the owners of the land themselves. It was important to bear in mind that every year labour was becoming more and more divorced from the soil. The agricultural labourer worked on from year to year without hope, and without any expectation of raising himself in the social scale. But if the means of education were brought within his reach, they might hope that by some sort of industrial co-partnership, or by co-operative farming, he might be brought into closer and more profitable relations with the products of the soil. English agriculture would then experience a degree of prosperity she had never yet known.

In reviewing the past, this fact must surely impress itself upon the most careless observer, that all material agencies had hitherto failed permanently to raise the condition of the agricultural class. They had tried a new Poor-law without actual success; they had tried to throw light upon corn only to find that the hopes of the repealers were in many respects as visionary as the fears of the protectionists; the channel of private charity had been enormously widened, but they had discovered that that description of aid tended rather to degrade than to raise the class to whom it was given. Even the wonderful awakening of Christian activity that this generation has witnessed had failed in the main to assist the agricultural labourer. Let them now try a different remedy. Let them make a vigorous effort to act upon the mind. He trusted that the Government would not plead the necessity of delay. Compared with the importance of national education, all other questions sink into the background. While they delayed, thousands of children were growing up in a state of ignorance. He remembered that on visiting a few months ago the cottage of a Wiltshire labourer, at about half-past six o'clock in the evening, the man told him that he was going to bed. Why? he asked. "Because," said the man, who had great natural intelligence, "my time is of no use to me, and it is no use burning coal and candle for nothing." What a sarcasm that was upon the boasted civilisation and education of the age! What a different existence to that the cottage of a Wiltshire labourer, at about half-past six o'clock in the evening, the man told him that he was going to bed. Why? he asked. "Because," said the man, who had great natural intelligence, "my time is of no use to me, and it is no use burning coal and candle for nothing." What a sarcasm that was upon the boasted civilisation and education of the age! What a different existence might the cottage of a Wiltshire labourer, at about half-past six o'clock in the evening, the man told him that he was going to bed. Why? he asked. "Because," said the man, who had great natural intelligence, "my time is of no use to me, and it is no use burning coal and candle for nothing." What a sarcasm that was upon the boasted civilisation and education of the age! What a different existence might have had if the means of intellectual and rational amusement had been placed within his reach. He earnestly hoped that the Government would not plead, as a reason for delay, the appointment of the Commission into the state of agriculture in Scotland. The report of the English Commission would be ready at the end of the session, and he was certain that it would contain material for a thoroughly satisfactory legislation. In this question, which had been so long neglected, they required bold statesmanship, courage, and wisdom; but their efforts ought never to relax until they had provided for all that elementary education which ought to be the birthright of everyone born in a free and civilised country.

Mr. Secretary BRUCE thought the hon. member for Brighton deserved great credit for bringing forward this question in so able a speech. This was a question which was difficult to be dealt with, on account of the varying circumstances of the different parts of the country. In Northumberland, and in the north of England generally, wages were very good, while in Wiltshire the wages were often not more than 11*s.* per week, but he had seen children as well dressed, and cottages kept as tidy, upon that sum as in other places where the wages earned amounted to 25*s.* per week. Therefore, he thought, much of the deficiency of education, which was the cause of so much misery, it must be borne in mind that it was not due simply to low wages, but mainly to a want of interest in the parents in the education of their children. There was a want of that earnest desire which marked the Scotch peasant, who, on wages not higher than those given in many of the English counties, contrived to secure an education for his children often fitting them for entering the universities, and rising to high positions. It would not do to wait until the conviction of the necessity of education became universal. Parliament must interfere in some way to render education more compulsory than it was at present. With respect to the form of the motion of the hon. member for Brighton, the hon. member proposed to set aside a certain number of days in the year, and took refuge in the alternate day system, which had been adopted by Mr. Paget. But Mr. Paget had been obliged to qualify that system, and had tried it under peculiar conditions. One reason why children were taken from school at an early age in agricultural districts was the paucity of agricultural labour. That arose from large numbers being drafted into large towns. But that was not the case in the district in which Mr. Paget tried his experiment, for the village adjoining his property contained between 2,000 and 3,000 people, and there was a large surplus of labour. Therefore his experiment was no guide for purely agricultural districts. Mr. Paget found it was not merely a question of time, but of seasons, and in his opinion a more elastic system was required. His recommendation, after 20 years' experience, was, that no child should be employed under nine years of age, and then only after passing an elementary examination, and that between nine and thirteen years of age a child should attend school 90 days in the year. The subject was one requiring great consideration, and he thought the honourable gentleman could scarcely expect the Government to pledge themselves to legislate on it during the next session. In his opinion, when the time served, there was no reason why the great question of national education should not be carried on concurrently with that of education in the agricultural districts. He hoped that during the next session the Government would be able to direct their attention to the subject, but considering the great number of measures to which they were already pledged, he could not accept the resolution in the form in which it was proposed, but he trusted the hon. member would accept the assurance that the Government would, on receiving the report of the Commission, endeavour to give effect to it in the most satisfactory manner.

CONCENTRATED ROOT FOOD.

I AM deeply interested in the subject of Concentrated Root Food, because I am patentee of the process; and I wish, in common with those who exercise their brains for the common weal, to benefit personally by my exertions. I make this statement at the outset, because it will induce those who look into my statements to exercise not only caution, but to arm themselves with those suspicions which are ever naturally at hand, where information is made to go hand in hand with self-advancement.

In the early period of root-growing, all that was thought necessary was to allow the sheep to gnaw the root from the ground, then hoeing up the half-consumed root to enable the flock to finish it. This wasteful system is still in force on many of our worst conducted farms. Then came the plan of storing in heaps, to keep off the frost, and the turnip-cutter was invented. It was proved that manual labour, by cutting the roots in small pieces, saved labour to the sheep, and that the amount of meat consequently gained more than compensated for the labour of cutting. This was improvement No. 1. It was next discovered that, from the watery nature of the root, it might be advantageously pulped and mixed with chaff, so that the animal would be compelled, as it were, to consume certain portions of dry food, which, with his belly distended with roots freely given alone, he would not, could not consume. This was improvement No. 2. This improvement has, however, as yet been almost confined to yard feeding; although I know one hard-working tenant-farmer who considers the advantage gained so great, that he actually carts all his roots to the homestead, where they are pulped and mixed with chaff, and then carted back to the fold to be consumed. It must, however, be borne in mind that, though mixing chaff with the watery raw root mitigates the evil effects of such watery food, it does not constitute a food of high feeding value. My system, which I will now describe, may, I think, be called improvement No. 3; and I will state the grounds upon which I form that conclusion.

The most experienced farmers tell us that the utmost feeding value of a ton of raw roots is not more than 5*s.* or 6*s.* per ton; that is, for 1 ton of roots they cannot produce much more than 8 lb. of dead meat. Now, analysis told me that 1 ton of roots ought, by the quantity of dry feeding material contained in them, to produce more than 24 lb. of meat. How was this discrepancy to be accounted for? Was analysis at fault, or was there something in the condition of the root which prevented the full development of the feeding properties? I was inclined to believe the latter to be the true solution of the question; and I proceeded to put it to the test.

Knowing that roots contained 89 per cent. of water and 11 per cent. of dry feeding substance, I pulped 8 tons of Mangels, and placed them on a kiln to dry, spreading the pulped roots about 4 or 5 inches thick on the kiln floor; in 24 hours the water had evaporated, leaving me 1 ton of dry substance, or more correctly I should say, the 11 per cent. of each ton of roots was left, giving me 88 per cent. of dry feeding substance, and 12 per cent. of water.

With this food I fed five sheep for 20 weeks, putting them on 1½ acres of very poor aftermath, allowing 30*s.* for the 1½ acres of aftermath, which was admitted by farmers to be above its feeding value. I made 20 stone (of 8 lb.) of carcase-meat with 8 cwt. of this concentrated root food. The value of the meat, at 5*s.* per 8 lb., was 5*l.*; deducting 30*s.* for aftermath, this gave me 3*l.* 10*s.* for 8 cwt. of concentrated root food, made from 3 ton 4 cwt. of raw root, or rather more than 1*l.* per ton as the feeding value of roots; from this, of course, had to be deducted the cost of fuel and labour. The fuel cost 2*s.* 6*d.* for each ton of raw roots; and the labour of carting the roots from the land to the kiln, pulping and drying, may be estimated at 1*s.* more. Thus, 1 ton of roots gave me a clear 16*s.* worth of actual carcase-meat, as against 5*s.* feeding in the ordinary manner. This was the exact amount which, according to analysis, should be produced from the dry feeding substance contained in 1 ton of raw roots. I may mention that the weighing of the sheep was most carefully attended to, and was witnessed by gentlemen of position residing in the neighbourhood, interested in the experiment.

It will, of course, occur to the reader that this was an isolated experiment; and I confess I should not myself place the full reliance I do upon it, did it not tally so completely with the analytical value of the feeding material contained in roots. I may also mention that the tenant-farmer who conducted this experiment for me tested its feeding value on all other kinds of stock, with equal satisfaction to himself. I may state that the feeding value of this food is fully recognised by our great agricultural analytical chemist, Dr. Voelcker.

Now, if these facts are true, and to be fully relied on, what conclusion does it point to? Why, that three times the amount of meat can be manufactured from the same acreage of roots as is at present made by using raw roots; three times the amount of meat for our daily increasing population! Nay, that does not really meet the question; because from root food being given in this concentrated form, the animal's stomach is not distended; it will therefore consume large quantities of straw chaff; and thus, in addition to the increased value of the root crop, we get the feeding value of straw besides, to swell the bulk of meat-producing substances. It has been suggested to me that if we pass all our straw through the animal's stomach, the quantity of manure will be reduced. Undoubtedly. But the value of manure is to be reckoned by its quality not quantity. Guano teaches us that fact. A ton of straw contains certain elements, one part of which is food for animal life, the other portion food for vegetable life; by utilising one we do not destroy the other, or take from it, but, by separating the two, we get the full benefit of both. By mixing a ton of sugar with a ton of guano we should increase the bulk, but we should not increase its manurial value. This is what we do when we use straw as manure without passing it through the digestive organs.

I look forward confidently to the day when every root grown in this country shall be converted into a dry feeding substance, and every particle of straw not absolutely required as litter to secure the comfort of stock (and by placing cattle and pigs on boards this may be reduced to a minimum) will be deprived of its feeding value before it is returned to the land as food for vegetable life. *Hugh Smith*, 21, *Westbourne Terrace Road, W., London, in "Mark Lane Express."*

STEAM CULTIVATION.

I HAVE seen Mr. Greig's paper, read before the Chamber of Agriculture at Cirencester, the other day, and I beg that you will let me take part in the discussion upon it. Mr. Greig says as follows:—First, "Take for instance a piece of heavy clay land and Wheat stubble, which is intended for a green crop the following year. My impression is, that in no case should any subsoil be brought to the surface, but that the land should be stirred to the greatest depth possible, and, after being stirred, that it should not be touched again during the autumn,—the manure, of course, being applied before the cultivation, so as to become thoroughly mixed with the soil by the process of stirring. In the spring, I consider that all green crops on this sort of land should be sown entirely on the frosted mould."

I take it that Mr. Greig has not well considered the point, for if we manure and smash up a piece of heavy clay Wheat stubble to lie through the winter, in the spring we find it overrun with self-sown Wheat, if with nothing else, and very frequently with Grasses of various kinds. Professor Wrightson questions the use of the smasher for such an operation on such soils, and goes on, from information that he has received, to infer, "that when the cultivator was used instead of the plough, weeds, such as Coltsfoot, Thistles, and Docks, were rather apt to become a difficulty to the farmer." This inference clearly proves that the learned Professor does not clearly understand the growth of those weeds, for the plough merely cuts off some 5 or 6 inches of the top or strong part of them, and rolls them over to be planted, and grow with the next crop. For instance, a Thistle in a Wheat stubble after Beans thus treated is tenfold stronger than it is in a Wheat stubble after a fallow, and a Dock turned down will be safe to grow again stronger than ever. Mr. Smith, of Bibury, goes on to show that "he had seen a piece of land every day that spring, which had been cultivated instead of being turned over, that was as green as a meadow, needing now four times more work than if it had been ploughed in the autumn. That was in Barnsley parish. If that had been ploughed in the vegetable matter would have manured the land." Now this is an extreme case, and not worth talking about, for it is a piece of land in a wofully filthy state, and must be costly to clean, whether done by the cultivator or by the plough. What are we to learn by all this? I say that Mr. Greig's deeply stirred land will in the spring be overrun with Wheat, &c., and that when the seed-time comes there will be no "frosted mould" left in which to drill his seeds for a green crop. Professor Wrightson says that he must plough it, or it will be all Coltsfoot, Docks, or Thistles; and Mr. Smith, of Bibury, says plough it. And I now say ridge-plough and subsoil it, laying the land in ridges a yard in width, worked a foot deep, but do not do it until October—until the Wheat fallen out in harvest has grown so that it may be turned under with the dung and buried; and in this way open up the subsoil in the trenches to the action of the sun, frost, air and water, during the winter months. If this land is to be planted with Mangels in the spring, it should be well harrowed to pull down the ridges, and to destroy all the seeding weeds that may have grown during the winter. This harrowing may be done with horses, let Mr. Greig say what he may about the tread of their feet on the land in the spring, for my Mangels on land thus treated speak for themselves—that they have received no harm, but look well. If it is intended for Swedes, the ridges should be split and thrown down by a subsoiler worked by horses, and, after lying a time, well harrowed, to kill the seeding weeds that may have grown upon the land during the winter. My Swedes on land thus treated speak for themselves by their healthy appearance.

Secondly: "From what I have observed, I believe the best method of putting in cereal crops is merely to scratch the surface, loosening no more soil on the top than is required to cover the seed; but of course I am supposing that the land has been thoroughly loosened for the previous green crop." We must not take this in the plural number, for what may do for Barley will not do for Wheat; and I have a right to infer that Mr. Greig is pointing only to the former or spring seeding. When roots have been fed on the land by sheep, and the land is in a nice, clean, friable state after a frost or so, all that is needed to make a seed-bed is a mere breaking of the top crust, which is a certain way of procuring a good crop of Barley; but, if we look to Wheat seeding in the autumn, I find it quite another thing, for my combined cultivator and drill did this cracking of the crust most excellently; but then I found that I was trying it too much, for my land showed signs of getting overrun with Knot-grass, &c., so I abandoned it, and now give the public the benefit of my experience.

Thirdly: "The cultivation of clay land is a matter of which we are almost entirely ignorant at present. By forethought and management the deep work can be done in a few weeks in the year, and if the land is never touched when wet, one-fourth of the cultivation at present required will be quite sufficient." This points to the cost of a deep, clean, and cheap seed-bed, and supports my own practice, excepting that I can do my ridging and subsoiling, after we have had some rain in the autumn, better than I can when the land is in a dry hard state. Professor Wrightson questions the cost as compared with horse-work. He perhaps may have some reasons for doing so, when he compares some operations that he may have seen himself with horse-work, but then this shows that he is one of the slow school, or he must have got my lessons by heart before this. I will give him one over again. A Bean stubble smashed up in the autumn, at a cost of 4*s.* 9*d.* an acre, and then cross-cultivated by horses at a cost of 2*s.* an acre, shakes out all the "Coltsfoot, Thistles, and Docks," at no cost, and makes a capital seed-bed for Wheat, at a total cost of 6*s.* 9*d.* an acre I have at this moment three fields, containing together 32 acres of Wheat on land thus treated, as fine as any to be found in England. The straw is like reeds, nearly as high as my head, higher than I can see over when standing in it, yet the Coltsfoot, Thistles, and Docks on this land are *nil*. Let Professor Wrightson bring his data as to horse-work, and compare with this if he can. He can do so I know, but he will, I also know, be vastly behind in the race. But I can support my statement by a next crop standing by the side of the Wheat—my Beans. The Wheat stubbles, after a light dressing of manure having been spread over them, were ridge-ploughed and subsoiled last autumn, at a cost of 7*s.* 0½*d.* per acre, and the Beans were planted by hand in February last without any other operation; therefore the total cost of seed-bed is only 7*s.* 0½d. per acre. The Beans are as fine as any to be seen in England, strong in straw, nearly up to my chin, and well bloomed. Take the two crops together, the average cost of seed-bed is 6*s.* 10½*d.* an acre. Let the learned Professor bring his evidence against it, if he can; if not, let him learn of me. I speak plain, because Mr. Greig says that "the cultivation of clay land is a matter of which we are entirely ignorant at present." When he says "we" he may be right, for it is clear that neither he nor the learned Professor understand the matter; but I do, for my crops and clean land tell me that I am right: and my 6*s.* 10½*d.* an acre must stagger them both.

And lastly: "It serves no good purpose to use rollers or clod-crushers in cultivating such land; all must be done by Nature." These are capital words in support of those published in my first pamphlet in 1856:—"After Wheat sowing is completed, all the manure that is ready may be drawn out and spread on the land, the trenching and subsoiling-plough may be most efficiently and beneficially applied; the soil will be all broken up, the manure will be covered, and the land trenched up and exposed to the action of the weather during the whole of the winter." My after practice proves that my view upon that point was right; and so says Mr. Greig now, when he says that "Nature" is our grand worker.

"This deep stirring breaks up the 'pan' formed by the horse treading."

These are significant words in support of mine before the Society of Engineers at Birmingham, in 1857:—"We must take the pitch-plaster from the earth's lungs, the hard horse-trodden pan." The thing will right itself shortly, for my boys are beginning to learn, and Mr. Greig appears likely to be one of the foremost of them.

In conclusion, I must say a word upon Mr. Smith's, of Bibury, stumbling-block. "The pan is on the rock." Limestone rocks are not very extensive, but too much so to be passed unnoticed. The best farmers on them scratch them down as deeply as they can. When thus treated, and manured with light dressings of artificial manure in addition to the manure made on the farm, with a fair supply of cake to the stock, they become very productive; and farmers who thus manage them generally do well upon them: therefore it is quite clear that if we can get implements to scratch them a bit deeper by steam-power, we shall give a good help to the now best-to-do farmer upon them. These are what I call the flint rocks, and they are extensive in Herts, Berks, Hants, Wilts, and other counties. The best farmers on those soils work them as deeply as they can by scratching into the rock whenever they have a chance; and these soils, when thus treated and well manured, become very productive as stock and corn farms. I will bring one witness to bear upon this point—Mr. Child, of Vernham Manor, who farms 800 acres of such land, and well too, for I walked over it all last spring and found it clean from end to end, and worked as deeply as he could work it with horses, but not deep enough to satisfy him, so he obtained a set of steam tackle, supplied under my direction, and some months back he wrote to tell me that the steam cultivator made the stones grumble at it as it passed along; and on June 21 he wrote thus:—"I have done more than 90 acres, and am pleased, having driven stones 20 inches deep from the soil, 114 lb. weight, without hindrance: men who happened to be there at the time expressed wonder." You see that men who have farmed deeply heretofore will work deeper now that they have a power to help them, instead of crying out, like Mr. Smith, of Bibury: "How would they cultivate that?" His question is answered—Scratch it deeper. And then there are the rocks of clay. Many men will tell you, under a plea of great knowledge, that yellow stuff must not be touched, or it will poison your top of 4 or 5 inches, yet for all that I have cut into mine full 10 inches deep, and my crops now upon them tell me that I am right—Wheat and Beans, as fine as any to be found in England, upon these once called poor clays, needing a dead fallow every fourth year to keep them clean and up to the mark for growing not much over half the quantity of corn they do now without any fallow. Last year, taking the Wheat and Beans together, I got 15 bushels more per acre than they grew under horse culture, and this year I shall have more than that. Mr. Smith admits that deep cultivation by steam-power on such soils is good, yet sets the stone rocks up against it as a bugbear. As to costs, let me refer him to what I have said upon that point in this letter, and we shall not hear much from him again about his two horses and a boy. *William Smith, Woolston, Bletchley Station, Bucks, June* 28.

Home Correspondence.

Agricultural Reflections.—As I muse among the palaces of Pall Mall, Belgravia, and Tyburnia, during "the season," amid the fiery steeds and gorgeous equipages of a noble and fashionable world, my thoughts diverge to the wretched cottage, the dilapidated farmery, the ill-conditioned farm roads, lanes, and fences, and the undrained and half-farmed lands of Britain. I ask, can these be alike the property of one and the same individual? Is agriculture so poor and needy that it languishes for want of means? No, that cannot be; for in the bankers' clearing-house, in Lombard Street, 2500 millions of pounds sterling changed hands in one year (1868),—nearly four times the amount of our national debt. Well, then, there is no lack of cash, but non-improvement arises from a satisfaction with things as they were, both on the part of the tenant and landowner, and a non-appreciation of the fact that steam-power has changed all our commercial and manufacturing conditions—that it has created gigantic interests, increased wealth, and vastly multiplied population. Agriculture is as yet only on the verge of the stream, but it must soon be hurried on by the impetuous rush of steam-excited advance and improvements. Rents would be higher, land more valuable, tenants more wealthy, were agriculture in its proper condition relatively to other of our industries. Would it be believed that in our forward county of Essex I could point to a farm of 1000 acres where the approach to the farm buildings and residence is through a muddy lane, nearly a mile long, impassible for gig or carriage in the winter? It is even impassible by sheep in wet weather, and the flock is therefore kept in yards. The owner rides on horseback by the hedge side; not much fear of the landlord driving down in winter to inspect the farm. I could multiply such instances of neglect and miscalculation, but they would be merely confirmatory evidence of a comfortable satisfaction with things as they were. It does not appear to occur to the parties that such neglect is uncommercial, unprofitable, and unworthy. They have not realised the great fact that we are passing from a pastoral, wooded and wooden age, into one of iron and steel, where the impassible road is made smooth and easy by a bridge of steel rails and a flying engine. Where agriculture is improved, every implement on a farm, from a hurdle to a pig trough, participates in the new iron age. The production of our food in our best managed farms has become almost a manufacture; reapers, mowers, pulpers, crushers, steam threshing and steam ploughing machines, millstones, chaff-cutters, and cake-breakers are gradually encroaching on the vast domain of old fashioned unalterability. The sooner that domain is conquered by these new forces, the better for the country at large. I know that I am looked upon in certain retired nooks as a disturber of comfortable agricultural antiquarianisms; but I really am merely endorsing with vigour the bills of indictment that have been abundantly preferred, in the prize essays on the farming of our various counties, in the 28 volumes of the Journal of the Royal Agricultural Society of England. Could we but return to earth again in 50 years, what a mighty change and progress would be seen in British Agriculture! *J. J. Mechi, Tiptree, June* 29.

Sources of Pauperism.—The working of the Scotch Poor-laws is just now a subject of inquiry before Committees of both Lords and Commons, but I contend that pauperism is necessarily the normal condition of worn-out rural labourers. Disputing the erroneous inferences of the Rev. Dr. Begg in his recent examination, of which a notice appeared in your columns last week, I have sent Mr. Crawford, the chairman of the Committee before whom Dr. Begg appeared, letters of mine which were published before Dr. Begg gave his evidence, to show him and his Committee the state of matters in the border counties, where there are too many cottage ploughmen. It is easy to prove that worn-out ploughmen are victims of circumstances. I have repeatedly reduced to cash the rate of Roxburghshire hinds' wages, as given by Mr. Munro, of Farnington, in the *North British Agriculturist*, of July 13, 1864:—

4*l.* of cash	£4 0 0	
18 bushels of Barley, at 1*l.* 4*s.* 3*d.* per imperial qr.	2 14 6¾	
6 bushels of Peas, at 5*s.*	1 10 0	
100 stone of oatmeal, at 1*s.* 4*d.*	6 13 4	
Four weeks' victuals during harvest ..	0 16 0	
Minimum money substitute for cow's keep	5 0 0	
1800 lineal yards of Potato drills, at 8*d.* a score	3 0 0	
The cartage of five tons of coals from the nearest station, at half-price, a house and garden rent-free, and the liberty to feed a pig		£23 13 10¾
Earnings of bondager to hind:—		
Say 12 days in harvest, at 2*s.* 10*d.*, and board	£1 14 0	
301 days, at 10*d.*	12 10 10	
		14 4 10
Aggregate gross total paid to hind for his own wages and the bondager's contract		£37 18 8¾

Fancy the notorious fact that too many farmers had, for the year ending May, 1865, the services of two able-bodied labourers for less than 40*l.* Were you, Mr. Editor, a hind, with a family of five or six, the eldest not exceeding, say 12 years of age, and had to pay a hired bondager 12*l.* a-year for wages off such a notoriously small gross total as 40*l.*, where was the scope in 1864 for your supporting your wife, family, and bondager, off the remaining 28*l.*, and the perquisites of the free house, cartage of coals, and the liberty to feed pigs, and also preventing your aged parents

from becoming paupers? When my father died in 1855, I made a resolve that my mother should not become a pauper. I feel a satisfaction that I succeeded in my resolve; but had I been a hind, I would have been helpless. I often think that married hinds are as helpless in relation to assisting their aged parents, as a good many spectators of wrecked vessels are of rendering assistance through want of the requisite apparatus for communicating with the ships. Since the resources of arable land are amply sufficient for supporting employers and employed, there is something radically wrong in the letting of land. Fancy the fact that only one man for every 60 or 75 acres of land is employed on highly cultivated farms!—the ploughmen must be kept in a pauper-producing condition. Hinds must suffer from the fact, that farmers derive enormous profits from the employment of females in farming operations. Since English farming employs labour equal to one man for every 10 or 12 acres of arable land and 5 of pasture, as stated by Mr. Morton in 1859, and as the bondager farmers employ only one man for every 60 or 75 acres, the latter not only pocket the savings from the employment of so few male labourers, but the limited number of males must be burdened with the drudgery of providing for these female labourers. *T. W. Rutherford*, 12, *Drumdryan Street, Edinburgh.*

Societies.

HIGHLAND AND AGRICULTURAL.

At the general meeting last week, Mr. Campbell Swinton in the chair, a number of gentlemen were admitted as members.

The Edinburgh Show.—The following entries for the Edinburgh meeting were announced, as compared with those of the previous show here in 1859:—

	1869.	1859.		1869.	1859.
Cattle	345	332	Swine	40	80
Horses	220	188	Poultry	690	327
Sheep	670	583	Implements ..	1600	980

The Chemical Department.—The following is the report of the chemical department during the past six months:—"The business of the chemical department has been carried on during the last six months in the usual manner. On no previous occasion has the number of analyses sent by members of the Society been so large, or so clearly proved the necessity for care on the part of the purchasers of manures. The results of the analyses made show very distinctly that the adulteration of manures and the sale of inferior articles has recently been largely on the increase. This I believe to be in a great measure due to the high price the material attained during the last autumn and winter, which has been met by the manufacturers more frequently by a diminution in the quality than by a rise in the price of the manures, and in too many cases the diminution in the quality has been far more than proportionate to the increased price of the raw material. Cases of adulteration of nitrate of soda and sulphate of ammonia have occurred, though these are substances which in ordinary seasons can generally be obtained in a tolerably pure condition. In one instance a sample of nitrate of soda containing nearly 50 per cent. of common salt was sent to the laboratory, and though in this instance the adulteration was detected, I have reason to believe that considerable quantities of the same article reached the hands of farmers in the neighbourhood, and were used without suspicion being awakened. Indeed, there can be no doubt that the amount of adulteration detected is small compared with that which passes unchallenged. As regards superphosphates, numerous instances of inferior articles have occurred, which have been worth 2*l.*, 3*l.*, and even 4*l.* per ton less than the guarantee; and articles described as dissolved bones, but made to a greater or less extent from mineral phosphates, have been largely sold. In the other department of our work—viz., the field experiments—the committee has this year directed attention to the cultivation of the Potato, and a series of experiments, in which the application of potash to that crop has been made a prominent question, has been successfully commenced by seven experimenters. The whole analyses connected with last year's rotation experiments have been completed, and considerable progress has been made with those of the present season. The analyses of Wheat from different localities are also in hand, and being proceeded with as rapidly as possible, and will, I hope, be shortly completed.

June 22, 1869. THOMAS ANDERSON.

Mr. HARVEY, Whittingham Mains, said he had to ask a question with regard to the chemical department. He had brought it several times under the notice of the directors, and he thought it was a very important subject. It would appear from the statements made by Professor Anderson that they were losing a large sum of money every year without getting much advantage. He took this public opportunity of asking whether the directors had had under consideration a proposal to have a chemical officer appointed in Edinburgh, as recommended by Mr. Milne Home about a year ago? He thought that, after what they were told by Dr. Voelcker and by Dr. Anderson, in his paper, as to adulterations, it was high time that they should set their house in order, and try to break up the system. They were told every year that they were being mulcted of their money; and it was lamentable to think that adulteration was going on more rampant than ever without any means being taken to prevent such a state of matters. No doubt they were told to go to Glasgow, but it was inconvenient to do so; and he would move at next meeting that a chemical officer be appointed for Edinburgh, if not the head-quarters to be stationed there.

Agricultural Education.—Prof. BALFOUR reported that the Society's agricultural certificate and diploma was, in March last, conferred on Mr. John Gerrard, New Aberdour, Aberdeenshire; and that the two prizes of 6*l.* and 4*l.* annually given by the Society to the students in the agricultural class in the Edinburgh University who pass the best and the second best examination were this year awarded to Mr. James A. Somervail, Berwickshire, and Mr. Thomas Anderson, Forfarshire.

Mr. WALKER, of Bowland, reported that the usual examinations for the Society's veterinary diploma took place on the 14th and 15th of April.

Prize Essay.—Mr. IRVINE reported that the following premiums had been awarded for papers in competition since the general meeting in January: 1. The gold medal or 10*l.* to John Allan, Crieffvechter, Crieff, for a report on the comparative advantages of applying manure to the stubble in autumn, or in the drills in spring, to a Potato crop, and also its effects on the following year's grain crop. 2. The medium gold medal or 5*l.* to Gilbert Murray, Elvaston Estate Office, Derby, for a report on the cultivation of the Cabbage as a field crop. 3. The silver medal to James Stevenson, Aberdour, Aberdeenshire, for a report of improvement on the farm of Quarryhead.

Adulteration of Seeds.—The SECRETARY read the following statement by Mr. Charles Lawson, of Borthwickhall, who was unavoidably absent, with reference to the "Adulteration of Seeds Bill" now before Parliament:—"The adulteration of seeds, I believe, has been more or less in practice for a very long period, and it is clear that all attempts at fraud should be, if possible, detected and punished. Still, I concur fully with the views expressed by Mr. Bright in his sound and practical speech on the Bill being read a second time. Attempts at legislation on this subject are not new. I was engaged unsuccessfully in the same way more than 30 years ago; and I am afraid that difficulties will be found in adjusting the clauses of the Bill to meet the object immediately in view, and, at the same time, not hamper or annoy the honest trader. If legislation can really meet the evil, I should have much wished that Mr. Bright, who evidently understands all sides of the question, had seen his way to have brought forward a well-constructed Government measure, and in that case the expense would not have fallen upon so few. As the matter stands at present, I would recommend to the Society to do all it can in favour of the Bill."

The Bill was remitted to the directors, with power to petition in its favour if they should see cause.

NORFOLK.

AT the annual dinner of this Society last week Sir Sir W. JONES gave the toast "The Members for the County." After referring to the Hon. J. de Grey and Mr. Howes, he said: Mr. Read was not so much the representative of the agriculturists of Norfolk as of agriculture itself. One heard from all parties and all persons that Mr. Read was the agricultural member *par excellence*—standing by himself in a different sphere, as far as agriculture was concerned, from any other member. He would say this, that in those days it was a fortunate thing that they should have county members with heads upon their shoulders. Agriculture had ceased long ago to muddle on by the "rule of thumb." The showyard that day evidenced the very high improvement, the high development of the industry—he might almost say the science—of agriculture, and as its resources were many and its future great, so were the concomitants which accompanied it and tended to its prosperity. There were many things which came up and had to be considered—whether it be the Contagious Diseases of Animals or whether it be the change by which the principle of representation was to be imported into the management of county finances, or whether it be the question, more important still, as to whether one class of property was to bear all the burdens, or should it be shared by all: on all those measures it was of very great importance that the important industry in which they were all interested should be represented, and should be capable of expressing its views and of commanding attention. He would add one word about a matter which was not directly connected with the toast, by expressing deep regret on his own part, and he might say on the part of the whole company present, at missing from the meeting that day, through serious illness, Mr. Anthony Hamond. News came to them day by day of his most serious and dangerous illness, and he (Sir W. Jones) felt he would not be doing his duty if he passed over in silence the fact of the very severe illness and probably removal by death of one among them, in whose character were concentrated the best qualities of a Norfolk man and the straightforward agriculturist, who had been typical of the Norfolk man all the days of his life.

Mr. C. S. READ was received with applause on rising. He thought the show had been a great success, and he was sure they did right in coming to Attleborough, and that as a society of the county of Norfolk they owed a deep and lasting debt of gratitude to his friend Mr. T. Salter. In regard to agricultural prospects, whether he looked at them in the present, in the future, or retrospectively, he was sorry to say there was nothing very cheering about them. He thought they had not yet realised the full extent of last year's drought. It was said that the Turnip crop was the mainstay of Norfolk agriculture, and if it was lost he feared they should not find out the full extent of that loss until the four years' rotation was over. As to the future, there was a miserable prospect in the corn crop. He fancied Norfolk sands were something like the Irishman's description of an amphibious animal, which was, that it was a thing that could not live on the land, and died in the water: the crops could not stand the heat or the cold. Last Christmas time, when they had no cattle to buy, they (the farmers) were all of them very full of money, but now at Midsummer, when they had no cattle to sell, they were in a very different position, and he hoped they would be able to pay their rents cheerfully. Turning to agriculture in Parliament, he was sorry he could not present them with a glowing picture. It was only yesterday that the Parliament of this country tried to drag the farmers into the Court of Bankruptcy, but, thanks to her Majesty's Government, they escaped—not that the farmers had any objection to be "whitewashed" on occasions. Although they were poor, they did not often come to grief, and they were willing to allow their property to be distributed among their creditors without allowing the lawyers to take all the oysters and leave only the shells. He supposed it would be his pleasing duty to congratulate them on what people were pleased to call "the competition of free trade." There was a duty of 1*s.* a quarter upon corn, which Sir Robert Peel called a registration duty, which raised about 900,000*l.* a year, and he was not aware that any one particularly complained of it; but in order to complete this great revolution, they had had it abolished. They were told that it was a remnant of protection, and if it was so every one was only too glad to have it removed. They were told when the Navigation Laws were abolished that their abolition was the capital of the pillar of free trade, and he supposed they must take this abolition of the shilling duty upon corn as the bonnet over the chignon, which was so infinitesimally small that the fair wearer would not know whether it was off or on. That had been removed for the benefit of the labouring man, and he hoped the labouring man would obtain the benefit. It was strange while there was 22*s.* a quarter duty upon malt that those gentlemen did not seek to give the poor man any benefit from its repeal. Referring to the subject of agricultural statistics, he said that two or three years ago, in addressing an assembly similar to that, he expressed his opinion that it was the duty of farmers, and especially Norfolk farmers, to fill up the returns that were sent to them, as the Government asked them to make an experiment, although he did not think it would do the Government, or them, or anybody any good. An average of the acreage of the crops, and of the number of cattle, sheep, and pigs in the country was thus obtained; but he thought it would be just as well to have a sort of census taken every few years in the same manner as the population census. Who asked them for these returns? The Board of Trade politely sent out the request; but when they went to the Board of Trade to ask them to be so good as to collect the numerous agricultural matters under the control of the Government into one office, or at least to set apart a department of the Board of Trade for agriculture, they were told by the President of the Board of Trade to regard the showers and the sun rather than look for any assistance from Government. When they asked support from that department of the Government in favour of the Adulteration of Seeds Bill, the object of which was to put down a cruel and monstrous fraud—they were treated to a little lecture about putting seeds in warm flannels. A friend of his, who was terribly against those statistics, said they agreed with him pretty well; he had half-a-dozen papers every year, and got half-a-dozen stamps for nothing. He should not advise them to go and do likewise, but after the present year he should be very much inclined to follow his friend's example.

Lord SONDES proposed "The health of the President."

The PRESIDENT, in responding, said, although he was not a farmer, it was not difficult to see that without the observance of certain rules success was next to impossible, and he held that one of those rules was that a man should take a strong personal pride and interest in his profession. They might depend upon it that the man who was always upon his farm, saw that his men went to work early in the morning, saw that they did their work well and quickly, and was himself able to show them how to do it—such a man was certain to make more money than a man who left all to his foreman. He never felt satisfied that he was well served unless he himself knew how to do the thing well, and was able to say whether it was done as it should be or not. They all knew the story of the man who hired a servant, and told him he would be expected to make himself generally useful, and to do everything except feed the pigs, which he did himself. A man who was ready and willing to undertake the duties he got others to perform was more certain to get a thing well done than the man who was not.

The Rev. H. E. LOMBE proposed "The Judges of the Cattle Classes."

Mr. TURNER (neither of the judges of the cattle classes present) acknowledged the toast.

The Rev. P. GURDON, in proposing "The health of the Successful Exhibitors of Cattle," remarked that good quality in stock was only to be gained by the expenditure of a great deal of capital, after much toil, and the lapse of much time. They had two noble lords in the room of whom they were justly proud—Lord Sondes and Lord Walsingham, and who were successful exhibitors—the one in sheep and the other in cattle. He was sorry at the lugubrious tone of their worthy agricultural member, who, as a representative of the county of Norfolk, was the right man in the right place. They had to remember that it was old Thos. Wm. Coke, of Holkham, who first introduced the feeling of which they were now receiving the result, in the spirited competition which took place among the breeders of stock. The toast was coupled with the name of Lord Walsingham.

Lord WALSINGHAM said he did not expect to have to return thanks as a successful exhibitor of sheep. Certainly upon this occasion he had shown a few Shorthorns, which he supposed were tolerably good, and he found he had been successful in obtaining a cup, but he thought there were others who might more appropriately have been called upon to return thanks on behalf of the winners in the several classes, and to congratulate the Association upon having had a very excellent show.

He congratulated them on the good show, but in Norfolk it was not surprising—it could not have been otherwise when in the great national shows, particularly those of the Royal Agricultural Society and the Smithfield Club, it was not far from the truth to say, that more prizes came into this county than went into any other county in England—at all events this county stood a very good second, if it did not stand first. He often saw in the horse shows in London that a great many prizes came to Norfolk, and he really felt exceedingly proud of his county. He had seen that day a great many animals which were quite fit to go to the Royal show at Michaelmas; he was quite sure they should see some of them there, and he really hoped they should see a good many of them. The entries at Michaelmas were very numerous, and there would be severe competition if they did go there. He was happy to see so many visitors from distant parts of the county, and he felt they should be particularly thankful to those who came from a distance—strangers they were apt to call them; and whether they came as visitors or exhibitors, all were ready to give them, as their excellent friend Mr. Salter had done, a hospitable welcome. He (Lord Walsingham) had always tried to do his best to keep up the interest of these shows, as he believed they did a great deal of good in affording information and giving opportunities of comparison, and, besides that, in keeping up the life and spirit of agriculture. Agriculturists did not want to fall into the routine which considered the ploughing and sowing of land was everything, but they wanted to show a little of the spirit of competition. It was most desirable that everybody should feel that if he had a good breed his stock would be more valuable than if he had a mere mongrel breed, which latter was, he was afraid, a little too prevalent in this county.

Mr. H. OVERMAN (as a successful exhibitor) thanked the company for the compliment paid him. He found he had that day won 12 prizes, and he begged to differ very much from the President when he recommended farmers to feed their own animals. Now he (Mr. Overman) had never fed one of his prize animals; he had instructed his men how to feed them, and had turned his time and talent to find out how the animals could best be bred. He had that day been told that he had deserted the steps of his forefathers. Well, he must acknowledge that he always tried to advance with the times. He had found the Oxford Downs more profitable than Southdowns, and had won four or five prizes with them in competition against Lord Sondes' Southdowns. It was, however, no little pleasure to him to remember that his lordship's Downs emanated from the flock of his (Mr. Overman's) grandfather. He would occupy their attention no longer than to state that he had that day heard three gentlemen discussing the merits of his animals that had taken prizes. Of course it was not intended that he should hear, but being rather quick he caught what was said. One of the number he heard say, "Do you like Overman's animals?" And the reply was, "I like them pretty well, but I should like them much better had they more Conservative blood in their veins."

Mr. T. F. SALTER, as prize winner for Long-wools, also acknowledged the toast. His friend, Mr. Overman, had talked about the Conservative prize. Now he (Mr. Salter) was a Conservative, and had won one, and Mr. Overman was a high Whig, and had also won one. That showed that the principles of the Society were based on the right foundation, there being no distinction whatever as to the opinions of those who came in for its prizes.

LINCOLNSHIRE FARMERS' ASSOCIATION.

THE first annual meeting of this Association was held at Sleaford on Monday, June 21, when the following report of the committee was presented:—

TO THE MEMBERS OF THE LINCOLNSHIRE FARMERS' ASSOCIATION.

We beg to congratulate you upon the results effected by your Association during the first year of its existence. It may not be necessary to remind you that this Association was the first of its kind, and that, like all undertakings of an original character, it has had to encounter certain difficulties which could not possibly have been foreseen, but the greatest difficulty that your committee has had to contend with has been that which has arisen from too much success. The first contract for phosphatic manure was entered upon without any sure guide as to what the actual requirements might be, and was made, in some degree, at the risk and liability of the committee. After a time, when the object of this Association became more known, the number of its members increased rapidly, and the demand for manure exceeded considerably the amount of the first contract; further contracts were then made, after a time to be again extended, until at last the original contract became more than trebled, when it may be said to have been an open contract, and almost without condition as to supply, as the manufacturers would no longer hold themselves responsible for supplying the demand. In this difficulty your committee was entirely in their hands, and our thanks are really due to those gentlemen for their very honourable efforts to execute our orders, especially as the demand for phosphatic manures during the last season has been largely augmented. It must be acknowledged that some members have suffered certain inconvenience arising from the completion and delivery of the manure, but the cause was clearly unavoidable, and cannot, with reasonable precaution, occur again. With respect to the quality of manure, in no single instance has there been occasion for complaint; the greatest care has been taken in this all important matter, 67 samples have been carefully analysed, and in all cases the soluble phosphate has exceeded the guarantee of 15 per cent. Whilst alluding to this subject, your committee cannot too earnestly request that members should always send fair samples to the secretary for analysis, which is done without any cost to the members. To prevent the possibility of disappointment, either in the condition or delivery of manure, during the next season, contracts must be made earlier, and the committee would suggest that the list of manure subscribed for by members should be in the hands of the contractor not later than the end of October, and that the contractor should be required to enter into a bond to deliver every lot of manure in condition for sowing by hand, and within 10 days from the date of receiving the order. The committee would also recommend that all members should be required to send their railway advice notes, or write, to the secretary immediately on the arrival of their manure, as notice to the committee of the receipt and acceptance thereof, and as an authority for payment of the price of the same to the contractor. As a question of simple economy, your committee must further congratulate you on the large reduction in the cost of phosphatic manures, and upon a still more important principle effected, viz., that every member knows what he is using, and gets exactly what he bargains for. Your committee may, therefore, reasonably hope to see the objects of this Association completely realised during the next season, and that in future the condition and punctual delivery of manure may be as satisfactory as quality and price.—Signed on behalf of the managing committee,

Sleaford, June 21, 1869. HENRY SMITH, Chairman.

The following comparison made between the phosphatic manure supplied by this Association and the analysis of 26 samples of the same kind of manures made either from bones or minerals, or both together, by the largest and most respectable makers, shows that the Association manure is more than 50 per cent. stronger in soluble phosphate, and not much more than half the price. The samples were analysed by Dr. Voelcker for the Kendal Farmers' Club in Cumberland, for the seasons 1866, 1867, and 1868. The average price per ton is 7*l.* 14*s.*, and the average percentage of soluble phosphate is 19¾ per cent. The comparative quantities of the other matters are shown by the following analysis:—

Manures.	Kendal Farmers' Club manure.			Lincolnshire Farmers' Association Manure.	
	No. 1. 1866.	No. 2. 1867.	No. 3. 1868.	No. 4. 1869.	No. 5. 1869.
Moisture	17	15	15	17	33
*Organic matter and water in combination	19	15	16	9	18
Biphosphate of lime equal to—	10¼	14¼	13	19	38
Soluble Phosphate, or phosphate made soluble, or bone earth made soluble	16	22¾	20¾	29¾	59¼
Insoluble phosphate	10	9¾	12¾	3	5¼
Sulphate of lime	33	37	34	44	88
Alkaline salts, chiefly common salt	4	3¼	3¾	2½	5
Insoluble silicious matter or sand	6	6	4½	5	10
*Containing nitrogen	1·12	1·3	1·5	0·28	0·56
Equal to ammonia	1·66	1·6	1·8	0·34	0·68
Average price per ton	£ 7 12 6	7 14 3	—	3 18 0	7 12 6

Note.—To those who attach all importance to nitrogen, it may be useful to observe that every ton of coals that is consumed contains on the average a greater percentage than is shown in the Kendal manure.

Note.—Since 1867 this Club has not published the prices.

Nos. 1, 2, and 3 show the average percentage of the several matters contained in the manures analysed by Dr. Voelcker for the Kendal Farmers' Club, and is a fair sample of what phosphatic manure by the largest makers consists of. No 4 is the percentage contained in the Lincolnshire Farmers' Association manure. No. 5 shows the relative quantities that are delivered to members of the Lincolnshire Farmers' Association for the same value as the Kendal manures. The guaranteed percentage of the Association manure is 26 per cent., but with respectable contractors this percentage, as the analysis shows, is more likely to be exceeded than not. The quantity of phosphate manure distributed by the Association this season is about 2,250 tons, and the subscribed acreage nearly 70,000. Next season the contracts will probably be for 10,000 or 15,000 tons of manure.

NORTHAMPTON.

July 1.—The Northamptonshire Society is holding its annual meeting here in the midst of more favourable weather for visitors and the live stock than for the crops; for now that Wheat is in bloom, and Oats and Barley are in ear, these dull days and cold nights are affecting the yield of the harvest of 1869 at the rate of some tens of thousands of quarters for every four-and-twenty hours.

This show is better in its purely agricultural classes than in the horse classes. The hunters, roadsters, and hackneys are a remarkable falling off when compared with the collection at Oundle last year. The adoption there of the practice of horse jumping as part of the exhibition seems to have been already realised as a short-sighted policy; for, as we said a fortnight since, it cannot fail to shake the stability of any agricultural association, by lowering the hunter and hackney classes to a horse-dealer's and jockey's show and sale arena.

The cattle are a very good show. Fat stock are here placed first on the list. The Marquis of Exeter is placed 1st, and Mr. Roland Wood 2d in the 3-year-old class, and the latter 1st, and Mr. Pulver, of Broughton, 2d in the younger ox class. Mr. Wood's older ox is thick, heavy-fleshed, and well-fed, and his steer is small of bone and wanting in firmness. The cows are a very mean pair. Mr. Lynn, Stroxton, is 1st with a heifer as well fed as his fat animals usually are.

The breeding stock are principally Shorthorns. Mr. Paulett, Beeston, is 1st with his son of BREASTPLATE (19,357), an immense bull, with heavy flesh and a hardy blood-red colour. Mr. Lynn is 2d with a showy young animal. This class is open to all England, and CHARLES LE BEAU was entered, but, as it was expected he would be required for duties at Branches Park, he is not here. Mr. Rowland Wood is 1st in the next class, with his big 3-year-old LORD CHANCELLOR, and Mr. Adcock is 2d with a long and fine-fleshed strawberry 3-year-old. Mr. Lynn is again 1st in the under 12 and over 6 months' bull class.

The cows are a numerous and good show, with an exception or two from being beefy and over-fed. Lady Pigot takes the 1st with *Queen of Rosalea*, and Sir W. de Capel Brooke takes 2d with a cow by RABY (20,619). The younger cows are a very mean collection, and the heifers—excepting Colonel Lindsay's and the Duke of Buccleuch's—greatly over-fed. In the latter class two incidents occurred which are suggestive of a little severe critical notice. Mr. How's fat 1st prize 2-year-old had stuck up over her head—"Fed on Hope's Cattle Food!" Considering we have before us what are declared to be "breeding and store stock," that the credit should in any degree be put down to food seems to us absurd.

In the yearling heifer class, Mr. How is again 1st, with a fat and heavy-shouldered bull-breeding animal; and Mr. A. J. Robarts, of Lillingstone Dayrell, Bucks, is 1st in the calves with a very handsome one, but which is too fine in the bone to represent this large breed.

The production of Shorthorn steers is also here encouraged by the offer of a 5*l.* prize; but only two feeders responded to it, the Marquis of Exeter taking the premium. Special prizes are also offered by Lord Southampton, Earl Spencer, Lord Penrhyn, and Captain Oliver, for the best Shorthorn heifers belonging to a member of the Society residing in the county. These subscriptions are divided into prizes of 15*l.* and 5*l.* There were only four competitors, however, Mr. Beasley taking the former for a very handsome yearling, and Sir W. de Capel Brooke the 2d.

The classes for sheep are numerous, but the collection altogether is not great, 75 lots being divided into 14 classes. The ewes are a capital collection, of five pens of 10 each, but in reference to some of them the old question, "Where does the Leicester breed end and the Lincoln breed begin?" might have been appropriately put. Mr. Smith, of Quinton, takes the 1st, and Mr. West, Dallington, 2d. The nine pens of 10 shearlings are also an excellent collection. For long-woolled rams, of which there are 11, Mr. Lynn, of Stroxton, is 1st with a Lincoln, and Mr. Marshall 2d with one of the same breed. Mr. Lynn's sheep is of very fine character. In the Oxford Down class there were some fine brown-faced sheep, two in particular, both of which would, in form and character of coat, pass well for Shropshires. An odd family filled up two pens at the end of the sheep. There were two rams and several ewes and lambs. One ewe is 11 years old, and described as having bred five lambs in two seasons. These are horned something like the Dorset sheep, but they are covered with hair something in quality like that of a pointer dog, and it varies in hue from a whitey-brown to spotty, with black or dark brown colour. Of the origin of these sheep, all we can learn is, that they are of a "western" breed. But what can induce anyone to keep them it would be difficult to guess.

The pigs are but few, Messrs. Duckering & Son have an extraordinary 2 years and 4 months sow, the live weight of which is nearly 50 scores. In the breeding sow class, Mr. Lovel, the secretary to the society, has a sow with 12 most even and excellent pigs sucking her. The Society offers prizes for three fat pigs and one fat hog; for the former there was no entry, and for the latter only one, which was sent by Messrs. Duckering, and it may be described as a perfect pig for form and quality.

The Implement show is very large, every modern article, excepting traction engines and steam-cultivating apparatus, being on the ground. Nearly all the principal makers are either in the yard or they are represented by agents. Silver medals are awarded to Messrs. Mobbs, Snow & Wood, Northampton, for Messrs. Howard's reaping-machine; P. Love, Northampton, for his improved rotary sheep troughs; Marshall & Son, Gainsborough, for their combined threshing-machine; Messrs. Amies & Barford, Peterborough, for their combined straw elevator for horse and steam-power; Messrs. Amies & Barford, Peterborough, for their folding shaft for reaping and mowing machines; J. Cooch, Harleston, Northampton, for his corn-dressing machine; Richmond & Chandler, Salford, Manchester, for their improved chaff-cutting machine; Hayes & Son, Stamford and Peterborough, for their improved waggon with break blocks, and for their carts; Ball & Son, Rothwell and Northampton, for their general purpose waggon and cart; Messrs. Ashby & Jeffery, Stamford, for their haymaking machine.

Reviews.

Harvesting of Corn in Wet Weather. By Gilbert Murray. Bemrose & Sons, 21, Paternoster Row.

This is the "commended" essay of the Society of Arts, when 15 or 16 competed for the prize which was awarded to Mr. Gibbs of Gilwell Park. It is a very good essay on a subject just now of first-rate importance, and it will, we hope, be widely circulated and studied. Mr. Murray is known to us as an excellent agriculturist, and a good agricultural writer; and he has here collected notes of all the various adopted or suggested expedients for making the most of natural opportunities, or for overcoming natural difficulties in harvest work. The pamphlet is fully illustrated, and in many parts full of new and interesting matter. The following, for example, is an instructive account of the varying climates concerned in English harvest work:—

"The difference of climate between the north and south of our island necessitates a greater degree of care, and the adoption of many precautionary means by the north-country farmer, which are deemed quite unnecessary by his more fortunate brother of the South. Hence we find in bad harvests a greater amount of injured and sprouted corn in the South than is the case in the North, though in most seasons the harvests are earlier, consequently the days are longer in the former than the latter districts.

"Early cutting is a great advantage in a wet harvest,

as corn of all kinds stands the wet much better when cut before being fully ripe; this remark more fully applies to the Wheat crop. We find Wheat when dead ripe before cutting to sprout very soon when exposed to moist mild weather. Some varieties of Wheat likewise stand wet much better than others. The bearded kinds appear to us to throw off the rain better, and are less susceptible of the influences of muggy weather than the Chiddam and other fine qualities.

"We have remarked that in a wet season the corn sprouts much sooner in the midland counties of England, than it does in the county of Ayr, on the western coast of the Frith of Clyde and near the sea coast. This we attribute to two different causes, one of which is want of hood-sheaves, and an inferior system of setting up the stook; the other is a milder climate, and the great absence of wind to drive off the wet; the climate being remarkable for the stillness of the atmosphere. In many seasons, the farmers of the South suffer great losses from the want of using those precautionary measures which are strictly attended to in less favoured localities. We would strongly impress on the mind of the young farmer, in particular, the necessity of seeing that the sheaves do not exceed the size we have already named. In order more fully to explain and elucidate the different methods practised for securing the crops of the islands, it may not be deemed irrelevant to the subject to take a retrospective view of the differences of climate which the United Kingdom presents. As Wheat and Barley require for their successful cultivation a comparatively high summer temperature and a dry climate, these conditions are best fulfilled in those extensive plains which stretch eastward from the higher mountain ranges, running north and south through the island. Hence the best Wheat-growing districts are in the centre and east of the country, the eastern plain, the great central plain, the vale of the Severn, the plain of York, the Merse, Strathmore, and the shores of the Moray Frith. The best adapted in the west are Ayrshire, the shores of the Solway Frith, the Cheshire plain, and the shores of the Bristol Channel.

"Barley requires a climate similar to Wheat, except that its successful cultivation can be carried to a higher elevation, and on lighter soils. Investigations into the subject of climates become of vital importance to the British farmer, when we consider that the summer temperature even of the south of England is on an average only four degrees higher than the minimum summer heat required for the perfect maturing of the Wheat and Barley crops; while on an average Scotland is only two degrees above this critical point. Hence the disastrous effects of such cold summers as that of 1862, and the present one 1867, on the Wheat crops of Great Britain, which, we fear, this season will be the most unproductive that has been experienced for a long series of years."

Farm Memoranda.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.—Five years have elapsed since I had the pleasure of delivering several courses of lectures to intelligent and most attentive audiences at Cirencester, and took a deep interest in the organisation and discipline of the College. Since then my mind has been fully occupied with the agricultural schools of the Board of Education; and I accepted with pleasure an invitation from the principal of Cirencester to examine this sessions' candidates for the diploma.

I arrived here this day at 2 o'clock, and from three till seven have been engaged examining two of the candidates for the College degree, and will resume the work to-morrow.

The drive was most agreeable. The crops are above an average throughout Gloucester. The clean and thriving town of Cirencester presents a most suggestive contrast to towns of the same size in Ireland. Everywhere there are signs of prosperity, contentment, and happiness. There are no manufactures; the wealth of the town is, therefore, drawn from the surrounding agricultural classes. Probably the College has in some degree contributed to the prosperity of which there are so many unmistakeable evidences; but its influence must be small, and Cirencester, which is in the heart of a county of rich farmers, would be a good town if the Agricultural College had never been established.

The College stands on a farm of upwards of 500 acres, adjoining the park of Lord Bathurst, one of the finest in England. The College is about a mile from Cirencester, which places it within easy distance of the non-resident students who lodge in the town and attend the lectures with the students who reside on the farm.

The College, like similar institutions elsewhere, has had a checkered career. The idea of establishing it originated some 20 years ago with a number of tenant-farmers with advanced ideas, who conceived that it was most desirable to afford the farmer an opportunity of acquiring a knowledge of the principles of his art. A committee was formed, funds liberally subscribed, a handsome pile of buildings erected, a large farm equipped, and a staff appointed. Mr. Wilson, now Professor of Agriculture in the University of Edinburgh, was the second principal. To keep the educational advantages of the College within the reach of the tenant-farmer the premium was fixed at 30*l.* a year. We should expect that all the conditions for success existed. England, the land of large and affluent farmers, would, it was to be expected, support half-a-dozen colleges of this character. But, be the cause what it may, this first experiment utterly failed. The farm did not pay, the committee got heavily into debt, and the College would long since have been closed were it not for the public spirit of a few of the subscribers, prominently among whom must be mentioned Mr. Holland, M.P., who came to the rescue, undertook the responsibility of a large debt, and started the College under new management.

On the death of the late principal, the Rev. Mr Heygarth, the Council appointed as his successor the present principal, the Rev. John Constable, A.M., who has laboured most indefatigably to advance the general interests of the College. Soon after his appointment he was unfortunate in losing the services of a well-trained band of Professors, including Dr. Voelcker, Mr. Brown, V.S., and Professors Coleman and Buckman.

Mr. Constable has gathered round him a new staff of intelligent and zealous Professors, some of whom have already become favourably known to the agricultural public.

The number of students has of late years steadily increased, and is now 75, of whom 65 are residents, who pay a pension of 100*l.* a year each for "studies" (as they are called) and 125*l.* for private rooms. The non-residents pay 40*l.* for the privilege of attending lectures.

When, in addition to this premium, we take into account the expenses incidental to the position of students of an institution of this kind, we see at once that the mass of rent-paying farmers cannot afford to give their sons so expensive an education. The students are now composed chiefly of the sons of country gentry, extensive land agents, wealthy merchants, and others who elect to become gentlemen-farmers or land agents.

The course of instruction is very comprehensive, embracing lectures on mechanics and land surveying by the principal; chemistry, by Professor Church; natural history, by Professor Dyer; veterinary science, by Professor M'Bride; geology, by Professor Morris; agriculture, by Professor Wrightson.

There is a museum, well stocked with a choice collection of minerals, anatomical preparations, dried plants, &c. The students are called upon to work in the laboratory for several hours daily, by which, if diligent, they become competent to analyse soils, manures, and feeding stuffs.

Instruction in practical agriculture is afforded by Professor Wrightson on the College farm, and occasionally the best managed farms in the district are visited and carefully inspected. The Shorthorns of Mr. Bowley, of Siddington, are within three miles of the College. Those of Styles Rich, and others are easily accessible. The Cotswold flocks of Mr. Lane and the Oxford Downs of Mr. Hobbs are also within easy reach; and so are several large and admirably managed farms, such as those of Mr. Edmund Ruck, one of the pioneers of steam cultivation.

Formerly the College farm was managed by the professor of agriculture for the council; but finding the balance generally, if not invariably, on the wrong side at the end of the year, they decided on letting the farm to a tenant (who was educated at the College), and who, for a fee of 2*l.* a head, permits the students to go over it as often as they or the authorities think fit. By this arrangement the council is secured against pecuniary loss on the farm, and the College free from the disgrace which loss on the College farm would inevitably bring on its management. Assuming that the farm gets into a highly efficient state under this management, it is, perhaps, the most prudent that could be made under existing circumstances; that it is the best in the abstract may, however, be well doubted.

I have now given a veay meagre outline of the present organization of the College, the tone and discipline of which are admirable. The principal combines in his character the firmness and mildness which are so essential for the government of such an institution.

That the College must exercise a beneficial influence on the future of British agriculture does not admit of any doubt. Every diligent student who becomes a farmer or land-agent must be a centre of enlightened views. Many of the former students are now leading agriculturists. Men like Jacob Wilson promote agricultural progress by the force of example shown on their farms, as well as by intercourse with the general body of farmers. Multiply such examples, and the loss and disgrace from the present prevalent defects in English agriculture would soon disappear.

I am happy to be able to say that the College is progressing, as is evinced by the circumstance that the number of students has steadily increased, notwithstanding that the premium was recently increased by 10*l.* a-year. It is not only paying its way, but giving interest on the money invested in it by the present council.

The agricultural interest is largely indebted to the council for their public spirit. They deserve a more hearty measure of sympathy and support than has been hitherto accorded to them. The Royal Agricultural Society and the landed interest of England should espouse the cause of the College, and make it what it is capable of being made—the first agricultural college in the world. *Cirencester, Wednesday Evening, June* 16. [Mr. Baldwin, Superintendent of the Agricultural Department of the Irish National Board of Education in the *Irish Farmers' Gazette.*]

BANFFSHIRE, RETTIE.—Mr. Longman, in November last, entered on a new lease of the extensive farm of Rettie, where he has for many years maintained his fine herd of Shorthorns. A patch of 30 imperial acres of waste land, formerly under wood, at the north-west extremity of the farm, was included in the new lease, and five years allowed to Mr. Longmore to bring it under cultivation. That spirit of enterprise which, for nearly half a century, Mr. Longmore has exhibited in all his undertakings as an agriculturist, prevented him from taking advantage of the delay allowed for completing the improvement. The very day on which the new lease was signed an invitation was written to contractors to trench and clear the ground of stones In little more than 10 days the reclamation of a most difficult subject was commenced, and within five months had been carried so far towards completion as to be mostly already under crop. An improvement of such extent and difficulty in so short a period has seldom, if ever, been accomplished in this county, and is certainly unparalleled on the extensive domains of the Earl of Seafield. Mr. George Still, Turiff, contracted for the trenching of the ground and loosening of the stones, with which it abounded, at the rate of 13*l.* 10*s.* per acre. The trenching was done to the depth of 22 inches, the stones being left loose on the surface. The greater part of the soil is a strong clay, with open bottom. In some spots where the surface was covered with black mould, a hard pan was formed underneath, but when broken up revealed a fine, open sandy subsoil. A great difficulty which the contractor had to contend with, however, was the unusual number and size of the boulders. Chains of immense boulders of bluestone run obliquely across the field from south-west to north-east, the intervening spaces having a thick sprinkling of smaller stones. In the belts of boulders, some of the stones were six yards square, and had to be bored and blasted with gunpowder; while very few of them could be removed without being broken up. The manner of splitting them is simple and efficacious. The stone is raised sufficiently to allow the air to circulate underneath it, when a peat fire is placed on the top, and in the course of an hour the block splits up in two or more places. The removal of the stones from the ground and the building of a wall round two sides of the field was accomplished by labourers employed by the day. The work not being quite completed yet, the cost of these operations has not been exactly ascertained. The wall is about a mile in length, is 5 feet high, and tapers from an average of 4 feet broad at the foundation to about 2½ feet broad at the top. It may help to convey an idea of the quantity of stones removed from the field when we state that less than three-fourths of the quantity is sufficient material for the building of a mile of wall of the dimensions mentioned. On the day when the stones were entirely removed from 15 acres of the field, the harrows passed over the surface to loosen it for the reception of seed. On the following day Oats were sown, and followed by a liberal dressing of guano. From the remaining 5 acres the stones would have been removed at once, had there been any use to which they could be put, but as they must be taken to a distance, their removal will be accomplished at leisure during the summer. In the autumn, after the harvesting of the corn crop, the whole field will be thoroughly drained. There being a fall from the centre to both sides, the water will be carried in the one direction to the steading, and in the other to the threshing mill. The field will be drained with 2-inch pipes, placed at a depth of 3½ to 4 feet, and at distances apart of about 30 feet. It is calculated that the cost of reclaiming these 20 acres of land will not fall short of 600*l.* The undertaking, however, was, as we have indicated, exceptionally difficult, and proved much more so than was anticipated. Its speedy accomplishment, while creditable to Mr. Longmore, assumes a public importance when viewed as a permanent addition to the productive resources of the country. Another feature which has marked this undertaking, and one which we may note Mr. Longmore had in view when he entered upon it so late in the season, is the employment it afforded to labouring men during an otherwise dull winter. Forty workmen were employed from the beginning of November to the 1st of May in trenching the field, and it is worthy of notice that a number of these gladly walked to and from their homes in Macduff each morning and evening to the work thus provided for them. *Banff Journal.*

The Poultry Yard.

BRAN AS FOOD FOR FOWLS.—Wheat bran contains a large amount of nutritious matter, and those who have simply examined the analysis of good samples of bran have praised it highly as an article of food for most animals. It contains 14 per cent. of flesh-forming material, nearly 4 per cent. of fat or oil, and over 5 per cent of mineral matter. In all these it is richer than the pure Wheat itself. But, unfortunately, bran forms a striking example of the fact that the mere analysis of the chemist, unaccompanied with any explanations, cannot give us a correct knowledge of the nutritive value of a given article of food. All the essential nutritive matters are present in bran, but unfortunately they are so locked up, that to most animals they are of little avail. The dog derives but little nutriment from bran. Fed on Wheat bran, first washed to remove the flour, and then cooked, he falls away rapidly in flesh, and the bran passes through him almost unaltered. The cow, if fed on warm slop made of bran, increases in her flow of milk, and thrives better. But here the benefit derived is largely due to the warm drink and the flour which adheres to all bran. The bran itself can be washed out of her excrements almost unaltered. The same is true of the pig. Careful examination has fully convinced us of these facts. But there is one animal that seems to have the power of utilising even bran. That is the chicken. Its powerful digestive organs reduce it to a form in which it is no longer recognisable, and we have every reason for believing that during this process much of the nutritious matter present is appropriated. In preparing bran as food for fowls, the best plan is to make it into a stiff mash or porridge, as otherwise the fowls cannot readily pick it up. And for the purpose of making it more tenacious we generally add a little corn or Buckwheat meal, and boil the whole thoroughly together. So prepared, the bran can be fed without material waste. When so fed,

the birds require abundance of good sharp gravel. But we feel perfectly confident in saying, from our own experience, that it will pay well to cook bran and corn meal as a food for fowls. *Houdan, in "Albany Cultivator."*

SETTING BRAHMA HENS.—My plan of setting is to have a room not accessible by the laying hens. In this room I arrange a row of boxes 12 in. high and 11 in. square, in which I form a nest by first placing paper over the bottom and put sifted coal ashes on the paper, giving the dishing form and about 1 inch thick; on the ashes I put about an inch thick of straw or hay—on this place the eggs. At twilight in the evening I take the hens desirous to sit, and handling them gently place them on the nests; by morning if they remain on they will stick; and those I have set so far have done their duty. I set not less than two, or all I wish, at one time when I can, so that in hatching I may place at least 15 to 20 chicks under one hen; the other hens I shut up in a coop for a week, by which time they will forget to cluck, and soon commence laying. I find the Brahma a superior mother, and in no instance have they broken the eggs while setting. I allow the chicks to remain 24 to 36 hours under the hen after hatching, and they hatch in 21 days from the time of setting. I always feed the young chicks with cornmeal mixed with boiling water, stirring in a little salt, sufficient to taste it slightly, and mine have not been sick or troubled with pip; last year I lost none until six weeks old, when 1 out of 103 died of disease. My coops for hen and chicks are 20 by 36 inches, tight all round but the front, which is open and covered with lath close enough to keep in the hen. The coops are stationary—12 in one row—standing on the ground with 4 inches of coal ashes for the floor, facing the south-east, and enclosed by a yard 18 by 20 feet square, and pickets 7 feet high to keep off cats and vermin, and placed ¾ inch apart to keep out rats, with a base board 12 inches wide, 6 inches of which is in the ground. The ground is dry, and so arranged that in rainy weather the water runs off freely. When necessary, the flooring of ashes is renewed. Wood ashes are equally good. My setting-room and laying and roosting rooms are covered with wood and coal-ashes 6 inches deep, which I remove to the garden when necessary, and replace with fresh ashes. Connected with the setting-room is a small yard, into which the setters can go to stretch and dust themselves. I find the Brahma chicks very hardy. *Albany Cultivator.*

Calendar of Operations.

JULY.—*Haymaking* in early seasons in the southern counties of England is sometimes finished in June, but it as often extends into the current month; while, in the north, the work is seldom over before August is well through. Generally speaking, therefore, the bulk of the hay crop is secured in July. Town sewage irrigation, farm sewage irrigation, and the other modern plans of liquid-manuring grass-land are, however, affording or producing many exceptions to this old rule: for several green forage cuttings for soiling are taken, so as to place the cutting for the hay crop immediately before or after corn harvest, according as the weather in the district is the best suited for the operation; or two hay crops may be taken, one before corn harvest and another after it, where there is a full command of town or farm sewage.

Common Turnips are extensively sown during this month in the southern counties, very generally after Vetches, Rye, failing Clover, Italian Rye-grass or other forage crops; and, in a few instances, after old pastures or meadow lands that have been burned The fallowing of land after Vetches, &c., so as to prepare it for Turnip sowing will depend upon the state the land is in. If clean, a single ploughing with a skim-coulter and a weighted chain for turning down the stubble into the bottom of the furrow, and well turning up the furrow slice over this, with the necessary harrowing and rolling required, may complete the work: that is, assuming that the seed is to be drilled in on the flat along with artificial manure, either in a liquid or dry form. In dry weather the liquid-manure drill is to be preferred. If the land is clean, and to be manured with farmyard or town manure, it may be skim-ploughed, leaving the stubble on the surface. The manure may then be spread and ploughed in along with the stubble; or a scarifier may precede the plough, if the nature of the land so requires. If, on the other hand, the land is full of Couch and other weeds, "ribbing," or "rafter ploughing," or close ploughing and scarifying, &c., may be the practice. In dry weather one thing has specially to be attended to, viz., to keep the natural moisture in the ground, otherwise it will be difficult to get an equal braird without a plentiful supply of liquid manure. And, besides, in the process of keeping the moisture in the ground the furrow slice is easily broken down; while, if the newly-turned furrow be not at once harrowed and rolled at this season, but allowed to lie and bake in the sun, more work and less certainty of a plant will ensue. Practically speaking, keep the harrowing and rolling close up to the ploughing, and if the soil can be thus reduced to a suitable condition, then keep the seed-drill close up to the harrows.

Turnips should be horse-hoed as soon as possible, and singled as soon as they will permit the free use of the hand-hoe. No greater mistake can be made than to fall behind in the hoeing of this crop, as the plants not only blanch, but draw each other out of the soil. In the north, sowing being earlier, hoeing is earlier too, so that the second hoeing is very generally over before the beginning of this month; but in late seasons and districts the work will probably not be finished before the middle of July. As soon as the bulbs begin to form, and the leaves to rise off the ground the double mouldboard-plough follows the horse-hoe, the latter being a day or so in advance of the former.

Mangels, Swedes, and Kohl Rabi will generally require to be gone through a second time with the horse and hand-hoe. In the north few Mangels are grown, and the hoeing of Swedes and Kohl Rabi is generally finished towards the close of the preceding month.

Cabbages planted last month will require horse and hand-hoeing during the current one. The practical rule is to hand-hoe and loosen the earth about the plants as soon as they have fairly started growing, the loose earth being drawn gently up to them. This practice applies also to those grown from the seed—a practice, however, which is seldom advisable. Those planted in April and May, and hoed last month, will generally require going through a second time during this.

Parsnips, Carrots, and Sugar-Beet, and Chicory also, when grown for its roots, should be horse and hand-hoed, the loose earth being kept well up to the roots, care being taken at the same time not to injure them with the sharp corners of the hoe. All these crops luxuriate in a finely pulverized and freely aërated soil, so that frequent hoeing, when the land is sufficiently dry for the operation, is greatly in their favour. On the contrary, hoeing in wet weather does harm. When the land is too wet for hoeing, weeds may be kept down with the paring plough, the small ridglets formed in the middle being split with the double mouldboard-plough, if the land continues too wet for the drill harrow. But in such cases, as soon as the weather breaks up, give the land a thorough loosening with the horse and hand-hoes, to let in heat, fresh air, and night dews.

Lucerne, Sainfoin, and *Lupine,* when grown in drills as forage plants, require to be gone through after every cutting, and all weeds either hoed or pulled out by the hand. The heavy rains which generally fall about the close of June or the beginning of this month, are very liable to raise up weeds, and as the successful growth of these crops depends much upon their being kept clean, every drill should be carefully gone over.

Rape or Cole Seed is sown this month for consumption in autumn, from two to four quarts of seed per acre being used, according to the state of the land and weather at the time of sowing. The crop succeeds well after paring and burning, especially on fen or peat soils, on which it answers better than Turnips both for feeding and fattening sheep and neat cattle. For the former it is consumed on the land as Tares are; for the latter, mown with a scythe and carted to the homestead or cattle yard. Manure and sow as for Turnips. Where Turnips sown last month fail, many farmers prefer sowing Cole seed to the risk of sowing Turnips a second time. Cole seed sown towards the latter end of June will require a rough hoeing as directed last month; and blanks, if any, may be filled up by transplanting in moist weather.

Rape which was sown towards the close of April or in the beginning of May, will be ready, if it has done well, for feeding off with sheep: so will Vetches sown in early spring. At this season the folding of sheep on such feed is seldom attended with much difficulty in dry weather. Fresh plots should be folded and fed off daily, so as to eat up the Rape or Vetches clean; but sheep folded on fallows over night should not be turned on to fresh Rape hungry. So also when heavy rains fall, it is often advisable to shift the sheep into grass-land until the weather breaks up. Vetches in such a season form rather a washy diet for fattening sheep; so is Rape, and the same may be said of Clover. It is therefore common to mow such crops a day or some hours before they are given to sheep, and then to feed in low troughs or racks, the sheep, as they advance upon fresh ground, picking up any stubble left better and cleaner than they do when turned in upon the standing crop. But when much cake or corn is consumed along with the Tares or Rape, they may be given shortly after they are mown, and when the green forage does not contain a sufficiency of sap to supply the flock with moisture, water should be supplied in troughs; for although sheep do not require much water to drink, they suffer greatly in the summer time when short of the small quantity they do need. In feeding off Rape, Vetches, Clover, or Lupine, a sufficient breadth is taken in so as to spread the sheep rather thinly over the advancing strip of fresh ground, so as to prevent crowding and trampling; and the troughs for cake, corn, salt and water, should for a similar reason be equally placed along the whole line, and at a suitable distance back in the rear, so as to obviate crossing and trampling the fresh stubble or forage folded on. Sheep thus fed often suffer much for the want of shade in bright summer weather, and straw hurdles should be provided for them to lie under.

Green manuring is perhaps less practised now than it was prior to the introduction and use of artificial manures. Most green crops ploughed into the land, as Rye, Vetches, Buckwheat, Rape, are more profitably fed off by sheep, or otherwise consumed by live stock. But occasionally exceptions occur where green manuring is successfully carried out; and sowing one or more of these plants on heavy land this month, for ploughing in for Wheat, is a cheap and effective practice for increasing the yield. *W. B.*

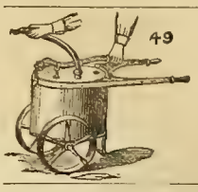
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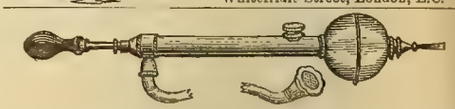


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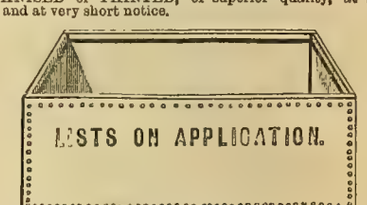


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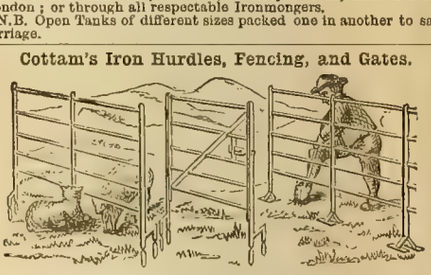


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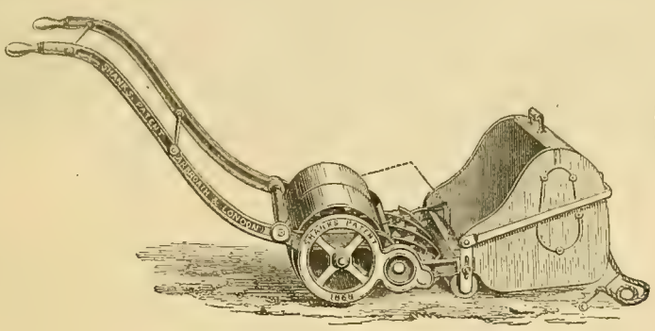
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FOR FURTHER PARTICULARS, APPLY TO THE PATENTEE,

MR. W. E. RENDLE, 68, WELBECK STREET, CAVENDISH SQUARE, LONDON, W.

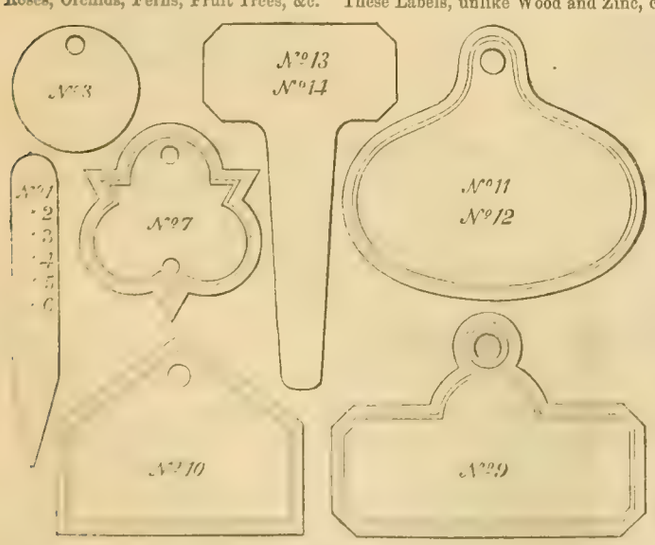
Specimens of all the Protectors will be exhibited at the Great Exhibition of the Royal Horticultural Society, at Manchester, on Monday, July 29, and following days.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

TO MEET A WANT WHICH HAS BEEN LONG FELT BY THE HORTICULTURAL PUBLIC,

MAW & CO.'S PATENT IMPERISHABLE TERRA-COTTA PLANT MARKERS.

Are offered as a cheap and permanent substitute for WOODEN and ZINC TALLIES for the Labelling of Plants in Pots, and in the Open Border, and for suspending to Roses, Orchids, Ferns, Fruit Trees, &c. These Labels, unlike Wood and Zinc, combine perfect durability with a lasting legible inscription, and form an elegant adjunct to the Garden and Conservatory for the naming of Horticultural and Botanical Collections. They are also invaluable for the labelling of Wine Cellars and for general use in situations where other materials are perishable by damp.



Commended by the Editors of the *Gardeners' Chronicle*, and the Floral Committee of the Royal Horticultural Society. (See *Gardeners' Chronicle*, July 11, 1868.)

Can be procured from the Manufactory, or through any Nurseryman, Seedsman, or Ironmonger.

Specimens sent Post Free on application.

No. 1	3½ by ½ inch.	No. 8	1½ inch diam.
No. 2	4½ „ ⅝ „	No. 9	3½ by 2¼ inches.
No. 3	5½ „ ¾ „	No. 10	2¾ „ 2¼ „
No. 4	6 „ ⅞ „	No. 11	3½ „ 3 „
No. 5	7 „ ⅞ „	No. 12	5 „ 4½ „
No. 6	8 „ 1 „	No. 13	2 „ 4 „
No. 7	2¾ „ 2 „	No. 14	3 „ 5 „

Can be seen in use at the Royal Gardens, Kew; the Gardens of the Royal Horticultural and Royal Botanic Societies, Battersea Park, the Royal Botanic Garden, at Edinburgh; and Botanic Gardens, Glasnevin, near Dublin, &c.

Directions for Writing on the Labels with Black-lead Pencil.—Apply a little white-lead paint thinly over the part to be written upon, and *whilst wet*, write with a hard fine-pointed black-lead pencil. The writing will be perfectly indelible and unaffected by wet immediately the paint is set.

Black Enamel Writing on the Labels.—All the above sizes can be supplied in several colours, ready written upon, with black enamel, having the appearance of jet black ink, but perfectly permanent. On receipt of Lists of Names, Estimates of Cost will be sent for any quantities of Pot or Border Labels, Suspending Labels for Orchids, Roses, Ferns, Fruit Trees, &c. Consecutive Sets of Numerals printed on the Labels, and Labels for Wine Bins, ready written with Enamel, kept in stock.

MAW & CO.'S ENCAUSTIC TILE and GEOMETRICAL MOSAIC PAVEMENTS and WALL LININGS

FOR CONSERVATORIES, GREENHOUSES, ENTRANCE HALLS, VERANDAHS, DAIRIES, &c.

Printed Patterns of various Designs suitable for the above will be forwarded on application, and Drawings, free of charge, of any of the Designs adapted to the given dimensions of spaces proposed to be Paved, will be supplied, accompanied by estimates of cost, including the expense of laying or otherwise. Applications for Estimates should be accompanied by an exact plan of the space drawn to scale, with all the dimensions marked in figures, and care should be taken that the size and position of all door-entrances and recesses that have to be paved are correctly represented; and when the walls are not exactly parallel, the measurements between the *opposite* angles, as well as along each wall, should be given.

WHITE GLAZED TILES for DAIRIES, &c.

Address—MAW AND CO., BENTHALL WORKS, BROSELEY, SALOP.

The Telegraph and Railway Station at Ironbridge, on the Severn Valley (Great Western) line is within three minutes' walk of the Works.

Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the Corporate Mark, OBTAIN WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make all of which are warranted both by Sellers and Makers.

S. & C.'S PRUNING and BUDDING KNIVES are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

Horticultural Glass Warehouse.

THOMAS MILLINGTON AND CO., 87, Bishopsgate Street Without, London, E.C.

NEW LIST for ORCHARD-HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD-HOUSE SIZES.

in.	in.	Pts.	3rds.	2nds.	Best
20 by 12					
20 by 13		15 oz.	12s 3d	15s 0d	18s 0d
20 by 14	Per 100 feet				
20 by 15		21 oz.	18s 0d	20s 0d	24s 0d
20 by 16					

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7				11s 3d	12s 6d	14s 0d	15s 6d
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½							

Per 100 feet.

10 by 8	12 by 9	14 by 10½	14½ by 10½						
10½ by 8½	12½ by 9½	13 by 10	15 by 10				11s 9d	14s 9d	15s 3d	17s 0d
11 by 9	13 by 9	13½ by 10½	13 by 11							
11½ by 9½	12 by 10	14 by 10	14 by 11							

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	1ths.	3ds.	2nds.	Best.
15½ by 10½	14 by 12	22 by 12	22 by 13							
16 by 10	14½ by 12½	17 by 13	24 by 16							
14½ by 11½	15 by 12	23½ by 14	20 by 17							
15 by 11	15½ by 12½	18 by 14	22 by 17				12s 3d	15s 0d	16s 9d	18s 0d
15½ by 11½	16 by 12	22 by 14	21 by 17							
16 by 11	16½ by 12½	24 by 14	20 by 18							
21 by 11	17 by 12	22 by 15	22 by 18							
13 by 12	18 by 12	24 by 15	24 by 18							

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.

In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	31s.	4ths quality, per 200 feet case,	34s.
3ds " "	40s.	3ds " "	40s
2ds " "	60s.	2ds " "	60s.
Best " "	75s.	Best " "	75s.

SHEET GLASS is made only in the following substances, 15 oz. 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.

HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.

BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.

STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a-half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.

IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4s. per gallon.

	Per cwt.—s. d.		Per gallon.—s. d.
GENUINE WHITE LEAD	30 0	LINSEED OIL	2 9
SECONDS WHITE LEAD	28 0	BOILED OIL	3 2
GROUND PATENT DRYERS, 3d. to 4½d. per lb.		TURPENTINE	2 9
" OXFORD OCHRE, 3d. to 4½d. per lb.		LINSEED OIL PUTTY, 8s. per cwt.	
" RAW UMBER, 4½d. to 6d. per lb. [per lb.		Fine OAK VARNISH, 10s. to 12	0
" BURNT do., 6d. to 9d.		" CARRIAGE do., 12s. to 14	0
GREEN PAINT, all shades,		" PAPER do. 10s. to 12	0
28s. to 60	0	COPAL	16 0
BLACK PAINT, 24s. to 36	0	KNOTTING	10 0
RED PAINT .. 28s. to 36	0	Patent GOLD SIZE ..	10 0
		" BLACK JAPAN ..	12 0
		GLAZIER'S DIAMONDS and TOOLS	
GROUND BRUSHES, DUSTERS, SASH TOOLS. DISTEMPER BRUSHES.		MILLED LEAD and PIPES OLD LEAD Bought or taken in exchange.	

The above are Net, for Cash, and as such cannot be booked. Lists of any of the above on application.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their REDUCED PRICES as follows:—

PROPAGATING GLASSES.



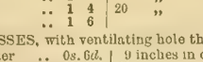
	Each.—s. d.		Each.—s. d.
2 inches in diameter ..	0 3½	12 inches in diameter ..	1 0
3 " " ..	0 4½	13 " " ..	2 0
4 " " ..	0 5½	14 " " ..	2 6
5 " " ..	0 6½	15 " " ..	3 0
6 " " ..	0 8	16 " " ..	3 6
7 " " ..	0 10	17 " " ..	4 0
8 " " ..	1 0	18 " " ..	5 0
9 " " ..	1 2	19 " " ..	6 0
10 " " ..	1 4	20 " " ..	7 0
11 " " ..	1 6		

BEE GLASSES, with ventilating hole through knob.

4inches in diameter ..	0s. 6d.	9 inches in diameter ..	1s. 8d.
5 " " ..	0 8	10 " " ..	2 0
6 " " ..	0 10	11 " " ..	2 6
7 " " ..	1 1	12 " " ..	3 0
8 " " ..	1 4		

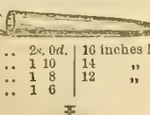
Either flat or conical tops.

CUCUMBER GLASSES.



24 inches long ..	2s. 0d.	16 inches long ..	1s. 4d.
22 " ..	1 10	14 " ..	1 2
20 " ..	1 8	12 " ..	2 6
18 " ..	1 6		

HAND GLASSES, WITH OPEN TOPS.



	Each.—s. d.		Each.—s. d.
12 inches	6 6	18 inches	9 6
14 "	7 6	20 "	10 6
16 "	8 6	22 "	11 6
		24 "	12 6

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS. PAINTS of various colours ground ready for use.

SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of Prices and Estimates forwarded on application to

JAS. PHILLIPS AND CO., 180, Bishopsgate Street Without, E.C.

THE B B NEW PATENT LAWN MOWER.—The Manufacturers find it necessary to inform the Public that there was no Trial of Lawn Mowers at the Paris Exhibition, and the award to one Machine was the award of an individual Juror only, in the absence of his colleagues, without practically testing the competing Machines.

"Double-edged Sole-plates," or "Wind Guards," or "Reversible Cutters," may be supplied with the B B Mowers in any case where these are considered to be an advantage, and not a drawback or complication to the Machine.

The B B Mowers perform their work in the most perfect manner, and are well known to be the best finished and most durable Mowing Machines.

J. B. BROWN AND CO., 90, Cannon Street, London, E.C.

FOR SALE, an 8-Horse Power PORTABLE ENGINE and THRESHING MACHINE, by Clayton & Shuttleworth, in thorough good repair. Price moderate. Will be Sold together or separately.

Apply to BROOKS AND SHOOBRIDGE, Engineers, Guildford.

Vases and Fountains, for the Garden and Conservatory.



ANDREW HANDYSIDE AND CO., Britannia Foundry, Derby. | 32, Walbrook, London.

The Britannia Iron Works have for the last 40 years been well known for the production of fine Iron Castings. The use of Cast-iron permits a delicacy of outline, and smoothness of surface, impossible in cheap Stone or Terra-cotta. Cast-iron Vases, if occasionally painted, are imperishable, and will not crack when exposed to wet or frosty weather.



Lithographed Sheets of Designs and Price Lists post free on application.

A. H. & Co. make the better kind of IRON and GLASS CONSERVATORIES, and have constructed some of the largest and finest in the kingdom.

Dry and Warm Feet.

PATENT MOULDED INDIA RUBBER CLUMPS for BOOTS and SHOES.—A new invention, unsurpassed for durability, economy, and comfort. These Clumps wear twice as long as Leather, are impervious to Damp, not affected by Heat or Cold, and any handy man can easily attach them. Full printed instructions are sent with the Clumps.

Price per Pair, Round or Square Toes.

Men's and Boy's sizes:—

No. 1.	2	3	3*	4	5	6	7	8
2s.	1s. 9d.	1s. 7d.	1s. 6d.	1s. 3d.	1s. 2d.	1s.	9d.	8d.

Extra sizes:—

No. 0.	00	XX
2s. 6d.	2s. 2d.	1s. 10d. per pair.

Women's and Children's Sizes:—

No. 11.	12	13	14	15	16
1s. 3d.	1s.	10d.	9d.	8d.	7d. per pair.

To ensure a fit, a Paper Pattern, giving exact size of Bottom of Boots, should be sent with order.

JAMES LYNE HANCOCK, Vulcanised India-Rubber Works, 206, Goswell Road, London, E.C.

WHITE and SOUND TEETH are indispensable to personal attraction, and to health and longevity, by the proper mastication of food. ROWLANDS' ODONTO, or PEARL DENTIFRICE, is of inestimable value in Preserving and Beautifying the Teeth, Strengthening the Gums, and in giving a pleasing fragrance to the Breath. It eradicates Tartar and Spots of Incipient Decay, and polishes and preserves the Enamel, to which it imparts a pearl-like whiteness. Price 2s. 9d. per Box. Sold by Chemists and Perfumers. Ask for Rowlands Odonto.

WHEN the HAIR, through weakness, begins to fall off, or turn grey, no preparation will sooner arrest the progress of these evils, restore the ORIGINAL COLOUR, and produce a healthy and luxuriant growth, than Mrs. S. A. ALLEN'S WORLD'S HAIR RESTORER. It is simple in its application, requiring no previous preparation of the hair; its perfume is agreeable, and no pomade or hair oil is required with it. In large bottles, 6s., of chemists and perfumers.

Depot, 266, High Holborn, London

CORNS and BUNIONS.—A Gentleman, many years tormented with Corns, will be happy to afford others the information by which he obtained their complete removal in a short period, without pain or any inconvenience.—Forward address on a tamped envelop to F. KINGSTON, Esq., Ware, Herts.

The Best Remedy for Indigestion.

NORTON'S CAMOMILE PILLS are confidently recommended as a simple but certain remedy for indigestion. They act as a powerful Tonic and general Aperient; are mild in their operation; safe under any circumstances; and thousands of persons can now bear testimony to the benefits to be derived from their use. Sold in bottles at 1s. 1½d., 2s. 9d., and 11s. each, in every town in the Kingdom. CAUTION.—Be sure to ask for "NORTON'S PILLS," and do not be persuaded to purchase the various imitations.

TO BE LET, the ROYAL NURSERIES, Great Yarmouth.—The above desirable Nurseries, which have been established upwards of 60 years, and where a lucrative Business has been done, and have been celebrated for the culture of Gladioli, Carnations, &c., are TO BE LET. The Glass consists of 16 Houses and Frames, as follows:—Cutting House, Heath House, Hard-wood House, Soft-wood House, and Long Frame, heated with water; and some very useful Pits, many nearly new.

The Nurseries are within a few minutes of the Steamers and two Railway Stations. There is a good Water supply. The whole will be put in thorough order, and are offered at a very moderate rent. This is an opportunity for an energetic Man seldom to be met with.

Apply to J. T. BUSTON, North Quay, Great Yarmouth.

To Florists and Others.

TO BE DISPOSED OF, the LEASE and STOCK in TRADE of a FLORIST and NURSERYMAN at Isleworth. Ten years unexpired.—Apply, "Duke of Cornwall," Isleworth, W.

TO BE LET, a First-rate small NURSERY and SEED BUSINESS, a first-rate TEA and PLEASURE GARDEN, a first-rate STOCK of FRUIT and VEGETABLES, a FLOWER GARDEN, profusely Decorated, with every Accommodation.

For particulars, apply to Mr. CHARLES HUNT, Post Office, Loughton, Essex.

Whittington Nursery, Highgate Hill

(Four miles from London Markets).

TO BE SOLD, STOCK, LEASE, and GOOD-WILL of this valuable NURSERY, comprising 2¾ Acres of Ground, with Dwelling-house, Seed Shop, Greenhouses, Frames, and Outbuildings. Term of Lease, 11 years. For full particulars apply to McGREGOR AND MIDDLEMISS, on the Premises.

East Kent.

FOR SALE, a Valuable FREEHOLD, comprising a good Farmhouse and other Buildings, with good Garden and Shrubbery, and about 11a Acres of Land, Arable and Pasture, adjacent to a Market Town and Seaport on the South-Eastern Railway. The Land is the most productive in the county, and is occupied by a most respectable Tenant.

For full particulars apply to Messrs. FRASER, GOOD, and RATFORD, 82, Bishopsgate Street Within, E.C.

Sales by Auction.

Shacklewell.

HIGHLY IMPORTANT to FLORISTS, or to PERSONS DESIROUS of MAKING a GOOD and SAFE INVESTMENT.

MESSRS. PROTHEROE AND MORRIS will offer by PUBLIC AUCTION, at Garraway's Coffee House, on THURSDAY, July 8, at 12 for 1 o'Clock, a valuable LEASEHOLD ESTATE, comprising Four Brick-built Dwelling Houses, known as Nos. 3, 4, 5, and 6, Norfolk Terrace, Norfolk Place, Shacklewell, one in occupation, and the others let to respectable tenants, producing together £104 or thereabouts per annum, less Property Tax; also the NORFOLK NURSERY, adjacent, consisting of about 1a. 1r. 30p., with the whole of the extensive ranges of Greenhouses, Pits, Stabling, Sheds, &c. The two Leases were granted from Lady Day, 1865, for a term of 21 years, at the low Ground Rent of £100 per annum, and will be offered together with the aforesaid in One Lot. A portion of the Purchase Money may remain on Contract. May be Viewed prior to the Sale.

Particulars had on the Premises, of Messrs. MILLS AND LOCKYER, Solicitors, 2, Brunswick Place, City Road, London, E.C.; and of the Auctioneers, Valuers, and Estate Agents, Leytonstone, N.E.

Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, July 7, at half-past 12 o'Clock precisely, choice ESTABLISHED ORCHIDS, in fine healthy condition, consisting of Cattleyas, Odontoglossums, Cymbidiums, Dendrobiums, Cypripediums, Aerides, Barkerias, Vandas, Oncidiums, Phalænopsis, Smotonias, Lælias, Lycastes, and many other species; also importations of Orchids from Singapore and other parts.

On view the Morning of Sale, and Catalogues had.

Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, July 13, at half-past 12 o'Clock precisely, consignments of ORCHIDS, just received from India, Moulmein, and the Caracas, all in good health, and comprising fine Plants of—

Dendrobium Devonianum	Vanda gigantea
" formosum	Cypripedium species, ? concolor
" cambridgeanum	Aerides virens
" nodatum	Cattleya Mossiæ, and varieties
Vanda teres	Oncidium Lanceanum, &c.

On view the Morning of Sale, and Catalogues had.

The magnificent Iron Kiosk, now standing in the Gardens of the Royal Horticultural Society at South Kensington, a remarkable specimen of cast-iron work from the designs of Mr. Owen Jones and Mr. R. M. Ordish. This eminently noble and graceful structure is 80 feet long, 40 feet wide, and 42 feet high in the centre. It can be taken apart with facility, and re-erected at a trifling cost. In a temperate climate the Kiosk would form a noble Conservatory or Orangery, a Promenade Concert or Assembly Room for a Spa or Public Garden, and in a hot climate a luxurious Billiard or Summer Room.

MR. ROBINS will SELL the above by AUCTION, at the MART, Tokenhouse Yard, E.C., on WEDNESDAY, July 7, at 2 o'Clock precisely, under special circumstances which preclude any reserve.

Particulars and elevation may be had at the Mart, of Messrs. TROLLOPE, Halkin Street West, Belgrave Square, S.W., and of the Auctioneer, 5, Waterloo Place, Pall Mall, S.W., from whom orders to view can only be obtained. (Sale 13,502).

Butley Abbey, Woodbridge, Suffolk.

VERY IMPORTANT SALE of the BUTLEY ABBEY HERD of SHORTHORNS, the MAGNIFICENT AGRICULTURAL and THOROUGH-BRED STALLIONS, and the FAMED CHOICE ABBEY SWINE of VARIOUS BREEDS.

MR STRAFFORD and Mr. BOND (who are jointly concerned), have been favoured with instructions from the Executors of the late Thomas Crisp, Esq., to SELL by AUCTION without Reserve, on WEDNESDAY and THURSDAY, July 14 and 15 next, at Butley Abbey, the entire Herd of about 80 Head of Shorthorn BULLS, COWS, and HEIFERS, bred with great judgment through a long course of years, from the most fashionable sources, and possessing "Bates," "Booth," and other blood of the highest repute.

Nine magnificent AGRICULTURAL STALLIONS, comprising the very celebrated young horse, Cupbearer, the winner of many hundreds of pounds in Royal and other prizes; and Duke, Prince, Captain, May Duke, &c., also successful prize-takers.

Fifteen thorough-bred and other excellent HORSES, including the noted thorough-bred Stallion, Fandanguero, the winner of a large number of prizes, and in 1868 the winner of the prize at the Norfolk Show, beating all the Norfolk trotters; also, the thorough-bred Stallion, Tom, and many young Horses of great merit.

Two Hundred Head of very choice BOARS and SOWS, known as the "Butley Abbey" breed; and embracing the Black Suffolks, large and small Suffolks, Berkshires, and the "large Breed," in which are comprised many of the celebrated Black Diamonds, Snowballs, and other superior Swine, of the rarest quality and symmetry. Many thousands of pounds have been won by the late Owner of this first-class Stock in Royal, Continental, and Local Prizes.

Catalogues, with Pedigrees and other particulars, may be had on application to Mr. STRAFFORD, 13, Euston Square, London, N.W.; or of Mr. BOND, 86, King William Street, London, E.C.; 10, Queen Street, Ipswich; and at Butley Abbey.

Alteration of Day of Sale to Wednesday, July 28.

BULBRIDGE RAM SALE.

THE SALE by AUCTION of RAMS and RAM LAMBS, the property of Mr. James Rawlence, by Messrs. EWER AND WINSTANLEY, will take place on WEDNESDAY, July 28.

Auction and Estate Agency Offices, Endless Street, Salisbury.

Important Sale of Pure-bred Shorthorns,

At MUSWELL HILL, near LONDON.

MR. JOHN THORNTON will SELL by AUCTION (without any reserve) at Coppett's Farm, Muswell Hill, six miles from London, on TUESDAY, August 3d next, the ENTIRE HERD of PURE-BRED SHORTHORNS, belonging to H. Gebhardt, Esq. This Herd comprises about Forty-five Head of Young Cows, Heifers, and Bulls, which have been selected and bred from some of the best stocks in the country, and crossed with Bulls of fashionable blood. Messrs. Leney's Royal Gwynne (25,028) has recently been used. Among the animals are some capital Yearling Heifers, and the whole stock is very healthy and useful, combining good Milking and Feeding properties.

Catalogues, with Pedigrees, may be had on application to JOHN THORNTON, 15, Langham Place, London, or at the Farm.

GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT, MANUFACTURER



TO HER MOST GRACIOUS MAJESTY THE QUEEN.

THE Extraordinary Success of GREEN'S PATENT LAWN MOWERS is an established fact. During the last five years the demand has been unprecedented, which alone is a proof of their superiority over all others. The following are their characteristic features:—

1st. **Simplicity of Construction, every part being free of access.**
2d. **They are worked with far greater ease than any other Lawn Mower.**
3d. **They are the least liable to get out of order.**

IMPORTANT NOTICE.

Trial at the London Horticultural Society's Gardens, Chiswick, June 5, 1857; four competitors:—First Trial on level ground, Second Trial on undulated; Third Trial on intricate places, around trees, &c.,—when GREEN'S PATENT was unanimously declared to be the best in each Trial by COLONEL CHALLONER, DR. LINDLEY, and G. MCEWEN, Esq., the appointed Judges; and on every subsequent Trial to the above have GREEN'S PATENT LAWN MOWERS carried off every Prize that has been given in competition for superiority in every point.

PRIZE MEDALS AWARDED TO GREEN'S PATENT LAWN MOWERS.

FIRST PRIZE MEDAL AT THE INTERNATIONAL EXHIBITION, LONDON, 1862.
FIRST PRIZE MEDAL AT THE INTERNATIONAL EXHIBITION, DUBLIN, 1865.
FIRST PRIZE MEDAL AT THE NAMUR EXHIBITION.
FIRST PRIZE MEDAL AT THE GAND EXHIBITION.
FIRST PRIZE MEDAL AT THE LAEKEN EXHIBITION.
FIRST PRIZE MEDAL AT THE LINEENE EXHIBITION.
FIRST PRIZE MEDAL AT THE BRUSSELS EXHIBITION, *on two occasions.*
FIRST PRIZE MEDAL AT THE HAMBURG EXHIBITION.

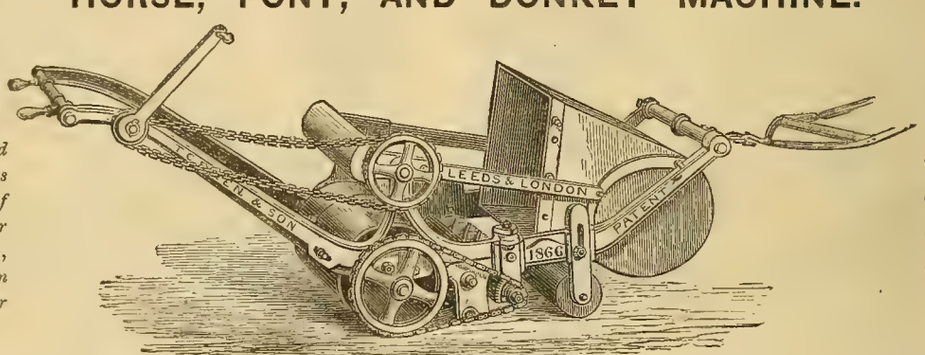
THEY ARE THE ONLY MACHINES IN CONSTANT USE AT

THE ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON
THE ROYAL BOTANIC GARDENS, REGENT'S PARK
THE CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM
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THE DUBLIN BOTANIC GARDENS
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THE BOTANIC GARDENS, BRUSSELS
THE SUNDERLAND PARK
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AND IN MOST OF THE PRINCIPAL PARKS, SQUARES, ETC., IN THE UNITED KINGDOM.

HORSE, PONY, AND DONKEY MACHINE.

GREEN'S PATENT **LAWN MOWERS** *have proved to be the best, and carried off every Prize that has been given in all cases of competition. Since the first year they were introduced* (1856), *upwards of* 46,600 *have been sold, and* 25,000 *of that number during the last five seasons.*



T. GREEN & SON *warrant every Machine to give entire satisfaction, and if not approved of can be returned unconditionally.*

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

PONY AND DONKEY MACHINES.

To Cut 26 inches	..	..	..	£13	0	0
,, 28 ,, ..	..	..	..	15	0	0
,, 30 ,, ..	..	..	..	17	0	0

Leather Boots for Donkey, 18*s*. *Leather Boots for Pony*, 22*s*.

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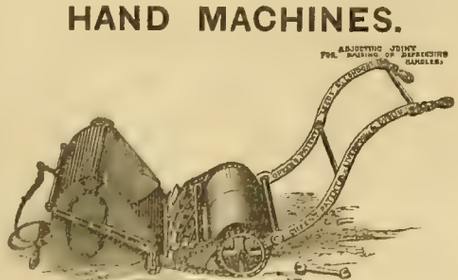
To Cut 30 inches	..	..	..	£21	0	0
,, 36 ,, ..	..	..	..	24	0	0
,, 42 ,, ..	..	..	..	27	0	0
,, 48 ,, ..	..	..	..	30	0	0

Leather Boots for Horse, 26*s*.

Both the Horse, Pony, Donkey, and Hand Machines possess (over all other Makers) the advantage of Self-sharpening. The cutters being steel on each side, when they become dull or blunt by running one way round, the cylinder can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the Machine will cut equal to new. Arrangements are made that the cylinder can be reversed, by any inexperienced person, in two or three minutes.

HAND MACHINES.

To Cut 10 inches	..	£3	10	0	*Suitable for a Lady*
,, 12 ,, ..	..	4	10	0	,, ,,
,, 14 ,, ..	..	5	10	0	*Suitable for One Person*
,, 16 ,, ..	..	6	10	0	,, ,,



To Cut 18 inches	..	£7	10	0	*Suitable for One Person.*
,, 20 ,, ..	..	8	0	0	*Suitable for Two Persons*
,, 22 ,, ..	..	8	10	0	,, ,,
,, 24 ,, ..	..	9	0	0	,, ,,

Packing Cases are charged at the following low rates, viz.:—For the 10 and 12-inch Machine, 3*s*.; 14 and 16-inch, 4*s*.; 18 and 20-inch, 5*s*.; 22 and 24-inch, 6*s*. Parties providing themselves with Lawn Mowers are recommended to purchase the cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England, Ireland, and Scotland.

HORTICULTURAL and AGRICULTURAL IMPLEMENTS, GARDEN SEATS and CHAIRS, FOUNTAINS, VASES, PLAIN and GALVANISED WIRE NETTING and ORNAMENTAL WIRE WORK of every description.

Having very extensive Premises in London, we are in a position to do all kinds of Repairs there, as well as at our Leeds Establishment.

Having a large quantity of MACHINES in stock at our Leeds and London Establishments, we are in a position to execute Orders on the day they are received.

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;
and 54 & 55, BLACKFRIARS ROAD, LONDON, S.

Editorial Communications should be addressed to "The Editor." Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 28.—1869.] SATURDAY, JULY 10. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY.
MANCHESTER EXHIBITION,

SPECIAL NOTICE TO EXHIBITORS.—The Show will be open from the 20th to the 24th JULY, both days inclusive. Cut Flowers and Fruit will be received up to 11 in the morning of the 19th. All must be staged by noon on that day. Prices of Admission:—Monday and Tuesday, 5s.; Wednesday, 2s. 6d.; Thursday and Friday, 1s.; Saturday, 6d. By Order of the Council.
JAMES RICHARDS, Assistant Secretary.

ROYAL BOTANIC SOCIETY, Regent's Park.
Awards omitted from last week's *Gardeners' Chronicle*.
Silver-gilt Medal to Messrs. J. Carter & Co., Perry Hill, Sydenham, for 10 Tricolor Pelargoniums.
Certificate to Mr. C. Ross, Gr. to C. Eyre, Esq., Welford Park, Newbury, for Two Dishes of Peaches and Nectarines.

Roses in Bloom.
MITCHELL'S RENOWNED ROSES are NOW in MAGNIFICENT BLOOM.
Pilt Down Nurseries, near Uckfield, Sussex.
N.B.—These Nurseries are 2½ miles from the Uckfield Station.

Strong Dwarf Roses in pots, for planting out.
FRANCIS & ARTHUR DICKSON & SONS have a *large* and *fine* stock of the above, in fine vigorous healthy plants of the *best leading* kinds, including the new varieties of 1869. This is a most advantageous time for planting out Roses. The DESCRIPTIVE LIST of kinds, with prices, sent post free on application. "Upton" Nurseries, Chester.

Paul's Roses.
"Mr. PAUL's Roses * * * are things to see once and dream of for ever."—*Athenæum.*
WM. PAUL begs to announce that his ROSES are NOW in BLOOM. Inspection respectfully invited. Trains from London, Bishopsgate Station, to Waltham, Great Eastern Railway, 13 times daily.
PAUL'S Nurseries & Seed Warehouse, Waltham Cross, London, N.

200,000 Roses Now Coming into Magnificent Bloom.
W[illiam] WOOD AND SON beg to announce that their ROSES were never finer than they are this season.
Woodlands Nursery, Maresfield, Sussex.

Paul & Son's Roses in Bloom.
PA[UL] AND S[ON], [Cheshu]nt, invite inspection of their Collection. The result of the various Exhibitions confirms their belief that they are finer than usual.
Trains from Bishopsgate to Cheshunt. The 8 A.M. and 1.5 P.M. to Waltham and Omnibus to Cheshunt.

Roses.—Grapes.
H. LANE AND SON'S extensive Collection of ROSES is NOW in FULL BLOOM; and the VINERIES, containing over 3000 bunches of 40 leading varieties of GRAPES, are worthy the inspection of their Patrons and Friends.
The Nurseries, Great Berkhamsted, Herts.

Pines.
B. S. WILLIAMS has all the best kinds, in splendid condition, warranted clean. Prices on application.
B. S. WILLIAMS, Seed Merchant and Nurseryman, Upper Holloway, London, N.

GOLDEN CHAMPION GRAPE.—We are now able to supply strong Plants of the above-named remarkable Grape, suitable for inarching on the young wood of established Vines, by which means fruit may be obtained next season. Price 30s. each.
OSBORN AND SONS, Fulham Nursery, London, S.W.

APPLES and PEARS for SALE.—About 280 Trees. Apply to
T. T. WALKER, Esq., London Street, Kingston-on-Thames.

TO GENTLEMEN, GARDENERS, and OTHERS, having to DISPOSE of CHOICE FRUIT or FLOWERS, &c. They may meet with a ready Sale by applying to
A. IRETON, Covent Garden Market, W.C.

ALTERNANTHERA AMABILIS.—This fine new variety, the best of all the Alternantheras, can now be supplied, in good plants, at 4s. per dozen, post free, from
B. W. KNIGHT, Florist, Battle, Sussex.

ECHEVERIA METALLICA.—Fresh new seed of this lovely bedding plant now ready, price 1s., 2s. 6d., 5s., and 10s. 6d. per packet, with directions for raising and growing. Now is the time to sow.
N.B. Strong CENTAUREA RAGUSINA, 25s. per 100, in pots.
WM. DILLISTONE, Nurseries, Sible Hedingham, Essex.

MYOSOTIS DISSITIFLORA, TRUE.—"The best of all the Forget-Me-Nots for Spring decoration. In many Gardens it is known as montana or alpestris, from both of which it differs."—See *Gardeners' Chronicle*, May 22, 1869.
We are now sending out plants of the above-named charming Spring Flower, identical with that grown by Mr. Fish, and which is so truly described by him in the *Gardeners' Chronicle*, May 8, 1869. Price 9s. per dozen, or 60s. per 100.
OSBORN AND SONS, Fulham Nursery, London, S.W.

NEW CHRYSANTHEMUMS of 1868, including the New Japan, Large-flowered, and Pompon varieties sent out in 1868, sent post free; 12 fine varieties, 2s. 6d.; 12 Cuttings, in 12 fine varieties, 1s. 2d., from
B. W. KNIGHT, Florist, Battle, Sussex.

NEW VERBENAS of 1869.—Now ready to be sent out, 50 Varieties of New Verbenas, Perry's, Eckford's, W. Knight's, Continental and Italian striped, sent post free; 12 select Varieties for 3s.
From B. W. KNIGHT, Florist, Battle, Sussex.

Verbenas, Verbenas, Verbenas.
FORTY NEW VARIETIES of VERBENAS, 1869, for 10s. Eight NEW GOLDEN COLEUS, Royal Horticultural Society, 1869, for 3s.
PHILIP LADDS, Nursery, Bexley Heath, Kent, S.E.

New Seeds for Present Sowing,
CALCEOLARIA (SCOTT's Hybridised), 1s. and 2s. 6d. per packet; also extra choice CINERARIA and PRIMULA FIMBRIATA at same price.
J. SCOTT, The Seed Stores, Yeovil.

POST FREE, 1869 GROWTH.—Neill's extra choice strain CALCEOLARIAS, 2s. 6d. each (in sealed packets as made up by Mr. Neill); PRIMULA, Williams' choice strain, warranted, 1s. and 2s. per packet; CALCEOLARIA, selected from the best of the leading strains, 1s. and 2s. per packet. Value can be sent in stamps. Established 1842.
WILLIAM ARMITAGE AND SON, Seed Merchants, Huddersfield.

Now Ready, Post Free to all Applicants.
B. S. WILLIAMS' CATALOGUE of NEW and RARE PLANTS, 1869, containing the most beautiful and select of the latest introductions and Supplementary Lists of the General Collection.
Victoria and Paradise Nursery, Upper Holloway, London, N.

Ferns, British and Exotic, at reduced prices.
A. STANSFIELD AND SON beg to state that their CATALOGUE, No. 8, is now ready, and will be forwarded on receipt of three stamps. The above Catalogue contains 40 pages of matter, including partial descriptions and cultural remarks.
Vale Nurseries, Todmorden, Lancashire.

British Fern Catalogue.
ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, Sidcup Hill, Kent.

NEW COLEUS.—The 12 New Golden Coleus of the Royal Horticultural Society, sent out in 1869, sent post free for 2s. 6d.; 8 New Coleus of 1869, sent out by W. Bull and E. G. Henderson, post free for 1s. 9d.; the set of 20 varieties, post free, for 4s., from B. W. KNIGHT, Florist, Battle, Sussex.

NEW COLEUS, BEAUTY of WIDMORE.—The prettiest variety yet sent out, distinctly tricolored; leaves small and beautifully shaped, of a dark brilliant maroon, belted with bright rose and green, and edged with silvery white; habit very dwarf. 5s. each. Four will be sent when three are ordered. Price to the Trade on application.
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NEW DOUBLE GERANIUMS.—Twelve fine varieties Double Zonal Geraniums, including Madame Lemoine, for 12s.; 12 best New Zonal Geraniums of 1868 for 6s.; 12 fine varieties Gold and Golden Bicoloured Geraniums for 6s., package included, from B. W. KNIGHT, Florist, Battle, Sussex.

New Nosegay Geranium Charley Casbon.
CASBON AND SON are now sending [out] the above beautiful GERANIUM, the flowers, which [are] intense trusses. Colour [very] strong plants 5s. each. [Liberal] allowance to the Trade.
Cotwall Nursery, Peterborough.

Special Notice.
PRINCE OF WALES GERANIUM (TRICOLOR.)
JAMES CARTER AND CO. regret their inability to supply more plants of the above splendid novelty this spring. A fresh stock will be ready for distribution in September, from which orders now received will be executed, in strict rotation.
LILIUM AURATUM.—JAMES CARTER & Co. invite an inspection of their fine collection of Lilium auratum. Upwards of 1000 plants now coming into bloom at the Nursery.
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Choice Primula, growth 1869.
PONSFORD AND SON beg to offer this year's Seed of one of the finest strains of FIMBRIATED PRIMULA in cultivation. In packets of 50 growing seeds, 2s. 6d.
In packets of 110 growing seeds, 5s.
Special packets for the Trade, 5s., 10s. 6d., 21s.
PRIMULA FILICIFOLIA, true, 2s. 6d. per packet.
Also some Continental Novelties in CHINESE PRIMULAS, highly recommended, 2s. 6d. per packet. Choice CINERARIA and CALCEOLARIA, &c., for present sowing.
Nurseries, Loughborough Park.
Seed Department, Brixton Place, Brixton, Surrey, S.W.

WILLIAM CHATER'S superb DOUBLE HOLLYHOCKS.—The simplest and safest way to raise them from seed is to sow in the open ground in June, July, and August, and transplant in September. Seed from finest strains, that will produce flowers equal to choice named varieties.
Collection No. 1.—Twelve named varieties, extra fine, 10s.
Collection No. 2.—Six named varieties, extra fine, 5s.
Collection No. 3.—Twelve named varieties, fine, 7s. 6d.
Collection No. 4.—Six named varieties, fine, 4s.
Mixed seed, finest quality, per packet, 1s., 2s. 6d., and 5s.
WILLIAM CHATER, Nurseries, Saffron Walden.

New Hardy Plant,
To be sent out in September, 1869. For plate and full description, see "Botanical Magazine," t. 5726, No. 285, in which Dr. Hooker says:—
SPIRÆA PALMATA, "By far the handsomest species of the genus hitherto imported, and certainly one of the most beautiful hardy plants in cultivation; the deep purple-red of the stems and branches, passing into the crimson-purple of the glorious broad corymbs of flowers, contrasts most exquisitely with the foliage, which in autumn assumes beautiful tints of brown and golden-yellow. Spiræa palmata was introduced by Mr. Fortune from Japan, and has proved itself perfectly hardy in the most exposed position."
CHARLES NOBLE having the entire Stock of this fine Plant, intends sending it out next September, at 21s. each. Orders are requested early, as the Stock is limited.—Bagshot, June, 1869.

Gladioli, the most Extensive Collection.
BARR AND SUGDEN, 12, King Street, Covent Garden, W.C., have the finest and largest collection of GLADIOLI ever offered, prices varying from 2d. to 15s. per root. For particulars see pp. 68, 69, 70, and 71 of B. & S.'s SPRING SEED CATALOGUE.
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Choice Seeds, Gladioli, &c.
WM. CUTBUSH AND SON'S CATALOGUE of the above contains description and price of many very superior home-grown VEGETABLE and FLOWER SEEDS, and choice varieties of GLADIOLI, &c., all of which are highly recommended. Post free on application.
Highgate Nurseries, London, N.

General Catalogue.
WILLIAM ROLLISSON AND SONS beg to inform the Nobility, Gentry, and Trade that their NEW GENERAL CATALOGUE, consisting of upwards of 150 pages of letterpress, and containing nearly every Plant, Shrub, or Tree worthy of merit in cultivation, is now Published, and will be forwarded to applicants on receipt of eight postage stamps, and sent gratis to customers.
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PRIMULA SINENSIS.
WINDEBANK AND KINGSBURY'S Strain.
"By far the most varied and interesting set which has come under our notice."—Editor of the *Gardeners' Chronicle*, Jan. 30, 1869.
"Our best lot are from Windebank & Kingsbury's strain."—Editor of the *Gardeners' Magazine.*
New Seed now ready, 2s. 6d. per packet.
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Seeds Direct from the Growers, the most Effectual Means of Preventing Disappointment.
SUTTON AND SONS, SEED GROWERS, deliver their Home-grown Seeds, Genuine as Harvested, to all parts of the kingdom. Carriage free (except very small parcels).—Prices and full particulars on application.
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JAMES CARTER AND CO., Seed Growers, 237 and 238, High Holborn, London, W.C.

EVERY GARDEN REQUISITE KEPT in STOCK at
CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY (Limited),
CORN, SEED, MANURE, and OILCAKE MERCHANTS.
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

To the Wholesale Trade only.
EIGHTY ACRES of FLOWER and VEGETABLE SEEDS for DISPOSAL. Contracts taken for TURNIP and MANGEL, &c. Apply to the Grower, HERBERT H. NICHOLSON, Great Clacton, Essex, four miles from Weeley Station.

Cabbage Plants.
W. VIRGO AND SON can supply strong DRUMHEAD or CATTLE CABBAGE PLANTS; also DRUMHEAD SAVOY PLANTS, at 3s. per 1000.
Wonersh Nursery, near Guildford.

Cabbage Seed.
SUTTONS' IMPERIAL, ENFIELD MARKET, NONPARIEL, IMPROVED EARLY OX-HEART, and other varieties, for sowing during the next two months, at very moderate prices. Lowest price per lb. on application to
SUTTON AND SONS, Seed Growers, Reading.

New Turnip Seeds, Harvest 1869.
SUTTON AND SONS have just harvested, in good condition, fine seed of the leading kinds of TURNIPS, suitable for present sowing. For prices apply to
SUTTON AND SONS, Seed Growers, Reading, Berks.

To the Seed Trade.
NEW GENUINE TURNIP SEED, from selected stocks of Devonshire Grey Stone, Stubble, or Mouse Tail. For price and terms apply to
Mr. GEO. HARDY, Seed Grower, Braintree, Essex.

TURNIP SEEDS, of excellent Stocks, for SALE:—Purple-top Swede, the King of the Swedes, and Bangholm Swede, &c. Apply to WM. KINGHORN, Dunse, N.B.

To the Trade.
TURNIP and MANGEL SEEDS, growing crop of 1869, splendid stocks, various kinds.
FREDK. GEE invites attention to the above, and will be pleased to make special offers of the same on advantageous terms.
Seed Establishment, Biggleswade, Beds.

To Farmers, Gardeners, and others.
FREDK. GEE can still supply excellent strong Cabbage, Cauliflower, Brussels Sprouts, Stock, Scotch Kale, splendid Variegated Kale, and other PLANTS. Genuine new unadulterated Cabbage, Turnip, Mustard, Cole SEED, &c. Prices, which are low, had on application.
Seed Establishment, Biggleswade, Beds.

EDWARD TAYLOR, NURSERYMAN, Malton, Yorkshire, offers as under, good PLANTS:—Wilcherch and Early London Cauliflower, 5s. per 1000; fine transplanted Red and White Celery Plants, 1s. per 100, 7s. 6d. per 1000; Early and Drumhead Scotch Cabbage plants, 2s. 6d. per 1000; Admiral, Early White Broccoli, 6d. per lb., 1s. 6d. per 1000; Drumhead Sprouts, Curled Borecole, Brussels Sprouts, Cottager's Kale, Ragged Jack, &c., 6d. per 100, 4s. per 1000.

GARDENERS' CHRONICLE NEWSPAPER

POTATO BLIGHT.—To FARMERS and GARDENERS.—On receipt of 5s. in postage stamps, the Advertiser will forward a Recipe for Top-dressing, for the Cure of this Disease.
Address J. SLEATHORN, Paul's Farm, Leigh, Tunbridge, Kent.

The Cheapest and Best Insecticide.
DUTY-FREE TOBACCO.
BY HER MAJESTY'S ROYAL LETTERS PATENT, AND BY PERMISSION OF THE HON. BOARD OF CUSTOMS.

POOLEY'S TOBACCO POWDER, for the Prevention and Destruction of Blight and other Diseases in Plants.
Sold by Nurserymen, Seedsmen, and Florists,
In Tins at 1s., 2s. 6d., and 5s.
Powder Distributors, 2s. 6d. and 3s. 6d. each.
"I find it exceedingly useful for killing the Aphides on Roses and other Plants."—GEO. EYLES, Superintendent, Royal Horticultural Gardens, South Kensington. May 7, 1868.
Sole Manufacturer, T. A. POOLEY, Bonded Warehouse, Sussex Wharf, Wapping, E.

The Hop Grower's Friend.
"FOWLER'S HOP WASH" and "HOP DUST."
SAFE—EFFECTUAL—CHEAP.

Destroys and prevents all the various Insects and Blight infesting Hops. Its advantages over the usual preparations are

I. Much greater effectiveness in destroying and preventing the Insects and Blights.

II. Will not harm the Plants, but strengthen and invigorate their growth.

III. A cost not exceeding 5s. per 100 Gallons of the Solution.

PRICE.

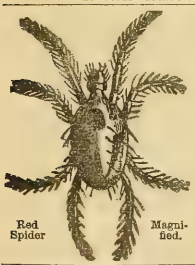
Hop Wash, in 3-cwt casks, £32 per ton. Sample 2s, 5s, and 112-lb. kegs 2s. per cwt. extra.

Hop Dust, 42s. per cwt. Sample bags, 2s and 56lb.

In consequence of the increasing demand for this most valuable remedy, the Manufacturers have opened a London Depot and Works, at 35, Great Dover Street, Borough, to which address orders should be sent.

Sold throughout the Hop Districts; and where no Agents are yet appointed, application should be made at once to G. & T. FOWLER.

The Works—Great Dover Street, Borough.



GISHURST COMPOUND.

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 10 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d.

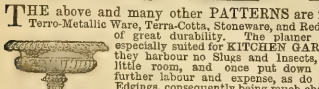
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GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability and superior finish, and in much variety of design.
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FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEAT and LOAM supplied at lowest rates.
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MANUFACTURED IN TERRA COTTA, OF THE BEST MATERIAL, AND WARRANTED IMPERISHABLE.











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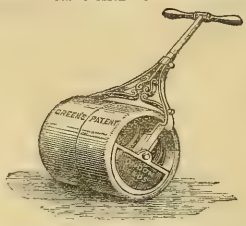
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SUITABLE FOR HAND OR HORSE POWER.

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Diam.	Length.	£	s.	d.
30 inches	32 inches ..	7	10	0
24 inches	26 inches ..	4	10	0
20 inches	22 inches ..	3	10	0
16 inches	17 inches ..	2	15	0



PRICES OF
ROLLERS
FITTED WITH SHAFTS,
Suitable for Pony or Horse Power.

Diam.	Length.	£	s.	d.
30 inches	32 inches ..	10	0	0
30 inches	36 inches ..	10	15	0
30 inches	42 inches ..	11	15	0
30 inches	48 inches ..	13	10	0
30 inches	60 inches ..	15	10	0
30 inches	72 inches ..	17	10	0
30 inches	84 inches ..	19	10	0

These Rollers possess many advantages over all others; they are made in two parts, and are free to revolve on the axis, affording greater facility for turning, and the outer edges are rounded off, or turned inwards, thus avoiding the unsightly marks left by other Rollers. They are manufactured of the best materials, and are got up in a manner surpassing any ever yet brought out. The Rollers 24 by 26 inches, 20 by 22 inches, and 16 by 17 inches, are also made in one part, at a reduced price; and, for Rollers of that size, will be found to answer many requirements, as the handle can be reversed to either side of the Roller at pleasure.

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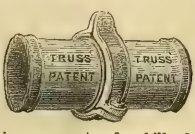
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☞ **Plans, Specifications, and Estimates supplied on application.**

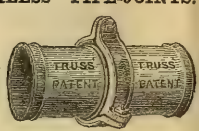
PORTABLE AND FIXED HOT-WATER APPARATUS,

FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH

TRUSS'S PATENT UNIVERSAL FLEXIBLE AND LEAKLESS PIPE-JOINTS.



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Begs to state that the immense number of APPARATUS annually Designed and Erected by him in all parts of the kingdom, and for the ROYAL HORTICULTURAL SOCIETY at SOUTH KENSINGTON and CHISWICK, with unrivalled satisfaction, is a guarantee for skill of design, superior materials, and good workmanship; while the great advantages obtained by his IMPROVED SYSTEM cannot be over-estimated, consisting of perfectly tight joints with neatness of appearance; EFFECTS A SAVING OF 25 PER CENT. on cost of Apparatus erected compared with other systems; facility for extensions, alterations or removals without injury to Pipes or Joints; can be erected by any Gardener; an ordinary size Apparatus erected in one day; and PERFECTNESS of DESIGN SUPPLIED, INSURING NO EXTRAS. Complete Apparatus, of the best materials, delivered to any Railway Station in England, and Erected at the following prices. Erection beyond 25 miles of London, railway fare for one man additional. Considerable reduction on large works.

TWO FOUR-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
20 feet by 10 feet ..	£9 0 0 ..	£2 0 0	50 feet by 15 feet ..	£17 10 0 ..	£3 0 0
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Bath and Gas Work erected in town or country. **The Trade Supplied.**

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W. J. HOLLANDS, 31, Bankside, S.E. IRON MERCHANT,

	2-inch.	3-inch.	4-inch.
HOT-WATER PIPES, from stock—p. yard	1s. 0d.	1s. 6d.	2s. 0d.
ELBOWS for ditto .. .. .. each	1 6	2 3	2 9
TEES .. .. „	2 3	3 6	4 6
SYPHONS .. .. „	2 3	3 6	4 6
THROTTLE VALVES .. .. .. „	10 0	11 6	13 0

Cash remittance with order.
N.B. All Goods of first-class manufacture. No second quality kept.
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HOT-WATER PIPES—per yard	0 11	1 5	1 8½	1 11
ELBOWS .. .. .. each	1 4	2 1	2 6	2 9
TEE PIPES .. .. .. „	2 0	3 0	3 6	4 0
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Nett cash on receipt of invoice. Prices equally low for Gas and Water Pipes and Connections.
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PIPES .. .. per yard	1s. 0d.	1s. 6d.	2s. 0d.
ELBOWS .. .. each	1 6	2 3	3 0
TEES .. .. „	2 6	3 6	4 6
SYPHONS .. .. „	2 6	3 6	4 6
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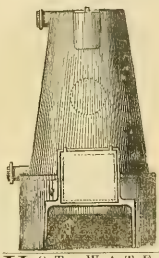
6 ft. by 4 ft. Lights, 2 ins. thick, unglazed	£0 5 0
„ „ Primed and Glazed with 10 oz. Sheet	0 11 0
„ „ with stout Portable Box, not Painted..	1 3 0
„ „ Painted four coats, and Handles on	1 8 0
„ „ Packed and Delivered in Railway Van..	1 10 0
6 ft. by 8 ft., Double Lights, do.	2 15 0

GREENHOUSES. Per ft. super.

Woodwork only Prepared and Fitted	0 0 6
„ Primed and Glazed with 16 oz. Sheet	0 0 9
„ Delivered, and Fixed with Ironwork	0 1 0
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Latest Improvements in Heating by Hot Water.



THE IMPROVED CONICAL BOILERS, for HEATING PINERIES, CONSERVATORIES, GREENHOUSES, MANSIONS, HALLS, WAREHOUSES, &c.,
SOLELY MANUFACTURED BY
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Annexed Sketch shows JAMES G. FOLLARD'S improved arrangement, requiring no brickwork setting.
These Boilers are also adapted for Setting in Brickwork.

HOT-WATER APPARATUS Erected Complete, or the Materials Supplied for Heating

Peill's Conical. Tubular Boiler.





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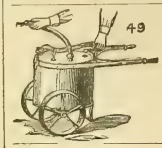
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GALVANISED IRON CIRCULAR CISTERNS, with Lid and Brass Tap.

30 Gallons	20s.	150 Gallons	48s.
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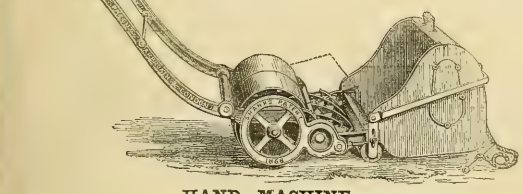
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The Hand Machines are all with Silent Movement.

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Width of Cutter.		If with Patent Delivering Apparatus
25-inch Machine	£12 10 0	25s. extra.
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Silent Movement, 12s. 6d. extra.
Boots for Pony, 22s. per set.; Ditto for Donkey, 18s. per set.

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Every Machine warranted to give ample satisfaction, and, if not approved of, can be at once returned without any expense to the buyer.

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,, pumila ..	9 0	,, Imperial Blue ..	18 0
,, secunda glauca	9 0	Pachyphytum bracteatum	12 0
Lithospermum prostratum (fruticosum)	9 0	Sempervivum californicum	4 0
Pansy, Cliveden Blue ..	3 0	Tritoma grandis	12 0
,, ,, Purple ..	3 0	,, uvaria glaucescens	9 0
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C. J. WARD, Esq., Stanilands, writes:—"The Swede Turnips (from your seed) *were the best in the neighbourhood.*"

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Cheaper per cwt. or bushel.

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Dated the Twenty-sixth day of June, 1869.

J. S. BARNES, Colchester (one of the Executors).

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WATSON'S LAWN SAND, sprinkled upon Lawns, rapidly destroys Dandelions, Daisies, Clover, Rib-grass, &c., and at same time promotes the growth of Grass. 28s. per cwt.; 4d. per lb.

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SUPERPHOSPHATES of LIME
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SEED MERCHANT AND NURSERYMAN,
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WILLIAMS' SUPERB STRAIN of PRIMULA.—B. S. W. can with confidence offer his superb strain of Primula as being the finest in cultivation.	
Red, White, or Mixed .. .. .. 2s. 6d., 3s. 6d., and	5 0
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PANSY, from prize flowers	1 0
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SWEET WILLIAM, Hunt's Auricula-eyed .. 6d. and	1 0
OXALIS VALDIVIANA, quite hardy, the flowers are bright yellow and sweet scented, and produced in bunches of large size (new)	1 0
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WALLFLOWER (Saunders), fine dark variety	1 0

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CARTER'S PRIMULA, CALCEOLARIA, and CINERARIA.

J. C. & Co.'s strain of Calceolaria is saved from plants that were awarded a 1st Prize at the late International Show. The Cineraria and Primula stocks are also saved from the finest Prize Varieties, and cannot be surpassed.

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Per packet—s. d.	Per packet—s. d.
Primula, choicest mixed, fringed 2 6	Primula, choicest white fringed 2 6
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CALCEOLARIA INTERNATIONAL PRIZE.—The Seed of this superb strain cannot fail to produce splendid varieties, as last season's plants took 1st Prizes wherever exhibited. Per pckt., 2s. 6d.

PRIMULA FIMBRIATA (New scarlet).—This is a decided novelty, being of a deep scarlet colour, and cannot fail to be much admired wherever grown. Per packet, 2s. 6d.

INDIA-RUBBER HOSE at Manufacturer's prices, 60 feet (with complete fittings), 25s.

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Choice Flower Seeds for Autumn Sowing.

DOWNIE, LAIRD, AND LAING have the pleasure of offering the following choice Flower Seeds:—

CALCEOLARIA, Hybridised, saved from a superb First Prize Collection, 2s. 6d., 3s. 6d., 5s. per pkt.

CINERARIA, extra choice, saved from an unequalled assortment of named flowers, 1s. 6d., 2s. 6d., 3s. 6d. per pkt.

HOLLYHOCK, extra fine, saved from our own magnificent collection, in 12 colours, 5s. per collection.

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PANSY, Show, saved from our unrivalled Exhibition Flowers, 1s., 1s. 6d., 2s. 6d. per pkt.

PANSY, Fancy, saved from a selection of the most beautiful colours, 1s., 1s. 6d., 2s. 6d. per pkt.

PRIMULA, Fringed (Red and White), saved from the finest strain in cultivation, 2s. 6d., 3s. 6d., 5s. per pkt.

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Stanstead Park, Forest Hill, London, S.E.; and at Edinburgh.

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THE WHOLE STOCK OF THE ABOVE BEAUTIFUL PLANT,

Raised by Mr. Tuke, of Bramley, near Leeds, who also raised the lovely Dipladenia amabilis. A Figure of the beautiful D. amœna is given in the "Florist" for April, 1868. Plants now ready for distribution.

Price 1½ Guinea each. Strong Half Specimens, 5 and 7 Guineas each.

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MANCHESTER MEETING, ROYAL AGRICULTURAL SOCIETY.

JAMES CARTER & CO.,

THE ROYAL SEEDSMEN,

237 AND 238, HIGH HOLBORN, LONDON, W.C.,

INVITE INSPECTION OF THE LARGE AND VARIED

COLLECTION of SAMPLES of CARTER'S PRIZE MEDAL SEEDS,

ON VIEW AND SALE AT

STAND 323, IMPLEMENT DEPARTMENT.

JAMES CARTER AND CO., GROWERS AND DISTRIBUTORS OF GENUINE SEEDS,
237 AND 238, HIGH HOLBORN, LONDON, W.C.

SEED ADULTERATION BILL OF 1869.

It having been intimated to the Promoters of the above Bill that Members of the Seed Trade throughout the country are desirous of assisting in carrying the Bill through Parliament, it is hereby notified that SUBSCRIPTIONS for that purpose may be paid to the Treasurer, THOS. THORNTON, Esq., 2, St. Thomas Street, Borough, S.E.; or to the EDITORS of the *Gardeners' Chronicle*, who have consented to receive Subscriptions, and by whom their receipt will be acknowledged in the *Gardeners' Chronicle*.

Inserted by Order of THE COMMITTEE of PROMOTERS of the BILL.

HAMBURGH INTERNATIONAL HORTICULTURAL EXHIBITION.

The English Sub-Committee have the satisfaction to announce that **Her MAJESTY the QUEEN** has been graciously pleased to signify her intention to present

A SILVER CUP AS A PRIZE

FOR THE BEST SPECIMENS OF GRAPES SHOWN AT THE ABOVE EXHIBITION.

The Committee would at the same time call attention to the fact that LIBERAL PRIZES are OFFERED by the HAMBURGH COMMITTEE for PINES, GRAPES, PEACHES, MELONS, FIGS, &c.; as well as for Collections of APPLES, PEARS, CHERRIES, PLUMS, and other FRUITS. They believe that, owing to the liberal terms which have been proposed for the conveyance of objects to and from the Show, they will be able to forward Packages of Fruit, Free of Cost or Trouble to the Exhibitors; and they trust that this may induce Cultivators to respond liberally to the invitation to exhibit. Prizes of considerable value are also offered for numerous classes of EXOTIC PLANTS, CONIFERÆ, &c.; and for GARDEN IMPLEMENTS, MACHINERY, and STRUCTURES. Intimation of the intention to exhibit should be sent in not later than July 31.

Further particulars, with Prize Schedules, &c., may be had on application to the Secretary,

MR. GEORGE EYLES, ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON.

THE ROYAL HORTICULTURAL SOCIETY of LONDON.

GRAND FRUIT and FLOWER SHOW.

This Exhibition will be held upon Land adjoining the Royal Agricultural Society's Show Yard, at Old Trafford, Manchester, from MONDAY, July 19, to SATURDAY, July 24, inclusive.

All ENTRIES must be made before JULY 5.

The Exhibition will be Open to Visitors at 3 o'Clock P.M. on Monday the 19th, and on the remaining days at 10 A.M.

TERMS of ADMISSION.—Monday and Tuesday, 5s.; Wednesday, 2s. 6d.; Thursday and Friday, 1s. each day; Saturday, 6d. Monday and Tuesday's Tickets may be had at 2s. each, up to Saturday the 17th, at 96, King Street.

SEASON TICKETS (not transferable), giving admission for the whole period, may be had up to Monday the 19th, price 10s. 6d. each. Any Ticket transferred will be forfeited.

Arrangements have been made with the Royal Agricultural Society for Visitors to pass and repass from one Show to the other after payment at each.

The Band of Her Majesty's 1st Life Guards, as also that of the 63th Regiment of Infantry now stationed at Manchester, have been specially engaged to play on each day of the Show.

His Serene Highness the Prince of Teck will distribute the Prizes in the Show Ground on Wednesday, July 21, at 5 P.M.

By Order. JAMES RICHARDS, Assistant Secretary.

Kensington, 21st June, 1869.

July 19th to 24th, 1869.

THE ROYAL HORTICULTURAL SOCIETY'S GRAND EXHIBITION at MANCHESTER, in connection with the SHOW of the ROYAL AGRICULTURAL SOCIETY.

Amongst various Special Prizes,

A SILVER CUP (copy of the famous Cellini Cup), **VALUE £21** will be offered by the Proprietors of the GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE for the best COLLECTION of 5 FRUITS and 8 VEGETABLES, to be made up as follows.

In awarding the Prize, Marks will be adjudged according to the following scale, for the several subjects produced.

	Good.	Medium.	Inferior.
Grapes	6 marks	3 marks	1 mark
Melons (2 fruits)	6 ,,	3 ,,	1 ,,
Strawberries	3 ,,	2 ,,	1 ,,
Gooseberries	3 ,,	2 ,,	1 ,,
Currants	3 ,,	2 ,,	1 ,,
Cherries	3 ,,	2 ,,	1 ,,
Raspberries	3 ,,	2 ,,	1 ,,
Apples of 1868	6 ,,	3 ,,	1 ,,
(Any 5 of the above 8 subjects).			
Peas	3 ,,	2 ,,	1 ,,
French Beans	3 ,,	2 ,,	1 ,,
Broad Beans	3 ,,	2 ,,	1 ,,
Cauliflowers	3 ,,	2 ,,	1 ,,
Cucumbers (brace)	3 ,,	2 ,,	1 ,,
Summer Cabbages	3 ,,	2 ,,	1 ,,
Early Carrots	3 ,,	2 ,,	1 ,,
Turnips	3 ,,	2 ,,	1 ,,
Globe Artichokes	3 ,,	2 ,,	1 ,,
Onions	3 ,,	2 ,,	1 ,,
Spinach	3 ,,	2 ,,	1 ,,
Rhubarb	3 ,,	2 ,,	1 ,,
Potatos	3 ,,	2 ,,	1 ,,
Mixed Salading	3 ,,	2 ,,	1 ,,
(Any 8 of the above 14 subjects).			

This Prize is open for Competition amongst Amateurs and Gardeners of private families. The Fruit and Vegetables produced must be of *the Exhibitor's own growing*; and any article otherwise obtained will disqualify the Collection. It is expected that the several articles will be neatly and effectively displayed.

The Gardeners' Chronicle.

SATURDAY, JULY 10, 1869.

ONE of the wants of the day is a LEGION OF HONOUR for HORTICULTURE, managed by some power with sufficient wisdom and authority to recognise and reward real merit. Probably there is no business nor profession demanding the thought and attention that Horticulture does, in which the rewards are so inadequate, the chance of obtaining honours worth having so small. The claims of horticulture are most engrossing. They absorb and exhaust mind and body. It is not a matter of so many hours' business succeeded by rest. The pursuit of horticulture must of necessity be continuous. Night and day, week-day and Sunday, year in and year out, without ceasing, for evermore the brain must think, and the hand work. Every breeze that blows, every shower that falls, every insect that flies, or creeps, or crawls, or runs—every cloud that hides up the face of the sun, affects the measure and controls the degree of the gardener's success. He is the sport of circumstances, and yet is expected to control the uncontrollable fates or forces. The gardener must also be versed in the science of generalship, the management of men, the economy of labour, &c.; and the reward of it all is too often a hand-to-hand struggle for bare life, and when he skulks out of sight or into private life, or to the grave, perhaps a few lines of common-place eulogy will record the bare fact that he is no more.

Doubtless there is another side—or at least there is sometimes another side to the picture. But while the dark side clings ever to the gardener's life, the brightness is, as it were, accidental. The light that gladdens comes chiefly from the personal character of employers, and an enthusiastic love of work, which is often pitched so high that it verges upon romance, or even madness. The Father of the Nosegays was not the only gardener whose mind at last gave way beneath the scorching fire of a professional enthusiasm that had gradually but surely consumed him for years.

It is more than probable that this very enthusiasm has tended to limit the honours and curtail the rewards bestowed on gardeners. It has been said that virtue is its own reward; the same seems to have been felt rather than said concerning horticulture. But this is equally true of law, physic, theology, philosophy, science, literature, or politics, though who ever heard of the pleasure of the pursuit of either of these barring the gate to promotion, reducing fees, or being accepted as a set-off against further honours.

Now, whatever may be the case in regard to the bodily occupation of the horticulturist, his mental work is no pleasanter *per se* than the intellectual exercises of the lawyer, the statesman, or the divine. Therefore it is manifestly unjust to block up the paths that lead to honour or reward by the pleasures supposed to be inherent in the pursuit of his business. It must also be confessed that these pleasures are as much imaginary as real—carking care, disappointment, failure, want of sympathy, the lack of appreciation, often spill the tempting cup of brimming pleasure that Nature and Art place within sight, but which cruel fates hinder many, TANTALUS like, from tasting. More, it may be contended, do have such draughts of joy and gladness as are not to be drawn from common trades or professions. But it is certain that the dreams of gardeners are not all sober waking realities, and that no mere money payment can be an adequate discharge for such enthusiasm. But however valid or invalid such rewards, great or small, may be, as between employers and employed, they cannot be quoted as excuses by those charged with the advancement of horticulture, for those who have devoted their lives to this object, and to the instruction and service of the public at large. We do not propose that honour should be rendered to distinguished horticulturists with a view of, as it were, eking out their inadequate pecuniary rewards, but as a testimony of esteem and respect, and as a mark of our high estimate of sterling merit.

Neither can there be much difficulty in picking out from amongst the ranks of horticulturists those deserving of honour: like SAUL among the people, they are easily seen and known. Those who have distinguished themselves by the skill of the hand or the quickening power of their minds, who have made one branch their hobby, or poured new light upon all, these are the men that horticulturists delight to honour. Amongst the dead, who amongst us all but would have rejoiced to see the late DONALD BEATON adorned with the blue ribbon; while, amongst living men, there are few more worthy of the highest honours than Mr. JAMES BARNES, who devoted the full strength of a strong mind and the resources of a rare genius to the advancement of horticulture. By the example of a successful life, no less than by the vivid pen-and-ink sketches that have been read by most of us from our boyhood, he has done more perhaps than any living gardener to make horticulture in England what it is to-day. Who amongst us have not sat at his feet from LOUDON'S days till now, and learned of him very much of what we now successfully practise? What, therefore, can be more becoming in us, more pleasing to Mr. BARNES, and more encouraging to others, than that the readers of the *Gardeners' Chronicle* should contribute to do honour to whom honour is due, and sweeten his retirement with proofs of earnest sympathy. But the private action of gardeners should not prevent but stimulate those of our bodies. If we have no authority willing or competent to recognise and reward merit among the ranks of horticulturists, such an authority ought to be constituted. We have at least the nucleus of it in the Royal Horticultural Society. Already it has partly assumed such functions. Only a week or two ago we read with pleasure of its bestowing the large gold medal on Mr. WATERER for the high excellence of his splendid Rhododendrons. This was as it should be, and it would confer equal honour on itself, and render as good service to horticulture, by bestowing like honour on Mr. JAMES BARNES for the example and loving labour of a laborious life, consecrated to the advancement of horticulture.

Neither is there much risk of such rewards, if once bestowed, becoming too common. It would be easy to count on our fingers the whole of the living men amongst us who would be entitled to such honours. It might seem invidious to name them, but there is another amongst them, whose course is nearly run, who ought to be one of the first in the new order of merit—ROBERT THOMPSON, of Chiswick—than whom few, if any, have rendered such distinguished service in the domains of pomology, meteorology, as well as gardening generally. If the proposal be entertained by the Royal Horticultural Society, there might be variety in the rewards. The man who does one thing well, might not deserve the same recognition as he who does all with a master's skill. But details may be left to the wisdom of those who have the power of forming a new Legion of Honour, considering that such distinction would be highly valued by practical men, and powerfully tend to advance horticulture by furnishing a new stimulant, and giving a higher status to horticulturists.

IN one of the pleasant articles wherewith "S. R. H."* freshens the pages of the "Gardener," the genial rosarian throws out a suggestion fully worthy of discussion. If discussed, as we trust it will be, we shall have hopes of the realisation of the project.

"Cum rosam viderat tunc incipere ver arbitrabatur."

So, once this matter gets fairly mooted, then we shall see the foundation of a "HORTICULTURAL CLUB" laid, on which a goodly structure may hereafter, and after no long interval either, be raised. "Why, for example," says Mr. HOLE, "should not the Horticultural Club in London have a permanent building like other clubs, of course on a scale proportioned to its income, where we might read our newspapers, and (dare I mention it?) smoke our cigars with every probability that we should meet some genial friend. Only let Mr. RICHARD DEAN direct us now, and there would be no fear of failure. Not only in London, but in Edinburgh, in Dublin, in Paris, I would have a horticultural club, where gardeners (a title which every man is proud of, if he feels that he has a right to claim it) might assemble in a fraternal spirit as brethren of that Grand Lodge whose first master wore an apron of leaves, and whose best members were never yet ashamed if their own were of purple baize. As time went on, we might have a library of horticultural, botanical, geological, and chemical books. We might have pictures, after the manner of our dear old 'GARRICK' in King Street, of some famous chiefs who had conferred real benefits upon the gardening world. How glad we should be, for instance, to see a good likeness of 'the Doctor,' and of quaint old 'DONALD BEATON!'" Here is the suggestion thrown out. Every one will assent to the principle, we expect. It is the details that will prove the stumbling block. We have our own embryotic scheme—a scheme that has this in its favour, that the necessary room or rooms will probably be easily obtainable near to the Lindley Library. This we hope to see made the gardener's library as soon as the building arrangements will allow. This, too, will form a fitting place for such a Walhalla as Mr. HOLE speaks of; however, we prefer at present to give currency to Mr. HOLE'S suggestion, and beg our friends to think over the matter, and discuss it in our columns. And to Mr. HOLE, who certainly may be said

"Primus vere rosam, atque autumno carpere rosas,"

may it be our pleasure, when his scheme is realised, to congratulate him in the words of MARTIAL— "Nunc tua facta rosa est."

—— We understand that the ROYAL HORTICULTURAL SOCIETY'S MANCHESTER SHOW is likely to be the most important yet held in the provinces. There are considerably over 800 entries, of which 430 relate to Plants and Flowers, 270 to Fruit, and 130 to Vegetables, exclusive of the numerous cottagers exhibitions. We may also mention that in consequence of some changes which have been made as to the opening of the show, there will be an extension of time for receiving objects of competition on the morning of the 19th. Thus plants may be sent in up to half-past nine instead of half-past eight o'clock, and cut flowers will be received up to eleven o'clock. Everything must, however, be staged by noon. The next general meeting of the Society, as well as the usual Tuesday gathering of the members of the Fruit and Floral Committees, will be held on the Tuesday, July 20, at Manchester, instead of at South Kensington.

—— It was announced at the meeting of the Committee of the HAMBURGH INTERNATIONAL EXHIBITION, held on Tuesday last, that HER MAJESTY THE QUEEN had been graciously pleased to intimate her intention to give a Silver Cup as a prize for the best exhibition of Grapes. The conditions of the competition we shall announce hereafter. It is to be hoped that, as a variety of liberal prizes are offered by the Hamburgh Committee, British gardeners will freely respond to the

* Summus Rosarum Hospes'

invitation to exhibit, more especially in the department of fruits, the transmission of which will entail little or no difficulty, inasmuch as a liberal offer for the conveyance of exhibition articles has been made to the English Committee who will take charge of, and believe they will be able to forward, all English contributions, except implements and machinery, to and from this country to the exhibition, free of cost to the exhibitor. Intending competitors should at once communicate with the secretary. MR. EYLES.

—— Let us remind young gardeners that the Royal Horticultural Society's Midsummer EXAMINATION takes place on Tuesday next, July 13, commencing at 10 A.M.

—— We may call the attention of such of our readers as may be interested in the matter, to the fact, that the CELLINI SILVER CUP offered by the Proprietors of this Journal, is open for competition amongst amateurs and gentleman gardeners, for collections of fruits and vegetables staged as indicated in our advertising columns; that is to say, consisting of five kinds of fruits, and eight kinds of vegetables selected from a specified list of subjects, and set up in a neat and tasteful manner. In a district so famous as that around Manchester for horticultural talent, there should be found many competitors for so choice a prize.

—— The examination of witnesses before the Select Committee appointed to collect evidence relating to the ADULTERATION OF SEEDS has been carried on Monday and Thursday last. Several witnesses were examined, and the inquiry stands adjourned till Monday next. It is to be hoped, on all accounts, that in giving evidence witnesses will reply only to such questions as they can answer from personal knowledge. To expect a seedsman to give satisfactory replies to purely scientific questions is as absurd as for a man of science to give an opinion on the details of trade practices.

—— A very effective arrangement of Sedums and similar plants is now to be seen at Messrs. VEITCH'S nursery. For terraces, architectural gardens, for town gardens, or any situation where this formal style of bedding is suitable, Messrs. VEITCH'S raised beds will supply valuable hints. Messrs. VEITCH, at our request, have given us the following particulars of the plants, and the way in which they are distributed over the mounds:—There are three distinct arrangements. In No. 1, or the largest slopes, Pyrethrum Golden Feather is used to define the diamond-shaped spaces—each space being filled with different plants. In the centre of each of the three top diamonds there is a large plant of the Echeveria metallica—the centre diamonds being filled in each with Alternanthera amabilis and versicolor, and the spaces on either side with Echeveria sanguinea, and Kleinia repens. The other diamonds are filled with Sempervivum californicum, tabulæforme, tinctorium, anomalum, and montanum; Echeveria pumila, racemosa, gracillima, caleophana; Sedum brevifolium and glaucum, anglicum and phialoides, corsicum and globiferum; Saxifraga pyramidalis, longifolia, cristata; Sedum tinctorium and arachnoides. In the second arrangement, the slopes in which are smaller, there is an oblong pattern. In the centres are Alternantheras of sorts, followed by Veronica candida, or, for variety, Aubrietia variegata—the groundwork being the Golden Feather Pyrethrum. In one instance the new Iresine Lindeni is being tried, and all the slopes are planted somewhat differently. In the third plan of arrangement the slopes are devoted more exclusively to alpines, &c. The patterns are of oval form, with oval centre of glaucous-foliaged Sempervivums and Sedums, these being surrounded by various kinds of plants to contrast in the foliage. Amongst others are used Thymus lanuginosus, Aubrietia purpurea, Antennaria tomentosa, Bellis minima, Carex colorata, Rhipsalis prismaticus, &c.

—— Example is better than precept. So thought Major CLARKE the other day at the general meeting of the Horticultural Society, when he sliced up the fine specimens of GIANT PUFF-BALL, and caused the slices to be cooked and handed round to the company. Reassured by the evident looks of satisfaction which beamed on the countenances of the members of the Council, who very properly took the "first bite," the Fellows present partook of the delicacy without the fear and trembling or prejudiced loathing which usually attends such experiments. The general verdict was satisfactory, though we think the mycophagists (excuse the word) run into extremes in extolling the plant as a comestible. For a figure and full details of this and other edible Fungi, we refer to p. 1064 of our last year's volume.

—— The ROYAL NURSERIES, SLOUGH, which were lately put up to auction, have, we learn, passed by purchase into the hands of the former lessee, now the spirited proprietor, MR. CHARLES TURNER. May his shadow never grow less!

—— We have just received some curious partly woody and partly fleshy EXCRESCENCES from the spur-joints of VINES, which are quite new to us, though in all probability they have often been seen before. The excrescences, which are subglobose, resemble externally Truffles, and are more than an inch in diameter, and the resemblance is not confined to the obscurely areolated exterior, for the substance within is mottled very much after the manner of a young Truffle. On a close inspection, the whole pallid substance, which is surrounded by a coarse brown bark, is seen to be divided into several more or less distinctly defined areolæ, those towards the centre being more obscure, while the same structure obtains in the bark, though the areolæ in that part are much smaller. Under the microscope may be seen in the centre of the areolæ large thin-walled cells, some of which are almost globose, having between them large intercellular spaces, and surrounding these is the ordinary radiating medullary tissue, accompanied by some dotted cells, with intermediate wedges of woody tissue, and large open ducts, with an admixture of vessels with partially unrollable and very frequently interrupted spiral tissues, so as to present an annular and scalariform structure. The whole mass is evidently formed of a number of confluent adventitious buds, the ends of which are more or less developed; such, at least, is our interpretation of a mere horizontal slice off one of the burrs. It is far from an uncommon thing for the base of spurs in Vines to become gouty, and it is probable that the substance before us is a mere exaggeration of the more common appearance. If our notion be correct, we should be inclined to consider that the cause is very much the same as that which induces some varieties of Vine to throw out clusters of roots from the stems. We should, however, like to see one or more of the burrs as they are connected with the stem, without which it is perhaps unsafe to pronounce a very decided opinion. *M. J. B.*

—— No rule without exceptions. Botanists have, by general consent, divided flowering plants into dicotyledons and monocotyledons, according as the embryo plants have one or two cotyledons, and the distinction holds good in the great majority of instances. But in the same genus it sometimes happens that there are plants with one or two cotyledons respectively. Thus, Professor DICKSON has lately shown that while PINGUICULA LUSITANICA is dicotyledonous, P. vulgaris and P. grandiflora are monocotyledonous. From indications of the presence of five carpels to the ovary, Dr. DICKSON is inclined to put Lentibulariaceæ, the family to which Pinguicula belongs, near to Primulaceæ, with which it agrees in its free central placentas.

New Plants.

CATTLEYA LABIATA TRIANÆ (?) LACERA.

Habitu Cattleyæ Trianæi, petalis cuneatis oblongis acutis grosse serratis, labello cuneato utrinque dente arguto, dein oblongo acuto lobulato.

This is a puzzling plant. It has the habit of Cattleya Trianæ, and appeared among a collection of these. The flower is white, with a purple hue. The petals have thick teeth. The lip is narrow, cuneate, unguiculate, with a tooth at each side of the base, and a cuneate oblong toothletted lamina. The four pollinia have no caudicles, and look as if they were composed of two, confluent, as in the mule Lælias. Can it be a mule between a Brasavola and Cattleya Trianæ? It is most decidedly the strangest Orchid we saw during our last stay in England. We found it with J. Day, Esq., who complained, with a melancholy look, of these, his pets, being so constantly very ugly. We are afraid we shall have to bear a heavy burden of complaints, as, three names having been forbidden the other day at Kensington, we now bring out our odd child with four. *H. G. Rchb. fil.*

PLANT PORTRAITS.

ANTHURIUM LIBONIANUM.—*Gartenflora*, t. 558. Orontiaceæ. A stove perennial, with a short stem, long lanceolate acuminate dark green leaves, cuneately attenuated at the base, and set on long terete petioles, and linear-lanceolate, reflexed spathes on terete peduncles, about half as long as the leaves. Native of South America. Introduced by M. Linden.

BEGONIA GLANDULIFERA.—*Bot. Mag.* t. 5695. Begoniaceæ. A dwarf stemless stove perennial, with obliquely ovate-cordate serrated leaves, and branched panicles of neat white flowers. Introduced from Trinidad to Kew.

× CENTROPOGON LUCYANUS.—*Rev. Hort.* 1868, 291, with fig. Lobeliaceæ. A handsome subshrubby temperate stove plant, with oblong-lanceolate leaves, and pretty rosy carmine tubular flowers produced freely at the ends of short lateral spurs. It flowers in winter. A garden hybrid, raised from Centropogon fastuosus, fertilised with Siphocampylus betulæfolius, by M. Desponds, of Marseilles.

DENDROBIUM DENSIFLORUM ALBO-LUTEUM.—*Bot. Mag.* t. 5780. Orchidaceæ. This is the plant shown at South Kensington by Mr. Wentworth Buller as Dendrobium thyrsiflorum. A very handsome stove epiphyte, with clavate furrowed stems, bearing few distichous leaves, and lateral pendulous racemes from the upper part of the stem, bearing numerous white flowers with a deep orange-yellow fringed lip. Native of Moulmein. Flowered by W. W. Buller, Esq.

DIPLADENIA BOLIVIENSIS.—*Bot. Mag.* t. 5783. Apocynaceæ. A very distinct and desirable stove climbing shrub, with slender stems, oblong acuminate leaves, and subterminal or axillary, three to four-flowered racemes of white flowers, about 2 inches across, with a golden-yellow throat. Introduced from Bolivia by the Messrs. Veitch & Sons, with whom it first flowered in June, 1868.

LEAVENWORTHIA AUREA.—*Bot. Mag.* t. 5730. Cruciferæ. A simple looking, dwarf, half hardy annual, growing a few inches high, and forming a tuft of slender lyrately-pinnatifid leaves, from amongst which rise on erect scapes the four-petaled, rosy-lilac, yellow-eyed flowers, which are freely produced, and about the size of the larger-flowered Aubrietias, which they somewhat resemble. Introduced from the Southern States of America by Mr. W. Thompson.

MONIZIA LUCIDA.—*Bot. Mag.* t. 5724. Umbelliferæ. The Rock or Tree Carrot of the Madeiran Islands, a rare and singular ornamental leaved umbellifer, with an erect shrubby stem, terminating in a head of large decompound leaves, above which rises a second head of broad umbels of small white flowers.

MORÆA BULBIFERA.—*Bot. Mag.* t. 5785. Iridaceæ. A re-introduced Cape bulb, of considerable beauty. It has bulbs of the size of walnuts, rigid, flexuous, leafy, stems 2 to 3 feet high, ensiform leaves, and golden yellow flowers 2 inches in diameter. Introduced by W. Wilson Saunders, Esq., from South Africa, and flowered at Kew in May, 1868.

NAEGELIA EXONIENSIS.—*Floral Mag.* t. 381. Gesneraceæ. A very handsome garden variety of Naegelia or Gesnera zebrina, having large cordate leaves of a rich velvety purple from the presence of colouring hairs, and producing dense spikes of large orange red flowers, paler and spotted in the throat. It was raised by Messrs. Lucombe, Pince & Co., of Exeter.

NAEGELIA FULGIDA BICOLOR.—*Flore des Serres*, t. 1755-6. A charming stove perennial, with bright green roundish ovate pubescent leaves, and flowers of a brilliant scarlet, with the throat pure white spotted with red. A Mexican plant, introduced to the nursery of M. Van Houtte.

ODONTOGLOSSUM CONSTRICTUM.—*Bot. Mag.* t. 5736. Orchidaceæ. A very beautiful stove epiphyte, with ovoid compressed pseudobulbs, elongate linear-lanceolate leaves, and large branched panicles of gaily-coloured narrow-petaled flowers, the sepals and petals being of a bright yellow, with orange-brown blotches, and the fiddle-shaped lip white, with a pair of rose-coloured lateral blotches about the middle. Native of Caraccas. Introduced by Messrs. Backhouse.

PASSIFLORA CINCINNATA.—*Gard. Chron.* 1868, 966, with fig.; *Bot. Mag.* t. 5737. Passifloraceæ. A beautiful greenhouse climber, with glabrous stems, deeply digitate-lobed, glossy dark green leaves, and bold showy flowers of a pale violet-purple, and having a corona of long and singularly curled and twisted dark violet ciliæ, marked with alternate bands of white and purple near the base. Introduced from Brazil to Dropmore, and flowered by Mr. P. Frost.

PTERODISCUS LURIDUS.—*Bot. Mag.* t. 5784. Pedaliaceæ. A gouty-stemmed plant, of little horticultural value. It has linear-oblong deeply lobed almost pinnatifid leaves, and dirty yellow tubular flowers. Native of the Albany district of the Cape Colony, and flowered at Kew in July, 1868.

ROSA INTERMEDIA.—*Rev. Hort.* 1868, 269, figs. 29, 30. Rosaceæ. A very curious and interesting species of Rose, which unites the organic peculiarities of Rosa with the general aspect and inflorescence of Rubus. It is a climbing vigorous shrub, with shining bark, imparipinnate leaves with soft obovate-elliptic toothed leaflets, and very numerous small sweet-scented pure white single flowers, which form great thyrsoid heads. Introduced from China and flowered by M. André Leroy.

STERNBERGIA FISCHERIANA.—*Gartenflora*, t. 576. Amaryllidaceæ. A pretty dwarf-growing hardy bulb, with blunt erect loriform quite flat leaves, and Crocus-like pale yellow flowers, produced in early spring and not in autumn, as is the case with S. lutea. Introduced from Karabagh to the St. Petersburg Botanic Garden.

THUNIA BENSONIÆ.—*Bot. Mag.* t. 5694. Orchidaceæ. A very beautiful terrestrial stove perennial, with rhodose tubers, fascicled stems, long subdistichous linear-lanceolate leaves, and large showy flowers of a bright rosy purple, whitish towards the centre, the lip a deep rich rosy purple, with bright yellow crests on the disc. Introduced from Rangoon by Messrs. Veitch & Sons.

VACCINIUM REFLEXUM.—*Bot. Mag.* t. 5781. Vacciniaceæ. A slender woody plant, with sparingly divided pendulous branches, 1 to 2 feet long, clothed with small reflexed oblong-lanceolate acute leaves, and bearing at or near the ends small corymbs of urceolate deep red flowers. Native of the Andes, hanging over rocks. Introduced by Messrs. Veitch & Sons from Bolivia, and flowered by them last January.

EVERGREEN BERBERRIES.

(*Concluded from p.* 711.)

THE following species, adverted to in my last, were described in the "Journal of the Horticultural Society" nearly 20 years since:—

B. ilicifolia (Terra del Fuego).—There are three or four very different species which have had this name attached to them as an *alias*, but there is also quite a distinct species, which was considered by Dr. Joseph Hooker to be the handsomest of the genus. The leaves of this shrub are described as being "obovate, petiolate, acute, coriaceous, dark shining green, especially above, pale beneath; the margin coarsely and distantly serrated, and each serrature armed with a distinct spine." The foliage is said to resemble that of B. Wallichiana, but the inflorescence to be very different. The species was considered to be quite hardy, and it is to be hoped that it may be reintroduced for cultivation in this country.

B. hypoleuca (Nepal).—The leaves of this shrub are said to be larger than those of any other single-leaved species, sometimes measuring 4 inches in length by 2 in breadth. They are leathery, of a dull dark green, and very white underneath, with coarse spiny teeth. It is said to be slightly injured by very severe frosts. This species does not appear in any of the nursery catalogues, but is probably still existing at Kew, or in the Horticultural Garden at Chiswick.

B. parvifiora (S. America).—Described as "a pale-wooded evergreen bush, with slender branches, small, rather fine spines, and bright green leaves. The leaves are about 1½ inch long, by ½ inch wide, and have pretty exactly the form of a lengthened wedge, whose upper end is almost always divided into three equal, coarse, spiny teeth: other teeth, however, occasionally appear at the sides. The flowers are unusually small, and grow five or six together in nodding clusters." This shrub was first introduced many years since by Messrs. Lee, of Hammersmith, who inform me that they have lost the species altogether. It is a handsome plant, a true evergreen, and perfectly hardy.

The following, with the exception of those marked with a *, being rather common, and all rather inconspicuous shrubs, will be but briefly noticed.

B. actinacantha (Chili).—"A stiff shrub, remarkable for its great palmate spines, and small sessile, dark green, spiny fascicled leaves. The flowers are small and clustered, not racemose." It is quite hardy, and thrives in common garden soil.

* *B. aurahuacensis* (New Grenada) is described as "an elegant shrub, with straight, erect branches, and bearing leaves of two sorts—the lower cordate, slightly enlarged and angular in the sinus, where they are jointed with the petiole, which is very long; the upper obovate, elliptical, tapering to the base, coriaceous, wavy, with a few marginal spiny teeth near the end, very glaucous beneath. The flowers are in compact racemes, drooping, and very deep yellow." On my specimen very few of the leaves have more than one tooth at the end—whether hardy is at present doubtful.

B. dealbata (S. America).—"A good-looking shrub, with stout brown branches, scarcely spiny, and undulated leaves of a bluish green on the upper side, and almost white beneath. The latter are generally truncate, with three spiny teeth at the end, and two or three more at the sides, sometimes 2 inches long, and 1¾ wide. The flowers appear in short, oblong, very compact drooping yellow racemes." It is quite hardy and rather scarce.

B. empetrifolia (Magellan).—This very common and well-known species is thus described in the "Journal of the Horticultural Society," vol. v., part 1. "A little trailing bush, with stiff, three-parted spines, and linear pungent leaves, not unlike those of Genista anglica

bright green, clustered, and about 1 inch long. From their axils appear, in the month of May, a few bright yellow flowers, growing singly or in pairs on stalks shorter than the leaves." It is quite hardy, and appears to thrive in a mixture of peat and sandy loam. It is well adapted for rockwork. There is a variety of this species called E. longifolia, alias cuneata.

B. heterophylla (Magellan).—"Spines three-parted; leaves ovate-lanceolate, smooth, some entire, some three-toothed; pedicels solitary, one-flowered (Loudon)." Perhaps the least worth cultivating of the whole genus. It is perfectly hardy.

* *B. loxensis* (Peru).—This species appears to have quite gone out of cultivation in this country. It is said to have very beautiful foliage, and to resemble B. Jamesoni, but has much smaller flowers.

B. umbellata (N. India).—There appear to be more than one species with this name, and certainly very different shrubs are sent out from the nurseries as B. umbellata. Probably the true species is to be found in the Horticultural Gardens, at Chiswick, under the name of B. angularis or angulosa, which is described in the "Journal" as follows:—"It is a hardy bush, about 4 feet high, with a spreading manner of growth, pale brown, angular branches, three-parted spines, and very narrow, bluish-green leaves, strikingly glaucous beneath; on an average they are 1¾ inch long by ⅜ inch wide; sometimes they are perfectly entire, but they are more commonly furnished with a strong marginal spiny tooth or two and sometimes with many. The flowers are pale yellow, in drooping, narrow racemes." It is quite hardy.

B. undulata (Peru). — "Slender branches and small palmated spines. The leaves are dull green, scarcely glaucous, oblong, tapering to the base, remarkably wavy and furnished with a few spiny distant teeth, without any distinct trace of netted veins. The flowers appear in small roundish, nearly sessile racemes." It is said to be quite hardy. It is doubtful whether the species is still in cultivation in this country.

The more valuable species of those requiring shelter under glass are:—

B. nepalensis (Nepal).—A magnificent shrub with pinnated leaves, occasionally 2 feet in length, and of a pale green, and sometimes as many as eight pairs of leaflets and an odd one, some of the leaflets being 6 inches in length and nearly 2 inches in breadth; they are ovate-oblong, obliquely cordate, coarsely spiny-toothed. Its inflorescence is very striking and beautiful. In the description of this shrub in the "Journal of the Horticultural Society," the leaves are given as only a foot in length, and the leaflets as only 3 inches. This error probably arose from the specimens made use of being dried, or very young plants. From the rather flimsy nature of the leaves, this species is still more easily injured by high winds than B. Bealei is, and unfortunately it will not bear excessive cold. In ordinary winters it will live out-of-doors, but is far too valuable a plant to expose to any risks, and a conservatory or cold greenhouse is certainly the fittest place for it.

B. trifurca (China). — This fine species has become very scarce, the only nursery that the writer knows of where it is cultivated being that of Mr. Dancer, at Fulham. B. trifurca is a magnificent shrub with pinnated leaves about 20 inches in length, and lanceolate leaflets in pairs of 7 or 8 with terminal one, much darker and thicker than those of B. nepalensis. Its young shoots are of a remarkably brilliant purple colour. From the appearance of its leaflets, which are of a leathery texture, this species should be hardier than B. nepalensis. Mr. Shirley Hibberd, in the "Floral World, 1867," says, "that he has seen a specimen of this shrub in a pot at Messrs. Hendersons', of St. John's Wood, which had then attained the height of about 7 feet." If that specimen was well clothed with leaves, it must have been a magnificent plant. Good sized plants of B. trifurca and B. nepalensis are difficult to procure, being slow of growth, and difficult to propagate except from seed.

B. Ehrenbergii (Mexico).—This is a rather remarkable species, inasmuch as its leaflets are quite destitute of any trace of toothing, with the exception of a single prickle at the end; they are ovate-lanceolate, with a yellowish, semi-transparent, very narrow, thickened margin, in pairs of 5—6, and the terminal one. It is supposed to be nearly allied to B. tenuifolia, but has longer and narrower leaflets. It is a greenhouse species.

B. tenuifolia (Mexico).—"Easily distinguished by the leaflets of its long, pinnated leaves being ovate-lanceolate, pale bright green, and perfectly free from all trace of toothing. Its flowers appear in abundance in long, simple, erect, loose, open racemes." ("Journal of the Horticultural Society.") It appears to be a very scarce shrub, and is much too tender to grow out-of-doors.

B. pallida (Mexico). — A handsome greenhouse shrub, with rather short pinnated leaves, the leaflets distantly toothed in pairs of 3—4 with terminal one, varying considerably in size, the largest being 2½ inches, and old leaflets on the same plant only 1½ inch in length. This species can be still had from some nurseries.

B. tolimensis (S. America).—There appears to be very little known of this plant, how or when introduced. The following description of a specimen in my collection may, however, give some idea of its appearance and peculiarities:—Leaves 6—8 inches long, of 4—6 pairs of leaflets with an odd one. Leaflets about 2 inches in length by ¾ inch broad, they are ovate-lanceolate, sharp pointed, sinuated, with 5—6 spiny teeth on each side. The foliage is much like that of B. fascicularis, but not quite so wavy and glaucous. The habit of the plant is more erect, throwing up straight shoots of some length from the base, but in other respects its appearance is such that it might be taken for one of the many garden forms or hybrids which have been raised from "fascicularis." From the appearance of the leaves of this plant there seems to be no probability of its proving hardy, but it is handsome enough to render it worthy of a place in conservatory or greenhouse. *J. J.*

ONCIDIUM MACRANTHUM.*

SINCE the exhibition last summer of Lord Londesborough's fine variety of this plant, the growers of Orchids have been anxious to know more of a species which was then seen to possess so many claims to a



prominent position amongst ornamental epiphytes. Nor are the feelings of admiration which were excited by the plant in question likely to be other than strengthened by the beautiful specimen, with 28 flowers, which we have already noticed as having bloomed this year in the choice collection of E. Salt, Esq., and which was exhibited in all its loveliness at the meeting of the Royal Horticultural Society on Tuesday last. The plants of this first-class Orchid were, we believe, distributed under the name of O. macranthum hastiferum, being then identified with the O. hastiferum of Reichenbach. From that plant, however, it would seem to differ by having all its sepals very distinctly stalked, the dorsal one not being ovate, but roundish, oblong, with a cordate base, and the lateral ones not wedge-shaped, but bluntly oblong, while the crest on the lip has not one prominent tooth, but two reversed teeth on either side of the central keel—marks which are set down as the characteristic features of O. macranthum.

The imported plants are variable as to colour. Lord Londesborough's has darkish olive-tinted sepals, Mr. Salt's, though having the olive tint, is somewhat yellower; while one bloomed in the Bishop of Winchester's collection, is said to have these organs of a pure yellow. The technical characters of the plant are as follows:—

Pseudobulbs elongate ovate, compressed, furrowed and transversely wrinkled when old. Leaves oblong, marked with several distinct pallid veins. Scape from the base of the pseudobulbs, extended into a long climbing panicle, furnished rather sparsely with short lateral flowering branches. Flowers large, showy, 3 inches to 4 inches across, usually of an olive-tinted yellow; sepals distinctly clawed, undulated, the dorsal one roundish-oblong obtuse, with a cordate base, the lateral ones slightly narrower, more distinctly oblong, and with a broad, rounded obtuse apex; petals clear yellow, slightly larger than, but of the same shape as, the lateral sepals, attached by a broad short stalk; lip comparatively small, hastate, the lateral lobes spreading, dull purple, the middle lobe acuminate, yellow, stained with purple at the edge; crest very large and prominent, white, with a few purple spots at the apex, having a central keel extended into a tooth at the top, and furnished with two large reversed teeth on either side. Column wings broad, purple. *M.*

* Lindley, Gen. et Sp. Orchid. Plants, 205.

GLAZING AND GREENHOUSE BUILDING.

AT length I have gained sufficient time to go into the calculation of the cost of our new structure for the growth of variegated Pelargoniums, and as it may appear to be out of the usual style of such buildings, I think a short description in aid of the sketch published in the *Gardeners' Chronicle* (1869), p. 135, may be acceptable to some of your readers.

The whole of the brickwork is 4-inch, or single brick; this is rough cemented inside where covered up, and finished where seen; the cement used is the best Portland. The reasons for this are—first, economy, and, secondly, strength and endurance combined with dryness of the walls. As may be observed, the beds on which the plants stand are filled in nearly 2 feet with ashes. This is more suitable for the plants in all seasons than either boards or slates, as it secures good drainage, with a freely drained yet moist bottom, and is therefore a more natural condition for the well-being of the plants. If the inner side of the pit were not cemented, the outer walls would be damp, and in frosty weather the work would be torn to ruins in a few years. This would occur even if the outer walls were 9 inches thick. This I have experienced, whereas a wall well built in mortar of a single brick in thickness, cemented inside to keep it dry, will last a lifetime. I should here observe that the external walls are not cemented. The inner pit has a cross wall every 20 feet, to connect the inner wall of the path with the outer walls; this enables the work to bear the weight of the bed of ashes and the plants without bulging. There is one partition in the centre of this house, the whole length of which is 100 feet, dividing it into equal parts of 50 feet each; this partition adds firmness to the erection. The height in the centre is 7 feet, the outer walls from the surface of the ground are 2 feet, side ventilators and plates 15 inches; the width is 11 feet 8 inches, the bars 7 feet long; width of opening for ventilation in roof, 8¼ inches; angle of house about 40° in slope.

I have estimated the bars or astragals as 2 inches deep and 1½ wide, the double ridge 1 inch thick and 5 inches deep, the cap or ventilator 1½ inch thick by 11 inches wide, brought down at the edges to 1 inch; this should have iron ribs at the ends, and one in the middle (two would be better if 21 feet long), on the upper side, to preserve the work from casting through sun-heat. The glass should be 21 oz., free from lenses, and should be a good flat even sample: avoid false economy here. The arches for supporting the roof should be not less than ⅝ or ¾ rod iron, and should be turned before drilling; the screws used should be galvanised throughout the whole of the work.

The door-posts are 3 by 4½ inches, with oak sides; the doors ¾ inch thick, plates 3 by 5½ inches, side ventilators 1 inch thick by 11 inches wide if in one; ours are divided as seen in the figure.

Anyone can take the quantities out of this statement, and as nearly as I can possibly calculate, this building should only cost 150*l.* This sum does not include blinds, or any charge for heating apparatus.

I must here state that when the glass does not closely meet, the rain enters and runs down (but does not drip), escaping at the bottom over the plate, which should have an outward inclination. Wherever this is the case a little green dirt accumulates in course of a few months, yet is easily cleaned off with a cloth, and then strongly syringed. A lad can clean the whole of our house in a day. Once or twice a year will suffice for this, and a wet day is best for the job: when thus cleaned the house looks as if newly glazed.

Some of my correspondents have been troubled about glass expansion. This is very minute, and may be provided for by making the ridge groove ⅝ inch deep. The glass need only enter ½ inch, leaving ⅛ inch play for expansion, which is ample for a wide roof; if preferred, the ⅛ inch might be filled with a slip of india-rubber, which will prevent the ingress of air.

I shall always feel pleasure in giving any further explanation, in reply to letters addressed to me here, or to receive visitors and show the plan of glazing, &c. *F. T. Smith, Dulwich.*

Home Correspondence.

Gladiolus insignis.—What a gorgeous flower for decorative purposes this is, whether for beds, borders, or pots! Grown in the latter, especially in large sizes, it would be a fine thing to slip into large vases, where, for the time, it would look grand; or even if used to

decorate the conservatory it would form an object of the most conspicuous and effective kind. Everybody should grow it in the herbaceous border, where, in conjunction with blue Delphiniums and white Pinks, it would form a rich combination. I saw the other day a fine bed of Delphinium that looked the richest thing in the whole place, but it wanted relief and contrast, and if around it had been placed a treble row of this splendid Gladiolus, with its rich orange-scarlet flowers, and outside that a broad belt of white Pinks, especially one of the later blooming kinds, it would produce a sensational bed I am sure. Its time of blooming with me in the open ground commences about June 20. The bulb is quite hardy, and starts its growth in the autumn, consequently is green through the winter. Pots of it housed through the winter will bloom a month earlier, and I have no doubt but that it would force well. The graceful form assumed by the spikes, and the fact that the flowers appear on the upper side of them, tend greatly to add to its beauty. It is one of those rich decorative plants that, although easy of cultivation, are too seldom met with; indeed I almost think in this day a plant has only to be easily grown to be as freely neglected. *Alex. Dean.*

Manure for Transplanted Shrubs.—I have found, if there are only a few trees that require invigorating, that soapsuds or a little train-oil poured down a hole made w th a stick near the roots are very beneficial to transplanted shrubs. It will not answer, however, if the trees are wanted to flower freely, as it only assists in making wood. *T. Bamfield.*

Temperature of June, 1869.—If your correspondent, "A. F. B.," p. 688, has had no greater depression of temperature than 31½°, he has certainly had cause to be thankful. In this locality the weather has been cold and sunless (with wind from the east or north-east) during the entire month, with the exception of the 6th and 7th days, when the maximum temperature in the shade was 80° and 87° respectively. The mean or average temperature of the month was under that of the cold June of 1860, being only 50.50° to 57.25°. During the month the thermometer has fallen on ten occasions under 32°, as is shown below. The instrument used is Casella's Registering Garden Thermometer, warranted correct. June 8th, minimum temperature, 28°; 10th, do., 27°; 11th, do., 29°; 14th, do., 28°; 15th, do., 31°; 16th, do., 24°; 17th, do., 30°; 18th, do., 26°; 19th, do., 29°; 26th, do., 30°. *P. Grieve, Culford, Bury St. Edmund's.*

Myosotis dissitiflora.—If it be the lot of this variety to fairly eclipse all of the spring blooming kinds of this beautiful flower, so do I think all of the summer flowering kinds will have to pale their ineffectual fires before the lovely new variety, azorica var. cœlestina. I am not sure that this kind is hardy, as I preserved my plants of it raised from seed last year in a cold frame through the winter. It is well adapted for pot culture, as it has a stiff, erect, branching habit, growing from 8 to 9 inches in height. It is a perfect gem; the colour of the flowers is a purplish blue; the pips are small, and are gathered into trusses rather than spikes, as in the early blooming kinds. This little plant will surely prove a real favourite. As to the discussion that is now taking place on the merits of dissitiflora, I can cordially endorse all that has been said in its favour, especially as to its early blooming qualities. It began blooming with me at the beginning of March, and at no period of its growth was it more lovely than just then; each little shoot had its tuft of pretty blue flowers bursting out from its centre, and coming at a time when other flowers are scarce, it necessarily makes it all the more valuable. It seems to me to have a capacity to accommodate itself to any position, for it thrives as well under the hot summer sun, and upon dry gravelly soil, as it does in the cold winter or in stiff clay. If it will do better with any one than it has done with me, I should like to see it. My present stock is from seed of last year, but I am propagating it largely now from, not exactly cuttings, but side shoots. After the plants had reached their maximum of blooming I gave them a liberal top-dressing of sifted pot earth; this for two purposes—first, to encourage root action in the side shoots, and second, to make a fitting groundwork for the seed that will ripen and fall before the stalks have done blooming. As the side growth is made after top-dressing, these shoots, if carefully pulled away, will be found to be well rooted, and if a piece of ground is ready in any out-of-the-way corner, it is only necessary to take a dibber and fix them securely in the soil, giving them at the same time, if requisite, a good soaking of water, and a stock of strong plants for the ensuing autumn is assured. I have been thus careful to particularise the best mode of cultivating this pretty flower, because I believe the best way to popularise a plant among the masses is to show them that it can be grown with comparative ease; and certainly none can be more so than this. Old plants are not worth leaving in their places, it is much best to pull all to pieces, and grow afresh from side shoots. I don't endorse Mr. Atkins' advice to trust to seed rather than to cuttings, if by cuttings he means side shoots, as I do. Plants from the latter, put in during June, will by Michaelmas be six times as large as those grown from seed sown at Midsummer (which was as early as I could gather mine), and may be propagated from again the same autumn. When an endeavour is made to popularise a new or little-known plant, assuredly it may be done without so much verbosity or apparent anxiety to show to the world that its doing so well is the result of the writer's superior knowledge, when in reality it is because the plant in question will grow better without coddling than with it. *Alex. Dean.*

Ground Vineries.—A great drawback to growing Grapes in ground vineries is the trouble of thinning them, which is greater in them than in ordinary vineries. To those who attempt to thin as the Grapes lie upon the slates, the trouble may be lessened two-thirds by pulling up the shoot on which the bunch grows, and propping it above the bunch on the fork of a small stick, two or three of which of different lengths may be provided. The bunch will then hang as from a rafter, and the underside being first thinned, it may be let down, and a little finishing given as it lies upon the slate. By the time thinning is required all danger of the shoot breaking off at the base will be past. I hope, however, to be shortly able to enable all growers of the Black Hamburgh to avoid the difficulty of thinning altogether, by supplying them, through Mr. Rivers, with a fine-flavoured, large-berried variety of that Grape, which grows naturally, in such a way that no thinning is required. I say so, because, though that gentleman, who has got the cuttings, is as yet sceptical about it—"The news is too good to be true," he says—I have known the Grape for several seasons in a private garden, and found that it fully deserved that character. From knowing its origin, I believe too that it is the only plant of its kind in this country. With reference to a former communication of mine on laying down the shoots of a Vine in these vineries, it is better to say that pieces of tile are safer than stones for the green, soft shoots, as in a hot sun stones sometimes heat so as to burn and destroy such shoots, and that too even if their weight is supported by another stone. This should be especially noted with regard to the leader. *Alexander Boyle, Narberth.*

Honeydew.—Professor Westwood is cautious in his statements, as becomes a Professor; in fact, it is always safe not to contradict. I will imitate his caution. Nevertheless, I venture to say that I think it will be found that no honeydew exists but that which is an excrementitious deposit of insects. Where no aphides are at once apparent to account for it—as, for instance, when the honeydrops are seen on the broad leaves of Sycamore—a little research will generally discover the producers on the blossoms or younger shoots. Some years ago a statement was made in your Journal that attack of a plant by aphis showed something wrong with the root. I did not believe it as I read it, but within half-an-hour a careful examination of the plants in my greenhouse convinced me; and my belief now is, that they are always a mark of sap becoming inspissated, and probably saccharised. If the circumstances which are known to favour blight are considered, it will be seen that warmth and rain have first stimulated growth, and then drought checks root action, so that the young shoots are always in excess of roots grown to maintain their growth. This produces a state of sap which is the proper food of the aphis, and gives the supply of food. The production of devourers seems rapid and inexhaustible. *J. S., Streatley Vicarage, July 6.*

Judging Cucumbers and Vegetable Marrows.—Will you state what should be the standard of excellence in judging a Cucumber for the table: I find that the opinion of judges varies greatly as to what is the best size and shape. I observed at a recent show that Cucumbers approaching the shape of the Vegetable Marrow, and about 9 to 12 inches long, gained the 1st prize, while others that looked quite young and fit for table, about 2 feet in length, and about the size of a half-crown in diameter, had not even a commendation. I always understood that Cucumbers should be judged by points—1st, length; 2d, smallness of diameter. Vegetable Marrows are generally judged by shape, but I hold this to be an error. I think each one should be cut open. Last summer I tried six varieties, and one of the worst shaped I found to be the thickest fleshed, with little seed, and much the heaviest according to size. *A Gardener.* [Cucumbers for exhibition should be straight, evenly swelled close up to both ends, smooth or free from ribs on the surface, and in length about nine or ten times the diameter. Generally dark green varieties, with plenty of bloom, and black spines are preferred, though as the best of all Cucumbers belong to the smooth-skinned Syon House breed, these latter points involve sacrificing quality to appearance. Hence there should be separate classes for the different races of Cucumbers. In regard to Vegetable Marrows the shapes are various, but as undoubtedly one of the most important qualities is thickness of flesh, superior weight for a given size would be a pretty good test. They should never be shown larger in diameter than a good Cucumber. EDS.]

Cultivation of Orchids.—In the cultivation of Orchids generally, it is much easier to imitate the natural conditions of some plants than others; many cultivators are sadly misled by their own ideas of Nature in trying to imitate her too closely. For with all our modern appliances in the construction of houses, and general information on the cultivation and conditions under which they are found in the natural state, there are many plants just as much mismanaged now as ever they were. To remedy this state of things it would be a great boon to lovers of Orchids "if growers would publish the result of their experience with any particular plant they may happen to cultivate to a high state of perfection," and compare notes with the conditions under which the plant is found in Nature. I will undertake to say that more Orchids have been killed within the last five years by the cool-treatment fever than ever were killed by what some term the stewing system in the previous 10 years, merely because the one has been carried to a greater excess that the other. Three-fourths of the whole family are cool Orchids, that is to say, they require a cooler resting season than was generally supposed requsite some years ago; but the coolest of our cool Orchids will be the better for a growing temperature many degrees in excess of its natural clime; and, as a rule, the same may be said of Orchids from hotter countries. As the old adage says, there is a medium in all things. Wherever the tropical Orchids are found the seasons of growth are much longer, the climate less variable, the sun's rays more powerful, the light of longer duration; and innumerable other circumstances might be adduced to show the necessity of exciting these plants in their growing season, by a warmer and more humid atmosphere, to counterbalance, in some measure, for our short seasons, variable climate, and absence of the sun's power and light, so essential to the well-being of most Orchids. I remember some five years ago, when the cool Orchid fever was at its height, I had a fine collection of Odontoglossums growing well at the cool end of a Cattleya house, and through the anxiety of my employer to grow them still better the greater proportion were transferred to a house only a few degrees cooler, but they stood on a lath-stage, and the house was freely ventilated—in fact, everything which either money or skill could do or suggest was done to make this house a happy home for the Odontoglots; but the few that were left in the old position in the Cattleya house did by far the best, adding 50 per cent. to their value, whereas, taken as a whole, the others were rather a loss than a gain. The question may arise, What temperature was the Cattleya house kept at, as also the other house? Well, the night temperature of the former would average 60° by fire-heat, the latter 55°; but as regards the day temperature of the Cattleya house, anything from 70° to 100° would do, providing the air never became too dry. Water-tight stages will always prevent this. The air of the Odontoglossum house was generally much drier, owing to the free circulation of air, and seldom above 55° by fire-heat. My experiments with these subjects have extended over several years, and being at the same time pretty well acquainted with the geographical distribution of the plants, and climatal conditions under which they are found naturally, I have noted from time to time many striking instances of the greatest possible success having resulted from treatment in direct opposition to what the plant could be subjected to in its natural state. To illustrate my subject, I give the natural conditions under which Epidendrum bicornutum is most frequently found, and show that the finest specimen of that species perhaps ever cultivated or exhibited in this country was grown at variance with what the plant would seem by Nature to require. This beautiful Orchid is found growing most plentifully on some of the Bocas Islands, which form the boundary of the Gulf of Para on that side; nothing can be more hideous, harder, or hotter in the sun than these rocks,—nothing can be more stunted in the way of tropical vegetation than the plants growing on them. Upon these low, shabby-looking shrubs grows the Epidendrum in the greatest luxuriance. They are also found growing on the rocks, which are frequently so hot that a man could not allow his hand to rest there. The temperature will average 85° by day, and 78° to 80° by night, under the influence of the sea breeze. They are generally to be found within 150 yards of the water; their rooting is invariably superficial, and generally very exposed, "those in the sun being most productive of bloom." It is a well known fact that this is one of the most difficult Orchids to cultivate, and the secret of my success I attribute to the following fact:—The late Dr. Butler used to call it the first cousin of Phalænopsis amabilis, and always insisted on its being associated with them, where it received the same cultural treatment in every respect, and few plants would appear to be more at variance as regards their respective natural conditions than these; yet many of your readers will remember the perfection to which both were cultivated under similar circumstances, and the fine spikes of bloom exhibited by me at the Crystal Palace 10 or 12 years ago. I do not wish to advocate a return to what is vaguely termed the stewing system of every plant because it is an Orchid, but to caution amateurs against running to the other extreme, as there is evidently a strong tendency to do so. Even the Saccolabiums, Phalænopsis, and some of the hot country Aerides have of late years got a corresponding share of the cool treatment, the consequence of which has been to give rise to the cry of "Where are the noble specimens of Saccolabium, Phalænopsis, &c., that we used to see years ago?" My answer is, "They are the victims of cool treatment." *Robert Bullen, Curator, Royal Botanic Gardens, Glasgow.*

Foreign Correspondence.

SPRING VEGETATION IN SOUTH-EASTERN SPAIN (*continued from p. 714*).—The road to Alicante, a seaport about 40 miles distant, passes in a north-easterly direction over a spur of the limestone mountain or ridge that bounds and forms to the north the vale of Murcia. It again falls into the latter at Orihuela, about 12 miles from Murcia. As soon as we had ascended out of the reach of irrigation, desolation reappeared; thousands of acres of land ploughed, without a blade of grain or Grass, without a weed, and vegetation reduced to small stunted Olive, Fig, and Carouba trees, especially the latter. At the same time groves, thickets of Opuntias appeared, all in flower. Men eat the insipid fruit, cattle the leaves, so some good is got out of them; and they seem all but able to grow out of all but a burning rock. They clearly like the lime soil. On descending again into the vale of Murcia at Orihuela, as soon as water is reached the same magic change as before is witnessed. The first well is indicated by a house, some vegetation around, and two, three, or more Palm trees, for, as in the African desert, the Palm tree means water, a well, or a running stream, more surely than does the Lombardy Poplar in Continental Europe. When steady irrigation commences the same exuberant fertility appears as near Murcia, Wheat here turning yellow,—Beans, Peas, Flax, large Mulberry, Olive, Carouba, Almond, Apricot trees, with Vines and Pomegranates. I never before saw such Apricot trees, as large as 50 years old Oaks, and spreading like Oaks. The fruit was beginning to ripen, but is inferior, as is the fruit of

most trees grown in the open fields on the Continent. But the peculiar feature of Orihuela is the Palms. They here appeared in orchards, in groves, in thickets, of 50, 100, or more acres, from 10 to 100 feet high, exactly like the Palms in India, as one of my companions, an Indian officer, stated. The explanation of their presence, in such multitudes, in this district is that from Carthagena to Alicante, owing to the intense heat of the summer in this rainless, sunburnt region, they ripen their fruit, which consequently becomes an important object of trade. The Dates are large, fleshy, and good, but not so sweet, so encrusted with sugar, as those of the desert of Africa. They are largely consumed by the Spaniards, as evidenced by the fact that I found them in large quantities in every market that I visited. Orihuela is a dense hive of human beings, 19,000 strong, all subsisting on the bounty of Nature thus helped by man, and in a great measure on the produce of the Palm Dates. I remarked throughout this region basaltic rocks cropping out of the limestone mountains, and it is probable that their presence gives another element to the limestone soil, and one that suits the constitution of the Date Palm, as I have previously stated. Rather severe earthquakes are occasionally felt here.

On rising out of the happy valley, in our track across this rainless country, we once again emerged on calcareous plains, sunburnt, and all but devoid of vegetable life. They would have been entirely so had it not been for the Carouba, Olive, and Fig, which once more, although stunted, manages to live through all their difficulties. These trees possess roots that have the power of travelling nearly any distance, or dipping down nearly any depth in search of food and water. They are, as my Mentone gardener calls them, robbers, and I have had to extirpate them, for wherever I made a rich border, there I found their roots at the end of a year or two. This partly explains their power of resistance to drought, added to a constitution suited to intense heat and to long-continued vegetative rests, or sleeps during hot dry weather. But although they can thus live on for a year or two, or more, all but without water, merely moistened by the dew of heaven, they do not produce fruit, or at least eatable fruit, under such adverse circumstances. It made one quite sad to see so much labour and seed wasted, an entire country cleaned, ploughed, and sown, and not even a crop of weeds to dig in for the next season. On one occasion I left the carriage and walked over 20 or 30 acres of the ploughed land, and only found half-a-dozen herbaceous Euphorbias, some 3 or 4 inches high; two or three small Thistles, and a small Convolvulus flower, at the bottom of a ditch. The calcareous mountain ridges to the north-west, which we skirted, were more bare than the white cliffs of Dover in their most precipitous part. Truly did they seem the bare bones of the earth piercing its skin.

After a progress of some 20 miles through this cultivated wilderness, we came to another valley, and then burst on our astonished eyes an oasis of the African desert, such as we had wished to see in Africa, but had not seen—a forest of tropical Date Palms, extending over a vast region, many miles in circumference, and surrounding the famed village or town of Elche. The river bed was crossed by a good bridge, but in it there was no river. It had been taken up bodily by the inhabitants, and distributed in canals to their friends and bread givers the Palms. I remained here several hours, and walked miles in the Palm forest, the like of which my Indian companion had never seen in the tropics. There were canals full of water flowing rapidly in every direction, and the ground was everywhere prepared for constant irrigation in trenches, in squares, in parallelograms, banked in by earth walls, 1 or 2 feet high; water was constantly let into these trenches and squares, and allowed slowly to soak in so as to moisten the soil thoroughly wherever there were roots. Thus, again, was I reminded of the Arab saying, already quoted, that the Palm "must have his roots in the water, and his head in the fire." There were Palms of all sizes, from 20 to 100 feet, of every shape and direction. Some erect, like the Trojan column at Rome; others gracefully twisted or inclined. Sometimes they were growing capriciously, sometimes in rows, in squares, methodically planted. The Date forest was evidently a most valuable property, and the boundary of each proprietor's grounds was protected by walls, with doors here and there, admitting of easy ingress and egress. The Dates were being gathered from some of the trees, whilst other trees, sometimes the same one, were in full flower. In some regions of the forests, where the Palms were not so close together, there were vegetables, Peas, Beans, &c., growing underneath them, but this was the exception. Evidently the Dates were too valuable a crop, like Lemons at Mentone, for everything else not to give way to them, wherever they could be cultivated, *alias* irrigated. The land appeared to be a calcareous loam, but on examining the empty river bed, I found it a mass of siliceous sand, so that, no doubt, the soil of the district is impregnated with silex. The Dates are gathered by boys, who swarm up the trees, an operation that was easily performed by a small boy for our edification.

Between Elche and Alicante I found the same cultivated barrenness, the same brown naked fields, dotted with a few stunted Caroubas, Olives, and Figs. But on arriving at Alicante the desolation of thirst did not cease. Alicante has a good port, in a good bay, which brings commerce, but it has no valley, no river, only one good spring, which never dries up, and does not even much diminish in years of drought. This spring, situated about a mile from the town, is, I was told, really a fountain of life for Alicante, inasmuch as it supplies the thirst and "occasional" ablutions of a town of 25,000 inhabitants. The town itself after this winter's drought was like Carthagena, a mere crater to a volcano, without vegetation, with the exception of a few stunted Acacias, Caroubas, and other trees with sparse foliage, planted along the sides of the main road, each in a deep circular bricked hole some 4 feet in diameter for irrigation. There was an attempt at a garden in a square on one side of the town, where Monthly and Bengal Roses, Poppies, Antirrhinums, Delphiniums, and Thlaspias with Virginian Stock, formed the flower-beds, without a trace of winter gardening. From the castle rock we saw one green spot in the town, the garden of the governor, who evidently gets the lion's share of the water. Otherwise the sea is open, the bay fine, the coast rocky, and no doubt the weather is very dry, beautiful, and mild in winter.

The railroad by which we left Alicante for Valentia goes all but due west for about 15 miles over calcareous mountain slopes, exactly of the same character as those by which we entered Alicante. The country bore exactly the same stamp of dryness—of vain attempts this year to raise by careful and laborious husbandry a grain crop. The fields were all limited by the same little banks of earth some 8 or 10 inches high, to keep in rain that had never come. It was painful to think of the loss, and probably ruin, entailed on the cultivators of the soil by a succession of seasons such as the present, for the stunted Carouba, Olive, and Fig trees showed that the drought, although greater this year than usual, was not an exceptional event. Indeed what I have seen in this region, in Africa, and elsewhere in the south of Europe, has led me to the conviction that with all the uncertainty of our climate our agriculturists are perhaps better off than those in many regions usually considered more favoured. An incident in my recent journey illustrates this fact. When at Teniel el Haad, on the frontier of the desert of Sahara, in Algeria, April the 26th, I was awakened at 5 in the morning by the beating of drums, the sounding of bugles, and all the sounds of war. As Teniel is an outpost of the French army on the borders of the desert, and there is there a garrison of 3000 men, I thought it was some review or military ceremony, but on rising heard that the news had arrived in the night that an army of locusts were marching on, along the road, from the desert, to the pass, and that a thousand soldiers had started as soon as it was daylight to meet the enemy. It appears that the locusts, when they invade Algeria from the desert, make for the passes through the Atlas, and if there is a road follow it, camping regularly at night. The troops were to endeavour to force them back in the day by noise and with branches of trees, and at night to make holes in the ground, sweep them into the holes, and bury them. I left the same day, and heard no more on the subject. But since I have been in Spain I have learnt that the locusts succeeded in crossing the Atlas, and have spread over the fertile valleys and plains of Algeria, destroying the magnificent crops which everywhere met my gaze, as they did three years ago. Thus the French soldiers, whom I saw going out to fight this apparently contemptible enemy, must have failed in their efforts, and have been signally defeated. They could conquer the Arabs, the Kabyles, the wild denizens of the desert, but were conquered in their turn by the army of grasshoppers: a singular history.

On striking, as we soon did, the valley of the Elche river there was some slight indication of water, a little more verdure near the houses of the peasants, but we were then 1000 feet high, and the soil was very poor and thin, so that, although the Wheat crops here and there had come out of the ground, it was only 3 or 4 inches high, meagre, thin, and poor, not worth reaping, merely good for a few days' forage. The soil continued to be of the same character, a thin vegetable loam lying on calcareous rocks, until we reached the junction of the Madrid Railway, at Alcanzar, 2200 feet above the sea level. We had then reached the high plains of central Spain, which form Old and New Castile. Not a tree was to be seen in any direction, nothing but naked homesteads, mountains bounding the horizon, and plains in vain tilled with the plough for Wheat. A more wretched-looking district, agriculturally, I never saw. The Wiltshire Downs are fertility in comparison; the Carouba, Olive, and Fig trees had abandoned us, and were replaced by nothing, neither tree nor bush. But my track was now downwards towards the eastern shore, from which we were now about 50 miles distant; another barren limestone ridge passed, and we began to descend rapidly into the far-famed valley of Valentia, a more favoured valley than that of Murcia. A descent of a few hundred feet brought back our friends the Carouba, Olive, and Fig, at first small, then gradually larger and larger, until, at 1000 feet above the sea, we had reached regular irrigation and fertility, luxuriant, bountiful fertility, the fertility of a rich ferrugineous lime soil.

The railroad from Alicante to Valentia rises gradually from the shore over calcareous hills, which are all but entirely devoid of vegetation, until it reaches, at an elevation of 1000 feet, about 15 miles from Alicante, a valley through which flows the little river that, nearer the sea, fertilises the Palm forests of Elche. With control over water, at once commences determined efforts at cultivation. Fig, Olive, Almond, and Carouba trees and patches of cereals occupy the valley, whilst Vines extend over the hill-sides. Gradually as the elevation becomes greater, the valley is too steep and the course of the small river too torrential to admit of irrigation on an extensive scale; the Fig, Olive, and Carouba trees are scantier and smaller, and Vines, all but alone, occupy the southern slopes of the hills. About 30 miles from the shore, at an elevation of some 2400 feet, the central plain of Spain is reached. The topography of Spain is very singular. The entire peninsula is a mountain region, with a central plain of immense extent, some 2500 feet above the level of the sea. In the middle of this plain is situated the capital, Madrid. This conformation gives to Spain two very different climates. The shore climate is very mild in winter and very hot in summer, whilst the central plateau is very cold in winter, although hot in summer.

At Alicante we left (May 6) a temperature of 76° by day and 70° by night, and a midsummer vegetation. When we arrived on the central plain we had gone back to April. The thermometer was 60°, the wind cold, the cereals only just appearing above the ground, and the few trees we saw at the stations, principally Acacia and Melia Azedarach, just coming into leaf. The latter is very commonly grown for ornament in Spain, and is called Paraiso in Andalusia. It has a pretty flower, very much like the Lilac, but its foliage is thin, so that it really does not deserve the esteem in which it is held. After continuing our route for some hours in a north-westerly direction through this bleak, treeless, calcareous plain, without farms or houses, occasionally stopping at villages or small towns, formed by an agglomeration of sunburnt houses huddled on the top or side of a hill, we turned eastward, and began to descend towards Valentia. As soon as the brow of the mountain was passed, and a south-eastern exposure was obtained, even at an elevation of 2000 feet, as indicated by an aneroid barometer, stunted Olive and Fig trees, with Vines, made their appearance. The hill-side presented also in every direction deep water-worn ravines, the beds of former rivers and torrents. I say "former" because it is clear that now no considerable body of water ever flows through them, inasmuch as in the very beds of these ravines are planted Fig and Olive trees, which any considerable rush of water during the previous 20 or 40 years would clearly have carried away. These dry tree-planted watercourses clearly imply a change of climate, probably the result of the denudation of the plains I had crossed in the morning. In former historic days these plains were covered with forest trees, which the inhabitants have ruthlessly destroyed, partly for fuel and building, and partly in compliance with an insane but universal prejudice. The Spanish peasantry think that trees harbour birds, and that as birds destroy the cereals, the only way to get rid of the birds is to cut down the trees. Thus have they in the long run changed the climate of Central Spain, modified the natural rainfall, and made the central plains only a degree less dry than the rainless eastern coast. As the line descends, the Olive and Fig trees become larger, and Carouba trees appear, until at about 1200 feet elevation the scene changes into one of exuberant fertility. Water—water in abundance, a real river—has been reached; systematic irrigation, a gift of the Moors in times gone by, carries the water everywhere; and the rich vegetation of the irrigated valleys of Murcia and Orihuela is again reproduced, even in a more grandiose style. The rail reaches at this elevation the southern boundary of a triangular plain, or sloping valley, with its base to the sea eastwards, through which three small rivers run from the central mountainous tableland to the sea. Wherever their waters can be carried by irrigation, the sunshine and heat, combined with protection from nothern winds and zealous traditional cultivation, produce the most wonderful fertility. This fertility increases as we descend to the sea, as the conditions of heat and protection increase, as the alluvial soil becomes deeper, and as complete and repeated irrigation becomes easier. The vegetation is exactly the same as in the valley of Murcia; large Olive, Fig, and Carouba trees, the latter always in the driest situations, the least accessible to irrigation, often magnificent trees like Oaks; Apricot trees of the same size, really beautiful to look at, and covered with second-rate fruit; Vines on the hill-side, cereals, Beans, Peas, on the irrigated levels, the former 3 feet high, thick, luxuriant in the ear. As we approach Valentia there are orchards of Pomegranate and Orange trees, the latter spoilt, as at Murcia, by being grown in bushes, cut down close to the ground, and allowed to grow up with a dozen stems, like large Portugal Laurels. I had heard so much about the Orange growers of Valentia that I was greatly disappointed; these bush trees are not to be compared for beauty to the large Orange trees of Blidah in Algeria, or to those of the Genoese Riviera. I presume they are cultivated in this way as a protection from the wind, which Orange trees cannot stand, especially if it comes from the north, north-east, or north-west. As the lower levels are reached a new feature appears, extensive Rice fields. These fields, on the river side, are surrounded with mounds of earth, some 18 inches high. The soil is ploughed, water is let in to soak it thoroughly, then the Rice is sown, water is again let in to the depth of 6 inches, and the seed again ploughed in under the water, the men and mules working with the plough all but knee deep. The water is alowed to remain on the land, renewed as it sinks in, and the Rice comes up as a water plant. From the cathedral tower of Valentia the entire expanse of this fruitful region is seen, extending in every direction down to the sea. Valentia is three miles from the coast, and the entire district, above and below, is dotted with these Rice grounds. They are a serious drawback to the public health, giving rise to much intermittent fever in the autumn.

Spanish writers, and travellers in general, go into raptures about the wondrous beauty of these fertile valleys, but I must confess that I cannot join with them. Rice, corn, beans, scattered oil-producing Olive trees, "silk-producing" headless Mulberry trees, Pomegranates, Vines, Orange bushes in rows like soldiers, are all very well in their way as evidences of cultivation and of a fertile soil, but unquestionably they no more conduce to beautiful scenery than does the cultivation of the market gardens of Battersea; indeed, these far-famed valleys are market gardens and nothing more; and bounded as they are by barren, naked, calcareous hills, are inferior in natural beauty to any of the spurs of the Atlas ranges in Algeria, clothed with Ilex, Thuja,

Mountain Ash, Cytisus, Lentiscus, &c., or to any mountain vale in England in summer time. In winter, too, as many of the trees—the Fig, the Mulberry, the Apricot, the Pomegranate, the Vine—are deciduous, it must look nearly as naked and desolate as old England. *J. Henry Bennet, M.D., Grosvenor Street.*

Societies.

ROYAL HORTICULTURAL: *July* 6.—W. W. Saunders, Esq., in the chair. The usual preliminary business of the meeting being concluded, the Rev. J. Dix announced the awards of the Floral Committee, and in so doing noticed especially the magnificent Oncidium macranthum from Mr. Salt's collection, and the charming group of cut Iris of the English and Spanish breeds, sent by Messrs. Barr & Sugden, which he (Mr. Dix) said were easily grown and deserving of the most extended cultivation, on account of their glowing colour. G. F. Wilson, Esq., then, in noticing the various objects brought before the Fruit Committee, directed attention to a fruit of Monstera deliciosa, sent from the gardens of Lady Ashburton, which was remarkably fine for this season. Major Trevor Clarke (in the unavoidable absence of the Rev. M. J. Berkeley) proceeded to direct attention to some of the objects of interest sent to the meeting, and first noticed a Pelargonium named Empress, in Messrs. E. G. Henderson's collection, which, instead of being of the florists' form, had crisped edges to the petals, and was altogether quite a ladies' plant. A small dark form of Aralia, in the same collection, was then alluded to, as being one of many kinds of dark-foliaged plants which are now coming into fashion. A collection of Satyriums and other ground Orchids from the Cape, sent by the same firm, was next brought before the meeting as being worthy of notice, as they were rarely seen in good condition. The most successful cultivator of this interesting class of plants was said to be Sir John Herschel, the great astronomer. The Pinks and Carnations were then referred to as not having received that attention from hybridisers that they deserve, and he (Major Clarke) recommended this class of plants to the attention of hybridists, to see what could be done in developing the flowers and colour. A small specimen of Stuartia pentagyna, which is closely allied to the Cotton plant, was then alluded to, and Major Clarke proceeded to notice the fine specimens of the Giant Puff-Ball (Lycoperdon giganteum), sent to the meeting by Messrs. Carter & Co., of High Holborn. The rapidity of growth and excellent qualities of this giant Fungus were expatiated on, and the company had the opportunity of forming their own opinion as to the latter point, as some cooked slices were handed round, and were found to have a delicate Mushroom flavour. Mr. Wilson's Lilium longiflorum then came under notice, as the name had been questioned, but Major Clarke said there was no doubt but that it was L. longiflorum, as he had a specimen in his own conservatory, like the one here shown, having four or five flowers in the umbel. Asperula azurea was alluded to as being a pretty blue flower, which was seen to great advantage when in a mass. A Fuchsia was then pointed out to show the large stride of improvement that was made in the first cross between a wild form and a large-flowered garden variety.

Mr. Wilson Saunders then referred to the fruit of the Monstera deliciosa, which he had grown and of which he had eaten several times with pleasure; the fruit, if eaten at the proper time, was most delicious, even when pitted against Pines and Grapes. The fruit was ready to eat when the outer scales fell off, and was then of a most luscious flavour. The plant was said to be of easy cultivation. A specimen of a Briar Rose, which he had received, through the late Dr. Royle, from the Himalayas, was then noticed, as bearing a profusion of white and delightfully fragrant flowers. Mr. Saunders stated that it would not stand pruning, and if left to grow wild, it formed very large thick stems. He (Mr. Saunders) had found it difficult of propagation by cuttings, and it was only last year that he had succeeded in striking it from cuttings of young growing wood.

Mr. Bateman briefly noticed the Monstera, of which he said a new sort had been advertised, as being without prickles, and also Puff-Balls mentioned above. A batch of Potentillas was then said to be in great beauty at Chiswick; and he reminded those who wished to see them in their present state that they had better do so at once, as this class of plants was rapidly passing into the hands of the florists, by whom he had no doubt it would be greatly altered from its present form. Mr. Bateman then alluded to the Orchids, and especially to a new Mormodes, which came from Mr. Wilson Saunders, which was very curious, having the column of a Cycnoches and the lip of a Mormodes; and mentioned that as Colonel Benson was now in England he hoped to be able to induce him at the next meeting to give them some particulars as to the habitat of the many splendid species which he had introduced into this country. He then proceeded to give a short lecture on the Coco de Mer, as announced in our columns at p. 710, the main facts concerning which have frequently been given in our columns. At the termination of the meeting, specimens of the beautiful Lythospermum petræum, from Mr. W. Robinson, were shown and commented upon.

Floral Committee.—Rev. Joshua Dix in the chair. This was a very interesting meeting. Messrs. Veitch & Sons sent a new and beautiful species of Cypripedium, named Parishii, which will shortly be figured and described in our columns, and Miltonia Regnelli purpurea, a beautiful pale rose Flower, with a purple-coloured lip, to both of which First-class Certificates were awarded. With these came a collection of Orchids, and other subjects, in which were the graceful drooping Dendrobium filiforme, the pale yellow and purple spotted Stanhopea oculata, the white Pajaii picta, Trichosma Bensonia, with beautiful rosy purple flowers; Dendrobiums Bensonia superbum, Parishii, and formosum; Epidendrum nemorale; Orthosiphon staminens, which we hope shortly to notice more fully; Lilium Szovitzianum, and Iresine metallica, a dark bronze variety, &c. A Special Certificate was awarded to Messrs. Rollisson & Sons, Tooting, for a nice group of plants, in which were a new Caladium named Meyerbeer, with a creamy white ground edged with green, and veined with crimson, which received a First-class Certificate. Amongst other plants sent were beautiful examples of Cattleya superba, the rare Saccolabium Blumei majus, Vanda meleagris, Cypripedium superbiens, and Cattleya Aclandiæ; a new English spotted Pelargonium named Marquis of Bute, and Ardisia japonica picta, a prettily variegated species. From Mr. Green, gr. to W. W. Saunders, Esq., came a very interesting group of Orchids, amongst which were a new species of Catasetum from Mexico, with flowers of a beautiful green, densely spotted with brown; and the south American Brasavola lineata, with white flowers, to which First-class Certificates were awarded. With them came the singular-looking orange-flowered Physosiphon Loddigesii, Oncidium pumilum, Trichopilia turialvæ, Cattleya Forbesii, a grey-orange coloured Maxillaria, near M. crocea; the small greenish yellow flowered Sarcanthus crinaceus, Sarcopodium Lobbii, with four beautiful flowers; Epidendrum diurnum, with one nicely flowered spike, a specimen of Arum Dracunculus, and a flowering branch of the Rose above mentioned. A Special Certificate was awarded. From G. F. Wilson, Esq., came a fine specimen of the large flowered Lilium longiflorum, for which he also received a Special Certificate; and from Mr. Bull came a collection of Palms, Orchids, &c., to which the same award was made. Mr. Noble exhibited the beautiful Spiræa palmata, in splendid condition; and Messrs. Barr & Sugden, a charming collection of British and Spanish Iris, richly and variously coloured. Messrs. E. G. Henderson & Son received a Special Certificate for a large miscellaneous collection of bedding plants, comprising many novelties, already noticed. Mr. T. Cooper, Holmesdale Road, Reigate, sent a small but interesting group of Cacti; and to Mr. Edwards, Nurseryman, Nuttall, Notts, a First-class Certificate was awarded, for Pteris serrulata cristata magnifica. From Mr. Lorimer, gr. to E. Salt, Esq., Fernieburst, came the splendid Oncidium macranthum, referred to in another column (p. 739), which is the finest specimen that has yet been shown, and to which a Special Certificate was awarded. As a variety, however, it is scarcely equal to that in the possession of Lord Londesborough. From the Society's gardens, Chiswick, came a box of Aubrietia purpurea variegata, which will be a valuable acquisition, if it retains its present golden colour. It was requested to be sent again. To Mr. B. S. Williams, of Holloway, a First-class Certificate was awarded for a nice plant of Adiantum Capillus-Veneris undulatum. Several other novelties in florists' flowers were also shown. These will be found treated upon in another column.

There was a considerable and very attractive exhibition of Carnations and Picotees, occasioned by the offer of some special prizes for these pretty flowers. The boxes of cut flowers were arranged in front of the raised dais, and attracted as much public attention as their more formidable rivals, the new plants and Orchids. It was like one of the battles of the old florists being fought over again. In the nurserymen's class for 24 Carnations, Mr. C. Turner, Slough, was 1st with fine blooms of Dreadnought and Prince Albert, scarlet bizarres; Eccentric Jack, King of Carnations, Premier, Rainbow, Rifleman, and Sensation, crimson bizarres; Lady of the Lake, pink and purple bizarre; Beauty of Woodhouse, Colonel Wyndham, Dr. Foster, Favourite, Juno, and True Blue, purple flakes; Africana, Christopher Sly, Defiance, Splendour, and William Cowper, scarlet flakes; and James Merryweather, John Reet, Merrimac, and Princess Royal, rose flakes. 2d, Mr. Henry Hooper, Bath, who had good blooms of British Hero, p.f.; Dr. Hogg, r.f.; George Tugwell, r.f.; Beautiful, p.f.; Mayor of Nottingham, p.f.; and Duke of Cambridge, John Reet, and Rosina, also r.f. 3d, Mr. William Bragg, Slough. In the amateur class for 12 Carnations, Mr. N. Norman, Plumstead, was 1st with Juba and Queen Victoria, Lady of the Lake, and Sarah Payne, p.p.b.; Juno and Mayor of Nottingham, p.f.; Comet, s.f., and two seedlings of the same division; and Delicata, John Reet, and Miss Napier, p.f. 2d, Mr. E. F. Kingston, Militia Barracks, Bath; and 3d, Mr. N. Norman. With 6 Carnations, Mr. Norman was also 1st, having Juba, c.b.; Juno, p.f.; Comet, s.f.; Mayor of Nottingham, p.f.; John Reet, r.f.; and Lady of the Lake, p.p.b. 2d, Mr. C. F. Kingston; 3d, Mr. J. Smith, Lyncombe, Bath. With Picotees, Mr. C. Turner was also 1st with 24 blooms, which were of superior quality, like his Carnations. The varieties consisted of Ascot Giant, a large heavy-edged flower; Deloch, Mrs. Dodwell, and a seedling, red-edged; Countess, Duke of Devonshire, Exquisite, Finis, Lord Nelson, New Colour, a medium bright purple-edged flower; Prince Arthur, and a seedling, purple-edged; Alfred Ingleton, Emmeline, Lucy, Miss Sewell, Miss Williams, Miss Wood, and Northern Star, rose and scarlet-edged; and other seedlings. 2d, Mr. H. Hooper; 3d, Mr. E. Pilgrim, Bath. With 12 varieties, amateur growers, Mr. E. F. Kingston was 1st with flowers not common to catalogues accepted as authorities in regard to varieties. 2d, Mr. J. Smith. 3d, Mr. E. Pilgrim. With 6 Picotees, Mr. N. Norman was 1st with Prince of Wales, and a seedling, red edged; Eliza, and Mr. May, purple-edged; and Miss Sewell and Miss Wood, rose and scarlet edged. 2d, Mr. E. F. Kingston. In the nurserymen's class for a collection of 36 Carnations, Picotees, and Cloves, Mr. C. Turner was 1st, and Mr. H. Hooper, 2d. And in a similar collection of 24 blooms from amateurs, Mr. E. F. Kingston was 1st; Mr. J. Smith, 2d; and Mr. Norman, 3d. Mr. Bragg contributed boxes of cut Pinks, and also Fancy Pansies, Mr. Hooper having some of the latter also.

Fruit Committee.—G. F. Wilson, Esq., F.R.S., in the chair. Messrs. Rivers & Son, of Sawbridgworth, sent a collection of dwarf Apple trees, grafted on the Nonsuch English Paradise stock, to show their productive habit and suitability for growth in suburban gardens; the specimens were about 2 feet in height, and showed on the average about one dozen and a half fruit on each. The stock, which was raised at Sawbridgworth from seeds of the old Nonsuch Apple, is very productive on the soils in that district, as was fully illustrated by the examples sent. A Special Certificate was awarded. Mr. J. Hopper, gr. to J. Walmsley, Esq., The Elms, Acton, contributed 6 Queen Pines, which were especially fine for the season, averaging between 4 and 5 lb. in weight, to which a Special Certificate was also given. Messrs. Carter & Co. and Messrs. Hurst & Sons jointly exhibited a fine sample of Laxton's Alpha Pea, a wrinkled Marrow of fine flavour, which has proved itself to be a desirable acquisition, to which a First-class Certificate was given. Messrs. Carter & Co. also sent very large specimens of Lycoperdon giganteum (the Giant Puff-Ball), which was afterwards brought under notice at the general meeting. Mr. Eckford, gr. to the Earl of Radnor, Coleshill, sent a seedling white Grape, named Coleshill White Hamburgh, which was considered by the Committee to possess some points of merit, but the fruit sent not being quite ripe, the Committee wished other samples to be sent again in a month's time. From Mr J. Trotman, Spring Grove Nursery, Isleworth, came a new seedling Strawberry, called Royalty, the result of a cross between Black Prince and British Queen, which was commended by the Committee; and from Mr. Wm. Paul also came 13 new kinds, but as this season is an exceptionally bad one for Strawberries, the Committee could not arrive at any definite conclusions as to their merits, and requested to see them again. From Mr. W. Paul also came examples of Waltham Hardy White Cos Lettuce; and another new sort, called Cheshunt Park White Cos, was sent by Mr. Perry, gr. to F. G. Debenham, Esq., Cheshunt Park, Herts, both of which were considered to be the ordinary variety of White Cos. From the Society's garden came specimens of Citron des Carmes and Amire Joanette Pears, which are quite a fortnight later this season, and are ripening on old trees some time before those growing on younger ones. From Mr. Good, gr. to Lady Ashburton, Melchet Court, Romsey, came a fine specimen of the fruit of Monstera deliciosa. Mr. Gilbert, gr. to the Marquis of Exeter, Burghley, Stamford, sent a very fine collection of vegetables, which unfortunately did not arrive in time to be brought before the Committee. The collection comprised dishes of Mona's Pride, Myatt's Improved Ashleaf, and Rivers' Royal Ashleaf Potatos; fine Globe Artichokes, Early Dutch Turnips, Early Horn Carrots, Tripoli Onions, four remarkably fine Cauliflowers, Dickson's Favourite Peas; good examples of Moor Park, Paris Cos, Myatt's Paris Cos, and Dennis' Cos Lettuces; a good brace of Telegraph Cucumbers, and large dishes of Mushrooms—A. campestris grown artificially, and A. arvensis from the open air.

ENTOMOLOGICAL: *June* 7.—Mr. H. W. Bates, president, in the chair. A new part of the Society's Transactions, containing portion of Dr. Sharp's monograph on Homalota, was on the table. Mr. Pascoe exhibited a singular Coleopterous insect, from Swan River, apparently allied to Hetærius, a genus of Histeridæ, as well as to the Clavigeridæ. Mr. Stainton exhibited a remarkable new species of Tinæina, reared by M. Millière at Cannes from the Osiris alba, and named Paradoxus Osiridellus. It had also been found in several parts of Germany, and was distinguished by its large bushy palpi; also specimens of Gelechia atrella, bred from Hypericum, into the stem of which it burrows, having previously inhabited a case formed of a small piece of the stem of an herbaceous plant. Mr. F. Smith exhibited living specimens of the very beautiful Physonota gigantea, from South America, taken in large numbers in a cargo of Logwood from America at Liverpool; its splendid metallic colours, however, fade after death; also a living larva, probably of a Pyrophorus, from Uruguay, which emits a beautiful green light from the 10 lateral spiracles on each side of the body, whilst the head emits a vivid red light; also a bee of the parasitic genus Milecta, which he had found struggling in the grass in consequence of being entirely covered with the parasitical larvæ of Meloë. The Secretary read a letter from the Secretary of the Flax Improvement Society of Belfast, on the injury done to young plants in the seed leaf by a small beetle, Thyamis parvula, allied to the Turnip flea-beetle. Mr. Druce exhibited some splendid butterflies from Borneo, including a new species of Ornithoptera. The following papers were read:—"Notes on the Eastern Butterflies of the family Eurytelidæ and Libytheidæ," by Mr. A. R. Wallace. "Notes on the Chalcididæ, and description of a new species of Megastigmus," by Mr. F. Walker. "A Monograph of the Hymenopterous genus Pison, containing 43 species," by Mr. F. Smith. "Descriptions of new genera and species of exotic Hymenoptera," by Mr. F. Smith. "Revision of the Nomenclature of the Lucanidæ, and descriptions of some new species," by Major F. Parry, and "Descriptions of some remarkable forms of Coleoptera, illustrating the Ptinideous affinities of the singular genus Ectrephes Pascoe (Anapestris, King)," by Professor Westwood. A report on the Carpenter Beetle of India, made to the Government of that country, was communicated by Mr. C. Horne.

Notices of Books.

A Practical Treatise on the Cultivation of the Grape Vine. By William Thomson. 6th edition. 8vo, pp. 83. Blackwood.

It is not necessary to reiterate our terms of hearty commendation every time a new edition of this well-known book appears. Suffice it to say, that the author in each succeeding issue keeps abreast of his subject, and hence the reader will find in the present edition reference to the controverted points which have occupied so large a space in our columns recently. As to the advantage of bottom-heat for Vine-borders, Mr. Thomson's opinion, "founded on experience, is that the subject scarcely admits of discussion [our correspondents seem to have thought very differently!] so evident are its advantages if used with discretion." Here is an illustration bearing out Mr. Thomson's views:—"In the month of May last year I planted a Cucumber house with young Vines, principally from eyes the same year. Their roots are confined to a border inside the house, 4½ feet wide and 18 inches deep. This border is heated by two rows of 4-inch pipes under pavement. There are no means of turning off this bottom heat. Under one end of the pit there is a tank for collecting rain-water 9 feet long, where there is no bottom-heat. There are two Vines planted in this division—one a White Frontignan, the other a Royal Muscadine. During last summer these two Vines did not make the progress the others of the same kinds did where they had bottom-heat. And this year the difference is far more remarkable. In consequence of the house being used for forcing Strawberries and French Beans, the Vines were started at a higher temperature than they ought otherwise to have been. The bottom-heat soon rose to 95°, and for a few days it was 100°. Those that have bottom-heat broke quicker by 14 days, showing far more fruit than those that have it not, and are now set and ready for thinning, while those in the cold border are not in bloom; nor is their foliage much more than half the size of the same sorts of Vines where they have the bottom-heat. I give this as an example of the good effect, as far it goes, of bottom-heat for Vines when applied to an extent that many utterly condemn. And I confess that if I had a stop-valve on the bottom-heat pipes, I would moderate the heat as compared with what it is." The results obtained by Mr. Thomson are just what might have been anticipated on physiological grounds, but we fancy most gardeners would prefer a lower degree of bottom-heat. Such an amount as that mentioned in this instance seems quite disproportionate to the temperature of the house. There is a certain proportion to be observed between the temperature of the border and that of the house. The custom of leaving the roots to be chilled by the coldness of an outside border while the tops are parboiled inside the house, is not worse than the converse plan of scorching the roots and leaving the tops in a comparatively cool temperature. Mr. Thomson is too

good a gardener to err in either of the ways we have mentioned. We simply advert to the subject to insist on the fact that to have healthy Vines a due relation between the heat of the border and that of the house must be maintained, and that if this be not attended to, even so pliable a plant as the Vine may suffer.

Choice Stove and Greenhouse Flowering Plants, comprising Descriptions of upwards of one thousand Species and Varieties, accompanied by Instructions for their Cultivation. By Benjamin S. Williams, F.R.H.S. London: Published by the Author. Small 8vo, pp. 329. Coloured plate.

This neat and handy volume will supply a real want in horticultural literature, that of a reliable modern treatise on the cultivation of the most beautiful flowering plants, whether for exhibition, or for the decoration of the stove and greenhouse. We see from the preface that it is to be followed by a similar volume devoted to plants with ornamental foliage, and this second portion will be equally welcome. Mr. Williams' well-known success as a grower and exhibitor gives force and reality to his teaching, and stamps his cultural instructions with the authority of experience. The book is divided into two parts, respectively devoted to stove plants and greenhouse plants. There are chapters on various general questions, as structures, ventilation, soils, potting, watering, propagation, and so forth; and then follows a description of the best species and varieties under their generic headings, a paragraph being added where necessary to explain any peculiarities of treatment required. The volume, which is nicely printed, and has a good index, will be just the kind of guide which will meet the wants of amateurs and inexperienced cultivators, and for this reason, not less than for its sound practical sense, we give it a hearty welcome.

Florists' Flowers.

One would be led to imagine, from the number of new Roses staged at the meeting of the Floral Committee on the 6th inst., that the English growers were bestirring themselves in earnest to compete for the cup offered each year at the York show for the best English Rose. The inducement of the cup on the one hand, the natural desire to emulate the French raisers on the other, and, as an important collateral, the breeches-pocket argument that the number of indifferent new Roses raised on the Continent (and which English growers assert must be bought if one would sift the Wheat from the chaff) are greatly in excess of the really good ones, constitute solid reasons why more attention should be turned to the raising of new Roses. Looking over those staged on the 6th, Princess Christian, a beautiful delicate blush flower, perfect in outline, and large in size, shall lead the way. It is a sweet flower till it expands, and then it displays that want of many Roses, a deficiency of substance in the centre. It is not too much to say that so uncongenial a season, cold, sunless, with biting, nipping winds, has seriously affected the development of Roses, and that the substance of this flower may be thin from such causes. Pretty, but promising, and to be seen again, was the verdict. Some flowers of the new pillar Rose, Prince Leopold, were also staged by Mr. Paul. Mr. Turner had a box of Miss Ingram, delicate in colour, circular and full, like large floral balls, with stuff enough in some of them for two ordinary flowers; but how to get it to expand, and how to avoid the sad tendency to curl and become brown on the exterior petals, are the two questions for rosarians. Some day, perhaps, some one will hit upon a plan of growing this Rose, and will astonish the floral world with the trophies of his achievement. A similar verdict may be passed on Messrs. Lee's new Rose, Edward Morren. How large and full! but how uncouth in development. A grand, uncertain Rose; its strength of growth and freedom of bloom will always make it a valuable decorative agent, but how often will it be seen on the exhibition table? Of new Roses Mr. Turner had Lord Napier, lively salmon-rose, suffused with violet, with capital outline, but small in size, yet promising well. Floreat Etona, certainly novel in colour, something of a greyish blush, with a large blotch or shade of dark on the petals. Charles Perry, a full bright crimson flower, of the build of Sénateur Vaisse, and colour of Madame Victor Verdier; and Miss Poole, a small pale rose flower, too thin as shown. From Mr. H. Coppin, Shirley, Croydon, came John Latter, a dark-shaded crimson flower, not distinct enough in character; Dr. Symes Thompson, pale rose; the Rev. M. T. Farrer, rose, shaded with violet, of good shape, but small; and Noisette Earl of Eldon, a pale rose with buff centre, something in the way of Gloire de Dijon when exhausted. Mr. Thomas Laxton, Stamford, who is beset with the difficulty of a soil much unsuited to the development of Roses, in so far as it relates to the acquisition of substance, had Prince of Wales, clear pink, full and circular in shape, and somewhat rough; Princess Louisa, a delicate light rose, said to have been obtained from Madame Vidot and Virginal, thin as shown; Annie Laxton, pale rosy red, and deficient in character on this occasion; and Beauty of Stamford, rose centre, with paler exterior; this being thoroughly perpetual in bloom, and sweet and pretty, is strongly recommended by Mr. Laxton as an excellent garden Rose to cut from, and a free autumnal bloomer.

The new double Pelargoniums that are being produced appear to be to a great extent exquisite examples of bewildering similarity. Mrs. Hally, from Mr. John Hally, Blackheath, is so like Marie Lemoine in every respect, that it is only natural to suppose the French lady has become an English matron, and inherited in the change a consumptive tendency. Sparkhill Beauty and Tom Pouce Rose, both from Mr. W. Bull, and both very badly flowered, were so much like Madame Lemoine as to suggest the possibility of this good lady having been forced into floricultural bigamy. The same exhibitor had Ascendancy, very like Gloire de Nancy, but a little deeper in colour. Mr. W. Paul has said with much truth and litness that the new double Pelargoniums should have at least "the habit of Marie Lemoine and Wilhelm Pfitzer"—dwarf and compact, and blooming as freely as can be expected in a double Pelargonium.

At the same meeting, a First-class Certificate was awarded to Mr. J. George, Putney, for Harry George, a very fine hybrid nosegay Pelargonium, of excellent habit, with faintly zonal foliage, and producing immense globular trusses of bright orange-rose coloured flowers, the individual flowers being of large size, stout, and circular. As an exhibition flower this Pelargonium promises well. Mr. George also had Majestic, a nosegay variety in the way of Le Grand, but brighter in colour; and Mottled Queen, pinkish salmon, overlaid in the centre with orange-carmine; a novel flower in the way of George Smith's Lizzie, but somewhat washy in appearance. From Mr. George Smith, Edmonton (not to be confounded with his worthy floricultural brother at Islington) came zonal Pelargoniums, Dean of Lichfield, salmon, suffused with orange; Scarlet King, bright deep orange-scarlet; and Ruby, slightly deeper in colour than the foregoing—all having dark zonate foliage. Messrs. Downie, Laird & Laing had nosegay Pelargonium Lady Kirkland, with deep magenta-crimson flowers, borne on large trusses, and slightly zonate foliage. Fuchsia Mrs. Perry, from Mr. P. Perry, gr. to F. G. Debenham, Esq., Cheshunt, is one of the crinoline flowering varieties, with scarlet tube and sepals, and intense purple corolla; a useful free-blooming variety.

Mr. Appleby, gr. to Mr. Terry, Raleigh House, had some pink and lilac flowering forms of bedding Lobelias. Of these, one named Mauve Queen received a First-class Certificate. Of excellent habit, moderate in growth, and free of bloom, and having good-sized bright lilac flowers, it promises to make an effective bedding kind. The same exhibitor had Rival, paler in colour, having less of lilac and more of pink; Lælia, rather deeper pink than Rival; Lilac Queen, bright pinkish lilac; and Conspicua, similar to Lilac Queen, but paler. Messrs. E. G. Henderson & Son, L. pumila pulchella, one of the tuft-growing type, with pale pink or almost French white flowers. Scarcely effective enough, and independent of the fact that the pumila type do not stand the sun well in the open ground, the colour of the flowers was much against this variety. On the other hand, Mr. Appleby's varieties have the appearance of making excellent bedders, capable of standing all weathers. Bedders-out can hardly know the value of lilac-coloured Lobelias of the Beauty of Ravensbourne and Rosy Gem type, or they would be used much more generally in the flower garden. *R. D.*

The Apiary.

The following letter was sent to us some weeks ago, but its publication has been unavoidably delayed:—

"In answer to yours respecting the hive I wrote about, I find, from a direction since given me, that I made a mistake in calling it the Cory hive. I had been given to understand that Cory was the maker but I find it is King; it is sold only by Cory, so I have no doubt but that you have seen or heard of it before. The height is 19 inches by 13½, without roof or stand. There is a door to open at back, three drawers, and glass windows; each drawer would contain when full about 6½ lb. of honey. I quite agree with your remarks respecting its being a hive suitable for ladies, for I do not think any hive could be more simple in its management, or so easy to take the honey from. I have had no swarms this year. Do you recommend raising artificial swarms? I tried one two years ago, and found it answer remarkably well. There seems to be a great quantity of drones this year in the hives. I took off a glass from a common straw hive, and found it three parts full of drone brood; I cut it all out and destroyed it, returning the glass with the remains of the comb containing the honey for the bees to make up again. Is there any way for preventing the queen from going up in the glass? *R. Manfield.*

"P.S. I did not mean to say that 28 lb. of honey was a great quantity for one hive, but it is very good for this neighbourhood."

[Hives with us in the south of England seem this season, so far as we can ascertain, to be more disposed to swarm than to store honey in supers. We have, ourselves, had swarms issue from most of our hives, although previously apparently working satisfactorily in their supers. In one of these, however, large quantities of brood, chiefly of drones, had been deposited.

We generally adopt the plan of cutting out all brood comb, whether of drones or workers, that may be discovered in the supers, returning the mutilated combs to be repaired and filled with honey. Sometimes, but not always, the result is satisfactory. We never willingly waste the worker brood, but having attached or secured it in frames in the best way we can, insert it among the combs of some swarm or stock that may require strengthening. Such combs, thus patched up, often make very valuable frames for stock hives.

Some hivemakers endeavour to prevent the queen from ascending into the supers by having the width of the slits of communication cut to so exact a measurement, that while the worker bees can pass freely, the queen and drones cannot do so at all. We have never tried the plan, so are unable to speak as to its efficiency.

Artificial swarms are, when properly made in the first place, and judiciously managed afterwards, quite equal in every respect to the best natural swarms, as we have often proved by experience.]

Garden Memoranda.

Red Lodge Nursery, Southampton.—A recent visit to this establishment suggested the notion that its proprietor must be one of the happiest of mortals. A more charming situation for a large nursery could hardly be conceived, while, to turn to more sordid matters, the well-stocked quarters give it a "business" aspect that would be satisfactory to a mere Gradgrind.

The route to the nursery from Southampton is in itself a feature of great beauty. Those of our readers who are familiar with the wood at the Hague, or the road to Schreveningen from that town, will best be able to form an idea what the "avenue" is like. It is to a large extent characterised by the same sylvan and "grassy" beauty as pertains to our own New Forest. Indeed, geographically, it might without impropriety be regarded as an outlying portion of that pictural region. In these days when so much is written as to the adornment of foreign cities, it is as well to remember that our own provincial towns are not altogether wanting in these respects. At any rate, Southampton may well be proud of this avenue. The entrance from the high road to the nursery is at once suggestive of the Isle of Wight, for is there not embowered in Roses a thatched gable-roofed cottage, which seems to have been transported bodily from the island, and to have been deposited where it now stands? The suggestion after all is not so wild, for it is a fact that in the island itself these pictural abodes are giving place to vulgar stone, stucco, and slate erections, such as we expect to see in "genteel suburbs" but do not look for in the "Garden Isle."

In front of the residence we have alluded to is a well kept lawn, edged by masses of glorious Rhododendrons, and dotted over with fine specimens of Conifers, such as Araucaria imbricata, Cupressus macrocarpa and Lawsoniana, Pinus Cembra, and others. In the rear of the house is the nursery, occupying a succession of slopes and valleys, which, covered as they are with many-tinted occupants, would alone charm the eye of an artist, even were they not backed up by a distant prospect of the hills and glades of the New Forest. Skilful use has been made of the natural beauties of the place—now by wilderness walks, where the plants grow as it were with studied negligence, now by a more formal "Cedar walk," where the eye is led on from point to point, gradually and regularly, till in the distance the vista ends with a blue wood-covered hill, which looks even more distant than it is from the converging lines of the sentinel Cypresses. The term "Cedar walk" is, however, a misnomer, for the "sentinels" aforesaid are handsome specimens of Cupressus macrocarpa keeping watch over a front row of Rhododendrons.

The soil, as might be expected from the extent of the nursery and its irregular surface, is various, peaty in places, elsewhere loamy, but in general of a light character throughout.

Conifers in general thrive well at Red Lodge. At the time of our visit, early in June, even the smaller plants were particularly noticeable from the infinite variety of tint on the young growths. This was specially manifest on young plants of Picea nobilis, and of course on the various golden-leaved varieties, such as Taxus elegantissima, Retinospora pisifera aurea, Thuja aurea, &c. One plant of the last-named variety can no longer be considered small, as it is at least 5 feet in height, and proportionately large in circumference. Cupressus Lawsoniana presents as many varieties here as elsewhere, some so compact and dense in habit and so destitute of the usual pendulous direction of the branches, as to make the plant look like a distinct species. Thujopsis borealis is one of the Conifers that appears to do well here. Thuja gigantea assumes a brighter colour even than we are accustomed to, and vindicates its claim to be considered the noblest of the Thujas, though it has among other drawbacks the length of time that it takes to propagate by cuttings. A period of two years, it appears, is required for these to root freely.

The odd-looking sickly-coloured Umbrella Pine, Sciadopitys, does not appear to grow any more rapidly in proximity to the sea than it does inland. Two little hummock-like plants deserve notice on account of a peculiarity which one of them presents constantly, and the other not, Abies Clanbrasiliana, which some suppose to have been originally a burr-knot on the common Spruce, and Abies pygmæa, which has the same habit. The Clanbrasilian Spruce keeps constant, but the pygmæa, like the frog in the fable, is constantly striving, in some one or other of its branches, to rival the dimensions of its great relations. Of course it fails in the attempt, but one does not see why one variety should, in Darwinian phrase, show so much tendency to revert, and the other so little.

Another form, more quaint and lanky than graceful, is presented by Abies monstrosa, of which there is a good specimen with long, lithe, outstretched arms, looking as one might imagine an Araucaria imbricata would do if its trunk were shortened and its branches inordinately lengthened without producing side shoots. There is some advantage in being short in the trunk, it would seem, for here is a blasted trunk of Taxodium sempervirens which tried to act as a lightning conductor, in forgetfulness that wood is not so well suited for that purpose as some other things, and got burnt in consequence. Its next door neighbour, a fine Cupressus macrocarpa, a foot or two less in height, was uninjured. Rhododendrons are grown here in large quantities, and as a proof of the difference in climate, we may mention that while around London the blooms even in Mr. Waterer's tent at Kensington were by no means fully expanded, at Southampton on the same day the *première jeunesse* of the flowers had passed, and many had indeed sank into the limp and withered stage. There were still sufficient in their full glow of colour to show how magnificent must have been the display a week earlier than our visit.

One of the finest that we noticed was Joseph Whitworth, with flowers of a rich claret-red, spotted with dark spots, and measuring 3 inches and upwards across, and this with good substance to the petal. Lord Napier is also a sort that does well in this establishment, as also do Michael Waterer and John Waterer.

Weeping Hollies form another feature of this nursery. Some of the specimens are fine examples, and would be very effective objects for landscape garden effects. There is also a remarkably fine specimen of a weeping Beech, the excellent effect of which, from a landscape-garden point of view, may be seen as near London as Kensington Gardens. Another of the more noteworthy trees to be seen here is Arbutus procera, the smooth red bark and leathery glaucous leaves of which give, at a little distance, quite the aspect of a Eucalyptus. Escallonia macrantha here, as in the Isle of Wight, forms fine bushes, with dense dark green foliage, and clusters of pink flowers, of a size and intensity of colour that are not attained in the neighbourhood of London. Ilex dipyrena and I. latifolia are shrubs which thrive better hereabouts than in less favoured localities. In their foliage they more resemble small-leaved Magnolias, and in their flowers some Pittosporum than they do other Hollies. Skimmia japonica is grown in considerable quantity, and one point respecting it is worthy of notice in a cultural point of view—its objection to exposure to full sunlight. Those plants which get shaded by the hedge bounding one of the quarters show much more luxuriant growth than those at a distance from the friendly shelter. But to enumerate even a small proportion of the fine specimens to be seen here, would be to write a catalogue. It will be judged from our remarks that, besides the usual nursery stock, the main features of this well-ordered establishment consist in the rich collections of Conifers, American plants, Roses, and hardy trees and shrubs, including many which in less favoured localities do not attain the perfection that they do here. The undulating and varied surface of the ground, and the distant prospect, are points which can hardly be matched anywhere; and we should not be doing justice to Mr. Rogers' taste, were we to omit saying that he fully availed himself of the resources of his art in turning these great natural advantages to excellent account. *M. T. M.*

Garden Operations.

(For the ensuing week.)

PLANT HOUSES.

THE inmates of *Orchid houses* should now be pushed along, so that a liberal growth may be secured during the proper season. Even Cattleyas, or inmates of Cattleya houses generally, will bear a good high range of temperature at this, their growing period, if abundance of atmospheric and root moisture be supplied. Afford all the air possible during nice warm or mild intervals, taking care not to reduce the actual temperature of the house too much. An abundant supply of air properly given is of the utmost importance for developing the peculiar textures of which the Orchid plants are composed. This is obvious when we take into consideration the comparative blooming capabilities of Orchids grown under an artificial *régime* with that of others in their native habitats. These latter—judging from specimens which are imported, bloom with far greater freedom upon even the smaller pseudobulbs, than they do with us. Hence these facts should be taken into consideration in our everyday practice. Some few specimens there may be in all collections of these delightful plants which would now be benefited by a shift. This operation, where needed, should not be delayed any longer, or time will not be given for the fresh potted plants to make new roots before winter. At this time a little additional Moss should be placed around the roots of such as are growing in baskets or upon blocks, with a view to maintain a nice moisture constantly around them. *Azaleas* have now generally commenced growing freely, and should therefore have a damp atmosphere and a close and high range of temperature for the next few weeks. Greenhouse or Indian Azaleas will stand a much higher temperature if the above conditions are also maintained. Allow the thermometer therefore to run up to 90°, and even 95°, in the early afternoon, syringing them all over freely once or twice a-day. If any symptoms occur of making an uneven growth, by some shoots pushing much stronger than others, have resort to pinching these strong ones back to four or eight leaves, as may seem necessary. The shoots will then form a number of younger ones, which, with proper care, will be able to form bloom buds this season.

FORCING HOUSES.

Stop the young laterals and sub-laterals rather closely upon the latest Grapes which are now making their first swelling, whatever stage they may be in, by which time other successional laterals will have formed, and which may be admitted to grow with moderate freedom at a somewhat later date. Give to all *Vineries* in which the borders depend entirely upon artificial waterings for their supply, thorough good soakings at this time. As I have suggested in these pages previously, in affording these and similar root-waterings, be guided always as to quantity by the amount that falls naturally out-of-doors. A dozen pots or so once or twice during the growing season do not meet the natural wants of the roots, and especially where the borders are well drained. If any outdoor Vine-borders are seen to crack over the surface it would be well to place a further mulching of good rotten dung over the whole. *Pines*, which have only recently been potted, must be shaded for a time during bright sunny weather. Keep up a rather close atmosphere until a fresh start is fairly made, using the syringe occasionally to damp the plants, and the cool surfaces within the pit, with a view of encouraging a nice humidity. Where suckers are in demand—and they seldom are not—only such a quantity should be allowed to form as are actually wanted for the purposes of propagation. Attend particularly to the removal of the gills as soon as they are sufficiently large to snap off freely without injuring the stalk upon which they have formed. Remove all fruit trees which have been fruited in pots to a sheltered place out-of-doors. Plunge them in the ground up to the rim of the pot, and afterwards place a moderate mulching of decayed manure upon the surfaces of the balls, both of which will tend to reduce the necessary labour of watering, &c. Give air freely to all *Peach* and *Nectarine houses* after this date, and frequently syringe those trees from which all the fruit has been picked.

HARDY FLOWER GARDEN.

What a number of complaints are made concerning the harshness of the weather and its unsuitability for the cultivation of hardy plants, and justly so, for many subjects upon which we depend for beautifying our gardens, and which in ordinary seasons answer this purpose admirably, are at the present time existing only, and not growing. The only consolation we have, seeing that all our efforts are futile, is that there is no exception to the rule. Mr. Gibson, the able superintendent of Battersea Park, informed me at the late show of the Royal Horticultural Society that he had not even ventured to put many things out at that date, and that many of those which he had planted were becoming less instead of growing and making the amount of display they have previously done. Attend to the necessary training or pegging down of any new hybrid *Clematis* in whichever way they are grown, being careful not to twist the stalks in the operation. These plants do not like much moving about after their young shoots are once formed, and should consequently be trained in the required position as they continue to form fresh shoots. Remove all superfluous suckers which may have pushed around the base of *Hollyhocks* since they were first singled out, and give another tie to those which are reserved for flowering. If the weather continues dry, a copious watering should be given to all stools of *Phloxes* of the decussata section. Few things suffer more than these in dry weather, or impoverish the soil around the base to a greater degree. A good mulching with decomposed manure would therefore be very beneficial if given previously to watering them or before a shower of rain. With a continuance of dry weather many other subjects suggest themselves as likely to be much aided by means of a good soaking (if with liquid manure, so much the better). I may mention, for instance, *Dahlias*, *Pinks*, *Carnations*, *Picotees*, *Violas* of the cornuta breed, *Double Violets*, *Shrubby Calceolarias*, and especially *Tritomas*, which delight in moisture, and only succeed thoroughly well during rainy seasons. Finish pruning and tying-in or tacking to the wall all hardy climbing plants, such as *Jasminums*, *Banksian* and other *Roses*, *Wistarias*, *Loniceras*, &c. *Roses* in general, no matter how grown, will be much benefited by having all gross-growing young shoots shortened back to near the base, and especially the strong, rambling class, having the Ayrshire stamp of robustness. Damp *Chrysanthemums* frequently overhead with the rose of a fine watering-pot. Be very particular, in regard to these plants, not to let them suffer through want of water at the root, as, independently of the injury which would thereby accrue to the plant in regard to its growing powers, there is the great risk of losing the lower leaves before they have completed the flowering season, which, I need not add, destroys their beauty.

KITCHEN GARDEN.

One of the chief difficulties which the writer of a Calendar such as this has to contend with, is the frequent change of weather. Hence, however much I may endeavour to meet the requirements of the moment by my suggestions, they may lose their applicability before publication. If the weather should continue dry until these pages appear, many things in this department will require artificial waterings, more especially recently sown seeds which are germinating or are already aboveground, such as *Lettuces*, *Peas*, *Radishes*, &c. It would be well also before sowing other successional batches to well water the seeds in the drill rows after they are sown, and before they are covered over with the surface soil. In watering such things as these always make it a rule to give one good watering in preference to frequent and often untimely surface stoppings, which only tend to cake the surface soil, and, if sunny weather prevails, to burn that portion of the growing plants nearest the surface of the soil which is so frequently watered. The thing explains itself. If an animal is thirsty we do not have resort to moistening the outside of the throat; rather let us find out the roots or feeding surface, and then the supply we afford, however little it be, will not fail to produce favourable results. *W. E.*

TOWN GARDENING.

WINDOW boxes that have been filled with Mignonette will now begin to look seedy, and should have all the seed-pods taken off, which will prolong its existence; or the plants should be removed altogether, and the boxes filled with Scarlet Pelargoniums, Calceolarias, and Blue Lobelias, or varieties of the Dwarf Nasturtium, which last a long time, and make a charming box of flowers. Carnations should now be layered, and too many cannot be grown in town, for they do well, and are universal favourites. The method of propagation which I adopt is the following:—I procure fresh mould from the country, and some pegs cut from an old birch-broom. I loosen the soil round the plant, adding a portion of the fresh soil. To raise the shoots in them, I cut with a sharp knife under the second firm joint upwards, then make a second cut below, taking out a wedge-like piece, which prevents the cut closing; I then peg them down, cover with the fresh soil, and water occasionally, and I find that nine out of every ten so treated will root. The Iris germanica, one of the best plants for town, should now be cut down within three inches of the ground, and transplanted if necessary. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending July 7, 1869, as observed at the Horticultural Gardens

July.	Moon's Age.	Barometer.		Temperature. Of the Air.			Of the Earth		Wind	Rain.
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 1	21	30.137	30.120	66	52	59.0	60	57	N.E.	.00
Friday 2	22	30.125	30.076	69	53	61.0	59	57	N.E.	.00
Satur. 3	23	30.113	30.078	69	51	60.0	61	57	N.E.	.00
Sunday 4	24	30.046	29.963	77	43	60.0	63	58	S.E.	.00
Mond. 5	25	29.874	29.838	80	59	69.5	63	58	S.	.00
Tuesd. 6	26	29.963	29.843	76	56	66.0	63	59	S.W.	.00
Wed. 7	27	30.054	30.018	71	56	63.5	63	59		00
Average.		30.045	29.991	72.6	52.8	62.7	61.7	57.8		0.00

July 1—Densely overcast; densely overcast
— 2—Densely overcast; cloudy; overcast.
— 3—Overcast; cloudy, but fine; densely overcast.
— 4—Very fine; exceedingly fine; clear and fine at night.
— 5—Fine, cloudy, very fine, and hot; densely overcast.
— 6—Densely overcast; heavy clouds; densely overcast.
— 7—Densely overcast; cloudy, but fine; clear and fine.
Mean temperature of the week, 1·10 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending July 17, 1869.

July.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..11	75.4	50.7	63.0	11	1.07 in.	4	3	6	1	5	9	9	6
Mon. ..12	75.9	50.5	63.2	14	1.10	1	2	8	1	6	10	9	6
Tues. ..13	76.1	51.4	63.7	15	0.92	—	4	6	1	4	23	4	1
Wed. ..14	74.5	50.5	62.5	15	0.64	—	5	4	1	7	14	11	1
Thurs. ..15	76.6	50.7	63.7	22	1.46	1	5	5	—	6	18	6	2
Friday ..16	76.0	50.1	63.0	17	1.61	2	3	7	—	3	19	7	2
Satur. ..17	74.3	51.3	62.8	16	0.56	2	—	3	3	4	18	9	4

The highest temperature during the above period occurred on the 17th, 1834—therm. 94 deg.; and the lowest on the 17th, 1863—therm. 33 deg.

Notices to Correspondents.

FERNS: *J E M.* Our opinion is that Hymenophyllum tunbridgense and unilaterale, growing in a pan, mixed, if shown as one, in a collection of 12, would disqualify; but if shown as two, the fact of their being intermingled should not disqualify.

FOXGLOVES: *Stuart & Mein.* An excellent strain, chiefly of light spotted flowers. The plants sent are grand.

LICHENS ON DOG ROSE STOCKS: *A Constant Subscriber.* The substance on your Dog Rose stocks is a Lichen, not a Moss. The situation from which your stocks were obtained must be damp or illdrained. Scrape the Lichen off, and should it appear again, repeat the process. *M. J. B.*

MEDICATED SHREDS: *W E C.* Apply at "The Garden Repository, 32, James Street, Covent Garden."

NAMES OF PLANTS: *E D.* The lesser Clover, Trifolium minus, common everywhere in South Britain, chiefly on light soil. —*Charles.* The white-flowered Rose sent is R. arvensis, the pinkish one is R. canina.—*E of T.* A fine variety of Epidendrum radiatum.—*A W, Cheshunt.* Paulownia imperialis. —*B Duffin.* 1, Selaginella Martensii; 2, Asplenium flaccidum var.; 3, insufficient: what are the flowers? 4, Cyanotis vittata.—*J McR.* Arum Dracunculus. — *W Neve.* Polemonium cœruleum.—*Constant Reader.* 1, 2, 3, Athyrium Filix-fœmina; 4, Lastrea Filix-mas.

PELARGONIUMS: *Hythe.* Good decorative varieties for home growth, but of no particular merit or novelty. They had all fallen to pieces before they reached us, in both cases.

PROTECTING TREES: *Charles.* The felt to be used for caps for protecting young trees in winter, is the common asphalted roofing felt.

PRUNING MAGNOLIA: *J E G.* You had better train-in as much as possible of the new growth, and if any then remains, cut it away now.

ROBBERY FROM EXHIBITIONS: *F & A Smith.* We are making inquiries, but in the meantime we advise you to communicate with the officials of the Society. We shall revert to the subject on another occasion.

ROSE: *W Bartlett.* Your seedling Rose is of a pleasing tint of sulphur-yellow, fragrant, and apparently of fair size, while, judging by the foliage, it is of free growth; but the bloom sent has one very bad quality, that of quartering, which consists in the petals folding together closely in masses, which separate, and give a split appearance to the flower. If this is its usual character, we cannot commend it. Send a box of blooms by and by to the Floral Committee, should it open better hereafter.

SPURS ON PEAR TREES: *V S Cardigan.* 1. From 2 to 4 inches may be stated as a fair distance for the spurs on fruit trees to rest apart; it is, however, altogether dependent on their size, and whether simple or compound spurs are alluded to. The rule is to get as many as possible without allowing the one to crowd over the other, all should be allowed free development. 2. Ditto, ditto. 3. It is altogether dependent on the health and vigour of the trees; what might be proper for one would be twice too many for another. 4 and 5. The distance between Pears on a tree cannot be defined by any given limit. If your trees are healthy and vigorous you may say for large Pears one to every foot, and for small varieties double or treble that number. Questions like these would be far better answered by any intelligent practical gardener on the spot, who could take into consideration the various conditions and circumstances of the trees.

THE ROYAL BOTANIC SOCIETY'S LIST OF AWARDS: *Messrs. Carter & Co.* The omission of your name from the list of awards made by the above Society, is not owing to the "inaccuracy" of our reporter, as the list in question was furnished from headquarters, and published as an advertisement in our Journal of Saturday last.

USING THE DAISY RAKE: *Annie.* This rake is used nearly as other garden rakes are. But when it is drawn towards the body, instead of lifting it off the ground, lower the handle, and in pushing it back, let the back of the teeth rest upon the ground, to clear the Daisies from between them.

VARIEGATED STRAWBERRY: *Messrs. Carter & Co.* send us some fine specimens of golden-blotched leaves of Strawberries. The plants are effective out-of-doors, and the leaves would do well for garnishing. It is an old plant, but seems to have been somewhat neglected.

MISC.: *J J Krauseman.* Your advertisement will cost 4*s.*

COMMUNICATIONS RECEIVED:—T. J.—W. C.—J. B. T.—W. H.—P. E. G.—F. K.—G. H.—J. E. G.—G. Forby (thanks).—J. W.

ERRATA.—In our report of the Royal Botanic Society's show, at p. 715, a few errors have crept in. In the first place, Messrs. Paul & Son were equal 1st for 50 Roses, with Mr. Mitchell, whose name only was mentioned as taking a first prize. For 10 tricolor Pelargoniums, Mr. Stevens, of Ealing, was 1st; and Messrs. E. G. Henderson and Messrs. Carter & Co. were placed equal 2d with Messrs. Smith, of Dulwich.

WIRRAL AGRICULTURAL SOCIETY.—The ANNUAL SHOW of HORSES, HORNED CATTLE, SHEEP, PIGS, POULTRY, DOGS, IMPLEMENTS, FARM and HORTICULTURAL PRODUCE, &c., will be held at BIRKENHEAD, on AUGUST 25 and 26, when ABOVE SEVEN HUNDRED POUNDS will be offered in PREMIUMS. Prize Lists, &c., may be had on application to the Secretary, WILLIAM HENDERSON, 2, Market Cross, Birkenhead.

N.B. All ENTRIES CLOSE on AUGUST 3.

THE ROYAL AGRICULTURAL SOCIETY of ENGLAND.

President.—His Royal Highness the PRINCE of WALES, K.G.

MANCHESTER MEETING. 12th to 24th JULY, 1869, inclusive.

PROGRAMME.

MONDAY, July 12, to Friday, July 16, inclusive.—Trial of Reaping, Mowing, and Haymaking Machines, Horse Rakes, &c., in the fields adjoining the Show Yard. Admission, 6*d.* each person.

FRIDAY, July 16, and Saturday, July 17.—The Implement Yard only. Open from 9 A.M. to 6 P.M. Admission, 2*s.* 6*d.* each person.

MONDAY, July 19, and Tuesday, July 20.—The entire Show Yard. Open from 8A.M. on Monday, when the Judges commence inspecting the Live Stock and making their awards. Admission, 5*s.* each person.

WEDNESDAY, July 21.—Admission, 2*s.* 6*d.* each person.

THURSDAY, 22, Friday, 23, and Saturday, July 24.—Admission, 1*s.* each person.

SPECIAL NOTICES.

SEASON TICKETS.—Non-transferable Tickets, price 10*s.* 6*d.*, admitting the holder, once on each day, to the Show Yard, from July 19 to 24, inclusive, may be obtained from the Secretary, 12, Hanover Square, not later than Saturday, July 10, and afterwards at the Secretary's Office, near the entrance to the Show Yard, or at 96, King Street, Manchester, from and after June 25.

TRIAL OF HUNTERS.—The Trial of Hunters will take place in an enclosed space adjoining the Show Yard at 2.30 daily, commencing on Tuesday the 20th. Admission to this ground, 1*s.* per day each person. Admission to the enclosed stands on Tuesday and Wednesday, 1*s.* each person; and on each of the other days, 1*s.* 6*d.* each person. Season tickets, price 10*s.* 6*d.* each, may be had at 96, King Street, or at the Local Committee's tent, in the Show Yard—giving the holder admission to the leaping ground and the stands at any time on any day, from the 20th to the 24th, inclusive. Governors and Members of the Society are, however, reminded that they have not free admission to the Trial of Hunters.

HOUND SHOW.—An Exhibition of Fox-hounds will be held in the enclosure for the Trial of Hunters, adjoining the show ground, on Wednesday and Thursday, July 21 and 22. Admission, 1*s.* The holders of Season Tickets for the Trial of Hunters have free admission to this Exhibition.

HORTICULTURAL SHOW.—Arrangements have been made to enable persons to pass and repass from the Royal Agricultural Show Yard to the Exhibition of the Royal Horticultural Society, after separate payment at each.

REFRESHMENTS.—Provision has been made for first and second class Refreshments upon the ground, at a reasonable charge.

LODGINGS.—Persons at a distance wishing to obtain information as to Lodgings, are requested to address Mr. John Duffield, Essex Street, King Street, Manchester, at whose office a Register of particulars and prices is kept, and by whom printed lists will be supplied, or inquiries answered on application.

GENERAL NOTICES.

No person can be admitted to the Show Yard after 7 o'Clock in the evening.

The Show Yard will be cleared of visitors each evening at 8 o'Clock.

The Parade of Cattle in the Rings will take place at 10 o'clock A.M., and of the Horses at 12 o'clock at noon, on each day after Monday.

A Plan of the Show Ground may be purchased at the Printing Office, in the Show Yard.

There are two Entrances to the Trial Fields, one by Seymour Grove, and the other by the Military Exercise Ground, both at Old Trafford. Access can be had by no other approach.

The Agricultural Gazette.

SATURDAY, JULY 10, 1869.

MEETINGS FOR THE ENSUING WEEK.

July 12 to July 16 } Royal Agricultural Society of England, at Manchester—Trials of Machinery.

" 16 " 17 } Admission to Implement Showyard.

THE Show at Manchester is to be a very great affair. A thousand loads of timber have been used in the many miles of shedding and fencing which it requires,—3000 feet of cattle shedding, 2000 feet of shedding for sheep and pigs, 12,000 feet of implement shedding, are already in order; and some 400 boxes for horses are prepared. The implements are, as we write, crowding into their places, and next week the trials of that class which the Society this year submits to its judges will proceed. Reapers and mowers and haymakers, horse-rakes and hay-tedders, and harvest tools of all kinds—Mr. GIBBS' drying apparatus among others—will occupy the labours of a large staff of judges during the whole of the ensuing week, and on Monday, the 19th, the live stock judging will proceed, and the whole yard will be laid open to spectators.

We give the programme as follows:—

Admission of Governors and Members.—Governors and members of the Society who have paid their subscriptions for the current year will be admitted to the showyard and trial fields, during the time they are open to the public, by non-transferable tickets issued by the Secretary; and any governor or member who shall be found to transfer or lend his ticket will be reported to the Council, and will in future forfeit the privileges of membership. Application for the governors' or members' ticket, either by post or personally, must be made at 12, Hanover Square, not later than Saturday, July 10; afterwards at the Secretary's office near the entrance to the showyard.

Admission of Non-members by Ticket.—Non-transferable tickets, price half-a-guinea, admitting the holder to the showyard once only on every day of the show, may be obtained of the Secretary, at 12, Hanover Square, W., not later than Saturday, July 10, and afterwards at the Secretary's office, near the entrance to the showyard; or of Henry Whitworth, Esq., secretary of the local committee, 96, King Street, Manchester.

Monday, July 12, Tuesday, 13, Wednesday, 14, Thursday, 15, and Friday, 16:—Trials of reaping, mowing, and haymaking machines, horse-rakes, &c., in the fields adjoining the showyard.—Friday, July 16, and Saturday, 17, the implement yard, open from 9 A.M. till 6 P.M.; admission 2*s.* 6*d.* each person. The trial fields adjoin the showyard; admission fee to the public, 6*d.* each person. Members of the Society are admitted on showing their member's ticket.

Monday, July 19, the entire showyard, open from 8A.M., at which hour the judges will commence inspecting the live stock, and making their awards. Admission 5*s.* each person. Tuesday, July 20, admission 5*s.* each person. Wednesday, July 21, admission 2*s.* 6*d.* each person: General meeting of the members in the showyard at 12 o'clock. Thursday, July 22, Friday, 23, and Saturday, 24, admission 1*s.* each person. Admission to the entire showyard can be obtained on each of the days, from Monday the 19th to Saturday the 24th inclusive, from eight in the morning till seven in the evening. The showyard will be cleared of visitors each evening at eight o'clock. The exhibition of cattle in the rings will take place at 10, and of the horses at 12 noon, each day after Monday.

In addition to the purely agricultural interest of the meeting, the tastes of the ordinary public are to be consulted by the exhibition of foxhounds and the leaping trial of hunters. Some 200*l.* are offered in prizes for foxhounds; and a set of prizes is offered for leaping horses. We quote the account given in the papers under this head:—

"For the leaping trial of hunters a paddock comprising 6 acres has been staked off on the eastern side of the horse ring. On the north side of it a large grand stand for visitors is being erected. The trials will begin on Tuesday, the 20th, and will extend over the rest of the week. The prizes offered for the five days amount to something over 70*l.* On Tuesday a competition will take place for a silver cup, offered for the best leaping by heavy-weighted hunters. On Wednesday, for a similar cup, for light weights. On Thursday and Friday respectively these competitions will be repeated for cups of less value, the winners in Tuesday's and Wednesday's trials being excluded from the competition. On Saturday the winners of the four preceding trials will contend for a champion cup. The artificial fences will consist of a thorn fence, a post and rail fence, and a water jump, with a brush fence on the taking-off side. It is understood that the prizes will be awarded in respect of the manner in which each hunter may aquit itself in leaping, and not on account of the appearance of the competing horses. The order of leaping each day will be decided by lots."

This part of the programme will not, we think, receive general approval. It seems to us more fitted for a country fair than for the National Agricultural Society. No doubt it will "bring grist to the mill;" and that is what will generally be considered to be its object. It looks in fact like a mere attempt to get as large an addition to income out of the Manchester public as possible.

The prizes offered within the more legitimate limits of an agricultural society's operations are very large, amounting to close upon 5000*l.*: viz., 1290*l.* as compared with 1005*l.* last year for horses; 1400*l.* as compared with 1005*l.* last year for cattle, premiums to the amount of 300*l.* having been offered for Scotch herds of cattle; and 1065*l.* in place of 725*l.* last year for sheep. These, with a slight increase in the premiums offered for pigs, cheese, butter, wool, &c., and 640*l.* in place of 485*l.* offered for implements, make up the amount of 4850*l.*, and explain an increase of 1420*l.* in the prizes of 1868.

Among implements the sum of 80*l.* is offered in prizes for mowing-machines, 45*l.* for haymaking-machines, 210*l.* for reaping-machines, 145*l.* for waggon and carts—Gold Medal for the best economical system of drying corn and hay in wet weather, and 10 Silver Medals are at the disposal of the judges for special merits in improvements.

The entries already made in every class are satisfactory; and, considering the presidency of the PRINCE OF WALES, the immense population amidst which the show is to be held, and the large entries made, the Manchester meeting of the Agricultural Society is likely to be in every way profitable and successful.

NEARLY all the clauses of the Contagious Diseases (Animals) Bill which relate to importation were passed in Committee on Tuesday night without any important alterations. The principle of the free importation of animals from healthy countries, and the restriction of those from infected or transit countries to a separate market or a defined part of a port, was affirmed—not, however, without opposition on the part of those who represented the agricultural interest.

Considerable discussion took place on Mr. READ'S amendments, which proposed to substitute for the discretionary power of the Privy Council to make orders, in accordance with the information which they may have of the state of disease on the Continent, a positive definition of countries from which importation of stock should be free; but they were negatived on division by a majority of 58 in a House of 382 members.

On the part of the Government it was argued that, if discretionary powers are given to the Privy Council, it is not advisable to limit them by the imposition of such restrictions as those proposed by Mr. READ in respect of the conditions under which a country should be deemed an "infected place." Prussia was adduced as an example of the inconvenience which might result from the operation of the suggested amendments, as the accidental passage of the cattle plague over the eastern frontier would place the whole of that country in the list of infected places for three years, or at least for the minor period of 18 months. It was further urged that, with the means of obtaining information now possessed by the Privy Council, they are the best qualified to decide what countries are dangerous at certain periods. Whether the promoters of the Bill or its opponents have the best of the argument is now a matter of no practical consequence, the division resulted in favour of the Government measure, and it will be more interesting to consider the operation of the clauses which have been passed relating to the foreign cattle trade, than to discuss the logical relation of the several propositions which were advanced on both sides. In our observations in last week's *Agricultural Gazette* we recorded our conviction that the port of London would be placed in the position of the outports, cattle from certain countries being admitted free, and after passing the required inspection ceasing to be deemed foreign cattle; while those from "infected countries," instead of being landed in a defined part of the port, and thence, by special Order of Council, removed by rail to the metropolitan market, and subsequently distributed within the limits of the Board of Works District, would be confined to the area of a "separate market" to be erected by the Corporation of London. This is precisely the present state of the Bill: a separate market for "certain kinds of foreign cattle" is provided for, and will doubtless be constructed; certain other landing places will be set apart for cattle brought from "healthy countries," and when these cattle are landed and passed, it may be presumed that they will be sent to the Islington market and there be sold along with native stock, and treated in the same way.

The Privy Council accepts the power and it also incurs the responsibility of deciding what kinds of cattle shall be dealt with thus liberally, and what kinds shall be shut up in the "waterside market;" if all be well, the Council will deserve such praise, and if infected foreign cattle again carry destruction into the herds of this country, it will not fail to receive such censure as an outspoken people may freely scatter.

To prevent any possible misapprehension as to the scope of the powers which the Bill confers, we will assume that in two years from this time the Corporation of the City have constructed a market at a convenient place on the banks of the Thames. The Privy Council will then, in exercise of its powers, and according to its information of the state of cattle and sheep on the Continent, make order to the effect that cattle brought from a certain part—say of Austria or Eastern Prussia, or (in the event of a contagious disease appearing among the cattle) from France or Spain, shall be landed on the defined part of the port, and shall not be removed therefrom alive. If an outbreak of sheep-pox occur in Holstein or Holland, a similar order would send sheep into the defined part to be slaughtered.

Then, as the sanitary condition of foreign animals undergoes inevitable changes, the Privy Council Orders will from time to time send new classes of cattle and sheep to the "separate market," and set some of the previously restricted classes free.

Uncertainty is the paramount element of this system, and we do not see how it could be otherwise. So long as the "safety market" idea was a "fixed quantity," including in its application all imported stock, there was nothing vague or indefinite in the proposition, or in the arguments for and against it; but the idea has been entirely abandoned in favour of a more elastic and less protective system; and the principle of selection once admitted, renders all attempt at strict definition futile. If certain classes of foreign animals are to be exempt from the operation of the law, it is better to allow some responsible authority to determine, according to circumstances, what classes shall be so treated, rather than to impose conditions in the present which may prove to be useless or obstructive in the future.

That part of the Bill which relates to pleuro-pneumonia and other contagious diseases will require some amendment before it will work, and at best the local authorities all over the country will find enough to do with the diseases which are constantly rife among native stock, without having to stamp out foreign plagues.

—— AT Mark Lane the trade in Wheat and grain generally has been firm throughout the week at Monday's rise of 1*s.* per quarter, notwithstanding that the weather has been warm, and otherwise exactly suitable for maturing the growing crops.——The Metropolitan Cattle Market trade has been slightly influenced by the heat, for both cattle and sheep have slightly declined in price, while lambs have been more in demand to meet the taste which hot weather induces. Beasts and sheep are now quoted at 5*s.* 6*d.*

per S lb., and lambs at 6*s.* to 6*s.* 4*d.* ditto.——The agricultural seed trade is now in a quiet state.——Hops are now watched with considerable interest and anxiety. The reports from Kent and Sussex are anything but promising, and in Worcestershire the blight is increasing.

—— Lord ELCHO's discussion, reported in another page, of adulteration of manures and foods, has brought forward in the *Times* a declaration by Hull seed crushers that abundance of pure linseed-cake is made and may be purchased. To this "Hydraulic" offers the following rejoinder:—

"I have no desire to enter into the question of the purity of Hull seed-crushing, or whether in that town there are three or more 'just men' embarked in that line of business; but it seems to my apprehension the 'largest seed-crushers' attempt to prove too much. Otherwise their philanthropy is so unprecedented, and the sacrifice of their own interests so great, that it need no longer be a marvel the trade is generally in a very depressed state.

"They state they sell thousands of tons of pure cake in the season, and their mills are open to inspection. How much wiser visitors would be for the introduction I do not venture to predicate, or if they could see their way to sell a 'pure' Linseed cake at 10*l.* 15*s.* per ton (their quotation) with the following *pro formâ* statement before them, viz.:—

PRODUCE OF ONE QUARTER OF BLACK SEA LINSEED, WEIGHING 424 LB.

1 cwt. 3 lb. of oil, at 30*s.* per cwt. naked..	£1 10 9	
2 cwt. 3 qr. 7 lb. of cake, at 10*l.* 15. per ton	1 10 3	—£3 1 0
Deduct cost of seed	.. 2 10 0	
	£0 2 0	

Leaving, as is shown, 2*s.* per quarter for working expenses, rent, material, interest of capital, &c. I am a seed crusher of many years' standing, but, like many others, have closed my works, as it does not suit my book to supply pure cake to the agriculturists at 10*l.* 15*s.*—equivalent to a bonus of 30*s.* to 40*s.* per ton."

—— The farmers of East Lothian are, we understand, raising a testimonial to the merits of one of the most distinguished of their number; and Mr. PATRICK SHIRREFF, to whose services this movement has reference, may well look for some recognition of them from English as well as Scottish agriculturists. We quote from the *Haddington Courier* the following short account of what he has done:—"Very early in life his botanical efforts were directed to the bringing out of new varieties of the cereals, and throughout the lengthened course of his succeeding years—and latterly with more vigour than ever—he has devoted himself to this department. Those who know the patience and nicety of manipulation requisite in such experiments can alone judge of his labours. It was on no casually-discovered ears of corn that he founded. He studied the varieties from whose combined merit he calculated that the best crosses might be derived. One of the last of his Wheats, which claims equal relationship to the bearded white and the Talavera, may be instanced for its noble and aristocratic pedigree. Mr. SHIRREFF has long been at the head of our authorities on every question connected with the cereals, and there are few names to which agriculturists owe more gratitude." .. "When the present testimonial was proposed, it was given out at once that it was not a money testimonial which was wanted. This he did not need, and would not accept; but it was simply such honourable acknowledgment of his merits as every one to whom they are tendered is bound politely to accept." We understand that Mr. SHIRREFF has desired that the sum to be collected as a testimonial shall be placed in trust with some agricultural society, in order that the accumulated interest for each succeeding five years be given as a reward or prize to the individual, whoever he may be, who has made during the period the greatest agricultural improvement or discovery.

—— In another page the reader will see some of the Rothamsted experiments enumerated and described, with the results of them for 1868, and for the whole series of the past years, respectively. The series having reference to the manured Grasses in the Park; and those on the Barley crop in the Hoos field are alone given this week: the others will be described next week. The tables are, in fact, a reproduction of the information given to M. DUMAS and his friends when they visited Rothamsted the other day. The other experiments, including those on Wheat, Beans, and rotations, we shall give next week. Meanwhile we add here, in more general terms, the results which have been deduced by the application of manures to the Turnip crop. These experiments were commenced in 1843. Eight acres, divided into numerous plots, were set apart for the purpose; and the crop was grown for 10 consecutive years on the same land ("Norfolk Whites" 1843-1852, and "Swedes" 1849-1852); on some plots without manure, and on others with different descriptions of manure. Barley was then grown for three consecutive seasons (1853-1865) without manure, in order to test the comparative corn-growing condition of the different plots, and also to equalise their condition, as far as possible, by the exhaustion of some of the most active and immediately available constituents supplied by the previous manuring. A new series of experiments with Swedes was then arranged, having regard to the character of the manures previously applied on the different plots, and to the results previously obtained. This second series was commenced in 1856, and is still in progress. It is impossible adequately to state the bearing of the results in a few words, but the following are some of the most characteristic indications:—1. Without manure of any kind the produce of roots was reduced in a few years to a few cwts. per acre; but the diminutive plants (both root and leaf) contained a very unusually high percentage of nitrogen. 2. Of "mineral" constituents, phosphoric acid (in the form of superphosphate of lime) was by far the most effective manure; but, when this manure is used alone, the immediately available nitrogen of the soil is rapidly exhausted. 3. Really large crops of Turnips can only be obtained when the soil supplies a liberal amount of both carbonaceous and nitrogenous matter (as well as mineral constituents); and when they are already available within the soil, or are supplied in the form of farmyard manure, rape-cake, Peruvian guano, ammonia-salts, &c., the rapidity of growth and the amount of the crop are greatly increased by the use of superphosphate of lime applied near to the seed.

OUR LIVE STOCK.

THIS week the hay harvest is quite finished in the south, the general opinion being that it is a fair average crop and of tolerably good quality. In the north it is in full operation. Ten days ago only in places here and there was it commenced, but if this fine weather last it will be fairly over next week. Turnips and Mangels look promising, and thus far prospects seem brighter for the coming winter, though it will take fully the year to overcome the effects of last summer.

—— Next Wednesday Mr. Strafford sells the entire herd of pure-bred Shorthorns belonging to the late Thomas Crisp, Esq., at Butley Abbey, near Woodbridge, Suffolk. The catalogue contains the pedigrees of 54 cows and heifers and 20 bulls, but we miss the usual preface which Mr. Strafford generally gives to his catalogues, and also the months when the animals were calved. There are some good old sorts among them notwithstanding the recent sires, which are rather of mixed blood: the most attractive and fashionable pedigree opens the sale with *Silence* 2*d*, by SIR COLIN CAMPBELL (13,718), a son of the DUKE OF GLO'STER, from *Old Silence*, a pure Bates cow; there are two daughters of hers and a grand-daughter, and a son and two grandsons, these are by WILD DUKE (19,148), a Bates bull; CONTE DE VERMANDOIS (19,507), a Booth bull, and BUTLEY BUTTERFLY (21,348), a Towneley bull, so the blood will suit admirers of each fashionable strain, for these three bulls are the sires of many other lots. EARL OF WESTMORELAND (21,662), who came from Mr. Fawcett of Childwick Hall, from stock purchased of Lord Feversham, has also some accredited to him. Among the other families are several of the Violets, a tribe with much Bates blood, formerly in Earl Ducie's possession and originally from Mr. Smith of Shedlaw. A pedigree familiar to many has several representatives; it is the *Duchess* family from Mr. Harrison, of Greta Bridge, which has been located in Essex many years. The *Seraphines*, which are also numerous, came from Mr. Harvey Combe, of Cobham Park; others are from Colonel Duncombe, Mr. Ambler, and Mr. Clover. Two young bulls of the Harrison-Duchess line are now in use. On the following day Mr. Bond sells the pigs, called the Butley Abbey breed, which are well known in the showyard; they are divided into white sows and boars of the large breed, white sows and boars of the middle breed, and white sows and boars of the improved Butley Abbey or small Suffolk breed. Distinctions in size are a great puzzle to ordinary individuals, and even eminent agriculturists have confessed their inability to decide between the small and middle, middle and large; high condition makes a great difference, and as the tendency of all improvement in breeding is to develop growth and early maturity, we think this nice distinction of size, after many years' breeding, must be a troubled question ever to the breeder himself: the Yorkshiremen for some time past have been sorely troubled concerning the Wainman breed. Ten riding horses and foals follow the pigs, among them being a beautiful bay filly by FANDANGUERO, with a long, incomprehensible pedigree. FANDANGUERO himself (bought at the late Sir Tatton Sykes' sale) and TOM, with two entire colts, comprise the thoroughbred stallions. The noted prize CUPBEARER heads the agricultural stallions, and PRINCE, DUKE, and YOUNG MAY DUKE are among them. There are likewise some black Suffolk sows and boars, and some Berkshires. A few implements finish the sale, which seems to be one of the greatest the county has seen since the days of Lord Huntingfield's at Yoxford.

—— The catalogue of Mr. Gebhardt's Shorthorns, which Mr. Thornton sells by auction at Muswell Hill, six miles from London, on August 3, is just issued. Forty-three animals comprise the herd, of which seven are bulls. Most of the animals are bred from the late Mr. Jonas Webb's Celia tribe, crossed with bulls bred from the same family; Lady Pigot's ROYAL PRINCE (18,776) was, however, used a short time, and Messrs. Leney's ROYAL GWYNNE is now in service. Among the other families are some from Mr. Bramston's late herd, and Mr. Christy's, which has recently been so successful at the Essex and Suffolk shows; whilst a few others were purchased at the sale of Mr. John Lane's herd, a noted prize stock in Gloucestershire. The sale occurs in consequence of the expiration of the leases of Mr. Gebhardt's farms. It is well known that Mr. Gebhardt is the great cattle agent for Germany, he having one of the largest Continental businesses in this country. The herd was originally formed for the purpose of exporting good stock abroad, and prior to the break out of the cattle plague much was exported. Since then little, if any, has been sent out, so the herd has been continued with great care and judgment up to the present time. It contains many very useful animals, with good milking and great feeding properties, and among the younger animals are some of great promise of both sexes. The sale takes place without any reserve, and is conveniently situated a mile or two from the Great Northern Station at Colney Hatch, and a short distance from London.

—— A case interesting to Shorthorn breeders has just been decided at Aberdeen. Mr. W. Marr, of Uppermill, had a sale of bulls last September, and upon the catalogue it was stated that all the bulls were his property and bred by him. It turned out that one, EARL RUSSELL, was not bred by Mr. Marr; this bull was bought for 15 gs. by Mr. George Walker, a farmer at Mains of Barra, and he sued Mr. Marr for 12*l.* damages, which he alleged he sustained by purchasing the bull. It appears that at the time of sale Mr. Marr thought the statement might mislead, and consulted the auctioneer and judge of the roup whether it should be so stated before the sale began, but these gentlemen considered it unnecessary. After the sale Mr. Marr offered to take back the animal and pay for its keep, but Mr. Walker in March sold the bull for 22 gs., or 7 gs. profit. The sheriff held that Mr. Walker was entitled to rely on the statement on the title-page of the catalogue; that, further, it had not been proved that he knew the bull was not bred by Mr. Marr, and therefore damages must follow; but inasmuch as the evidence plainly showed that the whole matter was an innocent mistake, no moral blame being imputable to Mr. Marr, and that little, if any, actual damage had been sustained, he would award only a small sum—half-a-guinea, with costs.

PRESENT APPEARANCE OF THE CROPS.

BEDFORDSHIRE.—As far as I have observed, and according to the opinion of others, the crops here present the following features:—Wheat barely average, Barley average, Oats average, Peas and Beans good, Mangels, Swedes, and Turnips very promising. On the Hoo Park Farm all crops, Grass, grain, and roots, are the best we have had for the last ten years. *James Ross, The Hoo Park Farm, Luton, July 5.*

BUCKS.—The crops in this neighbourhood are as follows:—Wheat: There are but few crops likely to be thrown down by rain, the general runs are fair healthy looking crops, and there are but few weak crops. Take them as a whole I must fix them at quite an average, and I am of opinion that the acreage is over an average. Barley: There are but few good crops, the general run is middling, and there are some very weak ones; as a whole they must be fixed under an average. Oats: The remarks about Barley will apply here. Beans: Winter Beans are all a very full crop, and although they appear thinly podded they must give a good produce. In some cases winter Vetches have been sown with them, but this year, had the Beans have been thinner, the Vetches would have had a better chance, but as it is they appear to thrive well together. The spring Beans are generally middling, yet well bloomed; therefore, if they pod well, the winter and spring Beans together must be fixed at an average. Peas are generally a full crop, and are well bloomed, but it is too early to give an opinion as to what their fate may be, for on that crop so much depends upon the weather and the fly between this and harvest. Mangels: They plant well, but look weak, and need hot weather to drive them on. Swedes: They are a good plant but late, and I find on the heavy land many a piece left for dead fallow; the wet unkind spring for cleaning land prevented their being got ready; indeed there are some large pieces of unolean good land left for dead fallow. Potatos: They are not much grown, and what there are look weakly. Vetches: They have been a very heavy crop, and have given a great deal of feed to the sheep, and there is as yet many bits unfinished, enough for a fortnight's consumption at least. Fallows: There is more than an average quantity, and they generally look rough, needing a lot of labour to make them fit for seeding next autumn; some recently ploughed looked very spiteful. Hay: It is a heavy crop on all soils, and so far it has been harvested well; it is about half completed. The Clover is also a heavy crop on all soils, and there is very much more of it than we might have expected from last dry summer. It has been got in well, and the plant in many cases looks well for the next crop. The harvest must be late; I cannot give a guess as to when it may be general. *William Smith, Woolston, Bletchley Station, Bucks, July 2.*——The crops in this neighbourhood, on the whole, promise well, yet in many parts of the cold clay districts the Oat crop is stunted and poor. Barley also is yellow and thin on the ground. On the warmer and well-drained portions of the vale these two spring crops are a good average. Wheat is variable, but on the whole it promises to be a fair average. Beans are mostly very fine indeed, and if the bloom sets it will be a good crop. Peas bid fair to equal the Beans, but latterly, from the excessively cold weather, they have gone off materially. The Grass crops are most abundant; and should the sun shine once more, which it seems to have forgotten to do for more than a week, a remarkably fine crop of hay will be gathered in. Nearly the whole of the young Clovers and seeds of the district were ploughed up in the spring, as the drought of last year killed nearly all the young plants. Mangels are excellent, but Swedes are very backward. *Vale of Aylesbury.*——The present appearance of the corn crops in this district is by no means flattering. They are at least a month later than those of last year (which was of course a very exceptional season); a wet spring, and a cold and well-nigh sunless month of June, has very much checked the growth of all the cereals, and none more than the Wheat crop, which in many cases is not yet fully out in ear, and in the more advanced cases the bloom is but just out. Beans promise better than any other crop, if it does not show in the end that there is too much straw. The weather did much to retard the cultivation of the land intended for roots, and both Swedes and Mangels are late in consequence. Much, however, will depend upon the state of the weather for the next four weeks as regards the progress of all the crops; and with such weather as we have had for the last few days a favourable change may be safely anticipated. The hay crops are very abundant—more so perhaps than we ever recollect them. Absence of sun and cold weather have made the progress of haymaking very tedious, but, on the whole, very little damage has yet been done; and with bright weather, about a fortnight will suffice

to have the crops secured. The grazing grounds are full of keep, and cattle are thriving very fast. Sheep and lambs have suffered much from the cold weather of the past five weeks. *A. Fraser, Claydon, July 5.*

CORNWALL.—Wheat: It is the exception to see a really good field of Wheat, owing to the plants being so thin in the ground, and the leaves have been much blighted by the frosty mornings. Barley, where sown early, looks promising, but the late sown is patchy and hollow. Oats at present promise the best crop; some very fine pieces to be met with. Mangels and Turnips were got in the ground in good order, and are looking promising. The early crops of Potatos were much injured by the frost, and in the district of Penzance the disease has been bad, but the general crop is looking well. Hay: The old Grass is of very prime quality; the new, light, owing to the bottom Grass not coming up, but all saved in splendid order. *T. Davey Simmons, Killiganoon, Truro, July 2.*

EAST KENT.—The N.E. wind, with very cold nights and sunless days, has not been such as we usually think best for Wheat when in blossom, but it is too soon yet to judge what the effects of it may be, or speak with any certainty of the harvest. It must be a month later than last year, but at the present time I see no reason to despond. Some things are better than usual. Our Beans and Peas are good. Mangel and Swedes have in almost every instance planted well. The hay crop (except the artificial Grasses) is heavy; and although the want of sunshine and slight showers have made the process of haymaking tedious and expensive, the rain has not been sufficient to do serious injury, and the prospect of food for our sheep and cattle is better than it has been for some years past. The yield of Barley and Wheat yet depends very much on the weather we may have during the next six weeks. Taking the average, there is straw enough to produce a good average crop, though I seldom saw it so uneven on good land well farmed. The straw will be abundant, but on our thin lands, particularly where the cropping has not been judicious, the straw is short, and the ears meagre; and this unevenness is not confined to land or cropping, for you may see in many instances in the same field a marked difference, without getting any satisfactory answer from the occupier why it is so, but in most instances the answer is—"I never saw it so before." Oats up to the present bid fair to be an abundant crop. On the whole at present (though the harvest must be late), I see no reason to despair why it should not be a good average one. I am not a Hop grower, nor do I profess to be a judge, but from the information I get from those who are, the prospect of a good crop is very bad. It is not too late yet, however; and with plenty of sunshine, warm nights, and an occasional shower the crop may be much better than anticipated. *East Kent, July 5.* P.S. I have been taking an agricultural tour for the last 10 days, which accounts for the delay in not replying to your circular before. Mine was not exactly a flying trip by rail. I do not give much heed to those gentlemen who fly through the country, and write such flaming reports for the *Times* and other papers to publish. I spent some time in Mid Kent, where I got my report of Hops. I spent two or three days in Essex, and then proceeded into Suffolk. The friends I have been visiting are most of them good, plain, practical farmers, and their account generally confirms my own. The unevenness of the Wheat crop is generally spoken of. My account of the Mangel and hay crop is confirmed everywhere I have been, and I thought that the appearance of the Barley in Suffolk was the best I had seen.

ESSEX.—Our Wheats have run to a good deal of straw; some have gone down, which will take off the yield of the crop; those that stand look well, and are out in full ear, and if they set well will come to an average crop. Winter Beans run to a good deal of straw, but no pods. Spring Beans look well, and seem to be podding very well. Peas are generally good, but one piece I know of, of white early Peas, is turning quite white, and looks fit to cut, although only just off the bloom: I expect the root has touched the salt water, as some of the farmers here will insist on filling their ditches with salt water, which, in my opinion, greatly injures the corn. Oats and Barley are but little grown here. Mangel looks well, but wants warm weather. We have no Clover, but Tares and Grass are very strong, while Mustard is pretty good. Salt water and steam cultivation do not agree. I do not allow it to come on any land I have to do with. *Ch. C. Harvey, Foulness, July 2.*——Of the appearance of the crops in this neighbourhood in a general way, I am able to report favourably. The Wheats on our heavy, well drained lands are luxuriant and look well, and during the past week have been in full blossom; although at such a critical period we have not had brilliant weather, the atmosphere has been clear and dry, with a favourable ripening time we may anticipate an abundant yield. On the light lands, except where deep cultivation proceeded, the plant is thin, with want of vigour, and under no circumstances can be a productive crop. Barley and Oats are good, Beans very fine, Peas and Potatos in this locality are mostly early varieties, and are now being harvested for the London market; they suffered from the late frosts, still I think an average crop. The Mangel planted well, and we never had a better prospect here; we have nearly 100 acres, 50 acres of the first planted are now covering the ground. The hay harvest is just finished, a large crop in good condition. Up to this time our grazing marshes have produced a very abundant feed. *P. Mitchell, East Hall, Rainham, Essex, July 3.*——My observations about the growing crops must be confined to the locality of my residence, near Witham, where the soil is generally of a good mixed quality, and perhaps as well cultivated and managed as any district in this county; and I am pleased to report favourably of our coming harvest prospects. Wheat came into bloom about a fortnight since, and it is going through this stage undisturbed by rain or boisterous wind. The ears are of full size, and the plant is sufficiently thick and with abundant straw, excepting where the subsoil is gravelly. I may say the same of Barley, which is here extensively grown. Oats are less cultivated, but will be a fair crop. Beans, whether autumn or spring sown, are in vigorous growth, and have bloomed well, but will be a very short crop. I have no theory to account for this defect in what is considered a hardy plant. Peas are very vigorous in growth, but the blooming has been unusually tardy, and cannot yet be considered safe for a full yield. The aphis has slightly appeared amongst the plants, and may yet commit great devastation, especially amongst the later sown garden sorts, of which 15 varieties are grown on my farm. Some are now being gathered for the London market, others are grown for the seedsmen. The ordinary grey Peas, grown for cattle, look like a heavy crop. I will add a few remarks about the weather. On the 6th of June it was warm with a full sun; on the 7th and 8th it was hot. It was noticed in the *Times* of the next day that the temperature in one instance was as high as 81° in the shade. From that date till this day (July 5) it has been continually cold, especially during the night, the thermometer several times scarcely above 32°: barometer standing high, and wind east or north, once or twice only varying to the south for a short time. This was perilous weather for the corn and Hops, and I wonder not at the reports of the farmers of the heavy clay soils. Woe to the Wheat and Barley growing feebly in the neighbourhood of game preserves where hares and rabbits abound! Mangels are generally in good plant, and promise to be successful. It is too early to write about Swedes or common Turnips. If we shall succeed in getting a good crop of the former it will be for the first time for many years past. The fall of rain here from January 1 to July 1, 6 months, is 10.83 inches. *Henry Dixon, Dorwards Hall, Witham, July 5.*——Our present version of the appearance of things is as follows:—Wheat, average, from favourable blossoming season; Barley, good on mixed soils, average heavy; Oats, average; Beans, good; Peas, average; hay, Clover, failure; Grass, good; Mangels and Potatos, very promising. The past season has acted most peculiarly adversely on very gravelly soils; they are nearly a failure. Altogether, warmth, with frequent showers, is much needed to bring up arrears of late cold spring. *W. Squires, Stanford-le-Hope, July 3.*

GLOUCESTERSHIRE.—The crop of Wheat in this neighbourhood has a healthy and promising appearance, but is rather thin of plant, and therefore cannot yield so abundantly as last year. Barley and Oats are looking pretty well on good land, and may reach an average crop. Beans and Peas, provided they escape from blight, promise to be the largest crop we have had for years. Potatos are looking well, and new ones are getting plentiful. Swedes, Mangel, and Turnips are as fine and healthy plants as I ever remember. The hay crop is the largest we have had for some years, and with this fine weather, and with proper attention to making, the quality must be fine; and, thanks to the mowing machines, it is our fault if it is not secured rapidly. *John Cobban, Whitfield, Berkeley, July 2.*

HANTS.—In reporting to you the state of our growing crops, I think the Wheat and Barley will scarcely be an average: Oats may be: the root crop is, so far, very promising. I have just returned home, travelling 400 miles by rail; from what I could see and hear from others, it is doubtful if we get an average yield of corn. *Jos. Lancashire, Micheldever, July 1.*

HERTS.—I consider the Wheat crop generally thin on the ground, and coming into ear very unkindly and irregularly. I think under the most favourable circumstances it must be considerably under an average crop. Barley is generally uneven, and I do not think likely to be a large crop. Oats in general look pretty well. Peas are a full crop, but I am sorry to see some green fly in the heads of them, and hope they will not increase to hurt them very much. The meadows and pastures generally cut a good crop, but the artificial Grasses are not more than half a crop, excepting Cinquefoil, which is generally very good. The Mangels are well planted and doing well. The Swedes are well planted, but grow very slow this cold weather. *George Webb, Beaumont Hall, Redburn, July 1.*

HUNTS.—The short statement I send you of the state of the growing crops applies to this immediate neighbourhood, North Bedford and the adjoining parts of Hunts. The soil in this district is mainly clay with a small proportion of gravel. Peas are generally the first crop cut; they are in some cases very bad upon the strong clays, but good upon the drier lands. There is a great breadth of winter Beans this season; they are an immense crop of straw with but little corn; spring Beans promise well. Oats are but little grown in this neighbourhood; they are generally good, being less affected by wet and cold weather than any other crop. The worst crop of the season is Barley; I think it will be more deficient than last year. It must be the middle of August before Wheat cutting is general. The appearance of the crop is somewhat below an average; but the chief cause for apprehension is in the character of the season. The one prime necessity, "sunshine," has been lacking, it has come at last, and with truth we may say, "better late than never," but the past cannot be recalled, and I fear we shall find a deficiency both in the produce and the quality of the Wheat crop. *W. A. Bottle, Patenhall, July 2.*

KENT.—On all heavy soils, especially in the Isle of Sheppy, Wheat is a full average crop; on many well-formed lands of this description above an average; on mixed soils, although on some farms a little patchy, there will be a fair average; on light lands, especially on chalk soils, there are promising crops; on the gravelly lands in the higher district it is exceedingly patchy, and will scarcely be equal to an average crop. All kinds of Wheat this season on wet, undrained lands, are an unequal crop, and will not yield a large return. On the strong and good lands, Barley is a full crop, and in some localities very forward; on mixed soils and lighter lands the crop is also promising, but in general more unequal than on the heavier lands. A full average crop may be expected should the weather prove warm and genial for the next four weeks. On strong and mixed soils, and also on the chalk, there will be a full crop of Oats. On light gravelly soils the crop is patchy; and, unless a great improvement is made, there will not be a full average. Peas, generally, on all soils will be above an average, and will not be so late in proportion to the cereals, which will be about three weeks later than last year. Potatos, on well-farmed, mild soils, will be a very full crop; on poor, undrained soils, they do not look so promising. Judging from present appearance, however, a full average crop may be expected. Mangels and Turnips are advancing rapidly, and present generally a splendid appearance; and should favourable weather occur, will prove the best crop grown in this district for many years. The hay, especially Clover crops, are bulky; and the pastures everywhere, particularly in the marshes, present a great contrast to last year. Keep is abundant, and stock everywhere recovering from the bad effects of last season's scarcity. Sheep are, in the marshes, subject to scouring, which however might be expected, on account of the weak state they entered on this year's Grass. However, where stock during last winter were allowed corn and cake this does not apply, and they are now in very good condition.—Of Hops, up to this date a favourable account cannot be given. The plant is generally sickly, and requires the most genial weather to enable it to recover. In many places the leaves are perforated by the flea, and do not present a favourable appearance.—As a general rule, the extensive and valuable orchards in this part of the country have suffered much from the unseasonable weather, and will be about one month later than last year. Of Cherries, I have to report, of Blackhearts, not more than half of last year's crop; of Waterloo Blacks, about one-fourth of last year's crop; May Dukes will produce perhaps the best crop grown for many years; Hamburgh, a full crop; Turkey Blacks, ditto. The two latter varieties, however, are in many orchards dropping off. Clusters are not such a large crop as last year, but the quality is better. Flemish are scarce; English are a fair and a full crop. Apples are nearly a failure; compared to last year not more than 1 to 10. Lammas Pears a very good crop, equal to last year; Chalk, a full average crop; Williams', best Pear, but very scarce. Plums of all sorts not more than half a crop, and at least one month later than last season. *Sittingbourne, July 3.*

WILTS.—Our Wheat crops are late and middling—certainly below an average, unless the weather between this and harvest be very favourable indeed. No Wheat here can be fit to cut for at least six weeks from this time. Barley and Oats started well, but have gone off since the cold and wet of a fortnight since, the weather now being cold and ungenial, wind in the east, the sun hardly appearing for the last three days. Winter Beans too luxuriant for a crop, and many pieces are being fed off by sheep, having no prospect whatever of corn. Spring Beans very promising, being full of blossom, plenty of straw, and, the ground being moist, they will most likely be quite a good crop. Peas as good as we ever remember to have seen. Hay crops good, though from the failure of Clovers only a short portion came to the scythe. Turnips and Mangels starting well. *Richard Stratton, Burderop, Swindon, July 3.*——In our immediate neighbourhood the Wheat promises to be a good average crop; this week it has been in full bloom, and we shall be about three weeks later at harvest than last year, which was a fortnight earlier than usual. Barley and Oats vary considerably; where put in too wet, and with a lack of condition from the loss of the Turnip crop last year, it looks weak and starved, and some looks very fair. Beans are also various; the winter variety is, I am afraid, too bulky to yield much corn, and some of the spring are very short, and others good. The root crop is more promising than for some years past. This being a considerable dairy and grazing district, we are this year cutting one of the heaviest crops of Grass that has been known for years, which, in addition to a plentiful supply in the feeding grounds, is a pleasing contrast to last year, and we are now having a very fine time to secure it in good condition, for which we are very thankful. *Thos. Arkell, Swindon, July 3.*——I scarcely know how to describe our crops. We have such a variety in the same fields, very good and very bad, that if I reported an average crop I fear I should exceed the truth. With respect to the Wheat crop, we have some too luxuriant, and which, if heavy rains or thunderstorms should come, will go down to rise no more, and probably will be the lightest in the field. Then we have a fair quantity that will, if the weather prove favourable for the next six weeks, yield an average crop; and we have a considerable quantity very bad—worse than I have known for years, and which no weather can make more than half a crop. Still, on the whole, I think, our parish looks better than those around us. The Barley crop is the same—some very good, and very bad. The Oats are a better crop, and the Beans and Peas very good. The hay, on the whole, is an average crop, some very heavy and some light, and the root crops promise an abundant crop. The ultimate yield of our crops will entirely depend on the weather of the next six weeks. *J. A. Williams.*

WORCESTERSHIRE.—The wheat crop in this neighbourhood, as elsewhere, suffered from the wet cold weather of March and May, more especially on the lighter soils. All clay lands, owing, I believe, to the healthy condition induced by last summer's drought, have borne the ungenial weather of this

spring far better than such lands in ordinary seasons; and have been less affected by it. This glorious weather, coming at the blossoming season, is most valuable, and I incline to believe that the Wheat on all strong land will be an average crop, the only probable drawback being that a good deal was broken down, as though sheep had been driven through it, by a wind on the 15th ult., and may not fill. On light lands Wheat cannot reach an average. Barley not an average crop. Peas and spring Beans will be an average crop. Winter Beans, with the greatest bulk of straw ever known, will not produce more than half an average crop of corn. Oats: few are sown, the crop not heavy. The hay crop is, without exception, the greatest I have known in 40 years' experience, and secured in perfection. Mangels are very good. Cabbages good. Swedes and Turnips standing well. Pastures abundant. Harvest will probably be a month later than last year—a week later than in ordinary seasons. *C. Randell, Chadbury, near Evesham, July 2.*

AMERICAN EMIGRATION,

AS AN AID TO THE SKILLED HORTICULTURIST AND AGRICULTURIST WITH SMALL CAPITAL.

HAVING made a professional visit to America to inspect its lands, landscapes, trees, climates, and capability for improved horticulture and agriculture, and its advantages to the skilled English and Scotch horticulturists and agriculturists who have saved a little money, and now find it difficult to obtain suitable situations in this country, I may tell them that to go to America to seek for such things there is, with a few exceptions, not to be recommended. The second hand or foreman, young and willing and ready to take up anything, is more inquired after, and at this time a more useful man in America than here, and should emigrate. Nevertheless there is a fine home for the skilled workman with a little money who desires to own land and cultivate his own farm or garden with one-tenth the amount of capital required in this country. Having worked out this, with the best opportunity of getting information on the spot, it can be relied upon, and what I desire to point out is that men can go and buy lands in Virginia, which has one of the finest climates in America, capable of producing the finest Wheat, corn, Grass—lands that have been in cultivation for more than 100 years. The names and titles are English. The owners of the properties having lands for sale will be glad to show kindness to Scotchmen or Englishmen in preference to any other. The reason of the lands being offered for sale is the condition the war with the North has left the South in, at this time without money to cultivate their lands. The slaves being free and uneducated are willing to return to their old masters and make good servants, but if offered lands to work and manage themselves, and return to their owners a third or fourth part of the produce, they will not work, so this is one reason for desiring English agriculturists and horticulturists to come among them. One estate, 1100 acres, I could purchase at 5*l.* per acre. It is as good land as is to be found in England. The Wheat I saw growing was equal to 30 to 35 bushels per acre; Clover ready for cutting three loads per acre; fine crops of Tobacco, Indian Corn, orchards of standard Peaches, Apples, and Pears; a dwelling house that cost 1800 dollars, with other buildings and plantations of the greatest variety of Virginian deciduous trees. Three other estates, of 1000, 1500, 1800 acres, could be had upon a lease for five years at 1 dollar per annum. Other estates, amounting from 3000 to 25,000, at 1*l.* 10*s.* per acre, and those owning them will be glad to offer every assistance. I have seen the lands in the north, west, and also the south of the United States; and in travelling for this information, I was with a party, starting from New York, and prospecting for land-buying for aiding emigration. One of this party, a solicitor, the head of the German Emigration Association, told us that this Association had found homes, and aided 2,500,000. General J. D. Imboden was the conductor of our party, and you will see by the three letters in print I send you to make any extracts you think well, that we were well posted in our subject. I thought it was worth my trouble to get information for Englishmen of a different class from those who start and land in New York in Castle Gardens without a penny in their pocket, and have to lie for a week, often by hundreds, on the board or floor of the building, without a bed, or any friend to help them, or any one to tell them how to find employment. But, notwithstanding the mistakes yet made in this country in the advice I have heard in London given to poor emigrants, I am able to find good homes, and should be most happy to aid any of your readers. But what I desire to impress upon them is that they should form little bodies or companies of 10 and 20 men with 100*l.* to 200*l.* Half the money going to buy land, the other to cultivate and help one another, more could be done to the advantage of all, by working it themselves, than each one going separately. And not only for this class. There is a fine opening for the younger son of the farmer; with 1000*l.* he could do more in the part of America I here allude to than on any other estate to be bought in our country for 10,000*l.* But it must be understood that this advantage will not last long in its present state. They rapidly get over the effects of the war, and in three more years the whole state of things must change, and any one settling just now will have the advantage, as the labour question in this country is just now one of the most important. I have thought it proper to bring it first before your readers, for no time is to be lost for those who desire to take advantage of the information, as the month of October, or fall, is the season for preparing for the Wheat-growing season, a most important matter for the next year's crop. *Joseph Newton, 74, Oxford Terrace, Hyde Park.*

THE ROTHAMSTED FIELD EXPERIMENTS.

MEMORANDA OF THEIR PLAN AND RESULTS.

I. EXPERIMENTS WITH DIFFERENT MANURES ON PERMANENT MEADOW LAND.

THE PARK.

The land has probably been laid down with Grass for some centuries. No fresh seed has been artificially sown within the last 30 years certainly; nor is there record of any having been sown since the Grass was first laid down. The experiments commenced in 1856, at which time the character of the herbage appeared uniform over all the plots. Excepting as explained in the Table, and in the foot-notes, the same description of manure has been applied year after year to the same plot. (Area under experiment, about 6¾ acres.)

PLOTS.	MANURES, PER ACRE; FOURTEENTH SEASON—1869.	PRODUCE PER ACRE, WEIGHED AS HAY. Average per annum; 13 years 1856-1868.	Thirteenth season; 1868.
		cwts.	cwts.
1	200 lb. ammonia-salts [1] (also, for the first 8 years, 1856-1863, 14 tons farmyard manure per acre per annum)	47¾	41¾
2	Unmanured, 1864 and since (for the first 8 years, 1856-1863, 14 tons farmyard manure per acre per annum)	42	36¾
3	Unmanured, continuously	22¾	17½
4 a	Superphosphate of lime [2]	24¾ [9]	19¾
4 b	Superphosphate of lime and 400 lb. ammonia-salts	38 [9]	29¼
5	400 lb. ammonia-salts	29½	24
6 [3]	Sulphates of potass, soda, and magnesia [4], and superphosphate of lime (previously, 1856-1868 inclusive, ammonia-salts as plot 5)	30½	27½
7	Sulphates of potass, soda, and magnesia [4], and superphosphate of lime	35	38
8 [3]	Sulphates of soda and magnesia [5], and superphosphate of lime	32¾	27¼
9	Sulphates of potass, soda, and magnesia [4], and superphosphate of lime, and 400 lb. ammonia-salts	52¾	59¼
10 [3]	Sulphates of soda and magnesia [5], and superphosphate of lime, and 400 lb. ammonia-salts	50¾	44½
11	Sulphates of potass, soda, and magnesia [4], and superphosphate of lime, and 800 lb. [6] ammonia-salts	61½	63¾
11a	Sulphates of potass, soda, and magnesia [4], and superphosphate of lime, and 800 lb. [6] ammonia-salts, and 200 lb. each, silicate of soda and silicate of lime [7]	64¼	72¼
12	Unmanured, continuously	25¼	24
13	Sulphates of potass, soda, and magnesia [4], superphosphate of lime, and 400 lb. ammonia-salts, and 2000 lb. cut wheat-straw	53	55½
14	Sulphates of potass, soda, and magnesia [4], superphosphate of lime, and 550 lb. nitrate of soda [8]	56	69
15	No sulphates of potass, soda, and magnesia, no superphosphate of lime, 550 lb. nitrate of soda	37 [10]	32
16	Sulphates of potass, soda, and magnesia [4], superphosphate of lime, and 275 lb. nitrate of soda	47	51¼
17	No sulphates of potass, soda, and magnesia, no superphosphate of lime, and 275 lb. nitrate of soda	35	29
18	Mixture supplying the quantity of potass, soda, lime, magnesia, phosphoric acid, silica, and nitrogen contained in 1 ton of hay (commencing in 1865)	32½ [11]	27½

[1] Equal parts sulph. and mur. of ammonia of commerce.
[2] 200 lb. bone-ash, 150 lb. sulphuric acid (sp. gr. 1.7).
[3] Plots 6, 8, and 10, had, besides the manures specified, 2000 lb. sawdust per acre per annum for the first 7 years, 1856-1862, but without effect.
[4] 300 lb. sulphate of potass, 100 lb. sulphate of soda (200 lb. 1856-1863), and 100 lb. sulphate of magnesia.
[5] 250 lb. sulphate of soda (500 lb. in 1862 and 1863), and 100 lb. sulphate of magnesia (sulphate of potass also, as on plots 7, &c., 1856-1861).
[6] 800 lb. in 1856-7-8; 400 lb. in 1859-60-61; 800 lb. since.
[7] The application of silicates did not commence until 1862.
[8] 550 lb. nitrate of soda is reckoned to contain the same amount of nitrogen as 400 lb. of ammonia-salts.
[9] Average of 10 years only, as the manures specified were first applied in 1859 (previously, 1856-1868 inclusive, sawdust only).
[10] Average of 11 years only, as these experiments did not commence until 1858.
[11] Average of 4 years only, as the experiment only commenced in 1865.

II. EXPERIMENTS ON THE GROWTH OF BARLEY YEAR AFTER YEAR ON THE SAME LAND, WITHOUT MANURE, AND WITH DIFFERENT KINDS OF MANURE.

HOOS FIELD.

Previous cropping—1847, Swedish Turnips, with dung and superphosphate of lime, the roots carted off; 1848, Barley; 1849, Clover; 1850, Wheat; 1851, Barley manured with ammonia-salts. First experimental Barley crop in 1852. Barley every year since; and, unless stated to the contrary in the foot-notes, the same manure has been applied year after year to the same plot. (Area under experiment, about 4¼ acres.)

PLOTS.	MANURES, PER ACRE; EIGHTEENTH SEASON—1869.	PRODUCE PER ACRE. Average per annum, over 17 years, 1852-1868. Dressed Corn. Quantity.	Dressed Corn. Weight per bush.	Total Straw.	Seventeenth Season, 1868. Dressed Corn. Quantity.	Dressed Corn. Weight per bush.	Total Straw.
		bushels.	lbs.	cwt.	bushels.	lbs.	cwt.
1 O.	Unmanured continuously	20¼	52¼	12¼	10¾	54½	11½
2 O.	Superphosphate of lime [1]	26¾	53	14	18¾	55¾	9½
3 O.	Mixed alkalies [2]	23½	52¾	12¾	14¼	55¾	8½
4 O.	Mixed alkalies and superphos.	28½	53	14¾	17¾	55½	10
1 A.	200 lb. ammonia-salts [3]	33¾	51¾	18¾	20½	53½	12¼
2 A.	200 lb. ammonia-salts and superphos.	47¼	53	28	37¾	54½	19¼
3 A.	200 lb. ammonia-salts and mixed alkalies	35¼	52¼	20¾	25	54¾	15
4 A.	200 lb. ammonia-salts, superphos., and mixed alkalies	46¾	53½	28½	34¾	55¾	20¾
1 AA.	275 lb. nitrate of soda	37½	51½	22	27	53¾	14½
2 AA. [4]	275 lb. nitrate of soda and superphos.	49¾	52¾	30½	44	55¾	21¾
3 AA.	275 lb. nitrate of soda and mixed alkalies	38	52	24¼	27½	55¼	16¼
4 AA.	275 lb. nitrate of soda, superphos., and mixed alkalies	50¼	52¾	33	45½	56	25½
1 AAS.	275 lb. nitrate of soda and 400 lb. silicate of soda [5]	38¾	51¾	23	29½	54¼	17
2 AAS. [4]	275 lb. nitrate of soda, superphos., and 400 lb. silicate of soda [5]	49½	52¾	31	45	55½	25½
3 AAS.	275 lb. nitrate of soda, mixed alkalies, and 400 lb. silicate of soda [5]	40¼	52¼	25¾	36½	56¼	22
4 AAS.	275 lb. nitrate of soda, superphos., mixed alkalies, and 400 lb. silicate of Soda [5]	50¼	52¾	33¼	46¾	56¼	26¼
1 C.	1000 lb. rape-cake	45¾	53¼	27¾	37	56¼	19½
2 C. [6]	1000 lb. rape-cake and superphos.	47¼	53¼	28¾	35¼	56¼	19½
3 C.	1000 lb. rape-cake and mixed alkalies	43¾	53¼	27¼	35¼	55½	19¾
4 C	1000 lb. rape-cake, superphos., and mixed alkalies	47¼	53	29¼	36¼	55¾	21
1 N. [7]	275 lb. nitrate of soda	37¼ [11]	52¼ [11]	23 [11]	25¾	52½	19
2 N.	275 lb. [8] nitrate of soda	41¼	52¼	26	25½	55¾	17½
5 O.	200 lb. [9] sulphate of potass and superphos. [10]	23¾ [12]	53 [12]	12¾ [12]	15	56½	8½
5 A.	200 lb. [9] sulphate of potass, superphos., and 200 lb. ammonia-salts	44½	53½	28	36¼	57½	20½
M.	100 lb. each, sulph. soda and sulph. magnesia, and superphos., and 200 lb. ammonia-salts	22¼ [13]	53 [13]	12½ [13]	14¾	54	11
6 1	Unmanured continuously	23	52¼	12¾	15¼	53¼	10½
6 2	Ashes (burnt soil, turf, and weeds)	22¾	52¼	12¼	16	53¾	11
7	Farmyard dung (14 tons every year)	48	54	28¼	43¾	57	24½

[1] 200 lb. bone ash, 150 lb. sulphuric acid (sp. gr. 1.7).
[2] 200 lb. sulphate of potass, 100 lb. sulphate of soda, and 100 lb. sulphate of magnesia (for the first 6 years, 200 lb., 200 lb., and 100 lb., respectively).
[3] Equal parts sulphate and muriate of ammonia of commerce.
[4] First 6 years 1852-7, 400 lb. ammonia-salts per annum; next 10 years 1858-67, 200 lb. ammonia-salts per annum; nitrate of soda commenced in 1868. 275 lb. nitrate of soda is reckoned to contain the same amount of nitrogen as 200 lb. ammonia-salts.
[5] The application of silicates did not commence until 1864; in 1864-5-6-7, 200 lb. silicate of soda and 200 lb. silicate of lime were applied per acre, but in 1868, and since, 400 lb. silicate of soda, and no silicate of lime; the plots (AAS) comprise, respectively, one half of the original AA plots, and, excepting the addition of the silicates, have been, and are, in other respects, manured in the same way as the remaining halves; and, for the sake of comparison with the latter, the average produce is given for the whole period of 17 years, 1852-1868.
[6] 2000 lb. rape-cake per annum for the first 6 years, and 1000 lb. only each year since.
[7] 300 lb. sulphate of potass, 200 lb. bone-ash, and 150 lb. sulphuric acid (sp. gr. 1.7), without nitrate of soda, the first year (1852); nitrate alone each year since.
[8] 550 lb. nitrate of soda for 1853-4-5-6-7; and 275 lb. only each year since.
[9] 300 lb. per annum for the first 6 years, and 200 lb. each year since.
[10] Ammonia-salts also the first year, but not since.
[11] Average of 16 years only.
[12] Average of 16 years only.
[13] Average of 14 years only.

THE ADULTERATION OF MANURES.

[The following discussion of this subject was raised by Lord Elcho last week on motion that the subject deserved the attention of the Board of Trade.]

Lord Elcho called attention to the adulteration of feed-stuffs and manures. His attention was first called to this subject by a letter he received on March 20 last from the Lord-Lieutenant of his county, a most eminent agriculturist, who had done more for agriculture than any other man in Scotland. That letter, referring to the greatly increased demand for artificial manures, stated that a corresponding amount of adulteration had arisen. Adulteration was carried on to a most extraordinary extent, and so artfully was it done as almost to escape notice. What he asked was not any protection that would enhance the price of agricultural produce in the market, but protection against the fraudulent practices which existed, and were daily increasing, in the manufacture of manures. Last week the Highland Society met, and the report of the committee stated that on no previous occasion had the number of analyses been so large, clearly proving the necessity of care in purchasing these manures. The amount of adulteration detected was small compared with what passed unchallenged. Considering it his duty to get what information he could, he had gone to the Professor of Chemistry to the Royal Agricultural Society of England, and he would state some of the results of his inquiries. Of late years one of the most important manures in this country was guano, of which there were six different descriptions. The best Peruvian sold in the Liverpool market at 13*l.* 5*s.*, the next description was sold at 7*l.*; others fetched 6*l.* 10*s.*, 6*l.* 15*s.*, 9*l.*, and some sorts as low as 4*l.* per ton. The best Peruvian contained 19 per cent. of ammonia; but it was very good at 16 per cent; more frequently it contained only 14½ and 15 per cent. Guano was adulterated by chalk, gypsum, and, above all, by a yellow loam found on an island in the Mersey—Liverpool being the great manufactory of the adulterated article. That Mersey loam or yellow sand used for the purpose of adulterating guano fetched from 20*s.* to 25*s.*, and its appearance was most deceptive. Fifty per cent. of this loam was mixed with guano, and, instead of the price of the genuine article being 12*l.* per ton, the adulterated article was sold at 8*l.* There was a kind of British guano which was absolutely worthless. This was sold at 4*l.* and 6*l.* per ton. The farmer, pretending to be very knowing, was deceived by finding in it lumps of guano which he broke, and finding them genuine, bought the article eagerly, but these lumps were so strong that they destroyed all vegetation. Then, again, the presence of ammonia being known by a strong smell, something was put in these manures in order to create this strong smell. These adulterations could not be detected by the eye—they could only be detected by analysis. Another mode of making spurious goods pass for sound was by inventing wrong names, making up a sort of compound and calling it "Swan Island guano," or some such name, taken from a place which had no existence, and the manufacturer giving out that he was the sole consignee. He came now to bones, which in their raw state were worth 5*l.* per ton, and when crushed from 7*l.* to 7*l.* 10*s.* They were sold for 6*l.*, 7*l.*, or 8*l.*, not in their pure state, but when adulterated with 50 per cent. of gypsum, worth from 14*s.* to 22*s.* per ton. They were further adulterated with vegetable ivory turnings from factories at Birmingham, which were sold at 2*l.* 10*s.* or 3*l.* per ton, and the only value of which arose from their use in adulterating bones. Nitrate of soda, worth 14*l.* or 15*l.* per ton, was adulterated with salt. There were many manufacturers who bought nitrate of soda for purposes of adulteration, and who insisted upon the full letter of their bond,—that is, that the *maximum* of impurity in the nitrate of soda should not exceed 5 per cent. In Scotland he might safely say that the sum expended by farmers upon artificial manures amounted to fully more than half their rent.

He came now to feed-stuffs. The main feeding stuff ordinarily advertised was linseed-cake, of which there were various descriptions. The pure contained from five to six per cent. of impurity, and the best test was to dissolve 100 grains in 4 ounces of water, and if the cake was pure it ought to form when dissolved a thick jelly. He had said that Liverpool was the headquarters of adulterated manures, but Hull was the capital of adulterated feed-stuffs. Out of the 40 mills in Hull, only three manufactured pure linseed-cake, and, taking the whole United Kingdom, there was only one in 10 which turned out the cake pure. Pure oilcake was a fancy article, and a co-operative agricultural society had been started to supply it. When asked for at Hull it was said it did not exist. Some of these cakes were supposed to be pure, and were branded with the letter P to indicate that they were so; but, as he was informed by the eminent chemist to whom he had before referred, analysis showed that it contained from 20 to 40 per cent. of adulteration. The best article was, as a rule, 10 per cent. worse than pure. In fact, the brand of the trader was no security for the quality of Linseed as a whole. Some kinds of adulteration were comparatively harmless—that is to say, they only robbed the buyer, but other kinds did positive injury to the cattle. Some of the samples which had been analysed contained 80 per cent. of adulteration, and in certain cases such a quantity of Mustard-seed had been used, that the cake professing to be oilcake might have been broken up and used as Mustard. Among the specimens of oilcake were some labelled as being part of the cake that had killed Mr. So-and-So's cows, and he held in his hand a sample of cake that had killed a cow belonging to an hon. member of that House. Another portion of cake he held in his hand was made of mere sweepings of various manufactures, and, although utterly worthless, was sold at the rate of 4*l.* a ton. The system of adulterating the food of quadrupeds was carried to as great an extent as the system of adulterating the food of bipeds had been formerly, and therefore he thought that since Parliament had thought it right to legislate in the latter case, they should take some steps to interfere in the former case also.

Doubtless he should be met by the *caveat emptor* argument—he should be told that the remedy he should look to was not legislation, but an increased intelligence on the part of the farmer. He held, however, that it was the duty of the Government to protect people against fraud as well as against violence. It was impossible that the small farmer could bring the requisite chemical knowledge to bear upon the subject to protect himself from robbery of this description. The real question, in his opinion, was whether or not the evil was sufficiently great to justify legislative interference. He did not know what views were entertained upon this point by the right hon. gentleman, the President of the Board of Trade, who he was sorry not to see in his place upon that occasion; but from a remark which the right hon. gentleman had let fall the other night when speaking to him upon the subject, he was afraid the farmers had not much to hope from him. The right hon. gentleman had said to him on the occasion to which he referred, "Why do you always take up the most ridiculous questions?" He mentioned that circumstance to show that the farmers who looked up to the President of the Board of Trade as their protector—almost their guardian angel—against fraud were not likely to obtain much satisfaction at the hands of the right hon. gentleman. The impression that prevailed among the farmers in Scotland was that the right hon. gentleman was extremely ignorant upon this subject, and required enlightening upon it. The right hon. gentleman had said the other day that if we were to go on inspecting everything, one-half the world would be inspecting the other half; but if inspection were necessary, steps should be taken to insure the establishment of a proper system, under which it could be advantageously carried out. The principle of inspection had been acted upon with reference to Chicory and other adulterations of human food, and there was no reason why the same principle should not be applied to the adulteration of the food of cattle. He felt certain that the Government ought to apply a remedy. What he would suggest was the remedy of publicity—that an analysis should be made, and that the names of fraudulent tradesmen should be published at stated periods in the *London Gazette* or some other publication. Something, at all events, should be done, and he moved that in the opinion of the House it was desirable that the attention of the Board of Trade should be directed to this subject.

Mr. Welby seconded the proposal of the noble lord, for he was fully convinced of the enormous extent of these frauds and adulterations. He, however, admitted that there were serious practical difficulties in the way of legislation on the matter. Of the two branches of the subject, the adulteration of feed-stuffs was the most important, and one difficulty in dealing with this subject arose from the fact that the primary object of the seed-crusher was, not the manufacture of oilcake, but the production of oil; and another difficulty was, that chemical analysis frequently failed to detect the adulteration. Some oilcakes contained no Linseed at all, and many were adulterated with pernicious materials. The hon. member here mentioned instances in which cattle, sheep, and horses had been killed by adulterated oilcake in a few days, and said that matters had gone so far that special machinery had been invented to carry on the adulterations. Last year, in consequence of the failure of the green crops, adulteration was carried on to a greater extent than ever. One means of putting some limit to adulteration would be to establish oil-mills, the primary object of which should be to produce oil-cake for the farmers. The excuse for these frauds was that the farmer, from ignorance, would only give a certain price for his oilcake or manures, and the dealer must find an article for him at that price, or not sell him any at all. There was a good deal of force in that argument; but, at the same time, the joke might be carried too far. In South Lincolnshire the farmers were so disgusted with the result that they had formed themselves into an association for the purchase of their manures from the manufacturer with a guarantee of quality, and they employed a professional analyst to test their quality. In this way they had already saved a large sum of money, and their next order would probably amount to 10,000 or 15,000 tons. It was in that direction, he thought, that they must in the first instance look for a remedy. At the same time, if a law could be devised that would meet the difficulties of the case, and assist the farmers in their efforts to protect themselves, no one would welcome it more cordially than he would; but the difficulty was how such a law could practically be applied. A law, he believed, was now in operation in Maine by which every bag of commercial manure must be labelled with the maker's name and the analytical contents, which, if not found correct, exposed the dealer to prosecution and penalties. Possibly, in that direction some step might be taken to attain the object. He did not expect to meet with any very warm or cordial assistance from the President of the Board of Trade, who considered legislation on the subject impolitic, discussion unprofitable, and that agriculture was so profitable that it did not stand in need of any special legislation. The two former were matters of opinion, but the last was a matter of fact, and on that he altogether differed from the right hon. gentleman. He ventured positively to state that the farmers, as a body, were not in a thriving condition. The margin of profit, too, was extremely small, and he should feel grateful if the House in its wisdom could assist the farmers in protecting themselves against the insatiable rapacity of those harpies who adulterated manures.

Mr. M'Lagan considered that the farmers had the law in their own hands, by purchasing manures with guaranteed analyses. This plan had been adopted by the farmers forming themselves into a local association in a district where adulteration had been carried on to an immense extent, and after two years there was not found one single article of adulterated manure. In his opinion the farmer should be treated as other traders were, and if other traders did not ask for protection he did not see why the farmer should. He spoke boldly on this point, because he belonged to the agricultural interest.

Mr. Shaw Lefevre said that the two hon. members who had spoken before him, while admitting the evils that existed, and also the difficulty of legislation, had admitted likewise that the true remedy was in the hands of the farmer himself. He was glad that this discussion had come on so soon after the debate on the adulteration of seeds, because it was possible that the committee to which the Adulteration of Seeds Bill had been referred might be able to devise a remedy applicable to the present case also. But there was another Bill before the House upon a much larger question—namely, the adulteration of the food of the people, and it would be impossible to deal with so small a subject as feed-stuffs and manures while the important question of the introduction of inspection where the food of the people was concerned was still undecided. The noble lord had said that the small farmers were unable to protect themselves, but the information he had received pointed to an opposite conclusion. He had received a letter from a gentleman of great experience within the last few days, pointing out that in various districts of Scotland the farmers were sufficiently protected by combining and forming associations among themselves. One instance was given of a district in which in the beginning much bad seed was sold; but the members of the association ceased to purchase from those who sold bad articles, and one by one the inferior vendors were weeded out. That would show that the farmers had the means of protecting themselves, and even of stamping adulteration out of a district. Let it be known that there was an analytical association within the district and adulteration would cease.

Mr. Read said that protection was utterly beyond the reach of small farmers. He did not fancy that the question was ripe for legislation, but he held that the whole question of fraud should be inquired into, and he hoped in a short time they would have a commission to investigate the subject. As to farmers having their protection in their own hands, so had other people, and yet the Government stepped in to protect them; for instance, persons who sent diseased meat to market were liable to fine and imprisonment.

Mr. Norwood believed that farmers would be able to obtain plenty of pure oilcake if they would only pay a fair price for it.

The motion was then negatived without a division.

Home Correspondence.

The Harvesting of Crops.—The machines and implements for the harvesting of crops are the class of implements to be tested at the Manchester meeting of the Royal Agricultural Society during the next week. They consist of mowing, reaping, and haymaking machines, hay collectors, horse-rakes, carts, and waggons. This gives a fine opportunity for visitors and farmers in particular to ascertain the utility and value of these machines for their respective occupations. It is not because a reaping machine can do admirable work under trial upon an average crop of corn that it is best adapted for every occupation. Farmers must consider if it is adapted to cut their crops. Take the fens and strong loams for instance. It is not every reaping-machine that can cut such crops as are commonly grown upon such soils. In average seasons only they are heavy and laid, and it requires a strong and peculiar machine to cut them satisfactorily. It is so in every district where the crops are heavy and laid. Almost any of the modern reaping machines will do satisfactory work upon light standing crops, and it is comparatively immaterial whether it be self-acting or not, or has a side-delivery, sheafer delivery, or manual labour is employed. These are matters for the consideration of farmers in accordance with the soils they cultivate and the crops they grow. If it is requisite to cut the corn down in order that it may lay awhile to wither and dry, as in many Barley crops full of green Clover or seeds, a side self-delivery machine would appear to be most desirable; if all is tied up as it is cut, a sheafer would seem to be best adapted for it; but for heavy crops, laid and thorough grown, the strongest and most effective machine cleared by manual labour would probably prove best. I have frequently seen these machines in competitive trials and otherwise, and I have never seen one yet that could satisfactorily cut and lay a heavy thorough-grown crop in readiness for tying. The manual delivery machines, if strong and properly made, have with this manual assistance made the best work. I hope the crops to be operated upon at Manchester will be above the average in quantity and length, so that the trials may be a real test of capability in every machine. I repeat that almost any machine can cut light crops. *Horse-rakes.*—These are scarcely corn-harvest machines, but it is very desirable they should be used after the reapers, and for this purpose care should be taken to observe that they are capable of regulation, so as to cleanly rake up the corn without scraping up the soil or stones. The teeth should have ample scope for raking up in full and satisfactory rows without compressing the rows so as to require subsequent forking out. *Carts and Waggons.*—The question relative to the quickest mode of clearing a cornfield by cart, or waggon, is not for decision at Manchester, but it is a question well worth the consideration of every farmer attending the meeting. The competition would appear to be, which is best respectively for harvesting corn, not for general service—this is more especially for the consideration of visitors and farmers who desire to purchase; for general service, as well, especially, for harvest work, must be the decision of purchasers, and it is to this point farmers must look. It is a very easy matter to fill or supply the farm with implements, and at a very expensive rate too; the great thing is to purchase those only that can be made most generally useful, not an implement for every particular service, as many do, and are soon laid aside. A good harvest cart or harvest waggon may be as useful upon the farm, and as serviceable for harvest work, as one constructed more especially for harvest work. Both should be strong, but as light as possible, in accordance with their heavy work as well as the lighter harvest work. The adaptability of the "raves" in carts is of great importance, and not to be lightly thought of in waggons. Fore ladders and hind ladders which are movable are great acquisitions to waggons in harvest work. Handforks and handrakes are highly useful and indispensable implements in harvest work. A competition in the smaller things ought not to be beneath the attention of the Royal Agricultural Society. Stock stages, ladders, bearers for setting down carts, and other little matters connected with harvest work, deserve the encouragement of our great society. *O. F.*

Emigration. — A vast emigration, both of capital and population, is finding its way to countries where there is land to employ both, and where towns are not yet overstocked with either. Here our towns and cities are overstocked with both labour and capital, and so both take to themselves wings and fly to more genial and appropriate climes. Our land does not employ either capital or labour sufficiently, so they are forced upon our cities, where they are not required, and must again move on to the United States, or our own colonies. This is lamentable, in a national point of view. These elements of strength and dignity might still, for a long time, be retained here, were we to do our duty in agriculture. My own experience of 25 years has taught me, that not only does agricultural improvement employ a vast increase of labour and capital, but, by the consequent greater crops, demands permanently much more human aid. Well, then, if we would employ more labour and capital, and grow more food concurrently at home, we should thus shut out, *pro tanto*, the foreign supply, and keep the money circulating profitably among ourselves. So long as Britain is, as at present, only half farmed, so long shall I continue to protest against our present suicidal action. *J. J. Mechi, Tiptree, June* 29.

The Prejudice against Bothies.—Whoever shall persist in hurling his anathemas at bothies, they will remain indispensable parts of the buildings on well-appointed farms. It is strange that a mere name should draw forth such hostility. I am mistaken if there is not a "young men's room" on the Queen's Home Farms near Windsor. The word bothy is merely a term applied to furnished lodgings. The popular prejudice is so great, that, when I republished in tract form a few of my detached essays on the bondager system and its remedy, the local editors took no notice of it. And, notwithstanding that I advertised it 13 times in a Kelso paper, 3*s.* 11*d.* was my gross receipts for all my trouble and expenditure. About a year ago I was much pleased with a letter by Mr. Willoughby Wood on the contradictory nature of the discussions in agricultural journals; and Mr. Wood referred to

the unanimity and confidence that prevailed amongst astronomers. If any man who is a few steps above the condition of a common labourer writes or speaks anything connected with rural economy, almost every paper will republish such addresses; hence the confusion. There is as much unanimity amongst practical agriculturists of the employer and labourer class on several subjects which other people think debateable, as there is on astronomy. For example, although I never saw Mr. Wilson, of Edington Mains, I feel that Mr. Wilson enters into the feelings of working-men on such a subject as the supposed need of abolishing hiring markets. With regard to bothies, Mr. Smith, of Whittingham, stated in 1861, at a meeting of the East Lothian Farmers' Club, in presence of Dr. Begg, that "bothies are as much within the range of improvement as family cottages are." Mr. Geddes stated in his excellent paper at the Morayshire Farmers' Club:—

"That which came nearest my idea of what a model bothy ought to be, was one that I happened to see upon a large farm in Forfarshire, upon the estate of Lord Southesk, and planned, I think, by his lordship. The kitchen, or eating apartment, was at one end—a large, spacious, well-lighted, and well-aired room, suitably furnished; off this place, a small room, a closet, containing a fine supply of water, with a basin, &c., for washing; a passage down the centre of the building, off which, on either side, were a number of small rooms or cells, each containing a bed and room for the man's chest. By this arrangement each man had his own room, and, if so inclined, could separate himself from the others for rest or study, and this I looked upon as the *beau-ideal* of what a bothy should be."

The discussion from which I quote embodies all that need be said for and against the exclusive cottage system of the border counties and the bothy system in the north. I rejoice that a farmer in the Kelso district adopted the female bothy system three years ago on a led farm. The parish minister stated to the farmer his disapproval of the innovation. The farmer told several antibothyites to wait till the system proved itself. That farmer told me a year ago that the minister of the parish in which that bothy is situated has become a convert to the bothy system, and has congratulated the farmer on the success of his innovation. The bothy is one of a row of hinds' houses, which is furnished by the farmer in a style similar to the cottages occupied by married hinds with families. All the hinds on that farm having families of little children, but for the adoption of the bothy system, the bondager system would have been indispensable, owing to the farm being isolated from any town or village. The abolition of the bondager system has produced such a happy change on his several farms, that only two unsuitable hands left him at the Whitsuntide term of 1867, and he was quite inundated at the March hirings with applications for the vacancies. I beg to suggest that Dr. Begg bring his influence to bear on garden bothies of the primitive class. Notwithstanding that only one of the seven bothies I have resided in was of the comfortable class, I look back with pleasure on the manner in which I enjoyed myself in them. It is a ridiculous position for Dr. Begg to assume that farmers should not have the requisite accommodation for the single men and women who require being imported from a distance. Bothies are much needed on many farms in England. I beg to suggest that our would-be patrons speak to farm labourers personally, as Dr. Strachan did to them, instead of about them, in such places as London and Liverpool, where nobody knows anything about us.
T. W. Rutherford, 12, *Drumdryan Street, Edinburgh.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL: *Wednesday, July* 7, 1869. Present—The Duke of Richmond, K.G., in the chair; the Duke of Devonshire, K.G., Viscount Bridport, Lord Chesham, Lord Kesteven, Lord Tredegar, Lord Vernon, Lord Walsingham, the Hon. H. G. Liddell, M.P., Sir T. Hesketh, Bart., M.P., Sir Harcourt Johnstone, Bart., M.P., Sir Massey Lopes, Bart., M.P., Sir A. K. Macdonald, Bart., Sir Watkin W. Wynn, Bart., M.P., Mr. Acland, M.P., Mr. Barnett, Mr. Bramston, Mr. Davies, Mr. Dent, M.P., Mr. Edmonds, Mr. Wren Hoskyns, M.P., Mr. Jonas, Colonel Kingscote, M.P., Mr. Milward, Mr. Pain, Mr. Randell, Mr. Statter, Mr. Stone, Mr. Thompson, Mr. Torr, Mr. Wallis, Mr. Webb, Mr. Wells, M.P., Mr. Jacob Wilson, Professor Simonds, and Dr. Voelcker.

The Earl of Ellesmere was elected a governor.

The following new members were elected:—

Baker, John William, Little Rollerright, Chipping Norton
Bayley, John Silstock, Whitchurch, Salop
Beardwood, Thomas, jun., 16, Lime Street, Preston
Beever, John Leigh, Foxdenton Hall, Chadderton, Manchester
Bredon, Wm Baker, The Lizard, Shifnal
Bowman, John, High House, Sandwith, Cumberland
Brown, Edward, Worsley Grange, Worsley, near Manchester
Carew Gibson, George Carew, Sandgate Lodge, Steyning, Sussex
Cotton, Robert W. S., Bourlton Park, Shrewsbury
Cragg, Wm. Smith, Arkholme, Lancaster
Craven, James, Whalley Range, Manchester
Cripwell, John, Upperstone, Southwell, Notts
Cartwright, Arthur, 37, Redcliff Road, West Brompton
Day, John, 29, High Street, Whitchurch, Salop
Davies, James, Bollington, Altrincham
Dill, John, M.D., Gordon Villa, Cheriton Road, Manchester
Edwards, R., Allington, Shrewsbury
Fontaine, Charles, Whitchurch, Salop
Greaves, John, Blenheim, Oxford
Hodgson, Wm. Nicholson, Newby Grange, Carlisle
Holland, Wm., Pemberton, Wigan
Irlam, Wm., Ridgefield, Manchester
Jennett, Alexander, Morrell Hill Farm, Binfield, Bracknell, Berks
Jenks, William, Upper Penn, Wolverhampton
Jones, James, The Oaklands, Sparston, Tarporley
Kearne, J. H., Holloth, near Lancaster.
Ker, Hugh, St. John's Place, Annan, Dumfries
Lloyds, H., Croesnewydd, Wrexham
Lord, Richard, Stanton Harcourt, Witney
Luckman, G. O., Bowdon, Altrincham
Luttrell, Henry A. F., Badgeworth Court, Weston-super-Mare
Milburn, Robert, 76, Church Lane, Whitechapel
Morrison, Wm. H., Haigh Hall, Barnsley, York.
Mowbray, Seymour, Killeany, Mountrath, Queen's Co.
Musgrave, John, Wasdale Hall, Holm Brook, Cumberland
Parker, James S., Iffley, Oxford
Parmeter, Francis, jun., Booton Hall, Norwich
Parr, Wm. Fillingham, 3, Victoria Street, Westminster, S.W.
Paxton, Jonas, Bicester
Rawstone, Lawrence, Hutton Hall, Preston
Rook, John, Egremont, Cumberland
Ross, John, The Grove, Ravenglass, Cumberland
Sanderson, S. L. W., Eden Lacey, Penrith
Scott, William, Towyn, Merioneth
Sharpley, Henry, Acthorpe, Louth, Lincolnshire
Shuker, William, Calveley, Tarporley
Shuttleworth, Robert, Prestwich, Manchester
Stoney, Bowes, Portland Park, Roscrea, Tipperary
Thompson, John, Baldon, Oxford
Thompson, Robert, Inglewood Bank, Penrith
Thompson, Thomas Charles, Milton Hall, Brampton, Cumberland
Walker, William Thomas, Clapham, Lancaster
Whitfield, George, Christwardine Park, Market Drayton
Wilkinson, Robert, Little Chilton, Ferry Hill, Durham
Winter, Richard, Goodcop, Levels, Thorne, Yorkshire
Wood, John, Welford, Rugby
Yates, Henry, North Parade, Grantham

On the motion of Mr. Thompson, it was resolved—

"That the candidates for election as members of the Society whose names have been just read shall be entitled to the privileges of membership at the Manchester meeting on paying their subscriptions for 1869, and signing the usual conditions.—Mr. Dendy, Mr. Russell, Mr. Brierley, Captain Stevens, Mr. Raynbird, Mr. Murray, Mr. Midwood, Mr. Bennett, Mr. Wise, Mr. Booth, Mr. Barnes, Mr. J. Newman, Mr. Scholfield, Mr. Blyth, Mr. Aitkin.

FINANCES.—Major-General Lord Bridport (chairman) presented the report, from which it appeared that the Secretary's receipts during the past month had been duly examined by the committee, and by Messrs. Quilter, Ball & Co., the Society's accountants, and found correct. The balance in the hands of the bankers on the 30th June was 2362*l.* 5*s.* 8*d.*, and 3000*l.* remains on deposit. The quarterly statement of subscriptions and arrears to 30th June, and the quarterly cash account, were laid on the table. The attention of the Council was recalled to the case of Mr. Richard Hodgson, of Chingford, Essex, who at the County Court hearing on June 3 demanded the production of the original Charter of the Society, and other documents, which the Council gave the Secretary authority to produce; and the committee now reported that, previous to the case coming before the Court, Mr. Hodgson paid the arrears due to the Society, together with all the costs, including those of the previous hearing. The committee also reported that the Messrs. Heywoods have accepted the office of bankers to the Society during the Manchester meeting, and that they will provide the requisite number of clerks at the usual remuneration.—This report was adopted.

JOURNAL.—Mr. Thompson (chairman) presented the report, and at the same time moved the resolution of which he had given notice, namely, "That the sum of 100*l.* be placed at the disposal of the committee to obtain reports on Scotch, Irish, and foreign agriculture, for the purpose of procuring a report on the agriculture of Belgium." A discussion thereon ensued, Mr. Randell proposing, and Mr. Jonas seconding, an amendment to substitute Scotland for Belgium. The original motion was supported by Lord Chesham, Mr. Dent, M.P., Mr. Wells, M.P., Mr. Wren Hoskyns, M.P.; while the amendment was preferred by Lord Walsingham, Mr. Torr, Mr. Liddell, M.P., and Mr. Acland, M.P. Mr. Thompson having then stated that Belgium had been selected in consequence of its presenting the most successful examples of small farms, and on account of its systems of farm culture, cattle feeding, and sugar distilling, the amendment was put from the chair and lost, on a division, by 16 noes against 11 ayes. The recommendation of the committee as to the writer of the report was then read, and after some discussion, it was unanimously resolved—

"That the Secretary and Dr. Voelcker be requested to undertake to write a report on Belgian agriculture for publication in the Journal, and that an additional sum of 100*l.* be placed in the hands of the Journal Committee for this purpose."

ESSAY PRIZES.—It was reported that the judges have recommended that the prize be withheld from Class VI. of 1868, "On Arable and Grass Land."

SELECTION.—A specimen draft of a diploma for honorary members was submitted and approved. The committee reported that in the course of the inquiry into the question referred to them, respecting the trustees of the Society, they considered it desirable to ascertain in whose names the funded and other property of the Society is invested. They find that the funded property stands in the names of Lord Portman, Colonel Challoner, and the Earl of Powis—three of the trustees of the Society. The lease of the house, No. 12, Hanover Square, was granted by the late Sir George Talbot for 99 years, from August, 1842, to the Society in its corporate capacity; it is, therefore, evident that the trustees, as a class, are not, and have not been for many years past, trustees of the Society's property.—This report was adopted.

GENERAL, MANCHESTER.—The Duke of Richmond (chairman) reported that the committee recommend the painting of the temporary offices at the showyard entrance, at a cost not exceeding 10 guineas; that the provision of boards for the showyard, in case of wet weather, be left in the hands of the local committee; that 60 free pass-tickets be given to the local committee for distribution as they think fit; that power be given to the finance committee to issue free pass-tickets during the week, a list of those given to be entered into a book and reported to the Council. It was also announced that the Rev. Mr. Hart, rector of the parish in which the showyard is situated, had intimated his willingness to hold Divine service in the showyard on Sundays. A report from the honorary director was also read, communicating the satisfactory nature and forward condition of the preparations for the Manchester meeting.—This report was adopted.

IMPLEMENT.—Sir Archibald Macdonald presented the report, which contained the list of implement prizes proposed to be given at Oxford, and the following recommendations:—(1). That a first edition of the prize list be issued without the conditions, notice being given that the conditions will be issued subsequently; (2). That the arrangement of the conditions, with any addition to the prize-list that may be deemed necessary, be left to the Implement Committee in conjunction with the consulting engineer, and that a complete prize-list be submitted to the meeting of Council in August. (3). That the prize-sheet be issued in an octavo form instead of folio as heretofore. This report was adopted.—The Secretary was authorised to sign and seal an agreement with the Mayor and Town Clerk of Oxford. The following noblemen and gentlemen were appointed as a general Oxford Committee:—Duke of Marlborough, Earl of Lichfield, Earl of Powis, Viscount Bridport, Lord Chesham, Lord Vernon, Lord Walsingham, Lord Kesteven, Hon. G. Liddell, M.P., Sir Massey Lopes, Bart., M.P., Sir A. K. Macdonald, Bart., Sir Watkin W. Wynn, Bart., M.P., Mr. Amos, Mr. Booth, Mr. Bowly, Mr. Cantrell, Mr. Clayden, Mr. Davies, Mr. Druce, Mr. Edmonds, Mr. Brandreth Gibbs, Mr. Hornsby, Mr. Hoskyns, Colonel Kingscote, M.P., Mr. Randell, Mr. Milward, Mr. Ransome, Mr. Sanday, Mr. Shuttleworth, Mr. Statter, Mr. Torr, Mr. Webb, Mr. Wells, M.P., Major Wilson, Mr. Jacob Wilson, and the Mayor and Town Clerk of Oxford.

The Earl of Lichfield being detained on a Committee of the House of Lords, the motion of which he had given notice was moved on his behalf by Lord Vernon, and seconded by Lord Kesteven. A discussion then ensued in reference to the legal question involved, and the difficulty of proving that a particular sample was sold by any individual maker. These points having been fully stated by Lord Walsingham, Lord Chesham, Mr. Randell, Mr. Milward, Mr. Torr, Mr. Pain, Mr. Statter, Mr. Webb, Lord Bridport, and Dr. Voelcker, and summed up by the Duke of Richmond, the feeling of the Council was that the interests of farmers required vigorous action on the part of the leading Agricultural Society in England, at whatever risk, due precautions being taken to prevent fraud. The following motion, slightly altered from its original form, was therefore put from the chair, and carried unanimously:—

"That the attention of the Council having been drawn to the increasing adulteration of manures and feeding cakes, especially guano, nitrate of soda, ground bones, and linseed-cakes, Dr. Voelcker be requested to submit to the Council monthly a report on the various samples forwarded to him by members of the Society; and that such report, together with the names of the dealers who supplied the substances analysed, shall, if the Council think fit, be published in the agricultural journals."

On the motion of Mr. Randell it was resolved—

"That the tent erected in the showyard for the general meeting of members be placed at the disposal of the Manchester local committee on any days which shall not interfere with such general meeting."

A letter was read from the Secretary of State for Foreign Affairs, announcing the holding of an agricultural show at Copenhagen from the 6th to the 10th inst.

The following letter, forwarded by the Secretary of State for Foreign Affairs, was also read:—

British Legation, Lima, May 13, 1869.

"My Lord,—The loading of guano at the Guanape Islands continues, and another vessel has arrived from thence to proceed on her voyage to her destination.

"As for the Chincha Islands, I perceive that the commission which had gone there to explore Senor Toiado and the Government Engineer, Mr. Prentice, have recently returned hither.

"Mr. Prentice is reported to have made minute investigations in different parts of those islands by opening deep excavations. The result is stated to have been satisfactory, as those deep holes contained the guano grain in great abundance, sufficient for the exportation of several years.

"More of this will be known when Mr. Prentice's report comes out. I have, &c.,

(Signed) "W. S. JERNINGHAM."

"The Right Hon. the Earl of Clarendon, K.G., &c."

PETERBOROUGH.

July 7.—This local Society is holding its meeting to-day under advantages that must be highly gratifying to its spirited promoters. The show itself, although it is only a single-day affair, far surpasses, not in every class, but as a whole, the Northamptonshire county meeting. It is clear, therefore, that the farmers in this county are not wanting in public spirit if that essential element to success were properly addressed and led. As to the management of this Society, the county association is put into the shade altogether, which is as much as we care to say, and we trust the more pretentious authorities will pull themselves together by another year, and show that they can at least be equal to the greater opportunities they have.

The horses are not only more numerous here, there being the goodly number of 133, exclusive of the 21 foals, but they are far better. In the class for hunting animals upwards of five years of age, there was here, as at Northampton, too much of the dealer element, but this is excusable in a mere town and city society. Now, however, that this association has sprung into some importance at the end of only three years of its new management, its authorities may fairly and safely take some liberties with the arrangements, which have been adopted to get a goodly lot of animals to look at, The object of an agricultural association is of course to hold out an inducement to agriculturists to produce an improved character of animals, and this ought not to be discouraged by allowing anyone who keeps a number of horses on hand, for dealing or jobbing purposes, to send as many as he may think will suffice to sweep off all the prizes. In this class, one dealer and letter of hunting horses had six, and another had four animals. An objection to a dealer

exhibiting, seeing how buyers of horses are now intimately connected with breeders of them, cannot advisedly be raised, but the number he may send ought certainly to be limited to one, or at most two, in a class. For what farmers say here is fair enough, viz., "What is the use of our sending our animals in mere farmers' condition of grazing and grooming, while dealers and letters of horses have 20 or 40 in professional condition to pick from?" The 1st prize of 20*l.* is awarded to Mr. Percival, of Wansford, and the 2d to Mr. Gale, of the Rugby side, both dealers.

The 4-year-old geldings or fillies are seven, and a very promising class, the 10*l.* in cup or coin being awarded to a powerful, reachy, and well-bred bay, by "Lovell," belonging to Mr. Prior. There were two others paraded before the judges for their final selection, Mr. Gale's being a very strong dark brown, with capital legs and quarters, and Mr. Bonser's is a pretty and useful animal for a light youth or little lady.

The hackneys are 23, and a very good collection they are, half of them being really good animals. Mr. Hornsby's pair, which took a prize together as carriage hacks, and one of which took the single hackney prize at Islington, are both here, the prize going for "Sambo," as it did at the metropolitan show. Mr. Harry has a very neat and elegant chestnut, and Mr. Wood a good working red roan, which "bends" well, viz., lifts up her knees, but in that "bending" she makes a deal of fuss in getting over 6½ miles an hour. This is the sixth prize Mr. Hornsby's "Sambo" has taken.

The ponies are excellent in both classes, Mr. Burnham's, 1st in the class exceeding 13 hands, is a light and elegant chestnut, which is a beauty to look at and go. Mr. Whitehead's, 2d prize, is a very handsome cream-coloured creature, the flowing light tail and mane of which greatly attracted the attention of the ladies. Mr. Fox's "Gipsey," 1st in the smaller class, is a perfect little fellow for form and good looks.

Mr. Hornsby is again successful in the mare and foal class for hunting purposes. His brown mare, by "Politician President," is a well-bred, roomy, and very powerful mare. She has also won six prizes, and, like "Sambo," never been beaten. Mr. S. Middleton, Mr. T. Wagstaff, Mr. A. Goodman, jun., and others, have also some excellent mares in this class.

The agricultural geldings and fillies are a capital collection, Mr. Vawser taking the prize in the 3-year-olds for a brown colt by FARMER'S GLORY, and Mr. Fallard the prize in the 2-year-olds for a compact and active chesnut filly by MAJOR. The cart colts, "entire or otherwise," are also excellent, Mr. Isaac Cook taking the prize. The cart mares, too, are extraordinarily good, Mr. Fallard's (1st) being a perfect specimen of a strong active farmer's mare; and Mr. John Moore's real Northamptonshire or Lincolnshire animal looks as though she was meant for breeding animals to draw any amount of brewers' beer, or other heavy goods, about town or country.

The cattle stood almost exactly the same as they did at Northampton. The Marquis of Exeter's and Mr. Rowland Wood's oxen still look like winning at Christmas, and they are 1st and 2d here as there. In fat cows, Mr. Lynn, Stroxton Park, and Mr. Dudding, Panton, are respectively 1st and 2d.

The bulls are few, Mr. C. W. Griffin's prize animal, however, is very showy and excellent, with a straight fleshy back, a well finished chine, and good neck: but when we say his head is pretty, we indicate an effiminate appearance there which is objectionable in a male animal. In the younger bulls Mr. John Lynn is again 1st with his yearling, GRAND SULTAN. The Marquis of Exeter is 2d with TELEMACHUS, a thick and wide bull, by NESTOR (24,648). The other 7 are plain—Mr. Jabez Turner's red, CARNATION, by Coronet (23,623), being a promising candidate for the shambles.

The cows and heifers are generally fashionable—that is, more given to grow beef than to make milk; Mr. Webster's 1st, a white, is, however, a good cow with a useful bag, Mr. Lamb is 2d; and a real old-fashioned milker with a long head and thin neck, wide hindquarters and a bag from which, as some one said, "you could soon get a bucketful," and altogether a real farmer's cow, is not noticed officially. This is Mr. Barker's. Mr. Dudding's yearling heifer is very pretty, and of the most approved form.

The sheep are few, but some of them are good. Mr. Lynn, of Stroxton, takes the 10*l.* prize for a neat 3-shear ram. In the other classes Mr. S. Middleton, of Water Newton, takes all the 1st prizes with a most excellent collection of sheep and lambs. They are all good in form and countenance, while their wool is full and fine. These classes are composed of 10 ewes, 10 shearling ewes; 10 ewe lambs, and 5 wether lambs. Mr. D. Webster is 2d in two classes.

In the pigs the prizes are divided between Mr. Jabez Turner, who has a good boar; Mr. S. Deacon, who has some good sows; and Mr. G. Harris.

The 1st prize for butter, which is beautifully clean and otherwise well made, is awarded to Miss C. Wagstaff.

Reviews.

The Quarterly Journal of Science. No. XXIII., July, 1869. Longmans & Co.

The present number, besides the very full account which it gives of the progress of science in all its departments during the past quarter, contains papers on seaweeds, archæology, geology, reviews of books, a discussion of the policy of teaching natural science in schools, and several astronomical papers. It is quite up to its usual standard of general interest as well as of strictly scientific information. We extract a passage which the Editor has given, under the head "Agriculture," among his "Chronicles":—

"A most instructive and suggestive paper 'On the Condition of the Agricultural Labourer' appeared in a recent number of 'Fraser's Magazine.' The decennial statistical records of the Registrar-General and the annual agricultural tables issued by the Board of Trade are used in it with great ability to teach both the leading facts regarding the labourers in our fields, and their relations to the corresponding facts regarding the labourers in our mines and in our workshops. The main features of agricultural practice and experience in the several English counties are also cleverly marshalled, and exhibited so as to explain the distribution of the agricultural labourer over the country. The whole is not only discussed in a very well-written essay, but uncommonly well depicted and presented to the eye in diagrams and maps. In one set of curves, for example, the percentages (at the several stages) of the whole number of labourers employed on land and on coal and iron respectively are shown; and we see at a glance that a larger proportion of all that are so engaged is of the middle age in the cases of coal and iron than in the case of land. The curves of coal and iron labour stand higher between the ages of 18 and 45; and the curve in the case of land labour stands highest over the early years and over the later years. The explanation is that many of the boys of the farm leave it for the workshop as they become men, and return to it as they approach old age and begin perhaps to look out for a maintenance at the expense of their parish. Other diagrams illustrate the quantity of agricultural labour employed per acre in the several counties: and it appears that it is not only the amount of arable land in a county which determines the quantity of agricultural labour employed per 100 acres,—that depends rather on the quantity of live stock which is on the land, and especially on the quantity of dairy stock. Lancashire and Middlesex employ more labour than other counties, notwithstanding their large proportion of grass-land, no doubt because of the great quantity of live stock which their agriculture maintains. There is however a good deal of difference in this particular, also due to the character of the soil. Light lands are suitable for sheep farming, and sheep require but little care. On heavier soils cattle must be kept; and on arable land they must be kept in yards and stables, and this necessitates much labour. A portion of the essay is devoted to a discussion of the improvements in agriculture which are required in the interests of the labourer. We are not at all disposed to lament the decrease in the number of those employed in fields; which is the leading fact before reviewers of this subject. We may depend upon it that any tendency of this kind is the result of individual action on the part of those immediately concerned, which is prompted by the sharpest and most anxious insight into self-interest. If the sons of agricultural labourers are as a rule gradually leaving the country for the town, we should accept it not as a thing necessarily to be lamented and if possible prevented; but rather as a proof that the condition of the labourer in towns is declared to be better than that of the labourer in fields by that jury whose verdict, more than that of any other, is likely to be trustworthy. When it shall have become the interest of the farmer to employ more labour, and when he shall have been driven by the force of circumstances to pay a higher wage, then the course of events will alter; and we may possibly have hearafter to report that cottages and gardens, and education and wages in country places, are together offering attractions to the labouring man superior to those which are presented in the circumstances of our town population. There can be little doubt that when that happens, we shall have a longer lived and healthier race upon the whole than we have at present. That is an advantage affecting especially the very young, in which the town labourer is unquestionably at a great disadvantage.

Index to the Transactions of the Highland and Agricultural Society of Scotland. 1799—1863.

A most valuable aid to the agricultural student! Published separately, as that of the English Agricultural Society's Journal ought to be, you have at your command in a compendious and acceptable form the whole contents of one of the most valuable agricultural libraries that have ever been collected.

Farm Memoranda.

LAUGHTON FARM, LINCOLNSHIRE.—In the course of a roundabout route—per Great Northern, Lincolnshire, and Midland railways—to Northampton last week, we found ourselves in the Bourne and Falkingham districts of West Lincolnshire with a few hours on our hands. And having paid a flying visit to this neighbourhood in 1866, and having regularly seen for some years at Peterborough fairs the "cream" of flocks which have been reared thereabouts, we resolved to drop down at Laughton to see the conditions under which one of the leading flocks is produced.

West Lincolnshire is as purely and interesting an agricultural district as is now to be found in this country. Taking a line from Stamford to Sleaford, and on the road to Lincoln, before Lincoln Heath is reached, there are throughout the course small hills and valleys in an undulating form which is pretty to look at, and at the same time not at all inconvenient or difficult for purposes of agriculture. These small hills rise above and lie within a short distance of the vast expanse of flat surface which stretches down to Peterborough, past Spalding to Wisbeach, and beyond Boston to the Wash. On the ridge of these undulations may be seen the smoke belching from factory chimneys at Spalding, 15 miles away, and Boston Church steeple, or "stump," as it is locally called, is conspicuous in the horizon 21 miles distant. These picturesque features we relate, because, while they add to the pleasures of a tour and the interest of its reflections, they are intimately connected with the practical agriculture of the district to which we are now especially referring; for most of the large and important breeders and farmers there are enabled to make the mark they do because a fen farm is generally held in connection with their occupation on the higher ground.

One fine day last week, then, we spent with Mr. John Henry Casswell at Laughton, a name and farm now well known in Lincolnshire and many other counties from the superiority of the Lincolnshire rams and ewes which have been shown at Royal Agricultural and other meetings, and sold at Peterborough and other fairs. Mr. Casswell has two farms, as referred to, the fen farm being five miles or so away to the east, through Aslackby village and hamlet.

It would take too much space to relate separately and minutely the peculiar features of both these occupations, but if we work up the two together the salient points of each will present themselves, and at the same time afford all the practical information which can be imparted in a pen-and-ink description of farming. These upper and lower farms comprise 935 acres, two-thirds of which are arable, and one-third old pasture and permanent grass land. This year 1202 sheep have been clipped. Of these 370 ewes—the animals we felt most interested in seeing—have been lambed down. About 100 shearling ewes are "set" in the flock annually, so that as a rule, allowing for casualties, the flock is renewed every four years. Of rams, there are generally produced, for sale and use, 100 to 120, most of which are sold as yearlings, a few only being let, and these are such as are not wanted, according to their descent, for use at home as shearlings, although their particular strain and character may be required when the lambs, then growing up, shall have become of a proper age for breeding. This year the stock of rams is small, in consequence of the extraordinary drought and loss of the Turnip crop of last year, inducing, nay, compelling, Mr. Casswell to dispose of every sheep that was not really of the most promising character. But there are now 75 yearling rams in most excellent form and condition, and some among them are magnificent sheep; there is one in particular, which, we dare to predict, will cause some admiration at the Lincolnshire show this month, and some spirited competition among ram breeders should he be offered for sale or for a season's service. Beyond referring to the fine compact form, the well marked features, bright complexion, and general blooming appearance of this sheep, we will defer a full description of him till we see him in public. Besides the shearlings, there are 14 two-shear and older sheep, ranging in age up to seven years.

Now that we have seen the Laughton ewes, with their compact, heavy frames on straight, stiff and well carried legs, and their good condition, notwithstanding the trials which they necessarily endured last autumn, winter and spring, we are not at all surprised that the Laughton sheep have made so good a figure in public, and been appreciated, as they have been, even beyond the calculation of outsiders, by practical breeders. The reason why the Laughton rams have made the highest averages at Peterborough for some years past is easily understood when the females of this flock have been seen fresh out of their coats with their last crop of lambs by them.

Before entering into the leading details of the system whereby this large and heavy flock is supported, and kept up to the state of perfection for which its owner is now famous, we will simply enumerate the other stock which is usually kept on these farms. The number of cattle is generally about 150, divided into cows, 3-year-olds—which are now going to market off Grass and corn, or cotton-cake,—2-year-olds, yearlings, and calves. About 30 cows are kept, on which, or by the milk of which, the calves are reared, and a finer and more thrifty stock of Shorthorn cattle than there is throughout this part of Lincolnshire where these calves are bred, we have never seen. A great and good bull among the cows is a sufficient indication of the spirit with which this department is also pursued at Laughton.

The methods of cropping these farms are,—on the upper land farm, a four-course system; and on the lower level, or "fen land," a five-course system. The first is fallow and Turnips, Oats or Barley, Clover or Peas or Beans, and Wheat. This high land is naturally a strong and poor clay, and if it had not been for the large and expensive flock which Mr. Casswell has kept, this farm could not have been brought to the high condition in which it now is. After saying this, it would seem to be somewhat contradictory to speak in the next sentence of the way in which the Turnip land, the first round of the course, is impoverished by the way it is necessary to keep such a flock on it in the autumn and winter season. But it only requires a little explanation to make these apparently paradoxical views perfectly consistent. For, in the first place, Mr. Casswell says:—"After spending 2*l.* an acre in artificial manure to grow Turnips, and 10*s.* per acre in hoeing and cleaning, this land is 1*l.* per acre poorer for growing Barley or Oats than it would be if the inexpensive course of long fallowing had been adopted." Thus, a crop of Turnips cost here, in manure, labour of sowing, seed, cultivation, and injury to the land, above 4*l.* per acre. This is altogether apart from the cost of preparing the Turnips for the sheep. But this Turnip-cropped and sheep-folded land has to have its reduced fertility restored, either for the next cereal crop, or for the following Clover or pulse crop. And it is here where the other points of Mr. Casswell's liberal practice tell; for the cake and corn given to the best rams and the older beasts in yards and sheds, places so large a quantity of richly-charged straw-manure at his disposal, that the Clover and pulse crops are adequately fertilised, and the heavy crops of them which are grown the result.

Clover is grown only once in two courses, so that on the high land it comes in turn once in eight

years, and on the fen land once in 10 years. Rye-grass is seldom resorted to in this district, as it makes the land "drummy," when any kind of crop is sure to wholly or partially fail. Where it has been grown, at a pinch, as this year, on faulty Clover, the land is ploughed up or cultivated at this season and through the autumn, as a preparation for Oats the following spring. Cabbages are, however, extensively grown, both for winter and summer feed; for with so many sheep of various ages and requirements, it is necessary to have as many chances as possible of root or green food, as no skill or expense in dry food will assure the health of sheep, and especially white-faced or Grass-feeding sheep, unless they have much juicy vegetation.

But there is a still more effectual method of restoring the soil that has been impoverished by a root crop and treading. It is to prepare in the spring a given number of acres for sowing with Tares and Red Clover. According to the land and its condition, 4 to 6 pecks of Tares and 14 to 20 lb. of Clover are sown per acre. This year, in consequence of so much of the Clover failing last year, Mr. Casswell has four fields of this feed, in all about 70 acres. The piece first sown is now being fed off by rams, and a most excellent feeding ground it is for them. The Tares are about 6 or 8 inches high, while the Clover has shot up till there are several leaves to a root, and these are beginning to show they are of the "broad Clover" kind. The other pieces, which are a little more backward, will come on as equally good feed in about a week or fortnight's time, when, if suitably stocked and the weather be of an ordinary kind, they will supply an abundance of rich feed down to the middle or end of October. The plan of feeding this mixed crop off is, not to fold, for obvious reasons, but to allow the sheep to run over the whole field, to first top the Tares, and then pick out the leaves of the Clover as they turn to a dark colour, and thereby lose the acrid acidity which young Clover leaves possess before their juices have been elaborated into a starchy or saccharine condition. By this feed, and the corn or cake, or both, which it is necessary to give a flock of this character, the soil is rapidly enriched; for at this season the treading is beneficial in ordinary weather. This method of sowing Clover is, besides, a certain way of securing a full and sound plant for leaving for a crop of hay next year, or for feeding off as the demands of the mouths of the live stock may correspond with the supply of green food. On these and the other green crops, and in the yards and sheds, all the Peas and Beans grown are eaten, as a rule, in addition to a liberal supply of cotton and linseed-cakes.

Of the "artificial" manures used we cannot now say much, for Mr. Casswell has recently become a member and director of the "South Lincolnshire Farmers' Co-operative Manure Association," and as this is the first year of his change from bone superphosphate and guano to mineral superphospate and guano, the result has scarcely began to show itself. But we may say a few words on the character of this change, and the large experience Mr. Casswell has had in the application of superphosphate to green crops. For his observations and conclusions appeared to be singular at first, but on further explanation and consideration they become more harmonious, if not quite consistent, with the general conclusions that are based on scientific research.

First, however, for the superphosphates. Up to this year bone superphosphate has been used at the price of 7*s.* per cwt. for Turnips, and 8*s.* ditto, for Cabbages and corn: 5 cwt. was generally used for Swedes, and 3 cwt. for white Turnips, which application would be in addition to any small dressing of farmyard manure, or other fertilisers, as ashes, soot, compost, and so on.

The mineral, or coprolite superphosphate, which is now being used, costs, as our readers have recently seen, 3*l.* 18*s.* per ton loose, and 5*s.* extra for bags, or 4*l.* 3*s.* per ton at the nearest railway station. The system of payment, time of ordering, mode of delivery under contract, and so on, which this company arranges for and guarantees, we need not enter into here. The point in this place is the quantity and value of the article which Mr. Casswell is now using. The amount of phosphates, which the company requires a guarantee for, is 26 per cent. Occasionally the samples have analysed a trifle over this amount. Mr. Heald, of Sleaford, is the consulting chemical officer of the company, and if he is not satisfied, Dr. Voelcker is referred to. To obviate any difficulty in doing this, oil-skin bags that hold an ounce sample are filled, and sent through the post some weeks before the delivery of the manure is required; when one or more of these are at once submitted to the chemist, and if a satisfactory answer is returned, a printed order is filled and the time for its delivery is specified, and as the contractor is bound, under penalties, to fulfil his engagements, this is done accordingly.

The quantity Mr. Casswell now applies of this manure is regulated by its money value per acre, as compared with his previous applications of manures made from bone. What Mr. Casswell now argues on this is that his farm only needs phosphates from extraneous sources, for his practice of feeding all his pulse crops, and some oil and cotton-cakes, imparts an ample proportion of nitrogenous and ammoniacal compounds to his soil. This is fine scientific farming at any rate. We shall be anxious to learn the result when sufficient proof shall be forthcoming.

The singular observations and conclusions to which we have referred, simply refer to the use of the water-drill for applying soluble superphosphates. Mr. Casswell's experience is that, if the whole of the soluble superphosphate be drilled in with water, for Swede Turnip and Mangel seed to be drilled upon, the produce will not keep through the winter. If Rape be similarly grown, the result is the same. The theory of this is that the young plants are so flushed by the saturated and dissolved fertiliser being placed immediately in contact with their first roots, that their leaves are so rapidly pushed forward in their younger stages as to grow beyond their natural character and strength, the result being unsound cellular tissue, which naturally permits or induces premature fermentation and decay. To obviate this, as the water-drill is of so much value for procuring a regular plant and starting the young crop off, Mr. Casswell now broadcasts and cultivates or harrows in 2 or 3 cwt. of the soluble phosphates which he applies. Thus, the water, and a small supply of this fertiliser, do enough for the plants in their earlier stages, and when their roots have ramified themselves through the soil, the food they have had supplied them is not all at the base of the bulb or trunk of the plant, but distributed about the soil where the roots have been sent out in search of moisture and food.

The only other point of this clever farming, which we think it desirable to notice on this occasion, is the manner in which the Wheat is grown on the lower or "fen land." This crop is taken after Oats, and it is this difference only which alters the four-course in the one case to the five-course in the other. The upper land is not good enough to advantageously produce two cereal crops in succession. The deep staple of alluvial soil and deposited vegetation, which compose the flat low land, would, on the contrary, be too much enriched for Wheat by a green crop and feeding it off as Mr. Casswell does. When, however, a crop of stiff-straw Oats has been taken, a fine quality of white Wheat may be reckoned on, providing there be a sufficient amount of sunshine, and not too much wet. On the upper land white Wheat will not grow at all; while it is found necessary on both the lower and higher lands to make a complete change of Wheat after every course.

Mr. Casswell has done a little steam-cultivating and ploughing by hiring a set of tackle, and he contemplates doing more, that he may have a better command over his clay land, by working it more rapidly when the weather is dry and fine; or more completely in the autumn, that it may have more of the benefit of the best of disintegrators—the winter's frosts. By this auxiliary power, it is calculated that the present 24 ploughing and carting horses may be soon reduced to 20, and ultimately to 16.

The Poultry Yard.

THE poultry show season is setting in vigorously, and we have this week to chronicle the meetings of Northampton and Ipswich. The first named has important claims to notice, inasmuch as it is not simply a poultry show, but an important branch of the Northamptonshire Agricultural Society. The county is not a prominent one for poultry as regards quantity, and it sends but very little to the London markets; we think, however, there are few districts where pure breeds get more attention, and year after year the meeting might be looked over with hardly an inferior pen in it. Dorkings and Spanish have always been favourites in the county, and the birds formerly exhibited by Mr. Thursby, of Abington, will be remembered by many.

This year Mr. R. Wood took 1st, Mr. Longland 2d, Mr. Fowler 3d, for Dorkings of any age or colour; Mr. Tatham 1st for hens. Mr. Rogers Bull won for Spanish. Captain Wetherell 1st and 2d for game. First prize for Cochins went to Manchester, taken there by Mr. Taylor, who also won the 1st for Hamburghs. Game bantams took all the prizes, to the prejudice of the other varieties.

In the variety class Captain Wetherell took 1st, for Crèvecœurs; Mr. Fowler 2d, Mr. Beasley 3d, for Japanese.

Mrs. Seamons took 1st for Aylesburys; Mr. Fowler with Rouens, and also with Buenos Ayrean; Mr. Beasley won for turkeys. The meeting was by all admitted to be highly successful.

"Houdan," in the *Albany Cultivator*, as quoted in last week's number, gives some interesting statistical information as regards the utility of bran for poultry. To a certain extent we can cordially agree with him, and that is, as far as he speaks of the bran as an adjunct to cooked poultry food. We think that cooking has never sufficiently entered into poultry feeding, and that much useful produce that is now trodden into farmyards for manure might be made into nutritious food when mixed with bran. As a staple, we do not think the bran diet would answer; we should recommend those using it to mix one-third fine oatmeal with it.

Midsummer being past, and July getting middle-aged, we may safely take the principal part of the hatching to be over for 1869. The season has been very partial; as far as we can gather the results in poultry are much better than those in game. The partridges seem to have suffered much everywhere, the young birds having died in large numbers from the heavy storms which fell on them soon after hatching. As far as we can now hear, the mortality among them has been general, and not been confined to any particular county or district. From Scotland we hear that in some parts the first nests of both pheasants and partridges were spoiled, and that the birds are now setting a second time. The grouse have suffered severely by the snow that fell while the birds were setting, but we hope for better accounts of them ere long. Judging from the supply of leverets to the London markets, the breed this year has been a bad one, and there appears to be a great deal of disease among them, many being very thin and perished.

All poultry exhibitors will now be anxiously awaiting the issue of the Birmingham prospectus and prize sheet for the present year. We would strongly impress on all who are breeding chickens for exhibition, that no mistake can be greater than that of allowing inferior and faulty chickens to remain in the yard, costing as much as the best birds to keep, and literally cumbering the ground. In a yard where the principal object of the owner is exhibition, his criticism of his stock should be constant and severe. In looking round his young birds every weak point should be closely noticed, and the peculiarity of each chicken noted by him. For instance, in exhibiting Cochin chickens, there are few breeders who will not at some time or other have noticed the difference in the growth of the chickens, although they may be of one hatch. One young cock will keep on growing tall, awkward, and, although large, only a mere chicken in appearance; while his brother bird takes all the squat, set appearance of an adult cock, and while yet a chick struts, crows, and battles like his father. This latter bird is the one to choose for a summer show; he will appear to greater advantage than his larger brother, who will generally well repay a little extra care and attention given to him in pushing him along for winter.

Miscellaneous.

Mr. Mechi on Harvest Prospects.—The following letter appeared in the *Times* of Tuesday:—

Sir,—Notwithstanding cold nights and an absence of sun, which will delay our harvest three weeks as compared with the unusually early one of last year, we have evidence that the gross total production of food (animal and vegetable) will probably exceed, considerably, that of last year.

Wheat may be less in quantity, quality, and weight, but Peas, Beans, Oats, Potatos, and perhaps Barley, will be in excess, especially Peas and Beans.

Last year there was a ruinous deficiency of meat-making products. The 22½ million acres of permanent pasture (one-half the agricultural area of the United Kingdom) yielded a wretchedly deficient crop, and caused a heavy national loss, while nearly 10 million acres of root and green crops and artificial grasses fell sadly short of an average crop. Hence our small supply and high price of home-grown meat, &c. The large area of cottage and general garden was also very deficient in yield. This year all this is reversed, and we are blessed with the promise of abundant Grass, and other vegetable products, which must have a happy influence on the quantity and price of home-grown meat, milk, butter, cheese, and vegetables. Supposing that we lose a trifle on our Wheat area—between three and four million acres—great will be our gain on the 40 million acres of other products.

Harvest in Essex will probably commence about August 1, in the early districts, and become general towards the 10th. Heavy and deep soils have the best of it this year, which is always a happy event for the country at large. *J. J. Mechi, Tiptree Hall, near Kelveden, Essex, June* 28.

The Conversation turns on Farming.—Ours *is* a country gentleman's club, and therefore, whenever we can, we do turn the conversation on farming. Lord Dungeness asks me how things are in my part of the world? I reply (this being safe), that the farmers in my part are complaining. He becomes interested immediately, and inquires "What about?" I have to take time to consider my answer, as I don't know what they are complaining about; nor, except for the sake of keeping up a conversation, that they are complaining at all. I throw my remark out as a feeler, because *now* is evidently an opportunity for me to learn something about Agriculture. (*Typ. Develop.*, vol. iii., par. 1, letter A, "Agriculture.") Milburd takes the reply out of my mouth, by interrupting with "Pooh! let 'em complain, the English farmer doesn't know how to pull the value off the land."—We are all interested now; ready to pick up intelligence about the English farmer. Milburd's idea is to "let the soil rest." This appears very sensible, and I can't help expressing myself to that effect: the Count asks me "Why?" I reply that it is evident to reason (not to put it on agricultural grounds), that if you let it rest, it is fresh again.—*Happy Thought:* Got out of that very well. The explanation doesn't seem to impress them much, as they continue their argument. [I note down what I can of their conversation at odd times, for future use.] Lord Dungeness wants to know "Why let it rest?"—"There," he says, "is the ground—there it remains—it doesn't run away."—*Happy Thought*, which I say out loud, "It might, in a landslip."—Milburd complains that I *will* come in as a buffoon. I beg his pardon with some asperity, I meant it.—The two others, the Count, and Lord Dungeness, agree with me that a landslip *might* make a difference; but barring landslips, there was your land, you raised your crops, you turned it over, you were always working it, lower soils and top soils, with dressings, and you'd pull off cent. per cent. every year.—The Count remarks that that is true, in Turnips alone.—*Happy Thought:* Cent. per cent. in Turnips: go in for Turnips.—Milburd shakes his head over Potatos this year.—"Except," says Lord Dungeness, "in Jersey—large exports made there now."—This diverts the conversation for a time to Jersey. I say, *apropos* of the Potatos, that I've never been to Jersey. Milburd asks me if I'll go, with him? We have more gin-sling, and I arrange to go to Jersey with him in a few weeks' time.—Shall have to explain this to my wife judiciously.—The Count says that Prussians let the soil work itself; which seems clever.—"But after three years of top-dressings?" puts in Lord Dungeness—I feel inclined (Lord Dungeness has pointed this question so strongly) to say, "Yes, what would you do then?" only it occurs to me that, in that form, and from *me*, it would sound like a riddle, and Milburd would immediately reply, "Gib it up," like a nigger (*I* know him), which would stop this really interesting and valuable conversation. So I merely listen, and look as farmerish as possible.—An Irish gentleman joins us, a large landed proprietor, Milburd whispers to me, and plunges at once *in medias res*, by observing defiantly that there is no farming like Irish farming. The Prussian Count attends to this closely. Perhaps this is some of the secret information he has come over for.—Milburd doubts this statement about Irish farming. The Irish gentleman offers to prove it to him on his fingers, with a cigar.—"Thus, ye'll take so many counties, ye see"—we all say "Yes," and nod. "Well," he continues, "ye don't take one crop and there an end, but ye just take one aft'her the other and work

'em on and on, successively, and each one helps the others. Ye take one field with the other"—here he sums up on his left-hand fingers, checking them off as fields, or farmers, or counties, (we are none of us, I am sure, quite clear which,) "and ye lose nothing 'av the prod'huce. The acres last for ever—it's not like hard cash or paper—and ye get your interest and principal together, increasing the first, and the second too, for the matter of that, in proportion. Ye see how 'tis?"—As we all profess to have followed his argument closely, he doesn't continue, but announces himself as being dry, and orders "what you other fellows are drinking there with ice in it."—Here are two people I never met before—a Prussian Count and an Irish landed proprietor.—*Happy Thought:* Opportunity for varied information. Ask Proprietor if he's ever been shot at from behind a hedge. He laughs at my credulity. "They *never* do it," he says. I reply that "I had thought from the papers, that——"—"The papers!" he exclaims. "If ye'll believe a word *they* say of Ireland, I give ye up intirely." As I don't want to irritate him, I tell him that I don't believe every word they say, and assure him that I am only asking for information.—"Why, sir," he says, "my property lies among the worst and wildest parts, and I might walk among 'em any day if I chose, Protestant or Catholic, no matter, without a gun, or a dog, or a stick, or any mortal thing, and they'd not touch me."—Interesting conversation this; must get back to Willis's, though.—"*More Happy Thoughts*" *in* "*Punch*," *July* 10.

Calendar of Operations.

JULY: *Irrigation.*—By the modern system of sewaging and liquid-manuring Italian Rye-grass, meadow Grasses, &c., are now in their prime; a continuous supply of green food for soiling being forced forward under a July sun. When cut at the proper time, or before it suffers towards the bottom from blanching, and when it is mixed with a sprinkling of Pea or Bean meal, or meal of any kind, it forms excellent food for milch cows; and it may be so mixed with meal, or other forage plants, as to form a wholesome diet for neat cattle of every kind, and also for horses and sheep,—the latter being either fed in pens, or folded on a field that needs extraneous assistance. Thus, where sheep are being fed on Rape or Vetches, a large proportion of sewage or irrigated Grasses may daily be consumed with such crops. And where such crops are mown and given to stock in yards, they may be profitably mixed with the produce of irrigated land. It would be difficult to estimate the practical value to many stock-farmers and dairymen of such crops at this season of the year.

Warping artificially grass-land,—or land about to be laid down in grass,— or stubbles after the removal of a crop, may in many cases be profitably carried out at this season, where there is a command of warping material. Thus, by means of water, half an inch or an inch or any desired thickness of clay, or marl, may be spread evenly over poor sandy, gravelly or peaty pastures, at the very time when they begin to be burnt up. Generally, the water required to convey the clay will sink into such soils, leaving the warp on the surface. Apply the warp no faster than the water sinks. As soon as the warp is dry, roll and bush harrow, sowing Grass seeds when required to renovate or improve the herbage. The result will be a fine green sward in a short time. When a hay crop has been taken from such soils, the stubble may be warped, which will soon force up at this season a rich aftermath. In examples of this kind, it will be observed that the water supplies food to the plants. In the winter season it is otherwise, and the difference will make warping pay at this season, when it would not do so in winter, or even in autumn or spring. In warping arable stubble land, it may be ploughed or grubbed before the warp is applied, so as the better to incorporate the warp with the soil. In our southern provinces, the land may afterwards be tilled with the moisture in it, so as to secure a crop of stubble Turnips. In the north there is very little arable stubble land in July, so that warping would be deferred to September and October.

Chalk, marl, clay, earth, and ashes are collected in heaps about this time, or between hay and corn harvest, for subsequent use. Chalk, marl, and clay are sometimes applied, less frequently perhaps than when naked fallows were common. But whenever they can be broken down and incorporated with stolen-crop fallows, or bush harrowed into hay stubble, or pasture land, they may now be profitably applied, for July showers, and even night dews, will pulverize and lixiviate them and cause them to produce a favourable effect upon vegetation. When the clay from pits contains no chalk or lime, it is sometimes collected into large hills, and mixed with chalk or lime so as the better to fit it for the land to which it is to be applied. Compost earth is collected from headlands that increase in depth from soil brought out with the plough. Road sweepings and the cleaning of ditches are also collected,—anything, in short, that will form a compost hill. Sometimes the hill is turned and mixed with farmyard manure, in other cases with the liquid from the homestead in the winter time; or it is mixed with lime; or with the refuse from herring fisheries, sprats, five-fingers and other coarse fish, sea weed and so on. In this way, rich composts are formed for top-dressing spring crops or deteriorated meadows and pastures.

Carting gravel or *stones* for repairing roads, or making new ones, is another job for the horses at this season. All the farm roads should be put in thorough repair before the corn harvest commences. Stones from the quarry, and bricks from the brickfield, when situated at a distance, are also carted, when required for fences or farm buildings; so are drain tiles for draining. At this season such carting does comparatively no harm to farm roads or the land, whereas in the winter time it cuts up everything, the teams hardly hauling half the loads they do in summer.

Sheep-shearing in the highland districts of the north is generally finished about the middle of this month, a little before or after according as the season is early or late. This year some disastrous results have occurred from early shearing. A few days prior to shearing, the sheep are washed by swimming them through and through the pool of a running stream until they are clean, and some sheep-farmers put them once or twice through the pool as they come from the shears in order to clean the skin and set up a healthy action to the surface and thus obviate colds. Would it not be a good plan to mop or sponge over newly-shorn sheep with some such a dressing as McDougall's non-poisonous dressing? This would be inexpensive, from the small quantity it would take, while the glow it would produce would tend to check the dangers from the effect of changes of weather on a bare skin after losing a heavy fleece. Besides thus preparing the skin, or inuring the skin to its new condition, any ticks or lice would be easily and expeditiously despatched, and at the same time the usual attack by blood-sucking flies entirely prevented. *W. B.*

Notices to Correspondents.

AGRICULTURAL COLLEGES: *M F B.* There is but one Agricultural College in England — the Royal Agricultural College, Cirencester.

AGRICULTURAL IMPORTS DURING 5 MONTHS, 1868 AND 1869: *R.*

Articles.		Importations. 1868.	1869.
Oxen, Bulls, and Cows	No.	28,587	78,063
Calves	,,	7,860	7,502
Sheep	,,	138,631	335,654
Lambs	,,	3,389	4,869
Swine and Hogs	,,	5,940	16,222
Bones	tons	25,277	26,543
Flax and Tow or Codilla of Flax—			
From Russia	cwt.	119,969	107,866
Holland	,,	80,217	70,269
Belgium	,,	101,018	92,602
Other Countries	,,	91,168	98,083
Guano, from Africa	tons	356	597
United States	,,	1	363
Peru	,,	69,121	25,010
Bolivia	,,	1,610	1,612
British West India Islands	,,	..	254
Other Countries	,,	11,235	1,019
Hemp—From Russia	cwt.	1,294	19,344
Venetia	,,	83,968	117,055
Illyria, Croatia, and Dalmatia	,,	15,108	27,033
British India	,,	1,438	2,160
Philippine Islands	,,	67,478	38,860
Other Countries	,,	36,337	43,190
Hides, untanned, dry—From British India	cwt.	29,701	32,502
Other Countries	,,	19,957	18,507
Wet—From Uruguay	,,	48,768	40,793
Brazil	,,	27,475	25,081
Australia	,,	19,863	12,663
Other Countries	,,	35,801	52,786
Tanned, Tawed, Curried, or Dressed (except Russia)	lb.	4,238,543	2,697,883
Hops	cwt.	42,798	116,990
Oil Seed Cakes	tons	45,451	66,957
Potatos	cwt.	528,216	632,234
Provisions—Butter	,,	350,262	429,921
Cheese	,,	200,916	134,879
Eggs	No.	166,997,160	200,885,760
Lard	cwt.	101,973	88,740
Meat, fresh or slightly salted—			
Beef	cwt.	2,280	4,619
Pork	,,	2,976	10,290
Meat, salted—Bacon and Hams	,,	309,176	299,120
Beef	,,	145,607	127,943
Pork	,,	73,217	79,902
Meat, not otherwise described	,,	14,581	27,362
Saltpetre	,,	39,777	64,022
Cubic Nitre	,,	421,379	365,583
Seeds—Cotton	tons	47,965	61,576
Clover	cwt.	124,960	150,589
Flaxseed and Linseed	qrs.	379,418	374,939
Rape	,,	133,522	55,892
Tallow, from Russia	cwt.	11,927	28,917
Australia	,,	23,020	48,201
South America	,,	99,666	157,358
Other Countries	,,	65,389	53,943
Tar	lasts	550	985
Wool, Sheep and Lambs'—From Europe	lb.	2,817,415	6,797,552
British Possession in South Africa	,,	10,868,543	12,702,449
British India	,,	5,179,467	5,496,058
Australia	,,	36,911,336	73,688,622
Other Countries	,,	7,350,592	6,826,338
Alpaca and the Llama Tribe	,,	439,431	1,099,959
Yeast, dried	cwt.	45,406	44,270
Corn—Wheat, from Russia	,,	3,895,033	3,015,148
Denmark	,,	221,165	160,318
Prussia	,,	1,716,566	1,734,041
Schleswig, Holstein, & Lauenburg	,,	27,879	24,909
Mecklenburg	,,	317,150	276,860
Hanse Towns	,,	330,766	293,881
France	,,	12,424	117,726
Illyria, Croatia, and Dalmatia	,,	653,616	390,170
Turkey and Wallachia & Moldavia	,,	1,633,338	604,822
Egypt	,,	2,013,279	329,343
United States	,,	3,034,093	3,131,597
Chili	,,	283,179	165,074
British North America	,,	96,802	33,061
Other Countries	,,	544,949	164,767
Barley	,,	2,164,024	4,477,477
Oats	,,	2,534,888	1,984,908
Peas	,,	294,978	318,229
Beans	,,	792,323	891,425
Indian Corn, or Maize	,,	4,094,655	5,837,048
Wheatmeal and Flour—From Hanse Towns	cwt.	241,923	243,822
France	,,	216,379	649,692
United States	,,	303,281	308,414
British North America	,,	12,890	18,423
Other Countries	,,	446,140	437,662
Indian Corn Meal	,,	3,358	2,608
Fruit—Currants	,,	127,648	94,711
Raisins	,,	51,542	19,939

GRASSES: *Homunculus.* Our correspondent has sent us four specimens instead of the three he mentioned, the two specimens of No. 2 belonging to distinct genera. The names are as follows:—1, Holcus lanatus, Woolly soft Grass; 2, Poa pratensis, Meadow-grass; Festuca duriuscula, Hard Fescue; 3, Poa trivialis, Rough-stalked Meadow-grass. *J. B.*

The Royal Agricultural Society of England.
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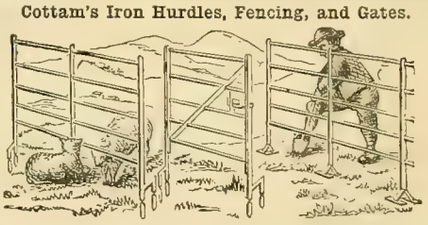


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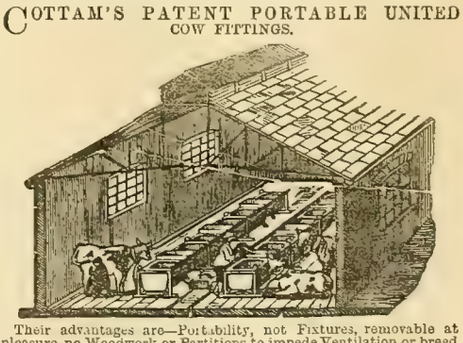
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FIRST PRIZE MEDAL AT THE GAND EXHIBITION.
FIRST PRIZE MEDAL AT THE LAEKEN EXHIBITION.
FIRST PRIZE MEDAL AT THE LINEENE EXHIBITION.
FIRST PRIZE MEDAL AT THE BRUSSELS EXHIBITION, *on two occasions.*
FIRST PRIZE MEDAL AT THE HAMBURG EXHIBITION.

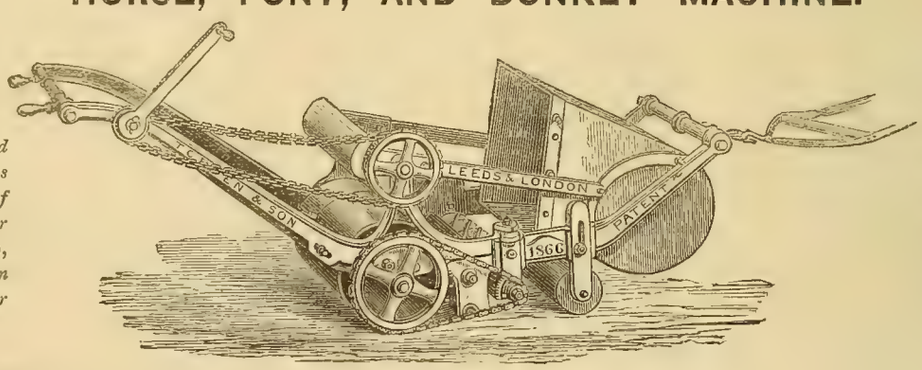
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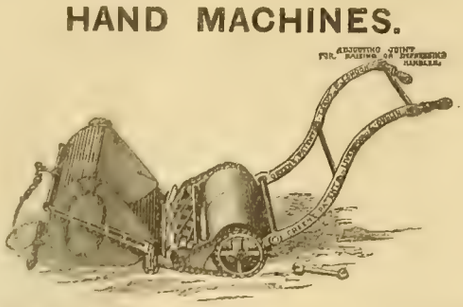
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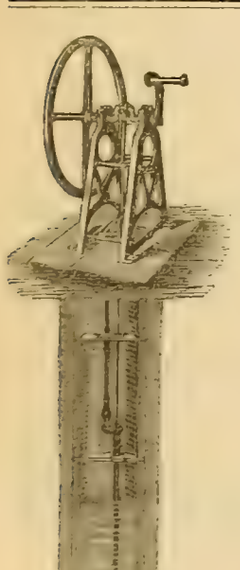
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3 ,,	..	2	1 0
3½ ,,	..	2	6 0
4 ,,	..	2	14 0



No. 39.

WARNERS' CRYSTAL PALACE

FIRE ENGINE, or PORTABLE FORCE PUMP.

Price on Barrow, with Branch Pipe, Spreader, Unions, and Suction Rose, £6.

1¾-in. 2-ply Rubber Suction Pipe, per foot, 2*s.* 2*d.*; 1¼-in. ditto Delivery Hose, 1*s.* 4*d.*

Crystal Palace, Sydenham, March 2, 1867.

MESSRS. WARNER & SONS.

"GENTLEMEN,—I feel great pleasure in stating that I was present at a trial of your small Crystal Palace Fire Engine, and was much pleased with its efficiency and simplicity. The Pump throws out a steady jet of water to a height of 50 feet with very little labour. The Pump we have is well made, very simple in its parts, and not likely, I think, to get out of order. The advantage of this pump is its being very portable. Besides being a good Fire Engine, it will make an excellent Garden Engine. "I remain, gentlemen, yours obediently,

"EDWIN ROSE, Engineer to the "Crystal Palace Company."

Drawing and Estimates for Wind Engines, Water Wheels, and Hydraulic Machinery of every description for Steam, Horse, or Hand-power will be forwarded upon application.

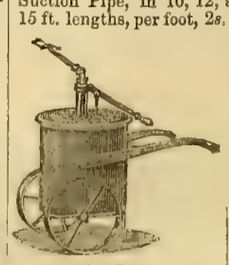


No. 42.

PORTABLE PUMP

With Improved Valves for Liquid Manure, £2 15*s.*

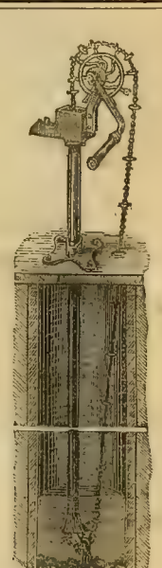
2-inch Flexible Rubber Suction Pipe, in 10, 12, and 15 ft. lengths, per foot, 2*s.* 6*d.*



No. 547A.

GARDEN ENGINE

28 gallons ..	£5	10	0
24 ,, ..	4	19	0
16 ,, ..	3	14	0
10 ,, ..	2	19	0



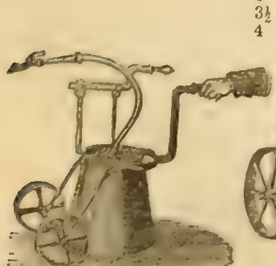
CHAIN PUMP FOR LIQUID MANURE.



WARNERS' AQUAJECT

Useful for every variety of purpose—in watering or washing flowers or trees in Gardens, Conservatories, &c.; also, for washing Carriages or Windows, laying Dust, &c.

Price, complete .. £1 10 0
Small size for the hand, as an ordinary Syringe 0 15 0



No. 547B.

WARNERS'

GARDEN ENGINE

Holds 6 gallons; is light, portable, and easily worked by a lady or child .. 50*s.*



No. 579½.

SWING

WATER BARROW.

50 gallons ..	..	£5	12 0
38 ,,	..	3	17 0
30 ,,	..	2	13 0
20 ,,	..	2	2 0

Editorial Communications should be addressed to "The Editor." Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by JAMES MATTHEWS, at the Office of Messrs. BRADBURY, EVANS & Co., Lombard Street, Precinct of Whitefriars, City of London, in the Co. of Middlesex, and Published by the said JAMES MATTHEWS, at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, July 10, 1869.

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 29.—1869.] SATURDAY, JULY 17. {Price Fivepence. {Stamped Edition, 6d.

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NOTICE to ADVERTISERS.—In answer to constant inquiries, the Proprietors have fixed the following SCALE of CHARGES for ADVERTISING:—

	s.	d.
All Advertisements connected with Gardening or Agriculture, four lines..	3	0
Each additional line	0	6
Wants Places, three lines or thirty words	1	6

Advertisements extending across two or three columns, or Block Advertisements, according to Contract.

Post Office Orders payable to JAMES MATTHEWS, at the Post Office, King Street, Covent Garden, W.C.

THE GARDENERS' CHRONICLE and AGRICULTURAL GAZETTE of SATURDAY, July 24, and following Numbers, will contain full and detailed REPORTS of the GREAT MEETINGS of the ROYAL AGRICULTURAL and HORTICULTURAL SOCIETIES at MANCHESTER. The PAPERS read at the HORTICULTURAL CONGRESS will also be published in the GARDENERS' CHRONICLE.

Office for Advertisements, 41, Wellington Street, Strand, W.C.

IPSWICH and EAST of ENGLAND HORTICULTURAL SOCIETY will hold their GRAND AUTUMN SHOW on September 2 and 3. Twelve Special Prizes are offered, including Five Silver Cups, or Money, open to all England (without entrance fee), for Dahlias, &c. Schedules may be had on application to WM. GROOM, Honorary Secretary.

LEEDS ROYAL PARK.—GRAND AUTUMN SHOW of PLANTS, FRUITS, FLOWERS, VEGETABLES, and BIRDS, will be held in the Park, on FRIDAY and SATURDAY, September 3 and 4 next. A liberal Schedule of Prizes is being prepared, and will be forwarded to applicants.

The Committee of the Leeds Horticultural Society having decided not to hold an Autumnal Show, have liberally offered, in their individual capacity, to render me every possible assistance in preparing the Schedule, and in all the arrangements; offers of assistance have been made by some of the principal growers of the kingdom, who visited the Leeds Horticultural Show last month, and I shall also be glad to receive suggestions from any practical source, so that a first-class Show may be secured.

THOMAS CLAPHAM, Owner of the Royal Park.

NOTICE.—A CATALOGUE of CHOICE NEW PLANTS of 1869, at greatly reduced prices, with select List of DUTCH and other BULBS, with Cultural Notes, ROSES, HARDY HERBACEOUS PLANTS, &c., free on application to W. DILLISTONE, Nurseryman, &c., Sible Hedingham, Essex.

Balsams.

F. AND A. SMITH invite inspection of their magnificent COLLECTION of the above, just COMING INTO FINE BLOOM. The Nurseries, West Dulwich, S.E.

Tricolor Geraniums.

F. AND A. SMITH invite an inspection of their very extensive COLLECTION of the above, now in FINE COLOUR. Their Friends from the country would be well repaid by a visit to the Dulwich Nurseries from this time and during the Autumn. The Nurseries, West Dulwich, S.E.

NEW DOUBLE GERANIUMS.—Twelve fine varieties Double Zonal Geraniums, including Madame Lemoine, for 12s.; 12 best New Zonal Geraniums of 1868 for 6s.; 12 fine varieties Gold and Golden Bicoloured Geraniums for 6s., package included, from B. W. KNIGHT, Florist, Battle, Sussex.

Special Notice.

PRINCE OF WALES' GERANIUM (TRICOLOR.)

JAMES CARTER AND CO. regret their inability to supply more plants of the above splendid novelty this spring. A fresh stock will be ready for distribution in September, from which orders now received will be executed, in strict rotation.

LILIUM AURATUM.—James Carter & Co. invite an inspection of their fine collection of Lilium auratum. Upwards of 1000 plants now coming into bloom at the Nursery.

JAMES CARTER AND CO., 237, 238, & 261, High Holborn, London.

NEW COLEUS.—The 12 New Golden Coleus of the Royal Horticultural Society, sent out in 1869, sent post free for 2s. 6d.; 8 New Coleus of 1869, sent out by W. Bull and E. G. Henderson, post free for 1s. 9d.; the set of 20 varieties, post free, for 4s., from B. W. KNIGHT, Florist, Battle, Sussex.

NEW COLEUS, BEAUTY of WIDMORE.—Distinctly tricolored; leaves beautifully shaped, dark brilliant maroon, belted with bright rose and green edged with silvery white, 3s. 6d. each. 25 distinct varieties, including the above and all other new ones of this season, free by post for 21s.

ALTERNANTHERA AMABILIS.—A new variety, far superior to all the other Alternantheras, 4s. per dozen.

ECHEVERIA METALLICA.—The beautiful Shell Plant, 4s. per dozen.

JAMES CARTER AND CO., Seed Merchants and Nurserymen, 237 and 238, High Holborn, W.C.; and Crystal Palace Nurseries, Forest Hill, S.E.

WILLIAM CHATER'S superb DOUBLE HOLLYHOCKS.—The simplest and safest way to raise them from seed is to sow in the open ground in June, July, and August, and transplant in September. Seed from finest strains, that will produce flowers equal to choice named varieties.

Collection No. 1.—Twelve named varieties, extra fine, 10s.
Collection No. 2.—Six named varieties, extra fine, 5s.
Collection No. 3.—Twelve named varieties, fine, 7s. 6d.
Collection No. 4.—Six named varieties, fine, 4s.
Mixed seed, finest quality, per packet, 1s., 2s. 6d., and 5s.
WILLIAM CHATER, Nurseries, Saffron Walden.

Paul's Roses.

"Mr. Paul's Roses * * * are things to see once and dream of for ever."—*Athenæum.*

WM. PAUL begs to announce that his ROSES are NOW in BLOOM. Inspection respectfully invited. Trains from London, Bishopsgate Station, to Waltham, Great Eastern Railway, 13 times daily.

PAUL'S Nurseries & Seed Warehouse, Waltham Cross, London, N.

Roses in Bloom.

MITCHELL'S RENOWNED ROSES are NOW in MAGNIFICENT BLOOM.

Pilt Down Nurseries, near Uckfield, Sussex.

N.B.—These Nurseries are 2½ miles from the Uckfield Station.

Paul & Son's Roses in Bloom.

PAUL AND SON, The Old Nurseries, Cheshunt, invite an inspection of their Collection. The result of the various Exhibitions confirms their belief that they are finer than usual.

Thirteen Trains from Bishopsgate to Cheshunt. The 8 A.M. and 4.5 P.M., *via* Waltham and Omnibus to Cheshunt.

Established 1806.

T. HANDASYDE AND DAVIDSON have a large stock of TEA, HYBRID PERPETUAL, BOURBON, and CHINA ROSES in pots. Special prices to the Trade on application.

Seed Warehouse, 24, Cockburn Street, Edinburgh.
Nurseries, Brunstain Glen, Musselburgh.

New Roses of 1869.

JOHN HARRISON begs to inform his Friends in the Trade that he has still on hand a large stock of fine plants of the best NEW ROSES of the present year, with fine wood, fit for immediate budding; also strong healthy plants of MARECHAL NIEL, the best yellow Rose, 75s. per 100.

North of England Rose Nursery, Darlington.

Roses.—Grapes.

H. LANE AND SON'S extensive Collection of ROSES is NOW in FULL BLOOM; and the VINERIES, containing over 2000 bunches of 40 leading varieties of GRAPES, are worthy the inspection of their Patrons and Friends.

The Nurseries, Great Berkhamsted, Herts.

Pines.

B. S. WILLIAMS has all the best kinds, in splendid condition, warranted clean. Prices on application.

B. S. WILLIAMS, Seed Merchant and Nurseryman, Upper Holloway, London, N.

GOLDEN CHAMPION GRAPE.—We are now able to supply strong Plants of the above-named remarkable Grape, suitable for inarching on the young wood of established Vines, by which means fruit may be obtained next season. Price 30s. each.

OSBORN AND SONS, Fulham Nursery, London, S.W.

Thomson's White Lady Downe's Grape.

THOMAS METHVEN begs to intimate that in consequence of several requests from Friends wishing Plants of this new VINE at once, he has arranged to have it sent to those who prefer to plant it now. Unless specially desired, orders will not be executed till September.

15, Prince's Street, Edinburgh.—July, 1869.

APPLES and PEARS for SALE.—About 280 Trees. Apply to

T. T. WALKER, Esq., London Street, Kingston-on-Thames.

TO GENTLEMEN, GARDENERS, and OTHERS, having to DISPOSE of CHOICE FRUIT or FLOWERS, &c. They may meet with a ready Sale by applying to

A. IRETON, Covent Garden Market, W.C.

NEW CHRYSANTHEMUMS of 1868, including the New Japan, Large-flowered, and Pompon varieties sent out in 1868, sent post free; 12 fine varieties, 2s. 6d.; 12 Cuttings, in 12 fine varieties, 1s. 2d., from

B. W. KNIGHT, Florist, Battle, Sussex.

NEW VERBENAS of 1869.—Now ready to be sent out, 50 Varieties of New Verbenas, Perry's, Eckford's, W. Knight's, Continental and Italian striped, sent post free; 12 select Varieties for 3s.

From B. W. KNIGHT, Florist, Battle, Sussex.

Verbenas, Verbenas, Verbenas.

FORTY NEW VARIETIES of VERBENAS, 1869, for 10s. Eight NEW GOLDEN COLEUS, Royal Horticultural Society, 1869, for 3s.

PHILIP LADDS, Nursery, Bexley Heath, Kent, S.E.

For Present Sowing.

SUTTONS' CHOICE CALCEOLARIA.
SUTTONS' CHOICE CINERARIA.
SUTTONS' CHOICE PRIMULA FIMBRIATA.

Each 1s. and 2s. 6d. per packet, post free. Saved from the choicest strains in cultivation.

SUTTON AND SONS, Seedsmen to the Queen, Reading.

An Opportunity seldom met with.

T. COOPER, Holmsdale Road, Reigate, Surrey, has a large Collection of SUCCULENT PLANTS, including above 500 species of Cacti, also Agaves, Aloes, Haworthias, &c., and offers them at much less than their real value. Also a number of new and interesting Plants, raised from South African seeds.

Echeveria metallica.

W. DILLISTONE, Nurseryman, &c., Sible Hedingham, Essex, has a few 2s. 6d. and 5s. packets of the above left—fresh new SEED.

ALTERNANTHERA AMABILIS.—This fine new variety, the best of all the Alternantheras, can now be supplied, in good plants, at 4s. per dozen, post free, from

B. W. KNIGHT, Florist, Battle, Sussex.

To the Trade.

GESNERA EXONIENSIS.—Established plants can be supplied at 6s. and 9s. per dozen, by

R. G. VEITCH, New North Road Nursery, Exeter.

Myosotis dissitiflora, Baker.

W. THOMPSON, Seedsman, Tavern Street, Ipswich, begs to offer good PLANTS of the above invaluable Spring Bedder, warranted true stock, at the low price of 4s. per dozen, or 25s. per 100. Early orders are respectfully solicited.

MYOSOTIS DISSITIFLORA, TRUE.—"The best of all the Forget-Me-Nots for Spring decoration. In many Gardens it is known as montana or alpestris, from both of which it differs."—See *Gardeners' Chronicle*, May 22, 1869.

We are now sending out plants of the above-named charming Spring Flower, identical with that grown by Mr. Fish, and which is so truly described by him in the *Gardeners' Chronicle*, May 8, 1869. Price 9s. per dozen, or 60s. per 100.

OSBORN AND SONS, Fulham Nursery, London, S.W.

Seeds Direct from the Growers, the most Effectual Means of Preventing Disappointment.

SUTTON AND SONS, Seed Growers, deliver their Home-grown Seeds, Genuine as Harvested, to all parts of the kingdom. Carriage free (except very small parcels).—Prices and full particulars on application.

SUTTON AND SONS, Seed Growers, Reading.

POST FREE, 1869 GROWTH.—Neill's extra choice strain CALCEOLARIAS, 2s. 6d. each (in sealed packets as made up by Mr. Neill); PRIMULA, Williams' choice strain, warranted, 1s and 2s. per packet; CALCEOLARIA, selected from the best of the leading strains, 1s. and 2s. per packet. Value can be sent in stamps. Established 1812.

WILLIAM ARMITAGE AND SON, Seed Merchants, Huddersfield.

New Seed, 1869.

F. AND A. SMITH beg to offer the following, saved from their unrivalled Collection, and just harvested in fine condition:—CALCEOLARIA, CINERARIA, PANSY, GERANIUM (Variegated), &c.; PRIMULA FIMBRIATA (Crimson and White), INTERMEDIATE STOCK, &c. Special offer to the Trade forwarded on application.

The Nurseries, West Dulwich, S.E.

British Fern Catalogue.

ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

Foot's Cray Nursery, Sidcup Hill, Kent.

Ferns, British and Exotic, at reduced prices.

A. STANSFIELD AND SON beg to state that their CATALOGUE, No. 8, is now ready, and will be forwarded on receipt of three stamps. The above Catalogue contains 40 pages of matter, including partial descriptions and cultural remarks.

Vale Nurseries, Todmorden, Lancashire.

Now Ready, Post Free to all Applicants.

B. S. WILLIAMS' CATALOGUE of NEW and RARE PLANTS, 1869, containing the most beautiful and select of the latest introductions and Supplementary Lists of the General Collection.

Victoria and Paradise Nursery, Upper Holloway, London, N.

Gladioli, the most Extensive Collection.

BARR AND SUGDEN, 12, King Street, Covent Garden, W.C., have the finest and largest collection of GLADIOLI ever offered, prices varying from 2d. to 15s. per root. For particulars see pp. 68, 69, 70, and 71 of B. & S.'s SPRING SEED CATALOGUE.

BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.

Choice Seeds, Gladioli, &c.

WM. CUTBUSH AND SON'S CATALOGUE of the above contains description and price of many very superior home-grown VEGETABLE and FLOWER SEEDS, and choice varieties of GLADIOLI, &c., all of which are highly recommended. Post free on application.

Highgate Nurseries, London, N.

EVERY GARDEN REQUISITE KEPT in STOCK at CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

A SPECIAL PRIZE MEDAL, PARIS, 1867, was AWARDED to James Carter & Co., 237 & 238, High Holborn, London, W.C., for GRASS SEEDS, supplied for the Exhibition Grounds.

GRASS SEEDS: WHEN and WHAT to SOW.—For the fullest information on this subject, see CARTER'S ILLUSTRATED FARMER'S CALENDAR for 1869; post free, 6d.

JAMES CARTER AND CO., Seed Growers, 237 and 238, High Holborn, London, W.C.

PARIS, 1867. SUTTONS' GRASS SEEDS for ALL SOILS. A PREMIER PRIX SILVER MEDAL for GARDEN SEEDS, GRASSES, and GRASS SEEDS, was Awarded to SUTTON AND SONS, Seedsmen to the Queen, Reading, Berks.

Improvement of Grass-lands at from 4s. 6d. to 9s. per Acre.

SUTTONS' RENOVATING MIXTURE should be sown after the Hay is carried. From 6 to 12 lb. required per acre. Price 9d. per lb., 8os. per cwt. Carriage free.

SUTTON AND SONS, Seedsmen to the Queen, Reading.

Cabbage Seed.

SUTTONS' IMPERIAL, ENFIELD MARKET, NONPARIEL, IMPROVED EARLY OX-HEART, and other varieties, for sowing during the next two months, at very moderate prices. Lowest price per lb. on application to

SUTTON AND SONS, Seed Growers, Reading.

New Turnip Seeds, Harvest 1869.

SUTTON AND SONS have just harvested, in good condition, fine seed of the leading kinds of TURNIPS, suitable for present sowing. For prices apply to

SUTTON AND SONS, Seed Growers, Reading, Berks.

New Turnip Seed.

ALFRED LEGERTON, Seed Merchant, 5, Aldgate, London, E., can supply all the leading varieties of the above, of crop 1869. All are fine samples, and good stocks.

SPECIAL LIST of other Agricultural and Garden Seeds, in Growing Crops, is Now Ready, and can be had upon application.

To the Seed Trade.

NEW GENUINE TURNIP SEED, from selected stocks of Devonshire Grey Stone, Stubble, or Mouse Tail. For price and terms apply to

Mr. GEO. HARDY, Seed Grower, Braintree, Essex.

To the Trade.

TURNIP and MANGEL SEEDS, growing crop of 1869, splendid stocks, various kinds.

FREDK. GEE invites attention to the above, and will be pleased to make special offers of the same on advantageous terms.

Seed Establishment, Biggleswade, Beds.

To Farmers, Gardeners, and Others.

F. GEE can still supply excellent strong Cabbage, Cauliflower, Brussels Sprouts, Savoy, Scotch Kale, splendid Variegated Kale, and other PLANTS. Genuine new unadulterated Cabbage, Turnip, Mustard, Cole SEED, &c. Prices, which are low, had on application.—Seed Establishment, Biggleswade, Beds.

RICHARD WALKER has to offer, for cash, ENFIELD MARKET CABBAGE PLANTS, 2s. 6d. per 1000; ROBINSON'S CHAMPION DRUMHEADS, 2s. 3d. per 1000; WALCHEREN CAULIFLOWER PLANTS, 6s. per 1000, true; KNIGHT'S PROTECTING BROCCOLI PLANTS, and many other sorts, at 2s. per 1000; MANCHESTER RED CELERY PLANTS, 1s. per 100.

Biggleswade Market Gardens.

GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT, MANUFACTURER



TO HER MOST GRACIOUS MAJESTY THE QUEEN.

THE Extraordinary Success of GREEN'S PATENT LAWN MOWERS is an established fact. During the last five years the demand has been unprecedented, which alone is a proof of their superiority over all others. The following are their characteristic features:—

1st. **Simplicity of Construction, every part being free of access.**
2d. **They are worked with far greater ease than any other Lawn Mower.**
3d. **They are the least liable to get out of order.**

IMPORTANT NOTICE.

Trial at the London Horticultural Society's Gardens, Chiswick, June 5, 1857; four competitors: — First Trial on level ground, Second Trial on undulated; Third Trial on intricate places, around trees, &c.,—when GREEN'S PATENT was unanimously declared to be the best in each Trial by COLONEL CHALLONER, DR. LINDLEY, and G. MCEWEN, Esq., the appointed Judges, and on every subsequent Trial to the above have GREEN'S PATENT LAWN MOWERS carried off every Prize that has been given in competition for superiority in every point.

PRIZE MEDALS AWARDED TO GREEN'S PATENT LAWN MOWERS.

FIRST PRIZE MEDAL AT THE INTERNATIONAL EXHIBITION, LONDON, 1862.
FIRST PRIZE MEDAL AT THE INTERNATIONAL EXHIBITION, DUBLIN, 1865.
FIRST PRIZE MEDAL AT THE NAMUR EXHIBITION.
FIRST PRIZE MEDAL AT THE GAND EXHIBITION.
FIRST PRIZE MEDAL AT THE LAEKEN EXHIBITION.
FIRST PRIZE MEDAL AT THE LINEENE EXHIBITION.
FIRST PRIZE MEDAL AT THE BRUSSELS EXHIBITION, *on two occasions.*
FIRST PRIZE MEDAL AT THE HAMBURG EXHIBITION.

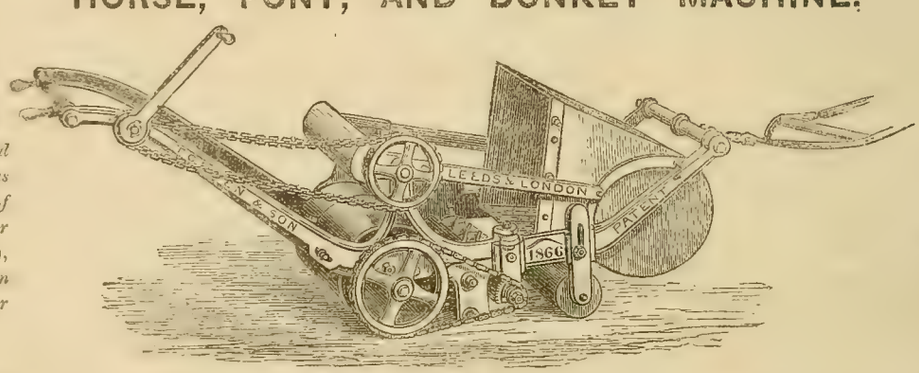
THEY ARE THE ONLY MACHINES IN CONSTANT USE AT

THE ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON
THE ROYAL BOTANIC GARDENS, REGENT'S PARK
THE CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM
BUCKINGHAM PALACE GARDENS
MARLBOROUGH HOUSE
THE HYDE PARK GARDENS
THE WINTER PALACE GARDENS, DUBLIN
THE DUBLIN BOTANIC GARDENS
THE LIVERPOOL BOTANIC GARDENS
THE LEEDS ROYAL PARK
THE HULL BOTANIC GARDENS
THE BOTANIC GARDENS, BRUSSEL
THE SUNDERLAND PARK
THE PRESTON PARK

AND IN MOST OF THE PRINCIPAL PARKS, SQUARES, ETC., IN THE UNITED KINGDOM.

HORSE, PONY, AND DONKEY MACHINE.

GREEN'S PATENT LAWN MOWERS *have proved to be the best, and carried off every Prize that has been given in all cases of competition. Since the first year they were introduced* (1856), *upwards of* 46,000 *have been sold, and* 25,000 *of that number during the last five seasons.*



T. GREEN & SON *warrant every Machine to give entire satisfaction, and if not approved of can be returned unconditionally.*

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

PONY AND DONKEY MACHINES.

To Cut 26 inches	£13	0	0	*Leather Boots for Donkey*, 18*s.* *Leather Boots for Pony*, 22*s.*	
„ 23 „	15	0	0		
„ 20 „	17	0	0		

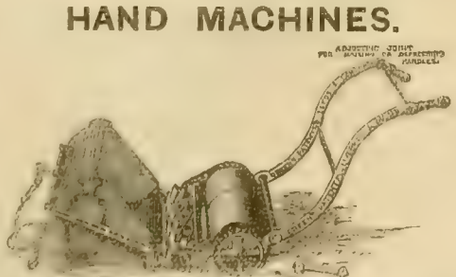
HORSE MACHINES.

To Cut 30 inches	£21	0	0	*Leather Boots for Horse*, 26*s.*	
„ 36 „	24	0	0		
„ 42 „	27	0	0		
„ 48 „	30	0	0		

Both the Horse, Pony, Donkey, and Hand Machines possess (over all other Makers) the advantage of Self-sharpening. The cutters being steel on each side, when they become dull or blunt by running one way round, the cylinder can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the Machine will cut equal to new. Arrangements are made that the cylinder can be reversed, by any inexperienced person, in two or three minutes.

HAND MACHINES.

To Cut 10 inches ..	£3	10	0	*Suitable for a Lady*	
„ 12 „ ..	4	10	0	„	„
„ 14 „ ..	5	10	0	*Suitable for One Person*	
„ 16 „ ..	6	10	0	„	„



To Cut 18 inches ..	£7	10	0	*Suitable for One Person.*	
„ 20 „ ..	8	0	0	*Suitable for Two Persons*	
„ 22 „ ..	8	10	0	„	„
„ 24 „ ..	9	0	0	„	„

Packing Cases are charged at the following low rates, viz.:—For the 10 and 12-inch Machine, 3*s.*; 14 and 16-inch, 4*s.*; 18 and 20-inch, 5*s.*; 22 and 24-inch, 6*s.* Parties providing themselves with Lawn Mowers are recommended to purchase the cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England, Ireland, and Scotland.

HORTICULTURAL and AGRICULTURAL IMPLEMENTS, GARDEN SEATS and CHAIRS, FOUNTAINS, VASES, PLAIN and GALVANISED WIRE NETTING, and ORNAMENTAL WIRE WORK of every description.

Having very extensive Premises in London, we are in a position to do all kinds of Repairs there, as well as at our Leeds Establishment.

Having a large quantity of MACHINES in stock at our Leeds and London Establishments, we are in a position to execute Orders on the day they are received.

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;
and 54 & 55, BLACKFRIARS ROAD, LONDON, S.

ROYAL AGRICULTURAL SHOW AT MANCHESTER, JULY 19 TO 24, 1869.

RANSOMES, SIMS & HEAD, IPSWICH,

WILL EXHIBIT A LARGE COLLECTION OF

PORTABLE STEAM ENGINES, SINGLE BLAST AND FINISHING THRESHING MACHINES,

PLOUGHS FOR ALL PURPOSES, PATENT HAYMAKERS, HORSE RAKES AND HARROWS,

CORN SCREENS, BEAN AND OAT MILLS, CHAFF CUTTERS AND PULPERS.

MACHINERY IN MOTION, STAND No. 299. ORDINARY SHEDDING STAND, No. 53.

HORTICULTURAL BUILDINGS.

CONSERVATORIES, PLANT HOUSES, VINERIES, PEACH HOUSES,

CUCUMBER AND PINE PITS, &c.,

ERECTED AND HEATED ON THE MOST APPROVED PRINCIPLES.

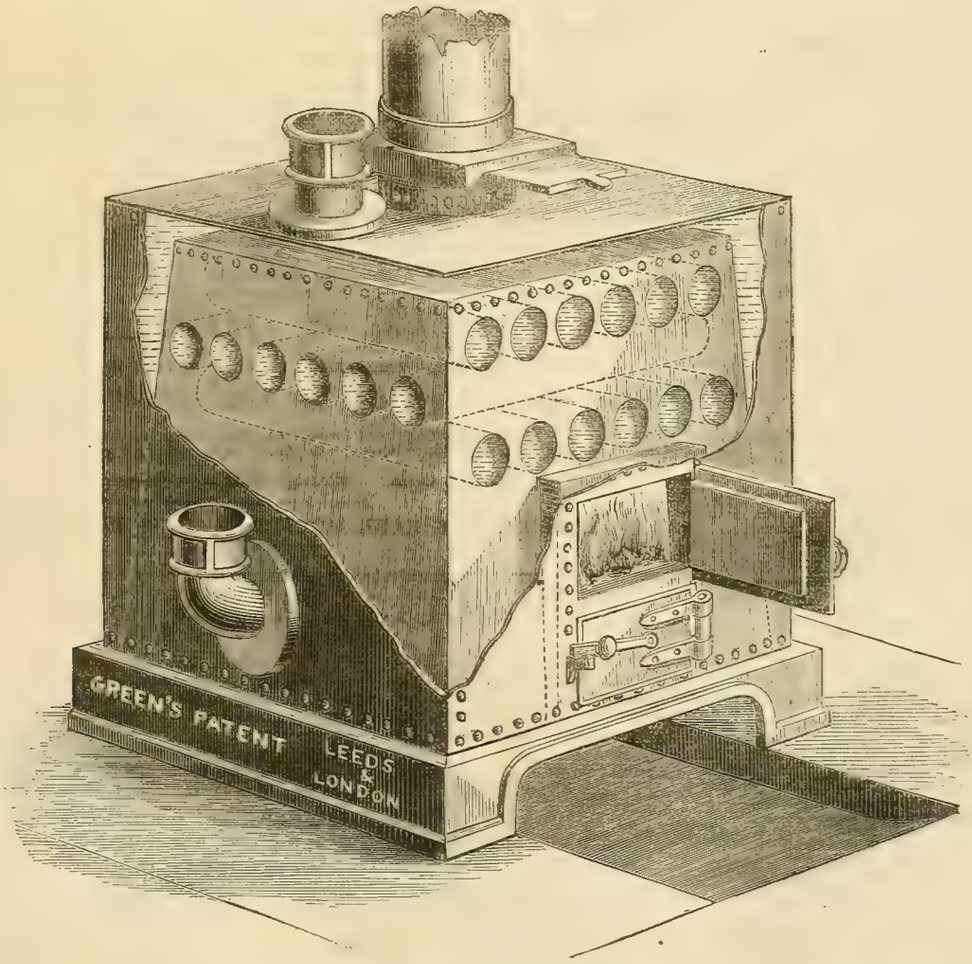
PETER JAMES PERRY,

HORTICULTURAL BUILDER AND HOT-WATER APPARATUS MANUFACTURER,

BANBURY.

☞ *PLANS, SPECIFICATIONS, AND ESTIMATES SUPPLIED ON APPLICATION.*

GREEN'S PATENT IMPROVED TUBULAR HOT-WATER BOILER.



THEY ARE SPECIALLY ADAPTED FOR

HEATING GREENHOUSES, CHURCHES, CHAPELS, SCHOOLS,

PUBLIC BUILDINGS, WAREHOUSES, WORKSHOPS, &c.

ILLUSTRATED PRICE LISTS FREE ON APPLICATION TO

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;

and 54 & 55, BLACKFRIARS ROAD, LONDON, S.E.

New Nosegay Geranium Charley Casbon.

CASBON AND SON are now sending out the above beautiful GERANIUM. It is of dwarf spreading growth; the flowers, which have broad petals, are freely borne in immense trusses. Colour, the richest scarlet of any variety known. Strong plants 5s. each. The usual allowance to the Trade.
Gravel Walk Nursery, Peterborough.

Choice Primula, growth 1869.

PONSFORD AND SON beg to offer this year's Seed of one of the finest strains of FIMBRIATED PRIMULA in cultivation. In packets of 50 growing seeds, 2s. 6d.
In packets of 110 growing seeds, 5s.
Special packets for the Trade, 5s., 10s. 6d., 21s.
PRIMULA FILICIFOLIA, true, 2s. 6d. per packet.
Also some Continental Novelties in CHINESE PRIMULAS, highly recommended, 2s. 6d. per packet. Choice CINERARIA and CALCEOLARIA, &c., for present sowing.
Nurseries, Loughborough Park.
Seed Department, Brixton Place, Brixton, Surrey, S.W.

The Royal Seedsmen.

James Carter & Co. Seed Growers

237, 238, and 261, HIGH HOLBORN, LONDON, W.C.

SEED FARMS:
JUPE'S HILL FARM, DEDHAM, ESSEX;
GOD'S HOUSE FARM, ARDLEIGH, ESSEX;
EAST HOUSE FARM, DEDHAM, ESSEX;
THE SEED FARM, ST. OSYTH, ESSEX.

CARTER'S GRASS SEEDS, as supplied to H. M. G. MAJESTY the QUEEN, and H. R. H. the PRINCE of WALES.

Finest quality, per acre, 28s. to 35s.

For full particulars see CARTER'S FARMER'S CALENDAR for 1869 (Illustrated). Post free, 6d.; gratis to customers.

CARTER'S IMPERIAL HARDY SWEDE,
The hardiest and best in cultivation. Price 1s. per lb.; cheaper per cwt.

EVIDENCE OF QUALITY.

C. J. WARD, Esq., Stanilands, writes:—"The Swede Turnips (from your seed) *were the best in the neighbourhood.*"

From A. LAURIE, Esq., Boxhead:—"Your Imperial Swede *is the best that has been seen in this locality.*"

M. BARROW, Esq., Kendal, says:—"The Swede Turnip (Carter's Imperial) was very good; I shall certainly have more in the Spring."

CARTER'S PRIZE SWEDE AND TURNIP.

	Per lb.—s. d.
HALL'S WESTBURY SWEDE	0 10
HARTLEY'S SHORT-TOP SWEDE, a large mottle-top variety	1 0
CARTER'S CHAMPION HYBRID TURNIP, fine quality	1 3
CARTER'S DEVONSHIRE GREYSTONE TURNIP	1 0
CARTER'S EARLY NIMBLE or SIX-WEEK, a very quick-growing variety	1 0
POMERANIAN WHITE GLOBE, a handsome variety	0 10
IMPERIAL GREEN GLOBE, a heavy cropper	0 9
LINCOLNSHIRE RED GLOBE (very hardy)	0 10

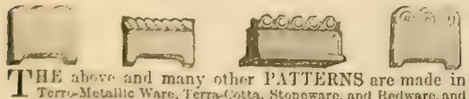
Cheaper per cwt. or bushel.

For full descriptions of CARTER'S Prize Stocks of Mangel, Turnips, Grasses, and other Farm Seeds, harvested on their own Seed Farms, see "Carter's Illustrated Farmer's Calendar for 1869." Post free, 6d. (gratis to purchasers.)

JAMES CARTER AND CO., 237, 238, & 261, High Holborn, London.

KENT FIBROUS PEAT, of first-class quality, for all Potting purposes, and American Plants, may be obtained on application to Mr. THOMAS JESSOP, Farningham Wood, near Sevenoaks Junction Station (Dartford), price 5s. per cubic yard, dispatched per London, Chatham, and Dover Railway, in trucks of Imperial measure, for most Stations in the kingdom. It has been extensively used and appreciated in the principal Nurseries and Royal Parks and Gardens.

Rosher's Garden Edging Tiles.



THE above and many other PATTERNS are made in Terro-Metallic Ware, Terra-Cotta, Stoneware, and Redware, and of great durability. The planer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.
GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability and superior finish, and in much variety of design.



F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.E. Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs. Likewise more elaborate designs. Pattern Sheets of Pavements, with prices, forwarded for selection.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.
To be obtained of F. & G. ROSHER, at their premises as above.

SILVER SAND (REIGATE), at the above addresses—1s. per Ton, 1s. 2d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less. A coarser grained Sand 1s. per ton more. Samples of Sand by post, on receipt of stamp.
FLINTS and RED BRICKS for Rockeries or Fernéries. KENT PEAT and LOAM supplied at lowest rates.
F. & G. ROSHER.—Address see above.
N.B. Orders promptly executed by Railway or Vessel.
A liberal discount to the Trade.

STAND No. 330, ROYAL AGRICULTURAL SOCIETY.

DICKSONS & BROWN
(NOW DICKSON, BROWN, AND TAIT),
SEED MERCHANTS, CORPORATION STREET, MANCHESTER,

Beg to intimate that they have the above STAND (Second Stand left-hand side on entrance), where they will
EXHIBIT A COLLECTION OF GRASSES, CLOVERS, CEREALS, &c.;
And they will be pleased to see any of their Customers and Friends from the country who may be visiting the Show.

MANCHESTER MEETING, ROYAL AGRICULTURAL SOCIETY.

JAMES CARTER & CO.,
THE ROYAL SEEDSMEN,
237 AND 238, HIGH HOLBORN, LONDON, W.C.,
INVITE INSPECTION OF THE LARGE AND VARIED
COLLECTION of SAMPLES of CARTER'S PRIZE MEDAL SEEDS,
ON VIEW AND SALE AT
STAND 323, IMPLEMENT DEPARTMENT.
JAMES CARTER AND CO., GROWERS AND DISTRIBUTORS OF GENUINE SEEDS,
237 AND 238, HIGH HOLBORN, LONDON, W.C.

THE ROYAL AGRICULTURAL AND HORTICULTURAL SOCIETIES' MEETINGS, 1869.

IMPLEMENT DEPARTMENT,
STAND No. 317.

SUTTON'S HOME-GROWN SEEDS
A FIRST PRIZE
SILVER MEDAL, PARIS, 1862

SUTTON & SONS,
SEEDSMEN TO THE QUEEN,
ROYAL BERKS SEED ESTABLISHMENT, READING,

SUTTON'S HOME-GROWN SEEDS
A FIRST PRIZE
SILVER MEDAL, PARIS, 1862

Will exhibit SAMPLES of their HOME-GROWN PURE and UNADULTERATED SEEDS, DRIED and GROWING SPECIMENS of PERMANENT NATURAL GRASSES and CLOVERS, and a MISCELLANEOUS ASSORTMENT of HORTICULTURAL and AGRICULTURAL PRODUCE, to which they respectfully invite the attention of Visitors. PRICED DESCRIPTIVE CATALOGUES may be had on application.
☞ *All Goods £1 and upwards in value Carriage Free by Rail.*
SUTTON AND SONS, SEED GROWERS, READING, BERKS.

DIPLADENIA AMŒNA.

J. W. WIMSETT
HAS GREAT PLEASURE IN ANNOUNCING THAT HE HAS PURCHASED
THE WHOLE STOCK OF THE ABOVE BEAUTIFUL PLANT,
Raised by Mr. Tuke, of Bramley, near Leeds, who also raised the lovely Dipladenia amabilis. A Figure of the beautiful D. amœna is given in the "Florist" for April, 1868. Plants now ready for distribution.
Price 1½ Guinea each. Strong Half Specimens, 5 and 7 Guineas each.
ASHBURNHAM PARK NURSERY, KING'S ROAD, CHELSEA, S.W.
May 1. J. WILLS, F.R.H.S., Manager.

SEED ADULTERATION BILL OF 1869.

It having been intimated to the Promoters of the above Bill that Members of the Seed Trade throughout the country are desirous of assisting in carrying the Bill through Parliament, it is hereby notified that SUBSCRIPTIONS for that purpose may be paid to the Treasurer, THOS. THORNTON, Esq., 2, St. Thomas Street, Borough, S.E.; or to the EDITORS of the *Gardeners' Chronicle*, who have consented to receive Subscriptions, and by whom their receipt will be acknowledged in the *Gardeners' Chronicle*.

The MEMBERS of the COMMITTEE of PROMOTERS of the SEED ADULTERATION BILL of 1869, who have each SUBSCRIBED £20 as a GUARANTEE FUND towards the expenses of the Bill, are:—

CHAIRMAN—CHARLES SHARPE, Sleaford.
TREASURER—T. THORNTON, 2, St. Thomas Street, Borough.

COMMITTEE.

ALEXANDER, G. J., Dublin
ASHWIN AND CO., Stratford-on-Avon
BECK, HENDERSON, AND CHILD, London
BELL, JOHN, Norwich
CARTER, DUNNETT, AND BEALE, London
DICKSON, F. AND A., AND SONS, Chester
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DICKSON AND TURNBULL, Perth
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DRUMMOND AND SONS, Dublin
EDGAR, ROBERT, Edinburgh
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FARRELL, F., AND SONS, Dublin
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HORSCHITZ AND CO., London
HURST AND SON, London
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McKENZIE, T., AND SONS, Dublin, Belfast, and Cork
MACKEY, J. W., Dublin
MATTHEWS, R. B., Belfast
RAINEY, WILLIAM, AND SON, Boston
RAYNBIRD, CALDECOTT, AND CO. (Limited), Basingstoke
SHARPE, C., AND CO., Sleaford
SHARPE, H. AND F., Wisbeach
STUART AND MEIN, Kelso
SUTTON AND SONS, Reading
THEW AND SON, Alnwick
THORNTON, KENNEDY, AND HEY, London
WAITE, BURNELL, AND CO., London
WARD AND CO., Bristol
WHEELER, J. C., AND SONS, Gloucester
WYLES, J., AND CO., Grantham

HONORARY SECRETARIES.

E. J. BEALE, 237 and 238, High Holborn, London. | J. ROBERTSON, 22, Mary Street, Dublin. | R. EDGAR, Edinburgh.

Inserted by Order of THE COMMITTEE of PROMOTERS of the BILL.

CARTER'S PRIMULA, CALCEOLARIA, and CINERARIA.

J. C. & Co.'s strain of Calceolaria is saved from plants that were awarded a 1st Prize at the late International Show. The Cineraria and Primula stocks are also saved from the finest Prize Varieties, and cannot be surpassed.

CALCEOLARIA and CINERARIA.

Per packet—s. d.	Per packet—s. d.
Calceolaria, finest hybrid .. 2 6	Calceolaria, Dobson's strain.. 2 6
" " spotted .. 2 6	Cineraria, extra fine 2 6

PRIMULA.

Per packet—s. d.	Per packet—s. d.
Primula, choicest mixed, fringed 2 6	Primula, choicest white fringed 2 6
" " dark carmine, fringed 2 6	" " Fern-leaved carmine 2 6
" " rose fringed 2 6	" " white .. 2 6

CALCEOLARIA INTERNATIONAL PRIZE.—The Seed of this superb strain cannot fail to produce splendid varieties, as last season's plants took 1st Prizes wherever exhibited. Per pckt., 2s. 6d.

PRIMULA FIMBRIATA (New scarlet).—This is a decided novelty, being of a deep scarlet colour, and cannot fail to be much admired wherever grown. Per packet, 2s. 6d.

INDIA-RUBBER HOSE at Manufacturer's prices, 60 feet (with complete fittings), 25s.

JAMES CARTER AND CO., The Royal Seedsmen, 237 and 238, High Holborn, London, W.C.

JAMES CARTER AND CO. can now offer strong well-grown CANES of the FOLLOWING VINES, this year's growth. If planted now a season will be saved.

Price 7s. 6d. to 12s. 6d. each.

Ridwill's Seedling	Golden Hamburgh
Black Alicante	Lady Downe's Seedling
" Barbarossa	Madresfield Court Black Muscat
" Hamburgh	Morris' Black Grape
" Morocco	Mrs. Pince's Black Muscat
" Prince	Muscat Hamburgh
Buckland Sweetwater	" of Alexandria
Charlesworth Tokay	Royal Ascot
Duchess of Buccleuch	" Muscadine
Frankenthal	Trentham Black
Golden Champion	White Frontignan

JAMES CARTER AND CO., Seed Merchants and Nurserymen, 237 and 238, High Holborn, W.C.; and Crystal Palace Nurseries, Forest Hill, S.E.

JAMES CARTER AND CO. having often had applications for STRAWBERRIES earlier in the season than they could be supplied from same year's runners, have planted out an enormous stock of last year's late runners, and can now offer strong plants of the undermentioned varieties, and if planted from henceforth in favourable weather they will guarantee to produce good crops next year.

Black Prince	Frogmore Late Pine	Princess Royal
British Queen	Goliath	Rifleman
Carolina Superba	Keen's Seedling	Sir Charles Napier
Comte de Paris	Nonsuch	Sir Harry
Crimson Queen	Oscar	Standard Bearer
Dr. Hogg	President	Victoria
Elton Pine	Prince of Wales	Wizard of the North
Filbert Pine	Princess Alice Maude	Wonderful

Price 5s. and 7s. 6d. per 100.

NEW CONTINENTAL VARIETIES.

Bonté St. Julien	La Châlonnaise	Sabreur
Boule d'Or	La Petite Marie	Topsy
Duc de Malakoff	Lecoq Pine	La Belle Bordelaise
Globe	Marguerite	De Versailles
Gwenlver	Napoléon III.	Janus

Price 10s. 6d. to 15s. per 100.

JAMES CARTER AND CO., Seed Merchants and Nurserymen, 237 and 238, High Holborn, W.C.; and Crystal Palace Nurseries, Forest Hill, S.E.

NEW VINES.—MADRESFIELD COURT BLACK MUSCAT, 15s. and 21s. MRS. PINCE'S BLACK MUSCAT, 7s. 6d. and 10s. 6d. GOLDEN CHAMPION, 21s. and 31s. 6d.

JOHN AND CHARLES LEE can supply strong healthy Canes of the above, for Inarching or present Planting, by which a season may be saved.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

New and Choice Flower Seeds, Post Free.

B. S. WILLIAMS, SEED MERCHANT AND NURSERYMAN,

Victoria and Paradise Nursery, Upper Holloway, London, N.

	Per packet.—s. d.
WILLIAMS' SUPERB STRAIN of PRIMULA.—B. S. W. can with confidence offer his superb strain of Primula as being the finest in cultivation.	
Red, White, or Mixed .. .. .. 2s. 6d., 3s. 6d., and	5 0
CINERARIA, Weatherill's choice strain, the best in cultivation .. .. 2s. 6d., 3s. 6d., and	5 0
CALCEOLARIA (Neill's extra choice strain), 2s. 6d., 3s. 6d., and	5 0
" (Dalkeith Palace strain) .. ..1s. 6d. and	2 6
CARNATION, from Prize Flowers	1 0
CYCLAMEN (Wiggins' prize strain) .. 1s. 6d., 2s. 6d., and	3 6
POLYANTHUS (Wiggins' prize strain) .. .. 1s. 6d. and	2 6
CLIANTHUS DAMPIERI (fresh imported seed)	1 6
GERANIUM LE GRAND .. .. 1s. 6d. and	2 6
SOLANUM (Weatherill's hybrids).—B. S. W. was awarded a Special Certificate for a Collection exhibited before the Floral Committee, December 15, 1868 2s. 6d., 3s. 6d., and	5 0
ECHEVERIA METALLICA (new Bedding plant)	2 6
HOLLYHOCK, from the best named sorts..	1 0
PANSY, from prize flowers	1 0
" finest Belgian varieties	1 0
PINK, Double-fringed, very fine	1 0
PICOTEE (from prize flowers)	1 0
WEET WILLIAM, Hunt's Auricula-eyed .. 6d. and	1 0
OXALIS VALDIVIANA, quite hardy, the flowers are bright yellow and sweet scented, and produced in bunches of large size (new)	1 0
MYOSOTIS AZORICA ALBA, the flowers are pure white, contrasting beautifully with the blue variety Cœlestina (new)	2 6
MYOSOTIS AZORICA var. CŒLESTINA, beautiful sky blue	1 6
ANTIRRHINUM ASARINA, very beautiful for rockwork (new)	1 0
VIOLA LUTEA (yellow-flowered Violet) .. .. 1s. 6d. and	2 6
TACSONIA VAN VOLXEMII, a beautiful greenhouse climber	2 6
WALLFLOWER (Saunders), fine dark variety	1 0

Victoria and Paradise Nursery, Upper Holloway, London, N.

Magnificent New Plant.

GESNERA EXONIENSIS.—This is acknowledged by all who have seen it to be the finest winter-blooming plant ever yet offered. The colour of the flowers is an intense orange-scarlet; the leaf is of a dark velvety texture, studded with minute red hairs like plush; nothing can be imagined more brilliant than the mass of bloom, which, when well grown, is 20 inches through. Fine tubers, that will bloom this year, at 5s. and 7s. 6d. each, sent free by post.

LUCOMBE, PINCE & Co. respectfully beg to call attention to their unsurpassed strain of CINERARIA SEED, embracing the most magnificent varieties, whether for compactness of habit, variety, richness of colour, abundance of bloom—is unequalled. Saved this season from the finest flowers, which have been the admiration of all who have seen them. Price 2s. 6d. per packet.

Superb New Late GRAPE, MRS. PINCE'S BLACK MUSCAT, may now be seen in full perfection. This is acknowledged to be the finest Grape extant. Splendid Canes, now ready for immediate planting, 7s. 6d. and 10s. 6d. each. Fine planting Canes of other kinds, a List of which can be sent on application.

L., P. & Co. also call special attention to their fine stock of TURNIP SEEDS.

Genuine Seeds of all the best kinds may be had at the lowest possible cost. PRICED LIST on application.

Exeter Nursery, Exeter.

New Hardy Plant,

To be sent out in September, 1869. For plate and full description, see "Botanical Magazine," t. 5726, No. 285, in which Dr. Hooker says:—

SPIREA PALMATA. "By far the handsomest species of the genus hitherto imported, and certainly one of the most beautiful hardy plants in cultivation; the deep purple-red of the stems and branches, passing into the crimson-purple of the glorious broad cymules of flowers, contrasts most exquisitely with the foliage, which in autumn assumes beautiful tints of brown and golden-yellow. Spiræa palmata was introduced by Mr. Fortune from Japan, and has proved itself perfectly hardy in the most exposed position."

CHARLES NOBLE having the entire Stock of this fine Plant, intends sending it out next September, at 21s. each. Orders are requested early, as the Stock is limited.—Bagshot, June, 1869.

Choice Flower Seeds for Autumn Sowing.

DOWNIE, LAIRD, AND LAING have the pleasure of offering the following choice Flower Seeds:—

CALCEOLARIA, Hybridised, saved from a superb First Prize Collection, 2s. 6d., 3s. 6d., 5s. per pkt.

CINERARIA, extra choice, saved from an unequalled assortment of named flowers, 1s. 6d., 2s. 6d., 3s. 6d. per pkt.

HOLLYHOCK, extra fine, saved from our own magnificent collection, in 12 colours, 5s. per collection.

HOLLYHOCK, extra fine, saved from our own magnificent collection, mixed, 1s., 2s., 3s. 6d. per pkt.

PANSY, Show, saved from our unrivalled Exhibition Flowers, 1s., 1s. 6d., 2s. 6d. per pkt.

PANSY, Fancy, saved from a selection of the most beautiful colours, 1s., 1s. 6d., 2s. 6d. per pkt.

PRIMULA, Fringed (Red and White), saved from the finest strain in cultivation, 2s. 6d., 3s. 6d., 5s. per pkt.

PRIMULA, Fern-leaved (Red and White), saved from the finest strain in cultivation, 2s. 6d., 3s. 6d., 5s. per pkt.

Stanstead Park, Forest Hill, London, S.E.; and at Edinburgh.

Hardy and other Bedding Plants.

ROBERT PARKER begs to offer the under-named, all of which can be supplied in strong, healthy plants:—

Per doz.—s. d.	Per doz.—s. d.
Dactylis glomerata oleagantissima 4 0	Pansy, Cliveden Yellow .. 3 0
Echeveria metallica, 6s. to 30 0	" Great Eastern .. 3 0
" pumila .. 9 0	" Imperial Blue .. 18 0
" secunda glauca 9 0	Pachyphytum bracteatum 12 0
Lithospermum prostratum (fruticosum) 9 0	Sempervivum californicum 4 0
Pansy, Cliveden Blue .. 3 0	Tritoma grandis 12 0
" " Purple .. 3 0	" uvaria glaucescens 9 0
	Viola lutea sempertlorens 4 0
	" cornuta alba 4 0

Special quotations may be had, if required, for the above, and many other kinds, by the 100, or in larger quantities.

Exotic Nursery, Tooting, Surrey, S.W.

THE ROYAL HORTICULTURAL SOCIETY of LONDON.

GRAND FRUIT and FLOWER SHOW.

This Exhibition will be held upon Land adjoining the Royal Agricultural Society's Show Yard, at Old Trafford, Manchester, from MONDAY, July 19, to SATURDAY, July 24, inclusive.

All ENTRIES must be made before JULY 5.

The Exhibition will be Open to Visitors at 3 o'Clock P.M. on Monday the 19th, and on the remaining days at 10 A.M.

TERMS of ADMISSION.—Monday and Tuesday, 5s.; Wednesday, 2s. 6d.; Thursday and Friday, 1s. each day; Saturday, 6d. Monday and Tuesday's Tickets may be had at 4s. each, up to Saturday the 17th, at 96, King Street.

SEASON TICKETS (not transferable), giving admission for the whole period, may be had up to Monday the 19th, price 10s. 6d. each. Any Ticket transferred will be forfeited.

Arrangements have been made with the Royal Agricultural Society for Visitors to pass and repass from one Show to the other after payment at each.

The Band of Her Majesty's 1st Life Guards, as also that of the 68th Regiment of Infantry now stationed at Manchester, have been specially engaged to play on each day of the Show.

His Serene Highness the Prince of Teck will distribute the Prizes in the Show Ground on Wednesday, July 21, at 5 P.M.

By Order. JAMES RICHARDS, Assistant Secretary.

Kensington, 21st June, 1869.

The Gardeners' Chronicle.

SATURDAY, JULY 17, 1869.

MEETINGS FOR THE ENSUING WEEK.

MONDAY, July 19 to SATURDAY, — 24	Royal Horticultural (Show at Manchester).	
TUESDAY, — 20	Royal Horticultural (Fruit and Floral Committees), at Manchester	11 A.M.
	Ditto (General Meeting)	3 P.M.

In the early part of last year we directed attention to the IMPORTATION of FOREIGN FRUITS, especially to Pines, from the islands of the Azores, and to Melons from Valencia. Throughout the succeeding autumn, and far into the winter, the Melons were both large in size and excellent in quality. These Valencia Melons we have tried to grow, but though less luxuriant than some other kinds, they proved very shy bearers, none of the plants producing more than two fruits. The quality, too, was not first-rate as compared with the imported specimens, the inferiority, no doubt, arising from want of sunlight. While Melons of 3 lb. to 5 lb. weight, and of superior quality, can be purchased for half-a-crown, it certainly would be a waste of means for the British gardener to attempt to grow them for winter use.

Of Pines during the season several small consignments from St. Michael's were offered to public competition in Liverpool and Hull. These arrived in excellent condition, being as fresh and well coloured as if only just cut. Of this we need have no better proof than the prices realised for the first six fruits offered on Dec. 16, viz., 34s., 27s. 6d., 25s., 21s., 18s., and 10s.—the size of the fruit and its condition governing the amount paid. These Pines had been grown in the open soil, a light, unctuous, and dark-coloured loam, rich in vegetable matter, but destitute of fibre. Each plant with its fruit was potted for importation into an 8-inch pot, the leaves being cut off just above the crown of the fruit; then the pot was placed in a rough box, with the sides lathed for ventilation, and in that way it was conveyed and offered for sale. What would strike the Pine cultivator, judging from the specimens we have seen, is the size of the fruit as compared with the size of the plant producing it, and the complete absence of suckers. The plants referred to above were not larger than a good Pine grower in this country would grow in an 8-inch pot, and yet the fruit varied in weight from 2 lb. up to 5 lb. or 6 lb. each. The varieties, so far as we have seen them, were all Smooth Cayenne or Smooth Havannah, but we believe that other kinds were sent. The fruits were perfect in form, the pips swelled quite flat, and well coloured, and the crowns finely proportioned and healthy. There was, however, an exception to this rule: in those consigned to Hull, the crowns were very small, and in some cases quite wanting. Large fruit upon small plants was a characteristic of the Meudon system of Pine growing, and the same rule prevails to some extent in the Pines grown by Mr. D. THOMSON and his followers.

Pine growing is evidently undergoing a revolution in this country. Advanced gardeners already begin to see that large plants growing in 15-inch or 18-inch pots are no longer necessary to the production of large fruit, but that a small plant of properly matured growth will, under judicious management, produce a fruit equal to its own weight, less that of the soil it has been growing in. Indeed, for successful cultivation, the Pine requires precisely the same treatment that we accord to plants in which we desire full and perfect development, and to that end it is necessary that a young vigorous sucker be taken and grown on without check of any kind until it attains the fruiting state. To this end the crowding, the "struggle for existence" principle of growing a quantity of succession plants for the purpose of selecting the best to fruit, must be abandoned. To have full justice, so as to enable them to attain mature growth in the shortest time, the Pine plants must receive just the same treatment as would be given to a Heath, an Ixora, or any other plant growing for an exhibition specimen: that is, the plants must never touch each other, must receive all the light that can be given to them, with a due amount of top and bottom-heat, and must enjoy a free admission of warmed air, containing the necessary amount of moisture, night and day, if possible. Such an arrangement may involve a little additional expense in fuel, but then so managed no doubt three fruits may be produced where two are obtained by the present system. The fact is, Pine plants in too many places are coddled to death; long, lean, attenuated leaves are not natural to them, but they should be short, broad, thick, and full of vigour, rather than the flaccid things too generally seen. As a model of cultivation we might take a well-grown Yucca or American Aloe; that is the style of plant we want, and there is no reason why it should not be had.

One of our most successful Pine growers, Mr. WM. BARRON, of Sketty (formerly of Singleton), near Swansea, always contended that a plant could not produce a fine fruit and good suckers at the same time, and the St. Michael's Pines do not appear to have had any suckers at all; at any rate the specimens we examined did not carry any, and if they had been removed it must have been in a very small state. We strongly incline to the belief that the best plan is to remove all suckers from fruiting plants directly they are produced, and set aside a certain number of stools, say six or eight of each variety, to produce suckers. These we would plant out in a pit prepared for the purpose, and they should carry just as many suckers as would be necessary to form a succession. Say 150 Pines are wanted during the year; then we would take off every four months 50 suckers, and those properly grown would mature their fruit within the next 12 months—thus dividing the space at command; or say, for choice, you have three pits or small houses, capable of fruiting 50 Pines each, one of these pits would be empty and filled again with young plants every four months. So systematised, we see no reason why a constant succession of fruit should not be kept up, instead of, as is too frequently the case, a glut of fruit in the autumn, and a scarcity during the other parts of the year. Something of this system has been carried out by Mr. COX, at Madresfield Court, and more successfully by his brother, who resides near Worcester. At both places we saw last autumn very handsome Pines on small plants, none of the plants when the fruit were ripe being more than 12 months old, and many of them not

nine months. The plants were remarkable for compactness and vigour, and the fruit of large size (Cayenne and Black Prince, of 4 lb. to 7 lb. each), considering the plants which produced them.

Illustrative of the practice which we wish to inculcate, we may instance an experiment made more than 30 years ago. At that time some Pines, principally Black Jamaica, Montserrat, Antigua, Brown Sugar-loaf, and Havannah, ripened off their fruit from October to Christmas, and, as was usual at that time, each plant (three years old) threw up a quantity of suckers. As it was late to remove them, it was thought expedient to thin out the smaller ones, retaining two or three of the strongest upon each plant. From these the old leaves were stripped away, so as to expose the base of each sucker, and around these were placed some pieces of turfy loam, a fine growing bottom-heat being maintained by means of steam-pipes under the bed. The suckers soon showed that the arrangements were suitable to their requirements, and they grew accordingly. Early in the following February, a pit having been prepared for their reception, the suckers were taken off, potted into 8-inch pots, plunged, and kept moist. They grew with more than usual luxuriance, and by the end of April some of the most forward began to show fruit, and the others followed in quick succession. As the plants showed fruit they were removed into larger pots, and the result was that, in the September following, 15 fruit were shown at a local show, from those suckers, that averaged nearly 4½ lb. each. Nearly the whole of the plants fruited within the year. This, we think, is conclusive evidence of the value of the practice we recommend—a much more simple plan than that generally followed.

RASCALITY is beyond the pale of pity, nor can any right-minded person have a grain of sympathy for those who give way to attacks of kleptomania. Plant-stealing, and cutting-stealing, if we may judge from recent announcements, are deplorably on the increase, and require to be at once vigorously repressed, or they may grow to very serious lengths. It seems that exhibitions are the usual scenes of such depredations, and it certainly behoves the managers of flower shows to have a sharp look-out kept to prevent so outrageous a wrong being perpetrated on those who contribute to make up the exhibitions. The following letter speaks for itself, and needs no further comment:—

"There is in your issue of July 3, an advertisement from Mr. WM. PAUL, respecting the loss of a cutting from one of his variegated Pelargoniums at the late shows in London, and we are sorry to have to record, from our own experience, that such losses are becoming far too common. At the last York show, some five or six of our plants were cut in a most outrageous manner; and at a subsequent show at Northampton, some person cut off the whole of a plant of one of our new varieties, worth about six guineas, leaving nothing but the stump in the pot. There is no disguising the fact that these variegated Pelargoniums appear to be a great temptation to some light-fingered people with dishonest propensities, so much so, that it becomes imperative that something should be done to protect these plants during the time they are in the care of the managers of the show, wherever it may be. The growers of these plants are now becoming very numerous, and all should have a common interest in protecting the plants. Would it not be well for them severally to state their views respecting the best means of securing the object in view? We may here remark that at a recent London show there was exhibited a plant of Jetty Lacy, as large as our largest specimen, a variety we sent out in August last, *i.e.*, about nine months ago, and of course it was distributed in small plants. It would have been utterly impossible for any one to have grown so large a specimen as the one shown since that date, indeed it would take some two years or more to accomplish. We lost a cutting of this variety nearly three years ago, when exhibiting at Brighton. This seems to be a curious coincidence; and we should feel greatly obliged if the exhibitor of the plant in question would communicate to us any information relative to the source from whence he obtained his plant, so as to enable us to trace the connection, if any, between the cutting we lost, and the plant exhibited. *F. & A. Smith, The Nurseries, West Dulwich, S.E.*"

—— OUR readers will learn with satisfaction that the Council of the Royal Horticultural Society, anxious that the PAPERS to be read at the Manchester Meetings should be made public as soon as possible, and having no publication of its own available for that purpose, has decided to place them in our hands. The papers, it will be remembered, were by the terms of the invitation to remain at the Society's disposal. We need not say that, having taken a leading part in organising these meetings, we are glad to be able to render our aid in thus extending their usefulness. We shall publish weekly until they are exhausted, and at such length as our space will permit, an instalment of the essays, which, we may add, prove to be of a most varied and interesting character.

—— The following is the PROGRAMME of PAPERS to be read at the Manchester Meetings of the Horticultural Society. The proceedings commence at noon on each day:—

July 21—W. WILSON SAUNDERS, Esq., F.R.S., &c., *in the chair.*

1. On the Pruning, &c., of Fruit Trees, as affected by Soil, Climate, Stocks, &c. By Mr. A. F. BARRON, Royal Horticultural Gardens, Chiswick.
2. What Soil is best suited for the Production of Grapes? By Mr. A. CRAMB, gr. to the Earl of Ducie, Tortworth Court, Wotton-under-Edge.
3. On the Prospects of Hybridisation. By Major R. TREVOR CLARKE, Welton Park, Daventry.
4. On the Improvement of Plants by Selection, Hybridisation, and Cross-breeding, having special Reference to the Hollyhock and the Rose. By Mr. WILLIAM PAUL, Paul's Nurseries, Waltham Cross.
5. On Foreign Seeds found mixed with Cotton. By R. H. ALCOCK, Esq., Hudcar, Bury, Lancashire.
6. On Edible Passion-flowers. By MAXWELL T. MASTERS, M.D.
7. Critical remarks on Pruning and Training Standard Rose Trees. By Mr. W. EARLEY, gr. to F. PRYOR, Esq., Digswell, Welwyn.
8. On the result of a few Experiments with Sub-tropical Plants at Battersea Park during the winter of 1868-9. By Mr. J. GIBSON, Superintendent, Battersea Park.
9. Bottom-Heat, its Use and Abuse. By Mr. J. STANDISH, Royal Nursery, Ascot.
10. On the Culture of Chrysanthemums. By Mr. R. FLEMING, gr. to R. HOUGHTON, Esq., Sandheys, Waterloo, Liverpool.
11. Nature's Scavengers—Plants as Sanitary Agents. By Mr. D. T. FISH, gr. to Lady CULLUM, Hardwicke House, Bury St. Edmund's.

July 22.—Major R. TREVOR CLARKE *in the chair.*

1. On covering Walls with Glass for the protection of Fruit Trees. By Mr. W. TILLERY, gr. to the Duke of PORTLAND, Welbeck, Worksop.
2. On Smoke *versus* Vegetable Life. By Mr. E. GREEN, gr. to Col. the Right Hon. J. WILSON-PATTEN, M.P., Bank Hall, Warrington.
3. Is the Designing of New Works by a Gardener advantageous while continuing to serve as Gardener the same employer? By Mr. C. MACDONALD, gr. to Colonel the Right Hon. W. F. TIGHE, Woodstock Park, Inistioge, Ireland.
4. On Repeated Grafting of young Fruit Trees. By Mr. J. WIGHTON, gr. to Lord STAFFORD, Cossey Park, Norwich.
5. On various Methods of Grafting, with an attempt to inquire into the Influence which the Stock exercises upon the Scion, and *vice versâ*. By Mr. P. GRIEVE, gr. to the Rev. E. R. BENYON, Culford Hall, Bury St. Edmund's.
6. On Vine-borders: their Construction, Heating, &c. By Mr. C. A. PEARSE, gr. to R. E. E. WARBURTON, Esq., Arley Hall, Northwich.
7. On Plant Life and its Teachings. By Mr. J. ANDERSON, gr. to T. DAWSON, Esq., Meadow Bank, Uddingstone.
8. Remarks and Experiments on the Application of Water to the Roots of Plants growing under Glass. By Mr. T. RECORD, gr. to Col. E. LOYD, Lillesdon, Staplehurst.
9. Notes upon Orchids. By Mr. B. S. WILLIAMS, Victoria Nursery, Upper Holloway.
10. Horticultural Exhibitions: their Influence on Gardening. By Mr. T. BAINES, gr. to H. L. MICHOLLS, Esq., Summerfield, Bowdon.
11. Horticulture for the People. By Mr. A. MEIKLE, gr. Read Hall, Whalley.

—— Intending Exhibitors at Manchester will be glad to learn that there is a tolerably good road from the adjacent railway siding into the Horticultural Society's Exhibition ground, and that the railway authorities will draw vans into the show ground. These facilities will, no doubt, be fully appreciated by those who have many plants to move.

—— We are requested to announce that arrangements have been made by which any horticulturists, who may desire to dine together at Manchester, may participate in the JUDGE'S DINNER, on Monday next. The position of the gentlemen upon whom these censorial duties devolve, and the probable presence of additional representatives of the Floral and Fruit Committees, will impart quite a horticultural character to the little assembly, and will make it a fitting nucleus for the more extended gathering which seems to be desired. Indeed, such a social gathering as this, appears to have many advantages over a more pretentiously-organised dinner. Tickets (3*s.* each, we believe) will be obtainable on Monday morning, at the Exhibition ground, from the Refreshment Contractor.

—— We learn officially from Hamburgh that the Queen's Silver Cup, mentioned by us at p. 737, is to be given for the best three bunches of Grapes. We have also received information of the following reductions in the freights on the lines of steamers running between Great Britain and Hamburgh; and the Custom-House facilities for articles of exhibition:—

I. *Reduction of Freight.*—To entitle exhibitors to a reduction of freight on the different steamship lines, they are requested to label the objects to be exhibited as going to the International Exhibition of Horticulture at Hamburgh, and to address them to Messrs. W. Grund & Co., in Hamburgh. All invoices and declarations must be accompanied by the certificate of admission, which the committee send post free upon receipt of the forms of application for entries properly filled up. A reduction of 50 per cent. on the freight out and home is granted by the General Steam Navigation Company's steamers (London—Hamburgh); the steamers of Messrs. Pearson & Langnese trading between London and Hamburgh; the steamers of the united companies trading between Hamburgh Hull, Grimsby, and West Hartlepool, namely, Messrs. H. J. Perbach & Co.'s steamers (Hull—Hamburgh); the Hamburgh—Grimsby line of steamers; Messrs. Gee & Co.'s steamers (Hull—Hamburgh); Messrs. Lofthouse, Glover & Co.'s steamers (Hull—Hamburgh); the Hull Steam Packet Company; the West Hartlepool Steam Navigation Company. For persons accompanying exhibition articles an abatement in the fares will also be allowed. A freight reduction of 33⅓ per cent. will be made on all perishable articles transmitted to Holland, and for articles not liable to spoil the regular outward freight will be charged, but they will be conveyed back freight free by the Leith, Hull, and the Hamburgh Steam Packet Company, and the Liverpool—Hamburgh line of steamers. The term allowed for return tickets is extended to the end of September.

II. *Custom-House facilities.*—The Zollverein and the Custom-House in Hamburgh allow all exhibition articles to come in and go out duty free. With regard to articles coming from the Zollverein, we beg to call attention to the following regulations:—A. Such articles as have been subjected to a special examination at the Custom-House of the place of loading, and have been plombed or sealed, will be allowed to be re-entered duty free on their return at the same Custom-House; providing the identification of such articles is indisputable. Agricultural produce, viz., seeds, &c., is excluded from this privilege. B. Articles subject to export duty are allowed to be exported duty free, and need not be re-imported if it be proved that they are actually sent to the Exhibition. C. Every possible facility will be afforded to all articles cleared at the Custom-Houses coming or going. The last clause in paragraph A refers only to such agricultural produce which is not duty free, but liable to a such import duty, and which cannot be identified. It must be particularly understood that should articles which are liable to duty get changed, and especially should the official marks of identity become obliterated, they will not be allowed to be re-entered free of duty.

—— In the present issue we have given a translation of extracts from the important memoir of M. PLANCHON, on the INSECT which is so DESTRUCTIVE to VINES in France, and which is unhappily widely distributed in this country. We hope in the course of the summer to be able to determine whether the insect on Vine leaves, which is clearly congeneric, belongs to the same species, a point which it is highly necessary to determine, as the prompt destruction of every affected leaf might greatly diminish the evil. Our impression is that the species is much larger, but at the present moment we are unable to determine this point. Meanwhile we have made accurate measurements of the insect and eggs, from roots which we have received from the neighbourhood of London, and from Derbyshire. We observed that the ultimate joint in the young active insect is transversely ringed, which we have not found to be the case in the adult mother. Mr. DUNN, the intelligent gardener of Lord POWERSCOURT, in whose domain we had first an opportunity of studying the insect, in 1867, informs us that he has succeeded in mastering the plague to a great extent, and has promised later in the season to communicate his plan. The point illustrated by M. PLANCHON, of the occurrence of winged females, is one of great significance and importance, and requires fresh confirmatory observations, as it might possibly be some parasite, though the figure, which is not however very satisfactory, and the accompanying observations, militates against the notion. M. CARRIÈRE promises on a future occasion details as to the remedial measures which give the best hope of combating this serious pest. We may also refer to the article and figures of Professor WESTWOOD, published at p. 687. *M. J. B.*

—— The curious little GREENOVIA exhibited by Messrs. E. G. HENDERSON & Co. at the last meeting of the Floral Committee illustrates very well the structure of the Rose flower as explained by M. CASIMIR DE CANDOLLE. In the Greenovia the leaves are arranged apparently around and within a hollow cylinder, like the bricks of a chimney. This appearance is obviously due to the arrested growth of the true summit of the stem as compared with the lower and outer portions, in consequence of which the real apex of the stem is at the bottom of the cylinder. Now M. DE CANDOLLE'S view as to the structure of the "calyx-tube" in the Rose and similar flowers, is that the organ in question is a ring-like projection from an axis whose further direct development is arrested. The secondary projections, or growing points, correspond to the several fibro-vascular cords of the primary ring, and are ultimately developed into sepals, petals, stamens and ovaries. In the case of the Sempervivum the growing points have developed into leaves, and leaves only.

THE NEW VINE DISEASE.

THE following is extracted from the *Revue Horticle*, 1868, p. 429:—"This disease is caused by an insect, Phylloxera vastatrix, J. E. Planchon, 'Comptes Rendus de l'Institut,' 1868, p. 588; Rhizaphis vastatrix, J. E. Planch. ibid. p. 33. According to some authors it ought to be assigned to the genus Rhizobius. The insect, though it has been only known for a short time, already bears several names, and may probably still have another, as it is scarcely sufficiently known at present. The nomenclature, however, is of little consequence as regards our present object."

The account given by M. Planchon is as follows:—"I am going to resume, briefly, what a series of attentive observations, made on the spot in the course of three short visits, have taught me respecting the insect and concerning its habits, when raised in glass tubes during forty consecutive days.

"The most prevalent form is that in which there is not a trace of wings. The adult female, in the act of laying its eggs, presents a little ovoid mass, closely applied to the root by its lower flattened surface, but convex above, and surrounded by a little raised border at the thoracic portion, which consists of five indistinct segments, obscurely separated from the abdominal portion, which has seven rings (somites). Six rows of little soft tubercles project slightly on the thoracic segments, and are faintly continued on the first abdominal ring. The head is always concealed under the exterior projection of the thorax, the antennæ are almost always depressed. The abdomen, frequently short and contracted, is more or less elongated when the eggs are about to be laid, and by reason of its transparence exhibits one or two, more rarely three, eggs in a greater or less state of perfection.

"The egg is yellow during one, two, or sometimes more days after it has been deposited, but frequently the bright yellow changes to a greyish or dull yellow. It hatches in from about five to eight days, apparently according to the temperature.

"The rapidity and abundance of the deposit depends probably on variable circumstances: the health of the mother, the quantity of nourishment, the temperature, and perhaps other causes. A female which had six eggs on the 20th of August at 8 o'clock had 15 on the 21st at 4 o'clock in the evening, that is, nine in 24 hours. The maximum seems to be 30, as appears from the observation of a female between the 19th and 24th of August.

"In general the eggs of the same laying are crowded in a mass round the mother, without any apparent order. Nevertheless, she changes sometimes the direction of her abdomen and head, so as to turn quite round, and spread her eggs in every direction. The eggs, which have a very smooth surface, adhere but feebly either to the root or to each other, by means of a slight viscosity.

"The young insects escape by means of an irregular rent, which is frequently lateral, and near to one extremity. The shell remains for some time empty and shrunk amongst eggs in different degrees of evolution.

"During the first days of their active life (from two to five, according to circumstances), the young move about freely. They wander here and there to find a fit place to fix themselves; they are more active than when full grown, and appear to apply their antennæ to the space which they traverse. The movement of the antennæ is generally alternate; one might call them the arms of a balance, or, if the comparison may be pardoned, the two sticks of a blind man with which he tries the ground as he advances.

"After a variable duration of this wandering life the young plant-lice fix themselves at some determinate point; this is most frequently in a crack in the bark, where their proboscis can easily be plunged into the cells of the young tissue, which is full of juice.* If a fresh wound be made on the root by the removal of a slice of bark, it is on the circumference of the wound, or on the section of the medullary rays, that they arrange themselves. When once fixed, we see them apply to the root their soon immovable antennæ, which look like two little divergent horns.

"At this period of their life, from the third to the fifth day from birth, they are more or less sedentary. Nevertheless they change their place from one time to another, especially if a new wound be made near them which promises succulent nutriment. What is the sense which so surely directs these subterraneous plant-lice towards the spot which suits them the best? It cannot be sight, for their eyes are simple pigmentary dots, and their gait is that of the blind. It cannot be hearing, since they merely seek a vegetable tissue. It is more probably smell, and we may inquire whether the two smooth nuclei which are inclosed in the last joints of the antennæ are not the organs of this function, whose locality has been so much controverted.

"Amongst the non-adult insects, fixed by their proboscis to the roots, we see here and there some of an intermediate size, and generally of a deeper orange, whose abdomen, relatively shorter, seems more truncated behind. These individuals seem to move about more than the others, and I have sometimes followed them as possibly being males. Nothing, however, has confirmed this very problematical hypothesis, and as I have seen undoubted females approaching these in point of colour and form, I am inclined to doubt any sexual difference.

"A double moult precedes the adult state, the first a few days after birth, the second a little time before depositing the eggs. There is, however, some uncertainty about the number of changes, the empty skins being found mixed in a group of plant-lice of different ages, without its being possible to come to any decision.

"On the morbid tuberosities of the deeper roots, or on the rootlets, they are perhaps better nourished, and seem to undergo more rapidly their different transformations. They are also of a paler yellow, passing into pure green, without, however, there being any specific difference.

"What, however, may be considered as a distinct species or even genus, is the winged state of Phylloxera. The rare individuals which I have met with all came from individuals nourished on the roots of Vines lately affected. In the young state (or we may call it the larval) this resembles the wingless type. Presently, however, the thorax is more defined; a distinct constriction separates it from the abdomen, the cases of the wings, under the form of triangular tongues of a greyish colour, appear on the two sides of the thorax, and we at once foresee that the result will be a winged insect.

As soon, in fact, as we see one of these nymphs quit the place where it was more or less fixed, and run over the root or the walls of the vial in which it was raised, we may consider it as the sign of an approaching transformation. Presently, instead of a sort of plant louse, we see, close to a transparent skin, an elegant little fly, with four horizontally crossed wings, exceeding greatly the length of the body.

"It is impossible to have any doubt as to the specific identify of this insect and the form which swarms on the roots. The details of the structure of certain organs, antennæ, feet, tarsi, proboscis, &c., establish the identity.

"The horizontal carriage of the wings perfectly distinguishes Phylloxera from true aphides, in which the wings are more or less inclined upwards. The two superior wings, obliquely obovate, cuneiform, have for more than the basal half of their outer margin a linear areola, slightly dingy, between an interior nerve, which answers, I suppose, to the radial. A single oblique nerve is detached from this last, from about its middle point, and is prolonged to the inner border. These, perhaps, are not nerves, but rather folds, for I have frequently ascertained their absence.

"The inferior wings are narrower and shorter, with a marginal nerve running from their base beyond their middle point, and which is lost in a slight projection which the wing shows at this point: a short radial nerve runs parallel to the first, and disappears before reaching the extremity.

* We find them attached in the first instance to young succulent roots, in which they cause a little swelling with a depression on one side, in which the insect with its eggs is lodged, the subjacent tissue soon becoming diseased. *M. J. B.*

"The eyes, relatively, are very large, and of a black colour, they are irregularly globular, with a very strongly marked conical projection; their surface is granulated; a punctiform depression is hollowed out in the centre of each papilla; a circular ocellum is seated in the centre of the forehead.

"Amongst the 15 examples of Phylloxera which I have observed, none has presented any sexual difference. Almost all have had two or three eggs, and have died soon afterwards, perhaps in consequence of being confined in the vials. The eggs, like those of the wingless insect, to the number of two or three, fill the entire abdomen of the mother. We see them easily by transparent light if we compress the insect on the stage of the microscope. I know not how long they take to hatch, or whether they always yield winged individuals.

It is probable that these winged specimens serve for spreading the malady to a distance; not indeed that their wings serve for a long or continued flight. They generally remain immovable, and but seldom move their wings by raising them up, but without quitting their plane of position. I suppose, however, that the wind is the principal agent in the dispersal of the Phylloxera, as is sometimes the case with ordinary aphides.

"At all events, the knowledge of this winged form and aërial habit easily explains facts which were before matters of perplexity, as, for instance, the dissemination from centres of invasion in vineyards. As regards nearer dispersion, it may be produced by wingless individuals, which, grouped in great numbers at the foot of plants already affected, would, perhaps, send out their swarms to neighbouring healthy vineyards.

"We may inquire, in this case, what path the insects take to arrive from one plant to another, and especially to reach at once the extreme rootlets of recently attacked Vines? Do they make their passage through the soil—or, rather, on its surface—during the coolness and obscurity of night, working their way down by the fissures of the bark? This conjecture seems the most probable, and is supported by an experiment which I made in the following manner:—

"In a case about 40 inches long (one mètre) I put some garden soil from Montpellier, free from insects. I placed carefully in this truncheons of Vines infested with wingless Phylloxeræ. I covered each truncheon with a bell glass, slightly raised on one side, to allow the insects to get out. At about a fourth of an inch (3 millimètres) I placed fragments of sound Vine roots, on which I had made fresh wounds, such as the insects affect. In 12 hours these insects had migrated to the nearest root, and some days after 20 had reached the same fragment. Two other fragments received also a small number. One did not receive any. It must, however, be confessed that there were few individuals on the nearest truncheon capable of moving.

"A similar experiment, but in soil already infested, was made at my suggestion by Monsieur F. Leydier. It gave only negative results. One would, however, be glad to learn that the invasion was made only from the surface of the soil, for in this case the smearing the base of the Vine with gas tar might present an insurmountable obstacle, whereas in the other case prevention might be extremely difficult."

THE SUMMER CULTIVATION OF WINTER AND SPRING FLOWERS.

No careful observer can have failed to observe that there are flowers and flowers, and that although the two sets may be the same, they are by no means alike. Much depends upon site, soil, and climate; more, possibly, upon skill. Doubtless, in horticulture, the latter is one of the weightiest factors in determining the sum total of nett results. Skill at once multiplies and improves our resources, and enables us to dispose of them in the most effective manner, either for use or enjoyment. In the early harvest of winter and spring flowers it is emphatically true, that as a man soweth so shall he reap. He that sows skill shall reap beauty. He that sows ignorantly shall reap sparingly. He that trusts to chance, and neither digs, nor sows, nor cultures, shall probably not reap at all, or find to his sorrow that Nature, however bountiful at other times, provides no rich chance harvests of beauty amid the shivering blasts of winter. Hence, the foundations of winter and spring beauty must be deeply, broadly laid in the vital energy of the plants during the previous summer. The oblique rays of our wintry suns can create no flowers. It is as much as they can do to liberate and let loose the superfluity of the summer's glory, to brighten the bleak earth and leaden skies of frost-bound, snow-wreathed winter. The silver sheen of the Snowdrop, the golden glare of the Crocus, the azure blue of the Forget-Me-Not, are each and all but the carefully treasured fragments that remain. The summer cultivation of winter flowers consists in the storing up of the products of the summer's rains, air, and sunshine, to become the light and the beauty of darker days. Then the winter sun creeps forth timidly, begirt with a golden key that can unlock the store-house, and reveal the pearl of great price and beauty within. But when no hay has been made, no flower formed, while the summer sun shone, then, of course, the house is empty, and no beauty is revealed.

Far be it from me to declare that we can make or not make flowers absolutely and positively at pleasure; yet, doubtless, we can determine the course, the destiny, as it were, of vital force to a very great extent, and can guide it into leaf or stem, or concentrate it into blossom by the leadings of our skill. The fault of failure is oftener in ourselves than in the fates or the skies. Vital action compounds the products of plants from a sheathful of sunbeams, a breath of air, a morsel of food, and a drop of water, and it depends largely upon our skill whether these products are to be leaves, stems, flowers, or fruits.

Standing close by the great fountain of vital force, it is ours to direct the current very much at our will; and such direction of energy to predetermined ends we call cultivation, leading, or, if "F. N. B." prefers it, "nursing," not, however, using the term in the sense of rendering tender, but in that of taking proper care of judicious nourishing, and guiding aright. It seems needful to remind your correspondent that this taking care for the present and thought for the future, is as needful for hardy plants as for any others, if their highest development is aimed at, or their most effective setting provided for. Wise culture does not enfeeble but strengthens plants, directs their energy into any given channels, such as root, leaf, or flower, and modifies their power of enduring heat or cold. If all this, and much more than this, be true—and it is—it follows that no plants need more careful cultivation than those appointed to bloom in winter or early spring. And for this reason. Plants growing or blossoming at other times may receive some assistance in the shape of new material added to their substance on their journey, but these can derive little or no external assistance. They must start with sufficient vital force, and a large enough stock of organisable matter to carry them over and through the entire stage from dormancy to perfect inflorescence. Hence the special importance of the most careful preparation. In sending ships out to the arctic regions what a profusion of stores are provided. We should act exactly on the same principle with our winter blooming plants. Let us fill their tissue to repletion with summer sunshine. Every ray of it will be all too little before the winter is over, and the entire flowering stage passed through.

Grow, therefore, the lovely Myosotis dissitiflora and alba—what a gem this will prove—Alyssums, Aubrietias, Arabis, Violas, Heartsease, &c., right in the eye of the day, that that eye may sparkle with summer brightness from our wintry flower beds. Thus will the energies of the sun be focussed as it were, and transformed into floral envelopes, to be unfolded in all their beauty to enhance our dreary months. Only by such a skilful husbanding of summer sunbeams can we enjoy to the full a harvest of beauty in winter, and every energy and talent should be bent to increase the store. The primary object, then, in the cultivation of such plants is not an extension of parts but a concentration of all the forces of Nature into the formation and maturation of blossom buds. Having provided a sufficient number, the next object is to constitute each individual plant such a centre. Each must become a candle, to give light in winter. Each flowerless plant is simply a candlestick candleless—a fruitless fruit tree, adding no lustre to the general illumination. But it would be just about as reasonable to begin making a candle when the light was needed, as to expect winter flowering plants to form blossoms in the flowering quarters. Candles and flowers alike must be provided beforehand, if the light or full measure of beauty is to be enjoyed in the dark, or in winter.

Is the winter blooming quarter a matter of indifference? By no means. The highest authority has given instruction about the placing of candles, and the same rule holds good in regard to flowers. The question resolves itself mainly into one of where and how they can be best seen. Let their light and glory so shine that all eyes may see them together, and this one condition of effective setting is secured. It is implied of course that the setting will be consistent with, if not conducive to, health—with this reservation, the base line of our favourities should be adapted to their habits and character. As a rule, all such plants as the Myosotis dissitiflora look best on irregular mounds. But this is a different thing to the statement that they will only grow or blossom freely in such positions. On the contrary, there is no Forget-Me-Not to equal this on the flat, either as rows or in masses, though it is still more beautiful, and a month or six weeks earlier, on raised banks. But the advantages of irregular base lines are not confined to the exhibition of one or two such families. I make bold to affirm that all herbaceous plants look best on uneven ground, while a garden of early-flowering bulbs so disposed, like irregular waves of flowering beauty, would prove irresistibly charming. Even our usual bedding plants would be infinitely more interesting if the heavy tameness of our flat masses was broken up by an artistic undulating base.

True, the art of culture may be but little affected by the disposition of our ground lines. But the equally important art of disposing of finished products in the best manner is largely dependent upon the configuration of our base. In advocating an uneven surface for the exhibition of floral beauty I am but treading in the footsteps of Nature, for she has variegated the surface of the world with out-cropping mountains, and scooped out valleys, the better to display the richness and grandeur of her covering robes of beauty and glory; and one of the greatest improvements that could be effected in our gardens would arise from our going and doing likewise.

D. T. Fish, F.R.H.S.

Home Correspondence.

The Golden Champion Grape.—As a member of the Fruit Committee of the Royal Horticultural Society I need not say how deep an interest I take in all new fruits of merit. This must then be my excuse for sending you these few remarks regarding the above noble Grape. On Monday, the 4th inst., I made a hurried call at Stoke Rochford Gardens, belonging to Christopher Turner, Esq. Here Mr. Dell, the intelligent gardener, had planted a house some 14 or 16 feet wide, by 45 to 50 feet in length, with young Vines in May, 1868, all of which were doing remarkably well, and concerning which I hope, with your permission, to say a few words by-and-by. Amongst the many varieties of Grapes planted therein, the Golden Champion, though planted at a later date than the above, had shown eight very fine bunches. These, as

they grew so rapidly (the age of the Vines being taken into consideration), were reduced to three bunches, each of which exhibited the true characteristics of the Grape as it has been previously shown. The robustness and vigour of the wood is remarkable — more like, in fact, those of a vigorous Trebbiano than otherwise, some of the leaves measuring at least 12 inches across, and with young wood of the current season's growth quite 2 inches in circumference. At the tips of the young laterals, which were forming upon the young wood, I noticed (in one instance) two fair-sized bunches of flowers. These, though only just perceptible, indicate that this variety is as prolific as any amongst our best older ones. Taking the merits of this variety all in all, as seen here, I am more confirmed in my good opinion of it than ever. *Wm. Earley.*

Rats v. Peas.—I have been victimised by rats. As my crops of Peas come to maturity, the rats eat them, so that I have hardly had a dish of Peas this year. We have tried poisoning, shooting, trapping, but all to no purpose. The rats still continue the gardener's master; and, as I am as fond of a dish of green Peas as the rats are, I seek your valuable aid to help me to thwart the persevering marauders. *An Old Subscriber, Co. Meath, Ireland, July* 12. [Try a ferret. EDS.]

Reward of Merit.—I am quite sure the majority of your readers will coincide with the excellent arguments which you bring forward in support of a decoration for those who deserve well of their country, and have, by their skill and example, tended not only to enrich it, but render it the emporium of the civilised world. It is no pecuniary reward that is required; I feel sure this would be considered as an insult, and tending to depreciate, instead of to honour the recipient; let it be simple, but let the donor be regal. Coming even from the Council of the Royal Horticultural Society would not give it sufficient weight; they might advise, but not bestow it. In France how many of the leading horticulturists have the Legion of Honour conferred by the hand of the Emperor himself, and should not skill and industry meet with like reward in this country too? Our fruits, our gardens, our plants, in fact the whole of our horticultural productions, excite the surprise and admiration of all who visit us; and is it just that the "pioneers" of the profession have no decoration which they may exhibit with honest pride, and hand down as an heirloom to their children's children? *William Heale.* [The proposed recognition, whatever form it assume, should not be so widely distributed as the French "Legion of Honour." It is a question whether those undecorated are not adorned the most in that case. True the Sovereign is the fountain of honour, but in this country, at any rate, the only fountain in the least degree applicable to horticulturists is that of the "Bath!" The reward should, in our opinion, come from some society or other body capable of appreciating the worth and achievements of the individual. Where is the honour of being decorated by some one who knows nothing whatever of the merits of the case. EDS.]

Foxgloves.—A few days ago we sent you a small box of Digitalis blooms; we now send some flowering spikes. These Foxgloves are now flowering profusely amongst our Rhododendrons (which are now over), and are very striking objects, and really deserving of extended cultivation, taking into consideration the small attention they require in their cultivation. *Stuart & Mein, Kelso.* [Very fine examples. EDS.]

Large Rhododendron at Aigburth.—Herewith I send a photograph of a Rhododendron growing in the grounds of J. A. Tinne, Esq., which has been a fine feature on the lawn this season. It is a hybrid from the old R. ponticum, and is 15 feet 8 inches in height, and 31½ feet in diameter. Such plants are a grand and telling feature in pleasure grounds. Are there many such plants to be met with? *G. Forbes, Briarley, Aigburth.*

A New Fruit Growing Idea.—In the *Saturday Review* for July 10, I read that "the stiff, loamy, and wet soils" of England, so hostile to fruit culture, are adapted to the culture of Apples, providing the trees are grafted on the French Paradise stock. This peculiar opinion of the reviewer is perhaps scarcely worthy of notice, because there seems to be a want of horticultural knowledge in the article he has written; still an erroneous idea may spread and do mischief. It is not therefore asking too much to request some fruit grower or growers to give their experience as to the cultivation in England of Apple trees in swamps. I have a small plantation of fruit trees in a wet loam, which owing to its level cannot be drained; the soil is friable and favourable to look at, but neither Pears on Quince stocks, nor Apples on Paradise stocks, nor Plums, will flourish—their leaves curl, and the trees are always blighted. The trees should be several years old, and growing in one place, as they often grow well for a year or two, and then canker. *Inquirer.*

Walnut Trees.—Can any of your correspondents assist me in the following? I have some fine old Walnut trees, showing strong symptoms of rapid decline during the past two seasons. Three years since, water stood at 7 feet below the surface in this district; the main drainage has now lowered it to 36 feet below. Can this be the cause? it is supposed to be so. Near Melbourne they saved the splendid old Gum trees, which were fast decaying, by digging a deep trench and of ample width, close round the tree, leaving it open for some time, and then refilling with better soil. My trees stand on the edge of a large lawn, having a walk of 5 feet and a thicket of Lilac, &c., beyond. *A. W. Eastwood, Denham Lodge, Hammersmith.*

Cut Herbaceous Flowers.—These are often included in schedules of prizes, but it is only rarely that they are well or tastefully shown. In the schedules of nearly all provincial exhibitions there are classes for these as well as for collections of cut flowers, but seldom is it they are worth inspection. I have seen the latter staged in all shapes and forms, from that of a tray of sand, into which the exhibitor had stuck as many flowers as he possibly could, through all sorts of monstrosities and ridiculous types, inclusive of what the Rev. Mr. Hole once happily termed a "floricultural dollop," and culminating in something that would have done for an umbrella stand, or, had it been more durable, served the purpose of a clothes-horse in a children's nursery. The latest development of form was that of a beehive with circular lines of flowers of various colours, and surmounted by a design composed of Grasses, Foxgloves, &c., as if elaborate preparations had been made for a grand display of floricultural fireworks *en masse*, to be let off towards the close of the exhibition. Unfortunately there is frequently a great deal of vagueness in the wording of schedules, and exhibitors must often be at a great loss to comprehend what it is the promoters really require — on the supposition that they know themselves. At the recent show of the Ipswich Horticultural Society, cut flowers of herbaceous plants were very finely shown, though it was only one of many fine features in a thoroughly good provincial show. There were two classes—one for 18 and one for 12 bunches of cut flowers of this character. Seven stands competed in the two classes, and the worst was better than is generally seen. They were shown in neat bunches, with just enough foliage to relieve them. The flowers consisted of Delphinium formosum and Hendersoni; Spiræa Ulmaria, S. japonica, and S. umbrosa; Alstrœmerias, in variety; Centranthus ruber, and a pale rose-coloured variety as well; Iris germanica and I. anglica, in varieties; Scilla peruviana, Tangier Peas, several varieties of Dianthus hybridus, Dictamnus Fraxinella, Veronica spicata alba, Stenactis speciosa, Campanulas coronata and persicifolia, both blue and white; Prunella grandiflora, Baptisia australis, Pentstemons, Anthericum Iiliastrum, Gaillardia Richardsoni, the double red Lychnis, Melittis Melissophyllum, Gladiolus byzantinus and G. Colvillii, Tritonia aurea, Lathyrus Lindleyanus, Stachys coccinea, Borage, Aconitum Napellus, and Canterbury Bells. Without exhausting all the subjects shown on this occasion, the foregoing may be regarded as the very cream of them. The Prunella grandiflora produced on this occasion I take to be identical with that which is to be seen in Mr. Barron's capital perennial border at Chiswick, under the name of P. pennsylvanica. This border furnishes a few good things just now in the way of perennials treated for exhibition purposes, such as the beautiful Pentstemon Jaffrayanum, Chelone barbata coccinea, the purple and white double Rockets, Nierembergia frutescens, and the new Rose Canterbury Bell, both single and double. In addition to these, the different varieties of Anemone japonica should not be overlooked, or the red and white Everlasting Peas, the new spotted Foxgloves, double Pyrethrum, &c. There is, indeed, no lack of fine perennials for exhibition purposes; and if many of the prizes that are given at country shows for, and foolishly wasted on wild flowers, were bestowed on collections of perennials and annuals, the result would be a great gain to the effectiveness of the exhibitions, and the clearing away of much rubbish. While touching on wild flowers, I may say that at a recent exhibition of the Erith and Belvedere Horticultural Society, in Belvedere Park, there was in the schedule of prizes a class for a "collection of cut wild flowers and grasses, open to the children of all classes residing in the parish of Erith," the sum of two guineas having been ingeniously split up to yield 24 prizes, and the astounding number of 278 exhibitors competed for these prizes. One small tent was completely filled with about 180 of these collections, of all sizes and shapes, while the remainder found a resting-place under the shade of a grand old Oak—from the little handful of grasses and flowers gathered by the road-side, and simply tied together with a Rush, to designs (actually the want of design) so utterly incomprehensible and yet so elaborately constructed that one could not but heartily desire so much labour had been more worthily expended. Botanical science has much to be hopeful for in the future if 278 children of the parish of Erith can be induced to explore the locality for collections of wild flowers in the hope of getting one share of two guineas divided into 24 portions: but no one thinks that one in 20 of these collections are obtained or arranged by children. Those who believe otherwise indulge themselves with a pleasant fiction: for it is the parents of the children who arrange and exhibit. *Richard Dean, Ealing, W.* [Nothing can be worse than to encourage the exhibition, and too often at the same time the wanton destruction, of the wild flowers. If teaching is the object, take the children out into the field, and instruct them there. EDS.]

Honeydew.—I am obliged to Mr. Thompson and Professor Westwood for their attempt to correct me on the subject of honeydew; but I regret that I cannot bow to their theory. The learned are, and always have been, at variance on the subject. The only book in my possession to which I can refer on the subject is the "London Encyclopædia." Under the word "honeydew," I read as follows:—"A term frequently applied to a clammy saccharine substance, which is often seen covering leaves and other parts of different trees and plants, at some particular season of the year. It does not appear that the cause of this extraordinary appearance is yet fully understood, as it has not by any means been well ascertained whether it derives its origin from external circumstances or some morbid affection of the vegetables themselves. It is generally supposed, however, to be the production of insects." It then says, "See Aphis." Under this head the same doctrine is propounded, as the opinion of Mr. Curtis, as was lately given by Mr. Thompson and Prof. Westwood, viz., that it is caused by aphides. The only other passage referring to it I find under the head of "Hops" in the same work. It is as follows:—"The honeydew mostly occurs after the crops have been attacked by these kinds of insects (the green and long-winged fly), and when the weather is close, moist, and foggy. In this case a sweet, clammy substance is produced upon the leaves of the plants, which has the taste of honey, and they at first present a shining appearance, but afterwards soon become black. It is a disease that mostly happens in the more forward crops; and the chief dependence of the planter for its removal, according to Bannister, is that of heavy thunder-showers." This is all I can find on the subject. I cannot accept the aphis theory for the following reasons, although I quite admit that aphides do secrete an analogous saccharine matter:—First, I had no aphides when it made its appearance. Secondly, it comes in a single night, usually foggy and misty. Such was the case the other day when it occurred here. The weather was very sultry, so much so that I cut my hay — 2 tons per acre — made it, carried it, tucked, tipped, and thatched in four days and a half. Thirdly, because it is impossible that such minute insects could squirt such a mess in one night; the honeydew often being thick enough to be scraped off with a knife. Fourthly, because if it was the work of aphides, you would see it invariably, which is not the case. It only occurs in particular seasons. Pliny, with his theory of "sweat of the heavens and saliva of the stars," seems to have held a similar opinion to the poor people, who think it drops from the "elements in a foggy night." This was my servant's opinion, till I convinced him by saying, "in that case it would be upon a gate-post or mile-stone, as well as upon Roses and some other plants." It is, in my opinion, an exudation of thickened morbid secretions. It is not true that it generally appears on the lower leaves, or upon unhealthy leaves. It will make its appearance on the very tips of newly formed leaves, as well as upon older leaves. It is also to be seen occasionally on leaves covered by leaves, but not so much as on leaves exposed to torridity. The reason (I guess!) that it makes its appearance after a foggy night, is that the fog relaxes the stomata of the leaves, and lets out the morbid secretions which have been caused by and pent up by adverse weather. Here I leave the matter. I cannot conclude without thanking Professor Westwood for paying attention to my view, and for admitting the doctrine of exudation. I saw on Sunday a single leaf of Baronne Pelletan de Kinkelin in a profuse perspiration! Under any circumstances wash off the honeydew, and give sufficient water to touch the whole of the roots. *W. F. Radclyffe.*—Will you be so kind as to give me space for a few words with regard to the origin of honeydew, or blight, by which name every evil which afflicts the vegetable kingdom is called. My own belief is that there is no such thing as either blight or honeydew without the aid of the aphides, and though I do not believe, with one of your correspondents, that cold or east winds or want of water are the immediate cause of the complaint, they certainly predispose the plants to the attack of the aphis by destroying their vigour. Before I read the remarks in your Paper I had expressed my belief to my gardener that want of water had thus been the ruin of some Rose trees under the eaves of the house, which are now casting their leaves black with the sticky stuff. A very large Oak here (it is above 100 feet across) has almost every leaf covered with aphides in every stage of growth. The one thing difficult to understand is that whilst the aphides are almost always on the underside of the leaf, their saccharine deposit is on the other. *W. C. Hewitson, Oatlands, Walton-on-Thames.*—I am very glad that "J. S." has gone a little further than Professor Westwood, and has asserted, what I believe to be strictly the truth, that no honeydew exists except such as is deposited by insects. Mr. Radclyffe has decidedly put the cart before the horse, and tries to make the horticultural world believe that honeydew is the secretion from the leaf, caused, as he says, by the continuance of cold north-easterly winds and the sudden action of the sun afterwards, and that the aphides come to feed on the honeydew. I have never seen in my experience an aphis feeding on the upper side of a leaf that is covered with honeydew, but they will be found instead on the ends of the young shoots, and more especially on the young stem itself; and if a clean piece of glass is placed under a shoot much infested with aphides, it will soon be covered with their secretions, which the action of the sun will melt and spread over the glass; or if a bell-glass be inverted over an infested shoot, it will show how far the secretions are ejected, as the sides will soon be covered. Mr. Radclyffe jumps to the conclusion that because he saw no aphides on his Rose trees, but suddenly found them covered with honeydew, that consequently the honeydew must have been caused by cold wind and sun. But is it more extraordinary for the aphides to come rapidly, as they will often do in a single night, than it is for the action of the sun and cold wind to bring on the honeydew in the sudden way in which Mr. Radclyffe describes? For if cold north-east winds and hot suns could produce it, no Rose would be free this year, whereas I have only got two Rose trees infested, and they are against a south wall, where no north-east wind can touch them, but they are in close proximity to a Trumpet Honeysuckle which is being killed by aphides; and another Rose which grows through the Honeysuckle, and has shoots above it, is not affected, as far, that is to say, as that part of the tree is concerned which is above the action of the aphides on the Honeysuckle. That cold winds following after warm weather or hot sun are conducive to honeydew is true, because it checks the flow of sap and produces a state of growth of the young shoots liable to the attack of aphides; but hot sun after cold winds is more liable to produce mildew, especially if the weather has been dry with the cold winds. And I will venture again to assert that whenever a leaf is much covered with honeydew, no green flies will be found on it except those that may have accidentally dropped from the upper part of the shoot affected, and that those few which may be found will not be feeding on the honey-

dew. Other insects, as wasps and ants, will do so, but not the aphis. *C. P. P.*

Rose Blairii No. 2.—I shall be obliged by your advice. I have three or four Rose trees of Blairii No. 2, which are very grand, bearing 800 to 900 blossoms each at a time. They are really trees, having been growing from 16 to 18 years, and they have been left, as advised, with about 10 joints to each bough, when pruned. The consequence is that the weight is so great when they bloom that the old boughs cannot sustain the least extra pressure of wind or moisture. I have had several boughs break off the Briar-stem this season, one with 380 blooms on it, and I feel that I may now be subject to the same annoyance annually. My idea is that I should gain, after one season, by cutting off all the boughs—making Pollards of them—and so depend upon the new wood. And if so, when should it be done? I think as soon as the present blooms are over—*i. e.*, this autumn. Please to advise me. *J. E. G.* [To this Mr. Radclyffe kindly replies:—I can hardly answer this question. You must thin the head, and support the tree with a strong stake. If you head the tree back, as you propose, you may do it in November. Remember, however, Blairii No. 2, more than any Rose, hates a knife! You had better thin the head, shortening the shoots on the remainder.]

Potatos.—I planted in February half a bushel of Mona's Pride Kidney—most beautiful sets, from Messrs. Dickson, of Chester, and a bushel of Ashleafs of my own saving, also clean, well harvested, and greened in the open air. Not one in ten of either variety has appeared aboveground, and the few that have made stems and leaves are very, very weak. There are also numerous small tubers underground, where no appearance has been made above. The Mona's Pride are in a warm part of the garden, under a wall—fine rich soil, as fine as soot when they were planted. The common Ashleafs are in a stiffer soil, but very clean and friable where they were planted. Now no seed could be healthier in appearance. My own of the Ashleafs was hodded with Early Oxford and Flourball. These latter were somewhat sprouted in the hod, but the Ashleafs were not at all. The Early Oxfords and Flourballs are doing well, and every set came up well. Now, to us country gardeners the great value and interest afforded by your Paper is to learn that other parts of the kingdom are in the same affliction. I shall certainly not have one mess or boiling of kidney Potatos this year, and it is the most unaccountable of all the vagaries of the Potato tribe. But the strangest thing of all is that there are some gardens in this county (Shropshire) where the kidney Potatos are as good as usual. *W. M. Rowland.* [Let some of the haulmless tubers remain in the ground all the winter, protecting them from frost by a little litter if necessary, and please let us know the result next year. The rest will do for seed. EDS.]

Horticultural Clubs.—Some nine months ago I wrote a paper intended for the *Gardeners' Chronicle*, recommending the formation of a Horticultural Institute for Great Britain, with a central body and branches ramifying throughout the three kingdoms, in a similar manner to the Chambers of Agriculture, that have recently been established. But I despaired of the project when I began to count the cost, and so I cast the paper aside. The Rev. Reynolds Hole's suggestion is less ambitious, and so far more practicable, but the same difficulties lie in the way, and similar questions meet us on the threshold of his project, Can we afford it?—and are the advantages offered worth the money? Hitherto the pleasures and profits of club life have been mostly confined to the wealthy, or to the poor where they are densely packed together, or when they have been aided by the benevolence of the better-to-do classes. Now, gardeners as a body are poor; they are scattered widely apart, and they are above accepting even the benefits of social enjoyment, or the sublimating pleasures of the smoking weed from those who are better off than themselves. Better have no club than receive it as a charity from any body of men. But the question whether we could pay for the moderate enjoyments of club life, can hardly be fairly discussed apart from the advantages that might be reasonably expected from meeting with and enjoying the society of our friends. Doubtless (and it is of no use disguising the fact) self-interest governs and rules the world as a whole; and notwithstanding all the enthusiasm and poetry of horticulturists, the same principle has powerful sway in our ranks. We are obliged to appeal to it, depend upon it, in the launching of such projects as these. The question with some, perhaps the only one with many, is—Will my subscription prove a profitable investment? What benefits may I fairly expect to reap from it? I fear it must be admitted that the club movement must be based upon self interest if it is to succeed; neither is there much humiliation in the admission, for this is true of all clubs, great or small. Looking this phase of the question steadily in the face, the question of success or failure must be mainly determined by the measure of probable advantage. The Rev. Reynolds Hole gives prominence to two things—mutual intercourse, and puffing together *en masse*. Dismissing the latter as of little or no account, it may be well to inquire whether the mere pleasure of meeting larger numbers of the craft in specified centres would float the club project. I think not. Already, by previous arrangement, we can choose our own society, and few possibly would care to pay a club to choose it for them. Besides, our enjoyment is often, generally perhaps, in the inverse ratio of numbers in our social chit-chats. I submit that a much bolder scheme would be more likely to float than the humble proposal of our friend. In my paper, which never saw the light, I suggested that the British Institute of horticulture should take special cognisance of four things—the heads, the hearts, the trials, and the pockets of gardeners. It should stimulate to the utmost intellectual growth, alike by indicating and providing instruction and rewarding merit. It should culture the heart with social intercourse with the best and purest in our ranks, and thus smooth off our rough sharp angles, and give us the polish of the gentleman. It should succour us in sickness and distress, and guard our pecuniary interests at all times. In one word, such an institute should discharge all the duties of a trades' union for horticulturists, while shunning all the evils that have made the very name with many a synonym for all that is evil and wicked. And yet there is no trade nor profession that does not seek to better itself by united action, but that of our own. The Duke of Argyll did noble service to gardeners by directing attention to the weakness engendered by our isolation at the anniversary dinner of the Gardeners' Benevolent Institution. We have so little intercourse with each other, that even this useful society languishes for want of support. Be that as it may, the time seems opportune for inquiry whether a new club or institute could not be floated to provide temporary assistance to members when out of work, or disabled by accident or sickness, as well as the granting pensions to the aged or helplessly infirm. In one word, whether one institution could not be formed embracing all the legitimate duties of a trades' union, a sick and friendly society, an insurance office, a scientific institute, a practical school of gardeners, and a learned body, to which it would be considered an honour to belong, and whose patronage and stamp of merit might become useful aids to promotion, and be looked upon as honours that the best men would be proud to receive. Such an institution would excite in its behalf most of the strongest motives that rule and govern men. I boldly affirm that no club nor institute is worthy of the general support of horticulturists that does not endeavour by all means to redress the grievances and anomalies under which gardeners labour, and to promote the social, moral, and intellectual well-being of its members. We have no unrecorded demands, no dark plans dangerous to society. We only want to have our just claims recognised, and to be levelled up to that fair estate of life to which the faithful discharge of our duties, and the number and nature of our services alike entitle us. Nor are these only nor chiefly gardeners' questions. The things that cut us to the quick will affect and injure our employers, and probably tarnish the fair fame, and arrest the progress, of horticulture to-morrow. Now, if ever, the fortunes of horticulture are in the hands of its living agents. Elevate these, and horticulture will go on to prosper; depress them, and horticulture will go down with them. It is the opinion of many that the tide has begun to turn, from the fact of fewer men, and those of a lower calibre, entering our ranks. I give no positive opinion upon the matter. All the probabilities are, however, in favour of its truth. Continuous depression in the wages market must inevitably turn the best skill and talent and character into other channels. And if once the current fairly sets in another direction, it will require all the skill and energy of every horticulturist, from the least to the greatest, and an expenditure of means such as the most liberal have not yet devised, to bring the flood-tide of young life, with the necessary talent, perseverance, and strength, back to horticulture again. *D. T. Fish.*

Cucumber and Vegetable Marrow Judging.—I quite agree with your comments in regard to Vegetable Marrows being cut so as to be able to judge by the thick flesh, which no doubt is the principal point in a Vegetable Marrow; but I am doubtful whether the size you name would be a suitable size for market purpose, as they are generally liked about 2 lb. or 3 lb. weight. I also beg to differ with you on one point in judging Cucumbers: you say that a Cucumber should be evenly swelled up to both ends. I quite hold with the flower end, but for beauty I consider the stalk end should be as thin as can be grown, for 3 inches of the stalk end is seldom eaten, as it is often bitter. I should recommend committees to give prizes as you describe—separate classes for different races of Cucumbers. *H. J.* [Our remark as to the size of Vegetable Marrows had reference to their quality for use, rather than to their suitableness for marketing and we maintain that there is no comparison as to quality between a quite young fruit *lightly cooked*, and the older ones of the size "H. J." mentions. The more evenly a Cucumber is swelled throughout, the more symmetrical and proportionate, and consequently the handsomer, it is. We cannot admit that one end being pinched up gives the fruit any additional beauty—quite the reverse. The quality of the stalk end has nothing to do with the question; the fruit is not less beautiful because that part may be bitter, but it is more beautiful when it is well proportioned. EDS.]

Foreign Correspondence.

SPRING VEGETATION IN SOUTH-EASTERN SPAIN (*continued from p.* 742).—Whilst at Valentia I went over the Botanic Garden carefully. It appears to be more viewed and directed as a pleasure garden than as a scientific establishment, but even as such was interesting. The plants in flower (May 6) were the common flowers of our English gardens for May and June; monthly and Bengal Roses, with a few hybrid and Tea Roses, Delphinium, Antirrhinum, Thlaspi, Iris, Stocks, Silene, Jasminum revolutum, Ranunculus, Eschscholtzia, Sweet William, Poppies, Verbena, Spiræa, Habrothamnus, Pæonies, Nasturtium, Pinks, Aquilegia, Petunia, Carnations, Collinsia, Viburnum, Convolvulus minor, Tritonia crocata, Oak-leaved Pelargonium, Virginian Stock, Aubrietia, Hydrangea. There was a glasshouse, much neglected, in which I found the Bougainvilleas, Lantanas, Vincas, Heliotropes, Pelargoniums, Cinerarias, Coleus, as at Murcia. In this glasshouse were all the Palms, Cycadaceæ, all which are grown in the open in the Genoese Riviera, with the exception of several Chamærops humilis and Latania borbonica, planted out in a very sheltered spot. Thus it contained Corypha australis, Caryota, Dion edule, Thrinax, Cycas revoluta, Cordylines, Dracænas, Yuccas, Ficus repens, Pereskia, Aralia, Philodendron, Russelia juncea, Cyperus alternifolius, Banana. There were Abutilons and Oleanders in the garden, but not in flower. From the above facts I feel authorised to conclude, that the winter cold is greater at Murcia and at Valentia than on the Riviera. If it were not so, why should plants that we can cultivate with ease in the open air be placed in glasshouses, and why also should the open gardens contain little else but what is found in the gardens of more northern European regions? This can be easily understood. The eastward of Spain, favoured as it is in climate, is bounded, north and west, by high mountains and the health towns, Murcia, Alicante, Valentia, are at some distance from the foot of these mountains—that is, from their protection—so that the cold winds fall down upon them. The Genoese Riviera, on the contrary, is at the very foot of the mountain wall that protects it; and the cold winds, passing over, leave it basking in the south sun. At Valentia and in this region generally, the Lemon tree is only grown exceptionally in very sheltered and warm situations, although in such localities it succeeds thoroughly. Nowhere did I find it grown in large orchards facing the sea, as on the Riviera, between Nice and St. Remo. There were some large timber trees in this garden, which are often met with on the promenades in these regions of Spain: Paulownia imperialis, with elegant blue terminal flowers; Celtis australis, a large beautiful tree; Diospyros Lotus, Cratægus melanocarpa, Gleditschia triacanthos, Sophora japonica, Schinus Molle.

The journey from Valentia to Cordova by rail takes the traveller into the centre of Spain, and of the high table land (New Castile) in a westerly direction, then descends due south, crosses the Sierra Morena, and follows the valley of the Guadalquiver. For many hours, for hundreds of miles, the line crosses the monotonous calcareous plains already described, treeless and houseless, with no cattle to enliven the scene. The entire region seems cultivated, but half or two-thirds was bare of all crops, lying fallow. This is, it appears, the Spanish system of cultivation, as with us ages ago. The land, naturally poor, with a thin soil lying on a calcareous base, very like the chalk downs and fields of Wiltshire, seldom or ever manured, is allowed to lie fallow, and thus to recover itself by the unaided efforts of Nature, one or two years out of three. The owner supplies the seed, and he and the tenant divide the crop. So in the years of drought or inactivity, as there is no rent paid or received, tenant and landlord both get on, if they can only manage to keep body and soul together. Moreover they both seem to be quite satisfied if this can be accomplished, and with their abstemious habits and frugal wants very little will do that. The fact, too, of the entire population being aggregated in towns, as in the Middle Ages, when men had to unite for mutual protection, at a distance from the seat of their labours, is a very great drawback, a national one. The men, with their southern fear of moisture, stay from work if it rains, or appears likely to rain; for festivities, for any excuse: the women gossip all day, the children play about in the streets. Thus the peasant farmer squanders his own time, and does not get that assistance from his family which he does when they all live in a farmhouse in the centre of the field of labour.

No cattle are seen, and very few are kept on these plains, and I was told that the value of manure is so little known that the peasantry require paying to take it away from the towns. As may be supposed, with such a soil and such views of cultivation, the rising crops of cereals, only from 2 to 4 inches high, were very thin, poor and miserable, offering but little promise for the future. Even at this high elevation, from 2000 to 2500, or 3000 feet, there had been but little rain; and further rain, before the summer heat sets in, was anxiously expected. As to vegetation, we had gone back to early April in England, and the cold was positively bitter and very trying after a month in Algeria and South-Eastern Spain. There was not a vestige of a southern climate in the aspect of Nature.

As the railway descending due south approaches the Sierra Morena mountains, the direction of which is due east and west, the geological nature of the soil changes. The calcareous soil and rocks are replaced by a silicious soil, by schistic and sandstone rocks. With this change of soil at once appears a change in vegetation. This change is observed both north and south of the Morena mountains, which are crossed at first through picturesque gorges, and then by a tunnel at an elevation of 2600 feet. The familiar shrubs of the Corsican and Atlas granitic sandstone and schistic ranges reappear. The Cistus or Rock Rose, the Broom—the common European form without spines, not the prickly Broom of the above regions; Thuja and Juniper bushes, the Maritime and Aleppo Pines, Myrtle, Lentiscus, Mountain Lavender, and on the south side, to my surprise, the Chamærops humilis Palm. The Tamarisk fringes the river sides, and the Oleander is often seen along with it. Thus in Andalusia the vegetation of Northern Africa, of the Atlas ranges and rivers, is reproduced, especially along the course of the Guadalquiver, and more decidedly than in Corsica, where I neither saw the Tamarisk, Oleander, nor Chamærops. It is singular that the Chamærops Palm should be described as peculiar to Algeria, for in this part of Andulasia it is as common as Gorse on English commons. I saw thousands of acres covered with this dwarf Palm, growing luxuriantly in tufts. Indeed it evidently propagated itself spontaneously wherever the soil in the Guadalquiver valley

is too poor to tempt cultivation. As I had seen it likewise in the basaltic soils near Carthagena and Murcia, I have no doubt that it is to be found all over Southern Spain in silicious soils, just as in Algeria, where it disappears the moment the soil becomes calcareous. This is another evidence of the geological union of Africa and Europe in former days.

After passing the Sierra Morena the line descends rapidly, and soon reaches an elevation of 600 or 700 feet only. Then with a southern exposure, protection from north winds, more rain than on the eastern coast, and a sandy soil, vegetation becomes much more luxuriant than on the elevated central plain that we had just left. Still I saw nothing to warrant the raptures of poets and travellers when describing the far-famed Guadalquiver valley. It seems to me that these raptures are rather the result of comparison with surrounding nakedness and sterility than of any actual exuberant fertility of the valley itself. Firstly, although there is a good sized river rolling its waters in the midst of a wide and level plain, there is no irrigation. This at first puzzled me, for the entire region was many centuries in the hands of the Moors, who are the people who made and established the irrigation works of the really luxuriant valleys of Murcia, Valentia and Grenada. Indeed Cordova, which is built on the river bank, was the centre, the capital of their dominion. Then it occurred to me that it is of but little use to irrigate a poor sandy soil, as the water must all sink through it, and do no good commensurate with the expense incurred for irrigation. The valleys named above, where such extensive irrigation works have existed for centuries, and where they secure exuberant fertility, are all lime valleys.

Where the sandy or gravelly soil through which we passed was cultivated, the crops were thin and poor—indeed wretched, and that without the excuse of altitude. Side by side with these cultivated regions were wide moorlands covered with bush Ilex, Mountain Lavender, Broom, and the Chamærops Palm, which no doubt in former days extended over the entire region, and yet, as we have seen, remains on the poorer uncultivated soils, just as do Heather and Gorse with us, yet the entire country had a verdant, smiling look. In the vicinity of the villages and towns, generally built near the river, in regions where the alluvial soil is deeper, are groves of Olives, Figs, Pomegranates, and as we neared Cordova occasional Palms—the Phœnix dactylifera—were seen. The hill-sides in the distance were no longer naked, as in the lime regions, but clothed more or less with Ilex, Cork Oak, Pines, &c. Indeed, poor, sandy, gravelly soils, even when covered with very little vegetable soil, are everywhere, even in dry, warm climates, more verdant, more luxuriant with their peculiar vegetation than lime rocks, hills, or soils under the same conditions. The vegetation that clothes these soils bears drought better than that which lives in rich alluvial soils, especially when they rest on clay. The reason is no doubt that in sandy, gravelly soils the roots of the plants, shrubs, and trees can go down all but any distance in search of moisture and find it, whereas on lime soils and rocks, or on clays, when they reach the subsoil they stop short, and depend only for nourishment and moisture on what they find above.

Thus I remember last year (1868) being much struck by the difference between the state of the vegetation of Surrey and Middlesex. In Surrey, where my country residence is situated, and where much of the soil is sand or gravel, the Weymouth Pines, Spruce Firs, Birch, Beech, Oaks, Chestnuts, Heather, &c., were perfectly healthy and green in August, after three months' drought. There was no perceptible difference as compared with other years. But when I crossed the river into Middlesex, on the rich alluvial soils lying on clay, I found a totally different state of things. The ground vegetation was parched—all but reduced to hay, and the trees were losing their leaves as in November. Another reason may possibly be adduced, as my gardener suggested. Our Surrey plants are like poor people, accustomed to poor fare, so when a famine came they bore privation better than our rich Middlesex neighbours, accustomed to higher and better fare.

J. Henry Bennet, M.D., Grosvenor Street.

(To be Continued.)

Notices of Books.

Chips and Chapters: a Book for Amateurs and Young Geologists. By David Page, LL.D. Small 8vo, pp. [illegible]. Blackwood.

A series of chatty, pleasantly-written chapters on things in general; that is, so far as geology is concerned. Among other things, we find in the present volume a chapter devoted to soils and subsoils. The author does not indeed tell us much that was not before known, but we are none the less obliged to him for calling attention to a matter which has been almost entirely neglected by geologists, at least, so far as the wants of agriculturist and gardeners are concerned. "Generally speaking," says Dr. Page, "the soils and sub-soils of a country receive but scanty consideration from geologists; yet few things are more curious in their formation; none so indispensable in the economical purposes they subserve. It is true they are recent and insignificant in mass compared with the rocky crust which forms the great theme of geology, but considering how intimately they are associated with the manifestations of vegetable and animal life as well as with the food supplies of man they are deserving of a closer inquiry, whether as regards their origin, their qualities, or their artificial amelioration." The physical nature and mechanical texture of the soil, and the circumstances influencing them, appear to us to be by no means sufficiently attended to, and yet to practical men the benefits to be derived from an investigation of these matters would be hardly second to those which have accrued from the labours of the chemist. Speaking generally, it may be asserted that except in certain special cases where the presence, in large quantities, of a certain ingredient, such as lime, materially modifies the character of the vegetation, the physical character of the soil has more to do with the kinds and condition of the plant it nourishes, than has its chemical composition. This is well shown in the case of a drained or undrained field. Chemically the same, its physical and hygroscopic characters are altered, and we all know how great the change in the vegetation, whether wild or cultivated. Manures, which are known to exert so strong an influence over plants, even to the extent of causing the disappearance of some plants, as has been proved in the pastures at Rothamsted, owe their powers not solely to their chemical qualities, but to a large extent to the physical changes they bring about in the mechanical texture of the soil. The same remark applies likewise to farmyard manure. We want a geologist-gardener, like Mr. Ingram, of Belvoir; a great fruit grower, like Mr. Rivers, whose nursery contains such variety of soil and subsoil, to take up this matter, and give us from the wealth of their knowledge some data, collected from a gardening point of view, on the qualities of plants in relation to the nature of the soil.

Societies.

EDINBURGH BOTANICAL: *May* 13.—Isaac Anderson-Henry, Esq., V.P., in the chair. The following communications were read:—I. *On the Regional and Hypsometrical Distribution of the Coniferæ.* By Robert Brown, F.R.G.S. This paper was the result of the author's studies regarding the geographical distribution of Coniferæ over the globe, and the laws regulating that distribution. The result of his researches had gone to prove that the Coniferæ had resolved themselves into several natural groups, which he denominated "provinces;" and that these provinces might again be subdivided into lesser geographical groups, called "regions;" these regions, finally, being composed of local arboreal floras, which might be called "districts," distinguished by the prevalence of some particular species, not found out of the range embraced by this district. He then described these geographical provinces of distribution, and gave the provisional limits assigned to them, with lists of the species frequenting each, and the altitudinal range of the species contained in them. The causes regulating this distribution were next considered. It was shown that in all probability each species, even when widely distributed, had a certain isotherm governing it, and that the range of temperature within which it could prosper was not great. The limits of forests in America in north latitude, were stated, for example, at 17.5° Fahr. (isotherm), the isotheral line of 50°, and the isochimonal line of .15°. Moisture was, however, the chief limiting cause of forests, and it appears that at least from 14 to 16 inches of annual rainfall during the growing season are necessary to the prosperity of forests, in defence of which proposition the origin of prairies was discussed. Geological formation had also a limiting influence, the great forests of Sequoia sempervirens in California being entirely limited to the metamorphic sandstones of the western slope of the coast range, breaks in the forest occurring where the formation was alternated with limestone tracts.——II. *On the Distribution of Forests in North-West America, with Notes on the Non-Coniferous Trees and Shrubs.* By Robert Brown, F.R.G.S. South of the sub-arctic belt of trees, which is almost identical in species over the whole American continent, North-west America was divided into two great regions, the dividing line being the Cascade range of mountains and its continuations, the Sierra Nevadas running longitudinally throughout the whole country, and forming together a very distinct arboreal province. The country to the west of the Cascades was wet, and everywhere (except in a few places, chiefly by the banks of rivers) covered with dense, almost trackless forest, chiefly composed of gigantic Conifers, and differing from the corresponding forests on the Atlantic in possessing few deciduous trees, and a dense undergrowth of shrubbery. This region, Mr. Brown considered, might be naturally divided into the Kalosh district, distinguished by forests of Thujopsis borealis, and the absence of several trees common in the district south of it. The next district commenced with the forests of Abies Douglasii, in 54° north latitude, and continued to about 44°. From the prevalence of the chief tree in it, it was called the Douglasian district. It was everywhere a dense forest of Conifers, and a few deciduous trees. Abies Mertensiana, Picea amabilis, Quercus Garryana, Acer macrophyllum, Populus monilifera, Alnus oregana, and Juniperus Henryana, were the most distinguishing trees. The Umpqua district was characterised by the possession of forests of Cupressus fragrans, only found here, Libocedrus decurrens, &c., and was more open to the east, where there was a break in the Cascade range, here joined by Siskiyou Mountains to the Sierras. The Sequoian district was distinguished by the forests of Sequoia sempervirens only found here. California, west of the Sierras, was, however, divisible into two districts, the district of the coast range and the country between it and the Pacific, and the country between the coast range and the Sierra Nevadas. The trees most characteristic of the first district were Pinus insignis, P. muricata, P. tuberculata, P. Coulteri, Abies bracteata, Torreya californica, Cupressus Macnabiana, C. macrocarpa, Arbutus Menziesii, &c.; and of the second—Oreodaphne californica, Platanus racemosa, Æsculus californica, Arctostaphylos glauca, Pinus Sabiniana, P. Lambertiana, P. monophylla (Fremontiana), P. Balfouriana, Cupressus Lawsoniana, and Wellingtonia (Sequoia) gigantea, Lindl. Among its most characteristic shrubs are the service-berry (Amelanchier canadensis), Rhamnus Purshianus, Prunus subcordata, and the Poison Oak (Rhus diversiloba—the type of a great number of so called species). The country east of the Cascades, and between it and the Rocky Mountains, was bare, and thinly scattered with trees; dry in summer, and cold in winter. It was divided into a northerly district, a middle or Kootanie district, and a southerly or Shoshonee district—chiefly characterised by Pinus ponderosa, Pinus contorta, Juniperus occidentalis, &c. The Colorado desert region partook more of the Mexican province than that north of it, and was marked by the prevalence of Algarobia glandulosa, Strombocarpa juliflorens, cottonwoods (Populus sp.), Fremontia, a Yucca, some Oaks, and the giant Cactus (Cereus giganteus, Engl.), the Pithaya of the native Californians, and on the fruit of which the Indians subsisted to some extent. Another region—the Montane—was marked by certain trees, chiefly Coniferæ, which were found only at certain elevations over the whole arboreal province of N.W. America, though the regions at the base of the mountains were entirely distinct in their vegetation. These were common to nearly all the mountain ranges, no matter where situated in the province, the hypsometrical range of the species varying slightly with the latitude. Pinus flexilis, P. cembroides, Abies Pattoniana (Abies Williamsoni, Newberry, *non* Bridges, which was Kellogg's Abies Bridgesii — Abies Albertiana), Larix Lyelli, L. occidentalis, &c., were cited as characteristic of this region. In conclusion, the habits, range, and characters of the chief trees and shrubs (nonconiferous) of the province, including those discovered or introduced by the author, were described. Photographs and drawings of the trees and forest scenery described, were exhibited.——III. *Notes of an Excursion to Clova in April*, 1869, *by Professor Balfour and Mr. William Brand.* Communicated by Professor Balfour.——IV. *Notes on Vegetable Products used as Food during the late Famine in Rajpootana.* By Dr. G. King, Indian Service. Communicated by Professor Dickie. The following plants were noted, and products shown:—1. Acacia leucophlæa, Roxb.—The bark reduced to rough powder, and made into cakes. 2. Unexpanded capsules of Tribulus lanuginosus, L. (N. O., Zygophyllaceæ)—Used in same form as No. 1. 3. Seeds of Achyranthes aspera, W. 4. Sesamum indicum, W.—Refuse of seed after extraction of the oil. Stored by Marwar merchants during plenty, and sold at high price during famine. 5. Seeds of a species of Eleusine. 6. Seeds of various Cucurbitaceæ, Pumpkins, &c. 7. Hymenochæta grossa, Nees. Specimens of the prepared food and seeds were presented to the museum.——V. *On the Scarcity of Wood Suitable for Railway Sleepers in India.* Communicated by Dr. Richardson. The Great Indian Peninsular Railway Company has commenced the importation of sleepers from Australia. The variety of timber fixed upon for this traffic is the "Jarrah wood," which is said to be excellently adapted for laying the permanent road of railways. If that be found the case, we shall probably see a new and considerable trade springing up between the Australian continent and India. The peninsula has little as yet except the main lines of the traffic system, and thousands of miles must be prepared for the "iron horse" before her cotton-fields and rice-fields can be fairly brought within the range of commerce. India possesses coal, iron, and almost everything else, but she does not produce a good timber-tree for sleepers. Though nothing can be better than Sal and Teak when properly seasoned, neither of these can now be had in sufficient abundance to satisfy the steadily increasing demand. The Pine and Fir grow only upon the upper peaks of the mountain ranges; the Teak forests, which are distant from Bombay, have been a good deal overworked of late—while the wood is hard to work, and costly. The commonest tree in Western India is the "Babul," a species of acacia (A. arabica), with a black trunk and fragrant golden blossoms; but it almost always grows very crooked, and its wood is excessively tough. There are, of course, great forests throughout India, and everywhere may be seen groves of superb Mangoes, Tamarinds, Peepul, Jack, Silk-cotton, and other trees, besides Date and Cocoa-nut Palms; but most of those are too valuable, and none of them are suitable for sleepers. Thus, the importation of foreign wood has always been a large element in the cost of railway making in the peninsula. Thousands of loads of Norway Pine have been brought all the way from the Baltic to Bombay, Kurrachee, and even Calcutta, cut into sleepers, and kyanised to keep the white ant away. It has been necessary to pay for this immense sea transit, because neither stone nor any other material will serve the purpose so well as the solid but slightly elastic beam of Fir wood. Along the Indian lines, Bamboo is a good deal employed for telegraph posts, and such other native wood as can be obtained is burned up in the furnaces of the locomotives for fuel. But this scarcity of light timber is a serious matter for Indian engineers; and if it really is the case that in the Jarrah-tree Australia grows the very thing wanted, it is quite likely that a new source of prosperity is opening for the Australians, and that a steady Indo-Australian commerce may be the result.*——VI. *Miscellaneous Communications.*—1. Dr. Richardson referred to the following extract from the *Daily Telegraph*, regarding the failure of certain trees in Paris, and suggested that the failure might arise from gas-pipe leakage infiltrating the soil:—"Much time and money have lately been spent on the Paris trees. The Chestnuts, Limes, and Elms that line the boulevards and decorate the gardens and parks, are gradually dwindling away under the ravages of an insidious malady. The mould has been turned and re-turned, drained and re-drained; every kind of manure has been tried, and all to no purpose. The trees wither and die by hundreds. A new system of drainage has been tried with the young Horse Chestnuts in the Champs Elysées, but it seems very doubtful whether it will succeed. In the Tuileries gardens, although the dead trees are replaced as quickly as possible, gaps are beginning to be visible: and the trees of the Luxembourg are pitiable to see; the Planes of the side-walks have alone escaped the blight. None of the saplings planted within the last few years in the Champs Elysées have prospered well, and round by the Cirque all the Elms except the old ones are in a state of decline. On the other hand, the Poplars and Birches on the banks of the Seine near the Pont-Neuf are quite thriving, and this fact may guide the experiments of those who are studying the causes and effects of the extraordinary disease which is committing such ravages upon the trees of the capital." 2. Mr. Anderson, Oxenford Castle, exhibited a remarkable specimen of Mushroom, having another growing on the top of it. The diameter of the under one was 3½ inches, with a stalk 2½ inches long, the upper one 2⅜ inches in diameter, with a stalk 2 inches long. Mr. Anderson remarks, "that probably some of the spawn must have been less developed than the rest, and having run on the top of the undermost one when in a young state, had taken root, and been supported partly by it and partly by atmospheric moisture; still it is a curious fact that the upper one should be as fully developed as the under." Some years ago Mr. Anderson exhibited two curious Mushrooms united together by their crowns, thus causing the stalk of the top one to project upwards. 3. Mr. M'Nab exhibited a root of Pinus Craigana, from a tree 14 years old, 8 feet high, and 11 inches in circumference at base. It was stated that out of 245 specimens of the genus Pinus, transplanted during the last two years into the new Pinetum, this was the only one that had shown signs of unhealthiness. On taking the tree out of the ground, it was found that a large swelling had taken place round the lower part of the stem below ground, enveloping the main roots, which were in perfect health. The swelling is 14 inches long, and 24 inches in circumference. The plant had not received pot culture. 4. A letter was read from J. B. Webster, Esq., Verner's Bridge, Moy, Ireland, presenting to the museum three sections of Larch stumps, which had continued to increase in diameter after the trees had been felled.

BIRMINGHAM ROSE SHOW.—Undoubtedly the Rose show of the year was the one held in the Town Hall, Birmingham, on Friday and Saturday last. The display of Roses was more extensive and of more uniform quality than any ever held in Birmingham, upwards of 50 competitors from all parts of England having entered the lists. The noble hall was beautifully decorated, and had quite a charming appearance. New Roses were well shown in most of the stands, and many of the old kinds were produced in excellent order. The most noticeable among new Roses were the following:—Duke of Edinburgh, rich and fine vermilion; Madame la Baronne Rothschild, a capital addition to our light colours; Duchesse d'Aoste, bright glacé rose; François Fontaine, deep rosy-crimson, excellent form; Devienne Lamy, fine reddish-carmine; Ville de Lyon, dark rose, brilliant in tint, in form unexceptionable; Thyra Hammerich, light flesh colour, large deep petals, good form; Victor le Bihan, beautiful bright rosy-carmine; Madame Grondier,

* Has it yet been proved, asks the Editor of the "Farmer," that this wood withstands dry rot and the attacks of white ants better than some of the Indian woods do, such as Sal, Teak, and Deodar?

bright salmon rose; Vicomtesse de Vesin, bright rose; President Willermoz, large, bright rose coloured; Reine du Midi, another light flower. Prince Humbert, bright velvety red, shaded; Madame Adele Huzard, bright rose; Madame Marie Cirodde, clear rosy pink; La France, silvery peach; Felix Genero, violet rose, globular; Horace Vernet, bright light crimson; Miss Ingram, Mons. Noman, and Antoine Ducher. Annexed is the prize list:—

Nurserymen.—72 varieties, single trusses: 1st, Messrs. Paul & Son, Cheshunt; 2d, Mr. Cranston, Hereford; 3d, Mr. Cant, Colchester; 4th, Mr. Keynes, Salisbury. 48 varieties, three trusses: 1st, Messrs. Paul & Son; 2d, Mr. Cranston; 3d, Mr. Keynes; 4th, Messrs. Curtis & Co., Torquay. 24 varieties, three trusses: 1st, Messrs. Paul & Son; 2d, Mr. Cant; 3d, Mr. Keynes; 4th, Mr. Cranston. 24 varieties, single trusses: 1st, Messrs. Perkins & Sons; 2d, Mr. Jennings, Shipston-on-Stour; 3d, Mr. Jackson, Kiddorminster; 4th, Mr. Walter, Leamington. 12 varieties, three trusses: 1st, Messrs. Perkins & Sons; 2d, Mr. Jennings; 3d, Mr. Jackson; 4th, Mr. Kimberley, Stoke.

Amateurs.—36 varieties, single trusses: 1st (cup), Mr. Thomas Draycott, gr to T. T. Paget, Esq., Humberstone Hall, Leicestershire; 2d (cup), Rev. S. R. Hole, Caunton Manor, Newark; 3d (equal), Mr. R. B. Postans, Brentwood, and Mr. Richd. Draycott, gr to E. Studd, Esq., Hallaton Hall, Uppingham; 4th (equal), Mr. Saml. Evans, gr. to C. N. Newdegate, Esq., M.P., Arbury, and Mr. Thos. Laxton, F.R.H.S., Stamford. 24 varieties, single trusses: 1st (cup), Mr. R. Draycott; 2d (equal), Mr. J. W. Chard, gr. to Sir F. H. Bathhurst, Bart., Clarendon Park, Salisbury, and Mr. S. Evans; 3d, Mr. John Moore, gr. to T. Lloyd, Esq., Warwick; 4th, Rev. P. M. Smythe, Solihull. 18 varieties, 3 trusses: 1st (cup), Mr. C. J. Perry, The Cedars, Castle Bromwich; 2d, Mr. R. Draycott; 3d, Rev. C. H. Bulmer, Credenhill Rectory, Hereford; 4th, Mr. T. Laxton. 12 varieties, single trusses: 1st, Mr. R. P. Postans; 2d, Mr. C. J. Perry; 3d, Rev. S. R. Hole; 4th, Rev. G. Arkwright, Pencombe Rectory, Bromyard. The foregoing classes were open to all England. 24 varieties, single trusses: 1st, Mr. C. J. Perry; 2d, Rev. P. M. Smythe; 3d, Mr. S. Evans; 4th, Mr. W. Brown, gr. to Miss Alston, Elmdon, near Birmingham. 12 varieties, single trusses: 1st, Mr. C. J. Perry; 2d, Mr. S. Evans; 3d, Mr. J. Parnell, Rugby; 4th, Rev. P. M. Smythe. These two classes open to residents in the adjoining counties. 12 varieties, single trusses: 1st, Mr. C. Cooper, gr. to Miss Anderton, Moseley; 2d, Mr. J. E. Mapplebeck, Moseley; 3d, Mr. John Pirie, Erdington; 4th, Mr. T. A. Bickley, Moseley. 6 varieties, single trusses: 1st, Mr. C. Cooper; 2d, Mr. J. E. Mapplebeck; 3d, Mr. T. A. Bickley; 4th, Mr. Henry Lowe, Edgbaston. Open to residents within four miles of Stephenson Place, Birmingham, only. 12 varieties, single trusses: limited to amateurs who have never previously won a prize for Roses: 1st, Mr. Clement Butler, Castle Bromwich; 2d, Mr. John Pirie.

Open.—Collection of 24 new Roses, sent out by English nurserymen in the spring of 1867-8 or '69, single trusses: 1st, Mr. Keynes, Salisbury; 2d, Paul & Son; 3d, Perkins & Son, Coventry. Best new Roses sent out by English nurserymen in the spring of 1867-8 or '69, six trusses; 1st and 2d, Mr. Keynes, Salisbury—1st for Madame la Baronne Rothschild, 2d for Mons. Noman; 3d, Mr. B. R. Cant, Colchester, for Miss Ingram.

Messrs. J. & C. Lee exhibited a stand of their Seedling Rose, Edward Morren—an improvement on Jules Margottin—to which a First-class Certificate was awarded. Two other Seedling Roses were shown by Mr. Laxton, of Stamford. Mr. C. J. Perry sent a stand of his magnificent Verbenas, which were the admiration of all who saw them. Several of them were Seedlings, and to the following First-class Certificates were awarded:—Rev. J. Dix, flesh coloured, with large carmine centre; Butterfly, pale flesh, with pure white eye, and crimson ring round the eye; and Rising Sun, crimson, with maroon centre. Mr. Hodges, of Cheltenham, exhibited a stand of his pure white clove Carnation, the Bride, to which a First-class Certificate was awarded at the Rose Show last year.

The Apiary.

HONEYDEW.—I have been interested in a discussion on honeydew which has lately appeared in your columns. As a bee-keeper I have often paid attention to this subject. My opinion is, that honeydew may be caused in two ways, but that it is generally produced by aphides. It is extracted by the insects from the under sides of the leaves, and expelled from their bodies with considerable force, much of it naturally falling on the upper sides of the leaves. I have felt the shower on my face when standing under a tree which was affected by honeydew. A flagged pavement in our city has lately been quite dark-coloured and clammy from the saccharine shower. But as the result of my observations, I am convinced that honeydew is frequently an exudation from the pores of the leaves—a sweating, as it were, of saccharine matter, totally unconnected with the operations of any insects. Some years since honeydew exuded from the Currant trees in my garden to such an extent that large drops formed on the tips of the leaves. The bushes were almost entirely free from aphides. What few there were, were evidently there as a consequence, and not as a cause. In fact, I doubt if they could have existed on the leaves to any great extent, as the exudation was so profuse they would have become completely clogged and smothered with it. The weather was intensely hot for several weeks at that time. I have, on various occasions since then, observed the same sort of honeydew on other fruit trees. I have taken some of the dripping leaves to the entrances of my hives, but the bees did not seem to care very much about appropriating the luscious fluid. The probability is that bees do not gather so much from honeydew itself as is generally imagined, but that while the condition of the juices of plants and the state of the weather are peculiarly favourable to its production, flowers generally secrete honey more plentifully than at other times. I believe that there are really two distinct kinds of honeydew; one nearly always present with us, produced by the busy pumping organs of the aphides; the other a spontaneous exudation from the leaves of the trees. Honeydew, when it prevails to any great extent, is produced by considerable heat and dryness of the atmosphere. Mr. Radclyffe is however, in my opinion, right in supposing that cold cutting winds preceding or alternating with hot weather, are favourable to its appearance. The plants become, to a certain extent, unhealthy, consequently the leaves are more easily affected by what is, in truth, a disease, whether the honeydew be caused by aphides, or whether it be a natural exudation totally independent of them.

Dr. Bevan, the author of the "Honey Bee," says—"I believe it will be found that *there are at least two kinds of honey dew: the one a secretion from the surface of the leaf*, occasioned by one of the causes just alluded to; *the other a deposition from the body of the aphis*." The italics are his own.

Erasmus Darwin and other naturalists have regarded honeydew as an exudation or secretion from the surface of those leaves upon which it is found, produced by some atmospheric stroke, which has injured their health. Dr. Evans and others have believed it to be a kind of vegetable perspiration, which the trees emit for their relief in sultry weather. Other writers assert that honeydew is an excrementitious matter, voided by the aphis, and that it is never seen unattended by aphides.

From this latter assertion, I must, with all deference to the opinion lately expressed by Mr. A. Thompson and others in the columns of the *Gardeners' Chronicle*, beg leave to dissent. Dr. Bevan's view of the subject, is, I believe, essentially the correct one. *S. Bevan Fox.*

SOME time ago I had a box or hive of bees from London—they were the "Ligurian bee;" and as they never seemed to increase, I had the hive removed from the house to-day, and find that there is an insect in the hive. I enclose a small box with part of the refuse that was at the entrance into the hive: they seemed to be closing up the entrance. In a paper on the top you will find one of the insects in the shape of a fly, and in the box you will find them in the state of a worm or caterpillar. Please say if you know what it is, and also if you know by what it can be caused, or if you know what would destroy it. It has evidently killed a great number of the bees, but it does not seem to have gone near any of the other hives, which are filled with the English bees. Please say if you are aware of it affecting the hive of the "Ligurian bees" alone. *X. Y. Z.*

[We sent the above communication and the insects to Professor Westwood, who kindly replies as follows:—The material sent in the small box seems to consist of bits of carpet, which may have been carried into the hive by mice, and which have been attacked by the carterpillars of one of the small cloak moths, Tinea tapetzella, which feed on woollen and similar matters. Your hive evidently wants cleaning."]

Garden Memoranda.

EXOTIC FERNERIES.—Being lately in the neighbourhood of Welwyn (Herts), I determined to make a visit to the gardens of two gentlemen, who, I was informed, had so far patronised "the art," as to have two artistic structures reared, as "ferneries under glass," for the culture of exotic Ferns. The first which I visited is the residence of the Rev. G. E. Prescott, Digswell Rectory, and which is approached by a rather circuitous road through the park from the "old northern road." The carriage drive, from which elevated and lovely views of the surrounding country, and a few nice Pinuses and a fine Abies Douglasii, are to be seen upon a southern hill-side, leads immediately on to the lawn, which is limited in extent, and surrounded by a haw-haw fence. From the house the fernery is approached by a winding pathway, which skirts the kitchen garden, in a corner of which it is situated. Immediately opposite the entrance, and upon both sides of the walk, moderate-sized rustic-work has been thrown up, upon which various forms of British Ferns have established themselves nicely, and amongst which I noticed an indistinctly marked variegated sport from Scolopendrium vulgare cristatum. The structure is formed of bricks, and is ornamented on the exterior with figured projections and parti-coloured bricks, to which Roses are trained. A narrow covered way leads through a coloured glass door to the interior, the whole of which is to be seen from this point at once. The house is 9 feet wide and 27 feet long, the walls are from 6 to 9 feet in height, varying back and front, and are ornamented with imitation rockwork. To the right is an irregularly-formed basin containing golden fish, and into this water can be made to flow by the aid of a wire, the fluid in its course trickling or flowing down the rockwork in a zigzag form. Around the interior, on the other sides, pockets, into which peat is placed, and various Ferns planted, are thickly dotted about. The more humble forms are of necessity elevated near the glass, and consequently beyond the line of sight. Amongst varieties which looked well planted out, and with fronds striving for a situation in mid air, were first a bold-fronded Fern, labelled Marattia ascensionis, but which appeared to me to be more properly Marattia purpurascens. Nephrolepis undulata, Phlebodium areolatum, and Cyathea dealbata especially looked exceedingly well. From the pockets or crevices in which the Ferns are planted, crude rough looking abutments jut out in a variety of quaint forms, below which, in a few places, are minute grotto-like cavities and very fair imitations of felspar. The whole has been formed by the artist, Mr. Puig, with Derbyshire sandstone and cement. Except as passage-ways to other and gayer houses, or such-like positions, imitation rockwork and dungeon-like places like this must prove exceedingly monotonous to those who frequent them. There is no change but that of the new fronds occupying the spaces from which older ones have been removed. And what robs this particular structure of much interest to the casual visitor, is the want of any central object to attract attention, and around which he could walk and enjoy any fresh combinations heretofore hidden from view. The whole space is seen at a glance on entry, and with this first view much of the interest attached to such a place ceases. I tried to get at an approximate statement regarding the cost of this structure, and believe I may state that 300*l.* is rather under than over the estimate.

Near to this house is a fine symmetrically-formed specimen of Taxodium sempervirens, from 4 to 5 feet in circumference at the base—a fine evergreen Conifer, an inhabitant of the higher Californian ranges.

The seat of W. Brown, Esq., Ayot St. Lawrence, is reached from Digswell Rectory by a very circuitous road, and lays about three or four miles to the west of that place. The mansion, which is a lofty, square-bricked block, with little pretension from an ornamental point of view, is fronted by a very neatly-kept and picturesque pleasure ground. Various climbing plants are trained against the walls of the mansion, on the southern side, amongst which I noticed a fine specimen of Jasminum nudiflorum. This plant flowered very early this season, the flowers being the finest I ever remember to have seen. Opposite the mansion, and leading away in a central direction, is a lengthy and neatly-kept broad walk, at which, placed at about a third of its entire length, stands a dial mounted upon an ornamental pedestal, and itself surrounded by a width of sward about equal in dimensions to the width of the walk, which sweeps neatly around it. Skirting this walk on both sides is a very narrow ribbon border, on which at intervals occur circular spaces, about half as large as the general width, doubtless intended for some prominent object. A variety of beds are planned out on either side, and are themselves enclosed, or divided from the farther shrubbery, by a somewhat unusual belting of the common Ivy, planted amongst an irregular and very picturesque-looking line of wooden blocks, &c., furnished at intervals with elevated vases. The evergreens here are all that can be desired; and I learned from Mr. Wicker, the gardener, that none had suffered at this place during the memorable winter of 1860-61. To the right of the mansion, and contiguous thereto, are three very fine trees, consisting of a Cedar, a Spanish Chestnut, and a Silver Fir. The latter measured from 4 to 5 feet in diameter, but, unfortunately, it was divided a few feet from the ground into two separate main branches. I passed a small Rosary, a very neat and thriving specimen of the Hemlock Spruce (Pinus canadensis), two fine Plane trees, &c., and at length I found myself outside the conservatory, which is attached to the mansion. In form it is rather lengthy, of moderate width, and contained at the time of my visit a very nice display of blooming plants, amongst which, as being especially conspicuous, were Camellia imbricata, Erica gracilis, and excellent specimens of Dendrobium nobile, Chrysanthemums, &c. It is at the extremity of this house that the exotic fernery is formed, and from which it is divided by glass doors. The sides of the entrance are roughed over for the reception and better display of Ferns. This vaulted structure—for there is only glass upon the top, which is stained so as to secure a more subdued light—is some 8 or 10 feet high, and very narrow and small throughout,—there being not more room than would admit three persons abreast. Generally the same form of pockets, or basin-like spaces, to plant the Ferns in, as described above, are used here. In finishing this, and with the view of imparting as much variety as possible within so limited a space, the designer has given great variety to the numerous projecting parts, imitation crevices, &c., some of which show considerable merit, and especially the little rustic well, below the ground level at the left and furthermost corner, and into which the water is made to flow at will. Many of the Ferns were doing remarkably well. The reason they flourish better here than in the fernery above alluded to, is doubtless due in some measure to the fact that this is the first season's growth—that at Digswell Rectory having been planted one or two seasons since. Nephrolepis davallioides thrives remarkably, some of the fronds being at least 4 to 5 feet in length. So also do Adiantums, Cyathea elegans; Platycerium alcicorne, which clings to the walls with peculiar tenacity; Cyathea princeps, various Lycopods, &c.; nor should I overlook two baskets planted with Pteris serrulata, and hanging in the conservatory just beneath the creeper furnishing the roof, where they thrive remarkably. The temperature, I was informed by Mr. Wicker, was seldom below 50° Fahr.

The kitchen garden lays at the back of the mansion, and is approached by a narrow pathway, closely bordered in with two dense, high Laurel hedges. The glass in this department consists of two vineries, two plant-houses, and an orchard-house, the stock in which looked in a very thriving state. My short description of this place would be incomplete without a passing notice of the parish churches, past and present. They are situate, one on either side of the pleasure-grounds, east and west. The old one is a mass of ruins; the side walls and iron-banded steeple alone remain; the former are overgrown with Ivy, which has firmly clenched the apex of the walls, and by pushing forth in all directions huge spreading branches has asserted somewhat arboreal proportions. This ruin forms a beautiful object in the background, and is seen through various cuttings in the pleasure ground. The new church stands away alone; it has huge columns in front, and contains monumental tombstones of white marble, to the memory of Sir L. Lyde, patron, and "Dame Lyde," his late surviving relict. *Opus.*

Obituary.

WE regret to have to record the death, on the 8th inst., of Mr. OSMAN RHODES, of Crystal Nursery, Sydenham Park, aged 40. Mr. Rhodes has been well-known for the last 20 years as a first-class plant-grower and successful exhibitor, and for some time he has turned his attention to the improvement of hot-water apparatus, in which he has been very successful.

Miscellaneous.

Countrymen's Notion of Artichokes.—At the late horticultural exhibition held at Grantham, the following dialogue took place between two rather aged

gentlemen of the old school, in regard to a dish of Artichokes. "What be these?"—"Why, theey be 'Chokes." "Noo, the mun be Pines!"—"Ah, p'raps soo."

Garden Operations.

(For the ensuing week.)

PLANT HOUSES.

Ericas, and especially the more delicate and tender varieties, after having experienced a somewhat dry period, should now be closely inspected, in order to detect any signs of mildew which may exist or be forming thereon. Where Heaths are properly attended to, this is the greatest pest the cultivator has to contend with, as it necessitates constant attention to every branchlet and sprig to detect immediately any symptoms that occur, and to stop its ravages. Flowers of sulphur are a perfect and sure remedy at all times. These should not, however, be scattered too densely upon the plants, the merest dusting, if applied successively for a few days, will effectually destroy it. Stove plants which are intended for early winter flowering may now have a shift into pots a size or two larger, if they have not a sufficiency of pot room. Such a sized pot should be selected as it will be possible for the plant to fill well with roots before the flowering season commences, otherwise no great success in a blooming point of view can be anticipated. These remarks apply especially to *Gesneras*, *Begonias*, and many other similar subjects. It should always be borne in mind that those I have specially alluded to will not bear large shifts; the smaller the pots they are grown in the better will the flowers be as a general rule. Some from amongst the earlier batch of *Camellias*, such as have already set their bloom buds, may now be removed to a sheltered place out-of-doors, where they should be partly shaded from the more direct rays of the mid-day sun. Give *Pelargoniums* of the scarlet or zonal section, intended for early autumn or winter blooming, their final shift into pots a little larger than those which they now occupy. Do not pinch them back after this date, as it is now becoming full late to make good strong breaks or shoots in time for such a purpose. Others which may not need potting will be much benefited by the occasional use of liquid manure, if not too strong. Should the weather be again cold and ungenial it will be necessary to reduce the amount of artificial heat and moisture in stoves, as the nights are now becoming much longer; the growths which are formed under so cloudy a sky cannot, if allowed to extend too rampantly, be so good as they are when a fair amount of bright sunny weather prevails.

FORCING HOUSES.

In *Vineries* generally Grapes will now be making their final swelling preliminary to the ripening process, and a nice brisk warmth must therefore be maintained around them. Keep all internal surfaces as fresh, or sweet and clean, as possible, and permit nothing to stand crowded about upon the floor of the house which is likely to impede the freest possible circulation of the air. Moss-covered, or stale unraked surface-floors, emit, to say the least, noxious effluvia, which are very unwholesome, and opposed to the requisite sweetness which should at all times prevail. This is not to be wondered at when it is considered that for the want of a simple raking over of the surface, the soil, beaten or trodden down, is incapable of exercising its deodorising powers. I am not an advocate for excessive waterings, but would rather advise that they should be so effective as to reach the utmost limit of the roots. The opportunity should be taken at such times, to afford a fair quantity of some harmless stimulant to the roots. Perhaps the best plan of affording this aid to the roots is that followed by many of our most successful growers. First, stir the surface of the border over, then add a thick layer of crude cow or sheep-dung, and afterwards surface the latter well over with a layer of good yellow loam. Thus it will be seen that the soil above and below will modify all rankness which may be contained in the manure, absorbing into itself the more unwholesome parts, and turning them to account at a later period. The water poured copiously upon the surface above, will freely wash the nutriment out of this layer down to the roots, and thus material aid will be afforded without a resort to crude manurial drainings alone, which are not always to be relied upon, as food proper for fast growing and hence very delicate spongioles. These remarks apply especially to late Vines. Let the back walls and other similar surfaces in these late Vineries receive another washing with sulphur and freshly slaked lime; and particularly see that none of those bunches which are intended to hang late are so thick as to be likely to impede a tolerably free circulation of air when mid-winter and its damping and other injurious influences arrive.

Look keenly after those *Pine plants* which are intended for early winter fruiting; already we may expect to see some symptoms of "showing" in such varieties as Black Jamaicas and Montserrats. They require at such a juncture, as I have so frequently suggested, a liberal treatment both in regard to bottom-heat, manure-water, and humidity. Where Pines are very firm, or have made a very fine growth, and have not been so well ripened as they ought to be (and I fear this will be the case in some instances this season, owing to the dull weather we have experienced), it may be that they will not push the bloom very freely. Under these circumstances it will be well to withhold root moisture, in preference to giving a too plentiful supply. This will tend to develop more fully the fibre of the plants, and will act as a slight incentive to fruit production. Shift now into their fruiting-pots such as are intended to show about next May or June; and this is especially applicable to slow rooting varieties. The night temperature most suited to Pines at this time is between 65° and 70°. That of the day, by means of artificial heat alone, should rest at a mean as nearly 78° as possible, with an increase of from 10° to 12° by actual sun-heat only. *Peaches* and *Nectarines* are ripening very generally now. It will be necessary to look over them carefully every day, that they may be gathered immediately they have become sufficiently ripe. If left upon the trees until they fall into the nets, or upon straw, or other similar appliances placed to catch them, they will have become less pleasant to the palate, and somewhat insipid. Keep up a brisk heat in *Melon-pits*, &c., and this particularly whilst any are ripening, and afford air freely during bright weather.

HARDY FLOWER GARDEN.

Already the flower gardens look more cheerful, and the plants, after an unusually cold and harsh season, are in a very fair way of covering the beds. None have done better during the past inclement weather than Mrs. Pollock, which proves to be the most useful bedder extant. Continue pegging down all subjects requiring such aid. *Verbenas* have hitherto not required this assistance, so very indifferently have they grown this season. It will aid them much if the beds receive a good soaking of water; the soil should be afterwards loosened with the hoe when sufficiently dry to work without sticking, and then pegging down should be done as required. Continue to increase *Pentstemons*, *Pansies*, &c., as required; any young shoots which emanate from around the base of the main stems will do well for this purpose. Plunge specimen pots of *Auriculas* into cinder-ashes in a moderately sheltered position should a dry period ensue, carefully guarding them against any form of drip, or too full exposure to the direct rays of the mid-day sun. Gather the seeds of choice *Polyanthuses*, which will now be very generally ripe. Cut away all flower-stalks of any *Herbaceous Plants* which have done flowering, such as *Delphiniums* of the perennial sections, &c. Should the weather continue dry give copious waterings, as previously advised, to *Phloxes* of the decussata breed, and to *Tritomas*, as neither will flower or flourish effectually without abundance of root moisture.

HARDY FRUIT GARDEN.

Remove all lateral growths which form upon *Peach* or *Nectarine trees*, or more especially upon those strong shoots which have already been laid in. In instances where very gross shoots exist, it will be conducive to a more plentiful supply of flowers if the larger leaves which form near the base are cut in two across the middle just about the time at which they are fully grown and have become tolerably well matured. Lay in all the young shoots which form upon any old plants of Cherries or Plums; a good crop is not attainable without their aid. Remove all *Strawberry-runners* as frequently as they show upon the stools when not needed to form plants, otherwise they will greatly impoverish the main crowns. Where the side shoots upon Currants (red and white) have not yet been removed, this should now be done without further delay. These remarks are equally applicable to *Pears* and *Plums* upon walls, or espaliers also.

KITCHEN GARDEN.

Make sowings now of a good stock of Sangster's or Daniel O'Rourke *Peas*, such as Carter's First Crop or Suttons' Ringleader, and a few *Dwarf French Beans* for late uses. Plant out upon very rich ground and in well-prepared drill rows the necessary quantity of *Leeks*. These may be planted some 8 inches apart by 10 in the rows. Make a main sowing of *Turnips*, and, as previously intimated, get out all the *Celery* possible at the earliest moment. Sow *Cabbage* seeds for early winter Collards; also a succession of *Spinach*. Water the Celery previously planted, if dry weather continues. Keep a sharp look-out for weeds, both on walks and on the cropped ground. *W. E.*

TOWN GARDENING.

CUTTINGS of Pompon *Chrysanthemums* that were put in as directed last month will now be well rooted, and should be at once pinched back, in order to make them nice bushy plants. Where it is intended to grow specimen blooms of the larger flowering kinds, all lateral shoots should be removed as fast as they appear, and the plants should be well watered at the roots every evening, and the tops should be syringed at the same time. Pipings of the late-flowering varieties of *Pinks* may still be put in, as directed at p. 692, and will do well.

The *Intermediate Stock* does very well in towns if wintered in a cold frame; these should be sown about the 20th of this month, in the following manner:—Take out the mould about 6 inches deep; put in an inch of ashes to keep the worms down, then fill in level with fresh mould from the country, giving it a good watering, and the next morning sow the seed, sifting a little fine mould over it; pat it down softly, and cover with a glass till the plants appear, when attention must be paid to give plenty of air. The double white *Pyrethrum* will likewise do well under the same treatment, if sown now. *Pelargoniums* that have done flowering in the windows should now have the old flowering wood cut down to the next new shoots that are making, and should be placed out so as to get all the air possible. The *Balsam* makes a charming window plant, and those plants that are now coming into bloom are the best for this purpose, as they have not been sharply forced, and will last a long time if well supplied with water. Reverting to the propagation of the *Carnation* in last week's article, I forgot to mention that they can likewise be freely propagated from cuttings; but this method I should not recommend as a general rule, for they seldom flower the following summer; but if potted and placed in a pit in the autumn, they will flower very early the following spring. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending July 14, 1869, as observed at the Horticultural Gardens.

July.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 8	28	30.061	29.970	76	49	62.5	63	59	S.	.00
Friday 9	●	30.222	30.172	75	58	66.5	64	59	W.	.00
Satur. 10	1	30.314	30.222	79	42	60.5	64	59	W.	.00
Sunday 11	2	30.254	30.165	81	44	62.5	65	60	S.E.	.00
Mond. 12	3	30.062	29.988	89	55	72.0	65	60	S.	.18
Tuesd. 13	4	30.169	30.106	73	42	57.5	64	61	N.E.	.00
Wed. 14	5	30.229	30.167	78	51	64.5	64	61	S.W.	.00
Average.		30.187	30.113	78.7	48.7	63.7	64.1	59.8		0.18

July 8—Overcast, fine; cloudy; clear and fine at night.
— 9—Very fine; cloudy, but fine; cloudy, cold air.
— 10—Very fine; clear and fine; fine, but cloudy.
— 11—Fine and clear; very fine; fine, slightly overcast.
— 12—Very fine; fine, very hot; cloudy, but fine, rain.
— 13—Showery; cloudy; densely overcast, cold wind.
— 14—Very fine; clear and very fine; dense clouds.
Mean temperature of the week, 8·10 deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending July 24, 1869.

July.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..18	74.7	50.2	62.5	21	1.22 in.	—	—	3	1	6	19	9	5
Mon. ..19	73.2	49.9	61.1	22	0.60	2	4	1	1	8	18	9	2
Tues. ..20	73.2	50.2	61.7	23	0.72	1	1	4	—	3	15	13	2
Wed. ..21	74.0	50.8	62.4	19	0.54	2	1	5	1	5	16	10	3
Thurs. ..22	72.2	51.4	61.8	24	1.37	3	3	3	1	5	15	10	2
Friday ..23	74.0	51.4	62.7	24	0.70	3	7	5	2	4	13	6	4
Satur. ..24	72.6	51.7	62.1	14	1.16	1	9	4	3	6	13	4	3

The highest temperature during the above period occurred on the 23d and 24th, 1868—therm. 93 deg.; and the lowest on the 23d, 1853—therm. 32 deg.

Notices to Correspondents.

DISEASED CURRANTS: *D D.* We have examined your Currant branches closely, and find no insect or Fungus. From the quantity of green matter (Chlorococcus) on the bark, the situation in which they grow is clearly damp. The present season has been so uncongenial that vegetation has suffered materially. The ground under Apple trees is strewn with dead leaves as thick as in autumn. Cherries, Plums, and Apples which were perfectly formed have withered and fallen off; and the same may be said of Walnuts, which promised a short time since a heavy crop. We hope therefore that the bad condition of trees is only temporary, and we are the rather inclined to believe that this is the case, as black and red Currants are in the same condition. *M J B.*

DISEASE IN ONIONS: *Sir W C T.* It is clear that the roots of the Onions have been first affected. There is an attempt in the distorted plants to throw out fresh roots. We believe that the disease is constitutional, and that if any of the plants should seed that the disease may be propagated. At least, such was the case in similar specimens sent to us some years since. In your case, however, it would be important to ascertain whether the seed was of the same origin as that which was raised in the healthy and unhealthy beds, as this would indicate some other cause. The specimens were much crushed in the post, and arrived in a very unsatisfactory state for examination. *M. J. B.*

FRENCH PARADISE STOCKS: *W Henderson.* Consult our advertising columns.

INSECTS: *W C T.* Although carefully examined with a lens, we have not been able to find any insect on your Parsnip roots. We can, therefore, only suggest that they have been gnawed by some Curculio, or by the ground larva of some kind of Noctua. *W.*

IRISH GARDENERS' RECORD: *Inquirer.* Price 4*d*. Apply to Thomas Edmonson, 9, Dame Street, Dublin.

NAMES OF PLANTS: *E D.* Cynoglossum officinale. — *T J.* 1, Claytonia perfoliata; 3, Galium, apparently G. palustre; 4, Polygala vulgaris; 6, Rhinanthus crista galli; 7, Solidago Virgaurea; 8, Linum catharticum; 10, Cystopteris fragilis; 11, Briza media.—*Arthur Bates.* 1, Pleopeltis pustulata; 2, Trymalium Billardierii.—*Fred.* Mislaid.

PELARGONIUM, MRS. HALLY. Mr. Hally contradicts the statements of "R. D.," at p. 743. On referring Mr. Hally's letter to our correspondent, he replies as follows:—The plants of Mrs. Hally Double Pelargonium, exhibited by Mr. Hally at the meeting of the Floral Committee, on the 6th inst., were not by any means in condition, and the yellowish appearance of the foliage of the plants was freely commented on by many who were present. If Mr. Hally imperils the reputation of what he regards as a thoroughly good and distinct thing, by sending to the meetings of the Floral Committee indifferently grown and bloomed plants of it, he must not be surprised if the opinions of others vary from his own. In regard to the similarity of the flowers of Mrs. Hally with those of Marie Lemoine, I can only say that in the company of several other persons I closely compared the two, and the unanimous vote was that they were so nearly alike that they might be considered identical. The very characteristics of habit given to his new variety by Mr. Hally are exactly those possessed by Marie Lemoine, the real difference (if any) exists solely in the colour of the flower. Mr. Hally may rely on it that the Floral Committee will instantly do justice to his new variety if he will exhibit it superior to Marie Lemoine. Till then I abide by the opinion I expressed at p. 743. *R. D.*

PERPETUAL PICOTEE: *F P.* We do not undertake to notice everything that may be shown. Look to the list of awards issued by the Society.

ROYAL HORTICULTURAL SOCIETY: *J E G.* Successful candidates receive plants in due time. The gardens are closed till one p.m. on *fête* days only. Apply to the Secretary.

VINE BORDERS: *W Brokenbrow.* We can only recommend you to form an entirely new border, and plant a new set of Vines. The roots of your Vines must be in very bad condition, judging from the example of fruit sent, and it is no wonder, when we take into consideration the treatment they have received—first, by the cutting off of half their roots and the addition of 3½ feet of old sour soil to your border. No Vines could succeed in a border of old soil 7 feet in depth.

VINE LEAVES: *G H.* The little excrescences are very common on Vine leaves, and do not seem, as far as our experience goes, to affect the produce so long as the leaves are healthy in other respects. Like the roots which sometimes occur on the branches, they appear to arise from an imperfect balance between the supply to the roots and the quantity of moisture in the air of the house. *M J B.*

WHITE SCALE ON BRIAR ROSES: *J E Gray.* I fancy this is American blight. Shake a little lime, and add a little salt. This will stop it. Soft soap may do so. Orange Fungus is difficult to cure. I cut out as much as I dare do of it when I see it. It much abounds. My trees are nearly clear of it. *W F Radclyffe.*

ERRATUM.—In Mr. Smith's article on "Glazing," (p. 739), for Oak sides read *Oak sills.*

COMMUNICATIONS RECEIVED.—E. D.—R. D.—C. H. B.—G. D. —G. C.—Dick Radclyffe & Co.—J. May (thanks).—E. W.—W. F. R.—C. J. P.—W. H. R.

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The Royal Agricultural Society of England.
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The expenses incident to the transaction are paid by the Company, and added to the amount to be charged on the Estate. No investigation of the Landowner's Title is necessary. Terms and further particulars may be obtained of Messrs. GILLESPIE & BELL, W.S., 81A, George Street, Edinburgh, Agents for the Company in Scotland; of Messrs. RAWLENCE & SQUAREY, 22, Great George Street, Westminster, S.W., and Salisbury; of Messrs. ASHURST, MORRIS & Co., Solicitors, 6, Old Jewry, London, E.C.; and at the Offices of the Company. T. PAIN, Managing Director.
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THE ROYAL AGRICULTURAL SOCIETY of ENGLAND.

President.—His Royal Highness the PRINCE of WALES, K.G.

MANCHESTER MEETING. 12th to 24th JULY, 1869, inclusive.

PROGRAMME.

MONDAY, July 12, to Friday, July 16, inclusive.—Trial of Reaping, Mowing, and Haymaking Machines, Horse Rakes, &c., in the fields adjoining the Show Yard. Admission, 6d. each person.
FRIDAY, July 16, and Saturday, July 17.—The Implement Yard only. Open from 9 A.M. to 6 P.M. Admission, 2s. 6d. each person.
MONDAY, July 19, and Tuesday, July 20.—The entire Show Yard. Open from 8A.M. on Monday, when the Judges commence inspecting the Live Stock and making their awards. Admission, 5s. each person.
WEDNESDAY, July 21.—Admission, 2s. 6d. each person.
THURSDAY, 22, Friday, 23, and Saturday, July 24.—Admission, 1s. each person.

SPECIAL NOTICES.

SEASON TICKETS.—Non-transferable Tickets, price 10s. 6d., admitting the holder, once on each day, to the Show Yard, from July 19 to 24, inclusive, may be obtained from the Secretary, 12, Hanover Square, not later than Saturday, July 10, and afterwards at the Secretary's Office, near the entrance to the Show Yard, or at 96, King Street, Manchester, from and after June 25.

TRIAL OF HUNTERS.—The Trial of Hunters will take place in an enclosed space adjoining the Show Yard at 2.30 daily, commencing on Tuesday the 20th. Admission to this ground, 1s. per day each person. Admission to the enclosed stands on Tuesday and Wednesday, 4s. each person; and on each of the other days, 1s. 6d. each person. Season tickets, price 10s. 6d. each, may be had at 96, King Street, or at the Local Committee's tent, in the Show Yard—giving the holder admission to the leaping ground and the stands at any time on any day, from the 20th to the 24th, inclusive. Governors and Members of the Society are, however, reminded that they have not free admission to the Trial of Hunters.

HOUND SHOW.—An Exhibition of Fox-hounds will be held in the enclosure for the Trial of Hunters, adjoining the show ground, on Wednesday and Thursday, July 21 and 22. Admission, 1s. The holders of Season Tickets for the Trial of Hunters have free admission to this Exhibition.

HORTICULTURAL SHOW.—Arrangements have been made to enable persons to pass and repass from the Royal Agricultural Show Yard to the Exhibition of the Royal Horticultural Society, after separate payment at each.

REFRESHMENTS.—Provision has been made for first and second class Refreshments upon the ground, at a reasonable charge.

LODGINGS.—Persons at a distance wishing to obtain information as to Lodgings, are requested to address Mr. John Duffield, Essex Street, King Street, Manchester, at whose office a Register of particulars and prices is kept, and by whom printed lists will be supplied, or inquiries answered on application.

GENERAL NOTICES.

No person can be admitted to the Show Yard after 7 o'Clock in the evening.
The Show Yard will be cleared of visitors each evening at 8 o'Clock.
The Parade of Cattle in the Rings will take place at 10 o'clock A.M., and of the Horses at 12 o'clock at noon, on each day after Monday.
A Plan of the Show Ground may be purchased at the Printing Office, in the Show Yard.
There are two Entrances to the Trial Fields, one by Seymour Grove, and the other by the Military Exercise Ground, both at Old Trafford. Access can be had by no other approach.

The Agricultural Gazette.

SATURDAY, JULY 17, 1869.

MEETINGS FOR THE ENSUING WEEK.

July 19 } Royal Agricultural Society of England, at Manchester—
— 20 } Admission, 5s.
— 21 – Ditto, Admission, 2s. 6d.
— 22 }
— 23 } Ditto, Admission, 1s.
— 24 }

THE Manchester showyard and its contents are, we need hardly say, of greater importance than any collection of a similar kind which has ever been made. As compared with the successful Leicester meeting, the following figures will show several points of increase:—

	1868.	1869.	Increase.
Stands	337	395	58
Articles	6369	7724	1355

Of the shedding there are 10,500 feet for implements, 1250 feet for machinery in motion, 700 feet for seeds and models, 5000 feet for live stock, 406 feet in length of horse-boxes, and 1300 feet in length of refreshment stands. All these are spread over a space of probably 100 acres; which is exclusive of the large area occupied by the ring and "grand stands" in the jumping ground.

The trials which were begun on Tuesday are likely to be the most prolonged that have hitherto occurred under the auspices of the Royal Agricultural Society. The mowers and reapers that were selected by the two sets of judges in this department of the trials numbered upwards of 100. Of the 2-horse mowers there were 24. Mr. WALTER A. WOOD, Messrs. HORNSBY, Messrs. SAMUELSON, Messrs. BURGESS & KEY, and Messrs. J. & F. HOWARD, did some most excellent work in the seven preliminary trials of half an acre each. Mr. WOOD, Messrs. SAMUELSON, and Messrs. HOWARD, cut their half acre in about the same time, viz., 28 minutes each. This is quick work, when its fine quality is also taken into consideration. Indeed, nearly all the machines did the work well; and, as one of the judges said, the question of relative merit is now more one of the cost, lightness, and strength of a machine, than of the quality of its work; and these points will no doubt take a leading place in the final decisions. At the time we write, the awards have not been announced, and it is not likely they will be announced before this evening.

The preliminary trials of the reapers and combined machines are even more numerous and tedious than those of the mower alone.

In addition to those already named as exhibiting the latter, and who were also among the Rye with their reapers, there were several other noteworthy competitors. Messrs. BINGHAM & BICKERTON did some excellent work with a very simply constructed machine. Messrs. SAMUELSON have a good new self-raking machine at a reduced price. Messrs. HOWARDS' double cam self-raker, which carries the gatherers as low down, or nearly so, as the rakes, promises to take a prominent place for cutting laid corn. Messrs. HORNSBY'S "Paragon," a combined reaper and mower, did some first-class work with the Rye. Mr. CUTHBERT also did some good work with an improved Hussey machine.

The judges in these departments possess the confidence of both manufacturers and farmers. Of mowing and haymaking machines and horse-rakes they are:—Mr. JOHN HEMSLEY, Shelton, Newark, Notts; Mr. J. W. KIMBER, Tubney Warren, Abingdon; and Mr. MATTHEW SAVIDGE, Sarsden Lodge Farm, Chipping Norton. Of reaping, sheaf-binding, and corn-drying machines:—Mr. JOHN HICKEN, Dunchurch, Rugby; Mr. W. SANDAY, Radcliffe-on-Trent, Nottingham; and Mr. W. SADLER, Ferrygate, Drem, N.B. As an instance of the severe test to which these machines have been put, fields of Rye-grass and Clover are to be rolled down before the mowers are put to work, and several acres of Rye are to be treated in a similar manner, to test the capacity of some of the reapers.

The judges in other departments are as follows:—Of manure distributors, potato-getters, waggons and carts — Mr. JOHN WHEATLEY, Neswick, Driffield; Mr. HENRY CANTRELL, Baylis Court, Slough, Bucks; Mr. JOHN GIBSON, Woolmet, by Dalkeith, N.B. Of miscellaneous and dairy utensils:—Mr. H. B. CALDWELL, Monkton Farleigh, Bradford-on-Avon; Mr. F. SHERBORN, Bedfont, Middlesex; Mr. J. K. FOWLER, Willow Bank, Aylesbury. Of plans and models:—Mr. J. COLEMAN, Escrick Park Office, York; Mr. J. BAILEY DENTON, 22, Whitehall Place, London, S.W.; Mr. J. E. WATSON, Newcastle-on-Tyne.

Among the machinery exhibited there is nothing of a very novel character. But there are three entries of corn-drying apparatus to compete for the Gold Medal offered by the Society. These are shown respectively by Mr. GIBBS, who was awarded the premium of the Society of Arts; Messrs. DAVY, PAXMAN & DAVY; and Messrs. ADAMSON & Co.

Among the more ponderous articles, Messrs. FOWLER & Co. have a traction engine on the ground, which they have made for Mr. CAMPBELL, of Buscot Park, the weight of which is about 27½ tons.

As to the City in whose suburbs this great collection is now gathered—Manchester is rising rapidly to a high condition of expectation, in anticipation of the visit of their Royal Highnesses the PRESIDENT of the SOCIETY and PRINCESS OF WALES. Stands are being erected on every available spot by which the Royal party pass, and windows and houses are being advertised for the convenience of seeing the procession down the Stretford Road to Old Trafford, where the Royal Society's showyard is situated.

If the enormous population in this city and neighbourhood be thus thoroughly aroused they will, no doubt, follow the Royal party to the showyard; and it is evident that nothing but a continuance of the fine weather is necessary to make our meeting an unprecedented success.

IN all essential points the Contagious Diseases (Animals) Bill has passed through Committee unaltered. The amendments which were introduced at the sittings of July 9 and 13, although important, do not affect the general principle of the measure.

Mr. GREGORY'S proposition to substitute two months for 10 days, in clause 54, as the period which must elapse since the occurrence of a fresh case of pleuro-pneumonia before the rules of the Act cease to operate in any particular case, was modified by the adoption of the words "thirty days;" and taking the general experience in reference to the progress of pleuro-pneumonia that time is sufficient; we have known three

months to elapse before the disease has reappeared, although in exceptional instances. On clause 63, relating to the carriage of animals by railways, Mr. FORSTER's amendment directs that "Every railway company shall make provision for the supply of water and food to animals carried by the company, the same to be supplied on the request in writing of the consignor of any animals at such stations as the Privy Council may direct." This addition to the clause will meet the wishes of agriculturists, and will also be generally acceptable on humanitarian grounds. Mr. FORSTER likewise agreed to take into consideration the arrangements for the transit of cattle in steamboats. Definite legislation on these matters is somewhat difficult, as cattle on board ship, like their human companions of the voyage, are subject to strange modifications of their normal functions, and do not always behave in a strictly correct or usual manner. Spanish cattle, for example, if fed and watered during the first 12 hours of the voyage, suffer considerable inconvenience, which is avoided when they are kept fasting for a longer time. Again, it is well known that some animals will neither eat nor drink at all during a journey. Practical experience is therefore absolutely necessary for the proper arrangement of details; and the whole question must be left open in any Act of Parliament. If the Privy Council undertake to sanction a certain system of conveyance of animals by land or water, it is reasonable to presume that they will obtain all the necessary information to enable them to act consistently.

In brief, as the Bill now stands, the foreign cattle trade will be regulated by "Orders of Council," in respect of the definition of countries from which animals may be imported into Great Britain free; all other classes of imported stock will be landed within a defined part of a port, and there sold and slaughtered.

Referring to home-bred and other stock in this country, the Bill makes it penal (clause 56) to expose "for sale in a market or fair or other public place, or sale yard, whether public or private," or to send or cause "to be carried on a railway or on a canal, river, or other inland navigation, or in a coasting vessel," or to drive or lead "on a highway or thoroughfare, any horse or animal affected with a contagious disease."

All this is very proper so far as it goes, but a difficulty of no mean character presents itself in reference to the position of imported stock under the operation of the clause. Penal statutes we know must be construed strictly, and the penalty applies to the owner or "person" who commits the offence, unless he shall show that he did not know, or could not with reasonable diligence have obtained the knowledge, that the animal was so diseased at the time it was exposed for sale or moved by road or river. In the case of an English ox affected with pleuro-pneumonia the probabilities are that the farmer who sends it to market can with reasonable diligence find out whether he has pleuro-pneumonia on his farm or not; but how stands the matter in reference to a Dutch or German ox landed in this country with the undeveloped disease in his system, passed by a Custom's inspector as a sound animal, and sent to one or two markets before the symptoms of pleuro-pneumonia are detected? Who is guilty of an offence against the Act in such a case?

Again, the more frequent disease, "foot and mouth complaint," is placed in the list of infectious maladies; and it will be penal, when the Bill becomes law, to expose animals affected with that disease in a market, or to move them along the road or river. Hundreds of imported animals are landed in this country, and at the time of inspection give no evidence of disease, but in two days afterwards are unmistakably affected with it. On whom will the responsibility rest in this case? And, if proceedings are taken against the importers, what magistrate will convict a man for exposing in the market on Monday a lot of oxen which were passed by the port inspector on the previous Saturday. This part of the measure appears to require correction, and we confess, with a view to the safety of the stock of the country, we should prefer that infectiously-diseased animals which may be detected in a market, or on the road, be slaughtered at the nearest convenient place, rather than that the "person" should merely be deemed guilty of an offence against the Act, and punished accordingly, while the diseased beast is left alive to do his worst. If the local authority had power to order "the slaughter of such animals" no great loss would be incurred, as the meat in the early stage of both diseases would be sold for food, as it always is, and the danger of propagating the disease be at once effectually averted.

IT is very strange how soon accurate remembrance of the weather fades away from the mind unless there has been some very special circumstance to imprint it, and nothing is more common than the exclamation—"We never had such weather as last week!" or "last month," as the case may be. Unless we keep a record of instrumental observation we are very apt to be deceived; our feelings perpetually deceive us, and our remembrances still more. For once, however, all have been in accord; instruments, feelings, memories, all agree as to the character of the month of June just past. Recollections must indeed be able to traverse half a century to recall such a season as that we have just passed through; but they need only go back a single twelvemonth to call to mind one of the most remarkable contrasts ever presented by our climate, variable as it is.

Last year we had a warm, bright, and dry May as a prelude to a June extraordinary for warmth and drought, and, above all, for the clearness of the sky. It was this last feature which, by promoting radiation and affording cool nights, served in some degree to moderate the heat—which was nevertheless oppressive, and, combined with extreme drought (not more than half an inch of rain having fallen throughout the month in many places), was very trying to vegetation. This year's June was preluded by a May in every way a contrast to that of 1868—cold, dripping, overcast, with biting winds and frequent frosts. The month that followed it has not been remarkable for anything but cold; the temperature in the shade has been about 5° below the average; the absence of rain not so remarkable certainly as last year, yet such as to constitute it on the whole a dry month, and at its close leaving all crops, except perhaps the Wheat, crying out for moisture. But in heat it has produced a most remarkable contrast to the preceding season: instead of the shade of the grove, we have resorted with pleasure to the fireside—while colds and rheumatism have been as much the fashion as in the depth of winter. The days have been cold and comfortless, and the nights extremely cold—frosts prevailing in many localities even to the end of the month; whilst the night of the 16th will be long remembered for its wintry severity—the hills in the north covered with snow of great depth, in the south sheep actually perishing with cold.

Now, if it be asked, what has been the reason of this extraordinary cold? the proximate cause may be indicated with certainty, and perhaps the cause lying immediately behind this; though the remoter causes may remain in obscurity.

Observations with a sun thermometer, of which the bulb is fully exposed to all atmospheric influences, rarely show a difference over the temperature of the shade of more than 14° or 15° even in the hottest weather. During the past two months a much larger difference might have been frequently noticed—a difference of 20° to 25°, and on one occasion nearly 30° has occurred. This may be taken as an index that the temperature would have risen to one much more in accordance with our ordinary experience at this season, but for some overmastering influence. That influence has been the translation bodily of masses of cold air from the arctic regions. The prevalence of northerly winds in May and June, 1869, compared with that in the same month in 1868, is nearly as 9 to 5. The immediate cause of this may be the abnormal weather which has occurred in Russia. In that country the papers tell us there has been exceptional heat; the natural consequence of a larger body of heated air flying off towards the pole, has been a larger quantity forced from the pole southward. What that again depends on it is much more difficult to say; but probably upon some unequal distribution of vapour. A slight departure from the usual course in those natural forces which are the object of study in meteorology has a tendency to increase and propagate itself till, by the natural arrangement, its very excess calls into action a compensating force, which again works out a cycle of variations; and in variable latitudes the merely arithmetical law of combinations is capable of producing almost endless variety. If you take only three degrees of intensity in the ordinary elements of weather, and calculate the number of combinations which are rendered possible, it will be found that it will take more than a million of years to exhaust the series. *Isis.*

—— WHEAT has risen in price during the month of July nearly 5*s.* a quarter, of which 1*s.* was due to Monday's market. The promise of a good harvest is, however, daily improving.——Cattle markets are rather slack and dull, the supply exceeding the demand. —— There is little to report in the agricultural seed trade.

OUR LIVE STOCK.

THORNTON'S "Shorthorn Circular," No. 5, has been issued during the week, and contains a complete epitome of Shorthorn transactions for the past three months. It opens with the prize Shorthorns at the Royal Dublin and Bath and West of England Shows, by which it appears that 207 animals of the breed were shown at the former meeting, and 55 at the latter. The monster gathering at Dublin of yearling bulls must have been immense, as 124 entries alone were made in that class. Shorthorn sales (eight) follow, with colour, age, and reference pedigrees of the animals, as well as the price realised and buyers' names, together with a summary of the sale and the average price. Notice of five forthcoming sales are also given, likewise a couple of pages of sales that will probably take place during the autumn, but which are not yet advertised. The season seems to have been good for exporting, for about 30 animals have left the country for America, Australia, Germany, Hanover, Holland, Prussia, Russia, and New Zealand; as the pedigrees of the animals are given, with the Herd Book reference; this part of the work must be very useful to Continental breeders. About five pages of births in celebrated herds are given, and an account of the private selling and letting of bulls. The death of some famous animals is also chronicled, with a brief report of their produce and doings, the most interesting being the history of the famous bull 4TH DUKE OF THORNDALE (17,750). The late Mr. Benjamin Wilson's life as a breeder is agreeably sketched, the opening phrase, "a neat farm and a good judge," being pretty well the keynote of the whole. Ninety-four animals on sale and three on service complete this interesting record. The 72 pages (not to mention the apparent care bestowed on the information and arrangement) must be a costly production, and Shorthorn breeders should not let it go unsupported.

—— The second Middle Park sale of thorough-bred yearlings was not so well attended, still 35 out of the 40 offered were disposed of at an average of 140 gs. each; Mr. Cavaliero (rumoured for Mr. Graham) gave the two highest prices, 510 gs. each for two splendid fillies many of which were bought for breeding purposes. Mr. Dangar bought two very promising ones at cheap prices; they go out this month to found a breeding stud for good saddle horses at Sydney, New South Wales. He bought a Gladiateur colt at the first sale, and has just completed the purchase of a pure Arab horse from Lady Spiers for 500 gs. This was a 1st prize animal at the late Islington show. Another Arab stallion has also been obtained from the stud of the King of Wurtemburg at Stutgard; these horses will be some of the finest animals and best blood that have as yet been exported to Australia.

THE ROYAL AGRICULTURAL SHOW AT MANCHESTER.

THE Manchester meeting of the Royal Agricultural Society, judging from the implement yard and trial fields, promises to be a successful one. The catalogue of implements, seeds, and roots, comprises a bulky octavo volume of upwards of 500 pages of closely-printed matter. There are 7724 entries, making thus about 100 pages and 1355 entries in excess of the Leicester implement catalogue of last year. The trial fields are well attended. The catalogue of the other department is not yet published, but from official information we are given to understand prospects are equally favourable.

The trial of mowing and reaping-machines has, since 1857, been highly attractive to more than the agricultural public; and considering the place (the "Cotton Capital"), and the perfection to which this Class of machines has attained in the manufacture, the fine exhibition we have to report, and the patronage it is receiving, are no more than what was to be expected. Thus, Manchester enters 72 mowers against Leicester, 23; combined machines, 51 against 22; reapers, 82 against 51. Total: Manchester, 205, against Leicester, 96; a difference which speaks significantly for the occasion.

Little short of half the whole force was sent to the trial fields, so that the judges have had enough to do, while many sight-seers have been sadly puzzled what to make of the preliminary trials of such a number of machines in each of the classes and sub-classes into which they are divided, and how the few prizes were to be awarded. The scene, as some of the machines entered the standing crop, was in the highest degree exciting, even amongst implement makers and the rival competitors themselves, who are becoming more and more familiar every year with how much the issue depends upon hands and horses, and whether they can master the crop or no. The crops of Grass and Rye were more than usually favourable for well-educated workmen and horses doing their duty to the best advantage of their employers, and we may add, *vice versâ*.

The trial fields are conveniently situated, being contiguous to the showyard on two sides—Taylor's farm on the one side and Cookston's farm on the other.

Both farmers have in the most praiseworthy manner done their best throughout to accommodate the Society, and forward the object of the trials. Owing to the season the Rye on both farms was of considerable length, but rather thin upon the ground, and too green (unless for straw-plaiting). The Rye-grass and natural Grass on Cookston's farm was also long, but somewhat thin upon the ground, and the soil, both in the case of the Rye and Grasses, was not so kindly as if the season had been otherwise than it was in spring. The crops are what is usually termed long, wiry, and tough, requiring a sharp knife and a heavier pull of the horses to separate the cut crop from the standing, more especially in the case of the Grass, than the actual weight of the crop indicates. Upon the whole, generally speaking, the crops were rather light than heavy, and complained of by many practical farmers as too favourable for trial, there being no lying beds; hence part has been rolled down, to test the adaptation of machines in cutting laid crops, but much, at the date this is posted, has to be done before the trials are finally brought to a close.

Several new English and American mowers and reapers are on trial and in the yard, but it will be better to defer descriptive details of these, and improvements in others, to next week. We may, however, observe in this place that as yet there is a far greater diversity in the details of construction in this class of machines than is consistent with the motto of the Royal Agricultural Society—"Practice with Science." This is partly owing to patents compelling manufacturers to find out more than one way of doing a thing; and not unfrequently roundabout ways are adopted. But as patents expire complications are thrown aside. The great difference, however, is not wholly due to patents standing in the way, and in this direction much progress has recently been made. Again, there are several highly desirable problems, such as cutting one way with the machine behind the horses, which have never up to this date been practically solved, either in England or America. Progress has also recently been made in this direction, and so on.

The show of hay-collectors, hay-makers, and horse-rakes greatly exceeds that of last year, those respectively for Manchester being 6, 57, and 98, total, 161; against Leicester 4, 29, and 58, total, 91; and besides an increase of number we have to report improvement in the construction under each class.

In the other articles for which prizes are this year offered, viz., the different kinds of carts and waggons, the difference in favour of Manchester as compared with Leicester is worthy of special notice. Thus Manchester shows 33 liquid manure carts, Leicester only 19; Manchester 36 water-carts and 28 harrows, against Leicester 16 and 22. The difference here evidently shows, not so much the attractive power of the prizes offered, as the hold which the modern system of applying liquid manure to land has got of the agricultural mind, and of watering Grass and other growing crops when they require it, as in the dry season of last year. However cautious farmers may be in adopting this or that plan of applying the sewage of towns and farm homesteads to their land—and much caution they require to exercise in the matter—yet progress is fast making headway throughout the length and breadth of the kingdom, and nowhere is the actual progress thus made in the mechanical means of application likely to be better understood and practically appreciated than at Manchester, by visitors from the manufacturing towns of Lancashire and the adjoining counties as well as by the inhabitants of the farm itself. The subject in both its branches is universally acknowledged to be a national one, and therefore throughout the coming week the problem of how best to reduce it successfully to practice with the appliances on exhibition, will no doubt receive a very varied solution. The green fields of the current season, compared with the scorched pastures of last year, will afford a practical illustration to all who can read it as they come up to the show, of the value of water to land, and the tons of sewage Grass which the countless houses would consume in the form of milk (if we may so speak), will naturally follow as the conclusion of the counterpart of the argument. As to carts, we have to acknowledge progress made in the conveyance of live stock, dead meat, and dairy produce to market, as also the produce of what has hitherto been termed market gardens. Railways since their commencement have, slowly it may be, but effectively, been working out a complete revolution in the supply of our large manufacturing and commercial towns with the daily necessaries of life home-grown, and the progress already made in this revolution is far greater than is generally imagined. But there is ample space a-head for further advances by farmers in the production and supply of new milk, cream, butter, cheese, eggs, and poultry, with the various vegetables, &c., which the land can profitably grow. In short, no end of the good things of life would be consumed by our busy homes of industry, could they only get them, as they ought to get them, of really good normal quality and worth the money.

The gold medal for the best system for drying corn and hay in wet weather is contested for by four or five rivals. The season is favourable for the practical investigation of the merits of the different systems, as of the general subject itself. As to the 10 silver medals for useful novelty and improvement, many a long neck has been stretched out for them during the early part of the current week; so that without any exaggeration it may truly be said disappointments far exceed in number realisations.

The special prizes offered by the Manchester Local Committee have been fairly responded to on the whole. Some will no doubt express themselves no more than satisfied, but when we come to close with details there will be found no great reason to complain, but the contrary, for the object sought has manifestly been gained.

The cultivation of land by steam is of course on trial, and from the proximity of the trial grounds, on Cookston's farm, to the showyard, this department of the exhibition promises to be well patronised. During this week the Messrs. Fowler & Co. have made a daily start to show simply what can be done, and no sooner was the steam up and the implement in motion, than a living string of interested visitors was to be seen threading its way from each of the mowing and reaping trials adjoining, to the tillage field. Results highly favourable. A number of rival systems are in the fields ready for action. Our readers will recollect that Fisken's steam plough first made its appearance at the Carlisle meeting, 1855. On Monday, July 19, Fisken's patent expires, and this year the three brothers are split into two rival parties against each other and all the rival systems in the yard. What the ultimatum may be is, of course, hid in the workshop of futurity, but as the principle of Fowler's balance-plough virtually falls to the ground with Fisken's patent, which the late Mr. Fowler was obliged to purchase and shelve during its currency, speculation runs mountain-high, and some agriculturists are taking as lively an interest in the matter as implement makers. Last year at the Leicester meeting we reported that W. Fisken, of Stamfordham, Newcastle-on-Tyne, was awake to his position, and next week we shall notice what progress he has made since that time.

Portable engines are on a par as to number with those of last year, about four score and four being on exhibition. Traction-engines are on the decrease, if we can believe the catalogue, Leicester showing 11, while Manchester only musters seven; but fixed horizontal and vertical engines are greatly on the increase, the number for 1868 being 48; whereas 1869 shows 65. Of steam-boilers, Manchester alone has a large exhibition of first-rate merit. The practical lesson thus taught requires to be closely studied, not read superficially, in hurriedly passing through the yard, for the facts evidently show in what direction the finger of progress is pointing. When we observe the number of small vertical engines in use in all the other branches of industry, and take into calculation the economy of manual labour effected with the amount of work done, and better done too, it is not surprising that an increase should take place in the number exhibited at our summer meetings; for although agriculture is exceptionary in many respects to the other arts, there are springing up so many kindred branches of labour in the manufacture of implements, manures, and feeding-stuffs, as to give rise to a demand for them. And besides indirect demands, a great many more of these small vertical engines should be employed by farmers than are now in use, and large horizontal fixed engines for threshing, chaff-cutting, grinding, &c.

Taking in the department of machinery in motion on each side of the implement yard, from stands Nos. 246 to 316 inclusive, the exhibition is of a very diversified, multitudinous, and imposing character. Most of the exhibitors have stands elsewhere, but many show here only so that things in motion are side by side with those not in motion. Hence the diversified but highly interesting appearance which this department presents in going the round of the whole. At one time, not long past, a few of the old portables working threshing-machines, chaff-cutters, and corn-bruisers were all that were to be seen, and even this was then the more popular part of the showyard; but here the purely agricultural exhibit is every here and there broken by some huge modern invention—as a bone-mill, a crushing mill or stone-breaker, or borers, steam-power morticing, boring, and sawing machines, steam-power drain-pipe, tile and brick machines—as to break rustic monotony and throw new life into the mind at every few yards of our journey. And besides those which have been on view at one or two previous meetings, there are several new things of home and foreign invention and manufacture which require more space for description than can be given at this time. To this must be added steam-power paper-cutting and printing machines, and a card machine for printing without ink, and so on.

There is a second department of machinery in motion, mixed up with other etceteras, agricultural, horticultural, and domestic, in the open ground space between the implement yard and the Horticultural Society's show, from stands No. 367 to 394 inclusive, which would have its own special attractions. It begins with rustic garden work, and ends with articles of a hundred characters; but between the two extremes there is much that is purely of an agricultural character, as portable steam-engines, straw-cutters, and elevators, grinding mills, &c. Francis Morton & Co. have here an attractive exhibition; B. Lee & Co., of Manchester, have another. Then we have steam road-rollers and traction engines, foreign and English, novelties which merit special description. H. & J. Ellis, of Irwell Works, Manchester, appear in opposition to Aveling & Porter with travelling cranes and crabs, while Holt & Glazier confront Moule's earth closet. Here also may be seen at work Gooday's patent multiple needle thatch-sowing machine, so that what is termed open space in the catalogue is not empty space in the yard, but the contrary, as the coming week will prove. At the further end of the central avenue of the implement yard rises the clock tower, beyond which is the live stock department.

The general show of agricultural implements and machinery, with a much developed miscellany, is arranged in two transverse rows of sheds, with their ends to the main avenue, lettered as usual, A, B, C, &c., so that all who can read the alphabet can follow the order of the stands. To give an introductory notice of what is here to be seen is a task beyond our limits. It is even more than pen and ink can do to foreshadow a classified outline of the acres of land and canvas closely covered by well-arranged articles of the first quality of workmanship. Progress in artistic skill and handicraft improvement is perhaps the first thing that will arrest the attention of the intelligent observer. Many things at these meetings have grown familiar to the eye of those who have annually to pay a passing tribute of respect to them in the columns of the agricultural Press. But passing over this as a matter of manufacturing necessity, due to the financial conditions of the occasion, long strides ahead are nevertheless annually made, and this year real progress stands out prominently, and therefore cannot fail to speak for itself, on an unusually large number of stands, partly by the addition of useful novelty, and partly by improvements in the construction of old things, so as to bring them up from the rear to the van of modern improvement, so to speak.

Besides the articles already mentioned as on trial, which will naturally prove centres of attraction, together with those for which the 10 silver medals and local prizes are awarded, as also the steam-engines, we find that in going through the whole we have more notes for special notice than usual, some of which the pen must of necessity be drawn through on going over the ground a second time. What to doom to the winds and what not cannot be determined at present. It will be seen that the two prize lists and the steam-cultivating apparatus and machinery cover an unusually large area of ground, and that Manchester thus throws upon the reporters of the agricultural Press a corresponding amount of duty to perform within a limited space. At the same time the general arrangement is good (not the classification of the catalogue, which is some degrees worse than usual), so that we hope to be able to supply a fair amount of descriptive detail next week in a condensed but readable form. Meantime we may mention that appliances for the manuring of green crops, the cleaning of seed for sowing the land, and the preparation of food for cattle, as chaff-cutting machines, &c., occupy a very prominent place in the showyard. Again, the number and quality of carriages shown for the use of farmers and their families, with the indoor sections, indicate—what shall we say?—progress in social science. In point of fact, the appearance of the agricultural body is perhaps the best practical solution to the question thus involved.

One whole department remains to be noticed, viz., seeds, roots, models, &c., from stands No. 317 to 366 inclusive, in the sheds on each side of the entrances, and a most attractive department it is. The space allotted for this department last year at Leicester was out of the way of everybody, but this year it is exactly where it should be, viz., in the eye of everybody as they enter the show ground, so that one is at no loss where to find his own seedsman and nurseryman. The well-known Manchester firm of Dicksons & Brown have in front of their stand a row of splendid Fir trees in pots, so large and well-grown as almost to raise the conclusion that a line from Shakespeare had been transformed—

Balmoral forest come to Manchester.

The London, Reading, and Glo'ster firms [illegible], as usual, in keeping with the occasion, and so are the others, which we cannot instance at present. In addition to the manures, feeding stuffs, and other articles, usually shown in this department, there are this year models of labourers' cottages, lithographic plans and specifications, &c., which will doubtless receive a crowded patronage. With steam whistles most people are familiar, but here there are steam gongs and roarers of recent invention, better adapted for mills than the old-fashioned clappers and tinkling bells. Such is a general outline of the Manchester meeting of the Royal Agricultural Society of England so far as its implement department is concerned.

PRESENT APPEARANCE OF THE CROPS.

BERKSHIRE.—A report on the present appearance of our crops is, this year, no easy task, especially with reference to the most important one, viz., Wheat. Fields in the same district vary so much in character, and many fields present in their own limits such irregularity, that we can hardly anticipate an average yield. You may drive by one field in which the Wheat is as thick on the ground, strong, level, and promising as you would wish to see it, and immediately afterwards you may pass another in which the abundance of Poppies and general aspect tells quite a different tale. Many other fields, again, are so uneven, and have shot up so irregularly, that the yield must certainly be unsatisfactory; while the general character of the season, so unlike the climate specially suited to Wheat, leads us to anticipate a falling off even greater than that which the general appearance would lead us to expect. Barley promises well, being thick on the ground, very long in the straw, and with a good ear. Unless laid badly this must be a good crop. The cold ungenial weather we lately experienced checked the growth of the Oats in many places, and the wireworm also did serious injury to other fields; still, this crop looks well. Beans and Peas promise well. Although a portion of the hay was a good deal damaged by rain, this crop has, upon the whole, been well got up, and is good in quantity, the failure of the Clover plant in '68 having been in great measure made up by the vigorous growth of that most uncertain substitute, Trifolium incarnatum, which has been generally sown, and providentially has generally taken. The meadows also have turned out well, except, perhaps, some low-lying wet ones, which suffered from the cold nights. Mowing machines have been busy in all directions, although not so much in requisition as they would have been had labour been less abundant, or their advantages better understood. The difference in the appearance of the stubble when the machine has been worked in the same field with the scythe is most manifest, and the extra quantity cut per acre by the former is of itself sufficient to warrant its use. Mangel Wurzel is

a good healthy plant, and grows fast, and the same may be said of the Swedes and Turnips; so that the prospects of the present season are a striking contrast to those of the last, as far as the stock-keeper is concerned. The young Grass seeds look exceedingly well. Harvest will probably commence in this district in about a month. *Cookham Dean, Maidenhead, July* 8.

Dorset.—Wheat crops in the neighbourhood of Blandford are looking ragged, weak, and thin, and must be under an average crop; they have never recovered the cold wet month of May. A good field of Wheat, I am sorry to say, is a rare thing to be seen in this locality, even on the best cultivated spots. Warm sun is badly wanted to bring it on. It will be August before any of it will be fit for the reaper, which will make the harvest from 12 to 15 days later than last year. Much as yet cannot be said respecting the Barley and Oat crop, being early for it, but it is at present looking healthy and promising—likely to be an average crop. Keep for all kinds of stock is plenty, and the Mangels, Swede, and Turnip plants are coming on very satisfactorily. I have not seen anything of the Turnip fly this season, or heard any complaint. *John Ford, Rushton, July* 12.

Essex.—The following is my estimate of the coming crops:—Wheat, barely average: Oats, under average; Barley, good average; Beans, above average; Peas, above average; Tares, above average; Mangel, good, but rather late; hay, above average; Clover, plants lost. *Collinson Hall, Princes Gate, Romford, July* 9.

Gloucestershire.—In consequence of the very fine weather we have had lately for the blossoming of the Wheat, I am inclined to think we shall get an average crop. Both Barley and Oats are greatly improved, and promise an average; Beans must be 30 per cent. under an average. The quantity and quality of hay secured from the pasture lands were never better, and the prospect of a good crop of roots is at present very encouraging, and Potatos are digging up a good crop without any disease. *Edmund Ruck, Castle Hill, Cricklade, July* 12.

Herefordshire.—The Wheat crop in this district must be much under an average; on the stiff and wet soils there is scarcely half a crop, it being very thin, and coming out in the ear very unevenly. The Barley I think will be about an average crop. Oats are looking well. Beans are strong in haulm, but I do not think will be very well podded. The hay crop is a good one, especially on the drier land. There is at present a very good prospect of roots. *D. Edwards, Brinsop Court, July* 9.

Lincoln.—The corn crops in this part cannot be an average. The Wheats vary much, but will take the lead: it must have been a fine time for flowering. The Oats and Barley are very light and backward. Beans have plenty of straw, but not well corned. *H. Dudding, Panton House, July* 13.

Norfolk.—I have great pleasure in sending you what information I can from this part of the country. The Grass hay a very abundant crop, and mostly well secured, the seeds quite a failure last year. Wheat, a good average; Barley, ditto; Oats, ditto; Beans and Peas rather more than a good average. The root crops are all very good, scarcely a spot failing this year, and the warmth of the last few days has promoted their growth immensely. This part of the country is very full of Grass keeping. *Hugh Aylmer, July* 8.

Oxfordshire.—During the last week the Wheat has come out into ear, and looks better than it promised three weeks ago, but it is yet very uneven, and I fear we will not have an average crop, the yield must be much below last year's. Although last summer's drought was most beneficial for the strong lands, the excessive rain during the winter, with a cold wet spring, made spring seeding most difficult. Barley and Oats have also suffered to the same extent upon strong and sour soils. Beans and Peas are generally good, therefore the prospect for a bountiful harvest is far from general. The hay crop is abundant, and a good deal is well saved. Mangel and Swedes are a full plant, and doing well. *Matthew Savidge, Sarsden Lodge Farm, Chipping Norton, July* 6.

Shropshire.—Wheat short in the straw and light, just out in ear, from three to four weeks later than last year. Barley, very light crop, late sown likely to be very bad indeed, first sown just coming out, but comes out very uneven, must be deficient. Oats promising. Beans good. Peas promising. Swedes likely to be the best we have had for years, though later sown. Hay good average, not much harvested yet. *Richard Shirley, Madeley, Church Stretton, July* 9.

Staffordshire.—There cannot be a doubt that the Wheat crop has generally improved during the last fortnight, and on good well farmed soils will probably prove an average; on cold strong land and on light, *minus* muck, the case will be different. I am afraid that last night's wind has done no good, for the ground this morning is covered with pollen. I enclose an ear of autumn-sown Talavera, the whole field is similarly effected. Rust. I have not observed it elsewhere. Barley must be a light crop in this neighbourhood, one hears of its poverty on all sides, and should we get a wet time for harvesting, even last year's yield may make more sound malt. Oats are not grown much about here, but report speaks favourably of them. Beans and Peas promise well, there is a very large breadth sown. Early sown Mangels and Swedes are mostly singled out, and a little more rain would soon make them cover the ground. The hay crop, a very fine one, has been cheaply and capitally secured. Pastures are full of Grass, and stock is generally healthy. One hears of that horrid pleuro-pneumonia being among the Derbyshire dairies. *G. A. Mau, Elford Park, July* 8.

Suffolk.—The Wheat in this neighbourhood at the present time I should think scarcely up to an average, from the late frost causing the straw to be short and thin; the appearance of the ear is small. The Barley has very much improved the last fortnight, there is a good quantity of straw, and I think if the weather is at all favourable it will be a good average crop. Peas and Beans very luxuriant; an immense quantity of straw: not forward enough to tell about the corn. Oats, none grown. Clover a failure of quite half the number of acres, but heavy crop on the other half, badly secured. Hay an abundant crop, and well secured. Mangel, splendid prospect of a good crop. Turnips, a prospect of an abundant crop. Potatos very good, but not an average yield. It is said the disease has made its appearance amongst us. *Samuel G. Stearn, Brandeston, July.*

Surrey.—I am sorry I cannot give a very flattering account of the crops in this part of "poor Surrey." Wheat, although within the last few days has slightly altered for the better, cannot by any possibility be an average, and I should put it at six bushels per acre less than last year. A very bad feature of the crop is the unevenness of it, and shortness of the ear. Large tracts within a few miles of this will not go more than 20 bushels. The best crops will be on medium soils. Barley on suitable land is pretty thick, but a very short ear, few over 13 a side; on poor soils it is very bad, and will not be half a crop. Oats at present promise to be a full crop. Swedes and Turnips very backward, few being yet hoed out. Mangels generally look well. Potatos also look very promising, but reports of the blight are rife, as usual, about this season, but as yet no outward visible sign. Hay a good crop, but very variously saved, with a great many "uncomfortable stacks." *James Arnot, Carshalton, July* 7.

Warwickshire.—It is much to be feared that the effect produced on the crops by this sunless season will form no exception to the generally admitted opinion, that bright and dry weather are required to produce a good crop of Wheat. Present appearances of that grain are very unsatisfactory; on light and thin soils (when much is growing after Barley) it is short and thin, and on the weak clay lands it is a very small crop, being knee broken and scrawled. On deep well cultivated loams there is a better promise, but on such soils even the crop is not altogether satisfactory, having been driven about a good deal by the violent wind, and thus its probable yield is seriously lessened. Wheat is now in full blossom; it is generally remarked that the ears are much smaller than usual. Early-sown Barley on land suited to it, is long and level, and promises to be a full crop, but there are large breadths to which an opposite description would better apply. Beans, particularly the autumn planted, are very luxuriant, but pods are thinly set, and I doubt whether the yield of corn will be in accordance with present appearances of the haulm. Peas are most promising, a huge crop of straw covered with healthy blossoms, and at present there is no appearance of blight. The early Turnips and Swedes are unusually good. Mangels are a good plant, and since the wind has changed its course from the eastward, and the temperature has risen, they have grown rapidly. A good crop of hay has been secured in capital order. Pastures are green, and stock doing well. *J. C. Adkins, Milecote, Stratford-on-Avon, July* 8.—The hay crops in this neighbourhood are decidedly above an average, and have been gathered in of good quality. We have not had real summer weather here—leaden skies and north-east winds; and, unless great patience has been exercised, we may expect to hear of heated haystacks. There are no good crops of Clover this year, owing to the excessive drought of 1868. The Wheat is now generally in full bloom, but I do not think there is a chance of its being a full average crop, being very short on many of the light soils, and on the clay diminutive ears—a higher range of temperature will much improve it. Corn harvest must be quite a fortnight late, if not more, and cannot be ready much before the middle of August. The crops of Barley vary much, and cannot be an average crop. Winter Beans are much grown, and are very long in the straw, but not well covered. Spring Beans full of promise, if we get rain soon. Mangel, which is much grown here, looking well, but wanting rain. Peas most luxuriant, and very full of blossom. Tremendous crops of all kinds of Plums, and good of Pears; Apples not so abundant. The young seeds at present are a good plant. Oats are not so much grown, but those I have seen are splendid. *John Baldwin, Luddington, Stratford-on-Avon.*—I have seen several reports in the papers respecting the present appearance of the crops, but I have met with none from this, my neighbourhood, and I therefore send you a few lines on this subject. The warm, dry weather which we have lately had has been very beneficial to the Wheat crop, but at the same time the cold frosty nights have been very prejudicial to the blossom, and the consequence is that the crop is not at all promising. I have no hesitation in saying that the yield in this neighbourhood will not be so much as last year by two quarters per acre. The ears are very small and are made up of many artificial corns. The Barley crops look better than the Wheat, but are still not as good as we generally see them at this time of the year. Beans are a capital crop here, and the spring sowing promises to be the heaviest we have had for years. The winter Beans, which looked so magnificent a short time ago, are, alas! a perfect failure, with scarcely a corn upon them. Peas again are very variable; some fields a very fine crop, others being so bad that the plough has been put to work in them. The early sown Turnips are good, as also are the Mangel Wurzel; but many fields are very patchy, and not so promising as one could wish. I have only given you a few hasty notes now, as I purpose in another week or two to make a further report. I will now merely add that the crop of hay has been exceedingly heavy, and secured in fine condition. That the quantity of Wheat remaining in the hands of the farmers is very small, and that with present prospects, and under any and all circumstances, I feel convinced that the price of Wheat must and will considerably advance. My report will read somewhat differently from that of my friend Mr. Mechi, but I am not such an enthusiast as he is. He is a good fellow, but his geese are all swans, and the crows in his county cannot be as black as they are here. At any rate they are not so numerous, as he would find to his cost that 1 bushel of Wheat to the acre would not do. *John Ford, Morton Hall, Warwick, July* 8.

Wilts.—Wheat is by no means a full crop or plant on the ground; a full crop is an exception. It was very uneven at head; when it first made its appearance at the time of blossoming, one stalk was 5 feet high, and others too many in number, just bursting into ear, so that unless we have weather very warm and forcing, the grain will be decidedly of two characters. My opinion has been we should not have an average crop; the last week it is much improved; should the weather from this time be of a forcing character, the crop will be more yielding than was once anticipated. Barley promises well, but in many instances received a great check from frost. Oats partially good; winter Beans appear to be a failure for want of pods: spring Beans not sufficiently forward; seeds in the field in many instances did not fill up, so that the hay crop was not so heavy; pasture very good. The season promises well for a good root crop of all kinds. *Geo. Brown, Avebury, Calne, July* 9.

Worcestershire.—In this neighbourhood the harvest will be about 28 days later than last year, and from present appearances I am of opinion we shall not have an average crop of Wheat or Barley. Peas, Beans, and Oats look more promising; but of course much depends on the weather for the next six weeks, which, if suitable, may set matters right as regards the former. The hay harvest is progressing satisfactorily, crops pretty good; Turnips, Mangels, and Potatos badly want rain, which has threatened for several days. We have a fair crop of Apples, but unless we get more sun, will be small. Hops are late and badly blighted, and cannot make half a crop; we have more Grass and keep on the ground than we have had for several years. P.S. I commenced cutting Wheat on July 20 last year. *John Rawlings, Stoke Tenbury, July* 9.

Appearance of Crops and Harvest Prospects in some of our West Midland Counties.—During a recent trip to Oxford the following notes were made on the aspect of agriculture throughout the districts visited. With but few exceptions the Wheat looks thin, the ears are uneven, the crop is stalky, drills still visible, and in some cases the colour is too yellow. No doubt the ripening will be irregular and certainly late, and, what is worse, the yield must be from two to three sacks an acre below an average. Just in this immediate locality, on some good highly farmed land, you might walk through 50 acres of Wheat, at least 5 feet in height, and promising at this time to produce from 45 to 50 bushels to the acre. From whatever cause it arises, the cold spring or absence of frost in midwinter, there is no doubt the Wheat crop has not tillered to any extent this season; the heavy class of soils promise the greatest yield, especially where drainage and liberal farming prevails. In a portion of the old forest of Braydon, Wilts, may be seen 30 acres of as fine Wheat as could be desired, upon land which barely three years back was let at 7*s.* per acre. This result has not been produced without considerable effort and outlay, and at some future period your readers shall have a description of the work of reclaiming and improving 1000 acres of Braydon Forest, and a detailed account of the cost of the undertaking. Recurring to our crops, Barley is not so even or promising as it should be; the cold of May checked its growth, and only in rich sheltered spots is there a hope of an average crop. Oats are likewise most variable; taking the district we are reporting upon generally, this cereal must make speed if it is to reach an average. Beans have all along exhibited a luxuriant growth, and no doubt the winter sown ran away too fast to form pods. Spring Beans promise a good yield. Peas are heavy in the haulm, and show fairly for podding; the blight was threatening in some localities; should this be arrested there will be a good average crop of Peas, Sainfoin, Vetches, Trifolium; and most artificial Grasses have produced heavily, fortunately for agriculturists, as in the absence of Mangels and Swedes our live stock would have fared ill, had the spring been backward and the green crops a failure. The hay crop is decidedly heavy in all directions, a great breadth is secured in good order, and the cleared land is already exhibiting abundant feed. Probably there never was a season when roots exhibited such an even true braird as the present; it appears as though every seed had germinated, and in scarcely one instance has a plant fallen a victim to the fly. With abundance of keep in our pastures all kinds of stock have done well, take the country generally; horned cattle and sheep never perhaps looked better. Store sheep have scarcely maintained their figure, very fair lambs have been bought at remunerative prices, but the trade in them has revived, as with pigs—stores are fetching fabulously high prices. What with a demand for fat meat, briskness in the cheese trade, and firmness in the wool market, we may hope to register a prosperous year for agriculturists. It is impossible to pass through any neighbourhood at the present time without being made aware of the spirit of enterprise and improvement of landowners and tenantry; it is very much the fashion to denounce both classes for the absence of these qualities, but no observant practised eye could fairly convict the owners and occupiers of indifference or neglect. Improved residences, convenient homesteads, broad, well-cultivated fields, superior and valuable live stock, expensive modern implements, intelligent, fairly paid, well-housed labourers, betokens a condition

of society much to be desired. That exceptions to these statements exist no one will deny, but the rule undoubtedly goes far to prove that agriculture, and all its concomitants is steadily and assuredly advancing. It behoves all interested in the cultivation of land to promote to their utmost local agricultural societies and Chambers of Agriculture. Our success and advancement mainly depends on the energy and unity of these associations. Owners and occupiers must work together for the general weal; only by such means can questions for promoting our cause and protecting our interests be forwarded, whether in connection with the Legislature or for the settlement of matters strictly belonging to the landlord and tenant. *J. Lynch Fletcher, Chepstow, July* 10.

ADVANTAGES OF AGRICULTURAL LEASES.

The following paper on this subject was read last month before the Hampshire Chamber of Agriculture by Mr. W. Warner, of Botley:—

Security of tenure has been the subject of discussion by many of the farmers' clubs in the kingdom, and though no form of lease can be framed which will apply in all cases and in all parts of the country, still it has been generally admitted that greater security for the investment of capital in land (either by long leases or tenant-right, with compensation for unexhausted manures) should be given, to insure that proper cultivation of the soil to meet the requirements of the people of this country. I know that on some estates no leases have been granted for generations, and that both landlords and tenants are well satisfied to go on without them, trusting to the honour of each other. Now, though this is a state of things highly honourable to both parties, and, so far, satisfactory, it is an uncertain security, and not to be relied on. A change of ownership or other circumstances may in a moment make that which was considered secure very insecure; and a tenant may receive a six months' notice without being prepared for it. It is also an exception to the rule, and cannot be taken as a system generally in practice.

There are also some estates where no leases are granted (with, perhaps, not the same honourable feeling existing as in the former case), where the land is let from year to year, with a six months' notice by either party. The consequence is that this is a bar to any improvement of the soil. The occupier, having no interest in the land, his object will be to keep it in only a moderate condition, employing but little labour, spending but little capital, and what he does spend on the land taking out as quickly as possible, feeling the uncertainty of his position. I will quote a paragraph which appeared in the *Agricultural Gazette* some time since on the insecurity of a yearly tenant:—

"A gentleman, who was a yearly tenant, stated that he had lived on a farm some years, and after incurring great expense in steam tackle and other improvements, he was turned out of his farm at six months' notice, without any reason being assigned for it. Another gentleman, farming on another estate, who was a yearly tenant, applied for a lease, and offered to give an increased rent if it were granted. But the landlord refused, saying it would be contrary to his custom, and he saw no reason for changing. So the gentleman (quoting his own words) went on putting a little into the land and taking a little out, whereas, if the landlord had given him a lease for a good term, with liberal covenants, he would have expended 20 per cent. more on the land, and paid 20 per cent. more rent besides."

I name these instances to show the great loss sustained, both individually and nationally, by farming without a lease. In some parts of the country tenant-right, with a two years' notice to quit on either side, has been advocated as a security for the tenant as well as for the landlord; the incoming tenant or landlord paying the outgoing tenant for all improvements and unexhausted manures. Now this, though better than no lease at all, is not at all satisfactory. A tenant cannot feel comfortable in such a position, being likely at any time to be turned out of his farm at a two years' notice. He cannot lay out his capital with the same confidence, neither can he feel the same interest in those around him as he would with the certainty of tenure which a long lease would give him. He may get back in part what he has laid out; but the claim for compensation often leads to litigation as to what are deemed improvements, and also as to the value of unexhausted manures; and it generally ends in the outgoing tenant getting less than he considered himself entitled to, and in the landlord allowing more than he thinks he ought to do. In fact, tenant-right expresses a great deal, but is very difficult to carry out fairly in practice to either the landlord or the tenant. The next, and I believe the only means, by which a tenant can have real and good security for the investment of his capital in land, is by a lease for a term of say 14 or 21 years—if for 21 years the better. A tenant with a 21 years' lease need not be afraid of laying out his capital, as he will have ample time to receive it back again, feeling assured that, if laid out judiciously, it will return to him with profit. The late Lord Leicester, one of the greatest friends to agriculture this country ever produced, always granted 21 years' leases. His advice to any new tenant was to lay out all the money he had of his own, borrow as much as he could, and lay it all out on the farm the first seven years, get it all back the next seven years, and in the last seven years make a fortune for himself. I believe no tenants in the country have prospered more than those of the late Lord Leicester, and no property has more improved in value. I believe, also, that, by granting long leases, landlords would increase their rentals, as no tenant would object to give a greater rent for his farm with a long lease than he would by being merely tenant at will. Long leases would also be a great social advantage, as a person on taking a lease would consider himself, in a measure, fixed for life in a certain locality. He would be looking round for acquaintances and neighbours, and, having an interest in the well-doing of those around him, he would be enabled to assist in any measure for the general benefit of the neighbourhood. He would also employ more labour, and take a greater interest in the welfare of his workmen than if he were merely a bird of passage. Long leases would also be a great national advantage, as by having a security of tenure it would induce a greater investment of capital in the land, thereby providing a greater amount of food in corn, beef, and mutton for the people of this country. Now, in advocating the system of long leases I do not presume to say what the conditions of that lease should be, as, I think, in the bargain of buying and selling, or letting and taking, the parties immediately interested are best able to judge for themselves, only I would suggest that it should be as free of restrictions as possible, both in cropping and selling the produce; excepting the last four years of the tenancy, when there should be the necessary restrictions to protect the land. A lease should be drawn up on commercial principles as much as possible, as a tenant is supposed to give the full value of the land; and there ought not to be any of those vexatious and unfair covenants which are sometimes inserted, often to the injury of the tenant, and with no real benefit to the landlord. One thing I would just notice. There are some landlords who, in granting leases to their tenants, think it desirable to retain the cottages on the different farms in their own hands. Now this, though well meant, is a mistaken kindness to the labourer, and operates unfairly on the tenants. It prevents an employer getting rid of a bad and dishonest servant; as, having no control over the cottages, he cannot get rid of him to make room for another. A tenant must be as much interested in the welfare of his labourer as a landlord can be, and if he has a good servant there is no fear of his taking an unfair advantage; and if he has a bad one, he ought to be at liberty to get rid of him as soon as he likes, and this he can only do by having control of the cottage in which the labourer lives.

There is another subject in connection with leases which I cannot pass over—that is, the question of game. I know it is a very delicate subject to touch upon, and how sensitive many landlords are on the subject. I have heard that there are more disputes on politics and on game than on any other subject you can name. Too much politics, I am satisfied, is not desirable; and I am half inclined to think that too much game on a farm is also not desirable. It would be a general advantage if, in all leases, the right of shooting was enjoyed in common by both landlord and tenant. In that case, a landlord would not be debarred from his sport, as his tenant, from having an interest in the game, would take care there should always be a sufficient quantity, and would always feel a pleasure in seeing his landlord on his farm. But, I am afraid, we are not yet arrived at that happy state of affairs. Failing that, I think that in all leases the tenant should be allowed the right of destroying what is called the ground game, viz., hares and rabbits; and unless he has that right he can never reap that advantage in the cultivation of his land and in the employment of his capital which he is fairly entitled to. It is not necessary for me to state the immense amount of damage done where game preserving is carried to an unreasonable excess. That is continually before the public; and as one rides about the different parts of the kingdom he sees sufficient evidence of it. My only object is to point out the advantage it would be to the country, and to agriculture in particular, if these restrictions, which are a bar to all improvement, and a check to investment of capital, could be removed. I now proceed to quote an extract from remarks by the Rev. J. Fraser on the effects of the over-preservation of game. It is given in his report relating to the employment of women and children in agriculture. He says:—

"The extent to which the system of game preserving is carried on in many parts of the county of Norfolk is assuming a serious significance, both in a moral and an economical point of view. The farmer cannot cultivate his land with the proper measure of profit, and there is a tangible loss thereby sustained in the resources of the country; while the way in which, and the extent to which, preserves are stocked to meet the present taste of battue shooting, and to satisfy the notion that you have had no sport unless you have slain 'heaps upon heaps,' act as irresistible incentives with the peasant, who loves his bit of sport as truly as the gentleman, and whose honest earnings are not sufficient to enable him to overcome the temptation thus thrown in his way to poach and to steal."

I give another extract from a speech made by Mr. Edmonds at the Cirencester Farmers' Club:—

"A large landowner, now no more, whose opinions were much respected, and who was an ardent agriculturist, was for some years a great game preserver. He held a large quantity of land in his own hands, and, seeing the great damage and mischief caused by the game, he said, 'It is not honest in me to let my farms, and allow my tenants' crops to be spoiled;' and, feeling convinced of that, he at once gave up game-preserving."

I only wish that all landowners had the same experience, and that they formed the same conclusions. Why is it, that, while agriculture has, within the last 25 years, only improved about 25 or 30 per cent. the manufacturing and mercantile interest has improved about 75 per cent.? Simply because the latter has more scope for its energies and in the employment of its capital, and is not tied up by those stringent and injurious restrictions which apply to the cultivation of the soil. Restrictions, however considered necessary in feudal times, are not necessary for the times in which we live, and for the altered circumstances of the country. It was said years ago that the man who made two blades of Grass grow where only one grew before was a benefactor to his country. If that remark was applicable then, how much more so now. The population of this country has doubled, the land has not increased, but, rather, from the increase of railways, manufactures, towns, &c., decreased. We are told by Mr. Caird that, while our consumption of Wheat yearly is rather over 20 millions of quarters, we are dependent on the foreigner for at least three-eighths of that supply. In fact, in the year ending August, 1868, the consumption, including seed, was 20,800,000 quarters, and the foreign importation was 9,300,000. If, from a general bad crop abroad, as well as in this country, or if, unfortunately, a war were to break out, so as to interfere with the importation of corn, we should have bread at famine price. How necessary it is, then, for the general welfare of the country at large, that all restrictions which interfere with the proper cultivation of the land should be removed? I am aware that in granting long leases there are great difficulties in the case, and many prejudices to remove. Many landlords do not like parting with their property for so long a time, and others do not like giving up game-preserving; others are afraid they may get bad tenants, and the land injured. All these things are to be considered. I think some of these objections might be removed if landlords would more generally be induced to view the question in the light of pounds, shillings, and pence. I think they would find by granting long leases with liberal covenants they would not only get an increased rental, but that the land would be better cultivated and improved in value, and also, if at any time they wished to dispose of their property, it would realise a greater amount than before, as it is well known that the value of property is usually computed from its rental. Many of the difficulties would also be got over if all landlords were to employ only practical men as agents, and who were thoroughly conversant with land, and who had, perhaps, been farmers themselves; and who, while acting for their employer, would not be unmindful of what was due to the tenant. I think they could draw out an agreement by which the landlord would be fully protected, and one which would be fair towards the tenant. With all due deference to the legal profession, I would never recommend the framing of a lease in a lawyer's office. They may understand the legality, but do not understand the practical working, of a lease, and it is only by practical men that a lease can be framed so as to give general satisfaction. As I have said before, I do not pretend to go into the minute details of what the covenants of a lease should be so as to apply in all cases, as the customs differ so much in many parts of the country. For instance, in some counties a Michaelmas entry is in practice, in others a Lady Day entry. There are also other matters, such as draining, liming, chalking, and repairs, which are best left to competent parties to arrange fairly between landlord and tenant. My object is to prove the general advantage both to the owner and occupier, and also to the community at large, which would arise if the system of long leases were more generally in practice in this country. I have endeavoured to the best of my ability to point out the general advantages of long leases. I am aware I have not done justice to the subject, but will leave it in your hands for discussion, trusting you will excuse any omission on my part. There is one thing we should all feel, both landlords and tenants—that in discussing this question it should be done in a considerate spirit, as it is one in which the whole nation is interested. It is one which concerns the food of the people of this country, and if we can by argument and conviction arrive at any conclusion, or suggest any means (without injury and without interference with the rights of others) by which the rental of the land can be improved, the security of the tenant be insured, and the produce of the land be increased, we shall be doing a general good, and not have spent our time in vain.

Discussion.

Mr. Spooner believed the country itself, the landlord, and the tenant-farmer would all be benefited by the custom of granting long leases with liberal covenants. If it were objected that the landlord would have a difficulty in disposing of a bad tenant, he would answer that the landlord would be more particular, in the first instance, in inquiring into the character of the person to whom he let his farm, if he came from a distance, and would ascertain whether he had sufficient capital to manage it properly. Then the tenant's sympathies would be evoked, he would expend his money liberally, pay his labourers well, and take care they were provided with good cottages. He would have far greater inducements to cultivate the land properly and look to the welfare of those dependent upon him than when, under other circumstances, he felt that at the end of a couple of years he might be removed to a distant part of the country. Personally, he had experienced the great disadvantage of not having had a long lease. He occupied a small farm for many years, during which a change took place in the estate, and the proprietor wished to double his rent; but as he (Mr. Spooner) knew the land was not worth so much, he left at the end of his term, rather than submit to the augmentation. On the excessive preservation of game, taking the great body of farmers, he would assert that 99 out of 100 wished sufficient game to be preserved to afford fair sport for the landlords and also for themselves. But what they objected to was the modern innovation, encouraged here and there, of *battue* shooting. The large majority of landlords desired nothing more than fair sport, which the tenant was always anxious to give. If the ground game belonged to the tenant, there would always be sufficient to afford fair sport to the landlord and his friends, and he ventured to state that opinion, because he believed it would meet with the approval of nine-tenths of those present.

Mr. Smith said that no doubt the chief instrument in the hands of a tenant to ensure his cultivating the land in a manner most to his own advantage and to that of his landlord, would be a long lease with liberal covenants. But this and preservation of game were questions entirely of bargain between landlord and tenant, and if a landlord chose to place certain restrictions upon a tenant at the time of his taking a farm, it was for the tenant to consider, before accepting the terms proposed, whether, having those restrictions upon it, it would enable him to get an adequate remuneration from the farm for himself. He was aware that this was a very tender subject. No man liked to see his crops destroyed by his landlord's or his neighbour's game, but, where the landlord reserved the game, the land was let for less rent than it would otherwise fetch, and therefore, as this was a consideration at the creation of a tenancy, the tenant had no right to complain of it afterwards. One point touched upon by Mr. Warner was of vast importance—the reservation of cottages by landlords,

To his mind it was the greatest of absurdities that the landlord should thus interfere with his tenant in the labour market—for it came to that—and should dictate to his tenant whom he should employ as labourers on his farm.

Mr. H[illegible] said he believed in the southern part of England leases were generally preferred, the landlord choosing the [illegible] and for his tenant, and the tenant considering that he had the security in the duration of the lease for the capital he [illegible] still he intended for his [illegible] preferred a two years' tenancy coupled with tenant-right. Some urged this was the best plan, because the landlord had the power to remove a bad tenant, and the tenant could throw up his farm when he found that he [illegible] bargain, trusting to tenant-right for reimbursement for what he might call improvements, but which might not necessarily be to the landlord or the incoming tenant. He confessed every word which had fallen from Mr. Warner that day. They were all perfectly aware that agriculture within the last 20 years had made most rapid strides, and the march of progress was still going on with accelerated speed. Then, why should they continue the old form and wording of leases, which had every appearance of being copied from Domesday Book? Why should the wording not be modernised, and the covenants plainly set forth? Surely there should be something in a lease to define an "overlooker," and to show the meaning of the word "value." The covenants would set forth that the tenant should return to the land the "value" of hay and straw. Did this mean the value of hay as it stood in the yard or in the field, of hay kept at home, made into manure, or standing in the rick, &c.? It should be clearly stated what kind of value was intended—whether market or feeding value; but, now, nothing was more ambiguous. Mr. Smith had told them that a landlord had a right to make any restrictions on letting his land, for the tenant took it with his eyes open. Both had a right to act in this way, but he contended that they had no right to go to the overseers of the parish, and claim to be rated on a lower assessment, because of the depredations caused by game.

Mr. BLUNDELL observed that, supposing the land in this country was all so let that it would attract the greatest amount of capital that could profitably be employed upon it—how different would be the result in the production of corn and cattle? But the manner in which land was leased drove away capital, instead of attracting it, and how many instances were there of "men of straw" who took land, giving a certain amount of rent, without reference to their means? In nine instances out of ten where the land was badly farmed in this country, it was not because the tenantry did not know how to farm properly, but rather from a want of capital than judgment and intelligence in their calling. He contended that, in respect to leases, a most important point should be constantly kept in view—namely, that the tenant should be encouraged to farm well up to the very last year, nay the last day of the month of his term—that he should, in fact, leave his farm on the last day of his tenancy in as good a condition as at any period during his occupation. But how were they to secure this? Some would say by tenant-right, but that was delusive, because if it were a tenant's right, it would be opposed to the landlord's interest; and therefore let them devise something which would be for the interest of both. Why could not the landlord and tenant by an agreement secure all the advantages to which he was alluding? They were constantly hearing calls for legislation on this subject, but he maintained that it was practically a question between man and man, in which the tenant made the best bargain he possibly could, and the proprietor too.

The CHAIRMAN said—If, in such a case, a tenant with a 14 years' lease died leaving a widow, how was the latter to be dealt with? In one or two such instances on his property he had had to negotiate with the widow, and accept a tenant of her naming, knowing that he had paid her a considerable sum as goodwill to enter the farm, which was, of course, money out of his (the Chairman's) own pocket. Again, if the land were let on a 14 years' lease, it might not be farmed in an equitable way, the tenant, desiring to make as much as possible, beggaring the land at the end of the term. The landlord would also have a difficulty in getting rid of a bad tenant. But none of these disadvantages occurred with respect to a two years' tenancy. A tenant should feel secure in his farm, but Mr. Warner himself had admitted that in a very great number of instances there was just as much fixity of tenure under an agreement as under a lease. With regard to the preservation of game he argued it would be impracticable for Government to interfere, because game now, by the common law of the land, belonged to the tenant, and he thought it would not be right for Government to say to the different persons interested, "You shall not make such and such an agreement with regard to game." Yet (as Mr. Holdaway pointed out) there was a grievance as to the rating, and he thought that with respect to the damage done by game, the rating of that damage—so to speak—should be paid by those who owned it.

Mr. WARNER, in the course of his reply, said—It was a question in a moral point of view—not of legal right—whether the landlord was acting right in preserving game to a great extent. It was a misfortune that, in this country, there was always a superabundance of tenants, and consequently there was not sufficient number of farms for their accommodation. If a tenant could not get a farm without game upon it, he must take one with it on the land; and, however stringent the restrictions, some tenants could always be found. It must be a question between landlord and tenant, and further a question whether the landlord should preserve game to the injury of his neighbour. The system encouraged the crime of poaching, filled our prisons and workhouses, and a farmer might be called upon to help maintain the wife and family of a man convicted of poaching on his neighbour's land, which was overrun with game. The Chairman had referred to the case where a widow had transferred a lease, receiving a sum for the goodwill. This was very consistent, supposing that money had been expended by her late husband on the farm; and he could not see any hardship suffered by the landlord because the widow received some indemnity for it. With regard to the landlord "beggaring out," he remarked that the necessary covenants should be inserted in the lease to protect the landlord during the last four years of the term, [illegible] and he was sure that if the landlord as well as the tenant would make up their minds to approach the question in a business like manner. He believed that the only way in which agriculture could keep pace with the [illegible] was by the liberal interest of the education of [illegible] and he had [illegible] to their position, [illegible] and [illegible] and [illegible] and

whereas ammonia-salts had little or no effect. But since the first few years all attempts to grow Clover year after year on this land have failed to give anything like a fair crop, or a plant that would stand the usual time on the ground, notwithstanding that fresh seed has been sown again and again.

In one year a portion of the land was trenched 2 feet deep, one-third of the manure being applied at a depth of 16 inches, one-third at a depth of 8 inches, and the remainder on the surface.

The general result of the experiments is that neither ammonia-salts, nor nitrate of soda, nor organic matter rich in carbon as well as other constituents, nor mineral manures, nor a complex mixture, has availed to restore the Clover-yielding capabilities of the land.

It is, however, worthy of remark that in 1851 Red Clover was sown in a kitchen garden only a few hundred yards distant from the experiment field, on soil which has been under ordinary garden cultivation for probably two or three centuries, and it has every year since shown very luxuriant growth; and, after re-sowing three times during the period (in 1860, 1865, and 1868), there is at the present time little or no indication of failure.

Lastly, in the winter of 1867-8, small portions of the experimental land were dug, some to the depth of 9 inches, some to the depth of 18, some to the depth of 27, and some to the depth of 36 inches, and sown to the respective depths with different manurial mixtures. From other similarly-sized plots the soil was removed to the depths of 9, 18, and 27 inches respectively, and replaced by soil from the same kitchen garden border, on a portion of which Clover has been successfully grown since 1854, as above referred to. Clover was sown in April, 1868, over the whole of these, and some other portions not so treated; but the plant has for the most part died off during the winter, and Clover has been again sown (April, 1869).

V. EXPERIMENTS ON AN ACTUAL COURSE OF ROTATION—TURNIP, BARLEY, LEGUMINOUS CROP (OR FALLOW), AND WHEAT.

AGDELL FIELD.

These experiments were commenced in 1848; so that the present crop (1869) is the 22 l experimental one, or the second crop of the sixth course. One third of the land has been continuously unmanured; one-third manured with superphosphate of lime alone once every four years, that is for the Turnip crop commencing each course; and one-third manured (also for the Turnip crop only) with a complex manure, as described in the foot-note, No. 2. In the second, third, fourth, and fifth courses, instead of Clover, half of each plot was sown with Beans, and the other half left fallow. From half of each of the three plots the whole Turnip crop (roots and leaves) was removed; and on the other half the roots were eaten on the land by sheep, and the uneaten leaves were spread and ploughed in. In the case of all the other crops, the total produce was removed from the land. The abstract of results given below relates to the portions of each plot from which the Turnip crops were entirely removed; and on which, in the later courses, Beans (not fallow) replaced the Clover.

(Area under experiment, about 2½ acres.)

YEARS.	DESCRIPTION OF CROP.	PRODUCE PER ACRE. PLOT 1. Unmanured continuously. Corn[3] (or Roots).	Straw (or Leaf).	Total Produce.[4]	PLOT 2. Superphosphate of Lime[1], alone, for the Turnip Crops only. Corn[3] (or Roots).	Straw (or Leaf).	Total Produce.[4]	PLOT 3. Complex Manure[2], for the Turnip Crops only. Corn[3] (or Roots).	Straw (or Leaf).	Total Produce.[4]
	1ST COURSE, 1848-51.									
1848	Norfolk White Turnips	65¼ cwt.	45⅞ cwt.	111¼ cwt.	225¾ cwt.	106¼ cwt.	332 cwt.	218 cwt.	151¾ cwt.	369¾ cwt.
1849	Barley	44⅞ bush.	2983 lb.	5656 lb.	29⅝ bush.	2111 lb.	3841 lb.	28⅜ bush.	2088 lb.	3794 lb.
1850	Clover (calcined as hay)	..	..	54 cwt.	..	..	57¾ cwt.	..	..	63 cwt.
1851	Wheat	28½ bush.	3431 lb.	5389 lb.	28 bush.	3371 lb.	5253 lb.	28⅜ bush.	3552 lb.	5500 lb.
	2ND COURSE, 1852-55.									
1852	Swedish Turnips	26 cwt.	4½ cwt.	30½ cwt.	223¼ cwt.	20¼ cwt.	243½ cwt.	306¼ cwt.	36½ cwt.	433 cwt.
1853	Barley	34⅜ bush.	2430 lb.	4465 lb.	28⅜ bush.	1873 lb.	3560 lb.	38¼ bush.	2604 lb.	4873 lb.
1854	Beans	5⅛ bush.	1055 lb.	1445 lb.	5⅝ bush.	1103 lb.	1534 lb.	9¼ bush.	1355 lb.	2065 lb.
1855	Wheat	35¼ bush.	3619 lb.	5859 lb.	35½ bush.	3525 lb.	5789 lb.	37⅜ bush.	3942 lb.	6871 lb.
	3RD COURSE, 1856-59.									
1856	Swedish Turnips	32 cwt.	2½ cwt.	34½ cwt.	136 cwt.	7½ cwt.	143½ cwt.	333⅜ cwt.	12½ cwt.	346½ cwt.
1857	Barley	48½ bush.	2600 lb.	5337 lb.	28½ bush.	1475 lb.	3076 lb.	48 bush.	2435 lb.	5168 lb.
1858	Beans	6½ bush.	1100 lb.	1515 lb.	6¼ bush.	1155 lb.	1605 lb.	12⅜ bush.	1520 lb.	2357 lb.
1859	Wheat	35½ bush.	4030 lb.	6262 lb.	34⅓ bush.	3930 lb.	6120 lb.	39¾ bush.	4610 lb.	7154 lb.
	4TH COURSE, 1860-63.									
1860	Swedish Turnips	1 cwt.	(6½ lb.)	1 cwt.	29½ cwt.	1½ cwt.	30⅞ cwt.	87½ cwt.	3¼ cwt.	90⅞ cwt.
1861	Barley	38⅝ bush.	2522 lb.	4718 lb.	30⅝ bush.	2000 lb.	3775 lb.	6⅝ bush.	3940 lb.	7391 lb.
1862	Beans	20 bush.	1840 lb.	3661 lb.	20⅜ bush.	2150 lb.	4040 lb.	43⅜ bush.	3280 lb.	5990 lb.
1863	Wheat	44⅓ bush.	3467 lb.	6550 lb.	34⅓ bush.	3390 lb.	5619 lb.	46⅓ bush.	4697 lb.	7626 lb.
	5TH COURSE, 1864-67.									
1864	Swedish Turnips	8⅔ cwt.	0⅝ cwt.	9½ cwt.	68 cwt.	4⅝ cwt.	72¾ cwt.	176¼ cwt.	8¾ cwt.	185 cwt.
1865	Barley	39 bush.	2154 lb.	4182 lb.	33¼ bush.	1615 lb.	3394 lb.	47½ bush.	2595 lb.	5148 lb.
1866	Beans	10¼ bush.	1013 lb.	1689 lb.	7⅜ bush.	978 lb.	1463 lb.	20⅜ bush.	1990 lb.	3343 lb.
1867	Wheat	21 bush.	2143 lb.	3473 lb.	19¾ bush.	1966 lb.	3222 lb.	23½ bush.	3005 lb.	4567 lb.
	SUMMARY—AVERAGE OF THE FIVE COURSES, 1848-1867.									
1848, '52, '56, '60, '64	Swedish Turnips	26⅞ cwt.	10½ cwt.	37½ cwt.	136¼ cwt.	28 cwt.	164½ cwt.	242½ cwt.	42½ cwt.	285 cwt.
1849, '53, '57, '61, '65	Barley	41½ bush.	2538 lb.	4872 lb.	30⅓ bush.	1815 lb.	3529 lb.	44⅜ bush.	2732 lb.	5275 lb.
1850, '54, '58, '62, '66	Clover, 1850 (calcined as hay)	..	..	54 cwt.	..	..	57¾ cwt.	..	..	63 cwt.
	Beans	12⅜ bush.	1252 lb.	2078 lb.	12⅜ bush.	1347 lb.	2161 lb.	21½ bush.	2036 lb.	3439 lb.
1851, '55, '59, '63, '67	Wheat	33 bush.	3338 lb.	5467 lb.	30½ bush.	3236 lb.	5200 lb.	35⅜ bush.	3961 lb.	6244 lb.

[1] First course—100 lb. bone-ash, and 100 lb. sulphuric acid (sp. gr. 1.7); second course—160 lb. bone-ash, 120 lb. sulphuric acid; third, fourth, fifth, and sixth courses—200 lb. bone-ash, and 150 lb. sulphuric acid, per acre.

[2] First course—100 lb. pearl-ash, 100 lb. bone-ash, 100 lb. sulphuric acid, 100 lb. sulphate of ammonia, 100 lb. muriate of ammonia, and 1000 lb. Rape-cake; second course—300 lb. sulphate of potass, 100 lb. sulphate of soda, 100 lb. sulphate of magnesia, 160 lb. bone-ash, 120 lb. sulphuric acid, 100 lb. sulphate of ammonia, 100 lb. muriate of ammonia, and 2000 lb. rape-cake; third, fourth, fifth, and sixth courses—300 lb. sulphate of potass, 200 lb. sulphate of soda, 100 lb. sulphate of magnesia, 200 lb. bone-ash, 150 lb. sulphuric acid, 100 lb. sulphate of ammonia, 100 lb. muriate of ammonia, and 2000 lb. rape-cake per acre. Ionly.

[3] The quantities given in bushels represent the dressed corn

[4] The "total produce" of the corn crops includes dressed corn, offal corn, and total straw.

Home Correspondence.

New Zealand Flax in Ireland.—In the *Gardeners' Chronicle* (p. 696), there is a most important letter from Mr. J. Dickson Hill, on the importance of growing the Phormium tenax in Ireland. Mr. J. D. H. speaks of the subject as of "national importance as regards reproductive employment;" with this I heartily agree. So strongly did I feel the importance of cultivating the New Zealand Flax as a source of great wealth and peculiar industry to Ireland, that I publicly recommended it in the *Irish Farmers' Gazette* in 1862. In the summer of 1863 the great value of Phormium tenax in the manufacture of paper was discussed in the *Times* by Mr. Cameron, of Edinburgh, and others; after that correspondence, I wrote a short letter to the *Irish Farmers' Gazette*, with some particulars of the growth of the plant here; it may prove an item of interest to quote a paragraph of that letter from the *Irish Farmers' Gazette*, of Sept. 12, 1863:—"Plants three years old will yield from 30 to 36 leaves; six ordinary leaves will produce more than an ounce of clean fibre; an acre, with plants at 3 feet apart, would yield from 15 to 20 cwt.—a far greater return than ever known from Hemp or Flax. The New Zealand Flax deserves the high consideration of landowners in the south and east of Ireland; it is a plant singularly adapted for this climate: the clouds and rain that make corn crops precarious will only cause a better development of the Phormium tenax." Since that time I have had much correspondence about the culture of New Zealand Flax, and lately with a gentleman who has just returned to this country from New Zealand, and who assures me that the plants growing at this place present the vigorous appearance seen when growing in their native climate. The gentleman to whom I refer has shown me the simple and expert way in which the native New Zealanders split the leaves and scrape off the vegetable matter—leaving the outsides intact, and quickly converted into mats, &c. The gentleman whom I speak of believes there are two varieties of the Phormium tenax in New Zealand. Can any correspondent help in confirming this? A few years ago a drawback to the manufacture of New Zealand Flax was a difficulty in separating the matter from the fibre; I infer from the letter of Mr. J. D. Hill that by his process of manufacture there is no obstacle in that now; if this be so it is a great encouragement to invest in its culture. I have just measured some of the leaves of the growth of last summer, and find them to be about 6 feet long, and 4½ inches broad, and of fine substance. I note that suckers put in soft ground a year ago have six new leaves nearly 4 feet long. Some years ago I had three plants put firm in between large stones, resting on excavated ground, by the side of an overflow from a small pond. When the plants commenced to grow, the roots extended into the water by the foot long, and it is interesting to observe how the spongioles increase with increase of temperature. It is noticeable that these plants growing in the water, when cut down, do not break so freely as others planted in earth. I will greatly rejoice to see the Phormium tenax cultivated in Ireland for commercial purposes; it will, however, be a mistake to say that it will grow rapidly in unprepared land. Skill and patience will be required to get good crowns established; and when once established, it will prove the easiest managed, and the most valuable of green crops. There are specimens growing here in water, on Peat within the influence of water (the largest), on dry ground, and on good garden soil. If Mr. J. D. Hill cares to have specimens of any or all of these, and will tell me how to forward them, I will be glad to send them for trial. *Charles M'Donald, Woodstock Park, June* 28.

Aggregation of Properties in England.—In your leading article of the 3d July it is stated as a certain fact that the number of landowners in England is continually diminishing. It would be interesting to know whether this fact can be proved. My own experience is limited, but it points in a totally different direction. Around me, land societies are purchasing wholesale and selling retail; one landowner disappears, and in his place 20 or 200 spring up. This takes place daily. But let any one attempt to reverse the process, and try to purchase the 20 plots or fields lying next to his own and belonging to 20 different owners. He would hardly succeed after 100 years. It is just like putting a lump of stiff clay on a sandy field in autumn. It cracks down in spring into a powder, which mixes with the sand, and which you can never form into a clay lump again. Perhaps it will be said that the process of disintegration is vigorous only in the vicinity of towns. But the vicinity of towns, when London is one of them, is a vast area, and the owner of a quarter of an acre of garden ground must certainly be classed as a landowner. I repeat then, where is the proof that the number of landowners is diminishing? The leading article under discussion is, I think, open to criticism on many points, but I confine myself to the above. *G. S.*

Foreign Correspondence.

PARIS: *Experiments in the direct Application and the Purification of Sewage in Paris.*—During the years 1867 and 1868 a series of important experiments have been made under the direction of MM. Milne and Durand Claye, engineers of Ponts et Chausées, and the results are now made public in an elaborate report. These experiments include the direct application of sewage on the ridge-and-furrow system, saturation of the soil during winter, purification of sewage by means of alum, and, lastly, the application of the precipitated manure, as well as of the clear water after purification.

The composition of the sewage, and of the results after purification, are given as follows:—

A cubic mètre or ton of sewage is found to contain—

Nitrogen	0.037 kilogrammes
Phosphoric acid	0.015 ,,
Potash	0.030 ,,
Soda	0.101 ,,
Organic matter	0.729 ,,
Mineral do.	1.802 ,,
Total	2.804 ,,

The precipitate consists of:—

Nitrogen	8.42 kilogrammes
Phosphoric acid	8.50 ,,
Organic matter	266.06 ,,
Mineral	717.50 ,,
	1000.00 ,,

A ton of the water, after the precipitate has been thrown down, contains:—

Nitrogen	0.021 kilogrammes
Potash	0.030 ,,
Soda	0.101 ,,
Organic matter	0.240 ,,
Mineral	0.595 ,,
	0.987 ,,

So that a ton of Paris sewage contains nearly 3 kilogrammes, or 6½ lb. of foreign matter, of which one-third is in a state of solution and two-thirds in suspension.

Such are the materials with which the French engineers have to deal.

The following are some of the most important results of these experiments.

A plot of Grass, 150 mètres square, received 6½ lb. per square mètre of the precipitate and an abundant supply of the purified water, and produced from May to September five crops of Rye-grass and Trefoil, representing 43 tons of green fodder, or 12 tons of hay per hectare of 2½ acres. A precisely similar patch, the other half of the same in fact, being cultivated without any sewage water, yielded only 4½ tons of green fodder per hectare.

A piece of ground, 2000 square mètres in extent, planted with Indian Corn, Beetroot, and Potatos, and treated with sewage water, presented a magnificent appearance; the Maize was more than 6 feet high, and produced at the rate of 3⅗ tons of grain per hectare, and of the value of 60*l.*; the Beetroot produced 50 tons per hectare, value 32*l.*; the Potatos, in spite of some of the plants being diseased, yielded at the rate of 16 tons, value 60*l.*, per hectare.

The culture of vegetables is the most important in the environs of Paris, and to this object most of the experiments tended. A piece of ground 1¼ acre in extent was devoted to the production of Cabbages, Peas, Beans, Cardoons, Tomatos, Pumpkins, and 20 other kinds of vegetables. The land was dressed with the precipitate to the extent of nearly 9 lb. per square mètre, and the quantity of clarified water expended upon the land amounted to a depth of 4⅘ mètres. The cultivation was carried on with scarcely any labour, and without the addition of any other manure, and the produce amounted to about 168*l.* per hectare, the ground when planted with cereals producing only to the value of 24*l.* to 32*l.* per hectare. The average value of the produce of about 7000 hectares of land devoted to the growth of the same kinds of vegetables in the vicinity of Paris and surrounding department is about 80*l.* per hectare; the market gardeners, who grow early productions—Melons, salads, &c., make a much higher figure, but they have to expend very large sums for labour and manure.

The general inferences from these experiments are that sewage water may be economically employed to the extent of 60,000 tons per hectare, that the black water, precipitated matter and clarified water, are all valuable elements of fertilisation; that alum has the power of rendering almost absolutely limpid all the sewage that cannot be used directly, producing from it a precipitate which contains almost all the same elements as ordinary farm manure, and that the total cost of distribution and purification combined amounts to from two to three centimes, or one halfpenny per ton.

The direct results are only confirmatory of former experiments; purification is the great problem. If all the sewage cannot be used up in the ordinary direct mode of trench watering in the summer months, and by pumping in on the ground during the other portions of the year, and so preparing the soils for the crops, can customers be found to pay enough for the precipitate to cover the cost of purification?

The amount of sewage at present turned into the Seine is 190,000 tons a-day, and the evil effects are already being produced there in the form of a bar and of green slimy mud, which lies along the banks of the stream and gives forth in hot weather and at low water noisome and pestilential gases; and it is estimated that to keep all this mass of sewage out of the river would cost about 228*l.* a-day. The municipal authorities and the engineers engaged in the work are quite alive at once to the importance and the probabilities of the experiment, and we are of opinion that they will not give the matter up until the object be accomplished. The sum of 83,000*l.* a-year is certainly a large one, but should the authorities only get half the money back, the other half would be the most admirable piece of extravagance that ever a city committted.

The experiments now terminated at Clichy used up about one four-hundredth part of the whole supply of sewage; a second set of experiments, on a scale just ten times as large, are about to be tried, in order, if possible, to arrive at a definite solution of this great problem. Two steam engines, each of 20-horse power, driving centrifugal pumps, capable of lifting 5000 tons of sewage a day, are prepared, and a conduit pipe, 24 inches in diameter, is to be laid under the pavement of the new bridge now erecting at Clichy, which will convey the sewage to a plot of ground 15 acres in extent, on the plain of Gennevilliers, below Asnières. This land has been divided amongst a certain number of cultivators, who will employ the sewage in their own way, and form a decided opinion upon the value both of it and the deposited matter derived from it; several proprietors in the vicinity will also have a supply of the water. Whatever may be the ultimate result, this experiment is valuable in itself, not only as a practical experiment, but from the fact that the soil of the plain in question is poor and sandy, and capable of absorbing an immense quantity of sewage, to its great advantage.

It must be admitted that the situation of the sewage problem is not very creditable to the present scientific and practical generation, and we trust that the intelligent determination of our neighbours will cause our own countrymen to proceed a little faster and a little more skilfully.

Reviews.

Cattle, and Cattle Breeders. By William M'Combie, M.P., Tillyfour. Second Edition. Blackwood & Son.

Mr. M'Combie has republished his graphic and picturesque account of personal agricultural experience, and we doubt not that in its cheap form it will command an enlarged circle of readers. It is interesting to see how in the House of Commons, as before the Edinburgh Chamber of Agriculture, where the substance of this volume was first spoken, the recognisable individuality of style exhibits itself. The following speech lately delivered by Mr. M'Combie on the Contagious Diseases (Animals) Bill reads like a bit out of his book. In seconding Mr. Read's amendment on Mr. Foster's Bill, Mr. M'Combie said:—

"The agricultural community looked upon this amendment as of the most vital importance. It was a matter of life or death with the tenant-farmers of Scotland, England, and Ireland, for if rinderpest got into their herds it was utter annihilation. The great increase of late years in the dead meat traffic in this country showed that no hardship whatever would be caused by the compulsory slaughter of foreign cattle at the ports of debarkation. He wished to lay before the House a few statistics bearing upon this point. Mr. Rudwick, of Berwick, the greatest dealer on the Border, killed 2000 sheep weekly in the season for the London dead meat markets. In Fifeshire there was an enormous dead meat trade, almost no meat being sent off alive. Coming to Aberdeenshire, we found that the export of live cattle to London was only half as large as it was 10 years ago, while the dead meat trade had doubled in the same period. In 1859 the number of cattle sent alive was 20,400, and the quantity of dead meat was nearly 7000 tons, or more than 23,000 head of cattle, calculating 6 cwt. to each animal. In 1861 the live cattle had decreased to 17,176—a falling off of between 3000 and 4000, while the dead meat had risen to 8168 tons—equal to about 27,220 cattle. In 1865 the export of live cattle was only 13,589, as compared with upwards of 10,000 tons of dead meat, equal to over 33,700 cattle. He had not been able to get the exact statistics since 1865, but at present only about a third were sent from Aberdeen alive. During the season about 1800 cattle were slaughtered there weekly, and only about 600 exported alive. The offals of the animals slaughtered were all consumed at Aberdeen, or within a reasonable distance. It was well-known that the best of everything went to London—the best horses, the best oxen, the best sheep, the best grain, the best fish—and why? Because everything fetched the highest price there. If it were not for London and the West-End butcher they would have but a poor demand for their prime Scots. Now let them see where and with what did the West-End butchers supply themselves. The late Mr. Thomas Slater, the greatest of them, retailed 500 sheep a week during the Great Exhibition. His two sons, one at Kensington, the other in Jermyn Street, and Mr. Oakes were now the largest retail butchers in London. Between them they put about 100 cattle and 500 sheep through their hands weekly. Mr. Slater, of Kensington, bought one-half alive, the other half dead meat in Newgate. Mr. Slater, of Jermyn Street, bought every pound dead. And where did this dead meat come from? Three-fourths of it was Aberdeen dead meat. This would be found to apply to the other West-end butchers as well. He regretted to learn that there was a strong growing feeling among the tenant-farmers of Scotland that the Government had hitherto ignored their interests; but he trusted that before the next day of counting and reckoning came they would have no reason to complain that their just claims had been neglected. They feared no competition from abroad, but they feared a second visitation of rinderpest. They wanted no protection; but they wanted preservation from disease, and therefore he trusted the House would adopt this amendment."

Farm Memoranda.

WESTER ROSS: *July* 6.—On the whole, as yet, a more favourable season than last year has visited the northern part of our island, and at present we have the prospect of about an average crop. True, we had an unusually lengthened continuation of easterly wind, with frost at night, which retarded greatly the progress of the crops, but latterly the weather has been very forcing, and a rapid advance has been made. Wheat is rapidly getting into ear, but is not generally very closely planted, and appears short in the ear. There is no likelihood of the yield being so large as last year, but if well matured and harvested it may not be short of an average. Last year there was an uncommonly large return of Wheat, many farmers having sold more than they ever did in any previous year. Much depends on the weather in store for us. Oats retained their colour well throughout the long-continued cold, but began to form the ear and run to seed all too early, so that a large proportion of the crop, especially that on light and exposed soils, will be thin and stunted. Fine Oats, however, are to be seen on fine, sheltered, and well cultivated land. Barley, which is much more delicate than Oats, did not stand out the cold weather so well, and particularly so on light and exposed fields. Much of it can never be anything like a full crop. It is exceedingly difficult to determine the difference in value between good and bad land, but it is pretty clear that a farmer occupying only inferior land with little or no rent would not hurriedly become rich, while something can be made off fine land, though pretty heavily rented. Our Turnip crop never, perhaps, started more promisingly than it has done this year. The Swedes have been all singled, are very regular, and advancing satisfactorily. The singling of the common Turnips is being proceeded with, and must needs be finished in a few days. The difficulty is in finding hands sufficient to single them as fast as they come to the hoe. Potatos are generally brairded regularly, and are very promising. The hay crop is now being cut, but is much lighter than last year, and will bulk poorly. The growth of the seeds last year was disastrously affected by the summer's heat and drought, especially what were sown amongst Wheat, and the early part of this season was greatly too cold for their reaching a full crop. Pasture Grass in the early season was also greatly retarded, and was very scarce, but the forcing weather we have had of late has now given us abundance of keep. All kinds of stock have of late been thriving well, and have been fetching high prices. Yesterday we had a fine rain, which, with the genial weather we now have, will cause a rapid growth, and will yet greatly help to lengthen the straw. With ordinarily fine weather, harvest may commence about the end of August.

Having been more than ordinarily occupied during the last few months, I failed to answer the queries of "T. J." and "A. H." regarding the report in which I showed that I had a profit per acre of 3*l.* 13*s.* 6½*d.* For this I have to apologise, and have now to say that two-sevenths of the land are yearly under Potatos and Turnips, and rented by the people of the neighbouring town, and receive of manure from the growers about 60 loads per acre, the whole manual labour also being performed by the owners of the crop. "T. J." will readily agree with me that that dose is not particularly "homœopathic." To "A. H." I may say that I sell a large proportion of the growing crop on the ground, and the cost of manual labour, which is very small, I deducted from the value of the crop. Very few Turnips are grown, and only by those who have cows or horses. Potato fallow keeps the land quite clean, but is repeated twice in the seven years. Should the Potato disease return, I question much whether this mode of farming would keep the land clean. My profit this year, although high, is less than last year, and will, I think, be surpassed by the growing crop, and might, I believe, be continued with little variance year after year for any length of time. I published my returns, certainly not to advertise any rapidly accumulating wealth, but simply to show that the mode of farming by which the ground is kept in high condition, and the proceeds thereof disposed of in the least expensive manner, is in the long run the more profitable. In this way the fallow is rented to be manured and cropped with Potatos or Turnips; the hay is sold on the ground, and the growing crop of grain is as much as possible disposed of before it is cut. There are no horses, and no stock of any kind is kept on the land. This mode of farming is, and must necessarily be, exceptional. It is only practicable in the neighbourhood of a town. Mr. Mechi's mode is the very opposite of this, and attended with much more danger. His is very much a large manufactory of beef, and it depends entirely on the comparative value of feeding stuffs and beef whether his profits be large, or none at all. And his is an exceptional mode, and must necessarily be so, as well as mine, for were his mode generally carried out, the wages of workpeople would rise so high that the very shadow of profit would be out of the question.

Calendar of Operations.

JULY.—The slack season of summer among townsfolk is generally a busy one to the farmer, owing to the manner his attention is divided between his crops and cattle, and the numerous local and general exhibitions of live stock and implements which take place about this time. Almost every county and district has its gathering, but the only one that calls for special notice is the summer meeting of the Royal Agricultural Society of England, which generally takes place about the middle of this month. Thus during the current month it is being held at Manchester, from the 12th to the 17th for the trial of machines, &c., and during the following week the show yards are open for the inspection of the general public. The month is one that is pregnant with practical education to the young farmer and hence to the old as teacher. Thus crops and cattle form an everyday publication which requires to be closely studied, while the public meetings afford an opportunity of testing the soundness of home conclusions.

Labourers' Holidays.—No class stands more in need of a little schooling from home than our best and steadiest agricultural labourers, that is, those who seldom shift place. They are a class who pick up information fast, and the practice of giving them the privilege and means of attending public meetings, &c.—which encouragement is becoming more and more common—is proving highly advantageous, the money thus spent by the intelligent farmer being the most profitable investment of capital on his farm. In point of fact, some farm labourers will learn more about live stock or machinery in a single day at an agricultural show than they could possibly do in a year on a farm or in their own parish. Hence the practical conclusion.

Rye-grass seeds.—In the northern counties, where a fourth or fifth portion of the farm is every year sown with Rye-grass and Clover, most farmers grow their own Rye-grass seed, which is generally harvested during the current month. The crop is allowed to ripen its seed, but it does so partly in the stook and therefore should be mown before it is dead ripe, the same as Wheat or Oats. And, besides, Rye-grass is very liable to shed its best seed in the operation of harvesting, if it be allowed to become too ripe before it is cut. It is bound up in sheaves and stacked the same as corn, the stooks being "hooded" in wet seasons and districts. It is also stacked the same as corn, but from the delicate character of the seed, it requires to be thoroughly dry before it is carried, so as to obviate heating in the stack. To avoid this, some thresh out the seed in the field as soon as the hay is fit for the "tramp cock" and spread it then upon the granary, or barn floor; but it keeps freshest in the straw when harvested dry, and properly stacked and thatched. During the ordinary operation of haymaking some farmers thresh out what seed they require with flails in the field, the hay from the threshing floor being subsequently built in tramp cocks of about a ton or so each. There are two ways of carrying out the practice, according to the weather. Thus, if the weather is settled and dry, the hay is allowed to remain in the swathe until ready for threshing, being once turned in the swathe with a fork or rake handle. When sufficiently dry, it is carried in

various ways in the arms by women and boys to the threshing floor, which consists of a few inch boards nailed together, forming a door as it were, 4 feet by 8 in length, placed upon a canvas with some loose hay under. But if the weather is unsettled the hay is drawn by horses to the threshing floor. This practice however is not generally commended, as the threshings break and injure the hay, while the quality of the seed is inferior at the outset and liable to suffer further depreciation in the granary. A change of seed of this kind even is important. Some farms yield better Rye-grass seed than others, and therefore, it is common for the occupiers of such farms to grow for market, and for those farmers whose seed depreciates to bespeak at this season as much as will give them a change. Thus, if they require one or two acres of Grass seed, they bespeak at least as much fresh seed as will sow the one or two acres. And some make a point of changing every year; others every second or third, and so on, as they find it answers.

Turnip seed is also ready for harvesting during July. It is cut with a sharp reaping hook. Some leave it in small loose parcels, and thresh out as soon as it is ready for the threshing floor; the crop, if of any extent, being threshed out with the flail similar to the above method of threshing Rye-grass. Small quantities are threshed out with a rod upon a canvas. Others tie up the crop in small sheaves with straw ropes, or cord, as fast as cut, and stack and thatch immediately. In stacking the bottom sheaves are placed upon their butt-ends erect, and the others are laid standing over them, the butts outwards and as loose as possible. If the stack is of any considerable size, there should be a tripod of three poles in the middle to prevent it settling down before the straw and seed are properly dried, for if it does so, both will become mouldy, while the latter (the seed) is liable to be infested with insects. Threshed seed is also liable to be eaten with insects, and therefore should be examined every now and then. Some fumigate with the weak fumes of sulphur or pyrolignic acid. Others, as soon as the seed is sufficiently dry for being put into small bags, hang up the bags with the seed in the kitchen chimney, the hams there having to give place to them for a short time. But in all these cases care requires to be taken so as not to injure the vegetative powers of the seed, otherwise it braird's weakly and unequally. The less doctoring of this kind the better. A small quantity of soot stirred with the seed is a safe preservative. In some of our great stock breeding and fattening districts, as Aberdeenshire, where Turnip husbandry is the soul of farming, farmers pay very great attention to the harvesting of this crop.

Roasted pastures.—With plenty of pure water to drink, cattle do well here so long as there is an abundance of "roast meat" to eat. But unfortunately, in very dry seasons, such as 1868, vegetation ceases, while the roast meat grows less and less every day. From the success now attending artificial irrigation, many graziers begin to reason in this way:—"If a ton of grass can be got daily from an acre of irrigated meadow, why should the grass be allowed to cease growing in the pastures at all? Why not shift the cattle into a fresh close and water artificially when the pastures become bare?" This is what all intelligent and successful graziers do when heavy showers fall at this season, and throughout the summer. But in imitating, or rather improving upon the natural example, it must be borne in mind that the natural shower falls upon both the bare and full-bite pastures, thus greatly stimulating the growth of the latter. The natural example may here be improved upon by art, for the fresh close should be watered a day or two before the cattle are turned into it. And artificially the water should be applied more slowly and in greater abundance than is generally done. But as the practice extends, experience will lead the way to successful results in this respect.

Bare fallows are becoming farther and farther asunder every year, from being now generally supplanted by green crops. Here and there a naked field may arrest the eye of the railway tourist, but in the olden time every clay farmer was busy during this month in carting out and manuring his land, or in folding his sheep over night amongst the sun baken clods. Others had their fold-dykes upon the outfield pastures, which give employment to the men in digging and building the dykes, and in spreading the sods after the cattle and sheep folded therein over night had manured the land with their droppings. It is instructive to compare these old practices with those now in use.

Ashes for mixing with artificial manures are commonly collected and stored, as far as this can be done, during this slack season. When old pasture lands have been, or are being pared and burned preparatory to sowing rape, a sufficiency of ashes is obtained from this source. Otherwise earth from headlands, the parings from hedges and ditches, or roadsides, or waste places, are burned, and the ashes when cool are carefully sifted and stored for subsequent use. This is done if possible in a shed, house, or place where they can be mixed with the artificial manure as required. Some prefer storing the rough ashes, postponing the sifting until seed-time. Now that artificial manures are used at all seasons of the year, it follows that a stock of ashes requires always to be kept in store ready for use.

Notices to Correspondents.

HORSE SHOEING: *M F* says:—"In the *Agricultural Gazette* for October 17, 1868, there is a notice of an improved method of shoeing horses, from an Australian paper, the *Illawarra Mercury*. The improvement was invented by Mr. W. Ahern, and consists in fitting on the shoe without nails. If you or any of your correspondents will kindly give me any information on the subject, and if it has been successfully tried in this country, I shall be much obliged. I believe I saw in the *Daily News* some time since that the plan had been adopted by some omnibus company in London."

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)
Have now ready for delivery, in fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES.
Also Genuine PERUVIAN GUANO, and NITRATE of SODA ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c. E. PURSER, Secretary.
Offices, 116, Fenchurch Street, E.C.

Weeds Eradicated from Lawns.
WATSON'S LAWN SAND, sprinkled upon Lawns, rapidly destroys Dandelions, Daisies, Clover, Rib-grass, &c., and at same time promotes the growth of Grass. 28s. per cwt.; 4d. per lb.
May be ordered through any respectable Seedsman, or direct from Agent, W. D. BARBOUR, 5, East Parade, Leeds.

HER MAJESTY'S GARDENER USES
FOWLER'S GARDENERS' INSECTICIDE.
Invaluable to Nurserymen, Fruit and Vine Growers.

INSECTS, BLIGHTS, and MILDEWS
easily and effectually destroyed without injury to the most delicate plants.

A GREAT SUCCESS
is FOWLER'S GARDENERS' INSECTICIDE.—See the Testimonials from eminent Gardeners throughout the kingdom.
Sold by all Nurserymen and Seedsmen.

HER MAJESTY'S GARDENER SAYS:—
"I am satisfied that the Insecticide will kill any insect that it comes into contact with, without injury to the plant."—*Vide Mr. George Wyness' Letter.*

THE FOLLOWING ARE MOST IMPORTANT:
Mr. THOMAS MOORE, Botanic Gardens, Chelsea, says:—"We have formed a very favourable opinion of Fowler's Insecticide as a remedy for many of the insect pests of plants. It effectually destroys White and Brown Scale, Thrips, Red Spider, and the Green and Black Fly; at the same time it does not injure the plants."
Mr. SHIRLEY HIBBERD says:—"Fowler's Insecticide is a sure remedy for American Blight; it will clear off the horrid vermin, and do no harm to the bark, or even to the young leaves... the trees are now as clean as polished walking sticks."
Messrs. WM. WOOD & SON, Maresfield, say:—"We have tried it on Roses affected with Mildew, Calceolarias covered with Green-fly, and Aucubas and Oleanders infested with Scale, and we have much pleasure in stating the plants are now perfectly clean and healthy."
Mr. F. R. PEARSON, Chilwell, says:—"It is by far the most effectual remedy I have tried for our insect enemies. A plant covered with Brown Scale is cleaned at one dip; Ants, the different kinds of Aphis, and in fact everything, Black and White Thrip amongst the number, are settled at once."

NOTICE to the TRADE.—
In consequence of the popularity of
FOWLER'S GARDENERS' INSECTICIDE,
and to supply the increasing demand, the Manufacturers have been compelled to open a London Depot at
35, Great Dover Street, Borough, to which Address all Orders should be sent.

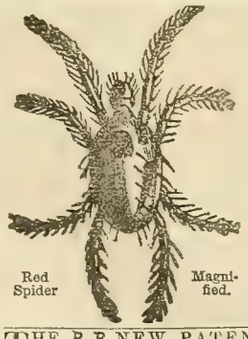
FOWLER'S GARDENERS' INSECTICIDE,
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FOWLER'S TOBACCO POWDER,
for Dusting Plants, 1s., 2s. 6d., and 5s. Canisters.
SOLE MANUFACTURERS:
G. AND T. FOWLER,
35, Great Dover Street, Borough, London, S.E., and North Street, Brighton.

WASPS, WASPS.—Any place may be immediately cleared of these pests by the use of SCOTT'S WASP DESTROYER. Price 1s. 6d. and 2s. 6d. per bottle.
Mr. C. Hazel, Gardener to Sir R. G. Glyn, Bart., says:—"Before I heard of your Mixture, we bought many pounds worth of Tiffany to protect the houses and walls of these pests, but none of it has been required, and it lies unused....I am happy to say it completely cleared the place....Her ladyship replied:—'Hazel, it is a capital thing; it has quite cleared my room.'"
Mr. Pyper, Gardener to Lord Hastings, says:—"I found it very good, and soon cleared the Vineries of the pests."
Other Testimonials may be had on application.
J. SCOTT, The Seed Stores, Yeovil, Somerset.
LONDON AGENTS:—Messrs. HURST & SON, 6, Leadenhall Street, E.C.; and Messrs. HOOPER & Co., Covent Garden, W.C.

The Cheapest and Best Insecticide.
DUTY-FREE TOBACCO.
BY HER MAJESTY'S ROYAL LETTERS PATENT, AND BY PERMISSION OF THE HON. BOARD OF CUSTOMS.

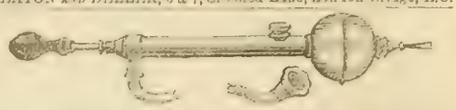
POOLEY'S TOBACCO POWDER, for the Prevention and Destruction of Blight and other Diseases in Plants.
Sold by Nurserymen, Seedsmen, and Florists,
In Tins at 1s., 2s. 6d., and 5s.
Powder Distributors, 2s. 6d. and 3s. 6d. each.
"I find it exceedingly useful for killing the Aphides on Roses and other Plants."—GEO. EYLES, Superintendent, Royal Horticultural Gardens, South Kensington. May 7, 1868.
Sole Manufacturer, T. A. POOLEY, Bonded Warehouse, Sussex Wharf, Wapping, E.


Red Spider — Magnified.

GISHURST COMPOUND.
Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d.
Wholesale by
PRICE'S PATENT CANDLE COMPANY (Limited),
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THE B B NEW PATENT LAWN MOWER.—
The Manufacturers find it necessary to inform the Public that there was no Trial of Lawn Mowers at the Paris Exhibition, and the award to one Machine was the award of an individual Juror only, in the absence of his colleague, without practically testing the competing Machines.
"Double-edged Sole-plates," or "Wind Guards," or "Reversible Cutters," may be supplied with the B B Mowers in any case where these are considered to be an advantage, and not a drawback or complication to the Machine.
The B B Mowers perform their work in the most perfect manner, and are well known to be the best finished and most durable Mowing Machines.
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NETTING for FRUIT TEEES, SEED BEDS, RIPE STRAWBERRIES, &c.—TANNED NETTING for Protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3d. per yard, or 100 yards, 20s.; 4 yards wide, 6d. per yard, or 50 yards, 20s. NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls: 2 yards wide, 6d. per yard; 4 yards wide, 1s. per yard; ¾-inch mesh, 4 yards wide, 1s. 6d. per yard. Can be had in any quantity of
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H. BROOK AND CO., Sole Manufacturers of the CHELTENHAM GARDEN ENGINE, which weighs only 3 lb. 1 oz., throws water in a continuous stream over 35 feet. To be had of all Ironmongers, and Wholesale only at 10, Featherstone Buildings, Holborn, London, W.C.
GARDEN HOSE and BRANCHES in great variety.



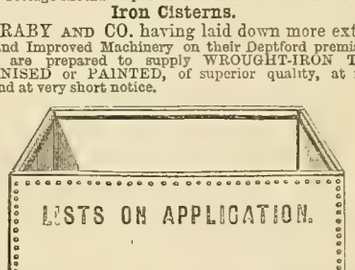
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The best and most powerful
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15 Gallons .. .. £4 10s.
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THE HYDRONETTE,
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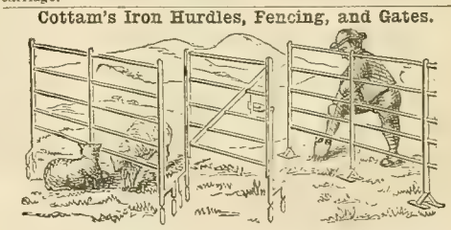
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"Every Cottage should be provided with a Water Tank." *Disraeli.*
Iron Cisterns.
F. BRABY AND CO. having laid down more extensive and Improved Machinery on their Deptford premises (IDA WHARF), are prepared to supply WROUGHT-IRON TANKS, GALVANISED or PAINTED, of superior quality, at reduced prices, and at very short notice.



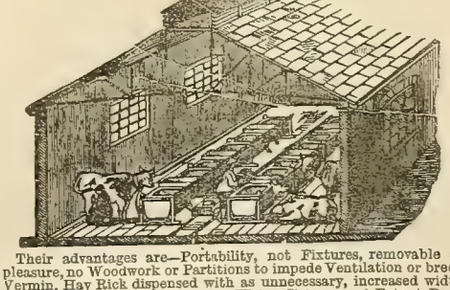
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N.B. Open Tanks of different sizes packed one in another to save carriage.

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Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rick dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of Iron. Prices of Fittings per Cow, 55s.
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ROYAL ZOOLOGICAL SOCIETY, LONDON.
ROYAL BOTANIC SOCIETY, LONDON.
ROYAL BOTANIC GARDENS, DUBLIN.
ROYAL BOTANIC GARDENS, LIVERPOOL.
ROYAL BOTANIC GARDENS, CAMBRIDGE.
ROYAL WINTER GARDEN, DUBLIN.
ROYAL DEPARTMENT OF SCIENCE AND ART, LONDON.

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HEATING APPARATUSES at the above, where our "ONE BOILER SYSTEM"

HAS FOR YEARS BEEN SUBJECTED TO THE MOST CRITICAL TESTS WITH EVERY SATISFACTORY RESULT.
IT IS MATCHLESS FOR EFFICIENCY, AND IS WORKING THE LARGEST APPARATUS ON RECORD.

These are no theoretical statements, but positive facts, and it is not too much to add, that no boiler can boast a parallel.

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John Weeks & Co.

NEW PATENT BB LAWN MOWING MACHINE FOR 1869.

PRICES REDUCED AND THE MACHINE PERFECTED.

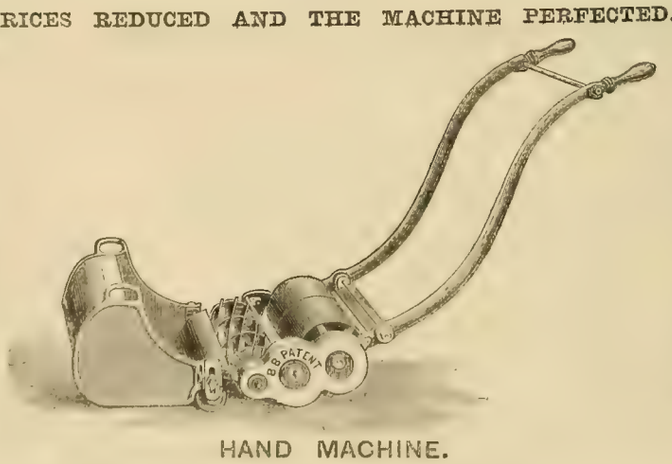
PATENTEES AND SOLE MANUFACTURERS,

J. B. BROWN & CO.,

LONDON, E.C.

The BB LAWN MOWER (London made) is allowed to be, by practical judges, superior to any other,—being the best designed, also of best material only, all parts liable to breakage being of malleable or unbreakable iron, every part made to standard gauge, and numbered; and the entire Machine finished in a manner incontestably superior to any other Lawn Mower manufactured. The BB MOWER is also distinguished by its lightness, silence in movement, ease of working; and is so strong as to be literally unbreakable.

☞ *Guaranteed to give perfect satisfaction, and if not approved of may be at once returned.*



HAND MACHINE.

The BB MOWER was selected at the Paris Exhibition, in preference to all others, by the celebrated Engineer, Mons. Henri Schneider, of Creusot, and President of the French Legislative Assembly, who thus writes to Mr. J. B. BROWN:—

"Usines de Creusot.
"SCHNEIDER et CIE., 68, Rue de Provence.
"Paris, le 24 Fevrier, 1868.

"MONSIEUR,—J'ai fait faire l'essai de votre Machine à tondre les gazons, et m'empresse de vous faire connaître que les résultats en ont été satisfaisants.—Recevez, Monsieur, mes sincères salutations.

"H. SCHNEIDER."

PRICES—NEW PATENT BB HAND MACHINE for 1869.

Width of Cutter.			
10-inch	£3 5 0	*For a Boy.*	
12-inch	4 5 0		
14-inch	5 5 0	*For a Man.*	
16-inch	6 0 0		
18-inch	£7 0 0	*For a Man and Boy.*	
20-inch	7 10 0		
22-inch	8 0 0	*For Two Men.*	
24-inch	8 10 0		

ALEX. MACKENZIE, Esq., *Alexandra Park* (and of the Metropolitan Board of Works).

"The two 42-inch Horse Machines, supplied by you in May last, are most satisfactory. Your Lawn Mower does its work better than any other, and combines strength superior to Shanks' Machine, with the lightness of Green's."

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Width of Cutter.	Complete, without extras.
48-inch	£31 10 0
42-inch	27 10 0
36-inch	23 10 0
30-inch	20 10 0

NEW PATENT BB PONY and DONKEY MACHINE for 1869.

Width of Cutter.	Complete, without extras.
30-inch	£16 10 0
28-inch	15 10 0
26-inch	13 10 0

*** *All warranted to give satisfaction, and delivered Free to any Railway Station.*

The BB NEW PATENT LAWN MOWER.—The Manufacturers find it necessary to inform the Public that there was no trial of Lawn Mowers at the Paris Exhibition, and the award to one machine was the award of an individual juror only in the absence of his colleague, without practically testing the competing machines. Double-edged Sole Plates, or Wind Guards, or Reversable Cutters may be supplied with the BB Mowers in any case where they are considered to be an advantage, and not a drawback or complication to the machine.

The BB MOWERS perform their work in the most perfect manner, and are well known to be the best-finished and most durable Mowing Machines.

J. B. BROWN AND CO.,

OFFICES—90, CANNON STREET, CITY, E.C. MANUFACTORY AND WAREHOUSES—240, NEW KENT ROAD, LONDON, S.E.

Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the Corporate Mark, OBTAIN WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make all of which are warranted both by Sellers and Makers.

S. & C.'s PRUNING and BUDDING KNIVES are the best and be cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their REDUCED PRICES as follows:—

PROPAGATING GLASSES.

Each.—s. d.		Each.—s. d.
2 inches in diameter .. 0 3½	12 inches in diameter .. 1 9	
„ „ .. 0 4½	13 „ „ .. 2 0	
4 „ „ .. 0 5½	14 „ „ .. 2 6	
5 „ „ .. 0 6½	15 „ „ .. 3 0	
6 „ „ .. 0 8	16 „ „ .. 3 6	
7 „ „ .. 0 10	17 „ „ .. 4 0	
8 „ „ .. 1 0	18 „ „ .. 6 0	
9 „ „ .. 1 2	19 „ „ .. 6 0	
10 „ „ .. 1 4	20 „ „ .. 7 0	
11 „ „ .. 1 6		

BELL GLASSES, with ventilating hole through knob.

4inches in diameter ..	0s. 6d.	9 inches in diameter ..	1s. 8d.
„ „ „ ..	0 8	10 „ „ ..	2 0
6 „ „ ..	0 10	11 „ „ ..	2 6
7 „ „ ..	1 1	12 „ „ ..	3 0
8 „ „ ..	1 4		

Either flat or conical tops.

CUCUMBER GLASSES.

24 inches long ..	2s. 0d.	16 inches long ..	1s. 4d.
22 „ ..	1 10	14 „ ..	1 2
20 „ ..	1 8	12 „ ..	2 6
18 „ ..	1 6		

HAND GLASSES, WITH OPEN TOPS.

Each.—s. d.		Each.—s. d.
12 inches 6 6	18 inches 9 6	
14 „ 7 6	20 „ 10 6	
16 „ 8 6	22 „ 11 6	
	24 „ 12 6	

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS. PAINTS of various colours ground ready for use.

SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of Prices and Estimates forwarded on application to

JAS. PHILLIPS AND CO., 180, Bishopsgate Street Without, E.C.

Horticultural Glass Warehouse.

THOMAS MILLINGTON AND CO., 87, Bishopsgate Street Without, London, E.C.

NEW LIST for ORCHARD-HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD-HOUSE SIZES.

in.	in.	4ths.	3rds.	2nds.	Best
20 by 12	Per 100 feet 15 oz.	12s 3d	15s 6d	18s 9d	18s 0d
20 by 13					
20 by 14					
20 by 15	21 oz.	18s 0d	20s 0d	22s 0d	24s 0d
20 by 16					

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7				11s 3d	12s 6d	14s 0d	15s 6d
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½							

Per 100 feet.

10 by 8	12 by 9	12½ by 10½	14½ by 10½						
10½ by 8½	12½ by 9½	13 by 10	15 by 10	11s 9d	14s 9d	15s 3d	17s 6d		
11 by 9	13 by 9	13½ by 10½	13 by 11						
11½ by 9½	12 by 10	14 by 10	14 by 11						

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
16½ by 10½	14 by 12	22 by 12	22 by 16							
16 by 10	14½ by 12½	17 by 13	24 by 16							
14½ by 11½	16 by 12	23 by 13	20 by 17							
15 by 11	15½ by 12½	18 by 14	22 by 17	12s 3d	15s 6d	16s 9d	18s 0d			
15½ by 11½	16 by 13	22 by 14	24 by 17							
16 by 11	16½ by 12½	24 by 14	20 by 18							
21 by 11	17 by 12	22 by 15	22 by 18							
13 by 12	18 by 12	24 by 15	24 by 18							

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.

In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	34s.	4ths quality, per 200 feet case,	34s.
3ds „ „	40s.	3ds „ „	40s
2ds „ „	60s.	2ds „ „	60s.
Best „ „	75s.	Best „ „	75s.

SHEET GLASS is made only in the following substances, 15 oz. 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.

HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.

BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.

STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a-half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.

IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4s. per gallon.

	Per cwt.—s. d.		Per gallon.—s. d.
GENUINE WHITE LEAD	30 0	LINSEED OIL	2 9
SECONDS WHITE LEAD	28 0	BOILED OIL	3 2
GROUND PATENT DRYERS, 3d. to 4½d. per lb.		TURPENTINE	2 9
„ OXFORD OCHRE, 3d. to 4½d. per lb.		LINSEED OIL PUTTY, 8s. per cwt.	
„ RAW UMBER, 4½d. to 6d. per lb. [per lb.		Fine OAK VARNISH, 10s. to 12	0
„ BURNT do., 6d. to 9d.		„ CARRIAGE do., 12s. to 14	0
GREEN PAINT, all shades,		„ PAPER do. 10s. to 12	0
28s. to 60	0	„ COPAL	16 0
BLACK PAINT, 24s. to 36	0	KNOTTING	10 0
RED PAINT .. 28s. to 36	0	Patent GOLD SIZE ..	10 0
		„ BLACK JAPAN ..	12 0

GROUND BRUSHES. DUSTERS. | SASH TOOLS. DISTEMPER BRUSHES.

GLAZIER'S DIAMONDS and TOOLS

MILLED LEAD and PIPES

OLD LEAD Bought or taken in exchange.

The above are Net, for Cash, and as such cannot be booked. Lists of any of the above on application.

Vases and Fountains, for the Garden and Conservatory.



ANDREW HANDYSIDE AND CO., Britannia Foundry, Derby. | 32, Walbrook, London.

The Britannia Iron Works have for the last 40 years been well known for the production of fine Iron Castings. The use of Cast-iron permits a delicacy of outline, and smoothness of surface, impossible in cheap Stone or Terra-cotta. Cast-iron Vases, if occasionally painted, are imperishable, and will not crack when exposed to wet or frosty weather.





Lithographed Sheets of Designs and Price Lists post free on application.

A. H. & Co. make the better kind of IRON and GLASS CONSERVATORIES, and have constructed some of the largest and finest in the kingdom.

TOURISTS, TRAVELLERS, VISITORS to the SEA-SIDE, and others exposed to the Sun and Dust, will find the application of ROWLANDS' KALYDOR both cooling and refreshing to the face and skin, allaying all heat and irritability, removing eruptions, freckles, and discolorations, and rendering the skin soft, clear, and pleasant. Price 4s. 6d. and 8s. 6d. per bottle. Sold by Chemists and Perfumers. Ask for "Rowlands' Kalydor," and beware of spurious and pernicious articles under the name of Kalydor.

WHEN the HAIR, through weakness, begins to fall off, or turn grey, no preparation will sooner arrest the progress of these evils, restore the ORIGINAL COLOUR, and produce a healthy and luxuriant growth, than Mrs. S. A. ALLEN'S WORLD'S HAIR RESTORER. It is simple in its application, requiring no previous preparation of the hair; its perfume is agreeable, and no pomade or hair oil is required with it. In large bottles, 6s., of chemists and perfumers.

Depot, 266, High Holborn, London.

DINNEFORD'S FLUID MAGNESIA.—The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion; and the best mild aperient for delicate constitutions, especially adapted for Ladies, Children, and Infants.

DINNEFORD AND CO., 172, New Bond Street, London; and of all Chemists throughout the World.

GREAT HEAT causes HEADACHE, LANGUOR, LOSS of APPETITE, and general DEBILITY. A gentle course of PARR'S LIFE PILLS will speedily reinvigorate the whole system, and, by properly regulating the pores of the skin, form a sure preventive against Dysentery, Lethargy, Faintings, Fevers, Cholera, &c.

COCKLE'S ANTIBILIOUS PILLS THE SAFEST FAMILY APERIENT.

In boxes at 1s. 1½d., 2s. 9d., 4s. 6d., and 11s.

COCKLE'S ANTIBILIOUS PILLS, in use the last 60 years for INDIGESTION.

In boxes at 1s. 1½d., 2s. 9d., 4s. 6d., and 11s.

COCKLE'S ANTIBILIOUS PILLS, in use the last 60 years for BILIOUS AFFECTIONS.

In boxes at 1s. 1½d., 2s. 9d., 4s. 6d., and 11s.

COCKLE'S ANTIBILIOUS PILLS, in use the last 60 years for LIVER COMPLAINTS.

In boxes at 1s. 1½d., 2s. 9d., 4s. 6d., and 11s.

COCKLE'S ANTIBILIOUS PILLS, THE OLDEST PATENT MEDICINE.

In boxes at 1s. 1½d., 2s. 9d., 4s. 6d., and 11s.

BILIOUS and LIVER COMPLAINTS, Indigestion, Sick Headache, Loss of Appetite, Drowsiness, Giddiness, Spasms, and all Disorders of the Stomach and Bowels, are quickly removed by that well-known remedy, FRAMPTON'S PILL of HEALTH. They unite the recommendation of a mild operation with the most successful effect; and where an aperient is required nothing can be better adapted.

Sold by all Medicine Vendors, at 1s. 1½d. and 2s. 9d. the box; or obtained through any Chemist.

ELECTRICITY IS LIFE. SELF-ADJUSTING CURATIVE and ELECTRIC BELT.

Sufferers from nervous debility, indigestion, weakness, &c., can now cure themselves by the only "Guaranteed Remedy" in Europe, protected by Her Majesty's Great Seal.

Free for One Stamp, by R. JAMES, Esq., Medical Electrician (to the London Hospitals), Percy House, Bedford Square, London, W.C.

N.B.—Medicine and Fees superseded. A Test gratis. Send for details. Established 1840.

The Best Remedy for Indigestion.

NORTON'S CAMOMILE PILLS are confidently recommended as a simple but certain remedy for indigestion. They act as a powerful Tonic and general Aperient; are mild in their operation; safe under any circumstances; and thousands of persons can now bear testimony to the benefits to be derived from their use. Sold in bottles at 1s. 1½d., 2s. 9d., and 11s. each, in every town in the Kingdom. CAUTION.—Be sure to ask for "NORTON'S PILLS," and do not be persuaded to purchase the various imitations.

GARDEN WIRE-WORK, consisting of ARCHES, BASKETS, FLOWER STANDS, &c.

GARDEN SYRINGES	4s. 6d. to 26s.
GARDEN ENGINES	26s. 6d. to 105s.
GARDEN WATER BARROWS	45s. 0d. to 90s.
GARDEN ROLLERS	7s. 6d. to 70s.
GARDEN CHAIRS	6s. 6d. to 30s.
GARDEN SEATS	16s. 0d. to 90s.

GARDEN TOOLS and WATERING POTS.

PATENT LAWN MOWERS	7os. 0d. to 12os.
To cut 10 inches	£3 10 0
„ 12 inches	4 10 0

Suitable for a Lady.

To cut 14 inches	£5 10 0
„ 16 inches	6 10 0

Suitable for a Man.

WILLIAM S. BURTON has a very handsome assortment of the above on his premises.

WILLIAM S. BURTON, GENERAL FURNISHING IRONMONGER, by appointment to H.R.H. the Prince of Wales, sends a CATALOGUE gratis and post-paid. It contains upwards of 700 Illustrations of his unrivalled Stock of ELECTRO-PLATE and BRITANNIA METAL GOODS.

Dish Covers, Hot-water Dishes.	Clocks and Candelabra.
Stoves and Fenders.	Baths and Toilet Ware
Marble Chimney-pieces.	Iron and Brass Bedsteads.
Kitchen Ranges.	Bedding, and Bed-hangings.
Lamps, Gaseliers.	Bedroom Cabinet Furniture.
Tea Trays, Urns and Kettles.	Turnery Goods.
Table Cutlery.	Kitchen Utensils, &c.

With Lists of Prices, and Plans of the Twenty large Show Rooms, at 39, Oxford Street, W.; 1, 1A, 2, 3, and 4, Newman Street; 4, 5, and 6, Perry's Place; and 1, Newman Yard, London.

CORNS and BUNIONS.—A Gentleman, many years tormented with Corns, will be happy to afford others the information by which he obtained their complete removal in a short period, without pain or any inconvenience.—Forward address on a stamped envelop to F. KINGSTON, Esq., Ware, Herts.

FOR SALE, by Private Contract, the ESTABLISHED NURSERY of the late Mr. OSMAN RHODES, of Sydenham Park, near the Crystal Palace. It is situate in a good and improving neighbourhood, the Houses are fitted-up with Hot-water Apparatus, and the Business is capable of considerable increase in the hands of an active and enterprising person. The Premises are held on a long Lease, and there is a large Stock of valuable Shrubs and Plants on the Premises.

For further particulars, apply by letter to A. B., Messrs. Stibbard & Beck, No. 2, East India Avenue, Leadenhall Street, London, E.C.

FOR SALE, a NURSERY GARDEN, with Dwelling House, Shop, Warehouse, Stable, three Hothouses—the Vineries in first-rate condition; also, two other Dwelling Houses and Garden, adjoining,—the whole forming a compact and very desirable property. Well situate, in a healthy position, in a main public thoroughfare in the town of Colchester. Possession can be had at Michaelmas, or sooner if required. Two other Plots of valuable GARDEN GROUND, only a few yards distant, can also be included, if desired.

Apply to Mr. J. R. BEDWELL, House Agent, 62, High Street, Colchester, Essex.

FOR SALE, VALUABLE NURSERY, SEED, and FLORIST BUSINESS in CARLISLE.—In consequence of the death of the late Mr. John Little, the surviving partner in the late firm of Little & Ballantyne, the old established Nursery, Seed, and Florist Business, carried on under the style of Little & Ballantyne, in the Shop and Offices, No. 44, English Street, in the most central part of the City of Carlisle, is now to be Disposed of.

The Seed Business embraces a wide connection, both in the Wholesale and Retail Branches. The Warehouses, which are near to the Shop and Offices, are very commodious, and admirably adapted for the requirements of a large trade.

The Nursery Grounds are held on Lease for a term, of which 15½ years are unexpired, and are about 130 acres in extent, of which area over one half is fully stocked with Forest, Fruit, and Ornamental Trees, Evergreens, and Deciduous Shrubs, Coniferæ, &c., the whole of which are in the greatest health and vigour, and in a fine succession state to properly keep up the stock.

The Glass erections, which exceed 300 feet in length, are judiciously divided into Stove, Fernery, Propagating, Camellia, Heath, and Show houses, and are fully supplied with the necessary Cold Pits to carry on an extensive business.

The Business Connection is large, and highly respectable.

Further particulars may be obtained on application to Mr. EDWIN HOUGH, Solicitor, 6, Fisher Street, Carlisle.

Carlisle, July 15.

The Norfolk Cotswold.—Marham Hall Farm.

MR. EDMUND BECK begs to announce that the ANNUAL LETTING of Mr. THOS. BROWN'S RAMS and RAM LAMBS is fixed to take place on THURSDAY, August 5.

Oxwick, June 24.

Bulbridge Ram Sale.

MESSRS. EWER AND WINSTANLEY beg to notify that Mr. RAWLENCE'S ANNUAL SALE and LETTING of RAMS and RAM LAMBS will take place at Bulbridge, Wilton, on WEDNESDAY, July 28.

Mr. Rawlence's continued success for the last 25 years at the Royal, Bath and West of England, and local exhibitions of Sheep Stock, and also having this year exhibited at the various Agricultural Meetings with his usual success, the Auctioneers consider further comment superfluous.

Sales by Auction.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, July 21, at half-past 12 o'Clock precisely, a large assortment of first-class POTTERY GOODS, comprising Statuary, Lions, Fountains, Boy and Basket Figures with Pedestals, Fruit Boys with Apple and Pear, for gas jet or fountain, on pedestals, Boy with Fishes, Boy Extracting Thorn, Eagles and Lions, for gate entrances, Tulip and other Vases, Baskets, Ornamental Pots, Pedestals, Garden Seats, Mignonette and Geranium Boxes, &c. On view the Afternoon prior and Morning of Sale, and Catalogues had.

The Collection of Established Orchids,

THE PROPERTY of the late G. REED, Esq., of BURNHAM.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, July 24, at half-past 12 o'Clock precisely, without reserve, by order of the Executors of the late G. Reed, Esq., the Collection of ESTABLISHED ORCHIDS, comprising many choice varieties and some fine specimens, and well worthy of attention.

On view the Morning of Sale, and Catalogues had.

South Lambeth.

SALE of FLORIST'S GREENHOUSES and STOCK, to CLEAR the LAND for BUILDING PURPOSES.

MR. H. O. MARTIN is instructed to SELL by AUCTION, on the Premises, Hope Cottage Nursery, South Lambeth, on MONDAY, July 19, at 5 o'Clock P.M. precisely, FIVE GREENHOUSES, with Furnaces, Flues, and Stages complete; the Materials of a TOOL-HOUSE, TWO WATER-BUTTS, and about 1500 PLANTS and SHRUBS in pots, comprising a variety of choice Cacti, Cerei, Geraniums, Fuchsias, Aloes, Yuccas, Agapanthi, Myrtles, Passiflora, Clematis, Standard Bay Trees, and other Shrubs, &c.

May be viewed on Saturday and the Morning of Sale, and Catalogues had on the Premises, and at the Auctioneer's Offices, Alliance House, Adam Street, Adelphi.

Biddenham Annual Sale.

MR. STRAFFORD is instructed by Mr. Charles Howard, of Biddenham, near Bedford, to announce that his ANNUAL SALE by AUCTION will take place on THURSDAY, July 29, and will consist of 60 OXFORDSHIRE DOWN SHEARING RAMS, and a few older SHEEP.

Biddenham is within a mile of the Midland Station at Bedford, where conveyances will meet the Trains.—London, 13, Euston Square.

JOHN JOSEPH MECHI, 112, REGENT STREET, LONDON.

NOTICE TO THE PUBLIC.

JOHN JOSEPH MECHI respectfully informs his Friends, his Customers, and the Public, that, owing to the death of his late Partner, he has resumed the whole of the business at No. 112, Regent Street, and will (assisted by his Son) conduct it in his own name, with his original spirit and vigour, the main principles being superior quality, combined with moderate prices adapted to the present times. First-class workmen are employed in every department, so that the various fittings, Cutlery, Brushes, &c., of the Dressing Bags and Dressing Cases, shall be perfect for use and of warranted quality. Although this has become an age of beards (now, however, going out), those who still indulge in a clean shaven chin will find comfort in his celebrated Razors and Magic Strop and Paste, that have stood the test of 41 years. MR. MECHI invites his old friends and customers to inspect his immense stock, which presents an ample variety of utilities and elegances, suitable for presentation, including all the newest fashions in the various departments. While manufactures of great elegance and cost, and in great variety, are submitted for the luxurious and wealthy, MR. MECHI wishes it to be clearly understood that articles of everyday use, at most moderate prices, are in ample supply and variety. For instance, the very best quality of Blade in a neat PENKNIFE of Buck's Horn or Ivory Handle at 1*s.* each; best TOOTH BRUSHES (not ivory), at 9*d.* each; and other things in proportion, all warranted in quality, though cheap in price. Attention is particularly requested to a variety of splendid Exhibition articles, which will be sold a bargain, much under cost price, to close accounts.

CATALOGUES POST FREE.—112, REGENT STREET, LONDON.—ESTABLISHED 1827.

SHOW ROOM 55 YARDS LONG, EXTENDING INTO GLASSHOUSE STREET.

MECHI'S LEADING ARTICLES.

GOOD and CHEAP.

THE TWO-GUINEA DRESSING BAG.

THE FIVE-GUINEA DRESSING BAG.

THE TEN-GUINEA DRESSING BAG.

THE TWENTY-GUINEA DRESSING BAG.

DRESSING CASES, from 21*s.* to £500.

ALL the NEWEST PATTERNS.
JOHN JOSEPH MECHI, 112, Regent Street.

BLOTTING BOOKS, from 4*s.* to £6.

BOOK SLIDES, from 10*s.* to £15.

CARD TRAYS, from 10*s.* 6*d.* to £5 5*s.*

CHEAP and good CUTLERY.
JOHN JOSEPH MECHI, 112, Regent Street.
Excellent PENKNIVES and SCISSORS, 1*s.* each.

CHESS and ORNAMENTAL TABLES, in Papier-mâché, from £4 to £12 each.
JOHN JOSEPH MECHI, 112, Regent Street.
MULTIFORMIAS, HAND SCREENS, CARD TRAYS, WORK BOXES, WRITING DESKS, and CARD BOXES, in Papier-mâché.

CIGAR CASES, from 6*s.* to £6 10*s.*

COURIER BAGS, from 9*s.* to £2 10*s.*

DESPATCH BOXES, from 21*s.* to £230.

DRINKING FLASKS, from 1*s.* 6*d.* to £10.
All the latest forms.
JOHN JOSEPH MECHI, 112, Regent Street.

ELEGANT BRONZES, at Cost Prices.

ENVELOPE CASES, from 20*s.* to £10.

FANCY GILT GOODS, from 10*s.* to 10 guineas,
All the most modern styles.
JOHN JOSEPH MECHI, 112, Regent Street.

FIRST-CLASS TABLE CUTLERY.

FLOWER STANDS and VASES in great variety.

GENTLEMEN'S DRESSING CASES, from 15*s.* to £150.

JEWEL CASES, from 7*s.* to £10.

LADIES' BOOK BOXES, from 17*s.* 6*d.* to £6.

LADIES' DRESSING CASES, from 30*s.* to £500.

LETTER BALANCES, from 8*s.* 6*d.* to £7.
Various styles, and Mordan's Patent.
JOHN JOSEPH MECHI, No. 112, Regent Street.

MECHI'S MAGIC STROP and PASTE.

MECHI'S EASY SHAVING RAZORS.

PAPER KNIVES, from 6*d.* to £3.

PAPIER-MACHE WORK-TABLES, £7 10*s.*, £15, and £22.—JOHN JOSEPH MECHI, 112, Regent Street.

PEN TRAYS, from 5*s.* to £2.

PHOTOGRAPHIC ALBUMS, 5*s.* to £12.

PLATED DESSERT KNIVES.—Some cases of highly-finished DESSERT KNIVES, in Pearl and Ivory.
JOHN JOSEPH MECHI, 112, Regent Street.

JOHN JOSEPH MECHI, 112, REGENT STREET.

NO. 112, REGENT STEEET,
near the Quadrant.

POCKET BOOKS, from 5*s.* 6*d.* to £5.

PURSES, in variety, from 2*s.* to £4.

RETICULE BAGS, from 6*s.* to £5.

SOME SPLENDID NOVELTIES.—WEDGWOOD CAMEOS on Coromandel Wood, ENVELOPE CASES, BLOTTERS, BOOK SLIDES, and INKSTANDS.
JOHN JOSEPH MECHI, 112, Regent Street.

SPORTING and ANGLING KNIVES, from 4*s.* 6*d.* to £7.

STUDENT'S and WRITING CASES, from 8*s.* 6*d.* to £15.

TEA CADDIES and CHESTS, from 10*s.* 6*d.* to £11 10*s.*

TEA TRAYS, in sets of three, from £3 10*s.* to £39.
Single Trays if required.
JOHN JOSEPH MECHI, 112, Regent Street.

TRAVELLING DRESSING-BAGS, from 42*s.* to £190.

WEDDING PRESENTS in rich variety.

BIRTHDAY GIFTS, various and novel.

MECHI'S SHILLING RAZORS.

MECHI'S SHILLING SCISSORS.

MECHI'S SHILLING PENKNIVES.

LADIES' WORK BASKETS, in variety. Empty, from 8*s.* 6*d.* to 20*s.*; with fittings, from 16*s.* 6*d.* to £2.
JOHN JOSEPH MECHI, 112, Regent Street.
A few superior WORK TABLES in Papier Mâché; Solid Ivory INSTRUMENT CASES, of choice quality, from 4 to 10 guineas.

ORNAMENTAL TABLE INKSTANDS, from 6*s.* to £20, very modern patterns.

THE STAUNTON CHESSMEN.

CRIBBAGE, CHESS, and BACKGAMMON BOARDS.

PORTABLE PIC-NIC CASES.

ORNAMENTAL OR-MOULU CANDLESTICKS, from 12*s.* to £5 15*s.* per pair.
JOHN JOSEPH MECHI, 112, Regent Street.

WRITING-DESKS, in Mahogany and Rosewood.

SCOTCH ORNAMENTAL WORK.—NEEDLE CASES and NEEDLE BOXES, COTTON BOXES, PINCUSHIONS, MATCH BOXES, CARD CASES, LADIES' COMPANIONS.

J. J. MECHI, 112, REGENT STREET.

CUTLERY GROUND and REPAIRED.

DESKS and DRESSING CASES REPAIRED.

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GREEN MOROCCO RAZOR CASE, lined with silk velvet, containing four Razors, silver-mounted ivory-handle Instruments, Scissors, &c. Present price, £4; original price, £7 10*s.*

GREEN RUSSIA RAZOR CASE, fitted with four pearl-handle Razors, Instruments, &c. Present price, £4 10*s.*; original price, £7 15*s.*

JOHN JOSEPH MECHI, 112, REGENT STREET,
near the Quadrant.

JOHN JOSEPH MECHI, 112, REGENT STREET, LONDON, W.

Editorial Communications should be addressed to "The Editor," Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 30.—1869.] SATURDAY, JULY 24. {Price Fivepence. STAMPED EDITION, 6d.

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State of the Crops, 1869.

THE GARDENERS' CHRONICLE and AGRICULTURAL GAZETTE of SATURDAY, August 7, will contain a FULL and TABULAR STATEMENT of the STATE of the CROPS throughout the UNITED KINGDOM. Order of any News Agent. A Single Copy sent for Six Stamps.

Office for Advertisements, 41, Wellington Street, Covent Garden.

CLAY CROSS FLORAL and HORTICULTURAL SOCIETY, TUESDAY, August 10. Prizes for 20 Plants, £20, £15, £10, and £5. Entrance, £1. ENTRIES must be made by AUGUST 2.

Clay Cross, Chesterfield. J. STOLLARD, Secretary.

TAUNTON DEANE HORTICULTURAL and FLORICULTURAL SOCIETY.—GRAND FLORAL FETE and FIREWORKS, THURSDAY, August 12.—Two Hundred Pounds and Four valuable Cups will be offered for competition. The magnificent Band of the Royal Marines, consisting of Forty Performers, has been engaged. Special Railway Fares for Exhibitors. Schedules, &c., may be obtained on application.

J. B. SAUNDERS, Hon. Sec.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY.—GREAT INTERNATIONAL FRUIT and FLOWER SHOW.—This Great Show will be held in the Music Hall, George Street, Edinburgh, on SEPTEMBER 8 and 9. Intending Competitors must give six days' notice, specifying the numbers they are to compete in. All articles must be in the Hall on Tuesday, the 7th, by 8 P.M.

33, South Bridge. WILLIAM YOUNG.

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To the T[illegible]

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British Fern Catalogue.

ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

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15, Prince's Street, Edinburgh.—July, 1869.

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N.B.—These Nurseries are 2½ miles from the Uckfield Station.

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To the Trade.

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NEWSPAPER

ROYAL HORTICULTURAL SOCIETY.

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Prizes offered by Mr. J. Stevenson.

Class 14.—For 8 MISCELLANEOUS PLANTS—4 blooming and 4 fine-foliaged.

1st, Mr. J. Brierley, £5 5s. | 2d, Mr. W. Cardwell, £3 3s.

Prizes offered by John Rylands, Esq., and Mr. John Shaw.

Class 15.—For 4 FUCHSIAS, distinct.

1st, Mr. R. [illegible], Summerley, Liverpool, £5 5s.

2d, Mr. G. [illegible] Street, [illegible], £3 3s.

Prize offered by Mr. Henry Cowie, and Messrs. Barker Brothers.

Class 16.—For 6 BRITISH FERNS, distinct. (Amateurs.)

1st, E. J. Lowe, Esq., F.R.S., Beeston, near Nottingham, £5 5s.

2d, J. E. [illegible], Esq., Moseley, near Birmingham.

Prize offered by Mr. Samuel Taylor, and Messrs. Barker Brothers.

Class 17.—For 4 EXOTIC FERNS, distinct.

1st, Mr. W. Cardwell, £3 3s.

Prize offered by the Proprietors of *Manchester Courier*, Messrs. James Brooke & Co., and William Southern, Esq.

Class 18.—For 6 ORCHIDS, distinct. (Amateurs.)

1st, Mr. D. Mitchell, Gr. to Dr. Ainsworth, Broughton, £5 5s.

2d, Mr. Swan, Gr. to T. Jones, Esq., Whalley Range, £2 12s. 6d.

Prize offered by Messrs. G. & W. Yates, and William Southern, Esq.

Class 19.—For 6 VARIEGATED ZONAL (TRICOLOR) PELARGONIUMS. (Amateurs.)

1st, Mr. T. [illegible], Wilmslow, £3 3s.

2d, Mr. Swan, Gr. to H. L. Micholls, Esq., Altrincham, £2 12s. 6d.

Prizes offered by Messrs. R. Cole & Sons, and Messrs. Johnson & Fildes.

Class 20.—For 6 CAPE HEATHS, distinct.

1st, Mr. W. Cardwell, £5 5s.

Prizes offered by Sir James Watts.

Class 21.—For 6 LILIUM AURATUM.

1st, Mr. [illegible], Manchester, £3 3s.

2d, Mr. [illegible], £2 2s.

Prize offered by Mr. Thomas Bevis, and Messrs. Johnson & Fildes.

Class 22.—For 6 SPECIMEN GRAPES, Black and White.

1st, Mr. W. [illegible], Gr. to the Earl of Derby, K.G., Knowsley, Prescot, [illegible] [£2 12s. 6d.

2d, Mr. R. J. [illegible], Gr. to T. Statter, Esq., Stand, near Manchester, [illegible]

Prize offered by Messrs. [illegible]

Class 23.—For 6 ZONAL PELARGONIUMS.

1st, Mr. R. [illegible], Gr. to [illegible], Liverpool, £3 3s.

2d, Mr. J. [illegible], Gr. to [illegible], Hall, Lymm, [illegible]

Prize offered by [illegible]

Class 24.—For 6 DISHES of PEACHES and 6 Dishes of NECTARINES.

1st, Mr. W. [illegible], Gr. to Duke of Portland, Welbeck Abbey, Worksop, £3 3s.

2d, Mr. J. [illegible], £2 2s.

Prizes offered by Messrs. Archibald Kay, and Alex. Henderson, Esq.

Class 25.—For 6 DISHES of PLUMS, distinct.

1st, Mr. R. H. [illegible], Gr. to H. Wilmot, Esq., Chesterfield, [illegible], Lymm, [illegible]

2d, Mr. W. [illegible], Gr. to T. G. Mosley, Esq., Rolleston Hall, Burton-on-Trent, £2 2s.

3d, Mr. J. [illegible], £1 1s.

Prize offered by [illegible]

Class 26.—For 6 DISHES of PEARS, distinct.

1st, Mr. J. [illegible], Gr. to [illegible], Chesterfield, £3 3s.

2d, Mr. G. [illegible], Gr. to [illegible], Bart., Tatton Park, Knutsford, £2 2s.

Prize offered by [illegible]

Class 27.—For 6 DISHES of GRAPES, distinct, 3 of Black and 3 of White.

1st, Mr. J. Swan, £2 12s. 6d. Bloom.

Prizes offered by Messrs. [illegible] and Proprietors of [illegible]

Class 28.—For a Group of PLANTS.

1st, Messrs. J. Veitch & Sons, Royal Exotic Nursery, Chelsea, London, S.W., £5

Prizes offered by Mr. William Grimshaw.

Class 29.—For 1 Pair of STANDARD HOLLIES.

1st, Mr. J. Shaw, £2.

Prize offered by Henry L. Micholls, Esq.

Class 30.—For 6 MISCELLANEOUS PLANTS, 3 fine-foliaged and 3 blooming, including 2 Ixoras.

1st, Mrs. E. Cole & Sons, Nurserymen, Withington, Manchester, £5 5s.

Prizes offered by Mr. William Grimshaw, and A. B. Woodcock, Esq.

Class 31.—For 1 Pair GOLDEN YEWS.

1st, Messrs. W. Barron & Son, £2. | 2d, Mr. J. Shaw, £1.

Prize offered by William Wilson, Esq., and Mr. John Shaw.

Class 32.—For VASE, EPERGNE, or CENTRE PIECE for TABLE.

1st, Mr. R. S. Yates, Sale, Cheshire, £3.

2d, Mr. G. Ollier, Gr. to Mrs. Wood, Rowdon, £2.

3d, Mr. W. S. Dobson, £1.

Prizes offered by Benjamin Whitworth, Esq.

Class 33.—For 1 Pair STANDARD BAY TREES.

1st, Mr. B. S. Williams, £2. | 2d, Mr. W. MacMillan, £1.

Prizes offered by Mrs. Abal Heywood.

Class 34.—For 2 BOUQUETS for the HAND, one for a Bride, one for a Ball.

1st, Mr. G. Ollier, £2 2s.

2d, Mr. J. Bolton, Gr. to W. W. Warswick, Esq., Leicester, £1 11s. 6d.

Prizes offered by Henry Stubbs, Esq.

Class 35.—For 1 Pair PYRAMIDAL BOX TREES.

1st, Mr. J. Shaw, £2 2s. | 2d, Mr. T. Stafford, £1 1s.

Prizes offered by Edward Behrens, Esq.

Class 36.—For 2 BOUQUETS for the HAND—one for a Bride, the other for a Ball.

1st, Mr. W. H. Turner, West Derby, Liverpool, £2 2s.

2d, Mr. W. Turner, St. John's Market, Liverpool, £1 11s. 6d.

Prizes offered by Edward Joynson, Esq.

Class 37.—For 18 CUT ROSES, trusses, distinct. (Amateurs.)

1st, Rev. S. R. Hole, Caunton Manor, Newark, Notts, £2 2s.

2d, Mr. T. Draycott, Gr. to T. T. Paget, Esq., Leicester, £1 11s. 6d.

Prizes offered by Sir James Watts, and Messrs. Thomas Green & Son.

Class 38.—For 12 DISHES of VEGETABLES, distinct.

1st, Mr. W. Lumsden, Bloxholm Hall, Sleaford, £5 5s.

2d, Mr. J. Smith, Gr. to H. K. Balstone, Esq., Altrincham, £3 3s.

3d, Mr. J. Stevenson, £2 2s.

Prizes offered by Arthur H. Heywood, Esq., and Proprietors of *Manchester Examiner and Times*, and Mr. John Shaw.

Class 39.—For 10 DISHES of VEGETABLES, distinct.

1st, Messrs. T. Snowden & Sons, Thirsk, York, £4 4s.

2d, Mr. T. Bailey, Gr. to T. T. Drake, Esq., Amersham, £2 12s. 6d.

3d, Mr. W. Cragg, Timperley, Cheshire, £1 1s.

Prizes offered by John Radcliffe, Esq., and Benjamin Whitworth, Esq.

Class 40.—For 8 DISHES of VEGETABLES, distinct.

1st, Mr. C. Frisby, Gr. to H. Chaplin, Esq., Sleaford, £3 3s.

2d, Mr. J. Smith, Altrincham, Cheshire, £2 2s.

Prizes offered by Proprietors of *Manchester Courier*, and Henry Stubbs, Esq., and Benjamin Whitworth, Esq.

Class 41.—For 6 DISHES of VEGETABLES, distinct.

1st, Mr. C. Frisby, £2 12s. 6d.

2d, Mr. J. Smith, Gr. to H. K. Balstone, Esq., Altrincham, £2 2s.

Prizes offered by J. Carlton, Esq., and Hugh Birley, Esq., M.P.

Class 42.—For 4 DISHES of VEGETABLES, distinct.

1st, Mr. D. Lumsden, £2 2s.

2d, Mr. W. Brownhill, Gr., Sale, Cheshire, £1 1s.

Prizes offered by Messrs. W. G. Galloway & Co.

Class 43.—For 2 Bunches of BLACK HAMBURGH GRAPES.

1st, Mr. W. Woolley, Gr. to W. Jackson, Esq., Birkenhead, £2 2s.

2d, Mr. W. Jones, Gr. to S. K. Mainwaring, Esq., Ellesmere, £1 10s.

3d, Mr. W. Freeman, Gr. to Earl of Derby, £1 5s.

Prizes offered by Richard Howarth, Esq., and Arthur H. Haywood, Esq.

Class 44.—For 1 PINE APPLE, any variety.

1st, Mr. G. Ward, £2 2s. | 2d, Mr. H. Clarke, £1 1s.

Prizes offered by Hugh Birley, Esq., M.P.

Class 45.—For 8 VARIETIES of CUT FLOWERS.

1st, Mrs. E. Cole & Sons, 12s. | 2d, Mr. R. S. Yates, 9s.

Prizes offered by the Council of Manchester Botanical and Horticultural Society.

Class 46.—For 4 PALMS.

1st, Mr. A. Williams, Gr. to G. Brown, Esq., Fallowfield, £5.

2d, Mr. W. E. Dixon, £3.

3d, Mr. J. Shaw, Bowden, Cheshire, £2.

GENERAL PRIZE LIST.

FLOWERS and PLANTS.

Class 48.—6 STOVE or GREENHOUSE PLANTS, HEATHS included, distinct. (Open.)

1st, Mrs. E. Cole & Sons, £5.

2d, Mr. J. Bolton, £3. | 3d, Mr. W. E. Dixon, £2.

Class 49.—6 STOVE or GREENHOUSE PLANTS, HEATHS included, distinct. (Amateurs.)

1st, Mr. J. Stevenson, £5. | 2d, Mr. J. Bolton, £4.

Class 50.—9 FINE-FOLIAGED or VARIEGATED PLANTS, distinct. (Amateurs.)

1st, Mr. J. Bolton, £7.

Class 51.—9 FINE-FOLIAGED or VARIEGATED PLANTS, distinct. (Nurserymen.)

1st, Mr. B. S. Williams, Upper Holloway, London, £7.

2d, Messrs. Felton & Sons, Birmingham, £5.

3d, Mr. J. Shaw, £3. | 4th, Mr. W. E. Dixon, £2.

Class 52.—6 FINE-FOLIAGED or VARIEGATED PLANTS, distinct. (Amateurs.)

1st, Mr. G. Elkin, Gr. to T. H. Birley, Esq., Manchester, £4.

2d, Mr. C. Phillips, Gr. to A. H. Heywood, Esq., Manchester, £3.

3d, Mr. J. Woolam, £2.

Class 53.—6 EXOTIC ORCHIDS, distinct, in flower. (Amateurs.)

1st, Mr. J. Orme, Gr. to W. C. Bird, Esq., Manchester, £5.

2d, Mr. W. Swan, £4. | 3d, Mr. D. Mitchell, £3.

4th, Mr. S. A. [illegible], The Grange, Didsbury, Manchester.

Class 54.—6 EXOTIC ORCHIDS, distinct, in flower. (Nurserymen.)

1st, Mr. B. S. Williams, £5.

2d, Mr. W. E. Dixon, £3. | 3d, Mr. J. Shaw, £2.

Class 55.—6 PALMS, not fewer than three kinds. (Open.)

1st, Mr. J. Shaw, £5. | 2d, Messrs. G. & W. Yates, £4.

3d, Mr. T. Stafford, Hyde, near Manchester, £3.

Class 56.—9 FUCHSIAS, distinct, in flower, in 8-inch pots. (Amateurs.)

2d, Mr. T. Gresty, Gr. to R. Voss, Esq., Fallowfield, £3.

3rd, Mr. J. Woolam, £2.

4th, Mr. J. [illegible], Gr. to [illegible], Manchester, £1.

Class 57.—[illegible] PELARGONIUMS, distinct, in flower. (Open.)

1st, Mr. E. Bridge, £5.

2d, Mr. C. Rylance, Aughton, near Ormskirk, £4.

3d, Mr. R. Fleming, Smithdown, Wavertree, Liverpool, £3.

Class 60.—6 FANCY PELARGONIUMS, distinct, in flower. (Open.)

1st, Mr. C. Rylance, £5.

Equal, Mr. E. Bridge, £5. | 2d, Mr. R. Fleming, £4.

Class 61.—6 ZONAL PELARGONIUMS, distinct, in flower, of any colour, excluding Variegated sorts. (Amateurs.)

1st, Mr. E. Bridge, £5.

2d, Mr. R. Fleming, £4. | 3d, Mr. J. Smith, £2.

Class 62.—6 ZONAL PELARGONIUMS, distinct, in flower, of any colour, excluding Variegated sorts. (Nurserymen.)

1st, Mr. C. Rylance, £5.

2d, Messrs. Bell & Thorpe, Stratford-on-Avon, £4.

3d, Messrs. G. & W. Yates, £2.

Class 63.—6 NOSEGAY PELARGONIUMS, in flower, distinct, of any colour. (Open.)

1st, Mr. E. Bridge, £5.

2d, Messrs. Bell & Thorpe, £4. | 3d, Mr. G. Edwards, £2.

Class 64.—3 DOUBLE-FLOWERING PELARGONIUMS, distinct, in flower. (Open.)

1st, Messrs. J. Carter & Co., Forest Hill, S.E., £3.

2d, Mr. J. Standish & Co., Ascot, £2. | 3d, Mr. G. Edwards, £1.

Class 65.—6 VARIEGATED PELARGONIUMS, distinct. (Open.)

1st, Mr. J. Tomkins, Nurseryman, Birmingham, £3.

2d, Messrs. G. & W. Yates, £2. | 3d, Messrs. Bell & Thorpe, £1.

Class 66.—6 VARIEGATED ZONAL PELARGONIUMS, distinct. (Open.)

1st, Messrs. F. & A. Smith, Dulwich, £3.

2d, Mr. J. Tomkins, £2. | 3d, Mr. J. Smith, £1.

Class 70.—3 GLOXINIAS, distinct, in flower. (Amateurs.)

1st, Mr. J. Price, Gr. to G. Taylor, Esq., Broughton, Manchester.

Class 74.—6 DRACÆNAS or CORDYLINES, distinct. (Open.)

1st, Mr. B. S. Williams, £2.

2d, Mr. J. Shaw, £1 10s. | 3d, Messrs. G. & W. Yates, £1.

Class 75.—9 EXOTIC FERNS, distinct. (Nurserymen.)

1st, Mr. B. S. Williams, £4.

2d, Messrs. G. & W. Yates, £3. | 3d, Mr. T. Stafford, £2.

4th, Messrs. W. & J. Birkenhead, Nurserymen, Sale, Cheshire.

Class 76.—9 EXOTIC FERNS, distinct. (Amateurs.)

1st, Mr. J. Bolton, £4. | 3d, Mr. C. Phillips, £2.

2d, Mr. T. Baines, £3. | 4th, E. J. Lowe, Esq., F.R.S., £1.

Class 77.—12 BRITISH FERNS, distinct. (Open.)

1st, J. E. Mappiebeck, Esq., £3.

2d, Mr. C. Rylance, £2. | 3d, E. J. Lowe, Esq., F.R.S., £1.

4th, Messrs. A. Stansfield & Sons, Nurserymen, Todmorden, 15s.

Class 78.—A Pair of TREE FERNS.

1st, Mr. B. S. Williams, £1 10s. | 2d, Mr. J. Shaw, £1.

Class 79.—6 LYCOPODIUMS, distinct. (Open.)

1st, Mr. R. Fleming, £3. | 3d, Mr. J. Price, £1.

2d, Mr. J. Elkin, £2. | 4th, Mr. C. Rylance, 10s.

Class 80.—6 Double-flowered PETUNIAS, distinct, in flower. (Open.)

1st, Messrs. Bell & Thorpe, £2.

Class 81.—6 Single flowered PETUNIAS, distinct, in flower. (Open.)

1st, Messrs. Bell & Thorpe, £2. | 2d, Mr. C. Rylance, £1.

Class 82.—12 SUCCULENTS, distinct. (Open.)

1st, Mr. T. Stafford, £2. | 2d, Mr. J. Shaw, £1.

Class 85.—6 PHLOXES, distinct, in 12-inch pots. (Open.)

1st, Mr. J. Walker, £2.

Class 89.—24 CARNATIONS, distinct, cut blooms. (Nurserymen.)

1st, Mr. C. Turner, £2. | 2d, Mr. G. Edwards, £1.

Class 90.—24 PICOTEES, distinct, cut blooms. (Nurserymen.)

1st, Mr. C. Turner, £2. | 2d, Mr. G. Edwards, £1.

Class 93.—12 PINKS, distinct, cut blooms. (Open.)

1st, Mr. J. Mellor, 40, England Street, Ashton-under-Lyne, 10s.

Class 94.—12 ZONAL PELARGONIUMS, distinct, cut flowers, in bunches of five trusses each. (Open.)

1st, Mr. C. Phillips, £1.

2d, Mr. C. J. Perry, Castle Bromwich, Birmingham, 15s.

3d, Mr. W. Cunningham, Nurseryman, Burton-on-Trent, 10s.

Class 95.—12 VERBENAS, distinct, cut flowers, in bunches of 5 trusses each. (Open.)

1st, Mr. C. J. Perry, £1. | 2d, Mr. C. Turner, 15s.

Class 96.—48 CUT ROSES, distinct, 1 truss each. (Nurserymen.)

1st, Mr. J. Cranston, Nurseryman, Hereford, £4.

2d, Mr. C. Turner, £3.

3d, Messrs. Perkins & Sons, Nurserymen, Coventry, £2.

Class 97.—48 CUT ROSES, distinct, 1 truss each. (Amateurs.)

1st, Rev. S. R. Hole, £5.

2d, Mr. C. J. Perry, £3. | 3d, Mr. T. Draycott, £2.

Class 98.—24 CUT ROSES, distinct, 1 truss each. (Amateurs.)

1st, Rev. S. R. Hole, £2. | 2d, Mr. C. J. Perry, £1.

3d, Mr. Skinner, Gr. to Captain Christy, Westerham, Kent, 15s.

Class 99.—12 CUT ROSES, distinct. (Amateurs.)

1st, Rev. S. R. Hole, £1.

2d, Mr. C. J. Perry, 15s. | 3d, Mr. T. Draycott, 10s.

Class 100.—6 CUT ROSES, distinct. (Amateurs.)

1st, Rev. S. R. Hole, 15s. | 3d, J. E. Mappiebeck, Esq., 5s.

2d, Mr. T. Draycott, 10s. | 4th, Mr. J. Walker, 2s. 6d.

Class 101.—12 CUT ROSES, new kinds, distinct, sent out in 1866, 1867, or 1868. (Open.)

1st, Mr. J. Cranston, £1 10s. | 2d, Mr. C. Turner, £1.

3d, Messrs. S. Perkins & Sons, Park Nursery, Coventry, 15s.

4th, Mr. G. Edwards, 10s.

Class 108.—GROUP of ARTIFICIAL FLOWERS, made in any material.

1st, Mr. J. Denton, 175, Regent Road, Salford, £1.

Class 109.—MISCELLANEOUS, for Plants not contained in any of the above Classes. (Open.)

1st, Messrs. J. Veitch & Sons, £2 10s. | 2d, Mr. B. S. Williams, £2.

3d, Mr. J. Kaye, Wilmslow, Cheshire, £1 10s.

FRUIT.

Class 110.—COLLECTION of FRUIT, consisting of 8 dishes of distinct kinds.

1st, Mr. J. Simpson, £6.

2d, Mr. J. Miller, Gr. to Lord Foley, Worksop Manor, Notts, £4.

Class 111.—PINE APPLE, any variety.

1st, Mr. G. Ward, £3.

2d, Mr. J. Deavill, Gr. to Major Martin, Ashbourne, £2.

3d, Mr. W. Chambers, Shirley, near Birmingham, £1.

Class 112.—GRAPES, BLACK, single dish.

1st, Mr. W. Jones, £4. | 2d, Mr. W. Woolley, £2.

3d, Mr. C. Watkins, Holmer Park, Hereford, £1.

Class 113.—GRAPES, WHITE.

1st, Mr. J. Wallis, £3.

2d, Mr. W. Hill, Gr. to R. Sneyd, Esq., Newcastle-under-Lyne, £2.

3d, Messrs. H. Lane & Son, Nurserymen, Great Berkhampstead, £1

Class 114.—PEACHES, single dish.

1st, Mr. A. Hay, Gr. to Mrs. Holland, Altrincham, £2.

2d, Mr. R. H. Smith, £1. | 3d, Mr. W. Tillery, 10s.

ROYAL HORTICULTURAL SOCIETY.

FRUIT—(*Continued.*)

Class 115.—NECTARINES.

1st, Mr. W. Carmichael, £2.
2d, Mr. W. Tillery, £1. | 3d, Mr. C. Turner, 10*s.*

Class 117.—FIGS, single dish.

1st, Mr. J. Frooman, 15*s.*
2d, Mr. J. Malcolm, Chadmondeley Castle, Cheshire, 10*s.*
3d, Mr. J. Simpson, 7*s.* 6*d.*

Class 118.—CHERRIES, single dish.

1st, Mr. W. Tillery, £1.
2d, Mr. O. Goldsmith, Polesden, Dorking, Surrey, 15*s.*
3d, Mr. R. H. Smith, 10*s.*

Class 119.—STRAWBERRIES, 4 dishes, distinct.

1st, Mr. J. Farquharson, Acton Park Garden, Wrexham, North Wales, £2.
2d, Mr. R. S. Yates, £1 10*s.*
3d, Mr. J. Hulme, Gr., The Hayes, Timperley, Cheshire, £1.

Class 120.—STRAWBERRIES, 1 dish.

1st, Mr. J. Fowler, 15*s.*
2d, Mr. J. Farquharson, 10*s.* | 3d, Mr. Hulme, 7*s.* 6*d.*

Class 121.—MELON, Green-fleshed.

1st, Mr. R. Webster, £1. | 2d, Mr. C. Frisby, 15*s.*
3d, Mr. W. Broadbridge, Gr. to Sir C. Mordaunt, Warwick, 10*s.*

Class 122.—MELON, Scarlet-fleshed.

1st, Mr. D. James, £1.
2d, Mr. E. Clarke, 15*s.* | 3d, Mr. J. Bolton, 10*s.*

Class 123.—PLUMS, single dish.

1st, Mr. R. Janson, £1. | 2d, G. Whitfield, 15*s.*

Class 124.—BASKET of OUT-DOOR FRUITS, 4 kinds, distinct.

1st, Mr. J. Dowell, 10*s.*
2d, Mr. W. Hill, 8*s.* | 3d, Mr. G. Elkin, 6*s.*
4th, Mr. A. Meadle, Gr. to S. Howard, Esq., Whalley, Lancashire, 4*s.*

Class 125.—MISCELLANEOUS, for Fruits not mentioned in Schedule.

1st, Messrs. H. Lane & Son (3 pot Vines), £1 10*s.*
2d, Mr. J. Robson, Gr. to Viscount Holmesdale, Staplehurst, Kent (box of home-grown Oranges, &c.), £1.

COTTAGERS' PRIZES.

FLOWERS.

Class A.—WINDOW PLANT, of any kind.

1st, Mr. W. Rosshaw, High Lane, near Knutsford, 10*s.*
2d, Mr. F. Rogle, Ashton-upon-Mersey, 7*s.*
3d, Mr. A. Buckley, Oldham, 5*s.*
4th, Mr. H. Bridges, Lewisham, 4*s.*
5th, Mr. F. Buckley, Arley Green, Northwich, 3*s.*
6th, Mr. W. Eckersall, Whittaker Lane, Prestwich, 2*s.*

Class B.—LARGEST COLLECTION GROWN in ONE GARDEN, one bunch each.

1st, Mr. W. Eckersall, 10*s.*
2d, Mr. W. Clarke, Canal Bank, Loughborough, 7*s.*
3d, Mr. G. Hulme, Prestwich, near Manchester, 5*s.*
4th, Mr. H. Biddles, 4*s.*
5th, Mr. F. Buckley, Arley Green, Northwich, 3*s.*
6th, Mr. S. Wooder, Lymm, Cheshire, 2*s.*

Class C.—6 STOCKS, distinct.

1st, Mr. W. Clark, 6*s.* | 2d, Mr. H. Biddles, 4*s.*

Class D.—6 ROSES, distinct.

1st, Mr. H. Biddles, 6*s.* | 2d, Mr. W. Clarke, 5*s.*
3d, Mr. T. Buckley, Arley Green, Northwich, 4*s.*
4th, Mr. G. Plant, 3*s.*

FRUIT.

Class E.—20 STRAWBERRIES.

1st, Mr. P. Buckley, Marson, near Northwich, 5*s.*

Class F.—20 CHERRIES.

1st, Mr. P. Buckley, 5*s.*
2d, Mr. P. Buckley, 3*s.* | 3d, Mr. W. Clarke, 2*s.*

Class G.—50 GOOSEBERRIES.

1st, Mr. W. Clarke, 3*s.*
2d, Mr. T. Andrews, Foulton, near Warrington, 2*s.*
3d, Mr. G. Plant, 1*s.*

Class H.—12 APPLES.

1st, Mr. G. Plant, 6*s.*
2d, Mr. W. Clarke, 5*s.* | 3d, Mr. W. Eckersall, 4*s.*

VEGETABLES.

Class J.—COLLECTION of VEGETABLES arranged in a basket.

1st, Mr. W. Clarke, 10*s.* | 2d, Mr. H. Biddles, 9*s.*
3d, Mr. T. Painter, Lawton, Cheshire, 8*s.*

VEGETABLES.

Class K.—4 COLLECTION of POTATOES, 6 of a sort, 4 kinds.

1st, Mr. W. Renshaw, 10*s.* | 5th, S. Wooder, 6*s.*
2d, Mr. W. Clarke, 8*s.* | 6th, Mr. E. Buckley, 5*s.*
3d, Mr. H. Biddles, 7*s.* | 6th, Mr. S. Painter, 2*s.*

Class L.—12 KIDNEY POTATOS.

1st, Mr. W. Renshaw, 8*s.* | 3d, Mr. H. Biddles, 6*s.*
2d, Mr. T. Wooder, 7*s.* | 4th, Mr. W. Clarke, 5*s.*

Class M.—12 ROUND POTATOS.

1st, Mr. W. Clarke, 8*s.* | 3d, Mr. S. Wooder, 6*s.*
2d, Mr. H. Biddles, 7*s.* | 4th, Mr. T. Painter, 5*s.*

Class N.—3 CAULIFLOWERS.

1st, Mr. W. Eckersall, 5*s.* | 3d, Mr. J. Andrews, 3*s.*
2d, Mr. G. Hulme, 4*s.* | 4th, Mr. W. Clarke, 2*s.*

Class O.—3 CABBAGES.

1st, Mr. G. Plant, 5*s.* | 3d, Mr. T. Buckley, 3*s.*
2d, Mr. W. Clarke, 4*s.* | 4th, Mr. T. Painter, 2*s.*

Class P.—20 PODS of PEAS.

1st, Mr. H. Biddles. | 3d, Mr. G. Hulme.
2d, Mr. W. Clarke. | 4th, Mr. T. Painter.

Class Q.—20 PODS of BROAD BEANS.

1st, Mr. H. Biddles, 5*s.*
2d, Mr. G. Hulme, 4*s.* | 4th, Mr. W. Eckersall, 2*s.*

Class S.—6 CARROTS.

1st, Mr. T. Wooder, 4*s.*
2d, Mr. P. Buckley, 3*s.* | Mr. W. Renshaw, 2*s.*

Class T.—6 TURNIPS.

1st, Mr. W. Renshaw, 4*s.*
2d, Mr. T. Wooder, 3*s.* | 3d, Mr. T. Painter, 2*s.*

Class U.—4 STALKS of RHUBARB.

1st, Mr. J. Andrews, 5*s.*
2d, Mr. T. Wooder, 4*s.* | Mr. T. Painter, 3*s.*

Class V.—6 ONIONS.

1st, Mr. W. Clarke, 10*s.*
2d, Mr. H. Biddles, 7*s.* | 4th, Mr. T. Wooder, 5*s.*
3d, Mr. W. Renshaw, 6*s.* | 5th, Mr. G. Hulme, 4*s.*

Class X.—COLLECTION of HERBS.

1st, Mr. H. Biddles, 7*s.* | 3d, Mr. G. Hulme, 5*s.*
2d, Mr. T. Painter, 6*s.* | 4th, Mr. W. Eckersall, 4*s.*

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E. A. PUIG, ORNAMENTAL ROCK WORKER, 21, Grove Terrace, St. John's Wood, N.W. FERNERIES of all kinds, internal and external, artistically designed and executed.

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FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.
For particulars apply to JOHN FOWLER AND CO., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

IRON HURDLES (Silver Medal of the Royal Agricultural Society): SHEEP, 3*s.* 5*d.*; CATTLE, 4*s.* 3*d.*; OX, 5*s.* 11*d.*
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Horticultural Glass Warehouse.

THOMAS MILLINGTON AND CO., 87, Bishopsgate Street Without, London, E.C.
NEW LIST for ORCHARD-HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD-HOUSE SIZES.

in.	in.	4ths.	3rds.	2nds.	Best
20 by 12	Per 100 feet	15 oz. 12*s.* 3*d.*	15*s.* 6*d.*	16*s.* 9*d.*	18*s.* 0*d.*
20 by 13					
20 by 14					
20 by 15		21 oz. 13*s.* 0*d.*	20*s.* 0*d.*	22*s.* 0*d.*	24*s.* 0*d.*
20 by 16					

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7			11*s.* 3*d.*	12*s.* 6*d.*	14*s.* 0*d.*	15*s.* 6*d.*
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½						

Per 100 feet.

10 by 8	12 by 9	12½ by 10	13½ by 10½		11*s.* 9*d.*	14*s.* 9*d.*	15*s.* 3*d.*	17*s.* 6*d.*
10½ by 8½	12½ by 9½	13 by 10	15 by 10					
11 by 9	13 by 9	13½ by 10½	13 by 11					
11½ by 9½	12 by 10	14 by 10	14 by 11					

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
15½ by 10½	14 by 12	22 by 12	22 by 16		12*s.* 3*d.*	15*s.* 6*d.*	16*s.* 9*d.*	18*s.* 0*d.*
16 by 10	14½ by 12½	17 by 13	24 by 16					
14½ by 11½	15 by 12	23 by 13	20 by 17					
15 by 11	15½ by 12½	18 by 14	22 by 17					
15½ by 11½	16 by 12	22 by 14	24 by 17					
16 by 11	16½ by 12½	24 by 14	20 by 18					
21 by 11	17 by 12	22 by 15	22 by 18					
13 by 12	18 by 12	24 by 15	24 by 18					

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.

In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case, 31*s.*		4ths quality, per 200 feet case, 34*s.*	
3ds " "	40*s.*	3ds " "	40*s.*
2ds " "	60*s.*	2ds " "	60*s.*
Best " "	75*s.*	Best " "	75*s.*

SHEET GLASS is made only in the following substances, 16 oz. 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.

HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.
BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.

STUCCO PAINT, 21*s.* per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.
WHITE ZINC PAINT, 36*s.* per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a-half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.
IMPROVED ANTI-CORROSION PAINT, 28*s.* to 34*s.* per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4*s.* per gallon.

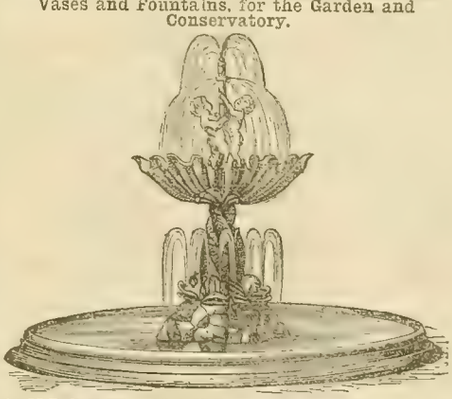
Per cwt.—*s. d.*		Per gallon.—*s. d.*	
GENUINE WHITE LEAD	30 0	LINSEED OIL	2 9
SECONDS WHITE LEAD	28 0	BOILED OIL	3 2
GROUND PATENT DRYERS, 3*d.* to 4½*d.* per lb.		TURPENTINE	2 9
" OXFORD OCHRE, 3*d.* to 4½*d.* per lb.		LINSEED OIL PUTTY, 8*s.* per cwt.	
" RAW UMBER, 4½*d.* to 6*d.* per lb.	[per lb.	Fine OAK VARNISH, 10*s.* to 12	0
" BURNT do., 6*d.* to 9*d.*		" CARRIAGE do., 12*s.* to 14	0
GREEN PAINT, all shades,	28*s.* to 60 0	" PAPER do. 10*s.* to 12	0
BLACK PAINT,	24*s.* to 36 0	" COPAL	16 0
RED PAINT ..	28*s.* to 36 0	KNOTTING	10 0
		Patent GOLD SIZE ..	10 0
		" BLACK JAPAN ..	12 0
		GLAZIER'S DIAMONDS and TOOLS	
GROUND BRUSHES. DUSTERS. SASH TOOLS. DISTEMPER BRUSHES.		MILLED LEAD and PIPES OLD LEAD Bought or taken in exchange.	

The above are Net, for Cash, and as such cannot be booked.
Lists of any of the above on application.

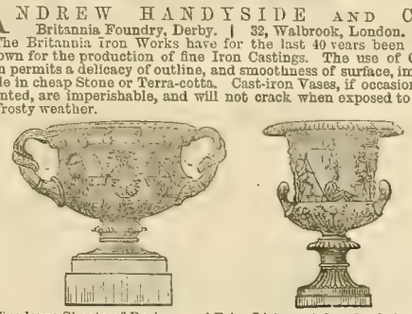


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The best and most powerful GARDEN ENGINE.
15 Gallons .. .. £4 10*s.*
24 Gallons .. .. £5 10*s.*
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Vases and Fountains, for the Garden and Conservatory.



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The HYDRONETTE is a more useful, easy working, reliable, and convenient water-throwing machine than any other in use. It is made in five sizes, viz.:—No. 1, with 4 feet of Suction Hose, Strainer, Jet, and Rose, 12*s.* 6*d.*; No. 2, 15*s.* 6*d.*; No. 3, £1 1*s.*; No. 4, £1 5*s.*; No. 5, £1 10*s.* Extra Hose and Union Joints furnished to order. Forwarded on receipt of Post Office order. To be obtained through any Ironmonger or Florist, or of the Proprietors, HAYNES AND SONS, 227, 229, and 231, Edgware Road, Paddington, W.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, and Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, Royal Gardens, Kew, &c.

The best Shading is "Frigi Domo" Netting.

White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for
PROTECTION from the SCORCHING RAYS of the SUN.
"FRIGI DOMO" NETTING, 2 yards wide, 1*s.* 6*d.* per yard run.
"FRIGI DOMO" CANVAS.

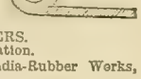
Two yards wide	1*s.* 9*d.* per yard run.
Four yards wide	3*s.* 6*d.* per yard.
An improved make, 2 yards wide ..	1*s.* 9*d.* per yard.
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"SIR,—Will you be good enough to send me 50 yards of Frigi Domo, 2 yards wide, of your improved make, 1*s.* 9*d.* per yard run. You can foward it per London, Tilbury, and Southend Railway. I had some of you several years since, but have not found any substitute so good for Greenhouse and Stove Shadings.—I am, Sir, yours respectfully, "GEORGE WOOD (Solicitor, Rochford).
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CARRIAGE, GIG, & DOG-CART APRONS.
HORSE SINGEING APPARATUS, with GAS BURNERS, and INDIA-RUBBER TUBING.
Improved INDIA-RUBBER DOOR STOPS.
WATERPROOF CART and WAGGON COVERS made any size.
HORSE-LOIN COVERS (Waterproof), with Straps complete.
BELTING for SAW MILLS, THRESHING MACHINES, and FLOUR MILLS.
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IMPROVED INDIA-RUBBER WEDGE-SHAPED GAS BAGS or Microscopes and Dissolving Views; any size to order.
FLANGE TUBING, for excluding Draught and Dust, and preventing the Slamming of Glass Doors.


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JAMES PHILLIPS AND CO. beg to submit their prices as follows:—
GLASS for ORCHARD HOUSES,
As supplied by them to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.
Each Box contains 100 feet. The prices only apply to the sizes stated
Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.

	16 oz. to the foot.	21 oz.
Fourth quality	15*s.* 0*d.*	19*s.* 6*d.*
Third ditto	16*s.* 0*d.*	22*s.* 6*d.*
Seconds	18*s.* 6*d.*	26*s.* 0*d.*
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The above prices include the boxes, which are not returnable.

HORTICULTURAL GLASS.
Stock sizes, 16-oz., in 100 feet boxes, boxes included.
These prices only apply to the sizes stated.

				4ths.	3rds.	2nd.
				s. d.	*s. d.*	*s. d.*
11 by 9	12 by 9	13 by 9	14 by 9	13 6	15 3	17 0
12 „ 10	13 „ 10	14 „ 10	15 „ 10			
13 „ 11	14 „ 11	..	..			
14 „ 12	15 „ 12	15 „ 11	16 „ 11			
18 „ 12	19 „ 12	16 „ 12	17 „ 12			
16 „ 13	17 „ 13	20 „ 12	..	15 0	16 0	18 6
16 „ 14	20 „ 13	18 „ 13	..			
	17 „ 14	18 „ 14	..	16 to 17 oz. to the foot.		
	20 „ 14					

SMALL SHEET SQUARES.
In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5 7½ by 5½	.. 12*s.* 6*d.*
8 by 6	8½ by 6½	9 by 7 9½ by 7½	
		10 by 8 10½ by 8½	.. 13*s.* 6*d.*

Boxes 2*s.* each returnable at full price.
Painted and Glazed with 16-oz. Sheet Glass.
London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS. PAINTS of various colours ground ready for use.
SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of Prices and Estimates forwarded on application to
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Now is the time to Sow

DOBSONS' SPLENDID HYBRIDISED CALCEOLARIAS.—New Seed, saved from the plants exhibited by us, and so much admired by the thousands of visitors, and were awarded the First Prizes and Special Extra Prizes at the Royal Horticultural, Royal Botanic, the Crystal Palace Shows, Reading, [illegible] Oxford, and so favourably noticed by the Editor of the [illegible], p. 882. The flowers have been unusually large, [illegible] and varied in colour, with dwarf habit, and the strain [illegible] cannot be equalled. Seed, in sealed packets, 1s. 6d., 2s. 6d., 5s. 6d., and 10s.

J. DOBSON AND SONS, Woodlands Nursery, Isleworth, W.

WILLIAM CHATER'S superb DOUBLE HOLLYHOCKS.—The simplest and safest way to raise them from seed is to sow in the open ground in June, July, and August, and transplant in September. Seed from finest strains, that will produce flowers equal to choice named varieties.

Collection No. 1.—Twelve named varieties, extra fine, 10s.
Collection No. 2.—Six named varieties, extra fine, 5s.
Collection No. 3.—Twelve named varieties, fine, 7s. 6d.
Collection No. 4.—Six named varieties, fine, 4s.
Mixed seed, finest quality, per packet, 1s., 2s. 6d., and 5s.
WILLIAM CHATER, Nurseries, Saffron Walden.

Hardy and other Bedding Plants.

ROBERT PARKER begs to offer the under-named, all of which can be supplied in strong, healthy plants:—

	Per doz.—s. d.		Per doz.—s. d.
Dactylis glomerata elegantissima	4 0	Pansy, Cliveden Yellow ..	3 0
Echeveria metallica, 6s. to	30 0	„ Great Eastern ..	3 0
„ secunda glauca	9 0	„ Imperial Blue ..	18 0
Lithospermum prostratum (fruticosum)	9 0	Pachyphytum bracteatum	12 0
Pansy, Cliveden Blue ..	3 0	Sempervivum calcareum	4 0
„ „ Purple ..	3 0	Tritoma grandis	12 0
		„ uvaria glaucescens	9 0
		Viola lutea semperflorens	4 0
		„ cornuta alba	4 0

Special quotations may be had, if required, for the above, and many other kinds, by the 100, or in larger quantities.
Exotic Nursery, Tooting, Surrey, S.W.

Weeds Eradicated from Lawns.

WATSON'S LAWN SAND, sprinkled upon Lawns, rapidly destroys Dandelions, Daisies, Clover, Rib-grass, &c., and at same time promotes the growth of Grass. 28s. per cwt.; 4d. per lb.

May be ordered through any respectable Seedsman, or direct from Agent, W. D. BARBOUR, 5, East Parade, Leeds.

MASTIC L'HOMME LEFORT (the new French Cold Grafting Wax), indispensable for Budding, Grafting, Healing, Stopping, Bleeding, &c. In tins, 6d., 1s., 2s., 4s., and 6s., of all Seedsmen, and
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The Cheapest and Best Insecticide.
DUTY-FREE TOBACCO.
BY HER MAJESTY'S ROYAL LETTERS PATENT, AND BY PERMISSION OF THE HON. BOARD OF CUSTOMS.

POOLEY'S TOBACCO POWDER, for the Prevention and Destruction of Blight and other Diseases in Plants.
Sold by Nurserymen, Seedsmen, and Florists,
In Tins at 1s., 2s. 6d., and 5s.
Powder Distributors, 2s. 6d. and 3s. 6d. each.
"I find it exceedingly useful for killing the Aphides on Roses and other Plants."—GEO. EYLES, Superintendent, Royal Horticultural Gardens, South Kensington. May 7, 1868.
Sole Manufacturer, T. A. POOLEY, Bonded Warehouse, Sussex Wharf, Wapping, E.


Red Spider — Magnified.

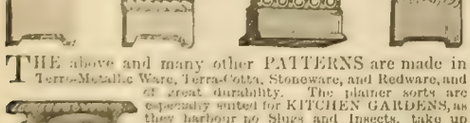
GISHURST COMPOUND.

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 10 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d.

Wholesale by
PRICE'S PATENT CANDLE COMPANY (Limited),
Battersea, London, S.W.

Caution to Gardeners.—When you ask for
SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the Corporate Mark, OBTAIN WARRANTED, without which none are genuine.
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make. All of theirs are warranted both by Sellers and Makers.
S. & C.'s PRUNING and BUDDING KNIVES are the best and be cheapest in the market.
Patent Works, Sheffield. Established upwards of 125 years.

Rosher's Garden Edging Tiles.



THE above and many other PATTERNS are made in Terra-Metallic Ware, Terra-Cotta, Stoneware, and Redware, and of great durability. The planer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability and superior finish, and in much variety of design.
F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.E. Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E. Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs. Likewise more elaborate designs. Pattern Sheets of Pavements, with prices, forwarded for selection.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability; Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.
To be obtained of F. & G. ROSHER, at their premises as above.

SILVER SAND (REIGATE), at the above addresses—1s. per Ton, 1s. 2d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less. A coarser grained Sand 1s. per ton more. Samples of Sand by post, on receipt of stamp.
FLINTS and PEBBLE PATHS for Rockeries or Ferneries. KENT PEAT and LOAM [illegible] covered rates.
F. & G. ROSHER.—Address as above.
N.B. Orders [illegible] forwarded by Railway or Vessel.
A liberal discount to the Trade.

SEEDS for PRESENT SOWING.

Orange Jelly Turnip	Whitestone or Stubble Turnip
White Globe ditto	Devonshire Greystone ditto
Altrincham Yellow ditto	Mustard
Trifolium incarnatum (crimson Clover)	Winter Rape
	&c., &c.

Newly-harvested Seeds of the above now ready. Orders to the value of £2 or upwards delivered carriage paid.
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FRIEDRICH ADOLPH HAAGE, JUN., Erfurt, Germany (Established 1822), offers the following:—
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LATANIA BORBONICA, per lb. (about 100 Seeds), 12s. 6d.
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All the above Seeds are well riponed, and of best growing quality.

CARTER'S PRIMULA, CALCEOLARIA, and CINERARIA.
J. C. & Co.'s strain of Calceolaria is saved from plants that were awarded a 1st Prize at the late International Show. The Cineraria and Primula stocks are also saved from the finest Prize Varieties, and cannot be surpassed.

CALCEOLARIA and CINERARIA.

Per packet—s. d.		Per packet—s. d.
Calceolaria, finest hybrid ..	2 6	Calceolaria, Dobson's strain.. 2 6
„ „ spotted ..	2 6	Cineraria, extra fine 2 6

PRIMULA.

Per packet—s. d.		Per packet—s. d.
Primula, choicest mixed, fringed	2 6	Primula, choicest white fringed 2 6
„ „ dark carmine, fringed	2 6	„ „ Fern-leaved carmine 2 6
„ „ rose fringed	2 6	„ „ „ white .. 2 6

CALCEOLARIA INTERNATIONAL PRIZE.—The Seed of this superb strain cannot fail to produce splendid varieties, as last season's plants took 1st Prizes wherever exhibited. Per pckt., 2s. 6d.
PRIMULA FIMBRIATA (New scarlet).—This is a decided novelty, being of a deep scarlet colour, and cannot fail to be much admired wherever grown. Per packet, 2s. 6d.
INDIA-RUBBER HOSE at Manufacturer's prices, 60 feet (with complete fittings), 25s.
JAMES CARTER AND CO., The Royal Seedsmen, 237 and 238, High Holborn, London, W.C.

JAMES CARTER AND CO. can now offer strong well-grown CANES of the FOLLOWING VINES, this year's growth. If planted now a season will be saved.
Price 7s. 6d. to 12s. 6d. each.

Bidwill's Seedling	Golden Hamburgh
Black Alicante	Lady Downe's Seedling
„ Barbarossa	Madresfield Court Black Muscat
„ Hamburgh	Morris' Black Grape
„ Morocco	Mrs. Pince's Black Muscat
„ Prince	Muscat Hamburgh
Buckland Sweetwater	„ of Alexandria
Charlesworth Tokay	Royal Ascot
Duchess of Buccleugh	„ Muscadine
Frankenthal	Trentham Black
Golden Champion	White Frontignan

JAMES CARTER AND CO., Seed Merchants and Nurserymen, 237 and 238, High Holborn, W.C.; and Crystal Palace Nurseries, Forest Hill, S.E.

JAMES CARTER AND CO. having often had applications for STRAWBERRIES earlier in the season than they could be supplied from same year's runners, have planted out an enormous stock of last year's late runners, and can now offer strong plants of the undermentioned varieties, and if planted from henceforth in favourable weather they will guarantee to produce good crops next year.

Black Prince	Frogmore Late Pine	Princess Royal
British Queen	Goliath	Rifleman
Carolina Superba	Keen's Seedling	Sir Charles Napier
Comte de Paris	Nonsuch	Sir Harry
Crimson Queen	Oscar	Standard Bearer
Dr. Hogg	President	Victoria
Elton Pine	Prince of Wales	Wizard of the North
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To be sent out in September, 1869. For plate and full description, see "Botanical Magazine," t. 5726, No. 285, in which Dr. Hooker says—
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"By far the handsomest species of the genus hitherto imported, and certainly one of the most beautiful hardy plants in cultivation; the deep purple-red of the stems and branches, passing into the crimson-purple of the glorious broad corymbs of flowers, contrasts most exquisitely with the foliage, which in autumn assumes beautiful tints of brown and golden-yellow. Spiræa palmata was introduced by Mr. Fortune from Japan, and has proved itself perfectly hardy in the most exposed position."
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DOWNIE, LAIRD, AND LAING have the pleasure of offering the following choice Flower Seeds:—
CALCEOLARIA, Hybridised, saved from a superb First Prize Collection, 2s. 6d., 3s. 6d., 5s. per pkt.
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SEED MERCHANT AND NURSERYMAN,
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Undoubtedly the finest NOVELTIES of the season. Numerous CERTIFICATES and FIRST PRIZES have been awarded by the Royal Horticultural Society, Royal Botanic Society, &c.

J. W. WIMSETT has much pleasure in announcing that the above splendid Novelties will be ready for sending out the first week in August.

Willsii, a Guinea and a half each. | **Willsii rosea, Two Guineas each.**

ASHBURNHAM PARK NURSERY, KING'S ROAD, CHELSEA, S.W.
July 21. J. WILLS, F.R.H.S., Manager.

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TO BE SENT OUT IN SEPTEMBER, 1869.

GEORGE JACKMAN AND SON

Are prepared to book orders for their two following NEW CLEMATISES, that they can warrant as distinct, vigorous, and abundant flowering as those varieties which have already obtained such general approbation:—

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CLEMATIS MAGNIFICA (First-class Certificate Royal Botanic Society).—This is one of the most hardy and vigorous growing varieties of the Woking Hybrids. The colour is purple, suffused with a strong crimson shading over the whole surface of the flower, making it very attractive.
"The petals of which are barred with Turkey red."—*Gardeners' Chronicle.*

21s. each, or three plants, viz., one C. Lady Bovill and two C. magnifica, for 45s.
A few extra strong plants, 31s. 6d. each.

A Coloured Drawing (by Andrews) of C. Lady Bovill can be had by enclosing 12 stamps, or Circular, giving "Opinions of the Press," with engraving, for one stamp. [☞ *The usual allowance to the Trade.*]

WOKING NURSERY, SURREY.

NEW COLEUS, BEAUTY of WIDMORE.—Distinctly tricolored; leaves beautifully shaped, dark brilliant maroon, belted with bright rose and green edged with silvery white. 3s. 6d. each. 25 distinct varieties, including the above and all other new ones of this season, free by post for 21s.
ALTERNANTHERA AMABILIS.—A new variety, far superior to all the other Alternantheras, 4s. per dozen. [dozen.
ECHEVERIA METALLICA.—The beautiful Shell Plant, 4s. per
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NEW GOLDEN COLEUS.—Twelve selected from the following:—Princess Royal, Queen Victoria, Her Majesty, Duke of Edinburgh, Albert Victor, Prince of Wales, Baroness Rothschild, and Beauty of St. John's Wood, in strong plants (or smaller by post), 3s.; 24 plants, 5s. Queen Victoria and Princess Royal, per doz., 3s. 6d.
The Collection as under for 10s. 6d.:—4 DRACENAS, 3 vars.; 3 CROTONS, 3 vars.; and 12 COLEUS from above vars., in 60 and 48-pots. Terms cash.
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NEW COLEUS.—The following are six beautiful varieties, much in advance of present named sorts, both for superb depth of brilliant colouring, and massive spreading outline, but withal dwarf bushy habit:—

Achilles	each 2s. 6d.	Cupid	each 2s. 6d.
Ajax	„ 2 6	Viceroy	„ 5 0
Beauty of Maida Vale	„ 5 0	(Or the set of six for 20s.)	

BEGONIA BOLIVIENSIS.—Large flowering scarlet flowers, a beautiful outdoor plant for subtropical gardens. 3s. 6d. each, or 30s. per dozen.
BEGONIA WELTONIENSIS.—Capital habit, excellent summer, autumn, and winter blooming variety, waxy pink flowers, dwarf dense habit. This plant can also be recommended for shady position in the subtropical garden. 2s. 6d. each, or 24s. per doz.
ALOCASIA JENNINGSII.—This superb and richly marked leaved plant, 5s. each, or 42s. per dozen.
ARTHUR HENDERSON & CO., Pine-apple Place, Maida Vale, London, W.

H. CANNELL'S AUTUMN CATALOGUE is now ready, and will be sent free for One Stamp. It contains a full description, with lowest prices consistent with quality and economy, of all the best new and most distinct varieties of PELARGONIUMS (both of Tricolors and Bicolors, Doubles and Zonals), FUCHSIAS, VERBENAS, PETUNIAS, COLEUS, CHRYSANTHEMUMS, HELIOTROPES, VERONICAS, LOBELIAS, VIOLAS, and all the popular Bedding Plants of the Season. Also, the names and lowest price of all the best older varieties in cultivation. For further particulars see Catalogue.
COLEUS BEAUTY of WIDMORE, free for 2s.
New Florists' Flower and Florists' Flower Seed Merchant, Woolwich.

LEEDS ROYAL PARK.—GRAND AUTUMN SHOW of PLANTS, FRUITS, FLOWERS, VEGETABLES, and BIRDS, will be held in the Park, on FRIDAY and SATURDAY, September 3 and 4 next. A liberal Schedule of Prizes is being prepared, and will be forwarded to applicants.
The Committee of the Leeds Horticultural Society having decided not to hold an Autumnal Show, have liberally offered, in their individual capacity, to render me every possible assistance in preparing the Schedule, and in all the arrangements; offers of assistance have been made by some of the principal growers of the kingdom, who visited the Leeds Horticultural Show last month, and I shall also be glad to receive suggestions from any practical source, so that a first-class Show may be secured.
THOMAS CLAPHAM, Owner of the Royal Park.

The Gardeners' Chronicle.
SATURDAY, JULY 24, 1869.

DETAILS of the great SHOW of the ROYAL HORTICULTURAL SOCIETY at MANCHESTER, which has been held during the week, are given in other columns. A few general remarks are all that are needed here. The show itself, as a whole, may be said to have been one of average quality. We must own to a slight feeling of disappointment that it was not better. We had heard and seen so much of what Lancashire people can do in the matter of flower shows, that our expectations were perhaps unduly raised. The local arrangements, no doubt, to some extent unavoidably, were anything but good. Exhibitors complained of difficulties, but exhibitors would not be exhibitors if they didn't grumble. We speak now specially of the visitors, and they, too, had just cause for complaint. The agriculturists seem to have had it all their own way. Vast crowds flocked to see the wonderful display in the farmers' showyard—or was it to see the PRINCESS of WALES?—and it is not for us to blame them—but surely the police arrangements might have been so managed as to have permitted those who wanted to see the flowers to do so with tolerable facility. But no; poor Horticulture was pushed on one side in a remote corner, to which, in the earlier days of the show at any rate, access by carriage was not practicable, and access on foot was only to be accomplished by persevering inquiry of ignorant or unwilling officials, and through inches upon inches of dust, and that dust Manchester dust.

These difficulties surmounted, the locality at length discovered, and arrived at, the visitor was ushered into a field that would have been better had it been treated to a previous course of ploughing and rolling. In the tents, the gaps caused by defaulting exhibitors were painfully apparent. Little or no attempt had been made to depart from the stereotyped arrangements. A great deal of all this was, under the peculiar circumstances of the case, unavoidable, and we should not be doing our duty if we did not praise the officials and Council of the Society for their zeal. The Council, so far from sitting at home at ease, were well represented by a large infusion of their most earnest and active members.

Whatever may be the results of the meeting as a whole—and these are not known at the time at which we write—the managers deserve success. Of the local authorities we cannot speak so favourably. The arrangements, which, as we suppose, it was their duty to carry out, were indifferent or bad. If we are doing the local powers an injustice, we shall be happy to repair the error, but whoever was responsible for the circumstance, it is still a fact that the arrangements were bad.

It will evidently become a question in the future whether the great provincial flower show would not better be separated from its agricultural brother. The latter is on so vast a scale, its attractions are so manifold, that people have not time to visit both; and a flower show, however good, and however excellent its arrangements, looks small and mean by contrast with its bigger brother. True, the "brethren" of the craft can and do thoroughly appreciate their own exhibition, but for financial purposes the assistance of the all-powerful public is wanted, and that seemed at one time likely to be deficient, though we have reason to believe the generous aid was latterly more freely rendered.

The Congress was a new and very successful feature of the meeting. It was presided over by the Duke of BUCCLEUCH, Mr. SAUNDERS, and Major CLARKE. The papers read were of good sterling quality, some full of information, almost all eminently suggestive. One fault there was, which we mention in the hope that it will be corrected on another occasion—the papers were, as a rule, too long. To expect people to sit in a hot tent and listen to six or eight or more long papers, is to expect too much from good-natured, long-suffering humanity. The speakers or readers should prune their own papers, or if they will not or cannot do so, the committee of reference should excise all generalities and platitudes, however eloquently expressed, from the papers, and confine them to such points as there is a fair chance of the listeners being able to discuss. No doubt this Congress will in future become one of the regular features of these meetings. Let us hope that, as one additional means of bringing the brethren together, a club-room be set apart, where, after the labours of the day, friend may meet friend and talk over the past, the present, and the future. The want of some central rendezvous of this kind is a cruel want to genial fellow-workers, dispersed in all directions in a strange town.

We have drifted from the flowers to their lovers, from the beasts of the field to the "lords of creation," we have shown how the sympathy of brother for brother yearns for fuller opportunities of manifesting itself; and so we may be excused for a moment if we step from off our own ground of horticulture, to advert to a spectacle that no man could look on unmoved—the crowd in the streets.

Wednesday, the day of the visit of the PRINCE and PRINCESS of WALES to the city, was observed as a holiday—not a shop, or a bank, or warehouse, or factory, was open, not even an evening paper was published! hence the crowd that thronged the thoroughfares. After all, that was *the* sight of Manchester. The most confirmed misanthropist must have melted at the sight of those dense myriads of happy, fearless, resolute faces. It was impossible to see them and not remember how, a few years since, under widely different circumstances, and for totally opposite reasons, the Lancashire folk made us, as now, rejoice in our common humanity.

We shall revert to the exhibition and the lessons to be derived from it on another occasion, when the general results are more fully known than they are at the time at which we write.

—— THE well-known establishment of M. AMBROISE VERSCHAFFELT, of Ghent, has passed into the hands of M. LINDEN, under whose superintendence no doubt its well-won repute will be fully maintained. The style of the firm will remain as before, "AMBROISE VERSCHAFFELT." The "Illustration Horticole" will be issued by the new proprietary as heretofore.

—— Under the name of the SELBY FLOWER and FRUIT GATHERER, Messrs. DICK RADCLYFFE & Co., of High Holborn, have introduced a handy and ingenious form of flower-scissors. By means of a spring clamp attached to the cutting blade, no sooner is the stalk of a flower severed than it is caught by the clamp and retained firmly till purposely released. We recommend this implement to ladies as most convenient. With the "Selby" scissors, and a flower-basket constructed after Mr. MILLS' pattern (see p. 417), a lady could cut and carry flowers for the decoration of her drawing-room without disarranging a petal or soiling a finger. The instrument is stated to be able to cut and retain bunches of fruit to the weight of 4 lb.

—— According to M. VIALLA, the President of the Agricultural Society of Hérault, the main obstacle to the more general use of FRENCH WINES lies in the amount of fiscal duties payable on them. The cost of production can hardly be lessened, but the duties and cost of transport might be diminished. French wines imported into England pay a duty of 27 fr. to 60 fr. a hectolitre (about 22 gallons). For other countries the duty, in francs per hectolitre, is as follows:—United States, 45—177; Australia, 83; Prussia, 20; Austria, 30; Italy, 6; Roman States, 7; Switzerland, 3; Russia, 56; Brazil, 35; Belgium, 22; Portugal, 30; Spain, 42—49. The national taxes raised in one form or another from the Grape, according to the same authority, amount to 300,000,000 fr. per 2,000,000 hectares of vineyards (a hectare is about two acres and a half); moreover, strange to say, the best wines pay the least (20 per cent.), while ordinary wines pay 500 per cent. After this, the wonder is that the cheaper kinds of French wines, whose use is largely on the increase in this country, are so good as they are at the moderate price at which they are sold.

—— We are glad to call attention to the following letter, and the announcement it conveys, but we can by no means endorse our correspondent's wish to have a grand exhibition at Manchester and a "little go" at Kensington at the same time. *Ohe! jam satis.* The letter refers to the splendid plants of EPIDENDRUM RADIATUM and DENDROCHILUM GLUMACEUM shown at South Kensington on Tuesday last, and the latter of which remains on view:—"As the Almanac of the Royal Horticultural Society announced one of its 'Tuesday meetings,' to be held on the 20th inst., it is not surprising that several packages of flowers and fruits were sent up for exhibition, thus proving that, despite the drain upon the resources of our gardeners, caused by the Manchester Show, held during the present week, there was no adequate reason for making an arbitrary gap in the natural cycle of these popular re-unions. Since, however, regrets are now in vain, all that remains to be done is to chronicle one or two of the *notabilia*, which, unless they can be retained in beauty until the 3d of August, the Fellows and public will have missed the opportunity of seeing. And foremost among these stand two Orchids from the collection of the Bishop of WINCHESTER, viz., Epidendrum radiatum and Dendrochilum glumaceum. The former is by far the finest specimen of a really compact and beautiful species, something in the way of, but far superior to E. fragrans, while the latter is incomparably the most graceful of all Orchids. The Bishop's plant is nearly a yard in diameter, and bears upwards of a hundred of its fairy-like pendent spikes, and as each of these carries from 80 to 90 blossoms, there can scarcely be fewer than 10,000 flowers, all in perfection at the same moment, on this unparalleled specimen! It would be 20,000 pities were the public to miss the chance of admiring it. *J. B.*"

New Plants.

DENDROBIUM BINOCULARE, *sp. n.*

(Stachyobium aureum.) Caule tenui calamiformi; racemo ascendente subrecto brevi pluriflore; bracteis subvaginalis, mento obtuse postice bigibbo; sepalis oblongis acutis; petalis paulo latioribus; labello rhombeo, lobis lateralibus rotundatis denticulatis antice serratis, lobo antico triangulo denticulato, ungue lævi (carina transversa nulla) nudo, ceterum toto labello supernè densissime barbellato.

This is a very critical plant, with copper-coloured flowers, the apex of the lip golden yellow, with one large brownish or purplish blotch on each side of its disc. It may be compared with Dendrobium clavatum, Gibsoni, and fuscatum. Dendrobium clavatum has great sheath-like bracts. Dendrobium Gibsoni has a pendulous raceme with distant flowers, and a quite different very broad short lip, bearing a transverse callus on its unguis. Dendrobium fuscatum appears to stand nearest of all, yet the specimens of that plant, for which we have to thank its discoverer, Dr. Hooker, show its lip to be quite retuse and emarginate. Our plant is one of Colonel Benson's numerous Burmese introductions; and we have to thank Messrs. Veitch for a very satisfactory specimen. *H. G. Rchb. fil.*

WHAT SOIL IS BEST SUITED FOR THE PRODUCTION OF GRAPES?

[This and the two succeeding articles were read on Wednesday last, at the Manchester Congress, elsewhere alluded to. The remaining papers will be published as opportunity offers. EDS.]

A QUESTION continually asked by amateurs and others is, "What kind of soil should I use in making my Vine-border?"—"Choose," says the stereotyped reply, "turfy loam from a pasture field." So far the answer is correct; but the geological formation is never named, whether calcareous, silicious, or igneous, assuming that quality in this particular requires no consideration.

I admit that there is some difficulty to secure soil in a free state, as the different formations very often pass into each other. For instance, we have the calcareous sandstone soil when the former predominates over the latter, and again the silicious limestone when the finely divided particles preponderate.

However lightly some cultivators may estimate the propriety of providing certain descriptions of soil for the growth of certain classes of plants, our everyday experience demonstrates that the different constituents have separate duties to perform in the vegetable economy, whether the action is chemical or mechanical; and further, we cannot controvert the fact that the duration of life in plants, and the quality of the fruit, are true expressions of the soil on which they grow. Analogy is certainly not an accurate system of reasoning, but in the present case may be of some assistance. Within the area of the boulder clay it has been found that the best race of men is produced, also the best cattle, and that the death-rate is lower. If we accept this statement we need not hesitate to admit the validity of the preceding conclusions.

In relation to, and in support of these preliminaries,

I now pass on to deal with what may be to some a more practical part of the subject,—one which has for years past given me considerable anxiety, and produced sometimes strong feelings of self-reproach. The case to which I wish to draw attention refers to the unsatisfactory state of the Grape crops at Tortworth.

Let me notice first that the soil of which our Vine-borders are made holds a large proportion of magnesian lime; one vinery is planted exclusively with the White Muscat of Alexandria, and, although 18 years old, its strength has not greatly diminished. There has never been cause to complain of sterility, the show of fruit has been invariably good, even as many as four large bunches are generally produced from a single eye. The berries always set freely, and during the first stage grew to a large size, leading to the supposition that when fully ripe their quality would meet the approbation of the most fastidious. The very reverse of this was the case; when they had finished stoning there was no further increase of flesh, a decrease was more frequently perceptible; the skin began to shrivel and turn leathery; there was also a deficiency of saccharine matter, and of that peculiar aroma the exclusive property of the Muscat.

How to account for so decided and so violent a departure from the ordinary course eluded every attempt, and my conclusions never rose above mere speculation. Had this occurrence happened occasionally, there would have been sufficient room to suppose that my practice had been one unvarying course of mismanagement; but there was no cause for any suspicion of the kind, as the same conditions were closely adhered to which had heretofore been attended with some amount of success. The border of an adjoining house was made of soil in every way similar, and was planted with Vines of the Black Hamburgh, Foster's White Seedling, Buckland Sweetwater, and Golden Hamburgh. We have here a slight improvement in the produce of the first two varieties, but even then the best bunches were hardly second-rate. The latter were always to some extent unproductive, and what did make their appearance were straggly in the bunch, and deficient in berries.

Interposition very frequently alters the whole course of events, and brings about a change which the agent had not anticipated, and it so happened with me. We found it necessary about 14 years ago to renew an old Vine-border. I had no choice of soil; so whatever benefits were then produced did not depend on any foreknowledge of mine; they were purely the result of unforeseen circumstances. I can best describe the quality of the soil by saying that it belonged to the old red sandstone formation, contained not a particle of lime, and was composed of silex, alumina, and organic matter derived from decayed herbage. At the time the border was made no manure was added, nor has any since been applied, except a small portion mixed with turfy loam of the same description as an occasional surface dressing. The varieties were the same as in the preceding house, which gave me an opportunity of estimating correctly the Grape-producing properties of the two kinds of soil. I had not the slightest idea as to what would occur. I did not anticipate that results would differ materially from what I had already experienced. But when the Vines began to bear, the improved quality of the fruit certainly took me by surprise,—more particularly as regards the Golden Hamburgh, being perhaps a little more difficult to manage than any of the other varieties. Many of the bunches exceeded 4 lb. in weight, and the berries four inches in circumference.

I do not offer these statements on the supposition that they represent more than what is to be seen daily; they are merely given to mark the distinction between the past and the present, or, in other words, between the expressions given by the two kinds of soil. We have here a change, resistance has given way, circumstances are completely altered, an effect of a very decided character has been produced. Now the question arises, and often repeats itself, "What is the cause?" Not by any possibility can it exist in the general management, as there has been no variation, neither has any occurred in the arrangement of the border materials, the same principle having been adopted throughout.

I now feel satisfied I cannot evade the conclusion, the fact is forced upon me, that the caustic property of the lime has worked all the mischief; and that the nearer it approaches to a state of carbonate, the more fatal the effect. Magnesian lime is the worst we have to deal with, as it retains its causticity longer than any other kind.

Having succeeded in my exertions so far, I next applied silicious soil mixed with a third part of manure, for the growth of our pot Grapes. Without entering into minute details, which are the property of every gardener, it will be sufficient to notice that the quality of the fruit was equally satisfactory, and as a guarantee I may note that a Vine of the Alicante, one year from a single eye, matured 18 lb. of excellent Grapes. These results encouraged me to proceed a step further: I had the earth removed a foot deep from the borders made of calcareous soil, and replaced by silicious soil, on the supposition that it might to some extent act as an improver. [illegible] worked admirably [illegible] have been doing so for some years past. I have not been able to discover that it has produced any deleterious effects. There is one caution to be observed in the selection of silicious soil, namely, that it is frequently to be met with, and sometimes to a considerable extent, mixed with oxide of iron, which should be avoided. Whatever opinions are held or may be formed by gardeners on this subject, the red sandstone soil with me, for the growth of the Grape Vine, has long become a settled article of belief. In making this declaration, I do not exclude soil from other geological formations. I only offer a protest against the [illegible] calcareous matter.

A writer of considerable reputation has strongly recommended soil from igneous rocks, but of this I have had no experience. Nothing, perhaps, stimulates inquiry, and gives wings to thought so much as to feel ourselves probed by the sting of defeat; perception becomes more penetrating, and the range of ideas more extensive. So, in debating this matter, it occurred to me that I had always seen Grapes, produced from the limestone, of a very inferior quality, and from the chalk the sample was even worse. Without penetrating into the cause further than mere external observation, I without hesitation placed the entire blame on the shoulders of the gardener. But I have lived long enough to admit that I was wrong, and to withdraw so false a charge.

There may be few, still there are some, gardeners who believe that a successful career of Grape culture depends upon the observance of a system of set rules more than anything else, and when these fail to produce what was anticipated, what do they do next? Why, submissively wait on Providence to help them.

What is generally understood as mere practice has long ago yielded all the sound information it ever had or can possess. Shall we then continue to submit to the dictation of what is effete and powerless? Shall we perpetrate the folly of threshing the same straw over and over again, and winnowing the same old chaff? No! by no means, if we are to make progress. We must shunt out of so narrow a groove, we must take hold of principles, and learn from them how to make a successful application of that description of food best adapted to certain classes, or to individual plants. At the present time the mode in which many inorganic substances act is very imperfectly understood, and must of necessity remain so until the office they perform in nutrition is clearly ascertained.

There is no reason why we should continue to remain uninformed on this point any more than on the subject of those complex matters that go to build up the animal system. For this purpose analytical tables have been prepared, which direct us to select those aliments which furnish muscle, bone, and blood, or indeed all that is necessary to build up and sustain whatever belongs to the composition of the living body. And again, let us observe with what exactitude the chemist prepares his medicines, and how, by an accurate knowledge of their action upon different parts and organs of the human system, the skilled physician is enabled, either to cure disease or lessen the pangs of suffering. The question may be asked and answered in this way:—Is the science of horticulture to be kept below its legitimate status—are we to plod on as heretofore in a hazy atmosphere—are we to allow our operations to be governed by something little short of haphazard? Certainly not; our profession is as much entitled to rank as highly as any other department in science. We ought to be able to exercise as much control over the vegetable kingdom as the physician does over the animal kingdom.

I do not say that gardeners must of necessity become learned chemists, or vegetable physiologists, the bare supposition would be an absurdity. What we do want is a recognised authority to whom we may apply to have our soil analysed at a moderate charge, which would be a practical benefit to the entire community.

To show that soil possesses a greater influence than we are at all times willing to admit, we shall suppose a case, and the supposition is quite correct, viz. that one, two, three, or more of our best Grape growers, persons whose success has been uniform on some particular kind of soil, we may name the purely silicious, were removed to the calcareous districts, it will be found that the quality of their produce will differ widely, even although all other circumstances are the same. I would then suggest, that the soil on which first-class Grapes are grown should be analysed and the result published. This would inform us correctly of the properties that operate so favourably, and be a guide to others, while making a similar selection. Some may question my statement. Still, I hold the fact firmly, that our achievements, no matter how great or small, depend more on the quality of the soil we use than on anything else, and consequently place every intelligent gardener much on the same level.

It would be both interesting and exceedingly useful, did the nature of this discussion and the limits assigned me permit, to give a description of those trees and plants that require time for the proper maturation of their fruit, and those to which it is injurious; success and failure have more to do with these points than we are at all times aware of.

The office performed by inorganic nature in the vegetable system has never been clearly ascertained, at least it has never been fully explained, but has given rise to vague speculations that confuse rather than instruct, and breed a vast amount of contention.

In conclusion, I would state how desirous I am to see the time when science and practice shall mingle together, and not till then can we acquire the key that opens the door of legitimate progression. However much we may neglect the observance of the fact, whether through ignorance or from any other cause, an immutable law reigns, which governs animated as well as inorganic substances. It pervades the world—there is no place where its power does not act—there is nothing beyond the reach of its influence. *Alexander Cramb, Tortworth Court.*

In the discussion which ensued on the reading of this paper, Dr. MASTERS inquired whether the physical character of the soil, its permeability to water, and the like, were not more essential points for consideration in the majority of cases than the chemical constitution, which, except in special instances, seemed of secondary importance.

Mr. MEREDITH confirmed Mr. Cramb's opinion as to the injurious effect of magnesian limestone on Vines.

The Duke of BUCCLEUCH drew attention to the different kinds of limestones, and the consequent necessity for caution not to draw hasty inferences.

Ultimately it was agreed that samples of soil, and portions of the Vines grown on them, selected from various districts, should be sent to the Scientific Committee of the Royal Horticultural Society for analysis.

ON THE PRUNING OF FRUIT TREES

AS AFFECTED BY SOIL, CLIMATE, STOCKS, &c.

FRUIT trees are, it is to be presumed, mainly cultivated for the sake of their fruit, consequently the chief object of the cultivator should be directed to its production; and much may be accomplished towards this end by a rational system of pruning.

The judicious pruning or non-pruning of fruit trees is an all-important question, far more important than that of training, with which it is frequently confounded. Training is the producing of form—an ornamental part of the business, and is at times rather antagonistic to producing fruit. But pruning, whilst necessary for training, is chiefly performed for the sake of securing fruit. To prune a fruit tree is a very different thing from pruning any other sort of tree, inasmuch as the production of fruit is much more difficult than that of timber, or merely ornamental form. It is, indeed, easy to grow a tree and prune it so that it may assume any desired form or size. This is merely a question of time, and of the careful adherence to some given rules or pre-arranged plan; but to make that tree produce good fruit in large quantity, and of good quality, requires the exercise of much more skill and knowledge. To do this, however, is the office of the pruner, and by proceeding judiciously he may accomplish it.

To lay down any definite rules for guidance in fruit-tree pruning, beyond the broadest general principles, is impossible, for in practice we have so many variations of soil, climate, subjects, and even stocks, to deal with, all exerting considerable influence, that no given rules can be strictly followed. That which may be proper or advantageous for trees on one soil, situation, district, &c., may in another case be found totally impracticable. Further, also, a great deal depends on the time of pruning, and the manner of the operation. According to the amount of foliage duly exposed and properly developed, the growth of the tree advances; therefore, although the reduction of any part of a tree on which leaves are produced may diminish the rate of increase on the plant generally, yet through its removal the parts left increase more rapidly, in consequence of having a greater supply of sap at their disposal, and of their leaves being more fully exposed to the influence of light. Therefore to prune judiciously is not only advantageous, but in fruit culture it is indispensable.

To prune a tree is to cut off a portion of its stem, or parts of its branches, and the object to be attained is the regulation of the vegetation of the plant. The immediate effect (it may be repeated) of pruning, or the cutting off of any portion of a plant, is to cause a greater supply of sap to flow towards the parts which are left. Thus, if a tree is growing vigorously and making strong unfruitful shoots, the effect of pruning it back severely in winter is to increase its vigour instead of weakening the tree. All winter pruning, or pruning after active vegetation has ceased, results in producing greater vigour in a plant; therefore a vigorous healthy-growing tree requires less pruning than a weakly-growing one.

A special point to be aimed at in fruit culture is equality of growth and thereby uniformity of action throughout all the component parts of the tree. The most unfruitful of all trees are those in which one portion is allowed to have a great ascendancy over the others. The stronger portions of these have then to be repressed, and the weaker portions encouraged, which will promote uniformity of growth. Excessive vigour, is, however, undesirable, as trees in that condition bear but a small quantity of fruit; yet it is possible for a tree to be too weak, and to produce too many small fruits, as well as to be too vigorous and unfruitful.

There may be said to be two distinct styles of pruning, viz., market garden or orchard pruning, and gentleman's garden or trained-tree pruning. The one is necessarily very different from the other. In the former case the trees are allowed to retain much more of their natural character; they are pruned almost entirely for fruit, form or appearance being in a great measure ignored. In the latter, while fruit-bearing is one main object, yet with this is combined the formation or retention of some particular form. Which of the two, then, is the most productive or profitable? which of the two is most to be recommended? Or is it possible to apply the treatment as regards pruning that is necessary for the one to the case of the other, or to produce the same results on each subject alike in different soils, situations, &c., without having regard to the altered circumstances in which they are placed? It may be possible, but it is scarcely practicable to do so, and in many cases the attempt will result in an entire failure; the trees, as already stated, may be formed, yet the fruit, for which they are grown, will be wanting. These remarks apply more especially, yet not exclusively, to formally trained trees.

If we take a glance at the natural tree vegetation of the country, we shall find that in one locality the trees are of a dwarf stunted character, and perhaps very fertile; while in another they are rampant and vigorous. In the one case we have probably poor sandy soil and an exposed situation, and in the other deep alluvial loam and comparative shelter. Good fruit may be produced in each situation, yet under very different conditions. Here, then, is Nature teaching us, and her general laws we must obey; for though we cannot alter this natural order of things, much may be accomplished by skill in moulding the one to a simi-

larity of the other. The light soil may be enriched, the strong loam impoverished, shelter may be procured, &c.; but these can only be done in a very limited way. Unless, however, something of the sort be done, the growth of the trees in the two instances will be very different; and in order to induce an equal amount of fruit-bloss, the treatment of the trees as regards pruning will require to be very different also.

Since viewing the extensive experiments on agricultural produce of Mr. Lawes and Dr. Gilbert at Rothamsted with different manures, and the wonderful influences effected by these manures on different plants as regards their tendency to induce a disposition to run to seed, and to favour early maturation, it has occurred to me that perhaps something in this way might be accomplished with fruit trees by the application of some special manures, which, as in the case of the mixed mineral manures on grasses, would give a tendency more towards fruit production than to leaf-growth. There may be a manure for fruit trees, which is capable of utilising the existing and necessary portions of the soil, and concentrating all the energies of the plant towards the production of fruit; and if so, how valuable it would be!

Again, climate greatly influences the growth of trees, and in some respects its effect is similar to that of the soil. Thus, a damp climate, such as that in the south-west of England, counteracts the effect of a dry soil, assimilating the results to those afforded by a deep rich soil in a dry climate. In a damp climate trees grow much more luxuriantly as a rule than in a dry one, and as luxuriance of growth is unfavourable to fruit-bearing, our treatment of the trees must again be modified to suit the altered conditions. In the orchards of Devonshire, and other parts with damp climates, there is a remarkably natural check put upon the growth of the trees, which would otherwise be over-luxuriant and unfruitful, namely, the growth of Mosses and Lichens on their trunks and branches, caused, no doubt, by the continued dampness. The presence of these epiphytes serves, however, in my opinion, as a beneficent check upon over-luxuriance, and thereby induces greater fertility than would otherwise be obtained. Here, then, is Nature repressing vigour more effectually than we can do by the employment of any artificial means. It being then as yet impossible to alter soils or climate to any great extent, we must perforce, if the greatest success be desired, cultivate only those trees which are most suitable, and that after the manner most in accordance with their natural tendency. In short, in a locality where trees naturally grow but slowly, dwarf or miniature fruit-tree culture will be the most advantageous; and where trees naturally grow luxuriantly they must be allowed to do so, the modern dwarf, closely-pinched fruit trees being for the most part unattainable.

There is, however, yet left for consideration the important subject of the stocks whereon we may graft our fruit trees. The influence of the stock is in many ways marvellous. It is as yet a subject but very imperfectly understood, especially by fruit growers themselves, whom it concerns most intimately. It might be given as a proverb. "According as the stock is so will be the result." We have not only stocks which impart greater vigour to the plant, and the reverse—those which check luxuriance and induce greater fertility, precocity, and a tendency to maturation—but we can also select stocks which enable us to cultivate fruits with an almost equal amount of success on damp clayey soils, as on dry sandy loams. It is also worthy of experiment on a somewhat extended scale, to find out whether it is not possible to cultivate fruits successfully in otherwise uncongenial districts by grafting and using plants indigenous to the district, as stocks, such as the Pear on the Mountain Ash, and on the different species of Thorns, which are in general common enough. That would be utilising the natural vegetation of the country.

It may be well here to notice briefly some of the principal stocks used for our fruit trees, and to state the conditions under which, as well as the purpose for which, they can be most advantageously employed.

Apples.—1. There is the Crab or free stock, most suitable for large standard trees, and totally unfit for dwarf ones. 2. The French Paradise, which is eminently qualified for producing dwarf fertile trees, and which succeeds best on damp, clayey soils, its roots feeding near the surface. 3. English Paradise, a moderately vigorous-growing stock. 4. The Nonsuch English Paradise of Mr. Rivers, which is similar in its effect to that of the French Paradise, producing vigorous but fruitful little trees. It however succeeds well on dry soil, which the French does not.

Pears.—1. The Pear, or free stock, which, like the Crab, is again only suited for large trees, excepting in dry soils, in which case, on account of the roots striking deeply for sustenance, it is the most to be recommended. 2. The Quince, which is admirably suited for cultivation in damp soils, through its roots feeding near the surface, is entirely unsuited for forming very large trees on dry soils. Its great recommendation is in its dwarfing tendency and its exceeding fertility. Pears may be grafted on many other stocks, such as all the species of Crataegus, Mountain Ash, Cotoneaster, &c.

Plums.—These are not much influenced by the stock, excepting it be the Damas Noir, which tends to earlier fertility.

Cherries.—1. We have the wild Cherry, which is adapted for large trees. 2. The Mahaleb, the most suitable for dwarf fruiting plants. Plums may also be grafted on Cherries, and *vice versâ*. Beyond the fact of its accomplishment, however, I can state nothing, as the ultimate results are not known.

By way of illustration, we may admire the successful results attained by Mr. Rivers, in his magnificent culture at Sawbridgeworth, with myriads of pretty miniature bushes, pyramidal and cordon trees, all densely laden with fruit; and we may further be enlightened as to the practice pursued to produce such success, and become in consequence impressed with its desirability, and induced to go and try to do likewise—to have our fruit trees all grown in the same miniature style, &c. We see the results, and seize the idea, but most likely forget the conditions, or the natural or other advantages enjoyed by them, through which they have so easily attained their present fruitful state. The natural tendency of tree vegetation in the soils of Sawbridgeworth is towards early fruiting. There is, indeed, considerable variation of soil even in these nurseries from strong Wheat land to lightish sand; yet throughout nearly the whole extent there is a great deal of calcareous matter, which it will be found, wherever present, is the most favourable of all for fruit culture. It is greatly to the predominance of this chalky matter in the soil, though partly to its exposed situation, and also to the use of suitable stocks which give a dwarfing tendency, yet, most of all, to Mr. Rivers' skill in taking advantage of all this, that we are to attribute his immense success in the culture of miniature fruit trees. To illustrate still further, go to the neighbourhood of Paris, where in fruit culture results are attained nearly similar to those of Mr. Rivers. Fruits and fruit trees, it is well known, succeed there admirably, and the soil is very similar to that so general at Sawbridgeworth. Around Paris the climate influences and benefits the condition of the trees and fruits to a considerable extent, yet otherwise the results are as nearly as possible the same.

Trees in the two instances grow but slowly, yet sturdily, and make no rampant watery unfruitful shoots; these are, on the contrary, sturdy, short-jointed, and well supplied with fruit-buds. Indeed, the difficulty of their having too much of a fruiting tendency occurs at times, the trees being thereby soon exhausted, and the fruit rendered worthless. It is desirable at all times that fruiting trees should produce a certain quantity of young shoots, as on the influence of the leaves so produced and on the action thereby infused into the plant, depends chiefly the quality of the fruit. Hence to induce short formation, although there may be little to prune, yet the pruning-knife may be used to great advantage, and the shoots cut closer back. In fact, the trees may be kept in smaller compass than that which would be prudent to adopt in the case of trees growing very vigorously. The cultivation of miniature fruit trees, trees planted at 4 feet apart, in such soils and conditions, is highly commendable. It would, indeed, prove the most profitable; as although they might be allowed to attain considerable size, it would be many years, owing to their slow rate of growth, ere the ground could be otherwise fully occupied, or turned to the best account for fruit culture.

To reverse the picture, however, let us visit the rich valley of the Thames, with its deep alluvial loam, and look at the fruit culture in some of the market gardens—for example, that of Mr. Dancer, at Chiswick. Here there is also fruit in abundance, and of the very finest quality. Here, however, the trees instead of being dwarf and fruitful, are large, rampant, and vigorous; and although while in a young state they produce but little fruit, still as they attain age, if not over-pruned, fruit is produced in immense quantities.

In the one case—winter pruning—close pruning is necessary to induce greater vigour, and prevent over-fertility and weakness (*i. e.*, assuming the stocks, &c., used in each locality to be the same); and in the other, the object of the pruner is to reduce luxuriance, and this is best effected by non-pruning, or at most, by the thinning out of the shoots and branches where crowded, so as to expose the remaining ones more freely to the influence of light, leaving the strong growing young shoots at almost their entire length, which the next season produce a less vigorous growth, and as a consequence become more fertile, on account of the forces of the plant not being concentrated on a few buds, but being required to spend itself over many. In short, in the one case miniature fruit-tree growing is advantageous and practicable, simply because the trees are not inclined naturally to grow larger, and in the other it is almost impossible, because the trees naturally grow too luxuriantly.

Excessive vigour may, however, be considerably repressed and fruitfulness may be induced by judicious summer pinching of the growing shoots, and also to a great extent by root pruning. The first summer pinching is of paramount importance. It is most easily accomplished on the naturally fertile trees, yet it is most required on the most luxuriant. By constant application a great deal may be accomplished. It is an operation rendered absolutely necessary in all formal styles of training, and in the ulture of miniature trees. The leaves of a plant are almost its very life: they are its breathing organs. Leaves elaborate the sap which is drawn from the roots, and return it into the stem to form woody fibre, so that the pinching or the taking away of any portion of its leaves arrests the flow of sap in that direction, and directs it towards the parts which are left. Thus, therefore, by stopping the stronger growing portions, those on the upper parts of the tree, which are in advance of the lower or weaker portion, we equalise the flow of the sap, and cause a uniform action throughout. This stopping and checking of the shoot-growing propensities of the tree tends towards the formation of fruit buds, excepting in some cases, namely, in very rich soil and where it is attempted to confine the energies of the tree withiin too narrow a limit. Under such circumstances the most incessant application will fail to produce fertility, but will result in the continued production of watery shoots, and a gradual weakening of the tree. In such cases root pruning may in some instances be resorted to with advantage. Root pruning in miniature fruit-tree culture is almost absolutely necessary to keep the trees within bounds in many soils. It should, however, only be appealed to as a last resource, after all other modes of checking vigour and inducing fertility have failed. Root pruning tends too much to weaken the whole system of the tree, to take away the powers of the plant which are required for the support of what fruit there may be produced. It is not exactly a weakening of the entire system of the tree which is required, but a retention of all its powers, and a direction of those forces towards the production of fruit, instead of that of shoots.

In concluding these remarks, I would recommend those who may be commencing fruit culture to take well into consideration the soil and situation of the place, and then the object, whether for the production of fruit simply, or for fruit combined with the formation of the trees after some particular form. Whatever may be the object, the condition of the soil should be considered, and the trees selected should be worked on stocks whose requirements can be best supplied by that soil, and by the mode of pruning and general cultivation adopted. *A. F. Barron, Royal Horticultural Society, Chiswick.*

Major CLARKE, in the course of his remarks on the above paper, suggested to stock raisers the desirability of raising stocks from seed, with the especial object of obtaining seedling varieties under different conditions likely to be serviceable.

ON THE PROSPECTS OF HYBRIDISATION.

THE object of the following remarks is to show how large a field is still open to culturists in the matter of cross-breeding.

In order to see the extent and nature of this I will ask you to withdraw your attention to a considerable degree from the mere in-and-in breeding of a few favourite, and already over-bred groups of garden plants, and to turn it to the higher object of originating new forms and qualities, by working with hitherto neglected or unthought-of subjects. Under this head I include:—

Genera hitherto unattempted.

True species unused, or insufficiently worked out.

Old garden plants, shrubs, or trees possessing high special qualities.

Variegated plants of all kinds to be used as the sires or male plants.

Other descriptions might be catalogued, but the above list would give us enough to do. I will not treat these cases separately, for they are much bound up with one another, but will take them as they happen to suit my present purpose, which is to say as much as I can in the shortest space of time.

Let us begin with ordinary cultivated things—the old familiar forms of the flower or kitchen garden, and note a few of our shortcomings. Enter genus Rosa:—the Rose has been said to be coming rapidly to a dead lock, so great has been its cultural improvement. But this improvement has run somewhat in a rut, hundreds and thousands of seedlings are raised annually, and yet we get little more than slightly improved forms of a few favourite types.

It is not my province here to point out the means of working to a given standard of perfection; this is the task of the skilled and practised craftsman whom we call the florist. The hybridist is the explorer and pioneer, after him comes the selective improver. I will not taunt my florist friends by saying you have not yet produced a blue Rose; but let me just observe that the greater part of your show Roses have no scent, and many of them neither scent nor constitution. Your yellow Noisettes won't open; and of the perpetual, or Provence classes, you have no scented yellow Rose at all. Neither have you a white one fragrant and ever-blooming. Sweet odour, that complementary quality which, with other matchless attributes, makes the Rose of romance the real Rose of the poet and the lover, is absent. The scent of the Rose called Mademoiselle Bonnaire would never recall a memory. Again, you have no crimson Tea-scented Rose; you have no really good rampant or climbing perpetual Rose at all. Fellenberg and Eclair de Jupiter are far from perfection. Where is the very possible perpetual Pompone? With July we bid a long adieu, alas! to Rose de Meaux. Can these deficiencies be supplied? I think they can.

First, let us lay the foundation for a white, by crossing together the white China and the white Unique Provence; also the whitest Tea, say Niphetos, with the same, and the old white Moss. For a blush-coloured race, take the fragrant old Maiden's Blush and Celeste, and cross with the pink-tinted Teas. For size and doubleness of flower, with fragrance, take Souvenir de la Malmaison and Comtesse Lacépède, and cross with white Provence and Moss with Maiden's Blush, even with the common Moss and Cabbage Rose.

The production of a yellow will be more of a task. As seed-bearing parents let us take the old yellow China; it is still to be had, though very scarce; the yellowest Teas with the white China and old Sweet Double White. Cross these with the Austrian and Persian Briars. Also cross together the yellow Teas and China with the palest and clearest-coloured Provence kinds.

The Teas should be fruited in pots under glass. This will bring them into flower at the same time with the Austrian Briar. Moreover, they set their fruit freely when grown in this manner. For a high-coloured Tea Rose, the old crimson China Semperflorens would impart a large share of its colour to any of the true Teas, and the cross might be taken both ways.

It will probably take some generations to produce a good rich-coloured climber Fellenberg. Gloire de Rosomène and crimson China might be crossed together. Ruga, which seeds freely, might produce seedlings of higher colour and frequent-flowering habit by a cross with these last-named kinds, and for an experiment their pollen might be used to fertilise Coupe d'Hébe and Fulgens. The sluggishly-opening Tea Noisettes might be crossed with the old semi-double yellow China to produce an intermediate effect. I may here suggest that the noble old Noisette Grandiflora should make a fine seed-bearing parent when

crossed with handsome vigorous Roses of almost any class, but especially the Provence breed.

Again, to originate new and hardy races there is sufficient evidence to prove the enormous advance frequently made by a first cross from a wild or natural species with the pollen of a cultivated one. I need only point here to Rosa and Maria Leonida, raised from two wild single species, by the pollen of the double Tea Roses; and the pollen of this exquisitely fragrant plant should be tried upon every natural species that can be procured.

I fear I have dwelt too long upon the Rose, but it was tempting—the Rose always is tempting. Moreover, it was a good subject for an endeavour to shadow forth my meaning to-day.

And now we will take a turn in the orchard. A few good Apples and Pears have been raised by definite and well considered crosses, but many yet remain to be devised and carried out. One of the first things that will occur to us, when once out of the old rut, is that we have scarcely any good summer Apples and Pears; none of any size, and none possessing the peculiar and higher qualities of the autumnal and winter kinds. Who has ever raised a seed of Citron des Carmes, or reared a brood of young Jargonelles, ennobled by the blood of Marie Louise, or other early autumn Pear? Who has ever collected, selected, and united in wedlock the pleasant but very improvable summer Apples? I think no one, as yet, not even the great Sultan of Sawbridgeworth. Is there any reason why the great size and hardy vigour of the Catillac and other culinary Pears should not be imparted to or shared by those sorts whose melting flesh and rich flavour fit them for the dessert table? Mr. Rivers has worked nobly at the stone fruits, and especially as regards the Peach, Nectarine, and Apricot groups; but there is yet a most interesting and important line of work left open to the horticulturist, viz., the breeding expressly for hardiness. Hardy Peaches and Apricots are known to exist. Let these be searched for, collected, and bred from; let them be sown, reared, and, if possible, fruited away from the sheltering wall. The long frosts of winter, and capricious climatic vicissitudes of spring, will of themselves form an effectual selective process. In all crossing experiments hardiness should be kept prominently in view—hardiness of constitution generally, and hardiness to bear low temperature. It is common enough to hear it said, "Such a fruit is the king of its race, but it is so tender, or, it may be, such a bad bearer."

Should such things be when the cross-breeder has actually the power in his hands to combine given qualities and to impart deficient ones? Much attention has been given of late to the Plum, and we possess many fine sorts; but there still remains many a curious and haply profitable combination to be tried. The pretty and curious Cherry Plum has not yet been used as a parent. The hardy and prolific Damson would certainly produce valuable orchard sorts, if crossed with the Greengage, Golden Drop, and other kinds possessing high quality and marked character. The common Bullace is a less promising subject, but it is in itself quaint and pretty as a dessert fruit, and might repay the trouble of crossing with the Golden Drop. Even the poor despised Sloe would furnish an importantly instructive experiment in showing to what an extent the austerity of its wild produce would be modified by the influence of a rich and saccharine garden Plum.

I do not think much deliberate crossing has been done with the Cherries. A few subjects of well defined races might be crossed together. The Morello produced sterile seedlings when experimented upon by Andrew Knight, yet I cannot help thinking that further trials might meet with success, or at any rate verify a result. I need hardly say that to a really scientific mind the verification of an experiment, or the setting at rest of an old doubt, is a gratification of the highest order.

After the fruit-tree question, of which I fear you must be almost tired, we pass naturally to the shrubs. Are our small fruits incapable of further improvement? Not while red Currants are sour, and—I now address myself to an especial audience,—Men of Lancashire, I call upon you to produce an eatable prize Gooseberry. Red Currants still obstinately persist in being acid, although they were once worked at by a master hand; but a few generations under the care of the hybridist would undoubtedly improve the Gooseberry in flavour as well as in size. Your huge Lancashire Roaring Lions might be made rich with the honied juices of the old rough green, red, and yellow berries, and the "unsapid" pachydermatous, prize-taking monster might become a mouthful for a prince.

I had prepared, gentlemen, materials for carrying out far more fully my intention in treating of this subject. Time flies, and I have only got to Gooseberries.

So now I will bring my fragment, for it can perforce be no better, to an abrupt conclusion. I hope I have inculcated an important principle, to wit, the getting out of a rut; and I wish all good fortune and success to the bold traveller in untrodden ways. *R. T. Clarke.*

P.S. There is no earthly reason why we should not cross the Pine-apple.

Rev. S. R. HOLE entered a protest against some of Major Clarke's statements, and considered that florists had more reason for congratulation than for despondency.

Major CLARKE, in reply, created some amusement by stating that he entirely agreed with Mr. Hole.

Mr. SAUNDERS considered that there should be no such thing as resting in horticulture; continued progress must be aimed at.

Mr. D. T. FISH stated that we still wanted a good white and a good yellow Perpetual Rose.

METEOROLOGICAL TABLE FOR THE QUARTER ENDING JUNE 30, 1869.

Observed at Weybridge Heath, Surrey. Lat. 51° 21′ 18″ N.; long. 0h. 1m. 46s. W. 150 feet above mean sea level, on the Lower Bagshot sand. Soil and subsoil fine sand.—By W. F. Harrison, Esq., F.M.S.

Mean pressure of dry air reduced to 32° at sea level.	Highest temperature of the air in the quarter.	Lowest ditto.	Range of temperature in the quarter.	Mean of all highest.	Mean of all lowest.	Mean monthly range of temperature.	Mean daily range of temperature.	Mean temperature of the air.	Mean temperature of the dew point.	Mean reading of thermometer in sun's rays.	Mean ditto on grass.	Mean temperature of the earth.		Mean elastic force of vapour.	Mean weight of vapour in a cubic foot of air.	Mean additional weight required for saturation.	Mean degree of humidity (complete saturation = 100).	Mean weight of a cubic foot of air.	Wind.					Mean amount of ozone (Schönbein's scale)	Rain.		
												One foot deep.	Two feet deep.						Mean estimated strength (0—6).	Relative proportion of N.	E.	S.	W.		Mean amount of cloud (0—10).	Number of days on which it fell.	Amount collected.
Inches.														Inches.	Grains.	Grains.		Grains.									In.
30.005	90°.25	27°.75	62°.50	63°.71	42°.97	50°.00	20°.74	51°.67	46°.28	102°.98	39°.74	55°.71	52°.63	.320	3.7	1.3	74.9	537.8	1.05	18	8	13	3.7	2.93	5.66	37	6.6

ON THE TRAINING OF GREENHOUSE AND STOVE SHRUBS FOR EXHIBITION.

THE architecture of a tree or shrub is a very deceitful subject to deal with, for when the various dimensions of the bole, the limbs, and the twigs are accurately measured, the gnarled Oak, with all its forks and bends, will be found to represent a sugar-loaf shaped piece of timber—a perfect cone, tapering from its collar at the ground to its topmost twig; thus a bole of 12 inches diameter would give two limbs of about 8½ inches diameter, and each of these limbs would give two branches of about 5½ inches each, and so of the spray and twigs.

The area of the section of the bole, say 12×12×.7854= 113 square inches.

The area of the section of the two limbs, 8.5×8.5×.7854= 56.7×2=113 square inches.

The area of the section of the four branches, 5.5×5.5×.7854 ×4=95 square inches nearly.

Whilst the apparent bulk of the branches is greater than that of the bole, the area when accurately calculated proves that they are less, and that the tree is consistent throughout, and not the top-heavy article we might take it to be.

The outlines of trees and shrubs are therefore by no means a random affair, but are regulated by fixed rules. In the lower orders of the vegetable kingdom the same accurate details may be made out, for if you find with a pair of compasses the centre of a Mushroom of only three days' growth, the circumference will be found to coincide with the line drawn by the other leg of the compasses; but besides the semi-globe and the cone, we have among the ever-varying forms of plants such outlines as the ellipse and the spindle. The cone, whose outline would be an equilateral triangle, will always be a pleasing outline, as it is always a perfect one; standing on its base it gives an elegant pyramidal shape to bush or tree, with or without bole or trunk, and mounted on its apex it gives a charming picture when open as an amphitheatre—and in the case of a tree or shrub, a chalice-shaped outline with a flat top and a stem more or less elevated. The architect gives reasons for his arch and its key-stone, and for his pedestals, columns, and capitals, hence a column is styled light or heavy, slender or massive, according to the number of diameters which go to make its height—custom or caprice have nothing to do with these dimensions, they are regulated by fixed rules.

It is the peculiar character of a vast number of trees and shrubs that their flowers sit upon the twig and form tiers, for if you look into a Cedar of Lebanon, its graceful cones will be found all seated as on a carpet of the loveliest green. The Horse Chestnut is perhaps the finest flowering tree which we possess, yet at whatever angle the branch rises from the limb of the tree the flowers, like great trusses of Hyacinths, are all upright, whilst the foliage is never so. The wild Rose in the hedge bank rambling over some stunted Thorn sets a pattern to all posey builders and plant trainers; the queen of flowers is mounted on the tip of a pretty little spur, with three or four short pinnated leaves by way of carpet, and these are all set and clustered with an eye to beauty, on long slender wands, gracefully bent. With such elegant models every day before our eyes, one feels outraged to see collections of greenhouse Azaleas and the like bound limb and twig to iron stays, to give a stiff outline, such as is never seen in any of Nature's grandest displays, and, what is worse, bearing no family likeness to the distinctive character and outline of any Azalea whatever. Imagine, if you can, a specimen Fuchsia with every flower tied up or out, or to the right or to the left—in short, any way, excepting always being allowed to hang down—and you will easily comprehend what an outrage it is upon other plants to have their distinctive characters destroyed, as if the tying up of Flora's train would make her look more graceful. Trees and tree-like shrubs have natural supports, and should not depend upon either props or other plants for their standing; or if they must have supports, it will take very clever handling to put them in and avoid detection. As the poet has said of satire, so we may well say of these—

> "Satire should be like a razor keen,
> Wound with a touch that's scarcely to be seen."

The fact of such a twiner as the Hop coiling itself round its pole, like some serpent embracing the victim it would destroy, tells clearly that Nature meant it to borrow its support from some sapling in the jungle where it was located; but the Hop does its best to hide the prop it leans upon. Plants for exhibition are usually tied to shapes or frames some little time before they come into flower, so that they may make a grand effort to right themselves, and throw up their blossoms in one unbroken sheet. This glare, unrelieved by the natural foliage, looks just like some red mantle laid on a bush to dry. The leaves of a tree or shrub are things never to be ashamed of, for surely it is the combination of light and shade that makes the picture. Take the lock of raven hair from the lovely countenance, and see the loss—and it is this baldness that I complain of.

Nature usually places the flowers of greenhouse Azaleas, as well as the flowers of other showy greenhouse shrubs, in tiers or stages, or, as before stated, sets them up on their twigs, and the flowers follow one another, rank behind rank; but at our exhibitions I observed that all the flowers are thrust to the front, and stand as if they were poverty-stricken, in single file. In the worst forms of what is termed "facing," splendid specimens were seen growing on their trellises, all flower, without a leaf to be seen, like great red aprons bulging towards the beholder: these, I am happy to say, are fast disappearing.

Our exhibitors of this class of plants will hardly credit the fact that they have got down to the stiff clipped style of the Yew and Holly hedge of our forefathers, but the massive character of the hedge, strong in its supports, could bear the insult better than the plants in question. All specimens have a style: the Oak is a mushroom-shaped tree, and looks best in that character, and cannot part with its congruity; even its gouty fork, its knotty twisted grain, are all ornaments, for that is the style of the "British Oak."

In like manner specimens for exhibition should not be taken out of their own natural shape or style, and put into artificial shapes that do not become them. No one is to blame in this affair, for it has been creeping in upon the exhibitor for the last 30 years. In order to effect a cure the manly good sense of the judges will be required to decide a few cases of the best specimens exhibited in the characteristic style of the plant, and if the plant has leaves as well as flowers, let them appear also on the stage. *Alex. Forsyth.* [Hear! Hear! "Consult the genius of the *plant* in all." EDS.]

Home Correspondence.

Prunella grandiflora.—This lovely gem, which is now to be seen in flower in the newly-formed herbaceous border in the Royal Horticultural Society's Gardens at Chiswick, is one of the many charming subjects to be found in the great but now almost neglected family of herbaceous plants that cannot be too highly praised, or too much recommended for general cultivation. It was introduced into this country from Pennsylvania about the year 1801, but, as it is now so seldom seen, I fear it is all but lost. It grows freely to the height of 2 or 3 inches, is perfectly hardy, and throws up an abundance of densely spiked heads (about 1 foot in height) of deep bluish-purple flowers; and continues in bloom about six weeks. The heads of flowers are about four times the size of those produced by P. vulgaris (the common Self-heal of the British islands), and when seen in a mass—though it be but a small one—they are beautiful and attractive in the extreme. The plant is admirably adapted for front rows, or for massing in mixed borders; and I doubt not but that if it were tried it would prove an invaluable acquisition for the decoration of the flower garden in general. If any of your correspondents have tried it for this purpose I should feel grateful if they will kindly give their experience through your columns, as any information respecting the cultivation of this beautiful plant, or any of its fellows, cannot be too well made known. It is sometimes called P. Browniana, P. pennsylvanica, and P. pyrenaica, but P. grandiflora is the correct name. *W.*

Roses.—When "D., of Deal," was here on the 22d of June, he highly recommended to me the Duke of Edinburgh, Elie Morel, Mdlle. Thérèse Levet, and Vicomtesse de Vesins, the 2d prize seedling at the

aris Exposition. The description given by "D., Deal," nd others, of the forthcoming seedlings, foreign nd English, is not very encouraging. The fact is, ew Roses are brought before the public before they re fit for it. Till they are got upon strong stocks ney do not come out in their true form; hence com- ents upon them are little better than worthless. It kes two or three years here to prove a Rose oroughly. My advice to purchasers of new Roses is, ate your requirements to your approved nurseryman, nd ask him to send you what he believes to be the est. He does not know much about them, but he nows more than you do. I propose to name the best oroughly proven Roses here, beginning with 1860-61. hose Roses italicised are beautiful Roses for garden rnamentation, but they are either hardly large enough, r they are not full enough for exhibition. The others re all exhibition Roses. In 1860-61 I gained these ne Roses—Charles Lefebvre, Maurice Bernardin, rince Camille de Rohan, Maréchal Vaillant, Madame outin, Madame Julie Daran, Vicomte Vigier, and *ouvenir de Comte Cavour*. That was the best haul I ave ever had in one year. The next year I gained ohn Hopper, Lord Macaulay, Baronne Adolphe de othschild, Lord Clyde, and Sœur des Anges. I do ot know the dates of some of the following, so I place em as they occur to me—*Baronne de Maynard, ouvenir du Dr. Jamain, John Keynes*, Alfred Colomb, Madame Emile Boyau, Lady Suffield, Baronne elletan de Kinkelin, *Madame Clémence Joigneaux, chille Gonod*, both inelegant in the fore part of the eason, but very fine in the autumn; Madame Victor erdier, Duchesse de Caylus, Marie Baumann, Mar- uérite de St. Amand, Pierre Notting, Prince e Portia, Paul Verdier, Rushton Radclyffe, r. Andry, Léopold Premier, Abel Grand, Mdlle. larie Rady, Felix Genero, and Madame la Baronne e Rothschild. These I do not possess, but I know em perfectly, from having seen them in other ardens; they are very good—specially the last Rose. rincess Mary of Cambridge, and the two Tea Roses Madame Margottin and Adrienne Christophle) quite istinct and very beautiful. The whole of the above, bject to what I have said, are a splendid lot. I o not address the above to old Rosarians, but to ersons who wish to know the best Roses of late ears. I will now advert to a few Roses that are ccasionally fine, but they have generally a serious ault, which I place after their names:—Charles Verdier does not bloom freely), Antoine Ducher (subject—7 out of 20—to a tuck in the side), its growth, foliage, nd individual petals are first-rate. The English isers of the following five Roses deserve great credit: -John Hopper, Lord Macaulay, Lady Suffield, Lord lyde, and Emile Boyau. The French deserve also reat credit. It is common to hear the English people enominate the French novelties "rubbish," but they ttle know how difficult and laborious it is to raise a edling Rose at all, and how still more difficult it is to ise one as good as the parent! Finally, I wish the isers of Roses would try and cross one of the yellow oses with the Austrian copper. We want also (all ybrid perpetuals) a good full-sized white Rose, a true urple Rose, a golden yellow Rose, and a variegated ose, marked like Œillet Parfait! These are hard nuts crack. I will make the shells harder still: I want em folded like W. Griffiths. *W. F. Radclyffe.*

The Late Dr. Ecklon.—In your issue of the 9th December last you give some particulars about he late Dr. Ecklon, extracted from the *South African dvertiser*. Allow me to say that the whole is taken om an article of mine, published, shortly after my eturn from the Cape of Good Hope, in Newman's Phytologist," and subsequently in the "Bonplandia," ol. v., p. 353. The facts I gathered from Dr. Ecklon's wn lips. I found him at that time (1851) living in reat indigence at Capetown, whilst his old colleague, eyher, was very well off. In the same paper I ublished biographical notes on the late M. Zeyher Ecklon's travelling companion), and these were btained from M. Zeyher himself. These two zealous xplorers were then old men, and had I not taken the recaution of gleaning a few particulars about their fe, the future historian of botany would have no eliable notes to write from, as I have never seen ny other or fuller sketches about them than those made public. *Berthold Seemann.*

Early Rose Potato.—Believing that your subscribers ay like to hear of the produce of Early Rose Kidneys, send the following account o. 3 lb. purchased in larch last:—1 lb. was cut into 68 pieces, and planted n April 7, 18 inches apart, in a well-manured plot; very eye germinated, and on July 6 the produce was 7 lb. 14 oz. Nearly the whole of these were good nerchantable Potatos. This plot was carefully raked p, so as to keep the earth well round the plants, and eceived liquid-manure four times during the season. lb. were cut into 79 pieces, 76 of which were placed n another plot at 50 yards' distance; they were planted n April 15, at 15 inches apart, and never earthed-up r watered. They were dug on July 6, and gave 19 lb. 7 oz. These were a much finer sample, and robably the best Potatos ever grown in this island: 43 of these Potatos weighed 75 lb. 1 oz. I have still, rom this 3 lb., eyes in the ground receiving different reatment, but not yet fit for pulling. It is decidedly a ery early, quick-growing Potato, and I consider it a reat acquisition. I shall be happy to reply to any nquirer as to the method of manipulation. *R. E. Knatchbull. Col. R.A., La Folie, Milbrook, Jersey.*

Large Rhododendron.—Under this head may be nentioned a plant of Rhododendron ponticum, grow- ng in the pleasure grounds of The Warren House, Stanmore, the seat of Charles Keyser, Esq. This plant, which measures 90 feet in circumference, and 14 feet 5 inches in height, was planted about 18 years ago at he junction of two walks, and was at that time quite mall. It was planted in the natural soil, which is of a sandy, gravelly nature. The place where it is planted formed at that time part of the wood. About five years ago the pleasure grounds were greatly enlarged, and the part containing this Rhododendron added to them. The trees and rubbish which had before interfered with its growth were cut away, and it was itself much reduced in size by having all the long branches cut off, which marred its symmetry. It is now a splendid specimen, and when in bloom presents a most attractive appearance. *Thos. Perkins, Gr., The Warren House, Stanmore.*

Death's-head Moth.—A large specimen of this moth was lately brought in by one of our cats. My sister had great difficulty in getting it away from its captor, but at last succeeded in doing so. The moth appeared much injured, but in the attempt to introduce it under a glass, it struggled away, and made its escape through the open window. The cat was quite as unwilling to part with its prey as if it had been a mouse or small bird. *S. Bevan Fox.*

Variegated Zonal Pelargoniums.—Observing in your impression of the 17th inst. a letter from Messrs. F. & A. Smith, with regard to a plant of Jetty Lacy, which I exhibited at the late Regent's Park Show, I desire, in face of the allegations contained in it, and the rather strong editorial remarks which preface it, to offer a few remarks. Messrs. Smith, if they had put their suspicions in plainer language, would have been understood to insinuate that the plant I exhibited on the occasion in question was nothing more than the produce of the cutting which they say they lost three years ago. Now, I may at once say that had Messrs. Smith's knowledge of the plant been a little more extended they would have known as well as myself that my plant bore no comparison with the one which they call Jetty Lacy. In fact, my Jetty Lacy is no more Messrs. Smith's Jetty Lacy, than is Messrs. Smith's Jetty Lacy my Jetty Lacy. I cannot put the contradiction in plainer language than this. Surely I have as much right to call my plant by the same name as theirs, as they have to call any plant of theirs after my Achievement. It is somewhat remarkable that gentlemen who profess to know so much of this new race of plants, and who write long essays in competition for prizes [a mistake], should be so deplorably ignorant of the subject-matter they are dealing with, and yet rush into print, to the annoyance of respectable nurserymen. As old growers, it is a matter of surprise, as well as of regret to me, that their knowledge should be so limited that they should not have been able to distinguish the difference between the plants exhibited by them and by myself, and I can only say that I shall be very happy to show them the points in the plants, and the great difference there is between the two specimens. I cannot, however, help expressing an opinion that they would find their time better occupied in seeking to increase their knowledge of the Pelargonium, than by writing letters to the world in criticism of the doings of mere novices in the business. *John Stevens, 4, Ealing Terrace, Ealing, W.* [We must leave Messrs. Smith to defend their own cause: our point was to urge the necessity of stricter supervision at flower-shows, so as to prevent the possibility of such dishonest occurrences as are alleged, on good authority, to have taken place. We question the right of any grower to make use of the same appellation for two different varieties. The rule of priority must be observed, as is done by botanists, else endless confusion will arise. Messrs. Smith had prior claim to the use of the name Jetty Lacy, and if Mr. Stevens' plant differs, aa he says it does, it should certainly have a different name. Eds.]

Rose Blairii No. 2.—If your correspondent "J. E. G." (p. 765) wishes to make the most of this Rose, he should fix four poles in the ground at the necessary distance from the stem, and fasten the whole together at the top; they will consequently form a pyramid. Some wire fixed from pole to pole horizontally will give it the appearance of so many ladders, to which the Rose may be trained up and down, bringing the strongest shoots downwards. For neatness' sake your correspondent may substitute iron rods for the poles. Another plan is to fix a stout pole in the centre, fasten the necessary number of wires at the top of it, and again at the bottom to short stumps driven into the ground for the purpose. Any simple method of training will suit well, for the reason stated by Mr. Radclyffe, that it dislikes the knife. We have a Gloire de Dijon here budded on a Briar 4 feet high, which was a great trouble until we trained it umbrella fashion, which we do annually, and thin out the wood. *W. P. R., Gr. to the Marchioness of Salisbury, Holwood, Bromley.*

Preserving Asparagus.—I beg to submit to you the following plan of preserving Asparagus, which may not be known to many of your readers, and I think they will not want another:—Tie it in bunches, and place it in pans of water in an inverted position, *i. e.*, with the edible part downwards. Light has no effect on it in this way, and there is not the least distension of its parts. *W. P. Roberts.*

Dasylirion Hartwegianum.—A specimen of this very rare plant, which I think is only known at the Royal Gardens, Kew, with the exception of a few plants (three or four) that I imported last year from their native habitat, is now showing a flower-spike in my establishment. Although my plant is very old and extra strong, yet it is the first time it has shown signs of bloom. I should be glad to know whether the specimen at Kew has flowered, and to have a few particulars about it. *Jean Verschaffelt.*

The Digswell Fernery.—In your correspondent's notice of the fernery at Digswell (p. 767), after describing "minute grotto-like cavities and very fair imitations of felspar," he says "the whole has been formed by the artist with Derbyshire sandstone and cement." Now, as this may mislead many who do not see it, I merely mention that it is formed entirely with burrs faced with calcareous tufa (from Matlock), of which the Rev. G. E. Prescott bought many tons for this express purpose. Taking great interest in the construction of rockwork, I think it desirable that an error like this should be corrected, for tufa is no more like sandstone than granite is like slate. *George Glenny, Fulham.*

Old English Names of Plants.—The names of plants vary considerably in different localities. In some the old names are in general use. Some of the names are also found in catalogues of the Linnean system of Botany; and even designate families of plants, though their origin often seems obscure. But without entering into minute details respecting these, I will merely observe, that the names of our wild plants seem to be derived from the various sources of our common language. I will give a few illustrations of plants distributed in twos and threes. Aconitum Napellus (Monk's-hood), and Rhinanthus crista galli (Yellow Rattle). The upper part of the first somewhat resembles a monk's cowl; the other a small yellow Cockscomb, the ripe seed of which rattle in the capsule or seed pocket. There is a satisfactory meaning in both names Lamium purpureum (Archangel), and Lamium amplexicaule (Henbit):—these well-known weeds are of a kin, though their names differ, not without reason. Formerly plants were named without any reference to kindred, and when collected into families some of them retained their old names, however strange they now appear, as that of Archangel, the family name of the Lamiums. But the ancients used such names, to distinguish the difference of the virtues of plants, for instance the garden Angelica is called Archangelica, from its possessing greater virtues than the silvestris (wild Angelica). Henbit would seem to come from the bluntness of its leaves as if bit off by a hen. The origin of the next is clear enough, Narcissus Pseudo-Narcissus (Lent Lily), and Hypericum calycinum (St. John's Wort). The first blooms during Lent—hence the religious name, the common being Daffodil; the other blossoms about St. John's Day, the 24th of June. There are many other native plants, the names of which show clearly that they were connected with the saints and ancient festivals of the Church; but there are others with names which certainly do not belong to old English botany,—for instance, Ascyrum Crux Andreæ (St. Andrew's Cross), and Symphoria glomerata (St. Peter's Wort), both from North America. The early French settlers may have given them these names; the one from its resemblance to the cross of St. Andrew, the other from its blossoming in August, on the first of which is the Feast of St. Peter's Chains. Again, Aster Tripolium (Sea Star-wort), found only in saline places, and which blooms in August, is the only native species of the numerous family of Michaelmas Daisies. The time of its flowering does not accord with that of the feast of St. Michael. Perhaps the name is of recent origin, from the resemblance of the cluster of Daisy-like flowers to those which bloom in October. The next, however, are very clear—Viola tricolor (Trinity Flower), and Clematis Vitalba (Virgin's Bower); which is also called Lady's Bower. The origin of the first is evident, though it has other quaint names, as Three Faces under a Hood, Heartsease, Garden Gate, and Pansy. This latter is derived from the French, Pensée, but is used only partially in this country. Traveller's Joy is the common name of the Virgin's Bower. It blossoms in July, when the Feast of the Visitation occurs, and is in fullest blow at the Assumption in August, which accounts for the name of Virgin's Bower. Formerly the plant was used to make bowers; hence some contend that in this case Lady means Maiden. Alchemilla vulgaris (Lady's Mantle), and Spiranthes spiralis, Lady's Traces: these are certainly named in honour of the "Blessed Virgin," and old writers mention them like Lady Day, besides it is so in that of Lady Fern (Filix-fœmina and Thelypteris). I may observe, that plants frequently had male names, and sometimes both, as in "Ladies and Lords" (Arum maculatum). They seem to have been so called from the bright colours and beauty of their fructification, but such names were usually given without reference to the sex of plants. Some plants have Jewish names, Convallaria verticillata (Solomon's Seal). The flower is like a small seal, while the leaves of the flower-stem are arranged like steps, hence its other name, Jacob's Ladder. The next two are Coix lachryma (Job's Tears), and Atropa Mandragora (Mandrake). Although this is mentioned in "Holy Writ," it seems doubtful what was really meant by Mandrake, which is eatable, while the one named is akin to our poisonous deadly Nightshade (Atropa Belladonna). Job's Tears is a species of rather tender Grass, but why it is called so seems hopelessly obscure [the hardness of the seeds]. There are some Pagan names, such as Venus' Looking-glass, so named from the glossy seeds, and though sometimes found wild, it comes from the East, and does not belong to British botany, like that of her comb, Scandix pecten (Shepherd's Needle, Crake's Needle), so called from the needle-shaped seeds, which are arranged like the teeth of a comb. Pliny calls this umbelliferous plant Scandix. I mention these in particular, because some persons have blamed the Puritans for changing Lady's Comb to that of Venus', in order to suit their peculiar religious views. But Gerard, who wrote before their time, calls the plant Venus' Comb, along with its various names; he observes, however, that it is called Ladies' Comb in high Dutch or German. Dionæa muscipula (Venus' Flytrap), a singular hothouse favourite, which is of too recent introduction to have caught the eye of a "Roundhead;" and respecting his Paganism, there was a leaning to that long before his day. But I mention this more in a botanical sense than that of the old herbalists who mixed up their nostrums and notes on the virtues of herbs with astrology. For instance, Culpepper when speaking of Solanum Dulcamara (Bitter-sweet), says that "Amara dulcis is under the planet Mercury, and a notable herb of his also, if it be rightly gathered under his influence. It

is excellent good to remove witchcraft both in men and beasts." Need I say that such trash bewitches many silly heads even now, and is a bar or hindrance to more enlightened medical science. To meet such prejudices druggists vend drugs as being the essence of herbs, though some of these contain most deadly poisons. Adept poisoners often use such, because vegetable poisons are less easily detected after death than mineral ones. Plants the name of which end in bane are pernicious, even though the larvæ of some insects feed upon their leaves, and humble bees frequent the flowers; for instance, Wolfsbane, Henbane, and the dreaded Deadly Nightshade. *J. Wighton.*

Foreign Correspondence.

Spring Vegetation in South-Eastern Spain (*concluded from p. 766*).—At Cordova and at Seville, both on the Guadalquivir river, latitude 37°, the same climatic and vegetative conditions appear to prevail as on the south-east coast. The Date Palm is seen here and there, grown for ornament, not for fruit, which no doubt does not ripen. Orange trees grow splendidly in courtyards and gardens, protected by high walls from the north winds, as in the Orange court of the Cathedral and the gardens of the Alcazar at Seville; but they are not seen in open, unprotected spaces, exposed to the north. In the public gardens, which are numerous, I found (May 11) the garden weeds everywhere a month earlier than in the North of Europe, but there was very little, if any, evidence of immunity from cold nights and cold winds in winter. There were Bengal, monthly, and common white Roses, but few hybrids or Teas, Delphiniums, Hollyhocks, Verbenas, Phlox, Geraniums, Aquilegia, white Lilies, Carnations, Thlaspi, Sweet William, were to be seen, but no Lantanas, Abutilons, Daturas, Wigandias, winter Salvias, &c. Indeed, the gardens must be nearly as naked in winter as our own—the more so as the trees grown are nearly all deciduous, meant for summer shade. Clearly, the inhabitants of these regions accept the winter as winter, and have no notion or wish to escape from its influence on the landscape by planting evergreens. The very summer-like look of the Genoese Riviera is owing to the fact that the extremely complete protection from northerly winds admits of a southern evergreen vegetation—Olives, Lemons, Oranges—which exists all but alone.

I was much disappointed with my next station—the much vaunted Malaga. It is a close, confined Spanish commercial seaport, with 80,000 inhabitants, packed into a very small area, the streets being from 5 to 10 feet wide only. The port is dirty, the shore contaminated with all kinds of filth, both inside the town and for some distance from it. The hotels are gloomy and dingy, and situated on a miserable promenade—the only one in the town. This, the Alameda, is merely 300 yards long, by 40 broad, planted with double rows of mangy, deciduous trees, Elm, Acacia, Sophora japonica, Paradise and small Planes, so that in winter it must be quite naked. There are some noseless busts, and any amount of mendicants and gutter children. This is the resort, the solace, of the poor invalids condemned for their sins to winter here.

The only garden within three miles of the town is the English cemetery, on a bu.nt-up hill-side, where even the Pelargoniums had scarcely any foliage, owing to the long drought—merely a few terminal leaves and flowers. Here at last there really was the evidence of a very mild southern winter, such as we have at Mentone, in the presence of Lantanas, Bougainvillea, Carouba, Schinus molle, Carnations, Aloes, &c. But the evidence of exceptional winter mildness was still more marked in a garden belonging to an American gentleman, Mr. Loring, about 3 miles from the town, at the base of the mountains which, rising due north behind Malaga to a height of 3000 feet, protect it thoroughly from northerly winds. Here I found, in full flower, Euphorbia jacquiniflora, Russelia juncea, Lantanas, Abutilons, Habrothamnus, Salvia Horminum, gesneraeflora, Bouvardia flava, Erythrina crista galli (Coral tree) Gaillardia, Pittospermum, &c.; indeed the same winter flowers and vegetation as at Mentone. I may here add that Malaga is the only place in Algeria or Spain where I found the same evidence of winter mildness or early immunity from cold as exists on the Genoese Riviera from Nice to St. Remo. The winter climate of Malaga must be splendid, but the social and sanitary conditions are vile, so bad as entirely to neutralise the climatic advantages, unless one could have Mr. Loring's house or a similar one, miles from the town.

From Malaga my route to Grenada led me over the mountains to the north. They are schistic in formation friable, and water-worn into innumerable sugar-loaf cones, the sides of which are everywhere planted with Vines. These Vines are cut down to the stumps annually, and at the time of my visit (May 14) were just sprouting, so that the hill-sides, at a distance, seemed covered with Grass. The Vine-clad hills spoke of a rich wine country. As we ascended, the Chamærops humilis, the Genista, Cytisus, and Mountain Lavender, showed themselves as usual in such soils. We left the thermometer at 72° at night, 78° in the day, at Malaga, to find it three hours later, at an elevation of 3000 feet only, 55° at 10 o'clock, with a cold wind. Ilex, Cork Oak, cereals, and Vines continued to occupy the ground, until we descended to limestone rocks and soil, and where Olives, Figs, Caroubas, Mulberry, &c., reappeared, with luxuriant ground crops, and near water Lombardy Poplars, White Poplars, and Willows. This is the character of the luxuriant irrigated valley around Grenada which repeats at an elevation of about 2000 feet the fertility of the Murcian and Valentian lime valleys. There is more general verdure, however, for it really does rain in the province of Grenada, so that cultivation does not depend entirely on irrigation. It rained heavily while I was there.

On the return journey I visited Madrid, which is interesting botanically and horticulturally. Situated in the middle of the central plain of Spain, Madrid is about 2000 feet above the sea, in latitude 40°. It is interesting to actually see on an extensive scale how elevation neutralises latitude. Judging from the vegetation, the winters and spring must be nearly as cold as they are in England, although the summers are much hotter. When I was there (May 18) there were but few spring flowers in the public gardens, and the planting-out of Pelargoniums, China Asters, Heliotropes Verbenas, &c., had but just been completed. There were Stocks, Pansies, Delphinium, Sweet William, Aquilegia, Eschscholtzia, Silene, Antirrhinum, in the gardens, in flower or coming into flower. The deciduous trees (there were few others) had just made their new leaves. I here found the names of several other ornamental trees which I had seen in other parts of Spain without being able to obtain their name. The following were growing at this elevation as large trees:—Cercis siliquastrum, Ailantus glandulosa, Celtis australis, Pinus maritima, P. halepensis, Robinia pseudo-Acacia, very commonly used all over Spain as a town tree, no doubt from its doing well without water; the same may be said of the Sophora japonica and of the Melia azedarach, Celtis occidentalis, Tilia intermedia, Gleditschia triacanthos, Negundo fraxinifolium, Broussonetia papyrifera, Acer pseudo-Platanus, Acacia Farnesiana, Prosopis siliquastrum, Platanus occidentalis, Duvaua dependens, Gymnocladus canadensis, Robinia umbraculifera, Cedrus Libani, Populus canescens, Acer campestre, Cupressus horizontalis, &c. The soil at Madrid is silicious; the great mountains which rise to the north to a height of 5000 or 6000 feet being granitic. The railway from Madrid ascends above 4000 feet, into an alpine country thickly wooded with Coniferæ and Oaks, (beginning in May) to send forth their leaves. The north winds from these snow-covered mountains contribute much to embitter the climate of Madrid. On their north slopes, and as we approach the sea and the Pyrenees, the peculiar features of Central and Eastern Spain as a southern, rainless, treeless country, with warm shores, and cold, high central plains, ceases. We are once more in mid or northern Europe.

In concluding these letters on spring and winter in Algeria and Spain, I must repeat what I have already stated *passim*,—that I nowhere found evidence, from vegetation, of as great an immunity from winter cold as in the more sheltered points of the Genoese Riviera, with the single exception of Malaga. Both in Algeria (a mere Switzerland, exposed in winter to moist north winds), and on the coasts and the lowlands of Spain, however, I constantly found the evidence from vegetation of a greater amount of summer heat. The result of my survey of these two regions is, that full protection from the north, and exposure to the southern sun in winter, more than compensates for four, five, or six degrees of latitude, without that protection and without that exposure.

Even in our own country I think an English moral may be drawn from my tale. I think the facts stated prove that exposure to the south and ample protection from the north is not sufficiently thought of, or sought for, in our houses and gardens. And yet by attending to these points probably the effects on both human and vegetable health and life of northern cold might be much mitigated. *J. Henry Bennet, M.D., Grosvenor Street, June*, 1869.

Societies.

Royal Horticultural: *General Meeting at Manchester, July* 20.—W. Wilson Saunders, Esq., in the chair. The Rev. J. Dix and G. F. Wilson, Esq., severally reported the proceedings of the Floral and Fruit Committees, after which the chairman made a few observations on some of the more interesting subjects brought to the show. On the recommendation of the Floral Committee a Silver Medal was awarded to Mr. W. G. Dixon, of Beverley Nurseries, Hull, for a magnificently grown mass of Anæctochilus Lowii; and a similar mark of appreciation was given to a finely bloomed example of the new white Ixora, named Colei, shown by Mrs. E. Cole & Sons, Withington, and to a noble mass of Alocasia Jenningsii, from Mr. Stevenson, gr., Lark Hill, Timperley. The following new varieties of British Ferns received Certificates:—From Messrs. Stansfield & Son, Todmorden: Polypodium vulgare elegantissimum, apparently the same as cornubiense and Whitei, a remarkable Davallia-like specimen Lastrea montana crispa, Blechnum Spicant projectum furcans and lancifolium anomalum, and Athyrium F.-f. Stansfieldii, first-class; and Athyrium F.-f. Staleyi, second-class. From J. E. Mapplebeck, Esq., Moseley, near Birmingham: Asplenium marinum ramosum Claphami; A. trichomanes incisum Claphami; Athyrium amœnum, Craigii, eulophos, Mapplebeckii, furcillans; Blechnum Spicant Mapplebeckii, a charming cristate form; Polypodium vulgare semilacerum robustum; Scolopendrium vulgare hemionitoides, crispum latum multifidum, and semipinnatum, first-class; Scolopendrium vulgare Gloveri, spirale nanum, and peraltero cornutum, Polypodium vulgare kraspedomenon, and Lastrea F.-m. foliosa, second-class. From E. J. Lowe, Esq., Highfield House, Nottingham: Scolopendrium Victoriæ, cuticulare, rugosum Bellairsiæ, tridentiferium optandum, poluklonon, thusanasson, gloriosum, marginato-undulatum and decorum; Asplenium marinum capitatum and imbricatum, Polystichum angulare lineare laxum, coronare, oxyphyllum Elworthii, and laudatum, Athyrium F.-f. Fraseri, amœnum, Hookeri, and Edwardsii, all first-class.

On Wednesday, July 21, the distribution of prizes to the successful competitors was made by the Mayor of Manchester, in the absence of his Serene Highness the Prince of Teck. The Mayor, in a brief speech, apologised for the absence of the Prince of Teck, who had been announced to distribute the prizes, but who was unavoidably absent: as was also the Duke of Buccleuch, who was in attendance on his Royal Highness the Prince of Wales. Mr. Wilson Saunders, on behalf of the Society, tendered its best thanks to the Mayor, who, in acknowledging the compliment, congratulated the Society on the successful exhibition held in Manchester, which was perhaps one of the most interesting hitherto held. On their next visit to this neighbourhood, he trusted they would be able to surpass the present brilliant display, for horticulture was a progressive science, and he felt assured that the members of this Society would continue to emulate one another in the culture of what was beautiful as well as useful.

Horticultural Congress: July 21, 22.—On the first day the Duke of Buccleuch took the chair, and after the formal business had been disposed of, the reading of the papers announced at p. 762 was proceeded with—Mr. Cramb leading off with his suggestive paper on the influence of soil on Grape growing. Some of the papers elicited an interesting discussion. Three of these essays are printed in the present issue, and the remainder will be given hereafter.

Great Show: July 19—24. — This exhibition was opened at Old Trafford, a suburb of Manchester, on Monday last, and terminates this day. This being the third visit of the Society to the provinces, and each of its former shows having been very successful, the present one was naturally looked forward to as being likely to prove even more successful, considering the great reputation of the local exhibitions held in the "Cotton Metropolis." The arrangements can scarcely be said to be so complete and convenient as they were at Leicester, as the entrance to the show ground is at a considerable distance from that of the Royal Agricultural Society, though the two exhibitions join each other. In the centre of the selected site is a large circular tent, containing the plants staged in competition for the great prize of the meeting, viz., for the best group of 20 foliage and flowering plants, a prize won rather easily by Mr. Baines. To the right of this tent is a long one, with staging running up the centre—the entire length—containing the vegetables, and which is filled with as fine a display of culinary subjects as could possibly be wished. We pass from here through another long tent, that contains the general collections of stove and greenhouse plants and other subjects, to the one in which the fruit is staged, and we may here remark that this is the most effectively arranged one on the ground. Two other tents run parallel with the latter, the one containing new and rare plants and Orchids, and the other filled with large groups of plants that are usually denominated "florists' flowers." At the entrances of most of the tents groups of hardy shrubs and Coniferæ are effectively arranged. These came principally from Mr. Barron, of the Borrowash Nurseries; and from Mr. John Shaw, of Bowden, near Manchester. With these few comments we plunge into details, and commence with the stove and greenhouse plants and other subjects of a like character. As before mentioned, Mr. Baines, of Bowden, Cheshire, won the 1st prize for 20, rather easily from Mr. Dixon, of Beverley. These two collections occupied the centre of the large circular tent. The most conspicuous plants amongst them were a grand mass of Sarracenia purpurea, several fine specimens of Heaths, and a large and charmingly flowered Darwinia (Hederoma) tulipifera, &c. Several very good specimens of other subjects were shown in the various classes, but as a whole they were not first-rate. Mr. B. S. Williams was 1st for nine fine foliaged plants with a grand lot. Mr. John Shaw, of Bowden, had the best six Palms in the open class; and for four, the prize offered by the Council of the Manchester Botanical and Horticultural Society was taken, with a very good group, by Mr. M. A. Williams, gr. to J. Broome, Esq., Egerton House, Fallerfield.

In addition to the plants specially noticed above in Mr. Baines collection of 20, he had a very fine and well furnished specimen of Erica Fairrieana, about 4 feet through; a large and well-coloured Alocasia metallica; Franciscea confertiflora, a fair specimen, nicely flowered, but pale in colour; a large and finely-bloomed Bougainvillea glabra, admirable examples of Ixora coccinea, and Erica obbata; a good specimen, well coloured, of Croton variegatum, a fairly bloomed Allamanda cathartica, and a magnificent mass of Gleichenia speluncæ; Mr. W. E. Dixon, Norwood Nursery, Beverley, who took the 2d prize of 15*l.*, showed an admirably-grown and flowered Kalosanthes Madame Celeste Winans, a good specimen of Erica jubata, a nicely-flowered Clematis Jackmani, a large well-grown and bloomed Oncidium pulvinatum, Aphelexis macrantha purpurea in good condition; and Dasylirion glaucum, a well furnished specimen; the rest were very moderate. The only collection staged for the "Florist and Pomologist" prizes came from Messrs. Bell & Thorpe, Hallard Hall Nursery, Stretford Road, Manchester, who had Achimenes Carl Walforth, a very fair specimen; Petunia Miss Earle, a pretty rose-coloured variety; Plumbago capensis, and a medium-sized but handsome plant of Lantana mutabilis. In the class for 9 stove and greenhouse plants, Heaths included, Messrs. E. Cole & Sons, of the Withington Nurseries, near Manchester, came 1st, with a very fine, large, and healthy specimen of Allamanda nobilis, a splendid specimen of Kalosanthes Madame Celeste Winans, a very good Erica Parmentieriana rosea, and a similarly good specimen of Allamanda cathartica, &c. Mr. J. Bolton, gr. to W. W. Worswick, Esq., Birstal Hall, Leicester, came 2d, with, amongst others, a beautifully grown and flowered Clerodendron fallax, and a small but admirably-bloomed Rhynchospermum jasminoides, good examples of Vinca oculata and alba, and a fine specimen of Pentas carnea, &c. Mr. W. E. Dixon was 3d, showing another good specimen of Oncidium pulvinatum, and an exceedingly fine Kalosanthes, Louis Napoléon Bonaparte, and some good Ericas. Mr. B. S. Williams was 1st in the nurserymen's class for 9 fine foliaged plants, with a remarkably fine group, consisting of Cordyline indivisa, Croton variegatum and pictum, Cycas revoluta, Pandanus ornatus, Dasylirion acrotrichum, &c., all very fine specimens; Messrs. Felton & Sons, Birmingham, were 2d, with, amongst others, a large specimen of Sanchezia nobilis, not sufficiently variegated, a large and very good Alocasia metallica, Pandanus utilis Feltoni, and some very fair examples of Crotons, &c.; and

Mr. John Shaw was 3d with a collection of smaller plants, containing a small but most beautifully furnished Agave filifera, a good Dracæna Cooperi, Pandanus ornatus, and a very handsome Yucca aloifolia, &c. Mr. J. Bolton was 1st in the amateurs' class for 9 with a remarkably handsome Seaforthia elegans, and a well-grown and finely-coloured Cissus discolor, Lycopodium cæsium arboreum — a beautiful pyramid, about 6 feet in height,—and a large and good Croton angustifolium, &c. The 1st prize, offered by the City of Manchester, went to Mr. W. Cardwell, gr. to T. Hobson, Esq., Pownhall Hall, Cheshire, who had a very fine group, consisting of admirably grown examples of Erica Fairrieana and E. ampullacea major, Ixora coccinea in fine condition, fine specimens of Croton angustifolium and variegatum, a very good Alocasia Lowii, and Allamanda cathartica, in first-rate order, &c. Mr. W. E. Dixon was 2d with a good bush of Croton angustifolium, Phænocoma prolifera Barnesii, a very fair specimen; Ixora amboynensis and alba, Vanda suavis, a tall specimen, beautifully furnished with healthy leaves to the top of the pot, and having two nice spikes of bloom; and a finely flowered Erica Parmentierana rosea, &c. Mr. John Shaw was 3d with a very nice collection, in which were several fine Yuccas, a grand bush of Croton variegatum, a good healthy specimen of Allamanda Hendersoni, nicely flowered; a large and handsome Rhopala corcovadense, and Phormium tenax variegatum, in good condition. Messrs. Cole Son took the prize offered by H. L. Micholls, Esq., for 6 miscellaneous plants, the collection to comprise three fine foliaged and three blooming plants, including two Ixoras. In this collection were Ixora Colei, white, with good large trusses, and coccinea, Erica Paxtoni, a well-grown specimen, about 3 feet through, a mass of bloom; splendid specimens of Croton variegatum and angustifolium, and a beautiful Yucca aloifolia variegata. Mr. Baines, the donor's own gardener, also competed with a fine group. In another class for 8 the 1st prize was taken by Mr. J. Brierly, gr. to T. Kendal, Esq., Cheadle, with a very good Erica venosa, and a wonderfully fine specimen of Allamanda Hendersoni, an excellent Croton magnificum, and Bougainvillea glabra, &c., the latter, however, was only second-rate; Mr. W. Cardwell was 2d; Mr. Brierly was also 1st for the prize offered by Edward Brooke, Esq., for 10 with fine specimens of Erica Austiniana and Candolleana, a fine specimen of Theophrasta imperialis, and admirable examples of Croton variegatum and Yucca aloifolia variegata, &c. Mr. J. Stevenson, Lark Hill, Timperley, came 2d, showing in his collection a remarkably fine specimen of Alocasia Jenningsii, a very good Pleroma elegans, and a small plant, though covered with blooms, of Dipladenia crassinoda, and Sanchezia nobilis, a fine specimen and well marked. Mr. W. Cardwell took the prize offered by Messrs. Cole & Sons for 6 Cape Heaths with a group of nicely flowered medium-sized specimens. The 1st prize in the class for Dracænas or Cordylines was taken by Mr. B. S. Williams with six handsome specimens, including Dracæna Veitchii, cannæfolia, lineata, umbraculifera, atrosanguinea, &c. Mr. J. Shaw was 2d, and Messrs. G. & W. Yates 3d, with smaller examples, though in good condition. Palms were not numerously exhibited, nor were they so good, either in size or health, as those that are usually to be seen at large exhibitions. Mr. J. Shaw took the 1st prize for 6, not less than three kinds, with Areca rubra, a good plant; Chamærops Fortunei, Seaforthia elegans, Geonoma Ghiesbreghtii, Calamus dealbata, &c. Messrs. G. & W. Yates were 2d with a collection of smaller plants, and a further collection of smaller ones were sent by Mr. Stafford, of the Hyde Nursery, near Stafford. Mr. A. Williams was 1st in the class for 4 with a very fair group, consisting of Calamus dealbata, Thrinax elegans, Stevensonia sechellarum, and Latania borbonica. Mr. W. E. Dixon was 2d, and Mr. J. Shaw 3d, both contributing small examples.

Ferns are usually an effective feature at exhibitions, and are very attractive when shown in good condition and tastefully arranged. Here, however, they are placed too far apart to furnish a fine display. Tree Ferns were scarce, and those exhibited were not of a very high order. In the classes for 9 exotic Ferns, the amateurs beat the local nurserymen hollow in the quality of the plants shown; but those staged in competition with the nine sent by Mr. B. S. Williams, looked almost lost by the side of those in his collection.

The 1st prize for a pair of Tree Ferns went to Mr. B. S. Williams, and the 2d to Mr. J. Shaw. In the amateurs' class for 9, Mr. J. Bolton took the 1st prize with a splendid group, consisting of Adiantum trapeziforme, formosum, and cuneatum, Stenochlæna scandens, Cibotium princeps, Lomaria gibba, &c., all large and exceedingly well-grown specimens. Mr. Baines was 2d, showing a splendid collection, comprising large and handsome masses of Gleichenia speluncæ and flabellata, Davallia bullata (about 3 feet through, an admirable specimen), two large Cyatheas, and a small, though beautiful, Todea superba, &c. Mr. C. Phillips, gr. to A. H. Heywood, Esq., Sedgley Park, Prestwich, came 3d with Leucostegia immersa, rather pale in colour, but very well furnished, and L. chærophylla, a very good specimen; the rest were only moderate examples. E. J. Lowe, Esq., was 4th. In the corresponding class for nurserymen, Mr. B. S. Williams stood 1st with fine specimens of Dicksonia antarctica, Cyathea dealbata, Cibotium princeps, Gleichenia speluncæ, and Todea africana, &c. Messrs. G. and W. Yates were 2d, with small but flourishing specimens, and Mr. T. Stafford 3d.

Of Lycopodiums, the best six came from Mr. R. Fleming, Waterloo, who had a beautifully-grown lot, trained on wires, forming handsome cones, about 4 feet high. The varieties were Selaginella macrophylla, dichotoma, Schotti, lævigata, and stolonifera. Mr. G. Elkin, gr. to T. H. Birley, Esq., M.P., was 2d; Mr. Price and Mr. Rylance also competing.

Orchids were not shown in such good condition as might have been expected, in nearly all cases the plants were small, but very fairly bloomed, especially a specimen of Miltonia spectabilis, with 18 finely expanded and most beautifully coloured flowers. A comparison of this with several others of the same kind, all very pale in colour, showed that this plant, which was shown by Mr. J. Orme, gr. to W. C. Bird, Esq., Kerdall Moor, Manchester, had been very highly cultivated. Undoubtedly the best group in the exhibition came from Mr. Archer, gr. to A. Turner, Esq., Leicester, who took Mrs. Mendel's prize of 10 guineas for 10. Mr. B. S. Williams came in 1st in the nurserymen's class for six, with a nice group. Several fine things were contributed by Messrs. Veitch in a collection of miscellaneous plants, and they also exhibited a fine collection of coloured drawings of many choice varieties.

In Mr. Archer's collection of 10, alluded to above, were Odontoglossum Reichenheimii and Cattleya Leopoldi, in fine condition; Aerides odoratum, with 12 very fine spikes; Aerides affine, very pretty; Barkeria spectabilis; Phalænopsis grandiflora, with remarkably fine flowers; and Cypripedium superbiens, with 11 very fine blooms, &c. Mr. W. Swan, gr. to T. Jones, Esq., Whalley Range, Manchester, was second in the same class, with, amongst others, Epidendrum vitellinum majus, with four nice spikes; Odontoglossum Alexandræ, with one spike of large and lovely flowers; the pretty Odontoglossum cordatum, and Miltonia spectabilis and Regnelli, both rather pale in colour. W. Agnew, Esq., Summer Hill, Pendleton, and Mr. Mitchell, gr. to Dr. Ainsworth, Whalley Range, Manchester, also competed in this class; the former showed a splendid spike of Saccolabium Blumei majus, about 18 inches long, and finely expanded throughout. In Mr. Williams' 1st prize collection in the nurserymen's class for six, were a very good Aerides odoratum majus, Thunia Bensonæ, well flowered for its size; Barkeria spectabilis, in fine order; Saccolabium Blumei majus, with two good spikes; Cypripedium superbiens, with 13 handsome blooms, and a fair Cattleya superba. Mr. John Shaw and Mr. W. E. Dixon also exhibited, the former the rare and curiously pretty Phalænopsis cornu-cervi, Cattleya crispa, and Aerides suavissimum, &c., in nice order; and the latter a specimen of Saccolabium præmorsum, with two good spikes of lovely white and lilac flowers, &c. In the amateurs' class for six, the best came from Mr. J. Orme, who had the fine Miltonia spectabilis above alluded to, and Cattleya Leopoldi, Vanda tricolor, Aerides quinquevulnerum, with one spike of pinkish flowers, &c. Mr. W. Swan was 2d with Cypripedium Dayii, Odontoglossum Lindleyana, Aerides Lobbii, a spike 2 feet long, and Cattleya Regnelli, &c. Mr. E. Mitchell was 3d with, amongst others, Odontoglossum hastilabium, with a spike about 5 feet in length. Mr. Macmillan, gr. to G. Gotteschalck, Esq., Birchfield, and Mrs. S. Allen, The Grange, Manchester, also contributed. Mr. Mitchell came in 1st for the prize offered by Messrs. James Brooke & Co., with Aerides quinquevulnerum, a good spike, well coloured; Miltonia spectabilis, and Odontoglossum hastilabium, with three good spikes, but not fully expanded, &c. Mr. W. Swan was 2d with six small specimens, amongst which were the following, in good condition, considering their size:—Odontoglossum Uro-Skinneri, O. Alexandræ, and O. Bluntei, &c. Mr. T. Baker, Skerton House, Old Trafford, also sent six, but they were rather small.

New Plants are shown in rather less numbers than usual. Messrs. Veitch & Sons took the 1st prize for 6 offered by Messrs. T. Agnew & Son, with Dracæna albicans and Moorei, Croton undulatum, the beautiful × Alocasia Sedeni, Davallia Moorei, Croton maximum, &c. The same firm also furnish a very fine collection, in which were a magnificent Nepenthes Rafflesiana, with more than a dozen pitchers; Anæctochilus Lowii, Gymnostachyum Pearcei, Maranta tubispatha, several new Crotons, Iresine Lindeni and Iresine metallica; Dendrobium crystallinum, beautifully tipped with lilac; D. Bensonæ, the handsome Ficus Porteana, and several others. Mr. B. S. Williams is 2d, with a numerous collection, in which are Geonoma Seemanni, a very handsome Palm; Odontoglossum Schlieperianum, with yellow flowers, Iresine Lindeni, Dieffenbachia Wallisii, Thrinax grandis, Phajus albus, white, with a lilac-streaked lip; Maranta tubispatha, &c.

Coming now to the department of florists' flowers, which by no means forms an inconsiderable part of the exhibition, it may be said that the plants in pots are in the long tent on the low ground, by the side of the Agricultural Society's ground, while the cut flowers are in the first tent. Fuchsias should be a prominent feature of a large exhibition in July, but on this occasion they fell short of the two previous years' displays. The show Pelargoniums scarcely did credit to the Manchester district. There were plenty of variegated zonal and silver variegated Pelargoniums in the various classes devoted to these, generally well grown plants, but in the main destitute of colour, no doubt owing to the hot weather. Petunias were by no means up to the mark of those shown at Leicester last year. Achimenes, which were so well done at the former place, were here totally unrepresented, and but few Gloxinias were shown.

The first of the special prizes for 8 varieties of Fuchsias was taken by Mr. R. Fleming, Sandhey, who had Tristram Shandy, Fair Oriana, Rose of Castille, Reine Corneilisin, La Crinoline, Reine Blanche, Mrs. Marshall, and Turban, finely grown and flowered pyramidal plants, but spoiled because they had been tied out to such a formal pyramidal shape. 2d, Mr. Geo. Edwards, York, with Charming, Mildred, La Favorite, Guiding Star, Rose of Castille, E. G. Henderson, Alba coccinea, and Vainqueur de Puebla. An additional group was staged by Mr. J. Woodland, larger in size, but as severely formal in shape as Mr. Fleming's, and scarcely in flower. In class 56, for amateurs, for 6 kinds, the plants were so indifferent that the 1st prize was withheld; a 2d prize was awarded to Mr. T. Gresty, gr. to R. Voss, Esq., Fallowfield, for some poor plants, while there was no competition in the nurserymens' class for the same number of plants; nor did the class for 3 standard Fuchsias bring any competition, which is certainly a thing to be wondered at.

The best plants in class 59 (for 6 varieties of show Pelargoniums), shown by Mr. E. Bridge, gr. to S. Jarrett, Esq., Greenhills, were certainly large and pretty well grown and flowered, but almost worthless in point of quality; they consisted of four plants of the French spotted type, viz., Princesse Clotilde, Duc de Magenta, Mad. Lernichez, and Le Vesuve; and Regina formosa and Bessie, two very poor varieties in the ordinary show kind. Mr. C. Rylance, of Ormskirk, who was 2d, had decidedly better varieties, but not such good plants; they were—Charles Turner, Amy Robsart, King of the Belgians, Mary Hoyle, Beacon, and Desdemona. Fancy kinds were much better done, but an infusion of newer and better flowers is to be desired. Messrs. Bridge and Rylance were placed equal 1st; the former with large, healthy, and well-bloomed plants of Evening Star, Undine, Acme, Ellen Beck, Musjid, and Celestial, but with too much sameness of character for so small a number. Mr. Rylance had smaller but more varied examples of Undine, Illuminator, Sweet Lucy, Evening Star, Godfrey Turner, and Duchess of Buccleuch. W. R. Fleming was awarded a 2d prize. The zonal varieties were generally well done, being large, healthy plants, with good heads of bloom, though they by no means equalled the plants shown at Leicester last year. In the amateurs' class for 6 kinds Mr. E. Bridge was 1st with Madame Werle, Mons. G. Nachet, Excellent, Mr. William Paul, Eugène Mezard and Virgo Marie. 2d, Mr. R. Fleming, with Amelina Grisau, Mr. William Paul, Rebecca, Madame Vaucher, Softness, and Eugène Mezard. In the nurserymen's class for the same number of plants Mr. C. Rylance was 1st, with Magnum Bonum, Eugène Mezard, Clipper, Madame Schat, Comet, and Prime Minister; 2d, Messrs. Bell & Thorpe, Stratford-on-Avon, with Fairy Princess, Gloire de Nancy, Tintoret, Virgo Marie, and two others. The 1st of the special prizes, given by Thomas Jones, Esq., for 6 zonal Pelargoniums, was awarded to Mr. E. Bridge, who had very good plants of Miss Martin, Beauté de Parterre, St. Fiacre, Amelina Grisau, Clipper, and Rose Rendatler; most of them being finely coloured: 2d, Mr. Woodland, gr. to Major Blundell, Liverpool, with Mrs. William Paul, Ebloulsaante, vivid orange-crimson; George Hock, salmon; Madame Vaucher, Amelina Grisau, and Duchess. The Nosegay Pelargoniums, with their masses of gay flowers, made a very effective display. Mr. Bridge had the best 6 kinds, which consisted of Lord Palmerston, Duchess, Amy Hogg, Profusion, Baron Ricasoli, and Le Grand, all well-grown and flowered plants; 2d, Messrs. Bell & Thorpe, with Indian Yellow, Amy Hogg, Le Grand, Black Dwarf, Rebecca, and Startler, an orange-scarlet seedling. Mr. George Edward, York, came next with the following, distinct from the foregoing—Christine Nosegay, Orange Nosegay, and Rose Rendatler.

Messrs. G. & W. Yates' special prize of five guineas, for the best 6 tricolor Pelargoniums, was taken by Mr. M. Torkington, Wilmslow, [with Sophie Dumaresque, Mrs. Dix, Florence, Countess of Craven, Queen's Favourite, and Princesse Clotilde, the first four belonging to the golden-edged, the latter to the silver-edged section; 2d, Mr. J. Smith, gr. to G. H. K. Balstone, Esq., with Edwinia Fitzpatrick, Sophia Cusack, very good; Miss Watson, and Mrs. Dix, golden-edged; and Beauty of Guestwick, and Italia Unita, silver-edged. These were the largest plants, but, with the exception of Sophia Cusack, by no means so well coloured. Mr. Bridge had some plants that well deserved a 3d prize. In the open class for 6 kinds, Messrs. F. & A. Smith, Dulwich, were 1st, with capital plants of Lady Cullum, Princess Teck, finely-coloured, and Earl of Shaftesbury, golden-edged; and Impératrice Eugénie, Miss B. Coutts, and Banshee, silver-edged. Mr. J. Tomkins, Sparkhill, was 2d, with Lady Cullum, Sophia Cusack, Sophie Dumaresque, Beauty, and Miss Tomkins, golden-edged; and Italia Unita, silver-edged. Mr. J. Smith was 3d with some large but dull-looking plants. The open class for 6 variegated Pelargoniums brought together almost all the forms of variegated Pelargoniums, using it in its broadest sense. Mr. Tomkins was placed 1st with Burning Bush, Flower of Spring, Silver Star, Stella variegata, Oriana improved, and Miss Kingsbury. 2d, Messrs. G. & W. Yates, with Sophie Dumaresque, Lady Cullum, Sophia Cusack, Countess of Craven, Florence, finely coloured, and Italia Unita. Messrs. Bell & Thorpe were 3d. In addition, several exhibitors staged miscellaneous groups, the only one calling for special notice being that from Messrs. F. & A. Smith, who had 72 plants of the newer kinds in each section. The class for 3 double-flowering varieties was so well filled (there being six competing groups) that it may be taken as suggestive of the double varieties coming to play an important part in our exhibitions. Messrs. Carter & Co., of London, were 1st with three nice medium-sized plants of Madame Lemoine, Wilhelm Pfitzer, and Gloire de Nancy. 2d, Messrs. J. Standish, Ascot, with Marie Lemoine, Madame Lemoine, and Triomphe. 3d, Mr. George Edward, York, with Capitaine l'Hermite, Gloire de Nancy, and Triomphe de Thumesil.

With 6 double varieties of Petunias, Messrs. Bell & Thorpe had Triomphe de Martin de St. Tuck, purple and white; Rosalie, rosy lilac; Adèle Minter, rosy blush, pencilled purple; Antigone, white; Gaston, rosy purple; and Inimitable Rex, pale rosy violet. This was the only group staged. With 6 single kinds, the same exhibitors were placed 1st with Spitfire, Miss Earle, Gaiety, purple, with pale bars; Charming Bride, white; Crimson King, rosy crimson; and Beauty, mottled dark purplish crimson and blush.

Achimenes and Gloxinias, which were so well done at Leicester, were here, in the case of the former, totally unrepresented, while the class for 6 Gloxinias did not bring any competition, and only one group in the class for three kinds. Here Mr. J. Price, gr. to F. Taylor, Esq., Broughton, was 1st with good plants of Duke of Wellington, Willsoni, and Beauty, the two last named erect flowering varieties. There were no Delphiniums, or Lobelias of the fulgens type; but one lot of six Pentstemons were staged, and as these had evidently been taken up from the ground and potted for the occasion, besides being very indifferent in character, no award was made. With 6 Phloxes, Mr. J. Walker was 1st, with Geo. Wyness, La Ristori, Princess of Wales, Miss Spedding, Atlas, and Iphetus. Messrs. G. & W. Yates also exhibited, but gained no award. Antirrhinums and Pyrethrums in pots also failed to bring any competition. Sir James Watts' special prizes for Lilium auratum brought but two competing groups, the best being very well done; but in the three classes for Lilium lancifolium, not a single plant was staged.

The groups of hardy Conifers competing for the special prize silver cup, were objects of considerable interest, and were effectively grouped in the exhibition field, in the immediate neighbourhood of the great circular tent. Messrs. Barron & Son, of Elvaston Nurseries, were 1st, with a fine lot, consisting of Biota elegans, Sciadopitys verticillata, several handsome forms of Retinospora, Cryptomeria elegans, Araucaria imbricata, Arthrotaxus taxifolia, Picea magnifica glauca and P. nobilis, Larix Kæmpferi, Abies Hookeriana, A. Douglasii, and others; Thujopsis dolabrata, &c. 2d, Mr. John Shaw, Manchester. Messrs. R. & W. Yates and J. Standish & Co. also exhibited, while Messrs. Barron & Son, J. Shaw, and Standish & Co. also contributed groups of the rarer coniferous plants, including some new forms of great beauty. As no award was announced in the class for 12 evergreens, it must be assumed that the collections had not been judged when our report was made. Messrs. Barron & Son were 1st with 6 Hollies in competition for the special prizes given by the proprietors of the *Manchester Guardian*. The kinds were Ilex aquifolia aurea major, aurea vestita, nana aurea, Donningtoniensis, elegantissima, and medio-picto alba. Mr. Shaw was awarded the *Manchester Courier* special prize for 10 deciduous trees or shrubs, having Betula alba pendula, Quercus cerris variegata, Q. pedunculata nigra, Deutzia crenata fl.-pl., Ulmus campestris aurea, Acer polymorphum dissectum, fol. var., Cornus mascula variegata, Quercus robur aurea, Q. robur concordia, and Viburnum Lantana variegatum. Mr. John Shaw was also 1st, with a pair of standard Hollies, showing I. aquifolia nana aurea, also with a pair of Golden Yews, showing Taxus elegantissimus, and with a pair of pyramidal Box trees having Buxus variegata; while Mr. B. S. Williams, Holloway, was 1st with a pair of standard Bays. In the class for special prizes for collections of 20 British Ferns, E. J. Lowe, Esq., F.R.S., Nottingham, was awarded the 1st prize for a valuable collection, including some very curious and unique abnormal forms of Scolopendrium, &c.; the 2d prize being awarded to J. G. Mapplebeck, Esq., Moseley, near Birmingham.

Cut flowers, but especially the Roses, made a grand and effective display in the Fruit tent. The first of the special prizes, given by H. Birley, Esq., M.P., for eight varieties of cut flowers, was taken by Messrs. E. Cole & Sons, who had Ixora coccinea, I. Colei, Kalosanthes puniceus, Eucharis amazonica, Allamanda grandiflora, Erica venosa, Dipladenia crassinoda, and D. amabilis. To fill out the stand, the exhibitors exhibited further four other kinds of Ixoras, viz., javanica, amboynensis, Alexandra, resembling an orange form of I. amboynensis, spotted with crimson, and salicifolia; Messrs. G. & W. Yates were 2d, with an Amaryllis, Crinum giganteum, Cattleya Loddegesii, Gardenia Fortunei, and others, badly staged in a common deal box; Mr. S. Barlow, Chadderton, who had arranged his group in an ornamental flower-pot, was 3d.

The 1st of the special prizes for 18 cut Roses was won by the Rev. S. Reynolds Hole, Caunton Manor, Newark, who came out in strong force on this occasion, and won the 1st prize in every class in which he competed. Mr. Hole had capital flowers of Victor Verdier, Maréchal Vaillant, Triomphe de Rennes, Prince Camille de Rohan, Comtesse de Chabrillant, Black Prince, Devoniensis, Léopold I., Charles Rouillard, Madame Victor

Verdier, Maréchal Niel, Dr. Andry, Madame Thérèse Levet, Madame C. Joigneaux, Louise Magnan, Madame Hector Jacquin, Duc de Rohan, and Mons. de Montigny; 2d, Mr. T. Draycott, gr. to T. T. Paret, Esq., Humberstone, Leicester; 3d, Mr. C. J. Perry, Birmingham. In the class for 48 varieties (amateurs), Mr. Hole had Maréchal Vaillant, Comte de Nanteuil, Antoine Ducher, Miss Ingram, Madame Victor Verdier, Madame Furtado, Black Prince, Madame Caillat, Gloire de Santenay, Mons. Noman, Mdlle. A. Wood, Maréchal Niel, Dr. Andry, Madame Vidot, Sénateur Vaisse, Caroline de Sansal, Vicomte Vigier, Gloire de Dijon, Madame Bernardin, Madame C. Joigneaux, Lord Raglan, Princess Mary of Cambridge, Abbé Berlize, Centifolia rosea, Léopold I., Charles Rouillard, Laurent Descourt, Madame Bravy, Charles Wood, Exposition de Brie, Madame Charles Crapelet, Comtesse de Chabrillant, Madame Hector Jacquin, Charles Margottin, Alfred Colomb, Madame Rivers, John Hopper, Marguérite de St. Amand, Prince Henri des Pays Bas, Lord Herbert, Marie Baumann, and Auguste Mie, and six others. Mr. C. J. Perry was 2d, and had in his collection excellent flowers of Sénateur Vaisse, Horace Vernet, Alpaide de Rotalier, Baronne Normont, Léopold I., Lord Clyde, Auguste Mie, Pierre Notting, Madame Rival, Xavier Olibo, Charles Lefevre, Beauty of Waltham, Gloire de Vitry, Baron Gonella, and La Reine. Mr. Hole's 24 consisted of Black Prince, Madame Furtado, Maréchal Vaillant, Latour de Croucy, Léopold I., Anna de Diesbach, Charles Lefevre, John Hopper, Duc de Rohan, Marguérite de St. Amand, Marie Rady, Maréchal Niel, Lord Raglan, Madame Knorr, Alfred Colomb, Charles Rouillard, Prince Henri de Pays Bas, Triomphe de Rennes, Vicomte Vigier, Miss Ingram, Madame Clémence Joigneaux, Pierre Notting, Comte de Nanteuil, and M. Noman. Mr. Perry was again 2d. Mr. Hole's 12 and 6 comprised flowers given in the foregoing classes; in the former class Mr. C. J. Perry was 2d, with 6 varieties. Messrs. Draycott and Mapplebeck were severally 2d and 3d.

In the nurserymen's class, Mr. John Cranston, Hereford, contributed a splendid stand of 48 varieties. Mr. Charles Turner was 2d with a fine lot of flowers. Grand masses of cut Roses were also contributed by Messrs. Paul & Son and others, including a splendid lot of Maréchal Niel, by Mr. W. Paul, Mr. J. Cranston, and others. With 12 new Roses of 1866-67-68, Mr. J. Cranston, was again 1st with Madame Marie Cirrodie, President Willermoz, Souvenir de Mons. Boll, La France, Duchesse d'Aoste, Madame la Baronne Rothschild, Paul Verdier, Horace Vernet, very fine; Marie Sisley, a beautiful Tea Rose; Impératrice Charlotte, Antoine Ducher, and Mrs. Ward. Mr. C. Turner was 2d, with Comtesse de Jaucourt, Mrs. John Berners, Miss Ingram, Monsieur Noman, President Willermoz, Horace Vernet, Madame Margottin, Monsieur Furtado, Napoléon 1st, La France, and Duchesse d'Aoste. Messrs. Perkins & Son, Coventry were 3d.

The 1st of the special prizes for a vase epergne, or centre piece for the table, was awarded to Mr. R. S. Yates, Manchester, for a most elegant and tastefully arranged bouquet, in a silver centre piece. Mr. J. Delamere, Oxton, Cheshire, was 2d with a centre piece somewhat elaborately arranged, but the excessive heat of the tent soon destroyed the effect. Mr. W. S Dobson, of London, was 3d with an arrangement that found favour in many eyes, but which was thought by the judges to have been too heavy and disproportionate. Two or three others were staged, but did not call for special notice. The bouquets (one for a bride, one for a ball) furnished by "professionals," were considerably in advance of those exhibited by amateurs. Messrs. R. S. Yates and Delamere were placed equal 1st, the bouquets of the latter being very beautiful and elaborately arranged. There was plenty of competition in both classes. The appearance of Mr. Turner on the scene with Carnations and Picotees, placed the other exhibitors completely *hors de combat*, as he was a long way 1st both with 24 Carnations and 24 Picotees. Of the former Mr. Turner had grand blooms of Flora's Garland, William Cowper, Rifleman, Dreadnought, Prince Albert, Premier, Samuel Moreton, Anthony Dennis, Florence Nightingale, Nymph, Sportsman, Squire Trow, Princess Royal, Lord Rancliffe, King John, Duke of York, Capt. Stott, Eccentric Jack, Brutus, Merrimac, James Merryweather, Annihilator, Touchstone, and John Bayley. Of Picotees, Mr. Turner had Admiration and Miss Turner, two beautiful new flowers; Lord Nelson, Mrs. Fisher, Prince of Wales, Amy Robsart, Green's Queen, Charmer, Lucy, Colonel Clerk, Britannia, Mrs. Norman, Miss Drake, Lord Valentia, Ganymede, Miss Wood, Countess, Gipsey Queen, Piccio, Rev. H. Matthews, Forester, Flower of the Day, and Seedlings. In each instance Mr. Geo. Edward was 2d with thin and somewhat pale-coloured flowers. In the amateurs' classes for 12 Carnations and 12 Picotees there was no competition. The 1st of the special prizes for 12 Carnations and Picotees, six of each, was also won by Mr. C. Turner, who had of the former Captain Stott, King John, Dreadnought, Sportsman, Eccentric Jack, and Favourite; and of the latter, Miss Turner, Miss Drake, Lord Valentia, Admiration, Mrs. Norman, and Miss Wood. Mr. Geo. Edward was 2d. Cut Verbenas in twelves were finely shown by Messrs. Perry and Turner. The former was 1st, with Edwin Day, Butterfly, Joseph Sanders, and Rising Sun, fine new kinds of the present year; also Shakespeare, Model, Géant des Batailles, Annie, Lord Leigh, Mr Perry, and Mr. Reynolds Hole. Mr. Turner had King of Verbenas, Annie, Leah, Nemesis, Mrs. Reynolds Hole, J. C. Ward, Samuel Moreton, John Wilson, Mrs. Perry, Foxhunter, Chastity, and Géant des Batailles. An additional stand in the miscellaneous class was also contributed by Mr. C. Turner. In the open class for 12 Pinks, Mr. T. Mellor contributed a stand of flowers from which all the petals but enough to form two circular lines had been withdrawn; these were very pure and exquisitely laced; probably this represents the northern mode of showing these flowers; the sorts were John Bull, Emily, Robin Hood, Jane, Emma, Auricula, Earl Stamford, Defiance, Bertha, Champion, Arlette, and Unity. These were awarded the 1st prize. The other stands were very poor.

The show of fruit was a most successful one; it occupied nearly the whole of the centre tabling of the tent. At one end, facing the entrance, a collection of pot Vines, Apples, and Cherries, in pots, from Messrs. Lane & Son, of Berkhampstead, was staged; from this group a line of Figs in pots ran down the centre of the table to the opposite end, where Mr. Meredith, of Garston, near Liverpool, had a fine collection of pot Vines, consisting of some fruiting canes of the Muscat of Alexandria, with very nice bunches upon them, and the rest were splendid young canes of this year's growth. These were sent by Mr. Meredith to show what effect his Vine manure has upon the growth of Vines; and considering the size and substance of these canes, and comparing them with those usually seen, it would appear that the new manure is little less than a wonder. The Figs above alluded to came from the Society's Gardens, Chiswick, where this delicious fruit is grown to perfection by Mr. Barron; and the Society deserves every praise for sending this fine collection to Manchester, to show the high state of perfection to which this most luscious fruit can be brought. It is somewhat to be regretted that the beautiful cup offered by the proprietors of this Journal should have brought out such a poor competition; we believe there were eight entries, but only four collections were staged, and the prize was carried off by Mr. J. Pottle, gr. to B. D. Colvin, Esq., Bealings Grove, Woodbridge, Suffolk. Our readers will remember that Mr. Pottle also took the cup at Bury St. Edmund's two years ago. Of Pines there was a fine display, some excellent specimens being shown. Grapes were very numerously shown, but with few exceptions there was a want of colour and finish about them, more especially in the Muscats, which were in nearly every case quite green. Some very fine Peaches and Nectarines, and also some very good Melons, Strawberries, &c. Mr. Thompson, of Dalkeith, sent a collection to show the advantage of using bottom-heat in Vine culture. We must not omit to mention the splendid collections of fruit that were exhibited on Monday by Mr. Stevens, gr. to his grace the Duke of Devonshire, Trentham. The collection was certainly a long way ahead of anything shown, and it is to be regretted that they were precluded from competition, owing to some informality, and had to be removed at an early date, otherwise the public would have enjoyed the sight of such splendid fruit had it remained throughout the week. Mr. Carmichael was again successful in securing one of the "Journal of Horticulture" prizes with a fine collection of fruit.

In Mr. Pottle's collection, above referred to, which took the *Gardeners' Chronicle* cup, were three very nice bunches of Black Prince Grapes, very fair examples of Frogmore Late Pine Strawberries, a good dish of Black Circassian Cherries, very fine green and scarlet-fleshed Melons, and a good dish of French Crab Apples, well kept and finely coloured. Of vegetables Mr. Pottle had very fine Tripoli Onions, Merriot's scarlet Carrots, a splendid dish of Laxton's Supreme Peas, an equally fine dish of Johnson's Wonderful Broad Beans, good White Stone Turnips, Globe Artichokes, a fine dish of Potatos named Prince Teck, a fine clear-skinned kidney of a yellowish colour, and a good brace of Ipswich Standard Cucumbers. Mr. Tillery, gr. to his Grace the Duke of Portland, Welbeck; Mr. Freeman, gr. to the Earl of Derby, Knowsley; and Mr. W. Dennis, gr. to R. H. Ainsworth, Esq., Moss Bank, Bolton, were the other competitors. Mr. Tillery staged very nice bunches of Buckland Sweetwater Grapes, two good Melons (a seedling from the Trentham hybrid), Sturmer Pippin Apples of last year's growth, very well preserved; Bigarreau Napoleon Cherries, and President Strawberries, both very good examples. Of Peas, a very fair dish of Laxton's Prolific Longpod was staged, as also Longpod Beans and Fulmer's French Beans, Early Dutch Turnips, Myatt's Ashleaf Kidney Potatos, &c.; but the collection was rather marred with a coarse brace of Wilson's Prolific Cucumbers. Mr. Freeman sent three finely-finished bunches of Black Hamburgh Grapes, Lord Downes and Scarlet Gem Melons, Black Tartarian Cherries, and British Queen Strawberries, all first-rate; rather small heads of London Early Cauliflower, dishes of McLean's Premier Peas, and Early Longpod Beans both small; a fine dish of Syon House French Beans, Early Horn Carrots, a poor brace of Booth's Kenyon Cucumbers, and a dish of Red and White Currants. Mr. Dennis showed three very fair-sized bunches of Black Hamburghs, but they were badly finished and showed no bloom. Melons were bad, as also a dish of a seedling Apple, and the Cherries were very poor.

The "Journal of Horticulture" prizes went to Mr. Carmichael, gr. to H.R.H. the Prince of Wales, Sandringham; and to Mr. J. Wallis, gr. to J. Dixon, Esq., Astle Park, Congleton, without any competition. The former had good Prickly Cayenne and Queen Pines, two good dishes of Black Hamburgh Grapes—very much rubbed—and three very fine bunches of the new Muscat Champion, a grizzly-coloured Grape of considerable merit, good examples of Scarlet Gem and Gordon Castle Melons, beautifully-coloured Stirling Castle Peaches, Murray and Violette Hâtive Nectarines, the latter rather small but nicely coloured; and two dishes of Strawberries. Mr. Wallis had small dishes of Chasselas Musqué and Black Hamburgh Grapes, small Pine, good Barrington Peaches, Strawberries, Cherries, and Apples. In the class for 10 dishes, 8 distinct varieties, the 1st prize was taken by Mr. Miles, gr. to Lord Carrington, Wycombe Abbey, with a very large and handsome Providence Pine, and a well-grown Queen, good dishes of Black Hamburgh and Muscat of Alexandria Grapes, a fine hybrid Cashmere and good Royal Ascot Melons, Dr. Hogg Strawberries, Peaches, and Nectarines. Mr. W. S. Dobson, 19, St. James Street, London, was 2d, with a fair collection, set up in a service of ornamental glass. Mr. J. Wallis also competed, showing in his collection three nice bunches of Foster's White Seedling Grape. The 1st prize, given by Lady Watts, for 6 dishes, distinct, was won by Mr. J. Simpson, gr. to Lord Wharncliffe, Wortley, with Muscat of Alexandria and Black Hamburgh Grapes, a good Pine, a large Heckfield hybrid Melon, and rather small Peaches and Nectarines; Mr. W. Wooley, gr. to W. Jackson, Esq., Manor House, Birkenhead, was 2d, with nice bunches of Black Hamburgh and Buckland Sweetwater Grapes, and a good example of the Malvern Hall Melon, in his collection; Mr. W. Wallis, gr. to J. Thompson, Esq., Kirby Hall, York, also competed, showing some good bunches of Black Hamburghs with fine berries, but not well coloured, and a good dish of Brown Ischia Figs. The prize given by Mr. T. Baines, of Bowden, for 6 bunches of Black and White Grapes, was taken by Mr. Freeman (Knowsley), with very fine and beautifully finished bunches of Black Hamburgh and Muscat of Alexandria; good bunches of the former, and very fair examples of Canon Hall Muscat came from Mr. R. Janson, gr. to T. Statter, Esq., Stand Hall, Manchester, who came in 2d; good bunches of Muscat of Alexandria, but only moderate ones of White Frontignan and Black Hamburgh, came from Mr. W. Cardwell; and very large but badly coloured and finished bunches came from Mr. Roberts, gr. to the Hon. Major Bing, Charleville Forest, Fullamore, Ireland; and Mr. Farquharson, gr., Acton Park, Wrexham, sent good bunches (though small in berry) of Black Hamburgh and Buckland Sweetwater. Mr. W. Wooley was 1st in the class for 2 bunches of Black Hamburghs, with good bunches, finely coloured; Mr. Jones, gr. to S. K. Mainwaring, Esq., Oteley Park, Salop, was 2d with very good examples; and Mr. Freeman was 3d. Several other dishes were shown in this class, of a very ordinary description. Mr. R. Janson took the 1st prize in the corresponding class for White Grapes, with two very compact bunches of Muscat of Alexandria, rather green in colour; and the same may be said of the 2d prize lot from Mr. Freeman. Mr. J. Simpson took a 1st prize for eight dishes of fruit; Mr. J. Miller, gr. to Lord Foley, Worksop, was 2d in the same class; Mr. Miles also sent a collection of seven dishes, and was consequently thrown out of the competition through being one dish short. For a single dish of Black Grapes, Mr. W. Jones was 1st, with beautifully finished bunches; Mr. W. Wooley came 2d, with handsome bunches, which, however, had not been well thinned; Mr. H. Nixon, gr. to C. Watkins, Esq., Holme Park, Hereford, was 3d with very large bunches, which were very loose, and the berries small. The best dish of White Grapes was one of Foster's White Seedling, from Mr. J. Wallis; Mr. Hill, gr. to R. Sneyd, Esq., Keele Hall, was 2d, with the same variety. Messrs. Lane & Son also exhibited three very fine bunches of Muscat of Alexandria in this class; they were not well coloured, but from the size and shape of the bunches they are deserving of notice here.

For the best 6 Pines there was a strong competition, ultimately, however, the 1st prize went to six very fine Queens, from Mr. R. H. Smith, gr. to H. Walker, Esq., Calderstone, near Liverpool; Mr. G. Ward, gr. to T. N. Miller, Esq., Bishop's Stortford, was 2d with three Smooth Cayennes, averaging 7 lb. each; one Prickly Cayenne, 6½ lb.; fine Black Prince, the same weight; and a good Queen, about 5½ lb., &c. Mr. J. Simpson was 3d with six very fine Queens. Mr. H. Clarke, Panshanger Park, Hertford, contributed six very fair Prickly Cayennes; six good-sized but rather old Queens came from Mr. J. Hepper, gr. to J. Walmsley, Esq., Acton, Middlesex; Mr. J. Deavill, gr. to Major Martin, Wooton Hall, Ashbourne; and Mr. G. Eveleigh, gr. to R. N. Thornton, Esq., Knowle, Sidmouth, also contributed. The prize given by R. Howarth, Esq., for one Pine of any variety, was taken by Mr. G. Ward, with a handsome Queen, weighing 6 lb., Mr. H. Clarke coming in 2d with a Prickly Cayenne, weighing 5 lb. In class 111, for one of any variety, Mr. Ward was again 1st, with a good Smooth Cayenne, 6½ lb. in weight; Mr. J. Deavill was 2d with a good Providence, and the 3d went to Mr. W. Chambers, Shirley, near Birmingham. Peaches and Nectarines were shown in good condition. Mr. W. Tillery was 1st for one dish of each, with splendid Galande Peaches and Elruge Nectarines. Mr. J. Wallis came 2d, with very fine Barrington Peaches and Red Roman Nectarines; good dishes of Royal George Peaches and Newington Nectarines also came from Mr. P. Norbury, gr. to W. Mackenzie, Esq., Bowden. In class 114, for a single dish of Peaches, fine examples of Royal George came from Mr. A. Hay, gr. to Mrs. Holland, Sandiway House, Altrincham. Mr. H. Smith, gr. to H. Walker, Esq., Calderstone, Liverpool, had some splendidly-coloured Bellegarde, whilst Mr. H. Roberts contributed a fine dish of Galande; Mr. Whittaker, gr. to Lord Crewe, and Mr. Miles, gr. to Lord Carrington, also contributed good examples. Mr. Carmichael was 1st for a single dish of Nectarines, with fine and beautifully-coloured fruit, of which the name was not given; Mr. Tillery came in 2d with a good dish of Violette Hâtive; and Mr. Turner, of Slough, was 3d, with a very nice dish of Hunt's Tawny. Fine specimens of Roman and Elruge Nectarines were also exhibited.

The best dish of Cherries comprises some very fine Bigarreaus from Mr. Tillery; Mr. O. Goldsmith, Polesden Lacy, came 2d; and Mr. R. H. Smith 3d with Waterloo. A fair dish of White Eagle came from Mr. W. Hill, as also Elton from Mr. J. Pottle. Mr. Freeman sent a grand dish of Black Tartarian, but was debarred from competition through sending too many.

Melons are very numerously shown, and in very good condition. The best green-fleshed variety came from Mr. R. Webster, gr. to S. L. Behrens, Esq., Glyngarth, near Bangor, who showed a fine-flavoured Golden Queen; Mr. C. Frisby, Blankney Hall Gardens, came 2d in the same class with a small but good Bromham Hall; and Mr. Turner was 3d with a very nice Golden Drop. Mr. D. T. Fish, Hardwicke House Gardens, Bury St. Edmund's, sent large and small specimens of Queen Emma. From Mr. T. Greeby, gr. to R. Voss, Esq., Harborough House, Manchester, came a fine Melon, named Lord Napier; whilst good specimens of the Hybrid Cashmere came from Mr. Miles and Mr. R. H. Smith. The 1st prize in the scarlet-fleshed class went to Mr. D. James, gr. to the Duke of Leinster, Carton Park, Maynooth, Ireland, with a finely-flavoured Scarlet Perfection; Mr. E. Clarke, gr. to J. C. Brown, Esq., Holmesdale House, Horsham, was 2d with Clarke's Hybrid; and Mr. J. Bolton was 3d with a small fruit of good quality, which was not named. Mr. Miles sent Royal Ascot, in good condition; and from Mr. D. T. Fish came a good Moreton Hall.

The best dish of Plums came from Mr. R. Janson, who had fine specimens of Goliath; whilst Mr. G. Whitfield, gr. to J. Galloway, Esq., Bowden, furnished Prince of Wales, which took the 2d prize.

Strawberries are very scantily shown, and are of a very ordinary character; Mr. J. Farquharson was 1st for four dishes, with President, Oscar, Empress Eugénie, and Sir Charles Napier; Mr. R. S. Yates, of Sale, Cheshire, came 2d with Lucas, Frogmore Late Pine, Sir Charles Napier, and Sir Harry; Mr. J. Hulme, Timperley, was 3d. For a single dish, Mr. J. Fowler, gr. to the Earl of Harewood, Harewood House, Leeds, was 1st, Mr. T. Farquharson was 2d, and Mr. J. Hulme 3d. The best collection of outdoor fruits came from Mr. J. Deavill, and Mr. W. Hill, gr. to W. Tipping, Esq., St. Helen's, sent the second best. In the miscellaneous class, for fruit not mentioned above, six very fine specimens of the fruit of Monstera deliciosa were exhibited by Mr. Speed, gr. to his Grace the Duke of Devonshire.

The fine collection of fruit sent by Mr. Stevens, previously alluded to, comprised six fine bunches of Black Hamburgh Grapes, beautifully coloured, two fine Pines, splendid Noblesse and Royal George Peaches, and Brugnon and Hunt's Tawny Nectarines, splendid dishes of Plums and Figs, and a good Trentham Hybrid Melon. Mr. Thomson's collection of Grapes, also mentioned above, consisted of fine bunches of Royal Ascot, Reeve's Muscadine, Royal Muscadine, and Muscat of Alexandria, and a splendid bunch with fine berries of the Chasselas Napoleon, Black Alicante, and admirable examples of the Golden Champion. The collections were cut from a house that was planted in May, 1868, chiefly from eyes of that year, and all were grown with bottom-heat afforded from pipes under a pavement. In the same tent was also a good collection of cones of hardy Conifers, sent by Mr. Robson, gr. to the Viscount Holmesdale, Linton Park, Kent, and which formed a very prominent feature amongst the miscellaneous subjects. In the collection was a good specimen of the cone of Araucaria imbricata, also examples of Picea nobilis, Pinus insignis, and Picea cepalonica, &c.

The various collections of vegetables were well represented, and the quality of the subjects shown was first-rate in every respect. The Silver Cup, given by Sir James Watts, was won by Mr. D. Lumsden, Blaxholm Hall Gardens, after a very sharp competition. In this collection were Snowball Turnips, Onions, Early London Cauliflowers, Laxton's Supreme Pea, Early Horn Carrots, Globe Artichokes, Beans, Giant Orach Spinach, a fine dish of the Rat-tailed Raddish, and a good brace of Dale's Conqueror Cucumbers, all splendid examples. From Mr. J. Smith, gr. to H. K. Baldestone, Esq., Hale Carr, Altrincham, came a remarkably fine bunch of Early Horn Carrots; good dishes of Champion of Scotland Peas, Mona's Pride Potatos, Turnips, Beans, Tomatos, good Celery, and a fair brace of Cucumbers. Mr. J. Stevenson, Lark Hill, Timperley, also had some fine Celery, Beans, and Turnips, &c, Mr. Miles, Mr. H. Simcock, Brighton Grange, Manchester, and Mr. Freeman, also sent excellent collections. In class 39, for 10 dishes, the competition was again very strong, the 1st prize at last going to Messrs. T. Snowden & Sons, of Thirsk, who showed some fine sticks of Lion's Paw Celery, splendid Tripoli Onions, Turnips, good examples of Long Orange Carrots, and a fine dish of Snowden's Nonsuch Peas, with fine large pods of a remarkably green colour; Mr. T. Bailey, gr. to T. T. Drake, Esq., Shardiloes, was 2d with fine examples of similar subjects, with the addition of well-grown Parsnips and Vegetable Marrows; Mr. W. Cragg, Timperley, Cheshire, was 3d, showing some grand Celery, fine clean Onions, good dishes of Tomatos, and Mushrooms, &c. In the class for 8 dishes, the best came from Mr. C. Frisby, who had first-rate examples of Potatos, Turnips, Artichokes, Carrots, Onions, Beans, Walcheren Cauliflowers, and No Plus Ultra Peas; Mr. J. Smith was 2d, and Mr. M. Dean, gr. to J. S. Milne, Esq., Sale Moor, Cheshire, 3d

both showing admirable collections. Several other very fine groups were shown, which were deserving of a more extended notice, did our space permit.

A beautiful group of artificial flowers was exhibited by Mr. J. Denton, 175, Regent Road, Salford, and deservedly awarded a 1st prize; they were handsome examples of fine manipulation and strict fidelity to Nature. Some splendid skeleton leaves were also exhibited by Mr. J. Kaye, of Wilmslow.

The cottagers' produce, both in regard to plants and vegetables, were of a high character; in some of the classes for the latter the competition was very keen. Collections of cut flowers from the open garden were admirably done. Fruit was good, though limited in character. Vegetables were very numerous, every class being well filled.

Amongst the collections of horticultural structures and garden requisites exhibited on this occasion we may mention a group of houses shown by Mr. T. G. Messenger, of Loughborough, in which were a new form of house for covering Peach walls, &c., examples of patent half span-roofed plant houses, and span-roofed propagating house, &c.: Messrs. T. H. P. Dennis & Co., of Chelmsford, have several forms of span-roofed houses, and a collection of large and powerful horizontal tubular boilers, &c. Mr. Foster, of Beeston, Notts, shows one of his large portable orchard-houses, 80 feet long by 30 feet in width, and 8 feet 6 inches in height at the sides. The house is fitted with improved appliances for working the ventilators, which is now done by turning a small wheel in the centre for opening and closing the side ventilators, and the same at the end for working the top, instead of the screws and shafts with which some of his erections are fitted. He has also a specimen of the boiler figured in our columns at p. 662. Mr. James Cranston has also several specimens, deserving of notice from the novelty of their construction. Messrs. Ormson, of Chelsea, show several large boilers, as also do the Messrs. Weeks, of King's Road, Chelsea. Mr. W. S. Dobson, 19, St. James's Street, has a fine collection of dinner-table decorations, &c. Specimens of garden pots are exhibited by Mr. R. Sankey, Belvedere Pottery, Nottingham. Messrs. T. Green & Son have examples of their improved lawn mowers, rollers, and garden seats, &c. Messrs. Ransomes & Sims also show a similar collection. Mr. John Shaw, of Bowden, exhibits Rendle's patent plant and fruit protectors.

The Apiary.

'O Arguerothekautopelthuon; or The Self-Filling Money-Box. By Boscawen, Plymouth.—A pamphlet, bearing the above high-sounding title, has been sent to us by an apiarian friend for our opinion as to its merits. The author professes to write under the auspices of The British Apiarian and Cottage Improvement Society (Limited). Might we not add "very" to the last word? The author's views are put forth in a manner which, in a great degree, corresponds to the title of his book. He says, "Let us picture to ourselves the possibility of a self-filling money-box, a receptacle which, placed empty in a nook in our garden, would in some unaccountable manner become filled with cash in a given period. What poor man, nay, what rich man, would not be glad to be possessed of such a magic box? And now let us examine the difference which exists between a Boscawen's bee-hive and such a magic box. The one becomes full of wax and honey, and the other would be of money; and wax and honey can be easily turned into money."

Swarming is, Mr. Boscawen thinks, "the great drawback to bee-keeping. This, and this only, is what causes hundreds of agricultural peasants yearly to give up keeping bees." "Until swarming can be surely and successfully dispensed with, bee-keeping must, and ever will, remain more an object of amusement than of pecuniary profit; but only dispense with swarming and the state of affairs is entirely reversed." The author considers that bees throw off swarms only from stern necessity, and that they have a great antipathy to leave the parent hive. Only give them proper scope for their industry and they will not swarm. How happy would apiarians be if this were really true; but they know too well that bees will often persist in swarming though supplied by the careful bee-master with ample room for extending their stores and population. The author relates an anecdote, the truth of which we have no reason to doubt, which is worth extracting, but it is too long to be given in his own words. Early in the summer of 1830 a swarm took possession of a space between the floor of his bed-room and the ceiling of his dining-room, through a hole in the outer wall, probably left by an oversight of the builders. The bees worked most industriously, and were expected, during the two succeeding summers, to throw off swarms, which however they did not do. In the autumn of 1834 he yielded to the solicitation of his bee-keeper, and attacked and pillaged their stronghold, and found "the immense treasure of no less than 756 pounds' weight of honey and wax," which booty would have been greater but for a multitude of rats and mice, which had in some measure forestalled their operations.

The author considers that "the grand error in principle which obtains in, and completely runs through, all systems of bee management now in this country," consists in the bees not being supplied with extra accommodation early enough. "The only method, therefore, of preventing bees from swarming, or rather the only method of successfully dispensing with swarming, is to supply them with sufficient room before they want it, and to keep them always supplied with plenty of room, then no swarm will ever issue from the parent stock." A bold assertion truly; but, also, we are bound to say, as incorrect as bold.

The system advocated by Mr. Boscawen is that known as collateral hiving. "No recourse must be had either to ventilation, or to super-hiving, or nadir-hiving; the room or space must be always supplied collaterally." The boxes he recommends are what would be considered very large by the majority of bee-keepers, and particularly those intended for the affording of extra accommodation. They are to be made of red Cedar or white deal, 19 inches square by 9 inches deep from out to out, and one inch thick. In two sides of each box, opposite each other, three communication spaces must be cut, each 5 inches long by ½ inch deep; all made to correspond, so as to allow of free passage between any two boxes. Tin slides are used for closing the communication when necessary. A complete hive consists of three of these boxes, placed collaterally on a floor board. All joints or openings, except the entrance, must be, if possible, hermetically sealed.

It would seem, by the author's method of management, that boxes when taken off must be almost certain to be more or less full of brood and pollen. He draws a comparison between his system and that of super-hiving as to the pureness and quantity of honey which can be obtained from them. His collateral boxes are perfect, the others nowhere. For bee food, the vile compound of beer, sugar, and salt is upheld by him. Few bee-keepers ever now think of using it.

As soon as the bee-keeper has become sufficiently advanced, he should use none but bar and frame hives, which can be adapted to the author's system by making his boxes two inches larger in diameter and one inch deeper. The hives are worked otherwise precisely in the same manner.

Mr. Boscawen claims that his "system of bee-culture differs from all other systems mainly in one grand vital principle," namely, in its perfect "submission to Nature." With all due submission to him, we beg to differ from him in this, as in many other points of his doctrine.

Garden Memoranda.

Elleeslie House, the Residence of Thos. Jones, Esq., Whalley Range, Manchester.—The few following remarks will perhaps interest those of your readers who make the cultivation of Orchids their study. The principal entrance to the Orchid-houses is through a glass corridor, which, in my opinion, is a very good plan, as it entirely prevents the cold external air from entering the house as you open the doors, which is of great importance to the well-being of their several inmates. The first house you enter on the right is the East Indian, which, till lately, has been double-glazed, but Mr. Swan, the gardener, is of opinion his plants will do much better without the extra roof, as the exclusion of light is very great during the dull months of winter, when every ray is of the greatest importance. Almost the first plant to attract attention on entering is a magnificent specimen of Angræcum sesquipedale, in fine health, clothed to the pot with about 28 fine dark green leaves, and six of its grand ivory-like flowers, with greenish tails about 15 inches long. The centre of the house is filled with fine examples of Vandas: amongst others I noticed fine plants of V. suavis, tricolor, insignis, gigantea, &c. Saccolabiums were looking well. Among others worthy of notice I may mention a fine plant of Holfordii, with about 12 leaves; several nice plants of gigantea, which is a very fine plant for winter blooming; also a remarkable mass of curvifolium, nearly 2 feet through; Aerides odoratum purpurascens, with 20 leads, quite 4 high; as also nobile and Dayii, a fine pair of plants about 6 feet high, with several breaks on each; a fine plant of the true Veitchii, in good condition; as well as a host of other kinds, including amongst them many gems, such as virens grandiflorum, virens maculatum, Larpentæ, Fieldingii, Lobbii, &c. A grand plant of Phalænopsis Luddemanniana was in the finest possible condition, having no less than 10 young plants from the flower-stems laid on flower-pots all around, many of them nice plants. I had almost forgotten to mention a fine plant of Vanda cœrulea, well clothed with leaves, which was suspended from the roof in a wooden basket, and was doing admirably; as was Zygopetalum rostratum, with three strong leads and seven superb flowers. The Cypripediums are likewise very fine examples of horticultural skill; amongst others I may mention a very fine Lowii, throwing up four flower-spikes, and quite a mass of foliage; while Stonei was still finer, being a mass quite 3 feet through; the beautiful concolor with 20 growths, and good plants of caudatum, villosum, Dayii, lævigatum, &c. Dendrobiums were doing well, especially Falconeri, cucullatum giganteum, macrophyllum giganteum, which are just showing their flower buds. The lovely Calanthe Vetchii, and its worthy companion, Turneri, with six fine spikes of bloom, were extremely effective, among the dark green leaves of the Aerides, Vandas, &c. On entering the Cattleya house, you find yourself in the presence of a magnificent Cattleya, blooming for the first time; the sepals and petals are a suffused rose, while the lip of the labellum is like the richest crimson-purple velvet imaginable, by far the finest Cattleya I have yet seen out of the extensive batches imported by Hugh Low & Co. Another fine plant is Warneri, with about 20 bulbs, in the finest condition, as also a great number of Trianæ in bloom, with their various shades of colour, some very distinct in character, likewise extra fine specimens of labiata, Walkeriana, &c. Lælias are quite at home. The following kinds are doing very well:—purpurata, with fine flowering bulbs; the rare and superb Wolstenholmeæ, with its white sepals and petals margined with light rose, and deep purple lip, while others were going out of bloom, such as autumnalis, furfuracea, albida, &c. A fine plant of præstans was remarkable for its great beauty, having no less than eight lovely flowers. Brassavola glauca is growing superbly among the Cattleyas near the glass, and has five splendid flowers like the purest ivory. This is certainly extra fine, and should be in every collection, while its fit companion, Maxillaria venusta, appeared to be equally well at home, having been in bloom more or less since last July. Some of the blooms measure 6¼ inches to 6¾ inches in diameter. Trichopilia crispa and suavis are fine plants, while Pleiones are doing well in this house, as also was a fine plant of Odontoglossum pulchellum, with 12 of its beautiful white sweet-scented flower-spikes; O. Inslayii was also grandly in bloom, having three spikes with six, eight, and ten flowers on each. The Odontoglossum house adjoins the Cattleya house, which is a low-roofed structure, admirably adapted to the successful cultivation of this very fashionable class of cold Orchids. In it I noticed very fine examples of the following:—nævium majus, with 12 breaks, in fine health; O. cordatum gloriosum, Hallii luteo-purpureum, maculatum, &c., were each throwing up strong flower-spikes, while the beautiful Alexandræ was in full bloom, with ten of its pure white flowers; as also the spotted form, Bluntii; the rosy-coloured varieties of Cervantesii were covered with bloom; as also falsipetalum, with a spike 30 inches in height, and several laterals, was very good. The charming little Sophronitis violacea, on a block, was literally covered with a mass of bloom, while S. grandiflora was equally good. The stately Lycaste Skinneri was in full beauty, many very fine varieties amongst them. In the Dendrobium house I noticed a splendid example of Dendrobium Hillii, with cream-coloured spikes of bloom like a fox-brush; as also the rare Wardianum, just showing its flower buds; the new Bensoni was doing well, as also a fine Lasioglossum just coming into flower; large masses of Cœlogyne cristata were covered with their lovely white flowers, many of the spikes with six blooms on each; Cypripedium Piercei and Schlimii were equally well at home in this house; as also the charming Cattleya Warscewiczii delicata, one of the old original varieties. In the conservatory adjoining I noticed a fine display of bloom, more especially Camellias, and two fine plants of Daphne indica rubra, literally a mass of flowers, quite 3 feet high.

I cannot conclude this notice without mentioning the thrifty condition every plant appeared to be in, which reflects the greatest credit on Mr. Swan, the gardener, who is quite enthusiastic about his pets, and through whose courtesy I was enabled to spend a very interesting afternoon. I may mention, in conclusion, the drying system is not carried out here to the same extent that I have seen it in some places, as no plant is allowed to shrivel for the want of water. *George Toll.*

Obituary.

We learn with great regret that Mr. John Bevan Whiting died on Monday last, July 19, at the residence of his son, near Hereford. For nearly thirty years Mr. Whiting was gardener at the Deepdene, Dorking, and was as much esteemed for his personal worth as for his excellence in the practice of his profession. Mr. Whiting was for many years a valued contributor to this Journal, his communications being always marked by clear-headed, sound sense. Mr. Whiting was for some time in the gardens of the Horticultural Society at Chiswick, and retained to the last his connection with the Society by his services to the Fruit Committee, of which body he was a member almost from its first establishment. It is only a month since Mr. Whiting resigned his functions at the Deepdene on account of ill-health.

Miscellaneous.

Action of Ether on Plants—On allowing a drop to fall on one of the leaflets of Mimosa pudica from a height of 5 or 6 inches, contraction of the leaflet instantly took place, and was immediately followed by the motion in successive order of the adjacent folioles proceeding from the apex towards the stalk of the leaf. When, on the other hand, the drop of ether was placed as gently as possible on the surface, the leaflet did not move, but seemed paralysed by the anæsthetic agent, while the adjacent ones not touched by the ether moved as in the preceding case. Ether-spray applied with the jet had precisely similar effect. When the spray fell directly on the leaflets, that is with some force, the impact of the falling drops counteracted any paralysing power that the ether might have; but when the spray was so directed as not to fall directly or with force on the leaflets, then such of them as came within its influence were rendered motionless, the adjacent folioles contracting from the distal towards the proximal end of the leaf as before. A spray of water directed on to the leaflets caused them to fall, but if not allowed to impinge directly on them no motion ensued, though of course the water did not, as the ether did, stop their mobility, as a touch was sufficient to make them collapse after the water-spray, while after the ether-spray contact produced no effect. The effect of the ether-spray on certain other plants was, in two instances, so remarkable that a record may here be given, though it must also be borne in mind that the results now to be mentioned were only obtained in two instances out of many trials on various plants in hot-houses, in the end of November. On applying the spray to the extremity of one leaf of Iresine Herbstii, (which from having been grown in heat was what gardeners call "drawn," that is, had comparatively long intervals between the leaves, and a flaccid texture), a thin film of ice was speedily produced on the distal end of the leaf. In less than two minutes the whole shoot, 4 or 5 inches long, was observed to bend quickly downwards, forming as it did so a curve whose concavity was downwards. Next morning the whole shoot was dead. To what precise circumstances this rapid transmission of the effect from one end of the shoot to the other, and its ultimate death, are due, it would be premature to assert, as it is difficult in such a case to eliminate the irritant effect of the ether (clearly it did not here act as an anæsthetic) from the effect of the cold and ice produced by its rapid evaporation. It may here be stated, that two or three drops placed on the leaf in the ordinary way had no effect at all. A few days after, similar trials were made in the Botanic Garden, Chelsea, on some plants of the same species, grown in a colder house, and which were "shorter jointed" and altogether firmer in texture. In these instances no other effect was produced than the death of the leaf. The other case to which allusion may be made was a Maranta, also growing in a stove,

and in which the application of ether-spray to the tip of a leaf caused it to roll up on the under side like a roll of paper. In the young state the leaves of this plant are rolled lengthwise (convolute), but the effect of the ether was to cause the leaf to roll up along the under surface from the tip towards the stalk. Similar experiments were tried on other Marantas, but without effect. Now, though of course little stress can be laid on these experiments, they appear to be worth recording, as suggesting other trials at a more favourable season—trials from which possibly something may be learnt as to the movements of plants, the propagation of impressions, the action of irritants, or of frost. *Dr. Masters in "Popular Science Review."*

Hardy Azaleas are amongst the sweetest and most brilliant of the flowering American shrubs which render our garden scenes so enchanting in the merry month of May. Forty years ago the original species and their immediate progeny might be seen yielding their masses of golden and fiery and roseate hue, to lighten the dark masses of evergreen Rhododendrons with which, then as now, they were commonly associated. After that the Continental cultivators took up the improvement of the Azalea, and the Ghent varieties of some twenty years since revived for a while its popularity; but with the onward march of fashion it seems to have been again left in the rear, and for the most part unheeded by the masses, though not uncared for by those who know its worth. Hence we were not surprised, some two or three years since, on visiting the Knaphill Nurseries, one of the earlier and still one of the most pleasant homes of "American plants," to find that the breeding of improved Azaleas had been for some time going on quietly, and that, as a result, a number of novelties of sterling merit had been obtained. These grand acquisitions, which occur in considerable variety of colouring, are, as we understand, partly the result of a judicious intermixture of sinensis blood, and partly the result of selection and of seeding on from the best varieties. Not only the quality of the flowers but the habit of the plant has been cared for, and in this way have been secured varieties which combine with larger, more brilliant, and better-shaped flowers, a vigour of growth which enables them to develop their blossoms freely. The new sorts have this further recommendation, that instead of blooming early, and having in great measure faded before their associates, the Rhododendrons, come into flower, they bloom contemporaneously with the latter, and it need scarcely be pointed out that their brilliant tints, of orange and red especially, are particularly valuable from the fine contrast they present with the colours familiar amongst Rhododendrons. Their early blooming habit was in fact one of the chief drawbacks of the primitive Azaleas of our boyhood, and this is now in great measure removed by the introduction of Mr. Waterer's new varieties. We may also mention that in the same collection are some wonderfully fine double-flowered varieties. One which we particularly noticed, an exquisite shaded orange, was much brighter and more attractive than the well-known Van Houttei. The charming variety named Nancy Waterer is of vigorous growth, producing, contemporaneously with its leaves, fine trusses of deep orange-yellow flowers, which are larger and richer coloured than in any yellow previously obtained, the colouring being most intense in the three upper segments. In this, the flowers are fully two inches across, and sweet-scented. The variety called Bessie Holdaway is a lovely flower, sweet as violets, but scarcely so large as the foregoing, the flower being about an inch and three-quarters broad, and of a clear, lively rose-colour, the upper segment being freely spotted with bright orange. Many other equally beautiful forms have been obtained, and as the process is still going on we may expect in the future to see the Hardy Azalea again occupying a very conspicuous place in our American gardens. *M., in "Florist and Pomologist."*

Garden Operations.

(For the ensuing week.)

PLANT HOUSES.

There are some few stove plants which would be much benefited by a shift into pots a size or two larger than those they now occupy, such as late flowered *Gardenias* and *Stephanotis*, which are grown in pots, and which, having already flowered, are again starting into growth. Early flowered or stove-grown *Rhynchospermums*, *Echmeas*, *Echites*, such as Harrisii, &c., should be similarly treated. There are a few also which will require treating very carefully in regard to the supply of water which is afforded them and the atmospheric influences which surround them, &c., such, for instance, as *Clerodendrons*, of the C. Thompsoni section. *Francisceas* which have done flowering, and having already made their growths, are becoming somewhat at rest. These and all other plants belonging to this department may be removed with great advantage into vineries that have already ripened their crop. Here, with a moderate temperature and the natural shading afforded by the Vine-leaves, they will ripen their wood well. All early flowered *Pelargoniums* of the Cape sections which have done flowering should now be cut-in, or "headed down." This is an operation requiring not only caution in the use of the knife, but an amount of foresight and study, if the plants are to succeed thoroughly hereafter. At all times where practicable retain only such well-placed, thoroughly-ripened, short-jointed wood as is likely to produce abundant eyes and strong young shoots. Keep the balls of such as are thus cut back moderately dry for about a fortnight, and until such time as they "break" freely, when a good soaking with nice soft water may be afforded to each. During the above period they require keeping in a cool frame, and the lights should be kept close down, giving a moderate amount of shading during bright sunny periods. If they are slightly damped over with a syringe about twice a-day it will prove beneficial to them, and be conducive to a more full formation of young shoots. Reference will be made at the proper time to the future treatment. Where it is desirable to increase the stock, resort must now be had to the process of propagation by one or more of the many ways which are generally put in practice. If by cuttings, choice should be made from amongst the old portions which have been taken off as above in process of pruning—from any young shoots which may not have flowered, or such as have not too greatly exhausted their greenness or vitality. Of course the customary joint must be secured at the base of each. The "slips" should be about two or three inches long, each possessing two or three nice healthy leaves. When the mounds have become somewhat dry by exposure to the atmosphere they may be dibbled firmly into small-sized pots, into a mixture of good loam and silver sand, the former of which will require to be previously passed through a fine sieve. Plunge the pots into any material in a propagating pit, or similar contrivance that is likely to keep up a uniform degree of warmth and moisture around them. It may be well to remark that immediately the cuttings are put in, a good soaking will be necessary to settle the soil nicely around the base of each. Some have resort occasionally, when sorts are new or rare, to a system of propagating them by means of roots, and indeed, in some instances, make use of eyes only. The former produce plants freely if portions are dibbled into the soil in a similar way to the cuttings, excepting that shorter pieces will do, and they should be firmly dibbled into the soil, so that the tips alone are seen just through the surface. Much benefit will accrue to all hardy greenhouse plants that are now placed out in cool pits, by taking the lights off entirely during moderately calm weather. The invigorating influence of night air is seldom held by us at its full value.

FORCING HOUSES.

Generally my suggestions have reference to a healthy state of culture, whatever department may be treated of. Sometimes, however, it becomes necessary to refer to some of the many evils which the cultivator has to contend against. Few things are more detrimental to a good crop of Grapes, however well they may be produced, or cause more heart-burnings, than "shanking," or what, in a somewhat different form, is called the "spot." The former attacks the stalks of the bunches near to and amongst the berries, gangrene-like, and is no doubt rightly attributed to an imperfect supply of sap being forwarded up into the branches from the roots just at the time when most wanted. This is caused, no doubt, by a very decided difference of temperature existing at one and the same time between the roots and the branches—the former being, in fact, away down in the cold soil, ill-drained, it may be, and over-glutted with moisture; whilst the leaf surface is snugly housed above in a high temperature. The spot is doubtless attributable to violent fluctuations during some period or other of the growth of the berries, and as it attacks the berries, and particularly those of Muscats, it is very injurious. The moral I draw is this:—In every instance were *Vine-borders* are known to be imperfectly drained, or where, from causes beyond the present cultivator's power, the soil may be too tenacious or retentive of moisture, which is so conducive to a low degree of temperature, let great care be taken not to have resort to very high temperatures in the house itself. However good the superficial warmth may seem, and however judiciously it may be applied, remember that under such circumstances the roots and the branches are at war with each other. Encourage by every possible means a good surface growth in all such instances by permitting one or more shoots at the apex to extend itself freely. This will tend to increase the root surface, and to do away somewhat with that sluggish state of existence, which is the real progenitor of disease and its many attendant evils. One word regarding laying on a good colouring, upon Black Grapes especially. Do not by any means hurry them at such a juncture, but allow Nature full time and there will seldom be cause for fault finding. I can add little this week to my past remarks concerning *Pines*, except it be to suggest the desirability of hurrying on by every possible means the rooting of all sucker cuttings, so that they may take root and so establish themselves in their respective pots ere winter sets in. I may here state that in my remarks concerning Pines, contained in this department in last week's calendar, the word "frim" [what does it mean?] has by the simple transposition of two letters been made to read "firm," which materially altered my meaning. *Figs* having green fruit swelling should receive abundant root-waterings, and copious syringings overhead, both to assist the plant in the production of a good crop, and to ward off all attacks of red spider.

HARDY FRUIT GARDEN.

Continue layering *Strawberry runners*, where a further supply of any sort is required, as frequently as they become sufficiently large for the operation. Trench the soil of all old "beds," which are to be destroyed; as the old plantations, if left upon the ground after the crops are gathered, greatly impoverish the soil.

HARDY FLOWER GARDEN.

Sow *Mignonette* in 48 or 32-sized pots for early winter blooming. This plant thrives well in good fibrous loam mixed with leaf-mould. This should be well rammed down into the pots previously to the seeds being sown. Those who intend growing specimen plants, whether as standards or otherwise, should now choose strong young plants which have come up in the open border. Take them up carefully with as many roots as possible attached, and pot them into 60's, shading them, and taking other necessary precautions for a day or two. Take up *Ranunculuses* as soon as the leaves have become properly ripened; do this at the earliest possible moment, should the present dry weather continue, until they are fit, as should a showery period occur the opportunity of housing them dry, &c., may be lost. Sow seeds of the lovely *Nemophila insignis* for late autumn blooming; these do well for flowering in pots if permitted to retain their prostrate or pendent habit.

KITCHEN GARDEN.

Look well after late sowings of *Peas* which are already aboveground; in general they are infested with aphis, of such a size as it has seldom been my lot to see. These must be destroyed if the plants are to thrive. Should the weather continue dry, they should receive a thorough root-watering. The next rain should find us ready for transplanting as much *Celery*, *Broccoli*, &c., as possible. I would rather wait until it comes, than deprive the plants of the little nourishment they now get by uprooting them in process of transplanting. The ground might be prepared in the meantime, even to drawing out the drill rows, &c. Pull up *Garlic*, *Shallots*, and winter *Onions*, leaving them upon the ground to ripen off more effectually. Where convenience exists, young successional *Cauliflowers* should be frequently watered. *W. E.*

TOWN GARDENING.

Clear the beds of all annuals that have done flowering, as the seed produced by plants grown in towns is not worth saving. Cut down all flower-stems that have done blooming and remove decayed leaves. The beds and borders should be occasionally stirred with the Dutch hoe and levelled with the rake. This will keep down weeds, ensure neatness, and likewise let the water into the soil instead of running off. Herbaceous plants that have down flowering can now be propagated by dividing the root and planting them in some reserve border till spring. The *Christmas Rose* can be propagated by these means at this season, but unless numbers are required they should never be disturbed, for in this condition they flower freely. The Starwort, or *Michaelmas Daisy*, a class of plants much neglected of late years, but which do exceedingly well in towns, and make a gay show just before the Chrysanthemum, should be now thinned out to about three stems, and should be neatly tied as they advance in growth, and be well watered. It will now be advisable to cease mowing for some time, so that the Grass may gain strength before autumn. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending July 21, 1869, as observed at the Horticultural Gardens.

July.	Moon's Age.	Barometer.		Temperature. Of the Air.			Of the Earth		Wind	Rain.
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 15	6	30.197	30.142	82	51	66.5	64	61	N.W.	.00
Friday 16	☽	30.115	30.050	86	55	70.5	68	61	N.W.	.00
Satur. 17	8	30.098	30.052	90	55	72.5	70	63	N.E.	.00
Sunday 18	9	30.014	29.949	90	56	73.0	69	63	S.W.	.00
Mond. 19	10	30.058	29.973	75	55	65.0	70	65	S.E.	.00
Tuesd. 20	11	30.116	30.081	71	46	58.5	65	63	E.	.00
Wed. 21	12	30.046	29.991	81	45	63.0	66	63		
Average.		30.092	30.034	82.1	51.8	67.0	67.4	62.7		0.00

July 15—Overcast, very fine; clear and fine.
— 16—Exceedingly fine; overcast; clear and fine.
— 17—Clear and fine; slightly overcast; densely overcast.
— 18—Very fine; cloudy, but fine; very hot; overcast.
— 19—Overcast; densely overcast; slightly overcast.
— 20—Densely overcast; hazy; clear and fine.
— 21—Clear and fine; very fine; clear at night.
Mean temperature of the week, 5 4-10 deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending July 31, 1869.

July.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..25	73.9	49.4	61.9	13	1.48 in.	3	7	3	2	2	11	12	3
Mon. ..26	73.7	50.3	62.0	22	1.22	2	3	5	3	5	15	7	4
Tues. ..27	74.9	50.7	62.8	19	0.98	2	3	5	2	4	15	9	3
Wed. ..28	76.4	50.8	63.6	21	1.39	3	3	4	3	2	12	11	5
Thurs. ..29	75.5	49.9	62.7	18	1.31	5	5	4	1	5	13	5	5
Friday ..30	75.2	50.2	62.7	16	0.88	5	5	3	1	2	12	9	6
Satur. ..31	74.9	50.0	62.4	15	0.66	2	7	2	—	4	17	9	2

The highest temperature during the above period occurred on the 25th, 1844—therm. 92 deg.; and the lowest on the 29th, 1858—therm. 33 deg.

Notices to Correspondents.

Artificial Pond: *W S P.* desires to make an artificial pond, 50 yards long and 20 yards broad, and 5 feet deep, in a chalk soil. What is the best and cheapest method of making it water-tight? Will some correspondent favour us with his experience in the matter?

Condensed Water: *A Poor Gardener.* It will answer very well for cleansing purposes, but not so well for feeding purposes.

Honey Dew: *W B.* See correspondence, p. 764.

Names of Fruit: *J M L, Wansford.* French Crab, or Winter Grecning.

Names of Plants: *E H B* should be more modest in his requirements. 2, Platyloma rotundifolium; 3, Asplenium marinum; 5, Onoclea sensibilis; 7, Cyrtomium falcatum; 15, Sedum acre; 16, Myosotis sylvestris.—*E W, Hampstead.* Pteris aquilina.—*Subscriber.* How can you expect us to name such wretched scraps? The only one recognisable is Lysimachia nummularia (Pennywort).—*G D.* 1, Francoa sonchifolia; 2, Relhania trinervis; 3, Spiræa cuneifolia; 5, Achimenes longiflora.—*W B.* Muhlenbergia complexa.

Insects: *F K.* We have no knowledge of the insect which has bitten off your Strawberries, apparently for the pips, but suppose it to have been the caterpillar of some kind of Noctua, which should be searched for after dark with a lanthorn. *W.*

Princess Christian Rose.—Mr. W. Paul challenges the verdict given by "R. D." as to the merits of this Rose. It must be remembered that "R. D.'s" observations applied only to the Rose as shown on the occasion in question. "R. D." did not speak in the name of the Floral Committee, though his inadvertent use of a colloquial expression might perhaps convey that notion. "R. D." has an ample right to express his own opinions.

Communications Received.—T. D.—J. W. L.—Thorne.—Sub.—W. S. P.—W. C. T.—J. H.—G. L.—Dugald.—A. R. H.—G. T. M.—W. Henderson.—A. B.—G. L.—A. T.—A Strawberry.—T. J.—J. O. W.—B. Looker.—A. T.—T. R.—A.M.

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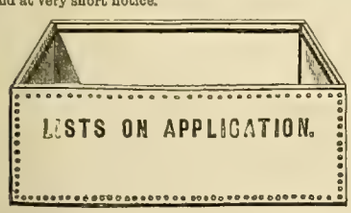
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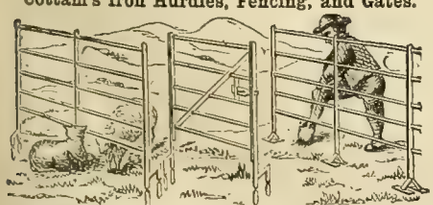


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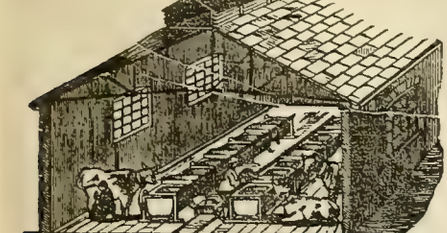
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HIGHLAND and AGRICULTURAL SOCIETY. EDINBURGH SHOW, 1869.

WEDNESDAY, July 28.—Judging and Exhibition of Stock and Implements. Public Dinner—Tickets to be had of the Secretary.
THURSDAY, July 29.—Exhibition of Stock and Implements. Ball in Assembly Rooms.
FRIDAY, July 30.—Exhibition of Stock and Implements.

F. N. MENZIES, Secretary.

3, George IV. Bridge, Edinburgh.

State of the Crops, 1869.

THE GARDENERS' CHRONICLE and AGRICULTURAL GAZETTE of SATURDAY, August 7, will contain a FULL and TABULAR STATEMENT of the STATE of the CROPS throughout the UNITED KINGDOM. Order of any News Agent. A Single Copy sent for Six Stamps.

Office for Advertisements, 41, Wellington Street, Covent Garden.

The Agricultural Gazette.

SATURDAY, JULY 24, 1869.

MEETINGS FOR THE ENSUING WEEK.

July 28 { Highland Agricultural Society's Show, at Edinburgh.
{ Gloucester Agricultural Show, at Cirencester.
— 29—Lincolnshire Agricultural Show, at Lincoln.

WHATEVER be the failures of the Royal Agricultural Society in the opinion even of the most unfriendly of its critics, certainly its great annual performance in the showyard has no place among them. Its long experience in the organisation of endeavour here, and its undisputed supremacy—never challenged by any of those who compete for its awards—as regards the influence and weight of the judgments which it pronounces on these occasions, have together for many years insured for it a most successful annual exhibition of everything in which English agriculture is interested. And certainly, as the exponent of that great interest, it has, during the past week, surpassed all previous exhibitions of its power.

The Presidency of his Royal Highness the Prince of Wales has been distinguished by an extraordinary effort on the part of both the great classes who cater for the ordinary tenant-farmer. We refer both to those who supply him with stock wherewith to consume his produce, and to those who supply him with machinery, for what may well be called the manufacture of that produce. And never has the extent of the agricultural field, or the ability and energy of its cultivators, been so well illustrated as now, when it has been especially desirable that the great manufacturing interest of the country, which Manchester represents, should become acquainted with them. The weather, too, has been most propitious; and immense crowds of visitors have inspected all that English agriculture had to show them. On Monday, when the entire showyard was open to the public, 4500 paid 5*s.* each, and 1300 season-ticket holders entered. On Tuesday, when the Prince and Princess visited the yard, 13,873 paid 5*s.* each, besides 2500 season-ticket holders. On Wednesday, 40,547 paid 2*s.* 6*d* each, besides 2347 season-ticket holders. And on Thursday there were no fewer than 57,129 shilling payments. There still remained Friday and Saturday of the Show week, so that the great expenditure which has been incurred will no doubt, be well repaid, besides a large addition made to revenue.

It is worth noticing, as illustrative of the relative influence of independent commercial enterprise on the one hand, and of that stimulus on the other which the prize-list of a national society affords, that, as in the class of reaping and mowing machines which has this year been particularly the subject of examination and award, there has never before been so complete a competition and display, so in the class of steam cultivators, which has not this year been submitted to the judges' examination, the exhibition, both at work and in the yard, has lost none whatever of its energy or interest. It is, we think, the part of the journalist rather to disparage than exalt the intrinsic value of the awards in cases where very slight differences of merit exist, and where one manufacturer may be, by means of them, placed aloft, while many others, as nearly as possible his equals, are unmentioned. The result upon the whole, however, is no doubt satisfactory; and the Society does well to maintain its rule wherever improvement is obviously possible and necessary.

Perhaps, after having thus stimulated to the utmost the efforts of both breeders and machinists, it may be able, by-and-by, to take the farmer himself in hand, and offer prizes, not so much for the means by which he works, as for the processes and results which he himself directs and superintends. A well devised scheme of prizes for successful cultivation of the soil, ought to be as serviceable for agricultural progress as prizes either for cultivators or for cattle.

—— Wheat has declined 2*s.* to 3*s.* in value, in consequence of the improvements in the promise of a good harvest. Barley, Maize, and other feeding stuffs have, however, been quite as dear.——The excessive heat has made the beef and mutton trade slow, and slightly increased the value of lamb.——In seeds there is but little doing.——The state of the Hop gardens is declared to be discouraging.

—— Mr. Mechi, believing the thin-sowing question to be of national importance, invites all those who feel interested to come and inspect his 4 pecks and the 2 pecks of Wheat (drilled) per imperial acre, and his 6 pecks of Barley and 2 bushels of Oats. He will commence harvest on August 2.

OUR LIVE STOCK.

The sale of the late Earl of Radnor's well-known stock of cattle, sheep and pigs is fixed for August 20. We hope on a future occasion to be able to lay before our readers some account of the present condition of both the herd and the flock. At present we must be content with a very brief notice. The Shorthorns have been bred with great care for more than 20 years under the able superintendence of Mr. Moore, who has been so long associated with the successes of the various animals of excellence found at Coleshill. The herd traces back to ancestors of good blood and acknowledged reputation, as may be seen by inspecting the pedigrees. Thus there are living representatives of the Chapel Brampton stock, so long bred by Mr. Beasley; others are lineally descended from "Wiseton" blood, purchased at Mr. Hutton's sale in 1855; some are of Mr. Wilkinson's "Lancaster" family, and others have found their way to Coleshill from Holme Pierrepont, Dane End, Siddington, Littlebury and Broadhinton.

The catalogue contains the names of 50 females and seven bulls, by far the greater proportion of whom are young and hopeful. Fawsley Baronet (23,920), the sire now in service, is by 4th Grand Duke, who again was a son of *Grand Duchess 8th*, one of the three cows sold at Willis's Rooms in 1865 for 1900 gs., and is out of *Fawsley Garland* by Earl of Dublin. A long pedigree ends with the well-known names of Windsor (692), repeated twice, and Own Brother to North Star (459). 2d Duke of Wetherby (21,243), bred by Mr. Bowly, by 7th Duke of York, and from *Ruby* by Lord Raglan (13,225), has also been the sire of much excellent young stock at Coleshill, which we doubt not will reflect credit both on him and his famous sire, of whom we are glad to hear better reports.

Further back in the history of this herd are the names of Fairleigh (19,714), from Mr. R. Booth's well-known "Fame" family; Wolfsbane, bought at the Fawsley sale for 125 gs., and Majestic (13,279), hired from Mr. R. Booth of Warlaby. Hence we find Booth and Bates blood flowing in harmony, and let anyone who doubts the advisability of the mixture lose no time in looking at the produce of such an alliance in the magnificent proportions of Colonel Towneley's *Baron Oxford's Beauty*, the 1st prize yearling heifer at Manchester, which for size as related to age cannot be surpassed.

The Coleshill Southdowns are even better known than the Shorthorns. They have achieved a splendid reputation, and were originally descended from ewes purchased from the flocks of the Duke of Richmond, Sir R. Throckmorton, Mr. Rigden, Mr. Williams and Mr. Ellman, to which were introduced rams from the late Mr. Jonas Webb's flock, previous to its dispersion, as well as from those already named.

We must reserve our remarks on the now famous breed of pigs, known as the "White Berkshires" or Coleshill breed, for a future occasion.

—— The late Mr. Crisp's Shorthorns were brought out in very poor condition, but the district is of the poorest land. It appears that his whole stock suffered so much from the drought last year that 100 sheep were known to die in one day, and the cattle never quite got over it. The cows were small, lean, and impoverished, but the heifers, yearling and 2-year-olds, were better, and in more bloom; the prices were accordingly only just over market value, nothing being paid for blood. For instance, the first cow, *Silence* 2*d*, out of a pure Bates' dam (the Surmise family), and by Sir Colin Campbell (13,718), with three Duchess crosses, made but 10 gs. True, she was in her 12th year, 3 months in calf, and full of Bates' character, but terribly poor. Some of the heifers made 36 gs., 37 gs., and 38 gs. each, the calves going at low figures. Very few Shorthorn people were present, but a large local company assembled.

—— Mr. Saunders' Hampshire Down rams had a capital sale on the 1st inst.; the sheep had been "much improved" even since last year, and went at greatly advanced prices, the highest figure being 60 gs. for a splendid sheep to go to the Royal Farm at Osborne. Mr. C. Edney paid 44 gs. for one, others made 41 gs,

and 32 gs., and several realised over 20 gs. apiece. This is one of the earliest sheep lettings in the season, and during this and next month they will be rife all over England. The 29th of July seems to be a favourite day, as Mr. Charles Howard's Oxford Downs are let at Biddenham; Mr. J. B. Lythall sells 100 Shropshire rams and 250 ewes at Bingley Hall, Birmingham, from various flocks; and Mr. William Lane's Cotswolds are offered at Broadfield, Northleach. Mr. Robert Garne's sale of 50 Cotswold shearling rams takes place on the following day at Aldworth, near Northleach; and the Bulbridge ram sale is altered to Wednesday, July 28. Mr. Cother's 31st annual sale of Cotswold rams is to be held the first week in August; Mr. Brown's Norfolk Cotswolds are to be let at Marham Hall on the 5th, and the day previously, the 4th, Mr. John Treadwell's 50 Oxford Down shearling rams, from his prize flock, will be sold by Mr. J. A. Mumford at the Model Farm, Upper Winchenden, Bucks. Mr. Willoughby Wood's Shropshires are to be sold on the 10th, and Mr. Preece has, as usual, a number of fixtures for the "grand Shropshires."

—— The Manchester exhibition has made us better acquainted with three breeds of sheep which had formerly only been known by name to many of us. We refer to the "Limestones," better known amongst their owners as Crag Sheep; the Herdwicks, and the Lonks. Of these three, the first-named attracted the greater share of attention, and from what we heard, direct from the very best local authority, they are well worthy of a wider distribution. The Limestone or Crag Sheep inhabit the barren moors of West Yorkshire, and subsist upon the dry mountain sides during the summer with little water, and during the winter with little artificial help. This suitability for high, barren, exposed, and dry situations is considered as their strongest point, and in this they differ from the Lonks, which, although adapted for land of the worst possible quality, do better on ling, moss, and rushy ground. Hence Lancashire and West Yorkshire boast two capital breeds of sheep for poor land, the one adapted for dry, and the other for damper situations. Returning to the Limestone Sheep we found them represented by many fine specimens from Mr. Rowland Parker's flock, of Moss End, Burton, Westmoreland. They may be thus described. Both sexes horned; face and legs white; wool firm, intermediate in length, and inclining to the character of short rather than long wool. Mr. Parker's flock clip on an average 7 lb. each sheep, and 1*s.* 3*d.* has been realised per pound this season. Mr. Parker rears and feeds off his wether lambs entirely on the lower ("in-land") ground, and raises them to from 18 to 22 lb. per quarter at 20 months old. The ewe lambs are kept on the "in-land" until they are one year old, and then go to the "common" or higher ground from May to October. They are again brought down in October, and put to the ram. Mr. Parker assures us of the prolific character of the females. Out of 54 ewes, 13 produced three lambs each, while the entire 54 brought up 96 to weaning time. With such statements before us we cannot doubt the advisability of knowing a little more about the Limestone breed of sheep, and there appears reason to think that they might be advantageously introduced in many of our dry, hilly, and poor districts.

PRESENT APPEARANCE OF THE CROPS.

CAMBRIDGE.—Wheat: On our best fen lands the Wheat is a full crop. A few of the heaviest crops are partially laid, and went down too early, and consequently are liable to be injured seriously should we get adverse weather. These want sunshine and warmth, and may then come to perfection better probably than we at present anticipate. But it is quite the exception for crops laid early to prove productive. The lighter crops are the worst, and present the most unfavourable aspect. Many of them are dropping down, and tumbling about in all directions, not from their being bulky, but from weakness; of these I entertain a very poor opinion, as in my experience I have never known such crops come well to harvest; they generally yield badly, and are of inferior quality. The remainder of our Wheats (and these are the larger portion) are full, good crops, and with suitable weather, may easily yield a full average. But our trying time is yet to come. On our fen lands we so frequently suffer from blight and mildew as the corn approaches maturity, and should we have weather to occasion these, we may see the yield reduced from 20 to 25 per cent. below present appearances, and the quality seriously deteriorated. We have known it so in the past, and are therefore anxious to see a continuance of warmth and sunshine, and with these we may have a very good crop. Oats: This crop is irregular. Many fields have suffered severely from the ravages of wireworm, and although doing well now, are too thin and broken a plant to produce a full crop. Where there is a thick plant there is a heavy crop. Barley: This crop has suffered from an excess of moisture, and will be lighter than its appearances at one time indicated; but it may even now afford a fair, although not a heavy yield. Beans and Peas, as far as straw is concerned, are generally pretty good, but I offer no opinion as to the probable yield. Sunshine and warmth, and an absence of rain, is what this county now requires. *Alfred S. Ruston, Aylesby House, Chatteris, July* 12.

EAST NORFOLK (Coast District).—It is scarcely possible to give any definite or reliable opinion of the crops at this moment. A fortnight since they presented a very unpromising appearance. I should then have pronounced them decidedly below average, but the last few days of almost tropical heat have produced a marvellous improvement, and should we have a continuation of such weather, may anticipate, at all events, an average harvest. I have examined several fields of Wheat; some are rather thinly planted, but have shot a good ear, and bloomed well. The chief defect is weakness in the stem, which is bent from the root to the first joint—I may say somewhat root-fallen. This may be found to be rather general. I lately examined some fields of Wheat in Essex, and noticed the same defect. How this will affect the crop I am unable to say, but much will depend on the weather during the next three weeks. The Barley is various; on light lands by no means promising, whilst on good soils, well farmed, it is running to a great length of straw, and the first heavy rain will lay thousands of acres flat upon the ground. Oats are good. Peas and Beans promise fairly, but I cannot at present say how they are likely to yield. The hay was a very fair crop, but not such a large breadth mown as usual, owing to so many fields being ploughed up in the spring, where the seeds perished by last year's drought. The root crop is at present doing well, and, should we get timely showers, will exceed an average. Harvest will be later than usual; with a continuance of fine weather it cannot be general here before the middle of August, and probably somewhat later. *W. Cubitt, Bacton Abbey, North Walsham, July* 12.

ESSEX.—Wheat under average, a good deal root-fallen or stem-rotten; Barley, average; Oats, promising; Beans, over average; winter Beans good where thinly sown, where too thick plenty of straw and few pods; early sown Peas, over average; Mangel, capital; Cabbage and Kohl Rabi, good. No rain for more than a month in our neighbourhood. First-rate hay crop, well gotten; ditto, winter Tares; very little Red Clover. Potatos want rain. Shall commence harvest August 2, perhaps earlier. *J. J. Mechi, July* 21.

HUNTINGDONSHIRE.—Wheats came out into ear very irregularly, with the ears thin and very far apart. The stem is very tall, in some instances 6 feet 6 inches, soft and succulent, and hence thunder-storms, or heavy rains, would be fatal to the crop. The last ten or twelve days have been favourable to the blooming stage as well as to the crop generally, and the ear has thickened, and is much improved. With a continuance of fine weather, and barring accidents, we may possibly reach an average crop of Wheat; but this will be our limit, and at present I think the chances rather against this. Barleys are very light on the strong land, from the excessive rains and cold nights in May, and cannot possibly be an average crop. Winter Beans are magnificent, and Spring Beans, at present, promising. Peas are a very fine crop generally; but some of the later crops have been struck with the fly, and will now be very deficient. Potatos: the early sorts are very abundant, and all root crops are very promising and well planted. Grass has been one of the largest crops ever known, especially upon the high lands; upon some of the lowest meadows the crop is not so good. With such prospects of food before us, the prices of stock must be well supported. *Peter Purves, Brampton, Huntingdon, July* 13.

—— The Wheat in this neighbourhood I think about an average crop, perhaps not quite so; the Barley certainly not an average, a quarter or three coombs short of it. The Beans are good. The Winter Beans are a very great crop, though not well podded. The Peas are generally a deficient crop. The Oats an average crop. The hay is a large crop, and secured in a good state. The root crop has every appearance of being good, so that we are likely to have plenty of food for the stock in the winter. *Robert Barton, Wigan St. Ives, July* 13.

LINCOLNSHIRE.—As regards cereals, I am afraid I have nothing very flattering to say. Wheat upon light land and poor clay soil is light, and must be short of an average. Upon well farmed good soils it is much better, and has come out with a good ear. I must say the same of Barley. Oats are bad. Turnips are promising, but rain would do them good. Hay a heavy crop. We shall not have any harvest until fully the middle of August, unless the weather comes very forcing. *F. Sowerby, Aylesby, July* 13.

NORTHAMPTONSHIRE.—Our Wheat crops in this neighbourhood are anything but promising, though they have improved much in the last few days, but even with a continuation of the present splendid weather the yield must be considerably below the average. The same remark will apply to Barley, excepting that on very superior land. Oats promise fairly, and both Beans and Peas look well, and if the fly keeps off will be good crops. Mangels are a good plant; Swedes and Potatos look well; Vetches were a remarkably heavy crop, and the hay crop more bulky than for many years; the greater part has been secured in first-rate condition, and, as the pastures are full of keep stock of all kinds commands extreme prices. *J Borlase Tibbits, Barton Seagrave, Kettering, July* 12.

OXFORDSHIRE.—My idea is that the Wheat is not good, being short in the straw and very irregular in the ear. The blossoming time is now, and has been favourable, but it cannot be an average crop. Barley on the best land is pretty good, but that on the clays is bad, short in the straw, and very irregular in pushing into ear. Oats are pretty good. Beans never were more promising, particularly the spring varieties, being a moderate length in the straw, and the pods well set: the winter kinds have too much straw, and are not so promising. Peas are good, plenty of straw, and well podded. Hay: there is but little Clover, the plant failing last season; there is, however, a great breadth of Trifolium incarnatum made into hay. The upland pastures are good in quality, and more than an average in quantity; the low meadows turn out short in quantity of fair quality. Roots: the Mangel plant is rather thin, but they appear to be doing very well now. Swedes, an excellent plant, and a total absence of fly. Turnips are very flourishing, in fact we have not had such a prospect for many years. Potatos free from disease, abundant in quantity, and good in quality. *Samuel Druce, Eynsham, Oxford, July* 2.

RUTLAND.—The Wheat crop in my neighbourhood (on all well-drained and well-farmed lands) will be a full average, but on badly-drained and badly-farmed much below. Barley is a bad crop here (the worst we have had for years), and Oats are not much better. Beans are a very good crop, and Peas decidedly much below an average. Mangel Wurzel and Swedes very promising, and the hay crop a very heavy one—the greater part secured in good order. The last week's fine weather has improved the corn crops much, but the harvest must be a very late one. *George Turner, Jun., Alexton Hall, Uppingham, July* 14.

WEST SUFFOLK.—The last fortnight has completely changed the appearance of the Wheat crop. About that time the prospect was somewhat dreary. A very uneven top threatened a light crop, and great breadths of Wheat looked as if they were about to have the jaundice, and about two-thirds of a very late yield was all that was calculated upon. But the last fortnight has worked a magical change for the better. Straw and ears seem to have been racing one against the other, and both have improved in an extraordinarily rapid and satisfactory manner. At this rate—the temperature was 95° to-day in the shade—harvest will begin in less than a fortnight. Some of the Wheat is beginning to change, and a field of Rye, very little of which is grown about here unless for seed, or for green food, is changing fast. The Wheat generally seems thinner than usual, but in many fields it looks quite an average, and in all the fields will be much more satisfactory than was expected a fortnight ago. Straw will be plentiful. The Barley is a splendid crop; nothing could look better at present. Very few Oats are grown; one field I noticed badly lain. The hay harvest is finished—the weather for the past fortnight, with the exception of a partial thunderstorm that passed over a considerable portion of the county last week, being very favourable for the late crops. Those who cut about the middle of June had ticklish weather, though not a great deal of hay or straw has been injured. The crops have been very heavy, and there is plenty of Grass in the meadows for sheep and stock. Green crops have come up well, and Swedes and Turnips generally look regular and healthy. Mangels and Sugar-Beet will be a regular and generally a heavy crop. But the weight will depend a good deal upon the weather. We had frosts for several nights in June, and this does not encourage a rapid growth in any of the Beets; still, they are generally healthy; and with growing weather, there is plenty of time to have a good return in October. I hope to send further particulars about the Sugar-Beet soon, as it is now becoming an important crop in this district. Peas and Beans generally look well, and promise a heavy yield. The plague of green and black fly is very great upon trees, hedge-rows, roses, &c., and we have noticed it much on the green crops. One piece of Wheat was noticed very much infected. Is not this a rare occurrence? July 13.—Splendid rain last night will give weight to the grain, and size to the root crop, and fill the meadows again with an abundance of sweet food. *D. T. F.*

THE ROYAL AGRICULTURAL SHOW AT MANCHESTER.

THE Manchester meeting has eclipsed all previous experience in the history of the Royal Agricultural Society of England. To this, no doubt, the Presidency of H.R.H. the Prince of Wales has largely contributed, and the magnificent weather of the past fortnight has no doubt immensely increased the number of spectators. But, apart from the mere incidents of the exhibition, its own inherent excellence has placed it in the very highest rank of merit. The cattle-yard, open to the public on Monday, was filled with the very best classes of Shorthorn cattle, Leicesters, Southdowns, and Shropshire sheep, that have ever competed for the Society's prizes. The horse classes, more numerous than this Society has heretofore exhibited, were many of them of the highest merit; and the "steeple-chase" display within a separate enclosure proved attractive to large numbers of spectators. The implement department is chiefly interesting for the extraordinary competition in mowers and reapers, which occupied the patience and the judgment of laborious judges during a prolonged trial in adjoining fields. Steam cultivators, though not this year competing for the prizes of the Society, were as full of work and competitive display as ever, and all the various kinds of them were exhibited. Perhaps the showyard was deficient in novelties; but there is no great harm in that. More detailed reference will be made in the following pages to the character of this part of the exhibition.

On Monday, July 19, the judges, an unusually large body of men, commenced their examination of the several classes of stock submitted to their inspection. The attendance was not so large as had been expected, and more purely agricultural than, considering the neighbourhood of the great city, might have been anticipated, Manchester people apparently reserving themselves for the following day, when the Prince and Princess would attend.

On Tuesday their Royal Highnesses the President of the Society and the Princess of Wales visited the showyard, and were most heartily and loyally received. Their carriage entered the ring set apart for the parade of the cattle, and the winners in the several classes passed before them. At the luncheon tent, after this parade was over, covers had been laid for 600 ladies and gentlemen, and the CHAIRMAN, Earl Sefton, Lord-Lieutenant of the county, proposed the health of the President of the Royal Agricultural Society of England—his Royal Highness the Prince of Wales, coupling with that toast the name of her Royal Highness the Princess of Wales. He said:—"I think that the reception that their Royal Highnesses have met with

yesterday and to-day testifies sufficiently to the loyalty of this country and its attachment to the Crown. It is a difficult thing to praise a person when he is beside you, and it is difficult to allude to his Royal Highness's good qualities on this occasion. I would rather point out to you his public acts. You can hardly take up a newspaper without seeing a report that his Royal Highness has laid the foundation stone of some charitable institution, or has attended the opening of some great work of mercantile and commercial enterprise, such as that which he is going to inaugurate at Hull. The latter part of my toast alludes to her Royal Highness. Wherever she goes there is but one beam of sunshine. She leaves behind her nothing but the best impressions. We all feel the deepest interest in her, and the truest loyalty towards her, and we pray that every blessing may attend her through a long and happy life."

The PRINCE of WALES, in responding, said:—I have to thank you from the bottom of my heart for the kind way in which you have received the toast. You have proposed my health in two capacities, as an individual, and in my position as President of the Royal Agricultural Society. I can assure you that I considered a great honour was conferred upon me when I was asked to assume this presidency. My only regret is that the office has been a nominal one, that I have not been able to be of as much use to you as I should have liked. At the same time I feel proud of being the President of a society which has existed for so long a time, which is one of the greatest agricultural societies anywhere, and which is always leading the way in agricultural improvements and setting a good example to the rest of the world. It is a great satisfaction to this Society to hold its annual meeting at Manchester. I feel sure that of all the cities and towns where it has been held, none has been more beneficial than Manchester will prove to be. Gentlemen, as President of the Royal Agricultural Society, it is my duty, in the name of that Society, to return our most cordial and warmest thanks for the liberal and extensive way in which the local committee have made all their arrangements. It is to them that we owe this magnificent entertainment, and to them, in conjunction with the Council of the Society, we are indebted for all we see before us. Lord Sefton has told us we are not to make many or long speeches. I will not, therefore, make any further remarks. But, before sitting down, I beg to thank you, in the name of the Princess, for the kind way in which you have received her, and to assure you that it has given her great pleasure to make her second visit to the show of the Royal Agricultural Society, and her first visit to Manchester. We both feel deeply grateful for the kind and hearty welcome which we have received, not only from Manchester, but also from the inhabitants of the county of Lancaster."

The royal and distinguished visitors almost immediately afterwards left the tent, and proceeded to the retiring tent, where Messrs. J. A. Barral, De Felcourt, Le Couteux, Grandeaux, accompanied by M. Delano, representative in this country of the French Agricultural Society, and other eminent agriculturists from France, were presented to the Prince.

After lunch the Prince and Princess drove to the ring, which had been equipped for the leaping trials of hunters, and were received with enthusiasm by the immense body of spectators who had assembled to witness the fun.

On Wednesday afternoon, before H.R.H. the President of the Society left Manchester, he presided at the formal general meeting of members of the Society.

Lord KESTEVEN proposed a vote of thanks to the Mayor and Corporation of Manchester, for their cordial reception of the Society.

Lord CHESHAM seconded the proposition, which was cordially agreed to.

Sir E. KERRISON proposed a vote of thanks to the local committee for the assistance they had given in making what a short time ago was little more than a swamp into one of the best grounds they had had.

Mr. B. GIBBS seconded the vote of thanks, and highly eulogised the great attention which Mr. Whitworth, the local secretary, had paid to the Society.

The Duke of RICHMOND then proposed a cordial vote of thanks to his Royal Highness for having acted as President of the Society during the past year. He noticed the fact that his Royal Highness was an exhibitor in the South Down class, and being himself, like his Royal Highness, an unsuccessful exhibitor in that class, he could heartily sympathise with him. He hoped that hereafter they would attain greater success.

The Duke of BUCCLEUCH seconded the vote of thanks, and it was cordially adopted amid great cheering.

The PRINCE OF WALES returned his warmest thanks for the kind way in which they had expressed themselves for the small services which he had been able to render them during the short time he had filled the office of President. He could only repeat what he had said on the previous day, that he regretted he had it not in his power to do more than he had done. At the same time he was happy that anything he had done was approved of by them. He must thank the gentlemen on his right and left for the assistance which they had given him, as it was from them that it arose that everything had gone on so successfully. The exertions of the local committee had tended to create a show which would always be remembered in that great and important city, for it seemed to him that the spectators and everybody had been satisfied. They were very fortunate in having very fine weather, and everything had gone on as well as it possibly could do. He would not detain them longer, but heartily thank them for their kind reception.

M. EDOUARD LECOUTEUX, Secrétaire-général de la Société des Agriculteurs de France (who was accompanied by M. Hervé Mangon, president of a section of that Society, and others), addressed the Prince of Wales, expressing the regret of his Excellency M. Drouyn de Lhuys in not being able to be present at the meeting of the Royal Society, and asserting that agriculture was amongst the bonds which united the French and English nations. In the name of the Society which he represented, he thanked the Prince of Wales for the honour he had done to French agriculture in accepting the title of hon. member of the Société des Agriculteurs de France.

The PRINCE of WALES, in reply, said he was very grateful for the honour which the French Society had done him. He regretted that M. Drouyn de Lhuys had not been able to be present at the Royal Agricultural Society's meeting, and his regret was the greater because he (the Prince of Wales) was this year the President of that Society.

After the Prince of Wales had retired from the tent the chair was taken by the Duke of Buckingham.

The following resolutions, adopted at a meeting of members and exhibitors of stock at the show of the Royal Agricultural Society of England, held in the showyard that morning, were then submitted to the meeting:—

"1. That the jury appointed to inspect the sheep previous to their being judged should consist of persons conversant with the particular breeds to be submitted for their inspection, and that their duties should be discharged in public.

"2. That the extension of time for holding the exhibition will necessitate the servants of exhibitors in charge of stock being from home two Sabbaths instead of one as heretofore, and as no provision appears to be made by the Council for the forage of the animals beyond Saturday, an expense will be added to the very great inconvenience imposed upon the exhibitors.

"3. That the increased amount of prizes this year offered for aged Shorthorn bulls is calculated to act prejudicially to the interest of the exhibitors of other established breeds, without conferring any benefit upon the Society in return for the outlay.

"4. That these resolutions be submitted to the Council at the annual meeting of the members to be held this day in the tent of the Society by the chairman on behalf of the meeting."

Lord BRIDPORT stated fodder would be provided, and that the alteration of the day would not prevent the men having to spend two Sundays on the ground.

We now proceed to describe the various classes of live stock in the cattle yard:—

HORSES.

As we anticipated, the horses on exhibition at this show are unusually numerous and good. Manchester lies within convenient reach of our popular breeding grounds, and of districts celebrated for the value of their horses; no wonder therefore that the counties of Lincoln and York, and more northerly places, contribute so largely and creditably to the lists of the meeting. The judges have had no easy task to discharge: only those who have embarked in the arduous and responsible duties of awarding prizes for live stock can realise the mental labour and anxiety of the business. That their decisions will be questioned and disputed, they are of course prepared to learn: on the present occasion we must congratulate the managers of the Royal meeting on the general justice of the awards.

Although the Royal Agricultural Society of England is presumed to exhibit the chief specimens of the horse stock of England, there is no denying the fact that the annual shows, as a rule, comprise chiefly the best and most known animals of the neighbourhood immediately around the locality where the meeting is held. A glance at this season's catalogue will show that at least 80 per cent. of the horses now on exhibition are the produce of an area bounded on the south by Cheshire, and extending to the Tweed. Of the 384 entered there are many of considerable merit, and lovers of the popular beast have had an unusual opportunity of gratifying their likings and tastes, though the careful observer and judge must confess that, excepting in three or four classes, the imperfect horses far exceeded those possessing merit.

We were disappointed by the agricultural stallions foaled before 1867. Out of a list of 16, not more than four struck us as worthy much comment. No. 4, a dapple grey, from Warwickshire, is a long, lumpy beast, of good model, with forelegs well put on; his neighbour, No. 5, is of good colour, but has a low back; the following, No. 6, Mr. Welcher's horse, from Cambridgeshire, shows great bone and length of body, but the neck and shoulders are scarcely as perfect as they ought to be. Mr. Strickland's old horse, "Lincolnshire," holds no inferior position in the list; a better body or quarter were never seen; and it is to be regretted that an accident to one of this horse's ears, added to a somewhat short neck, spoils otherwise a most perfect horse. The younger stallions in class 2 have no great merits. No. 20, Mr. Stewart's "King Theodore," has a good forehand and barrel, but is too short from the hip to the tail, and has coarse hocks; the animal, besides, is too small. The 1st prize horse, No. 25, we do not appreciate so highly as the judges; his shoulders are thick at top, and the thighs appear small. The 3d prize animal, No. 28, struck us as having greater merits. No. 29 is about as neat, cobby-looking a little beast as could be found, hardly to be called a cart stallion.—The Clydesdale stallions next claim our attention. This is a breed of horses deservedly popular, and they should be more encouraged. They reflect almost invariably the accepted type of a cob, and their every movement goes to prove that perfection in shape ensures great liberty and perfect action. Take, for instance, No. 34, Mr. Fleming's "Prince of Wales." Here are four first-rate legs and feet supporting a huge frame, and such a back and loins: the shoulders might perhaps be better. Again, in class 4, No. 37, her Majesty exhibits a sweet little horse of the same breed. What can surpass such breeds for draught purposes?

Time will not now admit us to go regularly through the many and long classes of horses, we will therefore generally describe those exhibited. Whilst on the subject of draught horses, praise must be given to the specimens before us at Manchester. In the heavy class for brewers' and other work are to be seen animals unrivalled for their shape, bone, and strength. The pairs of horses, again, for agricultural purposes, possess great excellence; not so the cart-mares with foals by their side. As good or better beasts may be seen in any country village in the west of England as were exposed for exhibition to-day. This remark applies equally to those of the Clydesdale breed. The agricultural filly classes were well sustained: perhaps many specimens were fat and unwieldy, but several animals possess great merits, although the judges thought otherwise, according to the awards.

The Suffolk breed of cart-horses is not strongly represented: the specimens at this show are, with barely an exception, too fat. This is an error with all classes of horses, but especially with animals popularly pronounced light in the bone, and totally without hair in the heels. We preferred, therefore, Viscount Hill's 3-year-old "St. Edmund" (No. 46) to his mates, because he showed less flesh and has good bone. If admirers and breeders of this unique and exclusive breed of horses could but get their animals a bit nearer the ground, and reduce the carcase to favourable proportions with the limbs, the public taste would undoubtedly turn towards the "Punch" of the eastern counties.

Thorough-bred stallions do not take the prominent position we should have assigned to them on this occasion. The specimens on view lack size and shape. The first horse in class 7 (No. 52) struck us as deserving considerable praise. Of course, at the age of 15, "King Brian" must yield in many respects to younger beasts, but after all there are few horses in the class that possess better points or greater substance than Lord Harewood's son of "Crozier." Scarcely an animal in class 7 has the amount of bone and substance one would desire in a sire of hunters. The 1st and 2d prize beasts may, and do, show blood and muscle, but they do not possess bone, and are in our eyes too small to beget weight-carrying hunters. No. 64, the Hon. Godfrey Morgan's "Harcourt," is a particularly neat, clever made animal, but he again is too small for the purpose. Captain Barlow's "Dalesman" struck us as most like a hunter's sire, and we wish the animal had shown more crest and greater roundness of body that he might have carried off the laurel wreath.

Class 8, stallions not less than 14 hands 2 inches high, deserves higher mention. Out of 14 specimens one-half were quite good. Norfolk sent a prime cob, No. 75, "Ambition," such a topped one! his fore-legs appeared a bit too fat under him, and as he stood in his box the hocks seemed too near, but you had only to see him move to exclaim "Perfection!" The 1st prize horse, No. 78, is a thorough picture of the old hackney, a long sensible head, connected with a well-turned neck, springing from a body moulded after the true form. There are several good-looking animals in the class.

The coach-horse class for stallions contained some creditable specimens. The 2d prize horse, No. 89, claimed our preference before 97, "Young Ebor," who received the first honour. We thought that, without committing a great error, two or more of the animals in class 9 might most properly have competed as sires for hunting purposes. Some 20 mares in foal or with colts by their side, compete in class 11. They are chiefly light in bone, and some high up in years, but many show all the features of brood mares. To gentlemen of a certain weight the present exhibition cannot afford vast solace. Not only do hunting sires and dams need size and bone, but the 80 or 90 beasts included in classes 12, 13, 14, 15, and 16, all more or less exhibit an utter deficiency of both muscle and bone. The hunters, as a whole, form a grand collection, and many look like getting over any country in the world, and to the finish of the longest run, but not with much more than 12 stone on their backs. What has become of the old weight-carriers, with long deep body and short legs? The animal is certainly wanting to-day! Captain Barlow's "Suffolk," 164, is a hunter all over, and will carry weight, too; and is preferred by us to 154, Mr. McIntosh's "St. Clare," although the latter takes the 1st prize. St. Clare's joints are too small for a horse of his size. We also were struck with a long racing-looking chestnut, No. 157, "Kilkenny," a beast that looks like getting over any country. On seeing the hunters perform in the ring our views were not altered, and they certainly may claim to be written (with hardly an exception) a light-weight carrying lot. In carriage and brougham horses there is a great falling off; though No. 239, in class 20, moved beautifully; and in the previous class, No. 237, "Lady Mary," exhibits great merit. Roadsters and hacks assume a bold front and some lay claim to much merit, but they are not good on the whole, nor did they distinguish themselves in the ring. One of the old ones again showed them how to do it—No. 246, Mr. H. J. Percy's "Crafty" pulled her hocks and knees up, and moved off as she should do. The poneys muster in fair force, and there are some nice ones amongst them, and good movers into the bargain. 278, a light grey mare, "Maggie," is the most perfect reflection of a hunter, and 284, which takes the 2d prize, to look upon in the stall is not striking, but when moving in the ring she wins general regard by the lightness and liveliness of her action.

All lovers and owners of horses must pronounce the collection now under discussion excellent, and worthy the occasion. It is a matter of regret that more success has not attended the endeavours of those who have been anxious to produce a weight-carrying hunter. It is a general complaint, the difficulty of meeting with an animal of this description. Only by chance can they be picked up, notwithstanding the large sums that such horses always command. Gentlemen and

breeders might enter upon a more doubtful and anxious game than that of producing a class of horses which, as we have remarked, do and will ensure a ready sale.

The following is the prize list:—

JUDGES.—W. Jebson, Buteland, Hexham; J. H. Wood, Humberstone, Grimsby; J. H. Bland, Thorpe Lodge, Newark; Mr. Thurwall, Royston, Cambridgeshire (in place of Lord Combermere, who was unexpectedly prevented from attending); W. Smith, Melkington, Coldstream, N.B.; W. Young, Norwood House, Beverley; Hon. G. E. Lascelles, Sion Hill, Thirsk; Robert Leeds, Wicken House, Castleacre, Brandon; H. Beevor, Blyth, Worksop.

ALL AGES CALCULATED TO JULY 1ST, 1869.

CLASS 1. Agricultural Stallion, foaled before 1st January, 1867, not qualified to compete as Clydesdale or Suffolk.—1st, 25*l.*, W. Welcher, Upwell, Wisbeach, Cambridgeshire, "Honest Tom;" 2d, 15*l.*, W. Wynn, Cranhite Leys, Grafton, Alcester, Redditch, Warwickshire, "A 1;" 3d, 5*l.*, M. Strickland, Headly Hall, Tadcaster, Yorkshire, "Lincolnshire."

CLASS 2. Agricultural Stallion, foaled in the year 1867, not qualified to compete as Clydesdale or Suffolk.—1st, 20*l.*, J. Flintham, Somersham, St. Ives, Hunts, "Black Prince;" 2d, 10*l.*, T. Shaw, Maudsley, Ormskirk, Lancashire, "Columbus;" 3d, 5*l.*, R. Leyland, Martin Hall, Burscough, Ormskirk, Lancashire, "Napoleon." Reserve and Commended: W. Edwards, West Bank, Ruthin.

CLASS 3. Clydesdale Stallion, foaled before 1st January, 1867.—1st, 25*l.*, J. N. Fleming, Knockdown, Maybole, Ayrshire, "Prince of Wales;" 2d, 15*l.*, R. Orange, Bedlington, Northumberland, "Conqueror;" 3d, B. G. D. Cooke, Colomendy, Mold, N. Wales, "Sir Norman."

CLASS 4. Clydesdale Stallion, foaled in the year 1867.—1st, 20*l.*, D. Riddell, Kilhowie, Duntocher, Dumbartonshire; 2d, 10*l.*, Her Majesty the Queen, "Prince Arthur."

CLASS 5. Suffolk Stallion, foaled before 1st of January, 1867.—1st, 25*l.*, C. Boby, Alton Hall, Stutton, Ipswich, Suffolk, "Prince;" 2d, 15*l.*, W. Bott, Priors, Bromfield, Chelmsford, Essex, "Young Champion;" 3d, 5*l.*, W. Wilson, Balham Hall, Ipswich, "Young Briton." Commended: Viscount Hill, Hawkstone, Shrewsbury, "St. Edmund."

CLASS 6. Suffolk Stallion, foaled in the year 1867.—1st, 20*l.*, J. Ward, East Mersea, Colchester, Essex.

CLASS 7. Thoroughbred Stallion, suitable for getting Hunters.—1st, 100*l.*, the Earl of Zetland, Richmond, Yorkshire; 2d, 25*l.*, J. Casson, Burgh-by-Sands, "Motley;" 3d, 10*l.*, C. & J. Moffatt, Kirklinton Park, Carlisle, "Laughing Stock." Reserve and Highly Commended: F. Barlow, Woodbridge, Suffolk. Highly Commended: Sir George Cholmley, Bart., Howsham, Yorkshire, "Angelus."

CLASS 8. Stallion, not less than 14 hands 2 inches, nor exceeding 15 hands 2 inches, suitable for getting Hackneys.—1st, 25*l.*, P. Triffit, Holme-on-Spalding Moor, York, "Fireaway;" 2d, 15*l.*, C. Beart, Stow, Downham Market, Norfolk, "Ambition;" 3d, 5*l.*, H. Bultitaft, Bedwellhay Grange, Ely, Cambridgeshire, "Clear-the-way." Reserve Number: H. R. Hart, Dunnington, Yorkshire, "All Fours."

CLASS 9. Stallion, suitable for getting Coachhorses.—1st, 25*l.*, T. and J. Reynolds, Carlton, Selby, Yorkshire, "Young Ebor;" 2d, 15*l.*, R. Coward, Cabus, Garstang, Lancashire, "Octavion;" 3d, 5*l.*, R. C. Naylor, Kelmarsh Hall, Northampton, "The Hadji." Reserve Number; J. Rowell, Ramsey, Hunts, "The Gentleman."

CLASS 10. Pony Stallion, under 14 hands 2 inches.—1st, 20*l.*, Capt. H. Platt, Bryn-y-Neadd, Llanfairfechan, Carnarvonshire, "Tom Sayers;" 2d, 10*l.*, J. A. Doyle, Plas Dulas, Abergele, Denbighshire, "Tramp." Reserve Number: W. Hayward, Pen Bryn, Carnarvon.

CLASS 11. Mare, in Foal, or with Foal at foot, suitable for breeding Hunters.—1st, 25*l.*, J. Brown, Wiggonby, Wigton, Cumberland, "Sally;" 2d, 15*l.*, T. Fox, Avenham Hall, Singleton, Kirkham, Lancashire, "Pink;" 3d, 5*l.*, F. Barlow, Woodbridge, Suffolk, "Silverlocks." Reserve and Highly Commended: J. Fielden, of Dobroyd Castle, Todmorden, Lancashire, "Becky Sharp." Highly Commended; J. T. Robinson, Leckby Palace, Topcliffe, Thirsk, Yorkshire, "Go-a-Head."

CLASS 12. Hunter, Mare or Gelding, over 4 years old, up to not less than 14 stones.—1st, 30*l.*, F. Barlow, Woodbridge, "Topstall;" 2d, 15*l.*, Major Gunter, King's Dragoon Guards, Manchester, "Wetherby." Reserve Number: J. W. T. Fyler, Hefferton, Wareham, Dorset, "Tyrconnel."

CLASS 13. Hunter, Gelding, 4 years old.—1st, 20*l.*, Sir George Cholmley, Bart., "Don Juan;" 2d, 10*l.*, T. H. Foden, Givendale Grange, Ripon, Yorkshire, "Young Artillery." Reserve and Highly Commended: H. J. Percy, Howsenrigg, Aspatria, Cumberland, "Thunder and Turf."

CLASS 14. Hunter, Mare, 4 years old.—1st, 20*l.*, J. Peel, Knowlmere Manor, Clitheroe, "Jessica;" 2d, 10*l.*, J. Wilson, Crosthwaite, Milnthorpe, Westmoreland.

CLASS 15. Hunter, Mare or Gelding, 3 years old.—1st, 15*l.*, T. C. Thompson, Kirkhouse, Brampton, Cumberland, "Byron;" 2d, 10*l.*, E. Murray, of Newby, Carlisle, "Tibby." Reserve Number: T. Newton, Oldfield, Altrincham.

CLASS 16. Hunter, Mare or Gelding, not less than 4 years old, up to not less than 12 stones.—1st, 20*l.*, J. B. Booth, Killerby Hall, Catterick, Yorkshire, "Brian Boru;" 2d, 10*l.*, J. Paterson, Terrona, Langholm, Dumfriesshire, "Terrona." Reserve Number: W. Murray, Broughton Mews, Manchester, "Hotspur." Special prize of 30*l.* for the best Hunter in any of the preceding classes, in addition to the prize, to No. 166, Sir George Cholmley, Bart., "Don Juan." Reserve Number: F. Barlow, Woodbridge, Suffolk, "Topstall."

CLASS 17. Mare, not less than 14 hands 1 inch, nor exceeding 15 hands 1 inch, in Foal, or with Foal at foot, suitable for breeding Hackneys.—1st, 20*l.*, F. Cook, Thixendale, York, "British Queen;" 2d, 10*l.*, H. Neild, The Grange, Worsley, Lancashire, "Stella;" 3d, 5*l.*, J. J. Fildes, 126, Plymouth Grove, Manchester, "Peggy." Reserve Number: T. Statter, jun., Stand Hall, Whitefield, Manchester, "Fanny."

CLASS 18. Pair of Carriage Horses (Mares or Geldings), to be shown in harness if required by the Judges.—1st, 20*l.*, T. Mark, of Durdar House, Carlisle, "Jim."

CLASS 19.—Brougham Horse (Mare or Gelding), to be shown in harness if required by the Judges.—1st, no merit; 2d, 5*l.*, Jonathan Peel, of Knowlemere Manor, Clitheroe, Yorkshire, "Lady Mary."

CLASS 20. Colt (Gelding or Filly), likely to make a Carriage Horse, foaled in 1866.—1st, 10*l.*, W. and F. Coulson, Gaterley Farm, Castle Howard, Yorkshire; 2d, 5*l.*, L. Manfield, of Thickelby Barugh, Thirsk, Yorkshire.

CLASS 21. Roadster, Mare or Gelding, not exceeding 15 hands 1 inch, 4 years old and upwards.—1st, 15*l.*, H. J. Percy, Howsenrigg, Aspatria, Cumberland, "Crafty;" 2d, 10*l.*, C. L. Clare, Hopefield, Park Lane, Manchester, "Ginger." Reserve Number: Wm. Murray, Manchester, "Perfection."

CLASS 22. Roadster, Mare or Gelding, not exceeding 15 hands, above 4 years.—1st, 15*l.*, A. Turner, Narborough Road, Leicester; 2d, 10*l.*, E. Prest, Gorse Hill Farm, Stretford, Manchester, "Rufus." Reserve and Highly Commended: J. Casson, Burgh-by-Sands, Carlisle, Cumberland. Commended: J. Holyrood, Rockwood, Burnley, Lancashire, "Johnny."

CLASS 23. Pony, Mare, not exceeding 14 hands.—1st, 15*l.*, W. Simpkin, Burton-Agnes, Yorkshire, "Maid of All-work;" 2d, 10*l.*, W. Murray, Broughton Mews, Manchester, "Hill Town Lass;" 3d, 5*l.*, J. Whitworth, Standcliffe Hall, Matlock Bath, Derbyshire, "Minnie." Reserved Number: W. Torr, Aylesby Manor, Grimsby, Lincolnshire.

CLASS 24. Pony (Mare or Gelding), not exceeding 13 hands 2 inches.—1st, 10*l.*, T. H. Miller, Preston, "Paddy;" 2d, 5*l.*, T. Howdle, 29, Silver Street, Hull, "Tommy." Reserve and Highly Commended: Mrs. Levita, The Home, Whalley Range, Manchester. Commended: S. White, South Leverton, Retford, Notts, "Marquis."

CLASS 25. Agricultural Mare and Foal, not qualified to compete as Clydesdale or Suffolk.—1st, 20*l.*, J. Henderson, Hossley Hill, South Shields, county Durham, "Jessey;" 2d, 5*l.*, W. N. Hodgson, M.P., Newby Grange, Carlisle, Cumberland. Reserve Number: T. Statter, Jun., Stand Hall, "Diamond."

CLASS 26. Clydesdale Mare and Foal.—1st, 20*l.*, Sir W. Stirling Maxwell, Bart., Keir, Dunblane, Perthshire, "Jess;" 2d, 10*l.*, Laurence Drew, Merryton, Hamilton.

CLASS 27. No entry.

CLASS 28. Brood Mare, Cleveland breed.—1st, 15*l.*, W. & F. Coulson, Gaterley Farm, Castle Howard, Yorkshire, "Venus;" 2d, 10*l.*, W. Beattie, Blennerhassett, Aspatria, Cumberland, "Damsel." Commended: G. Holmes, Bar House, Beverley, Yorkshire, "Polly." Highly Commended: T. Baldwin, Earl's Wood, Hockley Heath, Birmingham, Warwickshire. Class generally Commended.

CLASS 29. Agricultural Filly, 2 years old, not qualified to compete as Clydesdale or Suffolk.—1st, 15*l.*, H. Neild, The Grange, Worsley, Lancashire, "Polly;" 2d, 10*l.*, J. Rigby, Little Leigh, Northwich, Cheshire, "Bess."

CLASS 30. Clydesdale Filly, 3 years old.—1st, 15*l.*, R. Waugh, Seathill, Irthington, Carlisle, Cumberland, "Isabel;" 2d, 10*l.*, Lawrence Drew, Merryton, Hamilton, Lanarkshire. Reserve and Commended: The Queen, Windsor Castle, "Meg."

CLASS 31. Suffolk Filly, 2 years old.—1st, 15*l.*, A. Noble, Brazier's Hill, Needham Market, Suffolk, "Duchess." Highly Commended: T. Baldwin, Earl's Wood, Hockley Heath, Birmingham.

CLASS 32. Agricultural Filly, 2 years old, not qualified to compete as Clydesdale or Suffolk.—1st, 15*l.*, C. Lister, Coleby Lodge, Lincoln; 2d, 10*l.*, Rees W. Bridgwater, Great Porthamel, Talgarth, Brecon, "Black Princess." Commended: T. Upton, Pallathorpe, Tadcaster, Yorkshire, "Pretty."

CLASS 33. Clydesdale Filly, 2 years old.—1st, 15*l.*, J. Cunningham, White Cairn, Dalbeattie, Kircudbrightshire; 2d, 10*l.*, L. Drew, Merryton, Hamilton.

CLASS 34. Suffolk Filly, 2 years old.—1st, 15*l.*, W. Wilson, Baylham Hall, Ipswich.

CLASS 35. Pair of Heavy Dray Horses (Mares or Geldings).—1st, 25*l.*, T. Statter, jun., Whitefield, Manchester; 2d, 15*l.*, W. Brierley, Rhodes House, Middleton, Lancashire.

CLASS 36. Pair of Horses (Mares or Geldings), not less than 16 hands, suitable for brewers' drays.—1st, 25*l.*, J. Crashaw and J. Blakeley, the Colleries, Dewsbury, Yorkshire; 2d, 15*l.*, A. Stewart, Saint Bridge House, Gloucestershire. Commended: C. W. Brierley, Middleton.

CLASS 37. Dray Horse (Mare or Gelding) of the Heavy Breed.—1st, 10*l.*, W. Brierley, Middleton; 2d, W. Carter, 7, Marsden Square, Manchester. Commended: Preston Farming Company (Limited), Freckleton, Kirkham, Lancashire, "Charlie." Class generally Commended.

CLASS 38. Pair of Horses (Mares or Geldings) for Agricultural purposes.—1st, 20*l.*, Thos. Statter, jun.; 2d, 10*l.*, Earl Grosvenor, M.P., Tarporley, Cheshire. Class generally Commended.

CLASS 39. Horse (Mare or Gelding) for Agricultural purposes.—1st, 10*l.*, L. Drew, Hamilton; 2d, 5*l.*, C. W. Brierley, Middleton. Reserve and Commended: I. Ashcroft, Maudsley, Ormskirk. Commended: W. Birch, Amtree, Lancashire.

CATTLE.

The cattle classes are especially numerous as regards the Shorthorn breed; the class of old bulls in particular is one of the finest ever seen. The younger classes are also well filled. The Hereford and Devon breeds, though fairly represented in point of merit, are short in number. Of the more local breeds, the black hornless Galloways and Angus are fairly represented.

Shorthorns.—There is an unrivalled class of old bulls: so many first-rate specimens of the leading breed of the country were never, we believe, shown together. The 1st prize is taken by Mr. Wiley, of Brandsby, for BARON KILLERBY, a roan bull of beautiful quality, of wonderful length of quarter—great length altogether, very true and straight along the back, but rather leggy, and somewhat defective behind the shoulder. The 2d prize is taken by Mr. C. R. Saunders, of Nunwick Hall, Penrith, for EDGAR, a massive and handsome bull, tracing back to sires of Knightley, Bates, and Booth breeding. He has already been a prize-taker in his own county. The 3d prize is taken by Mr. Barclay, of Keevil, and is bred by a bull of Jonas Webb's from *Seraphina*, bought at Mr. Lawford's sale for 240 gs. The whole class is magnificent, and the names of the exhibitors — R. Stratton, C. Howard, Sir A. de Rothschild, J. E. Pawlett, Lady Pigot, Sir W. S. Maxwell, Lord Feversham, Colonel Towneley, Mr. Torr, T. C. Booth, J. H. Bradburne—a few only of the best-known names on the list—show how many good herds have contributed to the class. Messrs. Hosken's bull, PRINCE FREDERICK II., holds the reserved number, and Lady Pigot and Sir W. Stirling Maxwell are commended. Walking round the shed we see Mr. Stratton's bull, JAMES I., a long roan, not so good in his hindquarters as in front—Sir A. Rothschild's CAPTAIN CHERRY somewhat deficient behind the shoulder—Lady Pigot's CHARLES LE BEAU exhibits all the symmetry and quality which, along with lack of fire and character, belong to his breeding: he certainly is a very handsome bull. The 3d prize bull, shown by Mr. Barclay, is one of the handsomest in the class—of great size, depth, length, good quality, with beautiful shoulders and dowlap, length and depth of quarter, and wonderful flank. Mr. Hosken's, the reserved bull, coming therefore 4th in the class, is also a very well made animal, of true circular barrel, great length, and particularly well-bred looking head. Colonel Towneley's ROYAL BUTTERFLY, the hero of many a former fight, appears probably for the last time in this class.

In the second class of younger bulls, the 1st prize is taken by Mr. Brierley, of Middleton, with *Bolivar*, one of the best animals in the yard, particularly fine forward, with a remarkably well-made bosom and shoulder. He was 1st in his class at the last year's show at Leicester. He was bred by Mr. J. Meadows, of Wexford—sire, FIRST FIDDLE, the sire also of the 2d prize bull CHARLIE, another of Mr. Meadows' breeding. CHARLIE is out of a short-pedigree cow, but has had the advantage of education under the hands of Peter Quinn, one of the best herdsmen of the day. The 3d prize in this class went to Lord Sudeley for MANDARIN, a bull mainly of Bates blood—white, very true, level, and deep. Mr. Meadows' 2d prize bull is remarkably long and straight—as straight in the back as a heifer. The class is a fair one, and many first-rate herds contribute to it—Mr. John Booth, Lady Pigot, Sir A. de Rothschild, and others.—The yearling bulls are a large class. The 1st and 3d prizes go to Mr. Foljambe and the 2d to Mr. F. H. Fawkes, of Otley. Colonel Towneley is highly commended, and Messrs. Dickinson and Sneyd are commended. Mr. Foljambe's 1st prize bull was 1st also in his class as a calf at Leicester last year. Beautiful in profile, with just the ideal Shorthorn head, he is perhaps rather light behind. The 3d prize goes to a half brother, the sire of both being KNIGHT OF THE GARTER (22,062). Mr. Fawkes shows two, the 2d prize bull and a half brother, both by LORD COBHAM; the prize taker has, we understand, been sold for 150 gs. Colonel Towneley is an exhibitor of three in this class, one of which is highly commended.

The bull calves are a large class. Mr. Fawkes is again a prize-taker—LORD IS-A-BEAU being placed 1st. A half brother of those in the older class, he shows great girth and promise for his age; Colonel Towneley is 2d; and Mr. T. Booth is highly commended. There is not in this class that even quality throughout which characterises the older stock.

The cows are a good class; Mr. Booth is 1st with a very beautiful roan, *Lady Fragrant*—1st also at the Leicester meeting last year. Lady Pigot again exhibits *Queen of Rosalea*, and is 2d here, having been 3d at Leicester; Captain R. Tennant, of Shadwell, takes the 3d prize, and Messrs. Hoskens are highly commended for a very large and very fat cow. Mr. T. C. Booth is also 1st in a small and pretty good class of younger cows. Mr. Lynn shows *Queen of Diamonds*, and is placed 2d. Mr. How, having been 1st at Leicester, takes the 3d prize now with *Lady Anne*, red and white, very good, and—very fat. There is a good class of yearling heifers, in which Colonel Towneley shows several very beautiful specimens, and takes the 1st prize with *Baron Oxford's Beauty*, whose breeding is new to the Towneley herd. Mr. Torr is 2d with a thick heifer, and Mr. Eastwood 3d, with a dark red roan of the original Towneley blood. Among the heifer calves, Mr. Stratton is 1st with a rich roan, looking less like a growing calf than a little cow, girthing, however, perhaps less behind the shoulders than she should. Mr. Eastwood is 2d with a Bates and Towneley calf. Lord Sudeley shows a wonderfully fine calf in this class, which deserved a notice by the judges—remarkably thick and well-made throughout its great length.

Herefords.—This breed is not so well represented as considering the neighbourhood of Shropshire, and even of Herefordshire, we might have expected it to be. The classes are small in number if good in quality. Only three old bulls are shown, the 1st prize going to Mr. Arkwright, and the 2d to the Hon. T. H. Hill. Mr. Arkwright's bull had been 1st in his class at the Southampton show, and he had been also 1st last year at Leicester. He is a great mass of useful beef, and ought to be the sire of good graziers. He is rather round rumped, and shorter in the hindquarter than he ought to be. The 2d prize animal is a great long bull, somewhat more loosely put together.—In the younger bull class five are shown. Mr. Morris, of Hereford, takes the 1st prize, and STOWE is certainly a fine bull, with great hanging flank and deep quarters. Her Majesty the Queen shows a very fine young bull in this class, and takes the 2d prize. He is singularly fine over loin and flank. The yearling bulls are three—Mr. Edwards, 1st, Mr. Harding, 2d, Mr. Baldwin, 3d—and five bull calves make up the male class of the breed. Mr. Tudge, of Adforton, Leintwardine, is here 1st, and continues wonderfully successful in the female class—1st in the class of old cows, 1st in heifers, yearling heifers, and heifer calves. The Hereford heifers are a capital class, the 1st prize going to Mr. Tudge, for one which had been also 1st in her class at Southampton, the 2d going to a very beautiful heifer shown by Mr. Rogers of Brampton Bryan, and the 2d going to her Majesty the Queen. The yearling heifers are eight—Mr. Tudge again 1st with what had taken the 1st prize at both Southampton and Leicester; Mr. Turner 2d, and Mr. Crane 3d, with a very handsome and well made heifer, not, however, possessing the fine handling of the other.

Devons.—A small class of Devon bulls contains a number of very fine specimens of the breed. Mr. Farthing's 5-year-old MASTER ELLIE is really a grand and magnificent fellow, probably carrying more flesh nearer the ground than any other animal in the yard. Viscount Falmouth and Mr. W. Smith show 2d and 3d. There are six younger bulls, and here again Mr. Farthing is 1st with MASTER ARTHUR, who had been 1st at Southampton, possessing great quantity and quality, and very short legs. There are small classes of the yearling bulls and bull calves. Mr. Farthing again 1st in the older class, and Mr. J. Davy, of North Molton, in the class of calves. The cow classes of Devons are noteworthy for containing what is probably the most perfect animal in any of the cattle classes shown this year. Mr. Burton, of Broadclyst, shows in the yearling class a heifer which is just the perfection of symmetry and quality. She had been placed 1st at the Southampton show. Mr. Davy shows a large and well-made cow, placed 1st in her class. Mr. Nixey, who is 2d in this class, takes the 1st prize in the younger class, where Mr. G. Turner is 2d with a young cow of very beautiful quality, and in the yearling heifer class her Majesty the Queen is 2d to the very remarkable heifer just referred to as shown by

Mr. Burton. There are a very few calves—Mr. Buller 1st, and Mr. G. Turner 2d.

Other Classes.—We now come to the less important, or more local breeds, the Guernsey, the Ayrshire, the Angus, the Welsh, and the Kerry. Of these we shall merely say that the show of Channel Islands cattle is not so good as we expected to see it—4 bulls, 7 cows, 6 heifers competed for the prizes, and the awards will be found below.

One or two Longhorns received prizes in classes where they stand along with little black Kerrys and small red Norfolk cattle. There is a very good show of the Yorkshire dairy Shorthorn cattle—great useful cows, many of them exhibiting excellent quality and high breeding, others of them large and useful, but somewhat coarser. Mr. Statter, Jun., of Stand Hall, Whitefield, near Manchester, seems to have been the most abundant exhibitor in all these by-classes, and to have swept away a large share of the prizes. There are a few Ayrshires, showing this beautiful little dairy breed off to great advantage. Then a small class of the black Galloway breed and the black Angus—both hornless cattle—a few of the black horned Welsh cattle—no Highlanders—though prizes were offered for them; and three or four pairs of Kerry heifers. The following is the award of prizes:—

JUDGES.—Shorthorns, Males and Females: Marshall Stephenson, Fourstones, Hexham; L. C. Crisp, Hawkhill, Alnwick; T. Mace, Sherborne, Northleach; J. Unthank, Nethersales, Penrith; E Bowly, Siddington House, Cirencester; W Bartholomew, Waddington Heath, Lincoln.—Yorkshire Dairy Cross: J. Unthank, E. Bowly, W. Bartholomew.—Herefords, and other established Breeds: T. Pymble, Lanfrother; G. Smythies, Marlow, Leintwardine; J. R. Newton, Campsfield Farm, Woodstock.—Devons and Channel Islands: H. W. Keary, Bridgnorth, Salop; R. Woodman, Southease, Lewes; J. Pitcher, Hailsham, near Hurst Green.—Scotch, Welsh, and Kerry: T. Gibbons, Burnfoot, Longtown, Cumberland; John Macmillan, Halket Leaths, N.B.

SHORTHORNS.

CLASS 40. Bull, above 3 years old.—1st, 40*l.*, S. Wiley, Brandshy, York, "Earl of Derby;" 2d, 20*l.*, R. Saunders, Nunwick Hall, Penrith, "Edgar;" 3d, 10*l.*, G. R. Barclay, Keavil, Fifeshire, "Heir of Englishmen." Reserve and Highly Commended: W. Hosken & Son, Loggan's Mill, Hayle, Cornwall, "Prince Frederick II." Commended: Emily, Lady Pigot, Branches Park, Newmarket, Cambridgeshire, "Charles le Beau; Sir W. Stirling Maxwell, Bart., Keir, Dunblane, Perthshire, "Keir Butterfly 1st."

CLASS 41. Bull, above 2 and not exceeding 3 years old.—1st, 25*l.*, C. W. Brierley, Middleton, "Bolivar;" 2d, 15*l.*, J. Meadows, Thornville, Wexford, "Charlie;" 3d, 5*l.*, Lord Sudeley, Winchcombe, Gloucestershire, "Mandarin." Reserve and Highly Commended: R. Harret, Kirkwhelpington, Newcastle-on-Tyne, "Lord Henry." Commended: J. C. Bowstead, Hackthorpe Hall, Penrith, "Flag of Great Britain."

CLASS 42. Yearling Bull, above 1 and not exceeding 2 years old.—1st, 25*l.*, G. Saville Foljambe, Osberton Hall, Worksop, "Knight of the Bath;" 2d, Francis H. Fawkes, Farnley Hall, Otley, "Lord Beaumont;" 3d, 5*l.*, G S. Foljambe, Osberton Hall, "Knight of the Whistle." Reserve and Highly Commended: Colonel C. Towneley, Towneley, Burnley, "Baron Hubback." Commended: R. Sneyd, Keel Hall, Newcastle-under-Lyme, "Theodore;" J. Dickenson, Balcony Farm House, Upholland, Wigan, Lancashire, "Baron Wharfedale."

CLASS 43. Bull Calf, above 6 and not exceeding 12 months old.—1st, 10*l.*, F. H. Fawkes, Farnley Hall, "Lord Is-a-beau;" 2d, 5*l.*, Colonel Towneley, "Baron Collinge." Reserve and Commended: T. C. Booth, Warlaby, "Royal Broughton."

CLASS 44. Cow, above 3 years old.—1st, 20*l.*, T. C. Booth, Warlaby, "Lady Fragrant;" 2d, 10*l.*, Emily, Lady Pigot, Branches Park, Newmarket, "The Queen of Rosalea;" 3d, 5*l.*, Captain R. Tennant, Scarcroft Lodge, Shadwell, Leeds, "Miss Farewell." Reserve and Highly Commended: W. Hosken & Son, Loggan's Mill, Hayle. Commended: R. Eastwood, Clitheroe, "Rosette 3d;" Lord Skelmersdale, Ormskirk.

CLASS 45. Heifer, in-Milk or in-Calf, not exceeding 3 years old.—1st, 15*l.*, T. C. Booth, Warlaby, "Patricia;" 2d, 10*l.*, J. Lynn, Church Farm, Stroxton, Grantham, "Queen of Diamonds;" 3d, 5*l.*, J. How, Broughton, Huntingdon, "Lady Anne." Reserve Number: The Rev. L. U. Wood, Singleton Lodge, Kirkham, Lancashire, "Miranda 10th."

CLASS 46. Yearling Heifer, above 1 and not exceeding 2 years old.—1st, 15*l.*, Colonel C. Towneley, "Baron Oxford's Beauty;" 2d, 5*l.*, W. Torr, Aylesby Manor, "Cherry Queen 4th;" 3d, 5*l.*, R. Eastwood, Thorney Holme, Clitheroe, "Double Butterley 2d." Reserve and Highly Commended: R. Stratton, Burderop, Swindon, "Ariel." Commended: T. E. Pawlett, Beeston, Sandy, Bedfordshire, "Charmer 11th;" Lord Tredegar, Newport, Monmouthshire.

CLASS 47. Heifer Calf, above 6 and under 12 months old.—1st, 10*l.*, Richard Stratton, Burderop, "Flower Girl;" 2d, 5*l.*, R. Eastwood, Clitheroe, "Red Butterfly." Reserve and Highly Commended: Richard Stratton, of Burderop, "Gertrude." Commended: Lord Sudeley, Winchcombe, "Ceres 4th;" R. Stratton, "Melody;" C. W. Brierley, Rhodes House, Middleton, "Lily of the Vale;" J. T. Robinson, Leckby Palace, Thirsk, "Lady Highthorne."

HEREFORDS.

CLASS 48. Bull, above 3 years old.—1st, 25*l.*, J. H. Arkwright, Hampton Court, Leominster, "Sir Hungerford;" 2d, 15*l.*, the Hon. T. H. N. Hill, Berrington, Shrewsbury, "Young Conqueror." Reserve Number: P. R. Jackson, Blackbrooke, Monmouthshire, "Blackbrooke."

CLASS 49. Bull, above 2 and not exceeding 3 years old.—1st, 25*l.*, J. Morris, Town House, Hereford, "Stowe;" 2d, 15*l.*, The Queen, Windsor Castle, "Prince Leopold." Reserve and Commended: R. Tanner, Frodesley, Dorrington, Salop, "Frodesley."

CLASS 50. Yearling Bull, above one and not exceeding 2 years old.—1st, 25*l.*, T. Edwards, Leominster, "Leominster 3d;" 2d, 15*l.*, J. Harding, Bicton, Shrewsbury, "Noble." Reserve Number: John Baldwin, Luddington, Stratford-on-Avon, "Victor."

CLASS 51. Bull Calf, above 6 and not exceeding 12 months old.—1st, 10*l.*, W. Tudge, Adforton, Leintwardine, Herefordshire, "Ostorious;" 2d, 5*l.*, R. Tanner, Frodesley, "Frodesly Favourite." Reserve Number: H. Rawlins, jun., Swanstone Court, Leominster, Herefordshire, "Pince of Wales."

CLASS 52. Cow, above 3 years old.—1st, 20*l.*, J. D. Allen, Tistury, Salisbury; 2d, 10*l.*, William Tudge, Adforton. Reserve and Highly Commended: H. R. Evans, jun., Swanstone Court, Dilwyn, "Stately 2d."

CLASS 53. Heifer, in-milk or in-calf, not exceeding 3 years old.—1st, 15*l.*, William Tudge, Adforton; 2d, 10*l.*, T. Rogers, Brampton Bryan, Herefordshire, "Queen of the Valley;" 3d, 5*l.*, The Queen, "Duchess de Bronte." Reserve and Highly Commended: J. H. Arkwright, Hampton Court, "Lady Leicester."

CLASS 54. Yearling Heifer, above 1 and not exceeding 2 years old.—1st, 15*l.*, W. Tudge, Adforton, "Silver Star;" 2d, 10*l.*, P. Turner, The Leen, Pembridge, "Minerva;" 3d, 5*l.*, J. Crane, Benthall Ford, Shrewsbury, "Adelaide." Reserve and Highly Commended: T. Fenn, Stonebrook House, Ludlow, "Miss Rose."

CLASS 55. Heifer Calf, above 6 and under 12 months old.—1st, 10*l.*, W. Tudge, Adforton, "Lady Brandon;" 2d, 5*l.*, T Fenn, Stonebrook House, "Duchess Belford 6th." Reserve Number: T. Rogers, Brampton Bryan, Herefordshire, "Coxall Beauty."

DEVONS.

CLASS 56. Bull, above 3 years old.—1st, 25*l.*, W. Farthing, Stowey Court, Bridgewater, "Master Ellie;" 2d, 15*l.*, Viscount Falmouth, Truro, "Sunflower." Reserve and Commended: W. Smith, Higher Hoopern, Exeter, "Constitution."

CLASS 57. Bull, above 2 and not exceeding 3 years old; 1st, 25*l.*, W. Farthing, Stowey Court, "Master Arthur;" 2d, 15*l.*, J. H. Buller, Downes, Crediton, Devon; 3d, 5*l.*, W. G. Nixey, Upton Court Farm, Slough, Buckinghamshire, "Young Prince of Wales."

CLASS 58. Yearling Bull, above 1 and not exceeding 2 years old.—1st, 25*l.*, W. Farthing, Stowey Court, "Sir George;" 2d, 15*l.*, Viscount Falmouth, "Narcissus." Reserve and Commended: J. Quartly, South Molton, Devonshire.

CLASS 59. Bull Calf, above 6 and not exceeding 12 months old.—1st, 10*l.*, J. Davey, Flitton Barton, North Molton, "Duke of Flitton 5th;" 2d, 5*l.*, W. Smith, Higher Hoopern, Exeter, "Pennsylvanian 893." Reserve and Highly Commended: G. Turner, Bamford Speke, Exeter, "Prime Minister."

CLASS 60. Cow, above 3 years old.—1st, 20*l.*, J. Davy, Flitton Barton, North Molton, Devon, "Actress;" 2d, 10*l.*, W. G. Nixey, Upton Court Farm, "Pink;" 3d, 5*l.*, J. Davy, Flitton Barton, "Alice." Reserve and Commended: J. Quartly, South Molton, "Lily." Commended: W. G. Nixey, "Yellow Bat;" W. Farthing, Stowey Court, "Miss Bessy;" W. Taylor, Glynley, Hurst Green, Sussex, "Flower."

CLASS 61. Heifer, in-Milk or in-Calf, not exceeding 3 years old.—1st, 15*l.*, W. G. Nixey, Upton Court Farm; 2d, 10*l.*, G. Turner, Brampford Speke, "Duchess 6th;" 3d, 5*l.*, W. G. Nixey, Upton Court Farm, "Baroness." Reserve Number: John Quartly, South Molton, Devon, "Beauty."

CLASS 62. Yearling Heifer, above 1 and not exceeding 2 years old.—1st, 15*l.*, R. Burton, Place Barton, Broadclyst, Devon, "Daisy;" 2d, 10*l.*, The Queen, "Adelaide;" 3d, 5*l.*, W. Farthing, Stowey Court, Bridgewater, Somersetshire, "Prettymaid." Commended and Reserve: The Queen, "Rosa."

CLASS 63. Heifer Calf, above 6 and under 12 months old.—1st, 10*l.*, James H. Buller, Downes, Crediton, Devon; 2d, 5*l.*, G. Turner, Brampford Speke, "Duchess" Reserve and Commended: W. Smith, Exeter, Devon, "Young Butterfly." Commended: W. Farthing, Stowey Court.

CHANNEL ISLANDS.

CLASS 64. Bull, above 1 year old.—1st, 15*l.*, T. Statter, jun., Stand Hall, Manchester, "Milo." Commended and Reserve: Sir Humphrey de Trafford, Bart., Trafford Park, Manchester. "Achievement." Commended: John Talbot, Newport-Pagnell, Buckinghamshire, "Sarnian."

CLASS 65 Cow, above 3 years old—1st, 15*l.*, P. Gaudin, Spring Farm, St. Martin's, St. Helier's, "Camelia;" 2d, 10*l.*, Sir Humphrey de Trafford, Bart. Reserve and Commended: Sir Humphrey de Trafford.

CLASS 66. Heifer in-Milk or in-Calf, not exceeding 3 years old.—1st, 15*l.* Philip Gaudin, "Flora;" 2d, 10*l.*, Philip Gaudin. Reserve: T. Statter, jun.

OTHER ESTABLISHED BREEDS.

CLASS 67. Bull, above 1 year old.—1st, 15*l.*, R. H. Chapman, Upton, Nuneaton, "Curzon;" 2d, 10*l.*, the Rev. J. C. Macdona, Hibre House, West Kirby, Cheshire, "Knight of Kerry."

CLASS 68. Cow, above 3 years old.—1st, 15*l.*, J. Godfrey, Wigston-Parva, Leicestershire, "Daisy;" 2d, 10*l.*, T. Statter, jun., "Rose."

CLASS 69. Heifer in-Milk or in-Calf, not exceeding 3 years old.—1st, 15*l.*, Lord Sondes, Elmham Hall, Thetford, Norfolk. Reserve Number: Lord Sondes.

YORKSHIRE DAIRY CROSS.

CLASS 70. Pair of Cows, above 3 years old, in-Milk or in-Calf. 1st, 15*l.*, J. T. Robinson, Leckby Palace, Topcliffe, Thirsk; 2d, 10*l.*, J. Woodhouse, Scale Hall, Skerton. Reserve Number: Thomas Statter, jun.

CLASS 71. Pair of Heifers, above 2 and not exceeding 3 years old, in-Milk.—1st, 10*l.*, Thomas Statter, jun; 2d, 5*l.*, J. T. Robinson, Leckby Palace.

CLASS 72. Pen of 3 Rearing Calves, calved within the year 1869.—1st, 8*l.*, H. Nield, The Grange, Worsley, Lancashire; 2d, 4*l.*, Thomas Statter, jun. Reserve Number: J. T. Robinson, Leckby Palace.

AYRSHIRE.

CLASS 73. Bull, above 2 years old and upwards.—1st, 15*l.*, T. Statter, jun., "Lord of the Isles;" 2d, 10*l.*, David Tweddle, Castle Crawford, Lanark.

CLASS 74. Pair of Cows, 3 years old and upwards, in-Milk or in-Calf.—1st, 15*l.*, David Tweedie, Castle Crawford; 2d, 10*l.*, Lawrence Drew, Merryton, Hamilton.

CLASS 75. Pair of Heifers, 2 years old, and under 3 years, in-Milk or in-Calf.—1st, 15*l.*, Thomas Statter, jun.; 2d, 10*l.*, Lawrence Drew.

POLLED ANGUS.

CLASS 76. Bull, 2 years old and upwards.—1st, 15*l.*, G. Brown, Westertown, Fochabers, N.B., "March;" 2d, 10*l.*, Earl of Dunmore. Reserve and Highly Commended: Thomas Statter, jun.

CLASS 77 Pair of Cows, 3 years old and upwards, in-Milk or in-Calf.—1st, 15*l.*, T. Statter, jun.

POLLED GALLOWAYS.

CLASS 79. Bull, 2 years old and upwards.—1st, 15*l.*, J. Graham, Braidlee, Newcastleton, Roxburghshire, "Blue Bonnet;" 2d, 10*l.*, J. Graham, Parcelstown, West Linton, Cumberland, "Sir John the Graham." Reserve and Highly Commended: W. Clark, Corra Kirkgunzeon, Dumfries, N.B., "Marksman."

CLASS 80. Pair of Cows, 3 years old and upwards, in-Milk or in-Calf.—1st, 15*l.*, J. Graham, Parcelstown; 2d, 10*l.*, J. Cunningham, Tarbroch, Dalbeattie.

CLASS 81. Pair of Heifers, 2 years old and under 3 years, in-Milk or in-Calf.—1st, 15*l.*, J. Cunningham, Tarbroch; 2d, 10*l.*, J. Cunningham, Tarbroch.

WELSH.

CLASS 85. Bull, 2 years old and upwards.—1st, 15*l.*, L. Lewis, Tan-y-Fynwent, Aber, Carnarvonshire, "Cadno;" 2d, 10*l.*, E. Humphries, Royal Hotel, Carnarvon.

CLASS 86. Pair of Cows, 3 years old and upwards, in-Milk or in-Calf.—1st, 15*l.*, L. Lewis, Tan-y-Fynment.

KERRY.

CLASS 88. Pair of Cows, 3 years old and upwards, in-Milk or in-Calf.—1st, 15*l.*, Rev. J. C. Macdona, Hilbre House, West Kirby; 2d, 10*l.*, Thomas Statter, jun. Highly Commended: Thomas Statter, jun.

SHEEP.

The interest of the sheep show has depended mainly on the classes of Leicesters and Southdowns, both of which are unusually good, though Shropshires and Lincolns are also excellent in their way. The Cotswold breed is rarely represented according to its merits. The noblest breed in the country is in the hands of a somewhat quiet and homely body of agriculturists—perhaps more averse than most to the quackery and puffery of mere display. Or, shall we say that it is lack of public spirit which is at fault? Anyhow, the grandest animal of the sheep kind in this country is rarely adequately exhibited at the Royal Agricultural Society's shows, and Manchester is no exception to the general rule. The Southdown classes here attracted unusual interest from the very marked difference of opinion among the judges in the award of merit in the class of ewes. Messrs. Ellman, Lugar, and Hayward are all pure-bred Southdown men, and whether Lord Walsingham or Sondes should be 1st depended on a matter so exclusively within the inner sanctuary of that particular priesthood that we should have supposed they *must* agree. They differed however; but it appears to us that the opinion of the majority was guided by that common sense which ought to overrule the petty distinctions to which exclusiveness or even caste attaches undue importance. Surely the exact shade of umber on the cheek of a ewe ought not to have such influence on the award of merit, as those greater "points" of length, and form, and quality of carcase, on which the value of the animal essentially depends. We believe the high priests of the Southdown "faith" condemn the decision, and stand by the opinion of the protesting judge. For ourselves we are glad that "sacerdotalism" of this, as of other kinds, does not commend itself to the general public; and that two good Southdown men were ready to stand upon the real merits of the stock before them.

The show of sheep is, perhaps, the best ever witnessed. It is remarkable both for the superior animals exhibited and the absence of inferior ones in almost every class. In class 89, Leicester shearling rams, there are no less than 39 entered. Out of such a number of good animals the judges must have had a difficulty in selecting the best. They awarded first honours to No. 738, a splendid sheep, bred and exhibited by Mr. George Henry Sanday, of Holme Pierrepont. He possesses all the good qualities of the breed, has flat legs, well put on, well ribbed, and very good wool. The 2d prize is carried off by No. 749, bred and exhibited by Mr. John Borton, of Barton House, a good backed sheep, of very fine quality, but rather small, and perhaps a little too fine in the head. The 3d is won by No. 724, a very good sheep, Lieut.-Col. Inge, of Thorpe Constantine, being the breeder and exhibitor. The reserve No. 723 is also exhibited by the same gentleman. Class 90, rams of any other age—32 are entered in this class. Mr. John Borton, of Barton House, is again successful in this class, by taking 1st and 3d prizes, the former for No. 783, which must, of course, be an extraordinarily good animal, as the class is remarkable for the superior sheep exhibited. The 2d prize is taken by Mr. Geo. Henry Sanday (winner of the 1st prize in the preceding class), with a very good sheep, No. 771. The competition in class 91 (pen of five shearling ewes of the same flock) is not so great, there being only seven entries. The 1st prize is taken by Lieut.-Colonel Inge, with a very nice pen of ewes; 2d honours falling to Mr. Samuel Wiley, Brandshy, York; and 3d to Mr. Jas. Borton.—The show of Cotswold sheep is small. In class 92, Mr. Thos. Gillett, of Kilkenny Farm, Farringdon, wins 1st prize, with a very large sheep, with rather a sour head; he also takes the 2d, with a sheep of better quality: though not so large, he is superior in quality of flesh and wool, with a good head. In the next class, "rams of any other age," only three pens are shown, consequently each takes a prize—1st and 2d by Mr. Thos. Brown, of Marham Hall, and 3d by Mr. Edward Handy, of Sierford, Cheltenham When less than six pens are exhibited in any class the 3d prize is withheld, except upon the special recommendation of the judges; in this case all were awarded, therefore the judges considered each worthy of merit. Only one pen was exhibited in the class of shearling ewes, by Mr. Jno. Gillett, of Oaklands, Oxon. The 1st prize was given in this case.—In class 95, "Lincolns and other longwools, not qualified to compete as Leicesters or Cotswolds," the Lincolns come out in great perfection. The shearling rams are a very splendid class. The 1st and 3d prizes are taken by Messrs. Dudding, of Panton House, who show several very beautiful sheep in both classes of rams; the 1st prize (No. 853) is a very fine-fleshed large sheep, with heavy good wool, having clipped 20lb.; the 2d prize is awarded to a very superior sheep, shown by the Hon. Robert Henley Eden, of Cotgrave Place—his wool and quality unquestionably good. Class 96 (rams of any other age) is also a splendid exhibition of rams. Mr. William Francis Marshall, of Branston Villa, Lincoln, exhibits some very superior animals, both in this and the former class; he gains 1st prize for a sheep 3 years 4 months 2 weeks old, a large heavy-woolled sheep; his 3d prize sheep (No. 855) is also a very superior animal. Messrs. Dudding's ram, "Pretender," in this class, is a very fine specimen of the improved Lincoln breed, and would probably have obtained high honours but for his being helplessly fat. Only four pens of ewes are entered in the class of pen of five shearling ewes of the same flock. Mr. Thos. Cartwright, Dunston Pillar, takes 1st and 3d; and Mr. J. Pears, Mere, Branston, 2d.—As we proceed, we must continue to speak most highly of each class. The Oxfordshire Downs, now become a beautiful and valuable breed, are represented in class 98 by 21 most perfect shearling rams; there is nothing approaching to an inferior animal amongst them; the 1st and 2d are taken by Mr. George Wallis, of Old Shifford, No. 879 is the admiration of all, possessing perfect shape, with beautiful wool character. The 3d goes to Mr. Milton Druce, of Burghfield, a very good handling, fair sized sheep, showing great purity of blood. The 1st in the next class, of rams of older age, is won by Mr. John Treadwell, of Upper Winchendon. Mr. George Wallis again takes two prizes—2d and 3d—with two splendid

sheep. This class, though not so many entered, is equal in quality to the preceding. Mr. George Wallis again successful in obtaining first place in the class of five shearling ewes; Mr. Frederick Gillett 2d.

The exhibition of pure Southdowns is generally the most admired of all the sheep classes, and on the present occasion the specimens from the flocks of the Duke of Richmond, Lord Walsingham, Lord Sondes, &c., are especially good. Lord Walsingham takes all the prizes in the class of shearling rams. The 1st (No. 915) is an admirable sheep, girth large, level back from neck to rump, fine quality of flesh and wool; and the whole eight of his lordship's sheep in this class are very like in character and quality. As usual, the Duke of Richmond shows sheep of fine quality and purity of blood, and No. 922 is particularly worthy of mention. Mr. Rigden's two shearlings are very fine in quality, but rather small. Messrs. J. and Alfred Heasmon also exhibit some strong and useful sheep. In the next class, 102, "Rams of any other age," Sir William Throckmorton takes 1st and 2d with two unquestionably very superior animals. Mr. Rigden and Lord Walsingham have good sheep in this class, the latter winning 3d prize. The Duke of Richmond's No. 937 is an animal of great merit; he possesses the most perfect quality of mutton, wool, and character, but springs a little in the loin, which probably had some weight with the judges, as he was kept out of his pen with others for a long time before they could arrive at a decision. Lord Sondes and Mr. Humphry are also Highly Commended in this class. There are eleven entries in class 103, "Pen of 5 shearling ewes." The judges appeared to have great difficulty in making their award, and if we may judge from the loud talking of one of them, there was some difference of opinion. The 1st prize was at last put over pen No. 955, Lord Sondes, Sir William Throckmorton taking 2d, and Lord Walsingham 3d prize. His Royal Highness the Prince of Wales, and the Duke of Richmond, also competed in this class.

The Shropshire sheep are a comparatively new breed; they possess the character of the Down, but are much larger, and cut more wool; they are a hardy, useful breed. A very large number are exhibited in the showyard, and do great credit to the owners.

The Hampshire Downs occupy only a few pens, but the quality of those exhibited is exceedingly good.

The other classes of Lonk, Herdwick, Cheviot, Limestone, Border Leicester, and Blackfaced Scotch, are all well represented, and no doubt are very useful breeds in their respective localities.

JUDGES.—Leicesters: G Walmsley, Rudston House, Bridlington; C. Clarke, Scopwick, Sleaford; R. Fisher, Leconfield, Beverley. — Cotswold and Oxfordshire Downs: R. Lord, Stanton Harcourt, near Witney; W. Parsons, Hill Farm, Elsfield, Oxford; E Ruck, Castle Hill, Cricklade. — Lincolns and other Long-woolled: H. Makinder, Mere Hall, Lincoln; J. H. Caswell, Laughton, Folkingham.—Southdowns and Hampshire Downs: H. Lugar, Tugham, Bury St. Edmund's; T. Elliman, 9, Clifton Crescent, Sutton; H. Scott Hayward, Frocester Court, Stonehouse, Gloucestershire. — Shropshires: John Woods, Clipstone Park, Mansfield; H. Fookes, Whitechurch, Blandford; W. H. Clare, Twycross, Atherstone. — Lonk, Herdwick, Limestone, and Black-faced Scotch: George Rea, Middleton House, Alnwick; John Benn, Tirril House, Penrith. — Cheviots and Border Leicesters: F. P. Lynn, Milldrum Mill, near Coldstream; A. Borthwick, Kilham, Coldstream, N.B.—Inspectors of Shearing: H. Bone, Avon, Ringwood; W. B. Canning, Elston Hill, Devizes; Thomas Compton, Fisherton Delamere, Heytesbury.

LEICESTERS.

Class 89. Shearling Rams.—1st, 20*l.*, G. H. Sanday, Holme Pierrepont; 2d, 10*l.*, John Borton, Barton House, Malton; 3d, 5*l.*, Lieut.-Col. Wm. Inge, Thorpe Constantine, Tamworth. Reserve and Highly Commended: Lieut.-Col. William Inge. Highly Commended: Edmond Riley, Kipling Cotes Farm, Beverley. Commended: Thomas Stamper, Highfield House.

Class 90. Ram of any other age.—1st, 20*l.*, John Borton, Barton House; 2d, 10*l.*, G. H. Sanday, Holme Pierrepont; 3d, 5*l.*, John Borton. Reserve and Highly Commended: G. Turner, jun., Alexton Hall. Highly Commended: Edmond Riley. Commended: George Turner, jun.

Class 91. Pen of 5 Shearling Ewes of the same flock.—1st, 15*l.*, Lieut.-Col. W. Inge, Thorpe Constantine; 2d, 10*l.*, Samuel Wiley, Brandsby, York; 3d, 5*l.*, J. Borton. Reserve and Highly Commended: T. H. Hutchinson, Manor House, Catterick.

COTSWOLDS.

Class 92. Shearling Ram.—1st, 20*l.*, Thomas Gillett, Kilkenny Farm, Farringdon; 2d, 10*l.*, Thomas Gillett; 3d, 5*l.*, T. Brown, Marham Hall. Reserve and Highly Commended: Thomas Brown.

Class 93. Ram of any other age.—1st, 20*l.*, Thomas Brown; 2d, 10*l.*, Thomas Brown; 3d, 5*l.*, Edward Handy, Sierford, Cheltenham.

Class 94. Pen of 5 Shearling Ewes of the same flock.—1st, 15*l.*, John Gillett, Oaklands, Charlbury, Oxon. No other entry.

LINCOLNS AND OTHER LONG-WOOLS.

(Not qualified to compete as Leicesters or Cotswolds.)

Class 95. Shearling Rams.—1st, 20*l.*, Messrs. Dudding, Panton House; 2d, 10*l.*, the Hon. Robert Henley Eden, Cologrove Place; 3d, Messrs. Dudding. Reserve and Commended: Messrs. Dudding.

Class 96. Ram of any other age.—1st, 20*l.*, W. F. Marshall, Branston Villa, Lincoln; 2d, 10*l.*, Messrs. Dudding; 3d, 5*l.*, W. F. Marshall, Branston Villa, Lincoln. Reserve and Highly Commended: Thomas Cartwright, Dunston Pillar, Lincoln.

Class 97. Pen of 5 Shearling Ewes of the same flock.—1st, 15*l.*, T. Cartwright; 2d, 10*l.*, John Pears, Mere, Branston, Lincoln; 3d, T. Cartwright. Reserve, not worthy of Commendation: J. & R. Lamshaw, Grindleton, Clitheroe.

OXFORDSHIRE DOWNS.

Class 98. Shearling Ram.—1st, 2*l.*, G. Wallis, Old Shifford; 2d, 10*l.*, George Wallis; 3d, 5*l.*, A. F. M. Druce, Burghfield. Reserve and Highly Commended: George Wallis. Highly Commended: John Treadwell, Upper Winchendon, Aylesbury. Commended: John Treadwell. Class generally Commended.

Class 99. Ram of any other age.—1st, 20*l.*, J. Treadwell; 2d, 10*l.*, G. Wallis; 3d, 5*l.*, G. Wallis. Reserve and Highly Commended: J. Treadwell. Highly Commended: F. Gillett, Upton Downs, Burford. Class generally Commended.

Class 100. Pen of 5 Shearling Ewes of the same flock.—1st, 15*l.*, G. Wallis; 2d, 10*l.*, F. Gillett, Upton Downs, Burford. Reserve and Highly Commended: T. Treadwell. Commended: Charles Howard, Biddenham, Bedfordshire; E. Freeman, Chilton, Thame.

SOUTHDOWNS.

Class 101. Shearling Ram.—1st, 20*l.*, Lord Walsingham, Merton Hall; 2d, 10*l.*, Lord Walsingham; 3d, 5*l.*, Lord Walsingham. Reserve and Highly Commended: Lord Walsingham. Commended: Lord Walsingham and Lord Braybrooke, Audley End, Saffron Walden.

Class 102. Ram of any other age.—1st, 20*l.*, Sir William Throckmorton, Bart., Buckland, Farringdon, Berkshire; 2d, 10*l.*, Sir William Throckmorton, Bart.; 3d, 5*l.*, Lord Walsingham. Reserve and Highly Commended: Lord Sondes, Elmham Hall, Thetford, Norfolk. Highly Commended: the Duke of Richmond, K.G., Goodwood, and Henry Humphrey, Ashington. Class generally Commended.

Class 103. Pen of 5 Shearling Ewes of the same flock.—1st, 15*l.*, Lord Sondes, Elmham Hall, Thetford, Norfolk; 2d, 10*l.*, Sir Wm. Throckmorton, Bart., Buckland; 3d, Lord Walsingham, Merton Hall, Thetford. Reserve and Commended: the Duke of Richmond, K.G., Goodwood.

SHROPSHIRES.

Class 104. Shearling Ram.—1st, 20*l.*, Lord Chesham, Latimer; 2d, 10*l.*, John Coxon, Freeford Farm; 3d, 5*l.*, Mrs. Beach, The Hattons. Reserve and Highly Commended: Lord Chesham. Highly Commended: Mrs. Beach (2), John Evans, Uffington, T. Mansell, Adcot Hall, and T. Horton, Hornage Grange. Commended: George Allen, Knightley Hall, Lord Chesham, Latimer, Thomas Mansell, Adcot Hall, and Viscount Falmouth.

Class 105. Ram of any other age.—1st, 20*l.*, H. Matthews, Mountford, Shrewsbury; 2d, 10*l.*, Thomas Horton, Harnage Grange; 3d, 5*l.*, Mrs. P. W. Bowen, Shrawardine Castle. Reserve and Highly Commended: Charles Byrd, Littywood. Highly Commended: Thomas Mansell, Adcot Hall; C. Byrd, William Hamilton, Hamwood, Clonee, Co. Meath. Commended: William Baker, Moor Barns; Henry Dennis, Hafody-Bwch, Ruabon, Denbighshire, and John Evans, Uffington.

Class 106. Pen of 5 Shearling Ewes of the same flock.—1st, 15*l.*, Thomas Nock, Sutton Maddock, Shifnal; 2d, 10*l.*, Lord Chesham; 3d, 5*l.*, Henry Wood, Pucknall Farm, Romsey. Reserve and Highly Commended: Lord Chesham. Highly Commended: Mrs. Beach, The Hattons, and C. R. Keeling, Yew Tree Farm, Penkridge. Commended: Lord Wenlock, Escrick Park; H. Mathews, of Montford, Shrewsbury; R. Tanner, of Frodesley; W. Baker, Moor Barns, Atherstone.

HAMPSHIRE AND OTHER SHORT-WOOLS.

Class 107. Shearling Ram.—1st, 20*l.*, A. Morrison, Fonthill House, Tisbury; 2d, 10*l.*, A. Morrison; 3d, 5*l.*, J. Rawlence, Bulbridge, Wilton, Salisbury. Reserve and Highly Commended: R. & J. Russell, Horton Kirby, Dartford. Highly Commended: J. Rawlence. Commended: R. and J. Russell.

Class 108. Ram of any other age.—1st, 20*l.*, R. & John Russell; 2d, 10*l.*, James Rawlence. Reserve and Highly Commended: J. Rawlence.

Class 109. Pen of 5 Shearling Ewes of the same flock.—1st, 15*l.*, J. Rawlence; 2d, 10*l.*, J. Rawlence.

LONK SHEEP.

Class 110. Shearling Ram.—1st, 20*l.*, Thomas Statter, Stand Hall, Whitefield, Manchester; 2d, 10*l.*, J. M. Green, Black Hall, Keighley; 3d, 5*l.*, L. Duckworth, Sheephey, Ramsbottom. Reserve and Highly Commended: J. Peel.

Class 111. Ram of any other age.—1st, 20*l.*, Jonathan Peel 2d, 10*l.*, Jonathan Peel. Reserve and Highly Commended: J. Midgley Green, Black Hill, Keighley, Yorkshire.

Class 112. Pen of 5 Ewes.—1st, 15*l.*, Jonathan Peel; 2d, 10*l.*, Jonathan Peel. Reserve and Highly Commended Jonathan Peel.

HERDWICKS.

Class 113. Shearling Ram.—1st, 20*l.*, G. Browne, of Troutbeck, Windermere; 2d, 10*l.*, G. Browne. Troutbeck; 3d, 5*l.*, G. Irving, of Wythop Hall, Cockermouth. Reserve Number: J. Smith, Branthwaite, Caldbeck.

Class 114. Ram of any other age.—1st, 20*l.*, R. Browne, Troutbeck, Windermere; 2d, 10*l.*, G. Browne, Troutbeck; 3d, 5*l.*, R. Browne. Reserve and Commended: J. Smith, Branthwaite, Caldbeck.

Class 115. Pen of 5 Ewes.—1st, 15*l.*, E. Nelson, Gatesgarth; 2d, 10*l.*, G. Irving, Wythorp Hall. Reserve and Commended: G. Browne, Troutbeck.

CHEVIOT.

Class 116. Shearling Ram.—1st, 10*l.*, J. McGregor, Bell Ridding, Torthorwald, Dumfries; 2d, 5*l.*, J. Robson, Bymess, Rochester, Northumberland. Reserve and Commended: J. Robson.

Class 117. Ram of any other age.—1st, 10*l.*, J. Robson; 2d, 5*l.*, J. Robson.

Class 118. Pen of 5 Shearling Ewes.—1st, 10*l.*, J. McGregor, Bell Ridding.

LIMESTONE.

Class 119. Shearling Ram.—1st, 10*l.*, R. Parker, Moss End, Burton, Westmoreland; 2d, 5*l.*, Rowland Parker.

Class 120. Ram of any other age.—1st, 10*l.*, Rowland Parker. No more entries.

Class 121. Pen of 5 Shearling Ewes.—1st, 10*l.*, Rowland Parker; 2d, 5*l.*, Rowland Parker.

BORDER LEICESTER.

Class 122. Shearling Ram.—1st, 10*l.*, J. & G. Laing, Cornhill; 2d, 5*l.*, J. & G. Laing. Reserve and Commended: J. & Wm. Dinning, Nilstone Ridge. Commended: J. Angus, jun., Whitefield, Morpeth.

Class 123. Ram of any other age.—1st, 10*l.*, J. & W. Dinning; 2d, 5*l.*, J. Watson, Gelt Hall, Castle Carrock. Reserve and Commended: J. Watson, Gelt Hall, Castle Carrock, Carlisle. Commended: J. & G. Laing, J. Angus, jun.

Class 124. Pen of 5 Shearling Ewes.—1st, 10*l.*, J. & Wm. Dinning; 2d, 5*l.*, J. Angus, jun. Reserve and Commended: J. Watson.

BLACK-FACED SCOTCH.

Class 125. Ram of any age.—1st, 10*l.*, J. Irving, Shap Abbey; 2d, 5*l.*, J. Irving. Reserve and Commended: A. W. Long, Mint Cottage, Kendal.

Class 126. Pen of 5 Shearling Ewes.—1st, 10*l.*, A. Bell, Garrigell, Alston; 2d, 5*l.*, J. Irving, Shap Abbey. Reserve and Commended: J. Atkinson, Brackenthwaite Cumrew, Carlisle, Cumberland.

PIGS.

It is a small show of the large white breed; that of the small white breed is much larger, and there are some beautiful specimens exhibited. Berkshire and other breeds are about the quality of former years.

JUDGES.—J. B. Slater, Cammeringham, Lincoln; S. Druce, Eynsham, Oxon; Thomas Trotter, Bywell, near Stocksfield-on-Tyne.

Class 127. Boar of a large White Breed, above 12 months old.—1st, 10*l.*, Richard Elmhirst Duckering, Northorpe; 2d, 5*l.*, M. Walker, Stockby Park, Anslow, Burton-on-Trent. Reserve and Commended: James & Frederick Howard Britannia Farms, Bedford.

Class 128. Boar of a large White Breed, above 6 months old and not exceeding 12.—1st, 10*l.*, R. Elmhirst Duckering; 2d, 5*l.*, Peter Eden, Cross Lane, Salford. Reserve Number: I. Bantock, Merridale House, Wolverhampton.

Class 129. Boar of a small White Breed, above 12 months old.—1st, 10*l.*, Peter Eden; 2d, 5*l.*, J. Sagar, Lister Hills, Bradford. Reserve and Highly Commended: Lord Wenlock, Escrick Park.

Class 130. Boar of a small White Breed, above 6 months old.—1st, 10*l.*, J. Maxwell, Mossdale House, Aigburth, Liverpool; 2d, 5*l.*, Peter Eden. Reserve and Highly Commended: Henry Neild, The Grange, Worsley.

Class 131. Boar of a small Black Breed.—1st, 10*l.*, T. Comber, Rainhill, Prescot; 2d, 5*l.*, T. Gankroger, 4, Clarendon Place, Halifax.

Class 132. Boars of the Berkshire Breed.—1st, 10*l.*, Joseph Whitworth, Stancliffe Hall, Matlock; 2d, 5*l.*, Heber Humfrey, Kingstone Farm, Shrivenham. Reserve and Highly Commended: Joseph Smith, Henley-in-Arden, Warwickshire.

Class 133. Boar of a breed not eligible for the preceding, classes.—1st, 10*l.*, J. Sagar, Lister Hills, Bradford; 2d, 5*l.*, Peter Eden. Reserve Number: James & Frederick Howard,

Class 134. Breeding Sow of a large White Breed.—1st, 10*l.*, Peter Eden; 2d, 5*l.*, Richard Elmhirst Duckering. Reserve and Highly Commended: Peter Eden. The class of Small Breeding Sows were of more than ordinary merit, and the class of Berkshire sows were also very good.

Class 135. Breeding Sow of a small White Breed.—1st, 10*l.*, Richard Elmhirst Duckering; 2d, 5*l.*, John Sagar, Lister Hills. Reserve and Highly Commended: William Hatton, Addingham. Highly Commended: James Sutcliffe, Commercial Hotel, Accrington.

Class 136. Breeding Sow of a small Black Breed.—1st, 10*l.*, Rev. W. Holt Beever, Pencraig Court, Ross; 2d, 5*l.*, T. Comber, Rainhill. Reserve and Highly Commended: T. Gankroger, 4, Clarendon Place, Halifax.

Class 137.—Breeding Sow of the Berkshire Breed.—1st, 10*l.*, Arthur Stewart, Saint Bridge House, Gloucester; 2d, 5*l.*, Heber Humfrey. Reserve and Highly Commended: Arthur Stewart.

Class 138. Breeding Sow of a breed not eligible for the preceding classes.—1st, 10*l.*, William Parker, Bradford, Yorkshire; 2d, 5*l.*, Peter Eden. Reserve and Highly Commended: James & Frederick Howard, Britannia Farms, Bedford.

Class 139. Pen of 3 Breeding Sow Pigs of a large White Breed, of the same litter, above 4 and under 8 months old.—1st, 10*l.*, Richard Elmhirst Duckering; 2d, 5*l.*, Peter Eden. Reserve and Highly Commended: James & Frederick Howard.

Class 140. Pen of 3 Breeding Sow Pigs of a small White Breed, of the same litter, above 4 and under 8 months old.—1st, 10*l.*, Peter Eden; 2d, 5*l.*, Sir George Orby Wombwell, Bart., Newburgh Park, Easingwold. Reserve and Highly Commended: Sir George Orby Wombwell, Bart.

Class 141. Pen of 3 Breeding Sow Pigs of a small Black Breed, of the same litter, above 4 and under 8 months old.—1st, 10*l.*, Thomas Gankroger, Halifax.

Class 142. Pen of 3 Breeding Sow Pigs of the Berkshire Breed, of the same litter, above 4 and under 8 months old.—1st, 10*l.*, Rev. Henry G. Baily, Swindon.

Class 143. Pen of 3 Breeding Sow Pigs of a breed not eligible for the preceding classes, of the same litter, above 4 and under 8 months old.—1st, 10*l.*, Peter Eden; 2d, 5*l.*, Peter Eden. Reserved Number: Martin Newton, Oldfield, Altrincham.

IMPLEMENT YARD AND TRIALS.

Our last week's columns must suffice for a statement of the general character of the implement department. And a few words about some of the novelties exhibited are all that we shall at present give as a preface to that "heavier" and more detailed report of some of the departments which it is our duty to lay before our readers. One of these novelties is Mr. Gibbs' drying-machine, for wet corn in sheaf and half-dried Grass. It has not received the gold medal for which it competed—the judges apparently considering it not yet sufficiently perfected to justify the sanction of the Society. Two inventions competed for this gold medal. Messrs. Adamson & Co., of Hyde, have a large blowing fan upon an upright axis, surrounded by wired compartments, which hold a dozen sheaves of Wheat or other corn at a time. Driven by a steam-engine, the fan sends a sharp current of air past and partially through the sheaves; and in 15 minutes a number of wetted sheaves lost four to eight ounces of moisture, still remaining, however, wet in the centre. The apparatus of Mr. W. A. Gibbs, of Gilwell Park, Essex, consists, as our readers already know, of a hot-air generator, a fan for producing a powerful current, and a chamber for holding the corn. The fan, driven by the steam-engine, or by horse-power when a stove is employed without a steam-engine, forces a blast of air at 380° temperature into a drying chamber, the air entering through short tubes placed at intervals upon the floor. Upon each tube a sheaf is set, and the hot air thus injected into the very middle of the dampest portion. In an experiment made by the judges, 31 sheaves of unripe Rye, thoroughly saturated with water, and soaked from having lain all night after the wetting, were placed in the chamber for fifteen minutes. The result was, that several of them lost as much as 2 lb. out of 12 lb. or 14 lb. weight, and had they been ripe instead of green at starting, would have been dry enough to stack. It is obvious that a rate of performance no more expeditious than two sheaves per minute is not practical enough for the farmer's purpose. Of other novelties we may mention the horse pitch-fork of Coleman & Morton, of Chelmsford, a clever arrangement of poles, ropes, and pulleys, and a mechanical fork, by which hay may be unloaded from carts on to the stack with great expedition. A similar invention, patented by Mr. James Adams, of Fenchurch Street, manages the raising of hay or loose Barley on to the loftiest ricks by the power of one horse, so that a man and boy can keep four pitchers going in the field; and the pole, rope, pulleys, and fork cost under 5*l.* Capt. Stevens, of Kidwelly, exhibits a new form of endless rails for easing the transit of carts and waggons over soft or uneven ground. The shoes are obviously a considerable improvement upon the tumbling feet of the late Mr. Boydell, and must save an immense amount of draught-power and wear of clay roads. As at present manufactured, however, the springs and staples and other attachments have too much of a light mouse-trap style of construction to be capable of standing much rough treatment. Mr. R. W. Thompson, of Edinburgh, exhibits a handy little road locomotive, remarkable for being constructed with an upright or "pot" boiler, and with indiarubber tires to the wheels for neutralising jolts and jars. Messrs. Manning, Wardle & Co., of Leeds, have a powerful steam road-roller, invented by Gellerat and Co., of Paris, for consolidating freshly-stoned roads. Messrs.

Aveling & Porter, of Rochester, have a still better engine for the same purpose; it weighs 15 tons, and gives one ton more rolling pressure than the French engine, for 400*l.* less money. As the road-roller, armed with teeth, can macadam or pick-up old roads at one-third the cost of pickwork by manual labour, and then dint down a fresh coat of rough stone, grouting it in with sand and water, at a cost of about one farthing per square yard, and completing an area of half an acre of road in ten hours, it does seem monstrous that metropolitan and other thoroughfares and public roads should still be dressed with granite for our vehicles to grind down and our horses to lame themselves upon.

Reaping Machines and Mowers.

Harvest Implements and Machinery.—One of the most laborious trials of "machines and implements for the harvesting of crops" ever gone through by the Royal Agricultural Society has just been concluded. Manchester will long be remembered, not only by the manufacturers of this class of machines, whose patience has been sorely tried, but by many of the public, who left the implement yard the fourth day after it was opened with incomplete catalogues, the awards of the judges not having been published until the fifth day. To watch the performance of the 84 mowers and reapers from the time they left the yard on Monday the 12th inst. until they returned in the afternoon of Tuesday the 20th, is a task which has been gone through, note-book in hand, by more than the judges, but it is a task not so easily extended to the limited columns of the *Agricultural Gazette* as some of its readers perhaps may imagine. In other words, we must pass over the mechanical merits and quality of the work done by the vast majority of machines with the brief observation that both stand very high in the general estimation of those qualified by experience to sit in judgment. No doubt there was a full average of that experimental obliquity which always attends the trial fields of the Royal Agricultural Society and all other trial fields. Thus, some got prizes and commendations who did not expect them, while others were disappointed; a third could not make such good work at Manchester with his machine as he made at home, and was sadly puzzled to account for it; others experienced no difficulty in this way, but were too late in seeing their shortcomings; and so on. Again, in the grass-field, the day after the final trials, Mr. Bannister with an old Kearsley Ripon mower was making better work than either of the prize machines did the previous day; in a grass-field adjoining the preliminary trial ground. We cannot say quite so much for the work done by Mr. Cookson's own two mowers as for Howard's, and another whose maker we are not quite certain of, but it was evident the hands were not so determined to win the day as honest Jock Cluff (Mr. Bannister's man) was to take the 1st prize in the other field, which we of course awarded him *minus* the money. It takes calm and careful thinking to account satisfactorily for such differences. How much better work with the prize machines would have been done by Jock Cluff, he himself would not say, as he thought his master's mower "the best of the lot," although we concluded otherwise. Three old harvest maxims were of very general application during the trials, viz.—"A sharp scythe makes a good mower," "A bad hand never gets a good tool," and "No more speed than good work."

The improvements which have been made since the Royal Agricultural Society last awarded prizes for this class of machines and implements would not be easily counted. Not a few have been introduced since the Leicester meeting. No absolute failures are exhibited, almost all the mowers and reapers being constructed on sound principles, although in one or two cases shortcomings must be expected. The advances made since the summer meeting of last year are those which require a special notice, which we hope to give next week.

Sheafers, Self-acting Reel-rakes.—The Messrs Hornsby have introduced a new self-raker, simple in construction and effective in operation. It is free from the objections to which all the undulating cam movements are subject, without sustaining comparatively any loss by the adoption of the simple conical path movement of the reels and rakes. This is effected by placing the axis of the rake reel at a proper angle and position in relation to the knife, and by giving the platform a certain degree of curvature.

The Messrs. J. & F. Howard, Bedford, have not yet been successful with the double-cam movement, one for the rakes and the other for the reels. But the principle of raking up lying corn to the knife is sound, and therefore ought not to have been objected to, as it frequently was during the trial. None of the reapers, for example, were able to reel the Rye that was rolled down flat when the machine was going in the direction of the laid corn, and when the lying bed was below the reels, nor yet the rakes when it was below them. But with proper reels for raking up lying corn, the laid Rye could have been cut all round; and besides, green Rye standing and full of Couch (Agrostis) at the bottom, is no true test of the capabilities of a rake up, for it has nothing to raise, and therefore must of necessity pluck up the black Twitch and green Rye—no easy matter,—hence the intermittent movement of the rakes. Put the machine into a field of Rape, or of lying corn, and the result would be otherwise.

The Messrs. Burgess & Key have made improvements in their differential movement side rake. In principle this is decidedly the best machine in the yard, but some of its details are subject to farther improvement to obviate the valid objections brought against its working in the field, such as large sheaves, and the action of the outer ends of the reels. The sheaves can be made of any required size, and the corn evenly reeled on to the platform at the standing-corn side, to meet the mechanism and movement of the rake. But the cylindrical action of the reel arms is sound, and so is the differential movement of the rake—two principles beyond the reach of the conical path movement rake-reels, however their arms and axes may be twisted by undulating cams, or the platform curved to meet an undeviating conical path movement; they are therefore principles which ought not to be departed from until better are discovered. We draw this conclusion, not so much for the Messrs. Burgess & Key, as for other two large firms who have each a differential rake-reaper, but who appear not to know either their value, or else how to improve them.

Samuelson & Co., who introduced the undulating cam reel-rakers; Brigham & Bickerton, Picksley, Sims & Co., have all made improvements, but what has been said above renders it unnecessary to go into these several details.

Swathers are shown in greater variety of mechanism than ever we remember seeing before on trial, not only in the Rye, but grass-field. The green standing Rye and the long Grass suit them, and generally they made very creditable work, laying the long Rye in their own way better than the sheafers did in theirs.

Six or seven *Hand-rake Reapers* and 1-*horse Machines* may both be disposed of in a single sentence, for they are both killing alike to the men and horses that work them. No doubt the long Grass and green Rye were both a rather stiffish cut, but granting they had been cut at the proper time, it would not have removed the objection, for although the crops were as stated above, the yokings were short, and short yoking won't do in the harvest field. The progress of things appears to point to growing heavy crops, 2-horse reapers and mowers, if not steam machines, by contract, for small farmers.

Steam Cultivation.

Steam Cultivators.—Three systems have been at work during the show—Fowler's and Howard's on Mr. Cookson's farm, and the Britannia Steam Cultivator Company's (better known as Fisken's) in a field belonging to — Robinson, Esq., Stretford, near the Greatstone Farm. Beard's system, which has not been tried, is shown on stand No. 266 by the Messrs. Kinsey, Norton, Hill & Co., of the Robin Hood Works, Nottingham. The Woolston system is also well represented in the yard.

The Messrs. Fowler & Co., of Leeds, exhibit a greater force of steam power and implements than is entered in the catalogue, the excess having come up during the show for trial in the field. Four twin sets are entered, viz., two 20-horse power, two 14-horse power, two 12-horse power, and two 10-horse power engines. Each engine is self-moving, and carries a large horizontal winding-drum under the boiler. They also show a 30-horse engine, being one of a twin set for R. Campbell, Esq., of Buscot Park, Berks, the other twin not having been completed in time for the show; also an engine with a detached windlass, and a 12-horse power self-moving engine with a double drum windlass under the boiler for cultivating on the roundabout system. This latter set and two of the former twin sets are at work in a large field of hay stubble, actuating different kinds of implements. Thus, two of the large engines are working between them a six-furrow digger on a portion of land set apart for this implement. By unkooking the engines from the digger they are moved across to another portion of land laid off for trench ploughing, and are hooked on to a three-furrow trench plough. On the opposite side of the field the other twin set are working between them half the length of the land, a five-furrow common plough making grand work, not a footprint of a horse being to be seen, either in the bottom of the furrow or on the furrow slice, from end to end. On the other half of the land-length, and upon the same side of the field, the single engine, with two winding-drums, is working between it and a disc anchor opposite, eight across—a four-furrow and eight-furrow plough, and so on. In this way all the different steam tillage implements are exhibited at work, thus affording the agricultural public an opportunity of practically judging of their capabilities in the field.

The Messrs. Fowler & Co. have since the Leicester meeting made important improvements in turning and raising implements out of the ground at the headland, and in steering them from end to end—improvements which have enabled them to bring out successfully a new combined ridge-plough and cultivator, also a new seed and manure drill, in addition to the improvement of their old non-balance cultivator. The circular frame in front forms a closely-fitting shield case for the ring within which the steerage wheel works, and the ring turns upon rollers within the circular casing, something after the principle of a turntable, so that it may not inaptly be termed a turntable steerage—simple in its construction, easily worked, and effective in guiding the course of the implement. When the implement arrives at the headland, the working parts—tines or ridging ploughs, as the case may be—are raised out of the ground before it begins to turn, which enables it to take on fresh ground regularly the full breadth, without any angular missing, as experienced when turning on the old plan.

A steam drill is exhibited, a common cup one with harrows attached, and provided in front with the patent two-wheel steerage, and two link-levers for hauling, laying down the slack rope, and turning at the headlands. We have only to turn attention to the pitting of the land by the horses' feet in working horse-drills, and the heavy loss sustained thereby, in order to point out the more prominent advantages of the steam-drill. The machine also goes much more steady than when hauled by horses, so that the seed is got in at a more uniform depth, and from the seed-bed being also more uniform the seed brairds more equally, the young plants tiller, grow, and ripen more evenly, so that the practical conclusion is manifest.

This firm also exhibit a set of common or light harrows, a set of heavy drag-harrows for being worked under a common carriage frame with their patent two-wheel steerage at each end for working to and fro without turning at the headlands; or each set of harrows may be worked under a wide cultivator or behind a wide cultivator: likewise a Norwegian harrow and clod-crusher, all for steam-power, under a common carriage-frame, or each under its own carriage-frame if preferred.

The Messrs. James & Frederick Howard, of Bedford, exhibit a greater force of steam-power and implements than they enter in the catalogue, the excess coming up to meet the demands of the show. In the field they have two large twin self-propelling engines, boilers across, each engine carrying two winding drums, being thus adapted for working either one or two implements between them, the twin implements turning half-way and going over twice the ground in a day the two engines and one implement can do. For contractors and large agricultural concerns the double twin system of two engines working two implements simultaneously has much to recommend it on the score of economy and profit, as it makes the most of the steam-engines, tackle, implements, and hands that work them. They also show at work their balance-ploughs, diggers, and subsoilers. In the yard they exhibit a self-propelling engine, with transverse boiler and two winding drums, adapted, like the preceding, for double or single twin-work or single-engine work by means of an anchor on the opposite headland. They also show a common portable engine connected with a detached windlass by means of coupling gear for working on the roundabout system; likewise a two-furrow, a three-furrow, and a four-furrow spring balance-plough, in which digging and scarifying breasts can be substituted for plough-breasts. The two-furrow plough is adapted for deep or trench ploughing. They also show their double-action cultivator, which is capable of being converted into a one-way ridge-plough by means of double-action shares, &c., pair of reversible skeleton mouldboards, which turn from front to rear when the implement is hauled in the opposite direction. Likewise their light and heavy harrows, for working under a common carriage-frame, with steerage-wheels; and two new implements—a ridge-plough and seed-drill, with improvements on their engines.

The Bedford steam ridge-plough, for ridging for root crops, is an implement of the highest utility and promise. It is constructed on the principle of their common spring balance-ploughs, the framing being identical. Thus, the one shown is for raising two ridges at a time, and by substituting four common plough, digger, or scarifier breasts for the two ridge breasts the implement may be converted into a four-furrow plough, digger, or scarifier. In a similar way a three-furrow ridge-plough may be converted into a six-furrow plough, digger, or scarifier, a four-furrow ridge-plough into an eight-furrow plough, digger, or cultivator for light land. Of the superlative importance of steam ridge-ploughs for getting in farmyard manure for all sorts of root crops over the greater part of the kingdom, it would be superfluous to speak. By working two twin engines on the roundabout system, two ridging ploughs can be worked, the one in advance opening the drills or setting up the ridges, as it is variously termed, and the other follows up behind, splitting the ridges and covering the manure, the two being sufficiently far apart for the carts and spreaders in getting in the manure. With artificial manure a seed and manure drill may be substituted for the last plough. In getting in Beans, Parsnips, Carrots, and Mangels, into land ridged and manured with farmyard manure in the autumn, light harrows, if needed, may precede the ridge plough, which would set up the ridges again for the seed drill, or manure and seed drill, where artificial manure is applied at the time of sowing, as is generally the case in getting in Mangel Wurzel in the south, and Swedes into light land in the north.

The Bedford steam-drill is constructed on the principle of a common cup-drill fitted with Priest & Woolnough's patent steerage. Between the steerage and coulters a set of breaking-in harrows is suspended, and behind there is a set of light seed harrows for covering the seed. The whole work is thus finished at once going over the ground. As to the efficiency of these steam-drills, the best answer to the question is the fact that one of them has been successfully used by the Messrs. Howard themselves upon their own farms during the current season in getting in the different crops grown.

The improvements of their engine consist in greatly simplifying its working parts, thereby reducing tear and wear, while its locomotive and hauling powers are considerably increased without any increase in the prime cost of the engine. These mechanical advantages are effected by placing the cylinders under the transverse boiler, in the same position to it as an ordinary railway locomotive, a position which enables them to place the axis of the crank-shaft on a line with the axes of the winding drums, one on each end, which are thus actuated by open independent gear. The improvements are applied to the two engines in the trial field, as well as to the one in the yard, and the successful working of the former is the best proof of their incalculable value.

Fisken's Steam Culture System.—The two stands, No. 71 (Mr. W. Fisken, of Stamfordham, Newcastle-on-Tyne) and No. 74 (the Britannia Steam Cultivating Co., Leeds, Mr. Thomas Fisken), although apparently opposed to each other as rival exhibitors, are nevertheless virtually one and the same concern. Mr. T. Fisken endeavoured to get land on the other side of the showyard, adjoining the other systems on trial, but

was defeated; hence his somewhat isolated position on land not so level and well adapted for steam tillage, especially with eight-furrow ploughs. Their system, although the same in principle as when they last appeared in the trial field of the Royal Agricultural Society, at Carlisle, in 1855, has recently been so improved as to be entirely a new thing. In the field they stood at work a 10-horse engine in one corner of a hay stubble field, actuating their driving and hauling ropes; a pair of twin eccentric friction clutch windlasses, one at each end of the land, and three implements by turn, viz., a seven-tine Fowler balance-cultivator—a three-furrow Fowler balance-plough, and an eight-furrow Fowler balance-plough, or, as they themselves have it, all "Fisken implements." The distinctive character-istic of the system is a light driving rope, made of fibrous material, running round the field at a great velocity, and actuating a hauling rope at a slow speed by means of intermediate connecting apparatus. As already stated, two anchor-windlasses are shown at work on the twin system of haulage, but one windlass with one anchored snatchblock opposite, as at the corners, may form a system. The light endless driver-rope is driven by a grooved rigger-drum on the flywheel of the engine, and by means of anchored snatchblocks at the corners, and a tension-pulley at the engine, passes round the field. In its course it is supported by standard rope-porters fixed at proper distances from each other, and takes a whole turn round a double-grooved driving-rigger on each windlass, the rope being guided from one groove to the other by a guide-pulley running at the proper angle from the plane of the rigger grooves. The driver-rope moves at the velocity of the fly-wheel—or as 14 to 1—when compared with the speed of the winding-drum and hauling-rope, according to the calculation given us by Mr. T. Fisken. Each windlass has two winding-drums—a large one for hauling the implement, and a small one for hauling the windlass itself along the headland. The two drums are mounted on a carriage frame supported by four disc anchor-wheels. There is also a broad auxiliary coulter-anchor, pendent from the frame, which penetrates the soil to any desired depth. The winding-drums have a peculiar eccentric movement on their axes, by which they are thrown out of or into action by means of friction gear with the necessary clutch leverage, and one or both drums are thrown out of or into work without stopping the driving rope. As to the available power which a 10-horse engine can apply to the cultivation of the land, it hauled, during the trials, an eight-furrow Fowler balance-plough, going from 7 to 8 inches deep, at a speed of about three miles per hour. We thought the speed rather more, but give Mr. Fisken's own calculation. In addition to this, when the implement was going up the land, the slack-rope windlass was hauled along the headland without perceptibly reducing the speed of the eight-furrow plough; hence the conclusion: for as the windlasses can be shifted while the implement is taking on fresh ground at the headland, it follows that the power thus applied to haul the windlass, with its disc wheels and broad pendent coulter, through the headland soil is available for tillage. What the amount of this reserve power actually was we had not the means of calculating, but we may safely conclude it left a sufficiently broad margin to overcome any extra resistance the implement might meet with in going from headland to headland, such as is produced by carting and the like. But it should be understood that the available power from the engine is simply a matter of calculation to meet the requirements of the case, whatever the nature of the land may be.

Mr. W. Fisken shows a model section of a boiler, with a maximum extent of heating surface for generating steam, which he technically terms a "steam safety boiler," so constructed as to secure an increase of strength with the increase of heating surface.

Beard's system of steam culture is not at work in the trial fields, being only shown in the yard, and the only part of the system that calls for special notice is the steam-plough, which has been successfully worked by the inventor, Mr. T. Beard, at Stowe Park Farm, Bucks. It is a two-furrow plough, mounted on a four-wheeled carriage, the wheels being between the two sets of ploughs, and each set works in a hinged frame independent of the opposite set. The two front and two rear wheels form alternately the steerage wheels. The two ploughs at work, when they arrive at the headland, are raised out of the ground by means of the return-rope when it first comes into action, there being a short check-chain, with a sufficient length of it slack to turn a pulley-lever by the hauling-rope before the chain becomes tight, to haul the implement the opposite way, and thus raise the ploughs. The implement is rather rude and defective in construction, having been made by a common country blacksmith, but improvements have recently been patented, and a new implement is being brought out by the Messrs. Kinsley, Norton, Hill & Co.—the exhibitors and manufacturers of the other parts of the system.

OTHER IMPLEMENTS.

Hay-makers.—The speed of these machines is calculated to suit the pace of an active horse in order to get over the requisite ground; but this calculation unfits them for an old horse. Mr. N. Nicholson, of Newark, has got over this difficulty by the introduction of an additional speed pinion, which can be thrown into gear so as to give the rake the necessary speed to meet the slow pace of an old horse, whether tedding or shaking up the windrows to the weather. The improvement is of the highest practical value, as it not only suits an old horse, but often the Grass at the pace of an active horse.

Horse Pitchforks.—For a long time past these have been in use in unloading hay carts in the United States of America, few large farmers being without them, and the one exhibited by the Messrs. Coleman & Morton, Chelmsford, is highly commended by the judges. It is constructed on the bayonet principle, about three inches of the point being hinged with a side bar for drawing up the hinged part when driven in to the proper depth at right angles, and the part above which holds the hay; and when raised by the horse and hauling tackle over the stack, the small rope is let go, when the weight of the hay turns down the hinged part, and that allows the forkful to drop off on to the stack.

Harvest Carts and Waggons are shown in great variety, and with sufficient merit, but nothing special requires to be said about them.

G. O. Gooday, of Great Leigh, Chelmsford, shows his patent multiple-needle thatching machine, which can turn out 1000 feet of thatching per hour; also the model of a hay or corn stack, thatched with the same, which the judges commend.

George Jackson, Esq., Tattenhall Hall, Chester, shows models of hay and corn barns, which have received a 10*l.* prize from the Manchester Local Committee. McTear & Co., Belfast, London and Manchester, receive another special prize from the Committee of 5*l.* for felt roofing adapted for haystacks and barns; and Francis Morton & Co., Liverpool, a silver medal for galvanised iron roofing for hay and corn stacks and barns, while their corrugated iron roofing for the same is highly commended.

The Messrs. Davey, Paxman & Davey, Colchester, receive a silver medal for their corn-drying machine, which consists of a steam-jacketed cylinder, with force for driving a blast of hot air through the wet corn to dry it. The wet corn is fed in at one end of the cylinder and comes out at the other dry. In another part of the showyard Mr. Alfred Gibbs, Gilwell Park, Essex, exhibits models of his plan for drying corn in sheaf, wet hay, Hops, malt, &c.

Horse Ploughs, Harrows, Cultivators, &c.—Of this class of tillage implements there is an unusually large collection exhibited. The Messrs. Fowler & Co., of Leeds, show one of Pirie's double-furrow ploughs at work on Mr. Cookson's farm, ploughing with three horses abreast. We did not see the dynamometer applied to test the draught, but judging simply from the work done at this season, the trial indicated an economy of about one-horse power. The Messrs. J. & F. Howard have a splendid show of their ploughs and zig-zag harrows, tubular iron whipple-trees, plough sledge and dynamometer. This collection includes a number of smart-looking Anglo-American ploughs, one a double-furrow implement; several of their own double-furrow ploughs, and a turnover one-way plough. The Messrs. Ransomes, Sims & Head have also a fine show. And besides these two rival firms, there are large exhibitions on several other stands. John Cook & Co., of Lincoln, show a number of their combined wood and iron beam-ploughs, the handles being wholly of the best ash or oak. Vickers, Snowdon & Morris, of Doncaster, have likewise a large selection of wheel and swing ploughs. Of cultivators, Coleman & Morton, Richmond & Chandler, and Clay have the largest show, the character of whose implements has long been established. This class, including grubbers, scarifiers, and scufflers, is well represented on several other stands.

Corn, Seed, and Manure-drills, and broadcast corn, seed, and manure-distributors are well represented on the stands—Garrett & Sons, Gower & Sons, Holmes & Sons, Reeves, Coultas, and others whose names are equally familiar to the ear. E. Thomas & Son, of Meifod, Welshpool, Montgomeryshire, exhibit a new combined implement which deposits the manure and seed in the ridge which it forms—the whole being done at one operation. Robert & John Reeves, Westbury, Wilts, receive a 10*l.* prize for their broadcast manure-distributor, adapted also for spreading soot, lime, and the like at the rate of from 5 to 50 bushels per acre. J. Coultas, of Grantham, Lincolnshire, is "highly commended" for his broadcast distributor, and T. McKenzie & Sons have one of the silver medals for the Mangel and Turnip-drill.

Of Liquid-manure Drills and carts there never was a better show, there being no fewer than 14 exhibitors and 33 entries of articles. Isaac James, Cheltenham, Gloucester, exhibits three, and obtains a 6*l.* prize for one of them. Thomas Baker, of Compton, Newbury, Berks, exhibits two, and gets a 4*l.* prize for one. Robert & John Reeves show three, one of which is highly commended; James Coultas' are also highly commended. Did our space permit, a detailed account of the whole would illustrate very forcibly the progress being made in the use of liquid manure, and the hold which this mode of manuring has on the agricultural mind generally.

Rollers and Clodcrushers.—Of these there is a grand show on the stands of Amies, Barford & Co., Cambridge & Co., Crosskill & Sons, the Beverley Company, and a dozen others.

Two Steam Road Rollers are shown; one by Aveling & Porter, of Rochester, Kent, 6 feet wide, weighs 15 tons. It has two driving rollers behind, and two steering ones in front, and is capable of turning round in its own length, the front rollers being contrived to adjust themselves to the inequalities of the road; and the other, by Manning, Wardle & Co., of Leeds, the invention of E. Gellerat & Co., of Paris, where a similar one has been successfully used,—weight, 14 tons.

Two Steam Road Travelling Cranes are shown on two stands—the one by Aveling & Porter capable of lifting 2 tons, and of being swung round by hand. It is also adapted for traction purposes, having strong cast-iron wheels, and a compensating motion for turning round sharp curves, and for driving fixed machinery, as pumping apparatus and threshing machines. It may also be constructed on the principle of their winding engine for steam culture and rope-hauling purposes, similar to the one shown on their stand. The other, a 2-ton travelling one also, by H. & J. Ellis, of Salford, Manchester, complete in all respects, and warranted to lift two tons. It may also be used for traction purposes and driving machinery.

Traction Engines are shown on half-a-dozen stands, exclusive of those exhibited by Fowler & Co., and J. & F. Howard, and some others, for steam culture, being furnished with winding drums. The road steamer shown by Robert W. Thomson, of Edinburgh, is the only one that calls for description. It is a vertical engine mounted on a three-wheeled carriage, the two rear wheels for driving, and the front ones for steering. It turns in its own length. Its chief peculiarity, however, is its india-rubber wheel tires, 5 inches thick by 12 inches in breadth, surrounded with a chain skid, consisting of two chains, with broad, flat straps between, on the principle of a ladder. In addition to the elastic wheel tires it is mounted on springs, which give it a peculiar softness of movement, a great relief to the working parts, and a gentleness of demeanour less startling to horses on the road, and noisy to the inhabitants of towns in passing along the streets; and besides, it allows the engine to apply its tractive force in hauling with much greater effect. The vulcanised india-rubber yields a little, thereby resting upon a flat surface, as it were sticking to it like limpets in the ocean to the rock, so that it bites better; and from its soft elastic character, like the natural pad upon the foot of the elephant and camel, the tires sustain comparatively no harm in passing over rough roads, while it is less liable to sink in soft land,—there are great advantages.

Steam-engines in General.—Portable engines, fixed horizontal engines, fixed vertical engines, and steam-boilers, turn out in unusually large numbers, both at rest and in motion, and form together the most attractive, and to not a few astounding, collection ever exhibited in one place. It would take ten times the space at our command to enumerate even the different purposes to which steam-power is here seen successfully applied. Altogether the amount of human skill and science is truly astonishing—the water-leap, jumping, galloping, and other etceteras of the olden time, exhibited at the other end of the show-ground—magnify them as you may in a superlative degree, all, when done, comparatively nothing to what is seen in the department of machinery in motion.

Of *Stone-breakers*, stone and bone-crushers, and stone-dressing machines and apparatus, there is a fine show, double in number what there was last year at Leicester.

Earth-borer.—Mather & Platt, of Salford Iron Works, Manchester, exhibit their boring apparatus at work, which is capable of boring holes 6 inches and 9 inches in diameter to any required depth by a suitable arrangement of the cutters, bringing up cones of about one-third the diameter of the hole. Near the same stand James Lee Norton, of London, exhibits a variety of his Abyssinian pumps, one at work bringing up a copious supply of water obtained at a depth of 12 feet.

Pumps for steam and hand-power are shown in endless variety. We never saw a better show. Those at work in the department of machinery in motion are attracting dense crowds of sightseers and purchasers about them all day long.

Drain-Pipe and Tile Machines, at work by hand and steam-power, are well represented on the stand of Mr. John Whitehead, Preston, who shows his double-box Leicester prize steam-power drain-pipe, tile, and brick machine, and otherwise maintains the high position which he has held at the summer meetings of the Royal Agricultural Society for a period of about 20 years. Also on the stand of Henry Clayton, Son & Howlett, Atlas Works, London, who also maintain their high position in the brick field.

Railways for agricultural purposes are on the increase. Crosskill & Sons and the Beverley Company show their portable farm railway, with turntable and trucks. W. H. Peake, of Liverpool, exhibits wrought-iron railway vans; and J. Cockshoot, jun., Manchester, shows quarter-size model tramway with two trucks and patent railway break, well adapted for tramways to stone, slate, coal, and lime quarries having steep inclines, and which was during the whole of the show attracting the most lively interest of the landowners and tenants of such quarries, and also of farmers, many of whom got a ride down the incline, much to the satisfaction of each other and the manager, Mr. Taylor, C.E., than whom the affair could not have fallen into better hands.

Horse and hand Hoes, Potato lifters, &c., were never so numerous before or equal as to merit. Thus horse-hoes are shown on about 20 stands, and Potato raisers and diggers on five stands, viz., Bull & Son, Bental, Coleman & Morton, Higson, Manchester, and the Howards, Bedford.

Threshing Machines and Straw Elevators form attractive centres on the stands of Clayton & Shuttleworth, Marshall, Sons & Co., Ruston, Proctor & Co., Tuxford & Sons, and some 20 others. Straw elevators form very conspicuous articles on the stands of Amies, Barford & Co., Peterborough, and the Messrs. Wright, Boston. We do not recollect of seeing such a fine show as that exhibited by those fathers of the portable engine, the Messrs. Tuxford & Sons, Boston. It must afford Mr. Joseph Tuxford infinite satisfaction to look back on the success of his own labours since he first made his appearance in North Lincolnshire (we think it was), and no little pleasure to look around the ground and see the immense and increasing rivalry which has come to Manchester from every corner of the kingdom, to thank him for his enterprise and foresight in the application of steam-power to outdoor agricultural purposes.

Horse Gear.—Richmond & Chandler win one of the 10 silver medals (article 885, one-horse gear. A two-horse gear and a four-horse gear are shown upon

the same stand, similar in construction to the one-horse gear.

Other barn and stackyard machines are exhibited in endless variety, also Portland cement flooring for straw barns, farm buildings in general, including labourers' cottages. This latter is only accidentally shown as the floor on which Mr. Cockshoot shows his model railway and break already noticed; but it is no less valuable on that account, as its cheapness, durability, and adaptation, recommend it strongly to the attention of landowners for the above purposes. Walls also can be built with it cheaper than with brick, by means of suitable framing, on the old Pictish system, the walls setting harder than rock.

Weighing Machines of all sizes, such as harrows and hoists, are shown on a dozen stands. The large automatic grain weighing, measuring, and registering machine, actuated by steam-power, on the stand of H. Pooley & Son, Manchester, is highly commended by the judges. The self-working parts are adapted for measuring and weighing corn into a granary from the threshing-machine, or from one granary floor to another, or out of the granary for mill or market, with very great accuracy—greater than can be done in the ordinary way with the bushel and strike, and at a fraction of the expense. The same firm exhibit portable and fixed weighing machines for other farm produce, the latter including cattle.

Straw-grinder and Grain-crusher.—The Messrs. Thompson & Slather, of Hull, show a steam-power mill for grinding not only corn for cattle, but hay and straw. It is now a long time since Pliny recommended the grinding of straw and hay to the Roman farmers of his time, and there cannot be a doubt the practice is based on sound principle, the ground straw to be used when fresh, as it comes from the mill. It also grinds linseed-cake, cotton-seed cake, and carob-beans.

Gorse Bruiser.—Walshe's patent, as shown by Thomas McKenzie & Sons, Dublin, Belfast, &c. It has a tearing as well as a crushing action in preparing Gorse for live stock.

Steaming Food Apparatus is shown on the stand of Amies, Barford & Co.; and on several stands, chaff-cutters, root-pulpers, cake-breakers, and corn-bruisers, bean-mills, &c., are exhibited by Richmond & Chandler, Woods, Cocksedge & Co., Bental, Turner, Ransomes, Sims & Head, and other well-known firms, who manufacture this class of machines in great variety.

Millstones, mills, and articles in connection with the milling trade, and also stone and steel mills for farm use, are annually becoming more and more popular at the summer meetings of the Royal Agricultural Society, and the Manchester meeting can boast of the best ever yet shown on any preceding occasion.

Grindstones come in for a fair share of merit. Those adapted for sharpening the knives of mowers and reapers ought to have received a prize this year, as they are evidently included under machines and implements for the harvesting of crops; but we suppose the old plan of being behind the times must remain the fashion at 12, Hanover Square, London. Mr. W. Smith, of Kettering, Northamptonshire, has a large show of harvesting grindstones, adapted to suit any angle of the cutting edge of the knife of mowers and reapers.

Stable Furniture, &c.—In this class Manchester is far above an average, all the large and well-known firms being here with their best, as the St. Pancras Iron Works Company; Picksley, Sims & Co.; Musgrave Brothers, Hyttes, Cottam & Co.; Baylis, Jones, and Baylis; Richmond; Elliot & Alston; Peake, Main, & Co., whose names we must leave as the indexes of their respective exhibitions.

The Dairy Department is equally well represented. Almay & Sons, London; Hopkins & Sons, Hunt & Pickering, W. & F. Richmond, for cream bottles, milk cans, kettles, carriages, pails, tubs, railway milk tankards, and so on. Carson & Toone show a fine collection of dairy utensils for a cheese dairy, including curd-breakers, cheese vats, presses, turners, &c., all of the best description. The 5*l.* for prizes is divided between T. Bradford & Co., P. W. Johnston, W. Waide, and E. Taylor, for their respective churns; and D. Harkes gets 3*l.* for his fine collection of dairy utensils.

Carriages, &c.—The London and Manchester firms have of themselves a grand show, and there are a dozen stands besides. Altogether this class is unprecedented for variety and excellence.

The interior of the farmhouse follows, with its thousand attractions. Some fine kitchen ranges are shown, adapted for the castle as well as the cottage.

We add here the implement prize list.

JUDGES.—F. J. Bramwell, C.E., 37, Great George Street, London, S.W. (Engineer Judge). *Mowing and Haymaking Machines and Horse-Rakes:* John Hemsley, Shelton, Newark, Notts; J. W. Kimber, Tubney Warren, Abingdon; Matthew Savidge, Sarsden Lodge Farm, Chipping Norton. *Reaping, Sheaf-binding, and Corn-drying Machines:* John Hicken, Dunchurch, Rugby; W. Sanday, Radcliffe-on-Trent, Nottingham; W. Sadler, Ferrygate, Drem, N.B. *Manure Distributors, Potato Gatherers, Waggons, and Carts:* John Wheatley, Neswick, Driffield; Henry Cantrell, Baylis Court, Slough, Bucks; John Gibson, Woolmet, by Dalkeith, N.B. *Miscellaneous and Dairy Utensils:* H. B. Caldwell, Monkton Farleigh, Bradford-on-Avon; F. Sherborn, Bedfont, Middlesex; J. K. Fowler, Willowbank, Aylesbury. *Plans and Models:* J. Coleman, Escrick Park Office, York; J. Bailey Denton, 22, Whitehall Place, London; J. E. Watson, Newcastle-on-Tyne.

MOWING MACHINES.

New patent Paragon mower—Richard Hornsby & Sons, 20*l.*
Grass-mowing Machine—Walter A. Wood, 17*l.*
Two-horse grass-mower—Burgess & Key, 13*l.*

REAPING MACHINE WITH SELF-DELIVERY IN SHEAF, CLEAR OF THE HORSE TRACK.

Richard Hornsby & Son, 25*l.* and 20*l.*; Samuelson & Co., 15*l.*

REAPING MACHINE WITH SELF-DELIVERY IN SWATHE, CLEAR OF THE HORSE TRACK.

A. C. Bamlett, 25*l.*; Burgess & Key, 20*l.*; Hornsby, 15*l.*; Richard Hornsby & Son, 12*l.*; A. C. Bamlett, 10*l.*; Samuelson & Co., 8*l.*

REAPING MACHINE WITH ONE HORSE.

A. C. Bamlett, 12*l.*; Richard Hornsby & Son, 10*l.*; R. Cuthbert & Co., 8*l.*

COMBINED MOWER AND REAPER.

Combined self-raking, reaping, and mowing machine—Samuelson & Co., 15*l.*

New patent Paragon combined mower and reaper—Richard Hornsby & Sons, 15*l.*

(The judges are of opinion that all the machines exhibited under the title of "one-horse mowers" are far too heavy in draft to be worked by one horse, and therefore under clause 3 of their instructions) withhold the premium assigned for prizes in this class.)

Haymakers—W. N. Nicholson, 10*l.*; J. & F. Howard, 14*l.*
Horse-rake—Parsonage, Sims & Head, 20*l.*; J. & F. Howard, 10*l.*

(The prize for hay collectors is withheld for want of merit.)

Market carts on springs—Beverley Iron & Waggon Company, 6*l.*; Thomas Corbett, 7*l.*
Liquid manure carts—Isaac James, 6*l.*; Thomas Baker, 4*l.*
Carriage for removing stock, implements, &c.—Thomas Corbett, 15*l.*; Beverley Iron & Waggon Company, 5*l.*
Broadcast distributor of manure—Robert & John Reeves, 10*l.*
Pair-horse waggon—William Crosskill & Son, 15*l.*; Henry Hayes & Son, 10*l.*; Thomas Milford & Sons, 5*l.*
Other waggons—Henry Hayes & Son, 10*l.*; Beverley Iron & Waggon Company, 5*l.*; ditto, 5*l.*
Single horse cart—Henry Hayes & Son, 8*l.*; Thomas Corbett, 7*l.*; William Crosskill & Son, 5*l.*
Two-horse carts—Henry Hayes & Son, 8*l.*; William Ball & Son, 7*l.*; Beverley Iron and Waggon Company, 5*l.*
Harvest carts—Henry Hayes & Son, 10*l.*; Frank Milford, 5*l.*
Prize of 5*l.* for collections of dairy utensils not awarded, but divided as below:—
Collection of dairy utensils—David Harkes, 3*l.*
Patent counter-current churn—T. Bradford & Co., 2*l.*
Butter churn—P. W. Johnston, 1*l.*
Revolving barrel churn—W. Waide, 1*l.*
Patent churn—E. Taylor, 1*l.*

PRIZES FOR SHOEING.

1st, 10*l.*, William Haycock, 3, Moreton, Strangeways, Manchester.
2d, 5*l.*, Peter Andrew, Swinton, Manchester.
3d, 3*l.*, Joseph Womersley, Warleston Grange, Nantwich, Cheshire.

PRIZES FOR HARNESS.

10*l.*, Set of brass-mounted shaft and lead cart harness, W. H. Nicholson, 57, Market Street, Manchester.
5*l.*, Pair of harness for waggon or cart for agricultural purposes, William Clarke & Sons, Bishopsgate Street, Leeds.

Gold Medal.

To Nell, Harrison, & Co., for smut and separating machine, called "Eureka."

Silver Medals.

To Richmond & Chandler, for one-horse gear; R. Winder, for machine for net folding of sheep; T. M'Kenzie & Sons, for patent two-row Turnip and Mangel sower; Aveling & Porter, for improved steam road roller; Pooley & Son, for weighing machine; Mather & Platt, for machine for boring in the earth; Davey, Paxman & Davey, for machine for drying corn by steam heater cylinders.

Highly Commended.

Samuelson & Co., for patent Grass mowing-machine; Hornsby & Co., for two reaping machines, with self-delivery in sheaf; Samuelson & Co., for one-horse reaper; Coleman & Morton, for horse pitchfork; Hornsby & Son, for portable knife sharpener; Peter Love, for feeding troughs; Carson & Toone, for collection of cheese dairy utensils; Hunt & Pickering, for new patent knifebar; Hunt & Pickering, for milk-can, for preserving milk; H. Pooley & Son, for patent automatic grain weighing and measuring machine; Jonathan Pickering, for patent pulley block; Jonathan Pickering, for patent sack hoist; Beverley Iron and Waggon Company, for pair-horse waggon; George Ball, for other waggon; Humphrey Bracewell, for other waggon; William Chapman, for single horse cart; Beverley Iron & Waggon Company, for single horse cart; Thomas Corbett, for two horse cart; F. P. Milford, for two-horse cart; Robert & John Reeves, for liquid manure cart; Coleman & Morton, for liquid manure cart; James Coultas, for broadcast distributor of manure; F. Morton, for corrugated iron roofing.

Commended.

A. C. Bamlett, for two-horse mower; Beverley Iron Company, for two-horse reaping machine, with self-delivery swather; Slack & Brownlow, for patent waterfilter; W. Allway & Son, for milk cooler; W. & F. Richmond, for ten-gallon railway milk tankard; Robert Willacey, for patent cattle feeder; Bayliss, Jones & Bayliss, for patent riding gate latch; Mitchell & Burgess, for patent machine for sharpening reaping and mowing knives; G. O. Gooday, for thatch sewing machine; William Chapman, for pair-horse waggon; William Ball & Son, for pair-horse waggon; Thomas Corbett, for other waggon; Henry Hayes & Son, for other waggon; Thomas Milford & Sons, for single-horse cart; William Ball & Son, for single-horse cart; Woods, Cocksedge & Warner, for two-horse cart; Samuel Harrison, for two-horse cart; Beverley Iron & Waggon Company, for harvest cart; Beverley Iron & Waggon Company, for carriage for removing stock, implements, &c.

SPECIAL PRIZES, GIVEN BY THE MANCHESTER LOCAL COMMITTEE.

Miscellaneous Prizes.

Plan of labourer's cottages in pairs, with three sleeping rooms each—Central Cottage Improvement Society, 10*l.*; ditto, Edwin Clarke, 10*l.*; ditto, James Martin, 10*l.*
Model of hay and corn sheds—George Jackson, 10*l.*
Model of felt roofing—M'Tear & Co., 5*l.*
Galvanised iron thatch substitute for hay and corn ricks, &c.—Francis Morton & Co., Silver Medal.

SEEDS: DAIRY PRODUCE: COTTAGES.

The Agricultural Seed Stands are even more attractive than usual. Their general appearance and the samples they contain are highly creditable both to their proprietors and to the foster parentage of this great Society. Taking them as they run in the catalogue, we may briefly say, Messrs. Sutton & Sons, Reading, have a very elegantly arranged stand, of great length, furnished with every kind of their well-known seeds, samples of growing plants, and such dried specimens of natural Grass and domesticated plants as can be conveniently kept till this season. They were admirably arranged in the Messrs. Sutton & Sons' best style. Messrs. Thomas Gibbs & Co., of Halfmoon Street, have their usual plain and good arrangement of seeds, roots, with nearly 300 specimens of growing Grass, and a splendid collection of dried Grasses. The roots are large and good, considering last season, and Mr. B. T. Brandreth Gibbs' new Yellow Globe Mangel Wurzel, a very neat variety, is included among them. Messrs. Wheeler & Co., of Gloucester, have a large and well-arranged stand, exhibiting their collection of farm seeds, the purity and excellence of which are set forth in their carefully edited illustrated book on Grasses. Messrs. Dickson & Brown, of Manchester, have also a good and useful collection of seeds and growing plants, which are set off with ornamental shrubs of small and large sizes in pots. And Messrs. Carter & Co., of High Holborn, London, have a great and most attractive stand of seeds and plants, to which we need do no more than refer. On this occasion the Messrs. Carter's stand was made unusually attractive by clever device and ornament in good taste.

The Butter and Cheese Stands were well furnished with both these articles of produce—but from the extraordinary heat in which they were pitched, and its continuance, both articles, and particularly the butter, soon became unsightly from dust adhering to their oily exterior. The quality of each, however, was excellent. Of the cheese, which was somewhat less injured by the heat, Mr. Thomas Sheen, of Tiverton, Cheshire, had four cheese of very fine quality, over 60 lb. weight each, for which the 1st prize was awarded. Mrs. Siddom's 2d prize were as nearly as possible equal. In another class Mr. Vernon, of Tarporley, had a lot of great and good cheese, for which he was awarded the 1st prize. Mr. S. M. Harding, of Thornbury, is 2d. In this class some very fine cheese, nearly 2 feet deep, and capitally made, were sent by Mr. George Gibbons, near Bath, for which he receives a well-deserved commendation. Mr. Pascott, of Halgrave Farm, Middlewich, is 1st in coloured or uncoloured cheese, under 60 lb. each. And Mr. G. Jackson, of Old Withington, Congleton, is 2d. Among the other exhibitors are the Marquis of Cholmondeley, of Cholmondeley Castle, Nantwich, and Earl Grosvenor, M.P., of Calverley Hall, Tarporley, Cheshire. In response to the offer of prizes for foreign productions, there are three samples of butter sent by Messrs. Crompton, of Mark Lane, Manchester, but there were no entries of specimens of foreign cheese.

In the sheds for *models* there was ample evidence that the subject of cottages for agricultural districts is commanding great attention at the present time; for not only are companies and builders providing models and plans, but tenant-farmers are also becoming exhibitors in this department. Mr. Torr, of Aylesby, has an excellent double cottage, planned and improved by himself, for the purpose, as he says, of getting three bedrooms in the most convenient and useful manner without disturbing the proportion of the cottage, and preserving its appearance, the concentration of heat, and to have plenty of light. The cost of this double tenement is 180*l.* Mr. S. G. Stearn, Brandeston, Suffolk, who has displayed much ingenuity in arranging piggeries, designing pig troughs, and other wants of the homestead, now appears also with a plan and specification for a double model cottage for labourers, as invented by himself. These are offered at the price of 10*l.* 10*s.* The Central Cottage Improvement Society, H. Martin, Secretary, of 17, Arundel Street, Strand, London, have models and plans, with specification, for a pair of labourers' cottages, each having three sleeping rooms. Here space is economised to the utmost possible degree, the cost of them being 175*l.* Another is a pair of cottages with one bedroom up-stairs, and a movable partition for the better separation of children, the cost of which is, 160*l.* The model of the superior cottages which commanded much attention near the Exhibition building of 1862 is also shown. The cost of this building is 200*l.* There are also models for single cottages and specimens of concrete bricks, ventilators and other appliances for the improvement of the dwellings of labourers.

We append to this report the following spirited account, from the *Manchester Guardian*, of the leaping trials in the inner horse yard, seen by their Royal Highnesses the President and the Princess of Wales. The Prince and Princess were cordially cheered on their way to the royal stand. The horses, 10 in number, were brought into the ring, and the leaping began:—

The centre of the ring, throughout its whole length, had been lightly dug over, and the surface thickly covered with tan; the inner circumference of the ring was similarly treated. The horses were called upon to leap three fences—the first an ordinary hedge, the second a wooden post and rail fence, and the third a water jump, with a brush fence on the taking-off side. The last was by far the most formidable obstacle; and as the horses flew along the course towards it, their progress was eagerly watched, and success or failure evoked a corresponding demonstration from the crowd. Unfortunately an accident, which seemed at first to threaten fatal consequences, occurred very early in the contest. The third horse cleared the first and second fences in tolerable style, but failed at the water jump. The animal took the leap too soon, fell into the brook, and his jockey being unable to pull him together, horse and man rolled over and over with great force, and the unfortunate jockey finally remained motionless on the ground with his right leg entangled in the reins. The poor fellow revived a little after the lapse of a few minutes, and was borne by policemen and others from the ground. Whilst the injured man was being carried off the ground, a cry arose which attracted the attention of every one to the upper part of the course, where a young horseman, upon a splendid black mare, was seen taking the leaps in magnificent style. The rider was Mr. Casson, of Burgh-by-Sands, Carlisle, and the animal he bestrode was "Fanny Drape," seven years old, Cumberland born and bred, and well known as an accomplished fencer. The mare is one of the finest and freest movers we have seen. She is not quite thoroughbred, but has a fine racing-like head, and great power behind the saddle. Mr. Casson took the leaps in the style of a thorough horseman, full of confidence in himself and his horse; and both were rewarded by the enthusiastic cheers of the spectators. It was early perceived that the competition must eventually rest between Mr. Casson's mare and a grey mare, "Princess," entered by Mr. John Taylor, Booth Hall, Blackley. There was a striking similarity in the "make" of the two animals, but the black has the advantage of youth in her favour, and there was also a marked superiority on the part of her rider over his rival. In the third round, the judges must have had considerable difficulty in deciding

upon the relative merits of the two mares, and the spectators seemed to be about equally divided in their allegiance. A last trial, however, was decided upon: and in this the superiority of Mr Casson's mare came out so clearly as to decide the question at once.

The spectators cheered enthusiastically; and Mr. Casson was warmly congratulated when the fiat of the judges was given in his favour. "Princess" was an excellent second, and the judges were so satisfied with her performances that they awarded her also a silver cup, but of less value than that given to the winner. The winner was ridden up to the royal stand, and the Prince of Wales examined her with interest.

Home Correspondence.

Harvest Dates in Warwick, &c.—I send a statement of the dates of the earing and flowering of the corn on the Holbrook Grange Farm for the last six years. There has been no Barley sown this year. Wheat was very irregular in earing and flowering, and also in length of plant, but the late hot weather has improved it wonderfully. I don't remember ever having seen the straw so long, and if we have any heavy rain I am afraid it will be easily knocked down. There is a larger breadth of Wheat sown than last year, and the prospects are better on the strong than on the light soils, but we can't expect an average crop. Barley and Oats have also much improved of late, but are much below an average. Peas are above average; Beans, the finest plant I remember: though not so heavily covered as I have sometimes seen, still they are much above the average. Mangel and Swede Turnips look well. Potatos have much improved, though some of the sorts, especially Flukes, have come up very irregularly. The hay crop has been the heaviest I can remember, and almost all of it has been got in in first-class condition; but as the store of hay was entirely exhausted in this neighbourhood, there is no chance of this article being very cheap.

	Wheat in Ear.	Barley.	Oats.	Wheat in Flower.
1864	June 15	June 17	June 15	June 21
1865	,, 7	,, 12	,, 7	,, 14
1866	,, 21	,, 22	,, 23	,, 4
1867	,, 23	,, 24	..	,, 28
1868	,, 7	,, 7	,, 9	,, 11
1869	,, 22	..	July 3	May 29

Charles M. Caldecott, Holbrook Grange, Rugby, July 19.

Paper and Spinning Material from Bog-land in Ireland.—In the *Agricultural Gazette* of to-day I see an article with the above heading by Mr. Hill Dickson, in which he recommends the culture of New Zealand Flax (Phormium tenax) in the swamps and marshes of Connaught, because, forsooth, he had seen the plant with leaves 6 feet long in the garden of the Galway College, and alleges that this plant can only be grown in Kew Gardens under glass. Mr. Dickson also speaks of giving the Spanish Grass (Esparto) a trial on the western coast of Ireland, and hints at giving a trial to the Indian Rheea, which he hears has been grown to perfection in Regent's Park Gardens. What this latter plant may be I am quite at a loss to know; it may be a misprint for Indian Corn (Zea), or "Rhœas," a species of Poppy, of which there are many varieties, but all grown for ornament, and not for use, under the names of scarlet, white, or variegated Corn Poppies; but this is mere guesswork, and I honestly confess that the Indian Rheea is nowhere to be found in Loudon's "Hortus Britannicus," nor in any other work that I am acquainted with. Some little information of a practical nature may be of some service, not only to Mr. J. Hill Dickson but to the Earl of Arran, who seems to have entertained the magnificent idea of converting into sound land, at little or no expense, thousands of acres of swamp and miles of bog so soft that birds only dare set foot on it. And this is to be done by planting rows of New Zealand Flax 8 feet apart, and waiting three or four years until their roots get matted, when surface-rooting plants are to be grown in the spaces, to feed the Connaught man, whilst the Flax clothes him. The writer of this letter has himself grown New Zealand Flax out-of-doors in England, and also under glass. The plant flowered and perfected its seeds, and he raised plenty of plants from the seeds that were saved. The flowers were, however, all impregnated with their own pollen, by using a camel's-hair pencil to insure fertility, as the plant was under glass in a cool conservatory. So grown, it threw up a fine spike of flowers, 9 feet high. In the southern and western counties of England the plant is quite hardy, and is usually grown among Yuccas and the like, to give an exotic appearance to rockwork in flower gardens. One of the finest plants I have met with stood lately in a nursery at Stroud, in Gloucestershire, and I got some of its leaves from the proprietor for comparison with foreign leaves, and with leaves grown under glass; for I must not conceal the fact, that the English and Scotch papermakers have made themselves acquainted with this plant as well as with Esparto. Some 20 or 30 years ago Mr. Murray, an author and lecturer on chemistry and botany, gave me a pamphlet written by himself, and printed on paper made from New Zealand Flax. The gist of his argument was in favour of getting paper strong and yellow, as the bleaching process damaged the fibre. "An edition of the Bible," he said, "printed at Oxford on paper whitened with overdoses of chlorine, was found to be quite rotten in the course of a few years." At Dundee a manufacturer showed me New Zealand Flax scutched and dressed for spinning. I saw it also in the hands of a spinner at Bridport, in Dorsetshire; but in neither case had it got to be of any commercial value. What it may be in the hands of Mr. J. H. D., who seems to have superior machines for its preparation, I know not, but in the affair of getting out the flint from straw, and from Esparto Grass, caustic soda seems to be the recognised agent at the present time. If, however, he can, as he says he can, get the silex out without using this terrible agent, which has already driven papermakers off the stream by poisoning the water, he will assuredly be considered a benefactor to society, and well deserving of the encouragement he solicits. The Chester and Holyhead Railway proprietors have made extensive plantations of Bent in the island of Anglesea, in the sand beds, to prevent the sand from being drifted over their line. This Bent is common in Scotland and in England, and I was informed by a papermaker that he had secured some miles of Bent to make his paper from, although, as a general rule, the Bent is strictly preserved to bind the sand hills. I have seen the ruins of the parish church at Forvey, on the Aberdeenshire coast, standing amid sandhills. The tradition of the place is, that the whole parish was sanded up in one night, and utterly ruined. A papermaker showed me a living plant of Esparto in a flower-pot, and when it was compared with a tuft of Bent from the seaside near Dunbar, "the foreign invader" did not at all look likely to displace the "native." There can be no question that the culture of Esparto in the best parts of any of the "three kingdoms" would not yield a profit for some time to come, as it would not be well established in less than one lifetime, while it could always be got from the place where it is indigenous at less cost than it could be cultivated here. I saw the earliest samples of Esparto bleached in Oxfordshire as "half stuff" for paper making; I carried samples of it to paper mills to let my friends see what could be made of it; I also got sheaves of Esparto in the port of Newcastle, and carried the sample to Edinburgh and elsewhere as a curiosity likely to be of "some service," and I saw in the stores of some papermakers bales of New Zealand Flax, disregarded, not as worthless, but as unprofitable in the trade. The following simple fact will set this matter in a clear light. The papermaker prefers rags to any other material for papermaking. Why is he so perverse in clinging to this the oldest and the dirtiest article in the trade? The cost of a pound of good cotton may be set down at 1*s*. The papermaker does not buy at that price. Cotton at 1*s*. per lb. is for the spinner, but the papermaker waits for my shirt till it gets into rags, when he buys it at 2*d*. per lb., the value to him being equal to the raw cotton at 1*s*. No wonder then that he grumbles at any Government scheme that tampers with his rags or tariffs his paper. The rag is purchased thus at 80 per cent. under its original value. Some years ago a member of the Royal Agricultural Society introduced to that body "the Edoe" and "the Tania" of the West Indies as a substitute for the Potato, and this plant was generously to be extended to Ireland for the benefit of the poor of that ilk; but, when the Edoe and Tania were translated by me into the ordinary botanical name of Caladium esculentum, it became a matter of no doubt, as every plantsman knew at once the exotic character of the plant, which was by no means new to English botanists. The Edoe and Tania scheme consequently fell to the ground. In like manner the New Zealand Flax was made into paper, and that paper printed 20 or 30 years ago, and its merits held up to the world by able hands. The Spanish Grass, too, has run its course, and is now thoroughly understood and duly appreciated. We grow our Esparto as we do our sugar and our cotton—just where they grow best; and we manufacture them here, thus following out the true commercial rule of buying in the best and cheapest market. The cultivation of Irish Flax in Ireland is truly an Irish question of national importance, and it is thoroughly understood by many in the north of Ireland. I have seen a buyer tell the qualities of Flax submitted to him with his eyes shut, and the fine soft silky feel of first-rate Flax will easily convince any one that this can be done. I have mentioned this in order to point out to Mr. J. Hill Dickson and others that this is the direction for him to take with improved machines. The staple of Ulster is Irish Flax; the market is good; and the climate of all Ireland being suitable for its cultivation, it is a profitable crop, and gives employment to the natives, men, women, and children. Rain does not damage this crop as it would cereals, or even Potatos. I should be sorry to say an unkind word to Mr. J. H. Dickson. He is no doubt enthusiastic and ingenious; but he would be a brave man that would face the Atlantic in Connaught, and make a plantation of seedling Phormiums from 4-inch flower pots in an Irish bog, where "the unfeathered biped of Linnæus" could not set a foot. Galway, the city of the tribes, is beautifully situated, and the mills on Nuns' Island are turned by a stream of fresh water that an English inland town would give thousands to possess, and long may the New Zealand Flax specimen flourish in the garden of its college; but let that suffice. Should any loss occur, however, from further experiments, I have given your readers timely warning. *Alex. Forsyth, Manchester, June* 26.

Foreign Correspondence.

BAKER'S ISLAND is situated within a quarter of a mile of the equator, about 2500 miles west from the coast of Peru. It was discovered about the year 1848 by an American sea captain, whose name it bears, and in 1856 it became the property of the American Guano Company. Baker's Island is saucer-shaped, being elevated at the edges, and depressed in the centre. Its greatest elevation above the sea level is about 30 feet, and its extreme length about a mile and a quarter. Standing on the deck of the vessel, as you approach, you see a dazzling crest of grey sand, wreathed in a frostwork of breakers. The low outlines of the island, with its single framed house, and the flagstaff, upon which you soon see the stars and stripes of the Union, remind you of a rakish monitor with its turret. The air above the island is alive with birds, which swarm like the flies of Egypt's plague; and, as you near the shore, you hear above the sound of the ocean their discordant din, which is to echo in your ear by day and night as long as you remain upon the island. It is barricaded on all sides by a coral reef, which stretches out into the ocean, and breaks the force of the incoming waves, so that this frail sandwork is not swept away by the storms. Outside of the reef the downward tend of the island under water is so abrupt that an anchor will not grapple, but falls away towards the bottom of the deep ocean. For this reason it has been found necessary to anchor large can-boys outside the reef, to which the guano ships can moor themselves while receiving their cargoes. Each buoy is made fast by means of two iron cables. One of these cables attaches the buoy to a large sheet anchor; the other passes from the shore along the bottom to the anchor, and prevents it from sliding down the steep declivity into unfathomable depths. The island itself is of coral formation; it is a low reef, covered with sand, broken shells, and fragments of coral, and has enough soil to support a stunted vegetation. From November to March or April the winds are variable and tempestuous, and the island is almost inaccessible; proprietors and labourers then sail away together, leaving one or two persons to guard the property until the return of the trade wind, which for seven or eight months blows steadily from the south-east, allows of a landing with comparative safety on the western or leeward side of the island, and the resumption of labour. The guano deposit covers the central part of Baker's Island, and forms a layer from six inches to three feet thick. It is a grey-brown powder, without smell or any offensive property. In this respect it differs very greatly from the Chincha Island guano, which has a highly ammoniacal odour. This difference in quality is to be explained by the two facts—first, that the Chincha guano is deposited in layers of immense depth; and, secondly, that at these islands it rarely or never rains, while at Baker's Island rain falls with considerable regularity at the changes of the moon. Thus the free ammonia is thoroughly washed out of the guano of Baker's Island, while it is retained in that of the Chinchas. This natural process of deodorization, however, but slightly affects the fertilizing properties of the guano. Estimates of the amount of guano on Baker's Island differ. The highest is over 2,000,000 tons; the lowest about 250,000 tons, and this is probably a more correct estimate than the larger one. But the American Guano Company, who still actively work this mine of wealth, shipping from a hundred to one hundred and fifty tons daily during about seven months of the year, are fast reducing its amount. The method of transferring this animal wealth from its native bed to the hold of the ship is as follows:—A railway track is laid from the shore inland to some rich field. Here the guano is shovelled into stout canvas bags, which are then drawn on cars by mules, or by the Kanakas, to the landing place at the shore. In its transit over the track the car passes over one of Fairbank's scales, and its weight is accurately ascertained. At the beach each guano bag, weighing about a hundred pounds, is placed on the back of an athletic Kanaka, who bears it to a whale boat, which is drawn up sufficiently far upon the beach to escape the power of the surf. In smooth water each boat will carry about a ton, but when the day is rough the load has to be reduced. While the boat is loading the crew stand up to their waists in the water, holding its head directly toward the surf, which beats furiously upon the beach, and would otherwise strike the side of the boat and swamp it. When all is ready the boat steerer gives the order; each man gives the boat a powerful shove, jumps in, seizes his oar, throws it into its rowlock, and "gives way" with all his might. The deeply laden craft, sunk in the water almost to its gunwales, cuts through the breaking surf which threatens to swamp it, and, to the wonder of the spectator, escapes into the open sea. Arrived at the ship, each bag is hoisted by appropriate tackling over the side of the vessel, and emptied into the hold. *New York Times.*

Farm Memoranda.

BUSCOT, LECHLADE.—An interesting visit was paid recently by the Cirencester Chamber of Agriculture to Mr. Campbell's large farms at Buscot. The first thing inspected was the 50-horse power Pouselet-wheel, working six eccentric pumps, and throwing up some 2000 tons of water per 24 hours to the reservoir. At Buscot village Mr. Campbell will erect a distillery for the production of alcohol from Beetroot, and also a new fatting stall capable of holding 400 bullocks to be fed on the pulp. They next saw the Hop garden. The plants were remarkably healthy, had already run up the poles some 8 or 10 feet, were wonderfully free from fly, and seemed to bid fair to give a produce of five or six cwt. per acre. There were 34 shearers in one field clipping sheep. The Wheat crops are magnificent, and point out what can be done by having the soil deeply cultivated and in a good mechanical state. Mr. Campbell has 300 acres of Beetroot, all planted after the 25th of April, and the greater part of the 300 can be irrigated at pleasure. The Beet, instead of being carted away, will be put into the irrigation pipes and carried by the force of the water some two miles away to the distillery. Some Beet seed was obtained from Prussia, and the rest from the North of France. The Beet is drilled on a system adopted by some of the Beetroot growers in France, viz., two rows 8 inches apart, with an intermediate space of 2 feet or 2 feet 6 inches. The reason for this is to allow a deeper cultivation by the horse-hoe. Mr.

Campbell's sheep houses are cemented cisterns, depth 8 inches to a foot, and covered with batting for the sheep to lie on. Irrigation pipes are placed capable of swilling out the cisterns, and so saving all the expense and trouble of dung carting. At Old Field Farm a new covered-in rickyard has been erected, and cattle sheds for the accommodation of 200 cattle. There is a turbine erected here nominally of 15-horse power, and a small reservoir has been dug leading from the large one, and holding 10,000 tons of water to drive in. This turbine will do all the chaff-cutting, &c. The large reservoir or punch-bowl will, when finished, hold 2,000,000 tons of water. The Grass fed off till the latter end of May and only irrigated once, was first-class. At Step Farm two of Messrs. Fowlers' engines, 18-horse power each, were cultivating or rather aërating at a depth of over 2 feet, and it is Mr. Campbell's intention to aërate his land at a depth of 3 feet 6 inches, with two new double-cylinder 25-horse power engines of Messrs. Fowlers'. The sheep were remarkably healthy, and many lambs averaged from 12 lb. to 14 lb. per quarter. In fact a most delightful day was spent. *Devizes Gazette.* [It would take more than 18-horse power to stir Mr. Campbell's land 24 inches deep.]

Calendar of Operations.

JULY: *Fences* are now gone over. For Thorn, or other live hedges, a sharp hedge-bill is far better than shears. The stroke should always be slanting upwards, so as to make a clean cut; and, as every hedger knows from experience, the sharper and quicker the stroke, the cleaner the cut. On the other hand, a slow lazy stroke often bruises without cutting, whilst slashing downwards splits and rots the branches or hard wood. Weeds or grass should never be allowed to grow and choke the hedge at the bottom. The ground under it should be carefully Dutch hoed with the small hedge spade and every weed pulled out with the hand. The too common practice of turning over a green sod at the bottom; or, what is worse, removing and burning it along with the spray cut off, is out of date, or merely remains as a remnant of the slovenly mismanagement of times gone by.

The Homestead, with the labourers' cottages on the farm, should now be put in a state of thorough repair, which, of course, includes roofs, doors, windows, cattle stalls, boxes, and so on. Tillage implements, too, require painting, harvest-carts to be put in order, and the stackyard got ready for the stacks; thatch is provided; and the threshing machine, the steam-engine, with the dressing and weighing machines, &c., of the barn, are overhauled and put in proper working trim. When the threshing machine is driven by water, the mill dam and watercourses may require cleaning, and July is a favourable time for such work. Reaping machines are also got in readiness.

The Watering of Cattle now requires daily attention. The water in many ponds and rivers becomes so full of animal and vegetable life in the hot weather of July, as to be unwholesome for cattle. When given to milch cows, not only does it injure their health, but the quality of their milk, and to an extent which few dairymen are aware of. Such water should be filtered into watering troughs, and the troughs washed out clean every day during this and the ensuing month.

The weaning of the principal crop of lambs generally takes place in our southern provinces about this time. The lambs are put upon the freshest pasture, as the aftermath of Rye-grass and Clover. The ewes are put upon the barest, and the further they are from their lambs the better. Bad milkers run dry without experiencing any harm from their milk; but good milkers require occasional stripping, and shepherds should carefully attend to them in this respect, for it is much better to prolong the flow of milk than permit constitutional injury to be effected.

Scab, lice and tick in sheep indicates a filthy state of the skin and Nature's clothing, which ought not to exist, so that cleanliness is the advisable rule for getting rid of such parasites; but although shepherds have learned how to apply this rule to themselves, it is otherwise with newly weaned lambs and shorn ewes; hence the various "washes" of the day and practice of "dipping."

The Fly becomes more and more busy as the temperature increases, so that the eye of the shepherd requires to be continuously on the watch, and his bottle of dressing in his hand.

Live stock soiled on green forage at the homestead, or in hovels and yards in the field, require to be carefully attended to, as regards pure water, pure air, and a proper temperature. The excessive heat of the sun gives rise to chilling currents when doors and windows are opened, or when openings are purposely made to effect ventilation. All such chilling currents should be avoided, as they are injurious to cattle, more especially working horses, when they return home in a state of perspiration. The reader is no doubt familiar with Æsop's fable of blowing hot and cold with the same breath. Thus, open the mouth wide and you blow hot: narrow it, and you blow cold. So by enlarging the opening for ventilation, the chilling effects of the current may be reduced, and when this is not practicable, the door or opening should be closed by means of straw, or shut altogether to break the draught. Bad smells may be obviated by the proper use of ashes or clay dust, mixed with the litter or spread over the yards. *W. B.*

Notices to Correspondents.

TIMOTHY GRASS: *Messrs. Stuart & Mein*, of Kelso, have sent us two specimens—one of the ordinary American Timothy Grass, resembling our own native Grass, the other, of the same Grass botanically, but of wonderfully increased vigour of growth, with the spikes 4 and 5 inches long, and the whole plant one-half higher than the other.

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Reduced Prices.

TANNED GARDEN NETTING, for Preserving Seed Beds, Fruit, Strawberries, from Frost, Blight, Birds, &c., and as a Fence for Fowls, &c. One yard wide, 1d.; two yards, 2d.; three yards, 3d.; and four yards 4d. per yard in any quantity. May be had of CHAS. WRIGHT & CO., William Street, Newark-on-Trent, or their Agents, Messrs. HOOPER AND CO., Covent Garden Market, London.

NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.—TANNED NETTING for Protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3d. per yard, or 100 yards, 20s.; 4 yards wide, 6d. per yard, or 50 yards, 20s. NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls: 2 yards wide, 6d. per yard; 4 yards wide, 1s. per yard; 1-inch mesh, 4 yards wide, 1s. 6d. per yard. Can be had in any quantity of
EATON AND DELLER, 6 & 7, Crooked Lane, London Bridge, E.C.

MAW AND CO.'S PATENT TERRA COTTA PLANT MARKERS.—A cheap and permanent substitute for Wooden and Zinc Tallies.

SHAW'S TIFFANY, for Shading Conservatories and Hothouses; INDIA-RUBBER HOSE, SYRINGES, GARDEN ENGINES, LAWN MOWERS, &c., at
The Garden Repository, 32, James Street, Covent Garden, W.C.

SCRIM CANVAS, 72 inches wide, from 7½d. per yard; and HESSIAN, 74 inches wide, at 7½d. per yard, is the best and cheapest material for Protecting Fruit Trees or Shading Greenhouses. Samples forwarded on application.
BLIND TICKING, SAIL CLOTH, and FORFAR SHEETING at the lowest prices.
Estimates given for outside SHOP BLINDS, fitted on the improved self-acting spring roller.
JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London.

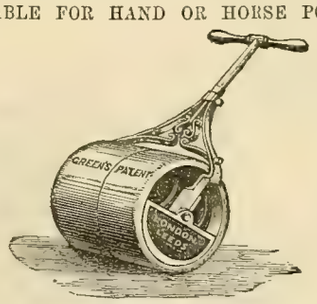
SEED BAGS and SACKS, and BAGS of every description in use, supplied at the lowest possible prices. ARCHANGEL and TAGANROG MATS of good quality, for Covering, Tying, or Shading; also Petersburg and Prussian DUNNAGE MATS. Price-list forwarded post free on application.
JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London.

THE B B NEW PATENT LAWN MOWER.—The Manufacturers find it necessary to inform the Public that there was no Trial of Lawn Mowers at the Paris Exhibition, and the award to one Machine was the award of an individual Juror only, in the absence of his colleague, without practically testing the competing Machines.
"Double-edged Sole-plates," or "Wind Guards," or "Reversible Cutters," may be supplied with the B B Mowers in any case where these are considered to be an advantage, and not a drawback or complication to the Machine.
The B B Mowers perform their work in the most perfect manner, and are well known to be the best finished and most durable Mowing Machines.
J. B. BROWN AND CO., 90, Cannon Street, London, E.C.

GREEN'S IMPROVED PATENT ROLLER,
FOR
LAWNS, DRIVES, BOWLING GREENS, CRICKET FIELDS, and GRAVEL PATHS.
SUITABLE FOR HAND OR HORSE POWER.

PRICES OF
HAND ROLLERS.

Diam.	Length.	£	s.	d.
30 inches	32 inches	7	10	0
24 inches	26 inches	4	10	0
20 inches	22 inches	3	10	0
16 inches	17 inches	2	15	0

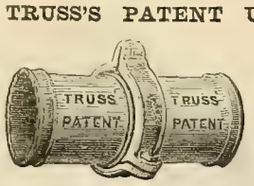


PRICES OF
ROLLERS
FITTED WITH SHAFTS,
Suitable for Pony or Horse Power.

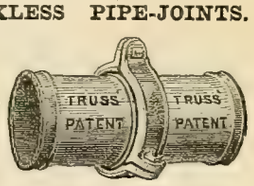
Diam.	Length.	£	s.	d.
30 inches	32 inches	10	0	0
30 inches	36 inches	10	15	0
30 inches	42 inches	11	15	0
30 inches	48 inches	13	10	0
30 inches	60 inches	15	10	0
30 inches	72 inches	17	10	0
30 inches	84 inches	19	10	0

These Rollers possess many advantages over all others; they are made in two parts, and are free to revolve on the axis, affording greater facility for turning, and the outer edges are rounded off, or turned inwards, thus avoiding the unsightly marks left by other Rollers. They are manufactured of the best materials, and are got up in a manner surpassing any ever yet brought out. The Rollers 24 by 26 inches, 20 by 22 inches, and 16 by 17 inches, are also made in one part, at a reduced price; and, for Rollers of that size, will be found to answer many requirements, as the handle can be reversed to either side of the Roller at pleasure.
PRICES—24 in. by 26 in., £4; 20 in. by 22 in., £3 2s. 6d.; 16 in. by 17 in., £2 10s.
Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.
THOMAS GREEN AND SONS, SMITHFIELD IRON WORKS, LEEDS;
54 and 55, BLACKFRIARS ROAD, LONDON, S.

PORTABLE AND FIXED HOT-WATER APPARATUS,
FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH
TRUSS'S PATENT UNIVERSAL FLEXIBLE AND LEAKLESS PIPE-JOINTS.



T. S. TRUSS



Begs to state that the immense number of APPARATUS annually Designed and Erected by him in all parts of the kingdom, and for the ROYAL HORTICULTURAL SOCIETY at SOUTH KENSINGTON and CHISWICK, with unrivalled satisfaction, is a guarantee for skill of design, superior materials, and good workmanship; while the great advantages obtained by his IMPROVED SYSTEM cannot be over-estimated, consisting of perfectly tight joints with neatness of appearance; EFFECTS A SAVING OF 25 PER CENT. on cost of Apparatus erected compared with other systems; facility for extensions, alterations or removals without injury to Pipes or Joints; can be erected by any Gardener; an ordinary size Apparatus erected in one day; and PERFECTNESS of DESIGN SUPPLIED, INSURING NO EXTRAS. Complete Apparatus, of the best materials, delivered to any Railway Station in England, and Erected at the following prices. Erection beyond 25 miles of London, railway fare for one man additional. Considerable reduction on large works.

TWO FOUR-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
20 feet by 10 feet ..	£9 0 0 ..	£2 0 0	50 feet by 15 feet ..	£17 10 0 ..	£3 0 0
30 feet by 12 feet ..	11 15 0 ..	2 10 0	75 feet by 15 feet ..	20 0 0 ..	3 0 0
40 feet by 15 feet ..	15 0 0 ..	2 15 0	100 feet by 15 feet ..	26 0 0 ..	3 5 0

Bath and Gas Work erected in town or country. **The Trade Supplied.**
Price Lists, Plans, and Estimates forwarded on application to
T. S. TRUSS, C.E., CONSULTING HORTICULTURAL ENGINEER, &c., SOLE MANUFACTURER,
IRON MERCHANT, HOT-WATER APPARATUS MANUFACTURER,
AND HORTICULTURAL BUILDER,
FRIAR STREET, BLACKFRIARS ROAD, LONDON, S.E.

GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT, MANUFACTURER



TO HER MOST GRACIOUS MAJESTY THE QUEEN.

THE Extraordinary Success of GREEN'S PATENT LAWN MOWERS is an established fact. During the last five years the demand has been unprecedented, which alone is a proof of their superiority over all others. The following are their characteristic features:—

1st. Simplicity of Construction, every part being free of access.
2d. They are worked with far greater ease than any other Lawn Mower.
3d. They are the least liable to get out of order.

IMPORTANT NOTICE.

Trial at the London Horticultural Society's Gardens, Chiswick, June 5, 1857; four competitors: — First Trial on level ground, Second Trial on undulated; Third Trial on intricate places, around trees, &c.,—when GREEN'S PATENT was unanimously declared to be the best in each Trial by COLONEL CHALLONER, DR. LINDLEY, and G. MCEWEN, Esq., the appointed Judges, and on every subsequent Trial to the above have GREEN'S PATENT LAWN MOWERS carried off every Prize that has been given in competition for superiority in every point.

PRIZE MEDALS AWARDED TO GREEN'S PATENT LAWN MOWERS.

FIRST PRIZE MEDAL AT THE INTERNATIONAL EXHIBITION, LONDON, 1862.
FIRST PRIZE MEDAL AT THE INTERNATIONAL EXHIBITION, DUBLIN, 1865.
FIRST PRIZE MEDAL AT THE NAMUR EXHIBITION.
FIRST PRIZE MEDAL AT THE GAND EXHIBITION.
FIRST PRIZE MEDAL AT THE LAEKEN EXHIBITION.
FIRST PRIZE MEDAL AT THE LINEENE EXHIBITION.
FIRST PRIZE MEDAL AT THE BRUSSELS EXHIBITION, *on two occasions.*
FIRST PRIZE MEDAL AT THE HAMBURG EXHIBITION.

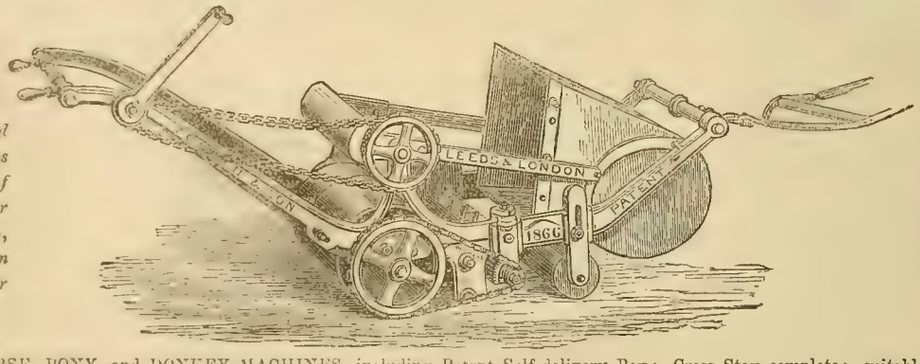
THEY ARE THE ONLY MACHINES IN CONSTANT USE AT

THE ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON
THE ROYAL BOTANIC GARDENS, REGENT'S PARK
THE CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM
BUCKINGHAM PALACE GARDENS
MARLBOROUGH HOUSE
THE HYDE PARK GARDENS
THE WINTER PALACE GARDENS, DUBLIN
THE DUBLIN BOTANIC GARDENS
THE LIVERPOOL BOTANIC GARDENS
THE LEEDS ROYAL PARK
THE HULL BOTANIC GARDENS
THE BOTANIC GARDENS, BRUSSEL
THE SUNDERLAND PARK
THE PRESTON PARK

AND IN MOST OF THE PRINCIPAL PARKS, SQUARES, ETC., IN THE UNITED KINGDOM.

HORSE, PONY, AND DONKEY MACHINE.

GREEN'S PATENT
LAWN MOWERS
Have proved to be the best, and carried off every Prize that has been given in all cases of competition. Since the first year they were introduced (1856), *upwards of 46,000 have been sold, and 25,000 of that number during the last five seasons.*



T. GREEN & SON
warrant every Machine to give entire satisfaction, and if not approved of can be returned unconditionally.

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

PONY AND DONKEY MACHINES.

To Cut 26 inches	.. ..	.. £13	0	0
„ 28 „	.. ..	.. 15	0	0
„ 30 „	.. ..	.. 17	0	0

Leather Boots for Donkey, 18*s*. *Leather Boots for Pony*, 22*s*.

HORSE MACHINES.

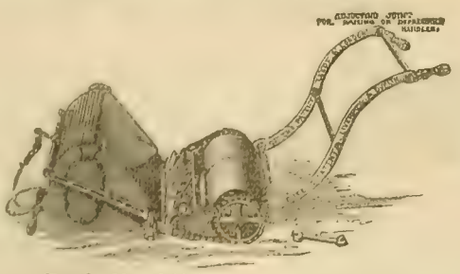
To Cut 30 inches	.. ..	.. £21	0	0
„ 36 „	.. ..	.. 24	0	0
„ 42 „	.. ..	.. 27	0	0
„ 48 „	.. ..	.. 30	0	0

Leather Boots for Horse, 26*s*.

Both the Horse, Pony, Donkey, and Hand Machines possess (over all other Makers) the advantage of Self-sharpening. The cutters being steel on each side, when they become dull or blunt by running one way round, the cylinder can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the Machine will cut equal to new. Arrangements are made that the cylinder can be reversed, by any inexperienced person, in two or three minutes.

HAND MACHINES.

To Cut 10 inches	..	£3	10	0	*Suitable for a Lady*
„ 12 „	..	4	10	0	„ „
„ 14 „	..	5	10	0	*Suitable for One Person*
„ 16 „	..	6	10	0	„ „



To Cut 18 inches	..	£7	10	0	*Suitable for One Person.*
„ 20 „	..	8	0	0	*Suitable for Two Persons*
„ 22 „	..	8	10	0	„ „
„ 24 „	..	9	0	0	„ „

Packing Cases are charged at the following low rates, viz.:—For the 10 and 12-inch Machine, 3*s*.; 14 and 16-inch, 4*s*.; 18 and 20-inch, 5*s*.; 22 and 24-inch, 6*s*. Parties providing themselves with Lawn Mowers are recommended to purchase the cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England, Ireland, and Scotland.

HORTICULTURAL and AGRICULTURAL IMPLEMENTS, GARDEN SEATS and CHAIRS, FOUNTAINS, VASES, PLAIN and GALVANISED WIRE NETTING, and ORNAMENTAL WIRE WORK of every description.

Having very extensive Premises in London, we are in a position to do all kinds of Repairs there, as well as at our Leeds Establishment.

Having a large quantity of MACHINES in stock at our Leeds and London Establishments, we are in a position to execute Orders on the day they are received.

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;
and 54 & 55, BLACKFRIARS ROAD, LONDON, S.

SIR J. PAXTON'S PATENT HOTHOUSES for the MILLION, are cheap, substantial, and easily fixed. Illustrated Price Lists, with sizes, &c., free on application. ESTIMATES given for CONSERVATORIES, HEATING APPARATUS, &c. A HANDBOOK of VINE and FRUIT-TREE CULTIVATION, post free, 13d.
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Works in London, Gloucester, Coventry, and Scotland.

CRANSTON'S PATENT GLASS BUILDINGS for HORTICULTURE. Plans and Estimates free.
Just Published, free for 30 stamps, Third Edition, DESCRIPTIVE BOOK, splendidly Illustrated from existing Buildings. By the Author and Patentee, JAMES CRANSTON, Architect, Temple Row West, Birmingham. H. J. GROVE PAGE, Manager.

CLARTON AND KING, IRONFOUNDERS, HOT-WATER Engineers, &c., Exeter.
CONSERVATORIES, GREENHOUSES, VINERIES, PINE-PITS, &c., HEATED by IMPROVED HOT-WATER APPARATUS, and G. & K.'s powerful and economical Boilers.
G. & K. refer with confidence to their lengthened experience and extensive practice in Heating by Hot-water Circulation.
Estimates and Plans furnished on application.

Heating by Hot Water.
W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, S.E.

	2-inch.	3-inch.	4-inch.
HOT-WATER PIPES, from stock—p. yard	1s. 0d.	1s. 6d.	2s. 0d.
ELBOWS for ditto .. .. .. each	1 6	2 3	2 9
TEES .. .. ,,	2 3	3 6	4 6
SYPHONS .. .. ,,	2 3	3 6	4 6
THROTTLE VALVES .. .. .. ,,	10 0	11 6	13 0

Cash remittance with order.
N.B. All Goods of first-class manufacture. No second quality kept.
Estimates given, and orders punctually attended to the same day.

HOT-WATER PIPES.
CASH PRICES.

	2-inch.	3-inch.	4-inch.
PIPES .. .. per yard	1s. 0d.	1s. 6d.	2s. 0d.
ELBOWS .. .. each	1 6	2 3	3 0
TEES .. .. ,,	2 6	3 6	4 6
SYPHONS .. .. ,,	2 6	3 6	4 6
VALVES .. .. ,,	10 0	11 6	13 0

No credit will be given when Pipes, &c., are invoiced at the above prices.
J. JONES AND SONS,
6, Bankside, Southwark, London, S.E.
Price Lists, with terms for credit and for delivery at country stations, will be sent on application.

RAIN-WATER PIPES, EAVES, GUTTERS, O-GEE HALF ROUND and CONNEXIONS, HOT-WATER PIPES, WROUGHT and CAST-IRON BOILERS, delivered in London, Liverpool, Bristol, or equivalent. Large stock kept at the Works.

	2-inch.	3-inch.	3½-inch.	4-inch.
	s. d.	s. d.	s. d.	s. d.
HOT-WATER PIPES—per yard	0 11	1 5	1 8½	1 11
ELBOWS .. .. .. each	1 4	2 1	2 6	2 9
TEE PIPES .. .. .. ,,	2 3	3 0	3 6	4 0
SYPHONS .. .. .. ,,	1 9	3 0	3 6	4 0
VALVES .. .. .. ,,	10 0	11 0	11 6	12 0

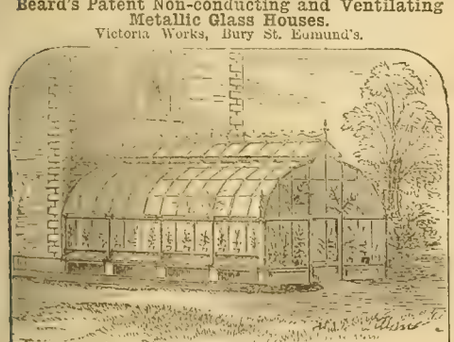
Nett cash on receipt of invoice. Prices equally low for Gas and Water Pipes and Connections.
London Warehouse, 16, Grand Junction Wharf, Paddington Basin.
GEORGE ROBINSON, Dial Iron Works, Stourbridge.
Estimates. Priced Credit Lists, with terms, per post.

Latest Improvements in Heating by Hot Water.



THE IMPROVED CONICAL BOILERS, for HEATING PINERIES, CONSERVATORIES, GREENHOUSES, MANSIONS, HALLS, WAREHOUSES, &c.,
SOLELY MANUFACTURED BY
JAMES G. FOLLARD
(Successor to John R. Peill, late Stephenson & Peill),
85, Shaftesbury Street, New North Road, London, N.
Annexed Sketch shows JAMES G. FOLLARD'S improved arrangement, requiring no brickwork setting.
These Boilers are also adapted for Setting in Brickwork.

IRON GREENHOUSES CHEAPER THAN WOOD.
Beard's Patent Non-conducting and Ventilating Metallic Glass Houses.
Victoria Works, Bury St. Edmund's.



MANUFACTURED BY
CHARLES BEARD,
Senior Partner in the late Firm of Sanders, Frewer & Co., which Firm was dissolved by mutual consent.
The Patentee wishes to observe his Patent Houses obtained the First and only Prize at the Royal Horticultural Congress, South Kensington, 1866;
The First-class Certificate at the Grand Manchester Horticultural Show, 1867;
The Three First-class Certificates at the Royal Horticultural Show, at Bury St. Edmund's, 1867, viz.:—One Prize for Patent Glazing without Putty; One Prize for Best System of Patent Ventilation; One Prize for S. F. & Co.'s Improved Flower Stands.
These much-approved Patent Systems of Glazing and Ventilation are also extensively adapted for all Agricultural Buildings, Public Halls, Churches, Factories, Railway Stations, &c., &c.
Full particulars and Prices of the Patent Houses, glazed with 26oz. Sheet Glass from 1s. 2d. per foot super and upwards. As also Illustrated Catalogues for 12 postage stamps, may be obtained on application to CHARLES BEARD, Victoria Horticultural Works, Bury St. Edmund's.
PATENT GLAZING BARS, to screw on wood, may be had separately. Full particulars for stamped envelope.

WHITE and SOUND TEETH are indispensable to personal attraction, and to health and longevity, by the proper mastication of food. ROWLANDS' ODONTO, or PEARL DENTIFRICE, is of inestimable value in Preserving and Beautifying the Teeth, Strengthening the Gums, and in giving a pleasing fragrance to the Breath. It eradicates Tartar and Spots of Incipient Decay, and polishes and preserves the Enamel, to which it imparts a pearl-like whiteness. Price 2s. 9d. per Box. Sold by Chemists and Perfumers. Ask for Rowlands Odonto.

PURE AERATED WATERS.
Ellis's Ruthin Soda Water. | Ellis's Ruthin Lemonade.
Ellis's Ruthin Potass Water. | Ellis's Lithia Water.
Ellis's Ruthin Seltzer Water. | Ellis's Lithia and Potass Water.
For Gout, the latter named is a splendid remedy.
Every Cork is branded "R. ELLIS & SON, Ruthin," and every label bears their trade mark, without which none is genuine. Sold by Chemists, Hotel-Keepers, Confectioners; and Wholesale only from R. ELLIS AND SONS, Ruthin, North Wales.

Sauce. Lea & Perrins.
THE "WORCESTERSHIRE," pronounced by Connoisseurs "THE ONLY GOOD SAUCE," improves the Appetite, and Aids Digestion. Unrivalled for piquancy and flavour. Ask for LEA & PERRINS' SAUCE. Beware of Imitations, and see the Names of LEA & PERRINS on all bottles and labels.
Agent—CROSSE AND BLACKWELL, London, and Sold by all Dealers in Sauces throughout the World.

COCKLE'S ANTIBILIOUS PILLS
THE SAFEST
FAMILY APERIENT.
In boxes at 1s. 1½d., 2s. 9d., 4s. 6d., and 11s.

COCKLE'S ANTIBILIOUS PILLS,
In use the last 60 years for
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In boxes at 1s. 1½d., 2s. 9d., 4s. 6d., and 11s.

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In use the last 60 years for
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In boxes at 1s. 1½d., 2s. 9d., 4s. 6d., and 11s.

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In use the last 60 years for
LIVER COMPLAINTS.
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COCKLE'S ANTIBILIOUS PILLS,
THE OLDEST
PATENT MEDICINE.
In boxes at 1s. 1½d., 2s. 9d., 4s. 6d., and 11s.

DINNEFORD'S FLUID MAGNESIA.—The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion; and the best mild aperient for delicate constitutions, especially adapted for Ladies, Children, and Infants.
DINNEFORD AND CO., 172, New Bond Street, London; and of all Chemists throughout the World.

To Florists and Others.
TO BE DISPOSED OF, the LEASE and STOCK in TRADE of a FLORIST and NURSERYMAN at Isleworth. Ten years unexpired.—Apply, "Duke of Cornwall," Isleworth, W.

TO BE LET, a SMALL NURSERY (19 years' Lease), within three miles of the City.
Inquire on the Premises, Sandringham Road, Kingsland, N.E.

TO BE LET, a NURSERY and SEED BUSINESS, with STOCK of all descriptions, and other accommodations for immediate use.
Apply to C. BRIGGS, Roserill Gardens, High Beech.

Teddington, S.W.
TO NURSERYMEN, FLORISTS, AND MARKET GARDENERS.
TO BE LET, on Lease, for 21 Years, about 16 ACRES of ARABLE LAND, well situate near to the Railway Station.
For particulars, apply to Messrs. KENYON AND HUBBARD, Land Agents and Auctioneers, 11, Abchurch Lane, E.C., near the Bank of England.

TO BE LET, with Immediate Possession, a Well-established NURSERY GARDEN, in a good Market Town, about 40 miles from London.—Glass Erections heated by Hot-water, and every convenience for doing a good trade. Railway Station within half-a-mile. Rent and Valuation moderate.
For particulars apply to Mr. CUNNINGTON, Braintree, Essex.

To Market Gardeners and Others.
TO BE LET, by Tender, with Immediate Possession, about 20 ACRES of NURSERY LAND, with convenient Dwelling and Outbuildings, tenanted for many years by the late C. B. Wortley. Tenders for the Crops, Fixtures, and possession (including Stock or otherwise) to be sent in by July 31.
Apply to Mrs. WORTLEY, Stoke Newington Common, N.

TO BE LET, the NORFOLK NURSERY, Shacklewell, N.E., consisting of about 1A. 1R. 30P. of Nursery Ground, advantageously situate for Local and Market Trade. There are Ten capital Greenhouses, mostly of modern construction, heated on the best hot-water principles, ranges of Pits, Coach-house, Stabling, and every appliance for carrying on a successful business. The valuable LEASE, with the whole of the Glass Erections, Pits, &c., with possession, may be purchased at a low price.
Apply to PROTHEROE AND MORRIS, Auctioneers and Valuers, Leytonstone, N.E.

FOR SALE, VALUABLE NURSERY, SEED, and FLORIST BUSINESS in CARLISLE.—In consequence of the death of the late Mr. John Little, the surviving partner in the late firm of Little & Ballantyne, the old established Nursery, Seed, and Florist Business, carried on under the style of Little & Ballantyne, in the Shop and Offices, No. 44, English Street, in the most central part of the City of Carlisle, is now to be Disposed of.
The Seed Business embraces a wide connection, both in the Wholesale and Retail Branches. The Warehouses, which are near to the Shop and Offices, are very commodious, and admirably adapted for the requirements of a large trade.
The Nursery Grounds are held on Lease for a term, of which 15½ years are unexpired, and are about 130 acres in extent, of which area over one half is fully stocked with Forest, Fruit, and Ornamental Trees, Evergreens, and Deciduous Shrubs, Coniferæ, &c., the whole of which are in the greatest health and vigour, and in a fine succession state to properly keep up the stock.
The Glass erections, which exceed 300 feet in length, are judiciously divided into Stove, Fernery, Propagating, Camellia, Heath, and Show houses, and are fully supplied with the necessary Cold Pits to carry on an extensive business.
The Business Connection is large, and highly respectable.
Further particulars may be obtained on application to Mr. EDWIN HOUGH, Solicitor, 6, Fisher Street, Carlisle.
Carlisle, July 15.

Sales by Auction.

SALE THIS DAY AT HALF-PAST TWELVE O'CLOCK.
The Collection of Established Orchids,
THE PROPERTY of the late G. REED, Esq., of BURNHAM.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, July 24, at half-past 12 o'Clock precisely, without reserve, by order of the Executors of the late G. Reed, Esq., the Collection of ESTABLISHED ORCHIDS, comprising many choice varieties and some fine specimens, and well worthy of attention.
On view the Morning of Sale, and Catalogues had.

Imported and Established Orchids.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, July 27, at half-past 12 o'Clock precisely, importation of fine Masses of LÆLIAS and CATTLEYAS from Rio, and a collection of ESTABLISHED ORCHIDS, comprising some choice varieties in healthy condition; and a small collection of fine specimen GREENHOUSE PLANTS.
On view the Morning of Sale, and Catalogues had.

Sutton House, Clifton Down.
MESSRS. H. R. FARGUS AND CO. will SELL by AUCTION, on the Premises, on MONDAY, July 26, the valuable Collection of PEACH and NECTARINE TREES, PINES, and GREENHOUSE PLANTS, of Thomas Rankin, Esq., who is leaving Clifton, including about 100 choice Peach, Nectarine, and Pear Trees, in prime condition, and now in full bearing; a quantity of Fruiting and Succession Pines, and a large Collection of Camellias, Azaleas, Pelargoniums, and other Greenhouse Plants.
On View the Morning of Sale, which will commence at 12 o'Clock.

Bulbridge Ram Sale.
MESSRS. EWER AND WINSTANLEY beg to notify that Mr. RAWLENCE'S ANNUAL SALE and LETTING of RAMS and RAM LAMBS will take place at Bulbridge, Wilton, on WEDNESDAY, July 28.
Mr. Rawlence's continued success for the last 25 years at the Royal, Bath and West of England, and local exhibitions of Sheep Stock, and also having this year exhibited at the various Agricultural Meetings with his usual success, the Auctioneers consider further comment superfluous.

Biddenham Annual Sale.
MR. STRAFFORD is instructed by Mr. Charles Howard, of Biddenham, near Bedford, to announce that his ANNUAL SALE by AUCTION will take place on THURSDAY, July 29, and will consist of 60 OXFORDSHIRE DOWN SHEARING RAMS, and a few older SHEEP.
Biddenham is within a mile of the Midland Station at Bedford, where conveyances will meet the Trains.—London, 13, Euston Square.

Cotswold Ram Sales, 1869.
T. B. BROWNE, Esq., of Salperton Park, Gloucestershire, has instructed
JAMES VILLAR to SELL by AUCTION about 100 COTSWOLD SHEARLING RAMS, at the undermentioned public Markets and Fairs:—
CIRENCESTER, AUGUST 2 and SEPTEMBER 6.
STRATFORD-ON-AVON, AUGUST 30.
EVESHAM, SEPTEMBER 14.
WORCESTER, SEPTEMBER 10.
GLOUCESTER, SEPTEMBER 28.
Mr. T. B. BROWNE does not intend exhibiting any of his Sheep at the Royal Agricultural Society's Show this year, in consequence of the practice of over-feeding, which, in his opinion, renders the Sheep quite unfit for use; he has, therefore, determined to offer his Rams this year in fair store condition, feeling assured that the Sheep will be more profitable to the buyers.
Mr. BROWNE specially invites all who take an interest in Long-woolled Sheep to inspect his whole Flock of about 800, any day by appointment, at Salperton Park, Gloucestershire.—July 1, 1869.

Important Sale of Pure-bred Shorthorns,
At MUSWELL HILL, near LONDON.
MR. JOHN THORNTON will SELL by AUCTION (without any reserve) at Coppett's Farm, Muswell Hill, six miles from London, on TUESDAY, August 3d next, the ENTIRE HERD of PURE-BRED SHORTHORNS, belonging to H. Gebhardt, Esq. This Herd comprises about Forty-five Head of Young Cows, Heifers, and Bulls, which have been selected and bred from some of the best stocks in the country, and crossed with Bulls of fashionable blood. Messrs. Leney's Royal Gwynne (25,025) has recently been used. Among the animals are some capital Yearling Heifers, and the whole stock is very healthy and useful, combining good Milking and Feeding properties.
Catalogues, with Pedigrees, may be had on application to JOHN THORNTON, 15, Langham Place, London, or at the Farm.

Sale of Messrs. Angus's Shorthorns,
AT BROOMLEY, NORTHUMBERLAND.
MR. JOHN THORNTON will SELL by AUCTION, without any reserve, on WEDNESDAY, August 11 (the day after the Northumberland Agricultural Show), at Broomley, Stocksfield-on-Tyne, the old-established HERD of SHORTHORNS, comprising between 50 and 60 Head, belonging to Messrs. Angus, of Broomley and Bearl.
This Herd is one of the oldest in the Kingdom, having been in the family nearly a century. For 68 years it has been bred upon the same Farm, and previously at Slyford, where Mr. Jobling's Herd was kept. The blood is somewhat known as Jobling's, but recently Mr. Booth's Bulls have been used. The animals are on a grand scale; they have good heads, fine form, and are capital Milkers, being of a particularly fine quality.
Catalogues, with Pedigrees, may be had of JOHN THORNTON, 15, Langham Place, London, W., or at the Farms.

Model Farm, Upper Winchendon, Bucks.
Seven miles each from the Aylesbury Station of the London and North-Western Line, and Thame Station on the Great Western Line, at which places Conveyances will meet the Morning Trains on the Day of Sale, returning in time for the Evening Trains.
MR. JOHN TREADWELL has fixed his ANNUAL SALE of about FIFTY OXFORDSHIRE SHEARLING RAMS, and a few OLDER SHEEP, for WEDNESDAY, August 4 (Luncheon at 1 o'Clock, Business at half-past 2), when he hopes to be favoured with the company of his Friends. This year's Sheep fully maintain the high character of this Flock, being very big, dark in colour, and strong in coat.
N.B.—This Flock obtained in 1867-8 Twenty-five First and Seven Second Prizes at the Royal, Birmingham, Liverpool, and other Shows; and at the Oxfordshire and Northamptonshire Shows, 1869, Ten Prizes. They may be seen previously.
J. A. MUMFORD, Auctioneer.
Chilton Park Farm, Thame, Oxon.—July 15, 1869.

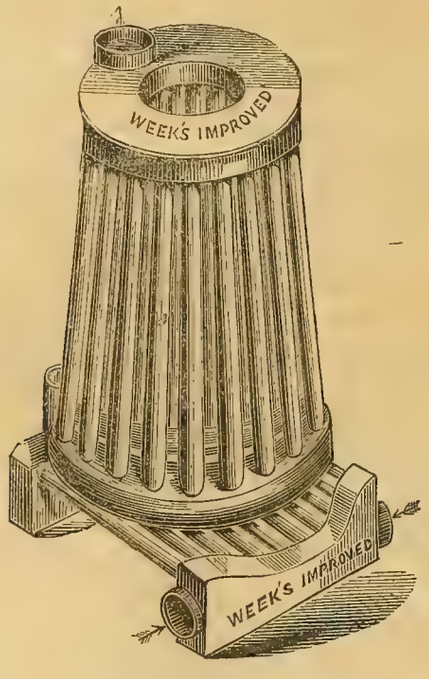
The Norfolk Cotswolds.
MARHAM HALL FARM, centrally situated between King's Lynn, Swaffham, and Downham Market, Norfolk.
MR. EDMUND BECK has received instructions to LET by PUBLIC AUCTION, on THURSDAY, August 5 (Luncheon at half-past 12 o'Clock, and the Letting will begin punctually at 2), 80 COTSWOLD RAM LAMBS, 80 COTSWOLD SHEARLING RAMS, and 10 COTSWOLD TWO-SHEAR RAMS, the property of and bred by Mr. Thomas Brown.
The Auctioneer has again much pleasure in soliciting the attendance of Agriculturists and Sheep Breeders at the Annual Letting; and although comment of any kind is not needed, he begs to remind them that this Flock continues to maintain its high position, as witness the Prizes obtained, not only at the Local Shows, but also those of the Royal
For the convenience of Gentlemen attending the Letting, Conveyances will leave the King's Lynn, Swaffham, and Downham Railway Stations after the arrival of the Morning Trains, returning in time for the Afternoon Trains. A Conveyance will also leave the Bell Inn, Thetford, at 9 A.M., returning in the Afternoon.

Southdown Sheep and Norfolk Red Polled Cattle.
ELMHAM HALL, NORFOLK.
MR. EDMUND BECK is honoured with instructions to announce that the FOURTH ANNUAL SALE and LETTING of SOUTHDOWN EWES, EWE and WETHER LAMBS, RAMS, and NORFOLK POLLED HEIFERS and BULLS, the property of the Right Hon. Lord Sondes, will take place on WEDNESDAY, September 8.
Particulars in future Advertisements.

Important Sale of Shorthorn Cattle, Southdown Sheep, Pigs, &c., at Coleshill, Berks.
MR. STRAFFORD and MR. JOHN WATERS have the honour to announce that in consequence of the Earl of Radnor having let the greater portion of the Home Farm (for many years held in hand by the late Earl, at Coleshill), they have received instructions to SELL by AUCTION, (without any reserve), on FRIDAY, August 20, 1869, very choice selections (comprising the greater portion) from the very valuable HERD of SHORTHORN CATTLE, FLOCK of SOUTHDOWN SHEEP, and COLESHILL PIGS.
Catalogues with pedigrees and other particulars may be had on application to MR. STRAFFORD, 13, Euston Square, London, or of MR. WATERS, Canal, Salisbury; and at the Farm at Coleshill, Berks.
The remaining portions of the Live and Dead Stock will be Sold by Mr. DYKE, of Farringdon, in Septemper next.

TEN FACTS WORTH KNOWING.

1. In the year 1843 the Horizontal Tubular Boiler was invented by J. WEEKS AND CO.
2. In the year 1855 WEEKS AND CO. discovered the superiority of the Upright Tubular over every other description of Boiler.
3. WEEKS AND CO.'S No. 6 is the only Boiler capable of warming four miles of 4-inch piping.
4. WEEKS AND CO.'S Cast Upright Tubular is 75 per cent. more durable than any Wrought Iron Tubular or Saddle Boiler that can be manufactured.
5. WEEKS AND CO'S Upright Tubular Boiler is in constant operation at all leading Horticultural Establishments throughout Great Britain and the Continent.



6. The largest Hot-water Apparatus in the world was erected by WEEKS AND CO., and worked on their One-Boiler System.
7. WEEKS AND CO.'S No. 6 Upright Tubular Boiler (as exhibited at Manchester) has proved itself the most clean, efficient, durable, economical, and powerful Boiler extant.
8. WEEKS AND CO.'S Upright Tubular Boiler, after having undergone the most severe and critical tests for the last 15 years, has in every case proved itself the best for Horticultural purposes.
9. WEEKS AND CO. are daily receiving the most flattering Testimonials as to the satisfactory working of their One-Boiler System.
10. Write for their "ILLUSTRATED CATALOGUE" (12th Edition), post free.

John Weeks & Comp.y

JOHN WEEKS AND CO.,
HORTICULTURAL BUILDERS AND HOT-WATER APPARATUS MANUFACTURERS,
KING'S ROAD, CHELSEA, S.W.

Editorial Communications should be addressed to "The Editor," Advertisements and Business Letters to "The Publisher," at the Office, 11, Wellington Street, Covent Garden, London, W.C.
Printed by JAMES MATTHEWS, at the Office of Messrs. Bradbury, Evans & Co., Lombard Street, Precinct of Whitefriars, City of London, in the Co. of Middlesex, and Published by the said JAMES MATTHEWS, at the Office, No. 41, Wellington Street, Parish of St Paul's, Covent Garden, in the said County.—SATURDAY, July 24, 1869.

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 31.—1869.] SATURDAY, JULY 31. {Price Fivepence. {Stamped Edition, 6d.

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ERRATUM.—ROYAL HORTICULTURAL SOCIETY'S GREAT FLOWER SHOW.—In Class 34 (2 Bouquets, 1 for Bride and 1 for Ball), the 1st prize was awarded to Mr. R. H. Smith, gr. to H. Walker, Esq., Calderstone, near Liverpool, and not to Mr. G. Ollier.

NOTICE to ADVERTISERS.—In answer to constant inquiries, the Proprietors have fixed the following SCALE of CHARGES for ADVERTISING:—

	s.	d.
All Advertisements connected with Gardening or Agriculture, four lines	3	0
Each additional line	0	6
Wants Places, three lines or thirty words	1	6

Advertisements extending across two or three columns, or Block Advertisements, according to Contract.

Post Office Orders payable to JAMES MATTHEWS, at the Post Office, King Street, Covent Garden, W.C.

State of the Crops, 1869.

THE GARDENERS' CHRONICLE and AGRICULTURAL GAZETTE of SATURDAY, August 7, will contain a FULL and TABULAR STATEMENT of the STATE of the CROPS throughout the UNITED KINGDOM. Order of any News Agent. A Single Copy sent for Six Stamps.

Office for Advertisements, 41, Wellington Street, Covent Garden.

CLAY CROSS FLORAL and HORTICULTURAL SOCIETY, TUESDAY, August 10. Prizes for 20 Plants, £20, £15, £10, and £5. Entrance, £1. ENTRIES must be made by AUGUST 2.

Clay Cross, Chesterfield. J. STOLLARD, Secretary.

TAUNTON DEANE HORTICULTURAL and FLORICULTURAL SOCIETY.—GRAND FLORAL FETE and FIREWORKS, THURSDAY, August 12.—Two Hundred Pounds and Four valuable Cups will be offered for competition. The magnificent Band of the Royal Marines, consisting of Forty Performers, has been engaged. Special Railway Fares for Exhibitors. Schedules, &c., may be obtained on application.

J. B. SAUNDERS, Hon. Sec.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY.—GREAT INTERNATIONAL FRUIT and FLOWER SHOW.—This Great Show will be held in the Music Hall, George Street, Edinburgh, on SEPTEMBER 8 and 9. Intending Competitors must give six days' notice, specifying the numbers they are to compete in. All articles must be in the Hall on Tuesday, the 7th, by 8 P.M.

33, South Bridge. WILLIAM YOUNG.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY.—GREAT INTERNATIONAL FRUIT and FLOWER SHOW.—The following Gentlemen have been appointed Judges of this Show:—The Rev. Reynolds Hole, the Rev. Edward Hawke; Messrs. Dominy; Graham, Garscube; Keynes, Salisbury; Laing, Stanstead; Turner, Slough; Deans, Shipley; Methven, Blythswood; Speed, Chatsworth; Thomson, Drumlanrig; Dell, Stoke Rochford; MacNab, Botanic Garden, Edinburgh; Tillyard, Brocklesby Park; Webster, Gordon Castle; Carmichael, Sandringham; Blair, Shrubland Park; Thomson, Stansted Park; and Westcott, Raby Castle.

Edinburgh, July 22. JOHN STEWART, Sec.

Seeds Direct from the Growers, the most Effectual Means of Preventing Disappointment.

SUTTON AND SONS, SEED GROWERS, deliver their Home-grown Seeds, Genuine as Harvested, to all parts of the kingdom. Carriage free (except very small parcels).—Prices and full particulars on application.

SUTTON AND SONS, Seed Growers, Reading.

Choice Seeds, Gladioli, &c.

WM. CUTBUSH AND SON'S CATALOGUE of the above contains description and price of many very superior home-grown VEGETABLE and FLOWER SEEDS, and choice varieties of GLADIOLI, &c., all of which are highly recommended. Post free on application.

Highgate Nurseries, London, N.

British Fern Catalogue.

ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

Foot's Cray Nursery, Sidcup Hill, Kent.

Ferns, British and Exotic, at reduced prices.

A. STANSFIELD AND SON beg to state that their CATALOGUE, No. 8, is now ready, and will be forwarded on receipt of three stamps. The above Catalogue contains 40 pages of matter, including partial descriptions and cultural remarks.

Vale Nurseries, Todmorden, Lancashire.

Trees, Plants, Seeds, &c.

JAMES DICKSON AND SONS have at all times on hand very large and excellent STOCKS of the above. Their Nurseries (perhaps the most extensive in England) are thoroughly stocked with all sorts of TREES, SHRUBS, PLANTS, &c., and are well worthy the attention of Planters and others.

Their Seeds are for the most part grown by themselves or under their immediate supervision, therefore may be confidently relied upon.

CATALOGUES post free on application.

"Newton" Nurseries, and 102, Eastgate Street, Chester.

Paul & Son's Roses in Bloom.

PAUL AND SON, The Old Nurseries, Cheshunt, invite an inspection of their Collection. The result of the various Exhibitions confirms their belief that they are finer than usual.

Thirteen Trains from Bishopsgate to Cheshunt. The 8 A.M. and 4.5 P.M., *via* Waltham and Omnibus to Cheshunt.

ROSES.—A long day may be spent among Roses at the Nurseries, Sawbridgeworth, near the Harlow Station, Great Eastern Railway. They are this season finer, particularly those on the Manetti Stocks, and more numerous than ever. Messrs. RIVERS give free access to all Rose Amateurs.

Established 1806.

T. HANDASYDE AND DAVIDSON have a large stock of TEA, HYBRID PERPETUAL, BOURBON, and CHINA ROSES in pots. Special prices to the Trade on application.

Seed Warehouse, 24, Cockburn Street, Edinburgh.

Nurseries, Brunstain Glen, Musselburgh.

Paul's Roses.

"Mr. PAUL'S Roses * * * are things to see once and dream of for ever."—*Athenæum.*

WM. PAUL begs to announce that his ROSES are NOW in BLOOM. Inspection respectfully invited. Trains from London, Bishopsgate Station, to Waltham, Great Eastern Railway, 13 times daily.

PAUL'S Nurseries & Seed Warehouse, Waltham Cross, London, N.

Gladioli—New Roses.

EUGÈNE VERDIER Fils Ainé, NURSERYMAN, 3, Rue Dunois, Paris, publishes in August and September of each year complete and descriptive CATALOGUES, with prices. They comprise all the finest and newest varieties of Gladioli, Pæonies, and New Roses. Gratis and post free on application.

Roses.—Grapes.

H. LANE AND SON'S extensive Collection of ROSES is NOW in FULL BLOOM; and the VINERIES, containing over 2000 bunches of 40 leading varieties of GRAPES, are worthy the inspection of their Patrons and Friends.

The Nurseries, Great Berkhamsted, Herts.

GOLDEN CHAMPION GRAPE.—We are now able to supply strong Plants of the above-named remarkable Grape, suitable for inarching on the young wood of established Vines, by which means fruit may be obtained next season. Price 30s. each.

OSBORN AND SONS, Fulham Nursery, London, S.W.

Grapes, Grapes.

JOSEPH MEREDITH, The Vineyard, Garston, near Liverpool, has now on View, and hanging by the ton, the finest Collection of GRAPES in the Kingdom. Inspection is respectfully solicited.

Vines for Planting.

JOSEPH MEREDITH, The Vineyard, Garston, near Liverpool, is now sending out extraordinarily strong VINES, 18 to 20 feet long, for Planting between now and the end of September. See *Gardeners' Chronicle*, July 24, p. 792, for remarks on same. Intending Planters will save a whole season by Planting before the Vines are dormant.

Pines.

B. S. WILLIAMS has all the best kinds, in splendid condition, warranted clean. Prices on application.

B. S. WILLIAMS, Seed Merchant and Nurseryman, Upper Holloway, London, N.

PINES.—All the best sorts, in Fruit, Fruiting, and Succession, very strong and fine, from a stock that never had Scale.

M. ROCHFORD, Market Gardener, Page Green, Tottenham, N.

NEW VINES.—MADRESFIELD COURT BLACK MUSCAT, 15s. and 21s. MRS. PINCE'S BLACK MUSCAT, 7s. 6d. and 10s. 6d. GOLDEN CHAMPION, 21s. and 31s. 6d.

JOHN AND CHARLES LEE can supply strong healthy Canes of the above, for Inarching or present Planting, by which a season may be saved.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

WANTED, STIRLING CASTLE STRAWBERRIES.—Plants must be true. State Trade price per 1000 to

G. WALKLING, Nurseryman, High Road and College Park Nurseries, Lewisham, S.E.

New Strawberries.

DAVID JONES is privileged by Dr. Roden to offer for Sale the following of his splendid Seedlings, viz., EARLY PROLIFIC and DUKE of EDINBURGH. These fine early varieties rapidly succeed each other, and are perfectly distinct from all other sorts in cultivation. For description and Editor's opinion, see "Journal of Horticulture," June 18, 1868. Fine laid plants will be ready on and after August 2. Price of either variety, 20s. for 25 plants, or £3 per 100.

Post Office Orders to DAVID JONES, The Grange, Kidderminster, will meet with attention in order of priority.

ORANGE TREES for SALE.—Two pairs of magnificent Orange Trees for Sale, in very fine health, full of fruit and flowers. This is an opportunity which seldom offers. Can be seen, and all particulars known by applying to

THOMAS BAILEY, Shardeloes Garden, Amersham, Bucks.

TO GENTLEMEN, GARDENERS, and OTHERS, having to DISPOSE of CHOICE FRUIT or FLOWERS, &c. They may meet with a ready Sale by applying to

A. IRETON, Covent Garden Market, W.C.

Myosotis dissitiflora, Baker.

W. THOMPSON, SEEDSMAN, Tavern Street, Ipswich, begs to offer good PLANTS of the above invaluable Spring Bedder, warranted true stock, at the low price of 4s. per dozen, or 25s. per 100. Early orders are respectfully solicited.

ALTERNANTHERA AMABILIS.—This fine new variety, the best of all the Alternantheras, can now be supplied, in good plants, at 4s. per dozen, post free, from

B. W. KNIGHT, Florist, Battle, Sussex.

EXHIBITION SPECIMENS of HARD-WOODED and FINE FOLIAGE PLANTS.—Exhibitors and Purchasers of Large Plants are respectfully invited to inspect our large Stock of first-rate Specimens.

T. JACKSON AND SON, Nursery, Kingston, Surrey.

POST FREE, 1869 GROWTH.—Neill's extra choice strain CALCEOLARIAS, 2s. 6d. each (in sealed packets as made up by Mr. Neill); PRIMULA, Williams' choice strain, warranted, 1s. and 2s. per packet; CALCEOLARIA, selected from the best of the leading strains, 1s. and 2s. per packet. Value can be sent in stamps. Established 1842.

WILLIAM ARMITAGE AND SON, Seed Merchants, Huddersfield.

Gladioli, the most Extensive Collection.

BARR AND SUGDEN, 12, King Street, Covent Garden, W.C., have the finest and largest collection of GLADIOLI ever offered, prices varying from 2d. to 15s. per root. For particulars see pp. 68, 69, 70, and 71 of B. & S.'s SPRING SEED CATALOGUE.

BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.

Now Ready, Post Free to all Applicants.

B. S. WILLIAMS' CATALOGUE of NEW and RARE PLANTS, 1869, containing the most beautiful and select of the latest introductions and Supplementary Lists of the General Collection.

Victoria and Paradise Nursery, Upper Holloway, London, N.

Verbenas, Verbenas, Verbenas.

FORTY NEW VARIETIES of VERBENAS, 1869, strong plants, in thumb pots, for 10s. Eight NEW GOLDEN COLEUS, Royal Horticultural Society, 1869, for 3s.

PHILIP LADDS, Nursery, Bexley Heath, Kent, S.E.

NOTICE.—A CATALOGUE of CHOICE NEW PLANTS of 1869, at greatly reduced prices, with select List of DUTCH and other BULBS, with Cultural Notes, ROSES, HARDY HERBACEOUS PLANTS, &c., free on application to

W. DILLISTONE, Nurseryman, &c., Sible Hedingham, Essex.

NEW CHRYSANTHEMUMS of 1868, including the New Japan, Large-flowered, and Pompon varieties sent out in 1868, sent post free; 12 fine varieties, 2s. 6d.; 12 Cuttings, in 12 fine varieties, 1s. 2d., from

B. W. KNIGHT, Florist, Battle, Sussex.

NEW DOUBLE GERANIUMS.—Twelve fine varieties Double Zonal Geraniums, including Madame Lemoine, for 12s.; 12 best New Zonal Geraniums of 1868 for 6s.; 12 fine varieties Gold and Golden Bicoloured Geraniums for 6s., package included, from B. W. KNIGHT, Florist, Battle, Sussex.

New Nosegay Geranium Charley Casbon.

CASBON AND SON are now sending out the above beautiful GERANIUM. It is of dwarf spreading growth; the flowers, which have broad petals, are freely borne in immense trusses. Colour, the richest scarlet of any variety known. Strong plants 5s. each. The usual allowance to the Trade.

Gravel Walk Nursery, Peterborough.

NEW COLEUS.—The 12 New Golden Coleus of the Royal Horticultural Society, sent out in 1869, sent post free for 2s. 6d.; 8 New Coleus of 1869, sent out by W. Bull and E. G. Henderson, post free for 1s. 9d.; the set of 20 varieties, post free, for 4s., from B. W. KNIGHT, Florist, Battle, Sussex.

NEW COLEUS, BEAUTY of WIDMORE.—Distinctly tricolored; leaves beautifully shaped, dark brilliant maroon, belted with bright rose and green edged with silvery white, 3s. 6d. each. 25 distinct varieties, including the above and all other new ones of this season, free by post for 21s.

ALTERNANTHERA AMABILIS.—A new variety, far superior to all the other Alternantheras, 4s. per dozen. [dozen.

ECHEVERIA METALLICA.—The beautiful Shell Plant, 4s. per

JAMES CARTER AND CO., Seed Merchants and Nurserymen, 237 and 238, High Holborn, W.C.; and Crystal Palace Nurseries, Forest Hill, S.E.

EVERY GARDEN REQUISITE KEPT in STOCK at

CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

A SPECIAL PRIZE MEDAL, PARIS, 1867, was AWARDED to JAMES CARTER & Co., 237 & 238, High Holborn, London, W.C., for GRASS SEEDS, supplied for the Exhibition Grounds.

GRASS SEEDS: WHEN and WHAT to SOW.—For the fullest information on this subject, see CARTER'S ILLUSTRATED FARMER'S CALENDAR for 1869; post free, 6d.

JAMES CARTER AND CO., Seed Growers, 237 and 238, High Holborn, London, W.C.

PARIS, 1867. SUTTONS' GRASS SEEDS for ALL SOILS. A PREMIER PRIX SILVER MEDAL for GARDEN SEEDS, GRASSES, and GRASS SEEDS, was Awarded to SUTTON AND SONS, SEEDSMEN to the QUEEN, Reading, Berks.

Improvement of Grass-lands at from 4s. 6d. to 9s. per Acre.

SUTTONS' RENOVATING MIXTURE should be sown after the Hay is carried. From 6 to 12 lb. required per acre. Price 9d. per lb., 30s. per cwt. Carriage free.

SUTTON AND SONS, Seedsmen to the Queen, Reading.

New English Sowing Rape Seed.

H. AND F. SHARPE have fine Samples of NEW RAPE SEED, which they can offer to the Trade at low figures. Price and samples on application.

Seed Growing Establishment, Wisbech.

RAPE, for present sowing, per bushel, 10s. 6d.; four bushels, 40s. WHITE MUSTARD, per bushel, 14s.; four bushels, 54s. Sacks 1s. 3d. each. Remittances to accompany all orders.—CHRISTMAS QUINCEY, Seedsman, &c., Peterborough.

New Turnip Seeds, Harvest 1869.

SUTTON AND SONS have just harvested, in good condition, fine seed of the leading kinds of TURNIPS, suitable for present sowing. For prices apply to

SUTTON AND SONS, Seed Growers, Reading, Berks.

Drumhead Cattle Cabbage.

THE HEAVIEST OF ALL AGRICULTURAL CROPS.

SUTTON AND SONS can supply the IMPROVED DRUMHEAD CATTLE SEED at 4d. per oz., or 2s. 6d. per lb. It will be remembered that remarkably fine specimens of the above were exhibited on Messrs. Suttons' stand at the last Smithfield Club Show. Sow in August and September.

SUTTON AND SONS, Seed Growers, Reading.

To the Seed Trade.

NEW GENUINE TURNIP SEED, from selected stocks of Devonshire Grey Stone, Stubble, or Mouse Tail. For price and terms apply to

Mr. GEO. HARDY, Seed Grower, Braintree, Essex.

To the Trade.

TURNIP and MANGEL SEEDS, growing crop of 1869, splendid stocks, various kinds.

FREDK. GEE invites attention to the above, and will be pleased to make special offers of the same on advantageous terms.

Seed Establishment, Biggleswade, Beds.

To Farmers, Gardeners, and Others.

F. GEE can still supply excellent strong Cabbage, Cauliflower, Brussels Sprouts, Savoy, Sprouting Kale, splendid Variegated Kale, and other PLANTS. Genuine and unadulterated Cabbage, Turnip, Mustard, Cole SEED, &c. Prices, which are low, had on application.—Seed Establishment, Biggleswade, Beds.

GARDENERS' CHRONICLE NEWSPAPER ONE PENNY

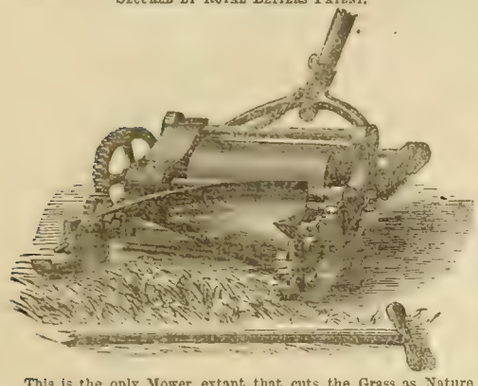
IRON HURDLES (Silver Medal of the Royal Agricultural Society): SHEEP, 3s. 6d.; CATTLE, 4s. 2d.; OX, 5s. 11d. List by post. GATES and FENCING of every description. St. Pancras Iron Work Company, Old St. Pancras Road, London, N.W.

NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.—TANNED NETTING for Protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3d. per yard, or 100 yards, 20s.; 4 yards wide, 6d. per yard, or 50 yards, 20s. NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls: 2 yards wide, 6d. per yard; 4 yards wide, 1s. per yard; 1-inch mesh, 4 yards wide, 1s. 6d. per yard. Can be had in any quantity of EATON AND DELLER, 6 & 7, Crooked Lane, London Bridge, E.C.

SCRIM CANVAS, 72 inches wide, from 7½d. per yard; and HESSIAN, 74 inches wide, at 7½d. per yard, is the best and cheapest material for Protecting Fruit Trees or Shading Greenhouses. Samples forwarded on application.
BLIND TICKING, SAIL CLOTH, and FORFAR SHEETING at the lowest prices.
Estimates given for outside SHOP BLINDS, fitted on the improved self-acting spring roller.
JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London.

SEED BAGS and SACKS, and BAGS of every description in use, supplied at the lowest possible prices. ARCHANGEL and TAGANROG MATS of good quality, for Covering, Tying, or Shading; also Petersburg and Prussian DUNNAGE MATS. Price-list forwarded post free on application.
JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London.

WILLIAMS' PATENT "ARCHIMEDEAN" LAWN MOWER.
SECURED BY ROYAL LETTERS PATENT.



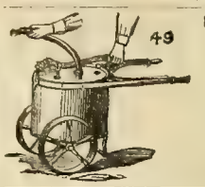
This is the only Mower extant that cuts the Grass as Nature grows it. Lawns cut exclusively with our Mower during the season will retain their fresh, green appearance; whilst those cut by other Mowers look scorched and dead, because the heart of the Grass is necessarily cut off and killed thereby. We defy all competition. Please read our circular regarding this wonderful Mower, universally used in the United States of America. We respectfully invite Gentlemen with their Gardeners to an examination. Address the Subscribers, No. 1, City Road, Finsbury Square, E.C.
WILLIAMS & CO.

THE HYDRONETTE, (Robins' Patent,) for Gardens, Greenhouses, Conservatories, Hotbeds, &c. Unrivalled ease of action, simplicity, convenience, and force.



The HYDRONETTE is a more useful, easy working, reliable, and convenient water-throwing machine than any other in use. It is made in five sizes, viz.:—No. 1, with 4 feet of Suction Hose, Strainer, Jet, and Rose, 12s. 6d.; No. 2, 15s. 6d.; No. 3, £1 1s.; No. 4, £1 5s.; No. 5, £1 10s. Extra Hose and Union Joints furnished to order. Forwarded on receipt of Post Office order. To be obtained through any Ironmonger or Florist, or of the Proprietors, HAYNES AND SONS, 227, 229, and 231, Edgware Road, Paddington, W.

WARNER'S SILICATE of IRON PAINT.
A certain PREVENTION against DAMP WALLS, Effectually PRESERVES IRON and WOOD, Is unaffected by extreme HEAT and AMMONIA.
Has great Covering properties.
All Colours supplied and can be obtained through any Chemist or Ironmonger, of
WARNER AND ASHBY, 17, Laurence Fountney Lane, E.C.

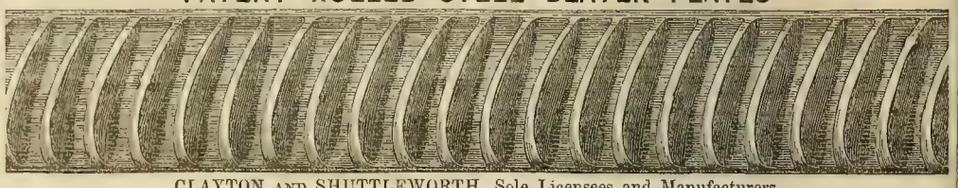


THE "CASSIOBURY."
The best and most powerful GARDEN ENGINE.
15 Gallons .. .. £4 10s.
24 Gallons .. .. £5 10s.
S. OWENS AND CO., Whitefriars Street, London, E.C.



H. BROOK AND CO., Sole Manufacturers of the CHELTENHAM GARDEN ENGINE, which weighs only 3 lb. 1 oz., throws water in a continuous stream over 35 feet. To be had of all Ironmongers, and Wholesale only at 10, Featherstone Buildings, Holborn, London, W.C.
GARDEN HOSE and BRANCHES in great variety.

PORTABLE ENGINES, FROM 4 TO 25-HORSE POWER.
THRESHING MACHINES, SINGLE, DOUBLE and TREBLE BLAST,
WITH PATENT ROLLED STEEL BEATER PLATES, AND ALL OTHER RECENT IMPROVEMENTS.
PATENT ROLLED STEEL BEATER PLATES



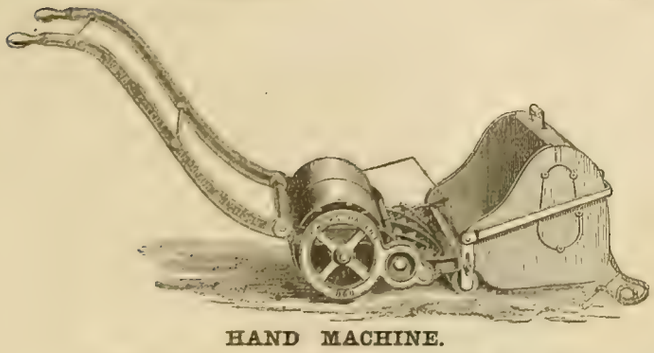
CLAYTON AND SHUTTLEWORTH, Sole Licensees and Manufacturers.
These Plates have been thoroughly tested, and are found to wear more than three times as long as the Malleable Iron Plates hitherto in use. C. & S. are prepared to supply Threshing Machine Owners and the Trade in any quantity.
CLAYTON AND SHUTTLEWORTH,
STAMP END WORKS, LINCOLN, and 78, LOMBARD STREET, LONDON, E.C.
Catalogues on application, Free by Post.

SHANKS'S PATENT LAWN MOWERS FOR 1869.

UNDER THE PATRONAGE OF HER MOST GRACIOUS MAJESTY THE QUEEN,



AND MOST OF THE PRINCIPAL NOBILITY OF GREAT BRITAIN.



HAND MACHINE.

SHANKS'S PATENT LAWN MOWERS
ARE ALL FITTED WITH
PATENT DOUBLE-EDGED SOLE PLATES, WIND GUARDS, AND SELF-SHARPENING REVOLVING CUTTERS.
Advantages possessed by no other Lawn Mowers.

The unprecedented Sale of SHANKS'S LAWN MOWERS for 1868 forms the most convincing testimony of the value and success of the Improvements introduced last Season.

PRICES—INCLUDING CARRIAGE TO ANY RAILWAY STATION OR SHIPPING PORT IN THE KINGDOM.

SHANKS'S NEW PATENT HAND MACHINE.

10-inch Machine £3 10 0	Easily Worked	
12-inch Machine 4 10 0	*By a Lady*	
14-inch Machine 5 10 0	*By a Boy*	
16-inch Machine £6 10 0	Easily Worked	*By a Man*
19-inch Machine 7 15 0		*By a Man and a Boy*
22-inch Machine 8 10 0		*By Two Men*
24-inch Machine 9 0 0		

The Hand Machines are all with Silent Movement.

SHANKS'S NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
25-inch Machine £12 10 0	.. ..	25s. extra.
28-inch Machine 14 10 0	.. ..	30s. ,,
30-inch Machine 15 15 0	.. ..	30s. ,,

Silent Movement, 12s. 6d. extra.
Boots for Pony, 22s. per set.; Ditto for Donkey, 18s. per set.

SHANKS'S NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
30-inch Machine £19 0 0	.. ..	30s. extra.
36-inch Machine 22 0 0	.. ..	30s. ,,
42-inch Machine 26 0 0	.. ..	40s. ,,
48-inch Machine 28 0 0	.. ..	40s. ,,

Silent Movement, 20s. extra. Boots for Horse, 26s. per set.

Every Machine warranted to give ample satisfaction, and, if not approved of, can be at once returned without any expense to the buyer.

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH; and
27, LEADENHALL STREET, LONDON, E.C.

27, Leadenhall Street is the only place in London where intending purchasers of Lawn Mowers can choose from a Stock of from 150 to 200 Machines. All sizes kept there, whether for Horse, Pony, or Hand Power.

GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT, MANUFACTURER



TO HER MOST GRACIOUS MAJESTY THE QUEEN.

THE Extraordinary Success of GREEN'S PATENT LAWN MOWERS is an established fact. During the last five years the demand has been unprecedented, which alone is a proof of their superiority over all others. The following are their characteristic features:—

1st. **Simplicity of Construction, every part being free of access.**
2d. **They are worked with far greater ease than any other Lawn Mower.**
3d. **They are the least liable to get out of order.**

IMPORTANT NOTICE.

Trial at the London Horticultural Society's Gardens, Chiswick, June 5, 1857; four competitors: — First Trial on level ground, Second Trial on undulated; Third Trial on intricate places, around trees, &c.,—when GREEN'S PATENT was unanimously declared to be the best in each Trial by COLONEL CHALLONER, DR. LINDLEY, and G. MCEWEN, Esq., the appointed Judges, and on every subsequent Trial to the above have GREEN'S PATENT LAWN MOWERS carried off every Prize that has been given in competition for superiority in every point.

PRIZE MEDALS AWARDED TO GREEN'S PATENT LAWN MOWERS.

FIRST PRIZE MEDAL AT THE INTERNATIONAL EXHIBITION, LONDON, 1862.
FIRST PRIZE MEDAL AT THE INTERNATIONAL EXHIBITION, DUBLIN, 1865.
FIRST PRIZE MEDAL AT THE NAMUR EXHIBITION.
FIRST PRIZE MEDAL AT THE GAND EXHIBITION.
FIRST PRIZE MEDAL AT THE LAEKEN EXHIBITION.
FIRST PRIZE MEDAL AT THE LINEENE EXHIBITION.
FIRST PRIZE MEDAL AT THE BRUSSELS EXHIBITION, *on two occasions.*
FIRST PRIZE MEDAL AT THE HAMBURG EXHIBITION.

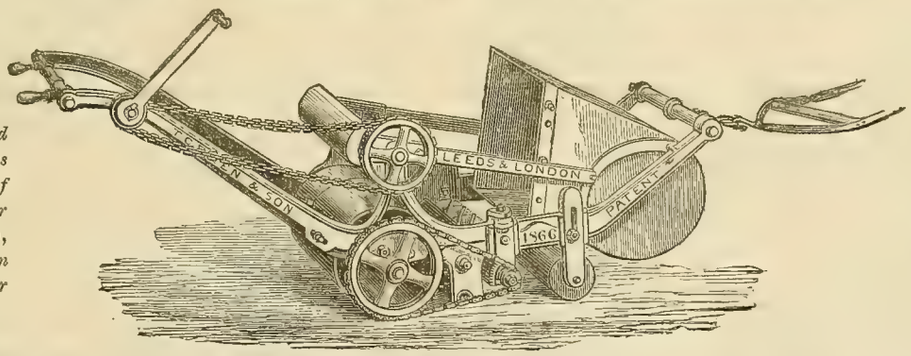
THEY ARE THE ONLY MACHINES IN CONSTANT USE AT

THE ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON
THE ROYAL BOTANIC GARDENS, REGENT'S PARK
THE CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM
BUCKINGHAM PALACE GARDENS
MARLBOROUGH HOUSE
THE HYDE PARK GARDENS
THE WINTER PALACE GARDENS, DUBLIN
THE DUBLIN BOTANIC GARDENS
THE LIVERPOOL BOTANIC GARDENS
THE LEEDS ROYAL PARK
THE HULL BOTANIC GARDENS
THE BOTANIC GARDENS, BRUSSEL
THE SUNDERLAND PARK
THE PRESTON PARK

AND IN MOST OF THE PRINCIPAL PARKS, SQUARES, ETC., IN THE UNITED KINGDOM.

HORSE, PONY, AND DONKEY MACHINE.

GREEN'S PATENT **LAWN MOWERS** *have proved to be the best, and carried off every Prize that has been given in all cases of competition. Since the first year they were introduced* (1856), *upwards of* 46,600 *have been sold, and* 25,000 *of that number during the last five seasons.*



T. GREEN & SON *warrant every Machine to give entire satisfaction, and if not approved of can be returned unconditionally.*

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

PONY AND DONKEY MACHINES.

To Cut 26 inches	£13	0	0	*Leather Boots for Donkey*, 18s. *Leather Boots for Pony*, 22s.
,, 28 ,, ...	15	0	0	
,, 30 ,, ...	17	0	0	

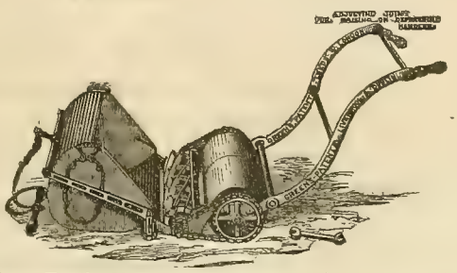
HORSE MACHINES.

To Cut 30 inches	£21	0	0	*Leather Boots for Horse*, 26s.
,, 36 ,, ...	24	0	0	
,, 42 ,, ...	27	0	0	
,, 48 ,, ...	30	0	0	

Both the Horse, Pony, Donkey, and Hand Machines possess (over all other Makers) the advantage of Self-sharpening. The cutters being steel on each side, when they become dull or blunt by running one way round, the cylinder can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the Machine will cut equal to new. Arrangements are made that the cylinder can be reversed, by any inexperienced person, in two or three minutes.

HAND MACHINES.

To Cut 10 inches ..	£3	10	0	*Suitable for a Lady*
,, 12 ,, ..	4	10	0	,, ,,
,, 14 ,, ..	5	10	0	*Suitable for One Person*
,, 16 ,, ..	6	10	0	,, ,,



To Cut 18 inches ..	£7	10	0	*Suitable for One Person.*
,, 20 ,, ..	8	0	0	*Suitable for Two Persons*
,, 22 ,, ..	8	10	0	,, ,,
,, 24 ,, ..	9	0	0	,, ,,

Packing Cases are charged at the following low rates, viz.:—For the 10 and 12-inch Machine, 3s.; 14 and 16-inch, 4s.; 18 and 20-inch, 5s.; 22 and 24-inch, 6s. Parties providing themselves with Lawn Mowers are recommended to purchase the cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England, Ireland, and Scotland.

HORTICULTURAL and AGRICULTURAL IMPLEMENTS, GARDEN SEATS and CHAIRS, FOUNTAINS, VASES, PLAIN and GALVANISED WIRE NETTING, and ORNAMENTAL WIRE WORK of every description.

Having very extensive Premises in London, we are in a position to do all kinds of Repairs there, as well as at our Leeds Establishment.

Having a large quantity of MACHINES in stock at our Leeds and London Establishments, we are in a position to execute Orders on the day they are received.

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;
and 54 & 55, BLACKFRIARS ROAD, LONDON, S.

PICOTEE PRINCE of ORANGE (perpetual flowering).—Orders are now being booked for this most beautiful decorative plant, flowering all the year round in conservatory or greenhouse, and from July to November in the open ground. Will be found most valuable for Bouquets and Cut Flowers for Exhibition, being a strong grower and producing spikes of flowers from every shoot. Colour bright orange, edged with scarlet.

Received a First-class Certificate at the Royal Horticultural Society's Special Carnation Show at South Kensington, July 6, 1869.

Strong plants ready the first week in May next, 6s. each. The usual discount to the Trade. Address,

FRED. PERKINS, Seed Warehouse, Regent Street, Leamington.

Hardy and other Bedding Plants.

ROBERT PARKER begs to offer the under-named, all of which can be supplied in strong, healthy plants:—

	Per doz.—s. d.		Per doz.—s. d.
Dactylis glomerata elegantissima	4 0	Pansy, Cliveden Yellow ..	3 0
Echeveria metallica, 6s. to	30 0	„ Great Eastern ..	3 0
„ pumila ..	9 0	„ Imperial Blue ..	18 0
„ secunda glauca	9 0	Pachystylum bractenatum	12 0
Lithospermum prostratum (fruticosum) ..	9 0	Sempervivum californicum	4 0
Pansy, Cliveden Blue ..	3 0	Tritoma grandis	12 0
„ Purple ..	3 0	„ uvaria glaucescens	9 0
		Viola lutea semperflorens	4 0
		„ cornuta alba	4 0

Special quotations may be had, if required, for the above, and many other kinds, by the 100, or in larger quantities.

Exotic Nursery, Tooting, Surrey, S.W.

To the Trade.

JOHN H. LEY, NURSERYMAN, Croydon, offers the following, in good plants, for cash, at prices which will defy competition:—

ADIANTUM CONCINNUM LATUM, new, 24s. per dozen.
BRAINEA INSIGNIS, rare, 30s. per dozen.
ATHYRIUM GORINGIANUM PICTUM, new, 9s. per dozen.
CHEILANTHUS HIRTA, 6s. per dozen.
„ DEALBATA, scarce, 24s. per dozen.
ONYCHIUM JAPONICUM, 40s. per 100.
ADIANTUM CUNEATUM, 30s. per 100.
DIDYMOCHLÆNA LANULATA, 9s. per dozen.
ALOCASIA JENNINGSII.—This splendid novelty, 18s. and 24s. per dozen. Package included.

ABUTILON THOMPSONI.—One of the handsomest bedding plants of the season. 15s. per dozen, strong plants.
VIOLA LUTEA GRANDIFLORA.—Undoubtedly one of the best bedding plants of the season. 12s. per dozen.
PELARGONIUM MADAME LEMOINE.—One of the finest double Pelargoniums. 2s. each, or 15s. per dozen.
WILLS' NEW BRONZE AND GOLD PELARGONIUMS.—Any of the last year's set 2s. each, or 15s. per dozen.
AMPELOPSIS VEITCHII, 1s. 6d. each, or 15s. per doz.
ANCYLOGYNE LONGIFLORA, 1s. 6d. each.
BEGONIA BOLIVIENSIS, 2s. each, or 18s. per doz.
CROTON INTERRUPTUM, 6s. each.
CROTON IRREGULARE, 5s. each.
DALECHAMPIA ROEZLIANA ROSEA, 2s. 6d. each.
DIEFFENBACHIA WEIRII and PEARCEI, 3s. 6d. each.
LOMARIA CILIATA and GIBSONI, fine plants, 2s. 6d. each.
SANCHEZIA NOBILIS VARIEGATA, 2s. 6d. each.

J. W. WIMSETT, Ashburnham Park Nursery, King's Road, Chelsea, S.W. J. WILLS, F.R.H.S., Manager.

NEW COLEUS.—The following are six beautiful varieties, much in advance of present named sorts, both for superb depth of brilliant colouring, and massive spreading outline, but withal dwarf bushy habit:—

Ajax .. .. .. each	2s. 6d.	Achilles .. .. each	2s. 6d.
Beauty of Maida Vale „	5 0	Cupid .. .. .. „	2 6
Viceroy .. .. „	5 0	Goldfinch .. .. „	5 0

(Or the set of six for 20s.)

BEGONIA BOLIVIENSIS.—Large flowering scarlet flowers, a beautiful outdoor plant for subtropical gardens. 3s. 6d. each, or 30s. per dozen.
BEGONIA WELTONIENSIS.—Capital habit, excellent summer, autumn, and winter blooming variety, waxy pink flowers, dwarf dense habit. This plant can also be recommended for shady position in the subtropical garden. 2s. 6d. each, or 24s. per doz. This plant has had a First-class Certificate at the London Shows.
ALOCASIA JENNINGSII.—This superb and richly marked leaved plant. 5s. each, or 42s per dozen.

ARTHUR HENDERSON & CO., Pine-apple Place, Maida Vale, London, W.

Fine New Hardy Clematises,
TO BE SENT OUT IN SEPTEMBER, 1869.

GEORGE JACKMAN AND SON are prepared to book orders for their two following NEW CLEMATISES, that they can warrant as distinct, vigorous, and abundant flowering as those varieties which have already obtained such general approbation.

CLEMATIS LADY BOVILL (First-class Certificate Royal Horticultural Society).—"Width of the petal is greater than its length, which causes it to be very slightly cupped, resembling a somewhat expanded Tulip, while its colour (a greyish blue) marks its distinctness."—*Floral Magazine.*

"The more novel tints of light mauve and greyish blue."—*Gardeners' Chronicle.*

CLEMATIS MAGNIFICA (First-class Certificate Royal Botanic Society).—This is one of the most hardy and vigorous growing varieties of the Woking Hybrids. The colour is purple, suffused with a strong crimson shading over the whole surface of the flower, making it very attractive.

"The petals of which are barred with Turkey red."—*Gardeners' Chronicle.*

21s. each, or three plants, viz., one C. Lady Bovill and two C. magnifica, for 45s. A few extra strong plants, 31s. 6d. each.

A Coloured Drawing (by Andrews) of C. Lady Bovill can be had by enclosing 12 stamps, or Circular, giving "Opinions of the Press," with engraving, for one stamp.

The usual allowance to the Trade.

Woking Nursery, Surrey.

Royal Horticultural Society.—Provincial Exhibition.

THE SILVER SAND (Stand 414), delivered free by rail at very low rates. Price at Mines, 1s. 11d. per bushel.

NUNN, Lloyd Street, Manchester.

KENT FIBROUS PEAT, of first-class quality, for all Potting purposes, and American Plants, may be obtained on application to Mr. THOMAS JESSOP, Farningham Wood, near Sevenoaks Junction Station (Dartford), price 6s. per cubic yard, dispatched per London, Chatham, and Dover Railway, in trucks of 10 yards, for most Stations in the kingdom. It has been extensively used and appreciated in the principal Nurseries and Royal Parks and Gardens.

Gratis and Post Free.

MEREDITH'S DESCRIPTIVE CIRCULAR of his VINE, PINE, PEACH, and PLANT MANURE. See *Gardeners' Chronicle* of July 24, p. 792.

JOSEPH MEREDITH, The Vineyard, Garston, near Liverpool.

A Boon for Grape Growers.

MEREDITH'S VINE, PINE, PEACH, and PLANT MANURE.

JOSEPH MEREDITH, The Vineyard, Garston, near Liverpool, after giving world-renowned proofs of his excellency over all others in Vine and Grape growing, is now induced to offer to the Horticultural world the above MANURE, to the ingredients of which, in a great measure, he attributes the success which has attended his exhibitions of Grapes in England, Scotland, Paris, Brussels, Antwerp, and Maestricht. In doing so he is offering from experience the most valuable aid to both practical and amateur in not only securing fine fruit, but good flavour and high finish of colour, and to plants the greatest help towards vigour and successful cultivation ever met with. To be had in sealed bags of quarter cwt., 10s. 6d.; half cwt., 21s.; one cwt., 42s.; with full directions for use. For further particulars see Descriptive Circulars, to be had post free on application (as above. (See *Gardeners' Chronicle*, July 24, p. 792.)

Weeds Eradicated from Lawns.

WATSON'S LAWN SAND, sprinkled upon Lawns, rapidly destroys Dandelions, Daisies, Clover, Ribgrass, &c., and at same time promotes the growth of Grass. 28s. per cwt.; 4d. per lb.

May be ordered through any respectable Seedsman, or direct from Agent, W. D. BARBOUR, 5, East Parade, Leeds

New Hardy Plant,

To be sent out in September, 1869. For plate and full description, see "Botanical Magazine," t. 5726, No. 285, in which Dr. Hooker says—

SPIRÆA PALMATA, "By far the handsomest species of the genus hitherto imported, and certainly one of the most beautiful hardy plants in cultivation; the deep purple-red of the stems and branches, passing into the crimson-purple of the glorious broad corymbs of flowers, contrasts most exquisitely with the foliage, which in autumn assumes beautiful tints of brown and golden-yellow. Spiræa palmata was introduced by Mr. Fortune from Japan, and has proved itself perfectly hardy in the most exposed position."

CHARLES NOBLE having the entire Stock of this fine Plant, intends sending it out next September, at 21s. each. Orders are requested early, as the Stock is limited.—Bagshot, June, 1869.

JAMES CARTER AND CO. can now offer strong well-grown CANES of the FOLLOWING VINES, this year's growth. If planted now a season will be saved.

Price 7s. 6d. to 12s. 6d. each.

Bidwill's Seedling	Golden Hamburgh
Black Alicante	Lady Downe's Seedling
„ Barbarossa	Madresfield Court Black Muscat
„ Hamburgh	Morris' Black Grape
„ Morocco	Mrs. Pince's Black Muscat
„ Prince	Muscat Hamburgh
Buckland Sweetwater	„ of Alexandria
Charlesworth Tokay	Royal Ascot
Duchess of Buccleuch	„ Muscadine
Frankenthal	Trentham Black
Golden Champion	White Frontignan

JAMES CARTER AND CO., Seed Merchants and Nurserymen, 237 and 238, High Holborn, W.C.; and Crystal Palace Nurseries, Forest Hill, S.E.

JAMES CARTER AND CO. having often had applications for STRAWBERRIES earlier in the season than they could be supplied from same year's runners, have planted out an enormous stock of last year's late runners, and can now offer strong plants of the undermentioned varieties, and if planted from henceforth in favourable weather they will guarantee to produce good crops next year.

Black Prince	Frogmore Late Pine	Princess Royal
British Queen	Goliath	Rifleman
Carolina Superba	Keen's Seedling	Sir Charles Napier
Comte de Paris	Nonsuch	Sir Harry
Crimson Queen	Oscar	Standard Bearer
Dr. Hogg	President	Victoria
Elton Pine	Prince of Wales	Wizard of the North
Filbert Pine	Princess Alice Maude	Wonderful

Price 5s. and 7s. 6d. per 100.

NEW CONTINENTAL VARIETIES.

Bonté St. Julien	La Châlonnaise	Sabreur
Boule d'Or	La Petite Marie	Topsy
Duc de Malakoff	Lecoq Pine	La Belle Bordelaise
Globe	Marguerite	De Versailles
Gweniver	Napoléon III.	Janus

Price 10s. 6d. to 15s. per 100.

JAMES CARTER AND CO., Seed Merchants and Nurserymen, 237 and 238, High Holborn, W.C.; and Crystal Palace Nurseries, Forest Hill, S.E.

SEEDS for PRESENT SOWING.

Orange Jelly Turnip	Whitestone or Stubble Turnip
White Globe ditto	Devonshire Greystone ditto
Altrincham Yellow ditto	Mustard
Trifolium incarnatum (crimson Clover)	Winter Rape
	&c., &c.

Newly-harvested Seeds of the above now ready. Orders to the value of £2 or upwards delivered carriage paid.

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Magnificent New Plant,

GESNERA EXONIENSIS.—This is acknowledged by all who have seen it to be the finest winter-blooming plant ever yet offered. The colour of the flowers is an intense orange-scarlet; the leaf is of a dark velvety texture, studded with minute red hairs like plush; nothing can be imagined more brilliant than the mass of bloom, which, when well grown, is 20 inches through. Fine tubers, that will bloom this year, at 5s. and 7s. 6d. each, sent free by post.

LUCOMBE, PINCE & Co. respectfully beg to call attention to their unsurpassed strain of CINERARIA SEED, embracing the most magnificent varieties, whether for compactness of habit, variety, richness of colour, abundance of bloom—is unequalled. Saved this season from the finest flowers, which have been the admiration of all who have seen them. Price 2s. 6d. per packet.

Superb New Late GRAPE, MRS. PINCE'S BLACK MUSCAT, may now be seen in full perfection. This is acknowledged to be the finest Grape extant. Splendid Canes, now ready for immediate planting, 7s. 6d. and 10s. 6d. each. Fine planting Canes of other kinds, a List of which can be sent on application.

L., P. & Co. also call special attention to their fine stock of TURNIP SEEDS.

Genuine Seeds of all the best kinds may be had at the lowest possible cost. PRICED LIST on application.

Exeter Nursery, Exeter.

New and Choice Flower Seeds, Post Free.

B. S. WILLIAMS,
SEED MERCHANT AND NURSERYMAN,
Victoria and Paradise Nursery, Upper Holloway, London, N.

	Per packet.—s. d.
WILLIAMS' SUPERB STRAIN of PRIMULA.—B. S. W. can with confidence offer his superb strain of Primula as being the finest in cultivation.	
Red, White, or Mixed .. .. .. 2s. 6d., 3s. 6d., and	5 0
CINERARIA, Weatherill's choice strain, the best in cultivation .. .. 2s. 6d., 3s. 6d., and	5 0
CALCEOLARIA (Neill's extra choice strain), 2s. 6d., 3s. 6d., and	5 0
„ (Dalkeith Palace strain) .. ..1s. 6d. and	2 6
CARNATION, from Prize Flowers	1 0
CYCLAMEN (Wiggins' prize strain) .. 1s. 6d., 2s. 6d., and	3 6
POLYANTHUS (Wiggins' prize strain) .. .. 1s. 6d. and	2 6
CLIANTHUS DAMPIERI (fresh imported seed)	1 6
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SOLANUM (Weatherill's hybrids).—B. S. W. was awarded a Special Certificate for a Collection exhibited before the Floral Committee, December 15, 1868 2s. 6d., 3s. 6d., and	5 0
ECHEVERIA METALLICA (new Bedding plant)	2 6
HOLLYHOCK, from the best named sorts..	1 0
PANSY, from prize flowers	1 0
„ finest Belgian varieties	1 0
PINK, Double-fringed, very fine	1 0
PICOTEE (from prize flowers)	1 0
WEET WILLIAM, Hunt's Auricula-eyed .. 6d. and	1 0
OXALIS VALDIVIANA, quite hardy, the flowers are bright yellow and sweet scented, and produced in bunches of large size (new)	1 0
MYOSOTIS AZORICA ALBA, the flowers are pure white, contrasting beautifully with the blue variety Cœlestina (new)	2 6
MYOSOTIS AZORICA var. CŒLESTINA, beautiful sky blue	1 6
ANTIRRHINUM ASARINA, very beautiful for rockwork (new)	1 0
VIOLA LUTEA (yellow-flowered Violet) .. .. 1s. 6d. and	2 6
TACSONIA VAN VOLXEMII, a beautiful greenhouse climber	2 6
WALLFLOWER (Saunders), fine dark variety	1 0

Victoria and Paradise Nursery, Upper Holloway, London, N.

NEW HYBRID PELARGONIUMS,

WILLSII, and WILLSII ROSEA.

Undoubtedly the finest NOVELTIES of the season. Numerous CERTIFICATES and FIRST PRIZES have been awarded by the Royal Horticultural Society, Royal Botanic Society, &c.

J. W. WIMSETT has much pleasure in announcing that the above splendid Novelties will be ready for sending out the first week in August.

Willsii, a Guinea and a half each. | **Willsii rosea, Two Guineas each.**

ASHBURNHAM PARK NURSERY, KING'S ROAD, CHELSEA, S.W.

July 21. J. WILLS, F.R.H.S., Manager.

CUBA BAST,

OF FIRST-CLASS QUALITY. PRICE ON APPLICATION.

PETER LAWSON AND SON,
20, BUDGE ROW, CANNON STREET, AND SOUTHWARK STREET, LONDON; AND EDINBURGH.

BROMUS SCHRÆDERI.

PETER LAWSON & SON

WISH TO DIRECT THE ATTENTION OF AGRICULTURISTS TO THE FOLLOWING.

THE value of this fine Grass is not sufficiently known. We find that when sown with Trifolium incarnatum and Winter or Spring Tares, its nutritive qualities as a forage plant materially assist the others, and make a most acceptable food for cattle. Its stiff erect growth also acts as a support to the Tares, and is in this respect, as well as being a superior feeding plant, preferable to Wheat, Beans, or Rye; it is perfectly hardy, and thrives well during the winter in almost all situations.

On wet lands, where it is sometimes difficult to get good crops of Grass, BROMUS SCHRÆDERI flourishes, and can be repeatedly mowed for consumption, whilst it is invaluable on dry soils for grazing during winter when there is a scarcity of Rye Grasses.

It can be sown in March, April, or May, and in August or September, and should be drilled, say from 40 to 50 lb per acre, if sown alone.

RICHARD HEADLY, Esq., *of Stapleford, near Cambridge, writes, July 16th, 1869*:—"Bromus Schraderi should not be grown on a very large scale by itself, as it requires a quantity of manure to grow it very fast, and give you three or four cuttings in the season. Stock of all kinds are very fond of it, and will leave any other food. It is very desirable to grow an acre or two of it, as when cattle are ill or weakly it is a capital food for them—in fact, to a certain extent, it ought to be grown by every possessor of stock. I sow mine in drills 1 foot apart, but it will do better 18 inches apart, particularly on good soils. I draw the drill with a hoe, and sow by hand, and as early in the spring as the land will work. Some people drill it with a machine, but I dislike that plan, as it does not sow it regularly."

TRIFOLIUM INCARNATUM, New Seed.	FRENCH ITALIAN RYE-GRASS SEED.
WHITE MUSTARD SEED.	TURNIP, select stocks for autumn sowing.
DWARF ESSEX RAPE SEED.	WINTER TARES.

Samples and Prices of above on application.

20, BUDGE ROW, CANNON STREET, AND SOUTHWARK STREET, LONDON; ALSO AT EDINBURGH.

CARTER'S PRIMULA, CALCEOLARIA, and CINERARIA.
J. C. & Co.'s strain of Calceolaria is saved from plants that were awarded a 1st Prize at the late International Show. The Cinerarias and Primula stocks are also saved from the finest Prize Varieties, and cannot be surpassed.

CALCEOLARIA and CINERARIA.

Per packet—s. d.		Per packet—s. d.	
Calceolaria, finest hybrid ..	2 6	Calceolaria, Dobson's strain..	2 6
,, ,, spotted ..	2 6	Cineraria, extra fine	2 6

PRIMULA.

Per packet—s. d.		Per packet—s. d.	
Primula, choicest mixed, fringed	2 6	Primula, choicest white fringed ..	2 6
,, ,, dark carmine, fringed	2 6	,, ,, Fern-leaved carmine	2 6
,, ,, rose fringed	2 6	,, ,, white ..	2 6

CALCEOLARIA INTERNATIONAL PRIZE.—The Seed of this superb strain cannot fail to produce splendid varieties, as last season's plants took 1st Prizes wherever exhibited. Per pckt., 2s. 6d.
PRIMULA FIMBRIATA (New scarlet) —This is a decided novelty, being of a deep scarlet colour, and cannot fail to be much admired wherever grown. Per packet, 2s. 6d.
INDIA-RUBBER HOSE at Manufacturer's prices, 60 feet (with complete fittings), 25s.
JAMES CARTER AND CO., The Royal Seedsmen, 237 and 238, High Holborn, London, W.C.

Choice Flower Seeds for Present Sowing.
DOWNIE, LAIRD, AND LAING have the pleasure of offering the following choice Flower Seeds :—
CALCEOLARIA, Hybridised, saved from a superb First Prize Collection, 2s. 6d., 3s. 6d., 5s. per pkt.
CINERARIA, extra choice, saved from an unequalled assortment of named flowers, 1s. 6d., 2s. 6d., 3s. 6d. per pkt.
HOLLYHOCK, extra fine, saved from our own magnificent collection, in 12 colours, 5s. per collection.
HOLLYHOCK, extra fine, saved from our own magnificent collection, mixed, 1s., 2s., 3s. 6d. per pkt.
PANSY, Show, saved from our unrivalled Exhibition Flowers, 1s., 1s. 6d., 2s. 6d. per pkt.
PANSY, Fancy, saved from a selection of the most beautiful colours, 1s., 1s. 6d., 2s. 6d. per pkt.
PRIMULA, Fringed (Red and White), saved from the finest strain in cultivation, 2s. 6d., 3s. 6d., 5s. per pkt.
PRIMULA, Fern-leaved (Red and White), saved from the finest strain in cultivation, 2s. 6d., 3s. 6d., 5s. per pkt.
Stanstead Park, Forest Hill, London, S.E. ; and at Edinburgh.

The Gardeners' Chronicle.
SATURDAY, JULY 31, 1869.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, Aug. 3 { Royal Horticultural (Fruit and Floral Committees), at South Kensington .. 11 A.M.
{ Ditto (General Meeting) .. .. .. 3 P.M.

WE have often had occasion to comment on the backward state of VEGETABLE PHYSIOLOGY in this country. Other branches of botanical science have their representatives here, but with few exceptions there is scarcely a botanist who has turned his attention to this department. Much as LINDLEY enriched other departments with his own personal researches—greatly as he aided horticulture by his application of the principles of vegetable physiology, as known at the time at which he wrote, to the details of practical routine, his reputation in the future will assuredly not rest on his personal contributions to vegetable physiology in the restricted sense in which we here use the term. The fact is that, so far as its application to practice goes, vegetable physiology is in much the same state as therapeutics are to medicine. The foremost physicians now-a-days have acquired a marvellous insight into the symptoms and consequences of diseased action. They are enabled to ascertain the actual condition of a sick man—to predict the probable course of his malady—to say with something next to certainty what appearances will be presented after death. They know, too, what will in all probability be the immediate effects of the drugs they administer. But when it comes to a question as to how those drugs produce their peculiar effects, or as to what will be the effect of their prolonged administration on the disease, they are for the most part utterly at a loss. They can do much to alleviate, more to prevent disease, but to control it, in the sense in which an excellent practical gardener the other day used the term, is, in the majority of instances, quite beyond their power.

The application of what is known in vegetable physiology to practical horticulture is in an equally unsatisfactory condition. Plants are analysed, their composition is ascertained, water is tested, the nature of soils and manures accurately determined; and what then? We have got results valuable enough in a chemical point of view, it is true, but we want something beyond this. We have the plant itself as a machine in action to consider. Let us explain our meaning: an excellent gardener asserts, that lime is as injurious to Vines as sand is beneficial. Assuming the fact to be as stated, will any mere chemical analysis of the dead plant (the process of analysis, of course, implies the death of the plant), any investigation of the soil, give the reason for this fact? It may do so, but we venture to think that the probability is that it will not, and this because the experience of other practitioners, under different circumstances, is different from that of Mr. CRAMB. Certainly no one who has seen a French or a German vineyard would infer that lime was injurious to the Vine.

We turn to another subject. We are told by another excellent gardener—whose opinion, and justly so, is valued in the highest degree among his colleagues—that the immediate effect of pruning is the encouragement of a greater supply of sap to flow towards the parts that are left. The results that follow such an operation are no doubt such as to render this explanation plausible, but is it true? We do not say that it is not, but we ask by whom, and how, this alleged greater flow of sap to an amputated branch has been tested and guaged? Which sap is it that flows to the wounded part? Is it crude sap just pumped up from the roots? Is it elaborated sap?—if so, where does it come from? If you mutilate the top, does not the root suffer in proportion? Till these and a score of similar questions are satisfactorily answered, we must consider such statements in the light of plausible hypotheses, and nothing more. One class of observers see results and have to deal with them; seeing them daily they are naturally inclined to guess at causes for these results, without stopping to inquire whether or no they are correct in their surmises. Another class of observers make it their business to search after causes, and often miss their mark because they are imperfectly acquainted with results, which lie so close under their eyes that they fail to see them.

THE following extract from a letter sent from Bangalore last October will be the best preface to the subsequent observations :—

"I am trying an experiment to grow MUSHROOMS from WHITE ANT-NEST SOIL, and will send you a note of the result. Indications of success are apparent. Would you obligingly publish a memorandum on the culture of Mushrooms for a new country where *cultivation* of them is unknown, but where several useful kinds grow in the month of September (our dampest month). I am making beds for trial, and getting the soil where they grow spontaneously brought in; but one cannot persuade the natives to try a new thing till they see some indication of success. The very simplest elementary rules would be best in a very short article, and we will try to apply Western experience, and the condition of soil and climate here. I believe we shall introduce the culture of Mushrooms in spite of apparent difficulty."

The common Mushroom occurs in almost every part of the world, where the temperature is not so cold as to destroy the spawn; and there are a variety of forms or species in tropical or subtropical countries, many of which are doubtless excellent for food. Some ten or more such forms occur in Ceylon alone; and perhaps if the continent of India had been as carefully investigated as Ceylon has been by Mr. THWAITES, they would be found to be scarcely less numerous there. Cultivation, indeed, has not hitherto been successful with any species except the true Agaricus campestris, of which several varieties, however, appear from time to time in our Mushroom beds. Spawn of Agaricus arvensis has been carefully collected and packed, but experiments as to its propagation have hitherto failed. We are, therefore, somewhat doubtful as to success in India with other marked forms or species, though the experiment is well worth a trial.

We should recommend in the first place the importation of some good artificial spawn, though we are not certain that it would retain its vegetative powers on transmission. We received many years ago some spawn of a very superior variety from Australia, which was put under the care of Mr. J. HENDERSON, one of the most excellent cultivators we had ever the pleasure of knowing, but its vegetative powers seem to have been lost, as it never made an attempt to run. Spawn, again, taken from the field, is far from being uniformly successful. We should recommend, therefore, in preference, the collection of the dung of horses, placing it in a large heap by itself, under a shady place, and turning it once or twice to prevent it getting sodden. The heavy rains of India might, however, prevent the dung getting into a favourable condition for the development of spawn; it might, therefore, be well to place it under an open shed, in which case it might require occasional watering. When the dung is found to be full of spawn, it may be used exactly like artificial spawn, mixing it well with the proper soil, without breaking it up too much, taking care that the substratum of soil is well drained, and modifying the treatment according to the necessities of the climate. Experience alone will show whether a cellar or a shed is most conducive to complete development. There should be a thin layer of fine soil over the spawn, and a covering of hay or some other substance would probably in some cases be necessary. Many worse insect plagues would possibly have to be contended against, than in our own country.

It would be necessary to observe whether the Fungi which it is required to propagate spring from horse-dung or from that of other animals. A kind of Sphæria grows very commonly on elephant's dung, but we are not aware that it yields any esculent Fungus.

As regards ant-nest soil, there is a species of Podaxon which grows very commonly upon it, which may possibly be esculent in the young state, when it somewhat resembles young Coprinus comatus; but we have no information as to any other Fungus which is developed upon it likely at all to be esculent. We shall be much pleased to know the result of this experiment, and to have specimens if any Fungi appear. *M. J. B.*

—— WE are glad to note that the ROYAL HORTICULTURAL SOCIETY'S MANCHESTER SHOW has proved more successful in a financial point of view than was at one time anticipated. The receipts, we are informed, were as follows :—July 19 (5*s.*), 99*l.*; July 20 (5*s.*), 240*l.* 5*s.*; July 21 (2*s.* 6*d.*), 539*l.* 2*s.* 6*d.*; July 22 (1*s.*), 352*l.* 11*s.* 8*d.*; July 23 (1*s.*), 286*l.* 17*s.*; July 24 (6*d.*), 128*l.* 10*s.*; tickets sold previously, 112*l.*; refreshment contractor, 100*l.*; making a total of upwards of 1857*l.* This amount would probably have been doubled had the Society received that countenance and support from royalty which it was led to expect, and which, indeed, was publicly announced. As it is, considering the overwhelming attractions of the Agricultural Show, the comparative inaccessibility of the flower show, and the roughness of the local arrangements, the financial results of the Royal Horticultural Society's third visit to the provinces are more favourable than could have been expected.

—— The Council of the Royal Horticultural Society has conferred on Mr. JOHN SHAW, of Bowdon, a 40-guinea Life Fellowship, in acknowledgment of the services which he had rendered to the Society in connection with the organisation of the Show just terminated at Manchester.

—— The 1st prize BOUQUET at Manchester, exhibited by Mr. YATES, was so remarkable for its simple beauty as to call forth the special commendations of the chairman of the general meeting held on the 20th inst. Much of its effectiveness was due to the sparing introduction of single blossoms of a white-flowered Pancratium, set a little prominent in reference to the other flowers, in which position the narrow recurving perianth segments had a most graceful and charming effect, while the cup was not sufficiently projected to appear obtrusive. This element, combined with the choice character, tasteful arrangement, and well-chosen colours of the other flowers, no doubt won for Mr. YATES' bouquet the position it so worthily occupied in the prize lists.

—— Mr. WILLIAMS exhibited at Manchester a new form of Todea, which is to bear the garden name of TODEA INTERMEDIA, indicative of its appearance, which is exactly intermediate between that of T. hymenophylloides (pellucida) and T. superba,—sufficiently so to suggest the idea that botanically these plants may form but one species. The plant had been imported amongst others from New Zealand. It has the stalked fronds of T. hymenophylloides, while the lamina, instead of being plane, is frilled after the manner of T. superba, though in a less degree.

—— One of the most interesting exhibitions at the recent Manchester Show, and one but briefly alluded to in our report at p. 792, was a collection of GRAPES, from Dalkeith, illustrating the effects of the application of BOTTOM-HEAT to the roots of the Vines. The collection consisted of White Frontignan, Grizzly Frontignan, Muscat of Alexandria, Reeves' Muscadine, Rivers' Muscadine, Chasselas Napoléon, Black Alicante, and Royal Muscadine. They had all been cut from one house; had all been planted in May, 1868, chiefly from eyes of that year; and had all been subjected to a bottom-heat from piping placed under pavement, varying from 90° to 105°, except in the case of one Vine, a Royal Muscadine, which had had no bottom-heat. Though under equal circumstances this latter variety would have preceded the Muscat in ripening by at least two months, its fruit, under the conditions above indicated, was not so much matured when exhibited the other day as was that of the Muscats grown in the same atmosphere but with bottom-heat in addition. This is a striking fact in support of Mr. THOMSON'S views.

—— From a schedule now before us of the Royal Society of Horticulture and Agriculture of Tournay, which this year celebrates its second jubilee, or its 50th anniversary, we learn that a great INTERNATIONAL HORTICULTURAL and POMOLOGICAL EXHIBITION is to take place in that town, from the 12th to the 15th of September next. The schedule extends to 183 classes, divided into five sections, viz., pomology (fruits and fruit trees), 61 classes; horticulture (ornamental plants), 61 classes; cut flowers (Roses, Dahlias, and bouquets), 30 classes; garden requisites (vases, aquariums, tools, &c.), 10 classes; vegetables and cereals,

21 classes. The attention paid to fruit-culture, as well as plant-culture in Belgium, is well known, and hence the Tournay meeting may be expected to be one of the most interesting horticultural gatherings of the ensuing autumn.

—— We are glad to record that on the occasion of the meeting of the Royal Horticultural Society at Manchester, his GRACE the DUKE of DEVONSHIRE treated the whole of the young gardeners and labourers employed in the gardens at Chatsworth, to the number of upwards of 60, to Manchester to see the exhibitions, his Grace paying the whole of their expenses.

—— In a recent number of the "Bulletin de la Société Botanique de France," M. ADOLPHE TOCQUAINE describes a curious ANOMALY in the STEM of ABIES PECTINATA. The trunk of the plant in question had attained a height of between 6 and 7 feet without producing a single lateral bud. The diameter of the trunk (about an inch) is nearly the same at the top as at the base. Each year's growth is marked by an annular cicatrix, of which there are sixteen. The leaves remain only on the shoots of the year and of the preceding one. This constant suppression of the lateral buds is a very singular phenomenon in such a plant. What excellent hop-poles such trees would make.

—— Under the name of LOOKER'S PATENT EARTHENWARE PROPAGATING BOXES, we have received a specimen of a box intended for raising or forcing any kinds of seeds, plants, or cuttings. The boxes, or pans, are made of ordinary pottery-ware, of any required shape or size. The top of the boxes is made slightly sloping, with a groove in which a piece of glass is fitted to slide. These boxes will be useful to those who do not possess a greenhouse or forcing-pit, and they will be found serviceable for the separate growth of choice seeds and cuttings within all glass buildings. In principle they seem nearly identical with RENDLE'S Plant Protectors. The value of this invention depends to some extent upon the cost at which they can be retailed, as a common seed-pan with a glass cover would answer the purpose equally well.

New Plants.

ONCIDIUM HYPHLEMATICUM, *sp. n.*

Panicula laxa; sepalis ligulatis acutis margine repando-undulatis; petalis subæqualibus; labello cuneato utrinque angulato, antice reniformi cum apiculo, basi quinque lamellato, lamellis externis abbreviatis, internis longioribus antice retusis; columnæ alis quadratis, buccis semiovatis.

Rhizoma paulo ascendens, radicans. Pseudobulbi vetusti ancipites oblongo ligulati depressi utrinque per discum tricostati, monophylli. Folio oblongo lanceolato apice obtuse acuto inæquali, sessili, a foliis duobus vaginatis stipati, cum vagina articulatis, circa vaginam liberam scariosis, lamina brevioribus. Pseudobulbus junior minor exacte costatus. Pedunculus longe exsertus viridis teretiusculus plurimis atropurpureis, multivaginatus, vaginis acuminatis arctis, supremo ramuloso; ramuli valde breves racemos unifloros seu bifloros sistentes. Ovaria pedicellata labello subæqualia; bracteæ triangulo scariosæ minutæ; sepala cuneato oblonga acuta valde undulato-crispa, castanea, limbo hinc luteo, extus etiam lutea et castanea, lateralia curvata divaricata; petala basi lata sessilia latiora, magis in disco maculata, ceterum æqualia; labellum a basi lata cuneatum, utrinque angulatum antice reniforme dilatatum, antice excisum cum apiculo, superne pulcherrime citrinum, infra purpureo-castaneum cum lacunis paucis pallide sulphureis; carinæ disci quinque laterales anteriæ, media elevata, omnes basi velutinæ. Columna citrina antherifera cochleata, glandula purpurea; alæ albæ, dolabriformi semiovatæ crenatæ; fovea oblonga limbata; tabula infrastigmatica utrinque obtuse angula.

We named this plant the first for Messrs. Backhouse, of York. It flowered later in Mr. Linden's nursery. It appeared in October of last year at South Kensington before the areopage of the Floral Committee, the specimen belonging to W. Wilson Saunders, Esq., and grown by Mr. Green. The beautiful colours won the hearts of the judges, who felt puzzled at the new name (bloody beneath), alluding to the flower being of a blood-red colour on the outside. Sometimes the plant takes the liberty of getting triandrous, thus breaking the old rules. It may come from Western South America, New Grenada, or Peru, or Ecuador. *H. G. Rchb. fil.*

CYPRIPEDIUM PARISHII, *Rchb. fil.*

Affine Cypripedio glandulifero, Bl.; pedunculo plurifloro; petalis longissimis apice obtusatis, lobulis pilosis hic inde circum sparsis in limbo (2—3 in quovis petalo); staminodio cuneato oblongo emarginato basi cornuto.

Cypripedium Parishii, *Rchb. fil. MS. in litt. ad Rev. C. Parish*; in *Hort. Kew*: in *Flora*, June, 1869. (The Elephant-crushed Lady's-slipper.)

Folia latissime lorata apice inæquali biloba, recurva. Pedunculus velutinus puberulus quinquetlorus secundiflorus. Bracteæ vaginatæ spathaceæ obtusæ ovario pedicellato velutino piloso breviores. Sepalum dorsale cuneato-ovatum acutum dorso unicarinatum. Sepalum inferius subæquale, minus, dorso bicarinatum. Petala ligulata, basi undulata, apicem versus angustata, apice spatulata velutina lobulis pilosis hic inde, 2—3 in quovis petalo. Labellum cuneatum canaliculatum unguiculatum, sacco utrinque abrupto angulato. Staminodium triangulum, antico bilobum, lobo utroque intus angulato, seu triangulo (nunc apiculo in fundo sinus), basi cornutum.

Leaves broad, ligulate, bilobed, recurved. Peduncle hairy, 2 feet long, bearing a 5-flowered raceme at its extremity. The bracts are triangular or oblong, blunt, much shorter than the villous stalked ovary. The upper sepal is cuneate-oblong acute, with one strong keel on the dorsal surface. The inferior sepal is smaller, and bent under the ovary, so that the two sepals stand very near one another. Both are nankeen coloured, with numerous darker veins, which are green outside. The petals are linear-ligulate, undulate at the upper part, blunt and hairy at the apex; the basilar part greenish, with numerous black or brownish shining dots, some of them being callous; the superior part port-wine coloured. The lip has the usual channeled unguis; the sac is conical, with two projecting angulate horns, and these have at their posterior base a triangular plate descending in the sac. The column is olive-green coloured. The staminode is triangular, bearing a horn at its base, two diverging teeth at its apex, green on the disc, white on the margin. The stigma is roundish. The flower is in shape like that of Cypripedium Lowii, but the petals are diverging, pendulous. The chief feature of the plant lies in its bearing two or three prominences on the sides of the petals, covered with hairs,—stars, if you like. Yet it is not the first Cypripedium with such decorations. The only species that comes near it, Cypripedium glandulif erum, Bl. (insigne Bl. olim, not of Wallich!), Rumphia, iv., 195, 198, which has similar stars. Yet our specimen shows that that species has straight leaves; the staminode is acute; and the petals are shorter and acute. It came from New Guinea, and may have been discovered by Zippelius, who was a very clever man, and whose manuscripts were much used after his death, though not with his authority.

Old celebrities, in the good old times, among the Greeks and the Romans, gave origin to mythical tales. That is the lot of our plant. Its discovery gave origin to the most mysterious tales, which were certainly not diminished in oddity by passing from one to another. We are indebted for a story of this kind to Mr. Wentworth W. Buller, but it is a very simple one, and is no doubt true; indeed we have been told much more surprising things than this. The fact is, that the Rev. Mr. Parish put his fingers on this celebrity near the Siamese frontiers, as he came from Burmah—we scarcely think he would be anxious to indicate the exact locality. But now the myths begin. Mr. Parish was in the company of one, or of two (according to "W. W. B."), or of three, or of four, or of a herd of elephants. And whether one, or a herd—all authorities are unanimous that all the elephants had loads of Orchids, lots of new Vandas, Phalænopsids, Aerides, new genera, numberless Dendrobes, and our Cypripedium. On the return to Moulmein the animals got ill-tempered; whether because they did not get a dram, or because they were frightened in a narrow path in a forest, we are not sure, but the latter our just quoted authority declares to have been the case. Now the elephant, or the elephants, threw off their loads and danced, either a *pas seul*, or a polka, or a quadrille, or a grand ballet dance, on the poor plants. There has seldom occurred such a devastation of the most wonderful materials, and though we have seen many laugh at the funny tale, we may add that it must have been a very melancholy sight for the collector to see the effect of such hard work destroyed, particularly as he is such an ardent lover of good plants. After all, the discoverer, who had spent, as we hear, a very long time during his trip before he found good things, saved but very few plants. We believe we have seen nearly all. The strongest plant was Mr. W. Buller's, who sent it to Messrs. Veitch; a good specimen is at Kew Gardens; one we saw some time ago at Mr. Day's; one at Mr. Sigismund Rücker's, and we believe one is in the Dawsonian collection.

We are indebted for a highly interesting letter on this wonderful plant to Wentworth W. Buller, Esq. We have to thank Messrs. Veitch for a fresh flower and for a very well executed sketch of the whole plant. The novelty was long since expected by us, and yet it came quite a *deus ex machina*. *H. G. Rchb. fil.*



ON THE IMPROVEMENT OF PLANTS

BY SELECTION, HYBRIDISING, AND CROSS-BREEDING, HAVING SPECIAL REFERENCE TO THE HOLLYHOCK AND THE ROSE.

[Read at the Manchester Congress, July 21, 1869.]

THERE are two important methods of procedure open to him who may wish to engage in the modification, or improvement of plants. 1, selection; 2, hybridising and cross-breeding. The first method, "selection," is exceedingly simple, and may be successfully followed by any one who possesses or who may acquire the habit of observing correctly. The second method, "hybridising and cross-breeding," is more complex, and requires, in addition to the habit of observing correctly, an acquaintance with at least some of the laws of vegetable physiology. In adopting the former, we seize upon certain variations or phenomena which we meet with in Nature, and endeavour to "fix" or render permanent that which we are accustomed to call accidental; in pursuing the latter, we start with a conception which we labour to convert into a fact. To the mere man of business, selection is usually the more attractive; the method is more suitable to his habits of thought and practice; but to the scientific mind hybridising or cross-breeding are usually more inviting, and the results more satisfactory. To both methods are we largely indebted for improvements in the vegetable kingdom, and it would be exceedingly difficult, perhaps impossible, to say how much we owe to the simple process of selection, and how much to the more complex and scientific labours of the hybridist.

It will be my purpose to-day to place before you, as fully and clearly as I can, a few instances of improvements by both processes, drawing, as far as practicable, from my own observations and experiments.

First of selection. It is well known to observers in this field that most plants, and especially cultivated plants, when raised from seed, are prone to vary:—

> "The earth was made so various, that the mind
> Of desultory man, studious of change,
> And pleased with novelty, might be indulged."

We sow a handful of seed, and in some cases scarce any two of the young plants which arise therefrom, prove absolutely identical; there is a difference in size or appearance, in form, colour, or texture. This shows an inherent capacity of progress or development. It is more marked in cultivated than in wild plants, and the tendency increases under cultivation; yet it appears in both states. Among wild plants I have met with no more striking example than that of the Lychnis diurna, which grows plentifully in the hedge-rows surrounding my nurseries at Waltham Cross. The flowers of some of these self-sown plants are much larger than others, some are of a deeper colour, and some of a smoother aspect and more rounded form. The habit of growth of the different seedlings also varies greatly; the Dog Rose (Rosa canina) is another case in point. Examples of this fact are, however, plentiful enough in Nature, and might be adduced almost without limit if required. But it is only by selection and cultivation that the most attractive forms of these natural variations can be fixed and turned to practical account. The advanced Lychnis, if neglected and allowed to seed in its native wilds, would probably produce offspring for the most part similar or inferior to itself, except rarely and at long intervals of time. If, however, removed to a superior soil, more highly nurtured, and the seeds gathered from the most attractive plants only, the improvement would probably go on gradually but regularly from generation to generation.

To elucidate further the principle and results of selection, let us suppose an intelligent agriculturist observing in his Wheat-fields some individual plant of Wheat more vigorous in growth, or more prolific, longer, stouter, and fuller in the ear than those by which it is surrounded. He wishes to retain this variation, knowing that if he can succeed in so doing he will thereby increase his crop. He sets a mark upon this plant, saves and sows the seeds separately, selects again and again, from year to year, those most in advance, be they few or many, until the variation first noticed has become constant and fixed, and perhaps even further developed. This process of selection usually requires to be pursued through several generations, some of the individuals from each successive sowing continuing to advance on the line first indicated, and the whole drawing closer together, till in the end he establishes the purity or constancy of the race. Once established or fixed the variation will remain an improved race or breed, and if the individual plants composing it are not absolutely identical, they are yet sufficiently so for practical purposes. In this instance we have supposed a case of selection for a prolific tendency, but the same principle may be applied to any other desired improvement, as quality of grain, earliness or lateness of ripening, quantity or quality of straw, and so on. Or, to take other instances from agriculture. The farmer observes among his Mangel Wurzel a plant remarkable for the large size of the root and the small size of the top; among his Turnips a root that has stood the frost uninjured, while others surrounding it have been materially damaged; he selects the Mangel with the view of increasing the weight of his crop without drawing too much from his land, the Turnip for the sake of obtaining a hardier race of this valuable root, and follows up the process of cultivation already described until he fixes the recognised and coveted features.

As with the agriculturist so with the market gardener, whose superior vegetables are in great part due to the judicious selection of the individual plants from which he saves his seed. Perhaps half-a-dozen of the whitest and closest heads of white Broccoli are selected off many acres as the source of the crop for the ensuing year; and other vegetables and flowers—as Onions, Cabbages, Lettuces, Stocks, &c.—are subjected to the same careful process of selection.

To continue: our seed-growers work on the same principle, although in place of leaving a few only of the best, the quantity of seed they require compels them to rest satisfied with eradicating a few of the worst only, and the value of their crop of seeds is, or should be, in proportion to the thoroughness of the selection, or, as the growers term it, the purity of the stock. If in the Bill on the adulteration of seeds, now before Parliament, a clause could have been inserted ensuring the purity of the stock, I should have considered that by far the most important part of the measure.

I have intentionally given prominence to the above cases, because I believe the farmer, market gardener, and seed grower, whatever attention they may be giving to cross-breeding now, have in the past derived their improvements chiefly, if not entirely, from selection; whereas, the horticulturist has been for many years past working more or less ardently in both fields. There has, however, I believe, even with him, till recently been but little hybridising or cross-breeding with vegetables; more, perhaps, and for a longer period, with fruits; and most of all, and for the longest period, with flowers.

The vegetables and flowers which I have improved by selection merely are somewhat numerous; among the former, Parsley and Brussels Sprouts.

Parsley was the first plant I endeavoured to improve by selecting for seed one or two individual plants from a large bed, the unusually double or curled leaves of the selected plants having pleased my fancy. The result was so striking in the following year that I was encouraged to persevere, and did so from year to year with increasing success, until Paul's Parsley became household words. Brussels Sprouts, the seed of which it was considered necessary in those days to import from the Continent, was the next plant taken in hand, and I proved over a series of years, to my own satisfaction at least, that it was neither the Continental soil nor air, but the practice of a rigorous selection, that gave to the Continental seed an acknowledged superiority.

The Aster was the next plant taken in hand, and with the same results. Stocks, Pansies, Roses, Cinerarias, Hollyhocks, Zonal Pelargoniums, Chinese Primulas, and Polyanthuses were taken up in due succession, similarly dealt with, and similarly improved.

The Hollyhock would seem to demand at my hands more than a passing word. To the improvement of the flowers of this plant by selection I gave long and close attention from the year 1853 to 1857. Let me submit to your notice some of the results of the sowing of seeds from selected plants without the interposition of artificial fertilisation. The variety Gloria Mundi (yellow) gave Sulphurea perfecta, Argo, El Dorado, Queen of the Yellows, and King of the Yellows, all yellow flowers; and Charles Barron, buff. El Dorado, a smooth yellow flower, gave yellow flowers only, bright in colour, but rough and irregular in form. Lady Willoughby d'Eresby (cream colour) gave a lot of rough dirty whites. Lady Franklin (deep pink) reproduced itself, and also gave sundry good rose-coloured flowers. Lady Palmerston (blush) gave a very fine brood of peach-coloured and pink flowers. Purple Defiance (purple) gave a rough lot of purples. Attraction (pink) gave a fine brood of pinks. Princess Royal (cream and chocolate) gave a rough lot of dirty cream and chocolate-coloured flowers. Crusader (pink) reproduced itself, and also others of similar colour, varying in form. Celestial (blush) reproduced itself, and various shades of blush of superb quality. Memnon (a fine crimson flower) produced regularly some plants bearing crimson, and others bearing purple flowers. Omar Pacha (cream edged with white) reproduced itself. A purple seedling of good form and substance gave some purple and some blush-mottled flowers of very indifferent quality. A salmon-coloured seedling of fine quality gave flowers of the same colour, but of indifferent form. A fine dark shining crimson seedling gave flowers, orange, fawn, and buff, of middling quality, but no crimson. A white-edged seedling gave flowers like the parent, but as a rule not so good. A fine rosy peach-coloured seedling gave rubbish. A nankeen-coloured seedling reproduced itself almost without variation. A pure primrose seedling of very high quality gave some primrose-coloured flowers and some primrose with dark base, usually inferior to the parent. A French white-veined seedling gave a lot of prettily and variously veined flowers. An orange-buff seedling gave also some few prettily veined flowers among many very rough ones, of the colour of the parent. A fine purple seedling gave purple, marbled, maroon and lilac flowers, all of superior quality.

Now it might appear at first sight that the above results militate against the theory of improvement by selection merely. But it is not really so. It must be told that the above is a record of general results only. In most cases few or many individuals might have been selected in advance of the parent. Let it further be remembered that this is the result of one year's growing only, and it certainly proves that a variation cannot always be fixed by a single effort, which we are perfectly free to admit. It shows also the tendency of the mass of seedling plants raised from cultivated or advanced varieties to revert to a less civilised state. It shows further, that a variation once obtained, new ground once broken, often proves a fertile source of further variation and advancement. But of this I shall give an example by-and-by. Now I do not think that the variation in colour recorded in some of the above cases was due to fertilisation either by insects or other instrumentality. But it might be so. I merely express an opinion on this point, founded on the fact that the progeny of some varieties varied but slightly throughout successive annual sowings, whereas that of others varied greatly. The inference I should draw would be, that some variations are capable of a more rapid development, some are more sportive, and some more readily fixed than others.

It will be further inferred from the above facts that the finest flowers do not always produce the finest progeny. And I have found this circumstance corroborated in dealing with other plants. Certain individual sorts furnish a fine brood; others, apparently equally good sorts, an indifferent brood. Sometimes a flower or fruit of indifferent quality will produce a high-class progeny, and a high-class flower or fruit an inferior progeny. The whole question is, I admit, beset with difficulties, and offers a fine field for observations and experiments. The exceptions to the rule, that the best flowers proceed from the best parents, are numerous. Notwithstanding, unless we possess special knowledge we cannot do better than work upon this rule, for, if we reject it, we have nothing so good to put in its place.

One word as to the special knowledge just alluded to. Now and then a variation, peculiarly fitted for the work of progress, will arise. Many years ago, a Pansy, named Queen Victoria, raised by the late Mr. Thompson, of Iver, proved of this character; and more recently the Roses Général Jacqueminot, Jules Margottin, and Victor Verdier, may be taken as prominent instances. From these in their day, and for a certain period, many more good flowers were raised, than from all others of the period put together. Now, if one acquires this special knowledge, there is sure ground to work on. But I know of no law by which this quality of a plant can be determined in advance. In the present state of our knowledge, I conceive that it can only be ascertained by observation and experiment.

I have raised many thousands of seedling Hollyhocks, Roses, Zonal Pelargoniums, and other plants, simply on the principle of gathering the seed from the most advanced plants and flowers without any attempt at cross-breeding. My success under this method of proceeding has been greatest with Hollyhocks, as I could claim at one time (about 1857) the finest Hollyhock of almost every colour as of my production. This I account for by the fact that the subject was a good one for experiment. Although a flower long known to us, it had not been long subjected to high cultivation, and was fully ripe for improvement. With the Rose the case was somewhat different. It had been experimented on by clever and industrious men in France for a number of years, and doubtless I was here traversing ground which some of them had exhausted long before. However, success here has not been altogether denied me, and to which I shall have occasion to allude by-and-by. Of Zonal Pelargoniums, I was fortunate enough to become the possessor of a remnant of stock left by the late Mr. Donald Beaton; and while many of the variations and improvements that have issued from my nurseries are the result of mere selection, others have been carefully and systematically bred. The Polyanthus is a flower with which I am now carrying on experiments, with the view of rendering it more available in spring gardening. Four years ago I selected certain colours from a bed of mixed seedlings, with the view of saving the seeds of each separately, hoping in time to be able to reproduce each colour true from seed. The first sowing produced all colours from each variety, and while subsequent sowings have done the same, yet each successive sowing brings a larger proportion of the colour of the parent; and I do not doubt that ultimately each variety will become fixed, that is, will reproduce itself true in colour from the seed.

With regard to the progress of improvement after selection, it would appear that the greatest progress does not take place when the variation is young. The most marked progress from a cultivator's point of view seems to occur when the variation has been some little time under cultivation, but before it loses the extra vigour not uncommon to selected variations. A case illustrative of this view has recently come under my observation. It is that of a plant of the Primula sinensis, which I recently exhibited before the Royal Horticultural Society, under the name of Waltham White. It is a white-flowered variety with red leaf-stalks (the white-flowered variety has commonly greenish white leaf-stalks). The growth is exceedingly vigorous, the plant bearing a huge pyramidal truss of large pure white flowers, of great substance. It is, in fact, a giant among Primulas, and a giant of goodly and fair proportions. Now nothing could have been more unpromising than the original variation from which this grand result has been obtained. It was a coarse weedy-looking plant, bearing rough misshapen flowers; but there were the distinct features of extraordinary vigour, and the red leaf-stalk. The first years' sowing from this plant produced more variation than improvement; the second more improvement than variation; and now, in the fourth year, the characters above described seem fixed, for all the seedlings raised from a choice pod of seed have bloomed so nearly alike in colour, size, form, and habit, that the variation may be fairly pronounced improved and fixed.

Thus far I have confined my remarks to the variation of plants from seed which appear to arise spontaneously, and are of everyday occurrence. But there are other variations occasionally taking place, which are known to cultivators under the name of "sports." Sports are variations from the leaf-bud rather than from seed, and I class them under "selection" because in their case man does not intentionally step in with the view of giving a turn to the workings of Nature. Cultivation may, and in many cases probably does, induce "sports," but cultivation is not deliberately pursued with that object. As an example of these we may instance the well-known case of the Nectarine, which was a sport from the Peach; that is, a branch of a Peach tree produced the smooth-skinned and otherwise different fruit known as the Nectarine. My first efforts at improving the Rose were made in 1843, and were induced by discovering a sport. I observed a branch and flower of the Bourbon Rose Proserpine, then recently introduced, of extraordinary vigour; the flowers were larger and somewhat lighter in colour than in the original; the leaves were of a lighter green, more obtuse, and destitute of the customary red nerves and red colouring round their circumference. This, which I believe I am right in speaking of as a sport, was nevertheless not a very marked example of this tendency. It was cultivated separately and fixed, but did not depart sufficiently from the original to be thought worthy of a new name, and was consequently sold as a superior variety of the Rose Proserpine. About the same time I observed a branch of the Rose du Roi, bearing pale flesh-coloured flowers. This branch was propagated, and the new colour fixed. When about to distribute this as a novelty, to my surprise I received it from France, under the name of Celina Dubos! Now, although I know nothing of the history of Celina Dubos as received from France, I yet know that it was identical with my sport, and I think it is reasonable to conclude that it originated in the same way. Also about the same time I observed a branch on the Rose Dr. Marx, producing leaves finely striped with gold; and a branch of the Bourbon Queen, with leaves beautifully variegated with white. Both of these sports were propagated and fixed. Of Roses, the Moss group is the most inclined to sport. I have, in days gone by, frequently seen two or three varieties of the Moss Rose growing on the same plant. I have seen the Baronne Prevost, which is naturally a double rose-coloured flower, produce striped flowers, and others nearly single. I have also seen Mrs. Bosanquet, a white Rose, produce a branch bearing red flowers.

But the most notable recent case of this tendency is that of the new double crimson Thorn; and this is remarkable in having been observed in two different places about the same time. It should be told, however, that both these plants had been purchased from the same stock. The particulars of one case are as follows:—A tree of the double pink Thorn had been planted in a garden some 15 or 16 years, when a branch was observed to have started away from the centre of the tree with unusual vigour. It flowered, and lo! the flowers were crimson instead of pink, presenting a

marked contrast to those on the lower part of the tree. The leaves, too, were of larger size, greater substance, and more deeply lobed. Young plants were propagated from this branch by budding and grafting, and the character was fixed.

A few words with regard to the fixing of variations or sports seem desirable here, and with that I shall close this part of my subject. We have seen that variations or sports are, when reproduced from seed, liable to vary greatly in character, with a general tendency to revert to the type. From the first sowing there will probably be but few like the variation, but by successive repetitions of the process of sowing and selecting the variation is at length fixed. It is thus that many of our races of annuals, as Asters, Stocks, Clarkias, Candytufts, Tropæolums, and the like, not readily propagated otherwise than from seed, have been obtained. But the process of fixing variations or sports from the leaf-bud is almost certain to proceed without interruption. You graft, bud, or make cuttings of the sported branch or plant, and the plants so propagated remain unchanged. *William Paul, Waltham Cross.*

(To be Continued.)

Home Correspondence.

Large Rhododendrons.—Seeing an account of a large Rhododendron at page 764, I send you the measurements of one growing on my lawn here. It is 37 feet 9 inches in diameter, 116 feet in circumference, and 11 feet 8 inches high. It is a mass of bloom every year, and can be seen from a great distance. *G. T. Meynell, Meynell Langley, Derby, July* 22.

Climate of Cornwall.—People greatly mistake the climate here: it is variable in the most superlative sense. The thermometer to-day (July 20) shows 20° less heat than yesterday at the same hour. I question if gardening in any other county is more difficult than here. We have summer and winter in one day. Yesterday the thermometer stood at 80° in the shade, last night 45°, with a brisk wind. In May and June last we had cold blighting winds with frost; nine years ago we had 23° of frost, which killed all our out-of-door plants. The mildness of the extreme point of the county (where the early Potatos, &c., are grown) is accounted for by the sea air constantly passing over it. The same reason explains why Mr. Smith at the Scilly Isles grows most of the New Zealand plants, Mesembryanthemums and Pelargoniums, into large bushes or shrubs. By-the-by, an account of this place would be interesting to many of your friends, and would show many evidences of the effect of sea air in warding off Jack Frost. *Henry Mills, Enys, Penryn, July* 20.

Humming-bird Moth.—I yesterday caught a variety of the humming-bird hawk moth, which I have not hitherto seen in those places where the more common variety is found. This is more truly a moth, as it flies at dusk in the evening, and its colours are of a soberer kind than those of the day one. Its dimensions are extraordinary: spread of the wings, fully 4½ inches; length of body nearly 2 inches; diameter of the body at thickest part, nearly ½ inch. Its colours are, brown on a dusky white ground, suffused with pink, and the body is barred across with brown on a similar ground. It has a proboscis like that of the day variety of the same, 1½ inch long, with which it evidently feeds on the wing; and it flies and hums before a plant just like the former. I should be glad to know whether similar moths have been observed by others, and also what is its proper name. *Alexander Boyle, Narberth, July* 16. [Surely not a variety of the Humming-bird Moth. EDS.]

The Vegetation of New Zealand, though rich and varied, and including many fine timber trees, is, if we except the so-called New Zealand Flax (Phormium tenax), comparatively little known as furnishing articles of British commerce. The country, however, abounds in plants which are in some way or another useful to the natives, and this was more especially the case before the colonisation by Europeans. The genus Cordyline was, and is still, included amongst the economic series; all the species are more or less valued for various economic purposes. The large "Ti," or Cabbage tree (C. australis), is, however, the most useful, for its roots, when cooked, furnish a regular article of food; the heart, or young inner leaves, which are blanched by closely growing together, are also eaten both in the raw and cooked states: besides this they are still used to some extent for plaiting into articles of clothing, mats, baskets, &c., as well as for thatching huts, for which purpose they are very durable. From the fibres of the leaves of C. indivisa—a handsome large-leaved plant growing on the mountains—very strong and heavy mats, used for clothing, are made, and are highly prized. The following notes on the Cordylines occur in a private letter from an old resident in New Zealand. Referring to a species, the name of which I am unacquainted with, he says:—"I have cultivated it since 1845, and have now 10 to 15 plants in my garden here (Napier), but it has never flowered. It throws up a thick Cabbage-like stem 4 to 5 feet high, nearly quite straight, with bark much smoother than any of its congeners, producing both suckers and shoots in plenty from root and stem, which grow readily when taken off and planted out. I never saw but this one plant, which in 1845 I obtained from an old native cultivator in this neighbourhood, but the old natives generally knew it well, and have often when in my garden asked me for it to cook and eat as a *bonne bouche*, with every symptom of mouth-watering over it! I have frequently inquired of them (in former years) respecting it. All knew of it as a thing of the past, like, alas! many other of their natural productions, viz., Broussonetia, &c., and I have heard it is still or was to be found at Maungatautau and at Upper Whanganni. But having the living plant flourishing, I am made sure of its flowering some day. Now that I have several, I shall keep down all the suckers and shoots, save the terminal one, of one of my best plants, and so try to get it to flower. My original one died long ago; it seems to get to a certain height, 4—5 feet, then throw out suckers, &c.; then the parent dies off. I have often had doubts as to its being really indigenous; certainly not, I should say, in the North Island. All the other Tis are eaten by the natives, roots and blanched heart-leaves; the large species, C. australis, is a perfect stand-by, or staff of life, in famine, as I have known and proved; but it is terrible labour to dig up its long tap-roots. I think I know of six, if not seven good species, all North Island ones." It will be noticed from these remarks that the native name of "Ti" is generally applied to all, or most of the species, and not to C. australis in particular. While we have New Zealand plants under consideration it may be as well to give another quotation from the same letter:—"Here in my garden, without any manure, Arthropodium cirrhatum flourishes remarkably well, so that many persons to whom it is known are scarcely able to recognise it. It is a most striking plant, growing like a huge Tussack—leaves 4½ inches wide and 4½ feet long, panicle and stem 4 to 4½ feet; flowers 1⅛ to 1⅜ inch diameter, while outside the garden, among the Ferns, its original habitat, it keeps its common size, which, however, is much larger than the Bay of Islands plant. I have a suspicion it may prove a distinct species." Arthropodium, like Cordyline, is a Liliaceous plant, a few species of which are cultivated in our greenhouses. *John R. Jackson, Kew.*

Honeydew.—A few words of explanation seem to be required from me, in reply to Mr. S. Bevan Fox, who says that he dissents from the opinion I have expressed, that all honeydew is caused solely by aphides. When I have explained my meaning, he will, I think, believe that our opinions do not differ much, our difference arising chiefly from the different senses we attach to the term honeydew. My remarks related only to honeydew proper; that is to say, that saccharine, viscid and vitreous-looking secretion, which has been so abundant this season upon Rose and Currant bushes, with which Lime, Sycamore, and other trees are at the present time glistening from being so copiously varnished, and with which also the objects under the trees, whether plants, stones, earth or pavement, are spotted and speckled. I did not mean the occasional, and much more rare and limited phenomenon of "exudations from the pores of the leaves," of which Mr. Fox speaks. These exudations are not properly honeydew, although they may sometimes resemble it. They will not be found to have marked the objects under the trees with minute speckles; should these fall in drops to the ground, the drops would be large, and very different from those of honeydew. In confirmation of what I have advanced, and by way of answer to Dr. Bevan, I will, with your permission, make a few short quotations from the "Rural Cyclopædia." "The most strenuous of all the erroneous opinions respecting the nature of honeydew assert it to be extravasated sap." "All correct physiologists justly regard honeydew as a thing of only one kind, as simply and solely that clear viscid saccharine substance which we described at the beginning of this article, and they naturally enough, and quite philosophically, assume it to proceed from only one cause." "Some observers appear to have misstated occasional or incidental watery exudation of the ordinary sap of plants for real honeydew." "Honeydew, unless in quite perverted senses of the word, is entirely the deposit of minute insects." "Aphides, in the opinion of many of the most eminent naturalists, are the sole producers of honeydew." "The aphides live wholly on liquid food, and discharge no solid excrement, and are provided not only with an anal vent, but with two long, hornlike rump tubes for ejecting such refuse or portion of their food as is unnecessary for their nourishment." As they may be interesting to your readers, I will also, if you will permit me, make some short extracts from the "Encyclopedia Britannica," from quotations there of the Abbé Boissier de Sauvages, one of the first discoverers of the true nature of honeydew, and one of those who first dispelled the popular delusion that it falls from the heavens like common dew. In speaking of true honeydew, he asserts "that it owes its origin to a small insect called a vine-fretter (or aphis); the excrement ejected with some force by this insect makes the most delicate honey in Nature." "The juice, at first perhaps hard and crabbed, becomes in the bowels of this insect equal in sweetness to the honey obtained from the flowers and leaves of vegetables." "The form of the drops drew my attention, and led me to the following discovery." "The leaves covered with these drops of honey were situated beneath a swarm of the larger black vine-fretters; and on observing these insects, I observed them from time to time raise their bellies, at the extremity of which there then appeared a small drop of an amber colour, which they instantly ejected from them to the distance of some inches. I found by tasting some of these drops that they had the same flavour with what had before fallen on the leaves. I afterwards saw the smaller species of vine-fretters eject their drops in the same manner. This injection is so far from being a matter of indifference to the insects themselves, that it seems to have been wisely instituted to procure cleanliness in each individual, as well as to preserve the whole swarm from destruction; for pressing, as they do, one upon another, they would otherwise soon be glued together and rendered incapable of stirring. The drops thus spurted out fall upon the ground, if not interrupted by leaves or branches, and the spots they make on stones remain some time unless washed off by rain." The Abbé then, referring to a seat under a Lime tree, which seat shone with honeydew drops, says:—"I was at a loss to conceive how so glutinous a substance could fall from the leaves in such small drops; for I knew that rain could not overcome its natural attraction to the leaves till it became pretty large drops; but I have since found the Lime is very subject to these vine-fretters." "Bees are not the only insects that feast upon this honey; ants are equally fond of it." "They place themselves near the vine-fretters in order to seize the drop the moment they see it appear on the anus." *A. Thompson.*

Grape Soils.—In p. 786 I have read with some attention the original remarks of Mr. Cramb, given in his paper read before the Manchester Congress. He says: "I only offer a protest against the presence of calcareous matter," by which I presume he intended we should read, in soils used for the cultivation of Grapes. Mr. Cramb is a man of long and great experience, and consequently we should attend to his sayings and doings. Let us, therefore, trust that our great Grape growers will give us a few words as to the soil they employ, and whether they "protest" against calcareous soils. When in France and Germany I have always noticed the calcareous hills as being in high favour with the *vignerons*, and I have heard that in Spain they are in much esteem. In the limestone and calcareous soils of the Grecian Archipelago, and in Palestine and Syria, Grapes are grown in high perfection. In any soil highly charged with calcareous matter, Vines grow in a wild sort of way (without manure), as if they loved it. How is it, then, that Mr. Cramb does not succeed in growing Grapes in a calcareous soil, and even utters a strong protest against it? Mr. Cramb is so honourable and truthful, that we should like to hear more from him as to the reason why. *Muscat.* [And so should we. EDS.]

Jetty Lacy Pelargonium.—The letter of Mr. John Stevens, of Ealing, opens up one point that is scarcely so clear as I could wish, and probably it has struck other impartial observers in a like manner. I refer to the name of the variegated zonal Pelargonium he has in his possession. I think Messrs. F. & A. Smith were quite right in challenging any variegated zonal Pelargonium under the name of Jetty Lacy, simply because it is a purely local name, and very unlikely to have been given as an original designation by Mr. Stevens. I believe I am right in stating that the variety in question was raised by Messrs. Windebank & Kingsbury, of Bevois Valley, Southampton, and named by them in honour of Miss Jetty Lacy, the daughter of Major Lacy, of the Ordnance Department, Southampton, Major Lacy having at that time filled the post of chairman of the committee of the Southampton Horticultural Society. Now, it is very unlikely, indeed, that the name of a young lady, in a district so remote as that of Southampton, and who perhaps has never before been heard of outside her own circle, should have been given to a plant by a person who, in all probability, knows nothing of her. This strikes me as "wondrous strange." It is a very unusual name too, be it noted. Any one can understand the name of a well known public character whose doings are, as it were, the common property of all, being bestowed on a new plant by two or three raisers. It is well known that there are among variegated zonal Pelargoniums one or two named Prince of Wales, as many more Princesses of Wales, and Queen Victorias in abundance. No one wonders at this, but that there should be two Jetty Lacys is, to say the least, a very odd circumstance. I think also, from Mr. Stevens' own showing, that his Jetty Lacy may be as different from Messrs. F. & A. Smith's Jetty Lacy as the latter is from the former, and yet the two may perchance be exactly alike in every respect. I am forced to one of two conclusions, either the Jetty Lacy exhibited by Mr. Stevens at the last exhibition at the Regent's Park is Messrs. F. & A. Smith's Jetty Lacy and nothing else, or that Mr. Stevens has taken an advantage by giving the same name to another variety subsequently to the appearance of that of Messrs. Smith. *Southampton.*—We observe, Mr. Stevens claims the honour of showing a specimen plant, labelled "Jetty Lacy," at the late Regent's Park Show, and which we thought at the time bore some resemblance to it when in bad condition; and, as so named, the inference was natural that it was the true variety, particularly as Mr. Stevens' name was not underlined, which would have been the case in a "Jetty Lacy No. 2;" this was a further ground of supposed identity. In regard to his observations respecting his inferred right to exhibit a second variety under the same name, permit us to make a few remarks, just to clear the argument of false issues. Mr. Stevens avers that we named our "Achievement" after his variety of the same name was made public; whereas our variety of that name was shown at the Royal Horticultural Society's Exhibition at Bury, in 1867. We had not at that time seen either Mr. Stevens or his "Achievement" to our knowledge, but our Mr. F. Smith saw it and him at the Botanic Show in 1868, and then called his attention to the case, and requested the favour of Mr. Stevens to rename his plant, which he quietly declined to do. This disposes of any excuse he may desire to set up in extenuation of his infraction of a well-known, just, and wholesome rule, that those who first select a proper name are by right of priority the owners thereof; and this rule is never wisely or usually broken until the old variety becomes old and obsolete, by being beaten in quality. This not being the case in this instance, the public will be curious to learn what motive or reason led any one to adopt the procedure of Mr. Stevens. If his plant was a better variety, vanity or pique might be the inducement; but this was inferior, which alone would deter any sensible person from inviting so close a comparison as to condemn his so-called new sort. Again, how strange that it was never before shown under that name, although at the time it was a three-year-old plant; and Mr. Stevens has exhibited on two occasions at least this season previous to this, without producing this Jetty Lacy, and on each of which we suppose a well-done plant would have materially helped him. Possibly Mr.

Stevens has but lately acquired this plant, but he is extremely reserved on this point; we are not certain the plant has not been shown before under another name, but in either case we must say of his conduct—

"'Tis strange, 'tis passing strange."

F. & A. Smith, The Nurseries, West Dulwich, S.E.

Early Rose Potatos.—About the 7th of March I had 1 lb. of these Potatos planted; and nearly a fortnight ago the produce was dug up, and the weight found to be 26½ lb.—a very good yield, so we here think, but only about one-fourth of what is advertised as having been raised from the same weight of seed. They run of medium size, four of the largest weighing about 2 lb. *J. W. Batchelor, Odiham, Hants.*——On the 12th inst. I had some tubers of this root taken up, and cooked with some Ashleafs. They were of a delicate pink, inclined to the kidney shape, and were watery and uneatable. On the 26th inst. I had more taken up, and cooked with some of the Royal Ashleaf Kidneys. They were white and flowery, and had much improved in texture; but their flavour was insipid, and far inferior to that of the Ashleafs. The Early Rose Potato is at least three weeks later than the Early Ten-week—a very old sort, or a fortnight later than the Ashleaf varieties, so that in England it has no claim to be called early. It is, however, a very distinct variety; its foliage and habit much like that of Haig's Kidney, or Lapstone—the finest-flavoured winter Potato known. In America the Early Rose has been puffed to an enormous extent, and sold at a dollar per pound. *T. R.*

Improvement of Beans.—In bad Bean years the produce is as low as three, or even two quarters per acre, four being nearly the average, five a good crop, and as many as seven being occasionally grown. The cause of bad or more or less defective Bean years is that the flowers fall off, from fertilisation not having taken place. The stems of the Bean have a bunch (an axillary spike of flowers in the axil of each leaf, the lowermost eight or ten only being barren, and the flowering continues till the plant is exhausted. A plant being made to grow with only one stem, produced 20 bunches of flowers, with appearances of more, not one axil above the lowermost bunch being barren. From this it follows that the barren tops, seen when the crop is ripe, are not the consequence of the upper part of the stem not having borne flowers, but that they are due to the abortion of the flowers from deficient vigour of growth. Any expedient which would increase the vigour of the growth of the plant would, therefore, it may be expected, materially increase the produce, especially in bad Bean years. From my experiments on Hemp, partly described in this Journal, April 3, I believe this might be effected in some degree, if not to a great extent, by selecting a piece for seed, and cutting off the top of each stem, so as to leave only six, eight, or ten bunches of flowers, according to the fertility of the soil (or at least to such an extent as to reduce in a slight degree the number of pods produced), and by subsequently removing any sprouts which might appear at the base of the stalk, which would be very few, if any. If in cutting off the tops too few bunches of flowers were left, so that the crop became materially diminished, it is to be feared that sprouting at the base of the stems would take place to such an extent as to make their removal an expensive operation. Experience only could teach to what extent the tops should be cut off, but it should be done as soon as possible. By this means Beans of increased size would of course be produced, because overcropped Scarlet Runners, when two or three pods only are left growing, occasionally have unusually large seeds, and this operation having been repeated for three or four years successively, a more vigorous plant, less liable to abortion of the flowers in unfavourable years, might be hoped for; while if any improvement were apparent, it might be expected to go on increasing year after year. What the result would be after 20 years' experimenting perhaps could not be correctly conjectured. *B. Clarke, F.L.S., Mount Vernon, Hampstead.*

Gardening under Difficulties.—As a somewhat novel example of this, I may be allowed to direct the attention of your readers around London to some healthy-looking Scarlet Runner Beans that are growing in one of the open cuttings between Sloane Square and South Kensington stations on the Metropolitan District Railway. They are planted at the foot of a wall that must be quite 20 feet deep; in fact, on the same level as the rails. *W.*

A New Invasion.—Last Sunday morning I was startled by the appearance of an old enemy in tremendous force, in a new position. A good deal has been done to perfect our national defences, but little, however, can be accomplished by way of running a barricade across the air. And this seems our most vulnerable point. The broad gate of the heavens seems opened wide to admit our foes. For six or eight hours on Sunday, without intermission, and more or less throughout the whole day, our enemies, the flies, came marching in, and lighting in dense flying column on to the earth. The whole air was filled with them, and presented the appearance of a rapid fall of the tiniest snowflakes. At first I took the flies to be a swarm of midges holding high matrimonial carnival in the sky, and wondered that the column did not sweep past. But no sooner did I venture forth among them than I was thickly coated with a thick layer of greenfly or aphides. No place was too tender or sacred for them. They clustered and fought with each other over the whole surface of my clothes, peered into my eyes, crept up my nose, and contended earnestly for a passage into my mouth. For over a mile and a half with hands and handkerchief I fought them off the most sensitive points, and left on skin and clothes alike many soiled proofs of the severity of the conflict. I am now of opinion that, in addition to their other bad habits, aphides snap pieces out of our bodies. Otherwise it is difficult to account for the irritating sensation induced by their passage across the skin, giving rise to a positively painful tickling a long way removed from laughter. In addition to this unpleasantness the cloud of flies gave forth a rank greens smell, and conveyed the idea of being smothered in honeydew without its sweetness. The aphides seem to have extended for many miles. Between 10 and half-past 10 I walked to Bury through them, and I have seen a gentleman to-day from a distance of 10 miles off, and the flies were equally thick with him. Ten square miles or more of aphides! it is enough to make any horticulturist tremble. And then, what shall we say about the height? It is impossible to say anything positive concerning the elevation of the mass. As far as the eye could see the air was aphides, and apparently nothing else. The density of the living mass varied however, in different places. They seemed to me to be arranged, as it were, in huge waves. Now we had to pass through the great crest of a wave, and again we seemed to walk upon, as it were, the trough of the sea. If it were possible to walk at a uniform level over the surface of the sea, of course we must pass through the greatest mass of waters on the crest of the waves. The arrangement of the aphides reminded me of such a mode of passing through water. At times the mass was so dense that it seemed to interrupt one's breathing, and again it became thinner, and so on many times within the mile and half. But on no point was the air clear. There was but little wind, and the aphides seemed falling towards the earth at about the usual angle of snow or rain. Accompanying the aphides there seemed a smaller crowd, either of young ova or sediment of some kind, which produced an irritating action upon the lungs. Towards evening the innumerable hosts of flies disappeared, and on neither Monday, Tuesday, nor Wednesday have any returned. Wednesday, rain has begun to fall, and it is to be hoped a heavy shower may come to batter down these columns of flies from their seats on the trees, corn, flowers, fruits, and green crops. On Monday morning I began to look out for the moving army upon Roses, fruit trees, &c. I found but few of them anywhere, unless upon the young and tender branches of such plants. But late Peas are literally bent down beneath their crushing weight, and not a leaf nor atom of branch can be seen for the flies. I hope tobacco and clean water will kill them, or adieu to all late Peas. I fear the Turnips will suffer much if not immediately sprinkled with soot or some other nauseous mixture. After carefully examining the surface of the earth and the plants, I have come to the decision that the fly storm was a sort of perpetual motion while it lasted; or in other words, that the same flies fell and rose again for many times during its continuance. Had it been otherwise, the whole earth most have been loaded many inches deep with aphides. I observed that the aphides were larger and stronger than I ever remember to have seen them. They alighted, and rose again with great rapidity and strength. Their wings were very large, and the whole of the flies were of a vivid green colour, like the choicest, greenest Peas. Could it be that the flies were swarming? The activity, the excitement, the various degrees of density, and probably, from appearances, of light, seemed as if all the aphides in the world had come here to summer. I would be glad to hear the opinion of naturalists upon the whole matter, and also to learn how far the cloud of flies extended, and the best remedial measures to adopt against their wholesale ravages. One gentleman tells me that there was just such a plague of aphides before the cholera year. But this, if it were so, was doubtless merely a coincidence, and by no means the cause of such a disastrous effect. Such an invasion is a plague enough of, and in itself, without being looked upon as the harbinger of anything worse. *D. T. Fish, Hardwicke.*

Dasylirion Hartwegianum.—In reference to the letter of Mr. J. Verschaffelt at p. 789, I beg to inform him that Dasylirion Hartwegianum flowered in the Royal Gardens, Kew, in 1859, and was figured in the "Botanical Magazine" of that year, tab. 5099. It is there described by the late Sir W. J. Hooker, with full particulars as to whence and when it was obtained. *John Smith.*

Rose "The Marshal."—Will any of your readers oblige me and many others by telling us how to grow the Rose Maréchal Niel? I remember some two years since a controversy in a contemporary on the subject. One of the controversialists said:—"It is very well for a show Rose where a good stock is kept, but for any one who can grow but two or three plants of a variety, it is the worst introduction of late years." Further on the same correspondent adds:—"This Rose (Maréchal Niel) requires the cultivation peculiar to that class." What is this cultivation? *A Florist.*

[To this question "S. R. H." kindly replies as follows:—"Having grown this magnificent Rose in various situations, soils, and stocks, upon walls, with aspects east and south, and in the open garden, in light loam and in heavy clay, upon the Briar, the Manetti, and Gloire de Dijon, and having realised its golden glories in every instance, I cannot understand the complaints which are made from time to time that the Marshal is an austere, unapproachable niggard. I believe him, on the contrary, to be as generous as he is handsome; I believe that wherever Roses prosper, Rose Maréchal Niel may be grown to perfection. With me it is produced most quickly and certainly from the Briar. I have fine flowers now upon stocks which were budded just 12 months ago, and which will be strong large trees in autumn. These will bloom abundantly next season, early and late. The growth of Maréchal Niel on the Manetti is here much slower than upon the Briar, and it requires a wall to bring it to maturity. When once established, and with this advantage, it blooms profusely. The largest flower of the Maréchal which I have seen this season was one which I exhibited at Newark. It was grown upon a Briar, budded in 1867, and transplanted in 1868 to a wall having an east aspect. There is nothing abnormal in the method of culture, except that in pruning, the knife must be used very abstemiously—only weakly and decayed wood must be removed, the strong ripened shoots being left intact. The Marshal, like some other Frenchmen (and, softly be it spoken, all other Roses), is a gross feeder."]

The Manchester Show.—You reporter gave a long report of the Manchester Show, I have received a much shorter one from one who has been one of our chief exhibitors for 30 years:—"I have just returned from Manchester; it was simply a big muddle and a big failure." Is it to be wondered at? The Council of the Royal Horticultural Society, with that perversity that so often marks their proceedings, which made them keep aloof from the International Exhibition, refused the co-operation of the Manchester horticulturists? Were they likely to give them aid after that? and have they not found themselves simply in the position of the dog and shadow? It is, moreover, to be remembered that the Manchester people had their special exhibition in the spring, into which they had then thrown their best energies. It seems to me that the Council of the Royal Horticultural Society live in a very elevated atmosphere, and do not really understand the practical working of such matters. Dukes and lords give a flavour to the Society, but we want some good practical horticulturists associated with them, to add substantiality to the dish. They seem to me to have an entirely ideal view in these things, and their officials work with arms tied. *X.* [There are two sides to the question which "X." moots; and it seems to be utterly impracticable to bring both parties to take the same view. The divergency of opinion and of action consequent on this state of things was, no doubt, greatly to be deplored, and could not have other than a deteriorating influence on the show, which, considering all the circumstances, was not after all so bad as "X.'s" friend would have us believe. The names of the prize-takers is indeed sufficient evidence of this. EDS.]

Orchid Culture.—There are some very good remarks in Mr. Bullen's letter in your number of July 10, and which will bear repeating. He says that it would be a great boon to lovers of Orchids, if growers would publish the result of their experience with any particular plant which they may happen to cultivate to a high state of perfection. I think that this is what is wanted for all kinds of exotics that require any skill at all in their cultivation, and that the smallest fact in their behaviour under cultivation is worth more than pages of theorising as to what they ought to require, considering the climate that they come from. It is a general truth that it is impossible to tell how an exotic will behave under cultivation in England until it has been tried. Of two kinds of trees which constantly grow side by side in their own country, one may be perfectly hardy in any part of England whilst the other is killed down to the ground every winter. Of two epiphytes taken from the same tree, one will grow in almost any house you try to grow it, whilst the other is only induced to live with the greatest difficulty, and by constant care. Of course a knowledge of the climate, &c., in which a plant naturally grows is of use in order to determine the sort of experiments that are likely to succeed in cultivating it; but it cannot be too often repeated that a knowledge of what suits a plant under cultivation comes only from actual experience, and any facts which are the result of experience are always interesting and valuable. The remainder of Mr. Bullen's letter is therefore very interesting, especially his experience of the treatment of Epidendrum bicornutum; and it is perfectly true what he says, that because certain Orchids bear frost with impunity in their native country, it is not therefore certain that they will do so in a house in England. Nor, of course, on the other hand, is it to be assumed that, because a plant lives in a constant steam-bath in its own country, it will necessarily require the same here. My experience in Orchid-growing is but small, but of those that I have tried I find no two kinds alike in what suits them. Shade is commonly prescribed for them, and to many it is absolutely necessary, but some delight in a blazing sun, and many Ferns do so also; and similarly with a dry or moist atmosphere, and with ventilation or its absence. What is wanted is particular information on all these points for each particular plant, and in a great many instances this is not at present to be procured. *C. W. Strickland.*

St. John's Wort and St. Peter's Wort.—From the remarks of your correspondent, Mr. J. Wighton, upon the old English names of plants (p. 789), it would seem that he believes Hypericum calycinum to be the only plant referred to under the name of St. John's Wort; and that by the St. Peter's Wort is meant Symphoria glomerata (or, as it is now called, Symphoricarpus vulgaris). As these views appear to me questionable, I have been turning over some Herbals and other books to see what I could find, and here is the result. A Herbal of the date 1633 describes five different kinds of St. John's Wort, all being species of Hypericum. In Dodonæus' Herbal of 1578, in black letter, only two kinds of St. John's Wort are described. Both these works evidently apply the name of St. Peter's Wort to Hypericum quadrangulare, which they also figure under the name of "Square St. John's Grasse." Another old work, after giving an account of H. perforatum as the St. John's Wort, commences its description of H. quadrangulare in the following quaint terms:—"The St. Peter's Wort groweth higher and stronger than the St. John's Wort, and good reason too; ask the Pope else, for though the Lord would have the saints all equal, the Pope is of other opinion. It hath a square stem," &c. Referring to more modern works, I find Mr. Bentham, and also Messrs. Hooker and Arnott, do not apply the name St. Peter's Wort to any English plant, and that the former restricts the name of St. John's Wort to H. perforatum, while the

latter gentlemen call all the species of Hypericum St. John's Wort, excepting H. Androsæmum. *W. T.*

Jacob's Ladder.—Upon what authority does Mr. Wighton (p. 789) connect this name with "Convallaria verticillata, Solomon's Seal?" I cannot find it applied to any plant but Polemonium cœruleum; which, by the way, the old herbalists used to call Greek Valerian. The species of Solomon's Seal to which he refers has its leaves in whorls (as its name indicates), and this does not agree with his assertion that "the leaves of the flower-stem are arranged like steps, hence its other name, Jacob's Ladder." Possibly he had the common Solomon's Seal (Polygonatum multiflorum) before him, and has given it the wrong specific name. But even so, the step-like arrangement of leaves is not so apparent there as it is in very many other plants; and I am at present as unwilling to believe that Jacob's Ladder is a name for any kind of Solomon's Seal, as I am unable to understand Mr. Wighton's concluding observation, that the "dreaded Deadly Nightshade" is one of those "pernicious plants, the names of which end in 'bane.'" *W. T.*

Foreign Correspondence.

NEW ZEALAND.—I venture to request a small space in your journal for a complaint, as I believe your columns are open to gardeners' grievances though they may come from the antipodes. As a settler in New Zealand of nearly 15 years' standing, I have long taken great interest in cultivating many of our beautiful native shrubs, and have enjoyed favourable opportunities for making myself acquainted with large numbers of them. I had found the great value of "Paxton's Botanical Dictionary," and wishing to procure the last edition, I ordered a copy through a bookseller, and after some delay was supplied, at a cost of 32*s.*, with a copy of the edition of 1868. I do not grumble at the cost of the work, for although I believe it was published at the price of 25*s.*, we colonials know, from experience, that the importer requires a substantial profit over and above the trade allowance or discount. My complaint is against the book itself, which I look upon as a delusion and a snare, as far as the formation it contains of the flora of New Zealand.

The title-page of the dictionary sets out that it is a new edition, including all the new plants up to the present year (1868). I am fearful of trespassing on your space, and will merely point out a few, very few, of the sins of omission in some remarkable groups of plants, the beauty of which would tempt any gardener possessing a spark of energy to cultivate them.

Olearia: Under this heading one variety (Fosteri) is given, in the supplement only, as a native of New Zealand. I certainly find O. nitida appears as Eurybia alpina. The remainder of that splendid group of hardy shrubs is unmentioned, notwithstanding a list of 20 varieties was inserted in Dr. Hooker's Handbook, part 1, published in 1864. Where are O. lacunosa, nummularifolia, and ilicifolia?

Coprosma: Two varieties of this shrub are named, viz., C. Baueriana and C. variegata, out of 24, including our very common favourite, C. lucida (the scarlet-berried Karamu).

Veronica: V. parviflora and V. Hulkeana only represent this very numerous tribe, the book ignoring such interesting plants as V. cupressoides, carnosula, epacridea, Hectori, Lavandiana, lycopodioides, pimeleoides, pinguifolia, Raoulii, salicornioides, tetrasticha, and scores more. How long has V. elliptica been grown in England?

Senecio: A blank for New Zealand. Should the dictionary not contain the names of those hardy plants, S. elæagnifolia, Bidwillii, and the fragrant-leaved S. cassinoides? If the editor had ever camped down on a field bed made of the sprays of this variety he would never have forgotten it, I feel certain.

Now as to the quality of some of the information contained in this botanical dictionary, I wish to offer a few brief remarks:—

Podocarpus Totarra (Totarra): The height given is 60 feet; it is known frequently to attain double that altitude.

Dacrydium cupressinum (Rimu): Height given, 20 feet, should be from 50 feet to 70 feet.

Libocedrus Doniana (Kawaka): Given under the name of Thuja Doniana, consigned to that conveniently indefinite portion of Australasia, "New Holland;" height, put down at 15 feet, should be from 60 to 100 feet.

Dammara australis (Kauri): Here I consider the editor has been too liberal in his measurement, as the height he gives for this tree is 100 feet. I should like to see one that reached half that height. Perhaps the great altitude assigned to this Pine (the queen of the New Zealand forests) is in proportion to the remorse felt for the unmerciful beheading dealt out to the varieties mentioned above.

Metrosideros ramiflorus (Hinahina): Said to be in height 3 feet, should be from 20 to 30 feet; the colour of the flower is said to be rose. It grows in abundance close by where I am writing, and the colour of the blossoms that I have seen have been invariably green.

Knightia excelsa (Rewarewa): 10 feet should be 60 feet for height. Amongst the omissions of descriptions of remarkable trees, &c., I will mention a very few, such as Podocarpus dacrydioides (Kaikatea), white Pine; Fagus Solandri (Tawhai), black Birch; Alectryon excelsum (Titoki); Vitex littoralis (Puriri); Elæocarpus dentatus (Hinau); Pittosporum eugenoides (Tarata); Panax crassifolia (Horoeka); Atherosperma nova-zealandiæ (Pukatea). I cannot even find Rhipogonum scandens (Kariao), Supplejack. Some of the British troops (which we hear are to be decorated for their feats in New Zealand) could tell amusing stories of their obstinate encounters with that very obstructive native. Amongst numbers of flowers omitted are Notothlaspi rosulatum, the fragrant grey rosette of our southern Alps, and its near neighbour in the valleys below, Ranunculus Lyellii, the "Rockwood Lily," both of which I had the pleasure of collecting years before they "were made known to science." I believe I could fill pages with omissions, but cannot ask for more space. I think it only a duty to point out how the magnificent flora of New Zealand has been treated in what should be such a valuable work of reference as "Paxton's Botanical Dictionary." *Thomas H. Potts, Ohinitahi.*

[Our correspondent seems to have overlooked the fact that "Paxton's Botanical Dictionary" is only intended as a record of the plants actually introduced to and cultivated in this country. We shall, however, be glad to receive any further particulars respecting the native plants of New Zealand. EDS.]

Societies.

ROYAL HORTICULTURAL: *July* 20.—In addition to the Medals and Certificates noted at p. 790, the following subjects also received Certificates from the Floral Committee:—A remarkably broad-leaved variety of Cordyline indivisa, named latifolia, a plant of remarkable beauty, from Mr. B. S. Williams, obtained a First-class Certificate. Mr. Williams also had similar awards for Todea intermedia, and for Cibotium Schiedei furcans, the former intermediate between T. superba and hymenophylloides, and the latter having most of the divisions of the frond forked. Messrs. Barron & Son, of Borrowash, received a first-class award for Abies Douglasii acutifolia, a variety of distinct character. A remarkably dwarf, compact ramose Lady Fern, of the Frizelliæ type, named Athyrium Filix-fœmina Shawii, was also considered of sufficient merit to obtain a first-class award. Some florists' flowers, which came under the notice of the Committee, are commented on in another page. The following Special Certificates were granted:—Mr. W. E. Dixon, Norwood Nursery, Beverley (noted as Beverley Nursery, Hull, at p. 791), for a fine mass of Anœctochilus Lowii; Mrs. E. Cole & Sons, Withington, for a grand plant of their new white Ixora Colei, a variety producing much finer flower-heads than those of J. alba; and to Messrs. Bell & Thorpe for a group of 12 Coleuses.

BOTANICAL OF EDINBURGH: *June* 10.—Dr. Cleghorn, President, in the chair. The following communications were read:—I. *Obituary Notices of the late Dr. William Sellar, and of Professor Bertoloni, of Bologna.* By Dr. Cleghorn. Dr. William Sellar was born at Peterhead in 1798, and died at Edinburgh on April 17. He joined the Society in 1843, and was elected president in 1857. He was the author of several papers, published in the Society's Transactions. Dr. Antonio Bertoloni, Professor of Botany at Bologna, was born at Sarzana in 1775, and died on May 17 at the advanced age of 94. He was elected a foreign honorary member in 1840. He has probably contributed more to the knowledge of the plants of Italy than any botanist of this century, having been the able *collaborateur* of Tenore, Gussone, and Parlatore. He published a great number of botanical works and memoirs.——II. *Notes of a brief Visit to Italy in the Spring of* 1868. By Dr. Cleghorn. On February 24, 1868, I left Palermo in Florio's steamer Napoli, and reached Naples after a pleasant voyage of 12 hours. I paid an early visit to the Botanic Garden, and was fortunate in finding three professors, viz., the newly-appointed director of the garden, V. Cesati, and his coadjutors, Pasquale and Licopoli, who accompanied me round the ground and houses. The garden, created in 1809, occupies an advantageous position on the lower slope of the hill of Santa Maria, at the end of Strada Floria. It is well sheltered on the north and east, but somewhat exposed to winds from the south and west. Separated from it by a wall on the north-east is an extensive pile of building called the "Albergo dei Poveri," an institution founded in the 16th century for the poor from all parts of the kingdom of Naples, and which contains schools for the young, as well as shelter for the aged. The frontage of the garden to the street is a handsome terrace wall, and after ascending the flight of steps within the wall the visitor finds himself in a broad walk extending the whole length of the garden, and capable of accommodating 3000 persons. Promenades are occasionally held here. It is overshadowed by a fine avenue of Platanus acerifolia. The garden is divided into two parts, the smaller one being higher than the other. The lower part, on which the visitor enters from the terrace, is occupied by the arboretum and the portion devoted to education. In the latter, specimens of plants, illustrating 64 families, are cultivated for the study of students. In the arboretum are the larger forest trees, arranged in groups, the indigenous Pines being well represented among them. A small part of the garden, an offshoot on the north-east, is laid out as an experimental garden. In the upper division of the garden are several glass houses, and the more delicate plants in sheltered situations. The upper part of the garden is divided into two compartments, one for acclimated Palms, Plantains, and Grasses, the other for the acclimatisation of exotic Conifers, as Araucaria, Dammara, Sequoia, and Cryptomeria. The difference of climate between Sicily and Naples is proved by the fact that various tropical plants, such as Jasminums, Bignonia jasminoides, Caryota urens, Cerbera Odollam, Thevetia neriifolia, Heritiera littoralis, Persea gratissima, Kydia calycina, Pogostemon Patchouli, which flourish in the open air at Palermo, are here kept all winter in the orangery. However, the climate is favourable to the free growth of the Camellia, Camphora officinarum, and many Australian, Cape, and Japan plants. Of Indian shrubs, Cotoneaster microphylla, Acacia horrida, and A. Farnesiana, grow well in the open air. The following Australian plants were observed:—Banksia integrifolia, Grevillea robusta, Eucalyptus globulus, Melaleuca, Acacia longifolia. Many other plants which are cultivated in stoves in France and England flourish in the open air, while Azaleas and Kalmias cannot be kept alive, and Rhododendrons are poorly represented in the catalogue of Professor Pasquale. The following indigenous herbs in flower were noted:—Iberis sempervirens, Mentha Requieni (Benth.), Corinthe auriculata, Phlomis fruticosa, Lithospermum rosmarinifolium, Alnus glutinosa. The annual grant to the Naples garden amounts to 900*l.*, and is partly derived from Government, and partly from the municipality of the city. The new director is Professor V. Cesati, author of "Saggio sulla Geographica Botanica, e sulla Flora della Lombardia," Milano, 1844. He gives a lively picture of the gradual transition witnessed by a traveller in descending from the snow-covered Alps to the midst of summer in the fertile plains of Lombardy. Professor G. A. Pasquale, who has been connected with the Naples garden for many years, is the author of several botanical memoirs. This catalogue is prefaced with a history of the garden, and gives a topographical chart. 6738 species and varieties are enumerated. The Italian botanists who have ably superintended this garden, and directed their attention to the flora of this beautiful province, were Tenore, Gasparrini, and Gussone. The first director, Michele Tenore, published the "Flora Napolitana," four vols., in folio, Napoli, 1811-30, which gives good figures and careful descriptions of the productions of the kingdom of Naples. In 1827 he published "Essai sur la Géographie Physique et Botanique du Royaume de Naples;" and in 1832 he gave an account of his botanical journeys in the Abruzzi, enumerating the plants gathered, and describing the new and rare species, "Relazione del' Viaggia fatto in alcune luoghi di Abruzzo citeriori," in 8vo, Napoli, 1832. Tenore held office for 51 years. The Herbarium Tenoreanum is preserved separately in the museum attached to the garden, and in the hall is an oil painting of the venerable professor. Guglielmo Gasparrini was the second Professor of Botany in the University of Naples. He was born at Castelgrande, of humble parentage, and was educated for a veterinary surgeon, distinguishing himself as a student. The illustrious Tenore early discerned and appreciated his talents and character, and offered him a residence at the Botanic Garden, where he began to study botany. Gussone at Palermo sent for him soon after, and Gasparrini became his constant companion and helper while he remained in Sicily. In 1828 he succeeded Gussone as director of the Boccadifalco Garden. A few years after that garden was abolished, and Gasparrini returned to Naples. In 1857 he was appointed to the Chair of Botany at Pavia, and in 1860, on Tenore being made emeritus professor in the reorganised University, Gasparrini received the directorship of the Naples garden. He died on June 26, 1866, of a lingering illness, aged 62. Giovanni Gussone, a celebrated botanist, and emeritus professor of the Royal University of Naples, was born at Villamaina in 1787. He was in due course sent to Naples to study medicine, and was a pupil of the illustrious Tenore, and a *collaborateur* in his great work, "Flora Napolitana." In 1817 Prince Francis of Bourbon called him from Naples to Palermo to take charge of the Garden of Boccadifalco. Gussone, during 10 years, travelled much, exploring the island of Sicily, and compiled his excellent "Floræ Siculæ Prodromus," two vols., in 8vo, 1827-28, with a Supplement, 1832-34, and a Synopsis, 1842-44. These works are remarkable for the precision of their descriptions, and the accuracy of the synonyms. In 1827 he was recalled to Naples, leaving the charge of the Garden of Boccadifalco to Gasparrini. Gussone died from apoplexy, on January 14, 1866, at the age of 79. His large herbarium, containing 14,000 species, belongs to the University, and is located in the museum at the Royal Garden, where it is much consulted by botanists.

July 8.—Dr. Cleghorn, president, in the chair. The following communications were read:—I. *Notes of a Botanical Tour in Ladak, or Western Tibet.* By Dr. J. L. Stuart, Conservator of Forests, Punjaub. The author gave a detailed account of a tour he made in the autumn of last year through a considerable portion of Ladak, and enumerated the plants he met with, and the elevations at which they grew. From August 5, when he crossed the Baralucha from Lahoul, to October 8, when he crossed the Parang into British territory again, were 51 days, on which there was no complete halt. In that time 837 miles were travelled, and 17 passes of more than 14,000 feet were crossed. He collected nearly 400 species of plants, representing the following natural orders:—Ranunculaceæ, 17 species; Cruciferæ, 30; Caryophyllaceæ, 14; Leguminosæ, 21; Rosaceæ, 17; Crassulaceæ, 10; Saxifragaceæ, 6; Umbelliferæ, 10; Compositæ, 57; Primulaceæ, 9; Gentianaceæ, 8; Boraginaceæ, 5; Scrophulariaceæ, 11; Labiatæ, 21; Salsolaceæ, 12; Polygonaceæ, 13; Cyperaceæ, 9; Gramineæ, 39.——II. *Notes on the Famine Foods of Central India.* By George King, M.B., Assistant-Surgeon. Communicated by Professor Dickie, Aberdeen. The author adverted to the substances used as food by the very poor, during the recent severe famine in Marwar. The rainfall of the district is usually 3 to 4 inches, but in 1868 the rain utterly failed, and the deficiency of food and forage was very calamitous, and attended with loss of life. Dr. King enlarged upon the effects of denudation under native government, and the subsequent desiccation, which called for a system of forest conservancy. In the event of the proposed railway being constructed from Delhi to Bombay, great want of fuel will be experienced. The trees suggested for prospective planting during the rainy season are Acacia arabica, A. leucophlæa, and A. Catechu, Salvadora persica, and Capparis aphylla. The chief jungle products used as food during the late famine were—1. The root of Hymenochæte grossa, a tall rush, growing on the margins of tanks; it is called Mothee, and is eagerly dug up for human food. 2. The bark of Acacia leucophlæa, a common tree in Rajpootana. 3. The seed of Achyranthes aspera, a common herb. 4. The capsules of Tribulus lanuginosus, and other common plants. 5. The seed of a Grass, probably an Eleusine. 6. The seeds of Sesamum orientale, the gingelly oil plant, and of various Cucurbitaceous plants. The whole of these products appear to be deficient in nutritious qualities, and were brought into use to supplement the scanty supplies of esculents in the province at a time of great distress.——III. *Notice of some Parasites on Indian Forest Trees.* By Dr. Cleghorn. Dr. Cleghorn referred to different species of Loranthus growing parasitically on certain forest trees in India, specimens of which he exhibited. He particularly noticed the occurrence of Loranthus memecylifolius on Acacia Melanoxylon (a tree introduced from Australia), and L. longifolius on Tectona grandis (Teak). He also exhibited a specimen from the University Herbarium, showing a Viscum growing parasitically on a Loranthus.

ENTOMOLOGICAL: *July* 5.—Mr. F. Smith, vice-president, in the chair. Mr. J. J. Weir exhibited an Ixodes of gigantic size, found upon a Greek tortoise. Mr. Barclay called the attention of the meeting to the destruction of the Sugar-canes in the Island of Mauritius by a species of Coccus, known by the name of "Pou blanc." Mr. Smith exhibited a drawing of luminous Elater-larva, and alluded to Mr. Andrew Murray's memoir on luminous larvæ, published in the Linnean Society's Proceedings. Mr. A. R. Wallace read a continuation of his memoir on the Eastern Butterflies of the genera Cirrochroa, Atella, Cyrestis, Apatura, &c., noticing an instance in which he had found the veins of the wings differing in the two sexes of the same species. Other analogous instances were mentioned by Mr. Smith in the genus Plesia, and by Mr. M'Lachlan in certain Phryganeidæ. The same diversity also occurs in many butterflies of the family Heliconiidæ, and in a genus of Dragon-flies, Orthemis. A letter from Mr. C. A. Wilson was read on the entomology of Adelaide, in which the writer mentioned the discovery of several specimens of the singular parasitic Xenos in the bodies of wasps of the genus Paragia. Mr. Edwin Brown sent some notes on the Australian Cicindelidæ, with the description of a beautiful new species, Tetracha Adonis, discovered by Mr. Du Boulay. Mr. Wakefield communicated some notes on the entomology of New Zealand. The number of species of insects inhabiting that country appears to be very limited. He stated that the common English clear-winged moth, Trochilium tipuliforme, had been imported with Currant trees into that country. Mr. Stevens stated that the collection of the late Mr. Turner, of Manchester, would be sold by auction in the autumn.

Notices of Books.

Zeitschrift für Parasitenkunde herausgegeben, von Dr. Ernst Hallier und F. A. Zürn. 8vo, 1869. Erster Heft, mit 2 lithographischen tafeln. Jena. (Hallier and Zürn's Journal for the Investigation of Parasites. 8vo, 1869. Part I., with 2 lithographic plates. Jena, 8vo, 1869.)

This is the first number of a journal devoted to the investigation of both animal and vegetable parasites, under the direction of Dr. Hallier, (whose name is so well known amongst medical men in connection with his theory of the agency of peculiar Fungi in certain

epidemic disorders), and F. A. Zürn; and if it meets with the necessary support, will appear every two months, each part consisting of about eight sheets of text, and two or more lithographic plates. The papers are not confined to the parasites themselves, but comprise also the consideration of such diseases as are presumed, either theoretically or demonstrably to depend on the presence of parasites. It will, of course, be expected that Dr. Hallier's views should be a prominent feature in the journal, and however we may differ from him, or object to his mode of investigation, we are still glad to see those views well developed. We could wish, however, that the figures were more satisfactory—a little more, in fact, prepared after the admirable examples of the Messrs. Tulasne.

The original papers contained in this preliminary number, consist of—1, Observations on the Dysentery of 1868 in Weimar, by Dr. Pfeiffer; 2, On Sugar-cane Sickness in Bahia, by F. M. Dränert; 3, On the Muscardine of the Caterpillar of the Pine Lappet (Gastropacha Pini), by Dr. Hallier;* 4, On the Exobasidium of Woronin, by H. Karsten; and 5, On the Parasite of Dysentery, by Dr. Hallier. These are followed by a number of small communications gathered from different sources, a very useful list of publications on fermentation, formation of yeast, disinfection, general hygiene, &c.; notices of publications, and finally information as to one or two matters of interest, viz., a special institution for the investigation of parasites, a Merz microscope, and a new number of Rabenhorst's collection of dried Fungi, to which valuable work our compatriot Mr. Broome has so largely contributed.

We have to object to a nomenclature very different from that commonly in use amongst mycologists, and, as we think, very unnecessary, and a disposition to draw conclusions without any strict undoubted connection between the several objects figured. Dr. Hallier has clearly a foregone theory, with which every phenomenon is made to accord. Nothing can well be more interesting than such investigations, but to command reception from any save mere sciolists or half instructed practitioners of medicine, we must have something like demonstrable origination of the various forms from a common source; and while we have nothing better than such figures as the ascus of Fumago salicina, which by some cantrip slight has migrated to the leaves of the Fir, we must for the present be excused if we do not without hesitation admit his conclusions. We suppose that his Fumago salicina is the same with Capnodium salicinum, Montagne, which we should be very surprised to find on Fir leaves. The figure of the contents of the asous is altogether different from what is figured by Montagne, and is indeed different from anything we have seen in the genus.† The perithecium, as figured on Fir leaves, is totally different from that of the parasite on Willow. We have no wish to deny that a variety of forms may be assumed by the same species under different circumstance, or that various forms of fruit may occur, but there are certain limits within which variation is possible, and at any rate we must have something definite, and a certainty that the objects in question are referred to the true species.

We think it necessary to make these observations because there was a disposition in this country to adopt Hallier's conclusions as logical, without due investigation or accurate knowledge of the organisms in question.‡ We have no wish, however, to say a word against the journal in general, which contains a great deal of valuable information, and is a welcome contribution to those who are interested in the subject. We have indeed a guarantee for this in several, but certainly not in all the names which are given as likely to be contributors.

* This fine moth is extremely rare in this country. It is figured by Curtis, "British Entomology," vol. i., tab. 7, under the name of Odensis Pini, differing from Gastropacha, to which genus the beautiful Oak Lappet moth belongs, in having only the antennæ of the male strongly bipectinated, and the upper wings entire.

† See Journal Horticultural Society of London, vol. iv., pp. 251—257.

‡ The same observation applies in great measure to the communication on the disease of the Sugar-cane. We can see no necessary connection between the organism which is developed in the juice and the disease. It is high time that such productions should be referred to Fungi instead of Algæ. A translation of this memoir will appear in this Journal, as it is interesting in connection with the disease in Sugar-cane, which was brought before the Scientific Committee of the Horticultural Society, and reported on at p. 447.

Florists' Flowers.

The new Florists' Flowers that came under the consideration of the Floral Committee at the Great Exhibition of the Royal Horticultural Society at Manchester, though somewhat numerous, contained but few things of special excellence, and these from well-known sources. The Manchester district, that might reasonably have been expected to contribute some new things of this character, was scarcely represented, and by nothing of first-class character. The following First-class Certificates were awarded:—To Messrs. Downie, Laird & Laing, for gold and bronze Pelargonium Impératrice Eugénie, a fine and distinctly marked variety, having a golden leaf-ground, and a broad, well-coloured, reddish-chocolate zone. Like Kentish Hero, this promises to make a fine bedding variety. To Mr. Charles Turner, Slough, for Picotees Admiration and Miss Turner, the former a splendid heavy rosy purple-edged flower, of full substance and fine quality, the florets short and well rounded; the latter a smaller but charming flower, with a medium light rose edge, and of good substance. Mr. Turner also exhibited flowers of these two new varieties, in his stand of 24 Picotees. To show the continuous blooming character of his fine new perpetual-flowering Picotee, Prince of Orange, which was awarded a First-class Certificate at a recent meeting of the Floral Committee in London, Mr. Fred. Perkins, of Leamington, brought a box of cut blooms of fine quality. It was said that these blooms came from plants exhibited in flower as far back as the beginning of June; and that they are now in full bloom. Higher praise can scarcely be written, or more justly deserved. First-class Certificates were also awarded to Mr. C. J. Perry, Castle Bromwich, Birmingham, for Verbenas Butterfly and Rising Sun, two fine flowers, every way worthy of Mr. Perry's reputation as a raiser of new kinds; the latter has a ground colour of glowing salmon-red, with small white eye, encircled by a rich deep maroon ring, pip and truss fine; the former is of a warm flesh ground, and has a showy crimson ring round a pale eye, a distinct and fine variety. Some others were also staged by Mr. Perry, but they will no doubt come before the Floral Committee before long.

The Floral Committee when at Manchester had to contend with a very bad and deceptive light in the fruit tent, in which the new things were staged. This was somewhat strikingly illustrated in the form of a new bedding Lobelia of the Erinus speciosa section, of dwarf growth, named Favourite, and exhibited by Mr. Price, gr. to F. Taylor, Esq., of Manchester. Under canvas the flowers of this variety had the appearance of being heavily tinted with dark violet; in the full light of day this apparent hue entirely disappeared, and a bright blue was in its place. In a group of bedding plants, arranged in one of the tents by Mr. John Kellett, of Heaton Chapel, Stockport, was an almost pure white variety of L. Erinus speciosa, named White Lady, the flowers white, but very faintly tinged with pale blue on the edges. This appears to supply a very good white bedding Lobelia. Some new Petunias were staged by Messrs. Bell & Thorpe, Stratford-on-Avon. Of these the best were Ann Hathaway, pale ground, with large purple centre, veined with dark, flowers stout and of good form; and Novelty, purple, with a flame of crimson in the form of quarters—a flower of fine shape, and somewhat novel. Two new Verbenas were also staged by the same, one, Mr. Thorpe, in the way of Perry's Butterfly, but, as shown, not such a finished flower; and Mrs. Staples, dark cerise, with lemon eye, surrounded by a dark ring—a variety that had scarcely had justice done to it in the way in which it was exhibited.

From Mr. W. Cunningham, Burton-on-Trent, came zonal Pelargonium Admiration, a very bright pale orange-scarlet variety, with flowers of fine form, but scarcely distinct enough to merit an award, though much fancied; and Grande, a Nosegay variety, of a shade of colour something between Eclât and Le Grand. Variegated zonal Pelargonium Miss Tomkins, from Mr. Tomkins, of Sparkhill, is a promising variety, the leaf brightly coloured, of good shape, and regularly edged with gold. Another of a like character, named Howard, was finely shown in one of the collections, in fact it was the best done plant in the exhibition; and I mention it because, though I have occasionally met with it both north and south, and always as a good and effective exhibition variety, I don't remember having seen it round London on any occasion. *R. D.*

The Apiary.

£70 a-year: how I make it by my Bees; and how a Cottager, or others, may soon do the same.—This little book, by J. W. Pagden, Alfriston, Sussex, of which the second edition is now before us, is, we consider, rather unfortunate in its title. The author's calculations as to the natural increase of an apiary, and the profits which must arise from it, are, in our opinion, by far too sanguine, and are not at all likely to be realised by one bee-keeper in a hundred. The author also makes no calculation as to the amount or pecuniary value of the time it would require to attend to 100 or 200 stocks. Few people can spare the time out of their ordinary business or occupation that would be necessary to the management of a number of hives sufficient to ensure the realisation of this large income. There are few districts in England where so many stocks can be kept by one person within a radius of three miles. He states that 300 hives may be kept in the different gardens of any good-sized village. We believe this, as regards most districts, to be an utter mistake. The author imagines bees, in the ordinary prosecution of their labours, to take a longer flight than is generally supposed, and that a radius of four miles is within easy range to them. If hives have often to send out their foragers to half this distance, they will not be likely to thrive very well, but will have to struggle hard for a precarious subsistence. Barring these and a few other statements which may be calculated to mislead the over-sanguine novice, the little book is one which we should not hesitate to recommend to the notice of any who may be desirous of keeping bees in a simple manner. The author does not lay claim to originality in his views as regards bee management. He acknowledges that he has borrowed his system from various sources. The hives he recommends seem to vary very little from those known as Payne's hives; and as we have used some of similar construction, we can report favourably of them.

The directions given as to the proper aspect and position of hives in a garden are very good, and the mode of ensuring proper protection from sun and rain possesses the recommendation of being both simple and effectual. Mr. Pagden is an advocate for placing the swarm, as soon as it is securely hived, on the stand of the parent stock, which is to be removed to another part of the garden. This we have long proved to be good practice. Mr. Pagden works on the collateral and nadiring systems, as well as the more usual one of top supering. We have no great faith in any but the last named for general success. The directions for feeding bees, both as to the manner of administering the food and the proper times and seasons for so doing, are very judicious. The various instructions contained in the remainder of the pages are also very good.

We have no hesitation in saying that this little book may be advantageously read and followed by cottage bee-keepers who may be desirous of taking a step or two in advance of their fellows, and by those apiarians of a higher class who may still be unable or unwilling to adopt more expensive methods, or more complicated systems of manipulation.

Obituary.

We have to announce, with regret, the death of Charles B. Warner, Esq., which took place at his residence at Hoddesdon, Herts, on the 27th inst. Formerly, in the days of the Chiswick exhibitions, Mr. Charles Warner was one of the most successful growers and exhibitors of Orchids—Mr. Williams, who has won for himself a high position amongst Orchid-culturists, having been then his gardener; but for some years past Mr. Warner had given up growing for exhibition, and at Stratford, and more recently at Hoddesdon, confined himself to growing a select collection for his private gratification. At the period above alluded to, Mr. Warner was an active Fellow of the Royal Horticultural Society, and for some years occupied a seat at its Council board. His enthusiasm was contagious, as, by his example, he stimulated and induced others to become as fond of horticultural pursuits as he was himself. He was an earnest supporter of cottagers' shows for fruit and vegetables, and in this, and many ways, made his influence such that his loss will be severely felt by those who knew him. The funeral takes place at Hoddesdon this afternoon.

Miscellaneous.

"*Snobs at Work.*"—The mention made in "Snobs at Work," of the destruction ruthlessly dealt by them in the Earl of Stamford's beautiful gardens at Enville, received full confirmation in *The Worcester Herald*, June 12, 1869. A paragraph there states that Lord Stamford has again granted permission to the public to visit the Enville gardens, and adds, "It is to be hoped that this privilege will be duly appreciated by visitors, and that they will refrain from those silly acts of mischief by which so much injury was done beforetimes, and the repetition of which would ensure the closing of the grounds again." An advertisement in the same newspaper, regarding the opening of the gardens, thus concludes:—"Visitors found cutting letters on the seats and trees, or doing any damage to property in the gardens and grounds, will be prosecuted, and the gardens immediately closed. By order, S. Taplin, gardener to the Right Hon. the Earl of Stamford and Warrington." If Froissart could read this, he would be of opinion that the English not only take their pleasures sadly, but brutally and senselessly. Lord Shrewsbury is about to open his gardens at Alton Towers, unless deterred therefrom by the wanton and mischievous. The Enville Gardens are within reach of the Black Country people, who ought to appreciate the boon of being admitted to such lovely scenes. The gardens cover 100 acres of fine upland scenery, naturally varied with hill and valley, diversified with noble foliage, lakes, fountains, conservatories, orangeries, pheasantries, eagle-dens, &c. How many miles of ribbon-borders there are, I am afraid to say; but when I last visited the gardens, the bedding-plants required for those ribbon-borders were 150,000 in number, and represented the value of 7000*l*. But the Snob thinks it fun to switch their blossoms with the stick that ought to be laid soundly on his own shoulders. *Once a Week.*

Shading.—There is a great want of some better material than we yet possess for shading plant structures—a material which shall possess sufficient strength, without being so thick as to cast too deep a gloom over the interior of the house. We are extremely sorry that all attempts to supply the want have up to the present time proved fruitless. The best material we can recommend is canvas, which on one side must be made fast to a strong roller, and on the other must be nailed to a lath fixed lengthwise near the top of the sashes. In mounting the blinds, care must be taken that they are quite equal in breadth throughout, or the roller will not run regular. A narrow covering should be fixed along the ridge of the house, under which the blind may rest when not in use, in order to protect it from wet. The blinds and rollers may be taken down during the winter, as little or no shade will be required during that period; and if they are looked to after damp weather, and in winter thoroughly dried and stored away in a dry shed, they will last for several years. Some cultivators, however, like to use them as a protection in winter on frosty nights, as recommended in our "Orchid Manual;" and when this is done they must be rolled up at daybreak, so that no light may be excluded from the plants during the short winter days. Blinds for the sides can be made of canvas or tiffany; we use and prefer the latter. The strips should have rings sewed to them on both edges, to fasten on hooks, fixed in the house at corresponding distances. This fixing is necessary to prevent the wind blowing the blind on one side, and thus exposing any part of the interior to the sun's influence in an unguarded moment. *B. S. Williams on Choice Stove and Greenhouse Plants*

How to Catch Rats.—A cheap and effective way is to cover a common barrel with stiff, stout paper, tying the edge around the barrel; place a board so that the rats may have easy access to the top; sprinkle cheese-parings or other "feed" for the rats on the paper for several days, until they begin to believe that they have a right to their daily rations from this source; then place in the bottom of the barrel a piece of rock, about 6 inches or 7 inches high, filling with water until only enough of it projects above the water for

one rat to lodge upon. Now replace the paper, first cutting across in the middle, and the first rat that comes on the barrel-top goes through into the water, and climbs on the rock. The paper comes back to the place, and the second rat follows the first. Then begins a fight for the possession of the dry place on the stone, the noise of which attracts the rest, who share the same fate.—*Scientific Farmer.*

A Neutraliser of Malaria.—M. Martin, in a memoir presented by him to the Société Thérapeutique de France, affirms that the deleterious influence of marshy exhalations may be neutralised by the cultivation on a large scale of the Sunflower (Helianthus annuus). The experiment has been tried with great success in the fenny districts near Rochefort; and the Dutch, who, from the peculiar nature of their country, have every opportunity of studying such phenomena, and must be looked upon as high authorities on the subject, have a firm faith in this specific, asserting that intermittent fever, the scourge of the country, has totally disappeared from every district in which a fair trial has been given to it. The fact appears to be proved, but the *modus operandi* is uncertain; it being a disputed question whether the Sunflower acts on the atmosphere merely like any other plant of rapid growth by the production of oxygen; or whether, like the Coniferæ, it emits ozone, and thus destroys the germs, animal and vegetable, generally supposed to constitute the miasms which produce fever when present in the atmosphere in large quantities.

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

Stove and *Greenhouse Plants* that have completed their growths should now be gradually inured to the sun, so that the wood may be thoroughly ripened. A plentiful supply of fresh air should also be afforded them on all proper occasions. To this end greenhouse plants should, in the majority of instances, be placed out in the open air in nice sheltered positions. Stove plants should be removed into greenhouses, or, as I have before intimated, into vineries which are denuded of their fruit. In such positions a moderate amount only of root moisture should be given them, though if we take into account the exposed and airy situations in which some plants are placed, it will be found that far more moisture is required under such circumstances than is ordinarily necessary for the same subjects when they are in the denser and more moist atmosphere of the growing houses. A good syringing with tepid water will prove of material service to them if applied early in the morning and afternoon. Attend to the necessary potting-on of the many useful things which will shortly be in request for the decoration of the greenhouse or conservatory, and when the dull autumn months have fairly set in. These comprise such things as *Diosmas*, *Dracocephalum canariense* (Balm of Gilead), *Aloysia citriodora* (sweet-scented Verbena), various *sweet-scented Pelargoniums*, *Heliotropes*, *Ageratums*, *Salvias*, and *Mignonette*, &c., to the latter of which I drew attention last week. *Tritonias*, a very beautiful class of autumn-flowering plants, will now be pushing up their flower-spikes. A soaking with manure-water, of moderate strength, would be of great benefit to them. *Fuchsias* which are in full bloom, and such as are approaching that stage of development, should likewise receive alternate waterings with good liquid manure. The beautiful greenhouse climber, *Tacsonia Van Volxemi* will now be showing flower freely at all the joints upon the young shoots. It will only flower freely as the young growths are properly trained out, and the roots are supplied with nourishment.

FORCING HOUSES.

The present fine weather will afford material aid in ripening Grapes, and should it continue, the sun will diffuse ample warmth to carry the process safely onward, especially with regard to such hardy varieties as Hamburghs, Sweetwaters, &c. If any exception be taken to this rule it should be in favour of Muscats, which will generally be benefited by having a very slight amount of heat almost constantly in the pipes—a lesser degree, as a matter of course, about mid-day, and when the sun is warmest. I do not advise that heavy root-waterings be given after this date. When, therefore, a further amount is needed, let it be given at once. In regard to *Pines*, let me here express my own opinion as to the great value of the recommendation contained in the leading article upon this, "the king of fruits," published in the *Gardeners' Chronicle* of a fortnight ago. It may have been observed that I have herein rather shunned the old routine for some time, though in such suggestions as it is my province to offer it is always necessary to have a wholesome respect for staid precedents, the results of which have been successful. Attention should be given to the bottom-heat in Pine-pits, even though we have such hot weather. At such a time we are prone to overlook this matter amidst the variety of calls upon our attention. It will be readily seen, however, that, if, with everything favourable to a free and good growth above-ground, we let the bottom-heat fall below the requisite degree, no real success can be anticipated. If any material decrease of heat has taken place therein, and the opportunity does not immediately offer to resuscitate it by the usual means, it will be far better to raise the pots bodily out of the tan, and so by elevation let the roots share in the natural temperature of the house. Additional waterings will, under such circumstances, be necessary at all times. At such a date, and whilst the air has such a drying tendency, it will be advisable to pot any suckers which may be taken off at once, or immediately the fresh wound made in process of removal from the parent plant has been dried over. A brisk bottom-heat of 80° to 87° will induce them to root readily, when they will quickly be prepared for the necessary first shift. *Figs*, which are ripening their fruit, cannot reasonably have too much fresh air, as I have so frequently observed; air is second to no other agency in the ripening process, and the fresher and more plentifully it can be supplied, both day and night, so much the better will be flavour of all fruits become. Keep the syringe constantly at work in other Fig-houses, which have no fruit at such a stage of ripening, and, by constantly throwing water over the floors, induce an abundance of humidity, as a preventive against red spider and other similar pests. Afford to late *Melons*, which have set a crop of fruit, and which is now commencing to swell off freely, a moderate soaking with weak manure-water about twice within the next five or eight days, when root-waterings must be afforded more sparingly, in order to ensure such a state of dryness of the soil as will insure the ripening process being carried out successfully. As quickly as each *Peach* or *Nectarine-house* becomes free of fruit, the crop having been gathered, let the lights be removed wholly, that the air may have full play throughout. Syringe the trees constantly as heretofore during the continuance of dry weather.

HARDY FRUIT GARDEN.

It will be necessary to examine all regularly pruned trees, of wall fruit especially, and to remove all "breast wood" and other lateral or sublateral growths which may have formed. This will be especially necessary in regard to *Peach*, *Nectarine*, and *Apricot trees*. The fruit upon the latter will now be ripening apace, the sun should therefore be admitted amongst them freely by the removal of those leaves which shade them too densely. If any fruit has been thickly covered with leaves, or if the position be greatly exposed to the sun's rays, and if the sky should continue as bright as it is at present, there will be some danger of their becoming scorched if the removal of the leaves be not carefully effected. Trench or dig up the borders which are intended for new *Strawberry plantations*. Where convenience exists the former plan is at all times the best. Bring the bottom spit to the top, however deeply it may be deemed needful to go. Manure the trench throughout with successive layers of the best manure attainable. Tread each layer of soil down firmly, and however small the plants may be, plant them immediately after the first good soaking rain occurs.

HARDY FLOWER GARDEN.

Should the dry weather which prevails whilst I write continue, it will be absolutely necessary to have resort to watering. Though I have previously suggested this, I have not yet had resort to it, and yet the beds here are covered over freely, with few exceptions. Now, however, it will be necessary to begin, unless a change comes soon. In such an event, a thorough good root soaking to each bed, and to every plant, should be administered; frequent or occasional and partial sloppings do far more harm than good; hence, wherever it may not be convenient to give proper root waterings, the operation should be left alone altogether, except it may be just damping the leaves over morning and evening with a syringe or fine-rosed watering-pot; this will freshen them up, and afford them a better opportunity to collect strength preparatory for the great tax which the sun levies each day.

KITCHEN GARDEN.

Where there is a large demand for the three most essential vegetables, or those which the *chef de cuisine* is most partial to, viz., *Onions*, *Carrots*, and *Turnips*, it is advisable to make periodical or successional sowings during the whole growing season. Hence another sowing of each may be advantageously made at this time. A good sowing of Onions will be necessary within seven or ten days for winter standing to "button" early for next summer's use. Many sow the large Lisbon or Portugal for this purpose. None are better, however, than the true old white Spanish, for this and all other uses. Make further sowing of *Peas* of any early sort, and also of *Dwarf French Beans*. These latter should now be sown upon a south or other similar and equally protected situation. Plant out *Broccoli*, *Winter Greens*, *Celery*, &c., immediately the weather proves showery and favourable, as previously advised; and do not omit to use the hoe freely, whilst weeds remain. *W. E.*

TOWN GARDENING.

THE layered *Carnations* should now be frequently watered to induce them to root freely, as they will then stand the winter better. The *Pinks* that were piped in June will now require attention. The glass should be lifted on a stone about an inch in height, and the cuttings should be lightly watered. *Dahlias* should be securely tied to stakes; and if they are growing strong, it will be as well to drive in several other stakes round the plant to tie out the shoots to, at the same time cutting out such shoots as are crossed and crowded. Where it is intended to flower *Pompon Chrysanthemums* in pots, these should now be potted into 32-size pots, in a compost of two-thirds loam and one well-rotted dung. They should then be plunged in, in the following manner:—Dig a trench in a shady part of the garden about 4 inches deeper than the pots intended to be plunged, turn a small pot bottom upwards to stand the potted plant on; this will keep out the worms, and prevent the roots taking hold in the soil beneath the pots, and will allow the pots to be turned about, so as to induce the plant to grow equally on all sides, then close the earth round within an inch of the top. By this treatment nice bushy plants will be produced, which can be removed to the house without drooping in the least. If the dry weather continues water freely every evening, not forgetting to well syringe any shrubs and trees planted in the spring. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending July 28, 1869, as observed at the Horticultural Gardens.

July.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 3 feet deep.	Wind	Rain.
Thurs. 22	13	29.922	29.862	91	58	74.5	67	63	S.	.00
Friday 23	○	30.005	29.987	79	44	61.5	69	64	S.W.	.00
Satur. 24	15	30.011	29.907	83	48	65.5	65	63	S.W.	.00
Sunday 25	16	29.890	29.827	79	42	60.5	67	64	W.	.00
Mond. 26	17	29.822	29.768	75	52	63.5	67	64	S.	.00
Tuesd. 27	18	29.890	29.769	76	41	58.5	66	62	S.W.	.00
Wed. 28	19	29.928	29.878	64	42	53.0	61	61		.60
Average		29.924	29.857	78.1	46.7	62.4	66.0	63.0		0.60

July 22—Clear and fine; very fine; overcast, but fine.
— 23—Partially overcast; overcast; clear and fine.
— 24—Densely overcast; fine, white clouds; very fine.
— 25—Overcast; densely overcast; overcast.
— 26—Clear and fine; overcast; densely overcast.
— 27—Slightly overcast; cloudy; clear and fine.
— 28—Rain; heavy showers; clear and fine at night.
Mean temperature of the week equal to the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending August 7, 1869.

August.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday.. 1	75.6	50.4	63.0	19	1.23 in.	1	4	7	2	4	14	9	2
Mon. .. 2	75.3	50.9	63.1	20	1.03	1	5	3	—	9	15	6	4
Tues. .. 3	74.9	50.6	62.8	19	0.43	5	5	3	2	4	16	7	1
Wed. .. 4	75.9	50.6	62.8	17	0.85	2	3	4	4	4	18	6	2
Thurs. .. 5	74.5	50.9	62.7	18	0.88	1	4	4	3	5	15	7	4
Friday .. 6	73.2	50.8	62.0	21	0.58	—	6	3	2	6	16	8	2
Satur. .. 7	74.6	50.9	62.7	16	0.57	1	4	3	—	7	2	3	5

The highest temperature during the above period occurred on the 2d, 1856—therm. 92 deg.; and the lowest on the 2d, 1864—therm. 31 deg.

Notices to Correspondents.

CABBAGE: *B & S.* The specimens sent certainly present some indications of a cross between a Cabbage and a Broccoli. There is no reason that we know of why such a cross should not happen. The Cabbages were large and good hearted.

DISEASED ONIONS: *Sir W C T.* The diseased Onions arrived in the condition of a pulpy extremely fœtid mass. This looks as if their condition did not depend on a parasite, but on a constitutional disorganisation, and which appears from your interesting communication to have arisen from some peculiarity of the soil. If any of them survive, it would be well to try and get seed, and we would see whether the disease is capable of transmission. We should then have an opportunity of studying it from the commencement. *M J B.*

GRAFTING WAX: *A R H.* Try the Mastic L'Homme Lefort.

INSECTS: *T Davis.* Larvæ of Ladybird.—*W. Robson.* The insect is the grub of the common Pear Saw-Fly. You can get rid of it by dusting the leaves with fine quicklime. It is very common. *M J B.*

LEAVES OF TULIP TREE SPOTTED: *Thorne.* The black spots on your Tulip-tree leaves are what Fries, the great authority on Fungi, calls Ectostroma, but whether they really arise from an imperfectly developed Fungus, or are merely incidental to a peculiarly hot season, succeeding the most ungenial weather, is perhaps doubtful. We are inclined to the latter opinion. We suspect that the leaves were partially injured during the cold winds, and that their wretched condition now is due to subsequent drought. The ground is strewed with leaves in many places, as in autumn. We do not anticipate any permanent injury to fine trees, unless the drought should become so excessive as to injure the roots. *M J B.*

MAKING PONDS: *O G.* Is "O G's" letter intended as an advertisement? If not, will he oblige us with his plan of operations.

MANCHESTER SHOW.—We have received, just as we are going to press, some protests against our strictures upon the arrangements at this Exhibition. In a tone of injured innocence our corespondents inquire what were the bad arrangements? If our correspondents will read our article again, they will find many of them specified; and, if they will refer to what our contemporaries, and even the Manchester journals, have to say on the matter, they will find that we were very moderate in our condemnation. Our remarks on the police arrangements in the earlier days of the show referred, not to the tents, but to the highroad leading to the "triumphal arch!" Even Cæsar's chariots would not have been allowed to pass.

MELONS: *J B N.* The leaves sent bear the impress of the ravages of Thrips, although we can discover none of the insects themselves, owing to the dry and crumpled state in which the leaves were when we received them. It is hopeless to try to clear them from Melons when they are allowed to progress so much; the leaves are so tender, that any application sufficiently powerful to destroy the Thrips destroys the plants as well. We can only recommend you to take more care in the cultivation of your plants, pay more attention to general matters, so as to keep your plant growing freely and sturdily. It seems to us that, to have suffered so much as you have, you must keep a very dry temperature in your frames, which is almost sure to encourage this pest. Maintain a nice moist atmosphere, and give air on all favourable occasions.

MILDEW ON GRAPES: *C W H.* The formation of mildew on Grapes is induced or favoured in its growth through a damp, cold, stagnant state of the atmosphere. It will be found to attack Grapes generally, after some cold, dull, rainy days, succeeded by bright sunshine, and what is called a muggy atmosphere. To prevent its formation, keep a healthy, bracing, sweet atmosphere amongst your Vines. For a remedy which will speedily destroy it, apply flowers of sulphur, dusting it all over the leaves, &c.; or wash your hot-water pipes with sulphur, the fumes of which will destroy it, but on no account set the sulphur on fire.

NAMES OF PLANTS: *J Watson.* Canary Grass, Phalaris canariensis.—*A A.* Acanthus spinosus.—*Dugald.* Sedum rupestre.—*G L.* Asclepias verticillata.—*P F.* 1, Myrsiphyllum asparagoides; 2, Sedum album; 3, Sedum spurium.

STRAWBERRY FOR MARKET: *Strawberry.* Vicomtesse Hericart de Thury Strawberry will, we believe, suit your purpose. It is rather earlier than Keens' Seedling, an enormous cropper, average size, fine colour, and good quality; constitution vigorous. Sir Harry somewhat resembles Keens' Seedling in its general appearance, both in leaves and fruit. It is, however, much more robust, and the fruits are larger, later, more pointed and irregular in form; altogether of a coarser appearance, and likewise coarser in quality. It is, however, a very profitable one to grow.

WHITE LILIES: *J H.* We would recommend you to take up your bulbs in the autumn, procure some nice fresh loam, with a mixture of peat, and a little manure, which place to the depth of a foot or so in your borders, and replant your bulbs therein. Lilies like fresh soil, and an airy, exposed situation. We believe from your description that the bulbs are too thickly matted together, and that the soil in which they are growing is worn out.

COMMUNICATIONS RECEIVED.—W. R.—E. S. S.—W. A.—M. R.—T. J.—H. M.—J. S.—D. T. Fish (Received: we will commence the list immediately).—B. and S.—W. P. A.—A Country Vicar.

Early Spring Feed.

SUTTONS' IMPROVED ITALIAN RYE-GRASS.
The best and most productive in cultivation.
TRIFOLIUM INCARNATUM (Italian Crimson Clover.)
SUTTON AND SONS can supply NEW SEED of the above invaluable Forage Plants, which should be sown during August and September to produce early Spring and Summer Food. Samples and lowest prices per quarter and cwt., on application to
SUTTON AND SONS, Seedsmen to the Queen, Reading, Berks.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY (Limited),
CORN, SEED, MANURE, and OILCAKE MERCHANTS.
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.
The AUTUMN SESSION BEGINS on MONDAY, August 9.
For Forms of Admission, apply to the REV. The PRINCIPAL.

STAFFORDSHIRE AGRICULTURAL SOCIETY.—POULTRY SHOW at BURTON-ON-TRENT, SEPT. 23.
Liberal Prizes offered for Birds hatched this year. Open to general Competition. ENTRIES CLOSE AUGUST 23.
Prize Lists and Forms of Entry are now ready, and may be had on application to the Secretary, Mr. WM. TOMKINSON, Newcastle.

State of the Crops, 1869.

THE GARDENERS' CHRONICLE and AGRICULTURAL GAZETTE of SATURDAY, August 7, will contain a FULL and TABULAR STATEMENT of the STATE of the CROPS throughout the UNITED KINGDOM. Order of any News Agent. A Single Copy sent for Six Stamps.
Office for Advertisements, 41, Wellington Street, Covent Garden.

The Agricultural Gazette.

SATURDAY, JULY 31, 1869.

MEETING FOR THE ENSUING WEEK.

August 4 }
— 5 } Yorkshire Agricultural, at Beverley.
— 6 }

IN the history of agricultural production some very striking events have occurred in the past 20 years in several countries of the world. Here we have experienced a revolution, noiseless, and therefore little observed. In a paper on the "Variation in the Price and Supply of Wheat," in the last number of the Journal of the Royal Agricultural Society, Mr. EVERSHED shows that while the average annual imports of corn for the first 40 years of this century had ranged from 900,000 quarters to 1,300,000, they have subsequently increased rapidly, and have latterly been more than 14,000,000 quarters.

Our increased population, wealth, and trade do not account for these startling figures. The increase of population during the past 28 years has been about 3,000,000; while the increase in the average annual importations of foreign corn has been more than 12,000,000 quarters. Confining ourselves to the staple article of human food, we now regularly require in each year 8,000,000 quarters of foreign Wheat, against less than 1,000,000 quarters at the former period. Since the last census the average imports of Wheat in each year have maintained 11,000,000 of our population, while for each year of the decade closing in 1841 they maintained little over 1,000,000. And in these two periods our own growth has maintained respectively an average of 19,000,000 and of 24,280,000 in each year. Our average growth feeds 5,250,000 less than it once did.

These figures refer to the United Kingdom. With regard to Ireland, the Potato famine and other circumstances have driven out three millions of her people. England, examined alone, would give a much more satisfactory account of her agricultural doings in the last 28 years. This is fully admitted in the article referred to, nevertheless the writer comes to the conclusion that "those questions of vast social and political importance connected with the food-supply of this country will probably become subjects of pressing urgency and of practical discussion. The rapid increase of population, here and on the Continent, and the competition of other nations, will force the country to the practice of a more self-supporting system of agriculture."

The writer concludes with a pointed reference to agricultural defects and hindrances, among which are the want of secure tenure—which, as a rule, prevents the farmer from "burying his capital deeper," so as to get the best returns—and the constant drain on the sources of fertility which has become so excessive through the rapid increase of our town population. "The present social system wastes, so far as reproduction is concerned, a large portion both of imported and of home-grown food. Against such waste the manures and cattle-feeding 'stuffs' are a very trifling set-off. Agriculture has to contend with a gigantic system of spoliation, and it must inevitably suffer from the diminished fertility of the land." This is strong language: perhaps our readers will scarcely think it justified by the facts. For ourselves, we think the subject is quite worthy of that "discussion" which it certainly has not yet received.

It must be admitted that the soil of this country ought to become richer in the same degree that the soil of exporting countries becomes poorer. Look upon our little island as a large farm, and see how many animals we feed, and how much labour, corn, and manure, we "bring on" to our land! The soil ought to get better every year. The subsoil, instead of being broken up for what it may contain, ought to be needed to mix with the fat surface and make it milder. The best farmer sells part of his produce, but our large farm parts with nothing and "brings on" 14,000,000 quarters of feeding corn every year. The land ought to yield heavier crops, and its character ought to alter perceptibly to our senses; instead of which we are not agreed that our average yield of grain has increased in the last quarter of a century. In fact, many people maintain that instead of increasing the richness of our soil, we are living upon its resources, spending our capital instead of living on the interest of that capital.

The present system of town waste is, it must be remembered, entirely modern. It is a thing of yesterday, and we must wait for our experience of its results. It must be allowed we are careful of the manure of all animals but one, and rightly so, for all our agricultural improvements, without manure, would prove ineffective, like a charge of cavalry without infantry to support them! What would be said if we were to send the manure of our 36,900,000 sheep into the rivers? Our human population is almost as numerous and much better fed. It is clear that if the manure of all animals were wasted, English farming would come to a stand before the end of a four-course rotation. But as we only waste a portion of the manure of the country, no such disaster occurs, and the extent of our loss cannot easily be measured. We are told that the soil of corn-exporting countries, where no cattle are fed and no manure is made, becomes poorer. Fertile lands in South Russia and America, formerly capable of yielding 40 to 50 bushels of Wheat per acre, have been starved down to an average yield of about 15 bushels; and the general average of these countries has been reduced to between 14 and 16 bushels per acre.

Our soil will undoubtedly be greatly enriched, and we shall reduce the cost of production, by increasing the fertility of the land, when we shall have solved the problem how to retain, for the use of our agriculture, the *remains* of the corn we receive from abroad. The real extent of loss to the land is in exact proportion to the food consumed at present without return.

This waste, we are told in the paper just referred to, must be arrested. "No agricultural improvements can maintain the fertility of the soil under such a drain of plant food. Mere tillage—even by steam!—does not create anything; practically it destroys, if the fruits are thrown into the sea."

We have referred here only to Mr. EVERSHED'S general conclusions at the close of his article, and to the word of warning, without which a paper on the subject of our future supply of corn would have been incomplete.

THE subject of thin-sowing seems to be again coming under general discussion. Mr. MECHI writes to insist upon the national importance of saving so many pecks an acre which are now wasted; another correspondent of the *Times* argues in favour of a still greater reduction; and Mr. CARTWRIGHT, of Newbottle Manor, Brackley, says:—

"I not only sow my Wheat, but my Barley also, at 1 bushel per acre, and this year I have some Wheat and Barley at 2 pecks per acre. As some of my neighbours were last year very sceptical as to the advantage of thin-sowing, I have this season side by side with the 2 pecks the same quantity of land drilled at 2 bushels, and the difference in the appearance between the two quantities is most striking. After I have threshed the corn I hope to send you an account of the produce, and I shall be most happy to show my crops to any gentleman who may wish to come and see them.

"I can also corroborate Mr. MECHI'S statement of the usual quantities sown in Scotland. I tried there last year 6 pecks of Barley and 8 pecks of Oats per acre (my land in Scotland is not Wheat land), with such good results that I drilled the same quantities this year, and when I saw my crops there last month they showed every sign of producing an equally good yield."

It is plain that the subject is one which experience and not arithmetic must decide, otherwise this gentleman who sows 8 pecks of Oats lays himself almost as open to what may be called destructive criticism as those whom he attacks. Eight pecks of Oats should produce nearly 20 plants on every square foot of ground, which any one who draws a square of that size on a piece of paper must at once see is an outrageous crowd. The condemnation or justification of practice here is, however, not a question for the arithmetician at all. It is a question for the agriculturist. Crops differ from one another, not by pecks but by bushels and sacks per acre; and it is the plan which shall yield the largest crop that must be recommended. If thick sowing proves best during the harvest month, it can withstand the exposure of its folly during all the other eleven months of the year. It must be admitted, however, that the quantity of grain sown per acre is gradually diminishing, and that 4 to 6 pecks per acre are generally considered enough in the Wheat field, where formerly 8 and 10 were sown. But even 6 pecks per acre are close upon 1,000,000 grain, and that is more than a score of plants on every square foot of land; so that the arithmetic of the subject is really almost as extraordinary as ever.

—— THE corn trade has been in a quiet state throughout the week, at about previous prices, which is somewhat remarkable considering the fine forcing weather we have had during the present month.—— The live stock and meat markets have been somewhat depressed, in consequence of the heat of the weather. The top prices of beef and mutton have come down, respectively, to 5*s.* 4*d.* and 5*s.* 6*d.*. Lambs vary from 4*s.* 8*d.* to 5*s.* 8*d.*——In seed there is but little doing.——Hops are foul, and but little improvement has occurred.

—— The following are the published returns of the Manchester showyard and its visitors:—Monday: Season tickets, 2345; payment of 5*s.* each, 2345; Tuesday: Season tickets, 2570; payment of 5*s.* each, 12,960; members, 3500; Wednesday: Season tickets, 2347; by payment of 2*s.* 6*d.* each, 40,405; Thursday: Season tickets, 1190; by payment of 1*s.* each, 57,129; Friday: Season tickets, 1601; by payment of 1*s.* each, 39,285; Saturday: Season tickets, 1578; by payment of 1*s.* each, 36,392.—The total number of visitors during the week is estimated at 188,516; besides 11,629 season-ticket holders; and the total receipts were over 17,000*l.* This is the highest sum ever received since the formation of the Society.

—— The discussion in the House of Commons of the Game Law grievance and of the law of hypothec is not this session to bear any direct fruit. All the rival Bills on both subjects have been withdrawn for the session; and there is some understanding that Government will themselves attempt to legislate next year on both.

—— In illustration of the small proportionate influence of the elected members on the County Financial Boards, the Government has laid upon the table of the House of Commons a statement of the number of this class whom they think it is "probable" will be upon the County Financial Boards of each shire, as well as the actual number of magistrates upon the county rolls, and the *Pall Mall Gazette* thus comments upon the return in question:—"It is imperfect—we were about to say 'of course;' the genius of slip-slop must have watched over its production, for at a time when so many members of the Legislature are anxious to know what would be the numerical force thrown upon the bench of quarter sessions by the Home Office scheme of county financial reform, the paper is published without a single total or summary, though a statesman would probably look first to the general bearing of the statistics before he investigated their local relations. How easily such a summary could have been given we will show by placing one here. The statistics for the first schedule of the Bill represent 39 English counties, excepting from Cambridge, Herts, and Northampton respectively, the liberties of Ely, St. Alban's, and Peterborough, which come under the second schedule. We have reckoned Lincolnshire only as one county, but each of its three parts for the purposes of the Bill is a county in itself, and in that view the English shires may be called 41. The second schedule consists of the three English counties of Monmouth, Rutland, and Westmoreland, the three liberties just named, and the 12 counties of the Principality. The epitome of the return might, we submit, have been appended in some such shape as this:—

	No. of Quarter Sessional Jurisdictions.	Gross estimated Rental thereof in 1865.	Financial Boards.	
			Probable No. of elected Members.	Actual No. of Magistrates on the Roll.
		£		
First Schedule ...	41	85,143,000	1571	10,133
Second Schedule .	18	7,122,000	236	1,830
Total	59	92,265,000	1807	11,963

The great diversity of representative power, whatever may be the worth of the privilege anywhere, is under this Bill inevitable, because the scheme gives representatives, not according to the number of magistrates at each board, but according to rental. Thus, for example, Cambridgeshire (part of), with 1,090,000*l.* rental, is to have only 14 elected members to 197 magistrates, while that part of the county which is within the liberty of Ely for half the rental (543,000*l.*) is to have 17 representatives to 53 magistrates. Thus the richer section of the county will send one representative to sway the counsels of 14 magistrates, while the poorer section will have far greater chances of influence at quarter-sessions if

provided, as intended, with one elected member to balance the votes of every third magistrate. The contiguous county of Hunts, with less than half the rental of Cambridge (schedule 1), is to have 12 elected members against 43 magistrates. If wisdom is to be found in the multitude of counsel on local finance, Lancashire will be truly blest when 800 persons (99 representatives and 719 magisterial members) meet at Preston to determine whether the 'general purposes rate' shall be 1½*d.* or 1¾*d.* in the pound. Other anomalies of a like kind are discernible in detail."

OUR LIVE STOCK.

Some weeks ago we noticed the results of Mr. Wortley's sale at Ridlington. The taste for high-bred Shorthorns when once acquired is often retained with great tenacity. Such appears to be Mr. Wortley's case. In having already applied himself to the task of gathering a new herd around him, he has been happy in choosing as a foundation three females of the *Sylph* family, by Sir Walter, which he has purchased from Mr. Savill, of Inglethorpe. These are *Coral*, by Prince Hopewell (22,592), described by a most competent critic as "a sweet cow, full of flesh of the finest quality," bred by Mr. Pawlett, of Beeston, and her two daughters, *Cornelian*, by Baron Killerby (23,364), of Booth origin, and *Lady Agnes*, by Baron Archdale, a son of Earl Cowper's Archdale (21,183), and *Brilliant*, a cow bought by Mr. Cheney at the Littlebury sale in the spring of 1868 for 120 gs. To the three animals above noticed may be added *Strawberry Blossom*, bred by Mr. Houseman, of Lime Bank by Imperial Windsor (18,086), and from *White, Strawberry*, a member of Mr. Troutbeck's well-known Strawberry tribe.

—— *Blossom 5th*, the dam of the celebrated Bolivar, gave birth to a light roan bull calf, by Prince of the Realm, upon the 8th of June. Two days afterwards symptoms of milk fever were observed, and despite every effort to save her she died on the 16th, eight days after calving. *Blossom 5th* was 14 years old, and has been exceedingly valuable in the Thornville herd, where she has left several representatives. Two have already been mentioned, and to these may be added *Bloom*, own sister to Bolivar; *Bloom of the May*, and a grand-daughter, *Bloom of the Heather*, by Prince of the Realm.

—— It will not be without interest to Shorthorn breeders to learn that Mr. Bowly's 7th Duke of York, whose career as a breeding animal was considered to be closed, is again likely to be fruitful as a stock-getter.

—— Mr. Stratton has recently disposed of his young bull Monmouth, which, it will be remembered, was 2d in his class at Southampton, to Mr. E. S. Rouse, for exportation to Australia. This excellent Shorthorn, by Bude Light, and from *Maid of Honour*, has already distinguished himself on several occasions in showyard competitions.

—— The first of the annual sales of Cotswold rams was held last Wednesday at Coates, near Cirencester. A large company of purchasers assembled, and 40 excellent shearlings, the property of Mr. Henry Howell, were offered. Of these 35 were sold, realising an average of 10 gs. each. The top prices given were 28 gs., 21 gs., and 18 gs. We may expect to hear of much higher figures in other parts of the Cotswold district.

—— Last week we drew the attention of our readers to the Limestone and Lonk breeds of sheep, and mentioned the Herdwicks as a third race suitable for exposed high situations, where both the herbage is scant and the climate is severe. The Herdwicks occupy the high mountain region of Langdale Pikes, Scaufell, Wasdale, and Honister Crag. Their appearance is singular and by no means so inviting as their neighbours, the Lonks and the Limestones. The rams are horned while the ewes are hornless; the face and legs mottled; the wool somewhat coarse and longer and darker in colour round the neck, giving the idea of a mane. They clip from 5 lb. to 6 lb. of unwashed wool, which sells for about 8*d.* per lb. The Herkwicks come to maturity at four years old, when they give from 14 lb. to 17 lb. per quarter of mutton of first-rate quality. The usual lambing season extends from mid-April to mid-May. The lambs are brought from the hills at Martinmas, and are placed on lower ground, returning to the hills in April. They are sold when about four years old at Cockermouth and Keswick fairs to the lowland farmers, who fatten them on Turnips.

PRESENT APPEARANCE OF THE CROPS.

Bedfordshire.—The crops in this neighbourhood, if we have good weather from the present time, will, I think, be an average, quite 21 days later than last year; a rain would be very beneficial to both corn and roots. *William Lavender, Biddenham, July* 16.

Berks.—We have just concluded our hay harvest. Our crops of field Grass are generally light, the meadows good. The hay was never carried in better order. Our Turnips, particularly Swedes, promise well up to this time; a more regular plant I never remember, and in no instance have I heard of a second sowing. I do not think the Mangel so good as last year. Our Wheat is very variable, and there is so much thin, and some kinds very faulty, particularly in higher lands after Turnips; the ground was ploughed too much last summer for Turnips. Some of the Clover ground Wheat is very good, but I fear the ears will be deficient: it is, however, too early yet to judge of the crops. I fancy we shall not be reaping before the 10th or 12th of August. Some of the Barley is very long in the straw and heavy, and some very light. I fear this weather is too forcing, and the Wheat blight is showing itself; many fields are spotted all over. I do not anticipate a good quality. I think the Oats and Peas are generally good. We are sadly wanting rain for the roots, and the backward Potatos will come to nothing if we do not get some soon. *Thomas Owen, Clapton, Hungerford, July* 15.

Essex.—The Wheat in this neighbourhood promises to be an average crop in quantity, but deficient in quality, as it is now infested with the greenfly, which is sure to reduce the weight. The Barley will be an average crop on the light and mixed soil lands, but very deficient on the clay soil. Oats are but little grown in this district; what I have seen on the sandy land looks very badly. Peas and Beans promise to be an average crop, and a large breadth sown. We have but little straw, but a capital crop of hay. All roots promise well. Wheat will not be fit to cut before the middle of August. This is as correct an opinion as I can form. *Frederick Nunn, Rougham, July* 10.——In regard to the appearance of our crops, I can only speak of my own locality. Wheats will be nearly an average crop; the white Wheats are blighted, and red covered with the green aphis or lice, which I fear will injure the quality and lessen the yield. Barley on our chalks suffered from the long-continued cold spring, but where highly farmed have much improved, and will be a full fair crop; on light, sandy and gravelly soils, where put in early, and Turnips, fed off with fatting sheep, will be a full fair crop. Barley on the whole will be under an average. I dressed all my spring corn, Barley and Oats, with artificial manure, and I see the prospect of an ample return for the outlay. The seeds having completely failed from the drought of 1868, an exceeding large breadth of Peas and Beans will be grown, and both promise to be large crops, so that we may look to have our feeding stuffs at a fair price next year. Mangel, Kohl Rabi, and Turnips, are a good plant, and look well. Our corn is backward. Wheat, with warm weather, will be fit to cut about the 9th of August; thus our harvest will be late. *Samuel Jonas, Chrishall Grange, Saffron Walden. July* 14.

Gloucestershire.—In answer to your inquiries respecting the corn crops in this neighbourhood, I think the Wheat will not be an average crop; it looked well a month ago, but is much gone off since that time. Barley, I think, is generally looking well, and, I should fancy, will be an average crop. Peas and Beans promising. Oats I consider bad. *Giles Edmonds, Eastleach, Lechlade, July* 9.

Norfolk.—The Wheat is now most of it out of the bloom, and I think we have had favourable weather for that very important operation, and I may say for everything else the weather is most delightful. We have not had any heavy storms of rain to beat the corn down at present where it is stout enough to lodge. I heard several reports two or three weeks since of the Wheat being very much storm-broken, and especially on broken land after Peas, Beans, and fallow lands, and the more so where the land is not well farmed. I have seen some of this sort which will not produce more than 2½ quarters to the acre. This is also a great weed year, and some of the Wheat and Pea crops are smothered with Poppy. Barley is looking well just in this locality, but it is almost an exception. Oats, nine-tenths of them are a miserable crop, especially in the Fens. Beans and Peas promise well, but I think a few nice steady rains would benefit and fill and set the top pods, indeed it would benefit almost everything, especially the young Mangel, and all the Turnips, and Cole-seed, and Eddishes on land now about cleared of the hay, of which we have had an abundant crop, and extremely well got. I am finishing hay-carting this day. When I speak of hay I mean Grass hay, as there is only a very little Clover hay in Norfolk, owing to the failure of the seed from the last dry and hot summer. I have, about a fortnight since, taken a trip through several of the inland counties, and I may say I never saw a worse prospect for a crop of corn, but it may have improved since, as the weather has been so suitable during that time. Beans and Peas were the only exception, but Wheat, Barley, and Oats, especially the two latter sorts, were looking miserable. Meadow hay was good almost every inch I travelled. *Thomas Brown, Manor House, Southery, July* 12. —— The Wheats on this farm are much improved in appearance the last few days, and are now looking well; the Barleys are very good; in fact, too heavy; therefore, this fine dry summer weather is all in their favour, but from the very light lands we hear poor accounts of this crop. Turnips and Mangels are looking well, although thinned in a few places by wireworm. Feed getting short, in consequence of the bright sunshine. *T. M. Hudson, Castleacre, Brandon, July* 12.

South Lincolnshire.—I have delayed awhile to answer your application in order to give you the correct appearance of our crops in prospect of harvest. Our Wheat crops have improved considerably during the past two or three weeks. The earing and blooming has proceeded admirably, and nearly all the storm-broken, of which we have much, partakes largely of the favourable season for blooming and setting the grain. Although the plant is thin and broken, there will be a much better produce than lately anticipated. Barley is not much grown here, but the crops we have look very promising. Oats are grown extensively, and bid fair to be an excellent crop; the shag-out full, and the season just right for further progress, even without rain, which, however, is much wanted. Beans have come up latterly, and are now a fair average crop; the flowering all that could be desired. Winter Beans are forward, and very good in plant and fair in flowering. Peas have become a tolerably full plant, and have flowered satisfactorily, but symptoms of blight and the visitations of aphis are unmistakeable. Beans are not much affected at present. Potatos, as a general crop, are less promising than usual. Mangels are an average. Swedes various. Turnips scarcely up, owing to the drought. *Long Sutton, July* 15.

Worcestershire.—I have waited as long as possible, so as to be able to send you something like a correct report of our Wheat crops, which have gone through almost as many changes in the last month as the Irish Church Bill, but every change has proved beneficial. To a superficial observer all would appear right, but a careful examination of the ears shows a deficiency of nearly one-fourth in comparison with the last year's crop. In fact, it is almost impossible to find a perfect ear of Wheat, even in this highly favoured district, where no storms or wind have beaten down or broken the corn. The Golden Drop and Browick are our best Wheats, and I must say that on good farmed lands the difference in the Wheat crop is very conspicuous, and, however averse farmers generally may be to the use of horsehoes and harrows in the early stage of the growth of the plant, this season has proved that these operations are wonderfully beneficial in providing depth of mould for cleaning and refreshing the plant in its after growth. The general cutting of Wheat will not commence before the second week in August, although some few fields way be ripe a little earlier. The Barley crop has improved wonderfully the last month, the straw is a great length, and the ears are long and fine, and a good portion will be ripe the first week in August. Oats are more variable; some fields promise an enormous yield, while others were almost destroyed by the late frosts and storms, just as the blade appeared above ground. The autumn-planted Beans more resemble a wood than a corn crop, the haulm is so long and strong and leafy. At one time it was feared the yield of corn would be but small, but each day shows more and more a fair sprinkling of pods, and the crop will exceed expectation. The spring planted are improving, so that we may look for a good average crop of Beans. The various descriptions of coloured Peas were more or less injured by the cold spring weather, and now the blight has struck them, but the white Peas are a full average crop, and many fields are already ripe, and will be harvested in time for planting the land with Turnips. Vetches are a full average crop, very free from blight, and the Hops promise well for a large yield of seed. There is little or no Clover for seeding this year, from the failure of last year's plant, but the Trifolium and Italian Rye-grass have proved a great success, and the crops of fodder from these are prodigious. The upland and meadow lands have yielded large crops of Grass, and there are five ricks this year where there were only three last year, and the quality is so good that the fragrance from the various stacks throughout our parishes overpowers everything. The Mangels are late and irregular, but may yet come to a good crop, The Swedish Turnips have come up well, with scarcely a fly upon them; but they are waiting more favourable weather for thinning, as the ground is too dry to work amongst them. Very few Turnips are yet planted. The Apples and Pears are very variable; some orchards full, others entirely without, but the trees want moisture or the fruit will be small. The Plum, for which this neighbourhood is so celebrated, is a very abundant crop. The Potatos are free from blight, but wanting rain. All descriptions of stock are healthy, but now is the time to look well to the water supply, and a little corn and bran with chaff should be given to all young stock, to keep up their condition as the green food is vanishing, and nothing will soon be left but the parched field. Attention to this little matter will be highly remunerative. *Henry Hudson, Pershore, July* 21.

THE ROYAL AGRICULTURAL SHOW AT MANCHESTER.

[We have yet a few notices to give of various departments o the Manchester Show.]

HORSES.

The horse classes attract such universal attention that it is fitting we should supply a few further remarks upon the animals mustered at the show which has just terminated. Taking the classes in rotation, we must express our disappointment that the agricultural stallions exhibited on the present occasion are not of that high order which might be expected. Our recollections of Newcastle, Worcester, and Battersea, put them far behind the entire horses at those places. In Clydesdales, more particularly, the contrast is striking: there were no animals of this breed on exhibition at Manchester to be compared to the specimens we remember at any of the before-named meetings, and the same remark applies to the Suffolks. Unless we are mistaken, there was no representative from the eastern counties at Manchester that could hold a candle to beasts which Messrs. Catlin and Crisp in days of yore would introduce to you. It was with pleasure that we read recently that at the sale of the latter gentleman's stock, a grand Suffolk sire fell to the bid of a local gentleman for the sum of 370 gs. The pluck and spirit which induced such a bid, if well applied, must give us a greater choice of Suffolk Punches on a future occasion. On arriving at class 7, we ask why it is that the Royal meeting of this kingdom cannot afford a better display of thorough-bred hunting sires? With scarcely an exception the lot are in no way a credit to us, nor are they calculated to produce hunters of any substance. The 1st prize horse, "Carbineer," is neat, perhaps a bit gaudy, and but for his condition must be weak behind his shoulders, and small in girth; two fatal deficiencies in any animal for stock purposes. "Motley," the animal which took second honours, is only fit for a racing stud, where bone is of no importance; and "Laughing Stock" has shoulders far heavier than the 3d prize entitles him to. We did not care for "Angelus" nor his shoulders, and should never name him on the same day with "Dalesman," who deserves greater honours than fell to him. No. 58, Mr. O. Baynes' "Lancer," has great merits,

and when more furnished will look far more like a hunting sire than half the horses in his class. It is a pity the owners of such beasts as Nos. 55, 56, and 57, had not a friend at court to advise them ere sending their horses for public show. Why a horse like "Grand Master" is entitled to stand in company with "King Brian" and "Dalesman" remains as much a mystery to us as the rules of the Royal Society admitting into their lists cripples and otherwise maimed horses. Without caring or knowing who the judges may be upon the present occasion, we entirely disagree with their awards in this class. "Carbineer" may be a fair race-horse, but he has no pretensions to the title of a hunting sire, and a sorry lot they must indeed be if such an animal is to head them. We have always believed in and sought for a good forehand in a hunter; certainly "Carbineer's" thick shoulders and upright forelegs do not entitle him to this position. If such horses as now wear the Manchester laurels are to be stamped and sent forth as sires for hunting purposes, we must continue to be disappointed, when searching for weight-carrying powerful hunters. The honours to stallions of 14 hands we thought wisely and deservedly bestowed, and whilst Yorkshire most fairly carried off the 1st prize with the clever old "Fireaway," and received high commendation for the not less antique "All Fours," Norfolk and Cambridgeshire justly deserved to carry to their respective neighbourhoods the 2d prize with the clever going "Ambition," and 3d with "Clear-the-way." Derbyshire sent no mean beast in Mr. J. Whitworth's "Cannon," which nearly proved himself a great gun. Coaching stallions demanded notice with such horses as "Young Ebor" and the "Hadji;" it must have been an error when "Octavion" slipped over the latter's head and took second honours. "Octavion" caught the fancy at the distance, but would not bear close examination about his understandings. "Hadji's" elegant form and perfect action certainly established a claim to greater things than fell to his lot. The pony stallions chiefly hailed from North Wales, and although but few in number they differed so as to suit all tastes. Captain Platt's "Tom Sayers" is a useful sire, of a good colour, whilst "Broomhurst" would have been more in place at a circus. The brood mares, for hunters, proved attractive, from the interest that is naturally taken in animals specially dedicated to the important purpose of breeding such horses. In the 20 animals comprising this class were many taking "varmint"-looking beasts. We were struck with an old one, named "Columbine," No. 113; a roomy, big mare, looking all over like breeding a useful colt. "Inheritress," again, claims similar compliments from us, but our preference must be given to Mr. Brown's "Sally," and Mr. T. Fox's "Pink," both animals selected for awards. "Sally" would not bear examination so well from behind as on her broadside; she appeared narrow over her hips, and wanting from those points to her tail; but she is a mare of far greater character than her younger competitor, "Pink."

In the class for hunters over four years old might be found a few nice beasts, and amongst them one or two that might carry 14 stone. How two-thirds of the lot gained admission into the class, when the rule specifies that the animal shall be "up to not less than 14 stone," puzzles us. "Topstall" had nothing to fear in such company; he carried all before him, as no doubt he would do if tested with his neighbours elsewhere. Captain Barlow's line at this meeting might be most profitably and appropriately followed; in whichever class his name is found, there the animal bears out the character which you look for. "Chance," the property of Mr. W. Thompson, has much of the weight-carrying hunter about him, being powerful, near the ground; but his head is none of the best, and might be better put on. "Kilkenny" looks every inch like going to the end of a fast thing, although not everybody's horse. "Emperor" holds perhaps as neat an appearance as any of his compeers, but we did not care for him. "Wetherly" may have greater merits than appeared to us, but we could not concur in the decision entitling him to a place before "Kildare." Neither "Fanny Drape" nor "Princess" (Mr. Taylor's) attracted our fancy particularly; and as we did not patronize the "circus" we cannot bear testimony to the unsportsmanlike, useless tests these animals were subjected to within the arena set apart for the jumping and tumbling. Coeval with such a piece of business, we may expect at the next dog show to be invited (on payment of a second fee) to witness points, backing up and retrieving, not to forget coursing and rat-killing; and, to exhibit the form in which hounds run, we shall probably be treated to a short gallop round a tanyard after the red animal. We can never believe that sportsmen desire these tests, or consider them satisfactory evidence of a horse's qualification or fitness for performing in the field.

The four and three-year-old hunters were not of sufficient importance to command great attention. We liked "Brian Boru," and "Byron" struck us as having some good points. Class 17 was not attractive, nor was the succeeding class, for pairs of carriage horses, in consequence of the very few exhibited. We have spoken before of the cobs and ponies, and have only now to refer to the horses for agricultural and draught purposes. Passing over the mares with foals by their side or in foal, as being much below par, and parting from the agricultural fillies with about as much regret, we must repeat our admiration for the creditable display of cart horses, in pairs and singly. Mr. T. Statter's "Punch" and "Lily" were grand specimens of our leviathan horse. Not so Mr. A. Stewart's "Blucher" and "Colonel;" neither in make, age, or shade did they match, and they could not have gained honours had there been the smallest competition in their class. In class 37 Mr. C. W. Brierly showed a wonderfully good animal, "Prince of Wales," but "Charlie," the property of the Preston Farming Company, had greater charms for us. Class 38, for pairs of horses, mares, or geldings, for agricultural purposes, contained some rare specimens of farm horses. We preferred some animals passed over by the judges to those wearing the riband, and certainly should have put Lord Grosvenor's pair first, in the place of Mr. T. Statter's. The agricultural field has no cause to regret the position held by the animals at Manchester employed in tilling the soil, &c. Whilst tenant-farmers enter so bravely and creditably upon the contest, we have nothing to fear from wealth or power. The skill, patience, and energy of the practical man will always take precedence in a fair, open competition, and we wish heartily that our farmers may continue to carry off the rewards which they so richly merit.

MISCELLANEOUS.

A running notice may be given of several things in our note-book through which the pen is drawn for the want of space to give them a more lengthened report.

Manures, and the raw materials of which they are made, are always well represented at the summer meeting of the Royal Agricultural Society, and Manchester is many degrees above an average. Moule's earth closet system is well represented on several stands, but W. G. Garnett, Esq., Quernmore Park, Lancashire, enters the yard as an honourable rival. Mr. Garnett's system, by some oversight, is not entered in the catalogue, but from its high merit promises well: the thing itself is to be seen in full and successful operation. One or two other systems have risen up since the Leicester meeting, so that the genius of the times appears determined as it were that our manurial resources under this head shall be no longer not only a disgrace but a curse to the nation, more especially in our rural and thinly populated districts. *Sanitary Traps* on a number of plans are also shown, both for the solid manure and liquid or town-sewage manure systems. Gilbert Murray, of the Estate Office, Elvaston Castle, Derby, exhibits a model of a machine for spreading farm-yard manure. Something of this kind is wanted on a large scale for steam-power, in order to keep out of the way of Fowler's and Howard's steam-power ridging-ploughs—according to the proverb, "A penny saved is twopence gained;" and the truth of the maxim applies with great force to steam-power despatch in getting in farmyard manure. *Fence-gates, &c.*—Under these we have a number of notes, indicating the extensive show of wire fencing on several stands, and the three entries for iron steps for going over iron fences at footpaths and the like are very good things; so are rabbit-traps, in their way. In one of Mr. Cookson's fields during the eight days of trial the rabbits were so numerous that several were nearly cut in two by the reaping-machines, while those that escaped afforded no little sport to the workmen in attendance. Improved safety-valves for the boilers of portable engines, including common road and railway locomotives, are needed, and so are low-water alarums for steam-boilers in general. Mr. B. Brown & Co., St. Mary's Gate, Manchester, shows Travis's patent vegetable colloid, for preventing and curing corrosion and incrustation in all kinds of steam-boilers; also for preventing and curing rust in laundry and kitchen boilers—the tea-kettle, for example. It would take more than all the columns of the *Agricultural Gazette* for weeks to come to do justice in detail to the extensive collection of articles shown on the stands of the Manchester exhibitors. Mr. Wm. Haycock, V.S., of 3, Moreton Strangways, Manchester, author of the treatise "Horses: how they should be Shod," has an interesting stand, on which he shows his horse-shoe with a curved sole—on the principle of the practice followed by the Arabs, who pay much attention to the feet of their horses, and show how much the muscular action of the legs and body is dependent upon the form of shoe. We ourselves talk glibly of the "spring of our shoes," but we neglect the principle in applying it to our horses, hence the consequences in more ways than one. In the machinery in motion department, we have been obliged to pass over the fine show of wood-working machines adapted for steam or water-power exhibited by Powis & Co., London; Robinson & Son, Rochdale; Ladyman & Sons, of the same place; and Allen Ransome & Co., Chelsea.

A Leather Strap-rivetting Machine is shown by Mr. White, of Prospect Terrace, Leeds, and the driving straps on several stands which we examined and made inquiry about, prove that the machine is fast getting into use. It is shown at work, rivetting with copper rivets. Each rivet is pointed at both ends, and hence is curled at both ends as it is driven into the leather, which holds the folds fast together.

SEEDS AND ROOTS.

The exhibition in this department is not larger than usual, but the selection is very fine on all the stands. Taking exhibitors in the order of their stands in the catalogue:—

Sutton & Sons, of the Royal Seed Establishment, Reading, Berks, seedsmen to her Majesty, never had a better or more attractive show. Their stand occupies a conspicuous ground on the right hand as the show-yard is entered, and they have done ample justice to their position by the tasteful and ornamental style in which they exhibit some 200 dried specimens of the natural Grasses, and 100 varieties growing in pots, including their "New Prairie Grass" (Bromus Schrœderi), and "New Californian Oat-grass" (Bromus odoratus). Nothing requires to be said about their home-grown seeds, the produce of their own farms, situated in the fine climate of Berkshire, as the samples, in hundreds of ways, speak their own praise to practical farmers in language which they better understand than anything which we could say in their favour. Their seeds of the various root and forage crops grown are especially fine. Their Paris Universal Exhibition prize collection, in glass cases, is on view, with drawings and embellishments.

Thos. Gibbs & Co., corner of Halfmoon Street, Piccadilly, London, W., seedsmen to the Royal Agricultural Society of England, &c., exhibit an unusually fine collection of dried specimens of the best selected natural Grasses used in forming permanent meadows, pastures, cricket and croquet grounds, lawns, &c. Also a general collection of dried specimens of English and foreign Wheats, Barleys, Oats, &c., and some 300 growing specimens in pots. Samples of seeds of all sorts grown in this country are shown, each kind in its own glass-covered bowl; and the style in which the dried specimens and growing crops, if we may so call them, seed bowls, and roots are arranged, at once inform the intelligent observer that the motto of the Royal Society, for whom they are seedsmen, "Practice with Science," is loyally respected and faithfully carried out. The whole stand forms an instructive studio for the agricultural student.

J. C. Wheeler & Son, of Gloucester, fill up this side of the seed and root department in a manner becoming the prominent position they have long held in the seed trade. Their stand from end to end is superlatively fine, every article being of the very best quality.

James Carter & Co., of 237 and 238, High Holborn, London, seedsmen and seed farmers, Essex, occupy the first stand on the opposite side, and their dried specimens, and their growing ones in pots, seeds in sample bags, are arranged in first-rate style. The excellence of quality of the seeds grown by this firm on their seed farms in Essex is a very successful exemplification of practice with science in combination with what is now generally admitted to be one of the most favourable soils and climates in the kingdom for seed growing. From time immemorial Essex has been celebrated in this respect, hence the lines of the poet Drayton in "Polyolbion," song 19—

> "For Essex is our dower, which greatly doth abound
> With every simple good that in this isle is found."

Add to soil and climate all the more recent improvements in the thorough drainage, cultivation, and manuring of the land, to meet the requirements of plants during the different stages of their growth, and the above important results as to the health, vitality, and germinating powers of seeds, are easily traced to their respective causes. Soil and climate, including heat and light, would not of themselves suffice, but combined with deep tillage, proper aëration of the staple and subsoil, with the specific manures the various crops require, and the highest aim of the seed farmer is attained.

John Kemp King, seed-grower, Coggleshall, Essex, has a fine show of roots, as fresh as they were in the Agricultural Hall at Christmas, all of them best quality, with the seeds produced by selected varieties of the same kind.

Dickson & Brown, seed merchants and nurserymen, 43 and 45, Corporation Street, Manchester, exhibit everything in a style and of a quality becoming the occasion and peculiar position they occupy. They show a large collection of ornamental trees and shrubs suitable for parks, ornamental grounds, and shrubberies, growing in pots, also flowers in bloom; dried specimens of the natural Grasses, including Wheat, Barley, Oats, &c., an equally exclusive collection growing in pots; seeds in sample bags and in 4-bushel sacks, ready to be ticketed and sent off by railway to their customers. They likewise exhibit all the implements and machinery required in horticulture, of the best make and description, and when we inform our readers that the different articles are so arranged as to give the whole a most attractive, natural, and pleasingly agreeable appearance, the useful and ornamental being blended together in the most successful manner, they will readily understand us when we add, the fine show must be seen to be appreciated in its true merits.

The Mersey Chemical Manure Company, Liverpool, have a fine selection of specimens of different crops grown by their manures, which they contrast with others grown in the usual way—and the difference is unquestionably greatly in favour of the former.

REAPERS AND MOWERS.

We have yet some further description to give of the improvements effected in this class of implements during the past year, and we shall endeavour to make the necessary distinction between, what may be termed, permanent improvement and temporary progress. The course thus laid will involve not only the consideration of the prize machines for practical illustration, but also several of those with whom they competed in the preliminary as well as in the final trials, and some that were not taken out of the yard at all. In short, we propose confining our remarks as much as possible to the principles of construction under the heads of (1), the number of driving and carriage wheels; (2), the knife, including the finger-bar, connecting-rod, crank, and cam movements; (3), the heating of the working parts; other parts of the subject having been discussed last week.

1. *The Number of Main Wheels.*—The Manchester trials are, if we mistake not, rather in favour of one main wheel, not only in mowers but reapers. We have always considered two main supporting wheels the soundest in principle, but, unfortunately, when we close with principle there is no such thing in practice as a one-wheeled machine or a two-wheeled machine, so that the solution of the question has to be reasoned out otherwise than by the actual number of main driving wheels. The objection so often raised during the trials, that the two-wheelers cut up the ground and otherwise did havoc at the turnings, go for nothing, for the frequent turnings in going a few rounds, or doing half an acre at the most, is an exception not to

be found in practice; and besides, it often breaks up the temper of both men and horses, and not unfrequently the machine also. But the objection to three wheels in a line is sound in principle and practice too, and one of the wheels a little out of the line will not mend the matter much; on the other hand, one main wheel and two shoe bearings are just as objectionable as three wheel bearings, more especially when taken into consideration with the position of the knife. It is very evident, therefore, that very little would be gained towards a satisfactory solution of the question by quoting prize machines *v.* the prize machines of the Manchester meeting as practical examples.

2. *The Knife*, with its connections, has always been considered that part of the mower or reaper upon which its working merits chiefly depend, and under this head the Manchester meeting exemplifies very important progress made of a permanent kind. It would require drawings to illustrate details, but in the absence of such it will be sufficient if we draw attention to the fact that there is a close resemblance in the movements of the crank-shaft, crank, connecting-rod, and piston of a steam-engine, to those of the crank-shaft, crank, connecting-rod, and knife of the mower or reaper; that the Messrs. Burgess & Key, London, have carried out this principle of construction during the past year; that the Messrs. Hornsby & Son work their patent; and that the closer the other machines, whether prize machines, or not, come up to this principle, the more successful is their cutting—other things, as the form and sharpness of the knife itself, or the length of the connecting-rod and crank, &c., being equal. There are very few examples where other things are equal. Indeed, diversity appears the rule, and equality the exception; but into details of this kind we cannot go. Enough has been said to turn attention to the permanent progress made, and the rest we must leave our readers to work out for themselves at their leisure.

Under this head we have two or three other novelties which call for a passing notice, viz., two machines for cutting one way or on one side of the standing crop—a new American, on which the off and near horse alternately walk upon the uncut Grass; and the other the double knife machine of Mr. Harkes, of Lastock Graham, Knutsford, Cheshire, one of the best reversible machines yet introduced. The finger-bar and knife have two sets of cutters and fingers for cutting right or left, and a common platform, which turns over and covers the fingers not at work. The divider also turns over a double shoe outside, and the draft-pole turns round on a turntable standard, and is clutched on to the framing-bar, the driver and his seat turning with it. Mr. David Harkes, of Mere (same county), shows a similar machine. Another novelty is the easier movement of the knife, shown by Clowes & Davis, Manchester. The principle is the first by which a reciprocating knife was worked in England under Ogle's patent (1822), which has been many times improved upon since. Almost all the improvements have something in them, but as much if not more against them. In the present an irregular cam ring goes inside the driving wheel. The cams as they turn round actuate a pendent lever connecting-rod by two roller arms projecting from this lever, one above and the other below the fulcrum in which the lever connecting-rod turns. The rollers work in two cams, the one out and the other in, so that in the upper case the lever is one of the first kind, while the lower one, the lever, is one of the second kind; consequently, two questions arise for solution—first, are the two forces thus applied equal? and second, is the velocity and cutting power of the knife equal in the two cases?

3. *The Heating of the Working Parts* gave rise to more than an usual share of attention during the Manchester trials of both mowers and reapers, and upon the importance of the question a difference of opinion can hardly be raised. The self-lubricating apparatus brought out by the Messrs. Burgess & Key is an important advance in the right direction. The principle has long been acknowledged in most branches of applied mechanics, and it is rather surprising that it should have been so long in being applied to the axles of mowers and reapers. Experience, so far, is loud in its praise. But more is required than a proper supply of oil to keep the knife and other working parts cool, such as the keeping out of dust and sand, and the use of proper materials for constructing the working parts. On these points less or more progress has been made by all the exhibitors, but there is much room for farther advances being made.

Labourers' Cottages.—The special prizes of the Manchester local committee have been awarded to the Central Cottage Improvement Society, London—H. Martin, secretary, models; Edwin Clarke, Lincoln, drawings; and James Martin, Boston, lithographed plans and specification, 10*l.* each. Their merits are such that hardly a word can be said, either in favour or against them, but the balance rather turns the former way, more perhaps because they set people thinking than otherwise.

POPPY SEED.

THERE is, perhaps, scarcely any other plant in Europe that has been so persoveringly hindered, resisted, and kept out of cultivation as the Poppy. The few who have gone into the matter, and have seen its true character, have not been able to induce the many who do as their forefathers did, to cultivate this well-known plant. Every child seems to have been warned against Poppies, and to be well up in his botanical catechism in their regard, and will tell you, "They are poisonous," and that "opium is got from them." Such a character as this might well hinder any plant from being cultivated. The Poppies have followed the footsteps of man everywhere. We have been dogged by them in the garden, the cornfield, and by the wayside, until their presence in such numbers has become a byword, "Plentiful as Poppies." The case against them has not been very clearly made out, and if you begin to cross-question a little, you will find that very few know exactly where the seat of the poison is, and this is by far the most important point to have accurate information upon. About 40 years ago, a person well versed in plants told me that Poppy seeds, when eaten raw, were quite as nice as Hazel nuts; and I tried them, and from that time forth I have frequently thinned the ripe heads of the Poppy that have come in my way; and if for no other purpose than to treat the children, I would advise those who have spare ground to grow a few heads for home use, in order to get better acquainted with this kind of nuts that need no cracking. The bird-fancier knows well the use of Poppy seed (Maw seed) as food for his canary birds when they are out of condition, and I only name it here to show not only the harmlessness, but the highly nutritive qualities which Poppy seeds possess. An excellent oil is expressed from Poppy seeds, and this, too, is eatable in the same way that olive oil and butter are eaten; and this oil has long been an extensive article of commerce; but in this country there exists a prejudice against eating oil of any kind, and the poor man's wife will give 1*s.* or 1*s.* 6*d.* per lb. for butter, when olive oil could be had for 6*d.* per lb.; but the "trend," as geographers would say, is in the direction of French cookery; and if we begin by using olive oil for dressed salads, and fry our soles in oil, we may eventually come to "wine and oil" like our neighbours. I may here state, once for all, that it is from the juice of the husk, and not from the seed, that the opium is obtained, and we buy Poppy-heads from the chemist for fomentation to dull the edge of pain,—one of the safest and most homely uses of opium. I may also state that the husks of Poppies of all species are to be rejected, for they all contain this strong-smelling and disagreeable gum, of whose bad qualities and effects, first of sleep, and then of death, who has not heard? The opium trade needs no encouragement, and I only name it in passing, without referring to it any further, and proceed to the business of growing and saving Poppy seed, considering it to be an important article of food.

The appearance of the crop when in flower is something quite out of the ordinary way in the landscape, for the individual flowers are 6 inches across, and of such a peculiar dead white, that they look like the rosettes on a shroud. The Everlasting or Perennial Garden Poppy, the Carnation Poppy, the Horn Poppy, and even the Red Field or Corn Poppy, have all a good deal of colour to recommend them, but this has none: the plant rises with a forked stem, 3 or 4 feet in height, of an unearthly bluish-green, with leaves and heads of the same hue, and rushes rapidly into flower; and although the poet Burns (who was no doubt a better ploughman than a plantsman) says—

> "Our pleasures are like Poppies spread—
> We touch the plant the bloom is shed,"

yet the petals of the Poppy stick hard and fast to the heads, and do not fall off until they have done their work, and hence it is only after that time that if you touch them they will fall off, as most other flowers do when their time is come. I need not remark upon the importance to the farmer of a crop, the whole of which goes to rot and gets ploughed into the land, with the exception of the Poppy heads, for that is the only part that will be harvested. The Poppy takes less time to come to maturity than a crop of either Barley or Potatos, and it is beautifully adapted for a catch crop. If we take, for example, land prepared for Cow Cabbages, and have the drills 21 inches apart, and plant every alternate drill with Cabbage plants, and sow the rest with Poppy seed, the Poppies will have grown and come off the ground without injuring the Cabbage plants, and after due time the Cabbages will cover the whole of the ground. Gardeners, and particularly market gardeners, thoroughly understand this way of working to take two crops for one rent. The seeds of the Poppy are very small indeed, and require only a little fine soil or sand sprinkled over them by way of covering when sowed, and if the ground has been well rolled and smooth, there will be far less difficulty in sowing these than with sowing Carrots, and the cost for as much seed as would crop an acre will not be more than 1*d.* There will always be one consolation with this crop that it will not be preyed upon by insects: the flea beetle may nibble at your Turnips when they are just getting the rough leaf, but they will shun the Poppy leaf and branch in all stages of its growth. The stalks are strong and well able to support the heads, without any risk of the crop being laid by any ordinary summer wind. The gathering or harvesting has to be in bags, each head being cut off whilst the crop is standing, as the head has a number of outlets at the crown, which would allow the seed to get out if the heads were upset; therefore until the head is dropped into the bag there ought to be written on the crown, "Keep this side up." The threshing, riddling, and winnowing are all well known to farmers and seed-growers, and need not be named; but I must not pass over the fact that the seeds are naked and fit for food as soon as they are separated from the husks, and I need not say that when an article is a luxury in the raw state, there will be little difficulty to get it nicely cooked, at all events the milling will cost the grower nothing, and it will be a very bad harvest indeed if you cannot save the crop, as each head has an elegant penthouse over each opening all round to let out moisture and keep out rain from the seeds. In using the crop after it has been clean dressed it will be necessary to give it in small lots to cattle or poultry fattening, as it contains a large proportion of oil, and will fatten accordingly. As food for man it will assuredly be made into broth in Scotland, and take the place of Pearl Barley. In vain we turn over the pages of Soyer and other books on cookery; but there is time enough to get this department forward, for we must "first catch" the Poppy seed before we proceed with its cookery; and those who yet look upon this as an idle tale may yet live to see English-grown Poppy seed used as an important ingredient at their principal meal. I believe the French people required a good deal of coaxing before they would lay a tooth upon it, and we read of them being in the same way with Potatos when they were introduced. Giving the Potatos to poor people was of no service, and one gentleman is said to have put up a notice that "You are allowed to steal from this field;" and from these small and untoward beginnings great things have in due time been accomplished. If I had told any one a few years ago that any member of the Cucumber family—which at that time could not bear the wind to blow upon it, but was reared on hot-beds under glass, and was not for everybody's handling unless he had a blue shalloon apron, and had been well instructed in the mysteries of horticulture—that such a plant as this or anything like it should be grown in fields to feed bullocks upon, and that farm bailiffs should manage them—what would have been the reply? But all this has been done in my time, and a great deal more might have been done in some favoured spots than has been done. The shelter of trees and the filth of towns in certain localities would work wonders, as every practical man well knows. *Alex. Forsyth.*

Home Correspondence.

Adulteration of Seed.—The farmer and his friend, when introducing into Parliament "a Bill to prevent adulteration of seed," are really asking for protection against themselves. Who grows it but the farmer? Who keeps it damp or too dry, or too long? who but he and the dealer, to whom he has sold a "defect," are to blame. Cannot he form a farmer's seed club without coming to Parliament? Is he not competent to judge of the commodity he is to sow and grow? Or has a College of Agriculture, which is open to all, closed his eyes, and reduced his knowledge? Sir, I suspect that he is getting too well off, and does not associate with his neighbours enough, leaving his duty to be done by others. Good seed can easily be told, and if bad is occasionally bought the remedy is in getting a guarantee, which every respectable dealer will accede to. Bad seed, generally, does not germinate, being generally "treated" to sulphur, which entirely prevents fructification. Let him test it by his nose, and if this is all he has for a laboratory ask further and learn. What he complains of all merchants are sorely troubled withal; that so large a number of mankind are employed upon illegimate transactions is much to be deplored. I have heard him cry against adulteration of manure, but who would think of going to Parliament for the remedy, it being found by analysis and honest dealers; or by putting his ploughshare deeper in the soil, the latter quite annihilating the two former, while steam stands at his elbow, with its whistle to cheer him on. I have had also the pleasure and edification of conversing with my sweep upon soot as a manure, and its mysteries. "Sir," said he, "sut fetches next to nothing now a bushel, the farmer and market gardeners somehow does almost without; the Chemical Produce Company takes it off my hands at present, and our plant is quite out of use." At first, I was troubled to know what the merchant meant by "plant," having never in my experience seen anything beyond his sticks and rough radiating brush; he resumed with a sigh—"Yes, sir, the plant caused a good deal of outlay, and there it stands in my yard a-rusting, and I studies how to dye no more. You must know we had a regular run for sut some years ago; it was worked in the ground and out of it, around the plants, and even mixed with water, to such an extent that chimneys could't keep a pace with it; you might as well asked a cow to accommodate herself to all the wants of the rising generation, if all their natural mothers wouldn't suckle them: so you see a lucky thought struck one of our chaps. 'Bill,' he says, 'I saw some soredust lying in the road, which we shovel'd among the sut; its light and takes black well;' but when I came to mix it, I saw with half an eye that it was no-go; a child could discover it from t'other. Then a lucky thought came into my head as well; it was to dye it: 'twas no sooner thought on than done. I builds up a iron copper, got some logwood, succeeded; and my plated harness to my trap is a witness. Somebody must have blown upon the sawdust, otherwise it would never been found out; that College you speak of knows nothing about it. I can only account for people not using it now because its not fashionable." Now, Mr. Editor, if every one demanded protection from fraud, see what sweeping measures would be required to meet cases coming under our own eye and interest. *Henry Grafton, C.E., Tollington Park, July* 21.

Too Thick Sowing is the cause of such a serious diminution of many crops, that we cannot too soon give up so injurious a practice. Scarcely a week passes but I hear that Winter Beans are a wonderful crop in straw, but few or no pods. In my own case they have been considerably injured by drilling even 1½ bushel per acre; 1 bushel, or 3 pecks, would have produced a much better crop of pods. The straw is superabundant. Our Scotch friends are looked upon, very properly, as intelligent, well-educated agriculturists, but they are sadly at fault in thick sowing, not having generally emerged from the broadcast system. An extensive farmer of 500 acres of good land, in Wigtonshire, told me, only last week, that he sowed 7 bushels of Oats, 6 bushels of Barley, and 4 bushels of Wheat per acre. He visited my farm, where one-fourth of that quantity has proved ample, and was

greatly surprised. Of course no rule can be laid down without regard to soil, climate, and mode of farming, but it is quite certain that great crops cannot be grown from such excessive quantities of seed. The plants, in fact, injure or destroy each other—much as would unthinned Turnips or young plantations. I therefore commend each farmer to try comparative quantities on a small scale, and so arrive at safe conclusions. These excessive seedings account for the wretchedly small increase of 10 kernels for one, or one-fourth of a Wheat ear to each kernel. Such a result would be impossible with a reasonable quantity of seed—dressing and blowing machines, and the accurately depositing drill have rendered a reduced quantity of seed imperative. Probably the best yield on my farm will be from 2 pecks of Wheat per acre drilled. *J. J. Mechi, Tiptree, July* 15.

The Manchester Meeting.—The Royal Agricultural Society of England have never enjoyed such a satisfactory meeting as the one just concluded at Manchester. Everything combined to make the gathering pass off prosperously. The weather, except for heat, was exceedingly favourable, and tended greatly to enhance the pleasures attendant. The presence of the Prince and Princess gave great interest to the principal days, and caused a large influx of visitors. The authorities of the Cotton Metropolis achieved wonders, in which they were admirably aided by the dense population of the city and the neighbouring towns. The influx of visitors was immense, and all appeared in the highest glee, evidently determined upon the enjoyment of a happy holiday. Warehouses, mills, manufactories, and shops and offices, were all closed, and a truly gay holiday was accorded to all classes resident in and near these towns of tall chimneys. What could be more exhilarating to the bulk of the operatives than to be released from toil, and be gladdened with the many and varied spectacles of intense interest, so suited to every taste! There was the ornamentation of the large and populous town, thousands of flags and tasteful devices—the public entry of the Prince and Princess, and their procession through the principal streets, admirably protected by strong barriers. There was the amazing show of the *élite* of Britain's live stock—her best horses, cattle, sheep, and pigs. Next, the astonishing collection of implements, machinery, and every conceivable thing to promote comfort and economy in agriculture and domestic practice. To these a most admirable horticultural and floral exhibition was added, the whole extending over an area comprising in extent 100 statute acres—the most remarkable and the most interesting exhibition of the kind which has ever taken place. Such exhibitions, in the centre of our great manufacturing populations, cannot fail to do infinite good. It cannot do otherwise than promote a kindly feeling and response. The operatives in these large towns have the efforts, in the highest sense, of the agricultural public brought before them. There, in perfection, is the domestic live stock, from which source their cheapest and most early-matured animal food is to be derived; and there is every appliance in agricultural mechanics for economising labour, and cheapening the mainstay of life, with all its accompaniments in roots and vegetables. We hail such fraternising with delight. We rejoice to think that, as the food provides for our manufacturing brethren, so much is effected to enhance production at the least possible cost. It is from these prime animals that the best breeds emanate, and that the earliest maturity is attained, and consequently that animal food is produced at the cheapest rate. The improved implements and machinery have the similar effect in culture in the production of breadstuffs and vegetables. The object is to enhance cultivation by improved implements and machinery, so as to reduce the cost of culture and promote increased produce in the soil for the benefit of the public. We say the operatives seeing this—seeing the efforts made to provide them with food, cannot fail to view such with kindly feeling, and wish us every success. We know they are our best and most constant customers, and we are mutually engaged for each other's good—the one in the production of clothes and other necessary comforts, the other in using his best efforts to provide his fellow-countrymen with cheap food. We rejoice in being such true fellow-helpers. *O. F.*

New Zealand Flax.—In the last number of the *Agricultural Gazette*, Mr. Alexander Forsyth, writing about the cultivation of New Zealand Flax in Ireland, says—"Mr. Dickson hints at giving a trial to the Indian Rheea, which he hears has been grown in perfection in Regent's Park Gardens. What this latter plant may be, I am quite at a loss to know. It may be a misprint for Indian Corn (Zea), or Rhaeas, a species of Poppy," &c. Allow me to explain that the Rheea plant of India is the Bœhmeria nivea of Hooker and Amott, and is the same plant which furnishes the fibre now so well known as China Grass, the introduction and cultivation of which has been attempted of late years, with more or less success, in most of the British colonies. This is by no means a new plant, nor is its fibre, which is known also as Ramee fibre, new to British commerce. The Chinese have used it for a considerable period, and small quantities have been brought from time to time into the English market. It realises 80*l.* or more per ton. It is a native of China and Northern India, and a notice of its history and its introduction and success in the British colonies will be found at p. 489 of the *Gardeners' Chronicle* for 1868. With regard to the New Zealand Flax ever being extensively cultivated in Ireland, I fear Mr. Dickson's hopes are too bright to be realised. The plant, it is true, grows well enough out-of-doors even at Kew, where Mr. Dickson says it grows "only under glass," but it is a very different thing, as we see it in this country, grown only as an ornamental plant, from what it is in its native habitat, where, as I was recently told by a lady just returned from that country, the plants grow so thickly and to such a size as completely to obscure a man on horseback riding amongst them. *John R. Jackson, Kew, July* 27.

Societies.

HIGHLAND AND AGRICULTURAL.

This Society had a very large and successful meeting on Wednesday last, held in the West Meadows, Edinburgh. While some of the classes of cattle were numerous and exceedingly good, others were small in number and meagre in quality. The Shorthorns numbered 60 entries, the best classes being the aged bulls and yearling heifers; neither heifers nor bull calves were exhibited. Mr. Barclay's Heir of Englishman, having won the 1st prize in 1868, was shown for, and gained, the medium gold medal. Thirteen others comprised the aged class, which was headed by Sir W. Stirling Maxwell's Keir Butterfly 1st; Marmaduke 2d, belonging to Mr. J. Cochrane, and bred at Sittyton, standing 2d: and a bull, Lord-Lieutenant, bred in Cumberland, and owned by Mr. G. H. Head, 3d. Amateur, bred in Aberdeenshire, was commended; and among the beaten ones were Mr. Lambert's Pizarro, Mr. Copland's Warwick, and Baron Geneva, a winner at Leicester last year. In the 2-year-old bulls, Mr. Meadow's Charlie, a noted prize bull in Ireland, came in competition with Mr. Bruce's Baronet, bred by the Duke of Buccleuch, and after a long struggle was placed 2d, but not with the public approval; the 1st prize bull being light in the neck, with a harsh wiry coat. Beverley Lad, bred by Mr. Marshal Stephenson, was here 3d. The Duke of Buccleuch's blood was even more successful in the yearling classes for his Scotsman, owned by Mr. R. Bruce, stood 1st, and Watchman 2d, owned by Mr. R. Binnie, 3d; while Mr. Johnson came 2d, with Annan Water, a bull bred in Dumfriesshire, but rather common in appearance.

The cows were a shockingly poor show, considering how many good ones there are north of the Tweed; only four were entered. Sir W. Stirling Maxwell's Flower Girl was withdrawn, so Mr. Currie came 1st with Lord Strathallan's Rose of Strathallan, a daughter of Rosa Bonheur. The dam of Baron Geneva, *Adeline*, belonging to Mr. W. Adcock, was placed 2d, and a large square plain coloured cow, *Splendour*, of Mr. W. Lambert's, 3d. The next class was a struggle between Sir W. S. Maxwell's Henrietta, sold at the Costerton sale, and 3d at Aberdeen, and Lord Kinnaird's white Baroness Joscelyn, as round as a barrel, with a grand fore-end; she was, however, much smaller than Henrietta, appearing to want growth, and therefore came only 2d. Two entered by Lord Dunmore were not sent, and two of Mr. Corrie's, nicely brought out, were unnoticed. The yearling heifers were the largest class—16 entries, and here Mr. Barclay's herd, which is to be sold on the 21st September, came out in great strength with Booth's Seraphina, out of the dam of Heir of Englishman, 1st, and Booth's Lancaster, of Wilkinson's old Lancaster tribe, 2d; both were calved the same day, and the roan, 2d, perhaps was more even and fuller of substance, but hardly so large as the red daughter of the 240 gs. Seraphina 13th that stood 1st. Mr. R. Scott's Nelly Bligh, from Elgin, was 3d, after a strong fight with Mr. Meadows' Fanny 25th, shown at Manchester, commended; this class was by far the best among the Shorthorns.

The Polled Angus or Aberdeen also was a good show. Mr. M'Combie, M.P., had five entries, being 1st with one, and 2d with another. The aged bulls were headed with Mr. W. Taylor's Clansman, and the 2-year-olds by Lord Dunmore's Madeira, who was placed only 2d at Manchester; this class was good throughout. In the yearlings Mr. Jas. Scott showed a fine 18 months' Prince of Wales (1st), and Mr. M'Combie's Fordyce (2d). Two cows, prize winners at former meetings, were shown for the gold medals. The other six cows were headed by Mr. G. Brown's Caroline, Col. Fraser's Sybil, 2d, and Mr. M'Combie's, of Easter Skene, 3d, with Young Queen, who was also 2d in the 2-year-old heifers with Black Beauty; Mr. W. M'Combie, M.P., Tillyfour, 1st with Sweetheart. Colonel Fraser was 1st and 2d with the yearling heifers. The Galloway bulls were not a large entry, and came mostly from the neighbourhood of Carlisle, but the cows and heifers were more numerous. Mr. Thomas Biggar, of Dalbeattie, showed two fine cows, one of which was 1st, and Forest Queen, one of Mr. J. Graham's three, 2d. Mr. James Cunningham showed several, and was 2d and 3d with 2-year-olds, and 3d with cows; whilst the Duke of Buccleuch's entry from Drumlanrig was also numerous, and 1st, 2d, and 3d, in yearlings.

The Ayrshires were one of the largest shows ever seen at the Society's meetings. One hundred and one were exhibited of all varieties, and some remarkably good specimens among them. Sir Michael Stewart was 1st in aged bulls, and Mr. John Dicks in 2-year-olds—the Duchess of Athole's *Whitelegs*, and Mr. R. Wilson's *Mearns*, being the two gold medal cows; and the two sections of cows were shown in one class, in-milk and in-calf. This led to a little confusion. Mr. Lawrence Drew, a large exhibitor, was, however, 1st with the in-calf cows, and Mr. John Meikle 1st with one of his three in-milk. Mr. R. Murdoch was 1st with 2-year-old heifers, and Mr. Lawrence Drew again 1st with yearlings, Mr. J. Meikle standing 2d. Many of them were well brought out, with their beautiful almost oblong vessels and well polished horns.

In the Highland classes the Blair Athole herd was foremost in aged bulls and 2-year-old heifers, and 2d with bulls and cows. Mr. John Malcolm was 1st with 2-year-old and yearling bulls, whilst Mr. John Stewart's brindled cow, with a black hairy calf, was 1st in cows. The heifers were exceedingly good, and Mr. R. Peter's "Smigag Mhor," a light red, with wonderful hair, stood well out 1st; he was also 3d with "Stalchd Bhoidheach." There were some capital specimens of fat oxen, especially some Highlanders, Mr. C. Morrison's Charlie being one of the best 4-year-olds. The 3-year-olds were also thick, very hairy, and handsome. A few good crosses were also shown, the judges giving a very high commendation and silver medal to Messrs. J. & W. Martin's 4-year-old cross between a Shorthorn and cross.

As a collection of Clydesdale horses we have scarcely ever seen a show better represented. The entries were very numerous, and scarcely an empty stall was to be found. Mr. Murdo Bethune's "Conqueror" was 1st; he is a very fine brown horse of 5 years 2 months, and was bred near Gorebridge. Mr. David Riddell was 2d and 3d, with "Scottish Chief" and "Young Campsie" the latter being 1st at Kelso and Glasgow, and was reported to have been sold during the show, to go to Australia, at a high price. Mr. J. Fleming was 1st with entire colts three years old, and Mr. R. Weir with 2-year-olds. The yearlings were very numerous, and Mr. John Robertson was 1st, with a fine light bay 13 months' colt. Sir W. S. Maxwell's "Jess" was a long way the best mare; and Mr. Slatter's "Fanny," shown at Manchester, 2d. In 3-year-olds, Sir W. S. Maxwell was 2d, to Mr. Lawrence Drew's "London Maggie 2d." The 3-year-old fillies were not numerous, Mr. John Graham's "Belle" standing 1st. The 2-year-olds, a large good class, was headed with Mr. Alex. Buchanan's filly, and in yearlings, Mr. J. N. Fleming was 1st and 2d. The draught horses were shown in harness, and made a very pretty sight, doing a deal of credit to the grooms. A few useful hunters were exhibited, the Earl of Hopetoun being a successful competitor. Some Shetland ponies were also very clever, and Mr. Menzie's Belgian horse received general admiration. The Duke of Athole had a splendid Highland pony stallion, seven years old, led out by a stalwart Highlander, which gained the gold medal, having won the 1st prize at Inverness.

Class 3 comprised a very large show of Border Leicester sheep, many of which were scarcely fairly shorn. Mr. Brodie, of Leaston, took the 1st and 2d prizes for aged Leicesters, the only ones shown, and Mr. Torrance was 2d and 3d to Mr. Ford's 1st in shearlings, who was also 1st in gimmers. In Border Leicesters there were 20 aged sheep, with the Rev. R. W. Bosanquet's three-shear at their head—a sheep of good quality, but large knees; Mr. Dinning stood 2d. Sixty-four shearlings competed, Mr. Simson of Blainslie, showing nine, and obtaining the 1st with one of them; Mr. Adam Smith was 2d, and Messrs. Dinning 3d, whilst several were commended despite their shearing. The ewes were not so numerous, and here Mr. Simson, Courthill, was 1st, and in shearling ewes Messrs. Dinning took the 1st place against the Duke of Buccleuch's 2d and Mr. L. Drew's 3d. In Cheviots Mr. Brydon was in most cases successful. Southdowns and other short-wools were but moderately represented. Mr. Scot Skirving won a Southdown prize for aged sheep, and the Earl of Strathmore for shearlings, whilst in a good class of ewes Sir W. G. Gordon Cumming was 1st with a pen of five. In shearlings the two judges differed, one of them, a Shropshire breeder, going for Lord Strathmore, and the other, a Southdown man, for Mr. Gordon: as no one was present to decide, both sheep got a 1st prize. In other sheep Mr. John Gibson was 1st for tups and ewes. Pigs had a poor show. Messrs. Duckering's entries were withdrawn, so Mr. Mangles won several prizes, others going to Nicol Milne, Dryhope, and Robert Philip, Bridge of Allan. A large poultry show was held, and the implements had no cover, but were merely placed up and down the meadows in rows. Traction-engines in motion, and stone breakers drew the larger share of notice. The show was embellished with various coloured flags fastened on the outside hoarding, and during the course of the afternoon the horses paraded round the ground with a flag-bearer at their head. A Highland military band and pipes enlivened the proceedings of the day, which were a little damped with a heavy, but needful shower, about 10 o'clock; still the result of the first day showed a great success, as 644*l.* were taken at the doors, against 473*l.* when the show was held in Edinburgh in 1859.

The following is the prize list:—

Class I.—CATTLE.

Judges.—Shorthorn: Thomas Harris, Stoneylane House, Bromsgrove; Nicol Milne, Faldonside, Melrose; William Owen, Blesington, Ireland.—Polled Angus: William Fullerton, Mains of Ardestie, Dundee; Arthur Glennie, Fernyflatt, Bervie; Robert Walker, Montbletton, Banff. — Galloway: John Graham, of Shaw, Lockerbie; William Sproat, Borness, Kirkcudbright.—Ayrshire: Andrew Allan, Munnoch, Dalry, Ayrshire; Hugh Kirkwood, Killermont, Maryhill, Glasgow; James Pollock, Raws, Kilmarnock.—Highland: John Grant, Inverlaideran, Carr Bridge; John Lorne Stewart, of Coll, Campbelton.

Shorthorn.

1st-prize Bulls at former Shows.—No. 1, George Robertson Barclay, of Keavil, Dunfermline, Heir of Englishman.

Section 1. Bulls calved before January 1, 1867.—1st, Sir Wm. Stirling Maxwell, of Keir, Bart., Dunblane, Keir Butterfly 1st; 2d, James Cochrane, Little Haddo, Newburgh, Aberdeen, Marmaduke 2d; 3d, George H. Head, Rickerby, Carlisle, Lord-Lieutenant.

Section 2. Bulls calved after January 1, 1867.—1st, James Bruce, Burnside, Fochabers, Baronet; 2d, Joseph Meadows, Thornville, Wexford, Ireland, Charlie; 3d, Sir Thomas Buchan Hepburn, of Smeaton, Bart., Prestonkirk, Beverley Lad.

Section 3. Bulls calved after January 1, 1868.—1st, Robert Bruce, Newton of Struthers, Forres, Scotsman; 2d, John Johnstone, of Halleaths, Lochmaben, Annan Water; 3d, Robert Binnie, Seton Mains, Longniddry, Watchman 2d.

Section 4. Cows of any age.—1st, James Currie, Halkerston, Gorebridge, *Rose of Strathallan*; 2d, W. H. S. Adcock, Farndish, Wellingborough, *Adeline*; 3d, William Lambert, Elvington Hall, Haydon Bridge, *Splendour*.

Section 5. Heifers calved after January 1, 1867.—1st, Sir William Stirling Maxwell, of Keir, Bart., Dunblane, *Henrietta*; 2d, Lord Kinnaird, K.T., Rossie Priory, Inchture, *Baroness Jocelyn*; 3d, James Currie, Halkerston, Gorebridge, *Minnie Annandale*.

Section 5. Heifers calved after 1st January, 1868.—1st, George Robertson Barclay, Keavil, Dunfermline, *Booth's Seraphina*; 2d, George Robertson Barclay, Keavil, Dunfermline, "Booth's Lancaster:" 3d, Robert Scott, Manbeen, Elgin, "Nelly Bligh."

POLLED ANGUS OR ABERDEEN.

1st-prize Bulls at former Shows.—Alexander Morison, Bognie, Mountblairy, Turriff, OBEN 2D.

Section 7. Bulls calved before January 1, 1867.—1st, William James Tayler, Huntly, CLANSMAN; 2d, James Scott, Stonehaven, TAMERLANE; 3d, D. R. L. Grant, Alford, PRESS OF ABERDEEN.

Section 8. Bulls calved after January 1, 1867.—1st, the Earl of Dunmore, Stirling, MADEIRA; 2d, Alexander Bowie, Arbroath, JIM CROW 3D; 3d, William James Tayler, Huntly, ELECTOR.

Section 9. Bulls calved after January 1, 1868.—1st, James Scott, Stonehaven, PRINCE OF WALES; 2d, William M'Combie, M.P., Tillyfour, FORDYCE; 3d, Alexander Paterson, Keith, SIR WILLIAM.

1st-prize Cows at former Shows.—Colonel Charles Fraser, Castle Fraser, Aberdeen, "Mina."

Section 10. Cows of any age.—1st, George Brown, Fochabers, *Caroline*; 2d, Colonel Charles Fraser, *Sybil*; 3d, William M'Combie, Skene, Aberdeen, *Young Queen*.

Section 11. Heifers calved after January 1, 1868.—1st, William M'Combie, M.P. Tillyfour, *Sweetheart*; 2d, William M'Combie, Castle Skeene, *Black Beauty*; 3d, James Skinner, Ballindalloch, *Beauty*.

Section 12. Heifers calved after 1st January, 1867.—Col. C. Fraser, *Lively*; 2d, Col. C. Fraser, *Bella*; 3d, William M'Combie, Easter Skene, *Lady Bird*.

GALLOWAY.

Section 13. Bulls calved before January 1, 1867.—1st, James Graham, Braidlee, Newcastleton; 2d, William Clark, Corra, Kirkunzeon; 3d, William Keir, Newcastleton.

Section 14. Bulls calved after January 1, 1867.—1st, William Beaty, Brisco Hill, Longtown, Carlisle.

Section 15. Bulls calved after January 1, 1868.—1st, Peter Morton, Laws Hall, Longtown; 2d, John Thomson, Blaiket, Crocketford.

1st-prize Cows at former Shows.—James Cunningham, Tarbreech, Dalbeattie.

Section 16. Cows of any age.—1st, Thomas Biggar, Dalbeattie; 2d, James Graham, West Linton, Carlisle; 3d, James Cunningham, Dalbeattie.

Section 17. Heifers calved after January 1, 1867.—1st, Joseph Kerr, Cocketfield, Dumfries; 2d, James Cunningham, Dalbeattie; 3d, James Cunningham.

Section 18. Heifers calved after January 1, 1868.—1st, the Duke of Buccleuch and Queensberry, K.G.; 2d, the Duke of Buccleuch and Queensberry; 3d, the Duke of Buccleuch and Queensberry.

AYRSHIRE.

Section 19. Bulls calved before January 1, 1867.—1st, Sir Michael R. Shaw Stewart, of Ardgowan, Bart.; 2d, Robert Wilson, Forehouse, Kilbarchan; 3d, John Hyslop, New Cumnock.

Section 20. Bulls calved after January 1, 1867.—1st, John Dick, Shirrell, Bell-hill; 2d, John Meikle, Seafield, Bathgate; 3d, Thomas Ballantyne, East Kilbride.

1st-prize Cows at former Shows.—The Dowager Duchess of Athole, Dunkeld.

Section 21. Cows in-Milk, of any age.—1st, John Meikle, Seafield, Bathgate; 2d, Robert Young, Cambuslang; 3d, James Williamson, Blantyre.

Section 22. Cows in-Calf, of any age.—1st, Lawrence Drew, Merryton, Hamilton; 2d, William Hunter, Abington; 3d, James Pollok, Blackhouse, Newton Mearns.

Section 23. Heifers, calved after January 1, 1867.—1st, Robert Murdoch, Hallside, Cambuslang; 2d, Stewart Turnbull, Bonhill Place, Renton; 3d, George Pender, Dumbreck, Kilsyth.

Section 24. Heifers calved after January 1, 1868.—1st, Lawrence Drew, Merryton, Hamilton; 2d, John Meikle, Seafield, Bathgate; 3d, Gabriel Dunlop, Castle Farm, Stewarton.

HIGHLAND.

1st-prize Bulls at former Shows.—The Hon. Lady Menzies, Rannoch Lodge, Pitlochrie.

Section 25. Bulls calved before January 1, 1866.—1st, the Duke of Athole, K.T.; 2d, the Duke of Athole, K.T.; 3d, Archibald Clark, Garvie, Glendaruel, Colintraive.

Section 26. Bulls calved after January 1, 1866.—1st, John Malcolm, Poltalloch, Lochgilphead; 2d, John Stewart, Portree; 3d, the Hon. Lady Menzies, Pitlochrie.

Section 27. Bulls calved after January 1, 1867.—1st, John Malcolm, Poltalloch, Lochgilphead; 2d, Donald M'Laren, Corrychrone, Callander; 3d, Robert Peter, Urlar, Aberfeldy.

1st-prize Cows at former Shows.—The Duke of Athole, K.T.

Section 28. Cows of any age.—1st, John Stewart, Duntulm, Portree; 2d, the Duke of Athole, K.T.; 3d, John Malcolm, Poltalloch, Lochgilphead.

Section 29. Heifers calved after January 1, 1866.—1st, the Duke of Athole, K.T.; 2d, John Malcolm, Poltalloch; 3d, A. & A. M'Donald, Strathmashie, Kingussie.

Section 30. Heifers calved after January 1, 1867.—1st, Robert Peter, Urlar, Aberfeldy; 2d, John Malcolm, Poltalloch; 3d, Robert Peter, Urlar.

CLASS II.—HORSES.

JUDGES.—Clydesdales, and Extra Draught Horses: John Buchanan, Coldrach, Drymen; John Dove, Eccles Newtown, Kelso. Robert Finlay, Springhill, Baillieston.—Hunters, Carriage, and Extra: Sir David Baird, of New Byth, Bart., Preston kirk; Robert Calder, Kellee Mains, Earoun.

FOR AGRICULTURAL PURPOSES.

1st-prize Stallions at former Shows.—James Hall, Frederick Street, Aberdeen.

Section 1. Stallions foaled before January 1, 1866.—1st, Murdo Bethune, Drieu, Beauly, "Conqueror;" 2d, David Riddell, Kilbucho, Dunteacher, "Scottish Chief;" David Riddell, Dunteacher, "Young Campsie."

Section 2. Entire Colts foaled after January 1, 1866.—1st, James Nicol Fleming, Kiel, "Prince of Wales;" 2d, Peter M'Rosie, Aberdeen, "Scottish Chief;" 3d, Peter Crawford, Strathblane, "Rattling Robin."

Section 3. Entire Colts foaled after January 1, 1867.—1st, Robert Weir, Carnwath, "Victor." 2d, James Mole, Wiston, Biggar, "Sir William Wallace." 3d, Thomas Milne, Insch, Aberdeen, "Young Inkermann."

Section 4. Entire Colts foaled after January 1, 1868.—1st, John Robertson, Lochwinnoch; 2d, John Ritchie, Biggar, "Young Farmer's Fancy;" 3d, John Wilson, Crosshouse, Roslin, "Dryden."

Section 5. Mares (with foal at foot) foaled before January 1, 1866.—1st, Sir William S. Maxwell, of Keir, Bart., 2d, Ralph Stark, Camelon House, Falkirk; 3d, Allan Snodgrass, Cardross, "Bell."

1st-prize Mares at former Shows.—John Watson, Glencairn House, Motherwell.

Section 6. Mares (in Foal) foaled before January 1, 1866.—1st, Lawrence Drew, Merryton; 2d, Sir William Stirling Maxwell, of Keir, Bart.; 3d, Robert M. Buchanan, Mid Calder.

Section 7. Fillies foaled after January 1, 1866.—1st, John Graham, Mid-Calder; 2d, James Fleming, Carmunnock; 3d, Robert M. Buchanan, Mid-Calder.

Section 8. Fillies foaled after January 1, 1867.—1st, Alexander Buchanan, Garscadden Mains, New Kilpatrick; 2d, William Kirkwood, Stanlymuir, Paisley; 3d, James Nicol Fleming, Kiel, Campbeltown.

Section 9. Fillies foaled after January 1, 1868.—James Nicol Fleming, Kiel, Campbeltown; 2d, James Nicol Fleming; 3d, William Kerr, Mid-Calder.

EXTRA SECTIONS.

Section 10. Mares or Geldings foaled before January 1, 1865, suitable for field.—1st, Andrew Williamson, 15, Moray Place, Edinburgh; 2d, Earl of Hopetoun; 3d, Allan Gilmour, Eaglesham House, Glasgow.

Section 11. Mares or Geldings foaled between January 1, 1865, and January 1, 1866, suitable for field.—1st, Earl of Hopetoun; 2d, James Walker, Hillhead, St. Andrews; 3d, James Allan, Stonehouse.

Section 12. Mares or Geldings foaled between January 1, 1866, and January 1, 1867, suitable for field.—1st, William Forbes, Callendar, Falkirk; 2d, Thomas Cunningham, Burntisland; 3d, W. Brodie, Leaston, Upper Keith.

Section 13. Mares or Geldings foaled before January 1, 1865, suitable for carriage.—1st, John H. Macnab, South Arthurlie, Barrhead; 2d, Andrew Williamson, Edinburgh; 3d, Earl of Hopetoun.

Section 14.—Draught Mares or Geldings in harness.—1st, Thomas Ross, Hillhead, Forres; 2d, James M'Call, Gallowhill, Carmunnock; 3d, John Hutton & Co., Rankeillor Street, Edinburgh.

Section 15.—Mares or Geldings between 12 or 14 hands high.—1st, William Hogg, West Lauriston Place, Edinburgh; 2d, Robert Scott Skirving, Camptoun, Drem; 3d, Thomas Watson, Esperton, Gorebridge.

Section 16.—Mares or Geldings under 12 hands high.—1st, James Mack, Upper Keith, Edinburgh; 2d, John Torrance, East Crosscauseway, Edinburgh; 3d, M. G. Rannie, Edenmouth, Kelso.

EXTRA HORSES.—PONIES.

1st-prize Pony Stallions at former Shows.—The Duke of Athole, K.T.

CLASS III.—SHEEP.

JUDGES.—Leicesters and Long-woolled: Robert Hardie, Harrietfield, Kelso; George H. Sanday, Holme Pierrepont, Notts; Jacob Wilson, Woodhorn Manor, Morpeth.—Cheviot: George M'Call, Burrand, Lockerbie; David Mundell, Heath Cottage, Inverness; John Robson, Bryness, Otterburn.—Blackfaced: James Craig, Polquheys, New Cumnock; James Jardine, Killunan, Fintry; Peter Robertson, Achilty, Dingwall.—Southdown and Short-woolled: Charles Randall, Chadbury, Evesham; Henry Woods, Merton, Thetford.

LEICESTER.

Section 1.—Tups not above 4-shear.—1st, J. W. Brodie, Leaston, Upper Keith; 2d, J. W. Brodie.

Section 2.—Dinmont or Shearling Tups.—1st, William Ford, Hardengreen, Dalkeith; 2d, George Torrance, Sisterpath, Dunse; 3d, George Torrance.

Section 3.—Ewes not above 4-shear.—1st, James Fleming, Carmuirs, Falkirk.

Section 4.—Shearling Ewes or Gimmers.—1st, William Ford, Hardengreen, Dalkeith; 2d, George Torrance, Sisterpath, Dunse; 3d, James Fleming, Carmuirs, Falkirk.

BORDER LEICESTER.

Section 5. Tups not above 4-shear.—1st, Rev. R. W. Bosanquet, Rock, Alnwick, Northumberland; 2d, J. & W. Dinning, Nilstone Ridge, Haydon Bridge; 3d, T. Simson, Blainslie, Lauder.

Section 6. Dinmont or Shearling Tups.—1st, T. Simson, Blainslie; 2d, Adam Smith, Stevenson Mains, Haddington; 3d, J. & W. Dinning.

Section 7. Ewes not above 4-shear.—1st, G. Simpson, Courthill, Kelso; 2d, J. & G. Laing, Cornhill, Coldstream; 3d, Rev. R. W. Bosanquet, Rock, Alnwick.

Section 8. Shearling Ewes or Gimmers.—1st, J. & W. Dinning; 2d, the Duke of Buccleuch; 3d, Laurence Drew, Merryton, Hamilton.

CHEVIOT.

Section 9. Tups not above 4-shear.—1st, James Brydon, Kinnelhead, Moffat; 2d and 3d, Thomas Elliot, Hindhope, Jedburgh.

Section 10. Dinmont or Shearling Tups.—1st, 2d, and 3d, James Brydon, Kinnelhead, Moffat.

Section 11. Ewes not above 4-shear.—1st, James Brydon, Kinnelhead, Moffat; 2d, John M'Gregor, Belridding, Dumfries; 3d, James Archibald, Glengelt, Lauder. Best pen of Lambs.—James Brydon, Kinnelhead, Moffat.

Section 12. Shearling Ewes or Gimmers.—1st, James Brydon, Kinnelhead, Moffat; 2d, James Archibald, Glengelt, Lauder; 3d, Thomas Elliot, Hindhope, Jedburgh.

BLACKFACED.

Section 13. Tups not above 4-shear.—1st and 2d, John Archibald, Overshiels, Stow; 3d, Thomas Aitken, Listonshiels, Balerno.

Section 14. Dinmont or Shearling Tups.—1st, John Archibald, Overshiels, Stow; 2d and 3d, Charles Howatson, Dornel, Muirkirk.

Section 15. Ewes not above 4-shear.—1st, John Archibald, Overshiels, Stow; 2d, Thomas Murray, Eastside, Penicuik; 3d, James Inch, Mithellhill, Biggar. Best Pen of Lambs.—Thomas Murray, Eastside, Penicuik.

Section 16. Shearling Ewes or Gimmers.—1st, John Archibald, Overshiels, Stow; 2d, John Wilson, Crosshouse, Roslin; 3d, John Malcolm, Poltallock, Lochgilphead.

SOUTHDOWN AND OTHER SHORT-WOOLLED.

Section 17. Tups not above 4-shear.—1st, Robert Scot Skirving, Camptoun, Drem; 2d and 3d, John Gibson, Woolmet, Dalkeith.

Section 18. Dinmont or Shearling Tups.—1st, the Earl of Strathmore, Glamis Castle, Glamis; 2d, Sir W. G. Gordon Cumming, Altyre, Forres; 3d, the Earl of Strathmore, Glamis Castle, Glamis.

Section 19. Ewes not above 4-shear.—1st, Sir W. G. Gordon Cumming; 2d, John Gordon, Parkhill, Aberdeen; 3d, the Earl of Strathmore.

Section 20. Shearling Ewes or Gimmers.—1st, John Gordon, Parkhill, Aberdeen (Southdown); equal 1st, the Earl of Strathmore; 3d, John Gordon, Parkhill, Aberdeen.

LONG WOOLLED OTHER THAN LEICESTER.

Section 21. Tups not above 4-shear.—1st, John Gibson, Woolmet, Dalkeith; 2d, Walter Reid, Drem; 3d, W. Norman, Hall Bank, Aspatria.

Section 22. Ewes not above 4-shear, or Gimmers.—1st, John Gibson, Woolmet, Dalkeith; 2d and 3d, Walter Reid, Drem.

EXTRA SHEEP.

The following were Highly Commended, and Silver Medals awarded:—5 Blackfaced Wethers, W. Whyte, Spott, Kirriemuir; 5 Shropshire Lambs, the Earl of Strathmore; 5 Dorset Ewes, R. Scot Skirving.

The following were Commended, and Medium Silver Medals awarded:—5 Border Leicester Ewes, John Lees, Haddington; 5 Cheviot Shearling Wethers, John Miller, Thurso; Cotswold Tup (3 shear), John Gibson, Dalkeith; Cotswold Ewe (3-shear), John Gibson.

CLASS IV.—SWINE.

JUDGES.—Robert Blunie, Seton Mains, Longniddry; Alexander Young, Keir Mains, Dunblane.

Section 2. Boars, Small Breed.—1st and 2d, George Mangles, Great Givendale, Ripon; 3d, John Fletcher, Sutton Hall, Tranent

Section 4. Sows, Small Breed.—1st and 2d, George Mangles, Great Givendale, Ripon; 3d, Alexander Stewart, Bridge of Earn, Perth.

Section 5. Pens of 3 Pigs not exceeding 8 months old, Large Breed.—1st and 2d, Nicol Milne, Dryhope, Selkirk; 3d, George Mangles, Great Givendale, Ripon.

Section 6. Pens of 3 Pigs not exceeding 8 months old, Small Breed.—1st, Robert Philp, Royal Hotel, Bridge of Allan; George Mangles, Great Givendale, Ripon; 3d, Robert Philp, Royal Hotel, Bridge of Allan.

CLASS VI.—IMPLEMENTS.

JUDGES.—John Gibson, Woolmet, Chairman of Society's Machinery Committee; Prof. Macquorn Rankine, Hon. Consulting Engineer to the Society; Alexander Slight, Edinburgh, Practical Engineer to the Society; Professor Wilson, Edinburgh University; Sir Thomas Buchan Hepburn of Smeaton, Bart.; George Hope, Fenton Barns; William Sadler, Ferrygate, Drem; James Wilson, Wester Cowden, Dalkeith; Thomas Park, Stoneyhill, Musselburgh; Robert Russell, Pilmuir, Leven Thomas Mylne, Niddry Mains, Liberton; Alexander Henderson, Longniddry.

Silver Medals were awarded to the following, amongst others:—Thornton & Co., 78, Princes Street, Edinburgh; Thomas Bradford & Co., Cathedral Steps, Manchester (Churns, &c.); John Pringle, Edinburgh (Blake's Stone-Breaking Machine); Richmond & Chandler, Salford, Manchester (Chaff-cutter); John Anderson, Monifieth, Dundee (Grain Drilling Machine); John Baker, Wisbeach (Winnowing Machines); Gibson & Tait, Edinburgh (Fencing, &c.); R. Hornsby & Son, Grantham; Benjamin Reed & Co., Aberdeen; Mrs. Thomas Shirreff, West Barns, Dunbar; Williamson Brothers, Kendal; J. Young & Co., and W. Bain & Co., Edinburgh; R. W. Thomson, 3, Moray Place, Edinburgh.

Medium Silver Medals were awarded to the following, amongst others:—Thomas Carr, Montpelier, Bristol (Disintegrator); Henry Denton, St. Peter's Works, Wolverhampton (Adjustable Harrow); William Waide, 5, South Brook Street, Leeds (Barrel Churns); Thomas Halliday, Rosehall, Haddington (Section of Threshing Machine); William Hudspith & Co., Wishaw, Motherwell; Richmond & Chandler, Salford (4-Horse Gear); Peter Winton, Thorn, Falkirk (Plough and Bean Barrow); John Anderson, Monifieth (Wheeled Hand-Rake and Reaping Machine Rake); James Angus, Glasgow (Tipping Cart); Brigham & Bickerton, Berwick-on-Tweed (Drill-Rollers and Turnip-Sowers); J. Fowler & Co., Leeds (Traction Engine); David Gordon & Co., Ayr (Curd Mill); James Hunter, Cousland, Dalkeith (12-row Lever Corn-drill); William Kirkwood, Lothian Bridge, Dalkeith (Norwegian Harrow); Mackay & Fairbairn, Sciennes Iron Works, Edinburgh (Strained Fence, &c.); A. & J. Main & Co., Glasgow (Wire Fence, &c.); W. Reid, Granton Lodge, Edinburgh (Railway Cattle-waggon); James Watt, Biggar (Broadcast Sowing-machine for Grain and Grass Seeds); John Wingate, Alloa (Hay-racks for Sheep, &c.)

BOROUGHBRIDGE.

Best Mode of Harvesting Grain Crops.—At the last quarterly meeting a paper on this subject was read by Mr. W. HARLAND, of Blows Hall, from which we make the following extracts:—

It appears to me that the subject divides itself into two parts—1st, the proper time at which grain may be cut; 2d, the best means of harvesting. Wheat, being most valuable for human food, demands first consideration. It is advantageous to cut Wheat a week before the grain is ripe. This saves time, improves the quality of the grain, and enables the crop to withstand the effects of rain for a much longer period than if left standing until fully ripe. This is no new theory, but was the practical experience of old men whom I have known; agriculturists who calculated the cost, and had long ago arrived at the conclusion that the plan was economical. Experiments are recorded proving that Wheat cut when raw, say a week or 10 days before being fully ripe, gave in weight and quality of produce 20 per cent. advantage over that which was left until dead ripe. As this is an important question, I quote from Mr. J. C. Morton's "Cyclopedia"—"Wheat should be cut as soon as it has passed from the milky to the doughy state; if deferred later the grain is thick-skinned and lighter to the bushel—and is very liable to become discoloured by rain either before it is cut or in the stook; it is, moreover, more apt to sprout. The straw too breaks down, the crop is more expensive to cut, and it is impossible to make so clean work as when the operation is performed at the proper time. I have no doubt that there is infinitely more loss sustained in Britain from allowing Wheat to become dead ripe, than from cutting it when too raw." With these remarks I agree, except that I do not cut quite so early as here recommended. Oats, for home use, are better for being cut rather early; for after the straw ripens near the root, what is lost to the grain is retained in the straw, thus providing horses with a pleasant food. Moreover, there is often great loss sustained by the shedding of Oats when very ripe. It may be said that it is a long way to go for a hint; but it may be well to note that the colonists of New South Wales cut Oats green, so as to secure a supply of oat-hay, which is highly esteemed for horses which have to endure long journeys and hard riding. Of course this plan cannot be pursued when the Oats are required for market; yet it is well to bear in mind that if sweet straw is wanted, it must not be over ripe. Barley is the only cereal which needs to be perfectly ripe when cut, so as to acquire the correct colour for malting—yet, if allowed to stand uncut until over ripe, there is great risk of the ears being broken off by the wind. The Bean crop is considered ready for cutting when the leaves begin to fall or become withered, not allowing excessive ripeness, as the grain is apt to shed out in cutting. The most hazardous crop to deal with is the Pea, which will not bear being left to ripen, else the seed quickly sheds, and in damp weather ripe haulm quickly spoils. This is the only crop which needs the sickle or lock; else this time-honoured work tool might be hung up in the British Museum. While using the hook the Peas are drawn aside into small heaps, which need turning over before they are ready for the stack. When they are ready for carting, no time should be lost. To-morrow will not do as well as to-day if they are in good condition."

Mode of Reaping.—We have now to consider the most economical mode of reaping Wheat, Oats, Barley, and Beans. There used to be but two modes, viz., the sickle and the scythe. Work done by the sickle was

neater than the scythe, but the progress was too slow, and when hands were scarce, harvest work was retarded —hence the scythe became a necessity, although neat farmers of that day declared that only slovens used the scythe amongst Wheat. Happily, the reaper or mowing machine was invented and came to our aid, performing the operation with the neatness of the sickle, and in every way better than the scythe, and sparing the best hands for other operations. Labourers have said that they have earned more money in harvest at piecework with the scythe than since the invention of the reaping machine. But at what cost? Excessive toil. To me it is a great pleasure when any invention alleviates human toil—none more valuable than the reaping machine; for harvest work needs to be pushed on during the heat of the day. Having mentioned our friends the labourers, I may add that it behoves us always to reward, justly, the skilful and industrious. The question arises, Which is the best description of reaping machine—the one or two horse manual, the self-raking sheafer, or the swathing machine? It would ill become me in this place to endeavour to define; suffice it if I venture to reply—the machine of lightest draught, which leaves the crop in most convenient form for the succeeding operations with the least manual labour. I am of opinion that if a machine requires manual labour beyond the driver of the horses, it is imperfect, and needs improvement. The manual delivery reaper is very valuable under suitable conditions. Some men are very expert with the rake putting off the corn; but I have often seen very sad work done by careless or incompetent men. That is one reason why I prefer a machine which leaves the corn in swathe. Again, if there be Clover growing amongst Barley it is an advantage sometimes to leave it exposed a while; it is more safely left overnight in swathe than in sheaf, drying more quickly after rain. During eleven seasons we have used Burgess & Key's machine, with screw delivery, which lays a neat swathe, has worked well, and at little cost for repairs. I have heard of 28 acres being cut by one of these machines in a long day, but I think 18 or 20 acres, with change of horses, is a fair quantity. Of course the quantity must be further reduced if the crop be very heavy and twisted, so that it is necessary to run empty on one side. It is so long since we used the scythe that I cannot now refer to calculations clearly defining the economy of cost in the subsequent operations, but this I know, that there is a material saving of time, and the work is better done. It is worthy of remark that if a labourer has ever taken up after a good mowing machine, that labourer is afterwards shy about following a scythe. The design of machines to lay in sheaf without manual aid is economical, and I hope to see it brought to perfection for heavy work. When the crop has been cut and is lying in swathe or sheaf, what is next to be done? By means of an ordinary harvest rake the sheaves about one foot in diameter are laid into bands drawn from swathe and laid ready by children, followed by a binder, who makes the sheaves tidy, and throws them aside into straight rows for convenience of the stooker.

Stooking.—The men who stook or set up the sheaves should be the most expert that can be found, quick, and careful to handle the sheaf, so that when placed in stook that part of the band where the ears are connected be out of reach of rain. Nothing can make up for bad stooking. Eight sheaves of Barley or Oats in a stook, so placed as to form a perfect roof, with ends east and west and in line, so that the least possible space be passed by the rake. If this be done a great deal of rain may fall without much damage, and if it be necessary after much rain to remove on to fresh ground it may be accomplished by two men grasping firmly four sheaves each without destroying the form; but less moved the better. If, on the contrary, the sheaves be carelessly placed at first, the base becomes distended, the back of the sheaf is broken, and the rain runs in, instead of flowing off. One of the best samples of Barley we have had stood out for 27 days in 1866, when there was much rain. It was well stooked, afterwards dried by fine weather, and made 50*s.* per qr. These remarks on stooking apply likewise to Wheat, with the addition of hood sheaves, which are necessary when the formation of an ear of Wheat is taken into consideration. I know that there is in many minds a prejudice against hooding Wheat, formed perhaps in the days of the scythe, when sheaves were often untidy. Now there is hardly an excuse for untidy sheaves. I have seen the operation so badly performed that it was merely waste of time, but when well finished and the hoods tied on, the grain will feed much better than when left exposed, and be preserved from the influence of bad weather. Truly this adds about 1*s.* an acre to the expense, but 1*s.* per qr. is gained in the colour of the Wheat, to say nothing of the comfort, when rain is falling, of knowing that every care has been taken. It is almost needless to add that after raking between stooks with a horse-rake, Wheat rakings should be bound up ready for forking, causing less trouble than when loose. In fine weather the corn will be ready for carting in about eight days, but that must be ascertained by observation; circumstances vary.

Stacking and Thatching.—Whether the stack be round or oblong does not appear to me of much importance, the condition of the corn is the criterion, the chief matter is the construction of the stack. I have seen damage at the base and roof which might have been avoided. If a round stack is to be built on a base of straw or thorns, the first or central sheaf should be placed erect, with others resting round it, the ears of each succeeding course resting on the straw of a previous sheaf, so that not an ear of grain may suffer from damp; if an oblong stack, we stook down the centre for the same reason. When reaching the eaves and while roofing the stack must be well filled, so that the roof be correct in form, finished with a forkful of straw; then if a shower falls before thatching it will be thrown off, not into the stack. After thatching, the eaves should be cut and side shaven, so that loose corn be applied to its proper use, and prevent snow resting on the stack sides. Cocoanut fibre is useful for fixing the thatch, being more durable than common hemp twine, and less expensive than tarred cord. I have said little about the cost of harvesting, because the cost of labour varies in different districts, and much depends on the weight of the crop. While discussing this subject, I suppose that we must not pass by the fact that occasional seasons have occurred when the elements seemed to conspire against man's best efforts. In the anxiety of the moment, numerous are the expedients resorted to. Hollow stacks, with ventilators of rough timber, &c., are useful in some cases, especially with Beans, but great care is needful when cereals are removed from the field before they are well dried. The latest invention I have heard of is an apparatus contrived by Mr. W. A. Gibbs, of Gilwell Park, Essex, consisting of a drying house, made of iron or brick, with a flooring of sheet iron placed 10 or 12 inches above the ground, fitted with perforated conical tubes, 15 inches high and 12 inches apart, on which may be placed sheaves of corn. By means of steam or horse power driving a fan, a continuous stream of hot air is propelled into the building, beneath the iron floor, and escapes through the sheaves: it is said to dry them in 15 minutes. This invention is at least novel, although the process in my opinion is impracticable to any extent; but as it cannot be compared with sunshine, let us trust that it will please the Giver of All Good to grant fine weather during the appointed weeks of the harvest.

Discussion.

Mr. Bainbridge agreed with Mr. Harland that it was wise to cut Wheat early, as his experience in the matter had always convinced him that early cutting was the best. There were two dangers to encounter in cutting late, namely, that the corn was liable to shake, and that it was also thick in the skin. He referred to Gibbs' plan of a Wheat dryer constructed for the Duke of Sutherland, and it seemed to him a very excellent invention if it could be profitably worked. It would be well if some cheap apparatus could be invented for use in bad weather in drying corn. In the West Riding the large cloth manufacturers did not now dry their materials in the field. The cloth went in damp at one end of a room adapted for the purpose, and by means of an apparatus it came out at the other end quite dry. Why could not some similar plan be carried out with regard to the drying of corn.

Mr. Bennett said that he agreed it was better to cut early, as he had tried both early and late cutting. He remembered having two samples of Barley at Brigg, in Lincolnshire, and he got 3*s.* per quarter more money for the Barley which had been cut early. There was a loss in letting Barley stand too long.

Mr. Calder considered that grain should be cut a little sharpish, particularly Barley and Wheat, and as to economy in reaping he should like to hear some opinions expressed. He had used Burgess & Key's side-delivery reaper, and he was well satisfied with it, having come to the conclusion that it was the best reaping machine; at least, he liked it the best. He approved of "hooding," especially of Barley, and was sorry that such a good old custom should have got so much out of use. The system protected the grain, especially in wet weather.

Mr. T. Scott said that Mr. Harland had recommended the cutting of Wheat early, but from the experience he had gained he thought it was not well to cut the grain before it was nearly ripe. As to the side delivery he differed from the view taken by Mr. Harland. He had for the last 17 years used back delivery machines, and found them to answer well, believing that there was a great saving in the back delivery as compared with the side delivery. In wet weather sheaf moving was a good plan, and it could be easily done by a simple apparatus. Stooking was a very serious matter in harvesting, and he was not favourable to hooding. If it was not thoroughly and well done it was worse than nothing at all, but if really carried out in a superior manner hooding was valuable to some extent. Care should be taken that all the corn in the stacks should be kept clear of the ground, but nothing paid better than the rick stand. The roof of corn stacks was a matter of great importance, and if not well done injury was sustained, for instead of the rain being conducted off the stack it was conveyed into the stack itself.

Mr. Jacob Smith considered that the cutting of Wheat too early was decidedly wrong. He should not like to cut Barley until it was nearly ripe, as the sample was then much better. The time once was when the only difference of opinion was as to the advantages between the sickle and the scythe, but now they had only to speak of the reaper, and the difference in opinion was between the side and the back deliveries. The back delivery found the most favour, and he believed it was the best, both for neatness in cutting and economy. He agreed that far more was spoiled in the stackyard than in the field. If Barley was well stacked they need not be afraid of rain, and he showed that in the wet season of 1866 his Barley did not suffer any deterioration in value by being properly and carefully stooked.

Farm Memoranda.

Hampshire.—Our last report being written on the eve of the Bath and West of England Society's meeting at Southampton, it is gratifying to know that the exhibition has been a great success, not only to those engaged in its management, but the public, who had an excellent opportunity of viewing specimens of the best stock of many kinds, and also of implements and machinery in great variety for agricultural and other purposes — these, together with the exhibition of poultry, horticulture, and the fine arts, made a highly interesting display; the weather being fine, and the showyard, with its pleasant site and beautiful surroundings, left nothing to be desired either to the practical business people or the pleasure seekers. It is worthy of remark that these shows of stock are now a trial as to who shall exhibit the best animals, and this spirit is encouraged by the award of prizes, and is, no doubt, necessary to keep the production of stock up to the mark of excellence; no improvement, however, in any of the classes, except Channel Islands cattle, was observable, as compared with former meetings; indeed, it may be said to be scarcely possible, excepting in the case of horses, and great attention and intelligence will be required in the future to prevent degeneracy in most of our best flocks and herds in this country. The progress open to us is therefore chiefly that of improving the general stock of the country, and this may be done to an immense extent, as the ordinary stock of this county is very deficient when compared with the best flocks and herds. The trial of reapers and mowers, and cultivating by steam-power, proved to be specially interesting and instructive, and it is now reduced to a certainty that a large portion of the heavy and laborious work on a farm will for the future be done by machinery, and chiefly by steam-power, and those who object to steam power will sooner or later be obliged to adopt it, or give place to those who can and will employ it.

In estimating the Wheat crop this year it is very difficult, owing to the diversity of appearance, even on land well cultivated; the wet March and wet cold May seemed to have completely paralyzed the plant in many instances. The ears are, therefore, very small, and this remark applies to all cold soils. There is, however, a large portion of the crop on good and dry soils, both in the northern and southern divisions of the county, where the plant is good and the ears are well filled, promising a full crop. The Wheat crop must therefore be reported as likely to be, especially if the present favourable weather continues, a full average. Barley is various in appearance; a considerable portion of the crop has suffered from the cold May month, and shows "red rust," but the major portion of the crops on good and well farmed land shows a full bulk of straw and promise well. This crop must also be reported as a full average. Oats are above an average as regards present appearances, the cold and moist weather in May being comparatively favourable; and as this crop usually does well in cold and moist climates like the West and North of England, a full crop of this grain may be therefore expected. The Clover seeds in the Lent corn seem to be well set and taken on all soils, being quite a contrast to the great and general failure of the previous year. Winter and spring Beans are both showing an unusual growth of haulm; in some cases, however, the podding is deficient, in others very fine, and on the whole may be expected to produce over an average crop. Peas are very well everywhere, and will, we think, exceed an average considerably.

All kinds of green fodder, such as Trifolium, Vetches, &c., have been most abundant, which, together with the abundance of Grass on the pastures, produces a prospect completely the reverse of last year; the hay-crop is universally abundant, and of fine quality; the rains in the middle of June were rather inopportune, but the injury to the hay, where ordinary care was taken, has been but trifling.

The root crop also promises to be very good, for a more general plant has never been seen than the present, although much of the land was too wet during the month of May, which delayed the seed time; the plant is now making up for lost time, by as rapid a growth as we have recorded. Mangel is greatly extended in cultivation this year, this root being more and more appreciated, not only for its value for feeding purposes, but as an alternate crop with Turnips. Cabbages and Kohl Rabi, too, are more cultivated than formerly, as they are found to succeed well ploughed in after green crops, especially if planted with the spade, or else ploughed under furrow,—for they may be ploughed in, it being more expeditious and best for plants of all sizes. The advantage of planting over seeding crops is obvious, the land requiring less tillage, with a gain of a month in time, and with less risk as regards loss of plant.

All kinds of cattle have grazed well this season. Stock sheep also came to hand in good condition, as proved by their appearance at our first sheep fair, on the 10th inst., at Stockbridge, for which there was a good steady demand, at prices satisfactory to both buyer and seller. Large numbers of sheep are on hand, ready for coming fairs, owing to a large breed of lambs having been reared for three successive seasons, *Joseph Blundell, Southampton, July* 12.

West Sussex: *July* 26.—We find that harvest is to come earlier than we expected. It will begin about the 1st of August in some places, and will be general hereabout on the 6th, and though on the higher and lighter land the crop will be lighter than usual, on the heavier land the straw is long, and the corn promises to be an average crop. The season has been a strange one. June was cold and damp, but calm during the flowering of the Wheat; and since it has done flowering we have had bright sunshine, which has told greatly in its favour. Barley is all that we could wish for, rather too heavy in some places; and Oats are a fair crop. Peas are good, but much later than usual compared with other crops; perhaps they have never been freer from blight. Potatos still look healthy, and promise to be a fair crop. Mangel is only middling, being rather backward, and so with Swedes and Turnips, but there is a good plant in most places, as we have had little trouble from the fly. Pastures are getting dried up, and stock are becoming a heavy sale, and are likely to continue so, as the roots, upon the whole, are not likely to be a good crop; but there is a good crop of hay, secured in the best order, except where it was cut early. *G. S.*

Lammermuir Sheep Farm: *July* 16. — The weather for the last week or two has been windy and somewhat scorching, but still we have had plenty of keep in the fields for stock—the first time for nearly 12 months that we have been able to use the word plenty. Such a period of scantiness, if not want, and so protracted, we have never before in our experience had to do with. Nor was it one item of keep only that was deficient, but everything; pastures last summer, the hay and corn crops of 1868, and Turnips for winter 1868-9, all seemed to bespeak famine for the brute creation; but last winter proved just such a winter as enabled stock to live by getting their daily supplies from the field through great part of it. Providential

is a common word, but never perhaps realised by the hill farmer in the same degree from day to day and month to month. What the effects of a severe winter would have been with the short supplies, it is difficult to conceive of as anything short of starvation, and now that there is an appearance of roughness and keep about, the sense of relief is great; but that relief did not come all at once or suddenly. We had a fine February, cold March, remarkably fine April, and a backward May; and though the corn crops have grown well of late, the harvest can scarcely now be an early one. Turnips promise very differently from last year: there are partial failures, however—the severe and stormy rain we had a month ago having told against the unbrairded or newly brairded portions, and the flea followed up with a vigorous attack on the battered and slow-growing plants, so that cases of re-sowing are quite general.

Sheep stock had a good deal of lee-way to make up, having been thin in spring, and, from the want of their usual winter and spring supplies, the clip is light. We have had more than the usual death among them, and that chiefly in the autumn. During the drought of last summer the shepherds began to prophesy death when the Grass came; and they were not wrong, for grass-ill, or braxy, made great ravages, in some instances killing as many as three and four in the score. The lambing season was looked forward to with much anxiety, and the short supplies of extra food economised to the utmost. For one lot of ewes (half-breds) we began to lead off Turnips early in January, beginning with the worst-conditioned first; and when the whole lot (12 score) were put on, two cartloads of Turnips per day was their allowance. The rest of their keep they had to hunt for, with the help of a little hay in the hard weather. Although not by any means in the condition we have often seen them, or would like to have them, they were in tolerable lambing condition, and the flush of Grass in April was worth more than any amount of artificials. One small lot of Cheviot ewes, with the run of several Grass fields, had neither Turnips, corn, nor cake, but the offer of some hay, which they refused to eat, choosing rather to pick up a living on the early Grass which they found in burn-sides and sunny spots. The hill Cheviot ewes got corn, and part of them Clover hay, which they made good use of. The hay was laid down to them daily in small handfuls on the heather. We have tried giving the hay in racks with the view of saving waste, but found that there was more waste from the racks than when spread over a new and clean piece of ground each day, or at all events their finding-ground shifted frequently. Those which had corn got from half a pound to a pound per day. There is no question this corn and hay was a great deal better than nothing, but as little question that Turnips would have been better still. After considerable experience in the use of artificial feeding for hill sheep, we have come to see that nothing supplies the place of Turnips either in bringing them through the winter, or as regards their progress on Grass afterwards. Of course this refers to hill and store stock, which have always a good outrake of rough pasture. The case may be different in regard to field stock and with bare pastures, where the question is one of full Turnips, or Turnips and artificial food combined, the pastures supplying little bulk to fill the animal.

With the present promise of a Turnip crop, which mainly influences the lamb markets, we would expect prices to be somewhat nearer par than last year. Of course what par means exactly we do not undertake to determine, but should fancy that, if it has not, it at least ought to have some relation to rents, which, as now generally arranged, seem to date back to the year 1866, when Cheviot ewes with their lambs were selling at 65*s*. The one or two markets which have been already held show a material rise from last year in the price of lambs, and there was ample room for it, as such a dog-hanging as our great Melrose lamb market was last year we hope never to see again. *J. S. B.*

AGRICULTURE OF SOMERSETSHIRE.—We cannot complete our article without stating some general conclusions at which, as practical farmers, we have arrived during our examinations and explorations in Somersetshire. We would first direct attention to the fact that Somerset is one of the most important among what are termed the "Cider Counties;" and there are those who would yield it the palm of superiority on this account. Granting, however, that a thickly-wooded country, dotted here and there with orchards, looks lovely in early spring, and has a rich and promising appearance when autumn bends down the boughs with the weight of the ruddy fruit, yet we cannot help thinking that this very plethora of cider tends, after all, to increase the poverty of the land.

In cider districts the enclosures are always small, and timber is grown to the greatest possible extent. In such case the farmer pays rent for trees, rent for grass, and rent in timber, besides rent in the shape of about 10 per cent. for hedges and ditches, which are only impediments to anything like open-handed liberal farming.

If asked to propose a remedy, we should say it would be for the special advantage of Somerset to root out half its orchards. If cider is to be produced, let it be made from good sorts of apples, and with something like care and attention. Half the quantity of good cider is worth more than double the quantity of inferior produce.

We believe that this is a matter deeply affecting the landlord and tenant, as well as the nation at large. Larger fields, less wood, and less orcharding in the fine fertile soil of Somerset are *desiderata* affecting the well-being of all.

The next point to which we would direct attention is the general backwardness in farm operations which prevails among the occupiers of small holdings. Indeed the small Somerset farmer is always for putting off work, with the observation that it is time enough to sow Wheat or Beans, or otherwise, at some particular fair; whereas the occurrence of foul weather too often precludes the fair opportunity. In late farming there may be some reason for very thick sowing; but even then, in so far as we have observed, at least one-third more seed is employed in Somerset than is beneficial.

The truth is, that dilatory habits and thick sowing to make up for loss of time, are the great evils of small farmers with small fields on strong land. The whole thing wants to be expanded, the fields to be enlarged, steam to aid in cultivation, more labour, good buildings, and, in fact, well-weighed business arrangements carried on with capital, in the place of what in the west is significantly called "nuggling." There are, however, many notable exceptions to this remark; and it were easy to point to several agriculturists who occupy a foremost rank among the farmers of England.

Thick sowing is intimately connected with another subject, namely, that of weeds. I recently saw some very small ears of Wheat, which I was told were a fair sample of the whole field, and my informant requested to know the cause. Our reply was, weeds. On being assured that the land was as "clean as a flower-garden," we told our friend how a French gentleman had authoritatively declared that the worst weed of Wheat is Wheat; and so it proved here, for, being late in sowing, an odd lot of seed had been drilled at the rate of a sack an acre! But, besides this weed-source, there will ever be found wild plants peculiar to certain soils and districts, and these grow in such quantities as to impede the development of the crop. *Professor Buckman, in the "Journal of the Bath and West of England Agricultural Society."*

The Poultry Yard.

ACCORDING to general opinion and practice our cattle have reached nearly as high a point of perfection as is supposed to be profitable, possible, or desirable. Seeing that the development of our domestic fowls has, in a great measure, been under the auspices of those who have done so much for cattle, the question arises, would they not do something if they gave the same attention to their poultry? Is it likely that the originators of the great herds, and the herd books, where the pedigrees are carried over in numbers that require a Colenso to read them at sight, had any idea as to what their care and attention would lead? It will be universally admitted that the quality of our poultry as general produce is improving, but not in its proper ratio. We have had during the present breeding season the visits of a large number of American poultry breeders, who have ransacked the yards of France, England and Ireland, with fair judgment and more money on purpose to find birds of high excellence in the matter of breed, to put down with the stock they already have. They say they have the pure blood and good type, but the high excellence they must get hence. It seems strange that men, who in the course of a holiday traverse a great portion of the world, although they go through the departments of France, of which the birds they are in want are natives, do not find them of a quality sufficiently high to please them, and they buy here on the return journey.

We may expect in the course of the next year or two to see birds sent us from America of greater size than any of our European breeding, and then we may still more look for improvement. When we consider what has already been accomplished in the improvement of our breeds of poultry, we are encouraged to look still forward, and to remove to a great distance the limit to the size of our birds.

—— The taste for aviaries and pheasantries seems to be spreading among us, and we know no pursuit more pleasing. The continued traffic between our ports and distant parts of the world, is the means of bringing many choice and interesting specimens. A visit to our Zoological Gardens, with a view to examine the splendid additions made to the pheasant tribe during the past year or so, will show how much may be done. Of all the new birds none are so likely to do well as the pheasants, and of them, few so well as the splendid Reeves's or Long-tailed.

—— From all parts of the kingdom, and from fanciers of all varieties, come letters and inquiries as to the probability of a poultry show in London or, in default, at the Crystal Palace. It is certainly a matter of regret that the home counties, so rich in amateurs and in birds, should be so badly off for shows at which the latter may be exhibited. If there be no place suitable in London, surely at the Palace at Sydenham a poultry show would be as attractive, if not more so, than one of singing birds. We know of no locality in which a larger number of real amateurs would be collected—people who keep and breed poultry for the love of it, and who attain great excellence in its development. In no other place or building does there exist the same command of space and material; and in suggesting the revival of the annual meeting, to be held either in London or at the Palace, we think we are only commencing that which will be heartily followed up and carried out. The prize-list is always a difficulty and the Birmingham, Manchester, Bath and West of England, and the Royal Agricultural Societies have all in their turn received a very fair share of criticism on the compilation of their respective prize-sheets. It is always very much easier to find fault with the performance of others than to excel it, and we feel diffident in offering a few suggestions to those who may have to draw up the prize-lists of future shows. There is much to retain and admire in the programme of the Bingley Hall Society, and as long as poultry prize lists are wanted that may be taken as the alphabet of their construction.

We have an idea that the pen of cock and two hens is preferable, the birds being kept apart like the congregation in the Temple Church. Certainly for exhibition the appearance is more effective. We would always offer a first prize of as high a value as the funds admitted. The second and third should be as good in proportion; the commendations, which cost nothing, and are consequently now scattered broadcast, should be few. The classes now seem too numerous, good and well-matched hens are split up to furnish a pen or more in each class. In Dorkings colour is now recognised sufficiently to make it the mark distinctive of classes in a breed, the old amateurs of which can remember the time when it might have been described as a bird without a colour. In simplification of the now long lists, say a class for cock and hen, or cock and two hens, coloured Dorkings, and one for white ones; silver grey and red speckles to take their chance with their coloured brethren. Brahmas are now universally conceded two classes, and the light birds are making the running. It is doubtful, however, if they ever attain the perfection of the dark birds, but where we give two prizes for dark ones we should, for impartiality's sake, do the same for the light. Spanish will always hold their class, and generally fill it.

Game fowls have at present a string of classes allotted to them, and they have a class of admirers whose devotion to them is intense; nevertheless, after you have passed at a good show the classes for the black and brown reds with the duckwing, how many others fill? They seem only put up to bother the printer, and two or three pens divide the prizes. The game fowl does not suffer by mixed competition. In all probability the finest exhibition of birds ever seen was that of Liverpool a few years since, when Sir Pyers Mostyn won the sweepstakes of 100 gs. against a marvellous collection of game birds of all colours. Crèvecœurs and Houdans are well worthy of a class each, so are the La Flèche, but we have them not in sufficient numbers to fill one. The other French breeds, such as La Bresse, Breda, &c., may worthily fill up that refuge for the destitute—the class for "any other variety." Hamburgs must have four classes, and it is doubtful whether the blacks should not have one to themselves. Out of respect to antiquity, the Malays might still have a class; but the Polands might certainly be massed. Bantams we would divide into four classes—Sebright games, black, white, and foreign bantams. The turkeys, ducks, and geese do well as they are. We are fully aware that the foregoing remarks are open to a great deal of criticism, and shall be quite content if they invite attention to a subject that is, we hope and believe, only latent, and not forgotten.

Miscellaneous.

Death of Mr. Edward Carroll.—[We take the following notice of the life and labours of our excellent correspondent, W. E. Carroll, from the columns of the *Dublin Farmers' Gazette.*]. We regret to announce the death of Mr. Edward Carroll, which took place on the 21st inst. at his residence, Walnut Grove, Glasnevin. Mr. Carroll, who had attained the ripe age of 70, was for some time prior to May 8, 1848, Editor of this journal, and since that period a frequent contributor to its columns. For some years past Mr. Carroll had charge of the horticultural department of the Albert Agricultural Training Institution, Glasnevin, and gave lectures on all the branches of horticulture, being a department in which he had much experience. Mr. Carroll has had a long and useful career, which in many ways afforded to the youth in whose training he has been engaged at Glasnevin a most valuable, instructive example. From his youth he was most earnest and laborious in the study of agriculture and horticulture. He was a man of great breadth of view and of a wide range of thought. He was one of the most single-minded of men, and carried this quality to a degree that marred his own pecuniary advancement. He entertained strong views on many of the questions on which people differ in this country; but in his advocacy of these views he studiously avoided offending those who differed with him. To the interests of stewards and gardeners he paid much attention, as the readers of this journal are well aware. When he brought his varied knowledge and his warm and sympathetic disposition into the lecture room at Glasnevin, he commanded the respect and admiration of his "young friends," as he used to call them; and in testimony of their appreciation of their friend and teacher, the pupils have themselves borne his remains to that bourne whence no traveller returns. The announcement of Mr. Carroll's death will be received with deep regret by a large circle of friends, by whom he was much esteemed during a long and useful career.

Clover Experiments.—The current number of the "Agricultural Journal" contains reports of several experimental researches, conducted by Dr. Voelcker into the effects of various manures on Clover and Grass. His observations on the Clover under treatment are that nitrate of soda is about as efficient in the production of growth as sulphate of ammonia—that common salt is variable in its effects, in one year producing growth and in another inefficient—that the heaviest crop is obtained from a mixture of superphosphate of lime and muriate of potash—that where salts of potash have been used the second cutting of Clover weighs more than the second cutting of the unmanured crop, whereas when nitrate of soda has been used the second cutting is inferior. These are the results in the special instances reported; but every agricultural fact is the result of so many circumstances besides those to which the attention of a reporter is especially directed, that it is never safe to give to particular examples the value of a general law. In the case of ordinary grass-land,

Dr. Voelcker found that the direct application of quicklime was injurious—that salt and quicklime produced no effect whatever—that mineral superphosphate and crude potash salts gave but a small increase of growth—that Peruvian guano yielded a large increase; and that the heaviest crop of Grass, amounting to nearly twice the weight of that upon the unmanured plot, was obtained by a mixture of superphosphate and guano. The experiments were made in 1867, but the summer of 1868, when they were repeated, was so hot and dry, that no trustworthy results were then obtainable. It is plain that the effect of a very soluble manure like salts of potash or ammonia depends very much upon the circumstances of the application. If applied when the plants to be affected by it are in the condition of rapid growth, the result may be very great, while, if applied in winter when no immediate use could be made of them, it might be altogether washed to waste before the time of growth came round. Soluble top-dressings, therefore, ought to be applied at the commencement, or during the course, of the time of rapid spring growth, in order that their maximum effect may be obtained. *Journal of Science.*

Thin Sowing.—It is a mistake to suppose that thin sowing deteriorates the quality of either the grain or straw. The very contrary is the case, for I can always distinguish between the thick and thin sown by the brightness of the straw, and the glossy plumpness of the kernel of the latter. Where the crops become thin by blight, owing to ill-conditioned, undrained soil, too thick sowing, or shaded fields, neither the straw nor corn are satisfactory; hence arises the erroneous impression against thin sowing. My Wheat seldom weighs less than 63 lb., and Barley 56 lb., per imperial bushel. Thin sowing generally produces the greatest weight per acre both of grain and straw. A month of bright sunshine, without rain, has so matured the grain crops that the sample will be much better and the harvest earlier than was expected. Still, I think the Wheat crop will scarcely reach an average. Old folks say that as the new moon falls on the Saturday (August 14) we are to have a wet time following. If so, we must try and get our grain crops stacked early. Roots and pastures would rejoice, but the drying machine may be in request. The same notion about a new moon on Saturday and full moon on Sunday preceding a wet time prevails in Suffolk, where the labourers say,—

"Saturday moon and Sunday full
Never was good, and never wul."

J. J. Mechi, Tiptree Hall, Kelvedon, Essex, July 28.

Calendar of Operations.

JULY: *Roadsides, and borders of fields* under crop, should now be gone over. Some mow or cut with a bagging hook where the scythe cannot be used, and carry the green herbage thus cut to the nearest gate, where it is carted to undergo fermentation in a heap, so as to kill the seeds of weeds, and very great care requires to be taken that this is effectually done, otherwise the seeds will grow when the manure thus made is applied to the land. Other farmers pare off the green sward, throw it into small heaps which are removed as soon as the crops are off the land, or the carts can get to them.

Rivers and open ditches should also be gone over, and the grass and cleanings removed as soon as circumstances will permit. This is also a favourable time for deepening and straightening shallow crooked rivers and watercourses, and for forming embankments where required. In straightening a watercourse, it must ever be borne in mind that every bend removed increases the fall, thereby lowering the surface level of the water or drainage of the adjacent fields. Too many are prevented from straightening and deepening their watercourses from the erroneous notions entertained relative to the benefits gained by occasional floodings at this season, and by bottom irrigation, as it is sometimes erroneously termed. Successful irrigation means deep, thorough bottom drainage and aeration, and wherever there is a command of water for flooding or bottom watering, the water should be applied by steam-power, if it cannot be done by gravitation. But much more land can be watered at this season by gravitation than is generally credited.

Winter Peas in our southern provinces are fit for harvesting by the close of the month. The crop is generally cut with a kind of bagging-hook on a long handle or staff, and left loose on the stubble in small parcels. In dry weather the work of harvesting Peas is simple and expeditious, but in wet seasons the reverse; for, when soaked with rain and in the field, the crop is very liable to mould in the stack, however dry it may be apparently when carried. To obviate mouldiness, various expedients are adopted—(1), building on wood, with an opening inside for ventilation; (2), building on layers of brushwood, so as to keep the haulm open, (3) or layers of dry Wheat-straw, both to keep open the stack and absorb moisture. Pea stacks, when up, should be thatched without delay, as they are bad defenders of rain. Long stacks are protected with the rickcloth until thatched, but it is otherwise with round ones. Some thatch to the eaves, others down to the bottom, so as to protect the grain and haulm on the sides. The sides may be covered with machine-woven webs of straw, and made fast with pegs, in the same way as the ends and eaves are secured.

Winter Beans are also ready for harvesting about this time, in ordinary seasons, in our southern provinces. In the north the crop is late, being often in the field at the close of October, as will be shown under the calendar for that month. The crop is bound up in sheaves, stacked and usually stooked as Wheat, but there are exceptional examples of stacking loose. Beans are sometimes pulled like Flax, but more commonly either cut low with the scythe or bagging-hook. When cut with the scythe the crop is allowed to lie in the swathe for a short time, the actual length of time depending upon the weather. The haulm makes excellent fodder, and therefore, like Clover, it should not be allowed to "roast" in the sun. To obviate this, some farmers turn as they do Clover, Sainfoin, and Lucerne, and defer binding up into sheaves until the crop is ready for stacking. Others tie up and stook, but the outsides suffer from roasting, unless the stook is reset and the sheaves turned in the operation. When ready, straw ropes, or ropes of some kind, are laid along the swathes for binding. When cut with the bagging-hook the sheaves are allowed to lie spread open on the ground until fit for binding, ropes being laid down as above. Like Peas, Beans are much depreciated, both corn and haulm, when soaked with rain in the field; but not to an equal extent; and the sheaves lie comparatively open both in the stook and stack. The stacks are thatched as soon as up.

Flax, for the finest qualities of linen fabrics, as muslins and cambrics, is ready for pulling by the latter half of the month, and in early seasons it is sufficiently ripe for rippling and the production of coarser fabrics by its close. Of late years a considerable diversity has been introduced in the primary and secondary processes of preparing Flax fibre for manufacture, but the old plan of pulling, steeping, and dew-rotting on the Grass, is still the common practice. When intended for the finest quality of fibre it is pulled when in full flower, or shortly after, according to the crop. In pulling, the person stands with his side to the crop, going backwards, grasping gently the standing Flax little and little at a time, so as not to raise earth, and when he gets a small handful it is laid down, and the subsequent handsful laid crosswise, so as to keep it off the ground as much as possible. In this state it is allowed to lie for a short time, when it is bound up in small sheaves with a band made of a few stems of the Flax. The sheaves are next carried and placed upright in the steep, and loaded with wood and stones, to keep them under water. A slow fermentation sets in, and as soon as the fibre separates from the stem when broken, which in warm weather will be in about a week's time, or 10 or 12 days in cold weather, it is ready for dew-rotting, which is done by spreading it evenly upon the Grass. In spreading the spreader goes backwards, shaking out gently sheaf after sheaf thinly and evenly over the points of his fingers. When properly dew-rotted the fibre separates freely from the stem by rubbing. It is then tied up in large sheaves and stacked, where it remains until sent to the Flax mill. When the bolls are to be given to the cattle, or the seed crushed or used for sowing, the Flax is allowed to become more ripe before it is pulled, but the degree of ripeness is as diversified as the opinions of the growers. In Ireland it is a very common practice amongst the larger farmers to ripple into a cart, one person supplying two or three ripplers with the handfuls as pulled, a second person binding up the rippled Flax into sheaves for steeping. In other respects, the steeping and dew-rotting are the same as above described. Some defer the steeping until an after period, more especially when the seed is to be used for crushing or sowing; or where the fibre is to be prepared according to some of the modern processes. But delay in bringing the Flax to market involves a sacrifice of the farmer's time and capital, and this is, no doubt, one reason why the older plans are continued in use.

The Dairy.—July weather generally tries the patience of all engaged in making either cheese or butter, more especially when the quality of the milk has been depreciated before it comes to the dairy. Scorching suns, gadflies, bad weather, improper food, and driving the cows before milking, spoil the milk, and so does carrying the milk afterwards jiltingly to the dairy; and if thus injured before it is put into the milk dishes for setting up cream, or into the cheese-tub for cheese-making, what follows need not be told. Again, in the vast majority of dairies the milk-room in which the cream is raised is not sufficiently separated from the heat and smells of the cheese-room and scullery, while the cream has to be sent to the cool but muggy cellar below, for the want of a better place to keep it in. Such being the facts of the case, or rather outline of them, it is not surprising that only a small percentage of the butter and cheese made at this season is of ordinary good quality, and that the great bulk sent to market should be unsound. It is, however, some consolation to think that the proportion of sound butter and cheese are both on the increase, and that the progress thus being made is based upon the permanent foundation of the proper management of milch cows, so as to bring sound rich milk into the dairy, and of the construction of dairy buildings, so as to place the temperature of the different departments under the control of the dairyman in July as in the depth of winter.

Swine.—As the heat of July is somewhat oppressive, piggeries should be kept cool, clean, and free from noxious smells, and their diet be rather cooling than otherwise. *W. B.*

Notices to Correspondents.

MANURE FOR GRASS: *E W F.* We have to beg pardon for delay consequent on a mislaid letter. Occasional dressings of farmyard manure, and foddering of cattle during autumn and spring, not too heavy at starting, that is the best treatment for your land. But if you cannot get yard manure, apply bone manure—5 or 6 cwt. per acre of turnings from button mills, or of crushed bonedust of any kind.

VINEGAR: *Barbican.* The following is a receipt:—Put to 10½ gallons of water 10 lb. of brown sugar, boil it gently till no scum is on the surface, taking what does arise off with a skimmer; put it into an open tub or pail to cool, and when quite so, add a teacupful of yeast, to put it into a fermentation; in three days put it into a cask, filling about two-thirds of it, which will cause it to acidify quicker. Place the cask in the sun, with the bunghole open, covering it with a coarse piece of muslin to prevent flies from getting into the liquor.

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"I find it exceedingly useful for killing the Aphides on Roses and other Plants."—GEO. EYLES, Superintendent, Royal Horticultural Gardens, South Kensington. May 7, 1868.

Sole Manufacturer, T. A. POOLEY, Bonded Warehouse, Sussex Wharf, Wapping, E.


Red Spider
Magnified.

GISHURST COMPOUND.

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d.

Wholesale by
PRICE'S PATENT CANDLE COMPANY (Limited),
Battersea, London, S.W.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, and Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, Royal Gardens, Kew, &c.

The best Shading is "Frigi Domo" Netting.
White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for
PROTECTION from the SCORCHING RAYS of the SUN.
"FRIGI DOMO" NETTING, 2 yards wide, 1s. 6d. per yard run.
"FRIGI DOMO" CANVAS.
Two yards wide .. .. 1s. 9d. per yard run.
Four yards wide .. .. 3s. 6d. per yard.
An improved make, 2 yards wide .. 1s. 9d. per yard.
An improved make, 3 yards wide .. 2s. 8d. per yard run.
"Rochford, Essex, June 4, 1869.
"SIR,—Will you be good enough to send me 50 yards of Frigi Domo, 2 yards wide, of your improved make, 1s. 9d. per yard run. You can foward it per London, Tilbury, and Southend Railway. I had some of you several years since, but have not found any substitute so good for Greenhouse and Stove Shadings.—I am, Sir, yours respectfully, "GEORGE WOOD (Solicitor, Rochford).
"Mr. E. T. ARCHER, 7, Great Trinity Lane, Cannon Street, E.C."

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.

Heating by Hot Water.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, S.E.

	2-inch.	3-inch.	4-inch.
HOT-WATER PIPES, from stock—p. yard	1s. 0d.	1s. 6d.	2s. 0d.
ELBOWS for ditto .. .. .. each	1 0	2 3	2 9
TEES .. .. „	3 3	3 6	4 6
SYPHONS .. .. .. „	2 3	3 6	4 6
THROTTLE VALVES .. .. .. „	10 0	11 6	13 0

Cash remittance with order.

N.B. All Goods of first-class manufacture. No second quality kept. Estimates given, and orders punctually attended to the same day.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their REDUCED PRICES as follows:—

PROPAGATING GLASSES.



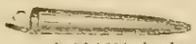
	Each.—s. d.		Each.—s. d.
2 inches in diameter ..	0 3½	12 inches in diameter ..	1 9
3 „ „ ..	0 4½	13 „ „ ..	2 0
4 „ „ ..	0 5½	14 „ „ ..	2 6
5 „ „ ..	0 6½	15 „ „ ..	3 0
6 „ „ ..	0 8	16 „ „ ..	3 6
7 „ „ ..	0 10	17 „ „ ..	4 0
8 „ „ ..	1 0	18 „ „ ..	5 0
9 „ „ ..	1 2	19 „ „ ..	6 0
10 „ „ ..	1 4	20 „ „ ..	7 0
11 „ „ ..	1 6		

BEE GLASSES, with ventilating hole through knob.

4 inches in diameter ..	0s. 6d.	9 inches in diameter ..	1s. 8d.
5 „ „ ..	0 8	10 „ „ ..	2 0
6 „ „ ..	0 10	11 „ „ ..	2 6
7 „ „ ..	1 1	12 „ „ ..	3 0
8 „ „ ..	1 4		

Either flat or conical tops.

CUCUMBER GLASSES.



24 inches long	2s. 0d.	16 inches long	1s. 4d.
22 „	1 10	14 „	1 2
20 „	1 8	12 „	2 6
18 „	1 6		

HAND GLASSES, WITH OPEN TOPS.



	Each.—s. d.		Each.—s. d.
12 inches	6 6	18 inches	9 6
14 „	7 6	20 „	10 6
16 „	8 6	22 „	11 6
		24 „	12 0

London Agents for "HARTLEY'S" IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS. PAINTS of various colours ground ready for use.

SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of Prices and Estimates forwarded on application to

JAS. PHILLIPS AND CO., 180, Bishopsgate Street Without, E.C.

Horticultural Glass Warehouse.

THOMAS MILLINGTON AND CO., 87, Bishopsgate Street Without, London, E.C.

NEW LIST for ORCHARD-HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD-HOUSE SIZES.

in. in.		4ths.	3rds.	2nds.	Best
20 by 12	Per 100 feet	15 oz.	12s 3d	15s 6d	16s 9d	18s 0d
20 by 13					
20 by 14					
20 by 15		21 oz.	18s 0d	20s 0d	22s 0d	24s 0d
20 by 16					

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in. in.	in. in.	in. in.	in. in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 6	11s 3d	12s 6d	14s 0d	15s 6d
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½				

Per 100 feet.

10 by 8	12 by 9	12½ by 10½	14½ by 10½	11s 9d	14s 9d	15s 3d	17s 6d
10½ by 8½	12½ by 9½	13 by 10	15 by 10				
11 by 9	13 by 9	13½ by 10½	13 by 11				
11½ by 9½	12 by 10	14 by 10	14 by 11				

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in. in.	in. in.	in. in.	in. in.	4ths.	3ds.	2nds.	Best.
15½ by 10½	14 by 12	22 by 12	22 by 16	12s 3d	15s 0d	16s 9d	18s 0d
16 by 10	14½ by 12½	17 by 13	24 by 16				
14½ by 11½	15 by 12	23 by 13	20 by 17				
15 by 11	15½ by 12½	18 by 14	22 by 17				
15½ by 11½	16 by 12	22 by 14	24 by 17				
16 by 11	16½ by 12½	24 by 14	20 by 18				
21 by 11	17 by 12	22 by 15	22 by 18				
13 by 12	16 by 12	24 by 15	24 by 18				

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.

In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case, 31s.		4ths quality, per 200 feet case, 34s.	
3ds „ „	40s.	3ds „ „	40s
2ds „ „	60s.	2ds „ „	60s.
Best „ „	75s.	Best „ „	75s.

SHEET GLASS is made only in the following substances, 15 oz. 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.

HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 14th in., 24½th in., 14th in., and 28th in. substances.

BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.

STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

WHITE ZINC PAINT, 28s per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a-half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.

IMPROVED ANTI-CORROSION PAINT, 22s. to 31s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, as Brick, Stone, Cornice, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 1s. per gallon.

Per cwt.—s. d.		Per gallon.—s. d.	
GENUINE WHITE LEAD	30 0	LINSEED OIL	2 6
SECONDS WHITE LEAD	28 0	BOILED OIL	3 2
GROUND PATENT DRYERS, 24 to 44d. per lb.		TURPENTINE	2 9
„ OXFORD OCHRE, 3d. to 4d. per lb.		LINSEED OIL PUTTY, 8s. per cwt.	
„ RAW UMBER, 4½d. to 6d. per lb.		Fine OAK VARNISH, 10s. to 12 0	
„ BURNT do., 6d to 9d.		„ CARRIAGE do., 12s. to 14 0	
GREEN PAINT, all shades,	22s to 60 0	„ PALE do. 16s. to 18 0	
BLACK PAINT,	24s. to 36 0	„ COPAL	16 0
RED PAINT ..	28s. to 36 0	KNOTTING	10 0
		Patent COLD SIZE ..	10 0
		„ BLACK JAPAN ..	12 0
GROUND BRUSHES.		GLAZIERS DIAMONDS and TOOLS	
DUSTERS SASH TOOLS.		MILLED LEAD and PIPES	
DISTEMPER BRUSHES.		OLD LEAD Bought or taken in exchange.	

The above are Net, for Cash, and as such cannot be booked. Lists of any of the above on application.

GREEN'S IMPROVED PATENT ROLLER,

FOR

LAWNS, DRIVES, BOWLING GREENS, CRICKET FIELDS, and GRAVEL PATHS.

SUITABLE FOR HAND OR HORSE POWER.

PRICES OF

HAND ROLLERS.

Diam.	Length.	£	s.	d.
30 inches	32 inches ..	7	10	0
24 inches	26 inches ..	4	10	0
20 inches	22 inches ..	3	10	0
16 inches	17 inches ..	2	15	0



PRICES OF

ROLLERS

FITTED WITH SHAFTS, Suitable for Pony or Horse Power.

Diam.	Length.	£	s.	d.
30 inches	32 inches ..	10	0	0
30 inches	36 inches ..	10	15	0
30 inches	42 inches ..	11	15	0
30 inches	48 inches ..	13	10	0
30 inches	60 inches ..	15	10	0
30 inches	72 inches ..	17	10	0
30 inches	84 inches ..	19	10	0

These Rollers possess many advantages over all others; they are made in two parts, and are free to revolve on the axis, affording greater facility for turning, and the outer edges are rounded off, or turned inwards, thus avoiding the unsightly marks left by other Rollers. They are manufactured of the best materials, and are got up in a manner surpassing any ever yet brought out. The Rollers 24 by 26 inches, 20 by 22 inches, and 16 by 17 inches, are also made in one part, at a reduced price; and, for Rollers of that size, will be found to answer many requirements, as the handle can be reversed to either side of the Roller at pleasure.

PRICES—24 in. by 26 in., £4; 20 in. by 22 in., £3 2s. 6d.; 16 in. by 17 in., £2 10s.

Delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

THOMAS GREEN AND SONS, SMITHFIELD IRON WORKS, LEEDS; 54 and 55, BLACKFRIARS ROAD, LONDON, S.

CUMMING & EDMONDS,

HORTICULTURAL BUILDERS and HOT-WATER ENGINEERS,

LILLIE BRIDGE, FULHAM, LONDON, S.W.

CONSERVATORIES and HORTICULTURAL STRUCTURES of every description designed and erected (in Wood or Iron), and Heated on the most approved principles with the

PATENT TUBULAR SADDLE BOILER,

the cheapest and best Boiler constructed.

No. 1 size, to heat 400 feet, 4-inch pipe	£5 10 0	Including Furnace Doors, Bars, Dead Plates, Damper, Soot Door, and Draw-off Tap.
No. 2 size, to heat 900 feet, 4-inch pipe	10 0 0	
No. 3 size, to heat 1600 feet, 4-inch pipe	16 0 0	
No. 4 size, to heat 3500 feet, 4-inch pipe	30 0 0	
No. 5 size, to heat 6000 feet, 4-inch pipe	50 0 0	

☞ *Plans and Estimates free of charge*

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

MR. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

Acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

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"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

☞ *They are made of all sizes, which, with prices, may be had on application.*

JAMES GRAY, HORTICULTURAL WORKS, DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

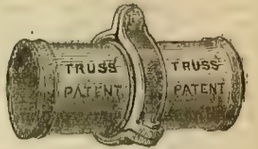
PORTABLE AND FIXED HOT-WATER APPARATUS,

FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH

TRUSS'S PATENT UNIVERSAL FLEXIBLE AND LEAKLESS PIPE-JOINTS.



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TWO FOUR-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
20 feet by 10 feet ..	£9 0 0	£2 0 0	50 feet by 15 feet ..	£17 10 0	£3 0 0
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Bath and Gas Work erected in town or country. **The Trade Supplied.**

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FRIAR STREET, BLACKFRIARS ROAD, LONDON, S.E.

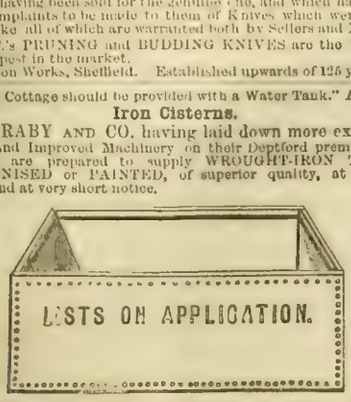
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Plans and Estimates on application.
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GREENHOUSE (LEAN-TO) WANTED, about 30 feet by 20 feet, with or without Tubular Boiler and Piping. Address, with full particulars and lowest price, to
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S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make all of which are warranted both by Sellers and Makers.
S. & C.'s PRUNING and BUDDING KNIVES are the best and the cheapest in the market.
Paxton Works, Sheffield. Established upwards of 125 years.

"Every Cottage should be provided with a Water Tank." *Disraeli.*
Iron Cisterns.

F. BRABY AND CO. having laid down more extensive and Improved Machinery on their Deptford premises (IDA WHARF), are prepared to supply WROUGHT-IRON TANKS, GALVANISED or PAINTED, of superior quality, at reduced prices, and at very short notice.



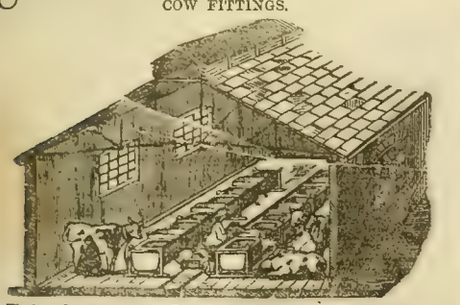
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COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rick dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of Iron. Prices of Fittings per Cow, 65s.
Prospectuses free of COTTAM AND CO., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

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THE above and many other PATTERNS are made in Terro-Metallic Ware, Terra-Cotta, Stoneware, and Redware, and of great durability. The pianer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability and superior finish, and in much variety of design.
F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.E. Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E. Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs. Likewise more elaborate designs. Pattern Sheets of Pavements, with prices, forwarded for selection.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.
To be obtained of F. & G. ROSHER, at their premises as above.

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FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEAT and LOAM supplied at lowest rates.
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N.B. Orders promptly executed by Railway or Vessel.
A liberal discount to the Trade.

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TANNERS, CURRIERS, and MANUFACTURERS of IMPROVED TANNED LEATHER DRIVING STRAPS for MACHINERY.
PRIME STRAP and SOLE BUTTS.
Price Lists sent free by post
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GARDEN SYRINGES	1s. 6d. to 20s.
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GARDEN ROLLERS	35s 0d. to 70s.
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GARDEN TOOLS and WATERING POTS.
PATENT LAWN MOWERS .. .. .. 70s. 0d. to 130s.

To cut 10 inches	£3 10 0
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Suitable for a Lady.

To cut 14 inches	£5 10 0
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Suitable for a Man.
WILLIAM S. BURTON has a very handsome assortment of the above on his premises.

WILLIAM S. BURTON, GENERAL FURNISHING IRONMONGER, by appointment to H.R.H. the Prince of Wales, sends a CATALOGUE gratis and post-paid. It contains upwards of 700 Illustrations of his unrivalled Stock of ELECTRO-PLATE and BRITANNIA METAL GOODS.

Dish Covers, Hot-water Dishes.	Clocks and Candelabra.
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With Lists of Prices, and Plans of the Twenty large Show Rooms, at 39, Oxford Street, W.; 1, 1a, 2, 3, and 4, Newman Street; 4, 5, and 6, Perry's Place; and 1, Newman Yard, London.

SOMERSET HOTEL, 162 and 163, Strand, adjoining King's College and Somerset House. This Hotel has been enlarged, and a LADIES' COFFEE-ROOM added. For quietness, comfort, economy, and central situation, is not surpassed. Beds 2s., Breakfasts 1s. Dinners, Luncheons, Suppers, &c., at equally moderate charges. Attendance 1s. per day. A Night Porter kept.

TOURISTS, TRAVELLERS, VISITORS to the SEA-SIDE, and others exposed to the Sun and Dust, will find the application of ROWLANDS' KALYDOR both cooling and refreshing to the face and skin, allaying all heat and irritability, removing eruptions, freckles, and discolorations, and rendering the skin soft, clear, and pleasant. Price 4s. 6d. and 8s. 6d. per bottle. Sold by Chemists and Perfumers. Ask for "Rowlands' Kalydor," and beware of spurious and pernicious articles under the name of Kalydor.

WHEN the HAIR, through weakness, begins to fall off, or turn grey, no preparation will sooner arrest the progress of these evils, restore the ORIGINAL COLOUR, and produce a healthy and luxuriant growth, than Mrs. S. A. ALLEN'S WORLD'S HAIR RESTORER. It is simple in its application, requiring no previous preparation of the hair; its perfume is agreeable, and no pomade or hair oil is required with it. In large bottles, 6s., of chemists and perfumers.
Depot, 266, High Holborn, London.

DINNEFORD'S FLUID MAGNESIA.—The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion; and the best mild aperient for delicate constitutions, especially adapted for Ladies, Children, and Infants.
DINNEFORD AND CO., 172, New Bond Street, London; and of all Chemists throughout the World.

CORNS and BUNIONS.—A Gentleman, many years tormented with Corns, will be happy to afford others the information by which he obtained their complete removal in a short period, without pain or any inconvenience.—Forward address on a stamped envelop to F. KINGSTON, Esq., Ware, Herts.

COCKLE'S ANTIBILIOUS PILLS
THE SAFEST
FAMILY APERIENT.
In boxes at 1s. 1½d., 2s. 9d., 4s. 6d., and 11s.

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in use the last 60 years for
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in use the last 60 years for
LIVER COMPLAINTS.
In boxes at 1s. 1½d., 2s. 9d., 4s. 6d., and 11s.

COCKLE'S ANTIBILIOUS PILLS,
THE OLDEST
PATENT MEDICINE.
In boxes at 1s. 1½d., 2s. 9d., 4s. 6d., and 11s.

BILIOUS and LIVER COMPLAINTS, Indigestion, Sick Headache, Loss of Appetite, Drowsiness, Giddiness, Spasms, and all Disorders of the Stomach and Bowels, are quickly removed by that well-known remedy, FRAMPTON'S PILL of HEALTH. They unite the recommendation of a mild operation with the most successful effect; and where an aperient is required nothing can be better adapted.
Sold by all Medicine Vendors, at 1s. 1½d. and 2s. 9d. the box; or obtained through any Chemist.

ELECTRICITY IS LIFE.
SELF-ADJUSTING CURATIVE and ELECTRIC BELT.
Sufferers from nervous debility, indigestion, weakness, &c., can now cure themselves by the only "Guaranteed Remedy" in Europe, protected by Her Majesty's Great Seal.
Free for One Stamp, by H. JAMES, Esq., Medical Electrician (to the London Hospitals), Percy House, Bedford Square, London, W.C.
N.B.—Medicine and Fees superseded. A Test gratis. Send for details. Established 1840.

The Best Remedy for Indigestion.
NORTON'S CAMOMILE PILLS are confidently recommended as a simple but certain remedy for indigestion. They act as a powerful Tonic and general Aperient; are mild in their operation; safe under any circumstances; and thousands of persons can now bear testimony to the benefits to be derived from their use. Sold in bottles at 1s. 1½d., 2s. 9d., and 11s. each, in every town in the Kingdom. CAUTION.—Be sure to ask for "NORTON'S PILLS," and do not be persuaded to purchase the various imitations.

MARKET GARDEN LAND.—THIRTY ACRES TO BE LET, on a 30 years' Lease.
Apply to Mr. SIDNEY SMITH, The Manor, Feltham, Middlesex (South-Western Railway, Loop Line).

To Market Gardeners, Nurserymen, and Others.
FOR SALE, 12a. 1r. 12p. of highly productive FREEHOLD LAND, situate close to the River Lea and Ponder's End Station. The Land is now used for Market Garden purposes, but is very suitable also as a Site for a Factory.
Messrs. DEBENHAM, TEWSON AND FARMER, 80, Cheapside.

FOR SALE, VALUABLE NURSERY, SEED, and FLORIST BUSINESS in CARLISLE.—In consequence of the death of the late Mr. John Little, the surviving partner in the late firm of Little & Ballantyne, the old established Nursery, Seed, and Florist Business, carried on under the style of Little & Ballantyne, in the Shop and Offices, No. 44, English Street, in the most central part of the City of Carlisle, is now to be Disposed of.
The Seed Business embraces a wide connection, both in the Wholesale and Retail Branches. The Warehouses, which are near to the Shop and Offices, are very commodious, and admirably adapted for the requirements of a large trade.
The Nursery Grounds are held on Lease for a term, of which 16½ years are unexpired, and are about 130 acres in extent, of which area over one half is fully stocked with Forest, Fruit, and Ornamental Trees, Evergreens, and Deciduous Shrubs, Conifers, &c., the whole of which are in the greatest health and vigour, and in a fine succession state to properly keep up the stock.
The Glass erections, which exceed 300 feet in length, are judiciously divided into Stove, Fernery, Propagating, Camellia, Heath, and Show houses, and are fully supplied with the necessary Cold Pits to carry on an extensive business.
The Business Connection is large, and highly respectable.
Further particulars may be obtained on application to Mr. EDWIN HOUGH, Solicitor, 6, Fisher Street, Carlisle.
Carlisle, July 15.

The Holme Pierrepont Pure-bred Leicester Rams.
MR. G. H. SANDAY has a few for LETTING, which he will be glad to show his Friends at any time.
Holme Pierrepont is four miles from Nottingham, and one from the Ratcliffe Station, Great Northern Railway.—July 28.

Southdown Rams.—Audley End Stock.
TWENTY SHEARLINGS and FIVE TWO-SHEAR RAMS of the above Flock to be SOLD or LET by Private Treaty.—Apply to Mr. WILLIAM RAND, Auctioneer, &c., Audley End, Saffron Walden, Essex.

Sales by Auction.

Ten Cases of Bulbs, just arrived from Holland.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, August 7, at half-past 12 o'Clock precisely, 600 Lots of HYACINTHS, TULIPS, CROCUSES, NARCISSUS, and other Bulbs, just arrived from Holland, in lots, to suit the Trade and private Buyers.
On view the Morning of Sale, and Catalogues had.

Imported and Established Orchids.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, August 11, at half-past 12 o'Clock precisely, an importation of Choice and Rare ORCHIDS, from India, consisting of—

Dendrobium Wardianum	Vanda teres
„ Falconeri	„ cærulea
„ Devonianum	Aerides Fieldingii
„ chrysotoxum	„ odoratum
„ heterocarpum	Saccolabium guttatum

And a small Collection of Select ESTABLISHED ORCHIDS, in fine condition.
On view the Morning of Sale, and Catalogues had.

Cotswold Ram Sales, 1869.
T. B. BROWNE, Esq., of Salperton Park, Gloucestershire, has instructed
JAMES VILLAR to SELL by AUCTION about 100 COTSWOLD SHEARLING RAMS, at the undermentioned public Markets and Fairs:—
CIRENCESTER, AUGUST 2 and SEPTEMBER 6.
STRATFORD-ON-AVON, AUGUST 30.
EVESHAM, SEPTEMBER 14.
WORCESTER, SEPTEMBER 19.
GLOUCESTER, SEPTEMBER 28.
Mr. T. B. BROWNE does not intend exhibiting any of his Sheep at the Royal Agricultural Society's Show this year, in consequence of the practice of over-feeding, which, in his opinion, renders the Sheep quite unfit for use; he has, therefore, determined to offer his Rams this year in fair store condition, feeling assured that the Sheep will be more profitable to the buyers.
Mr. BROWNE specially invites all who take an interest in Long-woolled Sheep to inspect his whole Flock of about 800, any day by appointment, at Salperton Park, Gloucestershire.—July 1, 1869.

Model Farm, Upper Winchendon, Bucks.
Seven miles each from the Aylesbury Station of the London and North-Western Line, and Thame Station on the Great Western Line, at which places Conveyances will meet the Morning Trains on the Day of Sale, returning in time for the Evening Trains.
MR. JOHN TREADWELL has fixed his ANNUAL SALE of about FIFTY OXFORDSHIRE SHEARLING RAMS, and a few OLDER SHEEP, for WEDNESDAY, August 4 (Luncheon at 1 o'Clock, Business at half-past 2), when he hopes to be favoured with the company of his Friends. This year's Sheep fully maintain the high character of this Flock, being very big, dark in colour, and strong in coat.
N.B.—This Flock obtained in 1867-8 Twenty-five First and Seven Second Prizes at the Royal, Birmingham, Liverpool, and other Shows; and at the Oxfordshire and Northamptonshire Shows, 1869, Ten Prizes. They may be seen previously.
J. A. MUMFORD, Auctioneer.
Chilton Park Farm, Thame, Oxon.—July 15, 1869.

The Norfolk Cotswolds.
MARHAM HALL FARM, centrally situated between King's Lynn, Swaffham, and Downham Market, Norfolk.
MR. EDMUND BECK has received instructions to LET by PUBLIC AUCTION, on THURSDAY, August 5 (Luncheon at half-past 12 o'Clock, and the Letting will begin punctually at 2), 80 COTSWOLD RAM LAMBS, 80 COTSWOLD SHEARLING RAMS, and 10 COTSWOLD TWO-SHEAR RAMS, the property of and bred by Mr. Thomas Brown.
The Auctioneer has again much pleasure in soliciting the attendance of Agriculturists and Sheep Breeders at the Annual Letting; and although comment of any kind is not needed, he begs to remind them that this Flock continues to maintain its high position, as witness the Prizes obtained, not only at the Local Shows, but also those of the Royal
For the convenience of Gentlemen attending the Letting, Conveyances will leave the King's Lynn, Swaffham, and Downham Railway Stations after the arrival of the Morning Trains, returning in time for the Afternoon Trains. A Conveyance will also leave the Bell Inn, Thetford, at 9 A.M., returning in the Afternoon.

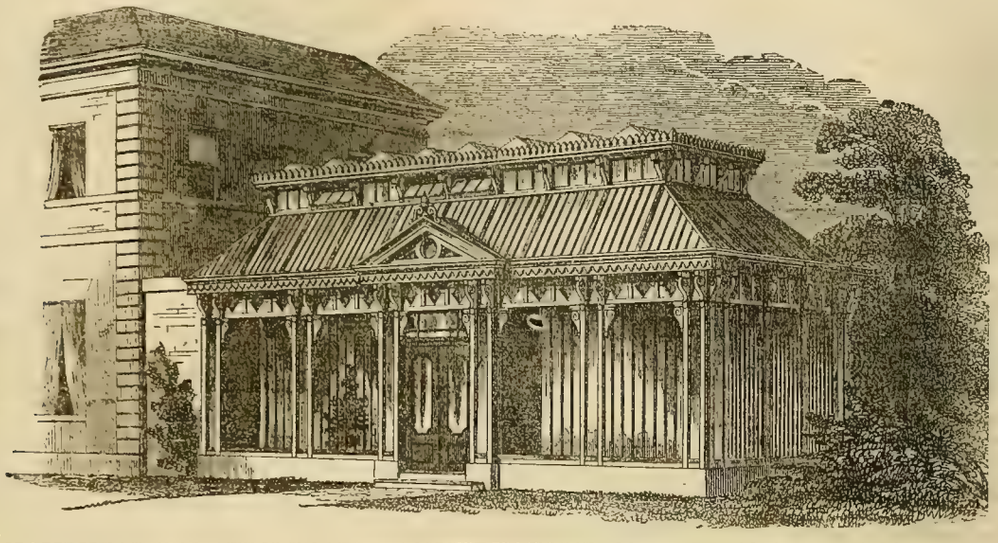
Southdown Sheep and Norfolk Red Polled Cattle.
ELMHAM HALL, NORFOLK.
MR. EDMUND BECK is honoured with instructions to announce that the FOURTH ANNUAL SALE and LETTING of SOUTHDOWN EWES, EWE and WETHER LAMBS, RAMS, and NORFOLK POLLED HEIFERS and BULLS, the property of the Right Hon. Lord Sondes, will take place on WEDNESDAY, September 8.
Particulars in future Advertisements.

Shropshire Sheep and Shorthorn Cattle.
HOLLY BANK, NEAR BURTON-UPON-TRENT.
MR. JOHN B. LYTHALL (Secretary to the Birmingham Cattle Show) will SELL by AUCTION, on TUESDAY, August 10, at 2 o'Clock (Luncheon at 12), THIRTY SHEARLING and other RAMS, FIFTY SHEARLING and STOCK EWES, and a few Pure-bred SHORTHORNS, the property of Willoughby Wood, Esq. The Flock was founded on Ewes selected with judgment from the old Packington Flock, and has been maintained by the introduction of the best blood, regardless of cost, as a reference to the Catalogue will show. The Rams are of great size, excellent wool cutters, and possess plenty of bone and muscle. The high and exposed situation on which these Sheep are bred renders them particularly hardy in their constitution. The Shorthorns are especially worthy the notice of Breeders requiring animals of Bates blood.
Conveyances will meet Trains at Barton and Walton Stations, Midland Railway.
Auctioneer's Offices, 39, New Street, Birmingham.

HORTICULTURAL BUILDINGS OF EVERY DESCRIPTION,

DESIGNED, BUILT, AND EFFICIENTLY VENTILATED AND HEATED.

MANUFACTORIES :—
LONDON, GLOUCESTER, COVENTRY, ULVERSTONE, PAISLEY, and ABERDEEN *only*.



ORNAMENTAL LANTERN-ROOFED CONSERVATORY, 32 feet by 18 feet, and 20 feet high.

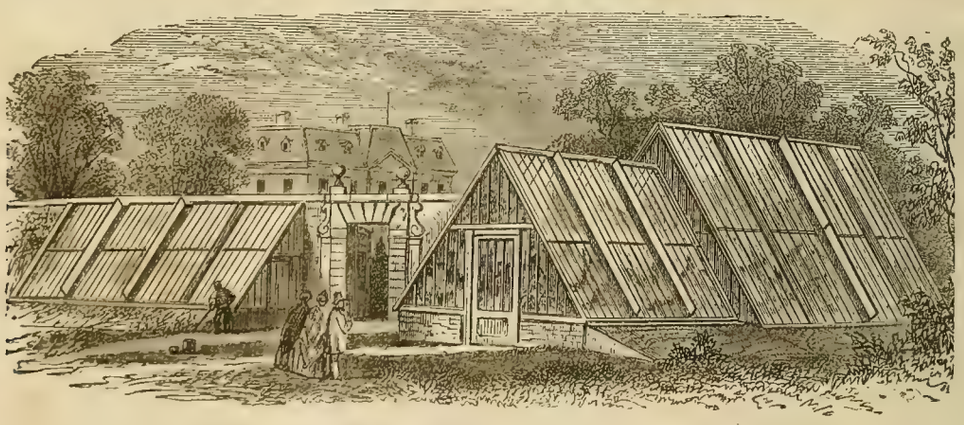
DESIGNS PREPARED TO SUIT ANY STYLE OF ARCHITECTURE. ESTIMATES GIVEN TO ARCHITECT'S PLANS AND SPECIFICATIONS.

HOT-WATER APPARATUS FIXED COMPLETE IN ANY PART OF THE KINGDOM.

FOR FORCING-HOUSES, GREENHOUSES, VINERIES, ORCHARD-HOUSES, &c.,

SIR JOSEPH PAXTON'S PATENT HOTHOUSES FOR THE MILLION

ARE THE MOST SIMPLE, CHEAP, SUBSTANTIAL, PERFECTLY VENTILATED, AND LEGALLY PORTABLE BUILDINGS INVENTED.



VIEW of simplest forms of **PATENT ROOFS**; **LEAN-TO** on South Wall, and **SPAN ROOFS** with ends facing South, as **ORCHARD-HOUSE, VINERY**, &c.

ILLUSTRATED PRICE LISTS free on application at the London Office, where Plans and Models can be inspected, and every information obtained.

WELL-SEASONED SASHES now in Stock at the London Works. ORDERS are RESPECTFULLY SOLICITED EARLY, to avoid delay during the busy Autumn season. REFERENCES can be given to Works executed in every County of England, and to many in various parts of Ireland, Scotland, and Wales.

A PAMPHLET, containing new ILLUSTRATIONS and DESIGNS, with LIST of TESTIMONIALS, is now ready, and can be had on pre-paid application.

CUCUMBER AND MELON FRAMES SUPPLIED ON THE SHORTEST POSSIBLE NOTICE.

A HANDBOOK OF VINE AND FRUIT TREE CULTIVATION,

WITH VIEWS OF GLASSHOUSES OF ALL FORMS,

HINTS FOR HEATING, CAREFULLY SELECTED LISTS OF TREES AND VEGETABLES FOR ORCHARD-HOUSE OR WINTER-GARDEN CULTURE.

By S. HEREMAN, Chatsworth. Post Free, 13*d*.

HEREMAN AND MORTON (OFFICE), 7, PALL MALL EAST, LONDON, S.W.,

CLOSE TO CHARING CROSS.

Editorial Communications should be addressed to "The Editor." Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by JAMES MATTHEWS, at the Office of Messrs. BRADBURY, EVANS & Co., Lombard Street, Precinct of Whitefriars, City of London, in the Co. of Middlesex, and Published by the said JAMES MATTHEWS, at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, July 31, 1869.

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 32.—1869.] SATURDAY, AUGUST 7. {Price Fivepence. {Stamped Edition, 6d.

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NOTICE to ADVERTISERS.—In answer to constant inquiries, the Proprietors have fixed the following SCALE of CHARGES for ADVERTISING:—

	s.	d.
All Advertisements connected with Gardening or Agriculture, four lines..	3	0
Each additional line	0	6
Wants Places, three lines or thirty words	1	6

Advertisements extending across two or three columns, or Block Advertisements, according to Contract.

Post Office Orders payable to JAMES MATTHEWS, at the Post Office, King Street, Covent Garden, W.C.

ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.

PRELIMINARY ANNOUNCEMENT of ARRANGEMENTS for 1870. The SHOWS of the Society will be held on the following dates, viz.:—

JANUARY 19	MAY 4 and 18	SEPTEMBER 7 and 21
FEBRUARY 16	JUNE 1 and 15	OCTOBER 5
MARCH 2 and 16	JULY 6 and 20	NOVEMBER 2
APRIL 6 and 20	AUGUST 3 and 17	DECEMBER 7

Schedules and full details will be issued later in the year.

By Order of the Council.

July 30. JAMES RICHARDS, Assistant Secretary.

TAUNTON DEANE HORTICULTURAL and FLORICULTURAL SOCIETY.—GRAND FLORAL FETE and FIREWORKS, THURSDAY, August 12.—Two Hundred Pounds and Four valuable Cups will be offered for competition. The magnificent Band of the Royal Marines, consisting of Forty Performers, has been engaged. Special Railway Fares for Exhibitors. Schedules, &c., may be obtained on application.

J. B. SAUNDERS, Hon. Sec.

READING HORTICULTURAL SOCIETY.—The ACTUMN SHOW will be held on THURSDAY, August 26 (by permission of the Mayor), in the Abbey Ruins, Reading. A Band will attend as usual. The Show will be open to the holders of Subscribers' Tickets at 1 o'Clock, and to the Public at 3 o'Clock on payment of 1s.

Tickets and Schedules of the Prizes may be obtained of the Hon. Sec., CHARLES COLLINS, 34, Chain Street, Reading, to whom all Entries must be sent on or before Thursday, August 19.

ROYAL PARK, LEEDS.—AUTUMN SHOW of PLANTS, FLOWERS, FRUIT, VEGETABLES, and BIRDS, FRIDAY, August 27, and SATURDAY, August 28. TWO HUNDRED POUNDS offered as PRIZES. Schedules can be had of Mr. BIRBECK, Cross Gates, Leeds, or at the Park.

The London and North-Western and Midland Railway Companies have agreed to convey all except Birds at single fares to and from Leeds; other Railway Companies will no doubt do the same. Further particulars in next week's *Gardeners' Chronicle*.

THOMAS CLAPHAM, Proprietor.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY.—GREAT INTERNATIONAL FRUIT and FLOWER SHOW.—This Great Show will be held in the Music Hall, George Street, Edinburgh, on SEPTEMBER 8 and 9. Intending Competitors must give six days' notice, specifying the numbers they are to compete in. All articles must be in the Hall on Tuesday, the 7th, by 8 P.M.

33, South Bridge. WILLIAM YOUNG.

TO GENTLEMEN, GARDENERS, and OTHERS, having to DISPOSE of CHOICE FRUIT or FLOWERS, &c. They may meet with a ready Sale by applying to A. IRETON, Covent Garden Market, W.C.

ALTERNANTHERA AMABILIS.—This fine new variety, the best of all the Alternantheras, can now be supplied, in good plants, at 4s. per dozen, post free, from B. W. KNIGHT, Florist, Battle, Sussex.

FERNS (Trichomanes speciosum, or Bristle Fern).—Will be ready early in September. A few roots of this rare Fern, price 10s. 6d. each.

Apply to Mrs. CARR, Gale Cottage, Ambleside.

British Fern Catalogue.

ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

Foot's Cray Nursery, Sidcup Hill, Kent.

To the Trade.

PRIMULA SEEDS (New Seeds now arriving).—Hayes' superb fringed, new double flowered, new scarlet, and other colours, all of the finest possible quality. Prices on application. Retail packets for present sowing, 2s. 6d. and 5s. each. All colours and sorts separate.

HOOPER AND CO., Seed Merchants, Covent Garden, London, W.C

Seeds Direct from the Growers, the most Effectual Means of Preventing Disappointment.

SUTTON and SONS, SEED GROWERS, deliver their Home-grown Seeds, Genuine as Harvested, to all parts of the kingdom. Carriage free (except very small parcels).—Prices and full particulars on application.

SUTTON AND SONS, Seed Growers, Reading.

Grapes, Grapes.

JOSEPH MEREDITH, The Vineyard, Garston, near Liverpool, has now on View, and hanging by the ton, the finest Collection of GRAPES in the Kingdom. Inspection is respectfully solicited.

Vines for Planting.

JOSEPH MEREDITH, The Vineyard, Garston, near Liverpool, is now sending out extraordinarily strong VINES, 18 to 20 feet long, for Planting between now and the end of September. See *Gardeners' Chronicle*, July 24, p. 792, for remarks on same. Intending Planters will save a whole season by Planting before the Vines are dormant.

Pines.

B. S. WILLIAMS has all the best kinds, in splendid condition, warranted clean. Prices on application.

B. S. WILLIAMS, Seed Merchant and Nurseryman, Upper Holloway, London, N.

Vines.

PAUL AND SON have to offer unusually fine plants this season. Fruiting and Planting CANES of GOLDEN CHAMPION, MRS. PINCE, and all leading kinds.

The Old Nurseries, Cheshunt, N.

Vines.

LEWIS S. WOODTHORPE can supply strong planting CANES of all the best sorts of VINES, in a growing state, for present planting, at 5s. each. MRS. PINCE'S BLACK MUSCAT, 7s. 6d. each. A few extra strong Fruiting CANES of MRS. PINCE'S MUSCAT at £4 4s. each.

Munro Nursery, Sible Hedingham, Essex.

Vines.

CHARLES TURNER can supply

GOLDEN CHAMPION

MADRESFIELD COURT | MRS. PINCE, and
BLACK MUSCAT | ROYAL ASCOT

In Fruiting Canes, or second size for planting out; also the established old varieties, in fine plants.

The Royal Nurseries, Slough.

Vines.

JAMES BACKHOUSE AND SON can now offer a large and very superior stock of VINES from Eyes, grown without bottom-heat, and comprising all the new and leading kinds. The Canes are very robust, and short jointed. Fine planting Canes of all the leading kinds, 3s. 6d. to 5s. each; Fruiting Canes, 7s. 6d. to 10s. 6d. each; a few extra selected ditto, 12s. 6d. each. Prices of the new sorts on application.—York Nurseries.

To the Trade.

MRS. PINCE'S MUSCAT VINE, Planting Canes, 6 feet, 42s. per doz.

CLEMATIS STANDISHII, very strong, in pots, 75s. per 100.
H. P. ROSES, in pots, good sorts, our own selection, 50s. per 100.
ROSES, New, of this season, in pots, 18s. per doz.
HEDERA MACULATA and H. MACULATA LATIFOLIA, extra strong, in pots, 60s. per 100.
CATALOGUES of General Nursery Stuff on application to G. BAKER AND SON, American Nursery, Bagshot, Surrey.

Grapes, Grapes, Grapes.

FOR SALE, the FRUIT of several large VINERIES, stocked with the choicest assortments.

Apply to Mr. SCOTT, Manager, Stermongers, Rudgwick, Sussex.

Strawberry Plants.

CHARLES TURNER is now prepared to supply strong plants of all the leading kinds. DESCRIPTIVE LIST may be had on application.

The Royal Nurseries, Slough.

Orange Trees for Sale.

TWO PAIRS of magnificent ORANGE TREES for SALE, in very fine health, full of fruit and flowers. This is an opportunity which seldom offers. Can be seen, and all particulars known, by applying to THOMAS BAILEY, Shardeloes Garden, Amersham, Bucks.

Roses.—Grapes.

H. LANE AND SON'S extensive Collection of ROSES is NOW in FULL BLOOM; and the VINERIES, containing over 2000 bunches of 40 leading varieties of GRAPES, are worthy the inspection of their Patrons and Friends.

The Nurseries, Great Berkhamsted, Herts.

Paul's Roses.

"Mr. PAUL'S Roses * * * are things to see once and dream of for ever."—*Athenæum.*

WM. PAUL begs to announce that his ROSES are NOW in BLOOM. Inspection respectfully invited. Trains from London, Bishopsgate Station, to Waltham, Great Eastern Railway, 13 times daily.

PAUL'S Nurseries & Seed Warehouse, Waltham Cross, London, N.

Established 1806.

T. HANDASYDE AND DAVIDSON have a large stock of TEA, HYBRID PERPETUAL, BOURBON, and CHINA ROSES in pots. Special prices to the Trade on application.

Seed Warehouse, 24, Cockburn Street, Edinburgh.
Nurseries, Brunstain Glen, Musselburgh.

Paul & Son's Roses Now in Bloom.

PAUL AND SON, The Old Nurseries, Cheshunt, invite an inspection of the ROSES, HOLLYHOCKS, FRUIT TREES, and other hardy growth, now in most excellent condition. The Forty or Fifty First Prizes taken this season bear witness to the thorough cultivation at Cheshunt. Thirteen Trains from Bishopsgate to Cheshunt; the 8 A.M. and 4 P.M. *via* Waltham and Omnibus to Cheshunt.

Gladioli—New Roses.

EUGÈNE VERDIER Fils Ainé, NURSERYMAN, 3, Rue Dunois, Paris, publishes in August and September of each year complete and descriptive CATALOGUES, with prices. They comprise all the finest and newest varieties of Gladioli, Pæonies, and New Roses. Gratis and post free on application.

Gladioli, the most Extensive Collection.

BARR AND SUGDEN, 12, King Street, Covent Garden, W.C., have the finest and largest collection of GLADIOLI ever offered, prices varying from 2d. to 15s. per root. For particulars see pp. 68, 69, 70, and 71 of B. & S.'s SPRING SEED CATALOGUE.

BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.

Choice Seeds, Gladioli, &c.

WM. CUTBUSH AND SON'S CATALOGUE of the above contains description and price of many very superior home-grown VEGETABLE and FLOWER SEEDS, and choice varieties of GLADIOLI, &c., all of which are highly recommended. Post free on application.

Highgate Nurseries, London, N.

Now Ready, Post Free to all Applicants.

B. S. WILLIAMS' CATALOGUE of NEW and RARE PLANTS, 1869, containing the most beautiful and select of the latest introductions and Supplementary Lists of the General Collection.

Victoria and Paradise Nursery, Upper Holloway, London, N.

HOOPER AND CO., SEEDSMEN'S SUNDRIES MEN, IMPORTERS, and SEED MERCHANTS.

The NEW TRADE PRICE CURRENT for 1869-70 now published, and may be had on application.

HOOPER AND CO., Covent Garden, London, W.C.

NOTICE.—A CATALOGUE of CHOICE NEW PLANTS of 1869, at greatly reduced prices, with select List of DUTCH and other BULBS, with Cultural Notes, ROSES, HARDY HERBACEOUS PLANTS, &c., free on application to

W. DILLISTONE, Nurseryman, &c., Sible Hedingham, Essex.

EXHIBITION SPECIMENS of HARD-WOODED and FINE FOLIAGE PLANTS.—Exhibitors and Purchasers of Large Plants are respectfully invited to inspect our large Stock of first-rate Specimens.

T. JACKSON AND SON, Nursery, Kingston, Surrey.

NEW CHRYSANTHEMUMS of 1868, including the New Japan, Large-flowered, and Pompon varieties sent out in 1868, sent post free; 12 fine varieties, 2s. 6d.; 12 Cuttings, in 12 fine varieties, 1s. 2d., from

B. W. KNIGHT, Florist, Battle, Sussex.

NEW COLEUS.—The 12 New Golden Coleus of the Royal Horticultural Society, sent out in 1869, sent post free for 2s. 6d.; 8 New Coleus of 1869, sent out by W. Bull and E. G. Henderson, post free for 1s. 9d.; the set of 20 varieties, post free, for 4s., from B. W. KNIGHT, Florist, Battle, Sussex.

NEW DOUBLE GERANIUMS.—Twelve fine varieties Double Zonal Geraniums, including Madame Lemoine, for 12s.; 12 best New Zonal Geraniums of 1868 for 6s.; 12 fine varieties Gold and Golden Bicoloured Geraniums for 6s., package included, from B. W. KNIGHT, Florist, Battle, Sussex.

New Nosegay Geranium Charley Casbon.

CASBON AND SON are now sending out the above beautiful GERANIUM. It is of dwarf spreading growth; the flowers, which have broad petals, are freely borne in immense trusses. Colour, the richest scarlet of any variety known. Strong plants 5s. each. The usual allowance to the Trade.

Gravel Walk Nursery, Peterborough.

POST FREE, 1869 GROWTH.—Neill's extra choice strain CALCEOLARIAS, 2s. 6d. each (in sealed packets as made up by Mr. Neill); PRIMULA, Williams' choice strain, warranted, 1s. and 2s. per packet; CALCEOLARIA, selected from the best of the leading strains, 1s. and 2s. per packet. Value can be sent in stamps. Established 1842.

WILLIAM ARMITAGE AND SON, Seed Merchants, Huddersfield.

Bromus Schræderi.

SUTTON AND SONS can supply SEED of the above valuable FORAGE GRASS at 1s. per lb.; much cheaper by the cwt. August and September are good months to sow. 20 lb. and upwards sent free by rail. Sow 90 lb. per acre in drills 9 or 10 inches apart. Royal Berks Seed Establishment, Reading.

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SUTTON AND SONS are now prepared to execute orders for their MIXTURES of PERMANENT PASTURE GRASSES and CLOVERS for AUTUMN SOWING. For prices and full particulars apply (stating the nature of the soil to be laid down) to SUTTON AND SONS, Seedsmen to the Queen, Reading.

PARIS, 1867. | SUTTONS' GRASS SEEDS for ALL SOILS. A PREMIER PRIX SILVER MEDAL for GARDEN SEEDS, GRASSES, and GRASS SEEDS, was Awarded to SUTTON AND SONS, SEEDSMEN to the QUEEN, Reading, Berks.

A SPECIAL PRIZE MEDAL, PARIS, 1867, was AWARDED to JAMES CARTER & Co., 237 & 238, High Holborn, London, W.C., for GRASS SEEDS, supplied for the Exhibition Grounds.

GRASS SEEDS: WHEN and WHAT to SOW.—For the fullest information on this subject, see CARTER'S ILLUSTRATED FARMER'S CALENDAR for 1869; post free, 6d.

JAMES CARTER AND CO., Seed Growers, 237 and 238, High Holborn, London, W.C.

EVERY GARDEN REQUISITE KEPT in STOCK at CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

NEW RAPE SEED.—Samples and quotations of the above forwarded post free on application to CHARLES SHARPE AND CO., Seed Merchants, Sleaford.

Cabbage Seed.

LEWIS S. WOODTHORPE can supply DRUMHEAD CABBAGE SEED at 1s. per lb.; EARLY YORK CABBAGE, 1s. 6d. Samples sent, with price per cwt., upon application.

Munro Nursery, Sible Hedingham, Essex.

New English Sowing Rape Seed.

H. AND F. SHARPE have fine Samples of NEW RAPE SEED, which they can offer to the Trade at low figures. Price and samples on application.

Seed Growing Establishment, Wisbech.

To the Trade.

TURNIP and MANGEL SEEDS, growing crop of 1869, splendid stocks, various kinds.

FREDK. GEE invites attention to the above, and will be pleased to make special offers of the same on advantageous terms.

Seed Establishment, Biggleswade, Beds.

To Farmers, Gardeners, and Others.

F. GEE can still supply excellent strong Cabbage, Cauliflower, Brussels Sprouts, Savoy, Scotch Kale, splendid Variegated Kale, and other PLANTS. Genuine new unadulterated Cabbage, Turnip, Mustard, Cole SEED, &c. Prices, which are low, had on application.—Seed Establishment, Biggleswade, Beds.

New Turnip Seeds. Harvest 1869.

SUTTON AND SONS have just harvested, in good condition, fine seed of the leading kinds of TURNIPS, suitable for present sowing. For prices apply to

SUTTON AND SONS, Seed Growers, Reading, Berks.

Drumhead Cattle Cabbage.

THE HEAVIEST OF ALL AGRICULTURAL CROPS.

SUTTON AND SONS can supply the IMPROVED DRUMHEAD CATTLE SEED at 4d. per oz., or 2s. 6d. per lb. It will be remembered that remarkably fine specimens of the above were exhibited on Messrs. Suttons' stand at the last Smithfield Club Show. Sow in August and September.

SUTTON AND SONS, Seed Growers, Reading.

New Hardy Plant,

To be sent out in September, 1869. For plate and full description, see "Botanical Magazine," t. 5726, No. 285, in which Dr. Hooker says —

SPIRÆA PALMATA,

"By far the handsomest species of the genus hitherto imported, and certainly one of the most beautiful hardy plants in cultivation; the deep purple-red of the stems and branches, passing into the crimson-purple of the glorious broad corymbs of flowers, contrasts most exquisitely with the foliage, which in autumn assumes beautiful tints of brown and golden-yellow. Spiræa palmata was introduced by Mr. Fortune from Japan, and has proved itself perfectly hardy in the most exposed position."

CHARLES NOBLE having the entire Stock of this fine Plant, intends sending it out next August, at 21s. each. Orders are requested early, as the Stock is limited.—Bagshot, June, 1869.

Trees, Plants, Seeds, &c.

JAMES DICKSON AND SONS have at all times on hand very large and excellent STOCKS of the above. Their Nurseries (perhaps the most extensive in England) are thoroughly stocked with all sorts of TREES, SHRUBS, PLANTS, &c., and are well worthy the attention of Planters and others.

Their Seeds are for the most part grown by themselves or under their immediate supervision, therefore may be confidently relied upon.

CATALOGUES post free on application.

"Newton" Nurseries, and 102, Eastgate Street, Chester.

Now is the time to Sow

DOBSONS' SPLENDID HYBRIDISED CALCEOLARIAS.—New Seed, saved from the plants exhibited by us, and so much admired by the thousands of visitors, and were awarded the First Prizes and Special Extra Prizes at the Royal Horticultural, Royal Botanic, two Crystal Palace Shows, Reading, and Oxford, and so favourably noticed by the Editor of the *Gardeners' Chronicle*, p. 582. The flowers have been unusually large, brilliant, and varied in colour, with dwarf habit, and the strain altogether cannot be equalled. Seed, in sealed packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s.

J. DOBSON AND SONS, Woodlands Nursery, Isleworth, W.

Hardy and other Bedding Plants.

ROBERT PARKER begs to offer the under-named, all of which can be supplied in strong, healthy plants:—

	Per doz.—s. d.		Per doz.—s. d.
Dactylis glomerata elegantissima	4 0	Pansy, Cliveden Yellow ..	3 0
Echeveria metallica, 6s. to	30 0	,, Great Eastern ..	3 0
,, pumila ..	9 0	,, Imperial Blue ..	18 0
,, secunda glauca	9 0	Pachyphytum bractentum	12 0
Lithospermum prostratum (fruticosum)	9 0	Sempervivum californicum	4 0
Pansy, Cliveden Blue ..	3 0	Tritoma grandis	12 0
,, ,, Purple ..	3 0	,, uvaria glaucescens	9 0
		Viola lutea sempertlorens	4 0
		,, cornuta alba	4 0

Special quotations may be had, if required, for the above, and many other kinds, by the 100, or in larger quantities.

Exotic Nursery, Tooting, Surrey, S.W.

To the Trade Only.

RAPE (New Dwarf Essex), WHITE MUSTARD, TRIFOLIUM INCARNATUM. Samples and prices on application to

R. A. ARNOTT, Seed Merchant, 59, Mark Lane, London, E.C.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY (Limited),

CORN, SEED, MANURE, and OILCAKE MERCHANTS.

Address, 59, Seed Market, Mark Lane, E.C.; or Basingstoke.

Samples and prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

THE LONDON MANURE COMPANY

(ESTABLISHED 1840)

Have now ready for delivery, in fine condition,

CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES.

Also Genuine PERUVIAN GUANO, and NITRATE of SODA ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c.

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Offices, 116, Fenchurch Street, E.C.

Weeds Eradicated from Lawns.

WATSON'S LAWN SAND, sprinkled upon Lawns, rapidly destroys Dandelions, Daisies, Clover, Rib-grass, &c., and at same time promotes the growth of Grass. 28s. per cwt.; 4d. per lb.

May be ordered through any respectable Seedsman, or direct from Agent, W. D. BARBOUR, 5, East Parade, Leeds.

A Boon for Grape Growers.

MEREDITH'S VINE, PINE, PEACH, and PLANT MANURE.

JOSEPH MEREDITH, The Vineyard, Garston, near Liverpool, after giving world-renowned proofs of his excellency over all others in Vine and Grape growing, is now induced to offer to the Horticultural world the above MANURE, to the ingredients of which, in a great measure, he attributes the success which has attended his exhibitions of Grapes in England, Scotland, Paris, Brussels, Antwerp, and Maestricht. In doing so he is offering from experience the most valuable aid to both practical and amateur in not only securing fine fruit, but good flavour and high finish of colour, and to possess the greatest help towards vigour and successful cultivation ever met with. To be had in sealed bags of quarter cwt., 10s. 6d.; half cwt., 21s.; one cwt., 42s.; with full directions for use. For further particulars see Descriptive Circulars, to be had post free on application as above. (See *Gardeners' Chronicle*, July 24, p. 792.)

APPLEBY'S GENUINE TOBACCO PAPER, in 2lb. and 4lb. packets. Testimonials too numerous for insertion.

Price-list [illegible] to HENRY APPLEBY (Foreman to Messrs. Ivery & Son, Nurserymen), Dorking, Surrey.

The Hop Grower's Friend.

"FOWLER'S HOP WASH" and "HOP DUST."

SAFE—EFFECTUAL—CHEAP.

Destroys and prevents all the various Insects and Blight infesting Hops. Its action over the [illegible] preparations are

I. Much greater effectiveness in destroying and preventing the Insects and Blight.

II. Will not harm the Plants, but strengthen and invigorate their growth.

III. A cost not exceeding 6d. per 100 Gallons of the Solution.

PRICE.

Hop Wash, in 2-cwt. casks, £32 per ton. Sample 2s. 6d., and 112-lb. keg, 2s. per cwt. extra.

Hop Dust, 42s. per cwt. Sample bags, 2s and 56lb.

In consequence of the increasing demand for this most valuable remedy, the Manufacturers have opened a London Depot and Works, at 5, Great Dover Street, Borough, to which address orders should be sent.

Sold throughout the Hop Districts, and where no Agents are yet appointed, application should be made at once to O. & T. FOWLER.

The Works—Great Dover Street, Borough.

Royal Horticultural Society.—Provincial Exhibition.

THE SILVER SAND (Stand 414), delivered free by rail at very low rates. Price at Mines, 1s. 11d. per bushel.

NUNN, Lloyd Street, Manchester.

Gratis and Post Free.

MEREDITH'S DESCRIPTIVE CIRCULAR of his VINE, PINE, PEACH, and PLANT MANURE. See *Gardeners' Chronicle* of July 24, p. 792.

JOSEPH MEREDITH, The Vineyard, Garston, near Liverpool.

The Cheapest and Best Insecticide.

DUTY-FREE TOBACCO.

BY HER MAJESTY'S ROYAL LETTERS PATENT, AND BY PERMISSION OF THE HON. BOARD OF CUSTOMS.

POOLEY'S TOBACCO POWDER, for the Prevention and Destruction of Blight and other Diseases in Plants.

Sold by Nurserymen, Seedsmen, and Florists,

In Tins at 1s., 2s. 6d., and 5s.

Powder Distributors, 2s. 6d. and 3s. 6d. each.

"I find it exceedingly useful for killing the Aphides on Roses and other Plants."—GEO. EYLES, Superintendent, Royal Horticultural Gardens, South Kensington. May 7, 1868.

Sole Manufacturer, T. A. POOLEY, Bonded Warehouse, Sussex Wharf, Wapping, E.



Red Spider — Magnified.

GISHURST COMPOUND.

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

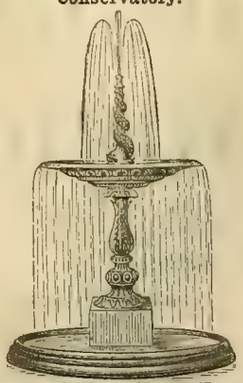
Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d.

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Vases and Fountains, for the Garden and Conservatory.



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Britannia Foundry, Derby. | 32, Walbrook, London.

The Britannia Iron Works have for the last 40 years been well known for the production of fine Iron Castings. The use of Cast-iron permits a delicacy of outline, and smoothness of surface, impossible in cheap Stone or Terra-cotta. Cast-iron Vases, if occasionally painted, are imperishable, and will not crack when exposed to wet or frosty weather.





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GREEN'S IMPROVED PATENT ROLLER,

FOR

LAWNS, DRIVES, BOWLING GREENS, CRICKET FIELDS, and GRAVEL PATHS.

SUITABLE FOR HAND OR HORSE POWER.

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HAND ROLLERS.

Diam.	Length.	£	s.	d.
30 inches	32 inches ..	7	10	0
24 inches	26 inches ..	4	10	0
20 inches	22 inches ..	3	10	0
16 inches	17 inches ..	2	15	0



PRICES OF

ROLLERS

FITTED WITH SHAFTS,
Suitable for Pony or Horse Power.

Diam.	Length.	£	s.	d.
30 inches	32 inches ..	10	0	0
30 inches	36 inches ..	10	15	0
30 inches	42 inches ..	11	15	0
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30 inches	84 inches ..	19	10	0

These Rollers possess many advantages over all others; they are made in two parts, and are free to revolve on the axis, affording greater facility for turning, and the outer edges are rounded off, or turned inwards, thus avoiding the unsightly marks left by other Rollers. They are manufactured of the best materials, and are got up in a manner surpassing any ever yet brought out. The Rollers 24 by 26 inches, 20 by 22 inches, and 16 by 17 inches, are also made in one part, at a reduced price; and, for Rollers of that size, will be found to answer many requirements, as the handle can be reversed to either side of the Roller at pleasure.

PRICES—24 in. by 26 in., £4; 20 in. by 22 in., £3 2s. 6d.; 16 in. by 17 in., £2 10s.

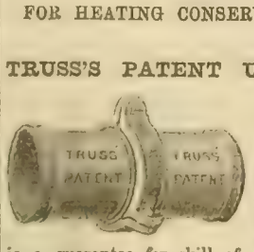
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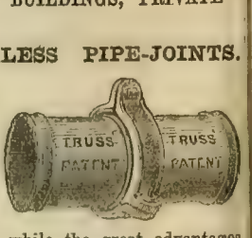
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TWO FOUR-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
20 feet by 10 feet ..	£9 0 0 ..	£2 0 0	50 feet by 15 feet ..	£17 10 0 ..	£3 0 0
30 feet by 12 feet ..	11 15 0 ..	2 10 0	75 feet by 15 feet ..	20 0 0 ..	3 0 0
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Bath and Gas Work erected in town or country. **The Trade Supplied.**

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NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

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TO HER MOST GRACIOUS MAJESTY THE QUEEN.

The Extraordinary Success of GREEN'S PATENT LAWN MOWERS is an established fact. During the last five years the demand has been unprecedented, which alone is a proof of their superiority over all others. The following are their characteristic features:—

1st. **Simplicity of Construction, every part being free of access.**
2d. **They are worked with far greater ease than any other Lawn Mower.**
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Trial at the London Horticultural Society's Gardens, Chiswick, June 5, 1857; four competitors: — First Trial on level ground, Second Trial on undulated; Third Trial on intricate places, around trees, &c.,—when GREEN'S PATENT was unanimously declared to be the best in each Trial by Colonel Challoner, Dr. Lindley, and G. McEwen, Esq., the appointed Judges, and on every subsequent Trial to the above have GREEN'S PATENT LAWN MOWERS carried off every Prize that has been given in competition for superiority in every point.

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FIRST PRIZE MEDAL AT THE BRUSSELS EXHIBITION, *on two occasions.*
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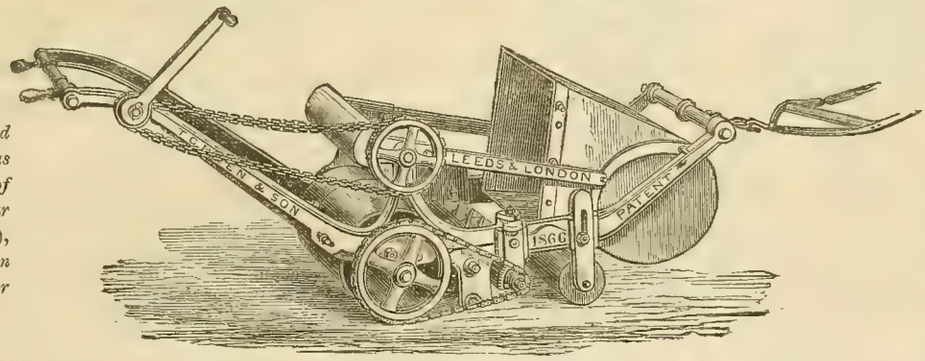
THEY ARE THE ONLY MACHINES IN CONSTANT USE AT

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THE WINTER PALACE GARDENS, DUBLIN
THE DUBLIN BOTANIC GARDENS
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AND IN MOST OF THE PRINCIPAL PARKS, SQUARES, ETC., IN THE UNITED KINGDOM.

HORSE, PONY, AND DONKEY MACHINE.

GREEN'S PATENT **LAWN MOWERS** *have proved to be the best, and carried off every Prize that has been given in all cases of competition. Since the first year they were introduced* (1856), *upwards of* 46,600 *have been sold, and* 25,000 *of that number during the last five seasons.*



T. GREEN & SON *warrant every Machine to give entire satisfaction, and if not approved of can be returned unconditionally.*

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

PONY AND DONKEY MACHINES.

To Cut 26 inches	..	..	..	£13 0 0	*Leather Boots for Donkey*, 18*s.* *Leather Boots for Pony*, 22*s.*
„ 28 „	..	..	..	15 0 0	
„ 30 „	..	..	..	17 0 0	

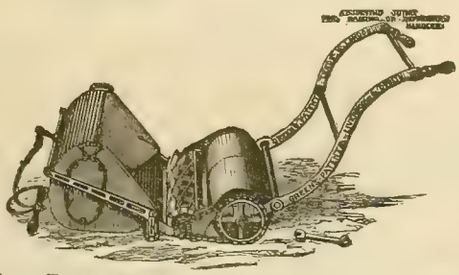
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To Cut 30 inches	..	..	..	£21 0 0	*Leather Boots for Horse*, 26*s.*
„ 36 „	..	..	..	24 0 0	
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Both the Horse, Pony, Donkey, and Hand Machines possess (over all other Makers) the advantage of Self-sharpening. The cutters being steel on each side, when they become dull or blunt by running one way round, the cylinder can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the Machine will cut equal to new. Arrangements are made that the cylinder can be reversed, by any inexperienced person, in two or three minutes.

HAND MACHINES.

To Cut 10 inches	..	£3 10 0	*Suitable for a Lady*		
„ 12 „	..	4 10 0	„	„	
„ 14 „	..	5 10 0	*Suitable for One Person*		
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To Cut 18 inches	..	£7 10 0	*Suitable for One Person.*		
„ 20 „	..	8 0 0	*Suitable for Two Persons*		
„ 22 „	..	8 10 0	„	„	
„ 24 „	..	9 0 0	„	„	

Packing Cases are charged at the following low rates, viz.:—For the 10 and 12-inch Machine, 3*s.*; 14 and 16-inch, 4*s.*; 18 and 20-inch, 5*s.*; 22 and 24-inch, 6*s.* Parties providing themselves with Lawn Mowers are recommended to purchase the cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England, Ireland, and Scotland.

HORTICULTURAL and AGRICULTURAL IMPLEMENTS, GARDEN SEATS and CHAIRS, FOUNTAINS, VASES, PLAIN and GALVANISED WIRE NETTING, and ORNAMENTAL WIRE WORK of every description.

Having very extensive Premises in London, we are in a position to do all kinds of Repairs there, as well as at our Leeds Establishment.

Having a large quantity of MACHINES in stock at our Leeds and London Establishments, we are in a position to execute Orders on the day they are received.

THOMAS GREEN and SON, SMITHFIELD IRON WORKS, LEEDS;
and 54 & 55, BLACKFRIARS ROAD, LONDON, S.

SEEDS for PRESENT SOWING.

Orange Jelly Turnip	Whitestone or Stubble Turnip
White Globe ditto	Devonshire Greystone ditto
Altringham Yellow ditto	Mustard
Trifolium incarnatum (crimson Clover)	Winter Rape &c., &c.

Newly-harvested Seeds of the above now ready. Orders to the value of £2 or upwards delivered carriage paid.
JAMES DICKSON AND SONS, 102, Eastgate Street, and "Newton" Nurseries, Chester.

New and Choice Seeds of 1869 Growth.

CHARLES TURNER can now supply the following, all of his own saving and from his unrivalled Collections:—

	Per pkt.—s. d.		Per pkt.—s. d.
Auricula Stage	2 6	Pelargonium, Fancy Vars. .	2 6
„ Alpine	1 6	„ Tricolor „ ..	2 6
Cineraria	2 6	„ Variegated „ ..	2 6
Calceolaria	2 6	„ Zonal „ ..	1 0
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PICOTEE PRINCE of ORANGE (perpetual flowering).—Orders are now being booked for this most beautiful decorative plant, flowering all the year round in conservatory or greenhouse, and from July to November in the open ground. Will be found most valuable for Bouquets and Cut Flowers for Exhibition, being a strong grower and producing spikes of flowers from every shoot. Colour bright orange, edged with scarlet.
Received a First-class Certificate at the Royal Horticultural Society's Special Carnation Show at South Kensington, July 6, 1869.
Strong plants ready the first week in May next, 5s. each. The usual discount to the Trade. Address,
FRED. PERKINS, Seed Warehouse, Regent Street, Leamington.

CARTER'S PRIMULA, CALCEOLARIA, and CINERARIA.
J. C. & Co.'s strain of Calceolaria is saved from plants that were awarded a 1st Prize at the late International Show. The Cineraria and Primula stocks are also saved from the finest Prize Varieties, and cannot be surpassed.

CALCEOLARIA and CINERARIA.

	Per packet—s. d.		Per packet—s. d.
Calceolaria, finest hybrid ..	2 6	Calceolaria, Dobson's strain..	2 6
„ „ spotted ..	2 6	Cineraria, extra fine	2 6

PRIMULA.

	Per packet—s. d.		Per packet—s. d.
Primula, choicest mixed, fringed	2 6	Primula, choicest white fringed	2 6
„ „ dark carmine, fringed	2 6	„ „ Fern-leaved carmine	2 6
„ „ rose fringed	2 6	„ „ „ white ..	2 6

CALCEOLARIA INTERNATIONAL PRIZE.—The Seed of this superb strain cannot fail to produce splendid varieties, as last season's plants took 1st Prizes wherever exhibited. Per pckt., 2s. 6d.
PRIMULA FIMBRIATA (New scarlet).—This is a decided novelty, being of a deep scarlet colour, and cannot fail to be much admired wherever grown. Per packet, 2s. 6d.
INDIA-RUBBER HOSE at Manufacturer's prices, 60 feet (with complete fittings), 25s.
JAMES CARTER AND CO., The Royal Seedsmen, 237 and 238, High Holborn, London, W.C.

JAMES CARTER AND CO. can now offer strong well-grown CANES of the FOLLOWING VINES, this year's growth. If planted now a season will be saved.
Price 7s. 6d. to 12s. 6d. each.

Bidwill's Seedling	Golden Hamburgh
Black Alicante	Lady Downe's Seedling
„ Barbarossa	Madresfield Court Black Muscat
„ Hamburgh	Morris' Black Grape
„ Morocco	Mrs. Pince's Black Muscat
„ Prince	Muscat Hamburgh
Buckland Sweetwater	„ of Alexandria
Charlesworth Tokay	Royal Ascot
Duchess of Buccleuch	„ Muscadine
Frankenthal	Trentham Black
Golden Champion	White Frontignan

JAMES CARTER AND CO., Seed Merchants and Nurserymen, 237 and 238, High Holborn, W.C.; and Crystal Palace Nurseries, Forest Hill, S.E.

JAMES CARTER AND CO. having often had applications for STRAWBERRIES earlier in the season than they could be supplied from same year's runners, have planted out an enormous stock of last year's late runners, and can now offer strong plants of the undermentioned varieties, and if planted from henceforth in favourable weather they will guarantee to produce good crops next year.

Black Prince	Frogmore Late Pine	Princess Royal
British Queen	Goliath	Rifleman
Carolina Superba	Keens' Seedling	Sir Charles Napier
Comte de Paris	Nonsuch	Sir Harry
Crimean Queen	Oscar	Standard Bearer
Dr. Hogg	President	Victoria
Elton Pine	Prince of Wales	Wizard of the North
Filbert Pine	Princess Alice Maude	Wonderful

Price 5s. and 7s. 6d. per 100.

NEW CONTINENTAL VARIETIES.

Bonté St. Julien	La Châlonnaise	Sabreur
Boule d'Or	La Petite Marie	Topsy
Duc de Malakoff	Lecoq Pine	La Belle Bordelaise
Globe	Marguerite	De Versailles
Gweniver	Napoléon III.	Janus

Price 10s. 6d. to 15s. per 100.

JAMES CARTER AND CO., Seed Merchants and Nurserymen, 237 and 238, High Holborn, W.C.; and Crystal Palace Nurseries, Forest Hill, S.E.

Choice Flower Seeds for Present Sowing.

DOWNIE, LAIRD, AND LAING have the pleasure of offering the following choice Flower Seeds:—
CALCEOLARIA, Hybridised, saved from a superb First Prize Collection, 2s. 6d., 3s. 6d., 5s. per pkt.
CINERARIA, extra choice, saved from an unequalled assortment of named flowers, 1s. 6d., 2s. 6d., 3s. 6d. per pkt.
HOLLYHOCK, extra fine, saved from our own magnificent collection, in 12 colours, 5s. per collection.
HOLLYHOCK, extra fine, saved from our own magnificent collection, mixed, 1s., 2s., 3s. 6d. per pkt.
PANSY, Show, saved from our unrivalled Exhibition Flowers, 1s., 1s 6d., 2s. 6d. per pkt.
PANSY, Fancy, saved from a selection of the most beautiful colours, 1s., 1s. 6d., 2s. 6d. per pkt.
PRIMULA, Fringed (Red and White), saved from the finest strain in cultivation, 2s. 6d., 3s. 6d., 5s. per pkt.
PRIMULA, Fern-leaved (Red and White), saved from the finest strain in cultivation, 2s 6d., 3s. 6d., 5s. per pkt.
Stanstead Park, Forest Hill, London, S.E.; and at Edinburgh.

Fine New Hardy Clematises,
TO BE SENT OUT IN SEPTEMBER, 1869.

GEORGE JACKMAN AND SON are prepared to book orders for their two following NEW CLEMATISES, that they can warrant as distinct, vigorous, and abundant flowering as those varieties which have already obtained such general approbation.
CLEMATIS LADY BOVILL (First-class Certificate Royal Horticultural Society).—"Width of the petal is greater than its length, which causes it to be very slightly cupped, resembling a somewhat expanded Tulip, while its colour (a greyish blue) marks its distinctness."—*Floral Magazine.*
"The more novel tints of light mauve and greyish blue."—*Gardeners' Chronicle.*
CLEMATIS MAGNIFICA (First-class Certificate Royal Botanic Society).—This is one of the most hardy and vigorous growing varieties of the Woking Hybrids. The colour is purple, suffused with a strong crimson shading over the whole surface of the flower, making it very attractive.
"The petals of which are barred with Turkey red."—*Gardeners' Chronicle.*
21s. each, or three plants, viz., one C. Lady Bovill and two C. magnifica, for 45s. A few extra strong plants, 31s. 6d. each.
A Coloured Drawing (by Andrews) of C. Lady Bovill can be had by enclosing 12 stamps, or Circular, giving "Opinions of the Press," with engraving, for one stamp.
The usual allowance to the Trade.
Woking Nursery, Surrey.

GOLDEN CHAMPION GRAPE.

OSBORN & SONS

CAN SUPPLY GOOD CANES OF THE ABOVE-NAMED REMARKABLE GRAPE;

which has again been Exhibited and very much admired, fully sustaining the high character previously formed of it.

Price 10s. 6d., 21s., and 30s. each.

FULHAM NURSERY, LONDON, S.W.

NEW HYBRID PELARGONIUMS,

WILLSII, and WILLSII ROSEA.

Undoubtedly the finest NOVELTIES of the season. Numerous CERTIFICATES and FIRST PRIZES have been awarded by the Royal Horticultural Society, Royal Botanic Society, &c.

J. W. WIMSETT has much pleasure in announcing that the above splendid Novelties will be ready for sending out the first week in August.

Willsii, a Guinea and a half each. | **Willsii rosea, Two Guineas each.**

To MR. J. WILLS. "Culford Hall, Bury St. Edmund's, June 9, 1869.

"DEAR SIR,—I was much disappointed at not seeing you at the Pelargonium Show on the 22d; I however saw your beautiful hybrid Pelargonium Willsii rosea, which ought to carry your name down to posterity—it is really a very great triumph. If you had never done anything else in the cause of Flora with the exception of effecting this cross, you would have done much more than your share. But you have done much more than this for the floricultural public, who are very much indebted to you. "I am, dear Sir, very truly yours, P. GRIEVE."

ASHBURNHAM PARK NURSERY, KING'S ROAD, CHELSEA, S.W.
July 21. J. WILLS, F.R.H.S., Manager.

EARLY SEED FOR SHEEP AND CATTLE.

SUTTON & SONS

Recommend the following for sowing during August and September:—

SUTTONS' SPECIAL MIXTURE of RAPID GROWING GRASSES and CLOVERS

Will produce an early crop of Grasses for feeding off in November, and a heavy crop for mowing in May. Sow 2 bushels per acre. Price 10s. per bush.

SUTTONS' IMPROVED ITALIAN RYE-GRASS AND TRIFOLIUM INCARNATUM

May be sown either separately or mixed. If the latter, 1 bushel of Italian and 20 lb. Trifolium is required per acre.

Our customer, HENRY HUDSON, Esq., *says of this mixture*:—
"The Trifolium and Italian Rye-grass have proved a great success; and the crops of fodder are prodigious."

SUTTONS' ITALIAN RYE-GRASS

Is the best and most productive in cultivation. From four to six cuttings may be obtained a year, and with liquid manure the quantity may be greatly increased. Sow 3 bushels per acre alone. Lowest price per quarter on application.

TRIFOLIUM INCARNATUM

Will produce a most valuable crop for consuming in May. Its cultivation is very simple; 28 lb. per acre, sown broadcast on the stubble and rolled afterwards. Late red-flowering Trifolium, if sown at the same time as the common Trifolium, will produce a good succession of cuttings. Lowest price per cwt. on application.

Also MUSTARD, RAPE, and other SEEDS for autumn sowing, at very moderate prices.

All Goods Carriage Free, except very small parcels.

SUTTON AND SONS, SEEDSMEN TO THE QUEEN, READING.

CUBA BAST,

OF FIRST-CLASS QUALITY. PRICE ON APPLICATION.

PETER LAWSON AND SON,
20, BUDGE ROW, CANNON STREET, AND SOUTHWARK STREET, LONDON; AND EDINBURGH.

BROMUS SCHRÆDERI.

PETER LAWSON & SON

WISH TO DIRECT THE ATTENTION OF AGRICULTURISTS TO THE FOLLOWING.

THE value of this fine Grass is not sufficiently known. We find that when sown with Trifolium incarnatum and Winter or Spring Tares, its nutritive qualities as a forage plant materially assist the others, and make a most acceptable food for cattle. Its stiff erect growth also acts as a support to the Tares, and is in this respect, as well as being a superior feeding plant, preferable to Wheat, Beans, or Rye; it is perfectly hardy, and thrives well during the winter in almost all situations.

On wet lands, where it is sometimes difficult to get good crops of Grass, BROMUS SCHRÆDERI flourishes, and can be repeatedly mowed for consumption, whilst it is invaluable on dry soils for grazing during winter when there is a scarcity of Rye Grasses.

It can be sown in March, April, or May, and in August or September, and should be drilled, say from 40 to 50 lb. per acre, if sown alone.

RICHARD HEADLY, Esq., *of Stapleford, near Cambridge, writes, July 16th*, 1869:—
"Bromus Schraederi should not be grown on a very large scale by itself, as it requires a quantity of manure to grow it very fast, and give you three or four cuttings in the season. Stock of all kinds are very fond of it, and will leave any other food. It is very desirable to grow an acre or two of it, as when cattle are ill or weakly it is a capital food for them—in fact, to a certain extent, it ought to be grown by every possessor of stock. I sow mine in drills 1 foot apart, but it will do better 18 inches apart, particularly on good soils. I draw the drill with a hoe, and sow by hand, and as early in the spring as the land will work. Some people drill it with a machine, but I dislike that plan, as it does not sow it regularly."

TRIFOLIUM INCARNATUM, New Seed.	FRENCH ITALIAN RYE-GRASS SEED.
WHITE MUSTARD SEED.	TURNIP, select stocks for autumn sowing.
DWARF ESSEX RAPE SEED.	WINTER TARES.

Samples and Prices of above on application.

20, BUDGE ROW, CANNON STREET, AND SOUTHWARK STREET, LONDON; ALSO AT EDINBURGH.

NEW COLEUS, BEAUTY of WIDMORE.—Distinctly tricolored; leaves beautifully shaped, dark brilliant maroon, bolted with bright rose and green edged with silvery white. 3s. 6d. each. 25 distinct varieties, including the above and all other new ones of this season, free by post for 21s.
ALTERNANTHERA AMABILIS.—A new variety, far superior to all the other Altern antheras, 4s. per dozen. [dozen.
ECHEVERIA METALLICA.—The beautiful Shell Plant, 4s. per
JAMES CARTER AND CO., Seed Merchants and Nurserymen, 237 and 238, High Holborn, W.C.; and Crystal Palace Nurseries, Forest Hill, S.E.

INTERNATIONAL HORTICULTURAL EXHIBITION, to be held in HAMBURGH, from SEPTEMBER 2 to 12. The EXHIBITION, which will be duly OPENED on SEPTEMBER 2, at 12 o'Clock, in the Grand Park expressly laid out on the banks of the Elbe, with an unsurpassed view of the Harbour of Hamburgh, promises to present to the Visitor a most perfect picture of everything appertaining to Horticulture. Besides all kinds and species of Plants and Trees in the open ground, as well as in Hot and Greenhouses, there will be exhibited all the produce of Horticulture and Agriculture, and every variety of Machines, Greenhouses, Heating Apparatus, Summer-houses, Fountains, Statues, Bridges, Ferries, Terrariums, Aquariums, &c. Aside from the fixed programme there is a large number of Extra Prizes, awarded by H.M. the King and H.M. the Queen of Prussia, H.M. the Queen of England, H.R.H. the Grand Duke of Oldenburg, the Senate of the City of Hamburgh, the Austrian Ministry, the Prussian Ministry, the Magistrates of the City of Altona, and numerous Societies and private individuals. Numberless applications have been received, the participation of the European and the Transatlantic States will be enormous. A separate Committee has been organised for the purpose of procuring Lodgings. Address, Dr. OSCAR GOSSLER.
Through Tickets for the entire Exhibition, the Distribution of the Prizes on the 13th, and the Auction on September 14, can be had at six dollars each after August 20. Prices of admission: First day, four dollars; for the succeeding week days, one dollar. On the first Sunday and the last days of the Exhibition the admission will be reduced. THE COMMITTEE OF THE INTERNATIONAL HORTICULTURAL EXHIBITION of 1869.
Hamburgh, July, 1869.

The Gardeners' Chronicle.
SATURDAY, AUGUST 7, 1869.

MEETING FOR THE ENSUING WEEK.
TUESDAY, August 10—Royal Botanic Anniversary .. .. 1 P.M.

THE modification in the Royal Horticultural Society's LONDON MEETINGS and SHOWS to be held during 1870, and to which we have on one or two occasions already adverted, has now, we learn, been definitively adopted by the Council, and will be officially announced forthwith. Virtually these changes consist in the strengthening of the fortnightly meetings, which are the most useful and prosperous of the Society's gatherings, by throwing into them the various shows held during the season, and in the abandonment of separate "shows." Moreover, since Wednesday is a more profitable day of the week than Tuesday as regards visitors—the next best, indeed, to Saturday, which is objectionable on various grounds—there is to be the slight change of shifting the meeting day from Tuesday to Wednesday. The latter day is equally convenient to all the parties concerned, while it has this advantage over any other admissible day, that its adoption, so far as past experience enables one to judge, would help to make the flower shows pay.

These Wednesday meetings, to be held in the first or third week, or the first and third week in each month of 1870, will, as we understand, consist of such meetings as the present Tuesday meetings, supplemented by shows, some smaller, somewhat like the prize meetings of the present season, others larger, like the spring and other exhibitions of ordinary years. All the meeting days are to be show days of a major or minor order, and no separate exhibitions are to be held, except the Provincial Show, which will take place in the course of the summer. The days fixed on are the third Wednesday in January and in February, the first and third Wednesdays in each month from March to September inclusive, and the first Wednesday in October, in November, and in December. At each meeting or show some characteristic flower and fruit in season will be selected as the special feature of that meeting, and will be made the subject of certain special prizes, while other seasonable objects will be grouped around them, sufficient in quantity to make up a larger or a smaller exhibition. The subjects proposed are the following:—

Jan. 19.—Forced flowers. Kitchen Apples and Pears.
Feb. 16.—Chinese Primroses. Dessert Apples and Pears.
Mar. 2.—Hyacinths and Tulips. Early and late Grapes.
" 16.—Cyclamens. Apples and Pears.
April 6.—Camellias. Cucumbers and Forced Salads.
" 20.—Pot Roses. Forced Vegetables.
May 4.—Azaleas. Forced Fruits.
" 18.—Pelargoniums. Forced Strawberries.
June 1.—Rhododendrons. Forced Peaches and Nectarines.
" 15.—Orchids. Strawberries.
July 6.—Roses. Pine-apples.
" 20.—Carnations and Picotees. Cherries.
Aug. 3.—Hollyhocks. Early Peaches and Plums, and Gooseberries.
" 17.—Gladioli. Peaches and Nectarines.
Sep. 7.—Dahlias. Plums and Figs.
" 21.—Asters. Early Apples and Pears.
Oct. 5.—Fuchsias. Grapes.
Nov. 2.—Chrysanthemums. Dessert Pears.
Dec. 7.—Late Chrysanthemums. Dessert Apples and Pears.

The changes proposed by this scheme appear to us to be steps in the right direction, inasmuch as they relieve the Society from the incubus of the Great Shows in London, while they concentrate its efforts upon some of its most legitimate horticultural functions. Moreover, by reducing the aggregate number of meetings, not only exhibitors, but also committee men, will be relieved from such repeated attendances as the present arrangements necessitate. We have but mentioned the general features of the scheme, the actual arrangements determined on, with the schedule of prizes to be offered at the several meetings, will be speedily prepared and issued. These matters of detail should be well-considered and thoroughly matured; and that being done, we strongly urge the Society to continue the same arrangements for a series of years without material alteration, except in so far as additions may be found desirable. Moreover the exhibitors should have some assurance that such will be the case. Changes in the nature or limits of the classes upset the calculations of the growers, and do immense injury to exhibitions. Hence, again, though the subjects of the classes may be invited under somewhat novel associations, we trust the classes themselves will be made as nearly as possible to correspond with those of the schedules of recent years.

The arrangements we have thus briefly shadowed forth are intended to fit in with the scheme of International Exhibitions which has been announced by HER MAJESTY'S Commissioners of 1851, to which we have elsewhere referred.

A LETTER from a New Zealand correspondent in our last issue, clears up what had previously been a mystery to us. Readers of Sir CHARLES DILKE'S "Greater Britain," will remember the glowing terms in which he speaks of the ROCKWOOD LILY. In our notice of the work in question (see p. 84), we expressed our regret that neither the name nor the description given were sufficiently technical to enable us to state what the plant really was. HOOKER'S "Flora of New Zealand," wherein the local names are carefully given, contains no Rockwood Lily, nor were we able in any other work relating to New Zealand botany to trace it. Our correspondent, however, has given us the clue, and declares the plant to be a species of Buttercup, RANUNCULUS LYALLII. And now, good New Zealand correspondents, fail not to send us seeds of this glorious Buttercup—for glorious it is. Dr. HOOKER, in the "Handbook of the New Zealand Flora," calls the plant, as well he may, the "most noble species of the genus"—"the Water Lily of the shepherds." Indeed even in the dried specimens, of which there are many in the Kew herbaria, the resemblance to our common white Water Lily is striking. The plant is stated to grow in moist places in the Southern Alps, the Wurumui mountains, in the glacier regions of the Forbes River, near Otago, and elsewhere in the Middle Island, at heights of from 1000 to 5000 feet above the sea. In habit it seems almost identical with our common marsh Marigold, but it is twice or thrice larger. The leaves are circular, 12 to 15 inches in diameter, very like those of the plant last mentioned, but peltate, as in the Nelumbium. The flowers are borne in panicles; each flower is of the purest waxy white colour, 3 to 4 inches across, and in shape and aspect is like a Brobdignagian Buttercup. With such a *signalement* we can readily give credence to Mr. FRASER when he says, "the whole plant looked really magnificent." We imagine there would be no great difficulty in growing the plant if we once got it here. To this end we should be disposed, in addition to more ordinary methods of transport, to try several means, such as sowing the seeds in a Wardian case, or placing them in a closed bottle in damp Moss or moistened earth. At any rate, "moist shady gullies" in New Zealand mountains must no longer be suffered to have the monopoly of so grand a plant as this.

WE trust that the Floral Committee or the Council of the Royal Horticultural Society, will, in their wisdom, devise some form of CERTIFICATE for RARE and INTERESTING PLANTS. For meritorious florists' flowers, for new or improved varieties of plants, which for commercial purposes are desirable, the Floral Committee are lavish in their awards of Certificates. But there are numerous plants of the greatest possible interest, with a beauty of their own, which are not likely ever to become articles of commerce, at least to any extent, and which do not captivate the taste of the florist. Surely this forms no good reason either for passing such plants over entirely, or for making them the same sort of award as is bestowed on more showy but more commonplace and intrinsically less interesting objects. And yet under existing circumstances one or other of these two things happens if a plant unknown to the trade, and unappreciated by the florists, makes its appearance before the Committee. To show the absurdity of the matter, let us take an illustration from the garland of poesy. We suppose that where there is one reader of BROWNING there are a hundred of TENNYSON. Shall we, therefore, take the bookseller's view of the case, and award all our praise to the poet whose works sell best? Many admire TUPPER who have no fancy for TENNYSON. Is that a reason why the latter should have no certificate and the former be awarded a "first-class?"

The Floral Committee, on the whole, does its work well, and, we believe, with thorough impartiality. If occasionally deserving plants get passed over, it is because they are such as are not familiar to, or understood by, the generality of the members, or because things are brought into comparison one with another which really present no fair terms of comparison. The adoption of some form of award for non-commercial plants, or for plants of scientific interest, would, we believe, meet the case, and prevent the scandal that must arise if the highest floral tribunal of the kingdom either pass over without comment deserving plants, or insult them by giving them the same award as they would to a "good bedder" or to one which is likely to be a "good thing" for the pockets of the possessor.

—— WE have been requested to publish the following particulars relating to the proposed ANNUAL INTERNATIONAL EXHIBITION of SELECT WORKS of FINE and INDUSTRIAL ART and SCIENTIFIC INVENTIONS:—

A. Her Majesty's Commissioners for the Exhibition of 1851 announce that the first of a series of annual international exhibitions of selected works of fine and industrial art will be opened in London at South Kensington, on Monday, May 1, 1871, and be closed on Saturday, September 30, 1871.

B. The exhibitions will take place in permanent buildings, about to be erected, adjoining the arcades of the Royal Horticultural Gardens.

C. The productions of all nations will be admitted, subject to obtaining the certificate of competent judges that they are of sufficient excellence to be worthy of exhibition.

D. The objects in the first exhibition will consist of the following classes, for each of which will be appointed a reporter and a separate committee:—

I. FINE ARTS.
1. Painting of all kinds, in oil, water-colours, enamel, porcelain, &c.
2. Sculpture in marble, wood, stone, terra cotta, metal, ivory, and other materials.
3. Engravings, lithography, photography, &c.
4. Architectural designs and models.
5. Tapestries, embroideries, lace, &c., shown for their fine art, and not as manufactures.
6. Designs for all kinds of decorative manufactures.
7. Copies of ancient pictures, enamels, reproductions in plaster, electrotypes of fine ancient works of art, &c.

II. SCIENTIFIC INVENTIONS and NEW DISCOVERIES of all kinds.

III. MANUFACTURES.
a. Pottery of all kinds, including that used in building, viz., earthenware, stoneware, porcelain, Parian, &c., with machinery and processes for the preparation of such manufactures.
b. Wool and worsted fabrics, with the raw produce and machinery for manufactures in the same.
c. Educational.
1. School buildings, fittings, furniture, &c.
2. Books, maps, globes, &c.
3. Appliances for physical training, including toys and games.
4. Specimens and illustrations of modes of teaching fine art, natural history, and physical science.

IV. HORTICULTURE.
International exhibitions of new and rare plants, and of fruits, vegetables, flowers, and plants, showing specialities of cultivation, will be held by the Royal Horticultural Society in conjunction with the above exhibitions.

E. In Classes 2 and 3 producers will be permitted to send one specimen of every kind of object they manufacture, such object being distinguished for novelty or excellence. Detailed rules applicable to each of the above classes, and lists of the separate trades engaged in the production of objects of manufacture will be issued. Special rules for horticultural exhibitions will be issued by the Royal Horticultural Society.

F. The arrangement of the objects will be according to classes, and not nationalities, as in former international exhibitions.

G. One-third portion of the whole available space will be assigned absolutely to foreign exhibitors, who must obtain certificates for the admission of their objects from their respective Governments. Foreign countries will appoint their own judges. The remaining two-thirds of the space will be filled by objects produced either in the United Kingdom, or, if produced abroad, sent direct to the building for inspection and approval of judges selected for the British exhibitors. Objects not accepted for exhibition must be removed according to the notices given, but no objects exhibited can be removed until the close of the exhibition.

H. All exhibitors, or their agents, must deliver at the building, into the charge of the proper officers, the objects unpacked and ready for immediate exhibition, and free of all charges for carriage, &c.

I. Her Majesty's Commissioners will find large glass cases, stands, and fittings, free of cost to the exhibitors, and, except in the case of machinery, carry out the arrangement of the objects by their own officers.

J. Her Majesty's Commissioners will take the greatest possible care of all objects, but they will not hold themselves responsible for loss or damage of any kind.

K. Prices may be attached to the objects, and exhibitor

will be encouraged to state their prices. Agents will be appointed to attend to the interests of exhibitors.

L. Every object must be accompanied with a descriptive label, stating the special reason, whether of excellence, novelty, or cheapness, &c., why it is offered for exhibition.

M. Due notice will be given of the days for receiving each class of objects, and, to enable the arrangements to be carried into effect, strict punctuality will be required from all exhibitors, both foreign and British. Objects delivered after the days appointed for their reception cannot be received.

N. Reports of each class of objects will be prepared immediately after the opening, and will be published before June 1, 1871.

O. Each foreign country will be free to accredit an official reporter for every class in which objects made in such country are exhibited, for the purpose of joining in the reports.

P. There will be no prizes, but a certificate of having obtained the distinction of admission to the exhibition will be given to each exhibitor.

Q. A catalogue will be published in the English language, but every foreign country will be free to publish a catalogue in its own language if it think fit.

HENRY Y. D. SCOTT, Lieut.-Col., R.E., *Secretary.*

Office of her Majesty's Commissioners for the Exhibition of 1851, 5, Upper Kensington Gore, London, W.
July 23, 1869.

—— Novelty lovers will soon have an opportunity of gratifying their fancies, so far as NEW PEAS are concerned. Mr. LAXTON, whose success as a hybridiser has often been made the subject of comment in these pages, has raised a number of new Peas, which are alleged to be superior in flavour and fertility to any at present in cultivation—an assertion, the truth of which remains to be tested, for, while in the hands of the raiser or the original vendor, the Peas in question may in quality be all that is said, yet under other conditions, and where less pains are necessarily taken, the result may be very different. We are led to make this remark because one of Mr. LAXTON'S raising, sent out last year, does not, in the hands of a Kentish friend of ours, come up to the high character given to it, and the high price paid for it. We shall allude to some of the new sorts that are shortly to be sent out at a future time; in the meantime we may say that the Peas in question will be distributed by Messrs. CARTER & Co., and Messrs. HURST & SON. Specimens would have been shown at the July meeting of the Fruit Committee, had it not been that the Committee met at Manchester instead of at South Kensington. Messrs. CARTER have also themselves been experimenting in this direction by crossing some of Mr. LAXTON'S with other varieties, and have already some 40 or 50 seedlings of various degrees of merit. It is obvious that the Royal Horticultural Society has some work cut out for it in the trial grounds at Chiswick.

—— Some plants appear to be much more liable to FASCIATION than others. Lilium auratum is one of these. We have seen numerous examples of Cockscomb-like stems in this plant, but none to equal one in the possession of Messrs. STANDISH & Co., of Ascot. The stem in this plant is some 13 feet in height, and bears upwards of 100 flowers. The plant has been grown on in two years, and has been shifted occasionally into larger-sized pots, without ever being "shook out," so that the bulbs have not been disturbed. The result of this treatment has been the production of this noble specimen.

—— The case of the Variegated Jasmine at Chelsea has always served as an illustration of the power that the GRAFT has under certain circumstances of AFFECTING THE STOCK. The subjoined letter furnishes additional illustrations of this curious phenomenon, all the more remarkable as the buds are stated after a time to have died and fallen off:—"Many years ago I conceived that if the variegation of Jasminum officinale could be transferred to J. revolutum, which has a larger and handsomer leaf, it would be desirable. I therefore budded plants of the latter with J. officinale variegatum. The buds appeared plump for a time and then all died off; notwithstanding, the following year the plants exhibited variegation in several leaves and shoots, continuing even along the young branches; but the variegation of J. officinale was white, whereas on the revolutum it became yellow! However, last year I reversed the experiment by budding the variegated revolutum on the plain officinale, and at the present time the yellow variegation appears on the leaves and young shoots. In this case, also, the buds never grew, though they continued plump for a time. This certainly appears singular, and some of your correspondents may like to try the experiment. *Wm. Godsall.*"

—— In a recent number of the "Revue Horticole" it is stated that M. GRIN has obtained, among some seedlings of the ALPINE STRAWBERRY (Fraisiers des quatre saisons), three plants having the distinctive peculiarity that the PETALS remain UNWITHERED at the base of the fruit, forming a sort of frill around it. Fruits of a similar variety were exhibited by Mr. REEVES at one of the meetings of the Scientific Committee, and are mentioned in Dr. MASTERS' recent work on "Vegetable Teratology."

—— The GREAT FLOWER SHOW at HAMBURGH promises to be one of unusual extent and completeness. The Exhibition will remain open from the 24 to the 12th of September. A committee has been formed to assist strangers in procuring lodgings. Intending visitors should apply to Dr. OSCAR GOSSLER, Hamburgh.

—— We shall never get too many GREEN TREES in LONDON, hence we fully endorse the following suggestion for increasing their number, made by Mr. G. F. FRANCIS in the *Builder*. It would be an acceptable boon, he urges, if the Metropolitan District Railway Company could be induced to plant a few trees in the open gravelled spaces fronting most of their stations; and he adds that as the Company is well supported by the public, it would not be much the loser by thus adding to the "picturesque" of the metropolis. Should, however, the shareholders object to a small charge upon their dividends for such a purpose, a collecting-box placed in each booking office would gather many a spare penny towards the expense incurred, and thus assist in making London "beautiful for ever."

—— The following subscriptions to the complimentary Testimonial to Mr. JAMES BARNES, late of Bicton, have been sent to us:—

Proprietors of *Gardeners' Chronicle*	£3	0	0
Mr. Thomas Moore	0	10	0
Per Mr. Fish:—			
Mr. D. T. Fish, Hardwicke	0	5	0
Mr. P. Grieve, Culford	0	5	0
Mr. Freeman, Knowsley	0	5	0
Mr. Meredith, Garston	0	5	0
Mr. A. F. Clarke, Green Bank, Rattenstall, Lanc.	0	5	0

New Plants.

AMPELOPSIS TRICUSPIDATA, *Siebold et Zuccarini, Flor. Japon. sect. prima*, p. 88.

Hermaphrodita; foliis e basi cordata, circumscriptione subor-bicularibus, grosse aristato-serratis, 3 nerviis et apicem versus breviter 3 lobis, lobis inter se æqualibus vel medio parum longiore, cuspidatis glabris vel subtus ad venas parce pubescentibus: petiolis longissimis laminam 2 plo superantibus; cymis bifidis divisionibus racemoso dichotomis divaricatis.—Sieb. et Zucc. *loc. cit.* Ampelopsis Veitchii, *Hort.*

This plant was introduced (into commerce) from Japan by Mr. John G. Veitch, and has been distributed under the provisional name of Ampelopsis Veitchii. We believe it had been previously introduced by Oldham to the Royal Gardens, Kew. Its merits as a rapidly growing climber are by this time pretty well appreciated; indeed, for concealing unsightly objects in the shortest possible space of time, we imagine it to be unrivalled. Kindly Nature has so well furnished the plant with crampons of its own, that all the paraphernalia of hammer and nails and shreds may be dispensed with. The leaves are similar to, but smaller and less deeply divided than those of the old much esteemed Virginian Creeper. Moreover, they do not turn so rich a colour in autumn. The shape of the leaves is exceedingly variable, the younger ones are almost entire, the older ones are larger, roundish cordate, divided to the middle into three deltoid lobes, which run out into little tails (acuminate), and are coarsely toothed at the margin. The leaf-stalk is for the most part, though not always, even on the same plant, longer than the blade. Though we have not seen the fruit of the plant, yet after comparison with numerous specimens in the Kew herbarium, received from various collectors, we have no doubt as to the correctness of our identification. We do, however, very greatly doubt whether as a species it is really distinct from A. heterophylla of the same author. Both species or varieties clamber over the rocks in Japan. For garden purposes A. tricuspidata is sufficiently distinct, and longer experience enables us to confirm what we have already said as to its merits as a hardy deciduous climber. We may add that the plant does well in towns and smoky localities. *M. T. M.*

ONCIDIUM GYROBULBON, *sp. n.*

Affine Oncidio ampliato, pseudobulbo oblongo pyriformi compresso demum jugis macandricis, multicristato; inflorescentia paniculata; labelli auriculis posticis brevissimis, callo trifido, laciniis lateralibus rhombeis antrorsis, lacinia media porrecta emarginata, androclinio postice inermi sc. ligula nulla.

Whether this is a species or a variety, we have no means of ascertaining; but the probability is that it is a species, as we conclude, after having compared many living specimens in the gardens of John Day, Esq., of Consul Schiller, and of the town of Hamburgh, and after having spent two hours in looking over the numberless specimens of the Reichenbachian collection. The flowers are much smaller than those of the good varieties of Oncidium ampliatum, with spots at the base of the lip, whose callosity is very different. There is no lacinula at the hinder side of the column behind the androclinium, and the bulbs are totally different. All these differences, however, have been observed, first by our lynx-eyed correspondent, J. Day, Esq., who pointed them out to us recently at his place. *H. G. Rchb. fil.*

WARRANTED GENUINE.

[WE extract from the *Scotsman* the following report of a trial in Edinburgh before Lord Ormidale, on the 20th ult. To us the case seems to illustrate the immense difficulties there are in the way of introducing any really efficient guarantee clause in the Bill now before Parliament. If one witness gets a growth of 40, and another of 63 per cent. from the same seed, it is clear that a guarantee must be so loose in its terms as readily to permit the passage of the traditional coach and six. EDS.]

"The pursuers, Messrs. Kitchen & Co., seed merchants, Hull, brought this action against Messrs. Hogg & Wood, seed merchants, Coldstream, for 117*l.* 14*s.* 9*d.*, the price of 10 sacks white Clover seed, guaranteed genuine, at 81*s.* per cwt.; sold by sample by pursuers to defenders. The defenders, who had refused to take delivery, pleaded that they were not bound to take delivery, in respect the seed was not of the kind and quality warranted; and that they were entitled to reject the seed, in respect it was not of the description given and sold by the pursuers, and which the defenders agreed to buy.

"The case was lately tried before Lord Ormidale, who has issued an interlocutor finding, 'as matters of fact, that, on or about the 6th February, 1869, the pursuers sold to the defenders 20 cwt. 2 lb. of white Clover seed, of which they had previously sent to the defenders a sample, that the pursuers guaranteed the seed so sold by them to the defenders to be genuine; that the price at which the said seed was sold by the pursuers to the defenders was 81*s.* per cwt., or in all, 117*l.* 14*s.* 9*d.*, payable on 9th June, 1869; that the defenders, on or about the 12th February, 1869, rejected said seed, and refused to receive delivery of the same, and have ever since refused to pay the price thereof, on the ground that it was not genuine; and that the defenders have failed to prove that said seed was not genuine; but that, on the contrary, it has been proved by the pursuers to be genuine; that, in consequence of the defenders having refused to take delivery of said seed, the pursuers have incurred an expense of 7*s.* 6*d.* in warehousing the same since the 3d March, 1869, till this date, being at the rate of 3*d.* per ton per week; and finding in these circumstances, as matter of law, that the defenders are liable in payment to the pursuers of said 117*l.* 14*s.* 9*d.*, with interest at the rate of 5 per cent. per annum from said 9th June, 1869, till payment, as also of said 7*s.* 6*d.*' His lordship, therefore, 'decerns against the defenders for these sums and interest, in conformity with the conclusions of the summons—reserving to the pursuers any further claim they may yet have for warehousing said seed or otherwise in connection therewith, and their right of action therefor; and finds the pursuers entitled to expenses,' &c.

"'*Note.*—The only really disputed question in this case was whether the defenders were justified in rejecting the seed the price of which is sued for, and in refusing to pay the price; and this question again depends on what was the nature and extent of the guarantee undertaken by the pursuers when they sold the seed. On the part of the pursuers, it was maintained, rightly as the Lord Ordinary thinks, that they merely guaranteed the genuineness of the seed—that is to say, that it was in its natural condition, and had not been adulterated, doctored, or tampered with; while, on the part of the defenders, it was contended, wrongly as the Lord Ordinary thinks, that the pursuers had not only guaranteed the genuineness of the seed, but also that it was good and sound to the effect of having a much larger productive or germinating power than they say it possessed. The question of guarantee depends upon the meaning and effect of the letters and telegrams which passed between the parties in the month of February last, when the seed was sold and rejected. In considering this matter, it is not unimportant to observe that, along with their first letter, the pursuers sent to the defenders a sample of the seed, although no doubt they at the same time stated it "to be good sound white Clover." The defenders argued that this representation was, to the extent it went, equivalent to a warranty; but as the Lord Ordinary cannot accede to this view, and as he reads the correspondence, it was not the view entertained at the time by the defenders themselves, for in their answer of February 6, 1869, they ask, before closing with the pursuers' offer, or agreeing to purchase the seed, whether they (the pursuers) would "guarantee genuine." The pursuers immediately telegraphed, "White warranted genuine, 81 lowest;" the defenders thereupon replied also by telegram, "Will take the white on conditions named;" and on the same date they wrote to the pursuers that they had telegraphed they would take "the 30 cwt. (not more) of the fine White Clover at 80*s.*, on the terms offered by telegram." Now, in the terms offered by telegram, there is not a word about the seed being good or sound—nothing more than "white warranted genuine." The Lord Ordinary thinks it clear, therefore, that this was the only warranty or guarantee undertaken by the pursuers, and that the defenders' contention—that they also guaranteed the seed to be good and sound, in the sense of its possessing a certain germinating or productive power—to be untenable. He thinks it clear, not only that the pursuers undertook no such guarantee or warranty; but that such was not, and could not have been the understanding of the defendants themselves at the time of the purchase. In support of his finding that the pursuers merely guaranteed or warranted the genuineness of the seed, the Lord Ordinary thinks that the proof may be also appealed to. It shows that the importer or general merchant is not in the practice of testing the productive powers of seed before disposing of it to dealers; and it also shows that the defenders made no inquiry whether this had been done or not before they effected their purchase. Besides, it would be most unreasonable to suppose that a guarantee of productive or germinating power would be given, considering upon how many contingencies—such as soil, climate, culture, and other circumstances—this would necessarily depend. The Lord Ordinary further remarked that, according to his understanding of section 5 of the Mercantile Law Amendment Act (19 and 20 Vic., cap. 60), which was in operation before the purchase in question was made, he cannot hold that any warranty was given of the seed except that it was genuine. The Lord Ordinary, however, is not to be understood as saying that the words "I warrant" are indispensable, but a representation to amount to a warranty must be such as the purchasers (the defenders here) showed was essential in their mind to induce them to buy the seed in question. The Lord Ordinary thinks that the defenders have failed in showing this as regards the goodness and soundness of the seed. He thinks that the defenders must in the circumstances be held to have taken the risk of these qualities on themselves, and, so far as they were concerned, to have purchased by sample. It was not disputed that the seed was conformable to the sample sent to the defenders. If, then, the Lord Ordinary be right so far, the question next arises—Was the seed genuine or not? And that this question must be answered in the affirmative, he cannot on the proof entertain any doubt. The evidence, indeed, is all one way, and in the argument the defenders scarcely attempted to dispute that the seed was genuine—that is to say, that it was in its natural condition, and had not been adulterated or doctored or tampered with—but confined their argument almost exclusively to an endeavour to show that the pursuers must be held to have warranted it to be sound and good in the sense of its possessing a germinating or productive power to the extent of at least 70 or 75 per cent. The Lord Ordinary has already given his reasons for holding that no such warranty was given by the pursuers; but even if it had been otherwise, he would have doubted very much whether it could be held on the proof that the seed was not up to the description of good and sound. According to the evidence of Mr. Dickson, of Saughton Mains, "if it produced 50 per cent., he would not say he would have much reason to grumble." Mr. Mein, of Kelso, again, who tested the productive power of the seed in question, says although he only got from 54 to 57 per cent., that he considered "it a sound seed, but of inferior growth." And Mr. Drummond, of Stirling, who also tested it, and got from 46 to 61 per cent., thought it "a very good growth for seed of the character of the sample shown." And although the results of the trials made by some of the defenders' witnesses gave little more than 40 per cent., the average of them came to 56 per cent. But the defenders' witness, George Wemyss, gardener at Springwood Park, had results from his trials of the seed in question of from 53 to 63 per cent. The Lord Ordinary can place little reliance on the trials by John Cockburn, a lad of 20 years of age, in the employment of the defenders, and on whose results they rejected the seed, when he says that he could only obtain from 44 to 50 per cent. It is clear, indeed, that the defenders had not given the seed sufficient time—only six days—to spring up, when it was rejected. And what was the ground of rejection as stated in the defenders' letter to the pursuers of February 12, 1869? They, no doubt, say in that letter that they had proved its growth—which the Lord Ordinary does not think they did sufficiently—and that it was unsatisfactory; but they go on to add what they evidently meant to be the real ground of rejection, that it "contains a large admixture of dyed dead seed"—a fault which they have failed to establish. On the whole matter, and after a deliberate consideration of the proof, written and parole, as well while it was being adduced before him as afterwards, the Lord Ordinary has been unable to arrive at any other conclusion than that which has been given effect to by him in the interlocutor he has now pronounced.'"

ON THE IMPROVEMENT OF PLANTS

By Selection, Hybridising, and Cross-Breeding, having Special Reference to the Hollyhock and the Rose.

[Read at the Manchester Congress, July 21, 1869.]

(*Concluded from p. 816.*)

I will now proceed to the second part of my subject, namely, the improvement of plants by Hybridising and Cross-breeding. I have said that in hybridising and cross-breeding we start with a conception which we labour to convert into a fact. For example, we find existing in two separate flowers or fruits certain high qualities, as size, colour, form, flavour, mien, &c., which we seek to combine in one and the same individual. We cross or hybridise these two plants, sow the seeds, and after few or many attempts, one out of many is likely to give the desired result. As a guide in hybridising and crossing it should have been noted that our best observers are of opinion that hybrids and cross-breeds derive their form and habit in great part from the female, the colours of the flowers from the male, while the constitution may be acquired from either parent.

By hybridising we understand the crossing of two different genera or species, by cross-breeding the intermixture of two different varieties of the same species. Practically speaking, the work is the same. It would be out of place here to enter into a lengthened description as to how far the different species of plants may be hybridised. Doubtless there are limits: I have tried on various occasions, and in various ways, to obtain a hybrid between the Pyrus spectabilis and the Cydonia japonica, two different genera, but without success; and I announce this because to acknowledge a failure is sometimes as useful to others as to record a success. On the other hand I have succeeded in raising hybrids between the Moss Rose (Rosa centifolia) and the alba Rose, two different species; also between a hybrid China Rose (R. gallica × R. indica) and Rosa multiflora. Then, again, I have often tried in vain to obtain crosses between certain varieties. So that it does not seem to be exactly a question between species and species, or between variety and variety, as these are at present classified by botanists. I have found, however, as a rule, that the more nearly allied the varieties the more certain is the cross. The Tea-scented and Noisette Roses are found to cross readily, but then, although these form separate floricultural groups, they belong to the same species, R. indica. But the hybrid Bourbon and Moss Roses also cross readily, and here we have intermixed three different species according to most botanists—R. indica, R. gallica, and R. centifolia. The grandest and the most beautiful of all the floral groups of the Rose—the hybrid perpetual—has a curious genealogy: R. gallica crossed with R. indica produced hybrid China; the latter crossed with an autumn flowering variety of the R. damascena produced hybrid perpetual.

My first attempt at crossing the Rose was made in 1843. I crossed three flowers of the Tea-scented Rose known as Goubault with the Bourbon Rose Souchet, with the view of obtaining a dark-coloured Tea-scented Rose. Let me call these flowers C, D, and E. C produced a very large pod, which ripened perfectly, and gave 10 large seeds. D produced a medium-sized pod with nine seeds of very unequal size, one being very large, four large, and four small. E produced a small pod, which contained 13 small seeds. Of these 32 seeds four only germinated! Three of the plants were curious cross-breeds, of no floral value, and having little in common with either parent; and one, in leaf, habit, and flower, was very similar to the wild Dog Rose! As the seeds were sown in pots, and placed under glass, I do not think any stray seed could have found place among them. I was here no doubt unfortunate in the choice of my parent or parents, and regard this issue as an instance of the well-known tendency which the offspring of some cultivated plants have of reverting to the normal form. The same year I crossed about 40 other flowers, but the crop of seed was indifferent, and the result nothing worthy of record. This non-success led me to submit to microscopical examination the flowers of a number of varieties of the Rose, with the view of ascertaining which were likely to prove the best seed-bearers. The result of that examination is given in the "Rose Garden," second edition, pp. 96, 97. The conclusions I drew were:—

1st. That certain varieties are sterile, and incapable of forming perfect seeds under any circumstances. Of these I found such kinds predominate as roll the petals inwards, the centre of the flower being quartered in the manner of a crown. In others the pistils were weak or imperfect. 2d. That many kinds where the pistils are perfect, which in their natural state form seed-pods that wither before arriving at maturity, may be induced to perfect their seeds by artificial fertilisation. This class of Roses is the best for him who intends raising seedlings to choose his female parents from, because there is little here to interfere with, mar, or counteract his plans. Be it remarked, however, that there are certain kinds which must not be confounded with the above—kinds which, owing to the length of time the seed-vessels are in arriving at maturity, never perfect their seeds in this country. 3d. That those kinds which we find seeding abundantly in their natural state are self-fertilised, and that their abundant production of seed is due to this point mainly, the more perfect development of the organs of reproduction, especially the polleniferous parts of fructification.

Thus fortified I selected some 20 sorts of Roses, planted them in a separate corner of the nursery, and in the month of June, 1846, crossed nearly a thousand flowers. Success in seeding was complete. On the 30th of September of that year I gathered 223 well ripened pods of seeds, some of them of extraordinary size. Two successive gatherings, of about 100 pods each, were made at intervals of about a month, the whole number of hybridised and crossed pods gathered and stored amounting to 444. The seed was sown the same winter, vegetated during the succeeding spring and summer, and the seedlings bloomed at intervals over the next six years—that is to say, some bloomed the first year, others were six years old before blooming. The result of the hybridising and cross-breeding was apparent in many cases, but not in all. Two of the most striking and complete I will describe.

I had long thought that a bright dark coloured climbing Rose was a desideratum, as at that time nearly all our climbing Roses were white or yellow. To obtain this I hybridised the Rose Athelin (hybrid Bourbon) with Russelliana (multiflora). Paul's Vivid, a bright crimson climbing Rose, of great repute in its day, and even now sought after, was raised from this effort. Again, I had conceived that if anything could add to the beauty of the Moss Rose, it would be to impart to it the exquisite tint of the R. alba or Maiden's Blush. To obtain this I hybridised the Moss du Luxembourg with an alba Rose, and among the offspring was a Moss Rose, with flowers like the Maiden's Blush, and afterwards named Princess Alice.

A few years later I raised from one and the same sowing of English Rose-seed, the Roses Beauty of Waltham, Lord Clyde, Red Rover, Globosa, Princess of Wales, Dr. Lindley, and, I believe, Duke of Edinburgh. Unfortunately, in these cases the parentage of the offspring was not preserved.

The next flower with which I experimented was the Hollyhock. I crossed numbers of these flowers in the years 1853-7. A blush seedling crossed with White Globe, with the view of obtaining better blush flowers, gave, among others, 10 seedlings answering to this end. Fireball Superb, crossed with Metropolitan, with the view of obtaining a better scarlet Hollyhock, gave one plant of the character sought. A pink seedling crossed with Lizzie, with the view of combining the bright colour of the former with the quality of spike and flower of the latter, gave a large number of seedlings, 23 of which were realisations, more or less complete, of the object sought. These are three cases selected from many of similar import. With regard to the results in crossing the Hollyhock, I may add that Mr. Rooke, of Clewer, at one time a most successful raiser of seedlings, obtained three of his most marked improvements, all differing in colour, from one fertilised pod of seed, whereas with seedlings raised from seed-pods not fertilised, he found the degree of progress slow and uncertain.

Some of my latest efforts in hybridising and cross-breeding have been directed to Zonal Pelargoniums. Attempts to hybridise the Zonal varieties with the Unique have never succeeded; and yet Mr. Wills has obtained hybrids between the zonal and Ivy-leaved, species probably as distantly removed. He tells me that he hybridised some thousands of flowers without success, until he thought of dipping the hybridised flowers into water after applying the pollen, by which means he obtained seeds and seedlings, two of which, evidently hybrids, are now before the public under the names of Willsii and Willsii rosea. My experiments in cross-breeding have been numerous, but having been pursued chiefly with my own unnamed seedlings, which are unknown, I have little that is tangible to place before you. Two or three cases, however, in which the varieties were afterwards named and sold, may prove interesting, and give a clue to those who may care to trace them. Mrs. Pollock, crossed with a green-leaved seedling zonal, produced some green-leaved, some golden variegated tricolors, and one golden-edged variety after the character of Golden Fleece. Amy Hogg, crossed with Crusader, gave the result sought after in Evening Star. Governor, crossed with Alexandra, also gave the result sought after in Clio. Dr. Hogg, crossed with Rebecca, again gave the result sought after in Pæan. Model, crossed with Firefly, gave also a form intermediate between the parents, which was afterwards named Annibal.

Leaving flowers, let us glance momentarily at fruits. I have now growing in my nurseries a brood of seedling Strawberries, the result of various crosses, the parentage on both sides having been carefully preserved. As they are not yet named, I can only speak of them as seedlings. Two seedlings, raised from Sir Charles Napier, crossed with Myatt's Pine, are worthless. Of eight seedlings, between Eleanor and Carolina superba, four are worthless, one is flat and rough in flavour, one resembles Keens' seedling in appearance, but is of a much richer flavour; one bears large fruit, remarkable for its solidity, of the shape of British Queen with the fine rich flavour of Myatt's Pine; and one is a full-sized handsome fruit, of fine colour and good flavour, bearing abundantly and of hardy constitution. Two seedlings, between Oscar and Myatt's Pine, are deficient in flavour. Of eight seedlings, between Sir C. Napier and Crimson Queen, three are large handsome fruit, solid, heavy, of good colour and rich flavour; one is flat and insipid, one is very acid, and three have no prominent character. Of five seedlings, between Filbert Pine and Myatt's Pine, one is large, of fine flavour, and very juicy; one is small, of good colour and flavour, solid—the flesh notwithstanding very tender; and three are deficient in flavour, one of which is a prodigious bearer. Four seedlings, between Oscar and British Queen, are all deficient in flavour. Of seven seedlings, from British Queen crossed with La Constante, five are worthless from the fruitist's point of view, although one is so distinct in habit as to be scarcely like a Strawberry, and one so positively nauseous in flavour that it leaves an unpleasant sensation on the palate long after tasting, yet from the same fruit and parentage one is of good flavour and another of positively fine flavour. Of eight seedlings, raised from Admiral Dundas crossed with Crimson Queen, four are small and almost flavourless; two are large handsome fruit, of fine colour and fine flavour; one is very late, of pleasant but not rich flavour; and one is early, the fruit large, of moderate flavour, and produced in extraordinary quantities.

I shall now conclude these remarks with a few practical deductions. We have seen that in the improvement of races much may be accomplished by mere selection, but hybridising and cross-breeding, if in some cases and with some experimentalists unsuccessful, are in the hands of others shorter and surer roads to the attainment of a given object. We have seen that our best vegetable physiologists are of opinion that hybrids and cross-breds derive their form and habit from the female, the colour of the flowers from the male, while the constitution may be acquired from either parent. This is sometimes, and may be generally true, but the exceptions are so numerous that they cannot, according to my experience, be said to prove the rule. It is generally admitted that the most perfectly developed flowers and fruits are the best for the improver to work upon, and this is, I believe, true as a rule, although still attended with exceptions. Personally I have learnt from my labours in this field never to lose heart or hope. For 16 years, from 1843 to 1859, I had laboured with such qualified success in raising seedling Roses, that I had then minimised the amount of labour by omitting the costly process, in point of time, of keeping notes of parentage, &c., when in the following year, 1860, I was more than compensated for all past labour by the extraordinary flush of success already stated. I say then to my brother horticulturists who may be working in this field—Never despair; persevere and wait.

> "Let us then be up and doing,
> With a heart for any fate;
> Still achieving, still pursuing,
> Learn to labour and to wait."

My experience in selecting, hybridising, and cross-breeding tells me that he who is seeking to improve any class of plants should watch narrowly, and seize with alacrity, any deviation from the fixed character, and the wider the deviation the greater are the chances of an important issue. However unpromising in appearance at the outset, he knows not what issues may lie concealed in a variation, sport, hybrid, or cross-bred, or what the ground newly broken is capable of yielding under careful and assiduous cultivation. If we would succeed in this field we must observe, and think, and work. Observation and experiment are the only true sources of knowledge in Nature, and while observing and experimenting we should above all things guard against prejudices.

My remarks have hitherto been chiefly of horticulture, and addressed to horticulturists. But there are three other great and important classes of the community who are deeply interested here—the agriculturist, the manufacturer, and the merchant, to each of which I would momentarily address myself.

To the agriculturist I would say, You have of late years practised draining, deep cultivation, and high manuring, and the increased fertility of your soil has largely rewarded your industry, enterprise, and skill. The next step with you is the improvement of the races of your cereals and root crops. I have in the opening of this paper shown what you may accomplish by selection merely, but you may do far more by cross-breeding. I believe that your produce may be improved and increased by this means beyond what the boldest thinker would at this moment dare to declare.

The manufacturer is also deeply interested in this question, in at least so far as the raw material he uses is drawn from the vegetable kingdom. As the horticulturist has by selection and cross-breeding increased the size and substance of his flowers, so may the manufacturer or his growers, by selecting from other special, points of view, increase the productiveness, and strengthen or soften the fibre of their Cotton, Flax, Hemp, and Jute.

Again, if the horticulturist can increase the size and productiveness, advance or retard the seasons, and improve and vary the flavour of his fruits, why should not the merchant or his agent do the same with his teas, coffees, cocoa, and other vegetable productions? There can be no question here that the one is as open to modification as the other; it only requires the thoughtful interposition of the skilled brain and hand.

Thus, we see how vast are the interests here involved, how rich in prospect the unexplored territory in which the horticulturist may be said to be the pioneer. The agriculturist, the manufacturer, and the merchant should in their own interests, as well as in the interests of society at large, lend him a willing and a helping hand, and he in his turn should rejoice to find his labours acceptable and capable of so wide and beneficial a diffusion. I stand before you this day and declare, what I honestly believe, that we are here waiting but working at one of the chief gateways of a grand Temple of Science; and not many years will elapse ere its secrets shall be revealed, to the surprise, delight, and profit of the human race. *William Paul, Waltham Cross.*

PRUNING AND TRAINING STANDARD ROSE TREES.

[Read at the Manchester Congress, July 21, 1869.]

Preconceived ideas, especially when backed up by long usage, are hard to gainsay, or to combat successfully. I do not wish to enforce a dogma, but to speak suggestively, and should my remarks appear to any to be at all dogmatic, my excuse must be the strong and earnest feeling I entertain concerning the subject in hand. And here I ask at once, can any justification be found for the hard and severe manner in which we annually reduce the heads of worked standard Roses down to what might, with no great stretch of imagination, be called a mop pattern? When standard Roses are first planted, after the operation of budding it is generally necessary to reduce the few shoots which then exist, in order to induce the development of a sufficient number of young shoots to form a dense, compact "base of

operations." These in their turn may, for a similar object, and with lasting benefit, be again reduced somewhat and thinned out. Being only the second season after successful budding and removal, the capabilities of the roots and the requirements of the head are tolerably evenly balanced one with the other. And what is the result? That at this age, namely, from two to three or four years from the bud, far finer and more plentiful blossoms are produced than are ever seen afterwards upon the same trees where extreme use of the knife is resorted to, and no natural extension of the head, commensurate with and contemporaneous with the ever increasing size of the root, is permitted. Whether it be a Rose, an Elder, or any other deciduous tree, it matters not, an unreasonable amount of mutilation during the resting period must force the tree into making robust growth in the effort to right itself, and that at the expense of well-matured wood and fine flowers. The long shoots produced by standard Roses pruned upon the close principle, with inferior Roses at their apex, and the robbers, or side-shoots, which are produced at the same time, and which run away with the aid the flowers require, are patent to all, the latter especially to exhibitors of cut blooms, who know well the injury they cause, but who dare not remove them at the risk of having a dishonoured stand. The presence of suckers, whether from above or below ground, points to the same cause—violated Nature! I distinctly demur to the suggestion that, by cutting Rose-shoots down to the lower eyes, better blooms are likely to follow upon such shoots than if other eyes nearer to the apex were left.

By close observation I have come to the conclusion that those well-plumped eyes upon wood which has had all the benefit of full autumn sunshine, are equal to and, indeed, better than, those below them. Compare the abundant foliage and bloom of a moderately-pruned Madame Bosanquet, Charles Lawson, or, indeed, Sénateur Vaisse, with that of others close pruned! Why are Roses in the form of dwarfs, and grown upon their own roots, superseding the standard on the hardiest and readiest rooting stock which the world produces, but for the fact that those on their own roots are treated in a more natural manner? Was ever a standard Gloire de Dijon, or a Charles Lawson, or, indeed, a Maréchal Niel, grown on the restricted principle, even if only six or eight flowers were produced, so good as the same sorts would be with a hundred flowers each when permitted to grow freely and naturally, and with but a moderate and reasonable amount of restriction? If we are to have standards or half-standards, let them at least be worthy objects of our skill, even if we have fewer in number. There are few who have not actually seen such objects as standard Roses enrobed in all the magnificence which liberal extension tends to develop, who will be able to form any conception of the wonderful profusion of bloom of which they are capable?

I remember reading some time since a very able article by, I believe, that excellent rosarian, Mr. Radclyffe, in which the following passage (or words to that effect) occurs:—"Standard Roses should be taken up, and receive a moderate root-pruning about every third or fourth year." Now this coincides in principle with my own views. The means to the end and the effect are, however, widely different. Instead of root-pruning, or reducing the feeding capacity of the roots in proportion to the requirements of a harshly-pruned or greatly mutilated head, I would encourage every root and rootlet to the minutest spongiole! And the head should be so trained upon a suitable support or trellis (umbrella-shaped, or otherwise, according to individual fancy), that the branches, after such an amount of pruning as would tend to equalise their strength, would present to the eye the greatest surface possible, evenly balanced, and so exposed to the sun that each "eye" could push forth freely, and without being overgrown by its surroundings, and display its flowers with distinctness. The general *contour* would, under such circumstances, be far more beautiful and effective than the examples with which we are now habitually treated — examples which, in fact, need no skill in their production, and afford but poor illustrations of either our skill or ingenuity as experts in the culture of Rose trees. *William Earley, Digswell, Welwyn, Herts.*

FOREIGN SEEDS FOUND MIXED WITH COTTON.

[Read at the Manchester Congress, July 21, 1869.]

IT is well known that with many of our imports there are introduced at the same time the seeds of foreign plants, and that some of these have germinated and become common weeds in our country. Cotton, as well as other foreign produce, is a medium by which exotic plants find at least a temporary habitation with us.

All the cotton that comes into this country is contaminated more or less with various impurities, which are in some cases introduced fraudulently, and in others accidentally. If in the middle of a bale of cotton we find a number of heavy pebbles, or large bunches of seed denuded of its cotton, or layers of dusty waste, which are evidently the refuse of the cotton gin, we are fairly entitled to call them fraudulent additions to make weight. If we find a man's cap, or his knife, or even a stray box of lucifer matches, we may readily believe that such extraneous matter has found its way into the cotton by accident. Then, though the ginning of cotton, or the separating of the cotton tissue from the seed, is often conducted with great care, there is no description of it which comes to us absolutely free from cotton-seed. Some kinds of cotton are remarkable for the very large quantity of seed which is mixed with them, especially those which have the fibre adhering very firmly to the seed.

To any one interested in the botany of the cotton plant there is much information to be gathered from the investigation of these seeds, which can be found in nearly every bale. It is not, however, of cotton seeds that I am about to treat. There are still other impurities which are unavoidable. Whether by ripe cotton falling on the ground, or by means of the wind, I do not know—probably from both causes, cotton bales contain, mixed up with the fibre, an enormous quantity of seed of various kinds. Some of them are very minute, and can only be distinguished by careful observation, and many probably could not be picked out without the help of a magnifier. Others are so large that they could not have been caught up either by the wind or by the cotton falling on the ground, but must have been introduced during the process of packing, either by accident or design.

The first thing that the cotton-spinner has to do is to get rid of all such impurities as I have mentioned. For the manufacture of the finer classes of fabrics this is done with so great care that a considerable portion of fibre is wasted at the same time, and all cotton fibre is of such value that the refuse from the finer work is used in the manufacture of coarser fabrics. At last, when all available cotton has been used up, there remains a residuum, which, consisting as it does only of cotton and other seeds, soil, sand, broken-up leaves, and cotton capsules, bits of bread, feathers, bits of rag, and various other substances, is good for nothing but to be put on the land for manure. And very good manure I believe it makes, for it is readily sold at half-a-crown for a cartload, and it does not weigh heavy. In such-like refuse may be found a great number of minute seeds, such as I have mentioned, and they afford much matter for thought and study to the botanist and horticulturist.

About three years ago, to my great surprise, I suddenly came upon a number of plants, some of which do not belong to our British flora, and others which, though British plants, are found only in the south, and not in this district. These plants had all sprung up from seeds out of cotton refuse which had been laid there, and also many others which are common with us.

It will be necessary for me to describe the kind of place where the refuse was thrown down. It was an odd corner, used for no other purpose than the stowing away of rubbish. The soil is clay; the surface is to some extent covered with cinders, and on that are little heaps of old bricks, slates, flags, and other useless things which are allowed to accumulate until there is a cartload or two, and are then removed. There was no vegetation excepting such as one meets with on the most barren spot, and there was no sheltering hedge-bank, tree, shrub, or bush, to afford sufficient protection for the growth of many of our commonest weeds; neither was there any water but what falls directly as rain. So there were no conditions which might be considered especially favourable to the springing up of a number of plants of any kind in this place, excepting the laying down of cotton refuse. Perhaps the expression laying down is not quite sufficiently descriptive. The cotton refuse was taken there in a hand-cart each day and placed in a heap, awaiting only for a few days some farmers' cart to remove it, and the plants were to be met with not so much on the actual spot where it was placed as on the ground over which it had passed, and in corners and other still places where seeds might be blown by the wind or have dropped out of the conveyance. Finding a strange plant I naturally gave the ground a good looking over, and my search was rewarded by many discoveries. One plant which was growing very abundantly was the Black Nightshade (Solanum nigrum). Now this, though common enough in many places, is rare in the neighbourhood of Bury, so rare that I have never either seen it or heard of it in the locality excepting now and then as a garden weed. It seems not unlikely that these occasional appearances of the Black Nightshade may be brought about by the same cause, as cotton refuse is much used by cottage gardeners for the packing of hot-beds.

Another plant which I found was the common Vervein (Verbena officinalis), which, though a British plant, is not known to occur in this neighbourhood. Bentham tells us that it is found "on roadsides, and in waste places, in central and southern Europe, and Asia, extending northwards into southern Sweden. Frequent in the southern counties of England, rare in the north, and in Ireland, and almost unknown in Scotland."

Another plant which appears is the narrow-leaved Pepperwort (Lepidium ruderale). It is a British plant, but is not a native of these parts. I again quote Bentham as to its distribution. It is found "on dry gravelly soils, waste places, on rubbish and old walls, chiefly near the sea, nearly all over Europe and Russian Asia, except the extreme north. In Britain, along the coast of England, from Bristol round to Norfolk, but scarcely wild inland."

Next there is the round-leaved Goosefoot (Chenopodium polyspermum), which has just a similar geographical distribution to the others I have mentioned. It does not grow in our neighbourhood, but is "dispersed all over Europe and Russian Asia, except the extreme north. In Britain limited to southern and central England."

There are also a few labiates, which though they may not be very uncommon within a short distance, undoubtedly sprung up in this instance from imported seeds, such as Black Horehound (Ballota nigra), and Pennyroyal (Mentha Pulegium). Then there are several composites, some of them common, as Fleabane (Pulicaria dysenterica), and the common Bur-Marigold (Bidens tripartita). I have ventured to say that these plants, though common enough, arose in this instance undoubtedly from imported seed, entirely on my own authority, because the place in which they were found, and the curious way in which these specimens were huddled together in a small space, coupled with the fact that to find any of them—so far as I know the district—I should have to travel at least some miles, seems to preclude the probability of any other supposition.

The four plants, Solanum nigrum, Verbena officinalis, Lepidium ruderale, and Chenopodium polyspermum, each belonging to a different natural order, seem in some respects to form a little group of these plants from cotton dirt. They are all British plants. The first, Solanum nigrum, grows round about us, as in the sandhills at Southport and other places, but not in our own immediate neighbourhood; the other three are not plants of our locality, but have exactly the same geographical range, and probably come from the same source. I cannot say with certainty where they come from, for we have used cotton from all parts of the world, but the Black Nightshade might come from India, or any other cotton-growing country, and most of the others would probably come from India and Egypt.

I have wondered whether it was probable that the distribution of these and such-like plants would be affected by the spreading on the land of enormous quantities of cotton refuse; but it seems not; for this has been going on during several years, and we do not hear of any such additions to our flora, and we have so many observant botanists that they could scarcely have escaped notice.

Such foreign plants which are found, more or less frequently, apparently wild, have to be appropriately divided into two classes—colonists, or those which spread in their new habitat as though they were native plants, and aliens, or those which only reappear when the causes of their introduction recur. To the latter must be referred (I think) most plants springing from cotton refuse. There is no species of plant which is peculiar to England, or that does not exist elsewhere. Several species seem to reach their geographical limit in the southern part of England, extending southwards into warmer climates. *R. H. Alcock, Hudcar, Bury, Lancashire.*

(*To be Continued.*)

WEEPING ELMS.

I HAVE the pleasure of looking from my bedroom window on to my lawn, of rather considerable extent, sloping gently to the south-west (well sheltered by my neighbour's plantation of nearly a century's growth), and sprinkled with ornamental trees of my own planting. My attention for two or three weeks past has been drawn to Weeping Elms; their foliage is so abundant, and their habits so varying and graceful.

The most wildly picturesque of this group of trees is the old variety, Ulmus montana pendula, the Weeping Scotch Elm; this, with its large deep green leaves, is very imposing and effective. Its congener is the Scampston Weeping Elm, a variety of Ulmus montana, but much more pendulous than the first-named; its branches, covered with grand foliage, seem to rush downwards perpendicularly, and a tree soon forms a dense circular arbour.

Ulmus rugosa pendula seems to be a hybrid between U. montana and glabra; its leaves are not so large as those of U. montana, but are of the same dark green and rugose nature. This is a very graceful pendulous tree. My specimen is about 30 years old and 30 feet in height. On the opposite side of the lawn, and some 30 or 40 yards distant, is a very fine specimen of Ulmus glabra pendula. This variety I imported from France many years since. My specimen is from 30 to 40 feet in height, and every shoot more or less pendulous. This tree, like the preceding, is very graceful.

My next favourite Weeping Elm is a lady among the Elms, so delicate and graceful is its foliage and habit. It is from America, and was sent over as U. americana pendula, although it is said by my American friends not to merit the specific name of pendula more than the Elms commonly planted in the New England towns and villages, as they are all pendulous.

My friend, the lamented A. J. Downing, when on a visit here some years ago, aroused my county pride by persisting that the American Elms were more gracefully pendulous than our Hertfordshire Elms (U. glabra), even after I had shown him those to the south of the Roydon station, Great Eastern Railway, which are very beautiful trees. It is only within these few years that I have given way, and I now believe the American Weeping Elm to be the most beautiful and graceful of weeping trees, so different from the lumpish ungraceful nature of the Weeping Sophora or Weeping Ash. My American Weeping Elm is some 15 years old, and rather small of its age (not more than 15 feet high), as it sustained a grievous check in being removed from where it was established to its present quarters in the centre of my lawn. From the size and roughness of its leaves one would think it related to U. montana, but their colour is such a delicate green—quite *sui generis*, and they hang on the shoots as if they were placed there by a fairy hand, and in a gentle breeze they flutter as if some young lady fairies were exercising their fingers among them. The tree is really charming.

It is very remarkable that the American Elms, or at least the kind I have, will not succeed when grafted on our English Elms. Scions from my tree have been grafted on the Scotch Elm (U. montana), the stock usually employed in nurseries, and on the variety of Ulmus glabra, called the Huntingdon Elm, to which, to judge by its light green leaves, it has some relationship. Still it will not unite to its cis-Atlantic cousins, and even when grafted by approach (inarched) on standards of the last-mentioned kind, and suffered to remain from March, when they were grafted, till the spring following, all the scions died when detached.

There is yet another Weeping Elm deserving of mention, Ulmus microphylla pendula: its leaves are

rather smaller than those of the Weeping Birch; it is not quite so graceful as that lady-like tree, but, owing to its dark dense foliage, it forms a very distinct picture. My tree is probably the oldest and largest in England, and is now about 15 feet in height.

There is, perhaps, no family of trees that varies to such an extent as the Elm; there are probably but two species, both of them bearing seed freely, viz., Ulmus montana, which rarely varies to any great extent, and Ulmus glabra [campestris?], the varieties of which are endless. I cannot help mentioning two very remarkable varieties, one from the last-named species, called Ulmus pyramidalis; this has deep glossy green leaves, and grows more closely pyramidal than the Lombardy Poplar; it is of French origin, and very curious. The other is a sort received some 30 odd years ago from a Mr. Smith, a Scotch botanist, who was very industrious in collecting varieties of British plants. He sent this Elm to me under the name of Ulmus montana pumila. My tree is, I think, 36 years old, and it is just 36 inches in height. Nothing can show more forcibly than this tree the control of the graft over the stock, for it is growing near my specimen of Ulmus glabra, and is grafted on the same kind of stock, Ulmus montana. One is in round numbers 36 feet, and the other 36 inches, in height; both are as nearly as possible of the same age.

Diverging from Elms, I cannot pass over one of our most magnificent pendulous trees, the Weeping Lime, Tilia alba pendula. My tree is about 20 years old; it formerly stood near my house, but its rapid growth and grand foliage encroached too much on the space allotted to it, so about 10 years since it was removed to its present site; it was a great shock, from which it is only just recovering. This kind of Lime blossoms a fortnight after the common Lime, and fills the air with its unique fragrance. *Thos. Rivers.* [See an article on Elms, at p. 941, 1868, for other notable kinds. Eds.]

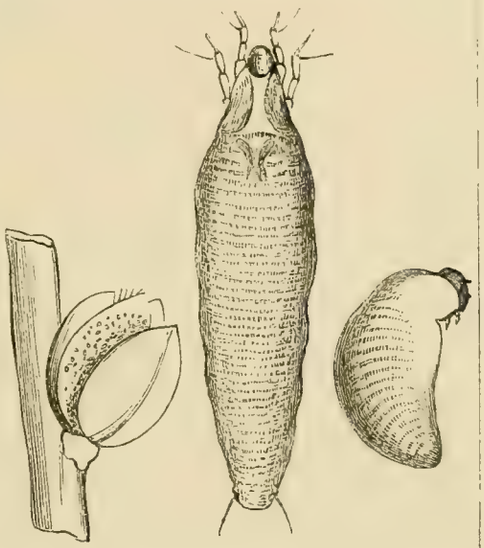
WHAT IS A KITCHEN GARDEN? AND WHAT SHOULD IT BE?

What is a kitchen garden? When the word "kitchen" was first applied to a garden, did it possess the heterogeneous character it now does? Then why the word "kitchen?" Mr. Punch probably would say, "Because in it you would have a chance to get a "mess." In a horticultural sense, then, is there not often found—and that, too, almost unavoidably—a "mess?" What is and has been going on in our kitchen gardens? It is to be feared in too many cases a wholesale destruction of the roots of fruit trees. But how? In preparing for our "kitchen" winter stuffs, the Pear cries out against the Cabbage. By-and-by the Cabbage will cry out against the Pear. Does not this practice explain why so many deformed, cankered, tasteless fruits abound? Every year those surface roots—through which, perhaps more than any other roots, are conducted the fruit and flavour properties—are cut off or mangled, and at the time when most wanted. And yet we have heard, with a boast, of something like this being done with impunity! Is there not also a reckless disturbance of the nature of the soil? But, say some, we give plenty of farmyard manure. What is farmyard manure when applied to the roots of fruit trees? Why, poison. And then, in winter the spade goes down again knee-deep, and layers of some strong dung are thrust about the roots, burning and destroying all the tender ones which it comes in contact with. Oh, say some, that is not for the tree, it is for the Cabbages! But the nature of the soil, I maintain, is altered and deteriorated for fruit culture. This sheltering and nursing, too, of Cabbage stuff is quite unnecessary, as may be seen in the comparison of plants grown by a market gardener, and the leggy things seen in gentlemen's gardens. Are we, in the race we have had for floral display, to neglect these things?—to put all our energies in one garden, and leave things so uncomfortable in the other? Depend on it, there are many questions to be settled, many disputes to be arranged, in our "kitchen" garden.

Then, we may ask, what should be a "kitchen" garden? The shortest answer is, a garden for the growth of kitchen vegetables, and for vegetables alone, where no trees should interfere with them, nor they interfere with the trees. We have been "setting class against class;" we want "reform." Events have taught us that to bring about a general reformation of any long-practised custom, an agitation is necessary among its promoters. We certainly want a new law here, to be passed and come into force at once. Let, then, a "hard and fast line" be drawn between trees and vegetables. Let the wall garden be a fruit garden, and let a vegetable garden be constructed elsewhere. But how are we to get our "things" early when the walls are gone, and we have no trees? Raised banks of earth, with slopes of the size and form and position required, would answer all the purposes of a wall without any of its drawbacks. I say "agitate, agitate." Owners of large kitchen gardens in days gone by, might have saved themselves great expense in building one-half of the ponderous garden walls we now see, if they had heard of wire netting and cheap glass, and also prevented this everlasting digging in and digging up of vegetables among fruit trees. How much better would it be to have fruit bushes or cordons in our borders—to have our quarters of Pears, Apples, &c. When once the soil was prepared and the trees planted, pruning, cleaning, mulching, would then be all they would require for many years. No tree larger than could be kept under control should be allowed in the fruit garden; when grown out of that proportion, if fit to live at all, let it be planted outside. Those who have large walled gardens would do well to divide them into sections—one a fruit section, the other a vegetable section. To those who are about to construct new gardens, I would say, build no more walls than are sufficient to enclose the amount of fruit trees desired, and provide for a vegetable garden, which might, if desired, have dwarf walls around it for the training and nursing of young wall trees, and use wire netting above that to keep out rabbits, &c. By thus doing we should rid the kitchen garden of many evils, and have better fruit, and better vegetables. A kitchen garden would still be a kitchen garden, a vegetable garden a vegetable garden, and a fruit garden a fruit garden. *Agitator.*

CURRANT BUD DISEASE.

During the last five years our attention has been repeatedly directed, chiefly by Scotch correspondents, to a disease with which the buds of Black Currants are infested in the spring months. The Currant bud is formed of a number of scales which overlap each other, forming a compact mass, and yet within and between the scales of a single bud hundreds, if not thousands of individuals of a minute creature are developed, which derive their nourishment from the fluid matter in the fleshy portion of the scales, causing them to shrivelup, and so preventing the growth of the embryo bunch of flowers. Our woodcut represents, in the left-hand figure, a bud highly magnified, with the outer scales partially opened, showing a few of the parasites, which, on an average, are individually not more than 1-200th of an inch in length, and 1-500th of an inch in width. The centre figure represents one of these little insects very highly magnified, as seen when crawling along, and the right-hand figure represents a very young animal when lying on its side in a state of inactivity. It will be seen that the insect is of a very unusual form, being long, convex, and tapering to the extremity of the body, whilst the anterior portion is of a more conical form when the head is protruded in walking. The head is distinct and oval, but I did not succeed in making out the structure of the mouth,



which doubtless consists of a central sucker, defended on each side by an articulated palpus or feeler. Neither eyes nor antennæ were observed. Locomotion is effected by means of two pairs only of articulated legs, the penultimate point of which is furnished with a long bristle on its outer edge, next to its distal extremity. The body is white and fleshy, and is covered with minute points, closely arranged in very numerous transverse rows, forming striæ of granular lines, and the body is terminated on either side by a long bristle. These bristles, together with the structure of the legs, rather than the structure of the head or body, lead us to the knowledge of the tribe to which the animal belongs, namely, the Acaridæ, or mites, and apparently to the neighbourhood of the genus Tetranchus, which includes the web-spinning species of the Lime, and also the "red spider" of the greenhouse.

A correspondent, "W. T.," writes to us from Blantyre at the beginning of July, sending specimens of the buds infected with the insects, which were still in their spring four-footed condition, and stating that the disease was quite general in that district, and had been known for 20 years, that after a plant is infected very little fruit is to be obtained from it, and that the writer had examined the buds even during the period of frost and snow, and had then observed the young animals hatching from their eggs. From this statement it is evident that this creature (which differs from the great mass of the eight-legged Acaridæ in having only two instead of three pairs of legs when first hatched) retains its juvenile form for a considerable period, but at a later period (as we learn from "T. C.," of Glasgow, a good microscopic observer) they acquire six legs, as was seen in specimens from old buds sent to us near the end of October, when some had two well-developed bristles at the tail. These two bristles we believe to be the rudimental fourth pair of legs, whilst another writer ("D. B." in the "West of Scotland Horticultural Magazine" for November, 1865) states that, on examining some of the dried-up buds of the same season's growth still remaining on the Black Currant bushes, he had found the insects in a further state of progress. A good many of them then had three pairs of legs, some of them with a pair of stout bristles, others with several stout hairs, and some of them with two projecting appendages at the termination of the abdomen. A few were also seen with four pairs of legs, being probably another species. Both of those having the six legs and the eight legs walked very nimbly, and speedily made their way out of the field of view of the microscope, and being so minute they could not easily be detected by the unassisted eye. The young larvæ were already to be found in the buds forming for the next year's crop.

This statement is important, as it militates against the observation of "M. J. B." (*Gardeners' Chronicle*, March 13, 1869, pp. 276, 332), that the little animals in March are accompanied by eggs, "and if we mistake not we see very frequently within the body of the mite an egg just ready to be protruded, accompanied by one or two others in a state of progression. The eggs are mostly obovate or broadly elliptical, and about 1-500th of an inch in diameter." We are naturally so much inclined to place full reliance on the observations of "M. J. B.," that we would suggest the possibility of the present being one of those cases in which the ordinary proceedings of insect life are departed from. Parthenogenesis has been already observed among the Acaridæ, and we now know that the young larvæ of certain Cecidomyæ, or gall midges, are capable of producing fertile eggs, whilst others of the same larvæ are transformed in the usual manner into midges. Is it possible that this is a similar case of larval precocity? If, on the other hand, the creature produces eggs as a normal condition of its existence, we have here the case of a perfect Acaridan never assuming more than two pairs of legs, and which would require for its reception not only a distinct generic name, but also a distinct section in the great family of mites.

Messrs. Duges and Turpin many years ago published the description and figure of a minute species which they had detected in the galls of the Lime and Willow trees. ("Annales des Sciences Naturelles," 2d ser. ii., pl. 11 A.) These have the elongated body, small sucker, with two short thick lateral palpi, and two pairs of legs, which are seven-jointed. These minute animals Duges considered to be larvæ, from the paucity of legs, and he noticed their close resemblance to Tetranchi, found occasionally in similar galls. He had also observed these larvæ become immovable, and change into elongated chrysalids, in which the shortened body of the future Acarus might be observed.

Some caution will be necessary to be observed with reference to the possible species of eight-legged Acaridans, of which it might be supposed that these creatures were the young, as we have received two different full-grown Acari found in the old dried Currant buds in the autumn. One of these was a true Acarus, with the body entirely covered with very long setigerous bristles, whilst the other was a species of Koch's genus Nothrus, with the eight legs, terminated by two very strong bent hooks or claws.

Badly infested trees ought evidently to be very closely pruned in autumn, as suggested by "M. J. B.;" but we would recommend, where possible, the picking off of the old dried buds in August or September, as it is evident that the newly formed buds must become infected almost as soon as they are well developed in the early part of the autumn. Possibly a dressing of the shoots at that period with a thick coating of lime and soapsuds might either prevent the females from crawling to the young buds, or the hatching of the eggs if laid in the old buds. *I. O. W.*

Home Correspondence.

Hothouse Boilers. — The newly-invented boilers exhibited at the recent show of the Royal Horticultural Society held at Manchester appear to me to possess little or no superiority in regard to heating power over other boilers already in use. The vertical action so much extolled in those of Ormson's cannot have an economical tendency in point of fuel, but the reverse, as the products of combustion pass through in an upward course only once, then into the chimney; the philosophy of retaining the heat to the greatest possible distance seems to be lost sight of altogether. There is another new form—namely, Foster's Patent, which possesses a much better internal arrangement, carrying, as it does, the products of combustion three times through its entire length horizontally, and giving off the caloric vertically into the water-jacket; but even this design is somewhat anomalous, first from its semi-detached construction, and secondly because it is supposed to be worked without brickwork, thus allowing quite as much heat to be radiated into the stoke-house as is transmitted into the pipes. We have in use here a form of boiler invented by one of our best practical gardeners, which is set in brickwork, but instead of the bricks being absorbents of heat they are set in such a way as to be conservators of heat, or rather reverberators of heat. The products of combustion in this case have to pass horizontally through the entire length five times, thus extracting the whole of the available heat before passing into the chimney. I have tested this boiler against a common Saddle and a Cannon boiler having the same quantity of 4-inch piping attached, and the difference in favour of the "Conservative Boiler," for it will henceforth be known under that name, is at the rate of 6 to 1 and 8 to 1 in respect of fuel—the Saddle requiring six and the Cannon eight bushels to one for the Conservative. It is simple in construction, easily set, and will not cost half the price of the majority of boilers at present in use. *Robert Milne, Gr. to the Right Hon. Lord Delamere, Vale Royal, Northwich, Cheshire.*

Snobs at Work.—I saw the following notice some years ago at the Victoria Park, at Bath, which was effectual:—"It is hoped that the public will protect what is intended for the public enjoyment." *W. F. Radclyffe.* [At Canterbury a notice—"Respect this walk, it is for the public good," is similarly effective. Eds.]

Leaf-cutting Bee.—I beg to enclose for your inspection a nest of the leaf-cutting bee. The insect made it

in the fold of a macintosh cape that is kept in a small plant-house, in case of sudden showers, and during the late hot and dry weather remained undisturbed. The pieces fit perfectly in their place. *W. B. H., August* 2. [A very perfect illustration. Eds.]

Potato Supertuberating: Caution.—Many sorts of my round Potatos, which are yet green in their foliage, are beginning to supertuberate. Kidneys, with their foliage green, do not show the unfortunate symptom so badly. I am taking up both kinds carefully that give signs of it. I advise others to follow my example at once, or otherwise to allow their Potatos to remain in the soil till the latest period possible, to let the tubers throw out young ones to their heart's content, and then at "getting up" to sort away the oldest run-out Potatos, and boil them down at once for the pigs, with the addition of a little salt, and keep the supertubers only for eating and for seed. I follow the plan of lifting those sorts which run out the moment they begin to do so, if they have attained to a fair size, and sow the ground directly with Turnips, or crop it at once with plants of the winter and spring Cabbage tribe. If the Potatos are kept spread out in a dry dark place they will considerably increase in their ripening process. *Robert Fenn.*

Honeydew.—I believe Mr. Thompson is perfectly correct in stating that honeydew—properly so called—is produced by aphides, which have been unusually numerous here this summer; the young shoots of the Oak and Ash trees are covered with them, and everything underneath the trees is glazed with honeydew. Six Currant trees standing in my garden had the leaves of the young shoots very much crippled by aphides, and the lower leaves and fruit were covered with honeydew. Two weeks since I cut off the shoots from four of the trees, and removed every leaf that had an aphis upon it; the trees were then thoroughly washed. The other two trees were also well washed, and all the honeydew was removed, but the young leaves, which were covered with aphides, were not cut off; in 12 hours these two trees were again covered with honeydew, but there has not been the slightest trace of it upon the four trees from which the aphides had been removed, since they were washed. *Henry Doubleday, Epping, August* 3.—— From what I have observed during past seasons, and more especially the present one, it appears to me that honeydew is the effect of more causes than one; and though an apparent difference of opinion has been expressed in your columns, it is very likely that both are right. And to show this, I will relate facts which have come under my observation during the present year, which go a great way to convince me that it is caused by insects, as well as being an exudation from the leaves. When it is the effect of the former, it appears to me much more abundant, and its adhesive powers much greater. The first appearance of honeydew that I have noticed this season was on some Pelargoniums, standing on a slate stage in the conservatory, and the glutinous matter was visible on the slate under the plant, and so near the pot that it would be deemed impossible for it to have exuded from the leaves. Green-fly was present. The next was on a climbing Rose, the gravel underneath which was glazed over with the substance. Green-fly was present. The next on the Limes, but nowhere could I find any fly. Two large pieces of glass were placed underneath the branches of one tree, but no trace of honeydew could I find. I expected this, for it is easy to discover its presence by drawing the hand over the Grass. The next was on the Oak, and in this case I could not find any fly. In these two cases the dew was not so abundant as on the above, as well as Currants and Plums. Has honeydew on different things been examined to see if any difference existed in its nature? There appears to me to be two sorts. *W. P. R.*

Grape Soils.—My experience with limestone soils in Grape-growing is quite opposed to Mr. Cramb's "protest" against the presence of calcareous matter in Vine-borders. The late Mr. Mearns, when gardener at Welbeck, used the turfy soil from the top of a magnesian limestone rock for all the new Vine-borders he made, and no young Vines could possibly grow better, or be more fruitful, than were all the sorts he planted out in them. I however found out afterwards that when such limestone soil was used without an admixture of sandy loam in it, the borders, when too dry, were apt to crack when the turfy portion had decayed. All the new Vine-borders here have, therefore, been formed with some of this limestone soil, mixed with sandy loam some bone-dust, and the small charcoal dust from the heaps where the charcoal is burnt in the plantations. The lime when burned from this ridge of limestone rocks, contains, on analysis, 30 per cent. of magnesia, and is of the most caustic and pernicious quality. If put on the soil in any great quantity it is quite fatal to vegetation, but is famous for making the turnip-fly scamper off, and for mixing with soft soap and sulphur for a paint to dress the Peach trees and Vines in the winter months. Peach and Nectarine trees are quite at home when planted in this limestone soil, for without any admixture of stimulating manures the trees grow vigorously, and free from canker. Some Barrington Peaches growing in a late Peach-house here will, when ripe, weigh from 10 oz. to 1 lb. each. The border they grow in was nearly all formed with this soil, and the subsoil of burnt red clay. Some very old Peach trees in the old gardens at Welbeck were quite renovated by Mr. Mearns lifting them and planting them in this turfy limestone soil. At one time they were quite a prey to canker and mildew, but by dressing them with the lime mixture in the winter, and the fresh soil at the roots, they soon got to a very healthy and fruitful state. To show the quantity of this soil used here, many acres in extent have been skimmed off the rocks in the neighbourhood. An Apricot border was likewise formed of this soil, and the trees have been remarkably fruitful on it for the last seven years. This year they only bear half a crop, but the year is an exceptional one for outdoor Peaches and Apricots. On the bottom of this border was laid a layer, about 6 or 7 in. deep, of broken bricks and old mortar, so that the whole border was a mass of calcareous matter. *William Tillery, Welbeck.*

Picea cephalonica.—In April, 1845, I planted one, a little thing of 4 inches high. It is now 37 feet high, and is bearing cones for the first time. There are about 30, of course standing upright. As there was a fair quanity of male bloom, I hope to have fertile seed. I do not send this notice as recording anything absolutely novel, but as it is not a very common species in our gardens, I thought that some of the readers of the *Gardeners' Chronicle* might feel an interest in the fact. I should like also to be informed whether the unusual quantity of male bloom on the Conifers generally this year has been noticed by others. [Yes; on certain species. Eds.] I have never before seen anything like it. *Thomas Bell, The Wakes, Selborne, Alton, Hants.*

Laxton's Supreme Pea.—This is a good and useful sort, which will supersede Prizetaker, Dickson's Favourite, Excelsior, and that class only, but it must not be mentioned with the marrow class. 2*s.* 6*d.* a quart would have been a more reasonable price, rather than 3*s.* 6*d.* for half-a-pint only. *R. H. Poynter.*

Bedding Plants—What can we grow in place of the yellow Calceolaria? The few showers of rain that we have had have quite denuded the plants of flower. The surface of my beds is quite covered with the fallen blooms. We have tried Tagetes signata pumila, but its flowers are of such a dirty orange that we cannot give it a permanent place. Who knows what to use for a blue for beds? The Ageratum does not look so well as the Centaurea ragusina compacta; the Lobelia is too short growing, the Delphiniums are too high, and of all the Verbenas have we really a blue? What are we to do for these two colours, to really remain permanent, and not in the height of summer to have several beds a perfect blank? *W. Ward, Stoke Edith Park Gardens, Herefordshire, August* 4.

Alternanthera sessilis amœna.—Allow me to call attention to the fact that the above Alternanthera is at the present time the gem of the season in Battersea Park,—an important fact for these persons who question the value of the Alternantheras as bedding plants. *Thomas Simpson, Broomfield Lodge.*

The New Invasion.—The fly, or aphides, storm on Sunday the 25th was equally dense at Chelmsford as it appears to have been at Bury St. Edmund's. The only notable difference is that towards evening they were more dense than at any other time of the day at Chelmsford, while, according to Mr. Fish, they began to disappear at Bury about that time. Could it be possible that they had travelled from Bury to Chelmsford? It seems impossible, but we must not forget the fact that the aphides are very quick travellers. I may add that they all disappeared in a few days without doing any serious amount of damage. *Thomas Simpson, Broomfield, Chelmsford, Aug.* 4.

Aphis on the Wing.—Mr. Fish has exactly described (p. 817) the clouds of aphis on the wing which darkened the air in the midland counties a few years back. All the Bean and Turnip crops were attacked with them that year, and about the middle of September they took wing, and for three days the air was swarming with them in all directions. It was in the September of the great International Fruit Show at Edinburgh, for that month I had to travel through Nottinghamshire, Derbyshire, Leicestershire, and Warwickshire, and encountered them in legions in all these counties; and their effects on the skin, especially the face, was the same as Mr. Fish describes. I have never before seen the Apple trees, Currant, and other fruit trees attacked with aphis to such an extent as they have been this year, and the greater parts of the bushes are now leafless, and the fruit covered with honeydew. In general, when aphis and caterpillars are over-abundant in one year, their over-production causes them to appear sparingly the year following. Last year, both the Cabbage and Gooseberry caterpillars were very abundant, and this year I have not seen one as yet, and the Gooseberry bushes have likewise been remarkably free from the aphis. The common white butterfly is very scarce this year, for I have only seen one specimen since the warm weather set in, and this accounts for the few Cabbage caterpillars seen. *William Tillery.*

The Green-fly on Hops.—During the week I have been on the outlook for the flies. Next to the late Pea crops, they seem to have done most injury to the Hops. A new plantation or two were made near Bury last season. They grew and promised well, but now, from root to flowering tendril—on stem, embryo flowers and every leaf—the flies are crowded together, drawing out the life and exhausting the strength of every portion of the plant. I fear the crop is utterly ruined. The tobacco-water has killed the flies on the Peas, but though they were only on for a few hours, they seemed to have eaten the strength out of them, and the outer sides of the stems are bitten into spotted fragments, weak and brittle. In last week's letter on the fly-storm, "light" should be "height," and "summer" "swarm." *D. T. Fish.*

Variegated Zonal Pelargoniums.—It is not my desire to enter into any lengthened correspondence with respect to the opinions expressed in the letter of Messrs. F. & A. Smith, and the one preceding it, signed "Southampton;" but I wish to repeat the offer I made in my former letter, that it would give me a great amount of pleasure to see Messrs. Smith at my nursery, and there to give them every possible explanation as to my plant, Jetty Lacy. I do not wish to employ any idle scribbler to write in support of my ideas. I simply stated facts in my last letter, and those facts I am prepared to substantiate. Messrs. Smith say that they had a plant named Achievement out long before the one I produced bearing that name. I pledge my honour that I gave my plant that name without the least suspicion that there was already one in existence; nor did I know it until I saw the specimen at Kensington at the latter end of last season. Mine was a *bonâ fide* new production, and I presumed I had a right to give it any name that suggested itself to me, and Achievement was the first name that came to my mind. I give certain nurserymen credit for one thing—*i.e.*, for the remarkably clever way they have of advertising their plants in a manner which entails no outlay upon themselves beyond the postage. I have nothing more to say in the matter beyond this that I feel on good terms with myself, because I know that I have never by word or action earned a reproach from my fellow professionals, and I believe my character will stand the test of "Southampton's" insinuations. *J. Stevens, 4, Ealing Terrace, Ealing, W.* [Enough has been said on this subject. Eds.]

Early Rose Potato.—I made 16 sets from 2 lb. of this Potato, and the produce is 20 lb. of good sizeable Potatos, and 15 lb. of seed size and small ones, and not an unsound tuber among them. I find them quite distinct from any kind I know—a good second early to the Ashleafs, and good when cooked, that is, making allowance for the small lot I got cooked. I expect them to keep well, as my sets were very firm when planted in March (not so with Fortyfold, its equal in earliness). I tested Early Rose with 10 other sorts, kidney and round, and my opinion is, after a further and better trial, we shall find it a good and most useful introduction. When it flowers, if it be judiciously crossed, I shall expect great things in the Potato way in the future. *R. H. Poynter, Taunton.*——Seeing two accounts of the weight grown from 1 lb. of American Rose Potato, I state mine. I had 1 lb. cut into 23 sets, which produced 68, all fine stuff. *John Campion, Sharnford Field, Hinckley.*

Rose Marechal Niel.—My experience is, that to grow the Marshal to perfection it must be budded on the Briar—that is the great secret; and if planted on a south wall it will do well, and produce abundance of fine flowers. All I have seen or have tried on the Manetti stock have failed. *Wm. Smythe, the Gardens, Elmham.*

Societies.

Royal Horticultural: *August* 3.—G. F. Wilson, Esq., F.R.S., in the chair. The usual preliminary business being completed, and the Rev. J. Dix and the Chairman having adverted to the various productions brought before the Fruit and Floral Committees, the Rev. M. J. Berkeley addressed the meeting. The first thing commented upon was Triteleia laxa, from Messrs. A. Henderson & Co., which he at first thought was the same as Brodiæa grandiflora, but he had since ascertained that the former has six perfect stamens, whereas the latter has only three. The species of Cyclobothra, specimens of which had recently been brought under notice by Mr. Wilson Saunders, were then noticed as being of very curious structure and difficult of cultivation. Notwithstanding these drawbacks, however, Mr. Berkeley would strenuously recommend their re-importation. Mr. Bull's specimen of Brownea grandiceps was next adverted to, as being a very handsome plant, and especially when it was in flower; in a garden in Flintshire, said Mr. Berkeley, there was a large specimen that occupied the whole of one corner of a house, the roof of which had been raised three times, and was now being raised again to allow of the further extension of the plant. Mr. Berkeley said the flowers were very large, and were far more beautiful than they were depicted and described to be in the "Botanical Magazine." The specimen of Leea excelsa was then commented upon, as being closely related to the Vine. The genus was named by Linnæus after Mr. Lee, of Hammersmith, who wrote an Introduction to Botany; and who Mr. Berkeley believed was the grandfather of the present Messrs. Lee. The magnificent Orchids from the Bishop of Winchester's garden were then commented upon, and with reference to the specimen of Dendrochilum filiforme, Mr. Berkeley said that it was estimated that the plant bore no less than 10,000 flowers. The gem of the meeting, however, said Mr. Berkeley, was the Trichotosia ferox, from Mr. Wilson Saunders. It was remarkable for its hispid leaves and flowers, and was one of the most curious Orchids ever shown. It was believed to be the first time the plant had flowered in this country, although specimens were known to be in one or two other collections. A specimen of Athyrium Filix-fœmina kalothrix was then referred to as being much more like a Todea than a variety of the Lady Fern. Mr. Berkeley then exhibited the eggs of an insect poised on the end of a fine thread attached to a leaf. These eggs are produced by a species of Hemerobius, a genus occurring in several parts of the world. These eggs have much the appearance of some Fungi such as Mucor, and are often mistaken for Fungus growth. Mr. Berkeley then mentioned that among the seeds sent out this season by the Society were those of a Gherkin which is often found with other fruit in West Indian pickles, which Mr. Berkeley considered was the species named Cucumis prophetarum—that is to say, taking Cucumis prophetarum in a wide sense as including C. myriocarpa and C. anguina, but which are considered distinct by M. Naudin. A flower of Cichorium Intybus, brought by Mr. Earley, was next commented upon, as being remarkable for its pure white flowers, but the most singular thing, in connection with this variety, was that the plant which produced this flower seeded last year, and all the seedlings came of a different colour. Mr. Berkeley then exhibited a spray of Pterocarya caucasica, which was growing in the Chiswick garden, and which belongs to the same tribe as the common Walnut. It has often been said that the plant was tender, but this was not

so; and, from its ornamental foliage, the tree is worth more extended cultivation. The beautiful Hæmanthus cinnabarinus was next alluded to, Mr. Berkeley remarking that it was different from the species of Blood-plants from the Cape, which flowered without leaves. This, however, was said to belong to a different section, of which one, named carnea, was figured in the "Botanical Magazine." Mr. Berkeley then alluded to several cases of monstrosity, which, had the Scientific Committee been sitting, would have been brought before that body. The first referred to was a spike of the common white Lily, known in gardens as the double white Lily. The true flower is absent, but there is in its place a large number of white bracts. Next came a Balsam, the upper leaves of which were petal-like and crowded into rosettes at the end of the stem. A species of Phlox was then noticed as having produced a panicle of bracts instead of flowers. An Allium, allied to A. vineale, sent by Mr. Lowe from Madeira, which had produced stalked bulbs from the head instead of flowers, was then alluded to. The speaker then proceeded to show specimens of shoots from a Walnut tree in his own garden, which fruited well last year; this season the fruit has all dropped off, and the fruit-buds that should have been developed this season to produce a crop next season, have grown out into leafy shoots. The curious excrescences from the spur joints of a Vine, referred to at p. 738, then came under notice, Mr. Berkeley showing examples and stating that the fleshy mass consisted of a much deformed and distorted bunch, the individual flowers of which were abortive.

Floral Committee.—Rev. J. Dix in the chair. This was, comparatively speaking, a small, but none the less interesting meeting. First among the exhibitors who contributed materially, in a decorative point of view, were Messrs. F. & A. Smith, of Dulwich, who sent a large and fine collection of Balsams, consisting of dwarf-grown specimens of the double varieties, of extremely beautiful colours, for which a Special Certificate was voted. The same award was also made to a very fine example of Allamanda Hendersoni (syn. Wardleiana), sent by Messrs. Jackson & Son, of Kingston. The specimen was remarkably well grown, and beautifully flowered. From the same firm also came 6 admirably grown and flowered specimens of Ericas, consisting of Douglasii, retorta major, tricolor Wilsoni, Aitoniana turgida, pulcherrima, and æmula; to which a Special Certificate was given. The Messrs. Veitch sent a choice collection of Orchids and fine foliaged plants, &c., in which were Cattleya Dowiana, with two very fine flowers; the lovely Dendrobium Bensonæ, Odontoglossum Lawrencianum and Krameri, Miltonia Regnelli purpurea and spectabilis, the beautiful white-flowered Burlingtonia candida, a flowering specimen of the new Lapageria alba, well-furnished examples of Dracænas nigro-rubra, and Macleayi, the latter a decided acquisition, among the darker kinds; and finely-coloured specimens of Croton maximum and aucubifolium, both very effective and most beautiful foliaged plants. A Special Certificate was awarded. From Mr. Green, gr. to W. W. Saunders, Esq., came a small group of very curious and extremely interesting plants, amongst which were Trichotosia ferox, and a large dark green-leaved species of Dieffenbachia, from Brazil, to both of which First-class Certificates were awarded. The former was perhaps the most interesting subject shown at the meeting, the whole of the stem and leaves, which are of a dark green colour, being covered with stiff brown hairs, while the flowers, which are small, and of a pale violet or brownish colour, with a streak of orange down the lip, are produced on longish, pendulous, zigzag spikes, which give to the plant a very graceful appearance. In the same collection was a South African species of Agapanthus, remarkable for its small pale blue flowers, which have a darker stripe down the middle of the segments; and a whitish-flowered species of Angræcum. From Mr. Bull came a small group, in which were Calamus intermedius, a graceful Palm, with feathery foliage; and Odontoglossum Schlieperianum, a fine, large, pale greenish-yellow-flowered species. The former was honoured with a First-class Certificate, the latter with a second. Brownea grandiceps, in fine condition, was also shown in the same group. From Mr. Earley, gr. to F. Pryor, Esq., Digswell, came cut blooms of a pretty free-flowering greenhouse Passiflora, named Belotii. The splendid specimens of Epidendrum radiatum and Dendrochilum filiforme, referred to at p. 785, were produced here in very fine condition. To Mr. Laurence a Special Certificate was awarded for their excellent cultivation. To Mr. Pilcher, gr. to S. Rucker, Esq., a First-class Certificate was awarded for Hæmanthus cinnabarinus, which had a beautiful globose umbel of orange-coloured flowers. Mr. W. Chater, Saffron Walden, sent a magnificent group of Hollyhocks, to the following of which First-class Certificates were awarded:—Constance, pale flesh; Carus Chater, dark crimson; Walden Queen, pale rose; Junia, flesh-coloured tinted with blush; and Leah, a tinted yellow. A Special Certificate was awarded to the collection. From Mr. C. J. Perry, Castle Bromwich, came a further collection of Verbenas, of which Thomas Hyatt, a fine dark magenta flower; Joseph Sanders, a beautiful scarlet; R. H. Vertegans, fine dark shaded purple; and the Rev. J. Dix, a fine pale flesh-coloured flower, with a deep rose eye, received First-class Certificates. Messrs. Bell and Thorpe sent a good collection of Seedling Petunias, of various colours, one named Single Beauty, a fine flower, with a pale lilac ground colour, the veins, radiating lines, and eye of purple, was awarded a First-class Certificate. The same honour was also paid to a very distinct golden tricolor Pelargonium named Macbeth, from the same firm. To Mr. G. Smith, Tollington Nursery, Hornsey Rise, First-class Certificates were awarded for a new zonal Pelargonium named Claudius, in the style of Amy Hogg, but one of the finest trussers ever seen; and to a seedling nosegay called Soleil, with a fine truss of bright scarlet flowers. The same award was also made to Pelargonium Coleshill, a bright scarlet zonal, of fine form, from Mr. H. Eckford, gr. to the Earl of Radnor, Coleshill, Berks; to Gustave de Rothschild, a dark pink bedding nosegay variety, exhibited by Mr. Tirebuck, Luton; and to a seedling nosegay named Sydney Dunstan, with an immense truss of dark magenta flowers of good form, from Mr. J. George, Putney Heath. Messrs. Standish & Co. exhibited Todea pellucida compacta, and the white variegated Thujopsis borealis alba. From Messrs. A. Henderson came flowering examples of Allium acuminatum, and Triteleia laxa, both very beautiful hardy plants. From Messrs. J. & C. Lee, of Hammersmith, came a nice specimen of Leea excelsa, and well-coloured specimens of golden tricolor Pelargonium Edward Milner. From the Society's garden, Chiswick, came a fine collection of Coleus.

Fruit Committee.—G. F. Wilson, Esq., F.R.S., in the chair. On this occasion prizes were offered for competition, for (1) Peaches, single dish, from pot plants; (2) Peaches, single dish, grown on planted-out trees, under glass; (3) Nectarines, single dish, from pot plants; (4) Nectarines, single dish, grown on planted-out trees, under glass; (5) Peaches and Nectarines, best collection, named. The fruit exhibited was remarkably fine considering the character of the season. In class 1 the only competitor was Mr. Douglas, gr. to F. Whitbourn, Esq., Loxford Hall, Ilford, who showed a fine dish of Royal George, for which he received the 1st prize. Mr. Tillery, gr. to the Duke of Portland, Welbeck, was 1st in class 2, with very fine Early Grosse Mignonne, from a tree planted-out under glass. Mr. Turner, Slough, was 2d, with good Violette Hâtive. Mr. Tillery was also placed 1st in class 3 with Elruge, fine, but pale in colour. From Mr. Douglas came fine examples of Rivers' Orange. Mr. W. Beach, Kingswood Warren, Epsom, also exhibited. In class 4 there was no competition. Mr. Douglas, who was the only exhibitor in class 5, showed a remarkably fine collection, consisting of Violette Hâtive, Bellegarde, Royal George, Galande, and Grosse Mignonne Peaches, and of Nectarines Downton, Violette Rouge, Hunt's Tawny, Early Murray, and a kind called Cricket, all in first-rate condition, and for which he was awarded the 1st prize. To Messrs. T. Rivers & Son, Sawbridgeworth, a Special Certificate was awarded for a collection of 12 dwarf Apple trees. They carried a splendid crop of fruit, and were said to be only two years old, and grafted on the broad-leaved English Paradise stock, which was raised from seed at Sawbridgeworth. From Mr. G. Lee, of Clevedon, near Bristol, came samples of Lee's Prolific Black Currant, a very fine variety, that stands shaking well. A First-class Certificate was awarded to it. Mr. Lamb, gr. to G. T. Davey, Esq., Colston Basset, Bingham, Notts, sent two good bunches of the Muscat Champion Grape, fine in flavour, to which a Special Certificate was awarded. To Mr. McIndoe, gr. to his Grace the Archbishop of York, a similar award was also made, for two remarkably fine bunches of Muscat St. Laurent, a small, round, white Grape, in the way of Royal Muscadine, and which was first sent out by Mr. Rivers. The bunches were said to have been cut from a plant that produced 16, in a 15-inch pot. Mr. Turner sent a splendid collection of new and other varieties of Potatos, and very fine White Flat Tripoli and "Rocca" Italian Onions. A Special Certificate was awarded. Messrs. Bell & Thorpe, Stratford-on-Avon, also sent a collection of new varieties of Potatos. From Mr. G. Cooling, of Bath, came a new early dessert Apple, named Bailbrook Seedling, which, however, was unripe. The Chairman showed some fine Beurré Giffard Pears; the Messrs. Rivers, good examples of Late Purple Guigne and other varieties of Cherries; and a fine punnet of Bigarreau Napoleon Cherries came from Mr. Turner. From the Society's garden, Chiswick, came a beautiful dish of Mulberries, grown in a pot, and fruited in an orchard-house.

Notices of Books.

Echoes in Plant and Flower Life. By Leo H. Grindon. London: Pitman. Small 8vo, pp. 123.

We are somewhat at a loss how best to give the reader an idea of the contents of this little volume. The title, too, is an odd one, but considerable license may be given to the author, since he expressly tells us that his "pages do not profess to consist of anything more than memoranda and observations from a poet's point of view respecting a certain class of botanical facts." These facts the author, "unable to think of a better name," calls echoes. He means by echoes certain general superficial resemblances in habit and structure between plants whose inner organisation is widely diverse. Humboldt was one of the first to allude to this subject in his "Aspects of Nature," wherein, in an essay on the physiognomy of plants, he groups together plants under various headings, according to their outward resemblances, wholly independently of their floral organisation. Thus the Palm form would include the Pandanads; long-leaved Dracænas would be placed with the Grasses, and so on. Dr. Seemann alluded to the subject in a letter in our columns, June 27, 1868, and it is one that strikes everyone who has his eyes open to the peculiarities of plant form. Every gardener is familiar with the close resemblance between some of the succulent Euphorbias and the columnar Cacti or Cereus—a resemblance so close that, in the absence of flowers, it is often difficult to determine to which of the two families a particular plant belongs. If, on puncturing the stem, a milky juice exudes, the plant is a Spurge, while the fluid that flows from a similar wound in the Cactus is limpid and transparent. In point of fact, almost every large family of plants has its "succulent" representatives. There are succulent Euphorbias and Jatrophas, succulent Composites, fleshy Asclepiads, gouty Vines and Pelargoniums, hypertrophied Apocyneæ and Convolvulaceæ, swollen Pedalineæ, &c. The flat, ribbon-like stem of the Bauhinias finds its match in the compressed stem of Vitis planiculmis. The fleshy-rooted, linear-leaved Ceropegias, find their parallel in some of the African Passifloreæ, such as the Machadoa, discovered by Dr. Welwitsch. Another Passiflorad, discovered by Dr. Welwitsch in the same district (Basananthe), might readily be passed over for a Violet. Other South American Passifloras are trees rivalling Magnolias in size and in the aspect of their leaves. The leaves of many Turnerads are all but indistinguishable from those of Waltheria or Melhania. The foliage of our British Crucifer, Diplotaxis, is almost precisely similar to that of the African Wormskioldia. The flowers of the labiate genus, Orthosiphon, have a striking resemblance to those of Clerodendron. It would be easy to multiply instances by the hundred or by the thousand of this close correspondence in superficial aspect. Mr Grindon cites many such, and these are his "echoes."

Of course, in many cases the reason for this correspondence in outward form is obvious enough. The conditions of life being similar, the results are similar. Desert plants of the most opposite families are characterised by the same aspect—the same dry, shrivelled, interlacing, spiny branches—the same sapless foliage, with roots buried at an amazing depth below the surface, burrowing, in fact, anywhere in search of water. Or it may be that the water is stored in the tissues of the plant itself, and then we get the huge gouty stems, the swollen tubers, reservoirs at once of food and water, and to which we have already alluded. Livingstone tells, in one of his books, a curious tale of the natives, in their search for the juicy tubers, thumping on the ground with their clubs to determine by the sound emitted the presence of these subterranean founts, on the same principle as a doctor thumps the chest of his unfortunate patient, to ascertain whether or no there be fluid in his chest. Take, again, the plants of salt plains, how like they all are in outer characteristics. We see the same thing in the case of the fleshy leaves of our seaside plants, or in the submerged leaves of aquatic plants. All this is readily understood.

So also in the case of oblique leaves and flexuose or zigzag stems, a little attention will generally show that these arrangements favour the development of the axillary bud. If the stem retained its primitive direction, or the leaf grew equally, there would be no room for the bud to develop. So too, if the stems be weak, and unable to bear their own weight, we are not surprised to see tendrils even in plants of the most widely different character.

More marvellous still is the way in which the same end is attained by different means — the same outward appearance preserved by most different methods. Take the tendrils for instance; in all cases they are sufficiently alike to come under Mr. Grindon's appellation of "echoes," and yet how different they really are. The Vine tendril and that of the Passionflower is the altered flower-stalk, in the Lathyrus it is the midrib of the leaf—now it is the stipule, at another time it is an abortive branch. Here is food for a poet-naturalist—good wholesome food, too, which will induce more satisfactory results than the mere idle wonderment at the resemblance between plant and plant, without the attempt to ascertain on what circumstances the resemblances depend, and how and why they exist. Mr. Grindon's book would have gained an interest even for the most desultory of readers had he guided his Pegasus into these attractive pastures, and not contented himself with hovering on the outskirts, listening to the echoes, without attempting to ascertain whence they come, and how they are produced.

We have also to announce the publication of a second edition of Mr. Grieve's *History of Ornamental Foliaged Pelargoniums* (Blackwood). We have already expressed a favourable opinion of this unpretending little volume, which should be in the hands of all who take an interest in this class of plants. The additional matter comprises a list of the best varieties, and a selection from the articles relating to these plants which have appeared in our own columns, or in those of our contemporaries, since the publication of the first edition.

Florists' Flowers.

It is well to pause, as it were, at intervals, and endeavour to gather up for consideration whatever of information can be gained relative to the improvement of any particular flower, especially if it be one constantly receiving additions in the form of assumed new kinds. What, then, can be so gathered up respecting the somewhat numerous class of Bedding Tropæolums? Much, no doubt, for the varieties of them extant are co-extensive with their use. Popularly, they are divisible into four groups, and this simply for the purpose of arranging them, and not because the grouping is assumed to be scientifically correct. These four groups are included in two divisions, the one the trailing, the other the dwarf-growing kinds. This is hardly clear enough, as there are some kinds that are midway between the two, so varied are the characters the numerous garden varieties of late years assume. Under the head of trailing kinds are included the varieties of T. majus, and what are known as the varieties of T. Lobbianum; under the latter, the varieties of Tom Thumb, and the last new form in this section, the compactum varieties.

Since the old Tropæolum minus came to us from Peru, in 1596, and, 100 years after, T. majus and its variety, atrosanguineum, and, later still, T. Lobbianum from Columbia, what almost numberless "fair varieties of earth" have sprung from these Peruvian progenitors, while the old types, still among us in name, have in "the presence of perpetual change" become themselves changed into something better through the operation of that law of natural selection which, consciously or unconsciously, has raised to higher forms so many imported species of garden plants.

Perhaps, of all living men at least, Mr. W. H. Dunnett, of Dedham (now a partner in the firm of Messrs. Carter & Co.), has done most of all to improve the dwarf-growing form of the Tropæolum. It is supposed, probably with good reason [?], that what were formerly known as Cattell's dwarf scarlet and dwarf crimson Nasturtiums, were selections from Tropæolum minus, or rather from the improved form of it now found in our gardens. From these Mr. Dunnett selected Tom Thumb, scarlet, King of Tom Thumbs, crimson, and others not so well known. The three former varieties named are well known, and are of great service in the flower garden during the summer months. The last-named has a rather dwarfer and more compact habit, and produces numerous brilliant crimson flowers, the foliage being of a dark olive-green. It originated in a selection by Mr. Dunnett from the old T. Schultzii, a half trailing variety of the T. Brilliant type. As an effective bedding kind, it was awarded a First-class Certificate of merit by the Floral Committee of the Royal Horticultural Society during 1868. It comes very true from seed; in fact, all the varieties of dwarf Nasturtiums are to be depended on in this respect, though to secure compactness of growth, and the utmost abundance of bloom, many growers prefer to propagate the plants by cuttings in the early spring. Crystal Palace Gem, Beauty, and Spotted Tom Thumb, are all spotted or blotched with crimson and scarlet on a yellow ground, and Pearl has straw-white flowers. Neither of these, though novel in their way, and affording a pleasant variety, can rank as effective bedding kinds, being beaten in that respect by some of the varieties of the Tom Thumb compactum kinds, to which reference will presently be made. Tom Thumb

yellow is very useful for its colour in the flower garden, and blossoms very freely; the rose-coloured variety—a decided advance when sent out—is completely superseded by Tom Thumb cœruleum roseum, a deeper rose-coloured variety, flushed with blue, and blooming very freely. This last named was also awarded a First-class Certificate of merit by the Floral Committee. I do not know what others may have experienced respecting this flower, but with me it betrayed a tendency to burn, the flowers becoming discoloured in consequence; but as the first season of this variety's introduction to the floral world was so decidedly adverse to its well-doing, it will be well to suspend a judgment till another trial has been afforded it.

Of all the floral sights I ever looked upon, nothing seems to me to compare in its almost unrivalled effect with the gorgeous and even flaming masses of colour presented by the groups of dwarf Nasturtiums growing at the Dedham seed farm of Messrs. Carter & Co. As one passes down the hill leading from Jupe's Hill farm to get to the town of Dedham, the road, there on the level, winds round the north-eastern boundary of the East House seed farm, and then, if it be the beginning of July, a glorious sight bursts upon the view. Among the large masses and patches of showy annuals that seem to realise something of the poetic conception of "the flowery breast of earth," the most vivid and striking are the groups of the bright coloured dwarf Nasturtiums, of which little can be seen but the brilliant flowers. To stand watching for the almost singular alternations of light and shade, on a day when the fierce summer sunshine is varied by slight showers, and a momentary dazzling brightness succeeds the relief of shade, is to look upon a scene rarely presented. It must have been of some such an aspect that Whittier wrote:—

> "They pour their glittering treasures forth,
> Their gifts of pearl they bring."

The rich glow of blue that appears in the flowers of Tom Thumb cœruleum roseum can only be appreciated when it is seen growing in a mass. At St. Osyth there was nearly half-an-acre of this variety, and the contrast presented by its juxtaposition with similar masses of the deeper-coloured varieties was very remarkable. All these patches of dwarf Nasturtiums are raised from seed sown in the middle of April, and when informing me of this, Mr. Dunnett gave me a "wrinkle" that may prove of service to some of your readers. He said that the seeds of dwarf Nasturtiums should always be sown where they are to bloom,—that is, they should not be sown in one place and transplanted to bloom in another.

The other group in this division comprises what are popularly denominated the compactum varieties. It is said that these originated from a cross between the trailing Lobbianum and one of the Tom Thumb section; certain it is that they represent "little bushes in the style of the small-leaved varieties of T. minus, but with flowers as finely formed and as neatly and prominently produced as in the best forms of T. elegans." Seeding less freely than the Tom Thumb section, they appear thereby to remain longer in bloom in consequence. One of the very best of this group, where it can be obtained true, is that known as T. compactum coccineum. It has been said of the compactum group, and that with a great deal of truth, that they throw their flowers much better above the foliage than the Tom Thumb group. Particularly is this true of the variety under notice, and could I get the true thing I would use it in preference to any other for bedding purposes. At the Upton Nurseries of Messrs. F. & A. Dickson & Sons, Chester, it was gloriously fine during the dry summer of last year—being so close and compact in growth, it seemed to keep the soil cool and moist about the roots, and flourished accordingly. It appears to seed very sparingly indeed. Unfortunately, there are extant many forms of compactum coccineum and of compactum superbum, but not the real thing, and money, time, and temper are wasted over the pseudo-kinds. Advancer, another bright scarlet variety, is very effective, if the season be somewhat moist, but it fails on a dry soil. This is true of Scarlet Gem and others of this colour; they appear to lack constitution when allied with bright colours. The Moor is a fine dark-coloured variety—a kind of black crimson, of good habit, and free and continuous in blooming; but the colour is really too dark for a flower garden. King of Steels has yellow flowers, with dark amber spots, but in cold and moist weather, when it makes vigorous growth, the flowers have a dark mottled appearance, which detracts from its effectiveness. One of the most useful is luteum improved, bright yellow with reddish spots. I can confidently commend this to bedders-out as being a most useful kind.

Tropæolum Lilli Schmidt Tom Thumb, and T. pyramidalis, new varieties sent out by Messrs. Carter & Co. in 1867-8, partake something of the character of both groups in this division, but they are not distinct enough, or good enough, to hold their ground permanently, unless they can develop something better than a trial made last year produced.

The old tall Nasturtium is of but little account for bedding purposes, but is found useful to fill up gaps in shrubberies, or to furnish odd corners with floral occupants. The dark-coloured variety is very showy indeed, and if treated to strong soil makes abundant growth, and flowers profusely. T. Scheuermannianum, cream-coloured, with crimson blotches, and a variety of this known as carneum, as well as the new bronze variety, represent what are termed the "improved" varieties of the tall Nasturtium.

Whatever were the distinctive features of the original T. Lobbianum, as received from Columbia, it would perhaps be difficult to say which of its numerous progeny, either legitimate or illegitimate, most closely resembles the original form; perhaps some of the cool greenhouse kinds would best represent it. Now Lobbianums abound, and the varieties can be reckoned by the dozen; in character they differ materially, and while some of them, like Brilliant, Glory, and others, have very large and bold flowers, combined with moderate growth, others have small flowers united to a more lengthened growth. The latter are the most numerous. Foremost among them stands Crystal Palace Perfection, one of the most durable and most effective of all the trailing kinds, and said to be a selection from the Crystal Palace variety of Lobbianum elegans. It is a true Lobbianum, growing close to the ground, and of rapid growth, throwing out a number of wiry lateral shoots that soon cover a good space on a bed. The flowers are of a bright orange-scarlet, erect, on stiff stems, and well above the foliage, while as a continuous bloomer it is perhaps unrivalled. Much inferior to this, but yet very useful, is one known as Scarlet Gem, much grown in the neighbourhood of the large towns in the West Riding of Yorkshire. In that somewhat moist climate it makes dense growth, and blooms freely and continuously. A lot of others can be more summarily despatched, as King of Scarlets, bright scarlet; Morning Star, very similar; General Lee, a coarse-growing variety, with dark crimson flowers, half hidden by the foliage; Ball of Fire, fiery crimson; Excellent, orange-scarlet, free growing, inclined to be coarse; Atrococcineum, also a strong grower, flowers bright crimson, dark foliage; Sparkler, fiery scarlet, not so rank in growth as some of the preceding kinds; Queen Victoria, yellow, blotched with dark on each segment, and reddish towards the edge; Géant des Batailles, vivid crimson, becoming quite dark with age; Mons. Colombe, straw colour, blotched with rosy crimson; King Theodore, black crimson, dark foliage; Triomphe de Gand, pale scarlet; Garibaldi, pale ground colour, blotched with dark, and flaked with scarlet; Triomphe de Hyères, light yellow with crimson spots; and Fimbriatum, yellow, with reddish spots and fringed edges. These fringed flowers are by no means desirable; it must be something akin to a diseased taste that would fancy them, at least in such a form as that just noticed.

It is advisable not to depend on seed of these Lobbianum varieties, as the seedlings sport considerably, and produce much rubbish, besides being very coarse and rank in growth. Where the agency of bedding Tropæolums is desired to secure an effective and prolonged display, I would advise bedders-out to obtain the trailing Crystal Palace Perfection, and the true scarlet-flowering compactum coccineum, and compactum luteum improved; and having these, they will possess the very cream of the bedding Tropæolums. *E. D.*

The Apiary.

Decomposed Pollen the Cause of Foul Brood.—In the American "Bee Journal" for July there is a long article from the pen of Mr. August Lambrecht, a talented German apiarian, who professes to have discovered the origin of foul brood in the decomposition of pollen produced by moisture within the hives. Without giving any opinion as to the correctness of the conclusions arrived at by the author, we extract the substance of his paper for the benefit of our readers. Wooden hives are condemned by him, because of their tendency to internal dampness by the condensation of moisture, which not only trickles down the inner sides of the boxes, but, collecting on the surface of the combs, dripping from cell to cell, and mixing with the pollen contained in them, causes it to ferment and putrefy. "Let us," Mr. Lambrecht says, "institute the following experiment:—Take out of a comb about a quarter of an ounce of pollen, and triturate it between the fingers; then put it in a phial, and pour on it as much water as will cover it about half an inch. Set the open phial ten days or two weeks in a place the temperature of which ranges from 62° to 65° Fahr. Should much of the water evaporate, replace it gradually. If the contents be carefully observed during the time mentioned, it will be seen that when decomposition has commenced, minute bubbles will be formed, and rise to the surface, and the whole mass will ultimately become agitated. That larvæ fed with putrescent pollen must perish, will be evident when we consider how very destructive every other putrescent substance proves to be when brought in contact with organic substances in the condition already stated. Putrid meat, putrid medullary matter, or putrescent blood, placed on a wound, produces vomiting, debility, and finally death." * * *

"Having thus, as we conceive, shown conclusively the effect which water has on the combs, and the life of the bees, we have only to add, that this dangerous malady—foul brood—finds its source naturally in the circumstances to which we have traced it. If, namely, pollen becomes putrefied by the conjoint operation of the oxygen of the atmosphere, water, and heat, then the cause of foul brood is obviously discovered. Precisely because wooden hives are now more used than formerly, and the condensation of moisture is thus of more frequent occurrence and more abundant, complaints of the prevalence and diffusion of this malady are far more numerous than they formerly were when straw hives were in almost general use.

"That the cause of foul brood must properly be sought for in pollen made putrescent by moisture will be clearly established by the following experiment:—Take a fourth of an ounce of pollen, and triturate it between the fingers; place it in an open phial and keep it constantly moist with lukewarm water, exposing it for eight or ten days to a temperature of 62° to 65° Fahr. The mass will then, if the moistening has not been neglected, have fully undergone decomposition. Having satisfied yourself of this, take half-a-pound of honey warmed to liquidity, pour the decomposed pollen in it, and mix the whole thoroughly by shaking or stirring. Let it now stand 8 or 10 days longer, in a temperature of from 65° to 70° Fahr., and then feed a healthy colony with this fermenting substance, taking care to do the feeding in a close chamber, to prevent other bees from participating. The brood in this colony will, within a week, be dead and putrid. The attentive reader will thus understand that the pollen decomposed by the action of moisture and heat, caused the honey to undergo a chemical change. In other words, the putrescent pollen was the leaven by which the fermentable honey with which it came in contact was brought into a state of fermentation; and being then fed, undigested, by the nursing bees to the larvæ of workers and drones, just previous to their last transformation, carried the fermenting process over into their delicate organism—causing putrefaction and death." * * *

"So long as the colony continues populous, the extraordinary internal heat of the hive dries up successively the putrid larval remains; but minute motes, such as we may see floating in the sunbeams in a darkened chamber, become detached, and float about in the atmosphere of the hive as well as in that of the apiary, and are spread abroad by every current of air. They are thus carried to and enter other hives, and may finally reach even distant apiaries. They find a lodgment in the pollen, the honey, and the cells of the hives they enter, infecting the contents, and communicating the process of decomposition. The nursing bees in such infected colonies feed the brood with contaminated jelly, and foul brood soon manifests its presence."

Mr. Lambrecht, considering the use of wooden hives to be conducive to the original causes of foul brood, advises the discontinuance of their use, or of whatever contributes to or aids in the condensation of internal moisture. He asserts "that the minutest particle of putrescent nitrogenous matter mingled with the honey suffices to render foul-broody the larvæ to which it is fed." He sums up thus:—"1, Foul brood may originate from putrescent pollen; 2, from contagion and infection; and, 3, from feeding on fermented honey." The honey brought to us from Transatlantic countries is mostly expressed from combs still containing both larvæ and pollen; these, exposed to heat during transportation, naturally become putrescent, causing the honey to ferment, and producing foul brood in the larvæ which are fed by it.

Garden Memoranda.

Hatfield House, the Residence of the Marquis of Salisbury.—The country residence of the representative of this historically ancient Marquisate is situated about 18 miles from London, in the township of Hatfield, and near to the Great Northern Railway Station bearing that name.

The mansion and pleasure-grounds immediately surrounding it, especially on the western side, as well as some of the domestic offices, seem almost to be a continuation of the town itself. On entering through arched gateways, which lead up to an elevation, the northern front of the mansion suddenly comes in full view. The house itself has some pretension to architectural merit. It is built with red brick, the roof being turreted, and otherwise artistically finished, and it has already a worn and ancient-looking exterior. The present mansion was built close to the site of a previous castle. Turning to the right we pass through a doorway, leading into a flower-garden, which is somewhat original in its general outline, both the design and the manner in which it has been carried out being alike creditable. Enclosed within an extensive square, which is backed up by walls and evergreens, is an avenue or extended bower of Lime trees, which runs round three sides of the square. The width of the path between the trees cannot be less than 9 or 10 feet, whilst the branches are uniformly bowed overhead, to the height of about 7 feet. This cool and shady retreat is kept neat by having the young wood pruned off in the month of February, each year. The young shoots thus grow more thickly each spring, and produce a dense mass of foliage quite surprising to behold. Within this outer square is a geometrical flower garden traced upon grass, with a large basin of water in the centre. Within this enclosure are four very old Mulberry trees, of no little historical interest; they are planted at the corners so as to form a square. They are reputed to be the first trees of the genus which were introduced into this country, and to have been sent from Italy to King James, who made this a place of occasional resort. This will, therefore, warrant the assumption that these specimens cannot be less than from 200 to 300 years old. I must here mention a somewhat original method employed to support the branches of trees against injury from rough winds, or to afford support to any lateral limbs which, from their excessive weight, are likely to need such, and this aid has been afforded pretty liberally to these aged Mulberries. It is a plan originated by the late Marquis, and consists of boring through the middle of each limb with an auger, holes sufficiently large to admit a portion of iron rod both through the support and the parts to be supported. These are then held tightly together by nuts, which are screwed on after cross pieces of sheet iron have been neatly fitted to neutralise the injury which the nuts would be likely to cause to the bark in rough weather. For economy and simplicity, few things can exceed this simple plan, though a variety of opinions will doubtless arise as to its barbarity, so far as the well-being of the trees so operated upon is concerned. Passing through a gateway to the westward we come abruptly upon a separate garden or Rosary, in the centre of which large standard Roses are planted. These are surrounded by iron archways, which alternate from bed to bed, and at the base of which climbing Roses are planted. Fringing the outer walks in this Rosary

are planted standard trees of Acacia 7 feet in height, together with tall standard Moss and other Roses. A charming effect is here produced by the contrast between the Roses and the beautiful and sensitive foliage of the Acacias, especially when the former are in bloom. Attached to one of the archways were plants of Lonicera fragrantissima, a white variety, which was beautifully in bloom at the time of our visit in that month. From hence we pass an elevated and prominent site to the southward, upon which a fine large span-roofed conservatory was being built, which is likely when finished to attract the eye of many a traveller on the Great Northern line of railway. Continuing our walk through a somewhat winding approach, we come rather abruptly in full view of some splendid specimens of Conifers in the Pinetum, which latter is surrounded by some noble timber trees, consisting of Oaks, Beech, Acacias, Limes, &c., the whole surface being neatly under-clothed with Rhododendrons, St. John's Wort, and other kindred subjects. The plants most worthy of note in this inclosure were a fine thriving young Araucaria imbricata, at least 25 feet high; Cryptomeria japonica, similar in size,—the latter was the most thriving specimen it has been our good fortune to see of late years; a very uniformly-furnished Picea Pinsapo, 30 feet in height; P. nobilis, nearly of the same size; whilst similar in size were remarkably healthy-looking specimens of Pinus excelsa and insignis respectively: P. macrocarpa must have fairly reached to 40 feet. The common Mistletoe grows here upon the Acacias (Robinia).

Proceeding in an eastward direction, we find ourselves at the south or principal front to the mansion. It is approached by a straight drive from the old London Road, between an avenue of Lime trees, two miles in length, the trees being planted at such a distance apart as to allow of a width of 50 or 60 yards of greensward between them, on either side of the roadway. An iron gateway of some artistic merit admits immediately to the front flower garden, which is composed of the usual greensward and flower beds, with no attempt at the fanciful, all the beds at the time of our visit being filled with bulbous and other spring-flowering plants. Standing here, and in a line contiguous to the mansion, are four remarkable artistic vases, of the true old vase pattern, upon and around the outer sides of which are very prominent and beautifully carved wreaths of Vines in full fruit. These are very striking objects. From here we continue our walk round to the east side, where there is a rather large flower garden and pleasure ground, backed up beyond by a sheet of clear water. Here we enter a very long conservatory, so planned that it does not hide the view of the park from the house itself. This, at the time of our visit, was gay with such plants as Fuchsia serratifolia (a much neglected and very fine winter blooming species) Luculias, Lapageria rosea, Brugmansias, with the usual stock of Camellias, Azaleas, &c., in variety. Many supposed tender exotic Ferns were found to flourish in this cool temperature, such, for instance, as Nephrolepis exaltata, Adiantum formosum, Pteris argyrea, &c. A very fine specimen of the Japanese Loquat (Eriobotrya japonica) occupied one entire corner by itself. We also noticed the Jambosa vulgaris, as well as a few interesting seedling plants from the Antipodes, one of which was very ornamental, viz., Casuarina leptoolada, a kind of Native Oak, or Beefwood, which we had not before met with; this plant has very neat feathery, or spray-like foliage; and it would be worth trying out-of-doors, so soon as a stock can be got for the purpose. Here also were fine specimens of Tristanias, Pittosporums, &c. Of the latter genus there was a very fine specimen of P. Tobira; this, even so early as February, was laden with its delicate whitish-yellow flowers, most delightfully scented. We may also refer to the useful Ficus repens [stipulata] which affords such excellent covering for bare walls and to the New Holland Acacia affinis, which, both in regard to its elegant foliage and its pendent racemes of small globular flowers, deserves a place in all similar structures. From here we pass to the right, and notice just beyond the limit of the fencing two very healthy and thriving young Oaks, which were planted by her Majesty the Queen and the Prince Consort respectively. Next we come to a maze, or labyrinth, of Yew, which was well grown and neatly clipped, and which appeared, as seen from without—for we did not trust ourselves within—to have been planted and planned upon a liberal scale. An extended arched Rose walk, or bower, had been just planted beyond this. Besides the usual strong growing climbing varieties attached to the trelliswork, and the usual admixture of good varieties below, a great many of the old monthly Roses had been planted also, with a view to secure an earlier display and a more continuous bloom than would otherwise be obtainable.

We now start for "the vineyard" and the kitchen garden, which lies across the park to the westward about a mile off, and observe many fine specimens of Oaks, as well as Hornbeams having very large boles, which have either become riven in twain by age, or have a grotesque appearance from the innumerable excrescences that occur on them. These are without exception so endwarfed in stature as that few exceed 20 feet in height, whilst many average this in girth; and very few branches or limbs emanate from them. At the corner of an avenue leading to the vineyard, we come upon the remnant bole of an Oak of considerable historical value. The family tradition has it that, "here beneath the branches of this Oak" sat Elizabeth when the messenger, with a joyous populace, first announced to the future queen of England, then a state prisoner, that Queen Mary was dead. The old tree has no life left, save that of a few growing saplings, which, planted as acorns, are thriving upon the summit of its decaying bole. Another avenue of Limes brings us to the door of Mr. Burton's house, more properly, it seems, called "the castle." Ushered through this doorway to a pathway upon the opposite side of this house we stood opposite to a very lovely, and to us original scene. Standing upon an eminence, with a full commanding view, we see upon either side, and running even to the frontage, a bank of evergreens clustered artistically together. Next in front of these a wide gravel walk extends away to its furthest limit, and upon its opposite side a very neatly kept hedge or wall formed of the Polish Juniper (Juniperus cracovia), having formally clipped abutments issuing forth at regular intervals along its upper surface. Next to this, and filling an enclosure of about 12 feet wide, formed by turning this same hedge, so as to hedge in the descent of steps on to the next terraced walk, are evergreens pruned down to the ground line, and from which fine specimens of what appeared to be the American Arbor-vitæ (Thuja occidentalis) reared their stately forms, at well measured intervals. Another wide width of walk, and then comes one of the finest examples of Yew tree training and culture which in all probability the country can boast of. Viewed as we stand upon an elevation, an undulating, closely-clipped, and well-furnished surface presents itself, bearing away from equal distances to the centre opposite us, where a noble archway is formed by the meeting of two extensively pruned branches. This closely pruned and well-finished tree has a uniform height of not less than 14 to 16 feet, whilst a perfect canopy of plumes—the upper growths of the same Yew trees, wave over it, in the most natural style. The centre archway, already referred to, has associated with it on either side, two other window-like openings, cut in perfect harmony therewith. The exactitude and finish of these openings must, however, be seen before its whole merit can be appreciated. Through these openings, which make the scene so lovely, a beautiful sheet of water, at least 280 feet in width, is seen flowing past; and beyond, through wall-like pruned Lime trees, of goodly elevation, a view of the kitchen garden is taken in. Therein a centre walk stretches across to its limit, bridging over an artificial stream of water in its course, and ending finally with a narrow upright building, supposed to represent the extreme watch-tower of these "castle enclosures."

Descending the steps, we come now to a more close inspection of these artistically trained Yew trees; and it will be readily seen that the more credit is due to Mr. Burton, the able gardener, for the manner in which they are kept, when we state that all this is formed—and we have yet much to see and to describe—wholly with old "straight up" trees, planted with no intention of using them in this wise, and that the exterior wall-like surfaces so formed have been formed by bending down the branches, and even tying in spray-like branchlets to fill out every opening, however small, and also by careful pruning, &c. Approaching the centre opening, we may either turn to the right or the left, and enter beneath these Yews. Each side was, it appears, planted alike. As we enter, three separate walks are seen, having parallel rows of pole-like trees, running in rows on either side, and bringing very vividly to the mind the aisle of some dingy old cathedral. These three walks, with their several rows of trees, we can best describe by placing at even distances apart the two following letters, placed lengthways thus—(Z Z). Following the walk, which leads more directly downward towards the water's edge, we suddenly come upon another, running along within other Yews, parallel with the river, and of which views can only be obtained through square window-like apertures, cut in this lower hedge at equal distances apart along its whole length. Here are neatly-formed recesses, and approaches to the views already described, all of so natural a character as to cause one to exclaim at once—"Oh, how natural and well done!" We may here remark that the opposite, or, as we may term it, the back part of the walk, has the Yew branches brought irregularly down to its very edge, the natural drapery thus formed being, without hardly a flaw, in perfect keeping and harmony with the whole. By another descent we are ushered on to a piece of mossy sward running to the water's edge, and upon the space thus afforded are three or four fine specimen Yews standing apart. The foliage of each has a very unusually pendent, feathery, and graceful appearance, unlike the family generally, and caused in part no doubt by the water, which is very near. Here this vast "vineyard of Yews" is brought away, in perfect keeping with all the other parts, down on to the sward, in deviating and irregular order, and causing a pleasing finish in keeping with all around. We must not omit to say how very beautiful was a plant of the Venus' Sumach (Rhus Cotinus) issuing forth from amongst this drapery of green; bearing clusters of its pale purple plumage in its season. Being ferried across the water, from which a lovely view in the distance of the Golden Willow and other waterside vegetation was obtained, we are now landed in the kitchen garden, a large brick-walled inclosure, the wall to which, according to the date carved thereon having been built as long ago as 1633. A bird's-eye glance shows, scattered abroad over its area, many very old fruit trees. These Mr. Burton is engaged in weeding out, and replanting with younger stuff of better sorts. The wall trees, and especially Apricots, at that time, showed well for this season's crop. A neat regiment of the useful *cloche*, so far superior to hand-lights, were doing work upon the salading beds. Of Celery a very large supply is needed in this establishment, and Veitch's Crystal White is the sort most in use. Upon the eastern side of this kitchen garden is a plot containing other crops of kitchen stuff, as also some admirably worked and trained pyramidal Pears and Apples. Currants, both red and white, are here trained to upright rows of stakes, some 4½ feet high, and 6 inches apart, and are placed alongside the walks. This appears to be a very neat and effective mode of culture.

We now recross the water, and partly by the same route return towards the mansion, passing in our way a part-avenue of Elms. It may be worthy of note that these, evidently as large full grown trees, had been neatly lopped off at the height of about 20 feet, and that they had again formed very beautiful upright heads, of great robustness. To the right, and we are ushered suddenly into what turns out to be the forcing department, or what, according to olden terms, would be termed the Melon ground. At the back a fine row of vineries gave successional crops onward from the time when the first house, then starting, came in—at or about July. The wood looked remarkably well ripened, and as though the last summer had suited it well. In a separate house were some very remarkable pot Vines, bearing 12 or 14 bunches each, which looked an excessive load. Here were also a Fig-house, where Mr. Burton is engaged in working out the old sorts, and planting new ones. The samples of Castle Kennedy we saw here showed what we have before noticed—unmistakable signs of too much vigour for short joints and heavy crops, however fine individual fruits may be. A stove and Cucumber-house had respectively that assortment of plants which is generally to be met with, the good old Eranthemum pulchellum being very conspicuous. In a greenhouse were some remarkable specimens of Mignonette, grown only in large 60-sized pots. Bedding Calceolarias, which were dibbled as cuttings in rows into soil placed in cold frames, were amongst the healthiest we have ever seen. *W. E.*

Miscellaneous.

Use of Sugar with Fruits.—Sugar is a valuable addition to most kinds of food, not only because it improves the taste, but because it is valuable as nutriment. It happens, however, that the latter feature is with most persons counterbalanced by the tendency which it has to produce acidity, and therefore it will be found best to use as little free sugar as possible. Motives of economy point in the same direction. Cane sugar is obtained from other plants besides the cane—Beet, for example—and it possesses the most powerful sweetening properties. It is not difficult to convert cane sugar into starch sugar, and, unfortunately, the latter has a very low sweetening power. But it is very difficult to convert starch sugar into cane sugar. Now it happens that when cane sugar is heated in the presence of vegetable acids—as, for example, when we bake it in a pie with rhubarb—it becomes largely converted into starch sugar. It is, therefore, more economical to sweeten pies and tarts after they are baked than before it. The difficulty which is usually met in this case, however, is that much of the sugar so applied passes into the stomach without affecting the palate. Sugar cannot impart its taste until it has been dissolved. When we mix sugar with tea, coffee, or pudding, it becomes dissolved, and we get its whole sweetening power. When we pour large quantities of sugar-powder, or, still worse, sugar in crystals, over pies, strawberries, &c., a large portion of it never affects the palate, but passes directly to the stomach, and is very apt to produce derangement of the digestive organs. The proper way, therefore, is to dissolve the sugar and pour it over the articles to be eaten. The "prudent housewife" might easily try the experiment—say in the use of strawberries and cream; instead of pouring the sugar over the berries in crystals, have it dissolved in a small portion of boiling water and mixed with cream. If it is found to answer, the practice might be continued and applied to other things. *Abstracted from a letter in the "Country Gentleman."*

The Weather.—A correspondent of a local paper, dating from Tottenham, says:—"The late torrid character of the atmosphere has fully equalled 1868, and has exceeded it in result. I will give you a singular case—the starving rooks. On Sunday last, the 25th, a flock of starving rooks attacked a Pear tree in the garden under my charge, which bore an abundant crop of early summer, though almost worthless fruit, carrying off and knocking down upwards of a bushel, and necessitating the premature gathering of the rest. They have transferred their attention now to other kinds, and unless scared off, or relieved by change of weather, they will certainly do an immense amount of damage to orchard fruit generally. Hitherto their depredations have been confined to Cherries and Walnuts, and this case is so thoroughly unprecedented that gardeners of long experience regard the fact as quite a novelty in the natural history of the rook."

Existence of Zoospores in Lichens.—Herr Famitzen, in collaboration with Herr Boranetsky, has recently discovered that Lichens, as well as Algæ and Fungi, are provided with zoospores. These curious little vibratile bodies have been discovered already in the three genera, Physcia, Cladonia, and Evernia, which these botanists chose promiscuously; so that it is probable zoospores will be found in all Lichens which contain chlorophyl. The same authors assert, on the authority of the "Scientific Review," that they have demonstrated the identity of the seed gonidia of Lichens with certain unicellular Algæ (Cystococcus, Polycoccus, and Nostoc) which would be only the young forms of Collema, Peltigera, &c.; an extremely interesting fact if corroborated by future observation.

Transportation of Plants.—A correspondent from the Philippine Islands writes to us:—I received a box that had been despatched from Berlin in February, 1859, by overland mail, *viâ* Trieste, but which got lost during the Italian war, and only reached me after 16 months. It was a large box lined with tin, carefully soldered; among its contents were two small glass stoppered bottles, the one filled with moist charcoal-powder, the other with moist clay; each contained

some bulbs of red hybrid Nymphæaceæ, from the Royal Botanical Garden at Berlin. Those packed in charcoal were spoilt; but two of the four in moist earth had germs one-sixth of an inch long. I planted them at once in cocoa-nut shells; they began to sprout almost immediately, grew very vigorously, and soon produced flowers. *Seemann's Journal of Botany.*

Holidays for Gardeners.—A "Wormcutter" writes complaining of the scarcity of holidays for gardeners, especially as compared with the frequent pleasure trips, &c., enjoyed by other artisans. He also tells us that the *employés* of Mr. B. S. Williams, Holloway, form an exception, as on the 28th ult. a large party from that establishment visited the Rye House, and spent a very agreeable day.

An Indian Flower Show.—Our home feelings were greatly intensified by attending a flower show, although it was the last week of December. There was the usual military band; and crowds of carriages conveyed fashionable parties to the entrance. Military officers, and civil servants of every grade, were there. The most remarkable and interesting spectacles to me were the splendid vegetables of every kind, including Potatos which would have delighted an Irishman, Leeks and Onions to be remembered like those of Egypt; Cabbages, Turnips, Cauliflowers, Peas, Beans, such as England could hardly equal; splendid fruit—Apples, Peaches, Oranges, Figs, and Pomegranates; the display culminating in a magnificent array of flowers, none of which pleased me more than the beautiful Roses, so redolent of home. Among other beauties, the show was not wanting in fair ladies. Such were the sights of a winter's day in Bangalore. *Dr. Norman Macleod, in "Good Words."*

Garden Operations.

(For the ensuing week.)

PLANT HOUSES.

Though I have often adverted to the beneficial effects of night air upon vegetation generally, I deem this matter of so much importance to all plants grown artificially under glass that I do not hesitate to refer to the subject again. I would particularly point out the manner in which we generally treat the inmates of glass structures. These we invariably and most properly keep closed, so as to exclude the cold outer air in winter, though, as I have often suggested in past calendars, if a little fresh night air could by any means be admitted during mild periods without unduly lowering the necessary temperature, very great benefit would accrue. What I more particularly refer to, however is the practice followed onward, into, and indeed, throughout the summer nights. How very frequently do we observe the temperature standing at a point sufficiently near to that of the tropics to suggest the desirability of admitting air freely into and throughout every part of our stoves, and yet, by keeping all apertures still closed, we show our inability to appreciate its very beneficial influences. Then, again, in regard to what are rather peculiarly termed *cool Orchids;* how antagonistic is our treatment of these by night to what it is by day. During the day-time an enforced low temperature prevails, owing to the position in which the house is built, and the abundant supply of air which is afforded. At night, however, how few are there who, by admitting fresh air, will relieve the oppressiveness of the inner heated and stagnant atmosphere. Depend upon it this system is, to say the least, opposed to Nature, with its cool and buoyant night air. As I have previously advised, upon all proper occasions, such as mild periods, and when no violent fluctuations in the elements occur, let night air be afforded with care, even if but for a few hours before bed-time—say from 9 to 10 or 11 o'clock, as may be convenient. Refreshing rains have fallen, and much good has already been experienced. Should a rainy period ensue it will be necessary to see that all greenhouse and similar plants which have been placed out-of-doors do not become too wet at the roots. By way of caution it is as well to say that, under these or similar circumstances, it will be necessary to place them under shelter. *Orchideous plants*, which have nearly finished growing, should have the supply of both heat and moisture reduced. More sun and air may be advantageously allowed them under such circumstances. Place *Indian Azaleas* which have completed their growth in such a position that sun and air may abundantly reach them. Some of the finer specimens which are rather pot-bound should have some sort of litter placed around the outside of the pots to obviate excessive drying. During dry periods the syringe may be used once or twice a day with much advantage to these plants.

FORCING HOUSES.

Late Vineries, generally, should now have the thinning of the berries brought to a close. As previously suggested, be particular not to leave them too thick at this season, but by well thinning-out the bunches, allow the air full play amongst the berries, that rot or mildew may not be encouraged to find at any stage a lodgment amongst them. Encourage by every possible means the formation of a good leaf surface, which should be verdant, healthy, and clean, for in the absence of it a well-finished crop cannot be expected. Those houses which have late Grapes swelling, after having been finally thinned, should now be closed moderately early in the afternoon, even upon bright sunny days. A nice warm temperature must be kept up and enforced. If the house is closed by 4 o'clock when the weather is bright, and one or two hours earlier when duller weather prevails, and a nice humidity is kept up, they will "swell off" freely. Young successional *Vines*, which have filled the pots tolerably well with roots, may now receive a shift into a size or so larger. A thorough supervision of the whole stock which are not yet in their fruiting pots should now be undertaken, as it will not be advisable to shift many into fresh pots at all, after this or the next ensuing week. Keep up a brisk bottom-heat, which should seldom fall below 87° immediately after any plants have been fresh potted. The temperature of the house may now be kept steadily up to 85°, and with abundance of moisture afford to all forward successionals which have become well established in their fruiting pots a liberal supply of air. In connection with such treatment as advised above, the trees from which fruit have been gathered of *Peaches* or *Nectarines* must not be neglected. Some may require a root watering; this should, therefore, be afforded expeditiously. If due aid and encouragement be not given them to assist in developing the necessary wood and buds at the growing period, they will not do well in the following spring. Make preparations for an early *Mushroom-bed* by securing the necessary "droppings" for the purpose; this might be done by shaking the smaller particles out of such stable litter as is used for linings. This will be a good time to place pieces of spawn into linings or beds upon which Melons or Cucumbers are grown, to create Mushrooms, which may come in very serviceable in six weeks or two months' time. The pieces of spawn should not be placed more than 4 or 5 inches beyond the outer sides, and should in all cases where practicable be pressed into firm places therein, and not amongst loose or dry litter alone. In answer to the question at p. 794, "What does frim mean?" permit me to say that I used the words to denote a rare flourishing growth—rare, in the sense of being unusual in size, and flourishing, succulent, and sappy, yet devoid of fibre. I believe the word is one well understood by the members of the craft, as conveying this or a similar meaning.

HARDY FRUIT GARDEN.

Wall-fruit trees require almost constant attention, so freely do they grow, and in most instances sub-laterals and other growth formations are produced. In all cases where no further shoots are needed, and a sufficiency of foliage already exists, these young growths should be removed immediately they form. They not only unduly excite the roots, but they overshade others which are well placed, more or less to their injury.

HARDY FLOWER GARDEN.

All strong growing *Shrubs*, or others needing such attention, should now be finally pruned back, or clipped in. See also that no gross growing ones overhang others which are weaker in habit than themselves, but remove all overhanging shoots which are likely to injure those shrubs of more lowly growth. Sow 10-week *Stocks* for early winter blooming. *Pinks, Carnations*, and *Pansies*, which have been grown on from seed, should now be planted out into their permanent blooming quarters, as should also early-struck pipings of the former when sufficiently well rooted. Commence the propagation of scarlet, zonal, and other *Bedding Pelargoniums*, immediately cuttings can be spared from the beds or store plants which are kept for this purpose. Seeds of the beautiful *Schizanthus* should also now be sown for blooming early next spring. Proceed with *Rose budding*; the past favourable showers will make the "bark run," and prove very beneficial for this and other similar operations.

KITCHEN GARDEN.

Collect and store *Pickling Onions*, and with a long rod or stick carefully lay the heads of the main crop, as they button more readily thereby. Plant out the early-sown *Cabbage plants*, to form Collards for early winter uses, upon the old Onion bed, or any other situation where the ground is tolerably firm and in good heart. Finish planting-out every kind of *Winter Greens, Broccoli, Leeks*, &c., without further delay, now that the weather has become more favourable for the purpose. Sow more seeds of the black-seeded *Brown Cos Lettuces* for a successional supply, and transplant those which are fit for the purpose. Transplant *Endive*, and likewise make another sowing; Fraser's Batavian is a good hardy winter standing variety. Sow a small patch of *Onions*—the White Spanish variety is best for general uses. Prepare and retain a goodly space of ground for a late sowing of *Spinach*, to which reference will be made next week. *W. E.*

TOWN GARDENING.

Now is the proper time to increase the *Lily of the Valley*, but they should only be disturbed where the stock is required to be enlarged, as they flower much more freely when left to themselves. The method of propagation is this:—Lift the old roots with a fork, and divide them into as many separate pieces as may be required, and plant them with a trowel, covering them with about 2 inches of soil. They flower very freely with me, in the Middle Temple, under a south shrubbery, where they have been for many years; and all that I do after once planting is to keep them from overrunning the walks and borders. The *Pelargoniums* particularly those of dwarf growth and habit, such as Madame Vaucher, Christine, Stella, and Cybister, and also *Centaurea gymnocarpa*, and *Stachys lanata*, which are very showy plants for towns, should now be propagated. Strong shoots that are straggling should be taken off, and cut into pieces, with two or three joints, and planted in a cold frame, or shady part of the garden, to make roots; after which they should be potted in 48-size pots, three in a pot, when they can be wintered in a cold frame, after the following manner: sink the frame (which should have a south aspect) within 3 inches of the surface, taking out the soil, and put in a false bottom of boards, placed on bricks, burying it up, so that the plants come nearly close to the glass: by this means they can be well protected from the frost, and they are not so likely to damp off if kept close for several days. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending Aug. 4, 1869, as observed at the Horticultural Gardens.

July and August	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs. 29	20	29.914	29.681	75	59	67.0	61	63	S.	.00
Friday 30	21	30.010	29.971	75	63	69.0	64	61	S.W.	.00
Satur. 31	22	29.990	29.862	74	47	60.5	63	61	S.	.02
Sunday 1	23	29.813	29.717	75	46	60.5	63	61	S.W.	.02
Mond. 2	24	29.878	29.728	71	39	55.0	64	61	W.	.08
Tuesd. 3	25	29.886	29.755	74	51	62.5	60	60	S.	.34
Wed. 4	26	29.904	29.878	75	55	65.5	64	60	S.W.	.10
Average		29.913	29.827	74.1	51.5	62.8	62.7	61.0		0.56

July 29—Foggy; cloudy, but fine; densely clouded.
— 30—Densely overcast; cloudy; clear and fine.
— 31—Overcast; fine, slightly overcast; densely overcast.
August 1—Fine, but cloudy; overcast, cloudy, slight rain.
— 2—Cloudy; fine, heavy clouds; clear and fine.
— 3 Rain, heavy showers; densely overcast; rain.
— 4—Very fine; cloudy; showery at night.
Mean temperature of the week 2·10 deg. above the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 43 years, for the ensuing Week, ending August 14, 1869.

August.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday.. 8	74.5	49.4	61.9	18	0.50 in.	2	5	2	1	3	22	6	3
Mon. .. 9	74.9	49.6	62.2	16	0.56	2	7	1	1	5	17	10	1
Tues. ..10	75.1	51.9	63.5	19	1.08	1	6	2	3	6	14	9	2
Wed. ..11	75.8	50.7	63.2	20	0.78	2	1	3	1	7	17	11	1
Thurs. ..12	75.1	50.5	63.8	16	0.47	2	2	2	2	8	13	10	4
Friday ..13	74.5	50.0	62.3	19	1.14	1	4	3	4	6	16	4	5
Satur. ..14	72.9	50.8	61.8	18	0.79	1	11	4	3	4	13	5	2

The highest temperature during the above period occurred on the 10th, 1842—therm. 93 deg.; and the lowest on the 11th, 1864—therm. 33 deg.

Notices to Correspondents.

Araucaria Gumming: *W A.* Araucaria imbricata, like many other trees, will not flourish unless the subsoil is congenial. We know a large garden in which there are some score of fine specimens, which flourished for years, and then all at once failed from the subsoil not suiting them. Your case, however, may possibly be like that which was once reported in this journal, where a whole plantation of Scotch Fir was in the condition you describe from being planted above an impermeable bed of concrete. You should have these two matters in view, and perhaps you may be able to devise some remedy. *M J B.*

Assessment for Income Tax: *M R.* We are making inquiries.

Aucuba Berries: *J B McK.* The berries are ripe. The seeds will germinate the first year.

Caterpillar: *C R S.* Smashed, but it can hardly be anything else than the caterpillar of the Goat-moth, Cossus ligniperda—a most destructive animal.

Fasciated Thistle: *Sir W C T.* A fine specimen, of Cockscomb-like growth. It seems to be frequent this season, but we are at a loss to know why this particular species should be so often affected, and others so very much less commonly.

Fourcroya: *W F.* Large panicles of drooping, greenish, white bell-shaped flowers.

Fuchsias: *E S S.* The following compost will grow Fuchsias well; indeed, the same kind has produced some of the finest Fuchsias ever shown:—One part yellow decayed loam, one part leaf-mould, one part peat or heath soil, and one part well-decayed horse-droppings from the stable, dried under cover and then sifted through a coarse sieve. To these add almost another part of sharp silver sand. All the ingredients must be well mixed together two months before using. If the common garden soil has been used for pot culture, we are not at all surprised at your failure; but for outdoor culture, if you just preserve the old stems of your Fuchsias from the frost, with plenty of air, so that they are but little excited, and then plant them out in the open ground about the first or second week in April, using the above-mentioned mixture along with about an equal quantity of garden soil, and having the plants securely staked, we think there will be no doubt about your having a good outdoor display of Fuchsias next season, presuming that your garden is generally well drained. On the other points of Fuchsia culture you may advantageously consult Mr. Cannell's treatise.

Horticultural Congress: *J F.* We do not at all agree with the dictum of one of our contemporaries that the so-called Congress at Manchester was a failure. On the contrary, we assert that it was a very good beginning, and, as an experiment as to the practicability of holding such meetings, successful. It is all very well for our contemporary to deplore having had to sit in a "stuffy tent" while the papers were being read, and for the reason, forsooth, that he can now scan them leisurely in his study, but it seems to have been overlooked that but for the "stuffy tent" and the persevering readers therein, there would have been nothing forthcoming for the study. Then, as a matter of fact, we can state that not one of the writers objected to the hardship of leaving his paper at the disposal of the Society, which was an original condition. Again, as to the meeting not being a "Congress," will our contemporary point out where it has been so called officially? Certainly not in the programmes, where the title is "Manchester Meetings," while the lists of subjects is merely described as "Papers to be Read" on the respective meeting days. In reference to the word "Congress," it seems to us scarcely to be believed, and is not at all generous, that any one, after opposing the larger scheme of a "Congress," which was the original proposition, and thus helping to reduce the meetings to mere essay readings, should then turn round and abuse the meeting because it was not a "Congress." Let us have "deliberation, discussion, and resolution" by all means, and the more of them the better, if they are as well to the point as the papers recently read at Manchester. After all what is a Congress but a meeting? See the Dictionaries.

Names of Plants: *M M.* Apparently a Polygonum or an Atriplex, but insufficient for determination. It is very curiously coloured, the colouring being, perhaps, an accidental sport.—*Y J.* 1, Poa pratensis; 2, Festuca duriuscula; 3, Cynosurus cristatus; 4, Carex; 5, Aira cæspitosa; 6, Arrhenatherum avenaceum; 7, Agrostis alba; 8, Holcus lanatus; 9, Bromus asper.—*G T, Tottenham.* Basella rubra.

Passifloras.—Dr. Masters being engaged on a monograph of this family, would feel greatly obliged to any correspondents who would kindly forward to this office specimens of the flowers or fruits of any Passiflora or Tacsonia they may have in cultivation.

Errata.—In p. 819, col. *b*, for Variegated Pelargonium "Howard," read "Florence."——In p. 816, col. *a*, in Mr Mills' communication on the climate of Cornwall, for "plants" read *pets*.

Communications Received.—G. J.—Harry.—J. G. B.—Mary.—W. C.—J. W.—W. B. S.—H. H.—W. K.—H. C. B.—Constant Reader.—J. B.—C. E. F.—P. S.—W. S.

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BIRMINGHAM HORSE SHOW, 1869.—The FOURTH GREAT EXHIBITION of HORSES, PONIES, CARRIAGES, &c., will be held in Bingley Hall, Broad Street, Birmingham, on TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY, August 17, 18, 19, and 20.

The Horses will be judged on Tuesday and Wednesday. Admission: From 9 to 4 on Tuesday, 5*s.*; after 4 o'Clock, 1*s.* On Wednesday, from 9 to 2, 2*s.* 6*d.*; after that hour, 1*s.* On Thursday and Friday, 1*s.*

For Excursion Trains, see the Companies' Bills and Time Tables.

JOHN B. LYTHAL, Secretary.

The Agricultural Gazette.

SATURDAY, AUGUST 7, 1869.

MEETINGS FOR THE ENSUING WEEK.

August 10—{ Northumberland Agricultural, at Hexham. Royal Dublin (Horse Show).
— 11—Richmond Agricultural Society's Show.

THE crop reports in other pages are more than usually uncertain, indefinite, and unsatisfactory. It has been much more difficult than usual to speak confidently of our harvest prospects. A cold May and June made it impossible that we should have a good Wheat crop: and, from the clay soils especially of our chief Wheat-growing districts, the reports were very gloomy. During a few hot weeks in July the appearance of the grain crops generally, however, very greatly improved, but the cold and rain which have since befallen us have done harm. In hardly any year have we had so many second returns sent in correction of the first report, which had been more favourable than subsequent examination could allow. On the whole it will be seen that nearly half our Wheat returns state the crop to be below an average—less than half the returns report an average—and only one-tenth of our correspondents are able to state that the crop in their neighbourhood is over average. The Wheat crop, then, we can hardly doubt, must be considerably below its usual productiveness.

Of the returns of the Oat crop, 80 put it as below the average, 72 declared it to be average, and 22 put it at beyond an average crop. And Barley, too, though our reports of it are not so unfavourable as those of the other grains, can hardly be pronounced an average crop. Seventy of our correspondents, indeed, do so pronounce it, but of 91 others only 31 put it as being over average, and 60 declare it to be under average. It at one time promised to be a great Bean and Pea year; and probably these crops are better than we generally have them; but they have both become covered with aphis during the past few days, and neither of them will yield so well as was at one time expected.

The following is the tabular account of the reports with which our correspondents have favoured us; and we place it alongside the corresponding figures for 1868, that the great contrast, especially in the Wheat crop, may be seen:—

	1868.			1869.		
	Over Average.	Average.	Under Average.	Over Average.	Average.	Under Average.
Wheat	126	67	13	18	75	88
Barley	5	54	140	31	70	60
Oats	2	37	138	22	72	80
Beans	0	22	137	26	86	22
Peas	6	79	43	8	58	62

As regards all succulent growth, we believe the country may be congratulated. There is a capital plant of both Mangel Wurzel and Swedes, and recent rains have saved much that seemed ready to die. There has been a great hay crop, and though pastures are somewhat bare just now, there is no such complaint as there was last year. The Potato crop promises to be good and healthy.

THE Contagious Diseases (Animals) Bill passed through the House of Lords on Tuesday last without having undergone any change of importance. Some amendments were carried in Committee relating to the transit of cattle and the supply of food and water to them on long journeys. The clause of the Bill having reference to this subject fixed a maximum period of 30 hours as the limit of legal privation; the Bishop of GLOUCESTER endeavoured to obtain a reduction of 10 hours, without success, however, as his amendment was negatived by a majority of 11 in a house of 69 members. Ultimately the clause was amended by the addition of words giving to the Privy Council power to fix any other maximum period not less than 12 hours. It is not quite so easy to make a practicable arrangement for the feeding and watering of cattle in transit, as persons unacquainted with the details of the subject imagine; nevertheless, it is undeniable that much unnecessary suffering is inflicted upon the unfortunate beasts which are destined to supply us with animal food, and the mitigation of their pain is worthy of the careful consideration of those whose duty it will be to carry into effect the provisions of the Bill. On Friday, July 30, Earl FEVERSHAM made an attempt to introduce a clause similar to the one which Mr. CLARE SEWELL READ failed to carry in the Commons. Lord FEVERSHAM's proposition was to the effect that all foreign animals should be landed in defined parts of ports, and not be moved therefrom alive, excepting those animals which should be "imported from countries in which, during the previous 12 months, cattle-plague or sheep-pox shall not have existed, and through which animals shall not have passed from countries so affected." Earl DE GREY opposed the amendment, on the ground that it was inconsistent with the principle of the Bill, and on division it was lost by 56 votes against 11. On Monday last the amendments were reported, and on Tuesday the Bill was read a third time and passed, after Lord SALISBURY had made an effort to give railway companies the right to charge for disinfecting cattle trucks; this amendment was not carried.

On Wednesday the Lords' amendments were agreed to in the Commons, and in all essential points, therefore, the provisions of the Bill are determined. We are now in a position to state succinctly what are the regulations which will in future operate for good or ill upon the home and foreign cattle trade.

First, in regard to the foreign trade, which most required regulation, the provisions of the measure are based on the principle that foreign animals are healthy and may be safely imported without restriction into this country. Diseased or infected animals are looked upon as exceptional; and for the reception of animals which shall come from countries where infectious diseases prevail, or may reasonably be suspected to exist, a separate market is to be provided in a defined part of the port of London.

Power is given to the Privy Council to regulate, and if necessary prohibit, importation of certain kinds or classes of foreign animals; and when it is known that one of the largest importers of foreign stock holds the opinion that the supply of animals from Western Europe is nearly exhausted, and that we must look for an increase of trade to Central and Eastern Europe, it will be admitted that the power to prevent the landing in this country of certain kinds of foreign animals is a very necessary provision; otherwise we may in a few years have a regular cattle trade from the western shores of the Caspian Sea, the only obstacle at present being the want of railway communication with that locality.

Animals which are imported from non-infected countries will, after being passed by the Customs inspector, be treated as home stock, as cattle from Normandy, Spain, and Portugal are treated now. So far as we can understand, there is nothing in the Bill to compel the slaughter of animals from non-infected countries, or to prevent the purchaser from keeping them as store stock if he thinks proper to do so.

The principle for which agriculturists of this country have contended has been exactly reversed; they demanded a measure based on the assumption that all foreign animals are normally dangerous commodities; and they have got a measure which practically asserts all foreign stock to be normally safe, and which only provides exceptional accommodation for certain excepted classes which will occupy the position of suspected animals.

Regulations affecting the home trade have been modified, since we last alluded to them, by the introduction of an additional clause in section 57, giving the Privy Council power to make further regulations respecting foot-and-mouth complaint. As the clause originally stood it would have been quite impracticable of execution, as we pointed out, owing to the short period of incubation of the disease, and its eminently contagious nature, which together make it impossible to guarantee an animal against an attack for two days. At present the malady is extensively prevalent among cows in the metropolis, and in many parts of the country; and cattle so frequently become affected in transit that, taking into account the requirements of the trade in the metropolis, we do not see how it is possible to restrict the movement of the cattle affected with this disease in London, at least so long as the cordon round the metropolitan district is maintained.

In respect of the other infectious diseases of which the Bill takes cognisance—cattle plague, sheep pox, pleuro-pneumonia, scab in sheep, and glanders in horses—there is no fear of animals suddenly being attacked in transit; therefore, the same difficulty does not present itself in legislating for these diseases, and no reasonable objection can be taken to the restriction which the Bill proposes to place upon the movement of animals affected with any of them. As soon as the measure becomes law, there will be a further necessity for Orders of Council defining infected countries, and for the purpose of carrying into effect certain other provisions of the Act; and we shall take an opportunity to comment upon any points which may be interesting to the agricultural community.

—— AT Mark Lane yesterday English Wheat advanced 1*s.* per quarter, in consequence of a short supply, and more money having been made in the provinces during the week.——The Metropolitan stock and meat trade is good for prime qualities; good beef makes 8*d.* per lb. by the carcass, and mutton something over that figure. But a large supply of foreign stock keeps inferior sorts as low as 3½*d.* to 4*d.* per lb. ——Wool is slightly cheaper.

—— Mr. JOHN HUDSON, late of Castle Acre, the veteran Norfolk agriculturist, died on July 26, at the house of his son-in-law, Mr. JOSEPH SEWELL, at Cirencester, Gloucestershire. He had long been known as one of the most successful practical farmers of the day—representing more strikingly, probably, than any of his contemporaries the good policy of the very "highest" farming in the interest of the tenant as well as of the landowner and the labourer. Mr. HUDSON was held in high esteem not only in his native county but throughout the English agricultural world. He served for many years on the Council of the Royal Agricultural Society; and many years ago, when three or four distinguished men were asked to speak on the several branches of English agriculture, on the occasion of Mr. HOSKYNS' paper on Agricultural Progress, read before the late PRINCE CONSORT in the room of the Society of Arts, he was selected by the Society as its best living representative, to speak of the actual practice of the farmer in field, farmyard, and fold, and its wonderfully increased productiveness as the food manufacture of the country. Mr. HUDSON was born in 1794. The announcement of his death will be received with great and general regret.

—— At the recent meeting of the Agricultural and Horticultural (Co-operative) Association, it was announced that during its first year the number of members had increased from 10 to 174, and the capital from 257*l.* to 1066*l.*; that the sales amounted to 10,342*l.*, and the profits (gross) to 1335*l.*; that at the end of the second year, ended June, 1869, the members were 255, capital, 3584*l.*, sales, 19,102*l.*, and gross profits, 2007*l*

—— Mr. GIBBS, of Gilwell Park, reciting the offer of its Gold Medal by the Royal Agricultural Society of England (for the best system for drying corn and hay in wet weather sufficiently economical for practical purposes,—protests that he has already proved his system to be both practical and economical, not alone by 15 minutes of hurried experiment in the showyard, but by practical work carried out with the utmost care and accuracy in the presence of unimpeachable witnesses; and he claims to have fully earned and fairly won the offered medal. He submits that if it be withheld the Society will have forfeited all claim to the future confidence of inventors, and will have broken a public promise.—The *Times*, defending its report of the drying machine, states that "Mr. Gibbs' hot-air shed of 12 feet by 12 feet ground-floor, and, fitted with 32 'sheaf tubes,' dried 32 wet sheaves in 15 minutes. A house of 10 times that area (measuring say 60 feet by 24 feet), with 326 sheaf-tubes injecting hot air into as many sheaves under rick-cloths in the open field, would, if drying with the same expedition, prepare for the stack 320 wet sheaves in 15 minutes, or 1280 sheaves per hour. This would be the produce of about 2 to 2½ acres of a good crop of Wheat, and would represent about the rate of performance of two pitchers and loaders working at once. A Wheat-dryer exhibited in operation actually desiccating on such a scale would have demonstrated the applicability of Mr. Gibbs' 'system' to large farms. It is to be regretted that the apparatus at Manchester was not, at least, large enough to keep one pitcher and one set of carts going. It would then have proved to everybody that the 'system' is practical. But the judges could hardly be expected to award the important Gold Medal of the Royal Agricultural Society for a process exemplified by the action of a working model that dried at the rate of 128 sheaves per hour, or only 2½ to 3 acres in a day of 12 hours. The farmer's horses and men cannot work both night and day, neither can a man of business think of pottering for five or six weeks over the carting of his corn; and it is because Mr. Gibbs' invention is so promising that we again ask him to show in actual operation a hot-blast drying sheaves as rapidly as a set of carters can bring them to

the apparatus, and keeping at least one set of stackers busy."

—— We have seen a large number of samples of fibre prepared in the "dry way" by Mr. J. HILL DICKSON'S process—common Flax, Rheea, and New Zealand Flax. Samples in which the stem or leaf is, at one end, in its natural condition, while at the other end the "bone," "bark," "core," or refuse is separated, and only the fibre, more or less fine and glossy, remains. This series illustrates the exhibition of his process extremely well; and shows it to possess very general applicability and efficiency. And we are happy to bear this testimony to the degree of success which has attended the labours of one who has, in our columns and elsewhere, been urging the importance of fibre cultivation upon the attention of English farmers for more than a quarter of a century.

—— The entries for the fourth annual exhibition of horses at Birmingham closed on Saturday last, and reached upwards of 300, over one-third being hunters, showing a considerable advance in all classes over any previous exhibition. This may be accounted for by the increase in the amount of money offered, no less than 636*l.* being now given, and by the time of holding the show suiting breeders better than in former years, when the shows have been earlier. The hunters are announced to be judged on the first day, Tuesday, August 17; and the hacks, harness horses, and ponies on Wednesday, August 18; and from the numerous entry in harness, both of pairs and singles, the labours of the judges may be expected to occupy most of the day, so that it may be Thursday morning before the prizes to the dray and agricultural horses will be awarded.

OUR LIVE STOCK.

THE sale of Messrs. Angus' Shorthorns at Bromley, Northumberland, will take place on Wednesday next. We have pleasure in drawing the attention of our readers to this most excellent stock, which for a period of 68 years has been cultivated on its present situation, and previous to that time was carefully bred at Styford in the same locality. Few herds combine more truly useful properties than the one we speak of. To the charming "character" of well-bred Shorthorns, they add unusual size, robustness of constitution, and excellent milking properties.

We would lay special stress upon this last quality, because, having known the Bromley Shorthorns and the Bromley neighbourhood for many years, we are able to endorse the local reputation, as milkers, which they have. This herd was first established by the grandfather of the present Mr. George Angus, who occupied the adjoining farm to Mr. Jobling, of Styford, and they used Colling's bulls for some years between them. Mr. Angus declined farming in 1801, and sent the whole of his heifer calves to Bromley, which farm had just been entered by his son, the father of the present Mr. Angus. Bulls were then hired from Mr. Jobling, the following sires being consecutively employed—SURLY, SIR HARRY, and WELLINGTON (683). Subsequently LEOPOLD was purchased from the same breeder, and later Mr. Donkin's AJAX, Mr. Wood's REFORMER, Mr. Crofton's BRILLIANT; and Mr. Booth's BENEDICT, with other Booth bulls, were used. The herd (50 to 60 animals) will be sold without reserve.

—— On Tuesday, Mr. Willoughby Wood, of Holly Bank, disposes of some excellent stock. The catalogue which is now before us contains a list of 28 Shropshire rams by Nugget, Lord Kinver, and Stockwell, and from well-bred dams, the sire of each of which is mentioned with a reference to the honours won by them in various competitions. After the sheep sale, six well-bred Shorthorns, including a bull from *Kirklevington 9th*, another by LORD LIVERPOOL, dam *Tryphena*, by 4TH DUKE OF OXFORD, will be disposed of. The remaining animals boast really good Bates' pedigrees, which we regret we cannot notice at greater length.

—— A fortnight ago we very briefly sketched the general history of the Coleshill live stock. Since then, through the kindness of Mr. Moore, we have been favoured with a thorough inspection of the cattle, sheep, and pigs. With reference to the former we may say that they are in splendid condition. The large herd of some 40 cows were all to be seen together in a pasture near the buildings, and presented a beautiful spectacle. While speaking of the general appearance of the herd we may observe that, almost without exception, the cows have bred exceedingly regularly, each animal having brought fully as many calves as might have been expected.

At the head of the catalogue we observe the name of *Oyster*, the oldest representative of an important family numbering 14 females and three bulls. She is a large massive roan cow, in good condition, calved in December, 1859. The tribe just alluded to is known as the "*O*" family, which have been always famous for their milking properties. Mr. Moore informed us that they have yielded on an average 15 quarts of milk per day each, and that for almost the whole milking period. *Oyster* is by DUKEDOM, purchased at Mr. Tanqueray's sale for 105 gs., and from *Olivia* by Mr. Stokes' EMPEROR. Her grandmother was *Olympia*, by ROMAN (2561), g.g.d. *Zephyr*, by BEAUFORT (1696), g.g.g.d. *Zara*, bought in the county of Durham. The same ancestry suffices for the rest of this excellent family, among whom may be mentioned *Ornament*, own sister to *Oyster*; a splendidly haired cow; *Orange*, a third sister, now seven years old, the mother of four calves. She is short-legged, deep, level, and altogether a very attractive-looking cow. *Overture*, by Mr. Bowly's 2D BARON WETHERBY, dam *Orange*, is one of the best heifers we noticed.

Among the bulls OBKNEY well represents this tribe, being of good Bates character (he is by 2D BARON, WETHERBY), very level, with a good girth, fine touch, and well-developed layers of beef. *Rosabel* (No. 6) by IVANHOE (18,096), dam *Reflection*, by HERCULES (14,692), is a handsome cow with good loins. She is the mother of two excellent young bulls — ROMULUS, by FAWSLEY BARONET (23,920), a promising Shorthorn, large for his age, not too fat, and exceedingly good over the shoulders; and RESTITUTION, by RAPID.

It is impossible even to mention the names of all the animals which elicited our admiration. *Remembrance*, by WOLFSBANE (15,518), is a handsome cow; *Cucumber* by 2D BARON WETHERBY, dam *Constance* by SIR JAMES (16,980), is of pure Knightley extraction, and is a great beauty, large for her age, and well covered with fine hair. *Happiness*, by COSTA (21,487), dam *Daphne*, by DUKE HUMPHREY (15,910); *Dame Littlebury*, by the same bull, and from the same family on the mother's side; and *Rosetta*, also by COSTA, and from *Rosette*, by PRINCE OF PRUSSIA, were all three purchased at good prices from Mr. Clayden, of Littlebury, and will no doubt command the attention of breeders. The same remark applies to *Dew Drop*, by EARL OF WALTON, a very nice heifer, bred by Mr. Bowly, of Siddington. FAWSLEY BARONET, by Grand Duke 4th, (19,874), possesses a splendid pedigree. He is in good working condition, and struck us as being exceedingly good in the hind-quarters. He has been recently largely used in the herd, and is the sire of much of the young stock.

We cannot close this notice without saying a word about the Coleshill breed of pigs. They are white in colour, exceedingly compact in form, and strikingly good at the fore-end. We saw a large number of these animals together in an orchard, and finer specimens of what pigs ought to be we have never witnessed. Fixity of type is one of their strong points; this is shown by the close family resemblance which runs through the whole stock. Mr. Moore's father obtained the progenitors of his present pigs from Staffordshire, and he and the present Mr. Moore have continued to breed from two families ever since, that is, for upwards of 60 years. During this long period "they have been widely distributed over Europe and the United States; and (as is well known) have taken prizes wherever they have been exhibited: on four occasions they have taken the gold medal as the best pigs at the Smithfield Club show, and often they have been 1st at the Royal; three out of four sweepstakes, to which they were challenged by the late Mr. Pusey, at the Royal and Smithfield Club shows, were won by these pigs against the famous Berkshires. It is believed by their promoters that they combine all the excellencies of the latter breed, with a greater aptitude to fatten."

SHEEP SALES.

Oxford Down.—The annual auction sale of Oxfordshire Down rams of the Biddenham flock was held on Thursday, when Mr. Howard was favoured with a larger attendance than in former years, about 150 gentlemen being present during the afternoon. After luncheon the business of the day was proceeded with. The reserve price was 5*l.* 5*s.*, but 6½ gs. was the lowest sum paid—and only in one instance—while two lots made as much as 26 gs. each; 26½ gs. was bid for lot 22, but, as the hammer fell at the same moment, the bid was not received. The average price was 13*l.* 6*s.* each for the 53 lots offered.

Shropshires.—At Mr. Lythall's auction on Thursday, Mr. E. Lythall's lot of 14 averaged 8*l.* 10*s.*; Mr. Yates' 16 averaged 7*l.*; Mr. Nock's 16, from his winning at Manchester with shearling ewes, were in great demand, and made from 9 to 32 gs. each, average 15*l.* 15*s.*; several of Lord Willoughby de Broke's were withdrawn, the remainder were sold at 6*l.* 16*s.* 6*d.* each. Mrs. Beach's lot included the two highly commended sheep at Manchester, which made 70 and 27 gs. respectively to Messrs. William Baker and W. C. Firmstone. This lot averaged 19*l.* 8*s.* each for 12. Mr. Henry Smith's made from 6½ to 10 gs. There was a fair demand for ewes, and every pen was sold. Mr. Yates' made 52*s.* 6*d.*, Mr. Nock's 62*s.*, Mr. P. Lowe's 49*s.*, Mrs. Beach's from 55*s.* to 180*s.* per head, the latter price being given by Mr. W. Baker, of Moor Barns, for the highly commended pen at Manchester. This gentleman holds his first annual sale this year, and his judgment and spirited purchases augur well for the future of his flock. Mr. Lort's ewes made from 50*s.* to 82*s.* 6*d.*, Mr. King's 44*s.*, Mr. Lycett's 51*s.*, Mr. E. Lythall's 45*s.* to 55*s.*, Mr. Lees' 50*s.*, Mr. Chilwell's 47*s.* —At Mr. Horley's, of the Fosse, near Leamington, Mr. Preece, of Shrewsbury, disposed of about 40 rams and 90 ewes. The highest prices realised were 21 gs. given by Mr. J. Canning for a grand 3-shear ram, Viceroy, bred in Ireland by C. W. Hamilton, Esq., and winner of the cup at Londonderry, and Royal Dublin Show, 1868; and 20 gs. given by Captain Brown, for the hire of the best shearling, No. 8, a son of Evans' No. 10. Including the three sheep let, the average price for the 44 rams was 10*l.* 11*s.*

Hampshire Downs. — At Mr. James Rawlence's annual sale and letting nearly 300 gentlemen sat down to luncheon. The sale commenced shortly after 2 o'clock, and the whole of the 113 lots were disposed of in the course of three hours. Some of the ram lambs were let for the season at high prices. One went to Mr. Morrison of Fonthill for 55, and another at 50 gs. Others were let at 21 gs. (to Mr. Moore, of Littlecote), 26 gs. (to Mr. Morrison), 22 gs. (to Mr. De Morney), 21 gs., and so on down to 10 gs., which was the lowest letting figure. The ram lambs for sale also fetched good prices. Some of the single ones went for 22 gs., 21 gs., 20 gs., 18 gs., 17 gs., 16 gs.—the lowest being 7 gs. Ram lambs in pairs realised 14 gs., 13 gs. 12½ gs., 21 gs. (Mr. Higgins), 18 gs. (Mr. Newton), 20 gs. (Mr. Galpin), and 17½ gs. down to 10 gs. Two-tooth rams were let at prices ranging from 6 to 11½ gs. Rams of similar age sold at from 8 to 20 gs. (Mr. Melsome). Four-tooth rams were let from 7½ to 18½ and 20 gs. (Mr. Compton). The three four-tooth rams sold fetched 9½, 11, and 8½ gs. Only two six-tooth rams were offered for letting, and they fetched 8½ and 17 gs. Three six-tooth rams were put up for absolute sale, and the prices realised were 15 gs., 8 gs., and 10 gs.

OUR MEAT SUPPLIES.

DURING the debates upon the Contagious Diseases, (Animals) Bill speakers on both sides of the House have admitted that imported animals form only a small proportion of our total meat supply; but as concerns London it has been said the proportion of meat furnished by foreign animals is very large. Briefly and without detailing the calculations which have given the same results in several independent estimates, the figures are these:—

At the Census of 1868 there were in the United Kingdom 9,083,416 cattle; and it is estimated that two-sevenths, or 2,595,260, are every year slaughtered for food. Averaging the dead weight of veal calves, ordinary butchers' beasts, and Christmas bullocks of all breeds at 40 imperial stones per head, the yearly production of beef and veal is 648,815 tons. Of sheep we had 35,607,812; and it is estimated that half this stock, or 17,803,906 (including the lambs killed before June 25, which did not appear in the returns at all), are annually turned into meat. At an assumed average of 56 lb. each, the weight of lamb and mutton is 445,097 tons. Of pigs we had 3,189,167—probably killed at the average age of one year; and these at 90 lb. a-piece produced 128,136 tons of pork and bacon. Thus the total home production of meat in the United Kingdom (saying nothing about milk, butter, and cheese) is calculated at probably 1,222,048 tons per annum.

What is the importation? In the year 1867, when the imports were exceptionally large, we received 177,948 foreign cattle, 539,716 sheep, and 48,079 pigs, and taking the foreign cattle and sheep to weigh about one-tenth less per head than the home-bred cattle and sheep—namely, the cattle and calves 500 lb., and sheep and lambs 50 lb. each, and reckoning the foreign and English pigs at equal weights—we arrive at 53,698 tons as the total weight of meat imported alive. In the same year the Continent sent us 10,680 tons of dead meat; and, adding together the live and dead importations and the home production, we have 1,286,426 tons as the total quantity of meat consumed in the United Kingdom, of which only about 4 per cent. is supplied by imported live animals.

In the same year (1867) there were disposed of in the metropolitan market home-bred animals amounting, at the above valuation of weights, to 59,978 tons, and foreign animals amounting to 37,055 tons. The dead meat brought into London by the nine great railways and imported, with an allowance also for dead meat entering by road and coastwise by ship, was about 80,000 tons—the quantity now is undoubtedly more than half of the consumption—so that the total meat supply of London was 177,000 tons, of which about 21 per cent. came as foreign animals alive.

It will be observed that the 37,055 tons' weight of foreign animals, forming a fifth of the consumption of London, amounts to only 2¾ per cent. of the consumption of the United Kingdom, and that an equivalent would be furnished by an increase of only 3 per cent. in our home production. Now, sir, if a sanitary regimen established over our home stock, and if the interception of imported diseases, by means of safety markets at the ports, would not augment our home production to the extent of 3 per cent., there can be no use in legislating upon the matter at all. We should be putting ourselves to trouble and expense without adequate return. But, from experience of the repression of various contagious disorders by the cattle plague restrictions upon markets and traffic, we may be satisfied that a sound measure would save us from so many losses, and give such confidence to those who would invest more largely in breeding and meat-producing, that our home supply could not but increase to a far greater extent than merely 3 per cent. Hence, were the whole of the foreign animals to be excluded from the metropolis, there is every probability that, under an effectual sanitary law, the improved home supply would make good the deficiency. However, the operation of a sound measure would not be to shut out any of the foreign animals at all, but distinctly to encourage importation by means of a new market planted directly on the bank of Thames, and in the nearest unoccupied spot for the convenience of butchers, and for supplying the inferior meat to its natural customers in East London. Here, then, would be the gain of a largely augmented home supply, with, at the same time, an importation as abundant as before. This is what the Chambers of Agriculture have strenuously advocated, and now they find with sorrow that the Government Bill in its present shape is not calculated either to secure our home stock against great losses by contagion, or to encourage an importation that is not dangerous. And being convinced that the foreign market clauses would fail in practice, that imported diseases would not be effectually intercepted, and that the uncertainty in the working of the proposed separate market for "suspected" animals would damage the import trade, instead of developing it, agriculturists are now taking steps to impress upon the House of Lords the necessity for safety markets, that shall not be entirely dependent upon contingencies that shall not be regulated from week to week by Privy Council advices as to the health of foreign ports, but established once for all on a permanent and undeviating system. *John Algernon Clarke, Secretary of the Central Chamber of Agriculture, in the "Times," July 23.*

THE PRESENT APPEARANCE OF THE CROPS.

[FROM OUR OWN CORRESPONDENTS, JULY 31.]

COUNTY.	WHEAT.	BARLEY.	OATS.	BEANS.	PEAS.	POTATOS.	ROOT CROPS.	GRASS.	WHEN WILL HARVEST BE GENERAL?	NAME AND ADDRESS.
SCOTLAND.										
BANFF	Good; average	Average	Under average	....	....	Fair average	Promising	Short	Middle of September	John Barclay, Braes of Enzie, by Lochabers
ELGIN	Fair average	Average	Fair, but light on bare soils	....	....	Very promising	Fine	Very poor	End of August	James Hamilton, Forres
	Very good	Good, except in very dry ground	Deficient	....	....	Good as yet	Very good	Poor crop	End of August	John Grigor, The Nurseries, Forres
	Average	Below average	Average	....	....	Look well	Look well	Much dried	End of August	——, Fochabers
ABERDEEN	Average	Average	About average	....	....	Under average	Healthy and well	Very inferior	September 1	A. Cruickshank, Sittyton
PERTH.....	Full bulk; autumn sown diseased	Over average	Short in straw	Short in straw	....	Promising	Full average on easy soils	Scarcely average	August 15 to 20	David Edie, Bridge of Earn, Elliothead
FIFE	Rather under average	Full average	Under average	Average, but podding very bad	Average	Full average	Average	Average	End of August	John Morton, Lambiclethan, St. Andrews
	Scarcely average	Above average	Very much under average	....	....	Average	Average	Under average	August 20	John Pitcairn, Kinnaird, Newburgh
	Average	Above average	Under average	Above average	....	Average	Average	Under average	Aug. 15 to 20	Robert Russell, Pilmuir, Leven
STIRLING	Promises a full average crop	Rather below average	Considerably below average	Slightly under average	....	Very promising	Very good, but on clay lands almost a failure	Deficient, but partially recovering	Middle of August	Wm. Drummond & Sons, Stirling
HADDINGTON	Average	Above average	Under average	Average	....	Promising	Very promising	Very poor	Aug. 12 to 15	George Hope, Fenton Barns, Drem
RENFREW	Above average	Average	Under average	Good	....	Strong and healthy	Under average and late	Very much dried up	About the end of August	George Boyd
AYR	Average	Full average	Above average	Full average	....	Average	Very late, except early sown	Far above average	About Sept. 1	Wm. Orr, Seed Merchant, Beith
	Scarcely average	Light	Under average	Not average	....	Early kinds not heavy	In great need of rain	Much burned up	August 20	And. W. Ralston, Lagg, by Ayr
PEEBLES	Above average	Scarcely average	Below average	....	....	Below average	Turnips now reviving	Much burnt; hay light	Third week of August	James Lyle, Innerleithen
BERWICKSHIRE..	Above average	Above average	Under average	Average	....	Under average	Very promising	Has suffered from drought	About Aug. 15	John Wilson, Edington Mains, Chirnside
WIGTOWN	Average	Average, but very little sown	Fair on good land	Fair	....	Good	Turnips very good	Very poor	End of August	A. H. M'Clean, Auchneal, Stranraer
ENGLAND.										
NORTHUMBERLAND	Average	Under average	Very poor	Average	Average	Good	Very promising	Hay good; pastures burnt	Aug. 20 to 25	Thomas P. Dods, Anick Grange, Hexham
	Above average in bulk	Above average	Under average	Various	Few grown	Fair	Very good indeed	Light, well got	August 16	Geo. Laing, Cornhill, Coldstream
CUMBERLAND ..	Average	Average	Much under average	Average	....	Good	Never more promising	Hay good; pastures burnt	August 26	Thomas Gibbons, Burnfoot, Esk, Longtown
WESTMORELAND.	Over average	Under average	Under average	....	....	Over average	Turnips over average	Over average	About second week in Aug.	Jonathan Robinson, Warcop, Penrith
DURHAM	Under average on clay	Average	Average	Good	Average	Average	Average	Over average	Last week in August	Robert Bland Dixon, Fern Bank, Darlington
	Average	Average; short breadth	Bad	....	Few sown	Good	Good	Good average	August 20	George Crofton, Kimblesworth
YORKSHIRE.....	Much improved, but full one-third below average	Very light upon sandy soils; one-third below average	Short in general, but full average crop	Short in straw, but full average crop	Few sown, but full average	Very good; average crop	Swedes very good; a full average crop is anticipated	Very good, and all well secured; one-third over average	First week in September	John Outhwaite, Bainesse, Catterick
	Scarcely an average	Average	Under average	Short, but well laden	Over average	Promising	Better than for several years	Meadow scarcely average crop, but very well got	Last week in August	H. J. Turner, Land Agent, Richmond
	Considerably under average	Average	Under average	Good	Good	Too soon to judge	Promising	Great crops	August 15	John Coleman, Escrick Park
	Under average	Average	Various	Average	....	Promising	Average; want rain	Average; well got	August 18	Peter Stevenson, Rainton, Thirsk
	Below average	Average	Below average	Average	Over average	Average	Promising	Average	September 1	R. Bell, Layton Fields, Caldwell, Darlington
	4 bushels per acre below average	3 bushels per acre below average	12 bushels per acre below average	4 bushels per acre below average	Average crop	Light crop	Pretty well planted	Large crop upon old meadows	August 14	John Clark, Hessle, Hull
	Much improved of late, but will not be an average	Fair average	Generally light and deficient	Full average	A heavy and very good crop	Good crop	Early sown Turnips very good; those sown late upon strong lands bad	Great crop	In three weeks or a month	Samuel Wiley, Brandsby
	Average	Better than last year	Good where in condition	Average	Good	Promise well, but want rain	Promise well	Has been good, but now wants wet	August 12	Thomas Taylor, Dorrington, near Pontefract
	Thin; one-third less than last year	Under average	Bad	Good	Good	Moderate	Promise well, if rain comes	Good	Last week in August	Brady Nicholson, Sturton Grange, Leeds
	Good	Good	Good	....	....	Splendid	Want rain	Good	End of August	William Irvine, Halifax
	Under average, but improved amazingly within the last few weeks	Under average, but very much improved	Light poor crop generally	Bulky; straw not well podded	Above average	Few grown, and poor	Looking well; want rain	Very good	August 18	Edmond Riley, Kipling Cotes Farm, Beverley
	Much improved lately; average	Fair	Under average and short	A good crop	Good; not many grown	Good; short of last year's crop	Swedes generally healthy; Mangel good	Clovers bad; meadows full average	First week in September	Jas. Wilkinson, Whitby,
LANCASHIRE	....	....	....	....	....	....	Very good	Pastures very good	Hay all secured in first-rate order	George Storey, Clitheroe, Burnley
	Average	Over average	Half a crop	....	....	Average	Early sown good; late sown indifferent	Hay good; pastures suffering	Middle of August	John Croudson, Urswick, near Ulverston
CHESHIRE.....	A little under average	Very little grown	About average	Fine promise, but injured	None	Moderate crop; large breadth	Fair promise	Large crop of hay	August 14	W. B. Burnham, Spital, Chester
DERBYSHIRE	Below average	Below average	Below average	Not sufficient grown to justify an opinion	Not sufficient grown to justify an opinion	Good	Suffering from drought	Good and well got	End of August	John Parkin, Idridgehay, Wirksworth
	....	....	Average	....	....	Excellent	Very good	Never better	End of August	Benj. Swaffield, Hartington
LINCOLN	Under average	Under average	Bad	....	....	Very few grown	Very promising	Heavy	August 16	Francis Sowerby, Aylesbury, Great Grimsby
	Under average	Average	Bad	Fair	Almost destroyed by fly	....	Good on light lands	Very good	August 20	Isaac Sharpley, Boswell, near Louth
* This return is made up 10 days too soon to be depended upon.	Full crop; much damaged by storms	None grown	Full average	Full of fly	Very bad	Poor crop	Mangels small; Kohl Rabi and Rape fair	Hay a great crop	August 18	Thomas Aitken, Decoy Farm, Spalding *
	Average	Average	Average	Under average	Nearly a failure	Free from disease	Promising	Abundant	August 16	W. Fancourt, Aslackby, Folkingham
	Very small ear, and much below an average	A bad crop; much worse than last year	Very light and bad	Winter Beans a large bulk of straw, short of corn	A fair crop, but few grown in this part	At present backward, and not a full crop	Turnips very promising on the Wolds	A good crop of hay; pasture bad	Late in August	James G. Dixon, Caistor
* Not so good a yield by one-third as last year.	Very various; much root-fallen and storm-broken*	Good; a full average	Good; a full average	Greatly improved; a fair average	Various; many crops attacked with aphis	Not promising; many plants decaying for want of rain	Mangels a fair average; Turnips much in want of rain	Gone off very much from drought	About Aug. 21	John Clarke, Old Bank House, Long Sutton

THE PRESENT APPEARANCE OF THE CROPS—(*Continued*).

COUNTY.	WHEAT.	BARLEY.	OATS.	BEANS.	PEAS.	POTATOS.	ROOT CROPS.	GRASS.	WHEN WILL HARVEST BE GENERAL?	NAME AND ADDRESS.
ENGLAND.										
LINCOLN	Generally good, but very backward	Very bad	Variable, but mostly very bad	Very tall, but very few pods	None	Many complaints of the yield; good in quality	Never knew a better prospect of a crop	Meadows have been good, and the hay is well got	The first week in September	Thomas Marris, The Chase, Ulceby
	Improved of late, and now nearly an average	A light crop	Bad	A fair crop; not well corned	Moderate	Very thin	Not average	Good crop	September 1	H. Dudding, Panton House, Wragby
	Rather under average; improved lately	Under average	On good soils average; on the fens a failure	Very heavy crop	Average	Average	Very good, and growing fast	Heaviest crop ever known	August 15	W. F. Marshall, Branston Villa
NOTTS	Broken down and rusty	Generally poor	Fair	Winter, good; spring, bad	Bad	Bad	Good	Good	August 17	Wm. Chouler, junr., South Muskham
	About average	Very light, early-sown being the best	Decidedly below average	Good, but infested with fly	Much above average; infested with fly	Pretty good, but in want of rain	Mangels average; Turnips late	Great crop	In three weeks	Geo. H. Sanday, Holme Pierrepont
* On loams and clay soils	* Average	Under average	Under average	Average (greenfly)	Average (greenfly)	Average; late-sown bad	Average	Above average	Mid-August	Charles Doncaster, Riding's Hill, near Southwell
† Sand and gravel	† Average	Average	Average	....	Average	Average	Very good	....	....	
LEICESTERSHIRE	Under average	Under average	About average	About average	Very bad; not half a crop	Light crop	Mangels good; Turnips want rain	Hay crop best for years	In three weeks	George Turner, Alexton Hall
	Fair; not average	Very light	Generally good; rather short	Short; tolerably corned	....	Promising	Generally good; want rain	Abundant; now burning	In a fortnight	R. W. Cresswell, Ravenstone
SHROPSHIRE	On liberally farmed, good Wheat soils, average crop; a deal thin and bad, and decidedly under average	More planted, but a heavy crop quite the exception	Few grown in this district, and apparently very light	Where moderately sown, average crop; but where a mass of stalks, indifferently podded	Tolerably good crop, and considerable breadth planted	Poor and want flavour; late ones want a soak of rain sadly	Early-planted Swedes blue and unkind in appearance, for want of moisture; Mangel promising	Good crops of hay, put together too quickly; much damaged and burned	Aug. 10 to 12	Henry Smith, Sutton Maddock, Shifnal
	Under average	Average	Average	Average	Under average	Free from disease	Under average	Burning up	August 12	John Rawlings, Stoke, Tenbury
	Light crop of straw; small in the ear; must be under average	Early-sown the best, but not good; late-sown very light	Very good	Very good	Blight has injured them very much the last ten days	Likely to be a small crop, for want of more rain	Early-sown very promising, but want rain	Hay secured in fine condition; full average	About middle of August	Richard Shirley, Church Stretton
	Much improved; will be an average	A good average	Very promising; above average	Splendid crop of straw, but barely average	Now attacked by the greenfly	Fair crop; tubers small	In all probability very good	Very good	August 23	Evan Davies, Patton, Wenlock
	Very variable; some fields good; crop reduced a third	Prematurely ripened; a bad crop	Under average	Very good	Blighted	Good	Very good	Good	About August 3 or 4	Thomas Mansell, Ercall Park, Wellington
	Under average	Generally not good	Short and under average	Few grown	Few grown	Vary much	Good	Heavy hay crop	In a fortnight	W. D. Green, Market Drayton
STAFFORDSHIRE	Various; in this parish probably average, in others not so	Below average; many fields spotty	Scarcely average	Spring promised well till blighted	Early good, late blighted	Pretty good on light soils	Early-sown good	Getting thin at bottom	Second week in August	George A. May, Elford Park, Tamworth
	Under average	Two-thirds average	Average	Winter Beans good; spring Beans bad	Half average; blighted	Under average	Average	Good crop; over average	August 12	Thomas Byrd, Mytton Manor, Panbridge
HEREFORD	Much under average	Average	Good	About average	Not quite average	Good	Wanting rain badly	Hay very good crop	August 10	D. Edwards, Brinsop Court
	Below average, but improved during the past three weeks	Below average; the late-planted very bad	Not many grown; average crop	Autumn-planted an enormous crop	About average	Very good in quality	Greatly in need of rain	Hay good and well secured; pastures burning up	August 9	T. Duckham, Baysham Court, Ross
	On the best land full average; on poor land very inferior, and far below average	Generally a light crop	About average	Plenty of haulm, but badly podded	Very partial; on some fields good for nothing	Good	Very promising with rain	Heavy hay; the Grass now much burnt up	Beginning of August	Philip Turner, The Leen, Pembridge
	Inferior; under average	Generally good	Average; not many grown	Quite an average crop	Much blighted	Burnt up; want rain	Plenty of plants; want rain	Very good	In a fortnight or three weeks	Thomas Farmer, Frome Bishop, Bromyard
WORCESTER	Below average	Average	Average	Average	Average	Average	Mangels good; Swedes want rain	Hay very good; pastures burning	August 10	Charles Randell, Chadbury, Evesham
	Much improved, but under average	Variable; supposed under average	Good; not much grown here	Winter Beans very good; spring not good	Fair	Ripening too early, but sound	Mangels promising; others wanting rain	Grass short; heavy hay	August 7 to 9	Stiles Rich, Fearnall Heath
	Variable; some good, but will not bear comparison with last year's	Early planted good; late planted very indifferent	Good	Winter Beans good; spring Beans weak	On good land productive; cold land very bad	Early good; late planted small, and poor sample	Excellent; much in want of rain	Very good, and well secured	Second week in August	Joseph Matthews, Great Malvern
	Under average	Average	Average	Average	Under average	Improving	Improving, and good	Very little	August 9	Henry Hudson, Wick, near Pershore
WARWICKSHIRE ..	Thin, weak in the straw, and scrawled	Improved by the dry weather	Very few grown	Winter, bulk badly corned; spring, blighted	Blighted; half a crop	Not many grown	Very good	Large crop; well got	August 12	Joseph Smith, Henley-in-Arden
	Some good crops, but, on the whole, light crop of straw, and ears appear small	Generally a light crop	Some good crops, but short in the straw	Not good, and covered with insects	Great many fields very bad, and covered with insects	Doubtful	Now promising	Very plentiful	Second week in August	——, Upton, near Nuneaton
	Very much improved, and the oats well developed, but yield will be below average	Ripening; below average	Harvest has commenced; crop far below average	Healthy; well grown; not well corned; more than average	Good crop of Early White Peas; above average	Looking well; no disease at present	Mangels, flourishing; Swedes, early sown, flourishing; late sown, patchy	Pastures plentiful, but were beginning to burn	Oats general this week. Aug. 10 to 20	Charles M. Caldecott, Holbrook Grange, near Rugby
	Much less than an average	Fully an average	....	A bad crop of corn	Blighted; under average	Good quality, but small	Mangels promising; Turnips want rain	Requires rain	August 9	John C. Adkins, Milcote, Stratford-on-Avon
	Under average; my own average	Not good; my own fair	Inferior	Good	Bad	Promises well	Excellent	Much above average	End of August	James Archd. Campbell, Newlands, Rugby
	Not an average crop; covered with smother fly	Early planted very good; late not an average	Some very good; others short and thin	Much winter not well corned; cannot be a great crop	Long in straw, well corned, but now smothered by green insect	Promise average crop	Mangels good; want rain	Very large crops, and well got	Not by the middle of August	John Baldwin, Luddington, Stratford-on-Avon
	Under average	Under average	Barely average	Average	Many failures	....	Want rain	Wants rain	Middle of August	J. H. Burbery, The Chase, Kenilworth
NORTHAMPTON ..	Considerably under average	Average	Under average	Winter, good; spring-sown, bad	Early sorts, half a crop; later sorts, total failure	Good	Good plant; want rain	Very good	About August 10	J. Borlase Tibbits, Barton Seagrave, Kettering
	Good; full average	Light; under average	Much under average	Fair crops, smothered with fly	Full crops, but almost destroyed by fly	Light; want rain very much	Mangels bad; Turnips late	Abundant crops	Middle of August	J. B. Smeaton, Cromwell House, Naseby
	Average	Average	Under average	Above average	Almost failure	Under average	Very good	Extra abundant	August 8	Peter Love, 15, St. Giles' Street, Northampton
	Under average	Average	Under average	Winter, average; spring, under	Much blighted	Good	Good	Hay abundant	August 12	James Bartlett, Whitfield, near Brackley
HUNTINGDON ..	Barely average	Under average	Under average	Under average	Under average	Promising	Very promising	A double crop	August 9	Peter Purves, The Grove, Brampton

THE PRESENT APPEARANCE OF THE CROPS—(*Continued*).

COUNTY.	WHEAT.	BARLEY.	OATS.	BEANS.	PEAS.	POTATOS.	ROOT CROPS.	GRASS.	WHEN WILL HARVEST BE GENERAL?	NAME AND ADDRESS.
ENGLAND.										
HUNTINGDON	A great deal blighted; about average	Various; under an average	Good quality; under an average	Winter Beans, good; spring, fair; late, very bad	Early Peas, fair; late, very bad	Generally good	Good; benefited by rains	The finest crop for many years	August 9	John Wallis, Park Farm, Kimbolton
	Not average; the light crops are down the worst	Below average, through wet weather	About average	Winter Beans above average; spring, average	Below average, spoiled by fly	An inferior crop	Very good	Hay a heavy crop, and well secured	August 7 or 9	Robert Barton, Wigan Farm, St. Ives
CAMBRIDGE ...	Afraid it will not be average	Under average	Bare average	Full average	Not average	A good crop	Good	Abundant	August 10	Samuel Jonas, Chrishall Grange
	Very various; some unkind, other crops heavy; generally average	About average; suffered to some extent	Various; where unhurt by wire-worm, a very full, heavy crop	Average straw, but hurt by fly	Ruined by fly	Average	Various; some crops very good indeed	A heavy crop	August 9	Alfred S. Ruston, Aylesby House, Chatteris
	Not so good by three coombs an acre as last year	Light land ripening unkind; not an average	Average	Average	Under average	Good; want rain very bad	Good, but want rain	Over average	About August 8	Serjeant Wallis, Granchester
NORFOLK	Average here; below average generally	Good, and above average	Various	Good	Very indifferent	Good at present	Good; well planted	Good	August 9	Hugh Aylmer, West Dereham Abbey
	About average	Good	Good	A verage	Various	Good	Very promising	Short	August 20	William Cubitt, Bacton Abbey, North Walsham
	Average	Over average, except on inferior land	Good	....	Early-sown good	....	Good; injured by wireworm	Very much scorched	About August 11	Thomas Moore Hudson, Castle Acre
	Under average	Fair average	Much under average	Average, but not as expected	Under average	Promising	Will be good	Fine crop, well secured	Middle to 21st August	Thos. Brown, Manor House, Southery, Downham Market
	On good mixed soil, where the land has been well farmed, it looks promising; on light soils it is failing	Looks well on land in good condition; elsewhere indifferent, and ripening prematurely	Very variable, but generally not looking well	....	Suffering from the fly, which has destroyed some of the late flowers	Not looking well generally	Looking well generally, but want rain	Pastures very much burnt up for want of rain	Now	Henry Woods, Merton, Thetford
	Good average	Fair average crop on cool soils	Good crop	Fair crop, improved of late	Early-sown fair, late-sown good for very little	Good, but small in size	Good crop; full average	Abundant crop of hay	Middle of August	W. H. Taylor, Merchant, Wymondham
SUFFOLK	Badly set, but average	Long ears: not a strong crop	But few grown	A fair crop	A fair crop	Bad crop	Not good; too dry	Very short, and dry	August 16	George Dobito, Lidgate
	Heavy land, above average; poor light land, very bad	Very good on heavy and well-farmed lands	Scarcely any grown	Winter Beans good; spring affected by lice	Fair crop; injured by lice	Below average	Good	Above average	August 13	T. C. Whiting, Barsham House, Beccles
	Below average	Over average	Few grown	....	Under average	Healthy, but small	Good plant; looks well	Has been plentiful	August 7	W. R., Bury St. Edmund's
	Upon the whole, good; improved within the past three weeks	Very fine and regular; best malting Barley in England grown in the district	....	Winter very fine; late ones suffering	Heavy crop; good sample; more tail than usual from the fly	Not largely grown; healthy and strong as yet	Mangels good; white Turnips, a few failures	A good deal burnt lately	The first week in August	D. T. F., Bury St. Edmund's
	Heavy in the straw, but not average, the ears being very deficient	Beyond average; plenty of straw	....	Plenty of straw, but little corn	Abundance of straw; early, well hung, but late; not an average crop	Very good	Beyond average	Abundant, and well secured	About August 14	Saml. G. Stearn, Brandeston, Wickham Market
	Average in quantity, but deficient in quality, owing to blight in all unsound spots	Average crop; very much improved on all heavy lands the last month	Not grown to any exent	Winter, average; spring, very much injured by lice	Early sorts, average; late, half a crop	Sound, but very small	Mangel Wurzel very good; Turnips suffering	Good	August 9	Fredk. Nunn, Rougham
	Good	Very good	....	Attacked by lice	Nearly average	No complaint	Turnips want rain	Very good hay	August 15	George Edwards, Framlingham
* Injured by blight at least 3 sacks per acre.	On good lands, both straw and crop good; * on the poor lands the Wheat is light	On good lands a large crop; on the lighter soils moderate	But few grown; not an average	Not many grown in the district	Clovers a failure; the area of Peas grown very large; about an average	But few grown, and moderate	Mangels good; prospect of Turnips good	Hay good, and generally secured well	August 8	G. M. Sexton, Wherstead Hall, Ipswich
BEDFORDSHIRE..	Good	Much improved; promising fair	Not many sown	Suffering from fly, but podded well	Very few grown	Good, and of excellent quality	Mangels good; Rohl Rabi promising	Pastures now dry, though not bare	Next week	Henry Trethewy, Silsoe, Ampthill
	Below average	Considerably below average	Average	Winter, very good; spring, below average	Below average	Good	Good	Very good	August 8 or 10	Henry A. Bottle, Pettenhall, near Kimbolton
	Scarcely average	Average	Average	Blighted	Very bad	Good	Good	Heavy	August 7	William Lavender, Biddenham
	Quite an average crop	Much below average	Scarcely any grown about here	....	Very good	Well planted, but very small produce	Good, but want rain	Hay abundant	About Aug. 10	T. E. Pawlett, Beeston, Sandy
	Barely average	Average	Average	Under average	Under average	Good	Average	....	....	James Ross, The Hoo Park Farm
HERTS	Probably average	Above average	Above average	Above average	....	....	Mangels good; Swedes well planted, want rain	Much above average	August 9	J. B. Lawes, Rothamsted *
	About average; but some pieces mildewed, which if general must affect the yield	About average	Winter Oats above average; spring Oats under average	....	Heavy straw; affected with the green fly; under average	....	Mangels and early Swedes generally good	Natural Grass good; Clover very light	August 7	George Webb, Beaumont Hall, Redbourn
GLOUCESTER	Improved of late, but under average	Barely average	Under average	Over average	Average	Very promising	Could not look better	Large crop; well made	In a week	John Cobban, Whitfield, Berkeley
	About average; long and strong in the straw	Much improved lately; full average	Thin in many instances, but likely to yield well	....	Plenty of straw; scarcely any corn	Promising, but want rain	Complaints of grub and wireworm	Pastures burnt up	August 9	Edw. Handy, near Andoversford
* Fully 35 per cent. less than 1868, and 15 per cent. less than average.	Unusually variable; quality will be second-rate *	Rather under average of past 7 years; quality good	Under average; but few planted here	Very variable; full average; and large breadth planted	Under average; large breadth planted	Early planted good crops; late sorts unpromising	A general good plant, but stunted in growth	Hay crop good and well secured	August 9	Wm. Woodward, Ashchurch and Bredon
	Average	Average	Average	Under average	Average	Above average	Above average	Above average	August 5	Edmund Ruck, Castle Hill, Cricklade
	Under average	Average	A little under average	Winter over average	Under average	Early good; late bad	Average, but suffering	Very large crop of hay	August 3	H. Scott Hayward, Frocester Court, Stoneham
	Under average	Bad	Under average	Promising	Blighted for want of rain	Good crop	Promising	Good for mowing	Beginning of August	Giles Edmonds, Eastleach, Lechlade
MONMOUTH	Under average	Under average	Under average	Over average	Under average	Very promising	Precarious	Hay abundant	Middle of Aug.	Henry Pride, The Cwm, Monmouth
	Uneven and bad, excepting on good soils	Very variable; average	Under average	Good average	Average	Good	Very promising, but require rain	Heavy crops	August 7	J. Lynch Fletcher, Hardwick Hill, Chepstow
OXFORD	Many fields short and uneven; scarcely equal to two-thirds of last year	Fair average, but ripening prematurely from drought	Some fields good; many much below average	Middling crop; very little corn	Plenty of straw; terribly blighted	Uneven crop; suffering from drought	Early sown, good; later planted, want rain	Much burnt up; crop well secured	Now	Geo. Garne, Churchill Heath, Chipping Norton

* I have filled up my return for the crops, but I have little confidence in it. I never knew a season in which it was so difficult to estimate the yield. On my own farm I have some crops as good as I could wish them to be, and some very bad indeed. I believe this is the general state of the crops in the country; and you know how difficult it is to form any estimate under these circumstances. I shall know better when I thresh my experimental crops.

THE PRESENT APPEARANCE OF THE CROPS—(*Continued*).

COUNTY.	WHEAT.	BARLEY.	OATS.	BEANS.	PEAS.	POTATOS.	ROOT CROPS.	GRASS.	WHEN WILL HARVEST BE GENERAL?	NAME AND ADDRESS.
ENGLAND.										
OXFORD.....	Under average and some blight	Average, but bad on strong land	Under average	Good	Very bad; much blighted	Sound at present	Full plant; rain wanted	Pastures require rain	August 16	Matt. Savidge, Sarsden Lodge Farm, Chipping Norton
	Fair average	Under average	Average	Badly blighted	Very much blighted	Good	Very promising	Good up to the dry weather	August 2	Sam. Druce, Eynsham
	Average crop	Below average	Little straw; well corned	Winter Beans, heavy; spring do., very bad	Plenty of straw; badly blighted	Looking well	Good plant, wanting rain	Parched	Middle of Aug.	John Gillett, Oaklands, Charlbury
	Various; not average	Full average	Light crop	Winter-sown, good	Many places good	Generally good	Promising	Very good		J. Bryan, Southleigh, Witney
BUCKS.....	Slighly below average	Much below average	Average	Above average	Average	Early, abundant; later, promising	Good	Hay very abundant	August 10	W. G. Duncan, Bradwell
	Over average	Good	Spring-sown, light	Very good	Good, but few grown	Promising	Very good	Good	In a few days	Edward Evans, Boveney Court, Windsor
	Over average	Under average	Under average	Average	Average	Average	Under average	Over average	August 12	W. Smith, Woolston, Bletchley
	Under average, blighted	Much below average	Much below average	Full straw, ill corned	Very bad	Good	Good plant, but late	A crop and a half of hay	August 9	Alexander Fraser, Claydon, Winslow
	Excellent on the good lands, thin crop on ill drained soils	Fair average	Average	Good	Good	Good	Good plant, but now going off	Large crop of hay, but no aftermath	About August 7	John K. Fowler, Prehendal Farms, Aylesbury
	Good, if the fly has not affected it	Very good	Slightly below average	Winter very good, spring affected by fly	Good straw, short of corn	Not many grown	Mangels excellent, early Swedes good	Very heavy crop	About August 9	—, Waddesdon, Upper Winchendon
ESSEX.....	Much improved from the spring, but varies very much; cannot be on the whole quite an average	Not generally good; it suffered from the cold and wet in the spring; 10 per cent. less than average	Generally good, but rather short; fully an average	The winter kinds good, over an average; the spring kinds affected by insects	The early-sown pretty good, the later ones much blighted	Planted well, but have suffered from the drought; must be a light crop	Mangels, Kohl Rabi, and Swedes well planted, the white kinds short	A great crop of hay, generally well got	August 2 to 9, according to soil	John Clayden, Littlebury, Saffron Walden
	Some very good, but many fields root-fallen and injured	Good, but not a heavy crop	Very good	Very heavy crop of straw, and fair quantity	Very much injured by aphis	Very small, except the early kinds	Very promising	Very short and dry	August 5	William Impey, Broomfield Place, Chelmsford
	Under average	Under average	Under average	Under average	Under average	Under average	Better plant than for several years	Abundant, and well got up	August 2	Abraham Hardy, sen., Maldon
	Greatly improved since the 5th of this month; average crop	Full eared, bulky, and above average	Good average	Average	A third of a crop can only be expected	Free as yet from disease; tubers small	Mangels very promising	A full crop; tolerably well secured	Some cut already (July 30)	Henry Dixon, Dorward's, Hall, Witham.
	Under average	Average	Winter good; spring middling	Over average; large breadth	Over average; large breadth	Average	Good; over average	Great crop; well got	August 5	J. J. Mechi, Tiptree Hall, Kelvedon
	Average	Under average	Good	Not good	Bad; great complaints	Good; but small	Mangel good; Turnips bad	Abundant crop	About Aug. 8	A. Barfield, Dunmow
	Average	Over average	Average	Over average	Early Peas good crop	Good crop	Want rain; plant good	Over average	August 10	G. D. Badham, The Lawn, Bulmer
	Root-fallen, blighted ears; much under average	Not much grown; rather a light crop	About average; but few grown	Winter open better than expected; spring much hurt	Very bad; killed by lice	....	Mangel pretty good	Good hay; but no after feed	About August 3 or 4	Charles Harvey, Foulness, Southend
*Light land †Heavy land	*Under average †Average	Average Under average	Under average Average	Average Average	Under average Under average	Under average Under average	Average Average	Good Good	August 2	S. W. Squier, Horndon-on-Hill
	Full average	Above average	Average	Above average	Under average	Under average	Mangels very good	Good	July 28	T. Mitchell, East Hall, Rainham
MIDDLESEX.....	Average; many blighted ears	Average	Average	Over average	Average	Looking well	Wurzel under average; Swedes stunted	Over average	August 6	Thomas Hewett, Cranford
BERKS.....	Average nearly	Under average	Average	Above average; blighted in part	Fair	Promising	Mangel Wurzel good; Swedes good	Abundant and well made	Now	E. W. Moore, Coleshill, Highworth
	Average	Much above average	Probably average	Good	Rather over average	Not much grown	Early sown, good	A good crop, carried very well	August 2	Wm. Bulstrede, Mount Farm, Cookham Dean
	An average	Over average	Over average	Average	Average	Very good	A good plant	Very short	August 9	J. Adnams, Thatcham, near Newbury
	Very variable; many pieces very thin: under average	On well farmed lands promises full average, but signs of blight	About average	About average	A full average	The forward planted very good, but backward very bad	Never promised better	Meadows very good	Next week	Thomas Owen, Clapton, Hungerford
	About average, being much improved	Above average	Full average	Generally good, though some light	Very various; later sorts bad	Early planted very good; late planted short	Swedes patchy; all others very good	Good Clovers and Grasses, but burning up now	About August 10 or 12	Martin Hope Sutton, Reading
	About average	Average	Average	Barely average	Average	Fair	Good plant where sown early	First crop pretty good; second indifferent	August 3	William Dewe, Southridge Farm, Pangbourne
	Under average: ripening satisfactorily	Scarcely an average	Average	Average	Average	Average; no complaint	Plant good, but requires rain	Clover light; Sainfoin and meadows good	July 28	James Hulbert, Streatley, near Reading
WILTS.....	Average	Over average	Over average	Average	Average	Good	Mangel good	Average	August 2	James Rawlence, Bulbridge, Wilton, Salisbury
	Deficient ear; thin on ground; not average	Good average	Partial; not a good average	Winter Beans not good; spring an average	Good	Promising for a crop	Fine plant; want rain	Promising, but want rain	10 days	George Brown, Calne
	Considerably below average	Not average in the county generally	Above average	Above average	....	Average	Good	Hay crop above average	August 5	Cyrus Combes, Draining and Irrigating Engineer, &c., Tisbury.
	Various: nearly an average	Average	Various; barely average	About average	Under average	Early ones a fair crop	Early sown promising	Over average, but little aftermath	August 5	Thomas Arkell, Pen Hill, Swindon
	Full average	Early Barleys very fine	Over average	Over average	Average	Very good	Starting afresh	Over average	August 10	J. A. Wiliams, Baydon
	Greatly improved generally, but still below average	Average	Early sown good; others very inferior	Good	Good	Small crop	Have done well, considering the late drought	Wanting rain	Early in August	R. Stratton, Burderop, Swindon
SOMERSET.....	Over average	Average	Good, but short	....	....	Good	Good plant	Over average	August 10	John B. Collyns, Dulverston
	5 bushels per acre under average	Nearly average	A little under average	Average	....	Fair crop; diseased	Mangel Wurzel good; Swedes wanting rain	Good crop of hay; pastures beginning to burn	August 5	Walter Farthing, Stowey Court, Bridgwater
KENT.....	Lay Wheats on best lands not one-third of an average; the worst crop of Wheat for many years.	Very various; some very good, may be average	Over average	Great breadth; over average	Various; under average	Excellent quality	Excellent plant; want rain	Greatest crop for many years	August 9	Robert Matson, Wingham
	Average in later districts	Various; some good fields	Barely average	None grown	Average crop	Looking well	Generally good, and kindly	Good crop	August 16	Mark Sandford, Martin, near Dover
	Below average	Above average	Above average	Winter Beans good, spring inferior	On the whole an average	Present appearance good	Mangel and Swedes good	The hay crop heavy	About Aug. 8	Wm. Manser, St. Peter's, near Margate
SURREY.....	Average	Average	Under average	Winter good, spring poor	Early good; late blighted	Diseased in places	Mangel very good; affected by drought	Meadow good; Clover light	August 2	Edw. Hilder, Woking

THE PRESENT APPEARANCE OF THE CROPS—(*Continued*).

COUNTY.	WHEAT.	BARLEY.	OATS.	BEANS.	PEAS.	POTATOS.	ROOT CROPS.	GRASS.	WHEN WILL HARVEST BE GENERAL?	NAME AND ADDRESS.
ENGLAND.										
SURREY	Full average	Above average	Very good; above average	Very short; under average	Average	Suffering from drought	Under average	Abundant, and well secured	August 2	William Willis, West Moulsey
SUSSEX	Slightly under average	Slightly under average	Good; full crop	Good; average crop	Average crop	Good	Good plant in most places	Heavy crop; mostly good	August 7	J. E. Heasman, Angmering
	Some very good, some very bad; barely average	Good; over average	Some as good as I ever saw, but many very bad pieces to be found; average	None grown	Too much haulm; under average	Very sound, but do not yield well	Mangels good; Turnips want rain	Very good	About August 9	William Rigden, Hove, Brighton
	Under average	Under average	About average	Under average	Under average	No blight, but very small	Very poor	Over average	About August 10	John Brotherton, Rose Hill Observatory, Brightling
HANTS.....	Average	Average	Over average	Over average	Over average	Over average	Very good	Hay over average	August 5	Joseph Blundell, Southampton
	Average	Average	Very good	Doubtful average	Doubtful average	Yields well	Very good plant	Good	August 2	Jos. Lancashire, Micheldever
	Much improved; nearly average	Average	Over average	Average	Over average	Fair crop and sound	Promising	Fair average	August 2	John T. Twynam, Winchester
	A fair average crop, although in some instances thin, but the ears well filled, and likely to yield well	Quite an average, but wants rain to prevent its going off too quickly	Generally a very good crop	Generally good, but the winter Beans injured by the late frost	A very good crop, and likely to yield well	Fair; in a few instances injured by the frost	A good plant, but requires rain	A heavy crop, especially in the pastures	August 5	William Spearing, Winchester
DORSET	Rather under average	Average	Average	....	Average	Good; no disease yet	Very promising	Abundant; excellent	August 10	W. J. Voss, Corfe Castle
	Average	Over average	Over average	Not much grown	Average	Good	Early sown good	Hay crop great	August 12	Robert Damon, Dorchester
	A good set, but light in straw	Large ears, heavy in straw, a good crop	Good	Promising	A full average	Looking well, except a few spots of disease	Plants plenty, but require rain	Getting very short	August 7	John Pope, Symondsbury, Bridport
	Under average	Over average	Very good; over average	....	Average	Good; average	A good plant, but wants rain	Rather short; want rain	Next week	John Ford, Rushton, near Blandford
	Very variable; under average	Over average	Average	None	Good crop	Middling; partially diseased	Very good plant	Clovers thin; meadows good	August 6	T. H. Saunders, Watercombe Farm, Dorchester
	Much improved by fine weather; cannot be a heavy crop	Mostly good, but attacked by red rust	A fair crop	Very few grown	Promise well	No disease yet	Many acres not up; rain badly wanted	Aftermath scanty; wants rain	About Aug. 2	J. T. Homer, Hemsworth, Wimborne
	Under average; thin on the land; turning a bad colour	Average	Looking well	....	Good	Looking well, and promise to be a good crop	Very good plant, and promising	Rather short; wants rain	About Aug. 4	Henry Fookes, Whitechurch Farm, Blandford
DEVON.....	Average	Average	Average	....	....	Very good	Want rain	Wants rain	August 9	R. Huxham Watson, Dorsely, Totnes
	A good crop; over average	Under average	20 per cent. under average	....	....	Good, but small and under average	Partial	Much burnt up; hay good and well harvested	Now	Geo. Langdon, Ashford, Barnstaple
	Average	One-third under average	Half an average crop	....	....	Small; half a crop	Half an average produce	Pastures burnt up	August 7	P. Cowan, Tawstock Manor, Barnstaple
	Average	Early-sown good; late-sown plain	Average	....	....	Looking bad	Very plain; suffering from dry weather	Very scarce; completely burnt up	Second week in August	R. W. Pollard, Blagdon, Paignton
	Over average	Average	Very good	....	....	Good	Promising	Hay crops good	August 9	Samuel Cornish, Stancombe, Kingsbridge
CORNWALL	Average; rust appearing	Various; blight appearing	Inferior; rust very bad	....	....	Good	If sown early very good	The hay crop good	August 2	Jno. Wills, Southpetherwyn, Launceston
	About average	Average	Above average	....	....	Good crop	Above average	Burnt up	August 9	T. Davey Simmons, Killiganoon
WALES.										
CARMARTHEN ..	Average	Very good	Light crop	....	....	Want rain badly	Looking well	Over average	About 10 days	J. Burnell, Penyfan, Llanelly
IRELAND.										
CO. DOWN	Good	Little sown	Generally short excepting good soils	Little sown	Little sown	Very good	Promising, but late	Clover hay good crop	August 21	James M'Donnell, Portaferry
LONDONDERRY ..	Very promising	....	Very short	....	....	Late, but very promising	Average	Medium crop	About September 10	Charles Pollock, Farmhill, Magherafelt
MEATH	Good, but not a very frequent crop	....	Looking remarkably fine everywhere	....	....	Very promising, and no disease apparent yet	Mangel running to seed in an extraordinary manner	Hay unusually abundant	Depends on the weather	Charles W. Hamilton, Hamwick, Clonee
KILKENNY	Average	Light	Light	....	....	Average	Backward	Average	August 15	Patrick Grace, Uppercourt, Freshford
	Average	Good	Blighted	....	....	Average	Good	Dried up	August 15	D. A. Milward, Tullogher
KERRY	Very good	....	Short	....	....	Average, but blighted	Poor	Short	August 20	John O'Sullivan, P.P., Kenmare
CO. CORK	Good	Good	Below average	....	....	Under average	Mangels good	Under average	August 18	James Byrne, Wallstoun Castle, Shanballymore

Home Correspondence.

A Run across the Fens.—On the 23d ult. I passed from Peterborough to Cambridge. Nothing could exceed the strength and bulk of the Wheat crop. From what I had seen elsewhere I feared the cold nights might have told upon the fens; but the Wheats look as well as if there had been no frosts in May or June. They promise an immense yield, and will be fit for the sickle or scythe in a fortnight, or less. Strong as the crops are, I saw none laid; huge fields of rank straw supporting fine heavy ears, promising a full return of fine quality. There seems enough corn in the fens to half fill the bread-basket of England, and with the rapid improvement that is taking place throughout the country in the grain crops, and the approaching harvest which is just upon us, bread will be cheap and plentiful, notwithstanding our gloomy forebodings. The Potato crop is likewise looking well, and if we only escape the disease, with plenty of Potatos and a cheap loaf our toiling millions will have a good winter of it. Some new plantations of Hops that have been made in the neighbourhood of Bury have looked well until last Sunday, when a perfect plague of fly came in the air, the air being filled with a moving mass of them for eight hours. They settled upon the Hops, late Peas and, in some instances, late Turnips; and I fear they will destroy all three. The Peas are literally weighed down with the fly, the Turnips consumed, and the leaves and flowers of the Hops are one sticky mass of honeydew and fly. Fortunately the plague was too late for the grain crops, for had it come when these were in flower, I fear it would have made a lean bread-basket. Last year's Mangels have kept remarkably well. To-day I saw 40 or 50 tons on a single farm, as sweet and sound as when they were taken up, and stock of all kinds feeding splendidly upon them. The rule is to keep them closely covered up in the clamp until they are wanted. No air, no growth, is the motto for keeping, and it answers well. *D. T. Fish.*

Crops in Kent.—I again forward to you my opinion in respect to the prospects of the coming harvest. Wheat on our best and dryest land a good crop—quite an average; but under average on our cold, stiff, and poor clay lands—thin on the ground, small eared. I find in the majority of fields much not filled out at the base of the ear, this more particularly in the brown Wheat. Oats in the majority of fields will be a short crop, some good pieces on the warmer soils—must consider this crop barely an average one. Beans: plenty of haulm in most fields, but I find on much of the haulm a deficiency of pods; still, I would call this an average crop. Peas: but few grown; that few tolerably good. Barley: none grown to speak of. Our hay crop was a very heavy one, the best in my recollection, and secured in excellent condition; the contrast with last year is very great. Stock will be amply provided with food next winter. Our root crops are at a standstill for want of rain. Mangel Wurzel a good plant, but much is backward. Swedes: I cannot write much in their favour as yet. Hops are now improving in those grounds which have been able to bear up against the vermin, and will produce a tolerable crop, but many gardens are too far gone to recover; a good soaking rain, followed by fine, clear, and warm weather, will, however, help grounds that show a disposition to grow. I forward to you the amount of rain fallen here for the two first quarters of the year; that, in conjunction with a cold spring and early summer, will give you some idea of the effects it produced on our cold and stiff clay lands, resting on the Hastings sand formation. I have no hesitation in saying that the clay lands resting on the above formation, taken as a whole, are the poorest and the least remunerative of all the clays in the kingdom. Rainfall—Jan., 2.64; Feb., 2.82; March, 2.27; April, 1.15; May, 4.57; June, 0.80; being a total of 14.25 inches for the half-year. The above fell in 81 days. We are now getting short of keep, for our stock pastures are looking brown in appearance. All crops, without exception, are in want of rain. Harvest will be general about the 9th of August. *John Avery Buckland, Benenden, near Staplehurst, Kent, July* 31.

Crops in Norfolk.—Since filling up report of the crops in this district I have more closely examined several fields of Wheat. I find an unusual number of blighted ears, which may render an average doubtful. *W. Cubitt, Bacton Abbey.*

Worcestershire Crops.—I attribute the general failure of the Wheat crop to excessive heat and excessive moisture. The intense heat of last summer burnt out the vegetable elements essential to the growth of Wheat, and from an absence of these, particularly in the fallows, that were more exposed to the

sun's influence than other lands, the plant was so delicate that the cold wet weather in the spring injured, and in many instances destroyed it. Hence the changes in colour, which the Wheat plant for want of proper nourishment exhibited in the spring and summer, from pale green to yellow and brown—only the recently enriched lands maintaining a dark healthy appearance. I have arrived at this conclusion from the fact that, almost without exception, wherever I have found a field in a high state of cultivation, that received but little working last summer, the straw is strong, the ear good, and the crop a full average. *Henry Hudson, Wick, near Pershore, August* 3.

Salt Water in the Ditches.—[Mr. Harvey, of Foulness, having condemned the entrance of the tide, is thus criticised by a correspondent] :—I have read in your paper a report of the crops of Foulness, signed by C. C. Harvey, wherein he states, "Peas are generally good, but one piece I know of white early Peas is turning quite white, and looks fit to cut, although only just off the bloom. I expect the root has touched the salt water, as some of the farmers here will insist on filling their ditches with salt water, which, in my opinion, greatly injures the crops." The Peas Mr. Harvey alludes to belong to me; they have died off as he describes through being eaten by a grub that separates the stem from the root about an inch below the surface of the soil. Had Mr. Harvey taken hold of some of the Peas so attacked he would have found them come out of the ground dissevered from the root. I think he ought to have done so, as it would have prevented him forming his erroneous expectation that they are injured by the salt water that runs through Foulness in the summer only, not filling the ditches, as he describes, but running through the island once a fortnight at spring tides, which is of great benefit, in a sanitary point of view, to the inhabitants of the island, and also in retaining the fresh water in the ponds for the use of cattle and the working classes, and does no injury to the growing crops. Having lived in Foulness 39 years next Michaelmas, I am sure I am not presumptuous in considering myself a good judge of what is beneficial or otherwise to the inhabitants and occupiers of lands, &c., in Foulness. *John Parsons, Foulness, July.*

Thick and Thin Seeding.—This thick and thin seeding is a vexed question, and to my mind must remain so, for the soils of England are so various, the conditions of those soils are also various, and there are many other varying circumstances, all needing consideration on the part of the farmer as to the quantity of seed needed. The seeding for Wheat in this neighbourhood varies from about 4 to 8 pecks per acre. I have recently been all over this neighbourhood, giving a sweep of about 10 miles round my home as a centre, without finding a single bit of Wheat too thick. I saw two days ago a bit on some well-farmed land that had been too thin in the winter on a part of the field, caused by a thinning of the plant by insects soon after seeding. This is pretty well filled up with long-eared Wheat, but it does not ripen anything like so well as the thicker part of the field. I judge that near upon 8 pecks had been the quantity of seed used. There are some Wheats in this neighbourhood drilled with only 4 pecks of seed per acre looking quite as well as the best part of the field above noticed, but they are farmed under different circumstances, and therefore a less quantity of seed is quite sufficient. This shows plainly that farmers exercise judgment as to the quantity of seed best to be used under all circumstances. When a farmer seeds his land he has to keep three things in view, viz., the payment of his rent, the payment for labour, and a payment for keeping himself as tenant. We all know that the landlords are paid, for it is very seldom that we hear of a distress for rent. The labourers are generally paid well, and the farmer puts up with what he gets, therefore these three conditions are kept by the tenant-farmer. Does Mr. Mechi, by the aid of his thin-seeding and high farming, keep them? No. For according to his last balance-sheet he had not enough to pay his rent, without a penny for his labour, or for himself, as tenant. He must clear up these points before we can take him as a master upon the seeding point. *A Farmer.*

Near Bury St. Edmund's.—The soil of this district is for the most part sandy or gravelly on a chalk subsoil—in some parts a poor blowing sand, in others, especially near the river, approaching to a good loam; coarse low meadows on a soil of a fenny character adjacent to the river, while on the high ground the chalk approaches the surface. All the crops on good land well farmed look well, and from the abundance of straw would probably be cited as above an average; but there is much poor land on which the crops are thin and light, especially Wheat, arising partly from the Clover on which this crop depends having so frequently failed from the dry seasons, and partly from the prevalence of rabbits. The Wheat ears are, I think, somewhat deficient in corn, from the ungenial weather when blooming, and, in some instances, slightly blighted: I must therefore, in spite of the fine appearance of many crops, put them down under an average. Barley appears well filled in the ears, and the corn of good quality. This is of great importance, as this is a district producing fine malting Barley. Oats are but little grown. Beans hardly at all; but a successful instance of winter Beans grown this year in a poor sand proves that deep-rooted plants are most suitable to our soil, if planted timely, so as to be well established before the summer droughts. Rye is grown in lieu of Wheat on the poorest soil, and is an average crop, though the yield is somewhat impaired by the late frosts. Peas are not well podded, yet have a great quantity of haulm; if got up well, this will be useful fodder. Potatos are not grown as a farm crop; they are as yet free from disease and of good quality, but very small. The root crops of all kinds are a good plant. Beet promises to be a heavy crop. No Turnip fly this year; in fact an absence of all insect plagues except the green fly and aphis, which have not injured farm crops to any extent. There was an abundant crop of meadow hay, for the most part got up well. The artificial Grasses, being earlier, were injured by wet, and being a bad plant, and full of self-sown Barley, Poppies, &c., the hay is inferior. All weeds have, from the mildness of the winter, been very prevalent, especially Poppies. I see Mr. Forsyth recommends their growth, and perhaps the large eastern Poppies might be useful as a green crop to plough in. The wild Poppies have been used here for feeding hogs, which are fond of them. Although several pieces of Rye, early Peas, and Talavera Wheat have already been cut, yet harvest will not be quite general till the first week in this month; thus beginning just about the time it finished last year. *W. R., August* 2.

Farm Profits.—I am very anxious to elicit sound practical opinions and advice, through your columns, on a subject of deep importance to myself. I have a few thousand pounds, and am anxious to invest them gradually in whatever branch of agriculture is likely to realise the largest income for my outlay. I have carefully perused several standard works, and incline to think selling milk or butter must bring the largest income; but I should want to sell the produce of 100 or 200 cows, availing myself of the services of the most competent, efficient, and trustworthy servants. I see, in "Morton's New Farmer's Almanac," that well-managed cows may return, by the sale of their milk, from 20*l.* to 33*l.* annually, while by the sale of butter and skim-milk cheese, about 16*l.* per cow may be expected; a considerable difference certainly, but the expenses in a butter dairy must be much less. Would breeding pigs pay better for skim-milk than the manufacture of cheese? A well-managed farm for breeding pigs on a large scale would, I apprehend, be a sort of agricultural novelty, but still the question remains whether a dairy of Channel Island and Ayrshire cows for the manufacture of butter on the system pursued by the owner of the justly celebrated dairy at West Town, Hurstpierrepont, or that of the world-renowned dairy for the produce of milk kept by Mr. Telfer, near Ayr, would prove safer as well as more remunerative. The sale of milk is getting an aristocratic pursuit, as I know three titled persons who now supply milk very largely to London customers. Surely I may engage in it as well as those noble personages! Can any of your readers say what the probable profit might be of a first-class breeding sow in one year, and how many such animals might be well kept for one year on the produce of a well-cultivated acre of good land. If any man in England can well and truly answer these questions of hard, dry calculation, it is surely Mr. Mechi. *Half Pay.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL: *Wednesday, Aug.* 4.—Present, Lord Walsingham, Vice-President, in the chair; the Earl of Powis, Viscount Bridport, Lord Kesteven, Mr. Barnett, Mr. Bramston, Mr. Cantrell, Col. Challoner, Mr. Davies, Mr. Druce, Mr. Brandreth Gibbs, Mr. Jonas, Mr. Leeds, Mr. Pain, Mr. Randell, Mr. Ransome, Mr. Shuttleworth, Mr. Statter, Mr. Torr, Mr. Wells, M.P., Professor Simonds, and Dr. Voelcker.

The following new members were elected:—

Argles, Frank Atkinson, Eversley, near Milnthorpe
Bailey, James (C.B.), Bleak House, Howick
Barnes, John, Spenstone, Lichfield
Bennett, Alfred W., Wharton, Ross
Bennion, Owen, Creswell, Stafford
Blyth, Thomas Walter, Abbington, Evesham
Castle, George Richard, Bicester
Davenport, Francis Henry, Headington Hill, Oxford
Gandy, Henry, Eden Grove, Kirkbythore, Penrith
Heywood, John, Manchester
Jonas, Frederick Maulkin, Chrishall Grange, Saffron Walden
Maxwell, Robert C. Heron, Springfield, Ecclefechan, N.B.
Midwood, Alfred H., Broad Oak, Sale, Cheshire
Monckton, Francis, Stretton, Penkridge
Newman, James, Chalfield, Faringdon
Russell, George, Manor House, Plumstead, Kent
Schofield, William W., Buckley Hall, Rochdale
Street, Frederick, Harrowden, Bedford
Wellingham, John, East Walton, Lynn
Wilkinson, Charles, Bank House, Kendal
Wise, George, Woodcote, Warwick

FINANCE.—Major-General Viscount Bridport (chairman of the committee) presented the report, from which it appeared that the Secretary's receipts during the past month had been examined by the committee, and by Messrs. Quilter, Ball & Co., the Society's accountants, and were found correct. The balance in the hands of the bankers on July 31 was 19,697*l.* 11*s.* 3*d.*, the sum of 3000*l.* remaining on deposit. Cheques to the amount of 11,079*l.* 12*s.* 6*d.* were ordered to be drawn. The committee recommend that the money on deposit (3000*l.*), and a further sum of 5000*l.*, making a total of 8000*l.*, be invested in the New Three per Cents., as a separate reserve show fund, in the names of two of the present trustees, with the additional name of Mr. Bramston. This report was adopted, subject to an amendment proposed by Colonel Challoner, and carried unanimously, that the present capital of the Society be made up to the amount of 20,000*l.* stock from the balance now in the hands of the bankers, and that the remainder of the 8000*l.* to be invested be treated as a show reserve fund.

GENERAL, MANCHESTER.—Lord Walsingham reported that the committee recommend that the prize of 5*l.*, awarded to Messrs. Thos. Milford & Sons for a pair-horse waggon (sect. vi., class 1), be increased to 7*l.* 10*s.*, in consequence of the judges having overlooked the provision contained in Rule 29. It was also reported that the committee feel that the thanks of the Council are due to the Manchester local committee for the exertions made by them to promote the success of the meeting held there, and to their Secretary, Mr. Whitworth, to whose management it is owing that the sum of 725*l.* has been obtained from the purveyors of refreshments. This result, which is quite unprecedented, combined with Mr. Whitworth's indefatigable efforts on behalf of the Society, have induced this committee to recommend that that gentleman be asked to accept as an acknowledgment of his services the sum of 150 guineas.—This report was adopted.

HOUSE.—Major-General Viscount Bridport (chairman) reported that the house required painting inside and out, and that the committee recommended that the sum of 100*l.* be granted for that purpose.—This report was adopted.

JOURNAL.—The Editor reported that the committee recommend that 50*l.* be granted for the purpose of obtaining a report on the agriculture of Monmouthshire.—This report was adopted.

SHOWYARD CONTRACTS.—Mr. Randell (chairman) presented the following report:—The surveyor has reported that he was satisfied with all the showyard works at Manchester, and that their cost amounts to 5476*l.*; the cost of the Leicester showyard was 4123*l.*, the excess at Manchester being therefore 1353*l.* The amount received from the exhibitors of stock and implements at Manchester was 2724*l.* 2*s.* 6*d.* and at Leicester 2042*l.* 15*s.* 6*d.*, the excess at Manchester being 681*l.* 7*s.* These figures show that the cost of the showyard works at Manchester bears very nearly the same proportion to the sum paid by exhibitors for the space they occupied, as was the case at Leicester.—This report was adopted.

GENERAL, OXFORD.—Lord Walsingham reported that the committee recommend (1) that Mr. Druce and the surveyor be empowered to make arrangements with the Oxford local authorities for levelling the ground and supplying it with water, as well as for depositing the Society's plant thereon; (2) that on the recommendation of the Mayor of Oxford the names of Mr. Middleton, of Catlow, and Mr. Newton, of Campfield, be added to the list of the general Oxford committee; (3) that Mr. Druce be appointed steward of forage; and (4) that the local authorities of Oxford be requested to arrange with the railway authorities to make their siding and other works outside the land shown upon the original plan, and to obtain for that purpose the necessary portion of the field adjoining.

A letter from her Majesty's Consul at Copenhagen, forwarded for perusal by order of the Secretary of State for Foreign Affairs, was laid before the Council. In this letter an account was given of the agricultural show held at Copenhagen from July 6 to 10 inclusive. In this letter it was stated that, compared with the size and resources of the kingdom, this show was the largest and best ever held in Denmark, and that the farmers of that country are an enterprising and intelligent class, ready to apply the experience and scientific knowledge of more favoured countries in developing their own really considerable agricultural resources. The total number of exhibitors was about 750, of whom 305 exhibited about 500 head of cattle, 130 horses, 150 sheep, and 40 pigs; 162 contributed different articles of farm produce, principally butter, cheese, corn, wool, &c.; 200 sent specimens of agricultural machinery, &c.; and 80 sent examples of garden produce, plants, fruit, &c.

BATH AND WEST OF ENGLAND.

July 27.—At the usual meeting of the Council of this Society, Sir Stafford H. Northcote, Bart., C.B., M.P., in the Chair,

The PRESIDENT opened the proceedings by paying an eloquent tribute to the virtues and talents of the late Lord Taunton, one of the late Presidents of the Society, whose death has called forth so many expressions of regret in the county of Somerset.

Col. LUTTRELL, as chairman of the committee appointed to consider whether the number of Council meetings may not with advantage be reduced, brought up a report recommending that the number of ordinary Council meetings be limited to six a year, and that the place of meeting be the New Grand Pump Room Hotel, Bath, where ample accommodation has been placed at the disposal of the Council by the liberality of the directors, to whom a vote of thanks was passed by the Council and ordered to be communicated by the Secretary.

A memorial, emanating from 24 leading agriculturists in the southern counties in favour of establishing a separate class for Berkshire Pigs, was ordered to be referred to the Stock Prize Sheet Committee. Twenty-two new members were elected.

LINCOLNSHIRE AGRICULTURAL.

THE amalgamated societies of this county had a great show of machinery and live stock at Lincoln on the last three days of last week. It was a great mistake, however, not to have had the animals and the judging of them on the first day, and it was more unfortunate to have had the closing day on a Saturday. Of these errors, however, the committee and exhibitors have, we are informed, had quite enough, and there is no fear of their repetition. There are some other points which need equal attention and alteration. We refer to extending the judging over two days for the purpose of "amusing" the public, and to allowing the entry of animals for competition in three or four classes. In regard to the former, public judging is interesting only to exhibitors and others who may be affected by the decisions. It is much more amusing to the public for animals to be paraded in the ring than it is to see the judges walk up to, and then step back from, first one animal and then another. This is a gaping kind of process to the generality of spectators. And in regard to special prizes, the award of these, or the classification of animals for competing for them, should be left entirely to the judges. For example: when all the classes proper have been settled, the 1st prize of each kind, as the bulls and cows, or mares and horses, or fillies and geldings, should be brought out, and the

pecial prizes for the best male, female, or animal, of ts kind should then be awarded. This is a clear and lefinite proposition, which can be understood by every one; and the animals can be divided into exes and ages till there will be as many opportunities for awarding special prizes as the most iberal patrons ever made requisite. Let this or any other society first divide its prize list into classes which have a beginning and an end; and then, if local gentlemen offer special prizes, let them stand either as he 1st prizes of the defined classes, and the 2d and 3d prizes be provided out of the society's funds. Or, if his be not altogether desirable, let the special prizes e awarded, as suggested above, to the best of the nales and females, and the aged and the young.

The wisdom of this amalgamation of small societies nto a county association is indicated by the success ast week at Lincoln, as compared with the last visit of the North Lincolnshire society to this town. Under the divided arrangements one day was thought to be enough, and the receipts were 430*l*. The entries on his occasion for a three days' show were, however, the arge number of 387 horses, 100 cattle, 337 sheep, and 44 pens of pigs. The increased receipts were in proportion, viz., within a little of 2000*l*. Great credit for hese results is undoubtedly due to the gentlemen and eading farmers in the county, and also to Mr. Upton, he courteous and able secretary

The stock was undoubtedly of a first-class character hroughout. The cattle were given the honour of preedence, but the horses must be referred to as the greater show, both as regards character and numbers. Mr. Foljambe's bull KNIGHT OF THE BATH, sire KNIGHT OF THE GARTER (22,062), s. of d. IMPERIAL WINDSOR (18,086), stood and walked as a great bull of ine quality on short legs; he fairly beat CHARLES LE BEAU, Lady Pigot's great prize-taker, in the contest for he champion prize. CHARLES LE BEAU, however, walked over in his proper class after his previous competitor had been excluded from taking another prize, and her ladyship's ROSOLIO was fairly awarded the 1st for 2-year-old bulls, although he had no competitor. Mr. Lynn, of Stroxton, took the 1st prize in both the yearling and calf classes for males; the former for GRAND SULTAN, which is an animal of very fine quality, but which would be more in character with our notion of a Shorthorn if he could be pulled by the nose till he had stretched a foot in length. He has fine quality, plenty of flesh, and is in as good condition as Mr. Lynn's animals always are, but he wants frame, and particularly length. The latter, GRANDEE, is a fine growing, lengthy, rich roan calf, and if he performs his promises he will be in a good position as an older animal some day.

The cows were few, but the rival leaders of the present fashion were present, viz., *Lady Fragrant* and *Queen of Rosalea*. The former was honoured with the champion prize for cows, and when she was thus put on one side, Lady Pigot's animal easily won the 1st in her class. In considering the 2d prize, the judges exercised a wise discretion, for they ignored the merits of a white cow which had been disfigured by feeding, and gave the 2d prize to a fine roomy roan of fine quality and condition, combined with true and natural female form. This is an example which we hope to see followed. Both these cows belonged to Mr. Foljambe, and we heard ridicule thrown on an opinion that the roan was a better cow than the fat showy white one. The judges, however, in this case, threw a damper on the craze for square, beefy, over-fed cows, which require a deal of "fettling" before they will breed at all, and, if they chance to have a calf, to have a wet-nurse for their progeny. A system which produces these results cannot long be a profitable one. For the 3d prize two fat lumpy cows of Mr. Torr's were very properly passed over, and the prize was correctly awarded to a red and white one which had not lost more than half the true and natural points of a female. We often hear such remarks as he has a cow's head, or neck, or chine, or all three of these points, applied to a bull: when will breeders of pedigree stock begin to criticise cows by saying she has too much of a bull's neck, or shoulder, or chine, or other points, as the case may be? Mr. Torr was 1st with a capital yearling heifer, to which Mr. How was 2d with a short beefy little thing that reminded one of an English-bred or fed male Bretonne, or Kerry, as regards its size and the form of its body. Messrs. Dudding were 1st for their capital calf, and Mr. Foljambe was 2d with one which looked large and old for its class.

The fat oxen were a good show, and Mr. Pulver took 1st with a pair of beautifully-bred and fed Shorthorns, one of which will make a good appearance in public in December; and Mr. Codling, from near Spalding, took 2d for a capital pair of well-bred Herefords.

The cottagers' dairy cow class is an interesting one, but small plots of land attached to humble dwellings do not appear to be very plentiful in Lincolnshire, for only three entries were made. These animals were, however, of a real milking type, and they were all in nice profitable condition; an example which some of our breeders would do well, for themselves and their country, not to despise.

The sheep were of the improved Lincolnshire breed, with the exception of six entries. The shearling ram class, numbering 52 entries, were a highly interesting collection. But the judging was anything but satisfactory. The 3d prize had nothing to recommend him but his fleece, the 2d was coarse and clumsy, while some of the unnoticed sheep were as good as any one need possess. Mr. Howard, of Nocton, Mr. Clarke, of Scopwick, Mr. Clarke, of Ashby, and Mr. Casswell, of Laughton, all had one or more excellent sheep for form and general character; and it is just an open question whether the worst sheep of the three sent by the winner of the 3d prize, was not selected for receiving that honour. Mr. Marshall, of Branston, won the champion prize of 25*l*. with a very heavy sheep. Messrs. Dudding, of Panton, were 1st in the 3-shear ram, and Mr. Casswell, of Laughton, 1st in the 2-shears.

The horses were so numerous that it would take a whole newspaper to describe and criticise them. Captain Barlow's Dalesman was placed 1st, and Mr. Wilkinson's Cariboo 2d, in a class of 8 thoroughbreds. Mr. Clarke, of Ashby, took the 1st in the class for 5, 6, or 7-year-old hunters. Mr. George Goates, of Great Coates, Grimsby, took Mr. Chaplin's 50*l*. prize for the best 4-year-old for hunting purposes. Mr. Brigham, Beverley, was 1st in 3-year-olds for a good-looking and good-moving but cow-hocked brown gelding.

The cart-horses, as regards form and quality, were extraordinary. Lincolnshire is renowned far and wide for these animals; and although the show was not numerous, its specimens were well chosen. The foals were particularly excellent for their size, form, and condition. The fillies and geldings, too, were not easily to be surpassed by a collection from any county; and the draught horses, two pairs, sent by Mr. Woolhouse, were big enough and strong enough to "move a town."

The ponies were not the least attractive, nor, indeed, important, for a very useful animal is a good pony. In a long class there were at least six perfect ones, both to look at and go. The hackneys, too, were far better than the "Royal" lot at Manchester, and as good as we have ever seen them at any show.

The machinery was a large collection, and the prizes good and numerous. This will be seen by the list below Mr. Amos, of London, was present with his dynamometer, to assist in testing the merits of each machine.

For grinding mills, with stone grinders, for grinding agricultural produce into meal by steam or horse power, 15*l*.—1st, Robey, 10*l*.; 2d, Ashby & Co., 5*l*.

For grinding mills, with metal grinders, for grinding agricultural produce for feeding purposes by steam or horse power, 15*l*.—1st, Amies, Barford & Co., 15*l*.

For grinding mills, with metal grinders, for grinding agricultural produce for feeding purposes by hand power, 10*l*.—1st, George Fox, Lincoln, 10*l*.

For corn screens, without blowers, 15*l*.—1st, Hornsby; 2d, Boby.

For Turnip cutters, 15*l*.—1st, Hornsby; 2d, Woods & Cocksedge.

For cake breakers, 10*l*.—1st, Amies, Barford & Co.

For miscellaneous awards to exhibitors of other agricultural implements or articles, and for essential improvements therein, a sum not to exceed 40*l*.

For the best stand of agricultural implements, 10*l*.—1st, Amies, Barford & Co. Besides this, Messrs. Amies & Barford were awarded 10*l*. out of the above 40*l*. for four of their well-known machines. The remaining 30*l*. was principally divided among the local exhibitors for miscellaneous collections of domestic articles.

JUDGES.—Shorthorned Cattle: Mr. Charles Randell, Chadbury, Evesham; Mr. George Drury, Holker Grange, Lancashire. Leicester Sheep and Pigs: Mr. H. Robinson, Carnaby, Bridlington; Mr. Robt. Fisher, Leconfield, Beverley; Mr. Geo. Mann, Scawsby, Doncaster. Longwool Sheep: Mr. Wm. Looker, Wyton Manor, Huntingdon; Mr. John Wheatley, Neswick, Driffield; Mr. Harwood Mackinder, Langton Grange, Spilsby. Horses—Hunters and Roadsters: the Right Hon. Viscount Doneraile, Doneraile, Cork; Sir G. O. Wombwell, Bart., Newburgh Park, Easingwold; Captain Percy Williams, Barnaby Moor, East Retford; Mr. John Wood, Market Overton, Oakham; Mr. John H. Bland, Thorpe Lodge, Newark; Mr. Henry Thurnall, Royston. Agricultural: Mr. John H. Wood, Humberstone, Grimsby; Mr. Edward T. Booth, Wainfleet, Boston; Mr. John H. Plowright, Manea, Chatteris. Wool: Mr. Thomas Clayton, Stainley House, Ripley. Implements: Mr. T. P. Outhwaite, Gouldsborough; Mr. John Hicken, Dunchurch, Rugby; Mr. John Hemsley, Shelton, Newark.

YORKSHIRE AGRICULTURAL: *Beverley, August* 4, 5, *and* 6.—The meeting of this great Society is being held on the Westwood Common, with even more than its usual interest and real business appearance. A long list of live stock, for which in some cases the prizes are only nominal, and a large collection of machinery, for which there are no prizes at all, are here brought together for inspection, admiration, and study. Yorkshiremen have too much public spirit to need heavy premiums to induce them to bring out their best animals; and, if they had not, they are too good judges of horses to attempt to raise funds by the jumping nonsense which has been adopted with so much pecuniary success by Lincoln and some other societies. There are altogether 63 classes of live stock, and 734 entries of animals, 76 of which are cattle, 124 sheep, 93 pigs, and 441 horses.

The cattle and the awards are very nearly the same as they were at Lincoln last week. Exceptions, however, exist in the aged bull class, for here we find EARL OF DERBY, the 1st prize at Manchester, in competition with COMMANDER-IN-CHIEF, Mr. Booth's public favourite, but which was absent from Manchester and other meetings on account of lameness. Mr. Booth's animal is placed 1st, Mr. Wiley's 2d, and Lady Pigot's Charles le Beau 3d. The 2-year-olds are a neat class; Mr. Meadows takes 1st with CHARLIE, a fine conditioned dark red, which very much favours the form of Bolivar, the 1st of his class at both Leicester and Manchester. There is something remarkably attractive about these sons of FIRST FIDDLE (19,749). Mr. Lynn was here 2d with his short thick bull GRAND SULTAN, and Lady Pigot is 3d with her ROSOLIO. In younger bulls, Mr. Foljambe's KNIGHT OF THE BATH had an easy victory, for his fine appearance and great size at 1 year and 10 months made his trial a mere walk over, even against Mr. Singleton's 4TH SQUIRE OF WATERLOO, which is 2d; Messrs. Crawshaw & Blakeley's PRINCE LEOPOLD, which is 3d; and Mr. Booth's ROYAL BROUGHTON.

The cows are relatively exactly as they were at Lincoln—Mr. Booth's *Lady Fragrant* 1st, Lady Pigot's *The Queen of Rosalea* 2d, and Mr. Foljambe's *Lady's Slipper* 3d. *Cherry Blossom* is also here, with her short neck and fatty proportions, and the judges have again confirmed our opinion that such a cow in a class of breeding animals is more deserving of censure than praise by men who ought to be qualified for their task at these meetings for improving our breeds of domestic animals. In the next class Mr. Booth is 1st with *Patricia*, and Mr. How 2d with *Lady Anne*. Mr. Eastwood, of Thorneyholm, is 1st and 2d in the yearlings, the former being a well-grown and formed heifer, by BARON OXFORD (23,375). She has ample width and squareness about her hindquarters, and her female character is well preserved in her shoulder, chine, neck, and head. Messrs. Dudding, of Panton, are again 1st with their calf which was 1st at Lincoln, Lord Kinnaird is 2d, and Mr. Robinson, of Leckby Palace, Thirsk, is 3d. This is not a strong class.

The sheep are principally Leicesters and Improved Lincolns. The former are a great and good collection of this breed, which is now of so much value for improving other long wool-breeds. In the shearling rams, Mr. Borton, of Barton House, Malton, is very strong, and he takes the 1st, 2d, and 3d prizes, and three commendations besides. He also takes 1st and 2d in the aged class, the 1st with a 2-shear, and the 2d with a 4-year-old; while Mr. Turner, of Uppingham, Leicestershire, was placed 3d for a 3-shear. The Lincoln ram prizes were most ridiculously awarded. Mr. Dudding's compact shearling ram was properly placed 1st, as it could not well otherwise be in such company; but it was as properly said that Mr. Cartwright's worst sheep was placed 2d! This, too, apparently for no other reason than because he had a heavy fleece; for, if he was stripped, there would be a deal of irregularity about his back and shoulders, points which no man, with any fair pretensions as a breeder, ought to overlook. Mr. Cartwright's fine pen of gimmers stand by themselves, and they were deservedly awarded the 1st prize.

The Shropshire sheep appear in pretty good force, considering the distance they are from home: and in many instances their great size and fine meaty character made a considerable impression. But white faces and long wool have too deep a hold of the Yorkshire and Lincolnshire mind for a rapid or extensive change to occur. Mr. Horton is 1st and 3d in shearlings, and Mr. Baker, of Atherstone, 2d. In aged rams Lord Wenlock is 1st with a great mutton sheep, but his shoulder and chine are not perfect. Mr. Tanner, a comparatively new exhibitor, from near Shrewsbury, is 1st with a fine pen of shearling ewes, which only want uniformity of colour to make them stand well in any company. Mr. Jonathan Peel, of Clitheroe, has sent some grand Scotch black-faces, and he takes six prizes out of seven.

The pig prizes are principally divided between Mr. Eden, a Manchester chemist, who takes seven 1st prizes, and the Messrs. Duckering, who have three 1st and three 2d prizes. It is a fine and good show of swine, of both large and small breeds.

The horses, as we have indicated, are a very great and splendid show. The hunters and hackneys we have never seen equalled at any meeting. Of the thoroughbreds for getting weight-carrying hunters there are 14. Dalesman is placed 1st, as he was at Lincoln and Manchester; Mr. Seller's Ahab is 2d; and poor old Motley, which has been so long a favourite, has here, at the age of 18 years, come down to a 3d position.

The roadster stallions are a remarkably good class, but among them there has been a deal of shifting and changing about this year. In the first place here, however, an American horse with the characteristic name, Shepherd T. Knapp, steps in and takes the 1st prize. This horse is 10 years' old, his sire was Eatham, and his dam by an Arabian horse. He is reported to have trotted two miles within five minutes and 31 miles within the hour! He is now the property of Major Stapylton, of Myton Hall, Helperby, and the fee for his use is never lower, we are told, than 20 gs. After this comes the shifting. Mr. Triffit's Young Fireway, which was 1st at Manchester, is here unnoticed; so is Young Quicksilver, which was first at Lincoln, while Mr. Beart's Ambition, which was in the same class with Young Quicksilver at Lincoln, is here 2d. The only fair conclusion to be drawn, however, from these various decisions is, that these horses are all so good that the majority of points in favour of one or the other is turned by the taste of the judges. Mr. Cook's Denmark was awarded the 3d prize, and All Fours, a prime clean-legged horse at 14 years of age, really looked well, and deserving a better position among his younger rivals.

The agricultural stallions were only nine, and varied in age from 4 to 11 years. The Manchester decision in respect to two horses was here reversed, a conclusion which we can in no way approve. But county prejudice has much influence sometimes, and the Yorkshire horse with the broken ear, Lincolnshire by name, is placed 1st, and Honest Tom, which has never been beaten till now, is placed 2d. Honest Tom was 1st at Bury as a 2-year-old, at Leicester as a 3-year-old, and at Manchester this year; and although Lincolnshire is a good horse, and wears well in his dark brown colour, we must say Honest Tom's powerful limbs, straight well-bound barrel, and handsome symmetry, make him the best horse that has appeared in public during his time. Mr. Proctor, of Howden, is 3d with Young Warwick, a fine 4-year-old grey.

The carriage stallions are extraordinary for their bright bay colour and black points; the uniformity of the whole and general similarity of symmetry make them additionally remarkable.

Of the hunters it is impossible to do more than generalise, for they are so many and so good. The award of the 100-guinea cup in the class between 4 and 8 years of age to Lady Derwent, the celebrated prize-taker, has given great dissatisfaction to the Yorkshire breeders and practical fanciers. What they say is that Lady Derwent does not respond to the condition by being up to 14 stone weight. No one can dispute over her form and beauty; but she certainly appears to be better to look at, or for a lady to ride in a park or Rotten Row, than to go across country with 14 stone weight on her

back. There were 61 competitors for this cup, and a finer lot of animals could not well be collected.

The 4-year-old hunter geldings and fillies form two other highly interesting classes. In the former, Primer, a horse sent by Mr. Duggleby, of Beverley, is 1st. He is a beautiful, but light bay. The judges evidently go for quality from beginning to end. Sir George Cholmley's Don Juan is 2d; and Mr. Toden's Young Artillery, 3d. In the fillies, Mr. Simpson, of Skipworth, is 1st, with a beautiful chestnut of somewhat light proportions.

Mr. James Hornsby is here beaten in the hackneys. Sambo, which has been 1st at Islington and other places, did not command attention here with his high and showy action, but his companion grey, a fast and stylish mare, was given the 2d prize, Mr. Casson's Red Cap being 1st. The 3d is Mr. Wilkinson's Carlton.

To lovers of horses, with such weather as we have had at this meeting, this show is the greatest treat in the year. Its management, too, is business-like throughout. The receipts, we hear, are satisfactory. Next year the Society will pitch their tents, sheds, and boxes, in the more populous Wakefield district.

JUDGES.—Cattle: Mr. Henry Smith, Esh Hall, Durham; Mr. H. W. Beauford, The Crescent, Bedford; Mr. George Drury, Holker Hall, Newton-in-Cartmell. Long-woolled Sheep and large-breed Pigs: Mr. John Painter, Belgrave House, Forest Road, Nottingham; Mr. Chr. Stephenson, Woburn, Bedfordshire; Mr. John Clarke, Long Sutton, Lincolnshire. Short-woolled Sheep and small-breed Pigs: Mr. Thomas Rigby, Darnhall Farm, Over-Winsford: Mr. Henry Overman, Weasenham, Brandon, Norfolk; Mr. Thomas Atherton, Chapel House, Speke, Liverpool. Horses, Hunters, and Roadsters: Mr. H. D. Boulton, Pictnoe House, Goldington, Bedford; Mr. Joseph E. Bennett, Husband's Bosworth Grange, Rugby; Mr. Charles M. Nainby, Barnoldby, Grimsby. Horses—Coaching and Agricultural: Mr. N. G. Barthropp, 23, Nelson Road, Great Yarmouth; Mr. John Fourness, Coxhoe East House, Ferryhill; Mr. Nathaniel Clark, Beamish Park, Fencehouses, Durham. Wool: Mr. Thomas Clayton, Stainley House, Ripley. Veterinary Inspector: Mr. Chas. Spooner, Principal, Royal Veterinary College, London.

Reviews.

Memoir of John Grey, of Dilston. By his Daughter, Josephine E. Butler. Edmonston & Douglas, Edinburgh.

Mrs. Butler's memoir is a charming picture of a happy life. Her father was a man of noble aims, untiring energy, and loving heart. And the next best thing to personal association with such a man, is acquaintance with him through such pages as his daughter has here given us. No more wholesome book for a country man can be suggested than one which describes the exuberant laborious joyous life which his position renders possible, which, indeed, in his position has been often realised, and never more happily or completely than by the subject of this memoir.

It is however, of Mr. Grey as a public man to whom the agriculture of all England owes much, and to whom the actual state of the cultivation of its northern province owes much more, that the *Agricultural Gazette* has the best right to speak. As agent over the great estates of the Greenwich Hospital—as representative of a large class interested in all the public movements, whether towards political reform, free trade, or education—as a man of great general powers and good judgment, strong social instinct, and especial ability as a public speaker; in all these capacities his influence was powerful; and in all these ways he contributed most efficiently throughout his long life to raise the condition of labourers and tenant-farmer, and to open the eyes of landowners to their true interests. We shall hereafter reproduce such passages from his memoir as will illustrate his agricultural and social life-work, and perhaps give one more utterance to his opinions. Meanwhile we have to be satisfied with thus calling the attention of our readers to one of the most pleasant and most useful books of agricultural biography that has ever hitherto appeared.

Farm Memoranda.

BANFFSHIRE, BOYNE DISTRICT, *Aug.* 2.—The crops in this district have made great progress during the month that is past, but the continued drought is now telling on the pastures, and in many places cattle will be badly off soon if we do not get a good deal of rain. The hay crop has been secured in fine season, and has proved better than was at one time anticipated; but there will be little or no aftermath, as our clay land is so hard and dry. Turnips in most cases will be a good crop, except in some stiff clays, where the drought has kept them back, but they will be vastly in advance of last year's crop. Oats promise to be a fair crop, but nothing like what was once expected. Barley and Wheat, however, look remarkably well, but will not be very early. We don't expect to have much harvesting in August. Turnip fields have been got clean in excellent style this year, the sun and wind killing weeds as fast as they were turned up, and they now look beautiful—a great contrast to last year, when harvest came on before Turnips were got well singled, but there will be time this year to clean up roadsides, ditches, and so forth, and make the farm look tidy.

Our live stock in this quarter have been very healthy on the grass, but some of our farmers are complaining that they have not put on much beef. Lambs are now being weaned, and promise well, but only a few are kept in this district. Our cattle show is past, and we were surprised to see the animals brought forward in such fine condition, after such a bare winter, and many really superior animals were shown — the veteran breeder of Kettle (Mr. Longmore) taking the lion's share of the honours for Shorthorns, and one other spirited breeder of polled cattle doing his part in that class, viz., Mr. Walker, Monbletton; and we have no doubt, if these gentlemen had sent them on to Edinburgh, Banffshire would have had a good part of the honours: however, there is a good time coming. *W. J.*

THE RICHMOND ESTATES.—[We extract from the *Banffshire Journal* a reference to the cottage accommodation on this northern property]:—The Duke of Richmond and the officials on his estates have had in view a remedy for the complaints so prevalent in recent years of farmers having to take an inferior class of servants from towns and villages, of the separation of servants from their families, and the evils consequent thereon, which are patent to everyone who has paid the least attention to the subject. The first requisite was to provide such accommodation as would enable a servant, with his wife and growing-up lads and girls, to have separate apartments; and this involved the provision of a house with three bedrooms. The cost of a house of this capacity, however, would be such as to preclude the possibility of a servant being able to pay its full value in rent. The only alternative then was to fix the rent of the cottage at such a figure as the servant could be reasonably expected to pay, the proprietor looking for the full remuneration of his money outlay in the realisation of the far-off interest of an improved moral tone in the labouring class of a future generation. The success of the scheme will, of course, depend upon the readiness with which the tenantry come forward and co-operate with their landlord.

The conditions upon which the cottages are given seem to be very acceptable to the tenants, and, we believe, have been accepted in most cases where they have been offered. In substance they are these: The proprietor desires to have the co-operation of the tenant in building a double cottage upon the farm, to accommodate two families. The tenant gives a site, with an eighth of an acre of garden ground attached to each occupancy free of rent, and performs the carriage of all materials. The proprietor does the rest, providing the necessary timber from the woods at Gordon Castle. When the cottage is completed, it is handed over to the tenant to be upheld in reasonable repair, and for the use only of married servants upon the farm. The annual rent of the double cottage is 5*l.*, or 2*l.* 10*s.* a year from each family. In no case is the tenant allowed to charge his servant more money for the house than he pays himself. It is also stipulated that, in finding occupants for the houses, the tenant is expected to have regard to their moral character; while the proprietor reserves the right of demanding the removal of any occupant who may infringe the regulations of the estate, or whose conduct is known to be habitually irregular. In the event of a married man without family occupying a cottage, he may, on a written permission from the factor on the estate, to be renewed annually, receive a boarder or lodger into the house. The tenant is held responsible for the carrying out of these conditions, the restriction obviously being with the view of making the occupancy of the cottages an object of ambition among the best class of servants, and to insure freedom from overcrowding of families into single apartments.

These conditions were first proffered to the largest tenant in the Huntly district of the Richmond estates—viz., Mr. Grant, Drumdelgie, a gentleman whose efforts for the instruction and comfort of the class whom he so largely employs have long been favourably known. Mr. Grant accepted the terms, and a specimen cottage has been built on his farm, and is now occupied by two servants and their families. Since its completion other three cottages have also been sanctioned, and are in course of completion in the Huntly district. The exterior of the double cottage presents a length of 55 feet; breadth, 20 feet; side walls, 9 feet high, with an additional height from eaves to apex of the gable of 11 feet. The masonry is of granite, of which there is plenty on the farm, and the outer walls of a uniform thickness of 2 feet. A wall of masonry divides the building in the centre, the fireplaces being in this wall, and the chimneys rising from the centre of the roof. On the low floor of each cottage there are three apartments—namely, a kitchen, occupying the whole width of the house, 16½ feet by 11½ feet; a scullery, 6 feet by 9 feet; and a bedroom, 10 feet by 9 feet. The entrance door is 3 feet wide, and there is a small entrance lobby of the same width, communicating on one side with the scullery and on the other side with the kitchen. In the lobby there is also a pantry. From the kitchen communication is had to the bedroom through a passage representing the width of the doorway, and having on either side two presses, one with shelving, and the other for hanging clothes. The staircase is also entered from the kitchen, and is carried over the top of the last mentioned pantries, being 3 feet in width. The kitchen and scullery are neatly plastered on the walls, and floored with Caithness pavement. The kitchen has two cupboards, one on either side of the fireplace, and the scullery is fitted up with a sink for washing and letting off water. All parts of the house, except the kitchen and scullery, are lathed and plastered, and floored with wood. On the upper flat, opposite the head of the staircase, there is a large press: on one side, a bedroom, 11 feet square, with a storm window and fireplace, and on the other side a bed-room, 9 feet by 11 feet, lighted from the gable. The cottages are excellently lighted, each apartment having a window 3 feet by 5 feet, and the staircase a roof light. The roof is covered with Welsh slates. Externally and internally, there is a total absence of ornamentation. At a convenient distance from the cottages there is to be a small outhouse for each occupant. The cottages, with the quarter acre of land for gardens, are to be enclosed with a stone wall.

The total cost of this double cottage is close upon 200*l.*, exclusive of carriage of materials by the tenant, which of course would vary in each case. It is calculated that the average cost to the proprietor of the cottages in course of completion, and which may be constructed in future, will not exceed 200*l.* The money return to the proprietor, as we have shown, is not more than 5*l.*, or 2½ per cent. per annum.

The question naturally arises, whether the indirect good done by these cottages is sufficient to warrant this outlay, besides the services given by the tenant, on an unproductive subject? So far as experience has been obtained of the effects of the cottage system, strong opinions are entertained that, in time, the benefits of this scheme will show themselves to be exactly what is desired by those who take the proper measures for giving it effect. One immediate result will be the removal of the complaint that the farm labourer requires to be elevated, and that there is no opportunity for a well-disposed farm labourer to settle in a place, with the hope of bringing up a family, under the influence of his own example and training. The condition of a competent farm servant, who may be lucky enough to find a situation on a farm with one of these cottages, will be better than that of any unskilled labourer living in a town or village. On a very moderate computation, the income of such a farm servant at the present time is equivalent to a regular money payment of 14*s.* per week during the whole year. While this income is guaranteed, he would only pay 50*s.* a year for a house with practically five apartments, and be subject to no taxation for it.

The Poultry Yard.

WITH August comes the end of the London season, and with the end of that same season comes the close of that of the Gun Club, and of the Hurlingham meetings. The surviving pigeons must be glad, and the breeders may congratulate themselves on having had an uninterrupted demand.

Not for many years has the price of pigeons been so high all through the spring, and it is with regret that we find that our own supply of them decreases from one year to another, and now throws us more and more on the Continent for our birds. Yorkshire, Cumberland, Lincolnshire, and Westmoreland formerly furnished a great many pigeons. Probably as many were sent in one season from the first-named county as now come from all. The cause of the decrease is that the farmers give up the dovecots. The pigeon has by tradition always been associated with mankind, and it may be, and very probably is, that its usefulness does not get it sufficient credit, and that the harm it does is greatly overestimated. Men's minds have in the last few years undergone considerable change as regards small birds, sparrow clubs, &c., and we have lately had a writer, of no mean authority, advance his opinion in the daily journals that the grouse disease has been fostered and propagated by unhealthy weak birds that would formerly have been killed by vermin, but now the vermin have been extirpated, so the sickly bird lives and infects the others. This may, or may not be the case; but as regards the pigeons, the two principal crimes urged against them are, that they breed in the spouts and stop up the pipes round the roofs of the buildings, and that they rob the fields. The first surely may be guarded against, and the second requires a good deal of proof; it is an open question whether they do not do more good in picking up the seeds of weeds, than they do harm in taking the corn. The time at which they do the damage extends over but a month or so, during which the rooks are co-criminals with them. Where tolerably well-housed the pigeons will breed nearly all the year round, and their produce, compared with the cost of their keep, leaves a large margin on the right side. The pigeon is easy in its choice of a home, and resigns itself to the roughest and most homely accommodation. There are few homesteads where the pigeon-house might not be instituted at a very small cost, and the corner or loft so utilised would not be missed. Suppose that it be part of a hay loft, or roof of a granary, all that is wanted is a place of egress for the birds, which may either be a lantern in the top, or some regular pigeon-holes cut in the front boards, with a rail or board nailed along the front for them to alight on, and a wire-door to hang in front of the holes, so that they may be kept in when necessary. The interior requires very little arrangement. The greater the number of nests, the better will the pigeons like them, and the more freely will they breed. The nests may be made to fit the house, and adapted in shape and number for the locality. In fitting up a pigeon-house with a view to profit, three nests should be allotted to each pair of birds. Some old writers say four, but we doubt if they use more than two at once, and then it is, that while still feeding a pair of nestlings, the hen will lay in a second nest. The nest requires to be just large enough for the two birds to go into when they are calling to nest, and to allow for the growth of a pair of young ones, with the inevitable accumulation of dung during the time they are growing. Where the pigeon is the ordinary blue rock, nests of 9 inches square would be of ample size for them. Where space is not so much an object, we would always recommend that the nests be made a foot square. It would be a great step gained to induce farmers generally to keep pigeons, and it would keep in the agricultural districts many thousands of pounds that are now paid annually to France. The next step would be to keep the best to be had, on the principle that a good one eats no more than a bad one, while some who live in wild and remote districts would breed the blue rocks, with a view to the wants of Hurlingham, the Gun Club, or their own pigeon matches; others living near towns, and in districts where it is not desirable to encourage long flights, should keep the larger varieties, and still further improve their size. The starting-point is the difficulty, but surely when the experiment may be made at so small a cost and at so trifling a risk it is worth while. In Belgium just now pigeon breeding has received a great impetus, especially in the breeds noted for flying. The principal towns have their clubs for the development of the birds, and the prizes offered are some of them very considerable; for instance, the Society

. Michel, of Brussels, has for its principal prize eight lver covers, threaded pattern, given by the King of the elgians; the Comte de Flandre gives four of a similar escription as 2d prize; these are followed by 22 other izes for the breeders in and around Brussels alone.

As the 12th draws near all sportsmen are anxious as the report of the grouse, and never were the opinions ore contradictory. We hear that on some of the cotch moors the head is very good, especially in the est. We fear that on the English moors the bags ill be small.

Calendar of Operations.

AUGUST.—In our southern provinces this is generally ie harvest month. By the Saxons it was designated barn month." Although the days begin to shorten, id the mean temperature of the atmosphere to fall, et in dry seasons, when the heat of the sun is not arried off by evaporation, it is often a very hot month hotter than its predecessor. But in wet seasons it is herwise; consequently, although in early seasons, as 868, much of the crop is harvested in the latter part f July, in late ones the work extends into September. n our northern counties harvest is fully a month later, eptember being harvest month.

Diseases of crops, and loss sustained, are by this time pics of conversation. Thus the Pea and Bean crops re liable to be attacked, the roots while growing, and ie pods after harvesting as well as before, by the larvæ f certain beetles, and the leaves and haulm by rust nd aphides (*i. e.*, Pea and Bean lice). Again, Wheat nd the other white corn crops are affected with smut, unt, rust, and mildew. Wheat is attacked by Wheat idge and ear cockle, and Rye by ergot. The ravages one by these parasites are often very partial, some arts of a field suffering more than others, while certain arts escape altogether. Again, much harm is fre- uently done by the weather from crops being laid and ss or more injured by lying on the ground. Where racticable, such differences of quality should be kept eparate, each by itself, in the carrying, which is no less dvisable for the sake of marketing than for seed corn nd feeding material. Much of the injured straw may e worth nearly as much for litter as the best quality, nd inferior corn may be worth more for cattle than or market. All this should be determined by a areful examination of the growing crops before the eaping-machine enters the field.

Winter Peas and Beans.—When the harvesting of hese crops is not concluded in July, the work is, of ourse, prosecuted the first thing in August. Thus oth crops may be cut during the previous month, but ave to be carried in this. During late years, excep- ional places in early districts only have been cut in uly, the bulk of the crop having to be cut and carried n August.

Winter Rye ripens early, and in our southern rovinces is often in the stackyards by the latter week f July or the first in August. On some parts of the ontinent of Europe it is extensively grown as bread orn for the inhabitants, and also for distillation, but n this country very little Rye-bread is now used. It s chiefly grown as herbage and forage for live stock, so hat little more is harvested than is required for seed orn. It grows freely on poor sandy soils, where Wheat, Barley, and Oats cannot be profitably grown, nd perhaps a greater breadth should be sown than is ow grown on such soils. The straw grows to a greater eight than that of Wheat; it is harder and more iry, and therefore answers well for thatch. It is also sed in straw plait manufacture, but for such a purpose t requires to be more thickly grown, and harvested efore it ripens. The whole work of harvesting is dentical with that of Wheat.

Bere, or *Bigg* (a six-rowed Barley), ripens its seeds arlier than the two-rowed Barleys. On this account t is grown in some late districts of Scotland, where the atter is liable to be injured by early frost. In the outh of England it is not much grown at the present ay. The grain is more numerous in the ear, but ighter in the bushel, and the straw does not stand up o well as that of the common sorts. In the North the rop is invariably bound in sheaves and stooked care- ully, with two hood-sheaves, 10 or 12 sheaves to the took, according as the straw is short or long. When he crop is short the Rye-grass and Clover generally own with it not unfrequently grow so high as to be p to the band of the sheaf. In such cases the sheaves hould be small, and rather loosely bound, otherwise hey are long before they are fit for the stack, for the Clover must be thoroughly dry, so as to avoid heating, o which it is very liable. In the South the crop is nore commonly mown and left in the swathe, ike Grass. If the weather be fine, it may be fit o stack directly from the swathe, the swathe having been once turned; but in catchy seasons it is safer to get it as fast as possible into hand-cocks, so built as to arry off a shower, should it fall, for when the ears of Bigg are beat into the ground by a heavy shower they oon sprout.

Barley is harvested South and North similarly to Bigg. In some districts the breadth is not great, but n others the crop is extensively grown. In the olden ime, when reaped with the sickle, it was common to ut above the Clover and Rye-grass, and then either to now the latter as hay, or else feed it off with stock. This old practice is an exceptional one still; for when Barley is thus cut it is soon ready for carrying, from its being allowed to be about dead-ripe before the work begins. Generally speaking, however, Barley is now cut either with the reaping-machine or scythe, bound up in sheaves, and stooked and stacked as Wheat. From the straw being dead-ripe it is easily cut with a sharp scythe. It is fit for stacking at once when the grain is hard, provided there is no Grass in the sheaves; but when the young Clover is up to the band, it is next to impossible to secure the crop so as to thresh it out in good malting condition. It has often occurred to us that, taking one year with another, wet and dry, Grass seeds should be sown on the stubble immediately after harvest, and not at seed-time, more especially in our southern and midland counties. This rule applies to Wheat and Oats equally as to Barley, for when the corn crop grows luxuriantly it kills out much of the Grass; and when the young Grass rises amongst the corn, so as to gain the mastery, it injures the crop, especially in wet harvests. In point of fact, the practice thus commended has long been an exceptional one.

Rye-grass and Clover-seeds when sown after harvest are got in as soon as the clearing a field will permit. If the Barley stubble-land is clean, a stroke of the harrows will fit it for the seeds, which may be sown with a machine, and bush-harrowed in; but if full of weeds it must be cleaned, and as Grass stands more manure than corn, less or more artificial manure may generally be applied with profit. Where the seeds were sown with the corn crop, and have been partially, wholly, or nearly killed out by lying beds, or otherwise, the blanks and thin places should be resown; but in this case the harrows cannot be yoked, so that the seed is sown broadcast by the hand, thick or thin, as the sower sees occasion, and left to take root on the surface, being washed in by the first shower of rain. Some give calves and lambs a run of the young Grass after harvest, but the harm they do often exceeds the gain. *W. B.*

Miscellaneous.

The late Mr. John Hudson, of Castle Acre.—We have to record the death of a celebrated agriculturist and most excellent man—Mr. John Hudson, of Castle Acre, Norfolk—which sad event took place at The Beeches, Cirencester, while he was on a visit to his son-in-law, Mr. Joseph Sewell. Mr. Hudson, we hear, had been in failing health for some time, and it was hoped that the visit to Cirencester, where two of his daughters reside, would have had a good effect. M. Tréhonnais, the well-known French writer, some years ago published several interesting sketches of our British agriculturists, and Mr. Hudson was naturally one of the "representative men" selected. According to M. Tréhonnais, Mr. Hudson's celebrity as an accomplished agriculturist originated in his early opportunities of learning the principles and practice of improved husbandry under the tutelage of the late Earl of Leicester. "It is not his private life" (writes our author) "which I am about to relate—the events of the farmer's useful and laborious life offer too little interest from their monotony. The occupations of the farm, conducted quietly in a waste and lonely country; revolving in a quadrennial cycle, with the regularity of seasons and days; the weekly visits to the market town; the ordinary vicissitudes of human life, with the joys and sorrows which come in turn to visit our hearths; field sports in September; meetings of the Royal Society, and the minor interests of a local committee — these are the events which fill a farmer's life. But along with this unexciting and monotonous life of the farmer, the activity of a deep thinker, the intelligence of a man of genius, the sagacity of a profound economist, have created for some men, who have known how to ennoble it, a new world, a sphere of activity and a mine of wealth which can be worked without danger of exhausting its source. This has been exemplified in the life of John Hudson." He was born in 1794, near Lynn, where he received his early education. He commenced his apprenticeship to husbandry in 1809, under his father, who rented a farm under Lord Leicester (then Mr. Coke) at West Acre, not far from Castle Acre, now occupied by the individual under our notice. The farm which his father held was naturally of such light soil, that in the first two years of the lease (for 14 years) which the elder Hudson had held, his returns of Wheat were miserably poor; but under his skilful treatment, in the last four years of his lease, it returned an average crop, 15-fold greater. Subsequently Lord Leicester let the farm of Castle Acre to the son on a lease for 21 years, and the father moved to an adjoining farm. The two farms contained 1575 acres. Twelve years later all fell into the hands of the younger Hudson, who has recently detached a portion of it for his son. "As to Mr. Hudson's present system of farming, his ground has been so enriched by the quantities of artificial manures applied every year, besides the ordinary farmyard supply, that he has obtained permission from Lord Leicester to modify clauses in his lease, so as to admit of two successive corn crops, contrary to the usual Norfolk system. Mr. Hudson is not a great sheep breeder—his ewes never exceed 200; but he has from 2500 to 3000 sheep to consume the produce of the farm, besides 200 head of cattle fattened every year. He buys, at fairs, lambs to keep up the number of feeding stock, and prefers the New Leicesters; and is acquiring wealth for himself, because the land is rendered two-fold, and in some instances three-fold, more valuable than it was before, by the superior style of cultivation pursued by the tenants, with a free expenditure of their capital. As a further encouragement for ensuring their permanency on the farms, they obtain renewed leases four years before the expiration of the old ones. Mr. Hudson is himself a proprietor, having recently purchased an estate in Gloucestershire, and another in Norfolk, and he also possesses detached farms near Lynn. His residence at Eccles has great woodland and park beauty, and there he exercises splendid hospitalities." An eloquent tribute to this gentleman's moral and social qualities closes this memoir of Mr. Hudson, who is designated "King of Farmers." *Wilts and Gloucester Standard.*

Notices to Correspondents.

JOINT GRASS: *P F.* No specimen has reached our office.

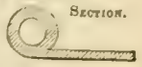
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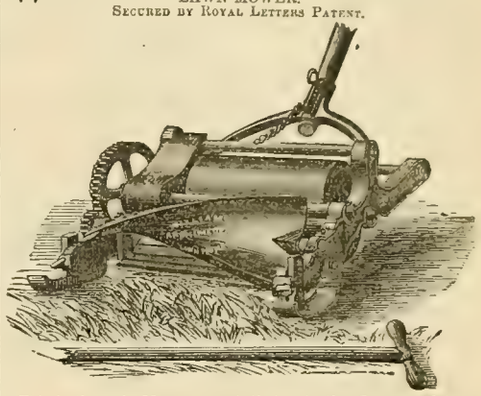
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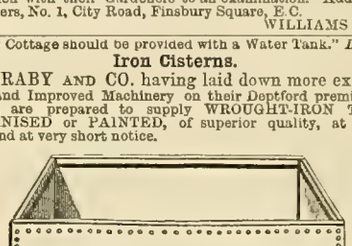


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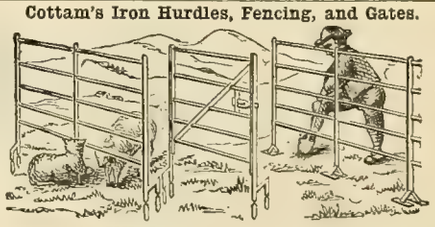
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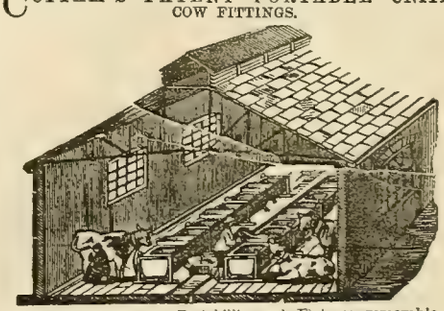
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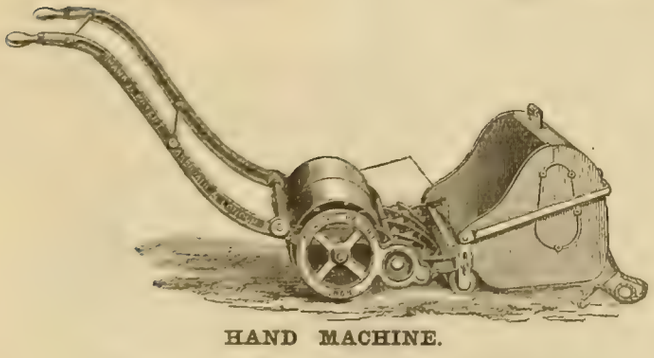
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OF
GREAT BRITAIN.



HAND MACHINE.

SHANKS'S PATENT LAWN MOWERS
ARE ALL FITTED WITH
PATENT DOUBLE-EDGED SOLE PLATES, WIND GUARDS, AND SELF-SHARPENING REVOLVING CUTTERS.

Advantages possessed by no other Lawn Mowers.

The unprecedented Sale of SHANKS'S LAWN MOWERS for 1868 forms the most convincing testimony of the value and success of the Improvements introduced last Season.

PRICES—INCLUDING CARRIAGE TO ANY RAILWAY STATION OR SHIPPING PORT IN THE KINGDOM.

SHANKS'S NEW PATENT HAND MACHINE.

		Easily Worked
10-inch Machine	£3 10 0	*By a Lady*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*By a Boy*
16-inch Machine	£6 10 0	*By a Man*
19-inch Machine	7 15 0	*By a Man and a Boy*
22-inch Machine	8 10 0	*By Two Men*
24-inch Machine	9 0 0	

The Hand Machines are all with Silent Movement.

SHANKS'S NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* ,,
30-inch Machine	15 15 0	30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra.
Boots for Pony, 22*s.* per set.; Ditto for Donkey, 18*s.* per set.

SHANKS'S NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* ,,
42-inch Machine	26 0 0	40*s.* ,,
48-inch Machine	28 0 0	40*s.* ,,

Silent Movement, 20*s.* extra. Boots for Horse, 26*s.* per set.

Every Machine warranted to give ample satisfaction, and, if not approved of, can be at once returned without any expense to the buyer.

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH; and
27, LEADENHALL STREET, LONDON, E.C.

27, Leadenhall Street is the only place in London where intending purchasers of Lawn Mowers can choose from a Stock of from 150 to 200 Machines. All sizes kept there, whether for Horse, Pony, or Hand Power.

SIR J. PAXTON'S PATENT HOTHOUSES for the MILLION, are cheap, substantial, and easily fixed. Illustrated Price Lists, with sizes, &c., free on application. ESTIMATES given for CONSERVATORIES, HEATING APPARATUS, &c. A HANDBOOK of VINE and FRUIT-TREE CULTIVATION, post free, 13d.
HEREMAN AND MORTON, 7, Pall Mall East, London, S.W.
Works in London, Gloucester, Coventry, and Scotland.

Heating Apparatus.

J. MEREDITH continues to supply and fix HOT-WATER APPARATUS in VINERIES, and every description of HOTHOUSE BUILDINGS, &c.
The Vineyard, Garston, near Liverpool.

HOT-WATER APPARATUS of every description, fixed complete in any part of the country, for Warming Greenhouses, Conservatories, Forcing Pits, &c.
Plans and Estimates on application.
J. JONES AND SONS, 35, King Street, Cheapside, London, E.C.
Manufactory, 6, Bankside, Southwark.

CRANSTON'S PATENT GLASS BUILDINGS for HORTICULTURE. Plans and Estimates free.
Just Published, free for 30 stamps, Third Edition, DESCRIPTIVE BOOK, splendidly Illustrated from existing Buildings. By the Author and Patentee, JAMES CRANSTON, Architect, Temple Row West, Birmingham. H. J. GROWTAGE, Manager.

GARTON AND KING, IRONFOUNDERS, HOT-WATER ENGINEERS, &c., Exeter.
CONSERVATORIES, GREENHOUSES, VINERIES, PINE-PITS, &c., HEATED by IMPROVED HOT-WATER APPARATUS, and G. & K.'s powerful and economical Boilers.
G. & K. refer with confidence to their lengthened experience and extensive practice in Heating by Hot-water Circulation.
Estimates and Plans furnished on application.

Heating by Hot Water.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, S.E.

	2-inch.	3-inch.	4-inch.
HOT-WATER PIPES, from stock—p. yard	1s. 0d.	1s. 6d.	2s. 0d.
ELBOWS for ditto .. .. .. each	1 6	2 3	2 9
TEES .. .. „	2 3	3 6	4 6
SYPHONS .. .. „	2 3	3 6	4 6
THROTTLE VALVES .. .. „	10 0	11 6	13 0

Cash remittance with order.
N.B. All Goods of first-class manufacture. No second quality kept. Estimates given, and orders punctually attended to the same day.

HOT-WATER PIPES.
CASH PRICES.

	2-inch.	3-inch.	4-inch.
PIPES .. .. per yard	1s. 0d.	1s. 6d.	2s. 0d.
ELBOWS .. .. each	1 6	2 3	3 0
TEES .. .. „	2 6	3 6	4 6
SYPHONS .. .. „	2 6	3 6	4 6
VALVES .. .. „	10 0	11 6	13 0

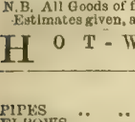
No credit will be given when Pipes, &c., are invoiced at the above prices.
J. JONES AND SONS,
6, Bankside, Southwark, London, S.E.
Price Lists, with terms for credit and for delivery at country stations, will be sent on application.

RAIN-WATER PIPES. EAVES, GUTTERS, O-GEE HALF ROUND and CONNEXIONS, HOT-WATER PIPES, WROUGHT and CAST-IRON BOILERS, delivered in London, Liverpool, Bristol, or equivalent. Large stock kept at the Works.

	2-inch.	3-inch.	3½-inch.	4-inch.
	s. d.	s. d.	s. d.	s. d.
HOT-WATER PIPES—per yard	0 11	1 5	1 8½	1 11
ELBOWS .. .. .. each	1 4	2 1	2 6	2 9
TEE PIPES .. .. .. „	2 0	3 0	3 6	4 0
SYPHONS .. .. .. „	1 9	3 0	3 6	4 0
VALVES .. .. .. „	10 0	11 0	11 6	12 0

Nett cash on receipt of invoice. Prices equally low for Gas and Water Pipes and Connections.
London Warehouse, 16, Grand Junction Wharf, Paddington Basin.
GEORGE ROBINSON, Dial Iron Works, Stourbridge.
Estimates. Priced Credit Lists, with terms, per post.

W. H. LASCELLES' MACHINE-MADE MELON LIGHTS. Each.



6 ft. by 4 ft. Lights, 2 ins. thick, unglazed	£0	5 0
„ „ Primed and Glazed with 10 oz. Sheet	0	11 0
„ „ with stout Portable Box, not Painted..	1	3 0
„ „ Painted four coats, and Handles on	1	8 0
„ „ Packed and Delivered in Railway Van..	1	10 0
6 ft. by 8 ft., Double Lights, do.	2	15 0

GREENHOUSES. Per ft. super.

Woodwork only Prepared and Fitted	0	0 6
„ Primed and Glazed with 16 oz. Sheet ..	0	0 9
„ Delivered, and Fixed with Ironwork ..	0	1 0
„ Painted four coats, two sides, ready for use	0	1 3

Finsbury Steam Joinery Works, 121, Bunhill Row, E.C.

Latest Improvements in Heating by Hot Water.



THE IMPROVED CONICAL BOILERS, for HEATING PINERIES, CONSERVATORIES, GREENHOUSES, MANSIONS, HALLS, WAREHOUSES, &c.,
SOLELY MANUFACTURED BY
JAMES G. POLLARD
(Successor to John R. Peill, late Stephenson & Peill),
85, Shaftesbury Street, New North Road, London, N.
Annexed Sketch shows JAMES G. POLLARD'S improved arrangement, requiring no brickwork setting.
These Boilers are also adapted for Setting in Brickwork.

HOT-WATER APPARATUS
Erected Complete, or the Materials Supplied for Heating

Peill's Conical.



GREENHOUSES, HOTHOUSES, CONSERVATORIES, CHURCHES, PUBLIC BUILDINGS, &c.
HOT-WATER PIPES at wholesale prices, Elbows, T Pieces, Syphons, and every other connection kept in stock.
WROUGHT and CAST IRON CONICAL, SADDLE, and IMPROVED PEILL'S and ELLIPTIC BOILERS, from 24s. each.

Tubular Boiler.



IMPROVED and EXTRA STRONG CAST IRON TUBULAR BOILERS, with or without Water Bars, from 62s. 6d. each.
CAST and WROUGHT IRON PORTABLE BOILERS on STAND, for use without brickwork, from 60s. each.
PATENT and IMPROVED THROTTLE and other VALVES, FURNACE DOORS, BARS, and FURNACE WORK of every description and size.
LYNCH WHITE,
Old Barge Iron Wharf, Upper Ground Street, London, S.E.
(Surrey side Blackfriars Bridge).
Price List on application.

Ferneries.

E. A. PUIG, ORNAMENTAL ROCK WORKER, 121, Grove Terrace, St. John's Wood, N.W. FERNERIES of all kinds, internal and external, artistically designed and executed.

CROQUET TENTS, elegant and durable.
CRICKET MARQUEES of superior style.
BENJAMIN EDGINGTON'S Illustrated Catalogue free by post.
Address, 2, Duke Street, London Bridge, S.E.
No other Establishment.





THE "CASSIOBURY."
The best and most powerful GARDEN ENGINE.
15 Gallons .. .. £4 10s.
24 Gallons .. .. £5 10s.
S. OWENS AND CO.,
Whitefriars Street, London, E.C.

THE HYDRONETTE, (Robins' Patent,) for Gardens, Greenhouses, Conservatories, Hotbeds, &c. Unrivalled ease of action, simplicity, convenience, and force.



The HYDRONETTE is a more useful, easy working, reliable, and convenient water-throwing machine than any other in use. It is made in five sizes, viz.:—No. 1, with 4 feet of Suction Hose, Strainer, Jet, and Rose, 12s. 6d.; No. 2, 16s. 6d.; No. 3, £1 1s.; No. 4, £1 5s.; No. 5, £1 10s. Extra Hose and Union Joints furnished to order. Forwarded on receipt of Post Office order. To be obtained through any Ironmonger or Florist, or of the Proprietors, HAYNES AND SONS, 227, 229, and 231, Edgware Road, Paddington, W.

Rosher's Garden Edging Tiles.



THE above and many other PATTERNS are made in Terro-Metallic Ware, Terra-Cotta, Stoneware, and Redware, and of great durability. The planer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability and superior finish, and in much variety of design.
F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.E. Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs. Likewise more elaborate designs. Pattern Sheets of Pavements, with prices, forwarded for selection.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.
To be obtained of F. & G. ROSHER, at their premises as above.

SILVER SAND (REIGATE), at the above addresses—14s. per Ton, 1s. 2d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less. A coarser grained Sand 4s. per ton more. Samples of Sand by post on receipt of stamp.
FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEAT and LOAM supplied at lowest rates.
F. & G. ROSHER.—Addresses see above.
N.B. Orders promptly executed by Railway or Vessel.
A liberal discount to the Trade.

TO BE LET, with Immediate Possession, a Well-established NURSERY GARDEN, in a good Market Town, about 40 miles from London. Glass Erections Heated by Hot-water, and every convenience for doing a good Trade. Railway Station within half-a-mile. Rent and Valuation moderate.
For particulars apply to Mr. CUNNINGTON, Braintree, Essex.

An Excellent Opportunity.

FOR SALE, with Immediate Possession, a capitally situated NURSERY and FLORIST'S BUSINESS, the extent of Land 10 Acres, long Lease, adjacent to important Towns, and a few miles South-west of London, also close to a Railway Station. The Growing Stock is various, with Greenhouses, Pits, Frames, and Buildings, and every convenience. Loamy soil, surrounded by good Roads, &c. Rent very moderate. Half of purchase money may remain at interest. To a Business Man or Men really an excellent opportunity.
Parties seriously entertaining this can have full particulars on application to W. ABRAHAM, Horticultural Auctioneer, Valuer, &c., Goldworth Nurseries, Woking, Surrey.

Ireland (North).

The NURSERY and SMALL FARM of NURSERYVILLE, with DWELLING-HOUSE and OFFICES, near SHANE'S CASTLE, COUNTY ANTRIM.

FOR SALE, in ONE LOT, by Private Contract (in consequence of the death of the Proprietor, the late Mr. John Ross), the INTEREST in the LEASE of the above LANDS, together with the whole of the NURSERY STOCK of TREES and SHRUBS, &c. The Premises are advantageously situate near the turnpike road, midway between the towns of Antrim and Randalston, one mile from a railway station, and 14 from Belfast, the commercial metropolis of Ireland. The Nursery was established in the year 1800, since which time the Business has been successfully carried on, and it is believed might be considerably extended. The locality is a desirable one, and equal to any part of the United Kingdom as regards the social, moral and industrial character of the population. Apply in the first instance to
Mr. COWAN, Land Agent, Tawstock Manor, near Barnstaple.

To Florists and Others.

SILVER HALL NURSERY, Isleworth, TO BE LET.
Ten years' Lease. Price £50.

FRUITERER'S, GREENGROCER'S, and SEED SHOP TO BE LET, in a Market Town, 22 miles from London, with a good family connection. Half an Acre of Garden Land can be had with it.
For further particulars apply to M. H., Post Office, Windsor.

Grazing and Stock Farm, 4 miles from Guildford.

TO BE LET, for a term of years, with Immediate Possession, or at Michaelmas next, TUNMORE FARM, East Clandon, and 150 ACRES of GRASS-LAND, part of Hatchlands Park, containing together about 190 acres; the larger portion being in Grass, with a comfortable Dwelling House, Labourers' Cottages, and commodious Farm Buildings, situate on the Guildford and Leatherhead road.
For particulars, and to view, apply to Mr. G. WOOD, Hatchlands Farm, Guildford.—Hatchlands, July 29, 1869.

The Holme Pierrepont Pure-bred Leicester Rams.

MR. G. H. SANDAY has a few for LETTING, which he will be glad to show his Friends at any time.
Holme Pierrepont is four miles from Nottingham, and one from the Ratcliffe Station, Great Northern Railway.—July 28.

Sales by Auction.

Ten Cases of Bulbs, just arrived from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, August 7, at half-past 12 o'Clock precisely, 600 Lots of HYACINTHS, TULIPS, CROCUSES, NARCISSUS, and other Bulbs, just arrived from Holland, in lots, to suit the Trade and private Buyers.
On view the Morning of Sale, and Catalogues had.

Imported and Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, August 11, at half-past 12 o'Clock precisely, an importation of Choice and Rare ORCHIDS, from India, consisting of—

Dendrobium Wardianum	Vanda teres
„ Falconeri	„ cœrulea
„ Devonianum	Aerides Fieldingii
„ chrysotoxum	„ odoratum
„ heterocarpum	Saccolabium guttatum

And a small Collection of Select ESTABLISHED ORCHIDS, in fine condition.
On view the Morning of Sale, and Catalogues had.

Dutch Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, August 14, at half-past 12 o'Clock precisely, several cases of BULBS, just arrived from Holland; RUSTIC SEATS, STOOLS, VASES, &c.
On view the Morning of Sale, and Catalogues had.

Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, August 17, at half-past 12 o'Clock precisely, several Importations of Valuable ORCHIDS, from Borneo, Guatemala, and other parts. On view the Morning of Sale, and Catalogues had.

Shropshire Sheep and Shorthorn Cattle.
HOLLY BANK, NEAR BURTON-UPON-TRENT.

MR. JOHN B. LYTHALL (Secretary to the Birmingham Cattle Show) will SELL by AUCTION, on TUESDAY, August 10, at 2 o'Clock (Luncheon at 12), THIRTY SHEARLING and other RAMS, FIFTY SHEARLING and STOCK EWES, and a few Pure-bred SHORTHORNS, the property of Willoughby Wood, Esq. The Flock was founded on Ewes selected with judgment from the old Packington Flock, and has been maintained by the introduction of the best blood, regardless of cost, as a reference to the Catalogue will show. The Rams are of great size, excellent wool cutters, and possess plenty of bone and muscle. The high and exposed situation on which these Sheep are bred renders them particularly hardy in their constitution. The Shorthorns are especially worthy the notice of Breeders requiring animals of Bates blood.
Conveyances will meet Trains at Barton and Walton Stations, Midland Railway.
Auctioneer's Offices, 39, New Street, Birmingham.

Cotswold Ram Sales, 1869.

T. B. BROWNE, Esq., of Salperton Park, Gloucestershire, has instructed

JAMES VILLAR to SELL by AUCTION about 100 COTSWOLD SHEARLING RAMS, at the undermentioned public Markets and Fairs:—
CIRENCESTER, AUGUST 2 and SEPTEMBER 6.
STRATFORD-ON-AVON, AUGUST 30.
EVESHAM, SEPTEMBER 14.
WORCESTER, SEPTEMBER 19.
GLOUCESTER, SEPTEMBER 28.
Mr. T. B. BROWNE does not intend exhibiting any of his Sheep at the Royal Agricultural Society's Show this year, in consequence of the practice of over-feeding, which, in his opinion, renders the Sheep quite unfit for use; he has, therefore, determined to offer his Rams this year in fair store condition, feeling assured that the Sheep will be more profitable to the buyers.
Mr. BROWNE specially invites all who take an interest in Long-woolled Sheep to inspect his whole Flock of about 800, any day by appointment, at Salperton Park, Gloucestershire.—July 1, 1869.

Important Sale.—BLOUNT'S AND SWEET DEW'S FARMS, SAWBRIDGEWORTH, HERTS.

G. E. SWORDER has been favoured with instructions from John Prout, Esq., the Proprietor, to SELL by AUCTION, on the Premises, on TUESDAY, August 10, at 11 o'Clock, the excellent CROPS of CORN and HAY of 334 Acres, together with the whole of the abundant growth of STRAW, comprising 126 Acres Wheat, 30 Acres Barley, 72 Acres Oats, 64 Acres Beans, 22 Acres Peas, and 50 Acres Hay. The Crops may be viewed at any time. The Company is requested to meet at Blount's Farm House, where Luncheon will be provided at 10 o'Clock.
Catalogues may be had at the principal Inns at Hertford, Ware, Waltham Abbey, Hoddesdon, Harlow, Hatfield, Dunmow, Saffron Walden, Great Hadham, Sawbridgeworth, and of the Auctioneer, Bishop Stortford.

Important Sale of Shorthorn Cattle, Southdown Sheep, Pigs, &c., at Coleshill, Berks.

MR. STRAFFORD and MR. JOHN WATERS have the honour to announce that in consequence of the Earl of Radnor having let the greater portion of the Home Farm (for many years held in hand by the late Earl, at Coleshill), they have received instructions to SELL by AUCTION, (without any reserve), on FRIDAY, August 20, very choice selections (comprising the greater portion) from the very valuable HERD of SHORTHORN CATTLE, FLOCK of SOUTHDOWN SHEEP, and COLESHILL PIGS.
Catalogues with pedigrees and other particulars may be had on application to Mr. STRAFFORD, 13, Euston Square, London, or of Mr. WATERS, Canal, Salisbury; and at the Farm at Coleshill, Berks.
The remaining portions of the Live and Dead Stock will be Sold by Mr. DYKE, of Farringdon, in September next.

Brailes House, Shipston-on-Stour.
IMPORTANT SALE of SHORTHORNED CATTLE.

MR. STRAFFORD begs to announce that the THIRD BIENNIAL SALE of SHORTHORNS belonging to Henry J. Sheldon, Esq., will take place on FRIDAY, September 17, at Brailes House, and will consist of about FORTY HEAD of BULLS, COWS, and HEIFERS, from this famed herd, which has been judiciously bred for several years, principally from Fawsley and Kirklevington blood. The Cows and Heifers are in a healthy breeding state, and the whole will be SOLD, as in former sales, without any reserve, Mr. Strafford can with confidence recommend them to the favourable notice of purchasers.
Catalogues, with Pedigrees and other particulars will shortly be issued.—London: 13, Euston Square, August 5.

WILLIAM S. BURTON,

GENERAL FURNISHING IRONMONGER,

BY APPOINTMENT TO H.R.H. THE PRINCE OF WALES,

SENDS A CATALOGUE GRATIS AND POST PAID.

It contains upwards of 700 Illustrations of his unrivalled Stock of

ELECTRO PLATE, and BRITANNIA METAL GOODS, DISH-COVERS, HOT-WATER DISHES, STOVES and FENDERS, | MARBLE CHIMNEY-PIECES, KITCHEN RANGES, LAMPS, GASELIERS, TEA TRAYS, | URNS and KETTLES, TABLE CUTLERY, CLOCKS, CANDELABRA, BATHS and TOILET WARE, | IRON and BRASS BEDSTEADS, BEDDING and BED HANGINGS, BEDROOM CABINET FURNITURE, TURNERY GOODS, KITCHEN UTENSILS.

With Lists of Prices, and Plans of the

TWENTY LARGE SHOW-ROOMS,

AT 39, OXFORD STREET; 1, 1A, 2, 3, AND 4, NEWMAN STREET; 4, 5, AND 6, PERRY'S PLACE, AND 1, NEWMAN YARD, LONDON, W.

THE PERFECT SUBSTITUTE

for SILVER.—The real NICKEL SILVER, introduced more than 30 years ago by WILLIAM S. BURTON, when Plated by the Patent Process of Messrs. Elkington & Co., is beyond all doubt the best article next to sterling silver that can be employed as such, either usefully or ornamentally, as by no possible test can it be distinguished from real silver.

A small, useful Set, guaranteed of First Quality and for finish and durability, as follows:

	Fiddle or Old Silver	Bead.	Thread.	King's or Shell and Thread.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
12 Table Forks	1 10 .	2 1 .	2 2 .	2 5 .
12 Table Spoons	1 10 .	2 1 .	2 2 .	2 5 .
12 Dessert Forks	1 2 .	1 7 .	1 10 .	1 11 .
12 Dessert Spoons	1 2 .	1 7 .	1 10 .	1 11 .
12 Tea Spoons	14 .	19 .	1 1 .	1 2 .
6 Egg Spoons, gt. bowls..	9 .	12 .	12 .	13 6
2 Sauce Ladles	6 .	8 .	8 .	8 .
1 Gravy Spoon	6 .	8 6	9 .	9 6
2 Salt Spoons, gt. bowls..	3 .	4 .	4 .	4 6
1 Mustard Spoon, gt. bwl.	1 6	2 6	2 .	2 3
1 Pair of Sugar Tongs ..	2 6	3 6	3 6	4 .
1 Pair of Fish Carvers ..	19 6	1 3 .	1 3 .	1 3 .
1 Butter Knife	3 .	4 .	4 .	4 3
1 Soup Ladle	10 .	12 .	14 .	15 .
1 Sugar Sifter	3 .	4 .	4 .	4 6
Total	9 1 6	11 16 0	12 8 6	13 2 6

Any article to be had singly at the same prices. An Oak Chest, to contain the above, and a relative number of Knives, &c., £2 15*s.*

A Second Quality of Fiddle Pattern

Table Spoons and Forks ..	£1 2 0	per doz.
Dessert Spoons and Forks ..	0 16 0	,,
Tea Spoons	0 10 0	,,

The largest stock in existence of Plated Dessert Knives and Forks, and Fish-eating Knives and Forks and Carvers.

TEA and COFFEE SETS, Electro Silver, in great variety, from £3 15*s.*

DISH COVERS, Electro Silver, from £9 the set of four to £26.

CORNER DISHES, Electro Silver, from £7 10*s.* to £18 18*s.*; Warmers, £7 2*s.* 6*d.* to £15 15*s.* the set of four.

CRUET and LIQUOR FRAMES, Electro Silver, &c., at Manufacturers' prices.

ALL KINDS of PLATING done by the Patent Process.

TEA URNS of LONDON MAKE

ONLY.—The largest assortment of London-made TEA URNS and KETTLES in the world (including all the recent novelties, many of which are registered) is on sale at WILLIAM S. BURTON'S, from 30*s.* to £6.

LAMPS of ALL SORTS and PATTERNS.

—WILLIAM S. BURTON invites inspection of this Season's SHOW of LAMPS. The collection of French Moderateur Lamps, carefully selected at Paris, defies competition. The prices vary from 8*s.* to £17. Each Lamp is guaranteed perfect, but to ensure their proper action, WILLIAM S. BURTON supplies

Pure Colza Oil at the Wholesale Price, 3*s.* 6*d.* per gallon. Moderateur Globes, full size, 2*s.* 6*d.* each; Chimneys, 6*d.* each; Cotton Wicks, 3*d.* per doz. Lamps of all other descriptions are on Show, in great variety.

GARDEN WIRE WORK, consisting

of ARCHES, BASKETS, FLOWER STANDS, &c.

GARDEN SYRINGES	4*s.* 6*d.* to 26*s.*
GARDEN ENGINES	28*s.* 0*d.* to 105*s.*
GARDEN WATER BARROWS	45*s.* 0*d.* to 90*s.*
GARDEN ROLLERS	35*s.* 0*d.* to 70*s.*
GARDEN CHAIRS	6*s.* 6*d.* to 30*s.*
GARDEN SEATS	10*s.* 0*d.* to 90*s.*
GARDEN TOOLS and WATERING POTS.	
PATENT LAWN MOWERS	70*s.* 0*d.* to 130*s.*
To cut 10 inches	£3 10 0
,, 12 inches	4 10 0
Suitable for a Lady.	
To cut 14 inches	£5 10 0
,, 16 inches	6 10 0
Suitable for a Man.	

WILLIAM S. BURTON has a very handsome assortment of the above on his premises.

THE BEST SHOW of IRON BEDSTEADS

in the KINGDOM is WILLIAM S. BURTON'S. He has EIGHT LARGE ROOMS devoted to the exclusive show of Iron and Brass Bedsteads and Children's Cots, with appropriate Bedding and Bedhangings. Portable Folding Bedsteads, from 10*s.*; Patent Iron Bedsteads, fitted with dovetail joints and patent sacking, from 11*s.*; and cots, from 14*s.* 6*d.*; handsome Ornamental Iron and Brass Bedsteads, in great variety, from £1 8*s.* to £30.

BEDDING MANUFACTURED on the Premises, and guaranteed by WILLIAM S. BURTON.

For Bedsteads, Wide.	3 Feet.	4 Feet 6 Inches.	5 Feet.
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Best Straw Paillasses	. 12 .	. 15 .	. 18 .
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Extra Super Do.	2 14 .	3 18 .	4 10 .
German Spring Hair Stuffing ..	3 5 .	4 7 6	4 15 .
Extra Super Do.	4 . .	5 10 .	6 . .
French Mattress for use over spring ..	2 . .	2 17 .	3 4 .
Extra Super Do. Do.	3 7 6	5 . .	5 11 .
Beds, Poultry, at 1*s.* per lb.	1 11 .	2 7 .	..
Do. Best Grey Goose, at 2*s.* 2*d.* per lb.	3 . .	5 . .	5 13 .
Do. Best White, at 3*s.* per lb.	4 . .	6 17 6	7 12 .

Feather Pillows, 3*s.* 6*d.* to 14*s.*; Bolsters from 6*s.* to 29*s.* 6*d.*
Down Pillows from 10*s.* 6*d.* to 17*s.* 6*d.*
Blankets, Counterpanes, and Sheets in every variety.

FURNITURE, in complete suites

for Bedrooms, of Mahogany, Birch, Fancy Woods, Polished and Japanned Deal, always on show. These are made by WILLIAM S. BURTON, at his Manufactory, 84, Newman Street, and every article is guaranteed. China Toilet Ware in great variety, from 4*s.* Set of Five Pieces.

BATHS and TOILET WARE.—

WILLIAM S. BURTON has ONE LARGE SHOW-ROOM devoted exclusively to the display of BATHS and TOILET WARE. The Stock of each is at once the largest, newest, and most varied ever submitted to the Public, and marked at prices proportionate with those that have tended to make his Establishment the most distinguished in this country. Portable Showers, 8*s.*; Pillar Showers, £3 to £5 12*s.*; Nursery, 18*s.* to 38*s.*; Sponging, 6*s.* to 32*s.*; Hip, 13*s.* to 33*s.* A large assortment of Gas Furnace, Hot and Cold Plunge, Vapour and Camp Shower Baths. Toilet Ware in great variety, from 11*s.* 6*d.* to 45*s.* the Set of Three.

GASELIERS in GLASS or METAL.

—The increased and increasing use of Gas in private houses has induced WILLIAM S. BURTON to collect from the various Manufacturers in Metal and Glass all that is new and choice in Brackets, Pendants, and Chandeliers, adapted to Offices, Passages, and Dwelling Rooms, as well as to have some designed expressly for him; these are ON SHOW over his TWENTY LARGE ROOMS, and present, for novelty, variety, and purity of taste, an unequalled assortment. They are marked in plain figures, at prices proportionate with those which have tended to make his Establishment the largest and most remarkable in the Kingdom, viz., from 12*s.* 6*d.* (two-light) to £23.

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—An assortment of TEA-TRAYS and WAITERS, wholly unprecedented, whether as to extent, variety, or novelty.

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Convex-shape ditto	from 7*s.* 6*d.*

Round and Gothic Waiters and Bread Baskets equally low.

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most varied assortment of TABLE CUTLERY in the world, all warranted, is on Sale at WILLIAM S. BURTON'S, at prices that are remunerative only because of the largeness of the Sales.

Ivory Handles.	Table Knives.	Dessert Knives.	Carvers
	s. d.	s. d.	s. d.
3¼-inch ivory handles .. .. Per dozen	13 .	10 6	5 .
3¾-inch fine ivory handles	18 .	14 .	5 9
4-inch ivory balance handles	21 .	16 .	6 9
4-inch fine ivory handles	28 .	21 .	8 .
4-inch finest African ivory handles	34 .	27 .	12 .
Do., with silvered blades	46 .	33 .	13 6
Ditto, with silver ferules	42 .	35 .	13 6
Nickel electro-silver handles	23 .	19 .	7 6
Silver handles, of any pattern	84 .	54 .	21 .

FENDERS, STOVES, KITCHEN

RANGES, FIRE-IRONS, and CHIMNEY-PIECES. —Buyers of the above are requested, before finally deciding, to visit WILLIAM S. BURTON'S SHOW-ROOMS. They contain such an assortment of Fenders, Stoves, Ranges, Chimney-pieces, Fire-irons, and General Ironmongery, as cannot be approached elsewhere, either for variety, novelty, beauty of design, or exquisiteness of workmanship.

Black Register Stoves	8*s.* to £9 5*s.*
Bright do. with ormolu ornaments	£3 8*s.* to £33 10*s.*
Bronze Fenders	3*s.* 9*d.* to £5 12*s.*
Steel and Ormolu Fenders, from	£2 18*s.* to £18.
Chimney-pieces, from	£1 8*s.* to £100.
Fire-irons, from	3*s.* 3*d.* the set to £4 10*s.*

The BURTON and all other PATENT STOVES, with radiating hearth-plates.

KITCHEN REQUISITES (including

BRUSHES and TURNERY). — WILLIAM S. BURTON has every Article for the FURNISHING of KITCHENS arranged in Four Sets, each complete in itself.

	1	2	3	4
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Kitchen Utensils	68 12 2	24 9 4	10 12 0	3 18 1
Brushes and Turnery to suit ..	21 1 6	15 1 6	7 19 6	3 2 5
Total per Set	89 13 8	39 10 10	18 12 3	7 0 6

No. 1 suitable for any Mansion.
,, 2 ditto 2d-class Houses.
,, 3 ditto 3d-class ditto.
,, 4 ditto 4th-class ditto.

Any single article may be had at the same price quoted for it in the different Lists.—For particulars see Illustrated Catalogue, which can be had free by post.

DISH COVERS and HOT-WATER

DISHES, in every variety, and of the newest and most recherche patterns, are ON SHOW at WILLIAM S. BURTON'S. Block Tin, 14*s.* 6*d.* the Set of Six; elegant Modern Patterns, 25*s.* to £3 19*s.* the Set; Britannia Metal, with or without Silver-plated Handles, £3 2*s.* to £6 8*s.* the Set of Five; Electro-plated, £9 to £26 the Set of Four; Block Tin Hot-water Dishes, with Wells for Gravy, 12*s.* to 30*s.*; Britannia Metal, 21*s.* to 80*s.*; Electro-plated, on Britannia Metal, full size, £5 5*s.*; ditto on Nickel, full size, £10.

REFRIGERATORS, or PORTABLE

ICE-HOUSES, constructed on the same principles as those recommended by the Wenham Lake Ice Company.

	Long.	Wide.	High.	Price.
No. 0. ..	1 ft. 11 ins.	1 ft. 0 ins.	1 ft. 10 ins.	£3 3 .
No. 1. ..	2 ft. 0 ins.	1 ft. 11 ins.	2 ft. 0 ins.	4 4 .
No. 2. ..	2 ft. 10 ins.	2 ft. 0 ins.	2 ft. 0 ins.	4 15 .
No. 3. ..	3 ft. 4 ins.	2 ft. 0 ins.	2 ft. 0 ins.	6 5 .
No. 4. ..	3 ft. 0 ins.	2 ft. 3 ins.	2 ft. 0 ins.	7 10 .

A Small Size, with Water Tank, £2 10*s.*; a Large Cabinet ditto, £14 14*s.*; Ice Pails or Pots, 8*s.* to 30*s.*; Ice Moulds, 6*s.* 6*d.* to 13*s.*; Ice-making Machines, 35*s.* to 130*s.*

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MONDAY, WEDNESDAY, and FRIDAY:—Fulham, Hammersmith

TUESDAY, THURSDAY, and SATURDAY:— Borough, Brixton | Camberwell, Clapham | Herne Hill, Kennington | Lambeth, Peckham | Tulse Hill, Walworth | Wandsworth

WEDNESDAY and SATURDAY:—Dalston, Hackney, Hampstead, Holloway (Upper), Highgate, Kingsland.

☞ Goods beyond the above-named places delivered by special arrangement. With the present RAILWAY FACILITIES, the cost of delivering Goods to the most distant parts of the United Kingdom is trifling. WILLIAM S. BURTON will always, when desired, undertake delivery at a small fixed rate.

Editorial Communications should be addressed to "The Editor." Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 33.—1869.] SATURDAY, AUGUST 14. {Price Fivepence. {Stamped Edition, 6d.

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All Advertisements connected with Gardening or Agriculture, four lines	3 0
Each additional line	0 6
Wants Places, three lines or thirty words	1 6

Advertisements extending across two or three columns, or Block Advertisements, according to Contract.

Post Office Orders payable to JAMES MATTHEWS, at the Post Office, King Street, Covent Garden, W.C.

ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.

PRELIMINARY ANNOUNCEMENT of ARRANGEMENTS for 1870. The SHOWS of the Society will be held on the following dates, viz.:—

JANUARY 19	MAY 4 and 18	SEPTEMBER 7 and 21
FEBRUARY 16	JUNE 1 and 15	OCTOBER 5
MARCH 2 and 16	JULY 6 and 20	NOVEMBER 2
APRIL 6 and 20	AUGUST 3 and 17	DECEMBER 7

Schedules and full details will be issued later in the year.

By Order of the Council,

July 30. JAMES RICHARDS, Assistant Secretary.

READING HORTICULTURAL SOCIETY.—The AUTUMN SHOW will be held on THURSDAY, August 26 (by permission of the Mayor), in the Abbey Ruins, Reading. A Band will attend as usual. The Show will be open to the holders of Subscribers' Tickets at 1 o'Clock, and to the Public at 3 o'Clock on payment of 1s.

Tickets and Schedules of the Prizes may be obtained of the Hon. Sec., CHARLES COLLINS, 34, Chain Street, Reading, to whom all Entries must be sent on or before Thursday, August 19.

Roses on own Roots.

PAUL AND SON recommend the present season for Planting, and have a good Stock of fine Plants ready for the purpose. Price, 7*5s.* to £5 per 100.

The Old Nurseries, Cheshunt, N.

Established 1806.

T. HANDASYDE AND DAVIDSON have a large stock of TEA, HYBRID PERPETUAL, BOURBON, and CHINA ROSES in pots. Special prices to the Trade on application.

Seed Warehouse, 24, Cockburn Street, Edinburgh.

Nurseries, Brunstain Glen, Musselburgh.

Paul's Roses.

"Mr. PAUL's Roses * * * are things to see once and dream of for ever."—*Athenæum.*

WM. PAUL begs to announce that his ROSES are NOW in BLOOM. Inspection respectfully invited. Trains from London, Bishopsgate Station, to Waltham, Great Eastern Railway, 13 times daily.

PAUL'S Nurseries & Seed Warehouse, Waltham Cross, London, N.

Gladioli—New Roses.

EUGÈNE VERDIER Fils Ainé, NURSERYMAN, 3, Rue Dunois, Paris, publishes in August and September of each year complete and descriptive CATALOGUES, with prices. They comprise all the finest and newest varieties of Gladioli, Pæonies, and New Roses. Gratis and post free on application.

Gladioli, the most Extensive Collection.

BARR AND SUGDEN, 12, King Street, Covent Garden, W.C., have the finest and largest collection of GLADIOLI ever offered, prices varying from 2*d.* to 15*s.* per root. For particulars see pp. 68, 69, 70, and 71 of B. & S.'s SPRING SEED CATALOGUE.

BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.

Choice Seeds, Gladioli, &c.

WM. CUTBUSH AND SON'S CATALOGUE of the above contains description and price of many very superior home-grown VEGETABLE and FLOWER SEEDS, and choice varieties of GLADIOLI, &c., all of which are highly recommended. Post free on application.

Highgate Nurseries, London, N.

British Fern Catalogue.

ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

Foot's Cray Nursery, Sidcup Hill, Kent.

Lilium auratum.

MESSRS. J. STANDISH AND CO. have NOW in FLOWER a magnificent specimen of the above. It is 11 feet high, and has no less than 100 blooms on a SINGLE stem. To lovers of this fine Lily, the opportunity of seeing such a plant should not be lost. Royal Nurseries, Ascot.—August, 1869.

To the Trade.

PRIMULA SEEDS (New Seeds now arriving).—Hayes' superb fringed, new double flowered, new scarlet, and other colours, all of the finest possible quality. Prices on application. Retail packets for present sowing, 2*s.* 6*d.* and 5*s.* each. All colours and sorts separate.

HOOPER AND CO., Seed Merchant, Covent Garden, London, W.C.

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F. AND A. SMITH have an extensive Collection of extra strong CANES of all the leading sorts in fine condition. Intending purchasers would do well to see them.

The Nurseries, West Dulwich, S.E.

Vines.

PAUL AND SON have to offer unusually fine plants this season. Fruiting and Planting CANES of GOLDEN CHAMPION, MRS. PINCE, and all leading kinds.

The Old Nurseries, Cheshunt, N.

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Munro Nursery, Sible Hedingham, Essex.

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CHARLES TURNER can supply

GOLDEN CHAMPION	
MADRESFIELD COURT	MRS. PINCE, and
BLACK MUSCAT	ROYAL ASCOT

In Fruiting Canes, or second size for planting out; also the established old varieties, in fine plants.

The Royal Nurseries, Slough.

To the Trade.

MRS. PINCE'S MUSCAT VINE, Planting Canes, 6 feet, 42*s.* per doz.

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H. P. ROSES, in pots, good sorts, our own selection, 50*s.* per 100.

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CATALOGUES of General Nursery Stuff on application to G. BAKER AND SON, American Nursery, Bagshot, Surrey.

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JOSEPH MEREDITH, The Vineyard, Garston, near Liverpool, is now sending out extraordinarily strong VINES, 18 to 20 feet long, for Planting between now and the end of September. See *Gardeners' Chronicle*, July 24, p. 792, for remarks on same. Intending Planters will save a whole season by Planting before the Vines are dormant.

Grapes, Grapes.

JOSEPH MEREDITH, The Vineyard, Garston, near Liverpool, has now on View, and hanging by the ton, the finest Collection of GRAPES in the Kingdom. Inspection is respectfully solicited.

Grape, Mrs. Pince's Black Muscat.

JOSEPH MEREDITH, The Vineyard, Garston, near Liverpool, has now the above splendid variety of GRAPE hanging in the greatest perfection. Bunches superb in size, shape, colour, and high finish, and well worthy a day's travelling to see. Fruiting Canes, 12 to 18 feet long, 21*s.* to 30*s.* each.

Grapes, Grapes, Grapes.

FOR SALE, the FRUIT of several large VINERIES, stocked with the choicest assortments.

Apply to Mr. SCOTT, Manager, Stermongers, Rudgwick, Sussex.

THOMSON'S WHITE LADY DOWNE'S GRAPE.—Plants of this, the latest-keeping White Grape in cultivation, will be sent out in September; price 21*s.* and 42*s.* each; strong fruiting canes, 63*s.* each.

THOMAS METHVEN, Leith Walk Nurseries, Edinburgh.

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B. S. WILLIAMS, Seed Merchant and Nurseryman, Upper Holloway, London, N.

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FIFTY good FRUITING PLANTS, from 18 to 20 months' old, just about throwing up for fruit, to be SOLD, Cheap. Can be seen by inquiring for the Gardener, W. TOOMER, Hillworth, Lower Tulse Hill, Brixton Lodge.

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TWO PAIRS of magnificent ORANGE TREES for SALE, in very fine health, full of fruit and flowers. This is an opportunity which seldom offers. Can be seen, and all particulars known, by applying to

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JAMES' INTERNATIONAL CALCEOLARIA, saved from a superb collection, 1*s.*, 1*s.* 6*d.*, and 2*s.* 6*d.* per packet.

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To the Trade.

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Apply, stating quantity and price, to W. X., 41, Wellington Street, Strand, W.C.

WANTED, AMHERSTIA NOBILIS.—Parties having any of the above to DISPOSE OF, will be good enough to communicate size and prize to

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ORCHIDS.—A Small Collection to be DISPOSED OF, the Advertiser wishing to discontinue growing them. They will be Sold very Cheap.

Address A. B., Messrs. Nutting & Sons, 60, Barbican, E.C.

Suttons' Fresh Imported Flower Roots.

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Now Ready, Post Free to all Applicants.

B. S. WILLIAMS' CATALOGUE of NEW and RARE PLANTS, 1869, containing the most beautiful and select of the latest introductions and Supplementary Lists of the General Collection.

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NOTICE.—A CATALOGUE of CHOICE NEW PLANTS of 1869, at greatly reduced prices, with select List of DUTCH and other BULBS, with Cultural Notes, ROSES, HARDY HERBACEOUS PLANTS, &c., free on application to

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F. AND A. SMITH beg to announce that their magnificent Collections of the above are in FINE BLOOM. An inspection invited.

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WILLIAM ARMITAGE AND SON, Seedsmen, Huddersfield.

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F. AND A. SMITH invite an inspection of their very extensive Collection of the above, now in very fine colour. Their Friends from the country would be well repaid by a visit to the Dulwich Nurseries from this time and during Autumn.

The Nurseries, West Dulwich, S.E.

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A SPECIAL PRIZE MEDAL, PARIS, 1867, was AWARDED to JAMES CARTER & Co., 237 & 238, High Holborn, London, W.C., for GRASS SEEDS, supplied for the Exhibition Grounds.

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Bromus Schræderi.

SUTTON AND SONS can supply SEED of the above valuable FORAGE GRASS at 1*s.* per lb.; much cheaper by the cwt. August and September are good months to sow. 20 lb. and upwards sent free by rail. Sow 50 lb. per acre in drills 9 or 10 inches apart. Royal Berks Seed Establishment, Reading.

NEW RAPE SEED.—Samples and quotations of the above forwarded post free on application to CHARLES SHARPE AND CO., Seed Merchants, Sleaford.

Cabbage Seed.

LEWIS S. WOODTHORPE can supply DRUMHEAD CABBAGE SEED at 1*s.* per lb.; EARLY YORK CABBAGE, 1*s.* 6*d.* Samples sent, with price per cwt., upon application.

Munro Nursery, Sible Hedingham, Essex.

New English Sowing Rape Seed.

H. AND F. SHARPE have fine Samples of NEW RAPE SEED, which they can offer to the Trade at low figures. Price and samples on application.

Seed Growing Establishment, Wisbech.

To the Trade.

TURNIP and MANGEL SEEDS, growing crop of 1869, splendid stocks, various kinds.

FREDK. GEE invites attention to the above, and will be pleased to make special offers of the same on advantageous terms.

Seed Establishment, Biggleswade, Beds.

To Farmers, Gardeners, and Others.

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Weeds Eradicated from Lawns.

WATSON'S LAWN SAND, sprinkled upon Lawns, rapidly destroys Dandelions, Daisies, Clover, Rib-grass, &c., and at same time promotes the growth of Grass. 28s. per cwt.; 4d. per lb.

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POOLEY'S TOBACCO POWDER, for the Prevention and Destruction of Blight and other Diseases in Plants.

Sold by Nurserymen, Seedsmen, and Florists,

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TEES .. .. ,,	2 3	3 6	4 6
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SYPHONS .. .. ,,	2 6	3 6	4 6
VALVES .. .. ,,	10 0	11 6	13 0

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Woodwork only Prepared and Fitted	0 0 6
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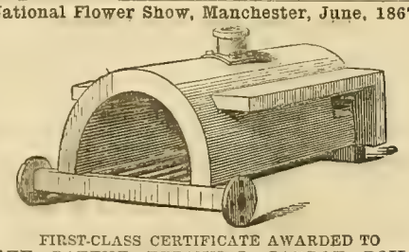


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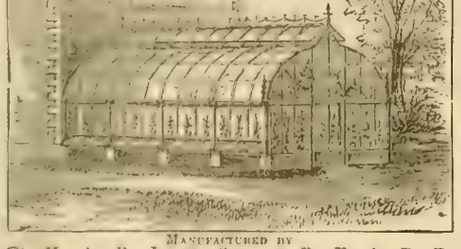
See *Gardeners' Chronicle*, December 7, 1867.
See *Gardeners' Chronicle*, January 23, 1868.
See *Gardeners' Chronicle*, February 1, 1868.
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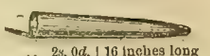
	Each.—s. d.		Each.—s. d.
2 inches in diameter ..	0 3½	12 inches in diameter ..	1 9
3 ,, ,, ..	0 4½	13 ,, ,, ..	2 0
4 ,, ,, ..	0 5½	14 ,, ,, ..	2 6
5 ,, ,, ..	0 6½	15 ,, ,, ..	3 0
6 ,, ,, ..	0 8	16 ,, ,, ..	3 6
7 ,, ,, ..	0 10	17 ,, ,, ..	4 0
8 ,, ,, ..	1 0	18 ,, ,, ..	5 0
9 ,, ,, ..	1 2	19 ,, ,, ..	6 0
10 ,, ,, ..	1 4	20 ,, ,, ..	7 0
11 ,, ,, ..	1 6		

BEE GLASSES, with ventilating hole through knob.

4 inches in diameter ..	0s. 6d.	9 inches in diameter ..	1s. 8d.
5 ,, ,, ..	0 8	10 ,, ,, ..	2 0
6 ,, ,, ..	0 10	11 ,, ,, ..	2 6
7 ,, ,, ..	1 1	12 ,, ,, ..	3 0
8 ,, ,, ..	1 4		

Either flat or conical tops.

CUCUMBER GLASSES.



24 inches long	2s. 0d.	16 inches long	1s. 4d.
22 ,, ...	1 10	14 ,, ...	1 2
20 ,, ...	1 8	12 ,, ...	2 0
18 ,, ...	1 6		

HAND GLASSES, WITH OPEN TOPS.



	Each.—s. d.		Each.—s. d.
12 inches	6 6	18 inches	9 6
14 ,, ...	7 6	20 ,, ...	10 6
6 ,, ...	8 6	22 ,, ...	11 6
		24 ,, ...	12 6

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in.	in.		4ths.	3rds.	2nds.	Best
20 by 12						
20 by 13						
20 by 14	Per 100 feet	15 oz.	12s 3d	15s 6d	16s 9d	18s 0d
20 by 15		21 oz.	18s 0d	20s 0d	22s 0d	24s 0d
20 by 16						

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best
6 by 4	7 by 5	8 by 6	9 by 7						
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½			11s 3d	12s 6d	14s 0d	15s 0

Per 100 feet.

10 by 8	12 by 9	12½ by 10½	14½ by 10½						
10½ by 8½	12½ by 9½	13 by 10	15 by 10						
11 by 9	13 by 9	13½ by 10½	13 by 11			11s 9d	14s 9d	15s 3d	17s 6
11½ by 9½	12 by 10	14 by 10	14 by 11						

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best
15½ by 10½	14 by 12	22 by 12	22 by 16						
16 by 10	14½ by 12½	17 by 13	24 by 16						
14½ by 11½	15 by 12	23 by 13	20 by 17						
15 by 11	15½ by 12½	18 by 14	22 by 17			12s 3d	15s 6d	16s 0d	18s 0
15½ by 11½	16 by 12	22 by 14	24 by 17						
16 by 11	16½ by 12½	24 by 14	20 by 18						
21 by 11	17 by 12	22 by 15	22 by 18						
13 by 12	18 by 12	24 by 15	24 by 18						

The above Prices are only for the Sizes stated; if a quantity of an other Size be required, a Special Price will be given.

SHEET GLASS.

In Sheets for Cutting up, averaging from 6 to 9 feet super.

	15 oz.		21 oz.
4ths quality, per 300 feet case,	34s.	4ths quality, per 200 feet case,	3
3ds ,, ,,	40s.	3ds ,, ,,	4
2ds ,, ,,	60s.	2ds ,, ,,	6
Best ,, ,,	75s.	Best ,, ,,	7

SHEET GLASS is made only in the following substances, 15 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.

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STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to t walls, resists the weather, and is free from the glossy appearar of Oil Paint, resembling a stone surface, and can be made a required shade. It is mixed with rain or pure river water.

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Per cwt.—s. d.		Per gallon.—
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BY SPECIAL APPOINTMENT, MANUFACTURER



TO HER MOST GRACIOUS MAJESTY THE QUEEN.

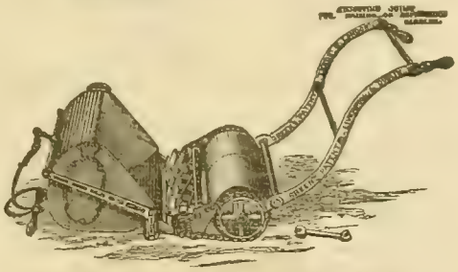
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To Cut 26 inches	£13 0 0	*Leather Boots for Donkey, 18s.* *Leather Boots for Pony, 22s.*
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To Cut 30 inches	£21 0 0	*Leather Boots for Horse, 26s.*
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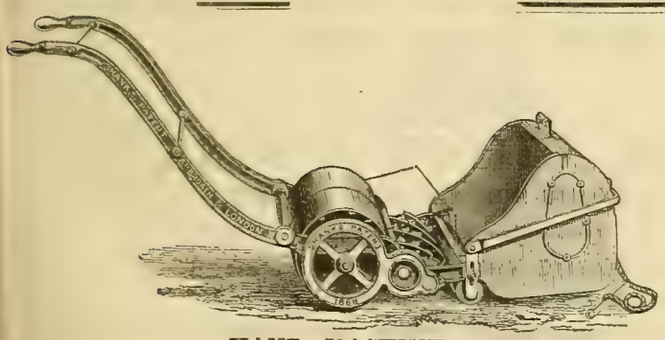
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10-inch Machine	£3 10 0	Easily Worked *By a Lady*
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The Hand Machines are all with Silent Movement.

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Width of Cutter.		If with Patent Delivering Apparatus
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30-inch Machine	£19 0 0	.. .. 30s. extra.
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Every Machine warranted to give ample satisfaction, and, if not approved of, can be at once returned without any expense to the buyer.

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"Newton" Nurseries, and 102, Eastgate Street, Chester.

New Seed, 1869.

F. AND A. SMITH beg to offer the following, saved from their unrivalled Collections, and just harvested in fine condition:—CALCEOLARIA, CINERARIA, PANSY, GERANIUM (Variegated), &c.; PRIMULA FIMBRIATA (Crimson and White), INTERMEDIATE STOCK, &c. Special offer to the Trade forwarded on application.

The Nurseries, West Dulwich, S.E.

SPECIAL OFFER to the TRADE.

Adiantum pubescens, 50s. per 100. | Lomaria gibba, 40s. per 100.

	Per dozen.—s. d.		Per dozen.—s. d.
Asplenium nidus (Bird's-nest Fern)	18 0	Dracæna Cooperi	12 0
Adiantum tulvum	12 0	Ixoras, in variety, with bloom bud, from	12 0
,, trapeziforme ..	12 0	Crotons, from..	12 0
Maranta rosea picta ..	30 0	Eucharis amazonica, from	12 0
,, Vanden Heckeri	12 0	Bertolonia marmorata ..	12 0
Dracæna terminalis, from	12 0	Primula nivalis, from ..	12 0
,, ferrea variegata	12 0		

J. AND R. TRYNE, Woodside Nurseries, Glasgow, beg to call special attention to the above offer.

Hardy and other Bedding Plants.

ROBERT PARKER begs to offer the under-named, all of which can be supplied in strong, healthy plants:—

	Per doz.—s. d.		Per doz.—s. d.
Dactylis glomerata elegantissima	4 0	Pansy, Cliveden Yellow ..	3 0
Echeveria metallica, 6s. to	30 0	,, Great Eastern ..	3 0
,, pumila ..	9 0	,, Imperial Blue ..	18 0
,, secunda glauca	9 0	Pachyphytum bracteatum	12 0
Lithospermum prostratum (fruticosum)	9 0	Sempervivum californicum	4 0
Pansy, Cliveden Blue ..	3 0	Tritoma grandis	12 0
,, ,, Purple ..	3 0	,, uvaria glaucescens	9 0
		Viola lutea semperflorens	4 0
		,, cornuta alba	4 0

Special quotations may be had, if required, for the above, and many other kinds, by the 100, or in larger quantities.

Exotic Nursery, Tooting, Surrey, S.W.

CARTER'S PRIMULA, CALCEOLARIA, and CINERARIA.

J. C. & Co.'s strain of Calceolaria is saved from plants that were awarded a 1st Prize at the late International Show. The Cineraria and Primula stocks are also saved from the finest Prize Varieties, and cannot be surpassed.

CALCEOLARIA and CINERARIA.

	Per packet—s. d.		Per packet—s. d.
Calceolaria, finest hybrid ..	2 6	Calceolaria, Dobson's strain..	2 6
,, ,, spotted..	2 6	Cineraria, extra fine	2 6

PRIMULA.

	Per packet—s. d.		Per packet—s. d.
Primula, choicest mixed, fringed	2 6	Primula, choicest white fringed	2 6
,, ,, dark carmine, fringed	2 6	,, ,, Fern-leaved carmine	2 6
,, ,, rose fringed	2 6	,, ,, ,, white ..	2 6

CALCEOLARIA INTERNATIONAL PRIZE.—The Seed of this superb strain cannot fail to produce splendid varieties, as last season's plants took 1st Prizes wherever exhibited. Per pckt., 2s. 6d.

PRIMULA FIMBRIATA (New scarlet).—This is a decided novelty, being of a deep scarlet colour, and cannot fail to be much admired wherever grown. Per packet, 2s. 6d.

INDIA-RUBBER HOSE at Manufacturer's prices, 60 feet (with complete fittings), 25s.

JAMES CARTER AND CO., The Royal Seedsmen, 237 and 238, High Holborn, London, W.C.

Fine New Hardy Clematises,

TO BE SENT OUT IN SEPTEMBER, 1869.

GEORGE JACKMAN AND SON are prepared to book orders for their two following NEW CLEMATISES, that they can warrant as distinct, vigorous, and abundant flowering as those varieties which have already obtained such general approbation.

CLEMATIS LADY BOVILL (First-class Certificate Royal Horticultural Society).—"Width of the petal is greater than its length, which causes it to be very slightly cupped, resembling a somewhat expanded Tulip, while its colour (a greyish blue) marks its distinctness."—*Floral Magazine.*

"The more novel tints of light mauve and greyish blue."—*Gardeners' Chronicle.*

CLEMATIS MAGNIFICA (First-class Certificate Royal Botanic Society).—This is one of the most hardy and vigorous growing varieties of the Woking Hybrids. The colour is purple, suffused with a strong crimson shading over the whole surface of the flower, making it very attractive.

"The petals of which are barred with Turkey red."—*Gardeners' Chronicle.*

21s. each, or three plants, viz., one C. Lady Bovill and two C. magnifica, for 42s. A few extra strong plants, 31s. 6d. each.

A Coloured Drawing (by Andrews) of C. Lady Bovill can be had by enclosing 12 stamps, or Circular, giving "Opinions of the Press," with engraving, for one stamp.

The usual allowance to the Trade.

Woking Nursery, Surrey.

Early Spring Feed.

SUTTONS' IMPROVED ITALIAN RYE-GRASS.

The best and most productive in cultivation.

TRIFOLIUM INCARNATUM (Italian Crimson Clover.)

SUTTON AND SONS can supply NEW SEED of the above invaluable Forage Plants, which should be sown during August and September to produce early Spring and Summer Feed. Samples and lowest prices per quarter and cwt., on application to

SUTTON AND SONS, Seedsmen to the Queen, Reading, Berks.

Drumhead Cattle Cabbage.

THE HEAVIEST OF ALL AGRICULTURAL CROPS.

SUTTON AND SONS can supply the IMPROVED DRUMHEAD CATTLE SEED at 9d. per oz., or 2s. 6d. per lb. It will be remembered that remarkably fine specimens of the above were exhibited on Messrs. Suttons' stand at the last Smithfield Club Show—see 3, August and September.

SUTTON AND SONS, Seed Growers, Reading.



The Forwardest Turnip,

and BEST for PRESENT SOWING KNOWN, is

SUTTONS' SHORT-TOP SIX-WEEKS. Lowest price per bushel, sharp customs.

This excellent Turnip, if sown in August, will produce a heavy crop, to come off in time for Wheat Sowing.

SUTTON AND SONS, Royal Berkshire Seed Establishment, Reading.



Royal Horticultural Society.—Provincial Exhibition.

THE SILVER SAND (Stand 114), delivered free by rail at very low rates. Price at Mines, 1s. 11d. per bushel.

SUNS, Lloyd Street, Manchester.

THE LONDON MANURE COMPANY

(ESTABLISHED 1840)

Have now ready for delivery, in fine condition,

CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES.

Also Genuine PERUVIAN GUANO, and NITRATE of SODA ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c.

E. PURSER, Secretary.

Offices, 116, Fenchurch Street, E.C.

New and Choice Seeds of 1869 Growth.

CHARLES TURNER can now supply the following, all of his own saving and from his unrivalled Collections:—

	Per pkt.—s. d.		Per pkt.—s. d.
Auricula Stage	2 6	Pelargonium, Fancy Vars. .	2 6
,, Alpine	1 6	,, Tricolor ,, ..	2 6
Cineraria	2 6	,, Variegated ,, ..	2 6
Calceolaria	2 6	,, Zonal ,, ..	1 0
Cyclamen	1 0	Primula sinensis fimbriata rubra	2 6
Pansy	2 6	,, ,, ,, alba	2 6
Pelargonium, Show Vars. ..	2 6		

SEEDS for PRESENT SOWING.

Orange Jelly Turnip	Whitestone or Stubble Turnip
White Globe ditto	Devonshire Greystone ditto
Altrincham Yellow ditto	Mustard
Tritolium incarnatum (crimson Clover)	Winter Rape &c., &c.

Newly-harvested Seeds of the above now ready. Orders to the value of £2 or upwards delivered carriage paid.

JAMES DICKSON AND SONS, 102, Eastgate Street, and "Newton" Nurseries, Chester.

JAMES CARTER AND CO. can now offer strong well-grown CANES of the FOLLOWING VINES, this year's growth. If planted now a season will be saved.

Price 7s. 6d. to 12s. 6d. each.

Bidwill's Seedling	Golden Hamburgh
Black Alicante	Lady Downe's Seedling
,, Barbarossa	Madresfield Court Black Muscat
,, Hamburgh	Morris' Black Grape
,, Morocco	Mrs. Pince's Black Muscat
,, Prince	Muscat Hamburgh
Buckland Sweetwater	,, of Alexandria
Charlesworth Tokay	Royal Ascot
Duchess of Buccleuch	,, Muscadine
Frankenthal	Trentham Black
Golden Champion	White Frontignan

JAMES CARTER AND CO., Seed Merchants and Nurserymen, 237 and 238, High Holborn, W.C.; and Crystal Palace Nurseries, Forest Hill, S.E.

JAMES CARTER AND CO. having often had applications for STRAWBERRIES earlier in the season than they could be supplied from same year's runners, have planted out an enormous stock of last year's late runners, and can now offer strong plants of the undermentioned varieties, and if planted from henceforth in favourable weather they will guarantee to produce good crops next year.

Black Prince	Frogmore Late Pine	Princess Royal
British Queen	Goliath	Rifleman
Carolina Superba	Keens' Seedling	Sir Charles Napier
Comte de Paris	Nonsuch	Sir Harry
Crimson Queen	Oscar	Standard Bearer
Dr. Hogg	President	Victoria
Elton Pine	Prince of Wales	Wizard of the North
Filbert Pine	Princess Alice Maude	Wonderful

Price 5s. and 7s. 6d. per 100.

NEW CONTINENTAL VARIETIES.

Bonté St. Julien	La Châlonnaise	Sabreur
Boule d'Or	La Petite Marie	Topsy
Duc de Malakoff	Lecoq Pine	La Belle Bordelaise
Globe	Marguerite	De Versailles
Gweniver	Napoléon III.	Janus

Price 10s. 6d. to 15s. per 100.

JAMES CARTER AND CO., Seed Merchants and Nurserymen, 237 and 238, High Holborn, W.C.; and Crystal Palace Nurseries, Forest Hill, S.E.

Choice Flower Seeds for Present Sowing.

DOWNIE, LAIRD, AND LAING have the pleasure of offering the following choice Flower Seeds:—

CALCEOLARIA, Hybridised, saved from a superb First Prize Collection, 2s. 6d., 3s. 6d., 5s. per pkt.

CINERARIA, extra choice, saved from an unequalled assortment of named flowers, 1s. 6d., 2s. 6d., 3s. 6d. per pkt.

HOLLYHOCK, extra fine, saved from our own magnificent collection, in 12 colours, 5s. per collection.

HOLLYHOCK, extra fine, saved from our own magnificent collection, mixed, 1s., 2s., 3s. 6d. per pkt.

PANSY, Show, saved from our unrivalled Exhibition Flowers, 1s., 1s. 6d., 2s. 6d. per pkt.

PANSY, Fancy, saved from a selection of the most beautiful colours, 1s., 1s. 6d., 2s. 6d. per pkt.

PRIMULA, Fringed (Red and White), saved from the finest strain in cultivation, 2s. 6d., 3s. 6d., 5s. per pkt.

PRIMULA, Fern-leaved (Red and White), saved from the finest strain in cultivation, 2s. 6d., 3s. 6d., 5s. per pkt.

Stanstead Park, Forest Hill, London, S.E.; and at Edinburgh.

Alba multiflora, Pink.

J. WADSON is now sending out this excellent large white forcing PINK (which gained a First-Class Certificate at the Royal Horticultural Society, South Kensington, May 4, at the Floral Committee), at 7s. 6d. per pair; 5s. per pair when 12 or more are taken. See *Gardeners' Chronicle* and "Gardeners' Magazine," May 8, 1869. A remittance from unknown correspondents. Post Office Orders payable at Hammersmith.

J. WADSON, Florist, Wellesley Avenue, Hammersmith, Middlesex.

New Hardy Plant,

To be sent out in September, 1869. For plate and full description, see "Botanical Magazine," t. 5726, No. 285, in which Dr. Hooker says—

SPIRÆA PALMATA, "By far the handsomest species of the genus hitherto imported, and certainly one of the most beautiful hardy plants in cultivation; the deep purple-red of the stems and branches, passing into the crimson-purple of the glorious broad corymbs of flowers, contrasts most exquisitely with the foliage, which in autumn assumes beautiful tints of brown and golden-yellow. Spiræa palmata was introduced by Mr. Fortune from Japan, and has proved itself perfectly hardy in the most exposed position."

CHARLES NOBLE having the entire Stock of this fine Plant, intends sending it out next August, at 21s. each. Orders are requested early, as the Stock is limited.—Bagshot, June, 1869.

Choice Prize Seeds, of very Superior Quality.

JOHN DOBSON AND SONS have the pleasure to offer the following Seeds, which are excelled by none:—

CALCEOLARIA.—Splendid Hybridized, from the plants exhibited and so much admired at the Crystal Palace, Regent's Park, Kensington, Reading, and Oxford Flower Shows. Sealed packets, 1s. 6d., 2s. 6d., 3s. 6d. and 5s. This strain it unequalled for beauty and variety.

CINERARIA.—From the splendid Prize Collection which always take First Prizes whenever exhibited. 1s., 2s. 6d., and 5s.

PRIMULA (SINENSIS FIMBRIATA.—Saved exclusively from he very finest colour and fringe varieties. Several First Prizes have been awarded our collection. 1s., 2s. 6d. and 5s.

INTERMEDIATE STOCK.—A fine double variety. 6d. and 1s.

CYCLAMEN PERSICUM.—Saved from one of the largest and best collections in the country. Will produce some fine varieties of this increasingly popular flower. 1s. and 2s. 6d.

BALSAM.—Finest double, of the most brilliant and striking colours. 1s. and 2s.

Woodlands Nursery, Isleworth, W.

NOW READY, GRATIS AND POST FREE,

SUTTONS'

AUTUMN CATALOGUE for 1869,

Containing DESCRIPTIVE LISTS of the best varieties of

HYACINTHS, TULIPS, CROCUSES, &c.

(which have been selected by Messrs. SUTTON from the leading Growers in Holland); with

COMPLETE INSTRUCTIONS ON CULTIVATION.

SUTTON & SONS, SEEDSMEN TO THE QUEEN, READING.

DUTCH FLOWER ROOTS.

JAMES VEITCH & SONS,

ROYAL EXOTIC NURSERY, CHELSEA, S.W.,

BEG TO ANNOUNCE THAT THEIR

ANNUAL CATALOGUE OF DUTCH FLOWER ROOTS,

CONTAINING ALSO

A SELECT LIST OF VEGETABLE SEEDS FOR AUTUMN SOWING,

Is now ready, and will be forwarded Post Free on application.

NEW HYBRID PELARGONIUMS,

WILLSII, and WILLSII ROSEA.

Undoubtedly the finest NOVELTIES of the season. Numerous CERTIFICATES and FIRST PRIZES have been awarded by the Royal Horticultural Society, Royal Botanic Society, &c.

J. W. WIMSETT has much pleasure in announcing that the above splendid Novelties will be ready for sending out the first week in August.

Willsii, a Guinea and a half each. | **Willsii rosea, Two Guineas each.**

To MR. J. WILLS. "Culford Hall, Bury St. Edmund's, June 9, 1869.

"DEAR SIR,—I was much disappointed at not seeing you at the Pelargonium Show on the 22d; I however saw your beautiful hybrid Pelargonium Willsii rosea, which ought to carry your name down to posterity—it is really a very great triumph. If you had never done anything else in the cause of Flora with the exception of effecting this cross, you would have done much more than your share. But you have done much more than this for the floricultural public, who are very much indebted to you. "I am, dear Sir, very truly yours, P. GRIEVE."

ASHBURNHAM PARK NURSERY, KING'S ROAD, CHELSEA, S.W.

July 21. J. WILLS, F.R.H.S., Manager.

Paul & Son's Roses Now in Bloom.

PAUL AND SON, The Old Nurseries, Cheshunt, invite an inspection of the ROSES, GLADIOLI, HOLLYHOCKS, FRUIT TREES, and other hardy growths, now in excellent condition. The Forty or Fifty First Prizes taken this season for Roses bear witness to their thorough cultivation at Cheshunt. No plants in the country can be finer. Thirteen Trains from Bishopsgate to Cheshunt: the 8 A.M. and 4 P.M. *viâ* Waltham and Omnibus to nursery gates.

Choice Seeds for Present Sowing.

B. S. WILLIAMS can with confidence offer the following, as being the finest in cultivation:—

	Per pkt.
PRIMULA (Williams' superb strain), red, white, or mixed,	*s. d.*
2*s.* 6*d.*, 3*s.* 6*d.*, and	5 0
CALCEOLARIA (Neill's extra choice strain), 2*s.* 6*d.*, 3*s.* 6*d.*, and	5 0
CINERARIA (Weatherill's choice strain) 2*s.* 6*d.*, 3*s.* 6*d.*, and	5 0
CYCLAMEN (Wiggins' prize strain) 1*s.* 6*d.*, 2*s.* 6*d.*, and	3 6
ECHEVERIA METALLICA	2 6
HOLLYHOCK, from the finest varieties	1 0
PANSY, from prize flowers	1 0
.. finest Belgian varieties	1 0
POLYANTHUS (Wiggins' prize strain) .. .. 1*s.* and	1 6
STOCK, EAST LOTHIAN, 3 colours separate	2 6
VIOLA LUTEA (yellow flowered Violet) .. .. 1*s.* and	1 6
WALLFLOWER (Saunders' fine dark variety)	1 0

*** All the above are in sealed packets None genuine unless they bear B. S. WILLIAMS' name and address.

Victoria and Paradise Nurseries, Upper Holloway, London, N.

Seeds Direct from the Growers, the most Effectual Means of Preventing Disappointment.

SUTTON AND SONS, SEED GROWERS, deliver their Home-grown Seeds, Genuine as Harvested, to all parts of the kingdom. Carriage free (except very small parcels).—Prices and full particulars on application.

SUTTON AND SONS, Seed Growers, Reading.

The Gardeners' Chronicle.

SATURDAY, AUGUST 14, 1869.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, Aug. 17 { Royal Horticultural (Fruit and Floral Committees), at South Kensington .. 11 A.M. { Ditto (General Meeting) .. .. .. 3 P.M.

THANKS to the courtesy of our correspondents we are enabled to present our readers with a report on the condition of the FRUIT CROPS for the present season. The large number of reports, and the wide area from which they are drawn, will serve to a very great extent to counterbalance the inevitable shortcomings of such a statement. Our report is amply full enough to show the general condition of the crops throughout the country, though our space does not permit us to enter into details as to the peculiar circumstances of the case in each district whence our information is derived. Much valuable information is given as to local conditions in the notes with which our correspondents have favoured us, and which will be found in a separate column. From these it will be seen that the main cause of the general deficiency is owing to the cold, wet period when the trees were in bloom, followed as it was by an extraordinarily hot temperature, as a result of which the young fruit was shed. If the conditions of soil, exposure, rainfall, altitude, proximity to the sea, and the like, were given in every case, we should in the future get a body of evidence of the most important character as regards fruit culture; though, even with the fullest statistics as to these points, we should often fail to render evident the cause of the irregularities in the produce of neighbouring establishments. Taking our table as it stands, the general results may broadly thus be stated:—Apricots, much under average everywhere; Apples, under average everywhere, except in Lancashire and Cheshire; Pears, an average crop everywhere but in the west; Plums, uniformly under average; Strawberries, average in the north, deficient elsewhere; Cherries, a fair crop everywhere, except, as it would seem, in the county of Hops, Cherries, and pretty women—to wit, Kent; Peaches and Nectarines, below average everywhere; Figs generally below the mark; small fruits, for the most part abundant everywhere; Filberts, extraordinarily abundant in most places; Walnuts, rather under average.

WE are happy to be able to announce that the SEED ADULTERATION BILL received the Royal assent on Wednesday last. A few amendments were made in the Bill in its passage through the House of Lords, but in principle and in substance the Bill remains in the state in which it left the Commons. The Bill will not come into operation till May 1, 1870; nevertheless, for the sake of their reputation, already put to a considerable strain, we trust that we shall not hear this autumn of the purchase or sale by seed dealers of any more seed "such as you use." It will be remembered that this Bill has been promoted and carried to a successful issue by the seed trade itself; and much as we may regret that that body did not previously grapple with the evil, we may at least congratulate them heartily on their present success. Of course there were some who at first objected to the Bill, and did what they could to thwart its progress, and these, too, included some among what Mr. BRIGHT called "the most respectable firms." It is but fair, however, to say that these firms ultimately withdrew their objections when they found that the promoters of the Bill did not lay claim to the possession of any superior virtue. Any one who reads the evidence taken before the Committee of the House of Commons will see that there was wonderfully little ground for any boast of that kind. The sincerity of the promoters is, moreover, further shown by the fact that they are about forming an association to carry out the provisions of the Bill, so as to make its operation as effectual as possible. We trust that the Royal Horticultural Society will, now that the Bill has passed into law, see that their well-meant objections were really under the circumstances futile, and their proposals impracticable. Nevertheless, we think the Society deserves the thanks of the public for the part it took in calling general attention to the matter. Having gained their point, we do not suppose that the promoters will remember with ill-will the fact that the Society, from whom, after the publication of their reports, efficient help might have been expected, threw obstacles in the way of removing the very evils whose existence they demonstrated. We are not Utopian enough to suppose that here is an end to roguery in the seed trade, but at any rate there can no longer be the slightest excuse for respectable firms giving wilful countenance to dishonest practices.

—— WE learn from Hamburgh that the INTERNATIONAL HORTICULTURAL EXHIBITION is so entirely successful as regard entries, as to threaten to overflow the limits which had been assigned to it. The exhibition grounds, we are told, are not large enough for the requirements of the show, and the buildings erected do not afford the necessary accommodation. The application for space for coniferous trees alone amounts to 60,000 square feet, and for hothouse and greenhouse plants to 25,000 square feet. Under these circumstances the Committee applied to the Senate, and a beautiful meadow, separated from the exhibition park only by a highroad, has been placed at its disposal. The newly acquired ground will be connected with the park by a bridge 250 feet long, in the centre of which a splendid pavilion will be erected. The main building, the two wings of which were destined for the exhibition of hothouse and greenhouse plants, will be reserved solely for hothouse plants, and two outbuildings will be added thereto, one to be devoted to Orchids. The fruit-house will be taken for greenhouse plants; the space intended for machinery will be appropriated to vegetables, and near these agricultural produce will find a place. On the new grounds an immense fruit-house with other buildings will be constructed. The Committee also state that all the works and buildings will be finished in time for the opening on September 2. We may add, that Messrs. WEATHERLEY, MEAD & HUSSEY, of 73, Great Tower Street, London, who have been appointed shipping agents by the English Committee, will receive any articles that may be sent to them for the exhibition. Intending exhibitors should write to them at the above address, with full particulars as to their packages, but the packages themselves are to be sent direct to Messrs. WEATHERLEY & Co.'s premises, at Chamberlain's Wharf, Tooley Street. Among the English entries occur the names of Messrs. BARRON & SONS, for Coniferæ; Messrs. F. & A. SMITH, and Messrs. DOWNIE, LAIRD & LAING, for flowers and plants; Messrs. W. THOMSON, J. MEREDITH, and HOLLINGSWORTH, for Grapes; Messrs. DENNIS & Co., for boilers; Mr. HUDSPITH, for terra-cotta work; and Mr. LE BUTT for implements. English visitors requiring lodgings, should apply immediately to Dr. OSCAR GOSSLER in Hamburg.

—— It was stated at the general meeting of the Royal Horticultural Society, August 3, that the plant whose seeds were sent out by the Society as a kind of Gherkin, from the West Indies, is CUCUMIS PROPHETARUM. It was so stated, as that species was considered to include C. Anguria, L., and C. myriocarpus, Naudin, which latter is figured by Jacquin, under the name of C. prophetarum; though, as it appears from the Linnæan Herbarium, it is not that form of which the original specimens are still preserved. It is very possible, after all, that the three may be forms of one species, C. Anguria being a form with mild, not bitter fruit, introduced by the slaves from Africa. As, however, M. NAUDIN is confessedly a great authority on the subject, and C. Anguria is not known in Africa, it may be well to notice the points on which he confides. C. Anguria and C. myriocarpus, have green, not whitish or cinereous leaves, while the latter has the bitter fruit of C. prophetarum, but with much smaller, subglobose, more numerous and deciduous pepos, and less rigid spines than either of the other two supposed species. C. Anguria is widely diffused in the warmer parts of America; and an argument in favour of its being indigenous is derived from the fact that Cucurbita perennis, and C. digitata are truly American. Little confidence probably is to be placed on the colour of the leaves, the whitish or cinereous tint depending on situation; as little dependence on the shape of the leaves or fruit, which is notoriously variable in the genus. It is at least a consolation that the fruit which so constantly appears in West Indian pickles is not poisonous, like that of C. prophetarum; and NAUDIN, indeed, says, that it is not only very productive, but is excellent when cooked, provided it be gathered before the envelop of the seeds becomes hard. *M. J. B.*

—— We are glad to learn that the ROCKWOOD LILY, Ranunculus Lyallii, of whose glories we made recent mention (see p. 837), has been introduced to the Royal Gardens, Kew, where one or two small plants are to be found, sufficient at least to hold out promise that we may at no long distant date be privileged to witness the distinguished stranger in something like its normal beauty. It should be added that the plant, as might have been anticipated, seems somewhat difficult to cultivate.

—— A correspondent has been good enough to forward us an ACORN grown in water in a bottle that has been tightly corked. The effect has been that from the sides of the main root, as also from the stem, a quantity of white root-like processes have been formed so densely as to cover the stem thickly with a white spongy mass. The general resemblance of these to the AERIAL ROOTS of Orchids was so great that we were induced to submit them to microscopic investigation, when it was found that the processes in question were wholly cellular, consisting of oblong cells, containing a little chlorophyll, but quite destitute of those peculiar spiral cells so characteristic of the aërial roots of Orchids. Nevertheless, the circumstances under which they were produced are sufficiently analogous to those under which epiphytical Orchids grow, to be at least suggestive.

—— We have had submitted to our inspection by Messrs. DICK RADCLYFFE & Co. a specimen of a CHARCOAL FLOWER-POT introduced by them. The theory is that the porous qualities of the charcoal, and its power of absorbing deleterious gases, will be serviceable in the growth of plants. Air and oxygen will be supplied to the soil in larger proportion than can be the case in ordinary flower-pots, and the water supplied to the plant will be softened. It remains to be seen whether these advantages will be secured in practice, and also whether the charcoal flower-pots will, as the introducers assert, render the culture of plants in towns more easy by neutralising the ill effects of sulphurous acid gas. The same firm also introduce "seed tests," made of a plate of charcoal with parallel drills or grooves in which the seeds are to to be sown.

—— At the Botanic Garden, Ghent, under the charge of M. VAN HULLE, is at present a fine plant of VICTORIA REGIA. In order to ascertain what weight the leaf of the plant would support, experiments were made, with the result that the leaves were made to bear a weight of 226 kilogrammes (1 kilogramme = 2 lb., about). The fact is duly attested, and is worth recording, inasmuch as, so far as we are aware, this is the greatest trial to which the leaf has been subjected.

FOREIGN SEEDS FOUND MIXED WITH COTTON.

[Read at the Manchester Congress, July 21, 1869.]

(*Concluded from p.* 840.)

THE three Claytonias—perfoliata, alsinoides, and sibirica—seem to be spreading rapidly, having, no doubt, in the first instance escaped from gardens, and, finding our soil and climate congenial, have spread; and many other similar cases might be mentioned, but some subtle influence prevents the plants of which I am now speaking from exceeding their usual geographical limits.

In addition to those plants which, though they may be found in the southern parts of England, do not appear in the midland, to say nothing of the northern counties, there were among my specimens many others which do not belong to the British flora at all. One was the plant called Caterpillars—or Scorpiurus—the species sulcata. It is a leguminous plant, grown sometimes in gardens as a curiosity. The pod is singularly twisted, something after the manner of a Medick, but the legume is divided transversely, so as to somewhat resemble a necklace. On pulling the plant up I found that it was to a certain extent hypocarpogean, for the lower branches had ripened their fruit, and the pods had, as it were, wormed themselves underground, and germination had already commenced, the higher parts of the plant being at the same time in flower.

Another plant which it seemed rather odd to find was Southernwood, or Lad's Love (as it is commonly called)—Artemisia Abrotanum—so frequently to be met with in cottage gardens.

There were many other plants, the names of which I was unable to determine. One was a species of Amaranthus, another a species of Cichorium. There were numerous other Composites and several Chenopodeæ, also several Umbelliferæ, all of them small, some with yellow, and some with white flowers. One curious Caryophyllaceous plant I watched with great interest, but, unfortunately, just before it came into bloom my pony ate it off.

These plants, as I have before said, spring from seeds which have come mixed with cotton from all parts of the world, and being scattered indiscriminately on the ground we are unable to ascertain with certainty anything as to their origin, further than the bare fact that the seeds have come mixed with cotton. I therefore examined several bales separately. The cottons which contain the greatest number and variety of specimens seem to be those from Madras, though all contain some.

One frequently finds the seeds of various Palm trees, and of many Grasses. I think, but am not quite certain, that it was in Madras cotton that I found Job's Tears (Coix lacryma); at any rate, I grew it from seed out of cotton, under glass, and it attained a height of between 8 and 9 feet.

There appear to be, taking all the seeds or plants I

have noticed, but few Cruciferæ, Lepidium ruderale being the only one of which I am certain.

In looking over cotton to pick the seeds out, a considerable number will no doubt escape notice on account of their minuteness. My particular search turned out interesting. The greatest number of the larger seeds are leguminous, and many of them may be referred to the Phaseoleæ. In the Madras cotton there are frequently a great number of Tamarinds. I have grown several plants of them, and have now two in their second year. Last year they made considerable growth without sending forth any branches. During the winter they took complete rest for some months, and are now growing very rapidly, and are producing branches.

Some seeds which I have sown, and which have produced healthy plants, I have not yet been able to determine; some have not yet flowered, being shrubs or trees.

I have examples of most of the seeds that I have mentioned, and a few others, such as Dates, Castor-oil seed, Hickory, species of Gourd, Mango, Coffee, and several more. The Coffee came from St. Domingo.

Examples of the fauna of a country are also occasionally met with in cotton bales. There is a grim tale of a specimen of the human race having been once found, for the accuracy of which I cannot speak, but for a lizard, a rat, and a monkey I can vouch. In fact, the examination of bales of cotton is not unlike the examination of rubbish heaps of the ancient Romans; you may gather from them, to some extent, the produce of the country—the food of its inhabitants—the nature of their costumé—and their implements; for examples of all these are to be found in their cotton bales.

I have here a rifle cartridge (of which there were many in the lot) out of a bale of cotton which came here from the Southern States of America during the late civil war. In another lot there were several pistol cartridges.

I have no doubt that the seeds I have noticed are a very small portion of what might be found; nevertheless I have noticed representatives of about a score natural orders, from the Gramineæ to the Umbelliferæ.

The seeds which are most abundant are those of the Gramineæ. First we have the important cereals, Rice, Wheat, and Maize, and the absence may be noticed of Barley, Rye, and Oats. Wheat is perhaps found most abundantly, then Maize, and then Rice, but they are, after all, in pretty equal proportions. Passing from these important products we find a number of smaller grains, some of which seem to be Millet. I have a series of them, ending in what appears to be canary seed.

Of the Palmaceæ we do not find many seeds mixed with cotton, excepting occasionally. Now and then we find large quantities, put in no doubt to make weight. I have here a specimen of a kind of which there were some scores in a lot of East Indian cotton. Now and then we meet with other kinds—dates for instance.

The Euphorbiaceæ are represented by the Castor-oil seed, and the Juglandaceæ by the Hickory nut, the seed of which, in its peculiar structure, much resembles the Walnut. Of the Cucurbitaceæ we find many seeds of Gourds. The Cruciferæ seem rare, but I have found Lepidium ruderale growing, and I think a few seeds belonging to the order. The Mango represents the Anacardiaceæ. The Zygophyllaceæ are represented by a couple of seed-vessels from East Indian cotton.

The Chenopodiaceæ are abundant, but are for the most part common weeds belonging to our own flora, such as Chenopodium and Atriplex; and perhaps some little doubt may be felt as to their foreign origin. All circumstances taken into account, I am inclined to believe their seeds are very abundant in cotton.

Subject to the same opinion are the Polygonaceæ, of which vast numbers spring up wherever cotton refuse is thrown, especially a large rampant form of Polygonum Persicaria, and the common little Polygonum Convolvulus. I also found a single specimen belonging to the Amarantaceæ.

Of the Leguminosæ there is considerable variety, the largest being the Tamarind; and probably the most abundant are species of the sub-tribe Phaseoleæ. I had never till this year met with ordinary cultivated Beans or Peas, but I have now found the common horse Bean and one ordinary Pea plant growing.

Of the Solanaceæ, we have the Black Nightshade, which, for general distribution over the whole world, is about the commonest weed known; not so, however, the Capsicum, of which I have seeds.

Labiatæ are tolerably abundant, and are represented chiefly by plants which are commonly found cultivated in our cottage gardens, such as Pennyroyal, Horehound, &c. Of Verbenaceæ I have met with our only British plant of the order—Verbena officinalis. There are a few Compositæ, but not many. Artemisia is one illustration, Cichorium and Bidens are others.

The Cinchonaceæ are represented by Coffee, which is to be found in considerable quantity mixed with cotton from St. Domingo; I have not seen it in any other kind of cotton.

Lastly, the Umbelliferæ are not entirely absent, but they are not very abundant. Exactly what they are I do not know, but I have both found seeds which belong to this order, and various Umbellifers growing: one of which I am tolerably certain is Coriander.

My paper has been in reference to foreign seeds found mixed with cotton, but as I have just alluded to animals and implements also, I must not omit to mention another curious set of botanical specimens to be met with—in this case not in, but on, cotton bales. These are the stems of various climbing and other plants which are used in place of ropes to fasten up bales of some Brazilian cotton. Some are canes, which are tied together by a common knot, and are used just like ropes; others are much thicker, and appear in some cases to have been soaked in water to make them supple. Sections of these exhibit great diversity in structure. Notably, there are to be found among them a number of stems belonging to the Nat. Ord. Bignoniaceæ, a section of which shows the peculiar structure pointed out by Gaudichaud. By the folding inwards of the external parts they exhibit a number of divisions, varying from 4 to 32, but generally a multiple of 4. Besides these there are examples of the curious anomalous stems of some Brazilian Sapindaceæ, which have numerous secondary woody masses surrounding a central one, each with its own pith, medullary rays and bark, the whole being surrounded by a common sheath of bark. Some others seem to be Gnetaceæ and Aristolochiaceæ. Of these ready-made ropes of Brazilian forests, there are many interesting specimens to be found surrounding bales of Paraiba and Bahia cotton. *R. H. Alcock, Hudcar, Bury, Lancashire.*

EXPERIMENTS WITH SUBTROPICAL PLANTS AT BATTERSEA PARK.

[Read at the Manchester Congress, July 21, 1869.]

THE following paper gives the result of some experiments made with Subtropical plants during the winter of 1868-9:—

The season was a remarkably mild one, preceded by one of the finest English summers on record—a fact which will be fresh in the recollection of every one. It may, therefore, with some reason be argued that the same results as those which have called forth these remarks would not follow a severe and unpropitious winter. This, however, is a point which we may reserve to be answered by future experience; suffice it to say, that the experiments carried out at Battersea last winter were based upon similar tests, made on a smaller scale during the last five years; and as regards Cannas, Erythrinas, Aralia papyrifera, and other plants, it may be asserted that, if a covering of dry litter, or other loose non-conducting material, such as leaf-mould, cocoa fibre, &c., is employed, of sufficient thickness to exclude frost, the plants beneath the covering will not be injured by cold, no matter how severe the frost. We have a parallel case described in reference to a plant of a totally different habit from those before alluded to, the stem and roots having been effectually protected from frost and wet by similar means. This plant was preserved in perfect health during the winter of 1866-67 in the open air in a garden near Paris, producing a most luxuriant growth, and becoming the admiration of all who saw it the following summer (1867). I refer to Musa Ensete, the great Abyssinian Banana. It is probable that the stems of Eucalyptus and similar tender trees which readily produce vigorous shoots from the stem, may be preserved in the open air in this country by similar means.

A covering of dry litter is the most simple means we possess for the protection of plants. In this is involved a principle that may be made subservient to the tastes and requirements of cultivators of subtropical plants, who may employ such non-conducting material to exclude frost from the plants to be protected as may enable them to nurse up evergreen shrubs, and so mask and render ornamental the otherwise unsightly subtropical beds during winter.

By means of the covering of litter alluded to, a bed of Canna peruviana, edged with C. expansa, 80 feet by 8 feet, has been preserved for the last two winters from injury; the former species, which attained the height of 12 feet last year, is now growing luxuriantly, and is 5 feet high. A bed, 45 feet by 7 feet, of Canna Annæi; another of the same variety, 70 feet by 8 feet—the former bed having stood one winter, the latter two—grew 12 feet high last year, and one is now over 5 feet high. Other beds of Cannas, varying in size from 60 feet by 8 feet to 20 feet by 6 feet, have been preserved out-of-doors by the same means, and are now equally vigorous. They are planted in part with the following varieties, all of which have been found to stand well under this treatment:—

Canna zebrina	Canna floribunda
,, zebrina coccinea	,, aurantiaca splendida
,, picturata fastuosa	,, Annæi rosea
,, peruviana	,, indica rubra
,, limbata*	,, grandiflora floribunda
,, nepalensis	,, Warscewiczii
,, Sellowii	,, Madame Annæi
,, grandis	,, expansa
,, rubra superbissima	

The kinds of Canna named below, having very fleshy succulent roots, have not stood so well; the beds of which they formed part have required to be made good to some extent; they cannot therefore be relied on for outdoor winter work, viz.:—

Canna edulis	Canna metallica
,, discolor	,, gigantea
,, robusta	,, nervosa
,, nigricans	

Erythrina.—Two round beds, each of 9 feet diameter, and one oblong bed, 42 feet by 5 feet, stood out last winter uninjured, including—

Erythrina ornata	Erythrina profusa
,, Marie Belanger	,, Madame Belanger
,, laurifolia	,, ruberrima
,, crista-galli	,, Hendersoni

The Continental hybrids of these showy Coral trees were expected to prove very tender; all the varieties, however, are growing most luxuriantly, and abundance of flowers is looked for; only one plant in the three beds has sustained any injury, and this through field-mice eating the bark.

Tetrapanax (*Aralia*) *papyrifera*, the Rice-paper plant, is justly regarded by many as one of the very finest foliage plants used in subtropical gardening. A bed of this plant, 13 feet in diameter, attained 5 feet high from cuttings struck in the spring of 1868. The plants were left out last winter, and although killed to the ground the thick fleshy roots have this season produced numerous strong shoots, or suckers. These are produced irregularly, and require to be thinned out, so as to retain only a sufficient crop; and a few spaces have required to be filled up to render the bed complete.

Aralia Sieboldi.—This differs from the foregoing in habit and appearance, and is equally meritorious as a foliage plant. Indeed, it is more valuable, from its proving quite hardy, as we may be justified in stating after five winters' trial.

Echeveria secunda glauca.—This Mexican succulent—useful for the margins of beds and other purposes—is more hardy than is generally supposed. Having heard last year from Mr. Roger, gardener at Bury Hill, Taplow, that it had borne 22° of frost the previous winter with him, a margin of one of the circular beds at Battersea was left out last winter. The plants on the southern half of the bed were uninjured, while every plant on the northern side was killed.

Solanum laciniatum elegans.—This elegant foliage plant has borne the past winter, and is now producing its neat pale blue flowers. This species, together with S. betaceum and S. pyracanthum, bear the winters at Rose Hill, Exeter, and, although sometimes killed to the ground, seldom fail to shoot up from below. In the same garden at Rose Hill Cannas are grown out-of-doors, and never taken up in winter, except for the purpose of thinning and rearranging the roots.

I must conclude these remarks with an enumeration of the following plants, which have held their place out-of-doors last winter, and although they are not of sufficient importance to demand each a separate notice, they are nevertheless useful adjuncts in subtropical arrangements, viz.:—

Gunnera manicata,	Polymnia canadensis,
Polymnia maculata,	Hibiscus palustris.

—*J. Gibson, Battersea Park.*

* Now 5 feet high, four winters out.

ON REPEATED GRAFTING OF YOUNG FRUIT TREES.

[Read at the Manchester Congress, July 22, 1869.]

THE tops of trees have much the same influence upon the growth of the roots as these have on the branches. This does not accord with the opinion of some in favour of repeated grafting of young fruit trees with different kinds, with a view to their imparting to them some of their peculiar qualities. Take, for example, a Pear stock grafted with Uvedale's St. Germain one season, and the next with Beurré de Capiaumont, and the following with Glou Morceau. The first is considered to promote the strength of the young tree, the next to impart fruitfulness to the last, which forms the top. Such a process might be plausible if the alburnum, or "sap-wood," were formed from the juices of the root when ascending, instead of from the descending sap after passing through the leaves and receiving the influence of the sun. Even then the proper juice does not affect or change the original qualities of the wood or united parts of the tree, because each one retains the peculiar properties of its kind from the alburnum, or pulpy matter inherited from seed. And if the tree under consideration is cut down just above the second union the offshoot will be exactly of the same kind as that of the original graft. The same results will follow if the experiment be repeated with the next one; and even with that of the stock with its shoots of spines or thorns. Likewise the offshoots from the bark of an old regrafted tree will be of the same kind as the original one. This is well exemplified in Briar shoots, even a hair's-breadth beyond the margin of the inoculated Rose bark. All these facts exemplify the original virtues of the scions, as already mentioned. For when the descending sap from the leaves comes in contact with the alburnum, it coagulates, and in this way forms fresh layers of wood according to its kind, without any reference to that of the varieties united. But as this view of the subject has not occurred to me until now, I give it only as my opinion. I would further urge that upon it depends the whole result of grafting various kinds of fruit on the same tree, and their remaining true to their kinds.

In connection with this subject, I should mention that the scars from repeated grafting tend to check exuberant growth, and thus may produce fruitfulness; but the same effect may be obtained by merely "ringing" or cutting off part of the bark. This old process was no doubt derived from the appearance presented by a seared prolific branch, which however is only of short duration.

Some kinds of Apples are subject to this disease. In such cases the soil is often blamed, but when seared trees are regrafted with scions from other healthy kinds they may soon again flourish. Thus the disease seems to rest more with the kinds, than with the soil and situation. This may coincide with the opinion of some able horticulturists as to old kinds of Apples, and of other fruit being "worn out" from long cultivation. But as I have said, the rind of trees contains the same sort of virtue as that of the parents, and this is annually renewed with the fresh layers of wood. Certainly, some kinds are more hardy than others, and the leaves of these in bad seasons may be liable to blight and affect the alburnum. But the same is applicable to new varieties: in both cases the bad alburnum of the fresh formation of the annual coatings of wood may spread the disease while such trees exist. Using scions or grafts from such trees is therefore only inoculating with it, and this shows how carefully the grafts should be selected from healthy trees. The old Golden Pippin is one of those considered to be "worn out." But I have now (May 26) some good specimens of it from a tree, perhaps as healthy as others of its kind were 60 years ago, or at least before the time when Mr. Knight's attention was attracted to this important subject. In fact, he led the way to rearing new kinds of fruit from the mixture of the pollen—an important matter, which is now well understood. *J. Wighton, Cossey Park.*

REPORT ON THE CONDITION OF THE FRUIT CROPS.

[FROM OUR OWN CORRESPONDENTS, AUGUST 14, 1869.]

COUNTY.	APRICOTS.	APPLES.	PEARS.	PLUMS.	STRAWBERRIES.	CHERRIES.	PEACHES AND NECTARINES.	FIGS.	SMALL FRUITS.	NUTS.	NAME AND ADDRESS.
SCOTLAND.											
ABERDEENSHIRE	Average crop	Few on wall and standards	Few on wall; none on standards	Victoria good crop on wall; few on others; none on standards	Good crop; suffering from drought	Few on wall; none on standards	None grown in this locality	None grown in this locality	Black Currants and Raspberries good; Red Currants and Gooseberries very inferior	None grown in this locality	George Donaldson, Gardener, Keith Hall
AYRSHIRE	Very few; not much grown in this locality	Almost a total failure through late spring frosts	A good crop on walls; very few on standards	A few on walls; standards a failure	An excellent crop; Keens' Seedling, Eclipse, and Comte de Paris very fine	Very good crop; Morellos excellent	Almost a total failure	Not grown in this locality	An excellent crop; Gooseberries very much affected with insects	Not grown in this locality	R. G. Rae, The Gardens, Eglinton Castle, Irvine
BANFFSHIRE	Good average crop, and fruit large	Not quite an average crop, and very irregular	A fair crop on walls; standards not quite half a crop	Very poor crop; they set well, but were much destroyed by late May frosts	Good for some places; others not over half a crop	Morellos very fine; other sorts poor crop; trees and blossom suffered by late May frosts	An average crop, but very backward; unless a fine autumn, doubtful of coming to maturity	Good	Black Currants, White and Red, an abundant crop, also Raspberries; Gooseberries below average	An abundant crop, but few are grown here	George Milnes, Cullen House
BERWICKSHIRE	Full crop of Moorpark	Medium crop	Good crop	Full crop	Early sorts a failure; late sorts heavy crops	Very scarce; bloom damaged with frost during May	None grown out-of-doors	None out-of-doors	Very heavy crops of Gooseberries, Currants, and Raspberries	Heavy crop	Peter Loney, Marchmont, Dunse
DUMFRIESSHIRE The severe frost on May 29 destroyed the crop to a great extent	Failure	Scarcely an average	Average	Poor crop	Fine	Poor crop	Scarcely an average	....	Great crop	Great crop	David Thomson, Drumlanrig Gardens, Dumfries
FIFESHIRE	Very few	Very few	Average crop	Average crop	Average crop	Average crop	Very few	None grown	Average all sorts, except Gooseberries	None grown	Alex. Shearer, Gr. to the Marquis of Tweeddale, Yester Garden, Gilford
KIRKCUDBRIGHTSHIRE	Very few	Half a crop	Good crop	Some varieties are abundant	Very good; early sorts soon over; late varieties very heavy crop	Very good crop	Very good crop	. . .	All kinds very good crop	Very heavy crop	James Johnstone, Terregles Gardens
LANARKSHIRE	Few	A very small crop generally; late sorts best, having escaped the cold cutting winds and late spring frosts	Early sorts good; late sorts average; generally promising	Few, and trees very much injured by aphides, their excretions almost hermetically sealing up the pores on the surface of the leaves	Early sorts fair crop; late sorts very good indeed; partially affected with aphides	Thin crop	Fair crop in upland districts	Sparsely cultivated out-of-doors	Gooseberries a fair crop; in some places plentiful; terribly damaged by aphides	....	L.A.
MIDLOTHIAN	Few and small, and they are cracking before they are ripe	Fair crop, but small in consequence of the great drought	Plentiful crop, but as yet they are small	Few in this quarter, which is not a Plum soil	Short crop, and the fruit small	Average crop, but small	Early crops fine; late ones almost a total failure	Good under glass, but few outdoors	Currants on light soils shrivel before they ripen, and they are covered with insects and honeydew	Not grown in this district	William Thomson, Dalkeith Park
PERTHSHIRE	Heavy and fine	Not half a crop	Good crop	Good crop	Very fine	Good crop	Heavy; all under glass	Heavy; all under glass	Good	Good	H. Rintoul, Dupplin Castle Gardens
ROXBURGHSHIRE	Third-rate crop	Second-rate crops on many trees, but first-rate on others	First-rate on walls; second-rate on half standards; west and south wall equally fine	Second-rate crop on the Reine Claude kinds, and third-rate on the large sorts	Very unsatisfactory this season, as last, owing to the late dry weather	Preserving kinds first-rate in quality and quantity; table kinds scarce, but extra fine in quality	....	....	Gooseberries, fine crops; Currants, second-rate; Raspberries, first rate	Both Cobs and Filberts excellent crops; small bushes loaded with fruit	H. Knight, Floors Gardens
WIGTONSHIRE	None; rarely succeed in this district	Full average crop	Full average crop	Very scarce	Inferior crop	Abundant crop	Few grown out-of-doors, but are magnificent under glass	Average crop	Abundant	None grown	Archibald Fowler, Castle Kennedy
NORTHERN COUNTIES.											
NORTHUMBERLAND	Not more than half a crop; were much injured by spring frosts	On large standards a fair crop, but dwarfs on Paradise stock nearly a failure	Very plentiful on walls—more so than ever was known here before	Except July Greengage and Reine Claude de Bavay, all other sorts are a poor crop, and much blighted	With the exception of Grove End Scarlet, all other vars. grown here have been abundant and good	Morellos are an excellent crop; early sorts are scarce	Very few; bloom was plentiful, but set badly, and were destroyed by cold east winds and May frosts	None out-of-doors	Abundant and good	Filberts never were known to be such an excellent crop; Walnuts a failure	Robert Bowie, Chillingham Castle Gardens
	Abundant crop; the trees clean, and in excellent health	In sheltered situations a fair crop; where more exposed, very few	Excellent crops, both on walls and standards	Very few; bloom mostly destroyed by cold winds in the end of May	A rather light crop on early sorts; on late sorts a fair crop	A fair crop, the fruit large and fine on some of the trees, where not so much exposed	Excellent crop; the trees clean and healthy, and making good wood	In sheltered situations a fair crop	Gooseberries and Currants abundant; Raspberries large and fine	Very few	Alexander Ingram, Alnwick Castle Gardens
	Good crops in some places	Two-thirds below average; trees healthy, and free from insects	Average crop, and prospect of ripening well on walls	Greengages a good crop; all other kinds very scarce, and were much injured by spring frosts and aphides	Abundant, large and well-flavoured	Fair crop, which was at one time expected to fall off, from the effects of frost	Over average under glass; trees healthy and clean; good crops on wall trees	None grown out-of-doors	Gooseberries, Currants (black, red, and white), also Raspberries, all in great abundance	Abundant in the woods; of Filberts none are grown	Anthony Helley, Wallington
DURHAM	Good	Very few; the trees and fruit sadly stunted by the severe attacks of green-fly	Early sorts good, later kinds very few; trees clean and healthy	Very few; nearly all dropped off, from the sad blighted state of the trees	Plenty, but small	Good	On open walls the fruit is plentiful, but small	None grown out-of-doors	Good, especially Gooseberries, Raspberries, and Black Currants	Good	Richard Westcott, Raby Castle Gardens
	Very fine crop, the wood looking well for another year	Dwarf trees a good crop; orchard crop light	Trees in open ground loaded; light on walls.	Almost a failure	Light crop where not watered last year	Very good on heavy land	None in open air, but crop good in non-heated houses	None grown out-of-doors	Currants and Gooseberries very fine	Plentiful	William Dick, Wynyard Park
YORKSHIRE	Irregular crop; some trees, even on the same wall, heavily laden, and others very lightly; on the whole, not much below average	Very light crop in general; young trees have a moderate sprinkling of fruit, but old trees little or none	Very good crop everywhere, both on dwarfs and standard trees, in open grounds and on walls	Light crop; some kinds are tolerably well laden, but, on the whole, the crop is much below average	In general a light crop, especially on light soils, but on strong land the crop has been good; here it has been very good	Abundant crop everywhere	Irregular crop on light soils; where the trees suffered from drought last summer they are light, but on strong land good; here the crop is good	Thin; the heat of last summer brought the young fruit too forward to stand over the winter	Raspberries very abundant and fine; Currants of all kinds abundant and fine; Gooseberries light in some places, and a good crop in others	Very abundant everywhere; I think I never saw the trees fuller before	Michael Saul, Stourton, Knaresborough

CONDITION OF THE FRUIT CROPS—(*Continued*).

COUNTY.	APRICOTS.	APPLES.	PEARS.	PLUMS.	STRAWBERRIES.	CHERRIES.	PEACHES AND NECTARINES.	FIGS.	SMALL FRUITS.	NUTS.	NAME AND ADDRESS.
NORTHERN COUNTIES.											
YORKSHIRE	Scarcely any; there was a good show of bloom, but small birds picked nearly all off	A fair sprinkling; no Keswicks	Good crop on walls, espaliers, and standards	Good crop of kitchen sorts; none on some trees, mostly owing to birds picking off the flowers	Very abundant crop, and large; rather late in coming in at first	Good crop on walls and standards	Very good crop	....	Abundant and good of all kinds	Wood and Filberts loaded; Walnuts scarce	William Denning, Grimston Park, Tadcaster
	Good show of bloom, but a poor crop	Scarcely any	About half a crop	....	Plenty set, but suffered from drought	Very fair crop	Generally speaking, very few	Plenty	Abundance of all kinds, excepting Raspberries	Abundant crop	Jos. C. Nicholson, Mount St. John, Thirsk
	....	Very thin crop; suffered from late frosts	Medium crop on walls; standards below average	Moderate crop; suffered from late frosts	Light crop; late; suffered from drought	Thin crop; dropped their fruit before ripe	Moderate crop	Plentiful	Currants plentiful, but small; Gooseberries very partial; Raspberries small	Good crop	Robert C. Kingston, Brantingham Thorpe, Brough
	Very scarce	A failure	Moderate crop	A failure	Abundant on plants which were forced last year	Good crop on young trees	Early fine; late a failure	Good inside	Currants middling; Gooseberries very fine crop	Good crop	J. Simpson, Wortley Hall Gardens, Sheffield
	A failure; all the blossom killed with early frosts	A fair crop of some kinds; young wood much injured with fly and mildew	A good crop of most kinds	Scarce; trees much infested with fly and spider	An abundant crop of all kinds; British Queen has done remarkably well here	A good crop of Morellos; other kinds scarce	A complete failure; all the fruit killed by the frosty nights in March	A good crop	Raspberries, Gooseberries, and Currants in great abundance.	Filberts and wood Nuts very plentiful	G. Clifton, Bretton Hall, Wakefield
LANCASHIRE .	Half crop	Good crops	Good crops	Less than half crop	Very good	Very good	Less than quarter of crop	None grown out-of-doors	Good crops, all of them	None grown	James Freeman, Knowsley
	None	Good	Early Pears good: late middling	Very poor	Sir C. Napier, none; Keens' Seedling, fair crop	May Duke and Morello, good; other sorts only middling	None grown outside	....	Abundant crop, especially Black Currants and Gooseberries	Very good	J. R. Petch, Gardens, Manley Hall, Manchester
	Almost a failure	Very fair crop; in some places heavy; others rather thin	Common hardy varieties, a good crop; tender choice sorts, moderate; in some instances failure	Moderate	Generally good	Moderate; Morellos very good	Moderate in some places; below the average in general	Not grown in the open air	Gooseberries very abundant; Currants moderate; Raspberries below the average	....	E. Green, Bank Hall Gardens, Warrington
CHESHIRE.....	Next to none	Great crop; many trees require thinning	Very good crop	An average crop	Almost a failure	Excellent crop	Almost a failure	Not grown out-of-doors	Very heavy crops	Very heavy, both cultivated and in the hedges	W. Muir, Oulton Park
	A very abundant crop	Very heavy crops generally; a few trees under the average	Good on walls, and plentiful generally on standards	Above an average; Damsons very plentiful	Not very good, either in size or abundance of crop	Ordinary kinds not plentiful; Kentish and Morellos very abundant	Very few on outdoor trees, and less than usual in orchard-house	....	Abundant; but Currants, particularly Black, much attacked by aphides	More plentiful than for many years	W. Whitaker, Crewe Hall
	Very few	Early kinds, very few; late, about half a crop	Average crop	Good crop	Much bloom killed by late frosts	Average crop	....	....	Good crop	Abundance	C. Allen, Withington Hall Gardens
SHROPSHIRE ..	Few	Kitchen, very poor crops; dessert, a few; Ribstons, trees very much blighted	Tolerably good, but backward	Very few of any kind except Damsons	Indifferent	No dessert kinds; Morellos are tolerably good	A sprinkling	Thin, and dropping	Not to be complained of	Filberts and common, remarkably good; Walnuts very thin	J. Pearson, Kinlet, Bewdley
	Very poor crops	Partial crops; crumpled	Fair crop	Damsons, abundant on light soils; Plums, middling	Abundant here, but only partial in the neighbourhood	Fair average many dropped when stoning	....	Good crops, but they scarcely ever ripen	Gooseberries and Currants abundant, but very much affected with honeydew and insects	Plentiful; Walnuts not so good	D. Judd, Hawkstone
	A good crop here, under a rough plate-glass coping	A good crop on trees on the Paradise stock; very scarce in orchard	Good crop on walls, and dwarf standards on Quince stocks; fruit small	Below average	Good in places; not good with us	Good crop generally	A good crop under a coping of rough plate-glass	A good crop, but fruits drop off	Gooseberries, Currants, and Raspberries, abundant	Walnuts all dropped off; Filberts abundant	C. G. Halston, Oswestry
MIDLAND COUNTIES.											
STAFFORDSHIRE	Fair crop	Scarce	Good crop	Light	Under average	Moderate crop	Failure	Fine crop under glass	Gooseberries and Currants, abundant crop; Raspberries, scarce	Plentiful	J. Ballingall, Drayton Manor, Tamworth
	Almost a total failure	Much below average	Fair crop	Generally below average	Good	Very few dessert varieties; Morellos about half crop	Very bad; mildew and aphis has been very troublesome	Not at all satisfactory out-of-doors	Good	Marvellous crops; never seen anything approaching it before	Edwin Simpson, Wrottesley, Wolverhampton
	Too cold a climate for them	Good crops in some situations	Poor crop	Very indifferent; trees bloomed well, but set badly	Very poor crop; from the effects of last dry summer	Poor crop	Only one Nectarine tree grown on south wall, which has a very large crop	....	Currants very good; largest crop of Gooseberries we ever had; Raspberries a moderate crop	....	John Sherratt, Knypersley Gardens
	A very thin crop in this neighbourhood	Average crop; the Keswick very much blighted; other varieties look very well	Excellent crop; Williams' Bon Chretien, extraordinary	Very scarce, with the exception of the Wine-sour and Damson	A very good crop and fine quality; nearly over	Average crop; look promising; free from black-fly	Very thin; scarcely any	....	Currants and Gooseberries, an excellent crop; Red and White Currants, blighted a little	Filberts and Cob Nuts are a good crop	—, Sutton Coldfield
NOTTS	Very scarce; owing to the cold weather of March and April	A very good crop, but small	Good average crop	Very good crops	A poor crop here, but better on heavy soils	Very good	A complete failure	Good crops where the trees are protected in winter	Very good crop; filthy with honeydew	Immense crops	James Tegg, the Gardens, Clumber
	Very thin crop	Fair average crop	A fine crop; protected the bloom with the common Brake Fern	Good on wall; scarcely any on standards	Abundant crop, and fine fruit	Good crop	A fine crop; protected from spring frosts by old herring netting	Not grown ouside; plentiful under glass	Plentiful	Filberts and Cobs, heavy crop; Walnuts, a thin crop	John Cope, the Gardens, Berry Hill, Mansfield
	Very scarce; flowered well, but will not set	Average crop; many varieties scarcely any	Some varieties heavy crop; others very thin	Plentiful; Damsons very heavy	Good average crop; very late and soon over	Plentiful	A complete failure; trees flowered well, but did not set	Not much grown	Plentiful; Red and White Currants very much blighted	Very plentiful	William Cruickshank, Kingston Hall
LEICESTERSHIRE	Very few in this district	About half a crop	Some sorts have very heavy crops, while other kinds have none	Very scarce; not the sixth part of a crop	About the fourth part of a crop	A large crop, of fine quality	Complete failure; hardly any	About half a crop	A very good crop: with the exception of Raspberries, which did not set well	Filberts, the largest crop I ever saw: Walnuts, very few	Montgomery Henderson, Cole Orton Hall, Ashby-de-la-Zouch

CONDITION OF THE FRUIT CROPS—(*Continued*).

COUNTY.	APRICOTS.	APPLES.	PEARS.	PLUMS.	STRAWBERRIES.	CHERRIES.	PEACHES AND NECTARINES.	FIGS.	SMALL FRUITS.	NUTS.	NAME AND ADDRESS.
MIDLAND COUNTIES.											
LEICESTERSHIRE	Total failure; less from the direct action of frost than from prolonged cold and sunless weather	Very thin; trees blighted; favourable exceptions as to fruit are Herefordshire Pearmain, Frogmore Seedling, and Irish Nonpareil	Good crops of Jargonelle, Knight's Monarch, Marie Louise, Beurré d'Esperen, B. Rance, Louise Bonne of Jersey, Williams' Bon Chretien; others thin	Abundant crop of the Victoria; medium of Golden Drop; thin or a failure in the case of most other sorts	Tolerably abundant, but not particularly fine, quality good; President, Sir C. Napier, Sir J. Paxton, Frogmore Pine, good and prolific	May Duke and Morello on walls, a fair crop; standard trees, no crop	Very much blighted and blistered; crop thin	Promise of a large crop	Raspberries and Currants, abundant; Gooseberries, moderately good crop	Great crop	William Ingram, Belvoir Castle, Grantham
	Half our trees good crops, the other thin	Very few here or in the county	Good crop, both on walls and standards	Very few here	Good crops, but not so large as usual	Morellos, good crop; other sorts not grown much	Half our trees good crop, other half very thin crop	Very few	Good crops	Not grown here	Emanuel Sage, Gopsall Hall, Atherstone
NORTHAMPTONSHIRE	Quarter crop	Failure; scarcely any	Half crop on standards; thin on walls	Good half crop	Quarter crop	Half crop	Complete failure	Full crop	Full crop	Extraordinary good crop	R. Gilbert, Kitchen Gardens, Burghley, Stamford
	Very few	Scarce	Average crop on walls; scarcely any on standards	Below average	Not quite an average	Abundant; both Morellos and dessert kinds	Very few	Good crop	Gooseberries and Currants very plentiful; Raspberries a fair crop	Abundant	John Brown, Rockingham Castle
RUTLANDSHIRE	Failure	Failure	Half a crop	Failure	Half a crop	Good crop	....	Half a crop	Failure in Gooseberries and Currants; Raspberries fair	Walnuts a failure; great crop of others	M. Hull, Ayston Gardens, Uppingham
OXFORDSHIRE	Fine crop of Moorpark; Royal a complete failure, although all protected with the same protection; but a scarce crop in general in this neighbourhood	Abundant, and the trees healthy	On walls a fine crop, but was protected with hexagon netting; standards only a few left, the nights being so cold	Greengages abundant on south-west walls; east walls none	All sorts excellent crop; but quite a fortnight latter than usual	Fair crop on south walls; Morellos most excellent on north walls, and very large	Only a few where well protected; trees looking very healthy at present	Abundant, and I never remember the trees looking so vigorous	All sorts an extremely fine crop, much better than is generally the case	Filberts the largest crop ever known; Walnuts about one-third of a crop, the nights being so extremely cold throughout June	James Stewart, Nuneham Park, Abingdon
	Under average; but very fine	Under average	Very abundant, but small	Very few	Fair average; good late crop	Good	None out-of-doors; trees much blighted	Very few	Abundant and very fine	Never saw such a heavy crop	W. Lee, Blenheim, Woodstock
WARWICKSHIRE	Hardly medium	Fair crop; trees much blighted	Very good	Fair crop	Fair crop	Very good	Failure	Too late	Very plentiful	Filberts plentiful; no Walnuts	S. Elworthy, Stoneleigh Abbey, Kenilworth
	Very thin	Much under average generally	In localities there are some	Very thin	Good, but soon over	Average crop	A failure out-of-doors	There are some	Very plentiful	Plentiful	William Miller, Combe Abbey Gardens, near Coventry.
EASTERN COUNTIES.											
LINCOLNSHIRE	Not half a crop, but very fine fruit, and early	Very good crop on pyramids and espaliers, light in orchards	Fine crop on pyramids, required much thinning; on walls, average and good	Average on walls; light standards; Damsons good crop	Fine crop of large fruit	Under average	Very good crop; some trees required much thinning	Under average	Currants, Gooseberries, Raspberries, and all small fruits abundant	Filberts and Cobs very fine crop; Walnuts scarce	George B. Tillyard, The Gardens, Brocklesby Park
	A good crop where protected, otherwise a failure	A very poor crop	A fair crop on most varieties	Standards a failure; a fair crop on walls where protected	A fair crop of some varieties	A poor crop; Morellos a fair crop	A complete failure	A fair crop	An abundant crop	An extraordinary crop of Filberts: Walnuts a fair crop	David Lumsden, Bloxholm Hall, Sleaford
NORFOLK	Very few	Small and partial crop	Average crop of the hardy sorts	Very few	Below average	Plentiful	Very few	....	Abundant	Very plentiful	William Carmichael, Sandringham
	Almost a failure; a few in patches	About one-third of a crop, the fruit very small	Good crop on the wall-trees	All but a failure	Half a crop	Half a crop	Complete failure, although well protected with nets	Bad crop out-of-doors	Currants average crop; Gooseberries, half a crop; Raspberries, fair crop	Filberts most abundant crop; Walnuts very bad	Wm. Smythe, The Gardens, Elmham Hall
ESSEX	Very short crop	About one-third of a crop	Moderate crop; a great many set that did not swell	Very moderate crop, with the exception of Damsons	Almost a failure; I never saw so few	With the exception of Morellos a very poor crop	Very few	A good crop	Gooseberries, Currants, and Raspberries good	Filberts and other Nuts very abundant	Geo. Young, Audley End, Saffron Walden
	Total failure	Partial crop	Below average	Very scarce	A good crop here, but poor in the district	A fair crop; very few grown here	Total failure	Failure	An average crop; Black Currants poor	Very fine crop	Alexander Crauford, ThorndonGardens, Brentwood
SUFFOLK	Scarcely any; cut off by the May frosts; trees healthy	Average on pyramids and espaliers; scanty in orchards	Nearly an average on walls and pyramids	Very thin; generally scarce	Below average; the plants suffered from last year's drought	Average	Total failure from imperfect development of blossom more than spring frosts	Good; later than usual	Gooseberries and Currants plentiful, with the exception of Black, deficient; Raspberries scarcely an average	Extraordinary crop of Filberts; Walnuts below average	D. T. Fish, Hardwicke, Bury St. Edmund's
	Fair crop; trees suffering from the excessive heat of last season	Crops small; trees blighted, and suffering for want of rain	Very heavy on Pear stock	Fair crop; trees suffering from fly	Good on deep trenched land; plants killed last season on shallow soils	Heavy crop, but trees much infested with black-fly	Poor crop; trees suffered from the scorching sun of last season	Good show, but three parts of crop have fallen off	Most abundant; bushes badly infested with aphides	Heavy crop	J. Sheppard, Wolverstone Park
	Failure	Fair crop here; a very light crop in this neighbourhood	Average crop; trees clean and healthy	A light crop; Damsons plentiful	Not half a crop, and the fruit small	A good crop; Morellos abundant	In orchard-house and on walls almost a failure	A full crop, both in houses and on walls	Plentiful and good	Most abundant	Thomas Blair, Shrubland Park
	A somewhat light crop, but the fruit is large, and of fine quality	A light crop, but the fruit promises to be fine	A very good crop, and the fruit promising to be fine	Very light, especially the Greengage variety	Plentiful, but of short duration on account of the drought	Morellos on walls plentiful; other sorts in orchard houses fair crop	A failure on open walls, and also in orchard houses	Promising to be a fair crop	Black, Red, and White Currants plentiful; Raspberries very light crop	All sorts exceedingly abundant	P. Grieve, Culford, Bury St. Edmund's
SOUTHERN COUNTIES.											
BEDFORDSHIRE	Scarce	Under average	Average crop	Scarce	Plenty	Plenty	A failure on the walls	Not many grown	Plenty	Very plentiful	Alexander McKay, Woburn Abbey
	....	About half a crop	Good average crop	Scarcely any	Under average	Average crop	Very few	Very few	Abundance of each sort	Very great crop	John Cadger, Luton Hoo Gardens
HERTS	Complete failure, owing to the cold weather in March	Very good crop on bush trees grafted on Paradise stocks; scarce in orchards	Middling	Half a crop	Very fair crop	Early sorts rather scarce; Morello very heavy crop	Failure, owing to the cold rain with high wind while in bloom	Very fair crop	Plentiful	Very good	D. Cunningham, Moor Park Gardens, Rickmansworth
	Scarcely any	Middling crop	Very good crop; fruit likely to be fine	Very poor crop; fruit keep dropping off	Good crop	Very good crop	Very few, scarcely worth naming	Very good crop	Good crop	Very abundant crop	George Sage, Ashridge Gardens, Berkhampsted

CONDITION OF THE FRUIT CROPS—(*Continued*).

COUNTY.	APRICOTS.	APPLES.	PEARS.	PLUMS.	STRAWBERRIES.	CHERRIES.	PEACHES AND NECTARINES.	FIGS.	SMALL FRUITS.	NUTS.	NAME AND ADDRESS.
SOUTHERN COUNTIES.											
HERTS	Partial crop; on Kaisha and Moor Park there is a fair crop	Fair crop on espaliers and dwarf trees, on standards very thin	Average crop, both on walls and pyramids	Good crop of Damsons and Victoria Plums; all other varieties very thin	About half a crop, the severe frosts at the end of May killing all the first bloom	May Duke and Bigarreau thin on all aspects, Morellos good crop and very fine	Generally thin; one or two sorts swelling off a fair crop	....	Currants and Gooseberries abundant and good, Raspberries abundant but small	Walnuts thin, Filberts and Hazel Nuts very plentiful	Richard Ruffett, Brockett Hall, Welwyn
	Very scarce	Plentiful in places, but partial	Generally, but not universally, good and plentiful	Scarce; more on standards and pyramids than on walls	Indifferent; best where watered last year	Abundant	Very scarce	Plentiful	Abundant	Very abundant	William Paul, Waltham Cross
BUCKS	Very thin crop	About half a crop; have fallen off very much lately	Fine crop on walls, but few on standards	Victoria on standards very fine, but few on walls of any sort	Very fine here, but not generally in this neighbourhood	Good crop	Very few; the worst crop I have known here for the last 30 years	Good crop	Very fine and abundant	Great crop	Thomas Bailey, Shardiloes Garden, Amersham
	....	Very light crop; in places none	In places none	....	In places very few; on heavy land a fair crop	Not the fourth of a crop	....	Very few	Heavy crops, but very small on poor soils	Very plentiful	Philip Frost, Dropmore
MIDDLESEX	None	Plentiful	Plentiful	....	Thin	Plentiful	Very thin	Thin	Plentiful	Average crop	J. Peel, Cambridge House, Twickenham
	Very scarce	Very partial; most abundant on small trees	Very abundant and fine	Scarce in general; Denyer's Victoria very heavily cropped	Under average; very late, and soon over	Good crop	Total failures	....	Very abundant and good	Enormous crop	A. F. Barron, Chiswick
	....	Not an average crop	Fair average	....	Fair average	None on walls; fair average on standards	....	Not an average crop	Gooseberries not average; Currants plentiful	....	R. Henderson, Fulham Palace
	Complete failure, whether protected or not; all seem to have suffered alike	Fully an average crop; likely to swell off well	More than average; a really good crop; swelling off beautifully	Considerably under average, but enough for the usual consumption	Growing crop of good fruit; bearing season shorter than usual, through excessive drought	More than average; fruit good in all respects	Like Apricots, a complete failure out-of-doors	Very fair crop; likely to finish off well	Most abundant crop of good fruit; bushes clean, save with a few exceptions	Truly a most wonderful crop; trees literally loaded; Walnuts a complete failure	John Edlington, Wrotham Park, Barnet
BERKS	Very scarce; the greater portion fell just before coming to maturity	A thin crop generally	Fine crop of all kinds; very healthy, and free from spot	Thin crop; fruit still dropping	Generally a light crop, and fruit small; Sir J. Paxton, J. Powell, and Cockscomb, the best here	Heavy crop, of good quality	Very thin crop	....	Good average crop	Filberts plentiful, and Walnuts in abundance	H. Rose, Royal Gardens, Frogmore, Windsor
	None; trees that were covered in spring and those left exposed all alike	Average crop	Average crop	Very light crop	Light crop; fruit small and deficient in flavour	Average crop	Very few; none on most of those protected, and those left exposed all alike	Very light crop	Gooseberries, partial; Red and White Currants, average; Black Currants, very heavy	....	Charles Ross, Welford Park, Newbury
SURREY	....	Partial crop	On walls, moderate; on standards, short	Very short	Short; Viscomtesse Héricart de Thury produced the best supply	Moderate	Good crops	....	Good Gooseberries, Currants, and Raspberries	Prodigious crops	James Drewett, The Gardens, Denbies
	None; trees making good wood	Very good	Fair crop	Moderate on walls, none on standards	Very inferior	Very good	Very poor crop	Moderate	Good crop off	Very plentiful	William Whalley, Addington Park
KENT	Almost a total failure	Greatly below a fair average; some few trees are well loaded, but the greatest portion are a failure	Fair average crop, but rather small at present	Great failure; very abundant set of fruit, but nearly all dropped off before reaching the stoning point	Scarcely half a crop; the frost at the end of May killed a good portion of the blossoms	Fair average crop of some sorts; the finer kinds of Bigarreau fell off at the stoning point	Nectarines, total failure; Peaches, almost the same	Abundant	Gooseberries, fair crop, but drop very much; Red Currants and White below the average; Black Currants, good	Abundant	John Cox, Redleaf Gardens, Penshurst
	....	Crop very short; condition good	Crop and condition good; full average	Scarce	....	Medium crop; condition middling	....	....	....	Excellent; everywhere abundant	J. Aitken, Sittingbourne
	....	Fourth of a crop	Half a crop	Half a crop	Fourth of a crop	Third under average	Under fourth of a crop	Half a crop	Full average crop	Full average crop	J. H., Bifrons, Canterbury
	....	Very thin about our district, not a quarter of a crop	Very plentiful in some districts	Very short crop, but Damsons are rather better	The crop has been thin and very small in this district	The crop has been middling but very poor	The crop of wall fruit in this district is very bad	....	Middling	Very plentiful	James Chapman, Berling Manor
SUSSEX	Partial	Average, but small	Under average	Under average	Good crops, deficient in flavour	Plentiful	Very few	Plentiful	Gooseberries abundant; Red and White Currants under average; Raspberries good	Fair crop	T. Jack, Battle Abbey Gardens
	Half crop: trees very healthy	An average crop, but very irregular	Heavy crop	Good crop on walls, very thin on standards	Not so fine as usual, owing to frost in May and June	Good average crop	Very thin; trees healthy	Wall trees a fair crop; standards very thin	Very plentiful and good	Filberts very thin, common Nuts abundant	John Wilson, Arundel Castle Gardens
HAMPSHIRE	Very few; a failure generally	Full crop, small	Enormous crop, and promise well	Very good	Average, well flavoured	Generally good, Morellos very large	Almost a complete failure	Medium	Good crop of all kinds	Heavy crop; Walnuts also good	W. Wildsmith, Heckfield Place
WILTSHIRE	None, blossoms all off, although protected	Much under average	Rather plentiful, later varieties the best	Quite a failure	Plentiful, and good in quality	An average crop	Quite a failure both in orchard house and on walls	An average for our situation, which is not good for Figs	Abundance of all kinds, and very good	Very plentiful	A. Johnson, Savernake Forest
	Not half a crop, but fruit fine	Generally bad	Tender varieties bad, hardier sorts good crop	None, with the exception of trees on north walls	Generally pretty good, especially late varieties	Late sorts good	None, except where well protected	Plentiful	Abundant	Very abundant	William Scammell, Bowood
	Failure	Failure	Very good	Scarcely average	Average, but small	Very good	Very scarce	Promising well, but late	Very good	More than average	John Goode, Melchet Court
DORSETSHIRE	Very scarce	Table fruit, and also orchard or cider fruit, very scarce	Much below average; fruit dropping after set, from severe cold winds	Very indifferent crop	Good crop with us, but small; many or most places a failure	With us below average	Out-of-doors complete failure; with us in orchard-houses abundant	Fair in orchard-houses	Gooseberries and Currants abundant; Raspberries also plentiful and good	Good crop in hedges, copses, &c.; Walnuts rather scarce	Henry Munro, Clevelands, Lyme Regis
	A good few set, but they fell off afterwards	Thinnest crop seen about here for many years	Thin, but have some good Marie Louise, Passe Colmar, Swans' Egg, &c.	Wall fruit generally thin; on some standards an average crop	Came in plentifully, but did not last long for want of moisture	Average	Failure all round	Few	Gooseberries Red and White Currants, average; Black Currants thin; Raspberries plentiful at first	Average	T. C. Elliott, Melbury House Gardens, Dorchester
	....	Very bad crop	Very good	Very bad	First-rate	Very fair	Very few	....	Never were better	....	W. F. Radclyffe, Okeford Fitzpaine

CONDITION OF THE FRUIT CROPS—(*Continued*).

COUNTY.	APRICOTS.	APPLES.	PEARS.	PLUMS.	STRAWBERRIES.	CHERRIES.	PEACHES AND NECTARINES.	FIGS.	SMALL FRUITS.	NUTS.	NAME AND ADDRESS.
WESTERN COUNTIES.											
WORCESTERSHIRE	....	Under average; partial	Under average; late sorts best	Under average	Very good average	Scarce	Scarce	Abundant crop	Abundant crop of all kinds	Heavy crops	G. Westland, Witley Court
	Very scarce; not more than one-fourth an average crop	Average crop; in some orchards very heavy; trees generally healthy	Good kinds, a partial crop; perry Pears abundant	Crop light on walls, best on standards	Generally a light crop, and soon over	Very good; Morellos fine and abundant	Almost a complete failure; the fruit drops very much in stoning	Very light; not nearly so good as last year	Fine and abundant; bushes generally very clean	Great crop of coppice Nuts and Filberts; Walnuts a partial crop	Wm. Cox, Madresfield Court
	Very light crop	Fair crop on the whole	Best kinds are light; common kinds good	Best kinds on walls are a light crop; Damsons a partial crop	Fair crop	Fair crop	Very light crop	....	Abundant crops	Very heavy crop	John Wyke, Shakenhurst Hall Gardens, Bewdley
	....	Very good	Half crop	Not many	Good	Fair crop	None outdoors In orchard-houses a very partial crop; outdoors none	Good on some trees Fair average crop	Very great crop Gooseberries abundant; also Currants and Raspberries, but all deficient in flavour	Extra crop	D. Mackie, Hagley Hall Gardens William Dodds, Ashton Court
SOMERSETSHIRE	Much below an average, but heavy crops where glass coping is used	In some places very good, others much below the average	Much below average	Poor crop	Much under average	May Dukes and Morellos an average; other sorts poor crop					
	Not abundant	Scarcely any in some parts	In some places plentiful	Very few	Not abundant on an average	A fair crop	Very scarce	Plentiful in some parts, but not ripe	Currants and Gooseberries very good crops	More than usual	William Hallett, Cossington, Bridgwater
DEVONSHIRE ..	Scarce	Average crop in some orchards; garden sorts under average	Standards good, walls not half a crop; espaliers average crop, but very small	Failure	Poor crop; fruit small; soon over	Morellos good crop	Failure; trees much blighted in spring	Good crop out-of-doors, but falling off owing to drought; very good in houses	Gooseberries under average, Red Currants plentiful, but Black and White sorts thin	Very few Walnuts or Filberts	Robert Begbie, Bicton
	Scarcely any	About half a crop; fruit small	Average crop, fruit also small	Poor crop in general; good on south aspects	Keens' Seedling middling; other sorts a failure	Moderate crop	On walls very few: indoor Peaches have been good and plentiful	Under average	Rather under average; fruit small	Excellent crop, and of good size	Alexander Ayton, Oxton House, Kenton
	....	Light crop	Partial crop	Very light crop	Below average	Very light crop On walls nearly a failure; the May Duke on standards a full crop	Almost a failure An abundant blossom; crop a complete failure	....	Quite an average Gooseberries scarce; Red Currants abundant; Black, moderate; Raspberries half a crop	....	George Erskine, Lupton, Brixham
GLOUCESTERSHIRE	An abundant blossom; crop a complete failure	About one-fourth of a crop; the early kinds are more productive	Nearly a full crop; fruit small sized, and of a stunted growth	An abundant blossom; fruit almost a complete failure	Abundant; fruit small			Moderate crop		A heavy crop; more abundant than for several years past	Alexander Cramb, Tortworth Court, Wotton-under-Edge
	....	Fair crop	Good crop	Very scarce	Moderate crop	Plentiful	....	Moderate crop	Abundant and good	Large crop	A. Mc Naughton, Badminton
HEREFORDSHIRE	A poor crop in a cold house	About half a crop in orchards	Good; standards setting their fruit better than the same sorts on walls	Very few; Damsons good	Not a full crop	Not a full crop; Morello good	....	Very few	Good	Filberts abundant; Walnuts partial	Samuel Wells, Holme Lacy
	....	Very good, though many have fallen off during the dry weather	An abundant crop on walls and espaliers	Very few; bloom destroyed by late spring frost	Heavy crop, and of good quality	Dessert kinds average; Morellos very good	Scarcely any; blossom cut off by frost	Not an average crop	Raspberries, Gooseberries, and Red and White Currants average; Black do. very heavy crop, fine	Filberts and Cobs good crop; Walnuts light	William Browne, Shobdon Court Gardens, Leominster
CORNWALL	Very few grown out-of-doors	Reports vary, but may safely say full average crop, taking the country through	Average crop on walls; standards very thin, except the Chaumontel, which are abundant on the Quince stock	A failure; very few in gardens; orchards were scarcely ever known to have so few	A very short crop, partly owing to the dry weather we have experienced	Fair crop of all kinds	Peaches in some places quite a failure; Nectarines better, but not a crop of either anywhere	An average crop, but will be late in ripening	Gooseberries much under average; some places a failure; Raspberries plenty, also Currants	The common, on hedgerows and woods, are under average	H. M., Enys, Penryn
	....	Good	Good	....	Half a crop	Good	Not fourth of crop	Average	Half a crop	Fourth of a crop	Richard Lynch, Port Eliot
WALES.											
MONTGOMERYSHIRE	....	Good, requiring much thinning	Above an average on walls; rather under on pyramids	Remarkably abundant on standards; a fair average on walls	Rather under an average; the result of spring frosts	Very good, especially Morello and Kentish; other varieties under average	A total failure on open walls; set well, but all dropped	Below an average	Gooseberries, Currants, and Raspberries most abundant	Enormous crops this season	George Brown, Powis Castle Gardens, Welshpool
DENBIGHSHIRE	About a third of a crop	Plentiful	An extra large crop	Very indifferent crop	Abundant, but small	Plentiful	Very few—in fact, many places none	Few grown out-of-doors in this district	Fair crop	Abundant crop	Geo. Browne, Chirk Castle, Chirk
* Average analysis of crops in 14 gardens.	Nearly a failure; only a sprinkling	Good average, but small	Average crop, but small	Thin, and very variable; Damsons good crop	Fair crop; some instances a failure	Excellent crops	Complete failure; in some instances a sprinkling	Promise fairly	Raspberries, Black Currants, Red Currants, Gooseberries, all excellent crops	Trees and bushes are laden; above average	P. Middleton, Wynnstay, Rhuabon*
ANGLESEA	Good crops under glass without fire-heat	Plentiful, but fruit mostly small	Generally a light crop	Very few	Very light crop	Average crop of Morellos	....	Very few	Plentiful; Black Currants very fine	....	J. Ellam, Bodorgan
RADNORSHIRE	Very scarce	Good crops	Good crops	Good crops on a south-west wall, but none in other situations	Good late crops, such as the Elton Pine	Good crop of Morellos	Very scarce	None grown here on the open walls	Good crops of Raspberries, Red, White, and Black Currants, also Gooseberries	Good crops	—, Kington
CARMARTHEN..	....	One-fourth of a crop	Full average; fruit very clear	Very few, except Victorias	Very bad	Very few; not many grown	One-fourth of a crop; many places none	Do not do well in open air	Currants and Gooseberries average; Raspberries heavy crop	Walnuts none; Cob Nuts and common Nuts heavy crops	J. Ticehurst, Dynevor Castle, Llandilo
PEMBROKESHIRE	....	Moderate crop	Very good	Moderate crop	Very good and fine	Very good	....	....	Very good and fine	....	Thomas Young, Slebeck Park, Haverfordwest
IRELAND.											
WATERFORD ..	All killed with the hard frost of March 12, trees being wet from the previous day's rain	Very few; mostly destroyed by the severe frosts	Average on walls; none on standards	None; early ones killed in March, late sorts in May	Nearly all destroyed by frost; early kinds now bearing a second crop	Same as Plums	Very scarce and late	Very light crop, and late	Gooseberries and Currants under average and inferior; Raspberries average crop	Filberts, very few; Walnuts, none	J. A., Curraghmore
WICKLOW	Scarce; in most gardens none; did not set well, either with or without protection	One-third of a crop; what there is will be good	Average crop; size good, and promise well	Light crop; half of the trees with none	Good crop; size small, quality first-rate; very soon over, owing to the dry weather	Fair crop; size good, quality first-rate	Scarce, in many places none: destroyed by severe weather in May	Average crop	Currants, average; Gooseberries, not average; Raspberries, good crop	Good crop and size	M. Dunn, Powerscourt Gardens
MEATH	Bad	Bad	Good	Bad	Bad	Bad	Good	Good	Good	....	G.

REMARKS ON THE FRUIT CROPS OF 1869.

[In addition to the foregoing tabular report, the following statements are extracted from our correspondent's returns.]

—— The bloom on fruit trees of all kinds was very abundant, and there was every appearance of heavy crops of fruit, but the spring frosts caused great destruction to the fruit that was set, and to the blossom. The following are a few of the severest frosts in this locality:—April 1st, 11°; 8th, 11°; 9th, 12° of frost, and seven nights more in the month each 7° of frost; May 11th, 10°; 20th, 9° of frost; also four nights each 7° of frost; June 1st, 8° of frost. *Anthony Hedley, Wallington, Northumberland.*

—— The nearly complete failure of the Peach, &c., on the open walls was not for want of plenty of good bloom, of which there was a great abundance, but I think chiefly owing to the low temperature, with cold easterly winds, with so little sun, which we had while the trees were in bloom. *Chas. Allen, Withington Hall Gardens, Cheshire.*

—— The crop of Apples in some places is very fair, but the fruit is rather small, in consequence of the cold weather we experienced in May. They appear to be swelling rather better, since the late rains. In this neighbourhood Damsons are very plentiful on light soils, but not so on heavy land. We have very few Walnuts, and these I fear will not ripen unless we have some very fine weather. *Daniel Judd, Hawkstone.*

—— So far as Pears and Apples are concerned, in the gardens here we appear to have had some local advantage. Of these we have more than an average crop, whilst in the neighbourhood they are comparatively thin. My trees vary in height from 4 to 8 feet, and are trained in all manner of forms. The various systems of training seem to vie with each other which will yield the prettiest lot of fruit. *William Miller, Combe Abbey Gardens, August* 3.

—— Apricots are a good crop in most parts where well protected, a complete failure where not protected; in some parts much fruit has fallen off when stoning. Apples are a very poor crop, although their appearance when in bloom was very promising; fruit did not set, and a quantity has fallen off about half grown. There are some old trees in orchards with a fair crop, but very rare. Pears a fair crop on most varieties. Autumn Bergamot, Beurré de Capiaumont, Beurré Diel, Easter Beurré, Bon Chrétien (Williams'), Conseiller à la Cour, Duchesse d'Angoulême, Josephine de Malines, Jargonelle, Louise Bonne of Jersey, Monarch (Knight's), Winter Nelis, Passe Colmar, Suzette de Bavay, on espaliers and walls, east aspect, good crop; Glou Morceau, Marie Louise, on espaliers, a failure, although plenty of blossom. Strawberries a fair crop of most varieties; Garibaldi a very heavy crop, a very useful Strawberry, not much known. On the whole, it will be seen that we have but poor prospects of a crop of Apples, Plums, and Peaches—a circumstance the more disappointing as we had such an abundant bloom on all kinds of trees. The spring with us was unusually wet and cold, which accounts for the blossom not setting. *David Lumsden, Bloxholm Hall, Sleaford.*

—— Cider fruit under average crop; very much infested by grub. Apricots, Peaches, and Cherries are a very scanty crop; the blossoms, which were profuse, developed weakly, and fell off without setting. This failure is in a great measure attributable to the imperfect maturation of the buds, aided by the mildness and humidity of the autumn and winter, the thermometer being the lowest on January 24 (6° of frost). Plums are under an average crop—Damson, Prune, Mitchelson's, and some others a good crop. Small fruits of all kinds are an abundant crop; but the foliage is much injured by the aphis, and many of the sorts of short duration. Spanish Chestnuts are abundant; also all tree and wayside fruit bending with extraordinary crops. *G. Westland, Witley Court.*

—— Last spring in this neighbourhood we had the greatest show of blossom upon all kinds of fruit trees I ever remember; but from the long-continued cold and cloudy weather, the trees had not energy to set their fruit. Peaches and Nectarines remained six weeks in flower, and then threw off nearly every bloom at last. Many of our Pear and Apple trees did the same, and Plums generally, although not quite to the same extent as Peaches and Nectarines; so that, with the greatest promise of an abundant fruit year, I think we have the least return I ever knew. *M. Henderson, Cole Orton Hall, Leicestershire.*

—— The aphides have been specially trying on Peaches and Nectarines this season. At last, after scores of dressings with tobacco water, we have got rid of them, and the trees are making a fair growth—not, however, nearly so strong as might have been expected, from the fact of their carrying no fruit. We have one exception to this general barrenness. A rider Peach tree that was transplanted two years ago carries almost half a crop. This Peach tree was more subject to canker in the annual wood this season than any I have ever seen. I sent specimens to the Scientific Committee, and consider this canker, if such it was, different to any I have previously met with. It seemed more like a species of gangrene in the bark. One day a brown spot might be observed, in two or three more an irregular piece of bark would be eat out, as it were, or totally destroyed, and the twig dead. The ravages of this disease appear now to be arrested, and a healthy growth established. Several young trees exhibited the same disease under glass. Prompt and vigorous cutting back, so as to induce a fresh start, seemed the only way of overcoming the evils of this disease. *D. T. Fish.*

—— Peaches and Nectarines are almost a failure in East Suffolk. I attribute this in a great measure to the cold damp weather prevalent at the time the trees were in bloom, and to general want of vigour after the excessive heat of last season. Pears suffered a good deal from the drought of last season, and lost their leaves very early in the autumn, especially those on the Quince; but the bloom this spring was most abundant, and the crop a heavy one on Pear stocks. Apricots are a fair crop, but the trees show symptoms of exhaustion from the effects of last season, having lost several branches and exuded a quantity of gum. Plums have set a fair crop, but the trees are much infested with aphis—more this season than I ever remember. Cherries were a most abundant crop, and black-fly very troublesome. Apples are a poor crop: the trees look blighted and make no growth, and the fruit is fast falling off from want of rain. Bush fruit of all kinds is most abundant, but Currants were so badly infested with green-fly that we were obliged to remove all the tops of the young wood to preserve the fruit. Strawberries have been poor on shallow soils, but young plantations on deep trenched land have borne capital crops, and the plants look well for next season. The soil here is a light sandy loam, resting on a subsoil of sandy gravel. *J. Sheppard, Wolverstone Park, Ipswich.*

——The general and almost total failure of the Peach crop is the most remarkable occurrence of the season, and is attributed entirely to the uncongenial nature of the spring during the period when the trees were in flower and the setting of the fruit in March, followed by unusually warm weather in April; which sudden excitement caused the fruits to fall off. Pears were never seen so fine as we have them this season. Denyer's Victoria Plum is a most enormous crop in the market gardens, but with this single exception Plums are scarce. Apples on all dwarf trees are bearing immensely, even young trees grafted last season, but on tall trees are more scarce. This is attributed to the favourable character of the past summer for the formation of fruit buds, and the difference between the crops on tall trees and dwarf ones to the shelter secured by the latter from the cold cutting east winds of the past spring, which prevailed to a great extent, and caused infinite injury. *A. F. Barron, Royal Horticultural Garden, Chiswick.*

—— All kinds of fruit were plentiful here until the late frosts in the spring; Apricots, Peaches, and Nectarines at that time were 2½ inches in circumference. Apple trees are infested with a great quantity of American blight. *J. Peel, Cambridge House, Twickenham.*

—— Portugal and common Laurel are loaded with berries, as also is the Holly, some of the latter already red. The Hawthorn is one mass of fruit, and the Bramble in the hedgerows, according to present appearances, will be literally one mass of fruit. Soil in this locality generally strong Middlesex clay, save our kitchen garden, which is a black gritty loam, resting on a bed of gravel; consequently, we soon feel the effects of drought. A damp season for general crops is preferable to a dry one; the reverse on the strong clays. *John Edlington, Wrotham Park, Barnet.*

(To be Continued.)

Home Correspondence.

Provincial Shows of the Royal Horticultural Society.—Having seen in the *Gardeners' Chronicle* some dissatisfaction expressed that the show of the Royal Horticultural Society was placed at a disadvantage at Manchester, as one of the original subscribers to the Royal Agricultural Society permit me to say a few words in a friendly spirit. A vast number, I may say a majority, of the members of the Royal Agricultural Society do not look favourably on the Royal Horticultural Society tacking itself on to the Royal Agricultural Society, as the latter derives no benefit from the association, but in some instances, particularly when the meet is in small towns, it will add to the difficulty of obtaining lodgings, and become a detriment instead of a benefit. I am of opinion it would be to the Royal Horticultural Society's advantage to hold its meetings quite independently of the Royal Agricultural, and I believe they would have more visitors. Many, like myself, are very fond of seeing fine plants and fine cattle, who have not time to see both when the Societies meet at the same time; but if held separately we should visit both, and bring our families with us; in fact, it would be a good excuse for a double holiday. *A Member of the Royal Agricultural Society.* [We are very much of our correspondent's way of thinking. Now that the plan of having a provincial show has been proved to be feasible, we think the Royal Horticultural Society might well run alone. Its policy should be bold and spirited, and with a judicious selection of locality and time, success could hardly fail to be ensured. Eds.]

Thunia Bensonæ.—In your issue of the 10th July last, under the head "Plant Portraits," I observe Thunia Bensonæ is stated as being a very beautiful terrestrial stove perennial. In this I think there is some error; for Thunia Bensonæ has never to my knowledge been found otherwise than epiphytical on trees. It was found by me in two localities, 200 to 300 miles apart; in the first instance on mountains near Moulmein, and in the second on the Arracan hills, near Prome; in both cases at an elevation of 2000 to 3000 feet, and not even on trees on which there could be said to be a superabundance of Moss or other vegetable growth, in comparison with the richly covered mossy spots, in which some of these plants seek their beds. I would here also notice that Calanthe vestita, although in this country called terrestrial, is not so in its own habitat. Moreover, when I have attempted to grow it in a rockery, in Burmah, it has invariably damped off. Perhaps the difference in climate between Burmah and Europe, may account for the success which has attended its cultivation as a terrestrial plant. Limatodes rosea, on the other hand, as a rule, is found growing with great luxuriance in decayed vegetable mould in the crannies or crevices of the limestone rocks about Moulmein. I have but once detected it on trees, but then stunted, apparently starved from the absence of rich vegetable nutriment the other locality supplied. Returning to Thunia Bensonæ I may here state that from amongst the specimens plucked on the Arracan hills several flowered white with a yellow eye. I mention this as Dr. Hooker, in the description of the plant in the "Botanical Magazine," considers it very closely allied to Phaius albus. The above variation I conceive tends to confirm this opinion, for though the colouring differs as widely as that of Phaius albus from Thunia Bensonæ, yet it goes towards proving that he vagaries in species, producing these differences, are caused by local circumstances or influences, as greater moisture, light and shade. *J. R. Benson, Lieut.-Colonel, Whitby Rectory.*

Royal Botanic Society of London.—I beg to explain, through a channel accessible to the great body of the Fellows, what the few of us did at the anniversary general meeting held this day. Some of us had the ill-fortune to find out, by comparing the figures, that the state of affairs goes from worse to worse, and, as we conceive, through bad management. There is a falling off under every head, the total decrease of income from subscriptions and exhibitions being above 500*l*. The liabilities, so far from being reduced, have been increased, and no new attractions are provided for the Fellows and the public; but economy has been practised on the wrong side in cutting down the expenditure for prizes, exhibitions, and the gardens. While nothing more is being done for science, the fund for the promotion of horticulture is being diminished. The conservatory is not completed, and thus during the winter months of the year the Society has no source of income. The untoward proceedings of the "reception," put down to the name of H.S.H. the Prince of Teck, the President, did not pass without comment. A motion was consequently made for the appointment of a committee of investigation, but I consented to withdraw it on the assurance that the whole matter shall be brought before a special meeting of the Council. I have so little faith in this myself that I announced that in default of satisfaction we shall apply by requisition for a special general meeting of the Fellows in the spring. *Hyde Clarke, F.R.B.S., 32, St. George's Square, S.W., August* 10.

Manchester Congress.—I was surprised and grieved to see the disparaging remarks concerning the Congress in the "Journal of Horticulture," because in my opinion they were uncalled for. I consider the meetings were quite as successful as could be expected for a first attempt, and I hope to see them continued and improved another year. I can vouch, from my own observation, that not fewer than 100 gardeners and nurserymen, besides a great number of other persons, attended on the second day, and many of them took a lively interest in the proceedings, and sat to hear the greater portion, if not all, of the papers. This does not deserve to be written down as a failure. *B. S. Williams.* [We think our contemporary's remarks were certainly not borne out by the facts of the case, although we are free to admit that more complete arrangements may with advantage be made in the future. Eds.]

Hothouse Boilers.—Mr. R. Milne (p. 841), after praising the construction of Foster's patent boiler, says it is somewhat anomalous in design, and that being set up without brickwork it will allow quite as much heat to radiate into the stoke-house as will be transmitted by the pipes. This is one of the most extraordinary statements I ever saw in print, and only shows how the most obvious advantage may be passed over and the most simple arrangement misunderstood. The fire passes three times through Foster's boilers, making about 10 feet in length. In its whole course, after it leaves the fire-bars, till it reaches the chimney or flue, it is quite surrounded by water. What can be more obvious, than that the surface of such a boiler can never get hotter than the flow-pipe, and can only radiate more heat in proportion as its surface exceeds an equal length of pipe? My boiler is set under the house, and is merely covered by an iron grate, so all the heat passes into the house, but if thought advisable, of course there is nothing to hinder its being covered by brickwork. That it does not require covering with brickwork is one of its recommendations. Having stood godfather for Foster's boiler, and being more and more pleased with it, I am not going to see the youngster run down without a word in its behalf. By-the-by, I saw an advertisement of a boiler which heats four miles of 4-inch pipes, and should be glad to know where such an amount of piping may be seen heated by one boiler. *J. B. Pearson, Chilwell.*—If Mr. Milne has anything worth seeing or knowing, pray why did not he, or the inventor, bring it out and let the public judge of its merits at the Manchester show, instead of keeping the "Conservative Boiler and Reverberators" in seclusion?—these things should not be hidden under a "bushel measure." Most people think 25 or 50 per cent. a great saving, but that is a mere pigmy affair when compared with the gigantic and stupendous "Conservative Boiler and Reverberators," and the 1 bushel of fuel to six or eight! Stand by and look on with amazement, ye antiquated noodles! Only think how this "Conservative Reverberator" has thrown you into the shade. In one instance a saving of 500, in another of 700 per cent! It is generally known that there is only a certain amount of caloric in a "bushel of fuel," in some descriptions more, in others less; however, let it be what it may, Mr. Milne will find it no easy task to get more out of it than there is in it. Great geniuses have produced great results, and Mr. Milne must have a wondrous faculty for extracting and bottling up heat, and then throwing it back by his "reverberators." Perhaps the saddle and cannon boilers had not the aid of the "reverberators," or there is no telling what they might have done. In designing the boilers I exhibited at Manchester I studied care-

fully what are allowed by scientific men and our best authorities to be the best principles on which hot-water boilers should be constructed, and I had the pleasure of hearing them very highly spoken of by many excellent practical judges, who, I think, understand the merits of a boiler quite as well as Mr. Milne. During the last 25 years I have had extensive experience in boilers and hot-water apparatus, and from practical tests and watchful observation, I am convinced that vertical action, when judiciously arranged and properly checked, in traversing over elongated surfaces, so as to exhaust the products of combustion before entering the chimney, is infinitely superior to second, third, and fourth horizontal flue action, which at every turn becomes immensely reduced in heating power, the vertical being the natural, and horizontal the unnatural course of heat. In support of this assertion I am borne out by our greatest engineering authorities, from whom, as a manufacturer of boilers and business man, I much prefer taking a text, than from Mr. Milne's philosophy. *Henry Ormson, Stanley Bridge, Chelsea.*

Maggots on Cocksfoot Grass-seed. — I should be much obliged by your telling me the name of the small maggots which I enclose. To insure its being pure, I have for several years collected my own Cocksfoot Grass-seed. Last year I am told that there were a few; this year the sacks are covered with the Maggots and the close white web which they have spun, and of which I enclose some. Do they feed on the seed? Curious to say, they are not in the sacks with the seed, but outside, having left the seed. *T. S.* [We forwarded the specimens to Mr. H. T. Stainton, who kindly replies as follows:—"The small larvæ sent are rather interesting: they are the full-fed larvæ of one of our small moths, Glyphipteryx Fischeriella, and they feed on the growing seeds of Dactylis glomerata (Cocksfoot Grass). They will not attack the ripe seeds in the sack. When full fed they quit the Grass to spin in some convenient corner. Whilst walking about with this view each spins a little web; and when, as in this case, the larvæ are so numerous, the multiplicity of the webs forms a substantial paper-like substance. This insect is not known as a destructive species; indeed, though the perfect insect is often very plentiful (and an elegant little creature it is, as it sits, fanning itself, on Umbelliferous and other flowers, in sunny weather in June), the habit of the larvæ was only discovered a few years ago by one of our most skilful observers, Mr. T. Wilkinson, of Scarborough."]

Monday Shows and the Royal Horticultural Society.—I have hitherto refrained from referring to the fact, that the late exhibition held by the Royal Horticultural Society at Manchester is the first large one, so far as my recollection goes, which the Society has held on a Monday. Now, however, that the thing has passed no harm can be done by a reference thereto. That the promoters themselves would have fixed upon a Monday on which to hold one of their largest exhibitions no one will suppose, but for the fact that the sister Society had fixed that day for their opening. I need not enter into any argument to show how very inconvenient such a day is for either exhibition. Assuredly time sufficient will be found within the six days allotted for all work, without robbing from the sabbath, for either display. Those only who know the amount of labour and preparation which is needed, irrespectively of the transit, to stage plants at their best, can fully appreciate the extent of sabbath infraction. Besides, the rest-day of the officials connected with the Society must be taxed in like manner. Then, again, the display is not so good. I know it for a fact that many exhibitors absolutely refuse to exhibit under such circumstances. But how about the financial aspect? some will say. Why here again facts multiply in favour of doing what is to be done upon the legitimate work-days. On Monday, the first day, the receipts were 99*l.*—and this the opening day. But on the Tuesday—mark the amount—240*l.* 5*s.* were taken! I trust I have said enough in support of my statement, that Monday is a bad day upon which to open a large horticultural exhibition, and trust my remarks may meet with that consideration which the Society gives to candid suggestions from without. *William Earley, Digswell.*

The Green-fly Storm.—I have heard that the green-fly storm of which I wrote (p. 817), extended to Colchester, about 40 miles off. It also went in another direction 10 more miles. I have heard of one place where the flies were gathered up in handfulls. We have had no subsequent return of the invasion, and since the evening of Sunday week I have not descried a single aphis on the wing. What has become of them all? I have heard of three points where the earth was covered with them to the depth of several inches at distances of 8 and 4 miles apart. About here, though a great many fell upon the ground, nearly the whole of them descended to rise again, as already hinted; and no layer of living or dead flies remained on the earth after the mass disappeared. I am therefore inclined to think that it was probably a kind of rolling river of aphides that passed over this neighbourhood, and that probably the flies that were seen at Chelmsford by Mr. Simpson were mostly the same that visited here. I observed them at 7 o'clock in the morning, but the probability is that they were here much earlier, and the density of the mass had dissolved before dinner, though many were seen up to about 5 o'clock, when they seemed wholly to disappear. It would be interesting to hear the length and breadth of this invasion, and if your correspondents in East Anglia would kindly forward their observations we might be enabled to measure the superficial area at least of the fly-cloud. Mr. Tillery's observations are most interesting, but the fact he records of a preponderance of insect life one year apparently prognosticating a scarcity for the next, is most inexplicable, though we must earnestly hope it may hold good with the aphides. I have seen many white butterflies, but nothing like the usual number, and no Gooseberry caterpillars this season. A very long gay-coloured breed, however, made their appearance on some Roses in the front of our hothouses in June, and devoured all the leaves in about two days—and the plants look stunned ever since. I forward a few for your inspection. They are the most destructive customers I have ever met with, eating, not the leaf, but all the leaf-stalks, with most amazing rapidity. *D. T. Fish.* [Larvæ of the common Vapourer, Orgyia antiqua, one of the few insects particularly common in London, not at all particular as to diet. Eds.]

What is a Kitchen Garden? — Where does "Agitator" flourish? Is it in a valley secure from the visitation of the rough winds of heaven that he advocates his plausible measures for kitchen garden reform? I wish he were here, with his nose to a north-easter; it would make him sigh for the kindly shelter of the ponderous garden wall which he so readily condemns. I have a great mind to think that if "Agitator" was placed in some localities, even with his walled fruit garden, his raised banks of earth for early vegetables, or his low wall with wire fencing on top, he would be found some spring morning quietly surveying round for a sunny corner for an early batch; and ten to one he would be found on the sunny side of the walled fruit garden just dropping into the soil an odd row of Peas or Potatos. Then what would become of the hard-and-fast line which he would draw between vegetables and fruit trees? I fully agree with him that the latter receive no little injury from the practice of continually dressing and dunging the soil above their roots for the production of other crops, but at the same time I do not think it necessary to put in force the hard-and-fast line which he contemplates. However much fruit trees may suffer, in fruitfulness or quality, from the mangling which their roots periodically receive, the injurious effects, if not wholly done away with, may be considerably lessened by the judicious management of the occupants of the kitchen garden. Also, if "Agitator" were to agitate the necessity, which is a crying one, of employers being a little more liberal with help to manage the kitchen gardens they have got, better results might be obtained. Through this short-sighted policy evils creep on apace. Everything is done in a hurried manner, and at the last moment. A little time for summer pruning may be had to-day, but probably something else may demand the attention to-morrow. Peach trees demand instant regulation; a night wind comes, and helps to injure the tree more than all the digging or dunging that ever was put into practice. Standards are allowed to grow unchecked until they usurp more space than is really necessary for their well-being. Beds of Carrots, Onions, &c., are allowed to go unweeded until the effort to cleanse them partly destroys the crop. Cabbage stuffs are suffered to grow in the seed-bed until they become the leggy things "Agitator" speaks of, and eventually the concern becomes a pleasure for neither man nor master. To those who are about to construct new kitchen gardens, I would say, enclose no more ground than you intend to keep in first-class order. Let your walls be clothed with choice fruit trees or covered with glass; if the former, allow the space of a yard to be held sacred to the roots of the fruit trees, also an alley 18 inches wide. The further extension of the border should be at least 3 yards, which might be devoted to the production of early vegetables without any detriment to the fruit trees on the wall. For if the roots of the said trees extend beyond this 4½ feet, what becomes of the practice of root pruning? On the side next the main quarters a row of standard fruit trees might be planted, and an alley should run round behind them, and come out to the main walks at convenient distances. If "Agitator" had this arrangement, with plenty of room and plenty of help, and could neither produce good fruit nor vegetables, it would be high time for him to cry out for separate establishments. *Andrew Meikle, The Gardens, Read Hall, Whalley, Lancashire.*

Mr. Thomson's Exhibition of Grapes at Manchester.—I am glad that you called attention by an editorial note to this interesting display. It not only showed that very good Grapes may be cut from very young Vines, but proved that Vines will not only bear but enjoy a very high amount of bottom-heat. It seemed that, from the inability of turning it off, these Vines had been subjected to as much heat as 130°, as I understood Mr. Thomson; and that instead of this tropical heat injuring them, the roots seemed to luxuriate in the high temperature. The whole border was a complete mass of white fibres or spongioles, and the number of feeders were indefinitely increased. From such very young rods, too, the produce was most creditable. If the bunches were not large the berries were fine, and the colour and fruit good. Mr. Thomson's experiment has established the fact that Vine roots may be safely subjected to from 90° to 100° Fahr. with positive benefit, and that at least two months may be gained in the ripening of Muscat Grapes by the aid of bottom-heat. These are facts of the utmost importance in practical horticulture, and the whole gardening world is indebted to Mr. Thomson for so effectually teaching them by example at Manchester. The great success that has been attained in the growth of pot Vines has originated chiefly, I believe, in the ability of cultivators to keep their feet warm, and doubtless bottom-heat for Vines will soon be as popular in practice as it is in accordance with rational theory. *D. T. Fish.*

Wampee Fruit.—I send by sample post some specimens of the fruit of the Wampee (Cookia punctata) which my gardener, J. Chaplin, has succeeded in ripening. Having tried to fruit the plant for several years without success, I inquired in a former number of your Journal if any instance had been known of its ripening in England; as there was no reply I presume that this is the first time. *C. E. F., Avonbank, Stratford-on-Avon.* [The fruits sent were of the size and shape of a pigeon's egg, with a thin, transparent, olive-yellow speckled rind enclosing a mass of pulp, in which was one large green seed. The flavour was pleasantly brisk and acid, with a dash of turpentine. It is the Clausena Wampi, Oliver, "Jour. of Linn. Soc.," vol. v. Suppl., ii. 31; and the Cookia punctata of Sonnerat. Eds.]

Rose Marechal Niel.—Let Mr. Smythe (see p. 842) and others who are interested in the culture of Rose Maréchal Niel try the effects of budding it upon Gloire de Dijon, and they will be surprised at the vigorous growth it will make and the fine blooms it will produce, provided that the aspect be suitable: *vide* "Florist and Pomologist" for July. *William Earley.*

Societies.

Royal Horticultural: *Floral Committee, Aug.* 10.—The Rev. J. Dix, in the chair. This was a meeting at Chiswick for the purpose of examining the bedding Pelargoniums, which were in tolerably good bloom, though as usual, from having been received too late in the season, many of the novelties were not sufficiently advanced. Some few varieties were, however, considered worthy of Certificates. In the Bronze and Gold section, The Moor, Plutus, and Rev. W. F. Radclyffe were severally awarded First-class Certificates. The Moor promises to be a finer bedder, and is very effective from its bright colour, but the leaves are somewhat lobed, which is its chief fault; the colour is a bright yellow green, with a clear dark chestnut zone. Plutus is greener than The Moor, which it otherwise a good deal resembles, but it is not equal to it, though the zone is bright and telling. The Rev. W. F. Radclyffe is remarkable for its free yet compact habit, and for the endurance of its colour, which is a bright yellow-green, marked with a narrowly vandyked zone of clear chestnut-red. This sort has been now pretty well tested. The Variegated Zonals comprised some promising-looking sorts, but as they were scarcely sufficiently grown their consideration was deferred till the next meeting. A First-class Certificate was, however, given to Amy Richards, a variety of the Mrs. Pollock style, raised at Chiswick, remarkable for its bold vigorous growth, and its large flat highly-coloured leaves, both growth and colouring being far superior to the older variety growing beside it; it was most effective as a bedder. A First-class Certificate was also given to Sir R. Napier, a very dark-zoned variety of this group, remarkable for its distinctness. Mrs. Dunnett and Miss Batters also attracted a good deal of notice from the gentlemen present. In the Silver Variegated group a First-class Certificate was given to Miss Kingsbury, a most telling variety, of dense compact habit, and having a broad white margin to the leaves, which are quite up to the average as regards flatness; it has scarlet flowers. A First-class Certificate was given to William Underwood, a variety which would no doubt have received the award last season had it been received early enough to develop its character; it is a free-growing floriferous sort, with dark-zoned leaves, and close trusses of good-sized fair-shaped orange-scarlet flowers of a very effective character. The group of rose-pinks gained two First-class Certificates in the varieties named Advancer (Bull's), and Rose of Lee. The former is a dwarf green-leaved free-blooming sort, with pure self-coloured bright rosy pink flowers, and showing every disposition to be a good dwarf bedder; the latter was a vigorous, compact, and erect-growing sort, with faintly-zoned leaves, and dense trusses elevated on long stout footstalks of small flowers of the colour of those of Madame Barre, bright rose-pink, with white base to the top petals. Fausta a bright rosy lake, and Claude Lorraine, a deep magenta, two strikingly beautiful colours, but only just coming into bloom, were greatly admired.

The Apiary.

Removal of Supers.—I have received the following query from a correspondent:—"Can you advise me as to the best way of getting bees to leave a super? You know the bell-glass that was nearly full when you were here last. Well, the other day, I essayed to take it away, all the honey being sealed up. It was full of bees, but they gave me no trouble when I took off the super. I had it carried to another part of my garden, and thought the bees were leaving it very nicely. As there were many flying about it during the evening, I did not like to meddle with it; but, when nearly all the bees had retired, I went to appropriate my anticipated treasure, but had the mortification of finding nothing but empty combs. A systematic robbery had been carried on, and all my beautiful honey had been taken back to the parent hive, or to some of those adjoining. As I have another super ready to take away, I should be obliged if you could put me in the way of doing it without running the risk of a repetition of a similar mishap." *Mrs. H.*

I have in times past experienced very great difficulty in inducing bees to leave supers. Of late years I have adopted a summary method, which I never find to fail. Having removed the super, whether made of glass, wood, or straw, I invert it on a table. Having placed over it a straw hive or cap of suitable size, not caring that there should be any closeness of fit between the two, I proceed to drive the bees out of the super into the receptacle above. If the super be made of wood or straw, a certain amount of the necessary percussion may be made on its sides, but if the material be entirely or chiefly of glass, I do not strike it directly on the sides, but having placed it bottom-upwards on a board, and having loosely put the empty receptacle above it, I drive the bees up by a succession of rapid blows on the board or table on which it stands. In this manner I have never failed in inducing the bees to leave in pretty hot haste. When they have nearly all assembled, I carry away the cluster, and knock it out either on the top of the combs of the parent stock, or in front of the entrance, first taking the precaution to stretch a cloth or fix a board level with the entrance, so that they will be able to run in easily.

It may occasionally occur that it may be almost impossible to effect the dislodgment of the bees by driving. I then effect my object by rapidly removing the super, at intervals of five or ten minutes, from one place to another, not allowing the robbers time to pilfer, and puzzling those that attempt it by the sudden, and to them mysterious disappearance of their

anticipated booty. It is well to wrap the glass closely all over with some dark cloth, with the exception of one aperture for the exit of the bees. A room that can be closed and darkened, with the exception of a small opening at some window, is of great assistance. It has been recommended—and the plan seems very feasible, but I have not tried it—to put the super in a barrel, closing all apertures for admission of light and egress of the bees with the exception of one small hole. The bees in the super becoming restless and excited, will gradually crawl to, and make their exit from, the only opening where light enters; while the boldest marauders seeking admission will be deterred from attempting the exploration of such a cavern of darkness, however tempting the smell of the coveted sweets may be within. I seldom, if ever, use any smoke in order to compel bees to take wing from supers, finding it often to have an effect contrary to that most urgently desired. *S. Bevan Fox.*

THE HONEY BEE.—We are glad to hear that Mr. W. Augustus Munn is about to give us a revised and enlarged edition of Dr. Bevan's Treatise on the Honey Bee, with many original illustrations and observations, the result of 30 years' study and experience, besides a *précis* of all that has been done since 1851 in France, Germany, and America. It will, we believe, appear in parts, the first of which is almost ready for publication

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

SPECIAL attention should now be given to all plants which are likely to produce bloom during the approaching winter months. *Chrysanthemums* form a very prominent feature in conservatories and similar cool structures during the months of November and December. These, now that the longer, and consequently cooler nights of early autumn have set in, are growing apace, and should receive every encouragement it is possible to afford. As I have before intimated, the plants should never be stopped or pinched back after the month of July. However anxious the cultivator may be to secure large plants this should always be borne in mind, for to pinch them back after that date will be to do so at the expense of flower. Those who are growing plants on for late flowering should have the final shift completed without any further delay. Others which are already somewhat filling their flowering pots with roots should have alternate waterings with liquid manure of moderate strength. To force such stimuli upon them unreasonably strong will not fail to injure the more delicate spongioles or root-feeders. This, though unperceived at the time, eventually becomes the cause why more perfect and fine flowers are not forthcoming. Where very fine individual flowers are needed, apart from numbers only, a few of the main or stronger shoots should be encouraged. Continue to train those specimen plants required of a given form as frequently as each shoot becomes sufficiently long to need a fresh tie. During dry periods few subjects delight in surface sprinklings more than do Chrysanthemums. Earwig pests must be constantly guarded against; they keep hidden safely among the younger leaves by day, and commit sad havoc during the night, if not detected and destroyed. The very old plan, of placing hollow broad bean stalks amongst the plants in which to trap the insects, is amongst the best of remedies. Give *Primulas* of the sinensis section of the earliest batch, their final shift into blooming pots, and forward others intended as successionals by shifting them onward. These will do well for a few weeks in a cool frame or pit upon a proper bottom, such as slate or rough cinder ashes; the place they occupy should be closed early daily—say from 3 to half-past 3 P.M., when a nice sprinkling overhead will benefit them. Sow another successional batch of *Mignonette* in pots similar to those recommended a week or two since. Most woody plants will have ceased growing for the season by this date; hence a dry atmosphere should be particularly maintained in all stoves. Red spider, which may be fostered by such treatment, may be guarded against in a great measure by keeping up a moderate temperature only, and this especially by night. It should be understood that a low temperature is not nearly so injurious to plants contained in a dry atmosphere as it is to others inclosed in moist vapour.

FORCING HOUSES.

Those *Vineries* which have their crops ripened, and in which fruit is still hanging, need only now to be kept as free as possible from damp. Night air must therefore be carefully excluded by closing before the dews of evening, with their excessive condensation, set in. Attend to the removal of all damaged or decayed berries from any of the bunches, and so free them from all deteriorating influences. Vineries from which all the earlier crops have been taken will now derive much benefit by having the lights wholly removed, so that the outer air may have full and unimpeded play throughout the entire structure. Take advantage of such an opportunity to execute what repairing, painting, or other alterations may be necessary, and to cleanse the whole interior, whitewashing the walls and flues—if unfortunately they exist—and so doing what is possible toward cleansing the house from any insect pests or other impurities that may have formed a lodgment. I would also suggest that a few inches of the old soddened and unwholesome soil be removed from the surface of the inside borders, if such exist, and that a layer of good fresh maiden loam be added in lieu thereof. Again, those early forced Vines which are thus afforded a change of air for a time, should have the necessary pruning back done at the earliest moment possible after it has been ascertained that the wood has become sufficiently ripened for the purpose. To delay this pruning process any length of time is, to say the least, not of advantage to those Vines which are needed early in bloom in the ensuing season. It will be readily seen, that to allow all the eyes which now exist upon the Vines to receive an amount of nurture and support requisite to ripen them off, will be to unduly tax the rods at the expense of those few eyes which should receive the whole resources of the same at such a season. So soon, then, as it is possible to prune back the Vines, without running the risk of bleeding, let the operation be performed. *Pines*, which are about showing at this date, will need direct personal attention. Let the plants have the most favourable position in the structure, and do not fail to give occasionally a moderate soaking with a wholesome liquid manure, as well as a constant supply of atmospheric moisture, and a good amount of both top and bottom-heat, that the most may be made of what favourable weather remains before the incoming adverse season. Those Pines which are intended to show later in the season and in the duller months of winter would be benefited by-and-by by a slight decrease of temperature, such, in fact, as will be the more in keeping with the temperature to be maintained during the months of November and December. The present is a good time in which to renovate the stock of trees in *Peach* and *Nectarine houses*. Where it is necessary to do this, some fine young trees, of two or three seasons' training, should always be procured, if possible. These, if taken up at this season without injury to any of the roots, and planted carefully in the proper places, will not suffer, provided a good soaking be afforded to the roots and the soil immediately around it so soon as planted, and provided that the tree be shaded during sunny weather, the foliage being frequently damped over with the syringe, &c. Cease watering those borders in which *Fig* trees are growing after this date; otherwise the trees will not be able to go to rest at the proper season.

HARDY FRUIT GARDEN.

Bring *Strawberry planting* to a close at the earliest moment possible, and so afford fresh plantations an opportunity to establish themselves before winter arrives. There is no dearth of good strong suckers where attention has been given to layering at the proper date. The necessary digging and trenching of the ground I have previously drawn attention to. In planting be particular not to unduly bury the crowns. To obviate this it may be desirable for those who are not accustomed to the work to run a roller over the freshly dug ground before planting. If the plants are then properly planted, with the apex fully exposed, little danger will exist. I generally plant them 24 inches between the rows and 15 inches between the plants in the row, which is ample space for them to flourish in. In regard to *Wall Fruits* generally there is some fear, considering the present moist weather and the lightness of crops, that we may not be able to mature the wood properly before the advent of winter. Hence too much attention cannot be given to induce as little growth as possible, and to so expose the parts of such growths that have been already made that maturity may be arrived at, at the earliest possible moment. I need not say that when winter's cold sets in we shall not fail to lose the leaves; but I would prefer rather that the leaves become so "frisky," to use a Cambrian term, that they skip or gambol off in the early autumn with each passing gust of wind from their own ripeness. Let the large grosser leaves be cut in twain across the middle, and let air be admitted freely amongst all, so that the opportunity of doing so may be afforded them.

KITCHEN GARDEN.

The necessary crop of *Spinach* for the winter supply should be sown between the 10th and the 20th of this month. As this is a very advantageous growing period, it should be sown about the beginning of the next ensuing week. Sow a batch of *Dwarf French Beans* in pots, placing them out-of-doors for the present, as a succession to the later outdoor ones. Prune back and otherwise attend to *Tomatos* which are grown against walls or in any other position out-of-doors. Those flowers alone which are now in bloom or are already beginning to form fruits should be retained. Cut away all later ones, as if left they cannot now come to perfection. Encourage and maintain a good leaf surface, which should consist of the older more matured ones, but do not allow the younger shoots to grow and enlarge materially after this date, otherwise the strength of the plant will be checked thereby, in lieu of affording it to the fruit, which needs it all. *W. E.*

TOWN GARDENING.

WHERE it is intended to grow large specimen flowers of *Chrysanthemums*, all lateral shoots should now be taken off, leaving only the leading shoots to carry one flower each. They should also have a little rotten dung spread over the roots. Syringing over the tops with clear water will also prove beneficial at this season, as will a good watering of liquid manure about twice a week. Tying-up is of the utmost importance now, as the plants are growing fast, and are very tender. I shall now diverge to the *Kitchen Garden*, and it will no doubt surprise many of your readers to tell them that, for the last two years, there has been a regular garden allotment system carried on with great success within two minutes' walk of Temple Bar. The land that has been redeemed from the Thames by the embankment in front of the Temple has been put into good use by the porters of the Inns under the advice of the Temple gardeners, and their productions have been highly creditable. Radishes and Salads in abundance, Spring Spinach and Summer Cabbage, French Beans, Turnips, and Vegetable Marrows fit for a lord; and Scotch Kale, Celery, Savoys, Parsnips, and Carrots, looking well for the winter. Therefore I think this is an inducement to remove the old London soil and replace it with fresh from the country, as it is evident the atmosphere is purer, and much may be done now which has hitherto been thought impossible. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending Aug. 11, 1869, as observed at the Horticultural Gardens.

August.	Moon's Age.	Barometer.		Temperature. Of the Air.			Of the Earth		Wind	Rain.
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 5	27	30.132	30.086	72	42	57.0	65	60	N.	.00
Friday 6	28	30.271	30.200	68	40	54.0	64	61	S.E.	.00
Satur. 7	●	30.222	29.962	70	54	62.0	61	60	S.W.	.20
Sunday 8	1	29.856	29.767	66	57	61.5	61	60	S.W.	.06
Mond. 9	2	29.609	29.523	75	44	59.5	62	59	W.	.04
Tuesd. 10	3	29.735	29.684	67	45	56.0	62	60	N.W.	.00
Wed. 11	4	29.931	29.790	67	35	51.0	61	59	N W.	.01
Average .		29.965	29.856	69.3	45.3	57.3	62.3	59.8		0.31

August 5—Cloudy; densely clouded; overcast, but fine.
— 6—Fine, cloudy; overcast; clear and fine.
— 7—Foggy; fine, but overcast; densely overcast.
— 8—Rain; showery; densely overcast; rain.
— 9—Densely overcast; cloudy, cold wind; showery.
— 10—Fine, cloudy; stormy; cloudy, cold wind.
— 11—Cloudy, but fine; showery; clear and fine.
Mean temperature of the week 5 3-10 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 43 years, for the ensuing Week, ending August 21, 1869.

August.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W	W.	N.W.
Sunday..15	73.1	50.0	61.6	17	0.61 in.	4	6	4	1	7	10	6	5
Mon. ..16	73.0	51.5	62.2	21	0.80	—	4	4	2	7	5	10	4
Tues. ..17	72.7	50.1	61.4	23	1.12	6	3	1	2	6	9	11	2
Wed. ..18	73.2	50.7	62.0	16	0.38	4	6	6	3	5	9	9	1
Thurs. ..19	73.1	49.2	61.2	21	0.81	2	4	4	3	4	12	10	4
Friday ..20	72.8	50.6	61.7	20	0.45	3	4	3	—	5	11	13	6
Satur. ..21	72.6	49.7	61.2	14	0.62	3	3	1	1	4	9	16	3

The highest temperature during the above period occurred on the 18th, 1842—therm. 92 deg.; and the lowest on the 18th, 1866—therm. 36 deg.

Notices to Correspondents.

CEDAR OF LEBANON: *A Correspondent* wishes for information as to the dimensions of the largest Cedars of Lebanon grown in this country. As this is a matter of much interest, perhaps some of our readers will kindly supply the information requested.

CHERRIES: *H K.* Remarkably fine in size and quality.

ECHEVERIA METALLICA: *W E E.* Seeds when obtainable afford a ready means of increasing the plant in quantity. The leaves, planted as cuttings, strike root freely, as in the case of the other Echeverias.

HARDY RASPBERRIES: *Subscriber.* Prince of Wales (Cutbush).

LILLIPUTIAN PELARGONIUMS: *E S.* Some of these were figured in our volume for 1868, p. 405.

NAMES OF FRUIT: *Black Currant, W P R.* It is without doubt the same as the variety exhibited before the Fruit Committee last week, named "Lee's Prolific Black," which, as our reporter saith, "stands shaking well." Doubtlessly much improved thereby.

NAMES OF PLANTS: *C A.* 1, Geranium reflexum; 2, gymnocaulon; 4, sylvaticum; 5, striatum; 7 and 8, sanguineum; 9, palustre; 10, phæum.—*W T.* 1, Veronica ligustrifolia; 3, Clematis erecta.—*Harry.* Betonica officinalis.—*F T.* 1, 4, 8, 10, 11, 12, 13, Lastrea dilatata; 2, Polystichum angulare; 3, 6, 9, 14, Lastrea Filix-mas; 5, Lastrea F.-m. paleacea; 7, Lastrea F.-m. cristata.—*W K.* Lastrea dilatata; 2, Lastrea, deformed—perhaps glabella; 3, Asplenium formosum.—*J E Lees.* Lastrea Filix-mas.—*Constant Reader.* 1, Lychnis diurna; 2, Galium verum; 3, Melampyrum pratense; 4, Lysimachia nemorum.—*C L.* The white is some Saxifrage, the green either Veratrum album or V. viride. We cannot tell for certain from such scraps.—*P R W.* Sium latifolium.—*E G.* The specimens have been mislaid, please send others.—*J Ward.* Mandevilla suaveolens.

PASSION FLOWERS. The Editors acknowledge with thanks the receipt of flowers and fruit from Messrs. Lawson, Edinburgh; Royal Gardens, Kew; Mr. T. Simpson. The correct names will be given hereafter.

PEAS: *W M.* The Sugar Pea—Pois sans parchemin of the French. Not a novelty.

POTATOS: *Fulham Hero.* A very good Potato, but a little earthy in flavour. There are many better.

ROSES: *E S S.* If you procure some vigorous young plants, and plant them out about December, in well-enriched soil, you may still get some good blooms. Mulch them freely with short dung in the growing season.

ROSES DISEASED: *H A G.* The leaves are affected with Orange Fungus, and also with a black fungus. The black may possibly be the former in a state of disease. It is not so common as Orange Fungus. I have trees affected with both. There is no cure for Orange Fungus, as it affects chiefly the under sides of the leaves. At the spring of the year I discovered many nuclei of it on my leaves; and I set to and cut it out; but still I see my trees much affected by it. Cutting it out early in the year, before the nuclei burst and spread their spores, is the first remedy; and washing the foliage and keeping the roots abundantly supplied with water is the only other preservative measure. In showery summers it does not prevail so extensively as in droughty seasons. I withdraw Paul Verdier from list lately sent to the *Gardeners' Chronicle*, as it is not thoroughly perpetual. Buy Fisher, Holmes in its place. It is handsome, a free bloomer, wanting only another range of petals. *W. F. R.*

SOLANUM PSEUDO-CAPSICUM: *T T O.* Set the plants out-of-doors, and they will fruit freely.

THRIPS: *Lady O.* It is difficult, now that your Grapes are so far advanced, to stop the ravages of these pests without injury to the crop. Try the placing of several lumps of unslaked lime in the house, on which when being slaked sprinkle flowers of sulphur, the fumes from which may destroy them. Wash your pipes with sulphur, and fumigate with strong tobacco and hellebore powders, which will not affect the Grapes.

VARIOUS QUESTIONS: *T Long.* 1. Yes; though rather late; 2. From 65° to 70°, with a liberal supply of air both night and day; 3. No; leave as much as you can that is exposed to the sun.

WARTS ON VINES: *W.* The warts or gnarly formations on the stems of your Vines are produced by superabundant crude sap taken up by the roots which the leaves cannot elaborate. Severe mutilations or pruning of the tops while the roots are feeding in rich matter will cause them to appear. Ripen your wood well, and in winter prune them clean off, and you will probably not be bothered any more with them. For the mealy-bug, wash your Vines in every possible place, and very frequently, with Fowler's insecticide or Gishurst compound, and you will get clear of that; application is the main thing wanted. Pure turpentine is not to be recommended.

COMMUNICATIONS RECEIVED.—T. R.—J. D.—W. H.—E. S.—W. F. R.—H. A. G.—A. C.—P. H. G.—J. W.—P. T. O.—W. S.—J. D.—H. H.—J. O. C.—E, B, H,—W, Swale,—D, T, F,—C. M.—H, E, L,

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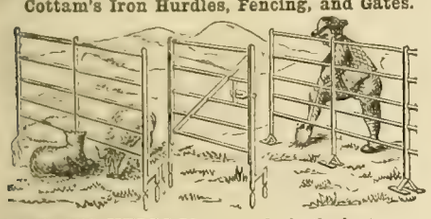
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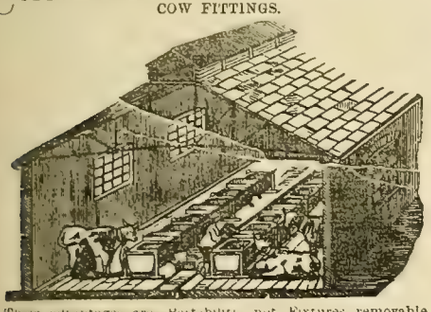
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STAFFORDSHIRE AGRICULTURAL SOCIETY.—POULTRY SHOW at BURTON-ON-TRENT, SEPT. 23.
Liberal Prizes offered for Birds hatched this year. Open to general Competition. ENTRIES CLOSE AUGUST 23.
Prize Lists and Forms of Entry are now ready, and may be had on application to the Secretary, Mr. WM. TOMKINSON, Newcastle.

BIRMINGHAM HORSE SHOW, 1869.—The FOURTH GREAT EXHIBITION of HORSES, PONIES, CARRIAGES, &c., will be held in Bingley Hall, Broad Street, Birmingham, on TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY, August 17, 18, 19, and 20.
The Horses will be judged on Tuesday and Wednesday. Admission: From 9 to 4 on Tuesday, 5s. ; after 4 o'Clock, 1s. On Wednesday, from 9 to 2, 2s. 6d. ; after that hour, 1s. On Thursday and Friday, 1s.
For Excursion Trains, see the Companies' Bills and Time Tables.
JOHN B. LYTHALL, Secretary.

The Agricultural Gazette.

SATURDAY, AUGUST 14, 1869.

MEETINGS FOR THE ENSUING WEEK.

August 17 to August 20 } Midland Counties Horse Show, at Birmingham.
— 20—Keighley Agricultural and Poultry Show.

As soon as the Royal sign-manual was attached to the Contagious Diseases (Animals) Act, the Lords of the Privy Council were called upon to commence the exercise of the very considerable powers which the measure confers in relation to the importation and regulation of the movement of stock.

The Act, as we explained in our last article, leaves undetermined some very important points. These have been decided by the provisions of two Orders of Council which were gazetted on Wednesday last—one a General Order, the other containing additional and special clauses for the metropolis. Together with the Act, these two Orders constitute the whole law on the subject of the cattle trade; all former Acts and Orders, which were so puzzling to those who endeavoured to decipher them in the light of common-sense, are by the Act of 1869 revoked, and at this moment there is practically nothing in force except the Act and the two Orders dated August 10, 1869. The further Orders, which have been republished, defining the ports, are merely repetitions of the former definitions of certain spaces within which cattle may be landed, and do not affect the general laws for the regulation of movement of home and foreign stock.

In our last article we adverted to the fact of the Bill being based on the idea that foreign cattle are normally safe commodities, and that only in exceptional instances and in the case of certain classes are restrictions necessary. On this principle the several Orders of August 10 enumerate certain countries which are to be treated as infected places. In the schedule to the Orders we find the following places, all of which are either countries of transit or localities where cattle plague has a frequent existence:—1. Dominions of the Emperor of Russia; 2. The Austrian Hungarian Empire; 3. States of the North German Confederation; 4. Dominions of the Sultan; 5. Dominions of the King of Italy; 6. The Papal States; 7. Belgium; 8. Netherlands; 9. The Dominions of the King of the Hellenes. Cattle and other animals, imported from Russia, Austria and its provinces, Prussia, Turkey, Italy, Rome, Belgium, Holland, and Greece, must, therefore, be landed in a defined part of a port, and be slaughtered within 10 days. In the case of the metropolis all these classes of animals will be removed, as at present, by rail from the defined parts of the port of London to the metropolitan market, and be permitted to move within the area of the metropolis, until the proposed foreign market for London is built for their reception, when the cordon round the metropolis will be removed.

From all countries, except those named in the schedule, animals may be imported under the following conditions, which are necessary to prevent contact with any of the infected classes:—The ship in which they are conveyed must not touch during its voyage at any of the interdicted ports, and the owners are required to give proof that for three months previously no animals from the excepted countries have been on board the vessel; the animals must next be landed in a defined part of a port, and they will not be allowed to depart from the landing place until the Customs inspector has certified that they are not affected with a contagious or infectious disease. These conditions having been complied with, the animals "cease to be deemed foreign animals," that is to say, they may be moved to any part of the country, and otherwise dealt with as home-bred stock. If, however, they are found to be affected with a contagious disease, they are to be dealt with as the Customs may direct. This may be interpreted to mean they will either be slaughtered on the landing place, or sent into a defined part, which will amount to the same thing; and this fate will be shared by all the animals of the cargo in which the disease is detected. Under the operation of this provision, animals brought from France, Spain, Portugal, Denmark, Norway, Sweden, or other non-excepted country, if found on arrival to be healthy, will be free to move in any direction; but, should a single case of mouth-and-foot disease, for example, be discovered, the whole cargo will be condemned.

English breeders will be perhaps disposed to inquire, what is to be done in the not impossible event of foreign animals which have an infectious disease in the incubatory stage, and therefore not apparent to the observation of the inspector? Naturally those animals will be passed, and will "cease to be deemed foreign animals;" and equally certain it is that, if the purchaser, instead of slaughtering, places them upon his farm without previously subjecting them to quarantine, the disease will manifest itself to the injury of the other stock. The imported animals which have "ceased to be deemed foreign animals" will now be under the law which regulates the movement of home stock.

In reference to infectious diseases of animals at home, including glanders in horses, cattle plague, pleuro-pneumonia, mouth-and-foot disease, scab and sheep pox, the General Order provides that "every person having in his possession or under his charge" an animal so affected, shall give notice to a policeman, and the constable is required to give notice to the inspector appointed by the local authority. If the inspector find a contagious disease among animals in his district, it is his duty to communicate all information respecting it to the Privy Council week by week, so long as the disease continues. Compulsory slaughter of diseased animals is only provided for in the case of cattle plague; but animals affected with other contagious diseases are not to be sent to fairs or market, or in any way exposed in public places where they may come in contact with other animals; this prohibition is practically an injunction against the removal of them from premises where they are attacked.

The Metropolitan Order makes a single necessary exception in favour of animals becoming affected, as they commonly are, with mouth-and-foot disease, in lairs near the metropolitan market, or in the market; animals so attacked may be moved by licence to a slaughter-house named in the licence, but not elsewhere; for example, cattle which are attacked with mouth-and-foot disease in the lairs at Islington on Sunday cannot be exposed for sale in the market on Monday, but must be sent direct to a slaughter-house. No doubt can be entertained that the enforcement of this law will tend to arrest the progress of mouth-and-foot complaint, which is now so prevalent, but considerable inconvenience will attend the carrying out of the regulation, and we expect to hear some strong expressions of opinion respecting the interference with trade. If, however, the attempt to eradicate infectious diseases of animals is to be anything more than a sham, some amount of hardship must be endured.

Former regulations respecting the movement of animals by railway through the metropolis, and the removal of cattle out of the metropolis, under licence of the Board of Works, are contained in the Metropolitan Order; but the clauses which most concern the agriculturist are those which relate to the importation of animals and the discovery and prevention of infectious and contagious diseases.

The omission of the much-desired clause for a general foreign market for all imported stock will not have the effect of prejudicing the farmers of this kingdom against the most complete and effective measure upon the subject of animal diseases which ever passed through the Legislature; if the representatives of the agricul-

tural interest have not gained all they demanded, they have at least achieved all that was of present possible attainment.

No one writes with greater power or influence upon agricultural progress than Mr. SMITH, of Woolston. The future of arable farming depends very much upon the increasing use of steam-power for tillage purposes. And no one has done more than he to promote this great agricultural improvement, or to convince farmers by his own experience that it is a practical and profitable thing. His last letter on the subject appeared in the *Times* the other day, and we reproduce it here. It appears that in his clay country farmers are making money. Mr. SMITH himself is buying land; his neighbour, Mr. WHITWORTH, of Willen, is also buying land. The farm practice of the two is here contrasted, and though the cases do not seem exactly parallel, yet it is worth while to read the lesson which the contrast gives to Mr. SMITH, and which he would pass on to us.

"It is a fact," he says, "that I am now harvesting my 14th crop under steam culture.

"It is a fact that Nos. 1 and 4 heavy lands are Beans growing on seed-beds costing only 7*s.* 3*d.* an acre; that they are strong in straw, well corned, free from fly or blight, and ripening well, unlike many a crop now growing upon shallow, horse-worked land, that may be seen to be weak in straw, full of fly, and dying a premature death.

"It is a fact that my Nos. 2 and 3 heavy land are Wheat growing on seed-beds costing only 6*s.* 9*d.* an acre; that they are strong in straw, full of corn, and ripen well; together they are the best I ever had on this land in my life.

"It is a fact that these four fields will give me an average of full 40 bushels per acre, and it is a fact that under horse culture (having a dead fallow every fourth year) they did not average over 20 bushels per acre, one year with another.

"The next fact to be looked to is, what do our best farmers on such soils get now-a-days under horse culture? Mr. WHITWORTH, of Willen, a mile from here, is a good farmer under horse culture. He occupies three farms—one where he lives, one at Woughton, only a mile from here, and one at Mursley, about six miles from here. To prove that he is a good farmer, let me tell you that he has made money by farming. Two years ago he bought with his earnings his Woughton farm for over 11,000*l.*; therefore I need not say any more upon that point. On his Woughton farm he has six fields of ploughed land exactly in character with my heavy land, on the same hill, and within a mile of it. This year three of his fields are Wheat, one Beans, one Vetches, fed on and fallowed for next year, and the other Clover, fed on, and is now being fallowed for next year. The worth of this feed for sheep, after paying all the expenses for seeding and shepherding, is but a mere trifle; I estimate it at 5*s.* per acre. Now, then, for the produce on the three fields of Wheat and one of Beans: it is not over 35 bushels per acre, or from an acre of each added together only 140 bushels. When, divided by six, to spread the 140 bushels over the six fields, we find the average to be only 23⅓ bushels per acre; to which must be added 1*s.* 6*d.* as a share of the value after payment of expenses, for sheep-keep on the two fields of Vetches and Clover. I do not ask Mr. WHITWORTH's permission to make this statement, but I state it openly and fearlessly on behalf of steam culture against the best horse culture. Let him or any other man pull me back in the correctness of it, if he can. I know that it is true, and I mean that the world shall know it. Had I taken bad farming for my comparison the average would have been less than 23⅓ bushels, with 1*s.* 6*d.* for sheep-keep to be added per acre, against my 40 bushels per acre.

"I ask you to publish these few facts to help me to open the eyes of the landlords and farmers of England as to the use and value of steam-power to culture, and, in addition to what I have stated above, I will state here that my light-land crops are excellent, without troubling you with particulars.

"I might have stated another fact, that this heavy land of mine always needed four good horses to plough it from 5 to 6 inches deep, which cost fully 14*s.* per acre; whereas by steam power I can now make an average seed-bed for 7*s.* an acre year after year, and keep my land clean for corn crops every year."

The Woolston and the Woughton facts are worth studying. We have no personal knowledge of the latter farm; but the former is no doubt the example farm of England, from the influence it exerts on the progress of steam culture.

—— AT Mark Lane the price of Wheat rose again yesterday 2*s.* per quarter, at which increase business was readily done in both English and foreign samples. A heavy rain during Thursday night, and dull squalls with rain up to mid-day yesterday, had some influence on the market.——The live stock and meat markets are unchanged. Small supplies of prime English and large importations of foreign produce cause prices to range from 5*s.* 4*d.* and 5*s.* 6*d.* down to 3*s.* per 8 lb.—— The seed trade has been at a standstill, which is attributed to the anxiety excited during the passage of the Adulteration of Seeds Bill through the House of Lords.

—— The number of foreign animals inspected in the year 1868 by the Custom House veterinary inspectors in London and at Thames Haven was 320,233—83,144 beasts, 17,559 calves, 208,168 sheep and lambs, 11,369 pigs. 6293 of the whole number were detained and slaughtered on account of disease or injury—729 beasts, 58 calves, 5072 sheep, 434 pigs. 6021 of these were slaughtered and the meat passed as fit for human food, and 272 were condemned and destroyed—viz., 65 beasts, 35 calves, 127 sheep, 45 pigs. The whole number slaughtered on account of disease or injury in 1868, therefore, was 0.8 per cent. of the beasts imported, 0.3 per cent. of the calves, 2.4 per cent. of the sheep and lambs, 3.8 per cent. of the pigs. The proportion of sheep slaughtered is very large, owing to the sudden reappearance of sheep-pox in August in a cargo of upwards of 1300 sheep from Holland. Great credit is due to the inspectors for the discovery of this disease in one single case out of so large a cargo, when no intimation had been received that the disease existed in Holland. The whole cargo was slaughtered at the place of landing; and, other cases following, quarantine or slaughter of the sheep at the place of landing was ordered. There was no case of cattle plague in 1868. The falling off in the London supply of foreign beasts and calves from 123,488 head in 1867 to 100,703 head in 1868 is accounted for by the restrictions on the trade still in force, with the irregularity in the prices of cattle throughout the year. The return of the importation into the whole of the United Kingdom in the three years 1866, 1867, 1868, is as follows:—Oxen, 191,545, 138,336, 103,726; cows, 17,626, 17,999, 11,143; calves, 28,568, 21,613, 21,819; sheep, 777,174, 532,316, 323,447; lambs, 13,706, 7400, 17,708; hogs, 73,873, 48,079, 33,721; totals, 1,102,492 in 1866, 765,743 in 1867, 511,564 in 1868. The importation this year shows a great recovery, and the total seems likely to be nearer the total of 1866 than of 1868 or 1867.

—— A curious illustration of the fitness of arithmetic to agriculture, and of the wonderful results which ensue upon a confident application of the "three first rules," is given by Mr. CROZIER, of Twickenham, in a letter to the *Times*, wherein he arrives at the conclusion that 15,000,000*l.* a year would be a moderate computation of the profits from the milch cows, &c., which should be fed upon—London sewage! The following is his letter:—

"In Mr. Smith's letter on steam cultivation, speaking of the value of the fallowed field and sheep feed, he makes this remark:—

"'The worth of this feed for sheep, after paying all the expenses for seeding and shepherding, is but a mere trifle—I estimate it at 5*s.* an acre.'"

"Now, as sheep are kept in order to fertilize land, on the present alternate green and straw crop system being used as the carriers and producers of manure for the production of corn, let me ask Mr. Smith if steam-power would not be an infinitely better and cheaper carrier?

"In the evidence given before Mr. Rawlinson, at Kingston, when the corporation proposed irrigating the Ham fields, in favour of the scheme for utilizing the Kingston sewage, it was said that 70 tons of Italian Rye-grass per acre could be produced in one year, and the following year, without any further manure, 10 quarters of corn could be grown; consequently 40 bushels of corn would be produced annually per acre at a very moderate cost of cultivation, if steam-power was used to carry the sewage of towns to the fields requiring manure, and this could be effected in a simple way by rail or road. It was also stated that 130 acres under irrigation annually would take the sewage of 10,000 persons, so that 260 acres of land would produce annually 10,400 bushels of corn, which, at 5*s.* per bushel, would be worth 2,600*l.*, and 9,100 tons of Rye-grass, at 1*l.* per ton, 9,100*l.* I have been paying retail all this summer 2*l.* 10*s.* a ton for green food for my horse, so that, taking Mr. Smith's estimate for the seed beds and profit, there would remain 9,031*l.* after all expenses and cultivation, and the production of 40 bushels of Wheat per acre, to pay the rent and profits of the farmer, to prevent the pollution of our rivers, and remove the sewage from our towns.

"The value of the London sewage, taking the inhabitants at 3,000,000, would be 2,709,300*l.* as a fertilizer, and if the evidence given about root crops is correct, 15,000,000*l.* would be a moderate computation of the profits from milch cows and fatting cattle, and our engineers would be more profitably employed in devising means to effect this purpose, instead of giving divers opinions as to whether London sewage can or cannot be found in Barking Creek.

"If Mr Smith would give his attention to the removal of sewage of towns to the land by steam-power, I am sure his success would be far greater than the mighty one he has effected by the steam cultivator, and if he entertained the idea, I would communicate a plan to him by which the whole of the sewage might be moved to any land within 100 miles of Barking Creek for 365,000*l.* per annum.

—— Mr. MECHI thus calls attention in the *Times* to the destruction of hay in the rick.

"The crop this year is unusually heavy, and for want of sufficient manipulation, or hay shaking, the Grass has failed to lose 60 out of the 75 per cent. of water that it contained. The consequence is a generation of confined steam and a partial carbonisation or total combustion of the stack and, in some cases, of the adjoining buildings. About three years ago a farmer contrived a simple mode of prevention, which was manufactured by a large Suffolk firm, and which I at once purchased at a cost, I think, of 28*s.* It is simply an iron pipe of 2½ inches in diameter, riddled with holes, and having a pointed wooden nozzle. This is driven horizontally into the stack where any undue heat is suspected, the pent-up heated steam finds its way into the pipe, and passes at once along it to the outside, where an elbow pipe is attached to give it an upward and better draught. When the weather is cool the elbow is occasionally removed to get rid of the water resulting from condensed vapour. No one need have an injured stack, or deteriorated hay, if this simple instrument be used. The pipe may be withdrawn by a horse when no longer required in the stack. By watching the stack at dawn of day, or by the suspicious aroma, one may always have due warning of danger."

We doubt the efficacy of a chimney for putting out a fire! To *prevent* by patience during haymaking is the only sound advice on this subject.

—— Cattle dying from eating Oak foliage is an odd piece of news at first sight; but for a farmer to be successful in bringing an action for damages, is even more singular. The case reported below was heard at the County Court, Monmouth, and as reported in the *Hereford Journal*, was considered by the judge to be as important in point of law as it was in regard to animal and vegetable physiology; for his Honour remarked that "it would have been well for the public at large had such a case been heard many years ago." The facts were not disputed. About 40 Oak trees were cut down last spring when the "sap was running;" these fell on a field or "break" in the occupation of the plaintiff, and four cows and some steers ate the young shoots and twigs of the boughs. The veterinary testimony was as follows:—

"Mr. G. LEWIS, veterinary surgeon, made a *post mortem* examination of the last animal that died, and proved that the cattle died from having eaten of the Oak, or, in other words, from the presence of 'tannin.' On analysing the contents of the stomach of one of the beasts which he had taken home for the purpose, he found unmistakeable evidence of its having been poisoned by the effects of tannin. It was present in large quantities, quite sufficient to account for death. The fact was, that at particular periods of the year the Oak contained a larger percentage of tannin than it did at other periods, and if taken in sufficiently large quantities, as these animals would have taken it, it was indeed the strongest astringent of its class known, and its effects would be to produce obstinate constipation; in other words, it absorbed the juices secreted by the stomach and intestines, and hindered and prevented digestion; producing constipation, and fever and death as the consequence."

The legal points of the case are equally important. The action was brought against a timber merchant who had bought the trees. The plaintiff said there was no agreement between himself and his landlord, and therefore, there was no reservation. After the usual evidence had been given, the solicitor for the defendant began to address the Court, but his Honour stopped him, and directed attention to the opinion of Mr. Justice Blackburn, as laid down in Growcott *v.* Smith, Exchequer Reports, that, "As a general rule of law a man was bound to use his property so as not to injure his neighbour." It appeared to him that "when a party altered things from their normal condition so as to render them dangerous to any acquired rights, the law cast on him the obligation of fixing the danger, so as not to be injurious to those rights." In the course of further argument his Honour held that it was incumbent on the defendant to have "fenced" the trees, so as to have rendered them innocuous to the acquired rights of the plaintiff. After quoting and carefully considering other cases as applicable to the one before him, his Honour gave judgment for 45*l.*, the full amount claimed.

OUR LIVE STOCK.

MR. GEBHARDT'S sale of Shorthorns, at Muswell Hill, near London, was not very successful. The day (Tuesday the 3d inst.) was deplorably wet, and the site of the ring had to be removed to a sheltered situation. This was neither favourable to the spirits of the buyers or the appearance of the cattle, and no doubt contributed to lower the prices. The highest figure was given by Mr. Johnston for *Violet*, by USURER, for which he paid 40 gs. Mr. Mertens purchased several females and four bulls for Prussia. The 42 animals realised 1079*l.* 8*s.*, or an average of 25*l.* 14*s.* each.

—— On the 7th inst. a number of first-class cattle and two valuable horses, with other domestic animals, were shipped at Liverpool for Canada. They were selected and purchased at a great outlay by Mr. Thornton and Mr. Beattie for Mr. Cochrane, of Montreal, and comprised the Suffolk cart stallion, Duke; a thoroughbred colt by Fandanguero; and some black pigs from the late Mr. Crisp's stock, of Butley; three very well bred Shorthorns from Mr. Torr's herd, namely, *Bright Lady*, a very fine heifer of the *Anna*, by PILOT, tribe; *Weal Bliss*, by LORD BLITHE, descended from *Waterwitch*, by 4TH DUKE OF NORTHUMBERLAND, and more remotely from the Bates' Waterloo family; and a young bull, GENERAL NAPIER, also by LORD BLITHE (22,126), and on the mother's side of the *Glitter* by LONDESBOROUGH sort. The remaining Shorthorns we must notice upon a future occasion. These valuable breeding animals are accompanied by two prize Ayrshire cows from the Edinburgh show, and some Cotswold rams from the flock of Mr. Cole, of Ashbrook, Cirencester.

—— We have just received the Duke of Devonshire's new catalogue, published in July. Since the last issue, in April, 1868, the herd at Holker has slightly increased in number. Contrasting the past with the present, we find that the 31 females and nine bulls named in the first catalogue have been increased to 37 females and eight bulls. *Grand Duchess 5th*, by PRINCE IMPERIAL; *Sylph*, by GLOSTER, and her daughter *Blanche*, by DUNDAS; *Winsome*, by OXFORD 2D, of the Wild Eyes tribe; *Grand Duchess of Oxford 5th*, and *Wellingtonia 2d*, of the Bates' Waterloo family, all keep their places as matrons of the herd, while *Elvira 10th* and *Lady Butterfly Princess* make their appearance for the first time as a part of the Holker stock. It will be remembered that these two cows were purchased at the Scaleby Castle sale last September. The first named produced on June 11, a white heifer

calf to 14TH DUKE OF OXFORD. *Winsome* 3*d*, by 13TH DUKE OF OXFORD, has disappeared from the list, having been sold a few weeks since to Mr. Phillips, of Heybridge, with her daughter, *Winsome 6th*, by 10TH GRAND DUKE, calved last November, for 300 gs. The young stock are principally by GRAND DUKE 10TH. The catalogue contains the names of four exceedingly well bred young bulls: BARON OXFORD 4TH, by 7TH DUKE OF YORK, is half brother on the mother's side to BARON OXFORD 3D, sold last September to Lord Kenlis, for 250 gs., and WANDERER, by BARON OXFORD 3D, and from *Winsome 4th* of the Wild Eyes family, also possesses an attractive pedigree.

—— Subscribers to Thornton's Circular must find it very useful, from the ready means it affords of tracing the history of any animal which has recently changed hands, or of bringing to mind the result of any sale during the last year. Few circumstances of interest seem to escape Mr. Thornton. If we wish to refresh our memories as to the awards of prizes at an important show, forthcoming sales, or important births, deaths, or exportations, in each case this useful publication will furnish the required information. The fifth number of the "Circular" is now before the public. It contains an account of the most important spring shows and sales, a brief notice of sales shortly to come off, and a list of 94 Shorthorns for private sale, besides news of the character already spoken of.

—— The next two months will witness the dispersion of the entire herd of Shorthorns at Shouldham Thorpe, Norfolk, the property of Mr. Gamble; also of the entire stock, including a small and good herd of Shorthorns, bred with great care by the late Mr. Benjamin Wilson, at Brawith, near Thirsk, Yorkshire.

—— The meeting of the Gloucestershire Society at Cirencester was looked upon by all its supporters as exceedingly successful. We were certainly surprised at one feature of this important gathering, and that was the very poor show of Cotswold sheep. At Leicester and at Manchester we were not so much astonished at the absence of the names of the best Cotswold hill sheep breeders, but at Cirencester, in the centre of their own district, we expected to see better things. We, however, expected in vain. The shearling rams were not thought worthy of a prize; the theaves were represented by one pen, and that from Oxfordshire; and the names of almost all the principal hill ram breeders were wanting in the catalogue. There were some excellent lambs shown by Mr. Smith, of Bibury, and Mr. Cole, of Ashbrook, but we in vain looked for representatives from the flocks of other, even better known sheep masters. How is this?

RECENT SHEEP SALES.

Cotswold. — Messrs. Jonas Paxton and George Castle sold by auction, at Oxford, last week, 40 shearling rams, bred by Mr. Richard Lord, of Stanton Harcourt. The highest price realised was 20 gs., the average being 10*l*. 12*s*. 3*d*. Also 20 Cotswold ram lambs, the property of Mr. Charles Gillett, of Lower Haddon, near Bampton. The highest price realised was 9*l*. 10*s*., the average being 4*l*. 14*s*. 6*d*. Also 30 ram lambs from Messrs. T. and G. West, of Greenhill Farm, Bletchington. The highest price was 14*l*. 5*s*.—— *The West Dereham Long-wools* were sold at the Abbey Farm, West Dereham, on Thursday. There were the same number of sheep offered for competition as last year, viz., 100 ram lambs, 80 shearlings, and 10 2-shear Long-woolled rams. The amount realised was 1362*l*. 5*s*., against 1345*l*. 5*s*. last year. For the best shearling 25*l*. was paid, and the general average was 9*l*. 6*s*. 6*d*.; the lambs fetched an average of 5*l*. 7*s*.; and the 2-shear sheep, 8*l*.——At *Coates* 40 shearlings from the flock of Mr. Henry Howell were offered. The average realised was 10*l*. 7*s*.; last year the average at this sale was 8*l*. 15*s*.——Several sales of rams of this breed have been held in the neighbourhood of Northleach, and have resulted in long prices being given by purchasers in this and the adjoining counties and also for the colonies. Many of the principal breeders have, from some unexplained cause, discontinued exhibiting at the Royal Agricultural Society of England; but the averages will show that the breed is as much appreciated as heretofore. At Mr. W. Lane's sale 54 sheep were sold, and let at an average of 20*l*. 3*s*.; at Mr. R. Garne's, on the following day, 52 sheep were sold and let at an average of 18*l*. 8*s*.; at Mr. James Walker's, 38 sheep were sold at 11*l*. 12*s*. each; and at the great ram fair at Cirencester several lots were sold, ranging from 10*l*. up to 25*l*. 14*s*. each, one sheep from the flock of Mr. R. Lane making 88 gs. On the same day 30 sheep, the property of the executors of the late Mr. Barton, of Coln Rogers, made 12*l*. 14*s*. 6*d*. each; 14 bred by Mr. Gillet, of Minster Lovell, sold for 10*l*. each; 18 bred by Mr. Gillet, of Kilkenny Farm, Bampton, averaged 11*l*. 5*s*. 9*d*. each; and eight sheep bred by Mr. Smith, of Bibury, realised 11*l*. 9*s*. 8*d*. each. Mr. Barton's sale at Fyfield averaged 12*l*. 11*s*.—At Mr. Thomas Brown's annual letting of rams at Marham Hall Farm, Norfolk, 80 ram lambs let at an average of 6*l*. 14*s*. 8*d*. each; 80 shearlings let at the following averages: first 10, 9*l*. 1*s*. 8*d*. each; 20, 9*l*. 2*s*. 8*d*.; 30, 8*l*. 18*s*. 10*d*.; 40, 9*l*. 5*s*. 10*d*.; 50, 9*l*. 11*s*. 3½*d*.; 60, 9*l*. 8*s*. 7*d*.; 70, 9*l*. 4*s*. 7*d*.; 80, 8*l*. 18*s*. 3*d*.; nine 2-shear sheep were let at an average of 7*l*. 2*s*. 4*d*. each. The total sum realized was 1315*l*. 14*s*.

Shropshire. — At W. G. Preece's sale of Shropshire rams and ewes at Shrewsbury, Messrs. Crane, of Shrawardine and Forton, Salop, sent 25 rams. The 22 sold made an average of nearly 13 gs.—Mr. John Evans, of Uffington, offered 35 rams, all of which were sold, the average of nearly 19 gs. being realised. One of the six shearlings for which Mr. Evans was awarded the cup, was brought into the ring, and fetched 42 gs.—The Hon. and Rev. T. H. Noel Hill disposed of nine, at an average of 13 gs.—a shearling by Corsair making 30 gs. The Hon. E. Kenyon, of Maesfen, Whitchurch, got the highest price at the sale amongst the rams sold, a shearling by Sir Harry, dam by Thornton, by Patentee, being knocked down to Lord Chesham for 60 gs. Mr. Allen, of Knightley Hall, Eccleshall, Staffordshire, offered 12 rams of the Patentee blood, which were all sold, the average being over 18 gs. The first lot was a 2-shear by Model Patentee, dam by Patentee the Prime, which was rapidly run up to 40 gs., and 50 gs. was speedily reached, at which he was knocked down to Lord Wenlock. Mr. Preece, writing on Saturday, says, "The number sold by me during the week have been—rams, about 400, and ewes, nearly 2500; Mr. Coxon's 22 shearlings, being of the same family as his Manchester show sheep, and son of his stock ram Commander, having sold and let at an average of 28*l*. 16*s*. 9*d*. each."—The Lichfield sale, which was established last year by Colonel Dyott, Messrs. Coxon, May, Bradburne, and W. Masfen, was held on Monday last, but included altogether not more than 70 rams, from Colonel Dyott, Lord Willoughby de Broke, Messrs. Masfen, May, and Allen; with about 200 ewes from Colonel Dyott, Messrs. May, Briggs, and Preece. Colonel Dyott's sheep were first offered, and made from 6 to 14 gs., the average being slightly under 9*l*. Mr. May's fetched from 6 to 18 gs., one being let at 9 gs.; and the 20, chiefly sons of Mr. Evans' prize ram, Abbot of Bury, averaged about 10 gs. each. Mr. William Masfen's were descendants of the old Norton Canes flock; and, although shown in a perfectly natural state, from a not over-abundant pasture, made about 9*l*. each, the top price being 17 gs. Lord Willoughby de Broke's six ranged from 6½ to 11 gs., and Mr. Preece's three made from 5½ to 15 gs. Mr. Allen's went at from 6 to 13 gs., at which price Mr. F. Keeling secured a very promising shearling.—Mr. Willoughby Wood's annual sale of rams and ewes was held at Holly Bank, near Burton-upon-Trent, on Tuesday last. The highest price realised was 17 gs., given by Mr. Morewood, for a shearling. Mr. Tunnicliff secured the best old sheep, a 2-shear, at 15 gs.; others making 13, 11, 10, down to 6 gs. Two shearlings were let for part of the season at 6 and 7 gs. The average for the 28 would be nearly 9 gs.

Oxford Downs.—Mr. Treadwell's sale at Winchendon. The average was about 12*l*. 18*s*., and last year 9*l*. 10*s*. each. This year the highest price for a single sheep was 27*l*. against 20*l*. last year.

Southdowns.—At the conclusion of the Dorchester Agricultural Show the Southdown rams, which had been exhibited by Mr. H. Fookes, of Winterborne Whitechurch, were submitted to public competition. Mr. J. J. Farquharson, of Langton, hired a 1-year-old ram at 24 gs.; Mr. Brook took another at 22 gs.; Mr. John Ford one at 15 gs.; Mr. Lucas hired a 2-year-old at 16½ gs.; the average letting price being 13*l*. 5*s*. each. Those sold averaged 11*l*. each, some realising nearly 20*l*. each.

PLEURO-PNEUMONIA.

[A very instructive address on the subject of this disease was lately given by Dr. Hitchman, at a meeting of the Derbyshire Society. We now give an abridged report of it.]

INSURANCE offices have received policies to the extent of some millions of money; but, contrary to the experience of all other life offices, the very extent to which they were patronised involved their ruin, through the constant and vast demands of this "pleuro." No county scheme can answer unless supplemented by some power which would enable the parties who accept the insurances to deal summarily with the stock affected by killing or disposing of the herds in which the disease has appeared. How could landlords, or anyone else, meet the demands which should spring up from losses so long as such acts as those described by Mr. Hardy are tolerated; and one farmer is allowed to drive his diseased cows to and fro, among other stock, and thus infect a whole neighbourhood with pestilence? Respecting the observation as to old cows becoming affected on their lungs by improper exposure to weather, there is a broad distinction between the disease from which they die and the pestilence under consideration. The first is ordinary inflammation, and not contagious; the second, although resembling it, is a specific contagious disease. Why the cow, of all animals, is more particularly prone to these deep affections of the chest, is dependent on peculiar anatomical or structural conditions which I cannot now enter upon. As I said before, its importance cannot be overstated, and therefore its true nature is a most vital question to be solved.

For my own part, I believe that pleuro arises from two distinct sources—first, and chiefly, from contact with animals suffering from the malady, which malady may primarily have been derived from the Continent; and, secondly, but in a far less degree, it springs from colds and shocks, and from want of a due supply of proper food and drink at proper times when travelling in exposed railway trucks, in sailing vessels, or from want of due shelter when at home. If we carefully trace the history of an attack we shall generally find that it follows some recent purchase, and is most virulent and long-continued in herds which are subject to frequent changes, and that, too, when the general arrangements for warmth, ventilation, cleanliness, and food are carried out well—in other words, where contagion is, from time to time, introduced from without; thus, in the remarkable and long-continued attack of the disease at Ruddington Grange, near Nottingham, some years ago, when about 132 cows were, I think, lost, the changes in the herd were very frequent, as the dairy was employed in supplying milk to the town of Nottingham; frequent purchases had to be made in the open market to supply the failure in milk, which is always going on, and thus contagion was from time to time introduced afresh into the byres.

At that time Mr. Paget behaved in so patriotic a manner as to entitle him to the lasting esteem of lovers of stock; he placed his whole herd at the disposal of scientific men to test, in the most full and efficient manner, the efficiency or uselessness of inoculation as a safeguard to stock against this "pleuro;" and under the guidance of Professor Simonds this question was, in my conviction, settled for ever in the negative—notwithstanding all that had been said by high Continental authorities for its efficiency. The malady is essentially a disease of the air tubes of the lungs, and often resembles in its origin, and in a great degree in its progress, the symptoms of pleurisy and inflammation of the lungs in the human subject, and it is not to be marvelled at that such a disease should occur among cattle, when we observe the manner in which—to the extent of some three or four millions annually—they are driven to and packed up in the railway trucks of this kingdom. Heated by travel and packing, they stand for hours on a bleak station, shunted and shaken from time to time, and then, as they cool down, exposed motionless to driving east winds, sleet, and rain, and then, as they are whirled along some hundreds of miles at a rapid pace against the very front and force of the blast, should it not be expected that cold and fever and lung disease may spring up in some cases?

This I believe to be often a source of the malady, apart from direct Continental importation, which is, after all, the great mainspring of this formidable complaint. It is no new disease. It has been known for scores and scores of years, if not for centuries, in Holland and Switzerland, from where we may have obtained it. It was very destructive in England in 1745, and was at the time described lucidly and well in a pamphlet by Dr. Barker. Mr. Murray is correct in stating the recent invasion of the disease in 1840—but not as to its historical duration. This is important in investigating its cause, and I shall allude to it presently. The condition in which the lung is always left after a severe attack of this disease is such that the animal never can again be so useful as before. The great function of respiration, so essential to a cow secreting large quantities of milk, is henceforth and for ever impeded; the lung, rendered solid by the disease, can never again be fully permeable to air; and the power of oxygenating the blood, so important to the usefulness of a dairy cow, is diminished. The "constitution" of the animal is changed—she will never again be so good a milker, and if she be bred from, her progeny will be puny, "nesh," and liable to fall an easy prey to whatever epidemic may be prevailing.

And here let me state that I cannot in any degree concur with Mr. Crompton as to the origin of the malady. It is with the greatest diffidence that I differ from one so intelligent and observant. Mr. Crompton—in common with many other intellectual men—thinks that our stock is treated too artificially; and ascribes this disease particularly to the use of grains and "chop." Now the cow is in an "artificial" condition herself; she is treated "artificially" because we have removed her from her natural state, and exacted from her conditions which in a state of nature she is not called upon to fulfil; no cow in a state of nature gives milk 10 months out of 12; and if we keep a continual drain upon her system we must supply her with a larger quantity of food. The cow under civilisation has her digestion and her respiration largely taxed, to twice the extent as in her primitive state; and, therefore, if milk is to be had we must facilitate those great functions, in the best way we can, by preparing her food and the like. But "chop" cut fine is a mistake. All ruminating animals require to have the chaff at least 2 inches long, or they cannot properly throw back the cud, and indigestion and other ills spring up, but not pleuro-pneumonia.

There are two facts which, taken together, demonstrate that "grains" can have no consequential relation to this disease. Cows in Switzerland and Germany have perished by hundreds from this disease, without being fed on "grains," and cows have been fed in large numbers continuously upon these, properly mixed with other food, and have not had the disease. The first fact of itself is strong, but supplemented by the second it is irrefutable. In my own experience 10 or 12 cows have been fed for 20 years with a bushel of grains each daily through the winter months, and no case of pleuro has ever arisen. These two facts in unison, appear to me to demonstrate with all the force of which logic is capable, that grain and pleuro-pneumonia have no necessary sequence of connection; they are occasionally coincident in time and place, but have no relation whatever as cause and effect. To aid in eradicating the disease, the farmer must himself be willing to make some sacrifice; he must not sell a diseased animal to save himself some 10*l*. or 12*l*. at the peril of inflicting a loss of hundreds of pounds upon other farmers, but, acting upon the high principle of doing unto others as he would they should do unto him, he must slaughter it at home.

I did not, of course, know what proposition Mr. Murray might bring forward, but I had prepared the following, which much resemble those he has hinted at. They are based on my own reflections, and on the suggestions of others, and are in harmony with recent legislation, except that I think that a compensation should be provided from some public source for the men whose herds are slaughtered. These, then, are the preventive means which, in my humble opinion, should be resorted to, and that something on a large scale should be punctually acted on is quite clear, for I think I am correct in stating that the losses from this disease are almost equal in number to the number of cattle imported from abroad:—1. That district veterinary inspectors be appointed by Government to act as a kind of police over the outbreaks of the pest; and that no bull, ox, or cow be allowed to stand for sale in any public market until it has been certified by a duly

authorised inspector to be free from "pleuro," and to have come from a place also certified to be free of diseased stock; and that no certificate should be in force for a longer period than three days. 2. That in case of the death of any animal from "pleuro," the herd to which it belonged shall be kept absolutely free from all other cattle; that no animal of its kind shall be offered for sale in public market, or be conveyed from the farm for the purpose of slaughter. That the disposal of the herd shall be determined on by a council of three inspectors, and the owner compensated by the State; provided the animal first affected had been bred on the farm, or, if purchased, had been so in a public market, under duly authorised certificates. 3. That under no pretence whatever should any animal be bred from whose lungs had been disorganised permanently by this disease. 4. That foreign cattle should only be admitted into this country at ports specially sanctioned by Act of Parliament, and then only under strict veterinary inspection; that all fat cattle from a foreign country should be slaughtered at the point of debarkation. 5. That cattle be conveyed in covered trucks only and fitted with spring buffers, and that every truck be washed out after each journey with a solution of chloride of lime or carbolic acid. 6. That ships, steam-boats, and railway trucks for the conveyance of cattle be licensed specially for this purpose after giving satisfactory proof that they are adapted, both as to ventilation, size, form, and character, for the purposes for which they are intended; and that the owners of such vehicles be compelled to supply all stock with a sufficient quantity of water and hay once in 12 hours.

THE PRESENT APPEARANCE OF THE CROPS.

[FROM OUR OWN CORRESPONDENTS, JULY 31.]

[*The following Reports were received too late for last week's publication.*]

COUNTY.	WHEAT.	BARLEY.	OATS.	BEANS.	PEAS.	POTATOS.	ROOT CROPS.	GRASS.	WHEN WILL HARVEST BE GENERAL?	NAME AND ADDRESS.
SCOTLAND.										
STIRLING	Full average	Fair average	Much below average	Under average	....	Good	Fair only in light land	Pretty good	About August 20	Alexander Buchanan, Whitehouse Farm
HADDINGTON	Under average	Above average	Under average	Average	....	Average	Average	Average	August 12	Patrick Shirreff, Haddington
MIDLOTHIAN	Full average	Average	Under average	Average	....	Full average	Turnips average	Hay, average	August 25	James Hislop, Mid Calder
	Generally thin; under average	A full average; colouring well	One-fourth short of average	Average	....	Under average	Swedes and other Turnips require rain to make average	Much burnt up; requires rain	August 13	——, Dalkeith
ROXBURGH	Above average	Considerably above average	Very deficient	Average	Few sown	Average	Good	Much improved	August 20	George Ballingall, Clarilaw, by St. Boswell
	Above average	Considerably above average	A very poor crop	Average	....	Average	Remarkably well	Middling; requires rain	August 18	W. Scott, Spylaw, Kelso
ENGLAND.										
CUMBERLAND....	Over average	Average	Light crop	....	....	Good	Very promising	Average	August 20	Richard Harrison, Newbiggen, near Penrith
LANCASHIRE	If weather continues as at present, a good average crop	A nice fair crop; average	Short straw; well fed	Average crop	....	Much improved with the late rains	Turnips, average	A full crop and well housed	August 16 or 18	Richard Robinson, Garstang
CHESHIRE.....	Average	Average	Under average	....	....	Good	Good	Clover, light	August 16	Geo. Drewry, Holker
	Very various, but on the whole nearly equal to last year	Improved greatly in July, and will be nearly average	Same as Barley	Beans, average	Not much sown; fair	Cannot be an average crop	Swedes and Mangels are doing well	An abundant hay crop, well secured	Next week	G. Jackson, Tattenhall Hall
SALOP	Very good	Rather short	Well headed	Pretty good crop	Little blighted	....	Very good	Wants rain	Next week	Mrs. P. T. S. Bowen, Shrawardine Castle
WARWICKSHIRE	Much below average	Average	Below average	Only about half a crop	Generally light crop	Good at present	Suffering from drought	Suffering from drought	August 12	John Ford, Merton Hall
CAMBRIDGESHIRE	Under an average; much blight at places	Average; much in want of rain	Good	Winter, good; spring, bad	Under average	Average	Average	Good	August 5 to 9	Samuel Webb, Reed Farm, Babraham
SUFFOLK	Good upon the fine well farmed lands, but decidedly deficient upon light soils	Very promising upon all soils, save where the land is light and scalding	Scarcely any grown in this district	A fair crop on the whole	Cut off several sacks per acre by lice and blight	Early ones good	Good, but wanting rain	Bountiful crop of hay	August 16	H. Edwards, Woodbridge
ESSEX	Rather under average	Average	Winter, good; spring, under average	Winter, good; spring, bad	Average	Under average	Mangel, good; Turnips, doubtful	Good full average	August 5	Collinson Hall, Prince's Gate, Romford
BERKS.....	Various; average	Average	Average	Below average	Not average	Indifferent	Good	Good	July 30	James Williams, Shippon, Abingdon
GLOUCESTER	Scarcely average	Scarcely average	Under average	Under average	Under average	Have suffered from drought	Mangels looking well	Average	August 10	Professor Wrightson, Royal Agricultural College, Cirencester
DEVONSHIRE	Average	Under average	Under average	Good; not much grown	Good; not much grown	Early sorts fair crop	Very promising at present	Short at present	August 9	Lamoureux, Clark & Co., Plymouth
	Average	Average	Indifferent in quantity	Average	Bad	Bad	Not a crop	Burned up	August 10	Richard Burton, Place Barton, Broadclyst
IRELAND.										
CORK	Average; somewhat injured	Average; little grown	Under average	....	....	Small; sound	Very indifferent	Short	August 20	Francis A. Twiname, Bally Philip, Kanturk

THE PROPER DEPTH OF DRAINS.

HAVING recently drained a Grass field, it occurs to me to make a few remarks with reference to the controversy which some few years ago was carried on between the advocates of deep and shallow draining. I may mention, at the outset, that I am a decided partisan of the former system. I think that, where circumstances are favourable, drains of 4 feet act more efficiently than shallower ones. On the other hand, I consider it absurd to lay down any one depth as suited to all soils and circumstances. I am convinced that not only has much money been wasted, but much mischief has been done by the rigid adherence to a depth of 4 feet with 12 yards between the drains.

The field already referred to is like the bulk of Needwood Forest, or the variegated marl. The surface soil for a few inches is strong loam of good quality, below which there usually occurs, first, marl or clay, and then, from about 18 inches to 3 feet below the surface, there occurs a kind of rubble, composed of rounded stones mixed with soil, which may be looked upon as very dirty earthy gravel. The depth of this varies from 6 inches to a foot or more. Digging below this rubble or gravel, we come to clay of a very solid and impervious nature. As might be expected, it is almost entirely in the rubble that the water is found. The clay below preventing any considerable quantity from penetrating downwards, almost the whole rainfall remains in the land until it is carried off by evaporation or surface drainage. Experience has taught me that the most efficient drainage is to be obtained in such localities by placing the pipes immediately under the rubble, and so that they rest upon a firm foundation of clay. The depth indicated by this rule is from 3 feet to 3 feet 6 inches. The former is the depth I have selected for the field in question, partly because from its situation an outfall would have been difficult to obtain with a greater depth, and partly because that depth appeared to meet the necessities of the case. Throughout the whole work the drains were placed below the rubble, and resting upon the subjacent clay. It so happened that, in order to carry off the water effectually, it was necessary to cut a main drain in some places 4 feet 6 inches deep through an adjoining field, which was also wet on the surface. The last foot or 18 inches necessary to obtain this depth was very severe work, owing to the intense hardness of the dry indurated clay below. To anyone looking into this drain, the absurdity would have been evident (even setting aside the question of expense) of resorting to a greater depth than 3 feet 6 inches as a maximum. From the surface down to about 3 feet, the ground was teeming with wet; below 3 feet 6 inches (notwithstanding the recent continuous rainfall) all was perfectly dry.

It may surprise some persons when I mention that I placed my 3-feet drains 16 yards apart. In the first place, I do not think it advisable to over-drain grassland; besides which there were already in the field some old drains nearly at right angles with mine, which will now discharge a certain quantity of water into the latter. The old drains were formed of horseshoe tiles, and probably instead of leading to a covered main, were each taken into an open ditch, and were, as a necessary consequence, stopped at the end. I shall be much suprised if this field, which has hitherto been much starved with top water, is not in future as dry as necessary.

In the other field through which the main was taken so many old drains were found with discharged water, that it also will probably require little more to dry it effectually.

I suspect, indeed, that with a little care more good might be derived from the old drains than is commonly imagined. Some years ago it was necessary, in order to dry a swampy place in a shrubbery, to cut a deep drain across one of my pasture fields. This field, which was nearly always wet, although it had been drained by the previous owner, was found to be intersected by 2-inch tiles, placed in drains 12 yards apart, at about a yard deep, each drain leading to the ditch. Such was the amount of water discharged from them, that it was found necessary to use 4-inch pipes in the new main, which in wet weather runs full bore. The field has been perfectly dry ever since, and the quality of the herbage has greatly improved.

It has been contended that although clay may appear, when first cut into, to be almost impenetrable by moisture, yet, after the drain has been once made, water will find its way down through the cracks which will be formed. I doubt, however, whether these cracks will be of much practical value in drying land of the character I have described, where the drains are placed deep in the clay. As a case in point, I will give the history of a very wet field on my own farm, which, when I first occupied it, had some years previously been drained under Government inspection, 4 feet deep and 12 yards apart. So unsuccessful, however, had been the result, that the field was almost useless for arable culture. After rain the surface became so saturated with wet, that the horses would sink so deep as to render the attempt to work it worse than useless. In most seasons, in fact, it was necessary to wait so long after rain, that as soon as it became fit to bear horses, rain began to fall again. Such was its state during eight or nine months of the year. It is true that during the remaining three or four months, if the summer happened to be hot and dry, cracks of great depth would be formed, and of course any wet which fell during that time would be carried to the drains. But it is also incontestable that this brought us no nearer to the practical drainage of the field; because, as soon as the rain became continuous, the cracks were filled up, and the land returned to its usual hopeless state. Such was the pitch of starvation produced by

the stagnant moisture, that when in Wheat I have seen patches of half an acre completely bare, and when in Oats the produce would not repay the expense of culture. On making trial holes in various parts of the field, I found that at from 18 to 30 inches beneath the surface there was usually a certain amount of rubble, though not so gravelly in its texture as, and of less depth than, in the field which I described in the former part of this article. Below this again came clay of a character as unmitigated as I ever met with, and which extended to an indefinite depth. As the cultivation of this field caused a heavy annual loss, it was necessary to attempt a remedy. I determined to try the effect of draining it over again, at a depth of 3 feet, at 12 yards apart, the new drains being so arranged as to come as much as possible about half-way between the old ones. The ground being very flat, I preferred taking the water two ways instead of making it all run into the old drain. During the course of the work, it became evident that the bulk of the wet lay from 2 to 3 feet from the surface, in the gravelly subsoil, and that, by placing the pipes immediately below this porous layer, it would speedily find its way into them. The result has answered my expectations in every way, so that I have even been able to grow Swedes and Mangel on this field. It is now seeded down with a view to remaining in permanent pasture, and will, I have no doubt, become a useful field for young stock. The 3-feet drains have proved as effective as those of 4 feet were inefficient.

I will conclude with another instance of the inefficiency of draining according to routine, which fell under my own notice some ten years ago. The owner of a neighbouring property determined to drain a wet farm, the works being executed by a public company, who advanced the necessary money. The farm was at that time occupied by a friend of mine, a gentleman of much intelligence, and one whose name would be a guarantee for the soundness of his agricultural views. Perceiving that the drainage operations were being carried out with little regard to the nature of the land, my friend offered to the superintendent some hints as to the most effective method of removing the superfluous moisture, based on his knowledge of the peculiarities of the case. He was, however, met by an intimation that such information was superfluous, as the superintendent perfectly understood his own business. The drains were accordingly cut 4 feet deep, and placed 12 yards apart; and the result is that the Rushes still remain, while I observed the other day one of the mains from which no water was discharging, at a time when those from my own land were running freely. To drain at uniform depth and distance has sometimes been called scientific; if so, it is a science strongly resembling quackery. *Willoughby Wood, Holly Bank, in "Bell's Messenger."*

THE POTATO.

The general British public, who know little about farming operations, think the aim of the farmer's life is to procure annually two good crops from his land—a bountiful Wheat harvest, and a healthy crop of Potatos. The interest with which the state of the Potato crops is looked forward to is not at all surprising, seeing to what an importance the tubers have grown as an article of food, an absolute necessity to all classes; but it is somewhat surprising—when we consider the comparatively recent date of the cultivation of the Potato, what it is in its wild state, and how liable it has become to be devastated by disease—that something has not been done with earnestness towards introducing and cultivating similar tuberous plants which recommend themselves as substitutes for the Potato. There is, perhaps, not a man in the three kingdoms, least of all in Ireland, who could deny that he had a partiality for a good Potato; but what has brought the tuber of Solanum tuberosum to the state we now have it?

In its wild state, and when first introduced, the Potato was regarded most unfavourably, indeed it was rejected by many as having an exceedingly disagreeable flavour, but the effects of cultivation, together with the overthrow of popular prejudice, has changed all this, and made the Potato what it now is. It may not be amiss briefly to sketch the history of this valuable esculent, in the hope that it may inspire those who are able to make experiments, and to prosecute them in the cultivation of some one or other of the plants we shall mention, or indeed of any likely plants of which they may happen to have a knowledge. Though the native country of the Potato has been a question of some discussion, it seems pretty certain that it originally came from South America, plants having been found in a wild state on the Peruvian coast, and on the mountains of central Chili. The tubers of these wild plants are round, and not larger than a Walnut. It is said by some, that the plant was first brought into Europe by the Spaniards from Quito in the 16th century; there seems strong evidence for believing that its introduction into England is due to the colonists sent to North America under the auspices of Sir Walter Raleigh, who returned in 1586. The plants so brought home were planted in Sir Walter's garden at Youghal in Ireland, and were used as food in that country long before they were known in England. So many anecdotes are associated with Sir Walter Raleigh's name, that it would be strange if one had not been recorded connecting him with the introduction of the Potato. It is said that when his gardener at his Irish estate had succeeded in growing, to the full maturity of apples, the fruits of the Potato plants, which his master had given him as a valuable fruit from America, he brought one to Sir Walter, who, together with the gardener, was very much disappointed with its appearance, and who thereupon ordered the "weed" to be rooted out; and in the course of digging up the plants, the man was surprised to find about a bushel of good Potatos. In "Gerarde's Herbal," published in 1597, we find the plant mentioned as being grown by him in his garden, and he describes it under the name of Balata virginiana, evidently under the impression that its native country was North America. In the reign of James I. the Potato began to be considered a great delicacy; very small quantities were used, the price being about 2*s.* per pound. After a lapse of a few years, their valuable properties appear to have become more generally appreciated; for we find about this time that the attention of the Royal Society is drawn to the subject of their more general cultivation. Potatos, however, did not seem to be a bait for agriculturists and landowners to bite at, for most writers on agricultural or gardening subjects, down even to the commencement of the eighteenth century, speak disparagingly of the Potato. In one work, published in 1708, it is said that "the root is very near the nature of the Jerusalem Artichoke, although not so good and wholesome, but it may prove good for swine."

Somehow or other the plant seems to have been taken from Ireland into Lancashire, where it was cultivated and used, whence it spread into Scotland, where, about 1728, a cottager and day labourer succeeded in cultivating good Potatos on a little plot of ground about his cottage. These Potatos were distributed first among the cottagers and then among the farmers, and about the year 1760 they had become so plentiful as to be grown no longer in gardens but in open fields. In England, however, the cultivation made little progress until the close of the last century. In 1796 it is said there were in Essex alone 1700 acres planted for the supply of the London markets. In the same county last year there were no less than 9676 acres under the same cultivation; while in Lancashire, which still grows the largest quantity of any English county, there were 39,548 acres.

From the foregoing facts it will be seen that the Potato, which is now next in importance to Wheat as a national food, in its original state is apparently worthless, and that it is only by care and attention to their growth that such products can be brought to a condition available for use as food in civilised countries. Of course we are aware that the quality of the Potato depends a great deal on the cooking, and this want of knowledge tended in the first place to create a dislike for them; for, being merely heated, and not cooked they adhered to the teeth like glue, and of course had at the same time an earthy flavour.

Many substitutes have from time to time been proposed for the Potato, but we do not think any have been sufficiently persevered in; for instance, when, some years since, the failure of the Potato crop was so dreaded, a plant known to botanists as Ulmus tuberosus, was mentioned as being likely to succeed under cultivation. Like the Potato it is a native of South America, and is extensively cultivated for the sake of its tubers in the Peruvian Andes and Bolivia, where it is known by the name of Oca-quina. These tubers are about as large as a good sized walnut, yellowish in colour, but very much the appearance of small Potatos. When tried in this country they were found to be unpalatable on account of their waxy nature, and the presence of a quantity of mucilaginous matter of an earthy taste; but these were also the particular faults of the Potato on its introduction. Being waxy, and not properly cooked, it stuck to the teeth, which together with its earthy flavour, made it disagreeable. The inhabitants of the elevated regions of the Andes, where the boiling point of water is not high enough to allow of the tubers being cooked in the usual way, prepare them by a system of alternately freezing and steeping them, so that they become amylaceous. The plant has weak fleshy stems, and fleshy heart-shaped or roundish leaves; the stem either lies prostrate upon the ground, or twines amongst the surrounding vegetation. The leaves are said to have a similar flavour to Spinach.

Another genus of tuberous plants, which at one time appeared rather promising, but which have since been forgotten, is Oxalis. O. crenata and O. tuberosa—the first a native of Peru, and the second of Bolivia—are cultivated in their native habitats for the sake of their tubers, which are edible; those of O. crenata, however, are very small, and seldom exceed 2 ounces in weight, so that the average product of one plant is not more than half a pound; the tubers have an acid flavour, but this is dissipated by boiling, when they become mealy, but perhaps rather insipid. The question is, whether the cultivation of these tubers was persevered in long enough to ascertain decisively to what size they might have been grown? There are specimens in the museum at Kew which were grown in the gardens in two consecutive years, the second year's growth being fully twice as large as the first.

The tubers of Oxalis tuberosa are about an inch in diameter; like the former species, they are slightly acid in flavour, which is removed by heat, so that the natives expose them to the sun, which converts the acidity into saccharine matter, and the tubers become as mealy as Potatos.

Apios tuberosa is another plant, producing, as its name implies, tuberous roots, which are eaten in their native country (North America), and are sometimes, we believe, sold in the markets in some parts of Germany. The tubers are very small, but are very farinaceous. Professor Eaton, in his "Manual of Botany for North America," remarks that they ought to be more generally cultivated. It grows freely in this country in ordinary garden soil, and is very easily increased by separating and planting the tubers, which are produced abundantly. The plant is a climber, and belongs to the natural order of Leguminosæ.

Another South American plant is the Arracacha esculenta, which is much cultivated in the cooler mountainous regions of northern South America. The roots there form a staple article of food, having, when boiled, a flavour somewhat between a Chestnut and a Parsnip. The plant, which belongs to the Umbelliferous order, has been introduced into this country, but the climate is said to be unsuited for it. During the past few years some attention has been paid in France to the better cultivation of the Parsnip Chervil, known to botanists as Chærophyllum bulbosum, or Anthriscus bulbosus. This plant is not unknown to gardeners, and was introduced into this country in 1726, but being of easy culture, and growing on almost any soil, it has perhaps not commanded so much attention as it otherwise would have done. The tubers are somewhat the size and shape of a small Dutch Carrot, very wholesome, and contain 21 per cent. of starch and 63 per cent. of water against 74 per cent. in the Potato.

The plants here mentioned are a few of the most prominent, and likely to be successful, were proper attention and continued perseverance given to their culture. Attempts we know have been made, as we have already acknowledged in glancing through the few plants we have mentioned, but it seems to us that those attempts have not been followed up by extending them over a sufficient length of time; if this were done, a Potato famine might cease to be regarded as a national calamity. *J. R. Jackson, Kew.*

RECENT AGRICULTURAL HISTORY.

[We extract the following description of English Agricultural History, and of the share which the late John Grey, of Dilston, had in the promotion of agricultural improvement, from the recently published memoir of Mr. Grey, by his daughter Josephine E. Butler.*]

In my father's account of Northumberland, he indicates the primitive style of husbandry common in the last century. Bits of land were slowly reclaimed, and applied almost exclusively to the growing of Wheat, which is a crop so exhausting to the soil that after a year or two that locality had to be left to rest for several years, and fresh portions of land subjected to the same exhausting treatment. It somewhat resembled the wasteful ways of the cotton-growing slave-owners of the Southern States, who were forced by the conditions of that unnatural engine, slave-labour, to be making ever fresh aggressions upon new lands, and to leave once-used lands a wilderness. In some parts of Russia, husbandmen still practise this primitive wastefulness. In this stage of agriculture, manure is not thought of, except as inconvenient refuse, to be got rid of by any means. Thus, on the outskirts of the Roman Campagna, not many years ago, might be seen whole hills of dung carted out to a distance from the city, rotting accumulations from stables and posting-houses, spreading pestilence around; and on the shores of the Wolga there is a similar sight. Dung-heaps are brought down by the farmers along the shores, and carted on to the ice when the river is frozen over, and while the winter cold makes it safe to stir up the refuse. When spring comes, the thaw sweeps the whole yearly collection down to the Caspian Sea. The same thing occurred, though on a smaller scale, in England, when the farmers used to make drains to carry down their refuse to some river, or to a pond, which would stand reeking in the sun, and poisoning the neighbourhood. The sight of such thriftless expedients always vexed my father, for he knew the worth of that which people were trying to get rid of.

The next stage in agriculture was the introduction of the simplest form of rotation of crops (a custom, however, as old as Virgil's time), and this sprang from the necessity of growing corn more frequently from the same soil. Farmers could not afford to let land be idle; and if it could not be granted time to recover itself, means must be found by which it should be restored without delay. The soil must be renewed by giving to it some equivalent for what had been taken out of it. Thus as the wants of the soil, under the pressure of higher cultivation, became greater and more complicated, chemistry came to the rescue. But of that by-and-by. At first it was found that a simple rotation did a good deal. My father said that "the introduction of green crops into Northumberland tillage was the beginning of a new era in the history of agriculture," and it was a very marked era, for with green crops came in the large increase of cattle as agricultural produce. Before this sheep and cows were very little cultivated in comparison with Wheat. They were generally poor lean beasts, left to wander at will on hill-sides and wastes; not used as agents in the system of rotation; and of course butcher-meat was a scarce luxury among the labouring population. But many benefits followed the introduction of green crops. Cattle were kept in greater numbers, and fed upon the root-crops instead of upon thin Grass. These root-crops were quickly transformed into very profitable beef and mutton, which became cheaper† and more attainable by the poor, and this prevented so great a drain upon corn, and so exclusive a subsistence on bread and porridge. But these animals also manured the land, and while feeding upon it enriched it to such a degree that more corn would grow upon the same extent of surface than before. The farmer now took not less but more grain to market than in the days when he cultivated Wheat alone. This was profitable both to the producer and consumer. Sheep have been called "the animals with the golden hoofs," not only because of the value of their wool and mutton, but because they enrich the soil they are fed upon more than anything else does. Much poor dry land was thus brought, by means of alternate crops and eating off with sheep, to yield constant and good returns.

Green crops produce much manure, but they also require much; hence the manure of the towns came to be in great request, and this opened out more practically the connection between agriculture and chemistry. It began to be conceived that that which produces pestilence and fever, which shocks our senses

* Edmonston & Douglas, Edinburgh.

† Not actually cheaper, but relatively so, to the advanced rate of wages received for almost every kind of labour.

and destroys life, might be used towards the very support of life, and that "our sanitary researches might provide an ample supply of the first requisite of increased production." And, indeed, not long after this was understood, and a hard-pressed agricultural community began to see that the development of the resources of the land was becoming the grand economical feature of the day,—urged by great necessities into that rank,—we read that some kinds of manure reached "famine prices," so eagerly were they sought, and so hard was it for the supply to keep pace with the demand. Bones and other portable manures became so much in request that in Sweden it was complained that bones were not to be had by the home-farmer, because of the high price given for them by English importers.

But further wants began to be felt. The great diversity of soils has to be taken into account in the application of fertilising substances, and independently of the geological structure, the physical geography of a district affects the actual chemical composition of the soil, and consequently modifies the chemical treatment of it. A farmer can see with his own eyes that one side of a hill much exposed to rains which wash away part of its saline substances, or to prevailing winds, will yield a different crop from the side which is more sheltered; but he needs science to teach him how to make each side equally develop to the utmost its own capabilities. Thus it was seen that the sciences of geology, mineralogy, botany, and meteorology, were all needful handmaids to agricultural progress. The higher the farming became, and the greater the surface of land reclaimed in elevated districts, the greater became the demand for extraneous and light portable manures, as it was difficult to cart up to high grounds the heavy farmyard refuse. All known manures were first eagerly sought. The refuse of the currier, the maltster, the tanner, the sugar-boiler, the glue-manufacturer, were all bought up, and every bone-mill had its staff of humble scavengers, who sought through all the towns and villages. When these were exhausted we turned to foreign countries. Dealers in foreign manures sprang up in all the seaports. The whole seaboard of Europe was put under requisition. Fleets of merchant-ships crossed the Atlantic and brought back their precious cargoes from Buenos Ayres and Monte Video. So great became the demand for these manures that they rose, as I have said, to "famine prices," and at one time it was only the farmers who lived nearest the sea-shore who could afford to buy them. Commerce and agriculture worked together, and carried a good influence to distant countries, the inhabitants of which wondered how the refuse of their coasts, and the droppings of the sea birds which whitened their rocks, should be held of such high value in England. This awakened their minds to new ideas, and stimulated them to an unwonted industry. In the United States the impulse was especially felt. There are consolatory reflections connected with this subject of manure—not a very dainty subject, perhaps, but one which plays an important part in the world. The rubbish and *débris* which, when not used rightly, becomes a simple pest, every way disgusting, has asserted for itself its place and use in creation, and has come to be held in esteem! There are regions in which waste, destruction, misuse, and the pestilence which follows, are infinitely more terrible than they are in the material world; but God's whispered messages in the material world tell us that there may be—nay, must be—a divine chemistry, through whose mysterious action we shall some day see a positive good, a quiet beneficence in the place of a festering evil.

Each step in the advance of agricultural science seemed to become more difficult, and perhaps it may continue to do so. My father was not one of those persons who believe that science, or rather man's power of applying it at every fresh emergency, will so keep pace with the increasing necessities of the world as to afford a complete answer to our ever recurring social difficulties. He did not think, with certain modern philosophers, that man can perfect his own present existence, and drive away, by the aid of science, sickness, disease, poverty, crime, and every existing evil from the land. He availed himself, and continually urged others to avail themselves, of the aids which God has placed at our disposal—powers, known or hidden, in the natural world, for the diminution of evil and pain; but he believed in no reign of peace short of the final destruction of the principle, deeply seated in the soul of man, which is the primary source of the perturbation of all beneficent social laws, nor of prosperity short of the advent of the "Desire of all nations." That trouble upon trouble will block our way, that every matter planted by us will, however careful we be, "grow up with the unseen seeds of its own decay within it," he was prepared to see. He was a man of a somewhat mournful cast of mind; he was a man of progress, nevertheless, sustained by a constant hope.

Even the large importation of foreign manures not being sufficient for increasing needs, chemists began to work more closely at the subject. Professor Johnston, of Durham, was a great benefactor to the North of England. Manufactories of artificial manures sprang up. It was needful that theory and experiment should go hand in hand. On the side of the farmers there was at first some jealousy of the chemists and their theories, and "book-farming" was spoken of with contempt, while the "theorists" were too apt to look on the farmers as a thick-headed race, so long used to be guided by empirical rules that science might knock in vain at their door. But when it was found that a multitude of quacks sprang up, who imposed upon the farmers by their vaunted stuffs for doctoring soils, the farmers perceived that they must arm themselves against these by some knowledge of their own, while the true chemists acknowledged the necessity of consulting the long-practised farmer; for, indeed, they knew they could not benefit agriculture by experiments in their own laboratories only; they must do their work with the farmer, under sun and wind, rain and hail, thunder and lightning. When Professor Liebig visited Dilston, he was in the habit of questioning my father, in the most keen and eager manner, of his experience, making notes of his answers at the time. When my father's conclusions about any matter differed from the chemist's, they would go forth into the fields together, and there the solution of the difficulty would often be found in something peculiar, perhaps, to Northumberland, its climate or soil, which Liebig had not taken into account. Liebig was a very pleasant guest. He took much to the children of our family, and had that modesty and simplicity of manner which are so often found in true men of science.

Thorough draining must be next noticed as a great means of advancing agriculture. It was in Scotland that the thorough draining of clay lands was first made a national question. It was Mr. Smith of Deanston who first demonstrated its importance. The subsoil plough succeeded to thorough draining. I have before said that it became apparent, from the evidence given before the Committee of Inquiry into Agricultural Distress in 1836, that the only safe foundation for agricultural prosperity was in the growth of an increased produce on a given area. One great object of tillage then was to create an increased available surface within the soil, and the gain was great when, by drainage and subsoil-ploughing, fields were made wholesome to a double depth, and stores of nourishment were unlocked below, so that crops which before had to draw their sustenance from 6 or 9 inches of soil, could descend for more than 20, and find there fertilising properties. . . . .

This brings us to the era of improved agricultural implements, and to the extended application of mechanics to agriculture; for mechanical science is as needful to agriculture as to any other of the arts of life, and, indeed, the application of ingenuity in the variety and usefulness of agricultural implements has been very beautiful. I recall the enjoyment which we sometimes had in going out—the whole family—to see a trial of some wonderful new machine, which appeared as if instinct with life, and busily and eagerly intent on fulfilling the special end of its creation; and the interest we took in watching the operations of the clever clod-crushers, pressers, grubbers, drill machines, turnip-slicers, straw-cutters, steam threshing-machines, steam-ploughs, reaping-machines, &c. The management of these complicated tools requires far more intelligence than the simple old method of "following the plough," or handling the sickle and scythe. Mr. Holland, M.P., and Mr. Stratton gave an account of their experience in steam-ploughing at an agricultural meeting at Cirencester in 1859, in which they said they found the intelligence of their workmen greatly increased by the work.

(To be Continued.)

Home Correspondence.

Thin Seeding.—In your remarks in last Saturday's *Agricultural Gazette* upon my letter on thin seeding, you say very truly, "The subject is one which experience and not arithmetic must decide." The reason why I sow 2 bushels of Oats is, because I find they do not tiller as much as Wheat and Barley. If one could depend upon the arithmetic of the subject, I believe 1 peck of seed would be ample for Wheat and Barley, but every one should try each year 1 acre, and he would soon ascertain how little seed he could use. To show you how great the national importance of the question is, I will state shortly that the average acreage of Wheat, Barley and Oats in England and Scotland for the last three years, according to the Board of Trade returns, is as follows —

	England.		Scotland.
Wheat	3,221,115	..	115,301
Barley	1,849,975	..	217,207
Oats	1,499,607	..	1,004,197

The usual quantity of seed used in England is, Wheat 2½, Barley 3, and Oats 4 bushels per acre; in Scotland, Wheat 3, Barley 4, and Oats 6 bushels. I leave your readers to compare these quantities with those I sow, viz., in England, Wheat and Barley 1, and Oats, 2 bushels; in Scotland, Barley 1½ and Oats 2 bushels, and to make their own calculations of the amount of corn and money which is annually sunk in the ground in this country. *T. L. M. Cartwright, Newbottle Manor, Brackley, Northamptonshire, August 2.*

Tiptree Hall, Aug. 9.—We commenced harvest on the 3d, but, owing, to a very heavy rain, left off in order to plant 8 acres of Cabbage after Tares. We had no chance of doing this previously. We have some fine Wheats, first-rate Barley, and Mangel, estimated at 40 tons per acre. Our Oats (2 bushels per acre seed) are also a satisfactory crop. Some of our Wheats will be deteriorated 3 sacks to 2 quarters per acre by root-falling or rather stem-rotting. The portion between the root and first-joint, being soft, and more or less rotten, in lieu of being hard and glossy, causes the stem to fall. In consequence the ears are either empty or the kernels shrivelled. This is a very general affliction, and must considerably diminish the yield. My red Wheat, sown five days before Christmas, has escaped, and so has the white Wheat, where much burned earth was used. The Club-headed Rough Chaff White Wheat has suffered very much, while last year it gave the greatest yield. I have 25 acres of very fine Rivett Wheat (after heavy crops of white Wheat), looking all we could desire—much of it estimated to produce 6½ to 7½ qrs. per acre. This Wheat suffered last year for want of moisture, but this season on my land its development is very perfect, and though so tall and large-headed, it is not laid. I only drill 1 bushel of it per acre. The 2 pecks per acre of Wheat and the 1 bushel of Barley per acre are considered the very best on this farm. Our winter Beans are a first-rate crop (quantity of seed, 6 pecks per acre). They would have been better if sown with only one bushel, for the outside stems give as much as 50 and 60 pods. I hear much complaint of all straw and no pods. We are apt to forget that straw will only produce straw, and not kernels. The latter require the juices that are washed out of the open farmyard manure by rains. My manure is always under cover or paved floors until put on the land; therefore, I grow grain as well as straw. Too thick sowing has greatly injured winter Beans this season. My 13 acres of spring Beans promise a full average crop. The straw or stems of all my Beans will be consumed by cattle, being first rendered soft and mucilaginous by warm water. It is really an agricultural suicide to tread such valuable food under foot, chemists estimate it at two-thirds the value of good hay. Thin-sowing is making its way very rapidly. I have plenty of evidence of this, written and verbal. My advice is, try half an acre in each field with varying quantities, and so arrive at a safe conclusion, suitable to your soil and climate. It is absurd to go on sowing 2, 3, or 4 bushels of Wheat per acre, because our great-grandfathers did so under entirely different circumstances, viz., the absence of drainage, drills, and blowing or dressing machines. Not to have tried comparative quantities is most unbusinesslike. We are content to see our tiny Turnip-plant stand single, and give it room to grow free from weeds, but no such idea prevails about our Wheat-plant, which would require for its fullest development probably nearly a square foot for each plant in rich or high-conditioned soil. Thinly-sown grain crops always produce the finest straw and the most perfect grain. This is evident now in my Wheat and Barley—our numerous visitors could give evidence on this point. A farmer says in your columns that last year I showed by my balance-sheet that I made no profit, and could not pay all my rent. When will people cease to misrepresent? The profit on my farm capital (16*l.* per acre) was last year 9½ per cent. after paying my improved rent of 40*s.* per acre. In 1867 it was 18 per cent., and this year I expect it will be again 18 per cent., or approaching it. Last year, owing to the failure of the Grass and green crops of the kingdom, I had to pay the factors and millers 30 to 40 per cent. more for the large quantities of bran, malt-combs, and cake, that I consume by my live stock. There was plenty of profit on the farm, irrespective of the live stock. This year all these articles have come down, and will continue at a lower price. I cannot help feeling that in the case of "A Farmer" the wish is father to the thought; but I cannot afford to make my farm a losing concern, to please those who feel angry at my interference in the agricultural affairs of the country, and would feel pleased to see me fail. Some of my correspondents in Norfolk are, as usual, feeding off their Beans with sheep. It saves harvesting them and bringing the manure back again. The fine quality and abundant crop of delicate white Wheats in the exceptionally hot dry year of 1868 has induced a too hazardous extension of the same this year, when it has suffered severely. Harvest is getting dangerously late. My white Turnips, drilled after Peas five days ago, are now well up. *J. J. Mechi.*

Farm Profits.—There is something to me almost pathetic in the letter of your correspondent, "Half Pay." I am filled with compassion for him, and a desire, almost useless I fear, to make him pause ere he spend his "few thousand pounds" on gentleman farming. I have, myself, been doing that very thing for the last 15 years, and my experience—if he would listen to it (which he won't)—might save him a good deal of money, and still more disappointment. How simply he talks of "which will bring the largest income," "selling milk or butter," "breeding pigs on a large scale," &c. Now it is clear that your correspondent is a man of education, energy and intelligence. Will he, therefore, listen to me, I wonder, when addressing him as such? I tell him that farming is as much a business as the manufacture of woollens, calicos, or silks, and requires to be learnt just as much,—that it is as much a business as medicine, law, or divinity are professions; and I should like to ask him what he would think of a man who entered, or strove to enter, any one of these businesses or professions, and sunk his capital in it, without first of all being under thorough training to it and learning it? An officer in command of an army about to be engaged ought surely to have seen some service. If "Half Pay" thinks farming an exception to the rules applicable to other human arts and industries, he is mistaken. Three things are indispensable to successful farming, as to most other trades: knowledge, capital, and personal attention. The two last your correspondent would, no doubt, have, and give. But the first, which is the most essential of all three, I am confident he has not. Reading books is an excellent thing, when combined with practice and experience, but is useless and misleading without. Farming upon paper is one of the most beguiling, one of the most fascinating, and one of the most fallacious of human occupations. There is little use, I fear, in saying (and yet I am saying) to this gentleman, *Experto crede.* I, too, have read, and still read, many excellent books. For some 15 years, Morton's "Cyclopædia," Stephens' "Book of the Farm," and a series of other standard agricultural works, have been on my shelves, and been diligently studied by me. For the same period I have been a subscriber to, and a weekly reader of, the *Agricultural Gazette*; I early read that syren-like "fiction," "Talpa." I spared no time, no labour, no money. But I had not experience and personal knowledge, and for lack of these I could a tale unfold, which, if "Half Pay" would ask me to tell it him, might lead him either to bind himself apprentice, as it were, to a farmer for two or three years at least,

or keep his "few thousands" where he can get at them when he wants them, or the interest from them. Any one who would, or could, answer "Half Pay's" questions in the wholesale way he asks him, must be as ignorant—will he pardon me for saying so?—as he himself is, and as I was. His own aptitude, the character of his land, the neighbourhood, the climate, and a hundred other matters must be known and considered before any of his questions can be answered usefully to himself. And, after all, perhaps, instead of the selection of "which" will bring "the largest income," he may be told that his "waggon will go safest on four wheels." Now, I am an old man, and a busy man, and have no time to waste (for among other occupations I hold 250 acres in my own hands), but if "Half Pay" would really like, from this taste of me, to hear more of what I could tell him, you are at liberty to supply him with my private address. I do not say that I hope to dissuade him from his enterprise, because his energy, his capital, and his enthusiasm may make him both a happy and a successful farmer. But one thing I know, that if he begins in his present state of knowledge and experience he will have to pay, and whole-pay for it. *Exile.*—Under this head a correspondent, "Half Pay," asks guidance. After 40 years' experience, I can assert that he must not rely on books, nor can he trust to the practical experience of others, except he meets with that so hard to find, a really good manager, to direct all the details of farming. If he wishes for occupation, and really likes farming, he may perhaps succeed; but if he seeks an investment he had better go elsewhere. As to advice, if he takes a farm, let it be of a mixed character—arable and pasture—let him keep all the stock he can, not of one sort only. I believe that no two men agree as to the profits of even first-class sows. There is nothing that varies so much as the price of pigs. It has, I think, been said truly, that if a sow brings eight pigs, and keeps her time at each farrow, and the pigs bring 1*s.* per head per week till they leave the sow, it pays. If not sold then, they should be kept till fit to put up to fatten. The dairy requires, if on a large scale, especial good management. I doubt whether the noble personages make both ends meet; but it is a significant fact that the dairies are mostly in London, except those which send their milk from a distance by railway. If "Half Pay" thinks that Mr. Mechi can answer his question, I would advise him to seek an interview, which will be readily granted. I am sure Mr. Mechi will be able to tell him what to avoid, as well as what to do, and I feel doubly sure that Mr. Mechi will not advise "Half Pay" to begin with experiments. *J. C. C.*

Concentrated Root Food.—I have written so much on the analytical or feeding value of this food, that I have no wish to dilate on the subject. Indeed I have nothing to add. It is on the commercial value of the food I would wish to say a few words, with a view of turning farmers' attention to that important point. The present root crop season promises to be a most abundant one. Who will benefit by it? The breeder and the cattle-dealer. Store stock will follow the course of supply and demand. The profit of the root crop will go into their hands instead of into his who grows it—the feeder. What is the remedy? Use one-half of the crop, in the old-fashioned way, if you like, raw, and convert the other half into concentrated root food. It will keep good for years. A late spring, a dry summer, burning up our pastures, or a less abundant crop of roots next year, give you the command of the market. There is always a time when a store stock is to be bought cheap; by storing up an abundance of food you may bide your time, and put the profit of feeding into your own pocket instead of letting it slip through your fingers into the pockets of the breeder and dealer. *Hugh Smith*, 21, *Westbourne Terrace, London, W.*

Foreign Correspondence.

Illinois and Wisconsin Dairy Association: *Cheese-making in the United States.*—The following is an abridgment of a paper lately read before this Society by X. A. Willard, of Little Falls:—

The cheese product of 1867 in America amounted to 215,000,000 lb., and in Great Britain to 179,000,000 lb.—total, 394,000,000 lb. for the two nations. The English consumption that year was 309,000,000 lb., and the United States consumed 160,000,000 lb.; thus we have the consumption of 469,000,000 lb. by the two nations, which is 75,000,000 lb. more than the production; in other words, to supply the demand of the two countries we must import from some other part of the world 75,000,000 lb. England supplies this deficiency from Holland, but France now comes in as a competitor for their surplus, hence America must henceforth be the main source from which England supplies her importations, especially as we produce a superior article to the Dutch.

Another point generally overlooked is that England doubles her population every 40 years, and English cheese consumption more than keeps pace with the increase of population. This will make an annual increase in consumption of 8,000,000 or 10,000,000 lb., and in the States the increase of consumption from increase of population is about 8,000,000 lb., thus giving an increase of 16,000,000 lb., to be supplied by increased dairy business. Therefore it is very doubtful if we shall ever reach the limit of over-production, because the consumption of butter goes on in more rapid proportion, and a considerable number of dairies must be devoted to that object.

In the matter of securing fine flavour in both butter and cheese, some points have been entirely overlooked in previous discussions. It is only recently that the true causes influencing the flavour of dairy products have attracted our attention. And among these the question of clean, pure water for stock has not been sufficiently appreciated. Milk contains 87 per cent. of water, and it would hardly seem reasonable to expect that the animal could overstep the laws of nature, and manufacture good milk from stagnant water; yet such has been the case, and because manufacturers have not been able to make a good product out of such milk they have been blamed. With all our knowledge and experience in New York we have not been able the past year to obviate having some bad flavoured cheese during the hot weather, especially the July cheese. I took some pains to study this question, and I found by examining farms in numerous instances that stagnant, putrid water was one of the leading causes. There were other causes, but this one was invariable. In one instance the cause was attributed to the milk of one of the patrons whose cows had been drinking from frog ponds. This man changed his fences so as to get good water, and so the trouble ceased. In the private dairies of New York and England, particular attention is paid to this matter. On farms where springs are deficient, the effect is to be overcome by digging a well and applying wind power for pumping, which can be inexpensively erected and is durable. It is the best plan to have the water pumped up into a tank, and so arranged that it can run back into the well after it has stood a short time, as this will prevent its becoming contaminated by foul gases.

Another point on which the old dairy farmers are in error, which is the cause of great impurities in milk, is the bad construction of milking stables (byres), most of them being little better than pest houses, owing to bad ventilation. So bad are some of them that I have seen delicate women faint away in them in hot weather. Follow the milk which comes from these places to the factory, after having been confined in the can under a close-fitting cover, and you will find it most offensive in odour and putrid. If there is any manufacturer present who can make clean flavoured goods from such milk, I should like to see him and hear his process. In this respect the English farms are ahead of ours.

For 40 years New York dairymen have been under the impression that the quality of butter and cheese depended entirely upon the manipulations of the milk, wholly overlooking its conditions ensuing from the manner of its production. Of course, much depends upon the manufacture, but good wares cannot be made from bad material. In many points we have advanced to the highest English standard. Our best manufacturers are able, at certain seasons of the year, to make as firm articles as are to be found in the world, but they are not uniform during the season. What is the matter? and where is the remedy? I was the first to direct attention to bad milk—milk spoiled before reaching the factory, arising from many causes. You cannot hide the bad flavours in cheese, which may be traced to manures in the stableyard, from the English experts. They trace the cause at once. So such cheese abroad is denounced, as it ought to be, as unfit for human use, and hustled off to the first bidder, and the factory from which it came ruined. The bitter taste in cheese comes from the Daisy and other weeds, and at certain seasons is very offensive. These causes are chargeable to the farmers and not to the manufacturers. Dairymen can never expect success if their goods are quoted at less than the cost of production. We can make it a great success. We can become the controllers of this great staple throughout the world; but in order to do it, we must show the world we can produce the best article.

[The next subject touched upon was the proper cooling of milk, the necessity of which he urged upon the Convention in a very forcible manner, giving descriptions of several apparatus which had been invented for the purpose.]

To insure the delivery of pure, sweet milk, he urged the Convention to adopt the following rules, to be posted on the door of every factory, and addressed to the patrons, saying—

"This is the unanimous voice of the Dairymen's Convention of 1869."

1. That no milk is good which is made from filthy, stinking waters of slough and frog ponds.
2. That no milk is good that comes from cows dogged or over-driven in hot weather, from the pasture to the stable.
3. That no milk is good that comes from cows pounded or kicked and cruelly treated by brutal men.
4. No milk is good that comes from diseased cows—cows that have sores filled with pus, or that have udders broken and running with corruption.
5. No milk is good that comes reeking with manure and filth from the stable.

[The speaker was interrupted after reading these rules, and a motion for their adoption was most enthusiastically adopted. The question of butter making was then discussed.]

The cheese factories have been of much service to butter making by equalising and raising the prices. We had already an over-production of poor butter. He thought really first-class butter was worth 50 cents. a pound; while he did not care how little poor butter sold for. One quart of good cream will produce on an average 13 ounces of butter. Cleanliness, and a temperature of about 60°, never less than 55°, are the most important conditions in churning. The churn should be cleaned with great care. When butter forms the churning should cease, the butter be taken from the churn and all buttermilk worked out, using the ladle instead of the hands.

Good white Oak wood is best for butter-tubs. He approved of the establishment of butter factories, thereby getting better butter and greater profits. Cheese from skim-milk would be much used. China would consume much of it. We make about 500,000,000 lb. of butter each year in this country.

Referring to cheese-making, he gave the views of Governor Seymour, delivered by that gentleman in a speech to the American Dairymen's Convention at their recent annual session in Utica, New York.

The market demands a cheese of solid texture, that is mellow under the finger, but yet of sufficient firmness to be safely handled, and will not fall to pieces while in the hands of the dealer; is of a clean, nutty flavour, melting in the mouth, and having that delicious aroma that forces itself upon the attention of the customer. A bad or poor flavoured cheese does infinite mischief by clogging the appetite and disgusting those who try to eat it—just as a bad oyster taken by chance in the mouth will make one sick of oysters for a lifetime. In cheese-making the work must not be hurried; what heat is required must be slow and gradual, giving the curds time to do their own work, the cheese-maker watching all the conditions and standing ready at any time to check the curds when the proper changes are developed.

The interest which we represent to-day is perhaps the most progressive branch of farm industry. It embraces the widest range of topics and the most diversified employment of skill and intellect; first the management of milk in all its relations, and its manufacture into dairy products; and back of this, the great arts of breeding and management of stock, the production of food, &c. These it is important to understand to ensure the largest success. The inauguration of the factory system and these conventions have stimulated inquiry and a desire for improvement which marks a new era in agriculture. The discussions and experiments of dairymen have so sharpened the intellect that there is now no class of men so critical, exacting, or who can weigh a speaker's words with more precision, than those who gather at these conventions.

Societies.

SOUTH DURHAM.

Agricultural Statistics.—Mr. Macfarlane said the national benefits to be derived from complete and correct returns of the annual agricultural produce and quantity of stock in a country, have been universally admitted by all classes. Acting under the conviction of the advantages that would accrue to the whole community, nearly all the several Governments of the continent of Europe, as well as the United States of America, have collected agricultural statistics for some time. Our own Government have had statistics or returns collected in Ireland for some years; but it was not till 1866 that returns were begun to be collected for the United Kingdom. Though last to collect agricultural returns, the British nation, and especially the British farmer, were not less aware than other nations and agriculturists of their value; but the jealousy of agriculturists, who, not without some justice, viewed such an investigation into their business affairs as placing a dangerous power in the hands of any unscrupulous Chancellor of the Exchequer, delayed their collection. This stumbling-block was shown to be easily disposed of by the efficient, practical, and comprehensive statistics collected in Scotland by Mr. Hall Maxwell, in co-operation with the farmers themselves, during the four years 1854, 1855, 1856, and 1857. Viewed from the agricultural point of view, agricultural statistics would be of immense value were they reasonably accurate, and published in such a tabulated form and at such periods as to be available for practical use. The present returns are valueless to agriculturists, and it need excite no surprise to find them unwilling to place in the hands of any Government details that might really be of great general utility, but which, from the lack of practical knowledge in the arrangement and publication of such statistics, and the objectionable channel through which they are sought to be collected, exhibit on their surface all the worst possible surroundings with the fewest practical advantages. I venture to assert that the successful effort made by Mr. Hall Maxwell conclusively proves that no objections exist on the part of agriculturists to furnish statistics, when simply required for the honest purpose for which only such statistics should be asked for by any Government. The estimated yield of all crops, as well as the acreage and number of stock, was freely given to Mr. Maxwell, through his judiciously-chosen collectors, on the sole ground that the agriculturists had confidence that their returns would not be applied to any improper use. A good machinery in collecting returns is only therefore required to utilise this confidence. Agricultural statistics, with acreage of crops and number of stock, without an estimate of the yield of the crops, is work half-finished, and makes us long for the completion of the whole work. There is little good arises from knowing we have so many people and stock to feed if we do not know what we have to feed them with. The acreage of the crops cannot be taken as a criterion of the yield of the produce, as there are such great fluctuations of the yield per acre of all crops in different years. It is from the very fact of our having such great fluctuations in our annual produce per acre from the effects of our varying climate and seasons—and not that there is any material change in the acreage of a particular crop in one year—that agricultural statistics are of such great value. We know by comparison and estimate the amount of food we require between one harvest and another. It is only, therefore, by knowing the produce of the harvest as soon, or even before it is reaped, we can know our deficiency and position in time to go into the markets of the world and make provision economically. The substantial question is—Can the returns be obtained accurately, promptly, and published so as to be alike valuable for national and agricultural purposes, and at a reasonable cost? Certainly; the present cost for incomplete returns and the labours of Mr. Hall Maxwell fully answer the question; and even our Chambers of Agriculture could easily arrange a machinery for their collection, tabulation, and publication. The subject is neither new nor left for any leap in the dark, and many agricultural associations and farmers' clubs have carefully discussed the practicability of their collection for agricultural purposes only. The following mode of collection and time for

publication would combine accuracy, efficiency, and economy, with the confidence that always pervades all our public institutions when the responsible mantle of the representative principle is preserved in the spirit of the British Constitution. Proposed method of collection:—

1. To obtain the returns from the occupiers through valuers or collectors elected on the representative principle, one or more valuers or collectors being annually elected in March for each parish, the office to be honorary save postage and stationery. 2. The valuers or collectors in each county to elect annually from their body one superintendent, such officer to receive a salary regulated by the area and number of occupancies. 3. The whole to be under the direction of a commissioner appointed by the Crown, or the Central or Associated Chamber of Agriculture, and who would be responsible to Parliament, such commissioner and his staff to be paid by salaries. 4. The returns by the occupiers to be voluntary, and made out on forms supplied to them, which, when filled in, are to be forwarded by post to valuers, who will have power in case of neglect, or doubt of reasonable accuracy, to make such inspection as might be necessary to supply any deficiency. 5. The returns to include all occupancies of agricultural land and owners of stock. 6. The superintendents to receive from the valuers the aggregate returns of each parish, and superintendents to make aggregate returns for the counties to the commissioner. 7. The superintendents to direct the valuers as to the time of obtaining the returns, but so as the returns of live stock and the estimate of the hay crop and wool be forwarded to superintendents on or before the 10th of July, and by superintendents for their respective counties, to the commissioner on or before the 20th of July, and published by him on or before the 31st of July. 8. The superintendents to receive from the valuers the acreage and the estimated yield of the various crops on or before the 10th of September, and to make returns for their respective counties to the commissioner on or before the 20th of September, and to be published by him on or before the 30th of September. 9. These statistics being for national purposes, all expenses incurred in their collection to be provided for by Parliament. If advisable, the superintendents might publish their county returns on the 21st of July and 21st of September, for local information, which would thus gain 10 days. In cases where farmers or occupiers did not wish their individual returns to appear to the valuer or collector there could be no objection to several joining in the same parish and making their returns in one schedule, giving their names to let the valuer know their returns had been made, as the object is to get the totals of the counties and districts, and thereby of the whole kingdom. The stock returns would, by the method proposed, be in time for those interested in supplying and exhausting the summer stores, the corn crops index, our cereal and straw resources, whilst the Turnip crop, &c., would index the resources for winter.

In the office of valuer or collector, though honorary, great experience and knowledge could be gained, by its affording such good opportunities for observation. The labour would naturally become easier every year as the valuers and farmers got more accustomed to work together in giving the information in the form required, and the whole manipulation of the machinery perfected by experience. The present cost of collecting the returns is a large item of expenditure, viz., 20,000*l.*; there is reason to believe, however, that under a different system the cost would be greatly reduced; but even supposing it was increased instead of reduced, it is not in the nineteenth century that the duty of obtaining returns for an admitted national benefit is to be neglected on the ground that the nation cannot pay for it. Our Government should, doubtless, have the control of the funds and machinery sanctioned by Parliament for every national purpose, but a blending of Governmental power with local machinery would neither be difficult nor costly in procuring the attainment of so important a common-weal object as accurate and practically useful agricultural statistics.

CO-OPERATIVE OF MANCHESTER.

DURING the Manchester meeting of the English Agricultural Society, the following very explicit statement of the serviceableness of such institutions was made by Mr. Greening, who manages the Agricultural and Horticultural Co-operative Association here.

Mr. E. O. GREENING said the Association had been established because of the great social distance in the agricultural world between the customer and the first sources of supply. For instance, the manufacturers of agricultural implements were so far removed from the farmer that they found it necessary to employ agents, to whom a commission had to be paid, which increased the price of the goods an average of 20 per cent. One firm he was acquainted with paid 15,000*l.* a-year to agents, and there were at least half-a-dozen others represented at the Royal show who paid as much or more. He did not say the agents were over-paid, but it was evident that an association of farmers and landowners who took the wholesale trade direct to the manufacturers, and so saved both the work of the agents and the payments to them, must be the means of a great good. In the case of manures and feeding stuffs, the market values were too well known to allow these profits for dealers to be openly put on, and therefore a gigantic system of adulteration had grown up in order that this 20 or 25 per cent. might be obtained. In the linseed-cake trade it was usual for one firm to make four qualities, three of them were commonly branded. Between these qualities was a difference of over 2*l.* a ton, the worst quality being very largely adulterated; and although faith might be kept between the maker and the dealer, it was evidently impossible for the farmer to protect himself from buying the cheapest article at the highest price. Even so-called "pure" cake ordinarily contained 5 to 6 per cent. of sand. Their Society aimed to bring the farmer and the best sources of supply together, and to avoid the temptation to make a profit out of dishonourable dealing. He had been told at the commencement of the Association that he had no conception of the density of the agricultural mind, which never could be penetrated with the idea of co-operation; but he was glad that, in spite of the supposed density, they were succeeding. Their system of division of profits was novel. Every invoice contained not only the selling price of the article, but the amount of profit made by the Association on the purchase. They knew periodically the totals of these separate profits, and what their total expenses; and they deducted from the profits thus made for purchasing members the proportion necessary to clear the expenses of the Society, and pay 5 per cent. on the capital. Their strength lay in the publicity of their accounts. The members knew their interests were identical with the general interests of the Society, there being no proprietary other than the members themselves. He believed the Society was destined to succeed, in spite of the opposition of the dealers, and become one of the features of the co-operative movement.

Dr. WATTS said that the Society, in cheapening articles used by the agriculturist, would enable the farmers to cheapen their produce, and would thus be a national benefit.

The Rev. W. H. MOLESWORTH said the object of the society was one in which he felt the greatest possible interest; the system of division of profits seemed to be admirable. He was glad they were dealing effectively with the matter of adulteration, which had assumed most serious proportions.

The CHAIRMAN corroborated what had been said as to adulteration, and approved the intention of the Society to establish a warehouse for seeds obtained direct from the grower.

Mr. GREENING said the other co-operative societies had aimed at reducing the cost of distribution. To this their Society added the cause of purity of supply.

Farmers' Clubs.

CROYDON.

AT a recent monthly meeting of this Club the following paper was read by Mr. DAVISON, of Reigate:—

There is no one thing connected with agriculture of greater importance to the farmer than his horse-power—of course, excepting the ruling power of manual labour. It is true that steam is largely employed where formerly horse-power was used—that is, in cultivation and threshing out; but horse-power still is, and must always be, the principal means by which the farmer gets through his work, and steam becomes more an auxiliary than a real power to the farmer. Such being the case, is it not our interest as well as our duty to have this great power of the most improved class, and that we should do everthing we can to have horses not only fit for the work, but also ornamental in the waggons and the field? We have seen, and do see daily, fabulous prices given for thoroughbreds. A Stockwell, a Newminster, a Dundee, command their 100 gs. for their services for each mare; whilst the farmer, who is breeding for real earnest work, looks twice before he will pay his 2 gs. for a sire. Depend upon it, if you want a good thing of any class you must pay for it, and rest assured it will repay you again. Nothing struck me more when I first came into the south than the appearance of your farm-horses—mixed in colour, mixed in size, and with no distinct class of breed, and very few teams of one colour. If by chance you meet a team of greys, if you inquire you generally find that they had no connection or relationship with each other, but that perhaps one came from the north, and one from the south, and the other from the west. Now, in the north of England you will find generally teams of blacks, greys, or browns, but always matched as nearly as possible in colour, height, and action, and you would also find that nearly every horse was born on the farm; but many of my neighbours say—"Oh! but we are not a breeding county." Some 12 years ago I read my first paper to this Association, on the absolute necessity of the farmers becoming greater breeders of stock. I was met with the same cry; but I have lived to see 10 head of cattle where there used to be one half-bred mongrel cow, and I have seen large farmers, who almost entirely depended on the open market for Shorthorn stock, are now compelled to become breeders of their own cattle; because nearly every breeder is also a feeder, and is certain to keep the best for his own use, and therefore does not sell, as he formerly did, at our fairs, small herds of Devons, Herefords, and but seldom or ever any quantity of Shorthorns or Sussex. The bailiff to Mr. Clutton, of Hartswood, who is a very large breeder for the south, told me a short time back that he has been compelled to breed all his Shorthorns, as it is impossible to get first-class animals in any number in the open market. On many farms where they used to rear perhaps half-a-dozen, they now rear 15 to 20. I now venture to predict that we must also be breeders of horses, not weedy thoroughbreds, but strong powerful horses, fit for our work, and adapted to field or road. I say, you farmers, if you want to make money out of horses, confine yourself to the big, the strong, the powerful, adapted to your own work, when young, and for which you will find a ready market in London when they arrive at the proper age for work. Many have said to me when discussing this subject in the market room, "Oh! but it costs money to breed horses." Now, again, I join issue with them. Let us come to figures, and if I make a mistake I am sure you will correct me. You have a good cow, and you put her to a good sire, cost say 10*s.* to get a good calf; you must dry her off say eight weeks before calving, put your own figures to this: she has a calf, all goes on well; the calf takes (for some time) a good share of her milk: in 12 months your steer or heifer is worth 6*l.* to 8*l.*; at two years old he is worth 11*l.* to 14*l.*, and you all know what it costs to make him worth 22*l.* If a heifer, you may, by down calving, without oilcake, get 15*l.* for her. Now let us take a mare. You put her to a good sire, say at a cost of 2*l.*; you work her to within a week of her foaling, three weeks after you work her again, so that she has only had a month's rest; put your own figures to this; in 12 months your colt is worth 10*l.* to 15*l.*, at two years he begins to earn his daily bread, and is worth 20*l.* to 30*l.*; he goes on improving in strength and stature, working daily; at four or five years old he will bring his 40*l.* to 50*l.* Does he, as a yearling or 2-year-old, eat more than a 1 or 2-year-old steer or heifer? Is this imaginary or facts? I have never really tested this; but I have found that I have kept two colts on the same piece of land that had previously carried two steers; therefore I imagine that a yearling colt does not eat more than a yearling steer.

Many years ago, our then chairman, Mr. Stenning, characterised me as the leader of the theoretical party in the club. I want now to be the humble follower of the practical farmers, and will give you my first attempt at breeding at one of our worthy chairman's periodical sales. I bought for 17*l.* a brown mare, rather high in the rump, roomy, with a fine head, and four good legs, a good stepper, and could do her eight miles an hour. At the same time I bought a three-part-bred mare, same colour, both of which I thought would throw me a good foal, if I could only get a good sire, and here came the difficulty. Mr. R. Brodrick, with his usual wish to help the farmers, brought up a rather nice compact chestnut horse out of Suffolk, but he had no pedigree. Luckily I discarded him, as all his stock turned out light below the knee and fore-quarter, having, no doubt, bred back to some faulty predecessor, for the horse himself was short in the leg and compact. There I saw greys, browns, and roans. I selected a brown horse belonging to Mr. Knight, of Tandridge. The work mare had a colt, which Mr. Brand, of Hoxley, bought for 15*l.* at 12 months old. At two years he put him to work, and at Crawley Fair he was, in the autumn of last year, the best horse in the fair, and was sold to a dealer from Lewes for, I believe, 55 gs. The other mare had a filly foal, which Mr. Brand gave the same price for at two and a-half years. He sold her for 40*l.*, and, I am told, at five years of age she was sold for 65 gs. If I, a mere theoretical farmer, could select two mares to do as well as these did, what might not you experienced practical farmers do? But there may be some theoretical members of this club, therefore I may be useful by giving them a little advice as to the means to be used to secure certain profits and good colts. They must abnegate the lame, the halt, the blind, the unsound in wind and limb; also from breeding from restive mares, or mares of bad temper: take the best mare on your farm, not more than nine or ten years old, for her first foal. She will, perhaps, with one or two exceptions, produce you a foal yearly for 10 or 12 years. Mind, if she is a pedigree mare, or one whose mother or sire may have been in your own or your family's possession for some years, of known good qualities, so much the better; but take care she is roomy and sound. Then select your horse; here great care is necessary for you to have a horse with a pedigree, as any faults come out on the sire side in the second or third generation. How this is we cannot tell, but such is the fact, while the bad qualities will be dormant on the mare's side for generations. I remember a friend of mine had a favourite grey mare, which he always put to a grey horse. The first two foals were grey; next a chestnut. How is this? It must be from the horse. No such thing. They traced him for five generations always grey, but at last the farmer's mother remembered that the great-grand-dam of the mare was a chestnut. As I say, select a pedigree sire, not a fancy pedigree, but one vouched for by good authority. If you see two horses, one having all that you want in a sire, but no pedigree, or only an imperfect one, and another with some faults in him, but with a pedigree, take the latter, as you are certain to get an average foal, but in the other you may get a sort you did not want. Another thing is to try and get a horse that has the qualities necessary that your mare may not have. For instance, if your mare is long in the legs, have a horse with as short legs as are in keeping with his beauty as a horse. This, your own judgment will tell you how to carry out. If your mare is small, get the biggest horse you can find; if of a fiery temper, then one of quiet temper, and so on, trying to eschew all the ills those horses are prone to.

Now comes a question for your consideration, that is, whether we cannot improve on the class of sires that we have coming round. Take them as a whole, I never saw a worse lot. There are two or three exceptions, but it would be invidious to name them. My opinion is, that we want fresh blood altogether. We want horses of known excellence, size, and quality. I should like to see a Clydesdale or Scotch grey brought up. I feel sure it would pay. For instance, if 50 of us put down, say 2*l.* each, and promise a mare, the thing is done; as there are plenty of enterprising men who know what a horse is, and who would supply the want. I daresay many of you saw the Clydesdales at the Royal show at Battersea, some magnificent animals, of great size and power, at the same time with fine action. A friend of mine bought one for 180*l.*, for Australia. On his arrival in Melbourne he cost him 430*l.* Still, he tells me that he has paid him handsomely, besides materially improving the size and stamina of the native horses, and that he has six sons, all sizes, disseminating the royal blood through the colony. Now this gentleman was wise in his generation. Besides doing a great good for the country, where he has realised a handsome fortune, his name will be handed to posterity as the first importer of Clydesdales into Australia. I hope some member of this Association will be as patriotic as to bring them into this county, and have his name remitted to posterity in the same way. Another reason, gentlemen, why we should be breeders of horses, is the fact that we have a never-failing market within a few miles. It is said, how truly I know not, that there are 400 horses done up every week in London. The wonder is where they all come from. However, this we do know, there is no difficulty in finding a buyer for a good

work-horse. Besides, there is nothing on a farm that so soon comes into use and money. I hope, gentlemen, that I have only stated facts in connection with this subject. I hope, also, if I have said anything opposed to sound practical farming, that you will attribute it to a want of knowledge, and not to any wish to mislead you in any way. I also hope that we shall in the next few years see as great an improvement in our breed of horses as we have seen the last few years in our breed of cattle, and see a blood mare on every farm, producing colts that will not only be a profit to the breeders, but a credit to the neighbourhood. I have been told by dealers that they have to go to far-off places to supply the want of even the farmers round here, and the cost of bringing them is a very important item. In the price of the animal, therefore, it gives the home breeders an additional profit in competing with animals brought from a distance, at a yearly cost. My opinion is, that if you select properly your dams and sires, you will find colt breeding a powerful help in making up the rent of your farms, as also a great source of pleasure to yourselves.

Discussion.

Mr. Stables said he was not fond of dealing in horses, but he liked to breed such as he wanted on his own farm. From the experience he had had in rearing them, he found it answered his purpose well. Besides having good horses by home-breeding, he was also enabled to sell one now and then, which was far better than having to purchase, and running the risk of getting inferior animals. He attached very much importance to what Mr. Davison had said about hereditary peculiarities in shape, disease and temper. He found from the horses he had on his farm that they generally inherited the temper of the mother to a great extent, and he was sure they would all agree with him that a good tempered horse was better than one with a bad temper.

Mr. M. Wallace confessed that when he started as a horse breeder he went on the wrong scent. He had been a breeder of high-class horses, and had kept a thoroughbred for years. He had a splendid lot of colts, but he wanted customers for them. His horses did not command a ready sale; but he believed those recommended by Mr. Davison would always sell. With regard to the cost of keep, he quite agreed with Mr. Davison, for they could keep a mare and could work her again after a fortnight, and could keep a colt on damaged Maize for about 2*s.* 6*d.* per week. For good working horses, he preferred those between the blood horse and the cart-mare. For agricultural purposes generally he preferred this peculiar breed. He would not recommend a heavy-legged animal. What he liked to see was action and cleanliness in a cart-horse.

The Chairman said, some people imagined that it was never necessary for a cart-horse to do anything but slouch along as many of them too often did; but he would say, by all means have good action in all animals that lived and moved. There was something in the action of an animal that would recommend it almost above any other quality, for good action was the perfection of an animal. With regard to the breed of horses on a farm, he was of opinion that they would never have such a valuable stud by purchasing as they would by breeding. If they reared the animals themselves, they would see them come kindly to the hand; they would find them do their work better; and he knew if they wanted to sell they would get a better price for them. He knew from experience that if he had a sale of good home-bred horses there was always a good demand for them. These two little words, "home-bred," were better than any others he could use for the sale of horses, for they would be sure to attract purchasers.

Reviews.

Profitable Farming: Mr. Mechi's Latest Agricultural Sayings and Doings. With Balance-Sheets from June, 1867 (the date of his last publication), to April, 1869. Geo. Routledge & Sons.

There is here a large collection of very readable paragraphs, written by one of the most hearty of good Englishmen, on a subject which has been the passion of his life.

Mr. Mechi will probably never be accepted as an authority on agriculture, except by outsiders; but his influence unquestionably has been felt within as well as without the professional circle; and it has probably been more wholesome within, where it is laughed at or denied, than without, where it is willingly accepted.

So prolific and enthusiastic a writer cannot but make occasional blunders; and it is the inevitable result of Mr. Mechi's temperament that his errors are all on one side. A statement in his hands never errs by deficiency of force or confidence of utterance. If Mr. Morton tells him he has cut 40 tons of Italian Rye-grass off a sewaged meadow, it immediately takes the form of "15 tons of hay" in his mind, and forthwith out it comes as 15 tons of hay in the very next issue of some agricultural journal—whereas it would have been only eight if the Grass had been grown in a common field, and it will be only five as grown by sewage. Notwithstanding its occasional extravagance, the book nevertheless amuses, suggests, instructs, and excites—all of them good things to do; and we extract two or three paragraphs—not that our readers do not already know Mr. Mechi's style, nor that we are sure they have not already seen the pieces we shall choose. And it is, perhaps, one of the best illustrations of the worth of Mr. Mechi's writings that you read them a second time with interest, but cannot confidently say whether you have or have not read them before!

Farming a certain Source of Profit.—"On this point I speak practically. The return is slow but sure. I speak, of course, of well-managed farms—drained, free from fences and timber, and with suitable buildings—where there is capital and judgment. A clear 10 per cent. on farm capital, and a house rent-free, may safely be taken as a minimum average. If farming was generally unprofitable, it would be given up, or rents would be reduced to a minimum.

Mr. Mechi.—"I have long ceased to be angry about my comments on my practice as a farmer or agricultural improver. As a public man, I expect that a very great variety of sentiments must have been awakened and feelings excited, and, in many cases, honest doubts have arisen about the propriety of my agricultural proceedings. Standing on the rock of truth, and supported comfortably by success, I can well afford personally to despise even misrepresentation; but, wishing well to agricultural progress, I cannot leave any infringement of truth, interfering with the good cause, unchastised. I observe that adverse critics, who dislike Tiptree proceedings, and do not desire that my farming should succeed, carefully avoid a personal inspection of the farm, and prefer to pick up and reproduce the second-hand gossip and floating grumblings of prejudiced and discontented practitioners. The stern logic of facts supplied by a personal investigation before or during harvest would be inconveniently and unpleasantly convincing, so it is prudently avoided, under pretence of not being able to hire a conveyance."

Thin Seeding.—"Wishing well to British agriculture, and looking to the production and economy of our food as a paramount principle, I feel bound and justified, on public grounds, to protest against a practice in British agriculture which annually, and this year particularly, causes a loss and deterioration of food to an enormous extent—I mean the practice of sowing too thickly.

"If this rule had been deduced from a comparative trial of various quantities suitable to the peculiarities of soil, climate, and manurial conditions, there need be no objection, but I know that too generally it is not so; but we are following an old custom, established when broadcasting was the only mode of sowing—very imperfect and uncertain as compared with the new and accurate deposit of seed by drill. This and the modern high-farming system of draining, deeper cultivation, and forcing great growths by cake-feeding and artificial manures, demands and necessitates a much more limited quantity of seed, especially as the modern dressing and blowing machines separate and withdraw all light and imperfect kernels.

"See what has taken place this year. Tens of thousands of acres of corn crops have been prematurely laid flat on the ground, weeds and Clover growing through them and tying them, as it were, to the damp earth, thus producing mildewed and imperfectly developed kernels, and deteriorating the sample so much as to diminish its value 10*s.* or more per quarter. The loss thus entailed is probably 2*l.* to 3*l.* per acre in quality alone, and in quantity an equal amount. The straw is also seriously damaged and diminished in value. I speak practically in this matter, for during 23 years I have by comparative trials established, as regards this farm, quantities of seed suited to its peculiar circumstances. The result is a return or increase of from 40 to 56 for each kernel sown, with a perfect quality of grain and straw; while the average of England gives, according to one of our best authorities (Mr. James Caird), a return of only nine for one.

"The cause is obvious—an early and Grass-like vegetation of crowded plants compete injuriously for their food in the soil, like an unthinned plantation or Turnip crop, and thus weaken or destroy each other. So dense a vegetation shuts off communication between the air and the soil, culminating in a prematurely laid crop, with all its evil consequences.

"The quantities of seed suited to this farm are 1 bushel of Wheat, 6 pecks of Barley, and 2 bushels of Oats per acre. The average quantity of England is, according to Mr. Caird (p. 522), Wheat, 3 bushels; Barley, 4 bushels; Oats, 5 bushels per imperial acre.

"With high farming I find even my quantities too large in certain seasons, and I am gradually diminishing them. Independently of quality and produce, the mere saving of seed is worthy of national consideration, for, according to Mr. Caird's reliable statistics (p. 522), the quantities of grain used annually as seed on the 14,000,000 arable acres in England alone (leaving out Ireland, Scotland, and Wales) are—

Wheat	1,281,281	qrs.
Barley	708,375	,,
Oats and Rye	1,250,000	,,
	3,239,656	,,

"At present prices these would be worth about 6,500,000*l.*, and certainly half that amount might be saved, and an enormous increase in produce be additionally obtained.

"British agriculture is so vast, and of such paramount interest, that when we deal with the 60,000,000 of acres of the United Kingdom, a single shilling per acre amounts to 3,000,000*l.* sterling.

"Taking the landlord's capital as only 20*l.* per acre, and the tenant's capital as 4*l.* per acre, here is a vast grand total of 1,440,000,000*l.*, or twice the amount of our National Debt. There is much to be saved and more to be gained by treating such a vast interest on commercial principles, and emancipating it as much as possible from the shackles of old customs and prejudices, no longer suited to this age of steam-excited progress."

Farm Memoranda.

North Riding of Yorkshire.—The long drought, together with a high range of temperature, has rendered the prospect of harvest at least 10 days earlier than was anticipated a month ago.

The crops are now in such a state of forwardness as enables us to give a tolerably correct outline as to what will be the probable result of the harvest. Wheat has improved much in appearance. In bulk it will be very little, if anything, below an average, while the weather has been all that could be desired during its blooming period; and, with favourable weather for maturing, the grain we anticipate will prove to be about an average crop. Oats have greatly belied the promise given by their appearance in June; then they were pronounced as the crop of the year, now the prospect is very bad, and, both in bulk of straw and yield of grain, the crop must prove much under an average.

Generally Barley looks exceedingly well, and with favourable weather a full average crop will be realised.

The braird of Turnips generally has been very good, although they have been checked in growth by the drought. But the fine showers we are now having will again resuscitate their flagging verdure: on the whole this crop is regarded as satisfactory.

The hay crop is now secured: quantity great, and quality excellent. So abundant a crop and good in quality has not been realised for many years.

Our pastures have suffered by the drought, but with the showers of the last and present week an improvement is already apparent.

Fat cattle are not numerous, but nevertheless quite ample for the market demand, which has been inanimate during the month.

Wool is well sold up, at prices slightly in advance of those of last year. *W. J. M., Aug. 4.*

Merse of Berwickshire.—A month's drought, including some very hot days about the middle of July, roasted our pastures pretty well, and actually reduced our streams below last year's level, so that the inch and a-half that has fallen during these ten days has only freshened Grass (where full of stock), and two or three acres of Tares are very useful to fall back upon, though not so absolutely necessary as last year. Turnips grow vigorously, except on clay spots ruined by the unusual activity of flea. Second sowings are of little use. It is now just twelve months since we last commenced harvest. The colour is appearing on spring corn, and there may be something done in 10 or 12 days. Oats are perhaps not quite so short of straw as last crop, and this rain will help the filling. We never saw so many snuffy heads among them, in many places one-fourth blighted at shooting. Barley is a good crop, a good deal laid and twisted of late. Our Wheat does not disappoint us; it had a grey, windy, blooming time, is still thin and very moderate looking, and there are some very good fields of early sown where Turnips failed. *J. T., August 7.*

The Poultry Yard.

Poultry Chit-Chat.—"Sophia" writes as follows: "Have any of your readers yet seen the Birmingham prize sheet for this year, or can you say when it will be out? Is there any chance of a London or home counties show, as mentioned in a recent Number of the *Agricultural Gazette?*—many amateurs, like myself, would be very glad to know. I should like to exhibit my fowls, but would rather do so when I could easily go to see them without spending the greater part of a day in the train. My feeling in the matter is doubtless selfish, but it is among poultry fanciers a very general one."

Grey Dorkings and Brahmas.—It is with much pleasure that we note a great advance in strength of constitution in this valuable breed. The chickens in general this year are unusually good, and their average growth very satisfactory. The progress made is really a great triumph,—the increase of weight, uniformity of colour, and hardiness of constitution, all achieved by a few years' careful breeding. We may fairly hope to see the same results with some of the other breeds of fowls, if the same care, attention, and outlay be devoted to them. The principal thing is to select those that will repay the outlay. First on the list we should put light Brahmas. The light Brahma has hitherto had with us but monkey's allowance. During the last year he has pushed himself into notice, and is now making way. While writing of Brahmas, can any of our readers or correspondents say if they have found any difficulty in breeding dark Brahma cockerels and pullets of equal quality from the same parents? Some birds this year, carefully matched for breeding, have produced cock chickens that in shape, make, and colour leave nothing to be desired, while the pullets are in feather very inferior, being blotchy on the wings, and light and washy on the breast. We hope this year to see more unanimity among the judges at the different shows as to what constitutes a really good peacomb in a Brahma cock. The irregular, crooked, fleshy deformities, that offend the eyes and judgment of critical amateurs, may generally be found on lanky, stilty, narrow-chested, scanty-tailed birds, and with a suspicious look about the hocks. The clean, straight, well-defined peacomb, looking like a small single comb, with a smaller single comb added to it on each aside adds immensely to the general beauty of the bird, and is a great test of high breeding. Are we to see any improvement in the average quality of white Cochins this year? Buff and partridge are bred almost to order, and yet the white birds remain in the rear. Some few very handsome ones are seen at the shows, but the ordinary run of them is very poor.

"Coney" writes for advice as follows:—"An ardent but almost disheartened rabbit-fancier asks for advice and help in his tribulation. He has three kinds of rabbits, the Dutch, the Belgian, and the silver-grey. The Belgians have the run of the coach-house, the Dutch are in little pens, and the silver-greys in hutches. Until latterly all have done well, but within the last three or four months two-thirds of the stock has died suddenly. The rabbits appear perfectly well, and feed heartily; they are in excellent condition as to coat and flesh. Those at liberty seem seized with a sort of vertigo, rush twice or three times round the house, fall down with a faint squeak, and die. Those in the hutches die more quietly, but as suddenly; they are well cared for, kept clean, and have the greatest possible variety of food."

The Rochdale Poultry Show is to take place next week, and from the comprehensive nature of the prize sheet, a very successful meeting may be anticipated.

The Highland Agricultural Society had poultry

classes at its late show at Edinburgh, when, as may be guessed, the Dorkings shown were of rare beauty. The prizes were taken, for silver-grey adults, by Messrs. Annan, Lyon, and Sir J. D. Wauchope; Lady Montgomery won 1st for chickens. Mrs. J. Allan won the 1st prize for adult coloured Dorkings; and Sir G. Grant for chickens. The one prize for white Dorkings was taken by Mr. Logan. Messrs. Murray and Gibb were 1st for Cochins, Mr. Brownlie for adult dark Brahmas, and Mr. Stuart for chickens. Some very fine Spanish, belonging to Mr. Somerville, won 1st and 2d. There was a class for "Scotch Greys," and Mr. J. Meiklem won both prizes in it. Mrs. Hendrie was 1st with some excellent Aylesbury ducks, Mr. Hardie for Rouens. In the class for any other "distinct variety," Mr. Logan won 1st and 2d with birds described as grey and white, but which with us southrons would have been considered cross-bred. The Duke of Buccleuch took 1st prize for white geese, and 1st for goslings; Mr. D. Hardie 1st for grey geese; Mr. Stott 2d.

Bone-dust as a Food for Fowls.—If a really good bone-dust, freshly made from fresh bones, can be had, there is no better adjunct to the food of fowls; but if we wish to avoid all risk, the best plan is to procure fresh bones and chop them up with an axe or hatchet. Our chopping-box is made thus:—We took a piece of oak plank 12 inches square and 2½ inches thick. This formed the bottom of a box just 7 inches deep, the sides being made of 1½ inch pine. One side, however, is but 3½ inches high, so that when the edge of our hatchet lies on the plank bottom, the handle passes over the side of the box without touching it. Soft bones can be had at any butcher's shop. The hard and large bones are too difficult to break. Ribs, &c., placed in this box, can be easily and quickly chopped up into pieces the size of a bean. A boy will chop up 10 lb. in a very short time, and this will last two dozen fowls for a week—nearly 1 oz. per day to each. On a larger scale, a machine might be made which would readily crush the hardest bones. We find that bones broken into pieces which will pass in any direction through a hole ⅝-ths of an inch in diameter, are small enough. The gizzard of the fowl soon grinds them up, and they partially serve instead of gravel. There is no more valuable adjunct to the food of fowls than cracked bones. Our readers must not feel disappointed, however, if their hens should not lay immediately after being fed with bones. It frequently happens that about the time their hens would begin to lay of themselves, the owner makes some change in their diet, and immediately attributes their laying to the new article of food. We have seen bones, Buckwheat, Peas, Beans, pepper, meat, &c., all tried without effect, and then again we have seen hens suddenly commence to lay freely without any special stimulant. The lesson to be learned from this is obvious. *Houdan, in "Albany Cultivator."*

Miscellaneous.

The Treatment of Milk Fever.—On Saturday morning, the 17th April last, at six o'clock, an Alderney cow, in fair condition, calved her sixth calf, and appeared to go on very well until about six o'clock at night, when the herdsman thought she appeared rather dull. On Sunday morning, the 18th, she was evidently very unwell, was extremely restless, breathed quickly, and would not eat. An opening drink was given, but she still got worse, and on Monday morning, the 19th, at five o'clock, she had lost all her milk, of which she had an abundance the previous night, when she was well and cleanly milked. She trembled a good deal, and began to stagger, and threw her head about from side to side. About half-past six she fell, and threw her head on to her left side, and appeared unconscious. Her bowels were much constipated. At eight o'clock she began to pass off a white frothy discharge from the nose and mouth. This discharge in previous cases of milk fever that have occurred here generally came on a few hours before death, and I have never before seen a cow recover after such discharge. The herdsman and others who saw the cow were sure she would die in a few hours; but seeing she was perfectly insensible to pain (for when the finger was pressed on the ball of the eye she showed no appearance of feeling it), I thought I might try the effect of powerful stimulants without cruelty to the animal, and determined to do so. With little or no hope of saving her life, I carried out the following treatment:—A drink was given with much difficulty at half-past eight o'clock, composed of one ounce of aromatic spirits of ammonia, three ounces of spirits of turpentine, half a pint of good brandy, and two pints of strong ale. At ten some good oatmeal gruel, with two pints of ale, was given, and as the bowels were very much constipated, a pint of raw linseed-oil was administered at half-past ten. At twelve the animal was no worse, the discharge from the nose and mouth had begun to subside, and a second drink, made exactly like the first, was given. At half-past one she had a second pint of linseed-oil, and at half-past two more gruel and another quart of ale. At half-past four the cow was found with her head up, and clearly sensible, for she knew the herdsman when he opened the door of her house. There was then no discharge from the nose and mouth. A third drink, prepared as before, was given, and at half-past six she had a third pint of oil, and also some gruel. I am quite prepared for many of your practical readers shaking their heads and being incredulous, when I tell them that at half-past eight the herdsman found the cow on her legs. She had then a fourth drink, which was repeated every four hours during the night, with gruel and beer given between the doses. On Tuesday morning, the 20th, the cow (to the surprise of all who saw her on the previous day) was very much better, and began to feed a little. Her bowels were now nicely acted upon, and the milk began to return. She had a drink at six on Tuesday morning, and, when I found her so much better, I was afraid to go on with such stimulating drinks, and ordered them to be discontinued during the day. She had a drink, however, again in the evening, when she appeared to be going on favourably, and was then left for the night. On Wednesday morning, the 21st, I had to leave home early for a few days, and the herdsman came to report that the cow was not so well, and that she would not eat, and moreover she began to tremble again, and had less milk than on the previous day. I then ordered that the drinks in the same proportions as given at first should be again given every four hours until Thursday morning, the 22d. It was reported to me that after the first dose on the Wednesday morning the trembling passed off, and the cow appeared better, and continued to improve. On Thursday, the 22d, the medicine and gruel were discontinued, and the cow fed nicely, care being taken to give only small quantities of food at a time. On Friday, the 23d, she was turned into a sheltered paddock and ate some Grass, and she was out the greater part of the following day, and also on the Sunday. On Monday, the 26th, all who saw the cow declared her perfectly well, and so she has remained ever since, and is now to be seen a living example of the good effect of stimulating treatment in a case of milk fever. I have given the whole case as clearly as I can, and if any person who has a case of milk fever tries the treatment which did so much good here, I shall be very glad if he will tell me the result, either privately or through your paper. I have seen many cases of milk fever, and so fatal is the disease that I have known but few recover, and when the disease was so far advanced as in the case reported above I have never before seen a recovery. I believe the practice of depletion to be a mistake, as it is now acknowledged to be a mistake in cases of fever in human beings. Two or three years ago a case of milk fever occurred in an Alderney cow on the Merton farm, though in that case the animal was not so far gone as to lose consciousness. She was bled, and died in less than half-an-hour afterwards. On the other hand, in the case I have described it seems to be proved that the free use of stimulants saved the animal's life; and when they were only given twice on the Tuesday, and were omitted during the following night, there was a relapse, but when they were again given regularly night and day the animal improved in a very marked manner. *H. Woods, Thetford, in "Bell's Messenger."*

Farming against Game.—I think the time is not far distant when the rabbits must perish, the hares be disestablished, and the gamekeeper disendowed. For, as a farmer, I can assure you that it will be impossible to go on much longer as at present. Rent gets higher, rates increase, labour gets dearer, and the land gets poorer, unless replenished at enormous cost with artificial manure and food. I have had to farm against game for something like 20 years, and can tell you that I am heartily sick of it. Some people tell me, "you should not take a farm without the right of shooting." It is all very well to say that, but what am I to do? If I were to leave my farm to-morrow, there are plenty of tenants to be found who would take it, and reap the benefit of my 20 years' improvements; and, besides, I love my home and my landlord, whom I have no fault to find with, as he is one of the best in the world. The misfortune is, there is a mansion on the estate, and to let that mansion my landlord is obliged to let the shooting of the different farms with it. Every provision is made in our agreements that any reasonable person would think necessary; for instance, it says, "all damage done by game shall be paid for by the person who rents the shooting;" but next comes the question, how are you to get at that damage? I tell you, Mr. Editor, it is impossible, and we know only too well that it would be ruination to the best of tenants to offend my lord in attempting to get compensation. The tradesmen who live in large towns know nothing of the evil of the game question; they think the farmer a grumbler. I only wish they knew how dearly they have to pay indirectly for the preservation of game, by keeping the poachers in gaol, and the loss the country sustains in the damage done to the crops by game. But people who live in towns believe in no one except the great Mechi on farming matters, and I do not think he would find it to pay to write on the subject of game preserving. By-the-by, I saw in the paper yesterday that Mr. Mechi says we are to have meat and butter cheap. I should like him to come and take a walk over my farm, he would say that rabbits must be a perfect drug and Mangel a scarcity, for the hares eat the latter off close to the ground by hundreds every night. In conclusion, I hope you will not think this letter too long for insertion in your next paper. It is the first time I ever wielded the pen on the subject, in fact, the first time I ever wrote to a newspaper. *A Tenant Farmer, July 16, in the "Mark Lane Express."*

Calendar of Operations.

August. — *Wheat harvest*, under our modern practice of culture and sowing, often follows Barley harvest—first winter Wheat and then the spring sowings. The crop is cut in what is technically termed "a raw state." When cut too soon, or green, the grain shrinks in the drying, from not having attained maturity of growth; and when allowed to become dead ripe a waste of corn and straw is experienced: and besides this waste when dead ripe much of the harvest grain is shed by winds, and also in the cutting and carrying, especially in hot scorching weather, owing to the opening of the calyx and glumes of the corolla, the natural process by which the seed is sown. But when cut raw the glumes do not open sufficiently wide to allow the grain to shed, while there is less hazard from rain both before and after it is cut and in the stook. The crop is cut with the bagging-hook, scythe, and reaping-machine. The latter is fast superseding the two former.

Reaping Machines may be considered according as to how they deliver the cut corn. Thus Bell's has a one-way swathe delivery, others have a swathe delivery, but only cut round the standing corn, and hence require an opening, by means of the scythe, to be made for them to commence. A third class have a side sheaf delivery, and they also cut round the standing corn; and a fourth a back sheaf delivery. These machines may also be considered under the heads of self-delivery and hand-delivery; and, further, under two-horse, single-horse, and combined reapers and mowers. They are likewise considered as to the details of their special mechanism by which the cutting, reeling, and different kinds of delivery are effected. There is thus no want of diversity in the construction to meet the demands of practice, or the opinions of buyers. The number of reapers now in the harvest field is very great, and annually increasing, for farmers find out, not only the gain, as compared with the scythe and bagging-hook, but the advantages of having a full force of machinery sufficient to cut down their crops as fast as they are ready. As in the case of mowing machines, smooth-going horses and careful drivers are to be preferred to the contrary. Rough horses and careless drivers have been the ruin of many a reaper, to say nothing of the quality of the work done; for, unless the working parts are kept in working trim, the consequences are soon told. Farmers are familiar with the old maxim, "A good scytheman has always a sharp scythe." And as it was with the scythe so it is with the reaping machine.

Stooking and Stacking.—In both operations the old rules of the scythe apply to the reaping-machine. Thus, unless a stook is properly set at first, it cannot be put to rights afterwards; and before a stook can be well set, the sheaves must be of uniform size, and bound equally tight with the bands all equidistant from the butts, and so on. If, for example, a small sheaf is set opposite a large one, that stook will not stand erect. If the two opposing sheaves are equal as to size, but the one bound tight and the other loose, the same result will take place; and likewise, if the one band is nearer the butt than the other. Again, unless the Wheat is properly stooked in all the above respects, the sheaves will not be equally ready for carrying at the same time; while all who have any experience in the stackyard know how difficult it is to build a stack with unequally sized and tightly bound sheaves—for, granting that the stack rises as it should do, it will not set down equally. And if it does not do so fairly on each side, or all round, where circular stacks are made, the quality of the corn and straw will be injured, when otherwise they would have escaped harm. Stooks when properly set, not only dry quicker, and are thus sooner ready for the stackyard, but they also carry off a shower of rain better; and when wet in the heart, by a continuance of rain for a length of time, the air circulates freely through the sheaves, so that the corn and straw sustain less harm than in the opposite case, while the sheaves dry faster when the weather breaks up. Well set stooks, when the corn has been cut with the scythe or reaping-machine, are seldom hooded, even in districts where hooding was the general practice when corn was cut with the sickle or bagging hook; and the former are not only sooner ready for stacking, but may be stacked with more sap in the straw, as the sheaves lie opener in the stack. The roof of the stack, if properly built and raked down, sheds rain much better than when the corn was cut with the sickle. Some defer raking down the roofs and cutting the sides until the stack sets down, and not unfrequently until all the carrying is over, when the whole stackyard is then gone through, stack after stack. But the practice is not to be commended, for two reasons: 1st, There is a waste of corn on the outside of the stack and also of the cuttings afterwards; and 2d, when the cutting is delayed the workmen are apt to leave too much to the process of cutting for shaping of their stacks to please the eye and hide bad building, when too much will be cut off the butts in one place, and too little in another. The more advisable plan is to rake and cut the stack as soon as up, and to throw the rakings and cuttings upon the next stack of the same kind of corn, thus keeping the work up and the stackyard clean and the stacks ready for thatching. On small farms, with only one stacker, it may be difficult to comply with this rule; but on large farms, where a man is required to attend to the outside of the stack, it is otherwise, as he can rake the roof and cut the sides before the next stack requires much work from him.

Drying Corn artificially has long been a popular theoretical problem in wet seasons, and recently an approximation to practical success has been attained. But owing to the great diversity of seasons, it takes a more extended series of years to establish a new practice on a permanent basis than any of the new projects referred to have yet enjoyed to prove their efficiency under all the circumstances which may be experienced. Like all others in farming, the work is no doubt one of progress.

Stubble Turnips are now sown the moment an opportunity occurs after the corn crops are off the land, and in late seasons the stooks are so set as to allow the scarifier and other implements to be yoked before the carrying begins, seed, manure, and everything being in readiness, so that when the stooks are moved the strips of land on which they stood are soon cultivated and made ready for the seed and manure drill. In our southern counties a considerable weight of roots in favourable autumns are thus grown. In the north,

where the harvest is a month later and winter more than a month earlier, the practice cannot be carried out. Turnips sown in June and beginning of July will require hoeing, and the Mangels and Potatos may have to be gone through, and any weeds left by the hoe pulled out by the hand. Work of this kind will find employment for the hands during any break in harvest work which may occur.

Flax steeping and Grass retting frequently extends into the first and second week of August, and must be attended to even in the heat of Wheat harvest. Flax growers endeavour to have their Flax in the stack before Wheat harvest commences, but the best calculations thus made often miscarry.

Lamb-weaning in the north (Cheviots and black-faced) takes place from the second week to the middle of August in ordinary seasons for breeding stocks. Those intended for the butcher are sold when fat, some being drafted out earlier, while others are allowed to remain with their dams up to next month. Leicester crosses on arable farms and grazings in the lowlands are ripe earlier, and by this time some of the ewes will be ready for drafting for the shambles. *W. B.*

Notices to Correspondents.

Agricultural Imports during 6 months, 1868 and 1869: *R.*

Articles.	Importations. 1868.	1869.
Oxen, Bulls, and Cows .. .. No.	39,136	99,486
Calves .. .. „	11,344	12,446
Sheep and Lambs .. .. „	181,019	423,883
Swine and Hogs .. .. „	8,405	23,637
Bones, burnt or not, or as animal Charcoal .. .. .. tons	31,072	33,950
Flax (dressed and undressed) and Tow or Codilla of Flax .. .. cwt.	590,895	519,439
Guano .. .. tons	94,905	43,494
Hemp (dressed and undressed) and Tow or Cordilla of Hemp—From Russia .. .. cwt.	26,827	82,051
Venetia .. .. .. „	107,858	141,160
Illyria, Croatia, and Dalmatia „	16,673	34,969
British India .. .. „	1,743	4,301
Philippine Islands .. .. „	79,076	50,966
Other Countries .. .. „	40,172	47,549
China Grass, Jute, and other vegetable substances of the nature of Hemp .. .. cwt.	877,208	1,506,783
Hides, untanned, dry—From British India .. .. cwt.	45,483	94,061
Other Countries .. .. „	29,235	24,442
Wet—From Argentine Confederation and Uruguay .. .. cwt.	71,961	56,619
Brazil .. .. .. „	36,358	42,450
Australia .. .. .. „	22,989	15,445
Other Countries .. .. „	41,564	68,875
Tanned, Tawed, Curried, or Dressed (except Russia) .. .. lb.	4,897,311	3,770,576
Hops .. .. cwt.	46,450	132,824
Oil Seed Cakes .. .. .. tons	54,624	74,948
Potatos .. .. cwt.	651,914	896,327
Provisions—Butter .. .. .. „	435,776	547,620
Cheese .. .. „	244,263	191,670
Eggs .. .. No.	205,250,040	252,504,120
Lard .. .. cwt.	115,832	123,428
Meat, fresh or slightly salted—Beef .. .. cwt.	3,060	6,638
Pork .. .. „	3,577	12,334
Meat, salted—Bacon and Hams „	335,176	388,838
Beef .. .. „	165,475	143,087
Pork .. .. „	85,245	95,088
Meat, not otherwise described „	15,851	35,260
Saltpetre .. .. „	53,719	91,159
Cubic Nitre .. .. .. „	494,889	339,786
Seeds—Cotton .. .. .. tons	57,614	71,187
Clover .. .. cwt.	132,514	156,327
Flaxseed and Linseed—From Russia, Northern Ports .. .. qrs.	88,063	67,809
Ports in the Black Sea .. „	116,886	121,618
British India .. .. „	181,176	208,633
Other Countries .. .. „	67,782	39,825
Rape .. .. „	146,327	61,993
Wool, Sheep and Lambs'—From Hanse Towns and other parts of Europe .. .. lb.	5,173,312	7,984,679
British Possession in South Africa „	14,094,088	14,931,178
British India .. .. .. „	6,398,412	6,495,905
Australia .. .. „	61,235,598	105,772,827
Other Countries .. .. „	9,557,064	8,990,144
Alpaca and the Llama Tribe „	468,366	1,243,198
Yeast, dried .. .. .. cwt.	53,847	55,847
Corn—Wheat, from Russia .. „	4,489,880	3,316,375
Denmark .. .. „	249,385	201,479
Prussia .. .. „	2,213,473	2,104,509
Schleswig, Holstein, & Lauenburg „	32,270	27,609
Mecklenburg .. .. .. „	371,446	323,492
Hanse Towns .. .. .. „	382,837	301,679
France .. .. „	12,984	155,200
Illyria, Croatia, and Dalmatia „	711,169	496,494
Turkey and Wallachia & Moldavia „	1,915,656	768,763
Egypt .. .. „	2,294,011	353,107
United States .. .. .. „	3,817,082	3,657,308
Chili .. .. „	476,159	193,385
British North America .. „	154,376	105,227
Other Countries .. .. „	575,775	189,394
Barley .. .. „	2,586,529	4,686,894
Oats .. .. „	3,486,392	2,368,099
Peas .. .. „	396,801	372,233
Beans .. .. „	1,097,691	961,066
Indian Corn, or Maize .. .. „	4,913,715	6,618,574
Wheatmeal and Flour—From Hanse Towns .. .. cwt.	281,407	268,351
France .. .. „	227,498	692,271
United States .. .. .. „	338,092	340,078
British North America .. „	64,126	37,519
Other Countries .. .. „	515,899	478,961
Indian Corn Meal .. .. .. „	4,099	2,618

Farm Profits and Cow Keeping.—Next week.

Musty Hay: *Farmer.* Cut it in chaff, and either steam it or throw boiling water over it, in which 1 lb. of Linseed-meal and ½ lb. of salt to the allowance for every cow has been boiled. Its musty taste will go. Sweet or spicy condiment added to such food will make it *go*, and it will also make other food *go* faster too, and will thus keep a feeding beast or milch cow up to its mark—whatever that may be—as a feeder or milker.

Sewage Distribution: *H M.* The notice is deferred till the matter is completed.

Thick and Thin Seeding: *B N F.* and *J J M.* Too late for this week.

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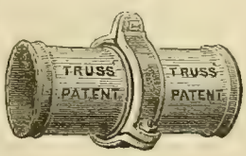
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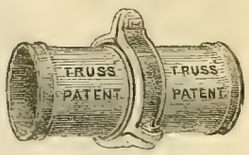
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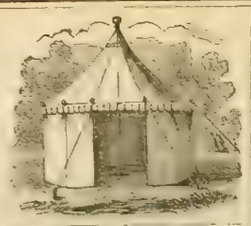
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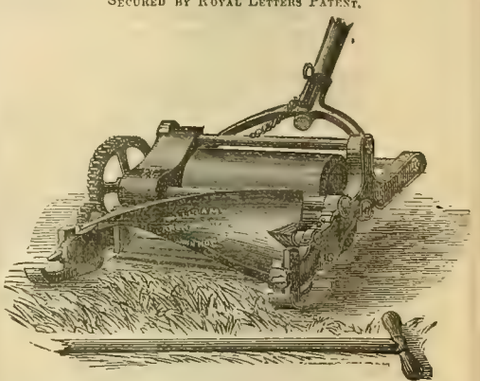
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This is the only Mower extant that cuts the Grass as Nature grows it. Lawns cut exclusively with our Mower during the season will retain their fresh, green appearance; whilst those cut by other Mowers look scorched and dead, because the heart of the Grass is necessarily cut off and killed thereby. We defy all competition. Please read our circular regarding this wonderful Mower, universally used in the United States of America. We respectfully invite Gentlemen with their Gardeners to an examination. Address the Subscribers, No. 1, City Road, Finsbury Square, E.C.
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THE IMPROVED SELF-ACTING HYDRAULIC RAM.

This useful Self-acting Apparatus, which works day and night without needing attention, will raise water to any height or distance, without cost for labour or motive power, where a few feet fall can be obtained, and is suited for supplying Public or Private Establishments, Farm Buildings, Railway Stations, &c.

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The "Goodenough" System is a complete success.
Over Thirty Thousand Horses are Shod on it.
Three Hundred Farriers have already adopted it.
Sample Cases, with full instructions, 21 Rs., containing Model, Patent Rasp, Sixteen Shoes, fitting size, Nails, &c.
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Armitt Works, Greenfield, near Manchester.
TANNERS, CURRIERS, and MANUFACTURERS of IMPROVED TANNED LEATHER DRIVING STRAPS for MACHINERY.
PRIME STRAP and SOLE BUTTS.
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E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, and Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, Royal Gardens, Kew, &c.

The best Shading is "Frigi Domo" Netting.
White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for
PROTECTION from the SCORCHING RAYS of the SUN.
"FRIGI DOMO" NETTING, 2 yards wide, 1s. 6d. per yard run.
"FRIGI DOMO" CANVAS.
Two yards wide .. .. 1s. 9d. per yard run.
Four yards wide .. .. 3s. 6d. per yard.
An improved make, 2 yards wide .. 1s. 9d. per yard.
An improved make, 3 yards wide .. 2s. 8d. per yard run.
"Rochford, Essex, June 4, 1869.
"Sir,—Will you be good enough to send me 50 yards of Frigi Domo, 2 yards wide, of your improved make, 1s. 9d. per yard run. You can foward it per London, Tilbury, and Southend Railway. I had some of you several years since, but have not found any substitute so good for Greenhouse and Stove Shadings.—I am, Sir, yours respectfully, "George Wood (Solicitor, Rochford).
"Mr. E. T. Archer, 7, Great Trinity Lane, Cannon Street, E.C."
ELISHA THOMAS ARCHER, Whole and Sole Manufacturer 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.

TOURISTS, TRAVELLERS, VISITORS to the SEA-SIDE, and others exposed to the Sun and Dust, will find the application of ROWLANDS' KALYDOR both cooling and refreshing to the face and skin, allaying all heat and irritability, removing eruptions, freckles, and discolorations, and rendering the skin soft, clear, and pleasant. Price 4s. 6d. and 8s. 6d. per bottle. Sold by Chemists and Perfumers. Ask for "Rowlands' Kalydor," and beware of spurious and pernicious articles under the name of Kalydor.

WHEN the HAIR, through weakness, begins to fall off, or turn grey, no preparation will sooner arrest the progress of these evils, restore the ORIGINAL COLOUR, and produce a healthy and luxuriant growth, than Mrs. S. A. ALLEN'S WORLD'S HAIR RESTORER. It is simple in its application, requiring no previous preparation of the hair; its perfume is agreeable, and no pomade or hair oil is required with it. In large bottles, 6s., of chemists and perfumers.
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THE SAFEST
FAMILY APERIENT.
In boxes at 1s. 1½d., 2s. 9d., 4s. 6d., and 11s.

COCKLE'S ANTIBILIOUS PILLS,
in use the last 69 years for
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In boxes at 1s. 1½d., 2s. 9d., 4s. 6d., and 11s.

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in use the last 69 years for
BILIOUS AFFECTIONS.
In boxes at 1s. 1½d., 2s. 9d., 4s. 6d., and 11s.

COCKLE'S ANTIBILIOUS PILLS,
in use the last 69 years for
LIVER COMPLAINTS.
In boxes at 1s. 1½d., 2s. 9d., 4s. 6d., and 11s.

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THE OLDEST
PATENT MEDICINE.
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CORNS and BUNIONS.—A Gentleman, many years tormented with Corns, will be happy to afford others the information by which he obtained their complete removal in a short period, without pain or any inconvenience.—Forward address on a stamped envelop to F. KINGSTON, Esq., Ware, Herts.

ELECTRICITY IS LIFE.
SELF-ADJUSTING CURATIVE and ELECTRIC BELT.
Sufferers from nervous debility, indigestion, weakness, &c., can now cure themselves by the only "Guaranteed Remedy" in Europe, protected by Her Majesty's Great Seal.
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BILIOUS and LIVER COMPLAINTS, Indigestion, Sick Headache, Loss of Appetite, Drowsiness, Giddiness, Spasms, and all Disorders of the Stomach and Bowels, are quickly removed by that well-known remedy, FRAMPTON'S PILL of HEALTH. They unite the recommendation of a mild operation with the most successful effect; and where an aperient is required nothing can be better adapted.
Sold by all Medicine Vendors, at 1s. 1½d., 2s. 9d. the box; or obtained through any Chemist.

The Best Remedy for Indigestion.
NORTON'S CAMOMILE PILLS are confidently recommended as a simple but certain remedy for indigestion. They act as a powerful Tonic and general Aperient; are mild in their operation; safe under any circumstances; and thousands of persons can now bear testimony to the benefits to be derived from their use. Sold in bottles at 1s. 1½d., 2s. 9d., and 11s. each, in every town in the Kingdom. Caution.—Be sure to ask for "NORTON'S PILLS," and do not be persuaded to purchase the various imitations.

LONDON and COUNTY BANKING COMPANY.
Established 1836. Subscribed capital, £2,500,000 in 50,000 shares of £50 each; paid-up capital, £1,000,000; reserve fund, £500,000.

Directors.

Nathaniel Alexander, Esq. | Frederick Francis, Esq.
Thos. Parmeter Bernard, Esq. | Frederick Hamilton, Esq.
Philip Patton Hoste, Esq. | Lord Alfred Hervey.
John William Buckle, Esq. | William Champion Jones, Esq.
Thomas Stock Cooke, Esq. | James Morice, Esq.
John Fleming, Esq. | William Nicol, Esq.

General Manager—William McKewan, Esq.
Chief Inspector—W. J. Nation, Esq.
Inspectors of Branches—H. J. Lamton, Esq., and C. Sherring, Esq.
Chief Accountant—James Gray, Esq.
Secretary—F. Clappison, Esq.
Head Office—21, Lombard Street.
Manager—Whitbread Tomson, Esq.
Assistant Manager—William Howard, Esq.

At the Half-yearly General Meeting of the Proprietors, held on Thursday, the 5th August, 1869, at the City Terminus Hotel, Cannon Street Station, the following Report for the half-year ending the 30th June, 1869, was read by the Secretary; Frederick Francis, Esq., in the chair:—

The Directors, in presenting to the Proprietors the Balance-sheet of the Bank for the half year ending 30th June last, have the satisfaction to report that, after paying interest to customers, and all charges, allowing for rebate, and making provision for bad and doubtful debts, the nett profits amount to £56,919 2s. 7d. This sum, added to £5,817 4s. 10d. brought forward from the last account, produces a total of £62,827 7s. 5d.

They have declared the usual dividend of 6 per cent., with a bonus of 2½ per cent. for the half-year, free of income tax (being at the rate of 17 per cent. per annum), which will absorb £54,601 9s. 10d., and leave £6,225 17s. 7d. to be carried forward to profit and loss new account.

By the recent appointment of Mr. Whitbread Tomson as Manager of the Head Office, a vacancy has arisen in the Auditorship, which, in accordance with the Deed of Settlement, it will be in the power of the Proprietors to fill at the annual meeting in February next.

The dividend and bonus (together £1 14s. per share) will be payable as the Head Office, or at any of the Branches, on and after Monday, the 16th inst.

BALANCE-SHEET OF THE LONDON AND COUNTY BANKING COMPANY, JUNE 30, 1869.

Dr.				
To capital paid up			£1,000,000	0 0
To reserve fund			500,000	0 0
To amount due by the Bank for customers' balances, &c.	£12,111,895	2 4		
To liabilities on acceptances, covered by securities	1,455,035	16 5		
			13,566,810	18 9
To profit and loss balance brought from last account	£5,817	4 10		
To gross profit for the half-year, after making provision for bad and doubtful debts	263,406	1 1		
			269,223	5 11
			£15,636,064	4 8
Cr.				
By cash on hand at Head Office, and branches, and with Bank of England	£1,864,743	1 7		
By cash placed at call and at notice, covered by securities	1,198,769	17		
			£3,063,512	19 0
Investments, viz.:				
By Government and guaranteed stocks	£4,300,123	16 8		
By other stocks and securities	59,581	3 8		
			1,359,705	0 4
By discounted bills and advances to customers in town and country	£9,361,787	5 8		
By liabilities of customers for drafts accepted by the Bank (as per contra)	1,455,035	16 5		
			10,816,823	2 1
By freehold premises in Lombard Street and Nicholas Lane, freehold and leasehold property at the branches, with fixtures and fittings			237,972	3 8
By interest paid to customers			52,977	0 8
By salaries and all other expenses at Head Office and branches, including income tax on profits and salaries			105,073	18 11
			£15,636,064	4 8

Profit and Loss Account.		
To interest paid to customers, as above		£52,977 0 8
To expenses do.		105,073 18 11
To rebate on bills not due, carried to new account		20,344 18 11
To dividend of 6 per cent. for the half-year		59,718 14 0
To bonus of 2½ per cent.		24,882 15 10
To balance carried forward		6,225 17 7
		£269,223 5 11
By balance brought forward from last account		£5,817 4 10
By gross profit for the half-year, after making provision for bad and doubtful debts		263,406 1 1
		£269,223 5 11

We, the undersigned, have examined the foregoing balance-sheet, and have found the same to be correct.
(Signed) WILLIAM NORMAN, R. H. SWAINE, } Auditors.
London and County Bank, 29th July, 1869.

The foregoing report having been read by the Secretary, the following resolutions were proposed, and unanimously adopted:

1. "That the report be received and adopted, and printed for the use of the shareholders."

2. "That the thanks of this meeting be given to the Board of Directors for the able manner in which they have conducted the affairs of the Company."
(Signed) FREDK. FRANCIS, Chairman.

The Chairman having quitted the chair, it was resolved, and carried unanimously:

3. "That the cordial thanks of this meeting be presented to Frederick Francis, Esq., for his able and courteous conduct in the chair." (Signed) W. CHAMPION JONES, Deputy Chairman.
Extracted from the Minutes.
(Signed) F. CLAPPISON, Secretary.

LONDON and COUNTY BANKING COMPANY.—NOTICE IS HEREBY GIVEN that a DIVIDEND on the capital of the Company, at the rate of 6 per cent. for the half-year ending June 30, 1869, with a bonus of 2½ per cent., WILL be PAID to the Proprietors, either at the Head Office, 21, Lombard Street, or at any of the Company's Branch Banks on and after Monday, the 16th instant. By order of the Board,
W. McKEWAN, General Manager.
21, Lombard Street.—August 6, 1869.

Ireland (North).
The NURSERY and SMALL FARM of NURSERYVILLE, with DWELLING-HOUSE and OFFICES, near SHANE'S CASTLE, COUNTY ANTRIM.

FOR SALE, in ONE LOT, by Private Contract (in consequence of the death of the Proprietor, the late Mr. John Ross), the INTEREST in the LEASE of the above LANDS, together with the whole of the NURSERY STOCK of TREES and SHRUBS, &c. The Premises are advantageously situate near the turnpike road, midway between the towns of Antrim and Randalston, one mile from a railway station, and 14 from Belfast, the commercial metropolis of Ireland. The Nursery was established in the year 1800, since which time the Business has been successfully carried on, and it is believed might be considerably extended. The locality is a desirable one, and equal to any part of the United Kingdom as regards the social, moral and industrial character of the population. Apply in the first instance to
Mr. COWAN, Land Agent, Tawstock Manor, near Barnstaple.

WANTED, a SMALL FARM, of 40 or 50 Acres; or, the MANAGEMENT of a FARM, for a Gentleman (Dairy Farming or otherwise); by a respectable Working Man, age 34. No small family. Experienced in Garden, Forcing, &c. Good reference, and small Capital.—C. B., 34, Highgate Road, London, N.W.

A Bargain.
TO BE SOLD, with Immediate Possession, the LEASE, GOODWILL, and STOCK in TRADE of a West-end Nursery-man and Florist. Good connection, and satisfactory reasons for disposal. A. B. C., 19, Grosvenor Row, Pimlico, S.W.

To Market Gardeners and Florists.
TO BE LET, on a Lease for 19 years, about 25 ACRES of good LAND, with House, Stabling, Barns, and Out-houses. Five Acres are planted with Fruit Trees; nearly 3 Acres of young Strawberry Plants will be in full bearing next season. Twenty miles from London, and near a Railway Station. Coming in, about £500.
ALPHA, 161, High Street, Notting Hill, W.

TO BE LET, at Michaelmas or Lady Day next, a SEED, NURSERY, and FLORIST BUSINESS, doing a good Trade. The Nursery is about 4 Acres, well stocked with Fruit Trees, Evergreens, Plants, &c.; with Vinery, Cucumber Houses, Plant-houses, Propagating Pits, and Offices. Every convenience; close to Town and Railway Station. The Stock to be taken at valuation, or as per agreement.—For particulars, apply to
RICHARD WILLIAMS, Esq., Corve Street, Ludlow, Salop.

TO BE LET, for a Term of years, a very useful NURSERY and GARDEN GROUND, of about 20 ACRES, with Vinery and other Houses thereon, in full operation; also a DWELLING HOUSE and SHOP, belonging thereto, at which a good Retail Business and Seed Trade is carried on. It is situated in one of the Midland Counties, and near to a First-class Railway Station.—Address to
Messrs. HURST AND SON, 6, Leadenhall Street, London, E.C.

Taunton, Somerset.
TO BE SOLD, by Private Contract, the PREMISES, PLANT, STOCK, and GOODWILL of an excellent SEED, FRUIT, PLANT, and NURSERY BUSINESS, now in full trade, in a capital situation, with every convenience, compact, and in good repair.
The Business, which is capable of great extension, has been established over 50 years, and affords an excellent opportunity to any Nurseryman or Gardener seeking a genuine, well-established, and profitable concern. The Premises comprise a small Dwelling House and Shop, Stove, Plant and Greenhouses, with Show-house for Plants, all fitted with modern Hot-water Apparatus, and filled with good serviceable Stock.
Nearly the whole of the Purchase Money might remain on Mortgage of the Premises, and every facility afforded to a Purchaser willing to succeed immediately the Widow of the late Proprietor.
Apply to Mrs. SWEET, The Bridge, Taunton; or to W. BRICE, Esq., Solicitor, Bridgewater.

Southdown Rams.
AUDLEY END FLOCK.—TWENTY SHEARLING and FIVE TWO-SHEAR RAMS, of the above Flock, to be SOLD or LET by Private Treaty.—Apply to
Mr. WILLIAM RAND, Audley End, Saffron Walden, Essex.

To Nut Planters.
MR. HOOK, of Vine Cottage, Gerrard's Cross, Bucks, has to OFFER for PUBLIC SALE, the SECOND WEEK in NOVEMBER NEXT, from 4000 to 6000 TREES of his superior SEEDLING FILBERTS, the finest bearers ever introduced.
For inspection, now until the end of August. There is about Seven Acres of them.

Layton.
THE STOCK of EXHIBITING and other PLANTS, on the Premises, at the Crystal Nursery, Sydenham Park, formerly the Property of the late Mr. O. Rhodes, will shortly be submitted to SALE by PUBLIC AUCTION, unless previously Sold by Private Contract. The LEASE and GOODWILL also for SALE.
Apply for further particulars to A. B., care of Messrs. Hibbard & Beck, 2, East India Avenue, Leadenhall Street, London, E.C.

Sales by Auction.

SALE THIS DAY AT HALF-PAST TWELVE O'CLOCK.

Dutch Bulbs.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, August 14, at half-past 12 o'Clock precisely, several cases of BULBS, just arrived from Holland; RUSTIC SEATS, STOOLS, VASES, &c.
On view the Morning of Sale, and Catalogues had.

Imported Orchids.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, August 17, at half-past 12 o'Clock precisely, several Importations of Valuable ORCHIDS, from Borneo, Guatemala, several other parts. On view the Morning of Sale, and Catalogues had.

Established Orchids.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, August 20, at half-past 12 o'Clock precisely, a small Collection of choice ESTABLISHED ORCHIDS, the property of a Gentleman, including many fine Specimen Plants of—

Lælia Wolstenholmiæ	Odontoglossum Alexandræ
Cypripedium villosum	,, phalænopsis
,, caudatum	,, triumphans
Cattleya Warneri	,, prevum majus
C. elegans Schilleriana	Dendrobium thyrsiflorum
Aerides Dayi	D. macrophylum giganteum, &c.

On view the Morning of Sale, and Catalogues had.

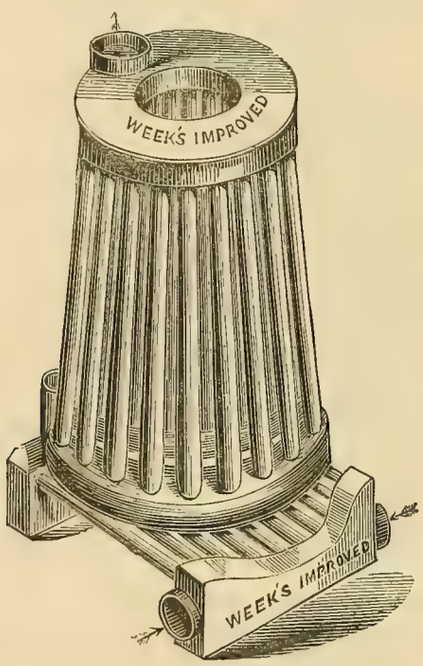
Preliminary Notice.—Clearance Sale.
SHACKLEWELL.
MESSRS. PROTHEROE AND MORRIS are instructed to offer by PUBLIC AUCTION, on the Premises, Norfolk Nursery, Shacklewell, on MONDAY, August 30, at 12 o'Clock, without reserve, the Premises having been Let, the remaining GREENHOUSE and BEDDING PLANTS, LIGHT BOXES, quantity of GARDEN POTS, capital Market SPRING VAN, and numerous effects.
May be viewed two days prior to the Sale. Catalogues had on the Premises; of Messrs. MILLS AND LOCKYER, No. 2, Brunswick Place, City Road; and of the Auctioneers, Leytonstone, N.E.

Buckland, near Faringdon.
MR. STRAFFORD is favoured with instructions to SELL by AUCTION, without reserve, on TUESDAY, August 31, at Buckland, near Faringdon, Berks, EIGHTY very superior pure-bred SOUTHDOWN EWES, belonging to Sir N. W. Throckmorton, Bart.; and about THIRTY RAMS, including the Royal Prize Sheep at Manchester. Also will be Sold, TWENTY BERKSHIRE BOAR and SOW PIGS, from the famed Buckland Stock.
Catalogues, with particulars, may be had on application to Mr. STRAFFORD, 13, Euston Square, London, N.W.; or of Mr. WILLIAMS, at Buckland, near Faringdon.

Cotswold Ram Sales, 1869.
T. B. BROWNE, Esq., of Salperton Park, Gloucestershire, has instructed
JAMES VILLAR to SELL by AUCTION about 100 COTSWOLD SHEARLING RAMS, at the undermentioned public Markets and Fairs:—
CIRENCESTER, AUGUST 2 and SEPTEMBER 6.
STRATFORD-ON-AVON, AUGUST 30.
EVESHAM, SEPTEMBER 14.
WORCESTER, SEPTEMBER 19.
GLOUCESTER, SEPTEMBER 28.
Mr. T. B. BROWNE does not intend exhibiting any of his Sheep at the Royal Agricultural Society's Show this year, in consequence of the practice of over-feeding, which, in his opinion, renders the Sheep quite unfit for use; he has, therefore, determined to offer his Rams this year in fair store condition, feeling assured that the Sheep will be more profitable to the buyers.
Mr. BROWNE specially invites all who take an interest in Long-woolled Sheep to inspect his whole Flock of about 800, any day by appointment, at Salperton Park, Gloucestershire.—July 1, 1869.

TEN FACTS WORTH KNOWING.

1. In the year 1843 the Horizontal Tubular Boiler was invented by J. WEEKS AND CO.
2. In the year 1855 WEEKS AND CO. discovered the superiority of the Upright Tubular over every other description of Boiler.
3. WEEKS AND CO.'S No. 6 is the only Boiler capable of warming four miles of 4-inch piping.
4. WEEKS AND CO.'S Cast Upright Tubular is 75 per cent. more durable than any Wrought Iron Tubular or Saddle Boiler that can be manufactured.
5. WEEKS AND CO'S Upright Tubular Boiler is in constant operation at all leading Horticultural Establishments throughout Great Britain and the Continent.



6. The largest Hot-water Apparatus in the world was erected by WEEKS AND CO., and worked on their One-Boiler System.
7. WEEKS AND CO.'S No. 6 Upright Tubular Boiler (as exhibited at Manchester) has proved itself the most clean, efficient, durable, economical, and powerful Boiler extant.
8. WEEKS AND CO.'S Upright Tubular Boiler, after having undergone the most severe and critical tests for the last 15 years, has in every case proved itself the best for Horticultural purposes.
9. WEEKS AND CO. are daily receiving the most flattering Testimonials as to the satisfactory working of their One-Boiler System.
10. Write for their "ILLUSTRATED CATALOGUE" (12th Edition), post free.

John Weeks & Co.ys

JOHN WEEKS AND CO.,

HORTICULTURAL BUILDERS AND HOT-WATER APPARATUS MANUFACTURERS,

KING'S ROAD, CHELSEA, S.W.

Editorial Communications should be addressed to "The Editor." Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 34.—1869.] SATURDAY, AUGUST 21. {Price Fivepence. {STAMPED EDITION, 6d.

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NOTICE to ADVERTISERS.—In answer to constant inquiries, the Proprietors have fixed the following SCALE of CHARGES for ADVERTISING:—

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All Advertisements connected with Gardening or Agriculture, four lines..	3	0
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Post Office Orders payable to JAMES MATTHEWS, at the Post Office, King Street, Covent Garden, W.C.

BRIGHTON and SUSSEX FLORAL and HORTICULTURAL SOCIETY'S GRAND EXHIBITION of PLANTS, FRUITS, and CUT FLOWERS, will be held at the Royal Pavilion and Eastern Lawn, on September 8 and 9. Prizes are offered on the same liberal scale as former years. Schedules on application to the Secretary, 96, St. James Street; or E. SPARY, Superintendent of the Exhibition, Queen's Graperies, Brighton.
EDWARD CARPENTER, Secretary.

BRISTOL CHRYSANTHEMUM and FRUIT SHOW SOCIETY.—The SIXTH GRAND SHOW of CHRYSANTHEMUMS, FRUIT, &c., will be held in the Rifle Drill Hall, Queen's Road, Clifton, on THURSDAY, November 11. Prize Schedules may be obtained on application to the Hon. Secretaries.
G. WEBLEY, Henleaze Park, Westbury-on-Trym.
H. STEPHENS, Cotham House Lodge, Tyndall's Park.

GRAND NATIONAL HORTICULTURAL EXHIBITION, 1870. JUNE 3 to 9. ONE THOUSAND POUNDS in PRIZES. To be held in the MANCHESTER BOTANICAL GARDEN. Schedules will be issued later in the year.
By order. BRUCE FINDLAY.
Botanic Gardens, Manchester.

SPIRÆA PALMATA. This magnificent plant is now being distributed for the first time in Europe. Good plants at 21s. each
CHARLES NOBLE, Bagshot.

ALLAMANDA HENDERSONI SYNO WARDLEANA. Good plants 7s. 6d. each, strong plants, in flower, 21s. each.
T. JACKSON AND SON, Nurseries, Kingston, Surrey.

WANTED, TWO PHORMIUM TENAX PANACHE (VEITCHII), in EXCHANGE for 600 CHAMÆROPS HUMILIS, having from 3 to 5 leaves each.
Address by prepaid letter to Mr. ALFRED SERDOBBEL, Faubourg d'Anvers, Gand, Belgique.

MRS. POLLOCK and LADY CULLUM.—Strong CUTTINGS WANTED.—Apply, stating price per 100, to R. T. PENNETT, Florist, Park Lane, Tottenham, N.

New Nosegay Geranium Charley Casbon.

CASBON AND SON are now sending out the above beautiful GERANIUM. It is of dwarf spreading growth; the flowers, which have broad petals, are freely borne in immense trusses. Colour, the richest scarlet of any variety known. Strong plants 5s. each. The usual allowance to the Trade.
Gravel Walk Nursery, Peterborough.

Gladioli, the most Extensive Collection.

BARR AND SUGDEN, 12, King Street, Covent Garden, W.C., have the finest and largest collection of GLADIOLI ever offered, prices varying from 2d. to 15s. per root. For particulars see pp. 68, 69, 70, and 71 of B. & S.'s SPRING SEED CATALOGUE.
BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.

Choice Seeds, Gladioli, &c.

WM. CUTBUSH AND SON'S CATALOGUE of the above contains description and price of many very superior home-grown VEGETABLE and FLOWER SEEDS, and choice varieties of GLADIOLI, &c., all of which are highly recommended. Post free on application.
Highgate Nurseries, London, N.

Lilium auratum.

MESSRS. J. STANDISH AND CO. have NOW in FLOWER a magnificent specimen of the above. It is 11 feet high, and has no less than 100 blooms on a SINGLE stem. To lovers of this fine Lily, the opportunity of seeing such a plant should not be lost. Royal Nurseries, Ascot.—August, 1869.

To the Trade.

PRIMULA SEEDS (New Seeds now arriving).—Hayes' superb fringed, new double flowered, new scarlet, and other colours, all of the finest possible quality. Prices on application. Retail packets for present sowing, 2s. 6d. and 5s. each. All colours and sorts separate.
HOOPER AND CO., Seed Merchants, Covent Garden, London, W.C.

Seeds Direct from the Growers, the most Effectual Means of Preventing Disappointment.

SUTTON AND SONS, SEED GROWERS, deliver their Home-grown Seeds, Genuine as Harvested, to all parts of the Kingdom. Carriage free (except very small parcels).—Prices and full particulars on application.
SUTTON AND SONS, Seed Growers, Reading.

Paul's Roses.

"Mr. PAUL's Roses * * * are things to see once and dream of for ever."—*Athenæum.*

WM. PAUL begs to announce that his ROSES are NOW in BLOOM. Inspection respectfully invited. Trains from London, Bishopsgate Station, to Waltham, Great Eastern Railway, 13 times daily.
PAUL'S Nurseries & Seed Warehouse, Waltham Cross, London, N.

Established 1806.

T. HANDASYDE AND DAVIDSON have a large stock of TEA, HYBRID PERPETUAL, BOURBON, and CHINA ROSES in pots. Special prices to the Trade on application.
Seed Warehouse, 24, Cockburn Street, Edinburgh.
Nurseries, Brunstain Glen, Musselburgh.

Paul & Son's Roses Now in Bloom.

PAUL AND SON, The Old Nurseries, Cheshunt, invite an inspection of the ROSES, GLADIOLI, HOLLYHOCKS, FRUIT TREES, and other hardy growths, now in excellent condition. The Forty or Fifty First Prizes taken this season for Roses bear witness to their thorough cultivation at Cheshunt. No plants in the country can be finer. Thirteen Trains from Bishopsgate to Cheshunt; the 8 A.M. and 4 P.M. *via* Waltham and Omnibus to nursery gates.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY (Limited),
CORN, SEED, MANURE, AND OILCAKE MERCHANTS.
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

To the Trade.—Seedling Rhododendrons.

G. FARNSWORTH has to offer a large quantity of 3-yr. SEEDLING RHODODENDRONS. Prices and samples on application at The Nurseries, Matlock.

TO GENTLEMEN, GARDENERS, and OTHERS, having to DISPOSE of CHOICE FRUIT or FLOWERS, &c. They may meet with a ready Sale by applying to
A. IRETON, Covent Garden Market, W.C.

WANTED.—The Undersigned require a COUPLE of well-ripened FRUITS of the TRUE OLD EGYPTIAN GREEN-FLESH NETTED MELON, which have been grown apart from any other variety, and which can be warranted pure, and free from hybridisation, for the sake of the seed. State all particulars to Messrs. FRANCIS & ARTHUR DICKSON & SONS, Chester.

Strawberry Plants.

CHARLES TURNER is now prepared to supply strong plants of all the leading kinds. DESCRIPTIVE LIST may be had on application.
The Royal Nurseries, Slough.

Strawberry Runners.

JAMES CARTER AND CO. have a splendid Stock now ready. For Prices and Varieties, see AUTUMN CATALOGUE, now published.
JAMES CARTER AND CO., Seedsmen and Nurserymen, 237 and 238, High Holborn, W.C.

Pines.

B. S. WILLIAMS has all the best kinds, in splendid condition, warranted clean. Prices on application.
B. S. WILLIAMS, Seed Merchant and Nurseryman, Upper Holloway, London, N.

FRUITING PINES, clean and strong, in No. 4 Pots, of the following kinds:—QUEEN, BLACK JAMAICA, and MOSCOW QUEEN.
JAMES TAPLIN, Seedsman, High Street, Uxbridge.

Grapes, Grapes, Grapes.

FOR SALE, the FRUIT of several large VINERIES, stocked with the choicest assortments.
Apply to Mr. SCOTT, Manager, Stermongers, Rudgwick, Sussex.

Golden Champion Grape.

OSBORN AND SONS can supply good CANES of the above-named remarkable GRAPE, which has again been exhibited and very much admired, fully sustaining the high character previously formed of it. Price 10s. 6d., 21s., and 30s. each.
Fulham Nursery, London, S.W.

THOMSON'S WHITE LADY DOWNE'S GRAPE.—Plants of this, the latest-keeping White Grape in cultivation, will be sent out in September; price 21s. and 42s. each; strong fruiting canes, 63s. each.
THOMAS METHVEN, Leith Walk Nurseries, Edinburgh.

Vines.

PAUL AND SON have to offer unusually fine plants this season. Fruiting and Planting CANES of GOLDEN CHAMPION, MRS. PINCE, and all leading kinds.
The Old Nurseries, Cheshunt, N.

Vines.

JAMES CARTER AND CO. can now offer strong, well-grown CANES, this year's growth. For description of Varieties and Prices, see AUTUMN CATALOGUE, now published.
JAMES CARTER AND CO., Seedsmen and Nurserymen, 237 and 238, High Holborn, W.C.

Vines.

JAMES BACKHOUSE AND SON can now offer a large and very superior stock of VINES from Eyes, grown without bottom-heat, and comprising all the new and leading kinds. The Canes are very robust, and short jointed. Fine planting Canes of all the leading kinds, 3s. 6d. to 5s. each; Fruiting Canes, 7s. 6d. to 10s. 6d. each; a few extra selected ditto, 12s. 6d. each. Prices of the new sorts on application.—York Nurseries.

Vines.

CHARLES TURNER can supply
GOLDEN CHAMPION
MADRESFIELD COURT | MRS. PINCE, and
BLACK MUSCAT | ROYAL ASCOT
In Fruiting Canes, or second size for planting out; also the established old varieties, in fine plants.
The Royal Nurseries, Slough.

To the Trade.

MRS. PINCE'S MUSCAT VINE, Planting Canes, 6 feet, 42s. per doz.
CLEMATIS STANDISHII, very strong, in pots, 75s. per 100.
H. P. ROSES, in pots, good sorts, our own selection, 50s. per 100.
ROSES, New, of this season, in pots, 18s. per doz.
HEDERA MACULATA and H. MACULATA LATIFOLIA, extra strong, in pots, 60s. per 100.
CATALOGUES of General Nursery Stuff on application to
G. BAKER AND SON, American Nursery, Bagshot, Surrey.

J. SCOTT'S DESCRIPTIVE CATALOGUE of DUTCH and other FLOWER ROOTS is now ready, and may be had free on application to
J. SCOTT, The Seed Stores, Yeovil, Somerset.

Suttons' Fresh Imported Flower Roots.

SUTTONS' AUTUMN CATALOGUE for 1869 is now ready, and may be had gratis and post free.
SUTTON AND SONS, Importers, Reading, Berks.

Dutch Flower Roots, &c.

B. S. WILLIAMS' CATALOGUE of HYACINTHS, TULIPS, CROCUSES, NARCISSUS, and other Spring-flowering Bulbs; also FRUIT TREES, ROSES, &c., is now ready, post free to all applicants.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

Now Ready, Post Free to all Applicants.

B. S. WILLIAMS' CATALOGUE of NEW and RARE PLANTS, 1869, containing the most beautiful and select of the latest introductions and Supplementary Lists of the General Collection.
Victoria and Paradise Nursery, Upper Holloway, London, N.

NOTICE.—A CATALOGUE of CHOICE NEW PLANTS of 1869, at greatly reduced prices, with select List of DUTCH and other BULBS, with Cultural Notes, ROSES, HARDY HERBACEOUS PLANTS, &c., free on application to
W. DILLISTONE, Nurseryman, &c., Sible Hedingham, Essex.

HOOPER AND CO., SEEDSMEN'S SUNDRIES MEN, IMPORTERS, and SEED MERCHANTS.
The NEW TRADE PRICE CURRENT for 1869-70 now published, and may be had on application.
HOOPER AND CO., Covent Garden, London, W.C.

LEWIS S. WOODTHORPE'S NEW PLANT CATALOGUE for 1869 is now ready, which he will be happy to forward free upon application. It comprises a choice and varied collection of select New Plants, Roses, Fruit Trees, Seed List, and general Nursery Stock.
Munro Nursery, Sible Hedingham, Essex.

Hardy Fern Catalogue (No. 13).

J. IVERY AND SON will be pleased to forward their NEW PRICED LIST of the above upon receipt of two postage stamps. Dorking.—August 21.

British Fern Catalogue.

ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, Sidcup Hill, Kent.

NEW RAPE SEED.—Samples and quotations of the above forwarded post free on application to
CHARLES SHARPE AND CO., Seed Merchants, Sleaford.

To the Trade.

TURNIP and MANGEL SEEDS, growing crop of 1869, splendid stocks, various kinds.
FREDK. GEE invites attention to the above, and will be pleased to make special offers of the same on advantageous terms.
Seed Establishment, Biggleswade, Beds.

To Farmers, Gardeners, and Others.

F. GEE can still supply excellent strong Cabbage, Cauliflower, Brussels Sprouts, Savoy, Scotch Kale, splendid Variegated Kale, and other PLANTS. Genuine new unadulterated Cabbage, Turnip, Mustard, Cole SEED, &c. Prices, which are low, had on application.—Seed Establishment, Biggleswade, Beds.

Drumhead Cattle Cabbage.

THE HEAVIEST OF ALL AGRICULTURAL CROPS.
SUTTON AND SONS can supply the IMPROVED DRUMHEAD CATTLE SEED at 4d. per oz., or 2s. 6d. per lb. It will be remembered that remarkably fine specimens of the above were exhibited on Messrs. Suttons' stand at the last Smithfield Club Show. Sow in August and September.
SUTTON AND SONS, Seed Growers, Reading.

New English Sowing Rape Seed.

H. AND F. SHARPE have fine Samples of NEW RAPE SEED, which they can offer to the Trade at low figures. Price and samples on application.
Seed Growing Establishment, Wisbech.

PARIS, 1867. | SUTTONS' GRASS SEEDS for ALL SOILS. A PREMIER PRIX SILVER MEDAL for GARDEN SEEDS, GRASSES, and GRASS SEEDS, was Awarded to SUTTON AND SONS, SEEDSMEN to the QUEEN, Reading, Berks.

Suttons' Permanent Grass Seeds for All Soils.

SUTTON AND SONS are now prepared to execute orders for their MIXTURES of PERMANENT PASTURE GRASSES and CLOVERS for AUTUMN SOWING. For prices and full particulars apply (stating the nature of the soil to be laid down) to SUTTON AND SONS, Seedsmen to the Queen, Reading.

Bromus Schræderi.

SUTTON AND SONS can supply SEED of the above valuable FORAGE GRASS at 1s. per lb.; much cheaper by the cwt. August and September are good months to sow. 20 lb. and upwards sent free by rail. Sow 50 lb. per acre in drills 9 or 10 inches apart. Royal Berks Seed Establishment, Reading.

A SPECIAL PRIZE MEDAL, PARIS, 1867, was AWARDED to JAMES CARTER & CO., 237 & 238, High Holborn, London, W.C., for GRASS SEEDS, supplied for the Exhibition Grounds.

GRASS SEEDS: WHEN and WHAT to SOW.—For the fullest information on this subject, see CARTER'S ILLUSTRATED FARMER'S CALENDAR for 1869; post free, 6d.
JAMES CARTER AND CO., Seed Growers, 237 and 238, High Holborn, London, W.C.

EVERY GARDEN REQUISITE KEPT in STOCK at
CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

Look to your Grass Lands.

JAMES CARTER AND CO.'S RENOVATING MIXTURE of GRASSES and CLOVERS SHOULD NOW BE SOWN. This Mixture is specially prepared to suit the various soils, and consists of the most desirable kinds *to produce a Permanent Pasture of first-class quality* on old decayed Pastures and other lands *that have suffered through the extreme dryness of the past season.*—9d. per lb., or 80s. per cwt.
CARTER'S "PRIZE MEDAL" PASTURE GRASSES for FORMING NEW MEADOWS, mixed to suit all Soils, from 21s. to 32s. per acre. Special low quotations for quantities on application to
JAMES CARTER AND CO., Seed Farmers, 237 and 238, High Holborn, London, W.C.

ORCHIDS SUITABLE for COOL TREATMENT.—A Gentleman desirous of DISPOSING of his COLLECTION as a whole or separately, at a great sacrifice, to effect an early clearance. 25 choicest varieties, including some magnificent specimens 2 feet through, with 10 to 30 pseudo-bulbs each. A list of names with all particulars may be had of
Mr. W. B. JEFFRIES, Henley Road, Ipswich.

CHOICE SPECIMEN AZALEAS and FERNS, 12 each of the best varieties, 2 to 3 feet high, and as much through, to be SOLD, a bargain. Names and full particulars of
Mr. W. B. JEFFRIES, Henley Road, Ipswich.

TO DAHLIA EXHIBITORS.—One Hundred TABLES, nearly new, with shifting gear to protect the Blossoms from wind, rain, or insects; any height to 6 feet, and so arranged as to raise the Flower with the greatest ease daily as the stalks elongate. By far the best invention out, and will be SOLD a Bargain, as the Owner has given up exhibiting.—For price, &c., apply to
Mr. W. B. JEFFRIES, Henley Road, Ipswich.

Ferneries.

E. A. PUIG, ORNAMENTAL ROCK WORKER, 21, Grove Terrace, St. John's Wood, N.W. FERNERIES of all kinds, internal and external, artistically designed and executed.

APPLEBY'S GENUINE TOBACCO PAPER, in 2lb. and 4lb. packets. Testimonials too numerous for insertion.
Price on application to HENRY APPLEBY (Foreman to Messrs. Ivery & Son, Nurserymen), Dorking, Surrey.

The Cheapest and Best Insecticide.
DUTY-FREE TOBACCO.
BY HER MAJESTY'S ROYAL LETTERS PATENT, AND BY PERMISSION OF THE HON. BOARD OF CUSTOMS.

POOLEY'S TOBACCO POWDER, for the Prevention and Destruction of Blight and other Diseases in Plants.
Sold by Nurserymen, Seedsmen, and Florists,
In Tins at 1s., 2s. 6d., and 5s.
Powder Distributors, 2s. 6d. and 3s. 6d. each.
"I find it exceedingly useful for killing the Aphides on Roses and other Plants."—GEO. EYLES, Superintendent, Royal Horticultural Gardens, South Kensington. May 7, 1868.
Sole Manufacturer, T. A. POOLEY, Bonded Warehouse, Sussex Wharf, Wapping, E.


Red Spider — Magnified.

GISHURST COMPOUND.

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d.

Wholesale by
PRICE'S PATENT CANDLE COMPANY (Limited),
Battersea, London, S.W.

Calvert's Carbolic Acid
(Silver Medal, Paris, 1867; Gold and Silver Medals, Havre, 1868) was, after repeated and thorough tests, proved to be the
BEST PREVENTIVE of CATTLE DISEASE, and all other Infectious Diseases, and was specially recommended by the Royal Cattle Plague Commissioners. It should therefore be promptly used on all Farms where the present disease is either prevailing or feared; and it may be obtained through all especially Wholesale and Retail Druggists.

New and Choice Seeds of 1869 Growth.

CHARLES TURNER can now supply the following, all of his own saving and from his unrivalled Collections:—

	Per pkt.—s.	d.		Per pkt.—s.	d.
Auricula Stage	2	6	Pelargonium, Fancy Vars.	2	6
,, Alpine	1	6	,, Tricolor ,,	2	6
Cineraria	2	6	,, Variegated ,,	2	6
Calceolaria	2	6	,, Zonal ,,	1	0
Cyclamen	1	0	Primula sinensis fimbriata		
Pansy	2	6	rubra	2	6
Pelargonium, Show Vars.	2	6	,, ,, alba	2	6

Choice Seeds for Present Sowing.

B. S. WILLIAMS can with confidence offer the following, as being the finest in cultivation:—

	Per pkt. s. d.
PRIMULA (Williams' superb strain), red, white, or mixed,	2s. 6d., 3s. 6d., and 5 0
CALCEOLARIA (Neill's extra choice strain),	2s. 6d., 3s. 6d., and 5 0
CINERARIA (Weatherill's choice strain)	2s. 6d., 3s. 6d., and 5 0
CYCLAMEN (Wiggins' prize strain)	1s. 6d., 2s. 6d., and 3 6
ECHEVERIA METALLICA	2 6
HOLLYHOCK, from the finest varieties	1 0
PANSY, from prize flowers	1 0
,, finest Belgian varieties	1 0
POLYANTHUS (Wiggins' prize strain)	1s. and 1 6
STOCK, EAST LOTHIAN, 3 colours separate	2 6
VIOLA LUTEA (yellow flowered Violet)	1s. and 1 6
WALLFLOWER (Saunders' fine dark variety)	1 0

*** All the above are in sealed packets. None genuine unless they bear B. S. WILLIAMS' name and address.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

Alba multiflora, Pink.

J. WADSON is now sending out this excellent large white forcing PINK (which gained a First-Class Certificate at the Royal Horticultural Society, South Kensington, May 4, at the Floral Committee), at 7s. 6d. per pair; 5s. per pair when 12 or more are taken. See *Gardeners' Chronicle* and "Gardeners' Magazine," May 8, 1869. A remittance from unknown correspondents. Post Office Orders payable at Hammersmith.
J. WADSON, Florist, Wellesley Avenue, Hammersmith, Middlesex.

Notice to the Trade and Others.

NEW BICOLOR and ZONAL PELARGONIUMS.—Large plants of the following kinds, taken up from the beds, affording abundance of Cuttings, are offered cheap, viz.:—
BICOLORS.—Amber Witch, Aureum, Beauty of Oulton, Bronze Belt, Bronze Shield, Creole, Eclipse, Jason, Mrs. C. Barry, Pet of the Parterette, Richelieu, Sol.
Varieties with Marble-shaded foliage, very strong plants.—John Gibson, Lord Lyon, Lucy, Mutabilis, Penelope, Rossetta, Rustic, Vanguard, Wonderful.
NEW ZONAL PELARGONIUMS.—Achievement (F. & A. Smith), Gaiety (F. & A. S.), Magnificent (F. & A. S.), Scarlet Dwarf (F. & A. S.), Surrey Rival (F. & A. S.), Perfection (F. & A. S.), Comte de Morny, Waltham Nosegay, Crystal Palace Gem, and Silver Mullar; also half specimen plants of COLEUS Marshallii and Dixii, all at 6s. per doz. Single plants of any of the above at Catalogue prices. Terms cash.
Also 12 varieties of the new and beautiful JAPANESE CHRYSANTHEMUMS, 6s. the set, strong plants, in pots.
DESCRIPTIVE CATALOGUES free on application.
Apply to T. L. MAYOS, Seedsman, Lugwardine, Hereford.

ARTHUR HENDERSON & CO.'S

AUTUMN CATALOGUE OF DUTCH FLOWER ROOTS,

Containing complete LISTS of HYACINTHS and other BULBS, ANNUALS, and a select LIST of VEGETABLE SEEDS for Autumn Sowing; also the best GRAPES and STAWBERRIES in cultivation; FRUITS, and a Summary of lately (new) introduced Plants in the Stove, Greenhouse, and Decorative Summer Garden.

PINE APPLE PLACE, MAIDA VALE, W.

WINTER and SPRING DECORATION of the FLOWER GARDEN

JAMES CARTER & CO.,

THE ROYAL SEEDSMEN,

237 AND 238, HIGH HOLBORN, LONDON, W.C.,

WILL FORWARD GRATIS ON APPLICATION,

CARTER'S ILLUSTRATED CATALOGUE

Of HYACINTHS, CROCUS, TULIPS, and other DUTCH BULBS, FRUIT TREES, ROSES, &c., for this Autumn's planting.

J. C. AND CO. strongly advise intending purchasers to obtain a copy of the above work, which will be found the most complete of its kind. Full description of the various bulbs is given, together with instructions to ensure successful cultivation.

J. C. AND CO.'S Annual CONSIGNMENTS of BULBS are arriving in splendid condition, and early orders are recommended.

JAMES CARTER AND CO., THE ROYAL SEEDSMEN, 237 AND 238, HIGH HOLBORN, W.C.

NOTICE.

ROYAL HORTICULTURAL SOCIETY, LONDON.
ROYAL ZOOLOGICAL SOCIETY, LONDON.
ROYAL BOTANIC SOCIETY, LONDON.
ROYAL BOTANIC GARDENS, DUBLIN.
ROYAL BOTANIC GARDENS, LIVERPOOL.
ROYAL BOTANIC GARDENS, CAMBRIDGE.
ROYAL WINTER GARDEN, DUBLIN.
ROYAL DEPARTMENT OF SCIENCE AND ART, LONDON.

It is with great gratification that we announce our permission to refer upon any occasion to the various

HEATING APPARATUSES at the above, where our "ONE BOILER SYSTEM

HAS FOR YEARS BEEN SUBJECTED TO THE MOST CRITICAL TESTS WITH EVERY SATISFACTORY RESULT.
IT IS MATCHLESS FOR EFFICIENCY, AND IS WORKING THE LARGEST APPARATUS ON RECORD.

These are no theoretical statements, but positive facts, and it is not too much to add, that no boiler can boast a parallel.

For List of Details, see "ILLUSTRATED BOOK of DESIGNS" (12th Edition), which can be obtained by addressing a note to

JOHN WEEKS AND COMPANY, HORTICULTURAL ENGINEERS, &c., KING'S ROAD, CHELSEA, S.W.

New Strawberry, William James Nicholson.

WILLIAM LAWRENSON begs to offer to the Public, after August 25, plants of the above excellent Strawberry at 10s. per dozen, described as under by Dr. Roden, page 69, in "Hogg's Year Book, 1869:"—"Foliage brightish green, plant healthy and hardy; fruit large, conical, and occasionally flattened obovate; colour darkish glossy red; flesh white, juicy, rich, and piquant." Also by Mons. F. Gloede, in "Journal of Horticulture," August 13, 1868:—"This is a very large, handsome, late kind, of beautiful appearance, and of the richest flavour, quite distinct from any we already possess."

Fine plants now ready of all good varieties at reasonable prices, amongst which are Dr. Hogg, 7s. 6d. per 100; Sir J. Paxton, President, Comte de Paris, Premier, Le Constante, all 5s. per 100.

All orders must be accompanied by a remittance.

N.B. All W. L.'s Strawberries are grown in strong clay.

Engleschiffe, Yarm, Yorkshire.

Choice Flower Seeds for Present Sowing.

DOWNIE, LAIRD, AND LAING have the pleasure of offering the following choice Flower Seeds:—

CALCEOLARIA, Hybridised, saved from a superb First Prize Collection, 2s. 6d., 3s. 6d., 5s. per pkt.

CINERARIA, extra choice, saved from an unequalled assortment of named flowers, 1s. 6d., 2s. 6d., 3s. 6d. per pkt.

HOLLYHOCK, extra fine, saved from our own magnificent collection, in 12 colours, 5s. per collection.

HOLLYHOCK, extra fine, saved from our own magnificent collection, mixed, 1s., 2s., 3s. 6d. per pkt.

PANSY, Show, saved from our unrivalled Exhibition Flowers, 1s., 1s. 6d., 2s. 6d. per pkt.

PANSY, Fancy, saved from a selection of the most beautiful colours, 1s., 1s. 6d., 2s. 6d. per pkt.

PRIMULA, Fringed (Red and White), saved from the finest strain in cultivation, 2s. 6d., 3s. 6d., 5s. per pkt.

PRIMULA, Fern-leaved (Red and White), saved from the finest strain in cultivation, 2s. 6d., 3s. 6d., 5s. per pkt.

Stanstead Park, Forest Hill, London, S.E.; and at Edinburgh.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY.—GREAT INTERNATIONAL FRUIT and FLOWER SHOW.—The following Gentlemen have been appointed Judges of this Show:—The Rev. Reynolds Hole, the Rev. Edward Hawke; Messrs. Dominy; Graham, Garscube; Keynes, Salisbury; Laing, Stanstead; Turnor, Slough; Dean, Shipley; Methven, Blythswood; Speed, Chatsworth; Thomson, Drumlanrig; Dell, Stoke Rochford; MacNab, Botanic Gardon, Edinburgh; Tillyard, Brocklesby Park; Webster, Gordon Castle; Carmichael, Sandringham; Blair, Shrubland Park; Thomson, Stansted Park; and Westcott, Raby Castle.

JOHN STEWART, Sec.

Edinburgh, July 22.

THE TWENTY-THIRD ANNUAL SHOW of the BANBURY HORTICULTURAL SOCIETY will be held on TUESDAY, August 31.

Open Prizes on payment of an entrance fee of 2s. 6d.:—

For Stove or Greenhouse Plants, either in flower or ornamental, but not Fuchsias, Achimenes, Geraniums, or Annuals, 6 varieties, to be grown in not less than 8-inch pots, 1st Prize, £3; 2d, £2.

For the best 24 Dahlias, 24 varieties, 1st Prize, £3; 2d, £2.

For the best 18 Hollyhocks, 2 blooms of each, 1st Prize, £2; 2d, £1.

For the best 12 Verbenas (5 trusses in a bunch), 1st Prize, £1; 2d, 15s.

The Judges may withhold any Prize if the production exhibited be not considered worthy. Intending Exhibitors must give notice to the Secretary on or before Saturday, August 28. The Society will, if requested, convey the productions from and to the Railway.

The Bands of the Ninth Queen's Royal Lancers, and Third Oxon Rifle Volunteers will play on the grounds.

For Schedules and other information apply to the Secretary, E. J. HARTLEY, 67, High Street, Banbury.

The Gardeners' Chronicle.

SATURDAY, AUGUST 21, 1869.

THE annual reunion of *savans* of all hues at the meeting of the BRITISH ASSOCIATION was inaugurated at Exeter on Wednesday last, by an address from the eminent mathematician and physicist, Professor STOKES. As might have been anticipated, the Professor's discourse turned principally on subjects not directly coming within the scope of this journal. A large portion of the address relates to those extremely interesting and marvellous researches by means of which the chemical constitution of the sun and of the stars has been to a large extent determined. This is a triumph of science that in any other age than our own would have been looked on as miraculous; the more so as the means by which this startling information is gained are comparatively very simple. We cannot follow the Professor in his account of these phenomena, nor is it necessary, for his narrative of the principal recent discoveries in astronomy and physics is singularly clear and intelligible to outsiders. We may, however, extract some portions of the President's address bearing on subjects treated in this journal. In illustration of the increasing power that the chemist has of forming artificially matters of great commercial value, at present derived from the animal or vegetable kingdoms, Professor STOKES makes the following statement:—

"It appears from the public returns that upwards of 10,000 tons of Madder are imported annually into the United Kingdom. The colours which Madder yields to mordanted cloth are due to two substances, alizarine and purpurine, derived from the root. Of these, alizarine is deemed the more important, as producing faster colours and yielding finer violets. In studying the transformations of alizarine under the action of chemical re-agents, MM. Graebe and Liebermann were led to connect it with anthracene, one of the coal-tar series of bodies, and to devise a mode of forming it artificially. Assuming it to be obtained at a sufficiently cheap rate, what a remarkable example does the discovery afford of the way in which the philosopher, quietly working in his laboratory, may obtain results which revolutionise the industry of nations! To the calico-printer, indeed, it may make no very important difference whether he continues to use Madder or replaces it by the artificial substance; but what a sweeping change is made in the Madder-growing interest! What hundreds of acres hitherto employed in Madder cultivation are set free for the production of human food or of some other substance useful to man! Such changes can hardly be made without temporary inconvenience to those who are interested in the branches of industry affected; but we must not on that account attempt to stay the progress of discovery, which is conducive to the general weal."

Turning, then, to the relation between physical and biological science—to the distinction between the effects of physical, as contrasted with vital, force—the speaker alluded to the number of substances formerly regarded as essentially natural organic substances which have since been formed artificially in the laboratory.

"But," says Professor STOKES, "do the laws of chemical affinity, to which, as I have endeavoured to infer, living beings, whether vegetable or animal, are in absolute subjection, together with those of capillary attraction, of diffusion, and so forth, account for the formation of an organic structure as distinguished from the elaboration of the chemical substances of which it is composed? No more, it seems to me, than the laws of motion account for the union of oxygen and hydrogen to form water, though the ponderable matter so uniting is subject to the laws of motion during the act of union just as well as before and after. In the various processes of crystallisation, of precipitation, and so forth, which we witness in dead matter, I cannot see the faintest shadow of an approach to the formation of an organic structure, still less to the wonderful series of changes which are concerned in the growth and perpetuation of even the lowliest plant. Admitting to the full as highly probable, though not completely demonstrated, the applicability to living beings of the laws which have been ascertained with reference to dead matter, I feel constrained at the same time to admit the existence of a mysterious something lying beyond—a something *sui generis*, which I regard, not as balancing and suspending the ordinary physical laws, but as working with them and through them to the attainment of a designed end. What this something, which we call life, may be, is a profound mystery. We know not how many links in the chain of secondary causation may yet remain behind; we know not how few. It would be presumptuous indeed to assume in any case that we had already reached the last link, and to charge with irreverence a fellow worker who attempted to push his investigations yet one step further back. On the other hand, if a thick darkness enshrouds all beyond, we have no right to assume it to be impossible that we should have reached even the last link of the chain—a stage where further progress is unattainable, and we can only refer the highest law at which we stopped to the fiat of an Almighty Power. To assume the contrary as a matter of necessity is practically to remove the First Cause of all to an infinite distance from us. The boundary, however, between what is clearly known, and what is veiled in impenetrable darkness, is not ordinarily thus sharply defined. Between the two there lies a misty region, in which loom the ill-discerned forms of links of the chain which are yet beyond us. But the general principle is not affected thereby. Let us fearlessly trace the dependence of link on link as far as it may be given us to trace it, but let us take heed that in thus studying second causes we forget not the First Cause, nor shut our eyes to the wonderful proofs of design which, in the study of organised beings especially, meet us at every turn. * * * When from the phenomena of life we pass on to those of mind, we enter a region still more profoundly mysterious. We can readily imagine that we may here be dealing with phenomena altogether transcending those of mere life, in some such way as those of life transcend, as I endeavoured to infer, those of chemistry and molecular attraction, or as the laws of chemical affinity in their turn transcend those of mere mechanics. Science can be expected to do but little to aid us here, since the instrument of research is itself the object of investigation. It can but enlighten us as to the depth of our ignorance, and lead us to look to a higher aid for that which most nearly concerns our wellbeing."

THE very interesting letters of our esteemed correspondent Dr. BENNET on the VEGETATION of SOUTH EUROPE and NORTHERN AFRICA, which have appeared in our columns from time to time during the last few years, must have been eminently suggestive to the practical horticulturist, and specially to those who are endeavouring to cultivate in the open air in these latitudes the plants of warmer climes. The letters in question afford an excellent illustration of the manner in which men of observation, such as medical men, in particular, ought to be, turn to account facts and material which less thoughtful people would either pass by unnoticed, or of which they would fail to see the full significance. The force of this remark will be estimated when it is remembered that the object of the writer of these delightful letters was not strictly horticultural. Horticulture was not forgotten, it is true. The garden at Mentone and—how different—the garden in Surrey, both of which have been alluded to in our columns, are proof sufficient of this. Nevertheless, the main object was to ascertain the real nature of the climate of the district visited, by the observation of its effects on vegetation. In this, as it seems to us, the writer has done wisely. Records of the thermometer, hygrometer, barometer, and other instruments familiar to the physicist are extremely valuable, no doubt, but for the physician who deals with living humanity, as for the cultivator who is concerned with living plants, something more is wanted than the mere record of the effects of heat, or of a more or less weighty atmosphere upon a mercurial column. In the case of human beings it is not a mere question of comparative health, but it is an affair of race. To a still greater extent is this true of plants. Some there are, though few in number, which are all but cosmopolitan; others, though widely distributed in point of latitude, are yet always formed under similar conditions; and again, there is a small number whose range is extremely restricted. The reasons for this diversity of distribution have of late formed a favourite subject for investigation by philosophic naturalists. We cannot enter into so large a matter here, but we may say in general terms that while existing local conditions of climate, soil, exposure, situation, and the like, are of very great importance, yet it is probable that to account for the distribution of the great majority of existing plants we must look back from the present into the geological vistas of past æons. However interesting these may be to the naturalist, they are but of remote importance to the practical cultivator. To the latter class the remarks of Dr. BENNET will be more useful than the question whether or no the legend of the mid-Atlantic continent have a basis of truth; and assuming the former existence of such an "Atlantis," whether that circumstance tends in any way to account for the present distribution of plants.

In illustration of our meaning let us refer to the fact so well elucidated by Dr. BENNET'S observations of the effect of protection from cold winds. From this cause alone it would appear that many plants will flourish in the Genoese Riviera, which perish from winter cold in Algeria, several degrees nearer the Equator. Here is a hint for the horticulturist, one which enables us to understand how on our own southern coast, in Devonshire or in the Isle of Wight, we have trees and shrubs flourishing to an extent beyond what is habitual, or even possible, to the same plants further south, where there is not the same amount of protection. It ought also to stimulate our gardeners to make fresh trials. The one great drawback to a more extended culture of plants of southern latitudes in our clime lies not so much in our damp cold winters, for these may to a large extent be provided against, as in our comparatively sunless summers. It is possible, even, that we may have in the course of our summer months heat enough for the requirements of a particular plant, but that heat is distributed over a long period, is fitful and intermittent, and the result is that growth is slow, and, in gardening phrase, the wood does not ripen speedily enough, or well enough. By proper shelter and protection, by "heat-retaining borders," such as are in use in Battersea, we may do a great deal; and we suspect it is only the dire catastrophe of such a winter as 1866 which prevents more extended trials in this direction being made. In any case the letters already referred to furnish abundance of hints to those who are inclined to make experiments of this nature; and for this and other reasons we are glad to learn that the letters are to be republished.

—— WE are informed that at a general meeting of the Royal Horticultural Society, held last Tuesday, Mr. HENRY WHITWORTH was, on the recommendation of the Council, elected a Forty-guinea Life Fellow, in consideration of the services he rendered to the Royal Horticultural Society on the occasion of their third provincial show, held at MANCHESTER last month.

—— We are requested to announce the following additional subscriptions to the BARNES' TESTIMONIAL FUND:—

Per Mr. Wm. Robinson:—				Per *Gardeners' Chronicle*:—			
Mr. A. McKenzie ..	£1	1	0	Mr. C. Cadness, gr.,			
Mr. J. F. Meston ..	1	1	0	Heath Hill, Stack-steads	£0	5	0
Mr. Anthony Waterer	1	1	0				
Mr. Wm. Robinson..	1	1	0				

—— In addition to the firms mentioned in our last issue as likely to represent English horticulture at the forthcoming EXHIBITION at HAMBURGH, we may mention that Messrs. CARTER & Co. intend to exhibit collections of new tricolor, zonal, and double-flowered Pelargoniums, 12 varieties of Coleus, and other plants.

—— As the general result of 190 experiments on the culture of Beet-root with CHEMICAL MANURES and with FARMYARD manure respectively, M. VILLE states that in 170 experiments the weight of roots obtained was greater with the artificial than with the farmyard

manure. The figures given are as follows:—1·326 kilogrammes of chemical manures gave 51,948 kilogrammes of Beet-root per hectare, while 50,650 kilogrammes of farm manure yielded only 41,811 kilogrammes; hence there is a balance of 10,137 kilogrammes in favour of the chemical manures. Similar results were arrived at in the case of the Potato. M. Ville considers that the excessive use of nitrogenous manures, and the consequent exhaustion of phosphate of lime and of potash from the soil, predispose the plant to ill-health, attacks of parasites, and the like. For the Potato he recommends as most suitable a manure containing a relatively small quantity of nitrogen, and a large quantity of potash. M. Ville does not enter into the question of the relative cost of the two systems of manuring. As to root crops, although it may be possible to grow large crops from artificial manures alone, either from favourable seasons, or because previous dressings of farmyard manure are not yet exhausted, nevertheless the experiments of Messrs. Lawes and Gilbert go to show that such a course cannot be persevered in successfully.

—— Mr. Fish lately called attention in our columns to an Extraordinary Swarm of Aphides. From other quarters similar reports were sent, and now we have the complement in an equally vast incursion of Lady-Birds (Coccinella). Kentish Hop growers generally welcome the lady-birds, as they destroy the aphides. The town of Ramsgate was on Sunday last visited by a vast swarm of lady-birds. They filled the air and covered the earth at every conceivable point. Their number was greatest about noon, when they were to be seen upon projecting corners of houses, collected so as to form one red patch. Later in the day the air got somewhat thinned of them, owing to the traffic of the streets and the destruction which they met with. The streets then presented a peculiar appearance. The number of these bodies strewn about caused the roads to look as though newly gravelled. In the neighbourhood of Chepstow, also, lady-birds were seen in enormous quantities at the latter end of last week.

New Plants.

Mormodes uncia, *sp. n.*

Sepalis triangulis acuminatis; petalis ovatis acuminatis multo latioribus; labello ligulato antice rhombeo dilatato apiculato, fimbriato, callo didymo angulato in disco partis antice, toto labello involuto.

A very unexpected novelty from Mexico, introduced by Messrs. Veitch. Its flowers are larger than those of M. aromaticum, and are whitish, with many violet blotches. It is much superior to the last-mentioned species. *H. G. R.*

Oncidium exasperatum, *Lind. Rchb. fil.*

Affine Oncidio coccifero, sepalis petalisque extus valde muriculato-exasperatis; sepalis cuneato ovatis apiculatis; petalis paulo latioribus; labello triangulo basi utrinque obtusangulo, callo depresso a basi in discum apice excunte, utrinque bidentato, extus utrinque tridentato (undecim dentato igitur); columna sub fovea constricta.

A new species, and quite distinct in the asperities of the outer side of the sepals and petals. The flowers are chestnut-coloured, the lip yellowish, with brown bars, the callosity orange. It is probably a native of Ecuador, and was introduced by M. Linden. *H. G. R.*

Gongora portentosa, *Lind. Rchb. fil.*

Racemo elongato pluriflore, floribus longipedicellatis; sepalo dorsali ligulato acuto, sepalis lateralibus oblongis, apiculatis; petalis carnosis linear-falcatis; labello carnosissimo compresso, medio supernè angulato aristis geminis retrorsis in basi laminarum dolabriformium antice acutarum, antice aditum in antrum labelli aperientium; epichilio tabuliformi ancipiti parvo ligula linear bicurva anteposita.

This is a very singular novelty, with numerous large yellowish flowers, having fleshy violet petals with purplish dots; the column is similarly coloured, and the upper part of the shining lip is also violet. We are indebted for it to M. Linden. *H. G. R.*

Trichocentrum tigrinum, *Lind. Rchb. fil.*

Sepalis petalisque ligulato-lanceolatis acutis; labello cuneato trilobato antice emarginato, carinis acutangulis geminis in basi carnis elongatis in discum excurtibus ternis tomentosis anteposita, calcari extinctoriiformi; columna crassa alis arcuatis, alis parvis laceris erectis.

Trichocentrorum princeps! A most extraordinary novelty, with the shining leaves of Trichocentrum atropurpureum, and the flowers of Miltonia spectabilis, but coloured like those of Cattleya Aclandiæ, except that the lip has a white apex, and the calli are orange. We obtained this splendid plant from M. Linden. It is much more like a Miltonia than a Trichocentrum. *H. G. Rchb. fil.*

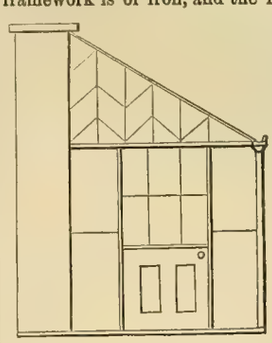
COVERING WALLS WITH GLASS FOR THE PROTECTION OF FRUIT TREES.

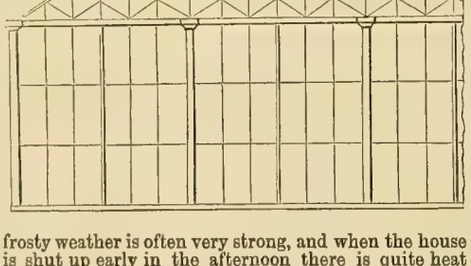
[Read at the Manchester Congress, July 22, 1869.]

The uncertainty of securing good crops of our finer fruits, such as Peaches, Nectarines, and Apricots, owing to the injuries from spring frosts, makes some kind of protection almost a necessity in our climate. Lately orchard-houses have been prominently advocated by Mr. Rivers and others, and when properly managed they have been a source of interest and profit to amateurs and gardeners with limited means of growing fruit on walls or in hothouses. Where there are walls with a southern aspect in gardens, a covering of glass will, however, be found the cheapest and most certain way of securing crops of our finer fruits. When Peaches, Nectarines, and Apricots are only required to come to maturity by the natural heat of the season, the expense of heating such structures artificially is not required. The spring frosts likely to occur in March and April will not injure the blossoms, for I have proved this on an Apricot wall here, temporarily covered with glass lights. Last year, on the 12th April, 8° of frost were registered, yet the fruit trees in bloom, and young Apricots as large as Filberts were uninjured under the glass covering, but on the open walls the crop was quite destroyed, even where protected by branches and nets.

For the last seven years the crop has never failed on this wall until this spring, when some varieties of Apricots were only thinly set with fruit; the season may, therefore, be called an exceptional one, and the failure in the crop may be accounted for by the excessive warmth in February, followed by a dull and cold March. The trees showed plenty of healthy blossoms, but the pollen seemed glued together and did not disperse; and even the fruit, where set, dropped off from the sudden cessation of the flow of sap. Some varieties of Apricots on this wall, however, have set a good crop, such as the Kaisha, Breda, and Musch-Musch. In the midland districts all unheated orchard-houses have very thin crops this year, showing that artificial heating is requisite in such structures in seasons like the past.

When the new kitchen garden was planned at Welbeck, a range of south wall nearly 800 feet long was covered with glass on a novel principle. All the framework is of iron, and the roof made on the ridge-and-furrow mode, and glazed with strong plate glass, cast on purpose to suit the curve in the roof. The openings for top ventilation are made in the back wall, and every alternate light in front is opened and shut by machinery worked from the inside. The height of the back wall inside is 13 feet, in the front 7 feet 6 inches, and the inside width 7 feet 4 inches. This structure is heated by hot-water pipes, and these were found very useful this spring, for good crops of Peaches and Nectarines have been secured, as well as plenty of Cherries, Plums, and Pears grown in pots. Fire-heat is only used at the time they are blooming, or in the autumn, to ripen the wood, as the object of this structure is to get a succession of Peaches and Nectarines after the hot-house ones are over. In such structures, if unheated, it is advisable not to exceed 5 or 6 feet of inside width, so that the absorbed heat in the back wall may have sufficient power to expel any frost when the trees are in bloom. In March and April the sun-heat in clear





frosty weather is often very strong, and when the house is shut up early in the afternoon there is quite heat enough reflected from the back wall to make the blossoms safe.

The long range of glass-covered wall here has a very light and imposing appearance, from the absence of any timber in its construction, and from the ornamental iron bays placed every 22 feet in the inside. These bays are for growing hardy Grapes on, and some varieties have this spring shown plenty of bunches to festoon the top of the bays. All the ironwork in the interior is painted of a light sky-blue tint, and the effect is very pleasing. The walk inside is a stone pavement laid on walls of bricks on edge, so that the roots of the fruit trees may run between them. Besides the advantage of furnishing a promenade in bad weather, this immensely long range is useful for so many purposes that I must state them *seriatim*. On the front, where the two rows of 4-inch pipes are placed, there is an iron grating covering them. Its width—2 feet—is sufficient for a long row of 300 fruit trees in pots to stand on. In April and May bedding plants in immense quantities can be placed between the pots, on purpose to harden them off for planting them out in June.

The fruit trees grown in pots consist principally of Cherries and Plums, and a few of the best varieties of Pears and Apples. No Apricots are required here for pot culture, as a sufficient supply is obtained every year from a wall protected by glass lights. The Cherries grown in pots come in about two weeks before those grown on the walls, and consist of the following kinds, according to their time of ripening:—Belle d'Orléans, Early Purple Guigne, Werder's Early Black, May Duke, Waterloo, Black Tartarian, Cleveland Bigarreau, and for the latest Florence and Late Duke. The following kinds of Plums are grown in pots in quantities:—Early Favourite and Mirabelle, Brahy's Green Gage, Jefferson, Cox's Emperor, Kirke's, Oullin's Golden Gage, Magnum Bonum, and Golden Drop. The Pears and Apples grown in pots are confined to a few varieties which are esteemed for their earliness, fine flavour, or colour. Pears: Citron des Carmes, Doyenné d'Ete, Yat; Jargonelle, double-grafted on the Quince, which bears freely; Williams' Bon Chrétien, Marie Louise, and Beurré d'Amanlis Panachée, a variety beautifully stripped with red; Doyenné du Comice, and Beurré Clairgeau. Apples: Cox's Pomona, beautifully coloured when grown in pots; Cox's Orange Pippin, Melon, and Northern Spy, both American Apples; and a beautiful Russian sort named the Red Transparent.

The selection of Peaches and Nectarines planted against the back wall comprises some of the new kinds raised by Mr. Rivers, and the best of the old varieties. The Peaches, according to their time of ripening, are Early Beatrice, Early York, Early Alfred, Dr. Hogg, Early Mignonne, Grosse Mignonne, Noblesse, Malta, a deliciously flavoured and medium-sized Peach of the Noblesse section; Stump the World, Barrington, Late Admirable, Walburton Admirable, Gregory's Late, Téton de Venus, and Salway. Nectarines, in the order of ripening:—Fairchild's Early, a very old small red kind; Hunt's Tawny, Rivers' Pine-apple, Violette Hâtive, Elruge, Murrey, Downton, Rivers' Albert Victor, and Victoria.

Another great use of this glass-covered wall is for producing salads in the winter months, for without much trouble a succession of fine succulent Lettuces and Endive can be had every day when wanted. The Endive is lifted with balls of earth, and put into covered boxes in the Mushroom-house, where it becomes sufficiently blanched in three or four days. The Lettuces are planted in the border in the autumn, and a slight covering of hay preserves them from severe frosts, should the hot-water pipes not be used. A good supply of blanched Chicory is likewise had by sowing it in July on a north border, and lifting it when wanted to plant in large covered pots, where it soon blanches; this forms the Barbe du Capucin of the French salads. *William Tillery, Welbeck.*

VARIOUS METHODS OF GRAFTING:

WITH AN ATTEMPT TO INQUIRE INTO THE INFLUENCE WHICH THE STOCK EXERCISES UPON THE SCION, AND VICE VERSÂ.

[Read at the Manchester Congress, July 22, 1869.]

"You see, sweet maid, we marry
A gentler scion to the wildest stock,
And make conceive a bark of baser kind
By bud of nobler race: this is an art
Which does mend Nature, change it rather; but
The art is Nature."

By the above quotation from "The Winter's Tale" it would appear that Shakespeare (whose profound knowledge of human life in all its phases has been, and will long continue to be, the wonder and admiration of mankind) was by no means ignorant as regards the art of grafting. It is reasonable to suppose that he would hardly have written the above lines had he not practised this art himself, or at least been thoroughly aware of the objects for which it is usually performed. This art would indeed appear to be of the greatest antiquity, and the date of its discovery, like the name of its earliest practitioner, is hidden in the mists of countless ages.

The practice is alluded to in Holy Writ, and Pliny, and other ancient writers, have also alluded to the subject. In some of their writings fabulous descriptions are given of extraordinary fruit-trees, so grafted as to produce sundry and very dissimilar kinds of fruit, such as Apples, Plums, Figs, Grapes, &c., upon the same tree. But it will be readily supposed that if any such trees ever existed they must have been produced by similar means to that said to be sometimes resorted to on the Continent at the present day, where trees are occasionally produced, and offered for sale, on which appear to be growing the Orange, the Myrtle, the Pomegranate, &c., all upon one stem. All this, however, as may be supposed, is merely a deception, accomplished by having cut out the centre of the stem of the largest variety used, and drawing the smaller stems of the other sorts through the hollow thus formed, each individual plant retaining its roots, and thus for a time maintaining a struggling existence. By the adoption of similar means the Strawberry plant has been represented as growing from the stem of a Rose tree. This, too, is accomplished by taking the runner on which the Strawberry plant is produced through the Rose stem, which had previously been hollowed out for the purpose, while its roots occupy the same soil as that in which the Rose tree is growing.

It may, I think, be reasonable to suppose it possible, that Nature, or accident, may have first suggested the practice of Grafting, as instances are frequently to be met with in woods and thickets, where branches of trees happen to cross and to press upon each other, and the friction caused by the action of the wind in time displaces the bark; and as the branches increase in strength this friction is resisted and the pressure increased, until the result is a permanent and organic union. This may be considered as grafting by approach, a practice which cultivators have imitated in the method known as Inarching. Various modes of grafting are practised, all of which, under certain circumstances, have their respective advantages; but of these methods the limits of this paper will only allow me to glance at those which are found to be the most applicable to general purposes, and many other so-called methods may be considered as merely modifications of the same.

In all methods of grafting it is of the greatest importance that similar parts should be placed as much as possible in contact with each other; and on this account the method known as saddle-grafting may be considered amongst the best, as presenting the largest possible surface to receive the ascending fluid or sap. This method, however, does not appear to be so generally practised as might be expected—possibly on account of more time being required to perform the

operation, and it is also necessary that the stock and scion should somewhat nearly correspond in size. In performing the operation the stock must be cut into the form of a sharp inverted wedge, the scion split up the middle, and its sides pared down until it exactly fits the stock. By this method the leading shoots of Conifers and other trees can be grafted with great facility, performing the operation while the wood is only partially ripened, and this will usually be found to be the case about the middle of August.

Whip-grafting is probably the commonest method of grafting, and that by which fruit trees, such as Apples, Pears, &c., are usually increased. The *modus operandi* is to head or cut down the stock to within 2 inches or 3 inches of the ground; a piece is then sliced from the side of the stock, and the scion is similarly sliced. An oblique cut is made near the upper part of the stock, and a corresponding cut is made in the scion, forming what are called tongues, and these fit into each other. The bark of the scion and stock is carefully adjusted, they are then bound together, and clay or grafting wax applied, and the soil usually drawn around them, until all is covered except the scion.

Crown-grafting is usually resorted to in cases of aged trees, when it becomes desirable to change the variety. This mode of grafting is performed by cutting the stock horizontally across at the desired height, then cutting through the bark in a vertical line or lines, in number according to the size of the stock, slightly raising the bark, introducing the prepared scions between the wood and the bark, with their cut sides fitting to the wood, binding all tightly together, and applying grafting clay in the usual manner.

Cleft-grafting is performed by cutting the stock horizontally across and making a vertical cut to the depth of 2 or 3 inches. Introduce a wedge to keep the cleft open until the scion is fitted in, when the wedge must be withdrawn, a bandage applied, and the parts covered with clay or grafting wax.

Side-grafting is practised in cases where it is not expedient to head down the stock, but where it is desirable to keep up or to restore the regularity of the branches or fruit spurs. For this purpose choose scions in form somewhat arched or bent; cut the lower part in a long slant, and in those parts of the stock where it is desired to produce a branch or spur, cut a horizontal notch, penetrating the wood to some extent. From this notch downwards make a vertical incision, some 2 inches in length, penetrating to the wood; slightly raise the edges of the bark and introduce the scion, with the cut surface next to the wood of the stock; then bind carefully round, and apply grafting-wax or clay.

Shield-grafting or budding is so universally understood and practised that to attempt to minutely describe the operation would be a waste of time. By this method many sorts of fruit trees, Roses, &c., are increased, and it may be successfully practised from the beginning of July until the end of September. Moist and sunless weather, however, is most conducive to the success of the operation, which is performed as follows:—Take a young shoot (that is, a shoot of the current year) of the variety intended to be budded, having visible buds or eyes in the axils of the leaves, cut off the greater part of the leaf, then cut a slice of bark and wood, of about 1½ inch in length, with the bud intended to be used in the middle, carefully separate the bark from the wood, avoiding at the same time in any way injuring the bark which contains the bud, and which from its form is usually called the shield. The latter is to be inserted in the stock as follows:—Make a vertical slit through the bark, some 1½ inch in length, and a cross-cut at the top; then, with the sharp end of the handle of the budding-knife, raise the bark on each side, and carefully insert the shield, cutting off that part of the top which does not rest upon the alburnum, or newly exposed wood of the stock, by again passing the knife over the cross-cut at the top; bind firmly with soft bast or cotton, and shade from bright sunshine.

Inarching, or grafting by approach, has already been alluded to as sometimes taking place accidentally. It is not always convenient to adopt this system, but when it is possible to do so it is justly considered as the most certain method of grafting, as it is not necessary to sever the scion from its parent, from which it continues to draw its support until it can be ascertained that a union has taken place with the stock. Inarching is very easily performed by merely paring away a portion of the scion down into the alburnum or wood, and making a corresponding wound upon the stock; fit the cut surfaces accurately, and bind them lightly together; grafting wax may then be used, but this is not always necessary. By this means Camellias are usually increased; the single-flowered variety, which is readily grown from cuttings, being used as the stock. This is also found to be an expeditious method of proving newly introduced varieties of the Grape Vine, taking for stocks young growing shoots of an established Vine. After carefully paring away corresponding portions of wood from the stock and the graft, both being in a green or unripened condition, fit them exactly, and bind them tightly together, taking care at the same time to avoid crushing or bruising the immature shoots; and as soon as a union is formed let the ligature be slackened or removed, and the stock cut back to within an eye or two of the junction, in order to direct as much as possible the flow of sap into the scion.

To the celebrated Mr. Thomas Andrew Knight is due, I believe, the credit of being the first to recommend and to practise the system of root-grafting—he having no doubt observed that the roots of many plants retain their vitality long after being separated from the other parts of the plant, and evidently only require the presence of buds to enable them to develop perfectly organised plants. This method of grafting is now extensively practised, and is found to be an excellent and expeditious mode of increasing newly introduced plants, such as Roses, Clematises, Passion-flowers, &c., inasmuch as a very small portion of the kinds to be increased can be readily grafted on a corresponding portion of the roots of some of their more common or hardier congeners; and under favourable treatment they very quickly form healthy plants.

In addition to the various methods of grafting already referred to, must also be mentioned the system of double grafting, from which great advantages have been derived. It is found that some of our most delicious varieties of Pears succeed but indifferently when worked upon the ordinary Pear stock, also when grafted upon the Quince; but when the system of double grafting is adopted a vast improvement is effected in the healthy development of the delicate varieties, and a corresponding improvement in the quality of their fruit. To accomplish this desideratum the method usually pursued is to graft the Quince with some of the stronger growing varieties, such as Beurré d'Amanlis, &c., as a "go-between" or intermediate stock; and on this to bud or graft the more delicate but desired varieties. An eminent English pomologist has claimed to be the inventor of this system of grafting; but it is unfortunate for the establishment of this claim, and rather a realisation of the adage that "there is nothing new under the sun," to find that this system has been recommended by a French pomological writer of a somewhat remote period, and was even practised in that country as early as the year 1700.

I am unable to say whether or not double grafting has been successfully practised with the varieties of Cherries and Apples in cultivation; but the stocks in general use for the former are the Wild Cherry and the Mahaleb. The latter, on account of its surface-rooting properties, bears a similar relation to the Wild Cherry that the Paradise does to the common Crab as a stock for the Apple. For the last-named fruit, when intended to be cultivated as standard or orchard trees, the common Crab is doubtless the most suitable stock; but for the more delicate dessert varieties, more particularly when intended to be grown as espaliers or cordons, the best adapted stock is doubtless the Paradise, or Doucin, or Pommier de Paradis of the French. There would appear, however, to be more than one variety of the Paradise stock in use; and there would even appear to be some diversity of opinion as to which is the true variety; and "when doctors disagree who shall decide?"

So great, however, is the influence which the stock exercises upon the scion, and the scion to some extent upon the stock, and so vast is also the influence of soil and situation upon both, that the subject of stock and scion opens up so wide and extensive a field for research and inquiry that an excellent practical pomologist, writing lately upon the subject, says that our threescore years and ten hardly afford sufficient time to thoroughly explore and investigate it. That the stock to a very great extent influences the scion as regards vigour of constitution, and in fruit trees productiveness and quality of fruit, is not to be doubted; and that the stock and the scion cannot in any degree influence or alter the specific character of each other may also, I think, be taken for granted. But the problem yet remains to be solved as to whether or not other conditions or peculiarities than have yet been alluded to can or cannot be produced by the influence of the one upon the other; and should it be found that the scion and the stock are really capable of producing or developing certain conditions or peculiarities on each other, it will also be interesting and necessary to ascertain whether or not these peculiarities are of so permanent a character as to be retained when separated from the individual plant upon which they were first produced. If this should be found to be the case, then this production may, I think, with propriety be regarded as a "graft hybrid," that is, a distinct variety, the united production of two other distinct varieties, partaking more or less of the nature and character of each of these varieties, and produced independent of, or without, sexual union.

My attention was drawn to this circumstance some time since by reading some extracts from an essay, "On the Circulation of the Sap," by Professor Bradley, of the University of Cambridge, and dated so early as the year 1757. This learned Professor says: "We find by inarching or inoculating a variegated common Jessamine, whose leaves are edged with white, into either the plain common sort or the Spanish Jessamine or the Indian or Brazil kinds, that the malignity which causes the whiteness in the leaves of the first mixes itself in such a manner with the juices of the plant it is engrafted upon, that their leaves become infested or tinged in some places with white colour. If we put only a bud of the variegated sort into a plain Jessamine, 10 or 12 feet above the ground, the poison will reach the branches next the root, as well as those which are at a great distance above it." It is certain from what the learned Professor says, that he believed the condition of variegation, at least, could with certainty be communicated from the stock to the scion, also from the scion to the stock; and on reading these extracts, the conclusion I came to was that experimenters of that period must have been similar to their brethren of the present day, viz., somewhat inclined to jump rather hastily at conclusions, and I regarded this leap on the part of the learned Professor as a somewhat remarkable performance. At the same time it really does appear that there are authenticated cases to be pointed out, where the entire stock appears to have been infused or inoculated with the condition of variegation by the simple insertion of a variegated scion or bud. As cases in point, mention may be made of the Breadalbane Ash, the Chelsea Jasmine, &c., and also the case of a green-leaved Abutilon, which had been grafted with a variegated variety, and which appears to have induced the stock to throw out variegated shoots. This plant was shown before a meeting of the Royal Horticultural Society only a few months since; and M. Lemoine, of Nancy, has also lately published an account of similar occurrences taking place after grafting the Abutilon megapotamicum and A. venosum with the same variegated variety as was used in the former case, viz., A. Thompsoni.

Some time since a statement also appeared in some of the horticultural periodicals, to the effect that similar results to those narrated above had been obtained by grafting the variegated Pelargonium Mrs. Pollock upon one of the many plain or green-leaved sorts; and thinking that I might be excused for taking liberties with this family of plants, I some time since instituted various experiments with them, with a view to test as far as possible the influence of the stock upon the scion, and *vice versâ*. Unfortunately, however, these experiments, up to the present time, have been to some extent negative as to results, or not yet sufficiently advanced to warrant the forming of decided opinions upon the subject. Allusion, however, to them at the present time may not be altogether uninteresting, and may possibly induce other experimenters to direct their attention to the matter. The field for investigation is sufficiently extensive for any amount of inquiry which may be brought to bear upon it, and in proportion to this amount will be the probability of dispelling the cloud of uncertainty which at present rests upon the subject.

In my endeavour to produce the condition of variegation in the stock I have grafted various varieties of the plain or green-leaved Pelargonium with sundry sorts of the gold and silver variegated kinds; and to try to produce variegation in the scion I have grafted green-leaved sorts upon various varieties of the gold and silver variegated kinds.

To try the possibility of transmitting or reproducing the quality of scent, I have grafted the highly perfumed sorts, such as tomentosum, upon green-leaved zonals, and also upon variegated zonals; likewise many of the plain and variegated zonal varieties upon sundry sorts of the highly-scented Cape species. Anxious also to ascertain what might be the effect of the influence of stock upon scion, &c., when exemplified in a family of plants not usually treated in the manner I am about to describe, I extended my inquiries into the family of Leguminosæ. I have in various ways experimented on sundry members of that esteemed family, grafting green marrow Peas upon the early white varieties, and early white sorts, such as Sutton's Ringleader, upon green marrows, such as Yorkshire Hero, &c.; the white Mazagan Bean upon the large green Windsor variety, and the green Windsor upon the Early Mazagan; Fulmer's Early Dwarf French Bean upon the common Scarlet Runner, and the Scarlet Runner upon several varieties of the Dwarf Kidney Bean. And all of these grafted Leguminous plants are now growing freely, with possibly a perceptible diminution of vigour on the part of the Scarlet Runner, which also evinces a disposition to emit roots immediately above the point of union with the stock. The seeds which may be produced by these grafted plants I shall carefully preserve, with a view to sowing them hereafter at the same time, and in juxtaposition with seeds of the respective sorts not so treated; and I will carefully note any deviation (if such there should be) from the normal type, as regards the period of maturity, habit of growth, colour and quality of seeds, &c.

It will be observed that these detailed experiments have been instituted more with a view to obtain, if possible, visible or easily recognised results, should any such be induced, than in expectation of developing improved varieties. To successfully perform the operation of grafting upon such fragile subjects as the common garden Pea, Kidney Beans, &c., requires a steady hand and a very sharp penknife, and I will in as few words as possible describe my method of procedure. About the middle of March seeds of the sorts intended to be operated upon were sown in very light soil, in seed pans, and placed in a temperature of about 60°. In six or eight days most of the sorts were sufficiently advanced to be grafted, and on freeing the young plants from the soil in which they had vegetated the plumules or stems were found to be some two or more inches in length, and the radicles or roots of equal or rather of greater length. The latter were left intact, care being taken to injure them in no way. Selecting the varieties intended to stand to each other in the relation of stock and scion, with a sharp penknife a slice was cut from the side of the stem of each, to the depth of nearly one half the diameter of the stems, and about an inch or more in length, commencing the slice at about half an inch from the cotyledons. The wounded sides of each plant were then fitted to each other as accurately as possible, and bound together with a thread of soft bast, and immediately potted into small pots, and placed in the same temperature as that in which they had been started into growth. They did not appear to have received any check or injury from the operation, but continued to progress rapidly, and at the end of five days they were placed in a cold pit; at the end of another five days they were again shook from the soil in which they had been growing, the ligature was carefully removed, and in most instances a union was found to have been formed.

It was now necessary to decide as to which variety should act as stock and which as graft or scion, and with a sharp knife the stem of the plant intended to be the scion was severed just above the cotyledons, thus entirely preventing it from deriving any benefit from its own roots, and rendering it entirely dependent upon roots of the stock for its support. The stem of the stock was also pinched back to the leaf immediately above the union, in order to throw as much as possible the flow of the sap into the scion, without, however, entirely depriving the stock of its foliage for a short

time longer. The plants were again repotted, and placed in a close atmosphere in a temperature of about 60°, where they remained for a few days, when the stocks were cut back close to their junction with the scion, and any attempts on the part of the latter to emit roots into the soil were effectually checked. The plants were now placed for a time in a cold pit, before being finally planted in the open border. *P. Grieve, Culford.*

ON THE DESIGNING OF NEW WORKS BY GARDENERS.

[Read at the Manchester Congress, July 22, 1869.]

THE question as to the propriety of gardeners designing new works in establishments where they are employed, is one which has a vast bearing on the future progress of gardening in this country. The briefness of this paper will not allow even a short glance at what has been accomplished by the self-sacrificing energy and enterprise of gardeners in working up the style and character of British gardens to their present world-wide reputation. My object is rather to inquire how far the designing of new works is advantageous to gardeners under ordinary circumstances, and I hope it will be distinctly understood that I do not so much question the capability of gardeners for designing works, as the want of fair opportunity for them to engage in works of this kind.

It cannot be overlooked that we have entered a new era in gardening, the extraordinary variety and development of our engineering and mercantile enterprises engender a taste for variety and substance in gardening surpassing that of any former period of which we have account. The garden has now become one of the most valued and valuable refreshments of busy life, one of the sweetest pleasures of modern refinement, and as men increase in refinement and sensibility they will the more seek the exercise of gardening recreations.

We find an inexhaustible demand for variety and beauty, all ranks of society vieing with each other in producing effective improvement in old as well as new gardens. Mistaken ideas of economy induce many owners of gardens to dispense with the services of a professional designer, and thus the gardener is encouraged to enter into new works, from which he is not likely to derive profit or fame. There is often a great temptation for young gardeners to engage in new works. The love of the subject offers new sources of enjoyment, and fond anticipation expects success to follow every new creation. Perhaps there is no other class of men which so keenly feel the question, "What have you done since I saw you last?" as gardeners do. There is another point of inducement to enter into new works, and it is one in which I have a keen sympathy, although I know it often ends in grievous disappointment. Under generous and approving employers the gardener finds the existing garden arrangements and style not equal to the requirements and taste of the owners; works are ardently entered into to enlarge the bounds and increase the pleasures of the garden, but the question of cost soon demands notice, and there are too many examples where "improvements" like this, end in censure and loss of position to the gardener who undertook the unfruitful labour.

Another point on which I feel strongly—and I know gardeners of great experience who complain on the same head—in cases where works have been designed and carried out by a resident gardener, is this:—when the works are in progress owners sometimes consult amateur friends, artists, and others who volunteer criticism, and freely question the good taste or sufficiency of the works; in this way difficulties, and want of confidence arise, which often end in fragmentary work and weary disappointment. Employers who act in this way, can never hope to make a garden a source of just pride to themselves, or the admiration of friends and strangers. In rearing up fine gardens—as in other great works—we do not find examples where what is called combined genius has equalled individual unity of talent in style or completeness of arrangements. Under the conditions briefly referred to above, I believe it is disadvantageous for gardeners to undertake new works, under ordinary engagements.

I will not too closely inquire into the fitness of gardeners in general to undertake new works of design; but it must be well known that not only more than average talent, but far more than average experience is requisite in any gardener that would successfully design and carry out new works in the present state of gardening and its aims. Gardening at the present time is very different from what it was 30 years ago, not only in the general adjuncts and enormous expenditure, but as requiring an acquaintance with science and the principles of art. I rejoice that it is so, and feel sure gardeners will rise in proportion. In our great gardens, we see that beauty in a garden is not a mere passing pleasure or point of fashion; it is becoming a reality—a species of wealth which grows more valuable as civilisation advances; and he who would be a designer of gardens, must not blink or overlook this fact. It is not our own taste only that we must study, but we must recognise that our doings are to be criticised upon principles of art. I trust it will not be thought presumption to say that future ages will feel the influence of our designs in gardens, and our genius may influence the future of landscape beauty.

The gardener who now aspires to design, must ardently study the history of gardening, as well as its art and its literature, and must combine artistic knowledge with good taste and practical skill. We are not unacquainted with some of the most Beauty that good taste can foster—put men and keep gardening. I want to say a word on the position of Brown but he was a man of genius and designer. His occupation was very different from the unremitting exertion which is the necessary portion of the successful practical gardener of the present time. In a paper bearing upon this question, which appeared in the "Gardener," June, 1867, the following passage occurs, which I think worth repeating here:—"There are certain minds that seem formed as conductors of truth and beauty, and which pierce through all the impediments of fashion, like an eye formed to drink in light, and give out what it takes in with intrinsic perception of grace and expression. Such minds can readily transplant the excellencies of others—naturalise the beauties of a Rembrandt or a Rubens, and resolve the whole of what is in nature and art into union, displaying beauty and richness. Under the direction of such genius the beauties of our flower gardens have risen to a degree of excellence never before heard of, as to colour and culture. It does not require great cleverness to detect errors in received systems, but it does require considerable experience to plant perceptions into the language of sense without running into the contrary extreme."

The incessant attention now required in practical gardening leaves but little opportunity for the study of the multifarious objects and variety of widely differing subjects which form a chief study with the professional designer.

There are now men of distinguished abilities devoting their talents to the improvement of garden architecture and landscape beauty. Under the designs of such men our gardens are more likely to be improved than can be expected under the precarious position of resident gardeners, who too often have to work with inadequate means and limited confidence: the professional man is also more likely to get at the deliberate views of the employer as to the amount to be expended on new works.

As to the carrying out of plans, there can only be one opinion—when proper estimates are given, the resident gardener is the fit man. In the best designs there are many important items requiring development, which depend on peculiar incidents and local circumstances, and which can only be effectually provided for, or their occurrence foreseen, by an intelligent and experienced superintendent, on the spot, and as difficulties present themselves. Some of our most noted gardens have been laid out by the resident gardener, and done advantageously, and this may be repeated where perfect liberty of action is given. *Chas. M'Donald, Woodstock Park, Inistioge, Ireland.*

PLANT LIFE AND ITS TEACHINGS.

[Read at the Manchester Congress, July 22, 1869.]

THE great fiat to which all mankind must submit—thou shalt die—is an inevitable natural law. All animals—things that live and breathe, show a disposition to live as long as possible, but eventually, sooner or later, their time of dissolution comes. As it is with things that live and breathe, so it is with things that live devoid of sensibility, generally speaking, and of motion absolutely, but amenable to that omnipotent fiat which a great Creator has pronounced. Plant life, like animal life, has its day, and if it is not invested with the same importance, from being a step or two lower down the scale of natural subjects—those of course having the power of sensibility and motion may be held as assuming priority—it has its own sphere of attraction and utility. I may be told that the worm and the beetle are but sorry companions to put up as examples of priority against the Grape Vine and the Camellia, either from an utilitarian or an ornamental point of view, but to that I reply that the great question of grades has an ample illustration in lower animals as it has in lower plant life, and that an assortment and selection of individuals must take place to rate the question upon its merits.

Passing on, however, to an exposition of the subject more immediately interesting to the horticulturist, I am constrained to ask the question—Do we estimate plant life fairly, and profit by its teachings? I am afraid not; because there is an uncommon desire manifested by a great majority of horticulturists, and practical gardeners as well, to have every thing in the shape of plants about them as big as possible. True, there is a reaction in modern times with our fruit growers, for instead of working away with venerable trees, or rather trees of some size, the desire now is to possess a great many babies, so cramped in their habits and constitution, that if they reach adult age they are in something the same plight as the Chinawoman's feet—of baby proportions during their lifetime. Hobbies, we all know, are apt to be carried to extremes, and this sort of formal manipulation, in root and branch, carried out in the matter of Apples, Pears, and such like fruits, presses severely upon a constitution, and undoubtedly shortens life. The bloom of manhood is a hackneyed phrase; but it expresses, I opine, pretty forcibly what should be aimed at in the matter of things cultivated for use or beauty. A very old and a very worthy practitioner in the gardening art evolved a sound philosophical axiom when he declared to the writer, in the course of debating the *rationale* of plant growing, "We must all keep up a succession in the age of plants, if we wish to take, and maintain, an honoured position as cultivators, else the plants and our fame will die out together."

There is certainly some merit in size of plant if all other conditions which a critical eye could demand were present; but whenever the time appproaches that the "bloom of manhood" is exchanged for "declining years," then younger and fresher competitors step in, and those that have done duty in youth are passed by without the slightest sympathy being evoked; for honours gained, so far as the plant is concerned, are only honours of the day, and fall to the lucky grower and exhibitor; and the sightseer or the judge, who probably knows the veteran by headmark, passes it in search of a "better" plant. It may have the respect of the owner and the grower, and be retained in some back position, like the favourite steed in the reserved paddock, so long as it exhibits a disposition to live, but die ultimately it must.

The period of longevity in plants varies to a considerable degree. The Oak, as Dryden has it, requires 300 years to grow, another 300 to come to maturity, and 300 more before eventually death of all its parts takes place. No fruit tree, not even the Vine, which is not of a cankerous disposition naturally, and which grows away for a century at least, and yields its crops more or less prolific, could be cited as a compeer for the king of forest trees. The Apple, the Pear, the Plum, the Apricot, are all troubled with a variety of diseases, and subject to the visitation of pests which require assiduity and perseverance on the part of the orchardist successfully to cope with. The wearing out theory promulgated by some, if not trenching upon the extreme meaning of the word, would assert its supremacy, if the *genus homo* did not interpose with some or other of the modes practicable in the routine of reproduction. The success of arboriculture in all times may be reckoned by the activity and foresight of the planters of the day.

Without touching upon the longevity of arborescent plants that decorate our landscapes, or hardy plants cultivated at the cottage door, let us have a word or two upon exotic species cultivated either for the beauty of their foliage or inflorescence; and what of them? There was what might be called a Lawrencian era, when plants were cultivated to a great size, and were prolific both of healthy foliage and grand flowers. That was about the time when Chiswick was in its greatness. Well, what has become of these plants! They have been scattered abroad, as has been the fate of many a choice collection, if not to the four corners of the earth, to widely separated localities; and what of their fate? many of them dead, all of them approaching towards death from sheer old age. Now, we have a Michollian era; and what will be the fate of the plants that have travelled through the provinces and won no end of honours, even 10 or 15 years hence? They may be, or some of them rather, in life, but Mr. Baines, I presume, is too good a judge of plant longevity and fitness for taking position, not to provide himself with batches in succession if he means to maintain the lead which he has so pluckily aspired to and won. Then, again, take the great Orchid collections formed 30 years ago, and what of them? Where, for example, are all the fine plants of Phalænopsis grandiflora and P. amabilis that first found their way to this country? Where is the plant of the Moth Orchid, it may be asked, that went to the Chatsworth collection, that cost the Duke 100 guineas to secure? This may be asked in the interests of science, or art if you like, without offending in the slightest degree parties interested, for dozens of collectors are similarly situated; and yet the growers of that day managed East Indian Orchids generally as well as the best growers of modern times. Questions of this kind could be multiplied, to show that to prolong the longevity of any species—to prevent it in fact from wearing out altogether, certain measures of activity, with the view to reproduction, are necessary.

I cannot touch upon the corrective measures here except incidentally; but I have often asked myself the question in reasoning tacitly, what should be the leading in the circumstances?—and I have come to the conclusion that it should be decidedly against monster specimens, that have nothing but age to recommend them to notice. I think the leading articles in the *Gardeners' Chronicle* upon this point show much sense. If I were to judge any of these great collections, I would insist upon some points being given to well-grown, well-developed specimens over huge plants bristling with flowers, but showing by their inflorescence that their vitality was on the wane, and that they were approaching the state of decrepitude. In Orchid cultivation some novices are apt to assume that, because their Phalænopsids had so many flowers, their Vandas so many spikes, and their Anœctochiluses so many leaves, that that fact ought to place them in a better position than a less number of flowers of larger size, and better texture, than a less number of spikes better developed, or than a lesser quantity of leaves, showing cultural skill. Anyone can see that the one lot implies a better state of cultivation than the one to which it is compared—never mind the size of the plants, for the latter are bound to betoken some deficiency, either in being bare at bottom or showing the effects of living in a starved atmosphere, or wearing out through age, and requiring to be parted, and set to grow on their own account, as is done every day in the history of plant growth by the process of "division."

To spend a quantity of money on securing aged plants because they happen to be in "fine condition" for entrapping the amateur, is not good policy for any gardener to recommend. There are certain exceptional cases, when a thing of the kind is wanted, and must be had, against which we have nothing to say. The principle, however, to go by, is to advise the procuring young, vigorous specimens that will improve under culture for five or ten years to come; they will turn out more satisfactory to all concerned, and the gardener gains some credit by his work. Indeed, I look upon a plant of such a kind as will not divide, such as our well-known hardwood specimens, to be as valuable at half-specimen size as it is at any period. For any one to advise his employer to buy full-grown plants, that must lose in effect every year they remain in life, is a shortsighted policy indeed. Exotic plant life, as selected for beautifying our greenhouse and stove conservatories, with the exception of some that have an arborescent character, is short at the best. It is the duty of the thoroughly efficient gardener to take due cognisance of this, and prepare and mature plans

for keeping up a supply according to the nature and longevity of the plants employed for general decoration. *James Anderson, Meadowbank.*

POTATOS.

There is no vegetable so popular and indispensable as the "noble tuber." Princes, peers, and peasants like a good Potato. Years ago poor people ate Barley bread, and put up with waxy Potatos; but now they talk of and appreciate the quality and flavour of a Potato. I have heard this year many complaints of Potatos not coming up, and of their forming tubers, minus haulm, under ground, and also lately of the tubers spearing out. I must say I never had such a beautiful and successful crop. The Lapstones grown in my garden after Celery, and Taylor's Yorkshire Hybrid grown in my field garden, yielded three-fourths of a sack per perch square—*i. e.*, 16½ feet square. All the other crops were proportionately good and free from disease. I began planting this year January 16, and ended (with the exception of trial Potatos sent later) February 11. I commenced digging for the table the Royal Ashleaf, June 4, and commenced digging for store, the same Potato, July 26. I continued from that time digging such as I intend to keep, and finished August 7. I planted almost all my Potatos with a stick—a plan I shall ever hereafter follow—especially with kidney Potatos. It gives free drainage close under the plant, which is specially essential in these days of disease and supertuberation.

With regard to many seedlings kindly sent to me for trial, I regret that I cannot speak so favourably as I could wish. They are all good croppers, but some of them are behind my sorts in quality and flavour. Mr. Barron's Perfection, sent here by Mr. Turner, is the best, and very good, being uniform in shape, level in surface, and of excellent quality. It is oblong round, with white skin, delicately tinted here and there with tracery of pink. He also sent one, the Early Emperor, a very nice-looking Potato, admirably adapted for exhibition; and Wossett's Seedling, also very good, derived evidently from the Lapstone family, having the well-known coppery marks. These are the three best of the new-comers, and worthy of adoption. If any others of the novelties should improve in store, I shall be pleased to speak well of them. With regard to maturation, many think a Potato is only ripe when the haulm is dead. The two criteria of ripeness are, adhesion of the skin to the tuber and free separation of the tubers from the umbilical cords: indeed this last is the surest criterion of ripeness. If these two criteria are present the status of the leaves does not signify. The haulm may possibly die away, and yet the Potatos may not be matured. For seed they may be dug a little under-ripe. In this case they should be exposed to light and air for a few days.

I have some curiosities here. Two sorts have produced Potatos up the stalks (as well as at the roots), at the axils of the leaves, and these Potatos have started leaves. Thorneycroft's Seedling has variegated foliage, green and yellow. Gleeson's Late is marked like variegated rock in a confectioner's shop; the patches, some square, some triangular, and some zebra-fashion, are red and white. I have not tasted it, as it is a very late sort. It is the most curious Potato I ever saw. I am sorry to part with old and valued friends, but these must quit my premises, as not ripening early enough—Solomon Kidneys (superseded by Hero and Taylor's Hybrid), Scotch Rocks, Grammas, and Red Ashleafs. These are not yet fit to dig, and present appearances of starting at the eyes. Hence they must go.

I will now advert to my best sorts, and such as I can confidently recommend. Round Potatos: Napoléon, *alias* Early Emperor; and Gryffe Castle Seedling. Kidney Potatos: Royal Ashleaf, Yorkshire Hero, Taylor's Yorkshire Hybrid, Cobbler's Lapstone, Early Uprights (a seedling from the Silverskins), and Pebble White. The Royal Ashleaf, with Hero or Taylor's Hybrid, will carry you from June till June again! I have taken the Lapstones well this year. There is no better Potato for any season. Hero is a Lapstone that ripens a fortnight or more before Haigh's Lapstone. I think of continuing one year more York Regents and Flukes, as they were sufficiently ripe to dig for store keeping, but their eyes began to peep! Remember my Potato motto, "Early ripeners and late keepers!" Hero and Taylor's Hybrid, both A 1 for crop and quality, are such. They can be taken out of harm's way, before sprigging, spearing out, and disease commence. People will in due time get sick of mere croppers without quality, and especially of late ripeners. "The eye is tired of seeing, and the ear of hearing;" hence people will have novelties! I am not prejudiced for or against any person or product, English or foreign; but I must say I am greatly disappointed with the trial Potatos generally, with the three previous exceptions. My servant, Mr. Rogers, is of the opinion that Hero, Taylor's Hybrid (proved seven years) and Royal Ashleaf are ten times better than any of the novelties; I must except Mr. Barron's Perfection, Early Emperor, and Wossett's seedling, which I think are very good. *W. F. Radclyffe, August* 12.

REMARKS ON THE FRUIT CROPS OF 1869.

(*Concluded from p.* 872.)

—— Apples almost a total failure on orchard standards; on cordons, dwarfs, and pyramids on the English Paradise they are so abundant as to injure the trees, unless pulled off; trees only two years old, and from 1 to 2 feet high, are loaded with fruit. Apricots in pots, 15 or more years old, which last year bore from 1 to 2 pecks of fruit, have failed; but standards in pots in the centre of an orchard-house have borne good crops, although they last year were also full of fruit. Cherries, particularly May Duke and Empress Eugénie, were crowded with fruit; those on trees uncovered were all taken by the birds; the trees in pots in the Cherry-house ripened large crops, which we commenced to gather on the 25th of May—they are now nearly over. Grapes on walls in ground vineries and in cool vineries are most abundant. Nectarines and Peaches on walls have failed, as have a large number of trees in the orchard-houses; standards in pots in the centre of an orchard-house have fair crops on them; the forced trees in pots, the fruit ripe in June, gave fine crops. Pears, which set large quantities, so that it was necessary to thin the fruit in May, nearly all dropped off towards the end of June, after the cold wet weather; those left are cracked and deformed. Pear trees in pots kept in an orchard-house till late in June are full of fine fruit, as are those trained over one of Ker's trellises, the lights only recently removed. Plums have shown strange vagaries; the Early Prolific, raised here from a stone some 30 odd years since, seems naturalised to the place, as it nearly always bears; this season the crop has been most abundant, for 500 half sieves (2 pecks each) have been sent to the "Garden," and all were sent there before the 10th inst. The Diamond Plum trees growing on the same site set large quantities of fruit, but instead of giving 500 or more half sieves, as they ought to have done, scarce 20 can be gathered. It is the same with Reine Claude de Bavay, the fruit all dropped off while in a young state; the same failure has occurred with Prince Engelbert: these sorts all bloomed only three or four days before the Early Prolific; Belle de Septembre, a large late Plum, blossomed, as it always does, some 10 days after the others, but the fruit nearly all dropped off in June, during the cold wet weather. We had no frosts while the trees were in bloom. So that out of five kinds of Plums grown largely for market, only one has this season fully succeeded. The Early Prolific Plum trees are all pyramids, about 15 years old, and 300 in number; they are planted in rows, 24 feet row from row, and 12 feet apart in the rows; the 24 feet space has been constantly cropped. In a recent plantation of this sort of 1000 trees, the trees are 6 feet apart, and pruned in summer—generally in June, shortening their young shoots to half their length, and they are again gone over in August. This treatment keeps the trees in a compact state, and prevents the long shoots from breaking down with the weight of fruit; it is, indeed, market garden pruning. It is intended with this plantation to remove every alternate tree in about 10 years, leaving them 12 feet apart. With the summer pruning above mentioned, they will grow well and bear well for half a lifetime. I ought perhaps to add to the vagaries of Plums this season, the fact that large bushes of that most delicious of all Plums for preserving, the Mirabelle or Mirabelle Petite, are full of their very pretty golden fruit. This sort requires a very warm dry season, and yet this untoward Plum year these trees are well furnished with fruit, while trees of reported hardy kinds growing near them are bare. *Thos. Rivers, Sawbridgeworth.*

—— Owing to the warm summer of 1868 we never had so fine a prospect of a fine crop. Our Apricots in particular, the end of February, were one mass of bloom, but the severe weather we had in March cut them all off. The Peach blossom did not have a chance to open, owing to the continuance of the easterly winds. The Pears and Apples flowered well, but got sadly injured in April and beginning of May. Altogether I must add that this has been the most trying season for wall fruit that I recollect. *William Carmichael, Sandringham, Norfolk.*

—— We had very cold, cloudy weather, with north and east winds, when the Peaches and Nectarines were in flower and setting the fruit; owing to which, as I believe, so many of the fruit which appeared to have set had no vital power, and dropped off, although our walls were protected at night by canvas covers. On the same walls Apricots set well, and are a very abundant crop. Plums, Damsons, and Black Currants, more particularly, were very much attacked by aphides (which this season seem to be more than usually plentiful), many of the leaves having fallen off the Black Currants, and prevented the fruit from swelling to its usual size; but the heavy rain and rough wind we have had in the latter part of July seem to have dispersed them, and the trees now look as healthy as usual. *W. Whitaker, Crewe Hall.*

—— Potatos are very fine and clean here; second earlies are beginning to tuber same as last season. I hear that some diseased ones are being found in places. Late Peas, I fear, will be but a poor crop, they are so infested with aphides. All other crops looks very promising. *W. Lee, Blenheim, Woodstock, Oxon.*

—— I may mention that the garden here is well protected by high walls all round. The park, in which the kitchen gardens are situated, is full of fine old timber, so that we have perhaps a better chance than most of our neighbours, from whom I hear great complaints. Strawberries I am quite disappointed with. Having planted half an acre last July, which I find is the best time, they showed their flower stems strong and fine; but, alas! the cold east winds which prevailed here over two months, appeared to shrivel them up. In fact, scarcely any of the first flowers set, so that what few we had were from the weak flowers. I am not at all disappointed with the crops of Apricots and stone fruits generally, considering the enormous crop we had last year, accompanied with such a dry summer. Apple and Pear trees here are looking very unhealthy. Many had the green-fly by thousands, but these few days past we have been favoured with some heavy showers, which has partially cleansed them. Apricots and Peaches, both indoors and outdoors, I never saw looking better. One south wall of the latter, planted in November, has made shoots 3 feet long, and the whole of them have good broad foliage, a sure forerunner of good fruit. *R. Gilbert, the Kitchen Garden, Burghley, Stamford.*

—— On Apricots, Peaches, Nectarines, and Cherries I never saw a finer bloom than we had here last spring. We had no frost soon enough to kill, but the bitter east winds completely dried up the bloom. One great drawback was, the trees on the walls were in bloom a good fortnight earlier than I ever remember them. The dry season of 1868 had much to do with the failure of this year's crop. After the rain came last summer most of our trees made a second growth, in fact they had little or no rest before they were again called upon to produce another crop. To prove this I give you the following:—From a small Peach-house I took up four trees—two Peaches and two Nectarines. Their fruit was all gathered early in June, 1868. Early in September they were planted in a larger house. I have had a full, fine crop from them. The other trees did not average a dozen each. This house was not heated before late in the autumn. *Wm. Dodds, Ashton Court, Bristol.*

—— Potatos of all kinds are very good crops, and as yet free from the disease. I think the general failure of the Peach and Nectarine crop is attributable to the scorching they had to endure last year, and not altogether to the cold spring we have had, as at this place all the trees were well protected, and yet we muster but about 50 fruit. The Rhododendron bloom was grand. *W. Wildsmith, Heckfield Place, Hampshire.*

—— This is the worst season I have ever seen for Apricots, Peaches, and Nectarines—whole walls of those which used to be adorned with fine fruit, and scarcely a blank to be seen, are this season little else but a blank. The latter trees also suffered much from blight in the spring, but have happily since made clean, healthy, short-jointed wood, finely set with fruit buds for next season. Pears, Plums, &c., are likewise well furnished with fruit buds. *A. Ayson, Oxton House, Kenton, Devon.*

—— The fruit crops are very scarce in this district. The cold easterly winds in the spring carried off the fruit after it was set. I had Apricots large enough for tarts in the first week in April, when one morning, to my great surprise, I found most of them turned yellow and dropping from the trees in great numbers. I was at a horticultural show a few days ago, and met a few of my acquaintances, who informed me they had scarcely any wall fruit in their gardens. Such is the complaint in this county. *Wm. Hallett, Cossington, Bridgewater.*

—— We must look farther back than their time of flowering for a solution of the unsatisfactory state of our fruit crops this season, and glance at the conditions under which the wood and fruit buds were grown and matured last year. First, the excessive heat and drought of May, June, and July, then in the five following months we had here a fall of 29 inches of rain, being 11 inches more than fell during the same time in 1867—a state of things at that time of the year not conducive to their maturation; and then an open winter (so much so that we never got our ice-house filled), thus rendering the trees much more susceptible to the effects of the frost and continuous cold of March, at the beginning of which vegetation was unusually forward. On the 16th standard Violet Plums were in flower, Gooseberries, &c.; on the 27th, flowers of Horse Chestnuts were frosted, and strewed the ground below the trees. At the end of the month Plums on the walls were showing white, with a continuation of frosty nights to the 6th April, and on the 19th and 30th of the month; the mean temperature of March being only 34°, some 7° below that of last year. In some instances there was observed to be an absence of bold, healthy blossoms, in others they looked well and seemed to set freely, but only to give greater disappointment by their falling off afterwards. *T. C. Elliott, Melbury House, Dorchester.*

—— We have often to deplore the sad effects of late spring frosts, and I have often, in the course of 24 years spent in gardening pursuits, seen the hopes of a fine crop of stone fruit, such as Peaches, Nectarines, Apricots and Plums, destroyed by late frosts. I am sorry to say that this season is not an exception, for we had frost in the North Riding of Yorkshire until the middle of July. The consequence is, we have a scarcity of fruit. I must add, never in my time do I remember seeing such a quantity of blossom on standard trees, particularly Apples and Plums; and at the present time one requires four eyes to see any fruit of either. Beech Nuts are a most wonderful crop. Walnuts nearly all dropped. Potatos are showing signs of supertuberating, and are making a second growth, the same as last year. *Jos. C. Nicholson, Mount St. John, Thirsk, Yorkshire.*

—— On the 7th of last May I had the Peach trees on the walls at this place uncovered, by having the double covering of netting removed altogether, when I never beheld the trees more promising to be productive of a good crop of fruit, which they have never failed to be for the last 40 years, during which period I have always personally attended to their general routine of management, as I have done in the current season. But, to my mortification, no sooner did the fruit set, than they commenced dropping. At this time there are not two dozen Peaches and Nectarines on the open walls—"Unco dear bought wit"—by premature exposure entirely of the trees to the then fluctuating changes of atmosphere that followed. Of course Peaches and Nectarines under glass are an exception to the above fatality. I am more fortunate by having abundant crops of all other descriptions of fruit that are grown at this place. I find that the variableness of our climate during last spring and early summer proved destructive to the Peach and Nectarine crops in several other gardens which I have visited in this and some neighbouring counties. *Geo. Brown, Powis Castle Gardens, Welchpool.*

—— The contrast between the fruit crop of last year and this is very great here. Last year we had an abundance of all kinds; Strawberries were the heaviest

crop ever known,—this year we have none; Plums the same, except Victorias. The small fruits were very plentiful and fine last year; this year they are poor and very few of them, except Raspberries, which bore well. Several kinds of Apples that in ordinary seasons are very poor, were last year well coloured and well ripened. Peaches and Nectarines were well ripened and very sweet; this year they do not swell very kindly, but the trees are very healthy. Apricots seldom bear a crop, and the same may be said of Figs. The beautiful bright sunny weather we had last year was very beneficial for gardening purposes in this damp climate. The quantity of rain that fell at Carmarthen was a fraction over 40 inches. *T. Ticehurst, the Gardens, Dynevor Castle, August* 2.

—— The crops of Peaches in late houses with no fire-heat have failed completely. The drought has been more injurious to shrubs and trees here this year than last year. We have had a little rain up to this date, but it has not penetrated the soil beyond 1 inch. Aphis of all sorts abound, and many trees and shrubs are covered with honeydew. *Wm. Thomson, Dalkeith Park, near Edinburgh.*

—— The early spring frosts killed the first set blooms, and the sharp frosts at the end of May and beginning of June considerably thinned the remainder Apples are first-rate on Pippins and those kinds that rejoiced in the heat of last year; late frosts and cold west winds, however, were the main causes of the reduced number. If the weather proves favourable, the fruit will be fine in quality. Aphis injured the leaves of Plum trees very much, and spoilt many fruit. *H. Knight, Floors Gardens, Kelso.*

—— Fruit trees never looked more promising than they did this season, as there was a perfect mass of bloom, but unfortunately it was cut off by frost. The gardens here lie low, so that we are much subject to spring frost. *R. G. Rae, Eglinton Castle Gardens, Irvine.*

—— The present season in this part has been one of the most unfavourable to fruit crops. From the fine summer of last year fruit trees of all kinds were finely covered with fine healthy fruit buds, a large quantity in bloom and set on March 1st, in which month the thermometer fell 20 nights below the freezing point, sometimes as many as 16°, destroying all the early fruit. The early part of May was constant rain, with an east wind, the sun was not seen for 10 days; 10° of frost on the 12th of May finished the later blossom, and left many of the trees in a bad state. The garden here lying low and damp, spring frost takes great effect, but most gardens in this locality have suffered much from the severe spring. *J. A., Curraghmore, Waterford.*

—— All early kinds of Potatos are excellent, late kinds looking well; vegetables in general are good, Peas in particular. Our lowest temperature this year was 11° of frost on March 3; our highest temperature (as yet) about 80°. *A. Ingram, Alnwick Castle Gardens, Northumberland, August* 3.

—— Vegetables in the gardens here are over average; this I attribute to deep trenching, and a liberal administration of farmyard manure. It is difficult to get the "tillers of the soil" to agree upon the merits or demerits of deep cultivation; true, all lands cannot be treated alike, but there is sufficient breadth of land open to deep cultivation, for which it would be well to have a "special Act of Parliament" to make it compulsory to cultivate deeply those lands; and if we are to have a succession of hot and cold summers, as we have been having lately, it will be quite as necessary to cultivate deeply as it is to use chloride of lime or other disinfectants when a plague to the human or brute creation appears. Conifers and other trees have made good growths, and their leaves are very healthy. *William Miller, Combe Abbey Gardens.*

—— The crops generally are looking well in this neighbourhood. Peas, Turnips, Cauliflowers, and late Potatos are beginning to feel the want of rain, not having had more than 20 minutes light rain for these last six or seven weeks. *George B. Tillyard, Brocklesby Park, Lincolnshire, August* 4.

—— Orchard-houses without artificial means of heating are a failure. In two gardens, extensive in fruit walls, immediately under my superintendence, about 25 miles distant one from the other, the soils are on the secondary formation, the one having a substratum of sandstone over the coal beds, the other a substratum of mountain limestone. The latter has the best crops in every instance. There was a fine show of fruit up till the heavy rainfall and cold north-east winds of May. The low geothermal temperature during the spring months was, I believe, the principal cause of failure of the stone fruit crops. Quinces are a failure. There is a fine crop of Eugenia Ugni against a wall in Merionethshire. The following is an account of the rainfall for Wynnstay:—

	1869.	1868.
January	4.21 ..	2.37
February	2.96 ..	2.77
March	2.12 ..	2.55
April	1.69 ..	2.54
May	6.03 ..	1.75
June	0.93 ..	0.41
	17.94 inches.	12.39 inches.

1869 shows 5½ inches rainfall above 1868. *P. Middleton, Wynnstay, Rhuabon, Denbighshire.*

Home Correspondence.

Golden Champion Vine.—We learn as much from our failures as from our successes; hence I am induced to record the following case. A plant of Golden Champion Vine was bought during last winter, from Messrs. Osborn & Sons, and being one of their strongest canes, it consequently bore a high price. It was planted along with about 30 others, in a house properly adapted, with borders newly and properly made up of the best material. All the Vines were allowed to start in a cautious and natural manner, as the season advanced. The Golden Champion was the first to break buds, and pushed vigorously into growths of about 4 inches long, which in a short time became shrivelled up, and have remained in a half-dead condition ever since. Now this Vine was placed under the same conditions, received the same treatment as the others that were planted in the same house at the same time, and they have all, except this one, reached the top of the house. The point settled, "failure not from my treatment," the question arises, wherein is the cause of failure! Is it the Vine's natural weakness on its own roots, or was it ever pushed in its young state and badly ripened off. Perhaps those who have made purchases from the same batch of plants would be kind enough to state how they have succeeded; it will enable us to arrive at some decision regarding this case of failure. *Te Judice.*

Hawk-moth. — Your correspondent, Alexander Boyle, is wrong in supposing the insect he has captured to be a variety of the "humming-bird Hawk-moth." It is, without doubt, one of the larger Sphingidæ or Hawk-moths, but from the description given, it is difficult to speak with certainty of the exact species. Several of that family are extremely rare, while others are more frequently observed hovering over flowers at dusk. Your correspondent would seem to wish to deprive the humming-bird Hawk-moth, M. stellatarum, of its proper rank and place among the British moths, owing to its more sober colouring. It is true its flight is diurnal, yet this is the case with several other species of moths, the colouring of which is even more brilliant than some species of butterflies. Undoubtedly Mr. Boyle has secured a fine (and possibly rare) specimen of the Hawk-moth. *F. W. C.*

—— In answer to your correspondent, Alexander Boyle, I should say the moth he caught, and represents to be a humming-bird Hawk-moth (Macroglossa stellatarum) is, by the description he gives of it, the Privet Hawk-moth (Sphinx ligustri). I have four of them by me, and two of them are exactly the size that he gives of the one he caught, while the other two are much smaller, and which I account for by their being male and female, the larger sized being the male. *H. Mobbs.*

Mushroom Culture in India.—The common Mushroom grows spontaneously on all grazed lands in Bengal. In 1842-3, I occupied part of a building converted from a bullock shed. In the cold seasons, Mushrooms in large quantities forced up the loose brick flooring in all directions. As I gathered many a plateful for breakfast, I can testify to the excellence of their quality. That Mushrooms may be very simply cultivated, the following example, the result of an accident, will show. A friend of mine here thought he would utilise an old greenhouse in the garden by growing some Cucumbers. In the early spring he had a bed made of his stable litter, with a thin covering of soil. This done, the place was left to itself. Passing one morning, he noticed that the bed was thickly studded with Fungi, which, to his delight, he found on examination were Mushrooms. He has had continuous croppings since, and they are growing to this day. I may explain that the greenhouse gets but little sun; that the litter was sawdust and horse droppings, fresh; but, having been stored in an open pit, it was doubtless well saturated with water. The spring was wet and sunless; the greenhouse was closed, but some of the glass broken. I have had to deal with vast numbers of white ants in my time. From what I know of the soil of their nests, I should think it valueless for growing Mushrooms. I should regard it as a waste of money to send spawn to India. It can be produced there anywhere under the usual conditions. A proper bed, in an old godown, will soon yield Mushrooms. Light is important for flavour. Indian godowns are generally dark. A close humid atmosphere and a damp bed are the essentials. The litter of an Indian stable, as a rule, is not of much manurial value. The droppings are generally kept separate, and the urine during the day is commonly caught by the syce in an earthen vessel, and thrown away. To insure success, it would be necessary to arrange for procuring good litter. By the way, what are the elements or constituents that go to produce Mushrooms—*i.e.*, urine, excreta, fermentation, or what? Cattle dung is cold. In the case of the bullock shed, production must have been from urine, the dung being always collected almost as dropped, and reserved for fuel. My friend's sawdust had been well used, and thoroughly saturated afterwards with rain. *W. Clifford, Warwick.*

Iron Pipes Blocked.—I live 20 miles from London, and last year I put up a water-wheel to pump the water into my house. The water-power was brought from a pond, distant about 150 yards from the wheel, through a 3-inch socket iron pipe, with a galvanised cullender at the end, to prevent weeds or other material from getting into the pipe. The pond is supplied from a spring, and the water is hard. Latterly I have found the flow from the pond very much diminished in volume, and upon examination the pipe is found to be lined with a sort of Fungus, or a vegetable, spongy material. I have had it cleaned out at both ends; but evidently the lining runs through the pipe, as we cannot get an increase of volume. It would not seem to be of any use to break up the pipe, and to have it cleaned out, as the Fungus will grow again. Is it a common occurrence for a vegetable substance to grow in an iron piping through which water is constantly running? Would the same substance in all probability grow if the iron piping had been galvanised? Would the same substance grow if glazed earthenware piping had been used? Is there any plan in use where a free circulation of water could be obtained, and admission be had to the pipes? I fancy there might be, by a system of wells at stated intervals. Enclosed I forward you a small bit of the Fungus taken out of the pipe. *A Very Old Subscriber.* [The production which fills your pipe is apparently Blepharophora nymphææ, Perty (or a very closely allied Polype), referred to Algæ by the author of the genus, but belonging rather to the Bryozoa. The smell is almost intolerable, and you must certainly take some measures to clear the pipe. You had better consult some chemist, to ascertain what you may use, which would at the same time kill the animal, not injure the pipe, and not be likely to be permanently injurious by contaminating the water. If you could cut off the supply of water for a time the animal might die, but to that end the supply must be completely cut off; and perhaps, after all, the resting-germs, which are very abundant, might bear a considerable degree of drought. Chemical treatment is the most promising, but the exact treatment is one of some difficulty. *M. J. B.*]

The Vapourer Caterpillar.—Thanks for your prompt reply about this caterpillar. It has been most useful in saving a ribbon border from utter destruction. Your remark that it was not at all particular as to food set me looking. At the base of the Rose trees runs a ribbon border planted thus:—Back row, Pelargonium Cybister; 2, Calceolaria aurea floribunda; 3, Pelargonium Flower of Spring; 4, Coleus Verschaffeltii; 5, Pelargonium Lady Cullum; 6, Lobelia speciosa; 7, Cerastium tomentosum; 8, Oxalis, black-leaved. The Vapourers had got as far as the fourth row, and were picked off the Pelargoniums and Calceolarias by the potful. As I thought we had cleared them from the Roses, but for your prompt answer I should not have examined the ribbon border until their jaw-marks had marred its beauty. As it is, I hope by frequent pickings to save it from being sawn up into food for the horrid Vapourers. I found them gnawing away at the Calceolarias and cutting into the Pelargoniums in the most wholesale manner. They eat both leaf and leaf-stalk, and doubtless stem likewise, of soft, succulent things. *D. T. F.*

Lilium auratum.—I possess a plant of Lilium auratum, which has thrown up two spikes of bloom, one of which has nine blooms on it, the other 45. Is not that an unusual number? *C. Wood, Gr. to A. Druce, Esq., Dulwich.* [See report of Royal Horticultural Society's meeting, p. 898. Eds.]

Cedar of Lebanon.—There is a fine Cedar of Lebanon standing in the kitchen garden here, of the following dimensions:—Height, 65 feet; circumference of bole 2 feet from the ground, below the first branches, 18 feet 9 inches; above the first branches, at 7 feet from the ground, 19 feet 4 inches; length of the two opposite lower branches, 61 feet and 58 feet 6 inches respectively. The diameter of the tree is, therefore (allowing 6 feet for the diameter of bole), about 125 feet 6 inches. *Thomas Young, Gr. to Sir T. E. Winnington, Bart., Stanford Court, Worcester.*

Potatos.—It was a fine "Yankee notion" to offer the American Rose Potato at the fancy price of 2*s.* 6*d.* per lb. weight. Of course people were taken with the idea at once, and got as effectually "sold" as the Potatos were. Had it been offered at that sum per peck it would scarcely have met with any notice; and yet, after all the "peans" that have been sung over its wondrous merits, to what, on a fair trial, does it all amount? Why, simply that whilst it is no more productive than many of our own standard kinds, it is by no means of such good quality. There have been some extraordinary statements made as to its prolificacy, but these results have only been obtained under special cultural conditions, such as if applied to some well known kinds would assuredly produce a similar result. I gave a pound of it a fair trial this summer, in conjunction with a very large number of others. Four good-sized tubers were cut into 12 sets, and from these I obtained 1½ peck of fair average sized produce. But I got quite as many from the same number of sets of Waterloo Kidney, Wormsley Kidney, Dawes' Matchless, the King of Potatos, Berkshire Kidney, King of Flukes, and several others, any one of which, I do not hesitate to assert, are of better quality than their American rival. Besides, the latter had in its favour that it was previously of foreign growth, and, as a consequence, the first year's produce of a Potato under such circumstances is not a fair comparison. I found it to be a late second early, producing long, flat tubers, of a reddish pink colour, and to be when boiled white and mealy on the outside, but close, dark, and deficient in flavour within. We have got just as good Potatos here in England as are to be found in any other country, and perhaps a little better (this may be a nationalism, but one should always stick up for his own country); and I am not sure, seeing the rage that seems to have existed in the United States about this same and other Potatos, whether it would not be a good speculation for some enterprising capitalist to export to New York a cargo of some of our best kinds. I think he might make no end of "almighty dollars" by it. Another American novelty was very much pressed upon the public last spring—a round kind, called the American Red. This I find to be nearly identical with our own Red Regent in character and habit of growth, but to be somewhat whiter in the flesh; as, however, none of these strong-growing kinds are fit for use till after Christmas, it will be soon enough then to speak to its quality. I may mention that during the winter I purchased a quarter of a peck for 3*d.* of an imported French Potato, much like the Rose in shape, but of rather a darker shade of red in colour. This proved also to be one of the red Regent type in growth, but an enormous cropper, producing very smooth handsome tubers of such a present quality that I believe it will prove, after keeping, quite as good as the Rose. Such is the multiplicity of sorts now, that I feel it would be a great boon both to the trade and the consumer if some central authority would undertake to give, for two or three years in succession, a fair trial to all existing kinds, to synonymise all that have duplicate names, make a selection of what are really good, and give them certificates of merit, and let the rest go and take their chance; such a trial as this would be a real

service to horticulture. *A. D., Southampton.*—In the autumn of the past year my father, Mr. William Roberts, of the Ox-Stalls Farm, Wotton, near Gloucester, dug up a chance Potato of extraordinary dimensions—apparently a second early, between a Fluke and a Gloucestershire Kidney. This Potato he cut into 40 sets and planted this spring. On August 2 he dug them, and found to his great astonishment it had produced the number of 1118 good-sized Potatos, perfectly sound. *Daniel Roberts, Wells Spring Farm, Wotton, near Gloucester.*

Congress and the Congress Papers.—I am one of those who think the Congress ought to be supported not only by the whole gardening fraternity, but by horticulturists and botanists of every degree. It is a step in the right direction, stimulating thought, mustering the backward and bashful practitioners among those who generally do the heavy work, and fusing together a multiplicity of ideas that might remain undeveloped, and therefore useless to the interested public, and to co-operative spirits. The garden and its adjuncts constitute the great field from which scientific men take their data, and therefore the relation which they ought to bear towards the operative horticulturist should be drawn if possible closer together. There is far too little sympathy evinced between the practical and the scientific horticulturist. By some unaccountable feeling, instead of co-operation, as there ought to be, there is opposition. Asperities rise up, and the gardener, from his position socially, jumps to the conclusion that he is underrated; that his society even in public gatherings is not courted, and in fact that he is looked upon as little else than a bore. Position in society, at congress meetings, ought to be sunk; all blending themselves together for the weal of horticulture; and if anything more than another should organize a bond of sympathy, it ought to be the influence of a representative society wisely evolving a scheme where mutual action would be generated. Interchange of thought would be a good step towards conciliation, but conciliation is of subsidiary importance in point of gain to what would be absolutely realized for the advancement of the cause. One great point was gained at the International Congress of 1866, but it has been but inefficiently followed up, and the first move has been to set the horticulturist chiefly in a proper position, and to show what sort of character he would make in a literary capacity. Unfortunately by engagements at home I was not able to be present to take personal part in the two meetings that were held, but, judging from the papers that have been already published, the amount of information which they contain, the variety of the subjects touched upon, and the original and at times exhaustive mode in which the matter was dealt with, I am of opinion that there is more cause than ever for the co-operation of scientific men. It is with regret that I have seen by the editorial rejoinder to one of your correspondents, and from Mr. Williams' note, that a contemporary, with evidently more tenacity than calmness or "deliberation," has attempted to underrate the importance of these meetings. The longer we mix with the world and learn the history of the successes and failures of its undertakings, the more we see that time is requisite to try them. The zeal of your contemporary and its declared findings must be pronounced immature, for notwithstanding the shortcomings of the so-called congress, it has had by no means an inauspicious advent. The machinery towards its perfect conduct and adaptability may not exactly have worked so smoothly or so effectively as your contemporary and others would desire, but even the most powerful and the most popular of our Press organs have had certainly small beginnings, and by no means an unchequered career. We may have hopes therefore of even better things in future. But I think there is some cause for regret, in the want of discussion and deliberation upon the papers read. With the exception of some of the earlier ones there seems to have been no action taken. This is to be regretted, because the discussion portion generally quickens the intellect, and refreshes the memory, and many valuable hints are thrown out which, when digested, tend powerfully to explain much that is obscure. The horticultural fraternity are evidently shirking their duty in accepting everything that was propounded in the shape of deductions from certain premises, on the matter of soils, on the reproduction of races, and on the many other subjects that were ventilated. To gulp down everything that even leaders propound shows an amount of weakness, and there is scarcely ever a question mooted which is not capable of being looked at from opposite points of view. The arrangement of facts on the one side and on the other enlarges the area of discussion, and although in gardening matters we may take two diverse roads and reach ehe same goal in the end, still it is advisable that the public should know how the thing is and can be done. Two persons profess to grow Grapes as excellently the one as the other, the one partly under the influence of magnesian limestone, and the other eschewing it as the matron the phial with "poison" inscribed on its label. One would think that to establish this it would be necessary to prove that the Vine is an indiscriminate gourmand, or that some of the theories are propounded upon false premises. Deliberation in congress, and eventual resolution upon the subject, is far more likely to be attended with sane conclusions than was a lengthened paper. Judging from the programme, there appeared to be too much undertaken to be done well. Each day's essay work could have been very well cut in two, and the results would have been all the greater. In future it would be well to study this. It may be argued, from an opposite point of view, that the utterances of all whom it was desirable to enlist could not have been entertained. Very good, but there would have been no great loss in postponing some of them for a following year's deliberation and debate. In my opinion the powers that be ought to arrange the number of essays, what subjects they should treat, and who should write them; and invite discussion from all quarters. It ought also to be a condition that the writer should be present, read the essay, and be prepared to reply upon it. Were this done, it would give an opportunity for both practical and scientific men to touch upon points in which they were more immediately interested, and some new light to be unfolded would be a necessary consequence. If remuneration of a handsome character were forthcoming, and I don't at all see why this could not be catered for and carried out, there would be an additional incentive for all to weigh carefully the pith of their observations, and papers from purely horticultural workers or the operative gardener would be worth reading and digesting too. I throw out these observations with the view of eliciting what is the prevailing opinion. I am clear upon this, that an annual congress in some important locality ought to have the vigorous and undivided support of all who wish well to horticulture. *J. Anderson, Meadow Bank.*

Hothouse Boilers.—Mr. Ormson may not understand the philosophy of retaining and utilising or "bottling" the products of combustion any better than some of his younger brethren, for a man's abilities are not measured by his experience. Everybody knows that a crooked chimney draws better than a straight one, and Mr. Ormson's new boiler, called the Convoluted, favours rather than otherwise the ascent of the flame; and seeing that flame always passes off in tongues, the shape is just right to facilitate the emission of heat. Gardeners of the present day who have to account for the length of their coal bill are every day becoming more and more disgusted with boilers of vertical action, consuming as they do a maximum amount of fuel, and only giving a minimum amount of heat where it is most wanted. Why don't our great locomotive engineers adopt the vertical action? Why, because they know the horizontal to be the best. Let any one try the simple experiment of putting a kettle of water over his fire, and another of the same size by the side of it, and note the result; or try Mr. Lane's little experiment (see *Gardeners' Chronicle*, March 21, 1868, p. 294). I could instance many other little things to convince even the most doubting that horizontal flue action, if not the most natural, is the most sensible way of retaining and utilising or bottling up the products of combustion. To show that the "Conservative" boiler has found favour in the eyes of others besides myself, I may mention that at the present time there is in process of erection a hot-water apparatus, of which the "Conservative boiler" will form a part, in one of the most extensive horticultural establishments in the kingdom; and doubtless in a few weeks it will be reported upon in a spirit of impartiality from the said establishment. *R. Milne, Vale Royal, August* 15.

Yellow and Blue Bedding Plants.—Has your correspondent "W. Ward, Stoke Edith Park" (see p. 842), tried Golden King of Tom Thumb Nasturtiums, for a yellow, in place of Calceolaria? If not, if he will get it (true), sow the seed, and when up, and the plants sufficiently large, take the tops off, strike them, and plant the small cuttings only, when in perfection he will have a splendid yellow. To keep it in perfection I have, by dint of much rogueing (not to get the seed, of course), got a nice little bed of it, of which I was very proud and which I was anxious to treat, becomingly, so I questioned my friends how I should do this, and fortunately for myself I came across a very old and experienced friend, who said, Pick off the dead flowers, do not let it seed, and should there by chance a leaf come out of place, pick it off too, and then—why, it would shine out in such golden glory, that all who saw it would fain believe that the Calceolaria must behave itself better in future, or be displaced. Further, I will mention, I have a yellow-leaved Fuchsia, which I may ask the public to try some time hence. For a blue bedding plant, has your correspondent tried Ageratum Prince Alfred? if not, let him do so forthwith. I used to condemn it, but I have altered my mind, for at a friend's place near here I saw the Prince in perfection, about a foot high, as even and regular as could be. But it struck me that this plant has its place, and neither by cutting, pegging, nor any other means you may use, can you coax him out of that place, so don't attempt it; if you do, you will soon find it next to worthless: stick out good bushy plants, and let 'em grow; then say, Is there no blue? I've another blue friend in Verbena Emma, which I fancy was once well known in Worcestershire and Herefordshire. We often put aside good old plants in our anxiety for change, and when we would turn to them again may we find them not all dead, being sure they will again give forth their charms in return for our anxious care. Verbena Emma has done so here, and enables me to send you blooms, as also of Purple King, for comparison. I conclude by observing that Emma's constitution and capabilities are in every way all that the most fastidious can desire, and that it is the most really blue out. *R. H. Poynter, Taunton.* [The Ageratum Imperial Dwarf, shown at Kensington last Tuesday, will be a gem for bedding purposes wherever its bright cœrulean blue is required. The Verbenas came in a very unsatisfactory condition. Eds.]

Hydrangeas.—Passing through the village of Hythe recently, on my way to Cadland, I was much struck with the appearance of two very fine Hydrangeas that were growing, one on either side of the entrance, in the garden of the house in which Mr. W. Perkins, the honorary secretary of the New Forest Horticultural Society, resides. They were then one mass of bloom: but singularly the colours in each plant varied in the proportion of about one-third of the trusses of bloom being blue to the other two-thirds rosy pink. Assuming that these plants had but one base to each, which I have no doubt is the case, it affords evidence that the variation in colour in the flowers of the Hydrangea is due to a sportive faculty only, and to no other cause. The plants in question were about 5 feet in height and 18 feet in circumference. *A. D., Southampton.* [It is to be hoped our correspondent will thoroughly (not vaguely) investigate this case. Eds.]

Foreign Correspondence.

Courcelles, près Amiens, France, the Residence of Mons. le Comte de Gomer.—I have several times visited the residence of this nobleman, and I believe it would be agreeable to all the lovers of horticulture if I gave a short notice of the chief collections of plants, &c., which are there to be found. I will say but a word on the mansion, which is built in Louis XV. style; it is large, well arranged, and exquisitely furnished, and surrounded by large offices, where everything is disposed to offer a cordial reception. At the entrance is found an ornamental gate, which gives access to a yard designed in English fashion. The road which conducts to the mansion is bordered with flower-beds of all the best kinds of bedding plants, which are renewed and varied every season. On the lawn one meets not only with the rarest Conifers, but also with a large number of standard Rhododendrons of the finest kinds; some of the heads of the latter measure 25 feet in circumference, and are of a luxuriant vegetation. The park is of great extent and well timbered, and is laid out in the English style; and in it one meets with objects of art—Swiss cottages, waterfalls, and, above all, a beautifully situated grotto, of which the grand proportions form a most pleasing picture. But I must abridge these details, and will give a description of some of the plants contained in the stove and greenhouses.

I first visited a house which is entirely devoted to the growth of Pine-apples, and, judging from the excellent condition of the plants, and of the size of the fruit, I felt convinced that the culture of these was well understood. Passing on from this house I was shown through another, which contained collections of Pelargoniums and Fuchsias; leaving this I was next conducted to the Orchid-house, which contains more than 400 plants in very fine condition, and amongst which are good specimens of Vanda cœrulea, V. insignis, V. suavis, V. Lowii, V. palpebræ, V. gigantea, V. teres, also strong plants of Saccolabium retusum, S. Blumei, S. guttatum, &c. I must not give the names of the Lælias or other interesting plants here, or I should be obliged to mention all of them. Next comes a house where all the fine-leaved plants are found, such as Cyanophyllums, Begonias, Caladiums, &c. Near this is a house for the growth of Grapes, in which I have remarked every year a plentiful crop, and the bunches of such weight and beauty that neither at Fontainebleau nor elsewhere in France could they be excelled.

We now arrive at the Camellia-house, which is composed of three aisles, each 12 yards in width and 22 yards in length, and the whole forms a most beautiful winter garden, with stream, bridge, basins in marble, borders of the beds in marble, &c. In this house the Camellias are by thousands, and among them are hundreds of plants from 15 to 18 feet in height. Most of them are quite bushy, and grown in a pyramidal shape. The condition of the plants with regard to health it would be impossible to better, and without doubt (which is a great thing to say) it is the best collection known. It would fill a volume were I to cite all the interesting kinds; it will be quite sufficient to say all the new varieties are sure to arrive at Courcelles as soon as their reputation is fully established. To this Camellia-house is joined a round greenhouse, with a dome-shaped roof, where are cultivated some splendid specimens of Dioon edule, Chamærops Martiana, Dracæna indivisa, Gastonia palmata, and a quantity of other fine things; but I would particularly mention a Dicksonia antarctica, which is, perhaps, the finest plant of the sort in Europe.

I hope from this very superficial notice I have said enough to give amateurs of horticulture a desire to visit Courcelles, where, I am persuaded, they will at all times be sure to meet with hospitality. *John Waterer, Bagshot.*

Societies.

Royal Horticultural: *August* 17.—W. W. Saunders, Esq., F.R.S., in the chair. The usual preliminary business being completed, and the Rev. J. Dix and G. F. Wilson, Esq., having announced the awards made by the Fruit and Floral Committees, and commented upon the various objects brought before them, the Chairman, in the absence of the Rev. M. J. Berkeley, addressed the meeting. The special feature of the meeting, said Mr. Saunders, was undoubtedly the large specimen of Lilium auratum, from the gardens of the Dowager Lady Ashburton, of Melchet Court, which was a plant of great beauty, and so fine a specimen of which he believed had never before been shown. The Lindley Medal, which is only given to extraordinary specimens of good cultivation, had been deservedly awarded to it by the Council, on the recommendation of the Floral Committee. It is well known that there are several varieties of L. auratum, some being more deeply spotted than others; this was one of the paler coloured kinds. What a splendid subject for hybridisation this variety would make, remarked Mr. Saunders, if it were taken as a basis to work from, and colour and other characteristics were introduced. The magnificent spikes of Gladiolus, from Messrs. Kelway & Son, were then alluded to, on account of the peculiar glow of colour, delicacy of tint, and fine cultivation shown in them. The Hollyhocks were next noticed, as being very old inhabitants of our gardens, and which were very pretty as a single flower; but now that Mr. Chater and others had made them double, and improved them to so great an extent, there was no flower so useful or so effective as a decorative

plant for mixed borders. Dr. Seemann's gigantic Aroid, from Mr. Bull, was then alluded to, Mr. Saunders remarking that it was one of the most singular plants of modern introduction. He then proceeded to say that there were several similar species, one of which he had himself, but which was not nearly so handsome as the specimen before the meeting. The specimen showed only one leaf, which dies down, and another (sometimes two) are produced from a bulb which is no longer than one's hand. A splendid specimen of Lælia elegans Turneri, from Mr. Goode, was then noticed; and the new Ageratum Imperial Dwarf was commented upon, as being likely to become one of the most popular and handsome of bedding plants. A fine specimen of a new South African climbing species of Asparagus, which when grown on a cord was stated to be very useful as a decorative plant indoors, was pointed out, as was another handsome and curious climbing plant, the Methonica aurea, otherwise known as Gloriosa Plantii.

Floral Committee.—Rev. J. Dix in the chair. The special feature of this meeting consisted in the competition for the prizes offered for Gladioli and Hollyhocks. The Council Room was also graced with the finest specimen of Lilium auratum that has ever been exhibited, and which was brought to the meeting by Mr. Goode, gr. to the Dowager Lady Ashburton, from Melchet Court, Romsey, Hants. This noble specimen was originally bought as a single bulb at the price of three guineas, and has not since been disturbed, but has been potted on as one entire plant: it has now 11 fine strong flowering spikes, each about 8 feet in height, and bears on the whole 118 blooms, of which about 130 were fully expanded. The specimen was universally admired, and Mr. Goode deserves the highest praise for the perfect cultivation bestowed on the plant and also for the beautiful condition in which it was shown, not a flower being bruised or pollen-soiled, even though the plant was brought a distance of 80 miles on an open railway truck. A Special Certificate was awarded by the Committee, and the plant was recommended to the Council of the Society as being specially worthy of the Lindley Medal, which we were afterwards pleased to learn had been awarded to it. Mr. Goode received another Special Certificate for a specimen of Lælia elegans var. Turneri, which had one spike, containing 14 splendid flowers of this magnificent orchid. Mr. J. Clews, gr. to J. Mackintosh, Esq., Oatlands Park, Walton, Surrey, sent a nice specimen of Methonica aurea, a handsome climbing plant closely allied to the old Gloriosa superba. From Mr. Bull came a fine collection of plants, to which a Special Certificate was awarded, including examples of Cycas Armstrongii, circinalis, and Riuminiana; a collection of Encephalartos, comprising natalensis, gracilis, Meissneri, villosa, dentata, retusa, nobilis, and two new African species named grandis and plumosa, to which First-class Certificates were given. The same award was also made to two new species of Macrozamia named excelsa. Among Orchids in the same collection was a fine specimen of Phaius albus, also a small plant of Odontoglossum Schleiperianum; and the extremely pretty Oncidium Kramerianum. To Mr. Bull a First-class Certificate was awarded for the fine specimen of Dr. Seemann's new gigantic Aroid, which had one leaf about 7 feet in height, with a very pretty and curiously marked leaf-stem. Mr. B. S. Williams sent a fine group of Orchids, comprising beautifully flowered plants of Miltonia virginalis and spectabilis, the latter having 13 finely coloured and expanded flowers; Aerides quinquevulnera, with three good spikes; Oncidium obryzatum, Rodriguezia suaveolens, Phalænopsis rosea, Vanda suavis, and Odontoglossum Lindleyanum, &c. A Special Certificate was awarded. The same award was also made to a large, well grown and finely-flowered specimen of Lapageria rosea, from the same exhibitor. From Messrs. Downie, Laird & Laing came small but nicely furnished plants of the new Coleus Beauty of Widmore; and two new zonal Pelargoniums, named Lady Hawley, rich vermilion red, good pip, and fine truss; and Stanstead Rival, a dark scarlet, with a tinge of purple in the petals, a good trusser, and neat in habit, to both of which latter First-class Certificates were awarded. A collection of seedling Nosegay Pelargoniums also came from Mr. J. George, Putney Heath, which, however, were not in good condition. From Mr. Turner, of Slough, came several new Dahlias; and from Mr. Laing, of Stroud, three new kinds of tricolor Pelargoniums and a fine variety named Lady Edith, having bright rosy flowers tinged with purple, which, through some information, was not noticed by the Committee. To Messrs. J. & C. Lee, of Hammersmith, a Special Certificate was awarded for a collection of succulent bedding plants, and a box of Beet, a dark metallic bronze-coloured variety, suitable for garden decoration. From the same firm came examples of Iresine Lindeni, Alternanthera inversa, and Coprosma Baueriana, a pretty dwarf-growing, green and golden-edged species. To a new dwarf, compact, and free-flowering Ageratum, named Imperial Dwarf, from Mr. W. Chater, a First-class Certificate was given. It is decidedly the gem of the season among bedding plants, and is a great acquisition. From Mr. C. J. Perry, of Castle Bromwich, again came a collection of seedling Verbenas, amongst which were Ada King, white, with pink eye of good substance; and Thomas Lawden, a bright pink, with a pinkish rose colour, with crimson eye, to which First-class Certificates were given. A similar collection came from Mr. Bedford, to the following of which awards were made:—Eclipse, very dark scarlet, good form, fine pip, and good truss, of a deep colour; Mrs. Bedford, a fine pip, and good truss, of a deep colour, with a very light eye; and Lady Anne Speirs, a fine pip, and good truss, with pale rose centre. To Mr. Cannell, gr. to W. W. Saunders, Esq., a First-class Certificate was given for a new and graceful South African species of Asparagus; and from Mr. W. Paul came a nice group of double-flowered Pelargoniums, and also several new zonal varieties. In the class for twenty-four cut spikes, distinct, the 1st prize was taken by Mr. Keynes, gr. to Sir Watkin Lewis, Bart., Broadwell House, Langport, Somerset, with fine, well-developed spikes of Lady Ann, Mrs. Peel, Imperial, La Tilleul, Thomas Moore, Princess Helena, Duke of Edinburgh, Queen of Methven, Mrs. Brown, Prince of Wales, Sandwell, Sarah, Duchess of Cambridge, Triumph, Lord Lyon, Lord Derby, Prince of Wales, Sandwell, Sarah, Duchess of Cambridge, Triumph, Lord Napier, Constance, Golden Drop, Goldfinder, King, Nonpareil, &c. The 2nd prize was withheld. Mr. J. Douglas, of Auriculas and Sandwell, was 3rd, with some extremely good spikes. In the nurserymen's class for 12 spikes, distinct, Messrs. Kelway & Son were 1st, with a most excellent piece of Albert Victor, Duchess, Princess Mary of Cambridge, Velleda, Princess Alice, Adolphe Brongniart, Homère, Madame Desportes, Rossini, Madame Furtado, &c. The Rev. H. H. Dombrain was 2d, and Mr. J. Shadden 3d. In the amateurs' class for 6, the Rev. H. H. Dombrain was 1st with admirable spikes of Milton, Impératrice Eugénie, Shakespeare, Homère, Dr. Lindley, and Madame Dombrain; Mr. J. Shadden was 2d, and Mr. J. Douglas was placed 3d. A very fine collection also came from Messrs. Veitch, which, however, were not for competition. Hollyhocks were very fine indeed. In the nurserymen's class for 24 cut blooms, distinct, the 1st prize was taken by Mr. W. Chater, of Saffron Walden, with grand blooms of Acme, Leah, Robert Fish, Triumph, Lord Napier, Constance, Golden Drop, Goldfinder, King, Nonpareil, &c. Mr. J. J. Chater, Gonville Nurseries, Cambridge, was 2d with two very good stands. The only good collection of 12, amateurs, came from the Rev. E. Hawke, Willingham Rectory, Gainsborough, who had excellent blooms of Phryne, Octavio, Acme, Senior Wrangler, Tournament, Ida, Willingham Model, Carus Chater, Ivanhoe, Ruby Queen, Harold, and Alba superba. Mr. W. Chater was 1st, and Mr. J. J. Chater 2d in the open class for 6 cut spikes, distinct, with admirable examples of similarly named kinds.

Fruit Committee.—G. F. Wilson, Esq., F.R.S., in the chair. This was a very interesting meeting, from the number and variety of subjects exhibited, although no prizes were offered for competition on this occasion. This fact can only be due to the increasing interest that is taken in these fortnightly meetings. From Mr. R. Fairbairn, gr. to W. Death, Esq., South Lodge, Bishop's Stortford, came a very handsome Enville Pine, weighing 9 lb. 5½ oz., to which a Special Certificate was awarded. From Mr. Dry, Hayes, Middlesex, came a dish of a fine new Plum, named by the Committee Dry's Seedling. The fruit is oval, of light purple colour, fine in size, remarkably good in flavour, and early. It was shown at one of the meetings held last year, and was then considered by the Committee to possess considerable merit; and its qualities having been again tested on this occasion, it was duly honoured with a First-class Certificate. The same distinction was also granted to a fine new seedling Raspberry from Mr. McLaren, Ash Common, Surrey. The variety is remarkable for the size of the berries, vigour in growth, and fertility. The flavour, however, was not particularly good, which perhaps was due to the season, which has not been a good one for bush fruits in general. From Mr. Earley, gr. to F. Pryor, Esq., Digswell, came a Seedling Vegetable Marrow, which was said to be "a true cross between Moore's Vegetable Cream and the Custard Marrow;" the fruit was not very large, but, as regards the flesh, it was first-rate. Mr. Earley also sent a bunch of French Horn Carrots, which, for their size and appearance, did him great credit, and which were highly commended by the Committee. Mr. Fenn, of Woodstock, sent a collection of large Gooseberries, which, however, were not very rich in flavour, though fine in size. Mr. Carmichael, gr. to H.R.H. the Prince of Wales, Sandringham, sent a bunch of the Muscat Champion, a large, grizzly-coloured Grape, the result of a cross between the Mill Hill Hamburgh and the Canon Hall Muscat, and which thrives well in a cool house, or when grown with the Black Hamburgh. Mr. Pearson, of the Chilwell Nurseries, exhibited several new varieties of Grapes, including samples of the seedlings which he has obtained by crossing the Strawberry Grape with other kinds; one, a black variety, is Strawberry scented, and another, a white one, is quite of a Muscat substance, with the flavour and aroma of the Strawberry. The bunches shown were grown on small canes in pots, and were in consequence rather small; nevertheless the Committee came to the conclusion that three of the kinds were very promising, and they will no doubt be shown in better condition when stronger canes are obtained. From A. Scrutton, Esq., Blackheath, came 3 bunches of a black Grape, called The President, which was said to be a seedling; which bore considerable resemblance to the Black Prince. Mr. Melville, gr. to the Earl of Roseberry, Dalmeny Park, also sent a seedling White Grape, with large, coarse-looking berries and of very poor flavour. Mr. Bull exhibited a scarlet-fleshed Melon, named Nonpareil; and Mr. McIndoe, gr. to his Grace the Archbishop of York, a dish of very fine fruit of St. Ambroise Apricot, which was highly commended. Mr. Goode, gr. to the Dowager Lady Ashburton, Melchet Court, Romsey, showed three long straggling bunches, with small berries, of the Grape called Duchess of Buccleuch; and Messrs. J. & C. Lee, of Hammersmith, specimens of the Royal Vineyard Fig, which, however, will be more fully noticed when the Committee examines the collection of Figs at Chiswick. From Messrs. Veitch came two kinds of Potatos; one, called Veitch's Improved Ashleaf Kidney, was cooked for the Committee to taste, but as they were over-boiled, they could not be properly judged.

Royal Botanic: *August* 10.—The 30th anniversary meeting of this Society was held at the gardens, Regent's Park; Thos. Bushell, Esq., in the chair. The Prince of Teck was re-elected President, and Sir Edmund Antrobus, Bart., Treasurer, for the ensuing year. The annual reports of the Council, auditors, and secretary, which were read, stated that the number of new Fellows elected has been above that of several seasons during the past 10 years. The musical promenades and fêtes were fully attended, the largest company on one day being nearly 13,000. The total receipts from all sources amounted to 7221*l.* 12*s.* 1*d.*, and the payments to 7471*l.* The new lease of the gardens, granted by the Commissioners of Woods to the Society, will commence next spring, and remain in force for 31 years. The secretary's report specially mentioned the operations of the Society in relation to practical botany, a large portion of the gardens being kept up at considerable expense for the promotion and aid of botanical studies in connection with medicine, the arts and manufactures. Free admissions to the gardens had been issued during the year to 200 students and artists, and 10,653 cut specimens given to professors, lecturers, and others. As the collection of "economic" plants now contains living examples of all the spices in common use, most of the tropical esculent fruits, a large number of the principal medicinal plants, and those connected with manufactures, the yearly additions were necessarily not so numerous as in former years. The latest acquisitions include plants of the Towel Gourd, the dried ripe fruits of which, when divested of their outer coat, are occasionally sold in the London shops as substitutes for "flesh brushes," and in the West Indies are in common use as strainers for culinary purposes; the plant from the young leaves of which "Panama hats" are plaited; the "Coral tree" and "wild Liquorice," whose bright red seeds serve for the manufacture of many an article of female adornment; the trees from which are obtained "palm sugar," "toddy," sago, and the Palm Cabbage. The latter grows at the top of a very tall tree, instead of on the ground as in England. The additions to the museum comprised "cochineal" grown and cured in the Society's garden, an interesting series of "india-rubber" and other elastic gums, from the india rubber works, Silvertown, Essex.

East London Amateur Floricultural, Bow.—The fourth summer flower show of this Society, held recently, is worth a passing notice, for the reason that the Society, some months back, gave to several of the schools in the district 12 Fuchsias, to be given to as many children, on condition that the plants should be shown at this exhibition. This was done, and the plants which were exhibited were very creditable to the growers. The judges were Messrs. Shirley Hibberd, S. Brown, and J. Dale.

Notices of Books.

The British Rubi: an Attempt to discriminate the Species of Rubus known to inhabit the British Isles. By Charles Cardale Babington, M.A., F.R.S., Professor of Botany in the University of Cambridge London: John Van Voorst, Paternoster Row. 1869

This monograph, so long looked forward to by critical botanists, is now before the public. Dealing, as it does with a group of plants intimately connected one with another, and distinguished in some cases by what may seem but slight points of difference, the work is one which will only interest those who have studied the Brambles critically, or who have been waiting for its appearance to enable them the more readily to do so. The arrangement of the species is that given in the "Manual;" but the descriptions are, of course, much more elaborate and minute than those of the latter work. There is also a copious list of localities in Great Britain and Ireland attached to each species, as well as a table showing the geographical distribution in accordance with the "Cybele." With reference to these the author says:—

"The tables show the presence of the several species in certain parts of the country, but do not, and cannot, point out their abundance or rarity in any place. This is an unfortunate circumstance, for much depends upon it. In illustration: R. discolor and R. Radula are equally marked as natives of Prov. III., Ouse, and county of Cambridge. The former is exceedingly abundant; the latter has only been found in one place. It seems probable that one or more of the species constitutes the prevalent Bramble, the Blackberry of each district, R. discolor, which is very common in many parts of the kingdom—so abundant as to attract notice almost exclusively to itself—is superseded by another kind in some places, where it may be, and probably is, present, but escapes general notice. R. diversifolius is so abundant in the valley of the Severn at and for a long distance above Shrewsbury, and R. pyramidalis and R. incurvatus at Llanberis, as to be noticed by any observant person; but R. discolor is not seen except by the botanist who is familiar with brambles."

It must be obvious to the most casual observer that, to refer every Bramble to the Linnean R. fruticosus, is an unsatisfactory, not to say a lazy, way of solving the difficulties attendant on their study. Certain species are so distinct, even as we glance at them in the hedges, that it would be quite as reasonable to unite all the British Roses under Rosa canina, as to place all the Brambles under R. fruticosus. We have here used the word species, but we should prefer to say "forms;" because, although we have little doubt of the existence of these forms, and perhaps of even more than are here enumerated, we do very strongly doubt the policy of giving them specific rank. Even Professor Babington himself thinks it "quite likely however, that the time may come when several of the forms here looked upon as species will be shown not to be distinct from others." On this point the following remarks, freely translated from a paper of M. Germain de Saint Pierre, and recently published in the Bulletin de la Société Botanique de France, seem to us very appropriate:—"The naturalist who applies an appellation of the same relative value alike to well-defined and to ill-defined forms, to variations of the second or third degree in the same manner as to the most clearly marked specific types, renders the study of natural organisms confused and difficult, not to say impossible; indeed, from shade to shade the nomenclator knows not where to stop—after a time he even loses himself in the maze of inappreciable species; his nomenclature of half tints becomes so complicated that not only do his readers find it impossible to follow him but the author himself is often the first to go astray. On the other hand, the classificator who calls by specific names types sufficiently well marked to be positively determined, and who groups around these (as varieties) the secondary or intermediate forms, renders the study accessible to all—alike to those who desire to know merely the typical forms, and to those who devote their attention to subsidiary forms, to varieties and variations." In these and similar cases, we believe that Mr. Darwin has done good service by showing how important slight variations may be, either in a geneological point of view, as affording evidence of lineage, or in a physiological sense, as enabling certain plants to "struggle on" better than others. He has shown the naturalists whose tendency is towards over-consolidation, that they may overlook as trifling minutiæ points which really are of great importance. On the contrary, he has made it clear that some of these minutiæ are by no means to be regarded as so important as naturalists, whose tendency is towards over-refinement, would have us to believe.

Besides a minute description of each plant, much interesting matter is given in the introduction to the volume above cited, as well as in the historical sketch of the progress made by British botanists in the study of Rubi. From the former we may quote the following paragraph, as to the collecting of specimens for identification, which will be interesting and useful to those local botanists who are working a county or smaller district:—

"To judge properly of a Bramble from a preserved specimen we require a piece of the middle of the stem, with more than one leaf; the base and tip of the stem are also desirable. Likewise a piece of the old stem with the flowering shoot attached to it; the panicle with flowers, and the fruit. We likewise want to know the direction of the stem throughout, of the leaflets, and of the calyx; also the shape of the petals and the colour of the styles; a note of these should be made when the specimen is gathered."

It is to be regretted that the plates, which were to have accompanied this volume, are not forthcoming;

but we think the author has done wisely in publishing the letterpress by itself, in preference to delaying it for a longer period. Botanists, whether or no they accept the author's conclusions, will find in the volume a fresh demand on their gratitude to Professor Babington for this result of the care and study with which he has worked at a difficult group of plants.

The Apiary.

Returning Bees.—In returning the bees of a super, which I had driven, I placed the empty box containing them on the top of the stock hive, and opened a communication for them to descend. This they all did except a small cluster of about 30 bees, which I found remaining at the side of the box. On looking closely at them I saw one which appeared to be the queen, and, taking her up carefully on a feather, I brought her to the mouth of the hive, when she ran in. Can it be the case that this really was the queen? I have sometimes found bees with bodies so much larger and more pointed than the rest that I have mistaken them for queens, but this was so exactly similar to what I have thought to be the form of a queen, and so dissimilar to the workers, that I think it was nothing else. I adopted the method mentioned of returning bees, because I have found that knocking them out on a board or stool of the same height as the entrance placed before it, irritated them much. I do not know that using a cloth, as you recommend, would have made any difference. Pray how are the tops of those 13-inch diameter supers made, which you recommend at p. 343, of the year 1866, in the *Gardeners' Chronicle?* You say they are fitted with seven bars. How wide are the bars? What space is there between them? How is the honeycomb taken from them? And how are the 3½-inch deep ekes, which they are to be raised on sometimes, fastened to them so that the whole bears carriage. I presume the honeycomb is to be taken out by lifting a bar with the comb attached; but to do this the attachment at the side must be secured, and must the whole be turned up, with the top downwards, to do this? I find this inconvenience attaches to 6-inch deep Stewarton boxes used as supers, whose combs I find it best to get out by unscrewing the bars, and so lifting them. The shallower boxes only allow of the combs being easily cut from the bars, and taken up as the box stands, bottom upwards. I am just now reminded of a very pretty contrivance that I got a glimpse of the other day for getting comb easily out. The super was square, and made so that by unscrewing a few screws, as it lay bottom upwards, the two opposite sides came out, and the comb could be easily cut away from all attachment without the loss of a single drop of honey. *A. B.* [It is very likely that the bee you picked out from the small cluster, and returned to the entrance of the stock, was the queen. Your method of returning bees may answer very well, but is often rather a tedious one, and sometimes may result in a fight among themselves. We prefer the more summary plan of knocking them out and compelling them to enter as speedily as possible. The tops of the supers are made of inch stuff, about 16 inches in diameter, generally of two pieces of board, ploughed and tongued, and secured by two cross pieces. The bars used for the wooden supers are generally 1⅛ inch wide, with about ⅝ inch space between each. For the octagonal glass boxes, the bars are ⅞ inch wide, and the interspaces regulated accordingly. In these eight, instead of seven bars are often used. The honeycomb is lifted out with the bars. The easiest way is to sever the attachments at the sides of the boxes from below; but this can be done from above between the combs, by means of a suitable honey knife, curved at right angles with the cutting edges, in the same direction as the handle and shaft. The shallow ekes are secured to the upper division of the supers by means of four small strips of wood fastened by screws.]

Driving Bees.—I have some bees here in common straw hives, and I wish to know if it is possible for me to take the honey without killing the bees? If you could kindly inform me in the *Gardeners' Chronicle*, I should feel thankful. I recollect some years ago a friend of mine used to be able to take the honey and save the bees, but how, and in what way, I do not know. My friend is now dead, and I am in a different neighbourhood. *W. S.* [You can expel the bees from the hive you wish to take, by driving them out into an empty hive. You can then unite them to the bees of another stock having sufficient stores for the coming winter; or, having plenty of combs but being light in honey, you can supply them with sugar syrup sufficient to make up their weight, exclusive of hive and bees, to about 15 lb. If you are unacquainted with the system of driving, you will obtain the necessary information on that subject, as well as on the best methods of uniting and feeding bees, by sending five stamps to 171, Fleet Street, London, for a copy of "Bee-Keeping for the Many."]

Garden Memoranda.

Messrs. Carter & Co.'s Seed Farms.—Interesting as are the visits to the Essex grounds of this enterprising firm, to attempt to give our readers a general description of them would be to repeat an oft-told tale. Therefore we pass over the description of the various farms, and other interesting features, and proceed to record some particulars respecting Mr. Laxton's and other new Peas, to see which was the special object of our visit.

It is proper to remark here, that, in offering new Peas to the public, the utmost caution should be exercised; as there are already so many varieties in cultivation as almost to bewilder the shrewdest of purchasers, and even the most infatuated lovers of "new things." Unless a new variety has sufficient merit to supersede some sort already in cultivation, or unless it possesses other equally valuable characteristics, the raiser would materially enhance his own reputation, and confer a boon on the public in general, by exercising a wise discretion in sending out those sorts only which are really desirable. To Mr. Laxton, who has done more, by cross-breeding, to improve the races of garden Peas than perhaps any man, except Dr. Maclean, the thanks of the horticultural world are due; and we are sure that both Mr. Laxton, and those engaged with him in the good work, will not think the worse of us for making the above remarks.

Notwithstanding that this has not been a good season for Peas, and consequently the pods generally run small, Laxton's Supreme, a new variety sent out last year, has maintained its reputation as a good cropping and good flavoured variety. Alpha is a blue wrinkled Marrow (the result of a cross between Laxton's Prolific and Advancer); height, 3½ feet; a first early sort, earlier than Maclean's Little Gem and Advancer: this Pea produces pods from the bottom to the top of the haulm, and therefore needs no recommendation as to prolificacy; the pods, which are larger than any other wrinkled Marrow, are well filled with Peas, which latter, when cooked, are said to be of a very fine flavour. This is altogether a desirable acquisition, and to it the Fruit Committee of the Royal Horticultural Society lately awarded a First-class Certificate.

Manifold is a dwarf blue Marrow (of the same lineage as Alpha); height, 1½ foot; a second early blue Pea, with large pods, which, however, are not well filled (a defect which has been noticed before in some other of Mr. Laxton's seedlings, before they have become established in character). This variety might be improved by good and careful cultivation, but in its present condition it cannot be recommended as a good sort. Quality is a blue wrinkled Marrow (origin, Laxton's Prolific and Little Gem); height, 4 feet; a long-podded second early wrinkled Pea, with well-filled scimitar-shaped pods. Quantity is also a blue wrinkled Marrow, from the same parents, both being originally raised together. It grows to the same height, and in fact possesses similar characteristics, with the exception that in the latter the pods are straight, and it is rather more prolific. We think these two varieties may advantageously be introduced into cultivation, to take the place of Alliance and Climax, as the pods of the former are considerably larger in size, and appear to be more prolific. Manifold, tall blue indented Marrow; height, 4 feet; second early long-podded variety, with curved pods. This was originally selected from Manifold Dwarf, and appears to be a very good variety, which might come in very usefully with the long-podders for market purposes. We should, however, like to see this variety another year, before forming a definite opinion as to its value for superseding other kinds of a like character.

Growing on the same ground (at St. Osyth) we also noticed two other sorts of an entirely distinct class of Peas, the seed of which when ripe is of a brilliant dark green colour, with a white eye at the germ, but as the quantity of each was very small, we must defer noticing them more fully until another year. The above sorts were all raised by Mr. Laxton, and have now passed into the hands of Messrs. Hurst & Son and Messrs. Carter & Co. for distribution. We also availed ourselves of the opportunity of examining the results of some experiments which Messrs. Carter & Co. are conducting in hybridising Mr. Laxton's new Peas with other varieties, from which they have already some 40 or 50 seedlings of various degrees of merit. The most promising variety in this lot appeared to be one called Hundredfold, or the Cook's Favourite, which was obtained from Laxton's Prolific and Ne Plus Ultra; height, 4 feet; a late prolific variety (about 14 days later than Laxton's Supreme), with remarkably fine pods, which are slightly curved, and of the fine dark green colour of Ne Plus Ultra, with a very fine bloom. The Peas when boiled are said to be of a fine dark green colour. The seed is of a distinct pale olive-green. This is a sort that is likely to become popular, both for marketing and garden use.

We were informed that the above sorts would have been exhibited before the Fruit Committee on July 20, had the meeting on that occasion been held at South Kensington, instead of at Manchester. From what we saw of Messrs. Carter's own seedlings, we look forward to a healthy rivalry between them and Mr. Laxton in raising new Peas.

Amongst other kinds which were growing in large quantities at Dedham, were the Peabody, a very dwarf prolific variety, that well maintains its character; Maclean's Little Gem, also good; Carter's Leviathan, a new late variety, with large well-filled pods; and Laxton's Prolific Long-pod, occupying 7½ acres, &c.

Vegetables are grown for seed at all the farms, but most extensively at St. Osyth and Jupe's Hill. Several acres at the former place were devoted to a very pure stock of the Covent Garden Garnishing Parsley, a dwarf and very curly variety. Carter's Champion Runners, a good prolific sort, also occupied a large extent of ground. Cabbages of several kinds are grown very largely, as also are Endive, Asparagus, Seakale, Onions, Radishes, Beet, and Tomatos, with fine pieces of Mint, Marjoram, Thyme, and other herbs. Amongst Potatos we noticed the Early Rose, which when dug up was found first-rate in size, but is not here such a famous cropper as our friends across the Atlantic assert it to be with them. Moreover, in point of flavour it is said to be not so good as existing kinds. Cucumbers are also largely grown for seed, such kinds as Telegraph, Star of the West, and Carter's Champion—a good useful Cucumber all the year round—occupying many lights; they were looking remarkably clean and healthy. We also noticed a very good kind of Vegetable Marrow, which bears a long dark green striped fruit. Judging from the samples it appears to be a compact growing and good bearing sort.

Turning from the vegetables, we proceed to notice the specialities amongst annuals, though notwithstanding the increasing interest taken in them, they are not so largely or effectively used in the decoration of our gardens as many of them deserve to be. First to claim the attention of visitors to Dedham are the large quantities of Tropæolums, which here literally clothe the earth with beauty during the summer months. The many varieties grown on these grounds having been treated upon by "R. D." at p. 843, it will be sufficient here to bear testimony to the pureness of the stocks of the many varieties, which are grown separate from each other, and when needed the process of "rogueing" is most vigorously carried out. Gladioli are very extensively cultivated, and appear to do remarkably well on the light soils. One bed of brenchleyensis, containing about 75,000 good saleable bulbs, were especially strong and vigorous, as also were those in another large tract of land which contained about 600,000 bulbs in all stages of development, from seedlings to a saleable size, and of many shades of colour. Amongst a large quantity of Hollyhocks (mixed) were some fine flowers, and altogether this appeared to be a very good strain. Of Sweet Peas there are here nine sorts, the now tolerably well known and justly admired Invincible Scarlet covering a large extent of ground. This variety, whether for the beauty and fragrance of its flowers, or for the length of time which it continues in bloom, cannot be too highly praised. Among the other sorts was a very attractive variety, having pretty purple striped flowers.

Petunias were very fine and gay; several of the varieties were striped, beautifully marked, and very showy. Larkspurs, especially the Hyacinth-flowered varieties, have been very fine, as also have the Lupines, of which there is here a pure white variety without the yellow eye that is so conspicuous in these flowers. Mignonette is this season of great excellence, and there is every prospect of a successful harvest so far as it is concerned. Phlox Drummondii, an old and well-known garden favourite, was here in perfection, one small patch of a selected strain being of wonderful size and colour. Another old-fashioned plant is the curious and ornamental Nigella hispanica, its pretty brownish-white flowers making it very useful for mixed borders. Several varieties of Calliopsis are grown very extensively—C. Drummondii, purplish yellow, is very showy and attractive; another variety, named nigra speciosa, is a very good dark kind. Helichrysums, when seen in masses, are a glorious sight, and have another great recommendation, that of continuing in beauty all the season. There is a great demand for these for winter decoration, for which they are eminently adapted. Of Dianthus Heddewigii there was a splendid strain, the flowers being specially fine in size and colour. Another truly beautiful plant for flower-borders is the Œnothera macrocarpa, its large yellow flowers being very attractive and pleasing, especially in the early part of the day. Of annual Chrysanthemums, Burridgeanum, yellow, crimson, and white, is most beautiful, and the flowers are very large and fine. A large bed of Brachycome iberidifolia, mixed, blue and white, was most charmingly beautiful. Alonsoa Warscewiczii, deep scarlet, is a very pretty free-blooming species.

Miscellaneous.

A Hint to Floriculturists.—"Powdered charcoal, flowers of sulphur, gypsum (sulphate of lime), and other substances slow to dissolve, will," says a contemporary, "modify the colours of flowers, when spread round about their roots: Petunias, Clarkias, and Antirrhinums are wonderfully sensitive to the influence of these dressings." In the *Builder*, about 16 or 18 years since, we gave an account of some experiments of this kind, which the writer of this had made in his garden, our purpose being to suggest means of obtaining varieties in flowers, by causing them to "sport," or tend to vary, by means of such experiments. For example, a white Dahlia, by means of charcoal, was made to have a variety of different-looking flowers on one stem; one red, another striped with orange and white, another orange, and so on. The experiments we did not repeat, and we gave them to the public in the hope that some use might be made of them by cultivators of flowers. Similar experiments were afterwards made in France, and a few years since an account of such experiments was given in the French and English papers; but no result of any great importance seems to have as yet been attained. We are still of opinion, however, that such experiments might be of service to florists if systematically and perseveringly carried out. Perhaps they might thus obtain their much-desired blue Dahlia or Hollyhock for example. The aniline dyes, for one thing, might be good substances to work with. *Builder.*

The Culture of Epiphyllum truncatum.—When well grown this plant is one of the most showy of the decorative stove plants which flower in the dreary months of November and December. I had a collection of different varieties in flower here, and most beautiful objects they were, mixed with other plants in a warm greenhouse. They range about 3 feet in height, and, with the exception of about 6 inches at the top, they are a complete mass of flowers to the bottom of the pot. The young plants were procured from the Messrs. Lee, of Hammersmith, who obtained, I believe, some of the varieties from the Continent. I am not aware what stock or stocks they have been grafted or inarched on, but they seem to grow vigorously. The following varieties are the best and most distinct in colours that have flowered here, namely, elegans, magnificum, Russellianum, superbum, truncatum violaceum, and Ruckerianum. My collection has been managed so as to keep the plants rather dry after they have done flowering, and not to excite them to grow before June or July. At that period they are repotted, the old balls being well reduced. The soil used is

richer than what is generally given to succulent plants, namely, some well-rotted deer dung, mixed with broken lime rubbish and light sandy loam. They are then kept in a warm moist stove to make their young growths, and generally flower about the middle of November. *William Tillery, in the "Florist and Pomologist."*

Johannis Martyn Historia Plantarum rariorum.—Turning over some books a short time since we lighted upon a folio bearing the above title, which seems to be all but forgotten, though the excellent coloured illustration, by no less an artist than the famous flower-painter Van Huysum, might have saved it from such a fate. The plants figured were for the most part taken from the Chelsea Botanic Garden, at that time (1728) under the management of Isaac Rand. For the cultural directions, in which matters he confesses himself "parum esse versatum," the author had recourse to Philip Miller "quem in plantis colendis versatissimum esse nemo opinor dubitabit." The cultural directions aforesaid read quaintly in the Latin, and we expect some of our gardeners now-a-days would stare if they were directed to raise seedlings of tropical plants in these words: "Semina pulvino stercorato vere primo committito, plantas autem in vasa fictilia, terra levi repleta, et in pulvinum cortice calentem demissa, transferto," &c. In any case the work is valuable from the excellence of its illustrations, and as serving to mark the time at which many of our garden plants were first introduced.

Garden Operations.

(For the ensuing week.)

PLANT HOUSES.

Having arrived at the middle of August, the treatment of many pot-plants should undergo some change. A smaller quantity of water should be given to all greenhouse plants which have matured their growth, and which are now somewhat at rest. In regard to stove and orchideous plants, do not water later than the forenoon upon any day, however fine the weather may be, otherwise it is not improbable that the long, cool nights which we begin to experience now may cause a stagnation of moisture at the roots, which would prove very detrimental to their well-being. Besides, excessive moisture standing for any length of time in an inactive state, amidst soil which is of fibrous texture, and sometimes dry, tends, irrespectively of its souring influences, to decompose the components, which it should be our utmost wish to retain intact for the longest time possible for the exclusive use of the roots alone. By watering in the morning or early in the forenoon, we have both sun and air to assist in the process of absorption, and these, aided by good drainage, insure the roots receiving just that amount of moisture in which all plants, except aquatics, thrive the best. Any neglect of these simple facts often tends to generate a thick fungoid growth upon the exterior surface of some pots. I have sometimes seen this so dense that no roots could possibly thrive. Upon the least symptom of such growth upon any pot at this season, let the drainage be examined and steps be taken to relieve the roots from that damp state which they cannot fail to be in,—a dry and buoyant atmosphere being amongst the best of remedies for such a state of things. Do not delay longer the necessary potting of late flowered *Indian Azaleas*, where the operation is not already performed. I have so recently referred to these that I need not at present add anything further. Bring, as previously suggested, the pruning of all *Cape Pelargoniums* to a close, that time be afforded them to break freely and establish themselves before winter. Cut back specimens of *Kalosanthes* as soon as they cease being effective for display, and by keeping the old plants rather dry, assist them to break freely. Where any *Camellias* require shifting into larger sized pots, the present will be found a fitting period for so doing. These should not be exposed too freely immediately afterwards, but, on the contrary, they should be placed in a moderately warm and close atmosphere.

FORCING HOUSES.

Keep the late *Vinery* nice and warm, with as free a supply of fresh air as possible, now that the first swelling is being brought to a close. Those Vines at such a stage, which have their roots in confined inside borders, should receive a good root-watering. All earlier houses of Muscats, which are in the act of ripening, will need a good high range of temperature and a rather dry atmosphere. Guard particularly against anything in the form of draughts, which are very detrimental to the well-being of these noble Grapes. *Pot Vines*, which are now ripening their fruit, will still, considering the very limited area within which the roots are contained, require a large amount of good manure waterings. Other pot Vines, which are being grown on from eyes, or otherwise, for the purpose of fruiting next season, should have every tendril picked off as soon as formed, and also receive frequent waterings with good strong manure-water. As soon as the wood nearest to the base shows signs of actual ripening, gradually lessen the quantity of water to induce them to ripen off; they should afterwards be removed to the foot of a south wall, or other warm and fully exposed situation. In such a position little if any water need be given to them. Where the suckers from those *Pines* which are now finally swelling off their fruit have not been removed, as previously advised, this should now be done without longer delay. If left upon the plants during the actual ripening process, they will not fail to act detrimentally on the weight and solidity of the fruit. With a nice bottom-heat ready, pot them as soon as the wounds have become somewhat dry, and so push them along as quickly as possible. The fruiting Pines, when the suckers have been removed, may have another layer of fresh tan placed upon the surface of the old mixture around the rims of the pots. This will induce a nice moderately brisk heat, which will prove ample for all the requirements of the plants, and obviate the necessity of having to resort to fire-heat for two or three weeks longer. As I have previously suggested, keep as low a temperature as possible at this season consistently with the actual requirements of such subjects as are to be dealt with. Sow *Cucumber seeds* at once, to grow on for winter work in Cucumber houses. The Telegraph Improved, Sion House, and other similar varieties, are the best for this purpose. In the meantime let the Cucumber-house be prepared for the early reception of the plants by whitewashing every vacant space, whether walls within the pits or around the inner sides of the house. The soil should be fibrous and open in texture, no manure being added except such as is thoroughly decomposed; otherwise fungoid growths may form, which are likely to prove injurious to the roots. A very essential point is the existence of a proper amount of drainage; where this is neglected, and the water cannot pass freely away after surface waterings have been given, there cannot be any great amount of success. It is a good plan at this season, with all *Peach* and *Nectarine trees*, to give their whole exterior surface a thorough good soaking over with a strong solution of Gishurst compound. The leaves are now hard, being well matured, and will therefore withstand a stronger dose than will any insect pests which infest them. This tends to check the development of red spider, which is very prone to form upon such foliage at or about the time it arrives at maturity, adhering to it, and increasing and multiplying by the aid of the best juices of the tree; the acari thus rob the plants of that very sap which is so important in reference to their fruiting capabilities in the ensuing year. Now that the fruits of *Melons* have formed, and are already netting, they should be constantly attended to, and all traces of decaying foliage removed immediately they are seen. Directly any symptom of actual ripening shows, let water be withheld wholly from the root, and, where practicable, afford to all, at any stage, a moderate amount of root warmth. When this advice is practically carried out, much will be done to obviate the great tendency these fruits have to cracking, especially in unpropitious seasons.

HARDY FRUIT GARDEN.

Bring the necessary shifting of all *Strawberry runners* intended for fruiting in pots to a close at the earliest possible moment, that they may have ample time to establish themselves before winter. I scarcely need add again that 32-sized pots are the best adapted for this purpose, and that a good stiff loam, mixed with a third of thoroughly decayed manure, is the compost best suited for them. Do not pot them too firmly, but so press the soil down that it may not be permitted to retain an undue amount of moisture at any future period of the plant's growth.

HARDY FLOWER GARDEN.

Some decision should now be arrived at, whilst the outdoor beds are at their best, as to what shall be the plans or patterns for next season's planting out. This done, the preparation of the necessary material must be commenced at once, by preparing the necessary cuttings. Bear in mind that however well or successfully the present display may have turned out, some further improvement upon the old must be arrived at next season if pace is to be kept with your neighbours. Amongst bedding plants I have no doubt whatever in my own mind that *Iresine Lindeni* will prove quite a feature in bedding amongst dark foliaged plants, hence any one interested in these matters should procure a plant or more of such at once, as, if left till the spring, it will then be too late for the then incoming season's display, as there will be no time left in which to propagate it. Keep Grass plots and lawns regularly mown, the walks in good order, and every part constantly picked over. So soon do places get untidy at this season, that no time is saved, or economy practised, by letting either stand over, so rapidly does litter accumulate.

KITCHEN GARDEN.

Make a further sowing of *Cabbages* for late spring uses. Thin out early autumnal *Turnips*, *Spinach*, &c., and use the hoe freely during dry periods amongst all growing crops. Proceed with the necessary earthing-up of *Celery*, which has become sufficiently advanced for the operation, removing previously the lesser leaves, and any sucker shoots which may have formed around the base of each. Take up the second early *Potatos* as soon as the haulm shows unmistakeable symptoms that the tubers are sufficiently ripened. Finish harvesting the necessary *Herbs* upon a favourable occasion, drying them in an exposed situation, yet not in the full sun, should the weather prove unusually hot. Transplant more black-seeded Brown Cos *Lettuces*, for taking up by-and-by, and for storing away in frames for winter use. The same remarks apply equally to *Endive*. Another sowing of each may likewise now be made upon a sunny southern aspect. *W. E.*

TOWN GARDENING.

The *German Aster* is a first-class autumnal flower for towns, either for window boxes, pots, or borders; the dwarf varieties are particularly well adapted for boxes or pots, and can now be purchased at a very cheap rate. They should be removed with plenty of roots, which, however, should not be squeezed into a ball, but planted as removed from the nursery. The *Pink* pipings that were put in to strike in June will now be well rooted, and should be planted out in beds 6 inches apart, or in the borders, three in a patch, 4 inches apart. The *Pompon Chrysanthemum* cuttings that were pinched back in July should now be planted out; if planted in between the bedding plants they will follow up well and do no injury, and, if watered occasionally with liquid manure, will make a splendid bed of flowers in November. Window plants that have done flowering should have the old flower-shoots cut off down to the new shoot, and they should be shifted into larger pots or refreshed with new earth. Take the plants out of the pots, then trim off about an inch of the bottom and a portion all round the ball; put a little fresh earth in new pots, place in the plants, and fill up to within an inch of the top; give a moderate watering, and place them in the shade for a few days. Most of the herbaceous plants will now have done flowering, and, where an increased stock is wanted, they may be propagated by dividing the roots. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending Aug. 18, 1869, as observed at the Horticultural Gardens.

August.	Moon's Age.	Barometer.		Temperature.					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 12	5	29.997	29.934	72	43	57.5	60	58	W.	.22
Friday 13	6	29.878	29.796	70	46	58.0	60	58	N.W.	.20
Satur. 14	☽	30.175	29.985	69	42	55.5	61	58	N.	.02
Sunday 15	8	30.258	30.238	74	47	60.5	60	58	N.W.	.00
Mond. 16	9	30.265	30.230	73	51	62.0	63	59	N.W.	.04
Tuesd. 17	10	30.285	30.270	68	36	57.0	64	60	N.E.	.03
Wed. 18	11	30.270	30.245	73	47	55.0	60	59	N.E.	.00
Average.		30.161	30.107	71.3	44.4	57.9	61.1	59.6		0.48

August 12—Very fine; exceedingly fine; fine and clear.
— 13—Rain; heavy showers; fine, starlight.
— 14—Cloudy; densely overcast; clear and fine.
— 15—Fine, but cloudy; cloudy; densely overcast.
— 16—Overcast; densely overcast; cloudy and overcast.
— 17—Very fine; overcast, cold wind; clear and fine.
— 18—Very fine; fine and clear; fine, cold wind.
Mean temperature of the week, 4 1-10 deg below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 43 years, for the ensuing Week, ending August 28, 1869.

August.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..22	71.6	49.7	55.6	17	0.67 in.	2	2	4	—	4	14	12	2
Mon. ..23	71.8	49.0	60.4	21	0.95	2	4	4	2	3	10	11	4
Tues. ..24	71.6	47.9	58.7	16	0.24	—	7	4	—	6	12	10	4
Wed. ..25	74.1	49.7	61.9	16	0.62	2	3	2	7	5	17	7	6
Thurs. ..26	72.5	48.4	60.4	15	0.51	3	4	4	—	8	10	9	4
Friday ..27	73.3	49.1	61.2	12	1.32	2	2	4	—	3	11	10	11
Satur. ..28	72.7	49.7	61.2	19	0.32	3	6	3	—	6	14	7	4

The highest temperature during the above period occurred on the 25th, 1859—therm. 89 deg.; and the lowest on the 26th, 1861—therm. 31 deg.

Notices to Correspondents.

Allamandas: *Olitor* sends us samples in flower "of A. Hendersoni as sent out by Henderson four years ago, and A. Wardleiana, had from Tanton this spring," and observes that he cannot see any difference between them. Neither can we; they are clearly identical.

Beans: *J Smith.* A form of Haricot de Soissons, of which there are many varieties, much in cultivation in France.

Ferns: *H S C.* There is not amongst pteridologists sufficient uniformity of opinion as to the limits of either genera or species to enable us to indicate any particular one as the *standard* nomenclature. You may consult with advantage "Hooker and Baker's Synopsis Filicum," "Smith's Ferns, British and Foreign," and "Moore's Index Filicum," the published portion of which latter includes all the generic portion. The only available descriptive works published in this country are the Synopsis above named, and the more comprehensive "Species Filicum" on which it is based.

Globe Artichokes: *Mary* asks "What is the proper method of drying the bottoms of Globe Artichokes for winter use?"

Ligustrum japonicum: *Dess.* It is quite hardy under ordinary circumstances.

Lilium auratum: *W H.* You will see your specimen has been far surpassed by that shown at the R. H. S. on Tuesday last.

Names of Plants: *Amy Henley.* Botanists have definite rules for naming plants, which are almost universally adhered to. Florists, unfortunately, have no such rule, or if they have they do not act up to them. We protest against applying to garden varieties scientific-looking names. If you have a Pelargonium, and you wish to name it after the raiser, by all means call it "Buccleuch," and not "Buccleuchii" or "Buccleuchianum." The terminal "i" or "ii" indicates that the plant has been first found or first botanically described by the person to whose name the letters are appended; "anum" is a complimentary adjunct, not necessarily implying that the person in whose honour the plant is named has had anything to do with the plant.—*C M E A.* Fraxinus heterophylla.—*F Bottomer.* 1, Odontoglossum Lindleyanum; 2, probably Oncidium leopardinum, but we are not quite sure.—*A Z.* Francoa sonchifolia.—*G G.* Verbascum nigrum.—*Irish Town.* 1, Picea amabilis (hort.); 2, Cupressus nutkaensis; 3, Cupressus Lawsoniana; 4, Picea nobilis; 5, Picea Lowiana; 6, Picea Pinsapo; 7, Juniperus sinensis; 8, Abies excelsa (stunted var.); 9, Pinus Strobus; 10, Retinospora ericoides; 11, Abies Douglasii; 12, do.; 13, Juniperus virginiana; 14, Abies Albertiana; 15, Picea amabilis (hort.). In future we cannot undertake to name more than four specimens at a time; the task is too great.—*G J W.* Very like a bad leaf of Golden Chain Pelargonium.—*J B Lees.* Lastrea spinulosa, typical.—*J C Nicholson.* Adiantum Capillus-Veneris and Asplenium flabellifolium. Both require a greenhouse.—*C W Strickland.* The Amaryllid is clearly a Vallota, and not specifically distinct from V. purpurea. The name *Hæmanthus carneus* is correct.—*Subscriber.* 1, Oxalis tropæoloides; 2, Thalictrum aquilegifolium; Allosorus crispus.—*H J H.* Francoa sonchifolia.—*A. Watkins.* A species of Cotton Grass (Eriophorum). We cannot tell which species from the specimens sent.—*H H.* Blechnum occidental; a small variety.

Passion Flowers (received with thanks): *T S, Chelmsford.* Both Tacsonia van Volxemii of gardens.—*Messrs. Lawson.* Passiflora fœtida and P. alba, not subpeltata.—*Keith Hall.* Tacsonia mollissima, P. cærulea, P. cæruleo-racemosa, P. alata (square stemmed). Fruit of P. edulis.

Pelargoniums: *W B S.* We cannot judge from leaves merely, as to the value of your sport from Stella. It looks likely enough to be good. The Silver Variegated Zonal is too small as sent.

Rose Blairii No. 2: *A C C, Edenbridge.* The Rev. Mr. Radclyffe says, p. 705, "Blairii No. 2, more than any Rose, hates a knife!" and recommends November as the best time for thinning the shoots or heading back.

Spots on Leaves: *J O C.* Apparently the excrement of some insect.

Variegated Plantain: *Keith Hall.* A very pretty silver-edged variety of Plantago lanceolata.

Communications Received.—J. P.—A. Z.—An Observer.—Dactyl.—A. Y.—F. B.—J. C. C.—P. G.—W. P. R.—E. A. O.—W. H. G.—A. W.—W. H.—C. C. (No)—R. S.—T. H. L.—E. H. C—W. S.

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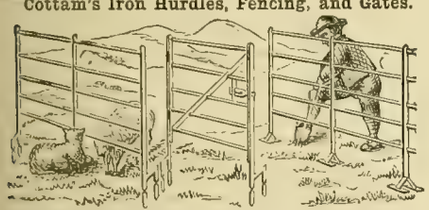
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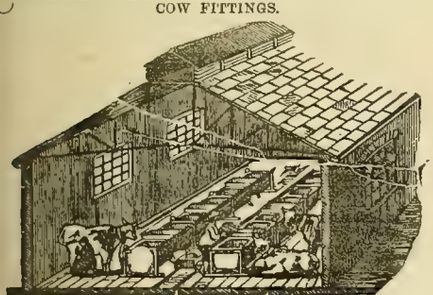
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The Agricultural Gazette.

SATURDAY, AUGUST 21, 1869.

MEETINGS FOR THE ENSUING WEEK.

August 24—Worcestershire Agricultural, at Worcester.
— 25—North Lancashire Agricultural, at Burnley.
August 25 to August 27—Agricultural Society of Ireland, at Tralee.

FROM our own observations, as well as from the various reports we have obtained, there is reason to believe that our prospects of the growth of a good crop of Clover-seed of the present year (1869) are, to say the least, exceedingly doubtful. Not only is the promise of home-grown seed already blighted, but reports show that foreign, and consequently earlier, growths are much under the average.

From some unexplained cause, but probably from the prevalence of the cold north-east winds of spring, our Clover crops have this year been unusually shy of flowering; never in our experience have we seen a much more robust stem or a larger leaf to broad Clover, and yet the paucity of flowers has been remarkable. The gloomy weather during the making of Clover-hay this year, united with the unusual succulency of the crop, has, we fear, tended to not a few accidents in the shape of fired ricks; and where this height has not been attained, the flavour of Clover-hay in most cases will be considerably enhanced by the roasting process carried on in a hot rick.

The second cut of the season, from which seed is usually obtained is, it would seem, following out the same non-flowering habit; and in as far as our own observations have gone the same is occurring even when the first crop was eaten off by sheep. In recent reports of the seed market the seed of 1868 is still spoken of as new, and we are told that this, in anticipation of a bad crop for the present year, is "held with a great degree of firmness." The question then arises, What will next year be considered to be old seed, and of course sold as such? Why, every sample prior to that of 1868 that can be raked up; all are even now being inquired after, and all are advanced in price.

We heard a farmer say only this week, "I have a bag of old Clover seed, and I suppose I must be careful of it." The truth is, that the speculator always buys when the market is low, and keeps the stock to make a profit when seed is scarce; and there is a fact which aids the trader in this practice, namely, that in bad seasons not only is seed scarce, but its quality is usually inferior, and so we are told, when old seed is selling for new, "It is not over bright this year, nor will it come up so well as usual; but seed is so scarce, we must put up with it." The question then arises, Do seedsmen know when they are selling old seed for new, or when they send out mixed samples? No doubt they do, and the transaction is not honest. But there are apologists who say that old seed may be as good as new; but practically we have not found this to be the case. Unevenness in germination upon proper trial indicates old seed or a mixture of old with new. These are matters that we have ascertained over and over again. As far, however, as our experience goes, price is not at all regulated by the value of the seed, as represented by the germinal test, but is rather regulated by a brightness in the appearance of the sample, which can be imitated easily enough to deceive the unwary by various "doctoring" processes.

Anything, everything, in the shape of Clover-seed, will be sown next spring, unless great caution be exercised. Hop Trefoil will get mixed with Red Clover, and Plantain will not be separated if it be not purposely added. Taking these facts into consideration, what visions of "Clover sickness" will haunt the scientific farmer, as the result of a failing crop of Clover seed.

In our own farming experience we only recollect one case of "Clover sickness," and that was where we sowed a bit of seed we have since had reason to believe was bad.

The only failure of Clover we have heard of this year is where the seed sown failed to the extent of 70 per cent. In this case it is true more than the ordinary seed was sown, but what can be said of a stock so badly grown?

In the interest of our brother farmers, then, we ask them to be careful of their choice of Clover seed for the spring sowing of 1870; and here it may be necessary to say, do not be too shy of "haining up" a bit of Clover for seed. We say this because farmers will be apt to neglect this in a season when the crop is not promising, and so a less breadth being seeded will only add to the difficulty of getting a genuine new sample.

CAN farming be taught?—or, are its secrets only to be penetrated by long years of experience? The answer to either question is, we believe, neither decidedly yes or no, and the truth probably lies somewhere between the two. In considering the subject of agricultural education we can hardly insist too much on the difference between a knowledge of certain facts, and practical experience.

Knowledge of facts may be acquired through observation, from books, and by mixing with men of practical skill. Experience must be personal, and extend over such a length of time as to bring us face to face with every difficulty that may beset our path. Hence, while a large amount of knowledge may be gained in a comparatively short time, an experience is only to be achieved by a life-long service. In answering the question as to whether farming can be taught, we must exclude the idea of giving to the pupil a personal experience, with all its concomitant advantages, and consider only the best means of imparting the result of the experience of others in the form of well-ascertained facts bearing upon his future walk in life. To this theoretical part of his instruction must be added every opportunity for acquiring a knowledge of the daily routine of farm work, in which he also should engage.

First, it must be granted that a knowledge of facts bearing directly on farming will eventually be of inestimable value; or, in other words, that a period of tuition, or at least of study, is essential to the future well-being of the farmer. It is true that at a recent meeting of the Royal Agricultural Society a leading member of Council spoke of the attainment of great agricultural knowledge as easy—that a man who had mastered certain abstruse and difficult branches of science would have little difficulty in conquering the details of farming. We do not agree to this. We believe that long and careful study is required before an intelligent man possesses an extended knowledge of the art of agriculture untrammelled by foolish prejudices, and with the capacity to modify methods under novel circumstances; and we also believe that to insure success a man must be trained to his business, and that this particularly applies to farming when followed as a profitable occupation.

We hardly think it necessary to trouble our readers with arguments to prove, what all intelligent agriculturists allow, namely, that a training in practical agriculture is essential, a knowledge of theoretical agriculture desirable, and that an insight into branches of science, directly or indirectly bearing upon agriculture, is valu-

able to the young farmer. How, then, is this extended view of agriculture to be obtained? We do not know of any one place which provides for all these wants, and if a place existed professing to meet the agricultural student and inaugurate him fully, scientifically, and practically into the mysteries of his art, we should doubt its efficacy. No; the agricultural student must go through more than one phase of instruction, and he must be content to give a considerable length of time to the prosecution of his studies. Farming can be taught just as much as medicine, or law, or engineering; but do not let us think that the student of one or other of these subjects can dispense with the subsequent school of experience, any more than he could have done without the previous training of the lecture-room, the hospital, or the workshops?

How, then, has farming to be taught? First in the field, under the tuition of a good agriculturist, and where manual work forms a portion of daily instruction. Every young man intended for a farmer should thus be familiarised with operations, usages, technicalities; the habits of cattle and sheep; the ways of labourers, and the handling of implements. He must not, however, rest here. He is not likely, under these circumstances, to satisfy his cravings for more knowledge as to the reason of all he sees. He wants a deeper insight, and he will find neither farmer, bailiff, nor labourer, able to supply him with what he longs for. It is at this stage that an Agricultural College becomes essential—an institution where systematic instruction is given upon agriculture, and the sciences associated with it. Chemistry, geology, botany, veterinary surgery, mathematics, drawing, not only throw an actual flood of light upon the path of the agricultural student, but raise him to a higher level, and render him an accomplished agriculturist as well as a practical farmer—a man whom landlords will respect, and whom agents will not trample upon—one to act as leaven in the agricultural community, and to hasten on a better time. We only wonder that in a great country like this, more attention has not been bestowed upon so direct a method of encouraging agricultural progress.

Our relatives across the Atlantic are more energetic in this particular. We read of a prospective "Agricultural, Mining, and Mechanical Arts College" in California, where, in addition to the Congressional grant, the Legislature gives the college all interest accruing from the sale of 15,000 acres of land. In Connecticut a large grant is made to further the Sheffield Scientific School branch of Yale College, where a course of instruction in agriculture occupies the seven winter months. In Delaware, the Legislature passed an Act in 1867 for establishing a "college for agricultural and mechanic arts." "Illinois claims to have been the first to make an effort for the appropriation of national lands to encourage industrial education." As early as 1851 the subject was ventilated, and in 1853 a request was made to Congress, asking for a grant of land not less in value than 500,000 dollars, "for the endowment of industrial universities in each State." Finally, a college was established in Champagne county, with an agricultural department, and experimental and model farms, gardens, and ornamental ground, to the extent of 1000 acres. Such facts indicate the value attached to systematic instruction in agriculture in the United States of America—a country where the population is no greater than our own, and where the immense area prevents to a great extent that competition in land which we see at home. If they value a course of instruction in agricultural science, should not we look upon it as positively essential. We conclude that great benefit will follow a period of study at our own English Agricultural College, and that subsequent residence with a first-rate agriculturist, or, better still, with a gentleman who combines practical farming with the work of a large estate, will complete the best possible training for a man who is intended to take a good position in the agricultural world.

—— AT Mark Lane yesterday the trade in Wheat again turned, and sellers had to give way 1s. to 2s. per quarter or fail to do business. Prices, however, are somewhat high, as they range from 51s. for inferior red to 62s. and 64s. for Essex white and Talavera.—— The live stock and meat markets continue about the same, the only alteration being in the price of prime English qualities, which are scarce and a little dearer. ——Clover seed is the principal object of inquiry in the agricultural seed market, and this because of the growing crop being defective as well as limited in quantity.

—— Feeding stock for prizes is a subject which has cropped up periodically for several years past, and it is a question which cannot much longer be put off without receiving that grave consideration which the present condition of many of our flocks and herds makes necessary. In another column there is a letter by an experienced breeder of Cotswold sheep, the substance of which is a reply to complaints made by certain promoters of agricultural shows as against some of the best breeders, who refuse to send their sheep for exhibition. We refer to the views expressed by Mr. J. BEALE BROWNE. His letter speaks for itself, as far as it goes. In reply to a question, however, which we put on the strength of this letter, Mr. BROWNE carries his views to their proper end by giving the remedy his experience suggests:—"I really think," says Mr. BROWNE, "something might be done. Say average shearlings are 20 lb. per quarter, and give 30 lb. a quarter for the best, that would be 120 lb.; add one-third for live weight, that would be 40 more; and throw in another 40 for showing the predisposition of a sheep to fatten. This would give a live weight of 200 lb. Say none should weigh over 200 lb., then we shall all show again; and the public will, for the first time, see the real natural points of the animal." This is a well considered suggestion. Mr. BROWNE's knowledge of Cotswolds undoubtedly makes him a good authority as regards the weight to which they may be fed with such ordinary food as will not do them an injury. Whether a properly determined weight for all breeds would be a safe standard, whereby the natural qualities of sheep might be determined, is a question which appears to be well worth consideration by other flockmasters. If, for example, a Cotswold sheep required to be made excessively fat to come up to Mr. BROWNE's standard, the judges would be able to tell at once that he was not so well grown in frame and flesh, that is, in lean meat, as his more reasonably fed competitors. But be this the simplest solution to this much vexed question, or be it not the best remedy, of this we are quite sure—something will have to be devised, and that soon, or many of our flocks will be permanently and irrecoverably injured. We know of many casualties which have lately occurred through this vicious system of honouring the fattest breeding animals with a society's prize. We know of many flocks and herds which are rapidly degenerating from the same cause. We trust, however, now the subject is well before the public at this season of Autumn shows, that it will be fully discussed, and that suitable rules may be the result.

—— The pure butter and short-weight question appears to have turned up somewhat conspicuously in the country. At Stamford, in Lincolnshire, the magistrates were occupied a long time on Saturday hearing complaints, both on the ground of "made-up" impositions and want of the declared weight. "Lumps," represented to weigh a pound, were an ounce or more deficient. Several vendors had the contents of their baskets seized on this account.

"Mr. Greenwood," our report continues, "sent a letter respecting his butter, stating that it being made soft the slight deficiency in the weight might be caused by the salt and water that would drain from it between the time it was made and when it was offered for sale. The magistrates thought that, such being the case, in weighing out the butter allowance ought to be made for the diminution in the weight that took place from that cause. The whole of the commodity seized was declared forfeited, and was sold by auction on Saturday night."

The "making up" deception, and the process of making it profitable, were next described and dealt with:—

"A sample of the butter alleged to have come from Braunston was brought to the Town Hall and submitted to the test of an experienced dealer, who pronounced it to be not fresh but a mixture.—Police-sergeant Dalrymple said hundreds of pounds of that class of butter were brought to Stamford by a company of dealers, who rigged the market and so forced up the price. Their plan of operation was described to be as follows:—As soon as the market is opened the dealers offer to the country people a high price, say 1s. 8d. per lb., for the contents of their baskets. This is considered as "setting the price," and all who bring butter are ruled for a time by the figure first quoted. Then the dealers in made-up butter send in their adulterated commodity, and by underselling the others a half-penny per lb. they get rid of their stale stuff at a profit ranging from 40 to 60 per cent."

If these practices be regular in other towns, it would be advisable for the inhabitants to direct the attention of the authorities to the Stamford seizures. It is bad enough to be subjected to these impositions in London and other large towns, but to have a systematic trade in short weights, and "making up" stale articles for sale as new and fresh qualities, where we expect to get what we ask for, is an extension of knavery that requires to be stopped at once, and not alone because people should be protected from these commercial robberies, but because it is time that the motto, "Honesty is the best policy," should be again restored to a respectable and influential position. With these points in view, the Stamford magistrates set a good example, for they requested the inspector to make frequent visits to the market, and to test the quality as well as the weight. Could not some other adulterated article be seized and forfeited?

—— The increasing attention which is being paid to the present comfort and future improvement of the humbler classes in rural districts was admirably exemplified a few days since in the Eastern Counties, a description of which we take from a provincial contemporary:—

"The practice of holding annual shows of the garden products on the estates of our nobility and gentry, which has been rendered fashionable by the example of the Prince of Wales on his Sandringham estate, and has been pursued for some four or five years in Norfolk, has been worthily followed by some of the nobility and gentlemen of Suffolk. On Thursday in last week Major Wilson, of Stowlangtoft, held such an exhibition on his estate. On this occasion the cottagers made a good display of the more common vegatables, and showed no lack of skill in floriculture. As is usual at such shows, the bouquets and collections of wild flowers were the principal attractions. On the whole the show was a very good one, and was a vast improvement upon last year. This may be due in some respect to the fact that the young men on the estate have the opportunity, if they please, to spend some time under the gardener at the hall, and thus to add to their stock of gardening knowledge, which they can afterwards put into operation when they rise to the dignity of having a home of their own. The competition was intended to be restricted to labourers cultivating not more than a quarter of an acre of ground, but as in some instances men possessing more than this had competed and won prizes, it was thought best not to disqualify them this year."

The extension of these gratifying and encouraging meetings of landlord, tenants, and husbandmen, cannot be too much commended; for not only are men thereby shown the way to live better for themselves, but they become, as a natural consequence, better labourers and better neighbours.

—— A novel and well devised trial of reaping machines has, we are informed by an Essex contemporary, been organised by Mr. GIBLIN, at Little Bardfield. On Monday there accordingly appeared representatives of the three principal makers of the day, viz., Messrs. HORNSBY, of Grantham, Messrs. HOWARD, of Bedford, and Messrs. SAMUELSON, of Banbury. Altogether four machines took part in the contest. Mr. J. B. PASH, of Bexfield's Farm, Chelmsford, brought three to the ground, namely, HORNSBY'S "Governor," SAMUELSON'S "side-delivery," and "Eclipse." The fourth machine was HOWARD'S "British Reaper," under the auspices of Messrs. COLEMAN & MORTON, of Chelmsford, in conjunction with Mr. R. HUNT, of Earls Colne. All these machines, save SAMUELSON'S "Eclipse," are constructed upon the self-delivery principle. This last implement is exceedingly simple in construction, and was drawn by one horse. Its sole business was to cut the Wheat, and it was accompanied by a man armed with a rake, whose duty consisted in inclining the corn to the knives, and delivering the sheaves from the sparred receiving-board. Like all the back-delivery machines, it required the sheaves to be bound immediately after cutting. No judge was appointed to decide as to the merits of the several implements. The whole trial, indeed, arose out of the fact that Mr. GIBLIN wanted a machine, and having a difficulty in deciding as to the merits of the various reapers exhibited at the Colchester agricultural meeting, a satisfactory mode of determining the question suggested itself to Mr. GIBLIN'S mind, and that was, that he should see the reapers at work. It was nothing more than that good old method of proving the pudding by partaking of it, and it was no sooner suggested to the agents for the different machines than they fell in with the plan, the arrangement being that the trial should come off upon Mr. GIBLIN'S own land "as soon as he had a bit of corn ready to cut." The ground was unfortunately wet, and SAMUELSON'S side-delivery worked under difficulties. The "Eclipse" did its work well, and, all things considered, speedily, and is, without doubt, an admirable reaper for a small occupation. The "Governor" (Messrs. HORNSBY'S) was much admired throughout the contest. To employ a phrase we heard used on the ground, it cut the grain "as clean as a whistle," and threw off a nice, regular, and compact sheaf—just ready, in fact, for being tied up with no trouble at all. Exactly the same things were said in favour of Messrs. HOWARD'S reaper, and there were some farmers on the ground who considered that there was hardly a pin to choose between them. All the machines, we should be careful to state, were tried in the same field, a separate portion being set apart for each one, and lots being drawn for the first choice. In this drawing Mr. PASH was successful, and, we believe, put SAMUELSON'S reaper to what he considered the best piece of the field. After competing in the way indicated, HORNSBY'S machine was brought to the piece on which HOWARD'S was at work, and, for once round, followed it, the work of each reaper then lying side by side. This concluded the trial, whereon Mr. GIBLIN announced that he should purchase HORNSBY'S machine. He had come to that decision, he said, because it cut 6 inches wider, and laid the sheaf a little better than the rest. HOWARD'S reaper, he added, certainly did its work creditably. This opinion was dissented from by some ardent admirers of Messrs. HOWARD'S reaper, who maintained the unrivalled excellence of the work of that implement.

OUR LIVE STOCK.

A LARGE company, from all parts of the kingdom, assembled at Broomley, Northumberland, on Wednesday, the 11th inst., to witness the dispersion of the Messrs. Angus' famous herd of Shorthorns. A liberal lunch was provided at 12 o'clock, and shortly after half-past one the sale commenced. After reading the usual conditions, Mr. Thornton put up the first lot, *Blossom*, by the well-known FREDERICK (14,571). This cow is now nine years old, and was sold to Mr. A. Bethune, of Fife, for 34 gs. The old cows went off very well, at prices varying from 25 to 90 gs., which last sum was given by Mr. Foster, of Killhow, and Mr. Moore, also of Cumberland, for *Victoria*, by KNIGHT OF WINDSOR (16,319), g.dam by Mr. Booth's BENEDICT (7828), and more remotely descended from *Premium*, by Mr. Jobling's LEOPOLD (2199).

When we remember that the Broomley herd has not been exhibited out of its own county, and that little or no attempt has been made to spread its fame, we are led to the conclusion that the great success of the late sale was solely due to the evident merits of the animals composing it. The massive and grand forms of the cows and heifers were sure to tell, especially when backed up by sound and good pedigrees; and although the calves were poor, this

lf was an evidence of the natural and non-forcing tem upon which the Messrs. Angus have carried on ir stock. Lot 11, *Young Strawberry*, is by the same l as *Victoria*, and from *Strawberry*, by BENEDICT, . by Mr. Crofton's BRILLIANT (7851). She is a ndsome 6-year-old cow, in calf to BRIGADE MAJOR ,312), a Booth bull, full of BUCKINGHAM and ONARD blood. A keen competition sprung up for ownership of this animal, and she was finally sold Messrs. Foster & Moore for 110 gs. When the 100 gs. re bid, an enthusiastic cheer rose from the spectators, l this burst of applause was called forth on every ilar occasion throughout the sale. *Beauty 2d*, by RD ALBERT (20,143), and well descended on the nale side, was secured by Mr. Jacob Wilson for) gs., as was also *Bloom*, by KNIGHT OF KILLERBY ,051), and of the same strain, for 105 gs. Sir M. W. dley bought *Ruby*, by KNIGHT OF KILLERBY, dam *imrose*, by GENERAL HAVELOCK, for 130 gs., and e presented her new owner with a beautiful cow-calf BRIGADE MAJOR the following morning. Mr. Torr ught BRACELET, another handsome heifer of almost ntical breeding as the last, for 70 gs., and Messrs. ster & Moore took *Strawberry Maid*, by PRINCE TTERICK, a daughter of *Young Strawberry* (lot 11), 110 gs. The bulls, as usual, went for less money, highest price, 40 gs., being given for COLONEL, by IUMPH. The following is a list of the prices and rchasers:—

Name of Animal.	When Calved	Price.	Name of Purchaser.
Females.		Gs.	
..sion	Jan., 1860	34	Mr. Bethune
..ss	March, 1861	45	Mr. J. Wood
..Flower	June, 1859	28	Mr. M. Gathorne
..elaid	June, 1861	25	Mr. W. C. Thomson
..ria	March, 1862	90	Messrs. Foster & [Moore
..dil	July, 1862	Not sold	
..ite Rose	August, 1862	38	Mr. J. R. Singleton
..mer Girl	August, 1863	37	Mr. John Todd
..ety	May, 1863	41	Mr. G. Dixon
..e Flower	July, 1863	41	Mr. J. Todd [Moore
..ng Strawberry ..	Nov., 1863	110	Messrs. Foster &
..nty	May, 1864	28	Mr. W. Jobson
..nty 2d ..	May, 1864	100	Mr. Jacob Wilson
..ndrop	Jan., 1865	47	Mr. C. W. Brierly
..lip Flower ..	April, 1865	50	Mr. C. W. Brierly
..lip	May, 1865	31	Mr. G. Nicholson
..ia	May, 1865	80	Mr. E. Wortley
..ella	August, 1865	29	Sir M. W. Ridley
..sentry	Oct., 1865	45	Mr. J. Beattie
..ern Cheeks ..	March, 1866	36	Mr. C. Smith
..oom	Oct., 1866	105	Mr. Jacob Wilson
..by	Oct., 1866	130	Sir M. W. Ridley
..d Rose	Feb., 1867	30	Mr. G. Parkes
..ecus	Feb., 1867	46	Mr. R. Blackwell
..shad	Feb., 1867	52	Mr. R. Blackwell
..ir Maid	March, 1867	60	Lord Bolton
..se of May ..	March, 1867	34	Mr. John Todd
..nelet	March, 1867	70	Mr. W. Torr
..ttercup	March, 1867	23	Mr. Gathorne
..y Lass	May, 1867	28	Mr. G. R. Singleton
..awberry Maid ..	May, 1867	110	Messrs. Foster & Moore
..eless	August, 1867	36	Mr. H. Moore
..id of the Lawn ..	Sept., 1867	70	Lord Bolton
..rry Blossom ..	Nov., 1867	36	Mr. R. Darkin
..adem	Feb., 1868	26	Mr. H. Moore
..eful	Feb., 1868	37	Mr. H. Moore
..ety 2d	April, 1868	35	Mr. C. Smith
..ceful	June, 1868	30	Mr. H. G. Meakin
..erry	July, 1868	40	Mr. C. Smith
..ghtly	March, 1869	50	Messrs. Foster & Moore
..d Beauty	April, 1869	15	Mr. J. C. Rowsted
..sey	April 10, 1869	20	Mr. J. Beattie
..ictoria 2d ..	May 26, 1869	48	Mr. C. Smith
..odbine	May 28, 1869	16	Mr. J. Wilson
..hite Rose ..	June 20, 1869	24	Mr. W. Torr
..se of Summer ..	June 26, 1869	28	Mr. C. Smith
Bulls.			
OLONEL	May 3, 1868	40	Mr. J. Wilson
INDSOR	June, 1868	28	Mr. J. N. Dalton
IFLEMAN	July 30, 1868	33	Mr. H. Moore
LADSTONE	April 28, 1869	14	Mr. J. C. Gray
AY DUKE	April, 1869	10	Mr. E. Bates
OMET	May 28, 1869	12	Mr. E. Bates
ARONET	May 6, 1869	32	Mr. C. Smith
OSEBERRY	June 16, 1869	12	Mr. R. Nicholson
OWBALL	June 24, 1869	10	Mr. Meakin

Total, Bulls, 200 gs. = £210 0 = Average of 10 Bulls, *l.*
Total, Cows, 2128 gs. = 2234 8 = Average of 45 Cows, *l.* 13*s.* 1*d.*
Grand Total, 2328 gs. = 2444 8 = Average of 55 head, *l.* 16*s.* 3*d.*

At the close of the sale the company cheered three imes three for the Messrs. Angus, who for many ears have been justly popular in their neighbourhood. Ve are sorry to add that Mr. George Angus' declining ealth is given as the chief reason for his withdrawal rom Shorthorn breeding. Another hearty cheer for he buyers, and lastly one for the auctioneer, attested he satisfaction of the spectators.

—— We have received the following intelligence rom Wetherby Grange. *Duchess 92d* brought a rich oan bull-calf on the 10th inst., by the 4TH DUKE OF THORNDALE. *Duchess 92d* is the dam of Mr. Cochane's 1000-gs. heifer, and subsequently she has roduced a roan heifer, and the bull whose birth we ow record. Her mother was *Duchess 84th*, the cow hat Mr. Betts offered 1000 gs. for, and also the mother f Lord Dunmore's 2D DUKE OF COLLINGHAM.

—— Tuesday week will offer a good opportunity for hose who wish to secure some good Southdown sheep r Berkshire pigs. Sir N. W. Throckmorton has long been famous for both kinds of stock, and he has adversed his intention of selling some excellent animals n the above-named day. The catalogue contains a ist of 80 four-tooth and full-mouthed ewes, by Mr. Webb's Bunker's Hill, Old Duke, No. 19, and other good rams. Next is an array of 11 four-tooth and older rams by Buckland and Bunker's Hill, many of whom are decorated with honours obtained in the Royal Agricultural and other showyards. These are followed by a list of 20 shearling rams by Pet, bought at Mr. Jonas Webb's sale—Bury, the 2d prize sheep at Bury in 1867, and 3d at Leicester in the following year, and "Warwick," bred by Mr. Webb, and a prize-taker at the Bath and West of England exhibition at Falmouth. The second part of the catalogue is devoted to pigs. The Buckland pigs have a wide reputation, and have been frequently successful in carrying off prizes at our largest agricultural meetings. This section contains a list of 16 sows and 6 boars, all of the pure Berkshire type. At the conclusion of the sale two Suffolk horses and four fat Devon oxen will be sold.

RECENT RAM SALES.

Oxfordshire.—At the Oxford Ram Fair Messrs. Jonas Paxton and George Castle sold about 40 Oxfordshire Down shearling rams, the property of Mr. C. Gillett, of Cote House, Bampton, Faringdon. Mr. Paxton knocked down the lot at an average of 13*l.* 9*s.*, one ram realising the very high price of 36*l.* 15*s.* Mr. G. Wallis, of Old Shifford, Bampton, Faringdon, sent 15 rams of the same breed, the highest realising 23*l.* 2*s.*, the lowest 9*l.* 9*s.* 6*d.*; average, 13*l.* 9*s.* 10*d.* The same auctioneers sold 40 ram lambs for Mr. Parker, of Ilfley, which averaged 7*l.* 18*s.* 9*d.*, the highest price being being 20*l.* 9*s.* 6*d.*; 40 shearling rams for Mr. Roberts, of Caswell Farm—the highest price was 26*l.* 15*s.* 6*d.*; the lowest 7*l.* 17*s.* 6*d.* Messrs. Franklin & Gale also offered some ram lambs from the flock of Mr. Chillingworth, of Cuddesden. The lot consisted of 61 ram lambs and three older sheep. One ram realised the excellent price of 36 gs., and was bought by Mr. Bruford, of Cranley, near Guildford. Others made 25, 22½, 18½, and 17½ gs., the whole averaging about 10 gs. each. Messrs. Franklin & Gale immediately afterwards disposed of 50 ram lambs belonging to Mr. Gale, of Cuddesdon; the highest price was 10 gs., others making 9½, 9, and 8½ gs. Messrs. T. Mallam & Son disposed of 42 ram lambs, bred by the executors of the late Mr. W. Button, of Botley, near Oxford, at an average price of 5*l.* 12*s.*, the highest price being 17*l.* 17*s.*

Cotswolds.—Mr. Cother's 38th annual sale of Cotswold rams took place at the farm, Middle Aston. Several sheep were let for the season. No. 1 was let to Mr. Checkley, of Anslope, Bedfordshire, for 17½ gs., and a second to Mr. Lane, of Broadfield, for 10½ gs. An older sheep gave rise to an active competition between Mr. Lane and Mr. Craddock, of Lyneham, but it was at length let to the latter for 21 gs. Other sheep were let for prices varying from 6 to 12 gs. The sale comprised 59 shearling rams, the whole of which were disposed of at prices varying from 5 to 20 gs. The lettings averaged 10*l.* 8*s.* 10*d.*; the sales averaged 8*l.* 9*s.* 10*d.*, and the average of the entire sale, including the lettings and sales, was 8*l.* 15*s.* 3*d.* The amount realised by the sale was 569*l.* 12*s.* 6*d.*

Shropshires.—The first sale of Shropshire sheep in Hampshire took place at Pucknall Farm, near Romsey, on Wednesday in last week. Mr. Wood has held a private sale for the last two years; but he determined this year to offer them by auction. Fifty-two lambs were offered for sale and hire, only four of which were undisposed of. Mr. Hoddinot bought a lamb at 13*l.* 10*s.* G. Young, Esq., had six very handsome lambs, one at 12*l.* 10*s.*, another at 9*l.*, &c. Mr. Cockerham had six, and several other gentlemen purchased largely. The average price, including six lets, was nearly 6*l.* Mr. Keeling's annual sale took place on Friday, 13th, at the Yew Tree Farm, Penkridge. The true form and fine character of this flock are well known and sought after for bringing longer-legged and higher-backed flocks to a truer type. There was a numerous and highly respectable attendance of neighbouring and distant breeders. There were 34 rams for disposal by letting and sale. The highest price given was 48 guineas for a 2-shear, hired for the season by Messrs. Crane, of Shrawardine, Shrewsbury. The whole of the rams let and sold averaged about 16 guineas each. The ewes averaged 70*s.* each; the highest price given for a pen was 84*s.* each.

Hampshires.—Stratford Ram Sale: The fourth annual sale and letting by auction of ram lambs and rams, the property of Mr. Edwin Waters, took place on Wednesday in last week, at Stratford-sub-Castle. Mr. John Waters officiated as the auctioneer, and the sale was most satisfactory. One of the ram lambs realised 31 gs. for letting, and the others were let at 16, 14, 13½, 13, and 12 gs. each. There were 100 ram lambs for sale, which averaged 8*l.* 6*s.* 6*d.* per head.

Leicesters.—The Yorkshire Ram Lettings: The first week of these annual gatherings of the breeders of Leicester sheep has shown a very lively feeling in the competition for good sheep, Ireland and Scotland, with distant English counties, having sent buyers. The Leconfield Park and the Scarbro' lettings have been of most note, and all the sheep have been taken. At the former 20 gs. was often paid, while at the latter the range reached 35*l.* The average of the whole lot of the shearlings was 12*l.* per head. On Friday, the 13th inst., Mr. Stamper, of Highfield, Oswaldkirk, Yorkshire, let some good rams. The shearlings brought an average of 9*l.* for the season, and three or four made as much as 16*l.* each. The aged rams averaged 9 gs. each, with a top price of 24*l.* The same day the Marton Lodge rams brought, on an average, 10*l.* each.

WASTE SUBSTANCES.

IN all civilised and densely-populated countries, of the animals used for the food of man it may be said that nothing is wasted, every part that is not eaten being turned to some useful purpose; the refuse fat is converted into tallow or soap, the greater portion of the skin is made into leather, and the scraps, with the hoofs, feet, and various membranes, converted into glue, the horns made into various useful articles, and the bones produce phosphorus and manure.

When, in 1854, I drew the attention of the Society to the large quantities of animal food wasted in Australia and the River Plate districts, the subject of increased animal food supplies for our home population had not reached the importance it now possesses. The inquiries set on foot by the Food Committee of the Society have resulted in the publication of much useful information. The British people eat more meat than any other nation; and with the progress of industry, and the larger accumulation of population in towns, we find our home supply is not sufficient, while prices continue to advance. Naturally, then, we turn to those great pastoral countries where meat is a drug, and numerous endeavours are being made, with more or less success, to place within the reach of the meat-consuming people here the good beef and mutton of Australia and the River Plate.

Take the great empire of Russia—what an enormous waste of good animal food is there met with, owing to the difficulty of bringing it to a profitable market—with 20 million horses, 30 million head of cattle, and 60 million sheep, besides 10 or 12 million head of swine, the 60 millions of population must not only be well fed, but have a large surplus available, which is only converted into tallow. The production of tallow annually is stated to be about 200,000 tons, of which half is consumed locally. The average price of meat in Russia is four copecks, or a penny per pound. Not only the fat and the bones, but frequently the entire carcase, is thrown into the melting-pot for tallow.

It is certainly tantalising to many hungry mouths, who find meat an expensive necessary here, to know that the South American States have 70 millions of sheep and 22 millions of cattle, which they scarcely know what to do with, except for their skins and tallow; while there are in the Australian colonies four million cattle and nearly 40 million sheep. It is true that, failing in the transport of some of this surplus here, strong efforts are making to draw population to those productive regions, where numerous advantages are held out to immigrants. Still, our home production of animal food is not likely to keep pace in the United Kingdom with the growth of population. Nine millions of cattle, and 35 millions of sheep, do not suffice for our 25 millions of people, and compare rather unfavourably with the enormous numbers in more extended but less densely populated pastoral districts.

Unfortunately, in this instance, distance does not lend enchantment to the view, and commercial and scientific men are striving to do what can best be done towards bringing the surplus food here alive or dead. The cooked meat does not find general favour, and the modes of preparing raw meat at present in use are scarcely less satisfactory. Whether the reward offered by the Argentine Republic will lead to the adoption of any new improved process remains to be seen. Several screw-vessels are, I believe, being specially fitted out to bring over cattle alive from the River Plate; but those who have had experience in the cattle traffic, from much shorter distances, will, I think, agree with me that the profitable results for so long a voyage are very doubtful, looking at the difficulties of supplying water and fodder, even after the cattle have been driven from long distances to the port of embarkation.

Horned stock has increased of late in Australia in a more rapid ratio than the population, and the consequence is that, the supply of beef being greater than the demand, a market has to be found for the surplus in other parts of the world. The price of cattle is already commonly quoted "at boiling rate," in other words, fat cattle will fetch no more from the butchers than can be realised from their hides, horns, hoofs, tallow, &c., for exportation. Under the old and slovenly system of sending cattle to the melting-pot, it is certain that from one-fourth to one-half of what ought to have been profitably turned to account was wasted. The value of cattle and sheep must in future be measured in the colonies, not by the local demand for butchers' meat, but by the price which can be obtained for the various constituents of the carcase in the markets of the world. The utilisation of this waste animal food has received a large share of attention in the past two years from various Australian companies established to prepare animal food in different forms, whether as extract of meat, tinned provisions, or dried and smoked meat.

A new use for a formerly waste substance is the legalised employment of horseflesh for food in France. The Society has already drawn attention to this matter, but horseflesh as human food is not likely to find much favour in this meat-consuming nation, where even the very poorest classes are the most dainty in their requirements.

The Prefect of Police of Paris, in June, 1866, issued an ordinance recognising and regulating the use of horseflesh for human food. Considering (says the document) that the flesh of the horse has been introduced into consumption in several countries without apparent harm, the sale of horseflesh as food is permitted on the following conditions:—That special slaughterhouses be established; that no meat be sold by the ordinary horse slaughterers; that the animals whose flesh is to be eaten be killed in the presence of a veterinary inspector; that the pieces shall be stamped; all unhealthy horses are excluded; at every place where such meat is sold the place must be indicated by a placard; all restaurateurs or others who make use of horseflesh shall be compelled, under penalties, to inform their customers of the fact. The consumption of horseflesh as food appears to be largely on the increase in Paris. An official return lately published shows that the consignment of salted horse to the capital from the department du Nord amounts to nearly 30,000 pounds weekly.

I was much struck, at the recent Exhibitions at Paris and Havre, with the illustrations of the utilisation of waste greases, shown by Messrs. Souffrice & Co., of St. Denis. This old house was the first to employ, on an extensive scale, steam and hydraulic pressure for the extraction of fatty substances. In 1860 they first turned their attention to the pickings and waste from the slaughter-houses, and a return of 120,000 francs per annum was the result of their efforts. In the early part of 1863 they created a new industry for utilising the skimmings of the Seine. The Prefect of the Seine, considering the benefit that would arise to health by freeing the river from dead animals, floating grease, and other unwholesome matters, granted this house the exclusive privilege on the Seine for a small rent. In December, 1864, Messrs. Souffrice & Co. proposed to the Prefect to undertake the removal of all greasy waters, and the waste and pickings of vegetables, in the 25 hospitals of Paris belonging to l'Assistance Publique, which was accepted, and a concession granted for six years. This led to the formation of an extensive piggery on their works, one of the largest in France, having continually feeding 600 to 700 head of swine. The firm was the first to utilise these pickings of vegetables, when cooked by steam, for the fattening of pigs, and more than 3000 fat pigs are annually sold, raised from this collected waste.

When, as far back as 1824, Professor Olmsted drew attention in the *American Journal of Science* (vol. viii. p. 294) to the utilisation of the cotton seed, he little foresaw what an important commerce would arise in its products. He then suggested that, on account of its cheapness, it might be employed in the manufacture of gas, in preference to coal, which was then a scarce and expensive article. Nearly three-fourths of the entire cotton crop consists of seed, and there cannot, therefore, be less in all the cotton growing countries than 1½ million tons of seed available. Formerly the seed accumulated in offensive and noxious piles about the cotton gins; now, cotton seed for planting in various countries, for oil for burning and eating, and the cake for cattle, are all largely in demand.

In the last five years, the import of cotton seed into Great Britain has been from 80,000 to 100,000 tons annually, all, with the exception of an insignificant portion, from Alexandria. It yields, by crushing, about 19 per cent. of crude oil, almost black, the residuum being cake for cattle food, value 7*l.* 15*s.* per ton. This oil is refined at an expense of about 5*l.* per ton; and the present value of the refined oil is 30*l.* per ton. It is similar in appearance to refined colza oil. An immense quantity was shipped last season to the south of France, for eating purposes, that is to say, as a substitute for olive oil, which was then scarce. Sometimes the seed is decorticated before being crushed; this process does not alter the nature of the crude oil expressed, although it produces a finer oilcake, now selling at 9*l.* 15*s.* per ton, and it is quite worth the difference of price, being almost free from the black, tough, indigestible husk.

The Beetroot sugar manufacture on the Continent has now made such enormous strides that nearly 1,000,000 tons are made annually. In the manufacture two refuse substances are obtained, the expressed grated root, or sugar cake, and the molasses. The first constitutes hard solid cakes, possessing considerable nutritive properties; it is, therefore, used with much advantage, along with other food, in the feeding of cattle. The molasses was formerly given to pigs, or used for making a soluble colouring matter, its value not having been appreciated as it deserved. It is now, however, generally applied as the raw material for the distillation of alcohol. When mixed with water slightly acidulated with sulphuric acid, and submitted to fermentation, the molasses will yield about 24 to 30 per cent. of pure spirit. This beet spirit is, I believe, largely used, like Potato spirit, to adulterate brandy. In the watery liquid remaining in the stills are found all the salts originally contained in the juice of Beetroot. Experience has shown that it repays well the cost attending the evaporation of the water to obtain these salts (almost entirely composed of compounds of potassium) in a dry form. *P. L. Simmonds, Journal of the Society of Arts.*

RECENT AGRICULTURAL HISTORY.

(*Concluded from p.* 880.)

[Extracts from the Memoir of Mr. Grey, of Dilston, by his daughter, Josephine E. Butler.]

My father was a constant advocate, as those well know who are familiar with his speeches, of long leases and large holdings. In the matter of large farms some people think he went too far; he did, however, express on several occasions the following opinion:—"I am friendly to a few small farms in a district, not because I deem them profitable in a national point of view, but because they serve as steps in the ladder for men of small means and industrious habits to mount by." I cannot refrain from giving my father's views on this important subject in his own words. The extract I shall give from his speech on the relative duties of landlord and tenant contains a brief but comprehensive sketch of the origin and rise of the custom of letting lands, and it also gives an idea of the state of society in parts of the country where long leases are common, a state of society which is quite surprising to many persons accustomed only to the semi-feudal condition of some of the southern and western agricultural estates of England. A Radical gentleman lately pointed out to me the state of country society in England. "Here," he said, "you have the great duke, or lord, or rich proprietor, on the one hand, and his wretched farmers and labourers—serfs, in fact—on the other; no middle class at all." A most undesirable state of things, and, unhappily, too correct a description of some parts of England, as the circumstances of the late elections have shown, by their humiliating revelations of ignorance and poverty and political coercion on certain great ducal properties. But it may be interesting to our Radical friends to know that this middle class is found in Scotland and in parts of the north of England, as well as in some isolated estates which have had the happiness to be the possessions of "lords of the soil" who act as responsible beings, and not on the principle that "a man may do what he wills with his own." The tenant-farmers in Northumberland are very often, in education and in all that essentially constitutes a gentleman, not a whit inferior to the aristocratic landowners from whom they rent their land. They present a strong contrast to the farmers of certain parts of England, who in education and habits are but little raised above the labourers who work for them. This middle class, whose existence is so favourable to the well-being of the classes on either side, can never arise on those estates where a man holds his farm at the will of his landlord, and may be turned off at very short notice unless he votes the right way. What man of any moral dignity, or with capital to invest in vigorous improvements, would ever offer himself as a candidate for a farm under a feudal lord, with neighbours around him out of whom all spirit of enterprise had been crushed, and who are afraid even to think except in the old worn-out conservative grooves? It will be apparent to any who have read this memoir so far, how odious to my father was the sight of the sacrifice, for political power, of noble lands, of the true interests of society, and of the food of the people, which ought to be drawn from those lands. Few things made him more indignant than the knowledge of the prevalence of the system of yearly holdings, under precise and stringent regulations, framed with the exclusive view of what are conceived to be the landlord's interest, which is of all systems the most narrow upon which landed property can be managed.

"The letting of land," said my father, "is a commercial transaction. In the contract between landlord and tenant there must be, as in all other commercial contracts, a strict exchange of equivalents, if both parties are to reap from the transaction all the advantages properly incidental to both;" and he constantly endeavoured to inculcate the true commercial principles in all matters connected with land.

Agricultural Societies are a feature of the last 50 years. The venerable Highland Society took the lead. In 1839, the first meeting of the Royal English Agricultural Society, just formed, took place. It was hailed with great joy. In these associations political subjects were proscribed, and men of all parties met in a friendly spirit, though opposite opinions were sometimes expressed in the speeches there made, when such subjects as Protection and Free-trade were being agitated; but "it was cheering to see at these meetings the Duke of Richmond and Lord Spencer walking in to dinner together, and high Tory and deep Radical chemists helping out one another's information about soils and manures and food for stock, and the rush to the ploughing-matches, and the stock-yards, and the implement-sheds; and even the road resembling the route from London to Epsom on a race-day." My father encouraged local agricultural societies, together with farmers' clubs, lending libraries, and meetings for discussion, with the view of exchanging and disseminating information, and stimulating a desire for knowledge. The societies of this kind which he himself created he managed to make most valuable use of as means of education. In spite of the good intention of agricultural meetings, there was a tendency to degenerate to purposes of eating, drinking, and flattering after-dinner speeches. On one of these occasions my father said: "Now, it is not my habit to flatter; for I have made it my constant rule through life, wherever I am, or with whomsoever I may be, never to be deterred from speaking the truth in all plainness and sincerity." This was a prelude to a rebuke to Lancashire men, whom he was addressing, for their too great respect for Nature in her wild disordered state! At a similar meeting in Northumberland he said: "I am aware it is common on such occasions to make compliments rather than to speak the downright truth; but I should not be your friend if I were to do so, and I am determined to say what I think, though it may not be pleasant to some who hear me. I feel compelled to observe that the character for superiority in agriculture which Northumberland has so justly acquired could not now with equal confidence be claimed by it. How dangerous it is to loiter in a race we know; from too great confidence in the power to win, ground may be lost which cannot be recovered." He then spoke of the absence of landlords from such meetings, in stern words, not perhaps undeserved. On another occasion, that of the first grand cattle show which took place in Ireland, he addressed a very large assembly of landlords on the poor state of the cottages of their labourers, reminding them that all progress must begin with themselves. A Cork newspaper observed, "It was honest of Mr. Grey to speak thus, standing in the immediate presence of a number of Irish landlords. The landlords, we learn, received Mr. Grey's suggestions in a spirit of candour; while from the body of the hall, which contained upwards of a thousand humbler agriculturists, he was frequently interrupted by loud cheers and cries of 'Hear the honest Englishman.'" The editor of a well-known agricultural paper wrote to me lately that for nothing did he esteem my father more than for his persistent advocacy, by precept and example, of proper dwellings for the poor. Surely this is an item in the history of agricultural as of political progress which should not be unnoticed here.

Whether enormous estates, such as the great ducal estates of England and Scotland, are for the good or harm of the community generally, is a matter about which there is a great diversity of opinion; but undoubtedly the circumstances which frequently attend the possession of very large estates are unfavourable to the general good, such as settlements, absenteeism, inequality between the amount of land possessed and available money for the improvement of it. Of the evils arising from these circumstances it may be said their name is legion. We may trace them in the miseries of London society, in the unhappy marriages for money of the daughters of the upper classes, who are impoverished for the enriching of an eldest son, as well as in the scenes which we encounter so often in travelling through our beautiful rural England, passing through properties which Nature has endowed richly, but where everything is in disorder; where trees, sweating moisture, are crowded together, and timber rotting; where rabbits, numerous as vermin, are undermining unproductive fields with their interlacing network of burrows; and where the blue dragon-fly poises himself over marshes which might be converted into drained and fertile land. For this the landowner is not always to blame. In some cases the burdens on the land are so heavy, and he himself so fettered, that improvement is impossible; in other cases, London life, fashionable society, or a public career, offer more attractions than his country home. It is true, as my father said, that the evils of entails has been somewhat counteracted by the recent Acts, which enable the owner to borrow money on entailed estates for improvements, the interest being chargeable to the estates, whoever succeeds. But the words spoken some years ago by Mr. Hoskyns are but too true, that "the annual loss which this country, with all its boasted agricultural improvement, undergoes by the tied-up hand of ownership, &c., is a subject which must sooner or later find a tongue and a more efficient and constitutional remedy than Government grants, which struggle with the effect, but leave untouched the cause which they incidentally recognise."

The last subject of which I shall speak in connection with agricultural progress is that upon which every other branch of advancement depends. I mean education. It is affecting to me to observe in my father's private papers how much he had this subject at heart, and how scant a fulfilment of his hopes he lived to see. He had at one time great hope that agricultural science might become one of the subjects studied at Oxford and Cambridge. He even trusted to see it in his day; and it was no unreasonable hope, if we consider that a large proportion of young men who go to the Universities are or will be our great landed proprietors. It seems a pity that they should leave the University accomplished athletes, it may be, or furnished with a degree of useful learning, but guiltless of all knowledge of the simplest principles of rural economy, or of the relations of physical science to agriculture. My father spoke of this when visiting a married daughter living at Oxford. In social gatherings there, I recollect the humble grace and grave attention with which he followed conversations in which he took little part—not being professedly a literary man. He inquired of the meaning of the professorship of Rural Economy there, and the lessons taught. He was told that the professor gave lectures from year to year on the Georgics of Virgil. His answer was gentle: "Very good; but I think your young men will scarcely learn from Virgil how to keep pace with the progress of the present day."

He watched with great interest the success of Cirencester College, so ably presided over by his friend Mr. Constable. Though he rejoiced in every proof of well-educated farmers being sent out from there, there was disappointment in the fact that the instruction offered did not reach the class whom he most wished to see thoroughly educated agriculturists. There was not the prestige which the old Universities would have given to it; and unhappily it is still too much the fashion to think that young men who are not clever enough for any other profession, or who are of the coarse rollicking character supposed to be suitable for country life, may take to farming and do well enough. Although the many translations and editions through which the works of Johnston, Mulder, and Liebig have passed show how considerable is the demand in some quarters for knowledge of this kind, yet my father considered that even now we are but on the threshold of agricultural science; and that there are many lines of investigation as yet not opened up at all which will throw light upon it, as upon all sciences, physical and moral, which bear upon the well-being of the human family. It was in no narrow sense that he was the advocate of education. His speeches and writings testify sufficiently to the breadth of his views on this subject, and to the stress he laid upon the right attitude of the spirit before God, and the training of the moral nature in faith, in virtue, and in self-denial, without which he deemed the mere furnishing of the brain unworthy of the name of education.

THE PLAGUE OF FROGS.

It is very unfortunate for any creature to have inherited a bad name, and the harmless frog having once been commissioned to annoy the king and people of Egypt, the bad odour of that affair has stuck to all the generations of frogs that have been spawned from that time to this; and with Christianity that stain upon their name will go down to posterity, so that whilst the poor widow will ever be honoured for her mite, the lithe and lively frog will always have his fair fame barred with the tale of the plague of frogs.

Our lively French neighbours have long ago got over any repugnance that they might naturally have had to the flesh of this reptile, and can dress and cook the hams of frogs, just as they would prepare any small birds or small fish that might come in their way.

When I was a boy we occupied some land where there was a rubble drain employed to carry off a stream of pure spring water; the drain had been made with field stones or boulders, the largest being placed in the

bottom and the small ones on the top, and the depth of the drain would be about 3 feet. The bottom of this drain got stopped from the accumulation of sand at the mouth, and we had to open it up for several yards; and as we did so, it being the depth of winter, we were surprised to find nearly a hundred frogs, all of a bright yellow colour, and quite lively, nestled there for the winter in the pure spring water, which never froze, all tightly packed between the large stones in the rubble drain. A Frenchman would have looked upon this as a treasure, and would have dressed and cooked the legs of every one of them, but as we had no such longings, they were all allowed to go down the stream in peace to seek for some other hiding-place.

We are all well aware that a wet frog in frosty weather would be frozen to an icicle unless some such provision had been made for it, but as the winter rains generally keep the ponds and ditches well supplied with water during the frosty season, the frog finds no difficulty to get lodgings in the deep water, or in drains out of the way of frost. At the time I speak of there was a brook of clear water and several pools on the common within a stone's-throw of our house, and from what I have above stated, I need scarcely remark that frogs abounded; they spawned in the pools, and plenty of frogs were to be found in the trout streams, so that when I had groped under the stones for trout, I have been annoyed to find that frogs were there. Whether we kept ducks to keep the frogs in check, or for the sake of the ducks' eggs and ducks' flesh, I know not, but certainly our ducks were quartered upon the frogs, and that for half the year at least they would come waddling home every night with their craws well crammed with this dainty. I have often been in at the death, and seen the duck turn the full-grown frog about until she had got it headforemost, when it had to go down alive and kicking into the craw. Now if toads (Rana bufo), young or old, had been presented to the ducks, they would not have touched one of them; and this discrimination goes far to prove that the toad is at some time of the year not without venom, as many credible witnesses have testified. Without going further into the history of the toad, I would only remark that as no known use of the toad can at present be balanced against its unsightliness, their numbers might be very much thinned (where they are a nuisance) during the approaching spawning time; the spawn of the toad will be found in lines, whilst the frog spawn is in clusters. One year I had the garden infested with millions of young toads after they had left the water and could crawl, and the following season I gave a boy 1*d.* a score for all the full-grown toads he could collect in the spawning season, and so well did he secure the end in view that very few were seen about the pleasure-ground after what he had netted. But to return to the frog, and first of all let me assure your readers that I am no advocate for the eating of frog legs (for that is the only part that is eaten), but, although we are not to eat them ourselves, that is no reason why our ducks should not eat them, and have such cheap and natural food provided for them. The frog is wonderfully prolific, and the swarms of young frogs that annually leave the spawning pools is such an army that one wonders where and on what they will all be fed. It is a very easy matter to accommodate a colony of frogs if they can only get an old quarry-hole, a marl pit, or even a deep ditch to breed in in spring; and before the tadpoles have legs, let the pool be enclosed with a low wall or close palings, and the frogs and their progeny will be at the service of the master of the pond: it will be a frog preserve. Young pheasants are fed with ants' eggs, young turkeys and chickens get maggots, grubs, and worms provided for them; it would be idle to argue the matter with the gamekeeper or the henwife, for they have learnt from experience that nothing will do better for chicks than this fresh live food, and few things have been found to do so well. In Devon, near Torquay, such were the number of snails that in spring you could not walk in the Clover ley without crushing four or five small snails at every step, and when the young ducks were let out in the morning they ran away to the feast of snails, and the game fowls and prize birds kept were always ready for a few crushed snails whenever they could get them. I mention this to show that crawling insects and seeds besmeared with mud and sand are the natural and even the necessary food of poultry, from the handsome peacock and pheasant down to the barn-door fowl, for the stones in the craw of the bird tell the plain truth, and you may see them eat stones and sand with avidity. They are all foul feeders, and the duck is particularly so, and has a gluttonous appetite, and should only be kept where it could be fed after its own fashion. Cobbett said ducks should not get to the water, as it unfitted them for the table, but I need not quote from this author any further beyond the single word "Quack." Many persons have thought to make money by buying food to rear ducks, but they have generally failed, as the food was all too costly, and generally too dry for this aquatic bird. Had the frog been a true fish, instead of belonging to "Reptilia," I should have had an easy task, as the science of pisciculture is just now in the ascendant; people are beginning to see that if they are to have full-grown fish they must first take care of the spawn and the young fry, and make fish ladders in the weirs for the fish to get to the spawning ground and back again to the sea. With the Frenchman stews or preserves of frogs is a feat already accomplished, whilst we are only feeling our way and borrowing or calling in the aid of the duck to help us to get any good of the frog at all in our domestic economy. The frog eats no man's grain, or other earnings, like the thievish mouse, and is of a retiring habit, and always clean washed, and gives a dainty morsel to birds of prey as well as to snakes, &c. One thing, however, is quite certain, that when our ducks got plenty of frogs, and the run of the common, they laid eggs and required little or no feeding; but in winter, when the frogs were protected by ice and deep water, the ducks had to be fed at the barn door. Notwithstanding the dirty habits of the duck, and its frog-eating propensities, ducks, wild and tame, are likely enough to hold their ground, and at present fetch quite an unreasonable price in the market, for they are a luxury at the table of the greatest in the land; and it is high time that a step should be taken in the right direction to get such a want supplied. There is no novelty in this mode of feeding ducks, for who has not read or heard drummed in their ears of the "Frog that would a wooing go" and of the "Lily-white duck that gobbled him up," with the chorus of

"Roley poley, gammon and spinage,
Heigh-ho! said Anthony Roley."

Alex. Forsyth.

FLAX CULTIVATION IN IRELAND.

THE accompanying interesting Table, which has just emanated from the Agricultural and Statistical Office, Ireland, is well worth the attention of our readers. It shows in statute acres the extent under Flax in each county and province in 1868 and the present year; also the number of scutching mills:—

Counties and Provinces.	Extent of Land under Flax.		Difference between 1868 and 1869.		Number of Scutching Mills in 1868.
	1868.	1869.	Increase	Decrease	
ULSTER.	Acres.	Acres.	Acres.	Acres.	
Antrim	20,147	20,071	..	76	183
Armagh	21,723	22,739	1,016	..	133
Cavan	13,113	14,866	1,753	..	35
Donegal	22,265	25,973	3,708	..	289
Down	36,887	37,550	663	..	267
Fermanagh	6,654	8,961	2,307	..	30
Londonderry ..	22,096	24,111	2,015	..	206
Monaghan	20,202	22,178	1,976	..	69
Tyrone	29,143	34,595	5,452	..	208
Total of Ulster ..	192,230	211,044	Increase, 18,814 acres.		1,420
MUNSTER.					
Clare	688	693	5	..	3
Cork	1,096	2,020	924	..	22
Kerry	532	538	6	..	3
Limerick	127	107	..	20	1
Tipperary	297	349	52	..	8
Waterford	87	89	2	..	4
Total of Munster ..	2,827	3,796	Increase, 969 acres.		41
LEINSTER.					
Carlow	22	19	..	3	1
Dublin	6	8	2	..	..
Kildare	5	3	..	2	..
Kilkenny	68	62	..	6	1
King's	201	248	47	..	6
Longford	1,130	1,749	619	..	5
Louth	2,133	1,963	..	170	8
Meath	842	670	..	172	10
Queen's	84	74	..	10	3
Westmeath	161	218	57	..	6
Wexford	511	242	..	269	7
Wicklow	6	2	..	4	..
Total of Leinster ..	5,169	5,258	Increase, 89 acres.		47
CONNAUGHT.					
Galway	574	847	273	..	7
Leitrim	1,477	1,955	478	..	4
Mayo	2,089	2,923	834	..	8
Roscommon .	1,576	2,408	832	..	7
Sligo	541	947	406	..	8
Total of Connaught	6,257	9,080	Increase, 2,823 acres.		34

Total acreage under Flax in Ireland in 1868 and 1869:—1868, 206,483 acres; 1869, 229,178 acres. Total increase in 1869, 22,695 acres.

Total number of scutching mills in Ireland in 1868, 1,542.

Total extent of Flax grown in Ireland in each of the following years:—

	Acres.		Acres.
1851 ..	140,536	1861 ..	147,957
1852 ..	137,008	1862 ..	150,070
1853 ..	174,579	1863 ..	214,090
1854 ..	151,403	1864 ..	301,693
1855 ..	97,075	1865 ..	251,433
1856 ..	106,311	1866 ..	263,507
1857 ..	97,721	1867 ..	253,257
1858 ..	91,646	1868 ..	206,483
1859 ..	136,282	1869 ..	229,178
1860 ..	128,595		

The total area under Flax fluctuates considerably from year to year, as may be seen from the Table subjoined to the one alluded to, in which the aggregate extent of Flax grown in the years from 1851 to 1869 is given. The smallest amount of land under this crop appears to have been in 1858, when only 91,646 acres were reported. Since then the area has increased, although hardly with satisfactory steadiness. In 1864 301,693 acres were under this cultivation, the largest area yet registered; this was decreased to 251,000 acres the succeeding year, and since then the extent has varied from 206,483 to 263,507 acres. The smaller area represents the extent in 1868, and during the present year we are glad to notice an increase of 22,695 acres, making a total area in 1869 of 299,178 acres. This increase is almost entirely due to the province of Ulster, which alone has 18,814 more acres under this crop at present than in 1868. Connaught contributes 2823 acres to the total increase, and Munster 969 acres. The province of Leinster only shows an increase of 89 acres. The great bulk of the Flax crop is therefore seen to be grown in the north of the island, where the people have earned the character of greater thrift than their brethren in the South. Would that the growth of this valuable plant could be more extended in south Ireland: the employment it would give to holders of small occupations would be an immense advantage.

AGRICULTURAL GLEANINGS FROM BRITISH CONSULS' REPORTS.

Havre.—The crops of the last harvest turned out very good, and those of the present year indicate favourable results. The British Consul says this part of France suffers incalculable damage every year from the cockchafer grub (Melolontha vulgaris), nothing being safe from its ravages. Considerable sums are paid by the local authorities for the capture and destruction of the cockchafers, and many tons weight of these insects are yearly thrown into the sea. Their great numbers are principally owing to the wanton destruction of small birds which has been allowed to take place.

Lombardy.—The rent of land in Lower Lombardy varies at present from 120 and 200 to over 500 lira per hectare (1*l.* 18*s.* 6*d.* and 3*l.* 5*s.* to over 8*l.* 1*s.* 6*d.* per acre), this last price being given for meadows and market gardens near towns, especially in the neighbourhood of Milan. Land in Central Lombardy is cultivated on the "métayer" system. The conditions of the contract, which is generally a verbal agreement, vary in different localities, but payments to the landlord are always made in kind, with the exception of a very small rent for a cottage, or rooms, &c. The expenses of cultivation are borne by the peasant, the taxes and certain repairs by the landlord. In Lower Lombardy the land is held on lease by farmers, generally for a period of nine years, and in some few instances for a term of 12, and sometimes 18 years. Any additional building erected, or improvement made, by the tenant is estimated when his lease expires, for which he receives adequate compensation. The position of the agricultural labourer varies in different districts. In Central Lombardy the prevalence of the "métayer" system excludes the question of wages. In Lower Lombardy, however, the system of wages generally prevails, although when rice is harvested payment in kind is very frequently adopted, *i.e.*, so many bags of rice per quantity brought in.

The actual wages of the agricultural labourer seldom exceed one and half lira per diem, but during harvest time he not unfrequently receives from two to three lira.* The peasantry of Lower Lombardy are generally in a most miserable condition; badly fed and badly lodged, their hamlets are hotbeds of fever, and from their prevailing want of cleanliness they are especially liable to the ravages of epidemic diseases. In Upper Lombardy, owing to the "métayer" system, the condition of the peasantry is somewhat better, they are at least saved from utter destitution, for should the crop of Indian Corn fail, the landlord provides them with sufficient of that produce for their own sustenance and that of their families. The yield of hay, which is often good both in quality and quantity, is a material of great importance, owing to the large number of cows kept on the dairy farms of Lower Lombardy.

Rye is very little grown in Lombardy, where the soil is better suited for the cultivation of Wheat and Indian Corn. Moreover, as this product does not enter into the ordinary consumption of the country, it meets with no demand. Flax is an important product of the province of Cremona; it is also extensively cultivated in the provinces of Brescia and Bergamo, and in part of the territory of Lodi. Some years ago there was a large export of Flax from the province of Cremona, but there now being in Lombardy several "filatures" for Flax and Hemp, a less quantity is exported.

Georgia, United States.—Of the present state of agriculture in Georgia, it is my opinion, both from a practical knowledge of the same, and from the best information to be obtained, that since the abolition of slavery throughout the State, taken on an average, perhaps one-third less of the number of acres of land may be under cultivation than were planted before that period, and that that portion, now but indifferently worked by free negros, is not nearly so productive as formerly. When the negro was made free, Georgia lost her agricultural population almost entirely, the negro being the only labourer capable of cultivating the fields, and contending with the climate at the same time. No other population has as yet appeared to take the place of the negro. However abhorrent slavery is, and averse to the feelings of every Englishman, still Georgia had no other resource; that knocked from under her feet, she lies prostrate, unable to recover herself. The freedman, suddenly realeased from his bonds, entirely unfitted for freedom, looks upon its definition as exemption from labour. He comes to his former owners for assistance when in distress, but forgets them the moment the cause is removed. He, in fact, wishes to revel in all the license of his present freedom, and enjoy at the same time all the advantages attached to his former state of slavery. Georgia, never celebrated as a grazing country, raises now but very little stock; her pastures, however fertile, being open to the marauding propensities of the free negros, are almost useless, and the impoverished state of the Southern farmer has prevented the country being restocked since the war with cattle, sheep, or swine.

San Francisco.—Farming has to be conducted very differently here to what it has in England, or the eastern states of the Union, consequent upon the long drought from May to November, and the intense heat of summer baking the ground to such an extent as to prevent its being amenable to the plough until the rains commence, when work is actively begun, first on the light lands, so as to enable them to hold all the water possible in case of a dry winter, afterwards the low and moist lands are ploughed and prepared for the seed. A quantity of land passed over as worthless, or nearly so, by immigrants in search of farms, is now found to be admirably adapted for the growing of grain under a system very aptly described as follows:—The system of summer fallowing prevails to a small extent;

* A lira is worth about tenpence.

by this plan the farmer divides his "ranche" into two parts, which he sows in alternate years. The part not down in grain this year he ploughs after he gets his seeds, and lets it lie fallow through the summer. In the fall he harrows it, and "sows in the dust," as it is called, breaking the ground with his harrows to a dry powdery dust, in which he sows his grain. It seems a thankless task to scatter Wheat in such a field, dry and barren as it is, but when the season of moisture comes the ground is ready to absorb it all; and this grain, starting early, is firmly rooted, and if the rains be light every drop is economised, while, if the season be wet, the grain is firm and strong enough to stand a flood; besides this, the summer fallowing gives the ground a rest on alternate years. *John R. Jackson, Kew, Aug.* 9.

MANAGEMENT OF STRONG LAND.

[The following excellent paper was lately read before the Wenlock Farmers' Club by Mr. John Shuker, of Heightley Hall, Chirbury.]

WITHIN the last 20 years every one must acknowledge that wonderful improvements have been made in the management of land. A farmer of 50 years ago would be surprised could he see much of the ground which in his day grew little more than Gorse, Briars, and underwood, now converted into good tillage land; and the stiff clays, which were almost drowned out with water, now producing fair Wheat and Oat crops, with occasionally a sprinkling of Turnips and Barley. Our meadow and pasture lands have also received a fair share of attention. The formation of agricultural societies must be regarded as the great "head centre" in this march of improvement. The useful subjects brought forward for discussion at their meetings, and the prices offered for excellence in the different branches of husbandry, must have gone far to promote an enterprising spirit among men of all shades of opinions. But with all the improvements that have been made, much still remains to be done, and some of us may yet live to see production nearly doubled.

The subject of my paper, "The improvement in the management of strong land," I intend to treat under two heads, the first referring more particularly to permanent, or landlords' improvements; the second to the after-management, or tenants' improvements.

LANDLORDS' IMPROVEMENTS.

The first thing that strikes me as requiring attention, and, indeed, a stepping-stone to draining and all future improvements, is a good arrangement of fields and fences. In travelling through the country one cannot help feeling annoyed to find, even in these days, so many of the old style of zig-zag, unsightly-looking fences. These are often 3 or 4 yards wide, enclosing fields, perhaps, of 4 or 5 acres. Many hundred acres of valuable land are thus taken up in growing this brushwood, or worse than useless hedges, only productive in maintaining a supply of rabbits, birds, and vermin, and this class of stock we can conveniently dispense with. The manual labour on these old tortuous fences is nearly twice as much as it would be under a better arrangement, for besides the additional distance, the nooks and corners, which the plough cannot reach (in case of arable land), get overgrown with bushes, &c., and the ditches, instead of carrying the water away, are filled with stagnant water in their hollow crooked parts, which leak into the adjoining field, thereby doing much damage. The difference in horse-labour in these shapeless fields is still more apparent. A team can as easily plough and work 1 acre in one field as three-quarters in another; but say the difference is only one-sixth, and this alone would be about 5*s.* an acre annually. In this I must be understood as speaking of the most neglected fences; in many parts they have been much improved; and every one will be guided by his own judgment what alterations it is advisable to make. But generally speaking, a good finish will be found most satisfactory afterwards, and 7*s.* or 8*s.* an acre, taking the average of a farm, will do wonders in its appearance and convenience.

In making alterations, the first consideration is the size or acreage of fields, and their position; and, after giving this part of my subject careful consideration, I have decided to give a certain number of fields to each farm, varying in size according to the extent of arable land. Thus, under 60 acres arable, eight fields; 120 acres, 10 fields; and over this quantity 12 fields. In making a new arrangement care should be taken to get the fields as far as practicable with a slope all one way, falling gradually into the hollow where the water will most readily clear itself away with least damage. Care should also be taken to make each field easy of access from the homestead, so as not to pass through one field to another if it can be avoided. If the soil is variable it would be advisable to get the fields as much of a class as possible, as this would be found much more convenient for working and cropping. The next thing to be done would be good and thorough drainage. If it is intended to employ many hands, it is most advisable to have a man to superintend the work. He should thoroughly understand the most approved system, and will see that the different parts of work are properly done. When several fields have a fall one way, and intended to be carried clear away by the same pipes, care should be taken to get them of sufficient size, and the long mains supplied with wells, air-pipes, and all modern improvements for maintaining their efficiency. A 12-inch fall should be allowed at the mouth. Before commencing to drain a field, two or three trial holes should be cut in different parts of it from 4 to 5 feet deep. The nature of the under-soils (which I presume will be principally clay) must then be closely observed, in order to a certain the proper depth of cutting. If at 4 feet deep, or even a little more, you get through the bed of clay into soils of a more porous or brashy nature; or if the clay appears jointy and like to draw fairly, then I should say 4 feet deep and 10 yards apart. But if the clay runs deep and of a very stiff tenacious kind, I should recommend 3 feet deep and 7 yards apart; although in giving this opinion I am aware I am treading on delicate ground, as few persons believe in anything but a 4-feet drain. But I think it just as rational for a surgeon to supply the same medicine for all diseases, as to drain all soils, arable and pasture, one uniform depth. The expense of both systems is very much alike, viz., when 7 yards apart there will be about 106 rods to the acre, and this, at 6*d.* per rod, amounts to 2*l.* 13*s.*; cost of the pipes, including a share to mains, 2*l.* 12*s.* 6*d.*; making 5*l.* 5*s.* 6*d.* The 4-feet cutting 10 yards apart would be about 87 rods at 9*d.*, 3*l.* 5*s.* 3*d.*; pipes, 2*l.* 4*s.* 2*d.*; making 5*l.* 9*s.* 5*d.* In the former case the extra cost of pipes is more than counterbalanced by the greater amount of labour in the latter. This does not include the hauling of the pipes, and to this or almost any other class of drainage should be added superintendence, 7*s.* 6*d.*, pipe-laying, 6*d.*, emps, &c., say 3*s.* 6*d.*, making an average total of something like 6*l.* 4*s.* an acre.

In the case of meadow and pasture land, many of you I think will agree with me that the drainage, as a whole, has not been attended with such beneficial results as had been anticipated. No doubt a deal of this has been owing to a want of proper manure to encourage the growth of the fine Grasses; but some has probably been over-drained. With the exception of some extreme cases, 11 or 12 yards wide, and 4 feet deep, will be found sufficient for the stiffest soils. The drains should be laid out in a slanting direction, as much as the fall will allow, as they have thus a much better chance of taking the water. Main drains should always be run as straight as possible, and when going through or near to fences, I should strongly recommend the use of socket pipes, joined together with Roman cement, to prevent roots, &c., getting through into the pipes. All Ash, Willow, Alder, and Wych Elm should be grubbed up within several yards of the drains. There should be as few mouths as possible, and these at a point (as far as the field will admit) where the water will most readily clear itself away. The last pipe should be a cast iron one, fitted with a swing gate. Instead of the plain fronts usually made I should suggest the following plan, which I think a great improvement. Say a flagstone under the mouth of the pipe to prevent the ground wearing away; form a recess in the masonry for the pipe, arched over so that it cannot get damaged. In the back part of the work common bricks may be used, but the front should be done with second quality fire bricks, and cement instead of mortar. This is said to stand one hundred years, and the whole system, if properly done, will repay the few shillings an acre additional expense, for superintendence, &c., an hundredfold.

(To be Continued.)

Home Correspondence.

Hot Haystacks.—Doctors will differ. Ridicule is not argument. An Editor says, in allusion to Garrett's Stack Ventilator:—"We doubt the efficacy of a chimney for putting out fire." The chimney is not intended for carrying off fire, or for putting it out, but for carrying away heat. The cause of heat in stacks is the excess of water in the hay or Grass, which develops heat, and converts the water into steam. This steam, and the air surrounding it, are highly compressed, and cannot escape. The result is combustion. If the superheated steam is permitted to escape—in this case by means of the pipe or chimney—no combustion can take place. This I have proved practically, and so have many other farmers. Although steam is cold, the heat in it being latent, it has the power of communicating the enormous amount of heat it contains to other bodies. For instance, we can light a match on the pipe that conveys the high-pressure steam from the boiler to the engine. When I used Perkins' principle of warming my house here by the rapid transmission of hot water and steam through 1-inch pipes of immense strength, the heat from these pipes charred the curtains, and singed the wood and skirting boards at a distance of 4 inches. Those pipes contained nothing but steam or water. Mr. Bessemer has told us lately what enormous heat is obtained by compressed air. Let me advise my brother agriculturists to follow my practice, and obtain a rick ventilator (only 38*s.*), and so prevent burned or charred stacks. *J. J. Mechi, Tiptree, August* 16. [Water, in being converted into steam, absorbs and carries away heat. Such a change, therefore, cannot in any sense cause fire in haystacks, but would rather tend to correct the tendency to over-heat, just as perspiration cools the skin. The heat developed from the compression of steam or air in a haystack would hardly be perceptible, and is not the cause of the injury. The real cause of heat, and eventually of fire in stacks, is the gradual accumulation of heat, owing, first to fermentation, and, secondly, to the non-conducting character of the hay. Hence, the heat increases because it cannot escape. Any quick conductor in contact with the fermenting mass inside the stack, will assist to relieve it of its high temperature.]

Feeding for Prizes.—We Cotswold ram breeders are twitted in most quarters because we do not continue to show sheep at the agricultural shows in England. I consider a man must be mad to attempt to show sheep against shearlings computed at 65 lb. a quarter, which I am informed they were this year at Manchester, and measuring near 6 feet round, 4 inches more than the old rams. Now, I said once, the shepherds ought to have had the prize for sculpturing before some restriction was put upon shearing, and I am sure the poor fellows should now have the prize, for the labour they must have, and their skill in administering all the stimulating drugs that Apothecaries' Hall can supply. Is not this a burlesque upon prizes for breeding animals? And then the men who purchase them have the same disappointment. A friend of mine had, some years ago, who purchased some of these sheep, and when the fat was off them said they had necks like coach horses. I am sure our judges must have weighing machines instead of measuring tapes, and we must limit the weight of different animals, which strikes me as the only way to check this. How many tons of fat are now put upon rams only to deceive the public and injure the animals, all of which must be physicked off again. *T. Beale Browne, Salperton Park, Andoversford, Gloucestershire, August* 13.

Farm Profits: Cow Keeping.—Feeling much interested in the letter signed "Half Pay" in your last, I beg your kind permission to offer a few remarks on the same subject. Emigration seems now to be the only resource for soldiers or sailors desiring to retire from active service; this is very hard on men who have spent all their lives in foreign countries, and may wish to end their days at home. Can no safe, simple, and suitable employment be found for us—a practical working knowledge of which may be easily acquired, whereby our capital may be advantageously and agreeably employed, without sending us again to America, Africa, or Australia? I have made many inquiries on these matters, and all I have heard satisfies me that "cow keeping," as distinguished from farming proper, is a most lucrative trade; of course I mean only under careful and judicious management, and surely it is simple enough. A cow costing 25*l.*, if a good one, and well fed, should yield per annum (say) 800 gallons of milk, at 8*d.*, or 26*l.* 13*s.* 4*d.* Cost of keep, say in round numbers, 10*l.*, or the charges on 3 acres of prime land—a fair allowance to keep a large cow for one year; thus leaving a gross sum of 16*l.* 13*s.* 4*d.* after feeding, from which deduct market expenses, &c. Surely an investment of 25*l.* returning a clear profit of 12*l.* must be a first-class one, while the work is second to none for health, pleasure, utility, and respectability. Of course your stock must be insured, and you must yourself see well after your money, workpeople, and stock. Suppose cowkeeping to leave, as I believe it must, an average clear profit of 50 per cent., how can you equal it? Whether you sell the produce in milk or butter is mere matter of detail with different breeds of cows, and I daresay the difference in profit is very trifling, if anything, between the system pursued by Mr. Telfer in Ayrshire and Mr. Bull in Sussex. Each seems perfect in its way, and "Half Pay" can't err if he follows either closely. Everything depends upon strict attention to details. For myself, I should prefer a superior butter dairy, for you have to market only twice weekly, against sending in milk twice daily; and I think the retail butter dealers are, as a class, very superior to the milk dealers. The choicest butter cows, carefully selected and properly fed, will give 300 lb. of butter each in a year; this, at 1*s.* 6*d.* per lb. (less than Mr. Bull's contract price for 12 months), will leave a cash return of 22*l.* 10*s.*; but beyond this you have, say 600 galls. of skim-milk, which, by feeding pigs and poultry, should be made to pay at least 4*d.* per gallon, so here is an additional 10*l.*—in all 32*l.* 10*s.* from a cow (a very superior one, I admit) costing about 25*l.* I challenge any one to make the total cost of the keep, insurance, attendance, and incidental expenses of such a cow exceed 15*l.*, thereby leaving a clear profit of 17*l.* 10*s.* What is wanted is some practical intelligence, shrewdness, great care, thrift, economy, military management in point of detail, and close, constant, sharp personal supervision by the officer in command, or his adjutant. Nothing can dispense with this, for there can be no profit, but must be a loss, without it. No second-rate cow should be kept, no food used but the best, no servants kept but the best—treating them liberally; the best crops for butter should only be grown—such as Carrots, Parsnips, Mangels, and hay, with Oats. Beanmeal, oil-cake, and chaff should be given warm in winter, while in summer the cows should be fed partly on pasture in Mr. Bull's way, which is the Jersey way, and partly house-fed on cut Lucerne, Tares, Clovers, Italian Rye-grass, and meal. Thus you secure the progressive productiveness of your cows, whose rich manure secures the constant fertility of the land that feeds them. I feel confident a good farm thus stocked and worked as a really first-class butter dairy, would leave a far better money return than any work in which a gentleman emigrant could embark similar capital in any colony, in most of which sheep and cattle breeding is overdone. I leave personal confort entirely out of the question. I am now home on leave, my regiment being in India, and am very anxious to leave the service, but do not know what to do with myself or my money when I do leave. I have a large family, and wish to engage in some pursuit that will pay well, and require no technical skill or knowledge. If you go into partnership with a man more expert and less scrupulous than yourself, the chances are you will go to the wall, while your partner goes ahead; this happened to a brother officer of mine, who gave 3000*l.* to a wine firm to join them: he lost, and went to Canada, while his partners gained and went on. There is no mystery in cow-keeping—pay a good manager well, and look after him well, and you will soon learn the work if you have your head screwed on the right way. As to cows' produce in butter, I knew of four cows in Jersey that made 60 lb. weekly for a long time; the owner sold them for 100*l.*, and went to Australia, which he afterwards repented. I knew of two others here in Middlesex that made regularly for months 33 lb. weekly. Such cows will yield largely if you only feed them highly, and such cows are plentiful enough in Jersey and Guernsey if you look for them. *Full Pay.*

Water in Grass.—Some folks differ with me when I say that 100 lb. of Grass should make 29 lb. of hay. Especially this is denied as regards sewaged Grass. Let us see what Professor Way says in his very able article, "On the Relative Nutritive and Fattening Pro-

perties of different Natural and Artificial Grasses" ("Royal Agricultural Society's Journal," vol. xiv., p. 171):—

Ordinary Rye-grass	.. ..	71.43 per cent. water.
Italian ,,	.. ..	75.61 ,, ,,
Grass from a water meadow	..	87.58 ,, ,,
,, second crop	..	74.53 ,, ,,
Annual Rye grass	.. ..	69.00 ,, ,,

Professor Way says (speaking of natural Grasses generally), "Whilst in some cases the percentage of water is as high as 80, in others it only amounts to 60; in one instance (Briza media) being as low as 57." He also says dry hay generally contains 16 per cent. of water, and he also says:—"The proportion of water is evidently connected with the period at which the Grass comes into flower." Now my calculations of hay relate principally to sewaged Italian Rye-grass, in a fit condition of growth for making into hay. In my case, less than 12 tons of it have produced three tons of fine hay. If made into hay when in a very immature and succulent condition, the waste from loss of water would, of course, be great. We all know, or ought to know, that very succulent or immature Grasses early in the season are apt to scour or even injure animals, especially Tares and rankly rapidly-grown Grasses. In such cases I always mix them, when cut into chaff, with dry hay or straw chaff. As summer advances there is no fear of injury from over-succulency, and it is a common saying that animals thrive better on roast meat than boiled. In a certain over-ripe condition of Grass there is certainly much less than 70 per cent. of water. *J. J. Mechi, Tiptree, Aug.* 17.

Peasant Proprietors.—During 50 years' residence among the peasantry of Wiltshire and Dorsetshire, and with the improvement of the condition of the working classes continually before me as the second great object of my life, I have had full opportunity of observing the working of peasant proprietorship, and, though on grounds very different from those adduced in your leader of to-day, I have long been convinced that its tendency is rather to the misery and the deterioration than to the happiness and improvement of the peasant. About 70 years ago the Earl of Shaftesbury of that day sold about an acre of land in this parish—a suburb of Dorchester, in about eight or nine lots. At or near the same time about as many peasants were allowed to make themselves proprietors of as many portions of a piece of waste of the estate of the Duchy of Cornwall. There are persons living who recollect there being 18 or 20 tolerably comfortable cottages on these two pieces of land. There is now dwelling on them a population of 1000 or 1100 souls. I have seen myself much of division and subdivision of the properties. I have seen the divided or the subdivided portion fall into the hands of the mortgagee who had advanced money for repairs or for additional buildings. On one of these peasant properties there has stood for the last 35 years a square of wretched dwellings, about 10 feet square, without one foot of accommodation beyond the ground floor. These were erected by a builder to whom the peasant proprietor sold the land. I don't hesitate to assert that the misery and vice which have attended the establishment of 18 or 20 cottage properties 70 or 80 years ago have vastly outweighed any benefit it could have been expected to confer on the working classes. But while I feel thus as to peasant proprietorship, my convictions are very different as to peasant tenantry; and I hope soon to be able to show the public that it will be greatly to the interest of all classes, that it will tend greatly to the social and moral improvement of the working classes, and that it will add greatly to the increase of the produce of the soil, if, at least in the neighbourhood of our villages and smaller towns, the labourer, the mechanic, and the shopman may have the opportunity of renting a quarter of an acre, half an acre, or one or two acres of land at a fair rent. If the cultivation of such portions, varying according to circumstances, be feasible (and this is fully capable of proof); if it can be done without any abstraction of his time and strength from the man's employer; and if from the cultivation of even the smaller of those portions it can be shown that a man may add 4*s.* a-week to his income, then I am sure that in the absorption of small properties into larger, of which in your leader you speak, there must be some consideration shown for these classes. The advocates of education and of temperance must pay more attention to this subject than they have hitherto done. *Henry Moule, Fordingham Vicarage, August* 13 (*in the "Times"*).

Societies.

NORTHUMBERLAND AGRICULTURAL.

The annual show of farm stock, implements, &c., in connection with the Northumberland Agricultural Society, was held on the 10th, at Hexham, and in all respects was a great success. Much of the success which has attended the exhibition in connection with this Society, this and last year, is due to the admirable manner in which the arrangements have been planned and carried out by Mr. Jacob Wilson, of Woodhorn Manor, Morpeth, the able secretary, assisted by a well-selected and energetic committee. Compared with preceding years, the exhibitions of 1868 and 1869 show a considerable increase in the number of entries; and no doubt as years pass on the number will further increase, until the Northumberland Society's Show takes that commanding position among county shows which it ought to hold, considering the fact that Northumberland, with the exception of the south-east portion, is almost purely an agricultural county. It is impossible that such a Society can flourish without the countenance and support, not only of the farmers, but of the landowners; and the visitors at the showyard would, with pleasure, notice the large number of landlords on the ground. Every arrangement was made to ensure success. Special trains were run on the Carlisle, Alston, North British, Wansbeck, and Allendale railways, and the weather being fine, a very large number of persons visited the show. On the close of the show it was found that the money taken at the gates amounted to 317*l.*, against 253*l.* taken last year at Cornhill.

As is always the case, the great attraction at this Show was the Shorthorn cattle; and, taking the class as a whole, a better quality of stock has never been exhibited in this country. In the aged class there were 10 bulls shown, and so excellent were they all that the judges had to take a long time to decide as to their merits. The 1st prize, and also the silver cup, was awarded to Mr. Saunders' "Edgar," an animal which has not only gained 1st prizes in Cumberland and Westmoreland, but also took the 2d prize at the Royal Agricultural Society's Show at Manchester. The 2d prize was won by Mr. J. C. Bowstead's "Flag of Britain," which was commended at the Royal Agricultural Society's Show; and the 3d prize was given to Mr. G. Head's bull, which took the 2d prize at Cornhill last year, and the 3d at the Highland Society's Show at Edinburgh. A bull belonging to Mr. W. Linton, although it has previously won no less than ten 1st and three 2d prizes, and also two silver cups, was only highly commended here; and a bull shown by Mr. R. Harrett was not noticed at all, although highly commended at the Manchester show. Of young bulls there were only five entries, and all were good. Messrs. Cattley & Radcliffe's "The General" took the 1st premium, while the 2d was awarded to Mr. Newton's "Ace of Trumps," which took the 1st prize at the Durham County Show at Bishop-Auckland this year, and which last year, as a bull calf, took the 2d prize at Cornhill, and the 1st prize, and also a silver cup, at the Tyneside show at Durham. Bull calves were well represented both in quality and number. Sixteen cows were shown, the 1st premium being awarded to Mr. Booth's celebrated "Lady Fragrant," and the 2d, and also the silver cup, to Mr. W. Lambert's "Splendour." Mr. Linton's "Lady Valentine," which has won eleven 1st and three 2d prizes, and also a silver cup, was highly commended. The Galloway cattle were a splendid lot, more especially the aged bulls. Of the eight aged bulls entered, there could be no doubt that the 1st prize, and also the silver cup presented by Mr. Thomas Wilson, of Shot Hall, was fairly won by Mr. Graham's animal, which has been shown on seven occasions, each time taking a 1st prize, including the 1st prize at the Royal Show at Manchester, and the Highland Show at Edinburgh. The 2d prize was won by Mr. W. Keir's animal, which was 2d at Manchester, and 3d at Edinburgh. Of the sheep, it is impossible to speak too highly. Border Leicesters were well represented, not only in numbers, but also in excellence, some of them ranking among the finest sheep ever produced in the North. Notwithstanding the general excellence of the aged rams shown, the judges had not much difficulty in awarding the 1st prize to one belonging to the Rev. W. Bosanquet, one of the most celebrated breeders of sheep in the country, and, who, with the same animal, took the 1st prize at the Highland Show. The 2d prize was given to Messrs. Dinning for a ram, which took the 1st prize at Manchester, and the 2d at the Highland Show. There was a very large number of shearling rams entered, and so excellent were they all, that the judges commended the whole class. Messrs. Dinning and Mr. J. Angus won the 2d and 3d prizes with animals which were highly commended at Manchester. The pens of five ewes comprised several of the best lots of sheep that possibly could be shown; and, as a proof of the excellent quality, it may be stated that one lot which have won several prizes, were here passed over unnoticed. The pens of gimmers comprised only four entries, but all good stock. Mr. George Torrance took the 1st prize with a lot which were 1st both at Manchester and Edinburgh, and the 2d prize was awarded to Mr. J. Angus, who took the 2d prize at Manchester. Messrs. Dinning's lot, which were 1st at Manchester, were on this occasion only highly commended. The Leicesters were, so far as regarded numbers, poorly represented. Mr. Thomas Elliott took all the 1st prizes, excepting one won by Mr. Thomas Welsh. The black-faced mountain sheep were a good lot. The horses were an excellent show, more particularly those for agricultural purposes. On previous occasions speakers at the annual dinner of this Society have urged upon the agriculturists of Northumberland the necessity of improving the breed of horses, and the same was done at this meeting; and should the advice be acted upon, there can be no doubt that future shows of the Northumberland Society will hold as high a position for all descriptions of horses as it now does for Shorthorn cattle. The horses exhibited have, in several instances, won prizes at other shows. The smallest class of animals in the showyard were the pigs, and all the prizes in this class have been carried away by breeders from the South. There was an excellent show of wool, and among the prize-takers is Mr. Angus, who, whenever he has exhibited wool, has never been beaten. The implements occupied a large portion of the show-ground. *Abridged from the "Newcastle Daily Journal."*

ROYAL DUBLIN SOCIETY'S HORSE SHOW.

If there are fewer horses in Ireland at present than there were some years ago, we think even the most incorrigible grumbler must have been convinced, if present in Kildare Street this week, that, in point of quality, there is no falling off. It would be difficult to put together anywhere 452 such animals as those which the Royal Dublin Society accommodated on its somewhat too limited premises during the past week; and it was gratifying to observe a marked improvement in most classes—with one decided exception—but particularly in the hunter sections. It is quite evident that the Dublin horse shows are destined to effect a vast amount of good in the country; and for this reason we hold that the Royal Dublin Society is worthy of all honour for the spirited manner in which it has taken up a subject of so much importance to Ireland as the improvement of that description of horses for which this country has long been famous.

The entries in the different classes were, as we have stated, 452; being about 100 above the Society's show of last year, and exceeding also in number the show at Islington, and the remarkably well filled horse department at the Manchester meeting of the Royal of England, which numbered 384 entries.

In the class of thorough-bred sires there were 17 entries, all very superior horses, and well "calculated to improve and perpetuate the breed of sound and stout thorough-bred horses, weight-carrying hunters, and horses for general stud purposes." The 1st prize in this important section was awarded to General Hess, the property of his Excellency Earl Spencer. General Hess is a chestnut horse, 12 years old, and is by Nabob out of Lady Alice. He is a horse of great power, not very stylish, perhaps, but still a good horse throughout. As a racehorse he has been very fortunate, and scarcely less so as a show horse, having been 1st in his class at the Islington show of last year, and well placed at other exhibitions of a similar kind. We understand that Lord Spencer has given the use of him gratuitously since bringing him over, and that henceforth he is to stand in the Palmerston stud. The second horse in the section was the property of a county Down tenant-farmer—namely, Mr. Thomes Lindsay, Derryboy, Killyleagh. Pathfinder, Mr. Lindsay's horse, is a handsome, stylish animal, which more than deserved the place of honour accorded to him. He was the 1st prize horse at the recent show of the North-East Society, and is by Thormanby, out of the dam of Thunderbolt. He was bred by Lord Feversham, and is now five years old. Mr. Benjamin Dickson, Gilford, Co. Down, took the 1st prize in the class of thorough-bred sires calculated to get carriage, troop horses, or roadsters, with Strood, an aged chestnut horse of a good sort. Mr. M'Court showed his well-known and useful and aged sire Mallet in this section, and Mr. Pallin's Port Royal, a well-bred imported horse, was much admired. Neither of these, however, notwithstanding their undoubted merit, were placed. The entries in the section of half-bred sires were all rejected by the judges.

We now come to the most interesting class of all—the hunters, of which there was a splendid display, and if the judges did not give altogether that satisfaction in their decisions which was expected, the extremely difficult nature of their task must plead their excuse. Possibly, those who objected most would have found themselves equally in a fix if placed inside the ring and engaged on a similar duty; but in judging at shows as well as in other matters, on-lookers frequently see things which those whose attention is closely devoted to the matter may be apt to overlook. Weight carriers, not less than five years old, and equal to 14 stone and upwards, came first under review; the 1st prize being awarded to his Excellency the Lord-Lieutenant's Drummer, a 6-year-old chestnut gelding, bred by Mr. Hannigan, county Limerick. The Drummer is a clean-made, handsome horse, and has good action. Mr. Connolly's well-known Shawn Ruagh was placed 2d, with honourable mention of Mr. Taafe's Tiptop, Mr. Meredith's Cadamstown, the 2d prize horse of last year, and Mr. Walker's Whipper-in.

The next section was composed of hunters equal to from 12½ stone to 14 stone, and not less than 5 years old. Lieutenant Stubber, 1st Royals, took the 1st prize in this section with a very handsome grey gelding, bred by Mr. Burton Persee, and got by Mr. Allan Pollok's Audubon. Mr. F. King's Waverley was put 2d, and a great brown horse, Planet, belonging to Mr. Jonathan Bruce, was highly commended. Planet was a great favourite with the outsiders, and had formerly proved his quality, having been 1st in his section at the show of last year. Lord Coventry showed his appreciation of him, by purchasing him for Lady Coventry, at the handsome figure of 300*l.* Mr. Youell's 5-year-old chestnut gelding was put 1st in the section of hunters equal to from 11 stone to 12½ stone; a very nice chestnut mare belonging to Mr. French, Ardsallagh, being 2d.

Earl Spencer's prize cup for the best horse or mare in the 1st and 2d sections of hunters, and of young horses suitable for hunters, was awarded to his Excellency's own horse, The Drummer, which we have already noticed. Since the awards were made, however, a change has taken place in this and the other prizes which fell to Earl Spencer, in consequence of his Excellency having in the handsomest manner directed all the prizes he won to be otherwise disposed of. This graceful act on the part of Lord Spencer can hardly fail to be warmly appreciated on all hands.

Lord Spencer took 1st prize in the class of ladies' horses with his stylish bay gelding Phylee; Miss Ada Turbett, Owenstown, Dundrum, being the owner of the mare which was placed 2d.

A number of excellent weight-carrying cobs and roadsters stood in the Shelbourne Hall, conspicuous among which were Mr. Harding's cob and Mr. Wilson's Cupid.

It is impossible to speak too highly of the brood mares, and the best evidence of the truth of this is found in the fact that the judges specially commended both sections. Mr. Connolly, M.P., Sir Percy Nugent, Bart., Mr. Fitzpatrick, Naas; Major Smith, Annesbrook; Mr. Richard Walsh, Saggard; Mr. R. G. Cosby, and Mr. Robert Bodkin, County Galway, were the owners of the mares which were placed by the judges. The unusual excellence of this class bodes well for the future.

We have hinted that in one department matters were not as they ought to have been; and we regret

to say that the failure took place in the class of agricultural stallions. Of these there were three entries in one section, while the other was a blank, and the three which did come forward were all rejected by the judges. Nor was this state of things from any lack of encouragement. Besides the prizes given by the Royal Dublin Society, a splendid 50*l.* challenge cup was presented by the Royal Agricultural Society of Ireland for the purpose of being awarded "for such pure bred agricultural stallion as may be considered most desirable for improving the breed of draught horses in this country." Owing to the rejection of the horses entered for competition, the cup remains with the Society until next year, when we trust a better claim will be put in for it. The section of agricultural fillies and mares contained, however, some very fair animals, to which awards were made as given in the prize list. The Society, we observe, still continues to offer a prize for the best Spanish sire ass, although it is rarely claimed, and on this occasion the section was blank. *Abridged from the "Irish Farmer."*

BIRMINGHAM HORSE SHOW.

The fourth annual meeting of this Society has been held this week, and the success which attended it has been even greater than the previous shows. The entries of animals on this occasion were 304, an increase of 54 over last year, and of 71 over 1867. The character of the animals, too, indicated a considerable improvement in the appreciation of these shows by exhibitors; for it was evidently understood that it was useless to send anything that was not really good, or passably so. There were no really bad and "half-middling" animals present on this occasion.

Of thoroughbred stallions for getting hunters there were 10 entries, and 9 present. These were "The Hadji," sent by Mr. Naylor, of Kelmarsh Hall, Northamptonshire; "Ivanhoff," by Mr. Griffiths, Marle Hill, Cheltenham; "Stockinger," by Mr. Stephens, Bucknell, Salop; "Amusement," by Mr. Westley Richards, of Birmingham; "Dalesman," the most admired horse of the year, by Major Barlow, of Hasketon, Suffolk; "Redoubt," by Mr. H. Brown, of Monkton, Wiltshire; Mr. Manning's "John Halifax," Mr. Gregory Watson's "Distin," and "The Czar," the property of Fowler Boyd Price, Esq., Newton Lodge, Monmouth. The 1st prize was awarded to "Dalesman," the strong and elegant chestnut, which was 1st in the recent Lincolnshire meeting, and 2d to the American bred trotter, "Shepherd T. Knapp," in Yorkshire, the week after. The 2d was given for "Amusement," a weedy animal; "Ivanhoff," which was 1st two years ago, and 2d to "Motley" last year, being passed over for 3d, "Redoubt" being favoured with that honour.

The hunting classes were a most excellent collection. The grand old bay, "Sprig of Nobility," a horse renowned for taking prizes, was awarded the 1st in the aged class. He is now the property of Major Stapylton, of Helperby, York. Mr. McIntosh's "St. Clare," also a well-known horse, was 2d, and "Grafton," Mr. Berridge's, of Banbury, was placed 3d. Last year "Mountain Dew" was 1st at this show; the best horse here, however, was undoubtedly Major Barlow's "Topstall." A more accomplished style of moving could not well be possessed; and greater strength in closer compass is seldom seen. In regard to his physique "Topstall" may be taken as a model horse. It is not to be wondered at, therefore, that he has carried all before him at the several shows where he has been. Here he of course took the 1st in his class, and he was also awarded Mr. Westley Richards' 10 gs. cup for the best hunter. In London he took the 1st in his class, the value of the prize being 50*l.*; in Essex he took 20*l.*; in Suffolk 20*l.*; in Norfolk 30*l.*; and at the Royal the 1st, also 30*l.* Thus, during this, his first season of appearing in public, "Topstall" has been awarded prizes to the value of 190*l.* 10*s.* In the class for hunters under 15½ hands, Mr. Westley Richards was awarded the 1st for anything but a taking chestnut, particularly when the good horses by his side are taken into consideration. The 2d prize, Mr. Corbet's, of Dumbleton, Mr. Humphrey's "Acrobat," a fine old chestnut, and Mr. McIntosh's dark brown perfect moving "Voltigeur," were all far before the 1st prize in quality, style, and appearances.

The 4-year-old hunters were an exceedingly good class. Mr. Richards was, however, again 1st with a high-bred but far from promising bay. Major Stapylton's strong and staid well-moving chestnut, stood, walked, and galloped like a hunter in every respect. "Chieftain," the property of Mr. Jennings, and Mr. Berridge's "Shamrock" likewise appeared in most promising form.

The two and 3-year-old colts and fillies were few, and they did not attract much attention.

The hacks, roadsters, and cobs, were a capital collection. In the former, Mr. Bromley Devonport, M.P., sent a remarkably handsome 7-year-old bay, "Extravagance" by name. Mr. Barker's "Bird-on-the-Wing," a black 6-year-old, and 15 hands 2 inches high, was placed 1st. Mr. Cook's "Beauty," a brown mare, is worthy her name, as well as the 2d prize. In the class between 14 and 15½ hands, Mr. James Hornsby's celebrated animals stepped in to compete. These are "Sambo" and "Beda," a beautiful grey mare to look at and ride. The Yorkshire men the week before last gave the prize against "Sambo," and to the grey mare. This shows how the tastes of men differ, for here are a pair of animals which have always been shown together, and one set of judges have preferred the high-stepping showy action of "Sambo," while other judges have admired the quick but easy and elegant style of the thoroughly-good "Beda." Here the Yorkshire judgment has been confirmed, and the first honour is conferred on the grey mare "Beda."

In the harness horses, Mr. Hornsby's "Sambo" and "Beda" were shown as a pair. The prize, however, was awarded to a fine pair of bright bays, sent by Mr. Holmes, of Beverley. Several capital hackneys were sent from the town and neighbourhood of Birmingham. A very elegant chestnut was sent by Messrs. Burbridge & Taylor, of Bradford Street, Birmingham; Mr. Joseph Gillman, of Lancaster Street, sent a very good-looking light brown hackney; Mr. Sanders, of Leamington, sent "Peggy," a very clever brown; and Mr. Kent, of Spencer Street, Birmingham, sent "Polly," a remarkably elegant dark brown aged mare. Major Stapylton had a splendid 8-year-old grey, both as regards appearance and free and fast action.

The ponies were divided into three classes, and a more excellent collection of the various sizes which come under this head we never saw.

The stock cobs and ponies had among them two pure grey Arabs, sent by Mr. Clayworth, of Spilsby, Lincolnshire. One of these was very beautiful, and the 1st prize was awarded for him. His reserve price is 300*l.*, and the charge for his use 3 gs. When we say "King Arthur," the perfect pony which won the 1st prize at Leicester last year, was 2d to the Arab, it will be concluded that the judges had a deservedly high opinion of the Arabian animal.

The dray-horses were but few, and some of the older ones were ridiculously over-fed.

"Honest Tom," the best horse in England, was among the agricultural stallions, and he, of course, took the 1st prize. Mr. Manning, of Orlingbury, Wellingborough, Northamptonshire, took the 2d and 3d prizes with "Hercules" and "Black Prince."

The arrangement and management of the show was very creditable to the secretary, Mr. Lythall, and all the authorities of the Bingley Hall establishment. The adoption of a card and elastic band for showing the number of each horse on the hat or arm of the rider or leader, was a great convenience, and we hope other societies will follow so cheap and effective a practice. For it often happens that the figures are so small or put so close together, that, even if a card be on each side of a bridle, it is next to impossible to distinguish the number unless the horse is standing still, and can be closely approached.

Judges.—J. Cookson, Esq., Neasham Hall, Darlington; J. E. Bennett, Esq., Husbands Bosworth Grange, Rugby; J. Topham, Esq., The Hemplow, Welford, Rugby; J. E. Welby, Esq., Barrowby, Grantham; C. Randell, Esq., Chadbury, Evesham; Mr. J. Swale, Saredon, Wolverhampton.

Veterinary Referee.—Mr. E. Stanley, M.R.C.V.S., 35, Islington, and Pershore Street, Birmingham.

Reviews.

Occasional Papers on Veterinary Subjects. By William Dick, Founder and Principal of the Edinburgh Veterinary College, &c. With a Memoir by R. O. Pringle, Editor of the "Irish Farmers' Gazette." W. Blackwood & Son, Edinburgh and London.

In his day and generation the late Professor Dick made his mark; and in the future his name will be remembered in association with this institution of the Edinburgh Veterinary College, of which he was the founder; and the obtainment of a Charter of Incorporation, in which he was prominently concerned.

As an author Mr. Dick was but little known; beyond writing occasional articles in agricultural and veterinary journals, he did nothing to add to the literature of his profession; what he did produce, however, was always characterised by that keen appreciation of the practical and disregard of the theoretical, which eminently distinguished the writer. From his early associations perhaps he was only safe in the region of facts; when he reasoned speculatively he usually arrived at a conclusion directly opposed to one which had been previously deduced from the same premises. His most ardent admirers concentrated their praises in the assertion of his pre-eminence as a practical, never as a scientific man.

Accordingly in the book before us we find a collection of articles which are principally records of the author's observations rather than of his opinions; and as exact and well-defined descriptions of diseases of horses and other animals which came under the writer's notice they are valuable. Mr. Dick's strong bias in favour of the real led him to oppose the idea of a mysterious origin of disease. We see this tendency exemplified in several of his papers, especially in those upon "Foot-rot in Sheep," and "Non-contagious Nature of Epizootic Diseases." Writing of the causes of foot-rot, the author remarks, at p. 95:—"The hoofs of sheep, being intended to receive a degree of friction from hard surfaces, are not acted upon when the animal is placed under such circumstances, and the necessary consequence is an overgrowth of the hoof. The crust—the part naturally intended to support the weight of the animal, and to endure the greatest share of fatigue—is here allowed to grow out of all due bounds, because the softness of the pasturage upon which it now moves presents little, if any, of that rough friction to which the feet of the animal is naturally intended to be exposed. The crust, therefore, grows unrestrained, until it either laps over the sole, like the loose sole of an old shoe, and serves to retain and accumulate earth and filth, or is broken off in detached parts, in some cases exposing the quick, or opening new pores, into which particles of earth or sand force their way, until, reaching the quick, an inflammation is set up, which, in its progress alters or destroys the whole foot."

Again, at page 105, he alludes to the prevalent idea of the infectious character of the disease in the following ironical terms:—

"The plague is now known not to be so infectious as it was once thought to be, but the foot-rot will still infect the most extensive domains. The Upas tree may annihilate the existence of all that comes within its pestiferous shade, but what is that to the infection of the foot-rot, when a single sheep will contaminate a mountain? Nay, it will act even upon parts devoid of vitality; and such, too, is the eccentricity of its action, that it will allow its neighbouring toe to escape, and still infect the whole ground.'

In the paper upon the "Non-contagious Nature of Epizootic Disease," the same instructive aversion to the "infection theory" is uppermost, but, in his zeal to accumulate evidence, the writer is most unfortunate in his choice of illustrations.

At page 209, in reference to the most infectious of animal diseases, foot-and-mouth complaint, he writes:—

"Its sudden appearance and rapid subsidence soon proved that it was not propagated by contagion, for when a flock of sheep, or a herd of swine, or a byre full of cattle, was attacked, it generally affected the whole of the animals in a night's time; all seemed attacked at once, the disease being similar to the eruption about our lips from exposure to cold, called herpes. It occasionally, however, attacked only one side of a byre, and in other cases almost every alternate cow in the byre became affected, while the others escaped. The disease spread over a great part of the country, but after a time gradually disappeared, its chief injury having been throwing back in condition those animals it attacked, and, in the case of sheep producing a species of foot-rot, gradually detaching their hoofs."

Pleuro-pneumonia is next alluded to:—

"When pleuro-pneumonia followed, it was confidently declared by some that it was the result of the previous murrain, and that it also was highly contagious; very few, however, who have any knowledge of the disease practically, now believe in its contagious character. It has, however, prevailed to a very great extent, and for a number of years, as an epizootic, and I have no doubt will continue for a considerable time, unless proper means are adopted for its prevention. But what, it will be asked, are these means? Will not a careful separation of the diseased from the healthy do this? Will not a strict quarantine prevent its being communicated to healthy animals? I think not, because it is not, and has not been proved to be, contagious, as I shall endeavour to show."

Lastly, that nothing might be wanting to crown the argument, our author endeavours, in a criticism of Professor Simonds' report on the cattle plague in Gallicia, to counteract the belief of the infectious nature of this malady. In reference to the origin of the rinderpest, he writes, at page 225:—

"What were the circumstances? I say the want of proper food! Remove the cause and the effects will cease. Had the authorities ordered and enforced the importation of proper food, and given it to the animals, I have no doubt the disease would have subsided. No attempts, however, are made to effect a cure; it is considered so highly contagious that it is thought that the only way to prevent the spread of the disease is to kill all the cattle that come in contact with a diseased one, and hence the number of victims are enormously increased."

Further, at page 230:—

"I think it must appear that the rinderpest and the disease I have noticed correspond; and as nothing like contagion has produced it in this country, neither can we be satisfied that it is so produced on the Continent; and I believe that it will ultimately be found to arise from causes similar to those prevailing here, and that we have a much safer guarantee against its being brought to this country than either the wholesale slaughter of the cattle, or the cordons drawn round localities where the disease may have appeared."

The Professor lived long enough to see, in the progress of the plague in his own country, a practical commentary on his argument.

A considerable portion of the volume is filled with the "Proceedings in the Edinburgh Veterinary College;" and a memoir of the author of the Veterinary Papers, followed by a list of graduates of his college. By these additions the size of the work is increased, while its interest, except for the Professor's personal friends, is not enhanced.

The Veterinary Papers will well repay the time spent in their perusal, and they will lose nothing in a second edition if they shall be disassociated from their present connection with a record of private and professional feuds belonging to a past period.

Farm Memoranda.

Yorkshire.—The pleasant prospect of the early part of July is far from being borne out. Around Driffield it is reported that the Wheat ears are very imperfectly filled. In the neighbourhood of Thirsk the same deficiency is prevalent, and the crops greatly mixed with smut. Tidings from various districts of the county confirm the above statements, and point to the conclusion that a poor yield is inevitable.

Hampshire and Berkshire.—A fair estimate may now be made of the probable yield, which, from blight and insufficient and imperfect plant and ear, is somewhat under last year's produce on the thin hill and cold vale land; a partial blight is also prevalent on the heavier crops of the deep loams, but not to any serious extent. Barley is about an average, but blighted where it has been late sown on thin soils. Oats are an average crop; Beans, above an average; Peas and Vetches, infested with maggot, but still an average; hay crop, above an average; Swedes, Mangels, and Turnips are safe for a large yield.

Eastern Counties.—The weather has been unfavourable for harvest operations. A report from Bungay, in Suffolk, states Wheat to be below an average. The weather has also been very unpropitious about Debenham, in the same county. Farmers complain both of quantity and quality in Crowland, Lincolnshire, in the case of Wheat, but Oats and Barley are reported good. Around Kettering, North-

amptonshire, harvest is reported to be three weeks later than last year. Average 7 to 8 bushels less in the Wheat crop. Barley and Oats are said to be good.

The Poultry Yard.

We have from numerous correspondents inquiries as to the best kind of duck to keep. At first there would seem to be but one answer,—the Aylesbury. Such would have been the unhesitating reply a few years since, when the Rouen ducks were rarely met with, and were sometimes called Roan ducks. The little black favourite, that is, blessed or cursed, as the case may be, with more names than any other domestic bird, was really a scarce bird, and was seldom called twice by the same name. In one place Buenos Ayrean (and we think properly), then East Indian, Labrador, Jamaica, black velvet, and even Botany Bay ducks. It was difficult to say what duck it really was; and even now the question of its original habitat is an open one. We believe the originals came from South America. In developing the various breeds of poultry introduced from abroad, we have never been content with them as they came to us. We create our own standard and breed up to it; on the whole, we think successfully. The Buenos Ayrean or black duck, as introduced some thirty years since, was very small, very symmetrical; a shy, clever little bird, readily taking wing, and in bulk not much bigger than a widgeon. For some years it was to be found almost exclusively in private parks, and then one or two hens were seen in the variety class at Birmingham. Their direct contrast in colour to the Aylesburys and white Call ducks speedily found them admirers and purchasers, many of whom at once set to work to improve the size of the birds. The beauty of the breed and the richness of colour then fell off much. Fortunately some few amateurs kept to their original ideas respecting them; and the breed is now a flourishing one, very popular, and deservedly so, with those who can give their birds a good range.

Who has not seen a troop of young ducks slug hunting in a meadow or garden after a summer storm? and who would care to be slug or frog in their way? The black ducks excel in this sort of chase; and we know of more than one place where, with river and meadow range, a goodly flock of them is made nearly or quite self-supporting. Those who have eaten them do not soon forget them. A really pretty roast on table, plump and round in shape, with a very deep cut in the breast; meat rather deep in colour, but succulent and full of gravey. On the whole it is an excellent bird to keep, and where, in the poultry yard or on the lake, stock is selected with an eye to effect as well as utility, our little friend with many names has a high claim to a place.

The Aylesbury duck is more or less familiar to every one. Even to those who know little and care less about poultry it is a reminiscence of the poetry of their early days, when it figured as the Nemesis of the unlucky frog who went a-wooing. It is one of the few branches of poultry stock that has (in some districts at least) been fairly tried and worked for real trade and market purposes, and well it has answered. To those who breed absolutely for market, and are prepared to make business of it, we advise the Aylesbury as a good and profitable duck to keep. Select birds hatched in the spring as your breeding stock, and do not give them the absolute range and liberty that we recommend for the variety previously noticed. A real duck pen is a useful building on any farm, and its internal arrangements are so simple and portable that any house may be adapted to them, or the fittings all removed in a few minutes when not wanted for the ducks. The floor may be of hard earth, gravel, or clay. It should be kept covered with straw. The divisions in it should be two or more, according to the number and condition of the ducks kept. The breeding birds require most room, and will repay any extra care and attention that is bestowed upon them. They like three or four hours' liberty in the day, half an hour or more in the pond in the early morning, an hour of basking in the middle day, and just a little turn out in the afternoon or dusk. When the ducks are expected to lay, this latter exercise may be omitted; and care must be taken that, when heavy with egg, they are not allowed to go to the water lest they drop their egg when there. The fatting ducklings do not require much space; the amount necessary may be judged by the birds themselves. They require enough to enable them all to get comfortably to the trough from which they are fed, and then when their appetites are satisfied they want space to lie down altogether. Where there are two sets of ducks in the same house it should be divided into four pens; and these pens are made by simple board partitions, which slide in and out by grooves, or fasten in any other way that may be preferred. The height or the divisions need not be more than 3 or 3½ feet. The ducks, when well done, will lay in November. The ducklings hatched at Christmas are ready for Leadenhall by the end of February or beginning of March, when their value ranges from 10*s.* to 13*s.* the couple. This price is a common one, in the month of March, for choice ducklings from Aylesbury and its surrounding villages.

The choice of the best duck is an *embarras de richesses*, for of the two breeds already noticed we have had to speak favourably, and of the Rouen all that we know is good. That which we are uncertain about is the time at which the breed was introduced into this country. Since then, however, the breed has been so much improved that we think the average Rouen ducks of this country might be shown against those of France and beat them on any point. Yet, now and then, we find across the Channel a yard of birds in which the old type is preserved, and the specimens are grand. Unfortunately such are very rare; and as formerly in Crèvecœurs, later in Houdans, and now in ducks, with every chance of breeding to perfection, the French entirely neglect colour, consequently the big common duck of the country is commonly mated with the pure bird, and its produce sold or consumed as Rouen *race pûr*.

Calendar of Operations.

August.—*Oat harvest* operations differ very little in many respects from those of Wheat harvest in the cutting, stooking, and stacking. There are in the southern counties a few exceptions, where Oats, like Barley, are left in the swathe, and turned and stacked. But the greater bulk of the crop is bound up in sheaves. Like Wheat, it is cut when raw, or before the crop is dead ripe, for the sake of the corn and straw and also to avoid shaking, to which it is liable, more especially the Potato and Poland varieties. When allowed to become dead ripe the loss by shedding the plumpest of the grain during the cutting, either by scythe or reaping machine, in bright sunny weather, is hardly credible, while in high winds the half, and sometimes more than the half, is shaken out; but when cut at the proper time this loss is obviated. In many respects the crop is more easily harvested than either Wheat or Barley, and less liable to injury from rainy weather. But from the nature of the straw it is more liable to heat in the stack, and hence requires to be stacked drier, or with less natural sap than Wheat. The sheaves should (be rather small than large, and rather loosely than tightly bound, more especially if the season is a wet one, for when the sheaf is large and bound tight, and then gets soaked to the heart by rain, it swells and becomes so tight at the band as not to dry readily until unloosed and spread out to the weather. This is more especially the case if the straw is dead ripe when cut. When cut raw and in the stook for a day or two, the sheaf becomes looser at the band than when newly bound; and, although soaked afterwards, it does not become so tight and impervious to drying weather as when dead ripe and bound up tight. On some soils the crop stands better up to the weather than on others, and a heavy crop when thick is perhaps more liable to be laid and twisted about in all directions than Wheat—a state which presents many difficulties in the way of cutting and stooking, for rough stooks are always more liable to injury from rain and to be blown over by gusts of wind, than when the straw lies straight in the sheaf. When cut with the scythe, little difficulty is experienced in cutting round the lying beds, so as to lay the corn straight for gathering, binding, and stooking, but it is otherwise with the reaping machine, which must go through and through. But the reeling up and raking contrivances now in use make surprisingly good work, when the corn is thus laid; indeed it is often better than what is done by careless or awkward hands with the scythe.

Stooking and Stacking.—Oats when clean, clear in the straw, and a standing crop, are easily bound and stooked, and the sheaves stand nearly as well in the stook as do those of Wheat; but, generally speaking, the straw is softer and the sheaf more liable to bend and "double" (as it is sometimes termed) at the band. But much of this liability arises from breaking the straw in the middle in the cutting and gathering. Thus the cradle on the scythe, and the reels and rakes of the reaping machine, break it in bringing it round into the swathe or sheaf, and so does the hand of the gatherer when not properly educated in doing the work. By thus hurrying carelessly over the work more ground may be gone over in the cutting; but when the stooks are badly set they take longer time to dry. Therefore, when the two are put together, the balance involves a loss of time and everything else. "No more speed than good work" is a sound maxim, and applicable to the point in question, for well-set stooks practically mean "soon ready for the stack-yard." Oats are more easily stacked than any of the other kinds of white corn, as the seeds stick better together in the sheaf, and the sheaves together in the stack. The roof of the stack, whether round or straight, should be well raked down as soon as built, and the sides cut with a scythe or stack knife, no more being cut off the butts than what is necessary to make an even surface. These cuttings and rakings should be at once bound up or thrown upon the next stack loose. Some farmers object to mixing the cuttings with the sheaves on the stack, but the objection falls to the ground as worthless, for those only have grounds for objecting who cut too much off the sides; and even then the cuttings, if kept together on the stack, are no obstruction when the stack is thatched. When the stooks stand long in the field in damp weather, so that the corn in the butt end of the sheaf is damaged or sprouted, the cuttings should then be given to the pigs. But even in exceptional examples of this kind, the cutting of the outsides of the stacks should be kept up to the building, were it for nothing else than the keeping of the stackyard in a workmanlike state.

Thatching should never be allowed to fall behind, even in the best of seasons. Some farmers thatch only when they cannot carry, and they often therefore "thatch in the wet,"—a shortsighted economy, much more loss being thus sustained than it would have cost to employ hands to thatch out the wet as fast as the stacks are built. These farmers will, no doubt, say that the roof sits down, and is therefore more easily thatched afterwards. Granted: but let the roof and the thatch sit down together, and the result will be in favour of the work done, and the object for which it is done. These views apply more forcibly to Peas, Beans, and Barley, than to Oats. *W. B.*

Notices to Correspondents.

Mutton: *M.* In a Southdown carcase of 11 stones, the leg will weigh 11 lbs.; the loin, 9 to 11 lbs., according as the kidney and fat are or are not left out; the shoulder and neck about 9 lbs. each; and the breast about 4½ lbs.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, and Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, Royal Gardens, Kew, &c.

The best Shading is "Frigi Domo" Netting.

White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for

PROTECTION from the SCORCHING RAYS of the SUN.

"FRIGI DOMO" NETTING, 2 yards wide, 1*s.* 6*d.* per yard run.

"FRIGI DOMO" CANVAS.

Two yards wide .. .. 1*s.* 9*d.* per yard run.
Four yards wide .. .. 3*s.* 6*d.* per yard.
An improved make, 2 yards wide .. 1*s.* 9*d.* per yard.
An improved make, 3 yards wide .. 2*s.* 8*d.* per yard run.

"Rochford, Essex, June 4, 1869.

"Sir,—Will you be good enough to send me 50 yards of Frigi Domo, 2 yards wide, of your improved make, 1*s.* 9*d.* per yard run. You can foward it per London, Tilbury, and Southend Railway. I had some of you several years since, but have not found any substitute so good for Greenhouse and Stove Shadings.—I am, Sir, yours respectfully, "George Wood (Solicitor, Rochford).

"Mr. E. T. Archer, 7, Great Trinity Lane, Cannon Street, E.C."

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.

Horticultural Glass Warehouse.

THOMAS MILLINGTON AND CO., 87, Bishopsgate Street Without, London, E.C.

NEW LIST for ORCHARD-HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD-HOUSE SIZES.

in.	in.		4ths.	3rds.	2nds.	Best
20 by 12		15 oz.	12*s* 3*d*	15*s* 6*d*	18*s* 9*d*	18*s* 0*d*
20 by 13	Per 100 feet					
20 by 14		21 oz.	18*s* 0*d*	20*s* 0*d*	22*s* 0*d*	24*s* 0*d*
20 by 15						
20 by 16						

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7							
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½				11*s* 3*d*	12*s* 6*d*	14*s* 0*d*	15*s* 0*d*

Per 100 feet.

10 by 8	12 by 9	12½ by 10½	14½ by 10½							
10½ by 8½	12½ by 9½	13 by 10	15 by 10				11*s* 9*d*	14*s* 9*d*	15*s* 3*d*	17*s* 6*d*
11 by 9	13 by 9	13½ by 10½	13 by 11							
11½ by 9½	12 by 10	14 by 10	14 by 11							

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
15½ by 10½	14 by 12	22 by 12	22 by 16						
16 by 10	14½ by 12½	17 by 13	24 by 16						
14½ by 11½	15 by 12	23 by 13	20 by 17						
15 by 11	15½ by 12½	18 by 14	22 by 17	12*s* 3*d*	15*s* 6*d*	16*s* 9*d*	18*s* 0*d*		
15½ by 11½	16 by 12	22 by 14	24 by 17						
16 by 11	16½ by 12½	24 by 14	20 by 18						
21 by 11	17 by 12	22 by 15	22 by 18						
13 by 12	18 by 12	24 by 15	24 by 18						

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.

In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	34*s.*	4ths quality, per 200 feet case,	34*s.*
3ds " "	40*s.*	3ds " "	40*s*
2ds " "	60*s.*	2ds " "	60*s.*
Best " "	75*s.*	Best " "	75*s.*

SHEET GLASS is made only in the following substances, 15 oz. 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.

HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.

BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.

STUCCO PAINT, 24*s.* per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

WHITE ZINC PAINT, 36*s.* per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a-half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.

IMPROVED ANTI-CORROSION PAINT, 28*s.* to 34*s.* per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4*s.* per gallon.

	Per cwt.—*s. d.*		Per gallon.—*s. d.*
GENUINE WHITE LEAD	30 0	LINSEED OIL	2 9
SECONDS WHITE LEAD	28 0	BOILED OIL	3 2
GROUND PATENT DRYERS, 3*d.* per lb.		TURPENTINE	2 9
" OXFORD OCHRE, 3*d.* to 4½*d.* per lb.		LINSEED OIL PUTTY, 8*s.* per cwt.	
" RAW UMBER, 4½*d.* to 6*d.* per lb.		Fine OAK VARNISH, 10*s.* to	12 0
" BURNT do., 6*d.* to 9*d.*	[per lb.	" CARRIAGE do., 12*s.* to	14 0
GREEN PAINT, all shades,	28*s.* to 60 0	" PAPER do. 10*s.* to	12 0
BLACK PAINT,	24*s.* to 36 0	" COPAL	16 0
RED PAINT ..	28*s.* to 36 0	KNOTTING	10 0
		Patent GOLD SIZE ..	10 0
		" BLACK JAPAN ..	12 0
		GLAZIER'S DIAMONDS and TOOLS	
GROUND BRUSHES. DUSTERS. SASH TOOLS. DISTEMPER BRUSHES.		MILLED LEAD and PIPES OLD LEAD Bought or taken in exchange.	

The above are Net, for Cash, and as such cannot be booked. Lists of any of the above on application.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

GLASS for ORCHARD HOUSES,

As supplied by them to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.

Each Box contains 100 feet. The prices only apply to the sizes stated.

Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.

	16 oz. to the foot.	21 oz.
Fourth quality	15*s.* 0*d.*	.. 19*s.* 6*d.*
Third ditto	16*s.* 0*d.*	.. 22*s.* 6*d.*
Seconds	18*s.* 6*d.*	.. 26*s.* 0*d.*
English	20*s.* 0*d.*	.. 27*s.* 0*d.*

The above prices include the boxes, which are not returnable.

HORTICULTURAL GLASS.

Stock sizes, 16-oz., in 100 feet boxes, boxes included.

These prices only apply to the sizes stated.

				4ths.	3rds.	2nd.
				s. d.	*s. d.*	*s. d.*
11 by 9	12 by 9	13 by 9	14 by 9	13 6	15 6	17 6
12 „ 10	13 „ 10	14 „ 10	15 „ 10			
13 „ 11	14 „ 11	.. ..	.. ..			
14 „ 12	15 „ 12	15 „ 11	16 „ 11			
18 „ 12	19 „ 12	16 „ 12	17 „ 12			
16 „ 13	17 „ 13	20 „ 12	.. ..			
16 „ 14	20 „ 13	18 „ 13	.. ..	15 0	16 0	18 6
	17 „ 14	18 „ 14	.. ..	16 to 17 oz. to the foot.		
	20 „ 14					

SMALL SHEET SQUARES.

In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	..	12*s.* 6*d.*
8 by 6	8½ by 6½	9 by 7	9½ by 7½		
		10 by 8	10½ by 8½	..	13*s.* 6*d.*

Boxes 2*s.* each returnable at full price.

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

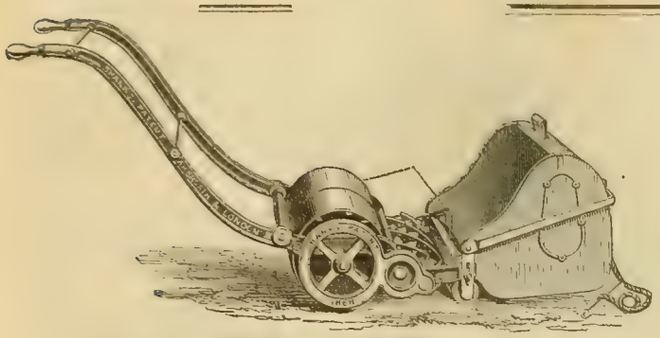
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours ground ready for use.

SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of Prices and Estimates forwarded on application to JAS. PHILLIPS AND CO., 180, Bishopsgate Street Without, E.C.

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UNDER THE PATRONAGE
OF
HER MOST GRACIOUS MAJESTY
THE QUEEN,

AND MOST OF THE
PRINCIPAL NOBILITY
OF
GREAT BRITAIN.



HAND MACHINE.

SHANKS'S PATENT LAWN MOWERS

ARE ALL FITTED WITH

PATENT DOUBLE-EDGED SOLE PLATES, WIND GUARDS, AND SELF-SHARPENING REVOLVING CUTTERS.

Advantages possessed by no other Lawn Mowers.

The unprecedented Sale of SHANKS'S LAWN MOWERS for 1868 forms the most convincing testimony of the value and success of the Improvements introduced last Season.

PRICES—INCLUDING CARRIAGE TO ANY RAILWAY STATION OR SHIPPING PORT IN THE KINGDOM.

SHANKS'S NEW PATENT HAND MACHINE.

		Easily Worked
10-inch Machine	£3 10 0	*By a Lady*
12-inch Machine	4 10 0	
14-inch Machine	5 10 0	*By a Boy*
16-inch Machine	£6 10 0	*By a Man*
19-inch Machine	7 15 0	*By a Man and a Boy*
22-inch Machine	8 10 0	*By Two Men*
24-inch Machine	9 0 0	

The Hand Machines are all with Silent Movement.

SHANKS'S NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
25-inch Machine	£12 10 0	.. .. 25*s.* extra.
28-inch Machine	14 10 0	.. .. 30*s.* ,,
30-inch Machine	15 15 0	.. .. 30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra.
Boots for Pony, 22*s.* per set.; Ditto for Donkey, 18*s.* per set.

SHANKS'S NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
30-inch Machine	£19 0 0	.. .. 30*s.* extra.
36-inch Machine	22 0 0	.. .. 30*s.* ,,
42-inch Machine	26 0 0	.. .. 40*s.* ,,
48-inch Machine	28 0 0	.. .. 40*s.* ,,

Silent Movement, 20*s.* extra. Boots for Horse, 26*s.* per set.

Every Machine warranted to give ample satisfaction, and, if not approved of, can be at once returned without any expense to the buyer.

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH; and
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27, Leadenhall Street is the only place in London where intending purchasers of Lawn Mowers can choose from a Stock of from 150 to 200 Machines. All sizes kept there, whether for Horse, Pony, or Hand Power.

GREEN'S PATENT SILENS MESSOR,

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NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT,
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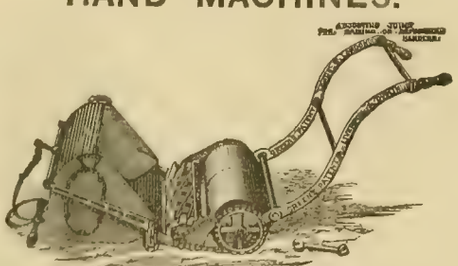
TO HER MOST GRACIOUS
MAJESTY THE QUEEN.

THE Extraordinary Success of GREEN'S PATENT LAWN MOWERS is an established fact. During the last five years the demand has been unprecedented, which alone is a proof of their superiority over all others. The following are their characteristic features:—

1st. **Simplicity of Construction, every part being free of access.**
2d. **They are worked with far greater ease than any other Lawn Mower.**
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☞ T. GREEN AND SON *warrant every Machine to give entire satisfaction, and if not approved of can be returned unconditionally.*

HAND MACHINES.



To Cut 10 inches ..	£3 10 0	*Suitable for a Lady*
,, 12 ,, ..	4 10 0	,, ,,
,, 14 ,, ..	5 10 0	*Suitable for One Person*
,, 16 ,, ..	6 10 0	,, ,,
To Cut 18 inches ..	£7 10 0	*Suitable for One Person,*
,, 20 ,, ..	8 0 0	*Suitable for Two Persons*
,, 22 ,, ..	8 10 0	,, ,,
,, 24 ,, ..	9 0 0	,, ,,

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

PONY AND DONKEY MACHINES.

To Cut 26 inches	£13 0 0	*Leather Boots for Donkey,* 18*s.* *Leather Boots for Pony,* 22*s.*
,, 28 ,, ...	15 0 0	
,, 30 ,, ...	17 0 0	

HORSE MACHINES.

To Cut 30 inches	£21 0 0	*Leather Boots for Horse,* 26*s.*
,, 36 ,, ...	24 0 0	
,, 42 ,, ...	27 0 0	
,, 48 ,, ...	30 0 0	

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England, Ireland, and Scotland.

HORTICULTURAL and AGRICULTURAL IMPLEMENTS, GARDEN SEATS and CHAIRS, FOUNTAINS, VASES, PLAIN and GALVANISED WIRE NETTING and ORNAMENTAL WIRE WORK of every description.

Having very extensive Premises in London, we are in a position to do all kinds of Repairs there, as well as at our Leeds Establishment.

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PORTABLE AND FIXED HOT-WATER APPARATUS,

FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH

TRUSS'S PATENT UNIVERSAL FLEXIBLE AND LEAKLESS PIPE-JOINTS.



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Begs to state that the immense number of APPARATUS annually Designed and Erected by him in all parts of the Kingdom, and for the ROYAL HORTICULTURAL SOCIETY at SOUTH KENSINGTON and CHISWICK, with unrivalled satisfaction, is a guarantee for skill of design, superior materials, and good workmanship; while the great advantages obtained by his IMPROVED SYSTEM cannot be over-estimated, consisting of perfectly tight joints with neatness of appearance; EFFECTS A SAVING OF 25 PER CENT. on cost of Apparatus erected compared with other systems; facility for extensions, alterations or removals without injury to Pipes or Joints; can be erected by any Gardener; an ordinary size Apparatus erected in one day; and PERFECTNESS of DESIGN SUPPLIED, INSURING NO EXTRAS. Complete Apparatus, of the best materials, delivered to any Railway Station in England, and Erected at the following prices. Erection beyond 25 miles of London, railway fare for one man additional. Considerable reduction on large works.

TWO FOUR-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
20 feet by 10 feet ..	£9 0 0 ..	£2 0 0	50 feet by 15 feet ..	£17 10 0 ..	£3 0 0
30 feet by 12 feet ..	11 15 0 ..	2 10 0	75 feet by 15 feet ..	20 0 0 ..	3 0 0
40 feet by 15 feet ..	15 0 0 ..	2 15 0	100 feet by 15 feet ..	26 0 0 ..	3 5 0

Bath and Gas Work erected in town or country. **The Trade Supplied.**

Price Lists, Plans, and Estimates forwarded on application to

T. S. TRUSS, C.E., Consulting Horticultural Engineer, &c., Sole Manufacturer,

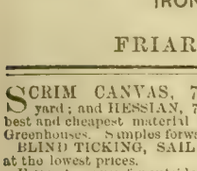
IRON MERCHANT, HOT-WATER APPARATUS MANUFACTURER,

AND HORTICULTURAL BUILDER,

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SCRIM CANVAS, 72 inches wide, from 7½*d.* per yard; and HESSIAN, 74 inches wide, at 7½*d.* per yard, is the best and cheapest material for Protecting Fruit Trees or Shading Greenhouses. Samples forwarded on application.
BLIND TICKING, SAIL CLOTH, and FORFAR SHEETING at the lowest prices.
Estimates given for outside SHOP BLINDS, fitted on the improved self-acting spring roller.
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SEED BAGS and SACKS, and BAGS of every description in use, supplied at the lowest possible prices. ARCHANGEL and TAGANROG MATS of good quality, for Covering, Tying, or Shading; also Petersburg and Prussian DUNNAGE MATS. Price-list forward d post free on application.
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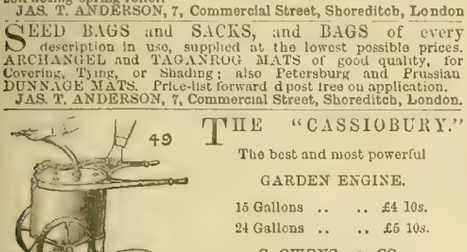
The best and most powerful

GARDEN ENGINE.

15 Gallons .. .. £4 10*s.*
24 Gallons .. .. £5 10*s.*

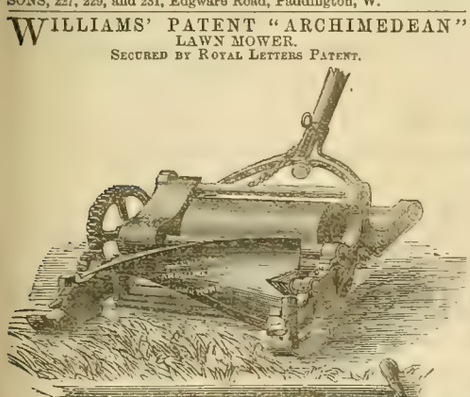
S. OWENS and CO.,
Whitefriars Street, London, E.C.

THE HYDRONETTE,
(Robins' Patent,) for Gardens, Greenhouses, Conservatories, Hotbeds, &c. Unrivalled ease of action, simplicity, convenience, and force.



The HYDRONETTE is a more useful, easy working, reliable, and convenient water-throwing machine than any other in use. It is made in five sizes, viz.:—No. 1, with 4 feet of Suction Hose, Strainer, Jet, and Rose, 12*s.* 6*d.*; No. 2, 15*s.* 6*d.*; No. 3, £1 1*s.*; No. 4, £1 5*s.*; No. 5, £1 10*s.* Extra Hose and Union Joints furnished to order. Forwarded on receipt of Post Office order. To be obtained through any Ironmonger or Florist, or of the Proprietors, HAYNES and SONS, 227, 229, and 231, Edgware Road, Paddington, W.

WILLIAMS' PATENT "ARCHIMEDEAN" LAWN MOWER.
Secured by Royal Letters Patent.



This is the only Mower extant that cuts the Grass as Nature grows it. Lawns cut exclusively with our Mower during the season will retain their fresh, green appearance; whilst those cut by other Mowers look scorched and dead, because the heart of the Grass is necessarily cut off and killed thereby. We defy all competition. Please read our circular regarding this wonderful Mower, universally used in the United States of America. We respectfully invite Gentlemen with their Gardeners to an examination. Address the Subscribers, No. 1, City Road, Finsbury Square, E.C.
WILLIAMS & CO.

GREENHOUSES for SALE, made Portable. GARDEN FRAMES and PIT LIGHTS kept in stock. Apply to J. SMITH, Hothouse Builder, 205, King Street, Hammersmith, W.

A COMPLETE SET of STEAM-PLOUGHING TACKLE, in first-rate condition, TO BE SOLD, Cheap.
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Established 1833.



HANCOCK'S INDIA-RUBBER HOSE and TUBING.
CARRIAGE, GIG, & DOG-CART APRONS.
HORSE SINGEING APPARATUS, with GAS BURNERS, and INDIA-RUBBER TUBING.
Improved INDIA-RUBBER DOOR STOPS.
WATERPROOF CART and WAGGON COVERS made any size.
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GARDEN WIRE WORK, consisting of ARCHES, BASKETS, FLOWER STANDS, &c.

GARDEN SYRINGES	4*s.* 6*d.* to 26*s.*
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GARDEN WATER BARROWS	45*s.* 0*d.* to 90*s.*
GARDEN ROLLERS	35*s.* 0*d.* to 70*s.*
GARDEN CHAIRS	6*s.* 6*d.* to 30*s.*
GARDEN SEATS..	16*s.* 0*d.* to 90*s.*
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PATENT LAWN MOWERS	70*s.* 0*d.* to 130*s.*
To cut 10 inches	£3 10 0
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Suitable for a Lady.	
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Suitable for a Man.	

William S. Burton, Furnishing Ironmonger, by appointment to his Royal Highness the Prince of Wales, has a very handsome assortment of the above on his premises.

WILLIAM S. BURTON, General Furnishing Ironmonger, by appointment to H.R.H. the Prince of Wales, sends a CATALOGUE gratis and post-paid. It contains upwards of 700 Illustrations of his unrivalled Stock of ELECTRO-PLATE and BRITANNIA METAL GOODS.

Dish Covers, Hot-water Dishes.	Clocks and Candelabra.
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With Lists of Prices, and Plans of the Twenty large Show Rooms, at 39, Oxford Street, W.; 1, 1a, 2, 3, and 4, Newman Street; 4, 5, and 6, Perry's Place; and 1, Newman Yard, London.

To Market Gardeners and Florists.

TO BE LET, on a Lease for 19 years, about 25 ACRES of good LAND, with House, Stabling, Barns, and Out-houses. Five Acres are planted with Fruit Trees; nearly 3 Acres of young Strawberry Plants will be in full bearing next season. Twenty miles from London, and near a Railway Station. Coming in, about £500.
ALPHA, 104, High Street, Notting Hill, W.

TO BE LET, at Michaelmas or Lady Day next, a SEED, NURSERY, and FLORIST BUSINESS, doing a good Trade. The Nursery is about 4 Acres, well stocked with Fruit Trees, Evergreens, Plants, &c.; with Vinery, Cucumber Houses, Plant-houses, Propagating Pits, and Offices. Every convenience; close to Town and Railway Station. The Stock to be taken at valuation, or as per agreement.—For particulars, apply to
RICHARD WILLIAMS, Esq., Corve Street, Ludlow, Salop.

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TO BE LET, the GARDENS and PREMISES on the HUMBERSTONE ROAD, within one mile of the town of Leicester, late in the occupation of Mr. George Walker, comprising about 8 Acres. Possession may be had at Michaelmas.
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TO BE LET, for a Term of years, a very useful NURSERY and GARDEN GROUND, of about 20 ACRES, with Vinery and other Houses thereon, in full operation; also a DWELLING HOUSE and SHOP, belonging thereto, at which a good Retail Business and Seed Trade is carried on. It is situated in one of the Midland Counties, and near to a First-class Railway Station.—Address to
Messrs. HURST and SON, 6, Leadenhall Street, London, E.C.

WANTED, to PURCHASE or to RENT.—To PURCHASE a Small FREEHOLD ESTATE of about 200 Acres of good Land, with a Residence, containing three Sitting Rooms and Seven Bedrooms; or to RENT a FARM of 200 or more Acres, with similar Residence and Right of Shooting. The Advertiser owns Good Stock, &c., and is a Married Man, and Desires to Apply to
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TO BE SOLD, with Immediate Possession, the LEASE, GOODWILL, and STOCK in TRADE of a West-end Nursery-man and Florist. Good Connection, and satisfactory reasons for disposal. A. B. C., 19, Grosvenor Row, Pimlico, S.W.

TO BE LET, a SMALL NURSERY and JOBBING BUSINESS, in a good situation, a few miles from London.
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AUDLEY END FLOCK.—TWENTY SHEARLING and FIVE TWO-SHEAR RAMS, of the above Flock, to be SOLD or LET by Private Treaty.—Apply to
Mr. WILLIAM RAND, Audley End, Saffron Walden, Essex.

To Nut Planters.

MR. HOOK, of Vine Cottage, Gerrard's Cross, Bucks, begs to OFFER for PUBLIC SALE, the SECOND WEEK in NOVEMBER NEXT, from 1000 to 2000 TREES of his superior SEEDLING FILBERTS, the finest bearers ever introduced.
For inspection, now until the end of August. There is about Seven Acres of them.

The Ashby-de-la-Launde Rams.

MR. CHARLES CLARKE respectfully informs his Friends and Sheep Breeders generally, that he has instructed Mr. E. LAW to LET BY AUCTION, upon his Premises, Ashby-de-la-Launde, instead of at Peterborough, Newark, and Leicester as heretofore, on THURSDAY, September 2 (Refreshment at 1 o'Clock, Sale immediately after), the whole of his valuable FLOCK of 100 superior LONG-WOOLLED SHEARLING RAMS, when he will be glad to see any Gentlemen who may favour him with their company.
Ashby-de-la-Launde is situated six miles from the Sleaford Station, where Omnibuses will meet the Train from Boston at 10.20, from Peterborough and Grantham at 10.20 and 11.40; Conveyances will also be at Navenby Station, to meet the Train from Lincoln at 10.29; returning in time for the evening Trains.

Sales by Auction.

Shacklewell, N.E.

CLEARANCE SALE of GREENHOUSE, BEDDING and STOVE PLANTS, &c.

MESSRS. PROTHEROE and MORRIS are instructed to SELL BY AUCTION, without reserve, on the Premises, The Norfolk Nursery, Shacklewell, Middlesex, on MONDAY, August 30, 1869, at 12 o'Clock, the remaining stock of GREENHOUSE PLANTS, comprising well-grown Camellias, 2 to 4 feet; a quantity of Azalea indica, about 1800 thriving young Ericas of sorts, Epacris, Pelargoniums, Acacias, Cytissus, &c.; also the miscellaneous BEDDING PLANTS, likewise a few STOVE PLANTS, a capital LIGHT SPRING VAN, GARDEN POTS and IMPLEMENTS, &c.
May be viewed two days prior to the Sale. Catalogues may be had on the Premises; of Messrs. MILLS and LOCKYER, No. 2, Brunswick Place, City Road, E.C.; and of the Auctioneers and Valuers, Leytonstone, N.E.

Sydenham, S.

HIGHLY IMPORTANT SALE OF EXHIBITION SPECIMENS OF STOVE AND GREENHOUSE PLANTS, ORCHIDS, &c.

MESSRS. PROTHEROE and MORRIS have received instructions from the Executors of the late Mr. Osman Rhodes to SELL by AUCTION, without reserve, on the Premises, the Crystal Nursery, Sydenham, Kent, on TUESDAY, September 7, at 11 for 12 o'Clock precisely, the whole of this celebrated collection of STOVE and GREENHOUSE SPECIMENS and HALF-SPECIMENS, containing many Plants of superlative merit, and consisting of Stephanotis, Ixoras, Franciscea, Allamandas, including the entire Stock (about 110 plants) of A. Griffithii, the brightest-coloured variety in cultivation; Allocasias, Dracenas, likewise splendid examples of Ericas, useful young specimens of Azalea indica, a quantity of large Camellias, chiefly Double White, many of which are 10 feet high; Pimeleas, Eriostemons, Chorozemas, Aphelexis, Epacris, Leschenaultia, several handsome Yucca aloifolia variegata; some choice Orchids, including Oncidium ampulatum majus, Cypripedium barbatum superbum, Vanda tricolor, Angulos Clowesii; a few large Tree Ferns (Dicksonia antarctica). Also, Six RHODES' NEW HORIZONTAL TUBULAR BOILERS, and Two capital EXHIBITION PLANT VANS.
May be viewed two days prior to the Sale, and Catalogues may be had on the Premises of Mrs. RHODES, and of the Auctioneers and Valuers, Leytonstone, Essex.

Elmham Hall, Norfolk.

SOUTHDOWN SHEEP, and NORFOLK RED-POLLED CATTLE.

MR. EDMUND BECK is honoured with instructions to announce that the FOURTH ANNUAL SALE and LETTING of the above STOCK, the property of and bred by the Right Honourable Lord Sondes, is fixed for WEDNESDAY, September 8 (Luncheon at 12, and the Sale will commence at 3 o'Clock), and will comprise 110 very superior SHEARLING EWES, and 50 PURE-BRED STOCK EWES, 90 EWE LAMBS, and 150 WETHER LAMBS FOR SALE; and 25 SHEARLING and TWO-SHEAR RAMS FOR LETTING; 20 HEAD of NORFOLK RED-POLLED CATTLE, including 17 HEIFERS forward in-calf, and 3 YOUNG BULLS.
The Auctioneer has much pleasure in soliciting the attendance of Breeders upon this occasion, as the quality of the stock is in every respect worthy of the high celebrity that the Elmham Herd and Flock now so eminently holds.
Elmham Station (Dereham and Wells Branch), Great Eastern Railway, is one mile from the place of Sale, and conveyances will meet all trains during the day. Trains from London at 8 A.M.; Cambridge, 10·5; Peterboro, 8·20 via Midland; Norwich, 12 noon; Lynn, 12·2, are due at Elmham 1.34.
Passenger Carriage will be attached to the Goods Train leaving Norwich at 8·30, arriving at Elmham about 11.
Catalogues can be obtained of Mr. FULCHER, Elmham Park; and of the Auctioneer, Oxwick, Fakenham, on and after August 19.

Brailes House, Shipston-on-Stour.

IMPORTANT SALE of SHORTHORNED CATTLE.

MR. STRAFFORD begs to announce that the THIRD BIENNIAL SALE of SHORTHORNS belonging to Henry J. Sheldon, Esq., will take place on FRIDAY, September 17, at Brailes House, and will consist of about FORTY HEAD of BULLS, COWS, and HEIFERS, from this famed herd, which has been judiciously bred for several years, principally from Fawsley and Kirklevington blood. The Cows and Heifers are in a healthy breeding state, and the whole will be SOLD, as in former sales, without any reserve. Mr. Strafford can with confidence recommend them to the favourable notice of purchasers.
Catalogues, with Pedigrees, may be had on application to Mr. STRAFFORD, 13, Euston Square, London, N.W.; or of Mr. SHELDON, at Brailes House, Shipston-on-Stour.

Farnborough, near Banbury.

IMPORTANT SALE of SHORTHORNS.

MR. STRAFFORD has received instructions to announce for SALE BY AUCTION, without reserve, on TUESDAY, September 21 next, at Farnborough, near Banbury, about FIFTY HEAD of PURE BRED SHORTHORNED CATTLE, consisting of Bulls, Cows, and Heifers, the property of the Rev. C. W. Holbech, which have been bred from fashionable strains of blood. The sires lately used have been Medjid (18,579), Marquis of Darlington (24,537), and 11th Duke of Oxford (19,632); 16 of the lots are by the latter Bull. The Cows and Heifers are chiefly served by him, as well as by Lord Red Eyes 2d, and Earl of Cleveland from Colonel Kingscote's and Lord Penrhyn's famed Herds. The whole are in a healthy breeding state, and can be well recommended to the favourable notice of purchasers. Great attention has been paid to dairy qualities.
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CHOICE BULBS.

MESSRS. HOOPER & CO.

BEG TO ANNOUNCE THE PUBLICATION OF THE

AUTUMN SUPPLEMENT TO THEIR GENERAL CATALOGUE,

Full of interesting subjects, besides very complete LISTS of HYACINTHS, TULIPS, NARCISSI, and all the usual Bulbs. May be had upon application.

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NOW READY, GRATIS AND POST FREE,

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AUTUMN CATALOGUE for 1869,

Containing DESCRIPTIVE LISTS of the best varieties of

HYACINTHS, TULIPS, CROCUSES, &c.

(which have been selected by Messrs. SUTTON from the leading Growers in Holland); with

COMPLETE INSTRUCTIONS ON CULTIVATION.

SUTTON & SONS, SEEDSMEN TO THE QUEEN, READING.

DUTCH FLOWER ROOTS.

JAMES VEITCH & SONS,

ROYAL EXOTIC NURSERY, CHELSEA, S.W.,

BEG TO ANNOUNCE THAT THEY HAVE RECEIVED

THEIR ANNUAL SUPPLY OF BULBOUS ROOTS FROM HOLLAND,

And are pleased to say that they are in excellent condition.

CATALOGUES are now ready, and will be forwarded Post Free on application.

J. V. AND SONS desire to impress upon those who patronise them, the great advantage of giving them their Orders early, as the successful cultivation of Bulbs depends in a great measure upon their being planted early in the season.

NEW HYBRID PELARGONIUMS,

WILLSII, and WILLSII ROSEA.

Undoubtedly the finest NOVELTIES of the season. Numerous CERTIFICATES and FIRST PRIZES have been awarded by the Royal Horticultural Society, Royal Botanic Society, &c.

J. W. WIMSETT has much pleasure in announcing that the above splendid Novelties will be ready for sending out the first week in August.

Willsii, a Guinea and a half each. | Willsii rosea, Two Guineas each.

To MR. J. WILLS. "Culford Hall, Bury St. Edmund's, June 9, 1869.

"DEAR SIR,—I was much disappointed at not seeing you at the Pelargonium Show on the 22d; I however saw your beautiful hybrid Pelargonium Willsii rosea, which ought to carry your name down to posterity—it is really a very great triumph. If you had never done anything else in the cause of Flora with the exception of effecting this cross, you would have done much more than your share. But you have done much more than this for the floricultural public, who are very much indebted to you. "I am, dear Sir, very truly yours, P. GRIEVE."

ASHBURNHAM PARK NURSERY, KING'S ROAD, CHELSEA, S.W.

July 21. J. WILLS, F.R.H.S., Manager.

Early Spring Feed.

SUTTONS' IMPROVED ITALIAN RYE-GRASS.
The best and most productive in cultivation.
TRIFOLIUM INCARNATUM (Italian Crimson Clover.)

SUTTON AND SONS can supply NEW SEED of the above invaluable Forage Plants, which should be sown during August and September to produce early Spring and Summer Feed. Samples and lowest prices per quarter and cwt., on application to
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The Forwardest Turnip,
and BEST for PRESENT SOWING KNOWN, is
SUTTONS' SHORT-TOP SIX-WEEKS. Lowest price per bushel on application.
This excellent Turnip, if sown in August, will produce a heavy Crop, to come off in time for Wheat Sowing.

SUTTON AND SONS,
Royal Berkshire Seed Establishment, Reading.



Hardy and other Bedding Plants.

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	Per doz.—s. d.		Per doz.—s. d.
Dactylis glomerata elegantissima	4 0	Pansy, Cliveden Yellow ..	3 0
Echeveria metallica, 6s. to	30 0	,, Great Eastern ..	3 0
,, pumila ..	9 0	,, Imperial Blue ..	18 0
,, secunda glauca	9 0	Pachyphytum bracteatum	12 0
Lithospermum prostratum (fruticosum)	9 0	Sempervivum californicum	4 0
Pansy, Cliveden Blue ..	3 0	Tritoma grandis	12 0
,, ,, Purple ..	3 0	,, uvaria glaucescens	9 0
		Viola lutea semperflorens	4 0
		,, cornuta alba	4 0

Special quotations may be had, if required, for the above, and many other kinds, by the 100, or in larger quantities.
Exotic Nursery, Tooting, Surrey, S.W.

Fine New Hardy Clematises,
TO BE SENT OUT IN SEPTEMBER, 1869.

GEORGE JACKMAN AND SON are prepared to book orders for their two following NEW CLEMATISES, that they can warrant as distinct, vigorous, and abundant flowering as those varieties which have already obtained such general approbation.

CLEMATIS LADY BOVILL (First-class Certificate Royal Horticultural Society).—"Width of the petal is greater than its length, which causes it to be very slightly cupped, resembling a somewhat expanded Tulip, while its colour (a greyish blue) marks its distinctness."—*Floral Magazine.*
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CLEMATIS MAGNIFICA (First-class Certificate Royal Botanic Society).—This is one of the most hardy and vigorous growing varieties of the Woking Hybrids. The colour is purple, suffused with a strong crimson shading over the whole surface of the flower, making it very attractive.
"The petals of which are barred with Turkey red."—*Gardeners' Chronicle.*

21s. each, or three plants, viz., one C. Lady Bovill and two C. magnifica, for 45s. A few extra strong plants, 31s. 6d. each.
A Coloured Drawing (by Andrews) of C. Lady Bovill can be had by enclosing 12 stamps, or Circular, giving "Opinions of the Press," with engraving, for one stamp.
The usual allowance to the Trade.
Woking Nursery, Surrey.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)
Have now ready for delivery, in fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES.
Also Genuine PERUVIAN GUANO, and NITRATE of SODA ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c.
E. PURSER, Secretary.
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Autumn Sowing.

ODAMS'S NITRO-PHOSPHATE or BLOOD MANURE for WHEAT.—This Manure, specially prepared for Autumn Sowing, is rich in Ammonia, Phosphates, and other ingredients required for the healthy growth of Grain Crops. Analysis of Blood and the grain of Wheat show that they are nearly identical in composition, hence the value of Blood as an ingredient in Manure. It may be applied at the rate of from 3 to 4 cwt. per acre, according to the condition of the soil, either drilled with the seed or sown broadcast; if the latter, it should be well harrowed in. Prepared by the Patent Nitro-Phosphate or Tenant-Farmer's Manure Company, whose Members are Cultivators of upwards of 50,000 acres of land, which has been for years under management with Manures of their own manufacture; consequently the Consumer has the best guarantee for the genuineness and efficacy of the Manures manufactured by this Company.
Particulars will be forwarded upon application to the Secretary, or may be had of the Local Agents. C. T. MACADAM, Sec.
Chief Offices, 109, Fenchurch Street, London, E.C.; Western Counties Branch, County Chambers, Exeter; Irish Branch, 40, Westmoreland Street, Dublin.

Weeds Eradicated from Lawns.

WATSON'S LAWN SAND, sprinkled upon Lawns, rapidly destroys Dandelions, Daisies, Clover, Rib-grass, &c., and at same time promotes the growth of Grass. 28s. per cwt.; 4d. per lb.
May be ordered through any respectable Seedsman, or direct from Agent, W. D. BARBOUR, 5, East Parade, Leeds.

MASTIC L'HOMME LEFORT (the new French Cold Grafting Wax), indispensable for Budding, Grafting, Healing, Stopping Bleeding, &c. In tins, 6d., 1s., 2s., 4s., and 6s., of all Seedsmen, and
HOOPER AND CO., Covent Garden Market, London, W.C.

PAUL'S HYACINTHS, TULIPS, &c.

"The best and fullest account of this Plant (the Hyacinth) which I have met with is by a famous Horticulturist, Mr. PAUL, of Waltham Cross."—DARWIN'S *Animals and Plants under Domestication.*

WILLIAM PAUL

BEGS TO ANNOUNCE THAT HIS

HYACINTHS, TULIPS, CROCUSES, AND OTHER DUTCH FLOWER ROOTS

Have just arrived in excellent condition, and he respectfully solicits early orders for the same.

In proof of the quality of Bulbs imported by him, he begs to refer to his Annual Exhibition in the Royal Horticultural Gardens in March and April, which has been visited by Her Most Gracious Majesty the Queen, Her Royal Highness the Princess of Wales, and several other Members of the Royal Family.

PRICED DESCRIPTIVE CATALOGUE FREE BY POST.

PAUL'S NURSERIES AND SEED WAREHOUSE, WALTHAM CROSS, LONDON, N.

Editorial Communications should be addressed to "The Editor." Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by JAMES MATTHEWS, at the Office of Messrs BRADBURY, EVANS & Co., Lombard Street, Precinct of Whitefriars, City of London, in the Co. of Middlesex, and Published by the said JAMES MATTHEWS, at the Office, No. 41, Wellington Street, Parish of St Paul's, Covent Garden, in the said County.—SATURDAY, August 21, 1869.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 35.—1869.] SATURDAY, AUGUST 28. {Price Fivepence. {Stamped Edition, 6d.

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NOTICE to ADVERTISERS.—In answer to constant inquiries, the Proprietors have fixed the following SCALE of CHARGES for ADVERTISING:—

	s.	d.
All Advertisements connected with Gardening or Agriculture, four lines	3	0
Each additional line	0	6
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Advertisements extending across two or three columns, or Block Advertisements, according to Contract.

Post Office Orders payable to JAMES MATTHEWS, at the Post Office, King Street, Covent Garden, W.C.

BRIGHTON and SUSSEX FLORAL and HORTICULTURAL SOCIETY'S GRAND EXHIBITION of PLANTS, FRUITS, and CUT FLOWERS, will be held at the Royal Pavilion and Eastern Lawn, on September 8 and 9. Prizes are offered on the same liberal scale as former years. Schedules on application to the Secretary, 96, St. James Street; or E. SPARY, Superintendent of the Exhibition, Queen's Graperies, Brighton.
EDWARD CARPENTER, Secretary.

RAMSAY TESTIMONIAL.—A few Gardening and other Friends, on hearing of the loss which Mr. RAMSAY (late Foreman at Messrs. Veitch's) sustained by robbery (his house having been broken into and a considerable sum of money and other articles having been stolen), decided on raising as much as would cover his loss. Up to the present time £20 10s. has been received. Friends who have promised to contribute will oblige by making Post-office Orders payable to Mr. D. CUNNINGHAM, Moor Park, Rickmansworth, Herts, which will be forwarded in due course.

NOTICE.—I respectfully beg to inform my Friends and the Public that, in consequence of the Death of my Son, I have taken the Business at 7, Borough Market, on my own account, under the style or Firm of JAMES FAIRHEAD AND SON, as heretofore carried on by me in connection with him. I am determined to supply only Genuine, Unadulterated SEEDS, from carefully-selected Stocks, at moderate Prices, with liberal discount for cash.
JAMES FAIRHEAD.
JAMES FAIRHEAD AND SON, Growers and Seed Merchants, 7, Borough Market, London, S.E., Importers of Dutch Bulbs, Grass Seeds in Sorts or Mixed, suitable for Permanent Pastures or Lawn.

To the Trade.—Seedling Rhododendrons.

G. FARNSWORTH has to offer a large quantity of 3-yr. SEEDLING RHODODENDRONS. Prices and samples on application at The Nurseries, Matlock.

ALLAMANDA HENDERSONI SYNO WARDLEIANA. Good plants 7s. 6d. each, strong plants, in flower, 21s. each.
T. JACKSON AND SON, Nurseries, Kingston, Surrey.

NEW RAPE SEED.—Samples and quotations of the above forwarded post free on application to
CHARLES SHARPE AND CO., Seed Merchants, Sleaford.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY (Limited),
CORN, SEED, MANURE, AND OILCAKE MERCHANTS.
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

New English Sowing Rape Seed.

H. AND F. SHARPE have fine Samples of NEW RAPE SEED, which they can offer to the Trade at low figures. Price and samples on application.
Seed Growing Establishment, Wisbech.

EVERY GARDEN REQUISITE KEPT in STOCK at
CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

A SPECIAL PRIZE MEDAL, PARIS, 1867, was AWARDED to JAMES CARTER & Co., 237 & 238, High Holborn, London, W.C., for GRASS SEEDS, supplied for the Exhibition Grounds.

GRASS SEEDS: WHEN and WHAT to SOW.—For the fullest information on this subject, see CARTER'S ILLUSTRATED FARMER'S CALENDAR for 1869; post free, 6d.
JAMES CARTER AND CO., Seed Growers, 237 and 238, High Holborn, London, W.C.

PARIS, 1867. | SUTTONS' GRASS SEEDS for ALL SOILS. A PREMIER PRIX SILVER MEDAL for GARDEN SEEDS, GRASSES, and GRASS SEEDS, was Awarded to SUTTON AND SONS, SEEDSMEN to the QUEEN, Reading, Berks.

Suttons' Permanent Grass Seeds for All Soils.

SUTTON AND SONS are now prepared to execute orders for their MIXTURES of PERMANENT PASTURE GRASSES and CLOVERS for AUTUMN SOWING. For prices and full particulars apply (stating the nature of the soil to be laid down) to SUTTON AND SONS, Seedsmen to the Queen, Reading.

Bromus Schrœderi.

SUTTON AND SONS can supply SEED of the above valuable FORAGE GRASS at 1s. per lb.; much cheaper by the cwt. August and September are good months to sow. 20 lb. and upwards sent free by rail. Sow 50 lb. per acre in drills 9 or 10 inches apart. Royal Berks Seed Establishment, Reading.

Dutch Flower Roots, &c.

B. S. WILLIAMS' CATALOGUE of HYACINTHS, TULIPS, CROCUSES, NARCISSUS, and other Spring-flowering Bulbs; also FRUIT TREES, ROSES, &c., is now ready, post free to all applicants.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

Arrival of Bulbs.

BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.
CATALOGUE containing much additional valuable information now ready, and on application sent free to the Readers of the *Gardeners' Chronicle*. BULBS for Early Flowering now ready to send out, of first-class quality.

Dutch and other Bulbs.

WM. CUTBUSH AND SON are celebrated for HYACINTHS, TULIPS, CROCUSES, and other DUTCH BULBS. At the Great Prizes, including the Two Special Prizes offered by the Dutch Growers, awarded to their Collections again last Spring. They import only ONE QUALITY, therefore Customers may rely upon having the finest Bulbs. CATALOGUES post free.
Highgate Nurseries, London, N.

Dutch Flower Roots.

FRANCIS & ARTHUR DICKSON & SONS, have received from the most celebrated Growers in Holland their first large importation of the above, and have the satisfaction to say that the Bulbs are large, sound, and well ripened. Early orders respectfully solicited. DESCRIPTIVE PRICED CATALOGUES post free on application.
The "Old" Established Seed Warehouse, 106, Eastgate Street, Chester.

New Catalogue of Dutch Bulbs, Plants, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select Descriptive and Priced Lists of Amaryllis, Crocuses, Cyclamens, Gladioli, Hyacinths, Liliums, Narcissus, Tulips, and other Bulbs, Miscellaneous Plants, Fruit Trees, Sweet Violets, &c., is now published, and will be forwarded to applicants.—Exotic Nursery, Tooting, Surrey, S.W.

BULBS, AZALEAS, CAMELLIAS, RHODODENDRONS, &c.
The NEW PRICED CATALOGUE (English) of BULBS and other CHOICE FLOWER ROOTS is now ready and may be had post free on application, either to LOUIS VAN HOUTTE, or his Agents, Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.
The ANNUAL DESCRIPTIVE CATALOGUE (English) of AZALEAS, CAMELLIAS, RHODODENDRONS, &c., is in the printer's hands, and will be sent post free as usual.
N.B. Just published, the first three Numbers of the 18th Volume of "FLORE DES SERRES," embellished with 27 fine Coloured Plates and numerous Woodcuts. For prospectus, &c., see Catalogues.
LOUIS VAN HOUTTE, Royal Nursery, Ghent.

Paul & Son's Roses Now in Bloom.

PAUL AND SON, The Old Nurseries, Cheshunt, invite an inspection of the ROSES, GLADIOLI, HOLLYHOCKS, FRUIT TREES, and other hardy growths, now in excellent condition. The Forty or Fifty First Prizes taken this season for Roses bear witness to their thorough cultivation at Cheshunt. No plants in the country can be finer. Thirteen Trains from Bishopsgate to Cheshunt; the 8 A.M. and 4 P.M. *via* Waltham and Omnibus to nursery gates.

Established 1806.

T. HANDASYDE AND DAVIDSON have a large stock of TEA, HYBRID PERPETUAL, BOURBON, and CHINA ROSES in pots. Special prices to the Trade on application.
Seed Warehouse, 24, Cockburn Street, Edinburgh.
Nurseries, Brunstain Glen, Musselburgh.

Paul's Roses.

"Mr. PAUL's Roses * * * are things to see once and dream of for ever."—*Athenæum.*
WM. PAUL begs to announce that his ROSES are NOW in BLOOM. Inspection respectfully invited. Trains from London, Bishopsgate Station, to Waltham, Great Eastern Railway, 13 times daily.
PAUL'S Nurseries & Seed Warehouse, Waltham Cross, London, N.

Gladioli—New Roses.

EUGÈNE VERDIER Fils Ainé, NURSERYMAN, 3, Rue Dunois, Paris, publishes in August and September of each year complete and descriptive CATALOGUES, with prices. They comprise all the finest and newest varieties of Gladioli, Pæonies, and New Roses. Gratis and post free on application.

IVIES, IVIES.—Twelve of the most distinct, variegated, tricolor, and other Ivies grown, package included, for 10s. 6d.
WM. DILLISTONE, Nurseryman, &c., Sible Hedingham, Essex.

SPIRÆA PALMATA. This magnificent plant is now being distributed for the first time in Europe. Good plants at 21s. each
CHARLES NOBLE, Bagshot.

Extra Choice and Prize Flower Seeds.

DOBSON'S PRIZE CALCEOLARIA, 1s. 6d., 2s. 6d., 3s. 6d., and 5s.
DOBSONS' PRIZE CINERARIA, 1s., 2s. 6d., and 5s.
DOBSONS' PRIZE PRIMULA, 1s., 2s. 6d., and 5s.
Supplied in sealed packets by 300 of the leading Seedsmen, and by JOHN DOBSON AND SONS, Woodlands Nursery, Isleworth, W.

GOLDEN FEATHER.—As this plant has thoroughly proved itself to be the greatest bedding acquisition that has been sent out for many years, H. CANNELL begs to remind all lovers of the garden that now is the best time to sow.
It comes perfectly true from seed, such seedling plants stood all last season, and were the admiration of all throughout the winter and spring. 300 seeds for 13 stamps.
New Florist Flower and Florist Flower Seed Merchant, Woolwich.

Seeds Direct from the Growers, the most Effectual Means of Preventing Disappointment.

SUTTON AND SONS, SEED GROWERS, deliver their Home-grown Seeds, Genuine as Harvested, to all parts of the kingdom. Carriage free (except very small parcels).—Prices and full particulars on application.
SUTTON AND SONS, Seed Growers, Reading.

New and Choice Seeds of 1869 Growth.

CHARLES TURNER can now supply the following, all of his own saving and from his unrivalled Collections:—

	Per pkt.	s.	d.		Per pkt.	s.	d.
Auricula Stage		2	6	Pelargonium, Fancy Vars.		2	6
,, Alpine		1	6	,, Tricolor	,,	2	6
Cineraria		2	6	,, Variegated	,,	2	6
Calceolaria		2	6	,, Zonal	,,	1	0
Cyclamen		1	0	Primula sinensis fimbriata			
Pansy		2	6	rubra		2	6
Pelargonium, Show Vars.		2	6	,, alba		2	6

Vines.

JAMES CARTER AND CO. can now offer strong, well-grown CANES, this year's growth. For description of Varieties and Prices, see AUTUMN CATALOGUE now published.
JAMES CARTER AND CO., Seedsmen and Nurserymen, 237 and 238, High Holborn, W.C.

Vines.

PAUL AND SON have to offer unusually fine plants this season. Fruiting and Planting CANES of GOLDEN CHAMPION, MRS PINCE, and all leading kinds.
The Old Nurseries, Cheshunt, N.

Vines.

CHARLES TURNER has to supply
GOLDEN CHAMPION,
MADRESFIELD COURT,
BLACK MUSCAT,
In Fruiting Canes, Strong Rooted Eyes, and Young Plants, of the above well-established old Varieties, at Moderate Prices.
The Royal Nurseries, Slough.

To the Trade.

MRS. PINCE'S MUSCAT VINE, Planting Canes, 6 feet, 42s. per doz.
CLEMATIS STANDISHII, very strong, in pots, 7s. per 100.
H. P. ROSES, in pots, good sorts, our own selection, 50s. per 100.
ROSES, New, of this season, in pots, 18s. per doz.
HEDERA MACULATA and H. MACULATA LATIFOLIA, extra strong, in pots, 60s. per 100.
CATALOGUES of General Nursery Stuff on application to
G. BAKER AND SON, American Nursery, Bagshot, Surrey.

Grapes, Grapes, Grapes.

FOR SALE, the FRUIT of several large VINERIES, stocked with the choicest assortments.
Apply to Mr. SCOTT, Manager, Stermongers, Rudgwick, Sussex.

Golden Champion Grape.

OSBORN AND SONS can supply good CANES of the above-named remarkable GRAPE, which has again been exhibited and very much admired, fully sustaining the high character previously formed of it. Price 10s. 6d., 21s., and 30s. each.
Fulham Nursery, London, S.W.

THOMSON'S WHITE LADY DOWNE'S GRAPE.—Plants of this, the latest-keeping White Grape in cultivation, will be sent out in September; price 21s. and 42s. each; strong fruiting canes, 63s. each.
THOMAS METHVEN, Leith Walk Nurseries, Edinburgh.

Pines.

B. S. WILLIAMS has all the best kinds, in splendid condition, warranted clean. Prices on application.
B. S. WILLIAMS, Seed Merchant and Nurseryman, Upper Holloway, London, N.

FRUITING PINES, clean and strong, in No. 4 Pots, of the following kinds:—QUEEN, BLACK JAMAICA, and MOSCOW QUEEN.
JAMES TAPLIN, Seedsman, High Street, Uxbridge.

Strawberry Plants.

CHARLES TURNER is now prepared to supply strong plants of all the leading kinds. DESCRIPTIVE LIST may be had on application.
The Royal Nurseries, Slough.

Strawberry Runners.

JAMES CARTER AND CO. have a splendid Stock now ready. For Prices and Varieties, see AUTUMN CATALOGUE, now published.
JAMES CARTER AND CO., Seedsmen and Nurserymen, 237 and 238, High Holborn, W.C.

TO GENTLEMEN, GARDENERS, and OTHERS, having to DISPOSE of CHOICE FRUIT or FLOWERS, &c. They may meet with a ready Sale by applying to
A. IRETON, Covent Garden Market, W.C.

Suttons' Fresh Imported Flower Roots.

SUTTONS' AUTUMN CATALOGUE for 1869 is now ready, and may be had gratis and post free.
SUTTON AND SONS, Importers, Reading, Berks.

Hardy Fern Catalogue (No. 13).

J. IVERY AND SON will be pleased to forward their NEW PRICED LIST of the above upon receipt of two postage stamps. Dorking.—August 21.

British Fern Catalogue.

ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, Sidcup Hill, Kent.

HOOPER AND CO., SEEDSMEN'S SUNDRIES MEN, IMPORTERS, and SEED MERCHANTS.
The NEW TRADE PRICE CURRENT for 1869-70 now published, and may be had on application.
HOOPER AND CO., Covent Garden, London, W.C.

Now Ready, Post Free to all Applicants.

B. S. WILLIAMS' CATALOGUE of NEW and RARE PLANTS, 1869, containing the most beautiful and select of the latest introductions and Supplementary Lists of the General Collection.
Victoria and Paradise Nursery, Upper Holloway, London, N.

WM. FOSTER, NURSERYMAN, &c., Stroud, Gloucestershire, has now the pleasure of offering new seed of MYOSOTIS DISSITIFLORA, true, 1s. 6d. and 3s. 6d. packets; also transplanted plants, 3s. per dozen; and a few strong ones, each of which will divide into six or nine, 2s. each, free by post.

To the Trade.

PRIMULA SEEDS (New Seeds now arriving).—Hayes' superb fringed, new double flowered, new scarlet, and other colours, all of the finest possible quality. Prices on application. Retail packets for present sowing, 2s. 6d. and 5s. each. All colours and sorts separate.
HOOPER AND CO., Seed Merchants, Covent Garden, London, W.C.

WANTED, from 1000 to 3000 GERANIUM CUTTINGS.—Mrs. Pollock, Lady Cullum, and other leading varieties.—State price per 1000 to
GEORGE WARD, Lynn Road, Walsoken, Norfolk.

New Nosegay Geranium Charley Casbon.

CASBON AND SON are now sending out the above beautiful GERANIUM. It is of dwarf spreading growth; the flowers, which have broad petals, are freely borne in immense trusses. Colour, the richest scarlet of any variety known. Strong plants 5s. each. The usual allowance to the Trade.
Gravel Walk Nursery, Peterborough.

Indestructible Terra Cotta Plant Markers.

MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c. MAW AND CO., Benthall Works, Broseley.

LABELS, LABELS.—PARCHMENT or CLOTH LABELS.—Tree or Plant Labels, punched parchment, 4 inches long, 4s. per 1000; or 1000 for 3½s., cash on delivery. Sample Label sent on receipt of a postage stamp. Orders delivered free in London by JOHN FISHER AND CO., Label Works, Boston, Lincolnshire.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their REDUCED PRICES as follows:—

PROPAGATING GLASSES.



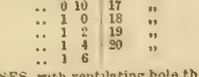
	Each.—s. d.		Each.—s. d.
2 inches in diameter ..	0 3½	12 inches in diameter ..	1 9
3 " " ..	0 4½	13 " " ..	2 0
4 " " ..	0 6½	14 " " ..	2 6
5 " " ..	0 6½	15 " " ..	3 0
6 " " ..	0 8	16 " " ..	3 6
7 " " ..	0 10	17 " " ..	4 0
8 " " ..	1 0	18 " " ..	5 0
9 " " ..	1 2	19 " " ..	6 0
10 " " ..	1 4	20 " " ..	7 0
11 " " ..	1 6		

BEE GLASSES, with ventilating hole through knob.

4 inches in diameter ..	0s. 6d.	9 inches in diameter ..	1s. 8d.
5 " " ..	0 8	10 " " ..	2 0
6 " " ..	0 10	11 " " ..	2 6
7 " " ..	1 1	12 " " ..	3 0
8 " " ..	1 4		

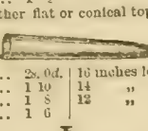
Either flat or conical tops.

CUCUMBER GLASSES.



24 inches long ..	2s. 0d.	16 inches long ..	1s. 4d.
22 " ..	1 10	14 " ..	1 2
20 " ..	1 8	12 " ..	2 6
18 " ..	1 6		

HAND GLASSES, WITH OPEN TOPS.



	Each.—s. d.		Each.—s. d.
12 inches ..	6 6	18 inches ..	9 6
14 " ..	7 6	20 " ..	10 6
16 " ..	8 6	22 " ..	11 6
		24 " ..	12 6

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS. PAINTS of various colours ground ready for use.

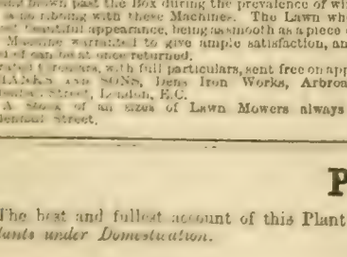
SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of Prices and Estimates forwarded on application to JAS. PHILLIPS AND CO., 180, Bishopsgate Street Without, E.C.

SHANKS'S PATENT LAWN MOWERS for 1869. The Patent Improvements recently introduced give SHANKS'S MACHINE

Several important advantages possessed by no other Lawn Mower. PATENT DOUBLE-EDGED SOLE-PLATE, WIND-GUARD, &c.

The unprecedented Sale for 1868, notwithstanding the Dryness of the Season, forms the most convincing testimony how much these advantages have been appreciated.

ALEXANDER SHANKS & SON beg to intimate that, among all the Exhibitors of Lawn Mowers at the Paris Exhibition, they are the only Firm to whom the Jury awarded a Medal. The Silver Medal then awarded is the highest Prize ever given at any Exhibition for Lawn Mowers.



ALEXANDER SHANKS & SON have for some time past been making the Revolving Cutter of their Machines Self-Sharpening—that is, with Steel on both Sides of each Blade, so that when the Cutter becomes blunt by revolving one way, it can be reversed, thus bringing the opposite or sharp edge of the Cutter to act against the Sole-Plate. In addition to this, A. S. & Son now make the Sole-Plate or Bottom Board of their Machine with Two Edges—one in front as usual, and one in reserve at the back; when the front edge gets worn down, the plate has only to be unscrewed and the unused edge brought to the front. It will be seen at a glance that this arrangement enables the cutting parts to last twice as long as in other machines, where the single-edged Sole-plate must be entirely renewed when the edge is worn down.

A Wind-Guard has also been introduced to prevent the Mown Grass being blown past the Box during the prevalence of wind.

There is no rubbing with these Machines. The Lawn when mown has a most beautiful appearance, being as smooth as a piece of velvet.

Every Machine warranted to give ample satisfaction, and if not approved of can be at once returned.

Illustrated Prospectus, with full particulars, sent free on application.

A. SHANKS AND SONS, Iron Works, Arbroath; and 37, Leadenhall Street, London, E.C.

*** A Stock of all sizes of Lawn Mowers always kept at 37, Leadenhall Street.

Look to your Grass Lands.

JAMES CARTER AND CO.'S RENOVATING MIXTURE of GRASSES and CLOVERS SHOULD NOW BE SOWN. This Mixture is specially prepared to suit the various soils, and consists of the most desirable kinds *to produce a Permanent Pasture of first-class quality* on old decayed Pastures and other lands *that have suffered through the extreme dryness of the past season.* 9*d.* per lb., or 80*s.* per cwt.

CARTER'S "PRIZE MEDAL" PASTURE GRASSES for FORMING NEW MEADOWS, mixed to suit all Soils, from 21*s.* to 32*s.* per acre. Special low quotations for quantities on application to

JAMES CARTER AND CO., Seed Farmers, 237 and 238, High Holborn, London, W.C.



The Forwardest Turnip,
and BEST for PRESENT SOWING KNOWN, is
SUTTONS' SHORT-TOP SIX-WEEKS. Lowest price per bushel on application.

This excellent Turnip, if sown in August, will produce a heavy Crop, to come off in time for Wheat Sowing.

SUTTON AND SONS, Royal Berkshire Seed Establishment, Reading.



KENT FIBROUS PEAT, of first-class quality, for all Potting purposes, and American Plants, may be obtained on application to Mr. THOMAS JESSOP, Farningham Wood, near Sevenoaks Junction Station (Dartford), price 5*s.* per cubic yard, dispatched per London, Chatham, and Dover Railway, in trucks of 16 yards, for most Stations in the kingdom. It has been extensively used and appreciated in the principal Nurseries and Royal Parks and Gardens.

APPLEBY'S GENUINE TOBACCO PAPER, in 2lb. and 4lb. packets. Testimonials too numerous for insertion.

Price on application to HENRY APPLEBY (Foreman to Messrs. Ivery & Son, Nurserymen), Dorking, Surrey.

The Cheapest and Best Insecticide.
DUTY-FREE TOBACCO.
BY HER MAJESTY'S ROYAL LETTERS PATENT, AND BY PERMISSION OF THE HON. BOARD OF CUSTOMS.

POOLEY'S TOBACCO POWDER, for the Prevention and Destruction of Blight and other Diseases in Plants.
Sold by Nurserymen, Seedsmen, and Florists,
In Tins at 1*s.*, 2*s.* 6*d.*, and 5*s.*
Powder Distributors, 2*s.* 6*d.* and 3*s.* 6*d.* each.

"I find it exceedingly useful for killing the Aphides on Roses and other Plants."—GEO. EYLES, Superintendent, Royal Horticultural Gardens, South Kensington. May 7, 1868.

Sole Manufacturer, T. A. POOLEY, Bonded Warehouse, Sussex Wharf, Wapping, E.



Red Spider — Magnified.

GISHURST COMPOUND.

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.*

Wholesale by
PRICE'S PATENT CANDLE COMPANY (Limited),
Battersea, London, S.W.

SCRIM CANVAS, 72 inches wide, from 7½*d.* per yard; and HESSIAN, 74 inches wide, at 7¾*d.* per yard, is the best and cheapest material for Protecting Fruit Trees or Shading Greenhouses. Samples forwarded on application.

BLIND TICKING, SAIL CLOTH, and FORFAR SHEETING at the lowest prices.

Estimates given for outside SHOP BLINDS, fitted on the improved self-acting spring roller.

JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London.

SEED BAGS and SACKS, and BAGS of every description in use, supplied at the lowest possible prices. ARCHANGEL and TAGANROG MATS of good quality, for Covering, Tying, or Shading; also Petersburg and Prussian DUNNAGE MATS. Price-list forward d post free on application.

JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London.

Alba multiflora, Pink.

J. WADSON is now sending out this excellent large white forcing PINK (which gained a First-Class Certificate at the Royal Horticultural Society, South Kensington, May 4, at the Floral Committee), at 7*s.* 6*d.* per pair; 5*s.* per pair when 12 or more are taken. See *Gardeners' Chronicle* and "Gardeners' Magazine," May 8, 1869. A remittance from unknown correspondents. Post Office Orders payable at Hammersmith.

J. WADSON, Florist, Wellesley Avenue, Hammersmith, Middlesex.

Dutch Flower Roots.



JOHN AND CHARLES LEE have just received their usual large importation of HYACINTHS and other DUTCH ROOTS, in fine sound condition, for which they hope to be favoured with early orders. CATALOGUES post free on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

Choice Seeds for Present Sowing.

B. S. WILLIAMS can with confidence offer the following, as being the finest in cultivation:—

	Per pkt. s. d.
PRIMULA (Williams' superb strain), red, white, or mixed, 2*s.* 6*d.*, 3*s.* 6*d.*, and	5 0
CALCEOLARIA (Neill's extra choice strain), 2*s.* 6*d.*, 3*s.* 6*d.*, and	5 0
CINERARIA (Weatherill's choice strain) 2*s.* 6*d.*, 3*s.* 6*d.*, and	5 0
CYCLAMEN (Wiggins' prize strain) 1*s.* 6*d.*, 2*s.* 6*d.*, and	3 6
ECHEVERIA METALLICA	2 0
HOLLYHOCK, from the finest varieties	1 0
PANSY, from prize flowers	1 0
" finest Belgian varieties	1 0
POLYANTHUS (Wiggins' prize strain) .. .. 1*s.* and	1 6
STOCK, EAST LOTHIAN, 3 colours separate	2 6
VIOLA LUTEA (yellow flowered Violet) .. .. 1*s.* and	1 6
WALLFLOWER (Saunders' fine dark variety)	1 0

*** All the above are in sealed packets. None genuine unless they bear B. S. WILLIAMS' name and address.

Victoria and Paradise Nurseries, Upper Holloway, London, N.

New Strawberry, William James Nicholson.

WILLIAM LAWRENSON begs to offer to the Public, after August 25, plants of the above excellent Strawberry at 10*s.* per dozen, described as under by Dr. Roden, page 69, in "Hogg's Year Book, 1869:"—"Foliage brightish green, plant healthy and hardy; fruit large, conical, and occasionally flattened obovate; colour darkish glossy red; flesh white, juicy, rich, and piquant." Also by Mons. F. Gloede, in "Journal of Horticulture," August 13, 1868:—"This is a very large, handsome, late kind, of beautiful appearance, and of the richest flavour, quite distinct from any we already possess."

Fine plants now ready of all good varieties at reasonable prices, amongst which are Dr. Hogg, 7*s.* 6*d.* per 100; Sir J. Paxton, President, Comte de Zans, great cropper; Premier, La Constante, at 5*s.* per 100.

All orders must be accompanied by a remittance.

N.B. All W. L.'s Strawberries are grown in strong clay.

Eaglescliffe, Yarm, Yorkshire.

Fine New Hardy Clematises,
TO BE SENT OUT IN SEPTEMBER, 1869.

GEORGE JACKMAN AND SON are prepared to book orders for their two following NEW CLEMATISES, that they can warrant as distinct, vigorous, and abundant flowering as those varieties which have already obtained such general approbation.

CLEMATIS LADY BOVILL (First-class Certificate Royal Horticultural Society).—"Width of the petal is greater than its length, which causes it to be very slightly cupped, resembling somewhat expanded Tulip, while its colour (a greyish blue) marks its distinctness."—*Floral Magazine.*

"The more novel tints of light mauve and greyish blue."—*Gardeners' Chronicle.*

CLEMATIS MAGNIFICA (First-class Certificate Royal Botanical Society).—"This is one of the most hardy and vigorous growing varieties of the Woking Hybrids. The colour is purple, suffused with a strong crimson shading over the whole surface of the flower, making it very attractive.

"The petals of which are barred with Turkey red."—*Gardeners' Chronicle.*

21*s.* each, or three plants, viz., one C. Lady Bovill and two C. magnifica, for 45*s.* A few extra strong plants, 31*s.* 6*d.* each.

A Coloured Drawing (by Andrews) of C. Lady Bovill can be had by enclosing 12 stamps, or Circular, giving "Opinions of the Press," with engraving, for one stamp.

The usual allowance to the Trade.

Woking Nursery, Surrey.

Drumhead Cattle Cabbage.
THE HEAVIEST OF ALL AGRICULTURAL CROPS.

SUTTON AND SONS can supply the IMPROVED DRUMHEAD CATTLE SEED at 4*d.* per oz., or 2*s.* 6*d.* per lb. It will be remembered that remarkably fine specimens of the above were exhibited on Messrs. Suttons' stand at the last Smithfield Club Show. Sow in August and September.

SUTTON AND SONS, Seed Growers, Reading.

Early Spring Feed.

SUTTONS' IMPROVED ITALIAN RYE-GRASS. The best and most productive in cultivation.

TRIFOLIUM INCARNATUM (Italian Crimson Clover.)

SUTTON AND SONS can supply NEW SEED of the above invaluable Forage Plants, which should be sown during August and September to produce early Spring and Summer Feed. Sample and lowest prices per quarter and cwt., on application to

SUTTON AND SONS, Seedsmen to the Queen, Reading, Berks.

ARTHUR HENDERSON & CO.'S

AUTUMN CATALOGUE OF DUTCH FLOWER ROOTS,

Containing complete LISTS of HYACINTHS and other BULBS, ANNUALS, and a select LIST of VEGETABLE SEEDS for Autumn Sowing; also the best GRAPES and STRAWBERRIES in cultivation; FRUITS and a Summary of lately (new) introduced Plants in the Stove, Greenhouse, and Decorative Summer Garden.

PINE APPLE PLACE, MAIDA VALE, W.

PAUL'S HYACINTHS, TULIPS, &c.

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The Gardeners' Chronicle.

SATURDAY, AUGUST 28, 1869.

Those who may have had any lingering doubts as to the feasibility of what is now generally known as Subtropical Gardening, at least so far as the southern parts of England are concerned, would surely be convinced, by an inspection of Mr. Gibson's arrangements at Battersea Park for the present year. In a season singularly unpropitious—remarkable at once for the persistence and endurance of its cold easterly winds, for its general low night temperature, and for the absence of anything like the usual set-in summer heat—the success proves to be as indubitable as it has been in more congenial seasons. Indeed we doubt if the Battersea Subtropical Garden has ever looked better and more effective than it is at the present time, thanks to good soil, well-devised shelter, and the judicious bottling up of all available sun-heat.

We do not propose to enter on a description of the features presented by this remarkably successful piece of gardening under difficulties—for such the outdoor culture of plants from tropical or subtropical climes must ever be. Battersea Park has grown far too comprehensive for this to be done within reasonable limits. We shall endeavour the rather to indicate a few of its most striking present features, and to point out some of the most effective materials now employed.

Foremost in novelty and attractiveness are certain low beds carpeted with distinctly coloured foliage. In one most strikingly beautiful bed, 30 feet long by 6 feet wide, we have three rectangular masses of the golden-leaved Pyrethrum, which are bordered and connected by a broadish band of the rosy-tinted Alternanthera amœna, the outer mass being made up of the orange-tinted Alternanthera paronychioides major. The effect is excellent, and equally pleasing whether seen from a distance or examined closely. Another contiguous bed is filled with the same kinds of plants, but differently arranged. Here there are two diamond-shaped masses of Alternanthera paronychioides major, bordered and connected by a broad band of Alternanthera amœna, which in addition is made to form a cross band at the centre and a trefoil figure at each end, the whole outer mass being the golden-leaved Pyrethrum, edged with a line of Echeveria secunda. In another part of the grounds occur a pair of elongated carpeted beds, consisting of a series of circles of the silvery Antennaria tomentosa, Alternanthera amœna and Teleianthera versicolor being disposed in a scroll-like band around them, while the outer part is filled with Alternanthera paronychioides, with a most effective border formed of a single line of Echeveria secunda, which latter, with Sempervivum californicum, and one or two other succulents of similar character, appear frequently in similar positions. These carpet beds are all gems in their way.

Another remarkably effective spot, and one to which Mr. Gibson has this year made considerable additions, is what he designates most appositely as Alpine Point. The ground is thrown up in imitation of mountain scenery, and two "snowy" peaks covered with the white-leaved Antennaria are seen peeping up above the surrounding scenery from many distant points. The lower surface is clothed with hardy succulents and herbaceous plants of dwarf habit, the intention being to get the ground covered with a carpeting of close-growing perennials—such, for example, as the dwarf

Sedums, and then to throw out here and there individuals or masses presenting characteristic features.

In another style of grouping was a cone-shaped bed planted on the crown with about a quarter of a hundred fine plants of Echeveria metallica. The miniature mount was broken up into half-a-dozen spurs, on each of which was placed a plant of the green-leaved Sempervivum Donkelaari, and at the point a group of five plants of the white-leaved Pachyphyton bracteosum. In each of the hollows between these prominences was placed a small plant of the variegated-leaved Pine-apple. The whole surface was clothed with Sedum glaucum. This bed was a very telling one.

A quiet sheltered nook, which for the past year or two has been given up to the Ferns, has been considerably amplified and improved. Here are to be seen a few specimens with considerable trunks, of Dicksonia, Cyathea, &c., with an undergrowth of Thamnopteris australasica, the palm-habited Dracæna nutans, on tall stems, being very effectively introduced. It is a most charming, retired, and quiet spot; and near at hand Mr. GIBSON has opened up a vista in the belt of shrubbery which, with its furniture of Anthuriums, Aralias, and other handsome-leaved plants, forms a feature of much interest, and capable of further development.

Noting particular plants, a bed of the dark-leaved Canna Bihorelli in full bloom is worthy of all praise. This is one of a new race of Cannas, dwarf in growth, and very floriferous, bearing large and strikingly showy flowers, and which will become extremely useful in flower gardens. C. violacea superba is another of the same habit, with motley-bronzed leaves, and abundant red flowers. C. picturata nana, dwarf and free as the foregoing, has green leaves, and yellow flowers spotted with crimson. Two fine dark bronze-leaved sorts of larger growth are C. metallica and C. metallicoides—both very telling varieties for foliage groups. Canna Annæi, in one place, where it had been left out all the winter, is from 9 to 10 feet high, and C. peruviana, 7 feet high, both just coming freely into bloom. It is generally observable that the Cannas which have not been disturbed in winter are growing away with remarkable vigour.

The new Coleuses are found to grow well in shady spots, and unlike C. Verschaffeltii, to be much inferior where exposed to the sun. Of the older batch C. Berkeleyi, chocolate, C. Batemanni, and Ruckeri, black; and C. Marshallii, dark, with green edge, are the best. The newer golden variety called Princess Royal is doing well beneath the shade and shelter of a fine mass of the white-leaved Negundo.

We must not omit to mention that Euonymus radicans variegatus forms a most perfect permanent edging planted against the perpendicular margins which are characteristic of most of the choice beds at Battersea.

To these few particulars of special objects of interest we may add the warmest commendation of the general effects, the great charm of which consists in this, that they are not suffered to appear in the same stereotyped form each recurring year, but being modified by a delicate touch here, or a bold stroke there—both the work of a master hand, and, guided by the perception and feelings of a true landscape artist—are ever presenting signs of progressive refinement.

SOME means of checking the system of FALSE ENTRIES AT FLOWER SHOWS is urgently required. The too frequent custom amongst exhibitors seems to be, that of making entries at random, for the purpose of showing in such classes as may, at the eleventh hour, be found to be least strongly contested. Now, to begin with, this is not fair to more honourable-minded exhibitors; but we are not on this occasion so much objecting in their interests, as in that of the managers and arrangers of exhibitions. We frequently see long stretches of empty benches, or, what is as bad, considerable spaces filled up by what are evidently makeshifts. All this is caused by absentees; and critics very justly complain of the unfinished, broken, disconnected arrangement which results therefrom, and which appears to them, unfamiliar as they are with the details of an exhibition, to have originated in a want of order and method on the part of those to whose care the distribution of the various objects is entrusted. Such, however, is not the case. A great exhibition could not be got together without inextricable confusion, unless every move was the result of some predetermined plan. The whole of the objects to be exhibited have, in fact, to be reduced to order, to be methodised in the mind of the manager, before a step is taken in their actual arrangement, and it is the defaulters who create disorder by upsetting all the previous adjustment, and who spoil the effect of the show, in so far as it can be spoiled, by such obvious defects as unfilled spaces or extemporised fill-ups. The very best and most effective arrangements which can possibly be made are rendered altogether nugatory when there is much of this defaulting, and the defaults are mainly owing to the system of making random entries.

In some cases, indeed, we think the latest date at which entries are receivable is fixed unnecessarily early, 14 days' notice being in some cases required. A considerable interval is, however, requisite, in order to ascertain and provide the necessary accommodation. Perhaps the difficulty might be got over by shortening the interval for giving notice, so as to offer exhibitors every possible chance of being exact in their demands for space, and then fining those who do not comply with their engagements. It would, however, be far better that the good sense of exhibitors should lead them to avoid creating the difficulty we have pointed out, and which is a most serious obstacle to the effective and tasteful arrangement of the materials of a flower show.

— IN regard to the ASSESSMENT on NURSERIES and MARKET GARDENS, we learn on official authority, that the charge is made under the Act 5 & 6 Vic., chap. 35, sec. 63, rule 8. As a case in point, a person rents 20 acres of land, for which he pays 7*l.* an acre. Supposing that he converted this land into a nursery or market garden three years since, and he made profits, in the first year 15*l.*, in the second year 35*l.*, and in the third year 65*l.*; total for the three years, 115*l.*—he would be liable to be assessed for income-tax, under schedule A at 140*l.*, and under schedule B upon 38*l.* 6*s.* 8*d.* (one-third), at (say this year) 5*d.* in the pound; in fact, according to whatever the Acts charge under schedule D on profits of trade. Thus, we are told, it will be found that the profits derived from nurseries and market gardens, are assessable under schedule B, at the same rate as other profits under schedule D. This being a charge on the profits, the full duty of 5*d.* in the pound is payable; for the rule applicable to this particular assessment means that the actual profits shall be taken to be the income, instead of, as in farms, one half of the rent or annual value. Another case has been thus stated:—A person rents 20 acres of land at 7*l.* an acre, being a nursery in full produce, and returns his annual profits at 20*l.* an acre for the last three years. The assessment would therefore be, for 1869-70, under Schedule A, rent 140*l.*, at 5*d.*, and under Schedule B, profits, 400*l.*, also at 5*d.* in the pound.

— In a recently issued number of the Bulletin of the Botanical Society of France, M. CHATIN enters into the consideration of the trees which are usually found associated with TRUFFLES, "arbres truffiers." Of the species mentioned by M. CHATIN, seven are species of Oak, 32 belong to other genera of which the majority are amentaceous, some coniferous, rosaceous, &c. No Truffle has been found beneath any herbaceous exogen, nor beneath any endogen. There does not appear to be any organic connection between the Truffles and the roots of the trees under which they grow. M. ALPHONSE DE CANDOLLE throws out the suggestion that Truffles are found near the roots of young trees by reason of the oxygen which is supplied to these Truffles in the water absorbed by the young vigorous roots of the trees. Truffles, like other fungi, give off carbonic acid gas. To do this they must have access to oxygen. This access is provided for in the manner indicated. Hence Truffle culture is not successful in uncultivated soils where oxygen cannot penetrate freely, or where there are no young tree roots to draw from the surface the water containing oxygen.

— *Omne ignotum pro magnifico.* Here are two instances: one is a FERN with STAMENS quite plainly to be seen. Yes! only they are not stamens, but insect eggs perched on little stalks, and these again attached to a Fern frond. The eggs of the insect (Hemerobius) are common enough, but when found on a Fern—why, there is a flowering Fern at once! The following instance is a more elaborate affair; and while the former is properly referred to its place in the natural system of classification, the one now to be mentioned would seem, from the description which has been given of it, more fittingly placed in the artificial system by the side of the mermaid and such like rarities:—"There is at present in the possession of Mr. GEORGE TERREY, a builder in Clerkenwell (says a letter in the 'Gardeners' Magazine') a most remarkable plant, for which the owner has refused considerable sums of money. It is about the size of an ordinary Gooseberry bush, and although living and growing, bears no semblance of vitality. It has no foliage, but little pellicles of flint bud out of the twigs and stems, which are likewise encircled with rings of flint at every joint. In some places the flint, which it appears has exuded from the plant itself, cases the stems like a pipe. The plant looks black and dead, but the twigs, instead of being brittle like dead wood, are tough as leather thongs. It has been suggested that the flint, which forms so large a component of plant life, has by some freak of Nature been eliminated from the natural vescicles of the plant and developed outwardly instead. Scientific men from various public institutions and learned bodies have inspected this phenomenon, but without arriving at any conclusion respecting it beyond its indubitable singularity." The plant turns out to be a branch of coral, with sea-shells naturally embedded on it!

— To the names of intending exhibitors at Hamburg already mentioned, we may add those of Messrs. LANE & SON, who have entered for Grapes, Messrs. VEITCH & SONS for new plants, and Messrs. STANDISH & CO., also for plants.

BRITISH ASSOCIATION.

THE meeting of the British Association for the Advancement of Science, which was opened at Exeter on the 18th inst., as announced in our last number, has presented little which comes strictly within the scope of our Journal. A few passages may, however, be quoted from the proceedings of the various sections. In the section devoted to Mathematical and Physical Science, Professor Sylvester, in his opening address, made the following remarks bearing on Scientific Education. He said:—

"A party leader and orator had recently said that he could not make a speech unless he had an adversary before him; and he had set himself the task of considering some recent utterances of a most distinguished member of the Association, from whose opinions he felt constrained to differ. Professor Huxley, in the June number of 'Macmillan's Magazine,' had thus written: 'Mathematical training is almost purely deductive. The mathematician starts with a few simple propositions, the proof of which is so obvious that they are called self-evident; and the rest of his work consists of subtle deductions from them. The teaching of language, at any rate as ordinarily practised, is of the same general nature—authority and tradition furnish the data, and the mental operations are deductive.' The notion that mathematical truths rested on the narrow basis of a limited number of elementary propositions, from which all others were to be derived by a process of logical inference and verbal deduction, had been stated still more strongly, by the same writer, in the 'Fortnightly Review,' where they were told that 'mathematics is that study which knows nothing of observation; nothing of experiment; nothing of induction; nothing of causation.' Taking this as the text of his paper, the learned President proceeded to combat the views thus set forth. No statement, he asserted, could be more opposite to the facts of the case. Mathematical analysis was constantly invoking the aid of new principles, new ideas, and new methods not capable of being defined by any form of words; but springing directly from the inherent powers and activity of the human mind, and affording renewed introspection of that inner world of thought of which the phenomena were as varied, and required as close attention to discern as those of the outer physical world. It was unceasingly calling forth the faculties of observation and comparison; one of its leading features was induction; it had frequent recourse to experimental trial and verification; and it afforded a boundless scope for the exercise of the highest efforts of imagination and invention. He (Professor Sylvester) did not maintain that the habit of observation of external nature would be best or at all promoted by the study of mathematics—at all events as that study was at present conducted; but no one could desire more earnestly than himself to see mathematical and experimental science introduced into our schools as a primary and indispensible branch of education. He thought that that study and mathematical culture should go hand in hand together, and that they would greatly influence each other for their mutual good. He should rejoice to see mathematics taught with that life and animation which the presence and example of her young and buoyant sister could not fail to impart; short roads preferred to long ones; Euclid shelved, or 'buried deeper than did ever plummet sound;' morphology introduced into the elements of algebra; projection, correlation, motion, accepted as aids to geometry; the mind of the student quickened and elevated; and his faith awakened by early initiation into the ruling ideas of polarity, continuity, infinity, and familiarisation with the doctrine of the imaginary and inconceivable. It was this living interest in the subject which was so wanting in our traditional and mediæval modes of teaching. In France, Germany, and Italy—everywhere he had been on the Continent—mind acted on mind in a manner unknown to the frozen formality of our academic institutions; schools of thought and centres of real intellectual co-operation there existed; the relation of the master and the pupil was acknowledged as a lifelong tie, and connected successive generations of great thinkers with each other in an unbroken chain. When followed in this spirit there was no study in the world which brought into more harmonious action all the faculties of the mind than the one of which he was the humble representative."

In the Biological Section the following papers have been read:—

"Man and the Animals, being a counter theory to Mr. Darwin as to the Origin of Species," by Archdeacon Freeman. The author said: "This question was one of the widest interest, and had become the battle-field of nations. In England opinion was divided. France was generally against the theory, and Germany in its favour. The only way to reply to Darwinism satisfactorily was to assert a counter theory. It was suicidal to ignore in this inquiry the statements of the Bible. Mr. Darwin's theory was, that unity of type was explained by unity of descent, and that all living creatures had graduated one from another, and probably from one parent. Natural selection was only one means by which he believed this had been brought about. But had the plan of the universe aim or cause? Why should all the higher animals be so closely allied? Why should the beast have so many correspondences in structure with man? To these questions the Biblical record supplied an answer. According to the account given there, no sooner was the creation over and the fall accomplished, than there appeared on the scene mysterious beings—the cherubim, whose name signified forms and figures. Now either these were made after the six days' creation in imitation of the animals, or, what was more probable, the animals were formed in imitation of them. To believe that all creatures were formed after pre-existent ideas in the Divine mind was largely entertained by Plato. Thus, then, Scripture was seen to anticipate the conclusion of science, and to establish the profound affinity of the higher creatures. The purpose of this affinity was to be found in the glory of God. The cherubim, the four typical creatures, ceased not, they were told, to give their Creator glory. Who could say there was no power in the lower animals, conscientiously it might be, also, to glorify God? If any one said this was a mysterious mode of treating the subject, what, he asked, could they have but mystery? The more mysterious the answer, the more likely it was to be true. Mr. Darwin's theory referred natural uniformity to a universal parentage his to a universal pattern. Natural selection, under the latter, would still have its proper place. Mr. Darwin's view as to the origin of species was not necessarily irreligious, but his own facts upset it, showing that there was a special divine superintendence of the organic world." The Archdeacon in no way impugned the well-earned reputation of Mr. Darwin as an observer.

"The Difficulties of Darwinism," by the Rev. H. O. Morris. In this paper it was contended that Mr. Darwin, in his book on the Variation of Species, was guilty of a *non sequitur*—his argument being that because many more varieties had their origin in one common ancestor, all species were to be thus accounted for. Mr. Morris held that there was abundant evidence that when left to themselves, cultivated varieties of animals and plants returned to the original form, which if they had not been cultivated, they would not have lost. Mr. Darwin had never proved the creation of a new species. A number of quotations were made militating against the idea that man had arisen from a state of barbarism to one of civilisation, and favouring the opposite theory that savage tribes were the product of degradations.

"Philosophical objection to Darwinism, or Evolutionism, by the Rev. Dr. McCann. The author urged that belief in evolutionism meant materialism, and the denial of the soul and immortality—nay, even atheism. This he held to be proved by the writings of Professor Huxley. Philosophy ha-

a right to be heard on this subject, not only on account of its importance, but because of the uncertainties of science. Dr. McCann then proceeded to assert his position; which was, that the affirmations of consciousness were unquestionable, and that anything that contradicted an affirmation of consciousness was false. Evolutionism did contradict many of these affirmations, and was therefore false. Evolutionism also denied responsibility and morality. He argued further that the continuance of the non-selected forms, with the total disappearance of the selected forms (if they had ever existed) was a fatal objection to the hypothesis, which was, moreover, opposed to all progress.

A very animated discussion then took place. The President remarked of the last paper that he was at a loss to see what it had to do with Darwinism. He had some doubt also as to the connection of the second paper with the subject.—Professor Huxley said he appeared to have been engaged in a perpetual battle since he had been in Exeter. The three papers were of very different characters. The second was one of which he did not propose to take any notice whatever. With regard to Dr. McCann's paper, he held that they should have the most intimate connection between science and philosophy; and in the name of philosophy he protested against such a shallow caricature of it as that of Dr. McCann. How could the latter impute to opinions which were essentially the same as those of Bishop Berkeley the conclusions which he did? Let him read Bishop Berkeley's writings—they were short. As to what he said about the affirmations of consciousness being necessarily true, did he not know that the foundations of the Cartesian philosophy had been sapped long ago? It was one thing to say that an affirmation of consciousness was absolutely certain, and another that any conclusion therefrom was also certain. He did not complain that Dr. McCann had caricatured him, because a man must understand before he could caricature, but he did complain that he had been misrepresented. He had written in a recent article that the freedom of the human will was the great question of the present day; and that he believed it would never be solved, because it lay without the domain of the human mind. It was not right, with that in print, to call him a necessitarian. Professor Huxley highly praised Archdeacon Freeman for his candour, though he denied his conclusions. He agreed with the Archdeacon in believing that the Bible was intended to teach physical science. The Archdeacon's ideas were not new, but constituted the philosophy of biology of Owen and Agassiz. It was a mistake to believe that the uniformity of type and plan were chiefly to be seen in the higher animals. It was to be seen as much in the lower, and was absent from none.—Dr. Hooker, who had also been criticised by Dr. McCann, said he had no course to defend himself but to read portions of his address to which reference had been made, and ask the meeting if they bore the constructions put upon them. That he could not do, and he should therefore retire. —Dr. Wilkes considered Mr. Darwin a great observer, but by no means an inductive reasoner.—Mr. E. Vivian pointed out that all the old land-marks had been removed, and proceeded to make a few statements with regard to Kent's Cavern. He believed scientific and religious men differed in degree, and not in principle. There was no possibility of stopping short of man being contemporaneous with the fossil animals, and, in fact, preglacial. He had always believed that Moses had written a cosmogony, and he did not yet doubt that it would be in some way reconciled with science. There had been a very wide interchange of species, and when they admitted development they must have a number of separate acts of creation, of which there was no evidence.—Mr. Wallace did not consider that any one of the papers ought to have been read in that place. If the opponents of Darwinism wished to come forward, let them bring either new facts or new arguments.—The President considered the most pertinent observations that had been made with regard to Darwinism came from Mr. Vivian. He had rightly said that the great difficulty was to account for existing animals. How were they to account for their difference from former ones? Either the elephant must be a spontaneous creation, or was the result of descent. Neither of the writers of the papers knew what Darwinism was, although really it might have been expected that they would have informed themselves about it before they wrote.—Dr. McCann explained that he had read the books to which Professor Huxley had referred, and said, moreover, that the question had been shirked.

"On an Alteration in the Structure of Lychnis dioica, observed in connection with the Development of a Parasitic Fungus," by Miss Becker. While residing near Accrington, in Lancashire, Miss Becker was struck with the remarkable appearance of certain plants of Lychnis dioica, which, instead of the usual straw-coloured anthers, displayed a purple mark in the centre of the flower, giving the effect of a handsome dark eye. Further examination showed that, contrary to the usual habit of the plant, many of them were bi-sexual, each flower containing a pistil as well as stamens; except for the shortness of the styles, these pistils were as well developed as those of ordinary female plants. In 1863 she sent a few flowers to Mr. Charles Darwin, who, after submitting the flower to microscopic investigation, wrote—"The dark purple anthers are a mass of some cryptogamic plant, allied, I suppose, to the smut of Wheat. In the bud the pollen grains can be distinguished, afterwards they are wholly corrupted. There remains a pretty case of a reversion from a dicecious to a hermaphrodite condition." Subsequently he suggested that the plants might be natural hybrids. The impression crossed his mind that, the pollen being destroyed at an early period, the ovarium was developed in compensation. Miss Becker pursued her observations, and to account for the appearances she had two theories:—1. That the bi-sexual plants were cases of natural reversion to the original form, and that their association with the fungus disease was accidental. 2. That the parasitic fungus caused the flowers to assume the bi-sexual form. She maintained the last of the two to be the right one. Entering into many considerations in support of her view, she suggested that it might be an instance in illustration of Darwin's theory of Pangenesis. Dr. Dickson thought Miss Becker's theory unsupported by the evidence. Precedent disease of the Lychnis was the probable cause of the fungus growing in it.—Dr. Wilkes questioned the notion that a fungus parasite could help in developing the organs of a plant.—Professor Balfour, while acknowledging the excellence of the paper, disagreed with Miss Becker's conclusion. If Miss Becker was right, the instance was the first known to the botanical world.—Miss Becker replied cleverly. Perhaps it was the first instance, but why might not she make the first discovery of it? She was quite prepared to hear that they disagreed with her view, for, as far as she had observed, that section was remarkable for this, that everybody disagreed with everybody else.

VINE BORDERS: THEIR CONSTRUCTION, HEATING, &c.

[Read at the Manchester Congress, July 22, 1869.]

The plan I herewith submit to your notice relates principally to the construction, heating, and elevation of Vine-borders. There have been so many contradictory and opposite opinions expressed of late upon the subject that it seems a rather hazardous one to venture on, but my plan is simple and economical, at least so I consider it; and as I have had many inquiries lately, especially from amateurs, on the subject, I have taken the favourable opportunity afforded by the meeting of Congress to explain my views. I contend, and have no doubt that really practical men will bear me out in this, that there are no fixed rules for gardeners: they have to depend so much upon the soil and subsoil of the particular locality in which they have to labour, as well as to obey the laws of Nature, to which they are subject equally with the mariner, who must study his chart, otherwise he may find himself amongst the rocks.

As each individual class of plants is governed by natural laws of its own, it practically follows that these furnish our starting point and guide. As we have to grow the Vine in an unnatural climate, and in outside borders, we are bound to bring science and practice to assist us, for I hold that while we consider science all important, still it must not contravene the experience of practice. As regards the Vine, there is no doubt that in several places in England the subsoil suits it completely, and in such cases, of course, it bids defiance to both rule and artificer. I have seen instances where the roots of the Vine have rambled for a considerable distance, permeated through old brick walls and rubble, and become a complete mass of fibres where roots were never thought of.

In the accompanying plan I do not attempt to define the elevation of borders—that must be left to circumstances, being ruled by the general state of the ground, high or low, wet or dry, north or south. Here, in Mid Cheshire, I should prefer the top of the drainage to be very little below the ground level, and to get as much of

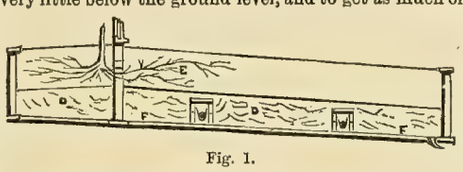


Fig. 1.

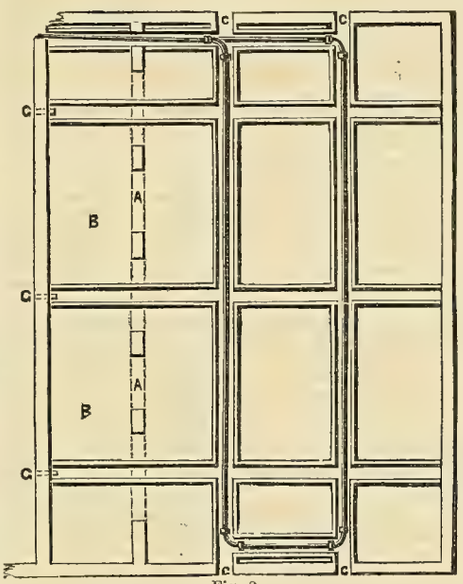


Fig. 2

the border inside the house as possible. The annexed plan (Fig. 2) shows a house 26 feet long and 12 feet wide outside. The front wall of house A should be built on arches, B is the inside border, C are ventilators. These ventilators I would have fitted with trap-doors, either of wood or iron, and they are intended first to act as air passages, and secondly to give access to the pipes. By these means you will at any time be able to ascertain the heat of the pipes, amount of moisture, &c., and by providing the pipes with evaporating troughs they can be supplied with water at pleasure. D (in Fig. 1) is the brick rubble for drainage, E soil of border, F concrete.

The outside border is 12 feet wide and is provided with two 4-inch pipes, flow and return; the pipes to be laid on the concrete and in brick flues formed of two bricks set on edge, and left pigeon-holed, the flow pipes to be nearest the house, on account of the pitch in the border, which will be 1 in 20; this will bring the return-pipe sufficiently low for free circulation. I propose covering the flues and pipes with flooring tiles set in cement, so as to prevent the heat rising perpendicularly, and compel it to permeate the border horizontally. I am of opinion this is the one great evil in chambered borders. One can just imagine, after the pipes are at rest, if the subsoil and border are at all moist, there must necessarily accumulate a certain amount of moisture in the lower part of border and chamber, and should the surface of the border become dry, the roots will naturally work downwards in search of moisture. Just picture to yourselves a quantity of nice little white tender rootlets hanging through the cavities advised to be left in chambered borders; you start the bottom-heat, and you have no means of ascertaining the heat of your pipes. What must become of those rootlets exposed to, you do not know what heat, before there is any circulation in the sap of your Vines? It would be something like sticking one's toes in the fire. This is one reason why I advocate the ventilation at the end, so that we may know exactly the heat of the pipes, &c.; there is no necessity for the pipes to be so hot as to kill or injure the roots of the Vines, but they should secure a nice gentle humid genial atmosphere.

Those disciples of bottom-heating, who would make their chamber outside the border with four rows of pipes, perhaps adopt a surer method, but it seems to me like putting a kettle on top of a chimney to boil it. I think we should get more heat from the two pipes placed under the border, and they would not require to be so hot, at the same time the heat would be much more evenly diffused than by putting four rows of pipes at one side. I should concrete all borders, unless the roots can be prevented from getting down into any unctuous clayey subsoil. It would be out of place here for me to attempt to deal with any other, for it is this kind of subsoil, with the borders outside, in the north of England, that I consider peremptorily demands bottom-heat, if the Grapes are required to be ripe in April and May. Air-drains from inside of house, crossing the pipe-flues, are shown at G. Now, here is another point I must leave to the option of the constructor, whether he chooses to carry these through to the top or front side, but, under any circumstances, I would construct all air drains so that I could stop them at will. Sometimes you may have occasion to stop them to shut out cold winds, sometimes quite the reverse—to stop dry hot winds. I am of opinion that if the border becomes too dry, and you cannot check aëration, this is not only injurious to the roots, but will have a great tendency to infest the Vine with thrips and red spider.

I will not occupy time further than to state, that I have been frequently told by gentlemen amateurs of the inconsistent, unorthodox, and contradictory writings of gardeners. It is very certain that there are men who seem to have fixed rules of their own, and who prefer running the nibs of their pens unmercifully into each other rather than to depart one iota from them—as, for instance, when they hold to their opinion against turf which has had sheep folded upon it, and assert that calcined bones and oyster-shells are dangerous nostrums to be avoided, or when they pass a wholesale condemnation upon such Grapes as Lady Downe's, Black Alicante, &c. I should imagine that most practical men would not object to the former, and as to the latter they are indispensable in most establishments, more especially for the market. Few persons will dispute that when new Grapes can be obtained say through the month of April, &c., they are far preferable to late ones, for a nice dish of new Grapes, with their beautiful bloom, and with the foliage in all its freshness, has much the more tempting appearance, but still I consider that late Black Grapes are invaluable to fill up the previous gap. *C. A. Pearse, Arley Hall Gardens, Northwich, Cheshire.*

SMOKE *v.* VEGETABLE LIFE.

[Read at the Manchester Congress, July 22, 1869.]

Having been employed for more than 20 years in the midst of a manufacturing district, during which period trade has very much increased, and having, therefore, for that length of time had to contend against a gradual increase of smoke and other vapours, which are very injurious to vegetable life, I will venture to lay before you a few plain remarks how that offensive and polluted atmosphere has to a certain extent injured, and in some instances destroyed, some of the trees, &c., in this locality.

When I first came to live in Warrington the air was not so full of smoke and other injurious gases as it is at the present time. Some species of plants which then flourished have now disappeared. I have noticed that as manufactories have increased, one species of plant after another has gradually declined in health, and in some instances has become a mere skeleton of what it formerly was, giving a desolate appearance to that county which it once beautified.

Some plants are much more sensitive than others of the effects of an injurious chemically-poisoned atmosphere. When I came to my present situation the Fir and Larch were healthy; these were the first to give way, and the first which had to be cut down. The Cotoneaster microphylla next died; the Arbor-vitæ, Juniper, Erica, and common Rosemary followed. What few now exist of these are in a wretched condition; so is Berberis ilicifolia: the Yew, once very vigorous, is all but destroyed; the Rose struggles hard for existence; the Holly is giving way, and none of the Conifers, if planted on these grounds, will live more than two or three years.

Many of the forest trees that flourished 20 years ago are gradually becoming weaker every year, as the air becomes more and more filled with noxious vapours, and some of them are affected sooner than others. The Sycamore, more particularly the variegated variety, is very tender, and suffers severely; the Hornbeam is fast decaying; the Horse Chestnut grows vigorously, but is often severely cut while the foliage is young, and never worse than at present. The Beech and the Lime trees are somewhat stronger than the above, though very far from being healthy. The Ash seems to stand best, and the Elm the next, but all of these are dirty, and are to a considerable extent injured.

Amongst fruit trees the Pear appears to stand best, but is not up to the mark, and the Plum and Damson moderately well, but they are giving way. The Apple is suffering very much, only young trees are at all vigorous, and these not satisfactory; the full-grown trees are very bad, and the fruit very inferior. Both Red and White Currants have suffered severely, being very subject to the attacks of aphides; the leaves then become covered with an adhesive substance, the soot coats them over and chokes the pores, and, the leaves falling off in the summer the wood cannot get matured, and the plant ultimately dies. Our Currant trees, that a few years ago were healthy, and produced very fine fruit, are now quite ruined. The Raspberry stands pretty well in more favoured times, that is, when the air is moderately free from smoke. The Gooseberry is inferior. The fruit of all these plants would soon be

detected in the market as having been grown in a smoky atmosphere.

Many vegetables which grow strongly do well in summer, but when the autumn sets in the heavy air is so filled with poisonous gases that they soon decay. Kidney Beans sometimes drop off as early as October. Cauliflowers do not stand any frost here like they do a short distance from town; even common winter Greens are injured to a considerable degree, and it is only in very mild winters that the Broccoli keeps alive.

Many half-hardy flowering plants do not prosper. The Pelargonium, which grows the best here, has the flowers often discoloured during the night if the atmosphere is of low temperature and charged with chemical vapours. A few plants stand pretty well. The Rhododendron, Aucuba japonica, and the Hawthorn flourish. Some species of plants suffer in all parts of the garden, while others only suffer in certain parts. Where the Hawthorn, Rhododendron, and the Yew are planted side by side, the two first are healthy, the Yew almost dead. We find, too, that where some of the delicate plants are considerably sheltered from the passing vapours, they are somewhat healthier than those more exposed to smoke.

The above remarks have reference only to the grounds on which I am employed, and which are peculiarly situated. Some time ago the town lay to the east and north of the Hall and gardens, but now we are surrounded on all sides except directly to the south. Trade has gradually increased, and during the last three or four years has rapidly progressed, therefore smoke has progressed too. Some of the works are of a very disagreeable kind, dispersing very noxious smells throughout the town, and unquestionably doing a great deal of harm to vegetable life. I have been on the grounds at all hours of the morning and night, and have felt the disagreeable vapours pass in a body when there has been scarcely a breeze; this has been when the atmosphere was heavy and foggy, and it is on occasions like this that the flowers are found to be discoloured in the morning. Sometimes we find the foliage while in a young state cut in a straight line, and this suddenly too. Under all circumstances the trees in town cast their leaves at least six weeks before those in the surrounding districts, where there are no manufactories. When the wind is from the east we do not suffer so much as when it is from the west, for in the former case it is often sharp, and carries away the smoke, but in the latter it is soft, the air heavy and moist, and the smoke falls quickly to the ground, hanging among the trees, and passing away very slowly; therefore the plants suffer more.

That some works are more deleterious than others we have sufficient proof. On the east side of the town a firm of long standing has lately introduced a fresh branch into its trade. Close to the works are the Rectory grounds, which, as well as the land adjoining is wretched in the extreme; forest and fruit trees, shrubs, &c., are dead and dying—only such as are, screened from the works being fit to stand, and even these are looking badly.

The outskirts of Warrington are somewhat better, several Conifers that will not live at all with us are found in some of the gardens, but not in a satisfactory state. If we go six miles west we come to one of the most desolate places one ever saw, trees and hedges being killed for a considerable distance. The Thorn and Elder appear to be the hardiest; miserable relics of these are nearest to this rising town—Widnes, where chemical works are numerous. If we go eight or nine miles north-west we come to St. Helens, another town spreading desolation; trees are dying for miles away from it. East and southward of Warrington, where no works are, the country is fertile, and the foliage rich.

Plants, with smooth glossy leaves, of vigorous habit, grow best in Warrington. The Oak looks as well in the town as in the country, for this tree is in many parts of the country decaying. With us the Laburnum flourishes, so do the Syringa, the Willow, the Birch, the Ivy, and the Elder; the Privet grows moderately. All vegetables must be vigorous, others wise they will not stand the smoke. Thirty years ago the farmer grew large quantities of ridge Cucumbers in the fields, but now he cannot grow them. Gourds will not now grow in the town, unless when the season happens to be favoured by a less amount of smoke than we have on an average.

Under circumstances such as these, we can only do our best to grow such plants as will withstand the evil, and ask the manufacturers to assist us by reducing that evil, as far as they are able, by consuming the smoke. Some have done so here to a great extent; we must hope others will follow in their steps. We do not know how much might be done by the aid of a persevering, ingenious man. Many wonderful things have been accomplished, and we cannot tell what may yet be in store. The earth is not only given to us for usefulness in bringing food, but also for producing things of beauty and adornment; and it is the duty of every man to try to accomplish this end. *E. Green, Gr. to Col. the Right Hon. J. Wilson Patten, M.P., Bank Hall, Warrington.*

BRIEF NOTES UPON ORCHIDS.

[Read at the Manchester Congress, July 21, 1869.]

This is undoubtedly the city above all others in the three kingdoms around which Orchid growers most do congregate, and many are the fine and extensive collections to be met with in the neighbourhood. I feel, therefore, that in opening this subject here I have undertaken a heavy task, though I shall be dealing with a very popular subject. When I first laid before the Orchid world a few simple rules for the successful cultivation of Orchids, very few were known, and their habits and mode of growth in a state of nature were even less so, so that as a consequence they were found very difficult to establish in our plant houses. By steady perseverance, however, the mastery was gained over some few plants, which from time to time opened their curious, beautiful, and, in some instances, delicately-scented flowers, each fresh kind that revealed its beauties only increasing the desire for more, which desire has certainly been gratified in a most extraordinary degree during the last few years, by the immense quantities sent to us from their native habitats by various collectors, until at the present time there can be few short of 2000 species in cultivation in European gardens. Many of these produce flowers of surpassing size and beauty, whilst others, though of small size, and dull in colour, and, though not producing much effect, are generally most exquisitely marked and curiously formed, and present a beautiful appearance when viewed with a microscope or pocket lens. These small-flowered kinds will naturally enough be discarded by the amateur with limited space, but the whole of the species should be carefully preserved in our large Botanic Gardens, for none are more fully aware of the value of some of these small kinds in determining the limits of genera and species, and none can know the value of living specimens for this purpose, better than the systematic botanist.

It is not my intention, however, to occupy time, with the history of the introduction and establishment of tropical Orchids into European gardens, although many curious facts are connected therewith, but to offer a little advice upon their management—to repeat, it may be, some things that many here may have heard me insist upon before, and which therefore will not be new to them, but I will hope my observations may reach many beginners in Orchid growing who may find in them something to assist them in the prosecution of their hobby.

Orchids take first rank amongst the plants cultivated in our gardens, on account of their extreme beauty, and the peculiar and interesting structure of their flowers. They are found in nearly all parts of the world, and are divided into two large sections, viz., Epiphytal and Terrestrial. The plants comprised in the first section are the most showy, and are found in tropical countries growing in the forks or upon the branches of trees at various elevations, whilst the terrestrial ones are mostly found in the more temperate regions, burying their roots under the surface of the ground, and many of them losing their growth during the winter months.

The growths of orchidaceous plants are commonly called pseudobulbs, but it has occurred to me very frequently that such distinct forms of growth as those presented by Dendrobium, Odontoglossum, Cattleya, Sobralia, Grammatophyllum, Barkeria, Epidendrum, Catasetum, and others equally dissimilar, require some more discriminative term than this, which is applied indiscriminately to all. In the Eastern world Epiphytal Orchids are mostly represented by such forms as Vanda, Aerides, and Dendrobium, whilst in the Western hemisphere thick fleshy growths are the rule; true, some few genera in the East, such as Cœlogyne, Bolbophyllum, Eria, and a few others, put on this form, but they are exceptional. I do not intend giving in detail the cultivation of this, my favourite class of plants, because my views upon this subject have been for some time prominently before the Orchid world, first in the pages of the *Gardeners' Chronicle*, under the title of "Orchids for the Million," and more recently in the three successive editions of my "Orchid Growers' Manual," and in Mr. Warner's illustrated "Select Orchidaceous Plants." The conditions which I laid down at the very first were, moderate heat, an abundance of fresh, sweet air and moisture, with full exposure to the light, but with shade from the direct rays of the sun; and I have never had any reason to change these rules. I carefully avoid extremes of temperature; by this means I seldom have a plant shriveled, or stewed with heat, or starved, and perishing through cold; and by giving plenty of fresh, sweet air, and keeping it properly charged with moisture, my plants never have the "spot." Spot is the great bugbear of Orchid amateurs, and indeed, of many old-established Orchid growers; but it need not be dreaded, if the previously mentioned rules are followed, and, if in addition, care is taken that no rotten or rotting material is near the roots, either in the shape of sour stagnant Moss, or soil, or decomposed wood.

I am quite aware that some eminent men pronounce this disease infectious, and difficult to cure, and that it is produced by the growth of a minute fungus. That the spot-marks on the leaves are caused by a fungus, I firmly believe, but I also as firmly believe that "spot" is the result of bad health, and not the cause of it, for before the fungus can gain a footing, the plant or plants must have been ruined in health, and have thus become a fitting receptacle for the spores of the parasite to germinate upon. As to its infectious character, I am totally an unbeliever therein. If plants in bad health stand with those which have already become spotted, they will become infected so soon as any spores alight upon them, because they present the proper conditions for their germination; but if a healthy plant is placed side by side with a spotted one, it will not be harmed. This I have thoroughly tested with my own plants, and have had ample opportunity of watching it in other collections, and I can therefore speak upon the matter with confidence. If a plant infested with spot be by chance introduced into a collection entirely free from the disease, it may readily be cured, but not freed from the marks already formed on the leaves. To destroy the disease, let the plant be taken out of the material in which it is potted, or if on a block of wood let that be removed; then cut away every particle of decayed or decaying roots, wash the plant and roots thoroughly, and replace it in some good sweet living soil; at the same time attend carefully to the advice previously given regarding the atmosphere and temperature, and the probability is it will not be long before the plant is again in perfect health.

I have adopted this treatment with perfect success myself for the last 25 years, and am, therefore, not propounding a mere theory, but advising a system which I have thoroughly tested. Whilst speaking of theories I cannot help expressing my surprise that many of our leading Orchid growers have been so reckless with their valuable plants, as to have suddenly given over their whole collection in good health, to test some theory propounded by those who have probably never tried it for themselves. I allude to such cases as those of double-glazing the houses, exposing the plants in the open air during frost, potting in cocoa-fibre or in pot-sherds, and many other whims. Many persons still fight for, and uphold these practices, and are continually persuading their friends to adopt them. Now my advice to all Orchid growers is, If your plants are thriving, be careful not to risk their welfare for the sake of experiment. If you must test theories, do it with a few common plants, and not risk your collections, as many have done. During the past few years I have seen several fine collections, both private and public, ruined because they have been subjected to such theories as these.

It is a fact that many of the older cultivators of these plants seem to have become indifferent to their charms, and in some instances have relinquished their culture entirely. One reason for this has been the sickly appearance of the plants, through the excessive use of fire-heat, which at the same time renders the houses unbearable: hence they have been discarded. Another reason in the case of amateurs, has been the buying of hundreds of newly imported plants of one species, overcrowding their houses; and since no extra means of looking after them are provided, they become unhealthy and unclean, and thus they are discarded in disgust, because a thousand plants do not look so well as a hundred did, in the same space, and with the same care. The cool system, as it is called, has been another source of great annoyance to many, but if carried out in a proper manner it greatly enhances the value of these beautiful plants. Many, however, have launched into extremes, and have cruelly deceived young beginners especially, by assuring them that such and such species will grow in an ordinary greenhouse, or even out-of-doors. These assertions being acted on, the plants have naturally enough dragged out a miserable existence, and have ultimately died. Now an ordinary greenhouse is a house in which Pelargoniums, Ericas, and Fuchsias grow and flower, and I deny the possibility of any Epiphytal Orchid continuing long in health under the same treatment, and in the same atmosphere that these plants enjoy.

That many kinds will succeed in as low a temperature I readily admit, but they require less of the blazing sun; they must also have much more moisture, and the sashes of the house must not stand open, as they usually do under ordinary circumstances, otherwise the leaves will soon shrivel and curl up, when, as a matter of course, death soon follows. Therefore I contend it is wrong to assert that Epiphytal Orchids will succeed in an ordinary greenhouse. I find, almost as a rule, that the species enjoying a low temperature do not require a decided period of rest, like those from hotter parts, but that a temperature ranging from 45° to 50° in winter, with moderate degree of moisture, and as little above 65° or 70° in summer as possible, will keep a vast quantity of those denominated "cool Orchids" in perfect health; and as I am of opinion that greater damage may result from the temperature sinking a few degrees below the minimum, than by its keeping above it, I never rush to the lowest possible degree. If amateurs would but take some degree of interest in the history of their plants, and bring their reason to bear upon the facts, they would soon learn where, and under what treatment, they succeed best.

But while thus strenuously advocating the cultivation of cool Orchids, I must put in a plea on behalf of the East Indian kinds, from the low or hot parts, for I am under the impression that many are discontinuing their growth because they think the houses require to be so hot, and are, therefore, not enjoyable; this, however, need not be the case. Some of the most beautiful Orchids known are found among the Vandas, Aerides, and Saccolabiums, and they will both grow and flower profusely in a lower temperature than many imagine; in winter, with the house ranging from 60° to 65°, they will enjoy robust health, and in summer 65° may be the minimum. A collection of East Indian Orchids which I have recently seen quite astonished me; the house was perfectly unbearable; I can compare it to nothing but a steamed oven, and very little or no air was admitted. The consequence was, no one could remain in the place for even a few moments with any degree of pleasure. If Orchids required such an atmosphere as this, I should myself be the first to discard them; and how men, who profess to a knowledge of these plants, can commit such grave errors in cultivation, it is difficult to understand. Young beginners might be excused for doing such things, but even they, one would imagine, would soon learn to correct such blunders.

With respect to Terrestrial Orchids, nothing comparatively has been done, As a class they have been very much neglected, and for no other reason, so far as I know, than that people imagine they are difficult to grow. This is the opinion of 30 years ago, and I do hope to see it discarded, and that more of these beautiful plants may be grown than has ever yet been attempted. There are many Disas, Satyriums, Pogonias, Epistephiums, Habenarias, Pterostylis, and others, that many of us have never dreamed of, which would be perfect gems if properly established in our gardens. One cause of failure I have noticed, and that is the complete baking they usually get in the winter season. In their native habitats some roots will undoubtedly be deep in the moist soil, although the

top may be parched and burned; this is not taken into consideration, and the plants with us get dried to powder. Many of these kinds succeed well in cold frames, others thrive well with such plants as Odontoglossums, whilst others, again, require the warmth of the East Indian house. They require an abundant supply of water, with ample drainage to carry it away quickly, and insects must be vigilantly searched for and speedily destroyed. This applies to Orchids generally, otherwise they will soon fall into bad health. I consider it a sure sign that the collection is larger than can be properly managed, when the plants become infested with insect pests.

In conclusion, I have no hesitation in saying that no class of plants yields such gorgeous, chaste, elegant, and curious flowers, whilst none can compete with them for fragrance. The impression that Orchids are difficult to grow, is fast becoming exploded, and I wish to destroy that impression entirely as speedily as possible, for nothing is farther from the truth. My own practice for very many years proves to me, that if moderate artificial heat be applied, if a liberal supply of fresh air be given, and this properly supplied with moisture according to the season, and if good live Sphagnum Moss and fibrous peat is used for the potting material, no difficulty whatever will arise in their cultivation.

In any collections of plants death and disease will sometimes occur, and therefore Orchids should not be expected to be exempt any more than other classes of subjects; but if care is taken nothing serious of this kind will occur, for they certainly will withstand more ill treatment than most plants before they quite die out. To keep Orchids in a healthy and satisfactory state, I would therefore say, in a few words, provide moderate-sized houses for them in preference to large ones; give only a moderate supply of fire-heat; let them be abundantly but judiciously ventilated; let the atmosphere be sufficiently charged with moisture to yield nourishment to the plants; and let everything in connection with them be in a sweet and living state, avoiding anything in the shape of decay as one would a pestilence. Then nothing more would remain to be said upon the difficulties of Orchid cultivation. *B. S. Williams, Victoria Nursery, Upper Holloway, London.*

SEEDLING PEARS.

I am now in my eighth decade, and have my fourth or fifth series of seedling Pears in full bearing. They look very promising, particularly one raised from Knight's Monarch, with the same habit as its parent, but its fruit entirely different, being egg-shaped; the tree seems very hardy, and is loaded with fruit. This batch of trees is now from 12 to 15 years old, they are in robust health, and no two are alike in habit, or like their parents. One almost hopes that some will prove hardier than the sorts from which they were raised; for instance, some from the Louise Bonne are most luxuriant and full of high-coloured fruit, which have not dropped off, as most of those of the parent sort have done.

It is now many many years since I raised my first seedling Pear, which was a child of the Easter Beurré; it was distinct and large, with an agreeable acidity very different to the musky sweetness of it parent; it did not, however, prove hardy enough to satisfy me, and I allowed it to go out of cultivation here, but learning from a friend at Bordeaux that under the name of Beurré d'Hiver, with my name of Winter Beurré as a synonyme, it was one of the finest late Pears cultivated there, I have reintroduced it. Since then I have raised many seedling Pears, some from fertilised flowers, with which my success was small; and others from fine sorts, under the impression that sorts adapted to our climate could be raised by continuation from them. To a certain extent I succeeded, and although none were worthy of making a noise in the world, they were interesting. I may mention two or three instances:—Twenty seedlings from Beurré d'Aremberg gave 20 varieties, all good, but not larger or better than the parent sort, and much like it, but not keeping so well; there was one exception—an early sort, which I have named the Summer Beurré d'Aremberg; this ripens early in September, is remarkably hardy, prolific, and good. In like manner seedlings from Passe Colmar and Glou Morceau all bore good fruit, but with no improved character. The most stubborn attempt was Ne Plus Meuris, which I wished to increase in size and beauty, at the same time retaining its long keeping quality and excellent flavour; the seedlings from fertilised flowers turned out badly, but those (and there were some 10 or 12 of them) from fruit taken at random, *i. e.*, raised in continuation without crossing, produced fine fruit, some of them larger and handsomer than the parent sort, and the trees of the same hardy habit. My hopes were raised to a high pitch, but when they all ripened in November, instead of keeping till March and April, like their parent, I smiled at my disappointment, so accustomed had I become to the vagaries of seedling Pears. And so I have passed on through my seedling Pear career, still full of hope, for many scores of trees from 10 to 15 or more years old have not yet borne fruit. And here I must express my doubt of the accuracy of some of the experiments of the Belgian pomologists, who assert that by cutting off the tap-root of a seedling Pear it is brought into a bearing state in five years: this they say should be done as soon as its seed leaves are developed. The theory of Van Mons was, I think, to this effect, that every generation of Pears advanced in premature fertility, so that seedlings would bear fruit when some five or six years old. According to this, my seedlings raised from some of the late generations of his ought to bear when two or three years old. M. Grégoire asserts that premature fertility is brought on by cutting off the tap-root—I have not found this to be the case. I have done this with seedlings raised from the seedling Pears raised by M. Grégoire, they are now six years old, and seem as far off a bearing state as Pears raised from seed in the usual way are at 10 years old. There is a curious fact respecting seedling Pears, which I believe has been noticed, but I forget when or by whom; it is this, that supposing a graft to be taken from a seedling Pear when one year old, and grafted into a tree of mature size, on the Quince stock, and in full bearing, the graft will not bear fruit till the seedling tree whence it was taken is in a bearing state—the seedling tree should of course be well cultivated. This has been proved here, and is now under proof, for grafts from seedling Pear trees have been double grafted on trees in pots under glass, so as to bring on maturity of growth, but they show no blossom buds; whereas grafts from bearing trees would have borne fruit the second year from grafting: the trees I allude to are some six or seven years old. This may be exemplified by supposing a seedling raised from the Pear Beurré Clairgeau, which in the spring when one year old is partially cut down and the shoot grafted on to a Pear on the Quince stock—say the Vicar of Winkfield, which suits B. Clairgeau so well, and then at the same time a shoot from the parent sort be grafted on to a stock of the same kind: it will be found that the graft from the parent tree will produce blossom buds the first and second year after grafting, but that from the seedling tree will try your patience for eight or ten long years before it will show a blossom-bud. This is a most interesting physiological fact, worthy the attention of Mr. Darwin.

I have alluded to my failure in raising crossed Pears. It is now many years since when that truly great and good man, Thomas Andrew Knight, stimulated my enthusiasm by telling the world how he raised his new cross-bred Pears. Unfortunately he employed the Swan's Egg Pear to give hardiness to his breed, but that kind in my opinion had so much influence on his seedlings that they have proved for the most part of inferior quality, and not worthy of a place among our fine Pears. Knight's Monarch is a splendid exception in some few places, highly favoured by soil and climate.

It is now some eight or ten years ago since we again commenced crossing Pears here, and the work has been continued vigorously by one who will, I trust, tread in my steps. The crosses most remarkable remind one of the hints thrown out by Major Trevor Clarke, at the Manchester Congress, only instead of following we have preceded his suggestions, and have done that which he said ought to be done. Among the numerous crosses the following are likely to prove of interest, as the young seedling trees seem to differ to a great extent from those raised from the same kind unfertilised, and make hope tell a flattering tale. In giving a list of these crossed Pears I must employ a sign—thus in saying that seedlings have been raised from Doyenné du Comice crossed with Chaumontel, I shall say Doyenné du Comice × Chaumontel, and so on; this is the description on our labels, intending to convey that the first-named sort is the female from which the pips were taken, the second the male, from which the pollen was taken to fertilise the female parent:—Summer Beurré d'Aremberg, × Easter Beurré, ditto × Madame Treyve, ditto × Duchesse d'Angoulême, ditto × Jargonelle; Summer Doyenné × Duchesse d'Angoulême, this we hope will give us a large early Pear; Van Mons Léon le Clerc × Poire Prévost, a very late handsome Pear, which seldom ripens well; Marie Louise × Bezi Mai, this is a large, hardy, and very late Pear, which keeps well till May, but seldom or never ripens well; Citron des Carmes × Jargonelle, ditto × Madame Treyve: it is hoped that these two large and good summer Pears will have a beneficial influence on Citron des Carmes, which too often wastes, and is of inferior quality; Louise Bonne × Winter Nelis, to give a fine flavour and longer-keeping quality to that fine autumn Pear, the Louise Bonne; Beurré Giffard × Beurré Hardy; Doyenné du Comice × Gansel's Bergamot; ditto × Beurré Rance. The latter is the most tiresome of all Pears to raise seedlings from; its pips are often thin, and the seedlings poor and weakly. We have, however, one which is an exception. When young this tree put forth thorns 5 or 6 inches long, like those of Gleditschia horrida: it is now 15 years old, and though time has shortened its thorns, no signs of blossom buds are on its branches. Duchesse d'Angoulême and Uvedale's St. Germain: from this cross we hope to raise a very large melting, yet long-keeping Pear. There are many other crosses among the two or three thousand seedling Pears, raised from choice sorts, now under culture here. I have mentioned the above as a hint to those who take an interest in such matters. In olden times, fertilising Pear blossoms was no joke, for those selected and crossed were, as often as not, killed by some spring frost. The culture of choice Pears in pots, which will one day be universal, has broken through this difficulty, for in the orchard-house or Pear-tree house every blossom opens, and if air is admitted freely, generally sets its fruit. The tedious operation of crossing is, in such places, a positive pleasure, and the mind is full of hope.

In referring to our successful raisers of new fruits, we should not forget the services rendered by Mr. Williams, of Pitmaston, who raised many new Pears by crossing; too many of them partook of the nature of the Swan's Egg, which he employed to give hardihood, but which took from his Pears the fine flavour now required. One of his most successful crosses is the Gansel's Seckle, which partakes of the fine flavour of Gansel's Bergamot and the Seckle. Another fine Pear of his raising is the Bell Pear, so named from its shape; this is a great favourite in America as a winter Pear, and bears a Frenchified name, "Belle Williams." The Duchesse d'Angoulême Pear, raised at Pitmaston, I do not know, nor have I ever seen it. *Thomas Rivers.*

VEGETABLE PHYSIOLOGY.—PRUNING.

You deserve the thanks of horticulturists for directing attention to the backward state of vegetable physiology amongst us, so far as its practical applications are concerned, though probably the illustrations you adduce will not be accepted as decisive, for it so happens that neither of the statements referred to (p. 813) will be generally endorsed by horticulturists. We are by no means convinced that the Grape Vine abhors lime, nor that the immediate effect of pruning is the encouragement of a greater supply of sap to flow towards the parts that are left. The majority of students or practical men would rather endorse the exact opposite of these two propositions. The teachings of science and the results of practice vindicate the wisdom of placing lime within reach of the Grape Vine, and explain the vigour that ultimately results from severe pruning upon quite a different hypothesis to that given.

It may be well at the very outset to guard against supposing that all the statements that may have passed unchallenged at the Congress, were approved by those assembled. The fact was far otherwise. We met, as it were, under high pressure. There were 10 or 11 papers to be got through at each sitting, and had not the sternest self-control been exercised the work could never have been done. From the extent of matter to be presented, criticism was necessarily limited; hence many statements were passed unchallenged that were totally disapproved of. For instance, both those that you have selected were mentally condemned at the time by the writer—the former as destitute of general proof, and the latter as being so expressed as to lead to a misapprehension. As Mr. Cramb has already been appealed to, to fortify his position, I will not now further advert to his anti-lime theories. As to the effect of pruning upon the flow of the sap, the whole matter turns upon a certain amount of force being either more or less concentrated or diffused. The same or even a lesser amount of sap, confined to a smaller area, and compelled to flow through fewer channels, will manifest itself with greater energy. The pruning, however, does not cause a greater flow of sap than before, it simply compels it to pass through fewer vessels, and hence it flows with greater strength. The greater portion of the fluid, that would otherwise have been diffused over so many square feet, is concentrated within the compass of a few inches. The force thus seems greater because the space for its exercise is less. No more—not so much—sap is raised or distributed, but it is confined to fewer outlets.

Possibly this concentration of vital force may ultimately lead to an increase of power; but the first result of pruning is not a gain but a loss of vital energy, it lessens not increases the volume of the sap. The balance of the plant is thrown out of gear, the regular distribution and utilisation of its fluids is interrupted, the inlet of crude matter and outspread of finished products is interfered with, and so far all pruning is an evil. It interrupts growth, stops elaboration, hinders collection, arrests supply, and cuts off demand.

Pruning to induce fruitfulness is as unphilosophical as it is unprofitable. The amount of fruit gathered from a given plant will depend mainly upon these conditions—its strength, its size, and its capacity for fruit-bearing. Now, strength can be given by culture as readily as by cutting; at least, it would be a most serious reflection upon our science and practice if our only or our likeliest mode of promoting the strength of a plant consists in the old barbarous recipe of cutting its head off. And surely it is, to say the least of it, an extraordinary way of increasing the size of a plant to cut half its area away; while in regard to fruitfulness, top-pruning is worse than useless. Such rambling growing plants as the Grape Vine must be pruned to reduce the crushing loads of fruit that they would otherwise carry. But whoever heard of a tree being compelled into fruitfulness at the bidding of the pruning-knife upon its branches? No; we now have a perfect panacea for the induction of fruitfulness—the knife, handled by wisdom among the roots. This without fail clothes the topmost bough with fertility. [The paper criticised argues against root-pruning, in favour of summer pruning. "D." writes as if knife or winter pruning had been recommended to induce fertility, whereas it is exactly the reverse. Eds.] It may still be needful to cut branches into shape, or to limit their range, but top-pruning as an aid to fruit-bearing is well nigh out of date. Soon from every garden may be heard the refrain of an old song with variations:—

> "Pruner, spare this tree,
> Touch not a single bough;
> In youth I cut into thee,
> But I'll protect thee now."

With this comment upon the living growing, rather than the dormant semi-dead, tree, I return to the subject of Vegetable Physiology. One of the chief reasons why this science has rendered so little service to practical horticulture, is that it has been studied chiefly in its relation to structure rather than life. The microscope, the dissecting knife, and chemical or mechanical analyses, necessarily deal chiefly with dead rather than living things. But experiments upon dead plants never can unravel all the mysteries of life. Organism and matter are essential to most forms of life, but they are not life itself, nor its masters. The weakest part of our science and practice to-day is our ignorance of life, and consequently of its mode of operating upon and subduing matter to itself. We had a good illustration of this at the Manchester Congress in relation to the first paper read there. Almost every speaker, from his Grace the Duke of Buccleuch downwards, seemed to think that if only an analysis were made of the soil in which the best Grapes were grown, the problem of growing good Grapes was well nigh solved. Now passing over for the present the objection to such a theory stated by Dr. Masters, that the mechanical structure of

soils is probably of more cultural import than their chemical constituents [within certain limits. EDS.]—an opinion that I thoroughly endorse—we have two of the most powerful factors of production entirely ignored. These are, the vital force of the plant, and the differing skill of various growers. It must be obvious how much depends upon the latter. But the modifying power of the vital force is less thought off. The best physicians tells us that the surest antidote to disease is a well-balanced, vigorous circulation. This covers our bodies with a coat of mail, disease-proof, and makes us well nigh invulnerable to the inroads of bodily suffering. The same will hold good with plants—a powerful current of vitality will turn aside the sharp edge of withering disease, and prove the strongest antidote to failure.

I am glad to find that such causes are not unrecognised by the best cultivators. I had the pleasure of returning from the Manchester Show with Mr. Ward, of Bishop Stortford, the successful Grape and Pine-grower. In conversation I learnt that he never stopped the leading shoots of his Vines, but let them run down the back wall, or anywhere, no matter where indeed, provided they were kept growing. He was most particular about doing this with Muscats—they ripened so much better in consequence. Undoubtedly they would. The growing shoot maintains the vital current at the flood-tide of its power, until checked by the ripening wood, and the golden-coloured Grapes, proclaiming, in language not to be misunderstood, it is enough! But every strong shoot stopped in mid-career arrests progress, produces a period, more or less long, of semi-stagnation; and often, with Muscat Grapes especially, checks the swelling or ripening of the fruit. But providing, by the preservation of a free-growing leader, or head, a full current of sap up the main stem—from bursting bud to sere and yellow leaf—there is no sudden stoppage in the growing career of life, and the fruit reaches maturity without check or failure. Now, no analysis of soil, no dissection of plant, no examination of its produce would tell whether a leading shoot had been stopped or allowed to run on; and yet such a fact might influence the flow of life and its products more than the nature of the root medium, or how much sand or lime it contained.

Again, the importance of looking at vegetable physiology in its relation to life rather than to mere organism or structure, will be apparent, if we inquire whence come the products of plants. Is, for instance, the lime found in Grapes absorbed or manufactured by them? I hope to return to this subject. For years we have been occupied with the products of life—the time seems to have come when we may try to unravel some of the deeper mysteries of life itself. *D.*

THE BEST OF THE CULTIVATED ANEMONES.

Anemone alba (white Wind-flower).—This I have not met with in cultivation in England, but have seen it flowering very well, with no particular attention, in the open borders in the Jardin des Plantes at Paris. It is best described as a dwarf and stout Anemone sylvestris, and is a native of Dauria, Russian Asia, the Crimea, and doubtless the Caucasus. The leaves of the only specimen I have seen alive were only a few inches high, and the handsome white flowers, somewhat like those of the fine large-flowered variety of Clematis montana, rose an inch or two above them. Till plentiful it should be grown in deep fibry loam on the rockwork. Flowers in June, 4 to 6 inches. Propagated by division and by seeds. (Bot. Mag. 47, 2167.)

Anemone alpina (alpine Anemone).—This is sometimes almost too stately to be classed with the little dwarfs that we usually term alpines. But on nearly every great mountain range in northern and temperate climes, it is one of the most frequent and well-marked plants. Climb high, or cross a range, and you will find it low and humbly holding up its velvety cups, but in descending through the rich green meadows to reach again the roofs of men, you will brush against many of its stems nearly as tall as the knee, each bearing a beautiful round head of silken-bearded seeds. You may see it in every stage on the same day, and on the lower terraces of the great mountains and in the green slopes of the valleys it assumes somewhat about the same proportions as in our gardens.

It is entirely distinct from most of its cultivated brethren in its large or much cut leaves, its size, and the very soft down on the exterior of its flowers. The interior of the flower is white, the outside being frequently tinted with pale purplish blue. It grows from a foot to 18 inches high. Comfortably situated on a rockwork it begins to bloom about May-day. Flowers in its native country as the snow recedes, and in our gardens in the end of April or beginning of May. When plants are well established in good soil they may be taken up and readily divided, even with advantage to themselves, or it may also be raised from seed. Visitors to the Alps might bring home quantities of the seed. (Lodd. Bot. Cab., 1617.)

Anemone apennina (the Apennine or Blue Mountain Wind-flower) has erect flowers of a bright sky-blue—the blue of an Apennine, not a British sky. These star-like flowers are larger in size than a half-crown piece, and are paler on the outside than within. The plants grow in dense tufts, so that, though there is but one flower to a stem, they are thickly scattered over the low cushion of soft green leaves. Although figuring in most of our works on British plants, and naturalised at Wimbledon Park, Cullen in Banffshire, Tonbridge Castle in Kent, and various other places, it is not a true native of this island. But the hardiest of our native plants take not more kindly to our clime; and neither the Bluebell, the Forget-Me-Not, nor the Speedwell surpass its purity of colour, while it has more than their profusion. It is one of the sweetest of spring flowers, and among the many lovely plants that gem the Alpine or Apennine pastures there is not one more worthy of being abundantly naturalised in the groves and shrubberies of all parts of these islands. It is welcome in the garden and on the rockwork; but it will be only when we see it scattered amongst and contrasting with the native Anemones in our woods, or making glorious mixtures of gold and blue with the Buttercup-like Wind-flower in open spots along shrubbery walks, or running wild among any other dwarf plants with which the woods or pleasure grounds are graced, that we shall be able to realise the fact that this Italian beauty can add a new charm to the British spring. The Apennine Anemone flowers in March and April, is very readily increased by division, and grows about 4 to 6 inches in height. (Eng. Bot. 15, 1062.)

Anemone blanda (Schott).—This is a near relative of the Apennine Wind-flower, and a very lovely plant, deserving to be cultivated in every garden in the British Isles. It is of a fine deep sky-blue, like its relative, and appears to have larger and more finely rayed flowers. It has dwarfer, harder, smoother and more deeply cut leaves than the Apennine Anemone, and flowers in the very dawn of earliest spring. It is a native of the mountainous regions of Greece, Thrace, Macedonia and Asia Minor; countries in which, so far as I know, Anemone apennina is not found. It was introduced from Greece by Messrs. Backhouse of York, and by them abundantly distributed as the Apennine Anemone. When at York last May, it immediately struck me as presenting quite a different aspect to the apennina, and I am now satisfied that it is A. blanda. The allusion in the Messrs. Backhouse's catalogue to apennina flowering in spring, and sometimes (when transplanted the previous summer) forming a carpet of blue simultaneously with the Snowdrop and the Aconite, has simply arisen from the valuable early flowering habit of the Grecian plant. It flowers continuously too, and may be seen in flower with apennina. It would seem to be perfectly hardy and vigorous everywhere, and, from the harder and smoother texture of the leaves, I believe it would stand exposure to cutting winds and sleet even better than the very hardy Apennine Anemone. In a word, it combines every good quality of a hardy alpine plant; should be grown on every rockwork, planted on bare banks, catching the early sun in the pleasure ground; should adorn the spring garden, and when sufficiently plentiful should be naturalised in half wild places along with other free and hardy members of its charming family. It does not grow more than 4 inches high, and increases by division as freely as any of the family.

Anemone coronaria (garden Wind-flower).—A native of sub-humid pastures in the south of France. This plant has been one of the most popular in gardens from the very earliest times. There are, as everybody knows, a great number of varieties, both single and double, all worthy of cultivation, and great ornaments of the spring garden. The single sorts may be readily grown from seeds, and they should be thus raised by those wishing a large stock of effective spring flowers. Infinitely varied as they are in colour, and possessing most vigorous constitutions, they deserve to be cultivated even more than many double varieties annually offered by our seedsmen. The plantation of these double varieties may be made in autumn or in spring, or at intervals all through the year to secure a continuity of bloom; but unquestionably the best bloom is secured by September or October planting. The Anemone does best in a rich deep loam, but is not very fastidious. The roots of the more appreciated and select kinds may be taken up when the leaves die down, but they are in few cases worth this special attention simply because many splendid varieties may be grown as readily as any native herbaceous plant, and we had better spend our extra pains and time in cultivating new and distinct species of hardy plants, rather than in the numerous varieties of one kind. If the seed be sown in June, and the plants pricked out in autumn, they will flower very well the following spring, so that this fine old plant may be said to be almost as easily raised as an annual. Flowers in April and May, red, white, and purple in variety. Height, 6 to 9 inches. Propagated readily by seed or division. (Bot. Mag. 22, 841.)

Anemone fulgens (scarlet Wind-flower).—The white Lily is not more conspicuous for its purity among border flowers than this for its fiery brilliancy amongst the flowers of spring. It is a perfectly hardy plant—vigorous, too—the large scarlet flowers being boldly supported on stems about a foot high, springing from a dwarf mass of hard, deeply lobed and toothed leaves. It is a native of Greece and Southern Europe, is by no means common in gardens, and is, indeed, unknown to the majority even of those who grow and care for spring flowers; but it will ere long become popular, being one of the noblest ornaments of spring, and, as a scarlet flower, almost unrivalled. It is admirably suited for culture as a border plant, indispensable for the rockwork and spring garden, and, when sufficiently abundant, may be tried amongst the other Anemones scattered about in half-wild places. Flowers in April and May; vivid scarlet. Height, 1 foot. Propagated by division or by seeds. (Rchb. Ic. Crit. 3, 221.)

Anemone nemorosa (Wood Anemone).—This hardy beauty, which not only embellishes the woods of this sea-girt isle in spring, but also those of nearly all Europe and Russian Asia, is so abundant in the British Isles that I have little need to plead for its culture. It grows, or will grow, in every wood or copse, dotting its handsome flowers all over the ground should other things not interfere, and seeming to invite us to plant other beautiful species of Anemone by its side. They tell us in the books that it grows in or near woods; and so it does in profusion, but I once met with it blooming sweetly on some of the very highest and most inaccessible crags of Helvellyn, just under some cliffs where a peregrine falcon had built her nest, and very far away from either wood or copse. There are double varieties, and the colour of the flower is occasionally lilac, or reddish, or purplish. I have a single sky-blue variety, which has flowered densely in a fully exposed position, and produced the most exquisite cushions of cœrulean blue imaginable. One day I hope to see it a popular garden plant. Flowers in March to May; white, and reddish outside. Height, 6 inches. Propagated by division. (Eng. Bot. t. 355; new ed. t. 77.)

Anemone palmata (cyclamen-leaved Wind-flower).—This is a very distinct kind, with leathery, kidney-shaped, slightly lobed leaves, and large handsome flowers, of a glossy golden yellow, only opening to meet the sun. A native of North Africa, Spain, and other places on the shores of the Great Sea, this charming flower requires and deserves a little more attention than most of its cultivated sisters. It is especially a rockwork gem, and should be planted thereon in deep turfy peat or light fibrous loam with leaf-mould. It should not be placed in positions on the face of rocks suited for Saxifrages and many other plants that are content with mere crevices and drape the face of the rocks with the slightest encouragement, but rather on level spots, where it could root deeply and spread into firm tufts. Plants of very rapid growth or rambling habit should not be placed near it, as they might overrun and injure it. There is a double variety, A. palmata fl.-pl., and a white one, A. palmata alba. Flowers in May and June. Height, 6 to 8 inches. Propagated by division and seeds. (Bot. Reg. 3, 200.)

Anemone Pavonina (Peacock Wind-flower).—This kind, though so distinct and fine, is very rarely seen in our gardens, but is well worthy of being largely grown. The flowers are smaller than those of the common garden Anemone, but usually very double, from the great number of narrow painted petals filling up the centre of each. These being of a gorgeous cinnamon-red, and the flower opening well out, the effect is peculiarly rich. Sometimes the central petals are green. The plant is a native of the South of Europe, is dwarf, should have a light, warm, well-drained soil, and is a charming ornament of the rockwork or border. In France I have seen it used with good effect as an edging plant for beds of spring and early summer flowers, but with us it is as yet too scarce to be employed thus. It is, however, rather abundantly grown in gardens in the South of France, and may be readily obtained by our nurserymen. Flowers in May and June; rich red. Height, 6 to 9 inches. Propagated by division at the end of the summer growth or very early in spring. (Rchb. Fl. Germ. 4, 49.) *W. Robinson.*

(To be Continued.)

Home Correspondence.

Mushrooms in India.—I can fully corroborate the statements of Mr. Clifford in your issue of August 21 as to the spontaneous growth of the Mushroom throughout the north-western provinces of India. I have during the past 25 years, repeatedly eaten it in India and used to have it regularly collected for table. The natives in the hills eat many other species of Fungi, some of them of a large size. I have, however, heard of two cases of poisoning, although on inquiry I was not able to identify the species that had produced the mischief. But to the point. I never heard of any difficulty in growing them, if a little care were taken in forming the beds. Unless my memory deceives me the Indian gardening books, such as Speed, Firminger, and others, all give directions for their growth. The bed should be made in a tolerably cool place, facing north-west is best, and they should be placed under a rough shed of any kind, with a back wall, but open on the three sides. This secures light and air. Take then any moderately good earth, and put a layer of say one foot. Damp, and slightly beat down flat; then a layer of from four to five inches of fresh horse-dung, moist naturally, and slightly watered. Spread flat, and lightly beat; then a layer of good soil for three or four inches. Keep watered every day, and in a short time the spawn will be formed. In the rains—say July and August—is the best time for this work. The larger the bed, and the more protected, always allowing light, the better it is. But remember, the bed should not be sodden, as very great heat will be generated, which will effectually kill everything save a few surface Fungi which are not eatable; and when this stage has passed and the cold sodden stage has arrived, there will be, especially in the rains, an abundant crop of Fungi of many kinds, but no Mushrooms. Mushrooms often appear spontaneously in deserted or unused stables, cowsheds, &c.; but those gathered on parade-grounds, which are generally well trodden grass-plains, are by far the best. I should add that a little care is necessary in the collection of the horse-dung, or, as Mr. Clifford remarks, it will be, from the causes assigned by him, quite dry and worthless; but this will suggest itself to any practical gardener. I cannot conceive white ant earth being of any use in gardening. It is collected and used by masons to mix with lime, and is generally very silicious. I have never analysed it, but shall be happy to send you a small quantity, should you wish to do so. The only growth I have ever observed on it, or in the nests, was that of a very small fungus, less in size than an ordinary pinhead, and often mistaken for the egg of the termites, in shape resembling a button Mushroom, of a white colour. Of course the surrounding vegetation roots into it, but sparingly, on account of its great dryness. I should not think that there would be any use in exporting spawn, or that it would arrive in good condition, although the time occupied by the pattern-post in transit is very short, if the packet be small. *C. H.*

The Congress and its Critics.—It is not common with respectable people to cry stinking fish, and then proceed to buy them for dinner. Such, however, has been the conduct of some of your contemporaries. The

Congress is nought but a dead failure, they have cried, and forthwith its proceedings are served up to its readers. This is not creditable. It is not courteous to the Congress, nor respectful to the Horticultural Society. I wonder, in fact, the latter did not protest against the Congress papers appearing with such a preface. Self-respect may make the next readers stipulate against their essays being printed in certain papers. Complaint has also been made of men being compelled to sit in stuffy tents to hear papers read; and almost in the same sentence it is insinuated that there were but few who thus did penance. Both statements can hardly be right; and it would not be wonderful if neither were, as it is doubtful if the writer condescended to become one of the audience. But a truce to such trifling criticism; it is not worth type—leaded or otherwise. Upon the whole, the Congress was both useful and successful. The interest and attention, taking all things into consideration, were also good. In judging of both, it must be borne in mind that the Congress opened with a motion for adjournment, as the Princess of Wales was expected in the grounds. This alone was sufficient to thin the audience. The proceedings went on throughout the whole of the first day in momentary expectation of the beautiful Princess. Is it to be wondered at, that many who had never seen her Royal Highness, or, having seen before, were on that account the more anxious to feast their eyes upon her beauty, hovered outside, or even went off to the Agricultural show grounds (where all knew the Prince and Princess to be) to see her? During the proceedings, too, cheering was heard several times, and of course many or all thought that royalty was coming. The wonder was that, under such conditions of excitement, the audience continued so good as it did to the very close. It spoke volumes for the interest taken in the Congress, and the self-restraint of gardeners, that it did not prove an utter failure. Had it done so, no one could have been greatly blamed; and surely those that were true to horticulture under such temptations are entitled to something more than a sneer from those who ran away. This expectation of royalty during the first day likewise explains why the audience was as good or better upon the second day of the Congress—which showed that horticulturists had not become tired of it; the longer it sat, the greater the interest it excited. With fewer papers and more discussion—the reader of the paper not being permitted to reply until all others had finished their criticism—these Congresses will become yet more instructive and useful; but for a first attempt, I agree with Mr. Anderson, that the affair was creditable to all concerned, and useful to the whole profession. *Lynx Eye.*

The Swarm of Lady-birds.—For some weeks past we have had in the eastern counties a profusion of Lady-birds, and on Saturday last the tail of the swarm that seems to have abounded along our immense stretch of coast came here in great numbers, though nothing like what you have described as being seen at Ramsgate and other places. During the latter part of the week ending August 14, the cliff at Walton-on-the-Naze, in Essex, was thickly covered with Lady-birds. This swarm extended to Harwich, where, on the following morning, the streets were mottled with them as if they had been paved with coral. A correspondent of the *Bury Free Post*, writing from Walton-on-the-Naze, says, that on Sunday the 15th, you might see the Lady-birds returning inland like bees to their hives when rain is impending, A wind blowing towards the sea appears to have taken them in that direction, and as soon as the wind changed they seized the opportunity of going back. It is singular that the greatest mass of them should have congregated on the sea-shore. We have had nothing like a shower of Lady-birds in this district, although every plant, and in fact every vacant space, the surface of Grass and gravel, iron and wood fences, &c., is sprinkled thickly with them in an extraordinary manner. I have watched quantities of them, and their conduct seems most purposeless. Whether they have come to die or to live upon aphides seems quite immaterial to them; as many will be found clustering on a wooden post as on living plants, and I fancy rather more: neither do they seem to favour plants laden with aphides more than those that are clean. Has any one ever seen a Lady-bird eat green-fly? I believe the larvæ can give a good account of such things, but not the perfect fly. Probably some of your obliging entomological readers will tell us all about it? The swarm of Lady-birds seem some way behind the clouds of aphides, neither does it seem that the two are on the same tack. May this, however, not be a case of larvæ eating larvæ, and one of those mysterious balancings of life that are so common throughout the universe? Presuming, however, that the young unfledged Lady-birds devour the young aphides, what swarm of insects, birds, or beasts will be likely to come to keep the Lady-birds within proper bounds? And what next, and next? A little light upon this matter would be most acceptable just now, while these unusual swarms of insects are exciting public attention, and no one can certainly say whence they come, nor whither they go, nor why? *D. T. Fish.*

Pine Beetle.—I have enclosed for your inspection and opinion some different kinds of Pines that are infested by some kind of small beetle, not known to me, which I fear will prove most destructive to all the Fir tribe. They bore into the centre of the young wood, as may be seen in the specimen enclosed, and when the top becomes dry or withered they move off to another part, or fresh tree I think, at night, as I have confined some under a glass, and find them much more active, and frequently on the wing, during that time than during the day. This I have observed by putting in a piece of the green wood, and watching it closely. I have had the opinion of Mr. Bundy, the eminent forester of G. Tomline, Esq., M.P., and he apprehends serious consequences to all this tribe of plants, if the ravages of the insect cannot be arrested. Any information on the subject would greatly oblige in the *Gardeners' Chronicle*. I am very carefully having all the affected parts cut off and burnt. Do you know of a better way of destroying them, as I find they spread fast? *John Pottle, The Gardens, Bealing's Grove, August* 18. [We forwarded Mr. Pottle's specimens to Mr. Murray, who has made a special study both of Coleoptera and of Conifers, and under whose auspices a collection of insects and insect products interesting to horticulturists is being formed at South Kensington. Mr. Murray's reply is as follows:—"The injury done to the Pines sent by Mr. Pottle is caused by the well-known beetle, Hylurgus piniperda. It seems to be extending its ravages; for although it has, like poverty, always been present with us, we have had it more frequently brought under our notice of late years, and at no time that we can remember so often as during the present year. No preventive from its ravages has yet been found, nor can we recommend any better course than that which has been taken by Mr. Pottle himself. As, however, he seems to have peculiar advantages for studying the habits of the insect, and has obviously the talent for observation necessary for such a task, we would invite him to endeavour to clear up some points in its history which are as yet imperfectly understood. It attacks all the Pine tribe, but none of the Firs (meaning by the latter the Spruces and Silvers, &c.). It does not confine itself to the young shoots. A good series of the different parts attacked may be seen in the Horticultural Society's Entomological Collection in South Kensington, where borings in the bark and in the solid wood next the bark, as well as in the leading shoots, are exhibited; but we do not think it is known where it lays its eggs, nor how far it is the perfect insect or the larva that bores in the young shoots. Under the bark of the full-grown tree we have seen it in numbers in all its stages; in the young shoots the perfect insect is usually found *solus*. We have seen the larva in the young shoots, too, but the shortness of its gallery there and the uniformity of its width rather indicates that it is the work of the grown insect. When, and under what condition, it occurs in the larva state in the young shoots is a subject for inquiry, and others will occur to Mr. Pottle as he goes along (they always do in every inquiry), if he will only undertake it."]—Enclosed is a Pine twig, in the centre of which is this destructive beetle. I observed it last summer in our private nursery among a lot of Pinus Pinaster and Scotch Pine. This summer it is still more numerous in the nursery; but, what is still worse, swarms of this insect have attacked a permanent wood of Scotch Pine, and I fear that every tree will be destroyed by this pernicious little wood miner: the ground underneath the trees is literally covered with the young shoots of the Pines, and the trees have the appearance of weepers, all their terminal shoots drooping. The beetle bores into the twigs an inch or two from the end, and gouges a perfect tunnel up the centre, and makes its exit out at the bud. I do not think that any poisonous liquid or powder can practically be applied to destroy the insect, the only alternative must be to cut down all the trees attacked, and burn the lops and tops. I should be glad of any information respecting this wood destroyer. Is it generally numerous this season? I have lately read of swarms of aphides and Lady-birds; surely insects of all kinds are unusually plentiful this year. *George Berry, Longleat, Wilts.*

Oak Tree in a Bottle.—The cause which you assign for the pale creamy-brown exfoliations from both stem and root (p. 865), is not to my mind satisfactory. Herewith I send another specimen, in which there are no such abnormal developments, and yet the cork has been always kept in the bottle. One acorn was suspended (just above the surface of the water) about a fortnight before the other, and one was brown and fully ripe, while the other was green, when picked up; but I forget which was which. Is it not more than probable that the unhealthy plant came from the fruit which fell before it was ripe? Both plants stood on mantelpieces on the north-west wall of the house—the bedroom in which the diseased plant was having a south-east window, while the bed-room in which the healthy plant grew had a north-east window, and no ray of sun can get into this room. *W. T.* [*Peccavimus*,—we have made a mistake. Two perfectly sound and well-ripened acorns grown in water in a hyacinth-glass, the top of which was always open, presented exactly the same appearances as those in the closed bottle, so that our explanation falls through—as also does our correspondent's. Who will suggest another? Eds.]

Golden Champion Grape.—Your correspondent's experience in the cultivation of this Grape (see p. 896), tallies to the very letter with my own. I bought a two-guinea plant for purposes of inarching late last autumn. It was too late, however, to do anything with it, and I decided to ripen it off, and inarch it in spring. It was a good strong cane when received, with a fair proportion of leaves, but far too flaccid, showing evidences of being grown under the pressure of a too forced cultivation. The consequence was, the wood never ripened to be satisfactory. I started it in spring in the usual way, alongside of a batch intended to do duty as pot Vines. All its fellows broke well into growth, and so did the Golden Champion, and I had hopes of having lots of capital scions for selection to inarch upon a Hamburgh stock. In a few weeks it showed so much sign of debility, that I presumed it had been attacked with a form of disease. Unlike weakly plants of other Vines, which become attenuated in their elongation, this Vine stopped short all at once; the points showed symptoms of decay, and the whole plant looked as if completely paralysed. Had I not seen it growing strong as an inarched plant at Dalkeith I should have concluded that the constitution was bad; that however desirable the Grape might be, it would require too much the treatment of a convalescent home ever to be generally valuable. The great demand for the sort has no doubt led the sellers to adopt every measure within their power to extend its numbers, and hence we have a lot of pampered individuals to begin with. There is a considerable cry out in the north as to its failure, which may be explained away from this cause alone. It seems impossible to get at all the desirable qualities as to constitution, hardihood, and prolific bearing, combined with those palatable qualities which every Grape ought to possess; and I am afraid that the Golden Champion, in some of these respects, will fall short of the estimate formed by sanguine supporters. It is well, however, in order to arrive at unbiassed or mature conclusions, to have it tested fairly, and this can easily be done after another year's trial. A good Grape is a very desirable thing to have, and it is the duty of all to support its distribution in commerce. There are so many Grapes of questionable properties, however, in recent years put into the hands of the trade, that as soon as they are proved unworthy of culture, they ought to be forthwith condemned. *A Scotch Grower.* [Some later letters on this subject must stand over till next week. Eds.]

The Wasps.—"Never halloo till you get out of the wood" is a wise proverb and sound advice. It is peculiarly applicable to garden pests. I have heard a good many congratulate themselves and each other, that though we had little fruit, what there was would be safe from the wasps. Here we are past the middle of August, and I could count all the wasps seen on my ten fingers. Some had even credited the wasps with a sort of superhuman foresight; the wasps foresaw there would be but little luscious fruit, and forebore to multiply and increase, on the principle of maintaining a certain relative proportion between mouths and food to fill them. But the 21st of August arrives, and with it the wasps; they are only a little later than usual, that's all; and they seem bent upon making up for lost time by rapid eating. I have had difficulty in getting some ripe Grapes out of their way. They swarmed round like bees while they were cut and stored *à la* Robinson. I find the water and charcoal regimen useful in summer to baulk the wasps from the remnants of early vineries. Green or unripe Grapes are safe enough. The wasps are too good judges of quality to eat sour fruit. Cherries, Currants, Gooseberries, as well as the few Apricots and Plums, are all attacked, and in addition to battling with other insects and speculating upon Lady-birds *v.* green-fly, we must make haste and bottle or burn the wasps if we are to have any dessert for the winter. *Quercus.*

Pepper Tree.—In a notice of Mr. Markham's Consular Journey in China, through the province of Shantung, the *Times* (of Aug. 9, 1869) states that—"Several varieties of silk are produced: one kind, which no moth will touch, from a worm that feeds on the Pepper tree." On mentioning this to a silk-broker, he informed me that silks from Shantung have only recently come into the English market; and he kindly sent me a slip of a beautifully soft silky fabric, labelled "Shantung Pongee." Can your learned correspondent, "I. O. W.," tell us whether this Pepper-worm belongs to a new species of Bombyx, or is it merely one of the known kinds feeding upon a plant on which it does not usually feed? And further, what is the Pepper tree? Piper nigrum and its allies have no greater pretensions to be called trees than a Vine has. Can the Papaw or Pippul trees be meant? Both have milky juice. *W. T.*

Currant Mite.—I observe that Professor Westwood (I suppose it is no breach of his *incognito* to consider the letters "I. O. W." appended to an able article on an entomological subject as the initials of that well-known authority) in his description of the Currant Mite in a recent number, p. 841, refrains from giving it a specific denomination, doubtless with the highly proper motive of not encumbering the scientific nomenclature of the subject with a name, which a better knowledge of the creature in question may possibly hereafter show to be a synonyme of some other stage of the insect. I think, however, that, as in everything else, there is a medium to be observed in regard to this abstinence, and whenever the convenience of those interested in the subject requires a name for it, that it ought then to be abandoned. At present it would be convenient for me, and no doubt for others also, to have a name by which to distinguish this Currant mite from other mites which may be occasionally found on the Currant. I am now placing it with relative drawings in the Royal Horticultural Society's Collection of Economic Entomology, now gradually forming in the South Kensington Museum, and it ought to have a name. I do not choose to adopt the old continental plan of giving it an unpublished one, and therefore (subject to Professor Westwood's approval) would propose for it the name of Acarus ribes. *Andrew Murray.* [With all deference to our correspondent, with whom we fully sympathise, we would nevertheless suggest that the proposed name be not affixed publicly to any label till Prof. Westwood's return from the Continent. Eds.]

Rose Enemies.—Will you kindly say what is the best way to destroy maggots and green-fly in the pith of Brier stocks lately budded. These creatures appear to eat their way down to the buds, and entirely destroy all the virtue of the Brier. Several people in this neighbourhood are troubled with the same pest—one that we have never before this season noticed. *W. S.* [Mr. Radclyffe has had the kindness to give the subjoined answer to this question:—If the Brier is not headed down to the branch that is budded, I should cut it down to the branch in a sloping direction, and cover the head of the stock with grafting wax. It is evident that the Brier is not ripe. In all cases it is safest to cover the head of the stock with grafting wax. The maggots may probably be destroyed by a probe. If they are beyond reach I should pour down a little

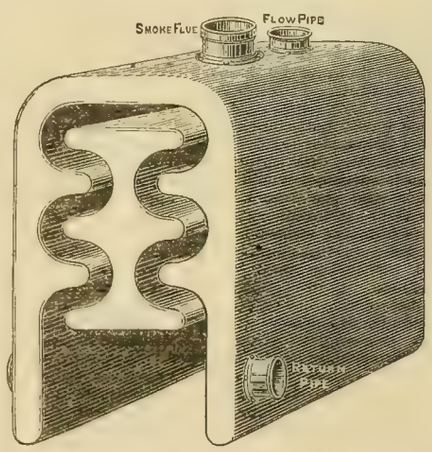
methylated spirits (as an experiment!), as it is destructive to insect life. I have never tried it on insects infesting the pith of Briers. It is a good cure for scale and green-fly on Peach and Nectarine trees. *W. E. Radclyffe.*]

The Vapourer Caterpillar.—In my first note about these pests I stated that the Roses had seemed stunned ever since; I attributed this semi-stoppage of life to their being so suddenly stripped of every green leaf. This had probably checked root action, and produced a temporary stagnation. But as they are still leafless I have made a further examination. I enclose a few morsels of wood, to show you with what results. The horrors have picked out the buds as cleanly as if it had been done with a knife. They have thus destroyed the growing points, and rendered growth impossible. We are now waging daily war against the Vapourer, and hope speedily to extinguish them root and branch, or egg and fly rather. We cannot afford to give any quarter to caterpillars that feed daintily upon Rose buds. *D. T. F.*

Hydrangeas, Blue and Pink.—When gardener to the late H. C. Compton, Esq., Manor House, Lyndhurst, several Hydrangeas of various sizes, out of a large number in the garden and shrubbery, &c., annually produced blue and pink flowers on the same plants. In two or three weeks the pink colour changed to blue. *J. Farwell.*——I am happy to give you what little information I can gather about the Hydrangeas in my brother's garden. When he first came to this residence (five years ago) the bushes were quite small, and evidently had each but one base. The first three years the flowers were only pink, and it was not until last year, after an unusually late and severe frost, that they showed any blue flowers. The gardener says the bushes were very much cut by the frost. This year the number of blue flowers has increased, and the colour has deepened. They have never been pruned or cultivated in any way. *L. Perkins, Hythe.*

Orchard-houses.—In your last impression Mr. Thomson, Dalkeith, says, non-fire-heated Peach-houses have failed. There is the usual crop here in that description of house, from which it would appear the blight is not universal. *John Halliday, Scone Palace, Perth.*

Hothouse Boilers at the Manchester Show.—Some few weeks since Mr. Ayres suggested in the *Notts Guardian*, as one means amongst others of adding to the interest and increasing the usefulness of the provincial shows of the Royal Horticultural Society, an actual trial of the heating capacity and coal-consuming power of hothouse boilers. Doubtless if a series of houses of similar construction and equal capacity, were furnished with the same extent of piping—were provided with boilers of the same size, but of different makes, shapes, and materials—with time and coal exactly apportioned to each, and the results carefully noted, some most useful data might be collected. Lest, however, the sun himself should enter the list against his puny competitors in the generation of heat, and disturb by his shining the exactness of the results obtained, perhaps it would be better still to conduct the experiments under an opaque roof. Equal areas of air might be apportioned to each boiler, and, all other conditions being the same—time, temperature, and consumption of fuel, would reveal to a nicety the rapidity, force, and economy of the heating capacity of the boilers. Such experiments would promote the interests of the best boiler makers, while protecting those of the public. It would likewise prove a great boon to practical gardeners, who are often sadly bewildered by the conflicting statements of different makers, and the rash judgments of the different users or critics of boilers. As an instance of the latter permit me to refer to your number for August 7, in which two boilers that are highly thought of by many are contemptuously dismissed in a few lines in favour of an unknown boiler, eulogised by the writer as possessed of something like magical heating power, and set forth as being able to save from 600 to 800 per cent. of fuel as compared with ordinary Saddle or Cannon boilers! And this saving, it seems, is to be mainly effected by setting the boiler with reverberatory bricks! Reverberatory bricks? Are not all bricks enclosing fire reverberatory? To give and take is the law of their position. What heat indeed can they have that they have not received? Can it be seriously meant that these bricks are so placed around the "Conservative" boiler as to give back heat to it that they have not previously absorbed from the fire? If not, what is the meaning here, of the term reverberator? If they simply throw back the heat they have first absorbed, where do they differ from other furnace bricks, which all of necessity do likewise? Our coal bill amounts to 130*l.* a year, and I wait with great anxiety for an answer to these queries? If any new mode of setting bricks can give back to the boiler caloric which they have not previously absorbed from the fire, or if one end of the brick can be made a nonconductor of heat while the other can be forced to rebound it all back upon the boiler, the fortune of the maker or seller of such a brick is made. While waiting with the utmost anxiety for the fuller development of this grand theory of reverberation, which is to reduce our coal bill more than 100*l.*, we may as well take a hasty glance at some of the boilers shown at Manchester. An estimate of their apparent merits may at least be useful for historical, if no longer for practical purposes. It is, however just possible that if the reverberatory theory fails, we may have to return to such boilers as Mr. Ormson's "convoluted"—though, according to Mr. Milne's estimate of its merits, we could hardly do worse. He says that "the products of combustion pass through in an upward direction only once, then into the chimney; the philosophy of retaining the heat to the greatest possible distance seems to be lost sight of altogether." Now this is, to say the least of it, a very singular statement. It so happened that I made a careful examination of the boiler at Manchester, and so satisfied was I with its principle and power that I decided in my own mind to use it at the first opportunity. Its chief merits, as will be seen from the cut, are, that the fire is forced into curved lines and meets with a series of checks in its upward course. The whole force of the fire hits the bottom of the boiler; it is then divided into two huge streams that, like fiery serpents, coil themselves in scorching wreaths around and through the convoluted part. Tongues of fire leap up and lick round the curves of the boiler in all directions, and it is so constructed as to increase to the utmost extent the fire line, and to make it expend its full heating force upon the most effective points. By contracting the passages through the centre the energy of the fire hits the projecting curves, and heats them to the utmost. A good deal has been written about the importance of surrounding the fire with a water-jacket; but this boiler succeeds in surrounding the water with a fire-jacket, while it places inside the water a connected heart of glowing coal that beats against the boiler at every possible angle, thus connecting, probably as far as possible, the fiery energy of an upright shaft, with the absorbing power of a boiler placed wholly over the fire. It is common, I know, to boast, as your correspondent does, of the number of times that the products of combustion can be dragged through a boiler, or the distance these products can be carried from the fire before they are dismissed into the air; but one is tempted to exclaim *cui bono?* in reference to both performances. Probably before the products of combustion have half completed their wearisome journey, they are condensed into cold smoke, or a thick layer of soot, to the stoppage of the reverberation or condensation and absorption of heat. Of much higher importance than the torturing of such products through long passages, is the art of getting the heat out of the fuel into the water as speedily as possible. I know of no likelier means of doing this than by the use of these boilers, provided that the fire stream will, as the inventor assures us, describe the curves provided for it. In that case the vertical direction of the fire will bring out all the latent caloric of the fuel, while the barriers of iron and water that it meets with on its passage will ensure its rapid and complete absorption. The form of the



boiler also presents an immense surface to the action of the fire. Rapid absorption and a long journey speedily uses up the caloric, so that but little is left to be wasted up the chimney. But even should more heat escape from such a boiler than from the Conservative, it is by no means certain that the latter would prove the most economical. For the capacity of a given quantity of fuel to raise a certain volume of water to a given temperature, does not depend wholly upon the amount of surface exposed to the fire, nor the time that the fuel may be kept burning, but likewise, and largely, upon the energy and completeness of the combustion: and I know of no boiler more likely to ensure these two last conditions—without losing sight of a due regard to the former—than the one under discussion. The rapidity of the draught can be kept within bounds by the use of dampers, while the inside may be preserved at a glowing heat by the vertical action of the fire. The latter, instead of proceeding in an upward course only once, is carried in curved lines the furthest way round from bottom to top: in one word, the largest surface exposed to the highest temperature, placed in the best position for absorbing the greatest amount of heat, are the chief principles embodied and the great results obtained, I believe, by the use of this boiler. But for your correspondent's remarks I should have preferred being silent till I had tested the boilers themselves; but the interests of the public and common justice to inventors has compelled me to speak out. I would go 100 miles to see it proved that the Conservative boiler saves 600 per cent. of fuel, in comparison with a well-set Saddle boiler; and if the proof can be made satisfactory, I will guarantee to order one or more of the boilers on the spot. Perhaps your correspondent will also permit me to make a suggestion: as the fuel-saving power seems wholly to reside in the form or the setting, why not patent the discovery, and at once make his fortune and confer an immense boon upon the public, by granting licenses for the setting of Saddle, Cannon, Convoluted, Conservative, and all other kinds of boilers whatsoever, with reverberatory bricks, warranted to save 600 per cent. of fuel? *D. T. Fish, Aug. 20.*

Hothouse Boilers.—I have no more interest in the Cannon boiler than Mr. Milne has, nor have had for the last 10 years, therefore I write disinterestedly. I bought a Cannon boiler last year that a person paid 12*l.* 10*s.* for, and after being in use for nearly two years he pulled it out, as he could get no heat from it. I gave 3*l.* for it, took it to pieces, and found the return pipes next the boiler nearly full of rope and red lead, so that there was little or no circulation. I set it to heat a double span Cucumber-house, 100 feet long by 20 feet wide, with 1000 feet of 4-inch pipe, for winter Cucumbers. I can keep that house, let the weather be ever so cold, at 80°, at about 15*s.* per week for fire. But now to the point: I always have been a Liberal, and have always voted for that party, but now I mean to turn Conservative, for my coal bill costs me 150*l.* a-year, and in two years' time will cost me twice that amount, so that if I can do with 1 ton of fuel instead of eight, it will answer my purpose uncommonly well (see p. 841). But facts are stubborn things, and I will give Mr. Milne's friend a chance. I have just finished a vinery, 200 feet long and 20 feet wide without a division, and I am now going to heat it, and I had intended to put in a 5-feet Cannon boiler; it will take 1500 feet of 4-inch pipe. I will let Mr. Milne's friend put in one of his Conservative boilers, and if it will do its work, or keep the house up to the same temperature with the same amount of fire as the Cannon boiler does the 1000 feet, I will give a full, true and particular account of its performance in the *Gardeners' Chronicle;* and if the trial be successful, I will pay him his full price for his boiler. If, on the other hand, it will not do what I say, he must make no charge. I will allow him to set the boiler himself, which I think every person who invents a boiler should do. It must be borne in mind that the Conservative boiler is not to cost more than half the price of other boilers (see p. 841)—of course the Saddle and the Cannon. If Mr. Milne's friend will accept my offer, he may begin next week. *John Monro, Great North Road, Potters Bar, North Middlesex.*

Foreign Correspondence.

Toronto, Canada.—You will see by the enclosed extract from the *Weekly Globe* (*i. e.*, the *Canada Farmer*,) that your paper is read here, and not only read, but the matter advanced in it, is greatly valued. We consider the discovery in the hybridisation of the Potato that you have made public, to be most valuable and important, and the various experiments in Potato grafting and inarching will be tried in hundreds of places amongst the *Globe* and *Canada Farmers'* 40,000 readers. The world will owe a heavy debt to the originator of the experiments, and to those who have made them public. When you read of our winters and late springs you will shiver and say, What a climate, and what a country! and yet our climate and country is such that in July we reap our earliest Wheat, and a good crop too. We can grow Melons out-of-doors by the bushel, without the help of a hot-bed; and in the fall, Tomatos in Toronto market will be only half a dollar a bushel—and such Melons, and such Tomatos too; none of your half-done things, as watery and as flat as possible, but Green-flesh Citron, the Nutmeg Melon, all the large sorts, the scarlet-flesh—in fact everything that you have to nurse up under glass here grows (and comes to perfection, too) in the open air. Then for Cucumbers. We sow them in the open ground, and gather them of the best quality by the bushel. When a Canadian housekeeper "goes in" for pickles, she does not confine herself to glass or stoneware jars, but makes them in a barrel, the size of a flour barrel, and most likely salts down as many more to be pickled as soon as the first "mash" comes out of the vinegar. There is one curious fact about the Melon that will interest English growers, and may act as a hint for success in this branch of horticulture; and where Melons are sold at the price they are sold in England, such a hint leading on to success may be valuable. When I speak of Melon growing in the way I do above, I am alluding to the country more than to the town, or to Toronto. Here in this city, if we want Melons early, we have to start the plants in a hot-bed, and as soon as all chance of frost is gone we set them out in the garden, where they come to perfection in the way I mention without more trouble; but in the country, on newly-cleared land, where there is the black leaf-mould of the wood, *i.e.*, almost pure humus, a hot-bed is quite unnecessary; there the seed is thrown on the soil, amongst the stumps and roots, and it wants no more attention; but to be successful, whether sown in the city or the country, the black leaf-mould of the woods must be used, and there the Melons grow and fruit in the greatest abundance. It is useless, however, to try them in the same ground the second year; leaves and branches will grow in plenty, and perhaps one or two fruit, but no more abundance. The leaf-mould of your coppices would, I doubt not, be equally successful. The most successful Melon grower I ever knew lived for many years next door to me; our gardens opened into each other; and great was the struggle in the horticultural war as to who should be the conqueror in Melons and Cucumbers. My neighbour was an old lady, and she grew five Melons to anyone else's one. She always got a fresh supply of black leaf-mould every year, and never planted her Melons in the same place twice. Hence her sucess.

Notwithstanding our fine climate, we, as well a others, have our gardening troubles. Up to last year although we lost all the leaves of our red and white Currants and Gooseberries, our black Currants were safe; but last year the trees were overrun with a special enemy, in the shape of a light-coloured caterpillar, which made clean work with the leaves, and did not appear to care for white Hellebore powder. These worms came from an ash-grey kind of moth, which our entomologists pretend to recognise as the Abraxas Ribearia (Fitch): but I don't believe them. I never knew an insect so change its habits as to attack exclusively a tree which it never had attacked before. It is much more likely to be a new variety, similar to

the Abraxas Ribearia. Then, again, we have the Curculio on the Plums; and that, I suppose, not being bad enough, we have what is called "black knot," which I believe is the general giving-out of the tree, and will never be conquered until we get new seedlings not liable to its attacks. The Americans appear to have discovered some kinds among the wild native Plums, which are quite different to the cultivated sorts.

Among vegetables, also, we have our own troubles. Early Cauliflowers (we don't grow Winter Broccoli or Cauliflower) are affected by white maggot at the root—more than one kind attack them at the same time—which is all the harder to manage that their attacks are not seen until it is too late to remedy them, and nothing remains but replanting; hence a Canadian Cauliflower bed, from destroyed plants and those which have been set in their room, will display a variety of growth, from the full-sized Cauliflower to those lately set out from the seed-bed. A watering of the young plants with a solution of chloride of mercury (corrosive sublimate), made of the strength of a quarter of an ounce to four gallons of water, and this repeated two or three times, is an effectual remedy; but the ladies make such an outcry about it, fearing to be poisoned, that the remedy is worse than the disease. The latter, in a private garden, is worse in appearance than in reality, for succession is wanted, and this is obtained in the most effectual manner by replantings. We have also the Onion worm or maggot to a great extent; so much so as for years to have rendered the sowing of seed Onions useless; but we have the top Onion and the Potato Onion, and the Shallot in great perfection, so that the loss was not ruinous. The Onion worm has now in a great measure passed away; the only certain cure I ever met with for this pest was sowing the Onions early in the greenhouse, and then transplanting. By this means I have seen good crops obtained where all around was ruin. So that you see warm weather and quick growth has its defects as well as its benefits. Take it on the whole, however, this is a great climate for the garden, but for market gardeners the place is not so good.

Our communication with the South and the United States generally is so quick and good, that we have the natural productions of the seasons south of us brought in just at the same time that the same articles could be forced under glass here. Our first early Potatos and Tomatos come from Bermuda, *viâ* New York. Bananas and Pine-apples, grown in the Southern States in the open air, of course flood the market here just at the time things of that nature might have been raised under glass. Pine-apples come packed in flour-barrels, and are very good; every other southern production comes in in the same manner, so that our greenhouses and hothouses can be given up to such matters as flowers and plants which won't bear carriage. When in England, I often grumbled at the slowness of the vegetation, and the snails and slugs, but here we have as rapid and various growth amongst insect as amongst vegetable life; so that in the insect and reptile way we are about equal, but in many other matters we are far superior.

Trusting that the Potato experiments, with an allusion to which I began this communication, may continue, I sign myself yours, very truly, *E. L. C., Toronto, Canada.*

Notices of Books.

Select Orchidaceous Plants. By Robert Warner, F.R.H.S. Second series. London: Reeve & Co.

Of this splendid work the second series has now reached as far as the sixth number. It is gratifying to be able to state that the plates continue to be executed in the same attractive style which has characterised them from the commencement, the more recent ones all coming from the inimitable pencil of Mr. Fitch. We know of no more charming book of flower portraits for the drawing-room table than this, and Mr. Williams' cultural instructions are quite practical, and to the point. The third part contains figures of Phalænopsis grandiflora aurea, Dendrobium bigibbum, and Lælia crispa purpurea. The fourth part comprises Anguloa Ruckeri, Dendrobium Devonianum, and Cypripedium superbiens. The fifth part illustrates Odontoglossum pulchellum, Chysis lævis, and Phalænopsis Lowii. In the sixth part are figures of Odontoglossum Reichenheimii, Oncidium macranthum, and Saccolabium Holfordianum. The latter plant is described as the finest of all known forms of Saccolabium guttatum. "The merit of its introduction," it is observed, "is due to R. S. Holford, Esq., of Western Birt, Gloucestershire, in whose collection we saw it many years ago, blooming magnificently. We then pronounced it to be the finest Saccolabium we had seen, and it has kept this high position ever since, being up to the present time unapproached by any other in respect to its magnificent spikes, and the rich colour of its flowers—a colour which is indeed unapproachable by art. The foliage, moreover, is remarkably distinct, on account of its breadth, and altogether it forms a most noble plant. We have seen it with 14 glorious spikes, when it was the admiration of every one. Many plants have been exhibited and sold for S. Holfordianum which have not been true, though in many cases they have proved to be fine varieties of S. guttatum, to which type indeed S. Holfordianum belongs. The true plant may at once be recognised by the breadth and by the blunt ends of its foliage." It is further remarked that "this Saccolabium makes one of the finest of all plants for exhibition, as well as for the decoration of the Orchid-house." Allusion is made, with regret, to the absence from our great London exhibitions of remarkably fine plants, such as were seen exhibited at the time of the Chiswick shows. There Saccolabiums were frequently shown with from five to ten spikes of blossoms, or even more, on the same plant, and those who were in the habit of visiting Chiswick gardens at the time referred to, often speak with regret of the absence of such remarkable specimens from the exhibitions of the present day. "In fact, while most other exhibition plants have gone on increasing in size, Orchids have certainly become less."

Catalogues Received.—W. Paul's Bulb Catalogue—W. Cutbush & Son's Bulb Catalogue—W. Dillistone's Choice New Plants and Dutch Bulbs—B. S. Williams' General Bulb Catalogue, Fruit Trees, &c.—L. Van Houtte's Catalogue of Bulb and Flower Roots; also Plantes Nouvelles, Orchidées, Palmiers, &c.—Haage & Schmidt's Catalogue of Flowering Bulbs and Roots—H. Laurentius' General Catalogue of Plants—H. Cannell's Autumn Catalogue of Fuchsias, Pelargoniums, &c.—Groenewegen's Catalogue d'Ognons à fleurs de Haarlem—A. Stansfield & Son's General Fern List, No. 8—John Scott's Bulbous Flower Roots—G. J. Child's Catalogue of Dutch Bulbs.

The Apiary.

Saving Bees of Condemned Stocks.—I have a friend, living at a village about five miles from Oxford, who had 12 stocks of bees. Wishing to take a few stocks, and not understanding it, he sent for a professional man, who, after first putting on a thick pair of trousers over the ones he had on, a pair of gloves reaching up to his elbows, a straw hat to which a bee dress of gauze with sleeves was adjusted, and tied down round his waist, he proceeded towards the bees almost like a man facing a den of lions. He took one stock, and after beating out the bees, he took each comb separately and brushed the bees off with the wing of a fowl; and so he proceeded till he had taken the eight stocks, the bees flying round in wild confusion. He selected all the lightest, leaving the four heaviest stocks. He came again in the evening, after dark, to "marry" the bees, as he called it. First taking those swarms he had robbed of their honey, and emptying them into heaps on the ground, he then took the four stocks he had left with their honey, and beat the bees out amongst the others, leaving them to crawl into their hives as best they could in the dark. Will you or any of your correspondents kindly inform me if such is the proper method of taking stocks? I think it an absurd and cruel system. *An Observer.*

[From the manner in which "An Observer" describes the process of driving, depriving, and marrying his friend's bees, it would seem that unnecessary roughness was used. The professional operator undoubtedly must have known something of the right way to go to work. The first part of the operation appears to have been successfully accomplished, namely, that of driving out the bees; but it is evident that it was not done very cleverly, as there is no need of such disturbance or commotion among the bees subjected to such treatment. Nearly every bee in each stock driven ought to have been made to ascend into the empty hive before the combs were cut out. The operator was right in selecting four heavy stocks for receiving the outcasts, but it does not follow that such need have been the heaviest in the apiary. Any stock weighing 20 lbs., exclusive of the hive, would be amply provided with stores for the united populations. He was also right in leaving the expatriated bees in their unfurnished lodgings until the evening. Now comes a part of "An Observer's" statement we do not quite understand. How could the professional take "the four stocks, and beat the bees out amongst the others" on the ground, without beating out their combs as well? He does not state whether the heaps were near together so that the bees could mix among themselves, or how he placed the hives for each proper proportion of bees to enter. The system of preserving the lives of bees of condemned stocks, by uniting them to those of other colonies, is one, that if carefully and judiciously carried out, may be followed with great advantage. But in its being carried out carefully and judiciously, or otherwise, lies all the difference between cruelty or the reverse. One of our most successful apiarians in the south of England often unites to his family of about 15 hives the bees of from 30 to 40 condemned stocks belonging to various cottagers living in the neighbourhood, which he is allowed to drive out and take home with him. His own bees suffer very greatly in loss of population in the autumn by getting into the shops. By the union of such strong populations with the weakened colonies his apiary is in strong and vigorous condition all the succeeding winter and early spring, and is able to make the best possible use of the first honey harvest, besides, if needed, sending off good and early swarms.]

Garden Memoranda.

Wardie Lodge, Edinburgh.—On the 6th of August I visited this place, to have a peep at the bedding-out, which is very fine this season, considering the long period of dry weather. Miss Hope, contrary to the usual tastes of gardeners, has adopted a method which, even in a dry season like the present, renders the flower-borders as gay, and, in my opinion, more attractive than the best ribbon or panel border. This is attained by a combination of herbaceous and bedding plants, with the addition of such subjects as variegated Brambles, Ivies, Acers, and Eucalyptus.

Before entering into details, it is necessary to premise that Miss Hope has carefully studied the contrast of colours as well as the peculiar tints of the various fine foliage plants, so that the whole has a pleasing and peculiarly varied appearance. In front of the house there is a large circular bed, planted with fine shrubs and with clumps of Scarlet Lilies and Tritomas, which had a fine effect, particularly the Scarlet Martagon Lily, which was in full bloom, their heads just rising above the dark green foliage of the shrubs. To the right is a well-kept lawn, surrounded with fine specimen Hollies, Cedrus Deodara, Cupressus, &c., and on one side a long herbaceous border, arranged in rows; Delphiniums, Tritomas, and variegated Ivy trained to poles, formed the principal plants in the back, in front of which came Campanula cornuta, both blue and white; and four species of Eryngium. The beautiful ornamental flowers and foliage of the Sea Holly cannot be too highly recommended, and it is a great favourite here. The next row, which almost entirely consisted of Corydalis lutea, had a fine effect; the yellow flowers, which are produced in abundance, combined with beautiful foliage, renders this plant one of the finest yellow bedding plants in cultivation. In front of the yellow Corydalis was a row of Viola cornuta, with bits of Dactylis glomerata variegata, at regular intervals; and in front was the Pyrethrum Golden Feather. In addition to the above I observed a few rare plants, which I have no doubt will be more extensively used as they get more plentiful. Among these may be noticed Acæna millefolia, with fine cut foliage and dwarf neat habit; Datisca cannabina; Chamæpeuce, or Fish-bone Thistle, a fine foliage plant, with white spines at the edges of the leaves. Linum narbonense, which is quite hardy here, was beautiful.

I could notice more of equal interest as seen in this border, but I had to pass on to a mixed border, planted out on a more extensive scale. It is situated at right angles to the above bed, on the south side of a terrace wall, round the end of which I passed through a fine bower of Mountain Ash and Laburnum. The mixed border is about 50 yards in length, arranged in eight parallel rows. Conspicuous in the back row were variegated plants at regular intervals, such as Syringas, Brambles, Ivy trained to poles, and Iris. For flowering plants there were Delphiniums of various sorts, the best being hybridum, Tritomas, Asters, &c.; in front of these were large plants of China Roses and Carnations alternately, with good-sized plants of Scarlet Pelargoniums and other free-flowering bedding plants. In the fourth row every sixth plant is a fine Tea-scented Rose, between which were Cineraria maritima, Aconitum, English and Spanish Iris, Phloxes, &c. In the fifth row came variegated plants in front of every Tea Rose; the best were — Veronica Andersoni variegata, Chrysanthemum Sensation, Agrostemma flore-pleno, with fine magenta double flowers; fine varieties of Sweet William, Lilium longiflorum, and Tanacetum, &c. In the next, or sixth row, were perennial plants, such as Heuchera, with fine dark foliage; Funkia, various sorts; Ferula acerifolia, a dwarf species, with finely-cut foliage; Campanula carpatica, Veronica candida, Bambusa Metake variegata, Campanula rapunculoides, C. Soldanella flore-pleno, with very pretty dark double flowers, neat dwarf habit; Myosotis dissitiflora. So much has been written about this plant lately, that I was particular in asking how it did here, but was told that it fell a victim to mildew. The seventh row was composed of Silene Schafta, Lotus corniculatus fl. pleno, at regular intervals; mixed with such plants as variegated Strawberries, fine dwarf Sweet William, with dark crimson flowers, which are quite double—this is a plant which, I think, is not sufficiently cultivated; Thalictrum adiantoides, resembling in the distance the well-known Adiantum pedatum; Santolina incana, Achyrocline Sandersonii, a very neat plant for edging; Carex pilulifera, a very fine foliage plant, with golden-striped leaves; Centaurea plumosa, finely cut leaves, and as white as the candidissima; Ophiopogon Jaburan variegata, Viola suaveolens, sweet scented, with yellow flowers, and neat compact habit, said to be a hybrid; Verbenas, and other dwarf bedding plants. In the front row came fine tufts of Campanula pumila alba and cœrulea, Mrs. Pollock Pelargonium, Lobelia, Tropæolum Cooperi, Echeveria metallica, secunda, and glauca, Sempervivum californicum, &c. To the right is the flower-garden, laid out in the usual style, but very differently planted. I have, however, occupied so much of your space, that I will not say more at present than that everything looked remarkably well, and does great credit to Miss Hope and her gardener, Mr. Duncan. *R. M.*

Miscellaneous.

Trellised Fruit Walls.—I lately heard a discussion on the alleged advantage of wall trees being fastened to a trellis instead of being nailed to a wall. It was argued against nailing to the wall, that the side of the fruit next the wall did not ripen like that exposed to the sun. Such may be the case in bad seasons, especially with Apricots, but the case may be worse with those on a trellis, on which the trees are not only deprived of the reflected heat by the draught of air between the trellis and the wall, but also of the warmth from the wall during the night; besides, the shade by either plan would be nearly alike, and the ripening of the crop depends more on the action of the sun upon the leaves than upon its hot rays impinging on the fruit. The ripest fruit may be found under the leaves, in consequence of its having, according to their health, had more nutriment from them modified by the rays of light. The unequal ripening of fruit depends more on how the stalk ends are situated, and these in general are next the wall or close upon the shoot — the sap vessels in those parts of the fruit through which the juices flow to nourish it, are the last to ripen or decay. Although this may be little thought of, it is nevertheless true; and the same may apply to all kinds of fruit, the good qualities of which depend much on the health of the leaves, as just noticed. Therefore the too common practice of picking off the leaves to "let the sun to the fruit" should be done with great caution. If possible, none of the fruit-bearing shoots should be deprived of their leaves, otherwise, for want of proper nourishment, the exposed parts of the fruit may be scorched or ripened prematurely by hot sunshine. This may be the principal cause of fruit ripening on one side, and remaining green on the other. Connected with this subject, I

may mention that the ripening of all kinds of fruit is only the beginning of decay in the pulpy matter which protects or matures their seed. In general this is situated in the heart of the fruit, but in other cases, as in the Strawberry, on the outside. Moreover, however pleasing to the eye or taste cultivated fruits may be, they are only monstrosities from their original species —the Apple a puffed-up Crab, and the Peach a swollen Almond. *J. Wighton, in "Florist and Pomologist."*

Garden Operations.

(For the ensuing week.)

PLANT HOUSES.

CONTINUE to propagate *Poinsettias* by means of cuttings of the young growing shoots, as quickly as they become sufficiently large and woody for that purpose. To strike them readily, the pots containing the cuttings should be plunged into a little bottom-heat. Cuttings thus struck at this season will come in, in quick succession, at or about Christmas, and will prove invaluable for decoration at that gay festive season. The night temperature of stoves should now seldom exceed 67°. Few of the inmates will need more than passive attention at our hands. Afford them water at all times when actually needed, but not so frequently as heretofore. The same remark also applies to the treatment of greenhouse or conservatory plants. Keep the temperature as even as possible both night and day, and afford air regularly through-out the 24 hours. There are, of course, a few exceptions to this rule, in regard to plants actively growing or forming flowers, such as *Fuchsias*, *Liliums*, late *Hydrangeas*, &c., which mostly require a little extra assistance in the form of liquid manure. Be particular not to water *Lilium auratum* too plentifully after it has produced its flowers. At such a season, should the bulbs and their surroundings become too wet, some danger will exist that they may not ripen off at the root so well as they would do in a somewhat drier state. Attention should now be directed towards commencing to place all young stock into winter quarters. I state this because many have neat pits, into which they annually store away their younger plants, of *Neriums*, *Gardenias*, *Oleas*, *Daphnes*, *Hoveas*, and other cool stove or greenhouse plants, and which are of great assistance where the variety of stuff is being all housed for winter. *Solanums*, such as Pseudo-capsicum or Williams' hybrid strain, which do well when turned out into the open borders during the summer months, to perfect their growths, flower, and form their berries, should now receive liberal soakings of moderately strong liquid manure. During dry periods they delight in being well soused overhead with fresh clear water.

FORCING HOUSES.

Immediately a dull, or wet and cold period succeeds the lovely weather experienced whilst I write, let a slight fire be started in all *late Vineries*, which are now forming fruit, as early in the morning of each day as possible. Give as much air as possible at the apex of the house, about 9 or 10 A.M., following this, that the damp within may gain egress. If the pipes are kept slightly warm during the rest of the day, the air still being on more or less, a nice dry atmosphere will then be insured. Let the pipes cool before the house is finally closed for the night, however; for this will obviate excessive condensation within. Gradually afford more air to all young *Pines*, so that they may become hardy enough to withstand the coldness of winter. Other *Pines*, and especially those in their fruiting pots, whether already showing fruit or only showing for flower, should be uniformly pushed along as kindly as possible upon all bright sunny days. Depend upon it, for this class of plants there is nothing like making all the growth possible during the brightest and finest weather. If we wish to fruit them well, this fact will become more and more recognised. To push them on during the dullest period, as fast as we should when Nature smilingly lends its aid, is assuredly working antagonistic to their real requirements. In no case is the true old proverb, "Make hay whilst the sun shines," more applicable, applying as it directly does to the laying in of hard and well-matured fibre into the growth formations of the Pine. Continue to afford waterings to all *Figs* in pots, which are still swelling their fruits, but withhold all, saving as much as will insure keeping a moderate amount of latent moisture in the soil during the time the fruit is ripening. The same remarks apply particularly to *Melons*. The air within the frames or pits should also be kept rather dryer than heretofore, to prevent rot or canker.

HARDY FLOWER GARDEN.

Where it was not convenient to propagate *Auriculas* earlier by means of side or off-shoots, this might be done now. Immediately the shoots are taken off let them be potted singly into small pots, and if very small two or three may be placed around the inner sides of the pots in preference to placing one in the centre as is customary. Place them into a sheltered, shady situation, and give a good soaking of fresh water with a rosed water-pot. One thing I may further observe in regard to them, be particular, in potting offsets, not to bury the tips of the young centres, otherwise they may rot off. Transplant seedling *Garden Primroses* and *Polyanthuses* into the open borders, where they are to bloom next spring. Give them a good watering immediately they are planted out. It would be advisable, should the present dry weather prevail for any length of time, to take up and transplant any form of bulbs which may be still in the open ground; if they are left in the ground until a rainy period comes again, they will commence forming roots and perhaps leaves. Tie up *Dahlias*, and afford them good soakings with some strong liquid manure. Take the necessary precautions against earwigs and other pests. I would here advise all who meditate purchasing *Bulbs for winter forcing and spring blooming* to send their orders at once; they may then rely upon getting as good a supply as their neighbours. The necessary potting of all which are intended to be flowered early should also be proceeded with; this applies especially to the miniature *Roman Hyacinths*, so much in request by all who are fond of sweet white flowers at or about Christmas.

HARDY FRUIT GARDEN.

Remove the successional lateral shoots which may have formed upon *Figs* since the last pinching in of the summer growths, and so afford to the fruits all the sunlight and air possible. Where it is practicable, much good may be done to Fig trees, both in regard to their present crop of fruit and the ripeness of the wood for next year, by placing four or five boards or planks so as to throw any superficial water off the roots. Moisture at the roots at this season induces growth, which being formed so late is not suitable either for standing the frosts of winter, the darkness forced thereupon by winter coverings, or to fruit efficiently next season. *Hardy Vines* attached to walls may receive material aid towards the better development and ripening of their crops, first by having some strong manure-water applied to the roots, and by frequent syringings or moistening overhead during fine dry periods. Liquid manure, as it stimulates the roots, tends also to forward the fruit-developing process, whilst washing "the face" of the foliage affords the opportunity of perfecting the latter more efficiently. Most tenements or houses are built in the main contiguous or close to roads or streets, so as to be during dry weather materially affected by the dust continually arising therefrom. This settles upon the foliage of plants, and is invariably to be seen more or less densely coating the same. Now, amateurs, in whose welfare we take especial interest in all such matters as these, though they spend a vast amount of time in endeavouring to produce good crops of these and similar things, seldom attach that amount of importance to this simple subject which, from its magnitude and consequences to them, in so far as the success of their crops is concerned, it deserves. Roadways radiate heat greatly to the benefit of such crops; and if the occupant, by the aid of a syringe, with a not too fine nozzle, kept the foliage clean by frequent syringings, he would meet with that amount of success which his perseverance deserves. Besides the great benefit accruing to Vines and other plants, by actually washing the filth off the leaf surface, that is, in other words, the actual lungs of the plant, where the process of elaboration and transformation of the crude sap into the necessary juices for the fruit's formation and development is being carried on, much good is done to the plants by charging the bricks at the back of the foliage with moisture, which being given off in unperceived vapour when the sun is at its hottest, tends to support the same very materially at the most trying period.

KITCHEN GARDEN.

The strongest *Cardoons* now require tying, and should afterwards receive a good soaking of water at the root; soil should be placed around them for the purpose of somewhat retaining the moisture, preliminary to the blanching process. Seeds which have recently been sown, and such seedling crops as are already above ground, will all need a soaking of water about twice a week and late in the afternoon, should the present beautiful bright weather last. Give good soakings with strong liquid manure to *Vegetable Marrows*, and pinch back the points of the grosser shoots when they incline to ramble too much. Cut off and remove any bursted, or what should be refuse, Cabbages, and so give the old stalks an opportunity of forming good sprouts before the winter arrives. Do not permit *Onions* to remain upon the ground until they become what may be termed dead-ripe; and this for two reasons—1st, they do not keep so well thereby, but are prone to start earlier in the spring than is needful; and, 2d, because, should wet ensue, maggots or rot will attack the base of many, much to their injury. *Asparagus* is at this time liable to seed more or less, and this to the injury of the general producing capacity of the roots. It will pay well, therefore, where the operation can be performed, to remove all the berries, picking them off without injury to the stalks upon which they grow. *W. E.*

TOWN GARDENING.

THE *Grass*, particularly that under trees, has suffered much from the extreme dryness of the past season. Where it has gone off, the ground should at once be loosened and sown with perennial Rye-grass immediately after the next rain; this, if it should not stand the winter, will present a more cheerful appearance when the family return to town, than bare ground would do. *Carnations* that were laid in the early part of July, will now be well rooted; and what cannot be conveniently potted, and kept in a cold frame during winter, should be left on the old roots till spring, and not disturbed; but it will be advisable to pot as many as possible, to protect them more readily should it be a severe winter. For this purpose procure 48-size pots, and fill them up with fresh soil; take off the layers, and cut off the end below the cut, and plant two layers in each pot, placing them in a shady situation for a few days; after which remove them to a more open position, and give water occasionally till the latter end of October, when they should be removed to their winter quarters, then giving as much air and as little water as possible. The *Angelica* is an old-fashioned plant, but I consider it one of the best for growing under trees and in confined situations; it comes up early in spring, with large handsome green foliage, lasting all the summer. This should now be planted out, at the same time trimming off the long foliage, and well watering. It grows from 3 to 4 feet high, therefore must not be planted too close. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Aug. 25, 1869, as observed at the Horticultural Gardens.

August.	Moon's Age.	Barometer.		Temperature.					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 19	12	30.254	30.159	65	46	55.5	61	59	N.E.	.00
Friday 20	13	30.276	30.225	71	37	54.0	61	59	N.	.00
Satur. 21	14	30.192	30.183	76	42	59.0	60	58	S.W.	.00
Sunday 22	○	30.230	30.208	78	55	66.5	61	58	N.	.00
Mond. 23	16	30.235	30.155	77	44	60.5	62	59	S.	.00
Tuesd. 24	17	30.164	30.112	79	49	64.0	63	59	W.	.00
Wed. 25	18	30.175	30.151	84	50	67.0	63	60	S.E.	.00
Average.		30.218	30.170	75.7	46.1	60.9	61.5	58.8		0.00

August 19—Cloudy, but fine; very fine; clear at night.
— 20—Fine; very fine; clear and fine.
— 21—Very fine; cloudy; foggy at night.
— 22—Foggy; exceedingly fine; overcast.
— 23—Densely overcast; very fine; clear and fine.
— 24—Very fine; exceedingly fine; clear.
— 25—Foggy; very fine and hot; fine at night.
Mean temperature of the week, 6·10 deg above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending Sept. 4, 1869.

August and Sept.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..29	71.2	47.6	59.4	16	0.58 in.	4	5	4	11	3	3	8	5
Mon. ..30	74.5	48.2	61.3	11	1.92	3	6	3	—	7	10	11	4
Tues. ..31	71.5	47.4	59.4	17	1.31	3	7	3	3	2	10	10	5
Wed. .. 1	71.1	47.5	59.3	21	1.50	3	5	3	5	4	13	5	5
Thurs. .. 2	71.0	47.6	59.3	19	0.44	7	5	2	8	4	8	12	3
Friday .. 3	71.8	47.7	59.2	19	0.49	3	7	3	8	6	11	8	3
Satur. .. 4	71.0	46.7	58.9	19	0.58	5	7	4	4	3	9	5	6

The highest temperature during the above period occurred on the 1st, 1843—therm. 85 deg.; and the lowest on the 4th, 1850—therm. 30 deg.

Notices to Correspondents.

CATERPILLAR: *A D.* Sphinx ligustri, common in Potato fields in some seasons.

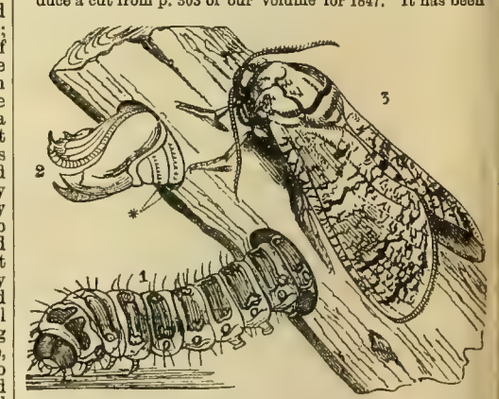
CENTAUREA CANDIDISSIMA: *S S.* The best way of increasing Centaurea candidissima is by seed sown in the autumn, so as to have the young plants strong enough to stand through the winter on a greenhouse shelf. In the absence of seeds, cuttings taken off in September strike freely in a cool frame, or in the spring, in which latter case a sufficient number of stock plants to furnish the quantity of cuttings required should be potted in the autumn, their leaves well thinned out, and early in January the points of all the stems should be removed, which will induce them to throw out plenty of side-shoots in heat, which strike freely on a shelf in the propagating house in thumb-pots.

COCKROACHES: *Lady O.* We have tried many plans, and found this the most effectual:—Put into a basin on the floor a little beer. Establish a communication between the floor and the beer by means of two pieces of stick placed against the edge of the basin. The beetles will walk up the stick, drop into the fluid, from which they will be unable to extricate themselves.

COUNTRY EXHIBITIONS: *T H L.* Persons who have greenhouses, and grow flowers and plants for sale, are certainly not entitled to show in the cottagers' classes.

FUNGUS ON THORNS: *A Y.* Your Scarlet Thorns are attacked by a Fungus, Roestelia lacerata. Gather the infected parts and burn them. *M J B.*

INSECTS: *J T S, Teddington.* The larva of the Goat Moth (Cossus ligniperda), a most destructive pest. We here reproduce a cut from p. 303 of our volume for 1847. It has been



recommended to blow tobacco-smoke into the holes, in order to dislodge the caterpillars, but this is a tedious and not very practicable plan. The destruction of the moth, in order to prevent future injury, seems the only available remedy. Perhaps an easier plan than the former would be to stamp out the pest by cutting out and burning the infested branches.

MEDLARS: *F.* Gather them in October, and place them on a shelf in a dry fruit-room. Some dip the stalks into a solution of common salt, to prevent growth of Fungus.

NAMES OF PLANTS: *P T.* Bromus secalinus.—*C F.* 1, Nepeta Nepetella; 2, Eleocharis palustris; 3, Mentha sativa.—*A. P.* Castanea vesca, var. americana.—*W Hodges.* Statice Limonium.—*C E.* Cyrtomium falcatum, and Platyloma rotundifolium.

OAK SPANGLES: *C M E A.* The brown ones are "button-galls,' the pink ones are "spangles." Both are the produce of an insect or species of Cynips. See *Gardeners' Chronicle*, 1843, p. 52, for a full account.

PASSION-FLOWERS.—Received, with thanks, from *H K, Floors Castle* (P. quadrangularis, true), and *J S, Betteshanger* (P. quadrangularis, P. cœrulea, and Tacsonia Van Volxemii.

PELARGONIUMS: *H D.* It is impossible to judge of cut specimens which fall to pieces, and even where they do not do so, give no indication of habit.—*A B.* The above remark applies also to your case.

PUFF-BALL: *Merstham.* A small specimen of the Giant Puff-ball. Very good when young.

VINE LEAVES DISEASED: *Ductyl.* The brown excrescenses are not due to Fungi, but are an abnormal growth of the cellular tissue, dependent, we believe, on some uncongenial condition of the roots. At least we observe it in Vines in pots, where the roots have got into a bad condition. The condition of the other leaf is not, we think, connected with the ex crescenses, though it may arise from the same cause. *M J B.*

COMMUNICATIONS RECEIVED.—E. H.—Poonah.—J. W. W.—J. A. M.—C. E —A Looker On.—W. B.—T. Z.—Nevada.—R. P.—J. L.—C. F.—Amateur.—F. W. P.—T. G.—H. M.—J. Y.—G. B.—A New Sub.—A. G.—C.—A. J.—S. M. O.—G. T.—J. W.—J. G.—Sussex.—A. B.—Sub.

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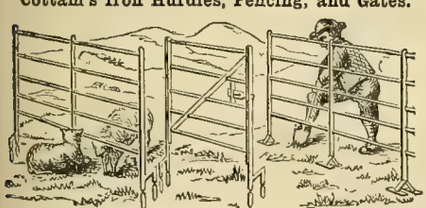
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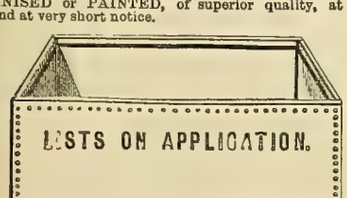


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The Agricultural Gazette.

SATURDAY, AUGUST 28, 1869.

MEETINGS FOR THE ENSUING WEEK.

Sept. 2 to Sept. 12 } Hamburg International Agricultural, at Hamburg.
Sept. 3—Cleveland Agricultural, at Middlesborough.

THERE are no other countries that derive such enormous wealth from agriculture as Russia and the United States. It seems that farming prospers when the land is fertile, even without the aid of science. Nothing can be more rude than the system practised in these two countries, to which we look, not without anxiety in some years, for our largest supplies of Wheat.

In these days of sound political and commercial economy it is a matter of indifference to us whether we draw our supplies from the greatest Empire and despotism, or from the greatest Republic in the world; but we must see that they do not fail us or fall short.

It was the opinion of Mr. MCCULLOCH, one of the most trustworthy of our statists, that the corn-growing resources of America had been greatly exaggerated, and that the consumption would at no distant period overtake the production of Wheat, so that its exportation would cease or become inconsiderable. This opinion was based on the low average yield.

The small Wheat crop of the rich soils of the United States is popularly attributed to the slovenly system of cultivation. But this is an error; the cause of the extremely irregular Wheat harvest lies deeper than in mere defects of tillage, which might be corrected; and it is irremediable. If the Wheat region of North America were coloured on a map, it would be seen to include only a small part of the country. The northern limit may be tolerably well marked by a line drawn from Kingston through Lake Simco to Lake Huron. And it is because the inhospitable soil and rigorous climate north of this boundary line preclude the profitable cultivation of Wheat that Canada has disappointed the original expectation of her exporting capabilities. The southern limits cannot be so exactly defined, but it may be said of a large portion of the States of Ohio and Illinois, and of all the more southerly States, that Maize is the natural grain of the country; the climate is too stimulating for Wheat. In Alabama and the Gulf States, wherever Cotton and the Sugar-cane flourish, even Maize is comparatively unproductive, owing to the forcing character of the climate; the moist atmosphere and high temperature develop leaf and stem at the expense of seed.

The rich alluvial plains of Georgia and Louisiana yield less than half the Maize crops that are grown in northern Kentucky. A narrow strip of Wheat land, however, follows the Alleghanies even into the south. Eastward of that range the older and more populous States, with their capital cities, and the wide seaboard with its flourishing coast towns, have in general a very poor soil. The moisture of the climate has covered the Eastern States with noble forests, but the agriculture of the country did not support the population, even when it was only one-third as great as it is now.

The great Maize and Wheat region is that vast plateau, 700 feet to 900 feet above the sea-level, which includes Ohio, Indiana, Illinois, a large part of Kentucky, Tennessee, Missouri, Iowa, Wisconsin, Michigan, and Upper Canada. The Mississippi, the Ohio, and their numerous tributaries are carriers, connected and linked together by canals and numerous lines of railway, that penetrate and intersect this wide and fertile country. The natural powers of production and the means of transport of these States are unrivalled. Mr. CAIRD, in his "Prairie Farming," gives a very flattering description of the fertility and resources of the States he passed through, but warns the settler of the extreme hazard of sowing Wheat in the climate of Illinois. One pioneer after growing 30 bushels per acre in one year, sowed 800 acres the following season, of which 600 acres were killed by frost. In another instance one week of excessively hot weather, after a wet spring, rendered the Wheat nearly worthless. A settler had his yield estimated shortly before harvest at 18 or 20 bushels, but soon after he chose to burn his crop rather than reap it, finding nothing but shrivelled husk in the ear.

A Kentucky gentleman owning 8000 acres of fine rolling prairie, had a crop of 6 bushels an acre on 800 acres; after which he settled down to stock farming only, growing 1000 acres of Indian Corn each year for fattening cattle.

The south is supplied chiefly by the Mississippi and its tributaries, by railways, rivers, and canals, which transport the corn of the north-west States. The States that export to Europe do so through their great emporiums—Chicago, Buffalo, and other lake ports, and by means of the great highway existing in the chain of lakes. Buffalo on Lake Erie, connected with New York by the Erie Canal and Hudson River, is the channel of exportation for the greater part of the grain sent to Europe, both from Canada and the States.

In East Canada, Wheat is only grown in a narrow strip along the river St. Lawrence, where the limestone soil is favourable. In Upper Canada the Wheat district extends farther from the river, and some corn is grown for exportation into the States, and eastward by the St. Lawrence to the districts which are not self-supporting. But the wealth of Canada is derived from the lumber trade, not from agriculture, for which she is naturally unfitted by the extreme rigour of the climate, and the poverty of a great portion of the soil.

The north-west part of the State of New York is the most productive Wheat region in America; on the best farms a third of the land is sown with Wheat, but even on this sound land the yield is far more influenced by season than in Britain.

Southward from the shore of the great lakes Maize gradually takes the place of Wheat. The finest land, generally least suited to Wheat, land that yields an average of 75 bushels of Maize, does not exceed 18 bushels of Wheat per acre. On the richest plains of Ohio land lets, on a sort of *métayer* system, at 20 bushels of Maize, and only 7 bushels of Wheat. The crop of the latter is 15 to 18 bushels per acre; 40 bushels is almost an unknown yield, but the crop of Maize sometimes reaches 160 bushels per acre. Indian Corn is the fallow crop of the States; planted wide, in squares or check rows, it is cleansing and inexpensive; the land is cultivated between, in each direction, by horse labour—the only cheap labour in America. According to the United States agricultural statistics, the crop of Maize in 1863 was 26 bushels per acre, over an area of 15,312,441 acres; the following year the crop was 28 bushels per acre. The average yield of Wheat in these two years was 13 bushels and 12 bushels. In short, whatever the average yield of Wheat may be in the States, and it is estimated at between 12 bushels and 14 bushels, that of Maize is more than twice as great.

We find, accordingly, that the breadth of Maize had increased in 1867 to 19,000,000 acres, while that of Wheat had decreased from 13,098,936 acres to 12,304,894 acres.

The forcing climate of an American summer, which is sometimes fatal to the Wheat plant, suits Maize. It never sickens or fails with disease; it will bear any amount of feeding without being laid, and it may be repeated in the same field many years in succession without manure. The land is said never to tire of it. The Americans, who boast of a "big country," and a "big war," &c., may certainly boast of a "big cereal." Maize is a giant among grain crops. It is indigenous to the country and necessary to its sustenance. American statisticians have estimated the annual consumption of corn per head of the population at 5 bushels

of Maize, and 3 bushels of Wheat. These relative proportions would undoubtedly be reversed if the condition of the population enabled them to obtain the nobler grain. Poor, or primitive populations always acquire a taste for wheaten flour when circumstances admit of it; this preference seems to be instinctive, and it is one cause of the gradual absorption of its own growth, which occurs when increasing wealth enables a nation to make a selection.

One important function of the agricultural journalist is to show the true relations of science to practice, and by the publication of accurate information to teach the farming world the value of careful observation and direct experiment. In pursuing this object he has not merely to inform the ignorant, but also to combat prejudice and to contend against a strong opposition to "book-knowledge." Many of our best practical farmers are not great readers, and look with suspicion upon suggestions conveyed through the medium of the Press. Such information appears to them beclouded by uncertainty, or, to change the metaphor, gives not forth the clear and genuine ring of advice tendered by a trusted friend. We believe that as knowledge increases, and the agricultural mind becomes more expanded and less local in its sympathies, this distinction between oral and written wisdom will disappear.

While it is the office of the agricultural Press to circulate new ideas, it is most important that the farmer should not be imposed upon. We must not urge him to read, and then present him with bad science, false deductions, and impossible results.

These remarks are suggested by the appearance of a recent article in the columns of a contemporary, upon "the coating of seed with manure." The idea conveyed by the heading is not new, and we should be far from disparaging its importance, but we venture to say that there is a startling novelty in the treatment of the subject, the terms used, and the statements made in the article referred to.

Ten years ago a writer, who signs himself "B.," was induced by a respectable "West India merchant to try the coating of seeds and roots before sowing, and planting, with several fertilising ingredients." Since "B." followed with scrupulous exactness the directions of the West India merchant, we transcribe them at length for the benefit of our readers:—

"The chief alimentary substances employed by him were a solution of Irish lime and water, a solution of byre manure, a solution of hen-pen, city sewage, and soot and water. He also used sugar with great advantage, not only as a useful manure, but also on account of its glutinous nature, in adhering to the seed better than anything else. His method of coating the seed was as follows:—Take a tub, say 30 inches in diameter and 2 feet deep: empty into it a boll or 4 bushels of Wheat: take 8 lb. of sugar, bruise any lumps that may be in it, and sprinkle it on the top of the Wheat. Take another tub 2 feet in diameter and 1½ foot deep: put into it 6 gallons of water, and mix soot with it until it is as thick as good cream, then with a jug distribute the solution slowly on the top of the sugar and Wheat. The liquid will then be about 2 inches above the level of the Wheat, and the whole mass is to be stirred several times during the first four hours. After remaining 14 hours, the liquid is entirely absorbed and the grain is sown without loss of time."

Many methods of dressing Wheat previous to sowing it have been proposed, but for the object desired a more inefficient collection of ingredients it would be difficult to imagine. We should be glad if "B." would answer a few questions regarding his proposed plan for coating seed. First, we would inquire, what is Irish lime?—and what are its peculiar properties and virtues? Is byre manure found to be readily soluble in water? How are hen-pens dissolved, and what is the precise nature of a solution of hen-pen? Who first pointed out the manurial uses of sugar? And, lastly, in what sense are we to understand that sugar is glutinous? We confess our inability to answer these important questions, or to assign any reason why such a heterogeneous assemblage of indefinite substances should be supposed capable of exerting any beneficial action upon seed corn. The description of this peculiar process by which our crops are to be improved would be incomplete without results. Results are accordingly produced, in the form of an increase of 6½ bushels per acre of Oats. This was in 1859. The next season the effect of similar treatment was not apparent, but we are told that experiments are now in progress in Ayrshire which will prove the utility of the process. Truthful results in experimental farming are not quite so easily obtained as some of our teachers appear to think.

Let us, for instance, make a series of measured plots upon Wheat or Barley, leave them untouched and unmanured, and carefully note the produce per acre from each. We cannot compare the results of this simple experiment without finding very considerable differences in yield. Three such unmanured plots, last season, closely contiguous to each other, showed a difference of 6½ bushels per acre between the largest and smallest crop, although the treatment of all had been identical. Here are results of great importance, teaching us at once the difficulties that beset the agricultural experimenter, and the necessity of duplicate, or even quadruplicate plots, and repeated trials, from season to season, before a satisfactory generalisation can be made. Experiments in which a fertilising substance, or a peculiar system of cultivation are tested by only one trial, may arouse attention, but do very little towards the establishment of a fact. But, above all, let us be guided by sound principles in making our field trials. If we ask a question of the soil, let us ask it so that the answer may be intelligible; and let us beware of asking half-a-dozen questions at once, and thus obtaining no answer at all. If we dress seed corn with a disagreeable combination of sugar, soot, Irish lime, and solution of hen-pen, for instance, all mixed with water, and compare this with undressed seed, is the good result to be attributed to the water or to the variety of funny things we have put into the water? Might it not have been an improvement to have steeped the seed for comparison in pure water, and thus fairly tested it against the seed steeped in the dirty water and sugar? Let the treatment of the plots under trial be absolutely the same, excepting in the particular point of management which it is required to test, and do not let us rely on a single trial, but provide duplicate plots. By such precautions we may hope to arrive at results worthy of attention and of real national value. *J. W.*

—— At Mark Lane the corn trade has scarcely varied during the week, for Wheat prices are nearly exactly the same as they were last week. White Wheat ranges between 48*s.* and 52*s.* per quarter.—— The stock and meat markets have been unsettled, and on the whole prices have slightly declined.——In the seed trade but little has been done.

—— The Royal Irish Agricultural Society has held its annual meeting this week at Tralee. From the far western situation of this town, it was not to be expected that a large, or even average, number of visitors and live stock would gather and be gathered together in the show-ground. The figures, however, show a goodly number of animals. There were 58 Shorthorns, 121 of other breeds of cattle, 42 horses, 143 sheep, and 50 swine—in all, 414. This is about 20 per cent. less than the average entries at the meetings of the last 15 years. But the Irish farmers, no doubt, now begin to find it is a useless expense to send middling animals to these shows. This view is affirmed by the excellent character of the animals which the reports we have describe. We defer details till next week. The principal prize for Shorthorns was awarded to Mr. Chaloner, of Meath, for his bull, Sovereign.

—— The Worcester Society held its first meeting in its new form at the county town on Tuesday and Wednesday last. Worcestershire hitherto has only had a number of petty agricultural societies, which, so to express it, only stood in each other's way. Now, however, an amalgamation has taken place, and a real county society, on what appears to be a sound basis, has been organised. The first meeting was, at any rate, fairly successful. There were on the ground 103 head of cattle, 96 horses, 70 pens of sheep, and 18 of pigs. Besides this, there was a large and influential company in the showyard and at the dinner table; and the spirited character of the speeches at the latter augurs well for the increased success of the society.

—— Feeding for prizes is a question in which practical men in all parts of the country feel a deep interest. Suggestions on the subject are made to us wherever we go, but more particularly at agricultural shows, where the evil is regularly made apparent in the animals exhibited. In support of this experience of our own, we have further written proof from another independent source. Simultaneously with the issue of our remarks on Mr. J. Beale Browne's letter, a Yorkshireman was writing to the *Newcastle Daily Journal* to expose similar grounds for complaint. Under the heading "Judging Leicester Sheep," the correspondent referred to, "X. X.," writes as follows:—

"In making the following remarks I wish it to be particularly understood that I allude to no one personally, nor to any case in particular. I wish to speak of the matter as a whole, broad and general. The exhibition of animals for premiums given by agricultural societies is now so common, that it has become absolutely necessary that some other method of judging them should be adopted. This applies more particularly, perhaps, to Border Leicesters than to other animals, because their type of perfection may be said as yet scarcely to be properly defined. On that account, it is to them that I wish to refer. The present method of fixing judges is to appoint two or three gentlemen to give their decision on the merits of the stock. In no case can these amateur judges be held responsible for their awards, no matter how grossly incorrect they may be. That they are very frequently incorrect no one who knows anything about it will attempt to deny. Of course the error is an error of judgment and not intentional, but that is no justification; it only goes to prove that the system should be altered, and altered in time it must be. The difficulty is, what is the best way of altering it? I have heard two plans spoken of—firstly, that a committee be appointed to draw up a code of rules for the guidance of all judges, and describe what a perfect Border Leicester ought to be, and that the awards be given to animals that most closely resemble that description. To this plan there are so many objections, and it would be found so difficult to carry out that I think it is almost impracticable. The other way is to have a paid, professional judge, who shall be responsible for his judgment; something after the method at present in use in deciding the merits of greyhounds at public coursing meetings. Any one who chooses may offer himself as a candidate for the office of judge. On his efficiency will depend his chance of employment. It will be for his own interest to qualify himself for the office, by attending all public shows and all public sales of rams, and without regard to any flock in particular—for prejudice has often a deal to do in raising the price of some—learn what type of sheep has the greatest favour with the public, by pitching the highest price in the auction ring. He will thus become thoroughly acquainted with the subject, and know exactly what sort of animal a Border Leicester ought to be, to command a high value. It is of no use for agricultural societies to award premiums to a class of sheep that has not the appreciation of the public. In this, as in other things, public opinion, in the long run, will have its way. Border Leicesters have now become a new breed; they are no longer the Leicester of Bakewell and Calby: small boned, with short round frames, and scanty wool. These may be neat enough, and pretty enough, but they are not the kind that is now in demand. Whatever the type of sheep receives the verdict of the public for general use in the Border counties, should be the type to which the honours of agricultural societies should be given."

We freely repeat that the present system "should be altered, and altered in time it must be." We have seen this season—and it has been as clearly seen for many years past—how a certain clsss of breeders will run after stock, specimens of which have been awarded Royal and other prizes, no matter whether these prizes were given with judgment or not. In this lies the ground of the mischief on which there is so much room for complaint. Enthusiastic and anxious breeders, who may have ample capital, but not a strong and sound judgment, are led or misled by some of the appointed judges of stock shows. These breeders are naturally far more numerous than are first class judges. The latter, however, are not few or we should not see sheep which have been altogether unnoticed at some shows making higher prices by auction than the 1st and 2d prize animals. Indeed there is ample talent for forming a code of rules for sound and consistent judgment in respect to any kind of stock. Who, therefore, as a man of public position, will further distinguish himself by organising a conference to form a code of sound rules? If anyone, or the chairman and committee of any society, will do this, the example will be followed throughout the country. The suggestions thrown out by "X. X." are valuable as a basis for discussion; and we can clearly see the end to which the discussion must lead if practical men have their proper influence. If all breeders were good judges, public judging and awarding prizes would be altogether useless. But the influence of the best judgment is equally useless when we have such contradictory decisions as we saw at Manchester, Lincoln, Beverley, and other meetings. As matters now stand, the best judges and breeders don't care for agricultural shows, and young hands and easily swayed minds are misguided by the very means which ought to be as clear and accurate as an example in algebra or mathematics.

—— Reports reach us from all quarters of the prevalence of Foot-and-Mouth Disease. In another part of the paper will be found some very practical suggestions as to the treatment of this most annoying malady, a treatment which accords well with the recommendations of the best veterinary surgeons. In Aberdeenshire, Fife, Northumberland, Cheshire, Yorkshire, Kent, Surrey, and other counties, cattle are "down" under the baneful influence of the epidemic, and a note of warning is requisite to those who intend to purchase stock in the open market.

—— Cattle have been received in London safe, and in good order, after a 30 days voyage, from Monte Video. The *Times*, in a leading article last Wednesday, stated that a contractor at Monte Video has offered to supply any quantity of fine cattle, well prepared, and weighing not less than 800 lb. each, at 4*l.* a head, free on board. Also that a line of steamers is to be established for so promising a trade.

OUR LIVE STOCK.

The late Earl of Radnor, in devoting himself to the improvement of his estate, the welfare of his labourers, and the perfecting of no less than three kinds of live stock, was a true benefactor to his country and to agriculture. For many years the noble Earl's triumphs in the showyards both of the Royal Agricultural Society and the Smithfield Club, gained him a high reputation as a breeder; and to see the result of all this labour brought to the hammer, and dispersed last Friday week, was, to say the least, somewhat sad. The weather was fine, and a large company gathered around Mr. Strafford, who commenced with the "renowned" Coleshill pigs punctually at 11 A.M. We have not space to enter at any length into the history, or discuss the qualities of the Coleshill stock; but our readers will find some account of both in our issues of the 24th ult. and 7th inst. The pigs were perhaps the greatest attraction of the day, and intending purchasers assembled from all parts of the kingdom. Mr. Moore might be a little disappointed with the prices made by the older sows; but Mr. Strafford's surmise that the company were waiting for something young, proved correct; and when those farrowed since 1867 were brought into

the ring brisk competition immediately commenced. Mr. Moorsome gave 20 gs. for a very perfect hill, to go to Yorkshire, and Mr. J. P. Foster purchased another to improve the Cumberland bacon. Mr. Stearn, the famous Suffolk pig breeder, secured Cowslip for 17 gs., and Mr. Tate purchased a capital boar for the Royal Windsor farms. The highest price for a sow, 21 gs., was paid by Major Stapylton, of Yorkshire, and Mr. Wells gave the top figure for boars in buying Cambridge for 26 gs. The average price realised for the 30 pigs disposed of was 13*l.* 5*s.* 7*d.* The Shorthorn sale was scarcely, relatively, equal to that of either the pigsor sheep. The old cows went well, and encouraged hopes of a good sale for the younger animals. No high prices, however, were given. *Rosetta*, of Littlebury extraction, and *Dame Littlebury*, also bred by Mr. Clayden, brought respectively 71 gs. and 56 gs., the former being purchased by Col. Lindsay, and the latter going back to the Littlebury herd. Col. Lindsay was also the purchaser of *Red Rose* by Fairleigh (19,714) for 50 gs., and *Happiness*, by Costa, for 43 gs. *Cucumber*, by 2d Baron Wetherby, of Knightley and Booth blood, was secured by Col. Kingscote for 52 gs., and *Amethyst*, bred by Mr. Stratton, became the property of Major Stapylton, at 69 gs. Lastly, Romulus, a handsome yearling bull, by Fawsley Baronet, and descended from the stock of Mr. Wilkinson, of Lenton, was purchased by Mr. H. Dunn for 60 gs. Such were the principal results of the sale of Shorthorns. The 50 cows and heifers averaged 31*l.* 10*s.*, and realised a total of 1575*l.* The six bulls averaged 38*l.* 3*s.*; the total proceeds of the cattle sale were 1805*l.* The sheep were brought out well, and realised good prices. We must, however, reserve our notice of this section of the sale.

—— Some little controversy was excited at Manchester, with reference to the decision of the judges in the class for heifers above six and under twelve months. The contest was decided in favour of Mr. Stratton's *Flower Girl*, albeit Lord Toddington's *Ceres 4th* had many friends on the show ground. Last week at Gloucester *Ceres 4th*, although truly a beautiful heifer, was again beaten by *Gertrude*, another of Mr. Stratton's calves.

—— We are shortly to be favoured with a "Record of Hereford Transactions," from the pen of Mr. T. Duckham, of Baysham Court. The publication will appear early in October, January, April, and July, and, from the description in Mr. Duckham's advertisement, it will be constructed on a similar principle to Thornton's Shorthorn Circular. Mr. Duckham has also expressed his intention of commencing periodical sales of pure-bred Herefords, the first of which is already advertised for October 21. It is to be hoped that the spirited course adopted by Mr. Duckham will induce Hereford breeders to take more pains than they have hitherto done, to impress the merits of their magnificent breed of cattle upon the public.

—— We learn from a contemporary that on Thursday week 20 head of Shorthorn milch cows were despatched by Mr. W. Henderson, of Harrogate House, Darlington, to Sweden, the animals having been purchased by Baron O. d'Akerhjelm, on behalf of the Swedish Government. Mr. Henderson annually sells a quantity of stock to the Belgian Government; and though this is his first sale to the Swedish Government, it is more than probable that it will be continued every year.

—— The 17th September will witness an important sale of Shorthorns at Brailes House, Shepston-on-Stour. Mr. H. J. Sheldon has instructed Mr. Strafford to dispose by auction of 37 head, 23 of which are females. On looking over the catalogue we observe the names of *Countess*, by Duke of Cambridge (12,742), a representative of the Fawsley *Fillett* tribe; *Venetia*, by Duke of Brailes; and two bull calves, by the same sire, of the Fawsley *Rosy* tribe; *Miss Knightley*, by Bulls Run (19,368), her daughter *Katinka*, and two young bulls, also of Fawsley origin, being derived from Sir Charles Knightley's Walnut family. The Acombs appear in great force, and are represented by no fewer than 7 females and 3 bulls, all immediately descended from *Asia* by 2d Grand Duke (12,961), who was the mother of *Acacia* (lot 5), and the grandmother of *Alexandra*, by 3d Grand Duke (17,994), and *Arabia*, by Duke of Darlington (21,586). Duke of Brailes, by 4th Duke of Thorndale, is also a grandson of *Asia*, and the sire of much of the young stock of the same family. These animals are of a good Bates strain, as are also representatives of two other Kirklevington families—*Johanna Southcott* (lot 4), by John o' Gaunt, and her daughter *Joan of Arc*, by Duke of Brailes, of the Craggs family, and *Surmise 2d*, by May Duke (13,320), dam *Surmise*, by Duke of Gloucester (11,382). We also see the names of two Foggathorpes, namely, *Lady's Smock*, by Barleycorn (17,724), and her son, by the Duke of Brailes. There are other well-bred cattle from Lord Penrhyn's and the Havering Park herds.

—— At Lord Chesham's sale on Wednesday last some Channel Islands cattle were disposed of at the high prices which these animals now make for the paddocks of our wealthy citizens who live in suburban grounds. Lord Chesham has long had a herd of the best breeds of these docile and rich milk-giving animals. His lordship is, however, reducing his herd to make room for his sheep. Daisy, a cow, was sold to Mr. Gaskell, for 25 gs.; Label, to Mr. Boord, for 23½ gs.; Dot, to the Duke of Grafton, for 25½ gs. Another was bought at 35 gs. by Lord Lismore, to take to his lordship's Irish farm. Of the in-calf heifers, Mr. Ross bought one for Mr. Leigh, of Luton Hoo, at 31 gs., and another was bought for Mr. Jones Lloyd, of the Westminster Bank, at 27 gs. The yearlings made great prices. Mr. Ross bought two for Mr. Leigh at 17½ gs. each, and another was bought for Mr. W. H. Smith, M.P., at 20 gs. Some fat heifers and sheep were subsequently sold at the high figures which all good English animals now fetch. The sheep sold at this sale are noticed in another column.

—— Mr. Mackinder, of Langton Grange, has just shipped 18 rams at Liverpool for Buenos Ayres. This is the second instalment, Mr. Mackinder having exported 16 rams last year. Such satisfaction has been given as to secure a larger order.

RECENT RAM SALES.

Shropshires.—At Bridgnorth Fair, Messrs. Nock and Wilson had a sale of Shropshire sheep, offering 50 rams and 200 pure ewes from the flocks of Mrs. Wadlow, Mr. Pitt, Mr. Instone, and Mr. H. Smith. A ram of Mr. Pitt's fetched 18*l.* 17*s.* 6*d.*, and the average of his others was 11*l.* 4*s.* each. A ram of Mr. Instone's flock fetched 17*l.* 6*s.* 6*d.*, his others averaging 9*l.* 7*s.* each. The sale of ewes from Endon Farm, the property of Mr. J. Pritchard, realised 44*s.* each. Ewes from Callaughton, Mr. Instone's, realised from 45*s.* to 60*s.* each. The yearlings of Mr. Massie, of Bradley Farm, were sold from 50*s.* to 70*s.* each.——At Hagley, the annual sale of Shropshire rams and ewes, by Messrs. Oates, Perrens, and Wooldridge, took place last week. The rams offered for sale were principally the property of Messrs. W. O. Foster and W. C. Firmstone, and were bred from Old Perfection, Mainstay, Pride of Weston, and Young Duke. There were some fine rams sold, one of which realised 22 gs. and another 15 gs.; the sale altogether being considered a great success. —— On Wednesday last Mr. Alfred Sedgwick, of the firm of Messrs. Sedgwick & Sons, auctioneers, Watford, sold the annual produce of live stock on Lord Chesham's farm, at Latimer, Bucks, nine miles from Watford. Lord Chesham has for several years aimed at establishing a first-class flock of Shropshire sheep. These sheep were the leading animals of the sale, for descendants of the best flocks in Shropshire and Staffordshire were announced in the catalogue. Two years ago the Chesham flock supplied 1st prize fat wethers at the Smithfield Club show, and at the recent Royal meeting at Manchester the 1st prize shearling in the Shropshire section was sent from Chesham. These rewards naturally brought men to the present sale who are interested in the Shropshire breed of sheep. Among these were Mr. Preece, the great Shrewsbury auctioneer and Shropshire breeder, and Mr. Masfen, of Pendford, Staffordshire, from whose flock Lord Chesham has made selections. The sheep offered were—1st, seven two-shear and older sheep; and, 2d, eight shearlings. The first made an average of 14*l.* 8*s.* each. Mr. Garne bought one for Mr. Marjoribanks, Bushy Park, Watford, at 26 gs., and Mr. C. Mills one at 20 gs. The centre of attraction, however, at these meetings consists in the shearling males. These made the great average of 27*l.* 13*s.* 9*d.* each. Mr. Pulley, a Herefordshire breeder, gave 26 gs. for the first. The next made 13 gs. A twin brother of the Manchester 1st prize then entered the ring, and after a very animated competition he was bought, at 47 gs., by Lord Lismore, for his farm in Ireland. A still better sheep then appeared, and more spirited competition took place between Mr. Preece, of Shrewsbury, and the agent of Mr. Musgrove, a Liverpool merchant and farmer; Mr. Preece bid up to 51 gs., and subsequently gave up the contest on 52 gs. being bid for Mr. Musgrove. The last was bought for the Earl of Essex, at 24 gs. The ewes sold numbered 175; these were the entire refuse of the flock, and in the naturally poor condition which they would appear in on the "thin" land of the Chesham farm. Mr. Mills, of Sevenoaks, Kent, who is about to establish a flock of Shropshires, gave 55*s.* and 71*s.* each respectively for two pens, the whole averaging 43*s.* each. At the luncheon table Lord Chesham candidly and generously attributed his previous success as an exhibitor to the judgment, care, and attention displayed by Mr. C. Clarke and Day, his lordship's shepherd.

Cotswolds.—Mr. G. M. Sexton's annual sale of Cotswold sheep, rams, and ewes, came off on Friday at Wherstead, Suffolk. The shearling ewes were taken first. In the first lot of five, the prices realised were 52*s.* 6*d.*, 57*s.* 6*d.*, and 64*s.* each, the lowest figure 48*s.*, and the average about 52*s.* The two-shear and the three-shear ewes averaged something like 53*s.*, several lots fetching 58*s.*, the lowest being 48*s.* The flock ewes averaged close upon 2*l.* 10*s.* There were 100 rams for sale. The total sum realised for the rams was something over 580*l.* Several were sold for as much as 10*l.*, 9*l.*, 9*l.* 10*s.*, 9*l.*, and 8*l.*——At Hereford Fair Messrs. Henry Dowle & Son sold a number of grey Cotswolds, the property of Mr. Smith, of Bibury, which realised an average of 6½ gs., the highest figure reached being 9 gs. Mr. Nathaniel Taylor, of Worcester, also sold a number of these rams, the property of Mr. Charles Gillett, of Cote House, Brampton, at an average of 8 gs., the highest price made being 16*l.* 5*s.* 6*d.*, and the lowest 5*l.* 15*s.* 6*d.*——At the Oxford ram fair, Messrs. Franklin and Gale sold a number of ram lambs of this breed from the celebrated flock of Mr. W. Chillingworth, of Cuddesden. The lots consisted of 61 ram lambs and three older sheep. One lamb realised 36 gs., and was bought by Mr. Bruford, of Cranleigh, near Guildford, who is establishing a flock of Oxfordshire Downs. Others made 25, 22½, 18½, and 17½ gs., and the whole averaged about 10 gs. each. Messrs. Franklin and Gale immediately afterwards disposed of 50 ram lambs belonging to Mr. H. Gale, of Cuddesden. The highest price was 10 gs., others making 9½, 9, and 8½; the average being 6*l.* 11*s.*

Rylands.—At the Hereford fair Mr. E. Russell offered 25 rams of this small but useful local breed belonging to Mr. B. Downing, of Holm Lacy, 23 of which were sold at an average of 8 gs. each; two or three fetching 12 gs.; Mr. Russell also sold six rams for Mr. Pinches, of Hardwicke, which realised an average of 7 gs.

Leicesters.—Numerous lettings of Leicester sheep have been held in Yorkshire, with considerable success. The Highfield and Marton Lodge prices were recorded last week. The last important letting was held at Great Givendale, near Pocklington, on Friday, where Mr. J. R. Singleton offered upwards of 60 rams of the purest blood, combining the Sir Tatton Sykes, the Sanday, and the Wiley strains. A remarkably brisk competition resulted for the shearlings, all of which were let. A contest ensued between Sir Tatton Sykes and Mr. Halmsley, both well-known breeders, for the possession of No. 10, the high sheriff proving the victor ultimately, but for 41*l.* Mr. Kirby, of Watton Carr, paid 35*l.* 10*s.* for No. 7, a shearling. The shearlings on the whole realised an average price of 14*l.* 15*s.*, or 20 per cent. over the high prices of last year. The two-shear sheep were equally promising, and No. 32 created a keen contest between Sir Tatton Sykes and Mr. Jordan, the latter eventually taking the ram at 37*l.* 10*s.* for Mr. Mead, of Cork, an Irish breeder. The two-shear sheep averaged 12*l.* 10*s.*, and the aged sheep upwards of 11*l.*

RURAL SCHOOLS AND TECHNICAL EDUCATION.

At the meeting of the British Association at Exeter, on Tuesday, Canon Girdlestone and Mr. Bailey Denton read a paper each on the subject of education, as it bears on agricultural progress. The title of the first is "On the Maintenance of Schools in Rural Districts." After a few preliminary remarks, the Rev. Canon said:—

Twelvemonths longer experience and study of public documents had confirmed him in the truth and accuracy of all which at Norwich last year, or elsewhere, either before or since, he had spoken or written, and in the wisdom of what he had done in the matter of the agricultural labourer. He had advocated and promoted emigration as a mere palliative for the time being, and had done so with great success. But it was to education that he looked as the only permanent source of improvement. He cited several passages from the Reports of the Committee of Council on Education, and that of the Committee on the Employment of Women and Children in Agriculture, as well as from the speeches of members of the present Government and others in both Houses of Parliament, to the effect that there was a general expectation that next session some measure of direct or indirect compulsion, as regards the education of the children of agricultural labourers, would be proposed and would meet with general approval. He urged, and cited many passages from public documents to prove, that, much as such a measure is needed — in order to make schools efficient in construction and management, efficient also in results—it would be both unjust to the labourer and useless as regards results to enact it until a really efficient school was established and permanently maintained within easy reach of every labourer's cottage. He then proceeded to show that in more than half the parishes in all England and Wales, and in much more than half the rural parishes, this was far from being the case. It was only concerning the aided schools, or those fulfilling all the conditions of State assistance, that there was any official and substantial proof of efficiency. Out of 14,877 parishes in England and Wales, the Committee of Council report that there are only 7406 which have aided schools; that of the remainder, 2779 have schools built with State aid, but not fulfilling the conditions of annual State aid, and described, after inspection, as generally more or less inefficient; while with regard to 4692 parishes nothing whatever is officially known, though there is good reason for supposing that in some of them there are good schools, in many more schools of various degrees of inefficiency, and in not a few no schools at all. Making copious extracts from the Reports of the Duke of Newcastle's Commission on Education, 1861, of the Committee of Council, just presented to Parliament, of the National Society for last year, and of the Commission on the Employment of Women and Children in Agriculture, from the special Reports of eight of her Majesty's Inspectors of Schools, from a large number of private letters from various quarters, including one from the manager of Bitton's Charity, which makes annual grants of 5*l.* to 20*l.* to no less than 1200 Church of England schools, Canon Girdlestone proceeded to explain the cause of this deficiency of guaranteed really good schools. All the above authorities, as well as most of the leading members of both Houses of Parliament, whose speeches on various occasions he also quoted, are, he said, agreed that the difficulty consists, not in the one great but isolated effort involved in the first building of a school, but in the continuous effort involved in the annual maintenance of it. They are also agreed that this is not owing to any poverty in the parishes themselves, every parish, except the very few which are too small to need more than a moiety of a school, having within itself sufficient property, as is proved by the rate-book, to maintain an efficient school by a tax so small as to be almost inappreciable. There is universal and very strong testimony to the fact that the parochial clergy—over and above generally taking the initiative in the establishment of schools, and voluntarily undertaking a large share in their superintendence and management, as well as the very disagreeable task of collecting subscriptions from persons, many of whom altogether refuse to do their duty, and not a few treat the clergy with rudeness, as though they were asking for themselves—after subscribing in the first instance more than any one else in the parish, have at the end of each year no alternative but either to close the school or to balance the accounts by payments often amounting to 30*l.* or 40*l.*, and, in the case of 3000 schools reported by the National Society, averaging a sum of 18*l.* each. Equally strong is the testimony to the fact that, though some landowners

are very generous, especially if the school is near their own residence, yet, as a class, especially if non-resident, they almost entirely ignore the claim which the cause of education has upon property, and that the occupiers of land contribute hardly anything at all. Canon Girdlestone argues from the above points—none of which are matters of opinion or assumptions of his own, but fairly stated and circumstantially proved by extracts from official documents—that there can never be any guarantee for there being an efficient school within easy access of every labourer until the land is made to do its duty. With the view of interfering as little as possible with the existing state of things, and yet remedying that one chief blot in the system, he recommended that the children should continue to pay 1*d.* a week as now, thus avoiding the risk and evil of education becoming a pauperising dole; that the State grant should be distributed as now; that in every parish or district in which there are not at this present time existing school buildings in all respects satisfying the requirements of the State, such buildings should be immediately erected, with money borrowed wholly on the parochial rates, and to be repaid, like loans from Queen Anne's Bounty for parsonages, by equal instalments in 30 years, or partly in this way and partly by a tax on the land; that Denison's Act should be made compulsory, and so throw upon occupiers of land the charge of educating in the parochial schools the children of all receiving outdoor relief, a process which would at one and the same time bring hundreds of idle children under education, and increase the funds of the school; and, lastly, that all that portion of school expenses which is now defrayed by voluntary contributions should be satisfied by a tax or rent upon the land. Last year, as appears from the Report of the Committee of Council, somewhat less than one-half of the parishes in England and Wales had schools aided by the State. The voluntary contributions towards the maintenance of these amounted to 492,941*l.* When there is an aided school in every parish or district, the number of schools will be doubled, though the school funds will be so replenished by the operation of Denison's Act (made compulsory), and other compulsory enactments, as not to need voluntary contributions in the same proportion as now. Say, however, that, in a round sum, 1,000,000*l.* would be required, which is more than double the sum now contributed for half the number of schools. England and Wales are computed to contain 37,321,323 statute acres, producing an annual rental of 107,352,971*l.* On that measurement and rental 6½*d.* per acre, or 2¾*d.* in the pound, would produce the sum abovenamed, although in all probability 1*d.* in the pound would raise as much as would be wanted. The landowners would thus be made to contribute a fair share, but nothing more. The occupiers, as above shown, by the operation of Denison's Act, would be made to contribute their share, advisedly small, because they are already heavily burdened. Professional men and others, being neither landowners nor occupiers, would, as now, contribute their share through the general taxes, out of which comes the State aid, a great increase in the amount of which would now be demanded, in consequence of the number of schools being doubled and more inspectors wanted. All begging for schools would cease, much to the relief of the clergy, and their maintenance would depend on a certain, instead of on a very uncertain and fluctuating source. Meanwhile there would, Mr. Girdlestone argued, be plenty of channels still remaining open for the flow of private beneficence and voluntary contribution in the matter of education. Such are the support of Sunday schools, the supply of extra books, maps, globes, and loan libraries to day schools, the extra payment, and unexpected, but none the less welcome and deserved, presents to deserving masters, mistresses, and pupil-teachers, and help towards the establishment of a superannuation fund, school treats, and excursions, and a thousand other things which would tend to impart sunshine to school life, and, above all, the payment of school fees, and the providing decent school clothing for the children in large poor families. Canon Girdlestone proved, from the report of the Committee of Council for 1869, that every statement made concerning other parts of the country applied still more stringently to the county of Devon. There are aid schools in little more than one-third of the parishes in that county, and there is much reason to fear that in many of the remaining two-thirds the schools are very inefficient, and that in some there are none at all—a state of things which contrasts unfavourably with the condition of the country at large, bad as that is. It fully justifies the words quoted by Canon Girdlestone from the last report of Mr. Howard, her Majesty's Inspector of Schools in North Devon, which, in truth, did little more than express in somewhat strong language the almost unanimous opinion of her Majesty's Inspectors in other districts, and of all the other officials above cited. "At present," says Mr. Howard, "the chief burden of the support of schools is borne by the clergy; the farmers, as a class, give nothing, and the contributions of country gentlemen are shamefully small."

Mr. J. BAYLEY DENTON immediately followed with his paper on "Technical Education of the Agricultural Labourer," a full report of which is unavoidably deferred. He advocated a system by which, along with primary education, information might be imparted to the children of agricultural labourers on such matters as the animals, insects, and crops on the farm, and the teachers should be qualified to teach children matters connected with the business of their future life.

In the subsequent discussion—

Mr. BUTLER repudiated the charge that wages of the Devonshire labourers were only 9*s.* as untrue and unjust. Canon Girdlestone had been before the public for about two years, and during that time no doubt he had done a great deal of good. He declared that the wages in Devonshire were frequently 15*s.* a-week, and that was what he paid. He dissented entirely from Mr. Denton's paper.

The Rev. H. BRAMLEY said Canon Girdlestone had not made sufficient allowance for the great improvement in agricultural schools. He was a champion of the voluntary system. In opposition to Mr. Denton, he said, don't mix up practical education with reading and writing.

After some remarks by the Rev. Mr. D'Orsay, of London, on the qualifications of schoolmasters,

Mr. F. COLLIER, of Plymouth, expressed his opinion in favour of compulsory education.

Earl NELSON spoke strongly against compulsory education. They must contrive the means of interesting the people in education. He advocated a system of district committees, assisted by Government.

Mr. NEVILLE GRENVILLE bore testimony to what the clergy had done for education. He was opposed to compulsory education; the land was already overburdened, and he hoped Sir Massey Lopes' motion on that subject next session would receive due attention.

Lord HOUGHTON said it was quite a modern notion that it was the duty of the landlord to supply education to the children on his estate. He was no more bound to do so than to supply food, clothing, or other luxuries to the people around him. As a fact, the landlords did a great deal for education. He had always maintained that it was the duty of the State to educate the children of the poor, and not to put it upon individuals. Let it go upon the Consolidated Fund—upon the property of the country.

Mr. JACKSON, Mr. WEBSTER, and Professor ROGERS advocated compulsory education.

Canon GIRDLESTONE, in reply, refused to discuss the wages question in connection with his paper, as that would form the subject of debate in this section another day. He did not want to make the landlords pay for education, only that they should pay their fair share. He protested against Lord Houghton's notion that the clergy were charged with the secular education of the country.

The PRESIDENT (Sir Stafford Northcote) said the discussion had shown the immense magnitude of the question, and the impossibility of settling it in two or three hours' deliberation.

MANAGEMENT OF STRONG LAND.

(*Concluded from p.* 906.)

PROPER CULTIVATION.

AND now we come to the second part of my subject—the cultivation or general management of strong land. In this part I am afraid I shall fall short in supplying any system of working the land that will compare at all favourably with the free easy-going processes of the light-land farmer. From the hard stubborn nature of the stiff clays of which I am speaking, they certainly require a great amount of horse-labour to sufficiently pulverise the soil and secure a proper tilth for the reception of seed, &c. And I am strongly of opinion that the proper working of strong-land, when the soil is dry, is really of more advantage than manure. As a rule, four days a-week is as much as a strong-land farmer can successfully work his land; and for this reason it is necessary he should keep a good strength of horses, so as to make all possible use of favourable weather. The all-powerful steam-engine is the power required to assist the strong-land farmer in smashing up and pulverising with heavy implements our stiff clays when the weather is favourable, thus reducing the number of horses, and leaving them only the lighter kinds of work. But I regret to see, from the R. A. Society's Reports, and other trustworthy sources, that, on the whole, steam applied to the cultivation of land has not produced so good effects as could be wished. Still, when in good hands, it is spoken of very satisfactorily; and I feel sure, in a few years it will be so improved and simplified as to come within our reach. Before going through the yearly horse-work, I may mention that a good collection of implements is a great advantage to working in clayey land. The rolls, harrows, cultivators, &c., should be of the most improved make, strong, and likely to deal successfully with rough work. The ploughs, in particular, should be those which cut a high-crested or pointed furrow, being far better for working than a flat swampy one. I shall now assume that a team can at once take the full length of the field, instead of being kept the whole of the first day ploughing a corner or two of short ground, which should properly be done in two or three hours. The land has been drained, too, and the pipes are carrying away some thousand gallons of water, which was formerly floating about the surface, saturating still worse the already stiff land. By this means, after heavy rains, the land will bear working a day sooner than otherwise; besides, the water now works through the soil into the drains, thus leaving all manurial sediment in the land, instead of, as before, running down the open furrows, carrying away not only much of the natural soil, but also manure lately applied to the land. For the improvement in fences and draining, the rent will probably be increased 7*s.* or 8*s.* an acre. This certainly looks a good deal, but if the drains act fairly it ought to pay in workmanship alone after the first year or two. I confess, however, through the blending up of the soil and the carting of pipes, which is often done in winter time when the land is wet, more injury than benefit is the result the first season or two. Landlords, I think, would do well to consider this; and if they would allow a season to pass over before charging percentage, it would be a means of bringing drainage more in favour with tenants, who often cry it down before it has had a fair chance of showing itself. Of the improved fences there can be but one opinion; no sensible man would object to pay an extra 6*d.* an acre for the well-arranged fields and straight fences in place of the old ones, which, although an ornament to parks and pleasure-grounds, are much out of place on cultivated farms.

ROTATION OF CROP.

I will now just notice the course of working a strong-land farm for 12 months, but, in the space left, my remarks must necessarily be short and imperfect. In the first place, allow me to mention the difference I have observed in the management of labour. Some farmers will do as much work with seven horses and eight men as others with nine horses and ten men, and in this way greatly economise labour. The course of cropping I should suggest for the poorest soils, which are considered too stiff and cold for growing any root crop, will be the following—8, 10, or 12 course rotations—which I shall suppose are the number of fields. Rotation for eight years: First, fallow, dunged; 2, Wheat; 3, Peas or Tares; 4, Oats; 5, Beans, dunged; 6, Wheat; 7, Clover, limed; 8, pasture. Rotation for 10 years: First, fallow, dunged; 2, Wheat; 3, Peas or Tares; 4, Oats; 5, seeds, limed; 6, pasture; 7, pasture; 8, Oats; 9, Beans, dunged; 10, Wheat. Rotation for 12 years: First, fallow, dunged; 2, Wheat; 3, Peas or Tares; 4, Oats; 5, seeds, limed; 6, pasture, to be ploughed up about July or August, and well worked; 7, Wheat; 8, Beans; 9, Wheat; 10, Oats; 11, seeds, limed; 12, pasture. In each of these cases we should get more than half the land in grain crops. The courses, however, are well varied, and the land derives the advantage of pasturage, which refreshes it more effectually and durably than any course of manuring.

In these rotations I have just kept in view the convenience of working of which I shall speak more fully hereafter. Starting, then, with the yearly horse-labour I will first take the field intended for fallow. This would be better if ploughed in September, but I am afraid time will not allow till after Wheat sowing is completed. It should then be ploughed 6 or 7 inches deep by 9 inches wide, in broad planks or lands, in order to have it all stirred over. This work, with threshing, carrying away the grain, and carting prepared manure to meadow and pasture land, if the weather suits, with other incidents, will probably occupy the time up to Christmas.

After Christmas, if the land is sufficiently dry, proceed with the ploughing for spring crops. This, also, as far as horse-labour is concerned, is the most convenient season to draw lime for the seeds, which should be spread about April or the first week in May. A fresh supply of manure for the meadows should now be prepared by collecting road scrapings, mud from pools and ditches, and any other marly substances at hand, to be mixed up with barn-door and stack-yard cleanings, so far as it goes, then lime direct from the kilns thrown over all the heaps at the rate of a ton to 8 or 10 loads of marl. This should be at once turned and mixed together; and this turning should be repeated two or three times, at intervals, in order to get a well-made compost. Peas should be sown the last week in March, and Oats directly afterwards. For both crops the land should be cultivated and well worked, and if seeded down with Oats a good fine soil must be made. After the Oats are properly harrowed in, the land should be heavily rolled to get a firm seed-bed. The seeds, after being well mixed, should be sown with a broadcast machine, and the land lightly harrowed, and again rolled. The following will be found a proper mixture of seeds for two or three years' pasture:—1 bushel Rye-grass, 6 lb. Red Clover, 4 lb. White Clover, 2 lb. Catsail, 2 lb. Crested Dogstail.

The horse-work is now drawing within a narrow compass, the one fallow field being all there is to attend to. First cross-plough, then harrow, roll, and cultivate repeatedly to bring all Twitch and weeds to the surface. This field should be thoroughly cleansed, as there will not be an equal chance again for several years. It is seldom necessary to gather Twitch or weeds off a summer fallow, as the long days and hot sun are pretty sure to prevent anything growing again, and they are probably some benefit to the land. When well worked, cast on the manure, and cross-plough it in, to stand till time to plough it for Wheat.

If there is a ley to be broken up and worked for Wheat, this should be done in August, and the horses should be kept regularly in work during harvest, so as to be ready for getting out the manure for Beans shortly after the ground is cleared. These should be put in during the last week of September, drilled 12 inches apart, with 5 or 6 quarts of Tares per acre. These should be well cleaned by hoeing in spring. The Wheat land will probably require to be ploughed in 9 feet ridges or butts, and drilled with a 17 spout drill, or else sown broadcast, according to the state of the land, and worked up with harrows 10 feet wide, four to the set. The middle of October is time enough to begin Wheat sowing, but most of the land should be ploughed ready. If the drains work fairly, water furrows will not require opening with the plough; but furrows should be drawn round the lower headland and any hollow places of the field, and these must be at once cleaned out with the spade, to take away all surplus water.

On the better class of strong land, likely to pay for ploughing, I should suggest the following courses:—Rotation of eight years: 1st, Wheat; 2d, Turnips; 3d, Barley; 4th, seeds; 5th, Oats; 6th, Beans; 7th, Wheat; 8th, seeds. Rotation of ten years: 1st, Wheat; 2d, Peas or Tares; 3d, Oats; 4th, seeds; 5th, Wheat; 6th, Turnips; 7th, Barley; 8th, seeds; 9th, Oats; 10th, Beans. Rotation of 12 years: 1st, Wheat; 2d, Peas or Tares; 3d, Oats; 4th, seeds; 5th, Wheat; 6th, Turnips; 7th, Barley; 8th, seeds; 9th, Oats; 10th, Beans; 11th, Wheat; 12th, seeds. The crops in these rotations are varied, and the horse-work conveniently divided between spring and autumn; with proper manure, these courses should be successful. For one year's seeds the following mixture will be generally found

sufficient:—One bushel Rye-grass, 10 lb. Red Clover, 4 lb. White Clover, 2 lb. Alsike. In this rotation the Turnip crop will require much attention, so as to get the soil well worked. The better plan, on this land, is to finish working and sow a little at a time, in preference to getting the whole field ready first. The crops should be cleared off in November if the weather is at all favourable, or afterwards when the land is tolerably dry; it will greatly injure the field for coming crops if they are carted in very wet weather. It should be ploughed as soon as circumstances will permit, in order to get the benefit of spring frosts; this being a wonderful assistance in procuring a fine tilth for the Barley crop and seeds. The meadow and pasture land, after draining, will be found more sound and much better and safer for carrying sheep. But to bring about much real improvement in quantity, or even quality of Grass, it will require further assistance in the shape of manure. Farmyard dung, carted about December, and well worked in spring, will be found most beneficial; but this probably could not be spared in large quantities from the rest of the farm. Raw or boiled ½-inch bones have produced most satisfactory effects in improving the herbage after draining on this class of land. The boiled bones act quicker, and for this reason would probably be preferred. About 6 or 7 cwt. per acre put on about April, chain harrowed and rolled, would be a fair dressing, and produce good and lasting results: 3 or 4 cwt. of boiled bones and 19 cwt. of nitrate of soda will produce good and early keep. I have mentioned before a mixture of marl and lime, or marl and dung, as making up a good compost for pasture land. This should be chain harrowed in spring with a few of the finer Grass seeds. I again recommend everything likely to form manure, when properly mixed, to be carted to the heap. This can be done in frosty weather and odd times, when neither men nor horses are very valuable. In this way alone several acres can be manured annually without any great expense; sufficient, in fact, to keep the meadow land in fair condition. It will be seen that in my rotation of crops, there is, in all cases, more than half the arable land in grain crops, in some cases two-thirds. I think it quite within my province to remind you that good manure is essentially necessary to strong-land farming. With so much of the land under grain, and so little under Turnip and green crops, it is impossible to make good manure from the straw alone. The produce from the extra acreage should be converted into food for the stock on the farm—part in its natural state, and part exchanged for cake, bran, and other feeding stuffs—to be mixed with cut straw, bean haulm, &c. This will be found to improve the stock, as well as manure, and ultimately lead to more successful farming.

COTTAGE BUILDING.

Mr. Edwin Chadwick recently gave a "garden tea party" to the committee of the Ladies' Sanitary Association, to the Council of the Society of Arts, and to others interested in the sanitary improvement of dwellings, at his house in East Sheen, for the purpose of showing some new forms of construction, and especially for displaying a new mode of ventilating with air—both warm and fresh — invented by Capt. D. Galton, R.E., in a new model cottage, occupied as a gardener's lodge, attached to his house, on principles which were explained in an address. Mr. Chadwick addressed the company, as they were seated in the garden, as follows:—

"My Lord, Ladies, and Gentlemen,—I shall have difficulty in conveying, within any compass, for this occasion, my sense of the great importance of the rising movement which may be aided by the principles of the construction of the very humble-looking little cottage to which I have besought the honour of your visit. The sanitary object attainable by the improvement of the dwellings of the wage-classes is no less than a reduction of nearly half the prevalent premature disability from sickness, and half their mortality, which is proved to be due to the conditions in and about their dwellings, including over-crowding. The Society of Arts has promoted new arts, such, recently, as pisciculture and oyster-culture, which are being earnestly pursued, with a special solicitude as to the habitats of the creatures as the chief means; and it may really befittingly promote, as a new or as a neglected art, on which the progress of other arts must depend, puericulture, for which earnest solicitude as to the habitat is also needed, and for the result of which there is great promise; for we have had of late, from medical officers and heads of establishments, evidence that is consolatory for past efforts of sanitary improvement, displayed in district orphan asylums of the metropolis—most striking to those who have visited them, as I have done, after lapses of time; that as the common lodging-houses have been regulated under Lord Shaftesbury's Act, and the low courts and dwellings—former fever-nests—from which these orphan and destitute children chiefly come, have been improved by rudimentary measures of a sanitary police, the type of children has been improved; they become less ugly and ferocious and repulsive in their aspect, and the school teachers attest that they are less difficult to teach and to train industrially. In this view of the mental and moral, as well as the physical improvement of the population, I may, I hope, suggest to the noble ladies of the Sanitary Association that the principles in question have, moreover, claims upon them in respect to the extension of an improved order of marriages, and the reduction of a demoralising celibacy amongst the wage-classes; for, of the million and a quarter of men of the marriageable ages who remain single, has it been seriously considered how many are withheld from marriage by the want of befitting homes; — how many are deterred by having only places presented to them which are dark and filthy, deprived of due light and air (yet dear) to which they could take a wife; —how many are deterred by the aspect of squalid misery they witness on the part of the married, of whom, in Manchester, Liverpool, and Glasgow, even in times of prosperity, large proportions are born only to die, and of all born one-half, as Dr. Farr's dire records show, are in their graves before their fifth year? Of a sound, well-trained, industrial, self-supporting, and productive population, I assert as an economist, that notwithstanding the present depression of the labour market, our country needs more population, especially to supply the increasing claim by emigration, which is commonly of our best population, leaving behind larger proportions of the dependent, the pauperised, and the worst. But practical sanitary science affords brighter prospects. Large aggregations of orphan and destitute children in the institutions such as those to which I have referred, were formerly, notwithstanding high dietaries, the seats of devastating epidemics; but now, with clean air, clean persons, and clean constructions—with yet much to do—these same institutions have become sanitary standards, with death rates less than one fifth of those prevalent amongst children of the same ages of the general population. My confident belief is that, by the rudimentary sanitary principles and practical sanitary art, to which I would now ask your attention, as applied in the model cottage you will see, the death rate amongst children and the common insurable disability to work on the part of adults may be reduced to one third of what it now is. In various model dwellings the death rates have been reduced by about one-third, but, unhappily, with economical results which do not encourage, and, indeed, rather discourage, imitation. By the application of the principles of construction you will see displayed, I have a confident expectation that the greatest reduction may be effected, with a better promise of a 'commercial return.' The great sanitary evil to be contended against in the cottage and house site and the habitat for puericulture is damp, which lowers temperature and lowers strength; generates painful diseases—rheumatism—and, lowering strength, predisposes to all other passing causes of disease, and especially to consumption.

"1. The first article to be insisted upon in a sanitary specification is, that by drainage of the site, if it be necessary, 'the water-table shall be lowered not less than three feet below the surface.' Throughout the country it has been of late observed that a diminution of consumption has followed good subsoil drainage works. In this particular instance, the site being a deep gravel, in which the water-table is several feet below that minimum, there was no necessity for this precaution. My first condition of a sanitary preparation, as respects the construction of the house itself, is 'that the flooring shall be impervious to rising wet, the walls to driving wet, and the roofing to falling wet or to snow, and that they shall be absolutely damp-proof.' As illustrative of the conditions of the common constructions, I may here mention that the common bricks of which cottages are made absorb as much as a pint or a pound of water. Supposing the external walls of an ordinary cottage to be one brick thick, and to consist of 12,000 bricks, they will be capable of holding 1500 gallons or 6¼ tons of water, when saturated fully, which they sometimes are. To evaporate that quantity of water would require nearly a ton of coal well applied. These bricks give off their moisture slowly. It is unsafe to inhabit, in less than nine months or a year, the houses constructed of the common materials; and almost a double death-rate has attended recently the occupation of a brick-built model dwelling. When I examined, as a reporter, the model dwellings built at Paris by the Emperor, I found the appearances of damp on some of them that had been built two years. The *concierge* who showed one block had her head bound up, and was suffering from an attack of rheumatism, connected with the dampness of the houses. The Empress has since paid attention to the subject, as I am informed and I hope, with better effect. But it is proper to mention, as showing how little is to be expected, not merely from architectural science as it is, but from curative science when uncombined with preventive or sanitary science in construction, and also as showing that the poor are not the only persons who suffer, that the medical officers at the recently-constructed hospital at Netley have been afflicted with rheumatic fever, arising from the excessive dampness of the brick construction of their quarters. Some military officers' quarters, constructed chiefly, I believe, of stone—which is often as bad as brick—not long ago, at Dover, by an eminent civil architect were, I am assured, so damp, that it was found to be impossible to occupy them, though they had cost £1000 each. A gallant friend, who the other day examined the cottage I shall show to you, exclaimed, 'What superior officers' quarters such cottages would make,' though they would cost one-tenth the sum expended on the damp construction at Dover. I think it right to mention these things in illustration of the common state of information on the question. H.R.H. the late lamented Prince Consort, with whom I had correspondence on this question, accepted completely the principle of the dry, damp-proof construction, and endeavoured to apply it by hard-burned hollow bricks, glazed for interior wall facings. I undoubtedly consider that a construction of vitreous tiles or bricks the best possible, but for trade reasons, stated in my report on the exhibition of model dwellings at Paris, they are unattainable at present. The late Captain Fowke first directed my attention to concrete, as the most advantageous and the cheapest material available for cottage construction, and gave some specimens at the South Kensington Museum. Portland cement is a stronger material than Roman cement, and, as was shown at the International Exhibition, its use is extending throughout Europe. Those who wish to be informed particularly in relation to it will find all about it in the report of the Children's Employment Commissioners—that it originally imbibes less water than the common brick material, parts with it more rapidly, hardens and becomes utterly impermeable to water. My specification, 'that the walls and ceilings shall be impermeable to water or damp,' is complied with in this instance by the contractor, Mr. Nicholl, by the use of a new material for wall and roof construction, of which Portland cement concrete forms a part. You may imagine, as adapted for houses, the Crystal Palace principle of construction, with iron framing and bearers, but, instead of glass, opaque slabs, made of a web of straw compressed to about one-fourth the space of loose straw, into a mat, which is spread over a framework of iron wire. Upon this compact web of straw, layers of hard bitumen are put on both sides. Over the bitumen is placed a layer of concrete. If the bitumen be of sufficient thickness and hardness, and properly spread, it appears impossible that wet can penetrate that walling; and although the outer layers of concrete might, if not well made, for a time imbibe some portion of moisture, it could not pass through the bitumen. The straw, kept dry—and it should be kept completely dry—by the bitumen, is, as we know, a non-conductor of heat, and the bitumen should be preserved in hot weather by the non-conducting power of the outer layer of concrete, which is also an entire non-conductor of damp. Mistakes have been made with the first attempts, in carrying the economy of the iron framing too far, and occasioning cracks in the roofs; but two years and a-half experience of a lodge on this principle of construction at South Kensington is very satisfactory.

"2. The next articles of a sanitary specification applicable to cottage construction are, 'that the walling shall be washable,' 'that it shall be such as not to harbour vermin,' and 'that it shall be of a light, agreeable colour.' It is a sanitary rule, as applicable to closely occupied dwellings, that the walls shall be cleansed at least once a-year, and some authorities have required that it shall be done at least four times a-year. To provide for lime washing it has been provided that the brick walls of the Peabody and other model dwellings shall be kept bare. At the Board of Health, at epidemic periods, when houses were struck with fever, we ordered the inmates to leave, and the houses to be cleansed. In some instances the orders were disobeyed, and fresh population came into the uncleansed houses, and they were attacked with fever, proving the delcterious quality of the deposit on the walls. The cost of lime-washing, as often as it is required to be repeated, is a serious tax. In hospital-construction the cost of the washable wall facings is often as much as 10s. a superficial yard. You will see the sort of wall facings that have been given by Mr. Nicholl in the several rooms of the cottage at from one-tenth to one-twentieth of the hospital prices. The way in which the sanitary specification that the flooring shall be of a good non-conducting material, and be water-tight and damp proof, you will see is attained by squares of the cheaper wood laid upon a layer of bitumen. The occupant attests that this flooring, which you will see, is a great immediate improvement in comfort. So far as the shell of the cottage is concerned, it is submitted that it is an improvement on the principle and the quality of construction upon the common dwellings. If the workmanship be good—and the contractor ought to be held to make good for a period of time all defaults from the sanitary specification—I do not see that the dilapidations will be greater, and I do believe they will be less, than in the common constructions. The contest is for reduction of price as well as for improvement in quality, and the economy may be achieved at the expense of stability, unless the point be guarded against, but, at the worst, I do not believe that the new construction can be so bad as the more common old one. Constructions in most forms of entire concrete walling appear to be better in quality, and may be lower in price, than brick, where good sand or gravel, or other wall material is close at hand. But if the 3-inch walls of this cottage construction have sufficiently good non-conducting power, or as good non-conducting power as the common 9-inch walls at the same price, they give an important gain in space. The cottage you will see has a gain of 564 cubic feet of interior space from 3-inch instead of 9-inch walls; and, by having the entire space up to the roof, there is a gain of 720 cubic feet, or in all 1284 feet more; that is to say, space such as in some constructions would be considered to suffice for more persons.

"3. This is an undoubted gain for the next great point of a sanitary specification:—'That the ventilation shall be (that is to say in cold weather) with air that is warm as well as fresh.' All common modes of cottage ventilation ventilate by cold air, and are almost invariably contended against by the inmates. The new method of ventilation, invented by Capt. Douglas Galton, R.E., by a fresh-air flue, in which the air is warmed, has been experimented upon in this country, and tried in a number of barracks. It has been tested by Dr. Parkes, of Netley, as to the hygrometrical condition of the warmed air, which he pronounces to be satisfactory; and he tells me that he intends to apply the principle to his own dwellings. It has also been carefully tested in many experiments in Paris, by General Morin, of the Institut, and, undoubtedly, it is in principle a decided success. The soldiers in the barracks warmed by it declare that they are no longer, as heretofore, roasted in front whilst they are frozen behind. By this method the air may be changed three times an hour, or oftener; and nearly 50 per cent. of the chimney heat, now wasted, brought back into the room. Though the ventilation is, of course, the most active when the fire is alight, it was found, upon experiment, that from the continued warmth, of the flues and the mass surrounding the flues, the change of air effected was considerable, even as late as 6 o'clock in the morning, The concrete is peculiarly adapted for the construction of tubular smoke and air flues at a cheap rate. This, as far as I am aware, is the first instance in which the important principle has been applied to a cottage, and until we have a winter experience it cannot be pretended that the best adjustment of the fresh-air flue, and the means of warming it by the chimney flue, have been attained. According to General Morin, the ventilating chimney is a means of saving 50 per cent. of the coal consumed in domestic fires; and the estimated consumption of coals in our domestic fire-places is forty millions of coals annually. I commend to your notice a newer arrangement, by Mr. Nicholl, by which the same fire-place that gives radiant heat, and warming, and ventilation to the front room, keeps a boiler and an oven at work in the next. This is already reported, on trial by the housewife, to be a success.

"4. In conclusion, I may state for consideration another article of a sanitary specification, which will be realised here:—'That the complete construction of the house shall be such that if it be left clean, unoccupied, and closed for any time, it shall remain dry, free from any close, musty, or foul smell, and shall be immediately habitable, without the need of fires or of any special preparations for safe occupancy in winter or in summer.' This cottage is detached, and unconnected with any system of sewers; and the plan in use here is a movable pail under a seat, into which pail is to be put all the soap-suds, house-slops, &c., which serve to dilute excreta, the whole being removed daily, or before decomposition can commence, and deposited in a trench, or applied, at the discretion of the gardener, as liquified manure, the principle of the plan being to take the manure to the prepared soil, instead of bringing prepared soil to only a part of the house manure, as is the principle of the earth-closet system. Where the house is connected with a public system of sewerage, which, it is to be hoped, would be a self-cleansing system of sewers instead of sewers of deposit, which are only extended cesspools, the fundamental item of a sanitary specification, I take occasion to state, would be in the following terms:—'The house shall be provided with a water-closet on the syphon principle, so shaped, and so provided with water as to be effectually self-cleansing throughout, and to remove at once from beneath the premises all fæcal matter or waste water, and to be so trapped as to prevent the ingress of vitiated air from the sewer in the event of accidental stoppages, and to be at all times free from foul smells.'

"5. Now, as to the cost of this cottage construction. My conclusion is that an improved cottage construction, on whatever principle, will be only obtainable when cottages become a manufacture (which is not yet), with the advantage of much machinery for the repetition of numbers. I think acknowledgments are due to Mr. Sharp, the architect, and to Mr. Nicholl, the contractor, for their steady efforts to reduce and to keep down prices. I am assured by them that detached cottages, such as the present specimen, with 4800 cubic feet of internal capacity, may be repeated, in half a dozen at a time, for about 100*l.* each; or, if a dozen cottages in a row (where it must be so, for I do not like cottages in rows) be taken of the same qualities, guaranteed damp-proof but without decorations, at about 85*l.* each. These (apart from the present main question of quality and economy in use) are, as far as I know, important reductions in prices. To the members of the Ladies' Sanitary Association, who do so much with little money, who have circulated such admirable tracts on the sanitary treatment of children, and on domestic management, I respectfully commend the promulgation of sanitary principles for the improved construction of the people's homes. The first of these principles is the requirement, by specification, of dry foundations, of dry and warm floors, of perfectly damp-proof walls and ceilings, walls washable and fair to see, and means of ventilation with air that is warm as well as fresh, saving half the common consumption of fuel, and giving really comfortable homes. To my colleagues of the Council and to the members of the Society of Arts, I venture to commend the consideration of the perfectionment of the arts and appliances by which these several ends may be best attained for the poorest of the population.

After the delivery of this explanatory address, the party went to visit and examine the cottage. Time did not admit of any techical or professional discussion, and the company separated with general expressions of gratification to the host and hostess with the afternoon's proceedings.

We are requested by Mr. Chadwick to state that he will gladly allow the cottage to be shown to any member of the Society of Arts who has a special interest in the subject, and that he will be thankful for any suggestion of further improvements. *Journal of the Society of Arts.*

THE SHEEPFOLD *v.* FARMYARD MANURE.

"There is nothing like the sheepfold." How frequently are we told this by practical men. "The treading the land does so much good." Yes, if it is very light land; but if it is heavy land the sheep treading is most injurious. It is not the sheep's feet that do the good, but the sheep's tails. But I wish to show my brother farmers, in this paper, that there *is* something like the sheepfold, and something quite equal to it, and that is the voidances of well-fed cattle on paved floors under cover, carried immediately from the shed to the field. I am going to prove why this must be equal to the sheepfold, and why the ordinary farmyard manure is so inferior to the sheepfold, and after this I expect that both landlords and tenants will gradually, and as soon as may be, discard open and unpaved farmyards as destructive of farm profits. We are all naturally so attached to things that have existed from time immemorial, and to which we have been accustomed from our youth, that it would be unreasonable to expect a "sudden conversion" of a whole nation of agriculturists: but I have great faith in the common sense of my countrymen when they are brought to deal with comparative facts—so I shall expect that in a generation or two (which is not a long period in the history of a nation), open farmyards and unpaved floors will have become "the light of other days," and that the "shedfold" will then be considered equal to the "sheepfold."

But let us come to the facts. When sheep are on land the whole of their voidances are at once appropriated by the soil; nothing is wasted; there is no washing, drying, mangling, or turning over, and twice moving or carting, with weeks or months of exposure. The soluble portions are all washed into the soil, and not down the ditches. There is much less manual and horse-labour, and wear and tear of carting. The reverse of all this takes place with the respected old, open, unpaved farmyard, and the untroughed buildings around it. Here it is all washing, drying, and mangling, sopping up heavy rainfalls with mops in the shape of huge waggon-loads of valuable straw, which should be used as food rather than as mops. How often, and only recently, have I seen farmers letting off the "strong tea" into the ditches, owing to the heavy rain having rendered the farmyard impassible or impracticable, and after all this the "tea-leaves" are carted to what is mistakenly called a dung-heap, and, after a time, duly turned over, refilled and recarted, and then spread upon the land. All this is really a bitter satire on agricultural commerciality. The real causes and objects of this mistaken, costly, and injurious manipulation, were no doubt originally two-fold, viz., to keep the cattle dry and to rot the straw. But the practice must be altered now. The time will come when farmers shall as soon think of treading their oilcake as their straw under foot, seeing that it has much greater value as food than as litter. There is no straw in the sheepfold, yet no farmer complains that his land is insufficiently manured by the sheepfold.

I don't believe that farmers generally know that for every pound of solid voidance made by the animal there are 12 or 13 lb. of liquid, and that nearly all the value of the manure is in the liquid; the insoluble matter of the solid being comparatively worthless. Well may they prefer the sheepfold to the old open farmyard, where not only so much runs away, but also where such precious fluid sinks into the floor or ground. But see how economical the covered shed is, both in time and money. The accumulated voidances of 20 bullocks (equal to 140 sheep) for two months may be placed on the land at once, and spread ready for ploughing in at a trifling cost. I am now putting it on for Cabbage after Tares, and it will beat any guano or artificial manure; it is, in fact, the cattlefold. Better still is the cattle manure from under the sparred floors without any straw; that is the stuff we want plenty of to make great crops. I claim no merit and I make no apology for so constantly "pitching into" ancient agriculture, or rather its erroneous practices. If I had been bred a farmer I should, no doubt, have done as other farmers do; but having been well shaken in the commercial blanket before I entered into farming, I take a commercial view of its proceedings, and come to my work free and unfettered by the trammels of antiquated customs and prejudices. I know that some agriculturists will be angry with me, but what I commend I practise; and my sole object in making public those of my views which I have found profitable is a sincere desire to benefit British agriculture and agriculturists, and thus to provide more cheap and abundant food for my fellow-countrymen. *Shrewsbury Chronicle.*

Home Correspondence.

Farm Profits: Cow-Keeping.—I thank you for inserting, and your several correspondents, "Exile," "J. C. C.," and "Full Pay," for so kindly noticing, my letter. I fear I have not been rightly understood, at least, not fully. Am I right in believing there is no branch of agriculture which leaves so large a profit and is so easy to follow as cow-keeping? If so, I mean to limit my farming to this, growing nothing but cow food, which must be cheaper than purchasing everything, as the London cow-keepers do. A gentleman farming for pleasure and a gentleman farming for a livelihood are two vastly different things. No doubt the former was the position of "Exile" when he began to farm his own land, I presume. Now, I have none to farm, and I contemplate keeping a large herd of the very best working cows I can purchase, strictly as a means to enable me to live comfortably at home, rather than farm in some colony, which all real colonists must do [?], without any previous skill, knowledge, or experience. Necessity sharpens a man's wits immensely, but I am not entirely so "verdant" as my first letter made me appear. Up to my 16th year I saw a great deal of good farming on my father's estate, and the strong interest I then felt in all that relates to progressive farming, good stock, and their best management never left me. So I shall now try to give a brief sketch of my agricultural "notions." First, let me state, I never thought of trying experiments in cow-keeping—my mode of action would be gradual, steady, easy development. Assuming a butter-dairy to be decided on, I should go to Jersey, and personally call on those who were known to breed the best cows. I should purchase some 30 or 40 heifers within a month or two of calving, as many yearlings, and as many calves, all of the same high character. Thus, by slow degrees, I should have a good herd in milk. I should rent a farm of about 200 acres, of the best land, near a station, in any part of the south of England—100 acres Grass, 100 arable. On the latter I should grow 50 acres of Lucerne and Sainfoin for house-feeding my cows during the warm days, tethering them on the pasture during the nights. The remaining 50 acres I should subsoil well to grow Mangel, Carrots, Parsnips, Swedes, alternated with Tares, Clovers, Italian Rye-grass, and, when necessary, an occasional corn or Bean crop, to be consumed by the cows and pigs. My aim would be, not to keep a second-rate animal of any kind, or (so far as a man dare say it) grow a bad crop, and to help me in this I have the greatest faith in liquid-manure and a subsoil plough. I could name three titled persons supplying milk to London, keeping over 100 each, and one near Dublin, the largest cowkeeper there, and when I was quartered there many years ago, the most excellent Dr. Lindsay, then Bishop of Kildare, kept some 400 cows. I heard they were all well pleased with the results obtained, but I heard one of them made a clear annual profit of 10*l.* per cow, though his farm is very high rented, being within seven or eight miles of town. I am not aware that Mr. Bull's admirable dairy management has been published in detail. If not, it certainly should be; but I presume your correspondents have read "Cramp's Hints to Dairy Farmers." I once tried Cramp's plan myself with three capital cows, and if I did not obtain exactly the same results, I did quite enough to give me the fullest confidence in the truth of his statements. I was a long time quartered in Jersey and Guernsey, where much of my time was spent on some of the best managed farms, and I really believe, by using great care and diligence on the spot, you may secure cows that will fully equal Cramp's one, or Mr. Bull's 60, which, it is stated, average 9 lb. of butter per cow per week, during the milking season of about 9 or 10 months. Butter is far easier sold than milk, which you must get rid of twice each day. Mr. Bull's wholesale contract prices are, per lb., 1*s.* 8*d.* for eight months, and 1*s.* 6*d.* for four months. His dairy is heated by steam, but I should prefer to have milk-pans, containing boiling water, under the milk. I should have a first-class head dairymaid, who should be responsible for the regular production of first-class butter only. I should live amongst my cows, and devote my whole time to them and the dairy details, which I well know require the utmost nicety and delicacy. I am well aware the profits of agriculture generally are very small—far too small—for me, and that its details require a very much more extended knowledge than I possess. This is just the reason why I think of keeping cows only; for I have never yet heard anyone say it was not a highly profitable pursuit; and surely there are vast numbers of ignorant men now successfully engaged in the work, who know less of agriculture than I do, limited as my knowledge is. Will any of your readers who have tried it say it is not profitable' or that I should be likely to come to grief if I try it? for if they can satisfy me the risk is too great, then I must take my capital to some country where I may reasonably expect greater profits, combined with less danger of loss. *Half Pay.*

Thin Seeding.—The thin seeding question assumes so important an aspect this cold season, that I am induced to resume the consideration of it, and report the facts bearing upon it. The question of the seed sown sinks into insignificance as compared with its effect upon the yield. I have no hesitation in saying that too thick sowing has this year lost to the country much more than a million or two sterling. See what takes place on my own well drained and well cultivated farm, and then judge of the condition of things where much thicker seeding is practised, and where there is no drainage. I drill 4 pecks of Wheat per acre, but it is on some of my fields far too much this season, with its heavy rainfall in May, and its dry but cold June. The 1 peck and 2 pecks per acre are much the best. There is too crowded a crop from the 4 pecks, and consequently some of it is stem-rotted or root-fallen. The too dense mass of vegetation excluded light and air from the soil; the great rainfall in May was, therefore, unevaporated during the cold June—the consequence, a rotting of the stem just where it issues from the soil. The peck an acre was free from this, although the stetches on each side were affected. There was room for the air and light to circulate among the thin sown, which stood erect, with stiff straw and large heads and kernels. What I have lost by root-falling is trifling compared with those who sowed 7 to 9 pecks of Wheat per acre. Many such crops went down late in June stem-rotten, and are deteriorated in quantity from 2 to 3 qrs. per acre, the sample wretched, and the straw dark, unhealthy, and most difficult to harvest. The evil has been greatly increased on steam-ploughed land, and a prejudice is thus being raised against steam cultivation. The fact really is, that steam ploughing causes such an increased tillering of the crop, that the thick sowing thus becomes additionally injurious; and my brother agriculturists will have to reduce their sowing still further in consequence of the deeper cultivation produced by the steam plough. I know that in my case, in 1856, the Wheat grown on the lands ploughed by Fowler's steam-plough, with Cotgreave's subsoiler attached, showed as though it had received an extra dressing of manure. The very mild winter aggravated the thick sowing evil. Last year the very exceptional dry and hot season gave thick sowers a better chance. Each kernel of the peck an acre has produced a number of stiff reedy stems, generally from 10 to 25 or more heads, probably a multiplication of 200 or more for one. The average of the kingdom being only from 9 to 12 for one, there must be something wrong in our system of thick sowing. Time of sowing, seed, climate, and manurial condition, all have a marked influence on the quantity to be sown, therefore let each one try on a small scale, and so arrange accordingly. Why should we adhere pertinaciously and doggedly to the quantity of our grandfathers, who had probably no drills or dressing machines. Now, by the accurate drill, almost every kernel vegetates. I prefer the drill for even a peck per acre. Birds get the kernels out of the dibble holes. Thin sowing gives the brightest straw and the most glossy kernel. We are content to give our roots room to grow, and keep them free from weeds, but quite the reverse in the case of Wheat. A healthy Wheat plant, having room, tillers out in the spring and occupies a large space; a Wheat plant cannot be perfect unless permitted to do this. It becomes cramped and dwarfed by thick sowing, just as a tree is in a crowded plantation. The greatest enemy to a Wheat plant is another Wheat plant. The superfluous Wheat plants are the true weeds that injure the Wheat crop. White Wheats appear to suffer most; Rivett (bearded) Wheats, being of a drier nature, have suffered little from root-falling,—with me they are a superb crop. The 4 pecks of Barley will, we think, beat the 6 pecks. Red Wheat sown five days before Christmas is unaffected by root-falling. Harvest progresses rapidly, owing to superb weather and reaping machines. There is a much better prospect of yield than was anticipated. *J. J. Mechi, Tiptree, August* 25.

The Murrain.—As this complaint is about again, and has almost reached my own door in Surrey, I venture to recommend an infallible cure which I applied to hundreds of cattle in Cheshire when it originally appeared there. Dissolve 1 lb. of bluestone (sulphate of copper) in a gallon of soft water, and wash the animal's mouth with this from a sponge attached to a stick, then put two or three large tablespoonfuls of oatmeal and pounded alum, mixed in equal proportions, into the mouth as near the root of the tongue as possible, and the discharge of a large amount of saliva will be the result. Wash the feet, especially between the claws, with the same solution, and let them stand on dry straw. Three applications daily will cure the worst case, especially now when the disease is so much milder than formerly. During the continuance of the complaint the food must be chopped, as the cattle cannot lay hold of anything with their tongue. *Thos. C. Scott, Knaphill Farm, Woking, August* 18. [The above communication contains sound advice. We suggest that the oatmeal is unnecessary as an adjunct to the alum.]

Foreign Correspondence.

From Ostend to Zurich: *Zurich, August* 16.—A stranger to the districts passed through is struck by the universal prevalence of what he would call the allotment system of cultivation. Nowhere does he see 5 acres in one piece. All through Belgium, and through the various German states he traverses, it is a patchwork of cultivation; occasionally there are stretches of coarse grass-land by the river side, which are traversed by ditches, with hatches in them, indicating irrigation, with, however, a very poor result as we should call it, whether as to quantity or quality of Grass. But excepting this, the land is cropped in acre and half-acre plots, of which we are told that two or three constitute a separate property. The result to an English eye is great want of that in which we are supposed to be especially deficient, *i. e.*, system and organisation. The land is generally (universally I think, so far as this particular route is concerned) extremely light, and everything is one-horse work. A pair is rarely seen—even the waggon with its pole is generally drawn, except when heavy laden, by a single horse pulling on one side of the pole. The plough is generally a one-horse plough, very short, with abrupt mould-board, and not turning the soil very deeply,—the little harrow is a one-horse tool. Another consequence of the patchwork of cultivation, perhaps also of the lightness of the soil, which must soon fail if it be not constantly manured, is what we see in allotment grounds in England, viz., considerable variety of style and result. Capital crops and luxuriant growth are intermixed with patches of lazy management and poor and weedy plots. On the whole, however, the result in actual produce is no doubt very good: and that, after all, is the principal test by which the merits of the system must be measured. The crops of Wheat still standing in many parts of Belgium, and even as far south as Heidelberg, are capital. Oats, still standing, and even green, through Baden, are generally very good. Potatos generally, dying healthily, appeared a fair crop everywhere. Mangel Wurzel, of which there was less to be seen than I had expected, were generally good, not better than we see at home. Flax I am not able to judge of. It was of course already pulled, and a great deal of it between Ostend and Brussels, and farther south, was lying on the grass-land neatly spread in roads for "dew rotting," and

patches of it were seen as far south as Basle, though the chief industry of this kind is Belgian. Everywhere, however, all along the journey—and this perhaps was the most noteworthy agricultural feature of the whole line—the crops of Red Clover were magnificent. The second cutting, it must have been, was everywhere the heaviest possible crop—as full of bloom as it could hold. It was probably the most frequent crop also that we saw—the most frequent green crop certainly, so that it must hold a very frequent and constant place in the rotation, and certainly there were no signs of Clover sickness. It did not appear, either, that cultivation was very deep. One looks for a deep furrow, if ever, at the time when the corn stubbles are being turned over; and there was a good deal of Wheat stubble, especially on the third and fourth day's journey southwards, already fallow, and the ploughing was going on in some places, and nowhere was it deep. This and the light soil make the wonderfully fine crop of Clover a puzzle, the solution of which does not seem very easy, though probably it is to be found in the advantage of personal and detailed attention to every square yard which these allotments receive. Lucerne, it should be mentioned, was also a frequent and luxuriant crop, and an occasional patch of Poppies was seen.

Generally throughout the journey one is struck with the excellence of the corn crops, barring occasional poor patches of Oats—with the absence of Beans and Peas (the latter, however, may have been removed)—with the absence of cattle crops, barring Clover, which is magnificent, and Mangel Wurzel, which, however, we suppose to be in general rather Sugar-Beet than cattle food—with the extent of the Potato crop—with the frequency south of Heidelberg of the patches of Indian Corn—with the great beauty around Heidelberg of the Tobacco crop in patches of most healthy and luxuriant growth—with the great abundance, some three or four hours further south, of the crop of Hemp, which apparently hereabouts takes as great a share of agricultural attention as Flax does in Belgium. In some places the whole crop was already pulled and tied neatly in bunches and taken to the water-tanks, and then sunk under a load of stones to be properly rotted. In other cases only the ripe stems, the male plants, I suppose, had been pulled, and were lying in bundles around the bed of the tall luxuriant principal crop, not yet fully ripe.

The Vine has not yet been mentioned. It was seen upon the Rhine very soon after leaving Cologne, and almost immediately became the principal covering of the slopes. The soil, kept up by terrace walls, with staked Vines in every square yard, or thereabouts, is covered with a wonderful luxuriance of growth, considering its dry and stony character. Further south every hill-side was covered, the flat land below, and the higher land above being cultivated for other purposes. And here we have hundreds of acres continuously of Vine, the appearance of patchwork being lost, not because the ownership is less divided, but because the whole is under one cultivation. Certainly the impression one gets in some extensive landscape, especially on the line from Heidelberg to Basle, is that the agriculture of the country is directed to the provision of drink rather than of meat; and restricting the word "meat" to its meaning as animal food, this certainly is most true.

The cattle of the country seem to be all employed in draught—cows and oxen draw the waggons, and get along at a good speed. Only in one or two cases were any seen in the field, and those were tethered individually. No doubt others, both cows and feeding beasts, may have been in stalls. At Zurich, looking into a cow-house, one saw a dozen large cows, of tawny dun colour, tied to a manger, the whole much closer and hotter than anything in a London cow-house, but in good order and clean; and we can suppose that similar arrangements for the cattle of the country obtain elsewhere upon the route. Certainly, however, very few were visible, and I have not seen a sheep since leaving England. Occasionally we saw a good supply of dung lying in heaps, ready to be spread upon the field, and I was told that the whole extent of Vine ground is dunged every third year, so that there must be live stock somewhere in the country, though the passengers by railway do not see them.

As regards the general features of the country, and the enjoyment which is received upon the hurried journey, one remembers chiefly, of course, the great beauty of the Rhine valley at Bonn, at St. Goar, and beyond it all the way up to Bingen—the view from the bridge over the Neckar at Heidelberg—and the landscape eastward, at one or two points beyond Carlsruhe, on the way to Basle. The disappointments one receives as regards the Rhine, are the colour of its waters—a light yellowish white, contrasting most unfavourably with the blue waters of the Moselle, which runs into it at Coblentz—and the general lifelessness of the scene. Not a bather was to be seen during 12 or 14 hours in the steamboat—not a man or boy with rod and line, although we saw occasional boats with nets (none at work, however)—not a pleasure boat, and, excepting swallows, not a bird. We had read Professor Tyndall's letter in the *Times* on the great want of London, as compared with Continental towns, in its lack of provision for bathers, and in one or two instances, as at Cologne, there are great floating establishments which we have not; but certainly the impression received upon the whole by any one who knows the habits of the people in our Thames-side villages and towns, is that there must be tenfold the bathing in the Thames that there is in the Rhine; and as for the life, and energy, and employment generally upon the river, there is the most extraordinary contrast between the two. Every river-side town and village with us has its fleet of pleasure boats. If we except the steamers, I did not see a single one between Cologne and Bingen, and one passes many towns and villages between the two. Here, upon the lake at Zurich, I am glad to see they reappear. *J. C. M.*

Societies.

GLOUCESTERSHIRE.

The meeting of this Society took place in Oakley Park, Cirencester, on the 4th, 5th, and 6th inst. In briefly reviewing the results of the show the Shorthorns first claim attention. Lord Sudeley's Mandarin, recently successfully exhibited at Manchester, well deserved his place as the best animal among the bulls above two years old. He is white in colour, very fine looking, level, and wide over the shoulders. Mr. George Garne, of Chipping Norton, Oxon, secured the 2d prize with a very well-bred bull in good natural condition, and showing no sign of having been "got up" for show. Mr. Richard Stratton, of Burderop, showed an exceedingly good bull calf, which secured the 1st prize. His closest competitor was a calf bred by Mr. Morris, of Maisemore Court, which although larger than his rival, was older, and scarcely equal to him in that mysterious but essential point, "quality." In the cow class, Messrs. Garne & Son, of Broadmoor, and Mr. Stratton secured respectively the 1st and 2d places, and without entering now into particulars, we may say that the animals exhibited by these two gentlemen were singularly good. Competition among the Hereford cattle was very languid, and many of the animals entered in the catalogue were absent; thus, for example, out of eight entries in the class for breeding cows only three appeared.

Sheep were divided into long-wools, represented by Cotswolds, and short-wools, represented by Southdowns and Shropshires. Here, again, remembering that Cirencester is the metropolis of the Cotswolds, the rivalry between the breeders of our world-famed breed was not keen. The only pen of theaves came from Oxfordshire, the shearling rams were not considered worthy of a prize, and the names of most of our well-known Cotswold breeders did not appear in the catalogue. There certainly were some good sheep shown, but it is a singular fact, and one worth considering, that our great Cotswold ram breeders do not think it necessary to publicly compete for either the Royal or the Gloucestershire Agricultural Societies' prizes. Southdown sheep were well represented by beautiful specimens from Kingscote, Sir William Throckmorton's flock at Buckland, and Mr. H. S. Waller's flock. Sir W. Throckmorton exhibited and secured the 1st place for theaves with the same pen of sheep which took the 2d prize at Manchester.

Pigs appeared in great force, and a strong competition, with varying success, was kept up in most of the classes between Mr. Heber Humfrey, of Shrivenham, Mr. Arthur Stewart, of Gloucester, Mr. Russell Swanwick, of the College Farm, Cirencester, Mr. Hulbert, of North Cerney, Mr. Wheeler, of Shipton-on-Stour, and other breeders.

The show of horses was very good. Cart stallions formed a large class, among which Mr. Wm. Wynn's "A 1" was by common consent regarded as the best. He was 2d at Manchester, and it is therefore scarcely a matter of wonder that he should have been placed 1st at Cirencester. Mr. Wm. Allen's red roan horse, "Hartpury," made a good 2d. Mr. Wm. Slatter, of Stratton, secured the 1st prize, for the best mare and foal, in a large and good class. The hunters and hacks were never-failing sources of interest, and were well represented. Mr. Henry Brown, of Monkton, near Swindon, in the class of stallions for getting hunters or hacks, and Lord Fitzhardinge, in the class of hunters of any age, both showed splendid horses.

No fewer than 31 ponies were entered for competition, and lastly, as a somewhat novel addition, a prize was offered for donkeys. These useful animals have been too much neglected, and, we fear, remain unimproved amid the high breeding to which every other breed of stock is subjected.

QUEEN'S COUNTY AGRICULTURAL.

Maryborough.—If agricultural shows be a means for improving the cultivation and stock breeding of a country, and if the number of these meetings be a true index to the progress being made, Ireland is certainly increasing considerably in this portion of her material prosperity. The following encouraging extracts in respect to the above Society we take from the *Irish Farmer*:—

Forty-eight Shorthorns, mostly of a high class in point of breeding, filled the different sections in that department. The weanling bull calves were first noticed, among which there were animals by British (23,459), Roseberry (22,757), Dr. M'Hale, Ravenswood (22,683), and other well-known pedigree bulls.

In the section of 2-year-old bulls we had the premier bull of the show in Lord de Vesci's Prince Arthur, to which was awarded the 1st place, the Royal Agricultural Society's medal, and the Cosby challenge cup, as the best bull in the yard not exceeding three years old. Prince Arthur is a thick, low set bull, with an excellent fore-end and back, and masculine head. He was bred by Mr. Chaloner, and was by Booth's Royal Sovereign, from Lady Araminta by Baron Harbinger, going further back to Baron Warlaby, Hamlet, &c., as the line runs in the Kingsfort Nancy tribe. Colonel Fisher's Gold Stick by Roseberry, from Golden Ray by Booth Royal, was put 2d. He is a good bull, in very middling condition, and his appearance had not been improved in consequence of his having been confined about 17 hours in the truck, although the journey was not over 30 miles. Mr. Talbot showed a bull in this section bred by Lady Pigot. He is by Victorious (25,378), from Blossom by Velasco; has a great loin and a rich colour, and if well taken care of will be a valuable animal. In the aged bull section the 1st prize went to Sir Charles Coote's Reveller, a massive, thick bull, with a good loin, and having much of the style of his sire, Dr. M'Hale. He was bred by Mr. Cosby. Two bulls entered in this section did not put in an appearance, and another entry had been wrong placed, so that the decision ended with that in favour of Reveller, who was justly entitled to the honour.

The female sections commenced with weanling heifer calves, in which Colonel Fisher's Rhoda 10th, a particularly good handler, was put 1st, followed by Mr. Cosby's Phœbe 7th, by the prize bull Ravenswood. Mr. Cosby took 1st and 2d prizes in the yearling section with a pair of nice heifers. The 1st—Kate 5th—was by Reveller, the bull above-mentioned as Sir Charles Coote's property. She was the 2d heifer at the last spring show, and has improved very much since that time, having got over that threatening of patchiness which she showed to some extent at Easter. The 2d prize heifer at Maryborough is by Ravenswood. Colonel Fisher's Wild Duck, an omitted entry in the catalogue, was highly commended; and in the 2-year-old heifers one of his Rhodas, 9th of the name, by Roseberry, was put 1st, Mr. William Roe's Lily being 2d, and two Crown of Lothian heifers, belonging to the same gentleman, highly commended. Mr. Cosby's cow, which, although unnamed in the catalogue, was, we believe, Rhoda 4th, purchased from Colonel Fisher, headed a good section; followed, as 2d, by Colonel Fisher's Rhoda 6th by Sol (12,126); with the 3d or highly commended place to another of the Castlegrogan lot—Golden Ray, a highly-bred cow, the dam of his 2d prize bull, and bred at Aylesby. Colonel Fisher's success at Maryborough will, we have no doubt, have due effect on his sale, which takes place next month.

The next great feature of the Queen's County show—in fact, we may say, the great feature—is the sheep department, in which the Queen's County Society is second to no local society in Ireland. The division of Leicesters, under the two distinctive titles now recognised at all the leading shows, of English Leicesters and Border Leicesters, is a wise arrangement, and does away, as far as possible, with any feeling of jealousy among exhibitors. In the class of English Leicesters Sir Allan J. Walsh, Bart., and Mr. Seymour Mowbray were the great competitors. They stand in the relation to each other of landlord and tenant, and certainly no one rejoiced more in Mr. Mowbray's success than his landlord. All the honours, including an H. C. and commendation in the shearling ram section, were carried by Mr. Mowbray, who also took 1st and 2d in the two-shear section, leaving a commendation for Sir A. J. Walsh. Mr. Mowbray's 1st prize ram in the two-shear section was Mr. Sanday's ram, which was 2d at the Manchester Royal. When the Royal Agricultural Society's medal for the best pure-bred ram came to be decided, it was given in favour of Mr. Mowbray. Sir Allan J. Walsh took 1st and 2d prizes for pens of three ram lambs, with very good lots, the 1st pize pen being the produce of one of Mr. Meade's rams, from ewes which had been prize sheep at previous shows. Mr. Mowbray took the 1st prize with a fine pen of five shearling ewes; Sir A. J. Walsh's pen, which was placed 2d, being also of very prime quality and style, but they were not in such good show condition as Mr. Mowbray's pen. Both 1st and 2d prizes in the section of pens of five ewes, for breeding purposes, that have reared lambs in 1869, were taken by Mr. Mowbray, with Lord de Vesci's challenge cup for the first lot. Similar success attended Mr. Mowbray's two pens of five ewe lambs; Sir A. J. Walsh's pen being highly commended.

As usual at the Queen's County shows, there was a large display of Border Leicesters. The one-shear rams made a good section, which was headed by Mr. Cosby's ram, bred by Mr. Smith, Stevenson's Mains, Haddington, which had been the 2d prize ram of his class at the recent Edinburgh show of the Highland and Agricultural Society. The 2d prize was given to one of Mr. Bland's, and a highly commended card to another of the same lot, which was a much better sheep than the one placed 2d. Three of Mr. Bland's shearling rams were shown against an equal number of Mr. Mowbray's for Lord Portarlington's cup, and won; being the third time Mr. Bland has held the cup; but as he has not held it three years running it will be open again next year for competition. Mr. Bland took 1st and 2d prizes in the aged ram section; his 1st prize ram, which was bred by the Duke of Buccleuch, having been 1st in 1867 at the Glasgow show of the Highland and Agricultural Society, and twice 1st at Dublin since he came into Mr. Bland's possession. Mr. M. H. Franks had an excellent ram highly commended, which had been bred by Mr. F. Franks, Jerpoint; and a commendation was given to Mr. Cosby's ram, bred by Mr. Smith, Stevenson's Mains, the prize ram of the Derry Royal, &c. Mr. Riddell, who goes in strongly for crack Border blood, took the 1st prize with his pen of three ram lambs, Mr. Bland being 2d, and Mr. Cosby commended. In shearling ewes, Mr. Bland's pen was put 1st, followed by a very good lot belonging to Mr. Riddell as 2d, and a highly commended to Colonel Fisher's pen. Mr. Bland and Mr. Cosby took the honours in the section of ewes for breeding purposes, with the Royal Agricultural Society's medal to Mr. Bland's lot. Mr. Bland's pen of five ewe lambs were put 1st in their section; Mr. Wm. Young's 2d; Mr. Cosby's pen was highly commended, and Mr. Riddell's commended.

There was nothing particular in the class of other long-woolled sheep, and the best pen in it (Mr. M. H. Franks' five shearling ewes), if not pure Border Leicesters, were very closely allied to them.

The sections of cattle exhibited by tenant-farmers under 150*l.* a-year, under 75*l.* a-year, and under 25*l.* a-year, comprised some useful animals; Mr. M. Dillon being a very successful exhibitor in the first class.

The show of swine was scarcely so large as we have

seen at Maryborough, but the general quality of those exhibited was good.

Some very fair horses, particularly in the hunter classes, were brought forward for Mr. Cosby's special prize, and the Queen's County Hunt prize. The first was won by Mr. Cosby's mare Mrs. Briggs, and the latter by Mr. Webber's chestnut gelding Cossack. Extra stock, poultry, butter, wool, and a considerable number of implements made up the remaining portion of what was a really good local show, highly creditable to all concerned.

Judges:—Cattle and Sheep: George Low, Esq., Birtown, Athy; E. J. Smith, Esq., Islanmore, Croom, County Limerick: Augustus Warburton, Esq., Kill, Naas. Horses: J. W. B. Scott, Esq., Annegrove Abbey, Mountrath; Robert Cock, Esq., Kiltinane Castle, Fethard, Co. Tipperary; Captain Morgan, Rahinderry, Athy.

Farmers' Clubs.

BALLINEEN, IRELAND.

AT the opening meeting of this association, held a few days since, Lord BANDON, as President, took the chair, when his Lordship addressed its members on the current topics of the day. After expressing his happiness at meeting them under such favourable circumstances, in which he said, "Everything in agriculture appeared to be in a favourable condition," his lordship took up the principal topic:—

Flax.—The chief object of our meeting to-day is to make arrangements for our Flax market during the ensuing season; and if you will all co-operate with us we would propose to commence this season on the second Wednesday in September. I am anxious that it should be early commenced, because I believe nothing would encourage farmers to grow Flax so much as a quick return. We have been anxious that a factor system, as is the case abroad, should have been established to buy the standing Flax from the farmers, and that the buyers should undertake the delicate operation of steeping, as well as spreading and scutching the Flax, but we hope that this will be carried out at a future day. It is most satisfactory to find that a larger quantity of Flax has been grown than in former years, which will attract buyers to the market in Ballineen, which, I am happy to find, is now the largest Flax market in the south of Ireland. To any one who has taken for a long time an interest in the cultivation of Flax, with a view to the establishment of manufactories, and in the hope that the south might show the prosperity of the north, it was gratifying to see at the late exhibition of the Cork Agricultural Society Flax scutched at the excellent mills of Mr. Pollock, manufactured into linen by the enterprise and energy of Mr. Nash, of Cork; and hope by such means employment may be found for the population, independent of agriculture, which I believe is the true solution of the difficulties which puzzle many superficially acquainted with the state of Ireland.

Parliament and Irish Agriculture.—During the session which has closed—occupied by one subject to which I will not now allude—no measure of any practical importance was carried or even proposed for Ireland. Though it is the almost unanimous desire of all parties in Ireland that the railways should be purchased by the Government, no answer has been given, and not much hope can be entertained that even next year the answer will be favourable. The Act for the West Cork Railway expires on the 12th. The Company has given no intimation what they intend to do, and in the meantime the improvements which would have taken place in the west are retarded, and the great resource of our mines and fisheries are not developed. The Contagious Disease (Animals) Bill has been passed for England, and it will be very important for the farmers to learn from their members why the Irish representatives objected to its extension to Ireland. It is satisfactory to find that large troughs have been erected at King's Bridge station, capable of watering 200 cattle. Excellent plans have also been adopted for washing out the cattle trucks, which it would be very desirable to hear discussed and see adopted by other railway companies. The Act for preventing the adulteration of seeds will be a great benefit to the farmers, as many have been discouraged in their attempt to grow green crops by the frauds which have been practised on them. One of the subjects to which we have often tried to call the attention of the Government is the great want of agricultural education. An excellent farming book has been published by the Board of National Education, but it is seldom or ever, I believe, used. How different would be the state of the country if we had an agricultural training and mechanical college at Cork, as in California and Delaware, or the same attention paid as in the States of Connecticut or Illinois to these branches of industry.

Butter, Green Crops, and Market Prices.—Having alluded to the fair held in Ballineen, the noble chairman directed attention to the butter trade, with the desire to inform the farmers that the London merchants who traded in butter were very anxious to procure the extra mild salted, and he (the chairman) could not see why they could not procure such an article, and establish a market for it. A corn market was also much needed, and he could see no reason why they should not establish one at Ballineen, for they should remember they had the railway on the spot, and that the buyers would be glad to attend if the market was established. He also directed attention to the importance of producing green crops, and the great advantage of feeding sheep and cattle with Turnips. The approaching exhibition of the Bandon, Dunmanway, and Clonakilty Agricultural Society he hoped would receive their consideration, and trusted that they would compete, and show the three unions what Ballineen could produce. It was their interest to give every branch their best attention; for agricultural produce was increasing in demand every year, which was, of course, a great advantage to farmers. To illustrate this he would quote from the statistics of the United Kingdom, as he believed it was not generally known that an enormous amount of agricultural produce was imported into the country annually. In the article of eggs, for instance, there were imported in the year 1854 no less than 121,946,801, and in the year 1867, 383,969,040, showing an immense increase. The quantity of butter imported in 1854 was 482,514 cwt., and in 1867 it increased to 1,097,539 cwt.; Wheat in 1854, 14,868 650 cwt., and in 1867, 32,639,768 cwt.; Oats in 1854, 2,784,420, and in 1867, 8,112,568 cwt.; Flax in 1854, 1,303,233, and in 1867, 1,816,669. These figures showed an enormous increase, and were very encouraging to farmers, as it was evident the product of their labour and industry was greatly in demand, and rising steadily, which was sure to be permanent. He was also glad to think that something would be done this year to extend railway communication to the west, which project, if completed, would be sure to pay a fair, if not a large, dividend. With respect to the postal arrangement, he had been in communication with the authorities, and he hoped ere long a separate bag would be given to Ballineen, and the telegraph office established, as it was the intention of the Government to extend the wires to all places having a money-order office and post-office savings bank. This would prove a great boon, as by the expenditure of 1*s.* a farmer could communicate with any part of the United Kingdom, and get the state of the markets.

DISCUSSION.

Mr. NEVILL was glad to hear such encouraging words used by his lordship, for he believed and hoped prosperity would dawn upon the farmers. During the past years they went through a hard test, and he could tell that meeting that were it not for the kindness and liberality of Col. Bernard, many of them would not be now in possession of their holdings. They would be glad to grow Flax in this country (Muskerry), but they could not, as there were no scutch mills there, and when he (the speaker) tried the experiment, he sent his Flax a long distance to be scutched, but he never got as much as one shilling out of it. There was no use in mentioning names now; but he could assure the meeting the farmers in Muskerry would be very anxious to grow Flax if they had the scutch mill.

Mr. SMYTHE said there was a great increase in Flax this year. In his own neighbourhood (Clonakilty) there could not be less than 1,000 acres, and he was glad to be able to state that it was of a very superior quality: far better than any grown in the north this year. He also felt pleasure in stating that there were two new scutch mills erected in his district this year, but they wanted one at Macroom and at Bandon. He did not approve of the factor system, nor of the idea of sending the straw to Cork. He considered it far better to have the Flax scutched and sold at home.

Colonel BERNARD remarked that as the quantity of Flax sown this year was far greater than any previous season, it was suggested to hold two markets in the month. He believed the quicker a farmer got a return of his money the better, and the question arose whether it would not be better to hold a market weekly.

Some of the farmers expressed their opinion in favour of a monthly market, as they feared the northern buyers could not attend weekly, or even fortnightly, and there would not be sufficient local competition to keep up the price.

Mr. SMYTHE: There is ten times more Flax in the country this year than last.

Mr. UNCLES: If there was a market held twice a month, say for the first two or three months, it might meet the pressure that is likely to be caused by the increase.

Before the meeting separated, the Chairman drew attention to a very fine specimen of slate handed him by Mr. Williamson, which was taken from the Curragh quarry. It was of a very superior quality, and speaks well for the future of the quarry, and the company at present working it.

Colonel BERNARD thought it would be better to leave the question of holding a second market open until next month, when the northern buyers would be in attendance, whom they ought to consult.

It was finally decided that the Flax market open on the second Wednesday in September, and that it then be decided whether it be held weekly, fortnightly, or monthly.

Farm Memoranda.

THE inspectors of farms for the Manchester and Liverpool Agricultural Society thus report upon the harvest prospect of this season:—"As regards our farm crops this year in the districts we have visited, we report them a full average generally. Grass has been plentiful, hay crops abundant, Wheat, Oats, Beans, and Barley variable, but an average; Potatos, Turnips, and Mangels very promising. The best and healthiest crops of all kinds are on the best farmed lands invariably. Dairy stock has milked well, and, notwithstanding the prevalence of much unseasonably cold weather, we look forward hopefully to the ingathering of the harvest of the year."

HEREFORDSHIRE AND WORCESTERSHIRE HOP DISTRICTS.—The general information which we have gleaned this week, in addition to our special returns, tends to the conclusion that there has been a slight improvement in the better-furnished yards, but, at the same time, there are many yards which are in a hopeless condition, as they have been for some time past—a condition, in fact, which precludes the possibility of any substantial alteration taking place at this period of the season, even under the most favourable climatic influences.

Bromyard.—The plantations in this district have made some improvement, and are coming into Hops, but rather small and unkind. The general opinion is that even upon the best plantations the crop will prove to be a light one. The old work can do but very little.

Bodenham.—Our Hop-yards make slow progress, the cold nights being very much against them. The season is now far advanced, and under the most favourable weather the crop will be small and late.

Dilwyn.—We have to report a decided improvement in the look of the yards since last week—the present warm weather seems to agree with them. Some of the plantations that were considered hopeless are now promising a slight crop.

Felton.—The Hops are fast making their appearance on the early sorts, yet some grounds are very backward. It remains to be seen what our yards, with, generally speaking, a scarcity of bine, can produce in Hops, as the season has passed for improvement in the growth of branches and fresh burr. Our crop will be very small for this district.

Hope-under-Dingmore.—In some of the Hop gardens, where the plant keeps free from blight, the Hops come on, but very many can grow only a few, and some are entirely past producing any.

Reports from King's Pion, Lugwardine, Ledbury, Leominster, Sutton, Tenbury, Mordiford, Withington, York Hill, and Worcester, confirm the above. All speak of some improvement having been observed, but complain of the cold nights, and foretell a poor crop.

Hop Syringing.—A much-esteemed friend, and a large Hop-grower in this county, who has recently been visiting some of the best gardens in Kent, informs us that he was much struck with the beneficial result of syringing the bine with a preparation of tobacco juice and some other ingredients. Mr. Ellis, Mr. Hammond, Mr. Foster, Mr. Goodwin, and other large growers, have this year tried the experiment, and have found the result very satisfactory. Mr. Hammond, we may note, anticipates that he shall grow in his best gardens about two-thirds of last year's crop, and he attributes very much to the success of the syringing process. On portions of the ground which have not been thus treated, the bine does not give promise of a crop of more than 1 cwt. or 1½ cwt. per acre, and that of inferior quality; while on some of the surrounding grounds, in which the bine was well syringed when in a filthy condition, the estimate reaches from 8 cwt. to 10 cwt., and on one ground runs as high as 12 cwt. to the acre. The total cost of twice syringing, including labour, is put down at from 5*3s.* to 5*4s.* per acre; but Mr. Farmar, of Kyrewood, near Tenbury, who has also tried the experiment, puts the cost at 4*l.* per acre. Taking the latter as a maximum charge, it is evident that, with such results as those stated, the process is one that will leave a very ample margin on the right side; and that being so, it is only reasonable to presume that the practice will come into general use whenever the plant in the earlier stages of its growth, may be infested with any of its various enemies, coming within the general definition of "filth." When the Kent growers who have been trying the process come to gather the crops which have been thus treated, we shall doubtless have fuller information as to the actual result. *Hereford Times.*

MIDLAND COUNTIES.—In Leicestershire Wheat varies. On favourable soils the crops are good, the ears fine, and a good yield is anticipated, whilst in some parts the plant is thin on the ground, and the ears small. Barley is also a variable crop; in some districts it is very short in the straw. Oats are tolerably good. Beans are variable. Turnips and Mangel have been greatly improved by the late open weather, and the pastures are looking well. The hay harvest has been one of the best for years past. In Notts there are some fine crops of Wheat, but in many parts the yield will be sadly deficient, and upon the whole not an average. Beans in some districts have been attacked by the fly, and will give a very poor crop. Peas are deficient; Barley varies, and it will not, it is thought, yield an average. There are some fair crops of Oats, some of which have already been got in. Turnips have greatly improved during the past few days, as also have Mangel Wurzel, and there is a tolerable eddish in the pastures. In Derbyshire the harvest is progressing favourably; in the south of the county Wheat, Barley, and Oats are being cut, and they all vary. It is too early to speak with confidence as to their probable yield, but the opinion is that an average can be hardly looked forward to. The root croops are looking better, and Grass is growing rapidly in the pastures.

The Poultry Yard.

FATTENING FOWLS.—"J. L. F." asks if any of our correspondents will inform him if they have tried the French plan of fattening fowls described in the *Times* one day last winter; and of what ingredients the liquid paste with which the fowls are fed is composed? Also what has been the success of the experiment.

If we understand his question, it refers to the mode of cramming fowls by machinery, as noticed in the daily papers some time since. If we be correct in our supposition (we write from memory only), the article alluded to spoke of the practice as common abroad. We are inclined to think that this is not the case, and where it is practised it is more as a crotchet than as a business proceeding. The best description of the *modus operandi* with which we are acquainted is as follows:—

"He who would fatten his fowls, provides himself with some fine barley flour, not barley meal, but barley flour from which the bran has been carefully separated at the mill. This flour is carefully manipulated so as to be free from lumps, and then made into a sort of gruel with equal parts of water and of milk. This gruel is described by a French writer, who would seem to be equally at home in the kitchen and poultry yard, as being about the thickness of a clear soup when it begins to cook. It is necessary that exactly equal portions of milk and water be used; as if the milk preponderates the bird will progress for a few days and retrograde, get thin and die. The first implement is a common funnel, the end of the pipe of it being cut diagonally and the edge turned round so that there be no chance of its tearing or wounding the gullet. The head of the cup or receiver of the funnel has a ring affixed to it, of sufficient size to take the forefinger of the operator. The position of the ring is important, for it is necessary that holding with one hand the head of the bird, one should be able with the other to introduce the funnel in the required position into the gullet of the subject. Those

who are accustomed to its use have little or no risk and trouble with the funnel, but beginners are recommended to cover the end of the pipe with indiarubber and so avoid the chance of irritating and wounding the gullet.

"The gruel being ready, it is placed in a deep pan and a large ladle with it. The bird is taken by the wings close to the shoulders, and put it between the knees, its head being in front, so as to hold it without crushing or smothering it. The birds kicks, cries, and struggles a good deal at first, but soons gets accustomed to it, and accepts his fate with resignation. As soon as it is quiet on the lap the forefinger of the right hand is placed in the ring of the funnel, the left hand takes the head, and stretching out the neck to its full extent without hurting it, the beak is opened, and the funnel is carefully introduced.

"The left hand now holds easily the head of the fowl in the palm by the help of the inferior fingers, the thumb and forefinger support the funnel. The gruel is now taken, and the funnel filled with it, the ladle is put back into the pan and the right hand supports the crop of the bird until it is sufficiently filled, when the bird is replaced in the coop. The quantity of gruel which the funnel should hold is about a gill or rather more, but at first only about half that quantity is given; by the third day the whole may be given, but the bird must be watched as to its powers of digestion.

"The feeding times are three in twenty-four hours, with eight hours' interval between them, thus at 6, 2, and 10 o'clock or 4, 12, and 8 o'clock. To have at hand all the fowls, so that when its turn comes the bird is ready, the organisation of the hen-house must be complete; of which an important part is the supply of coops and crates, of which there should be three or four handy. They should be of skeleton make, each one adapted to hold about ten birds; they should be on feet, so as to be about 24 or 30 inches from the ground. The birds require an even temperature, and above all to be kept from draughts. When the coops are ready the bottom is covered with clean straw, and the birds one by one passed into them; the straw must be changed every day. The birds must be closely watched to see that they make fair progress, and as soon as one shows any symptoms of falling off it should be killed directly, as it would lose flesh daily and die.

"The chickens selected for this treatment must be strong and healthy; with weakly or sickly birds, it would be merely time, trouble and expense for nothing, as they would not fatten. The time of fattening is from fifteen to twenty days, according to the breed and disposition of the birds, but when they are once fat they must be killed, as they would get worse from day to day."

The foregoing is translated from the book of M. Jaque, who is considered one of the first authorities in France on the subject; we can give no report as to its actual working.

A Frenchman made a cramming machine in London some years since, and we think took out a patent for it. It was worked by the feet and was intended to serve twenty or more birds at a time!

Ducks.—The following interesting communication on this subject we have received from "G. E. O.," of Chepstow:—"The best kind of duck kept in this part of the country is a cross between the tame and wild sort, commonly described here as, 'half-bred wild ducks.' They are good layers, easily reared, and not shy, and their good qualities continue after many crossings with the common brown duck. They never reach the size of the Rouen or Aylesbury ducks, but grow up faster, are more hardy, and have a more neat and compact appearance when on the table; and the bones being small, there is much more meat in proportion to the size than on the larger birds; the flesh is firmer, of a finer grain, and of a much superior taste to the common kinds. I believe they are reared by hatching the eggs from a wild duck's nest, and crossing the breeds, but when our stock has required renewing I have bought them from the farmers, some of whom take much pains to have this kind. As the half-bred birds sometimes live in couples, as the wild birds do, to prevent disappointment in the eggs hatching it is good to have a drake that has been further crossed or of the common brown kind. I may add, for the benefit of those who keep their ducks for ornament as well as use, that this kind is very pretty, both in shape and colour."

Calendar of Operations.

August.—*Horses* require to be well attended to when harvest-work begins, and the adoption of steam-power for tillage purposes, which is reducing considerably the number of teams, is throwing extra work on those employed. Hence they require not only to be well fed, but the work of carting to be planned so as to make the most possible of their labour. In other words, as soon as any of the corn is fit for carrying, it should at once be got to the stackyard. Again, add to the employment of steam the use of reaping-machines, which further reduces the available force of horses for carrying, and the present laborious position of the limited number of horses kept will readily be understood, as will the extra food and grooming which they require. Various schemes are just now proposed and partially reduced to practice, for assisting the reduced force of horses in the work of ingathering, such as hauling by steam-power, building the stacks in the field, and the erection of farm buildings in a more central position of the farm. Even on farms where steam tillage has not yet been adopted, but where the corn is cut down by the reaping-machine, it is often more than the teams can do to cut down the corn as fast as it ripens, and to carry it to the stackyard when ready for stacking. Some theorists propose twice stacking, *i. e.*, building of small stacks in the field—a system termed "pucking" in some districts, "hand-cocking" or "tramp-cocking," the practice of which, however, is: About a cart-load is built in a "puck" or cock; this is done without horses, the sheaves being carried to the cocks by men, boys, and women, and built slanting upwards, and thatched at the top so as to carry off the rain. In these heaps the corn remains safe until there is time to carry it to the stackyard. This practice has from time immemorial been successfully carried out in the north during late seasons; and now it is proposed in the south, so as to avoid leaving stooks ready for stacking abroad in the field for the want of horse-power and hands to carry the corn as fast as it is cut down by the reaping-machines. After the whole of the corn is cut, the entire strength of the teams may be used in carrying. But at the commencement it is otherwise, as two or more teams are then employed in cutting, which in the best-going machines is very hard work, one pair of horses being unable to remain in harness the whole of the day Hence the general conclusion as to the attention horses require in harvest time.

Hemp is generally ready for harvesting in August. The practice is very diversified. In this country the crop is generally pulled, tied up in small sheaves, steeped and grass-rotted, like Flax. But sometimes it is pulled, tied up in sheaves when dry, and stacked until spring, when it is then dew or grass-rotted. In the United States of America, it is more frequently cut with a hook or short scythe, and left evenly spread on the ground for a week or so to dry. It is then bound up in sheaves, and stacked until the close of the autumn, when it is dew-rotted. When grown for both seed and fibre, it is seldom water-rotted or steeped. Both the male and female plants yield fibre—the latter only seed. When the crop is grown thin in the drills, it is possible to pull the male plants, and to leave the female standing for seed. In this case the former is both water and dew-rotted, the latter dew-rotted only. But when the crop is heavy, I think separation of the male from the female plants is impracticable, and seldom if ever attempted, either in this country or America. But it is occasionally done by small farmers who have plenty of leisure time on their hands, and who may thus turn the fibre of the male plant to rather more money.

Sewage Farming.—The yield of Grass in the report for 1867 of Lodge Farm, Barking, is 10 tons per acre weekly of excellent food for milch cows, and for which London cowkeepers gave 23*s.* per ton. The consumption of sewage by all green crops during the month is large, being at the rate of 100 tons of sewage to 1 ton of Grass. Heavy crops of stubble Turnips, Cabbages, and Rape, may be forced forward as soon as Wheat and other crops are removed. The close of the month is also a favourable time for laying down land to Italian Rye-grass, which is a short-lived plant under sewage, on account of, so to speak, its constitutional energies being soon exhausted. The close of the month is also a favourable period for a heavy crop of sewage-hay, the ground afterwards to be broken up; or an aftermath crop of Grass or hay may be taken, should the vitality of the crop stand it. But much of the plant is liable to die out after the taking of a hay crop, particularly when it is allowed to shoot into seed ear. The close of harvest is likewise the best time for laying-out fields and whole farms for town or farm sewage irrigation, or irrigation of any kind.

Trifolium incarnatum.—Sow on a clean stubble with about 20 lb. of seed to the acre, and cover with bush or seed harrows.

Cabbage.—Sow in seed beds for spring planting. The young plants will be more uniform as to size, stronger in the stem, better rooted for spring planting, and less liable to run to seed if removed to a nursery in autumn, and transplanted twice or thrice, according to the weather. Planting them in rows 6 or 9 inches apart and just shifting them will suffice, and be an inexpensive plan for this purpose.

Dairy Work now closely resembles that of July, all the skill at the command of the dairyman being required to procure good milk from his cows, and to get it into the dairy without sustaining harm. Once there, in the condition in which it should be, art can now do much to regulate the temperature to the respective processes of making butter and cheese of the finest quality. But from circumstances stated last month relative to improper food and water, irritation from gad flies, roasting in the sun, driving of the cows, and carrying the milk, every dairyman and dairywoman knows how difficult it is this season to get the milk into the dairy uninjured in quality. And, besides the above, and too high a temperature normally, the atmosphere during the month is loaded with parasitical life, animal and vegetable. The effect of this upon the quality of milk, and of the butter and cheese made from it, are as yet not sufficiently well understood. Certain, however, it is, that when the presence of such parasites is felt in any department of the dairy, as the milk-room, the place where the cream is kept, the cheese and utensil-rooms, the result is unfavourable to the articles produced. In the olden time, thunder and lightening and such like causes, got the blame, but the microscope of modern times has sent many old theories to the dogs. *W. B.*

Notices to Correspondents.

Farming in Kansas.—*C E B, Exeter,* writes:—Can you inform me whether Mr. Spence, of Topeka, Kansas, is an accomplished farmer, and a desirable person with whom to place a young man about to emigrate in order to learn the business of an agriculturist in that country. I should also be thankful for your opinion of the prospects of his settlement as to duration, &c. [We have not the pleasure of an acquaintance with Mr. Spence, of Topeka, but we give the question, as some of our readers may know him, and also the agricultural prospects of the land of his adoption.]

GREENHOUSES for SALE, made Portable. GARDEN FRAMES and PIT LIGHTS kept in stock. Apply to J. SMITH, Hothouse Builder, 205, King Street, Hammersmith, W.



THE "CASSIOBURY."

The best and most powerful

GARDEN ENGINE.

15 Gallons .. .. £1 10s.

24 Gallons .. .. £5 10s.

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Extensive Alterations.

RUSTIC PORTABLE SUMMER HOUSES, GARDEN SEATS, BASKETS, &c., forwarded free to any Railway Station. Designs forwarded.

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Vases and Fountains, for the Garden and Conservatory.



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White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for
PROTECTION from the SCORCHING RAYS of the SUN.
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"FRIGI DOMO" CANVAS.

Two yards wide	1s. 9d. per yard run.
Four yards wide	3s. 6d. per yard.
An improved make, 2 yards wide	1s. 9d. per yard.
An improved make, 3 yards wide	2s. 8d. per yard run.

"Rochford, Essex, June 4, 1869.
"SIR,—Will you be good enough to send me 50 yards of Frigi Domo, 2 yards wide, of your improved make, 1s. 9d. per yard run. You can foward it per London, Tilbury, and Southend Railway. I had some of you several years since, but have not found any substitute so good for Greenhouse and Stove Shadings.—I am, Sir, yours respectfully, "GEORGE WOOD (Solicitor, Rochford).
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ORCHARD-HOUSE SIZES.

in. in.	4ths.	3rds.	2nds.	Best
20 by 12				
20 by 13				
20 by 14 - Per 100 feet -	15 oz.	12s 3d	15s 6d	16s 9d	18s 0d
20 by 15				
20 by 16	21 oz.	18s 0d	20s 0d	22s 0d	24s 0d

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in. in.	in. in.	in. in.	in. in.	4ths.	3rds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7	11s 3d	12s 6d	14s 0d	15s 0d
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½				

Per 100 feet.

10 by 8	12 by 9	13½ by 10½	14½ by 10½	11s 9d	14s 9d	15s 3d	17s 6d
10½ by 8½	13½ by 9½	13 by 10	15 by 10				
11 by 8	14 by 9	13½ by 10½	13 by 11				
11½ by 8½	12 by 10	14 by 10	14 by 11				

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in. in.	in. in.	in. in.	in. in.	4ths.	3ds.	2nds.	Best.
15½ by 10½	14 by 12	22 by 16					
16 by 10	13½ by 12½	17 by 13	24 by 16				
14½ by 11½	15 by 12	23 by 13	20 by 17				
15 by 11	15½ by 12½	18 by 14	22 by 17	12s 3d	15s 6d	16s 9d	18s 0d
15½ by 11½	16 by 12	22 by 14	24 by 17				
16 by 11	16½ by 12½	24 by 14	20 by 18				
21 by 11	17 by 12	22 by 15	22 by 18				
13 by 12	18 by 12	24 by 15	24 by 18				

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.
In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 100 feet case, 34s.		4ths quality, per 200 feet case, 34s.	
3ds	" " 40s.	3ds	" " 40s
2ds	" " 60s.	2ds	" " 60s.
Best	" " 75s.	Best	" " 75s.

SHEET GLASS is made only in the following substances, 15 oz. 21 oz., 25 oz., 32 oz., 36 oz., and 42 oz.
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BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.
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Per cwt.—s. d.		Per gallon.—s. d.	
GENUINE WHITE LEAD	36 0	LINSEED OIL	2 9
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" RAW UMBER, 4d. to		" CARRIAGE do., 12s. to	14 0
6d. per lb.		" PALE do. 16s. to	12 0
" BURNT do., 6d. to 9d.		" COPAL	16 0
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GREEN PAINT, in shades,		Patent GOLD SIZE	10 0
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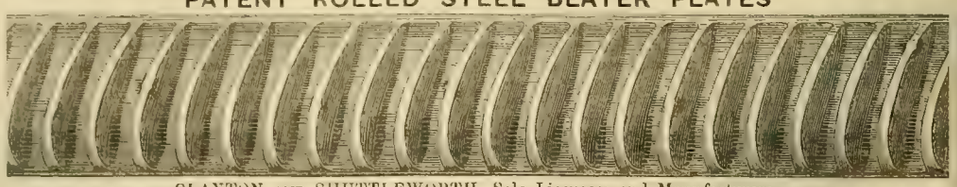
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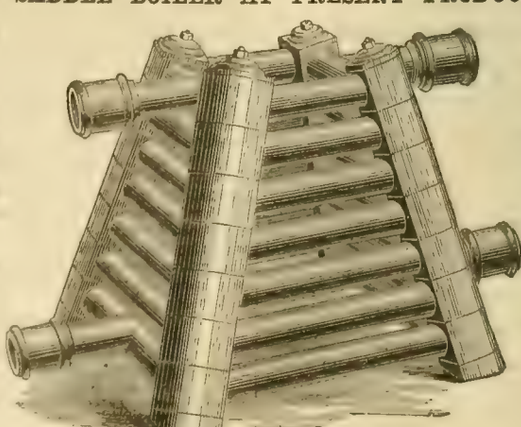
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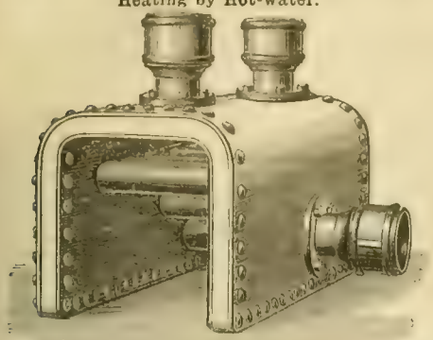


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CORNS and BUNIONS.—A Gentleman, many years tormented with Corns, will be happy to afford others the information by which he obtained their complete removal in a short period, without pain or any inconvenience.—Forward address on a stamped envelop to F. KINGSTON, Esq., Ware, Herts.

DINNEFORD'S FLUID MAGNESIA.—The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion; and the best mild aperient for delicate constitutions, especially adapted for Ladies, Children, and Infants.

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THE MARVEL of SCIENCE.—Cure yourself by the SELF-ADJUSTING CURATIVE and MAGNETIC BELT.

Sufferers from nervous debility, indigestion, weakness, &c., can now cure themselves by the only "Guaranteed Remedy" in Europe, protected and sanctioned by the Faculty.

Free for One Stamp, by H. JAMES, Esq., Medical Electrician (to the London Hospitals), Percy House, Bedford Square, London, W.C. N.B.—Medicine and Fees superseded. A Test gratis. Send for details. Established 1840.

COCKLE'S ANTIBILIOUS PILLS,
THE SAFEST
FAMILY APERIENT.
In boxes at 1s. 1½d., 2s. 9d., 4s. 6d., and 11s.

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In boxes at 1s. 1½d., 2s. 9d., 4s. 6d., and 11s.

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LIVER COMPLAINTS.
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THE OLDEST
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PARR'S LIFE PILLS possess the most invigorating properties, and clear from the body all hurtful impurities. In cases of rheumatism, debility, stomach complaints, bile, gravel, cutaneous affections, headache, indigestion, &c., Parr's Pills give immediate relief, without the slightest pain or inconvenience.

The Best Remedy for Indigestion.

NORTON'S CAMOMILE PILLS are confidently recommended as a simple but certain remedy for indigestion. They act as a powerful Tonic and general Aperient; are mild in their operation; safe under any circumstances; and thousands of persons can now bear testimony to the benefits to be derived from their use. Sold in bottles at 1s. 1½d., 2s. 9d., and 11s. each, in every Town in the Kingdom. Caution.—Be sure to ask for "Norton's Pills," and do not be persuaded to purchase the various imitations.

BILIOUS and LIVER COMPLAINTS, Indigestion, Sick Headache, Loss of Appetite, Drowsiness, Giddiness, Spasms, and all Disorders of the Stomach and Bowels, are quickly removed by that well-known remedy, FRAMPTON'S PILL of HEALTH. They unite the recommendation of a mild operation with the most successful effect; and where an aperient is required nothing can be better adapted.

Sold by all Medicine Vendors, at 1s. 1½d. and 2s. 9d. the box; or obtained through any Chemist.

WANTED, a WORKING PARTNER, with £100 or £200, to join another in extending a Business for Early Forcing, Cucumbers, French Beans, Strawberries, &c.

T. HORN, 5, Exeter Place, Waltham Green, S.W.

PARTNER WANTED (with or without Capital) for a good going Nursery and Seed Business in Scotland. Will be required to take an active part in the management of the concern. Capital not so much an object as services and connection.—Apply by letter, which will be treated confidentially, addressed PARTNER, *Gardeners' Chronicle* Office, W.C.

A Bargain.

TO BE SOLD, with Immediate Possession, the LEASE, GOODWILL, and STOCK in TRADE of a West-end Nurseryman and Florist. Good connection, and satisfactory reasons for disposal. A. B. C., 49, Grosvenor Row, Pimlico, S.W.

To Market Gardeners and Others.

TO BE LET, on Lease, a HOUSE, with about Two Acres of Garden Ground, situate near Kennington Park.

For particulars and cards to view, apply to Mr. EDELL, Solicitor, 33, King Street, Cheapside, E.C.

TO BE LET, TWO PLOTS of LAND, suitable for Market Gardens, one containing 32 Acres, the other 25 Acres, situate about 1 mile from the Orpington Station, on the South-Eastern Main Line to Tunbridge.—Apply to

J. GRIFFIN, Crofton Road, Lock's Bottom, near Bromley, Kent.

TO BE LET, on Lease, in Lee Park, near Blackheath Railway Station, a TWELVE-ROOMED DETACHED RESIDENCE, with nearly TWO ACRES of highly-cultivated Garden Ground. There is a Vinery, with upwards of 40 Vines in full bearing, Fruit-houses, Greenhouse, Propagating-house, and Conservatory. Large Lawn and Pavilion, Specimen Shrubs, and Fruit Trees. Suitable for any Person wishing to combine amusement with profit, or for a Florist wishing to raise Fruit and Flowers for the London Market. The House is well adapted for Letting.

Apply to the Executors of the late Mr. GEORGE GATES, 19, Alexandra Villas, Eltham Road, S.E.

King's Acre Nurseries, Hereford.

TO BE LET, on Lease, these valuable NURSERIES, with FLORIST and SEED BUSINESSES, situated in one of the most delightful, healthy, and fertile neighbourhoods, now in the occupation of the Proprietor, Mr. John Cranston, who is about to retire from business. These Nurseries have been established nearly a century, the area of Fifty Acres, in a ring fence, having been Laid-out and Planted in the most complete manner. The Soil is fine deep Loam, thoroughly well drained, and in high cultivation, no expense having been spared in making this one of the most valuable and unique Nurseries in the kingdom.

Adjoining the Nurseries are 17 Acres of fine PASTURE and ARABLE LANDS, partly in Orchards of choice Table and Cider Fruits. All the Stock is in the finest health and vigour, and consists of valuable collections of Roses—for which these Nurseries are well known to hold the highest reputation—Fruit Trees, Conifers, Evergreens, Shrubs, &c., with an extensive Succession Stock of all choice and rare Trees. The situation is highly advantageous, and commands large Wholesale and Retail Business Connections in North and South Wales, the North, West, and Midland Counties of England, as well as in Ireland and Scotland. The Glass Erections are well arranged, and comprise Propagating-houses, Receiving-house, Show-house, Vinery, Camellia and Rose Houses, with extensive Pits and Frames heated by hot-water.

The DWELLING-HOUSE is large, convenient, and handsome, with all requisite Out-offices, and adjoining are Private and Clerks' Offices, Seed and other Warehouses, Packing and Potting Sheds, Stabling and Coach-house, Farmyard, Barn, Cow-houses, and various Buildings. There are two excellent COTTAGES for Foremen, and other COTTAGES for Workmen on the Property. The Stock is of the most saleable kind, and may be taken to at a fair valuation. The whole to be LET, on Lease, to a suitable Tenant or Tenants, on moderate terms.

All applications to be made by letter to the Proprietor, Mr. JOHN CRANSTON, King's Acre Nurseries, near Hereford.

To Nut Planters.

MR. HOOK, of Vine Cottage, Gerrard's Cross, Bucks, has to OFFER for PUBLIC SALE, the SECOND WEEK in NOVEMBER NEXT, from 4000 to 6000 TREES of his superior SEEDLING FILBERTS, the finest bearers ever introduced.

For inspection, now until the end of August. There is about Seven Acres of them.

The Ashby-de-la-Launde Rams.

MR. CHARLES CLARKE respectfully informs his Friends and Sheep Breeders generally, that he has instructed Mr. E. LAW to LET BY AUCTION, upon his Premises, Ashby-de-la-Launde, instead of at Peterborough, Newark, and Leicester as heretofore, on THURSDAY, September 2 (Refreshment at 1 o'Clock, Sale immediately after), the whole of his valuable FLOCK of 100 superior LONG-WOOLLED SHEARLING RAMS, when he will be glad to see any Gentlemen who may favour him with their company.

Ashby-de-la-Launde is situated six miles from the Sleaford Station, where Omnibuses will meet the Train from Boston at 10.20, from Peterborough and Grantham at 10.20 and 11.40; Conveyances will also be at Navenby Station, to meet the Train from Lincoln at 10.29; returning in time for the evening Trains.

Sales by Auction.

Shacklewell, N.E.

CLEARANCE SALE of GREENHOUSE, BEDDING and STOVE PLANTS, &c.

MESSRS. PROTHEROE and MORRIS are instructed to SELL BY AUCTION, without reserve, on the Premises, The Norfolk Nursery, Shacklewell, Middlesex, on MONDAY, August 30, 1869, at 12 o'Clock, the remaining stock of GREENHOUSE PLANTS, comprising well-grown Camellias, 2 to 4 feet; a quantity of Azalea indica, about 1800 thriving young Ericas of sorts, Epacris, Pelargoniums, Acacias, Cytissus, &c.; also the miscellaneous BEDDING PLANTS, likewise a few STOVE PLANTS, a capital LIGHT SPRING VAN, GARDEN POTS and IMPLEMENTS, &c.

May be viewed two days prior to the Sale. Catalogues may be had on the Premises; of Messrs. MILLS and LOCKYER, No. 2, Brunswick Place, City Road, E.C.; and of the Auctioneers and Valuers, Leytonstone, N.E.

Sydenham, S.

HIGHLY IMPORTANT SALE of EXHIBITION SPECIMENS of STOVE and GREENHOUSE PLANTS, ORCHIDS, &c.

MESSRS. PROTHEROE and MORRIS have received instructions from the Executors of the late Mr. Osman Rhodes to SELL by AUCTION, without reserve, on the Premises, the Crystal Nursery, Sydenham, Kent, on TUESDAY, September 7, at 11 for 12 o'Clock precisely, the whole of this celebrated collection of STOVE and GREENHOUSE SPECIMENS and HALF-SPECIMENS containing many Plants of superlative merit, and consisting of, Stephanotis, Ixoras, Franciscea, Allamandas, including the entire Stock (about 110 plants) of A. Griffithi, the brightest-coloured variety in cultivation; Alocasias, Dracenas, likewise splendid examples of Ericas, useful young specimens of Azalea indica, a quantity of large Camellias, chiefly Double White, many of which are 10 feet high; Pimeleas, Eriostemons, Chorozemas, Aphelexis, Epacris, Leschenaultia, several handsome Yucca aicifolia variegata; some choice Orchids, including Oncidium ampulatum majus, Cypripedium barbatum superbum, Vanda tricolor, Anguloa Clowesii; a few large Tree Ferns (Dicksonia antarctica); three large Orange Trees, 8 ft., in strong square boxes. Also, Six RHODES' NEW HORIZONTAL TUBULAR BOILERS, and Two capital EXHIBITION PLANT VANS.

May be viewed two days prior to the Sale, and Catalogues may be had on the Premises of Mrs. RHODES, and of the Auctioneers and Valuers, Leytonstone, Essex.

Dutch Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, September 1, at half-past 12 o'Clock precisely, 500 Lots of choice Double and Single HYACINTHS, TULIPS, RANUNCULI, CROCUSES, JONQUILS, NARCISSUS, WATSONIAS, ANEMONES, SPARAXIS, and other Bulbs, just arrived from Holland and Jersey.

On view the Morning of Sale, and Catalogues had.

Shropshire Sheep.—Moor Barns, Atherstone.

MR. JOHN B. LYTHALL (Secretary to the Birmingham Cattle Show) is instructed by Mr. William Baker to SELL by AUCTION, on MONDAY, August 9, THIRTY splendid RAMS, and FIFTY EWES and THEAVES, descended from the best Shropshire Flocks, and which obtained a high position at the R. A. S. at Manchester. Eleven prizes were awarded to this Flock in 1868. Catalogues with Pedigrees will shortly be issued.

SHROPSHIRE SHEEP.—The Representatives of the late Mrs. Baker, of Grendon, have given instructions for the SALE of SHROPSHIRE RAMS and EWES, to take place on TUESDAY, August 31, when there will be offered about 35 SHEARLING and a few older RAMS, and 180 EWES and THEAVES.

Owing to the lamented decease of Mrs. Baker, this will be the last opportunity of obtaining animals from this celebrated Flock. The Sale will include the whole of the Flock, and will be entirely without reserve.

JOHN B. LYTHALL, Secretary to the Birmingham Cattle Show, Auctioneer. Offices, 9, New Street, Birmingham.

Buckland, near Faringdon.

MR. STRAFFORD is favoured with instructions to SELL by AUCTION, without reserve, on TUESDAY, August, 31, at Buckland, near Faringdon, Berks, EIGHTY very superior pure breed SOUTHDOWN EWES, belonging to Sir N. W. Throckmorton, Bart., and about THIRTY RAMS, including the Royal Prize Sheep at Manchester; also will be Sold TWENTY BERKSHIRE BOAR and SOW PIGS, from the famed Buckland Stock.

The eminent success of the Buckland Flock at the Meetings of the Royal Agricultural Society, Bath and West of England, and at the Smithfield Club, is sufficient evidence of the high character it has attained; Mr. Strafford can with confidence recommend such, as well as the Pigs, to the favourable notice of purchasers.

Catalogues with particulars may be had on application to Mr. STRAFFORD, 13, Euston Square, London; or of Mr. WILLIAMS, at Buckland, near Faringdon.

Mount Grace, Potters Bar, Middlesex.

Ten minutes' walk from the Potters Bar Railway Station, on the Great Northern Railway, and 12 miles north of London.

IMPORTANT SALE.

MESSRS. DUCKWORTH and CLAYDEN will SELL by AUCTION, on FRIDAY and SATURDAY, September 3 and 4, at 11 o'Clock, punctually, on account of the number of lots, by order of the Executors of the late Roger Fenton, Esq., the valuable collection of CONIFERS, GREENHOUSE PLANTS, 950 FRUIT TREES, ORNAMENTAL SHRUBS and FOREST TREES, comprising a very large number of the most choice ornamental trees, Wellingtonias, Cedrus Deodara, Araucarias, Cryptomerias, Thujas, Pinus, Piceas, Aucubas, Cypress, Arbor-Vitæ, Junipers, Berberis, Rhododendrons, Laburnums, Lilacs, Acers, Portugal Laurels, Laurustinus, Yews, Box, Scarlet Chestnut, Thorns, Oaks, Ash, Elm, Lime, &c.

In Greenhouse, some noble specimens of Camellia, 8 feet high; Azaleas, Fuchsias, Ferns, Geraniums, and a general assortment of flowering plants.

The Fruit Trees are very good, and comprise the best sorts of Standard and Pyramidal Pears, Apples, and Plum trees in full bearing.

This Sale presents a fine opportunity to Noblemen and Gentlemen of obtaining a large assortment of most remarkably healthy and well-grown trees, of such a size as cannot be obtained at any Nurseryman's in the kingdom.

Nearly all these trees will move with large balls of earth, having been replanted about two years since.

FIRST DAY'S SALE.—The FRUIT and FOREST TREES, and some of the SHRUBS in Kitchen Garden.

SECOND DAY.—The valuable collection of CONIFERS, GREENHOUSE PLANTS, and ORNAMENTAL SHRUBS in the Pleasure Grounds.

The beautiful HOUSE and GROUNDS are also TO BE LET. Particulars of the Auctioneers.

Catalogues can be obtained at the Railway Inn, Potters Bar; at Mr. JOHN MUNRO'S Nursery, adjoining the place of Sale; at COWING'S Public Library and "Press" Office, Barnet; and of Messrs. DUCKWORTH and CLAYDEN, Auctioneers, Land and Estate Agents, Hadley, Barnet.

To Noblemen, Gentlemen, and Others about to Plant.

HIGHLY IMPORTANT SALE of CONIFERS, CAMELLIAS, and AZALEAS, at THE CEDARS, CASTLE BROMWICH, near BIRMINGHAM.

MESSRS. THOMAS and BETTRIDGE are favoured with instructions from C. J. Perry, Esq., the eminent Horticulturist, to SELL by AUCTION, on MONDAY, September 6, commencing at 11 o'Clock, a Portion of the beautiful SPECIMEN CONIFERS, consisting of 200 Wellingtonia gigantea, from 4 to 11 feet high, all being raised from Seed, consequently are well rooted, and will move to any distance with safety; 100 Picea Nordmanniana, from 3 to 9 feet, the handsomest of all hardy Conifers, is never injured by the most severe winters, and will grow in all soils; 100 Picea Pinsapo, 2 to 8 feet; Picea nobilis, &c. Also, 40 extra fine SPECIMEN CAMELLIAS, and a few grand SPECIMEN AZALEAS.

The whole may be viewed during the week preceding the Sale, on application to the Gardener. Purchasers will have the option of removing the Shrubs at any period within six months from the Day of Sale. The Auctioneers have much pleasure in calling attention to this Sale, and confidently assert that the entire Collection is not to be surpassed in England for symmetry and beauty.

Catalogues may be had on application at the Auctioneers' Offices, 11, Temple Row, Birmingham.

Elmham Hall, Norfolk.

SOUTHDOWN SHEEP, and NORFOLK RED-POLLED CATTLE.

MR. EDMUND BECK is honoured with instructions to announce that the FOURTH ANNUAL SALE and LETTING of the above STOCK, the property of and bred by the Right Honourable Lord Sondes, is fixed for WEDNESDAY, September 8 (Luncheon at 12, and the Sale will commence at 3 o'Clock), and will comprise 110 very superior SHEARLING EWES, and 50 PURE-BRED STOCK EWES, 90 EWE LAMBS, and 150 WETHER LAMBS FOR SALE; and 25 SHEARLING and TWO-SHEAR RAMS FOR LETTING; 20 HEAD of NORFOLK RED-POLLED CATTLE, including 17 HEIFERS forward in-calf, and 3 YOUNG BULLS.

The Auctioneer has much pleasure in soliciting the attendance of Breeders upon this occasion, as the quality of the stock is in every respect worthy of the high celebrity that the Elmham Herd and Flock now so eminently holds.

Elmham Station (Dereham and Wells Branch), Great Eastern Railway, is one mile from the place of Sale, and conveyances will meet all trains during the day. Trains from London at 8 A.M.; Cambridge, 10·5; Peterboro, 8·20 viâ Midland; Norwich, 12 noon; Lynn, 12·2, are due at Elmham 1 34.

Passenger Carriage will be attached to the Goods Train leaving Norwich at 8·30, arriving at Elmham about 11.

Catalogues can be obtained of Mr. FULCHER, Elmham Park; and of the Auctioneer, Oxwick, Fakenham.

Sale of Very First-class Shorthorns and pure Border Leicester Sheep.

MR. JOHN THORNTON will SELL by AUCTION, on TUESDAY, September 21, at Keavil, Dunfermline, Fifeshire, the ENTIRE HERD of SHORTHORNS and BORDER LEICESTER SHEEP belonging to George Robertson Barclay, Esq. Among the Shorthorns are some very celebrated animals, viz., Seraphina 13th, Fan Fan, Heir of Englishman, Baron Booth, and others, as well as several prize animals, including the first and second prize yearlings at the Highland Society's meeting at Edinburgh.

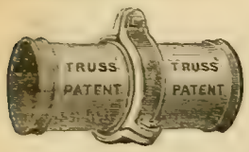
The Sheep are very choice, of the Polwarth blood, and the whole stock will be sold without any reserve, in consequence of the sale of the estate.

Catalogues, with Pedigrees, may be had of Mr. JOHN THORNTON, 15, Langham Place, London, W. or of Mr. EASTON, Keavil, Dunfermline.

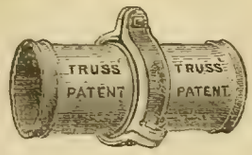
PORTABLE AND FIXED HOT-WATER APPARATUS,

FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH

TRUSS'S PATENT UNIVERSAL FLEXIBLE AND LEAKLESS PIPE-JOINTS.



T. S. TRUSS



Begs to state that the immense number of APPARATUS annually Designed and Erected by him in all parts of the kingdom, and for the ROYAL HORTICULTURAL SOCIETY at SOUTH KENSINGTON and CHISWICK, with unrivalled satisfaction, is a guarantee for skill of design, superior materials, and good workmanship; while the great advantages obtained by his IMPROVED SYSTEM cannot be over-estimated, consisting of perfectly tight joints with neatness of appearance; EFFECTS A SAVING OF 25 PER CENT. on cost of Apparatus erected compared with other systems; facility for extensions, alterations or removals without injury to Pipes or Joints; can be erected by any Gardener; an ordinary size Apparatus erected in one day; and PERFECTNESS of DESIGN SUPPLIED, INSURING NO EXTRAS. Complete Apparatus, of the best materials, delivered to any Railway Station in England, and Erected at the following prices. Erection beyond 25 miles of London, railway fare for one man additional. Considerable reduction on large works.

TWO FOUR-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
20 feet by 10 feet ..	£9 0 0 ..	£2 0 0	50 feet by 15 feet ..	£17 10 0 ..	£3 0 0
30 feet by 12 feet ..	11 15 0 ..	2 10 0	75 feet by 15 feet ..	20 0 0 ..	3 0 0
40 feet by 15 feet ..	15 0 0 ..	2 15 0	100 feet by 15 feet ..	26 0 0 ..	3 5 0

Bath and Gas Work erected in town or country. **The Trade Supplied.**

Price Lists, Plans, and Estimates forwarded on application to

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IRON MERCHANT, HOT-WATER APPARATUS MANUFACTURER,
AND HORTICULTURAL BUILDER,
FRIAR STREET, BLACKFRIARS ROAD, LONDON, S.E.

SIR J. PAXTON'S PATENT HOTHOUSES for the MILLION, are cheap, substantial, and easily fixed.
Illustrated Price Lists, with sizes, &c., free on application.
ESTIMATES given for CONSERVATORIES, HEATING APPARATUS, &c. A HANDBOOK of VINE and FRUIT-TREE CULTIVATION, post free, 13*d*.
HEREMAN AND MORTON, 7, Pall Mall East, London, S.W.
Works in London, Gloucester, Coventry, and Scotland.

CRANSTON'S PATENT GLASS BUILDINGS for HORTICULTURE. Plans and Estimates free.
Just Published, free for 30 stamps, Third Edition, DESCRIPTIVE BOOK, splendidly Illustrated from existing Buildings. By the Author and Patentee, JAMES CRANSTON, Architect, Temple Row West, Birmingham. H. J. GROWTAGE, Manager.

Heating by Hot Water.

W. J. HOLLANDS, IRON MERCHANT,
31, Bankside, S.E.

	2-inch.	3-inch.	4-inch.
HOT-WATER PIPES, from stock—p. yard	1*s.* 0*d.*	1*s.* 6*d.*	2*s.* 0*d.*
ELBOWS for ditto .. .. .. each	1 6	2 3	2 9
TEES .. .. „	2 3	3 6	4 6
SYPHONS .. .. „	2 3	3 6	4 6
THROTTLE VALVES .. .. „	10 0	11 6	13 0

Cash remittance with order.
N.B. All Goods of first-class manufacture. No second quality kept.
Estimates given, and orders punctually attended to the same day.

HOT-WATER PIPES.
CASH PRICES.

	2-inch.	3-inch.	4-inch.
PIPES .. .. per yard	1*s.* 0*d.*	1*s.* 6*d.*	2*s* 0*d.*
ELBOWS .. .. each	1 6	2 3	3 0
TEES .. .. „	2 6	3 6	4 6
SYPHONS .. .. „	2 6	3 6	4 6
VALVES .. .. „	10 0	11 6	13 0

No credit will be given when Pipes, &c., are invoiced at the above prices.
J. JONES AND SONS,
6, Bankside, Southwark, London, S.E.
Price Lists, with terms for credit and for delivery at country stations, will be sent on application.

HORTICULTURAL BUILDINGS.

CONSERVATORIES, PLANT HOUSES, VINERIES, PEACH HOUSES,

CUCUMBER AND PINE PITS, &c.,
ERECTED AND HEATED ON THE MOST APPROVED PRINCIPLES.

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HORTICULTURAL BUILDER AND HOT-WATER APPARATUS MANUFACTURER,
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NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

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TO HER MOST GRACIOUS MAJESTY THE QUEEN.

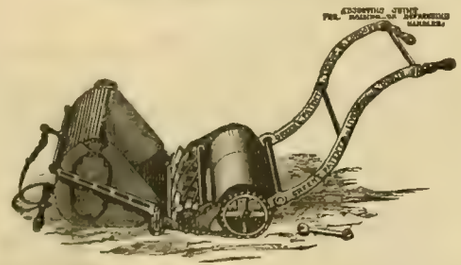
THE Extraordinary Success of GREEN'S PATENT LAWN MOWERS is an established fact. During the last five years the demand has been unprecedented, which alone is a proof of their superiority over all others. The following are their characteristic features:—

1st. **Simplicity of Construction, every part being free of access.**
2d. **They are worked with far greater ease than any other Lawn Mower.**
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☞ T. GREEN AND SON *warrant every Machine to give entire satisfaction, and if not approved of can be returned unconditionally.*

HAND MACHINES.

To Cut 10 inches .. £3 10 0 *Suitable for a Lady*
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„ 14 „ .. 5 10 0 *Suitable for One Person*
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To Cut 18 inches .. £7 10 0 *Suitable for One Person.*
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PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

PONY AND DONKEY MACHINES.

To Cut 26 inches £13 0 0
„ 28 „ .. .. 15 0 0 } *Leather Boots for Donkey*, 18*s*. *Leather Boots for Pony*, 22*s*.
„ 30 „ 17 0 0

HORSE MACHINES.

To Cut 30 inches £21 0 0
„ 36 „ 24 0 0
„ 42 „ .. .. 27 0 0 } *Leather Boots for Horse*, 26*s*.
„ 48 „ 30 0 0

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England, Ireland, and Scotland.

HORTICULTURAL and AGRICULTURAL IMPLEMENTS, GARDEN SEATS and CHAIRS, FOUNTAINS, VASES, PLAIN and GALVANISED WIRE NETTING and ORNAMENTAL WIRE WORK of every description.

Having very extensive Premises in London, we are in a position to do all kinds of Repairs there, as well as at our Leeds Establishment.

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;
and 54 & 55, BLACKFRIARS ROAD, LONDON, S.

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 36.—1869.] SATURDAY, SEPTEMBER 4. {Price Fivepence. STAMPED EDITION, 6d.

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OSBORN AND SONS can supply good CANES of the above-named remarkable GRAPE, which has again been exhibited and very much admired, fully sustaining the high character previously formed of it. Price 10s. 6d., 21s., and 30s. each.
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In Fruiting Canes, or second size for planting out; also the established old varieties, in fine plants.
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FRANCIS & ARTHUR DICKSON & SONS have this season a magnificent lot of VINES, grown from Eyes, without bottom-heat, in very strong short-jointed Fruiting Canes, as well as Planting Canes. Their collection embraces ALL the NEW and leading kinds. Prices on application. F. & A. D. & SONS invite inspection of their stock.
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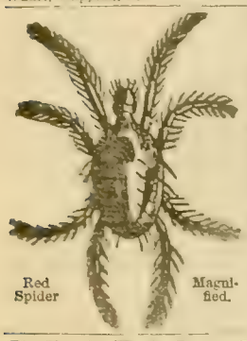
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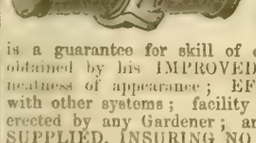
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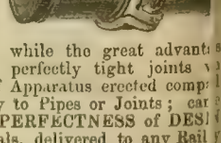
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PRIMULA (Williams' superb strain), red, white, or mixed,	*s. d.*
2s. 6d., 3s. 6d., and	5 0
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CYCLAMEN (Wiggins' prize strain) *1s. 6d., 2s. 6d., and*	3 6
ECHEVERIA METALLICA	2 0
HOLLYHOCK, from the finest varieties	1 0
PANSY, from prize flowers	1 0
,, finest Belgian varieties	1 0
POLYANTHUS (Wiggins' prize strain) 1*s.* and	1 0
STOCK, EAST LOTHIAN, 3 colours separate	2 0
VIOLA LUTEA (yellow flowered Violet) 1*s.* and	1 0
WALLFLOWER (Saunders' fine dark variety)	1 0

*** All the above are in sealed packets. None genuine unless they bear B. S. WILLIAMS' name and address.

Victoria and Paradise Nurseries, Upper Holloway, London, N.

To the Trade.

MRS. PINCE'S MUSCAT VINE, Planting Canes, 6 feet, 42*s.* per doz.
CLEMATIS STANDISHII, very strong, in pots, 75*s.* per 100.
H P. ROSES, in pots, good sorts, our own selection, 50*s.* per 100.
ROSES, New, of this season, in pots, 18*s.* per doz.
HEDERA MACULATA and H. MACULATA LATIFOLIA, extra strong, in pots, 10*s.* per 100.
CATALOGUES of General Nursery Stuff on application to
G. BAKER AND SON, American Nursery, Bagshot, Surrey.

Grape, Mrs. Pince's Black Muscat.

JOSEPH MEREDITH, The Vineyard, Garston, near Liverpool, beg to inform his Patrons and Friends that he has now the above splendid variety of MUSCAT GRAPE hanging in the greatest perfection, bunches averaging from 6 to 8 lb. each. It is now being exhibited at the Great International Show in Hamburgh, and will also be exhibited at the Horticultural Show in Edinburgh on the 8th and 9th proximo.

Fruiting Canes, 10 feet long, 21*s.* each.

New Strawberry, William James Nicholson.

WILLIAM LAWRENSON begs to offer to the Public, after August 25, plants of the above excellent Strawberry at 10*s.* per dozen, described as under by Dr. Roden, page 69, in "Hogg's Year Book, 1869:"—"Foliage brightish green, plant healthy and hardy; fruit large, conical, and occasionally flattened obovate; colour darkish glossy red; flesh white, juicy, rich, and piquant." Also by Mons. F. Gloede, in "Journal of Horticulture," August 13, 1868:—"This is a very large, handsome, late kind, of beautiful appearance, and of the richest flavour, quite distinct from any we already possess."

Fine plants now ready of all good varieties at reasonable prices, amongst which are Dr. Hogg, 7*s.* 6*d.* per 100; Sir J. Paxton, President, Comte de Zans, great cropper; Premier, La Constante, all 5*s.* per 100. DESCRIPTIVE LIST on receipt of stamp.

N.B. All W. L.'s Strawberries are grown in strong clay.

Eaglescliffe, Yarm, Yorkshire.

Valuable Stove and Greenhouse Plants.

TO be SOLD, by Private Contract, a unique Collection of the above, consisting of Rare and Choice ORNAMENTAL FOLIAGED and FLOWERING PLANTS, ORCHIDS, FERNS, &c. The Collection comprises a fine specimen of Anthurium Scherzerianum, Yucca filamentosa, var., and Y. aloifolia, var., new Marantas, &c. Most of the plants are specimens fit for exhibition, and perfectly clean and healthy. Parties commencing a Collection will find this a rare opportunity, the plants being disposed of in consequence of the owner's decease.

Apply to the GARDENER, the Lord Works, Chester.

H. CANNELL'S AUTUMN CATALOGUE is now ready, and will be sent free for One Stamp. It contains a full description, with lowest prices consistent with quality and economy, of all the best new and most distinct varieties of PELARGONIUMS (both of Tricolors and Bicolors, Doubles and Zonals), FUCHSIAS, VERBENAS, PETUNIAS, COLEUS, CHRYSANTHEMUMS, HELIOTROPES, VERONICAS, LOBELIAS, VIOLAS, and all the popular Bedding Plants of the Season. Also, the names and lowest price of all the best older varieties in cultivation. For further particulars see Catalogue.

To Raisers of Geraniums.

H. CANNELL begs to inform all lovers of GERANIUMS that he has a small quantity of Seed of the very best Hybridised Zonals in cultivation, at 2*s.* per packet. It is picked with great pains from all the best new kinds of the present season, including T. Moore, Acme, Lord Stanley, Sir R. Napier, Our Future King, Monster, &c.; the two latter certainly are the finest varieties ever sent out, and as every bloom is carefully attended to daily, H. C. is convinced that some grand new Varieties will be the result from the Seed.

GOLDEN FEATHER.—As this plant has thoroughly proved itself to be the greatest bedding acquisition that has been sent out for many years, H. CANNELL begs to remind all lovers of the garden that now is the best time to sow.

It comes perfectly true from seed; such seedling plants stood all last season, and were the admiration of all throughout the winter and spring, and equally as effective for Conservatory decoration.

300 New Seeds free for 13 stamps.

New Florists' Flower and Florists' Flower Seed Merchant, Woolwich.

Must be Sold, for want of room.

NEW BICOLOR and ZONAL PELARGONIUMS.—Large plants of the following kinds taken up from the beds, affording lots of cuttings, are offered cheap, viz.:—

BICOLORS—Amber Witch, Aureum, Beauty of Oulton, Bronze Belt, Bronze Shield, Creole, Eclipse, Jason, Mrs. C. Barry, Pet of the Parterette, Richelieu and Sol.

MARBLE-SHADED FOLIAGED VARIETIES, very strong plants—John Gibson, Lord Lyon, Lucy, Mutabilis, Penelope, Rosette, Rustic, Vanguard, Wonderful.

ZONAL PELARGONIUMS—Gaiety, F. & A. Smith's Magnificent, F. & A. S.'s Scarlet Dwarf, F. & A. S.'s Perfection, F. & A. S.'s Comte de Morny, Waltham Nosegay and Crystal Palace Gem, great improvement on Cloth of Gold and Gold Chain. All at 6*s.* per dozen.

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A liberal number of plants thrown in against carriage.

DESCRIPTIVE CATALOGUES free on application. 5*o* per cent. allowed to the Trade.

Apply to T. L. MAYOS, Seedsman, &c., Lugwardine, Hereford.

CHOICE NEW PLANTS, in single pots, well established.
NEW FUCHSIAS of 1869, 12 of the best and most distinct, 9*s.* & 12*s.* per dozen.
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NEW COLEUS of 1869, 12 of the best and most distinct, 6*s.* per doz.
,, Beauty of Widmore, 1*s.* 6*d.* each.
NEW GERANIUMS, 6 of the most beautiful of the season, all received Certificates, 1*s.* 6*d.* each.
DOUBLE GERANIUM, Madame Lemoine, 9*s.* per dozen.
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Post-office orders on Castle Hedingham.
For above and CATALOGUE of Bulbs, Roses, Primroses, Violets, Polyanthus, and other Hardy Herbaceous and Alpine Plants, &c., apply to
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IMPORTED FLOWER ROOTS



SUTTON & SONS,
SEEDSMEN TO THE QUEEN,
READING, BERKS,

having received their FIRST CONSIGNMENT of

CHOICEST DUTCH FLOWER ROOTS,

Selected by themselves from the leading Growers in Holland, are now prepared to receive orders for their COMPLETE COLLECTIONS for WINTER and SPRING BLOOMING, either for indoor or outdoor cultivation.

Suttons' £2 2s. Collection,

For open ground, Carriage Free, contains—

24 fine mixed Border Hyacinths	12 fine mixed Gladiolus
12 ,, Polyanthus Narcissus	25 Duc Van Thol Tulips
25 Pheasants' Eye Narcissus	12 mixed Single Early Tulips
25 Double White Narcissus	12 fine mixed Double Tulips
50 Double Daffodils	12 ,, Parrot Tulips
12 large Campernelle Jonquils	12 Gesneriana Tulips
100 fine mixed Double Ranunculus	50 fine mixed Tulips
100 Scarlet Turban Ranunculus	12 ,, English Iris
25 fine mixed Double Anemones	12 ,, Spanish Iris
25 ,, Single Anemones	6 Lilies, of sorts
300 Crocus, in 6 sorts	6 Ferraria pavonia
100 Snowdrops	12 Dog's Tooth Violets
50 Winter Aconites	6 Crown Imperials

Suttons' £1 1s. Collection,

For open ground, Carriage Free, contains—

12 fine mixed Border Hyacinths	6 fine mixed Gladiolus
6 ,, Polyanthus Narcissus	12 Duc Van Thol Tulips
12 Phea-ant's Eye Narcissus	6 mixed Single Early Tulips
12 Double White Narcissus	6 fine mixed Double Tulips
25 Double Daffodils	6 ,, Parrot Tulips
6 large Campernelle Jonquils	6 Gesneriana Tulips
50 fine mixed Double Ranunculus	25 fine mixed Tulips
50 Scarlet Turban Ranunculus	6 ,, English Iris
12 fine mixed Double Anemones	6 ,, Spanish Iris
12 ,, Single Anemones	3 Lilies, of sorts
150 Crocus, 3 sorts	3 Ferraria pavonia
50 Snowdrops	6 Dog's-Tooth Violets
25 Winter Aconites	3 Crown Imperials

Suttons' 10s. 6d. Collection,

For open ground, contains a choice assortment for a Small Garden.

Suttons' £2 2s. Collection,

For pots or glasses, Carriage Free, contains—

24 fine Hyacinths, by name	6 Persian Iris
12 fine Miniature Hyacinths, do.	6 Peacock Iris
12 Polyanthus Narcissus, do.	100 Crocus, by name
12 large Double Jonquils	12 choice Ixias, by name
12 Single Sweet-scented Jonquils	6 choice Sparaxis, by name
12 Scilla præcox	1 Cyclamen persicum
12 Single Duc Van Thol Tulips	1 Jacobea Lily
12 Double Tournesol Tulips	2 Lilium lancifolium album
50 Early Tulips, 10 sorts	2 ,, ,, rubrum

Suttons' £1 1s. Collection,

For pots or glasses, Carriage Free, contains—

12 fine Hyacinths, by name	3 Persian Iris
6 Miniature Hyacinths, by name	3 Peacock Iris
6 Polyanthus Narcissus, do.	50 fine Crocus, by name
6 Large Double Jonquils	6 choice Ixias
6 Single Sweet Jonquils	3 choice Sparaxis
6 Scilla præcox	3 choice Oxalis
6 Single Duc Van Thol Tulips	1 Jacobea Lily
6 Double Tournesol Tulips	1 Lilium lancifolium album
25 Early Tulips, 5 sorts	1 ,, ,, rubrum

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For pots or glasses, contains a choice assortment of most useful and showy kinds.

The best 12 Hyacinths for 12s.,

Extra fine double and single varieties.

For further particulars, with complete Cultural Instructions, see

SUTTONS'

AUTUMN CATALOGUE FOR 1869,

Gratis and Post Free on application.

Flower Roots and Seeds Carriage Free, except very small parcels.

☞ *Five per cent. allowed for cash payments.*

SUTTON AND SONS,
ROYAL BERKS SEED ESTABLISHMENT,
READING.

Dutch Flower Roots.



JOHN AND CHARLES LEE have just received their usual large importation of HYACINTHS and other DUTCH ROOTS, in fine sound condition, for which they hope to be favoured with early orders. CATALOGUES post free on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

Dutch Roots.

LUCOMBE, PINCE, AND CO. beg respectfully to call attention to their new stock of DUTCH ROOTS, which are this year finer than usual.

Their NEW BULB CATALOGUE contains all the choicest and most select varieties of Hyacinths, Tulips, Crocuses, Narcissus, Ranunculus, Amaryllis, Gladiolus, Liliums, &c., &c.

L., P., AND CO. will be happy to forward this or any other of their Catalogues post free to all applicants, and will feel obliged by their Customers, who do not receive them regularly, writing for them, when copies will be at once forwarded.

Exeter Nursery, Exeter.

Alba multiflora, Pink.

J. WADSON is now sending out this excellent large white Rose PINK (which gained a First-Class Certificate at the Royal Horticultural Society, South Kensington, May 4, at the Floral Committee), at 7*s.* 6*d.* per pair; 5*s.* per pair when 12 or more are taken. See *Gardeners' Chronicle* and "Gardeners' Magazine," May 8, 1869. A remittance from unknown correspondents. Post Office Orders payable at Hammersmith.

J. WADSON, Florist, Wellesley Avenue, Hammersmith, Middlesex.

The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 4, 1869.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY,	Sept. 7	{ Royal Horticultural (Fruit and Floral Committees), at South Kensington .. 11 A.M. { Ditto (General Meeting) .. .. .. 3 P.M.
WEDNESDAY,	— 8	Royal Caledonian Horticultural Society
THURSDAY,	— 9	(International Fruit Show).

THE INTERNATIONAL HORTICULTURAL EXHIBITION of HAMBURGH opened on the 2d inst. Sufficient time has not elapsed for us to be able to give a full report of this important Show, but we may say that it is varied and good. We believe that the following, among other prizes, have been awarded:—HER MAJESTY'S Cup, for Grapes, to Mr. MEREDITH; a Gold Medal to Mr. W. THOMSON, for Golden Champion Grape; Gold Medals for Orchids, to MM. LINDEN and KRAMER, of Flotbeck; for Conifers, to Messrs. SMITH and BARRON; for New Plants, to Messrs. VEITCH & SONS.

SUBJOINED are the *ipsissima verba* of the recently passed ACT to prevent the ADULTERATION of SEEDS. To Mr. CHARLES SHARPE, of Sleaford, in particular, the public and the trade owe their thanks for the passing of this measure, while the Royal Horticultural Society did good service in calling general attention to the subject by its reports and experiments.

Some of those who have been opposed to the Bill wish to give an impression that colouring Trefoil and White Clover can be proceeded with as before, and as this is calculated to lead people into trouble, it is as well it should be known that legal opinion has been obtained, which shows that if any person uses any artificial means to give an old seed, by dyeing or colouring, the appearance of a new seed, he commits a fraud within the meaning of the Act by giving such seeds the appearance of seeds of another kind. The word "kind" embraces a large meaning, and must be interpreted in conformity with the intention of the Act, to do away with fraud in the seed trade. Old seed is one kind, and new seed another kind. This is the interpretation of the word in the Act by men of great experience, in full legal practice, both in London and the country.

32 & 33 VICT., chap. 112.—1. This Act may be cited as "The Adulteration of Seeds Act, 1869."—2. In this Act the term "to kill seeds" means to destroy by artificial means the vitality or germinating power of such seeds; the term "to dye seeds" means to give to seeds by any process of colouring, dyeing, sulphur-smoking, or other artificial means, the appearance of seeds of another kind.—3. Every person who, with intent to defraud, or to enable another person to defraud, does any of the following things; that is to say, (1), kills or causes to be killed any seeds; or, (2), dyes or causes to be dyed any seeds; or, (3), sells or causes to be sold any killed or dyed seeds, shall be punished as follows; that is to say, (1), for the first offence he shall be liable to a penalty not exceeding 5*l.*; (2), for the second and any subsequent offence he shall be liable to pay a penalty not exceeding 50*l.*: moreover, in every case of a second or any subsequent offence against this Act, it shall be lawful for the court, besides inflicting upon the person guilty of such offence the punishment directed by this Act, to order the offender's name, occupation, place of abode, and place of business, and particulars of his punishment under this Act, to be published, at the expense of such offender, in such newspaper or newspapers, or in such other manner as the court may think fit to prescribe.—4. Any forfeiture or penalty under this Act may be recovered, enforced, and applied as follows: In England, before two justices of the peace in manner directed by the Act of the session of the 11th and 12th years of the reign of her present Majesty, chapter 43, intituled "An Act to facilitate the performance of the duties of justices of the peace out of sessions within England and Wales with respect

to summary convictions and orders," and any Act amending the same: In Scotland, in manner directed by The Summary Procedure Act, 1864, and any Act amending the same, or by any police or other Act for the time being in force in any place, and providing for the recovery of forfeitures and penalties: In Ireland, in manner directed by The Petty Sessions (Ireland) Act, 1851, and any Act amending the same; and in Dublin by the Acts regulating the powers of justices of the peace, or of the police of Dublin metropolis. Any jurisdiction by this section authorised to be exercised by two justices may be exercised by any of the following magistrates within their respective jurisdictions; that is to say, as to England, by any metropolitan police magistrate sitting alone at a police court or other appointed place, or by the Lord Mayor or any alderman of the city of London, sitting alone or with others within the said city; as to Scotland, by the sheriff, or sheriff-substitute, or by any police magistrate of a burgh; as to Ireland, by any one or more divisional magistrate of police in the police district of Dublin, and elsewhere by one or more justice or justices of the peace in petty sessions. The term "court" shall include the justices, magistrate, or other person or persons before whom proceedings may be had for the recovery of any forfeiture or penalty.—5. In any proceeding for any offence against this Act, it shall be sufficient to allege that the party accused did the act charged with intent to defraud, or to enable some other person to defraud without alleging an intent to defraud any particular person, or an intent to enable any particular person to defraud any particular person; and on the trial of any such offence it shall not be necessary to prove an intent to defraud any particular person or an intent to enable any particular person to defraud any particular person, but it shall be sufficient to prove that the party accused did the act charged with an intent to defraud or with intent to enable some other person to defraud, or with the intent that any other person might be enabled to defraud. —6. In England where the person who is convicted under this Act thinks himself aggrieved by the conviction, such person may appeal to the next Court of General or Quarter Sessions held not less than 12 days after the day of such conviction for the county or place where the conviction is had, in manner and upon the conditions in and upon which a person aggrieved by a summary conviction under the Act of the session of the 24th and 25th years of the reign of her present Majesty, chapter 96, may appeal in pursuance of the 110th section of the said Act. In Scotland and Ireland, in like cases as in England, an appeal shall lie in manner in that behalf provided by the law of Scotland and of Ireland respectively. A summary conviction under this Act in England shall not be quashed for want of form, or be removed by *certiorari;* and a warrant of commitment on any such conviction shall not be held void by reason of any defect therein, if it is therein alleged that the person therein named has been convicted, and there is a good conviction to sustain the same.—7. Every complaint under this Act against any person in respect of selling or causing to be sold any killed or dyed seeds shall be commenced within 21 days from the time of the commission of the offence complained of.—8. Whenever any complaint is preferred against any person under this Act, and the court upon the hearing thereof determines that it is not *bonâ fide* made upon reasonable or probable cause, it shall be lawful for the court in its discretion to direct and order that the prosecutor or other person by whom or at whose instance such complaint has been preferred shall pay unto the accused person the just and reasonable costs, charges, and expenses, to be settled by the court, of such accused person and his witnesses, occasioned by or consequent upon the preferring of such complaint; and upon nonpayment of such costs, charges, and expenses within 14 days after date of such direction and order, it shall be lawful for the court to enforce payment of the same in the same manner as if such costs were a penalty incurred by the person liable to pay the same.—9. Nothing in this Act contained shall prejudice or affect the power of proceeding by indictment or libel in respect of any offence herein provided for; nor shall any proceeding, conviction, or judgment to be had or taken under the provisions hereof against any person prevent, lessen, or impeach any remedy by civil process at law or in equity which any party aggrieved by any offence against this Act might have had if this Act had not been passed.—10. This Act shall commence and take effect on the 1st May, 1870.

In the last issued volume of the "Bulletin of the Federation of the Horticultural Societies of Belgium" is an interesting notice from the pen of M. WESMAEL, on the PLANES cultivated in the Belgian Gardens. We do not propose to follow the author through his historical sketch of the genus, and his condensed account of the views as to the number and names of the species held by different botanists, from SPACH, who considered that there was but one, to WILLDENOW, who made four. We must limit ourselves to stating that, in the opinion of M. WESMAEL, and, indeed, of most botanists of the present time, there are two species—P. orientalis and P. occidentalis; the former a native of Affghanistan, Persia, and other portions of the East, the latter a native of North America. Of Platanus orientalis, M. WESMAEL considers that there are in cultivation five varieties—acerifolia, cuneata, nepalensis, pyramidata, and variegata; and of P. occidentalis one variety, which he calls hispanica.

Now let us see what are distinguishing points relied on to separate these varieties and species. First we have the form of the leaves, then the circumstance as to whether the hairs are longer or shorter than the little achenes or seed vessels they surround. The habit also serves to separate some of the varieties one from another. To these points of distinction cited by M. WESMAEL, other authors add the comparatively early or late separation of the style.

In P. occidentalis the hooked end of the style falls off early, leaving the ripe fruit smooth on the surface. In P. orientalis, on the other hand, the styles remain so long that the globes of ripe seed vessels are studded with spines on all sides. We believe very little dependence can be placed on the form of the leaves. It is quite true that it is easy to pick out certain leaves and to say this belongs to occidentalis and that to orientalis, but then it is often as easy to pick off one and the same tree leaves which in form so closely resemble those of the two species referred to, as not to be distinguishable from them. For instance, the common park Plane is correctly referred to P. orientalis, variety acerifolia, but from it it is easy to select leaves which are not distinguishable from those of P. occidentalis, while the leaves of P. orientalis are almost protean in their form. The relative length of the hairs surrounding the seed-vessel is a better character, but then unfortunately it is not available for most of the forms found in gardens. In occidentalis the hairs are nearly as long as the achenes or nuts, while in orientalis they are considerably shorter. Judged by this test, acerifolia belongs to orientalis. The comparatively early separation of the styles is very marked in herbarium specimens from native American trees, but is much less conspicuous in trees of that kind grown in this country, if indeed there are *any rightly so called* now in the country. There are some who consider that the true occidentalis is not to be found now in these islands; but M. WESMAEL admits its presence in Belgium, and we are disposed to think that the large tree in the gardens of the Royal Horticultural Society at Chiswick, next to the Council room, is rightly labelled occidentalis. It has the shallow, ovate or triangular lobes to the leaves, and it has the long fruit-hairs assigned to occidentalis. Whether we are correct in our assumption or not, there are other differences presented by that particular tree in the longer more slender nuts and the more slender anthers—points which correspond with the dried specimens of American origin, and which contrast with the shorter stouter form of the corresponding parts in P. orientalis, and the variety acerifolia. Again, the scales covering the young buds are much less downy than those of orientalis or acerifolia. We have not seen fruit produced on any of the garden varieties enumerated by M. WESMAEL, with the exception of acerifolia.

On the whole we think, so far as English gardens and nurseries are concerned, it is not difficult to recognise P. occidentalis (Chiswick), P. orientalis and its varieties acerifolia, pyramidata and variegata. As to the other varieties, we can but think it a pity to give them scientific names. They are probably all seedling forms of acerifolia; thus we have seen in various nurseries plants labelled acerifolia palmata, palmata superba, grandifolia, and others—differing one from the other in size of leaves, form of lobes, degree of hairiness, colour, and other minor points, and even in hardiness. We believe it to be next to impossible to definitely characterise these varieties so as to render their recognition easy to others, and shall not attempt the thankless task.

Equally impossible is it to arrive at any certain conclusion as to the point whether or no there were originally two species, or one only; though, when we consider the great variability of the plants, the fact that P. acerifolia is, in many points, intermediate between occidentalis and orientalis, and that the fossil Plane tree, described by HEER, from the miocene beds of Germany and Italy is considered to have had closer analogy with the existing American than with the Oriental form, we cannot but lean to the idea that there was at one time but one species, from which the forms now known have proceeded. Should a Plane tree occur in Japan like either of the present races, we should consider the unity theory well nigh established. Recently we have heard of the discovery in Greenland of fossil leaves referred by geologists to this genus, which would seem to indicate that America was the original home of the Planes.

—— THE subjoined letter, headed LADY-BIRDS and their ENEMIES, appeared in the *Standard* of the 28th ult:—

"If it be true that the ant contributes in a great measure to the propagation of the aphis fly by securing the larvæ and depositing it in their subterranean home free from the destructive inclemency of winter, is it not a curious coincidence that the *Coccinella*, or Lady-bird, the most relentless enemy to the aphis, should on the other hand become a victim to the ant's voracity? But yesterday afternoon, whilst rambling in the neighbourhood of Warley Common, my observation was directed to a countless number of dead Lady-birds, which literally covered the ground for some yards, and myriads of black ants, about a quarter of an inch long, busily exerting themselves in carrying off the dead bodies of their prey to a large excavation near the summit of a steep bank. My observation, however, was not confined to one spot. Proceeding on my walk I came on as many as four different colonies of these insects all engaged in a similar work. Entertaining some doubt as to whether the ants could really vanquish the Lady-birds I went a distance of about 10 yards, where I observed some hundreds of the *Coccinellæ* alight on the surrounding vegetable productions, which was no sooner done than two or three ants immediately went in pursuit, and securing their object by the legs, brought it to the ground, and turning it on its back, as it appeared to me, sucked it to death, the assailants at once going in pursuit of other victims, while a relay of their confederates carried off the dead bodies to their habitation."—JAMES PHILLIPS.

—— Serious complaints have reached us as to the mismanagement at the CALEDONIAN HORTICULTURAL SOCIETY'S FRUIT SHOW some three years since, when some of the exhibitors lost a quantity of their fruit. We should not have alluded to a matter which occurred so long since, were it not for the hope that by so doing we may induce the managers to take precautions against the occurrence of such misfortunes at the ensuing show.

—— The total number of visitors to the Royal Horticultural Gardens on the anniversary of the late PRINCE CONSORT'S birthday, viz., August 26, was as follows:—S.E. entrance, 35,500; N.E. do., 15,500; N.W. do., 9870. Total, 60,870. It is to be regretted that some more stringent rules as to admission are not enforced, so as to keep back those who do not know how to value the privilege.

—— The following is the result of the ROYAL HORTICULTURAL SOCIETY'S EXAMINATION of GARDENERS, July 13, 1869:

Names.	Fruit and Vegetable Culture.		Floriculture.	
	Certificates.	No. of Marks.	Certificates.	No. of Marks.
Geo. Haskins*	3d	360	2d	625
Alfred Jones*	3d	530	3d	400
Chas. Burley*	3d	420	2d	675
Geo. Downton*	2d	660	1st	1000
Jas. Hudson,† The Deepdene Gardens, Dorking .	1st	1200	1st	1000
W. Read, Royal Gardens, Kew	3d	390	3d	425

—— The alleged performances of the CONSERVATIVE BOILER have created, as might have been expected, a great flutter among the boiler-makers. The bewildered public will be as much at a loss to choose between competing makers as poor little Nell when she was assured that "Codlin's the man, not Short," by—Codlin. We think the Royal Horticultural Society might at its next provincial show make arrangements for testing these boilers as fairly and fully as possible, so that we might have an authoritative statement to fall back upon. But even then the circumstances of individual cases—the requirements of locality, the management of stokers—are so different, that it would be difficult to fix upon any arbitrary standard. Meanwhile, here is a challenge from Messrs. JONES & SONS, of King Street, Cheapside, the makers of MONRO'S Cannon boiler:—"We are willing to fix one of our Cannon boilers (of the original make) in any place that may be agreed upon, side by side with a 'Conservative' boiler, which costs half what a Cannon boiler does, including setting (each party bearing his own expense of fixing); and if the Conservative boiler will heat the same quantity of piping in the same time as the Cannon, with half the quantity of fuel (not an eighth part, mind), we will give the inventor of the Conservative boiler a cheque for 100*l.*, and also send a cheque for the same amount to the 'Gardeners' Benevolent Institution,' or any other charity that may be named. Or, if we are allowed to fix one of our 'Improved' Saddle or Cannon boilers, we will agree that the quantity of fuel shall be equal, instead of one-half, as before named, the other conditions remaining the same. We mention this because we have lately introduced some important improvements in the Saddle and Cannon boilers calculated to materially lessen the consumption of fuel and cost of setting."

—— The extreme FLUCTUATIONS of TEMPERATURE, from sub-tropical heat to sub-arctic cold, which occurred last week, appear to have been experienced pretty generally throughout the country. Dahlias, Vegetable Marrows, and such-like tender stuff suffered to such an extent as to blacken their leaves. A frost so early is most unusual.

—— The murder of MDLLE. TINNE in Tripoli, mentioned in our newspaper columns last week, is peculiarly sad. The adventurous lady has succumbed

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* Chiswick students.

† This is the only instance in which the whole number of marks has been obtained by any candidate since the commencement of these examinations.

to a more fearful fate even than did her mother, who lost her life in the White Nile district from fever some few years since. Botanists and horticulturists have cause to remember the fate of these heroic ladies, by reason of the publication of the magnificent work, entitled "Plantæ Tinneanæ," mentioned at p. 1169 of our volume for 1867, and in which are described and figured several of the plants collected by MDME. TINNE and her party.

—— We extract from the *Daily Telegraph* the following letter respecting the formation of a Flower-girl Brigade for the metropolis, and the injurious REGULATIONS concerning COVENT GARDEN MARKET:

"About a month ago you invited discussion on the flower trade of the metropolis. As I believe no dealer in flowers seconded your efforts, I beg the insertion of a few comments in the absence of abler correspondents. It is, perhaps, possible to improve the manner in which the flower trade of this metropolis is conducted without establishing a flower-girl brigade. There are two classes of retail dealers in flowers, and both labour under conditions unfavourable to the public. It will, perhaps, surprise your readers to learn that until last Easter, only the shopkeepers n Covent Garden were permitted to enter the sacred precincts of the wholesale market until 5 A.M., in order that the tenants of the Duke of BEDFORD should have the first pick. This rule prevailed at the opening of the Floral Hall, in 1861, and was the chief means of closing it. At Christmas last, a shopkeeper at Knightsbridge, having entered before 5 A.M., was forcibly expelled. This led to several trade meetings, and a memorial to the Bedford office, signed by upwards of 70 growers and dealers in flowers. A deputation was appointed to present it to the Duke's steward; an interview with him was requested. The application was acknowledged, a copy of the memorial for inspection requested, and a promise made to see the deputation. From that time to this no further notice has been taken, beyond opening the market to the public at 4 A.M., the other grievances remaining the same. It would surprise many of your readers to know the amount in value of the cut flower trade of Covent Garden. The wedding orders alone amount to many thousand pounds, and range from one guinea to 100 guineas. These orders have to be executed before 10 A.M.; and in warm weather the flowers must be fresh cut, when the time is too short for any but the market shopkeepers to execute large orders. As they always have as many as they can execute in the season, they are independent; and, although flowers in autumn are of little value, a bride's bouquet still costs from one to three guineas in the Centre Avenue. Last year an attempt was made to reopen the Floral Hall. This failed at the moment, more through the general slackness of trade and consequent unwillingness to embark in new enterprises than anything else; but many promised to take stalls at a future time; and as this will probably be the last year the building will be available, perhaps a more successful effort may be made. Among the many projects for the profitable employment of ladies by birth and education, perhaps there are few more promising than bouquet-making in such a place as the Floral Hall; and as many of the aristocracy are members of floral societies for extending and improving production, it is only natural to suppose they will cheerfully support any well-organised means for extending the distribution of flowers, and making it an art and occupation for ladies. The regulations of Covent Garden Market, under the Act of Parliament, are so monstrous as to positively exclude more than half the supplies, if strictly carried out. All foreign produce is forbidden market accommodation, as the stands can only be let to growers bringing their produce in their own waggons. Even goods brought by railway from English counties are not allowed an annual stand. I have had goods for many years from Norfolk, Suffolk, Devon, Cornwall, North and South Wales, the Channel Islands, and many other places; but my goods are forbidden, by the Act of Parliament, to be sold on an annual stand, unless taken by the grower in his own waggon. The stands in the flower market are still worse: they are allotted in pairs to florists, who, in many cases, only attend the market two or three months in the year, while others that attend the market every month in the year can get no accommodation, the favoured florists only paying toll when they attend the market, and no rent whatever. As the management of the market is about changing hands, through the illness and resignation of the Duke's steward, perhaps a little public discussion at the present moment may lead to a much-needed reform."

—— We have received from Watcombe Park, near Torquay, some specimens of CONIFERS and other evergreen trees, which go to prove (if proof, indeed, were needed, with the records of such places as Bicton before us), that Devonshire must be a paradise for the arboriculturist. This park, now the property of Mr. VICARY, was, it appears, planted by the late Mr. BRUNELL, C.E., and much labour and money were expended in ornamenting the grounds with rare trees. Among other Coniferous examples now lying before us, we have noble cone-bearing specimens of Picea nobilis, P. Webbiana; P. Webbiana spectabilis, a grand form, with cones 8 inches long; P. cephalonica, Abies Douglasii, and Pinus muricata, with the cones of four successive years; together with Cryptomeria, Libocedrus, Thujopsis, and various Cypresses. Nor are these beautiful trees confined to the Coniferæ, for along with the foregoing came examples of some remarkably distinct and beautiful forms of Quercus Ilex, namely, latifolia, heterophylla, and dentata, the latter with narrow, lanceolate, strongly-serrated leaves; also the beautiful but somewhat tender Quercus glabra, Q. marginata, and the curious small-leaved Q. coccifera. Who wouldn't live amidst such charms?

New Plants.

ORTHOSIPHON STAMINEUS, *Bentham in Wallich Plant. Asiat. Rar.* 2, p. 13, *et in D. C. Prod.* xii. p. 32.

Caulo herbaceo erecto subramoso; foliis petiolatis ovatis acuminatis grosse dentatis basi cuneatis rotundatis vel supremis sub-cordatis; racemis laxis; corollis calyce triplo longioribus tubo subrecto, labio superiore dilatato; genitalibus longissime exsertis. *Benth. l. c.*

At one of the recent meetings of the Floral Committee, Messrs. Veitch & Son exhibited a flowering example of this very pretty labiate plant. Labiate plant? some one may incredulously ask. It is far more like a Clerodendron; and so it is on a superficial glance at the flower; but a more careful observation will soon show of what lineage it really is.

The plant is herbaceous, with numerous much branched purplish hairy stems. The leaves are ovate or deltoid, tapering at the base into a short petiole, coarsely and irregularly toothed, dark green above, with a purplish midrib, glaucous below, with whitish hairs along the veins. The flowers are very numerous, arranged in verticillasters, and these again in racemes at the ends of the branches. The calyx is leafy, tubular below, two-lipped above, the upper lip roundish, the lower one divided into four linear-lanceolate ciliate purplish teeth. The corolla is nearly an inch long, pale lilac-blue in colour (sometimes



white), with a straight tube projecting for some distance beyond the calyx, covered with long whitish hairs, and divided above into a two-lipped ringent limb. The lower lip is concave, oblong acute, the upper one also hollow, and divided into three roundish lobes. Filaments, four, slender, nearly equal in length, attached just below the throat of the corolla, hairy at the base, and projecting for a long distance beyond the corolla. The anthers are purple, sub-globose. The four ovaries are surrounded at the base by a thick whitish fleshy disc, which is raised at the anterior portion into a flat lobe (query, is this lobe an indication of a fifth stamen?) The style is as long or longer than the stamens, and equally thread-like; it is divided at its extremity into two ovate flattened stigmatic lobes.

From the beauty of the flowers and the profusion with which they are produced, there is little doubt that this plant will be a favourite with gardeners. In a wild state the blossoms are usually white, but there are varieties with lilac and blue flowers. The plant is a native of Assam, Siam, and several of the islands of the Malay Archipelago, and extends thence to North Australia, thus affording another illustration of the curious relationship between the flora of certain parts of India and the Archipelago, and that of North Australia. How different the flora in other parts of that vast region! It was introduced by Mr. J. G. Veitch from the neighbourhood of Cape York. *M. T. M.*

BRITISH ASSOCIATION.

FROM the Proceedings in the Mathematical and Physical Section, we make the following selection:—

"Meteorological Reductions," by Dr. Balfour Stewart, F.R.S., superintendent of Kew Observatory:—It will be desirable to preface the method of reduction herein proposed by a few remarks on the objects contemplated in such reductions. These objects are twofold—firstly, with the immediate object of acquiring information as to the climate of a place; or, secondly, with the immediate object of extending our knowledge of meteorology, regarded as a physical science. Thus, for instance, a certain kind of reduction might be imagined to be of immediate practical benefit in determining whether a certain place might suit a certain class of persons, or a certain class of plants, but yet it might not materially advance our knowledge of meteorology, regarded as a physical science. But, on the other hand, all observations tending to advance our knowledge of meteorology are of undoubted practical benefit. The amount of vapour present in the air is, without doubt, a very important element of climate, inasmuch as this affects in a marked manner the skin of the human body and the leaves of plants; but I am not aware that it has yet been determined by the joint action of naturalists and meteorologists what is the precise physical function which expresses proportionally the effect of moisture upon animal and vegetable life. Is it simply relative humidity? or does not a given relative humidity at a high temperature have a different effect from that which it has when the temperature is low? There is, in fact, an absence of information as to the precise physical formula which is wished by physiologists as expressing the effect of moisture upon organic life. On the other hand, physicists may be presumed to confine themselves to meteorology regarded as a physical science. It is in this latter aspect that I proceed to discuss the question. Regarding meteorology, therefore, as a physical science, it is one of our objects to ascertain the distribution and laws of motion of the dry and wet components of our atmosphere; and it cannot be denied that we are at the present moment in very great ignorance of these laws. With respect to the motion of our atmosphere, it cannot be anticipated that we shall ever possess the same sort of knowledge which astronomy gives us regarding the motions of the heavenly bodies, for in the latter case the identity of the object is not lost sight of, while in the former case it is clearly impossible to ascertain the motions of individual particles of air. Our inquiries into the distribution and motion of the elements of our atmosphere must, therefore, be pursued by that method which enables us to ascertain the distribution and motion of any other substance or product, with the individual components of which we find it impracticable to deal. Suppose, for instance, we wish to ascertain the wealth of our country in grain or in spirits, and the distribution of this commodity over the earth's surface. We should, first of all, begin by taking the stock of the commodity corresponding to a given date; we should next keep a strict account of all the imports and exports of the material, as well as of its home production and home consumption. Now, if we have taken stock properly at first, and if our account of the import, the export, the production, and the consumption of our material is accurate and properly kept, it will obviously be unnecessary to take stock a second time. But if these accounts are not kept with sufficient accuracy, or if we suspect that our material leaves us by some secret channel, which we wish to trace, it will clearly be necessary to take stock frequently; and thus a comparison of our various accounts may enable us to detect the place and circumstances of that secret transfer which has hitherto escaped our observation. Applying these principles to the vapour of our atmosphere, what we wish to know is the amount of the material present at any one station at any moment, and also the laws of its motion. It would appear that the best way of measuring the amount present at any moment is by ascertaining the mass of vapour present in a cubic foot of air, mass and volume being fundamental physical conceptions. Next, with regard to the motion of the atmosphere, including its vapourous constituent, the method of co-ordinates suggested by Dr. Robinson would appear to be the natural way of arriving at this. Let us set up at a station two imaginary apertures, one facing north and south, and the other east and west, and guage the mass of dry air and the mass of moisture that pass these openings in one hour; we shall by this means get the nearest attainable approach to the elements of motion of the atmospheric constituents from hour to hour. We shall not, however, obtain by this means a complete account of this motion, for we have at present no means of measuring its vertical component. This vertical component corresponds in fact to the secret channel in the illustration given above, which we must endeavour to detect by some indirect method. Another thing that ought to be determined is the production or consumption of the vaporous element of our atmosphere as it passes from place to place. This might be done could we keep an accurate account of the evaporation and the precipitation, the two processes by which this element is recruited and consumed. This would, however, be a very difficult observation. Let us now recapitulate what information regarding moisture we can obtain from such complete meteorological observations as are at present made. We have:—1. The mass of vapour actually present at a station from hour to hour. 2. The mass that passes a station in one hour, going east and west. 3. The mass that passes a station in one hour, going north and south. There is wanting: 4. The vertical component of the motion of vapour. 5. Its production or consumption as it passes from place to place. These deficiencies may, however, be to some extent overcome by the following considerations:—First, the atmosphere moves as a whole when it moves, the dry and moist air moving together; secondly, dry air is neither capable of production or consumption, but always remains constant in amount. To illustrate this part of the subject, let it be supposed we wish to investigate the vertical motion of the atmosphere at a certain station. Make this station the imaginary centre of a circle, the circumference of which may be supposed to be studded with other stations at sufficiently frequent intervals, so that we can tell, hour by hour, how much dry air passes in toward's the centre of the circle through its circumference, and also how much passes out. Let us suppose that more is passing in than is passing out, or that the imports into the area of the circle are greater than the exports out of it. Now the dry air that passes in is incapable of production or of consumption, and hence the

stock of the material at the central station, and in the area generally, ought to be on the increase, since we have imagined the imports to be greater than the exports. If, however, we ascertain from actual observation that the stock of dry air is diminishing instead of increasing, we may be sure that some is carried off by an upward current, which of course carries the moisture with the dry air. So much for the vertical component; and in the next place, with regard to the production or consumption of aqueous vapour as it passes from place to place. Our consideration has hitherto been confined to *quantity*; let us now define what is meant by the [illegible] of the air. It may be represented by the following quotient:—

$$\frac{\text{mass of vapour in a cubic foot}}{\text{mass of dry air in a cubic foot}}$$

Now this quotient can only alter by evaporation, by precipitation, or by mixture. This hygrometric quality of the air may perhaps be considered as a quality sufficiently constant to aid us in tracing the actual motion of air, just as we may make use of the element of saltness to trace the actual path of an oceanic current. But besides this aid, we may make use of it to enable us to tell the precipitation or evaporation. For instance, a very damp air, in passing over a very dry country, may be supposed to emerge less damp, having its hygrometric quality changed; or a very dry air, in passing over a very damp country, may be supposed to emerge less dry, having its quality changed in the opposite direction. Thus, by actual observation of the quality of the air at the time of its reaching some particular tract of land or ocean, and at the time of its leaving it, we may possibly get much better observations of what goes on in the country, as far as this particular research is concerned, than if it were studded with guages. I should therefore suggest that meteorological observations should, by a system of reduction, be made to show—1. The mass of dry air and of moisture in one cubic foot actually present at each station from hour to hour. (2.) The mass of dry air and of moisture that passes each station, hour by hour, in two lines of direction at right angles to each other, namely, north and south, and east and west. When these hourly elements are obtained, they might for seasonal changes be reduced after the method of five-day means, or for the investigation of abrupt changes of weather, such as storms, they might be utilised in some other way. Retaining the belief that meteorology ought to be treated as much as possible with the view, in the first place, of determining the actual motions of our atmosphere, and, in the next place, of assigning the cause of these, it is no doubt the greater movements of the atmosphere that will be indicated by five-day means. It ought, however, to be remarked that the observations at any station are subject to the influence of locality, none probably more so than those of wind. It would appear that this influence ought to be eliminated before we can make any trustworthy *quantitative* deductions regarding the greater movements of our atmosphere. I should, however, imagine that the *quality* of the air, as herein indicated, may be made of immediate use in the study of storms. It has been suggested by Mr. Meldrum, who expresses his concurrence with the above remarks, that in addition to the five-day means indicated above, there might be given a brief epitome of the weather. Thus, for instance, "The wind blew from the N.E. at Kew from January 1st, 1 A.M., to January 4th, 2 P.M., in all 86 hours, at the average velocity of 16 miles an hour, with an average pressure of 30 inches, a temperature of 40° Fahr., and an average hygrometric quality represented by '075." The same remark had previously occurred to myself, and Mr. Airy also has recently suggested the study of the meteorological phenomena of those periods during which the wind blows in the same direction.

The following paper was read in the Biological Section:—

"On the Relative Value of the Characters employed in the Classification of Plants," by Dr. Maxwell T. Masters. This paper was devoted to the consideration of some of the means employed by botanists in elaborating the "natural" systems of classification, and to the estimation of the relative value to be attached to these means. The characters treated of were the following:—1. Characters derived from the relative frequency of occurrence of a particular form, or a particular arrangement of organs; 2, developmental characters, whether "congenital" or "acquired;" 3, teratological characters; 4, [illegible]; 5, special physiological characters; 6, [illegible] dependent on geographical distribution. Illustrations were given in exemplification of these matters, and for the purpose of showing their applicability to particular cases. In estimating the value to be attached to certain characters, it is necessary to consider the purpose for which they are required. If the object be synthetical—if we are seeking points of resemblance, so as to be enabled to group together a large number of forms into one or more large aggregates, stress must be laid, in the first instance, on the congenital characters, as serving to bind together the greatest numbers; then on those depending on frequency of occurrence and special physiological affinity, afterwards on such others as may be forthcoming. If the object be analytical and discriminative, the special physiological characters demand the first attention, then those which have the merit of frequency and invariability, and then those that are congenital. The systematist can very rarely act up to his own standard. Individual cases have to be treated on their own merits—philosophy has to be sacrificed to expediency, and here as always the light of genius:—the best judgment of experienced botanists often lead him to make [illegible] or to adopt forms, on what seem mere grounds of convenience, but which afterwards prove, when [illegible] ground, to be strictly consistent with [illegible].

ON THE CULTURE OF CHRYSANTHEMUMS.

[Read at the Manchester Congress, July 22, 1869.]

IT is well known in the horticultural world that in the dull months of November and December the Chrysanthemum assumes an undoubted sway in the conservatory, and I am confident that all who have once witnessed the gorgeous panorama of colours which a conservatory full of well-grown Chrysanthemums presents at that dull time of the year, when flowers are so scarce, will agree with me when I assert that there is no decorative plant more worthy of general cultivation.

Since the introduction of the new Japanese varieties, the Chrysanthemum may be divided into three principal classes, viz., Large-flowered, Pompons, and Japanese. From Chrysanthemum sinense, which was introduced into this country from China in 1764, our Large-flowered varieties were produced; whilst from the Chinese Daisy, sent home by that famous collector, Mr. Fortune, originated the Pompons; and the new Japanese varieties were raised from seed by Mr. Salter, of Hammersmith, from the variety called roseum plenissimum, likewise introduced by Mr. Fortune, from Japan. In this paper I purpose to divide my remarks into two parts—first, that relating to outdoor cultivation; secondly, that relating to cultivation for the conservatory and for exhibition. I wish it to be distinctly understood that the observations which I am about to advance will be of a purely practical character, or confined to matters which have come under my personal experience.

As to outdoor cultivation, I shall briefly say that after five years' practical experience in Hampshire and the same in Lancashire, I find by careful observation that the Chrysanthemum blooms nearly two weeks earlier in the former than in the latter place, and about ten days later in Perthshire and Forfarshire than in Lancashire. From this it will be seen that the Chrysanthemum will amply repay any labour bestowed on its cultivation out-of-doors from Lancashire to Hampshire, more especially in the southern counties, for by protecting them from frost a good display may be maintained from the beginning of November till Christmas; but much display cannot be expected from this plant when cultivated out-of-doors in latitudes north of Lancashire, while in many parts of Scotland no reliance can be placed on its flowering at all out-of-doors, and in some places there, in late seasons, it requires no small amount of cultural skill to bloom it well under glass.

No grower has attained greater celebrity as an out-door cultivator of this plant than Mr. Broome, of the Temple Gardens, London, who grows annually thousands of Chrysanthemums, which are the daily admiration of thousands of visitors when no other flowers can be seen out-of-doors. I will speak of propagation, and of the treatment of the young plants, under the second division of my subject.

Presuming that the plants have been kept clear of insects during the winter months, they may be planted out in the open ground in the end of March or beginning of April. Dig the ground deeply, and mix with the soil some rich loam, a little well-decayed manure, and some lime rubbish. They will grow in almost any soil, but in this prepared ground better blooms will be insured. After the plants are fairly started into growth, great attention must be paid to watering, for if they are allowed to flag they will become bare of foliage at the bottom. To prevent this, it is good policy to mulch well. When the plants advance in growth, in order to prevent the wind breaking them, they should be secured with sticks. Two stoppings will be sufficient for them in the south, but none is requisite in the north. They should be syringed with clear water twice a day. They generally show their flower buds in September, at which time liquid manure should be supplied. That produced in the farmyard will be found suitable, if no better is at command; it should be well diluted with clear water, say four or five times as much of the latter, according to the strength of the former. They may have this liquid preparation at every alternate watering, until the blooms begin to open, when it must be discontinued. Every available means should now be employed to preserve the beauty of the plants, and to prolong their blooming period. This may be secured by covering up in frosty weather, with tiffany, calico, &c. By attention to this, as I have before stated, a tolerable display may be kept up out-of-doors in mild winters till Christmas.

I now come to the second division of the subject, viz., cultivation for the conservatory and for exhibition, and I will submit the substance of my mode of culture in this county. I may say, that old plants cut down and treated the same as Pelargoniums, if they break well, generally make the best specimens, but they are not to be much depended upon, for it frequently happens that when a plant is in full bloom, one or several shoots suddenly die off, thereby spoiling the specimen. As early in November as suckers can be obtained from the old plants, they should be taken off, with a little root, if possible, choosing the strongest, and rubbing off all eyes at the bottom of the sucker, after which they should be inserted singly in thumb pots, in a compost of one half loam and one half leaf-mould, with a sprinkling of silver sand. After a gentle watering, they should be placed in a cold frame, plunging the pots in ashes or any similar light material, keeping them close to the glass, and well syringing for two or three weeks, when they will be found to be rooted. A little air may then be given, gradually increasing the quantity until the young plants are sufficiently hardened, still syringing them frequently in mild weather. By the middle of December the roots will have reached the sides of the pots, when the plants may be shifted into 3-inch pots, using less leaf-mould in the compost than formerly. After this time they must have plenty of air on all favourable occasions. Although they will not grow much in the winter months, yet, if kept close to the glass, and in a sunny situation, with a lining of hot manure round the outside of the frame, and by covering up at night, they will keep gradually moving. The sooner the specimens attain the desired size the earlier the stopping may be discontinued, thus giving the grower more time to thoroughly ripen the wood, which I maintain is of the very first importance in Chrysanthemum culture, and without which no grower can produce satisfactory results. As soon as the plants have attained the height of 4 or 5 inches their points should be pinched out, which will cause them to throw out several side shoots. All shoots after this time should have their points nipped out after they have made four joints, until the plants have reached the desired size.

About the middle of January the roots of most of them will again have reached the sides of the pots, when they should have another shift, using oyster shells for crocks, and giving plenty of drainage. At this time I make up the compost, in which I pot them at every future shifting. It is made up in the following proportions, three parts turfy loam, and the fourth part one half leaf-mould, and the other half pounded oyster shells, lime rubbish and silver sand in equal proportions. The loam is pulled to pieces by the hand, and any wireworms which are found are destroyed. Where bonedust can be had it is preferable to oyster shells, using it in the proportion of about 1 to 80. The system most generally adopted is to grow the plants on one stem, and now is a good time to rub off all eyes for two inches above the soil. Towards the middle of February they will require another shift, always watering sparingly after shifting, until the roots begin to work in the new soil. They will then begin to grow rapidly, when pegging down must be had recourse to, continuing the same treatment, and fumigating occasionally to keep them clear of insects. About the middle of March they will be ready for another shift, after which any weak shoots ought to be allowed to grow upright for a time, so as to throw more strength into them, at the same time tying down the strong ones to counteract their inclination to grossness, for it is of primary importance to have all the shoots of uniform strength, otherwise there will be a diversity in the size of the blooms.

The grower must now decide in what shape he intends to train his plants. This should not be delayed too long, for as the season advances the shoots become harder and stiffer and more brittle; and frequently the breaking of a shoot at this stage spoils a specimen for the season. There are so many fantastic shapes into which the Chrysanthemum may be trained, on account of its extreme adaptability to almost any mode of training, that I refrain from recommending one more than another. I would therefore say, let every grower train according to his requirements, or as his fancy may dictate. After trying the upright, squat, pyramid, standard, and the convex forms, I will merely say that I have found the latter a very simple and effective mode of training. Round the rim of the pot a wire is fitted, to which the shoots may be tied. In bending the shoots down they may be left a little higher in the centre; one shoot by this method can be tied to another, and the framework of the specimen will with very little trouble be formed, so that any future tying will merely consist in filling in the spaces between the shoots.

By the last week in April the plants will by good management be ready to receive their final shift—the large-flowered ones into 12-inch, and the Pompons into 10-inch pots. The plants should now have plenty of room, and should be syringed regularly morning and evening. In May they should be gradually hardened off, previous to being removed out-of-doors, by taking off the lights during the day. About the end of May or beginning of June a sunny but sheltered piece of ground should be selected, and the pots should be plunged to three-fourths of their depth, placing a small inverted pot under each to secure good drainage and exclude worms, leaving sufficient space between the plants to admit light and air, otherwise they will become drawn and weak, and unripe wood will be the result. The plants will require turning round once a week. After the pots are full of roots great attention must be paid to watering, for neglect in this particular will tell its own tale by throwing off a shower of leaves, which not only materially detracts from the beauty of the specimen, but exercises a very detrimental effect on the production of good blooms.

During the months of June, July, and August, but little variation of treatment will be required, only the grower should endeavour to have his plants of sufficient size to enable him to give the large flowered ones their last stopping in the first or second week in June, and the Pompons in the second or third week. In August earwigs and caterpillars must be looked after; the former may be caught by cutting beanstalks into lengths of 4 or 5 inches, placing them on the plants, and examining them in the mornings; the caterpillars must be sought for among the leaves of the plants. If the pots are lifted nearer the surface in this month, it will facilitate the ripening of the wood; and if any of the plants are inclined to be gross, it will be necessary to withhold water from them to some extent, in order to ripen the wood before they show their buds, which they will do in the first week in September. Now is the time to apply liquid manure, and in my opinion the Chrysanthemum should never have any of it until it shows its buds. There may be a few exceptions to this rule, but many who profess to be good growers, and who like to see their specimens make luxuriant growth, administer liberal doses of liquid manure during the growing season: nothing can be more fatal to the formation of good blooms.

Disbudding should now commence. In the performance of this operation, care should be taken, in the selection of the buds to be retained, to choose the fullest and most healthy-looking, and leave only one on each shoot in the large-flowered ones. Some of the Pompons, such as Bob, Mademoiselle Martha, &c., do best by disbudding to one bud on each shoot, and none of them should have more than three left on a shoot. Some of the shoots will be found to be more forward than others, and are apt to bloom before them, but by judicious disbudding this may be avoided. This is effected by nipping out the crown or earliest bud of the earliest shoots, leaving a good side bud, and retaining the crown or earliest bud of the late shoots; this will cause all the buds to be equally forward.

About the second week in October the plants should be taken under glass, that is into houses, or pits, where they can be kept from frost, keeping them cool and close to the glass, with abundance of air. If they are wanted for exhibition, the earlier varieties may be kept outside for a week or 10 days longer, protecting them from severe weather; and again the late varieties may be kept in the warmest end of the greenhouse. The plants should now be watered five times a week with liquid manure, applying it 5° warmer than the temperature of the house; this will concentrate the entire energies of the plants in the buds, which will now be swelling rapidly. Towards the end of the month the large-flowered kinds should be tied to neat green sticks, as the blooms will be too heavy for the shoots to support them. The Pompons will require

little or no staking, but should be neatly tied in, so as to present neat compact specimens.

In the last week in October, or the first week in November, they will begin to show colour, when syringing and liquid manure should be discontinued. Any of the blooms that are at this time too late should be nipped off, as it is of importance that all of them should be at the same stage of expansion. I prepare my liquid manure in the following manner:—I have a tub, which will contain about 80 gallons of water, into which I put a peck of pigeon dung, over which I pour some boiling water to kill insects, and add a peck of soot and one of lime rubbish. I then fill the tub with liquid manure from the farmyard, stir the contents, and skim the scum off previous to using it. I employ it in the proportion of 1 to 6 of clear water. In the autumn mildew is apt to make its appearance, to prevent which the leaves should be dusted with flowers of sulphur. About the 20th of November the plants will be in full bloom.

By following the foregoing treatment the cultivator will be enabled to produce large flowering specimens that will carry 150 good blooms, and which will require no dressing, and Pompons with from 150 to 450 blooms, according as they are disbudded; but it is imperative that the grower be to a certain extent an enthusiast, a quality without which nothing great has ever been achieved. If specimen blooms are wanted the plants should not be stopped at all, but the side shoots should be allowed to grow upright, disbudding to a limited number on each plant; the fewer there are left the larger the blooms will be. Treat the plants in every other respect as recommended for specimen plants. Incurved varieties are best for this purpose; they are also in more request now for specimen plants. Some of the sorts, such as Golden Trilby, Princess of Wales, &c., are subject to climatic influences, and do much better in some years than in others. Anemone-flowered varieties, although more tender than the others, are very beautiful and well worth growing.

I will not occupy time by giving a list of what I consider the best varieties, as the various catalogues sufficiently describe the most desirable. In conclusion, I consider the new Japanese varieties a great acquisition to the conservatory, for although they do not come up to the standard of what is called a "florists' flower," they possess the much desired quality of being late bloomers. This, then, is already one point gained, for it is a greater desideratum to have late blooming Chrysanthemums than early ones, as flowers are not so scarce in the autumn months as they are in January and February; and as the natural blooming time of the Chrysanthemum is November and December, something is wanted that will bloom naturally for two or three months after Christmas. This, I think, will soon be accomplished by improving on the Japanese varieties. It is true that by growing some of the early and late kinds with the assistance of forcing and retarding, the blooming season of the Chrysanthemum may at the present time be extended from September till February; but as they are forced or retarded the blooms will be proportionately inferior, for the plant despises the forcing-pit as much as it dislikes the retarding-house.

I trust, therefore, that not only a greater stimulus will henceforth be given to the cultivation of the Chrysanthemum than has hitherto been accorded it, by offering more liberal prizes for it at exhibitions, but that encouragement will be held out to raisers of late blooming kinds by offering premiums for late varieties of the Japanese race, whose natural blooming time will be from Christmas onwards, and I have no doubt that we shall have the Chrysanthemum, with its many beautiful and diversified colours, furnishing in brilliant array the most distinguished places on the stages of the conservatory for at least four or five of the most dismal months of the year. *R. Fleming, Sandheys.*

HORTICULTURE FOR THE PEOPLE.

[Read at the Manchester Congress, July 22, 1869.]

THIS paper, a rather long and discursive one, was devoted to the consideration of sundry of the obstacles to horticultural progress, and to the means of overcoming them. The following abstract comprises the main points. Alluding to the ill-effects produced by the custom, in some places, of holding flower shows in connection with public-houses, the writer asks:—

What tide it is that flows so noiselessly onwards? It is the tide of copper kettles, and Britannia metal teapots, which may be seen dangling from alehouse windows from over the doors of hundreds of public-houses in our towns, as incentives for the artisan florist, or the cottage gardener to bring his Pansies, his Picotees, his Gooseberries, his Celery to the hall of the publican. Why, for one exhibition held on right principles, there are hundreds held by the publican; and the good which ought to flow from horticulture—that good which gives a heightening influence to the soul, is wholly dwarfed by its associations. This is the tide which has already drowned part of the good of horticulture; and annually we see more of it submerged. And if this tide be not stemmed, the time will come when the whole concern will be under the bane of Boniface. And can we find fault with him for the part he acts? Should we not rather blame ourselves, we who show our apathy in allowing so much good to run waste?

The fruits of the system of public-house shows may be seen in many places; and that system will be found to have increased in a greater ratio where our own exhibitions have ceased to exist. In proof, I will take one town, whose population is nearly 300,000 souls, and where our own exhibitions have long ceased to be normal. Go through some localities in this town in the autumn months, and you will be convinced from their number that public-house shows must be in a very flourishing condition. And when it is said that a great many of these shows do not confine the exhibitors to their own produce, it is easy to conjecture the depredations committed amongst the fraternity. Here the land allotments are cultivated by a pack of wolves, who are as ready to prey on their own tribe as on the unwary stranger who may settle amongst them. For nights previous to their little shows, the best disposed have to tend their gardens against the nefarious attacks of their brothers. And many are the bitter curses that have been uttered on finding, after all their watchfulness, their best sticks of Celery gone from the trench, or their largest Gooseberries no longer pendent. And as long as those shows are conducted on the same principle, or held under the same auspices, we may as certainly look for the occurrence of these evil results. Therefore, the essayist who would be the champion of horticulture, would be forced to chalk out a new line for exhibitions, such as would not only counteract their present influence, but be calculated to draw votaries by the thousand to the court of Flora who have never yet tasted of her pleasures, before it could be said that he had carried his banner successfully. In accomplishing this, various paths are open to him. He might boldly endeavour to make those public-house shows illegal, or he might humbly ask our great shows to stoop and conquer; or again, he might act independently, and start something similar to those latter shows, but on a different footing.

When land societies and horticultural exhibitions were set in motion, we should not have drawn in our oars and trusted to any breeze which might happen to rise to fill the sails. With land societies and exhibitions the good but sprung into life, but how wofully have we failed to nourish its existence. The once healthy plant has become almost leafless. From numerous towns the spirit has completely fled, and in others it drags on but a feeble existence. While we have set these movements afloat to give the people a greater interest in horticulture, what have we done publicly to give them a greater knowledge of its rudiments? Nothing. The one has been fed full to satiety, while the other has been neglected—which would almost warrant me in saying that horticulture has no rudiments, that it requires no teaching: put the seed in the ground, and it will grow and flourish. I might as well say, leave the babe in the cradle, and the child will arise a man. It may truly be urged that literature plays the part of tutor in this respect, that it is the well from which knowledge may be drawn how to cultivate the fruits of the soil; and that it is a tutor within the reach of all. We may have it bound in calf, we have it continually before our eyes in the Press, and we see it gilding the pages of every penny almanack. But on the other hand, can it not be as truly said, that to thousands this well is as a fountain sealed?—no matter how often or how long they may gaze, they remain mere barren spectators. To them literature is worthless; even if it were not so, that would not justify us in withholding other instruction from them. And there is but one way of applying that instruction effectually, and that is, by pouring it into their ears. Thousands higher up in the scale of knowledge require oral help to make them digest their intellectual food; how much more necessary is it, then, to give such help to those who are placed at the lowest part of the scale?

It has been already shown that many of our great horticultural exhibitions have failed to be interesting to the people; and it may be further stated that they are now only patronised by the select few. Year after year our exhibitions have grown in size, and seemed to have concentrated all their energies in pleasing the eye with immense specimens, to the detriment of lesser objects. They were almost bound to pursue this course to see what the skill of the country could do, but at the same time it is to be deplored that they have weighed anchor and sailed away from amongst the people. And if it could be ascertained that they have now exhausted that skill, which it would be most ridiculous to suppose, their order of working might be changed; as it is, their exclusiveness might be altered to the benefit of the profession and the public.

Although horticultural exhibitions have in a measure deserted the more humble exhibitor, yet that is not the sole cause of their decline; for societies have been known to give every encouragement to all classes, and still they have crumbled into nothingness. External influence weighs heavily upon the matter. How often have we seen on the morning of an exhibition the brightest prospects turned into the most gloomy results through unpropitious weather? And the greater our efforts have been, if we are overtaken by that misfortune, the greater will be the effects of the blow. It is to this cause that we may trace the melancholy fact that many of our horticultural exhibitions are dropping off, one by one, from the scene of action. Therefore I cannot attach much importance to our present exhibitions as affording ready means for giving the people a greater knowledge of horticulture. The requirements of the case demand a far wider field for operations than they can give. Their greatness and scantiness in number are their greatest drawback, though at a subsequent period they may render material aid, and receive no little assistance in return.

It is a most significant fact that while our exhibitions have decreased in number, those of the publicans have greatly increased. Therefore I must go to the publican for lessons on Exhibitions for the People. I must go to him who rears an edifice on the ruins of our own undertakings—I must go and see how he manages to make them stand firm, while ours are as if they rested on sand. And if I found him working after a very simple manner, I should also find him working none the less effectually. For his own interest he allows as little time as possible to elapse between the payment of wages and his little show, which is generally held on a Saturday evening, and often extends over the Sunday. He gives from 2*l.* to 3*l.*, which, added to the sum subscribed by the exhibitors, constitutes the prize fund. Admission is very often free, but not more than 2*d.* or 3*d.* is charged at any time. From 5*l.* to 15*l.* are divided in prizes, reaching down to a very small amount; and these exhibitions very seldom fail in a money point of view or yet in attractiveness. In some cases the exhibitors after staging sit down together to supper, with a view to lay a good foundation for the quantity of drink they may afterwards swallow. Nothing intellectual takes place, and the following morning those that are sober enough to count their money generally come to the conclusion that they must have borrowed their prize money from Boniface, at the rate of 50 per cent.

Much good would be done by setting up similar exhibitions away from the demoralising influence of the public-house. We might not in the first instance be able to win the publicans' votaries to our side, but horticulture, hoary-headed as it is, has still all the vigour of youth, and thousands would hail the movement with delight. And why not have similar exhibitions in our schools? Why not have a window-plant show, a Tulip show, a Rose show, a Gooseberry show, a Celery show, or a Potato show in our schools? I have no desire to hurt any person's trade, but I would have all schools, of whatever denomination, wage war against the publican in this respect—not a war of words, but a war of deeds. If he dared to hang out a Britannia metal teapot as a lure for the artizan florist, I would hang out a silver one from the school; if he were alive to his own interest, I would be alive to the interest of the community. Ministers of nearly every denomination have been found willing to assist in promoting penny readings. Would they not be found willing to embrace the cause of these little shows? Could not one or two individuals in connection with any school be found who have as much knowledge of horticulture as the publican? Until I am fully persuaded that the one class is unwilling, and the other not to be found, but not until then, shall I consider the case to be hopeless. And it would be a happy day for the community, and a bright one for horticulture, when every school had its window-plant show, its Tulip show, its Rose show, its Gooseberry show, and its Potato show to celebrate. I say again that great good would come from the movement; and it is easy to bring it to the test of practical experience. Schools are ready to our hands, the artizan florist impatiently waiting at the door, and England, mother England, has never yet been slow in putting her hand in her pocket for the purpose of blessing her children.

Although strongly advocating the formation of these little shows in our schools, I do not deem them all that is necessary for the well-being of horticulture. However admirably they act as a stimulant, they give little insight into the practice of horticulture. These little shows should embrace a greater number of Flora's beauties—say, beginning in the early spring with Hyacinths, accompanied by the beautiful Narcissus and Tulip; then Primula, Viola, and the Cruciferæ, not forgetting the cottager's early Salading.

In prescribing for the knowledge-giving department, something more must be done for it than can be done by mere voluntary effort. I am aware that great good has been achieved by voluntaryism, and that great good still remains for it to accomplish. I am also aware that voluntaryism has been, and ever will be, capricious, and that its sides are never free from the marks of the spur. Not that I wish to damp its good spirit, but only to place this knowledge-giving department, for safety sake, out of reach of its playfulness. But, first of all, let me explain what I mean by this knowledge-giving department, whose duty would be to take up the task where literature leaves off, and labour for its further accomplishments. And what could do this? What could do it effectually? What but a staff of horticultural lecturers—men well qualified for that labour, and men who must be paid for that labour.

I would attach to all our great municipalities one or more of those lecturers, whose title might be that of Horticultural Directors, and whose duty (besides being a consulting authority for the Town Council) would be to give, throughout the season, lectures on horticulture to the people, free of charge, and for which duty such lecturers should receive any sum of money agreed upon by the Council, but not less than, say, 150*l.* per annum. Such individuals would soon be surrounded by a host of kindred spirits. Roused to the work by his efforts, they would carry away his utterances to remote corners, and try to emulate him in their schools. And it is just here where voluntaryism would come into play, and be of service. This lecturer would, as it were, act the part of the pulpit, which has continually to remind the pen of its duties; without that guide, that fixity, that spur, voluntaryism would live the life of a laggard. Many of our mechanics' institutions are sad monuments to its fame. No greater error could be committed than launching measures for the public weal without giving them some fixity. Newfangledness may make them flourish for a season, but in time that wears off, and, like children's toys, one after another is cast aside, until benevolence is ready to cry out in mortification of spirit, See what I have done for them, and mark how they requite me! *Andrew Meikle, Reed Hall, Whalley.*

ON THE APPLICATION OF WATER TO THE ROOTS OF PLANTS GROWING UNDER GLASS.

[Read at the Manchester Congress, July 22, 1869.]

PLANTS, like human beings, breathe, digest, and perspire. These important functions being principally performed by the leaves, it is a certain and just conclusion that whatever kind of treatment best promotes the healthy and free action of these organs, does a proportionate amount of good to the plant. Cleanliness, a pure atmosphere, and a regular and suitable temperature, with a proper amount of light, may be regarded as the leading points favourable to the above

conditions. But notwithstanding that perfection in plant growth depends so much upon the due performance and regulation of these offices, there is another set of organs which plant growing forces upon our attention, and which should have a prior consideration, viz., the roots of the plant, since they may be described as the foundation of it, because according to Nature's laws they are the soonest developed, and are the first substantial agents at work towards forming and building up a plant.

A plant will not sustain life long without its roots, but many instances are known in which roots have lived without branches or leaves for a great length of time, and they have the power of throwing out fresh ones. However, the more a person dives into the vast subject of vegetable life the more complicated and marvellous does it appear, especially the whole machinery of root action and growth, penetrating the earth in every direction in search of food, while confined to the limits of a pot or other vessel they envelop the earth in their mighty network, so tightly, as though they were jealous of the treasures stored up in the soil.

Heat and water are as essential to root formation and growth as they are to wood and leaf development; they must both be present in the atmosphere as well as in the soil, but it is on the artificial application of water to the roots of plants that I purpose offering a few remarks. I have confined my notes to plant growing under glass for the obvious reason that everything growing under these conditions is influenced more or less by the proper application of water. It has long since been a recognised fact that plants search after and obtain food by the agency of their roots, and that the food so obtained is taken up by them in a liquid state and conveyed to the plant for its digestion. No plainer proof of this fact need be sought than the fact that when a plant becomes sufficiently dry at the roots to cause it to flag it soon recovers itself when water is applied to them. Without entering on a discussion of the various other modes by which plants obtain their support, the above facts will convince the most sceptical that water not only affords food to the plant itself, but it has also the power of rendering the chemical parts of a soil soluble, and fit to be taken up by the roots as required. It is therefore very necessary for all those who have charge of plants to use every means in their power towards gaining a thorough knowledge of their wants as regards water at the roots, for it is as easy to give a plant too much water as not to give enough—either extreme being injurious and most disappointing to the cultivator. Let me impress upon beginners, for whom these remarks are principally intended, that such knowledge is not to be gained without considerable experience, and close observation. It will, however, not be very difficult to put my remarks to a practical test, for I am not prepared to lay before you the results of a series of puzzling scientific experiments with water, but simply to lay down a few rules, and to impart some information on watering.

In order that water may be applied to plants under glass in the most beneficial way, it is absolutely necessary to know what relation the temperature of the soil bears to that of the atmosphere of the house. I have tried it many times, and have found that from a 16-size (9-inch) pot downwards, the temperature of the soil is about the same as that of the air, and subject to the same variations, but above that size, and including the largest tubs and other vessels used for plants, the average temperature by day is a degree or two lower, but subject to less variation. In large beds and borders from 2 to 4 feet in depth, and with the surface exposed to the atmosphere of the house, the temperature, on an average, is several degrees lower, with but a trifling variation. From these facts it appears that the larger the bulk of soil the more uniform is the temperature, and this goes far to prove why plants thrive so well when planted-out in borders.

In coming to the next subject, viz., the influence of water on the temperature of the soil, I may remark that during my four years' experiments I have tried all sorts of soils in which house plants are usually grown, and I find that water has the effect of lowering as well as of increasing the temperature of the soil. For instance, water at a temperature of 60° applied to a pot of soil standing at 75° reduces the heat to 67°; but by reversing the experiment, and applying water at 75° to soil at 60°, the temperature rises to 65°, or about one-third of the difference between the two original temperatures. According to another experiment, on applying water of the same temperature as that of the soil, the heat of the latter is increased 2° or 3°, but if the water be 2° colder than the soil, it has no apparent effect on the temperature. From these experiments we may conclude that the nearer the temperature of the water is to that of the soil, all other conditions being favourable, the more progress the plant will make; for although the variations of temperature caused by water, when it is applied either too cold or too warm, are but of temporary duration, yet repeated applications of water, in one or other of these conditions, cause a permanent derangement of the functions of the plants, which no after treatment can thoroughly remedy. Three years ago I selected a batch of two dozen even-sized Cinerarias, and placed them under one structure. One-half were watered with cold water at a chance temperature, while the remainder always had water of the same temperature as that of the house. In three weeks any one might easily have picked out the former, their foliage being of a lighter green, thinner in texture, and not so large as that of the others; their roots were more wiry and less numerous, and the plants were many days later in coming into bloom. I have been in the habit of growing Vines in pots in 12 months, from the eye to the ripening of the fruit, and when the above experiments were tried with them the results were similar, with, in addition, a deal of shanking in the bunches of those Vines which had had cold water applied to them. The pot Vines which I exhibited at the International Horticultural Exhibition in 1866 were selected from amongst those which were best treated.

The above facts with regard to the application of water to plants will be sufficient to teach the gardener the importance of comparing the temperature of the water with that of the house he enters, before applying it to plants, and then, if proper judgment be exercised, the results cannot fail to be satisfactory.

Before concluding, I feel anxious to call attention to a few irregularities in the system of watering practised in many places, the principal being periodical watering, and not choosing the proper time for it. The former is bad in principle, because it induces the operator to anticipate the dryness of many of his plants, while others will have become so dry as to baffle all efforts to soak the ball of soil by means of the watering-pot. As a natural consequence, many plants are over-watered, while the dryness of others renders it necessary to immerse the whole ball in water, which I should say is as great an evil as the former, because the roots are inactive from drought, and an excess of water suddenly sets them to work, forming a number of irregular and deformed growths, and in some cases decomposition and death follows. As regards the proper time for watering, I am of opinion that the best time is before the house is opened in the morning, or at shutting-up time in the after part of the day; because, as the house is closed to external air, evaporation is not going on so strongly, consequently the action of the roots is steady and progressive, and at all times equal to the demand made upon them by the branches. Excessive dryness or excessive moisture at the root are the great enemies to plant cultivation. *T. Record, Gr. to Col. E. Loyd, Lillesden, Hawkhurst.*

Home Correspondence.

The Royal Horticultural Society.—I have read an article, quoted from the *Notts Guardian*, respecting the Royal Horticultural Society, the writer of which seems to have overlooked a fact seriously affecting the question therein mooted. In the paper where I read it, some previous notices have appeared, written in somewhat the same tone of condemnation of the course which has been pursued by the Royal Horticultural Society since it shifted its garden to Kensington. Let me state at the outset that I am in no way connected with gardening or with the societies, and that I merely ask you to allow me, as "A Looker-on," to notice one or two facts. In the first place, inasmuch as the diminished receipts from exhibitions are attributed to bad management, and it is insinuated that it is the fault of the aristocratical element predominating in the Council at South Kensington, I inquire whether the same cause obtains at the Regent's Park and Crystal Palace? Is it not rather the natural result of three competitors coming into the field? To me it would have appeared a wonderful proof of a growing love for flowers if, when every other kind of trade has been depressed, so wholly a luxury as flowers had not felt it. If, therefore, blame is to be laid on any management, it must certainly be on the score of extravagance in giving prizes larger than could be afforded during such bad times. It will, moreover, probably strike every business man that the usual law of supply and demand will influence the commercial circumstances of societies, and that as an item of "expense" the sum devoted to prizes must vary, unless they choose to sink money. Supposing, then, that the two causes for diminished revenue are—firstly, the springing up of competitors; and secondly, that people will not pay three times over to see the same plants: there are two remedies which may be applied. The managers must set their wits to work to devise continually, not amusing accessories, but novel arrangements of a legitimate character. I well remember Mr. Ewen's first exhibition of foliage plants at Chiswick; and, although with a limited class of subjects, novelties cannot be presented so frequently as at Sydenham, for instance, I think the gardeners will not deserve so large a number of prizes, if they cannot devise some such attractions to give interest to their shows. They must either do this, or the managers of the three exhibitions must resort to the alternative. What this is, is already suggested by other bodies depending for funds on the interest they create in the public mind. Triennial exhibitions in turns must be concocted by the three competing societies, or, like other trades, they will continue to exhaust their strength and weary the public. This course will no doubt be objected to by the select number who year by year receive the prizes, but they must go with the times in one of the two courses indicated. I repeat that I am in no way interested in either of the concerns, and merely have the same superficial acquaintance with the system of floricultural shows which any one else reading your paper may have; but I think the vague and injurious insinuations against the Council of the Royal Horticultural Society which occasionally appear in newspapers are not warranted in the opinion of impartial persons. The Council, we are informed, labours under debt, a considerable source of revenue has fallen off, and as a measure of common prudence they propose an alteration, to save money. This is decried as an injury to the nurserymen, and a failure of the Society's duty. They are sneered at for having years past spent money specially subscribed to form an Italian garden—an ornament without which the money would never have been contributed; they are blamed for neglecting Chiswick because the public forsook it; and all this is attributed to the predominance of the aristocratical element in the management. I have no means of judging whether the trade has not its due influence in this particular Council, I only say that the grounds for blaming it have not yet been made evident to *A Looker-on.*

The Barnes' Testimonial.—Whatever spirit this was conceived in, it is quite certain that, so far, it has not been very successfully promoted; so much so, that were I in Mr. Barnes' place, I should feel very much inclined to exclaim, Save me from my friends! I am not one who is much prepossessed in favour of testimonials, except in cases of actual need, for it must be confessed that in too many cases the "hat is sent round" as much from dire necessity as from the honour of the thing. Happily for Mr. Barnes he is independent of such eleemosynary aid, and therefore I have no doubt that, as a recognition of high moral and professional ability and standing, a shilling or even a penny from a few hundreds or a thousand gardeners would be more grateful to Mr. Barnes' feelings than scores of pounds subscribed by mere personal friends and acquaintances. If this kind of thing is to be encouraged, then I think there are few gardeners in the country more entitled to acknowledgment, for he has opened up a wide store of knowledge to his brethren, so wide that I should say there are few gardeners who can say "I am not indebted to James Barnes for an idea." For my own part, I confess to being indebted to his writings for many useful hints, and I am certain the young gardener cannot read his essays, with which the columns of the *Gardeners' Chronicle* from its first publication to the present time are so well furnished, without rising from their perusal a wiser and a better man. Therefore I say to young gardeners, crowd up your pence, and show, by a few well-filled columns of the *Gardeners' Chronicle*, that you wish to honour the man who has instructed you. *W. P. Ayres, Nottingham, August* 25.

Tritoma (Kniphofia) Uvaria.—I beg to forward the dimensions of two plants which were planted here three years ago, being then very small specimens:—No. 1, 3½ to 4 feet through, with 100 spikes; No. 2, 2½ to 3 feet through, with 50 spikes. The above are now in full bloom, and can be seen by anyone. *A. Ingram, Gr. to Mrs. Whittaker, Mariners, Westerham.*

Lilium auratum.—Mr. Goode, of Melchet Court, deserves great praise for his pluck in sending his magnificent Lilium auratum so long a journey by rail as it is from Romsey to London, but the credit of its growth, from the first purchase of the bulb, through all its successive stages down to within a few months since, is entirely due to Lady Ashburton's late talented gardener, Mr. Cross, to whose industry, perseverance, and great professional capacity, is owing the fact that Melchet Court now possesses one of the finest private collections of show plants in the South of England. I have no doubt but that if Mr. Cross would inform your numerous readers as to the *modus operandi* which he has adopted to produce what must be admitted to be the finest Lilium auratum in the kingdom, he would perform a great professional service. It will interest many gardening friends to hear that he has recently engaged himself as gardener to the Rev. T. Philpotts, of Cornwall, a gentleman well known in that county as an enthusiastic horticulturist; and also for many years as the steward of the horticultural department of the Bath and West of England Society's Exhibitions. *A. D.*

Trellised Walls.—Peaches, Nectarines, and Apricots do not succeed on trellised walls, as they do not like draughts behind them. The nearer the fruit is to the wall the better. Wired walls succeed admirably when the wire is strained, so as to sit close to the wall. Mr. Williams, of Woolland House, near here, has a wired wall, and grows most successful crops. Last year I saw them; two trees of the Late Admirable (erroneously tallied Millet's Mignonne, which is the same as the Royal George) bore magnificent crops, and the largest Peaches I ever saw. I pointed out to Mr. Williams that no other Peaches except the late Admirable and Têton de Venus have that hideous turgid nipple at the apex. To strain the wires tight to the walls, blocks of wood should be let into the wall at both ends; the wires should be placed 6 inches apart horizontally. Had I seen it before I built my walls (about 170 yards) of brick, I should have certainly had mine done in the same way. *W. F. Radclyffe.*

Weather Fluctuations.—The season through which we are passing has been one of the most fluctuating in my experience. Alternations of heat and cold—the latter predominating, have been the rule throughout the west of Scotland. The drought of last summer was very trying, accompanied as it was with intense heat, but the drought of this season has been more long continued, although it has not told with such a withering effect upon the crops, &c., owing to the generally lower temperature that has prevailed. Wells and springs of water, however, have been dried up to a degree in some places, necessitating the interference of authorities to prevent undue waste, even for domestic purposes; and in the town of Greenock, for example, several sugar manufactories are about to be stopped in order to economise the limited supply for the inhabitants. Garden crops are parched up, and bedding plants generally, with the exception of Pelargoniums, are in no better plight. Rain has been anxiously looked for, but instead of rain we have had a severe incursion of frost, blackening up Pelargoniums, from Mrs. Pollock and Golden Chain to Stella and Trentham Rose. At Meadow Bank, where the situation is on the banks of the freshwater Clyde, the devastation of bedding plants is complete. Perillas, Dahlias, Zinnias, Chrysanthemums, and similar plants of a tender nature, have succumbed to a minimum temperature of 27°. There has been such a wave of cold, traversing all low-lying districts in the west and north-west of Scotland, that nothing of a tender nature has escaped, and even the fresh leaves of Docks and Plantains are totally destroyed. Fields and fields of Potatos that were in beautiful foliage are flattened and blackened to a degree I should say unprecedented. Late crops may be subject to supertuberation from a totally different cause than that of last year, but the general crop is pretty far advanced, although the check will probably have a reaction upon the keeping of the tubers.

It is very annoying, after all the labour incident to the propagation, conservation, and moving from place to place of an army of bedding plants, and then the final planting out, to have the pleasure of looking at them thus suddenly and summarily cut off. We have only had 86 consecutive days this season entirely clear of frost. On the 2d of June the thermometer indicated a minimum of 30°, and now on the 30th of August we have a minimum of 27°. To show the fluctuation I append maxima and minima for the last eight days.

	Max.	Min.		Max.	Min.
July 23	66	48	July 27	69	56
,, 24	66	52	,, 28	72	46
,, 25	68	45	,, 29	54	44
,, 26	66	46	,, 30	51	27

—and this morning we have the minimum of 31°, with apparently a change looming. Last year flower gardens were in tolerably good condition up to the 19th of October, the thermometer indicating then a maximum of 26°. We therefore had seven weeks' longer duration of the bedding system, which was some remuneration for labour involved, and, moreover, we had no cold to interfere with planting out after the 19th of May. Should weather fluctuations of this kind prevail in subsequent seasons, those so visited will "bottle up" their bedding-out notions and recur to the mixed system. Choice hardy plants are capable of more endurance even in the matter of inflorescence than most of the favourites selected for parterre decoration, and to them eventually our attention must be directed if we wish to prolong the gay season. *Jas. Anderson.*——On Saturday last, the 28th August, we had the hottest day of this season—thermometer at 84° in shade and 109° in the sun; barometer fell rapidly, about 3-10ths of an inch. Sunday we had a stiff gale from north-east, the thermometer barely reaching 56° at noon. Monday bright and cool, with an east wind. This morning (Tuesday) my gardener's salutation was, "Things sadly mauled, sir." On inquiring further I found the minimum thermometer (Negretti's) had registered 27° (5° below freezing). I send you a leaf of Vegetable Marrow, which tells its own tale. French Beans, New Zealand Spinach, Dahlias, and other delicate plants much blackened; Heliotrope in sheltered situations escaped. Has such a frost ever been recorded in the midland counties in the month of August? *W. B., Aug.* 31. ——This morning (Aug. 31) we had 4° of frost; the wind, which was cutting, was south-east. In the kitchen garden it has destroyed our Vegetable Marrows, Gourds, Kidney Beans, and Potatos; and in the flower garden, Perilla nankinensis, Coleus Verschaffeltii, Heliotropium, Dahlias, and Salvias, are very much disfigured. The Cloth of Gold and Zonal Pelargoniums (except Maid of Kent and Excellent), the Golden Feather Pyrethrum, and other bedding plants appear to have withstood the frost without being much injured. *Quintin Read, Pleasley Vale Gardens, Mansfield.*——The following was the temperature in the shade, at 2 feet from the ground, as observed by me at 6 P.M. on August 28—90° Fahr. I sent again at nightfall, when there was only just light enough to see the mercury, and it stood then at 85°. This is the highest temperature noted in my experience. The temperature in the sun at 1 o'clock on the same day is given by a neighbour at 136°, but so many items have to be taken into account with thermometers in the sun, that errors are easily made. It is not so with instruments in the shade, and it may be many years before we witness such a temperature attained in the last week of August as 90° at 6 o'clock in the evening. Our climate is truly a variable one, for the same night the wind veered round to the north, and blew a gale; and the morrow, at 2.30 P.M., rain began to fall, and the temperature had dropped to 50° in the shade. *Alex. Forsyth, 9, Islington Square, Salford.* ——On the nights of August 30 and 31 we were visited by frosts, which in exposed situations destroyed the under-named things in the grounds here:—Dahlias, Amaranthus melancholicus, Perilla, Tropæolums, Heliotropes, Ageratums, Salvias, Pelargoniums—Mrs. Pollock, Golden Chain, Countess of Warwick, Pink Stella (not first-rate at any time), Christine, Bijou, Crystal Palace Gem, in the same situation, was not so much cut up. Ribbon borders under walls were not so much caught. Vegetable Marrows and Potatos were quite blackened. We are never safe in this neighbourhood to bed-out before June 1, but now it is a question whether we shall be safe to bed-out before September 1. Is the frost of August 30 and 31 to be considered an early or a late frost (early after midsummer)? We have now had our swarms of green-fly, our Lady-birds, and our frost: what have our learned entomologists and meteorologists to say about these visitations?—and will they tell what we are to expect next, so that we may prepare for it; or are we still to accept, as we have to do in most similar cases, that if so and so was not the cause of it, it must be something else? The result we generally find out for ourselves. Gardeners are often twitted on their diversity of opinion, and this both in respect to their arguments and practice. Will any one say how much on this point gardeners differ compared to any other class of men who consider themselves more learned? In July we had the Congress of gardeners at Manchester, and in August there was the Congress of the British Association at Exeter. I read some of the papers and some of the discussions of both meetings. Will any one say how much more unity of opinion on subjects there was amongst our more learned men at Exeter, than in the case of the subjects read at the Congress of gardeners at Manchester? *Wm. Miller, Combe Abbey Gardens.* [4° of frost (28° Fahr.) was observed at Ashridge, Herts, on the morning of the 1st inst. EDS.]

Effects of Hot Weather.—There must have been something very unusual in the temperature of August 27 and 28. The extreme heat might be sufficient to account for the firing of several haystacks, and for turning brown the leaves of Lime and Birch trees, but not for killing plants of Mignonette, and curling up all the blooms upon Hollyhocks in certain parts of my garden, while others a few feet off are uninjured. The most remarkable instance of partiality in burning occurs on a tall blue and white Aconitum, where the top branch has all the flowers scorched, while the other flowers are quite uninjured. *W. T.*

The Wonderful Plant.—In quoting from the "Gardeners' Magazine" a description of a so-called "wonderful plant," you omit the editoral note which I appended, the object of which was to caution the public against a possible deception. Not having seen the wonder, I could not give a critical opinion upon it; but my note concluded with a hint that it was probably not worth seeing. Your mode of dealing with the subject makes me appear the swallower of a cock-and-bull story. *Editor of "Gardeners' Magazine."* [We quoted at secondhand from our contemporary. We give him full credit for penetration, and are quite sure he is too acute to be taken in by such a sham. EDS.]

Roses.—Climbing Devoniensis has flowered very finely this season, and the bloom fully equals, if it does not surpass, in beauty its parent. It has bloomed here in immense corymbs, and for extraordinary vigour of growth surpasses even that old favourite, Gloire de Dijon. It will shortly supersede every other climbing light Rose. Lamarque and Solfaterre will be cast entirely in the shade by it. The cottagers in this neighbourhood have the fronts of their houses covered with Gloire de Dijon and General Jacqueminot, thanks to local and other floral and horticultural societies for bringing about this very desirable taste for the cultivation of the queen of flowers. Maréchel Niel blooms finely against a south or west wall, but seems very shy at opening its flowers freely when grown as a standard in this locality. *A. Godwin, Ashbourne.*

Lady-birds.—Southampton and its neighbourhood has had its visitation of these pretty little insects. There was quite a shower of them on the 28th ult. On examining some small Apple trees I found many of the shoots were greatly infested with green-fly. Here I also found the Lady-birds in considerable numbers, and seemingly busy devouring the pests. Wishing, however, to ascertain, if possible, more closely, whether the aphides were really destroyed, or only sucked, as the ants are said to suck them, I gathered a few leaves, upon which there might have been 100 insects, and these, together with a Lady-bird, I placed upon a plate and covered all with a glass; after 48 hours, upon examining it, I could not detect that any of the aphides were touched, as all seemed to be alive. Had I accepted the result of this experiment as a correct one I should, however, have committed a mistake, as upon examining the Apple trees I found the whole of the green-fly had been devoured. Not a live one was to be seen. Singularly, also, those of the trees that had been free from blight were entirely free from Lady-birds. *A. D.*—— I find these insects are not particular as regards diet—they appear to be equally as fond of vegetables as of insect food; they attack Pears and Plums here at an equal ratio with the wasps and flies, which have appeared in overwhelming numbers the last few days. *J. Edlington.* ——In reply to Mr. Fish's inquiry as to Lady-birds eating green-fly, I beg to say that I have often seen them in their grasp, and therefore conclude that they eat them. One of my boys brought me one a short time ago, and said, "Look, father, here is a Lady-bird with a green-fly in its mouth," and turning it over I saw such was the case. I have often fed them and the larvæ by giving them flies from the point of a knife or stick, and I value them so highly that I set my children on fine days in winter to search for them to put in my forcing-house among Dahlias, and I have no doubt but that they keep them clean. Early this season my Roses swarmed with fly, so that I had to wash the blooms with a brush and water before using them, but a few Lady-birds made their appearance; then I noticed some patches of eggs under the leaves, and I soon had a swarm of Lady-birds at work, which cleared my Roses from their enemies. About 15 years ago I noticed under the leaves of a Dahlia that was infested badly with black-fly, some patches of yellowish-looking eggs, which I believe were those of Lady-birds; these hatched, and in three days the larvæ cleaned the plant. There is also a small red spider, whose body is about the size of a hemp-seed, which I have no doubt whatever feeds on green-fly; I have often fed them from the point of a knife, and have seen them suddenly stop and seize the fly. These are also collected by my children on sunny days in winter for the purposes above mentioned. *George Rawlings, Romford, Aug.* 30.——The following remarks by "F. R. S.," printed in the *Times*, are worth adding to the information you have already given respecting the swarm of Lady-birds with which we have been visited, and which it has been assumed have been developed in the places where they have been observed. This, "F. R. S." says, was certainly not the case, and here is his proof:—"During the 14th, 15th, and 16th of August countless multitudes of the little red beetles appeared upon the coasts of Kent and Sussex. They were most numerous close to the shore—tens of thousands perished in the sea near the land. They extended far inland, and on Sunday, the 15th, myriads were seen in London and its neighbourhood. But the largest assemblages by far were on the east coast, especially at the points nearest to the Continent—this at a time when there was a continuous east wind. On the Sunday in question a scientific friend of mine well qualified to observe and record facts of natural history, was fortunate to witness the actual arrival of one of these swarms. When walking on Dover Pier, after morning service, he observed an enormous multitude of these insects, like a cloud, coming over the sea, as if from Calais. They were flying from east to west. Large numbers fell into the water, others covered the pier-head as with a red carpet, but the great mass flew on westward, and, as they passed overhead, looked to those who gazed upwards like the interminable flakes of a thick snow-storm as seen from below. A similar occurrence had been seen the same morning. It would be preposterous to imagine that these swarms of Lady-birds had flown to sea in the teeth of an east wind, simply to be blown back again. When we remember the smallness and feebleness of some of our migratory birds, that cross the seas to this country during the stormy weather of early spring, the advent of the swarms of Lady-birds is robbed of much of its wonder. But the interesting question remains—Whence came they? Where did they collect in such prodigious numbers? What was the home that fed the larvæ from which the beetles sprang? Or if, as seems probable, that they had many homes, what impulse brought together these millions for a common emigration?" *Z.*

Lettuces.—I find Hicks' Hardy White Cos a most distinct and valuable Cos Lettuce. If it proves as good a winter Lettuce as it has turned out here this season, its good properties will be considerably enhanced. I am now cutting huge fellows from plants spring sown, and notwithstanding the excessive drought there is no tendency in this variety to "bolt." Where Cabbage Lettuces are at all in demand, the new French Spotted is undoubtedly one of the best to grow for summer purposes. It grows to a large size when well cultivated, and stands well, without the least tendency to run to seed. I consider it a most useful kind, especially for small gardens and cottagers, where a Lettuce, whether Cos or Cabbage, is an object. *J. Edlington.*

Unheated Orchard-Houses.—I fully endorse Mr. Thomson's remarks regarding a deficient crop in these structures this season. I have a house here unheated, and it is as fruitless as his. Mine is not the only one, for I have seen several in the same category. Our trees are healthy, blight is out of the question; like Peaches and Apricots out-of-doors, they failed to set their fruit in spring, through the extraordinary early warm season, then the extraordinary cold just at the time the warm and genial weather was required. *John Edlington.*

Wellingtonia gigantea.—Some years ago a very laudable emulation existed amongst those who possessed specimens of the first batch of this tree, and the length, circumference of bole, and diameter of branches were duly recorded. Of late years, however, this practice has been discontinued; is it in consequence of some of the best specimens dying off? or has the interest in the tree abated? I am unwilling to believe either of these cases, although, from some specimens I have seen, the "going off" of the tree in more than one place creates uneasiness as to its attaining even the size of ordinary native trees; at all events, inquiry is wanted, and I hope those who have lost fine specimens from causes which they cannot account, for will publish their losses, which are as important portions of knowledge as the successes of others whose trees still exhibit all the signs of undiminished vigour. It would also be well to inquire how the tree fared in the severe winter of 1866-67, and how it got through the dry summer of last year, and whether the present dry summer has told in any way upon it. All these matters are well worth inquiry, as it would be equally unjust to withhold the good character the tree once had as to give it a better one than it deserves. If, therefore, it threatens to "go off" from some constitutional debility not easily remedied, then let it take its place amongst trees whose usefulness ranks in the second class; if, on the other hand, the cases where it has succumbed be traced to local or special causes, not likely to affect its ultimate usefulness, then let its merits be fully known by those having the best specimens reporting to the world their size, and the number of years they have taken to attain their dimensions, with other information on the matter. *Conifer.*

Hardy Herbaceous Plants.—Allow me to remind amateurs that early in the autumn is the best of all seasons for transplanting most kinds of perennials; and that the finest display of flowers next year will come from those plants which have been moved immediately after the first heavy showers that fall during this month. *W. T.*

Althæa frutex.—Will some of your correspondents well versed in the varieties of this shrub give us a list of the most showy, and any other hint as to their culture, for the plant certainly deserves more attention than it often receives? Its fine Geranium-like blooms present themselves at a time when but few shrub flowers are to be had, and the habit of the plant is far from being objectionable. I should much like to see it more patronised, and cannot but think its present neglect arises from its beauties not being sufficiently known; but as it is now just coming into bloom, I hope those having good collections of it will duly report them. *C.* [There is a fine series at Battersea Park. EDS.]

Cedar of Lebanon.—In the grounds of Upper Gatton, near Redhill, there are some very fine specimens of this Cedar. One tree in particular is worthy of notice for its large size. The circumference at 1 foot 6 inches from the ground is 23 feet 6 inches; at this point there are three large limbs stretching out almost horizontally, whose circumference is respectively 7 feet 6 inches, 6 feet 9 inches, and 6 feet 7 inches; at 5 feet from the ground the measurement is the same as at 18 inches. At 6 feet it divides into four principal limbs, each a tree in itself, their circumference being 12 feet 4 inches, 11 feet 7 inches, 8 feet 9 inches, and 8 feet 9 inches. The diameter of the spread of branches is 95 feet; height, 60 feet. The snowstorm of January, 1866, injured this tree very much, which has marred its symmetry, several fine limbs on the north-east side being broken off. *J. Crerar, Shabden Park.*

Gnat's Bane.—Being much troubled with gnats, and not having any Rosemary, which, they say, will drive them away, I put some bruised Southern-wood (called here Boy's-love) on my children's pillow, and have not

found them bitten since: but as we had a frost in the night sufficient to blacken the leaves of a Vegetable Marrow in a pit which was exposed, I cannot be quite sure it was owing to this plant that they escaped; but it is well worth trying, as few things irritate the blood so much as severe gnat bites. *Somerset.*

Oak Tree in a Bottle.—In reply to your invitation (p. 921) for suggestions respecting the cause of diseased growths of acorns, both in a corked bottle and in an open Hyacinth glass, I submit the following experiments for consideration. Having twisted a fine piece of stiff wire round an inch of candle-end, or taper, lower it when lighted to the bottom of a decanter, and put in the stopper; of course it goes out—any child can tell you why. Light it and lower it again, but do not put in any cork this time, and still it will not burn: how is this? Next, cut out of a stiff piece of cardboard a large letter T, of such a size that the upright part of it will just drop easily into the neck of the decanter; now light and lower the taper again, and put in this T-shaped card; the flame at first may show symptoms of going out, as if not quite at home in its new sphere, but quickly reconciles itself to "circumstances over which it has no control," and burns brightly. In order to understand fully the influence which the card-board has in keeping the candle alight, you have only to turn the letter T in the bottle, so that one of its arms shall be towards you, and to hold near the opposite arm a piece of brown paper that has been lighted and blown out; you will at once see the smoke drawn down one-half of the neck of the decanter, while the other half remains clear. This indicates that a circulation of air has been established, and while the heated impure air is ascending one side of the card, fresh air is descending on the other side of the partition, and supplying the oxygen necessary for keeping the flame alive. Now I apprehend that, prior to the formation of leaves on the young Oak tree, the fresh air requirements of the plant are not great; and that, while there would be no more circulation in an open Hyacinth glass than there is in an old well with foul air in it, the fact of a cork not fitting tightly, or the mere influence of the thread between the cork and the bottle, might give opportunity for sufficient circulation. *W. T.* [Ingenious, but inapplicable to the case of the Hyacinth glasses, from the neck of which the acorn was suspended by a thread attached to a piece of wood, nearly half an inch in depth, which would play the part of the T-shaped card. In other words, the cellular outgrowths were formed not only where the air was stagnant, but also in the open glass, where there was more or less circulation of air. EDS.]

Iron Pipe Blocked.—I have no doubt but that the "spongy material" which has blocked up "A Very Old Subscriber's" pipes (p. 896), is the same pest which gave me so much trouble here in the lead pipes for several years. It grew much faster in the summer that it did in the winter. My remedy was common salt, which destroyed it, but it had to be repeated generally three times during the summer; and as nearly eight days was occupied each time in its decomposition and passage through the taps, it was indeed a great nuisance, and very much interfered with the management of the garden. Last winter I had 260 yards of the lead pipe taken up, and 2-inch gas socket pipes put in its place, in the hope that the substance (animal or vegetable) might not like the cast-iron, but, I confess, your correspondent's statement makes me feel very uneasy. The lead pipe had been down about 25 years when the Polype first made its appearance. I have often searched in the pond, but never could find the slightest trace of it there, although the holes of the "cullender" were often quite choked. *D. Buchanan, Dyrham Park.*

Golden Champion Grape.—Having bought a plant of this fine new sort in the autumn of 1868, I was in some measure disappointed with its condition, as it bore evidence of some peculiar temperament or treatment. The plant was about 2 feet in length, a bit of which was brown, the rest was possessed of tattered, ill-developed, meagre-looking leaves; and although it seemed a doubtful representative of so great a name, I resolved to treat it kindly, and immediately placed it in gentle bottom-heat, keeping it on the dry side, and cut it down to two eyes the following winter. I started it into growth by means of bottom-heat at the middle of March, as soon as it made 15 inches growth, which was at the 25th of April. It was then inarched on a two-year-old Hamburgh Vine. It took hold well, and was severed from its own roots after the lapse of four weeks; its leaves became flaccid *pro tem.*, but soon revived, and it is now a strong rod 22 feet in length, with several lateral shoots of 3 feet. With this ocular demonstration of its exuberance, I feel hopeful that its other important and signal qualities will follow in their turn. *John Reid, Haigh Hall Gardens, Aug.* 31.——I bought a medium sized plant of this new Vine late last autumn. After cutting it down, and resting it in the usual manner until February, it was put into a pit, and was plunged in leaves until it commenced to grow. I then potted it into an 11-inch pot, and grew it among as many more for fruiting in pots. It is now 10 feet long, and is a very fine cane. Permit to add, that your correspondent's case is not the first that I have heard where Vines planted in a dormant state have refused to grow. *R. Gilbert, Gr. to the Right Hon. the Marquis of Exeter, Burghley.* [The Golden Champion is doing very well indeed at Ashridge, where Mr. Sage has inarched his plant twice. We have also some other communications to the effect that the Vine is doing well. EDS.

What is a Kitchen Garden?—Mr. Meikle's argument, based as it is on his own assumption, must go for what it is worth. He, however, admits that the evil complained of exists in the present system of kitchen gardening, and recommends as a cure "judicious" management. This consists, by his own showing, in allowing wall trees 4½ feet root-room. Then he would have vegetables occupying some 6 feet, then again standard fruit trees outside, which take the other 3 feet. Why, this is making matters much worse on a border next a wall than, I venture to say, was ever practised. Is this to ensure the practice of root-pruning? Mutilation of the roots of fruit trees would be going on on both sides in the act of vegetable planting, and they in turn crying out more then ever against shade and drought. Mr. M. may dispense with his root-pruning if he keeps away the spade, and allows his roots to come nearer to the surface; I should be sorry to try the experiment of a 4½ feet border on the trees I have the care of. They have more than double that run, and have not been "cropped" upon for many years, and this with the best results. I cannot, therefore, accept Mr. M.'s arrangement, but still advocate separate establishments. I think these borders, too, would be found no more adapted than some other parts of the garden with the advantage of a bank for "the early batch." The variableness of that situation (which Mr. M. can prove for himself by registering the heat and cold for a year in comparison with other parts of the garden) would prove this. The other evils alluded to by your correspondent I know prevail, and ought to be remedied; but that is a matter distinct from that under discussion. *Agitator.*

Hothouse Boilers.—I am surprised that some one at greater length has not replied to Mr. Milne's remarks about boilers; or rather, perhaps, he ought to be congratulated on his great discovery. A saving of 600 or 800 per cent. of fuel! Talk about reforming our coal bills, why this discovery will well nigh abolish them; they will be virtually reformed off the face of the earth. Winter will soon be upon us. Do contrive to have this boiler tested before it comes. What is the London Horticultural Society about? Mr. Milne's boiler ought to be instantly applied to their large conservatory. The saving of coal would pay for two or three boilers the first winter. And then, only imagine how popular such a service would render the Society. Estimate, if you can, the money it would put into the pockets of its constituents and patrons. No greater service could well be rendered to horticulture than such an extraordinary saving of fuel. Mr. Milne says a man's abilities are not measured by his experience, and in this I beg respectfully to differ from him. If he can enable us to experience this saving of fuel, he will be acknowledged at once as the ablest gardener within the four seas. He will be decorated with medals, laden with money; and all of us, from the least to the greatest, will hasten to do him honour. Do urge on, and out, the Conservative boiler, and oblige *An Old Gardener with a Heavy Coal Bill.*

Hydrangeas.—We have here three very fine specimens, as full of bloom as they possibly can be. On measuring one of them, I found it 36 feet in circumference, 11 feet in diameter, and 6 feet 7 inches in height, with about 1270 blooms upon it; the other two are nearly as large, but much handsomer plants. They might have been considerably larger, as they have to be cut back very considerably every year to keep them off the walk. They are growing against the wall, at the west side of the house, in a very hot place; and in consequence of the very dry weather we have had to keep them constantly watered. The flower, when fully expanded, is of a light blue colour. *Thomas Whiddon, Gr. to H. Maudslay, Esq., Bystock.*—— It is not at all unusual in the Island of Guernsey to see flowers of different colours on the same shrub. I have frequently seen them with blue and lilac flowers. In the same garden I have often observed plants bearing blue flowers within a few feet of others bearing pink or lilac blossoms. Sometimes there will be a couple of blue, then a pink Hydrangea, and so on. *C. M. F.*—— We have a Hydrangea hortensis now in bloom, with some of the trusses pink and some blue. It grows below a Weymouth Pine (Pinus Strobus). The soil of our garden usually makes the Hydrangea blooms pink. We have now a large group of about 20 plants in bloom, and only one truss among these is not pink. A plant of Hydrangea japonica growing near these has pinky flowers. Another plant of the same species, propagated from a cutting of this pinky-flowered one, has flowers of an intense blue. This latter plant grows near the spot where a large Weymouth Pine was felled a few years ago. *S. M. O.*

Foreign Correspondence.

BOTANIC GARDEN, ADELAIDE, SOUTH AUSTRALIA.—Trying as the frosts of a European winter undoubtedly are, gardeners here have yet to contend with even greater difficulties than with you; and it requires all their skill and attention to preserve, during the severe and long-lasting droughts, frequently accompanied by scorching hot winds, even many hardy plants. But, notwithstanding, we have in Australia horticultural establishments which, by making due allowance for the short period during which they have been in existence, will bear favourable comparison with others in the mother country; and the one I am about to describe ranks high amongst them.

Less favoured by natural position than any of the other public gardens in Australia, the skill of the gardener had to make up in Adelaide what Nature had denied, and under the direction of Dr. R. Schomburgk much has been done to render these gardens amongst the best in Australia. An almost level piece of ground, containing 105 acres, 45 of which are now under cultivation, intersected by an irregularly running creek, which in winter is frequently filled bank high by a rapid torrent of water, and situated on the north-west end of the town, has been set apart for the garden. The soil, a tolerably fertile friable loam, resting at a depth of about 12—18 inches on limestone, is for the most part sufficiently good, not only for the cultivation of shrubs and trees, but also for the finer herbaceous plants, bulbs, &c., care having been taken whilst trenching to preserve near the surface the more fertile strata of soil. Artificial means have been employed to make it adapted for this purpose where this precaution had been neglected.

A sheet of water containing about two acres, decorated by one or two tastefully planted islands, and some smaller ponds provided with fountains, statues, or specimen plants in the centre, are included in the above area. The portion under cultivation is laid out according to the best principles of landscape gardening, the general effect being heightened by a small rise of the ground towards the north side, the slopes of which are planted with young specimens of conifers, whilst its top, from whence some charming views of the garden can be obtained, is crowned by a beautiful statue of Niobe. The banks of the creek referred to before, planted with the Buffalo-grass (Stenotaphrum), are, near the top, adorned by a selection of specimen plants. Numerous walks, carried out in gentle curves, and leading through well-kept shrubberies, past plots of grass-land, on which some fine specimen trees may be found, or along the lakes and ponds mentioned above, near which even some of the old favourite European trees thrive admirably, intersect the garden, which is divided into two almost equal halves by a broad straight walk leading from south to north. The walks are all well formed and gravelled, mostly edged with ornamental tiles, and provided with shallow brick drains on the sides, so that even after severe rains a perfectly dry path is obtained. The collection of plants distributed over the ground is large and varied; of most kinds good specimens may be found, sufficient space being allowed for the proper development of each.

Without attempting to enumerate all worthy of notice, I may mention the following as specially deserving of attention:—Bauhinia purpurea, 15 feet high; Ficus indica, 10 feet; Ficus Sycomorus, 15 feet; Brexia madagascariensis, Guilandina Bonduc, Wigandia urens, 20 feet; Cupressus elegans, a beautiful specimen, about 20 feet high; Solandra lævis, Cerbera Thevetia, Cassia Candolleana, Tecoma velutina, &c., all growing luxuriantly in the open air. Statues, some of them of real artistic value, are placed in suitable localities, whilst an obelisk, sacred to the memory of the late, and first director of the gardens, G. Francis, Esq., stands in a prominent position near the main entrance. Water-plants, such as various Nymphæas, the freely-blooming and graceful Aponogeton distachyum, Cyperus Papyrus, &c., adorn the lakes and tanks, the banks of which are decorated by the beautiful Gynerium argenteum. Great difficulty is experienced in finding a Grass capable of withstanding the severe droughts of summer, the native Couch, Cynodon Dactylon, having proved as yet best for forming lawns. A rich collection of succulents, such as Opuntias, &c., planted out in separate groups, the finer varieties being kept in pots in Wardian cases, are scattered over the ground, most of the latter being found near the main central walk. Annuals and herbaceous plants, bulbs, &c., in great variety are either planted on the borders throughout the gardens, or in special beds, which are kept gay by a succession of bedding-out plants reared for this purpose in the nursery. By these means an almost endless display of flowers is maintained.

Before proceeding to the inspection of the houses we visit the rosary, containing upwards of 300 varieties of Roses, mostly grown as standards. They are planted on a level piece of ground, laid out in the oriental style. The beds are neatly edged with tiles, and covered with small bedding plants, Verbenas, Lobelias, Dianthus Heddewigii, Phlox Drummondi, and a charming collection of Portulacas, amongst which there are many with double flowers of all colours. The centre of the rosery is occupied by a statue of the Amazon by Kiss, and which has been presented by the ladies of Adelaide. A piece of ground on the north-west end of the garden has been set apart for experimental purposes. Collections of Grasses, and of medical or otherwise useful plants, may be found here. An important addition to these has recently been made by the introduction of the Guinea-grass (Panicum giganteum), which, should it succeed, will prove one of the most useful fodder plants. Another plot close by, but not yet taken up for regular gardening, is intended for the formation of a natural class ground.

We now proceed to the Victoria-house, a span-roofed building, 57 by 40 feet, with an oval tank 36 by 26 feet, and a depth of 6 feet. A broad walk surrounds the tank, the sides of the house being occupied with stages, whilst rockeries fill the corners. A collection of about 130 species of Orchids, numerous Aroids, Begonias, &c. are here brought together. The following may be mentioned as being particularly noteworthy:—Alocasia metallica, Sphærostemma marmoratum, Sanchezia nobilis, Anthurium angustum, A. leuconeurum, Paratropia longifolia, Anæctochilus, collections of Caladiums and Dracænas, Crotons, &c., as well as several good Ferns, Oncidium Papilio, many Phalænopsids, Cattleyas, Epidendrums, &c., having flowered during the current year, whilst other, in Australia at least, rare kinds promise to do so shortly. Some good-sized Tree Ferns spreading their feathery fronds, and supporting on their trunks Tillandsias, Orchids, Ferns, &c., make up the fairy-like appearance of the house, the *tout ensemble* of which can scarcely be rivalled, and much less be surpassed, in Australia. The gigantic leaves of the Victoria (the largest of which measures 6 feet 4 inches in diameter), which still continues to flower, almost fill the spacious tank, scarcely allowing room for the cultivation of some other water plants.

Parterres of flowers and ornamental fountains, for which a great variety of different jets is provided, surround the house. A series of older and smaller glasshouses, containing ferneries and a collection o

pot plants, of less intrinsic value, cultivated more for the purposes of decoration, is situated near the southern boundary of the garden, in close proximity to the nursery and to the museum, a small building containing specimens of Australian and foreign timber, seeds, models of fruits, &c. Whilst here we cannot but admire a splendid specimen of Strelitzia augusta, 25 feet high, and constantly in flower, which adorns the central part of the houses referred to. A group of Yuccas and other plants of similar habit, amongst which Buonapartea juncea, now in full flower, with a stem about 18 feet high, claims also our attention.

The nurseries contain, besides several shelter sheds, two propagating pits, heated by hot-water apparatus, which also serves the ferneries, &c., mentioned before. Combined with the horticultural establishment is a fine menagerie, containing a collection of 49 species of mammals and 69 species of birds. The animals are kept in a series of cells, forming together an ornamental building. All possible credit is due to Dr. R. Schomburgk for the excellent order in which the gardens are kept and their tasteful arrangement. Whilst he is daily striving to still further beautify this already very charming spot, he also gratefully acknowledges the merit due to his predecessor in office, Mr. G. Francis, the late and first director, under whose superintendence the gardens were commenced in 1856. *E. B. Heyne, Rundle Street, Adelaide.*

MELBOURNE: *Fruits.*—At the meeting of the Horticultural Society of Victoria, held at the beginning of last June, Mr. Carson produced a bunch of Grapes from the original imported Muscat Hamburgh Vine, just gathered, in excellent condition, and shown with the view of illustrating its excellent keeping qualities. Mr. J. C. Cole exhibited a seedling Apple, grown by Mr. Piper, of Benalla, a very excellent keeper, and named "Piper's Pippin," and from Messrs. B. and S. Johnson came a very handsome, large seedling Apple, grown by Mr. South, of South Preston, which was named "Henry Wilson."

Societies.

ROYAL PARK FLOWER AND FRUIT SHOW, LEEDS.—This exhibition took place on Friday and Saturday last, and is considered to have been the very best autumn show ever held in the North of England. Birds lent the charm of their song to the exhibition. Dahlias were also shown in great force. The show, which seems to have been carried out with great spirit, owed much to the zeal and energy of Mr. Councillor Clapham.

The Apiary.

BEE-KEEPING IN SOUTH WALES.—I send you an account of my doings this season with Ayrshire and other hives, and shall be obliged by your opinion of this part of the country for bee-keeping as compared with other localities, judging by the results. I had this winter four stocks only in depriving hives; of these one was an Ayrshire, or Stewarton, and the three others ordinary depriving hives, two of which were of 14 cubic inches internal capacity, and the third of considerably less.

May, and a great part of June, were unfavourable for bees; supers could be given to the three last-mentioned hives only from the 22d to the 25th of May, and, though entered into then, for three weeks or more but little progress was made; while two swarms united in a fifth hive, a Stewarton, on the 1st and 2nd June, which is early for this locality, did but little during the same period. On the 15th of May a nadir, with comb, had been supplied to the Stewarton stock, according to the orthodox Scotch practice. By the end of July the three ordinary depriving hives yielded 43 lb., 27½ lb., and 35 lb. respectively, and the super of the Stewarton gave 10 lb., along with 29 lb. of comb, perfectly filled, from its top body box, which came off. This made 144½ lb. in all, or a little over an average of 36 lb. nett from each of the four hives. The double swarm in the new Stewarton quite filled their two boxes, but no more, which is to be partly accounted for by one of the swarms being a weak one, the other, however, being decidedly strong.

Another point, besides the general result that was obtained, and to which I wish to draw attention, is the less favourable results from the Stewarton stock than from the others. This stock was strong, and a nadir nearly filled with comb was given to it on May 15, which was at once taken to by the bees; but on account, as it appears, of the additional room afforded beneath, they did not take to the super till July 15—two months after; and I am certain they would not have taken to it at all but for two or three very sultry days which came in the middle of that month, as communication had been opened for the previous fortnight without their having availed themselves of the additional room. Then they half filled a 20 lb. super, no nadir being supplied when they entered it, as I knew from former experience that giving that at such an advanced period of the season would have deprived me of all chance of getting a super finished. In the present case it appears perfectly natural that the super should have been entered later by far than those of the ordinary hives were, as the top body box, holding about 30 lb., had to be filled before there were any indications that additional room was required, or would be made use of if supplied. Now, let it be granted that in a more favourable season that super would have been taken to sooner, and filled, which I believe would have been the case, so that 49 lb. of honey would have been available, as the greater part would have been in the old combs of the stock hive the value would have been less than that of the average of what was taken from the other three hives; besides, that average would in a more favourable season have been correspondingly greater. As to the milder method of Scotch management, supplying a super first, and a nadir only after that had been taken to, three seasons' experience of it have shown me that even that invariably prevents the super being finished.

July is our great honey month here, as the fields are then carpeted with white Clover, and the honey made from its blossoms is peculiarly rich.

A bee-keeping clergyman in this neighbourhood, who had seen a little of my driving of bees, hit on a curious plan of imitating me. He had two stocks, which delayed swarming, one of these he took up the beginning of July, floor-board and all, and carried into a coach-house, putting an empty hive on the old stand. After having shut the door, and so nearly darkened the place, he turned the hive up, and commenced driving in the usual manner by beating, but without any hive over to receive the bees, which swarmed out and made to the light, while others crawled over the floor. Contrary to what I should have supposed, this succeeded so far as that the swarm became well enough provided to stand over the winter and spring. Very little honey, however, was obtained from the old hive, as the combs were greatly filled with brood. The other hive was similarly treated the end of the third week of the same month. This furnished a fair quantity of honey; but the swarm from it was only able to provide itself with sufficient stores to last over the winter, and it died in spring. Heath being within reach, was probably the reason why they succeeded thus far. It is evident the queen must have found the old locality in both cases; but the swarm was lost in one case, and the honey in the other. From what I heard of the temper of the bees during the operation, it appears to have been a desperate business. *A. B., Narberth.*

Florists' Flowers.

NOT only has Mr. John Mann, of Brentwood, as residing in the East of England, furnished an illustration that the raising of new ZONAL PELARGONIUMS is by no means confined to the district of London, but further East even, another aspirant to honours has successfully put in his plea to be ranked among the best producers of the day. Mr. William Groom, of Ipswich, represents the enterprise of the amateur class, and has succeeded in raising some capital bedding Pelargoniums, well worthy of being better known. Of these a fine white variety appears in Mrs. Sach, a greatly improved White Perfection, flowers almost pure white, large, circular and smooth; a variety wonderfully profuse of flower; habit excellent, and dark zonate foliage. Mr. Groom, who takes a very moderate view of the qualities of his own productions, speaks of this variety as a very fine bedder. He has now in one of his convenient little houses a large mass of this variety; for conservatory work it is highly effective. Another white flower, named Maiden's Blush, gives a very fine white variety for exhibition purposes; the flowers are of great size, and massive and smooth in proportion; white in colour, slightly varied with pink; and forming a large and circular truss; good foliage and habit. John Hopper is one of those brilliant orange-red flowers in the way of William Underwood, and a glorious bedder. There is a good batch of it in Mr. Groom's garden, presenting a brilliant mass of colour, with quality of individual flowers to match. Another is Surpass Miss Martin, scarcely a good name, yet a truthful one; the flowers of a lively salmon-pink hue, fine, stout, and circular; dark zonate foliage, and excellent habit. A large and massive deep salmon-pink flower, not without some novelty of character, has been named E. S. Dodwell, in compliment to the Picotee-raiser of that name; the individual pips are large and very fine, and form noble trusses of bloom; the foliage darkly zonate, and the habit excellent. To two of these, viz., Mrs. Sach and Maiden's Blush, First-class Certificates were recently awarded at the meeting of the Ipswich Horticultural Society. In the way of Variegated Zonal Pelargoniums, Mr. Groom is now testing, by bedding-out, the worth of several promising seedlings. At the recent Special Prize and Pelargonium Show at South Kensington, Mr. Groom exhibited some young plants that promised well, both in regard to their leaf-marking and colouring, and shape of leaf. Brilliancy of leaf-colouring is one of the chief good points in Mr. Groom's strain; the width and regularity of the golden leaf margin is another. Mr. Groom also has a capital pale lilac-coloured Ivy-leaved Pelargonium, of the type of Bull's strain, which he has named Ipswich Gem. Of compact habit and remarkably free of bloom, it will be very useful for basket work, or in any other mode of conservatory decoration. In one of the tents at the Ipswich Horticultural Show, Mr. Groom had suspended in a line lengthwise, and immediately over the table on which the fruit was placed, some 20 wire baskets of this variety, which formed one of the prettiest features of the show.

After a quiet and unpretending fashion, raising and rearing a few seedling plants, from the sheer and pure love of the thing, and because he is rarely happier than when among his floral offspring, Mr. Groom may be said to pursue the "even tenour of his way;" and probably no one will be so much surprised as himself to see this record of his successful work. *R. D.*

Garden Memoranda.

MESSRS. SUTTONS' ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.—This establishment is one of the largest in the English wholesale and retail seed trade. The establishment is divided into various departments, over each of which intelligent foremen preside. The comfort of the *employés*—who number during the busy season considerably over 100—is not forgotten, for there is a large reading room adjoining the warehouses, which is open, after business hours, and in which there is a good library and a liberal supply of daily papers, &c. Other great boons afforded to them are the Saturday half-holiday, and by early closing, during the summer months.

The principal order room, which is solely used for the execution of garden seed orders, is nearly 100 feet in length, and over 30 feet in width. It is elaborately and conveniently fitted up with long rows of counters, and some thousands of drawers, bins, and shelves, which are all labelled in the simplest and most convenient manner. The number of orders executed in a single day is very large, the system of labelling and checking every article, as carried out here, greatly assisting in the quick and correct despatch of all parcels. On leaving this room, we passed through a large paper-room, in which paper-bags of all sizes were being made in large quantities for next season's use. In connection with this department it may be mentioned that a regular staff of printers is employed on the premises, for the purpose of printing the many thousands of labels which are annually required. Proceeding through many large, well-ventilated warehouses, in which are stored the bulk of all kinds of seeds required in the garden and on farms, we arrived at the agricultural seed order department, which is conducted on the same principle as the other order room mentioned above, every division and subdivision, and indeed every bag, being properly labelled. Another system carried out here is also worthy of notice, as showing the care and precaution that is taken in executing orders. A warehouse book is kept in which a memorandum is made, mentioning the particular parcel of seed from which a customer is served, for future reference, and a small quantity from each such parcel is sown on the farm for comparison and to furnish evidence, if necessary, against any attempt at fraud. Another large three-storied warehouse is situate in the King's Road, which is used for storing Grass seeds, Mangel Wurzel, and Turnip seeds. In the height of the season these are filled with the several varieties of the seeds above-named. At the time of our visit the first arrivals of Turnip seeds had just come in, and were undergoing the process of cleansing and arrangement, preparatory to the general distribution during the forthcoming sowing season.

Adjoining the seed warehouses, &c., is the nursery, which is merely kept by the Messrs. Sutton to furnish a sufficient supply for a good local trade. In this nursery there is a house heated with hot water, for the purpose of testing the germinating powers of the many stocks of seeds received from their own growers. There are altogether nine good-sized houses in this nursery, the whole of which are heated by two boilers. The houses were filled with the usual description of bedding and general decorative stuff. At Portland Place, near the town, there is also a branch establishment of considerable size, in which there is a good stock of young and thrifty fruit trees of all kinds, Roses, and a very choice assortment of Conifers, comprising some very pretty specimens of Araucarias, Picea Pinsapo, Cryptomeria japonica, Thujas, &c. There was also a good collection of Hollyhocks, and some very fine flowers of the double Zinnias, and double flowered Stocks, &c.

The trial ground proper is situate a short distance out of Reading, on the London road, and occupies about 34 acres. The first thing that attracts attention is a large and remarkably fine collection of Grasses, that runs on each side of the drive from the entrance gate to the seed cleaning and drying sheds. It must not be supposed that the Messrs. Sutton grow seeds on this farm to any great extent; their system is to save a desirable quantity of choice selected seed of any particular kind: this is grown here, and the seed saved from this extra selected stock is sent to their growers in Essex and elsewhere, to raise the necessary stock for sale. Thus the process of selection, by being carried out regularly, materially improves the quality of the article, instead of suffering it to become deteriorated, as would be the case if the seed were saved annually without selection.

Of Peas, there has this season been an extensive trial, consisting of about 110 different samples, of which about 60 sorts were the subjects of more particular experiment. Laxton's Prolific and Forty-fold had done very well. Laxton's Supreme, of which there was 1½ acre growing here, was rather small in the pod, a circumstance that has been noticed before this season. There were also two new kinds, not yet sent out, and which have not yet been named. One of these, having bright green foliage and pods, was considered as being much superior to Ringleader; the other is a late wrinkled marrow, with good sized, well-filled pods. Potatos were also growing here in large numbers, so far as varieties are concerned, there being representatives of no less than 126 different parcels. Sutton's Early Racehorse was quite ripe before any of the others, and fully maintained its character in that respect. The much-vaunted Early Rose was here, very small in produce, and not at all coming up to expectation. Another American variety, the Early Goodrich, was growing alongside the former; it is a round, smooth, and clean skinned variety, and that is about all that could be said in its favour. There was also a very prolific red Potato, having foliage strongly resembling Raspberry leaves. Cabbage, Broccoli, and Kales are largely grown; in fact, a sample from every parcel of seed sent out. Turnips, Mangel Wurzel, and Kohl Rabbi, of which there are large quarters, looked remarkably well, and gave an abundance of promise of a fine crop of roots this season. Sutton's Champion Swede appears to be in great demand, no less than 2000 bushels of seed being sold last season. Of Kohl Rabbi, Sutton's Improved Green seemed to be a good stock. The Improved Reading Onion was also favoured with a large quarter to itself. There were besides several varieties, principally foreign kinds. Near to

these was a batch of a new Lettuce, named Holme Park Green Cos, a large serviceable-looking variety, not yet sent out; a kind, called Ducket's Perfection, also promised to be a good useful sort. Annuals are not grown very largely here, and these for the most part were over at the time of our visit.

Garden Operations.

(For the ensuing week.)

PLANT HOUSES.

THE genus *Lachenalia*, which comprises some of the most beautiful dwarf bulbous plants, now requires especial attention in regard to potting, &c. There are several species, many of which are much better than the old and well-known L. tricolor, and are consequently well worthy of cultivation. They delight in a free open compost of fibrous loam and sandy peat: being almost all natives of the Cape of Good Hope, a low temperature of from 38° to 45° is best suited for them through the winter months. In potting up store pots the bulbs contained in old balls should be divided, and are better if kept separate when placed in the fresh pots, though many may be placed in at equal distances apart in each. Slight fires will now be generally necessary in stoves at night, just sufficient only to cause a gentle heat to pervade the pipes, and to keep the temperature at a safe point. Less air will also be required as we merge into the cooler autumn months, and this should be afforded rather later in the day than was the case a few weeks past. *Seedling Cyclamens* sown this spring should be pricked off into small pots, and be pushed along freely as soon as they show the second or third leaf. This is the real secret by which the fortunate few grow these lovely plants to perfection. There must be no rest—no check, until they are produced in full and abundant bloom. They like a nice brisk and moist growing temperature. Above all, they must be kept entirely free from scale, red spider, and especially thrip. When the latter attacks them, or gains a lodgment, they invariably become safely ensconced upon the crown, amongst the tender young leaves as they form, and these they oftentimes eat entirely away before they are observed by the naked eye. Thoroughly good drainage is an essential point in the successful cultivation of these plants. There are some few subjects which, if they are to be kept much longer in flower, will again need to be removed back into warmer houses, such as *Tydæas*, *Achimenes*, and the like. Though these and some few other similar subjects will do moderately well in cool greenhouses during the warmer period, they will not last when cooler nights arrive. Examine late grown *Italian Tuberoses*, and if the plants show any signs of throwing up a flower spike let them be placed in a high temperature, and have abundance of root moisture, giving them alternate waterings with moderately strong liquid manure. Saucers may advantageously be placed under each pot, the better to support the plant in its effort to form good spikes. *Lantanas*, of which we have now some very fine varieties, may be induced to prolong their blooming further into autumn, if placed in a warmer and lighter position than that afforded by a cool, shady greenhouse or conservatory. A little manure-water will benefit pot-bound specimens of these also; it should be weak and clear, and should not be given to them too frequently.

FORCING HOUSES.

Let *late Vineries* which are now finally swelling off their crops, and Muscat houses in particular, be carefully attended to. Bear in mind the fact, that all Muscats, however well they may look, even up to the final process, are not good Grapes, in the right meaning of the word, until the golden amber we appreciate so much, the thin-skinned berry, and the flavour are assured facts. Do not let present appearances, however encouraging they may be, lull into such false security. Take advantage of every ray of sunshine, and every passing waft of balmy air, and by free admission of the latter, and by judiciously taking off the air betimes, still further aid these favourable circumstances. Where shanking occurs—and it will do so at times, in spite of most persistent remedial efforts—let every berry so affected, even to the gangrenous attachments on the stalks, be immediately removed. Furthermore, supposing (and I say "supposing," for even doctors disagree hereon) that shanking is caused in consequence of a too meagre supply of nourishment from the root, then the leaving on infected berries, which are shanking, to say the least, tends more to impoverish those which are entirely free from the malady by the very quantity of support which they exact for their partial or imperfect support. All Vineries which are now finally colouring their fruit, should have no more water distributed withindoors after this date. And this I have stated before. I hold it to be a matter of some importance, however, hence I freely refer to the subject again. It is the province of the good cultivator to prepare, in so far as may be possible, for eventualities. We may soon have a dull wet time of it; then it will be seen how very detrimental to the well-being of the crop are borders in a wet sloppy state. The inner atmosphere becomes dense and reeks with impurities, which are much at variance with that dry buoyancy which is so essential for the production of flavour. In regard to *Pines*, I can add little to the past few Calendars. Push forward the potting of all those which it is desirable to pot at this period. Strong successionals intended for fruiting next season should be placed at the earliest opportunity into the fruiting pots. This, where the quick fruiting process is carried out. Make every preparation for the attainment and maintenance of a proper amount of bottom-heat in all Pine-pits during the incoming winter. To this end the necessary amount of tan must be procured, and when not wanted for immediate use it must be protected against rains. The lovely weather we experienced at the end of August was all that could have been wished for the late "shows." Those just expanding into flower will swell away kindly and become far finer fruits than would have been the case had dull weather continued. Where economy is practised, and it is seldom otherwise in gardening matters, it will be well to get in at this time the necesary stock of fuel for forcing, &c.

HARDY FLOWER GARDEN.

Mignonette which was sown in pots a week or two since, and which is intended for winter blooming withindoors, should now be thinned out nicely, so that each plant may have ample room to grow and extend itself freely. Water freely with a rose water-pot, and still keep in a fully exposed place out-of-doors. *Hardy Annuals*, which are intended to flower where sown, may now be got in. They comprise such as the following—*Limnanthes*, *Collinsia*, *Silene*, *Myosotis*, *Nemophila*, *Oxyura*, *Calandrinia*, &c. If the weather continues dry, of course each will need watering, and should be effectually shaded from the sun until such time as germination takes place. The cuttings of various sorts of bedding stuff must now be got in with all dispatch. Where room exists to grow them separately, each cutting properly made may be potted singly into large 60-sized pots in a free, open, loamy soil, intermixed with leaf-mould and sand. When this is done place them out-of-doors on to cinder-ashes, or some similar material, in a fully exposed situation, where sun and air can have full play on to them. It will be necessary, should there be no rain, to give later plantations of *Gladiolus* good waterings. Those who have afforded this aid to *Tritomas*, as I have previously advised, will have seen the great benefit which accrues therefrom. It will be advisable to continue watering these, that the late flower-spikes may be brought up with equal vigour. The *Gynerium argenteum* (Pampas-grass), though an inhabitant of the prairie deserts, delights also in root moisture, and if frequently watered with liquid-manure so much the better. No further delay should take place in regard to making plantings of *Pansies* which are to stand the winter out and bloom next season. Where the *Hollyhock seed* sown a few weeks since has not shown above ground, it should be well watered, and induced to do so quickly, otherwise the seedling plants will not be sufficiently large to bloom efficiently next year.

KITCHEN GARDEN.

Little can be added in this department to what has been suggested in the past two or three Calendars. All *Celery* plantations will require frequent copious waterings. Sowings should be made of *Cauliflowers* for the purposes of a spring crop. There is little to choose between the many varieties offered. The old London, or improved Hertfordshire, are perhaps the best. I have previously suggested that material should be obtained for the purpose of making early autumn *Mushroom-beds*. The Mushroom-house itself should be emptied, and receive a thorough cleansing with the aid of the whitewash brush, &c. Where there are flues, let the soot and other *débris* deposited within be cleaned out, and the exterior well washed over with fresh lime. Immediately a wet period arrives make a sowing of *Radishes*, and set to work transplanting the earlier autumn-sown *Lettuces* and *Endive* into the most sheltered positions, there to withstand the frosts of early winter, &c. Other and successful sowings and "pickings out" must be made periodically, hence a portion only of the border to be occupied should be planted yet. *W. E.*

TOWN GARDENING.

CONTINUE to put in cuttings of *Pelargoniums*, *Centaureas*, *Stachys*, *Ageratum*, and the *Golden Pyrethrum*. The last named I consider one of the best foliage plants for towns, as it shows up well next an edging of Ivy. Annuals have done flowering, and should be cleared away, and the stems of such perennials as have also done flowering cut down. Fill the vacant places with *Pompon Chrysanthemums*. *Intermediate Stocks* sown last month will now be fit to pot; they should be taken up carefully, with as much root as possible, and planted three in a pot, close to the edge, in a compost consisting of four parts loam and one part rotten dung, well mixed together, and pressed down firm, watered, and put in the shade for a few days, after which they should be removed to a more open position till October, when they should be removed to a cold frame. *Double Rockets* do well in town if wintered in a cold frame; these should now be taken up, parted to increase the stock, and potted. I find from experience that though they do well during the summer months they will not stand the winter except in a cold frame. *Dahlias* will now be coming into flower, and should not be allowed to have too much top, which will impoverish the flower and make them small; therefore thin out the crowded shoots, and where the flower-buds come two or three together take them all out but one. *Mignonette* should now be sown for early spring use in 48-sized pots, and placed in a frame, and as soon as it is up give plenty of air and a gentle watering, and at all times protect it from wet and frost. *J. D.*

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending Sept. 11, 1869.

Sept.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday.. 5	70.4	47.1	58.8	18	0.30 in.	3	9	8	—	5	6	9	8
Mon. .. 6	70.2	46.8	58.5	20	0.70	1	10	4	1	1	17	8	1
Tues. .. 7	70.3	47.5	58.9	19	0.55	6	5	5	1	5	14	5	2
Wed. .. 8	69.4	48.0	58.7	19	0.65	3	9	2	2	5	18	2	2
Thurs. .. 9	69.1	48.1	58.6	19	1.09	—	7	1	4	5	16	8	2
Friday ..10	69.7	45.5	57.6	21	1.27	2	4	4	2	8	10	11	2
Satur. ..11	68.7	47.0	57.8	11	0.63	2	8	1	2	6	9	11	5

The highest temperature during the above period occurred on the 7th, 1868—therm. 91 deg., and the lowest on the 7th, 1850—therm. 28 deg.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Sept. 1, 1869, as observed at the Horticultural Gardens.

August and Sept.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind	Rain.
Thurs. 26	19	30.191	30.164	[illegible]	53	68.0	64	60	S.E.	.00
Friday 27	20	30.220	30.159	86	52	69.0	65	61	E.	.00
Satur. 28	21	30.084	29.927	89	43	66.0	66	61	S.E.	.00
Sunday 29	22	30.063	29.854	64	50	57.0	63	61	N.	.00
Mond. 30	☾	30.225	30.142	68	32	50.0	61	60	E.	.00
Tuesd. 31	24	30.298	30.248	69	30	49.5	59	59	N.E.	.00
Wed. 1	25	30.345	30.322	68	36	52.0	58	58	E.	.00
Average.		30.201	30.116	75.2	42.2	58.7	62.3	60.0		0.00

August 26—Foggy; very fine; clear and fine at night.
— 27—Very fine; exceedingly fine; clear, starlight.
— 28—Exceedingly fine; very hot; clear and fine.
— 29—Overcast; densely overcast; cloudy and overcast.
— 30—Cloudy, cold wind; cloudy; clear, starlight.
— 31—Very fine; clear and fine; fine, frosty air.
Sept. 1—Cloudy and cold; fine; clear and fine.
Mean temperature of the week, 1 6-10 deg below the average.

Notices to Correspondents.

AGREEMENTS: *A R, Edinburgh.* Presuming that the facts are as you state them, we can only say that the proprietor has not kept faith with you, that such practices are not usual, and that they are very reprehensible. We should suppose there is some misunderstanding.

APPLE TREE BORER: *T Z.* Your tree has no doubt been attacked by one of the wood-boring moths, probably the Goat Moth referred to at p. 924. If you run a cane or wire up the hole, and so crush the larva, no further injury will be done. The trunk will be weakened, if it is not a large tree, and may need some support against wind.

BARNES TESTIMONIAL: *Mr. John Pearson, Kinlet, Bewdley,* wishes his name to be entered as a subscriber of 1*l.*

BOOKS: *Constant Subscriber.* "Paxton's Botanical Dictionary" (Bradbury, Evans & Co.); "Gardeners' Dictionary" (Bell & Daldy). Both new editions.—*G Mann.* "Kemp's How to Lay Out a Garden," and Loudon's edition of "Repton's Landscape Gardening."

CALIFORNIAN RESURRECTION PLANT: *Nevada.* "The hard, dry, brown lump, looking more like a dead Lycopodium than anything else, but which, upon being immersed in a soup-plate full of water, gradually opened its fronds, assumed a green colour, and, in short, 'rose from the dead,'" —is no doubt the Selaginella lepidophylla, a species of Lycopod or Club Moss, the hygroscopic character of which is well known. You will find a description of it in Spring's "Lycopodiaceæ," part ii. p. 72.

CUCUMBERS: *C.* The proportions and form are all that need be desired, and the flesh solid, with little indication of seed; but the specimens as sent are much too old and coarse in flavour; probably they were good at an earlier stage. It is very like a Winter Prolific which we have seen.—*W R.* A thickness of border over the pipes of about 18 inches, with proper drainage, will be sufficient in the first instance, and to this surface dressing may be added as the plants need more food, or the roots may require to be encouraged to run into fresh material. There should be means provided to prevent the pipes drying the soil too much below. A less thickness of earth would suffice if the moisture is perfectly under control.

DESFONTAINEA: *J W W.* The Desfontainea is generally rather a shy blooming plant. It is, we believe, sufficiently hardy to withstand our winters in favourable, that is, sheltered spots, but won't bear excessive cold. We should recommend a mixed loamy, rather than a pure peaty soil, to mulch the surface in winter, and the use of Mr. Barnes' wicker-work protectors through the winter and spring, in order to keep the foliage. Do not plant out now, but wait till spring, keeping the plants meanwhile sheltered in a cold house.

DRY ROT: *E H C.* Your Fungus is the perfect condition of dry rot (Merulius lacrymans), and as it is just now producing its countless spores, immediate steps should be taken for its destruction. To get rid of it perfect ventilation is necessary, and all the parts infected should be treated to a wash of strong solution of corrosive sublimate; it is not at all uncommon, as in your case, to find it spreading over gypsum, brick, &c., as well as woodwork, but as you have had dry rot before, it is not probable that the spores came in the gypsum, but from the former plants. *W G S.*

EDITOR: *J. Reid, Haigh Hall.* The Rev. M. J. Berkeley is not one of the Editors of this Journal, though a most highly-valued contributor.

EARLY ROSE POTATO: *J G.* Opinions, as usual, are conflicting. We believe the balance to be rather adverse than otherwise to the claims of this new comer. Our own opinion has been already given at p. 688.

EQUISETUM: *An Amateur Gardener.* Drain your garden more thoroughly.

GALVANISED WIRE: *W C E.* We have not heard that this kind of wire is objectionable to train permanent plants upon.

GRAPES: *D M.* In a "collection of 16 sorts of fruits," it is quite clear you cannot show two sorts of Muscats as one sort—at least we have no doubt "the judges would object" to such an arrangement. Each "sort" is intended to consist of one variety of fruit only, whether the whole are grouped on one stand as a collection, or are put up in separate dishes. Whether you may advantageously introduce two dishes of different kinds of Muscats in such a collection, is another matter, and the answer would depend partly on the quality of the fruit, and partly on the variety afforded by the other sorts in the group. The more varied group, all other points being equal, should win.

INSECTS: *E H C.* The ants you sent are males of Myrmica ruginodis.

LIGHTNING: *Yeoman.* We believe the Oak tree may be fairly set down as more liable to be struck by lightning than the Ash or the Beech; at least our own observation and that of others of whom we have made inquiry points in this direction. We are not aware that a covering of Ivy on the trunk of the tree has any influence in this matter.

NAMES OF PLANTS: *Swansea.* Mollanthus major, and Spiræa sorbifolia.—*C F.* Negundo aceroides.—*T B.* Probably some Aloe, many kinds of which will grow for a time in the manner indicated. Most are natives of the Cape, but have been introduced elsewhere. It is not aquatic; it does bloom. Some kinds furnish the drug called aloes.—*G T.* 1, Clethra alnifolia; 2, Neillia (Spiræa) opulifolia; 3, Elymus arenarius.—*Subscriber.* 1, Tecoma jasminoides; 2, Nepota Mussinii; 3, Helianthemum vulgare; 4, Hypericum perforatum.—*Sussex.* 1, Ligustrum lucidum; 2, Francoa sonchifolia.—*J Green, Maudenhead.* The specimens sent were too incomplete to name properly. Probably they are—1, Jasminum Sambac; 2, Saponaria officinalis; 3, Spiræa Fortunei.

NUT TREES: *K G.* We can see no trace of weevil; we suppose the marauder may have been a squirrel.

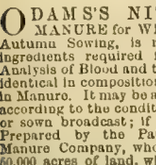
OSAGE ORANGE: *F F.* For information respecting this plant see pp. 182, 211, and 239 of our last year's volume. The Carya, or Hickory tree, succeeds admirably in England, and makes a fine handsome timber tree.

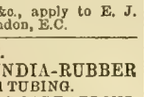
COMMUNICATIONS RECEIVED.—T. W.—R. R.—J. H. Y.—J. J. J. A. C.—T. L.—R. S.—W. A W.—J. R.—T. S. T.—D. L. A Constant Reader —D. J.—T. W. C.—C. McD.—G.—Indi Forest.—W. T., Ipswich.

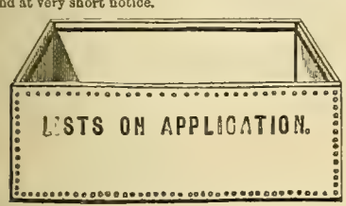
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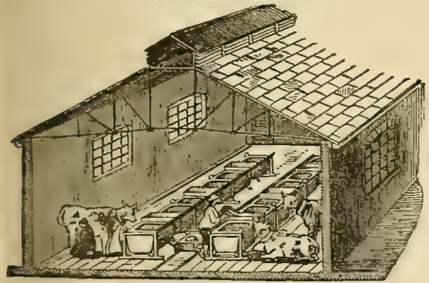
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The Agricultural Gazette.

SATURDAY, SEPTEMBER 4, 1869.

MEETINGS FOR THE ENSUING WEEK.

Sept. 6 to 12—Hamburgh, &c.
— 7—Bicester Agricultural Society.
— 8 to 10—Royal Dublin Sheep Show.
— 9—Thame Agricultural Society.
— 10—North Shropshire Agricultural, at Market Drayton.

VIRGIN soils in America have been known to yield 50 crops without manure. We learn from the accounts of competent travellers that for 8, 12, or even 20 years this new land requires no manure; on the contrary, manure makes the grain or Grass crops at first too rank. Gradually the virgin soils are exhausted of their first freshness. "The first settler," says Mr. JOHNSTON, in his "Notes on North America," "is a robber and exhauster of the land; and he who farms land from which six or more crops have been taken, must farm more generously if he expects satisfactory crops." Skill and industry must bring back the fertility which disappeared under the treatment of the pioneers. Our costly system of agriculture is quite inapplicable to new countries. A rotation of crops, as we understand it—that is, a mixture of forage with cereal crops—is never followed. Our object is to make manure in order that we may grow corn. But the settler raises his live stock on the waste land; meat with him is only 2*d.* or 3*d.* a lb., and his crop must be such as can be easily exported.

It is easier to clear and cultivate the fresh land than to improve the old. In Maryland the exhaustion of the soil by the Cotton crops has forced planters to retire westward. The land has been "worn out" by a system of farming which is justly called the "robber system." And the pioneer can follow no other plan. Like the English farmer, his business is to make the best of the circumstances by which he is surrounded; to farm, not to philosophise.

The new States in America are "filling up" fast, and the new soils are being as fast exhausted. In fact the process described has been exceedingly rapid in the past 30 years, owing to the unexampled progress of nations in both worlds. A comparison of the census reports for the United States and this country discloses some remarkable facts relating to the distribution of population and the source of wealth in the two countries. Here the population of our agricultural districts diminishes, there it increases rapidly. Between 1850 and 1860 the population of the seven North-western States, where soil and climate especially adapt them to corn-growing, nearly doubled; in 1860, it was 5,543,382. The war checked the progress of population in America, and it postponed the fulfilment of Mr. MCCULLOCH'S prediction that America would cease to export Wheat. He estimated that the population of the United States in 1884 would reach 60,000,000; according to the latest return in 1860 it was 31,445,080. The progress of the older and the manufacturing States has been greatly interrupted. The increase in the mileage of railways in the United States reads us an instructive lesson. In 1850 the total mileage was 9021; in 1860 it was 30,634; this astonishing progress was then interrupted; it was, in fact, arrested in the Southern States, and greatly checked in the Atlantic and New England States; but in the interior, or agricultural States, it still went on. We find that in 1864 the total increase in the four years was 4274 miles, and more than one-half of this was in the interior corn-growing States. But it is important to note the details of the increase just referred to of more than 21,000 miles between 1850 and 1860.

That of the interior corn-growing States was nearly 12,000 miles, and that of the Southern States was 5400 miles. This wonderful opening up of the agricultural districts was followed by a war, which left them untouched by comparison, but which destroyed industry and population in the other States. It might have been expected that other countries would have been deluged with American corn, especially when the Southern market was closed, but this was not the case; the average surplus of Wheat, for exportation, has been only slightly increased.

In a country where the usual breadth of Wheat is 12 or 13 millions of acres, and the crop is extremely various, there is a large surplus in favourable years; hence America was fortunately able to supply our deficiency in 1861 and 1862. The usual exports of Wheat and flour to this country for the six previous and six subsequent years, were about 1,100,000 and 1,400,000 quarters a-year. Part of this increase was due to the Wheat grown in Upper Canada, which is sent to New York or into the New England States by the Grand Trunk Railway, which now brings the best part of the country into connection with lake and river navigation.

Considering the great increase of the means of communication, the actual addition to the amount of corn exported has been so small that it is evident the country is not "opened up" by the stimulus of the export trade, but by the increase of the home demand.

It is only the surplus of abundant years that is exported from America. At present prices it does not pay to grow Wheat specially for exportation. This is a very important feature of the American Wheat trade; it is illustrated by the scarcity of Maize in the country during the past year or two, notwithstanding that Maize can be grown for one-third the price of Wheat; English consumers, for a long period, had to pay 40*s.* per quarter for it. It is only the surplus which is exported, and any circumstance which reduces the amount of the surplus, or increases the demand for it, must raise the price. In the case of Wheat, when other countries compete with us, as Ireland has done of late years for Maize, the surplus will be more diffused. Under the stimulus of high prices during the Crimean war, Wheat was grown for exportation; but at the present price, 50*s.* a quarter, the area of Wheat will not increase.

Settlers in Minnesota (a Wheat, not a Maize country) assure us that it does not pay to grow Wheat for exportation. In all probability the competition of other countries will oblige us to pay dearer for Wheat in future years, in order to secure continued, or rather, increasing supplies, and this may occasion a reaction against the constant increase in this country in the area of pasture land—an increase which the country regards with complacency, because it is supposed to increase the number of live stock; but the conversion of arable to pasture has not prevented the rise, for many years past, in the price of meat.

If, as we anticipate, the competition of other

countries occasions a gradual rise in the price of Wheat also, the "food question" will become an urgent public question; and the discussion which will then take place will, no doubt, add greatly to the very meagre stock of knowledge possessed at present by the public at large on certain agricultural and economic questions.

PHOSPHORIC acid in Court! Calcium, iron, and aluminium phosphates before Mr. Justice HANNEN at Liverpool, and reduced phosphates before Mr. Baron PIGOTT at Gloucester!

The chemistry of the agricultural phosphates has become an extensive, complicated, and important subject. New raw materials are everywhere sought for, and the varied supplies of apatite, coprolites and phospho-guanos, which have been the rewards of the inquiry, have been pressed into the service of the manure manufacturer and farmer. Now, if we recollect that the chemistry of the action of sulphuric acid on bone earth itself is not thoroughly understood, it will not be difficult to believe that fresh complications are introduced into the question when phosphates other than those of lime are employed. Some of the so-called phosphatic guanos, Sombrero, Navassa, Redonda, for example, contain much iron and aluminium phosphates. Not only does the presence of these compounds demand the use of very much larger quantities of oil of vitriol in order that the raw material may be converted into a superphosphate containing a good percentage of soluble phosphate, but they introduce a new source of trouble. Use as much sulphuric acid as you will, a portion of the phosphate which it makes soluble in water becomes in time insoluble in water — reprecipitated, as it were, in the substance of the superphosphate itself, or, in other words, it is again reduced. The reduction, or going back, here referred to is becoming a matter of notoriety and of serious importance both to the manufacturer of superphosphate and to the farmer. The manufacturer spends extra time, labour, and money in producing soluble phosphates from materials such as ferruginous coprolites and guanos, only to find that, owing to this reducing action, the manure sinks in value when it has been made a few weeks—a fifth part, say, of its soluble phosphate becoming by that time reprecipitated. The farmer, on the other hand, purchases a superphosphate by analysis. This analysis shows 24 per cent. of phosphate rendered soluble: he sends a sample to an analyst for examination, and the report is 18 per cent. of soluble phosphate only. What has become of the difference—6 per cent.? Owing to the nature of the materials employed it has relapsed into an insoluble or less soluble condition. The only question for the farmer here seems to be this—is the reduced phosphate of equal value with that which remains soluble? Most agricultural chemists believe that it is only inferior to the true soluble phosphate in one particular. The soluble phosphate of a manure diffuses itself through a considerable mass of soil, and becomes therein precipitated. In this state it is redissolved by the carbonated water of the soil, and helps to nourish the plant. Now reduced phosphates have been reprecipitated before they came in contact with the soil; they are pretty much in the same condition as the precipitated phosphates just mentioned, but they have very little or no power of diffusion, and in this particular are manifestly inferior to soluble phosphate. This, then, is the farmer's side of the present question —soluble and reduced phosphate should be separately estimated, and so returned in the analysis furnished to him. But the analyst here has a difficulty, for no method of estimating reduced phosphates has met with general acceptance among the chemists, and so even those chemists who do not doubt their existence, or their value in certain superphosphates, are often obliged to ignore both. But the matter cannot be left in this unsatisfactory position. A suitable and trustworthy process must be found. The experiments of a large number of analytical chemists point to two promising methods of estimating reduced phosphates. In one of these a weak standard cold solution of oxalate of ammonia is employed; in the other, a definite quantity of a boiling solution of bicarbonate of soda. Both of these reagents scarcely affect the original raw material (finely ground) from which a superphosphate is made, extracting from them less than a ½ per cent. of phosphate, which they are capable of detecting, in a superphosphate which has had all its soluble phosphate washed out by water, a considerable amount of reduced phosphate. Both the actions which we noticed at the commencement of these remarks arose from questions concerning the true meaning of the analyses of phosphates. In the Liverpool case, DOBELL *v.* EARLE, a warranty with respect to some Redonda guano described it as "76·66," which was stated to mean 76.66 per cent. of phosphate of lime. On the other hand, it was affirmed that it contained no phosphate of lime, only phosphates of iron and aluminium. Of course, had it been converted into superphosphate, both the drawbacks of a ferruginous material would have been experienced in a high degree.

In the second case, BRADBURN *v.* STEPHENS, tried at Gloucester, the warranty contained the words "guaranteed to contain 24 per cent. of soluble phosphate, including the reduced precipitated phosphate." A number of chemists were called on both sides, and the main point of difference between them was as to the practicability of estimating reduced phosphates, the value of which was not denied. In other points the scientific testimony was fairly accordant. One of the plaintiff's witnesses, Professor CHURCH, of Cirencester, found, for example, 18.57 per cent. of soluble phosphate in the sample of superphosphate in dispute, while Dr. VOELCKER, for the defendant, estimated the soluble phosphate in the same sample at 18.66. But Professor CHURCH determined the proportion of reduced phosphates in the same sample to be about 6 per cent., while Dr. VOELCKER was of opinion that it could not be estimated.

We shall probably recur to this subject on another occasion.

—— THE Wheat trade has been unsettled during the week, and it now remains about the same as it left off at Mark Lane on Friday, August 27. Other kinds of grain are slightly cheaper.——The beef trade has improved with the cooler weather. Mutton has also been more freely bought. The quotations now are *5s. 6d.* for prime British beef, and *5s. 8d.* for the same kind of mutton.——The trade in agricultural seeds has been of a merely nominal character.——Wool is of about the same value.

—— The Assessed Rates Act is creating serious misunderstandings in various parts of the country. Mr. C. S. READ, M.P., who watched, with his usual assiduity, the progress of the Bill through the Legislature, and who therefore is a trustworthy authority on the subject, has favoured us with the following references to it, with suggestions in regard to the difficulties which are likely to arise:—

But few magistrates and hardly any parish officers to whom I have mentioned the subject, seem aware that the operations of "The Poor Rate Assessment and Collection Act, 1869," extends to the whole of England and Wales.—As the Bill was introduced to remedy a defect which existed only in parliamentary boroughs, I ventured to suggest that it ought to be confined to those towns, but that anyhow we should not in the country have two Acts in operation for one purpose. The Government preferred repealing so much of the Small Tenements Act as relates to poor-rate, but I suppose what remains will still be in force for the highway-rate.—As Assessed Rates Act comes into operation on the 29th of this month, and it authorises three distinct modes of compounding. These may extend to any hereditament (which however must contain a dwelling-house) whose rateable value does not exceed 8*l.*—If the parish in vestry assembled should adopt the Act, then the overseers shall rate all the owners of small tenements, and shall allow a deduction of 15 per cent. from the amount of the rate.—If the owner will also agree to pay for empty as well as occupied houses, then a further deduction of 15 per cent. is to be allowed; so he will get off 30 per cent. In the case of parishes not adopting the Act, the owners of any such small tenements may enter into an agreement in writing with the overseers to pay the poor-rates upon all his cottages, &c., "whether occupied or not," and he shall thereupon be allowed 25 per cent. off his rates, "subject nevertheless to the control of the vestry." All parishes in which the Small Tenements Act is now in force, should, therefore, hold a vestry meeting before the end of this month, to agree about adopting the new Act, and the Michaelmas poor-rate should be made in conformity with the deductions sanctioned by the Act. There is a great amount of complication in this new measure, and, like all Voluntary Acts, the effects will be uncertain in extent, and in duration also, as a vestry may alter its decision every six months. In some unions the poor-rates of small tenements will be levied upon four different assessments, and the highway rates upon two others with a 6*l.* limit. It is not my desire or intention to criticise the Act, but as it is the law of the land, I simply wish to draw the attention of all parish authorities to its main provisions. The greater portion of the Act relates to securing the franchise to the tenants in parliamentary boroughs, which has nothing to do with us who live in the country, and the first clause allows tenants of three months and under to deduct the rates from their rent.

—— Harvesting Wheat by machinery is thus considered by a "Durham Farmer":—

"A correspondent of Mr. J. J. MECHI, writing from Yorkshire, says, in a letter which appeared in the *Times* of the 24th Aug., 'I have cut, tied, stooked, and stubble-raked 12 acres of White Wheat (about 34 bushels to the acre) for 5*ls.* Reaper back delivery.' This statement struck me at the time as being somewhat inconsistent with my own experience in the neighbouring county of Durham, and this year I find by actual experiment that I have cut, tied, stooked, and stubble-raked 12 acres of Red Wheat (about 40 bushels to the acre) for 10*l. 4s.* Reaper back delivery."

If the readers of daily papers need any information on the subject of the cost of agricultural operations, it is certainly advisable, as the "Durham Farmer" intimates, that they should be so addsessed as not to be left in doubt as to whether the expense is *4s.* or 17*s.* per acre.

—— As the "Land Question" is now receiving much attention at the hands of certain public men and in certain quarters, we give the programme of a "Land Tenure Reform Association" as a matter of news:—

"1. To promote the free transfer of land. 2. To secure the passing of Mr. Locke King's Real Estate Intestacy Bill. 3. To restrict within the narrowest limits the power of tying up land. 4. To preserve the rights of the public over commons, and generally over all lands which require an Act of Parliament to authorise their enclosure; and to oppose the practice of annexing such lands to the estates of the neighbouring landholders. 5. To promote measures by which, without unjust interference with private rights, facilities may be afforded to the workmen and tillers of the soil for acquiring an interest in the land of the country. 6. As one means to the object last proposed:—To endeavour to promote such an administration of landed property owned by public bodies, or held for any public purposes, as shall help to carry out such object."

—— The President of the British Association, in reviewing the progress of science during the past year noticed an interesting investigation recently conducted by Professor CHURCH of the Royal Agricultural College, Cirencester. The researches of the Professor revealed the presence of copper, in considerable quantity, as forming an important constituent in the red colouring matter of the wings of the Turaco or Plaintain eater of the Cape of Good Hope. Traces of copper had previously been found in animals, for example in oysters, but in these cases the presence of the metal might be looked upon as accidental. But in the Turaco the very existence of the red colouring matter of their plumage is dependant upon copper, which exists in it at the rate of nearly 6 per cent. It is curious that in the same feather, partly red and partly black, copper was found in abundance in the red parts, but none, or only the merest trace, in the black.

OUR LIVE STOCK.

THE Rev. C. W. Holbeach has instructed Mr. Strafford to sell by auction 33 cows and heifers and 14 bulls, on the 21st inst., at Farnborough, near Banbury. Mr. Strafford informs us that the foundation of this herd was laid in 1813, by the purchase of some pure bred cattle in Yorkshire. For many years no great effort was made to compete with the principal herds of the county, but a good stock, often successful at local shows, was kept up. Since 1853 many animals from the best known herds have been introduced. Sixteen of the lots offered are by 11TH DUKE OF OXFORD, and the cows and heifers are mostly in calf to the same bull, LORD RED EYES 2D, or 2D EARL OF CLEVELAND.

—— We have not space to notice separately the many important sales just about to take place. The advertisement sheets of our agricultural papers are full of important announcements. Mr. Strafford "is favoured to sell" 25 head of excellent cattle for Mr. F. H. Fawkes at Farnley Hall, Ottery, on the 14th of October; and Mr. Thornton will sell a large and well-bred stock of Shorthorns, grazing cattle, and Southdowns, the property of Mr. Longbourne, Petersfield, Hants, on the 15th inst. The same auctioneer is also intrusted with the sale of some very first-class Shorthorns and Leicester sheep, the property of G. R. Barclay, of Keavil, Dunfermline, on the 21st inst. These are all important sales, and we hope to treat of them at greater length on a subsequent occasion. It is a matter of regret that the Farnborough and Keavil sales take place on the same day, as many persons would doubtless like to have attended both.

—— We are informed that Mr. Lace, of Grenaby, Isle of Man, has purchased Mr. Carr's *Lady Rosabel*, due to calve to PEER OF THE REALM in October. The price was 400 gs. This is the second purchase from Mr. Carr's stock made this year by Mr. Lace, as it may be remembered that he secured *Mirabel* from the same herd in the spring.

—— The following changes have recently taken place in the Kingscote herd. *Honey Pride*, by Captain Gunter's GRAND DUKE OF OXFORD (16,184), dam *Helen*, by OREGON (8371), and her full sister *Honey-bell*, left on Friday, the 20th ult., for Castletown, Ireland, where their relative *Honey* 15*th*, and the bull AERONAUT, preceded them some weeks before. All these are good animals, by Wetherby sires, and sold for good prices. On the following Monday the undernamed nine heifers and two cows were sent to Mr. Angerstine, Westley Hall, Brandon, Norfolk:—*Ada* and *Cerito* 18*th*, by 2D EARL OF WALTON; *Chaff* 9*th*, by 2D DUKE OF WETHERBY; *Goneril*, by ANTHONY (17,307); *Honeys* 28*th*, 29*th*, and 31*st*; *Lady Lilac* 6*th*, *Marchioness of Oxford*, *Merelina*, and *Baroness Oxford* 3*d*. These cattle were accompanied by 70 Sussex-down ewes and three very good rams, which are let at high prices. The Kingscote herd has also received the following additions:—*Cucumber*, of Booth and Bates extraction, from Coleshill, and *Pink of Fashion*; and her heifer calf, by EARL OF GLOUCESTER; *Georgina*, and her heifer calf, by PRINCE OF GLOUCESTER and *Peach Blossom* 3*d*; all from Mr. Bell's, of Brocton House. This is the second lot of the Peach and Georgina tribes which Colonel Kingscote has bought from Mr. Bell. They are nearly pure Bates blood and good milkers, a point much looked after at Kingscote.

—— The Coleshill sheep on the 20th ult. made good, but by no means high prices. Most of the full-mouthed ewes went off at from 50*s.* to 60*s.* each. Colonel Kingscote gave 73*s.* for a very good pen, and Mr. Clayden bought another for 72*s.* The six-toothed ewes ranged no higher than 60*s.* Mr. Fulcher, for Lord Sondes, gave 82*s.* for a first-rate pen of four-tooth, and Mr. Lucas secured another good pen of 10 for 78*s.* each. The shearling rams brought from 5 to 10 gs. with four exceptions, in which 23, 20, 15½, and 15 gs. were respectively given. Only one ram lamb was sold for more than 10 gs. The description of the sale of the Coleshill cattle and pigs appeared in our impression of last week.

—— A correspondent requests us to insert the following query. He asks "if there are any means of preventing calves from going mad from a week to two months old?" "I have," he says, "no hope of finding a cure, as they die in most cases within half an hour after taking it; it is very rare for a calf to die here unless from that cause; this year two have died, and for some seasons past one or two have died each year in the spring, and from one herd in this neighbourhood (Gloucestershire) nine have died this season." When we add that this query is asked by the manager of one of the finest herds of Shorthorns in England it becomes important. In a conversation with the gentleman alluded to, he persisted in defining the disease as *madness*, and would not allow that it was merely the result of violent pain caused by some internal malady.

RECENT RAM SALES AND LETTINGS.

Lincolnshires.—The rams of Mr. Chaplin, of Tathwell, near Louth, were let by auction, by Messrs. Briggs, on Tuesday of last week. Fifty-one rams were penned, 48 of which were shearlings. For size, substance, and fleece, says the *Lincolnshire Chronicle*, some of them were truly remarkable, and before a more numerous company would have inevitably caused a very keen competition. Of the 51, 38 were let, the remainder being passed. The gross amount made by those let was 384*l.* 10*s.*, being an average of 10*l.* 2*s.* 6*d.* —The Biscathorpe rams were let on the following Thursday, when Mr. Kirkham had around him his usually large assembly of friends from far and near to partake of his hospitality, and otherwise enjoy the objects of agricultural interest—apart from the sheep to be let—which are to be seen at Biscathorpe. The prices which the rams let for on this occasion were not equal to past seasons. The average price of the 120 rams, 60 of which were shearlings, was 12*l.* 2*s.*—On Monday last, Mr. Davey, of Owersby, near Market Rasen, had his rams let by Mr. Tateson. Mr. Harrison hired one of the shearlings at 21*l.*, Mr. J. Clarke one at 30*l.*, Mr. J. Byron one at 40*l.*, Mr. T. Dalton one at 17*l.*, Mr. Toder one at 28*l.*, Mr. Minta one at 26*l.*, Mr. Allwood one at 21*l.*, and Mr. R. Howard one at 20*l.* Of the 2-shears, Mr. E. Davy hired one at 30*l.*, Mr. Markby one at 18*l.*, and Mr. Rawlinson one at 26*l.* And of the older sheep Mr. Minta took one at 21*l.*, and Mr. Havercroft one at 40*l.* Of the 140 sheep offered 135 were let, the sum realised amounting to 1439*l.* 10*s.*, giving an average of a little over 10*l.* 13*s.*—Mr. Marshall, of Branston, who, as our readers know, has been very successful at the Royal and other agricultural society's shows, offered his sheep to be let on the following day (Tuesday last). The prices realised, however, were not equal to the show of prize cards by the 2-shear and aged sheep. Mr. T. Pechell hired one of the shearlings at 21*l.*, Mr. Cartmoor one at 25*l.*, Mr. Middleton, of Water Newton, Huntingdonshire, one at 35*l.*, Mr. Richardson one at 17*l.*, and Mr. Kemp one at 15*l.* The 2-shear and aged sheep made good prices; Mr. Harrison hired one at 28*l.*, and Mr. Looker, of Whitton, Huntingdon, took one at 31*l.* The 40 shearlings made 375*l.* 10*s.*, being an average of 9*l.* 7*s.* 9*d.*, and the eight older sheep made 121*l.*, or an average of 15*l.* 2*s.* 6*d.* each. The average of the whole was 10*l.* 6*s.* 10½*d.* — The Huttoft letting took place on Mr. Robinson's farm yesterday week. The two-shear sheep were in greater favour, and Captain Catlin, of Elne, Wisbeach, gave 20*l.* and 29*l.* respectively for two of them. There were 28 shearlings and 24 two-shear. The average of the 52 was 9*l.* 19*s.*—Mr. C. Clarke, of Ashby-de-la-Launde, Lincoln Heath, let his annual produce of rams for the first time on Thursday last. He has hitherto—except in the cattle plague year, when they were sold at home—divided his rams between Newark, Nottingham, and Peterborough fairs. On Thursday there were 100 shearlings offered, and we must say they were the best lot of 100 rams we ever saw together as the property of one man. Mr. Pell hired the first at 14 gs.; Mr. Toynbee took one at 30 gs.; Mr. Mayfield, of Dogdyke, one at 23 gs.; Mr. Dudding one at 24 gs.; Mr. E. Paddison one at 35 gs.; Mr. Sampey one at 17 gs.; Mr. Wildgoose one at 19 gs.; Mr. Holland, of Deeping, three at 17½ gs., 18 gs., and 30 gs. respectively; Mr. Garner took one at 30 gs.; and the remainder, as far as they were let, made the good average for the season of nearly 11*l.* A few were passed at the upset price of 5 gs., but several of Mr. Clarke's regular customers were unavoidably absent after harvest-work, and the surplus will be readily disposed of at from 8 to 10 gs., as the sheep for which there was no bid were, as a rule, quite as good for store breeding as any that were disposed of.

Southdowns.—The annual sale of sheep, and the sale and letting of rams, the property of Mr. William Rigden, of Hove, near Brighton, took place on Friday. There were 18 splendid rams for letting and 16 for sale. Nine pens of ewes were first disposed of, at prices ranging from 8*l.* to 2*l.* 10*s.* Then followed the rams for letting. The highest price, 69*l.* 6*s.*, was given by Count Bouille; Mr. Barclay, of Headley, gave 40*l.* 19*s.* for one. The others ranged from 37*l.* 16*s.* to 10*l.* 10*s.* The rams for sale went as follows:—Two-year-old, by a son of Reserve, 27*l.* 6*s.*, Colonel Bowyer; 1-year-old, by a son of Young Plenipo, 13*l.* 13*s.*, Mr. Henry Webb, Cambridgeshire; 1-year-old, by ditto, dam a Beddingham ewe, bought in at 10 gs.; 1-year-old, by ditto, dam ditto, 10*l.* 10*s.*, Mr. Page, Bradwell-on-Sea, Healdon, Essex; 1-year-old, by ditto, dam a Goodwood ewe, 10*l.* 10*l.*, Mr. Page; 1-year-old, by ditto, dam ditto, 17*l.* 17*s.*, Mr. Page; 1-year-old, by ditto, 11*l.* 0*s.* 6*d.*, Mr. Fox, West Hoathly; 1-year-old, by a son of Webb's 21, 10*l.* 10*s.*, Mr. Webb, Cambridgeshire; 1-year-old, by a grandson of Archbishop, 12*l.* 12*s.*, Mr. Wood, Essex; 1-year-old, by ditto, 10*l.* 10*s.*, Mr. Page, Maldon, Essex; 1-year-old, by 2d prize ram at Battersea, 10*l.* 10*s.*, Mr. Fox, West Hoathly.

THE WHEAT CROP OF 1869.

[The following important letter on this subject has been written by Mr. J. B. Lawes.]

It would be difficult to select two successive seasons in which the Wheat crop in this country has differed more than in the years 1867 and 1868. To meet the deficient yield of the former crop above nine million quarters of Wheat were imported into the United Kingdom during the twelve months succeeding September 1, 1867. This large foreign supply would have been still larger had not the splendid crop of 1868 been harvested and brought into consumption at an unusually early period, thus reducing the consumption of the crop to a period of little more than 11 months. The range of prices during these two years has been very great; the average price of the harvest year commencing September 1, 1867, having been 68*s.* 4*d.* per quarter, while the average price of the year, from September 1, 1868, up to the time I am writing, being a trifle below 50*s.* per quarter. It is rather singular that the *Gazette* of May 8, 1867, which gives 74*s.* 7*d.*, being the *maximum* price of the year, also gives in the same week of the following year 44*s.* 4*d.*, being the *minimum* price of the harvest year—a difference within 12 months of above 30*s.* per qr. The crop of 1869 presents none of the marked properties of the two preceding crops; it is certainly not a very bad crop, like that of 1866, nor a very good crop, like that of 1868. Its peculiar feature is the remarkable contrast which is to be seen in crops growing side by side, and to all appearance cultivated alike. Some fields present a magnificent appearance, with height of straw and bulk of produce rarely surpassed, while others are thin and root-fallen. These circumstances make it rather difficult to arrive at a definite figure which shall most nearly represent the crop of the country.

In the "Journal of the Royal Agricultural Society" for 1868, I published a paper on the "Home Produce, Imports, and Consumption of Wheat." A portion of the paper was devoted to a comparison between the produce of the field in which I grow Wheat every year with the general crop of the country, in order to ascertain how far the yield of certain selected experiments could be taken as a guide to the yield of the Wheat crop throughout the country. The figures are given in this paper for a period of 17 years, from 1852 to 1868, and can be referred to by any one who is auxious to know what reliance can be placed on the estimates I am about to give.

The following Table gives the produce of selected experiments in a field which has grown Wheat for 26 years in succession. The produce of the five previous crops is given, as well as the crop of this year, and also the average of the last 17 years, no change of any sort having been made during this period in the manures employed; nor have we reason to suppose there would be any fluctuation in the produce except such as is due to the influence of climate:—

BUSHELS OF DRESSED CORN PER ACRE.

Plots.	How Manured each Year.	Harvests.						Average of 17 Years 1852-1868.
		1864	1865	1866	1867	1868	1869.	
3	Unmanured	16¼	13¼	12⅛	8⅛	16⅜	14¼	14⅜
2	Farmyard manure ..	40	37¼	32⅜	27⅛	41⅜	38¼	35½
7	Artificial manure ..	45⅜	40	30	22½	32½	28⅝	36⅛
8	Artificial manure ..	49⅞	43⅜	32¼	30¼	46⅞	34⅜	38⅜
9	Artificial manure ..	51	44	32½	29⅜	47⅛	39	36⅜
	Means of 7, 8, and 9 ..	49	42⅜	31½	27¼	44⅜	34½	37
	Means of 3, 2, and 7, 8, and 9	35⅜	31	25⅞	21¼	34⅜	28⅞	29½

WEIGHT PER BUSHEL OF DRESSED CORN, POUNDS.

3	Unmanured	62.9	60.6	61.3	56.1	61.0	56.1	57.6
2	Farmyard manure ..	62.5	61.5	61.7	61.4	61.6	56.9	60.9
7	Artificial manure ..	63.1	61.6	61.0	61.0	61.1	57.4	59.3
8	Artificial manure ..	63.5	61.4	60.1	60.7	62.0	57.2	58.9
9	Artificial manure ..	62.6	61.1	60.6	59.9	61.1	57.1	58.2
	Means of 7, 8, and 9 ..	63.1	61.4	60.6	60.5	61.4	57.2	58.8
	Means of 3, 2, and 7, 8, and 9	62.5	61.2	61.2	59.4	61.3	56.8	58.8

We have in this Table an exact illustration of what appears to be the character of the Wheat crop throughout the country; in one case a produce above the average, and in another greatly below it. Comparing the produce of 1869 with the average of the 17 previous years, we find the unmanured space slightly below the average, while the land receiving farmyard dung every year is nearly 3 bushels above it. The crop with artificial manure (No. 7) gives 28⅛ bushels against an average of 36⅛, or nearly 1 quarter of Wheat below the average. No. 8 is 4 bushels below the average, and No. 9 is nearly 3 bushels above it. Nos. 8 and 9, which receive equal manuring elements—the first receiving its nitrogen in the form of salts of ammonia in the autumn, and the latter as nitrate of soda in the spring—generally give nearly equal amounts of produce, No. 8 being rather the best. This year the nitrate of soda gives a produce 4 bushels higher than the salts of ammonia, due probably to the long-continued rain during the winter, combined with a high temperature, having removed the ammonia from the soil. If the different experiments are compared with the products of the two previous years, it will be seen that in no instance is it so low as in 1867, or so high as in 1868. Taking the mean produce of the unmanured and dunged land and the three artificially manured lands (these latter being considered as one), we get a product which, over an average of 17 years, very closely agrees with what is considered by our best authorities to be the yield of an average crop in this country. We have in the present crop a product which is almost identical with the average, the one being 28⅛ bushels per acre, and the other 29½. Referring to the lower part of the Table, which gives the weight per bushel, it will be seen that in every case the weight is very low, being 2 lb. per bushel below the average of 17 years; it is even below that of the very bad crop of 1867.

In the following Table will be found the produce obtained by threshing 1 acre from several fields under regular cultivation:—

Fields.	Bushels of dressed Corn per acre.			Lb. per bushel, 1869.
	1867.	1868.	1869.	
1	32	43¼	32⅜	59½
2	35	46⅜	36½	58⅛
3	36½	50¼	43½	59½
4	..	51	45½	59⅜
5	..	..	53¼	59½
Mean ..	34½	48	42¼	59⅛

The yield in these fields is very variable, but in every instance the weight of the bushel is very low. This is the more remarkable after the splendid ripening weather we have had, and in crops which were not in any way laid at the time of cutting. The conclusion I draw from these figures is, that the Wheat crop of 1869 is slightly below the average in quantity, and that it will be also deficient in quality, as estimated by the weight per bushel. Assuming that an average crop is represented by a produce of 28½ bushels, weighing 61 lb. per bushel, I am disposed to fix the present crop as equal to 27 bushels of the same weight.

I will now endeavour to ascertain how much food such a crop will supply, and what quantity of foreign Wheat must be imported to supply bread to the nation for the next 12 months. It is said that the area of Wheat grown this year is less than that of last year; how far this is correct I do not know. The statistical return for last year gives an area under Wheat of 3,750,000 acres. In the absence of returns for the present year I will take as a basis for calculation 3,700,000 acres, which at 27 bushels per acre, gives 12,487,500 quarters. From this should be deducted the seed for the succeeding crop, which, at 2½ bushels per acre, amounts to a little over 1,000,000 quarters, leaving in round numbers 11½ million quarters for food. The mean population of the United Kingdom to be fed during the next 12 months will be little short of 31 millions. In the paper I have referred to will be found some calculations relating to the consumption of bread by the population of the United Kingdom. I have estimated this at equal to 5½ bushels of Wheat per head per annum, or upon a population of 31 millions, of 21¾ million quarters. As I estimated the home supply at 11½ million quarters, this would leave about 9¾ million quarters to be supplied from other soils. This quantity may appear very large, and may be somewhat reduced by the stock of old Wheat of the crop of 1868 still in the hands of farmers. Quite irrespective of season, it should be borne in mind that, while our own produce of Wheat does not materially increase, our population is increasing rapidly, and consequently a larger percentage is fed with foreign corn every year. The quantity of Wheat imported into the United Kingdom during the 12 months ending the 31st of August next will be little short of 7¾ million quarters, and this with a harvest far exceeding the average and corn at a low price. Our deficiencies, whatever they may amount to, will doubtless be fully supplied, and in the absence of disturbing causes I should not expect to see the price of Wheat very much below or above the present price for the next nine months. *Rothamsted, Herts, Aug.* 26.

ABORTION IN COWS.

[The following is a summary of conclusions arrived at by a commission upon the prevalence of abortion in the north-east of the State of New York.]

The north-eastern portion of the State of New York abounds in factories for the fabrication of the magnificent cheeses which are extensively imported into this country, and many of which may compete, with our best qualities. This extensive district has of late suffered so much from the abortion in cows that a commission was appointed to investigate the matter, the admirable and exhaustive report of which, by Dr. W. H. Carmalt, has just been kindly forwarded to us. The report, we may observe, is quite a model for such productions; the investigation was carried out with singular zeal, no expense within the limits of prudence was spared to arrive at the truth, and the result is far more conclusive than is often the case with such commissions. The report, indeed, is so good in itself, that we should be glad to possess it even if we took no interest in the subject, which is far from being the case.

We ourselves frequently suffer very much both amongst sheep and cattle, but especially the former, from the same affliction, and there is little doubt that the prevalence in autumn of ergot in our pastures is the cause of the malady. It was natural, therefore, from the well-known influence of ergot on the uterus, that especial attention should be paid by the commission to the parasitic Fungi occurring in the pastures. This, however, was necessarily modified, from the American habit of housing the cattle during the winter months. The hay then was the object of search rather than the pastures. Every phænogamous plant was thoroughly examined, specimens of the less common species secured, and the whole flora of the infected district carefully registered, but the result showed nothing at all likely to be deleterious, and ergot existed in too small quantities in the hay to be of the slightest consequence.

Attention was, however, turned to the habits of the herd masters as regarded their cattle. The object being to obtain as large and as early a supply of milk as possible, and at the same time to get as much profit from the herd itself, the bulls were killed when quite

young; and the bull-calves kept only so long as was necessary to obtain the stomach in the best condition for the production of rennet, and the heifers were put to the bull at the earliest possible period. In consequence, not only was there the prospect of a feeble fœtus from the use of such young bulls, but the cows being forced to yield far more than an average quantity of milk, and that long after they were pregnant, it was not surprising that the race should gradually become weak, and that, the proper supply of nutriment to the young calf being too greatly restricted, there should be frequent abortion. Where bulls, cows, or heifers were introduced from an aborting dairy, the disastrous effects were soon felt, and where 1-year-old bulls were employed the average of losses was proportionately greater. The tables show, moreover, that an average excess of 1815 lb. more milk per cow than the statistics of the whole State determine should be the yield.

The conclusions of the commission are stated as follows:—

1st. That cows, which have first calved at under three years of age, are more liable to abort during their subsequent pregnancies than those who first calved at three years of age or over, in the proportion of five to three; and that 83 per cent. of the cows raised on the farms reporting them do first calve at under three years of age.

2d. That cows subjected to removal at any time are liable to abort, over those raised on the farms, in the proportion of 7 to 4½, and that 63 per cent. are thus removed.

3d. That cows subjected to removals during pregnancy are liable to abort, over those moved while not pregnant, in the proportion of 9 to 2, and that 70 per cent. of those moved yearly are pregnant, and 17 per cent. are moved yearly.

4th. That arrest of development is the condition immediately preceding the abortion; that an excessive drain upon the secretion of milk during pregnancy has a tendency to produce arrest of development in the fœtus from inanition, and that an excess of 70 per cent. of milk is demanded from cows in this district, where abortion prevails.

The whole expense of the commission was 4610 dollars, about 1000*l.* sterling, an example of liberality which is worthy of imitation nearer home. *M. J. B.*

AGRICULTURAL GLEANINGS FROM BRITISH CONSULS' REPORTS.

(*Continued from p.* 906.)

Tonnay-Charente (France).—The past year has been remarkable for the high price of provisions and the deficiency which prevailed, the more to be noted in a largely productive agricultural district, which has had ordinarily a considerable surplus to dispose of by exportation. On the contrary, Wheat and Oats were in great quantities imported in 1868, but with a scarcely perceptible effect upon prices. This arose principally from want of success in the harvest of the preceding year, but it is also probable that the actual production of provisions, properly so called, is diminishing in this district, whilst their consumption is somewhat increasing. There are two main causes tending to this result: first, the large tracts which, having formerly produced corn, are now devoted to the cultivation of the Vine; and, secondly, the absence of sufficient labour-power duly to cultivate the ground. Incidentally to the latter, it is to be observed that much of the richest producing land has been able to furnish grain crops, &c., for many years, without manure, but under this trial it is becoming less fertile every year, and now requires thorough renewing by fertilising applications and deep cultivation. The farmers are injudicious in placing similar crops, or crops with similar exhausting properties, on the same land year after year; and their system of fallowing, by leaving the so-called fallow ground to become the prey of weeds for one year in every five or seven, far from strengthening the land, is likely to injure it.

Leipsic.—The harvest in Saxony (1868) was somewhat below an average. Pasture failed most universally; and as straw was thin and short, cattle and sheep suffered. The noticeable features of the year are the gradual decline of corn prices to the level of former years, and a heavy fall in the value of cattle and sheep. It is scarcely necessary to say that here, as elsewhere, the seasons were abnormal. Winter was severe, intermittent sharp frost and much snow being alternated with mild weather, thaw, and damp. In spring, dry winds and hoar frosts. At Easter snow fell in large quantities, saturating the ground to a considerable depth, and impeding cultivation for several weeks; thus snow was the last moisture on the land for months, for when rain came, it fell usually over a very small area, and not in sufficient quantity. In summer the drought and heat were so serious, that forest fires frequently occurred. Large sums were spent in clearing railway embankments, and in making ditches to arrest the progress of fire; but in spite of all these precautions, some accidents occurred. The great heat, however, was advantageous in some respects—it brought up the Wheat and Rye crops quickly, destroyed all disease in the ears, and produced a crop deficient in amount of straw, but full of weight in grain. Barley, Oats, and Peas, yielded in proportion to the amount of moisture which they got in the summer months. Patches favoured by moisture produced abundantly; others were dried up. The highlands of Saxony were more favoured by showers and dew than the plains; Beet was greatly injured by drought; Potatos yielded well, and furnished a large proportion of starch.

Amsterdam.—The harvest here gave general satisfaction, a great deal of Wheat was sown and harvested in fine condition. Rye suffered considerably through the long-continued drought, and though there was not much sown the crop has proved to be better than was expected. Barley succeeded perfectly well, both quality and quantity turning out satisfactory. Buckwheat was a failure. Oats, like Rye, suffered from the exceedingly dry summer; Beans and Peas were successful; the Rape and Canary seed crops were splendid. Linseed and Flax would have been better had there been more rain. The Potato crop was an abundant and excellent one.

Turkey.—The spring set in very late; not a leaf or a blade of Grass was visible in the beginning of April, and consequently in many parts of the province of Bosnia considerable mortality occurred among the cattle through starvation, the small supply of fodder remaining from the scanty crops of the preceding year having been exhausted. Much rain succeeded the cold and inclement months of March and April, and people rejoiced at the prospect of an abundant crop of hay. The cereals also presented a promising appearance, and very heavy crops were expected. In Bosnia, however, it appears that rain is often either too abundant or seriously required, and the incessant wet weather which prevailed until the month of September damaged the greater part of the hay crop, and injured more or less all the cereals, with the exception of the Indian Corn, which was plentiful and of good quality. Rather more than a fair average crop of tolerable hay was stacked, a great part of which will be available this year, as the past winter was so mild and open that the cattle were able to find sustenance in the fields and copses. The crop of cereals was probably below the usual average. The state and condition of the crops appear to have been identical in many parts of Turkey. *J. R. Jackson*
Kew.

ON THE DEVELOPMENT OF CEREALS.

[Mr. Hallett read before the British Association at Exeter the following paper upon "The Law of the Development of Cereals."]

FROM continued observations and experiments, extended over nearly 20 years, I have arrived at the following conclusions, that where room has been afforded to the plant for its natural development—

1st. Every fully developed plant, whether of Wheat, Oats, or Barley, presents an ear superior in productive power to any of the rest on that plant. 2d. Every such plant contains one grain which, upon trial, proves more productive than any other. 3d. The best grain in a given plant is found in its best ear. 4th. The superior vigour of this grain is transmissible in different degrees to its progeny. 5th. By repeated careful selection the superiority is accumulated. 6th. The improvement, which is at first rapid, gradually, after a long series of years, is diminished in amount, and eventually so far arrested that, practically speaking, a limit to improvement in the desired quality is reached. 7th. By still continuing to select, the improvement is maintained and practically a fixed type is the result. I have throughout the whole of my records found only three instances in which there were two ears on a plant containing an equal number of grains, and one of these related to the Belle Vue Talavera Wheat, which, as I shall presently show, may be considered quite exceptional as to variation. In both the other instances there was only a low stage of development, the equally finest two ears of each plant containing but 59 grains and 49 grains respectively. In every case where the plant presented an ear of 60 grains and upwards the next best ear was of less contents than the finest one. In 20 instances taken consecutively and without omission from my journal the average difference between the contents of the first and second ears was 7½ grains. These include seven varieties of Wheat. The difference in four of these instances was only one grain, but in another four it amounted to from 17 to 19 grains. For the simplicity of illustration I have here taken merely the number of grains in the respective ears, but the "best" plant, ear, or grain is that presenting in the most eminent degree a variation towards the quality or characteristic in which the improvement is chiefly sought. This may be the property of producing the finest quality of food, as indicated by weight per bushel, the lengthening, shortening, or stiffening of the straw, the increasing or diminishing, in the case of Wheat, the distances between the ranks of corn, &c. In reference to this question of the different powers of grain in the same ear, it seems that in former times an idea was entertained that those from about the middle of the ear were most vigorous. It has also been recently suggested to me that those grains nearest the "centre of growth" might on that account prove to be the best. This investigation as to the place of the best grain I made in 1858. I planted 10 ears of Wheat in the form of an opened book, having upon the right page the grains arranged as they grow in their respective ranks on the point of the stem, and similarly upon the opposite page those growing upon the back of the stem, a vertical line up the centre of each page representing the stem itself, and the grains nearest to this line on both sides of it representing those which grow nearest to the stem. The only general result, among most conflicting ones, at which I could arrive was, that the smallest corns, those most remote from the centre of growth, exhibited throughout, most unexpectedly to me, a vigour equal to that of the largest, and that the remarked worst grains in one or two instances did not by any means fall so far short of the good ones as I had expected they would do. I have since then repeatedly made trials of the comparative power of large and small, good and bad grains—and in the case of Oats, which produce a small grain attached to a large one, trials as to their respective powers with uniformly the same result, viz., that in good grains of the same pedigree neither mere size nor situation in the ear supplies any indication of the superior grain. Theoretically I believe that the power of vegetable growth in a grain is identical with its power of supporting animal life, and dependent mainly upon the proportion of gluten which it contains, which is also proportionate to its specific gravity.

THE AMERICAN GRAIN CROPS.

THE crop reports from various parts of the United States are more conflicting and doubtful than is usual at this season of the year. The extreme fluctuations in the weather, and the variations of rain and heat, have produced opposite results in different places.

To come to particulars, we find that the crops are very favourable in the New England States, New Jersey, and New York; the hay crops in all these States will be immense, and the cereals are in a prosperous condition. In Virginia and Tennessee there is nothing to be desired. From the North-Western States the accounts are more conflicting; but it appears that damages by the recent tremendous rainstorms are confined to a comparatively limited breadth of country. Wheat, in some parts of Illinois, Iowa, and a few of the North-Western States, has suffered considerably. But even in the most unfavourable States the harvests—except in the unlooked-for event of continued bad weather—may reach last year's average. In Minnesota, which is now the chief Wheat-producing State in the Union, the supply will be immense. A harvest of full 20,000,000 bushels of Wheat is expected. In Ohio, Wisconsin, Indiana, and Nebraska, the Wheat harvest seems superb. Take it altogether, there can be little doubt that the Upper Valley of the Mississippi, and nearly the entire North-West, will advance considerably upon last year's supply. It will be remembered that this will be partly the result of the increased quantity of land placed under Wheat. If it were not for the drawbacks in various localities on account of the weather, the yield would be unparalleled.

In California the wheat has been already harvested, and the yield, in spite of the drawbacks on account of rust, will be in excess of last year's supply. A greater breadth of land has been sown, much of it on new soil, and the aggregate is unprecedented. Every effort is made to push the grain to market, or to *entrepôts* where it may be available for transportation. From Oregon, Washington Territory, and the Pacific slope generally, the accounts are favourable.

The drawback to this favourable view is the indication that corn (Maize) will not much exceed half a crop. The cold spring and the heavy rains have produced injurious results. Nearly all the Western States have something to complain of on this account. A larger portion than usual has been planted in the Eastern and Sothern States, which may neutralize the bad results of the short crop elsewhere. Unusually fine weather for the balance of the season may produce better results. But at the present time corn is in an unusually damaged condition, a fact which is sufficiently attested by the advancing market rates.

The South will, undoubtedly, produce more food than last year. In the Valley of the Colorado, Texas, and in portions of the lower Mississippi Valley, immense damages have resulted from the usual inundations. Vast tracts of country have been devastated. But the supply of food from all the Southern States may be safely estimated as being in excess of last year's products. From all parts of Canada the wheat and corn accounts are highly satisfactory. *Abridged from "New York Economist."*

A VISIT TO TIPTREE.

THERE are few farms in the Tendring Hundred, or even in any other Hundred, or, in fact, in any other county except Essex, of so small an extent as 170 acres, that ever created so large an amount of interest or so much notoriety or celebrity as the farm of Tiptree Hall. For the last 27 or 28 years, during the time it has been in the possession of Mr. Mechi, it has been an exhibition farm, and in the present day it has acquired so much fame that it has actually become one of the things worth seeing in this country. Foreigners who come over to England to see all that is to be seen are sure to include Tiptree in their catalogue of sights; one day of their visit must necessarily be spent in viewing the Wheats, Mangels, and agricultural machinery on Tiptree Heath. Even Garibaldi, who, by-the-by is half a farmer at Caprera, paid Mr. Mechi a visit when he was in England last, and expressed himself exceedingly gratified with all he saw.

Most of your readers are aware that Tiptree is about four miles or so from the Kelvedon Station, and although the road is somewhat winding, with several four-cross-ways, which, in a sparsely-populated neighbourhood, are exceedingly baffling to a stranger, the road is made exceedingly easy by the judicious erection of iron finger-posts directing the traveller to Tiptree Hall Farm. When once the visitor has passed the well-known white gate and entered the avenue leading up to the house, he feels as it were upon an enchanted spot of land, and some visitors of a very lively imagination may probably conceive the idea that Mr. Mechi is some Eastern Magi, who by the use of his divining rod and the usual hocus-pocus of legerdemain, transforms wet earth into dry soil, barren land into fertile fields, and produces six quarters of Wheat from two pecks of seed. They may also expect to see him clothed in a mysterious mantle covered with symbols of the cabalistic art, a long white beard, a pair of tortoise-shell spectacles, and a black cat on his shoulder. But how different is Mr. Mechi in the flesh! A portly, genial, kind-hearted English gentleman, who comes out of his house as you drive up, and gives to all his visitors a hearty welcome, so that the greatest stranger feels at home before he has been in his society ten minutes. Farmers from Scotland, from Cornwall, from Yorkshire, or any other county or country are to be met at Tiptree—three gentleman came all the way

from the extreme north of Scotland to see Tiptree, and were pleased with what they saw, on the day we paid our visit. There was also one gentleman from Bristol, who was a large buyer of corn, and who suggested that farmers should grow a certain description of Wheat instead of Rough Chaff, as he would always give 2*s.* a quarter more for it. The rest of the party consisted of gentlemen from the Tendring Hundred.

After Mr. Mechi had introduced everybody to everybody else, a walk was proposed round the farm, his intelligent bailiff, Mr. Drane, leading the way, Mr. Mechi explaining, in his very pleasing manner, the different results of his operations and experiments on the farm. "Look here," said Mr. Mechi, "at this hot haystack, and what a simple process does away with all danger;" it was simply an iron pipe pointed at one end, and perforated, driven in the stack, and a long piece of iron piping, with an elbow attached, outside the stack. All the vapour or steam in the stack was drawn into the pipe and let out, giving convincing proof that at the cost of a few shillings many fires might be prevented. Samuelson's reaper was doing its duty remarkably well. The Wheat was not laid at all, consequently the reaping was easy work, and the result was explained by Mr. Mechi to be due to thin sowing. "For," said he, "give a plant room to stand up, and it won't lie down." On entering one field of Wheat he said, "Now, gentlemen, 4 pecks of seed were sown in part of this field, but in some places there are 2 pecks only—as you are practical farmers, see if you can find out the difference." They could not tell the difference; but when pointed out all pronounced the 2-pecks-an-acre crop to be the best. Taking the Wheat crop over the farm there will certainly be 5, 6, and, with the Rivetts, about 8 quarters an acre. Tiptree is not Barley land, and Rivetts are generally grown instead.

It would be worth while for any farmer to go and look at a piece of Winter Beans on that farm—take up one stalk and 54 pods can be counted; the land was certainly foul, but it had been twice hoed, at an expense of 18*s.* per acre, and winter bean-land is generally foul this year. Passing from the Beans to the Mangels, it was evident that a very heavy crop may be reckoned on. They were principally Yellow Globe and Long Red, three rows only on a stetch, except that here and there four rows were planted, but only for an experiment, for Mr. Drane said they had the heaviest crop of roots from three rows. The thick leaf Mangel with its fibrous roots was found to keep longer than the fine leaf with one tap root. There was a good crop of Kohl Rabi, all of which was transplanted from a nursery bed of about an acre.

Oats were light, and not at all a good crop.

Although Wheats are considered to be generally up to the average, yet Mr. Mechi is satisfied that his farm will pay a good percentage on his capital for this year. Consequently one might anticipate the result by calculation—if 16*l.* per acre is employed as capital, 2720*l.* would be the sum employed on 170 acres, and at 17½ per cent. profit, 476*l.* would be the result. May such be the case, for his energy and enterprise ought to be rewarded. The buildings next claim attention: the bullock houses, the covered yards, the barn, engine-house, &c.

Certainly the bullocks do not look so comfortable on the rails as they do on clean, good straw; but Mr. Drane assured us that they did better, got on faster, and fetched more money from the butcher. If so, that is all to be desired in fattening stock. The covered yards must be good for cattle, as they keep stock warm in the winter, and cool and free from flies in the summer; every farmer would be glad of such yards on his farm. A number of works are carried on in the barn: corn is threshed or ground, cake crushed, and straw cut for food, all by the little engine which Mr. Mechi considers to be his best servant on the farm. As he says, "steam power never tires; feed it well with coal and water and it will never give up." It is surprising how much work that small engine does—pumping the water into the cattle sheds, then sending the liquid manure into the tank, and again sending it out on to every field on the farm, and for 22 years has never been out of repair.

The cart stables and horses are nothing to speak about; they appear to be overlooked in the general management of Tiptree.

Whoever has an opportunity of spending a day at Tiptree should avail himself of it; there is something to be learnt, and Mr. Mechi is so frank and candid, and so willing to impart any information, that a day is most agreeably and profitably spent in his society. No matter whether any one differs from him or any of his theories, it only produces argument, which must be profitable. It is almost impossible to put him out of temper, and for that reason he often gets the best of it. *Essex Standard.*

HARVESTING IN WET WEATHER.

The following letter to the *Times* well deserves a place in an agricultural Paper. The writer describes a method which might well be used in uncertain or bad weather as a means of enabling the farmer to put his corn together earlier than when it is left in the field until thoroughly dry:—

Sir,—I am gratified to observe by your article of Wednesday last that you are giving your powerful influence in directing the attention of agriculturists to the practicability of means for effecting this object, which is of so much public importance in our variable climate, and I will ask you to afford me space in your columns to give a brief detail of my experience in this matter, which will be found to have anticipated to some extent the recent trials on this subject on a farm of under 300 acres, which I have held for some years as a tenant of the Earl of Derby.

During the wet summer of 1863 my friend and brother magistrate for this county, Mr. Gossage, of the well-known chemical and soap manufactory at Widnes, in this neighbourhood, paid me a visit to explain and impress upon me some ideas he had long entertained as to harvesting crops so as to be independent of weather. Mr. Gossage's notions were that if corn (however wet it might be) were placed in ricks in such manner that a current of dry or heated air could be forced through it, the superfluous moisture would be speedily driven off and the corn become thoroughly cured. He proposed to do this by means of a centrifugal fan driven by horse or steam power; and if the latter were employed, to use the gases which were produced by combustion of fuel under the boiler to yield heated air to be applied to accelerate the drying.

After mature consideration, I was convinced the plan was a practicable one, and, to prove it, I set up a rick of Beans in so damp a state that all my servants thought it could not fail of being utterly spoilt. The rick was 20 feet by 15 feet, by 20 feet high, being twice as large as the usual size. Before forming the rick, I placed a wooden trough or pipe 9 inches square inside, extending from one end to the centre, and terminating in an aperture on the upper side 9 inches square. In stacking the Beans, I placed a sack (filled with straw) vertically over the aperture above-mentioned, and gradually, as the rick was formed, I kept raising the sack, and forming a chimney of the same diameter, till within about 6 feet of the top. I then connected a centrifugal fan with the end of the air-trough, and had it driven by two men acting on a large pulley from which the motion was connected, by means of a strap, with a small pulley on the fan shaft. I soon perceived evidence of moisture proceeding from the rick, and in a few days, employing cold air, and with these insufficient means of application, the rick of Beans (which it had been predicted would be utterly spoilt) became thoroughly dried, and was threshed out and consumed on the premises. I was thus convinced that the use of artificial currents of air, either cold or, by preference, heated, would, in the latter case particularly, render the agriculturist nearly independent of weather in harvesting his crops; and I have acted upon this conviction when needful in my operations ever since the wet harvest of 1863.

This year I formed four ricks of hay, under wooden covers (called Dutch barns), each 24 feet by 16 feet, by 20 feet high, with a wooden air trough running the whole length under them, provided with slides to let on and cut off the passage of air, and each rick having a vertical channel formed as before described. One rick of this hay was mown, tedded, and rolled together by horse labour, put by hand into large cocks, and on the third day from mowing, without being previously spread, was carted and stacked. This rick was so out of condition, that my bailiff begged me not to let it be stacked, as it must, in his opinion, inevitably take fire. I put up the three other stacks in different stages of condition, but none thoroughly cured. I then applied currents of cold air to the whole by means of a fan driven by a steam-engine of 1-horse power, and the hay in each stack (including the one above specially noticed) became so thoroughly cured that it has sold at the full market price of the day. By these means the four ricks of hay were harvested with less than one-fourth the expenditure for manual labour usually required.

With regard to Wheat, it has been customary with me to thresh it by steam-power immediately on carting it from the field, without putting it in ricks. On considering the advantages of this mode of drying I erected an apparatus consisting of a double cylinder 8 feet high, closed at top and bottom, formed of perforated zinc plates, the outer cylinder being 8 feet in diameter, and the inner one 2 feet, leaving an annular space of 3 feet, which contained when filled upwards of 200 bushels of Wheat. I applied, by means of a fan, a current of air warmed by passing over the steam boiler, to the inner cylinder, and the air, after passing through the perforations, filtered through the Wheat, causing it to be brought quickly into a fit condition for grinding.

I have stated that I commenced these operations by the advice of my friend Mr. Gossage, in 1863, and have continually pursued them since that period. I consider that I have now so thoroughly proved the practicability and advantage of these operations, that I can recommend their universal adoption by my brother agriculturists, in the full conviction that, by these means, we can render ourselves, to a great extent, independent of weather in harvesting our crops. *Robert Neilson, Halewood, Liverpool, Aug.* 20.

FOREIGN SUPPLIES OF MEAT.

The announcement last week that cattle had actually arrived from Montevideo was somewhat startling to graziers, and could not be received by landlords without causing some little reflection as to the consequences. There is every probability that ere long we shall be supplied with larger amounts of animal food from abroad. No one who appreciates the vast improvement made of late years in our means of transit can feel safe from foreign competition, in even that peculiarly British commodity "roast beef."

If this is true, how far is it a cause for alarm? The subject is difficult, but we do not think that even if the dream is fully realised, a large importation would be followed by a serious reduction in price. First, we should bear in mind that if the speculation proves remunerative, not only England, but every civilised and over-peopled country will avail itself of the cheaper source of food. Hence the supply will be diverted to many markets, and this will tend to preserve the balance of prices. Another fact to be taken into account is that the consumption of animal food will be much increased, and this not only in England, but in other countries. A large portion of our people scarcely taste animal food; but as soon as the price is brought down to their level, the rush which will be made will be a considerable check upon further reduction. Thirdly, owing to the inevitable changes of season, we cannot look for a regular supply of live animals from long distances throughout the year. We subjoin some additional information, from a reliable source, on this subject:—

"An experiment of importance towards solving the question as to the possibility of obtaining supplies of fresh meat from the practically boundless plains of the River Plate has been successfully completed. It was stated in April last that the Government of the Argentine Republic, and also the Government of Uruguay, had granted to an English house the exclusive privilege of shipping live cattle from those States for a period of years, with entire exemption from all port charges and customs' duties, and that in the first instance a small trial would be made of the effect of the passage. It now appears that the steamer City of Rio, which arrived on the 20th inst., brought 19 oxen which had been shipped at Montevideo, and had been 31 days at sea, with, it is said, a short supply of water and scarcely any food but the commonest hay. No casualty had occurred among them, although from exposure and insufficient treatment they had become extremely thin. They were hurriedly shipped, without selection, on its being found that the vessel could take them, and the price paid at Montevideo was 5*l.* per head, but a contractor at that port offers to supply any quantity at 4*l.* per head, free on board, well prepared, and weighing not less than 800 lb. each."

Home Correspondence.

Thick and Thin Seeding. — Last summer a letter was written to the *Times*, giving an experience in this matter. The writer drilled 1 bushel of Wheat to the acre, and found his crop better than when he drilled 2 bushels of seed per acre. On his recommendation I last autumn adopted the plan myself of sowing parts of fields with 1 bushel and other parts with 2 bushels, which had been my previous practice. The Wheat is just cut. No. 1 was grubbed out of Hops, and contained 6¾ acres. The whole of this field was drilled with 5¾ bushels of seed, which is less than 1 bushel to the acre. The crop is a fair average crop, and nothing more; indeed, my bailiff seems to think if there had been a little more seed there would have been more corn. This field was free from Couch and weeds, not in good heart, but fresh for Wheat. This was drilled the first week in October. No. 2 is a field of 7 acres of excellent land and in good condition, and the crop is excellent, the straw for the most part being 6 feet high. We drilled about an acre of the centre of this field with 1 bushel, the rest of the field with 2 bushels, as usual. I have inquired of my bailiff and of the reapers which part of the field they consider the best. The replies I got are contradictory, and I cannot decide myself. No. 3 is a field of poor sandy land, of 37 acres, but free from Couch and in high condition this was drilled on the 8th and 9th of October. One acre is drilled with 1, and all the rest 2 bushels. Here, again, we are in difficulty about which is best, but the preponderance of opinion is in favour of the 2 bushels. My object is to invite discussion. Nos. 2 and 3 were subsoiled three years ago. *B. N. F.*

[When practical men find it difficult to decide as to which crop is best, we cannot be far wrong in saying that there is not much choice between the two. If one crop is much better than another, a good judge would not find much difficulty in deciding as to which is most advantageous. At the same time communications such as the above are unsatisfactory, and by no means convincing to those who have adopted an opposite opinion regarding the question under discussion. Thin-seeded Wheat may appear poor, and yet yield wonderfully well; and the bulkier thicker sown, may, on the other hand, measure up badly. For this reason we would recommend the only test in such matters to be used, viz., scales and weights, both for straw and grain.]

Societies.

ROYAL AGRICULTURAL OF IRELAND.

Tralee.—The great interest now taken in the agriculture of the sister kingdom will be gathered from the numerous and varied list of prizes awarded by this Society, by the wide range whence exhibitors are drawn, and particularly by the speeches made at the banquet by gentlemen high in authority and of great influence in the country. Englishmen and Scotchmen send specimens of almost every kind of the numerous breeds of cattle, sheep, horses, and pigs now established in Great Britain; while Irishmen, although they for some time lagged behind in the agricultural race, now frequently surpass in open competition their more experienced brother breeders on this side the Irish Channel. Our space will not allow us to give more than the principal prizes in the leading classes. The number of animals exhibited we recorded last week. Besides the classes for these productions there were prizes for small occupiers, for dairy produce, for flax, and for poultry. The following is an abridged list of awards:—

CATTLE.—Shorthorns.

For the best Bull, calved on or after January 1, 1864, and previous to January 1, 1867.—1st and Purdon Challenge Cup, R. Chaloner, Kingsfort, Kells, Co. Meath, Sovereign, by Royal Sovereign (22,802); 2d, Edward J. Smith, Islanmore, Croom, Co. Limerick, Lictor (24,333), by Master Harbinger (18,352).

For the best Bull, calved in 1867.—1st, H. Lyons, Croom House, Croom, Lord Francis, bred by Joseph Meadows, Thornville, Wexford, by First Fiddle (19,749); 2d, T. Sandes, Sallow Glen, Tarbert, Royal Tudor, bred by W. Talbot Crosbie, Ardfert Abbey, Tralee, by Royal Sovereign (22,802).

For the best Bull, calved in 1868.—1st, E. J. Smith, The Earl, bred by Bichard Challoner, by Ravenspur (20,628); 2d, R. G. Cosby, Stradbally Hall, Queen's County, Colonel Frank, bred by Mr. Meadows, by Agamemnon (23,278).

For the best Bull Calf, calved in 1869.—1st, R. Welsted, Ballywater, Castletownroche, Coronet, bred by exhibitor, by Uncle Ned (19,026); 2d, R. Welsted, Lucky Lad, bred by exhibitor, by Uncle Ned (19,026).

For the best Cow, in-Calf or in-Milk, calved previous to January 1, 1866.—1st, W. Hutchinson Massy, Mount Massy, Macroom, Janet, bred by exibitor, by Gwynne of Lothian (21,888); 2d, R. Smith, Blossomfort, Mallow, Venus, bred by William Copinger, Barryscourt, County Cork, by Western Wonder, (17,225).

For the best Heifer, in-Calf or in-Milk, calved in 1866.—1st, W. Bolton, The Island, Kilmuckridge, County Wexford, Game Hen 3d, bred by the late J. Anderson, Grace Dieu, Waterford, by Mercury (22,342); 2d, R. Welsted, Princess Primrose, bred by exhibitor, by Uncle Ned (19,026).

For the best Heifer, in-Calf or in-Milk, calved in 1867.—1st, Sir R. Paul, Bart., Ballyglan, Waterford, Bonnie Lass, bred by exhibitor, by Patriarch (22,497); 2d, R. Welsted, Rosanna, by Sir James (16,980).

For the best Heifer, calved in 1868.—1st, J. Meadows, Fanny 25th, bred by exhibitor, by Agamemnon (23,278); 2d, William Bolton, Ally Gwynne, bred by exhibitor, by Gray Gauntlet, (19,908).

For the best Heifer Calf, calved in 1869.—1st, E. J. Smith, Islanmore, Croom, Co. Limerick, Gertrude, bred by exhibitor, by Lictor (24,333); 2d, Sir Robert Paul, Bart., Mantle, bred by F. G. Bloomfield, Newpark, Waterford, by Glory (24,043).

HEREFORDS, DEVONS, AND POLLED ANGUS.

Best Hereford Bull, calved on or after January 1, 1864.—1st, R. S. Featherstonhaugh, Rockview, Killucan, for Grateful.

Best Devon Bull, calved on or after January 1, 1864.—1st, C. Boyle, Tamagh, Dartry, Monaghan, for Blood Royal.

Best Devon Cow, in-Calf or in-Milk, calved previous to January 1, 1866.—1st, C. Boyle, for Pride of Braunton.

Best Devon Heifer, calved in 1867 or 1868.—1st, C. Boyle, for Pride of Braunton 3d.

Best Polled Angus or Galloway Bull, calved on or after January 1, 1864.—1st, W. Owen, Blessmton, for Crathie Jock 2d.

Best Polled Angus or Galloway Cow, in-Calf or in-Milk, calved previous to January 1, 1866.—1st, William Owen, for Maggie.

KERRYS.

Best Kerry Bull, calved on or after January 1, 1864.—1st, James Brady, Raheny, Co. Dublin, for The Knight of the Glens; 2d, Madame M'Gillicuddy, The Reeks, Killarney, for Lord Glenear.

Best Kerry Cow, in-Calf or in-Milk, calved previous to Jan. 1, 1866.—1st, Thomas M'D. Mahony, Cullenagh, Killarney; 2d, George Massy, The Spa, Tralee.

OTHER BREEDS.

Best West Highland Cow, in-Calf or in-Milk, calved previous to January 1, 1866.—1st, Thomas Butler, Priestown House, Counth Meath, for West Highland cow Beauty.

Best Ayrshire Bull, calved on or after January 1, 1864.—1st, N. M. O'Donnell, Coolemore, Mill Street, County Cork, for red and white Ayrshire bull Bonnie Dundee.

Best Ayrshire Cow, in-Calf or in-Milk, calved previous to January 1, 1866.—1st, J. Buchanan, Sackville, Tralee.

Best Ayrshire Heifer, in-Calf or in-Milk, calved in 1866.—1st, David Patton, for Maggie.

Best Ayrshire Heifer, calved in 1867 or 1868.—1st, Henry Jones, for Boarding School Miss.

SHEEP.—LEICESTERS.

Best Shearling Ram.—1st and Cork Challenge Cup, T. Marris, Ulceby, Lincolnshire; 2d, W. R. Meade; 3d, W. Owen, Blessinton.

Best Ram of any other age.—1st, Seymour Mowbray, Killeany, Mountrath; 2d, W. R. Meade, Ballymartle, Ballinhassig; 3d, T. Marris.

Best Pen of 5 Shearling Ewes.—1st, T. Marris; 2d, Seymour Mowbray.

Best Pen of 5 Ewe Lambs.—1st, Seymour Mowbray.

BORDER LEICESTERS.

Best Shearling Ram.—1st, R. G. Cosby, Stradbally Hall, Queen's County; 2d, R. Briscoe, Fermoy; 3d, ditto.

Best Ram of any other Age.—1st, R. G. Cosby, Stradbally Hall, Queen's County; 2d, R. Briscoe; 3d, ditto.

OTHER LONG-WOOLLED SHEEP.

Best Shearling Ram.—1st, T. Beale Browne; 2d, ditto; 3d, Captain J. B. Smyth, Fedamore, County Limerick.

Best Ram of any other age.—1st, Captain J. B. Smyth.

Best pen of 5 Shearling Ewes.—3d, Thomas Butler, Priestown House, Priestown, County Meath.

SHROPSHIRE DOWNS.

Best Shearling Ram.—1st, Thomas Marris.

Best Ram of any other age.—1st, Thomas Marris.

Best pen of 5 Ewe Rams.—1st, Thomas Butler.

HORSES.

The Croker Challenge Cup, value 50 sovs., with 20 sovs. added, for the best weight-carrying thorough-bred Stallion.—1st, F. H. Power, Roskeen, Mallow, thorough-bred stallion Robin.

AGRICULTURAL HORSES.

Best Stallion of any breed for agricultural purposes, foaled on or after January 1, 1862, and previous to January 1, 1866.—1st, J. Fleming, Glasgow, bay Clydesdale stallion Star of the West; 2d, J. Magrath, Knockbrack.

Best Stallion for agricultural purposes, foaled on or after January 1, 1866.—1st, P. Cahill, Anna, Tralee, County Kerry, agricultural stallion Young Favourite.

SWINE.—COLOURED BREED.

Best Boar under 18 months old.—1st, F. Trevor, Beech Hill, Donnybrook; 2d, ditto.

Best Boar over 18 months and under 36 months old.—1st, P. Mahone, Ballyryan, Tipperary; 2d, W. Hutchinson Massy, Macroom, Berkshire boar Pygmalion.

Best Breeding Sow under 18 months old.—1st, his Excellency Earl Spencer, K.G.; 2d, T. Sandes, Sallow Glen, Tarbert.

Best Breeding Sow, over 18 months old.—1st, W. Hutchinson Massy, Berkshire sow Fatima; 2d, R. W. Reynell, Killynon, Killucan.

Best lot of 3 Breeding Pigs of the same litter, above four and not exceeding eight months old.—1st, J. Molloy, Dublin; 2d, F. Trevor.

Best Sow and Litter of 6 Pigs.—1st, F. Trevor.

Best Breeding Sow, over 18 months old.—1st, J. C. Cooper.

Best Sow and Litter of 6 Pigs.—1st, J. Molloy, Dublin.

JUDGES.—Shorthorns: H. Thurnell and H. Smith. Other breeds: R. S. Skirving, — Campion, A. Bogue. Horses: H. Brisco, H. Thurnell, R. S. Skirving. Sheep—Leicesters, &c.: T. C. Booth, J. Hutchinson, A. Warburton. Swine: A. Warburton, J. Borthwick, A. Darker. Poultry: H. Jones. Flax and Butter: Rev. M. Bradshaw, J. Borthwick. Implements: R. C. Wade, D.L.; J. Borthwick.

The following are the practical portions of the speech of Earl SPENCER, the Lord-Lieutenant. After some highly complimentary and generous remarks towards the Chairman and officials of the Society, his Excellency came to the showyard and its contents:—

During my visit to the showyard I was enabled to learn the opinions of those better able than myself to form an opinion, and their opinion was that the show was very excellent in quality. The number is, perhaps, not very great in the different classes; but the quality of the animals exhibited is very good. I do not think I ever saw a finer specimen of a Shorthorn bull than the animal called Sovereign, the property of Mr. Challoner. There were many excellent specimens of quality and shape, and no one who ever saw them could fail to admire the symmetry and beauty of some of those animals. The sheep show was a good one, and I can speak myself in reference to the pigs, inasmuch as I was an exhibitor in that particular department. With the view of testing the excellence of the breed of pigs in Ireland, I thought I could not do better, when I formed the intention of being an exhibitor here, than to go to the Royal Agricultural Society in England, and endeavour to get as good a specimen as England could produce. I brought two excellent animals over, one of which, a sow, had an increase in her family. They had obtained a second prize in England, whereas they were only highly commended here. Such was the decision of the judges, to which I must freely bow. I shall be most happy if the animals I brought over will be of any use in improving the breed in this country. Passing from this, I would say there was another important branch of the show which was well represented. I allude to the machinery. I saw some improved specimens of implements—ploughs, threshing machines, and others—well calculated to assist in agricultural labour. I feel impressed with the idea that reference to improvement in such articles is a very important part of the work which the Royal Agricultural Society performs, introducing in every part of the country the most recent improvement in agricultural machinery. I may here observe that when going round the showyard I saw one machine which I thought rather calculated to cast a reflection on good agriculture. It is a machine which I hope is not much required in this country; but I must confess that on my journey from Killarney to Tralee I saw a good many fields where that machine should be in operation. I allude to a machine for cutting down thistles. I sincerely trust that the energy of the Irish farmers will soon render the sale of that machine almost impossible in this country; that they will eradicate that noxious weed, the seeds of which frequently blow upon neighbouring farms.

Material Prosperity and Progress.—Now, gentlemen, I should wish to refer to some more general matters, and glance at the general condition of the country. In doing so I would refer to two points which are indicative of that condition—namely, the class of houses in which the agricultural portion of the population live, and the amount of their savings. I believe that there is a considerable increase in the better class of houses. During the terrible ordeal through which the country passed at the time of the famine, and the large exodus of the population which then occurred, it was a remarkable fact that there was no diminution in the better class of habitations, but rather an increase. I sincerely hope that the diminution in the class of mud cabins referred to in the report of the Census Commissioners will continue, and that they will ultimately disappear. The reports of the Commissioners of Public Works give some small indications of the change that is going on in that respect. In 1859 an Act was passed to enable proprietors and farmers to borrow money from the Board of Public Works for building cottages. In 1866 it was amended, when a short Act was passed which enabled the Commissioners to lend money, not only for the building of cottages, but for alterations and improvements. The amount so advanced was not very large, but it had been increasing. Since the passing of the Act there had been expended for cottages over 50,000*l.* I confess I should like to see that greatly increased, for nothing is so important for the country. When referring to these improvements, it is satisfactory to find that there has been an increase in loans for general improvements. In 1866 it was little over 26,290*l.*, whereas in 1867 it amounted to 39,335*l.*, and in 1868 to 64,970*l.* The increase for the present year is considerable, and it is likely to amount to 80,000*l.*, making a total already borrowed for the improvement of agriculture in this country of over 2,000,000*l.* That is due partly to the idea which Parliament rightly entertains that they may lend money to advance so useful a purpose on good security. It is also indicative of a considerable amount of public spirit on the part of proprietors in this country. I see in this county an active proprietor, who has his name down for a loan of over 8000*l.*; and in the county of Longford a proprietor is going in for a loan of 15,000*l.* for the improvement of his estate; whereas, in the North of Ireland, two proprietors have applied for a sum of 10,000*l.* for the same object. I think that is a very satisfactory sign with regard to improvement in the general condition of the country. I would touch on another point—namely, the amount of savings in the banks: I am happy to find that the amounts of deposits have largely increased this year, and close on 20 millions sterling has been deposited in the joint-stock banks in this country, and this year a considerable increase is likely to be made. Such deposits largely represent the savings of the agricultural classes in the community. I would now refer to one or two more distinctly agricultural statistics which I have been enabled to procure, owing to the excellent arrangements which are made in Ireland in respect to agricultural returns. With respect to live stock, I see that this year there is a considerable increase, with one exception, for I find there is a diminution in the number of sheep—over 250,000—as compared with last year. I do not think that is indicative of any great decrease in the wealth of the country as regards sheep, for the last year there was an increase of over a million and a half, but that increase was preparing for a larger export. We find this year that from the port of Dublin alone there was an increased export of nearly 81,000 sheep. I think, therefore, we may consider that the wealth of the country in sheep this year has not very much diminished. The increase of sheep in this country is a significant fact, for since 1841, the first year of the Royal Agricultural Society, the number of sheep in the country would seem to have doubled. In 1841 there were 2,106,189, and in the present year there are 4,648,158. With regard to cattle, I do not think there is anything that calls for particular remark. The number of cattle remains the same. There has been a slight increase as well as a slight diminution in the exports.

Contagious Diseases (Animals) and the Legislature.—While on this subject I cannot help alluding to an important measure which has passed into law in England and Scotland—I allude to the Bill providing against contagion. On a former occasion I spoke at some length on this subject, but the importance of it is so great that I cannot help again alluding to it. That Bill simplifies the various Acts on the subject, and introduces special laws with regard to pleuro-pneumonia. That is a very important matter, and well worthy your attention. You will consider whether some similar provision should not be applied to cattle in this country. Nothing could be more important than legislation with the view to the prevention of such diseases, and the farmers of England and Scotland forced Government to introduce a measure of this sort. It must be the interest of the farmers in Ireland to do likewise, for in this country, where there are so many small farmers, the loss that would result from contagious diseases would be almost ruinous. The tenant-farmers of Ireland have not the same means of separating their cattle as the large farmers in England and Scotland have. I earnestly hope that on the introduction of such a measure next session it will receive the support of the Irish farmers.

Pigs, Grass-land, and Arable Crops.—With regard to pigs, it is satisfactory to find there is a very considerable increase in Ireland. That is a sign of the growing prosperity of the labouring classes. A pig very early comes to maturity. It is easily kept, and is the best kind of stock for a poor man. It is therefore satisfactory to find that there is an increase in pigs of 210,215, and if the increase goes on we shall very soon arrive at the highest figure which the stock of pigs ever attained in this country. I will now pass from these statistics to other figures, which are also furnished by the Registrar-General. I allude to statistics which refer more particularly to arable land. It is sometimes thought that those who hold prize cattle are in favour of increasing the Grass in this country, and diminishing the arable. I, for one, consider it important that cattle should be increased in this country, but I do not believe it need be done at the sacrifice of tillage land. In this country, which is dependent on agriculture, it is of great importance that the amount of tillage land should be kept up to the highest point which is essential to agricultural progress. I have noticed in England that you will seldom find 200 or 300 acres of the best grazing land without finding some against it equally inferior in quality, which is far more profitable to the farmer. I know it is the case in Warwickshire and Leicestershire, and the modern improvements in farming have converted estates which were entirely grazing into mixed arable and grazing land. Now, I believe that is the case in Ireland as well as in England, and anyone who travels about the country will see a large quantity of grass-land which could with great advantage be turned into tillage land.

Irish Produce.—To prove what I say, I would allude to remarks made not long ago by a gentleman well known to you—I mean Mr. Monsell, M.P. for Limerick. In a statement he made before the Statistical Society in Dublin, he compared the agriculture of Scotland and Ireland in this respect, and the results are very remarkable. He showed that in 11 years, between 1857 and 1868, in Scotland, though Wheat had diminished by 118,557 acres, Barley, Oats, Potatos, and Turnips increased by 163,610 acres. At the same time stock increased by 1,445,393 head. In the same 11 years Wheat and other crops decreased in Ireland 700,000 acres, or, deducting Flax increase, 579,746, and there was an increase in live stock of 1,040,745 head. But at the same time the increase of stock does not bear anything like the same proportion as the increase of stock in Scotland. That proves what I say. It is not necessary to have a decrease of tillage. If you can increase green crops and artificial grasses you will find immense benefit from it. If I am right, the returns this year are, on the whole, quite in the right direction. There is an increase in Flax and other arable crops—an increase of 5000 acres. With regard to Wheat it is remarkable what free trade has done in Ireland. There is no doubt that Wheat is better grown in other countries. In 1847 there were 743,871 acres under Wheat, and in 1869 there were 281,117, showing a considerable loss. It does not follow that it is necessary all arable crops should increase, but in Scotland, notwithstanding the decrease in Wheat, there is a large increase in other crops. In this country there is a considerable increase in Barley, which is a crop well suited to this country, and there is a small decrease with regard to Oats.

Irish Fences.—There is one point which I think every stranger is struck with, and that is the peculiar character of the fences in Ireland. Such large fences are hardly necessary for agriculture. Every person who had the pleasure of hunting near Dublin looked with horror at the gigantic fences. There is a wide dyke separating the field from the bank which is large enough to engulf both man and horse. There are gentlemen here who tremble in the saddle when approaching some of these large fences, covered by men who are ready to drag out the unfortunate man who falls on the other side, and they go by the name of "wreckers." As a farmer, I cannot see the necessity for such large fences, or why so much land should be taken up with them. I made some inquiry from Mr. Baldwin regarding the excellent institution known as the Model Farm, near Glasgow, which I frequently visit. I was told the amount of land which a fence occupies on that farm, which is 108 acres in extent. The Education Commissioners levelled 13 acres of fences and it was found that 2 acres of fences would be necessary to divide the fields, and they thus gained 6 per cent. of land on their small area. On a neighbouring farm of 81 acres in extent 7 acres were occupied by fences, and 8 per cent. instead of 2 lost to farming. It would be a great advantage in Ireland to diminish those large fences. I have now travelled over the different points to which I wish to refer. I have shown that the Agricultural Society has had a large share in improvements in the country, but I have also shown there is still great room for the operation of its skill and energy.

Landlord and Tenant.—My lords and gentlemen,—I have carefully followed the rule which is invariably observed at these meetings—not to allude to any subject of political moment; but I cannot help feeling, when

talking of improvements in agriculture in this country, there comes up to the mind of everybody present a subject now occupying the attention of politicians. I shall not enter on that subject. I feel now the importance of encouraging confidence between landlord and tenant. I will not enter into that difficult subject now, but I think I may be allowed to implore all those who have influence in the country to come forward to meet this difficult subject with fairness, impartiality, and justice. There will be much discussion on what should be done for the settlement of this question, which has been so long agitated in this country. I would implore all who have an interest in it to approach it with impartiality and fairness, and, above all means, to discuss only what is really practicable. If that is done, I look forward to see this difficult question satisfactorily settled. After congratulating those present on the excellence of the harvest, which was about being gathered in, his Excellency resumed his seat amid loud applause.

ROYAL NORTH LANCASHIRE.

THE annual exhibition of the Royal North Lancashire Agricultural Society was held at Burnley last week, in a field belonging to Lieut.-General Yorke Scarlett, near the Bank Top Railway Station. The show was held last year at Ulverston, and the total entries this year were, including implements, 2062, against 2063 last year. The stock showed a great improvement on previous years. The entries in cattle were 175, against 162 last year; horses, 173, against 174; sheep, 299, against 235; pigs, 25, against 17; poultry, 253, against 233; roots and seeds, 123, against 101; cheese, 22, against 6; dogs, 306, against 272. At Ulverston, last year, there were 861 entries of implements, against 686 at Burnley this year. The show of cattle was of a first-class character, and many of the animals shown were of far-spread reputation. In the class of aged bulls there were 15 entries.

Mr. Brierley's Bolivar was again successful in this class, closely followed by Lady Pigot's Charles le Beau as 2d, which, although not a prize getter, was highly recommended at the Royal. Messrs. Crawshaw and Blackley's roan bull Prince Leopold, which was at the Royal but got no prize, obtained the 1st prize in the 2-year-old bulls. The class of bull calves produced some good specimens, but the judges had not much difficulty in deciding upon the merits of the prize animals belonging to Colonel Towneley and Mr. William Slye. Perhaps the class which attracted most attention, and in which the competition was very strong, was aged cows. The 1st prize animal at the Royal was not present, but the 2d, Lady Pigot's Queen of Rosalea, obtained the 1st here. There was a very close run between Lord Skelmersdale's red and white Cherry and Mr. Adam Dugdale's roan Kent Cherry, but the judges awarded the prize to the last. In this class also was Colonel Towneley's famous cow Duchess of Lancaster.

The agricultural horses were distinguished by very high merit, and the pair of greys shown by Mr. C. W. Brierley were models of symmetry. In the class of brood mares, a fine roan mare, 10 years old, shown by the Rev. J. Pennington, of Whalley, was a finely formed animal, and obtained the 1st prize. The same gentleman also obtained the 2d prize in this class. The class of mares for breeding hunters included some very fine animals, the first honour being awarded to Mr. William Roberts, of Burnley. The class of thorough-bred stallions, although not of average merit, yet produced several first-class specimens. Mr. Roberts, of Burnley, obtained the first honours in the class of yearling colts, but the class of young horses for harness purposes were not of a first-class character. The prizes for yearling colts were not awarded, for want of merit. The young horses for agricultural purposes, as indeed the class of agricultural horses generally, were of high merit.

Sheep were a very meritorious class, and some very fine specimens were exhibited. The Leicesters, although not a numerous class, contained some animals of very high merit. There were some fair specimens of Shropshire Downs, but, generally speaking, the class was not strong. Lonks showed remarkably well. The silver cup, value 10 gs., given by Mr. R. Shaw, M.P. for Burnley, for the best collection of Lonk sheep, not less than 20 in number, embracing both sexes, was taken by Mr. Joseph W. Green, Keighley. This gentleman also carried off the silver medal for the beast yearling ram of the same breed. There was only a small show of pigs, Mr. Eden, of Salford, being as usual a large and successful exhibitor.

A special prize of 100*l.*, offered by the Earl of Derby, to the town or village in North Lancashire, of 2000 and upwards of population, that shall adopt a similar system of sewerage to that carried on at Wellington College, Sandhurst, found no competitors.

JUDGES.—Implements: Messrs. Forrester, Hartley, and Burrows. Cattle: Messrs. Jefferson and Wilson. Horses: Messrs. Angus, Fishwick, and Smith. Sheep, Pigs, Roots, Seeds, &c.: Messrs. Baxter, Torr, and Riley. Poultry: Messrs. Hewitt and Teebay. Dogs: Messrs. Fisher and Waller.

The above remarks and the following principal prizes are taken from the *Manchester Examiner*:—

CATTLE.—SHORTHORNS.

Best Bull, two years old or upwards.—1st prize and Special Medal.—C. W. Brierley, Rhodes House, Middleton, Manchester, roan, "Bolivar."

One-year-old Bull.—Crawshaw & Blackley, Headfield Farm, Dewsbury, roan, "Prince Leopold."

Bull Calf.—Colonel Towneley, red, "Baron Collinge."

Cow or Heifer, above three years old.—Lady Pigot, "Queen of Rosalea."

Two-year-old Heifer.—Rev. L. C. Wood, Singleton Lodge, Kirkham, white, "Miranda 10th."

Heifer, not exceeding two years old.—1st prize and Special Medal.—Colonel Towneley, roan, "Oxford Beauty."

Heifer Calf.—Lady Pigot, white, "Mantelina 2d."

CATTLE OF ANY BREED.

Bull, two years old and upwards.—G. Butler, Preese Hall, Weeton, near Kirkham, white, sire "Grand Duke of Lancaster."

Bull, above one and under two years old.—1st prize and Special Medal, R. Thompson, Mythop Lodge, Blackpool, roan, "Prince Thorn," sire "Thornlade Grand Duke."

Bull Calf.—J. Walton, Horncliffe, Rawtenstall.

Cow in Calf or milk, having had a Calf, and above three years old.—G. Hunt, Fernshawood, Preston, red, "Peeress III."

Heifer not exceeding three years old.—1st prize and Special Medal, Rev. L. C. Wood, white, "Miranda X." Not exceeding two years old: J. Milner, Myerscough, near Preston, white, "Princess of Wales."

Heifer Calf.—J. Farrer, Thorneyholme, Burnley, "Lady Kent."

New prize—Silver Cup, or 10*l.*, for the best Bull, Cow, and Calf, the latter to be the progeny of the two former.—T. Statter, jun., Stud Hall, Whitefield, near Manchester.

Cup, presented by the secretary, for the best three Shorthorns of any age or sex.—Tenant Farmers' prize: B. Baxter, Skipton.

HORSES.

Agricultural Stallion.—J. Edmondson, Houghton, Entwistle, near Burnley, brown, "Young Sampson."

Brood Mare for Agricultural Purposes.—Rev. J. Pinnington, Stonyhurst College, Whalley, roan.

Pair of Draught or Agricultural Horses, above three years old.—C. W. Brierley, Rhodes House, Middleton.

Dray or Agricultural Mare or Gelding.—J. and T. Barcroft, Guhills, Waterfoot, near Manchester, "Smiler," 9 years old.

Three-year-old Gelding or Filly for Agricultural Purposes.—J. Pearson, St. Michael's, Garstang, grey.

Two year-old Gelding or Filly for Agricultural Purposes.—C. W. Brierley.

Ditto for Hunting Purposes.—R. Fielden, Walsden, near Todmorden, brown gelding.

Yearling Colt or Filly for Agricultural Purposes.—R. Harrison, Yorkshire, Burnley, bay.

SHEEP.

Leicester Shearling Ram.—T. H. Hutchison, Manor House, Catterick, Yorkshire.

Leicester Ram.—T. H. Hutchison.

White-faced, long-woolled, Shearling Ram.—William Norman, Hall Bank, Aspatria, Cumberland.

Ram of the white-faced long-woolled, not being of the Leicester breed.—John Pinder, Waddington, near Clitheroe.

Shearling Ram, Shropshire Down.—J. H. Kearne, Holleth, Lancaster.

Ram, Shropshire Down.—John Coulthurst, Gargreave House, Skipton, Yorkshire.

Shearling Ram.—Wm. Midgeley, Birkett, Newton, near Clitheroe.

Ram, Lonk.—Wm. Midgeley.

Ram of any other breed, adapted to a mountain district.—George Brown, Windermere, Herdwick.

PIGS.

Best Boar of the large breed, any age.—Peter Eden, Cross Lane, Salford, Manchester, "Gullivar," about three years old.

Best Boar of the small breed, any age.—Peter Eden, Cross Lane, Salford, Manchester, "Young King."

SCARBOROUGH, HACKNESS, AND NORTH AND EAST RIDINGS AGRICULTURAL SHOW.

THIS show was held last week in three fields belonging to Mr. Millhouse, Queen's Hotel, in front of that hotel in North Marine Road, Scarborough. The show was in most respects an advance upon any of the successful exhibitions which have preceded it. The entries were about 150 in excess of those of last year. The total number of entries was 825, including the implement stands. Of this number 50 were of cattle, 51 of sheep (in pens), 47 of pigs, 242 of horses, ponies, and donkeys; and 436 of poultry and miscellanous entries. Of poultry and pigeons the show was varied, and included some splendid specimens.

The show of cattle embraced some remarkably fine specimens of Durham's famous breed—the Shorthorn. In the catalogue the names of well-known breeders showed themselves, prominent amongst whom was that of the noble owner of Duncombe Park. Singularly enough there was not a single animal shown in the name of the celebrated Booths, though no doubt representatives of the Warlaby and Killerby herds were amongst the ranks of competitors. The 1st prize for a bull of any age was awarded to the victor at the Royal show of this year—a splendid roan, the Earl of Derby, belonging to Mr. Wiley, Brandsby, York. The 2d prize winner in the same class is also an animal of unusually fine proportions, belonging to Major Stapylton, of Myton Hall, and bears the appropriate name of Lord Wetherby. In the class of bulls under two years of age Mr. John S. Jordan, Elmsall, Driffield, was successful in carrying off the chief honour with Nestor, whose symmetrical proportions were much admired. This was the second success of the year, the animal having carried off a prize at Bridlington. The bull calf under 12 months which carried off the prize is a beautifully-proportioned animal, such an one as Landseer might love to place on canvass, and belonged to the Earl of Feversham, who also took a 1st for Colonna, a pretty heifer, not exceeding two years old. The prize cow, Lady Valentine—in the class for cows or heifers, above three years, in calf or milk—has been a most successful animal, having taken prizes at Selby, Bridlington, Ripon, and Otley—at the latter place got a silver cup as the best animal on the show ground. She is the property of Mr. Wm. Linton, Sheriff Hutton, York. In the other classes some very fine animals were shown.

The first prize for agricultural stallions was won by Mr. Rd. Cole, Gembling, Lowthorpe; and for brood mares with foal at foot, by Mr. C. Leadley, Cloughton, Scarborough. In the special prizes given for the best hunting gelding or mare of any age, Brian Boru, a splendid chestnut horse, belonging to Mr. J. B. Booth, of Killerby, carried off the silver cup given by the president, Sir Charles Legard, Bart. The silver cup given by Mr. J. Dent Dent, M.P., for the best 5-year-old hunting mare or gelding, was won by Mr. Jas. Darrell, Ayton, Sherburn; that given by Sir Harcourt Johnstone, Bart., M.P., for the best 4-year-old hunting gelding or mare, was carried off by Mr. H. Jewison, of Raisthorpe, York; that given by the vice-presidents of the society, for harness geldings or mares, by Mr. G. Holmes, Bar House, Beverley, with Prince Charles; and that given by Mr. F. A. Milbank, M.P., for the best ladies' hackney gelding or mare, by Mr. John Crompton, Thorneholme, Burton Agnes, Hull.

The show of sheep was not large; some very fair animals were amongst those shown. Pigs also were a small but good show. There was a very large show of poultry.

The following is a return of the principal awards:—

CATTLE.—SHORTHORNS.

Bull, any age.—1st, Mr. Wiley, York; 2d, Major Stapylton, Myton Hall.

Bull, above one and under two years old.—1st, J. S. Jordan, Driffield; 2d, C. Smith, Yarm.

Bull Calf, under 12 months old.—1st, Earl Feversham, Duncombe Park; 2d, W. Linton, Sheriff Hutton.

SHEEP.—LEICESTERS.

Two-Shear or Aged Rams.—E. Riley, Beverley.

Shearling Ram.—1st, E. Riley, Beverley; 2d, T. Stamper, Oswaldkirk.

Pen of 3 Shearling Rams.—1st, E. Riley, Beverley; 2d, J. J. Simpson, Hunmanby.

PIGS.

Boar of large breed.—G. Chapman, Scarborough.

Sow of large breed, in Milk or Pig.—1st, D. Berryman, Sherburn; 2d, G. Chapman, Scarborough.

Boar of small breed.—1st, G. Mangles, Ripon; 2d, J. Thompson, Scarborough.

Sow of small breed, in Pig or Milk.—1st and 2d, G. Chapman, Scarborough.

Boar of large breed, not exceeding 12 months old.—1st, W. Rudsdale, Yarm; 2d, G. Chapman, Scarborough.

Sow of large breed, not exceeding 12 months old.—1st and 2d, G. Chapman, Scarborough.

Boar of small breed, not exceeding 12 months old.—1st, G. Earle, York; 2d, W. Rudsdale, Yarm.

Sow of small breed, not exceeding 12 months old.—1st and 2d, G. Earle, York.

Cottager's prize (store pig), the property of a cottager or working man.—1st, G. G. Bilton, Scarborough; 2d, D. Berryman, Sherburn.

HORSES.—AGRICULTURAL.

Stallion.—1st, R. Cole, Lowerthorpe; 2d, W. Simpkin, Burton Agnes.

Brood Mare, with Foal at her foot.—1st, C. Leadley, Scarborough; 2d, J. Petch, Scarborough.

Yearling Gelding or Filly.—1st, J. Kirk, York.

Two-year-old Gelding or Filly.—1st, E. Smith, Bridlington; 2d, E. Coltas, Scarborough.

Three-year-old Gelding or Filly.—1st, J. Crompton, Burton Agnes; 2d, Barnett & Robertson, Lowthorpe.

Pair of Horses.—1st and 2d, J. Simpson, Hunmanby.

JUDGES.—Cattle: Mr. T. P. Outhwaite, Knaresborough; Mr. W. Jobson, Hexham; Mr. Knowles, Wetherby. Hunting and Nag Horses: Mr. E. Abraham, Ulceby; Mr. A. Maynard, Saltburn-by-the-Sea; Mr. G. Bolam, Morpeth. Coaching and Agricultural Horses: Mr. W. Wood, Ulceby; Mr. T. Brown, Malton; Mr. R. Robson, York. Implements: Mr. R. Ellerby, Oswaldkirk; Mr. G. Smart, Milford Junction. Poultry, roots, &c.: Mr. J. O. Jolly, York. Butter: Mrs. W. Hall, Ganton; Miss Auburn, Scarborough.

MANCHESTER AND LIVERPOOL AGRICULTURAL.

THE CHAIRMAN, in calling attention to the outbreak of pleuro-pneumonia and foot-and-mouth disease, said that the magistrates of Cheshire had determined upon issuing a form of notice for circulation throughout the county, in conformity with the Orders in Council. In the cases of pleura-pneumonia, the inspector had the power of declaring the farms on which the disease had broken out as infected places; and in cases of foot-and-mouth disease, there was a prohibition against the removal of cattle from the farm on which it occurred. The foot-and-mouth disease had broken out in Tatton Park amongst cattle which had not been in contact with other animals, and he was told that it had also occurred at Lyme, but he had not the slightest idea how it had originated. He had not heard of any case of pleuro in his neighbourhood, but he was told that there was a great number of cases in Broxton Hundred and that part of the county.

The Cultivation of Farms.—Messrs. W. Rothwell and T. Rigby, the inspectors of the farms which had been entered for the Society's premiums and prizes, reported as follows:—

"We have pleasure in saying that all the claims submitted to our inspection have been of a very deserving character, but we have had little difficulty in awarding the prizes claimed, as there has been some direction, either as to quality or proportion of work done, specified in the offer of premium, which has aided us in arriving at a decision conformably to its intention. Only in one instance have we found much perplexity. Two claimants in the high-lying portion of the district, with farms of a totally different natural character and position, ask for the same premium. Both are large farms, and both are managed with great skill and enterprise, and it has required minute and comprehensive criticism to decide which was best. In awarding the prize as we have done, we placed before our minds the standard of excellence to which we conceived it possible for both to attain, and then compared them with this standard. The winner came nearly up to it in all his crops save one, while the other was deficient, as we considered, in two points of management, and also in that complete neatness and finish of the whole which should characterise a prize farm. We regret that so few of the prizes for laying down land to Grass have been claimed, as we consider this to be one of the most important points of good husbandry in such a district as that embraced by our society; and we respectfully suggest for your consideration before the annual meeting that it might enlarge the number of claims in future years if a rule were made similar to that applied to farms, prohibiting the winner from competition with the same occupation for three years. A reference to the journal reveals the same names as winners or competitors almost every year in succession; but, while this is creditable to them, it may, and we think does, prevent other farmers outside their circle engaging in the same competition. We regret even more that none of the silver medals offered to owners or occupiers have been claimed; and we would respectfully suggest to such gentlemen that this omission amounts to the neglect of a fine opportunity for stimulating their tenants to better practice in farming. Farmers have little faith in theory, or in the teachings of such science as they are acquainted with; but practical appeals to their minds by results they can understand and appreciate: and a farm well tilled and heavily cropped, with good stock upon it, neat, well-kept fences, and good occupation roads, is an argument which speaks, quietly it may be, but constantly and so efficiently as to induce some imitation in almost every neighbour. The best farming in the two counties is found upon our prize farms and in their immediate neighbourhood. Example pro-

vokes emulation. A good farmer and a prize farm are most influential in the district in which they exist; and we think that the agents or bailiffs of landed estates could not better serve their employers than by joining in competition, as we believe that the best stimulus to enterprise and perseverance among the tenantry around. As respects the farming and the crops this year in the district of the Society, we notice a decided improvement annually in the former. Arable land is now kept cleaner when in green crop than formerly. Manure is applied with a more liberal hand and in a more systematic manner. The succession of crops planted is more studied and better known. Improved implements and machinery are pressed into service. Labour is higher, but it is more economised. The push and energy of the business man is being copied by the farmer, and the tendency of events seems to be bringing successful agricultural practice more and more within the range of thoughtful calculation, liberal outlay, careful living, and persevering application. As regards our farm crops this year in the districts we have visited, we report them a full average generally. Grass has been plentiful, hay crops abundant, Wheat, Oats, Beans, and Barley variable, but an average; Potatos, Turnips, and Mangels very promising. The best and healthiest crops of all kinds are on the best farmed lands invariably. Dairy stock has milked well, and notwithstanding the prevalence of much unseasonably cold weather, we look forward hopefully to the ingathering of the harvest of the year."

The following is a list of the principal awards made by the inspectors:—

BEST CULTIVATED FARMS SITUATE IN THE LOW-LYING PORTION OF THE SOCIETY'S DISTRICT.

To the tenant and occupier of not less than 150 acres.—10*l.*, Mr. W. Johnson, Halebank.

To the tenant and occupier of not less than 100 acres, and under 150.—8*l.*, Mr. T. Williamson, Linacre.

To the tenant and occupier of not less than 50 acres, and under 100 acres.—6*l.*, Mr. J. Clayton, Kirkby.

To the tenant and occupier for the best managed dairy or grazing farm, of not less than 200 acres.—10*l.*, Mr. Thomas Kerr, Knotty Ash.

To the tenant and occupier for the best-managed dairy or grazing farm of not less than 100 acres, and under 200.—8*l.*, Mr. J. Cornes, Hunleston.

BEST CULTIVATED FARMS IN THE HIGH-LYING PORTION OF THE SOCIETY'S DISTRICT.

To the tenant and occupier of not less than 150 acres.—10*l.*, Mr. H. Higson, Pendleton, Manchester. Mr. Lawton, of Culcheth Hall Farm, Warrington, was a claimant for the same premium, and was awarded the Society's medal, and allowed the privilege of competing next year.

To the tenant and occupier of not less than 100 and under 150 acres.—8*l.*, Mr. Shuttleworth, Prestwich.

DRAINING, OPEN TO THE WHOLE OF THE SOCIETY'S DISTRICT.

To the tenant and occupier of not less than 150 acres, who shall drain the greatest quantity.—8*l.*, Mr. T. Warburton, Bewsey.

To the tenant and occupier of not less than 100 acres and under 150, who shall drain the greatest quantity—6*l.*, Mr. J. Hornby.

To the tenant and occupier of not less than 70 acres and under 100, who shall drain the greatest quantity.—4*l.*, Mr. J. Garner, Tattenhall.

LAYING DOWN LAND TO GRASS (LOW-LYING DISTRICT).

To the tenant and occupier of a farm of not less than 150 acres, capable of arable cultivation, who shall lay down in the best manner for mowing not less than 15 acres.—5*l.*, the executors of the late Mr. R. Bond, Stand Farm, Aintree.

To the tenant and occupier of not less than 100 acres, and under 150, who shall lay down in the best manner not less than 10 acres for mowing.—4*l.*, Mr. Gilbert Halsall, Halebank.

Not less than 7 acres laid down for mowing on a farm of not less than 50 acres and under 100.—3*l.*, Mr. H. Williamson.

LAYING DOWN LAND TO GRASS (HIGH-LYING DISTRICT).

To the tenant and occupier of a farm of not less than 150 acres, who shall lay down in the best manner for mowing or pasturage not less than 10 acres.—4*l.*, Mr. H. Nield, the Grange, Worsley.

Not less than 7 acres, on a farm of not less than 50 acres.—3*l.*, Mr. W. Carver, Kenyon.

Farm Memoranda.

THE HARVEST IN KENT.—Reports from Boughton Monchelsea state Wheat to be below an average, but secured in fine condition. Where threshing has already taken place, the yield is not up to the estimate. Oats are short; not more than two-thirds of an average. Beans above an average. Peas about an average. Not much Barley grown. The hay crop was very heavy, and got up in good condition, excepting a few stacks of early cutting. The few roots grown are very fair. Hops: some tolerably good, some very bad. According to present appearances, the quality on the clean bine will be very good. Fruit: Apples short, Nuts a pretty good crop.

In the neighbourhood of Dartford the crops generally not very good. Threshing having commenced, it is found that the yield is below the average, and Wheat fully 1 quarter per acre short of previous expectations according to the quantity of straw, in some places not yielding more than 1 quarter of Wheat to one load of straw. Oats and Barley but middling. Peas and Beans a short crop. Tares almost a failure. Swedes and Turnips a fair plant, but now suffering for want of rain. The Hops are a bad crop; there will be some good bright Hops grown, but the average cannot be more than 3 or 4 cwt. per acre.

A correspondent from West Farleigh says:—From what I have seen and been enabled to collect, I believe the following to be a fair statement of the crops in this neighbourhood:—Hops: very platty, many grounds severely blighted, others partially so; some a fair crop, but none a full one. As regards the washing of Hops, planters differ much; some have found no benefit, others a little; some, however, speak well of it, as I do. Wheat: the straw mildewed to some extent, and both quality and quantity short of last year, though that was an exceptional one; this year will fall below an average. Oats and Beans partial; not a full crop. Of Barley we have little. Hay an extraordinary crop. Clover a short, poor crop. Apples seem, from the dry weather, small. Filberts a pretty good crop. Potatos not blighted, and yield well. We have had no trial this year, as blight has ever followed heavy rains when the Potato was ripening. With regard to Turnips, I fear if the dry weather continues they will be a failure; they grew well at first, but are sadly suffering for want of rain. Mangel is going on pretty well.

THE HARVEST IN SOUTH DURHAM.—The weather continues to be beautifully fine in South Durham and North Yorkshire, and the harvest is becoming very general. A large area of Wheat is ready for cutting, and within the next five days a great amount of work will be done in harvesting. The crops are very excellent, and Wheat seems to be a good average. The Turnip crop is very good.

HOP PROSPECTS.—The following most favourable reports of the Hop prospects appeared in the *Maidstone Journal* of the 30th ult., and are confirmatory of others, which we have not space to give at length. The recent hot weather has exercised a beneficial action upon this crop:—

Maidstone and adjoining Parishes, Aug. 30.—Since our last report, the Hops have made great progress. The principal gardens will commence picking within a week or 10 days, while those that are slight and bad will not be picked till a month's time.

Aylesford.—During the last few days the Hops have come out fast, and are now looking tolerably well. Picking is expected to commence in a fortnight.

Bearsted.—Since our last report, the Hops have done exceedingly well, even where not much was expected of them. In this neighbourhood there are some very good pieces, which will produce from 10 cwt. to a ton per acre, but the gross average will be much smaller.

Brasted and Sundridge.—The warm weather has caused a few grounds to improve, and these will grow a moderate crop. There is but little mould.

Cranbrook.—The weather has been forcing this week, and a general improvement is observable in the Hop grounds, many of which are now in full flower, and look extremely handsome. Our crop will be larger than was at one time thought possible.

Farningham, August 28.—In some grounds there is a prospect of a moderate crop. No appearance of mould yet.

Orlestone, Warehorne, and Kennardington. — The Hops in these places have done well the last part of the week; average, 3 cwt. per acre. Picking will begin in a fortnight.

Sutton.—Since the warm weather set in, the hops are doing better all round. The average growth is expected to be about 4 or 5 cwt. per acre.

Westerham and the Vale of Holmesdale.—Since our last report the weather has been more favourable, and in a large number of plantations the burr is turned into Hop, but in others it is at a standstill.

The Poultry Yard.

POULTRY FEEDING.—One of the principal arguments urged against poultry-keeping in general is the expense of keep. It is true where everything has to be purchased for the consumption of the fowls the account-book does, for certain months in the year, show a balance on the wrong side; but then must be remembered the months during which, at the same cost, the birds were valued producers, and eggs and chickens were plentiful. Poultry food has had a very fair trial from the early days of the Cochin China fancy until now. It will be remembered by many that, when in these birds size was fighting against symmetry for the approval of the judges, anything, unwholesome or not, was given to stimulate their growth. Ridiculous, in some cases, were the means employed to induce the already large birds to eat more and grow bigger. We knew of one ardent fancier who hung a bell on to one of the perches on which his Cochins roosted, and was in the habit of going into the poultry-house the last thing at night with a dish of hot food in one hand, and a bull's-eye lantern in the other. Placing the dish on the ground, he used to turn the light on to it and ring the bell. The birds soon got accustomed to it, and without waiting for the bell soon got to know the gleams of the lantern, and when the door was opened one would see all the heads at once stretched out awaiting the dish. By this, and many other contrivances, size was attained, but at the expense of quality, and at the cost of many valuable birds. Dissection told in many a case, where a positive or promising prize-winner had seemed dull for a day, and then died, that meat feeding and spiced stimulants must tell. The gizzard had worked as long as it could, and when the ordinary grit would no longer triturate the unnatural food, the poor bird, in its extremity, had picked up pieces of crockery, iron, glass, &c., to assist. The fanciers and amateurs in that day took the lesson to heart; and if our Cochins are not now as large, they are smarter, more symmetrical, certainly hardier, and consequently more useful. There appears now again a tendency towards meat feeding for our poultry. The experience with the Cochins should teach us. Let all poultry food be as good as can be procured, the diet as varied as possible, but varied only in grain, meal, and green-meat. More birds suffer from excessive and irregular feeding than from short rations; and where, from confined space, or other reason, it is necessary or convenient that the fowls be fed from a pan, never let the food stand by them, but as soon as they have tolerably well fed, take the pan away, that they may move, and encourage a healthy and easy digestion, preparatory to the next feeding time. The French, while perfecting the cramming system for their fattening poultry, feed their stock birds very differently, and any one who has attended the principal *concours agricoles* where the best birds meet, may have noticed the attention they receive at the hands of their owner or *bonne*. Differing from our poultry show arrangements, the owners and feeders have constant access to their birds during the shows. Early in the morning they may be seen giving them a hearty feed of sopped bread or slaked meal; in the course of the forenoon a lettuce, or bunch of cresses, or handful of grass or clover finds its way into the pen. During the afternoon a handful of maize, brank or barley, and possibly a little hempseed is thrown in, and at the close of the day, if there be a little more bread or a little more meal offered, it is daintily picked over by a satisfied bird, who may say with the epicure who feasted on potato salad—

"——— Fate cannot harm me,
I have dined to-day."

THE FIRST OF SEPTEMBER.—On Wednesday last, all the topics of the day paled before one—and that one was partridge shooting. With the first day of September comes a very enjoyable season to a great many of us directly, and to many more indirectly. Thousands to whom the moors are as inaccessible as the Antipodes, arrange, and work hard for months, to obtain a few days or sometimes even only a day's partridge shooting. Sons in business in London bring down friends. Men invite down friends of their youth. Some let their shootings and make friends of their lessees. The invalid to whom mutton, chicken and sole, have become distasteful, brightens up at the thought of a partridge for a change; and we wish him a friend to kill one for him, and a good appetite for it when he gets it.

The following answer to "Coney's" inquiry has been received:—Is it not possible your correspondent's rabbits have access to poisonous food? I have known rabbits thrive well when fed on bran, mixed with about one-sixth part of Oats; this was given in the morning, and a meal of sound waste Cabbage leaves in the afternoon. The food was little varied, excepting letting the old rabbits have a little milk to drink occasionally, and they all kept in perfect health, but would gnaw at anything, including painted wood. *E. O.*

Miscellaneous.

Food of Horses.—Four horses in the south pit at South Hetton Colliery had placed in their respective mangers, 9½ lb. of Oats, and 4 lb. of long hay in the cribs by the side of the mangers. Four other horses in the same stable had the same weight of bruised Oats placed in their mangers, mixed with 4 lb. of cut hay. This was done before the horses came into the stables from work, so that each horse commenced eating his food at the same time. The four horses, with the Oats and long hay separate, ate up their food in the following period:—1st horse finished his Oats and long hay in 52 minutes; 2d in 46 minutes; 3d in 61 minutes; 4th in 46 minutes—total 205 minutes. The four horses with bruised Oats and cut hay mixed:—1st horse finished his food in 61 minutes; 2nd in 54 minutes; 3d in 71 minutes; 4th in 59 minutes—total, 245 minutes. In the above experiments, which may be taken as a general average, care being taken to get the animals all under eight years old, all within an inch of the same height, and all with a common average appetite, we see that the difference in the time occupied by four horses eating the same weight of provender is 40 minutes in favour of mixed food. A horse 15 hands 3 inches high secretes from the parotid glands alone, during active mastication, about one gallon of saliva per hour; and from the experiments of physiologists, the other three pairs of salivary glands, and the mucous glands of the mouth, are supposed to secrete nearly four times the quantity, making in all about four gallons of saliva to be mixed with the food of each horse during one hour's active mastication. In 1844, an aged bay horse, 15 hands 3 inches high, had the tubes leading from the parotid glands divided on either side, and so fixed as to throw their contents into vessels held for that purpose; the animal was then fed upon oats. After fasting six hours, the amount of secretion from the two tubes was half a gallon in thirty minutes, the whole of which time the animal was masticating. This physiological fact proves that, by mixing cut hay with the Oats, each animal had, in the before-mentioned experiment, 5¼ pints of saliva mixed with the same weight of food more than those which had their oats and hay separated. We consider this to be one of the most important advantages obtained by cutting, bruising, and mixing the provender; for not only is the food threefold more easily digested when so masticated and mixed with saliva, but we think the animal receives a far greater amount of nutriment from the same weight of food. The animal's stomach would labour in vain to digest the food as perfectly, if it were not so well masticated and mixed with the fluids of the mouth, and all provender not thoroughly digested imparts but little of its nutriment to the body. The importance of giving horses a variety of kinds of provender mixed together, cannot be too strongly recommended. I have no doubt that pit horses can be kept in as good a working condition, doing the same amount of labour upon ¾ boll (a Newcastle boll = 2 bushels) of Oats, two stones of Beans, one stone of bran, seven stones of hay, and one stone of straw per week, if bruised, cut, and mixed together, as they could be upon 1½ boll of Oats and 10 stones of hay if given unbruised, uncut, and unmixed, which would stand thus:—

Bruised and Mixed Food.

¾ boll of Oats, at 8*s.* per boll of 2 bushels	£0	6	0
2 stones of Beans, at 1*s.* 8*d.* per stone of 14 lb.	0	3	4
1 stone of bran, at 9*d.* per stone	0	0	9
7 stones of hay, at 8*d.* per stone	0	4	6
1 stone of straw, at 1½*d.* per stone	0	0	1½
	£0	14	10½

Unbruised and Unmixed Food.

1½ bolls of Oats, at 8*s.* per boll	£0	12	0
10 stones of hay, at 8*d.* per stone	0	6	8
	£0	18	8

Supposing the above table to be correct, it would make a difference in favour of the mixed food system at South Hetton and Murton, with the present number of horses, of upwards of 1500*l.* per year. I shall briefly recapitulate some of the principal advantages derived from the plan of feeding, as adopted at South Hetton and Murton Collieries. 1. The animals' provender is better masticated and mixed with the fluids of the mouth, consequently easier and better digested, and more nutriment obtained than when the Oats are given whole, the hay uncut and unmixed; therefore, a less quantity of food is required. 2. The state of the digestive organs of animals so fed is better than when the provender is otherwise given. In an average number of 220 animals, during nearly four years, diseases of the digestive organs were very seldom seen, having only averaged 0.45 per cent., which is nearly twenty times less than what occurred at East Hetton under the old plan of feeding, and which is more than twenty times less than that which takes place in agricultural horses. 3. No hay is spoiled in going down the pits, in the workings, or under the animals' feet at night. 4. Horses do not eat less hay by its being cut; where the advantage is gained is, that the animal is compelled to masticate his other provender much better by being mixed with cut hay than he otherwise would do. The only saving of hay effected by cutting it into chaff is, that which would be wasted in going down the shafts, in the workings, and in the stables under the horses' feet, which we believe would average at least 2 lb. for each horse per day. This waste, in an establishment like South Hetton, would amount to 472 lb. per day, or, taking hay at 6*l.* per ton, to the very large sum of 462*l.* per year. 5. It is of the utmost importance for the general good health of horses in a large establishment to use a variety of kinds of provender. We use at South Hetton Oats, Beans, Peas, bran, Barley, Tares, Linseed, old and new land hay, green Clover and Tares, Turnips, and straw. 6. In an economical point of view, it is very important to regulate the quantity of each kind of provender according to the amount of labour the animals have to undergo. Thus, if the pits are working eleven days per pay, with occasional overtime, leguminous seeds and bran should be largely given, and less Oats and straw; and, *vice versâ*, when the pits are working only seven or eight days per pay, the Beans, Peas, Barley, &c., should be decreased, and the Oats, straw, &c., increased; and in all cases where horses and ponies are worked extremely hard, nothing would be more economical than to employ a person to give every animal a feed of corn about the time that the foreshift men are leaving their work.—*Mr. Huntley before the Newcastle Farmers' Club.*

Tenants and Game Preservers.—Recently, at the Leeds Assizes, Mr. Thomas Dickons, a tenant under the Duke of Portland, obtained a verdict for 500*l.* damages on account of a libellous statement which certain parties who rented the game under the Duke had made against him. The game lessees [accused Mr.] Dickons of disturbing the game by dogs and other means, also of instigating other tenants on the property to do the same. The consequence was a discharge from the Duke's steward, whereupon Mr. Dickons brought an action, and was successful in obtaining a verdict. The libel was in the form of a letter from the associated gentlemen who leased the game to the agent, in which was represented at some length the injury inflicted on the game by Mr. Dickons and his dogs. The defence was principally based on the assumption that the letter was a privileged communication, and the learned judge appeared to lean to the same view. The jury, after two hours' deliberation, came, after some difficulty, to a unanimous decision in favour of the plaintiff.

Maize as Food for Horses.—It appears from the report of the half-yearly meeting of the London General Omnibus Company, that Maize has been used by the company during the last half-year exclusively, instead of Oats, The report states: "The very encouraging results which attended the use of Maize as provender in the previous half-year induced the directors to adopt it still more extensively during the past half-year, and at length to substitute it entirely for Oats. During the summer no other corn had been used for the working studs. The substitution of Maize for Oats effected a saving of 14,172*l.* in the half-year."

Calendar of Operations.

SEPTEMBER.—In our northern counties this is generally counted harvest month. In early seasons much of the crop is cut down in August, but in late ones the work of ingathering extends into October. Harvest operations begin in Sussex about a month or six weeks before they commence in Caithness, there being a difference of rather more than a month between early and late seasons. Hence the bands of Irish reapers, what make their appearance in the south of England, return home from Scotland. The harvest is also later in elevated districts than in low ones, and the difference in many places is greater than that due to latitude. Thus harvest is earlier along the shores of the Cromarty, Beauly, and Moray Friths than in Banff, Aberdeen, Kincardine, and Fife shires, and the more elevated counties of the North of England. Drainage and improved cultivation, including manuring and seeding, have advanced the harvest fully a month in almost every county of the kingdom. The weather, too, although generally good in England, often begins to break and become fickle about this time, so that September is more particularly characterised by the above differences than its predecessor, more especially in late districts where Oats is the principal crop grown, and which in bad seasons is often prematurely ripened by frost. In the late districts of the North the farmer's weather-glass is consulted with an interest not known in the early ones of the South. In the South, again, wet weather in the early part of the month is sometimes attended with a high temperature, so that the corn is liable to sprout in the stook and heat in the stack. Small sheaves loosely bound is the best protection, being less liable to vegetate, while they are more easily dried for stacking; and the stacks, whether long, on the English plan, or round, on the Scotch, should be built on elevated stands, with open framing, to keep up the centre of the stack and let in air.

Buckwheat, in fine seasons, will be ready for harvesting in the early part of the month, and in late ones towards its close. As the plant flowers and ripens its seed at the same time, the crop should be cut before the first ripened seeds begin to shed. When cut it is left in loose bundles till the green portion is dry, and should be turned gently once or twice, according to the weather, taking care not to shed the seed. The bundles may be bound up and stacked as Turnip seed; but it is more common to thresh out the seed, and stack the straw for litter.

Hop-picking is due this month. When grown on poles, the general practice, the lines are cut about 2 or 3 feet from the ground, which allows the loaded poles to fall over upon a table or "bin." If equally ripened, the Hops may be bagged as one quality; but, if otherwise, they may be divided into three qualities in the picking,—the dark, or over-ripe; the brown, or ripe; and the green. The Hops are next taken to the oast, kiln-dried, and put in pockets when cool. Fine dry weather in picking is essential to success, and any dew in the morning must be off, as the slightest damp injures the flavour or bitter principle, thereby reducing the market value of the crop.

Aftermath-hay, or meadow-hay farms, is made during the month. The practice is similar to that of harvesting the first crop, with two exceptions—the weather and greater succulency of the Grass—and the softness of the hay and increased liability to overheating in the stack. If, however, the weather is fine, the mowing and haymaking machines now in use soon bring the crop into the stackyard. As the Grass may be allowed to grow for a short time without sustaining comparatively any harm from running to seed, the mowing machine should never be yoked in wet or unsettled weather. However, the crop should not be allowed to grow so rank as to become blanched at the bottom. When cut short and green it makes fine forage for soiling milch cows and stock generally; and as much of the aftermath should be consumed this way as practicable, the crop being worth more when green than when made into hay.

Seed Clover is very generally harvested, in early seasons, about the beginning of the month, and the later ones towards its close; the crop having been mown or fed in May or June, insures a greater uniformity of flowering and ripening. The crop may be cut with the mowing machine in preference to the scythe, the former, if sharp and cutting well, effecting less tearing and shedding of the seed than the latter; but the after operations are better done by manual labour than by horse machines. If the mower leaves the Clover in a swathe, then the swathe, when the upper side is dry, should be gently turned as directed in making Clover-hay. In fine dry weather the crop is soon ready for the stack or hay-barn; but in wet unsettled weather the harvesting of seed Clover requires no end of patience, to avoid heating and mouldiness.

Permanent Grass.—Lay down land as soon as crops are removed. This plan is to be preferred to sowing the Grass seeds with the corn crop, as a much closer and better plant of young Grass can be obtained before winter.

Autumn fallows.—The application of steam-power to the cultivation of land in autumn, as soon as the different crops are removed from the ground, is one of the most important of modern improvements in agriculture. The advantage of breaking up stubble-lands early has been known to farmers from time immemorial, but until less or more rain falls horse implements could not be successfully worked on heavy soils. These, too, stand most in need of deep thorough tillage at this season; and it often happens that, when once the weather breaks, too much rain falls before the work can be done by teams. It is otherwise with the steam-plough and cultivator, which can be worked as soon as the crops are off, and the drier the land the better.

Milch Cows, unless on the richest pastures, require a daily supply of green forage of some kind. The produce of irrigated meadows is the best. Tares, Lucerne, and Sainfoin, are grown purposely to afford the daily supply required; but in too many instances cows are hard put to this month. Old cows may be allowed to go dry for fatting.

Farm Horses.—Autumn fallowing, and the practice of taking stolen crops of Turnips have greatly increased the labo urs of the teams, ascompared with the old practice of a short breathing time after the work of ingathering; consequently, they now require to have a full allowance of corn.

Swine.—As last month, keep the piggeries as cool and clean as possible, and avoid food of a heating character. *W. B.*

Notices to Correspondents.

FARM PROFITS: "*Half Pay, and his Cows*," *G A H.* Too late for this week. Why leave a short communication on a current subject till it cannot reach us before Friday?

RAPE CAKE, ITS CHEMICAL COMPOSITION, &c.: *Horticulturist* writes as follows:—"Having for many years used rape-cake, crushed fine, for top-dressing Wheat, and drilling with Turnip seed with the greatest success (in fine, I consider it the best of artificial manures), I shall be greatly obliged by any of your numerous readers informing me, through the medium of your columns, its constituents, the proportion of phosphates, and ammonia; and also if, for garden purposes, it will answer to use as liquid manure—if so, the quantity, in weight, to 36 gallons of water."

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, and Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, Royal Gardens, Kew, &c.

The best Shading is "Frigi Domo" Netting.

White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for

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Two yards wide .. .. 1*s.* 9*d.* per yard run.
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An improved make, 2 yards wide .. 1*s.* 9*d.* per yard.
An improved make, 3 yards wide .. 2*s.* 8*d.* per yard run.

"Rochford, Essex, June 4, 1869.

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"Mr. E. T. ARCHER, 7, Great Trinity Lane, Cannon Street, E.C."

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JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

GLASS for ORCHARD HOUSES,

As supplied by them to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.

Each Box contains 100 feet. The prices only apply to the sizes stated.

Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.

	16 oz. to the foot.	21 oz.
Fourth quality	15*s.* 0*d.*	.. 19*s.* 6*d.*
Third ditto	16*s.* 0*d.*	.. 22*s.* 6*d.*
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The above prices include the boxes, which are not returnable.

HORTICULTURAL GLASS.

Stock sizes, 16-oz., in 100 feet boxes, boxes included.

These prices only apply to the sizes stated.

				4ths.	3rds.	2nd.
				s. d.	*s. d.*	*s. d.*
11 by 9	12 by 9	13 by 9	14 by 9	13 6	15 6	17 6
12 „ 10	13 „ 10	14 „ 10	15 „ 10			
13 „ 11	14 „ 11	..	..			
14 „ 12	15 „ 12	15 „ 11	16 „ 11			
18 „ 12	19 „ 12	16 „ 12	17 „ 12			
16 „ 13	17 „ 13	20 „ 12	..	15 0	16 0	18 6
16 „ 14	20 „ 13	18 „ 13	..			
	17 „ 14	18 „ 14	..	16 to 17 oz. to the foot.		
	20 „ 14					

SMALL SHEET SQUARES.

In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	.. 12*s.* 6*d.*
8 by 6	8½ by 6½	9 by 7	9½ by 7½	
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in. in.		4ths.	3rds.	2nds.	Best
20 by 12					
20 by 13	Per 100 feet	15 oz.	12*s* 3*d*	15*s* 6*d*	16*s* 9*d*	18*s* 0*d*
20 by 14					
20 by 15		21 oz.	18*s* 0*d*	20*s* 0*d*	22*s* 0*d*	24*s* 0*d*
20 by 16					

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in. in.	in. in.	in. in.	in. in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7	11*s* 3*d*	12*s* 6*d*	14*s* 0*d*	15*s* 6*d*
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½				

Per 100 feet.

10 by 8	12 by 9	12½ by 10½	14½ by 10½	11*s* 9*d*	14*s* 9*d*	15*s* 3*d*	17*s* 6*d*
10½ by 8½	12½ by 9½	13 by 10	15 by 10				
11 by 9	13 by 9	13½ by 10½	13 by 11				
11½ by 9½	12 by 10	14 by 10	14 by 11				

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in. in.	in. in.	in. in.	in. in.	4ths.	3ds.	2nds.	Best.
15½ by 10½	14 by 12	22 by 12	22 by 16	12*s* 3*d*	15*s* 6*d*	16*s* 9*d*	18*s* 0*d*
16 by 10	14½ by 12½	17 by 13	24 by 16				
14½ by 11½	15 by 12	23 by 13	20 by 17				
15 by 11	15½ by 12½	18 by 14	22 by 17				
15½ by 11½	16 by 12	22 by 14	24 by 17				
16 by 11	16½ by 12½	24 by 14	20 by 18				
21 by 11	17 by 12	22 by 15	22 by 18				
13 by 12	18 by 12	24 by 15	24 by 18				

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

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15 oz.		21 oz.	
4ths quality, per 300 feet case,	34*s.*	4ths quality, per 200 feet case,	34*s.*
3ds „ „	40*s.*	3ds „ „	40*s*
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Best „ „	75*s.*	Best „ „	75*s.*

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Per cwt.—*s. d.*		Per gallon.—*s. d.*	
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SECONDS WHITE LEAD	28 0	BOILED OIL	3 2
GROUND PATENT DRYERS, 3*d.* to 4½*d.* per lb.		TURPENTINE	2 9
„ OXFORD OCHRE, 3*d.* to 4½*d.* per lb.		LINSEED OIL PUTTY, 8*s.* per cwt.	
„ RAW UMBER, 4½*d.* to 6*d.* per lb. [per lb.		Fine OAK VARNISH, 10*s.* to 12	0
„ BURNT do., 6*d.* to 9*d.*		„ CARRIAGE do., 12*s.* to 14	0
GREEN PAINT, all shades,	28*s.* to 60 0	„ PAPER do. 10*s.* to 12	0
BLACK PAINT,	24*s.* to 36 0	„ COPAL	16 0
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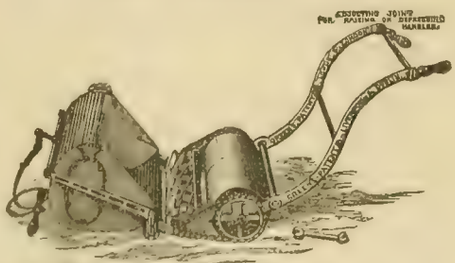
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PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

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The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England, Ireland, and Scotland.

HORTICULTURAL and AGRICULTURAL IMPLEMENTS, GARDEN SEATS and CHAIRS, FOUNTAINS, VASES, PLAIN and GALVANISED WIRE NETTING and ORNAMENTAL WIRE WORK of every description.

Having very extensive Premises in London, we are in a position to do all kinds of Repairs there, as well as at our Leeds Establishment.

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;
and 54 & 55, BLACKFRIARS ROAD, LONDON, S.

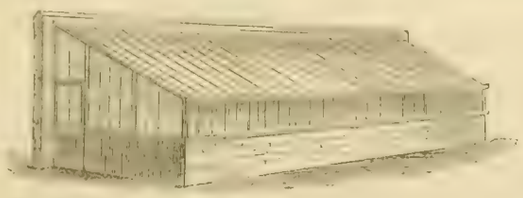
A LONG-FELT WANT PROVIDED.

A NEW ERA IN THE HORTICULTURAL WORLD.

VERY PERSON POSSESSING a GARDEN CAN NOW ERECT for HIMSELF a GREENHOUSE at a TRIFLING COST.

DENNIS & COMPANY, CHELMSFORD,

Have succeeded in producing a really good, strong, and useful Building for less than £5, so simple in its construction that any ordinary mechanic can fix it with ease, thereby doing away with the cost of expensive mechanics' time and travelling fares.



LEAN-TO, with Front Lights to Open (Class B.)

Suitable for Cucumber or Melon Houses, Stoves or General Forcing Houses, Small Vineries, Greenhouses, Peach-houses, &c. They are made only of the following external widths, with two glass ends and one door, including 16-oz. Horticultural Glass, cut up, and one priming coat of paint on the wood framing:—

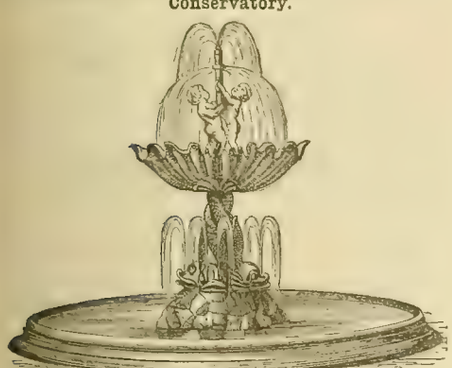
Width.	Height to Eaves.	Height to Ridge.	Length 6 feet 4½ inches.	For every additional 6 feet, add	For glass partition and door, add	If doors at both ends, add	If only one glass end, deduct
Ft. Ins.	Ft. In.	Ft. In.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
5 4½	5 0	7 8	4 11 0	2 8 3	1 4 6	0 5 3	0 18 6
6 3½	5 0	8 1½	5 6 9	2 14 3	1 9 3	0 5 3	1 13 3
			12 ft. 4½ in.				
			£ s. d.				
7 2½	5 0	8 7	8 16 0	2 17 6	1 13 9	0 5 3	1 7 9
8 1	5 0	9 0	9 15 2	3 3 0	1 17 9	0 5 3	1 11 6
10 0	5 0	10 0	12 10 3	3 16 9	2 11 6	0 5 3	2 5 6
12 0	5 0	11 0	14 6 9	4 7 6	3 3 0	0 5 3	2 17 9

Note.—For every additional length of less than 6 feet, the cost of 6 feet will be charged.

Full particulars as to the various classes of Buildings, their dimensions, adaptations, and suitability for different purposes are contained in their Catalogues, which will be forwarded on application to

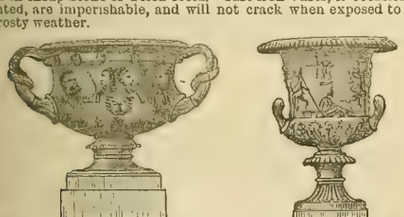
T. H. P. DENNIS AND COMPANY, HORTICULTURAL BUILDERS AND ENGINEERS,
ANCHOR IRON WORKS, CHELMSFORD.

Vases and Fountains, for the Garden and Conservatory.



ANDREW HANDYSIDE AND CO.,
Britannia Foundry, Derby. | 32, Walbrook, London.

The Britannia Iron Works have for the last 40 years been well known for the production of fine Iron Castings. The use of Cast-iron permits a delicacy of outline, and smoothness of surface, impossible in cheap Stone or Terra-cotta. Cast-iron Vases, if occasionally painted, are imperishable, and will not crack when exposed to wet or frosty weather.



Five large Sheets of Designs and Price Lists post free for 6 stamps. A. H. & Co make the better kind of IRON and GLASS CONSERVATORIES, and have constructed some of the largest and finest in the kingdom.

WANTED to PURCHASE, a NURSERY and SEED BUSINESS.—Full particulars to be sent by letter only, addressed to W. B., care of Hurst & Son, 6, Leadenhall Street, E.C.

WANTED to RENT, IMMEDIATELY, on Lease, a few ACRES of good LAND for Horticultural purposes. Apply by letter, stating terms, to K. W., Strontian Lodge, Cotham, Bristol.

WANTED to RENT, on Lease, from 50 to 100 ACRES of LAND, near a Station on the South-Western Line, suitable for Market Gardening and Fruit Growing, within 20 miles of London. A. Z., 7, James Street, Covent Garden, W.C.

A Bargain.

TO BE SOLD, with Immediate Possession, the LEASE, GOODWILL, and STOCK in TRADE of a West-end Nurseryman and Florist. Good connection, and satisfactory reasons for disposal. A. B. C., 49, Grosvenor Row, Pimlico, S.W.

Nurseries, Coventry.

TO BE DISPOSED OF, on very advantageous terms, comprising about 7¼ Acres, eligibly situated, with Vinery, Greenhouses, &c., conveniently arranged, and well supplied with Water. Admirably adapted for a Grower of Fruit for the London Market, being close to the Railway Station.
Apply to J. OGDEN, on the Premises.

Sales by Auction.

Sydenham, S.

HIGHLY IMPORTANT SALE of EXHIBITION SPECIMENS of STOVE and GREENHOUSE PLANTS, ORCHIDS, &c.

MESSRS. PROTHEROE AND MORRIS have received instructions from the Executors of the late Mr. Osman Rhodes to SELL by AUCTION, without reserve, on the Premises, the Crystal Nursery, Sydenham, Kent, on TUESDAY, September 7, at 11 for 12 o' Clock precisely, the whole of this celebrated collection of STOVE and GREENHOUSE SPECIMENS and HALF-SPECIMENS containing many Plants of superlative merit, and consisting of, Stephanotis, Ixoras, Franciscea, Allamandas, including the entire Stock (about 110 plants) of A. Griffithii, the brightest-coloured variety in cultivation; Alocasias, Dracænas, likewise splendid examples of Ericas, useful young specimens of Azalea indica, a quantity of large Camellias, chiefly Double White, many of which are 10 feet high; Pimeleas, Eriostemons, Chorozemas, Aphelexis, Epacris, Leschenaultia, several handsome Yucca aloifolia variegata; some choice Orchids, including Oncidium ampulatum majus, Cypripedium barbatum superbum, Vanda tricolor, Angulоa Clowesii; a few large Tree Ferns (Dicksonia antarctica); three large Orange Trees, 8 ft., in strong square boxes. Also, Six RHODES' NEW HORIZONTAL TUBULAR BOILERS, and Two capital EXHIBITION PLANT VANS.

May be viewed two days prior to the Sale, and Catalogues may be had on the Premises of MRS. RHODES, and of the Auctioneers and Valuers, Leytonstone, Essex.

Coleshill, Berks.

SHORT NOTICE of a very IMPORTANT SALE of about 50 SHORTHORNS, 420 handsome pure-bred SOUTHDOWN EWES, RAM and other LAMBS, and a few PRIME WETHERS, 7 choice pure-bred COLESHILL PIGS (Boars and Sows), 20 fine SUFFOLK CART HORSES and COLTS, a very large collection of the very best modern AGRICULTURAL IMPLEMENTS, prime MEADOW HAY, and 160 ACRES of GRASS KEEPING, the property of the Right Hon. the Earl of Radnor, who has Let the greater portion of the Home Farm.

MR. J. DYKE has been favoured with instructions to SELL by AUCTION, on the premises, at Coleshill, Berks, on WEDNESDAY, September 8, the above-mentioned valuable STOCK, which will comprise 26 well-bred Cows and Heifers in milk, 7 Fat Cows and Heifers, 9 2-yr. old and Yearling Heifers, 6 Steers, 1 Bull Calf, 1 Ox ditto, and 1 Cow ditto; 120 pure-bred Southdown Ewes, 97 Ewe Lambs, 150 Wether ditto, 14 Ram Lambs, a few very prime two-tooth and four-tooth Wethers; 17 Suffolk Horses and Colts; 5 Sows and 1 Boar of the Coleshill breed; Rick of prime Meadow Hay (to go off), 159 Acres of Grass Keeping; a few lots of Poultry; 30 dozen of Sheep Hurdles, 30 Iron and Wood Sheep Troughs, 20 ditto Racks, 17 Iron Pig Troughs, 10 Cow Cribs, 24 Sets of Trace and Thil Harness, 5 Sets of G.O. Harness, 4 Waggons, 10 Harvest and Scotch Carts, Pony Carriage, 4 Clod Crushers and Rollers, 2 Scarifiers, Set of Iron Drags, 5 Sets of Iron and Wood Harrows, 2 Chain ditto, 2 Horse Hoes, Seed and Water Drill, 1 Seed and Manure ditto, 1 Swede and Mangel ditto, 1 Bean Drill, 12 Ploughs (by Howard, Ransome, and Hornsby), 4 Plough Carriages, 6 Sets of Iron Whipples, 4 Hay Machines (by Ashby & Smith, and Ransome), 1 Horse Rake, 4 Heel Rakes, 1 Root Pulper, 3 Turnip Cutters, 3 Chaff Cutters, 1 Furze Crusher, 1 Water Cart, and other useful effects.

ORDER OF SALE.—To commence punctually at 11 o'Clock with the Implements; Luncheon from 1 till 2; the Sale will then be resumed with the pure-bred Southdown Sheep, and then will follow the Pigs, the Cattle, and the Horses.

The Auctioneer earnestly invites the early attendance of purchasers at this important Sale, as it has been determined to Sell the whole in one day, in the hope that it will not only conduce to the interest of the Vendor, but also to the convenience of Purchasers, by saving their valuable time at this busy season; and invites particular attention to the Ewes and Ewe Lambs, which comprise the remaining portion of the valuable Flock of Southdowns, and were left out of the previous Sale because it was impossible to Sell the whole in one day.

The Cattle consist of a very useful lot of Shorthorns. The Pigs are also of the same type and blood as those sold on the 26th August last. The Implements will be found to include most of the best of the kind mentioned above, by all the best modern Manufacturers, and are really a fine collection of sound and well-made articles. The Horses are all of the Suffolk breed, and include 6 handsome Colts.

Coleshill is four miles respectively from the Faringdon and Shrivenham Stations on the Great Western Railway.

Catalogues will be forwarded on application to the Auctioneer, Faringdon, Berks.

To Noblemen, Gentlemen, and Others about to Plant.

HIGHLY IMPORTANT SALE of CONIFERS, CAMELLIAS, and AZALEAS, at THE CEDARS, CASTLE BROMWICH, near BIRMINGHAM.

MESSRS. THOMAS AND BETTRIDGE are favoured with instructions from C. J. Perry, Esq., the eminent Horticulturist, to SELL by AUCTION, on MONDAY, September 6, commencing at 11 o'Clock, a Portion of the beautiful SPECIMEN CONIFERS, consisting of 200 Wellingtonia gigantea, from 4 to 11 feet high, all being raised from Seed, consequently are well rooted, and will move to any distance with safety; 100 Picea Nordmanniana, from 3 to 9 feet, the handsomest of all hardy Conifers, is never injured by the most severe winters, and will grow in all soils; 100 Picea Pinsapo, 2 to 8 feet; Picea nobilis, &c. Also, 40 extra fine SPECIMEN CAMELLIAS, and a few grand SPECIMEN AZALEAS.

The whole may be viewed during the week preceding the Sale, on application to the Gardener. Purchasers will have the option of removing the Shrubs at any period within six months from the Day of Sale. The Auctioneers have much pleasure in calling attention to this Sale, and confidently assert that the entire Collection is not to be surpassed in England for symmetry and beauty.

Catalogues may be had on application at the Auctioneers' Offices, 11, Temple Row, Birmingham.

Elmham Hall, Norfolk.

SOUTHDOWN SHEEP, and NORFOLK RED-POLLED CATTLE.

MR. EDMUND BECK is honoured with instructions to announce that the FOURTH ANNUAL SALE and LETTING of the above STOCK, the property of and bred by the Right Honourable Lord Sondes, is fixed for WEDNESDAY, September 8 (Luncheon at 2, and the Sale will commence at 3 o'Clock), and will comprise 110 very superior SHEARLING EWES, and 50 PURE-BRED STOCK EWES, 90 EWE LAMBS, and 150 WETHER LAMBS FOR SALE; and 25 SHEARLING and TWO-SHEAR RAMS FOR LETTING; 20 HEAD of NORFOLK RED-POLLED CATTLE, including 17 HEIFERS forward in calf, and 3 YOUNG BULLS.

The Auctioneer has much pleasure in soliciting the attendance of Breeders upon this occasion, as the quality of the stock is in every respect worthy of the high celebrity that the Elmham Herd and Flock now so eminently holds.

Elmham Station (Dereham and Wells Branch), Great Eastern Railway, is one mile from the place of Sale, and conveyances will meet all trains during the day. Trains from London at 8 A.M.; Cambridge, 10·5; Peterboro, 8·20 via Midland; Norwich, 12 noon; Lynn, 12 2, are due at Elmham 1 34.

Passenger Carriage will be attached to the Goods Train leaving Norwich at 8·30, arriving at Elmham about 11.

Catalogues can be obtained of Mr. FULCHER, Elmham Park; and of the Auctioneer, Oxwick, Fakenham.

Choice Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, September 14, at half past 12 o'Clock precisely, an importation from New Grenada, comprising many of the most choice and rare ORCHIDS of that country, including very fine plants of—

Cypripedium Schlimii	Odontoglossum nevium
Uropedium Lindeni	,, triumphans
Maxillaria venusta	,, hastilabium
Angulоa Clowesii	,, phalænopsis
Oncidium cucullatum	Ada aurantiaca

Also, from Brazil, very fine Plants of MILTONIA MORELLIANA, SPECTABILIS, and VIRGINALIS; and, from Borneo, fine Plants of PHALÆNOPSIS GRANDIFLORA.

On view the Morning of Sale, and Catalogues had.

Extensive Sale of Pure-Bred Shorthorns,

DAIRY CATTLE, PRIME GRAZING STOCK, and SOUTHDOWN SHEEP, at PETERSFIELD, HANTS.

MR. JOHN THORNTON will SELL by AUCTION, on WEDNESDAY, September 15, at the Borough Farm, Petersfield, the entire HERD of PEDIGREE SHORTHORNS, pure-bred DEVON CATTLE, and ALDERNEY COWS; also the prime grazing stock of HEIFERS and STEERS, numbering altogether about 150 Head, the property of W. T. Longbourne, Esq. These animals have been selected and bred from first-rate stocks, and are in nice condition for making superior beasts.

The Flock of 700 pure-bred SOUTHDOWNS will also be SOLD with the Cattle, without any reserve, in consequence of Mr. Longbourne giving up farming.

Catalogues with particulars may be had of JOHN THORNTON, 15, Langham Place, London, or at the Farms.

Sale of Very First-class Shorthorns and pure Border Leicester Sheep.

MR. JOHN THORNTON will SELL by AUCTION, on TUESDAY, September 21, at Keavil, Dunfermline, Fifeshire, the ENTIRE HERD of SHORTHORNS and BORDER LEICESTER SHEEP belonging to George Robertson Barclay, Esq. Among the Shorthorns are some very celebrated animals, viz, Seraphina 13th, Fan Fan, Heir of Englishman, Baron Booth, and others, as well as several prize animals, including the first and second prize yearlings at the Highland Society's meeting at Edinburgh.

The Sheep are very choice, of the Polwarth blood, and the whole stock will be sold without any reserve, in consequence of the sale of the estate.

Catalogues, with Pedigrees, may be had of Mr. JOHN THORNTON, 15, Langham Place, London, W. or of Mr. EASTON, Keavil Dunfermline.

Shropshire Sheep.

The NINTH GREAT CENTRAL SALE, at BINGLEY HALL, BIRMINGHAM.

MR. JOHN B. LYTHALL will SELL by AUCTION, on THURSDAY, September 16, at 11 o'Clock, 150 pure-bred SHROPSHIRE RAMS, and 500 EWES, from the noted Flocks of—

The Right Hon. Lord Sudeley	Mr. Nock (winner of numerous
The Right Hon. Lord Willoughby de Broke	Prizes at R. A. S. and Birmingham Christmas Shows)
Mrs. Beach (winner of many	Mr. H. Smith (winner of numerous
Prizes at the R. A. S. and else-	Prizes)
Mr. Glover [where]	Major Wollaston
Mr. Jenkins	Mr. W. Yates (winner of many
Mr. King [Prizes)	Prizes at Birmingham Christ-
Mr. E. Lythall (winner of many	mas Show and elsewhere)

And others.

Auctioneer's Offices, 39, New Street, Birmingham.

Brailes House, Shipston-on-Stour.

IMPORTANT SALE of SHORTHORNED CATTLE.

MR. STRAFFORD begs to announce that the THIRD BIENNIAL SALE of SHORTHORNS belonging to Henry J. Sheldon, Esq., will take place on FRIDAY, September 17, at Brailes House, and will consist of about FORTY HEAD of BULLS, COWS, and HEIFERS, from this famed herd, which has been judiciously bred for several years, principally from Fawsley and Kirklevington blood. The Cows and Heifers are in a healthy breeding state, and the whole will be SOLD, as in former sales, without any reserve. Mr. Strafford can with confidence recommend them to the favourable notice of purchasers.

Catalogues, with Pedigrees, may be had on application to Mr. STRAFFORD, 13, Euston Square, London, N.W.; or of Mr. SHELDON, at Brailes House, Shipston-on-Stour.

Important Annual Sale of Nursery Stock.

To NOBLEMEN, GENTLEMEN, NURSERYMEN, AND OTHERS.

MR. HENRY WALTERS has received instructions from Mr. B. Whitham, to offer for SALE by AUCTION, at his Nursery, Reddish, near Stockport, on WEDNESDAY and THURSDAY, September 29 and 30, at 11 o'Clock each day, a portion of his VALUABLE NURSERY STOCK, comprising about 10,000 Choice Hybrid Rhododendrons, well set with bud, 2 to 4 feet high, which have been raised from the very finest varieties in England; fine Azaleas, 1½ to 2½ feet high, well set with bud and bushy; Forest and Ornamental Trees and Shrubs of every variety. The above stock is well worthy the attention of intending planters, being in fine healthy condition, and possessing the great advantage of having been grown on a stiff clay subsoil, and in a cold climate. The plants have also been periodically transplanted to insure safe removal.

Catalogues and further information may be had post free on application to B. WHITHAM, the Nurseries, Reddish, near Stockport; Mr. GREEN, Falstaff Inn, Market Place, Manchester; and at the Auctioneer's Office, Blyth Bridge, Stafford.

DUTCH FLOWER ROOTS.

JAMES VEITCH & SONS,

ROYAL EXOTIC NURSERY, CHELSEA, S.W.,

BEG TO ANNOUNCE THAT THEY HAVE RECEIVED

THEIR ANNUAL SUPPLY OF BULBOUS ROOTS FROM HOLLAND,

And are pleased to say that they are in excellent condition.

CATALOGUES are now ready, and will be forwarded Post Free on application.

J. V. AND SONS desire to impress upon those who patronise them, the great advantage of giving them their Orders early, as the successful cultivation of Bulbs depends in a great measure upon their being planted early in the season.

CHARLES TURNER'S

DESCRIPTIVE CATALOGUE of EXHIBITION and other

HYACINTHS, NARCISSUS, TULIPS, &c.,

NOW READY, POST FREE ON APPLICATION.

C. T. has received his FIRST CONSIGNMENT of the above, which are of unusually fine quality this season, and invites inspection of the same.

THE ROYAL NURSERIES, SLOUGH.

CHOICE BULBS.

MESSRS. HOOPER & CO.

BEG TO ANNOUNCE THE PUBLICATION OF THE

AUTUMN SUPPLEMENT TO THEIR GENERAL CATALOGUE,

Full of interesting subjects, besides very complete LISTS of HYACINTHS, TULIPS, NARCISSI, and all the usual Bulbs. May be had upon application.

HOOPER AND CO., COVENT GARDEN, LONDON, W.C.

CHOICE BULBS AND PLANTS

FOR WINTER AND SPRING FLOWERING.

EDWARD TAYLOR,

NURSERYMAN, SEEDSMAN, AND FLORIST,

MALTON, YORKSHIRE,

Begs to announce the publication of his NEW CATALOGUE of the above, and will be glad to forward the same gratis on application. The roots are now arriving in excellent condition from the best Continental growers, and early orders are respectfully solicited.

E. T. offers the following, at the prices affixed, with the usual allowance to the Trade:—

SCILLA SIBIRICA, 1*4s.* per 100.
Mixed DOG'S-TOOTH VIOLETS, 4*s.* 6*d.* per 100.
VIOLA CORNUTA ALBA, 6*s.* per dozen.
VIOLA CORNUTA, mauve green, new seed, 6*d.* per pkt.
PYRETHRUM GOLDEN FEATHER, new seed, 6*d.* and 1*s.* per packet.

The Trade supplied by the Dozen or Hundred Packets on liberal terms.

N.B. The AUTUMN TRADE CATALOGUE is now ready, and may be had gratis and post free.

Dutch Flower Roots.

FRANCIS & ARTHUR DICKSON & SONS, have received from the most celebrated Growers in Holland their first large importation of the above, and have the satisfaction to say that the Bulbs are large, sound, and well ripened. Early orders respectfully solicited. DESCRIPTIVE PRICED CATALOGUES post free on application.
The "Old" Established Seed Warehouse, 105, Eastgate Street, Chester.

Dutch Flower Roots.

DOWNIE, LAIRD, AND LAING have now received their first Importations of Flower Roots, consisting of HYACINTHS, POLYANTHUS NARCISSUS, Double NARCISSUS, CROCUS, TULIPS, JONQUILS, RANUNCULUS, ANEMONES, SNOWDROPS, &c., &c., which have all been carefully selected from the most celebrated establishments in Holland. The Bulbs are this season well ripened, large, and very heavy, and have arrived in splendid condition.

D., L., AND L. offer the following assortment for One Guinea:—

12	choice named Hyacinths	24	fine mixed Ranunculus
12	,, mixed Hyacinths	24	,, ,, Anemones
6	,, Polyanthus Narcissus	12	,, ,, early Tulips
100	,, named Crocus	12	,, ,, late Tulips
50	,, mixed Snowdrops	12	,, ,, Jonquils

Packed in hamper. Carriage paid.

D., L., AND L. can supply fine Bulbs of the Prize HYACINTHS at Kensington, Regent's Park, and the Royal Caledonian Society's Shows, at 12*s.*, 15*s.*, and 24*s.* per dozen.
DESCRIPTIVE CATALOGUE of DUTCH BULBS forwarded post free.
Stanstead Park Nurseries, Forest Hill, London, S.E., and at Edinburgh.

SCRIM CANVAS, 72 inches wide, from 7½*d.* per yard; and HESSIAN, 74 inches wide, at 7½*d.* per yard, is the best and cheapest material for Protecting Fruit Trees or Shading Greenhouses. Samples forwarded on application.
BLIND TICKING, SAIL CLOTH, and FORFAR SHEETING at the lowest prices.
Estimates given for outside SHOP BLINDS, fitted on the improved self-acting spring roller.
JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London.

SEED BAGS and SACKS, and BAGS of every description in use, supplied at the lowest possible prices. ARCHANGEL and TAGANROG MATS of good quality, for Covering, Tying, or Shading; also Petersburg and Prussian DUNNAGE MATS. Price-list forward d post free on application.
JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London.

Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the Corporate Mark, OBTAIN WARRANTED, without which none are genuine.
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make all of which are warranted both by Sellers and Makers.
S. & C.'s PRUNING and BUDDING KNIVES are the best and the cheapest in the market.
Paxton Works, Sheffield. Established upwards of 126 years.

HEAT DETECTOR (Registered August 4, 1869).—The object of this simple implement is to convey a Thermometer into the interior of Stacks, or other inflammable substances, to ascertain their heat; the ordinary mode being to insert a rod, and trust to the hand to ascertain the temperature. It is a very simple and inexpensive implement, and may save the Farmer and others many hundreds of pounds by giving warning that the substance is likely to fire.
Licences to Sell and Manufacture granted by the Inventor, THOS. C. EYTON, Esq., Eyton, near Wellington, Salop.

The New Vade Mecum (Invented & Manufactured by CHARLES H. VINCENT, OPTICIAN, of 23, Windsor Street, Liverpool), consists of a TELESCOPE well adapted for Tourists, &c., to which is added an excellent MICROSCOPE of great power and first-class definition, quite equal to others sold at ten times the price. Wonderful as it may seem, the price of this ingenious combination is only 3*s.* 6*d.*; and Mr. VINCENT sends it (carriage free) anywhere, with printed directions, upon receipt of Post-office order or stamps to the amount of 3*s.* 10*d.*

GARDEN WIRE WORK, consisting of ARCHES, BASKETS, FLOWER STANDS, &c.

GARDEN SYRINGES	4*s.* 6*d.* to 26*s.*
GARDEN ENGINES	26*s.* 0*d.* to 105*s.*
GARDEN WATER BARROWS	45*s.* 0*d.* to 90*s.*
GARDEN ROLLERS	35*s.* 0*d.* to 70*s.*
GARDEN CHAIRS	6*s.* 6*d.* to 30*s.*
GARDEN SEATS	16*s.* 0*d.* to 90*s.*
GARDEN TOOLS and WATERING POTS.	
PATENT LAWN MOWERS	70*s.* 0*d.* to 130*s.*
To cut 10 inches	£3 10 0
,, 12 inches	4 10 0
Suitable for a Lady.	
To cut 14 inches	£5 10 0
,, 16 inches	6 10 0
Suitable for a Man.	

WILLIAM S. BURTON, Furnishing Ironmonger, by appointment to his Royal Highness the Prince of Wales, has a very handsome assortment of the above on his premises.

WILLIAM S. BURTON, GENERAL FURNISHING IRONMONGER, by appointment to H.R.H. the Prince of Wales, sends a CATALOGUE gratis and post-paid. It contains upwards of 700 Illustrations of his unrivalled Stock of ELECTRO-PLATE and BRITANNIA METAL GOODS.

Dish Covers, Hot-water Dishes.	Clocks and Candelabra.
Stoves and Fenders.	Baths and Toilet Ware
Marble Chimney-pieces.	Iron and Brass Bedsteads.
Kitchen Ranges.	Bedding, and Bed-hangings.
Lamps, Gaseliers.	Bedroom Cabinet Furniture.
Tea Trays, Urns and Kettles.	Turnery Goods.
Table Cutlery.	Kitchen Utensils, &c.

With Lists of Prices, and Plans of the Twenty large Show Rooms, at 39, Oxford Street, W.; 1, 1*a*, 2, 3, and 4, Newman Street; 4, 5, and 6, Perry's Place; and 1, Newman Yard, London.

PAUL'S HYACINTHS, TULIPS, &c.

"The best and fullest account of this Plant (the Hyacinth) which I have met with is by a famous Horticulturist, Mr. PAUL, of Waltham Cross."—DARWIN'S *Animals and Plants under Domestication.*

WILLIAM PAUL

BEGS TO ANNOUNCE THAT HIS

HYACINTHS, TULIPS, CROCUSES, AND OTHER DUTCH FLOWER ROOTS

Have just arrived in excellent condition, and he respectfully solicits early orders for the same.

In proof of the quality of Bulbs imported by him, he begs to refer to his Annual Exhibition in the Royal Horticultural Gardens in March and April, which has been visited by Her Most Gracious Majesty the Queen, Her Royal Highness the Princess of Wales, and several other Members of the Royal Family.

PRICED DESCRIPTIVE CATALOGUE FREE BY POST.

PAUL'S NURSERIES AND SEED WAREHOUSE, WALTHAM CROSS, LONDON, N.

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

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NOTICE to ADVERTISERS.—In answer to constant inquiries, the Proprietors have fixed the following SCALE of CHARGES for ADVERTISING:—

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Wants Places, three lines or thirty words	1	0

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Post Office Orders payable to JAMES MATTHEWS, at the Post Office, King Street, Covent Garden, W.C.

New Garden Seeds for Autumn Sowing, as see

SUTTONS' AUTUMN CATALOGUE for 1869, gratis and post free on application.
SUTTON AND SONS, Seed Growers, Reading.

New Catalogue of Plants.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, has much pleasure in announcing that his NEW GENERAL CATALOGUE of PLANTS is just published, and may be had on application to his Agents,
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WILLIAM BADMAN, Cemetery Nursery, Gravesend.

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Woodlands Nursery, Isleworth, W.

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DOBSONS' PRIZE CALCEOLARIA, 1s. 6d., 2s. 6d., 3s. 6d., and 5s.
DOBSONS' PRIZE CINERARIA, 1s., 2s. 6d., and 5s.
DOBSONS' PRIZE PRIMULA, 1s., 2s. 6d., and 5s.
Supplied in sealed packets by 300 of the leading Seedsmen, and by JOHN DOBSON AND SONS, Woodlands Nursery, Isleworth, W.

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EVERY GARDEN REQUISITE KEPT in STOCK at
CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

PARIS, 1867. SUTTONS' GRASS SEEDS for ALL SOILS. A PREMIER PRIX SILVER MEDAL for GARDEN SEEDS, GRASSES, and GRASS SEEDS, was Awarded to SUTTON AND SONS, SEEDSMEN to the QUEEN, Reading, Berks.

Improvement of Grass-lands at from 4s. 6d. to 9s. per Acre.

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Seed Growing Establishment, Wisbech.

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H. AND F. SHARPE are prepared to execute wholesale Orders for the above, which is the most prolific First Early POTATO grown. Being short in the Haulm, it is more suitable for Forcing than any other variety. Prices and further particulars on application.
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B. S. WILLIAMS' CATALOGUE of HYACINTHS, TULIPS, CROCUSES, NARCISSUS, and other Spring-flowering Bulbs; also FRUIT TREES, ROSES, &c., is now ready, post free to all applicants.
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To the Nobility and Gentry.

IMPORTATION of DUTCH FLOWER ROOTS (principal orders carriage free).—We trust our old and extensive Nursery and Seed Connection may lead to many additional orders for roots. They are of first-class quality, and prices reasonable.
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CATALOGUE containing much additional valuable information now ready, and on application sent free to the Readers of the *Gardeners' Chronicle*. BULBS for Early Flowering now ready to send out, of first-class quality.

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SUTTONS' COLLECTIONS of HYACINTHS, for cultivation in pots and glasses.
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Hardy Fern Catalogue (No. 13).

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Cineraria Plants.—Extra Choice Varieties.

LUCOMBE, PINCE, AND CO. offer fine SEEDLING PLANTS, raised from Seed saved from the finest varieties. Price 2s. 6d. per dozen (carefully packed, and sent by post, two stamps extra), or 7s. 6d. per 100.
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PAUL AND SON have 20,000 ROSES, on own roots, in pots, ready for immediate planting. List on application. The Advertisers strongly recommend the present season for the purpose, the plants getting established before winter.
The Old Nurseries, Cheshunt, N.

Established 1806.

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Nurseries, Brunstain Glen, Musselburgh.

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FOR SALE. 1000 CHAMÆROPS HUMILIS, grown in small pots, having from two to three seminal leaves, at the low price of 12s. per 100. Four Hundred ditto, having from three to five seminal leaves, at 20s. per 100.—Address (by prepaid letter) to
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H. AND F. SHARPE have fine Samples of NEW RAPE SEED, which they can offer to the Trade at low figures. Price and samples on application.
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JAMES CARTER AND CO. can now offer strong, well-grown CANES, this year's growth. For description of Varieties and Prices, see AUTUMN CATALOGUE, now published.
JAMES CARTER AND CO., Seedsmen and Nurserymen, 237 and 238, High Holborn, W.C.

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B. S. WILLIAMS' stock is remarkably fine, and in good condition. Can supply all the best kinds. Prices on application.
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B. S. WILLIAMS has all the best kinds, in splendid condition, warranted clean. Prices on application.
B. S. WILLIAMS, Seed Merchant and Nurseryman, Upper Holloway, London, N.

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Apply to Mr. SMITH, Gardener, Westmill Road, Ware, Herts.

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F. AND A. SMITH have an extensive Collection of extra strong CANES of all the leading sorts in fine condition. Intending purchasers would do well to see them.
The Nurseries, West Dulwich, S.E.

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CHARLES TURNER can supply
GOLDEN CHAMPION
MADRESFIELD COURT | MRS. PINCE, and
BLACK MUSCAT | ROYAL ASCOT
In Fruiting Canes, or second size for planting out; also the established old varieties, in fine plants.
The Royal Nurseries, Slough.

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Strong Planting Canes, 3s. 6d. to 5s. each.
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Prices of new kinds on application to
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Vines.

FRANCIS & ARTHUR DICKSON & SONS have this season a magnificent lot of VINES, grown from Eyes, without bottom-heat, in very strong short-jointed Fruiting Canes, as well as Planting Canes. Their collection embraces ALL the NEW and leading kinds. Prices on application. F. & A. D. & SONS invite inspection of their stock.
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STRAWBERRIES.—Strong plants of Dr. Hogg, Mr. Radclyffe, and the New Perpetual Pine, at 7s. 6d. per 100; 40 other kinds, 3s. 6d. to 5s. per 100. See LIST, free on application.
WM. DILLISTONE, Nurseryman, &c., Sible Hedingham, Essex.

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The Royal Nurseries, Slough.

Strawberry Runners.

JAMES CARTER AND CO. have a splendid Stock now ready. For Prices and Varieties, see AUTUMN CATALOGUE, now published.
JAMES CARTER AND CO., Seedsmen and Nurserymen, 237 and 238, High Holborn, W.C.

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TO GENTLEMEN, GARDENERS, and OTHERS, having to DISPOSE of CHOICE FRUIT or FLOWERS, &c. They may meet with a ready Sale by applying to
A. IRETON, Covent Garden Market, W.C.

CYTISUS RACEMOSA.—Strong plants, in Thumbs, by 100 or 1000; also strong plants in 48's, by the dozen or 100. Price on application.
H. B. MAY, Florist, Edmonton, N.

SPIRÆA PALMATA. This magnificent plant is now being distributed for the first time in Europe. Good plants at 21s. each
CHARLES NOBLE, Bagshot.

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SIX CALADIUMS, good varieties; and Ten fine specimen GERANIUMS, all good sorts, to be SOLD, cheap.
For particulars and price inquire of Mr. TOOMER, Gardener to H. A. Isaacs, Esq., Hillworth Lodge, Lower Tuise Hill, Brixton, S.

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WM. DILLISTONE, Nurseryman, &c., Sible Hedingham, Essex.

WANTED, GREEN HOLLIES, PORTUGAL LAURELS, &c.—Common Laurels, from 2 to 3 feet high. Must be stout, bushy, and well rooted. Send price per 1000 to
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Centaurea candidissima (ragusina).

HOOPER AND CO. offer fine fresh SEED of the above Plant, just saved, 2s. 6d. per packet. Sown now, it will produce fine Plants for Bedding next year. Price to the Trade on application.
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GARDENERS' CHRONICLE NEWSPAPER

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LUCOMBE, PINCE, AND CO. beg respectfully to call attention to their new stock of DUTCH ROOTS, which are this year finer than usual.

Their NEW BULB CATALOGUE contains all the choicest and most select varieties of Hyacinths, Tulips, Crocuses, Narcissus, Ranunculus, Amaryllis, Gladiolus, Liliums, &c., &c.

L., P., AND CO. will be happy to forward this or any other of their Catalogues post free to all applicants, and will feel obliged by their Customers, who do not receive them regularly, writing for them, when copies will be at once forwarded.

Exeter Nursery, Exeter

Dutch Flower Roots.

FRANCIS & ARTHUR DICKSON & SONS, have received from the most celebrated Growers in Holland their first large importation of the above, and have the satisfaction to say that the Bulbs are large, sound, and well ripened. Early orders respectfully solicited. DESCRIPTIVE PRICED CATALOGUES post free on application.

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Gratis and Post Free.

CATALOGUE of DUTCH BULBS, SEEDS, FERNS, HORTICULTURAL ELEGANCIES.

DICK RADCLYFFE AND CO.,
129, High Holborn, W.C.
Seed Grounds, Erfurt, Prussia.

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ARCHIBALD HENDERSON begs to announce that he has received a large Consignment of Dutch and other Roots, carefully selected from the most celebrated growers.

DESCRIPTIVE and PRICED CATALOGUES are now ready, containing practical directions for their successful cultivation on all the various systems now adopted.

Also a CHOICE and SELECT LIST of VEGETABLE and HARDY FLOWER SEEDS for Autumn Sowing. Catalogues gratis and post free upon application.

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DOWNIE, LAIRD, AND LAING have now received their first Importations of Flower Roots, consisting of HYACINTHS, POLYANTHUS NARCISSUS, Double NARCISSUS, CROCUS, TULIPS, JONQUILS, RANUNCULUS, ANEMONES, SNOWDROPS, &c., &c., which have all been carefully selected from the most celebrated establishments in Holland. The Bulbs are this season well ripened, large, and very heavy, and have arrived in splendid condition.

D., L., AND L. offer the following assortment for One Guinea :—

12	choice named Hyacinths		24	fine mixed Ranunculus	
12	,,	mixed Hyacinths	24	,, ,,	Anemones
6	,,	Polyanthus Narcissus	12	,, ,,	early Tulips
100	,,	named Crocus	12	,, ,,	late Tulips
50	,,	mixed Snowdrops	12	,, ,,	Jonquils

Packed in hamper. Carriage paid.

D., L., AND L. can supply fine Bulbs of the Prize HYACINTHS at Kensington, Regent's Park, and the Royal Caledonian Society's Shows, at 12s., 18s., and 24s. per dozen.

DESCRIPTIVE CATALOGUE of DUTCH BULBS forwarded post free.

Stanstead Park Nurseries, Forest Hill, London, S.E., and at Edinburgh.

To Nurserymen and Gentlemen's Gardeners.

AN AMATEUR wishes to DISPOSE of his Surplus Stock of Tricolor, Bicolor, Double, Nosegay, and Zonal GERANIUMS. From 400 to 500 Large and Small Plants, consisting of a selection from the best and newest varieties in cultivation. Any one about to commence Business could Stock efficiently a Nursery from the Plants for Disposal.—Application to be made through Mr. OFFORD, Gardener, 3, Wellington St., Shacklewell, E.

H. CANNELL'S AUTUMN CATALOGUE is now ready, and will be sent free for One Stamp. It contains a full description, with lowest prices consistent with quality and economy, of all the best new and most distinct varieties of PELARGONIUMS (both of Tricolors and Bicolors, Doubles and Zonals), FUCHSIAS, VERBENAS, PETUNIAS, COLEUS, CHRYSANTHEMUMS, HELIOTROPES, VERONICAS, LOBELIAS, VIOLAS, and all the popular Bedding Plants of the Season. Also, the names and lowest price of all the best older varieties in cultivation. For further particulars see Catalogue.

To Raisers of Geraniums.

H. CANNELL begs to inform all lovers of GERANIUMS that he has a small quantity of Seed of the very best Hybridised Zonals in cultivation, at 2s. per packet. It is picked with great pains from all the best new kinds of the present season, including T. Moore, Acme, Lord Stanley, Sir R. Napier, Our Future King, Monster, &c.; the two latter certainly are the finest varieties ever sent out, and as every bloom is carefully attended to daily, H. C. is convinced that some grand new Varieties will be the result from this Seed.

GOLDEN FEATHER.—As this plant has thoroughly proved itself to be the greatest bedding acquisition that has been sent out for many years, H. CANNELL begs to remind all lovers of the same that now is the best time to sow.

It comes perfectly true from seed; such seedling plants stood all last winter, and were the admiration of all throughout the winter and spring, and equally as effective for Conservatory decoration.

See New Seeds free for 14 stamps.

New Forests' Flower and Florists' Flower Seed Merchant, Woolwich.

CHOICE NEW PLANTS, in single pots, well established.

NEW FUCHSIAS of 1869, 12 of the best and most distinct, 9s. & 12s. per dozen.

NEW CHRYSANTHEMUMS of 1869, 12 of the best and most distinct, 9s. per dozen; 24 do. do., 18s. per dozen.

NEW COLEUS of 1869, 12 of the best and most distinct, 6s. per doz.

NEW GERANIUMS, 6 of the most beautiful of the season, all [illegible] 1s. 6d. each.

DOUBLE GERANIUM [illegible] per dozen.

NEW DOUBLE GERANIUM [illegible]

NEW HELIOTROPES [illegible] 1s. each.

NEW LOBELIAS [illegible]

NEW VERBENAS [illegible] 1s. per doz.

NEW ALTERNANTHERA MAGNIFICA, [illegible] each.

NEW GOLD EDGED [illegible] 2s. 6d. each.

NEW HOLCUS [illegible] 2s. 6d. each.

NEW DRACÆNA [illegible] each.

NEW MYOSOTIS [illegible] 6s. per dozen.

For above and CATALOGUE of Bedding Roses, Pentstemons, Violets Polyanthus, and other Hardy Herbaceous and Alpine Plants, &c., apply to

WILLIAM DILLISTONE, Nurseryman, Bible Hedingham, Essex

Dutch Flower Roots.

JOHN AND CHARLES LEE have just received their usual large importation of HYACINTHS and other DUTCH ROOTS, in fine sound condition, for which they hope to be favoured with early orders. CATALOGUES post free on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

EARLY WHITE ROMAN HYACINTHS.—Being largely stocked with Bulbs of this exceedingly useful but scarce variety, I am enabled to offer it at 14s. 0d. per 1000.

N.B.—In answer to numerous inquiries, LOUIS VAN HOUTTE begs to say that his CATALOGUE (English) of AZALEA INDICA, CAMELLIAS, RHODODENDRONS, &c., is now in the Printer's hands, and will be published in a few days. The Stocks of the above named Plants are this season much larger than usual, and in luxuriant health.

Royal Nursery, Ghent, Belgium.

ARTHUR HENDERSON & CO.'S

AUTUMN CATALOGUE OF DUTCH FLOWER ROOTS,

Containing complete LISTS of HYACINTHS and other BULBS, ANNUALS, and a select LIST of VEGETABLE SEEDS for Autumn Sowing; also the best GRAPES and STRAWBERRIES in cultivation; FRUIT and a Summary of lately (new) introduced Plants in the Stove, Greenhouse, and Decorative Summer Garden.

PINE APPLE PLACE, MAIDA VALE, W.

CHARLES TURNER'S

DESCRIPTIVE CATALOGUE of EXHIBITION and other HYACINTHS, NARCISSUS, TULIPS, &c.,

NOW READY, POST FREE ON APPLICATION.

C. T. has received his FIRST CONSIGNMENT of the above, which are of unusually fine quality this season, and invites inspection of the same.

THE ROYAL NURSERIES, SLOUGH.

DUTCH FLOWER ROOTS.

JAMES VEITCH & SONS,

ROYAL EXOTIC NURSERY, CHELSEA, S.W.,

BEG TO ANNOUNCE THAT THEY HAVE RECEIVED

THEIR ANNUAL SUPPLY OF BULBOUS ROOTS FROM HOLLAND

And are pleased to say that they are in excellent condition.

CATALOGUES are now ready, and will be forwarded Post Free on application.

J. V. AND SONS desire to impress upon those who patronise them, the great advantage of giving their Orders early, as the successful cultivation of Bulbs depends in a great measure upon their being planted early in the season.

PAUL'S HYACINTHS, TULIPS, &c.

"The best and fullest account of this Plant (the Hyacinth) which I have met with is by a famous Horticulturist, Mr. PAUL, of Waltham Cross."—DARWIN'S *Animals and Plants under Domestication*.

WILLIAM PAUL

BEGS TO ANNOUNCE THAT HIS

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JAPANESE CHRYSANTHEMUMS.—12 varieties of these new and beautiful flowers, in pots, to bloom this season. 6s. the present and last year at 7s. 6d. each. See Catalogues.

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The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 11, 1869.

THE announcement of the DEATH of Mr. ROBERT THOMPSON, of Chiswick, on the 7th inst., will excite general regret and sympathy amongst horticulturists. His modest retiring habits may have prevented him from ever having had a very large circle of personal acquaintances; there can, however, scarcely be a gardener in the three kingdoms who has not, more or less directly, profited from his labours.

Adequately to write his biography would be to write a general history of gardening for the last half century. The attempt to do justice to his labours and his merits would involve the writing an account of the progress of the Chiswick garden almost from its first establishment till now. Full of knowledge, the fruit of incessant observation and research, in matters relating to meteorology, gardening, and especially to pomology, it is no wonder that he should have been made the referee on these matters by all seeking information. Our own pages teem with information derived from him; and if the familiar signature, "‖," has of late been missed from our columns, the reason must be assigned to failing health and growing infirmity. Even up to the last, however, our usual weekly meteorological record has been drawn up or supervised by him.

For many years Dr. LINDLEY constantly sought the assistance of ROBERT THOMPSON; not only these pages bear witness to the fact, but also those of the "Theory and Practice of Horticulture," while the "Fruit Catalogue of the Horticultural Society," and the "Gardeners' Assistant," were independent productions of his pen, and of themselves will suffice to hand his name down to future generations of gardeners as one of the most accomplished and useful men of his time.

It is disappointing to have to write that such a man, whose merits all acknowledge, should yet have received but few of this world's honours and rewards. This was no doubt in great measure due to his retiring unobtrusiveness; still it is not without pain that we advert to the fund that was raised a year or two since, to mark the sense horticulturists had of the services ROBERT THOMPSON had rendered. That fund, in conjunction with the pension awarded by the Royal Horticultural Society, was perhaps sufficient to ward off actual poverty, but it was a miserable recognition of life-long, ungrudging, high-class services. We hope in our next issue to be able to present our readers with full particulars as to the life-history of the Nestor of horticulturists.

We have also the painful duty of recording another serious loss to horticulture in the DEATH of Mr. JAMES VEITCH, the head of the well-known firm of VEITCH & SONS, of Chelsea. The sad event took place suddenly between three and four o'clock, A.M., yesterday (Friday).

WE are glad to learn that the INTERNATIONAL HORTICULTURAL EXHIBITION at HAMBURGH is likely to be a great success in all ways. The park is very beautifully situated on the old glacis, and is admirably adapted for the exhibition of bedding plants and for general promenade, but the scale on which the arrangements were to be carried out was so large, that an equally large tract of ground on the other side of the road leading to St. Pauli was obliged to be connected with the flower garden and shrubberies by a bridge crossing the road, and included the exhibition of machinery and the two large buildings for the exhibition of fruit.

Unfortunately, as regards the plant houses, the whole was broken up into compartments, so that there was no effective *coup d'œil*. The committee to whom the adjudication of the prizes for stove plants was committed were extremely fortunate in having Professor REICHENBACH as chairman, and the awards in that class were made in the most careful manner, but the several objects were scattered about in such a way that the labour was much increased, and there was seldom an opportunity of contrasting the several articles of competition. It was not to be expected that there should be much novelty. There were noble specimens of Palms and Cycads, but some departments were extremely poor, and the prize of 500 dollars was given to a collection which would have stood no chance whatever at South Kensington.

There were a great many beautiful objects in the great rotunda, amongst which the Bronze Pelargoniums from England were pre-eminent. There was also a very fine collection of Cactuses, and a splendid assortment of bouquets and cut flowers of various kinds, but very few of the Dahlias would pass muster at our own shows.

The fruit department was by far the most interesting section. There was an unfortunate misunderstanding about the QUEEN'S Cup, as it was supposed that it was to be given to the best specimens, but the terms were altered at the last moment to "an assortment." There was nothing, however, to come the least near the British Grapes, with which Mr. MEREDITH won the Cup, though in all probability Mr. THOMSON would have been successful had not the terms been altered. His three bunches of Grapes were quite wonderful, and excited immense interest. The Syndic got together a fine set of the several Grapes from which the best Bordeaux wines are made, and it was curious to see how little apparent difference there was amongst many of them, the peculiar qualities of the vintage depending more on soil and aspect than on the especial variety of Grape. The Lafitte Grape, to the outward eye, seemed to be nearly related to the common Cluster, though a little longer in the bunch.

A very interesting collection of fruit came from the Garten-Bau Verein of Tirol, amongst which were specimens of the real Bread-fruit (not the Encephalartos, which has sometimes been so called in England) and fruiting branches of Salisburia adiantifolia. The collection of Apples and Pears was excellent, and there were many good Pines and Melons, but unfortunately the best Peaches, which we understand were remarkably fine, did not arrive in a state fit for exhibition. The number of visitors to the exhibition is enormous, a circumstance of which we are glad, as no expense has been spared by the directors to make the exhibition a success, which is certainly the case as a whole, however much we might be inclined to criticise some of the details. In addition to the prizes announced in our last issue, we learn that the prize given by the KING OF PRUSSIA has been awarded to M. LINDEN, of Brussels. The prize of the QUEEN OF PRUSSIA, for the best display of fruit, was obtained by Herr LADE, of Geisenheim, and the Grand Austrian Medal by Messrs. VEITCH, of London. Further particulars are given in another column.

As a Fruit Show the INTERNATIONAL EXHIBITION of the ROYAL CALEDONIAN HORTICULTURAL SOCIETY, which opened on Wednesday last, was beyond question one of the grandest that has ever been witnessed. There may have been, from time to time, better representations of particular articles, but all agree, with singular unanimity, that the country was never so thoroughly represented in one place, at any of the so-called International Shows, as it has been on this occasion in the Edinburgh Assembly Rooms. Competitions of this kind generally bring to the front some great names which have been able to hold their own against all comers, but as the interest increases, and the stake becomes sufficiently tempting, the struggle becomes more severe, and the issue more doubtful. The names of MEREDITH and FOWLER, which took a prominent position at a previous exhibition of a similar kind, now pale before those of JOHNSTONE and others, who took chief positions on this occasion. We are not, however, now so much considering the question as to who took, or who did not take, premier places for excellence in cultivation, as referring to the general representation of fruit culture in the country, and the influence that such a display is likely to exercise upon all who were privileged to witness it. It may be scarcely possible to get up such a gathering annually, even supposing the place of exhibition were not a permanent one, but periodical exhibitions of this kind stimulate horticulturists, and horticulture is all the better for it.

From a comparative point of view, the Grapes were more numerous and of a better general quality than at the former Exhibition in 1865.

Then a minority only of our best cultivators, both North and South, took part, while now, instead of having four or five entries in some of the more important classes, we had from 15 to 24. Then it was only nominally, so to speak, that English growers competed; now the competition was more purely national, for most of the counties had representatives in the various classes of fruit and flowers. In the matter of Pine-apples there is no advance. In Peaches, Apricots, Plums, Apples, and Pears there was a decided falling off in general good quality, which may be attributed to the exceptional season. But the tables of the magnificent hall groaned with a load of the most luscious of fruits—Grapes. The collections of themselves were, taken in the aggregate, worthy of the highest commendation. No less than 12 persons competed for the "16 sorts," and six for "20 sorts." The battle for position was confined to three dukeries and an earldom, represented by the names of STEVENS, of Trentham, JOHNSTONE, of Glamis Castle, THOMSON, of Dalkeith, and INGRAM, of Alnwick; while in the smaller section, MATHIESON, of Tulliallan, LEES, of Tynninghame, and TEMPLE, of Balbirnie, took precedence, being placed in the order in which they are named. The post of honour must, however, be assigned to Mr. GEORGE JOHNSTONE, who won easily the principal Grape prize of the day, and who was 1st in 10 other of the Grape classes, amidst such a host of competitors! Never in the palmiest days of our greatest champions has such a success been achieved! It goes to show what young Vines and well made borders can do under skilful management. In this case they are all aërated on Mr. FOWLER'S principle.

What heightened the effect of the show as a whole, was the admirable manner in which the flowering and decorative plants were arranged in the adjacent hall. Usually in Edinburgh this has been open to hostile criticism, but what with the effective and beautiful plants sent for competition from a variety of districts, and agreeable vistas arranged for and opened up, from the entrance to the orchestra, the *coup d'œil* was picturesque and interesting. Then the new and rare plants sent by the Messrs. VEITCH formed quite a treat of themselves, while the Orchids and Heaths, the one from Dalkeith and the other from Tynninghame, far excelled what is usually seen exhibited north of the Tweed.

—— SOME time since, when an appointment was made in the BOTANICAL DEPARTMENT of the BRITISH MUSEUM, we were not a little surprised, not to say disgusted, to find that one of the conditions imposed upon the candidate for the office was that he should be subjected to an examination by the Civil Service Commissioners. If this examination had had reference to botanical subjects or museum duties, there would have been no reason for surprise; but to subject a well educated gentleman, a graduate of the University of London, whose examinations are known to be the most searching of all similar ordeals, to a test such as is properly enough imposed on unknown men, or on those whose qualifications have not been tested, was to degrade the candidate, and offer an insult to the University. We are glad to find that Mr. JAMES BRITTEN, who has recently been appointed to an office in the Royal Herbarium at Kew, has not had to undergo such a degradation.

—— A correspondent points out that the CYRTANTHUS M'KENII, referred to at p. 641, is not specifically distinct from the CYRTANTHUS LUTESCENS, figured in the "Botanical Magazine"(t. 5374). However this may be, and there certainly is a very close resemblance in structure between them, the two may be regarded as distinct for all garden purposes, the one being white-flowered, and the other yellow. Both are South African plants.

—— We have received from Mr. SCOTT, of Merriott, several varieties of Apples, grown on (SCOTT'S) POMMIER DE PARADIS STOCK, to show how healthy and prolific Apples are, worked on this stock, even in a season like this, in which, we are informed, not a quarter of an inch of rain has fallen at Merriott since May. Amongst them were very fine examples of the Gravenstein, richly flavoured. Another variety, called Lady Derby, which Mr. SCOTT had from Leicester (but little of its history is known), is fine in size, and very firm in texture. Along with them came fruit of the Pommier de Paradis, as grown in his nursery, and which is small, of a yellowish lemon colour; the flesh is tender, brisk, and juicy, with a slight acidity, and bears considerable resemblance to Christie's Pippin.

New Plants.

DAVALLIA MOOREANA, *Masters, sp. n.**

Fronds ample, quadripinnate or decompound, triangular, pale green, chartaceo-membranaceous, or subcoriaceous; pinnæ pyramidately triangular acuminate, the lower ones a foot or more in length; primary pinnules much acuminated; secondary ones ovate or obliquely oblong-ovate blunt, divided into blunt oblong or ovate segments, the larger of which are cut down to the costa into cuneate unequal sided lobes; veins forked, free, club-shaped at the apex, terminating within the margin; sori solitary on and occupying the anterior side of the ultimate segments, very prominent on the upper surface; indusia oblong sub-truncate, scarcely convex, the mouth expanded in age; rhizome stout, creeping, producing fronds at short intervals, and clothed with dark brown lanceolate slightly-toothed scales; stipes and rachides smooth, pallid.

This is one of the most beautiful stove Ferns which have yet been introduced to our gardens, and is



remarkable in its family for its graceful habit, its large size, combined with its small sub-divisions, its pale green colour, its smooth surface, and its bullate sori; the latter are remarkably prominent on the upper surface, very much in the way of those of Leucostegia immersa, which species indeed the whole aspect of the plant recalls, though it is totally distinct therefrom in its evergreen habit, its much more ample development, and its differently-formed sori. The plant is a native of Borneo, whence it was introduced by Mr. Lobb to the collection of Messrs. Veitch & Sons, by whom it has been exhibited during the past season, and who have received for it the award of a First-class Certificate. We have specimens of what appears to be the same Fern gathered in the New Hebrides by McGillivray.

The rhizome, which is as stout as one's little finger, is of a less rapidly elongating habit than in many other Davallias, and appears to prefer to grow half embedded in the soil; it is clothed with narrow lanceolate dark-brown scales, which are somewhat toothed at the margin. The stipes is about the thickness of a stout straw, from a foot to a foot and a half long, quite smooth and pale-coloured, as are also the somewhat slender rachides. The fronds, independently of the stipites, are from 2 to 3 feet long, and from 1 to 2 feet wide at the base, triangular and pointed, of a graceful arching habit of growth, and most elegantly cut into a multitude of small blunt oblique soriferous segments. Their colour is a pale green, and they are very remarkable for the dotted appearance presented by the upper surface from the prominence of the sori. The obliquely ovate pinnules (secondary) are about an inch long or rather more, the pinnulets (tertiary pinnules) from a quarter to half an inch long. The form of these latter is shown in the enlarged separate figure of our cut, while the principal figure gives as good an idea of the general character of the frond as is possible on so limited a scale. The sori have the elongate cup-shaped form of those of the true Davallias, but, apparently on account of the bulging in the upper surface, the indusium is almost flat. It should be added, that the plant is quite different from the D. Moorei of Hooker. *T. M.*

* At the request of Messrs. Veitch we have named this Fern in honour of Mr. Thomas Moore, whose services in the cause of Fern knowledge are such that it is most fitting his name should be attached to so elegant a plant; and though modesty may prevent him from indulging in any self-laudation, it need offer no obstacle in the way of our joining to do honour to our colleague. *M. T. M.*

THE LATE FREDERICK SCHEER.

ON December 30 last, died at Northfleet, Mr. Frederick Scheer, 76 years of age, a City merchant, whose name is honourably associated with botany and horticulture, and who might have enjoyed a world-wide reputation if his modest and retiring habits would have permitted him to do so, or allowed others to give him due and public credit for what he had done, or caused to be done. Mr. Scheer was the exact antitype of those who judge of the value of every publication by the number of times their names are mentioned, and compliments paid to them. Never mind how great the share which he had in advancing a project or publication, it gave him pain to see his name made public in connection with it.

Mr. Scheer was born in the island of Rügen, where his father was a clergyman; and the first part of his life was spent in Russia in mercantile pursuits. But when still a young man, he took up his residence in England as a City merchant, and for many years lived on Kew Green, where his neat cottage and well-kept garden and greenhouse (the latter full of new plants imported by him) was well known to botanists. The last years of his life he lived at Northfleet, Kent, where he indulged in his favourite pursuits of botany and gardening to the full extent his business occupations would allow.

Mr. Scheer had advanced liberal views on religion, politics, and political economy, and spoke and wrote several languages with force and ease. Nevertheless, he was extremely guarded in what he put on paper (in that respect taking Robert Brown for his pattern); moreover most of his writings were anonymous. Intimate as I was with him, I often urged him to make a list of at least his pamphlets or allow me to do so; but to this I could never get him to agree. It was quite satisfactory to him that his ideas should have been promulgated, he caring little for the honour of having conceived them, as perhaps the next minute he would have already originated new ones, which one was welcome to use. *** When, in 1839, the Government thought of doing away with Kew Gardens, he did all he could, through newspapers, and in getting up petitions to Parliament, to avert the calamity, and also came forward with a small, but well-written book, "Kew and its Gardens" (London, 1840, 8vo.).*

About this time, Mr. Scheer had one of the largest collections of Cacti in Europe, and was in frequent communication with Pfeiffer, Fred. Otto, and Prince Salm-Dyck, the leading authorities on that subject. His collection was extremely rich in Mexican species, chiefly obtained from Mr. J. Potts. Only a small portion of these were ever described, either by Prince Salm-Dyck or (very reluctantly) by Mr. Scheer himself in Seemann's "Botany of H.M.S. Herald;" the greater number, however, were subsequently lost during Mr. Scheer's removal from Kew. Several new plants, received from his numerous correspondents abroad, were described and figured by Sir William Hooker, Dr. Lindley and myself. Amongst his Mexican Gesneraceæ I found a new genus (Scheeria), which I dedicated to him in the "Botanical Magazine," and of which at present two species, both cultivated as ornamental hothouse plants, are known. After losing the bulk of his Cacteæ, Mr. Scheer took up Ferns, which he studied attentively, and it was he who suggested to me the plan of the "British Ferns at One View" (Van Voorst). His great power of combination, coupled with his varied and profound knowledge, gave him an almost prophetic insight into the future, and this was much appreciated by great City firms, who frequently asked his advice on momentous questions of the day. In look he much resembled Beethoven, whose compositions he could play exquisitely. He was a man of remarkable energy, who never had any serious illness during the

* I believe I am correct in stating, in parenthesis, that the first note of alarm that Kew Gardens were about to be broken up was given by Mr. John Smith (late Curator of Kew) and Mr. Robert Heward, F.L.S., who concocted a letter which appeared in the *Times*, and led to questions being asked in Parliament.

whole of his life. On the day he died he had been all day in the City, came home, and instead of going after dinner, as usual, to his greenhouse, to look at his plants, he went to bed. An hour afterwards he expired, evidently without pain or suffering. His only son died a few years ago; his wife survives him. He was a high-principled, unselfish man, a warm friend, ardently devoted to science, and an uncompromising opponent of all sham, whether it appeared in a religious, political, or scientific garb. *B. Seemann, in "Journal of Botany."*

HORTICULTURAL EXHIBITIONS:

THEIR INFLUENCE ON GARDENING.

[Abstract of a paper read at the Manchester Congress by Mr. Baines, Summerfield, Bowdon, July 22, 1869.]

THE object of this paper was to note the progress that has been made of late years in horticulture. The progress shows itself in the improvement of flowers and vegetables by selection, cross-breeding, and hybridisation, and in the continuous introduction of new plants from all parts of the world. The causes of this progress were attributed by the author to various sources, such as peace, general prosperity, cheap glass, improvements in hot-water apparatus, discoveries in chemistry, the influence of the press, and specially to horticultural exhibitions. To the Royal Horticultural Society Mr. Baines gives the credit of first placing these exhibitions on a proper footing. He considers such exhibitions as of the utmost importance to horticulture by stimulating and fostering a love of plants, and by affording to gardeners and others opportunities such as could not otherwise be had, to see, observe, and compare. Mr. Baines points out the danger of restricting these exhibitions, so as to make them mere displays of a few specialities—they should, in order to retain their attractiveness, be so comprehensive as to include everything worthy of cultivation.

NATURE'S SCAVENGERS.

[Abstract of a paper read at the Manchester Horticultural Congress, July 21, 1869, by Mr. D. T. Fish, Hardwicke House, Bury St. Edmund's.]

OF this lengthy paper, marked by [all Mr. Fish's fertility and copiousness of illustration, we can give only a very condensed *resumé*.

The author sets out by stating that the main sources of pollution are five, viz., death, decomposition, combustion, labour, and life. The agents appointed by Almighty wisdom to remove, and disperse and utilise the effete or noxious matter thus caused, are—the sun, the atmosphere, the sea, rivers, and plants. The mode of action of each of these agents is pointed out by Mr. Fish, and the marvellous interdependence of animal and vegetable life is also adverted to. "Dirt" itself is indestructible; it may be carried away or altered in character, but not destroyed. While some things merely transport "dirt" to other localities, others transform it.

The concentration of dirt in a limited space is a great source of danger, but one which is obviated by the transporting agents. Among the transforming agents plants are most important; they rush in between the dead, effete matter and the living organisms, even as the high priests, censers in hand, rushed in between the living and the dead, and the pestilence was stayed. * * * Two cries make themselves heard nowadays, the cry for more coal, and for sweeter air. Plants can furnish the latter now, as they have supplied the former in bygone times. Plants alone restore the disturbed balance, and while converting the carbon of primæval times into modern bread, set free oxygen gas to sweeten, purify, and sustain mankind.

From these considerations Mr. Fish is led, in an eloquent peroration, to advocate strongly the establishment of open spaces, and the planting of trees and shrubs wherever practicable in and around our towns. The author further urges the desirability of extending the home culture of plants.

"None too poor to have a plant, none too rich to enjoy the simple beauty of Buttercup or Daisy. We cannot do without plants. In and by them we live, and move, and have our being. They distil for us the breath of life; they make our food; they provide our clothing; they are our medicine in sickness, our strength in health, our transfigurators at death. They are all ministering spirits, * * springs of labour and sources of power; they bind together the two great natural divisions of life in bonds closer than those of matrimony, and make all things in earth or in heaven, or in the waters under the earth, subservient to the great purposes of the sustentation and increase of life."

In conclusion, Mr. Fish finds in the reciprocal relations of the three kingdoms of Nature, and their beneficial results, the clearest manifestations of Almighty power, Divine purpose, and Supreme beneficence.

BRITISH ASSOCIATION.

(*Continued from p.* 942.)

THE following notes are abstracted from the proceedings of the Biological Section:—

"The Successful Dredging of H.M.S. 'Porcupine' in from 2435 Fathoms," a letter from Professor Wyville Thomson, read by the Rev. A. M. Norman. Mr. Norman prefaced the letter by a statement of what had been done recently in deep-sea dredging, observing that the work of prosecuting deep-sea researches must be carried on by Government in a very large vessel, aided by the highest skill in navigation on the part of the officers, and very costly apparatus. The late Government had taken up the matter, and dredging expeditions were organised in the Atlantic Ocean, which had been attended with the most important results. The remarkable extension of knowledge in this direction had removed the idea started by the late Professor Forbes, that marine life did not exist at depths beyond 300 fathoms. Some interesting results had been obtained by Professor Percival Wright off the coast of Spain; and at the instance of the Royal Society H.M.S. 'Lightning' had been sent out to dredge in the sea between the Hebrides and Faroe Islands, and one result was to find that there were two distinct sets of fauna within 50 miles: the difference of temperature was probably caused by the return of the waters of the Gulf stream after being cooled at the Pole. The investigations of the 'Lightning' had only been carried to the depth of 650 fathoms, no life being found at that depth. Professor Thomson had, however, dredged in the Bay of Biscay to the depth of 2800 fathoms, and the letter gave an interesting account of the casting of the dredge at that depth. Above 1½ cwt. to 2 cwt. of ooze was the general result of the cast of the dredge, and the thermometric instruments employed showed the temperature to be about 36·4, and life was distributed over the whole area which had been examined, though the specimens were of a dwarfed character, owing, probably, to the low temperature.—Professor Huxley said he hoped it would not be at once assumed that naturalists had adopted Professor Forbes' inference as to the depth at which life might be expected to exist. No revolution had taken place in science on account of the recent dredgings. Men of science were too well aware of the unsatisfactory nature of mere negative evidence, of which they were always distrustful. The fact was that such statements as that referred to concerning Professor Forbes' theory got into the text-books of science, and were spoken of as scientific conclusions, when, in fact, nine-tenths of the writers of text-books were a sort of chiffoniers who picked up any kind of rag which they found lying about, and who often stated as the conclusions of men of science what men of science had not, perhaps, ever thought of adopting. He had recently had the opportunity of examining a quantity of soundings sent in by the Admiralty, which had been dredged in all parts of the world; and it appeared from these that there was a gigantic band of life encircling the globe at the bottom of the sea. It was extremely interesting to reflect that the sea bottom in which these creatures were found was of the same geological formation as that which was millions of years old, and the forms of life found there also resembled those found in the geological formations called the cretacean period. It was almost impossible to realise the wonderful antiquity of the forms of life found at these great depths of the sea.—Dr. Hooker also pointed out that Professor Forbes' theory had never been accepted as a scientific deduction, and alluded to the dredgings of Sir James Ross in 1842-3 at 400 fathoms deep.—The Rev. A. M. Norman, in reply, disclaimed all intention of putting forward the supposition of Professor Forbes as a scientific deduction, and called the attention of the Associate Members at least to the necessity for observing the distinction between soundings and dredgings, as it was the latter which had been of the greatest importance, as they had furnished the materials which had illustrated so many interesting facts of modern science.

"On certain specimens of Fossil Gum, obtained from Zanzibar, Madagascar, Senegal, and other parts of Africa," by A. Brady, Esq. The best gum was, he observed, brought from Zanzibar, where it was found in lumps in the sand. The pieces of gum were dug out of the sand, or found in the beds of rivers. He produced a piece which contained a spider in the act of killing a fly. This showed the common operations of Nature going on at the time the gum was formed, just as we saw them now. The question here suggested was as to the antiquity of the gum. He was informed that in the part of the country where the gum was found there were now no trees existing from which the gum could be derived; from this fact he thought that the gum must have been formed at a time far past. The place from which the gum was taken at Zanzibar was a sandy desert, therefore it had been submerged, and the specimens showed the rolled sand upon them, from which he inferred it had been at the bottom of the sea, and had been up-raised since into dry land. Another piece of gum which he exhibited contained a very beautiful lizard, and he was told by some gentleman of the Section that it was of a modern type; another piece contained a common beetle; another specimen contained hundreds of ants. These specimens were from Zanzibar. Inferior gum was brought from Madagascar, and still more inferior from Senegal, and other places in Western Africa. The inferior sorts were not so hard as that of Zanzibar—in his opinion, from not being so old, or, in other words, not so far advanced towards amber.—Mr. Tristram remarked that if the Zanzibar coast had been depressed, submerged, and elevated, like the Sahara, he was not aware of it; but if so, and if the depression and elevation should have been synchronous, it would tend to show that the mountain chain of Africa was from east to west, instead of north to south, as at present considered.—Dr. Sclater doubted if the specimens produced had been under water at all, for trees like those from which the gum was produced, were common still in Senegal.

"On the Genus Boswellia, with Descriptions and Drawings of three New Species," by Dr. Birdwood. This paper, by some accident, was not in the hands of the Secretary, but Mr. Tristram informed the section that it was an interesting history of the Frankincense Tree. These three species of this tree had been discovered in and near Arabia. Consul Playfair, of Zanzibar, had sent cuttings of the tree to the Botanical Garden at Bombay, where these young trees were thriving, though they had not flowered. This tree had been noticed in Niebuhr's "Arabia," of the last century.

"Initial Life," by Mr. C. S. Wake. This paper related to Infusoria.—M. C. Rabbisch offered some remarks on certain facts which had come under his notice. Pure water having been boiled in a vase of gypsum, the vessel was closed, an iron rod passed through it, and after a time there appeared four specimens of infusoria. They were all different. The same water was again boiled, and again left to rest for a period as before, when three other species of infusoria, different from the first, appeared. Another fact he stated as follows:—A lemon was divided, one-half was wetted with human saliva, and the other with the saliva of the horse. After a little time the two halves produced creatures, the one different from the other.

From the proceedings in the Mathematical Section, we further select the following:—

"On a New Self-registering Hygrometer," by Mr. E. Vivian, of Torquay. At a former meeting Mr. Vivian exhibited a self-registering instrument on the cumulative principle of recording mean values of the differences between wet and dry bulb thermometers, and a self-registering maximum and minimum hygrometer. He now produced an improved form of the former instrument, with a series of curves showing the comparative results of Leslie's hygrometer, his maximum and minimum differential, and his mean self-registering, which he now offered as the standard. He had used it in recording the aggregate differences of solar heat in the sun and shade, the duration of rain, and the amount of nocturnal radiations, and for many other similar purposes. He now proposed to apply it to recording the actual mean temperature, which would be an important feature, if it could be worked out, as he believed it could, and also to the anemometer. He gave a full description of the instrument and its mode of working.—Mr. Symons thought the instrument valuable, and said he should like to see such a one at every watering-place. He referred to the differences in the meteorological instruments used, and their position in different parts of the country, and said he should like to see every town furnished with a good set of instruments, placed in suitable and open positions.—Mr. Vivian said he should be happy to present one of his instruments to any watering-place that would like to possess it.

Mr. C. J. Woodward then called attention to a rough model of a new Anemometer, a machine for recording the velocity of the wind, and printing it with type in figures. A working machine on the principle suggested had not yet been constructed. There appeared to be no doubt that the machine would do its work, and was calculated to aid, though not to supplant, the present self-recording anemometers.

Mr. Martin exhibited a Self-recording Aneroid Barometer, and read a paper thereon.—Mr. Symons called attention to the fact that similar instruments had long been in use by Admiral FitzRoy and others, with the exception that a mercurial column was used instead of the aneroid, the former giving by far the most accurate results. It was, however, pointed out that the new instrument was more portable than the other.

THE BEST OF THE CULTIVATED ANEMONES.

(*Continued from p.* 920.)

Anemone Pulsatilla (Pasque-flower, or Dane's Blood).—Though sparsely distributed, this fine old border plant is a true native, and when it does occur on a bleak chalk down it is generally freely dotted over it. The position is usually such as to suggest the aptness of the name Wind-flower for the family generally; and there are few sights more interesting to the lover of spring flowers than to see its purple blooms just showing through the hard Grass of the blast-swept down on an early spring day. The plant is much smaller in a wild than in a cultivated state, usually devoting itself to the production of a solitary flower which, while showing through the Grass, seems careful not to rise above it. In the garden it forms rich healthy tufts, and flowers more abundantly and vigorously, the contrasts between the wild and cultivated states of the plants being very marked. There are several varieties, including red, lilac, and white kinds, but these are now rare. There is also a double variety. The plant forms a very appropriate ornament for rockwork and border, and is by no means difficult to grow. It prefers well-drained and light but deep soil. Flowers March, April, May; purplish. Height, 3 to 12 inches. Propagated by division or by seeds.

Anemone ranunculoides (yellow Wood Anemone).—Not unlike the Apennine and the common Wood Anemone in habit, this species is so very distinct in its clear golden flowers, that it is well worthy of cultivation even by the side of the most admired kinds. Indeed, we may consider it an Apennine or a Wood Anemone done in gold! It is a South European species, and apparently is not so free on the generality of our soils as the blue Anemone, but when grown into well-established tufts on a light or warm and well-drained soil, it displays qualities of which those who have merely seen isolated plants or figures of the plant can have no idea. I have not found it do well on clay soil, but on chalky soil it seems to grow as freely as the common Crowfoot. It is quite charming for associating with tufts of the Apennine or the Wood Anemones, the Pasque-flower, any of the varieties of Anemone Hepatica, the Aubrietias, and like plants. It will grow well in partial shade, but flourishes to perfection when fully exposed. It comes in among the naturalised group of British plants, and grows in a semi-wild condition at Abbot's Langley in Herts, near Worksop in Notts, and it is also reported to occur in several other counties. It is one of the many beautiful hardy plants that may be freely naturalised in our woods and shrubberies. Flowers the end of March and beginning of April. Height, 4 to 6 inches. Propagated readily by division, and also by seeds.

Anenone stellata (*hortensis*) (starry Wind-flower).—This native of Southern Germany, France, Italy, and Greece, if not so showy, is quite as beautiful as the common garden Anemone. The star-like flowers springing from the much dissected leaves, ruby, rosy purple, rose or whitish, vary in a very charming way, and usually have a large white eye at the base, which contrasts agreeably with the gay or delicate coloration of the rest of the petals, and with the rich brownish violet of the stamens and styles that occupy the centre of the flower. It is not so vigorous in constitution as the common Anemone, and requires a little more care than that, but this will only make it the more interesting to all who love variety in their collections of hardy plants. It likes a sheltered yet warm position, a light sandy well-drained soil, and seems to make little or no progress on heavy clay soils. It is suitable for association with the choicer kinds of Anemone on the rockwork, for the mixed border and the choice spring garden, and should be grown in every garden where choice spring flowers are appreciated. Flowers in May. Height, 10 inches. Propagated by division or by seed.

Anemone sylvestris (Snowdrop Anemone). — This is a free-growing and handsome species, partaking somewhat of the size and vigour of the alpine or Japanese Anemone, and the neatness of habit and dense blooming qualities of the dwarfer kinds. It seems to grow freely on almost any soil, the handsome pure white flowers, as large as a crown piece, being freely produced over a mass of fresh green leaves. A native of Siberia, North Italy, Germany, and France, it is perfectly at home in this country; should be grown everywhere that first-rate border flowers are appreciated; will associate well with the alpine Anemone, and plants of like size, about the lower and flatter parts of the rockwork, and being naturally a native of the grove, will be found perfectly at home along our wood walks and half wild spots, in shrubberies, &c. The aspect of the drooping unopened buds has suggested its English name—the Snowdrop Anemone. Flowers in April and May; pure white. Height, 1 foot, sometimes more. Propagated readily by division of root.

Anemone trifolia (three-leaved Anemone).—This is an interesting little species, much like the Wood Anemone, but not so widely distributed. Although found in a wild state in pleasant groves on the woody

hillsides of Piedmont or the Tyrol, it does perfectly well in our climate, and should be everywhere grown for variety sake. It may be readily known from its relative, the Wood Anemone, by its neatly toothed trifoliate leaves, and it seems to be a little smaller and dwarfer in habit. I have, however, never seen them under exactly like conditions. It is well suited for naturalisation along with A. apenniua and others of the family, and is of course suitable for rockwork or borders. Flowers in April and May; white. Height, 4 to 6 inches. Propagated by division and by seeds.

Anemone vernalis (Shaggy Pasque-flower).—One of the Pasque-flower division of the Anemone family, but very dwarf. The flowers are very large and shaggy, with brownish silky hairs. It is a rare plant, and should be grown on in some select spot on the rock-work, giving it good drainage and deep soil. A native of Norway, Sweden, and extreme northern countries, and also of very elevated positions on the Alps and Pyrenees. This species inhabits very elevated regions, and is rarely seen in good condition, at least not in our day, though Miller speaks of it as sending up a stalk near a foot high, and "naked almost to the top, where comes out a neat hairy involucrum, and above that one yellow flower shaped like the perennial yellow Adonis, standing erect." It should as a rule be grown on a level spot on rockwork, in deep free soil, and be abundantly supplied with water in summer. Flowers early in spring; whitish inside. Height, 4 to 8 inches. Propagated by division and by seeds. *W. Robinson.*

DISEASE IN THE SUGAR-CANE IN BAHIA.*

THE Sugar-cane has for some years been affected in Brazil with a disease for which the most contradictory causes have been assigned, and without leading to the discovery of any remedy. Loud complaints have also been made in Cuba on the same subject, and in the province of S. Catharina the cultivation has been abandoned in several places. Von Tschudi advised the colonists in South Brazil to the same effect, and in truth considered the climate as adverse; for, according to observations made from August, 1867, to July, 1868, the mean temperature was 70.7° Fahr.; whereas the Sugar-cane requires a mean temperature of 75.2° Fahr. It could scarcely be expected that so succulent a plant could be subjected, without injury to its organic activity, to so low a temperature as 39.2° Fahr., which occurred on the 23d day of August, 1868, in the province of Blumenau, and which indeed is often registered in the rainy season. The cultivation of sugar, however, is still carried on in that province, and is esteemed profitable; whereas, on the contrary, in the more northerly and hot province of Rio Janeiro and the neighbouring departments, coffee is preferred. In Bahia, the most important part of Brazil as regards sugar, where the occupiers of the coast devote themselves almost exclusively to the cultivation of the Sugar-cane, the disease has appeared for the last six years in the most threatening form. At Nazareth, near the town of Bahia, the harvest for three years has been almost annihilated by the malady, and it has since spread to the northern parts of the province. Repeated inquiries, under the direction of the Government, have at present led to no result. New varieties have indeed been introduced, and amongst them one from Salangore, very rich in juice, which has, however, been by no means entirely exempt from the malady; which, notwithstanding the extraordinary drought (from September, 1868, to the end of January, 1869), begins already to be established.

My observations of this malady were directed especially to the investigation of the insects which live on the Sugar-cane, since certain commissions, and even men of science, have given it as their opinion that it is due to their agency. It was recorded as the result of a commission of inquiry in S. Catharina, that a caterpillar, known under the name of "Borer," was the cause of the disease. I have occasionally found it, as well as its pupa, in the stem of the Cane. The caterpillar eats its way from without into the stem, and forms bores. Large holes also are found in the uppermost joints, by which the vegetation is impeded, which is equally the case when the young Cane is perforated by the insect. The last mentioned cavities are, however, far more rare; and the bores, from about one-eighth to one-sixth of an inch in diameter in nearly mature strong Canes, though frequent enough, do not impede the vegetation; though, through the admission of air, and the consequent oxydation, the surrounding layers of cells become red, and the quality of the sugar-sap is somewhat impaired. In spite of all, the Sugar-cane thus affected yields good sugar, and intelligent cultivators have discovered a very different indication of the disease.

Another insect, which is sometimes found abundantly between the sheaths and the stem, is a female Coccus, whose habits, as far as my observations go, agree with those of its allies. Allowing that it robs both leaves and stem of a quantity of juice, it yet appears that the injury is too slight to prevent the development of sugar; added to which the presence of the Coccus is not the necessary cause of the above-mentioned indications of disease which have been generally recognised for the last three years. I have had occasion to observe plantations much affected with scale, which have yielded good sugar, and in which not a single Cane exhibited the disease in question. No other insect, in spite of repeated investigations, has been discovered to which the malady could be attributed.

A ruddy tint in the woody and cambium tissue in the neighbourhood of the joints is an infallible sign of the malady. As the disease advances this colouring permeates these vessels through the whole of the stem, whereas the parenchyma at first retains its natural transparency. When the disease is fully established, a thick yellow substance flows from these vessels, which hardens when exposed to air, but dissolves in water, and under high powers of the microscope merely exhibits a granular structure. Minute cells appear, either collected in irregular heaps or disposed in moniliform rows, which, when placed in a solution of sugar, are developed in the course of from six to eight days into a beautiful filiform Alga.* To assure myself that this did not arise from spores derived from the air, I placed repeatedly, and in different places, a solution of sugar under a bellglass, but never obtained the same Alga, while it always occurred in the yellow substance placed in a similar solution. In confirmation of its deleterious influence I have found the Alga itself in diseased Canes; I have observed also its infusorioid spores, and their fermentative action in the manufacture of sugar. Sporangia sown on the sheaths of the Cane generate the Alga in tissues in from one to two days. Hydrogen and carbonic acid are generated with such energy and speed in the juice of the Cane when placed in the cauldron, and acted on by the fermentation produced by the sporangia, especially at the commencement of the development of heat, that the scum runs over the lips of the cauldron in great quantities. The organic acids developed by fermentation in the further process of boiling effect a change into uncrystallisable sugar. The extremely small quantity of crystallisable sugar—it being premised that the disease has not advanced too far—is very dark, and of a very indifferent quality. In the moulds from which the molasses have run, where, as is the custom here, a mixture of clay is used for refinery, the fermentation recommences so energetically that the melted sugar flows over the margin of the mould.

The spore-cells of the Alga are about 1-700th of a millemètre in diameter, while the partly simple, partly branched threads of different lengths vary from 1-200th to 1-500th. I distinguish two forms, which appear almost contemporaneously. In the young state we find mother-cells arranged in a row, filled with a quantity of daughter-cells. These last are elongated into threads, but are still surrounded by the mother-cells. I have not been able to observe the formation of the spore-cells at present, but I think it probable that the distinctly visible cells in the membrane of the mother-cells, after its disappearance, form these masses of spores, which I once found on the walls of a perfectly closed cavity in the stem of a Sugar-cane more than one-third of an inch in diameter. Even in a very small glass tube, closed with a cork, in which I kept the yellow mass of spores, there was in moist weather a coating of white powder, in which I recognised the same spore-cells as in the watery solution. This white powder can be easily dispersed in the air, and can penetrate the pores of insects, or through the root into the body of the Cane. The latter way is so much the easier, as from the practice here of planting eyes (the tips of the stem with the terminal bud) being for a time uncovered or only slightly covered, they remain exposed to air and moisture. That moisture is active in the diffusion of the Alga appears not only from the foregoing observations, but from the fact that the years in which the disease was most prevalent have been remarkably rainy, while in the late abnormally hot year it has almost disappeared. We have, then, every reason to regard this cellular plant as the cause of the disease, especially as at its commencement the Cane vegetates strongly, and decays only at a late period, when the Alga decomposes the sugary juice, and the masses of spores in the vessels hinder the flow of sap, the leaves turn yellow, and the terminal bud rots. As the best remedy I regard a mode of culture in future more consonant with the investigations of science than prevails at present in Brazil—repeated manuring with quicklime, as also the washing with liquid lime (lime-wash) the eyes or truncheons before planting. *M. J. B.*

* Translated from a memoir, by F. M. Dränert, in the "Zeitscrift fur Parasitenkunde."

* Or rather Fungus; no Alga is ever developed under such circumstances. EDS.

Home Correspondence.

Origanum vulgare.—Three varieties of this plant have been brought to me from near Merstham, in Surrey, one with pink, one with blush, and the third with white flowers. The friend who collected them put a handful of each variety together into one basin of water, and observed on the following day that the leaves of the white-bloomed kind had all, without exception, shrivelled and turned black, while the leaves of the other kinds remained fresh and green for some days. What can be the explanation of this? *W. T.*

Potatos.—Upon the recommendation of my seedsman I was induced to order some Golden Blossom Kidney, Ashtop Flukes, and American Early Rose Potatos, and having just taken them up I can speak most highly as to the produce and quality, the latter far surpassing in yield anything I ever saw, being over 50 lb. from little more than 1 lb. of sets. All equal if not surpass Haigh's or Lapstone Kidneys, which are the same, and free from disease, whereas a tuft of Haigh's growing in the middle of the Early Rose was all bad. The manure used was stable and pig dung, dusted over with Lawes' phosphate of lime. *T. W. Chaloner, Newton Kyme.*

Cutting Down Strawberries.—I was looking out of my window, which commands a view of numerous small gardens above the town of Boulogne, some three or four weeks ago, when the weather was hot and dry, when I perceived a man some distance off vigorously mowing something with a scythe. I mentioned the circumstance to my landlord, who also has a garden, and asked him what his neighbour was about. "Oh! monsieur, he is cutting down his Strawberry plants." Remembering my friend, the late Dr. Lindley's, stern denunciation of such an ignorant practice, in which he had, I believe, the support of the leading gardeners. I remarked to my informant, "That it was quite contrary to Nature, that the plant was being deprived of its breathing and feeding apparatus, &c." "Mais, monsieur," replied my landlord, "my neighbour is celebrated for the quantity and goodness of his Strawberries." This was rather a hard thrust, and I had some vague sort of recollection of having severely scolded a rough sort of gardener I once had for having done the same, and being myself punished for it by an unusual supply of good fruit. My landlord said he should treat his the same way, but I begged him to leave some, so he has cut some of his down, and merely removed the runners from others, and now awaits the result. Those that had been mown since the rain we have had are now looking fresh and green and have put out runners. I should say that until the plants began to push, they were covered with the leaves that had been cut off. One of the leading horticulturists here has been condemning the plan, and I reopen the question whether a partial trimming, leaving the crown of the plant intact (even this my neighbour does not do) may not be beneficial? *Querist, Boulogne-sur-Mer, August* 23.

Smoke v. Vegetable Life.—In a recent number of the *Warrington Guardian* a writer, who signs himself "Fair-play," tells us that "the gardener of Winnington Hall (about 10 miles distant) says he considers that his fruit never gets spoiled by the smoke;" and that "the smoke is doing good instead of evil, as it tends greatly to the destruction of insects." I am sorry to say the case is quite opposite in Warrington. "Fairplay" adds "fruit is everywhere cleaned before sent to table, therefore the argument of the gardener of Bank Hall, Warrington, is groundless as to dirty fruit." There is some mistake about this. Gardeners are cautious how they handle fruit, lest they leave finger marks upon it, or wipe off that beautiful substance called "bloom," which gives such an elegant finish to good fruit. We have had red and white Currants so covered with dirt that they could not be cleansed—it would not wash off, nor would the birds eat them. They rotted on the tree, while we purchased what was wanted from the market. No fruit that has to be washed, or even sponged, is fit to compare with that with the bloom upon it. If "Fairplay" or the gardener at Winnington will pay me a visit, I will undertake to show them more gardens in Warrington than that at Bank Hall in which the trees are suffering instead of the insects, and no doubt both will return convinced that I have not stated the worst. One word more. Some manufacturers say smoke cannot be consumed, others not only say that it can, but that they are consuming it to a considerable extent. Surely, then, those who are exerting themselves to remedy this great evil are doing a wrong to no man, but good to us all. *Edward Green, The Gardens, Bank Hall, Warrington.*—Mr. E. Green, in his paper on this subject, read at Manchester, and given at p. 917, states: "When the wind is from the east we do not suffer so much as when it is from the west, for in the former case it is often sharp, and carries away the smoke; but in the latter it is soft, the air heavy and moist, the smoke falls quickly to the ground, hanging among the trees and passing away very slowly, and, therefore, the plants suffer more." In an action against a large coke burner for the destruction of a Larch plantation, the trees of which were about 30 to 40 years of age, and which had only appeared to suffer for the five preceding years, although the manufactory of coke had been in as active progress for about 20 years, it came out that a short period prior to the trees being observed to be affected, a new seam of coal had been employed, although only mixed to the extent of one-half with the seam first used. This latter coal was remarkably free from sulphur, containing about ⅝ per cent., whilst the new seam had as much as 3 to 3½ per cent.; but the primary point of interest was that, while to the north-east vegetation suffered and was killed, in all other directions the injury was little or none. This the plaintiff's witnesses sought to account for by stating that the south-west winds were the most prevalent ones, and so inflicted much greater and more frequent doses of coke-oven smoke and fumes; and although it was proved that the timber when cut down was greatly deteriorated by the effects of the products issuing from the coking of the coal, it was not seen how unsustainable that induction was, for obviously to produce such a disparity of results between the south-west and other winds, the amount and duration of south-west winds should have been vastly more. I was led to examine the matter, and from the deterioration of the timber it was evident that the gases or their compounds must have been imbibed. Now, we all know that in southerly winds we have dampness with warmth—two of the greatest incentives to vegetable growth, inducing the stomata to active duty—and probably the moisture in the atmosphere had combined with the sulphuric acid, and thus the trees were under the most favourable conditions to imbibe and be injured and killed; yet, be it remembered, south-west winds are generally brisk, and would not permit the smoke to fall quickly, or to hang among the trees. *W. A. Wooler.*

Primula cortusoides amœna.—May I ask through your columns, whether cultivators of this fine plant are quite content to receive it as a mere variety of the old P. cortusoides? For my own part I have strong doubts on the subject. That there is a general resemblance between the two plants cannot be denied, but there are far closer resemblances between many other plants which all botanists have agreed to keep apart. The size of flowers and the breadth of foliage I am aware count for nothing, but I think the creeping root, the exclusively vernal habit of the plant, the pseudo-lobed or grooved seed-vessel, and the roundish flattened form of the seed, more especially the two latter features, warrant the belief in its distinctness.

I should be glad to learn what the "lumpers" can urge on the other side. For the present, at least so far as this Primula is concerned, I must range myself on the side of the "splitters." *W. T., Ipswich.*

Weather Fluctuations.—On Saturday, August 28, the thermometer (in the shade) stood at 90° at 4 P.M., barometer 30.200. On Sunday morning, the 29th, about 1 A.M., we had a sudden change, the wind blowing a gale from north-east by east, which continued throughout the day, and the weather was very cold. The barometer fell to 30.000, the thermometer to 58°—a difference of 32°. Monday, the 30th, cloudy and cold, with east winds, barometer rose to 30.100, thermometer to 59°, evening clear and frosty. Tuesday, the 31st, clear and sharp, barometer up to 30.200, and the thermometer indicated 2° of frost, which has greatly injured the crops. French Beans on open squares are very much blackened, and will not recover. Vegetable Marrows, Gourds, and ridge Cucumbers are nearly all destroyed. Heliotropes and Dahlias are scorched a little, but may yet recover. French Beans growing on south borders do not appear to be injured at all, which says much in favour of cropping borders, where early and late produce are required. *David Lumsden, Blaxholm Hall, Sleaford, South Lincolnshire.*

Prunella grandiflora.—In a recent number one of your correspondents made some remarks on Prunella grandiflora, recommending it as suitable for some descriptions of edging or ribbon borders, and inviting hints from others. I have long known the plant, and certainly the rich purple tints of its clustered labiate flowers make one wonder that it is not oftener seen in our flower garden. Like all the genus, however, its habit is somewhat too rigid and bare to make it useful where more elegant plants are grown. After flowering the brown scaly calyces are not ornamental, resembling the cones of some Pine, and if these were removed the stems would be too much exposed. It is possible, however, that some mode of cultivation might be adopted to obviate these defects. My experience leads me to think that it will not be very easily propagated, as it produces mature seeds but sparingly, and gives but few offsets. *R. S.*

Testimonial to Mr. James Barnes.—The promoters of the testimonial to Mr. Barnes, in Devonshire, are greatly obliged to Mr. Ayres for his timely letter in your columns last week. The object aimed at is not to obtain a large sum of money, but to elicit from the practical gardeners and horticulturists of the United Kingdom (as well as from Mr. Barnes' personal friends) some genuine mark of their appreciation of one whose labours and writings have been of so much value to many of the fraternity. With this view subscriptions, however small in amount, are solicited, and may be forwarded to the Editors of the *Gardeners' Chronicle*, or to me, at the office of the *Devon Weekly Times*, Exeter. *Elias Tozer.*

The Pine Beetle.—The economy of Hylurgus piniperda is well-known. In April and May, earlier or later, according to climate and season, the beetles which have passed the winter in the perfect state make their galleries of oviposition in the bark of Pine trees of more than 10 years old. In six weeks the young brood is fed up, and the perfect beetles emerge. In England, at any rate, there is only one brood in the year, and these beetles, emerging in June and July, pass the following winter in the crevices of the bark of trees and other suitable localities; but until the period of hibernating arrives, they employ themselves in eating out the interior of the young shoots of living trees, doing great damage even to old trees, but especially to younger ones, by destroying their leading shoots; they do this merely for food, and no eggs are ever laid in these shoots. The period to attack the insect, in order to destroy it, is in the spring, whilst ovipositing, and whilst the young brood is feeding up. There is no doubt whatever that the bark preferred by the beetle for oviposition is that of large trunks felled during the preceding winter; and the explanation of the ravages committed by the beetle, in the instances of your correspondents (p. 921), may perhaps be found in such logs, perhaps in quantity, having been left lying about, when, of course, they each sent forth a swarm of beetles in the early summer. While, however, the preference of the beetles for ovipositing is for felled timber, they will also attack growing trees, if they be at all unhealthy; and there is unfortunately sufficient reason to believe that the destruction of the shoots during the previous or several previous summers is a sufficient disease to induce the beetles to form their galleries and deposit their eggs in the bark the following spring. The only remedy that is really useful and practicable is to remove the bark of all dying trees, in which the beetles are ovipositing, and of all logs of felled timber; this should be done about the end of May; and if the bark be burnt, or simply placed under water for a week or two, the beetle larvæ it contains are effectually destroyed. In any Pine-growing region, this plan, to be effectual, should be carried out throughout the whole district. Any trees that seem likely to die, may be felled during the winter and used as traps for the beetles in spring, as it is difficult, until the mischief is done, and the young brood escaped, to detect their presence in the bark of a standing tree, as the parent beetles make a very inconspicuous entry at the bottom of a crack in the bark, the exit holes of the young brood being obvious enough. To save a valued tree from their attack, several logs laid near it would be useful. When the beetles are engaged in making their galleries of oviposition, they may be detected by the little heap of reddish sawdust they eject. I know of no way of attacking them at this period of the year. *M.D.*

Potatos.—In the first week of March, 1868, I planted some Potatos, called Veitch's Prolific, which I think is a first-rate kind, and a large cropper. From one root I gathered 138 tubers and supertubers, large and small, and the weight was 10 lb. I saved them all, and again planted them in March, 1869, and I have this day (September 1) taken them up, and the produce is 112 lb. weight, all good and sound. *J. Wilson, Gr. to Lord Calthorpe, Elvetham Park, Hants.*

Wellingtonia.—Reading the letter in your number of the 4th September on the Wellingtonia, I beg to state, for the information of your correspondent, that mine are still going on in splendid style. They did not mind the frost two years ago. The only thing about them is that they shed more of their foliage this year, but the new foliage is coming in as fine style as ever. *John Hollingworth, Maidstone.*

What is a Kitchen Garden?—If "Agitator" will be good enough to look over my argument once more he will see that he has sadly perverted my statements. "Let your walls be clothed with choice fruit trees, or covered with glass; if the former, allow the space of a yard to be sacred to the roots, also an alley 18 inches wide. The further extension of the border should be at least 3 yards, which might be devoted to the production of early vegetables without any detriment to the trees on the wall." I thought that it was unnecessary to mention, that, beyond the 4½-yard border, a 6-feet walk should intervene, as I go on to say that, on the side next the main quarters, a row of standard fruit trees might be planted, and an alley should run round behind them, and come out to the main walks at convenient distances. How "Agitator" came to imagine that I meant to plant the standard fruit trees on the border next the wall I know not, because I expressly state the portion which the fruit trees and early vegetables occupy. But suppose for a moment that I had intended to plant a row of standards on that border, they should at least be planted 3 feet from the walk, and there should be the same distance from the alley behind. How much of the border would, under such circumstances, be left for the production of early vegetables? *Andrew Meikle, Read Hall, Whalley, Lancashire.*

The Lady-bird.—Much as I am prepossessed in favour of the bright and cheerful-looking Lady-birds, I have nevertheless a decided complaint to make concerning them. They swarmed upon the Apricots here, consuming the soft pulp with avidity, and so tenaciously did they adhere, that a good fillip was necessary to dislodge them. Plums and Pears are alike food for them at this time. Independently of what has already been said regarding their choice of food, so constantly are they aggregated upon the pendent tubes of the flowers of Tritoma (Kniphofia) Uvaria, that I have no doubt but that they feed upon pure nectar itself when within their reach. It would seem that they are provisioned by Nature to undergo long flights, so extended and powerful are their wings, comparatively speaking. *William Earley, Digswell.*

Pampas Grass.—"The Gynerium argenteum (Pampas Grass) though an inhabitant of the prairie deserts, delights also in root moisture," p. 948. I humbly submit that is a slight error. The Parana Reed, commonly called Pampas Grass, grows on the mud banks of the river Parana, which separates Paraguay from Rio Grandé sao Paulo above Corrientes—none can possibly grow on a desert. *F. D.*

Hothouse Boilers.—In answer to Mr. Munro's offer of terms, I am authorised to state that the inventor of the Conservative boiler has no intention of giving boilers away for experimental purposes; and while on the subject of boilers I may probably be allowed space for a few lines suggestive of a plan whereby the capabilities of different boilers might be tested on a less expensive scale than that suggested by Mr. Ayres, and quoted by Mr. Fish (p. 922). The plan I suggest is as follows: Let the different inventors put their boilers into competition, all containing an equal quantity of water; let them be set with reverberatory bricks, or in any way peculiar to the taste or fancy of the owners; stop up the return-pipe and leave the flow-pipe open. Let a fire be made under them, and, at the end of a given time, note the quantity of fuel consumed, and also that of the water evaporated; this I merely suggest as being a more simple and less expensive plan than that hitherto proposed. Now, with regard to the reverberatory bricks so much hammered at by your talented correspondent. I am not aware of having said anything of an inventor of such material, but that the Conservative boiler is set in brickwork in such a way as [that the bricks] act, not only as non-conductors, but as reverberators of heat; and that they do this in a highly satisfactory manner, I feel sure Mr. Fish will admit when he knows more about the matter. He asks, Are not all bricks enclosing fire reverberatory? To this I answer, they are not; for, by reason of their sunken position, and the usual mode of setting them, in nine cases out of ten they are surrounded by a damp substratum, which acts as a perpetual absorbent of heat. In all such cases, to give and take is the law of their position. Not so with the Conservative boiler, which is furnished all over and on every side with confined air-spaces, repelling with intense force the heat against and under the water space; and, if I may be allowed to use the expression peculiar to Mr. Fish, it enwraps the boiler with a thick greatcoat of dry air, refusing a passage outward for the heat. Hence the caloric becomes conserved to that end, for which combustion has been set up; and by the extent of surface provided and exposed to the action of the fire-stream, this boiler combines all the essentials necessary in the most powerful medium for the communication of heat by hot water, namely, rapid and complete absorption with slow combustion at the will of the stoker. Mr. Fish seems to have a peculiar gift for suiting himself to the requirements of his case, as may be seen by his condemning in one boiler what he extolls and eulogises in another. He condemns my "pet" for having long passages, and praises another for taking the products of combustion a long journey. How to reconcile this I am at a loss. He complains of torturing the products of combustion. Why not torture or rather starve them to death, if it be possible, as the object aimed at is to get all the heat out that is in them before passing up the chimney? *R. Milne, Vale Royal, September 6.*

—I see that the vexed question as to which is the best hothouse boiler for economy in heating is again undergoing notice in your columns. So many different forms and absurd combinations in boilers have been lately introduced for the patronage of the gardening community, that it is impossible to prophecy when the mania will end. "Punch's" artist, Mr. Du Maurier, might be prevailed upon to give a sketch of a specimen not yet exhibited at South Kensington, or at any of the Royal Horticultural Society's shows. Mr. Milne's new boiler is certainly a move in the right direction, and the saving of from 600 to 800 per cent. in our coal bills is something astounding. If this Conservative boiler had been discovered last year, I have no doubt but that the party which bears that name would have been still in power. They would have kept their opponents in hot-water at such a cheap rate, on all the public questions of the day, that they would have effectually taken the wind out of their sails. I, for one, cordially join with "An Old Gardener with a Heavy Coal Bill," in urging the Horticultural Society to organise means for having one of these boilers at work in their gardens at Chiswick or Kensington, and to report upon it as soon as possible. The coming winter is almost certain to be a severe one, with probably the thermometer at zero; the saving, therefore, in fuel with Mr. Milne's boiler would be something considerable in all large forcing gardens. Mr. Pearson, of Chilwell, in describing the boiler which he has stood godfather for, said "that a hatfull of coals was sufficient to keep the heat up." I should think, however, Mr. Milne's would do with a considerably less quantity—perhaps a gardener could carry as much fuel in his waistcoat pocket, if in a concentrated state, and the boiler a small one, as would answer the same purpose. *Thoth.*

Foliage Bedding Plants.—Centaurea ragusina has done remarkably well here this season; it has grown most freely, and the colour of its foliage is as white as driven snow. This is an indispensable plant for flower-garden purposes, but is not available for the million, owing to its difficulty of propagation. C. gymnocarpa is easier to manage in all respects, and strikes tolerably freely under the usual treatment required by our ordinary bedding plants, and, when kept dwarf (a poor soil will conduce to this), is equally as beautiful and more graceful than ragusina. Iresine Herbstii has done well in our flower garden. I am therefore compelled to retract what I stated some three years ago regarding the many bad properties this plant, as a bedder, possessed; though, notwithstanding, I still consider it to be a plant not to be depended upon to a large extent in a precarious season. Amaranthus melancholicus ruber is better here than I ever saw; if anything mars its beauty, it is its rampant growth; and there is evidently a darker-leaved variety creeping in amongst the original introduction, stronger and coarser growing, but apparently a free seeder. *John Edlington, Wrotham Park.*

Phormium tenax.—Should Mr. J. Hill Dickson's attempt to naturalise Phormium tenax prove a failure, or meet with imperfect success, I beg to offer the following suggestions for the improvement of the vigour of the growth of the plant. In Mr. Darwin's work on the "Variation of Animals and Plants under Domestication," it is mentioned that the Orange could not grow to perfection in Italy without much care was taken of it, till after it had been propagated by seed, it having up to that time been propagated only by grafting. If, therefore, Phormium tenax were raised from seed to the extent of five or six generations, a more vigorous plant might be expected. Another acknowledged principle for the improvement of vigour of growth is cross-fertilisation, using the flowers of two different plants, and in addition to this, the upper part (to the extent of about one-half) of the spikes of flowers and their branches, and all young leafy shoots, should be cut off, so as to produce larger seeds.—an experiment which I have practised on the Hemp plant, and obtained seeds with tricotyledonous embryos. It is stated in the "Treasury of Botany" that one of the varieties of Phormium tenax has its leaves only 3 feet in length, and its flower-spikes only 6 feet high, so that the plant in the College Gardens at Galway, which has leaves 6 feet in length, has quite outdone one of the varieties in its native habitat. Would not the tall variety, mentioned by Mr. J. R. Jackson in this Journal, July 3, which will conceal a man on horseback, if acclimatised, serve as a hedge-row plant in some situations? The same remarks will, for the most part, apply to the Böhmeria, which, being so near Urtica, there may be some hope of acclimatising. Has not the acclimatisation of some introduced plants been too soon relinquished, as suggested by Mr. J. R. Jackson in his remarks on substitutes for the Potato, which appeared in this Journal for August 14? This last spring I raised 36 plants of Six-weeks Indian Corn received from the Continent, some of which are very variable in their appearance and time of flowering; but one of the plants flowered earlier than any of the others, and its seeds are, notwithstanding this very cold summer, now ripened, although not yet entirely hardened. The first cob was produced in the axil of the fourth leaf above the cotyledon, so that it began to form its flowers almost as soon as it was out of the ground. The seed was planted in April, and the indoor protection afforded it was scarcely more than it would receive on the south side of a garden wall in such a locality as Fulham. By annually selecting seed from the earliest flowering plants, I hope in three or four years to obtain a variety which, sown in an open field, will ripen its seeds in our coldest summers. May not the

failure of the attempts to introduce a variety which will ripen its seeds every year be owing to selection not having been practised? It may deserve notice that Indian Corn appears improved by crossing even in the first year, one of my plants being larger, with deep chocolate-coloured petioles, instead of a palish green. *B. Clarke, F.L.S., Mount Vernon, Hampstead, August* 28.

Orchid Diseases. — I have read Mr. Williams' Congress paper, on the cultivation of Orchids, with much interest. It is as suggestive as it is practical, and cannot fail to be useful to all who read and digest it. On cultural topics and on management generally, I would not hesitate to endorse it. What I do take exception to, is that portion of the paper which treats upon spot, its cause and cure. It has long been a difficult subject—difficult for scientific authorities to pronounce with any certainty upon, and equally difficult for practical men to bar the door against, yet Mr. Williams, with a few masterly strokes of his pen, would stamp out the disease with a certain corrective treatment which he propounds. Furthermore, he looks upon spot as the consequence, not the cause of bad health, and does not consider it infectious unless when fellow plants are in a bad plight. To cope with a subject such as this, with any idea of placing it satisfactorily before your readers, would require a somewhat lengthened paper. In the meantime a few words by way of rejoinder will be sufficient to establish a case for continued observation and deduction. In the first place, spot appears in plants generally, and in Orchids particularly, in a variety of forms. The diseases are as diverse in their character as they are destructive in their operation, as witness cases that have been recorded time after time. Therefore a panacea is not likely to be found in adopting a uniform course in the annual calendar of operations. Vegetable pathology does not admit of so easy a solution as all this. Plants, like animals, have varied constitutions, and one bill of fare may predispose certain plants to one kind of disease, and certain others to another, while some may luxuriate in the best style treated to the same articles of diet. Consequently the healing prescriptions will require to be written and applied by discriminative talent. Then as to the so-called disease being entirely due to the inroads and agency of a parasitical Fungus, we have the recorded testimony of the highest authority in that branch of Cryptogamic botany which treats upon mycology (see *Gardeners' Chronicle*, p. 147, 1865) that in many of the forms no fungal cysts can be detected. True, parasitic Fungi do a lot of devastating work in Orchid collections, but there appear to be other causes which our ablest investigators in physiology have been unable to elucidate; and looking to the variety of influences at work in an artificial atmosphere, I very much sympathise with them. I think the question of infection must also remain an open one. The physiological condition of the plant may predispose it to some of the kinds of disease that are hovering about in the atmosphere, but certain varieties of the same species often escape "scot free" when their neighbours become infected—all being similarly situated as to health and growing conditions. Certainly, at all events, spot is not always the result of bad health, as Mr. Williams puts it, for many of the rudest grown plants are visited with the malady. By attending to Mr. Williams' cultural directions, growers may minimise the inroads of several of the forms which attack collections, but to get rid of them altogether is quite another question. *James Anderson, Meadow Bank.* [Several visits have been paid by members of the Scientific Committee to various Orchid-growing establishments, but we do not think at present any information on this subject beyond that already published by "M. J. B." and Mr. Anderson has been gained. EDS.]

The Seed Bill.—I am glad that you have published the *ipsissima verba* of the Act for the prevention of the adulteration of seeds, for a very different version of it appeared in the pages of one of your contemporaries (the *Farmer*, Aug. 11). True, your contemporary guarded his publication by saying, that while he wrote the Bill which he published was not passed, but only awaited the Royal assent to become the law of the land. I am glad that you have published the actual text, because it is always desirable to know the true state of a case; but I grieve to see therefrom that all the principal amendments introduced by the Select Committee of the House of Commons have been struck out at the last moment, and that the Bill has been passed almost in the terms in which it was introduced. In particular, the clause against the fraudulent use of naturally dead seed has been struck out, which was recommended by the Council of the Royal Horticultural Society, whose support of which, and objection to the Bill unless fenced by some such protection, gave rise to hostile comments (in which you are not wholly free from having joined) on their obstructiveness, in opposing a Bill which they themselves had been among the first to call for. As given in the *Farmer* it was in these terms:—"5. Whosoever shall, with intent to defraud, or to enable another to defraud, any person, sell or offer for sale, or cause to be sold or offered for sale, or for the purpose of sale, buy, import, or receive, any seeds with which any killed seeds, or dyed or old seeds, shall have been mixed, shall be guilty," and so on. Now, I should like to know at whose instance and by whose influence this was struck out? I do not think it is difficult to understand. Now, any man intending to act honestly should object to the condemnation of an intention to defraud. I believe that the Bill thus mutilated will be an utter failure, although I do not go the length of some who say that it was never intended to be otherwise. The Bill, as amended by the Select Committee, would have done real good, and if it were not too great an encroachment on your space it would be instructive for the public, although not perhaps agreeable to the mutilators, to see a reprint of the amended Bill, or at all events of the suppressed passages. *C.* [We do not know who the "mutilators," as our correspondent calls them, were, but we believe that had the words to which he refers been inserted, the Bill would indeed have been an utter failure, from the impossibility of carrying out its provisions. No Act of Parliament will make men honest, but it will prevent many from being dishonest, and the relief to the would-be respectable trader from the present measure will be great, even though the Bill be defective from a Utopian point of view. EDS.]

Wellingtonia gigantea.—I send you a report, with dimensions of two plants I have under my charge. One, planted in 1860, height when planted 2 feet, is now 16 feet; circumference of branches at the base, 30 feet; diameter of ditto at ditto, 11 feet; circumference of bole, 2 feet 9 inches; growth of leader this season, 1 foot 6 inches. The second plant, planted in March, 1865, height when planted 2 feet, is now 11 feet 6 inches; circumference of branches, 28 feet; diameter at the base, 8 feet 6 inches; circumference of bole, 2 feet 3 inches; the growth of the leader this season was 1 foot 6 inches. It is a beautifully furnished plant. I find it perfectly hardy. The winter of 1866 and 1867, I consider a good test, and I hope we shall not experience such a winter again. The glass here on the 2d and 3d of January, 1867, indicated a temperature of 4° and 9° below zero, which killed our Deodars, Taxodiums, Cupresses macrocarpa, and scarcely left a vestige of life in the Pampas Grass. The Wellingtonia appears to enjoy the other extreme, for it is growing with undimished vigour. Give it a good situation and treat it well at the root, and I feel confident it will not lose its popularity. *J. Woodward, The Gardens, Garbrand Hall, Ewell, Surrey.*

Frost in Ireland.—I enclose you a portion of haulm of Potato I gathered between Lisburn and Hillborough two days ago, that you may see the effect the severe frost produced upon the crop of Potatos in certain spots; some have the tops just cut off, in other fields all the leaves killed, and some killed to the ground with the exception of the little stalk which you will see green. Other fields again are not touched at all; but the great bulk of the fields are injured more or less, and I am afraid in many places the produce will be curtailed; although I do not wish to give a desponding view of the crops generally, as they never looked better, and there is little or no disease that I have seen or heard of either in Antrim, Armagh, or co. Down. Wheat crops are above the average, and Oats, unless on the light sandy lands, a good crop. *Erin, Sept.* 3.

Truss' Pipes and Flexible Joints.—Can you give me any information respecting these, which I have been recommended to use in fitting up a new hot-water apparatus? *W.* [These joints, which are now pretty well known, are extensively used, and, as we believe, with every satisfaction. They have the merits of being neat, of fitting perfectly, and of being easily fixed, or removed and replaced; the latter being no slight recommendation in the case of alterations or repairs. We understand that pipes on this principle are now made up to 4 feet bore. EDS.]

Oxalis corniculata atropurpurea.—Can any of your readers give me any information as to the origin of the above-named plant, which is sometimes termed O. tropæoloides, though I do not know on what authority? I believe nothing is known on that point at Kew, no wild specimen existing in the Herbarium. On the other hand, it is difficult to suppose that it can be a mere seedling from the typical species, for, as far as my observation has gone, it exhibits under cultivation no variation whatever. I have an impression that the plant has been either figured or described in "Flore des Serres," but, not having access to that periodical, I venture to ask if I am correct? and, if so, perhaps you will kindly quote M. Van Houtte's history of this little Oxalid. *East Anglian.* [The Oxalis in question is figured in the "Flore," vol. xii., t. 1205, under the name of O. corniculata atropurpurea, and is stated to have been received, under the provisional name of O. tropæoloides, from M. Schlachter, of Loos, near Lille. No further history is given. EDS.]

Iron Pipes Blocked (p. 946).—It is one of the peculiarities of the Polyzoa that they only live in dark places. The British species are found either under stones or attached to various materials under bridges and other places where there is little or no light. It therefore occurs to me that if strong glass pipes were laid at the bottom of an open trench we should hear no more of this serious inconvenience. *W. T.*

Foreign Correspondence.

LORD HOWE'S ISLAND.—I have lately had an opportunity of visiting Lord Howe's Island, which lies off our coast (Sydney) some 300 miles. It is small in extent and scarcely known to any but navigators. A few observations relative to the botany of the place, may therefore be interesting to your readers. The island is situated in lat. 31° 36′ S., and long. 159° 5′ E. It is somewhat semicircular in form, about 4½ miles in length, and 1¼ miles at its widest part. On its southern extremity there are two mountains, over 2500 feet high; from the base of these to the northern end, where the ground again rises to an elevation of about 1200 feet, the intervening space is of a low, undulating character. The whole of the island is densely covered with a vegetation mainly consisting of trees, shrubs, and Palms, there being no barren spots upon it, excepting the precipitous cliffs of the mountains and coast. From this description of its size and breadth it will be apparent that the greater part of the island is subject to the effects of the sea breeze; yet, on the southern and most exposed side, Palms and exogenous trees grow down to high-water mark, and, except in being dwarfed, seem to be otherwise entirely unaffected by exposure.

After passing the first belt of trees, a species of Fig (Ficus) abounds, and occupies much of the low-lying grounds. In general appearance it greatly resembles F. macrophylla of our eastern coast. It differs, however, from that plant by its smaller fruit and foliage, by the under-part of the leaves being more ferruginous, and by its great tendency to produce adventitious roots from its branches, which, after reaching the ground, become stem-like, so that in many instances it is difficult to determine the original trunk. In this respect it is the most remarkable species of Ficus I have met with in this part of the world. The largest tree of the kind which I noticed was, as nearly as possible, about 100 yards from the extremity of the branches on one side to that on the other, and had very numerous root-stems. It was a glorious sight, and one long to be remembered. In two or three instances these trees were found forming, as it were, a circle round an open space. This, it was plain, was caused by the original tree dying off entirely in the centre, and its branches in consequence becoming so many separate individuals. It is called Banyan by the settlers, after its great prototype of Indian notoriety. No other species of Ficus was observed.

Among these Figs, and in every situation upon the island, whether high or low, to the extent of my investigations, two similar, but very distinct species of Areca Palm abound, one of which is called by the settlers the Cabbage, or Thatching Palm, from the fact of its fronds being the only material used for thatching upon the island. This is managed by the base of the foot-stalk of the frond doubling just below the pinnæ, at which point it is worked on a batten, secured in the roof for this purpose. The stalks are brought rather close together on the inside, forming a row of ribs, which has a somewhat neat appearance and the feathery spray, or pinnæ, on the outside, become an outer covering, of from 7 to 8 inches in thickness, rendering the interior impervious to wet, and cool and comfortable to the inhabitants; it will last from eight to ten years. The other Palm, equally abundant, and intermixed with the one just noticed, is not used for any special purpose. It is of a more slender habit, having shorter and more arching fronds, with the pinnæ rising from the rachis instead of falling as in the former, giving it a rather peculiar appearance, from which it is called by the settlers the Curly Palm. Both of these produce very large quantities of fruit, the drupe being of an ovate form, about 1 inch in length, and both have simple spadices (the latter having the longest), produced from among and below the lower fronds. The seeds of both kinds are eaten with the greatest avidity, and are, indeed, the principal support of the large bodies of settlers' pigs, running in most parts of the island.

At an elevation of about 1500 feet, nearly the limit of the preceding species, another and very beautiful Palm occurs, called the Umbrella Palm by the settlers. It has large pinnate fronds, with a branching spadix, bearing a large plum-like fruit, which is of a reddish colour when ripe. This tree is comparatively rare, and is strictly confined to the sides of the two high mountains, on the tops of which another and smaller species of Palm than any of the preceding kinds is said to grow in very great abundance, the fruit yielding the chief food of the wild pigs running about in that part. I speak of this Palm only from hearsay, as neither I, nor any of the party who visited the island with me, succeeded in reaching either of the mountains' tops. The settlers, who frequently go there to hunt wild pigs, describe it as comparatively low in stature, and bearing a profusion of roundish-shaped fruit. This island, therefore, though very small in extent, produces four distinct species of Palms, none of which, I think, are described.

Among other endogenous plants, those chiefly remarkable are two species of Pandanus; one, found principally near the coast, with a stout, straight stem, bearing from its sides a small number of the usual root-like supports; the other having a much more slender stem, and, from an early stage, supported by other very numerous, slender, stem-like roots, which are borne to a very considerable height, up to a point where the stem branches off. The general appearance of this tree, which frequently attains a height of from 40 to 50 feet, is very singular indeed: the whitish coloured root-like bodies, or forked, adventitious stems, occupying as much space below as the branches do above, and thus making the tree resemble an hour-glass. This is a more inland plant than the former, and grows up to a very considerable elevation.

The next and only plant of this class of any particular interest belongs to Iridaceæ, and is found only in two or three parts of the island, and that sparingly. One is puzzled to think how such a plant could be indigenous to this quarter of the world, so far distinct is it from most of its congeners. Seed vessels only were obtained, which resembled those of the genus Moræa; the flowers were not seen, but from the description given of them by the settlers, who call them the "wedding flowers," they would be referable to the genus named; the leaves of the highest plant obtained were about 6 feet in length, and 3 inches wide at the broadest part.

Crinum pedunculatum was abundant in many parts of the moist sandy shores; it was the only Amaryllid noticed. Orchids were rare, only two kinds being seen; one, a species of Dendrobium, grew sparingly upon Figs, and in rocky, shady places; another, a species of Sarcochilus, was observed attached to trees high upon the hill sides. The Grasses were equally scarce, only three indigenous kinds being gathered, viz., Spinifex, running along the sands of the coast; a Chloris, and a Polypogon, the two last only in one or two places in the interior. In all the clearances made by the settlers not now in cultivation, our Couch-grass, Cynodon Dactylon, and our Tufty Grass, Sporobolus elongatus, both evidently introduced, have taken possession of the ground. A single species of Carex, a Cyperus, and a Lamprocarya are all that represent the

order Cyperaceæ, while Juncus maritimus, Smilax latifolia, and a Commelynaceous plant are the only other endogenous plants observed.

It would occupy too much space, and would be out of place in this sketchy description of the botany of the island, to enumerate all the exogenous plants collected; I shall, therefore, confine myself to those which grow in the greatest abundance, and which mainly characterise the vegetation, namely, Lagunaria Patersoni, an Australian as well as Norfolk Island plant; an Ochrosia, remarkable for the abundance of its deep red-coloured fruit and bright green foliage; two species of Acronychia, Olea paniculata, a Pironia, allied to P. Brunoniana, a Tetranthera, a Maba, a Myoporum, Baloghia lucida, and an unknown Myrsinaceous tree, bearing large quantities of a small oval, reddish fruit, and singular as being the only tree on which was found the very curious parasite Viscum distichum (Bauer, Illustr.). This grew only on the extremities of the top branches, and had the effect of apparently destroying altogether some of the trees on which it had fastened itself. These plants, with the Ficus referred to in the early part of this paper, constitute at least three-fourths of the trees and shrubs in the island. The Myrtaceæ, which might naturally be expected to have been strongly represented upon an island so contiguous to the Australian coast, were confined to a small species of Melaleuca, called by the settlers "Kilmoque," and used by them as a substitute for tea; and an arborescent species of Leptospermum, very rare indeed, as only one tree of the kind was found, which was dead, and had seed vessels only upon it. Proteaceæ were altogether wanting, and not a type of the Australian Leguminosæ was found, this order being here confined to Edwardsia, Guilandina, and Canavalia. A single Epacrid was obtained, and this at a high elevation, being a tree of from 40 to 50 feet in height, with a stem 2 feet in diameter at the base, and described to me by my companion, who found it, as very branching in habit, and destitute of leaves, except at its extremities, where the foliage became closely imbricated and bunchy in appearance, surrounding terminal panicles of flowers, causing a resemblance, as he observed, of so many small Pine-apple plants. Some of the uncultivated ground, and many other waste places, were entirely taken possession of by Verbena bonariensis, the Castor-oil, the Cape Gooseberry, and Solanum laciniatum, the Kangaroo-apple of our colonists, all of which may be considered the troublesome weeds of the settlers.

I have now only to notice the Ferns, which are confined to the following genera, viz., Polypodium, Pteris, Nephrolepis, Asplenium, Platycerium, Litobrochia, Neottopteris, Diplazium, Davallia, Trichomanes, Dicksonia, Alsophila, and Marattia. Of these, the only strictly arborescent kinds were two species of Alsophila—one the well-known A. excelsa, the other a black, slender-stemmed species, which, I think, will prove to be as yet undescribed. The genera Adiantum and Aspidium, both so general in Australia, Norfolk Island, and New Zealand, were not observed; but Tmesipteris, so nearly allied to Ferns, and common to all these countries, was found here in many places. The other branches of Cryptogamic botany I had no time to investigate, but the Mosses and Jungermanniæ were comparatively scarce. Lichens, particularly the larger kinds, such as Parmelia and Sticta were very frequent, on both rocks and trees on the higher grounds. Along the coast, and washed ashore, were numerous kinds of Sea-weed, but they appeared to be principally small fucoid forms, intermixed with a few filamentous kinds.

To those acquainted with the botany of Australia and adjoining islands, it will be apparent, from the sketch here given, that the plants at this island more nearly resemble those of Norfolk Island, from which it is distant some 500 miles, than those of any other country. The Leptospermum and Melaleuca are almost the only plants which link its flora with that of Australia; all the other kinds being chiefly types of genera found on Norfolk Island. This resemblance will be more clearly indicated, when, at some future time, I shall give a detailed account of all the plants observed and collected during my three days' sojourn upon this interesting little island. *C. M., Botanic Gardens, Sydney, June* 16, 1869. [We thank our correspondent most heartily for this communication, one of much interest as regards botanical geography. Eds.]

Villa Lucia, Vomero, Naples.—On the 24th, 25th, and 26th of January last we had a frost here, such as that respectable authority, "the oldest inhabitant," issaid never to have experienced in Naples. The thermometer fell to 3° below zero, and we had snow on the ground and ice on the ponds for nearly the whole of these three days. I have a large collection of tropical and sub-tropical trees and plants, some of which suffered terribly, and a few have died in consequence. Two splendid plants of Furcroya gigantea, 8 feet high, died down at once; also the Cryptomeria elegans. Aralia dactylifolia, A. papyrifera, and A. Sieboldii died off to the ground, but have since come up again; Phyllocladus asplenifolia, dead; Melianthus, Musa, Dammar Pine, all suffered greatly, but recovered with care. I will not, however, trouble you more with my losses, but come to the points upon which I wish to ask your opinion. I must tell you, however, that about a month after the frost we had very hot weather, and in the intermediate period very strong northerly winds.

Well, I have here a large and fine collection of Araucarias—several excelsa, Cunninghamii, Cunninghamii glauca, Bidwillii, gracilis, brasiliensis, and last of all, the Araucaria Cookii, which of course you know well. Of these last I had three trees, each about 10 feet high—the most beautiful trees, perhaps, in the Villa. All the Araucarias suffered, but all have come round again except the A. Cookii. One of these died at once, a second within three months, and the third, though still alive, is in a very miserable state. Is there anything peculiar in this Araucaria which has made it suffer so much more than the others? Should a similar case occur this year, how should such trees be treated?—should they be watered, or manured, or the dead branches cut off, or what should be done? A friend of mine here, who has himself a large collection of valuable trees of the same sort, and who suffered in the same way, and who is besides a botanist of some reputation, told me that nothing was to be done; but this is very unsatisfactory. *J. H. Y.* [We fear nothing can be done with any certainty of good results; watering, manuring, &c., will do no good certainly. If there is remaining vitality, rather take care of this, especially through next winter, by covering the roots and the base of the stem; and then next spring, at the season for vigorous spring growth, bend down the stem, with the view of inducing a strong shoot from the base, as is done sometimes to get a leader from allied plants—*e. g.*, Cunninghamia sinensis—when raised from cuttings. Eds.]

Societies.

Royal Horticultural: *September 7.*—W. W. Saunders, Esq., F.R.S., in the chair. The usual preliminary business of the meeting having been concluded, the Rev. J. Dix announced the awards of the Floral Committee, and afterwards directed attention to some specimens of Looker's Patent Earthenware Propagating Boxes (see p. 814), and said that the Committee had expressed a favourable opinion respecting their usefulness for amateurs and others having only small gardens, and had suggested some alterations to be made in them, so as to make them more serviceable to propagators having houses at their command. An example of Green's Patent Pot-cleaner was also sent by Mr. W. Green, of Garforth, and, with respect to this invention, the Committee was of opinion that it would demand more labour in washing pots than was incurred under the present simple mode. G. F. Wilson, Esq., having announced the awards of the Fruit Committee, alluded to the fruit of the Mulberry, and stated that the stain left on the fingers, after gathering ripe Mulberries, might be entirely removed by rubbing the stained parts with the juice of the unripe fruit on the same tree. The Chairman then directed attention to a new hybrid Ivy-leaved Pelargonium, raised by Mr. Eckford, which was considered as likely to do good service to the hybridist, as affording a means through which a good purple-flowered hanging variety could be obtained, which would be a great gain to horticulture, as a highly effective decorative plant. Mr. B. S. Williams' fine specimen of Eucharis was then commented upon, the Chairman remarking that it was a plant which, if kept in an ordinary warm moist greenhouse, was a continual bloomer through the summer months; and he knew of no plant that better repaid the cultivator for any trouble taken with it than this. Attention was then called to a nicely-flowered specimen of the old purple Cape Lily, Vallota purpurea, which was grown by G. E. Blenkins, Esq., in a small greenhouse in Warwick Square, Pimlico, and as the plant was in every way adapted for the decoration of such small structures in towns, the Chairman requested Mr. Blenkins to give some particulars respecting his mode of treatment. In reply to his invitation, Mr. Blenkins stated that the culture was of a very simple nature. He grew the plant from a small bulb, and it was three years before it flowered, when it was freshly potted in a mixture of peat, loam, and silver sand. It had continued to increase in size every year till the present time, though the soil had not since been changed. Mr. Blenkins considered it a very desirable plant for growing in London houses. The Chairman then remarked that this class of plants was very impatient of having their roots interfered with. Messrs. Lee's new Rose, Clémence Raoux, was then noticed as being very highly scented, a character which was not considered of any importance by a florist, but which was gradually coming into favour; and he (Mr. Saunders) was glad to see this, as he could not imagine why the sense of smell should not be gratified, as well as that of sight. A collection of South African plants, sent by Mr. Cooper of Reigate (who had been a collector in South Africa for three years), was then alluded to as affording a good illustration of the succulent nature of the flora of that country. In conclusion, it was mentioned that at the next meeting, or the one following, they would try to get together a collection of Funguses, some of which would be cooked for those present to taste.

Floral Committee.—Rev. J. Dix in the chair. This was a small meeting, though for the season it was of average interest. From G. F. Wilson, Esq., East Hill, Wandsworth, came some cut flowers of the true Lilium speciosum, a fine old species, which for some time was thought to be lost from our gardens. To Mr. B. S. Williams, a Special Certificate was awarded for an admirably grown example of Eucharis amazonica, which had about 30 spikes of blooms in various stages of development. A similar award was also made to a collection of Orchids from the same exhibitor, consisting of Aerides suavissimum, a distinct white-flowered species with a blotch of yellow in the centre of the lip; and a pretty variety of this named delicata; the handsome Burlingtonia candida; the somewhat scarce and beautiful Miltonia candida grandiflora, and the white-flowered Lycaste virginalis. To Mr. Green, gr. to W. W. Saunders, Esq., a Special Certificate was awarded for a collection of plants, consisting of Nægelia Lindleyana, a tall growing variety, with rosy flowers and spotted throat; N. Madame Van Houtte, dwarfer, with lighter coloured flowers; Mandirola lanata, light violet blue; Eucodonopsis nægelioides, rose, with darker spotted throat; Restrepia antennifera, a curious little brownish-flowered Orchid, with long thread-like petaline segments; Oncidium Limminghii, a small species, with creamy yellow flowers, barred with brown; Promenæa stapelioides pallida, with flowers of a light green colour, darkly spotted; the greenish-yellow flowered Hoya campanulata, and Rhytidophyllum floribundum, a free-blooming scarlet-flowered Gesnerad. From Messrs. James Backhouse & Son, York, came a plant shown as Odontoglossum Bluntii, with two fine spikes, to which a Special Certificate was awarded; it had, however, though white-flowered, many of the peculiarities of O. luteo-purpureum. A choice collection of Orchids was also furnished from the Society's garden. From Mr. Parsons, Danesbury, came two very curious varieties of Lastrea Filix-mas, named ramosissima and parvula, to which First-class Certificates were awarded. To Mr. Wm. Bull a Special Certificate was awarded for a flowering specimen of Lasiandra macrantha, which was the best specimen that has yet been shown of this handsome new introduction. From Mr. S. Cooper, Holmesdale Road, Wray Park, Reigate, came a collection of small South African Euphorbiaceous plants, many of which were new species. A Special Certificate was awarded for the collection. Messrs. Standish & Co., of Ascot, sent a very good specimen of Ixora Dixiana, a good free-blooming variety, with large corymbs of deep salmony orange-coloured flowers, &c. Amongst florists' flowers the Dahlia took the lead. Mr. Turner furnished some grand flowers of older sorts, and a few new varieties, among which Toison d'Or, a very fine flower, of a bright yellow colour, and Harvard, of a kind of a lilac rosy hue, a very pleasing colour, and of good form, were honoured with First-class Certificates; as also were Aristides, rich dark-shaded crimson-purple, from Mr. G. Rawlings, Romford; Queen of Yellows, a large, bright orange-yellow flower, of good substance, from Mr. G. Parker, Maiden's Green, Winkfield; and William Lund, a dark maroon-coloured flower, from Mr. Burgess, Chelsea. To Mr. C. J. Barker, Littlehampton, a Special Certificate was awarded, for a collection of cut flowers of single and double Petunias, many of them being of great beauty. From Mr. Eckford, gr. to the Earl of Radnor, Coleshill, came a further collection of Verbenas, amongst which Countess of Radnor, blue lilac, well marked in the centre with violet, and with lemon eye, was singled out for a First-class Certificate. The same award was also made to a new Ivy-leaved Pelargonium named Lady Edith, dark crimson tinged with purple, from the same exhibitor. To Messrs. J. & C. Lee First-class Certificates were awarded, for Clémence Raoux, a new autumn-flowering Rose, of a pale flesh colour, and powerfully scented; and for a very fine new variety of the Adiantum Capillus-Veneris, named magnificum. From Messrs. Downie, Laird & Laing came a new Nosegay Pelargonium, named Lady Kirkland, rich crimson; and a scarlet-flowering zonal variety, named Sunshine. Some drawings of various flowers were shown by Mr. J. L. Macfarlane, 17, Spencer Road, Upper Holloway; they were carefully and faithfully executed, but in some measure defective so far as perspective is concerned.

Fruit Committee.—G. F. Wilson, Esq., F.R.S., in the chair. On this occasion there was a fair display of fruit. A grand collection of orchard-house fruit, grown in pots, came from Mr. Lockie, gr. to F. H. Berger, Esq., Court Gardens, Great Marlow, consisting of admirable examples of Magnum Bonum, Pond's Seedling, Transparent Gage, and Coe's Golden Drop Plums; Bergamotte d'Esperen, Gansel's Bergamot, Williams' Bon Chrétien, Beurré Superfin, Forelle, &c. Pears; Ribston Pippins, Reinette du Canada, and Emperor Alexander Apples; and a fine dish of Barrington Peaches, all of good size, and in fine condition. A Special Certificate was awarded. The same award was also made to a named collection of autumn and mid-season Apples, grown on small pyramidal trees, sent by Mr. Wm. Paul, of Waltham Cross; and to a choice collection of six varieties of Nuts from Messrs. H. Lane & Sons, Berkhamstead, amongst which was the rather rare purple-fruited variety. The Chairman brought richly flavoured examples of Louise Bonne of Jersey Pear, grown in pots and turned out-of-doors to ripen. From Mr. Dancer, Little Sutton, Turnham Green, came splendid specimens of Cox's Pomona and Warner's King Apples, to show their free-bearing qualities. To Messrs. Rivers & Son a Special Certificate was awarded for a collection of six varieties of Frontignan Grapes, consisting of Early Auvergne, Early Golden, Eugenian, Primavis, Early Saumur, and Tokay, most of them being of good flavour. Several Melons were shown by Mr. Richbell, gr., Tadworth Court, Epsom; Mr. Frost, Dropmore; Mr. Beach, Kingswood Warren; and Mr. Lockie; but, with one exception, they were over-ripe, and could not be fairly judged. Mr. Walton, gr. to E. Potter, Esq., Camfield Place, Essenden, sent a collection of Potatos; Messrs. Carter & Co. also sent 50 lb. of the American Early Rose, the produce of 1 lb. of sets, grown at Forest Hill; these, with samples of a new Kidney Bean, shown by Mr. Turner, were requested to be sent to Chiswick for the Committee to compare with other varieties, at the meeting to be held there on Thursday last.

International Horticultural Exhibition at Hamburgh.—The Congress at Hamburgh has, we believe, been a great success in a financial point of view. More than 60,000 persons were in the grounds on Sunday, and about a third of that number at least every other day. The whole disposition of the several parts, and the beauty of the situation itself, could not fail to have its proper effect on every one, but if it were asked, as was indeed the case, What is to be learnt from it? we must confess very little. After the collections of Linden, Verschaffelt, Veitch, and one or two more who constantly contribute the most interesting and novel articles on such occasions, and with the exception of the Museum, which comprised several matters of interest, and one or two objects in the fruit houses, there was little really to command attention. We ought not, however, to omit the specimens of pruning, especially those from France, from which certainly something might be learnt.

Unfortunately, with the exception of the Grapes and Pelargonia, there were no means of comparing the state of cultivation with that of other countries. The Grapes exhibited by Meredith and Thomson were incomparably better than any others, though a great push was made to secure the prize for three very inferior Prussian bunches. We were sorry to hear that the same sharp practices which have been so much complained of at home were revived here, and that cuttings were taken from every one of the beautiful Tricolor-leaved Pelargoniums. The Dahlias, Hollyhocks, Fuchsias, &c., among the flowers, and the Cucumbers amongst the fruit, would absolutely not be looked at by the Committees at South Kensington. The Asters alone seemed superior to those which are seen in England, where they are rarely objects of exhibition in London. In Cucumbers especially the sorts seemed very inferior; and, where any size was attained, the specimens were ripe, a state in which a great many Cucumbers appear in the market.

Amongst the garden machines there were a few minor things which were interesting. A new system of heating obtained the 1st prize, but we in vain strove to ascertain on what grounds. A clumsy apparatus for lifting and transporting plants, from Peter Smith & Son, of Hamburgh, had the 1st prize assigned it, after a very cursory examination, a 2d only being given to Mr. Barron's, of Borrowash, which certainly

surpassed it in every good quality. We cannot help regarding this as a case of gross partiality.

The Congress for the discussion of questions of interest to horticulturists sat for three days, but we cannot find a single point on which any new light was thrown out.

[FROM ANOTHER CORRESPONDENT.]

THIS great exhibition of Horticulture, which opened on Thursday, September 2, and will continue to be held open until this day, is in many ways a remarkable one. No expense has been spared by the committee to render it attractive, and every inducement has been held out to render it international in its character, not only by inviting contributions from each country, but by embracing in its scope every class of plant cultivated in gardens, every variety of produce, and article or implement used in connection with gardening in any way. That the whole has been accomplished would be, perhaps, saying too much. There is, however, one of the most extensive and varied horticultural exhibitions we have ever seen. Finer shows of plants we have frequently in this country; it is, indeed, difficult to pick out any special features of excellence anywhere, so far as cultivation goes; but having said this, we must admit that the *tout ensemble* is beautiful and instructive.

The show ground, which covers between 20 and 30 acres, is beautifully chosen, and splendidly situate on the north bank of the Elbe, in a sort of ravine or valley, in which there is a fine piece of water at the bottom. The ground on both sides is occupied by the show, and the two portions are connected by a light suspension bridge, erected for the occasion. The whole of this pretty valley has been very tastefully laid out with beautiful winding walks, and groups of trees, shrubs, flower-beds, &c., by Herren Jürgens, of Ottensen, with great taste and skill. On this portion are exhibited most of the cultivated plants, and ornamental plants—large houses being erected for the accommodation of those that require it, and others, Conifers, Fuchsias, Pelargoniums, skilfully dispersed and grouped in beds in the open ground: thus giving it the appearance of a beautiful garden, rather than of a stiff and formal exhibition. Connected with this ground by a substantial temporary bridge, on the opposite side of the road, is another portion of 4 or 5 acres, devoted to machinery, garden implements, fruits and fruit trees, &c., the first part not having been found large enough for the display.

The prize (a Cup) offered by her Majesty the Queen, for the three best bunches of GRAPES, induced some of our champion Grape growers to compete for the purpose of securing it—to wit, Thomson of Dalkeith, and Meredith of Garston. The prize, as advertised and announced by the Hamburgh committee, was to be given for the three best bunches of Grapes, and on this understanding the fruit was sent to Hamburgh and staged; when, to every one's astonishment, it was announced that a telegram had been received from General Grey, from the Queen, to the effect that it was to be given, not for the "best specimen of Grapes," but for the best assortment of Grapes. Thus the English exhibitors, who brought their fruit in accordance with the schedules, were placed at a discount by this new arrangement. We are of opinion that however important it may have been to consult the wishes of her Majesty, it should have been done at an earlier date; and that if the matter had been clearly explained to her Majesty no such alteration would have been attempted. We maintain that the committee, having offered the prize for the three best specimens of Grapes, were bound to abide by that decision. Mr. Meredith had the good fortune to bring a splendid collection with him, and so became able to compete in either way, and thus triumphantly secured the great honour; otherwise, there cannot be the slightest doubt about it, the Cup was intended to be awarded to M. Wesselhöft, the German opponent. We cannot too severely censure the authorities for their behaviour in this affair. The more it is inquired into the uglier the matter looks, and the more plainly are the intentions seen. We are pleased to congratulate Mr. Meredith on his success, which adds one more wreath of victory to his already numerous honours as a Grape grower. Mr. Meredith's collection consists of three very large, although not particularly handsome, bunches of Mrs. Pince's Black Muscat, a beautiful set of three bunches of Black Hamburgh, perfect in every respect, Muscat of Alexandria, Lady Downe's, Trentham Black, Muscat Hamburgh, &c., all very excellent examples. Mr. Thomson competed with a very perfect bunch of Chasselas Napoleon, weighing 4 lb.; a very large bunch of Muscat of Alexandria, 5½ lb., somewhat green in appearance; and a Black Hamburgh, 3½ lb., not quite up in colour, and with the double misfortune of having been bruised and broken. To these the jury awarded a Gold Medal. M. Wesselhöft exhibits a stand of 12 sorts, of very fair and ordinary quality, to which the jury, for some unknown reason, awarded the Cup of the Duke of Mecklenburg, thus placing them before Mr. Thomson's, which were vastly superior. A Gold Medal was awarded to Mr. Thomson for his new and magnificent Grape, Golden Champion, which by its noble appearance elicited the unequivocal approbation of everybody. For White Grapes Mr. Meredith was placed 1st with Muscats, and for Black Grapes he was disqualified, on account of having obtained the Queen's Cup — the jury evidently forgetting that the objection was equally valid in the one case as in the other. The 1st prize was given to M. Heinemninger, a fruiterer in Hamburgh, for very poor scrubby stuff: so that it is not necessary here for the exhibitor to be the cultivator. A great quantity of Grapes is exhibited, principally, however, from vineyards in the south.

Pines make a very excellent display, the fruit in every instance being large and fine. The varieties are the Ripley Queen, and Prickly Cayenne. One peculiarity which we observed as belonging to all these fruits was their round, full, and plump character, not nearly so tapering as is usual with us. Some exceedingly good examples of fruit trees in pots—Apples and Pears in fact—are exhibited by the president, Dr. Merck, M. Wesselhöft, and others. These are in small pots; the Apple trees about 2 feet in height, and bearing without exception the finest fruit we have ever seen grown in pots—some of the examples of Cellini Blanc and Reinette du Canada Apples, and Louise Bonne of Jersey Pears being perfect pictures. The show of Peaches is a very poor one, the best collection coming from M. Lepere of Montreuil; the Peach crop, as with us, having been almost an entire failure. Apples and Pears are contributed largely by the great French nurserymen—MM. Jamin et Durand, Croux et Fils, of Sceaux, Demoulins, Toulouse; Martin Moller, of Strasbourg, whose collection, it may be noticed, which contains many English sorts, is very incorrectly named, and many other exhibitors show minor collections. There does not, however, seem to have been any regular competition in the way of specimen fruit, and the great majority of the fruits are of a very inferior description, with numbers of decayed specimens giving the whole a very untidy appearance. Quantity altogether exceeds quality in this section; by reducing the number to one-half, the exhibition would have been much improved.

The trained Fruit Trees, which occupy a considerable portion of ground near this, are capitally displayed, and formed a somewhat novel and interesting feature. All the trees having their leaves stripped off them, this quarter had rather a wintry aspect. Samples of all sorts of nursery fruit trees are shown in this department—cordons of all sizes, espaliers of all forms, pyramids, candelabra, goblet, as well as common orchard standards, and that to a great extent. It is impossible to avoid falling in love with some of these pretty trees. The principal exhibitors are Messrs. André and Louis Leroy, of Angers; Croux et Fils, of Sceaux; Jürgens, Nieustadter, Holstein; Müller, Strasbourg; and C. Millien, of Lübeck. The only regret we experience is, that so many pretty trees should have been nearly ruined through having been transplanted at such a season.

In the CONIFEROUS classes the competition was pretty keen. It was a good idea of the managers to offer these prizes, as by their means the garden was at once beautifully embellished. We cannot say, however, that we approve of the exhibition in a general sense, excepting it might be in the case of new varieties. Some interesting groups are here contributed, as well as good examples in the classes for single specimens: the chief exhibitors and prizetakers being Messrs. Peter Smith & Co., Hamburgh; Barron & Sons, Borrowash, Derby; Jürgens, Nieustadter, Holstein, &c. We cannot here enter into detail as to the merits of the various collections. We must observe, however, that the awards of the jury in many instances seem to us unaccountably strange. In the case of the specimen Abies nobilis, the 1st prize is given to a plant from Peter Smith & Co. not one-half the size of, nor one-half so good as, the one exhibited by Messrs. Barron & Sons. The prize plant, however, is honoured through bearing half-a-dozen cones, a result arrived at through ill-health; this precocity must have enamoured the jury very much. The plant is truly a most miserable scrub, without a leader, and in the last stage of disease. Again, with the specimen Cedrus Deodara, the 1st prize is awarded to the larger, but very inferior plant, without a leader, which at the time we write is almost dead; Messrs. Barron's pretty, compact, healthy plant being placed 2d. Peter Smith & Co. carry off the great prize for a group of 100 sorts with some large specimens, many of which, we are sorry to see, are now dying. Messrs. Barron & Sons carry off 1st honours for 25 Abies and Picea, 6 varieties of Retinospora, and 3 Thujopsis—all very excellent specimens. The 1st prize Araucaria imbricata came from J. Verschaffelt, Ghent, a perfect model of a plant, some 12 feet in height. The same, however, cannot be said of the prize Wellingtonia, which is truly a wretched object—now quite dead—and ought to have been disqualified with much greater show of reason than in the case of Messrs. Barron's lot of new varieties of Abies Douglassii, which, although they have obtained numerous First-class Certificates in England, were here entirely passed over as altogether unworthy. We have made these remarks, which we think are in justice due to Messrs. Barron, who have contributed largely to this exhibition, and whose plants have received anything but justice at the hands of the jury.

Very beautiful groups of ROSES, standard and others of the free blooming hybrid perpetual and hybrid Tea classes, are shown by Fried. Harms, Hamburgh; these, being now in full bloom, have a pretty appearance; one group of about 30 Gloire de Dijon is particularly noticeable. The standard Fuchsia, which comes also from M. Harms, presents one of the best examples of cultivation in the grounds. The prize offered for the best and most effective groups of fine foliaged plants in the open air, brought together a lot of very good plants in themselves. Variety, however, seems to have been more studied than effect, and the whole is a mass of confusion. The same remark will apply to all the attempts in the arrangement of flower-beds throughout the entire show—too many varieties of flowers used in one bed, without the slightest harmony of colour or effect.

Messrs. F. & A. Smith, Dulwich, exhibit a fine lot of their tricolor and tricolor variegated Pelargoniums, which are the admiration of every one. There are some good specimens of the double varieties, exhibited from some other growers.

The best lot of NEW PLANTS undoubtedly comes from Messrs. Veitch & Sons, Chelsea; these, however, were not entered for competition, and so failed to receive the Gold Medal, which otherwise they would have obtained. They comprise eight beautiful Nepenthes, six new Dracænas, several Crotons, the new Japanese Amaranthus, and the fine new Dieffenbachia Bowmanni, one of the best of its class; some new hybrid Alocasias, &c.

M. Linden, of Brussels, also exhibits a large collection of foliage plants and Orchids, a fine plant of the curious Cochliostema Jacobianum, Fourcroya Lindeni, Cissus Lindeni, the singular-looking Trichotosia ferox, Odontoglossum Alexandræ Trianæ, Cattleya eldorado, &c. M. Linden's lot is not at all an effective one, the plants being arranged in such a slovenly manner, and the dark and dismal building not being calculated to show them off to much advantage. Indeed, the structures for the display of plants, which must have been erected at an enormous expense, were by no means suitable; they were very dark, rough, and untidy, and the arrangement of the plants in the different classes past understanding. Orchids figured very poorly, only two collections of 12 being staged, the 1st prize going to M. Linden, and the 2d to M. Kramer, gr., Flotbeck Park, Holstein. The great prize of 500 thalers, for 50 plants in the highest state of cultivation, of which at least one-half must be in flower, is awarded to M. Kramer, Flotbeck. The great majority of the plants in this group are very ordinary material; if we except some pieces of Disa grandiflora, which were truly splendid, and one or two others, there was scarcely a plant which at a London show would have been staged for such a prize. Palms were contributed in endless array, and some very fine examples. Messrs. Linden, J. Verschaffelt, and Laurentius, Leipsic, all contribute large and fine groups; the best, however, comes from Herr Wendland, The Royal Gardens, Herrenhausen, amongst which are some splendid plants of the different Geonomas—Wildenovi, Martiana, sarapiguensis, &c., Phœnicophorium sechellarum, Areca Verschaffeltii, &c. M. J. Verschaffelt exhibits a very fine plant of that beautiful Tree Fern, Dicksonia antarctica, over 10 feet in height, which, to bring so far, must have been a work of no little trouble.

In a separate building are exhibited collections of market plants, such as Azaleas, Camellias, Heaths, Ficus, Dracænas, which are uncommonly well done; Primulas, Cyclamens, &c., all very good, but ordinary stuff, such as is to be found in any nursery. An immense collection of cut flowers is exhibited by Messrs. Ernst & Von Spreckelsen. A very great variety of Asters from the different German cultivators, the best examples coming from Dippé Brothers, seedgrowers, Quedlinburg. Finer Asters than these we have never seen. Zinnias are also well shown here. Hollyhocks and Pansies, noble flowers, from Messrs. Downie, Laird & Laing, Stanstead Park; and Coleuses, Tricolor and Bronze Pelargoniums, from Carter & Co., F. & A. Smith, &c., which latter carry off the first prize, and very worthily so.

Bouquets and other flower decorations it was expected would have produced a fine display. On the contrary, however, they were all of the most common description. Here, again, the harmony of colour was in most cases overlooked, and variety of flowers was attempted, which gave them all a very confused and muddled appearance. Better arranged bouquets by far were being sold in the grounds by those strangely-attired Vierlanderin girls; the prettiest bouquet amongst them was of the simplest construction, being entirely composed of sprigs of Green Myrtle, dotted over the surface with the pretty White Myrtle flowers. Bridal wreaths, and little white *coiffures* of the same construction are also very pleasing; so that the more simple they are the more pleasing they become. In contrast to this quiet beauty, some wreaths and *coiffures* made altogether with the double Pelargonium Gloire de Nancy flowers, mixed with a little Fern, were extremely pleasing. A little stand with pedestal of the same flowers, with drooping racemes at the edges, also attracted our attention. The patience and the perseverence displayed in fixing all these flowers singly must have been very considerable. Some fronds of Cycas revoluta were also here shown, with a small bouquet of white flowers tied up with white satin ribbons. It is a custom peculiar to some parts of Germany, on funeral occasions, for the mourners each to carry some of these fronds, and for the lid of the coffin to be similarly arrayed. Hence the reasons for the abundance of these plants in Germany, and the favour they are held in.

From vegetables, which came next, and of which there is a great display, but of which we need say nothing here, we pass on to the machinery, tools, and implements. Prizes for these things have been offered in like manner as for produce, but we are unable to say how they have been awarded, excepting in one or two cases—the great majority of the articles coming from England. W. S. Boulton, of Norwich, exhibits the greatest quantity, such as garden engines, which we can highly recommend, being very powerful, of simple construction, and of easy action. Mr. Boulton also exhibits a rather ingenious garden watering-pot engine. Several mowing machines compete—Messrs. Ransomes & Sims', Green's, Boulton's, and Williams' new patent Archimedean, which is no doubt a good useful article. Here, however, there was no one to show off its capabilities, so that its working was not understood. The 1st prize, we believe, went to Messrs. Ransomes & Sims. Messrs. Veitch & Sons exhibit a good assortment of garden tools, cutlery, seeds, &c.; and a great quantity of American axes, hatchets, hoes, &c., are exhibited by Messrs. Schmidt & Franckes, of Osnabruck and New York.

Messrs. C. Behring & Co., of Hamburgh, and Silver Street, London, exhibit samples of their new charcoal flower-pots, which they are attempting to introduce. Charcoal, we know, is very much liked by the roots of plants; so that we believe, if this material can be used and made at a reasonable price, it will be a great acquisition. There are also slabs made of the same material, which are intended to be used as staging instead of slates; also for lining for walls of houses wherein Ferns, Orchids, &c., may be grown. A little experience, however, will bettor test the value of the material.

There are many other interesting articles exhibited, which we are unable to notice here. We cannot, however, omit to refer to the awards made for the best transplanting machines for large trees. Messrs. Barron & Sons, of Borrowash, whom we all know as having more practical knowledge of this sort of work than almost any one, entered one of their machines, and came over here to contest the prize in a practical manner with that of Messrs. Peter Smith & Co., of Hamburgh, and others. Viewing the machines as they stand each with its tree, one is struck at once with the ponderous, clumsy character of that of Messrs. Smith; that, with the fact of the tree being somewhat bigger on the one than on the other, must have gained for Messrs. Smith the 1st prize. That the award is monstrously unjust no one who has had any practical experience of such work would for a moment deny. It is the most clumsy, lumbering thing we have ever seen, and we feel grave doubts as to whether it can ever be worked. Indeed, we believe it broke down twice on the way while bringing the plant here. The objections against this machine are, 1st, that the ball has to be enclosed in a big square wooden box about 3 feet in depth, so that for this all roots have to be cut clean off to the required size, and big and little trees must all have the same sized ball; 2d, the ball of earth taken up, 3 feet deep, is a great deal more than necessary; and this in Messrs. Smith's machine, when lifted to its utmost height, only cleared the ground by about 3 inches, so that the least unevenness of the roads, even a stone, would impede its progress; 3d, the wheels are too high, and too narrow in their guage, so that they would very readily sink into the earth, &c. We think that Messrs. Barron have just cause of complaint against this judgment, and that their request for a trial of their respective machines should have been allowed, instead of their having been judged in a hurried manner, as they were, by a set of men who in all probability never saw a tree moved in a proper manner.

Of the show on the whole it may be said that it has been a splendid success, and a most beautiful sight. We wish, however, that we could with equal satisfaction speak of the judgments, and the treatment received by the exhibitors.

ROYAL CALEDONIAN HORTICULTURAL: *Sept.* 8—9.—The general features of the great International Fruit Show held by this Society are noticed in another column. Here we proceed to give a few of its details. In the collections of fruit, 20 sorts, Mr. Stevens, gr. to the Duke of Sutherland, won the 1st prize. In this group were good Providence and Queen Pines, very fine Black Hamburgh Grapes, excellent Muscats, and some others of less note; a beautiful cluster of Banana in matured condition, Brown Turkey and Lee's Perpetual Figs, the usual varieties of Peaches and Nectarines, good Persian and Trentham Hybrid Melons, Coe's Golden Drop Plum, Moorpark Apricot, Raspberries, Strawberries, and Cherries. The small fruit was shown in dishes, the large in boxes, and the whole was well arranged. The 2d prize was awarded to Mr. Johnstone, gr. to the Earl of Strathallan, who had magnificent Grapes. Mr. Thomson, Dalkeith, was placed 3d, with a beautifully arranged assortment in a square box, divided into several compartments. It consisted of Queen and Prickly Cayenne Pines, a pair of Dalkeith Park Melons, fronted with Golden Champion, in grand order as to form and colour; then Alicante, Muscat of Alexandria, Mrs. Pince's, Buckland Sweetwater, and Black Hamburgh, all very good. In front of these again were good Victoria and Prince of Wales Plums, Belle-garde Peaches in fine style, Pitmaston Orange Nectarine, and several of the small fruits, which latter weakened the collection considerably. Mr. Ingram, gr. to the Duke of Northumberland, Alnwick Castle, was placed 4th, a decision which gave rise to some dissent, the general opinion being that the 2d and the 4th ought to have changed positions; he put up, at all events, a most creditable assortment.

In the collection of 16 sorts, Mr. Mathieson, gr. to the Hon. Mrs. Villiers, Tulliallan, had a very fine assortment, nicely arranged, and shown in chip baskets, suitably garnished; it comprised excellent Black Hamburgh, Muscat, and Black Morocco Grapes, Scarlet Gem Melons, extraordinarily fine Barrington, and very fine coloured Early Crawford and Royal Peaches; Violet Hâtive and Tawny Nectarines, the latter in grand colour; Moorpark Apricot, Kirke's Seedling, and Magnum Bonum Plums (the latter three grown in pots), and Morello Cherries. Mr. Lees, gr. to the Earl of Haddington, Tynninghame, had good Hamburgh and Muscat Grapes; some fine Peaches, Apricots, Plums, and Pears. Mr. Temple, gr. to J. Balfour, Esq., of Balbirnie, had, in addition to good Grapes, fine Peaches, Nectarines, Plums, and a Trentham Hybrid Melon. Mr. John Laing, gr. to R. Cathcart, Esq., Pitcairlie, had among his lot, good Brown Turkey Figs. Mr. James Phillips, gr. to J. H. Barton, Esq., Stapleton Park, Pontefract; Mr. James Mitchell, gr. to Sir D. Baird, Newlyth; Mr. McMillan, gr. to Lord Blantyre, Erskine House, and several others, had excellent lots that required to be passed over. In collections of 12, Mr. Cowe, gr. to Captain Hope, Luffness; Mr. McIndoe, gr. to the Archbishop of York; and Mr. Lowe, Sauchie House, had fine lots of large stone fruit.

Coming now to the collections of Grapes, Mr. Johnstone took first place with the following sorts:—Black Morocco, in finer bloom and colour than is generally seen, and, as grown, a most desirable-looking Grape; Raisin de Calabre, in fine form and of full size; Lady Downe's Seedling, in fine finish

Duchess of Buccleuch, much smaller than was shown by Mr. Fowler some years ago; Black Hamburgh, Muscat of Alexandria, Muscat Hamburgh and Alicante, in quite marvellous form and beauty of finish, considered by all an advance on former years. Mr. Bannerman, gr. to Lord Bagot, was placed 2d, with fair Alicante, Gros Guillaume, Muscat of Alexandria, Lady Downe's, Black Tenerille, a smallish bunch, with medium berries in good finish, very good; Mrs. Pince's, West's St. Peter's, and Hamburgh. Mr. Thomson, Dalkeith, had a good mixed assortment, comprising Black Hamburgh, highly-finished Muscat of Alexandria, Mrs. Pince's, imperfectly coloured; Trebbiano, good; Golden Champion, very good indeed; Lady Downe's, White Lady Downe's, and Alicante. Messrs. Lane & Son had also a collection in this class.

In the four-bunch class Mr. Wm. Bryden, gr. to Sir William Wallace, Lochryan House, Wigtonshire, had an excellent lot, well up in size both of bunch and berry; his Golden Hamburgh was quite first-rate, and so was Alicante, with very good Bowood Muscat and Muscat Hamburgh. Mr. M'Connachie, gr. to A. Smollett, Esq., Cameron House, Dumbartonshire, had Black Morocco, Muscat of Alexandria, Black Prince, and Hamburgh, very good and uniform. Mr Wm. Meade, gr. to Raikes Currie, Esq., Minley Manor, had Muscat Hamburgh very fine in his group. Mr. Bannerman had Gros Guillaume in good order; Mr. Meredith, who was not placed, had Hamburgh and Lady Downe's, good; and Mr. Lees, Tynninghame, had also a fair collection. In the two-bunch Black Hamburgh, two Muscat of Alexandria, one bunch of each of the above named, one Alicante, one Lady Downe's, one flavoured white, one flavoured black, one finest bloom, and a collection of Grapes not included in other classes—in these 10 different classes, wonderful to relate, Mr. Johnstone was 1st. All his Grapes showed excellent cultivation, and for a young exhibitor the wonder is how he brought them and staged so safely without destroying the bloom. If there was one bunch more than another that created almost a sensation, it was the Alicante, so finely grown in the first instance as to assume model proportions, and then so densely covered with bloom as if it had been under the influence of a "heavy dew" out-of-doors. In these classes, keeping out the collection of Grapes and the bloom, there were from 17 to 24 entries, showing how well the prizes were contested. Mr. Bryden took 2d prize with good Muscat of Alexandria. Mr. Louden, gr. to T. Barnes, Esq., Salop, had the best ripened bunches, but the berries were small. Mr. Kirkpatrick, gr. to Lord Abercromby, Airthley Castle, had fine bunches, and so had Mr. Ingram, Alnwick, and Mr. Lees. Mr. Meade and Mr. Ingram had good single bunches of Muscat of Alexandria. Mr. Bannerman had a good 2d lot of Lady Downe's; Mr. Brunton, gr. to Sir D. Kinloch, Gilmerton; Mr. Fraser, Biggar; and Mr. Meredith, also had good dishes. In Black Hamburgh Mr. M'Connachie had a nicely-formed bunch, which took 2d place; Mr. Jas. Hannah, gr. to John Duncan, Esq., Burnhead; Mr. J. Anderson, gr. to J. F. Webb, Esq., Newstead Abbey, Nottingham, and others, had fine fruit. Mr. Wm. Melville, gr., Glenlee, New Galloway, had the 2d prize for Alicante; Mr. George Greig, gr. to Wm. Christie, Esq., Greenbank, Liberton; and Mr. McMillan also showing well. For Hamburghs in pairs there were 23 entries, Mr. Walker Bassot, gr. to J. C. Philips, Esq., Cheadle, running the winner very hard for position, backed up well by Mr. Stevens, Trentham. The finest flavoured Grapes in white and black, out of respectively 19 and 17 entries, were declared to be Duchess of Buccleuch and Muscat Hamburgh; Mr. John Brunton taking position after Mr. Johnstone.

The heaviest black Grape came from Mr. Jas. Douglas, gr. to F. Whitbourne, Esq., Loxford Hall, Essex, and Mr. Laing—both Hamburghs; and the heaviest white was a Brobdingnagian Syrian, weighing 16½ lb., and in good general order. This came from Mr. Jas. Dickson, gr. to John Jardine, Esq., Askleton. The Messrs. Lane had a wonderfully large bunch of Muscat of Alexandria. Muscat Hamburgh was well shown by Mr. David Morrison, Mr. Bryden, and by Mr. Jas. Turner, gr. to Mark Sprott, Esq., Riddle. For the best pair of Mrs. Pince's Muscat, Mr. Meredith had extra fine samples, large in size, fine in formation of bunch, and well finished, much better than any exhibited by his compeers. It looks valuable as a variety. Mr. Jas. Douglas and Mr. John M'Donald, gr. to Mrs. Sharp Erskine, Dunimarle Castle, had the other lots.

Mr. Thomson had the best assortment of varieties of Black Hamburghs, comprising Richmond Villa, a small but finely hammered berry; Old Black, a little larger and redder in the tinge; a seedling black, much inclined to shoulder, fine bloom; Champion, smaller than we have seen it; and Dutch. Mr. Johnstone, who had the 2d collection, had the Mill Hill variety, fine in colour, in addition to some of those named above. In the collection of Muscats Mr. Ingram had the largest bunches, and Mr. Thomson the smallest in the ripest condition. The lots comprised Escholata, loosely arranged in bunch; Tottenham Park, Bowood, Candia, Tynninghame, the least ripe of the group; and Canon Hall. Mr. Thomson also exhibited the White Lady Downe's in very promising condition, but unripe. Vines in pots were numerous, some of them layered and taken up for show purposes; Mr. Turnbull, Broomlands, and Mr. McLeod, Newbattle, being most successful.

In Pine-apples there were two superb fruits, especially the Charlotte Rothschild, from Mr. Miles, gr. to Lord Carrington, Wycombe Abbey. Very good Queens came from Mr. Foulis, Fordel, Inverkeithing; and an excellent lot was sent for exhibition, and specially rewarded, from Mr. Carmichael, gr. to H.R.H. the Prince of Wales, Sandringham. Mr. John Fortune, gr. to R. Jardine, Esq., M.P., Castlemilk, showed good fruit of Smooth Cayenne, but a little too ripe. There were no fewer than 48 Melons placed out of 80 entries, Mr. Douglas winning in both Scarlet and Green-flesh with Scarlet Gem and Bousie's Incomparable, Mr. Phillips, Stapleton Park, and Mr. Pottle, Woodbridge, Suffolk, having also fine fruit. The best Figs were shown by Mr. Cowe, and the largest and best variety among them was named Luffness, a variety bearing a marked resemblance to Castle Kennedy. Mr. Laing and Mr. Fowler, gr. to the Earl of Harewood, also had fair dishes of fruit. Out of 16 dishes of 12 Peaches, Mr. Campbell, Alva, and Mr. Mathieson had the best, with the usual varieties; and out of 31 dishes of 6, Mr. Loudon, Salop, and Mr. Browe, Kilmarin, were the winners. Nectarines appeared to be scarce, there being but few entries, Mr. Hardie, Springfield House, being 1st. Mr. Ross, gr., St. Martin's, Perth, had the best Apricots; Mr. McIndoe, York, taking 2d place. Mr. Kirkpatrick, Airthlie, and Mr. Scrymgeour, Holme Park, Reading, were placed for Plums with such sorts as Golden Drop, Washington, and Victoria.

Both Apples and Pears were only sparingly shown. By far the most attractive were the following kitchen sorts of Apples, from Mr. Scrymgeour, gr. to R. Palmer, Esq., Holme Park, Reading:—Reinette du Canada, Emperor Alexander, Dutch Codlin, Kentish Fillbasket, Yorkshire Greening, and grand Gloria Mundi. In the matter of both Apples and Pears this exhibitor distanced other competitors. Mr. McKay, gr. to Chas. Tennant, Esq., of The Glen, Peebles, had immense fruit of Passiflora quadrangularis, and some of the lesser-sized Passion-flowers. Mr. Barron sent a collection of Apples and Pears from the orchards of Middlesex, which were not without interest.

In the adjacent hall there were some extra fine plants, particularly of Tree Ferns and Crotons, from Mr. Sutherland, gr. to Peter Denny, Esq., of Helensiee; and these, with the Dalkeith and Tynninghame flowering plants, had an imposing effect. The orchestra and the tables surrounding the room were filled with the produce of the various nursery firms in and about the city; and what with the glowing hues of the multicoloured Gladioli, and the splendid spikes of Hollyhocks, in the various classes, the interest of the promenader was kept up in a much more marked degree than heretofore. It is impossible, with the limited space at our disposal, to touch upon the many interesting things, far less to dwell upon the numerous stands of florists' flowers. It was pleasant to see so many well cultivated Heaths; Mr. Thomson's Austinians, retorta major, and Jacksoni were large, fresh, and full of bloom; and so were those from Mr. Lees, who had Murrieckiana, in brighter colour than it is generally seen, so brought about by standing the plant out-of-doors. By far the best novelty however, was a seedling, named after the raiser, Turnbulli. It is a long tubed, widely expanded variety, of a good red hue, and some day must take position as a leading autumn-flowering Heath. Mr. Thomson's Vandas, comprising tricolor and suavis, were particularly well done. One of the most striking plants in the hall was a Lapageria rosea, from Andrew James, Esq., Alloa. It was grown and trained in seven circular tiers, arranged so that the pendent flowers could be well seen, and it was studded with them. The Messrs. Veitch's table was a great centre of attraction. The Orchids and Nepenthes, a portion of them seedlings of Mr. Dominy, were shown in grand style; and, although they had travelled over 400 miles, looked as fresh as seen in the Veitchian stoves. Vanda insignis is a grand acquisition, flowering, as it does, in so dwarf a state, and so full of bloom. The new Cypripedium Harrisianum is about the most perfect representation of a varnished flower known—superior to the best of the shaggy or hairy Lady Slippers (villosum); Cattleya Mangleśii is a fine-tinted mauve, with a labellum beautifully frilled; Miltonia Warscewiczii is a particular little gem, with yellow and bronze sepals and petals, and a broad, almost quadrangular lip of dark and shaded purple, with a broad belt of of white at extremity. In Cattleyas there were labiata, speciosissima, maxima, and devoniana, all noble varieties; and the charming Dendrobium McArthæ and Bensonæ, looked beautiful among the newer Crotons and Davallias, and the choice and chaste Lapageria alba. The whole was rendered enchanting by the addition of a bevy of Pitcher Plants, with their curious appendages, suspended in a variety of forms.

We were much struck with the perfection of the Hollyhock spikes of the Messrs. Downie & Co., as well as their Dahlia blooms, both show and fancy; and so were we with the collection of Gladioli of Stuart & Mein, Kelso—they were really grand. The cut blooms of Hollyhocks of the Rev. Edward Hawke and Mr. McIndoe were all but faultless; the blooms of Willingham Model and Phyrne, the one a saffron and the other a soft pink, were quite A 1.

The collection of vegetables from Dalkeith, from Tulliallan, and from Balbirnie, were good, especially the lots of Peas, Potatos, Parsnips, and Onions.

Great credit is due to the Secretary and all concerned for the efficient manner in which the whole thing was arranged and perfected; everything was put right for the judges to commence their labours at 6 A.M., thus allowing gardeners, at a nominal fee, to visit the show between 9 and 12, and then a high fee for entrance was charged, to allow patrons and visitors to see the exhibition a little more pleasantly than when gardeners are bustling about inspecting the awards. [This is a capital arrangement. EDS.]

A very large party dined in the evening under the presidency of the Earl of Dalkeith—noblemen and gentlemen, and their gardeners, for once joining in social festivities on the same terms. These things are better managed about the "Modern Athens" than almost anywhere else.

Florists' Flowers.

NEW PICOTEES, &c.—The following new varieties are particularly good, and should be in every collection, as they are adapted for decoration either in pots or in the garden border:—

Picotee: Admiration (Turner), a fine large purple-edged variety; gives a quantity of flowers, and is of very strong compact habit.

Carnation: Prince of Orange (Perkins), the finest orange-yellow tree Carnation that has ever been brought before the public; a free flowerer, and of good constitution. It may be had in flower all the year round.

Clove: Bride (Hodge), pure white, with occasionally a little tint of flesh-colour in it; a large bold flower, particularly free and good; a strong grower, clove-scented, and will force well. *W. Howard, Bedford Hill, Balham, S.W.*

The Apiary.

BEE-KEEPING IN SOUTH WALES.—The account I have received of the doings of bees in supers during the past season from various parts of Devon, have not been particularly favourable. One beautiful super, or rather two supers from the same stock, weighing nearly 60 lb. net, of exquisitely fine honey-comb, was brought from North Devon to be shown at our Exeter Horticultural Exhibition on August 20. One or two good supers are reported from Kingsbridge. With these exceptions, I have not heard of anything much worth speaking about. On the whole, therefore, I do not think "A. B.," of Narberth, has much to complain of in his harvest of 144½ lb. from four stocks. As regards my own apiary, and those of some others who were anxious to obtain honey in supers, I have to report that early in the season the hives showed a strong disposition to swarm, leaving their supers more or less filled with combs and honey, and, in some cases, having been largely bred in by the queen. I have frequently noticed that when a super is made the receptacle of a considerable quantity of brood, a swarm is almost invariably thrown off, although the internal capacity of the combined boxes may be very large, and not fully occupied with combs or bees. I should like to know from some of our Ayrshire friends what is the best treatment to be adopted with such stocks. Probably with their system of hive the proper management would be easily understood, but in the matter of ordinary box-hives with glass supers, it does not seem to be at all easy. Nadirs added to the stock hives do not answer; the brood remains in the super, is hatched out, and the honeycomb spoiled. To place a second super between the first and the stock is also, in such cases, bad practice, though succeeding well when honey only is being stored. To place a super above the one which contains the brood, thus making the first super a part of the stock or breeding hive, would doubtless be correct, but can rarely be done except with hives worked on the same principle as the Stewarton.

With regard to the driving operations of the clergyman mentioned by "A. B.," wherein the two hives were conveyed into a darkened coach-house, and the bees drummed or frightened out, and allowed to fly back to their respective stands as best they might, it may at first sight appear strange that the queens should have returned with their subjects to their old localities. But it is not so if we consider that both the queens had most probably been born and reared, and had taken their virgin flights from, where they were located. They were both, to a certain extent, acquainted with the situation of their homes. If the hives had been at some previous time transferred to the stands from a distance, having the same old queens at their head, they would in all probability have failed in reaching their proper stands. A friend of mine had in his apiary a similar instance, in which, after driving a swarm of bees, and failing to discover the queen, which he was desirous of capturing, he at length found that she had, during the operation, taken wing, and had got back to the old stand, uniting with the stragglers, and entering the decoy hive placed there for the purpose of amusing them. She was a young Ligurian, which had only a very short time previously taken her wedding flights from the same spot. However, the plan of driving adopted by the clergyman is by no means to be recommended. Thousands of bees must have been unable to fly, or to reach their companions. The sacrifice of brood also in this case must have been very great. *S. Bevan Fox.*

Miscellaneous.

Coal Plants.—The substance of the coal, although entirely composed of vegetable matter, seldom contains fragments that can be recognised. These abound in the beds above and below the coal itself. The coal always rests on a bed of fine mud changed into stone, and called shale. This is generally much lighter in colour than the other shales of the series, and it abounds in a fossil named Stigmaria, from the number of dots or pits all over its surface. This very common fossil was long believed to have been a water plant, which, when it died, sank down into the mud, and was there buried and preserved. It is now known to be the roots of the great trees whose remains have chiefly formed the coal which rests on the shale, in which these roots are still embedded. They were large, fleshy roots, and gave off numerous long cellular rootlets from the pits, with which they are completely covered. The soft structure of the rootlets, and their great number, would enable the trees to withdraw a large amount of moisture from the wet soil in which they grew. The trees to which the Stigmaria belonged had a very singular aspect. They were straight, simple, or branched stems, growing to a height of from 50 to 80 feet, entirely bare throughout the greatest portion of their length, but densely covered on the upper part with very long and slender leaves. The bare portion of the stem was marked with parallel flutings, and the elevated flattened ridges were ornamented with the impressions of the fallen leaves, which, as they were very regular, both in their form and arrangement in each species, gave rise to the name Sigillaria, by which the fossils are known. The trees had an appearance similar to that of the immense leafless Cactuses of America, except that, instead of spines or hairs, the fossil bore true leaves. From this resemblance some naturalists have believed them to have been ancient Cactuses, but the structure of the stem, and especially of the fruit, proves most conclusively that they occupy a much humbler place in the vegetable kingdom, and are true Cryptogams. The fruits which are preserved in the coal measures are very rarely found so connected with plants as to indicate the particular species to which each kind belonged. Only one observer has hitherto detected the fruit of Sigillaria connected with the foliage and stem. He found it to consist of several small roundish cases, borne on the somewhat enlarged bases of the leaves. These cases did not contain seeds, but spores, and the structure and arrangement of the spores show that these remarkable trees are very nearly related to the small creeping plants called Club Mosses, found on our mountains. The Sigillaria lived not only in the clay below the coal, but found also a suitable soil in the increasing mass of decaying vegetable matter which subsequently formed the coal. When, from a change in the level of the surface of the land or other cause, the coal was submerged, and, gradually covered with mud or sand, these trees stood erect, and were surrounded by the mud or sand. They withstood decomposition until several feet of the deposit was formed. These short trunks in the roof shale of a coal-mine are a source of serious danger to the miner, for when the coal is removed from below, the bed containing them dries to some extent, and the trunks, sometimes two yards in diameter and several feet high, easily separate from the rock because of the layer of coal which surrounds them, and often fall on the workmen. *World of Wonders.*

Brier versus *Manetti.*—Æsop told the gardener of his master, Xanthus, that "the earth was a step-mother to those plants which were incorporated into her soil, but a mother to those which are her own free production;" and wherever the Dog Rose flourishes in our hedgerows—now delighting our eyes with its flowers, and now scratching them out with its thorns, should we follow the partridge or the fox too wildly—there the Brier is the stock for the Rose. I know that, despite the dictum of Æsop, our soil has been no *injusta noverca* to that foreign Rose which took the name of Manetti from him who raised it from seed, and which was sent to Mr. Rivers, more than 30 years since, by Signor Crivelli, from Como. I know that the Italian refugee is acclimatised, and that in hundreds of

our gardens he is a welcome and honoured guest. I know that the Manetti will grow luxuriantly where the Brier will not grow at all; that in a toward season it will produce some varieties of the Rose in perfection; that in many cases it causes a larger quantity of wood and bloom; and that it seems to be more enduring than the Brier, because the Brier, being used as a standard, is more exposed to hardships, and because the Rose being budded beneath the soil on the Manetti, establishes itself in most cases upon roots of its own. I know, in fine, that the importation of this stock has been a very gracious boon to those who love the Rose; but I am equally sure that nine-tenths of the most perfect Roses which have been grown and shown have been cut from the British Brier. I have proved this not only from my own experience, having grown the two stocks side by side, in a variety of seasons and soils, and also from inspection and inquiry. Latterly I have made a point of asking at our exhibitions the parentage of Roses which have been admired the most, and the answers have been, 90 per cent. of them, as I foreknew they would be, "The Brier." In Dorsetshire, last summer, two of our best Rosarians "discoursed as they sat on the green," and when they had discoursed, it was written by one of them ("Journal of Horticulture," August 13, 1868), "For general use the Brier is doomed; . . . . it is time to think seriously of discarding it." But then he adds, and I pray you to mark the reservation, "Exhibitors will not do so, I believe, for the maiden blooms from a Brier are superior to those from the Manetti." But no earnest lover of the Rose will be satisfied with inferior blooms, having the hope of better; and it should have been stated, accordingly, not that the Brier is doomed for general use, but only with regard to those unhappy localities where it cannot be grown. If your lot is cast therein, my amateur (but do not think so without a trial), you may grow Roses for your own delectation in pots on their own roots, and on the Manetti, but I do not urge you to compete. If the Brier flourishes in your district, order 500. *Rev. S. R. Hole, in "Gardener."*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

PLANT growers have not had a very favourable season for the cultivation of those subjects which require sunny weather and natural heat to produce well-developed wood. For many weeks after the full summer term had commenced, dull and cold weather prevailed, hence the young growth upon many hard-wooded plants was somewhat drawn. The late few weeks of bright hot weather will have afforded some compensation for this, if, as I suggested should be done, various subjects were introduced into cooler temperatures, viz., greenhouse plants placed in sheltered positions out-of-doors, and stove or exotic plants removed into cool houses, or cool vineries, and other similar structures. What I wish more particularly to call the cultivator's attention to in connection with the above remarks is, that considering the vicissitudes already experienced, we must carefully guard our plants against any further fluctuations of temperature, by housing them at the earliest possible moment when it appears at all likely that a cold period has arrived, and which may be anticipated during the early autumn. Already we have experienced a few cold nights, especially on the 29th ult., when the thermometer fell very low. Scarlet and other zonal *Pelargoniums*, which are being grown in pots for the decoration of conservatories and greenhouses in the early winter should receive copious waterings with liquid manure now that they are in their flowering pots. With a view to perfect a good growth, let the flowers be pinched off constantly. They will ripen their wood and flower better if it be possible to stage them in a fully exposed, open, airy situation under glass. Other subjects, such as *Heliotropes*, *Ageratums*, *Salvias*, and "tree" or other *Violets*, &c., would also be much benefited if they were treated in a similar manner. *Pinks* and *Carnations* should also be potted into their flowering pots without further delay. These should be placed in a cool, shady aspect for a week or two, where, if occasionally damped overhead, they will not fail to take hold in most instances. Pot off *Seedling Primulas* as soon as the late successionals are fit to handle, pushing them along in a frame or pit, which can be kept rather close and moist. *Gloxinias* which have done blooming should be placed in a rather exposed and dry situation, so that the bulbs may become thoroughly ripened before storing them away for the winter. The same remarks apply equally to such early grown *Caladiums* as are now showing signs of exhaustion by the production of yellow leaves. Do not, however, permit either to become too dry at the root, or by this or any other means cause them to ripen off too quickly, but secure by means of waterings, which may be gradually decreased in quantity and frequency, a gentle transition into the dormant state.

FORCING HOUSES.

I again suggest the desirability of pruning the earliest *Vines* as soon as the wood is thoroughly matured. After this operation has been performed, immediately remove all decayed leaves and other loose or untidy litter, and give the house a thorough good cleansing. Any alterations or improvements which have been planned, should be thoroughly entered upon and brought to a finish. In *late Vineries*, which are now ripening their fruit, let a dry atmosphere be maintained; the sooner the colouring process is finished the better. Where shanking occurs the berries should be removed as quickly as they are observed. The only other particular attention requisite, apart from the ordinary routine, is to protect effectually the fruit against the inroads of wasps and other similar pests, which have suddenly become very numerous. Let the temperature in all *Pine-pits* containing sucker successionals which are rooted, and others a stage or two in advance, be slightly lowered now that the days shorten, and less solar heat is obtainable. Those "fruiters" which are likely to show in from one to three months' time, will be better prepared to withstand the adverse weather we may then experience, if the night temperature be also gradually lowered during the first dull period which ensues. This may be reduced with safety down to some 8° to 10° above temperate; or say a mean of 61°. Actual fruiters should have a good brisk heat, both top and bottom, and the other necessary conditions of moisture, and, when practicable, fresh air. It will not be necessary to shade any after this date. I would again draw the reader's attention to the great benefit which accrues to all *Peach* and *Nectarine trees* at this season, by being well washed with a mixture of Gishurst compound (see p. 900). I attach great importance to this operation.

HARDY FLOWER GARDEN.

Those who have given copious waterings to *Tritomas*. will have been amply repaid with abundant spikes of fine bloom. It will be advisable now, however, to withhold water, so as to afford the stools the opportunity to perfect what foliage they have made, and go somewhat to rest before winter becomes too severe. Late growth has more to do with the injury these and similar plants receive from frosts than any other cause. Finish planting all *Pinks* and *Carnations* without further delay. Make the necessary preparations for housing *Auriculas* when needful. Prepare the beds for the reception of *Tulips;* they delight in a good rich fibrous loam of good depth, and with a liberal quantity of thoroughly decomposed manure well incorporated therewith. Attend to the taking up, &c., of all spring-flowering bulbs which still remain in the ground, where necessary, before they commence growing freely.

HARDY FRUIT GARDEN.

Remove all lateral and fore shoots which push upon *Peach* or *Nectarine trees;* after this date it will prove beneficial to them if the points of the moderate and weakly-grown shoots are pinched off. Many pests, such as wasps, blue-flies, and indeed, the Lady-bird, are now to be guarded against, for they make sad havoc with the wall-fruit. There are few better preventives in regard to Peaches and the like than cotton-wool, and it may be the more readily used now that such small crops exist. A small portion carefully wrapped round each fruit proves a good preventive, as the pests do not care to come in too close contact therewith. Hasten the removal of all old canes from *Raspberry plantations* which have fruited; they not only impoverish the young growing rods, but also contend for their part share of all light and air besides, to the detriment of the rods. Remove now all overhanging foliage or growth of any kind which shades the fruit upon *Tomatos* from the direct rays of the sun, and so aid the ripening process by every possible means. Should the weather continue as dry and fine as it is whilst I write, a good watering with strong liquid manure will be likely to incite them to this end more quickly. Some few early *Pears* will now need gathering. These should be examined periodically until it is seen that they are fit. To have them remain upon the trees until they become thoroughly so, is to submit them to be punctured and otherwise injured by the many pests already referred to.

KITCHEN GARDEN.

Two or three successional sowings are still necessary in this department. These comprise *Lettuces* for the last time, and *Australian Cress* to stand the winter, and which should be sown upon a warm, sunny aspect. *Onions* should now be drawn; and after being permitted to remain for a few days to dry or ripen off, should be stored for winter. Make the main plantation of *Cabbages*. If these are planted out upon the old Onion-bed aforesaid, with no further preparation than the necessary hoeing and clearing off of weeds from the late crop, they will do much better than when planted into loose, freshly-dug soil. Make the final ingathering of *Camomile flowers*, and immediately the crop has been secured cut away all the blooming branches before winter down to the ground line, that the stools may re-establish themselves. *W. E.*

TOWN GARDENING.

Hyacinths and other bulbs are now appearing in the seed shops; therefore purchases should be made at once before all the well matured roots are sold. In selecting the Hyacinth see that the bulbs are firm and of good form; and if the skin is split at the base of the root so much the better. It will be as well to put a few in glasses at once for early flowering. The glasses should be filled up to the root with soft water, and placed away in a dark cupboard till the fibrous roots have half-filled the glass, when they should be brought forward to the light; or they may be grown in 48-size pots, filled with two-thirds loam and one rotten dung, with a little sand. The roots should be pressed in till they are about half covered, and placed on slates to keep out the worms, and in some convenient position where they can be buried about 2 inches deep in cocoa-nut fibre or fine ashes till they have grown about 2 inches, when they should be uncovered and brought into the house or frame sheltered from the frost. Where there is room in the Fern-case a few roots may be planted therein; they will flower freely, and do no injury if removed after flowering. The stems of the *Pompon Chrysanthemums* in the front rows of the beds and borders should now be untied, and some of the shoots should be pegged down close to the edge, so that the borders may form a full sloping bank of flower, with foliage to the ground. A good watering of liquid manure, given about twice a week, will be of great service to all Chrysanthemums. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Sept. 8, 1869, as observed at the Horticultural Gardens.

Sept.	Moon's Age.	Barometer. Max	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind	Rain.
Thurs. 2	26	30.300	30.250	64	37	50.5	58	58	N.E.	.00
Friday 3	27	30.170	30.051	67	32	49.5	56	57	S.E.	.00
Satur. 4	28	29.873	29.771	75	52	63.5	57	56	E.	.00
Sunday 5	29	29.671	29.664	79	51	65.0	60	57	S.E.	.23
Mond. 6	●	29.753	29.375	71	58	64.5	61	58	S.W.	.30
Tuesd. 7	1	29.848	29.773	75	59	67.0	62	58	S.	.00
Wed. 8	2	29.773	29.754	78	52	65.0	64	59	S.	.00
Average.		29.913	30.834	71.1	45.8	60.7	59.7	57.6		0.50

Sept. 2—Fine, cold wind; overcast; clear, starlight.
— 3—Densely overcast; cloudy, but fine; fine.
— 4—Very fine; exceedingly fine; fine, starlight.
— 5—Overcast; densely overcast; cloudy, very mild.
— 6—Showery; heavy showers; rain at night.
— 7—Cloudy; very fine; densely overcast; very mild.
— 8—Fine; very fine; clear and fine at night.
Mean temperature of the week, 1 7-10 deg below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending Sept. 18, 1869.

Sept.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..12	69.1	44.9	57.0	16	0.49 in.	4	7	1	4	2	11	13	1
Mon. ..13	68.4	45.7	57.0	19	0 42	2	4	6	2	5	8	11	5
Tues. ..14	67.0	46.1	56.5	22	0.84	1	5	8	4	3	11	8	3
Wed. ..15	67.5	45.9	56.7	16	0.64	6	9	6	1	11	5	7	3
Thurs. ..16	68.4	46.8	57.6	16	0.61	3	7	6	1	10	6	7	3
Friday ..17	68.9	44.9	56.9	16	0.90	1	7	6	4	3	13	5	4
Satur. ..18	68.2	46.5	57.4	19	0.84	3	10	3	2	3	11	6	5

The highest temperature during the above period occurred on the 13th, 1865—therm. 88 deg.; and the lowest on the 12th, 1860—therm. 28 deg.

Notices to Correspondents.

BOILERS: *Messrs. Jones & Sons.* We have referred to your letter, and find that we have not altered a word in it. It was not necessary to express your doubt as to the performance of the Conservative boiler; that was sufficiently expressed by the fact of your challenge.

BOOKS: *A Young Gardener.* "Kemp's How to Lay Out a Garden," "Loudon's edition of Repton's Landscape Gardening," and "Thomson's Flower Garden."

CEPHALOTAXUS: *T W.* The Cephalotaxus is closely allied to the Yew, and comports itself in every respect like the Yew. The habit of all the Cephalotaxi is exactly that of the Yew. Sometimes a young Yew will send up a strong leader, as if it intended to grow into a handsome upright tree; but it ends in sooner or later taking the characteristic Yew form. So with the Cephalotaxi.

DOUBLE PELARGONIUMS: *H Cannell.* They are fine flowers, but, like too many other English seedlings, wanting in distinctness from the Continental sorts.

FUCHSIAS: *H Cannell.* A good double white, but, so far as the individual flowers go (and we have not seen the plant), we believe there is a better one in existence.

GARDEN PLANS: *Un Jeune Jardinier.* We are not aware that any are on view, except in the artists' offices.

GREENHOUSE: *G.* A medium-sized boiler will suffice for the work you mention. The forcing-house should have four rows of 4-inch pipes carried round it; while for the greenhouse, two rows will suffice. Make the stages of slate, and close, so as to hold a layer of gritty sand, or fine spar, which will act as a drainage to the pots in the one case, and will serve to retain moisture for evaporation in the other. A pit for bedding plants might be formed outside these houses if convenient, or you might erect near to them a separate low lean-to or span-roofed pit, according to the space required. In either case a single pipe, carried round inside, will serve to keep out frost and dry up damps.

INSECTS: *J H M.* The Fern-eating caterpillars escaped *in transitu.*—*T S P.* Your insect, figured, seems to be the female of *Locusta Roeselii.*—*D J.* The larvæ which attack your roots of Lettuce, Endive, and Violets, are those of a species of *Agrotis*, a genus of *Noctuidæ*. They are so subterranean in their habits, even at night rarely coming quite above the surface of the ground, that we know of no remedy better than that you suggest, of "catching them and killing them," if only you can succeed in getting them.

MUSHROOMS: *An Old and Constant Sub. (Kent).* Mushrooms grown indoors during the summer months are not unfrequently attacked by a very objectionable kind of grub, or maggot, of which our correspondent complains, and which even cause the destruction of "buttons" of moderate size. The only remedy we can suggest is—1st, do not depend upon winter-made beds for a summer supply, however slightly they may have been exhausted by bearing previously; 2d, those fresh beds made periodically should, however antagonistic to Nature it may seem, be scrupulously excluded from the outer air; and, 3d, independently of the occasional soakings which the beds require, the surfaces should be slightly damped over at least two or three times daily whilst in full bearing. Could our correspondent forward examples of the maggot complained of for examination, as we are not certain as to its origin? *W E.*

NAMES OF PLANTS: *A Watkins.* Blitum virgatum, the Strawberry Blite.—*M J A.* Nicotiana suaveolens.—*W. T.* Both plants undeterminable.

PASSIFLORAS: *R Carr.* Received with thanks flowers of Buonapartea Raddiana, *alias* kermesina, and racemosa, *alias* princeps. The Stanhopea we will name shortly.

PELARGONIUM: *Lymington.* We cannot name these from the leaves. Those sent are remarkable for size only. It is possibly a seedling.

RATS: *An Old Subscriber, Co. Meath.* In our volume for 1868, p. 1276, you will find a paragraph relating to the best trap for rats, from which we extract the following:—"Place within the reach of the rats some coarse oatmeal, mixed to the consistence of thick gruel, in a tub about 2 feet deep; the oatmeal to be 2 inches in depth. The rat ventures to eat his prepared repast, and then endeavours to return, when, to his great surprise, he finds his feet fettered and clogged by his newly-found treasure, and so is unable to take the necessary leap. His fate is sealed. His shrieks bring his friends and relatives, who share the same fate. In this manner I captured nine in one night."

ROSES: *New Sub.* The Manetti stock should be budded on the current year's wood, and the young wood shortened the following spring. The Manetti is not a good stock for standard Roses; the Brier or Dog Rose is better. All Roses may be budded from July to September inclusive.

WELLINGTONIA: *J H C.* The tree is very liable to die off at the tips, as in your specimen. The cause may, perhaps, be Fungus at the roots, as it certainly has been in some similar instances.

COMMUNICATIONS RECEIVED.—A. G.—J. E.—W. S. (Thanks)—C. L.—A. C.—T. W.—R. W.—E. B.—B. & S.—H. Lane & Son.—S. P. H.—H. R. G.—E. G. M.—W. B. P.—C. B.—C. D. & Son,

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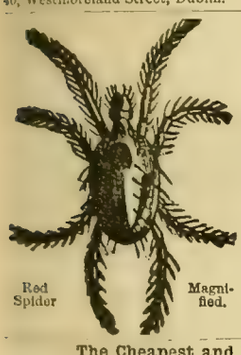
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THE NATIONAL DOG SHOW.—The TENTH ANNUAL EXHIBITION will be held in CURZON HALL, BIRMINGHAM, on NOVEMBER 29 and 30, and DECEMBER 1 and 2 next. Prize Lists, &c., may be obtained from the Secretary, Mr. G. BEECH, Athenæum Buildings, 9, Temple Row, Birmingham.
A Special Prize (Cup, value £5, given by a Gentleman), will be awarded to the best Fox Terrier, over 6 and under 12 months' old on December 1, that has not been exhibited before.
The ENTRIES CLOSE on NOVEMBER 1.

SMITHFIELD CLUB FAT CATTLE SHOW.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY afternoon, December 6, and Four following Days.
Intending Exhibitors are requested to apply for Certificate Forms by the reference letters as under.

CATTLE.—Form A.	For an OX or STEER (in any Class).
" B.	For a COW or HEIFER (in any Class).
" C.	For a BEAST in Extra Stock.
SHEEP. " D.	For a PEN of three WETHERS (in any Class)
" E.	For a SINGLE SHEEP in Extra Stock.
PIGS. " F.	For a PEN of three PIGS (in any Class).
" G.	For a SINGLE PIG in Extra Stock.

ENTRIES for LIVE STOCK CLOSE NOVEMBER 1.
Prize Lists, Forms of Certificates, and all information may be obtained on application to Mr. DAVID PULLEN, Assistant Secretary, at the Office of the Honorary Secretary, corner of Half-Moon Street, Piccadilly, London, W.
N.B. All communications respecting the Show must be addressed to the Assistant Secretary, as above, and should bear outside the words "Smithfield Club Show."

SMITHFIELD CLUB IMPLEMENT SHOW.
AGRICULTURAL HALL, ISLINGTON, DECEMBER 6 to 10.
The LAST DAY for receiving APPLICATIONS for SPACE for IMPLEMENTS and MACHINERY, &c., is OCTOBER 1.
Printed Forms of Application, with Rules and Regulations, may be obtained of Mr. DAVID PULLEN, Assistant Secretary, corner of Half-Moon Street, Piccadilly, London, W. All communications should bear outside the words "Smithfield Club."

The Agricultural Gazette.
SATURDAY, SEPTEMBER 11, 1869.

MEETINGS FOR THE ENSUING WEEK.
Sept. 14—15—Warwickshire Agricultural, at Coventry.
— 15 { Huntingdon Agricultural, at Huntingdon. / Carmarthenshire Agricultural, at Carmarthen. / Derbyshire Agricultural, at Derby.

THE readers of a lately-published pamphlet,* on the tenure of land in this and other countries, will recognise much of it as having already appeared in leading articles of this Journal. One of the most valued of our contributors, from the very first year of the *Agricultural Gazette* till the present time, Mr. HOSKYNS has fought nobly during the past quarter of a century for freedom, large-heartedness, and liberality in all that concerns the relations of those engaged upon the land, whether to one another, or to the subject of their common interest. And in these pages, bristling and blossoming all over with the brightest, aptest illustrations, he has once more returned to his favourite study, presenting to his constituents the argument which circumstances had prevented him from laying before the House of Commons.

MOUTH-AND-FOOT complaint has, during the last four months, extended half over England, and reports from the Continent prove that it exists to an unusual extent among cattle and sheep in various parts of Prussia, Holstein, Schleswig, and also in Switzerland. Several times during the last 30 years cattle, sheep, and pigs in this country have suffered from the ravages of the disease, and the present outbreak promises to take rank with those of 1840, 1845, 1852, 1861, and 1862—periods which are well remembered, among owners of dairy stock particularly. It is not intended to enter into a scientific disquisition upon the pathology of the disease, nor is it required that we should attempt a minute description of its symptoms, which are sufficiently familiar to most farmers of experience to prevent the possibility of any mistake being made respecting the nature of the illness. The management of the sick animals is to the stock-owner more important than a correct knowledge of the specialities of the malady; and it is this division of the subject which seems to be in the least satisfactory state. Very extraordinary proceedings are sanctioned by custom under the head of remedies, and not one of the alleged specifics which have recently been made public for the cure of the malady will bear the test of experiment.

Before it can be consistently asserted that any given remedy is a specific for a disease, it must be ascertained what is the ordinary course and termination of the disease when left without remedies; and we cannot help thinking that if farmers had trusted to their own observation in this emergency, rather than blindly adopt the recommendations of ignorant quacks, their animals, if not themselves, would be the better. How often have cattle attacked with foot-and-mouth disease been observed to recover rapidly, without any treatment beyond good nursing? The affection appears among a herd of cows; the animals are at first much dispirited, cease to ruminate, lose their appetites, the supply of milk is diminished, and condition is rapidly lost. In a few days, if they have been well tended, supplied with soft food, and properly sheltered, some improvement is perceptible; in a week the signs of recovery are more decided, and from this time the sick animals gradually regain their wonted health. During the whole time the average loss of milk has perhaps amounted to a third or a little over; sometimes, in the middle period of the disease, very little milk is given; but from first to last, among a number of cows, the estimate which we have given will be found correct. What should be done with the milk which is secreted during the progress of the disease, is a grave question, into which we do not now purpose to enter, beyond stating that from the investigations which have been recently made, it cannot be doubted that its consumption is highly deleterious.

Observation of the natural progress of the disease in animals which are well tended, proves that spontaneous recovery is almost invariable; the affection passes through its stages of incubation, fever, and vesication; and soon after the formation of vesicles convalescence begins.

That a very different result attends the neglect of the early signs of the disease, or the ill-treatment of the animal during its course, no practical man needs to be told; but we are describing the progress and results of the malady under favourable management, irrespective of medicines. Our experience has taught us that the ordinary termination of the disease under a system which may be properly termed hygienic, is a restoration to health in a comparatively short period—which is not, so far as we have observed, rendered shorter by the adoption of medical treatment of an active kind.

Hygienic treatment includes scrupulous cleanliness, daily washing the feet, by simple affusion, with an antiseptic fluid (for example, one part of carbolic acid or chloride of zinc to 50 parts of water), removal of manure, frequent supply of dry litter, proper ventilation, and regulation of diet to suit the condition of the animal: in some instances, from the state of the mouth, nothing but gruel will be taken.

All applications to the mouth are, in the early stage of the disease, more likely to do harm than good, and the administration of medicine by means of the usual horn or bottle is often attended with injury. When the vesicles burst and do not heal afterwards, a little astringent lotion of alum or sulphate of zinc (two drachms of either to a quart of water) may be poured into the mouth and allowed to escape again, but it is only in bad cases that even this is required.

Medical treatment is only called for when the disease takes an unfavourable course, and then it may be accepted as a fact that depletive remedies, bleeding and purgatives, will make matters worse. If the animal suffers from high fever, half a pound of salts may be given in water or gruel; or half an ounce of nitre may be dissolved in half a bucket of water, and placed within the animal's reach; the dose being repeated daily. The feet should be kept clean, and if any signs of separation of the hoof appear, the parts should be dressed with carbolic acid or chloride of zinc.

Tonics and stimulants are required in some few instances when debility of an extreme kind supervenes; but in common cases the animals recover their condition upon liberal diet, without medicine. Our advice to agriculturists is to refrain from "doctoring" their animals when affected with the prevailing epizootic; nurse as carefully as possible, and if the disease does not proceed satisfactorily to its ordinary termination, call in the aid of a competent veterinarian instead of the cow-leech with his "cures." Foot-and-mouth disease, like smallpox, has a

* "Land in England, Land in Ireland, and Land in other Lands." By Chandos Wren Hoskyns, M.P. Longmans & Co.

definite course to run, and any attempt to arrest it may be attended with serious consequences; at any rate, experience proves that no advantage is ever gained by the effort.

THE thick and thin seeding question appears to have lost but little, if any, of its interest. Mr. MECHI is literally overflowing with facts to prove his side of the case, while a communication from "B. N. F.," which appeared last week, informs us of a comparative trial between thick and thin sowing carried out by him during the present season. The result, so far as our correspondent and his bailiff can "judge," is not decisive one way or the other, and he cannot come to a conclusion as to which is best. In one case the thin sown (1 bushel to the acre) is as good, and in a second case not quite so good, as where 2 bushels have been used. Such is the so-called result, and we would add that unless this subject is approached in a more scientific spirit, little light can be thrown upon it. Referring once more to an urgent advocate of thin sowing;—who is going to believe that because Mr. MECHI finds thin sowing to succeed on his piece of land that therefore we are losing "1 to 3 quarters per acre" all over England by acting contrary to his advice? The letter from Mr. SMITH of Woolston in the *Times* shows clearly that the best quantity of seed to be sown depends upon a variety of circumstances, and also that Mr. MECHI's explanation of the root-fallen condition of much Wheat this season is unsatisfactory. We happen at present to be interested in experiments, definite, clear, and to the point, upon the subject of thick and thin seeding—not on one farm, but on several in one locality. A few days since two reports reached us, diametrically opposed, regarding the prospects of the thinly planted portions. One gentleman said, "I am afraid the thin sown is going to be by far the worst—it is very blighty;" the other, on the same day, said, "I think that the thin seeding is going to be a good experiment; the corn is cut, and there is more straw, with every prospect of its yielding better than the neighbouring thicker sown corn." What are we to conclude from this and similar contradictions? First, that it is most absurd to lay down a general rule without a sufficient groundwork of facts; second, that as it is evident that thin seeding is beneficial in some cases, and that some soils, on the other hand, require a greater amount of seed, it is extremely unwise to begin a controversy as to whether thick or thin sowing in general is right or wrong. It is something like arguing for or against a certain course of action, which course must be governed by circumstances. Are we to suppose for a moment that Mr. WILSON, of Edington Mains, adopts idly an opposite view to that propounded by the "thin seeders;" or rather that his recommendation of "not less than 2 bushels per acre" is based upon practical experience? We believe Mr. WILSON, and Mr. MECHI also, each in his own sphere of observation, but we blame any agricultural teacher who endeavours to dogmatise and to force his opinion on those who reside in a different part of the country, without making allowance for alterations in climate, soil, and variety of Wheat cultivated. But when we see men, who are in earnest about agricultural progress, writing almost bitterly upon two sides of a subject which argument can never settle, but which readily yields to the test of trial, we can only come to one conclusion, namely, that there is a great difference in the amount of seed which ought to be sown under varying circumstances. If a farmer has not undertaken to find out the right quantity for his own farm, he ought to lose no time in doing so. We would, however, suggest that in attempting to solve this question, he should approach it with the care it deserves. For instance, let him measure off a series of 1-acre plots, or equal areas of less dimension, and apportion to each a certain amount of seed,—to the first 8 pecks, the second 7, and so on down to 3 or 4 pecks to the acre. It would be advisable to repeat each plot at least twice, and at harvest the measured areas should be carefully reaped and threshed. By such careful experiment the best quantity of seed per acre would, after two or three years' repetition of the experiment, be obtained, and the farmer would know for himself the truth in regard to the vexed question of thick *versus* thin seeding. How different is this to the course usually adopted, of merely judging by the eye. No method could be more open to objection, because thin sown corn may appear scant on the ground, and yet yield well. No test but that of measure and weight can be accepted in deciding as to the merits of the two systems.

—— AT Mark Lane the Wheat trade has been influenced by the short yield and light quality of the crop, and a rise of 2*s.* on Monday has been sustained throughout the week. The Barley trade has scarcely begun, and other grain and pulse were unaltered in value.——A large supply of prime beasts and sheep has caused prices in London to be lowered, except for very choice qualities.——The agricultural seed trade is almost at a standstill.

—— Last Friday's *Gazette* publishes an Order in Council declaring that Article 5 of the Contagious Diseases (Animals) Order of August, 1869, shall not apply to any milch cow brought from a port of any of the countries comprised in the schedule to that Order, provided the Commissioners of her Majesty's Customs are, on each occasion of the same being so brought, satisfied that the same has been taken from Great Britain to that port, and has not been landed at that port, or at any other port of any of those countries; and in relation to the landing, on any occasion, of any such milch cow in Great Britain elsewhere than at a part of a port defined as a landing-place for slaughter, the condition secondly stated in Article 6 of the said Order, to the effect that the vessel has not, since taking on board the cattle imported, entered any port of any of the countries aforesaid, shall not operate, provided the Commissioners of her Majesty's Customs are, on each occasion, satisfied as aforesaid; but, subject to the foregoing exception, all the provisions of Articles 6 and 7 of the said Order shall, on each occasion, apply to every such cow and the landing thereof and the vessel bringing the same.

—— The second part of the year's volume of the English Agricultural Society's Journal has already appeared, and we shall call attention to its contents next week. Meanwhile we may congratulate Mr. JENKINS, the Secretary and Editor, on the promptitude with which he has managed to place reports of the Society's meeting at Manchester before its members, and on the energy and industry which the editorship of the just-issued part evidently displays.

—— A correspondent calls attention to the evil of abortion in dairy stock, which inflicts a frightful loss on localities, and proprietors, and herds, often apparently without explanation. It remains an enigma in many of its occurrences, notwithstanding the great premium which awaits the solution of the problem. Mr. BERKELEY, whose contribution upon this subject appeared last week accidentally in a less prominent part of the *Agricultural Gazette* than it deserved, has pointed out how in the United States an official commission was appointed for its investigation; and the results of the American inquiry deserve attention in this country. We give our correspondent's letter, however, and gladly join him in the wish that readers who are breeders of Shorthorns may be induced to give him any information that would be useful to him under the following circumstances:—"I keep a herd of about 25 cows, which are all apparently, and have always been, in perfect health. In the spring of this year a favourite cow slipped her calf when about seven and a-half months gone in pregnancy; since then I have had 14 cows and heifers follow suit, and always within two or three days of that period. They do not appear to suffer in health. I have one now which slipped her calf last night, which is lying down, chewing the cud, just as if nothing had happened. I am sure that any remarks of experienced breeders will be thankfully received by many others besides your unfortunate correspondent, 'P.'" Our correspondent adds that since writing the above he has read with much interest the communication signed "M. J. B.," to which we have referred above.

—— The following statements from an American paper at least show the importance of accurate observation, and the benefit of giving food in the best state for assimilation:—

"My first experiment was with old Indian Corn, in three forms, viz., shelled and fed whole, ground and made into slop with cold water, and ground and thoroughly cooked. The pigs, five in number, were from the same litter, and were the produce of a good common sow crossed with a Berkshire boar. In each case the food was given them as fast as consumed, and all possible care taken to avoid any waste or irregularity of feeding; in every case of a change of food three days were allowed before the weighing for the experiment, in order that the effect of a sudden and entire change of diet might not affect the result. I found that 5 bushels, at 60 lb. = 300 lb., of whole corn, made 47¾ lb. of pork. Five bushels (less miller's toll) of corn, ground and made into thick slop with cold water, made 54½ lb of pork. The same amount of meal, well boiled and fed cold, made 83½ lb. of pork. The second experiment was exclusively with new corn, in two forms, viz., on the ear, and shelled and ground before boiling; and all in each case was what we know as 'nubbins,' or soft corn. The best of this class of corn was reserved for the pigs and the worst fed to the cattle. Ten bushels on the cob made 29½ lb. of pork, fed in the usual way, on the ground. The same amount shelled, ground by horse-power, and well boiled, made 61 lb. of pork. Of course a portion of that fed on the ear was wasted; but it was the common plan, and forms but a fair test of the comparative merits of cooked food. I have made no experiment with sound new corn, but have a favourable opportunity before the season is past; but would suppose that my experiment with old corn would form a good criterion to judge by. You ask for any indirect points which may have been noticed during the experiments. I have found that there is economy in allowing the food to become thoroughly cold before it is fed; that in this state a larger amount will be eaten, with more apparent good appetite; that while scalding is beneficial, thorough and prolonged cooking under pressure is more economical. In more than one case I fastened the lids of the barrel down until the pressure was as high as 5 lb. per square inch in the barrel and steamer, and an examination into the condition of the food convinced me that its globules were thoroughly bursted, and it was all or nearly all rendered available. During a given time, the same pigs will consume rather more corn cooked than uncooked. Having eaten various portions of one of the above pigs, fed almost entirely on cooked food (fed cold), and having assisted in killing all of them, I must say that the prevalent idea that the meat of such pigs is not as firm as if fed upon uncooked food has proven in my case erroneous—though I am not prepared to say what the result would have been had the food been used while warm or hot." Another correspondent of the same paper, in speaking of the value of potatos when cooked for hogs, says—"I have demonstrated to my own satisfaction, with the use of a Prindle steamer and careful weighing, that while 5 bushels of boiled mush (hasty-pudding) will make 84 lb. of pork, 3 bushels of meal and 5 of potatos will make 72½ lb. of pork. I do not wish to be understood that the 5 bushels of potatos made the extra 22½ lb., but merely to state that under similar circumstances the two combined produced the above result."

Mr. LAWES found farinaceous foods to be most productive as pork producers; also that pigs of about nine months old, consuming from 29 to 30 lb. of meal per head per week, increase in weight at the rate of 21 lb. for every 100 lb. of food consumed. In the above American experiments and estimates, the corn at 60 lb the bushel, 100 lb. of whole corn produced only 16 lb of increase; 100 lb. of corn, ground, produced 18 lb. while the same amount ground, boiled, and fed cold made 28 lb. of pork.

—— At the annual dinner of the Badminton Farmers' Club on Wednesday, the Duke of BEAUFORT, who had been announced to preside, was called away on important business, and her Grace the Duchess undertook to supply his place, and when she entered the tent in which the dinner took place she was received with loud and ringing cheers. At the conclusion of the repast, the Duchess rose to propose the first toast, and she was loudly cheered. She said:—"Ladies and gentlemen, you must not expect from me speeches such as you have been accustomed to hear from this chair, so ably filled as it has been in former years; but I think any one can feel a pride and pleasure in giving the QUEEN's health, and I give it now—'The QUEEN; God bless her.'" After the other usual toasts the Duchess rose and said: "I have one more toast to propose, and then I think the arduous duties of chairman—or shall I say chairwoman?—will cease. It is 'Success to the Badminton Farmers' Club.' May it go on and prosper, and be for many years to come a happy gathering of friends and neighbours, a day to be remembered with pleasure and to be looked back upon with satisfaction." Mr. KILMINSTER gave the health of the Duchess, which was drunk with the greatest enthusiasm. Her Grace, in responding, said:—"Again and again I thank you for the kind manner in which you have received the toast which has been proposed by Mr. KILMINSTER. I wish I had the power to say all I feel; but accept my most imperfectly expressed gratitude, and believe that I have never greater pleasure than in being at Badminton, and finding myself surrounded by so many kind and friendly faces." For "the Marquis of WORCESTER and the younger branches of the BEAUFORT family" Lady BLANCHE SOMERSET responded.

—— Mr. THOMAS DUCKHAM, of Baysham Court, Ross, well known as the Editor of the Hereford Herd-Book, and as the energetic spokesman wherever the interests of the breed, of the county, or of agriculture generally are at all at stake, has announced his intention to publish a "Quarterly Record of Hereford Transactions." Mr. DUCKHAM will also hereafter conduct periodical live stock sales by auction. Mr. DUCKHAM has long been a contributor to our columns, and we cannot doubt that one so well known in the agricultural world will soon have his hands full of the engagements he is about to undertake.

—— A correspondent, "T. H.," has described in the *Times* the miseries of 1400 sheep and 400 pigs during a fine-weather passage from Rotterdam to London; and Mr. ODAMS has borne further witness to the fact that their miseries did not cease on disembarking, for that the whole were forwarded, without quarantine, immediately to market. Now, no one will defend the brutality of individuals, or say a word to screen the cruel sailor to whom "T. H." refers from any punishment that he deserves; but it is plain that the miseries of 12 hours at sea are to a great extent unavoidable, and that the criticism in this case has been in great part undeserved. The ladies' cabin is, on shorter passages than that from Rotterdam to London, often in a more frightful plight than the fold on deck—and quadrupeds inevitably suffer just as bipeds do. The authorised treatment has to be arranged for the average circumstances of a voyage, and it is in the interests of the stock themselves that they are somewhat closely packed within their pens. The only thing, excepting individual cruelty, to which "T. H.'s" criticism does with justice indignantly refer, is the cruel roughness of the work of landing the cargo, which certainly might, with a little more patience and consideration, be accomplished much more easily and quickly.

OUR LIVE STOCK.

THE sale of Sir N. W. Throckmorton's Sussex sheep and Berkshire pigs, at Buckland, near Faringdon, on Tuesday week, was not remarkably successful. Mr. Colsey, on behalf of Lord Sudeley, purchased some good pens of ewes at from 50*s.* to 58*s.* per head, and one pen for 85*s.* Mr. Nevile Grenville also bought a good pen of ewes for 84*s.* each. The rams met with a slow market, many remaining unsold. Mr. Emery hired a very excellent 4-tooth sheep for 23 gs., and Colonel Kingscote gave 30 gs. for the loan of the 1st prize sheep at Manchester, and 2d at the Bath and West of England Show at Southampton. The same sum was given by Mr. Colsey for the hire of a shearling ram. Messrs. Waller, Hanbury, and Chapman were also purchasers. The above high prices were exceptional, many rams fetching from 5 to 9 and 10 gs., while others remained unsold. The Buckland pigs, although they have a

wide reputation, scarcely met with such a demand as might have been expected. Sows made from 3½ to 6 gs., and exceptionally good ones realised as much as 9 and 10 gs: boars were bought at similar prices.

—— Great interest will be excited in the Cotswold district on Wednesday next, by the sale of Mr. Wm. Hewer's famous stock of Cotswold sheep at North Leach. A flock bred for upwards of 42 years under the eye of such a master as Mr. Hewer can hardly fail to have arrived at great perfection. We are informed by the sale card that one ram (nameless, which is, we think, to be regretted) was sold in 1864 for 230 gs., an unprecedented price. The stock comprises 500 ewes and theaves, all of which will be put up by Mr. Villar in lots of five; there are 50 ram lambs, and a few lots of shearling and older sheep. North Leach is 10 miles from Cirencester, 6 from Bourton-on-the-Water, and 12 from Cheltenham. The sale commences at 2 o'clock.

—— Mr. Barclay's sale takes place at Keavil, on Tuesday, the 21st inst. The herd is small, comprising only 19 cows and heifers, and eight bulls, most of which are young calves. These represent many excellent strains of blood, mostly of Booth origin, among which may be mentioned the Seraphina, Farewell, and the Lenton Lancaster tribes. An authority, in describing some of the best animals of this herd, says:—"*Fan-fan* (lot 5) is the daughter of *Faith*, sold in 1861 at Mr. Sanday's sale for 225 gs. *Anne of Lancaster* (lot 6) is the daughter of the 150 gs. *Lancaster 25th*; and lot 2, *Seraphina 13th*, a noble cow *per se*, and the mother of the prize bull HEIR OF ENGLISHMAN, was a 240 gs. purchase and a lucky one. The bull in most frequent use among Mr. Barclay's Shorthorns is BARON BOOTH (21,212), bred by Mr. Bruere, a member of that gentleman's Vesper tribe, and the son of Mr. Booth's PRINCE GEORGE (13,510), and *Vesper*, by KING ARTHUR. Mr. Barclay gave 200 gs. for him; he is a fine stock-getter, as his heifers will show; he has won several prizes, and is the sire of many prize animals. Among others of note *Star of Braithwaite*, now Mr. Cochrane's property, was got by him, and no fewer than 12 of the Keavil herd are his offspring. Six of the cows and heifers are in calf to him; three are breeding to HEIR OF ENGLISHMAN, renowned in many showyards. *Seraphina's* heifers are all good ones—*Booth's Seraphina*, the winner of the 1st prize in a large class of yearling heifers at the Highland Society's meeting at Edinburgh, specially so."

RECENT RAM SALES AND LETTINGS.

Lincolnshires.—The aged and last year's male produce of the old Panton flock were disposed of on Tuesday last, when Messrs. Dudding had the pleasure of entertaining a large company, which included the principal ram breeders in Lincolnshire, and also of receiving prices which up to this time are by far the highest of the year. The first 10 shearlings and four aged sheep were let at the total sum of 267*l.* 10*s.*, or an average of 19*l.* 2*s.* There were 80 sheep altogether, and the remaining 66 sold for 114*9l.* 10*s.*, or an average of 17*l.* 8*s.* 4*d.* The 80 sheep thus made 141*7l.*, or an average on the whole of 17*l.* 14*s.* Mr. Marshall took two at 30*l.* and 40*l.* respectively; Mr. Edward Howard, of Nocton, also took two at 18*l.* and 25*l.*; Mr. Gilliatt also took two at 22*l.* and 40*l.*; Mr. Abraham took one at 36*l.*, Mr. Needham one at 31*l.*, Mr. Fieldsend one at 27*l.*, Mr. Boynton one at 26*l.*, Mr. Iles one at 25*l.*, Mr. Wright one at 21*l.*, Mr. Frankish one at 25*l.*, Mr. Child two at 20*l.* and 25*l.*, Mr. Cartwright two at 20*l.* 10*s.*, Mr. Trotter one at 24*l.*, Mr. Bramley four at 13*l.* 10*s.*, 14*l.*, 21*l.* and 24*l.* respectively; Mr. Collingwood one at 21*l.*, and Mr. Bieber one at 26*l.* As the Messrs. Dudding have withstood the temptation of "going in for wool" during the late high price of that article, we are very glad to see that the fine form of their sheep, which they have made the first consideration, is now appreciated for the purpose of bringing together the flocks of time-serving breeders.

Shropshires.—Mr. W. Baker, of Moor Barns, near Atherstone, held his first annual auction sale of rams and ewes last week. The highest price obtained was 20 gs., for a 3-shear, which Mr. Baker reserved the right to exhibit at several shows in September. The same reservation was made in the case of seven other rams, whereby the average was reduced to 11*l.* 19*s.* for 33; four being let at from 9 gs. to 17 gs. each; 45 ewes sold at 58*s.* 10*d.* each.—The late Mrs. Baker's Shropshire flock was sold at Grendon, near Atherstone, on Tuesday of last week, when the whole of the rams and the entire flock of ewes were unreservedly sold. No. 2, a 2-shear, was sold to Mr. C. Eaton, of Stamford, at 20 gs.; No. 3, to Mr. Dester, at 16 gs.; No. 4, to Mr. J. Bennett, of Rugby, at 18 gs. The shearlings were then brought forward, and No. 5 made 56 gs. to Mr. Keeling; No. 6, 18 gs. to Mr. Hopkins; No. 7, 27 gs. to Mr. Kittow, Cornwall; No. 16, 18 gs. to Lord Combermere; and the remainder 15 gs., 14 gs., 12 gs., down to 6 gs., the average being 14*l.* 5*s.* 9*d.* The prices made for aged ewes were 120*s.* per head for No. 1 pen to Mr. German; 110*s.* for No. 3 to Mr. Winterton; 100*s.* for No. 4 to Mr. Walker, who also took No. 5 at 90*s.*, No. 2 at 77*s.* 6*d.*, No. 8 at 110*s.* Mr. Kittow bought two pens at 70*s.*, Mr. Dester and Mr. Limber one each at 70*s.* The yearling ewes were of good size, colour, and quality, and sold at from 70*s.* to 120*s.* Mr. May gave the highest price for No. 1 pen, and took two other lots at 82*s.* 6*d.* and 72*s.* 6*d.* Two pens were bought for Mrs. Beach at 110*s.* and 70*s.* respectively; average 3*l.* 16*s.* 8*d.* Mr. Masfen's 16th annual sale took place at Pendeford on Tuesday last; No. 1 was sold at 15 gs.; Mr. Allsopp, Hindlipp Hall, Worcester, bought one at 46 gs.; Mr. Rogers, of The Holme, one at 40 gs.; Mr. Turner, one at 26 gs.; Mr. Minton, one at 35 gs. Others were sold at 20 gs., 19 gs., 15 gs., and so on down to 8½ gs. A 3-shear ram was bought by Mr. J. Pritchard, at 15 gs.; a 2-shear, by Mr. J. Evans, at 38 gs.; another, by Mr. Hands, at 28 gs. The average price obtained for the stock of rams was 16*l.* The prices realised for the ewes ranged from 4*l.* 5*s.* to 2*l.* 10*s.* each.

Hampshire Downs.—On Thursday, Messrs. Ewer & Winstanley, of Salisbury, submitted to public competition the flock of Hampshire Down sheep belonging to Mr. R. Dear, of Durnford, who is about to quit his farm. The sheep numbered altogether 740. The chilver lambs realised from 40*s.* down to 30*s.* per head, the 2-teeth ewes from 47*s.* to 40*s.*, the 4-teeth ewes from 50*s.* to 44*s.*, the full-mouth ewes from 45*s.* to 37*s.* per head; the ram-lambs from 14 gs. to 4 gs., some realising 10½ gs., 9½ gs., 7 gs., and 5 gs.; the four 2-teeth rams, 11 gs., 10½ gs., 8½ gs., and 5 gs.

STORY OF A REAPING MACHINE:

OR THE AUTOBIOGRAPHY OF AN "OLD SCREW."

I WAS born 11 years ago, in Essex. I can just remember being painted "extra smart" and packed off to an agricultural show. I think they called it a Royal meeting, though I saw no Royalty there, but I can well recollect my present master saying that "he had bought me, and he hoped I was worth the very long price he had paid for me."

I was sent down to Norfolk, and set to work at once to cut Wheat. There was a great assemblage of country folk to see me make my start in life. All sorts of unkind things were said of me, but I did cut so well, and lay the swathe so evenly, that even the labourers admitted that I might manage a small upstanding crop of Wheat. I did not like to hear these poor fellows say I was come to take their harvest bread out of their mouths. One thin, sallow-faced man alone stood up for me, and his praise was not over flattering, for he declared "it would be wus for the hosses than for we." So they tried to make the horses afraid of me, and twisted me round so sharply that they actually wrenched off my land-wheel. And, oh! how they did swear when they had to heave me through the gateways!

I cut a good bit of Wheat that year, and next harvest I had my first trial with Barley. It was soft woolly straw, and I got sadly muddled and bunged up; but my sallow-faced friend had taken quite a fancy to me, and when my master put something shining into his hand (he told the boy it was 6*d.*, as he spit upon it for luck, and put it in his pocket, but I somehow fancied it looked like gold)—well, no matter what it was—he seemed to like me all the better, for he exclaimed in the vulgar tongue of East Anglia—"Darn your old mawther; I'll make yer go now." I groaned and struggled on, and all my driving-bands flew off, till at last they sent for another horse, and then I went off right merrily, and have had three horses yoked to me ever since.

The following season I tried my hand, or rather fingers, upon Beans and Oats, and though I cut them fairly well, I did not like the narrow ridges and deep furrows I had to cross. Beyond being terribly shaken no harm happened to me, but the driver complained of the lower part of his back being very sore, and I heard my master say that I was too lumbering a thing to be jostled over rough ground like that.

We had finished harvest a day or two, and I was left to sun myself in the field which I had last cut, when I was startled by a loud snorting noise, and two great steam-engines came rushing past me, pulling a more ungainly-looking implement than I am between them. A saucy lad who drove the first engine halloed out to me, "We'll cure the furrows for thee, old girl!" and certainly since then I have had nice level ground to work upon. I looked at the new-fangled machine, and wondered if ever I should go by steam. If I were stronger and bigger I should, I think, like it. It must be jollier to run to and fro than to be lugged slowly round and round by horses.

I have worked upon four different farms since I came into Norfolk, but I stick to my old master, and have now completed my eleventh harvest. I have had 14 days of sharp work, and have cut nearly 200 acres of Wheat, Barley, Beans, and Oats. The Wheat was, some of it, 6 feet high, and the winter Beans over my master's head; and although I say it who shouldn't say it, it is all fairly well done. It is no use for my master to blow up for leaving too high a "mane" in a field or two of Barley. If he will set me to work in the dew, and grow so much Clover and crab-grass among his corn, I can't cut it clean, and don't believe any other machine can. I don't wish to boast what I have done in my time, but I have cut upwards of 2000 acres of corn, and I think that is a better testimonial than a whole string of medals and prizes. But I can't do everything, and I don't mean to try.

We have a new hand upon the farm this year. I was charmed to hear him say last night, "that he would never harvest again upon a farm where there was no reaper." He thought "close upon 7*l.* for 18 sweating days' work was fair pay, and that he shouldn't wonder if he was drunk all next week." "You should marry, and join a club, my boy," said our careful driver; but he simply answered, "Clubs and women be——" I couldn't catch what they were to be done with, but, by his manner, he did not seem to think favourably of either of them.

There are ever so many new reapers close by our farm this year. There is the Excelsior, the Eclipse, and I don't know how many others, and all seem to give good satisfaction. But it was very gratifying to hear my master say—and of course he's seen them all at work, for he is always looking at new things—"that, taking all sorts of crops and all kinds of corn, none of them can do better than my old screw."

I don't know how old anyone should be who attempts to write an autobiography; because I have now penned mine, no one must suppose that I am used up, or that I at all feel the ill effects of age. It is true I am old, but why should I not live to double my age? My shoe and my fingers are sadly worn, but I can, happily, be renewed, and much cheaper than Madame Rachel would have done it, for I have had ever so many new joints, besides two fresh sets of teeth—knives I think you call them. I gratefully acknowledge the care that has been taken of me, and am proud to say that my body and bolts are as sound as on the day they left Brentwood. After every harvest I am nicely cleaned, oiled, and packed away. Twice I have been painted, and I hear that I am going to have another coat this year. I shall then be stowed aloft in the cart-shed, where I may sleep for 11 months. I don't mind the rats and sparrows, but I do wish the hens would roost somewhere else. I should then look ever so much smarter and younger next August!

I hope, in September, 1880, to finish my story.

THIN SEEDING.

[The following amusing discussion of this subject has appeared in the *Times*.]

1. WOOLSTON UPON TIPTREE.

MR. MECHI has recently been talking to us in the weekly papers, as well as in your paper, about thin seeding. Let us look the question fairly in the face.

Mr. Mechi says that he drills 4 pecks of Wheat per acre, but in some of his fields this season it is far too crowded a crop, consequently some of it is stem-rotten or root-fallen, whereas, where he drilled only 1 peck and 2 pecks per acre, the crops are much better, entirely free from stem-rot or root-falling.

This is good *data* as far as it goes, but let us look a little further.

I have not seen Mr. Mechi's farm, but from what he tells us and what I have heard through persons who have seen it, I have every reason to believe that it is a lot of poor land very highly manured; but as he is frequently telling us about picking Docks in the spring and burning Twitch in the autumn, I cannot believe that it is over clean. Hereafter I will show what this has to do upon the seeding question.

In this neighbourhood there is a large quantity of poor land running through this parish on to Bletchley and away on through the county into Oxfordshire. It is generally occupied by tenant-farmers, who pay rent and all other taxes, as well as the labour on their several farms. Therefore they seed and manage their land in a way to enable them to do all this as well as keep themselves. The quantity of seed Wheat generally used on this poor land is about 8 pecks per acre. Under horse culture that was the quantity I used. Our best farmers use that quantity now, and some of our worst farmers use a little more. Before and in harvest, I drove through a considerable part of this poor land without finding a single bit of Wheat too thick. Those on our best farmed land were good full crops, free from root-falling, and ripened well, while on the middlingly-farmed land they were thin on the ground, with a good deal of root-falling among them. This shows plainly that there are more causes than one for root-falling. After working my farm by steam-power a few years, I found that a less quantity of seed Wheat than 8 pecks to the acre was enough, and for some years past I have seeded it with 4 pecks an acre (that was the quantity used for the crop just harvested, which was a most excellent one). This shows that varying circumstances necessitate a varying quantity of seed on the same character of soil.

Will it answer the purpose of the best farmers in this neighbourhood to adopt Mr. Mechi's plan of high feeding to enable them to reduce their quantity of seed Wheat to four, or less, pecks per acre?

Mr. Mechi's balance-sheet, published in the agricultural papers last January, showed that he made a profit of 9½ per cent. upon a tenant's capital of 16*l.* per acre, from which he had to pay rent, interest of money, and pay for himself. After looking this balance-sheet carefully over, I found that he drew 150*l.* from his tenant's capital, with which he helped to make this 9½ per cent. up, and I also found that he entered his Wheat as sold at 63*s.* per quarter, whereas the imperial averages from August to December (the period during which he sold his Wheat) showed that the general farmer made only 53*s.* per quarter. This looked strange to me, so I set to and deducted 10*s.* a quarter from the price of his Wheat (which I was fully justified in doing, for it was shown that a large percentage of it was Rivetts, the very worst quality of Wheat that is grown, and in a subsequent letter he showed that he did not make so much as 63*s.* of any of his Wheat), and added it to the 150*l.* drawn from the tenant's capital, and deducted the lot from his 9½ per cent. This fixed him in a mess, for he had not a penny for his own labour or for interest of his money, and not enough to pay his rent at 34*s.* per acre. I explained all this (signing myself "A Farmer") in the *Agricultural Gazette* at the time, without his giving me a word in reply. Thus it is quite clear that it will not do for our best farmers to adopt his plan of high feeding to enable them to reduce their quantity of seed Wheat, for they must pay their rent, &c. Will it answer the farmer's purpose to adopt my plan of reducing the quantity of seed Wheat needed?

In two letters recently published I show that by the aid of steam-power I am now keeping my land clean and making an average seed-bed for 7*s.* an acre a-year, working the land for Beans 10 inches deep; whereas the cost to our best horse farmers is quite 20*s.* an acre a-year to work the same kind of land 5 to 6 inches deep; and I also showed that my produce on my heavy land this year would average 40 bushels per acre against a trifle over 23 bushels an acre on our best farmed land on like soil. The only assistance that my land has had beyond the working it deeply by steam-power, is the straw grown upon it converted into manure (without the aid of either cake or corn), assisted by a little super-

phosphate for the last two years only; last year with 2½ cwt. per acre, and the year before with not so much. Now, let us go into the calculation, fixing the price of corn, Wheat, and Beans at 5*s.* per bushel:—

Horse Farming.

	£ s. d.		£ s. d.
Produce, 23 bushels at 5*s.*	5 15 0	Seed-bed	1 0 0
		Seed Wheat, 2 bush.	0 10 0
		Gain for rent, &c. ..	4 5 0
	£5 15 0		£5 15 0

Steam-power Farming.

	£ s. d.		£ s. d.
Produce, 40 bushels at 5*s.*	10 0 0	Superphosphate ..	0 16 0
		Seed-bed	0 7 0
		Seed Wheat, 1 bush.	0 5 0
		Gain for rent, &c. ..	8 12 0
	£10 0 0		£10 0 0

This shows plainly that a farmer can reduce his seed Wheat better by deeply working his land than he can by deeply manuring the top 5 or 6 inches of it, for in the former case he can live and get well paid for his labour, while in the latter case 4*l.* 5*s.* an acre cannot do much for him after paying rent and labour, &c. *William Smith, Woolston, Bletchley Station, Bucks, August* 30.

2. TIPTREE UPON WOOLSTON.

I am a great admirer of Mr. William Smith, of Woolston, for his untiring exertions in behalf of steam culture and deeper cultivation. I am a firm believer in both, and 25 years ago I broke up most of my land with nine horses, three in the first plough, the Deanston subsoil plough following in the same track, drawn by six strong horses. This operation followed thorough draining; the two operations forming a durable base for subsequent profits. No doubt steam ploughing, had it then existed, would have done the work much cheaper.

I am sorry that Mr. Smith has descended to misrepresentation of facts in the rather odd jumble of matters that constitute his letter. When my statements cease to be truthful I shall bid adieu to any influence I have in agriculture.

My published balance-sheets are contained in the small volume I send herewith, page 45, and they show the following results:—1865, net profit on tenant's capital, 18 per cent.; 1866, ditto, 10¾ per cent.; 1867, ditto, 18 per cent.; 1868, ditto, 9½ per cent.; average of four years, 12½ per cent., or 33*s.* 4*d.* per acre net profit, after paying every charge and providing 40*s.* an acre for improved rental. These balance-sheets are not "cooked," but are exact transcripts of the moneys paid and received, and the annual valuation on stock-taking. I treat myself as an outgoing tenant on the 31st of December, and as an incoming tenant on the 1st of January.

As Mr. Smith has never seen my farm (it has always been open to public inspection), his charge of weediness must be at second-hand. Against this imputation I must place the evidence of your two able special commissioners, (Mr. James Caird and Mr. J. C. M'Donald), who said, in your columns, in 1850:—

"Having walked over every field on Mr. Mechi's farm, we have no hesitation in saying that for clean cultivation and healthy appearance of Wheat and other crops, it is equal to any, and superior to most farms we have met with in this county (Essex)."

This opinion has been endorsed during the subsequent 19 years by thousands who have recorded their approbation in the bailiff's visitor's book.

Personally, it is of very little importance whether I had failed or succeeded; but on public grounds it is of the highest importance that we should know whether drainage, deep cultivation, steam-power, and other agricultural changes are or are not profitable investments.

I am glad to find that Mr. Smith has at last followed my steps in thin sowing, although he admits it with a bad grace.

As to Mr. Smith's recommendation to avoid high feeding and to depend upon deep cultivation and artificial manures, I would say to young farmers—"Don't be misled by Mr. Smith; cultivate deeply, but manure heavily with that cheapest and best of all manures made by animals fattening on cake and other rich food, such manure being made under cover." Science and practice have proved that dependence on guano and some other artificial manures will ultimately greatly exhaust many soils, while rich cattle manure never fails to maintain fertility.

After the imputation so unjustly cast upon me by Mr. Smith, I must decline any further correspondence with him.

For the information of your correspondent, "A Durham Farmer," I annex the details of my experience in reaping with the machine (back delivery) this harvest. It has cut 65 acres of strong Wheat, besides Barley and Oats, the breakage not exceeding a few shillings. The 12 acres at 6*s.* 9*d.* amount to 1*l.* 1*s.* Twelve acres of Wheat, cut, tied, stooked, and stubble raked:—

Horse labour, per acre	1*s.* 6*d.*
Beer for driver, 6 pints	0 9
Binding, stooking, and stubble raking	5 0
	6 9

Twelve acres a day's work for two pairs of horses and one man, at 6*s.* 9*d.*, 4*l.* 1*s.*

The men find the driver out of the 5*s.* at about 6*d.* per acre. Our men earn 5*s.* per day during the harvest month, besides beer, 9*d.* per day.

Perhaps your correspondent will give us details of his enormous outlay of 10*l.* 4*s.*, or 17*s.* per acre.

My Wheat crops will probably average 44 bushels per acre. My first threshing has yielded within a fraction of 48 bushels per acre of white Wheat, sold at 51*s.* per qr. *J. J. Mechi, Tiptree Hall, Kelvedon, Essex, Sept.* 3.

THE AGRICULTURAL LABOURER.

The condition of the labourer was the subject of several papers and much discussion before the last meeting of the British Association. The following, in the meantime, is a report of Professor Leone Levi's paper on the subject.]

PROFESSOR LEONE LEVI commenced by reading the report of the committee on the "Economic Condition of the Agricultural Labourer in England." The committee reported that they had been obliged to confine their inquiry to such matters concerning the condition of the agricultural labourer as were to be found in existing documents, and their first report embraced only the counties of Norfolk, Suffolk, Essex, Surrey, Gloucester, Northumberland, Durham, Lincoln, Nottingham, Leicester, Cambridge, York, Northampton, Bedford, and Buckinghamshire. In these counties wages were represented to range from 18*s.* a week in Northumberland and Durham, 17*s.* in Lincoln and Nottingham, and 14*s.* in Gloucester, to 11*s.* or even 10*s.* in parts of Cambridgeshire. Where the wages were higher the diet was better. Diet and conditions were best in Northumberland and Durham. Except in those two counties the employment of women and children in agriculture was represented as morally bad, and was dying out, in consequence of the growing aversion of the women to the employment. The committee were desirous that the General Committee of the Association should be moved to memorialise Government to make a thorough inquiry into the condition of the agricultural labourer.

It is the rule of the Association that the reports of committees should be received without debate; and therefore, at the request of the President (Sir Stafford Northcote), Professor Levi proceeded to read portions of his own report of facts and observations on Agricultural Economics and Wages. The acreage of the United Kingdom under cultivation was 58 per cent. of the whole area, while 14¼ per cent. of the entire population were employed in agriculture. There was an enormous increase in the use of machinery in 20 years. The average wages were about 12*s.* per week. The number of men engaged in agriculture was far in excess of the requirements. The adult labour needed was about 50 persons per 1000 acres of arable land, and 20 per 1000 acres of pasture, and the actual number according to the last census was nearly double that. Wages varied as much as 6*s.* per week in different localities. With regard to relative productiveness of different soils, Professor Levi spoke as follows:—

"No data is furnished in the agricultural statistics of the degrees of productiveness of the soil of different counties; but if the presence of Wheat, apart from climate and elevation, be a safe indication of a good soil, we find that the south-western counties have double the quantity of acreage sown in Wheat that the northern counties have. Who, indeed, that has seen both Devonshire and Northumberland can fail to perceive the great advantage of the former over the latter? Yet who at all acquainted with northern and southern farming is not convinced that the northern farmer has made more of his land than the southern? Compare, for instance, Lincoln with Devon. The soil of Devon is new and red sandstone, always productive. Lincoln's soil is nearly all drift, generally considered light and poor, yet what is their relative productiveness? The following is given by the *Farmer* as the result of the harvest of 1867:—

Estimated Number of Bushels Yielded per Acre.

	Wheat.	Barley.	Oats.	Beans.	Peas.
Devon, Axminster ..	20	32	38	28	22
Lincoln, Alford	32	40	64	40	40

And what is the reason? In Lincoln everything has been done to remedy the defects of the soil. In Devon Nature has been left unaided. Should we calculate the return of the soil from Grass in both counties the result, perhaps, would be different; but my object is to show what has been achieved in Lincoln, no doubt by the larger investment of capital in land." On the subject of the taxes on land, the Professor expressed a doubt as to whether any undue share of burden is put upon real property; but if such an inequality should be found to exist, it was all important that it should be removed. Professor Levi made a special report upon Devonshire as follows:—"In Devon my first visit was to Halberton, a parish of 7600 acres, half arable and half pasture land. The population of 1861 was about 1600 persons. The cottages have generally thatched roofs, and they are constructed with cob-walls, which is a concrete of mud, straw, and pebble. In many cases, where they are in good repair, they may be warm and comfortable, especially if kept dry at top and bottom. Indeed, a local aphorism says, 'Good cob, a good hat, shoes, and heart, last for ever.' But many cottages were in great want of repair, and with their open roofs they seemed somewhat cheerless. Those I visited generally contained a sitting-room and a small back room on the ground floor, and two bedrooms above. None of them had one bedroom only. In one cottage, the family, consisting of a man and wife and his wife's mother, had two lodgers, who paid 8*d.* per week each. In another there were a man and his wife and four children. In another a man and his wife, two grown-up sons, and a grandfather. On an average the inmates numbered less than five per cottage. The rent of the cottages was 1*s.* 4*d.* to 1*s.* 6*d.*, but each had a small garden attached, which supplies a good deal of vegetables, and allows facilities for the keeping of pigs. The weekly wages at Halberton were 9*s.* per week for common labourers, with three pints of cider per day. A carter gets 1*s.* more, or is allowed his cottage rent free; but he works longer time per day. Sometimes a certain quantity of grist is allowed by the farmer, at 5*s.* per bushel, but though that makes a better bread, it is not cheaper than what is bought. The ordinary diet appears to be tea or kettle-broth (being bread in water and milk) in the morning, bread and cheese for luncheon and dinner, and a supper consisting of Potatos and a piece of bacon. The general appearance of the people seemed healthy. At church on Sunday all were comfortably dressed; the children at the Sunday school seemed as tidy as those in any ordinary school in town, and they looked healthy. There is one day school with 130 or 150 children, which, from the report of the inspector of schools, appears to be in a good state of efficiency.

"From Halberton I went to South Molton. Filleigh, the parish where Castle Hill is situated, has 2000 acres, one-third arable and two-thirds pasture land, and has about 700 inhabitants. The cottages are fair, with larger gardens than at Halberton, and the rent is uniformly 1*s.* per week. There, too, the wages are 9*s.* per week; but the forester supplies fire-wood at only 10*s.* per annum. On Lord Fortescue's estate there are on an average, only four persons per cottage. The diet of the people did not differ much from that of Halberton, except that the dinner is the chief meal instead of the supper, and fish comes more in use. There, too, I visited the school, which was well attended. There seems, however, less difficulty in obtaining the children of the labourers than those of small farmers; the latter having to pay 6*d.* to 7*d.* per child per week, instead of 1*d.*, as the labourers are too ready to find excuses for keeping the children from school. On my way to Exeter I visited Lord Portsmouth's estate at Eggesford. There also the rent of cottages is 1*s.* per week, and I understand that the landowner does not allow the farmer to charge higher rent for his cottages. The wages are 9*s.*, but a good deal is given out by piecework. I had also the pleasure of visiting Sir John Kennaway, at Escot, near Ottery St. Mary. In the adjoining parish of Whimple I found the cottages dearer and not so good; but on the Escot estate, as at other places, I saw how much the condition of the labourers is bettered by the presence of a good landlord. The wages were 9*s.* and 9*s.* 6*d.* per week. An allotment of garden land is also given at a nominal rent, and the information received on the state of education was more cheering. The schoolmaster knew few in the parish who could not read and write. In calculating the income of the agricultural labourers in Devon, it is not sufficient to take the standard weekly wages. Where piecework is given a good deal more is earned, by which the income is often increased to 12*s.* or 15*s.* a-week. Extra pay is also given at harvest time and at haymaking, for which some give a sovereign, some 30*s.*, and some other extra allowances. Including piecework and extra earnings at harvest time, the wages cannot be less than 10*s.* or 12*s* per week. A portion of these extras doubtless goes to replace the loss of wages for the days when there is no work; but good labourers do not lose much from that source. To the wages of the men we must add the value of the labour of women and children. Not many women are to be found working in the field in Devonshire, yet they earn a little from other occupations, and thus add to the resources of the family. Isolated cases of extreme penury or comparative comfort are fallacious in such calculations. I saw a case where the husband was the only earner of 9*s.* per week, and with his 7*s.* 6*d.* net (rent deducted), he had to support himself and his wife and five children, or seven persons. But there are cases where the husband and wife, or the father and one or two boys, were all earners. To an agricultural labourer a family of little children is a burden, but a number of boys, up to a certain age, before they leave home, is a mine of wealth. The evil is, that often a youth, earning almost as much as a man, gives only a small weekly sum to his mother for his keep, and wastes great part of the remainder. Taking one with another, I would imagine that we should be safe in estimating the total earnings of a man and boy, or one full wage and a third, as the earnings of a family of five. If that be correct, we have probably 13*s.* or 14*s.* per week in money as the average income of a family. I will not say that the whole of this amount is practically devoted to the necessaries of life, but, unfortunately, even if it were, it is hardly sufficient to cover the cost of living."

On the whole he found the condition of the labourer in the parts of Devonshire he visited far from satisfactory, but it was by no means of so despairing a character as described by some. In conclusion the Professor said the causes of low wages in agriculture were the prevalence of physical labour and excess of labourers. For the welfare and improvement of the condition of the labourer he recommended elementary education, to enable him to take the position of a skilled labourer, technical education among farmers, liberal remuneration for skill, extension of piecework, greater adoption of machinery, assistance to enable the labourer to remove freely from county to county, emigration, extension of the cultivation of the land, an increase of the commerce and manufactures of the country. He also recommended long leases to occupiers, removal of any inequalities of the burdens of taxation, extension of railway accommodation in agricultural districts, yearly hiring of labourers by means of registry offices, the general discontinuance of payment of wages in kind (especially cider, &c.), better cottage accommodation, cottage gardens or allotments, promotion of savings banks, friendly societies, &c., limiting of public-houses, facilities for the purchase of plots of land, &c. He thought it desirable that to the annual agricultural statistics should be added the number and extent of land proprietors, number and acreage of farm holdings, the wages of agricultural labour, and the produce of the soil. As to the character and habits of agricultural labourers, there were among them fewer births, deaths, and marriages, better education among adults (especially women), less drunkenness, less crime, but more pauperism, and more illegitimacy, than among the rest of the industrial population, while the proportions of children sent to school were nearly equal.

CANON GIRDLESTONE said he held an official document in his hand proving beyond dispute that in 1861 the wages of

agricultural labour were lower in Devon than in any other county in England. To give cider was worse than giving nothing. The introduction of machinery tended at present to reduce the amount of harvest wages, and the excess of earnings at that season was neutralised by the seasons when the men were out of work. It was of very doubtful financial advantage to the labourer to keep a pig. Employers professed to give fuel, but it was generally roots, which the labourer had to grub out before he had it. The Rev. Canon protested that he had nothing to gain by the part he took in this movement, but he had gained the sympathy of the country, as well as that of most of the Press and the British Association.

Mr. Nevile Grenville, Mr. Webster, Q.C., and Mr. J. H. Kennaway took part in the subsequent discussion, which terminated in a vote of thanks to Professor Levi, and a recommendation that his paper should be printed. Some other contributions bearing on the subject were brought before the section. The President suggested that they should be read in succession, and that in the debate on them Professor Levi's report should be included.

AGRICULTURAL STATISTICS, IRELAND, 1869.

[The following report by Mr. Donnelly to the Lord-Lieutenant, has just been published.]

THE collection of the agricultural statistics was carried out this year as heretofore by about 4000 enumerators, selected from the Royal Irish Constabulary and Metropolitan Police Force, and they have furnished returns of tillage and live stock on nearly 600,000 separate holdings. The inquiries were, as usual, efficiently conducted by the officers and men employed on this duty, which extended over a period of six weeks from its commencement on the 1st of June.

The abstracts are compiled from the summaries of the several districts as made up by the enumerators, and may differ slightly from the revised figures hereafter to be published; but I do not anticipate that any important change will be required.

	Acres.
The total area under all crops in 1869 is	5,575,843
The total area under all crops in 1868 was (revised numbers)	5,547,971
Showing an increase in extent under crops in 1869 of	27,872

The crops which increased in extent this year are—

	Increase.	
	Acres.	Acres.
Cereals—		
Barley	34,591	35,884
Bere and Rye	1,293	
Green Crops—		
Potatos	7,156	13,315
Turnips	1,786	
Mangel and Beetroot	2,018	
Vetches and Rape	2,355	
Flax		22,695
Total increase on the foregoing crops ..		71,894

The crops which diminished in extent in 1869 are—

	Decrease.	
	Acres.	Acres.
Cereals—		
Wheat	4,033	20,893
Oats	16,857	
Beans and Peas	3	
Green Crops—		
Cabbage	736	794
Carrots, Parsnips, and other green crops ..	58	
Meadow and Clover	..	22,335
Total decrease on the foregoing crops		44,022
Making a net increase in the area under all crops of		27,872

From the foregoing summaries it will be seen that Wheat decreased by 4,033 acres, Oats by 16,857 acres, and Beans and Peas by 3 acres. Barley increased by 34,591 acres, and Bere and Rye by 1,293 acres. Potatos increased by 7,156 acres. Turnips by 1,786, Mangel and Beetroot by 2,018, and Vetches and Rape by 2,355 acres. Cabbage decreased by 736 acres, Carrots, Parsnips, and other green crops by 58 acres, and Meadow and Clover by 22,335 acres. Flax increased by 22,695 acres.

ABSTRACT OF CEREAL CROPS.

	1868.	1869.	Increase in 1869.	Decrease in 1869.
	Acres.	Acres.	Acres.	Acres.
Wheat	285,150	281,117	..	4,033
Oats	1,701,645	1,684,788	..	16,857
Barley	186,318	220,909	34,591	..
Bere and Rye ..	9,906	11,199	1,293	..
Beans and Peas ..	9,960	9,957	..	3
Total	2,192,979	2,207,970	35,884	20,893

Increase in cereal crops in 1869, 14,991 acres.

ABSTRACT OF GREEN CROPS.

	1868.	1869.	Increase in 1869.	Decrease in 1869.
	Acres.	Acres.	Acres.	Acres.
Potatos	1,034,681	1,041,837	7,156	..
Turnips	320,094	321,880	1,786	..
Mangel Wurzel and Beetroot ..	19,109	21,127	2,018	..
Cabbage	32,875	32,139	..	736
Carrots, Parsnips, and other green crops	26,622	26,564	..	58
Vetches and Rape	22,993	25,348	2,355	..
Total ..	1,456,374	1,468,895	13,315	794

Increase in green crops in 1869, 12,521 acres.

GENERAL SUMMARY OF CEREAL AND GREEN CROPS, &c.

	Acres.	Acres.
Increase in cereal crops in 1869	14,991	50,207
Increase in green crops in 1869	12,521	
Increase in Flax, in 1869	22,695	
Decrease in meadow and Clover in 1869		22,335
Total increase in extent of land under crops in 1869		27,872

THE EXTENT UNDER CROPS, GRASS, FALLOW, WOODS AND PLANTATIONS, AND BOG AND WASTE UNOCCUPIED, IN 1868 AND 1869, IS GIVEN BY PROVINCES IN THE FOLLOWING TABLE:—

Provinces.		Extent under Crops.	Grass.	Fallow.	Woods and Plantations.	Bog and Waste Unoccupied.	Total.
		Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Leinster	1868	1,593,477	2,496,415	10,253	99,522	638,009	4,837,676
	1869	1,591,794	2,487,672	9,973	102,479	642,758	
Munster	1868	1,352,254	3,276,207	3,684	110,816	1,191,826	5,934,787
	1869	1,347,516	3,302,896	2,713	107,735	1,173,907	
Ulster	1868	1,870,812	2,165,154	5,936	69,753	1,211,612	5,314,267
	1869	1,889,270	2,194,057	6,572	58,604	1,165,764	
Connaught	1868	731,428	2,061,617	2,237	51,167	1,386,745	4,233,194
	1869	744,263	2,062,252	1,723	50,522	1,374,434	
Total	1868	5,547,971	9,999,393	22,110	322,258	4,428,192	20,319,924*
	1869	5,575,843	10,046,877	20,981	319,360	4,356,863	

* Exclusive of the larger rivers, lakes, and tideways.

The acreage under the head of "bog and waste unoccupied," had not any live stock on it at the period of the enumeration.

THE AREA UNDER THE SEVERAL CROPS IN EACH YEAR FROM 1865 TO 1869, INCLUSIVE, WAS AS UNDER:—

Crops.	1865.	1866.	1867.	1868.	1869.
	Acres.	Acres.	Acres.	Acres.	Acres.
Wheat	266,989	299,190	261,034	285,150	281,117
Oats	1,745,228	1,699,695	1,660,511	1,701,645	1,684,788
Barley	177,102	150,293	171,001	186,318	220,909
Bere and Rye	10,091	10,021	9,602	9,906	11,199
Beans and Peas	16,899	14,834	13,552	9,960	9,957
Potatos	1,066,260	1,050,353	1,001,781	1,034,681	1,041,837
Turnips	334,212	317,198	335,728	320,094	321,880
Mangel and Beet Root	14,478	20,162	18,797	19,109	21,127
Cabbage	33,622	36,531	24,018	32,875	32,139
Carrots, Parsnips, and other green crops	24,130	26,738	25,506	26,622	26,564
Vetches and Rape	29,466	30,623	26,580	22,993	25,348
Flax	251,433	263,507	253,257	206,483	229,178
Meadow and Clover	1,678,493	1,601,423	1,658,335	1,692,135	1,669,800

RETURNS OF LIVE STOCK.

It appears from the following Table that the returns of live stock for 1869 when compared with 1868 show an increase in the number of horses of 2,545; of cattle 80,998; and of pigs 210,215. Sheep exhibit a decrease of 253,338.

THE FOLLOWING ARE THE NUMBERS OF LIVE STOCK FOR EACH YEAR FROM 1855 TO 1869, INCLUSIVE:—

Years.	Number of Horses.	Number of Cattle.	Number of Sheep.	Number of Pigs.
1855	556,287	3,564,400	3,602,342	1,177,605
1856	573,408	3,587,858	3,694,294	918,525
1857	599,782	3,620,954	3,452,252	1,255,186
1858	611,321	3,667,304	3,494,993	1,409,883
1859	629,075	3,815,598	3,592,804	1,265,751
1860	619,811	3,606,374	3,542,080	1,271,072
1861	614,232	3,471,688	3,556,050	1,102,042
1862	602,894	3,254,890	3,456,132	1,154,324
1863	579,978	3,144,231	3,308,204	1,067,458
1864	562,158	3,262,294	3,366,941	1,058,480
1865	548,339	3,497,548	3,694,356	1,305,953
1866	535,799	3,746,157	4,274,282	1,497,274
1867	524,180	3,707,803	4,835,519	1,235,191
1868	524,703	3,646,796	4,901,496	869,578
1869	527,248	3,727,794	4,648,158	1,079,793
Difference in Numbers between 1868 and 1869.				
	Increase. 2,545	Increase. 80,998	Decrease. 253,338	Increase. 210,215

The total estimated value of horses, cattle, sheep, and pigs, this year, is 34,911,360*l.*; being an increase of 530,944*l.* compared with 1868, as appears by the following Table:—

ESTIMATED VALUE OF LIVE STOCK IN IRELAND IN EACH YEAR FROM 1855 TO 1869, calculated according to the rates assumed by the Census Commissioners of 1841, viz.:—For horses, 8*l.* each; cattle, 6*l.* 10*s.*; sheep, 22*s.*; and pigs, 25*s.* each. [These rates have been retained since 1841, in order to facilitate a comparison of the value—one year with another. A percentage may be added on account of the increased value of stock since that period.]

Years.	Horses.	Cattle.	Sheep.	Pigs.	Total Value.
	£	£	£	£	£
1855 ..	4,450,296	23,168,600	3,962,576	1,472,006	33,053,478
1856 ..	4,587,264	23,321,077	4,063,723	1,148,156	33,120,220
1857 ..	4,798,256	23,536,201	3,797,477	1,568,982	33,700,916
1858 ..	4,890,568	23,887,476	3,844,492	1,762,354	34,334,890
1859 ..	5,032,600	24,801,387	3,952,084	1,582,181	35,368,259
1860 ..	4,958,488	23,441,431	3,896,288	1,588,840	33,885,047
1861 ..	4,913,856	22,565,972	3,911,655	1,377,552	32,769,035
1862 ..	4,823,152	21,156,785	3,801,745	1,442,905	31,224,587
1863 ..	4,639,824	20,437,501	3,639,024	1,334,322	30,050,671
1864 ..	4,497,264	21,204,911	3,703,635	1,323,100	30,728,910
1865 ..	4,386,712	22,734,062	4,063,792	1,632,441	32,817,007
1866 ..	4,286,392	24,350,020	4,701,710	1,871,593	35,209,715
1867 ..	4,193,440	24,100,719	5,319,071	1,543,989	35,157,219
1868 ..	4,197,624	23,704,174	5,391,646	1,086,972	34,380,416
1869 ..	4,217,984	24,230,661	5,112,974	1,349,741	94,811,360
Difference in Value between 1868 and 1869.					
	Increase. £20,360	Increase. £526,487	Decrease. £278,672	Increase. £262,769	Increase. £530,944

Scutching Mills.—The number of mills for scutching Flax in each province in 1868 was—in Ulster, 1420; Leinster, 47; Munster, 41; Connaught, 34. Making in all, 1542.

Emigration.—In the first seven months of 1869 the returns of emigrants from the several ports of Ireland show that 45,246 persons left this country. In 1868 the number for the same period was 42,607, being in this year an increase of 2639 persons.

Weeds.—On several occasions I have ventured to call attention to the great injury arising from the unchecked growth of weeds, which is, unhappily, so apparent throughout the country. On this subject the late Sir John Sinclair has given the following experiments, which prove the almost incredible advantage of carefully weeding cereal crops:—

1. "Seven acres of light gravelly land were fallowed, and sown broadcast with Wheat; 1 acre was measured off, and not a weed was pulled out of it; the other six were carefully weeded. The unweeded acre produced 18 bushels; the 6 weeded acres 135 bushels, or 22½ per acre, which is 4½ bushels, or a quarter more produce in favour of weeding. 2. A 6-acre field was sown with Barley, in fine tilth, and well manured. The weeding, owing to a great abundance of Charlock, cost 12*s.* per acre. The produce of an unweeded acre was only 13 bushels; of the weeded, 28. Difference in favour of weeding, 15 bushels per acre, besides the land being so much cleaner for succeeding crops.—6 acres sown with Oats; 1 acre ploughed but once, and unmanured, produced only 17 bushels. Another 6 acres ploughed three times, manured, and weeded, produced 37 bushels. This experiment proves that Oats require good management, and will pay for it as well as other crops. 10 bushels of the increased produce may be fairly attributed to the weeding, and the other 10 to the manure."

Labourer's Dwellings.—It is scarcely possible to exaggerate the importance of improving the dwellings of the labouring classes; the Legislature has wisely enabled the Treasury to grant loans for this most desirable object, through the medium of the Board of Public Works. According to the census of 1861, the number of fourth-class houses in Ireland, each of which had but one room for the entire family, was 89,374—and in these were living nearly half a million of persons.

THE LATE AGRICULTURAL MEETINGS.

THIS has been an unusually favourable year for the meetings of our large agricultural societies. The Bath and West of England and Southern Counties Association, as usual, took place first. The meeting was held at Southampton early in June, and proved highly successful, although some classes, owing to the distance from their established homes in the West of England, were not so well filled as on some former occasions. The Royal meeting held at Manchester far exceeded all its predecessors, not so much in the excellence of the exhibition as in the patronage it received, upwards of 17,000*l.* being taken in one form or another. The implement show was very extensive in number, exceeding all previous exhibitions. The stock classes were amply filled, some being superbly good. The horses, 384 in number, and the Shorthorn classes especially, attracted attention by their superior excellence. The Lincolnshire meeting was held the following week at Lincoln, and was nobly supported—the horse classes being even better filled than at Manchester, comprising 387 entries. The Yorkshire came next (August 4, 5, 6), at Beverley. The classes were well filled, but the horses again bore the palm, and comprised no less than 443 entries, many being very superior animals. The Leicester sheep class was also very superior. The last show we have to mention is the Birmingham Horse Show, which contained an entry of 304 horses. All these meetings appear to have been very successful ones, for which we beg to congratulate the agricultural public. But good as they were, they were open to a little criticism on some points. The first thing the writer would notice is the large increase in the number of horses:—Manchester, 384; Lincoln, 387; Beverley, 443; Birmingham (a horse show only), 304. In these classes, as well as those of some other stock, the commercial element seems prominent; besides, there is arising out of these horse shows another feature, of somewhat doubtful character, *i.e.*, separate leaping prizes or exhibitions for hunters, all very pleasing and attractive, but of questionable utility in agricultural gatherings. Next, there is the selection and the making up, or "getting-up," animals as show stock. When exhibitors are fortunate enough to possess a first-class animal, it is seen at all our leading shows; the exhibitors are not content with achieving one or two victories, and this unfortunately suggests the idea that the prize is the temptation. Too much honour cannot be given to breeders of these most admirable and valuable animals, but to parade them everywhere seems to partake a little of the gambling spirit, connected with the desire to excel, and if possible to beat all competitors. There is also a smaller and a very laudable class, who are real exhibitors, and who honour our principal shows by

contributions of their stock, and who are above mere prize temptations. We have observed many animals taking prizes at several successive shows. In the agricultural horse classes we notice Honest Tom, Black Prince, and Prince; in thorough-breds and hunters we have Carbineer, Motley, Dalesman, Laughing Stock, Angelus, Lady Derwent, Don Juan, Premier, Topstall, and others. In the cattle classes it is very similar. In Shorthorns we have, in bulls, Earl of Derby, Edgar, Charles le Beau, Bolivar, Mandarin, Charlie, Commander-in-Chief, Monk, James I., &c; in cows and heifers, Lady Fragrant, Queen of Rosalea, Miss Farewell, Patricia, &c. In Hereford bulls and cows, Sir Hungerford, Stowe, Prince Leopold; Queen of the Lilies, Lady Adforton, &c. In Devons, Master Ellie, Master Arthur, &c.; Actress, Duchess, &c. In sheep the same; animals are frequently victorious show after show. In the list of exhibitors we have the names of Lord Walsingham, Rigden, Heasman, Throckmorton, &c., in South Downs; in Leicesters we have Sanday, Borton, Inge, &c.; in Long-wools, Dudding, Marshall, Cartwright, &c.; in Shropshires, Lord Chesham, Beach, &c. The like in other classes. In pigs we have Duckering, Eden, Howard, &c.

Without in the slightest degree objecting to the prizes being awarded to gentlemen who for years have appeared as our most successful breeders of any class of stock, there is reason to wish for a larger class of competitors and a wider distribution of the prize money of our agricultural societies.

One more question appears to require ventilation: What have velocipedes, and especially what have velocipede races, to do with agriculture? The intrusion of such objects and amusements into exhibitions of farm stock and agricultural machinery is surely to be condemned as inappropriate. We well know that articles of general utility, or interesting to the public, have been introduced into the Royal and other showyards although not directly connected with farming, but the line must be drawn somewhere; and we certainly think if the bicycle is admitted with other carriages the race should most certainly be avoided. If, as we fear, it is a mere subterfuge for drawing shillings, it cannot be too severely deprecated. It would be an easy matter to contrive amusements of even a more exciting kind. We have indeed very recently seen dancing and "kiss in the ring" tolerated within the precincts of a county showyard. Such practices ought to be discouraged by the leaders of agricultural societies, on the ground that the object of the meeting is not trivial amusement, but mutual improvement. We consider that some check upon this growing laxity is requisite. One society copies another, and if the public are taught to look for exciting amusements at one showyard, they will be disappointed at the more business-like sobriety of a second. Hence the evil once admitted is not likely to decrease, and, whether for good or for evil, it is not unlikely that we may yet see the acrobat surrounded by an admiring crowd in the centre of the area devoted to the products of agricultural and mechanical skill. *Y. Z.*

THICK AND THIN SOWING OF GRAIN.

To determine the proper mode of sowing, and the right quantity of seed-grain to be used per acre under the numerous variations we have of situation, climate, and soil, so as to bring about in every individual case the greatest possible results at harvest, is an annually recurring and important matter of discussion for our agriculturists.

There is probably no branch of agricultural practice wherein greater diversity of opinion exists than upon these two points. The advocates of thin seeding recommend as small a quantity as "2 pecks of Wheat per acre, drilled," while in other quarters the employment of less than 3 to 5 bushels per acre would be considered a dangerous experiment. It is possible that neither practice may be far wrong, if all the circumstances are taken into account; but there cannot be a doubt that, all over the country, by the wasteful system of broadcast sowing, and the excess of seed employed in certain districts, there is an annual loss sustained which, if told in the aggregate, would scarcely be credible.

As some correspondence has already taken place in your columns bearing on the mode of sowing, and quantity of seed-grain to be used, I take the liberty of sending you a few suggestions and observations I addressed some time ago to the members of the Fettercairn (Kincardineshire) Farmers' Club, as illustrative of a system of seed distribution and deposition in growing favour with many farmers in the north of Scotland. *George Reid, Burnsheuzle, Aberdeenshire.* [We have to apologise for the delay of this publication.]

On Drill Sowing Grain.

A method of seed distribution that will prevent waste, and secure to each grain or pickle a necessary area of ground in which to germinate and tarrive, and which will also secure the deposition of each seed or grain in this form at its proper depth, must be termed the nearest approach to the most perfect method of seed sowing. The principles of broadcast distribution are that they sow the pickles of seed without order or system, and that, in results at harvest, application is made for the necessary area of ground for each individual pickle of seed. It is true that they [illegible] or distribute the grain, but it is equally true that no method of broadcasting can be considered as perfect, when it fails to secure uniform deposition of the seed—an essential element in any perfect method. However carefully the land may be ploughed and harrowed under the broadcast system, it is not possible by any method of after harrowing to secure deposition at a uniform and proper depth, while it is a well-known and admitted fact, that a large percentage of the broadcast sown grain is wasted both below the furrow sheet and on the surface of the soil.

As there is yet no method known, economical as to time, of dibbling in hundred pickles of grain to secure the thickness of plants required in our northern climate to bring about early harvesting, but which is to some extent obtained by broadcast sowing at great waste and loss of seed, the nearest approach in the right direction is probably that of sowing by the 4-inch row drill, now for several years known as the "Aberdeen Corn Drill." In any system of drill sowing one important advantage is gained by the previous preparation of the seed-bed. In broadcast sowing this matter is frequently not attended to, and the result is a still greater waste in the dispersion of the seed. When the land is friable, light, or dry, it may be prepared without evil effect some time before sowing: but such, or even heavy land, should be sown if possible with the same attention and alacrity as Turnip seeds are committed to the ground when the drills are formed; and in the case of light land, not subject to drifting by the wind, should be quickly followed by rolling or consolidation, to secure the retention of moisture in the soil in the event of subsequent drought, and for the more rapid germination of the seed.

Now, sowing by the drill secures uniform deposition and equal distribution in lines or rows; but, on the other hand, it fails to give to each pickle of seed a distinct and separate area of soil in which to come to maturity, as every perfect method should do. Still, it must be admitted that by its use the waste and loss by broadcast distribution is prevented. This economy has been computed fairly as 25 per cent. on the value of the seed sown, or in practice, 75 quarters will go as far in drill sowing as 100 quarters sown broadcast. On this ground alone, therefore, drill sowing ought to be preferred, as it secures against the wasteful system of broadcasting. But what to a large extent prevents the system being generally appreciated is, the diversity of opinion that exists about the quantity of seed-grain to be used per acre, and the distances apart to be fixed for the lines or rows. Some enthusiasts, having a fertile soil and propitious climate, contend that the lines should be 8 or 9 inches apart; and others, when weeds are not damaging, claim that the 6-inch distance is the right one. But putting the matter of weeds out of sight, as no good modern farmer would long tolerate even a legacy of them, the two questions, and very important ones they are, for every practical agriculturist to settle for himself are, first—the quantity of seed per acre he should use, under different conditions or circumstances; and second, the true method of its correct distribution and deposition. It is quite possible to judge of these questions relatively, and without experiment. If it be admitted that giving to every separate grain of seed the requisite area of ground capable of carrying its individual stems forward to the fullest stage of maturity is likely to produce the highest results at harvest, then, the nearest approach to a uniform broadcast distribution, on this principle, coupled with accurate deposition, both of which we hold to be given by the 4-inch drill system, is the most desirable method to be employed. Are, then, rows of 9 inches to be preferred to rows of 6 inches apart? and are the 6 inch rows to be preferred to those of four? Certainly not. And as this conclusion can be proved to be true relatively, it has also been proved to be true practically. But the farther question arises,—why stop at 4 inches? The Aberdeen Corn Drill, as presently constructed, is made to dislodge the soil for the falling in and covering of the seed by coulters that penetrate the ground. If these coulters were all fixed in one line, 4 inches apart, the machine would be unworkable on the average of soils, from stones, earth clods, or weeds choking up the way. Even coulters placed 6 inches apart have been found liable to this objection, and if made in two rows alternating, giving a 3-inch distance on the average, have been found to be impracticable. Besides, two horses on some stiff lands would be unable to draw a drill 8 feet wide to sow 16 to 18 acres per day, if constructed to sow an average distance in rows of 3 inches. This is not the case, however, when the coulters are placed 8 inches apart, in double lines alternating, giving the sowing distance at 4 inches, because it is altogether free from the objection of dragging or clogging, and two horses can with ordinary ease, on almost any kind of soil, sow with it 18 acres per day. By this arrangement of the coulters in the 4-inch drill, we get a less crowded or thinner distribution of the seed than by the 6, 7, 8, or 9 inch row systems, the same quantity of seed being employed, and certainly with increased beneficial results. If, for example, trials are made of Oats sown by the drill, at the rate of 4 bushels per acre, under similar conditions as to time, situation, soil, climate, seed, &c., at the respective distances apart of 8, 6, and 4 inches, it will not be denied that as the rows 8 inches apart will contain double the number of seeds or grains in the line than what the 4 inch row does, the probability is that when the crop arrives at maturity the crop in the rows 8 inches apart will be found inferior, the circumstance arising from its crowded condition, impoverished nutrition, and stunted growth. Why is it that in many districts of the south of Scotland, early celebrated for its advanced agriculture and the employment of the once-famed Suffolk and Bedford Corn Drills, farmers have now generally disused them, and returned to the broadcast system of sowing grain? The answer exists no doubt in this, that a heavier crop is invariably reaped from broadcasting, notwithstanding its waste of seed, than from 6 or 8 inch drilling, by the seed not being crowded, hence securing more numerous and stronger stems, as well as richer produce in the ear. If in practising the sowing of grain in rows 4 inches apart, the seed-bed is sufficiently prepared beforehand by harrowing and reducing the soil to a fine tilth, then sowing the seed the requisite depth, and afterwards crossing the lines or rows with a deep stroke of the harrows, it will be found that the seed will not only be rightly deposited for its perfect vegetation, but will be distributed to a considerable extent in the interspaces, giving all the advantages claimed for a distribution that will secure a certain space of ground for every individual pickle of seed, with a saving to the sower of fully 25 per cent. over the wasteful system of broadcasting.

In 4-inch drill sowing, the employment of too much seed is strongly to be deprecated; and many beginners injure the system from want of confidence in making their testing experiments complete and exhaustive as between the quantity of seed to be used, and the distance to be employed between the rows. If the advocate of sowing 8 inches apart will sow either 2, 3, or 4 bushels of seed-grain per acre, and will carry out a corresponding experiment with similar quantities of grain at the 4-inch distance, we feel assured he will give the preference to the latter mode at harvest time, and will, after testing, readily admit that the best returns are only obtainable when there is an actual practical approach to the principle of giving to every individual grain of seed its own space of ground to thrive upon.

In judging of the results of drill sowing when experiments may have been conducted under a variety of circumstances, it will be found of importance to take into consideration:—

1. *The Time of Sowing.*—Less seed may be used when the land is sown early in the season than when it is sown late in a prospectively late looking season.

2. *Situation or Aspect of Soil.*—The exposure of the ground in particular seasons, irrespective of the mode of sowing, will be found to affect the crop when perhaps under the circumstances the mode of sowing may be blamed. And here again the particular climate of a season will differently affect crops under variable situations, and therefore experiments on low lying lands cannot fairly be pitted against experiments on high lying lands, nor between lands at widely differing latitudes.

3. *Condition of Soil.*—It may be good or bad, early or late; and here the question as to quantity of seed to be employed is involved, as good land needs less seed than bad land, and the crop would be affected in results by the different application of manures.

4. *Quality of Seed.*—This has largely to do with the character of crops. If the seed is weak and inferior no proper start is at first made, nor is the after-growth properly sustained. Mixed or impure grain as to sort or variety produces irregular growth, and frequently irregular ripening and inferior results.

5. In conducting experiments to bring about conclusions that are to be relied on for future practice, farmers will find great advantage for future comparison in detailing and registering the method of preparation of the land, mode and time of sowing and reaping, weight and quality of straw per acre, quantity and quality of grain per acre and weight per bushel; and, if by the adoption of the system offered in the foregoing suggestions, the country is saved an annual waste of seed equal to 25 per cent. on the broadcast outlay, and obtains an increase also on the produce of the cereal crops, it will be a source of gratification to every one concerned.

Home Correspondence.

Farm Profits: "Half Pay" and his Cows.—"Half Pay" is right in thinking that milch cows are the most profitable branch of farming if well managed, but the difficulty is in managing the details, and preventing both waste and robbery. If "Half Pay" were to take a farm and work as he says, he would no doubt make it pay in the end; but I venture to predict he would be at least five years before he could get any ordinary farm into the state he speaks of. If he wants to try dairy farming, he should try on the plan adopted in Dorsetshire, where the farmer very often lets out his dairy at so much per cow, undertaking to supply the cows with plenty of good food. In this way "Half Pay" could begin his dairy at once, without having to get a farm into order to keep it, and he would, moreover, run very little risk of loss. If he be in earnest, and really wishes to try it, I make him the following proposal, viz.: To give him a large, new, well-ventilated cow-house for 48 cows, a large dairy with washing-house, butter-room, cheese-room, and dairy maids' house of four rooms, all new and *en suite*, and to keep his 48 cows well supplied with good food, for the sum of 12*l.* per cow per annum. I will also give him a good house to live in, such an one as any half-pay officer need not be ashamed of as country quarters. I do not think "Half Pay" is right in thinking one of the southern counties the place for a dairy. Ayrshire is celebrated everywhere, yet it is far north, and stands cold and wet. Cheshire is also celebrated, and it, too, is cold and wet. In fact, a considerable amount of moisture is wanted for a dairy farm. If "Half Pay" thinks anything of my proposal, will you kindly give him my address?—and if he finds it pay, I can give him double the accommodation for cows if wanted, that is, for 96 cows, instead of 48. *G. A. H.* [Will "Half Pay" forward his address, that we may do as our correspondent desires?]

Misrepresentation by Mr. Mechi.—Mr. Mechi says: "'A Farmer' says in your columns, that last year I showed by my balance-sheet that I made no profit, and could not pay all my rent. When will people cease to misrepresent?" Mr. Mechi is fully entitled to ask this question, for it was not he who showed, by his balance-sheet, that he could not pay all his rent, &c., but it was I myself by remarking upon his balance-sheet, and showing up its "misrepresentations." This 9½ per cent. on his tenants' capital, that he is now talking about, was a misrepresentation, for he had a pull of 150*l.* upon his tenant's capital to help to make it up, and he misrepresented his case when he told us that he made over 63*s.* a qr. of his Wheat, whereby he over-estimated his profit by over 200*l.* as another help to make it up, and afterwards coolly told us that his prices ranged from 48*s.* to 62*s.* a qr. only; and then he talked of his "improved rent," as he does not pay "40*s.* per acre," for when the chapel land is added—45 acres, at 1*l.* an acre—his rent stands at only 34*s.* an acre. It is of no use for you, Mr. Mechi, to try to escape by charging others with misrepresentation, for the facts are dead against you. You need not charge me with "anger," for I only audited your accounts and remarked upon them. You may be "angry" with yourself for putting in print such a sadly incorrect statement (your balance-sheet), to which you have again referred, and called me to a review of it. *A Farmer.* [This letter has been lost a fortnight.]

Three and Four Feet Drainage.—A "Bewdley Forester" attempted, some time since, in the "Gardener," to prove that it is a mistake to cut 4-feet drains. He states: "I had not the remotest idea that, 35 years after date, I should have to describe my experience as an illustration of the uselessness of draining the fourth foot in dense clays, as drains 3 feet deep take away all really superabundant water. The fourth foot of a dense clay, as a rule, holds but a small percentage of water even in the winter (its superincumbent load prevents it from holding more); and if it could retain more, this would be of service to vegetation in dry seasons, by being drawn up to the surface by the combined force of radiation and capillary attraction." I fancy that those who once considered 3-feet drains deep enough, may be regarded as having been advocates of a great depth. Mr. Donald's test of thorough drainage may be repeated for those who advocate a shallow system of drainage in dense or plastic homogeneous clays: "All water should be drawn away at once, not from the surface only, but from the bottom of the active soil, whether that be at the depth of one, two, or more feet; and this must be done in stiff soils by causing it to sink still deeper, not by allowing it to flow through the active soil towards the drains * * *. Some, however, do not hesitate to assert that their draining is perfect, although it falls far short of fulfilling this condition."—"If draining—the basis of all other improvements—does not accomplish this perfectly, it may nearly as well be left undone. * * * The test of perfection in clay is the ready filtration of all rain-water to a depth of at least 18 inches midway between the drains, and its speedy conveyance from thence." The "Bewdley Forester" stated, "In support of your dogma, so to call it, I may

say that I have done damage by draining grass-land 2 feet 6 inches deep in the furrows, called 3 feet deep from a line across the ridges." It ought to be well known that the aeration of land to the requisite depth by drainage is only a preliminary process, and subsoiling ought to follow the draining. It is generally acknowleged that subsoiling wet land does it a positive injury. Mr. Morton, stated, in a paper before the Society of Arts:—"It is no part of good agriculture that the produce of the land is to be made out of a particular layer called the soil, which has to be cultivated, turned to and fro, and stirred and mixed upon an impervious floor hardened by a perpetual trampling, below which lies the subsoil. All recent improvements of the soil have proceeded upon the idea that there is no essential or necessary distinction between it and the subsoil. Thorough drainage and deep cultivation both increase fertility, and that existence of anything like a pan within 30 inches of the surface is injurious." A few quotations ought to convince even the "Bewdley Forester" that 48 inches ought to be the minimum depth in dense clays. The *Agricultural Gazette* has repeatedly quoted:—"If the land be of very finely-divided material, and very clayey, it will lift or hold the water higher than if it be sandy, so that the water will stand 6 or 12 or 18 inches above the level of the drains when the subsoil below is wet, according to the stiffness of the subsoil." *T. W. R.*

Tiptree Hall, Sept. 7.—Finished harvest on Saturday, the 4th. All got up in dry order, after four weeks of splendid weather, without even a shower. Twenty-one good hay and corn stacks, besides the great barn full, although when I commenced building the barn, 26 years ago, I was warned by my practical friends that I should never grow enough on this poor farm to fill it. Now for the crops. Beans abundant, and fit to grind. Wheat very dry, and fit for the miller; quality various. White Club-headed Wheat more or less blighted, and shrunken by stem-rotting. On light land sample will be thin. I threshed 7 acres of my best white—yield, a fraction under 6 quarters per acre; weight, nett, 60 lb. per bushel. Last year it weighed 68 lb. It sold for 51*s.* per quarter before the fall and rise. I hear of one of our extensive millers who will only buy by weight, 63 lb. to the bushel. One farmer who sold to him on these terms had to supply 4½ bushels for each sack, or 9 bushels to the quarter!—at this rate present prices are, as compared with those of last year, nearly equal. I hear of 7 quarters of tail Wheat out of a threshing of 50 quarters. In my case, the tail was 6 per cent. Red Wheats have the best of it, and ours, sown late, promises to be a fine sample. My Rivetts are particularly good, both in sample and quantity. Two fields, after 7 and 8 quarters of white Wheat last year, have been estimated at 7 and 8 quarters per acre, but I shall be satisfied with a quarter less. Our Barley, on light land, after 6 quarters of white Wheat, is very heavy in grain, though rather coarse in quality—estimated at 7 quarters per acre. I have only 6 acres of black Oats (preceded by a heavy Tare crop, followed by Cabbage in the same year). They are heavy in quality, and well corned, but not a good crop; we reckon on 8 quarters per acre. We always sow black Oats. Quantity of seed: Oats, 2 bushels; Wheat, 1 bushel; Barley, 6 pecks per acre. On comparing the 2 pecks per acre with the 4 pecks per acre of white Wheat on the 7-acre field, the result shows a quarter per acre against the 2 pecks. This was contrary to expectation, the general opinion having been in favour of the 2 pecks, and after cutting the thin stubble looked much the strongest, but there were less heads. The sample was finer, weighing 3 lb. more per bushel, and worth 2*s.* more per quarter, than the thicker sown. We have not yet tried the peck an acre. White Wheat is evidently a more tender Wheat than our red or Rivett. Owing to its having yielded so abundantly in the dry genial season of 1868, rather too great a breadth of it has been sown this year. My 27 acres of Mangel, Kohl Rabi, Cabbage, and white Turnips all promise abundantly, so that we shall be well supplied with cattle food. Hay and stray buyers tell me that although straw is so bulky there will be no more weight of it than last year. Taking weight and quality of Wheat as a standard, it can scarcely, I think, reach an average. Although our first cut of red Clover was thin and overgrown by Oats, the second growth was a very fine even crop, folded off by sheep eating cake and corn. We gave it 10 loads of manure after the cutting for hay. This field will now have to carry a white Wheat crop, a Rivett crop, and then Mangel. That is my course after red Clover, on the heavy land; the Rivett Wheat getting 2 cwt. of guano and some salt, the Mangel a heavy dressing of manure, and guano and salt. We are sowing Mustard and Rape on our light land Wheat stubbles, after these fine rains. Our harvest occupied four weeks. One man, with Samuelson's side delivery reaper, cut 65 acres of Wheat, 6 acres of Oats, 6 acres of Barley. Our men earned 5*s.* per day, or 6*l.* per four weeks—4*s.* per acre was allowed by the men for the use of the reaper—so that it earned by the aid of horses 15*l.* 8*s.*, minus a few shillings for breakages. It economised time, and rendered unnecessary the employment of strangers. *J. J. Mechi.*

A Scotch Farmer.—[The following letter has been addressed to Mr. Mechi by a Scotch farmer]:—"Ever since the time that I visited Tiptree Hall, in 1864, and experienced so much unaffected kindness at your hands, we have had a warm corner in our heart towards you, and, consequently, read with much pleasure and profit your several articles as they appear, from time to time, in the *North British Agriculturist* newspaper. So much so, indeed, that often I have intended to write to you to thank you for displaying so much courage in stating facts, however unpalatable, that by-and-by will be recognised as such, notwithstanding the snarling of a few curs. I can truly sympathise, and heartily join you in denouncing the short-sighted policy of but too many landlords and farmers both in England and Scotland who seem so well content to let matters 'rest' as they are 'and be thankful.' With such a redundancy of capital in our country seeking a profitable outlet, and to see so many of our fields and homesteads so far behind in good cultivation and tidiness, is positively a sin, and well fitted to arouse the honest indignation of anyone having less enthusiasm than yourself, here, in Scotland at least. Hypothec, and similar antiquated laws, 'block up the way,' and until these are removed such a thing as progress and thorough improvement is out of the question. The landlord's hypothec, covering the rent for two years at least, enables him to accept (as he often does) the one most servile as tenant, caring little whether he possesses sufficient capital or not; and hence men of capital and enterprise have become soured and disgusted, thus causing many such to look around for a more congenial field; such in fact is my own experience for the last 16 years. I have cultivated my small farm with some measure of success, and now that my lease draws to a close, and before it is known whether I intend to offer for it again or not, several parties have been applying for it, and offers made of a rise of 80 per cent. Bear in mind that the offerers are merely men of straw; the landlord, however, as I have stated, being safe as regards the rent, will, unless I bid a sum approximating to them, let me go. I remember well that the first question you asked of me was as follows:—'How many acres do you cultivate? and how many head of cattle do you keep?' In answer, let me again say that my farm consists of less than 120 imperial acres, one half of which is good sharp land, the other half is very poor and thin; the stock comprises the following—viz., three farm horses and one pony, 35 to 40 cattle of all ages, and 90 to 100 high-bred Leicester sheep, and worth, on an average, 5*l.* to 6*l.* a head; these animals are all kept on the farm, unless during the summer, when we rent some 30*l.* of a grass field: and here it is fair to add that the way I manage to keep such a heavy cover is by following some of your own rules, at least in the matter of cake, and from experience I can testify that you are right. Cramped and confined as we are here, by absurd cropping conditions, one positively has no heart to do anything, not overlooking the fact that the better you farm your land the more rent you will have to pay, should you wish a renewal at the end of your lease; the longer I live the more I am convinced of the utility of manuring your land through the stomachs and bowels of your stock, but, as you know, to carry this method out properly capital is needed, and as those would-be successors of my own see only the fruits, without knowing the cost, they may come to find that the 80 per cent. additional rent may be somewhat ill to raise. Let me brush this aside and conclude by asking if you think it might be possible for me to get a farm in England, under some landlord who would encourage a tenant who truly wished to do well? It strikes me that amongst the many acquaintances you have got one may be found of the sort indicated, and who might feel disposed to give a trial, as tenant, to *A somewhat Enthusiastic Scotsman.*"

Essex Crop.—Your circular was sent after me to Liverpool; unfortunately I lost it, but I now report, that, in this neighbourhood, all the crops in the aggregate are a full average. The Barley crops are above an average, and especially where not injured by over-seeding. The Oat crops an average. Farmers find fault with the Wheat crops, and doubtless, where greatly injured by over-seeding, some Wheat crops are light; but others are very fine, full eared, and heavy, which I think will bring the whole to a full average. The Mangels and Swede root crops are very fine. I never saw them more promising. The Potatos in this neighbourhood are retuberating in many places, which, of course, will very seriously injure them; but still there are some very excellent crops. Mine are of both kinds. I have several plots, and some are very good; but the greater number are what are called growing again, and consequently such are nearly worthless; but on the whole, comparing one with another, the crops of grain and roots are a full average in this neighbourhood. I have not been able to examine many Bean crops, but where the land was deeply cultivated, or tolerably so, and not over-seeded, I should say these crops are a fair average. Peas with farmers are always a hazardous crop; shallow and imperfect cultivation for them, and ruinously over-seeding, must always be causes to make them so. But this is seldom the case with gardeners, who cultivate deeply and seed sparingly; and, as an example of this, I add that some years since I saw a market gardener putting in his Peas in rows 30 inches apart, and thinly in the rows, whilst farmers put in theirs only 6 or 8 in. asunder, and three times as thickly in those rows that the market gardener did in his; and on my asking the latter why he cultivated so deeply and sowed so thinly, he replied, "Because he gave 4*l.* an acre for his land, whilst the farmers gave but 30*s.* or 35*s.*; and hence," he added, "they could afford to grow little else than light puffy straw, whilst he was obliged to grow corn regardless of the straw; in fact, the less straw he had the better, so that all the seed he put into the ground grew, and which was generally the case." To add to the force of this, to me, sensible reasoning, I inform my readers that I have grown Peas for upwards of half a century, and never had lice upon any of them, which is the malady that the farmers so much complain of; and as this year, from its dryness, has been very favourable for their production and multiplying, I should say that many farmers' crops of Peas this year have been destroyed by them; not that lice have been the cause of the failure, but the effect only, as I have stated, of shallow and imperfect cultivation, and—what shall I say?—insane overseeding, as the intelligent market-gardener also added. But being on this subject, I will just add further, that the farmers add, that this year many Wheat crops are full of what they call bladders or smut, and yet they always boast that they have a specific as a preventive of this malady, and which is by steeping the seed Wheat in a poisonous mixture composed of a mineral and water. Now, this year, and every year—for there are bladders more or less every year—the farmers who use this quackery nostrum have just as many bladders as those who use it not, and some of them more than those who use it not; for the latter rely more on cultivation and the *pabula* they give to their plants, than upon this or any other kind of quackery, and hence, as I have often seen, their Wheat crops are comparatively free from bladder or smut, whilst those of the others are often full of them; but still they go on wetting and drying, and still have bladders. But would it not be better and cheaper to employ some venerable gipsy sybil to charm their seed? *G. Wilkins, Wix.*

Foreign Correspondence.

CHAMOUNI, *August* 31: *Swiss Agriculture.*—The best crops I have seen anywhere this year are just now being harvested at and below Liddes, in the valley leading up to the Great St. Bernard Pass, at an elevation of between 5000 and 6000 feet above the sea. Nowhere is the Barley of a richer colour or more full of grain—nowhere are the Potatos sounder, healthier, or more productive—nowhere is the Bean crop so full of pod and seed. The valley, which, in its lower range above Martigny, is just a big deep ditch with sides too steep for cultivation, widens out above Orsières, and is a comparatively flat-bottomed groove near Liddes, where for probably a mile or more in width, and up to the very edge of the steep Fir slopes with overhanging rocks, it is fully cultivated—in a patchwork of little plots, each kept up by its retaining terrace wall. These plots are cultivated with a little one-handled pair-mule plough, and with a big hoe for use both in digging the land and in digging up the Potato crop. They are manured by cattle carrying panniers of dung from the stances beneath barns and byres, and dwelling-houses, where it is stored. The whole process is going on just now, and autumn manuring seems to be as well understood and practised in the highest agriculture of the Continent as it is in English lowlands. The Barley is stooked in sheaves, and being carried home to barns. The Potatos are being hoed out and stored in cellars. The Beans, cut green, are being carried tied in sheaves, and hung astride a set of horizontal rods underneath the wide overhanging eaves of the houses, where a perfect wall of grain is gradually drying. I have seen more Beans hanging and drying in this way under the eaves of Swiss cottages than are to be seen all the way through Belgium and Germany on the way hither.

There certainly is a great variety of agricultural experience and management in Switzerland, as, indeed, was to be expected from its varying circumstances. The wonderfully rich and perfect vineyard cultivation of the northern and north-eastern shores of the Lake of Geneva—the smiling English-looking landscapes one has passed through to Lausanne from Berne—the poorer undrained upland pastures between Zurich and Lucerne—the sandy flats on the way from Lake Leman eastwards up the valley of the Rhone and southwards up the Arve—the hard-won but abundant crops in hillside patches everywhere, all these present as many types of style and management as much larger countries show—types much wider apart than our own exhibits. The first and last of the series named excite one's admiration most, and having mentioned the patchwork culture of the hill sides about Liddes and Orsières with praise, it is impossible to pass, without expressing admiration, the glorious Vine-clad slopes between Vevay and Lausanne: nothing can be finer.

Perhaps the leading feature, more especially of the small-farm cultivation of the country, is the value set on liquid manure. The tanks, over which the dung is neatly piled—built up squarely in successive layers—receives the drainage of the house and heap, and its contents are carried out in the universal carrier of the country, on men's backs, and either lifted down and afterwards ladled out, or, as we saw it in wet weather, when the tank fills rapidly, and has to be emptied quickly, swung abroad (without being lifted down) by clever shoulder movements, calculated, in unskilful cases, one would fear, to drench the unlucky carrier himself with the unsavoury load. The work of distribution is, however, fairly done, and the Grass and other crops thus treated are the better for it. The Grass, however, is everywhere a very coarse and leafy mass of weed, containing quantities of Crowfoot and Hawkbit, and comparatively little Grass. The second crop of hay has been industriously harvested during the past week of fine weather. Women mow as commonly as men, and the scanty crop is rapidly got together, and tied up in bundles within nets, to be taken down to the fodder-house or barn. The uplands are scattered with these chalet-like barns. You see them scattered about the hill-side as you look down on Grindelwald from the little Schiedegg Pass; and again, with quite a large population in scattered villages, you see them all over the lower uplands of the Hasli mountain range from the heights over Reichenbach. These alps, or upland pastures, carry a large quantity of the small dairy stock of the country; and the one cheap food of the country is milk.

The low, flat, and often unhealthy valleys, especially those running into the Lake of Geneva, are in every respect miserable, the population are unhealthy, the land appears liable to inundation, the crops are poor, and mixed up with enormous growths of natural Reed and Rush. A good deal of land is perpetually burned in preparation for a Rye crop, and the process is going on now all about Bonnville, on the way up to Sallenches from Geneva. Buckwheat is a common crop. This

and Rye, and Potatos, seem the chief produce of the district. Patches of Hemp are almost universal, and Oats, still green, are common. Here, in a Roman Catholic canton, everyone was at work last Sunday afternoon; men were ploughing, women mowing, and labour going on as usual, in the listless fashion of the place; and a Protestant, in the *coupé* of the diligence, taking his pleasure on the day of rest, was passing through their midst, and felt that he had no right to cast a stone at them. *J. C. M.*

Societies.

BATH AND WEST OF ENGLAND.

August 21.—At the meeting of Council reports were brought up from Messrs. Badcock, the Society's treasurers, announcing that the required sum of 900*l.* had been paid to the credit of the Society by the Taunton local authorities; from the stewards of plant, announcing that all the plant of the Society had been removed from Southampton within the specified time, and was now safely stored at Taunton; and from Mr. Knollys, who had been deputed to conclude arrangements with the Taunton authorities, announcing that all matters left in abeyance were now satisfactorily arranged.

A committee having been appointed "to take into consideration the duties and salaries of the Editor and secretary, and the routine of the secretary's office, and to recommend such alterations generally as in their opinion may be desirable," the report was now brought up and ordered to be taken into consideration at the October meeting of Council, after due notice given on the Agenda paper.

PLACE OF MEETING IN 1871.—As the Society's annual meetings are now held alternately in the eastern and western districts, and as the meeting of 1871 would in due course be held in the eastern district (including the counties of Berks, Surrey, &c.), a committee was appointed to consider the subject, to take such steps as they think necessary, and to report to the Council at the October meeting.

Mr. MARGARY, of Plymouth, suggested to the Council the desirability of offering prizes for donkeys, which he considered would be a great boon to the industrious poor. The subject was referred to the Stock Prize Sheet Committee.

Mr. LE CORNU, of Jersey, having expressed a desire to convert the money prizes which he obtained at the Southampton meeting into a piece of plate, asked the sanction of the Council to his engraving the badge of the Society thereon, and the desired permission was granted.

AYRSHIRE.

Breeding of Ayrshire Stock.—Mr. Lindsey's remarks on this subject at a recent meeting are as follows:—I would say, take a bull from a stock not connected with your cows—a stock that has been good for generations back. Be sure that the bull's mother is a good strong profitable cow—such a cow, in fact, as you could face a distant market with. Don't at all be guided by the prizes that she may have taken, unless she have a good appearance of milk, and seems likely to be a good fat beast at the end. I have been thus minute about the bull's mother, because I expect from what I have seen that his progeny will probably be more like his mother than himself. I would like both the cows and the bull which judges at a show would perhaps pass when awarding the prize to the animal showing the most breeding. Now, we admit that enough of attention has perhaps not been paid to this matter, but the reason of that is not because the object is not a desirable one, but because breeders generally have hitherto been a little careless of the fact. There are at the same time a great many breeders whose sole desire and aim is to produce animals having their touch and form worthy of as much praise as the quality and purity of their milk.

In the month of May they should be sent to the moors or shut up in a field of the coarsest Grass on the farm for the summer months; but they should be brought home by September 1, and have plenty of Grass down to Martinmas. They should by no means be kept on bare Grass in autumn. They are now six quarters, and this is the best age to bring them to the size you want. They ought to have sliced Turnip or cut hay or straw steamed in the morning, and be turned out to water through the day. If you have not Turnip, the cut hay, with a very little meal, will pay better at this than any other age of the beast. The plan of sending them to the moors is good, but it is quite wrong to allow them to remain on the moors for more than four months. There should be a field cleared a month or six weeks for them, and bring them home to plenty of Grass in the autumn. By no means allow them to be falling off before you take them in. Feed them at once, and keep the flesh on them till February, when they must have a little meal to supply the drain of nourishment that will be caused by the growth of the calf. But it is wrong to feed heavy at this age, as it is apt to bring on too great a flow of milk. It is better to feed moderately till once they are calved, and the swelling has begun to subside; then feed and bring them to their milk. One could scarcely expect that a farmer having good pasture would advocate the following rule of policy. In the district where he lived it was naturally good pasture, and they had no difficulty, if they attended to the cattle in winter, in rearing cows of a fair size. The size that he reckoned best in a good dairy cows was one that when fed would weigh from 26 to 28 stones. Many studied chiefly the bringing out of fine points; but his opinion of a good profitable cow was one that would stand the wear well in a dairy, and then pass off advantageously as beef. In the breeding of young cattle his experience was that the progeny followed the mother's side more than the father's. Of course it was perfectly right to have the best bull they could get; but if they put the best bull to inferior cows, they would not produce an improved breed that would fill the luggy."

[On this the *Farmer* remarks:—This, in our opinion, is quite contrary to facts. The male animal exerts an unmistakable influence upon the form of the progeny; and if the bull is bred from a good milking stock, there is assuredly every chance that the milking qualities will be influenced by him as well. Experience proves this to be the case; and although the mother may have a great deal to do with the quality of the progeny, still a good bull put to an inferior cow has as good a chance to have offspring of fine quality as if the case was otherwise. Upon this subject we are so certain that we would say—make it a point to provide a well-formed animal always.

We hear a good deal of discussion now-a-days upon some other points in the breeding of stock. For instance, many farmers are at a loss to know whether it is better to have a cow in calf when it is two and rising three years old, or whether it should be left till it is a year older. Both ways have been tried, but generally it has been found better to allow cows to calve as early as possible. They give the most milk, and continue to be the best milkers. The reason of this is thought to be because they become in calf at a time more in accordance with the promptings of Nature, and the milk, therefore, comes sooner, and continues to flow more copiously all their life. Many, it is true, are very averse to this procedure, and a general feeling exists that it is a most hurtful practice to bring cows thus early to milk, but if they are properly grassed on till that time, and properly wintered, the animals will be as good at that age as they are when sent off to the moors, to get Grass there; besides, calves are more likely to come to a good size when calved early. Many farmers run into a very common mistake with reference to this, with a view to taking prizes at some neighbouring show, or perhaps a leading one. They have their cows too late with calf; the effect of this upon the calves as well as the cow is very bad.]

Reviews.

Notes on the Distribution of Sewage, addressed to the Chairman and Directors of the Metropolis Sewage and Essex Reclamation Company. By H. J. Morgan. Metchim & Son, 20, Parliament Street.

"Town sewage is the most fertilising of manures—producing enormous crops of all kinds of succulent growth—bulkier and heavier crops per acre than ordinary agriculture knows anything about."——"Town sewage is the poorest 'tackle' as manure any of us know—not worth 2*d.* a ton."——Both these statements are quite true. We have known much heavier crops produced by dressings of town sewage than Mr. Mechi quoted from Mr. Morton in a paragraph the other day. Sixty tons per acre of Italian Rye-grass in a single summer have been often grown in this way. *Incredible* crops are actually grown in this way. We were present on the introduction of Farmer A., who uses sewage, to Farmer B., of Colchester, who knows nothing of it, at the Bury Station, when the Agricultural Society met two years ago at that pleasant little Suffolk town. "Oh!" said A., after five minutes' hearty talk as cordial as could be, "I too am an Essex farmer;" and he began to speak of four crops of Grass already cut that season—it was towards the end of July — averaging 9 tons per acre each. The cordiality ceased at once, and B. turned upon his heel, evidently considering A. either knave or fool. ——The results of sewage application as related *are* incredible—excepting always to those who have reaped them, mown them, seen them, weighed them; and now that almost everywhere towns are being driven to the consideration of the sewage nuisance, and sending agents up and down the country in search of sewage farm experience, the number of these is rapidly increasing. Nevertheless, it is quite true, as just said—town-sewage is a very poor manure. If, indeed, it be worth 1*d.* per ton, the Metropolis Sewage Company, to whom Mr. Morgan addresses these notes, have a very handsome property.

The way in which so poor a manure as sewage produces crops unknown to ordinary agriculture is simply by means of the enormous quantities of it which are applied. If 50 tons of Grass per acre are produced by it, it is because 3000 and 4000 tons, perhaps more, are put on every acre of the land; and hence it is that the question of "distribution," which is here discussed by Mr. Morgan, is of the very essence of the question —what is sewage worth? It costs a farmer 1*s.* a ton per mile to load and carry farmyard dung. But here is a manure worth not much more than 1*d.* per ton to begin with, and we want to carry it 15 or 20 or more miles away—at least, London does, which has 300,000 tons daily of it to dispose of, or enough for 300,000 acres of land.

We strongly recommend Mr. Morgan's notes on distribution to all who have sewage to dispose of, and want to make the most of it. It is plain that if *they* have to carry it, they will make no money of it. It must carry itself—it must distribute itself. And this is the great merit of the manure in question. It is at once fertiliser and carrier of fertilising matter. The matter which it contains is loaded already on a self-acting carriage, and it only needs that the land be laid out properly, and that channels which will not waste the goods committed to them shall be provided, and the manure will take itself not only to the farm —not only to the field—but to every plant upon that field which wants to feed upon it. Mr. Morgan, fully alive to the necessity of economy and care in dealing with so bulky, so dilute a substance—a manure so poor per ton but so valuable per dressing of 500 tons—has here elaborately discussed the various plans of enabling it to spread itself evenly and satisfactorily, especially over arable land. His experience has now lasted over several years, upon a farm where it has been the aim rather to make the most per ton of the manure than the most per acre of the land. And this experience is here laid before the reader with all the help that well-drawn illustrations can afford. We strongly recommend the book to the attention of sewage farmers, and especially to the notice of town surveyors and of town ratepayers, who want to realise the value of what creates so great a nuisance now by waste.

It is satisfactory to find that the literature of this subject has at length overtaken its early task of proving the value of sewage as manure, and is now engaged in discussing the methods of its most economical distribution. Mr. Morgan has already done good service as a promoter of sound public opinion on what is one of the leading agricultural questions; and the publication of these lessons of his experience upon the Barking farm is a timely and valuable contribution in the same direction.

Farm Memoranda.

WEST GLOUCESTERSHIRE.—The harvest may be said to be general, and the weather all that can be desired for the drying of the grain. A large breadth of Wheat, Barley, and Peas has already been cut and carried; Beans, too, are fast drying off, and will soon be ready for ricking. Should the weather continue fine another week the bulk of the corn in the vale will be pretty well secured. The corn on the hills is later, and much of it is still very green, and will not be ripe for a fortnight or three weeks. Much anxiety is felt as to the probable yield of the Wheat crop; that it is below an average there is no doubt, but the amount of the deficiency we cannot learn at present, as we are all too busy to pay any attention to threshing. The cause of the present deficiency is no doubt attributable to the excessive rain in winter, and the absence of sufficient heat in May and June; the plant lost its vigorous appearance, and became very spiry and rotten at the root just at the time when it most needed strength to withstand any rough winds which might happen to pass, consequently the gale about the middle of July broke down most of the Wheat crops upon the light soils, and thus prevented the grain filling, as it otherwise would have done; fortunately we have not had much rain, so that the laid corn will not be so much damaged in quality as it must have been had it been very wet. The crops upon deep, well farmed clay soils present a promising appearance, but there are many faulty grains in the ears; there will also be a deficiency in the weight per bushel by at least 2 lb. compared with last year. Barley is very various. The early sown is generally very good, and much better than last year; the late sown is very middling. Oats cannot be said to be an average crop. Peas about an average upon good soils. Winter Beans present more straw than usual, but have not podded so well in consequence. Spring Beans are very promising. The root crop hereabouts is very good, and the prospect of an abundant supply of winter food for stock most encouraging. Grass keep is getting rather short, as the lattermath has not grown so rapidly this year, owing probably to the immense crops of hay which has been cut throughout this district. *J. W.* [This was dated August 17.]

The Poultry Yard.

THE LEICESTERSHIRE AGRICULTURAL SOCIETY'S POULTRY SHOW.—Ashby de la Zouch will recall to every one Sir Walter Scott and his tournament, but it will also recall now to many good Leicestershire and other shire people the memory of a very pleasant and successful agricultural gathering. The show was held in the grounds belonging to the Royal Hotel. The attendance was excellent.

Dorkings were well represented by Messrs. Warner and Wood, who took the prizes both for adults and chickens. The hens in the 1st prize pen may be looked for again later in the season in a similarly high position, if their owner does them well. Mr. Sharpe, of Kettering, was 1st for old Spanish, and Mr. Stephens, of Walsall, for chickens. The Cochins, as might be expected, were very good. Those who, in the early days of the fancy, remember the birds exhibited and bred by the late Rev. G. Calvert, of Beeby, will find them still worthily represented. The birds shown by Mr. Woodcock, of Rearsby, and Mrs. Williamson, as also those of Mr. Worthington, were very beautiful. The white chickens shown by Mrs. Williamson were universally admired, and deservedly so.

The quality of the game fowls was good, but hardly as even as we should have expected for Leicestershire. Mr. Warner took 1st for black-breasted and other reds, followed by Mr. Clare. This exhibitor swept the board for the chicken prizes. In the other class for game, Mr. Everard won both for adults and chickens.

In spangled Hamburghs, Mr. Stephens, of Walsall, was 1st for golden, and Lord Ferrers 2d. Mr. H. Warner 1st for silver, and Mr. Faulkner, of Bretby, 2d. All who know his birds will be prepared to hear that Mr. Draycott took all the prizes for Bantams, except in the game Bantam class, where Mr. Warner won both 1st and 2d, Lord Mauchline taking the prize for the single cock.

Mr. J. Choyce won 1st and 2d for Aylesbury ducks, and 1st for geese. Mr. Worthington for Rouens, and and Mr. J. N. Beasley for turkeys.

The pigeons were excellent, and, for a county show, numerous. The arrangements were good, and well carried out. Mr. Hewitt, of Birmingham, was poultry judge.

PARTRIDGE SHOOTING.—The result of the first week's partridge shooting must be a feeling of disappointment, and at the same time it will impress on

many who would not accept the fact that nothing is more injurious to the coming season than too heavy a stock of old birds at the end of the present one. Taking the average of the bags, as they have come to hand in the London market up to the present time, we have had as many old as young birds. The latter are small, thin, and weakly. The best birds we have seen were Cornish; they appeared to have been really covies of first hatch, while two-thirds of the birds generally are now but squeakers. The neighbourhood of Thetford has furnished a few good, well grown lots, but the ordinary supply from the eastern counties generally has been wofully bad. The breechloaders tell terrible tales of driving and impatient shooting, and little birds not bigger than thrushes, drilled through and through, with legs and wings broken, lay about on the salesmen's boards until condemned by the inspectors. It would, we think, have been a good plan to have put off shooting until the middle or end of the month, for we have now reached nearly the middle, and many have worked fairly with gun and dog, and have not yet found a young bird as big as it ought to be at this time. Hants and Dorset, both counties from which the birds are generally very good, are badly off, and in Hertfordshire the covies are small and backward. In the lower part of Essex we have some few of good size, but also many barren birds.

DUCKS.—The suggestion of "G. E. O.," of Chepstow (*vide* p. 933, Aug. 28),is an excellent one for those who keep ducks in parts of the country where wild ducks abound. We have there known the cross-bred bird very successful, and it stands to reason that the introduction of fresh blood in such a manner does good in every way. You get hardier ducklings and quicker growth, and if your young birds be not so large, you have one brood out of the way before the next is ready, and that is a great help. If you had common country ducks, and turned down among them some drakes of the Buenos Ayrean breed, you would find yourself a gainer in every way. The writer once sent a drake and three ducks to a villager's, to "walk them," as they call it in the country. The man lived on a village green, with lots of water ditches and a good pond at hand. The ducks certainly laid, but, as we thought, badly, and the result was, as far as we were concerned, very nearly a barren one; but somehow or other nearly all the villagers whose ducks used the same pond obtained black and black and white ducks, to the great improvement of their stock, to which result we had the satisfaction of knowing that we had unwittingly contributed.

The rabbits whose illness and death "Coney" wrote about are some destined for export to China (we should say *were*). They are in new hutches, well constructed, and in a well ventilated stable. Their food clean and sweet, not too dry. They are well looked after, and yet the mortality continues. "E. O." is thanked for his information.

Calendar of Operations.

SEPTEMBER: *Bean and Pea stubbles*, if not broken up last month, should be so early in the present. Under proper management, the land will be clean and free from weeds. If so, or but a few annuals be present, it is better to pull and gather these off light land without breaking the surface before the seed-furrow is made, just previous to sowing time. Heavy clay land, however, may be smashed up and left in large clods, so as to be exposed to the sun, night dews, or rains. If ploughed, we have always found it best to plough narrow and deep, which better mixes the previous winter-made staple with the fresh soil brought up, while it breaks down the land sufficiently fine for Wheat, thereby avoiding crossing with the cultivator. There is, however, less objection to crossing with steam than to the trampling of horses in autumn. Much depends upon the state of the land as to moisture; for if rain falls before it is broken up, one operation, whether by the plough or cultivator, will make it sufficiently fine for "weathering" during the remainder of the month. If, on the contrary, the land is full of Couch and surface weeds (mostly annuals), it should be scuffled or broadshared sufficiently deep to bring them to the surface. Some harrow-gather and burn the weeds in small heaps on the land, with the view of getting rid of the seed of weeds. But the practice is questionable, for the harrows and gathering often shed out most of the seed. The more advisable plan is to collect and cart off the weeds, and to convert the hill formed into compost, by mixing lime, or farmyard and liquid manure, or fish, or guano; by this plan the caustic character of the lime, or the fermentation which thus takes place by adding the ammoniacal substances, destroys the vitality of the seeds. There are, no doubt, exceptional cases where, under wretched management, the land is so full of Couch and other weeds that scuffling and stifle-burning the sods in large heaps would be preferable to carting off the whole. It must be borne in mind, however, that stifle-burning after harvest is only applicable to our southern counties in the generality of seasons.

Clover-leas intended for Wheat should now be got ready for seeding. Some rib or rafter-plough very tenacious clay soils with the view of getting an aërated and mellow seed-bed. If this was done in August, the land may be coup-ribbed by the second week of September, or cross-ploughed or scarified according to the state of the land and weather. And when ploughed the last time an inch of fresh soil is brought up from the bottom to the surface, which forms a clean seed-bed. Others turn the greensward into the bottom of the furrow, under the furrow slice, by means of a skim coulter, thereby leaving the ploughed land ready for the seed drill at one operation. When Rye-grass and Clover-lea lies one or two years in pasture before it is broken up, the practice is the same, but the greensward is thicker and closer, and more liable to be infested with insects. The best plan of getting rid of these is to adopt means for rotting effectually the greensward in the bottom of the furrow under the furrow slice, so as to deprive the young insects of food in the spring time, when they first make their appearance in the grub form. Insects seldom deposit their ova in healthy pastures, but the presence of much effete matter is to be suspected; and to rot such sufficiently for the safety of Wheat, a top-dressing of lime, liquid manure, or guano, well bush or chain harrowed in just before ploughing, may be useful in setting up the rotting process. Ploughing early and rolling heavily at once, and then harrowing and rolling at intervals of a fortnight, and sowing the Wheat of a field requiring this treatment last of all, is the sure way of securing a plant and getting the Wheat to stand without being "root-fallen" before harvest, as much Wheat was this year.

Wheat and Oat Stubbles are autumn fallowed either for Rye or root crops. In either case there is a close similarity of the practice during the month. Broad-sharing is only needed under bad management and the growth of weeds, and the practice required is the same as noted above under Bean and Pea stubble. In addition to what was there directed, if much seed of weeds has been shed, the land should be chain-harrowed, with the view of encouraging germination, so as to get rid of a crop of weeds next year; and, in the absence of a sufficiency of moisture, it may be advisable to allow the land to lie until rain falls before it is ploughed or smashed up. Great caution, no doubt, is necessary in ploughing deeper than usual; the safer plan being to use the cultivator in all cases where the subsoil is unsound. But if the land has been deeply cultivated hitherto with horses, it may be ploughed to the same depth with steam, and in such cases ploughing down the stubble for the winter furrow, as for Swedes, Turnips, &c., for spring manuring, is preferable to the use of the cultivator. But when the land is to be manured during this and the following month for winter Beans or for Potatos, Carrots, Parsnips, and Mangels, the cultivator may in many cases be preferable to the plough. The practice, therefore, of preparing the land for manure, and of applying the manures, is very diversified, more so perhaps under steam culture than it was under horse culture. In those districts where the harvest is seldom completed before the end of the month, very little manure has hitherto been applied in autumn. But the rapidity with which steam gets over the ground is fast extending the practice northwards of autumn manuring for Potatos, winter Beans, &c., when such crops are largely grown. Some spread farmyard manure on the stubbles, and then plough in on the flat, or smash up with the cultivator, leaving most of the manure roughly on the surface to be washed in by the rain. This latter plan is not to be commended. A third plan is to spread the manure as above, and cover it by forming the land into ridges by ridge-ploughs. A fourth practice is similar to that of spring, the land being ploughed or smashed up deeply, then crossed with the cultivator, set up in drills or ridges, which are split to cover the manure spread between. The land thus lies high and dry throughout the winter months; rough and somewhat cloddy ridges being preferable for autumn, that the frosts may take deep hold and produce a fine mould and seed-bed by the spring.

Breeding Ewes are commonly bought in about this time, either for a single crop of lambs, both ewes and lambs being intended for the shambles next season, or for augmenting the permanent breeding stock. For the latter shearling ewes are generally preferred, as one year given at the beginning puts on two years of strength at the end of their breeding career. Both ewes and rams, young and old, are now got into condition; and the rams are now turned into the pastures with the draft, cast, or crop-ewes intended to lamb about the latter end of January or beginning of February, and with the stock ewes next month. Tegs are put up to fatten on Rape, Vetches, Clover, Cabbages, Collards, or Turnips, or rich aftermath—a pound of oilcake or a pint of peas being given per head to force them forward for Christmas. The crop-ewes are usually crossed with a heavier breed, as the Cheviot or blackfaced ewe with the Border Leicester ram, the Southdown with the Cotswold, &c. *W. B.*

Notices to Correspondents.

ADDRESSES.—Will "Half Pay" kindly forward his address; also Mr. H. Grafton, C.E. ?

HARVEST MOON: *Cor.* Harvest moon is the full moon nearest the autumnal Equinox this year, and it occurs about September 23. At this period the moon rises for several evenings at near sunset, and does not, as on other occasions, rise 52 min. later each evening than the last. Refer to "Chambers' Cyclopædia" and Almanacs.

FILARIA: *John Fryer* writes as follows:—"I have 26 beasts, 1½ year old, suffering from a sort of short cough, I believe commonly called 'Hoose.' One died to-day, and on opening it we found the trachea and windpipe covered with bunches of thread worms, finer than sewing cotton. The lungs were also full of them. Will any of your correspondents, or can you, suggest a quick remedy? Several more look to be all but in the 'last stage.' Our cow doctor calls it Filaria, [Filariæ in the bronchial tubes of cattle, sheep, and pigs exist to a much greater extent than they formerly did, owing to causes which we cannot now consider. The treatment of this disease is generally unsatisfactory, but the most direct remedy is inhalation of the vapour of carbolic acid. Drive the animals into a shed which can be shut up tolerably close, and then pour some carbolic acid on pieces of tile or brick, made sufficiently hot to vapourise the acid, and keep the animals in the vapour for an hour or two, if they do not manifest distress; repeat the inhalation daily for a few times. Liberal feeding is absolutely necessary to enable the beasts to withstand the debilitating effects of the parasites in the lungs. Animals in poor condition should have a drachm of sulphate of iron and half an ounce of gentian put into the food every day.]

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SUTTON AND SONS can supply fresh SEED of the above, to produce several cuttings next year. 40lb. required per acre. Lowest price per cwt. on application.
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E. G. HENDERSON AND SON respectfully announce their DESCRIPTIVE and PRICED CATALOGUE of DUTCH BULBS and FLOWER ROOTS, including the following novelties, now ready for distribution:—

AZALEA INDICA.—The following new Azaleas are offered by E. G. Henderson & Son, as varieties of first-class excellence, and it is with great confidence that they are named as the productions of Mr. Todman, who has originated several of the finest kinds now in cultivation. Many of the Continental varieties are well known as attractive in colour, but greatly defective in the higher properties of outline and substance, therefore but of secondary value for permanent specimens. As English varieties, those now noticed are highly commended as possessing the finest features of interest required for decoration, and also for competition. (A Coloured Illustration of four varieties is published, 1s. 6d.) Plants, 21s. each; the set 84s.

Queen of Scarlets | Queen of Roses | Queen of Double Salmon Queen | Queen of Double Stripes | Whites.

COBÆA PENDULIFLORA.—This new and singularly elegant plant is the most graceful and distinct species in its group. The flowers are bell-shaped at the base, and formed upwards into long narrow, drooping, wavy, strap-shaped lobes, from 3 to 4 inches in length; and from the centre of each blossom the long spreading dark vinous-red filaments, with terminal yellow anthers, present a remarkably rich and unique contrast to the diverse green hue of the plant. 10s. 6d. Smaller, 5s. each.

SPIRÆA PALMATA, 15s. each.

CLEMATIS "LADY BOVILL," 21s. each.

VERBENAS.—The following excellent bedding varieties are proposed to be sent out early in autumn, with a view to enable cultivators to prepare a supply for next season's decoration. 5s. each.

Lady Cowley | Marquis of Bute. | Lord Charles Percy.

NEW EDIBLE FRUIT, MACADAMIA TERNIFOLIA.—This handsome species forms a beautiful evergreen shrub; the leaves are oblong, lanceolate, spinulose margined, evenly expanded, and of a rich green glossy surface, from 9 to 12 inches in length, by 2 to 3 inches in width. In the younger growth the leaves appear opposite and in pairs, but in a more advanced growth they assume a ternate character. The fruit is about the size of a walnut, which at maturity contains a kernel of a remarkably rich and agreeable flavour, resembling, but much superior to, the Filbert. Judging from its native locality, it is fully expected, with slight protection on out walls, to produce its desirable fruit in an English climate; and as an evergreen of fine habit and distinct feature, it will form a valuable and interesting addition to the orchard-house, and also for the cool conservatory border or wall. As a shrub or small tree, it is stated to be an abundant bearer in mature growth. Young Plants, 21s. and 31s. 6d. each; Strong Plants, 63s. each.

CENTAUREA RAGUSINA COMPACTA.—The finest of all varieties for bedding, true from seeds, the present month being the most favourable time to sow for next year's groups. 100 seeds, 6s.

LAPAGERIA ROSEA.—Fresh seed, being just gathered, will grow immediately. 3s. per dozen.

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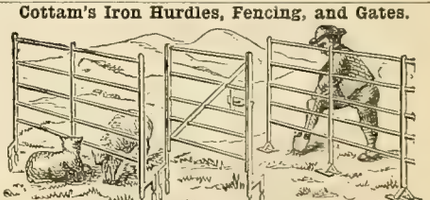
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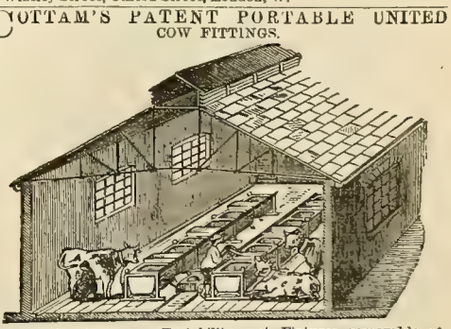
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COTTAM'S HURDLES are made in the best manner, of superior Wrought Iron, by an improved method. Illustrated Price Lists on application to COTTAM AND CO., Iron Works, 2, Winsley Street, Oxford Street, London, W.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



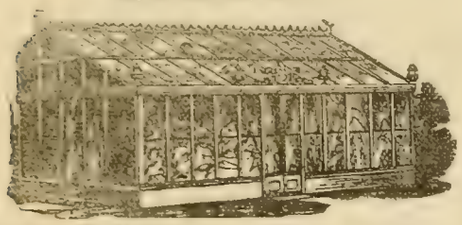
Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rick dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of Iron. Prices of Fittings per Cow, 55s.
Prospectuses free of COTTAM AND CO., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

SIR J. PAXTON'S PATENT HOTHOUSES for the MILLION, are cheap, substantial, and easily fixed.
Illustrated Price Lists, with sizes, &c., free on application.
ESTIMATES given for CONSERVATORIES, HEATING APPARATUS, &c. A HANDBOOK of VINE and FRUIT-TREE CULTIVATION, post free, 13s.
HEREMAN AND MORTON, 7, Pall Mall East, London, S.W.
Works in London, Gloucester, Coventry, and Scotland.

HOT-WATER APPARATUS of every description, fixed complete in any part of the country, for Warming Greenhouses, Conservatories, Forcing Pits, &c.
Plans and Estimates on application.
J. JONES AND SONS, 35, King Street, Cheapside, London, E.C.
Manufactory, 6, Bankside, Southwark.

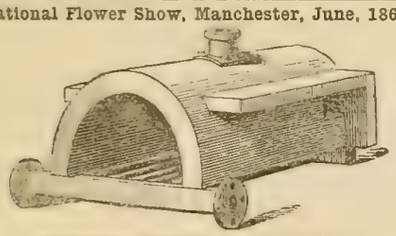
CRANSTON'S PATENT GLASS BUILDINGS for HORTICULTURE. Plans and Estimates free.
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JAMES WATTS AND CO., HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS,
353, Old Kent Road, London, S.E.



200 CUCUMBER and MELON BOXES and LIGHTS, all sizes, Glazed and Painted complete, read for immediate use, packed and sent to all parts of the Kingdom.
Strong ZINC HAND-GLASSES, all sizes.
References to the Nobility, Gentry, and Trade in most of the Counties in England.

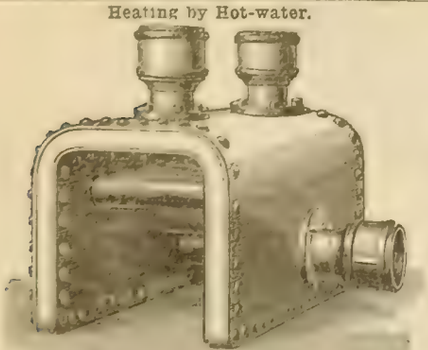
National Flower Show, Manchester, June, 1867.



FIRST-CLASS CERTIFICATE AWARDED TO
THE PATENT TERMINAL SADDLE BOILER,
with the following note :—
"The Judges consider this one of the most powerful and useful Boilers for general purposes."
See *Gardeners' Chronicle*, December 7, 1867.
See *Gardeners' Chronicle*, January 23, 1868.
See *Gardeners' Chronicle*, February 1, 1868.
See *Gardeners' Chronicle*, February 8, 1868.
See *Gardeners' Chronicle*, March 14, 1868.
See *Gardeners' Magazine*, June 15, 1867.
See *Gardeners' Magazine*, August 24, 1867.
J. IRELAND, Edward Street, Broughton Lane, Manchester.

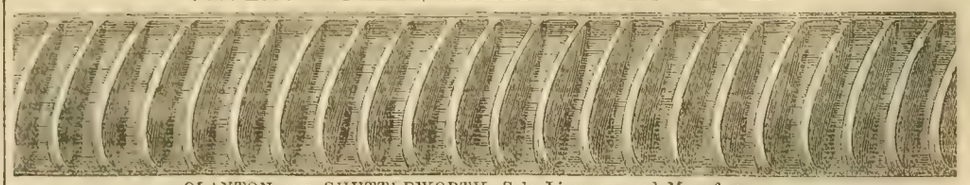
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Erected Complete, or the Materials Supplied for Heating
Peill's Conical. GREENHOUSES, Tubular Boiler.
HOTHOUSES,
CONSERVATORIES,
CHURCHES,
PUBLIC BUILDINGS, &c.
HOT-WATER PIPES at wholesale prices, Elbows, T Pieces, Syphons, and every other connection kept in stock.
WROUGHT and CAST IRON CONICAL, SADDLE, and IMPROVED PEILL'S and ELLIPTIC BOILERS, from 24s. each.
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SHANKS' IMPROVED WROUGHT-IRON BOILER.
[illegible]—This Boiler is made on the principle of the saddle and Tubular combined. The Tubes, Barrels, and Shell-plates are all of Wrought-iron, and consequently are not liable to break from expansion and contraction of the metal, as Cast-iron Boilers are. The Tubes are placed in the Firebox, and so arranged as to expose a very large effective heating surface to the direct action of the fire, the advantage of which is [illegible].
A. SHANKS AND SON will be glad to furnish their IMPROVED BOILERS separately, or to furnish Plans and Estimates for Erecting Hot-water Apparatus complete in any part of the country.
HORTICULTURAL BUILDINGS in IRON or WOOD.
Catalogues, containing Designs of Horses, &c., will be forwarded on application. Special Plans and Estimates for Ranges of Houses to be erected in any part of the country will also be furnished.
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PORTABLE ENGINES, FROM 4 TO 25-HORSE POWER.
THRESHING MACHINES, SINGLE, DOUBLE and TREBLE BLAST,
WITH PATENT ROLLED STEEL BEATER PLATES, AND ALL OTHER RECENT IMPROVEMENTS.
PATENT ROLLED STEEL BEATER PLATES



CLAYTON AND SHUTTLEWORTH, Sole Licensees and Manufacturers.
These Plates have been thoroughly tested, and are found to wear more than three times as long as the Malleable Iron Plates hitherto in use. C. & S. are prepared to supply Threshing Machine Owners and the Trade in any quantity
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Catalogues on application, Free by Post.

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HORTICULTURAL BUILDERS and HOT-WATER ENGINEERS,
LILLIE BRIDGE, FULHAM, LONDON, S.W.

CONSERVATORIES and HORTICULTURAL STRUCTURES of every description designed and erected (in Wood or Iron), and Heated on the most approved principles with the
PATENT TUBULAR SADDLE BOILER,
the cheapest and best Boiler constructed.

No. 1 size, to heat 400 feet, 4-inch pipe	£5 10 0	Including Furnace Doors, Bars, Dead Plates, Damper, Soot Door, and Draw-off Tap.
No. 2 size, to heat 900 feet, 4-inch pipe	10 0 0	
No. 3 size, to heat 1600 feet, 4-inch pipe	16 0 0	
No. 4 size, to heat 3500 feet, 4-inch pipe	30 0 0	
No. 5 size, to heat 6000 feet, 4-inch pipe	50 0 0	

☞ *Plans and Estimates free of charge.*

GRAY'S OVAL TUBULAR BOILER.
INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

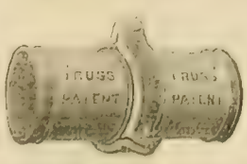
MR. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his
NEW OVAL TUBULAR BOILER,
Acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in GARDENERS' CHRONICLE *of International Exhibition, May* 24, 1862, *page* 476.
"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. Gray's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

☞ *They are made of all sizes, which, with prices, may be had on application.*

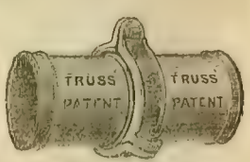
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DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

PORTABLE AND FIXED HOT-WATER APPARATUS,
FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH
TRUSS'S PATENT UNIVERSAL FLEXIBLE AND LEAKLESS PIPE-JOINTS.



T. S. TRUSS

Begs to state that the immense number of APPARATUS annually Designed and Erected by him in all parts of the kingdom, and for the ROYAL HORTICULTURAL SOCIETY at SOUTH KENSINGTON and CHISWICK, with unrivalled satisfaction, is a guarantee for skill of design, superior materials, and good workmanship; while the great advantages obtained by his IMPROVED SYSTEM cannot be over-estimated, consisting of perfectly tight joints with neatness of appearance; EFFECTS A SAVING OF 25 PER CENT. on cost of Apparatus erected compared with other systems; facility for extensions, alterations or removals without injury to Pipes or Joints; can be erected by any Gardener; an ordinary size Apparatus erected in one day; and PERFECTNESS of DESIGN SUPPLIED, INSURING NO EXTRAS. Complete Apparatus, of the best materials, delivered to any Railway Station in England, and Erected at the following prices. Erection beyond 25 miles of London, railway fare for one man additional. Considerable reduction on large works.



TWO FOUR-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
20 feet by 10 feet ..	£9 0 0 ..	£2 0 0	50 feet by 15 feet ..	£17 10 0 ..	£3 0 0
30 feet by 12 feet ..	11 15 0 ..	2 10 0	75 feet by 15 feet ..	20 0 0 ..	3 0 0
40 feet by 15 feet ..	15 0 0 ..	2 15 0	100 feet by 15 feet ..	26 0 0 ..	3 5 0

Bath and Gas Work erected in town or country. **The Trade Supplied.**
Price Lists, Plans, and Estimates forwarded on application to
T. S. TRUSS, C.E., CONSULTING HORTICULTURAL ENGINEER, &c., SOLE MANUFACTURER,
IRON MERCHANT, HOT-WATER APPARATUS MANUFACTURER,
AND HORTICULTURAL BUILDER,
FRIAR STREET, BLACKFRIARS ROAD, LONDON, S.E.

HOT-WATER PIPES.
CASH PRICES.

	2-inch.	3-inch.	4-inch.
PIPES .. .. per yard	1s. 0d.	1s. 6d.	2s. 0d.
ELBOWS .. .. each	1 0	2 3	3 0
TEES .. .. „	2 0	3 6	4 6
SYPHONS .. .. „	2 6	3 6	4 6
VALVES .. .. „	10 0	11 6	13 0

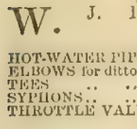
No credit will be given when Pipes, &c., are invoiced at the above prices.
J. JONES AND SONS,
6, Bankside, Southwark, London, S.E.
Price Lists, with terms for credit and for delivery at country stations, will be sent on application.

Heating by Hot Water.
W. J. HOLLANDS, IRON MERCHANT,
31, Bankside, S.E.

	2-inch.	3-inch.	4-inch.
HOT-WATER PIPES, from stock—p. yard	1s. 0d.	1s. 6d.	2s. 0d.
ELBOWS for ditto .. .. .. each	1 6	2 3	2 9
TEES .. .. „	2 3	3 0	4 6
SYPHONS .. .. „	2 3	3 6	4 6
THROTTLE VALVES .. .. .. „	10 0	11 6	13 0

Cash remittance with order.
N.B. All Goods of first-class manufacture. No second quality kept.
Estimates given, and orders punctually attended to the same day.

W. H. LASCELLES' MACHINE-MADE MELON LIGHTS.



	Each.
6 ft. by 4 ft. Lights, 2 ins. thick, unglazed	£0 5 0
„ „ Primed and Glazed with 10 oz. Sheet	0 11 0
„ „ with stout Portable Box, not Painted..	1 3 0
„ „ Painted four coats, and Handles on	1 8 0
„ „ Packed and Delivered in Railway Van..	1 10 0
6 ft. by 8 ft., Double Lights, do.	2 15 0

GREENHOUSES. Per ft. super.

Woodwork only Prepared and Fitted	0 0 6
„ Primed and Glazed with 16 oz. Sheet	0 0 9
„ Delivered, and Fixed with Ironwork	0 1 0
„ Painted four coats, two sides, ready for use	0 1 3

Finsbury Steam Joinery Works, 121, Bunhill Row, E.C.

WANTED IMMEDIATELY, a good Second-hand LEAN-TO VINE HOUSE, from 35 to 40 feet long, 12 feet wide, 7 feet high (the present wall being 7 feet high), with Hot-water Pipes. The whole to be fixed, two miles west of Sloane Street, complete and painted, ready for use. Send the lowest cash price.
Address A. S., 7, Eccleston Street, Pimlico, S.W.

TO BE SOLD, a BEEHOUSE and THREE HIVES of BEES, with from 30 to 40 lb. of HONEY in each Hive. The House is nearly new, and has compartments for six hives. Price £5.
Apply at 6, Putney Hill, Putney, S.W.



THE "CASSIOBURY."
The best and most powerful GARDEN ENGINE.
15 Gallons .. .. £4 10s.
24 Gallons .. .. £5 10s.
S. OWENS AND CO.,
Whitefriars Street, London, E.C.

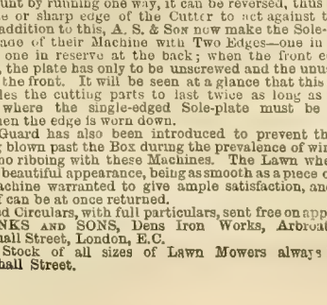
Vases and Fountains, for the Garden and Conservatory.
ANDREW HANDYSIDE AND CO.,
Britannia Iron Works, Derby; and 32, Walbrook, London.
Lithographed Sheets of Designs and Price Lists post free on application.

FOUNTAINS, ROCKS, GROTTOS, AQUARIUMS, FERN CASES, RUSTIC and ARTISTIC WORK of all kinds for the ornamentation of Towns, Parks, Gardens, Drawing Rooms, Dining-room Tables, & Boudoirs.



The most tasteful and largest variety of Models in the world.
MATERIALS SUPPLIED to the Trade, and erections made under the direction of
NADAL, NYE, & CO., Hydraulic Engineers, and Manufacturers of the celebrated Nadal's Patent Garden Pump. Specimens at work on the Premises,
No. 13, Newman Street, Oxford Street, W.

SHANKS'S PATENT LAWN MOWERS for 1869.
The Patent Improvements recently introduced give SHANKS'S MACHINE
Several important advantages possessed by no other Lawn Mower.
PATENT DOUBLE-EDGED SOLE-PLATE, WIND-GUARD, &c.
The unprecedented Sale for 1868, notwithstanding the Dryness of the Season, forms the most convincing testimony how much these advantages have been appreciated.
ALEXANDER SHANKS & SON beg to intimate that, among all the Exhibitors of Lawn Mowers at the Paris Exhibition, they are the only Firm to whom the Jury awarded a Medal. The Silver Medal then awarded is the highest Prize ever given at any Exhibition for Lawn Mowers.



ALEXANDER SHANKS & SON have for some time past been making the Revolving Cutter of their Machines Self-Sharpening—that is, with Steel on both Sides of each Blade, so that when the Cutter becomes blunt by running one way, it can be reversed, thus bringing the opposite or sharp edge of the Cutter to act against the Sole-Plate. In addition to this, A. S. & SON now make the Sole-Plate or Bottom Blade of their Machine with Two Edges—one in front as usual, and one in reserve at the back; when the front edge gets worn down, the plate has only to be unscrewed and the unused edge brought to the front. It will be seen at a glance that this arrangement enables the cutting parts to last twice as long as in other machines, where the single-edged Sole-plate must be entirely renewed when the edge is worn down.
A Wind-Guard has also been introduced to prevent the Mown Grass being blown past the Box during the prevalence of wind.
There is no ribbing with these Machines. The Lawn when mown has a most beautiful appearance, being as smooth as a piece of velvet.
Every Machine warranted to give ample satisfaction, and if not approved of can be at once returned.
Illustrated Circulars, with full particulars, sent free on application.
A. SHANKS AND SONS, Deus Iron Works, Arbroath; and 27, Leadenhall Street, London, E.C.
☞ A Stock of all sizes of Lawn Mowers always kept at 27, Leadenhall Street.

Health of Horses, Stables, and Dog Kennels.
MASTERS OF HOUNDS
Will find the greatest advantage in Paving the Floors of Stables and Kennels with
PYRIMONT SEYSSEL ASPHALTE.
Thirty years' experience of the durability of this material, for the above and many other purposes, testifies to its value.
A List of all such and other works can be had on application to
J. FARRELL, Secretary, 5, Parliament Street, S.W.

Glass for Garden Purposes.
JAMES PHILLIPS AND CO.
beg to submit their REDUCED PRICES as follows:—

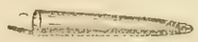
PROPAGATING  GLASSES.

	Each.—s. d.		Each.—s. d.
2 inches in diameter ..	0 3½	12 inches in diameter ..	1 9
3 „ „ ..	0 4½	13 „ „ ..	2 0
4 „ „ ..	0 6½	14 „ „ ..	2 6
5 „ „ ..	0 9½	15 „ „ ..	3 0
6 „ „ ..	0 8	16 „ „ ..	3 6
7 „ „ ..	0 10	17 „ „ ..	4 0
8 „ „ ..	1 0	18 „ „ ..	5 0
9 „ „ ..	1 2	19 „ „ ..	6 0
10 „ „ ..	1 4	20 „ „ ..	7 0
11 „ „ ..	1 6		

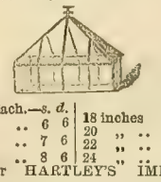
BEE GLASSES, with ventilating hole through knob.

4 inches in diameter ..	0s. 6d.	9 inches in diameter ..	1s. 8d.
5 „ „ ..	0 8	10 „ „ ..	2 0
6 „ „ ..	0 10	11 „ „ ..	2 6
7 „ „ ..	1 1	12 „ „ ..	3 0
8 „ „ ..	1 4		

Either flat or conical tops.

CUCUMBER  GLASSES.

24 inches long	2s. 0d.	16 inches long	1s. 4d.
22 „	1 10	14 „	1 2
20 „	1 8	12 „	2 6
18 „	1 6		

HAND GLASSES,  WITH OPEN TOPS.

	Each.—s. d.		Each.—s. d.
12 inches	6 6	18 inches	9
14 „	7 6	20 „	10 6
16 „	8 6	22 „	11 6
		24 „	12 6

London Agents for "HARTLEY'S" IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS. PAINTS of various colours ground ready for use.
SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of Prices and Estimates forwarded on application to
JAS. PHILLIPS AND CO., 180, Bishopsgate Street Without, E.C.

Horticultural Glass Warehouse.
THOMAS MILLINGTON AND CO.,
87, Bishopsgate Street Without, London, E.C.
NEW LIST for ORCHARD-HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.
ORCHARD-HOUSE SIZES.

in.	in.	4ths.	3rds.	2nds.	Best
20 by 12	Per 100 feet (15 oz.)	12s 3d	15s 6d	18s 9d	18s 0d
20 by 13					
20 by 14					
20 by 15	(21 oz.)	18s 0d	20s 0d	22s 0d	24s 0d
20 by 16					

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7			11s 3d	12s 6d	14s 0d	15s 6d
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½						

Per 100 feet.

10 by 8	12 by 9	12½ by 10½	14½ by 10½			11s 9d	14s 9d	15s 3d	17s 6d
10½ by 8½	12½ by 9½	13 by 10	15 by 10						
11 by 9	13 by 9	13½ by 10½	13 by 11						
11½ by 9½	12 by 10	14 by 10	14 by 11						

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
15½ by 10½	14 by 12	22 by 12	22 by 16			12s 3d	15s 6d	16s 9d	18s 0d
16 by 10	14½ by 12½	17 by 13	24 by 16						
14½ by 11½	15 by 12	23 by 13	20 by 17						
15 by 11	15½ by 12½	18 by 14	22 by 17						
15½ by 11½	16 by 12	22 by 14	24 by 17						
16 by 11	16½ by 12½	24 by 14	20 by 18						
21 by 11	17 by 12	22 by 15	22 by 18						
13 by 12	18 by 12	24 by 15	24 by 18						

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.
SHEET GLASS.
In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	34s.	4ths quality, per 200 feet case,	34s.
3ds „ „	40s.	3ds „ „	40s
2ds „ „	60s.	2ds „ „	60s.
Best „ „	75s.	Best „ „	75s.

SHEET GLASS is made only in the following substances, 15 oz. 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.
HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.
BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.
PAINTS, COLOURS, VARNISHES, &c.
STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.
WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a-half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.
IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4s. per gallon.

	Per cwt.—s. d.		Per gallon.—s. d.
GENUINE WHITE LEAD	30 0	LINSEED OIL	2 9
SECONDS WHITE LEAD	28 0	BOILED OIL	3 2
GROUND PATENT DRYERS, 3d. to 4½d. per lb.		TURPENTINE	2 9
„ OXFORD OCHRE, 3d. to 4½d. per lb.		LINSEED OIL PUTTY, 8s. per cwt.	
„ RAW UMBER, 4½d. to 6d. per lb. [per lb.		Fine OAK VARNISH, 10s. to 12	0
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The above are Net, for Cash, and as such cannot be booked.
Lists of any of the above on application.

A Card.
THOMAS DUCKHAM, LAND AGENT, SURVEYOR, AUCTIONEER, VALUER, AND COMMISSION AGENT, 50, Broad Street, Hereford.
RECORD of HEREFORD TRANSACTIONS.
Mr. Duckham intends publishing quarterly—viz., early in the months of October, January, April and July—a "Record of Hereford Transactions." It will be a companion work to "Eyton's Herd-Book of Hereford Cattle," and will contain Notices of Pure-bred Animals for Hire or Sale, amounts realised at former Sales, Name and Address of Purchasers, Notices of Exportations, together with other matter of interest to Breeders.
Auctioneers will find the "Record" a valuable Advertising Medium.
PERIODICAL SALES of HEREFORDS.
Mr. Duckham informs the Breeders and the Public generally that he purposes establishing PERIODICAL SALES by AUCTION, at Hereford, for the Disposal of Pure-bred HEREFORDS. The first of these Sales will take place in the Showyard of the Herefordshire Agricultural Society, on THURSDAY, October 21st next, being the day after the Show and Great Fair. Persons desirous of availing themselves of the advantages thus offered will oblige by giving an early intimation of the same, in order that the Pedigrees of their Animals may appear in the first number of the "Record of Hereford Transactions."
"EYTON'S HERD-BOOK of HEREFORD CATTLE."
Mr. Duckham embraces this opportunity of informing the Public that the Seventh Volume of the "Herd-Book" will be ready very shortly. Intending Subscribers, whose names are not already on the list, will oblige by sending him their names and addresses by an early post.
50, Broad Street, Hereford.

WANTED, a PARTNERSHIP in a well-established NURSERY or FRUIT-GROWING BUSINESS, where the Advertiser could take an active part in the Management. To anyone who, through age or other causes, is desirous of retiring in a short time, the Advertiser would be found a suitable person, as he would be willing to take to the whole upon becoming known to the customers. Capital, £700 to £800. Communications strictly confidential.—Address, D., B. S. Williams, Victoria Nurseries, Upper Holloway, London, N.

WANTED to RENT, IMMEDIATELY, on Lease, a few ACRES of good LAND for Horticultural purposes.
Apply by letter, stating terms, to K. W., Strontian Lodge, Cotham, Bristol.

TO BE DISPOSED OF, in the neighbourhood of Clapham Park, a GENERAL BUSINESS, with SEED TRADE attached, commanding two good thoroughfares, with good Garden. Side entrance. Rent low. A good opening for a Jobbing Business. Coming in low to a suitable person.
J. ROBINSON, 2, Hearn's Place, Lime Road, Clapham Park, S.

TO BE LET, a SIX-ROOMED COTTAGE, with an ORCHARD-HOUSE, 36 ft. by 13 ft., filled with Fruit Trees and Vines, the latter now bearing extraordinary crops; all are just coming into bearing order, having been under glass but 3 years. Situate within 3 minutes' walk of Lower Norwood Railway Station.
For particulars, apply to Mr. W. POLLARD, 1, Elm Cottages, High Street, Lower Norwood, Surrey, S.E.

To Market Gardeners.
TO BE LET, the GARDENS and PREMISES on the HUMBERSTONE ROAD, within one mile of the town of Leicester, late in the occupation of Mr. George Walker, comprising about 8 Acres. Possession may be had at Michaelmas.
For further particulars, inquire of Mr. W. H. MACAULAY, Solicitor, Market Street, Leicester; or of Mr. R. J. GOODACRE, Architect, Friar Lane, Leicester.

Sales by Auction.

Bulbs from Holland.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, September 13, at half-past 12 o'Clock precisely, first-class DUTCH BULBS, just arrived from Holland, in lots, to suit the Trade. On view the Morning of Sale, and Catalogues had.

Choice Imported Orchids.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, September 14, at half-past 12 o'Clock precisely, an importation from New Grenada, comprising many of the most choice and rare ORCHIDS of that country, including very fine plants of—

Cypripedium Schlimii	Odontoglossum nævium
Uropedium Lindeni	„ triumphans
Maxillaria venusta	„ hastilabium
Anguloa Clowesii	„ phalænopsis
Oncidium cucullatum	Ada aurantiaca

Also, from Brazil, very fine Plants of MILTONIA MORELLIANA, SPECTABILIS, and VIRGINALIS; and, from Borneo, fine Plants of PHALÆNOPSIS GRANDIFLORA.
On view the Morning of Sale, and Catalogues had.

Shropshire Sheep.
The NINTH GREAT CENTRAL SALE, at BINGLEY HALL, BIRMINGHAM.
MR. JOHN B. LYTHALL will SELL by AUCTION, on THURSDAY, September 16, at 11 o'Clock, 150 pure-bred SHROPSHIRE RAMS, and 500 EWES, from the noted Flocks of—

The Right Hon. Lord Sudeley	Mr. Nock (winner of numerous Prizes at R. A. S. and Birmingham Christmas Shows)
The Right Hon. Lord Willoughby de Broke	
Mrs. Beach (winner of many Prizes at the R. A. S. and elsewhere)	Mr. H. Smith (winner of numerous Prizes)
Mr. Glover [where)	Major Wollaston
Mr. Jenkins	Mr. W. Yates (winner of many Prizes at Birmingham Christmas Show and elsewhere)
Mr. King [Prizes)	
Mr. E. Lythall (winner of many	

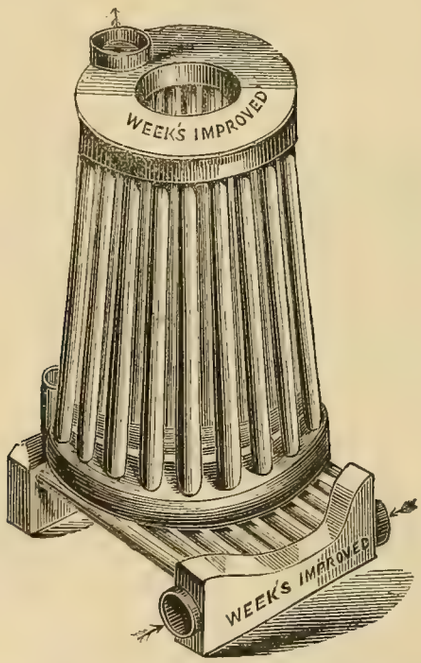
And others.
Auctioneer's Offices, 39, New Street, Birmingham.

Farnborough, near Banbury.
IMPORTANT SALE of SHORTHORNS.
MR. STRAFFORD has received instructions to announce for SALE BY AUCTION, without reserve, on TUESDAY, September 21 next, at Farnborough, near Banbury, about FIFTY HEAD of PURE BRED SHORTHORNED CATTLE, consisting of Bulls, Cows, and Heifers, the property of the Rev. C. W. Holbech, which have been bred from fashionable strains of blood. The sires lately used have been Medjid (18,379), Marquis of Darlington (24,557), and 11th Duke of Oxford (19,632); 16 of the lots are by the latter Bull. The Cows and Heifers are chiefly served by him, as well as by Lord Red Eyes 2d, and Earl of Cleveland from Colonel Kingscote's and Lord Penrhyn's famed Herds. The whole are in a healthy breeding state, and can be well recommended to the favourable notice of purchasers. Great attention has been paid to dairy qualities.
Catalogues and Pedigrees may be had on application to Mr. STRAFFORD, 13, Euston Square, London, S.W.; or of Mr. C. SIMMONS, Farnborough, near Banbury.

Important Annual Sale of Nursery Stock.
To NOBLEMEN, GENTLEMEN, NURSERYMEN, AND OTHERS.
MR. HENRY WALTERS has received instructions from Mr. B. Whitham, to offer for SALE by AUCTION, at his Nursery, Reddish, near Stockport, on WEDNESDAY and THURSDAY, September 29 and 30, at 11 o'Clock each day, a portion of his VALUABLE NURSERY STOCK, comprising about 10,000 Choice Hybrid Rhododendrons, well set with bud, 2 to 4 feet high, which have been raised from the very finest varieties in England; fine Azaleas, 1½ to 2½ feet high, well set with bud and bushy; Forest and Ornamental Trees and Shrubs of every variety. The above stock is well worthy the attention of intending planters, being in fine healthy condition, and possessing the great advantage of having been grown on a stiff clay subsoil, and in a cold climate. The plants have also been periodically transplanted to insure safe removal.
Catalogues and further information may be had post free on application to B. WHITHAM, the Nurseries, Reddish, near Stockport; Mr. GREEN, Falstaff Inn, Market Place, Manchester; and at the Auctioneer's Office, Blyth Bridge, Stafford.

TEN FACTS WORTH KNOWING.

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John Weeks & Comp.y

JOHN WEEKS AND CO.,

HORTICULTURAL BUILDERS AND HOT-WATER APPARATUS MANUFACTURERS,

KING'S ROAD, CHELSEA, S.W.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 38.—1869.] SATURDAY, SEPTEMBER 18. {Price Fivepence. {Stamped Edition, 6d.

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Post Office Orders payable to JAMES MATTHEWS, at the Post Office, King Street, Covent Garden, W.C.

SUTTONS' COLLECTIONS of FLOWER ROOTS, See page 987 of this day's *Gardeners' Chronicle*.

SUTTONS' COLLECTIONS for OPEN GROUND, 10s. 6d. to £2 2s. For particulars, see page 987 of this day's *Gardeners' Chronicle*.

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Gratis and Post Free.

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To the Trade.

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Centaurea candidissima (ragusina).

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Nurseries, Sale, near Manchester.

Hardy Fern Catalogue (No. 13).

J. IVERY AND SON will be pleased to forward their NEW PRICED LIST of the above upon receipt of two postage stamps. Dorking.—August 21.

British Fern Catalogue.

ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, Sidcup Hill, Kent.

EVERY GARDEN REQUISITE KEPT in STOCK at
CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

PARIS, 1867. | SUTTONS' GRASS SEEDS for ALL SOILS. A PREMIER PRIX SILVER MEDAL for GARDEN SEEDS, GRASSES, and GRASS SEEDS, was Awarded to SUTTON AND SONS, SEEDSMEN to the QUEEN, Reading, Berks.

Improvement of Grass-lands at from 4s. 6d. to 9s. per Acre.

SUTTONS' RENOVATING MIXTURE should be sown in September. 6 to 12 lb. per acre.
SUTTON AND SONS, Seed Growers, Reading.

The New Forage Grass, Bromus Schræderi,
SHOULD BE SOWN IN SEPTEMBER.

SUTTON AND SONS can supply fresh SEED of the above, to produce several cuttings next year. 40lb. required per acre. Lowest price per cwt. on application.
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NEW RAPE SEED.—Samples and quotations of the above forwarded post free on application to
CHARLES SHARPE AND CO., Seed Merchants, Sleaford.

New English Sowing Rape Seed.

H. AND F. SHARPE have fine Samples of NEW RAPE SEED, which they can offer to the Trade at low figures. Price and samples on application.
Seed Growing Establishment, Wisbech.

Seed Potatos.

H. AND F. SHARPE'S WHOLESALE LIST of all the new and best varieties of Early and Late POTATOS is now ready, and may be had on application. The quality is very fine, and prices low.
Seed Growing Establishment, Wisbech.

VARIEGATED PELARGONIUMS.

Lucy Grieve	Mrs. John Todd
Louisa Smith	Caroline Louchfield
Sophia Cusack	Duke of Edinburgh
Spanish Beauty	Her Majesty
E. G. Henderson	Kentish Hero

The 12, in strong plants, for 21s., package included. Remittances requested from unknown correspondents.

ALFRED FEYER, Nurseries, Chatteris, Cambridgeshire.

New Hybrid Pelargoniums, Willsii and Willsii rosea.

Undoubtedly the finest Novelties of the season.
Numerous Certificates and First Prizes have been awarded.

J. W. WIMSETT has much pleasure in announcing that the above splendid Novelties are now ready for sending out.
WILLSII, strong plants, 1 guinea each.
WILLSII ROSEA, strong plants, 1 guinea each.
In order to place the above splendid Novelties within the reach of everyone, and having now worked up a large stock of them, J. W. W. has determined on offering them at the above reduced prices.

"Culford Hall, Bury St. Edmund's, June 9, 1869.

"To Mr. Wills.

"DEAR SIR,—I was much disappointed at not seeing you at the Pelargonium Show on the 22d. I, however, saw your beautiful hybrid Pelargonium Willsii rosea, which ought to carry your name down to posterity. It is really a very great triumph. If you had never done anything else in the cause of Flora with the exception of effecting this cross, you would have done much more than your share; but you have done much more than this for the Floricultural Public, who are very much indebted to you.—I am, dear Sir, yours very truly, "P. GREIVE."

DIPLADENIA AMŒNA.

J. W. W. begs to announce that he has also reduced the price of this beautiful plant, and can now supply strong plants at 7s. 6d. and 10s. 6d.; extra strong, at 21s. and 31s. 6d.

DUTCH FLOWER ROOTS.

J. W. WIMSETT'S Consignment of Dutch Flower Roots are this season unusually fine. They can now be supplied in large or small quantities.

Ashburnham Park Nursery, King's Road, Chelsea, S.W.
J. WILLS, F.R.H.S., Manager.

H. CANNELL'S AUTUMN CATALOGUE is now ready, and will be sent free for One Stamp. It contains a full description, with lowest prices consistent with quality and economy, of all the best new and most distinct varieties of PELARGONIUMS (both of Tricolors and Bicolors, Doubles and Zonals), FUCHSIAS, VERBENAS, PETUNIAS, COLEUS, CHRYSANTHEMUMS, HELIOTROPES, VERONICAS, LOBELIAS, VIOLAS, and all the popular Bedding Plants of the Season. Also, the names and lowest price of all the best older varieties in cultivation. For further particulars see Catalogue.

To Raisers of Geraniums.

H. CANNELL begs to inform all lovers of GERANIUMS that he has a small quantity of Seed of the very best Hybridised Zonals in cultivation, at 2s. per packet. It is picked with great pains from all the best new kinds of the present season, including T. Moore, Acme, Lord Stanley, Sir R. Napier, Our Future King, Meteor, &c.; the two latter certainly are the finest varieties ever sent out, and as every bloom is carefully attended to daily, H. C. is convinced that some grand new Varieties will be the result from the Seed.

GOLDEN FEATHER.—As this plant has thoroughly proved itself to be the greatest bedding acquisition that has been sent out for many years, H. CANNELL begs to remind all lovers of the garden that now is the best time to sow.
It comes perfectly true from seed; such seedling plants stood all last season, and were the admiration of all throughout the winter and spring, and equally as effective for Conservatory decoration.
300 New Seeds free for 13 stamps.
New Florists' Flower and Florists' Flower Seed Merchant, Woolwich.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY (Limited),
CORN, SEED, MANURE, and OILCAKE MERCHANTS.
Address, 26, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Early Sandringham Kidney Potato.

H. AND F. SHARPE are prepared to execute wholesale Orders for the above, which is the most prolific First Early POTATO grown. Being short in the Haulm, it is more suitable for Forcing than any other variety. Prices and further particulars on application.
Seed Growing Establishment, Wisbech.

Seeds Direct from the Growers, the most Effectual Means of Preventing Disappointment.

SUTTON AND SONS, SEED GROWERS, deliver their Home-grown Seeds, Genuine as Harvested, to all parts of the kingdom. Carriage free (except very small parcels).—Prices and full particulars on application.
SUTTON AND SONS, Seed Growers, Reading.

Early Feed for Sheep and Cattle,
BY SOWING IMMEDIATELY
SUTTONS' SPECIAL MIXTURE of rapid-growing GRASSES and CLOVERS. 2 bushels per acre; price 10s. per bushel.
SUTTON AND SONS, Seedsmen to the Queen, Reading.

GENUINE TOBACCO PAPER, of the finest quality, 10d. per lb., or 84s. per cwt.
WILLIAM RUSHFORTH, Nurseryman and Seed Merchant, Leeds.

The Cheapest and Best Insecticide.
DUTY-FREE TOBACCO.
BY HER MAJESTY'S ROYAL LETTERS PATENT, AND BY PERMISSION OF THE HON. BOARD OF CUSTOMS.

POOLEY'S TOBACCO POWDER, for the Prevention and Destruction of Blight and other Diseases in Plants.
Sold by Nurserymen, Seedsmen, and Florists,
In Tins at 1s., 2s. 6d., and 5s.
Powder Distributors, 2s. 6d. and 3s. 6d. each.
"I find it exceedingly useful for killing the Aphides on Roses and other Plants."—JAMES EALES, Superintendent, Royal Horticultural Gardens, South Kensington. May 7, 1866.
Sole Manufacturer, T. A. POOLEY, Bonded Warehouse, Sussex Wharf, Wapping, E.



GISHURST COMPOUND.

Used by many of the leading Gardeners since 1860, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1s., 2s., and 10s. 6d.

Wholesale by
PRICE'S PATENT CANDLE COMPANY (Limited),
Battersea, London, S.W.

MASTIC L'HOMME LEFORT (the new French Cold Grafting Wax), indispensable for Budding, Grafting, Healing, Stopping, Bleeding, &c. In tins, 6d., 1s., 2s., 4s., and 6s., of all Seedsmen, and
HOOPER AND CO., Covent Garden Market, London, W.C.

TRICOLOR and other GERANIUMS.—Very strong plants of the following Geraniums, struck in the open ground, can be safely sent packed in Moss:—

Victor, 1s. 6d. each.	Lady Cullum, 9s. per dozen.
Andrew Henderson, 12s. p. doz., or 1s. 3d. each.	Mdme. Rose Charmeux, or double Tom Thumb, 6s. per dozen, or 42s. per 100.
Masterpiece, 1s. each.	Mdme. Lemoine, 8s. per dozen.
John Hopper, 1s. each.	Lord Derby, 4s. per dozen.
Lizzie, 1s. each.	Crystal Palace Gem, 3s. per doz.
Mrs. Pollock, £1 per 100.	Bronze Shield, 3s. per dozen.
Sophia Dumaresque, 30s. per 100.	Mrs. Charles Barry, 3s. per doz.
Louisa Smith, 9s. per dozen.	Vandyke, 3s. per dozen.
Glen Eyre Beauty, 9s. per dozen.	

A remittance requested from unknown correspondents.
JOHN SCOTT, Nurseryman and Florist, Bathford and Batheaston, near Bath.

Hoteia Japonica.

BURGESS AND KENT can supply, by the 100 or 1000, splendid masses of this lovely plant, specially grown for forcing for the Decoration of the Greenhouse or Conservatory. They will be found to flower stronger and finer than imported clumps. 12s. per dozen, 75s. per 100. Fine plants of DIELYTRA SPECTABILIS, for forcing, 9s. per dozen; 60s. per 100.
BURGESS AND KENT, Penkhull Nurseries, Stoke-upon-Trent.

Choice Seeds for Present Sowing.

B. S. WILLIAMS can with confidence offer the following, as being the finest in cultivation:—

PRIMULA (Williams' superb strain), red, white, or mixed,	Per pkt. s. d.
2s. 6d., 3s. 6d., and	5 0
CALCEOLARIA (Noill's extra choice strain), 2s. 6d., 3s. 6d., and	5 0
CINERARIA (Weatherill's choice strain) 2s. 6d., 3s. 6d., and	5 0
CYCLAMEN (Wiggins' prize strain) 1s. 6d., 2s. 6d., and	3 6
ECHEVERIA METALLICA	2 6
HOLLYHOCK, from the finest varieties	1 0
PANSY, from prize flowers	1 0
,, finest Belgian varieties	1 0
POLYANTHUS (Wiggins' prize strain) .. .. 1s. and	1 6
STOCK, EAST LOTHIAN, 3 colours separate	2 6
VIOLA LUTEA (yellow flowered Violet) .. .. 1s. and	1 6
WALLFLOWER (Saunders' fine dark variety)	1 0

*** All the above are in sealed packets. None genuine unless they bear B. S. WILLIAMS' name and address.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

Primula sinensis.

WINDEBANK AND KINGSBURY'S STRAIN.—"By far the most varied and interesting set which has come under our notice."—EDITOR *Gardeners' Chronicle*, Jan. 30, 1869.
"Our best lot are from WINDEBANK & KINGSBURY'S strain."—EDITOR *Gardeners' Magazine*.
Strong plants now ready, in 12 varieties, 6s. per dozen, package included. Bevois Valley Nursery, Southampton.

Primulas, Fuchsias, Vines.

PRIMULA.—New SEED, from the choicest strains in cultivation. Red, Purple, White, and Striped, now offered to the Trade, in liberal Trade packets, mixed, 7s. 6d. and 10s. 6d. Retail, 2s. 6d. and 3s. 6d. per packet. Fine PLANTS, 6s. per dozen.
Strong Plants of our four New FUCHSIAS, with plenty of Cuttings on, 2s. 6d. each. These are four of the best yet sent out for Market or Exhibition.
A large collection of choice VINES for fruiting and planting.
DESCRIPTIVE LISTS and prices on application to FELTON AND SONS, Birmingham Nursery, Harborne Road, Birmingham.

Standard Roses.

LEWIS WOODTHORPE having a most splendid collection this year, begs to offer them at the following low rates, with good heads, clean stems, and true to name:—
STANDARD ROSES, the best sorts, including Maréchal Niel, &c., £5 per 100; 27s. 6d. per 25; 16s. per dozen.
CATALOGUES free. Wholesale prices upon application.
Munro Nursery, Sible Hedingham, Essex.

Dwarf and Standard Roses.

FRANCIS & ARTHUR DICKSON & SONS have an immense stock (many thousands) of very strong well-grown plants of all the best ROSES, including ALL THE NEW VARIETIES, for Autumn planting; also a large quantity of STRONG PLANTS, in POTS, of the best sorts, which can be planted out at ONCE. PRICED DESCRIPTIVE CATALOGUE sent free by post. Inspection respectfully invited.
The "Upton" Nurseries, Chester.

Roses, New Roses, Gladioli.

LEVEQUE ET FILS, NURSERYMEN, 132 and 134, Boulevard de l'Hôpital, Paris, have a very large stock of strong ROSES, Standards, Half-Standards, Dwarfs, and on their Own Roots, including all the best sorts and novelties.
NEW ROSES FOR THIS YEAR.—They can supply all these, with a large discount.
GLADIOLI SEEDLINGS (first-rate), per thousand, and all the best sorts by name. LISTS and prices sent free on pre-paid application.

McLAREN'S PROLIFIC RASPBERRY.

JAMES CARTER & CO.,

THE ROYAL SEEDSMEN,

BEG TO CALL ATTENTION TO THIS VALUABLE ACQUISITION, NOW BEING DISTRIBUTED AT THE FOLLOWING PRICES:—

6 Strong Canes	... 7s. 6d.	25 Strong Canes	... 20s. 0d.
12 ,, ,,	... 12 0	100 ,, ,,	... 60 0

Awarded a First-class Certificate.

McLAREN'S PROLIFIC RASPBERRY.

DESCRIPTION.

A SEEDLING raised by Mr. McLaren, of Ash, Surrey. A red Raspberry, of immense size, fully twice the size and a fortnight earlier than Carter's Prolific, is a most prolific bearer throughout the season. As a criterion of its excellence, we may mention that the raiser has been selling the fruit at Aldershot wholesale at 8d. per gallon more than any other sort. It was exhibited before the Fruit Committee of the Royal Horticultural Society on August 17th last, who awarded it a First-class Certificate, and spoke of it as follows:—

"The variety is remarkable for the size of the berries, vigour in growth, and fertility; the flavour, however, was not particularly good, which perhaps was due to the season, which has not been a good one for bush fruits in general."

In reference to the remarks of the Fruit Committee as to the want of flavour, we think it proper to state that the fruit exhibited was of second growth, and not fully ripened. The raiser guarantees to us that it is of a splendid flavour, and from the immense size of the fruit we can confidently recommend it as a sort likely to give general satisfaction.



Now being distributed by JAMES CARTER & CO.

JAMES CARTER AND CO., 237 AND 238, HIGH HOLBORN, LONDON, W.C.

ECONOMY IN THE GARDEN.

CARTER'S

COLLECTIONS OF

HYACINTHS, CROCUS, TULIPS, &c.,

TO PRODUCE A

PRETTY AND PERMANENT DISPLAY

DURING THE WINTER,

IN DRAWING-ROOM, CONSERVATORY, AND GARDEN.

JAMES CARTER AND CO. strongly recommend the following COLLECTIONS, assorted from the most popular varieties:—

No. 1.—COMPLETE COLLECTION for WINDOW or CONSERVATORY DECORATION £1 4 0

CONTAINING:

Hyacinths, 50 in 25 extra fine named sorts
Polyanthus Narcissus, 36 in 12 named varieties
Jonquils, Sweet-scented, 50
Crocus, finest, named, 200
Tulips, extra fine, named, Double, 50
" " Single, 50
Cyclamen persicum, 4
Dielytra spectabilis, 4
Lilium speciosum, in variety, 4
Scilla sibirica, 36
Snowdrops, extra large, selected, 100

No. 2.—COMPLETE COLLECTION, reduced quantities £3 3 0

No. 3.—COMPLETE COLLECTION, reduced quantities £2 2 0

No. 4.—COMPLETE COLLECTION, reduced quantities £1 1 0

No. 5.—COMPLETE COLLECTION for CONSERVATORY and OUTDOOR PLANTING £4 4 0

CONTAINING:

Hyacinths, 36 in 18 extra fine named sorts, for pots or glasses
" 36 in 3 colours, for bedding
Narcissus, Double, White, 50
" Poeticus or Pheasant-eye, 50
Double Daffodils, 50
Tulips, very fine, named, 50
" extra fine mixed Double, 50
" " Single, 50
Crocus, Blue, 200
" Striped, 200
" Large Yellow, 200
" White, 200
Anemones, extra fine mixed, 100
Gladiolus Brenchleyensis, 24
Iris, extra choice mixed English, 50
" extra fine mixed Spanish, 50
Jonquils, Campernel, 50
Ranunculus, extra fine mixed, 100
Snowdrops, 150

No. 6.—COMPLETE COLLECTION, reduced quantities £3 3 0

No. 7.—COMPLETE COLLECTION, reduced quantities £2 2 0

No. 8.—COMPLETE COLLECTION, reduced quantities £1 10 0

No. 9.—COMPLETE COLLECTION, reduced quantities £0 15 0

No. 10.—COMPLETE COLLECTION for OUTDOOR PLANTING £4 4 0

CONTAINING:

Hyacinths, 75 in 3 colours
Narcissus, Double, White, 50
" Poeticus or Pheasant-eye, 50
Double Daffodils, 50
Tulips, extra fine mixed, Double, 75
" " Single, 75
Crocus, Blue, 200
" Striped, 200
" Large Yellow, 200
" White, 200
Anemones, extra fine mixed, 100
Gladiolus Brenchleyensis, 24
Iris, extra choice mixed English, 50
" extra fine mixed Spanish, 50
Lilium candidum, 6
" aurantiacum, 6
" martagon rubrum, 6
" tigrinum, 6
Ranunculus, extra fine mixed, 100
Snowdrops, 400
Winter Aconites, 100

No. 11.—COMPLETE COLLECTION, reduced quantities £3 3 0

No. 12.—COMPLETE COLLECTION, reduced quantities £2 2 0

No. 13.—COMPLETE COLLECTION, reduced quantities £1 1 0

☞ *No charge for packing any of above Collections.*

For the fullest information to ensure successful cultivation and particulars of the above Assortments, send for

CARTER'S

ILLUSTRATED LIST of BULBS, &c.,

Forwarded Gratis and Post Free.

JAMES CARTER AND CO.,

THE ROYAL SEEDSMEN,

237 AND 238, HIGH HOLBORN, LONDON, W.C.



SUTTONS'

IMPORTED FLOWER ROOTS



SUTTON & SONS,

SEEDSMEN TO THE QUEEN,

READING, BERKS,

having received their FIRST CONSIGNMENT of

CHOICEST DUTCH FLOWER ROOTS,

Selected by themselves from the leading Growers in Holland, are now prepared to receive orders for their COMPLETE COLLECTIONS for WINTER and SPRING BLOOMING, either for indoor or outdoor cultivation.

Suttons' £2 2s. Collection of Flower Roots,

For OPEN GROUND, Carriage Free, contains—

24 fine mixed Border Hyacinths
12 " Polyanthus Narcissus
25 Pheasants' Eye Narcissus
25 Double White Narcissus
50 Double Daffodils
12 large Campernelle Jonquils
100 fine mixed Double Ranunculus
100 Scarlet Turban Ranunculus
25 fine mixed Double Anemones
25 " Single Anemones
300 Crocus, in 6 sorts
100 Snowdrops
50 Winter Aconites
12 fine mixed Gladiolus
25 Duc Van Thol Tulips
12 mixed Single Early Tulips
12 fine mixed Double Tulips
12 " Parrot Tulips
12 Gesneriana Tulips
50 fine mixed Tulips
12 " English Iris
12 " Spanish Iris
6 Lilies, of sorts
6 Ferraria pavonia
12 Dog's Tooth Violets
6 Crown Imperials

Suttons' £1 1s. Collection of Flower Roots,

For OPEN GROUND, Carriage Free, contains—

12 fine mixed Border Hyacinths
6 " Polyanthus Narcissus
12 Pheasant's Eye Narcissus
12 Double White Narcissus
25 Double Daffodils
6 large Campernelle Jonquils
50 fine mixed Double Ranunculus
50 Scarlet Turban Ranunculus
12 fine mixed Double Anemones
12 " Single Anemones
150 Crocus, 3 sorts
50 Snowdrops
25 Winter Aconites
6 fine mixed Gladiolus
12 Duc Van Thol Tulips
6 mixed Single Early Tulips
6 fine mixed Double Tulips
6 " Parrot Tulips
6 Gesneriana Tulips
25 fine mixed Tulips
6 " English Iris
6 " Spanish Iris
3 Lilies, of sorts
3 Ferraria pavonia
6 Dog's-Tooth Violets
3 Crown Imperials

Suttons' 10s. 6d. Collection of Flower Roots,

For OPEN GROUND, contains a choice assortment for a Small Garden.

Suttons' £2 2s. Collection of Flower Roots,

For POTS or GLASSES, Carriage Free, contains—

24 fine Hyacinths, by name
12 fine Miniature Hyacinths, do.
12 Polyanthus Narcissus, do.
12 large Double Jonquils
12 Single Sweet-scented Jonquils
12 Scilla præcox
12 Single Duc Van Thol Tulips
12 Double Tournesol Tulips
50 Early Tulips, 10 sorts
6 Persian Iris
6 Peacock Iris
100 Crocus, by name
12 choice Ixias, by name
6 choice Sparaxis, by name
1 Cyclamen persicum
1 Jacobea Lily
2 Lilium lancifolium album
2 " " rubrum

Suttons' £1 1s. Collection of Flower Roots,

For POTS or GLASSES, Carriage Free, contains—

12 fine Hyacinths, by name
6 Miniature Hyacinths, by name
6 Polyanthus Narcissus, do.
6 Large Double Jonquils
6 Single Sweet Jonquils
6 Scilla præcox
6 Single Duc Van Thol Tulips
6 Double Tournesol Tulips
25 Early Tulips, 5 sorts
3 Persian Iris
3 Peacock Iris
50 fine Crocus, by name
6 choice Ixias
3 choice Sparaxis
3 choice Oxalis
1 Jacobea Lily
1 Lilium lancifolium album
1 " " rubrum

Suttons' 10s. 6d. Collection of Flower Roots,

For POTS or GLASSES, contains a choice assortment of most useful and showy kinds.

The best 12 Hyacinths, by Name, for 12s.,

Extra fine Double and Single varieties.

For further particulars, with complete Cultural Instructions, see

SUTTONS'

AUTUMN CATALOGUE FOR 1869,

Gratis and Post Free on application.

FLOWER ROOTS and SEEDS CARRIAGE FREE, except very small parcels.

☞ *Five per cent. allowed for cash payments.*

SUTTON AND SONS,

ROYAL BERKS SEED ESTABLISHMENT,

READING.

To the Trade.

MRS. PINCE'S MUSCAT VINE, Planting Canes, 6 feet, 12s. per doz.
CLEMATIS STANDISHII, very strong, in pots, 7½s. per 100.
H. P. ROSES, in pots, good sorts, our own selection, 50s. per 100.
ROSES, New, of this season, in pots, 18s. per doz.
HEDERA MACULATA and H. MACULATA LATIFOLIA, extra strong, in pots, 10s. per 100.
CATALOGUES of General Nursery Stuff on application to
G. BAKER AND SON, American Nursery, Bagshot, Surrey.

Grape, Mrs. Pince's Black Muscat.

JOSEPH ARDILLEW, having exhibited the above splendid variety of Grape most successfully in Hamburgh and Edinburgh, begs to announce that he has still some splendid bunches hanging in great perfection, also the finest stock in the kingdom of the above in Fruiting and Planting Canes, as well as every other variety worthy of cultivation.
The Vineyard, Garston, near Liverpool.

CHOICE NEW PLANTS,
in single pots, well established.
NEW FUCHSIAS of 1869, 12 of the best and most distinct, 9s. & 12s. per dozen.
NEW CHRYSANTHEMUMS of 1869, 12 of the best and most distinct, 9s. per dozen; 24 do. do. do., 7s. 6d. per dozen.
NEW COLEUS of 1869, 12 of the best and most distinct, 6s. per doz.
" Beauty of Wilmore, 1s. 6d. each.
NEW GERANIUMS, 6 of the most beautiful of the season, all received Certificates, 1s. 6d. each.
DOUBLE GERANIUM, Maurice Lemoine, 9s. per dozen.
NEW DOUBLE GERANIUM, Victor, 30s. per dozen.
NEW HELIOTROPES of 1869, 6 of the most distinct, 1s. each.
NEW LOBELIAS of 1869, 6 of the most distinct, 1s. each.
NEW VERBENAS of 1869, 12 of the best and most distinct, 4s. p. doz.
NEW ALTERNANTHERA MAGNIFICA, most beautiful, 1s. each.
NEW GOLDEN GRASS, Alopecurus pratensis aureo-variegatus, 2s. 6d. each.
NEW HOLCUS, Lanatus albo-variegatus, 2s. 6d. each.
NEW IRESINE, Acuminata, 1s. 6d. each.
" Lindeni, 1s. 6d. each.
NEW MYOSOTIS DISSITIFLORA, true, 6s. per dozen.
Post-office orders on Castle Hedingham.
For above and CATALOGUE of Bulbs, Roses, Primroses, Violets, Polyanthus, and other Hardy Herbaceous and Alpine Plants, &c., apply to
WILLIAM DILLISTONE, Nurseryman, Sible Hedingham, Essex.

The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 18, 1869.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, Sept. 21 { Royal Horticultural (Fruit and Floral Committees), at South Kensington .. 11 A.M.
{ Ditto (General Meeting) .. .. .. 3 P.M.

THE records that we have from time to time published of the proceedings of the SCIENTIFIC COMMITTEE of the Royal Horticultural Society have sufficiently shown that the Committee was not idle during its last session. Of its experiments at Chiswick we have still to get an account, and the results of some of them will no doubt appear in due time in the Society's Journal, but for others we must wait a longer time, inasmuch as they are continued on into another season. Physiological experiments that are to be worth anything cannot be rattled off in a few weeks. They are of the kind that requires long-continued and laborious attention.

We cannot say, therefore, that we are surprised or disappointed at no results having been yet obtained in some of the most interesting of the Society's experiments. We shall have them in good time, and they will be all the more valuable and trustworthy that the Committee are cautious in their proceedings, and insist on eliminating every known source of error before they come to their conclusions. We are led to these remarks by the postponement of the report of the Sub-Committee on the effect of different manures on the growth of plants. We have watched the experiments of this Committee with interest, and anticipate some very interesting conclusions from their labours, but we quite agree with the Committee that the experiment requires to be repeated in another manner before any satisfactory report can be made. The soil in which the experiments were tried appears to have been naturally too rich, the seeds too thickly sown, and the result, in those plots which have thriven, a matted mass of luxuriant vegetation, too crowded to allow any minute discrimination of differences in amount of produce. In another year this will be remedied by using poorer soil, only sowing a definite counted number of seeds, and leaving them plenty of space in which to grow.

Of course the above remark does not apply to those plants which have not thriven. We have the information plain enough there that the manure that has been applied to them has been either inoperative or injurious; and we believe we can draw one very important inference from these, which we may note without anticipating the results of the operations of the Committee—at any rate, more than we are entitled to do, having seen similar results arrived at elsewhere. It is, that the mineral manures alone are apparently wholly inert, and exercise no perceptible influence upon vegetation. The experiments made by Mr. LAWES and Dr. GILBERT at Rothamsted have, we believe, induced those gentlemen to come to the same conclusion—at all events, as regards the direct effect of these manures. We understand, indeed, that it is an open question with them whether, although mineral manures have no direct effect,

they may not have some indirect effect when mixed with other manures by stimulating their action. This is one of the points under the consideration of the Scientific Committee, and we have no wish to prejudge it, but we think it is a most important step to have gained, to have ascertained by actual experiment that purely mineral manures are incapable of being assimilated by organic bodies.

This is quite in accordance with everything else we know of the relations between organic and inorganic bodies. Our readers, although beyond the radius of the hurricane, must have heard the sough of the tempest that has been going on in the Academy of Sciences of Paris, on the subject of spontaneous generation, between Messrs. POUCHET and PASTEUR and their respective partisans. Many people regard that question as the battle-ground of materialism and immaterialism—of secondary laws and direct creative interference; but it does not strike us in that light. The experiments of the advocates of spontaneous generation all go to prove that their kind of spontaneous generation can only be got out of organic substances. Some one, we forget who, maintains that he did on some rare occasion succeed in obtaining some animalcules out of a silicious solution, but this is not generally accepted. It is believed to have been due to insufficient precautions to keep out all organic germs from the materials experimented with, and, like Mr. CROSS's Acarus horridus, to have been a blunder. As far as reliable facts and experiments have hitherto gone, no animalcule has ever yet been produced from anything absolutely free from organic matter. Therefore, with the advocates of that kind of spontaneous generation, if all their propositions were conceded to them, it would still not be a question of materialism but of mode of development. We do not know enough of development to say that "Omne vivum ex ovo" is an axiom suffering no exception. What the materialist wants is something different; he can trace the course of our earth from the time it was still a gaseous homogeneous part of the sun, when its dimensions stretched beyond the orbit of Neptune, down to the time when life first appeared upon its surface, and requires no other but the known and recognised laws of Nature to account for everything; and he can take it up at the present date and trace the progress of life and all other terrestrial phenomena backwards until he comes again to the origin of life, and account for all in the same way; but at the first appearance of life he is stopped on both routes by a gap. The whole course of the history of our globe from its origin until now is an unbroken easy sequence of events flowing from the natural operation of secondary laws, except alone the origin of life; and his plea is that it is not natural that this should be an exception, but that life, too, must have flowed from the operation of these very laws, probably under conditions of the earth (with regard to temperature, for example) which no longer exist. That these conditions no longer exist—if they ever did exist—seems alike proved by the experiments both of panspermists and heterogenists (as the opponents and advocates of spontaneous generation are respectively called), and by the experiments of Messrs. LAWES and GILBERT, and the Scientific Committee.

The logical deductions from these carry us much further than the mere fact that it is probably a useless expense for the agriculturist to manure his land with mineral manures. The fact rebounds from the vegetable kingdom to the animal kingdom. If vegetable organisms cannot assimilate mineral products, neither probably can animal. Here is scope for a revision of many of the most accepted medical remedies, or at least for a reconsideration of the *rationale* of their action upon the system. Why should we take iron to strengthen our system if it refuses to enter it? Is arsenic no alterative, and do it and mercury never pass into the blood? How do they get to the liver, where they unquestionably have been found, if they do not? Are all these remedies merely irritant poisons, which only cure on the principle of counter-irritation? These, and many other curious collateral inquiries are involved in the very suggestive experiments of the Scientific Committee, and we look forward with interest to their future evolution.

WE have always been the staunch advocates of INTERNATIONAL HORTICULTURAL EXHIBITIONS. Every argument that can be applied in support of exhibitions of a more restricted character applies with increased force to these international displays. We have at all times cordially and gratefully acknowledged the courtesy and hospitality which have been paid to our countrymen who, as jurors, exhibitors, or visitors, have attended these *réunions*; and when, in 1866, the opportunity occurred to us to do somewhat to reciprocate the kindness and good feeling manifested towards us by our Continental brethren, we did all that lay in our power to make our "International" pleasant in all ways to our foreign guests. We advert to these matters now to show that we are not influenced by any unworthy feeling, or by any petty jealousy of our neighbours, when we draw the attention of the managers to the system of judging, and to the occasional grossly unfair character of the awards made at Continental flower shows. Britons in general are notorious for grumbling, and British exhibitors, when they do not get the prize they think themselves entitled to, are sometimes wont to murmur. Nevertheless, however much wounded vanity may smart, we seldom, if ever, hear of any well-founded complaint of want of fairness or competency on the part of the judges in this country. In by far the majority of cases the verdict is accepted as correct, and even where doubts are expressed as to this point, the integrity and competency of the judges are never seriously questioned.

But in the case of the large Continental exhibitions, where our countrymen enter the lists, the case is very different. From Paris, from St. Petersburgh, from Hamburgh, we have heard the same story of incompetent judging. In the case of the last-mentioned display the complaints have been especially noticeable. They have been made, too, not by exhibitors, but by bystanders, and by persons not in any way commercially interested in the matter. Some of the cases are so gross, that we think it will be the duty of the authorities on any future occasion to say precisely upon what principles the judging is to be done. Can it be that the jurors are directed to award the prize to the worst objects in competition? Can it be that it is all arranged beforehand who is to get certain prizes, and that the jurors act accordingly? Can it be that the jurors surrender their individual judgments to that of one of their number who acts as fugleman for the rest? Can it be that they have no knowledge of what they are called on to judge? Can the different results be the consequences of the different social system under which we and they live? Here we dispense so far as possible with Government aid and supervision; there private enterprise is as nothing compared with bureaucratic supervision.

Whatever be the cause, there is an evil which needs a remedy, and we trust that whenever another International Exhibition may be held, the principles on whch the judging is to be effected will be made public beforehand, so that exhibitors from this country, not conversant with Continental customs, may know what to expect. If our friends like to call black white well and good, we have no objection, but let them give us notice beforehand, and by all means let us have a fair field: we want no favour.

—— ONCE more the NATURE of the FEMALE FLOWERS of Conifers is the subject of discussion. M. GUSTAV SPERK, in the "Memoirs of the Imperial Academy of Sciences of St. Petersburg," vol. xiii., 1869, has recently published a paper on the theory of Gymnospermy in plants, in which, after an historical introduction and copious references to the labours of his predecessors, he gives the results of his own investigations into the development of the flowers in Conifers and their allies. From these data he draws the following conclusions:—

"From the corroborative results of the researches of several able observers, as well as my own investigations, it appears that the so-called ovule of Gymnosperms is not a true ovule, but an ovary. The development of the ovule of the so-called Gymnosperms corresponds entirely with the growth of the ovary, and not with that of other Phanerogams. The supposed coat of the ovule is formed, contrary to what is the case with a true ovule-coat, before the embryo [nucleus?]; consequently, it proceeds from the receptacle of the flower, and not from the nucleus, which is the case with all true ovule-coats[?] It is formed of separate carpellary leaves, which sooner or later grow out, an occurrence unknown amongst ovule or seed-coats. The so-called ovule-coat of Gymnosperms develops itself independently of the embryo [nucleus?], remains long separated from it, does not closely encircle it, and sometimes there is even a considerable empty space between them, all of which is opposed to the ordinary development of an ovule-coat, but is normal for an ovary-wall. The simple structure of the ovary in Gymnosperms (which, however, is not so simple as some believe) is no reason for considering it an ovule-coat, but rather an ovary, because this structure is amply explained by the economy of Nature, and because it harmonises better with the more simple organisation of the other parts of Gymnosperms. The anatomical structure of the presumed testa is too complicated for such an organ; and if we call the ovary of Gymnosperms an ovule, and consequently the fruit a seed, and the pericarp a testa, we admit an exception in Gymnosperms without parallel in the vegetable kingdom; for so high an organisation does not occur even amongst the most highly developed Phanerogams. The formation of a style and stigma, which are seen in some Coniferæ, can only arise from an ovary, never from an ovule. Different abnormal formations indicate the leaf-structure of the ovary. Thus, when two ovaries grow together, there is a suture on one side and two ovules at the base. The structure, formation, and development of Gymnosperms are repeated in the Loranthaceæ, Amentaceæ, and other families. R. Brown's opinion that the scale surrounding the flower of Gymnosperms must be considered as a carpellary leaf, is refuted by all my observations and comparative investigations."

—— Every botanist knows that some thin-walled cells become thick in course of time by deposition of new matter, but it is a novelty to hear of THICK-WALLED CELLS becoming THIN according to the season. Nevertheless, such is stated to be the case in Panicum vaginatum, by M. DUVAL JOUVE. We cannot dispute M. DUVAL JOUVE'S assertions, but we should suppose that the thickening is due, in this case, to a swelling of the inner lining of the cell, and subsequent contraction, not to the formation of new matter and to its subsequent disappearance.

—— It is pretty generally believed in this country that the pulpy portion of the FRUIT of the YEW (Taxus) is harmless, while the kernel or seed is poisonous. This is a point on which, strange to say, there has been much diversity of opinion. M. CLOS, the learned Professor of Toulouse, has recently gone into the subject, and has given the results of his labours in the Bulletin of the Botanical Society of France. M. CLOS decides that the Yew berries (including the kernels) are perfectly harmless.

—— In the grounds of the Crystal Palace, a fine SPAR of ABIES DOUGLASII (135 feet above the ground) has been erected as a flagstaff adjoining the Tropical Department on the road-front of the Palace; a flag was hoisted upon it for the first time on Wednesday the 8th inst., the "stars and stripes" being appropriately so honoured. The mast was presented to the Company by the late Governor of British Columbia, Frederick Seymour, Esq., through W. H. Crace, Esq., representative of the British Columbia Spar Company.

—— We learn with pleasure that Mr. M. C. COOKE is engaged in the preparation of a HANDBOOK of BRITISH FUNGI, which will contain figures illustrating the principal genera, and references to those of the species. Intending subscribers should communicate with Mr. M. C. COOKE, 2, Junction Villas, Upper Holloway, London. The subscription price is half-a-guinea.

—— At the meeting of the ROYAL HORTICULTURAL SOCIETY on Tuesday next (Sept. 21), two prizes are offered for competition by H. G. BOHN, Esq., F.R.S., for "Peaches grown on standards out-of-doors, not less than eight fruits." We are also informed that Mr. ROBERT FENN, of Woodstock, intends to exhibit his graft hybrid, seedling, and other Potatos at the same meeting; so that those who are interested in the grafting experiment with the noble tuber will have the opportunity of judging for themselves of its practicability.

New Plants.

ORNITHOCEPHALUS OBERONIA, *sp. n.*

Foliis ensatis acutis, racemo elongato densifloro, rhachi hispida; bracteis triangulis ciliato-denticulatis, 3—5 nerviis; floribus parvis; ovariis pedicellatis hispidis; sepalis ovatis dorso carinatis, serratis, extus hispidis (aurantiacis); petalis obovatis apice minute crenulatis; labello basi tumido subquadrato, cornu utrinque exeunte divaricato, apice inflexo semilunato, lamina lineari-complicata acuta; columna sigmoidea, rostello sigmoideo.

A very pretty, small-flowered species, with yellow and white flowers. One of the numerous introductions of W. Wilson Saunders, Esq., and grown by his gardener, Mr. Green, at Hillfield House, Reigate. It comes from Trinidad. *H. G. Rchb. fil.*

ZYGOSTATES GREENIANA, *sp. n.*

Pseudobulbis minutissimis subpyriformibus monophyllis, folio stipante supposito, basi vaginato, folio superposito cuneato-ligulato trigono carnosissimo; pedunculo angulato basilari bifloro racemoso; bracteis triangulis brevissimis carinatis; ovario longissime pedicellato; sepalis oblongis obtusis extus carinatis; petalis majoribus oblongis denticulatis; labello oblongo excavato, margine hinc denticulato, basi infra impresso sulcato, calcari compresso clavato ancipiti, ovarium pedicellatum subæquante, callo in basi supra ostium calcaris ligulato antice bidentato; columna prona, androclinio in rostellum lineare extenso, fovea tenue limbosa, brachiis ligulatis semilunatis carnosis; anthera antice rostrata, pollinis quaternis in caudicula a basi dilatata lineari.

This is a very curious plant. It is the first Zygostates we have seen with a spur, but still no doubt a genuine Zygostates. The minute pseudobulbs bear trigonous, ligulate, glaucous leaves, nearly an inch long and one line wide. The small, short peduncles have two remarkably large flowers. The small, very short ovary is white, streaked with green. The sepals are oblong obtuse, keeled outside; the petals are ovate, toothletted, and white; the foveate, rounded lip is white, with green streaks before and behind the opening of the clavate ancipitous spur. The roots are very long and woolly. This is, perhaps, the most interesting discovery of the late Mr. Bowman, near Rio. We have dedicated it to Mr. Green, the skilful gardener to W. W. Saunders, Esq., who takes extraordinary care of these small but lovely Saundersian gems. *H. G. Rchb. fil.*

MEIRACYLLIUM GEMMA, *sp. n.*

Folio oblongo elliptico carnosissimo margine cartilagineo limboso; racemo unifloro axillari, mento obtusato; sepalis triangulis acuminatis; petalis linearibus acuminatis sursum acuminatis; labello basi columnæ adnato, gibboso saccato, ovato, antice angustato acuminato crispo; androclinio postice non cornuto, rostello elongato concavo apice bidentato.

A little vegetable gem, with a creeping rhizome,

erect leaves, like those of a Sophronitis cernua, and beautifully amethyst-coloured flowers, standing singly. It comes from Mexico, and has lately flowered in the Saundersian collection, under the care of Mr. Green. *H. G. Rchb. fil.*

PLEUROTHALLIS BOWMANNI, *sp. n.*

(Apodæ caespitosæ) culibus tenuissimis abbreviatis; folio oblongo lanceo apice minute tridentato; pedunculo vaginato unifloro, mento obtuso; sepalo dorsali triangulo trinervi, sepalo inferiori oblongo-lanceolato apice bidentato, sexnervi; petalis spatulatis uninerviis, apice rotundato callosis; labello ligulato antice rotundato ampliato calloso; columna utrinque membranacco dilatata, postice ligula serrata.

A small-flowered species, discovered in Brazil by Mr. Bowman, and lately developed under Mr. Green's skilful management in Mr. W. Wilson Saunders' garden. *H. G. Rchb fil.*

EPIDENDRUM MELIOSMUM, *sp. n.*

Pseudobulbo sphærico; foliis ligulatis acutis; pedunculo ramoso; sepalis lanceis acutis; tepalis cuneato spathulatis acutis; labello cuneato trifido, laciniis lateralibus ligulatis obtusis abbreviatis, lacinia media oblonga acuminata crispula, callo in disco rhombeo sulcato; columna clavata pandurata aptera, anthera emarginata.

Introduced from Mexico by W. Wilson Saunders, Esq., and recently flowered by Mr. Green. *H. G. Rchb. fil.*

BRITISH ASSOCIATION.

(*Concluded from p. 965.*)

IN the Chemical Section the subjects mentioned below were brought forward:—

"On some New Substances Extracted from the Walnut," by Dr. T. L. Phipson. Between the shell and the kernel of the Walnut there exists a thin membrane called the episperm, which closely envelopes the cotyledons, and is composed here, as in most other fruits, of a double membrane, the inner one being very thin, quite white, translucid, and perfectly devoid of taste, whilst the external one is much coarser in structure, more or less coloured, has a very bitter, disagreeable taste, and contains certain substances which formed the subject of this paper. From this membrane Dr. Phipson had extracted a substance which he called Nucitannic acid, the most remarkable property of which is that when boiled with dilute hydrochloric acid it splits up into glucose and another new substance called Rothic acid.

"On the Amount of Soluble and Insoluble Phosphates in Seeds," by Professor Crace Calvert. The Professor said that the results of various experiments he had made was that 100 parts of cotton fibre yield, when repeatedly washed with water, a quantity of acid phosphate of magnesia; both husks and seeds also yield certain proportions. The results showed that the phosphates exist in much larger quantity in the seed than in the other parts of the pod. Experiments upon Wheat flour of various kinds showed that whilst the flour contains only a trace of the phosphates, especially soluble ones, the bran contains a large quantity. These facts tend to prove that the phosphates and the mineral matters contained in Wheat are not combined with the organic matter, but are in a free condition. Other investigations go to prove that although habit and pride have gradually led us to prefer white bread to brown, yet this is an error when we consider the nutritious properties of Wheat, especially as food for children, phosphates being essential for the formation of bone and blood.

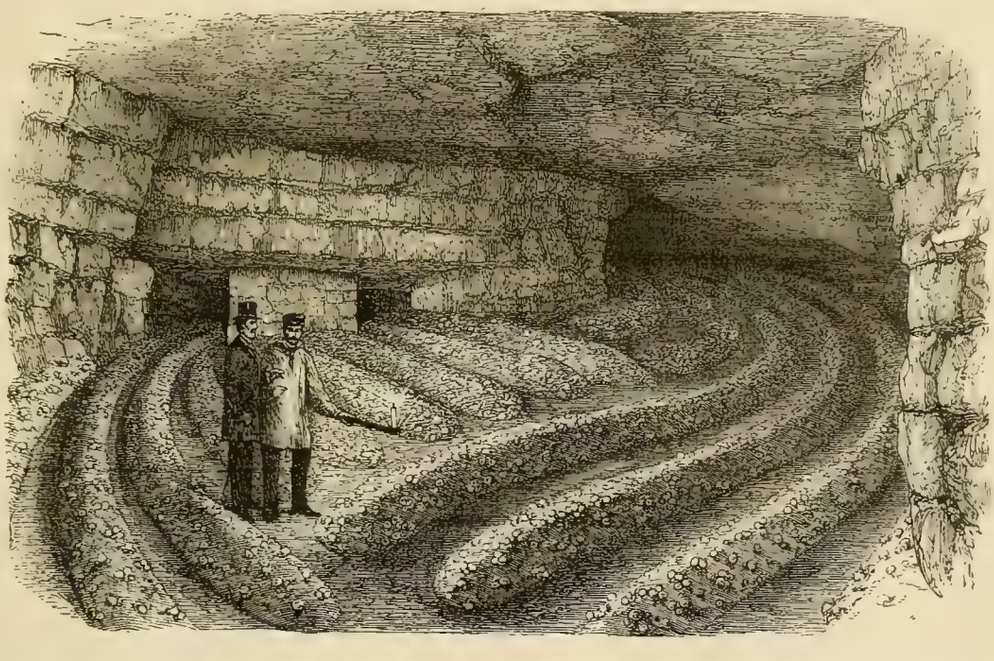
"On the Supposed Action of Light on Combustion," by C. Tomlinson, F.R.S. The popular idea that "light puts out the fire" is so fixed that probably no conclusions drawn even from actual experiment are likely to disturb it, especially if they be adverse to the notion. It is a matter of daily experience, as people say, that if a fire is nearly out in a well-lighted room, you have only to draw down the blinds in order to revive the fire. Experiments on the subject are not easily made, in consequence of the many disturbing causes; but from some experiments found in an old volume of the "Annals of Philosophy," made upon coloured tapers, the conclusion arrived at was that the solar rays, in proportion to their intensity, have the power of retarding to a considerable extent the process of combustion, but this conclusion is open to objection. From a series of experiments upon candles of different sizes and weights, in dark chambers, and in day and sun light, it was found that the increase of temperature led to increased consumption of material, and *vice versâ*, the whole result being that in any case the difference is so small that it may be referred to accidental circumstances, such as temperature and material—the final conclusion being that the direct light of the sun, or the diffused light of day, has no action on the rate of burning, or in retarding the combustion of an ordinary candle.

In the Geological Section the following subject was brought forward:—

"Report of the Committee for the purpose of Investigating the Veins containing Organic Remains which occur in the Mountain Limestone of the Mendips, and elsewhere," by C. Moore, F.G.S. This gentleman has for a long time made the organic remains found in mineral veins his particular study. In his report he referred to the various theories extant as to the origin of veins. They could not have been formed by sublimation, or the fossils would not be found in them; and he was equally opposed to the doctrine of segregation. Referring to Mr. Wallace's theory, that many of the veins had been filled up by superficial action since the glacial period, he pointed to the age of the fossils as decidedly against it. Mr. Moore's idea was that open fissures communicated with submarine floors, and dwindled down below. The mollusca, &c., of these seas were deposited in the fissures. Three or four things were necessary to the formation of mineral veins—open crevices, the presence of certain minerals in the water of the seas, and electrical action. The Mendip hills are intersected with veins, and on their tops some of these are worked. One of them extends for 270 feet downwards, and contains abundant lias fossils, although no liassic rocks are nearer than several miles away. This proves how great must have been the denuding force. Mr Moore has also discovered both land and fresh-water shells in these veins, as well as entomostraca, and seeds of old carboniferous plants. In the mines of North Wales he had found molluscan and fish remains, the latter belonging to no fewer than ten genera. Intermixed with the contents of some of the mineral veins, the author had found innumerable teeth of fishes, conodonts, nearly all of which were so small that they required optical power to see them. In the lead veins he had met with great quantities of foraminifera, all of secondary age. These veins also developed the existence of a fresh-water fauna, of coal measure age, having no fewer than nine genera and 127 species. —Mr. H. Brady said three well known genera of foraminifera had been mentioned by Mr. Moore, all of which still existed. One of the most abundant of the foraminifera, Involutina, was remarkable for its variety of form.—Professor Phillips said Mr. Moore had produced so many new facts that he was entitled to speculate. When he first heard of the discoveries, he was perfectly astonished. What had to be considered in the origin of mineral veins was the altered power of heated water as a solvent, to take up and precipitate mineral matter. Mr. Brady's remarks on the alterations in the type of a certain foraminifer were valuable, for if wide differences could occur in them, why not in animals of a higher organisation, such as lions and tigers? He referred to similar changes in the cephalopoda, and expressed his opinion that the understanding of lower types would make us better acquainted with higher forms.

MUSHROOM CULTURE IN PARIS.

WE take the opportunity of displaying to our readers one of the "sensation scenes" in Mr. W. Robinson's recently-published work, "Parks, Promenades, and Gardens of Paris,"* to which we have previously alluded (see pp. 588, 666). The cut represents a Mushroom cave at Montrouge, some 70 or 80 feet below the earth's surface, and described by Mr. Robinson in our own columns (1868, p. 788). Access to the cave is obtained by means of a ricketty apology for a ladder, placed in a well-like shaft. The beds are formed in parallel lines, as shown in the cut. The spawn is introduced in the form of flakes, taken from an old bed, or from a heap of stable manure, which is considered preferable. The beds have a run of 6 or 7 miles in all; each bed is about 20 inches high, and as much wide at the base. The average produce of this particular cave is 300 lb. a day, and this is only one of several similar establishments. The excavations are made originally by the removal of blocks of white stone for building purposes. As we have suitable caverns in various parts of this country, it is to be hoped that some enterprising cultivator will take the hint, and render us independent of France for preserved Mushrooms, of which, according to Mr. Robinson, no less than 14,000 boxes are annually exported by one house alone to this country.



* London: Murray.

THE LATE ROBERT THOMPSON.

THE late Mr. Thompson, upon whose lamented, though not unexpected, decease we made a few brief remarks last week, was born early in September, 1798, at Echt, in Aberdeenshire, where his father was a small farmer. He received the solid education of his native parochial school, and was afterwards placed under his uncle, who was gardener to Mr. Skene, of Skene, and by whom he was employed in the garden and plantations. From thence he removed for improvement to the gardens of Haddo House, the seat of the Earl of Aberdeen, where he remained till 1820, and then left for the garden at Dunottar Castle, the residence of Lord Kennedy. After remaining there for one year, he removed to the gardens of Robert Ferguson, Esq., of Raith, in Fifeshire, where he was occupied for nearly three years.

In 1824 Mr. Thompson came to London, and went directly to the garden of the Horticultural Society at Chiswick, to which he had been recommended by his late employer's brother, Sir R. Ferguson. The garden was then nearly completed. The collection of fruit trees had just been planted, and some of them, which were worked on Paradise stocks, were coming into fruit; and the walls which enclose the orchard and kitchen garden had also just been finished. Mr. Thompson was at once placed in the fruit department, then under the superintendence of Mr. Christie, and no time could have been more opportune for his entering on his duties, as from the first he had under his observation the immense collection of fruits which then and subsequently has existed in the gardens. Early initiated by Mr. Knight and Mr. Sabine into a knowledge of the characters and merits of the then existing varieties, Mr. Thompson acquired a taste for the study of fruits and fruit trees which increased with his years, and which he retained to the last. Indeed, during the whole of the 44 years of his active life at Chiswick, he made pomology his special and passionate study, not only as it was exhibited in the immense collection of all kinds of fruit which was by degrees brought together in the garden, and of which for many years he had the superintendence, but also in the literature of the subject, and in the practice thereof as it existed on the Continent. It was this deeply grounded and thorough knowledge of the subject which so well enabled Mr. Thompson to produce that laborious work, the "Catalogue of Fruits cultivated in the garden of the Horticultural Society of London," which has formed the foundation of modern pomological synonymy. No one, except such a person as Mr. Thompson—whose proverbial patience and painstaking, and excessive care and caution, admirably fitted him for such a task, and stamped his labours with an authority which has never been assailed—could have done this work so well. It was not, however, in pomology alone that Mr. Thompson excelled. Every department of horticulture received from him its due share of attention, and his love of physical science was equalled only by his love of gardening. No better evidence of the combination of these qualities can be given than that which is furnished by that admirable compendium of modern horticulture, "The Gardener's Assistant." Meteorological science is also much indebted to him for the constancy and correctness of the observations he conducted at Chiswick, for a period of 39 years — from 1830 till within a few months of his death. It is a striking fact that, on an average of 30 years' observations — from 1826 to 1855 — the difference in the records of mean temperature between Chiswick and Greenwich amounts only to 0.06°—a lasting tribute to the care with which the Chiswick meteorological observations were made.

Mr. Thompson was a voluminous writer, though he does not appear as the author of many works. To the "Transactions of the Horticultural Society," besides the bulky meteorological tables, many valuable papers on horticultural subjects were contributed by him, while, to Loudon's "Gardener's Magazine," the *Gardeners Chronicle*, "Edinburgh Philosophical Magazine," and other periodical publications, he was a frequent contributor. In the preparation of most of his great works, Mr. Loudon acknowledges the aid rendered by Mr. Thompson, and especially in the "Encyclopedia of Gardening" and the "Suburban Horticulturist." He contributed also to the "Penny Cyclopædia," to Morton's "Cyclopædia of Agriculture," and to Lindley and Moore's "Treasury of Botany," and, we are told, he was the sole author of the letterpress of the "Pomological Magazine."

From 1824 to the day of his death Mr. Thompson may be said to have been connected with the Horticultural Society, for although his active duties ceased about 18 months ago, when affliction had incapacitated him from further service, the Society, in recognition of his worth, allowed him to retire on full pay. Now, after a life of great activity, this kind-hearted, amiable old man has gone to his rest. There are many who will deeply regret him, both of those, and they are now few, who began life with him, and who shared with him as young men in those early days of Chiswick garden, the pleasures and privileges attendant on the impetus then given to gardening, such as it had never before or since received; and also of that younger and far more numerous class who have sat at his feet, and have drunk in instruction from his words and his writings.

Towards the close of his career a tribute to the services he had rendered to horticulture was paid to Mr. Thompson, by the presentation of a testimonial, amounting to the sum of 400*l.*, raised by public subscription.

[For most of the facts in this short notice of our deceased friend we are indebted to the memoir in the "Journal of Horticulture," written, we have reason to believe, by Mr. Thompson's son. Some of the particulars of his early life have been taken from an account,

written by Mr. Thompson himself, upon his admission to Chiswick in 1824. It was the custom formerly for young aspirants to write a short account of their lives up to the date of entry. Several autobiographical records of this kind are still preserved at Chiswick, including those of Paxton, Thompson, and many others. It would be well that the practice should be kept up. EDS.]

THE BEST OF THE CULTIVATED ANEMONES.

(*Concluded from p. 966.*)

Anemone angulosa (large Hepatica). — Everyone who knows the bright flowers of the variously coloured varieties of the common Hepatica, the very bravest of our early spring flowers, will welcome this species, fully twice the size of the common Hepatica in all its parts, with flowers of a fine sky-blue, as large as a crown piece, and distinguished from the common kind by its five lobed and toothed leaves. It is a native of Transylvania, and is hardy everywhere throughout these islands. Obviously, the only thing to determine about such a valuable addition is how to best grow and enjoy it. It is naturally more an inhabitant of the elevated copse than of the crest of the Alps; it is not able to flourish thoroughly exposed to the fiercest blasts like the little alpine plants that cushion down their stout if diminutive leaves, shorter than the very Moss, so that injury from the fiercest gale is out of the question. I have seen it in sandy soil in a thin shrubbery attain a height of more than a foot when not in flower, and the shelter and slight shade received from surrounding objects is decidedly favourable to its development. On all properly formed rockworks, or in their immediate vicinity, it will be possible to give it a suitable position, while in spaces between American plants and choice dwarf shrubs in beds it will succeed to perfection. When plentiful enough it may be used as an edging to beds of choice spring flowering shrubs and for naturalisation in open spots in shrubberies, or in open rather bare and unmown spots along the margins of wood walks.

Anemone Hepatica (Hepatica triloba; common Hepatica). — To add perfume to the Violet, paint the Lily, or gild the yellow Crocus, would seem to be no more wasteful excess than to praise this exquisite little flower. Let Philip Miller speak, and tell us how much esteemed it was in his day:—"These plants are some of the greatest beauties of the spring; the flowers are produced in February and March in great plenty before the green leaves appear, and make a very beautiful figure in the borders of the pleasure-garden, especially the double sorts, which commonly continue a fortnight longer than the single kinds, and the flowers are much fairer." And these plants have half disappeared with many others since that time. There is a cheerfulness and a courage about them on warm sunny borders in spring which no other flowers possess; they are hardy everywhere, are not fastidious as to soil, though they love a deep loam, and present a charming diversity. The principal varieties are the single blue, double blue, single white, single red, double red, single pink (carnea), single mauve purple (Barlowi), crimson (splendens), and lilacina. Every variety of the common Hepatica is worthy of care and culture. Is it possible to imagine a more beautiful feature than we may produce by planting a mixed edging of the various colours round, say a bed of dwarf American plants, occupying space that perhaps would otherwise be naked? It is but one of many ways in which we may tastefully use them. The plant is a native of many hilly parts of Europe, usually frequenting half shady positions, which will be found to suit it best in a cultivated state also. It is readily increased by division or by seeds, the double kinds by division only.

Anemone thalictroides (Meadow Rue-like Windflower). — A delicate, diminutive, and interesting species, with the "habit and frondescence of Isopyrum, the inflorescence of Anemone, and the fruit of Thalictrum." These qualities, in addition to its dwarf habit, usually only a few inches high, make it worthy of cultivation. The flowers are white, nearly an inch in diameter, open in April and May, the flower stem bearing a few leaves near the summit, so as to form a sort of whorl round the flowers. It is a native of many parts of North America, and is increased by seed or by the division of its tuberous roots. There is a pretty double variety, A. thalictroides fl.-pl., with the flowers somewhat smaller than the single ones, and very neat. Being small and fragile in its parts it requires a little more care than most of its brethren, should have a light peaty and moist soil, in association with other delicate growers or be placed in a position where it is not liable to be overrun by coarse neighbours. It is, perhaps, more correctly known as Thalictrum anemonoides.

Anemone narcissiflora (Narcissus-flowered Windflower).—I did not intend including this species, not thinking it sufficiently ornamental, but Mr. J. Duncan, of the Royal Gardens at Kew, has favoured me with the following note respecting it:—"This is a very striking and handsome sort, and distinct from any of its relatives. In cultivation its average height is about 1 foot. The petals are pure white above, and purple below, but they vary somewhat as regards colour. Proceeding inward, next in order are the yellow anthers which, contrasting with the corolla, justify the specific name. The scape is about twice the length of the foliage, and bears at its summit a considerable tuft of flowers, each of which is about an inch across. The leaves are stalked, and the blades have a soft feel. All the green parts of the plant are hairy. I notice this kind is mentioned in only a single English nurseryman's catalogue, although it deserves more prominence, and is adapted for the rockery, the border, or for pot treatment. It can be increased by division or by seed sown when ripe. It blooms in spring, and is a native of Germany, and does well in sandy soil."

Apart from the fine Anemone japonica and its varieties, there are a few dwarf Anemones in the country unworthy of cultivation, insufficiently distinct, difficult to obtain, and of the last probably Anemone Halleri is the best. But it is believed that the cream of the known, or obtainable species of the genus, is included in these papers. They may also have served to show how many varied attractions are derivable from one but little grown family of dwarf hardy plants. *Wm. Robinson.*

THE LATE JAMES VEITCH.

IN the person of Mr. Veitch, whose sudden death it was last week our melancholy duty briefly to announce, we have lost another of the horticultural notabilities of the last two decades; and though placed in a somewhat different sphere of action from such men as Lindley, Paxton, or Thompson, for example, it will be found that James Veitch the younger, as he was till quite recently best known, has left his mark upon the garden history of our time.

James Veitch was born on May the 24th, 1815, in the neighbourhood of Exeter, where his grandfather (of Scotch extraction) and his father were at that time carrying on the business of nurserymen. When about 18 years of age he was sent to London for two years, for the purpose of acquiring that experience which in those days could only be gained in a London establishment. One year of this period was passed in the nursery of Mr. Chandler of Vauxhall, and the other in that of Messrs. Rollisson of Tooting. Returning again to Exeter, and resuming his routine of duties there, he at the same time, impelled by the new ideas and impulses acquired in London, devoted his energies to the gradual extension and improvement of the establishment at Mount Radford, making it eventually one of the first nurseries of the day. All this time he was acquiring the mastery over the mysteries of the nursery trade, in which, first (since 1838) as a partner in the firm of James Veitch & Son, and subsequently on the death of his father, as the head of that of James Veitch & Sons, he was destined to raise himself to one of the very foremost positions. This prominent place amongst his compeers was won not less by his untiring zeal and energy, his keen perception, his clear-headed business habits, and his great personal influence, than by his thorough practical acquaintance with all professional details. It was on his return to Exeter from Tooting that, taking with him a collection of the Orchid gems of those days, he first started in the cultivation of these favourite plants; a taste which he always cultivated with the greatest possible zest, and which came in time to be ministered to by the introductions of his own collectors, and by his intimate personal friendship with men like Mr. G. U. Skinner and Col. Benson, who had made acquaintance with Orchids in their native homes. It should here be stated that Messrs. Rollisson, with whom young Veitch had been placed for the purpose of acquiring a knowledge of his business, declined to receive any adequate remuneration for the benefits conferred by them on their pupil; and the only method of acknowledgment open to the father of the subject of our notice was to commission the son to purchase Orchids from the Messrs. Rollisson. These Orchids became the nucleus of the collection for which Messrs. Veitch are now and have for so long been renowned. It may be interesting to mention, as an instance of versatility, that about the year 1839 Mr. Veitch entered with great spirit upon the growth of Dahlias for competition, the Exeter Dahlia shows, open to all England, furnishing at that period one of the most tempting arenas for the display of horticultural prowess.

In 1853, while still a partner in the nursery business at Exeter, which had then become famous as the first English home of multitudes of new plants, introduced directly by the agency of Messrs. Veitch's collectors—the brothers Lobb, Mr. James Veitch removed to London, and took possession of the once famous establishment of Messrs. Knight & Perry, at Chelsea. Here he was more directly brought into contact with all the leading horticulturists; and his estimable personal qualities, his sound sense, and his energetic manner, soon lifted him into a very influential position in the gardening world, which he maintained for many years, until, as we may suppose, the foreshadowings of his fatal malady induced him gradually to withdraw from active participation in what may be called public life. All this time, however, the establishment at Chelsea, which still bore the name of the Royal Exotic Nursery, was being remodelled and improved, and a gigantic business, one of the most prominent in England, perhaps in Europe, was being worked up, sufficient of itself to form a striking monument of successful commercial skill and enterprise.

Were we to attempt to show how far our gardens are indebted to the herculean and unflagging labours of Mr. Veitch, we should have to write a history of most of the new plants introduced during the last 30 years; for it was to his active superintendence of their importation, and to his discriminative choice of collectors, that we may largely attribute the success which was realised in this department. The later explorations of Pearce, Hutton, and others, by which also many fine novelties have been acquired, were even more directly under his control; while in order to form some notion of all the services rendered to horticulture by Mr. Veitch in this direction, we must add to the foregoing the results of the two journeys of his eldest son, Mr. John Gould Veitch, to Japan and the South Pacific, which have proved so prolific of first-class novelties. The pages of the garden periodicals bear witness to these facts, in the number of first-class plants introduced through his intervention, such as Wellingtonia gigantea, Lapagerias rosea and alba, Lilum auratum, Maranta Veitchii, Vandas suavis, tricolor, cœrulea, and insignis; Phalænopsis grandiflora, Cypripedium caudatum, Rhododendron jasminiflorum, Pleroma elegans, Nepenthes (numerous species), Desfontainea spinosa, Thuja Lobbii, Abies bracteata, Begonia Veitchii, Masdevallia Veitchiana, Tropæolums azureum and speciosum, Calanthe vestita, Medinilla magnifica, Dipladenia splendens, Berberis Darwinii, *cum multis aliis.*

It is, however, not only as an introducer and a dispenser of plants that Mr. Veitch's name must be boldly inscribed in the annals of horticulture, for he occupied a no less worthy position as a cultivator and exhibitor. Indeed Mr. Veitch was a thorough cultivator, as those who have seen the fine specimens sent from Exeter to the Chiswick Shows will acknowledge, when we say that many of them—Heaths and Orchids to wit—were the fruits of his own cultural manipulation, aided by his devoted and faithful servant and friend Dominy. Thus, when he desisted from the laborious task of potting his own plants, few knew better how to direct the action of others. Then, as an exhibitor, Mr. Veitch has had a large share in making our shows the glorious monuments of cultural skill which they really are, despite all the grumbling concerning them. For many years he has been in the constant habit of bringing forward materials, the most excellent in quality, and these have been so abundant in quantity, and arranged with so much skill and taste, that it has been rare indeed to see the name of Veitch either absent from or occupying a secondary place in the award sheets. In all this, as well as in business transactions, he has for the last few years been ably assisted by his sons, Mr. J. G. Veitch, and Mr. H. J. Veitch, who were admitted to partnership in 1865, and by whom the business will now be continued.

We should not omit to state, that Mr. Veitch was one of the best and most hard-working friends of the Royal Gardeners' Benevolent Institution, of which he was also a trustee.

For several years—from 1856 to 1864—Mr. Veitch was a member of the Council of the Royal Horticultural Society, and took a very active part in the administration of its affairs. At his own hospitable board the interests of horticulture were often the subjects of a very free commentary; and many schemes which had been discussed or concocted there, were in due time realised. In particular it may be stated that the idea of the Fruit and Floral Committees of the Royal Horticultural Society had its origin in a happy thought of Mr. Veitch's, which was first broached and talked over, even into the small hours, in the parlour at the Royal Exotic Nursery, and at a subsequent gathering of a few kindred spirits was so thoroughly discussed as to smooth away the difficulties which at first seemed to stand in the way of its being realised. On the basis thus obtained a scheme was drawn out, virtually that adopted by the Council, which has not only worked well, but proved the horticultural mainstay of the Society. In Mr. Veitch's parlour, too, the particular mode in which the Great International Show of 1866 should be presented to the public was agreed to, and action taken thereupon. There had at that period sprung up amongst a small section of horticulturists a most unaccountable feeling antagonistic to the gentleman who afterwards so efficiently filled the office of chairman, and whose loss we have since had to deplore; and this feeling was battled with and overcome, chiefly by the influence of Mr. Veitch, and of a few others who supported him. In all movements for the advancement of horticulture he was ready to take a foremost part. Latterly, however, owing to his failing health, he has been less active in matters of this kind, but even so late as the occasion of the organisation of the English Committee of the Hamburgh International Show, those who attended the preliminary meetings were assisted by his advice.

Some two years ago, owing to premonitory symptoms of heart disease, which have proved but too well founded, Mr. Veitch ceased to take so active a part as he had been wont, either in horticultural affairs or in matters of business; but latterly he had been in better health and spirits than usual, and even on the day before his decease had greatly enjoyed a visit from his old friend and collector, Thomas Lobb, so that his death on the morning of the 10th inst., at Stanley House, Chelsea, at the age of 54, came suddenly on his family and friends, although, under the circumstances, it can scarcely be said to have been wholly unexpected. His mortal remains have been deposited in the Brompton Cemetery, and there lie peacefully, in the immediate vicinity of the scenes of the most active portion of his life. That he himself was not unprepared for the change that was to befal him is shown by the fact, that only a few days before his death he selected, without the knowledge of any member of his family, a site for a family grave; and in its selection and attendant negotiations manifested those business habits so characteristic of him. Little remains for us to add. We have said enough to show that this was no ordinary man. Zeal and energy pervaded his every action. A quick temper and impatience of opposition were natural adjuncts to such a character; but at the same time it must be added there was thorough conscientiousness and straightforwardness, a disgust to all semblance even, of meanness or underhandedness, and a warmth of friendly feeling that can be adequately gauged only by those who knew him. *T. M.*

Home Correspondence.

Grape Soils.—Whatever may be advanced in the future, none of my opponents have as yet produced any substantial objections to the statements contained in my paper read at the Manchester Congress. Not a

single conclusion of theirs has been proved; not a point of mine has been shaken. I trust it will be understood that I have not made this assertion in a spirit of mere opposition. A due regard should always be given to the experience of others. Any other mode of action would stifle truth, and check the course of free inquiry. But still, none of us submissively allow ourselves to be deprived of what we have proved to be facts by the mere expressions of those who choose to advance an adverse opinion. I was not unprepared to find that my statements on the subject of Grape soils would meet with opposition, and possibly by the majority of cultivators, but truth is not the exclusive property of the multitude on all occasions. I have investigated and thought for myself, and fearlessly give publicity to my conclusions, quite regardless of how they may be received. We need hardly be reminded that the Grape Vine grows freely on the limestone in the Continental vineyards. I have never once said that it refuses to do so on that formation. What I did say, and have proved to be the case, is that it grows stronger, is longer lived, and produces a heavier crop of much superior fruit, when planted on the red sandstone. So convinced of that fact was a gentleman in this neighbourhood, whose garden was situated on the limestone, that he had red sandstone soil brought from a long distance to make his Vine borders, but under no persuasion of mine, as we were not then acquainted. The red sandstone soil, which I employ, does not contain more than from 2 to 3 per cent. of lime, a quantity so small as scarcely to be appreciable. We know that excellent Grapes are grown on the Rhine, and also on the banks of the Moselle river, in soil that rests on sandstone rocks, of the same age and composition as that at Tortworth. Some years ago, when on a horticultural tour in the midland counties, I visited several gardens situated on the same formation, and in every case found the Grapes of a first-class character, whether we refer to colour, or the size of the bunches or berries. The subject of soil was then with me an absorbing question, and I took the opportunity of acquiring as much information as I possibly could. All calcareous soil is not carbonaceous to the same extent, so that success or failure will just be in proportion to the amount of carbonates it may contain. Should it reach 40 per cent., cultivators will find themselves in a dilemma; they may exert every contrivance to excel, but every effort made will only multiply their sorrow. Recently I visited a garden situated on the oolite, which contains as much as 80 per cent. of carbonate of lime, little or no siliceous matter, and only a small quantity of alumina. Had those who embrace calcareous soil so strongly, only witnessed the miserable state of the crop, the Vines struggling for little more than mere existence, they must have been induced to alter their opinion. It must not be assumed that these Vines were worn out by age, or that the soil had become effete. Nothing of the kind; the borders had been made on the most approved principles within the last few years; young canes were planted, and these were superintended by an excellent gardener. The soil was chargeable, which proves what I have repeated elsewhere. It is that which equalises ability, and not the application of a few stringent practical rules, as some would have us to believe. Dr. Masters endeavours to solve the problem, by contending that the physical arrangement of the soil is the most active agent, putting aside almost, if not entirely, the office performed by the mineral constituents. On this point I differ as much from him now as during the discussion at Manchester. Would he allow me to ask, Do not these very ingredients give to soil its physical properties? the principal being silica and alumina; and they alone are the substances in varied proportions which produce light and stiff soils, modified to a greater or less extent by the presence of organic matter. No one denies the necessity of physical arrangement in whatever way it may be brought about, but of itself it cannot support life. Particular inorganic substances are necessary for the roots to feed upon, and unless these are present, whether as elements or compounds, the plant cannot long survive; it will either live a languid life or perish altogether. But however complete the physical arrangement may be, we have not the least security that the soil does not contain deleterious substances, some possibly of so poisonous a nature as to destroy life, and yet so subtile as to escape ordinary observation. If such is not the case, how does it happen that the common Brake in one part of our park never extends beyond a certain limit, although it has perfect freedom to do so. The question cannot be answered by saying that it is owing to imperfect physical arrangement, a reply that certainly does not hold water, as within and without the line of growth it is exactly of the same character in that respect. We have, then, no other resource left by which we can detect those substances which are injurious to some plants and beneficial to others, than by an analytical test. However lightly some may undervalue such a mode of searching out truth, they will have a difficulty in substituting another so trustworthy. This is a subject of great breadth, and to treat it fully would carry us through the entire vegetable kingdom, but I have said enough; and if there are those who prefer to assume that my statements are incorrect, well and good, but they must not expect their assumptions to have any force with those who know that the facts of the case are contrary to such opinions. *Alexander Cramb, Tortworth.*

[There is abundant evidence to show that the Grape Vine is a most accommodating plant, so far as the chemical nature of the soil is concerned. The facts narrated by Mr. Cramb exemplify this. It is then a perfectly legitimate inference to conclude, that the physical properties of the soil, its compactness or friability, its power of retaining or transmitting water, of absorbing, retaining, or radiating heat, and so forth, have, under ordinary circumstances, as much or more to do with the well-doing of the plant than the merely mineral ingredients of the soil have. By all means let us have analyses such as Mr. Cramb advocates, but let them not be confined to the chemical ingredients of the soil only. EDS.]

Orchid Culture.—Your correspondent "G. H.," at p. 640, expressed his surprise at the speed at which Orchids are killed, but I think it cannot be wondered at, when the injudicious treatment which these plants receive, especially in winter, is taken into consideration. In many cases, instead of the maturity of the wood being made the first consideration, every care is taken to keep the plants continually growing. Thus treated, the majority of species cannot possibly ripen their wood thoroughly, and consequently do not flower so freely as they would if treated more naturally, while the more delicate species must soon succumb under this perpetual growing treatment. I have paid a good deal of attention to the habits of Orchids on the Himalayas, and my idea of how such species as Dendrobium Falconeri should be treated may not be unacceptable to "G. H." and others. From November to the end of February I would recommend the plants, as well as the atmosphere of the house in which they are placed, to be kept dry. In mild weather the plants should be syringed occasionally, but never watered at the roots. Shading should be entirely dispensed with, and the plants should be as freely exposed to the sun as possible. The minimum temperature should range at night from 42° to 50°, and in the day from 50° to 65°, and allowed to rise with sun-heat to 70° or 75°. In March or April the temperature should be gradually increased, and the plant should be freely syringed overhead, but watered sparingly at the roots. For the following four months the syringe and watering-pot must be freely used, but in September and October gradually withheld. Rain-water, raised to the temperature of the house, should always be used, and, during the growing season, the evaporating pans, as recommended by Mr. Lorimer at page 584, must not be forgotten; the more there are of those the better, where available. I would recommend a long shallow tank under the stage, with the hot-water pipes running through it. From May to the end of August the minimum temperature should not be lower than 65° at night, and in the day not under 70° to 75°, and might be allowed to rise with sun-heat to 85° or 90°, or even higher. For potting such species as Dendrobium, I would recommend Moss that has been growing for years undisturbed on rocks, and got well filled up with decayed vegetable matter; the Moss should be roughly torn up, and particular care taken to retain all the vegetable matter. The pots should be at least three-fourths filled with potsherds and charcoal, and only as much Moss used as is absolutely necessary to cover the roots and hold the plants secure. For most species, I consider February and March to be the best months for this operation. The remarks made by "G. H.," at page 530, about "Pine-house treatment," "stimulants," and "tan pits," appear to me to be so sensible and to the point, that I strongly advise all Orchid growers to read them over again, and act by them. I would also advise "G. H." not to be advised into the cool treatment of Dendrobium Falconeri, for, with all due deference to the experience of Mr. Anderson, it is a mistake. As a rule, Orchids under cultivation get far too much shade. By far the best flowered plants I have ever seen on the Himalayas have been growing on rocks or bare branches of trees where they were fully exposed to the sun and rain; and those plants had such foliage as would satisfy the most fastidious. Mr. Spruce, the botanist, who lived so long in South America, also observed there that Orchids affect light and open situations; for in his "Report on the expedition to procure seeds and plants of Cinchona succirubra," to the under Secretary of State for India, dated January 3, 1862, he mentions, in reference to the order Orchidaceæ, that "most epiphytal Orchids love light, and in the dense forest they are rarely seen, and often inaccessible, for they grow on the upper branches of large trees, and descend to the lower branches only on the margin of wide streams, where the whole of one side is exposed to the light." No doubt excess of moisture in winter and heavy shading have to answer for the deaths of many Orchids. In your leading article of June 26, you mention that "the season of rest of most of the Orchideæ begins with the wane of the inflorescence." As far as the Himalayan Orchids are concerned this remark does not hold good, for most of them flower before the end of June, and the principal growing season is from June 15 to September 15. In the same article you remark that when the Orchids were in flower they could be moved to another house and relieved by an admixture of suitable Ferns; but why not go further? for, either as regards appearance or the health of the plants, the devoting a house entirely to specimen plants of Orchids, in any stage, appears to me to be a mistake. A house well filled with such plants as Caladiums, Ferns, &c., seems to me most suitable for Orchids. The Orchids should be placed so that the surface of their pots may be nearly level with the tops of the other plants. When there is a table between the passage and front of the house soil should be put on and planted with Selaginellas before placing the Orchids on it. In houses thus filled, the atmosphere could be kept much moister than in those filled exclusively with Orchids, besides improving the appearance and economising space. Your remark, in the same article, that during the dark days all the light at command is wanted, cannot be too strictly attended to. *J. A. Gammie, Government Cinchona Cultivator, Darjeeling.*

Cedar of Lebanon.—The following are the dimensions of a specimen growing in the garden of F. B. Johns, Esq., at Bishop Stortford:—Height, 70 feet; circumference at 12 inches from the ground, 11 feet 6 inches; and diameter of the spread of its branches, 81 feet. At 12 feet from the ground it breaks out into numerous branches of immense size. It lost its leader some years ago, which has made a great difference to its height. When a boy, I assisted at the planting of it and for a long time after that I used to amuse myself by jumping over it when passing that way. Are there many specimens which, for its age, excels this in size? *J. Nicholl, Bishop Stortford.*——The Cedar of Lebanon flourishes here. One planted by my father in 1816, on the marriage of Prince Leopold with our Princess Charlotte, measured, in 1851, 55 inches in circumference at 3 feet from the ground; in 1869, 93 inches. It has a single stem, branching to the ground in every direction. It is a magnificent young tree, and promises to be of surpassing beauty and size in 100 years to come. *Thos. C. Brown, Further Barton, Cirencester.*

Dwarf Surface-clothing or Edging Plants.—Two plants I have been cultivating this season seem to me likely to prove useful as dwarf edging or border plants. I refer to Pyrethrum Tchihatchewi and Veronica pectinata. The former is a native of Asia Minor, named after M. Tchihatcheff, author of the "Flora of Asia Minor." Its finely cut leaves, pale green in a young state, spread flatly over the ground, and rapidly cover it. The Veronica has numerous branches spreading in a similar manner. Its leaves are somewhat rounded and hairy, crenate at the edges. The shade of colour it presents is that of a hoary grey, such as is presented by some Salvias, and is not usually found in the genus. The use of both, however, is the flat spreading habit of the branches. *E. S.*

Yet another Swarm of Insects.—At Beccles last week, for several days, the common was literally swarming with gnats. The air was full, the earth was covered, and the tents of the Rifle corps was filled with them. There was no escape from them anywhere in the neighbourhood. A reporter who uses ink told me he had the greatest difficulty in writing the proceedings, as they crowded into his ink-bottle, a very small pocket one, and spoiled his ink. On the tables, in the beds, over the bodies of men, women, and children, they crawled or alighted. Nothing like such an infliction had ever been seen by the "oldest inhabitant." Since then we have had violent thunderstorms, and torrents of rain, which have, doubtless, dispersed the gnats; and yesterday (Sunday) and to-day we have had hurricanes of wind enough to sweep every flying insect into the sea. It has pretty well swept or torn my fruit off, not only from orchard, but likewise from pyramidal trees, and scattered branches and green leaves over gardens and pleasure grounds by the cartload, torn up my flowers by the root, broken down Hollyhocks and Dahlias, turned vases topsy-turvy, and left a ruined wreck where a few days since all was smiling beauty. I fear we shall not recover this season the beauty we have lost, nor outgrow in any sense the terrible devastation of these torrents of rain and hurricanes of wind. *Observer, East Anglia, Sept.* 13.

Trellised Walls.—At p. 944, the Rev. W. F. Radclyffe says, "Peaches, Nectarines and Apricots do not succeed on trellised walls." This statement I can fully confirm. When I once went to see a gentleman in Surrey about a situation, he showed me through the kitchen garden, which was about 4 acres inside the walls, and said "We have had galvanized wires fixed to train the trees to." I said I did not like the plan; of course he asked why; my answer was, I thought there would be a great deal too much draught behind the trees, which very soon proved to be the case. I entered on my new situation in the autumn of 1860. The following summer the young shoots of the Peaches and Nectarines were almost white with mildew; they were very unhealthy, and did not ripen their wood in the autumn. In 1862 there was very little fruit, so that something had to be done. The object of the wires in this case was, that the walls were so rotten, and the mortar was torn out so much from the joints, that the nails would not hold; consequently the whole had to be refaced. Stout galvanised wire pegs, with holes in the ends, were driven in the wall, about 7 inches apart. These stood out from the wall about 5 inches, which was a great deal too much. Smaller wires were then stretched horizontally from end to end. We then wanted to put the wires closer to the wall, for to do without them altogether was almost impossible. To effect this was not so easy, as the pegs would not drive well. I suggested that the pegs should be bent, which was done by bending all the pegs upwards until the wire was within about three-fourths of an inch from the wall. The trees succeeded much better after that, for the remainder of the time I was there. This leads me to mention a different sort of trellis on which we have Vegetable Marrows growing. The roof of a large cart-shed, which covers an area of 1370 square feet, has been trellised over, and on this Vegetable Marrows have been trained. The shoots have already grown about 28 feet in length, and are bearing a large quantity of fruit. I have been told that they are good for cows, but I have never tried them, as my employer would rather give such surplus vegetables to the people in the neighbourhood, who have not gardens of their own. Many a rough and unsightly shed might be advantageously covered in this manner during the summer months, especially in towns, where land is carce. *T. Whiddon, Bystock.*

The Blood Pine-apple.—This old variety has been condemned by several growers as flavourless, and for this reason not worth cultivation. My opinion on this point is quite the reverse: at least when the fruit is well grown and ripened under the treatment usually given to high-flavoured fruit. I cut a fruit the other day, and I thought the flavour was most exquisite; it has not that peculiar lusciousness which is possessed by a good Queen, but it has a fine sparkling flavour of its own, which I consider to be unequalled amongst the varieties of the king of fruits. No collection should be without a few plants of this kind, if for nothing more than for the sake of variety and appearance on the table. Like the Cayennes, it is some-

what shy in producing suckers, but frequently forms a tier of gills as large as ordinary crowns: these soon make good plants; its crown is also available. Its tall habit, indeed, renders it necessary for it to be grown where there is plenty of head-room, consequently it is not a very suitable kind for low structures. *John Edlington, Wrotham Park, Barnet.*

The Assessment of Nurseries, &c.—At p. 919 your correspondent states that nurserymen and market gardeners shall be assessed under Schedule B. This I do not read in the Act 5 & 6 Victoria, which says the profits shall be estimated according to the rule contained in Schedule D, and the duty shall be charged at the rate contained in the said schedule (amount of profit), and where the said duty shall be so ascertained it shall be charged under Schedule B, as profits arising from the occupation of lands (2½*d.*). Your correspondent does not say this, but he says they are assessable under Schedule B, instead of paying under that schedule. *H. Lane & Son, The Nurseries, Great Berkhampstead.*

Condition of Fruit in the North.—Returning from a short tour I inspected the state of my garden, situated, say 50 miles south of the Border, and 600 feet above sea level, where of course the finer fruit must be grown under glass; thus Apples, Pears, and Plums have the south wall. I was suddenly at fault with the appearance of some Ribston Apples, having upon them brown patches the size of a 5*s.* piece. The first idea, that it was rot, immediately gave place to the fact that (to the extent named) the Apples were baked, and this was curiously illustrated by the Apples on branches of the same tree not attached to the wall being quite green. Some Pears on the next tree are affected in the same way; this may be not uncommon in the south of England, but in 40 years' experience I have not seen it in the north. The heat on that wall on the 24th ult. was over 130°. My Currants are much blighted—the red have lost most of their leaves, and the black are an ugly blotched brown. Can any of your readers advise the best treatment to obtain healthy buds for next year? Is severe pruning desirable? *S. P. H.*

Restio subverticillatus.—Is there any just cause or impediment why this very elegant plant should not take up a position in the subtropical garden? Its cheerful green colour, its Equisetum-like form, and its graceful curves, induce me to think that it would be much appreciated, either in place of, or alternately with, Humea elegans. I understand that it may be increased from seed, [It is dicœcious, it is the male plant which is so elegant.] as well as by division of the root. There is a nice plant of it now in the Cactus-house at Kew Gardens. *W. T.* [This is the plant grown in some gardens as Willdenovia teres. EDS.]

Roses.—I should be glad to see your valued correspondent, the Rev. W. F. Radclyffe, favour us with his further opinion upon the merits of the batch of new Roses sent out this year. I have been given to understand from a reliable source that they are exceptionally good. A really good white hybrid perpetual Rose is still a desideratum; it is sincerely to be hoped one of this class may be forthcoming. A yellow Moss is still in the background, and can only be anticipated in dim perspective. We have had already enough and to spare of every shade of crimson-scarlet, crimson-red, and carmine, &c., and it appears impossible to improve upon several of the real gems we possess in this overdone class. The new English-raised Rose, Miss Ingram, is a colour in the right direction, and a really good Rose, but what improvement it is upon a well-grown Madame Rivers or Madame Vidot we are unable to discover, except it may be in its free habit of growth. I hope our great English Rose-growers will persevere in this direction, and by-and-by rival our indefatigable friends across the Channel, who send us over every season hosts of good, bad, and indifferent, the latter generally preponderating over the former. In reply, however, the knowing ones may say—"Ah! but our climate and weeping sky." Well, we were pretty nearly roasted lately, even in this locality—thermometer some 120° in full sun and 80° in the shade. I think a temperature like this, with a further fine autumn, is amply sufficient to ripen the seeds, when the previous operation of crossing has been duly attended to. About six weeks ago the shoots on a Climbing Devoniensis Rose (grown as a standard on the Dog Rose) were cut back to from 9 to 15 inches. Each shoot thus treated has sent out laterals about 5 inches long, on the extremities of which I this day counted 27 beautifully-developed buds, which in due course will undoubtedly open before the season closes. How far this severe mutilation may react upon the roots it is at present difficult to say, but it has now the appearance of a nice compact standard Rose of moderate growth, so different from its usual straggling habit when budded as a standard. *A. Godwin, The Rosarium, Ashbourne.*

Substitutes for Maiden-hair Fern.—It is not long ago that the claims of Thalictrum minus were very strongly urged in this respect, and I have no desire to say a word in its disparagement; but I wish to call attention to a formidable rival in Bossiæa cordifolia, a small, hard-wooded, Australian greenhouse shrub, with reddish stems, and nice little sprays of heart-shaped leaves, reminding me most of that very small foliaged variety of Adiantum cuneatum, which is so much grown in the Crystal Palace. *W. T.*

Wellingtonia gigantea.—It may interest some of your readers to know how a seedling planted by my father (the late J. T. Brooks) in these grounds in the year 1857, has fared. The site chosen was a piece of rich sward, near a watercourse. The growth of the tree in symmetry and extent has been uniform to the present time, and neither the dry summers nor cold winters, since it has been left to shift for itself, seem to have in any way affected it. The dimensions of this tree are as follows:—Height, 23 feet; circumference of stem, at 1 foot from the ground, 4 feet 8 inches; ditto of branches, 15 feet. *John H. Brooks, Major, Flitwick House, Ampthill.* —— The Wellingtonia here was noticed in the Transactions of the Scottish Arboricultural Society in 1865, and afterwards in the magnificent work now publishing by Messrs. Lawson. In 1865 its height was given as 12 feet, and probable age 11 years. This tree is now 25 feet high—diameter of branches, 15 feet 4 inches; circumference of stem, 1 foot from the ground, 4 feet 8 inches; length of leader this season, 1 foot 8 inches. It is perfectly healthy, and of beautiful symmetry; it suffered no injury from the severe winter 1866-1867, or the drought of the two last summers. Of all the new Conifers planted here not one appears to like both soil and climate better than the Wellingtonia. The soil is a deep heavy loam on a limestone gravel. *Robert Moulton, Gr. to Lord Athlumney, Somerville, Navan.* ——A specimen of this tree was obtained from the Royal Nurseries, Slough, and planted on March 10, 1863, the wedding-day of the Prince of Wales. It measured, 2 feet from the ground, in the spring of 1865, 3¼ inches in circumference; in 1866, 6 inches; in 1867, 9 inches; in 1868, 12 inches; in 1869, 13 inches; and it has grown in height about 9 feet, being now about 13 feet high. It is perfectly feathered with lateral shoots, forming a pyramid of extreme beauty. It will be seen that its growth was checked by the dry summer of 1868, and probably of this year also, for both months of July were dry, and we believe it will be found that the warm and copious thunder storms so common in that month, and absent last year and this, greatly favoured the growth of many trees. The four-year-old branchlets are dropping off the lateral shoots; whether this is another effect of the drought of 1868, I cannot say, but it does not at all injure the appearance. Two other specimens flourish here, but not equally with this, which had the advantage of being planted in ground trenched for a garden 30 years since, and used as a fruit garden. The soil is oolite, chemically lime and clay, and the elevation about 400 feet above the sea. *Thos. C. Brown, Further Barton, Cirencester.*

Potato Grafting, &c.—I have been waiting to see some results of this practice published in your journal. Being a new idea, many are anxious to hear something more about it. Many doubts have been expressed as to any good coming of it. That is very natural, but too common, with respect to anything new. The results of my experiments of the past season will perhaps enable those interested (and who is not?) to form some conclusion with regard to it. Doubtless it will require considerable practice before any rule can be laid down to gain a certain end. How interesting, for instance, would an account be from one who has "gone into" the practice so far as to see his way clear to "work up" a Potato, to please the eye or the palate of one who is considered a "little" fastidious! I have just dug up a crop from a kidney called the Uxbridge, which I grafted into a Rock Potato. Its tubers are strung together in so very curious a manner, and so different from anything I have before seen, that I am induced to send you a sketch of them. [An excessive degree of a common occurrence.] The Rock has the peculiarity of having its tubers strung together in some instances, so this is convincing evidence that the characters of the various sorts of Potato can be altered by this operation. The crop consists of 27 tubers, the largest 5 inches long, but not at all improved in shape, and warty. Johnson's Kidney grafted into a Rock has not taken the above peculiarity in so striking a manner, with much better shaped tubers. An Uxbridge in a Dunbar, which is a round Potato, produced a crop also strung together, but with improved tubers in shape; one or two have a young tuber attached to them. A Rock in a Fluke is but very little different; I fancy, however, the eye is not so deep as in the original Potato. But a Fluke in a Dunbar has a crop of the most distorted worthless tubers imaginable. These were all grown in the same soil (good loam, with some washings of a roadway, together with sand), and side by side. Nothing rough could be found to cause any distortion of the above Potato more than the others. There are various opinions as to the mode of planting the Potato, more particularly as to when and how the manure should be applied. The practice of sowing guano on the sets at planting time explains many failures. If the tuber has started into growth, or has a cut or a new bruise, so as to let in the salt, it is almost sure to kill it. Yet this is often done. Some use half-decayed stable manure, putting it on the Potato some inches thick, and then a sprinkle of guano over that. The Potatos grown in this way are often warty and soapy. There are others, who to my mind are more wise, who manure their ground in the autumn, and otherwise prepare it, and in the spring put in their Potatos without dung or guano. Others use guano after the plant is above-ground, which no doubt helps the plant if not sufficiently manured at the bottom. I know of small bits of ground on which for a generation the ash-pit has supplied all the manure it has received, and year after year the Potato has been planted without change, and always with good crops. This proves that ashes are suitable for the Potato. Although the natural soil in various places requires different treatment, still it would be interesting and profitable to know the results of the practice of various manures in connection with various soils. There are few plants in which so general an interest is felt as the Potato. *H. M.*

Protection from Frost.—While reading an account of a tribe of northern American Indians, called Crees, I made a note of two materials which they use to keep out the cold of their inclement winters. They make their tents of poles arranged in a conical form, cover them with skins, and line them with sprays of the Balsam Fir, which are from time to time renewed. It is fair to assume that they have some better reason than the smell of Picea balsamifera for giving a preference to this species for keeping themselves warm; and as I believe it is easily grown in England, and is not expensive, it may be worth while to give it a trial, in place of matting, for half hardy plants which are to be left out-of-doors during the winter. The other material to which I allude is Sphagnum, in which they wrap the lower extremities of their infants when travelling in the bag-shaped cradles which are suspended on the backs of the Cree mothers. The Sphagnum is said to form "a soft elastic bed, which absorbs moisture very readily, and affords such a protection from the winter cold that its place would be ill supplied by any other material." Possibly a layer of Sphagnum tacked between two sheets of tiffany might form a better protection than matting for covering plants going to flower shows, or for laying over frames in frosty weather. *W. T.*

Hylurgus piniperda.—Your correspondent, "M. D.," at p. 967, says that the economy of this insect is well known. I am of the opinion, which Sir John Lubbock well expressed some years since, that "in entomology we have had but two Hubers, nor can we be said yet to understand thoroughly the habits of a single insect." The most patent facts are noticed and repeated by one author after another, and taken on trust by the rest of the world. Let therefore no one be discouraged from observing everything he can regarding the habits of Hylurgus piniperda or any other hurtful insect, by the fear that he has nothing new to find out. Your correspondent has obviously himself something to learn upon the subject. Most people are very well aware, although he appears not, that young Pine trees are often attacked by it, although no old Pine trees, either growing or felled, are in the immediate neighbourhood. But I chiefly wish to protest against two of his recommendations—one, that to save a valued tree several logs laid near it would be useful, *i.e.*, to keep away robbers expose a plate chest, trusting to catching the thief afterwards; the other that the proper mode of destroying the insect is to remove the bark of the tree attacked, or to fell the tree—the two modes being, of course, synonymous, *i.e.*, to kill the tree. I remember in my youth being led by the dictum of a great authority to doing something of this kind. I had some large Silver Firs badly attacked by Adelges Piceæ; I was told that the only way to save those not attacked was to cut down all the rest. I began to do so, but after I had sacrificed three-fourths of them, I found that if I went on I should soon not have a single one left. I therefore stopped, and in a few years the trees began to recover and the Adelges to diminish, and now they are finer than ever, although sadly fewer. It is the same with the Hylurgus; I have nowhere seen its ravages so severe as to threaten anything like the death of a tree. It is the attacks on the young shoots which give alarm, but although these destroy many of the shoots, there are plenty left, and another year may be less favourable to the breeding of the insect. Observations as to the character of the seasons in which it flourishes most, the extent of its depredations; the effect which locality, age of tree, exposure to wind, have upon it; when the larva is found in the young shoots, and why; and many other points of inquiry, are not to be found in Ratzeburg and the stereotyped text-books which follow him. I observe that it comparatively rarely attacks the leader. Why? That of two rows of trees planted, one east and west, and the other north and south, one suffers more than the other; that a few years difference in the age of the trees seems to make a difference in the attack. Let us by all means extend our observations, and not rest satisfied with the assurance of any one that everything is known, and that our labour will be cast away. *A. M.*

Fern-eating Caterpillar.—Some years ago there was a question raised in the *Gardeners' Chronicle*, as to whether any kind of caterpillar fed on Ferns. I wrote to say that I had just destroyed one which in a single night had all but eaten up the only Fern I then had. One of your correspondents asked of what species it was, but being no entomologist I could not tell anything more than that it was very active in its habits and of a bright green colour. I have now a greenhouse fitted up with rockwork as a fernery, and am a good deal troubled with slugs, but they seem to confine their depredations to the tender Adiantums. During the last few days I have observed that a strong plant of Pteris longifolia has been terribly mutilated by some strong-jawed enemy. On turning up the fronds to look for slugs down fell the caterpillar which I now send you, one of the very same species as the one I saw years ago. Since writing the above I have found the leaflets of a Pteris hastata hanging in tatters. Having learned what to look for I soon found the enemy most ingeniously concealed by embracing the under side of the stalk of a frond with all his feet, and in a state of wire-drawn attenuation. That is where and how these pests are to be found in the daytime. *T. H. Maw, Broseley.* [The Fern-devouring caterpillar is that of one of our commonest Noctuæ, Mamestra brassicæ. It is well-nigh omnivorous, for though occurring on nearly every Cabbage and Cauliflower in the country, it is equally at home on the Pelargoniums of our borders, and from your experience has also a taste for Ferns. EDS.]

Cutting Down Strawberry Plants.—It is an ignorant and dangerous practice. The leaves are lungs; and unless the new leaves have fairly started, it is injurious. No doubt the Boulogne gardener cut his down after the leaves had started, and in showery weather. In 1860 I mowed off my leaves, as soon as the crops were gathered: the severe winter (never to be forgotten) succeeded the summer without an intervening autumn, the plants were ruined for ever, and I had no Strawberries in 1861. My plants are very strong and thickly foliaged: to let in light and air to the new comers I have just removed all the drooping leaves round the plants, but none of the crown leaves. The new leaves will soon be at full height: then "Stephen" with a pair of scissors will carefully cut out the old leaves to admit light and air to harden the new

crowns and new leaves. The new plantations (planted July 1) and the worked plantations look like beautiful clumps of green Firs. After cropping remove your strings and runners, and copiously and constantly water the plants in torrid weather. For omitting to do this last season, people have had no Strawberries this year. After cropping, an inch or two of loam—I use calcareous clay—spread over the whole surface, is better for the formation of new crowns than rich manures, which will drive the plant into leaves rather than crowns. Put on the stimulating manures, liquid or solid, about February. After cropping, the plants make new roots from their base; the old ones die away wholly or partially; hence it is necessary to coax out new roots, to re-establish the plants before winter sets in. If this is omitted till March—usually the case—the plants have not horizontal and perpendicular roots sufficient to bring the crop of berries to perfection. Hence people exclaim, "I cannot think how it is: I never saw my plants flower so well or set their fruits so well, but they never got bigger than a pea, and came to nothing." *W. F. Radclyffe.*

The Royal Horticultural Society and its intended Shows for 1870.—No one, however conservative his principles in the main, will deny the fact that some change for the better is absolutely needed in regard to the "home shows" of the Royal Horticultural Society. That the Council has, therefore, acted wisely in taking the initiative in regard to its programme for the ensuing year, all must concede. The subject is one beset with no little anxiety, and many difficulties. Some consideration will therefore be accorded to the Council when it is taken into account how many and variable are the interests it has to cater for. To most superficial observers horticulture in its general and broadest sense has but one voice in common. That this is not really so, I need not assert. Individually we have "our hobbies." Hobby riders become split up into coteries, and each "fancy" thus based upon the surest of all foundations—identity of interests and feelings, has its panacea. Presuming then, that the Council has to contend against an unhealthy state of revenue and expenditure on the one hand, and that it wishes to encourage the legitimate wishes of the florist, the trade, the growers of large specimen plants, the Orchid growers, fruit and vegetable growers, and others, how it is to do this successfully, and to release itself from those embarrassments which stand in its way? Now it seems to me if the Council sees its way to give ample prizes it could not do much better. But the question that will then arise is this—Can such a society as this, by means of small fortnightly shows, do an amount of national good commensurate with what is expected from it? In a word, will the Society be able by such means to uphold its prestige among the leading societies? This is the broad view which we must take of the subject, if we would see the Society prosper and increase in wealth for the future. I am one of those who attach great importance to a healthy state of trade in regard to all accessories of the garden. When good or new plants or things are purchased periodically, it is a sure sign that the employer appreciates his gardener's efforts, and enjoys the fruits besides. Now, very frequently a large show—a show which, from the known prestige of a society, is likely to be worth attending—will induce many employers to go, that otherwise would not do so, and this proves a very great incentive to trade. Written reports, however ably given, seldom loosen the purse-strings in the way that the actual "feast of the eyes" does. Now, the question whether these minor fortnightly shows are likely to prove beneficial or otherwise in this sense is well worthy of consideration. If they decrease the interest which the general community takes in exhibitions of this kind, then very much will be lost. The Editors, in referring to this matter a short time ago, spoke of doing away with the "incubus" of the large shows. If our best large exhibitions, our great and glorious International, in fact, were an incubus, I would that such a nightmare had me in frequent possession. But, seriously, the question why large shows do not pay is open to explanation. In a great measure it is due to the want of a more extended system of advertising. Who amongst the millions in the great metropolis, save and except horticulturists or others associated with them, ever knows when there is a show at those gardens? [Hear! hear!] Mr. Fraser at a late meeting of exhibitors, in stating this much, threw out an excellent suggestion, to the effect that clergymen and doctors should be induced to lend a hand in view of disseminating the knowledge that good horticultural exhibitions were held within such easy reach. Could not the metropolitan railway companies, and others with whom they are in direct communication, be induced to lend a hand too? Now that the "Metropolitan" has a station in the immediate vicinity of the gardens, and thus affords direct and constant communication with densely inhabited Westminster itself, the public need but to be informed that such treats are prepared for them, and we may be certain that, with reasonable charges, a fair attendance would be assured. If you cannot extend the number of days upon which to hold an exhibition, divide the days or the charges therein into two or more parts. Instead of admitting early visitors at 1 o'clock, let it be 12 o'clock. Then *7s.* 6*d.* or 5*s.* ticket holders may be admitted from 12 or 1 o'clock till 4 o'clock, after which time reduce the price of admission by half or a third of this price; this, whilst it would not clash with any one's interests, might aid the exchequer materially. I cannot leave the subject without a reference to one other fact. If the Council definitively determine upon the whole programme as partly set forth, and determine that such only shall be their campaign, we may hope that what has been asserted again and again, concerning the unfitness of "the arcades" for the display of plants and flowers, may be taken seriously into consideration. It matters not what skill Mr. Eyles may bring to bear upon their arrangement, it will be perfectly beyond his power to make "an effect" in such a place. The large enclosure, within which stands the council-room, has been frequently used. It is fit only for a dry dock, however, and for the carrying on of piscatorial operations with immunity from the outer elements! How far superior is a small tent, such as is used at the Botanic, for such displays; and might it not be placed at the back of the wall between the large tent and the arcade, with an entrance near Mr. Fox's office, and from the doorway at the top of the Exhibition Road? A discussion on these matters cannot decrease the popularity of the Royal Horticultural Society; hence I have not hesitated to speak freely. *William Earley, Digswell, Welwyn.* [Our correspondent is not the only one who has jumped to the conclusion that the shows are all to be "minor" fortnightly ones. We are not so informed, and have seen no such announcement. The shows are to be both of a "larger and smaller" type, very much, we presume, as they are now, except that the spring shows will be more distributed over the early meetings, and all will take place on meeting days. There will be a "great" Rhododendron show, a "great" Rose show, and a "great" miscellaneous show, but the principle of restriction rather than of extension will be adopted. That is practically all the change that is to be made, so far as we understand the proposition of the Council. The exact amount of change can only be known when the subject is discussed in detail. Moreover, we cannot allow our correspondent to twist our words into any such statement as that the Great International Show was an "incubus," or that "great shows" are necessarily so. We did not say this; but what we have written we have written. EDS.]

The Early Rose Potato.—I bought 1 lb. of seed of this variety from a London seedsman in February last, and they have produced 142 lb. [Wonderful! Is there no mistake?] They are a fine sample, and when cooked are white and mealy. The following is the manner in which they were treated:—The pound consisted of five tubers of equal size. I put them into a vinery, to enable them to push the eyes, and afterwards cut them up into 62 sets. I manured the ground 2 inches thick with the dung from an old Melon pit, and planted them as I dug the ground, 16 inches apart between the sets, and 30 inches between the rows. *N. Castle, Gr. to the Provost of King's College, Cambridge.*

Our Old Timber.—There lately stood, in St. Peter's Road, Croydon, a fine specimen Beech tree, measuring 11 feet in girth. On Wednesday last, at 2.15 P.M., it was caught by the gale and blown across the road on to the roof of a gentleman's house, carrying slates, glass, iron, bricks before it. On examining this relic of the past, as it was being sawn up, I found it decayed in the centre. In one of the main branches I counted 130 rings, and to outward appearance it was perfectly sound, on looking at the butt, which was 14 feet in diameter, as it laid. My object in writing is that attention may be called to our old trees, especially near roads or houses; and that they may be examined; and if in the state this one was, let them be taken down before some one is killed as they are walking along the road. *D. J. N., Croydon, Sept.* 15.

Pot Vines at the Royal Caledonian Horticultural Society.—Your reporter, in his account of the late Exhibition of the above Society remarks, in reference to pot Vines, "that some of them were layered for show purposes." It was clear to the most inexperienced eye that the pot Vine to which was awarded the 1st prize in its class was nothing but a clumsy subterfuge, such as ought not to be encouraged. I need not say it did not belong to me. My friends North and South know me better than to think that the remark referred to my productions. My Vine, which was placed 2d, was *bonâ fide* a pot Vine, as also were my others which took the 1st prize. I would add that I was disposed to look charitably on this attempt to put half a vinery in a pot and then into a box, when I learned that my opponent was an amateur, who stood in need of a little practical experience, and a hint as to what is uniformly understood among gardeners as a "pot Vine." I cast no reflection on the judges; evidently they took the same view as I have done, and seemed anxious to reward toil. But is it not desirable that committees, when arranging schedules, should be guarded as to the wording, so as keep the over logical competitor within due bounds? There may not appear to some the same wide difference between a pot Vine and a Vine in a pot, as there is between a Horse Chestnut and a chestnut horse; and most practical gardeners who saw the plants agree that such must have been the case in this instance. *A. M'Leod, Gr. to the Marquis of Lothian, Newbattle Abbey, Dalkeith.* [Such practices as those hinted at by our reporter, and also by Mr. M'Leod, cannot legitimately be called the "pot culture" of Vines. EDS.]

Foreign Correspondence.

A RUN TO MAHABLESHWAR.—It was evening when the buggy was brought to the door; we stepped in, and drove off towards Poonah. The road leads through gently undulating country, with here a temple surrounded by its Banyan trees and Plumiera acuminata, and there a well with its sacred Pepul trees. Here a garden redolent with the perfume of the Jasmine and the Rose, cultivated for offerings to the Hindoo gods, and there a field of Bajeel, offering its golden harvest. We now cross the Moola Moola, a beautiful river, about the size of the Thames at Kew; the Mango (Mangifera indica), the Asok (Jonesia Asoca), and Casuarina muricata fringe its banks. Here is another temple, and as we pass the delicious perfume of the flowers of Carica Papaya salutes us. We reached the Post Office, and getting down, we sent the buggy home, and proceeded to look round the establishment, which is a commonplace looking bungalow with a verandah all round, and a large clock in the centre, which says, with gravity enough, if not wisely, "it is 10 o'clock!" Two mail gigs are in front, a little stronger built perhaps, but on the whole the same two-wheeled, red-painted mail gigs so common at home.

The fellow in the turban has given the order, "Bring forth the horse;" "Horse!" we repeat, as four skittish-looking ponies are led up. What! are we going to drive tandem? They are only one-horse gigs, but one is put in the shafts, and another on one side. So we say, "O! we are to have three ponies;" but no, we are requested to get up, and on inquiry find we have got our complement of cattle, and that this is the usual way of buckling-to. While wondering what the Post Office authorities meant by such a fancy arrangement, Jehu advises us to look out, the ponies' heads are let go; when the wheeler, rising on his hind legs, springs off, but his outside brother considers there is something wrong, and putting down his head, declines to proceed. After much pushing, coaxing, and whacking, the poor brute starts off. "The post's shrill horn re-echoes through the air," and on we go; the Christians' church, the Hindoos' temple, and Islams' house of prayer, are soon looming in the distance. Again the driver winds his horn, and we pull up at a changing station, after a run of six miles; here fresh ponies are put to.

It is now September, and the native grains may be seen ready for cutting, together with Wheat and gram just coming through the soil. Just as the sun's light tinges the East we stop, and the driver, saying, "Yea kowta hie, sahib," warns us we have reached the foot of the Mahableshwar hills, the principal hill station of the Bombay Presidency; and henceforth we must find some other conveyance. As we had been working all the previous day, and riding all night, we determined to have some rest, and turned towards the travellers' bungalow, an institution of which your stay-at-home readers can have but at least a far-fetched idea. Well, the Government of India, for the benefit of all who require to travel, has built, at a distance of about 20 miles along all the post roads in India, bungalows in which the weary traveller may rest and find protection from the sun's rays. In all the more important ones a messman may be found, who can provide at least the necessaries of life, and sometimes a few of its luxuries, all of which he is obliged to sell according to a list on the wall signed by the magistrate of the district—an arrangement which, I dare say, would find favour with some in more countries than India. We entered the bungalow, and having divested ourselves of our outer garments, and told the messman to inquire after a pony that should be waiting, and to have breakfast ready at 8 o'clock, we went to rest. Rising at the appointed hour, we made a breakfast on tea and fried eggs. By this time a pony was at the door, and we made another start.

As we enter the village of Wye, a few noble Tamarind and scraggy Cocoa-nut trees greet us. Who has ever seen good Cocoa-nut trees away from the sea-coast? At the road-side Bryophyllum calycinum, in company with an Adiantum and a silvery Cheilanthes, give a foretaste of the botanical treasures beyond. We now reached another travellers' bungalow, where we obtained a draught of brandy and soda-water, and a fresh pony. For the last few miles the road has been rising gradually, but now we have reached the hills, and the road winds upwards. Soon we leave the Babul trees (Acacia arabica) behind. For a few miles the road winds up the bare hill-side, now and then affording beautiful glimpses of the valley of the Wye. At 10 miles from the foot of the hills we reach Panchgunny. Here Peaches and Strawberries flourish, and we begin to see a few Brackens; soon they become more numerous, and these, with a yellow Crotalaria here and there, carry one's mind back to the

> "Land of the mountain and the flood,
> Land of my sires."

We then passed plantations of Bamboo and Casuarina muricata, while a Curcuma appeared to enliven the scene with its beautiful white spathes. We are now nearly 4000 feet above the sea, and here is Lingmalla, with the Government Cinchona plantation. It is beautifully situated at the head of a valley down which the small stream flows, and the quinine trees are planted out on small terraces on the hill-sides. Four years ago the plantation was started with 60 plants, and now the number has been increased by propagation to nearly 10,000. They are from 12 feet high downwards, and the luxuriant health shown in their fine foliage is delightful to look at; the whole plantation reflects the highest credit on its superintendent, Mr. Gillingwater The Yeana was then crossed. Its banks are clothed with Bracken, and at the edge of the water beautiful clumps of Osmunda cinnamomea, and on the Moss-grown rocks Cheilanthes tenuifolia and a small Asplenium are seen. We then passed through market gardens, managed by Chinese. Here one fellow has dammed up a small stream and is watering his Potato plot with it. The Potatos grown here are the finest in India, and are not surpassed by any grown in Europe. Another is planting Strawberries, which yield heavily from February to June; while here is a plot of green Peas in every stage of growth.

These Chinese have been convicts, and are capital garden men—worth two Hindoos. The principal garden tools are a pick, a hoe, and a small weeder, like a miniature reaping-kook: if the tool happens to be not quite handy the Chinaman will soon make it so; not so the Hindoo: it is a matter of the most profound indifference to him what sort of tool he works with, the oftener the handle of his hoe comes out the better for him, as he can then squat down to replace it. Now we are nearing Mahableshwar, and the scrub, which has lately consisted of a Willow, and stunted Eugenia

Jambosa, becomes thicker. The Willow disappears, and its place is filled with Tetranthera apetala, while here and there the road is entirely arched over by the Eugenia, affording a delightful shade from the hot sun. The Datura arborea is very common on the roadsides, and here is a beautiful Pteris, very like quadriaurita. Cynoglossum coelestinum is very plentiful, and several species of Orchids may be seen on the trees, but none are in flower. The dried-up fronds of Colysis membranacea hang from the branches, and Phegopteris aurita, in company with Arisæma Murrayi and Remusatia vivipara, is abundant in the shade. Here we arrived at the travellers' bungalow, which is 78 miles from Poonah, and 4700 feet above the level of the sea. The mean temperature is 75°, and 200 inches of rain fall between the beginning of and the end of September. *G. M. Woodrow, Government Botanic Garden, Poonah.*

Notices of Books.

Les Plantes Grasses, autres que les Cactées. Par Ch. Lemaire. Paris: Librairie Agricole, Rue Jacob 26. 18mo, pp. 135. (Succulent Plants, excluding Cacti.)

A short time since we called attention to the publication of an excellent little volume on the Cactus family by M. Lemaire, and we have now to announce a companion volume on other succulent plants. Within very narrow limits, M. Lemaire has contrived to give a great deal of useful information respecting these plants. The author's task was the more difficult, as the plants he had to deal with have in many cases little in common, save that they are succulent. In almost all large orders some of the species are of succulent habits, as we had occasion to remark when noticing Mr. Grindon's work on "Echoes in Plant-life" (p. 843).

A strict classification being thus rendered impracticable, M. Lemaire has adopted the alphabetical arrangement, and under each genus has given the etymology, generic character, and history, together with a brief enumeration of some of the more prominent species in cultivation. Time was when this class of plants was in high favour with cultivators. M. Lemaire has remained faithful to his early love, and laments, and with good cause, the fickleness of fashion which has left these plants comparatively uncared for; and yet we do not know of any group more interesting. The forms are varied to infinity, some are beautiful, many odd and grotesque, the flowers almost always pretty or brilliantly coloured, sometimes gorgeous. The mere collector may revel in the oddity of their form, or in the beauty of their flowers. The gardener, intent on decorating his parterres, finds suitable plants for his purpose in abundance among the succulents, as may be seen in the increasing use of Sedums, Crassulas, Echeverias, and the like, in summer bedding; the morphologist delights in their quaint forms, and in the admirable illustrations they afford of the way in which plants are built up and their organs arranged; and the systematic botanist finds it imperative to study them in the living state, owing to the difficulty of preserving them in a fit state for examination in herbaria.

To know Stapelias, or Sedums, or Mesembryanthemums it is necessary to grow them, or at least to study them in the garden. Such being the case, it is extraordinary that our collections of these interesting plants should have been so much reduced. How many of the Stapelias and Mesembryanthemums, mentioned by Haworth and others, remain in the country? We suspect but a very small proportion. And yet it is not, as with the Proteas, that large or expensive establishments are needed for their culture. An amateur with very modest resources might cultivate a large proportion of them, and derive infinite pleasure from so doing. As an incitement and a guide, he cannot do better than purchase this unpretending but valuable little book, at a cost of less than 1*s.* 6*d.*!

Having indicated the general nature of the book, it will be seen that there is really not much room for criticism. The author has long been renowned for his special knowledge of this race of plants, and his descriptions and information may be trusted accordingly. We may, however, call his attention to a work which he has probably not yet seen; we refer to Mr. Saunders' "Refugium Botanicum," which is intended to be devoted in great measure to the illustration of succulent plants, and in the last issued part of which is an article by Mr. J. G. Baker, descriptive of the species of Echeveria (Cotyledon) in cultivation in this country, accompanied by coloured figures of several newly introduced species in the Saundersian collection. Mr. Baker reduces Echeveria to Cotyledon, and some of M. Lemaire's genera are also placed under the same heading, the characters relied on by M. Lemaire not being considered by Mr. Baker as sufficiently important to serve as the distinguishing marks of new genera. This arises from the discovery, since M. Lemaire originally wrote, of intermediate forms linking the several forms together. For our own part we are disposed to follow Mr. Baker's arrangement in preference to that of M. Lemaire, but that is mere matter of opinion. Questions of this kind by no means detract from the value of the little work before us, which we cordially recommend to all amateurs and growers of succulents.

Colorado: its Resources, Parks, and Prospects as a New Field for Emigration, &c. By William Blackmore. London: Low, Son & Marston.

About two-thirds of the distance between New York on the east and San Francisco on the west, a little to the east of Utah and Salt Lake City, and north of New Mexico, lies Colorado. It is one of those transition States whose progress is so remarkably rapid. Where a few years back a handful of lawless vagabonds were almost the only white inhabitants of the district, towns have sprung up, some, as Denver, for instance, already carrying on a large trade. Now that the Pacific railroad is open, allowing the traveller to pass from Colorado to New York in four or five days, or to San Francisco in two or three, it may be anticipated that the trade and the population will largely increase. The chief source of wealth at present consists in mining operations, but the land is well suited for stock rearing. The so-called "parks" are fertile upland valleys, lying at an elevation of from 5000 to 6000 feet above the level of the sea; one of them comprises no less than 9000 square miles. The book before us consists mainly of a number of extracts from official documents and trustworthy books relating to the district. The author adds but little information himself, and the extracts are, as might be anticipated, "selected;" nevertheless, we commend the volume to the discriminative attention of intending emigrants.

An Illustrated Natural History of British Moths. By Edward Newman. Large 8vo, pp. 486, *ic.* 722. London: Tweedie.

In language as clear as it is accurate, Mr. Newman has here given us a complete description of all the moths that are found in this country, and accompanied his descriptions by characteristic illustrations. The book is intended for beginners and amateurs, but it is nevertheless vastly different from the vague trash so often served up in so-called popular books. In the present instance, although technicalities are to a great extent eschewed, yet precision is attained, by the use of ordinary language alone, to a degree which is something extraordinary. The work is in the main descriptive of the structural peculiarities of the insects in their several stages, and of their habits and modes of life. In fact the work is of a practical character, dealing with facts, and setting forth those facts with clearness of method and soundness of judgment, and leaving the reader to draw his own inferences. As the author has, in our opinion, succeeded so well in accomplishing his self-imposed task, we must not cavil at him for not treating of matters that did not enter into his plan, else so good is the fare set before us, that, like Oliver Twist, we have a craving for more. And more we are to have, we are glad to say, and hundreds of young entomologists will hail with joy the advent of the promised companion volume on the butterflies. Let every parent whose children manifest the slightest taste for butterfly catching present these volumes to them. In future years Young Hopeful will thank us for the advice we now tender, and we are sure we shall get the thanks of the parent too.

CATALOGUES RECEIVED.—At this season of the year the Bulb Catalogues pour in upon us. The following are now on our table:—E. G. Henderson & Son's Bulbs and Flower Roots—F. & A. Dickson & Sons' Dutch Flower Roots—Smith & Simons' Dutch Root List—Hooper & Co.'s Autumn Supplement to General Catalogue (large numbers of miscellaneous bulbs)—W. Bull's Retail List of Bulbs (Liliums well represented)—Carter & Co.'s List of Dutch Bulbs, &c. (offers the new Raspberry, McLaren's Prolific)—Barr & Sugden's Autumnal Catalogue of Bulbs and Plants—Dick Radclyffe & Co.'s Catalogue of Dutch Bulbs—Stuart and Mein's Descriptive Catalogue of Hyacinths, &c.—Charlwood & Cummins' Catalogue of Flower Roots—C. Turner's Catalogue of Hyacinths, Narcissus, Tulips, &c.—R. Parker's Catalogue of Hyacinths, &c. (Sweet Violets well represented)—J. Veitch & Son's Catalogue of Hyacinths, &c.—D. G. McKay's Dutch Flower Roots, &c.—Dickson, Brown & Tait's Autumn Catalogue of Hyacinths, &c.—G. J. Child's Catalogue of Dutch Bulbs—Downie, Laird & Laing's Descriptive Catalogue of Dutch Flower Roots—J. Scott's Bulbous Flower Roots—Jean Verschaffelt's Catalogue des Plantes for 1869-70 (contains several new Agaves, as well as a very extensive list of older kinds)—J. Dickson & Sons' Dutch Flower Roots—F. Farrell & Son's Catalogue of Flowering Bulbs—A. Leroy's Supplément au Catalogue de 1868.

Florists' Flowers.

THE recent Exhibition of the Royal Caledonian Horticultural Society, at Edinburgh, has served the good purpose of bringing the HOLLYHOCK to the fore as an exhibition plant. On this occasion both spikes and cut flowers were finely, even grandly, shown. Rarely, however, is the Hollyhock now seen at exhibitions in the southern districts of Great Britain, and then only in the form of cut flowers. One must travel northward to see it exhibited in magnificent spikes of bloom, like those seen at Edinburgh a few days ago. The condition in which they were shown was worthy of the glorious past of this summer flower, when Cheshunt, Saffron Walden, Slough, and other places contended in such formidable rivalry with spikes and cut blooms. It is by no means a neglected flower now, as the honoured names of Chater, Downie, and Hawke still make it illustrious; notwithstanding it deserves a wider recognition, and the display made at Edinburgh must surely help this.

In the North it is the custom to require an odd number of spikes to be exhibited, for the sake of uniformity in the arrangement, two definite rows forming a background, and a foreground being thus obtained. Thus, in the nurserymen's class 11 spikes were exhibited, so as to secure six spikes in the back row and five in the front row; in the amateurs' classes nine and five spikes respectively were exhibited. In the first-mentioned class Messrs. Downie, Laird & Laing exhibited a grand lot of 11 spikes, that were thought by some to be the finest lot ever exhibited. The summer has been a very trying one to Hollyhock cultivators in the North. A prolonged season of drought, combined with a scarcity of water in some parts, has sorely taxed the patience and skill of the cultivator; and when rain appeared imminent, and the appearances were welcomed with much hopeful joy, a heavy frost on the last day of August played sad havoc with those flowers not protected by artificial aids. The strong luxuriant growth of foliage, so characteristic of the North, was stricken as with an attack of jaundice, and a kind of paralysis ensued. Fortunately, for the sake of protection from the winds, the Hollyhock is invariably cultivated in somewhat sheltered spots, and where there was the most shelter the least injury was done. The kinds exhibited by Messrs. Downie, Laird, & Laing were:—James Whitton, clear rosy salmon, flowers of fine form and closely and regularly set on the spike; Lord Stanley, dark ruby crimson, a grand spike; Miss Young, light rosy crimson; Countess of Craven, delicate rosy peach, forms a very fine spike; Lord Clifden, light rosy crimson, flowers and spike very fine; Lord Rokeby, bright magenta crimson, a grand spike for exhibition; Mrs. P. Bruce, light rosy peach, a beautiful and delicate flower; Mrs. Downie, delicate soft salmon-rose, very fine; R. G. Ross, deep rose, tinted with salmon, extra fine; Tournament, light salmon-rose; and Octoroon, dark mauve-maroon, a novel and very fine variety. Each of the spikes averaged from 3½ to 4 feet in length, and was of corresponding girth. Other fine exhibition kinds shown in this class were—Rev. Joshua Dix, bright shining crimson; Joshua Clarke, brilliant cherry-red; Invincible, deep rose, tinted with salmon; Charles Eyre, dark crimson, full and fine; and Gladiator, rich bright crimson. In the amateurs' class for nine spikes, Mr. D. Marshall, Kingston Grange, had good spikes of Countess of Craven, John Tweedie, glowing rose-crimson; Hercules, yellow, shaded with dark at the base; Jaune d'Or, pure yellow, forms a fine spike; Mrs. Downie, Rev. J. Dix, Mr. P. Bruce, Acme, and Invincible. Another good kind was James Taylor, light rosy red. Mr. J. McIndoe, The Gardens, Bishopthorpe, York, had five excellent spikes in the class for that number, the sorts being Bridesmaid, a handsome, pale whitish buff flower; Mrs. Hastie, light rose, a beautiful spike; Favourite, Queen of Yellows, bright yellow; and a seedling. The group to which the 2d prize was awarded comprised flowers already mentioned.

The class for 12 blooms of Hollyhocks for amateur growers brought a remarkable competition, no less than 15 stands having been staged, and the fine critical discrimination of the judges must have been sorely tested. The competition between the Rev. Edward Hawke, the well-known raiser of new Hollyhocks, and Mr. McIndoe was remarkably close, one flower alone in Mr. McIndoe's stand deciding the point against him. These two stands contained marvellous flowers, so superbly finished as to represent a very high ideal of perfection in the culture of the Hollyhock. The Rev. E. Hawke had the following:—Phryne; Exhibitor, pale yellow, suffused with rose; Ruby Queen, deep shining ruby; Gem, deep salmon-rose; Ariadne, pale yellow, flushed with bright rose; Mrs. Hastie, Formosa, deep salmon buff; Charles Eyre, George Keith, fine rosy crimson; Willingham Model, pale primrose; Ida, buff ground, suffused with fleshy carmine; and Fred Chater, pale yellow: the three last being of great beauty and quality. Mr. J. McIndoe had Willingham Model, also very fine, and a superb Hollyhock; Charles Eyre, Adonis, creamy white, flushed with carmine; Ida, Fred Chater, Lord Napier, rich bright crimson, extra fine; Leah, apricot-yellow; Mrs. P. Bruce, Rev. J. Dix, and The Archbishop, a promising pale-coloured seedling.

Messrs. Downie, Laird & Laing contributed a stand of single blooms of new Hollyhocks, of which J. McIndoe, Novelty, and Mrs. Douglas were very fine and promising. The same firm received a First-class Certificate for a spike of Richard Dean, rich deep glowing crimson, a splendid hue of colour, flowers large and full, and forming a fine spike. The paucity of new Hollyhocks was accounted for on the ground that the late spring had so affected the plants that many of them were not sufficiently in bloom to be exhibited, a fact clearly apparent when visiting some of the Hollyhock grounds in the neighbourhood of Edinburgh. *R. D.*

The Apiary.

FOUL-BROOD.—In a former paper we gave some account of Mr. Lambrecht's theory as to the true origin of foul-brood, which he claims to have discovered. He asserts that this disease is caused by fermented pollen, combating the Fungus theory as put forth by Dr. Preuss. He also states that he could at any time produce foul-brood in a hive, by feeding the bees with fermented pollen; and not only so, but that he has discovered the means of working an infallible cure, even in the cases of the most malignant form of the disease. He offers to produce the disease in any hive selected, and to effect the cure of the disease so produced, under the observations of a committee of distinguished German apiarians, who would report the results of the experiment.

Mr. Lambrecht's offer having been accepted by the Brunswick Apiarian Society, he proceeded to effect the preliminary operation. A healthy hive was selected, and foul-brood was established to the satisfaction of the commissioners, as declared in their report of May 28. Four weeks having been allowed to elapse, the stock was declared by the commissioners to be "rotten foul," Mr. Lambrecht believing "that it was their intention to render the cure almost impossible." "But what a sight revealed itself upon removing the crown-board, and what a task! A handful of disheartened and inactive bees were found scattered over rotten and stinking combs, and upon these we were to exercise our abilities, and prove the efficacy of our means of cure. The hive and its contents having been brought into a room with but one window, we again surveyed the disgusting rotten combs, and at once decided on our mode of action. Had we been called upon to effect a cure three weeks before, it would have required only ordinary means, but in the present wretched condition of the hive we must resort to extraordinary measures, in order to be certain of effecting a cure. * * * The whole business occupied but a short time, and ere half an hour had elapsed,

the bees were returned to, and were in full flight upon their stand, which, in order to prevent infection, was placed in a garden half an hour's walk from Brunswick, close to a hedge which bordered an open field."

"On July 15 we inspected the cured hive (we live at four hours' walk—*i. e.*, 16 miles—from the place), for the first time, and what did we then see? The bees were clustering on the alighting board, drone-combs and worker-cells were filled with beautiful sealed brood, whilst on their edges were royal cells just ready for closing. The first swarm would have flown off in a few days. We now inspected all the cells, and were just going to give vent to our joy, when in the last comb we found two cells, the contents of which proved clearly that the pest had not yet entirely disappeared."

A little treatment was resorted to, and on July 27 the hive was again inspected in the presence of the commissioners. The queen cells had been previously excised to prevent swarming. A very rigid scrutiny was made, and the following report was drawn up by the commissioners:—

"Brunswick, July 27, 1869.

"This afternoon, about 4 o'clock, the examining commission visited the experimental hive. Each comb was taken separately, and examined twice over, and in order to do this more thoroughly, the bees were swept off, and each separate cell examined. We found the stock, to the best of our knowledge, strong and ready for swarming—royal cells about to be sealed over—and the whole colony in such excellent condition that we cannot but declare the hive completely and entirely cured of virulent foul brood.—C. J. H. GRAVENHORST, HEINRICH OPPERMANN, H. HARST, H. WIEDENWROTH."

Mr. Lambrecht is about to publish a pamphlet by subscription, detailing the means of completely curing foul-brood, of keeping it from the apiary, of rendering infected honey again fit to be used for bee-food, and of at once freeing the pest from its contagious character. It will be printed in English, and he is desirous of having, in England, 500 subscribers, when the price will be four thalers (12*s.*).

T. W. Woodbury, Esq., of Mount Radford, Exeter, will gladly receive the names of intending subscribers, but he would rather they did not forward the amount of their subscriptions until he can form some idea of their numbers, or until further notice, as it is hardly likely that so many as 500 names can be found in England.

Mr. Gravenhorst states that he was at first an opponent of Lambrecht's theory, but that he was fully satisfied that its correctness was proved by the facts and results of the experiment. Dzierzon, Von Berlepsch, and others are opposed to it, agreeing with Dr. Preuss in the belief that Fungus is the cause and origin of foul-brood. This Fungus Lambrecht asserts to be the effect of the disease, but not its cause. We do not pretend to decide which party is in the right.

Garden Memoranda.

MESSRS. BARR & SUGDEN'S TRIAL GROUNDS.—An examination of the many bulky catalogues that are annually sent out from the great seed firms, suggests the question, Are there really so many distinct varieties as are therein mentioned? or are there not few varieties and many names? The latter is no doubt the case to a considerable extent, as is made evident by comparing the many varieties sold by each house. Considerations of this kind, and the difficulties to be encountered in purchasing large quantities of seed, of which little is known, except such information as is furnished by catalogues and trade circulars, no doubt suggested the establishment of these grounds. At any rate Mr. Barr has made good use of his ground by growing for comparison large collections of Peas, Beans, Lettuces, Potatos, &c., together with large quantities of annuals and other plants. To ascertain the merits of novelties and for testing the quality of seeds supplied by growers, trials of this kind are invaluable; for however anxious the seedsman may be to know what it is he sells to his customers, he could in no other way satisfactorily furnish himself with the desired information.

Amongst the large collection of Peas grown here this season were Carter's First Crop, which was rather more vigorous than usual; Taber's Perfection, and Dickson's First and Best are considered the same; Dillistone's Early Prolific was a pure stock, and quite distinct from Carter's First Crop. Sangster's Improved is one of the best early Peas; it is longer in the pod, more vigorous and prolific than Carter's First Crop, though a few days later than the latter in coming into use. Dickson's Favourite is a good useful Pea; the stock was pure, carrying a very fine crop of well-filled pods; Paradise Marrow is a tall grower, fine podder, and good bearer, and comes into use about the same time as Dickson's Favourite; Essex Rival was remarkably fine, and was ready for use a few days earlier than the latter; Prizetaker is a good variety, with fine, well-filled, scimitar-shaped pods. In three samples of Laxton's Prolific there was some mistake, as both straight and scimitar-shaped pods and white and green Peas were produced rather numerously amongst them. The true pods were very well filled, most of them containing 10 Peas. This variety is also a heavy bearer. Another good cropper is Harrison's Glory. It is somewhat similar to Harrison's Perfection, but is dwarfer in growth. The dwarf Waterloo Marrow, 2 feet high, with medium-sized, well-filled pods, is a useful variety; Cullingford's Champion is a good bearer, with darker coloured foliage, and is a little taller than Champion of England. Fortyfold is a first-class Pea, and was one of the best here last season. Amongst a great many other tall kinds that were not ready was the tall Sugar Pea, which is used in the same way as Beans. This variety has white seeds, but there is also a grey-seeded kind with purple flowers, and more regular pods than the former.

Of dwarfer growing kinds of the Little Gem type, one called Extra Early Dwarf is probably the dwarfest of its class. It comes in a few days after Tom Thumb. Sutton's Long-podded Tom Thumb is in the way of Beck's Gem. Burbidge's Eclipse appears to be a good free-bearing blue Pea. Multum in Parvo is about the same height as Beck's Gem. It is a little longer in the pod, and not quite so early as that variety.

Amongst Broad Beans, the best appeared to be a Continental variety named Saville, which is very dwarf, a great bearer, and earlier than any of the other varieties grown with it. Royal Dwarf has white seed, and is rather small in pod, but prolific. Beck's Gem is a fine podder and good cropper, and very true here. Other kinds, such as Johnson's Munster Giant, Green Longpod, Taylor's Windsor, and Green Windsor, Small Julian, Mazagan, and the Longpod of Leyden, were looking remarkably well, and showing good crops.

Lettuces have been grown to a very fine size by Mr. Barr, who considers that the main secret of success in Lettuce culture is to grow them in light richly manured soil, and to keep them constantly well supplied with water. This season he has had an extensive trial of all the kinds that could be obtained, but as they are so numerous we cannot pretend to notice them all. Amongst the dark or copper-coloured kinds are some very good varieties, which, if the prejudice against the colour could be removed, would be more grown and more highly appreciated than they are at present. One named Red Winter is very distinct, the outer leaves are of a light copper colour, the inside gradually becoming blanched. It is a very good winter Cos Lettuce. The improved Spotted Cos promises to be good if tied up, but it does not heart well without being tied. Ivery's Nonsuch is well known; Dickson's Champion is somewhat similar in growth, and both are black-seeded; Magdalena is a very large Brown Cos, with good heart; Magnum Bonum Brown Cos, white-seeded, and Alphange, appear to be identical. Earley's Brown Cos, or the true old Covent Garden Brown Cos, is a true stock, and stands longer in not running to seed than any other variety grown here. Ducket's Perfection is a good serviceable Brown Cos. The above are all of the old Brown Cos type. Wheeler's Imperial is a black-seeded hearting Bath Cos, and is sold by some of the London houses under the name of Bath Cos. Sugarloaf possesses similar characteristics, but it is not so dark in colour; this is a first-rate Lettuce, and has been awarded a First-class Certificate by the Fruit Committee. Goldring's Bath Cos is quite distinct from the two former, it is narrower in the leaf, but darker in colour than the latter. Bowden's Brown Cos and Holme Park are nearly alike, both are white-seeded; the leaves are of a dark metallic colour, they are a long time in running to seed, but do not turn in well. Amongst Cabbage Lettuces, Royal or White Summer and Green Spring are good varieties; George's Early Spring is a good close hearting kind; Wheeler's Tom Thumb was last year the latest to run to seed, and appears likely to maintain its character this season; Early Brown, or Bruine Geel of the Germans, is a fine early spring white, not over large in size, but eminently adapted, with Wheeler's Tom Thumb, for culture under the *cloche*. Brown Dutch, white-seeded, is a good old winter sort; Royal, or Admiral, is a fine market Lettuce: this we believe is the same as the variety mostly grown by the market gardeners round Fulham for Covent Garden. All the Year Round, and Covent Garden Cabbage, are both large, close-hearted, and good flavoured kinds; Normandy Green Dutch, yellow-seeded, is a first-class general kind for summer and winter, it produces good firm hearts, and does not run to seed very quickly; White Cabbage and Victoria, as sold in the trade, are both good useful sorts. Covent Garden Hardy White is a good summer and winter Lettuce; Neapolitan, and Bossin Giant, the latter a very large Lettuce, of greenish brown colour, are both in the style of Drumhead.

In other parts of the grounds were large collections of Potatos, Turnips, Onions, Cabbages, Kales, &c. Annuals are also largely grown, and very beautiful many of them were. Amongst the many varieties of Mathiola the new sorts, named bicornis and incrassata, sent out by Messrs. Backhouse, are finely scented. The genus Allium, of which there are many pretty species, is here well represented by a fine collection, amongst which the following are very fine kinds for mixed borders:—A. ciliatum; A. cœruleum, pretty cœrulean blue; A. Moly, finely shaded yellow, a grand variety for growing in groups in mixed borders; A. roseum, pale purple; A. striatum, white; A. fallax, in the way of ciliatum; A. macrophyllum, a robust grower, producing large heads of greenish white flowers,—this variety is very similar to, and perhaps is identical with, A. magicum; A. narcissiflorum, purple; and A. nutans, red. Geranium tuberosum, pink, is a very pretty plant for rockwork. Amongst the interesting species of Anthericum, A. ramosum is a good white. The beautiful and ornamental Hemerocallis fulva and its varieties are well worthy of a place in every collection; the succession of the flowers, despite their short-lived existence, and their easy culture, being great recommendations in their favour. Amongst double varieties, H. Kwanso flore-pleno is the best. The feathered Hyacinth, H. plumosa, blue, is large in size, and very showy. A bed of Gladiolus byzantinus was very beautiful, its dark rose flowers being very attractive; G. ramosus, is also a good early blooming species, with pale rose-coloured flowers, the three lower segments of which are of a deeper tint. A large bed of Spanish Iris was magnificent, the fantastic shapes of the flowers, and the variability of their hues, securing as pleasing a combination of colours as could possibly be seen. The English Iris was also represented in large numbers, here also the colours are magnificent, when seen in perfection. These come into bloom just as the Spanish varieties are going out of flower, and form a fine succession of truly handsome flowers. As subjects for mixed borders they cannot be too strongly recommended, as nothing could be more beautiful and interesting when in flower. Gypsophila elegans is a graceful little white flowering annual, that is much more cultivated on the Continent than in this country. The pretty Tunica Saxifraga (red) has very graceful foliage, and makes a fine bed. Saponaria ocymoides is a remarkably fine plant for covering rockwork, its trailing habit and beautiful pink flowers making it one of the best for that purpose. Amongst the Dianthus family a new introduction of last year, named Heddewigii lilacina, is a very fine variety. Linaria triornithophora (yellowish purple) is very curious, its flowers being somewhat like three little birds seated in the spur. This genus also embraces some fine annuals for the ornamentation of rockwork.

Of Liliums Mr. Barr has a fine collection, amongst which the following were in bloom at the time we saw them:—hybridum, aurantiacum (orange), tenuifolium (orange-scarlet); bulbiferum, a very fine dwarf-growing sort, with bright orange-scarlet flowers, very fine; Incomparable, a fine dark variety; Sappho, rich orange, very free; and Thunbergianum, orange-scarlet,—all good and desirable varieties.

Miscellaneous.

Amazon Palms.—The coast region has, of peculiar species, first and foremost, the strange-looking Manicaria saccifera, which at a distance more resembles a Plantain become rigid and woody than any Palm, having immense simple leaves, each a ready-made tile that reaches from ridge to eaves. Quite as remarkable are the large, corky, tessellated, and echinate tricoccous fruits. This Palm, called "Bussu" by the Brazilians, is common about the mouth of the Amazon within the influence of tides and sea breezes, also on some parts of the coast of Guiana; and it is said to be the "Palma-pinus maritima, barbadensis et jamaicensis" of Plukenet. Another Palm confined to the same region is the "Jupati" (Raphia tædigera, Mart.), the only scaly-fruited Palm of America that has pinnate leaves, all the others having fan-shaped leaves, while all the scaly-fruited Palms of Asia and Africa have pinnate leaves. It has actually two African congeners—a rare case among American Palms, apparently pointing it out as a relic of some very ancient connection between the Old World and the New. The leaves of the Jupati are among the very longest known of any plant, being 40 and even 50 feet in length. *Dr. Spruce, in "Journal of the Linnean Society.*

Influence of Forests on Climate.—An interesting paper on the effects upon climate resulting from the clearing away of large tracts of forest was recently read before the Geographical Society. The facts are of universal importance, but are specially interesting to countries subject to alternations of flood and drought. The paper related to forest destruction in Coorg, Southern India. This district is composed of hills and valleys, which were formerly covered with forests. The lower slopes, however, are now denuded, and the rainfall is found to decrease with the removal of the arboreal vegetation. As regards the elevated crests of the Ghauts, which intercept the rain-bearing winds of the southwest monsoon, they would cause an abundant precipitation whether they were covered with trees or not, but the water supply and fertility of the lower slopes and plains to the east are seriously diminished by the clearing of forest on the hills, and the result is brought about in the following way:—The natural forest acts as a check on the too rapid evaporation, and carrying off by streams, of the rainfall on the surface of the land. As the rain descends, it is gradually conveyed by the leaves of trees to the dense undergrowth of shrubs, and carpet of dead leaves, and below this it encounters a layer of vegetable mould which absorbs the water like a sponge. By these, aided by the roots of trees, the moisture is transferred to the depths of the earth, and a reservoir of springs is thus formed, which keeps up a perennial supply of water to the lower land. But rain falling on the bare surface of cleared lands runs off at once by the nearest water-courses, and none is retained to keep up the flow during the dry season. Beside which, evaporation is so much more abundant from a surface exposed to the sun than from land screened by a clothing of forest, and the flow of surface water tends to sweep away the clothing of soil and render a district utterly barren. There is no doubt that this is one of the main causes, in hilly countries, of drought and floods. In France, for instance, since the mountains of Auvergne and Forey have been so denuded of forests, the Loire has been constantly flooded, occasioning vast destruction of property. The same cause, in Algeria, has caused frequent droughts, and the French Government has lately been considering the proposition of some scientific men to replant these districts with trees.

Chemistry of the Shaddock Tree.—The well-known Dutch chemist, Dr. J. E. de Vrij, who has distinguished himself by several interesting researches in organic chemistry, and has done much to promote the useful applications of this science both at home and in the Dutch colonies, turned his attention recently to the chemistry of the Shaddock tree (Citrus decumana), which, after his last visit to Java, he found growing by thousands in Bandong. In many higher localities than Bandong, where the average temperature is much lower than in Batavia, the fruit of the Shaddock is only the size of an ordinary Orange, and is not eatable. As the many thousand Shaddock trees growing in the neighbourhood of Bandong were therefore almost useless, he thought it would be interesting to make some experiments on the preparation of the essence of Shaddock flowers. After a great many distillations of several hundredweights of fresh flowers, the result was, that the average quantity of essential oil yielded by 100 lb. weight of fresh flowers amounted to 1 lb. Dr.

de Vrij then found that this essence, obtained by distilling the petals of the Shaddock flowers, is identical with the essence of Orange flowers, called Néroli. This conclusion was amply confirmed, when he returned to Europe, by the principal manufacturers of perfumes whom he consulted on this subject, and who declared the essence of Shaddock flowers prepared by him to be identical with the first-rate quality of Néroli. The next question to be solved was, whether the manufacture of Néroli on a large scale in the tropics would be profitable, and he was soon convinced that in Java, where he made his experiments, the local circumstances are such that this manufacture would certainly prove advantageous. Hence it is almost as certain that it could be profitably undertaken in the English colonies where Shaddock trees abound. But besides the essence obtained by distillation of the flowers, there remains in the retort a substance which deserves attention, both from a scientific and practical point of view, especially if Dr. de Vrij's plan of preparing Néroli on a large scale in the tropical colonies should be carried out. If the residue in the still is thrown, while yet boiling, upon a cloth, the clear yellowish liquid which passes through deposits, in the course of a few days, a large amount of yellow crystals. These, on being submitted to various experiments, have turned out to be identical with the substance discovered in 1828, by Lebreton, in unripe bitter Oranges, and called by him hesperidine, the composition of which remains yet unknown. This hesperidine, which Dr. de Vrij has found to be very widely spread in the genus Citrus, is the pure bitter substance contained also in Oranges and Lemons. It can be obtained easily, and in tolerably large quantities, from Shaddock flowers, and appears to be a completely innocent bitter substance, very different from cocculus indicus, picric acid, &c., so that it deserves, perhaps, some attention as a substitute for Hops. In these days, when organic chemistry progresses with such rapid strides, it is not impossible that the substance in question may have been already produced artificially; but this, of course, cannot be ascertained with certainty until its properties and composition shall have been more completely studied. *Scientific Review.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

STOVES and all similar structures will now require particular attention in regard to giving air and to keeping off damp; for if the former be not judiciously admitted at this season, both delicate flowers and foliage will damp off in consequence. I have before remarked, that a little heat should always be kept in the pipes during dull periods, more for the purpose of giving greater buoyancy to the air than to afford any additional amount of heat, which will not be required while the average temperature without is not below temperate. The same remarks apply equally to conservatories and greenhouses, &c. Overcrowding of plants should not by any means be permitted, but the air should be allowed free play amongst and throughout all. Those who have hitherto afforded occasional applications of manure-water to *Chrysanthemums* will now do well to withhold it altogether until the flower-buds show prominently, when it may be again be given to them with great advantage. The tying-in of the young shoots of these plants should be proceeded with as frequently as they may require it. The young growths will now become much stiffer, hence a greater amount of caution in tying them will be necessary. Do not crowd specimen plants too closely together, or let them suffer in the least from drought at the roots, otherwise a great portion of the lower leaves will fall off; which not only makes the plants look unsightly, but greatly injures the flowers themselves. Expose such free winter-flowering plants as *Libonia floribunda* fully to the sun, and give them all the air possible, now that they have made their summer's growth. With the wood thus well ripened they will flower much better a few months hence. Do not pot any after this date. The bright and beautiful Guernsey Lily (*Nerine sarniensis*) will now be forming flowers, as also will some few plants at least of *Vallota purpurea;* although its usual flowering period is in May, these will be found very useful for decorative purposes at this season. The former should occasionally receive a slight root watering, so as to somewhat moisten the balls, in which condition the flowers will last much longer. Water should now be partially withheld from such plants of *Gloriosa* as have finished growing and have ceased to flower, with a view to ripening their tubers.

FORCING HOUSES.

Late Vineries, in which Grapes are finally ripening, should have as much air as possible whenever the external atmosphere is dryer than that within the house. A still further reduction of temperature will be advisable in connection with young successional *Pines;* during cold nights from 65° to 68° will be quite heat enough for them. Continue occasionally to syringe those plants which are swelling fruits in a primary stage with tepid water some 8 or 10° warmer than the temperature of the house itself. Also afford a little air daily if possible. The quantity, which must be moderate at this season, should be judged by the state of the weather without. A mean temperature of about 71° will amply suffice for these by night at this season, the advance by day should be influenced by the warmth of the sun. During moderately warm days it will be possible to admit just a little air, without materially lowering the temperature. This should be given in the front of the house, so as not to create a draught, which would be the case if the back ventilation were opened. By so doing the humidity in the atmosphere and the temperature of the house will be maintained, much to the benefit of the inmates. Those who depend upon frames or pits, heated by means of fermenting materials, for their supply of *Cucumbers*, as long as possible into the autumn and early winter months, should now attend strictly to the linings, which will require thoroughly renovating and making up. The plants may be much assisted by giving the soil within the frames a nice surfacing over with finely sifted leaf-mould. Cut away all old and useless stems, and, if needful, give the insides of the frames, and the inner sides of the lights, a thorough good washing, to cleanse them of any filth which may have collected. This will tend to afford the plants more light, which is very essential now that the days decrease so materially. Do not afford air so abundantly; close the lights early in the forenoon, and do not sprinkle the plants so frequently as heretofore. The materials which are collected for *Mushroom* growing should be placed in a dry open shed, and be made moderately dry by means of fermentation. The beds, which are already made, should be well beaten down, and spawned as soon as a moderate temperature, averaging not more than 75°, can be assured without any danger from fluctuations which are likely to raise it above this. Do not be in too great a hurry to soil the beds over, for if they then fluctuate antagonistically to the well-being of the spawn, there will be less chance for the excessive heat to be given off.

HARDY FLOWER GARDEN.

The seeds of *Ten-week Stocks*, which I recommended to be sown some time since, will now be sufficiently above-ground to be potted off; they might be placed four or five in large 60-sized pots, or pricked off into pans or boxes, as may be convenient. Except during the first few days after transplanting them, when a little shading will be necessary, they are best fully exposed to the outer air and full sun, where they will be imbued with greater hardihood preparatory to withstanding the cold of winter. *Auriculas*, as I have before urged, should be placed under cover of some sort, but even in rainy weather all the air possible should be afforded them. Pot off late struck layers or cuttings of choice *Picotees*, &c.; they will still have time to take root, ready for storing away for winter. Sow seeds of *Lobelia speciosa*, in pans or boxes, to produce young seedling plants, which, being kept through the winter, will afford a better supply of cuttings in the spring than any autumn-struck cuttings are capable of producing. The seeds germinate best when placed out-of-doors beside a north wall, or other similar shady aspect. Sow seeds also of *Intermediate Stocks:* they will then come into flower succeeding those already alluded to.

HARDY FRUIT GARDEN.

Strawberry Plantations will still need to be gone over occasionally, with a view of removing all runners which continue to form periodically. This will be found a good time in which to give all established beds of Strawberries a good mulching over with well-decomposed manure. Remove all runners which have become established in pots from off the beds, and in those instances where it is intended to winter them in the pots they are now in, let them, where convenient to do so, be placed forthwith into the frames, pits, or other protection, plunged in some sort of material, the better to protect the roots during sharp weather.

KITCHEN GARDEN.

In hopes that the beautiful showers of rain we have experienced here (in Herts) may have reached far and near, I advise all to proceed with the necessary transplanting of *Lettuces*, *Endive*, *Cauliflower*, and other plants intended to stand the winter. Finally, draw the earth to all plantations of *Broccoli* and *Winter Greens* where not previously done. *Collards* for early winter use would be benefitted by a like operation. Take up and house the main crop of Potatos where they have become sufficiently ripe for the purpose, choosing a dry, windy day for the process. *Globe Artichokes* should have all old flower-stalks, &c., removed. Where this has not been done, all old stalks should now be cut away at the ground line. This will induce the somewhat exhausted stools or roots to form young growths, which, being perfected before the colds of winter set in, will be able the better to withstand their influence; in fact, entirely dormant stools will not exist through the winter, but will certainly rot away. *W. E.*

TOWN GARDENING.

THE *Shrubby Calceolaria* is one of the best bedding plants for towns. It can be easily kept through the winter, and should therefore be propagated at once by means of cuttings. These should be selected from the healthiest plants; only those shoots that now appear without showing flower-buds should be taken. In preparing the cuttings they should be cut off clean at a joint, and be left about 2 inches in length. When thus made they should be dibbled about 1 inch apart in a cold frame, in a compost, consisting of four parts of sandy loam and one of rotten dung. Here they may remain until spring. They should receive as much air as possible consistently with due avoidance of the ill effects of frosts, and have as little water afforded them as is consistent with their requirements. The varieties that have done best with me this summer are Aurea floribunda, Prince of Orange, and Compactum. In the absence of a substantial garden frame they may be kept very well in boxes, about 9 inches in depth and 1 foot in width, filled and planted in a similar manner to the above, as these can be lifted in and out of doors according to the state of the weather. By these means nice little bushy plants may be obtained for next season's planting. It is the wish of most persons who have not a greenhouse or frame, to preserve through the winter those plants which they have grown during the summer. To obtain this various methods are adopted, such as hanging them up by the heels in a dry cellar, keeping them in a dark room, and burying them in sand. All of these methods I have tried; but the one I have found to succeed best in keeping Fuchsias and Pelargoniums is to take them up at once out of the borders, and lay them in by the heels in mould in an outhouse. Then leave them until November to gradually dry off. This being done, I cut off all the young shoots and leaves, and bury them in a large wooden chest, in fine ashes that have never been wetted. By these means I find that they retain their vitality much longer, and break into growth quicker when taken out in spring. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Sept. 15, 1869, as observed at the Horticultural Gardens

Sept.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind	Rain.
Thurs. 9	3	29.753	29.734	74	56	65.0	65	59	S.	.42
Friday 10	4	29.376	29.268	71	48	59.5	62	59	S.	.24
Satur. 11	5	29.482	29.073	70	51	60.5	61	59	S.	.70
Sunday 12	)	29.538	29.082	63	49	56.0	60	58	W.	.14
Mond. 13	7	29.710	29.269	65	50	57.5	59	58	W.	.24
Tuesd. 14	8	29.793	29 632	68	55	63.0	58	57	S.W.	.18
Wed. 15	9	29.573	29.474	66	52	59.0	61	57	S.W.	.02
Average.		29.608	29.362	68.1	51.7	59.9	60.8	58.1		1.94

Sept 9—Cloudy; very fine, showery; thunder, lightning, and rain
— 10—Showery; stormy and boisterous; densely overcast.
— 11—Very fine; cloudy, but fine; boisterous, with rain.
— 12—Stormy and very boisterous; boisterous and overcast.
— 13—Boisterous; exceedingly boisterous; heavy rain.
— 14—Rain; overcast, slight rain; boisterous.
— 15—Very fine; cloudy, but fine; clear, brisk wind.
Mean temperature of the week, 2½ deg above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending Sept. 25, 1869.

Sept.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..19	67.3	46.3	56.3	21	0.64 in.	4	10	5	2	6	9	4	3
Mon. ..20	68.0	44.0	56.0	20	0.45	4	5	5	5	5	9	6	3
Tues. ..21	66.4	45.6	56.0	24	0.50	2	6	6	3	6	11	7	2
Wed. ..22	66.4	44.7	55.6	21	0.80	1	6	9	1	6	12	6	3
Thurs. ..23	66.3	45.7	55.9	22	1.21	1	7	8	3	6	11	6	2
Friday ..24	66.1	43.5	54.8	19	0.75	3	9	3	1	6	12	7	2
Satur. ..25	65.8	43.1	54.4	21	0.30	3	5	4	3	7	11	6	1

The highest temperature during the above period occurred on the 25th, 1832—therm. 82 deg.; and the lowest on the 25th, 1863—therm. 27 deg.

Notices to Correspondents.

BOOKS: *Novice.* Thompson's "Gardeners' Assistant."

CARNATION: *C D & Son.* Quite spoiled.

CONSERVATORY: *T F.* We do not recommend corrugated glass. Light shading blinds will be necessary. It is desirable to plant creepers, and train them beneath the roof. It is also generally preferable to have a central bed planted out, which might consist of Camellias or Rhododendrons, if designed for a cool house, or Palms if for a hothouse. Williams' "Select Stove and Greenhouse Plants" is one of the best books to consult.

CURRANT TOMATO: *H & C.* There are no grounds for supposing that the new Tomato, Groseille à Grappe (Solanum racemigerum) is poisonous.

IMPHEE: *W M.* A name given to Sorghum saccharatum.

MALFORMED PEAR: *W Smythe.* Such cases are not uncommon, they show that the edible portion of a Pear is a swollen branch. The true fruit, or core, is here absent. Many cases have been figured in previous volumes, and a full account of such growths is given in Dr. Masters' "Vegetable Teratology."

NAMES OF FRUITS: *Thomas Webb. Grape:* Black Morocco. —*D A. Apples:* 1, Duchess of Oldenburg; 2, Sturmer Pippin; 3, Robinson's Pippin; 4, Reinette du Canada; 5, not known. *Pears:* 1, not known; 2, Urbaniste; 3, Beurré Hardy; 4, Summer Franc Real.—*Charles Lawrence. Pears:* 1, could not be recognised, from the small specimens; 2, Napoléon; 3, Beurré Rance; 4, Beurré Rance; 5, Louise Bonne of Jersey; 6, Glou Morceau; 7, Beurré Diel.—*M. Lemaitre. Pear:* Easter Beurré.—*Lingfield. Apple:* Hawthornden.

NAMES OF PLANTS: *B & S.* A species of Loasa, but undeterminable from specimen sent.—*C G M.* Tradescantia erecta. *A Watkins.* Artemisia vulgaris.—*W M.* Phygelius capensis. *W D.* Eccremocarpus scaber.—*W B Page.* Fraxinus heterophylla and Quercus Mirbeckii.—*C B.* Anomatheca cruenta Stanhopea.

PANSY: *J C & Co.* Rosy Gem appears likely to be a showy bedding variety, of a deep reddish violet colour, but the blooms were much damaged before we received them.

PASSIFLORAS: *B.* Tacsonia mollissima, P. Buonapartea.

PEACHES: *John Wilberforce.* It is really impossible to say what may be the cause of your Peaches dropping at this season in an unripe state: your trees are evidently much out of health. It seems most probable that they have had an insufficiency of water and nourishment. Peaches ripen very well in the natural temperature of August in the open air. You should keep your houses open.

PINES AND FIRS: *A Young Gardener.* These may be dried in the ordinary manner; those that are likely to shed their leaves (Abies) may be dipped into boiling water before drying. Thujas will not require this.

ROOTS IN PIPES: *H.* Probably roots of a tree, but we are unable to say what tree. Iron pipes are preferable to lead pipes.

SEEDLING APPLES: *T Bunyard & Sons.* Your seedling Apple, which in appearance somewhat resembles a small Golden Russet, is of very inferior quality, the flesh being dry, soft, and with little flavour. It tastes more like fruit kept late in the spring than fresh autumn fruit. We do not consider it, either for its size, appearance, or quality, at all worthy of cultivation.

VINES: *Io triumphe.* It will be perfectly practicable for you to take up your Vines in October (which is the best month) and form a new border for them. If the roots are, however, so near the surface as you say, why not apply a liberal top-dressing of good soil, and mulch them and water them well during the summer? The roots of the Vines will soon come after the good material, and perhaps receive more benefit therefrom than they would in your new border. If the constituents of your border and the drainage are, however, altogether in a bad condition, by all means renew it. We would also recommend more leaf development and attention to their wants.—*John Wilberforce.* We should not recommend you to water your Vines when the fruit is ripe. Keep a dry, cool atmosphere in the house, with plenty of air night and day. A little fire may be applied in damp weather, to maintain a dry atmosphere.

ERRATUM.—In the Report of the Royal Caledonian Horticultural Society, p. 970, for "Earl of Strathallan" read "Earl of Strathmore."

COMMUNICATIONS RECEIVED:—W. M.—J. D.—Thoth.—A. B.—C. P.—J. M.—H. F. B. R.—A Learner (next week).—A. D. —Stewkley.—A. W.—F. W. B.—R. G.—J. J.—D. T. F.—J. A.

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Henry W. West, Esq., Q.C., M.P., 10, King's Bench Walk, Temple, E.C.
Charles Watkin Williams Wynn, Esq., M.P. (Chairman), 2, Lower Berkeley Street, Portman Square, W., and Coed-y-Maen, Welshpool.

The Company advance money, unlimited in amount, for all purposes of Agricultural Improvement, including the erection of Cottages and Farm Buildings, to the Owners of settled and other Estates, and to the Clergy in respect of their Glebe Lands.

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ODAMS'S NITRO-PHOSPHATE or BLOOD MANURE for WHEAT.—This Manure, specially prepared for Autumn Sowing, is rich in Ammonia, Phosphates, and other ingredients required for the healthy growth of Grain Crops. Analysis of Blood and the grain of Wheat show that they are nearly identical in composition, hence the value of Blood as an ingredient in Manure. It may be applied at the rate of from 3 to 4 cwt. per acre, according to the condition of the soil, either drilled with the seed or sown broadcast; if the latter, it should be well harrowed in. Prepared by the Patent Nitro-Phosphate or Tenant-Farmer's Manure Company, whose Members are Cultivators of upwards of 50,000 acres of land, which has been for years under management with Manures of their own manufacture; consequently the Consumer has the best guarantee for the genuineness and efficacy of the Manures manufactured by this Company.

Particulars will be forwarded upon application to the Secretary, or may be had of the Local Agents. C. T. MACADAM, Sec.

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Have now ready for delivery, in fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES.

Also Genuine PERUVIAN GUANO, and NITRATE of SODA ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c. E. PURSER, Secretary.

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All other Manures and Cakes as per Price List, supplied on the lowest terms. Apply for prices, &c., to JOHN BENNETT LAWES, 50, Mark Lane, London, E.C.; Dublin, and Shrewsbury.

SCRIM CANVAS, 72 inches wide, from 7½d. per yard; and HESSIAN, 74 inches wide, at 7½d. per yard, is the best and cheapest material for Protecting Fruit Trees or Shading Greenhouses. Samples forwarded on application.

BLIND TICKING, SAIL CLOTH, and FORFAR SHEETING at the lowest prices.

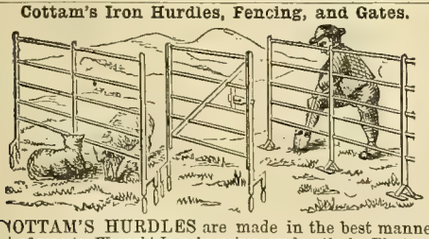
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SEED BAGS and SACKS, and BAGS of every description in use, supplied at the lowest possible prices. ARCHANGEL and TAGANROG MATS of good quality, for Covering, Tying, or Shading; also Petersburg and Prussian DUNNAGE MATS. Price-list forward d post free on application.

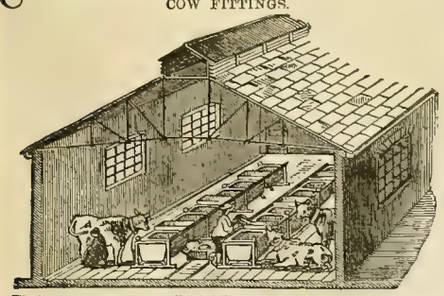
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COTTAM'S HURDLES are made in the best manner, of superior Wrought Iron, by an improved method. Illustrated Price Lists on application to COTTAM AND CO., Iron Works, 2, Winsley Street, Oxford Street, London, W.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rick dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of Iron. Prices of Fittings per Cow, 55s.

Prospectuses free of COTTAM AND CO., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

1869.—GREEN FOOD SEEDS.—

Welsh Winter Vetches | Winter Rye
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Together with all other Seeds, for present sowing, of best now quality, and at moderate prices.

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Suttons' Permanent Grass Seeds for All Soils.

SUTTON AND SONS are now prepared to execute orders for their MIXTURES of PERMANENT PASTURE GRASSES and CLOVERS for AUTUMN SOWING. For prices and full particulars apply (stating the nature of the soil to be laid down) to SUTTON AND SONS, Seedsmen to the Queen, Reading.

Look to your Grass Lands.

JAMES CARTER AND CO.'S RENOVATING MIXTURE of GRASSES and CLOVERS SHOULD NOW BE SOWN. This Mixture is specially prepared to suit the various soils, and consists of the most desirable kinds *to produce a Permanent Pasture of first-class quality* on old decayed Pastures and other lands *that have suffered through the extreme dryness of the past season.* 9*d.* per lb., or 80*s.* per cwt.

CARTER'S "PRIZE MEDAL" PASTURE GRASSES for FORMING NEW MEADOWS, mixed to suit all Soils, from 21*s.* to 32*s.* per acre. Special low quotations for quantities on application to JAMES CARTER AND CO., Seed Farmers, 237 and 238, High Holborn, London, W.C.

THE NATIONAL DOG SHOW.—The TENTH ANNUAL EXHIBITION will be held in CURZON HALL, BIRMINGHAM, on NOVEMBER 29 and 30, and DECEMBER 1 and 2 next. Prize Lists, &c., may be obtained from the Secretary, Mr. G. BEECH, Athenæum Buildings, 9, Temple Row, Birmingham.

A Special Prize (Cup, value £5, given by a Gentleman), will be awarded to the best Fox Terrier, over 6 and under 12 months' old on December 1, that has not been exhibited before.

The ENTRIES CLOSE on NOVEMBER 1.

THE BIRMINGHAM CATTLE and POULTRY SHOW.—The TWENTY-FIRST GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS, and IMPLEMENTS, will be held in BINGLEY HALL, on SATURDAY, MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 27, 29, and 30, and December 1 and 2, 1869, when PRIZES to the amount of nearly £2100 will be awarded in the following Divisions, viz.:—

FAT CATTLE	£807 19 0	BREEDING PIGS	£77 2 0
FAT SHEEP	310 8 0	ROOTS and CORN	76 16 0
FAT PIGS	59 11 0	POULTRY and PIGEONS	747 14 0

Prize Lists, Certificates of Entry, and every information may be obtained from the Secretary.

The ENTRIES CLOSE on MONDAY, November 1.

JOHN B. LYTHALL, Secretary.

Offices, 39, New Street, Birmingham.

SMITHFIELD CLUB FAT CATTLE SHOW.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY afternoon, December 6, and Four following Days.

Intending Exhibitors are requested to apply for Certificate Forms by the reference letters as under.

CATTLE.—Form A. For an OX or STEER (in any Class).
" B. For a COW or HEIFER (in any Class).
" C. For a BEAST in Extra Stock.
SHEEP. " D. For a PEN of three WETHERS (in any Class)
" E. For a SINGLE SHEEP in Extra Stock.
PIGS. " F. For a PEN of three PIGS (in any Class).
" G. For a SINGLE PIG in Extra Stock.

ENTRIES for LIVE STOCK CLOSE NOVEMBER 1.

Prize Lists, Forms of Certificates, and all information may be obtained on application to Mr. DAVID PULLEN, Assistant Secretary, at the Office of the Honorary Secretary, corner of Half-Moon Street, Piccadilly, London, W.

N.B. All communications respecting the Show must be addressed to the Assistant Secretary, as above, and should bear outside the words "Smithfield Club Show."

SMITHFIELD CLUB IMPLEMENT SHOW. AGRICULTURAL HALL, ISLINGTON, DECEMBER 6 to 10.

The LAST DAY for receiving APPLICATIONS for SPACE for IMPLEMENTS and MACHINERY, &c., is OCTOBER 1.

Printed Forms of Application, with Rules and Regulations, may be obtained of Mr. DAVID PULLEN, Assistant Secretary, corner of Half-Moon Street, Piccadilly, London, W. All communications should bear outside the words "Smithfield Club."

The Agricultural Gazette.

SATURDAY, SEPTEMBER 18, 1869.

MEETINGS FOR THE ENSUING WEEK.

Sept. 22 { Bucks Agricultural, at Aylesbury.
Cambridgeshire Agricultural, at March.
Staffordshire Agricultural, at Burton-on-Trent.
— 24—Wetherby Agricultural.

ANIMALS during transit by sea and land are of necessity subjected to much suffering. How far the hardships which they endure are preventible is the question which the "Animals' Transit Committee" will shortly have to consider, and, if possible, determine. Public attention has been suddenly aroused by a letter from "T. H.," published in the *Times*, recounting the sufferings of sheep and pigs in the voyage from Rotterdam to London, and the additional unnecessary pains which were inflicted during the process of landing them at Blackwall. We can understand that the writer, witnessing for the first time the scene which he describes, would feel too indignant at the ill-treatment which the unfortunate dumb creatures were compelled to undergo to examine all the circumstances very closely; if he had done so, it might have occurred to him that most of the cruelties of which he justly complains it is quite within the scope of existing laws to punish, although beyond the power of any Government to avert. Over-crowding and privation from food and water can be remedied; but, short of teaching uneducated men compassion, what can prevent the "ferocious brutality" to which he refers?

All that legislation can do has been done already, and "T. H.," or any other passenger, if he had been so minded, might have set the law in action with good effect against the young sailor and his companions in cruelty. But after all, what avail single efforts directed against the offshoots of a bad system? There is no lack of cases of individual savageness in the treatment of animals, and any benevolent individual might spend his whole life in offering up daily victims to the provisions of "MARTIN'S Act." We would undertake that he should never want offenders at all hours of the day—in the open streets, on the wharves, and in the London market—to say nothing of the secret horrors which are, with some sense of fitness, enacted in darkness.

If any good might be gained by making the hair of the people stand on end, we could outvie the Ghost in "Hamlet" with an unfolded tale of animal sufferings; it is enough, however, to assert in plain phrase that from the time the beast leaves the pasture or the stall on his road to the shambles, he is called upon to suffer scarcely remittent pain from the cruelty, or the indifference hardly less culpable, of his human persecutors, whom it is his sad fate to requite by furnishing them with their daily food.

Under the clauses 64 and 75 of the Contagious Diseases (Animals) Act, the Privy Council has power to deal with the subject; and it is satisfactory to observe in the circular, which has been forwarded to us by Mr. TENNANT, the secretary to the committee, that it is proposed to consider—how a sufficient supply of food and water may be provided for all animals brought by sea to British ports, and for all animals carried by railway in Great Britain — how animals may be protected from unnecessary suffering, whether in consequence of overcrowding, or from other causes, during their sea-passage from ports abroad to ports in Great Britain, from ports in the United Kingdom to ports in Great Britain: also during their landing, and throughout their inland transit.

The committee, consisting of the Clerk of the Council, the Deputy Chairman of the Board of Customs, the Permanent Secretary of the Board of Trade, and the Secretary of the Veterinary Department (with Mr. TENNANT as Secretary), invite the aid of all persons who have special knowledge of the subject; and there is no doubt that a mass of evidence will be obtained, which will be of the greatest assistance to the committee in framing the report, which is promised on or before the 1st November next.

We have no desire to anticipate the conclusions at which the committee may arrive from the evidence submitted to them, but we may be permitted to suggest that no half measures will effect what is desired; to carry out the propositions which are implied in the questions referred to the committee, will necessitate entirely new arrangements for sea transit and considerable modifications in these for conveyance by railway.

Proper accommodation for animals on board ship and in railway trucks, is the first point to be settled; when animals are huddled together in a heap, or tied close to the vessel's side, feeding and watering are impossibilities. There is no very great difficulty in the way of penning sheep, and tying cattle in a truck, or on board a boat, so as to allow them free use of their heads; but the expense will be no trifling matter, because the adoption of such a system means neither more nor less than providing a stall for every two oxen and a pen for every dozen sheep, with appliances for the reception of food and water. This, we apprehend, is an outline of the plan which will have to be carried into effect. The details are of minor consequence. How and when food and water are to be given, are questions which may be definitely answered after a few experiments; but we contend that all such experiments are out of place until means have been devised for placing animals in a position in which they shall be enabled to keep their feet and breathe freely, and shall neither be stewed in their own steam nor alternately scorched in the sun's rays and drenched with the waves. Having provided for the comfortable location of animals during transit, the easiest method of supplying food and water need not require much consideration. In cattle ships, troughs and portable racks of net or wood might readily be arranged round the pens, and at a convenient part of the stalls; in reference to railway trucks the plan of hanging on troughs when the train is stationary at a siding seems to be more convenient than the employment of troughs attached to the trucks; food on railway journeys is of less consequence than water, but there would be no difficulty in supplying hay to those animals which might require it at the same time.

Infliction of unnecessary pain, in wantonness or ignorance, cannot, we repeat, be provided against by Privy Council Orders, and if their lordships succeed in providing comfortable quarters for animals in transit by sea and land,

we must be content to leave the rest to the advance of that liberal education which we are told "softens manners and suffers them not to be fierce."

THE great advantage arising from REAPING CORN by MACHINERY appears now to be universally admitted. The rather light crop of straw of the present year has been favourable to cutting by applied horse-power, and the practice has been nearly universal. In every field, on large farms and on small, where harvest was progressing, the familiar "rattle and ring" of the back or side-delivery machines has been heard. "Where on earth have all the machines come from?" is a question that at once springs to the lips.

We are old enough to have seen many changes. We have lived through the several ages of the sickle, the scythe, and the reaper. Our earliest memories are associated with tales of shearing contests—stories of "land and band" struggles between man and man, when master and dame, man and maid, son and daughter, went out cheerily every morning to face the "stubborn glebe;" yet with every exertion it took a month to get at the "mell sheaf"—to cut the last white corn. Then came the scythe, with which the top-men did their 2 acres each per day; and by its aid we were enabled to finish cutting in three weeks in favourable seasons. And to "disestablish" this implement has taken years of labour and mountains of capital, which have been required to produce the modern reaper—light, durable, and effective. It has been done, however; and there is scarcely a farm in the best-farmed districts of England and Scotland without a reaper, although ten years ago our own simple and efficient Cuthbert was the first to invade the territory in which our own farming interests lie.

Although, however, practice has accepted and fully endorsed the doctrine of the supremacy of reaping by machinery, and the question may be fairly said to be removed from the debatable ground of experiment into that of general experience, still we find it very difficult to get at correct figures as to the actual cost of the operation, much less at the comparative cost of different modes.

The farmer knows that the reaper secures to him many advantages—despatch in the operation, shorter period of harvest, less waste in the tail and the sheaf, less waste on the ground, less rakings, a sheaf straight in the straw, but capable of drying sooner than if strewn, and not so liable to sprout in the tail in wet weather as mown corn; and he has also no doubt—he is, in fact, pretty well certain—that it costs less; but how much he can't exactly tell.

This statement of cost depends so much upon circumstances, exceptional and peculiar to localities and individuals, that he will seldom try to disentangle the account, and ascertain the real cost of his harvest operations by machinery.

As Miss MARTINEAU'S model farmer's wife—manager irreproachable, and pattern in most things as she was—could never be coaxed into giving her town catechist a precise statement as to the *modus operandi* of butter making, and the "reason why," because, said she, "it depends"—depends truly upon the 101 incidental circumstances and contingencies which affected the result, and which she knew must be met and dealt with by the hand of experience as they arose—so, in the case of reaping, weather may be uncertain, and time thus lost; the hands may on some days be partially employed at other work; there may be servant boys, servant men, servant maids belonging to the house, who are fed there, and have no harvest wages; there may be also work done by members of the family; there may be men hired into the house and men hired out of the house, and some with rations and some without; there are also in some instances bread and cheese and beer allowed, and in others none, and in some beer without bread: so that the question of actual cost becomes, in most instances, one of calculation rather than of fact; and, therefore, the practical farmer seldom ventures, either in print or conversation, to state the positive cost of reaping by machinery.

Now, it fortunately happens that none of these exceptional circumstances occur in our experience this year. Our whole harvest has been cut by the reaper, and every man, woman, and child has been paid money wages weekly. There have been no men hired with rations, and no yearly servants employed; and no extras have been given but one pint of beer, and beer only, to each person twice a-day. We are, therefore, in a position to answer the question, What is the actual cost of reaping by machinery? precisely and positively; and that, not for one field, or plot of work, but for the whole crops of an extensive farm, the reaping of which was carried on consecutively through the whole period of harvest. This statement of cost and experience we purpose giving in full detail next week; and we shall be very glad if any of our numerous readers will be good enough to furnish us with their practical experience also. What we want are "facts" illustrative of the subject, and not opinions. Opinion, as we have shown, has given its verdict; and by facts and figures we hope to be able to show that the opinion is correct, and to what extent in the £ *s. d.* point of view it is so. Our correspondents, therefore, will please to state precisely all the following particulars:—1, The kind of reaper used; 2, Number of days at work; 3, Acreage of crops cut, and what sort; 4, Character of crops, whether light, average, or heavy; 5, Number of men, women, and children employed; 6, Rates per day, and wages paid to each; 7, Total amount paid in wages; 8, Amount paid for ale, repairs, and other incidental matters; 9, Total amount paid for reaping, tying, stooking, and raking the gross acreage; 10, The average cost per acre of the same.

The correspondence which has taken place on this subject between Mr. MECHI and a "Durham Farmer" points clearly to the necessity which existing for ventilating this subject. A friend of Mr. MECHI, writing from Yorkshire, states that he has cut, tied, and stooked, and stubble raked, 12 acres of white Wheat, about 34 bushels per acre, for 51*s.* The "Durham Farmer" says that it has cost him 10*l.* 4*s.* to cut, tie, and stook, and stubble rake 12 acres of Wheat, about 40 bushels per acre; and Mr. MECHI, in rejoinder, fixes the cost of reaping the acreage of Wheat upon his farm at 6*s.* 9*d.* per acre!

That three practical men should gravely state the cost of a simple operation in the art which they profess to practise, at 4*s.* 4*d.*, 17*s.*, and 6*s.* 9*d.* per acre respectively, seems extraordinary. To adopt these figures as facts, to say that the varying surrounding circumstances produced the difference in result, would be to accept a glaring paradox; one, or other, or all of these figures, are erroneous. The real cost and the operation of reaping, measured by the amount of physical power expended in the operation, and not by the money paid by contract, which may vary greatly, is pretty nearly alike in all districts. It may, owing to the co-existent influencing circumstances, as we have already shown, be difficult in many instances to arrive at the correct figure absolutely, but still it may be done actually in some cases, and approximately in others.

Anyhow, though we do not hope to be able to reconcile the anomalous results alleged above, we trust to be able to state such facts regarding the *actual cost of reaping* by machinery that it shall no longer be left in doubt.

—— THE Corn trade throughout the country has been in a state of inactivity during the week, at no appreciable alteration in previous prices.—— Over 5000 beasts on Monday lowered prices, except for very choice qualities; and all other kinds of animals, and the supplies at the meat market, participated in the reduction. A slight recovery took place on Thursday.

—— Mr. W. BRIDGES ADAMS has published a suggestive and instructive letter on cattle sea transit. His remedy for all the evils connected with it, which are not absolutely wilful, is to get rid of sea-sickness; and the following is his plan:—

"There is a process for getting rid of sea-sickness, and only one that we as yet know of—magnitude, overpowering great waves by a larger structure. The Great Eastern does not pitch in consequence of her great length, but she does roll in virtue of her insufficient breadth; and this, which we may call 'thwart ship' pitching, does make passengers sick. We want, then, for Channel transit a new Great Eastern, with considerably more breadth of beam and a flat floor through, giving larger displacement and a reduced draught of water, and high enough out of the water to allow the waves to roll along her sides without breaking in board, her great breadth preserving vertical steadiness, her sides parallel throughout, and the bottom rising at the ends to skid the water; and her mode of propulsion, whether fast or slow, must be different from anything that has yet obtained. To the water level, her sides and bottom should be cellular in a triple thickness like a beehive, the outer cells packed solidly with tenacious cement, and the whole structure up to the water line a closed air case similar to a life boat, rendering her perfectly unsinkable, as she would be incombustible by reason of her metallic structure. Above the enclosed water line she would be divided vertically into four decks with open space throughout, giving perfect ventilation from end to end. The lower deck would belong wholly to the engineer and his assistants and fuel, with a strong current of air keeping it perfectly cool and carrying off the waste gases, making it an apartment as wholesome as a wide city street. The two next decks would serve for sheep and cattle, and the upper decks for passengers, fruit, and vegetables. The whole of the decks would be accessible from either end without hatches, stairs, or ladders, by floating landing stages corresponding to the decks. There is no difficulty in the matter. It is simply the Bermuda Dock enlarged in a more convenient form, and made self-moving, and capable of bringing 10,000 head of cattle, or a London weekly supply, in a single trip, walking on at one end from the Continent, and walking out at the other end at Thames Haven, on a moving bridge or ferry.

"With such an arrangement," he adds, "a new class of commerce would grow up. Farmers and gardeners and small tradesmen would ship and accompany their own commodities, giving no trouble to the shipowner, and without in any way interfering with the comfort of the pleasure passengers, and at a minimum rate of cost in transit. Cattle would come in any quantity, and with as little fatigue or deterioration as in walking about a farmsteading, with no loading or unloading save that supplied by their own limbs, and with water and food, keeping them in the condition fit for slaughter on their landing. If it can pay to bring live cattle from Buenos Ayres in sea-sickness vessels, with risk of loss by storms, the saving must be enormous in bringing them without sea-sickness and with no risk from storms. Passengers are, after all, a limited quantity, but cattle, to these islands of limited space and constantly increasing population, are an unlimited quantity, and they seem to be producible in the north of Europe in unlimited quantities. Bringing them hither without sea-sickness solves the problem of their transport. To what distances this steam transport may extend as a paying speculation we do not yet know. It is a question of fuel stowage, a problem we have not yet solved, and the size of the vessel gives a multiplied capacity for fuel. The large vessel can carry a multiplied proportion as compared with the smaller one. A cattle trade in non-sea-sickness vessels from the Elbe to the Thames, the Severn, and the Mersey, would put an end to our meat famine, and it is quite possible—nay, as certain as in the case of human beings—that the cattle would improve and get into better condition on the voyage, by better shelter, perfect ventilation, and regular food and water, even though in smaller quantities than their appetites. The vessel would easily carry 10,000 head of cattle. Our possible consumption of beef would exceed two millions of tons per annum, if we could get it, equal to some five millions of oxen. Ten vessels constantly occupied would bring us the whole supply from a distance of 500 to 1000 miles of sea transit. Supposing the cost of each vessel half a million, 10 per cent. interest would be 50,000*l.* per annum. Half a million cattle at 6*s.* per head freight would give us this three times over, or 30 per cent., from which to deduct working expenses and renewals. What, then, are the risks? Not of fire, for the whole is incombustible; not of rocks, for no hole could be punched in the bottom of such a vessel; not of shoaling, for she would be under command, and be raised by discharging her water ballast; not of breaking up, as witness an inferior craft, the Great Britain, in Dundrum Bay; not of damaging her cargo by bilge water, for she would be absolutely tight, or of shifting her cargo, for she would be absolutely steady; and, as to wear, she would probably last 100 years, or till set aside by newer improvements and utilised again as old iron. There would be no Act of Parliament needed for her construction, and she would not be confined to specific termini like a railway. Her cargoes she could procure from several river ports on the Continent, and she would bring them notably to the Thames. London alone would consume upwards of 500,000 oxen per annum, 1370 per diem."

—— Cruelty to animals is just now a prominent public question. For several days the subject has been well ventilated in the newspapers, and many suggestions have been made both in regard to prevention and remedy. Miss BURDETT COUTTS, among others, has not overlooked the revelations which have been made, and the discussion which has ensued, nor has she turned her thoughts idly away; but this noble-hearted lady has added another to the noble efforts which she has made to do good both to mankind and the dumb creatures which are his servants. Miss COUTTS inclines to the advantages of early training in the right way, and she accordingly writes to the *Times* as follows:—"The hideous revelations of your correspondents as the extent and depth of depravity practised in the foreign cattle trade require something more than superficial remedies. I therefore feel it a duty to entreat public attention to a systematic training among all classes both in principles of humanity towards animals, and in a knowledge of the proper treatment of creatures that we are dependent upon for sustenance and other comforts of life." Miss COUTTS then discusses the importance and interest it is to us to treat the gifts of the Creator with a merciful consideration for their feelings, and concludes with the following suggestions, as being the more likely to lead to a remedy for the evils now so common:—"Such considerations suggest whether a systematic teaching of the absolute duty of man towards the lower animals should not enter into the practical education of all classes. An American gentleman, Mr. Angell, who has done much in this direction in his own country, earnestly pressed upon me to try to form a society somewhat similar to one established in Massachusetts under the name of the 'Ladies' Humane Society.' I promised to do all I could to promote so good an object through the only public channel I could hope to influence—that of national school education. But as the present exposure of a serious evil has arisen in your pages, I think I best redeem my promise to Mr. Angell by suggesting through you to all persons engaged in teaching, in whatever rank of life, to the President of the Committee of Council for Education, and to the National Society's Board of Education, that some plan should be adopted for inculcating, in a definite manner, principles of humanity towards animals, and a knowledge of their structure, treatment, and value to man. I cannot conclude this, I fear, feebly expressed advocacy of an important object without expressing my surprise that the Society for the Prevention of Cruelty to Animals does not prosecute the offenders on the evidence of the shocking state which foreign cattle present on landing. These must on touching our soil be under the protection of English law, and those who maltreat them fully amenable to the penalties." These views will be endorsed by every well-regulated mind. And, now we are on this subject, we are pleased at being able to add that poultry is receiving the attention which is suggested by Miss COUTTS. Steps have been taken at Leicester by the secretary to the above-mentioned Society, the result of which is, the proper mode of showing fowls in baskets

has been adopted. This is so far satisfactory, and we trust that the barbarous practice now in vogue in bringing fowls from Ireland and Holland will be dealt with as its cruelty deserves and the law already directs.

OUR LIVE STOCK.

Mr. STRAFFORD announces that the Farnley Hall sale is postponed from October 11 until next spring.

—— A few well-bred Shorthorns, of the *Craggs* and *Lizzy* Kirklevington families, will be sold by Mr. Thornton on the 29th inst., at Brockley Farm, Lewisham, Kent.

—— Our readers will scarcely need reminding that the Farnborough sale takes place on Tuesday, when Mr. Strafford will dispose of a large and excellent assortment of Bates' Shorthorns by 11TH DUKE OF OXFORD and other noted sires. The name of the Rev. C. W. Holbech is sufficient guarantee of the excellence of the stock. Farnborough is six miles from Banbury and two miles from Fenny Compton stations.

—— Last week we gave a brief notice of the Keavil herd. *Annie Laurie*, by KALAFAT (13,101), a 10-year-old cow, and standing first on the list, was purchased by Mr. Barclay from Messrs. Dudding, of Panton, the breeder of her mother, *Artless*, by LAMBTON (9273). She is the ancestress of four heifers and two bulls, by the well-bred Booth sires, BARON BOOTH, HEIR OF ENGLISHMAN, and ENGLISHMAN. Lot 2, *Seraphina 13th*, by JOHN O' GAUNT, the mother of HEIR OF ENGLISHMAN, was a 240 gs. purchase from Mr. Lawford, of Southcott, and is the mother of two very excellent heifers and a bull-calf, PRINCE GEORGE, all by BARON BOOTH. HEIR OF ENGLISHMAN is also included in the catalogue. *Fan-fan* (lot 5) we mentioned last week as a daughter of *Faith*, sold at Mr. Sanday's sale in 1861 for 225 gs.; a yearling bull from this cow, and by BARON BOOTH, will be offered for sale. *Anne of Lancaster*, a member of the well-known Lenton tribe, is the mother of *Booth's Lancaster*, by BARON BOOTH and KNIGHT OF LANCASTER, by the same bull. *Miss Matchless*, by ENGLISHMAN, is a grand-daughter of Mr. Cruikshanks' *Matchless 2d*, by MATADORE, and the mother of two promising heifers. The last tribe to be noticed is represented by *White Nonpareil*, by ENGLISHMAN, *English Heiress*, and *Booth's Nonpareil*, all descended from Sittyton stock. The Keavil herd will be sold next Tuesday.

—— Mr. Thornton has advertised an interesting sale for October 1. The stock will comprise about 30 head of Shorthorns, the property of E. J. Schollick, Esq. The herd consists of representatives of the Rev. J. Benson's Winifred tribe and the Ulverstone Cressida family. CAMBRIDGE BARRINGTON 1ST (14,233) was used for five seasons, and afterwards CERDIC (19,415), bred by Mr. Peel, of Knowlemere. Bulls of the Cressida tribe have lately been in service.

—— Friday, October 8, is fixed for the sale of the late Mr. Benjamin Wilson's stock at Brawith. The catalogue includes a list of 20 cows and heifers and four bulls, all of which will be brought to the hammer by Mr. Wetherell at 1 o'clock on the day specified. After a few prefatory remarks upon the high character of the herd, follows the usual list of names and pedigrees, the whole of which may be referred to four families as follows:—*Vesta 2d*, by YOUNG EMPEROR, comes of a tribe long bred at Brawith. She is the ancestress of four well-bred and good heifers. Lot 2, *Miss Milward*, by FRANK MILWARD (16,079), was bred by Earl Cathcart, and is the mother of three heifers. *Blooming Rose* and *White Rose*, both by GLAUCUS, come of stock bred by Sir S. Crompton, Wood End, and have added several females to the herd. Lastly, we find several representatives of Mr. Wilson's Certainty family, descended from a cow by Mr. Crofton's SIR WALTER (2639). After the sale of the Brawith stock, three well-bred Booth bulls, belonging to Mr. Alfred Stable, will be disposed of. These animals are respectively by RAVENSHOPE, WINDSOR-FITZ-WINDSOR, and ROSOLIO, and from cows of good pedigrees.

—— The catalogue of the Shouldham Thorp herd is before us. Mr. Gamble has bred his stock carefully for many years, and has adhered to three or four excellent strains of blood. On looking over the list of animals to be disposed of upon October 6 by the Messrs. Wetherell, we notice *Charmer* by GOLDFINDER (14,630), and from *Certainty 9th*, bred by Mr. Wilson, of Brawith. This cow, now 11 years old, is the mother or grandmother of seven females, whose names appear in the list. Next we have a famous old tribe, descended from ORONTES (4623), ROMAN (2561), TRUNNEL (659), and FAVOURITE (252), represented by no less than 11 females and 4 bulls. The *Telluria* by ORONTES tribe, are also present, boasting a splendid pedigree, beginning with 2D DUKE OF THORNDALE, and extending back to ORONTES, ST. ALBAN'S, SIR OLIVER, TRUNNEL, and previously to two crosses of FAVOURITE (252). This family is represented by *Fame* by 2D DUKE OF THORNDALE, and her daughters *Fantail* by FELIX (19,734), bred by Mr. Gamble, and *Fairstar* by ZEALOT, also bred at Shouldham Thorp. FRAMEMAKER is full brother to the last named heifer, and is now about seven months old.

—— We notice, as an addenda to the weekly SHORTHORN INTELLIGENCE in the current week's *Bell's Weekly Messenger*, a heading entitled HEREFORD NEWS, in which a favourable report is given of the Adforton herd. Why Shorthorns should enjoy such a monopoly of attention has always appeared strange to us, and it is a matter for congratulation that the Hereford men are showing symptoms of greater activity in this particular. It appears that the Earl of Southesk is establishing a herd of the "white faces" at Kinnaird Castle, and among the animals there assembled will be found Mr. Judge's *Diadem*, the 1st prize heifer among the 2-year-olds at Manchester.

—— An exceedingly well got up catalogue has recently been issued by Mr. Thornton, in which the history and pedigrees of Mr. Cochrane's unrivalled stock at Compton, Montreal, Canada, are very concisely given. When we remember the English origin of the stock, and are informed that the 22 Shorthorns have cost Mr. Cochrane on an average 200 gs. each, including expenses, we doubt not that much interest will be excited among the lovers of both Bates and Booth blood. We have duly reported in this column the exportation of the various animals now collected at Hillhurst, Compton, and more than our allotted space would be occupied in attempting to give half the interesting information contained in the 15 pages of the publication before us. Our readers should at once procure for themselves the entire account of Mr. Cochrane's famous herd, by obtaining a copy of this most excellent Shorthorn catalogue. The cattle were selected from Aylesby Manor, Wetherby Grange, Walton-on-the-Hill, Braithewaite Hall, Branches Park, Keavil, Beeston, West Deerham, Butley Abbey, Mr. Barnes' herd at Westland, and Mr. Chaloner's herd at King's Fort, Ireland, and are all singularly well bred and perfect in form. Mr. Cochrane has patronised both the leading strains of Shorthorn blood, and in his herd are to be seen representatives of the Duchess, Wild Eyes, Moss Rose, Anna (by Pilot), Waterloo, Medora, Frill, Glitter, Silence, and Vesper tribes, &c. We could have wished for a preface, however short, informing us of the general features of the locality, the established breeds of cattle in the surrounding district, and some points regarding Mr. Cochrane's career as an agriculturist, which, we are sure, would have been most interesting. Mr. Thornton has, however, contented himself by sending out, without introduction, his valuable contribution to Shorthorn literature, trusting to it to win its way by its intrinsic merit.

RECENT RAM SALES AND LETTINGS.

Lincolnshires. — Messrs. Salter's annual sale and letting of long-woolled rams and ram lambs took place on Thursday, at Attleborough Hall Farm, Norfolk. The great improvement which had taken place in the flock, and more particularly in the lambs, was a matter of general remark, and was alluded to in pointed terms by several speakers at the luncheon. The shearlings made from 6*l.* 10*s.* to 35*l.*, which sum was given for lot 18 by H. Webb, Esq., Cambridgeshire. The average price was 8*l.* 5*s.* The lambs realised 5*l.* 10*s.*, the highest price given being 15*l.*—The Peterborough New Ram Fair for the sale of Lincolnshire sheep took place on Saturday last. The rams sent numbered, altogether, 474, or upwards of 200 less than last year, and but few more than half the supply two or three years ago. The result was, all the sheep were sold, which was not the case on previous occasions. Mr. Thos. Cartwright, of Dunstan Pillar, sent 42 rams, the average price of which was the highest on the ground—viz., 16*l.* 15*s.* Mr. Looker, of Whitton Manor, Huntingdon, bought a useful sheep for 29*l.*, the highest price given; Mr. Gilbert, of Blankney, one at 26*l.*; Mr. Willingham two, one at 20*l.* and the other at 21*l.*; Mr. Smith, one at 22*l.* 10*s.*; Mr. Giles, one at 23*l.*; Mr. Edward Howard bought a compact good sheep at 22*l.*; Mr. Wincup, one at 21*l.*; Mr. Beacroft, one at 16*l.*; and Mr. Leeds, two for breeding stores, one at 13*l.* and the other at 18*l.* Mr. John Henry Casswell, of Laughton, sent 50, as usual. His sheep, however, were not equal to the weight in a compact form, and the fine condition in which we have previously seen the Laughton sheep. This arose principally from the fact of Mr. Casswell's heavy land and fen farms having suffered extremely from the long drought and succession of heavy rains which have occurred periodically during the last 15 months. The fine quality and form of the Laughton sheep were, however, conspicuous; but this the public will not believe in, unless these conditions are accompanied with upstanding appearance and well-grown greasy fleeces. Last year Mr. Casswell's average for the same number was 17*l.* 12*s.* 6*d.*; the loss which the late extraordinary seasons have caused will therefore be partly understood when we say his average this year was only 11*l.* 10*s.* One was let for 21*l.* to Mr. March, another for 13*l.* to Mr. Burdett; Mr. W. Wright bought one for 21*l.* 10*s.*, Mr. T. Wright and Mr. Wyman one each for 15*l.* 10*s.*, Mr. Sisman one for 17*l.*, Mr. Silverworth one for 17*l.*; Mr. Cooper two, one at 16*l.*, and the other at 17*l.*; and Mr. Rankin bought two for Australia, one at 16*l.* 10*s.*, and the other at 20*l.* —Mr. T. Casswell, of Pointon, which is in the same district as Laughton, also suffered considerably from the past seasons, and his sheep did not come in their usual size and commanding appearance. Last year the Pointon flock averaged upwards of 17*l.* This year the average is only 13*l.* 8*s.* There were the usual number of 50 rams. Mr. Tyrrell, of Eglinton, bought one at 22 gs.; Mr. Rooke, of Wilbourne, one at 31 gs.; Sir Thomas Wichcote, of Aswarby, one at 18½ gs.; Mr. Everington, of East Dereham, one at 17 gs.; Mr. Walesby, of Ranby, one at 18 gs.; Mr. Willingham, Norfolk, one at 20 gs.; and Mr. C. Clarke, of Ashby, one at 23 gs.—Mr. J. R. Kirkham, of Audleby Villa, had 40 rams, one of which Mr. Griffin bought at 22*l.*; Mr. Bradfield one at 27*l.*; Mr. Needham, of Huttoft, one at 34*l.*; Mr. Nidd one at 16*l.*, and Mr. Vergette one at 13*l.*—Mr. S. E. Dean, of Dowsby, here made his first appearance in public, the number he brought being 33. One of these was let for 10*l.* The remainder were sold at prices ranging between 17*l.* 5*s.*, at which price Mr. Swingler bought a good sheep, and 7*l.* 15*s.*, the average being the respectable one for a beginning of about 9 gs. The remaining exhibitors sold their lots at prices running up from 5*l.*, the upset price, to 9*l.* each, for common store purposes.

THE AGRICULTURAL LABOURER.

[The following is an abstract of Mr. Botley's paper, read before the British Association at its Exeter meeting.]

HE said,—Whether we take the statistics of Mr. Bailey Denton, Mr. Corrance, or Canon Girdlestone, the conclusion forces itself upon us that the *status* of the agricultural labourer needs and calls for amendment. Mr. Botley then proceeded to give, from personal observation, his ideas as to remedies, both direct and indirect. Speaking of education, he said that where so many prejudices and conflicting interests unite in opposing education, the State should step in and assert its right of guardianship. He was continually reminded of the necessity of compulsory education. In the matter of education, Scotland was better off than England; and while only one-third in the English army could read and write—99 in Prussia could do so, 199 in 200 in Saxony, and all in Switzerland. The three days per week system appeared to him, by results which he had witnessed in the North Surrey and other industrial schools, to possess considerable merit. America, Switzerland, and Prussia, were, he said, examples of the advantages of the compulsory system, and that without those drawbacks which opponents urge against it. He thought it would not be going a step too far were the Legislature to compel landed proprietors in rural districts to build or provide the requisite number of decent cottages and garden ground for the labourers required to work the farm. His advice to landed proprietors was, if they had not the means to build, to raise the money in the same way as, under Act of Parliament, they did for drainage and farm buildings. Coming to the earnings of labourers, Mr. Botley said, "The average of day labourers throughout England is said to be 12*s.* 6*d.* per week. To this must be added, in the case of carters and shepherds, the cottage and garden free; but piece-work, such as Wheat hoeing, Grass mowing, sheep shearing, &c, taking the mean at 15*s.*, and add 20 per cent. as the earnings of his wife and children, the gross will be 18*s.* per week for a man, wife, and three children, to pay rent, buy fuel, food, and clothing. We who know what daily expenses are, may well wonder how, with the most rigid economy, they subsist at all."

Piece-work (continued Mr. Botley) is adopted by the most advanced agriculturists when practicable, stimulating the men to exertion, and inducing a better class of labour; the mind must be brought to bear upon the work—the head going before the hand. Education will tend thereto if it is what it invariably should be—industrial. Speaking of emigration, he said, had the present liberal system in grants of land been adopted years ago, tens of thousands who emigrated to the United States would have gone to Canada instead, and would thus have enriched the territory under the British crown some hundreds of millions. Although not a warm advocate of emigration, he considered it a great boon to many who might suffer here before landed proprietors were convinced of the profitable investment of reclaiming, draining, and improving their lands by the well-directed application of labour.

Provident societies and cottage garden exhibitions were advocated by Mr. Botley. With regard to co-operative societies, he thought, if the agricultural labourer could be educated up to provident habits and economy, there would be no lack of respectable tradesmen to ensure the ready-money customer good value for his money. Coming to the second part of his subject, drainage, reclamation of waste lands, higher cultivation, game laws and leases, Mr. Botley pointed out the advantage of drainage, both on account of its sanitary benefit and increased production. The tenant should stipulate as to the game, hedgerows, &c.; also as to the lease. As regards the game laws, he said—"So demoralising has their operation been on the agricultural labourer, that they are all but universally condemned, to say nothing of the thousands of acres of corn devastated, and 'whereon the mower filleth not his hand, neither he that bindeth up his sheaves his bosom.'" He had seen a 20-acre field of Wheat so eaten up and poisoned by rabbits and hares, that the yield was scarcely 8 bushels per acre, when, from the excellent cultivation, it ought to have yielded 40. What farmer could stand against such results as these? he asked. With respect to leases, he had never yet heard or read any argument to alter or qualify his opinion in favour of a lease. The law should compel proprietors who objected to let on lease to do what equity and political economy require, and recoup the outgoing tenant for all unexhausted improvements, to be arranged by valuation. In conclusion he said he believed there was an abundance of facts to warrant the conclusion that the agricultural labourer's condition is to be advanced by the more liberal management of landed property. Mr. Botley thus summarised his ideas of improving the condition of the agricultural labourer:—1st. By an industrial education producing temperance, prudent forethought, and economy. 2d. By every estate having a sufficient number of substantial cottages thereon, with land adjoining, to grow plenty of vegetables for a family. 3d. Farms to let on long leases with very few restrictions, and containing a compensation clause for all unexhausted improvements. 4th. All wet strong land to be thoroughly drained. 5th. The immoderate preservation of game to be discontinued, and cumbrous hedgerows grubbed. 6th. Tenants to be selected, not on account of their politics, but as men of skill, capital, and enterprise. 7th. Piece-work, where possible, instead of day-work, the utmost employment given by the farmer, who knows that judicious outlay in labour brings a sure return, realising the desired ultimatum—a fair day's pay for a good day's work.

Amongst the remarks made in the debate which followed, Mr. JAMES BULLER rebutted the statement of Canon Girdlestone that the labourers received only 9*s.* a week, and pointed out that there were extras which raised the sum to more than

15*s*. He also took exception to some statements made by Professor Levi.

Professor THOROLD ROGERS said that to doubt that the wages of the agricultural labourer had fallen within the last 20 or 30 years would be to deny the face of facts. In considering this question of wages it was important to take into account the power possessed by the agricultural labourer of purchasing the secondary necessaries of life—such as butter, bacon, and cheese. This power had, he held, considerably diminished within the last 20 years. He would put this question, Why is butter 1*s*. 6*d*. per pound? Twenty years ago butter in summer was 6*d*. or 7*d*. per pound. In towns the prices for these secondary necessaries were more uniform than in the country, and in this respect the agricultural labourers suffered. Coming to the question of improving the condition of the agricultural labourer, he touched first on the proposal to encourage emigration. He must confess that he had looked with regret on the fact that an exodus had been going on in England, not amongst the poorer classes, but amongst the most enterprising. Long ago he ventured to predict that the emigration system prevalent in Ireland would be extended to England; but he did not think that the remedy of emigration was likely to meet the case. He thought that farmers would find it advantageous to give their labourers better wages—the latter would then have better food and grow stronger, and consequently be able to do more work.

The Rev. Prebendary SANDERS confined his attention to the state of education in the county as shown by the reports of the Diocesan Inspectors. These reports showed that there were 493 parishes and districts in this county, and that out of these 493 there were only 39 which had no schools; 12 had less than 100 inhabitants each, 22 less than 200 each, and 4 just over 200 each. There were 29 parishes with 11,144 inhabitants which had no schools, or had Sunday schools only, and that represented the neglected districts in this county. He would leave them to draw what inference they liked from that. There was no account of Nonconformist schools. The Rev. Prebendary believed the agricultural labourers were, as a rule, anxious to avail themselves of the means of education placed within their reach. He also dwelt on the importance of diffusing knowledge in order to raise the labourer from his present condition.

Mr. JOHN DAW submitted that agricultural labourers received in the present day wages much higher than those given formerly. He denied Professor Rogers' statement that the wages had fallen. He also questioned the accuracy of the Professor's assertion that there was a decrease in the purchasing power of those necessaries—why, the average price of butter was 1*s*. 1½*d*., and in summer it was 1*s*. Tea could now be had for 2*s*. 6*d*. per pound, and lump sugar, formerly 1*s*. 6*d*. per pound, was purchased at 5*d*. In the price of clothes there had been a similar reduction. Mr. Daw had heard some most astounding statements in this section. For instance, a Professor had stated that there were too many labourers, whereas the real fact was that you could not get sufficient labour. The other day a labourer died in his parish, and he could not supply his place. Then as to yearly hiring, that was quite unnecessary; a good labourer never left if treated properly. Canon Girdlestone lived in an unfortunate part of the county. As to teaching, it was no use shooting above the heads of the people; if the labourers were taught at all, let them be taught "the three R's," and the fact that there was a parish out of their own division. As to making landowners build cottages, give higher wages, and so on, compulsion would not answer—it must be shown that it was their interest to do so. As for game, he thought it would be well to get Parliament to interfere; the simple remedy would be to make a law that no lease should contain the restriction of not killing rabbits. He certainly did not assent to all that Canon Girdlestone had said, nor yet to all that Professor Levi had said.

The PRESIDENT offered a few observations in closing the debate. He pointed out that it did not follow that because labour was low-priced therefore it was cheap. He advised agriculturists generally to be self-dependent, and not trust too much to legislation. He hoped that inquiry into the question which had been so ably debated would be continued.

SOME REMARKS ON THE ADULTERATION OF SEEDS ACT, 1869.

THE Adulteration of Seeds Act is a short statute of ten clauses, enacted as an auxiliary to existing laws which have failed to control certain evil tendencies of the seed trade.

The following is a summary of the ten clauses referred to:—(1.) The designation by which the Act may be cited, viz., The Adulteration of Seeds Act, 1869. (2.) The interpretation of the terms "to kill seeds," *i. e.*, "destroy by artificial means the vitality or germinating power of seeds;" and "to dye seeds," *i. e.*, "to give to seeds, by any process of colouring, dyeing, sulphur-smoking, or other artificial means, the appearances of seeds of another kind." (3.) "Offences in relation to seeds," viz., "Every person, who with intent to defraud or to enable another person to defraud, does any of the following things—that is to say, kills, or causes to be killed any seeds, or dyes or causes to be dyed any seeds, or sells, or causes to be sold, any killed or dyed seeds, shall for the first offence be liable to a penalty not exceeding 5*l*., and for the second or any subsequent offence, he shall be liable to pay a penalty not exceeding 50*l*., and to have his name and residence published in the newspapers." (4.) Any forfeiture or penalty under the Act may be recovered, enforced, and applied in certain ways fully described. (5.) Intent to defraud particular persons need not be alleged, so long as the general intent to defraud is maintained. (6.) Appeal from summary conviction in the English, Scotch, and Irish courts is allowed. (7.) Limits time for proceedings under this Act to 21 days from the time of the commission of the offence. (8.) Court may order prosecutor to pay costs of unreasonable prosecution. (9.) Other remedies not to be affected, *i. e.*, under existing statutes. (10.) Act begins to take effect on the first day of May next.

We are somewhat apprehensive that the lion's share of the good promised will be consumed in the law courts, although the contrary is contemplated by the statute. No doubt under clauses 4, 6, and 8 farmers ought to be able to take care of themselves; but there will be some difficulty experienced in practically complying with the provisions of the 2d, 3d, 7th, and 9th clauses, relative to killing and dyeing seeds, and the commerce of killed and dyed seeds, while the limited time for summary proceedings, and the ambiguous character of existing statutes which the ninth clause enacts shall remain in force.

To destroy by artificial means the vitality and germinating power of seeds is an indefinite expression, although it obviously refers to the practice of purposely killing, to prevent seed of another kind brairding, such as Charlock seed for mixing with Turnip seed. All the Brassica and Trefoil seeds are liable to be thus adulterated, and the extremes to which the notorious practice of purposely killing is carried has for a long time imperatively demanded the interference of the Legislature. But farmers are familiar with other artificial means by which the germinating powers of seeds are partially or wholly destroyed than those used in this modern practice, such as heating in the stack or granary, kiln-drying, destruction by minute and obscure animals and vegetables; and such seeds may be scoured by mechanical, and dyed by chemical means, and then be mixed with sound seed, so as to give rise to very great difficulty in carrying into effect the Adulteration of Seeds Act; the seeds so killed, scoured, and dyed being of the same kind, and not "seed of another kind" as designated by the second clause. No doubt the third clause enacts that to sell artificially killed or dyed seeds is a punishable offence, subject to the penalty of 5*l*. or 50*l*., but practically such, we are apprehensive, will make the matter rather worse than better. In short, this notorious modern practice of killing and dying seeds should have been technically designated by the statute, and an example quoted for practical illustration.

The above remarks apply chiefly to small seeds, such as Clover and Turnip; but it is a well-known fact that the larger seeds, as Wheat, Barley, and Oats, are killed, dyed, and "doctored," in various ways, not only by corn merchants, but by farmers themselves. Kiln-drying, scouring, sulphur smoking and chimney smoking, may be quoted as familiar examples. Now, it is only when these processes are carried to too great a length that harm is done. On the contrary, when kept within proper bounds they often do good; hence the practice is advocated by many. Some kiln-dry only, others scour, a third sulphur-smokes and kiln-dries at one operation; while a fourth smokes in the kitchen chimney, &c.

But this is not all that requires to be said under doctoring. The vitality of both the larger and smaller seeds of the farm may be injured or destroyed by bad weather at the time of flowering; or rather, seeds may never have possessed germinating powers, or vitality may be so weak as easily to be destroyed in the stack, granary, or by the artificial modes of drying now coming into use; or the seed may be perfect, but stacked or threshed out and put into granary too damp, or even into a damp granary or store, and when heating sets in, or moulding, it may then be put through a drying or scouring machine and brightened in the colour by sulphuring, or by some other means, not objectionable, and yet discovered, and sold and bought, not for seed or malting, but for grinding, and yet ultimately fall into the hands of some farmer or seed-merchant who *will* have seed for little money; or too much heat may be accidentally used in the drying, not intentionally to defraud, and so on. In this way adulteration may be carried on to a very large extent without coming within the provisions of the statute.

It will be found equally difficult to reconcile with the requirements of farm practice as at present carried out in most English, Irish, and Scotch counties, the seventh clause, relative to the limited time allowed for summary proceedings. The clause runs thus:—"Every complaint under this Act, against any person in respect of selling, or causing to be sold, any killed or dyed seeds, shall be commenced within 21 days from the time of the commission of the offence complained of." That something of this sort is needed for the protection of trade may be taken for granted, both as regards the seller and buyer—but selling, or causing to be sold, is one thing, and the delivery and receipt of the seed sold and purchased another, and a very different thing, good seed being often sold, but bad delivered and received. We are somewhat apprehensive, the statute does not make suitable provision for the difference. Those farmers, for example, who are in the habit of buying their seeds, often do so long before the time of sowing, when they are delivered; and if there are more than 21 days between sale and delivery, how is the farmer to know in time to lodge his complaint in court for redress? In this respect the position of the small retail trader is perhaps worse than that of the farmer. Many wholesale seedsmen clear off remainders annually at any price they will bring, in preference to mixing them with the new stocks of the ensuing season. These are purchased by retailers. A portion may be sold that season, but the bulk goes on to the next for mixing or adulteration. It is sometimes smoked and dyed, not by sulphur, but in the kitchen chimney, from whence it comes out brighter and of a richer colour than the new seed with which it is mixed. Hence, instead of stacking the new Turnip seed in August, it is threshed out, mixed with the remainders of the last crop, or two or three crops, as the case may be, and the whole stock well smoked and dyed, in small bags, in the chimney. But much of the old seed, although it looks equally fresh with the new, is killed as well as dyed, and therefore this old practice, which has been followed by farmers and small traders from time immemorial, has become a modern offence, punishable with 5*l*. or 50*l*., as the case may be. Must it therefore be given up? Many will answer, "Impossible!" True, the seed thus killed and dyed has not the appearance of that of another kind, as meant by the second clause of the statute, but it nevertheless is the seed of one season sold for that of another, and obviously falls under the third clause. Hence a difficulty may arise, more especially should it turn out that the retail trader has unintentionally purchased killed and dyed seed of another kind. We repeat, to meet such practical complications in the seed trade, the second and third clauses ought to have been much more cautiously worded.

There is another kind of adulteration, often worse than any of the above, that requires notice, viz., the sale and delivery of seed full of the seeds of weeds, so much so, that numerically the latter greatly predominate. It follows that good seed is sold and purchased, but weeds are delivered and sown—alas for the land!—neither killed nor dyed, although in their growth they kill the crop with which they grow. Cases of this kind, we presume, fall under the ninth clause—the law of the past. There are, however, exceptions to the general rule, for many samples of this kind are sulphur-smoked and artificially dyed, &c., so as to bring them within the second and third clauses, and the summary proceedings under the fourth and other clauses of the Act. The sequel need not be told, for the amount of litigation to which such cases may give rise is incalculable.

The conclusion of the whole matter is manifestly this. The above Act to prevent the adulteration of seeds is an important instalment in the right direction, and therefore we accept it thankfully. Good seed is no secondary question in successful farm practice, and the best advice we can give our readers is to grow their own seed—if the land will produce it of the proper quality—and when otherwise situated, to make their purchases subject to common sense and the microscope, in preference to Statute Law—The Adulteration of Seeds Act, 1869, not excepted. *W. B.*

RECENT FOOD ANALYSES.

IT has been suggested to us that it would be of considerable service to publish the results continuously being made by our analytical chemist, Dr. Benjamin H. Paul, of 1, Victoria Street, Westminster. These analyses, being made for our own guidance in contracting and purchasing on behalf of our members, are very carefully and scrupulously performed. How far the information they contain is likely to be of public utility, you will be able to judge by this week's report.

No. 1 sample (sent to you herewith) is an article known as decorticated ground-nut cake. It is London made, and the entire production is at present taken by oil crushers for "mixing" (*i.e.* adulterating) linseed-cakes. The selling price is 7*l*. to 8*l*. per ton, so that farmers by buying the article and mixing it themselves can evidently effect a considerable saving over the present plan of buying it as an ingredient in oilcake, sold at 11*l*. 10*s*. to 12*l*. per ton.

It will be seen by the analysis that the cake is very rich in flesh-forming constituents, being one per cent. higher in nitrogen than the best pure Linseed. It is also tolerably rich in starch, and is very clean, containing only 5·30 parts of ash (mineral matter).

On the other hand it is low in oil (fatty matter), and like all nut cakes and nut meals, heavy in woody (indigestible) fibre. The following is the analysis:—

	Series B.—No. 2.	
Fat	7.84	Total of feeding constituents, 72.03.
*Albuminous material	38.95	
Starch, gum, &c.	25.24	
Moisture	9.67	Total of other constituents, 27.29.
Ash	5.30	
Woody fibre and husk	13.00	
	100.00	
*Nitrogen per cent.	5.9	

The second sample sent you is a new make of decorticated cotton-cake, just now being introduced from the United States. You will see that it is of an unusually bright yellow colour, and remarkably clean. It is selling at 7*s*. 6*d*. to 10*s*. per ton more than the best makes hitherto known here, and the following analysis would seem to show that the actual value is even greater than the market price (at present 8*l*. 5*s*. to 8*l*. 15*s*. per ton):—

Analysis of a sample of Decorticated Cotton-cake.

	Series A.—No. 6.	
Fat	16.48	Proportion of feeding constituents, 81.40.
*Albuminous material	46.80	
Starch, gum, &c.	18.12	
Moisture	8.47	
Ash	8.13	
Woody fibre and husk	2.00	
	100.00	
* Nitrogen per cent.	7.20	

For purposes of comparison we add Professor Voelcker's analyses for us, last season, of the best decorticated cotton-cakes we could then obtain, and also his analysis of the best pure linseed-cake. We understand that the American farmers eagerly buy up decorticated cotton-cake in preference to the best linseed-cake, and that that is the reason why we receive from the United States so short a supply of the former as compared with the abundant supplies we receive of the latter.

Professor Voelcker's Analysis last year of

	Decorticated Cotton-cake. Thick.	Thin.	Best pure Linseed-cake
Moisture	7.08	5.76	14.48
Oil	16 26	8.10	12.22
*Albuminous compounds	38.87	44.31	30.56
Mucilage, sugar, and digestible fibre	20.81	24.83	24.88
Woody fibre (cellulose)	9.08	8.84	11.72
Mineral matter (ash)	7.90	8 16	6.14
	100.00	100.00	100.00
*Containing nitrogen	6.22	7.09	4.89

The third sample sent you is a pure American linseed-cake, imported into Liverpool. It is a large thin, flat cake, packed in bags—one of the kind known in America as a "special make" of "city bags." It seems to be almost the only American city cake now coming into the Liverpool market, and none of the same make comes into the London market. Except that it is pressed too hard, and therefore deficient in oil, it is of rare excellence, being evidently made of the very best Linseed, and so carefully screened before manufactured as to leave less than 5 per cent. of

mineral matter in the cake. The present market value in Liverpool is 11*l.* to 11 . 5*s.* per ton. I annex analysis :—

Analysis of a sample of American Linseed-cake.

Series A.—No. 6 (Linseed).

Fat..	10.00	Proportion of feeding constituents, 75.30.	
*Albuminous material	38.93		
Starch, gum, &c...	26.37		
Moisture	9.93		
Ash	4.77		
Woody fibre and husk	10.00		
	100.00		
*Nitrogen per cent...	6.00		

The fourth sample I send you is a London made Palm-nut cake. It will be seen that it is not comparable to Smith's Palm-nut meal in fatty matter; but as the latter can only be bought in London at a cost of 8*l.* per ton (less trade allowance), and as this London made Palm-nut cake can be sold at from 5*l.* 15*s.* to 6*l.* per ton here, it ought in all fairness to be allowed to find its way to the agricultural public instead of the trashy foreign meals, which are the only ones usually in our market. The whole production (except some odd lots purchased by ourselves and others in the trade), I believe goes at present for "mixing."

For purposes of comparison, I annex Professor Voelcker's analysis of Smith's Palm-nut meal.

Analysis.—Series A.—No. 5.

			Smith's Palm-nut meal.	
Fat	9.00	Proportion of feeding constituents, 69.73.	21.86	Proportion of feeding constituents, 76.01.
*Albuminous material	24.70		16.75	
Starch, gum, &c. ..	36.03		37.49	
Moisture	9.90		5.43	
Ash	3.37		3.66	
Woody fibre and husk	17.00		14.90	
	100.00		100.00	
*Nitrogen per cent. ..	3.8		2.68	

Should you consider these inquiries of public value, I will continue to send them to you from time to time. *Edward Owen Greening, Managing Director, Agricultural and Horticultural Co-operative Association, 29, Parliament Street, Westminster.*

RELATIONS OF LANDLORD AND TENANT (TIPPERARY).

I HAVE to present a picture of varied outline, complicated in its lights and shadows, difficult to comprehend and interpret. Materially, I have reason to believe the condition of the mass of the tenant-farmers corresponds with that of the country around, which, though not cultivated or improved to anything like a high point, wears, on the whole, a look of prosperity. In this, as in other parts of Ireland, the land 25 years ago was engrossed to a great extent by masses of cottiers, whose intense competition caused rents in many cases to be extravagantly high, and also considerably diminished the proper area of legitimate and remunerative husbandry. This class has now, for the most part, disappeared, and though the change was necessarily accompanied by an immense amount of suffering and hardship, and occasionally, doubtless, of cruel wrong, the benefit which has resulted from it cannot be questioned, The land around Tipperary is now held in farms varying from 200 to 10 and even 5 acres in size, 20 and 30 acres being very common; and, from every inquiry I have made, the occupiers, as a rule, are reasonably thriving. There is, as I have said, but little tillage, the great staple being dairy produce; and, at the average prices of the last 10 years, this mode of farming has been extremely profitable. In fact, though the homesteads and farm offices in this neighbourhood are seldom well built, and though the farmers are disinclined to exhibit the outward signs of wealth, it is impossible not to see that they are usually comfortable; and I have been informed, on the very best authority, that many of them have good balances in the banks, and, what I was very glad to hear, that the small holders were doing as well as the large.

As for the rate of rent, I do not think it high, considering the admirable quality of the land, and its proximity to several excellent markets; and though I have heard some complaints of rack-rents, these instances, I am convinced, are exceptional, and rents are generally paid without difficulty. From a comparison, moreover, of different periods, I am satisfied that the burden of rent on the tenant has been steadily diminishing; and though rents have been gradually rising, I do not think, as a general rule, they are as high as might have been expected. I do not hesitate, then, to assert that the occupiers of the soil around Tipperary are, in a material point of view, by no means an unprosperous class. Yet the resources of the country are not half developed; its wealth is due to its natural fertility, and not much to the industry of man; and its agriculture is backward, and, in most cases, what may be called its agricultural plant and fixed capital are of an inferior description. Nor are the farmers, as a body, contented; they are, many of them, dissatisfied in a vague way; they put forward several distinct grievances; they are not, as the corresponding class in England is, Conservative in feeling. This state of things may in part be ascribed to certain existing facts in society around. The landowners are, with hardly an exception, Protestants, and the tenants are all nearly Roman Catholics; and those who know what antagonism of class religious differences cause in Ireland will at once see how injurious to progress this single circumstance inevitably is. Again, the largest landowners are absentees, who seldom or never visit the neighbourhood; and though their estates are generally well managed—that of Lord Derby especially so, to judge merely from its appearance—the agent can never supply the place of the resident proprietor, and the kindly link that ought to unite the tenant and his superior being broken, the whole frame of society suffers in consequence. By these means a barrier is raised between the classes connected with the soil, and the natural relations between landlord and tenant are occasionally marred by hardship and wrong. With some not inconsiderable exceptions, and those chiefly of modern date, all that has been done here for the improvement of the land, the draining, enclosing, and building of farmsteads, has been the work of the occupiers, not of the owners; and though the occupiers, during their tenancies, have, of course, received the accruing benefit, they complain that, as a general rule, they have obtained no allowance or compensation. They say, moreover, that in some instances their rents have been actually enhanced in consequence of what they have thus done, and that they are discouraged from improving by a general apprehension of such a result; and though I have not been able to find out well-authenticated cases of such injustice, I have little doubt that some might be discovered. Furthermore, leaseholds are exceedingly few; the tenancies are nearly all at will, determinable at a six months' notice to quit; and though I can affirm with confidence that no general system of oppression exists, and that evictions from land are rare, it is evident that, under these conditions of tenure, the tenants are at the mercy of their landlords; and it is quite certain that some members of this class, not united by kindly associations and feelings with that in complete subjection to it, occasionally abuse their dominant position. Another circumstance connected with the system of tenure requires particular attention. On many, perhaps the majority of estates, an outgoing tenant is accustomed to sell the goodwill of his interest; very large prices are paid in this way for holdings usually only at will, and though legally a purchaser acquires no new right, it is impossible to satisfy him that by his outlay he has not become virtually a part proprietor. In most instances this tenant-right is treated by the landlords with respect, but in some it has been disregarded; it has no sanction whatever from law, and I have heard of cases in which an incoming tenant has been capriciously evicted though he had paid his rent, and though he had, perhaps, invested 10*l.* an acre as a premium for merely obtaining such possession. Such cases are extremely rare, but when they occur it is difficult to deny that the tenant suffers very great hardship. *Times.*

Home Correspondence.

Steam Cultivation.—In the *Agricultural Gazette* of December 19, 1868, p. 1326, I made some observations on the above subject, and concluded as follows:—"There is so much that I may be allowed to call a step in the right direction in a traction-engine, that the following questions may not be out of place:—Can a traction-engine be made available for draft purposes? Is it possible to have our waggons or trucks made so as to be drawn by the traction-engine, now picking up the corn sheaves, now carrying out the real 'muck,' made under properly protected yards? Indeed, why should I not be able to call on my friend Hodge, and offer him a lift, both for himself and his 10 quarters of corn?" Why? Those who are interested in this subject, will find communications regarding steam cultivation and otherwise, to which a traction-engine could be put, at pp. 343, 398, 540, 566 (1869); and the following, which I have taken from the *Farmer*, would show that the Messrs. Howard, of Bedford, have answered my questions in a practical way, and have "muzzled" our friend "fire:"—

"HARVEST CARTING BY STEAM.—During this week a novel use has been made of steam-power on the farms of Messrs. Howard, at Bedford. A steam-ploughing engine, which is also used for traction purposes, is now employed in drawing waggon trains of corn. Many farmers who use steam-power for cultivating the land, have thought that if the dormant power in the engine could be used during harvest to facilitate the operations in fine weather, they would be able to reduce the stud of horses all the year round, and thus save their keep, amounting to from 20*l.* to 25*l.* a horse per annum, besides their first cost. It has now been proved satisfactorily that not only the breaking up of the land, but the seeding or drilling can be done most expeditiously and economically by steam. In utilising its power at harvest the missing link has, so to speak, been found, so that on a large farm the few horses kept are used as an auxiliary to steam, instead of employing a great number with steam as an auxiliary, as is now the general practice."

Is this the first instance in which a traction-engine has been used for harvesting corn? Are you able to tell me? *West Indian.*

Woolston v. Tiptree.—"A Farmer" in last week's *Agricultural Gazette*, which *nom de plume* Mr. Smith of Woolston acknowledges in the *Times* of the 2d inst., has again brought forward his charge of misrepresentation against Mr. Mechi, in his published accounts, regarding the average price of his Wheats sold in the year 1868. Perhaps it is Mr. Smith's impulsiveness of character that prevents his looking calmly and correctly at Mr. Mechi's balance-sheets. Mr. Mechi gives the average price of his Wheat for the year, that is, from January 1, 1868, to December 31, 1868. Now, is it at all surprising that the Wheats averaged 63*s.* 9*d.*?—when I find in the London markets quoted in the *Field* of January 4, that the highest price was 75*s.*; March 28, Essex, Kent, and Suffolk, 66*s.* to 78*s.* new, 76*s.* to 84*s.* old; June 27, 66*s.* to 73*s.* new, 72*s.* to 74*s.* old; and the highest on December 19 was 58*s.* Now, how much of this corn that was on the farm on January 1, 1868, valued at 558*l.* 6*d.*, fetched these prices?—that it was not all Wheat I am aware, for the balance-sheet says, hay, corn, &c., unsold. Let Mr. Smith again read Mr. Mechi's communication as it appeared in the *Agricultural Gazette* of February 20, p. 202; he will observe that the Wheats there spoken of as selling from 48*s.* to 62*s.* were Wheats of harvest 1868, and sold between the close of the harvest and the date of his communication in February, 1869. Whatever Wheats were sold after January 1, 1869, will be accounted for, in the usual yearly balance-sheet, in, let us hope, the *Agricultural Gazette* of 1870. Perhaps Mr. Smith may have found out his error before he showed it, but waited patiently for correction. *Another Farmer.*

Misrepresentation of Mr. Mechi.—Mr. Mechi says "that Mr. Smith has descended to misrepresentation of facts in the rather odd jumble of matters that constitute his letter." Now, if you will refer to your Paper of Feb. 20, 1869, p. 204, you will find that I supplied to you (under the signature of "A Farmer") the data taken from his balance-sheet, proving that he drew 150*l.* 6*s.* 8*d.* from his tenants' capital, and that the sum of 201*l.* 16*s.* represented the sum at which he entered his Wheat as sold at, over the imperial averages at the same period; and that when these two sums were deducted from his gross profit there only remained 218*l.* 10*s.* 10*d.*, not enough to pay his rent on the 177 acres, the total of his occupation, at 34*s.* an acre, by 82*l.* 9*s.* 2*d.* Therefore there cannot be any misrepresentation on my side. Mr. Mechi's 63*s.* 9*d.* a quarter for Wheat would not have been the road to the big loaf. The general farmers' 53*s.* 4*d.*, according to the imperial average from August to December, 1868, is a much nearer approach to it. *William Smith, Woolston, Bletchley Station, Bucks, Sept.* 13.

Reduced Superphosphates.—As one of the principal chemists in the case referred to in your last, viz., "Bradburn *v.* Stevens," and the one commissioned by the plaintiff to attend at his place of business to open and divide the noted sample in the presence of his solicitor, I trust you will allow me to append to your able article the following notes:—1st. The distinction you mention between soluble and precipitated phosphates—viz., that the latter is inferior to the former by having lost its power of diffusibility in the soil, but is in other respects equally available as plant food—was pointed out by me at the time in my explanation of the nature of the reduced phosphates, and had not been previously dwelt on. 2d. That for more than 12 months past I have adopted the oxalate of ammonia process in a large number of analyses, as a means of separately stating the precipitated part from the ordinary undecomposed phosphate, and have found the process perfectly satisfactory when employed in the manner fully explained by me in the current number of the *Chemical News. Alfred Sibson, 11, Eaton Terrace, St. John's Wood, N.W.*

The Farmers' Capital must ever Vary.—I am led to this remark by an unjust charge, that I take from my capital to make up my profits. If this were true, I ought, when my capital is in excess, to add the increase to my profit. But the fact is, that in taking stock (which is the farmer's capital) it must be valued at the then market price for which it could be bought or sold, and this price may vary 100 per cent. or more from the preceding annual valuation. I remember selling my first stock of Wheat after harvest at 44*s.* per qr., and my last stock (both within the 12 months) at 104*s.* per qr. At other times the difference has been almost as great. So it is, in degree, with live stock. Lambs and cattle during the drought of 1868 were a drug, sacrificed at wretched prices, owing to the absence of food on the 22½ millions of acres of permanent pasture and the deficiency on 10 millions of acres of root and green crops. Therefore the stock-taking is a question affecting capital, and not annual profits. I have heard observing farmers say, Note the various prices at which you sell your Wheat for seven years, and in another column put 56*s.* annually, and you will find the totals agree. The history of agricultural produce has been, for ages, variability, and so it will continue to the end of time. A farmer is lucky who goes out of his farm when everything is dear, and can afford to wait for another when everything is cheap. He must, however, in the intermediate time live upon his capital, or employ it in some other business, or invest it in funded or other securities. The amount of tillages is also affected by the price of labour and the vicissitudes of weather. *J. J. Mechi, Sept.* 14.

Game Laws in Scotland.—Any change in the law which should authorise and induce tenant-farmers, generally, to become, in their own persons, killers of rabbits, hares, and other game, as a necessary occupation for their own protection on the farms they occupy, would lead to a very undesirable change in their habits and pursuits, most disadvantageous to themselves. In the same way, any change in the law which should authorise them to appoint other persons to do this duty for them, would lead to unpleasant feelings and differences, and misunderstandings with their landlord without end. It would be easy to enlarge on, explain, and illustrate this part of the subject, especially as regards the innumerable evils certain to be engendered by servants killing game on the land rented by their masters. A landlord would naturally and inevitably dislike to see men with guns and dogs roaming over his estate, while he himself might have abstained from doing so; and even if doing no wrong act, such persons would inevitably raise a belief that they were doing what they ought not to do, and this it would be most difficult to disprove. Such would be the evil effects of any of the changes in the law which were proposed in the last session of Parliament. It is conceived that a different system and scheme would be much preferable, as an abatement of the intolerable nuisance and grievance to which very many, but by no means all, tenant-farmers are now subjected, of which they most justly complain, and for which a remedy must be found. Let the Sheriff in each county in Scotland be ordained by law to select within his county a sufficient small number of discreet and sensible persons, whom he shall denominate game inspectors, or by some better name. Let him be directed and required by law, whenever a case of injury from excess of game and consequent complaint shall be brought before him, to call upon any two of such persons to inspect any farm on which it shall be alleged that an excessive and injurious quantity of game (or rabbits and hares, alone)

exists and is maintained, who shall forthwith report to him the result of their inspection, and the amount of injury, within a specified period. Let the Sheriff, having duly considered such report and estimate of damage, be empowered and required to give decree in terms of such report and estimate, against the landlord, who must be called into court and heard before such decree shall be pronounced; and unless he can prove to the contrary of the report of the inspectors, the decree shall go forth and the money shall be paid, or deducted from the rent next to be paid by the tenant. The tenant, having thus been empowered to apply for such inspection, and having so applied, let it be in the power of either party to appeal from the decision of the Sheriff-Substitute to the Sheriff-Depute, whose judgment, on appeal, shall be final. The whole proceedings to be conducted in a summary manner, no written pleadings—oral discussion alone—but a written record. It is believed that if a few cases were disposed of in this manner, in several counties, a reasonable state of things would be speedily brought about throughout the whole of Scotland. A smart deduction from rent in one year would render it pretty certain that there would be no similar deduction, but a great deal less game, in the next year,—and the owner of the soil is the proper person to reduce the quantity of game. Let the Sheriff have a power to inflict a penalty on the tenant who shall make a complaint which is not sustained by the report of the inspectors, and let the subject of costs follow the issue of the inspection. It is believed that, under a system of this kind, the good relations between landlord and tenant would be much better maintained than under a law which made tenant-farmers the redressers of their own grievances. It is a great object not to make changes where changes are not required; on some estates, the subject of game is never heard of, because there is no grievance and no ground for complaint. It is most undesirable to introduce change in such cases, which would be certain to create great and instant evils, which do not at present exist. It would be a great evil that killers of game should be introduced on estates and farms where there is no excess of game, and no grievance and no complaint; why should the innocent suffer for the guilty? Such persons would have no proper duty to perform—they would themselves constitute a great nuisance—and could only do that which would be wrong, and create evils of many kinds which do not now exist. Let remedies, therefore, be confined to the places where they are wanted. The system proposed in this paper provides a remedy quite effectual, and exactly co-extensive with the surface over which the grievances to be redressed extend, or may extend, and no further. It has been attempted to make this statement as brief as possible. *T. F. K., Sept.*, 1869.

Saving Corn in Wet Seasons.—In the west of Russia, between St. Petersburgh and Wilna, an excellent plan for drying sheaves of Wheat, &c., when carried in a damp state to the homestead, is adopted, which might also be used among us. A row of Pine-tree stems, with the branches lopped off near the stem, or a number of poles set upright, with side pegs jutting out, serve as supports to a number of cross-bars, on which the sheaves are hung with the heads downwards, so that if rain falls it runs off without lodging at the base of the scales, and rotting the grain. The upright supports are kept in their places by strong lateral struts. *J. O. W.*

Crop Reports, 1869.—Some time ago you favoured your readers with Mr. Sanderson's opinions as to the Wheat crop of 1869, wherein that gentleman states his belief that it would prove very little inferior to that of 1868. You have since given us in your columns the opinions of Mr. J. B. Lawes, founded upon the experiments and trials he has made on his own farm. Mr. Sanderson has written often, and uttered his prophecies frequently, but not one of them that I am aware has ever been fulfilled. His writings are of so partial a nature that, though they may please landlords, I am quite sure practical men place no reliance upon them. With respect to Mr. Lawes' detailed accounts of his experiments, I have only to say that the conclusions he has arrived at are not borne out by the test of the threshing machine, and that his statements with regard to the yield of the Wheat crop of this year are most erroneous. He estimates the deficiency at only three-quarters of a bushel below the average—perfectly ridiculous! On July 17, I wrote to you respecting our crops, and I then stated my belief that the Wheat crop of this year would fall short of 1868 by at least 2 quarters per acre. Since that time we experienced some fine hot forcing weather, which materially improved the Wheat crop. I am, however, still of opinion that the yield will be nearly 2 quarters per acre less than last year. Mr. Mechi, no mean authority, states that in many cases the deficiency will amount to nearly 2 quarters per acre. How are we to reconcile these conflicting statements? Every one to whom I have spoken, and who have tested their crops by the machine, assure me that the yield of Wheat is at least 15 bushels less than last year, and I have threshed out a field for 26 bushels per acre, which usually returns me 34 or 35 bushels. I do not wish to speak disrespectfully of either Mr. Sanderson or Mr. Lawes, but their opinions and statements tend to mislead the public, and are productive of much harm. Let them go into any corn market in England, and they will soon find that what I say is the truth—that the yield of the Wheat crop of this year is very nearly 2 quarters per acre less than that of last year. *John Ford, Merton Hall, Warwick, Sept.* 13.

Crops in Herefordshire.—With few exceptions the corn harvest for this county is brought to a close, *i.e.*, for Wheat, Barley, Oats, and Peas—the Beans are still in the field—and a more glorious season for securing the crops has never been experienced; but from all sides the result of the use of the threshing machines is reported to disappoint the expectations of the growers, the yield of Wheat being stated at 15 to 20 per cent. less than last year for a similar bulk of straw; and as that bulk is much less than that of 1868, there will unquestionably be a deficiency of at least 30 per cent. compared with that year, and 15 below an average. The pastures and green crops are in great need of rain—the past few days we have had some genial showers, but at the present time our prospect for autumn for the stock is much worse than last year; owing to the very general failure of the Clovers and artificial Grasses, the stock has been dependant upon the permanent pastures; and this, accompanied by a most peculiarly ungenial season, has had the effect of laying the green fields of the county very bare. *Herefordshire, Sept.* 8.

The Hop Crop.—The uncertainty of securing the Hop crop after being in readiness has been fully verified here this last few days. In May and June the bine in most instances grew strong, healthy, and covered the poles; it was attacked in July and August by the louse, or aphis—the most destructive vermin to the herbage, vegetation, and fruits of our country—blighting our most sanguine prospects suddenly, seriously, and destructively, as is too well known. The beautiful Lady-bird, that arrived in such swarms and clouds, to feast on and destroy this pest of aphis, did not arrive in time for its eradication; a great extent of the best cultivated land did not, therefore, recover from its serious attack. Nevertheless, a good extent of the bine on the higher and poorer grounds in the outskirt villages of Farnham did make a start, flowered, set, and produced a pretty sprinkling of Hops—not large in size, but firm. Some commenced picking and gathering in the crop a week since, others went to work as the Hops came in order, or as their fancy led them. On the night of Thursday, the 9th, a thunderstorm arose—heavy storms of rain followed, continuing till Friday morning, the 10th; then the wind rose to quite a gale, blew hard from 12 to 3 P.M., blowing down and smashing poles by the hundred, and doing other serious damage. Saturday, the 11th, was a warm, calm, growing day, but with indications of more wind and storms to come, in which we have not been disappointed, it having commenced to be stormy soon after sunset, the wind rising to a gale, continuing all day and night on Sunday, and is but little subdued this morning—Monday, the 13th—doing much and serious damage amongst the Hops, unroofing stacks of corn, blowing slates from houses, and doing much serious damage. Thus we see the uncertainty of securing the crop of Hops, when a good crop is quite ready, even at the eleventh hour. *James Barnes.*

Societies.

WARWICKSHIRE AGRICULTURAL.

COVENTRY: *Sept.* 14.—This Society is holding its annual show under conditions which are not altogether favourable, either as regards the number of animals or the state of the weather. Many of the classes are very weak, both in number and character, and yesterday the rain fell and a hurricane blew till tents and pig sheds were carried away, and the dining marquee so went "to ribbons," that both the flower show and the dinner had to be adjourned to the market hall in the town, while the pigs had to trust to trusses of straw for shelter from wind and wet. These mishaps were not likely to inspire the local ladies and gentlemen, and personages who are less interested in the meeting, with the confidence which would insure a large attendance. The result is that the company has been more select than numerous on this, the 2*s.* 6*d.* day, and the Society's funds, which are, apparently, already somewhat low, will not be improved so much as the authorities would desire.

It appears, however, that it would be to the advantage of this county society if a little "new blood" was infused into the management. Self-sufficiency, a slow and a severe methodical method of speech, are good things even in a secretary, when combined with a becoming amount of respect for other folks' time and duties; but when these qualities, or defects, are alone relied on, and the voice and energy of aspiring young men are made subservient to them, an association is not likely to progress or advance. Until some new management is introduced, the probability is that this county society will continue to decline till there will be no funds beyond those necessary for the management, and the competition, if there be any, will therefore be confined to honourable rivalry. But whether this management will succeed in securing a larger exhibition of stock, remains to be demonstrated.

In the cattle classes there is but little worthy of notice, excepting a bull sent by Mr. T. Walker, to which is awarded the 1st prize in his class. This animal is an extraordinary bull for quality of flesh and amount of substance as lean meat over the loin, back, and rump; a perfect ridge on each side the spine is shown to the most careless observer. His owner, too, appears to be content with the value of his animal at home, for although this bull, GRAND DUKE 9TH, is upwards of seven years of age, and has been in Mr. Walker's possession 4½ years, he has only been shown in public competition once before. This was at Warwick, in his own county, last year.

The under 3-year-old bulls are a poor class, and Mr. Garne, of Churchill Heath, took the 1st with a half-ribbed, and consequently very podgy roan, which has a fairish touch; but his *physique*, as may be judged from his pot-belly at two years of age, is not to be admired or commended. Here we may record the demise of GRAND SULTAN, the successful prize-taking bull of Mr. Lynn, of Stroxton. He was shown at Worcester, and Mr. Lynn concludes that there he had a sun-stroke during the excessive heat that prevailed at that time. He then became dull and heavy, continued in that condition during his journey home, shortly after reaching which he died..

In the class for bulls between 10 and 20 months there is a poor, very poor, collection; and Mr. Lynn, with his promising 11 months' old brother to "Grand Sultan" (defunct), was placed 1st without hesitation.

The females in the Shorthorns are scarcely worthy of a passing notice. Mr. Garne's 1st and 2d in the cows are little and pretty. In the pairs of heifers Mr. Harris exhibits a pair of very useful red and white, and Mr. Garne is 2d with a pair which had no match about them, one being a good store heifer with promising traits, and the other a short, fat, patchy, red and white beast, which had better have been made into "roast or boiled" long ago. This animal, too, has six "broad" teeth, although she is in a class "under three years old."

Among the milking cows there are some capital animals. The Herefords and Devons are not numerous, and are very mean. The single Longhorn bull is well worthy of his breed, and the cows of this genus are a capital collection. Two Kerries, with their calves, and a half-bred Highlander, with a dusky sandy coat and fine frame, and a perfect bag and teats, conclude the cattle classes.

The sheep and horses are altogether unworthy of a county meeting. The prize list below will impart quite as much information as it is requisite to give about these departments.

The pigs are even worse. Mr. Duckering made a considerable lot of entries, but, as he did not keep a single promise, the competition was left to names which, as a rule, were the only representatives in the classes wherein they took prizes.

The awards of the principal prizes are as follows:—

CATTLE—SHORTHORNS.

For the best Bull, above 3 years old.—10*l.*, T. Walker, Berkswell Hall, for Grand Duke 9th.

For the best Bull, over 20 months and under 3 years old.—1st, 10*l.*, G. Garne, Churchill Heath, for Duke of Townley's Aide-de-Camp; 2d, 5*l.*, J. P. Evans, Griff.

For the best Bull, over 10 and under 20 months old.—1st, 8*l.*, John Lynn, Stroxton; 2d, 4*l.*, G. H. Canning, Shottery.

For the best Cow, in-Milk, above 3 years old.—1st, 7*l.*, G. Garne, Churchill Heath, for Pride of the Heath; 2d, 3*l.*, T. Garne & Son, Broadmoor, for Penny Royal.

For the best pair of Heifers, under 3 years old, in-Milk or in-Calf.—1st, 7*l.*, T. Harris, Stoney Lane; 2d, 3*l.*, G. Garne, Churchill Heath, for Jelly and Lady Lavinia.

For the best pair of Heifers, under 2 years old.—1st, 5*l.*, T. Garne & Son, Broadmoor, for Nonpareil and Penguin; 2d, 3*l.*, G. Garne, Churchill Heath, for Lady Godiva and Princess Alexandra.

HEREFORDS.

For the best Bull, above 3 years old. — 10*l.*, G. H. Canning, Shottery, for Bedford. Highly Commended: Richard Tanner, Frodesley, Donington, for Frodesley.

For the best Bull above 10 months and under 3 years old.—1st, 10*l.*, Thomas Garrett, Compton Scorpion; 2d, 5*l.*, John Baldwin, Luddington.

For the best Cow, in-Milk, above 3 years old. — 1st, 7*l.*, John Baldwin, Luddington; 2d, 3*l.*, J. H. Whitehouse, Ipsley Court.

For the best pair of Heifers, in-Milk or in-Calf, under 3 years old.—1st, 7*l.*, John Baldwin, Luddington; 2d, 3*l.*, J. H. Whitehouse, Ipsley Court.

DEVONS.

For the best Bull.—1st, 8*l.*, A. Umbers, Weston Hall; 2d, 4*l.*, George Turner, Alexton Hall, Uppingham.

For the best Cow or Heifer, in-Milk.—1st, 5*l.*, G. Turner, Alexton Hall; 2d, 3*l.*, A. Umbers, Weston Hall.

LONGHORNS.

For the best Bull.—1st, 8*l.*, R. H. Chapman, Upton, Nuneaton, for Curzon. Only one entry.

For the best Cow, or Heifer, in-Milk.—1st, 5*l.*, J. H. Burbery, Kenilworth Chase; 2d, 3*l.*, J. H. Burbery, Kenilworth Chase. Highly Commended: J. Godfrey, Wigston Parva.

CATTLE BEST ADAPTED TO DAIRY PURPOSES.

For the best pair of Cows, in-Milk, which have been used in the Exhibitor's Dairy for the last two seasons.—1st, 15*l.*, W. Wakefield, Flotchampstead Hall; for Verity and Wild Eyes by White Prince; 2d, Silver Cup, value 10*l.*, W. Bradbarn, Wednesfield.

To the owner of the best Bull, for breeding purposes, of any pure breed.—3*l.*, Thomas Johnson, Norton Lindsay.

SHEEP.—LEICESTERS.

For the best Shearling Ram.—1st, 7*l.*, G. Turner, Alexton Hall; 2d, 3*l.*, F. Spencer, Wibtoft.

For the best 2-shear Ram.—1st, 7*l.*, G. Turner, Alexton Hall, 2d, 3*l.*, F. Spencer, Wibtoft.

For the best pen of five Ewes, that have suckled lambs to June 1, 1869.—1st, 7*l.*, W. Hurlston, Wasperton; 2d, 3*l.*, ditto.

OTHER LONG-WOOLLED SHEEP.

For the best Shearling Ram.—1st, 7*l.*, John Lynn, Stroxton; 2d, 3*l.*, ditto.

For the best 2-shear Ram.—1st, 7*l.*, John Lynn, Stroxton; 2d, 3*l.*, ditto.

For the best pen of five Ewes, that have suckled lambs to June 1, 1869.—1st, 7*l.*, James Dormer, Ashow; 2d, 3*l.*, James Harris, Flotchampstead.

COTSWOLD SHEEP.

For the best Shearling Ram.—1st, 7*l.*, J. Godwin, Troy Farm, Bicester; 2d, 3*l.*, J. Wheeler, Long Compton.

For the best 2-shear Ram.—1st, 7*l.*, J. Wheeler, Long Compton; 2d, 3*l.*, J. Godwin.

For the best pen of five Ewes, that have suckled lambs to June 1, 1869.—1st, 7*l.*, J. Godwin; 2d, 3*l.*, J. Baldwin, Luddington.

SHROPSHIRE SHEEP.

For the best Shearling Ram.—1st, 7*l.*, W. Tidy, Middleton; 2d, 3*l.*, Penn & Harding, Bicton.

For the best 2 shear Ram.—1st, 7*l.*, S. C. Pilgrim, Burbage; 2d, 3*l.*, W. Baker, Moor Barns, Atherstone.

For the best pen of five Ewes, that have suckled lambs to June 1, 1869.—1st, 7*l.*, W. Baker, Moor Barns, Atherstone; 2d, 3*l.*, R. Tanner, Frodesley.

OTHER SHORT-WOOLLED SHEEP.

For the best Shearling Ram.—1st, 7*l.*, G. Wallis, Old Shifford; 2d, 3*l.*, ditto.

For the best 2-shear Ram.—1st, 7*l.*, G. Wallis, Old Shifford 2d, 3*l.*, ditto.

HORSES.—AGRICULTURAL HORSES.

For the best Stallion.—1st, 20*l.*, W. Buller, Hanwell, Banbury, for Forester; 2d, 5*l.*, J. W. Jennaway, Cryfield Grange, Kenilworth.

For the best Mare, in Foal, or with Foal at her foot.—1st, 10*l.*, J. Canning, Sherbourne; 2d, 5*l.*, C. Burton, Temple Balsall.

For the best Gelding, under 3 years old.—5*l.*, R. Timms, Braunston.

For the best Filly, under 3 years old.—5*l.*, A. Umbers, Weston Hall.

For the best Cart Gelding, above 4 years old, that has been regularly worked.—5*l*., R. Robbins, Stoneleigh.

For the best Cart Mare, above 4 years old, that has been regularly worked.—5*l*., J. Tysoe, Rumer Hall.

HUNTING HORSES.

For the best Stallion best adapted for hunting purposes.—15*l*., R. C. Naylor, Redmarsh Hall, Northamptonshire, for The Hadji, by Faugh-a-Ballagh, dam Athol Brose, by Orlando.

For the best Hunter that has been ridden in the past season with the Warwickshire, North Warwickshire, Atherstone, Pytchley, Bicester, South Staffordshire, and Quorn Hounds.—1st, 15*l*., J. E. Bennett, H. Bosworth Grange; 2d, 5*l*., E. Knott, Fenny Compton.

For the best Hunter, 4 years old and upwards (to be jumped on the ground).—1st, 15*l*., J. King, Quarry Farm, Rowington; 2d, 5*l*., S. Catterns, Binley.

For the best 4 years old Gelding or Filly adapted for hunting purposes, the property of a tenant-farmer, farming not less than 100 acres of land, and residing within the limits of the Warwickshire and North Warwickshire Hunts, and to have been in his possession not less than 12 months.—Two entries; one to win; prize, 10*l*., withheld.

To the Owner of the best half-bred 2-years-old Colt or Filly, the property of, and bred by, a member.—3*l*., J. G. Ledsam, Griffins Brook.

For Mare with Foal at her foot, the property of a tenant-farmer (a member of the Society), best calculated to breed Hunters, the foal to be got by a thorough-bred horse.—5*l*., J. G. Ledsman, Griffins Brook.

HACKNIES AND PONIES.

For the best Hackney, exceeding 15 hands high.—10*l*., John Griffin, Burton Dassett.

For the best Hackney, not exceeding 15 hands high,—10*l*., John Robbins, Warwick'

For the best Pony, above 13 and not exceeding 14 hands high.—5*l*., Edward Petre, Whitley Abbey.

For the best Pony, above 12 and not exceeding 13 hands high.—5*l*., J. Beale, Wolvey Grange.

PIGS.

For the best Boar Pig, of the large breed (except Berk hire), under 18 months' old.—1st, 3*l*., John Wheeler, Long Compton. Only one shown.

For the best Boar Pig, of the large breed (except Berkshire), above 18 months' old.—1st, 3*l*., A. Umbers, Weston Hall. Only one shown.

For the best Boar Pig, of the small breed, under 18 months' old.—1st, 3*l*., J. Wheeler, Long Compton; 2d, 2*l*., R. K. Bassett, Whitley Abbey Farm.

For the best Boar Pig, of the small breed, above 18 months old.—1st, 3*l*., John Wheeler, Long Compton. Only one shown.

For the best Boar Pig, of the Berkshire breed, under 18 months old.—1st, 3*l*., J. Spencer, Villier's Hill; 2d, 2*l*., ditto.

For the best Boar Pig, of the Berkshire breed, above 18 months old.—1st, 3*l*., John Stanley, Leamington; 2d, 2*l*., Joseph Smith, Henley-in-Arden.

For the best Breeding Sow, suckling pigs of her own farrow, and in-milk at the time of show, of the large breed (except Berkshire. The pigs to be exhibited with the Sow.—1st, 3*l*., F. Spencer, Wibtoft; 2d, 2*l*., John Wheeler, Long Compton.

For the best Breeding Sow, of the small breed, suckling pigs of her own farrow, and in-milk at the time of show. The pigs to be exhibited with the sow.—1st, 3*l*., R. K. Bassett, Whitley Abbey Farm; 2d, 2*l*., Sir J. W. C. Hartopp, Bart., Sutton Coldfield.

For the best Berkshire Sow, suckling pigs of her own farrow, and in-milk at the time of show. The pigs to be exhibited with the sow.—1st, 3*l*., Sir J. W. C. Hartopp, Bart., Sutton Coldfield. One shown.

For the three best Breeding Pigs, of one farrow of 1869, of large breed.—2*l*., John Wheeler, Long Compton.

For the three best Breeding Pigs, of one farrow of 1869, of small breed.—2*l*., R. K. Bassett, Whitley Abbey Farm.

For the three best Breeding Pigs, of one farrow of 1869, of Berkshire breed.—2*l*., Joseph Smith, Henley-in-Arden.

For the best Sow, of any breed, suckling pigs of her own farrow, and in-milk at the time of show.—1st, 2*l*., John Spencer, Villier's Hill. One entry.

JUDGES.—Agricultural Horses: Mr. J. W. Ladkin, Lutterworth; Mr. R. J. Newton, Campsfield, Woodstock. Hunting Horses: Mr. Henry Thurnall, Royston; Mr. Thos. Percival, Wansford. Cattle: Mr. Matthew Savidge, Sarsden; Mr. T. Duckham, Baysham Court, Ross. Sheep and Pigs: Mr. Geo. A. May, Elford Park, Tamworth; Mr. C. Howard, Bedford. Implements: Mr. J. Hicken, Dunchurch; Mr. Thos. Johnson, Leicester.

There were several classes of extra stock, cheese, &c., but these were only of local interest.

ROYAL DUBLIN SHEEP SHOW.

AGRICULTURAL meetings of different kinds appear to be becoming as frequent in Ireland as they now are in this country. Their importance, too, is also increasing, for not only do Irish breeders bring larger numbers of improved home-bred stock to compete with each other, but old-established English and Scotch breeders respond to the demand in Ireland for improved animals by taking over specimens of their flocks to exhibit side by side with Irish-bred ones. This rivalry, and the intercommunication which takes place between the authorities and members of societies there and the exhibitors and judges who go from this side the Irish Channel, cannot fail to produce a desirable extension of good-fellowship, as well as increase the business profits and material prosperity of every one concerned. The Dublin Society's Sheep Show, which was held with great success last week, is one of the meetings which is helping to do the good work to which we have briefly referred. The following list of prize-takers will show how honours are now divided between previous purchasers of British stock and the present owners of the flocks from which they sprung:—

LONG-WOOLLED SHEEP.

CLASS I.—LEICESTERS.

One-shear Ram.—1st, Thomas Marris, The Chase, Ulceby, Lincolnshire; 3d, same; 4th, Wm. Owen, Blesinton.

Rams of any other age.—1st, T. Marris; 3d, Seymour Mowbray, Mountrath; 3d, W. R. Meade, Ballymartle, Ballinhassig.

Three 1-shear Rams, not competing in the foregoing sections.—1st, J. and A. E. Gould; 2d, T. Marris; 3d, W. R. Meade.

Five 1-shear Ewes.—1st, J. and A. E. Gould, Poltimore, Devonshire; 2d, T. Marris; 3d, S. Mowbray.

Five Ewes, any other age, having reared lambs in 1869.—1st, S. Mowbray; 2d, D. Hewetson: 3d, T. Marris.

CLASS II.—BORDER LEICESTER SHEEP.

One-shear Ram.—1st, Robert G. Cosby, Stradbally Hall, Queen's County; 2d, L. H. Bland, Q.C., Blandsfort, Queen's County; 3d, same.

Ram of any other age.—1st, L. H. Bland, Q.C.; 2d, same; 3d, R. G. Cosby.

Three 1-shear Rams, not competing in the foregoing section.—1st, L. H. Bland, Q.C.; 2d, J. & G. Laing, Cornhill, Northumberland; 3d, same.

Five 1-shear Ewes.—1st, L. H. Bland, Q.C.; 2d, J. T. Riddel.

Five Ewes, any other age, having reared lambs in 1869.—1st, L. H. Bland, Q.C.

CLASS III.—LINCOLN SHEEP.

One-shear Ram.—Caleb Going, Traverston, Nenagh; 2d, same; 3d, same.

Ram of any other age.—C. Going; 2d, same; 3d, same.

Three 1-shear Rams, not competing in the foregoing section.—C. Going.

Five 1-shear Ewes.—C. Going.

Five Ewes, any other age, having reared lambs in 1869.—C. Going.

CLASS IV.—LONG-WOOLLED SHEEP

(Not qualified to compete in the foregoing classes).

One-shear Ram.—1st, Thos. Roberts, Farn, Strokestown; 2d, R. Coffy, Newcastle, Killucan; 3d, T. Roberts.

Ram of any other age.—1st, T. Roberts; 2d, same; 3d, same.

Three 1-shear Rams, not competing in foregoing section.—1st, W. Cotton; 2d, R. Coffy; 3d, T. Roberts.

Five 1-shear Ewes.—1st, W. Cotton; 2d, C. Cotton.

Five Ewes, any other age, having reared lambs in 1869.—1st, R. Flynn, Tulsk; 2d, W. Cotton; 3d, R. Flynn.

SHORT-WOOLLED SHEEP.

CLASS V.—SHROPSHIRE SHEEP.

One-shear Ram.—1st, C. W. Hamilton, Hamwood, County Meath: 2d, same; 3d, T. Marris.

Ram of any other age.—1st, T. Marris; 2d, C. W. Hamilton. Silver Medal: the Executors of the late J. Richardson, Glenmore, Lisburn.

Three 1-shear Rams, not competing in the foregoing section.—1st, C. W. Hamilton; 2d, same; 3d, the Executors of the late J. Richardson.

Five 1-shear Ewes.—1st, the Executors of the late J. Richardson; 2d, same.

Five Ewes, any other age, having reared lambs in 1869.—The executors of the late J. Richardson.

INVERURIE.

Breeding and Rearing of Sheep.—A practical and seasonable paper was recently read on the above subject by Mr. BRUCE of Lightfoot, before the Inverurie Agricultural Association. Owing to the great length of the paper we can only give the following extracts, which will no doubt be interesting to English and Irish as well as Scotch farmers:—

Although my experience has been confined to the pure Leicester, I believe that, whatever may be applicable to this breed will hold good in the case of all the others. Blackfaced Highlanders are altogether out of place on our enclosed farms. Accustomed to seek their food over a wide range of country, their instincts lead them to be always on the move; and whenever cribbed and confined they waste nearly as much Grass with their feet as they eat, especially in wet weather, to say nothing of the difficulty of keeping them from breaking the fences. These I would discard, as being unprofitable to the farmers in this district, unless when eating Turnips on the land, enclosed in nets. In this case, you all know, they are first-rate fertilisers on their soils. Although unwilling to give an opinion, still if the question was directly put, "Which of the several breeds do you consider best adapted for our purpose?" my answer would be, a well-bred animal. Considering the value and beauty of well-kept fences, the annoyance and loss that fence-breakers are to the farmer of tidy habits, the well-bred animal will be found the most profitable in every respect. Being of milder disposition, they are seldom fence-leapers; if properly trained, they don't consume any more food, if even so much, nor do they trample the Grass one-half so bad as their more restless brethren, while you have a larger carcase, earlier maturity, more and finer wool, the most prolific, and, in general, the best of mothers.

Preparation of Ewes.—The condition in which the ewe ought to be before and while going with the ram, is of much importance, for let me say that you have the matter pretty much in your own hand, whether your succeeding crop of lambs are to be many or few. Bear in mind, however, that the best treatment for the ewe is not the most suitable for the gimmer; for instance, a ewe, if very fat, if she breed at all, will seldom produce more than one lamb, and often proves a sorry nurse besides; whereas a gimmer in first-rate condition will not only breed more readily, but, in general, will be more prolific, and a good nurse as well; while a gimmer in low condition and badly wintered, in most cases, will produce but one sickly lamb, and that seldom will be found a paying animal. The ewe at this season should neither be fat nor too lean, but simply in a thriving condition, and nothing conduces so much to this as a run of nice sweet Grass, in a field where no sheep have been during the season. When this is not available, a few Turnips or Cabbages, or even Turnip-tops, scattered daily over the field, will have a similarly good effect.

On Rams.—Here let me say that now-a-days one does not so often come across the mongrel that was but too commonly met with some time ago—the brute with the big, ugly head, long slender neck, narrow chest and loins, flat ribs, hard bare back, with the twist culminating at the tail, standing on long, bare, bent legs, and carrying a light fleece of inferior wool. The produce of such an animal will invariably prove a nondescript, and but rarely a first-class butcher lamb. The male in every case ought to be superior to the female. What, then, are some of the leading points needed to constitute a good ram? The following, in my opinion, are a few of them. First, purity of blood, fine head, clean jaws, large bright eye, and thin ears, well set on muscular neck, not too long or too short; broad shoulders, and placed so as to allow the head to be carried as it ought to be, and to walk properly; wide, capacious chest, with a breast like a swan, ribs round as a barrel, broad loins, straight and mellow-handling back; square, and plenty of mutton above the tail, twist down to the hock, long carcase, and clad in a mantle of pearly, lustrous wool, reaching down to the knees. The progeny of a ram having these characteristics, and a well-bred equal lot of ewes, ought, with proper management, to turn out what (in shepherd phraseology) is called a lot of tops. During the time that the ram is amongst the ewes they should be looked through once at least every day; by this means you are enabled to note the several ewes as they run.

Before Lambing.—After the ram has been removed, the ewes, unless there are too many of them on the land (and it is always more profitable to have ten too few than five too many), will require nothing in open weather but what they pick up, farther than being shifted from one field to another now and then, until within two or three weeks of lambing. Should, however, bare hard frost or snow intervene at any time, in that case hand-feeding of some sort must be resorted to, else dire results will follow. Now, I have observed that the custom, too much in vogue at a season of this kind, is somewhat after this fashion: a wisp of straw is laid on the ground, or else stuck in a heck, and a lot of Turnips spread on the field. Now, gentlemen, I consider this both a wasteful and cruel practice: the straw on the ground, or in the heck, very often with a ricketty covering, gets soaked through with the very first shower of sleet or snow, and in this state they positively will not eat it, unless compelled through sheer hunger. Again, when Turnips are spread on the ground when it is covered with frost or snow, they soon become, if not so before, like lumps of ice; so hard, indeed, that young sheep shedding their teeth, or old ones with few or any, can no more penetrate them than they could a stone. Now, if this be a true picture, let me ask what effects a two or three weeks' dietary of this kind would likely have on the two classes mentioned? There can be but one answer, and that a most unsatisfactory one.

Economical Feeding.—Our practice hitherto has been (and we don't mean to change it), whenever hard frost sets in, or a fall of snow, to have a lot of short wide troughs looked out, and these are placed one here and one there in a small well-sheltered field near to the steading, in which stands a roomy well-aired shed, and here the ewes are brought at once, whenever a change in the weather takes place. I have said that our troughs are short and broad, and that they are placed pretty wide apart from each other. You will have noticed that, whenever a lot of ewes are feeding out of a long trough together, they press and push against each other, so that any one heavy in lamb is very apt to be injured. A short trough entirely prevents this. By having to feed standing as it were in a circle, they cannot press one another unless it may be at the shoulders, while the wideness at the trough prevents the food being pushed over the side and wasted. The troughs being set pretty wide apart, there is less crowding, and by being shifted every second day poaching is prevented, and droppings spread more equally over the land. Having experienced long ago that Turnips, more especially if given *ad libitum*, is the worst food possible for pregnant ewes, we have used the following mixture instead, viz., Oat chaff and cut hay or straw, adding a few light Oats at the rate of ½ lb. to each, or, better still, a similar quantity of cotton or rape-cake dust, and slightly damping the whole. This mixture, given without stint, straw in a heck under cover, a lump or two of rock salt to lick, and access to water, will keep ewes in first-rate condition without any Turnips up to within two or three weeks of lambing. The chaff ought to be damped for the following reasons—If dry, it tickles the nose and throat, and causes coughing, and when cake dust is used, it falls to the bottom of the trough, and the mixture on that account is not so readily eaten, while the cut hay, by acting on the muscles of the stomach, enables the oily chaff to be more easily cudded. The following is a very good method for preparing the mixture for those who have not a cake-bruiser:—Get a water-tight barrel, of a size suited to the number of your ewes. Suppose that there are 50 ewes, and that each is to get 1 lb. of cake a-day, in that case weigh 50 lb. of cake, and break it as small as possible with a hammer; put it into the barrel, and then pour over it four or five pailsful of water, if hot so much the better; then stir it up with a stick, and let it stand until next day, by which time it will form into a nice sweet gruel; put your cut hay and chaff on a wooden floor, and pour the gruel over it, mixing it thoroughly with a fork, giving one-half of the mixture in the morning, and the balance at night. Should any one remark, however, that this would be an expensive and troublesome process, such will please bear in mind that this mixture is only given at a time when the ground is covered with frost or snow. With rape and cotton cakes, at 7*l*. per ton, 1 lb. a-day to each ewe amounts to 5½*d*. a head per week—no great outlay surely, to say nothing about the land being enriched at the same time, as it always is when sheep are fed on cake. A week or two before the first lambs are expected to drop, those ewes marked to lamb first are withdrawn from the others, and placed in a small field beside the bught, and into which they are put every night. To these we give a few cut Turnips, gradually increasing the quantity, along with cut hay and a little cake, until the lambs are dropt. By this means they become accustomed to the change of food, which increases the flow of milk, and get familiar with the person going amongst them: and as the average time that the ewe carries the lamb is 148 days, counting on this, and noting other indications, coupled with the payment of a 6*d*. to the attendant for every living lamb, such a thing as a dead one is rare indeed. When the ewe is lambing, pray don't hurry matters.

After Lambing.—I would strongly recommend keeping the whole of the ewes that may be lambed in a roomy place by themselves for some time, as, when they are allowed to mix with the flock, the lambs are very apt to be trod upon, and seriously injured. Be very careful, however, not to huddle too many together, as they get overheated, causing the wool to shed, besides disposing the ewe to catch cold, or inflammation of the udder. Those who breed butcher lambs,

and who may wish to dispose of them early, should give them a little oilcake. If finely ground down, they will begin to eat it when only a few weeks old. To prevent the ewes eating the cake, put up four or more flakes in the field, forming a square, leaving one or more openings of sufficient size to admit the lambs only inside the flakes. Place whatever troughs you may require; these, however, must be covered so as to keep out wet. As the lambs won't eat the cake if it be the least damp, give them very little at first, increasing the quantity to ¼ lb. a day each—with this little extra, good Grass, and clean skins, they will thrive amazingly. Should it be intended, however, to keep the lambs on through the winter, and sell them fat after being clipt in the spring, the little cake given through the summer will be of immense advantage; in the first place, it will enable them to tide over the weaning period nicely, and, by giving them a good start, will facilitate the fattening process very much afterwards; and here allow me to make a few remarks as to what I consider is the best method of carrying on the feeding operation during the autumn and winter. Say your lambs have been getting a ¼ lb. of cake a-day each from 1st of May to 1st of August, at which date they ought to be weaned, this gives 13 weeks exactly; during this time each will have consumed 24 lb. of cake, which, at 11*l.* 10*s.* per ton, will amount to 2*s.* 6*d.* a head. Speaking from experience, I would debit the land with one-fifth of this sum, so that the net outlay per head for three months would amount to 2*s.* The lambs being weaned they should get a bite of nice Grass, and, if possible, in a field where no old sheep have been during the season, and the cake continued; and once the fields are cleared, let them get a run of the stubbles. Whenever the Grass is gone and the weather breaks, have them put under cover, so as not to allow them to retrograde in the least. By putting them under cover, I don't mean that they should be closed up like cattle; all that is needed is simply a wooden erection in the most sheltered corner of some grass-field; and provided the roof be kept water-tight, anything will answer for lining up the sides.

(*To be Continued.*)

Reviews.

The Journal of the Royal Agricultural Society of England. 2d Series, Vol. V., Part II. John Murray.

The Part just issued by Mr. Jenkins has for its leading feature a considerable number of very well-written reports of noteworthy farms. Agricultural readers are best taught, and most likely to be satisfied, when the practical farmer is their teacher; and a fairly drawn picture of successful farm practice is the best sort of agricultural lesson. There are a number of capital lessons of this kind in the present volume. Some of the most energetic and best-known agriculturists of the day are thus pressed into the service of the Society, and their practice and experience plainly and simply described by Mr. Dixon and Mr. Jenkins will no doubt pique many a student into rivalry and effort. Some of these pictures of English farm practice we may from time to time transfer to our columns. Dr. Voelcker presents us with an exhaustive treatise on Beet-sugar and the cultivation of the Sugar-Beet. Mr. Evershed writes a report on the agriculture of Staffordshire. Papers on the improvement of grass-lands—on the retention of moisture in arable land, and on the production of successive green crops, are contributed by three practical men—Mr. Cadle, of Gloucester; Mr. Vallentine, of Leighton; and Mr. Chambers, of Derbyshire. There is a portion of the annual report to the Veterinary College by Prof. Simonds, and there are reports of the Implement and Cattle Show at Manchester. The whole makes a capital volume, containing more than the usual proportion of good practical information.

Of the Manchester reports it must be said that the account given of the live stock is, as usual, very meagre, and that of the different classes of implements exhibited and tried is, as usual, very detailed and explicit. Mr. Wells has done his best to supplement the account given by the judges in the former department, and Sir E. C. Kerrison introduces to the reader the elaborate reports of the implement judges. We are glad to see that Mr. Wells condemns the exhibition of horse-jumping, as proper to the work rather of a circus than of an agricultural society. We observe, in the report of the judges on systems and machines for drying hay and corn in wet weather, that the prize given by the Society of Arts was not awarded for the machine described in Mr. Gibbs' essay, but for the principle on which it was founded. This is a mistake. The prize was given to Mr. Gibbs simply as the author of the best essay on Harvest Work. No doubt the judges were influenced by the fact that the essay contained a very detailed account of his own efforts to bring artificial heat to bear economically on harvest work—but the prize which they awarded certainly was not won by Mr. Gibbs' machine either for its practical efficiency, or, as the report in the volume before us suggests, for its principle. It may be good in either or both of these respects, but on this the judges of the Society of Arts never expressed an opinion. The statistics of the recent meetings of the Society, with which the volume concludes, are an instructive commentary on the policy of holding meetings in populous localities. Upwards of 18,000*l.* were received by the Society at Manchester.

On the Nature and Treatment of Milk Fever in Cows. By Day, Sons, and Hewitt. London: 22, Dorset Street, Baker Street.

This pamphlet has one merit, and as it is a solitary one it may as well be brought prominently forward at once—it is short; but for all the information which the 15 pages of clear type contain, they might have been indefinitely condensed without any loss being thereby inflicted upon veterinary literature. It will not be denied that any one has the absolute right to publish a book upon any subject under the sun, or for that matter above it, but in common fairness the writer should make sure that he knows something of the subject on which he intends to expatiate.

The authors of the pamphlet inform us, on page 2, that their attention has been directed to a discussion on "milk fever in cows, which has recently appeared in *Bell's Weekly Messenger*," and then they confess their "inadequacy to grapple with a question so subtile and perplexing." This they need not have done, because it is all through the book apparent. Then they plunge into a chaos of speculations about blood poisoning and puerperal fever in ewes spreading through the flock! and specific ferments in the blood producing decomposition or change in its constituents! And then at p. 6, emerging for a moment, they thus state their views of the pathology of milk-fever, by which we presume is meant the common disease, "dropping after calving":—

"This brings us to the more immediate subject of our paper, that of milk fever. From all that is known of this terrible disease, we have it on the authority of the best observers that milk fever is a blood disease, caused by the entrance into the circulation of a specific and destructive poison, in the same way that glanders, hydrophobia, rinderpest, and small-pox are produced."

This is the philosophical view of a fatal congestive disease which occurs only under the one essential condition—parturition; and is no more frequent in the dirtiest and most crowded of cowsheds than it is in the healthiest localities; but our authors' love of the mysterious is not satiated by the mere acceptance of the idea of a specific poison; at p. 8 we have a more explicit doctrine propounded:—

"There may be—indeed there probably are—germs of disease constantly floating in the atmosphere, ready to seize on any animal which is lowered in health by accidental or natural causes. What so likely, then, that a cow which has recently calved should fall a victim to the disease? It is well-known that parturition renders every animal liable to be assailed by any disease that may be epidemic or prevailing at the time. Who would expose a cow that has recently calved to the infection of murrain or the cattle plague? There may be no actual communication between the two animals, and yet the healthy animal is attacked. How then can this possibly be, except through the medium of the atmosphere, or by contact or communication, or in some other way not capable of demonstration?"

Fancy the germs of milk fever floating about in the air ready to pounce upon an unhappy cow as soon as she becomes a mother! But we presume we have quoted enough to show the character of the logic which distinguishes the authors' reasoning upon the nature and causes of disease; and to indicate how far they are competent to deal with the subject of milk fever in cows—a misnomer, by-the-by, as the disease is essentially congestive, and totally distinct from milk fever of the human subject.

Letts' Game Book is a convenient form of memorandum book for the sportsman, containing in each folio ample space on one page for remarks, and on the other a series of columns in which can be entered the head of game of various kinds shot during the day.

Farm Memoranda.

NORTH RIDING OF YORKSHIRE.—On Sunday the 4th inst. the weather broke, and we had on that day nearly 1 inch of rainfall. On the 5th and 6th we had moderately fine weather, and on the latter day some corn was secured. Since then we have had rain, more or less, almost every day, putting a complete stop to harvest operations. As we write the rain falls in torrents, and all the corn remaining in the fields is perfectly saturated. About half of the grain, or perhaps more, is yet unsecured in this district, so that a lengthened continuance of such weather will prove disastrous. So far the temperature has been low, and the dry intervals, accompanied with strong winds, which, while partially drying the grain, have also prevented germination.

With the better opportunity afforded by cutting, we see no reason to materially modify the opinion given last month as to the probable bulk and yield of the crops. Wheat we yet consider to be nearly, if not quite, an average, in bulk; and although many reports from other districts of this county concur in stating the ears as badly filled, yet all we have seen in this district justify us in hesitating to endorse a similar report, and we believe the yield will prove little under an average. The bulk of the crop, even if now secured in good order, cannot, however, be fit to use until spring.

Oats are a very short crop, and much under an average. Barley is very good, and a full average. Beans are short, thin, and poorly podded, and decidedly under an average crop.

The rain came opportunely for the Turnips and pastures, both being at a standstill. Turnips as a whole show a small bulb for the time of year, though with warm weather and an open autumn we may fairly expect them to increase much. Swedes promise better than white Turnips. The latter in many places are going off with grub.

Potatos are reported an indifferent crop, but as yet healthy. *W. J. M., September* 15.

HALE GATE, IN THE TOWNSHIP OF HALE.—The farm contains 245 acres. In pasture, 32 acres; Clover seeds, and meadow mown, 124 acres; Wheat after Potatos, 21 acres; Oats, 37 acres; Beans, 12 acres; Vetches and Oats for soiling, 1 acre; Potatos, 13 acres; Swedes, 1 acre; Mangel, 1 acre; orchards, gardens, homestead, rick-yard, roads, &c., 3 acres. Customary rotation—1st, Oats; 2d, Potatos; 3d, Wheat, with seed and Clover for a few years. Live stock consists of seven horses, four dairy cows, four heifers, and eight pigs; total 23. I have drained 65 acres with pipe tiles. I have eradicated 4,560 yards of old fences, and drained the ditches with large tiles on soles, the landlord finding tiles and soles. I have filled up six pits at my own expense, and planted 3,200 yards of new fences, my landlord finding quicksets and wire protection on the roadsides. Have made 1,060 yards of new road through the farm for convenience of approach to the fields. Laid the foundation with slag, and put cinders on the top. Have also, at my own expense, built an implement shed of 15 feet by 15 feet. *William Johnson, July* 30.

Inspectors' Remarks.—This farm lies on the banks of the estuary of the Mersey, and not many feet above high water; in short, 32 acres are under the influence of high tides. The surface of the high land is nearly level. Has a little inclination to the south. The soil a stiff clay loam, on a stiff clay subsoil. The corn crops and all the Clover and seeds are sown on land without furrows or grips, so that all the mowing and reaping can be done by machinery without any impediment, except what arises from the weight of the crops. The absence of furrows and grips, and the nature of the soil and subsoil, and the weight and equality of the crops, is a proof that the drainage of this farm is perfect so far as the upland. The Wheat was in two fields, both heavy clean crops, equal in weight over the whole, healthy, and well fed. Oats the same, in three fields, 29 acres sown with Clover and Grass seeds which had come well. The Beans were sown in drills, about 30 inches apart, affording room for perfect tillage in the early growth of the crop, which was perfectly clean and promising for heavy produce. Potatos in drills, perfectly clean and healthy. Mangel and Swedes not promising but sufficient plants, so that the late rains will bring them up, as they were quite clean and the land well fallowed. Headridge and cops all right, seven very large haystacks, some of them being 20 yards and upwards long and 6 broad, with height corresponding, proves the weight of the hay crops. The weather had been too dry for the aftermath or second crops to come well forward. The quality of the herbage very good. Haystacks well and neatly thatched. The new road through the farm in proper condition, as well as all the fences, gates, and posts. In raising the new fences fine wire protection had to be put up to prevent the rascally rabbits destroying them, as these vermin have an antipathy to new fences, for they afford them no shelter. Mr. Johnson has a good assortment of implements, and has everything in good order about the house, yard, and homestead. No great quantity of stock is kept on this farm. Most of the produce goes to Liverpool, and manure is brought back in return, and the weight of produce on the farm is a proof that there is a sufficient supply of this necessary article.—Inspected July 29th, 1869.

Mr. Johnson had one very powerful opponent. The farm is a large one, and under first-class management, but the corn crops not quite so equal in weight. Swedes and Mangel superior, Potatos and Beans not so vigorous, but equally clean. Soil and subsoil much the same in texture, but at a rather higher elevation, though nearer to Liverpool. This claimant had also another profitable business besides farming. *From Report of Manchester and Liverpool Society's Inspectors of Farms.*

The Poultry Yard.

THE poultry shows now come on us thick and fast, and the question we have many times asked is now again mooted—Why have we no poultry show for London? We should be very glad to hear that there was any chance of one.

The Birmingham prize sheet is anxiously looked for.

A very good poultry show was held on the 8th inst. at Whitby, in conjunction with the Whitby Agricultural Society's thirty-fifth annual meeting. Messrs. Dixon and Adams were the judges. Mr. H. Smith took first prize, and Mr. Bearpark second for adult Dorkings; Mr. Wormald first, and the Rev. G. Hustler second for chickens. The quality of the birds was hardly up to the average. Exhibitors cannot be too careful in selecting their chickens for exhibition. That which is looked on as a mere trifle, which the bird will grow out of in the yard at home, becomes a fatal defect in the showyard. This was the case with a pen of Dorking chickens at Whitby. In Spanish, the prizes for old birds were taken by Messrs. Holmes and Pyard; and in chickens by Messrs. Burn and Stephenson. The first prize game fowls, belonging to Mr. Julian, were deservedly much noticed. The chickens of Mr. Pounder were very good. The second prizes were taken by Messrs. Walker and Blackburn. The district does not stand high for buff Cochins or indeed Cochins of any kind. Mr. Readman took three out of the four prizes, with birds of average quality. The dark or pencilled Brahmas held their own against the light variety in Yorkshire and here. Mr. Leech won the first prize; Messrs. Walker and Layland taking second and third. Houdans were preferred to Crèvecœurs. As might be expected, the Hamburghs were among the principal attractions of the show. A Yorkshireman has an innate fancy for the breed, which is strong within him. Certainly the birds justify it, for there are few prettier or more blood-like birds. Mr. Holmes took the first prizes for all the adults except for golden pencilled, where he ran second to Mr. Walker.

The hardy little favourites, the game bantams, were good. The first prize was taken by a well-known breeder of them, Mr. Entwistle. Mr. Burn, of Whitby, took a first and second prize for black East Indian ducks; Mr. Leech first, and Mr. Stonehouse second and a commendation for Aylesburys. The principal competition in the duck classes was among the Rouens,

where Mr. Garbrett may be really proud of his first. In the class for any other variety of duck, Mr. Walker won with a pair of Carolinas. The Rev. G. Hustler and Mr. O. A. Young won the first prizes for geese; the latter gentleman taking also one first for turkeys—Mr. Plews the other.

The pigeons were very good, and the greater number of the prizes remained in the county.

The arrangements were very good, and the attendance larger than usual.

Calendar of Operations.

SEPTEMBER: *Liming* the land in autumn for winter Beans and Vetches is preferable to liming it after these crops are harvested for winter Wheat next season. But to be successfully applied it must be thoroughly incorporated with the surface soil, and kept as near the surface as practicable, as it has a natural tendency to sink to the subsoil. The practice of autumn manuring is, therefore, that best adapted for liming, the lime being applied and well harrowed into the land before it is set up into ridges, as directed under the practice of liming for Turnips in spring time. Lime may also be applied before setting up the ridges for Potatos, Carrots, Mangels, &c.; or to these crops it may be applied, and horse and hand hoed in during spring. We have also thus applied lime in the spring time successfully to Beans, a slight dusting doing comparatively little or no harm in dry weather to the young plants, as it is soon shaken off or washed off by a shower of rain. Land deficient of lime is not adapted for successful Bean husbandry. If applied on any of the other three plans, the lime should be spread upon the stubbles, and well harrowed in before the manure is applied; or if the land requires broadsharing, or scuffling, it should be applied after the weeds have been removed. Lime may likewise be successfully applied to grass-land, either by itself or in the form of lime compost. The Clovers are all great consumers of lime, and in laying down land at this season to permanent pasture, it should be well limed before the seeds are sown. The quantity depends upon the nature of the land and the length of time between the applications, some preferring frequent limings, as once every four years, so that one-fourth of the land has to be limed annually; others every alternate rotation, or every third one.

Permanent Grass.—Land may be laid down more profitably during the whole of this month than in spring in most counties. Grass-land, whether for meadow or pasture, cannot be too rich, and therefore, whatever crop it follows, the land should be liberally manured on the flat, lightly ploughed in. If the land is deficient of lime, then lime on the surface, and at the rate of from 100 to 200 bushels of shells per acre. Some sow the seeds on the lime, but it is better to harrow in the latter, taking care to tear up as little of the manure as possible. This makes a fine seed-bed for the seeds, which may be covered with a chain-harrow. A very fine mould is not desirable at this season—a small cloddy roughness standing the winter frosts better than a smooth surface.

Rye-grass for early spring feeding is sown from the middle of August to the latter end of the current month on all sorts of land. But it grows freely on poor sandy soils, on which Vetches and Trifolium will not pay the seed. Wheat and Oat stubbles are scarified and any weeds gathered off. Farmyard manure is then applied and ploughed in on the flat, and the land sown with about 3 bushels of seed per acre. Or, instead of farmyard manure, the seed may be drilled in with about 3 cwt. of guano. If there is a command of town sewage, and the land is light, fill the newly scarified land with it, or with farm sewage; or the 3 cwt. of guano may be applied with water.

Winter Vetches are sown for spring feed during August, September, and October. The crop, like other spring forage crops, follows Wheat and Oats; and, in our southern counties, it is off the land in time for sowing Turnips. The cultivation should generally be a single thin furrow, as Tares require a firm seed-bed, about 3 bushels of seed being sown per acre. Vetches will grow on all comparatively rich and fertile soils, but this crop is better adapted for the heavier clays, which can be worked advantageously at this season, while the crop next May can either be eaten off by sheep or mown for soiling other stock. Some mix a bushel of Oats or Rye with 2½ bushels of Tares for sowing, per acre, purposely to prevent the Tares kneeing and rotting in the ground, which they are liable to do when the crop is luxuriant, as it generally is under ordinary good management.

Trifolium incarnatum is commonly sown during August and the first half of September, for soiling or hay next May and June. It prefers a rich but rather firm soil, so that the land should neither be ploughed nor smashed up. It may therefore follow Wheat, Barley, or Oats, or any of the root crops that were richly manured. It is sown by chain-harrowing in about 20 lb. of clean seed, or 4 bushels of the rough seed in the husk, per acre; or, if the land requires manure, top-dressing or artificial manure may be applied with a broadcast distributing-machine, and bush-harrowed in along with the seed. The cultivation of the crop is exceedingly simple.

Winter Beans may be grown on lands of a lighter texture than that which is usually termed a Bean-soil. But, whatever be the nature of the soil, light or heavy, the land is ploughed or smashed up, crossed and manured, as already directed, and about 2 bushels of the small winter Beans drilled in per acre, the coulters being set from 18 inches to 2 feet apart, with a sufficient lever pressure to put in the seed to the proper depth. A stroke of the seed harrows completes the operation. The land should be drilled due south and north, or, as is sometimes technically termed, "12 o'clock" (A.M.). Some think the morning sun more powerful than the afternoon sun; but the difference, if any, on an average, is not great. More perhaps depends upon the exposure of the lands. But for all differences of this kind, due provision should always be made in the cultivation of Beans.

Renovating Grass-lands should be done about this time. Tussack and other inferior Grasses should be dug out; and when weeds and everything of this sort are removed, a heavy top-dressing should be applied and well harrowed in before the seed is sown, and the seed may, lastly, be covered by bush or light chain harrows. The carting and other operations are much more easily done at this season than in early spring, and with infinitely less harm to the land, and the young Grasses will be well established before the winter frosts set in. Stock should not be admitted, but in growing seasons the young Grasses may require to be either eaten off or mown by the middle of November, so as to prevent rotting during winter. Sheep are prone to pull up the finer Grasses, and black cattle to do harm both with their feet and mouths. If mown the Grass should not be cut too close, and a mowing machine and horse rake will go over a large breadth in a day, the rake teeth being set high; and the green cuttings may be given to stock, as sheep in the adjoining pastures, or to cattle of all sorts at the homestead. In renovating grass-lands at this season, and indeed in spring also, the common mistake fallen into is an insufficient supply of manure to rot the effete vegetable matter of the old Grasses, and to force up a rapid growth of fresh Grass, the renovating work being thereby only half done. But as the young Grasses can be utilised as above, the richer and more abundant the top-dressing the better; and, therefore, it is more advantageous to do half the land well, so much annually, than to half do the whole field in a hurry this year and nothing next.

Milch Cows closely resemble fattening bullocks as to dietary, but it is seldom advisable to house them permanently so early as this, unless there is a plentiful supply of green forage for soiling. On such food, however, they will now do better indoors than in the pastures during the day, and over-night they should be permanently housed, by the beginning of the month in southern counties, and a full month earlier in the north. The Clovers, including Lucerne, Sainfoin, Vetches, Cabbages, and sewage Grasses make the best forage for cows at this season. Rape and Turnips produce inferior milk for the dairy. Cows will do well soiled on any of the above forage plants after they have become accustomed to them. But it is a well-authenticated fact that a mixed dietary is preferable, so that when this cannot be complied with, an allowance of rough oatmeal, barleymeal, or pea or beanmeal should be given daily; and mixtures of this kind are more needed for soiling just now than earlier in the season. From time immemorial dairymen have been familiar with the beneficial effects produced by shifting their milch cows two or three times daily at this season, so as to give them a mixed dietary, hence the practical conclusion.

The Dairy.—September is a good dairy month, both for butter and cheese, if the milch cows are properly attended to, the natural temperature of the atmosphere being that suited to the throwing up of cream and the drying of cheese in southern counties. Northwards it is, on the winter side, too cold and moist. But to both there are many exceptions, while early calved cows are liable to fall off in the quantity of milk, and to give more cheese than butter in what they yield, as compared with the early part of the season. Practically, therefore, the work of the dairy will readily be anticipated There is not much to be dreaded from solar heat, either in the milk-room or cheese-room, in fine dry open weather in the south; but it is otherwise in close muggy days, everything becoming more and more musty and damp as the season advances. In such cases artificial heat may be needed to keep things dry, whatever may be the temperature of the atmosphere; and it is a wise maxim to kindle the fire in time, as very little heat will then keep everything "sweet," whereas, on the contrary, the extra heat needed one way may do harm another.

Calves, if neglected in their proper food and shelter, are liable to be infected with worms in the windpipe ("hoose" or "hask"), and lice on the skin. Our improved breeds are more liable to be thus affected than the old hardier races. The lice are easily seen behind the ears, and along the neck and back. Harsh, frequent, dry husky coughing indicates worms in the air passages—and derangement of the bowels the state of the intestines. The newly weaned calves "have got a set," as it is termed in some districts. About the middle of August they were growing rapidly, but the milk being taken from them without any adequate supply being made in its place in the dietary, they cease to grow for a time, and so on. Prevention is simple, thus,—attend to food and shelter, and as to cure, apply to your veterinary surgeon. *W. B.*

Notices to Correspondents.

BEARDED WHEAT: *B C.* Too late for this week.

HALF PAY: *T S P.* Thanks for your note. We asked for the address of a correspondent who had written under the signature "Half Pay."

RAISING WATER BY A WATER-WHEEL: An *Old Subscriber.* Your questions would take quite half-a-day to work out; and as you cannot do this for yourself, the probability is that your figures, as regards the force of the stream, and so on, are not accurate. The whole of this great labour would, therefore, be useless, letting alone the probability that you might be induced to incur an expense that would end in being too great or too little. Preliminary calculations of the kind you name, to be of any value, should be based on measurements of the greatest engineering accuracy. Your more judicious plan is, to begin the undertaking you are contemplating by consulting in the first instance a trustworthy practical engineer. As you omitted to add your address, we cannot further advise you.

Horticultural Glass Warehouse.

THOMAS MILLINGTON AND CO.,
87, Bishopsgate Street Without, London, E.C.

NEW LIST for ORCHARD-HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD-HOUSE SIZES.

in.	in.		4ths.	3rds.	2nds.	Best
20 by 12						
20 by 13		15 oz.	12s 3d	15s 6d	16s 9d	18s 0d
20 by 14	Per 100 feet.					
20 by 15		21 oz.	18s 0d	20s 0d	22s 0d	24s 0d
20 by 16						

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7						
6¾ by 4½	7⅞ by 5¼	8¾ by 6½	9¾ by 7½			11s 3d	12s 6d	14s 0d	15s 6d
Per 100 feet.									
10 by 8	12 by 9	13½ by 10½	14½ by 10½						
10½ by 8½	12½ by 9½	13 by 10	15 by 10			11s 0d	11s 9d	15s 3d	17s 6d
11 by 9	13 by 9	14½ by 10½	13 by 11						
11½ by 9½	12 by 10	14 by 10	14 by 11						

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
15½ by 10½	14 by 12	22 by 12	22 by 16						
16 by 10	14½ by 12½	17 by 13	24 by 16						
14½ by 11½	15 by 12	23 by 13	20 by 17						
15 by 11	15½ by 12½	18 by 14	22 by 17			12s 3d	15s 6d	16s 9d	18s 0d
15½ by 11½	16 by 12	22 by 14	24 by 17						
16 by 11	16½ by 12½	21 by 14	20 by 18						
21 by 11	17 by 12	22 by 15	22 by 18						
13 by 12	18 by 12	21 by 15	24 by 18						

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.

In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	34s.	4ths quality, per 200 feet case,	34s.
3ds " "	40s.	3ds " "	40s
2ds " "	60s.	2ds " "	60s.
Best " "	75s.	Best " "	75s.

SHEET GLASS is made only in the following substances, 15 oz. 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.

HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.

BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.

STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a-half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.

IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4s. per gallon.

	Per cwt.—s. d.		Per gallon.—s. d.
GENUINE WHITE LEAD	30 0	LINSEED OIL	2 9
SECONDS WHITE LEAD	28 0	BOILED OIL	3 2
GROUND PATENT DRYERS, 3d. to 4½d. per lb.		TURPENTINE	2 9
		LINSEED OIL PUTTY, 8s. per cwt.	
" OXFORD OCHRE, 3d. to 4½d. per lb.		Fine OAK VARNISH, 10s. to	12 0
" RAW UMBER, 4½d. to 6d. per lb. [per lb.		" CARRIAGE do., 12s. to	14 0
		" PAPER do. 10s. to	12 0
" BURNT do., 6d. to 9d.		" COPAL	16 0
GREEN PAINT, all shades, 28s. to	60 0	KNOTTING	10 0
BLACK PAINT, 24s. to	36 0	Patent GOLD SIZE ..	10 0
RED PAINT .. 28s. to	36 0	" BLACK JAPAN ..	12 0
		GLAZIER'S DIAMONDS and TOOLS	
GROUND BRUSHES. DUSTERS. | SASH TOOLS. DISTEMPER BRUSHES.		MILLED LEAD and PIPES OLD LEAD Bought or taken in exchange.	

The above are Net, for Cash, and as such cannot be booked. Lists of any of the above on application.

JAMES PHILLIPS AND CO.
beg to submit their prices as follows:—
GLASS for ORCHARD HOUSES,
As supplied by them to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.
Each Box contains 100 feet. The prices only apply to the sizes stated.
Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.

	16 oz. to the foot.	21 oz.
Fourth quality	15s. 0d.	19s. 6d.
Third ditto	16s. 0d.	22s. 6d.
Seconds	18s. 6d.	26s. 0d.
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The above prices include the boxes, which are not returnable.
HORTICULTURAL GLASS.
Stock sizes, 16-oz., in 100 feet boxes, boxes included.
These prices only apply to the sizes stated.

				4ths.	3rds.	2nd.
11 by 9	12 by 9	13 by 9	14 by 9	s. d.	s. d.	s. d.
12 „ 10	13 „ 10	14 „ 10	15 „ 10	13 6	15 6	17 9
13 „ 11	14 „ 11	..	..			
14 „ 12	15 „ 12	15 „ 11	16 „ 11			
18 „ 13	19 „ 12	16 „ 12	17 „ 12			
16 „ 13	17 „ 13	20 „ 12	..			
16 „ 14	20 „ 13	18 „ 13	..	15 0	16 0	18 6
	17 „ 14	18 „ 14	..	16 to 17 oz. to the foot.		
	20 „ 14					

SMALL SHEET SQUARES.
In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	.. 12s. 6d.
8 by 6	8½ by 6½	9 by 7	9½ by 7½	
		10 by 8	10½ by 8½	.. 13s. 6d.

Boxes 2s. each returnable at full price.
London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS.
PAINTS of various colours ground ready for use.
SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of Prices and Estimates forwarded on application to
JAS. PHILLIPS AND CO., 180, Bishopsgate Street Without, E.C.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, and Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, Royal Gardens, Kew, &c.

The best Shading is "Frigi Domo" Netting.

White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for
PROTECTION from the SCORCHING RAYS of the SUN.
"FRIGI DOMO" NETTING, 2 yards wide, 1s. 6d. per yard run.
"FRIGI DOMO" CANVAS.

Two yards wide	1s. 9d. per yard run.
Four yards wide	3s. 6d. per yard.
An improved make, 2 yards wide ..	1s. 9d. per yard.
An improved make, 3 yards wide ..	2s. 8d. per yard run.

"Rochford, Essex, June 4, 1869.
"SIR,—Will you be good enough to send me 50 yards of Frigi Domo, 2 yards wide, of your improved make, 1s. 9d. per yard run. You can foward it per London, Tilbury, and Southend Railway. I had some of you several years since, but have not found any substitute so good for Greenhouse and Stove Shadings.—I am, Sir, yours respectfully, "GEORGE WOOD (Solicitor, Rochford).
"Mr. E. T. ARCHER, 7, Great Trinity Lane, Cannon Street, E.C."
ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.

RENDLE'S PATENT GROUND VINERIES
AND PLANT PROTECTORS.



PATENT GROUND VINERY, 10 FEET LONG, COMPLETE WITH GLASS, FOR ONE GUINEA.

The same size as now in operation at Mr. Rivers' of Sawbridgeworth.

Extract from the "JOURNAL OF HORTICULTURE AND COTTAGE GARDENER," *August* 19, 1868 :—

"We have seen at Mr. Rivers' an experiment with these tiles erected after this fashion, and it succeeds admirably. The Vine is the picture of health and vigour, and under the glass there is the needful amount of humidity to secure health and keep down red spider."

In consequence of the large demand for these Protectors, it will be necessary TO GIVE ORDERS AT ONCE, in order to ensure a supply for the Autumn. All Orders will be executed in strict rotation.

☞ These Protectors have been exhibited at the Exhibitions of the Royal Horticultural Society at Leicester and Manchester; at the Royal Botanic Society, Regent's Park; the Royal Horticultural Society, South Kensington; the Bath and West of England Horticultural Society, at Southampton; and at various Provincial Horticultural Exhibitions. Specimens will also be exhibited by the regularly appointed Agents throughout the country—a List of whom will be shortly published.

AGENTS are IMMEDIATELY REQUIRED.—Only one will be appointed in each City or Town. Applications should at once be made to the Patentee.

Mr. Rivers has kindly consented to allow the Patent Ground Vineries to be seen at Sawbridgeworth.

SPECIMENS can be seen any day at the Gardens of the Royal Horticultural Society, South Kensington, on application to Mr. J. C. Fox.

FOR PRICES AND FURTHER PARTICULARS, APPLY TO THE PATENTEE,

MR. W. E. RENDLE, 68, WELBECK STREET, CAVENDISH SQUARE, LONDON, W.

GREEN'S PATENT SILENS MESSOR,
OR
NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

BY SPECIAL APPOINTMENT, MANUFACTURER



TO HER MOST GRACIOUS MAJESTY THE QUEEN.

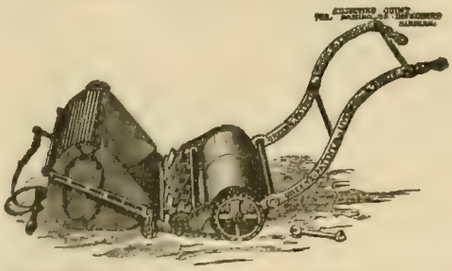
THE Extraordinary Success of GREEN'S PATENT LAWN MOWERS is an established fact. During the last five years the demand has been unprecedented, which alone is a proof of their superiority over all others. The following are their characteristic features:—

1st. **Simplicity of Construction, every part being free of access.**
2d. **They are worked with far greater ease than any other Lawn Mower.**
3d. **They are the least liable to get out of order.**

☞ T. GREEN AND SON *warrant every Machine to give entire satisfaction, and if not approved of can be returned unconditionally.*

HAND MACHINES.

To Cut 10 inches	.. £3 10 0	*Suitable for a Lady*		To Cut 18 inches	.. £7 10 0	*Suitable for One Person.*
„ 12 „	.. 4 10 0	„ „		„ 20 „	.. 8 0 0	*Suitable for Two Persons.*
„ 14 „	.. 5 10 0	*Suitable for One Person*		„ 22 „	.. 8 10 0	„ „
„ 16 „	.. 6 10 0	„ „		„ 24 „	.. 9 0 0	„ „



PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

PONY AND DONKEY MACHINES.

To Cut 26 inches	£13 0 0	*Leather Boots for Donkey*, 18*s*. *Leather Boots for Pony*, 22*s*.
„ 28 „	15 0 0	
„ 30 „	17 0 0	

HORSE MACHINES.

To Cut 30 inches	£21 0 0	*Leather Boots for Horse*, 26*s*.
„ 36 „	24 0 0	
„ 42 „	27 0 0	
„ 48 „	30 0 0	

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England, Ireland, and Scotland.

HORTICULTURAL and AGRICULTURAL IMPLEMENTS, GARDEN SEATS and CHAIRS, FOUNTAINS, VASES, PLAIN and GALVANISED WIRE NETTING, and ORNAMENTAL WIRE WORK of every description.

Having very extensive Premises in London, we are in a position to do all kinds of Repairs there, as well as at our Leeds Establishment.

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;
and 54 & 55, BLACKFRIARS ROAD, LONDON, S.

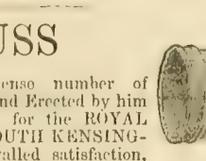
PORTABLE AND FIXED HOT-WATER APPARATUS,

FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH

TRUSS'S PATENT UNIVERSAL FLEXIBLE AND LEAKLESS PIPE-JOINTS.



T. S. TRUSS



Begs to state that the immense number of APPARATUS annually Designed and Erected by him in all parts of the kingdom, and for the ROYAL HORTICULTURAL SOCIETY at SOUTH KENSINGTON and CHISWICK, with unrivalled satisfaction, is a guarantee for skill of design, superior materials, and good workmanship; while the great advantages obtained by his IMPROVED SYSTEM cannot be over-estimated, consisting of perfectly tight joints with neatness of appearance; EFFECTS A SAVING OF 25 PER CENT. on cost of Apparatus erected compared with other systems; facility for extensions, alterations or removals without injury to Pipes or Joints; can be erected by any Gardener; an ordinary size Apparatus erected in one day; and PERFECTNESS of DESIGN SUPPLIED, INSURING NO EXTRAS. Complete Apparatus, of the best materials, delivered to any Railway Station in England, and Erected at the following prices. Erection beyond 25 miles of London, railway fare for one man additional. Considerable reduction on large works.

TWO FOUR-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
20 feet by 10 feet ..	£9 0 0 ..	£2 0 0	50 feet by 15 feet ..	£17 10 0 ..	£3 0 0
30 feet by 12 feet ..	11 15 0 ..	2 10 0	75 feet by 15 feet ..	20 0 0 ..	3 0 0
40 feet by 15 feet ..	15 0 0 ..	2 15 0	100 feet by 15 feet ..	26 0 0 ..	3 5 0

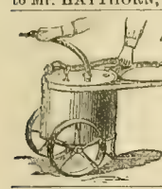
Bath and Gas Work erected in town or country. **The Trade Supplied.**

Price Lists, Plans, and Estimates forwarded on application to

T. S. TRUSS, C.E., CONSULTING HORTICULTURAL ENGINEER, &c., SOLE MANUFACTURER,
IRON MERCHANT, HOT-WATER APPARATUS MANUFACTURER,
AND HORTICULTURAL BUILDER,
FRIAR STREET, BLACKFRIARS ROAD, LONDON, S.E.

SHAW'S TIFFANY.
For Samples and Prices apply to
J. SHAW AND CO., 29, Oxford Street, Manchester.

HAYTHORN'S HEXAGON and CHISWICK GARDEN NETS are guaranteed to Protect all kinds of Fruit from Wasps, Birds, Flies, &c. They are used and recommended by all the principal Gardeners.
For Testimonials, Patterns and Prices, free by post, please direct to Mr. HAYTHORN, Nottingham.

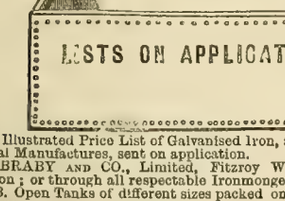


THE "CASSIOBURY."
The best and most powerful
GARDEN ENGINE.
15 Gallons .. .. £4 10s.
24 Gallons .. .. £5 10s.
S. OWENS AND CO.,
Whitefriars Street, London, E.C.

"Every Cottage should be provided with a Water Tank." *Disraeli.*

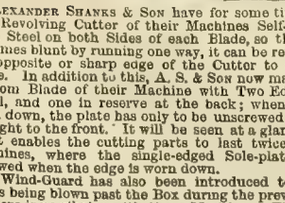
Iron Cisterns.

F. BRABY AND CO. having laid down more extensive and Improved Machinery on their Deptford premises (IDA WHARF), are prepared to supply WROUGHT-IRON TANKS, GALVANISED or PAINTED, of superior quality, at reduced prices, and at very short notice.



An Illustrated Price List of Galvanised Iron, and other of BRABY'S special Manufactures, sent on application.
F. BRABY AND CO., Limited, Fitzroy Works, Euston Road, London; or through all respectable Ironmongers.
N.B. Open Tanks of different sizes packed one in another to save carriage.

SHANKS'S PATENT LAWN MOWERS for 1869.
The Patent Improvements recently introduced give
SHANKS'S MACHINE
Several important advantages possessed by no other Lawn Mower.
PATENT DOUBLE-EDGED SOLE-PLATE, WIND-GUARD, &c.
The unprecedented Sale for 1868, notwithstanding the Dryness of the Season, forms the most convincing testimony how much these advantages have been appreciated.
ALEXANDER SHANKS & SON beg to intimate that, among all the Exhibitors of Lawn Mowers at the Paris Exhibition, they are the only Firm to whom the Jury awarded a Medal. The Silver Medal then awarded is the highest Prize ever given at any Exhibition for Lawn Mowers.



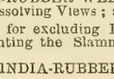
ALEXANDER SHANKS & SON have for some time past been making the Revolving Cutter of their Machines Self-Sharpening—that is, with Steel on both Sides of each Blade, so that when the Cutter becomes blunt by running one way, it can be reversed, thus bringing the opposite or sharp edge of the Cutter to act against the Sole-Plate. In addition to this, A. S. & SON now make the Sole-Plate or Bottom Blade of their Machine with Two Edges—one in front as usual, and one in reserve at the back; when the front edge gets worn down, the plate has only to be unscrewed and the unused edge brought to the front. It will be seen at a glance that this arrangement enables the cutting parts to last twice as long as in other machines, where the single-edged Sole-plate must be entirely renewed when the edge is worn down.
A Wind-Guard has also been introduced to prevent the Mown Grass being blown past the Box during the prevalence of wind.
There is no ribbing with these Machines. The Lawn when mown has a most beautiful appearance, being as smooth as a piece of velvet.
Every Machine warranted to give ample satisfaction, and if not approved of can be at once returned.
Illustrated Circulars, with full particulars, sent free on application.
A. SHANKS AND SONS, Dens Iron Works, Arbroath; and 27, Leadenhall Street, London, E.C.
☞ A Stock of all sizes of Lawn Mowers always kept at 27, Leadenhall Street.

Established 1833.



Trade Mark.

HANCOCK'S INDIA-RUBBER HOSE and TUBING.
CARRIAGE, GIG, & DOG-CART APRONS.
HORSE SINGEING APPARATUS, with GAS BURNERS, and INDIA-RUBBER TUBING.
Improved INDIA-RUBBER DOOR STOPS.
WATERPROOF CART and WAGGON COVERS made any size.
HORSE-LOIN COVERS (Waterproof), with Straps complete.
BELTING for SAW MILLS, THRESHING MACHINES, and FLOUR MILLS.
IMPROVED INDIA-RUBBER WEDGE-SHAPED GAS BAGS for Microscopes and Dissolving Views; any size to order.
FLANGE TUBING, for excluding Draught and Dust, and preventing the Slamming of Glass Doors.



SECTION.

VULCANISED INDIA-RUBBER BILLIARD CUSHIONS.
WATERPROOF BILLIARD TABLE COVERS.
Illustrated Price Lists on application.
JAMES LYNE HANCOCK, Vulcanised India-Rubber Works, 266, Goswell Road, London, E.C.

A Card.

THOMAS DUCKHAM, LAND AGENT, SURVEYOR, AUCTIONEER, VALUER, and COMMISSION AGENT, 50, Broad Street, Hereford.

RECORD of HEREFORD TRANSACTIONS.
Mr. DUCKHAM intends publishing quarterly—viz., early in the months of October, January, April and July—a "Record of Hereford Transactions." It will be a companion work to "Eyton's Herd-Book of Hereford Cattle," and will contain Notices of Pure-bred Animals for Hire or Sale, amounts realised at former Sales, Name and Address of Purchasers, Notices of Exportations, together with other matter of interest to Breeders.
Auctioneers will find the "Record" a valuable Advertising Medium.
PERIODICAL SALES of HEREFORDS.
Mr. DUCKHAM informs the Breeders and the Public generally that he purposes establishing PERIODICAL SALES by AUCTION, at Hereford, for the Disposal of Pure-bred HEREFORDS. The first of these Sales will take place in the Showyard of the Herefordshire Agricultural Society, on THURSDAY, October 21st next, being the day after the Show and Great Fair. Persons desirous of availing themselves of the advantages thus offered will oblige by giving an early intimation of the same, in order that the Pedigrees of their Animals may appear in the first number of the "Record of Hereford Transactions."

"EYTON'S HERD-BOOK of HEREFORD CATTLE."
Mr. DUCKHAM embraces this opportunity of informing the Public that the Seventh Volume of the "Herd-Book" will be ready very shortly. Intending Subscribers, whose names are not already on the list, will oblige by sending him their names and addresses by an early post. 50, Broad Street, Hereford.

FOR SALE, TWO SHORTHORNS, the property of a Gentleman going abroad. In excellent Milk.
Apply to J. D., Post Office, Roehampton.

Crystal Nursery, Sydenham.

TO BE LET or SOLD, the whole of this Concern, comprising Plant and Fruit Houses, Seed Department, Grounds, Stabling, Dwelling House, &c., &c.
Apply on the premises to Mrs. RHODES.

King's Acre Nurseries, Hereford.

TO BE LET, on Lease, these valuable NURSERIES, with FLORIST and SEED BUSINESSES, situated in one of the most delightful, healthy, and fertile neighbourhoods, now in the occupation of the Proprietor, Mr. John Cranston, who is about to retire from business. These Nurseries have been established nearly a century, the area of Fifty Acres, in a ring fence, having been Laid-out and Planted in the most complete manner. The Soil is fine deep Loam, thoroughly well drained, and in high cultivation, no expense having been spared in making this one o the most valuable and unique Nurseries in the kingdom.
Adjoining the Nurseries are 17 Acres of fine PASTURE and ARABLE LANDS, partly in Orchards of choice Table and Cider Fruits. All the Stock is in the finest health and vigour, and consists of valuable collections of Roses—for which these Nurseries are well known to hold the highest reputation—Fruit Trees, Conifers, Evergreens, Shrubs, &c., with an extensive Succession Stock of all choice and rare Trees. The situation is highly advantageous, and commands large Wholesale and Retail Business Connections in North and South Wales, the North, West, and Midland Counties of England, as well as in Ireland and Scotland. The Glass Erections are well arranged, and comprise Propagating-houses, Receiving-house, Show-house, Vinery, Camellia and Rose Houses, with extensive Pits and Frames heated by hot-water.
The DWELLING-HOUSE is large, convenient, and handsome, with all requisite Out-offices, and adjoining are Private and Clerks' Offices, Seed and other Warehouses, Packing and Potting Sheds, Stabling and Coach-house, Farmyard, Barn, Cow-houses, and various Buildings. There are two excellent COTTAGES for Foremen, and other COTTAGES for Workmen, on the Property. The Stock is of the most saleable kind, and may be taken to at a fair valuation. The whole to be LET, on Lease, to a suitable Tenant or Tenants, on moderate terms.
All applications to be made by letter to the Proprietor, Mr. JOHN CRANSTON, King's Acre Nurseries, near Hereford.

Sales by Auction.

Bulbs from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, September 20, at half-past 12 o'Clock precisely, 600 Lots of BULBS, just arrived from Holland, in lots, to suit private Buyers and the Trade.
On view the Morning of Sale, and Catalogues had.

Sale of Very First-class Shorthorns and pure Border Leicester Sheep.

MR JOHN THORNTON will SELL by AUCTION, on TUESDAY, September 21, at Keavil, Dunfermline, Fifeshire, the ENTIRE HERD of SHORTHORNS and BORDER LEICESTER SHEEP belonging to George Robertson Barclay, Esq. Among the Shorthorns are some very celebrated animals, viz., Seraphina 13th, Fan-Fan, Heir of Englishman, Baron Booth, and others, as well as several prize animals, including the first and second prize yearlings at the Highland Society's meeting at Edinburgh. The Sheep are very choice, of the Polwarth breed, and the whole stock will be sold without any reserve, in consequence of the sale of the estate.
Catalogues, with Pedigrees, may be had of Mr. JOHN THORNTON, 15, Langham Place, London, W.; or of Mr. EASTON, Keavil, Dunfermline.

To Noblemen, Gentlemen, Nurserymen, and Others,
THE SANDIACRE STATION NURSERY, EREWASH VALLEY LINE.

MESSRS. POTT AND NEALE are favoured with instructions from Mr. John Frettingham, to OFFER BY AUCTION, on TUESDAY, September 28, at 12 o'Clock precisely (without the least reserve, the ground being required for building purposes), between 8000 and 9000 TREES and SHRUBS, varying in height from 1 to 8 feet, consisting for the most part of Golden Queen Hollies, Silver Queen Hollies, English Yews, Rhododendrons, Taxus elegantissima (the Silver Yew), Cupressus Lawsoniana, Green Hollies in variety, Chinese Junipers, Arbor-vitæs, &c., the whole of which were carefully transplanted last spring, and are in splendid condition for removal, and quite close to the Railway Station.
Refreshments (by Ticket) will be provided at 11 o'Clock, at the Warren Arms Inn.
Catalogues may be obtained from Mr. JOHN FRETTINGHAM, Stapleford Nursery, Nottingham; at FRETTINGHAM'S Shop, 18, Corn Market, Derby; or at the Offices of the Auctioneers, Wheeler Gate, Nottingham, and 20, Cockspur Street, London.

Solihull, Birmingham.

Short Notice of a highly important unreserved Sale of the extensive and very valuable Collection of Stove and Greenhouse, Exhibition, Specimen, and other Plants; Carts, Garden Implements, &c., the property of F. E. Williams, Esq.

MESSRS. PROTHEROE AND MORRIS have received instructions to SELL by AUCTION, without reserve, on the Premises, Malvern Hall, Solihull, Birmingham, on TUESDAY and WEDNESDAY, September 28 and 29, at 11 o'Clock each day, the whole of the STOVE, GREENHOUSE, and other EXHIBITION SPECIMENS, including Phormium tenax variegata, probably the finest in Europe; large and magnificent plants of Phœnicophorium sechellarum, Verschaffeltii splendida, Anthurium scherzerianum, Crotons pictum, variegatum, and angustifolia; Allmandras, Ixoras, Dracænas, Alocasias, Tree and other Ferns; Erices, Lapagerias, Yuccas, Agaves, Auratum and other Japanese Lilies, with a quantity of other Plants too numerous to mention; also three large Houses of Fruiting and Succession Pines, one House of Variegated Pines in splendid condition.
The above Collection has been regularly exhibited for miles around Birmingham, and has gained Hundreds of First Prizes.
May be viewed prior to the sale. Catalogues, when ready, may be be had of Mr. JOHN STEVENS, on the Premises; and of the Auctioneers and Valuers, Leytonstone, Essex.

Important Annual Sale of Nursery Stock.
TO NOBLEMEN, GENTLEMEN, NURSERYMEN, AND OTHERS.

MR. HENRY WALTERS has received instructions from Mr. B. Whitham, to offer for SALE by AUCTION, at his Nursery, Reddish, near Stockport, on WEDNESDAY and THURSDAY, September 29 and 30, at 11 o'Clock each day, a portion of his VALUABLE NURSERY STOCK, comprising about 10,000 Choice Hybrid Rhododendrons, well set with bud, 2 to 4 feet high, which have been raised from the very finest varieties in England; fine Azaleas, 1½ to 2½ feet high, well set with bud and bushy; Forest and Ornamental Trees and Shrubs of every variety. The above stock is well worthy the attention of intending planters, being in fine healthy condition, and possessing the great advantage of having been grown on a stiff clay subsoil, and in a cold climate. The plants have also been periodically transplanted to insure safe removal.
Catalogues and further information may be had post free on application to B. WHITHAM, the Nurseries, Reddish, near Stockport; Mr. GREEN, Falstaff Inn, Market Place, Manchester; and at the Auctioneer's Office, Blyth Bridge, Stafford.

Paddock Wood, Kent.—Votes for Mid-Kent.

About 42 ACRES of valuable FREEHOLD LAND, adjoining this important junction station on the main line of the South-Eastern Railway, fronting the high road from Brenchley to Maidstone, part Pasture and Arable, and part fine old Hop Gardens, all having a registered title, and specially valuable for Building, Brick-making, Nursery and Market Gardens, Hop or Fruit Grounds, or for accommodation purposes.

MESSRS. DEBENHAM, TEWSON, AND FARMER will SELL the above valuable FREEHOLD LAND, in plots, varying from Half an Acre to 9 Acres, at the Star Hotel, Maidstone, on THURSDAY, October 7, at 4 o'Clock punctually.
Particulars and plans at the Maidstone Road Inn and Kent Arms Inn, Paddock Wood; at the Rose and Crown Inn, Tunbridge; at the Royal Sussex Hotel, Tunbridge Wells; at the place of Sale; and in London, of T. G. BULLEN, Esq., solicitor, Barge Yard Chambers, Bucklersbury; and of the Auctioneers, 80, Cheapside, who will forward them by post.

Notice of Important Sale.

CASTLE NURSERY, BROX, near CHERTSEY, SURREY, within 1½ mile of the Addlestone, Chertsey, and Woking Stations, on the South-Western Railway.

MESSRS. WATERER AND SONS have received instructions from the Executrix of the late Mr. Hoade to SELL by AUCTION in OCTOBER NEXT, the whole the exceedingly valuable STOCK of the above NURSERY, of which further particulars will appear in future Advertisements, and Catalogues had upon the premises, and of Messrs. WATERER AND SONS, Auctioneers and Valuers, Chertsey, Surrey, who will forward them on application by post.

Important Sale of Nursery Stock by Auction.

TO BE SOLD by AUCTION, in Lots, on THURSDAY and FRIDAY, October 7 and 8, at 10 o'Clock precisely, the large and valuable Stock of FOREST, ORNAMENTAL, and FRUIT TREES, SHRUBS, FLOWERS, GREENHOUSE PLANTS, and other Stock, in Ness Walk Nurseries, Inverness.
A considerable part of the Stock consists of very fine LARCH and SCOTCH FIR, which are well worth the attention of Buyers.
The Nurseries are open, and the Stock may be inspected any day previous to the Sale.
Catalogues are now ready, and may be had free on application to D. G. ROSS, Dingwall; or JOHN CHISHOLM, 106, Church Street, Inverness.—Sept. 10.

Important Sale of Shorthorns at Northway Farm,
Close to the First-class Station of Ashchurch, on the Midland Railway, between Birmingham and Gloucester.

MR. STRAFFORD has received instructions, from Wm. Woodward, Esq., to announce for SALE by AUCTION, without reserve, on WEDNESDAY, October 27 next, FIFTY HEAD of BULLS, COWS, and HEIFERS, from his old and well-established HERD of SHORTHORNS, which have been carefully bred for the last 40 years. This is the first portion, and will be followed by a still larger one in the Spring, in consequence of Mr. Woodward having given up one of his Farms, and being overstocked.
Catalogues, with Pedigrees, will shortly be issued, and further particulars given in future Advertisements.

THOMSON'S WHITE LADY DOWNE'S GRAPE.

Plants of this remarkable White Grape, the latest-keeping in cultivation, are NOW BEING SENT OUT. The Canes are strong and thoroughly ripened. Immediate Orders are respectfully requested.

Price 21s., 42s., and 63s. each.

THOMAS METHVEN, LEITH WALK NURSERIES, EDINBURGH.

CHARLES TURNER'S

DESCRIPTIVE CATALOGUE of EXHIBITION and other HYACINTHS, NARCISSUS, TULIPS, &c.,

NOW READY, POST FREE ON APPLICATION.

C. T. has received his FIRST CONSIGNMENT of the above, which are of unusually fine quality this season, and invites inspection of the same.

THE ROYAL NURSERIES, SLOUGH.

PAUL'S HYACINTHS, TULIPS, &c.

"The best and fullest account of this Plant (the Hyacinth) which I have met with is by a famous Horticulturist, Mr. PAUL, of Waltham Cross."—DARWIN'S *Animals and Plants under Domestication*.

WILLIAM PAUL

BEGS TO ANNOUNCE THAT HIS

HYACINTHS, TULIPS, CROCUSES, and other DUTCH FLOWER ROOTS

Have just arrived in excellent condition, and he respectfully solicits early orders for the same.

In proof of the quality of Bulbs imported by him, he begs to refer to his Annual Exhibition in the Royal Horticultural Gardens in March and April, which has been visited by Her Most Gracious Majesty the Queen, Her Royal Highness the Princess of Wales, and several other Members of the Royal Family.

PRICED DESCRIPTIVE CATALOGUE Free by Post.

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DUTCH FLOWER ROOTS.

JAMES VEITCH & SONS,

ROYAL EXOTIC NURSERY, CHELSEA, S.W.,

BEG TO ANNOUNCE THAT THEY HAVE RECEIVED

THEIR ANNUAL SUPPLY OF BULBOUS ROOTS FROM HOLLAND,

And are pleased to say that they are in excellent condition.

CATALOGUES are now ready, and will be forwarded Post Free on application.

J. V. AND SONS desire to impress upon those who patronise them, the great advantage of giving them their Orders early, as the successful cultivation of Bulbs depends in a great measure upon their being planted early in the season.

E. G. HENDERSON & SON

RESPECTFULLY ANNOUNCE THEIR

DESCRIPTIVE and PRICED CATALOGUE of DUTCH BULBS and FLOWER ROOTS,

Including the following NOVELTIES, now ready for distribution :—

NEW AZALEAS.—The following new Azaleas are offered by E. G. Henderson & Son, as varieties of first-class excellence, and it is with great confidence that they are named as the productions of Mr. Teeman, who has originated several of the finest kinds now in cultivation. Many of the Continental varieties are well known as attractive in colour, but greatly defective in the higher properties of outline and substance, therefore but of secondary value for permanent specimens. As English varieties, those now noticed are highly commended as possessing the finest features of interest required for decoration, and also for competition. (A Coloured Illustration of four varieties is published, 1s. 6d.) Plants, 21s. each; the set 84s.

Queen of Scarlets	Queen of Roses	Queen of Double Whites.
Salmon Queen	Queen of Double Stripes	

COBÆA PENDULIFLORA.—This new and singularly elegant plant is the most graceful and distinct species in its group. The flowers are bell-shaped at the base, and formed upwards into long narrow, drooping, wavy, strap-shaped lobes, from 3 to 4 inches in length; and from the centre of each blossom the long spreading dark vinous-red filaments, with terminal yellow anthers, present a remarkably rich and unique contrast to the diverse green hue of the plant. 10s. 6d. Smaller, 5s. each.

SPIRÆA PALMATA, 15s. each.

CLEMATIS "LADY BOVILL," 21s. each.

LAPAGERIA ROSEA.—Fresh seed, being just gathered, will grow immediately. 3s. per dozen.

VERBENAS.—The following excellent bedding varieties are proposed to be sent out early in autumn, with a view to enable cultivators to prepare a supply for next season's decoration. 6s. each.

Lady Cowley	Marquis of Bute.	Lord Charles Percy.

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CENTAUREA RAGUSINA COMPACTA.—The finest of all varieties for bedding, true from seeds, the present month being the most favourable time to sow for next year's groups. 100 seeds, 6s.

GOLDEN FEATHER PYRETHRUM.—Seed, 6d. and 1s. packets.

CATALOGUES sent Post Free on application.

WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.

Dutch Flower Roots.

FRANCIS & ARTHUR DICKSON & SONS, have received from the most celebrated Growers in Holland their first large importation of the above, and have the satisfaction to say that the Bulbs are large, sound, and well ripened. Early orders respectfully solicited. DESCRIPTIVE PRICED CATALOGUES post free on application.

The "Old" Established Seed Warehouse, 106, Eastgate Street, Chester.

Dutch Flower Roots.

JOHN AND CHARLES LEE have just received their usual large importation of HYACINTHS and other DUTCH ROOTS, in fine sound condition, for which they hope to be favoured with early orders. CATALOGUES post free on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

Dutch Bulbs.

CHARLES YOUNG, who annually visits Holland, and has been twice this season in order to secure the finest sorts as well as large roots, now offers to forward the following Collection, enclosed in a box, on receipt of Post Office Order for One Guinea:—24 choice Hyacinths, all by name; 6 Polyanthus Narcissus, all by name; 12 Pheasant's Eye Narcissus; 12 Double White Narcissus; 12 Double Duc Van Thol Tulips; 12 Single Duc Van Thol Tulips; 12 beautifully Striped Tulips; 6 splendid White Tulips; 6 splendid Yellow Tulips; 200 Crocuses, four colours, by name; 50 Double Snowdrops, and 50 Single Snowdrops.

Balham Hill Nursery, London, S.W.



"Messrs. DICK RADCLYFFE'S Establishment contains a great number of new and attractive objects."—Vide *Queen*, August 21, 1869.

Gratis and Post Free.

CATALOGUE of DUTCH BULBS, SEEDS, FERNS, HORTICULTURAL ELEGANCIES.

DICK RADCLYFFE AND CO., 129, High Holborn, W.C.

Seed Grounds, Erfurt, Prussia

Dutch Flower Roots.



ARCHIBALD HENDERSON begs to announce that he has received a large Consignment of Dutch and other Roots, carefully selected from the most celebrated growers.

DESCRIPTIVE and PRICED CATALOGUES are now ready, containing practical directions for their successful cultivation on all the various systems now adopted.

Also a CHOICE and SELECT LIST of VEGETABLE and HARDY FLOWER SEEDS for Autumn Sowing. Catalogues gratis and post free upon application.

Sion Nursery, Thornton Heath, Surrey, and at the East Surrey Seed Warehouse, College Grounds, North End, Croydon.

Dutch Flower Roots.

DOWNIE, LAIRD, AND LAING have now received their first Importations of Flower Roots, consisting of HYACINTHS, POLYANTHUS NARCISSUS, Double NARCISSUS, CROCUS, TULIPS, JONQUILS, RANUNCULUS, ANEMONES, SNOWDROPS, &c., &c., which have all been carefully selected from the most celebrated establishments in Holland. The Bulbs are this season well ripened, large, and very heavy, and have arrived in splendid condition.

D., L., AND L. offer the following assortment for One Guinea:—

12	choice named Hyacinths	24	fine mixed Ranunculus
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6	" Polyanthus Narcissus	12	" " early Tulips
100	" named Crocus	12	" " late Tulips
50	" mixed Snowdrops	12	" " Jonquils

Packed in hamper. Carriage paid.

D., L., AND L. can supply fine Bulbs of the Prize HYACINTHS at Kensington, Regent's Park, and the Royal Caledonian Society's Shows, at 12s., 15s., and 24s. per dozen.

DESCRIPTIVE CATALOGUE of DUTCH BULBS forwarded post free.

Stanstead Park Nurseries, Forest Hill, London, S.E., and at Edinburgh.

EARLY WHITE ROMAN HYACINTHS.—Being largely stocked with Bulbs of this exceedingly useful but scarce variety, I am enabled to offer it at 14s. 6d. per 100; last week's quotation at 14s. 6d. per 1000, it is almost needless to observe, was an error.

N.B.—In answer to numerous inquiries, LOUIS VAN HOUTTE begs to say that his CATALOGUE (English) of AZALEA INDICA, CAMELLIAS, RHODODENDRONS, &c., is now in the Printer's hands, and will be published in a few days. The Stocks of the above named Plants are this season much larger than usual, and in luxuriant health.

Royal Nursery, Ghent, Belgium.

Fine New Hardy Clematises.

GEORGE JACKMAN AND SON are now sending out their two following NEW CLEMATISES, that they can warrant as distinct, vigorous, and abundant flowering as those varieties which have already obtained such general approbation.

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A Coloured Drawing (by Andrews) of C. Lady Bovill can be had by enclosing 12 stamps, or Circular, giving "Opinions of the Press," with engraving, for one stamp.

The usual allowance to the Trade.

Woking Nursery, Surrey.

To Market Gardeners.

TWO HUNDRED THOUSAND extra strong plants (now ready for planting out) of JENKINSON'S DEFIANCE EARLY CABBAGE, which is unquestionably the finest early Cabbage in cultivation; being very early, hardy, and not liable to run. The stock is specially selected. Price, put on rail here, 5s. per 1000, or 10,000 for 40s. Also, about 30 lb of SEED of the above superior Cabbage, of this year's growth; price 6s. per lb.

GEORGE T. FOX, The Nurseries, Wetley Rocks, near Leek, Staffordshire. (Post-office orders payable at Leek).

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 39.—1869.] SATURDAY, SEPTEMBER 25. {Price Fivepence. STAMPED EDITION, 6d.

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NOTICE to ADVERTISERS.—In answer to constant inquiries, the Proprietors have fixed the following SCALE of CHARGES for ADVERTISING:—

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WANTED, 64 fine 2 and 1-yr. Seedling LARCH. [illegible] west cash price; or in exchange, fine transplanted, superior Larch ground.
[illegible]SEPH TREMBLE AND SONS, Penrith.

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[illegible] Nurseries, Epsom.

[illegible] COMPACTA.—The most [illegible]ureas; comes perfectly [illegible] hardiest winter in a cold fr[illegible]
[illegible]ery, London, S.W.

[illegible] TIONAL EXHIBITION,
[illegible] Medal.
INE[illegible] L EXHIBITION, 1869,
First-Class Certificate.
Awarded R. HARTLAND, for two groups of GOLDEN VARIEGATED WELLINGTONIAS. Prices on application.
Cork, the Lough Nurseries.—Sept. 25, 1869.

To the Trade.—Silver Ferns.
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CATALOGUES free. Wholesale prices upon application.
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GOLDEN CHAMPION
MADRESFIELD COURT | MRS. PINCE, and
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SPIRÆA PALMATA. This magnificent plant is now being distributed for the first time in Europe. Good plants at 21s. each
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THE cheapest and most effectual of all plants for Game and Fox Covert, PAMPAS GRASS. Surplus stock, strong, healthy Seedling plants, twice transplanted, 25s. per 100, or £12 per 1000, delivered free to Bealing's Station.
BUNDY, Kesgrave, Woodbridge, Suffolk.

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CHARLES SHARPE AND CO., Seed Merchants, Sleaford.

New English Sowing Rape Seed.
H. AND F. SHARPE have fine Samples of NEW RAPE SEED, which they can offer to the Trade at low figures. Price and samples on application.
Seed Growing Establishment, Wisbech.

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H. AND F. SHARPE'S WHOLESALE LIST of all the new and best varieties of Early and Late POTATOS is now ready, and may be had on application. The quality is very fine, and prices low.
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H. AND F. SHARPE are prepared to execute wholesale Orders for the above, which is the most prolific First Early POTATO grown. Being short in the Haulm, it is more suitable for Forcing than any other variety. Prices and further particulars on application.
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GUARDIANS CHRONICLE NEWSPAPER PENNY

EARLY WHITE ROMAN HYACINTHS.
Being largely stocked with Bulbs of this exceedingly useful but scarce variety, I am enabled to offer it at 14s. 6d. per 100.
N.B.—The NEW PRICED CATALOGUE (English) of all sorts of Fruits, Hardy Trees and Shrubs, Conifers, Roses, Choice Herbaceous Plants, &c., will be sent immediately. For copies, apply either to Messrs. R. SILBERRAD AND SONS, 5, Harp Lane, Great Tower Street, London, E.C., or direct to
LOUIS VAN HOUTTE, Royal Nursery, Ghent.

VARIEGATED PELARGONIUMS.

Lucy Grieve	Lady Cullum	Mrs. John Todd
Louisa Smith	Caroline Longfield	Duke of Edinburgh
Sophia Cusack	Queen of Tricolors	Her Majesty
Sir [illegible] Beauty	E. G. Henderson	Kentish Hero

Tree Ivy, strong plant, for 24s., package included. Remittances required from unknown correspondents.
ALEX. B. FRYER, Nurseries, Chatteris, Cambridgeshire.

H. CANNELL'S AUTUMN CATALOGUE is now ready, and will be sent free for One Stamp. It contains a full description, with lowest prices consistent with quality and economy, of all the best new and most distinct varieties of PELARGONIUMS (both of Tricolors and Bicolors, Doubles and Zonals), FUCHSIAS, VERBENAS, PETUNIAS, COLEUS, CHRYSANTHEMUMS, HELIOTROPES, VERONICAS, LOBELIAS, VIOLAS, and all the popular Bedding Plants of the Season. Also, the names and lowest price of all the best older varieties in cultivation. For further particulars see Catalogue.

To Raisers of Geraniums.
H. CANNELL begs to inform all lovers of GERANIUMS that he has a small quantity of Seed of the very best Hybridised Zonals in cultivation, at 2s. per packet. It is picked with great pains from all the best new kinds of the present season, including F. Moore, Acme, Lord Stanley, Sir R. Napier, Our Future King, Monster, &c.; the two latter certainly are the finest Nosegays ever sent out, and as every bloom is carefully attended to daily, H. C. is convinced that some grand new Varieties will be the result from the Seed.

GOLDEN FEATHER.—As this plant has thoroughly proved itself to be the greatest bedding acquisition that has been sent out for many years, H. CANNELL begs to remind all lovers of the garden that Now is the best time to sow.
It comes perfectly true from seed; such seedling plants stood all last season, and were the admiration of all throughout the winter and spring, and equally as effective for Conservatory decoration.
200 New Seed is free for 1 stamps.
New Florists' Flower and Florists' Flower Seed Merchant, Woolwich.

TRICOLOR and other GERANIUMS.—Very strong plants of the following Geraniums, struck in the open ground, can be safely sent packed in Moss:—

Victor, 1s. 6d. each.	Lady Cullum, 9s. per dozen.
Andrew Henderson, 12s. p. doz., or 1s. 3d. each.	Mdme. Rose Charmeux, or double Tom Thumb, 6s. per dozen, or 42s. per 100.
Masterpiece, 1s. each.	
John Hopper, 1s. each.	Mdme. Lemoine, 8s. per dozen.
Lizzie, 1s. each.	Lord Derby, 4s. per dozen.
Mrs. Pollock, 21 per 100.	Crystal Palace Gem, 3s. per doz.
Sophia Dumaresque, 3s. per 100.	Bronze Shield, 3s. per dozen.
Louisa Smith, 9s. per dozen.	Mrs. Charles Barry, 7s. per doz.
Glen Eyre Beauty, 9s. per dozen.	Vandyke, 3s. per dozen.

A reply is requested from unknown correspondents.
JOHN SCOTT, Nurseryman and Florist, Bathford and Batheaston, near Bath.

New and Choice Tricolor Geraniums.
J. ELCOMBE AND SON have great pleasure in offering the following splendid varieties, at greatly reduced prices for cash:—

Ach evement	Moonstone
Edward Sumner	Mrs. John Clutton
Howarth Ashton	Jetty Lucy
Victoria Regina	May Queen
Wonderful (Smith's)	Humming Bird
Florence	Lucy Grieve
Crown Jewel	Defiance (Smith's)
Charming Bride	L'Empereur
Sophia Cusack	Mrs. Dix
Miss Watson	Spanish Beauty

List of prices on application.
The following at 6d. per dozen:—Lady Cullum, Louisa Smith, Sophia Dumaresque, Meteor, Ewinna Fitzpatrick, Lady Palmerston.
Strong plants in 48s and 32s, with many cuttings, of the following, at 1s. per dozen:—Mrs. Pollock, Sunset, and many bronze varieties
New Zonal and Nosegay Geraniums of 1869, the best varieties, 1s. each; new Double, Prince of Novelties, 2s. 6d. each; new Doubles, Marie Lemoine, Marie Crousse, Wilhelm Pfitzer, Victor Lemoine, 3s. 6d. each.
Nursery and Seed Establishment, Romsey, Hants.

New Hybrid Pelargoniums, Willsii and Willsii rosea.
Exhibitedly the finest Novelties of the season.
Numerous Certificates and First Prizes have been awarded.
J. W. WIMSETT has much pleasure in announcing that these splendid Novelties are now ready for sending out.
WILLSII, strong plants, 1 guinea each.
WILLSII ROSEA, strong plants, 1 guinea each.
In order to place the above splendid Novelties within the reach of every one, and having now worked up a large stock of them, J. W. W. has determined on offering them at the above reduced prices.
"Culford Hall, Bury St. Edmund's, June 9, 1869.
"To Mr. WILLS.
"DEAR SIR,—I was much disappointed at not seeing you at the Pelargonium Show on the 22d. I, however, saw your beautiful hybrid Pelargonium Willsii rosea, which ought to carry your name down to posterity. It really is a very great triumph. If you had never done anything else in the cause of Flora with the exception of obtaining this cross, you would have done much more than your share; but you have done much more than this for the Floricultural Public, and are very much indebted to you.—I am, dear Sir, yours very truly, "P. GREIVE."
DIPLADENIA AMŒNA.
J. W. W. begs to announce that he has also reduced the price of this [illegible], and can now supply strong plants at 7s. 6d. and 10s. 6d., [illegible] at 21s. and 31s. 6d.
DUTCH FLOWER ROOTS.
J. W. Wimsett's Consignment of Dutch Flower Roots are this season [illegible]. They can now be supplied in large or small quantities.
Address—The Fair Nursery, King's Road, Chelsea, S.W.
J. WILLS, F.R.H.S., Manager.

To Market Gardeners and Planters.
THE SUBSCRIBERS beg to offer the aforenamed, in the healthy and vigorous Standard and Pyramid Trees, by the dozen, hundred, or thousand, of each sort, at low prices, which may be had on application. The Standard Trees are on stems, 5 to 6½ feet high; the Pyramids are from 3½ to 5 feet.

PEARS—Beurré de Capiaumont	PLUMS—Belle de Louvain
Fine Gold	Diamond
Hessle	Monarch
Williams' Bonchrétien	Prince Engelbert
&c. &c.	Victoria, &c. &c.

RICHARD BRADLEY AND SONS, Holme, near Newark, Notts.

Choice Seeds for Present Sowing.
B. S. WILLIAMS can with confidence offer the following, as being the finest in cultivation:— Per pkt.

PRIMULA (Williams' superb strain), red, white, or mixed, 2s. 6d., 5s. 6d., and	5 0
CALCEOLARIA (Cook's extra choice strain), 2s. 6d., 3s. 6d., and	5 0
CINERARIA (Williams' choice strain) 2s. 6d., 3s. 6d., and	5 0
CYCLAMEN (Williams' prize strain) 1s. 6d., 2s. 6d., and	3 6
SCHIZANTHUS HELLADICUS	2 6
HOLLYHOCK, from the finest varieties	1 0
PANSY, [illegible]	1 0
[illegible]	1 0
POLYANTHUS (Williams' prize strain)	1 0
STOCK, ENGLISH, [illegible] separate .. .. .. 1s. and	1 6
VIOLA LUTEA (yellow Bedding Violet) .. .. .. 1s. and	1 6
WALLFLOWER (Cook's and fine dark varieties)	1 0

*** See Catalogue for [illegible] Seeds. None genuine unless they bear B. S. WILLIAMS' name and address.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

Winter Flowering Plants.
F. AND A. SMITH beg to call attention to their large stock of the above, in fine healthy condition, and well set with bloom.

Azaleas	Cytissus
Acacias, in variety	Primula, Double White
Camellias	" Purple, and our own superb varieties
Cinerarias	Tree Carnations, &c.
Correas, of sorts	

The Nurseries, West Dulwich, S.E.

Dutch Flower Roots.
FRANCIS & ARTHUR DICKSON & SONS, have received from the most celebrated Growers in Holland their first large importation of the above, and have the satisfaction to say that the Bulbs are large, sound, and well ripened. Early orders respectfully solicited. DESCRIPTIVE PRICED CATALOGUES post free on application.
The "Old" Established Seed Warehouse, 106, Eastgate Street, Chester.



"Messrs. DICK RADCLYFFE'S Establishment contains a great number of new and attractive objects."—Vide *Queen*, August 21, 1869.

Gratis and Post Free.
CATALOGUE of DUTCH BULBS, SEEDS, FERNS, HORTICULTURAL ELEGANCIES.
DICK RADCLYFFE AND CO.,
129, High Holborn, W.C.
Seed Grounds, Erfurt, Prussia

Dutch Flower Roots.


ARCHIBALD HENDERSON begs to announce that he has received a large Consignment of Dutch and other Roots, carefully selected from the most celebrated growers.
DESCRIPTIVE and PRICED CATALOGUES are now ready, containing practical directions for their successful cultivation on all the various systems now adopted.
Also a CHOICE and SELECT LIST of VEGETABLE and HARDY FLOWER SEEDS for Autumn Sowing. Catalogues gratis and post free upon application.
Sion Nursery, Thornton Heath, Surrey, and at the East Surrey Seed Warehouse, College Grounds, North End, Croydon.

Dutch Flower Roots.
DOWNIE, LAIRD, AND LAING have now received their first Importations of Flower Roots, consisting of HYACINTHS, POLYANTHUS NARCISSUS, Double NARCISSUS, CROCUS, TULIPS, JONQUILS, RANUNCULUS, ANEMONES, SNOWDROPS, &c., &c., which have all been carefully selected from the most celebrated establishments in Holland. The Bulbs are this season well ripened, large, and very heavy, and have arrived in splendid condition.
D., L., AND L. offer the following assortment for One Guinea:—

12 choice named Hyacinths		24 fine mixed Ranunculus	
12 " mixed Hyacinths		24 " " Anemones	
6 " Polyanthus Narcissus		12 " " early Tulips	
100 " named Crocus		12 " " late Tulips	
50 " mixed Snowdrops		12 " " Jonquils	

Packed in hamper. Carriage paid.
D., L., AND L. can supply fine Bulbs of the Prize HYACINTHS at Kensington, Regent's Park, and the Royal Caledonian Society's Shows, at 12s., 15s., and 24s. per dozen.
DESCRIPTIVE CATALOGUE of DUTCH BULBS forwarded post free.
Stanstead Park Nurseries, Forest Hill, London, S.E., and at Edinburgh.

To the Trade.
MRS. PINCE'S MUSCAT VINE, Planting Canes, 6 feet, 42s. per doz.
CLEMATIS STANDISHII, very strong, in pots, 75s. per 100.
H. P. ROSES, in pots, good sorts, our own selection, 60s. per 100.
ROSES, New, of this season, in pots, 18s. per doz.
HEDERA MACULATA and H. MACULATA LATIFOLIA, extra strong, in pots, 60s. per 100.
CATALOGUES of General Nursery Stuff on application to G. BAKER AND SON, American Nursery, Bagshot, Surrey.

Hoteia japonica.
BURGESS AND KENT can supply, by the 100 or 1000, splendid masses of this lovely plant, specially grown for forcing for the Decoration of the Greenhouse or Conservatory. They will be found to flower stronger and finer than imported clumps. 12s. per dozen, 75s. per 100. Fine plants of DIELYTRA SPECTABILIS, for forcing, 9s. per dozen; 50s. per 100.
BURGESS AND KENT, Penkhull Nurseries, Stoke-upon-Trent.

Spring Flowers, Roses, Fruits, &c.
THOS. S. WARE'S new AUTUMN CATALOGUE of ROSES, EVERGREEN and ORNAMENTAL TREES, SHRUBS, FRUITS, &c., is now ready, and will be forwarded free on application. To which will be added a select List of SPRING-FLOWERING PLANTS, especially requiring to be planted in the Autumn, in order that they should be thoroughly established for flowering well and early in the Spring.
Hale Farm Nurseries, Tottenham, Middlesex, N.E., adjoining the Railway Station.

Quicks.—To Railway and Enclosure Planters.
S. ROBINSON begs to call their attention to his extensive Stock, comprising several millions of 2, 3, 4, and 5-yr. Bedding and Transplanted QUICKS. Samples and prices on application. The 4 and 5-yr. Quicks are strong, and finely grown.
A quantity of thinly-planted, bushy SPRUCE, 2 and 3-yr. old; also some fine HOLLIES, 2 and 3 feet, and GORSE Plants, 4-yr., suitable for Cover Planting. Orders executed upon satisfactory references.
Shaw House, Melbourne, near Derby.

Azalea Indica.
LOUIS VAN HOUTTE, Royal Nursery, Ghent, Belgium, offers Novelties of Autumn, 1869, which have carried off 1st Prizes at the Ghent and Brussels Exhibitions, as follows:—
482. MADAME ALEX. HARDY (VAN HOUTTE).—Very large and finely formed flowers of rosy orange with broad violet spot shading to a beautiful amaranth, which entirely covers the three upper petals. A variety of first quality.
501. MADAME ALEX. VAN LANGENHOVE (VAN HOUTTE).—Charming variety, very effective. Ground white, with transparent edges, the whole flower broadly flaked, similar to a Carnation, barred and speckled with bright rose shading to deep red, spot of light-green. Also a variety of first quality.
485. MADAME CAMILLE VAN LANGENHOVE (VAN HOUTTE).—Snow-white, a number of the flowers are barred with salmon, while others are striped with pale rose and carmine; all these markings may be occasionally seen on the same flowers. The whole of the papillæ are ornamented with green, shading off to a decided yellow, and spotted with deep green. A very beautiful and effective variety.
487. MADAME IRIS LE FEBVRE (VAN HOUTTE), ("Flore," xviii., Nos. 4, 5, 6).—Flowers exceedingly double and constant; dark orange, with very broad spot of deep chocolate, charmingly enlivened by a shading of bright violet extending over the whole of the upper petals and suffusing also the lower rows. A variety of first quality.
213. MADAME LOUIS VAN HOUTTE (Ed. VANDERCUYSSEN).—N.B.—L. V. H. is the proprietor of the entire stock of this fine variety. Of model form with smooth well rounded petals, of good substance; white, broadly banded with clear rose and flaked with cochineal.
513. MADEMOISELLE LEONIE VAN HOUTTE (VAN HOUTTE), ("Flore," xviii., Nos. 4, 5 and 6).—Very fine white, flaked with rose and handsomely spotted with sulphur-yellow. Magnificent form.
498. MADEMOISELLE MARIE LE FEBVRE (VAN HOUTTE).—White flowers, of an extraordinary size, of excellent form, somewhat similar to the preceding.
486. MADEMOISELLE MARIE VAN HOUTTE (VAN HOUTTE), ("Flore," xviii., Nos. 4, 5, and 6).—Immense semi-double flowers, colour white, striped, flaked and blotched with rosy salmon, resembling a Carnation; petals broad and finely rounded.
Price—The Collection of 8 varieties:
Medium-sized heads, in bud £5 0 0
" " at choice of purchaser, each 0 16 0

PAUL'S HYACINTHS, TULIPS, &c.

"The best and fullest account of this Plant (the Hyacinth) which I have met with is by a famous Horticulturist, Mr. PAUL, of Waltham Cross."—DARWIN'S *Animals and Plants under Domestication*.
"The Bulbs used in forming this brilliant display (Hyde Park), were supplied by Mr. WILLIAM PAUL."—*Gardeners' Chronicle*, April 24, 1869.

WILLIAM PAUL
BEGS TO ANNOUNCE THAT HIS
HYACINTHS, TULIPS, CROCUSES, and other DUTCH FLOWER ROOTS,
Have just arrived in excellent condition, and he respectfully solicits early orders for the same.
In proof of the quality of Bulbs imported by him, he begs to refer to his Annual Exhibition in the Royal Horticultural Gardens in March and April, which has been visited by Her Most Gracious Majesty the Queen, Her Royal Highness the Princess of Wales, and several other Members of the Royal Family.
PRICED DESCRIPTIVE CATALOGUE Free by Post.
PAUL'S NURSERIES and SEED WAREHOUSE, WALTHAM CROSS, LONDON, N.

E. G. HENDERSON & SON
RESPECTFULLY ANNOUNCE THEIR
DESCRIPTIVE AND PRICED CATALOGUE OF DUTCH BULBS AND FLOWER ROOTS,
Including the following NOVELTIES, fully described:—
NEW PLANTS FOR WINTER DECORATION.
Bouvardia Jasminiflora.
A beautiful species, in the way of B. longiflora, but of much freer growth, and more branching habit from the base; equal to the best scarlet-flowered Bouvardias. It is also a more readily blooming plant, with larger terminal and axillary racemes of equally fragrant snow-white flower tubes.
A most valuable plant for conservatory groups, vases, and drawing-room bouquets throughout the autumn and winter months.
New Azaleas.

Queen of Scarlets	Queen of Roses	Queen of Double Whites.
Salmon Queen	Queen of Double Stripes	

COBÆA PENDULIFLORA. | SPIRÆA PALMATA.
New Verbenas.
LADY COWLEY | MARQUIS of BUTE
LORD CHARLES PERCY.
NEW EDIBLE FRUIT—MACADAMIA TERNIFOLIA.
LAPAGERIA ROSEA.—Fresh seed, being just gathered, will grow immediately. 3s. per dozen.
GOLDEN FEATHER PYRETHRUM.—Seed, 6d. and 1s. packets.
CENTAUREA RAGUSINA COMPACTA.—The finest of all varieties for bedding, true from seeds, the present month being the most favourable time to sow for next year's groups. 100 seeds, 6s. and 1s. packets.
WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.



SUTTONS'



IMPORTED FLOWER ROOTS

SUTTON & SONS,
SEEDSMEN TO THE QUEEN,
READING, BERKS,

having received their FIRST CONSIGNMENT of

CHOICEST DUTCH FLOWER ROOTS,

Selected by themselves from the leading Growers in Holland, are now prepared to receive orders for their COMPLETE COLLECTIONS for WINTER and SPRING BLOOMING, either for indoor or outdoor cultivation.

Suttons' £2 2s. Collection of Flower Roots,

For OPEN GROUND, Carriage Free, contains—

24 fine mixed Border Hyacinths	12 fine mixed Gladiolus
12 ,, Polyanthus Narcissus	25 Duc Van Thol Tulips
25 Pheasants' Eye Narcissus	12 mixed Single Early Tulips
25 Double White Narcissus	12 fine mixed Double Tulips
50 Double Daffodils	12 ,, Parrot Tulips
12 Large Chamærmelle Jonquils	12 Gesneriana Tulips
100 fine mixed Double Ranunculus	50 fine mixed Tulips
100 Scarlet Turban Ranunculus	12 ,, English Iris
25 fine mixed Double Anemones	12 ,, Spanish Iris
25 ,, Single Anemones	6 Lilies, of sorts
300 Crocus, in 6 sorts	6 Ferraria pavonia
100 Snowdrops	12 Dog's Tooth Violets
50 Winter Aconites	6 Crown Imperials

Suttons' £1 1s. Collection of Flower Roots,

For OPEN GROUND, Carriage Free, contains—

12 fine mixed Border Hyacinths	6 fine mixed Gladiolus
6 ,, Polyanthus Narcissus	12 Duc Van Thol Tulips
12 Pheasants' Eye Narcissus	6 mixed Single Early Tulips
12 Double White Narcissus	6 fine mixed Double Tulips
25 Double Daffodils	6 ,, Parrot Tulips
6 Large Chamærmelle Jonquils	6 Gesneriana Tulips
50 fine mixed Double Ranunculus	25 fine mixed Tulips
50 Scarlet Turban Ranunculus	6 ,, English Iris
12 fine mixed Double Anemones	6 ,, Spanish Iris
12 ,, Single Anemones	3 Lilies, of sorts
150 Crocus, 3 sorts	3 Ferraria pavonia
50 Snowdrops	6 Dog's-Tooth Violets
25 Winter Aconites	3 Crown Imperials

Suttons' 10s. 6d. Collection of Flower Roots,

For OPEN GROUND, contains a choice assortment for a Small Garden.

Suttons' £2 2s. Collection of Flower Roots,

For POTS or GLASSES, Carriage Free, contains—

24 fine Hyacinths, by name	6 Persian Iris
12 fine Miniature Hyacinths, do.	6 Peacock Iris
12 Polyanthus Narcissus, do.	100 Crocus, by name
12 large Double Jonquils	12 choice Ixias, by name
12 Single Sweet-scented Jonquils	6 choice Sparaxis, by name
12 Scilla præcox	1 Cyclamen persicum
12 Single Duc Van Thol Tulips	1 Jacobea Lily
12 Double Tournesol Tulips	2 Lilium lancifolium album
50 Early Tulips, 10 sorts	2 ,, ,, rubrum

Suttons' £1 1s. Collection of Flower Roots,

For POTS or GLASSES, Carriage Free, contains—

12 fine Hyacinths, by name	3 Persian Iris
6 Miniature Hyacinths, by name	3 Peacock Iris
6 Polyanthus Narcissus, do.	50 fine Crocus, by name
6 Large Double Jonquils	6 choice Ixias
6 Single Sweet Jonquils	3 choice Sparaxis
6 Scilla præcox	3 choice Oxalis
6 Single Duc Van Thol Tulips	1 Jacobea Lily
6 Double Tournesol Tulips	1 Lilium lancifolium album
25 Early Tulips, 5 sorts	1 ,, ,, rubrum

Suttons' 10s. 6d. Collection of Flower Roots,

For POTS or GLASSES, contains a choice assortment of most useful and showy kinds.

The best 12 Hyacinths, by Name, for 12s.,

Extra fine Double and Single varieties.

For further particulars, with complete Cultural Instructions, see

SUTTONS'

AUTUMN CATALOGUE FOR 1869,

Gratis and Post Free on application.

FLOWER ROOTS and SEEDS CARRIAGE FREE, except very small parcels.

☞ *Five per cent. allowed for cash payments.*

SUTTON AND SONS,
ROYAL BERKS SEED ESTABLISHMENT,
READING.

ECONOMY IN THE GARDEN.

James Carter & Co's Seed Charts

COLLECTIONS OF

HYACINTHS, CROCUS, TULIPS, &c.,

TO PRODUCE A

PRETTY AND PERMANENT DISPLAY

DURING WINTER AND SPRING.

JAMES CARTER AND CO. strongly recommend the following COLLECTIONS, assorted from the most popular varieties:—

No. 1.—CARTER'S COLLECTION for WINDOW or CONSERVATORY DECORATION £1 4 0

CONTAINING:

Hyacinths, 50 in 25 extra fine named sorts	Tulips, extra fine, named, Double, 50
Polyanthus Narcissus, 36 in 12 named varieties	Do. do. do. Single, 50
Jonquils, Sweet-scented, 50	Dielytra spectabilis, 4
Crocus, finest, named, 200	Lilium speciosum, in variety, 4
Cyclamen persicum, 4	Scilla sibirica, 36 [100
	Snowdrops, extra large, selected,

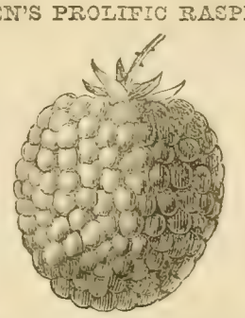
No. 2.—CARTER'S COLLECTION, reduced quantities £3 3 0

No. 3.—CARTER'S COLLECTION, reduced quantities £2 2 0

No. 4.—CARTER'S COLLECTION, reduced quantities £1 1 0

No. 5.—CARTER'S COLLECTION for CONSERVATORY and OUTDOOR PLANTING £1 4 0

McLAREN'S PROLIFIC RASPBERRY.



For full description, see page 986, in last week's *Gardeners' Chronicle.*

AWARDED A FIRST-CLASS CERTIFICATE.

JAMES CARTER AND CO. are now booking orders for the above valuable fruit, to be supplied this autumn at the following prices:—

6 Strong Canes, 7*s.* 6*d.*	25 Strong Canes, 20*s.*
12 Strong Canes, 12*s.*	100 Strong Canes, 60*s.*

No. 6.—CARTER'S COLLECTION of BULBS for CONSERVATORY and OUTDOOR PLANTING £3 3 0

No. 7.—CARTER'S COLLECTION, reduced quantities £2 2 0

No. 8.—CARTER'S COLLECTION, reduced quantities £1 10 0

No. 9.—CARTER'S COLLECTION, reduced quantities £0 15 0

No. 10.—CARTER'S COLLECTION for OUTDOOR PLANTING £4 4 0

CONTAINING:

Hyacinths, 75 in 3 colours	Anemones, extra fine mixed, 100
Narcissus, Double, White, 50	Gladiolus Brenchleyensis, 24
,, Poeticus or Pheasant-eye, 50	Iris, ex. choice mixed English, 50
Double Daffodils, 50	,, extra fine mixed Spanish, 50
Tulips, extra fine mixed, Double, 75	Lilium candidum, 6
,, ,, Single, 75	,, auratiacum, 6
Crocus, Blue, 200	,, martagon rubrum, 6
,, Striped, 200	,, tigrinum, 6
,, Large Yellow, 200	Ranunculus, extra fine mixed, 100
,, White, 200	Snowdrops, 400
	Winter Aconites, 100

No. 11.—CARTER'S COLLECTION, reduced quantities £3 3 0

No. 12.—CARTER'S COLLECTION, reduced quantities £2 2 0

No. 13.—CARTER'S COLLECTION, reduced quantities £1 1 0

☞ *No charge for packing any of above Collections.*

For the fullest information to ensure successful cultivation and particulars of the above Assortments, send for

CARTER'S

ILLUSTRATED LIST of BULBS, &c.,

Forwarded Gratis and Post Free.

JAMES CARTER AND CO.,
THE ROYAL SEEDSMEN,
237 AND 238, HIGH HOLBORN, LONDON, W.C.

DOBSONS' PRIZE CALCEOLARIA SEED, the true Victorian system, 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* DOBSON AND SONS, Woodlands Nursery, Isleworth, W.

PELARGONIUMS, Show and Fancy.—Fourteen First Prizes have been awarded to our Collections this season. Any 12 varieties may be selected for 21*s.* See CATALOGUE, gratis and post free. Woodlands Nursery, Isleworth, W.

DOBSON AND SONS' BULB CATALOGUE, post free. Woodlands Nursery, Isleworth, W.

Splendid New Rhododendron,
BARONESS LIONEL ROTHSCHILD.

JOHN WATERER AND SONS are now prepared to execute orders for the above new SEEDLING RHODODENDRON; in colour it is a clear bright crimson, the margin of the bloom of a fiery scarlet, of fine handsome form, and remains a great length of time in bloom. Price 21*s.* each. The usual Trade allowance.
The American Nursery, Bagshot, Surrey.

New Seed, 1869.

F. AND A. SMITH beg to offer the following, saved from their unrivalled Collections, and just harvested in fine condition:—CALCEOLARIA, CINERARIA, PANSY, GERANIUM (Variegated), &c.; PRIMULA FIMBRIATA (Crimson and White), INTERMEDIATE STOCK, &c. Special offer to the Trade forwarded on application.
The Nurseries, West Dulwich, S.E.

Primula sinensis.

WINDEBANK AND KINGSBURY'S STRAIN.—"By far the most varied and interesting set which has come under our notice."—EDITOR *Gardeners' Chronicle*, Jan. 30, 1869.
"Our best lot are from WINDEBANK & KINGSBURY'S strain."—EDITOR *Gardeners' Magazine.*
Strong plants now ready, in 12 varieties, 6*s.* per dozen, package included. Bevois Valley Nursery, Southampton.

Primulas, Fuchsias, Vines.

PRIMULA.—New SEED, from the choicest strains in cultivation. Red, Purple, White, and Striped, now offered to the Trade, in liberal Trade packets, mixed, 7*s.* 6*d.* and 10*s.* 6*d.* Retail, 2*s.* 6*d.* and 3*s.* 6*d.* per packet. Fine PLANTS, 6*s.* per dozen.
Strong Plants of our four New FUCHSIAS, with plenty of Cuttings on, 2*s.* 6*d.* each. These are four of the best yet sent out for Market or Exhibition.
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The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 25, 1869.

BRITONS of all descriptions, to say nothing of Hibernians, feel an intense interest in all that concerns the culture or the improvement of the POTATO. We are, therefore, sorry that comparatively few had the opportunity of witnessing the results of Mr. FENN'S experiments, as displayed at the Royal Horticultural Society's rooms on Tuesday last. The object of Mr. FENN'S display was threefold: to show the effect of grafting an "eye" of one form into the tuber of another; to exhibit the produce derived from cross fertilisation of different varieties carried out in the ordinary manner; and to exhibit a series of those varieties which had proved, in Mr. FENN'S experience, to be the best adapted for garden or field culture. Referring our readers to another column for the details of this interesting exhibition, we venture in this place to make a few comments of a general character on the results of Mr. FENN'S experiments. And first, as to the results of grafting. When this matter was first broached it was received with incredulity and ridicule. The incredulity was natural, the ridicule was not wholly undeserved, owing to the manifest want of caution on the part of some of the experimenters, and the very high jumps they made to their conclusions. Then came the remarkable evidence published in our columns some time ago (p. 220)—evidence given, not by enthusiastic amateurs, or as the result of crude and untrustworthy scientific experiments, but testimony furnished by hard-headed, observant men, with no theory to bolster up, and no physiological problem to solve, no scientific assertion to prove or disprove; but given by men whose aim and objects were wholly and solely practical. Our readers had that evidence before them, and drew their own conclusions.

Now we have got a stage further; a well-known Potato-grower exhibits publicly the results of his experiments in the matter of Potato grafting; and here we may add, that we had the opportunity of satisfying ourselves that there was *bonâ fide* adhesion of scion to stock in some of the samples submitted for our inspection by Mr. FENN, some months since. Now what are the results? Where are the graft-hybrids? Of the illustrations furnished by Mr. FENN, on Tuesday, all save two were purely negative; no change was visible in the new tubers. But

the two in which a change had been effected are amply worth notice.

In the one case, where "Fenn's Onwards" had been grafted into "Yorkshire Hero," there was, according to Mr. FENN, some difference in the appearance of the shoots and haulm. As we had no opportunity of forming our own conclusions on that matter we pass that by without further comment. In the other case an eye of "Wheeler's Milky White" had been grafted into the old Fluke as a stock, all the eyes save those of the scion having been carefully removed. The result was a crop of tubers from the scion possessing, obviously enough, the characteristics of the Fluke and of Milky White. Samples of both parents were placed side by side with the hybrid, so that every one might have the opportunity of testing the matter for himself. Mr. FENN's label, attached to his graft-hybrid, said, in one sense truly enough, "character of Potato quite spoilt." In another sense Mr. FENN might fairly have written "great success," for he has demonstrated the practicability of the process, and has exhibited the results in a form, as it appears, almost beyond doubt. The *cui bono* man will probably sneer when he sees the unpromising looking progeny raised by Mr. FENN, and learns that the majority of that gentleman's experiments have been without results. On *cui bono* principles, however, we should have remained stationary, we should have had few or no improved races of plants or animals; as every experimenter knows he achieves success, in most cases, after numberless failures. Again, our *cui bono* friend may console himself with the remembrance of the fact that some very excellent Potatos are asserted, on good evidence, to have been raised in this manner.

In ordinary grafting, in which the tissue of the scion adheres to that of the stock, when growth takes place, in by far the majority of cases no alteration in the character either of the stock or of the scion takes place. Reservoir is added to reservoir, conduit to conduit, or, to speak more precisely, cell is developed from cell; and as the cells of the stock repeat themselves so also those of the scion develop new ones. In both cases the new cells are uninfluenced in form and appearance by the contact of stock and scion, even though the nutriment of the latter is pumped up through the tissues of the former. Growth, whether of scion or stock, thus appears to be mere augmentation of old material, so far at least as the framework is concerned. But inasmuch as the scion has to get its nourishment through the stock, we are not surprised to see the changes that are produced in habit, vigour, flavour, and the like, as a result of grafting. The little alteration that takes place in appearance may, perhaps, be accounted for on the supposition that the stock, rooted as it is in the ground, and producing no leaves of its own, acts merely as a channel of communication between the soil and the scion. This would open up that other question as to whether stems can grow without leaves, and if they cannot do so, how it is that the stock is not affected by the scion more often than we know it to be. But these questions we cannot now enter upon. *Revenons à nos pommes de terre.* The Potato stock, deprived of its eyes or buds, emits no roots, but becomes decomposed; its insoluble matters are changed into soluble ones, which serve to feed the growing shoot, so that when the old tuber or stock is dug up it is found by Mr. FENN to be, as it were, an empty bag. Where no union takes place the Potato stock remains as plump as it was on the day it was operated on; hence the Potato stock supplies nutriment from its own resources to the graft, and if so, there is little room for wonder at the production of graft-hybrids: but, on the contrary, there is reason for surprise that they do not occur more frequently.

Here we leave the subject for the present, with the intention of shortly reverting to it and to the other experiments on cross fertilisation carried out by Mr. FENN, and which have resulted, *inter alia*, in the production of a tuber said to be identical with wild tubers obtained direct from Peru. In the interim, we tender to Mr. FENN on behalf of all Potato lovers—and that love has many phases!—cordial thanks for the opportunity of inspecting his productions; and we earnestly beg him to stick perseveringly to his motto, "Onwards;" and to prove that there may be "Heroes" in Oxfordshire as well as in Yorkshire.

AT the recent meeting of the British Association, Miss BECKER is reported to have read a paper on a PECULIAR FORM of the common LYCHNIS DIOICA, in which stamens and pistil were present in the same flower, contrary to what happens usually in that particular species. Furthermore it is stated that the anthers were filled with spores of a smut-like Fungus, no doubt of the same description as that brought under the notice of the Scientific Committee during the past session (see p. 503). Miss BECKER, it is said, brought forward two modes of accounting for the peculiarity, viz., that it was due to a reversion to the primitive form wholly independent of the Fungus, the other that the change in question was really due to the presence of the Fungus. We have only seen a condensed report of what Miss BECKER really did say, and hence we may possibly be misrepresenting her views; if so, we are open to correction. Such cases as that recorded by this lady are not without their interest for horticulturists, who sometimes find a difficulty in getting Cucumbers or certain varieties of Vine to "set" properly, and therefore a few remarks may not be out of place. Let us look at the facts:—This particular Lychnis is commonly found with flowers of one sex only—stamens on one plant, pistils on another. In Miss BECKER'S instance the flowers were hermaphrodite, and were further affected with a parasitic Fungus. Now, most of the allies of Lychnis are hermaphrodite, but a very considerable number are unisexual. In the ordinary Lychnis dioica there is usually a trace at least of the missing organs; hence it is allowable to surmise that their absence in a perfect condition is due to an arrest of development. What the cause of that arrest may be we cannot undertake to decide. It may be due to existing external causes, though this seems hardly likely; it may be due to that tendency to a subdivision of labour, which we see as fully exemplified in Nature's workshops as in man's factories; or it may be, and probably is, associated with that increased fecundity which results from crossed fertilisation.

And then as to Miss BECKER'S plant, where the flower was structurally perfect, who can say what were the causes of the change? The authoress herself discards the reversion theory, on the grounds, we suppose, that no one knows what the primitive state of things was, and that there is no distinct evidence of any such reversion having taken place. We suppose it might be said that the flower was originally hermaphrodite, but by natural selection became unisexual, because, from causes previously stated, it was to the advantage of the flower to be so; and if so, Miss BECKER'S instance may be one of reversion, but, as before stated, there is no evidence to show what the original state of things was. At the same time as a theory this view of the matter seems to us more plausible than the notion which Miss BECKER upheld, that the Fungus was the cause of the change. We are at a loss to see how the parasite could have brought about the change from an unisexual to a bisexual condition. It would, in our opinion, be more likely to induce an arrest rather than an excess of development.

—— THE French correspondent of the *Lancet* sends to that Journal the following account of AN ANTIDOTE TO NICOTINE:—"A bit of news which will be welcome to hygienists and smokers! M. ARMAND, a French *savant*, has stated to the Academy of Sciences that he has discovered a sure antidote to nicotine. Success has thus crowned the efforts which he has been making for the last few years. The antidote is nothing less than common Watercress. It destroys the poisonous effects of nicotine, and yet does not alter the aroma of tobacco. A solution of Watercress may, therefore, be employed for steeping the leaves of tobacco, and would thus effectually divest them of their noxious properties; moreover, a draught of the same will act as a sure antidote to nicotine."

—— While referring to POTATOS, we may cite an interesting fact, recorded in a letter addressed to Mr. PATERSON, a well-known raiser of new POTATOS, and by him obligingly forwarded to us:—"A circumstance has come under my notice to-day, from an old Potato grower, respecting your Victoria. You are aware that it blooms and fruits heavily. This person pinched out the bloom of one portion of his crop as soon as fully formed. The other he allowed to bloom and fruit, and the crop he allowed to bloom was not more than half the crop. The other was not only a double crop, but the Potatos were much finer and cleaner skinned."

—— We are informed that the widow of Mr. HENRY C. OGLE, who for many years filled the position of head gardener at Eridge Castle, and whose contributions to horticultural literature are well known, is, from causes entirely beyond her own control, in greatly reduced circumstances; and, unless a sum of 100*l.* can be almost immediately forthcoming, she will be compelled to part with her only means of obtaining a living for the future. Mr. COX, of Redleaf, has permitted his name to be used as a guarantee of these facts; and for the relief of Mrs. OGLE contributions are solicited from the affluent and the generous. Remittances may be made to Messrs. WHITFIELD & Co., Bankers, Tunbridge Wells; or to Mr. THOMAS READ, Parade, Tunbridge Wells.

—— Londoners with botanical proclivities will be glad to learn that the long promised FLORA of MIDDLESEX,* by Dr. TRIMEN and Mr. THISELTON DYER, is at length issued. We shall advert to this exhaustive work on a future occasion.

New Plants.

PASSIFLORA (§GRANADILLA) MACROCARPA, *Mast., sp. n.*

P. ramis quadrangularibus ad angulos profunde alatis; foliis late ovatis vel sub-orbicularibus abrupte acuminatis; petiolis plerumque 6 glandulosis; stipulis vetustioribus pollicaribus et ultra basi late ovato-lanceolatis; pedunculo tereti; bracteis sub-orbicularibus acutis serrulatis floris tubum omnino velantibus; tubo basi intruso; sepalis ecorniculatis petala superantibus; coronæ faucialis seriebus 5 quarum duo exteriores filamentosæ filis distinctis patentibus crassis violaceo-fasciatis petala superantibus, duo intermediæ filamentosæ, filis quam præcedentes 5—6-plo brevioribus, distinctis, vel plus minus connatis, intimâ vel supra mediana e filis cohærentibus inflexis sistente; corona media e medio tubi emergente membranacea horizontali ad marginem circa gynandrophorum reflexa ibique leviter bifurcata, corona infra mediana annulosa carnosa; gynandrophoro crasso brevi basin versus processu crasso trochleariformi notato; ovario oblongo obtuso; stylis majusculis clavatis: stigmatibus maximis trilobis; fructu maximo oblongo obtuso basi apiceque umbilicato longitudinaliter sulcato.—*Passiflora macrocarpa*, Hort. Linden.

Critics recommend would-be poets to keep the effusions of their muse under lock and key for a lengthened period, at the expiration of which time, if the production appear satisfactory, it may be permitted to undergo the test of public criticism. Artists are, for similar reasons, recommended occasionally to lay aside their paintings and also to turn their pictures upside down, the more readily to detect any error of drawing. We have followed these directions in spirit, nay almost in letter, with regard to the big-fruited Passion-flower above described; and at length, after repeated comparative examination of living and dried specimens, native and cultivated, have satisfied ourselves that the plant in question is deserving of specific honours; that is to say, it is at least as much so as the majority of so-called species, even in a purely botanical sense; while for garden purposes, as we shall presently endeavour to show, there are ample reasons for keeping it distinct from its allies. While thus expressing our belief in the expediency of keeping the present form distinct from its near ally, P. quadrangularis, we may nevertheless express as confident an opinion as can be pronounced on matters where there is no direct evidence, that both forms, as well as P. alata, sprung originally from a common source. Before, however, treating of these matters, and before giving the history of the Pumpkin-fruited Passion-flower, we must give the description of the main features of the plant in the vulgar tongue.

In habit and general appearance the plant is almost identical with P. quadrangularis; so much so, in fact, that in the early stages of growth it is impossible to distinguish the two plants, even when grown side by side as they are in the Palm-stove at Kew. In the adult state of the plant, however, the leaves of P. macrocarpa are of a more rounded outline, and are usually somewhat smaller than those of P. quadrangularis; the stipules, too, on the fully developed plant are much larger than those of P. quadrangularis, and taper at the base into a broad stalk. No reliance can be placed on the number of glands on the leaf-stalk. The peduncle is cylindrical below the bracts and conical above. The bracts are very large in comparison with those in the nearly allied kinds, cordate roundish acute serrulate. The tube of the flower is concealed by the bracts, and is shallow, fleshy, smooth, and intruded at the insertion of the flower-stalk. The sepals are four or five times longer than the tube, leathery, greenish externally, whitish within, oblong obtuse, somewhat concave towards the apex, destitute of mucro. The petals are fleshy, broad at the base, oblong obtuse; about the same length as the sepals, and of a violet colour. The corona consists of seven series of rays, four (faucial rays) inserted at the mouth of the tube, one (supra-median) immediately below it, one (median) emerging from the centre of the tube, and one (infra-median) midway between the latter and the base. Of the four faucial rows the two outermost consist of separate, spreading, thick violet-spotted threads, exceeding the petals in length; the two succeeding rows also consist of threads, but very much shorter than the preceding, and bent inwards; the supra-median corona (or fifth faucial row) is membranous, bent horizontally inward, and evidently consists of a number of threads imperfectly separated from each other (*i. e.*, partially coherent). The median corona, coresponding to what by some authors is called the operculum, is also membranous; it emerges from the centre of the tube in a horizontal direction, reaches the column, and is then bent upwards; its free edge shows a tendency to split into two lamellæ. The infra-median corona is a thick fleshy rim encircling the interior of the tube midway between the preceding and the base. The column (gynandrophore) is short and very thick, provided at the base with a very large pulley-shaped process, the upper division of which is divided into five blunt lobes. The filaments are broad and spotted with red, the anthers oblong. The ovary is oblong obtuse, obscurely three-lobed, and surmounted by three thick, club-shaped whitish styles. The stigmas are very large, 3-lobed, brownish. The fruit is large, oblong obtuse, depressed at both ends and longitudinally sulcate.

Contrasted with P. quadrangularis, in addition to what has been previously stated as to the foliage and stipules, P. macrocarpa has rounder, larger, more serrated bracts; a shorter, shallower calyx tube; the petals, which are violet (not pink), do not exceed the sepals in length; the outer rays of the corona exceed the petals considerably in P. macrocarpa, and but little or not at all in P. quadrangularis. The succeeding coronal rays are filamentous in macrocarpa, while they

* London: Hardwicke.

are shorter and tooth-like in quadrangularis. There is only one supra-median corona in P. macrocarpa, but there are two in P. quadrangularis. The column of P. macrocarpa is relatively shorter and stouter, and the pulley-like process is thicker and larger than in P. quadrangularis. The ovary in P. macrocarpa is oblong or obovoid, not ovoid; the styles very thick, and the stigmas much larger than in any other species of Passion-flower with which we are acquainted. Lastly, the fruit of P. macrocarpa is much larger than that of P. quadrangularis, and of a different shape, the true P. quadrangularis having an ovoid fruit of the size of a swan's egg, and it is ordinarily not depressed at the apex at least, nor furrowed.

P. alata can hardly be confounded with P. macrocarpa, as its stems are much less deeply winged, its bracts are much smaller, its coronal rays fewer and simpler, its fruit pyriform, &c.

Almost the first notice which we got of this Pumpkin-fruited Passion-flower, was from the Munchausen-like epistles of the notorious Hullett; and when specimens of the Hullettian plant, obtained direct from the Museum Hullettianum, were seen to be in stem and foliage indistinguishable from the old P. quadrangularis, was it not pardonable to suppose that the plant in question was nothing more than a Hullettian form of that well-known species? There was the more reason for this, as Jacquin, many years ago, described a large-fruited form of P. quadrangularis as common to the West Indian islands and to the mainland of South America. However, a more trustworthy account was given in the catalogue of M. Linden, and by-and-by specimens of the fruit made their appearance on our exhibition tables.

Still there was the doubt as to whether this fruit was the produce of a variety of P. quadrangularis or of a new species. There was this point in favour of its being only a variety of P. quadrangularis, viz., that Jacquin, in his original description of the last-named species, mentions also a variety with large fruit "transversely" sulcated. In order to ascertain the true state of the case we put ourselves in communication with M. Linden, Mr. Spruce, and with other gentlemen who grew the plant, or who were presumed to be acquainted with it in its native habitats. To these gentlemen our best thanks are due for their kindness in forwarding information and specimens. The information received from them is so valuable in clearing up the history of the plant that no apology will be needed for introducing the substance of their remarks here. M. Linden, to whom we owe the introduction of this Passion-flower to European gardens, thus speaks of it in a letter dated January, 1867:—

"This Passion-flower was discovered by my collector, M. Wallis, on the banks of the Rio Negro, between Manaos and and Barcellos, about three, or it may be, four years ago. At that time M. Wallis wrote that the species acquired unusual dimensions, and that the fruits, which were highly esteemed in the country, attained a weight of 8 lb."

M. Linden adds, and the testimony is all the more valuable as coming from one who knows the old P. quadrangularis in its tropical home, that the species is evidently allied to P. quadrangularis, but is quite distinct from it, in flower, fruit, and leaf. So much for the testimony of MM. Linden and Wallis.

Finding in the Kew Herbarium specimens of our plant gathered in Peru by the famous traveller Dr. Spruce, we next applied to that gentleman for information. Dr. Spruce, in reply, expressed some doubt as to whether P. macrocarpa was really wild in the locality indicated by M. Wallis.

"If," says Dr. Spruce, "M. Linden's collector sent from the Rio Negro a large-fruited Passiflora, I should say it had certainly been raised there from seeds brought from Peru, No such Passiflora, either wild or cultivated, was known in that region in my time; but since steamers have run up to the very roots of the Andes, I learn that the Brazilians have got from Peru the Banbonage, or Panama-hat Plant (Carludovica sp.), and many others. In the lower eastern Andes a large-fruited Passiflora is commonly cultivated under the name of "Tumbo," and the same species is still more largely grown on the western side of the Andes, in what is called the "coast region" of Peru. At Guayaquil, what seems the same kind is called "Badéa," but it may be distinct from the "Tumbo." These Passifloras have a fruit 9, or even 12, inches long, very like that of the common Papaw, but blunter at each end, and very much heavier, bulk for bulk. There is a variety with longitudinally sulcate fruit. I suppose it may be the same as Jacquin's "P. quadrangularis, var. sulcata, fructu transversim sulcato," wherein the "transversim" is to be taken *sensu mathematicorum*, who call the longest diameter of an ellipse the transverse, for the fruit of this Passiflora is somewhat ellipsoidal. Not only are the seeds, enveloped in sweet mucilage, eaten, as they are in the common Granadillas, but the thick flesh is also eaten, after the manner of Melons and Papaws, to both of which its flavour slightly assimilates it, although it used to remind me more of a soft sourish-sweet Apple. In Peru the "Tumbo" is commonly trained over a horizontal trellis-work, raised high enough to allow of a man walking under it erect, but sometimes much higher, and only accessible by means of a ladder. The finest plants and the best-tasted fruits I have seen, were grown on the river Chira, in lat. 5° south. The priest of Amotape—a small village on that river—had a plant that must have covered 50 square yards. I have several times reposed in my hammock under its shade, and regaled on its fruit. That was in 1863, when I was invalided, and had given up collecting. Even had I been still vigorous, I should, perhaps, not have preserved specimens of it, under the impression that it must already be well known in Europe. Its cultivation in Peru has existed probably for many centuries; there is no tradition of its introduction, and it is nowhere known wild."

Hence, then, we have evidence that the P. macrocarpa of our gardens is distinct from P. quadrangularis in many points, that it is cultivated in Peru, and has probably been introduced thence into the Amazon district. We have seen imperfect specimens from Venezuela, and from Central America, that we refer with some hesitation to this form.

The question remains, is this the big-fruited Granadilla of the West Indies, with transversely sulcated fruit, of which Jacquin speaks? This question we cannot answer positively. All the West Indian specimens we have seen belong to quadrangularis. Among them we have seen some with fruit larger than usual, but yet not much more than half the size of that of P. macrocarpa, and truly egg-shaped.

As to the value of the fruit for the table we have the testimony of Messrs. Spruce and Wallis that it is highly esteemed in tropical South America. The fruit grown in this country is, to our thinking, more watery and less richly perfumed than that of the old quadrangularis. On a trial made of some conserve, prepared from the fruits of the two species for comparison, decided preference was given to that made from the P. quadrangularis. And here we may be allowed to express our surprise that, commonly as P. quadrangularis is grown, its fruit is so seldom seen on the dessert table in the form of jam. We know of few confections of that nature of a richer flavour, and warmly recommend growers of P. quadrangularis or P. macrocarpa, to avail themselves of the fruit. For this purpose the following directions to the cook may be serviceable:—Cut the ripe fruit into slices, crush the pulp surrounding the seeds with a spoon, so as to extract the juice, remove the seeds, boil the slices till tender, and pass them through a sieve, mix the juice with the pulp, and add white sugar in the proportion of half a pound to a pound of pulp, or thereabouts, and boil down to a proper consistence.* *M. T. M.*

"ABOUT TOWN."

ON September 2 I took a run through two of the London parks—Hyde Park and Battersea, the gardens of the Royal Horticultural Society, South Kensington, and the Crystal Palace. Upon entering Hyde Park at the Marble Arch, "too late" dropped instinctively from my lips. The plants exhibited signals of frost-distress, and showed unmistakeable signs of autumnal exhaustion. They looked as if it were the latter end of October instead of the day after St. Partridge's Day. The beds were nearly flowerless, the leaves weather-beaten and autumn-stained, and the general effect was wintry and bleak. It needed not the presence of a band of men snatching cuttings by the donkey load to remind one that danger seemed near. It seemed as if the August frost had expended all its power to destroy this floral fringe of Park Lane, and had succeeded in almost wholly stripping these beds, which had evidently been very beautiful earlier in the season, and its force seemed to have been felt all the way down alike. I was glad to observe that a suggestion made in your columns last year had been attended to: all the plants were legibly and correctly named. Had it not been so, no one could have recognised many of the varieties of Pelargonium. Such grand trussers as Amy Hogg especially were reduced to the puniest dimensions. And here, in most cases, misfortune did not come single-handed. Preceding, or on the heels of the frost, caterpillars had been riddling the leaves, and the very Grass between the beds looked languid and chilled.

It will be remembered that towards the corner of Hyde Park there is a piece of private ground belonging to the houses in Piccadilly. The angular portion between Park Lane and the park is well furnished with shrubs. Near the centre of the angle there is a circular group of beds. These were flowering away in the utmost profusion, and in the heyday of health and strength. There are also some beds near the park rails within this enclosure. These were intermediate in beauty between the round groups, and those extending all the way down from the Marble Arch to Stanhope Gate and Cumberland Gate. They were well protected by the shrubs from the Park Lane side and pretty freely exposed to the park, hence their intermediate condition. It is impossible to see within a comparatively short distance in the same locality the effects of shelter upon half hardy plants more vividly illustrated.

The same lesson is taught in the subtropical department of Hyde Park. This is confined to comparatively narrow strips on the Knightsbridge side. On the highest ground round the open park the subtropical portion is shut in as it were by a thick mass of shrubbery. Broadly stated, then, this shrubbery forms one wind-break; Knightsbridge and the trees inside the park another; the angular shrubbery, though at some distance, closes up one end, and, the artificial mounds, rockwork, trees, &c., the other: thus at all points the force of the wind is broken, and as a rule it might be observed, that where the shelter was most complete, the subtropical subjects seemed most at home.

Proceeding from Hyde Park to Kensington the same truth was further enforced; though here the question of shelter became further complicated by the relative merits of trees or shrubs or dead walls as sheltering agents. A living screen that sifts the air through it, thus breaking its force into fragments, is much more effective as a protector than a dead wall that simply turns it aside. The chances are that in the latter case the wind will vault over the barrier, and form a fresh eddy or current inside of it, and prove perhaps as destructive afterwards as it would have been had it not been interrupted. On the contrary, the living screen disintegrates the force of air in motion, and scatters it utterly, like water spilt on the ground that cannot be gathered up again. The subtropical department at South Kensington has the benefit of both kinds of protection. It nestles beneath the high walls of the picture gallery on one side, and is sheltered on the other with a double line of white Poplars. With the double protection the plants were doing well, although hardly so strong as they were last year. The other portions of this garden are pretty well protected by lines of trees, masses of shrubs, and inequalities of surface, while a good deal of heat must be radiated at night from the walls, corridors, &c., and the broad expanses of gravel. The consequences are, that the flowers here suffered but little from the cold. Another circumstance doubtless helped to ward off the frost. On the late Prince Consort's birthday free admission is given to the gardens, and this year over 60,000 persons availed themselves of the privilege. Such vast numbers stamped off most of the Grass, and thus checked the loss of heat. The central panel, and nearly the whole of the bedding, was fresh and green, just as if there had been no frost.

From Kensington I proceeded to Battersea. Here is seen a most effective illustration of the protective power of shelter, skilfully disposed. The locality is by no means favourable. The contiguity of the Thames might rather tend to draw than ward off frost; though a body of water is often a useful preventive against extreme and sudden cold early in the autumn, it does not part with its heat so suddenly as the plant-clothed earth. In this way the river might assist the park beside it to resist the cold. It would act as a moderator of the severity of sudden change. But doubtless the form and planting of the ground have more to do with it. The change from Hyde Park to Battersea was like leaping back from the end of October into the middle of July. The subtropicals seemed to be all thoroughly at home in their cosy nooks and warm corners, with massive banks of richly clothed earth behind them, and glowing beds of richest colouring keeping their feet warm. No proof of weakness, no sign of decay, no strain of trying endurance, were visible. Health, strength, freshness and beauty, were inscribed on every group.

I believe the difference between the two parks is mostly, if not wholly, one of shelter. The bedding plants in Hyde Park are set, as it were, in the teeth of the wind. They have a wide road on each side of them, a walk running down between them, and a broad park beyond. And the beds, as well as their windy surroundings are straight, hence the air sweeps along without let or hindrance; the dividing Holly fence even has been removed; there is no wind-break anywhere. At every yard of its progress the breeze gains fresh momentum: it sweeps the whole line of the narrow beds like a hurricane. Were it broken here and there, or turned out of its course by living screens, its force would be weakened, its momentum lessened; as it is, the flower-beds are exposed to its full energy.

In Battersea Park all these unfavourable conditions are reversed. Every expedient has been adopted to shut out the wind from the plants, to turn it aside, or send it scampering off into the air high over their heads. The massive mounds of earth likewise absorb much heat during the day, and give it up again to temper the cold of the night. The energy of radiation is checked by the discharge of this high-level heat, and the plants in the thus sheltered valley preserved in safety. Whether this explanation be accepted or not, the fact remains that while the bedding plants seemed paralysed with cold in Hyde Park they were fresh and beautiful at Battersea.

Proceeding from thence to the Crystal Palace, the bedding plants were found in equal perfection. At the Palace this can hardly be the result of shelter, for the grounds are somewhat bleak and freely exposed. Possibly the plants owe their immunity from early frosts at the Palace to the site and soil: the former is somewhat elevated, the latter dry and apparently poor. The growth of the plants seems sturdy and short, their texture firm, and they thus offer but little frost-hold for the cold. But subtropical gardening is not attempted here, and would possibly prove a failure if it were.

These different states of vegetation within such a limited area appear to illustrate the importance of altitude and shelter as means of combating frost. The latter especially is of the utmost importance.

Dr. Bennet has very clearly shown in his instructive letters on the vegetation of southern Europe that a very slight amount of shelter may often prove of greater value to tender vegetation than several degrees of latitude. The same lesson may also be learned nearer home. The writer has seen the British Queen Strawberry in high perfection on the sunny side of a snow-clad mountain pass in Inverness-shire, while it was perishing from cold in the east and north of England.

In forming gardens for tender plants situations should as much as possible be chosen where it has been observed that common things, such as Potatos, French Beans, or Dahlias, escape the frost till late in the season. If greater care were exercised in the choice of a site, and moderate shelter provided, no one would have to lament the loss of their flower garden in the latter end of August, or dread stern winter treading upon the flowery toes of summer, as it has done in Hyde Park this year. *A Country Chiel takin' Notes aboot London.*

* Our *chef* says a compôte would be still better.

GRAPE GROWING AT BISHOP STORTFORD.

FOR a full quarter of a century this little town has been famous for Grapes. In the year 1843 (see *Gardeners' Chronicle*, 1847, p. 683) Jones Nash, Esq., planted a large vinery, for the time, with Hamburgh Vines, and another with Muscat of Alexandria. For many years these Vines and their produce were famed throughout the land; they were well nigh perfect. Pilgrimages were made to the Bishop Stortford vineries to learn the great art of Grape growing. Berry, bunch, colour, and flavour were all that could be desired. The plants grew like Willows in swiftness, like gnarled Oaks in robust strength. The produce of each year eclipsed that of the preceding, and hands were uplifted and eyes opened in wondering admiration. But the zenith seems to have been reached years ago, and now the glory has departed from them. A few weeks since I stood in sadness beneath these grand old Vines, gazing upon the wreck of their greatness. Shanking had done its work, and left the crop reduced to the mere shadowy ghost of the olden times. And yet it can hardly be that either age or weakness had

opened up the citadel of life to the cruel havoc of the shank fiend. Twenty-nine years are but a day to the longevity of the Grape Vine, and these grand old rods, measuring from 8 to 12 inches in girth, are still strong, and put forth fine leaves and fair sized wood. The border is likewise wide—about 24 feet, and well raised above the surrounding surface. And yet on the spot the cause of failure was attributed to the probability of the roots having run clean through and out of the border, and got (as the old gardener who had planted them expressed it) "no one knows where." Their whereabouts, however, will probably be discovered this autumn, as it is in contemplation to clear out those mammoth rods and make another start with new borders and fresh plants. It seems almost like sacrilege to destroy such Vines, and it is to be hoped that a few of them may be lifted into a new root medium, and have one more chance; and that the remainder may be sent up to the arcades at Kensington, to show young and old that the Grape Vine may be grown into a respectable timber tree in the course of a century or so.

But from the setting we turn to the rising sun—from the old Vines of Jones Nash, Esq., to the new ones of Thomas N. Miller, Esq. Five years ago the site occupied by these was a meadow. It is now converted into a kitchen garden, and furnished with some of the largest and best vineries in the kingdom. One house is 130 feet long and 16 feet wide, in two divisions, one being devoted to Muscats, and the other to Hamburghs. Another is 100 feet by 13 feet, in three divisions—one with an inside border devoted to early Grapes of several varieties, and the other two, one to Muscats, and the other to Hamburghs. The length of rafter in the first house is about 19 feet, and in the second of these houses about 15 feet. But the grandest vinery is a noble span-roofed house, 200 feet long, and 30 feet wide; the side walls are about 2 feet 6 inches high, surmounted by a 2 feet sash leading up to the roof, and the centre of the house is about 15 feet high, which is likewise about the length of rafter on each side. This house is divided into three divisions, one devoted almost wholly to Lady Downe's Seedling, another to Hamburghs, and a third to Muscat of Alexandria. These Vines were planted about 4 feet apart, within about 1 foot of the side walls, only four years ago, and this is the first season that they had been permitted to bear a full crop, right up to the top of the house.

Along the middle of these vineries a 4-foot pathway, formed of wooden splints, which are about to be replaced by a neat iron grating, is laid, on the top of the border. On each side of this path, at a distance from it of 2 feet on each side, standard or pyramidal Vines 6 feet high are placed, 8 feet asunder; they thus stand 8 feet by 8 feet, and being laden with fruit from top to bottom, have a fine effect. With these exceptions, the entire floor of these houses is clear, and the effect is magnificent. The whole of the Vines, from wallplate to apex, are laden with Grapes, of excellent quality, colour, and size, while both foliage and wood may be said to be as perfect as possible.

The chief feature of the whole of the Vines to be seen at Mr. Miller's is their uniform and general excellence. Mr. Ward, his talented gardener, does not affect sensation bunches; neither monsters nor pigmies have place within either of these vineries; each bunch throughout the houses is as like every other bunch as may be; and the same may be said of the produce of each Vine. This uniform and unerring excellence, while it reflects the highest credit upon Mr. Ward, tells against him as an exhibitor. Many, whose Grapes are far below his high average quality, might cut two or three heavier bunches; but with the exception of a small house of Muscats, grown by an amateur under Mr. Wm. Thomson's instructions at Dalkeith, I have never seen any Muscats to equal Mr. Miller's. The Hamburghs are also very fine—good in bunch and berry, and as black as sloes. The first two vineries are bearing their third crop, the span-roofed house, which was only planted four years ago, its first full crop. The bunches on each rod average about 20, and the weight in the different houses will range from 30 to 50 lb. per rafter. The outside borders have asphalted bottoms, are well drained with rubble, and the water is discharged into a passage that skirts their front. The depth of the borders is 30 inches against the vineries, 2 feet at the walks; their width is 20 feet. They are formed of turfy loam, with a liberal addition of crushed bones and lime rubbish. They have been watered twice this season. Before winter a layer of stubble, about a foot thick, is put on to exclude frost; this is again covered over with tarpauling, to throw off the water. The early Vine border is formed, piecemeal, of turfy loam and broken bones, inside the house, and it was found to be a tangled mass of thick spongioles, ramifying in all directions towards the surface. No drainage was provided nor special preparation made for the borders in the span-roofed vinery. A little loam mixed with crushed bones was placed upon the surface of the original earth—so I understood it—and the Vines were inserted in the usual manner. No Vines could have done better: they are the perfection of robust health, and models of fertility.

Next to the health or excellence of all the Vines, and the uniform quality of their produce, was the spotless cleanliness, size, and gradual and late ripening of the foliage. On the early Vines, with the wood as hard as buckshorn, the leaves were still treasuring up more power for next season's exigencies. The chief peculiarity of culture observed was, that the houses were wholly devoted to the Vines. Neither pot nor plant was seen throughout the whole of the vineries. This adds immensely to their dignity and grandeur, and probably contributes considerably to the high degree of success realised. Another peculiarity, that of allowing the leading shoots to run on without stopping, has been already adverted to in your columns. Mr. Ward attributes great importance to this, as likewise to allowing a second shoot to run out from the base of the Vine near the wallplate. With these two growths acting as root stimulators or sap pullers, he practises pretty close stopping of the laterals, so as to allow the sun to develope that golden tint on Muscats which is alike proof and cause of the highest excellence. This theory of open mains is, however, not generally applied to Hamburghs. Each side shoot in their case is left to cater for itself. The advocates of bottom-heat for Vines may fairly claim Mr. Ward as with them. True, he does not heat his main borders from below, but then with his stubble and tarpauling he stores up as much heat as possible. If he directly puts no heat in, he is very careful to let but little out. The borders, again, of his large span-roof house are heated by the surface air from above, while the early vinery border is placed so close to the hot-water pipes, as to be heated, I should suppose, considerably beyond the surface temperature. Be this as it may, all plants that have their roots placed in the same temperature as their tops are grown in bottom-heat.

Further, Mr. Ward raises a good many young Vines annually, and these are grown to great perfection directly over his 4-inch pipes that warm a large span-roofed Pinery. An open grating is placed as a shelf within a few inches of these pipes, where the young Vines remain from early spring until they finish their growth in autumn. At the time of my visit this house had been shut up for the night with a sun-heat of 100°, and of course the pots, brimful of roots, were enjoying the same temperature. During cold nights these pot Vines must have often endured a much higher degree of heat, and yet no plants could have looked better. Even the early Vines are subjected to a high temperature to finish their growth, Mr. Ward remarking that he does not believe in cold as a wood ripener.

Mr. Ward is equally and perhaps more famous as a Pine than a Grape grower. This season he has taken six or eight prizes, last year as many as a dozen; and it will be recollected that he created quite a sensation at the Regent's Park by showing a first-rate Queen over 7 lb. in weight, and 12 others weighing together 63 lb. At the present time he has some fine Charlotte Rothschilds, Queens, Smooth-leaved Cayennes, &c., swelling off, from 6 lb. to 10 lb. in weight. The Pines, like the Grapes, may be said to be all good alike; they are the most regular and sturdy robust lot of plants that can be imagined. About 150 plants are grown, and 70 fruited annually. In from 10 to 18 months the fruit is generally cut. The sorts grown are mostly Queen, Charlotte Rothschild, Smooth-leaved Cayenne—a good many; Prickly Cayenne, Black Jamaica, Black Prince, and the Blood Pine, of which I saw a splendid fruit nearly 6 lb. in weight. They are grown in two houses, one a lean-to, over 100 feet long, and 12 feet wide, in three divisions—one of them being mostly used for fruiting plants, and the other two for successional ones. Three pipes are used for bottom-heat, and the pots are plunged in tan, the plants being kept up close to the glass. The other house is span-roofed, 75 feet long, 25 feet wide, 4½ feet high at the sides, 2½ being of brick wall, in which the ventilators are placed, and 2 feet of glass,—and about 10 feet high in the centre. Six hot-water pipes, three deep, in double file, are carried all around by the side of the wall. Then follows a path all round, and a wide flat bed for the Pines in the centre of the house. Five pipes are carried through this bed for bottom-heat; then a layer of brickbats, followed by the tan as a plunging material. Five rows of plants are fruited in this house. The greater portion of them had been cut, but enough remained to show the high standard of Pine growing at Bishop Stortford. In a few weeks the succession plants will be moved into this house, and a fresh start made. The top of the centre bed is about level with the shelf over the pipes. The plants are therefore a long way from the glass, but the house is light, and the foundations of a sturdy habit have been so well and surely laid in the lean-to house, that the plants retain it to the end of their lives; in fact, this central force, concentrating itself into fruit many pips deep, the spotless cleanliness of the plants, without scale, or bug, or any such thing; and the shortness of the time between the start into growth and the finished fruit, are the chief characteristic of Mr. Ward's Pine growing.

I observed a good many Cucumber cuttings striking in this Pine-house, and learned that it was a long sort, a yard in length, which refuses to seed, and is grown in quantities from cuttings every winter, and fruited in pots placed on the coping of the retaining wall of the plunging bed, the branches being trained to the roof over the path. In winter and early spring the shelf over the pipes, occupied by the Vines in pots in summer, is devoted to the forcing of Kidney Beans—Fulmer's Early Forcing being found the best for providing a daily supply. Everything seen here betokens attention and skill, and at all points we see proofs of their legitimate reward—success. *David Tell Fact.*

INDIAN FORESTS.

I wish to make a few remarks—not on the present condition of the Indian forests—as every one who knows anything at all on that subject knows that the condition of a very large portion of them is already so wretched that further neglect could not possibly make them worse—but, on the chief causes that have so harmoniously wrought together in making them what they now are. First in order comes the contract system of cutting and selling timber; next clearing, with the view of extending cultivation; and then cattle grazing and its invariable attendant, forest burning. First, the contract system as I understand it—for a stipulated sum, on some particular tract, and within a given number of months or years, the contractor could take away as little or as much timber as he liked, besides having unlimited liberty to hack and slash young and old indiscriminately to any extent that either caprice or avarice might dictate; the latter most generally was his regulating motive. If within easy distance of a market where the demand for small poles for roofing and other purposes was great, on the expiry of the lease there might hardly be a Sal sapling left standing that would make a respectable broom-handle. The only things left were a few stumps that would not repay the labour of cutting; perhaps, also, a few hollow or gnarled specimens of Terminalia, Bignonia, Semecarpus, Ficus, &c., the wood of which is worthless even for the purpose of burning. After clearing away the heavy timber, those rank-growing grasses that don't flourish where there is much shade, begin to grow most vigorously; also patches of scrub, for instance, Randia, Posoqueria, Carissa, Zizyphus, &c., which were carefully preserved, for the reason that the market for such species of forest produce is generally very dull, shoot ahead much more vigorously than before; and seedlings by millions—the legitimate descendants of the fallen great—which from their vigorous appearance it might be fairly expected would soon become fine healthy trees. But in accordance with the usual custom, the tract must get burnt to improve the pasture for the village cattle; and very few of the seedlings, now apparently so vigorous and healthy, will survive that ordeal. Perhaps the year following, the process may be repeated, and so on every second or third year at the longest, so long as there are cattle and herdsmen in the neighbourhood. After the second or third burning at the most the seedlings will have been completely destroyed, and with them a good many of the unsound and worthless trees left at the general clearing. Some of the more vigorous stumps may for many years continue to throw out a few sickly shoots, which can never come to anything, as every successive fire destroys exactly what they have grown since the preceding one. In time they assume precisely the appearance of worn-out Willow stools; then, disgusted with such treatment, and tired of life, they depart one by one, and the only mementos left of what was once a magnificent piece of forest are a few charred rotten stumps.

Could burning have been prevented, in the course of a short time the tract would again have been covered with healthy saplings, the thinnings of which would have been worth a good sum annually, not to speak of advantages both climatal and commercial that would have resulted from such a state of things; whereas, as this tract now lies they are entirely unproductive, at least they produce nothing more valuable than Spear-grass, Carissa, and Zizyphus bushes, about which the best that can be said is, that they are intolerable pests to both man and beast. Repeated burning of the jungle seems to impoverish the land so much, that even these pests in time look stunted and sickly, and seem as if they might ultimately die from sheer starvation.

If instead of annually reducing the grass to ashes it had been left to decay where it grew, in the course of time there would have accumulated a fine layer of vegetable mould—so much ready-made food for roots to draw from. But, if that view be objected to, still it would have been of great value in keeping the soil moist, as drought perhaps even more than poverty may be the cause of the sterility that follows in the wake of these clearings, which unfits them for the production of one thing or other that can be of much use to either man or beast. A camel or even a goat would in many places find difficulty in picking up a living off an area as large as a good-sized farm.

The Indian Government seems always to have been ready in recognising, and liberal in rewarding, merit in its servants, whether military or civil—in many instances as rewards (jagheers) large tracts of land, either virgin forest or partially cleared, of an extent such as few of the little German monarchs could afford to give. Private individuals also often applied for and received extensive tracts at a merely nominal price—a few shillings per acre, with the view of clearing and cultivating. The clearing of these tracts was no very difficult matter, but not so the cultivating of parts of them. In many places where that has been tried, after raising two or three crops the land is again thrown out of cultivation; in some cases because of the want of water for irrigating purposes, and in others, in addition to the cause already specified, the difficulty in cultivating a dry, hard, gravelly soil. In some districts extensive tracts of that description have been cleared—whether through avarice or ignorance matters little, as there has been an injury done to the country at large, and the district in particular, that will cost money and time to repair. Did clearing and partial cultivating improve the land for grazing purposes, but little could be said against the practice; but such a plea cannot be urged in defence of the system, as the very opposite of that is the case. Neither can it be said with truth that the clearing was permitted or sanctioned with the view of improving the health of some sickly district, as such tracts as those here spoken of do not supply the requisite conditions for the production of miasma.

The present system of allowing cattle, for a very trifling sum per head, to graze in reserved forest tracts, has been and still is another fertile source of injury. That arrangement does not expressly stipulate that these tracts are to be burnt every year or second year at the longest, still it is perfectly well understood that such will be the case—that seems to be implied—unless the grass be so thin that it would occasion the pow-wallah (herdsman) a good deal of trouble to burn it; if that were the case portions might escape for more than a period of two years, but on no other condition. When seedlings and saplings perish by the million from that cause alone, the system that not only tolerates but fosters it for a paltry sum that might perhaps barely supply stationary—red tape included—for the year's consumption in the district office, can hardly be characterised as anything else than blindly ignorant, or avariciously greedy. Until that system be entirely done away with, it matters little what other reforms be recommended or sanctioned; at best they can be only palliative—only another instance of a Mrs. Partington keeping out the sea with a besom.

The Supreme Government must all along have been cognisant of the existence of such a state of things, as well as the results that it would ultimately lead to; but the leave-this-to-my-successor policy, or absolute indifference to the requirements of the future, seems to have been considered sufficient excuse for the then present neglect. Report after report was written, pointing out the ruinous tendency of the system, or systems in operation, but only to be glanced at, docketed, and shoved into a pigeon-hole with the view to further reference, when time and inclination permitted—accidents which have been long in coming about. Article after article has also appeared in the newspapers on the same subject, but, like much of the current literature of the present day, thought nothing more about after they were read. One in particular, in the *Delhi Gazette*, probably about 1846 or 1847, bearing on the contract system of wholesale denudation, after briefly reviewing that, with a foresight almost prophetic sketches in a short but most lucid manner the present state of the Indian forests, and the present scarcity of timber, as accurate in its general bearings as if it had been written only six months ago. Still one and all of these reported articles have met with the same treatment—silent contempt or stolcal indifference to the warnings given by each. Such indifference must have made the position of the heads of the forest department a peculiar and in many respects a most unenviable one—consulted on subjects and their opinions treated with the utmost indifference—superintendents of a system that was steadily yet rapidly bringing the forests to ruin. Their case was only another good illustration of the old story of bricks without straw, with this difference, that I have heard of no instance in which their taskmasters treated them with severity for the nonperformance of impossibilities.

Now that stern necessity, the hardest of masters, has succeeded in arousing the Indian Government out of that state

of torpor in which it has lain so long, brought it to recognise the utility of a better system of forest conservancy than has hitherto prevailed, will it rest satisfied with merely an attempt at improving what is already partially wooded? Or, will it take a broader and more liberal view of the question—not rest satisfied until an effort has been made to again cover these now useless and unproductive wastes with Sal and other useful trees? Then arises the question, What are to be the means employed in bringing about this great reform? Looked at from this point of view, there seems to be but two modes by which that can be accomplished. Regarding the advantages or disadvantages, as well as the difficulties that may attend the working out of either, it is unnecessary to make any remark, as my object is merely to show what may be the character of some of the duties that Indian forest officers will be called on to perform, from which we may be better able to judge of the education that will best fit them for the performance of these duties. Whatever the plan be that is decided on for the filling up of those wastes, the difficulties that will attend the carrying of it out are neither few nor insignificant, and will certainly test severely the skill, patience, and perseverance of those to whom the work is intrusted. As workmen they will have a lot of scheming, lazy, careless scoundrels, an excessively dry and poverty-stricken soil, a burning sun, and hot winds that will make even a Mamillaria shrivel, and periodical fires which may at any instant destroy the most promising of experiments. These are a few of the difficulties that the forest officer will have to encounter and overcome in the discharge of his duties. And how far a knowledge of the habits of Indian trees compared with English ones, land and arterial drainage, &c., will assist him in overcoming these, and others of a similar kind that may from time to time crop up, perhaps your learned correspondent can tell us.

It seems to be thought by some that a course of study in Germany is all but indispensable for those intending to become forest officers. If for the efficient management of a natural forest it required talent of an altogether different and of a far higher kind than for the management of plantations formed by art, it would be easy to see wherein lay the advantages of a German training. Or, if British foresters did not understand how to turn grass, brushwood, &c., to account when there existed a ready market for such-like articles, it would certainly be an advantage both to them and their employers to have them taught. But in India, as in Britain and everywhere else where no market exists for those chips and straws upon which such a high value has been set by some, they must either be left to rot where they lie, or if it be resolved on to turn them to some account, is it not possible that it may cost twopence for collecting and bringing into market an article that may barely realise a penny when there? In a district where the population is both scanty and poor, of course the demand for such articles as "minor forest products" cannot be very brisk—in short, where the distance from a good market is really so great the receipts would not cover the expenses incurred for transit alone. It is not to me clear that a German training, or even a German himself, could make much more out of these chips and straws than a man with only a British training could. Further, neither is it very flattering to the dignity or self-respect of the man who, after months or years of hard grinding to qualify himself for becoming a forest officer, finds that, when the desired goal has been reached, the most laborious and teazing part of his duties is not the superintendence of forest operations proper, but to superintend the cutting of a little grass for string ropes, thatching, &c., or the collecting of a few rotten branches for cooking chupatties for the inhabitants of a few wretched villages in the immediate vicinity—miserable trifles that in many instances might barely pay for the postage, far less the paper used, in correspondence regarding them. And possibly once in seven years a hatti (elephant) may be caught, which will enrich the district treasury by a clear 5*l*. In Germany, in addition to the other little nick-nacks, elephant trapping will, I suppose, be taught gratis. Where a good market exists for those small wares—minor forest products—there will be no lack of men willing to contract for each, or in the aggregate, which would save the forest officer a great amount of time and trouble in looking after the picking up of crumbs, while that which was really worthy of his attention was, in fact, going to the dogs; in which case his chief look-out would be to see that these men did not carry off articles that they had no contract for or no business with, and not trust too implicitly on the reports of his chuprasses and moonshee for a knowledge of what was going on in his division. If in Germany they could show him how not to be done by oily-tongued scoundrels, whose interest it always is to tell a falsehood rather than the truth when asked a question, such a piece of knowledge would be of real use to him in India.

Not having travelled so far as Germany, I cannot from personal knowledge offer an opinion on the system of foresting practised there. Still to me it seems that the very grounds on which its advocates praise it are exactly those on which some would condemn it. It is said that there is no planting-out done there—they trust entirely to self-sowing, in other words, accident, to fill up any vacancies that may occur. Where land is of so little value that they can afford to wait for that, clearly in that respect there is contrast; but no comparison can be made between that and the British system. British land proprietors cannot afford to wait till accidents fill up vacancies in their plantations. The fact of the Germans being able to afford to wait on such a precarious mode of filling up vacancies merely shows that the value of land there is much less than it is in this country. Still I fail to see in that any proof of superior management; the generality of British foresters would feel inclined to characterise the system as lazy and slovenly. The mere fact of their being able to collect straws and chips simply shows that labour is cheap, and coal and iron dear, while the very reverse of that is true of this country—another undoubted proof of the superiority of the German system over the British one. On that subject a great deal more on the law of supply and demand might be said, were it worth while; perhaps sufficient has been said to show that some important facts bearing on that subject have either been ignored or overlooked by those who so loudly praise the system.

Now that the Indian Government recognises the necessity for filling up those wastes already spoken of with something more valuable than Spear-grass and Zizyphus bushes, will it trust to accident, birds, and the wind, or to science and intelligence? If to the latter, which seems the most feasible, whether will the man who has been accustomed to seed-sowing and transplanting young forest trees, or the one who has had no such training, make the most intelligent and efficient forest officer? It seems to be somewhat grudgingly admitted by those afflicted with this Germanophobia that British foresters can show some really fine specimens of forest trees—a few here and there, but in the same breath they tacitly deny that they are capable of doing more. If it were only ten, millions would not be more difficult, given equal conditions or adequate means; or are Germans only capable of doing that? They understand organisation—whatever that may mean—which the British forester is supposed not to do. If by the German system a greater amount of timber of better quality can be grown on a given area, in shorter time, and at a less cost than by any other, by all means let British foresters take a lesson from them; but if it shows them nothing more valuable than how to collect and prepare grass and brushwood for the market, that is hardly worth taking notice of. It seems that the market there for such-like articles is considerably better—from whatever cause—than it is in either Britain or India.

Seeing that the German system has been paraded on so many occasions lately, and in so conspicuous a manner, I shall take the liberty of mentioning a fact which has some indirect connection with that, that its promoters seem never to have heard about, or else have entirely forgotten. Numbers of German horticulturists at one time used to come here, with the view of studying the system practised in British gardens; perhaps so because they considered it inferior to their own, and the fact of their coming here at all was merely to get a comparative knowledge of the two systems. A few still come, but with what object I cannot guess, if it be not with the view of making themselves better acquainted with some important principle or practice than they have the means of doing at home. *Scrupulosus.*

(*To be Continued.*)

REVIEW OF THE GENUS NARCISSUS.—IV.

(*Continued from p. 687.*)

Group III.—PARVICORONATÆ: crown less than half as long as the divisions of the perianth.

Of this group we may define 11 leading types, as follows:—

Limb of the flower horizontal, or nearly so, when expanded; anthers sessile, or very nearly so. Flowering in spring:—	
Crown cup-shaped, 2–4 lines deep, the edge uniform with the rest—	
Leaves glaucous, flattish, ½–⅝ inch broad.	11. TAZETTA.
Leaves subterete, green—	
Flowers 1–2, nearly white, with a tube 12—14 lines long.	12. GRACILIS.
Flowers 3–6, yellow, with a tube 8–9 lines long.	13. INTERMEDIUS.
Crown obconical, uniform, not more than a line deep—	
Flowers white; leaves flattish, glaucous, 3–4 lines broad	14. PACHYBOLBUS.
Flowers bright yellow; leaves terete, bright green.	15. JONQUILLA.
Crown obconical, 1—1½ line deep, the edge different in texture to the rest, and much crisped and crenulate:	
Flowers in pairs; crown with a yellow rim.	16. BIFLORUS.
Flowers solitary; crown with a scarlet rim.	17. POETICUS.
Flowering in autumn:—	
Leaves contemporaneous with the flowers—	
Divisions of the flowers greenish.	18. VIRIDIFLORUS.
Divisions of the flower white.	19. ELEGANS.
Leaves produced after the flower.	20. SEROTINUS.
Limb of the flower campanulate; crown nearly obsolete; anthers shorter than their filaments.	21. BROUSSONETII.

11. N. TAZETTA (Linn. Sp. Plant. p. 416).—Bulb 1½—2 inches thick, copiously tunicated, with brown membranous coats. Leaves 4–6 to a scape, glaucescent, flattish, bluntly keeled on the back, ½—⅝ inch broad in the wild plant. Scape a foot or more high, furnished with two raised lines, and distinctly compressed. Flowers odorous, produced late in March or early in April near London, usually 4—8; the spathe 1½—2 inches long, the lower pedicels exceeding it. Tube ¾—⅞ inch long above the ovary, the divisions of the flower white, rather shorter than the tube, the alternate ones frequently narrower, all much imbricated, bluntish or cuspidate, 4—5 lines broad, spreading horizontally when fully expanded or slightly reflexed; the expanded flower in the wild plant 12—15 lines across. Crown a uniform bright yellow, 2½—3 lines deep, the edge subentire or slightly crenulate or lobed. Anthers sessile, biseriate, the upper ones protruded into the crown.

The above description applies to a plant which is very common in cultivation, and extends in a wild state from the south of Europe, through Syria, Cashmere, and the north of India, to China and Japan. There is a very large number of forms wild in the South of Europe, and known in cultivation, which do not differ from it in any important characters, and which appear to slide into one another so gradually, that it is impossible to individualise them, or characterise them in any definite manner. Of those known in our gardens 30 years ago, 46 are briefly described in Haworth's Monograph under specific names, and recently 26 of the wild ones have been fully described by Professor Parlatore ("Flora Italica," vol. 3, p. 125—156), and 14 of them have been beautifully figured in Jordan and Fourreau's "Icones Floræ Europeæ." To these works we refer any of our readers who wish to study out the subject in full detail. All that we propose to attempt here is to characterise a few of the most striking of these various forms, and to enumerate under each of them the most important or best known figures and synonyms.

SERIES 1.—*Segments of the limb white, crown yellow.*

Var. 1, *lacticolor*.—The typical plant, as just described, of which good figures will be found in Sibthorp and Smith's "Flora Græca," t. 358, and Moggridge's "Mentone," t. 23; *Hermione brevistyla* and *H. Tazetta*, *ex parte*, Herbert and Kunth; *H. formosa*, Jordan, t. 189, *discolor*, Jordan, t. 183, and *pratensis*, Jordan, t. 187; *H. Trevirana*, Sweet, ser. 2, t. 118, Jord. Ic. t. 188 (a large form, common in cultivation, with flowers nearly 2 inches across); *H. floribunda*, Haw. Mon. p. 11, Jord. Ic. t. 181 (large); *N. Cupri*, Sweet, ser. 2, t. 92; *H. crispicorona*, Haw. Mon. p. 11, Jord. Ic. t. 190 (a large-flowered form, with a deep-coloured, crisped corona, ½—⅝ inch broad at the mouth); *H. brachyora* and *curvaticorona*, Haw. Mon. p. 11, and *N. orientalis*, Bot. Mag. t. 940 (nearly or quite the same as the last); *N. patulus*, Lois. Journ. Bot. 1809, 2, 276, the same as *Hermione patula*, Haw. Mon. 11, Kunth, 5, p. 755 (a small form, with the expanded flower 9—10 lines across, tube ½ inch long, leaves 3—4 lines broad).

Var. 2, *medilibrranicus*.—Differs from the last by the narrower divisions of the flower, which are not more than a quarter of an inch broad, not at all imbricated, and more lengthened out at the point. *H. mediterranea*, Jord. t. 185; *H. monspeliensis*, Jord. t. 186; *H. insolita*, Jord. t. 184; *H. ganymedoides*, Jord. t. 182 (divisions slightly reflexed).

Var. 3, *polyanthos*.—Flowers 8—20, 12—15 lines across when fully expanded. Divisions pure white, 4—5 lines broad, imbricated, bluntish or cuspidate, expanding or shorter than the tube. Corona about a third as long as the divisions, at first very pale yellow, finally becoming nearly the same colour as the divisions, slightly plicate, the edge subentire. *N. polyanthus*, Lois. Fl. Gall. 1, p. 236, DC. Fl. Franc. p. 323, Reich. Ic. t. 507; *Hermione polyantha*, Haw. Mon. p. 11, Kunth, vol. 5, p. 757.

Var. 4, *chlorotica*.—Leaves greener and more convex on the back, and their sheaths more nearly tubular than in the foregoing. Expanded flower 1.—1½ lines across; the divisions milk white, half an inch long, much imbricated; the corona citron yellow, with a greenish edge, nearly half as long as the divisions. *N. chlorotica*, Lois. Fl. Gall. 1, p. 236, DC. Fl. Franc. 5, p. 325; *Hermione chlorotica*, Haw. Mon. p. 8, Sweet, Hort. Gard. ser. 2, t. 179, Kunth, 5, p. 752. This var. connects Tazetta with the two next species.

SERIES 2.—*Crown and segments of the limb both pure white.*

Var. 5, *papyraceus*.—Leaves glaucescent, ½—¾ inch broad; stem ancipitous; expanded flower 1½—1¾ lines across; the tube greenish white, 8–9 lines long above the ovary; the divisions pure white, 3—4 lines broad, generally narrowed gradually to a point, and moderately imbricated; crown 2—2½ lines deep, with a crenulate edge, just the same colour as the divisions. *N. papyraceus*, Gawl. Bot. Mag. t. 947 (1806), Moggridge, Cont. Ment. t. 70, Parl. Fl. Ital. 3, p. 125; *Hermione papyracea*, Haworth, Herb. Kunth; *N. canaliculatus*, Vent. Hort. Malm. t. 26; *N. canaliculatus*, Tenore, Fl. Neap. 1, p. 144, t. 26; *N. aureus*, Lois. Narciss. p. 37 (1810), Gren. and Godr. Fl. Franc. 3, p. 260, Reich. Ic. t. 815.

Var. 6, *Panizzianus*, bears the same relation to the last that *patulus* does to *lacticolor*, that is, it is more slender and smaller in all its parts; expanded flower 9—10 lines across; corona subentire, pure white, ¼—½ the length of the limb. *N. Panizzianus*, Parl. Fl. Ital. .. p. 128, and excellently figured by Moggridge, Cont. Ment. t. 71.

Parlatore's two other species of this series, *N. Barlæ* and *N. Gennarii*, we have not seen.

SERIES 3.—*Crown and segments of the limb both yellow.*

Var. 7, *italicus*.—Scape slender, distinctly two-edged, producing 6—10 flowers; expanded flower 1½—2 inches across; the divisions 8—10 lines long, about equalling the tube, narrowed gradually to a point, slightly imbricated, pale lemon-coloured; crown sulphur-yellow, 2—2½ lines deep, distinctly 6-lobed. *N. italicus*, Bot. Mag. t. 1188; *H. italica*, Haw. Mon. p. 12; *H. italica*, Herbert and Kunth, *ex parte*; *N. præcox*, Tenore, Fl. Neap. 1, t. 27; *N. sabulicolus*, Lois. Fl. Gall. 1, p. 236.

Var. 8, *chrysanthus*.—6—10 flowered, the flower smaller than in the last (about an inch across), the divisions of the limb more imbricated, but still narrowed to a point, a distinct lemon-yellow; the crown subentire, golden-yellow, about 2 lines deep. *N. chrysanthus*, DC. Fl. Fr. 5, p. 323; Gren. and Godr. Fl. Fran. 3, p. 259; *N. italicus*, Herb. and Kunth, *ex parte*; *H. chrysantha*, Haw. Mon. p. 12; *H. Bertolonii*, Jord. Ic. t. 192; *H. chlorotica*, Jord. t. 191 (very pale flower, only 8—9 lines across).

Var. 9, *aureus*.—Expanded flower 12—15 lines across, the divisions bright yellow, ½—⅝ inch long, 4—5 lines broad, bluntish, and much imbricated; the crown subentire, about a third the length of the divisions, a deep orange-yellow; the tube exceeding the limb. *N. Tazetta*, Bot. Mag. t. 925, Redouté, Lil. t. 17, Reich. Ic. t. 813; *N. aureus*, Lois. Herb. Am. t. 147, Moggridge, Ment. t. 22; *Hermione aurea*, Jord. t. 194; *H. Tazetta*, Herb. and Kunth, *ex parte*; *H. cupularis*, Salisb. Hort. Trans. 1, p. 361; *H. solaris* and *latifolia*, Haw. Mon. p. 9.

A crowd of Haworth's species (as H. sublutea, perlutea, flaveola, deflexicaulis, and trifida) appear from the descriptions to range between our varieties 8 and 9. N. Tazetta, then, in the broad sense of the term, as here defined, includes all the Narcissi with broad glaucescent leaves, and a cup-shaped crown, from a quarter to half as long as the divisions of the perianth.

12. *N. gracilis* (Sabine, Bot. Reg. t. 116).—Bulb ovoid, an inch or more in thickness. Leaves 4—6 to a scape, bright green, very convex on the back, not more than 2½—3 lines broad, equalling the scape. Scape slightly compressed and two-edged, a foot high, producing 1 or 2, or rarely 3 flowers, about the last week in April near London. Lower pedicels 1½—2 inches long, about equalling the spathe. Tube 12—14 lines long, exclusive of the ovary, about a line in thickness. Expanded flower 1½—2 inches broad, pale sulphur-yellow, the divisions obovate-cuspidate, spreading horizontally, ⅜—½ inch broad. Crown 2—2½ lines deep, cup-shaped, ⅜ inch broad at the mouth, slightly plicate and crenulate, uniform in texture, a rather deeper yellow than the divisions. Anthers biseriate, subsessile, the upper three reaching into the crown. *N. gracilis*, Herb. Amaryl. p. 316, Kunth, vol. 5, p. 732, Sweet, Fl. Gard. ser. 2, t. 316; *N. tenuior*, Curt. Bot. Mag. t. 379; *Helena gracilis* and *tenuior*, Haworth, Mon. p. 13; *Hermione tegulæflora*, Salisb. Hort. Trans. 1 p. 363.

Well-known in cultivation but never matched with any wild plant. Probably a hybrid between some of the varieties of Tazetta and poeticus; it has the leaves and general habit of N. poeticus var. radiiflorus, but the flower is different. It may be the N. angustifolius of Wildenow, and if so that is its oldest name, but it is not the plant figured under that name by Curtis.

13. *N. intermedius* (Lois. Gall. 1, p. 237, t. 7).—Bulb ovoid, an inch or more thick. Leaves 3—4 to a scape, subcylindrical, deep glossy green, about equalling the scape, 2½—3 lines broad. Scape a foot or rather more high, green, subterete. Flowers 2—5, the longer pedicels equalling the spathe. Tube 8—9 lines long, exclusive of the ovary, about a line in thickness. Expanded flower 12—15 lines across; the divisions obovate-cuspidate, lemon-yellow, 5—7 lines long, 4—4½ lines broad, much imbricated. Crown 2—2½ lines deep, slightly deeper in colour than the divisions, the edge a little plaited and crenulate. Anthers biseriate, subsessile, the upper ones protruded into the crown. DC. Fl. Franc. 5, p. 325, Gren. and Godr. Fl. Franc. 3, p. 258, Moggridge, Cont. Mentone, t. 41; *Hermione intermedia*, Haworth, Mon. p. 7, Kunth, 5, p. 751; *N. biflorus*, Gawl. Bot. Mag. t. 1186; *Hermione biflora*, Herb. Amar. p. 320; Kunth, 5, p. 728; *H. bifrons*, *paradisiaca*, and *bicrenata*, Haw. Mon. p. 78.

Var. *radiatus*.—Divisions of the flower oblong-lanceolate, less imbricated; crown 6-lobed. *N. radiatus*, Red. Lil. t. 459; *N. tripartitus*, Hornem. Hafn. p. 316; *Hermione conspersa*, Haw. Mon. p. 7.

A native of Spain, the South of France, and the Balearic Islands. Intermediate between Tazetta and the Jonquil; but both this and the last, though easy to know, when living, by their leaves and general habit, are scarcely to be distinguished from Tazetta in dried specimens. The three taken together may be known from all other Narcissi by the cup-shaped crowns, from a quarter to a third, or in extreme cases nearly half, as long as the divisions of the limb of the flower.

J. G. Baker.

Home Correspondence.

The Hamburgh International Exhibition. — It is gratifying to me, as one of the victims of those who projected the above exhibition, to observe that their conduct has come under the lash of the *Gardeners' Chronicle* in last Saturday's publication; and in corroboration of what is there hinted at, allow me to give as an instance of the unfair treatment foreign exhibitors received, some account of my own case, which will perhaps be better explained by the publication of the copy of a letter I addressed to them through their Secretary, but of which, up to this date, they have taken no notice:—

"The Gardens, Daikeith Park, September 2, 1869.

"Sir,—I sent my son to your exhibition with the three bunches of Grapes I entered for the cup offered by the Queen of England, and I have just received the following telegram from him:—'Meredith 1st; been disqualified; prize altered from three bunches to a collection.' Now, if I understand this right, it means that you have given the cup to a large collection of Grapes instead of to three bunches; and in the name of all that is fair and honest, I protest against such a change, and claim the cup, if my three bunches were the best that were exhibited, and properly entered as three bunches for the prize in question. The *Gardeners' Chronicle* has been the English organ of the exhibition, and on July 17 the following paragraph appeared in it:—'We learn officially from Hamburgh that the Queen's Silver Cup is to be given to the best three bunches of Grapes.' On the faith of this announcement I wrote, and entered three bunches for the cup, and added, that if I were wrong in supposing it was to be given for three bunches, I begged to be corrected. The only reply I got was a certificate that I had entered them, and a card to place on them, which was an acknowledgment that I was right, and I sent three bunches of Grapes, weighing over 13 lb., at great expense to myself; and I now demand an explanation of what appears to me to admit of none, except that of keeping faith with me, or any one else more deserving, and who may have complied with your terms. In conclusion, I beg to say that I will accept of no other prize for my Grapes from you, except that for which they were entered. Waiting your reply, "I am, &c.,

"Dr. Gotze, Secy." "W. THOMSON."

I may as well state here, that in the printed schedule of the prizes, the cup was offered for three bunches of Grapes in three varieties; and of the whole exhibitors I alone complied with this rule, which would have been binding on any set of judges in Britain, where men have respect for truth and honour—matters that are at a discount amongst those who conduct such exhibitions as that under consideration. For the information of all who may venture across the Channel as exhibitors on any future occasion, I may state that my son left his box of Grapes, on the evening before the first day of the exhibition, locked in in a building on the exhibition ground, along with those of other exhibitors; and when he returned to set them up next morning he found the other exhibitors arranging their Grapes, and his removed from the place where he left them to another part of the building. He looked at the fruit on the evening of their arrival, and found them as sound as when packed, but when he opened them on the morning, a limb was broken off one bunch, and more than a score of berries torn out of the others; the box bearing evidence that it had been repeatedly lifted and dashed on the ground to destroy the Grapes—a proceeding too contemptible to be characterised in the English language. *Wm. Thomson, Dalkeith Park, Sept.* 20. [Mr. Thomson writes under a feeling of great irritation, as well he may, for, whatever answer may be made to some of his allegations, it is abundantly evident that he has been badly treated. We understand that a deputation of the British exhibitors waited on the President of the exhibition to solicit an explanation of the alteration from "the best specimen" to "the best assortment." The answer given, as we learn, was this, that the cup was to have been for the best specimen, but on the receipt of the cup from England it was found to have engraved upon it, "for the best assortment." The Queen was communicated with by telegraph, and is stated to have replied that she decided for an "assortment." Now, it is clear that the matter was never properly represented to her Majesty. Her name and character have been most improperly traded upon. She would, we are convinced, never have consented to any alteration in the schedule made at the last moment. Moreover, as we further learn, the statement that the cup bore the inscription "for the best assortment" is a—well—a mistake; the words on the cup, as seen after the awards had been made, were "for the best specimen." We do not go so far as some of the exhibitors do, and make a charge of intentional unfairness on the part of Continental judges at these international exhibitions; we simply say, that they sometimes manifest a perfectly childish view of the nature and objects of a free open competition, more nearly akin to the absurd farce enacted at some infant schools in this country, where every little dear gets a prize, and the most stupid one gets the "good conduct" prize! If by some accident, impecuniosity of the mistress, or what not, some Young Hopeful fails to get a prize, he or she is encouraged with the promise of one next time if he or she be good. We believe, odd as it may seem, that the freedom of our political system, as compared with the more despotic bureaucratic Government under which our foreign friends live, has much to do with the complaints that have reached us from almost all the international exhibitors. We ought to add that our former remarks were written before we had any direct communication with any exhibitor, and were suggested by the reports of our correspondents. EDS.

Cedars of Lebanon.—There is a good number of very fine specimens of this Cedar growing in the park and grounds here, although none with a bole so large as some already described in your columns. There are several that girth from 12 to 17 feet, with branches extending over an area of 250 feet, and from 70 to 85 feet in height; most of them are of a beautiful symmetrical growth. One specimen that measures 14 feet at 1 foot from the ground, has a clean stock to 20 feet high, and at 35 feet it girths 6 feet 6 inches. Many who have seen it consider it to be the finest piece of Cedar wood in this country. Fourteen, however, of the largest and handsomest ever grown on this place were laid low by the fearful gales that swept over the west of England and did so much damage on January 10—11, 1866. Most of the above specimens, as nearly as I can ascertain, were planted from 90 to 100 years ago. Will you allow me to ask to what age the Cedar of Lebanon is likely to maintain its health and vigour in this country? From the appearance of many of the majestic specimens growing here, I fear they will soon pass away. Many of them have assumed a sickly appearance during the last four seasons; how long they had previously worn that garb I cannot say. I have particularly noticed this unhealthy look on a specimen at the back part of the kitchen garden. With a bole 12 feet 9 inches in circumference, at 10 feet from the ground it threw up several branches almost perpendicularly, each, comparatively speaking, a good sized tree in itself. Last April the wind broke off two of these monster branches, at the axils of which a large number of rootlets had formed and descended far into the stock of the tree, where there is not the slightest trace of decay; the remaining part has since been thrown, and the same rooting process prevails throughout the whole stock. The young rootlets appear as if they were feeding greedily on the parent stem. Have any of your numerous correspondents noticed similar instances elsewhere? The soil in which they are growing is a good, rich, moderately stiff, loam, resting on a light gravelly subsoil, which, I am inclined to think, contains a large percentage of iron. The locality is considerably elevated above the sea level, the bracing air of which the Cedar of Lebanon appears thoroughly to enjoy in the young stages of its growth. *T. Foote, Gr., Haldon House, near Exeter.*

Iris (Vieusseuxia) Pavonia.—Can any of your correspondents give me any information as to the cultivation of Iris Pavonia? I have grown it both out-of-doors and in pots in a cold greenhouse, but cannot get it to flower; it throws up its leaves only. *A. W.* [A beautiful old neglected flower. EDS.]

The Holme Park Lettuce.—In your remarks, p. 947, on Messrs. Sutton & Sons' seed establishment, it is therein stated that "a new Lettuce, named Holme Park Green Cos, is a large serviceable-looking variety, not yet sent out." We think it but justice to ourselves to state that we had the pleasure of distributing seed of this valuable Lettuce for the first time in the spring of 1866, and advertised it largely, so that it cannot now be called a "new variety," or that it is "not yet sent out." It is now pretty well known, although the seed has never been plentiful, owing to the difficulty of getting it to run to seed. We have had it very fine in our trial grounds for some weeks past. Before we sent this Lettuce out we sent it to Mr. Fairbairn, of Sion House, to Mr. Rose, now of Frogmore, and to Mr. Thomson, of Archerfield, for their opinion of its merits. Mr. Thomson described the Holme Park in the "Scottish Gardener" as follows:—"Last summer amongst other varieties, such as the Alma, Moore Park, Neapolitan, and several others, I grew the Holme Park, and found it the very best for a hot season, as it stood far longer than any of the others before it ran to seed; and in other respects it is first-rate, being large, crisp, and sweet, and does not require tying up, but forms itself into a compact-hearted Lettuce, something in shape like the Barrack Cabbage. I can strongly recommend this variety to all who esteem fine Lettuces in the heat of summer." It is, like Rowden's (not Bowden's) Brown Cos, black seeded, and not white seeded, as described in last week's *Gardeners' Chronicle*, see p. 995. *Stuart & Mein, Kelso, N.B.*

Black Currant Mite.—I perceive that Mr. Andrew Murray (p. 921) has suggested that this little insect should have a scientific name attached to it, and has proposed for it the name of Acarus Ribes. It is quite true that, as our knowledge of the creature is at present very incomplete, especially with reference to its supposed perfect condition, I hesitated to give it a name; but as a specific one would certainly be convenient, and as it is usual to form the specific names of insects attached to special plants by the genitive case of the latter, the name of Acarus (?) Ribis-nigri may be given to the insect in question, the generic name being provisional. *J. O. W.*

The Lady-birds.—So much has been written of late respecting these beautiful little insects, that it is quite natural that the rising generation should be inquisitive, and require to know something of their mission, business, and habits, and where they and their friends the aphides really spring from. There are many people who go up and down the world in their several ways without greatly troubling themselves as to how it is made up or inhabited, or without observing for themselves Nature's various, curious, and wonderful ways, until they are tickled all at once by something wonderful in vegetable, insect, or animal life. The habits and mission of the Lady-bird have possibly been quite as well known to some, for ages past, as they are now. When a boy I have heard my father, as well as older men with whom I worked, talk about the good they did in destroying the greenfly, and was always desired not to kill them. The beetle has been accused by some of eating fruit; that, too, was observed in olden times. When their insect mission was over, at the end of the season, they have been observed creeping into holes that had previously been made by birds, wasps, flies, or earwigs, in soft, ripe fruit, both on the trees and on the ground. This does not really constitute them fruit-devouring insects, any more than it does the bold and enterprising sparrow. This bird has lately been accused by the Secretary of the Australian Naturalisation Society of devouring the fruit. I have no doubt but that this bird occasionally likes the taste of fruit when insects are scarce. I have seen sparrows eat ripe cherries near towns; they will also eat corn, and green Peas, and will nip off any kind of green stuff that may spring out of the soil in spring, but that does not constitute them wholly vegetarians. The immense amount of good they do in destroying insects, in the season, is well known. *James Barnes.*

Blackberries and Barberries, if mixed in a similar manner to Currants and Raspberries for pies, puddings, tarts, &c., will be found to be quite as good as the latter. The Barberry entirely rectifies the faint mawkish taste of the Blackberry, and imparts to it a very rich flavour, much resembling Cherries. Whoever tries it will never more neglect the Blackberry and the Barberry. They may be considered the most abundant native fruits we have, and if used in this manner there is no reason why the dish should not become more popular. *C. S. W., Alton.* [A capital suggestion. EDS.]

Sambucus racemosa.—How is it that this beautiful shrub, the scarlet-berried Elder, is not cultivated in England to a great extent? Its appearance at this time of the year is most brilliant, and although described as a native of the middle and south of Europe we have lately seen it growing in the greatest luxuriance in Denmark, Sweden, Finland, and Russia, in plantations and gardens, the most beautiful specimens having been noticed at Abo, on the Gulf of Finland, growing to the height of 10 or 12 feet, and forming a thick bush. In its leaves and general habit it is quite like the common Elder, but its panicles of fruit, resembling miniature bunches of Grapes, of intense scarlet, render it the most beautiful wild fruit we have ever seen. *I. O. W.*

Alicante Grapes.—At the cottagers' show held at Latimer on the 14th inst., two bunches of Alicante Grapes were exhibited by Mr. Clements, gr. to G. G. Hill, Esq., Blackwell Hall, Chesham, that weighed a little over 14 lb. They were the finest bunches of the sort that I have ever seen. *A. Donaldson, Latimer, Chesham, Bucks.*

Chocolate Cake.—Will any of your correspondents be good enough to inform us what is the amount of nutriment in the constituents of chocolate, in comparison, say, with cheese, and whether it is pronounced to be less digestible or otherwise? *Pater.* [Chocolate, according to "Watt's Dictionary of Chemistry," contains large quantities of fatty matter and vegetable albumen, and about 2 per cent. of theobromine, which resembles caffein. The ash is very rich in phosphoric acid; Payen's analysis of cocoa beans gives 52 per cent. fatty matter, 20 albumen and fibrine, 2 of theobromine, 10 starch, and other matters. The same author's analysis of Cheshire cheese gives 25—36 per cent. of fatty matter and 5—8 per cent. of nitrogen. Weight for weight, we suspect cheese would contain more nutriment than cocoa, but with the majority of people it is not so easy of digestion. EDS.]

Cinchonas at St. Helena.—The following extracts from a letter from Mr. Chalmers, the Government gardener at St. Helena, on the present state and future prospects of the Cinchonas in that island, may not be without interest to the readers of the *Gardeners' Chronicle* as a continuation of notes on the same subject, published in this Journal a few weeks back. The letter is under date of the 11th of August last, and Mr. Chalmers states that by the end of last month he expected to have 500 plants permanently planted out, which would conclude the planting out for the present season. The weather after September till about April, being drier, is less suitable for the operation, and therefore that time will be taken up in propagating and preparing nurseries, and in getting the ground in order for future planting when the rainy season sets in again. The plants are all in excellent health, and have a fine green vigorous appearance. The tallest, a Cinchona officinalis, which was raised from seed, is nearly 3 feet high, and promises to do well. A plant of C. succirubra growing in the propagating house measures 20 inches in height, with a circumference of 2 inches round the stem, at a foot from the ground; its largest leaf is 16 inches long by 12 inches broad: this plant was raised from seed, and is not more than nine months old. A plant of C. officinalis of the same age, and growing in the same house, is 24 inches high, and is much branched and very healthy, but it has smaller leaves. The other young plants not yet planted out are chiefly in boxes, and will be transferred to the nursery beds as soon as they are large enough to bear exposure to the open air. They number about 4000. Mr. Chalmers states that he has not thought it necessary to increase the stock to a greater number than it is likely will be wanted for planting out in the island; but should it be found necessary at any time so to increase it, he believes that in a short time a sufficient quantity might be raised to meet all reasonable demands. In the introduction of other plants, such as fruit and timber trees, much has been done, from seeds sent from Kew; Mr. Chalmers says as many as 15 new species of Coniferous timber trees will be added to the island. It seems, however, difficult to make the people appreciate such things, their aim being the introduction of edibles or such plants as will yield a quick return. *J. R. Jackson, Kew.*

Variegated-leaved Orchid. — On looking over a collection of Orchids imported from Guatemala this spring, and now growing strongly, I noticed one small plant with very prettily striped leaves, in the colouring of which yellow predominated over the usual green, and the green was in longitudinal stripes. Is this common amongst Orchids? *W. T.*

Wellingtonia gigantea.—A beautiful specimen of this ornamental tree is thriving amazingly on this estate; the situation is moist and rather shady, at the bottom of a high sloping hill, and close to a Watercress bed, which is supplied with water from numerous springs gushing out of the hill-side. The dimensions of this gem, which is unrivalled for beauty and unsur-

passed for hardiness, is as follows:—Height, 28 feet; circumference of stem, 1 foot from base, 4 feet 1 inch; ditto, 4 feet from the base, 3 feet; ditto of branches, 43 feet. It was planted about eight years ago, and was then about 4 feet high. *George Berry, Longleat, Wilts.*

——All the specimens of Wellingtonia gigantea in this quarter, by which I mean within a circuit of ten miles or more of Dublin, are progressing in the most satisfactory manner, and as a consequence the interest in the tree remains unabated. I have quite recently had opportunities of seeing many, and from inquiries on the spot learned that neither the cold of winters nor the drought of the two last summers has at all affected them; the trees themselves bear evidence to this, although planted in various soils and positions. It is very gratifying to have to record these facts. Our oldest specimen here was planted in the spring of 1856, and its height, when measured in the month of March last, just previous to its commencing growth for the present year, was 26 feet 4 inches, and I cannot add that either soil or situation are particularly favourable. It may interest some, in the future, to record here that this plant is one of the original batch raised and distributed by the Messrs. Veitch, of Chelsea. Permit me also to record that a cutting taken off this plant in 1857 is now a well-formed specimen, 12 or 14 feet high, and growing in the grounds of the Viceregal gardens. There is a slight difference of character amongst them—some grow tall and tapering, and keep very pyramidal, others are dense and extend laterally more in proportion to the height. I may also add that, in the adjoining county of Wicklow, Viscount Powerscourt has had considerable numbers planted, with a view to test their value as forest trees; and I have heard that they are all thriving well. *D. Pressley, Knockmaroon, near Dublin.*

Mushroom Culture.—How much we are indebted to Mr. Robinson for the information which he has brought to light from the deep Mushroom caves of France, time alone will tell. But this much may be said, that the battle of the cordon can be scarcely fought over in the Mushroom, unless it be to bury Monsieur in his own cave by joining with him in the enterprise. That one house out of the many should export to this country no less than 14,000 boxes of these *bonnes bouches*, is sufficient of itself to lead us on to battle. And when it is true that various branches of English industry have sailed away from us in all directions, it is but reasonable that we should look out for and probe the vulnerable parts of the commerce of other nations, and help ourselves, that the balance may be properly adjusted. The enterprise would have to be entered into largely before one could fully ascertain how far the culture of the Mushroom might become subservient to that purpose, entailing considerable foresight on the parties who would make the venture. The question is not one of cultural ability, but more of capability. We can grow the Mushroom as well as our neighbours across the Channel, but we cannot grow it like them. Down in their capacious caves they grow them by the hundredweight daily; whilst here, if the beds produce a basketful of pottles in the same time, the cultivator is in mighty strength. Therefore the gist of the question would lie in the suitableness of sites for operations, not only for the culture of the Mushroom, but also as affording ready means for the transportation of material. There are plenty of caverns and other waste places in which Mushrooms might be grown with advantage, but the object of this paper is not so much to examine their capabilities as it is to bring before the notice of intending operators a material which would be found as good, if not more so, for the production of Mushrooms, than that which is at present employed, and that is no less than the accumulated street sweepings of our large towns. Thousands of tons of this material must be swept up weekly, and if it be examined in the aggregate, it will be found admirably adapted for the culture of Mushrooms. The particles being composed of the very essence of the substance most desired by horticulturists, and fit for immediate use, do not constitute its chief merits; it also would be found cheaper than the material at present used, which, according to Mr. Robinson's account, takes several weeks in preparation before the beds can be formed. Now, street-sweepings can be bought for a third of the price which has to be given for horse-manure, and at the same time goes further, retains a sweeter heat longer, and is less liable to decay than the manure brought from the mews; important advantages, which must not be lost sight sight of by the cultivator. Of course it must be strictly understood, that what is meant by street sweepings is not the heavy, wet clotch of the roads, or the mud out of the sewers, but simply the dry sweepings of the traffic of the streets, stored up in the depots of nearly all our towns. Seeing what a great quantity of sovereigns are changed into Napoleons over those delicate morsels, the enterprise whereby we could make that quantity less by putting them in our own pockets is certainly worthy of a trial. And if our caverns and exhausted mines have never produced gold nor silver in the nugget, we might be able to make them continue to produce that which has value in the coin. The silver mines in the cold regions of Siberia are the great depots for receiving Russian law-breakers, and it is questionable whether it would not repay the Government of this country to transport some of our finely-nursed convicts to the caves under the bleak hills of Derbyshire and elsewhere, to prepare the way for the future development of Agaricus campestris. Forced to keep our convicts at home, prisons, which have no terror for offenders, and which soon will be inadequate, have been erected at great cost to the country. And why build more prisons while those caverns remain unoccupied. Parliament can possess itself of nearly anything; and why not possess itself of caverns for the lodgment of offenders? And if more offenders could be made to add to the wealth of the country by growing Mushrooms for the million, so much the better. It would take nothing away from the flavour of the Mushroom, and probably it would give the poor as well as the rich the satisfaction of knowing that they were consuming something produced by those who were paying the just penalty of their crimes. *Andrew Meikle, Read Hall, Whalley.*

Pot Vines at the Royal Caledonian Horticultural Society.—In your issue of last week, Mr. M'Leod says "that it was clear to the most inexperienced that the pot Vine to which was awarded the 1st prize in its class, was nothing but a clumsy subterfuge, such as ought not to be encouraged, &c."! As I happen to be the winner of the prize alluded to, I must say that, had Mr. M'Leod taken a little trouble to inquire into the case before rushing into print with his supposed grievances, it would have saved him a vast amount of trouble. With your permission, I will briefly state how my Vine was grown:—It was planted in 1867, and grown in the same pot till the day it was exhibited at the International Flower Show in Edinburgh. It stood in a flat at the top of the hot-water pipes the whole of the time, and derived no nourishment whatever from any source but what was supplied in the pot and the saucer or flat. Now this I consider a pot Vine in every sense of the word, but if I am mistaken, Mr. M'Leod will perhaps kindly undertake to give "a hint as to what is uniformly understood among gardeners as a pot Vine." I may mention that I had not the slightest intention of exhibiting my Vine at any horticultural meeting till August 5, when Mr. P. S. Robertson, nurseryman, Edinburgh, called, and, on going through the vineries, told me if I took it to Edinburgh it would take 1st prize. I took it there, gained the 1st prize, and I leave it to the public if it was not honestly won. If this statement of facts does not satisfy Mr. M'Leod, I shall be most happy to refer him to different gardeners who have seen the Vine in its different stages of growth. *Andrew Turnbull, Gr. to James Brunton, Esq., Broomlands, Kelso, N.B.* [We have received other letters in corroboration of the above. EDS.]

Foreign Correspondence.

CENTRAL PARK, NEW YORK.—When the late Mr. Downing visited England nearly 20 years ago, he was struck with the size and dignity, so to speak, of our public parks, more especially Hyde Park, and said that they had nothing like them in America. On his return, therefore, his first object was to impress upon his countrymen the importance of having parks for public recreation in all respects worthy of his native land, to the improvement of which he was so much devoted; and owing to his acknowledged good taste in all matters connected with rural embellishment, his pleadings in behalf of having parks comparable with those of what is termed "the old country" were listened to with attention. The result has been the possession by nearly every town in America of a public park commensurate with its individual requirements. Until a comparatively recent period New York itself could boast of no park worthy of such an appellation, but now it has its Central Park, which may be safely said to equal anything of the kind in any other country.

Some 10 or 12 years ago a prize of 2000 dollars was offered for the best plan for this park, the lucky recipients of which were F. L. Olmsted, Vaux & Co., a firm which, it must be owned, has done ample justice to the confidence reposed in it. The Central Park is about two and a-half miles long and half a mile wide, bounded on the sides by straight parallel avenues, and at the ends by streets crossing these at right angles. It is enclosed by a rough dry stone wall 4½ feet high, in which there are to be park gates at convenient intervals. There are also several stiles for the admission of visitors on foot. The area enclosed is about 768 acres, of which 136 acres are occupied by reservoirs, from which the city of New York is supplied with water; of these reservoirs one is square, the other irregular in outline, the latter covering about 106 acres. Unfortunately these reservoirs are not under the control of the garden architect, but under that of the park commissioners. Owing to this cause, they are too much elevated for the water within them to give the best effect in the landscape. They, however, practically divide the park into two portions, the northern, or upper park, containing 160 acres, and the lower park containing 331 acres, while the connecting grounds, lying on both sides of the reservoirs, comprise 135 acres.

It is then subdivided by four thoroughfares, one crossing it between the reservoirs, one at each end of them, and the remaining one near the middle of the lower park. These are so constructed, by means of tunnels and other contrivances, as not to obstruct the view, or practically effect any division of the park; and they furnish the means of direct transit across the park for business purposes, without causing any inconvenience to its visitors. In the lower park large tracts formerly covered with stagnant water have been drained; and 10,000 loads of stones have been conveyed to the borders of the park, furnishing materials for the construction of the present enclosing wall. The site for this portion of the park was very rocky, there being, with few exceptions, scarcely an acre in which the great underlying ledge of gneiss did not thrust itself above the surface.

Some might be apt to think the selection of the site just described an unfortunate one; and it was so as far as heavy expenditure is concerned; but the artistic effect is much finer than could possibly have been obtained upon a tract of the richest and most easily worked land, the natural outlines of which are tame and without character. Grass and shrubbery can be formed anywhere, but great rocks and those forms of earth's surface which are only found in Nature where rock exists, can seldom be imitated on a large scale with perfect success. By taking advantage of the features just indicated this portion of the park has been made to resemble a charming bit of rural landscape, such as is seldom if ever found within the limits of a large town.

Breadth was, however, wanted, and to obtain this, three considerable pieces of ground have been cleared of all obstructions, and brought to a comparatively level surface. One of these, near the centre of the lower park, presents about 30 acres of level surface or slightly undulated ground, forming a reach of turf, about a quarter of a mile across, unbroken by a single road or footpath. This, upon special occasions, is used for military displays; ordinarily, however, it is like a large country green or open common, a place where children may run about and play until they are tired and without danger of being run over or injured if they fall. This green is bounded on the north-east by a rocky ridge, which has been reduced by blasting 16 feet, thus throwing open from opposite points the two finest views in the park.

The rock and earth removed from the ridge, together with that taken from a low hill some distance to the southward, have been used to fill a swamp lying east of the green; and this being further covered with earth to the depth of 4 feet, an additional level space has been obtained of about 80 rods in length and 12 in breadth, only separated from the green by a slight depression of the surface, through which passes a carriage road. This spot is planted with four rows of American Elms, forming a broad promenade or mall, with a fountain at either end, seats for visitors, and accommodation for an orchestra. At its southern extremity gentle slopes of turf, and little broken rocks and planted banks, conduct to a lawn-like surface, called the eastern plateau. Views of an open and pastoral character are thus obtained for a quarter of a mile in either direction, terminating in a forest-like background, having from its ruggedness a peculiar picturesqueness of effect.

Valleys occur in the southern portion of the park, and in its centre the middle portion of the western part of the central valley has been made more spacious by the removal of the smaller rocks and the earth that surrounded the larger ones, so as to form a shallow basin of irregular outline. This basin is almost entirely occupied by a lake nearly 20 acres in extent. The view across this from the most favourable point is of considerable breadth, and is entirely unbroken for upwards of a quarter of a mile. This lake is used as a skating lake in the winter, and for which purpose it has been specially prepared—a small portion at the upper end being separately dammed, in order that water may be kept in it some 12 feet higher than the intended winter level of the remainder of the pond, to be used for flooding the ice when rendered unsuitable for skating by snow and other causes.

The whole breadth of the park is brought into this landscape, the foreground of which is enriched with architectural decorations and a fountain; the middle distance composed of rocks, with evergreens and masses of dark shrubs interspersed among them, reflected in the lake; and the distance extended into intricate obscurity by carefully planted shrubs of lighter and more indistinct foliage disposed among and above the grey rock of the background. This hill-side, being isolated in position, is crossed by no road, but is entirely laid out with secluded walks bordered by shrubberies. The bell-tower at the summit offers the best position from which to obtain a bird's-eye view of the whole park, and which at the same time serves as a means for the overseers to transmit by signal orders to the workmen at a distance. Thus much for the lower park. The natural surface of the upper one is much more homogeneous, and it has been treated in a correspondingly simple manner. About midway between the east and west boundaries are two connecting plateaux of turf, amounting to about 18 acres, and these take up nearly all the space for ornamental purposes which the rocky ledges leave available. As regards roads and walks the sunken and tunneled thoroughfares across the park render pedestrians safe from all danger of being injured by horsemen or carriages. Several miles of broad gravel walks have also been carried under arched passages beneath the drives, by means of which all parts of the park may be traversed on foot without encountering a single carriage or horseman. The rides are everywhere distinct from the drives, but horsemen can enter the carriageway if they choose. Footpaths also generally accompany the drives on one or both sides, within convenient conversing distance. An arboretum of about 40 acres has been planted in as natural a manner as possible, consistently with convenience for study; it is intended to contain specimens of every tree and shrub native to the North American continent that will live in the park in the open air. Scattered throughout the park are also some good examples of trees and shrubs introduced from other countries; but some account of these and other matters of special interest connected with this park must form the subject of another letter. *Joseph Newton.*

SOUTH AMBOY, NEW JERSEY, UNITED STATES: *Sept.* 5.—The fruit crop, with the exception of small fruits, seems to be a general failure in Europe. It is, however, fully balanced by the abundance here. The small fruit crop has been extra good. On one day there were 400,000 quarts of Strawberries sent to New York. Now the Peach crop is in; it commenced, in quantity, about six weeks ago, and will probably last five or six weeks longer. The Peach is everybody's fruit here. I saw it hawked about the streets by waggonloads at 5 cents, or 2*d.* a quart, and the fruit was quite equal to the best outside Peaches in England; very fine fruit sold for about 2*s.* 6*d.* the half bushel basket. One railway brought into New York 110 cars of Peaches one morning—each car brings 500 baskets—and some of the Delaware growers have their own steamboats for conveying, so that you may imagine

the extent of the trade, when other cities are supplied after the same rate. Tomatos are plentiful, and worth about 30 cents a bushel; in some places they are feeding cows with them, for which they are said to be good. Potatos are a good crop, as you may judge when I state that it is difficult to obtain 3s. per barrel for prime samples. A large grower told me a few days ago that he only received, in New York, 17 cents per barrel, or not quite 7d. English, for a lot, after deducting expenses of barrels, freight, &c. They are now bringing over fruit from California, and wonderfully fine it is; but the Grapes, so far, have been knocked about too much on the road. The Lemons are as large as good Shaddocks, and the Pears much like the Channel Islands fruit, but of better flavour.

We have had long-continued dry weather here, although in some parts it has been quite a wet summer. The season has, however, been cold for this country; on many nights the temperature has been below 75°, and rarely up to 80°. It was very cold for several nights, and days too, last week, the thermometer being down to 42° on the morning of September 1. At New York there was a slight sleet shower; near Boston 4° of frost, ice 2 inches thick on the telegraph wires, and ice on the ponds, but it is warmer now, 86° in the shade to-day. *James Taplin.*

Societies.

ROYAL HORTICULTURAL: *Sept.* 21.—J. Russell Reeves, Esq., F.R.S., in the chair. The usual preliminary business of the meeting being concluded, the Rev. J. Dix announced the awards of the Floral Committee, and took occasion to allude to the great loss which Horticulture had sustained in the death of Mr. James Veitch, whose name, he said, had seldom been missed, until that day, from these exhibitions; and of Mr. Robert Thompson, of Chiswick, whose valuable services to Horticulture, and in particular to the sciences of pomology and meteorology, could not be too highly appreciated. G. F. Wilson, Esq., after announcing the awards of the Fruit Committee, said that a dish of Nuts had been exhibited, with a view of creating a discussion as to the cause of the holes bored in them. They were generally supposed to have been made by a small bird (the cole tit), but Mr. Earley mentioned that he had seen the small field mice hanging from the branches of Nut trees; which he, Mr. Wilson, thought to be the most likely explanation of the two as to how the holes in question were produced.

The Rev. M. J. Berkeley then alluded to some cone-bearing specimens of Conifers exhibited by Mr. Cox, and said that he was doubtful if the one marked Picea cephalonica was rightly so named, as it was rarely seen in fruit. The reason why many of the choicer Conifers flowered this summer was, no doubt, dependent on the fact that the wood was well ripened by the hot weather of last season. A Fungus, of extraordinary form, obtained from a sewer, was next shown to the meeting. He (Mr. Berkeley) had tasted it, and had no doubt that it was merely an abnormal form of Agaricus ostreatus. With regard to the show of Fungi which had been announced, Mr. Berkeley said that October 5 was the day now appointed, and he trusted that as the weather was favourable to the production of Fungi, there would be a good display. In conclusion Mr. Berkeley briefly alluded to the samples of Potatos from Mr. Fenn, whose experiments, he said, were of great importance, and then read the following paper on the subject from Mr. Fenn:—

I grafted this year Red Ashleaf on Dickson's Premier, Paterson's Scotch Blue on Royal Albert, and *vice versâ*. I have been unfortunate this season in regard to the "taking" of the grafts. I planted and kept the grafted sets in 6-inch pots, contrary to my later practice of planting them in the open ground when the shoots in the pots have pushed 5 or 6 inches out of the soil. This may have tended to cause non-success as regards the cicatrisation of the skins; nevertheless, sufficient results have been arrived at to afford conclusive evidence as to the possibility of grafting one Potato with the eye of another. On July 14, I examined two sets, an eye of Royal Albert (a handsome, round, white Potato), grafted on Paterson's Scotch Blue. The eye had held perfectly fast to the tuber, thereby giving hope of some influence being exerted between the stock and the graft. I made the graft fit as perfectly as possible into the wedge-like, sliced-out cavity in the tuber, but at the above date the graft had swelled-out of its first position, though not sufficiently so to dissunite itself from the contact of its own skin and that of the stock on one side. I gave several good tugs at the graft, but I could not displace it, and I sent it to Dr. Masters to verify this result. Dr. Masters wrote me in answer, "in one case the cohesion was evident, but I do not see that the new tuber or haulm is at all affected by the graft operation. We must have more conclusive evidence than that. I see the union is not merely along the rinds, but in the cellular tissue of the Potato as well. I have forwarded the tubers to Chiswick. The whole subject is very interesting."

The "more conclusive evidence" I wrote on July 14 that I dared not then meddle with the roots of my last year's grafted Potatos. Their appearance I noted thus:—Fenn's Onwards on Alexander's Yorkshire Hero: an Onwards' haulm, but earlier, and very diminutive in comparison. Hero on Onwards. I can perceive no difference in the haulm as compared with the Hero not grafted, except, perhaps, that the foliage of the grafted sets is of a more glazed green. Yorkshire Hero on Onwards: haulm looking like that of the true Yorkshire Hero, with just a suspicion of the dark green tinge of the Fluke foliage. Milky White on Yorkshire Hero: haulm like that of a diminutive Milky White, quite ripening off, whilst its companion by its side was in full vigour of leaf. Milky White grafted on Fluke (this I did by mistake; I intended to have grafted the Milky White on itself, to try what would be the effect, if any): haulm showing quite a different character from that of Milky White, being not so branching, and of a darker, more upright, and more robust habit. All the above examples in lots united at the rinds more or less completely soon after they were planted out—a fact which I proved by inspection.

I planted the above-named Potatos on April 15th, when the graft of Onwards on Hero showed sprouts decidedly greener than those of the true Onwards; and when I dug them up, on August 9, their haulm was not nearly so ripe as that of the latter, and their produce generally, for form, proved rounder than Onwards. The Milky White grafted on the Fluke is the only other decided "conclusive evidence," and that is conclusive enough in the wrong direction; the character, as well as the Potato, being quite spoilt. In short, I may have gained (but I must wait another year to prove it) an improvement by grafting the Onwards on Yorkshire Hero, and that I fear will prove at the most but a mere pennyworth of Potato to a sack of trouble, though I shall be well content if, by the experiment, I have added my mite to the science of horticulture.

Floral Committee.—Rev. J. Dix in the chair. This was a small and comparatively unimportant meeting. From Messrs. Cripps & Son, Tunbridge Wells, came examples of Cedrus atlantica named Cedrus Deodara verticillata glauca, a silvery-foliaged variety, and a hardy Japanese Hydrangea, named paniculata grandiflora, a dwarf free-flowering kind, with large panicles of greenish-white flowers. To the latter a First-class Certificate was awarded. The same award was also made to a new Seedling Veronica, named Blue Gem, from Mr. H. W. Warren, nurseryman, Salisbury. This is a fine acquisition; in habit it is dwarf and compact, and it produces an abundance of rich blue flowers. To Mr. J. Salter, Versailles Nursery, Hammersmith, a Special Certificate was awarded for a fine collection of ornamental succulent plants; and a First-class Certificate for a fine large and bold silvery-foliaged bedding Centaurea, named hybrida. From Mr. Wimsett, Ashburnham Park Nursery, came flowering examples of the new hybrid Ivy-leaved Pelargoniums Willsii and Willsii rosea, to the former of which a First-class Certificate was awarded. The same award was also made to Agave pectinata, a curious Mexican species, with dark green fleshy leaves beset with whitish spines on the margins. The plant was exhibited by Mr. Green, gr. to W. W. Saunders, Esq. Along with this came a scarlet-flowered Gesnera from Jamaica, and three fine flowers of Hæmanthus coccineus. From Messrs. W. Cutbush & Son, Highgate, came two remarkably large and handsome specimens of Cockscombs; they were quite 2 feet over the head, and received a Special Certificate for their good cultivation. A very fine collection of Orchids came from the Society's own garden, and to these a similar award was made. From Mr. J. Jobson, Rotherfield Park Gardens, Alton, Hants, came a good new deep blue, free-flowering bedding Pansy, named Viola Perfection, to which a First-class Certificate was given. A Special Certificate was awarded to Mr. Cox, gr. to W. Wells, Esq., Redleaf, Penshurst, Kent, for a choice collection of cone-bearing sprays of Conifers, comprising branches of Picea cephalonica, P. Webbiana, P. Nordmanniana, P. Pinsapo, Abies Morinda, and the common Silver Fir. From Messrs. J. & C. Lee, Hammersmith, came small specimens of a dwarf compact-growing Thuja named Tom Thumb, and Cupressus albo-spica, a fine silvery-foliaged plant, which was regarded as a variegated form of Thujopsis borealis, and to which a First-class Certificate was given. Dahlias were again shown in full force by Mr. Turner, who received a Special Certificate for a fine collection of cut blooms; a First-class Certificate for a new variety named Provost, rich crimson; and one of the Second-class to Alice Gair, pale blush, with crimson edges. From Mr. G. Rawlings, Romford, came blooms of Royalty, orange-yellow, with faintly tinted crimson edges. This is one of the most beautifully formed flowers that has probably ever been shown at these meetings. A First-class Certificate was awarded. From Mr. G. Wheeler, of Warminster, came a new variety named Lord Weymouth, lemon ground, with crimson-tinted edges; a showy flower, though in form not quite up to the florists' standard; it was, however, thought to be a good border-flower, and received a Second-class Certificate on that account. A fine box of beautifully-coloured Petunias, and some new varieties of Pelargoniums, came from Messrs. Bell & Thorpe, Stratford-on-Avon, and from Mr. J. George, Putney Heath, came a collection of the latter, including a seedling double-flowered variety named Miss Evelyn, with dark pinkish flowers.

Fruit Committee.—G. F. Wilson, Esq., in the chair. In consequence of the unfavourable nature of the season, the prizes offered on this occasion by H. G. Bohn, Esq., for Peaches grown on open standards, were not competed for. The meeting, however, was above the average in point of interest, partly on account of Mr. Fenn's very suggestive and instructive exhibition of Potatos. Some of these consisted of the produce of cross-fertilisation, which in one case was remarkably curious: Early Emperor, a large red kind, was the male, and Fenn's Onwards, white, the female parent. A cross between these produced 36 distinct varieties of the most diverse description, the most curious of which was described as being very late, the top not appearing till June, and the tubers of which had degenerated to a small round mottled form, and were not distinguishable from those of a wild sort received by the Society from Peru. The produce of another cross between Hogg's Early Coldstream, male, and Shutford Seedling Kidney, female, consisted of 24 varieties of rounds and kidneys. The most decisive illustration of the effects of grafting one kind into another was a case in which Milky White had been grafted into the Fluke: one end of the Potatos had the smooth clear skin of the Milky White, and at the other end the rough appearance of the skin that is peculiar to the old Fluke. The other illustrations of grafting were as follows:—Onwards into Hero, of which it was noted that the colour of the young shoots showed a difference from that of either parent. In the following cases no results had been obtained from the grafting, or rather the produce showed no change—Royal Albert into Scotch Blue, Premier into Red Ashleaf, Hero into Onwards, Milky White into Hero. Some remarks on these Potatos are given elsewhere. A Special Certificate was awarded to the collection. A new variety was also shown by Mr. Fenn, named Rector of Woodstock. This when cooked was found to be a very finely-flavoured kind, and was honoured with a First-class Certificate. From the same exhibitor also came an example of a very neat breakfast honey-glass, by which the honey can be removed from the hive direct to the table: and samples of three kinds of home-made wines from Grapes ripened in this country. One sample, made from the Royal Muscadine, was especially fine in flavour, and was duly favoured with a First-class Certificate. A large collection of Onions was exhibited by Messrs. Barr & Sugden, of King Street, Covent Garden, who were requested to show them again at the next meeting, when the subject will be more fully gone into. Several examples from Chiswick, and from Mr. William Paul, of Waltham Cross, were also requested to be sent again at the same time. From Messrs. Hollway, 7, Jeffrey Square, came a very large example of the "Necessedian" (?) Pumpkin Vegetable Marrow; from Mr. Earley, gr. to F. Pryor, Esq., Digswell, fruit of a hybrid Tomato between Orangefield and the old large red variety; and from Messrs. Carter & Co. examples of their Champion Runner Beans. Messrs. T. Cripps & Son sent specimens of the purple-podded Haricot, Phaseolus compressus Lucasianus; and Mr. William Paul some seedling Grapes of great promise. It was requested that these should be sent again to the next meeting, when they will be compared with other varieties from Chiswick. Mr. Gilbert, gr. to the Marquis of Exeter, sent a new seedling green-fleshed Melon, a cross between Duke of Cornwall and Victory of Bath, which was very fine in flavour. A First-class Certificate was awarded, and the variety was named by the Committee the Burghley Green Flesh. From Mr. O. Goldsmith, Polesden Lacy, came the scarlet-fleshed Windsor Prize Melon. The same kind, sent as a seedling, was also shown by Mr. Stacey, South Bank, Egbaston, Birmingham, neither sample being particularly good. The Chairman showed a fine dish of Transparent Greengage Plums, grown in an orchard house; and Mr. R. Fairbairn, gr. to W. Death, Esq., South Lodge, Bishop Stortford, a good example of the Blood Pine, about 6 lb. in weight, to which a Special Certificate was awarded.

GLASGOW AND WEST OF SCOTLAND HORTICULTURAL: *Sept.* 15.—This was the concluding exhibition of the season, and was held in the City Hall and adjacent rooms. The principal hall looked exceedingly well. What with the ornamental leaved Pelargoniums in beautiful pyramids, the array of Tree Ferns, Palms, and Japanese Lilies, and some good specimens of Ixoras and Heaths, there was a very striking general assortment. The fine batches of golden and silver-leaved Pelargoniums from Mr. Campbell, Castlemilk; Mr. Ingram, Aitkenhead; and Mr. Boyd, Easterhill, formed quite an exhibition of themselves; but many others came from Messrs. Dreghorn & Aitken, Mr. Paul, Mr. P. M'Kenzie, and Messrs. Smith & Simons. Messrs. J. & R. Thyne's collection of stove and greenhouse rarities may be noted for its general excellence, it comprised—Crotons, with their beautiful green and golden foliage, mixed with orange-scarlet Ixoras, metallic Echeverias, noble-looking Screw Pines, and light and airy Ferns. The rare and dwarf Palms, put up by Mr. M'Kay, gr. to Mr. Reid, Woodburn; and the flowering specimens of Ixoras and Heaths from Mr. T. Hogg, gr. to Mr. D. Tod, Partick; and from Mr. Boyd, gr. to Mr. Finlay, Easterhill, were remarkably effective. That fine dwarf Fan Palm Livistona altissima, the equally interesting Calamus Getah, with its stems bristling with spines, and the Thief Palm, all plants of very decided character for conservatory decoration, came in well among the miscellaneous flowering plants, as they do at all shows. The variegated Viola cornuta from Mr. Lewin, Drumpellier, was an acquisition; and the Coleus, named Sir Peter Coats, shown by Mr. M'Kenzie, is a good seedling after the order of Queen Victoria, both plants being quite noteworthy as novelties. The saloon, however, was the great centre of attraction, for here the choice fruit that took front-rank position at the International Show in Edinburgh was exhibited, having been secured by Messrs. J. & R. Thyne, who well merited the special award given to them. The collection included grand Hamburgh, Alicante, and Muscat Grapes. Mr. Smith, gr. to the Duchesse de Coigny, Bargany; Mr. Campbell, gr. to Mr. Geo. Alston, Craighead; Mr. Crosbie, gr. to Sir Jas. Colquhoun, Luss, and Mr. Paterson, Balgray, all had good Grapes. The Apples from Rothesay and Camis Eskan were particularly good. What rendered the display of fruit more beautiful was the centre line of table bouquets. The market gallery was devoted to Dahlias and other cut flowers, and to a large display of first-rate vegetables, among which Peas, Leeks, Carrots, and Onions were particularly fine. The extra quality and the extraordinary quantity of vegetables that have in recent years been shown in the West of Scotland, have been matters of general observation throughout the country.

Notices of Books.

The Polar World: a Popular Description of Man and Nature in the Arctic and Antarctic Regions of the Globe. By Dr. G. Hartwig. 8vo, pp. 518. London: Longmans. 1869.

If the natural history of our planet be divided into three great groups, according to temperature, it will readily be allowed that we know most about the objects that occur in the temperate zones, that we have very much still to discover in the tropics, and that our knowledge of the fauna and flora of the polar regions is, in proportion to the limited extent of its species, in many respects deficient. The number of travellers who venture amongst icebergs and snow-clad mountains forms but a small proportion of those who risk their lives in "parts unknown," and the only wonder is that in such inclement climates and in such almost uninhabitable regions every particle of scientific energy is not frozen to the core.

When we regard the relative disposition of land and water upon the surface of our globe, and see how greatly the former preponderates in the northern hemisphere, it is not surprising that our acquaintance with the natural history of the arctic world is more extensive than with that of the antarctic regions.

The Cape of Good Hope, Sydney, and Buenos Ayres all lie about 35° south of the equator; and we know that, with the trifling exceptions of Tasmania, New Zealand, and Patagonia, there is no land at all until we come to the antarctic circle. Compare this with what occurs at the opposite pole; 35° north latitude runs through the Mediterranean Sea, Persia, Thibet, China, California, and the United States; and from thence to the arctic circle there must be at least four times as much land as sea. Spitzbergen is about 12° only from the North Pole, which has been approached both from that island and from Baffin's Bay, until a very few degrees intervened between the hardy travellers and the goal they tried to reach. But it is far otherwise with our knowledge of the South Pole. Land has been discovered below Cape Horn, and opposite the whole of the south coast of Australia, at about 25° from the South Pole; and in one place, opposite New Zealand, ships have penetrated to within 12°, and have seen an active volcano; but in all other directions the ice has prevented any nearer approach to this pole.

It is not therefore surprising that in the work now before us 460 pages are devoted to a description of the northern polar world, while 60 pages suffice for an account of all that is known of the antarctic regions.

We have, on a previous occasion, had reason to speak in high terms of Dr. Hartwig's ability in popularising subjects connected with the natural sciences, and the present volume is in no respect inferior to his earlier compilations. While he makes no allusion to having visited any of the frozen regions, his writings present that natural and easy flow of language which make one imagine that he must be describing scenery with which he has been personally acquainted.

After giving a general account of arctic lands, with their climate, their zoology, their botany, their palæontology, he treats similarly of the arctic seas; and, having thus introduced the subject, he commences at Iceland, and takes the reader eastward with him along the northern parts of Europe, Asia, and America, calling on the road at Spitzbergen and Novaya Zemlya, and leaving him finally on the shores of Greenland. The journey is a

most interesting one. The discovery of each part is carefully recorded, together with the history of the people where the region is inhabited. Thus the habits, customs, and peculiarities of the Icelanders, the Lapps, the Samojedes, the Ostjaks, the Tungusi, the Kamptschatkans, the Tchutchi, the Aleuts, the northern American Indians, the Esquimaux, and the Greenlanders are in turn fully described. So also is the early conquest by the Russians of the vast extent of Siberia, its gold diggings, its most important fur trade, and its gradual development, to which the extension of its railways is still slowly contributing. The fur trade of the Hudson's Bay territories is explained at some length, together with the habits and mode of capture of all the animals whose skins are of value; of these the principal are the black, brown, and grisly bears; the red, black, and silver foxes; the raccoon, glutton, marten, skunk, minx, beaver, and musk rat.

The accounts of the early attempts to find a north-east passage by sea to India, first through the Baltic, and subsequently round the North Cape, are very amusing to us, with our present geographical knowledge. But perhaps the most interesting part of the work is the able *resumé* of all the attempts which have been made to discover a north-west passage from the Atlantic to the Pacific Ocean.

Our limited space prevents reference to many other subjects to which we would have wished to allude as being admirably described in this book, and we therefore content ourselves with the cordial recommendation of it to our readers.

Florists' Flowers.

It can scarcely be said that seedling DAHLIAS have been produced so plentifully this season as during the few past seasons; and it is a somewhat singular fact that Mr. Keynes, of Salisbury, has not produced even one new flower at any of the meetings of the Floral Committee during the present month. No doubt the late and inclement spring had its influence on the blooming of the seedling flowers, and there is reason to believe that, not only are they late in blooming, but imperfect in development. Notwithstanding the paucity with which new varieties have been produced, yet some very fine flowers have come to the fore, combining with the fine properties of the florist much novelty of colour. Five of these flowers stand out prominently, and each has received the highest award it is in the power of the Floral Committee to bestow, namely, a First-class Certificate of Merit. The premier flower is unquestionably Royalty, from that well-known raiser, Mr. George Rawlings, Romford. It was well described by the chairman of the Floral Committee as one of the most beautiful and perfect flowers ever brought before that body; it has a bright golden ground colour, the centre tipped with brown, and some of the surrounding petals slightly so; the petals open boldly, and form uniformly laid circular rows, giving the flower a grand outline of perfect shape; the centre is full, closé, and high: it looks like a variety that will want some close shading to bring it to perfection, and then it will be as near perfection as any Dahlia that has yet been obtained. Aristides (Rawlings) is another first-class flower, of fine shape and substance, and of a crimson-purple hue, shaded on the tips of the petals and centre with glossy dark. Toison d'Or (C. Turner) is a glorious yellow self, of a deep bright golden hue, and exquisite shape, medium sized, and very pure; if it should prove constant it must be a telling exhibition flower. Harvard (Fellowes), exhibited by Mr. Turner, is a most pleasing flower, of a soft and yet bright hue of lilac-rose, the petals finely formed and regular, giving a fine outline, medium size, and close high centre. Queen of Yellows, the last of the five above referred to, appears to have been exhibited by a new raiser or exhibitor, Mr. G. Parker, Maidens' Green, Winkfield. This is a fine bold bright orange-yellow self, of full substance, and looking as if it would be a constant and reliable flower.

All these, except Aristides and Queen of Yellows, were represented at the meeting of the Floral Committee on September 21. In addition there were Alice Gair (Turner), blush, heavily tipped and dashed with bright rosy purple, and yet, though belonging to a numerous type of flowers, with much novelty of character, of medium size, and very promising, though not shown on this occasion in the best condition. Lord Weymouth (Wheeler), half golden ground, heavily tipped with lake, a pretty and pleasing flower, rather coarse and quilled as shown and somewhat flat, but with good outline, and promising to be finer when well grown. Both these were awarded Second-class Certificates. A First-class Certificate was also awarded to Mr. C. Turner, for Provost, an orange-red flower, the base of the petals paler, distinct in colour, and of good substance and outline, though as shown requiring more finish. In addition there were Sarah Maria (Wheeler), in colour a pale lilac self, the base of the petal flaked with deep rose, but inferior in outline and finish to Harvard, which it somewhat resembles. Edith (Turner), pale ground, tipped with a paler bright purple than Alice Gair, was represented by three blooms all more or less distinct in character: it must be seen in a much improved state to receive an award. Enchantress (Parker), pale ground, slightly suffused and tipped with purple, small, but promising; and Mr. Parker (Parker), pale fleshy buff tipped with purple, not so good as the last named, must also be considerably improved ere they can compare with some flowers already in cultivation.

Mr. Turner staged a collection of 72 blooms of show and fancy Dahlias; of the former the following were very good:—Memorial, Miss Henshaw, Purple King, Edward Spary, Vice-President, Charles Turner, Chairman, Buttercup, Valentine, Miss Roberts, Cygnet, Lord Derby, Leah, The Hon. Mrs. G. Wellesley, High Sheriff (very dark), Mrs. Dorling, Paradise Williams, and James Hunter. Of fancies, the following were well worthy notice:—Queen Mab, Viceroy, Fanny Sturt, Annie, Attraction, Fair Imogene, Sparkler, and Pauline. *R. D.*

The Apiary.

QUALITY OF HONEY.—Those who have partaken of the honey from my supers have invariably asked me, "What is the reason your honeycomb is so superior to that carried about by the peasantry for sale?—theirs is strongly flavoured, while yours is the reverse." The peasantry are in the habit of taking, whenever possible, the swarms of the year, and offering for sale in a neighbouring watering place, all the comb filled with honey, which is of a good colour, *i. e.*, that has not been bred in. I at first answered the question by saying that my honey was made chiefly from white Clover, which gives the honey with the most delicate flavour, while most of the cottagers near the watering place in question were in the neighbourhood of heath, which does just the reverse. Having, however, taken one or two straw vats of my own since my attention was drawn to the subject, I have come to a different conclusion. The honeycomb from these vats was strongly flavoured, and different from that in the supers of the depriving hives beside them. Upon examination it appeared that all the comb in the neighbourhood of the part used for breeding was of a deep yellow colour; that a little further removed was a lighter yellow; and only a comparatively small portion, at the very top of the hives, was of the same colour as the comb in supers. Now, just as the colour deepened, so did the flavour; and that, when strong, was so like pollen, that it appeared to me that it was the carrying of this food to the young bees that imparted it. All the comb in the immediate neighbourhood of the place where breeding was carried on would have had pollen carried over it, while the honey was in a warm state, and therefore easily flavoured; and for the same reason it appears probable that the aromatic bitter of pollen would impregnate honey with which it did not come into actual contact. The odour of Oranges has been known to flavour and spoil tea kept in the same warehouse. The warmer the atmosphere the more likely such transmissions of flavour to take place, and the heat of the interior of a hive is well known. Whether this explanation of the cause may be correct or not, it appears to be the case that breeding in a hive injures the flavour of all the comb in its neighbourhood. *A. B., Narberth.*

Garden Memoranda.

GOOD SAMPLES OF BEDDING-OUT.—The garden and pleasure-grounds of Provost Russel, Mayfield, Falkirk, are always objects of attraction to horticulturists from all parts of the country, and a cordial welcome is extended to all by the generous proprietor. The collection of Coniferæ is a marked feature in the place, from the extent and variety of the various species, and the excellent condition that characterises the whole. When we add to that, some fine samples of bedding-out flower-gardening, with the suitable adjuncts of lawn and gravel in seemly proportions, the reader will be all the better prepared for appreciating the details of the following picture of quiet loveliness.

Given a straight gravel walk, running about 300 yards first down an incline of about 1 in 8, and then along a level, with parallel borders about 7 feet wide on either side, the borders planted thus—back line of Gladioli and Christine Pelargoniums, then ovals slightly raised of Pelargoniums Flower of Spring, Golden Chain, and Cloth of Gold alternately, tied together as it were with mass plants of Centaurea ragusina; the ovals edged or garnished with Perillas, and set in a groundwork of the grey coloured and rapid growing Artemisia Stelleriana, with a broad front line or band of Golden Feverfew.

There was a charm about the arrangement peculiarly captivating; the harshness of contrasting primary colours was avoided, and the skill of the gardening artist was tacitly proclaimed. What with the grey decided groundwork, the golden and silver ovals set in purple embroidery, and relieved at intervals with the hoary coloured and runcinate leaves of the Centaurea, and then the golden individual tree-like masses of the Pyrethrum next to a 12-inch margin of Grass—the whole thing was so simple and so effective as to be worthy of imitation. Of course place and position rendered the effect more striking, for on the one hand there is a screen of deciduous trees and shrubs and evergreens of the Irish Yew and Coniferous sections, and on the other is a portion of the Pinetum, and an artificial lake which reproduces a portion of the picture in tts waters like a mirror.

Example No. 2 stands at right angles with the borders described, running along the foot of a grass terraced bank in front of the mansion, and is of a more elaborate character in its details, but wrought out with the same masterly hand. The border is about 10 feet wide, backed up with several fine plants of the Lawson Cypress, the Irish Yew, and Thujopsis borealis. Confronting these are grafted Yews, forming heads like golden balls on sombre green stems, intermixed with neat portable plants of the variegated Acer Negundo; the groundwork among these is Pelargonium Stella. Confronting the back arrangement is a broad line of P. Bijou, then a grey hoary groundwork is provided in Gnaphalium lanatum, with very decided diamonds of P. Mrs. Pollock, garnished with the dark crimson purple hue of Iresine Herbstii, relieved at the junctions with the beautiful Centaurea; and the whole is finished up with three narrow lines of Arabis lucida variegata, Alternanthera spathulata, and Sedum aizoideum variegatum—the dark-leaved plant blending in evident harmony with two of the most beautiful and striking variegated plants in cultivation.

With the exception of the flowers of Pelargonium Stella there was nothing but foliage to provide the colour here, and the effect was significant, and above all things suggestive to all who have an uncertain climate as to drought and moisture to war against. The fine sweeping bend towards the extremity heightened the effect and led the promenader into a seclusion where the rarities of the garden were under trial. Prominent among these were some of the succulents, such as, for instance, Echeveria metallica in both its forms of dark and greyish dark leaves; E. secunda glauca, with fine foliage, in autumn having additional beauty in its telling orange-scarlet inflorescence; Alternanthera amabilis and Iresine Lindeni, both a shade more hardy than their more common fellows, as proved by the weather of the early part of September.

A capital wrinkle is in store for your experimental readers, and one that can be put into form next season, viz., encircling the base of such things, for instance, as Dracæna australis, Aralia papyrifera, and such-like gallant growing things, with circles of about 2 feet diameter of the densely-tufted Sedum lividum (?). Here it was quite first-rate, beating, for colour and density, the best attempts of Spergula pilifera that have been ever tried. There are many other succulents of a hardy nature which may be turned to good account in planting the flower-garden. Quietly take the hint, gentle readers, for to many of you at least it will be invaluable information. To Mr. Sorley, the gardener, no small praise is due for making "tracks" for himself, as the Americans call it, in the carrying out of parterre flower-gardening. *A.*

Miscellaneous.

Limits of Pines.—The road passed Las Tablas, where for the first time we found ourselves in a most delightfully cool temperature, and in a forest of Fir trees (Pinus tenuifolia, Benth., known by the name of "Ocote," a corruption of the Aztec (Mexican) "Ocotl"). I may, however, add that this is not the most southern limit of the Pines on the Pacific side of America, but that it is, as far as at present ascertained, in latitude 12° 40′ north, on the Volcan Viejo, near Chinandega, at an elevation of 3000 feet above the sea-level, whilst the most northern limit, as I have shown in my Flora of Eskimoland, is on the banks of the river Noatak, in latitude 66° 44′ north, where Captain Bedford Pim found a regular forest composed of a species (Abies arctica, A. Murr.) closely allied to the white Pine. We did not long remain in this delightfully cool atmosphere, but were compelled again to descend into the hot valleys, passing the village of San Juan de la Maya. *Dr. Seemann's "Dottings in Nicaragua."*

Coal Plants.—Stigmaria or Sigillaria, together with Lepidendron and Calamites, formed the principal trees of the coal period. The dense damp forests in which they flourished had a very different aspect from anything to be seen on the earth at the present day. But the plants themselves have very near allies, from which they differ chiefly in the great size to which they attained, and the necessarily more highly organised stems they possessed. Ferns are the only Cryptogams which reach the size of trees at the present day; but it is remarkable that the Ferns which abounded in the coal period were generally humble plants, only in one or two cases having a stem of any length, while on the other hand the small Club-Mosses and Horsetails of our day attained at that early period a size that equals or even surpasses the trees of our forests. *World of Wonders.*

How to Grow Gooseberries for Cooking.—Many years ago my father planted a hedge of Gooseberry bushes to prevent a neighbour from encroaching, and he put in a lot of spare bushes and a great many cuttings of full length, just as they were pruned from the Gooseberry bushes, and a matted thicket was the consequence, very prolific indeed of spines; but a very unlooked-for result was obtained, for after all other Gooseberries had got large and sweet, these were small and sour, and made excellent tarts. Any quantity of Gooseberry cuttings can be got in winter, and, if they are carefully put in the ground they will all strike root, and make good plants in the course of a short time. If any one possessed of a stock of plants will keep the pruning knife away from them, and get them into hedgerow fashion, he will soon get a weight of small fruit off them, for the plant is a sure cropper, and its *forte* lies in the multitude of spines and small sour berries that it can produce. It seems quite at home at this kind of work, and can act unaided by high cultivation. The price of green Gooseberries is extravagantly high, yet it is quite astonishing to see the quantities sold, and the large size they are. A tart Gooseberry should not be larger than a Hazel nut, but these I allude to are as big as Walnuts, and need to be sliced like Cucumbers before going into the pie-dish. As the fruit is only grown to half its natural size for tarts, and only occupies about half the time upon the bush that the ripe fruit does, it does not exhaust the plant; and if the caterpillar can be kept down the plants will go on fruiting for a great many years, for the Gooseberry plant is long-lived, and remains a stunted shrub, although never pruned. It is less than the Currant in size, and considerably longer lived. It seems as if it could not aspire like the smooth-barked Currants, having to guard itself with pointed armour, which it has to manufacture as it goes on. The subject only wants to be named, and the line of distinction drawn between the culture for ripe fruit and the culture for green, and the work will get forward in due time. It is sound practical advice, and no one will be disappointed that gives the thing a fair and honest trial. *A. Forsyth, in "Florist and Pomologist."*

Garden Operations.

(For the ensuing week.)

PLANT HOUSES.

MANY climbing plants, such as *Dipladenias, Clerodendrons, Stephanotis, Combretums, Jasminum ligustrifolium*, &c., among stove plants, and *Rhynchospermums, Solanum jasminoides, Sollyas*, and the like, amongst greenhouse plants, will now need very little root moisture when grown in pots, sufficient only, in fact, to keep them from showing any symptoms of flagging. This will tend to finish off the ripening process effectually, and conduce greatly to their flowering capabilities in the spring. All those plants which are intended for winter blooming, such as *Begonias, Poinsettias, Æschynanthus, Gesneras, Impatiens, Pentas, Torenias*, and early spring flowering *Justicias*, &c., should have all the light possible afforded them by being placed in well exposed situations where the sun can find them out. A nice growing period should be afforded to them, if it is possible to do so without interfering with the requirements of the other inmates of these structures. I have before suggested the desirability of housing all plants at the earliest possible moment after a wet time has set in. The showers we have had so freely and so frequently of late will make the balls too wet if this be not done, a state very greatly at variance with that which is really essential to the production of plentiful bloom-buds. Attend with care to all freshly potted plants, more especially in regard to root waterings, which, whilst they should not be too restricted in their application, should only be afforded when they are really wanted. In fact, if I may use the expression, just let each plant feel the want of water, so that when it is given it may be imbibed by the roots, and turned to account with a healthful zest.

FORCING HOUSES.

The outdoor borders of those *Vineries* which are intended for early forcing should now, if not already done, be covered over without further delay, for the purpose of warding off superficial rains. Mown and dried "bracken" Fern is as good a material as can be used for the purpose when makeshift materials are in demand, and no proper shutters exist for the purpose. The Fern is light and open, and whilst it absorbs the rain freely, it does not impede a tolerably free circulation of air. Late *Grapes* will need constantly seeing to, in regard to removing decaying or imperfect berries. Slight fires must be kindled each morning, to afford the air an opportunity to dry up the damp which may have settled within in process of condensation. The fires must be so arranged, however, that the pipes or flues become cool again towards night, and before the structures are finally shut up for the night. With reference to *Pines*, great care is now necessary with regard to the bottom-heat from those pits which have been renovated, and into which the recently-potted plants have been plunged. The heat therein will be found to fluctuate somewhat according to the weather, &c., however judiciously the material may be made up. Hence the test-stick must be frequently felt. I advocate 85° as a maximum, for, taking downward fluctuations into account, this is a good average, being a safe one to maintain, besides allowing a slight margin for increase of heat besides, without danger of injury to the roots. Those Pines which are now in the various fruiting stages, viz., such as are just finished swelling, half grown, and just over blooming, should be pushed along quickly during bright, warm, sunny weather. No danger will exist of their coming in too soon if they are intended for use from December to February. The quickest pace you may keep them at from this time will not unduly hasten them onward. I again, however, urge the desirability of keeping up an only moderate temperature by night, for reasons which I have given very recently in former Calendars. The same remarks apply to *Cucumbers* which are being grown in Cucumber-houses for the winter supply; by maintaining a moderate night temperature, and affording air daily, and especially early upon mild mornings, a strong bine may be formed capable of carrying a continuous crop of fruit onward through the winter. To force Cucumber plants into making too quick a growth at this season, even in instances where they are somewhat behind, will be to injure their future well-being.

HARDY FRUIT GARDEN.

The ingathering of all choice varieties of *Apples* and *Pears* should now be commenced, and carefully conducted. Perhaps the best or safest test is to gather them at the time when they will part from the trees readily. In careful hands, however, the keeping properties may be enhanced, and the period at which individual varieties may ripen off by-and-by may be materially prolonged by making several distinct gatherings of each sort at varying intervals; but care and a little study of individual peculiarities will be necessary in all such cases. The pip, or seed, for instance, should be more or less dark in colour, and firm in texture, whilst the exterior should have a matured bronzy look. Without some little knowledge of these and other similar facts some risk will be run of picking them prematurely, when shrivelling and other similar evils will follow to the greater or less injury of the crop. The crop of any given sort of Pear may be prolonged in usefulness by placing some of the fruits when gathered into a close cool place, and others into full sun and air. This, however, applies only to such sorts as are about ripening at this time, such as Beurré d'Amanlis.

HARDY FLOWER GARDEN.

Finish pricking out all seedling *Garden Primroses, Polyanthuses*, &c., at the earliest possible moment, otherwise these will not have time to become established before winter. Cut down all *Hollyhocks* which have done flowering to near the ground line. This will afford the stools an opportunity to allow young shoots to establish themselves before winter sets in. These may likewise now be propagated by means of some of the younger shoots, which have eyes at the base of the leaves, where, in fact, no flower has been formed. Cut the stalk away close down to the leaf upon the upper side, and again below it, leaving about an inch and a half of the main stalk below the leaf, which part should be firmly potted up to the base of the leaf. Do not destroy the leaf, but keep it fresh and green as long as possible. Use very rich sandy or gritty soil for the purpose. Some of the earliest spring flowering *Narcissi* and *Tulips* will now begin to sprout, even if kept out of the ground; they should be planted at the earliest possible moment therefore. It may not be possible or convenient to plant some of those which are intended to make a display in beds, which are now filled with bedding stuff. These three should be placed singly into small thumb pots, plunging them into some light material until the beds are disengaged. Even where it may not be convenient to do this the bulbs would be better if they were placed into some loose leaf-mould or similar material upon a firm bottom which is not likely to become too wet, and into which they cannot penetrate, but where they may make a few roots, and keep the bulbs from becoming exhausted through premature sprouting. Remove the lights or other temporary protection from *Auriculas* at all times during dry weather. These plants delight in fresh air and a moderate temperature. There may be instances where *Scarlet Intermediate Stocks*, which were planted rather late, have not yet come into flower, and yet the plants are large, fine, and healthy withal. If all such are taken up at this time, potted into a good rich compost, ramming the soil firmly on to the roots, and placed in pots not larger than 6-inch ones, and then fully exposed under a north wall and kept well watered until frost arrives, they will overcome the shift; and if housed into pits where a little fire can be afforded in severe weather, they will bloom very freely and beautifully in the early spring. So soon as the flower-buds show, if any single ones appear, they can be removed. Few things are sweeter, or enliven a conservatory or greenhouse more, than these do under such circumstances.

KITCHEN GARDEN.

Continue tying up *Endive* and *Lettuces* upon dry favourable occasions, a few at a time, and often. These blanch more slowly at this time, and are more likely to rot during the process, hence the need of proceeding as above. Tie successional *Cardoons* round with haybands or other similar support, and afterwards proceed with the necessary earthing up. Continue the earthing up of *Celery* during dry weather. I prefer earthing each lot up at three different times only, thinking this plan much better than placing a little at a time periodically, as it blanches better, and the soil is not nearly so likely to run into the heart, or amongst the leaves. Finish thinning out autumn sown winter crops of *Spinach, Turnips*, &c., and use the hoe freely amongst young *Carrots* which are now up, and are intended to stand the winter. In view of a neat and tidy appearance, without which no garden is really enjoyable, keep the walks constantly swept and rolled, and remove all decaying flowers or leaves. *W. E.*

TOWN GARDENING.

THE *Chrysanthemums* should now be attended to, if it be wished that they should make a pleasing feature when in flower. The plants can now be trained to almost any required shape, and will right themselves in time for flowering. They will now also begin to show their flower-buds, which should be all removed with the exception of the centre one on each shoot, for I consider quality of flower is to be considered rather than quantity. The earwigs are a great plague to the flower-buds, and should be destroyed by every available means, as by trapping them with bean-stalks placed on the ground, or by lobster-claws placed on the sticks. If stock is required for next season, take off all the suckers, and pot them in 60-sized pots, and winter them in a cold frame. They will make the best plants for the next season. Plants of any size will remove well at this season if taken up with a good ball of earth. This can be done in the following manner:—Tread well round the plant, cut all round with the spade about 6 inches from the stem, and give a good soaking of water, and on the following day they can be removed without flagging, and if watered with liquid manure twice a week they will produce fine flowers. *Pompons* can also be taken up in the same manner and potted for the conservatory, and receive no check. I have grown and seen some fine pots of *Lilium auratum* and *L. lancifolium*, and should advise that they remain in their pots, turned down, till spring, when they should be repotted. I believe they will do well in towns. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Sept. 22, 1869, as observed at the Horticultural Gardens

Sept.	Moon's Age	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind	Rain.
Thurs. 16	10	29.785	29.466	68	57	62.5	59	58	W.	.09
Friday 17	11	29.738	29.629	65	57	61.0	59	57	S.W.	.06
Satur. 18	12	29.528	29.373	69	53	61.0	61	58	S.W.	.82
Sunday 19	13	29.473	29.361	63	43	53.0	60	58	W.	.00
Mond. 20	○	29.543	29.431	61	35	48.0	57	57	S.W.	.00
Tuesd. 21	15	29.607	29.702	64	38	51.0	54	56	W.	.00
Wed. 22	16	30.147	30.056	66	49	57.5	56	56	W.	.00
Average		29.744	29.575	65.1	47.4	56.2	58.3	57.1		0.94

Sept. 16—Cloudy, but fine; cloudy; densely overcast, rain.
— 17—Showery; slight rain, showery at night.
— 18—Overcast, brisk wind, boisterous; heavy rain.
— 19—Cloudy, very fine, clear and fine, brisk wind.
— 20—Overcast, cold wind, fine, densely overcast, clear
— 21—Cloudy, densely clouded, clear and fine.
— 22—Very fine, cloudy, but fine, densely clouded.
Mean temperature of the week, 3·10 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending Oct. 2, 1869.

Sept. and Oct.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..26	65.7	43.8	54.7	21	1.68 in.	—	5	7	3	10	4	3	3
Mon. ..27	65.3	44.6	55.0	24	0.57	—	2	6	3	8	13	9	2
Tues. ..28	65.1	45.0	55.5	22	1.44	1	5	6	4	11	11	5	3
Wed. ..29	65.5	44.3	54.9	26	0.46	2	3	4	4	9	15	4	2
Thurs. ..30	65.0	43.3	54.2	24	1.08	3	2	4	4	8	10	10	1
Friday .. 1	63.4	44.7	54.1	21	0.53	3	3	4	2	7	17	4	3
Satur. .. 2	64.4	43.9	54.1	19	0.48	2	5	3	—	9	13	7	4

The highest temperature during the above period occurred on the 27th and 29th, 1832—therm. 79 deg.; and the lowest on the 28th and 30th, 1836, and 29th, 1842—therm. 23 deg.

Notices to Correspondents.

*** The Editors request those who forward fruit to be named to select specimens that fairly represent their average character — not exceptionally fine fruit, nor miserable scrubs, as is frequently the case, for these it is impossible to recognise. They can take no notice of any communication unless carriage paid.

BOUGAINVILLEA: *G, Eton.* At p. 453 of our volume for 1860, you will find the paragraph you refer to, wherein it is stated that the grand secret is to plant them in a border where bottom-heat can be given to about 100°. With the Bougainvillea, "if we put the fire in at his toes it is sure to come out at his head."

GARDENER'S EXAMINATIONS: *M L, Dulwich.* Apply to James Richards, Esq., Assistant Secretary, Royal Horticultural Society, South Kensington, W.

INSECTS: *W A W.* Your very young caterpillar arrived so smashed and shrivelled as to be unrecognisable. We believe it, however, to be that of the Golden-tail Moth. *W.*

MUSHROOMS: *A Constant Subscriber.* We could wish for no better material than that you refer to for the formation of a bed, and the certainty of a crop. If you have not quite a sufficiency for your purpose, then thoroughly amalgamate fresh wet droppings with the mass. Cause it to ferment slightly, and it will be fit for use; otherwise, if you intend using that you have alone, let it be turned over into a fresh heap. In due time, place it out in layers, 2 or 3 inches thick, and damp each successive layer over with clear soft water. This will cause a slight fermentation, and furnish latent moisture throughout the whole; it will then be in rare order for bed-making. As for the wood-lice, they will in all probability leave the mass when it has been moistened, and may be entrapped by placing a wisp of hay in a dry corner, scalding them to death with boiling water as they collect in sufficient numbers. Earley on the Mushroom (Bradbury, Evans & Co.), price 1s., would no doubt be useful to you.

NAMES OF FRUITS: *T Jenkins. Apples:* 1, Manks Codlin; 2, Keswick Codlin; 5, Hawthornden; 6, Cox's Orange; 7, Sturmer Pippin; 8, Nonsuch; 10, Blenheim Orange; 11, Tower's Glory; 12, Bridgewater Pippin. *Pears:* 13 and 14, Passe Colmar; 20, Winter Nelis; 21, Marie Louise. *Plums:* 16, Dunmore; 22, apparently the same; 17, Yellow Impératrice. The others could not be determined with any degree of certainty, many of the specimens being so very small, and out of all character.

NAMES OF PLANTS: *Steckley.* Clematis Flammula. Jasminum officinale, Rhododendron ferrugineum.—*S E A.* Metrosideros floribunda.—*H F B R.* The Lucerne Dodder, Cuscuta hassiaca, Koch. Please say where found.—*W M.* Phygelius capensis, Vx. 12 and Vx. 7; Cephalotaxus Fortunei, Vx. 11, 1, 2, 5, and 6; Cephalotaxus drupacea; 3, Torreya japonica; 4, probably the same, a stunted specimen.—*R Carr.* The Stanhopea appears to be an intermediate form between S. oculata and S. Wardii. Twenty years ago, it might have been accounted a distinct species.—*An Old Subscriber.* 1, Hæmanthus, species not recognisable without flowers; 2, Ophiopogon japonicus.

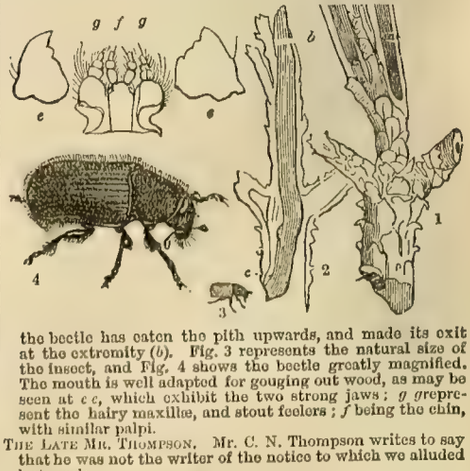
PASSION-FLOWERS: *W Earley*, and *H Mills, Penryn.* P. hybrida floribunda, of gardens, probably a hybrid between P. cœrulea and P. Raddiana *alias* Kermesina; a very desirable variety for cultivation.

PEAR INSECTS: *Anon.* The insects on your Pear leaves are the slimy larvæ of a black-winged sawfly, Selandria Æthiops, which is produced in the perfect state during the summer. The grubs are easily destroyed with lime water, or by sprinkling the leaves with powdered lime. *W.*

PREPARING HOME-GROWN TOBACCO FOR FUMIGATING: *A Learner.* Gather the full-grown leaves on a fine day, lay them on each other in a dry, sunny place, about 1 foot thick, constantly turning them every day, and as they get dry, keep putting them a little thicker until quite dry; then put them in a basket or box, pressed quite tight, pick off the best leaves and hang up the stalks. Let them gradually dry, and then chop them up and make use of them. In drying, pick out the leaves as they get brown, and put them by themselves, *i.e.*, after the sap is exhausted, keeping them packed away.

SEEDLING MELON: *R Gilbert.* The fruit sent was cut too soon, and was, consequently, not quite ripe; it is, no doubt, a good variety. The fruit sent to the Fruit Committee on Tuesday last was first rate.

THE PINE BEETLE: *S W.* The Pine-destroying beetle, Hylurgus piniperda, see pp. 967 and 992. The following cut we reproduce from p. 740 of our volume for 1846. Fig. 1 shows a round hole through the bark and wood. Fig 2 shows where



the beetle has eaten the pith upwards, and made its exit at the extremity (*b*). Fig. 3 represents the natural size of the insect, and Fig. 4 shows the beetle greatly magnified. The mouth is well adapted for gouging out wood, as may be seen at *c c*, which exhibit the two strong jaws; *g* represent the hairy maxillæ, and stout feelers; *f* being the chin, with similar palpi.

THE LATE MR. THOMPSON. Mr. C. N. Thompson writes to say that he was not the writer of the notice to which we alluded last week.

COMMUNICATIONS RECEIVED:—Sub.—J. N.—Constant Subscriber.—W. J.—W. C.—W. C. T.—R. A. P.—H. M.—J. R.—A. H.—D. J. N. (next week).—W. S. B.—C. D.—H. M., Enys (we will try it).—R. F.—W. T. (Dalkeith).—A.—C. McD.

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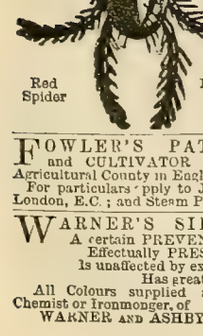
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SHEEP. " D.	For a PEN of three WETHERS (in any Class)
" E.	For a SINGLE SHEEP in Extra Stock.
PIGS. " F.	For a PEN of three PIGS (in any Class).
" G.	For a SINGLE PIG in Extra Stock.

ENTRIES for LIVE STOCK CLOSE NOVEMBER 1.
Prize Lists, Forms of Certificates, and all information may be obtained on application to Mr. DAVID PULLEN, Assistant Secretary, at the Office of the Honorary Secretary, corner of Half-Moon Street, Piccadilly, London, W.
N.B. All communications respecting the Show must be addressed to the Assistant Secretary, as above, and should bear outside the words "Smithfield Club Show."

SMITHFIELD CLUB IMPLEMENT SHOW.
AGRICULTURAL HALL, ISLINGTON, DECEMBER 6 to 10.
The LAST DAY for receiving APPLICATIONS for SPACE for IMPLEMENTS and MACHINERY, &c., is OCTOBER 1.
Printed Forms of Application, with Rules and Regulations, may be obtained of Mr. DAVID PULLEN, Assistant Secretary, corner of Half-Moon Street, Piccadilly, London, W. All communications should bear outside the words "Smithfield Club."

The Agricultural Gazette.

SATURDAY, SEPTEMBER 25, 1869.

MEETINGS FOR THE ENSUING WEEK.
Sept. 29 } Trial of Steam Ploughs and Cultivators at Peter-
" 30 } borough.
" 30—Northallerton Agricultural Show.
October 1—Bedfordshire Agricultural Show.

FOOT-AND-MOUTH complaint has not yet exhausted its virulence; on the contrary, it seems to gather fresh force as it advances; the ratio of fatal cases has increased, and the number of severe attacks is enormously in excess of those which occur in the ordinary course of the disease in this country. There is something yet to be discovered respecting the mode of propagation of epizootic affections. With the cattle plague it was all plain sailing, wherever infected animals or materials which had been in contact with them entered, there the malady appeared, and absolute security was always attained when complete isolation was enforced. The present epizootic, however, seems to bid defiance to all precautions, and in spite of the cordon round the metropolis and the slaughter of cattle in the defined parts of the outports the disease has spread with greater rapidity than the cattle plague did in 1865.

Ten days ago foot-and-mouth disease was reported to exist in nearly 800 places; last week the number was over 1000, and this week it has reached nearly 2000. The following list of infected counties will serve to convey an idea of the extent of surface over which the affection has spread:—

ENGLAND.—Metropolis, Berks, Bucks, Cambridge, Cheshire, Cumberland, Derby, Durham, Essex, Hants, Herts, Kent, Lancashire, Lincoln (Lindsey), Middlesex, Norfolk, Northampton, Northumberland, Nottingham, Oxford, Salop, Stafford, Suffolk, Surrey, Sussex, Warwick, Worcester, and the East, West, and North Ridings of Yorkshire,

SCOTLAND.—Argyll, Berwick, Clackmannan, Edinburgh, Haddington, Lanark.

On the Continent the state of affairs is not more satisfactory; from the Black Sea to the Atlantic foot-and-mouth disease prevails among cattle, sheep, and pigs, and cargoes of infected animals are day by day landed in this country. Sheep suffering from the disease have been detained at Newcastle and other outports, and on Tuesday last a cargo of nearly 400 sheep arrived in London from Hamburg, and on inspection it was found that 46 of the animals were affected with foot-and-mouth disease; they were accordingly detained; the remainder of the cargo, however, being apparently healthy, was sent to the metropolitan market to be distributed over the country, and add to the already numerous centres of infection. The same course has been adopted at other ports, with the natural result of spreading the disease; but for the future the danger will be effectually met by the detention of the entire cargo of sheep in every instance when any of them are affected with eczema. This arrangement is imperatively called for under the present circumstances, and its adoption at all the ports may be expected to produce good results. Under the provisions of the Contagious Diseases (Animals) Act, and the General Order of August 10, cargoes of cattle must be dealt with in an equally summary manner in the event of any of them being affected with a contagious disease; it may, therefore, be presumed that no more infected foreign animals will be allowed to pass inland. More stringent measures are, in the next place, required in this country before we shall succeed in arresting the disease which has advanced up to the present moment almost without let or hindrance. We do not advocate a recourse to the severity of the cattle plague orders; but strict isolation, and a free use of disinfectants, are essential parts of an effective system of prevention. It cannot be assumed with any show of reason that the restrictions at present in force are sufficient to meet the emergency; with hundreds of diseased cattle grazing in commons, and in practically open pastures, it is impossible to arrest the spread of infection, and even when the disease is known to exist among cattle on a farm, there is no provision which empowers the local authority to prevent the removal of the apparently healthy animals from the premises to a neighbouring fair or market. The disease, both in reference to its severity and extent exists in an exceptional form, and special provisions are needed for its eradication. Authorities charged with the carrying out of the Act, working in earnest, will find that they have no light labour to perform, and when they manifest an intention to act vigorously it is beyond everything desirable that they should not be crippled by want of power to meet every difficulty as it arises.

THERE is a peculiar district on the mountain limestone formation, in Staffordshire and Derbyshire, which is too elevated for corn or arable cultivation in general.

The smooth outline of the hills, with their grass-covered surface, gives them a strong resemblance to the downs in the south of England. But the limestone soil is much richer than the thin covering of the chalk downs, the climate is cooler, and the rainfall is 50 per cent. greater. We have been much struck with the comparative character and quality of the herbage on the two sites. The natural poverty of the one and richness of the other are not more remarkable than the fact that the Grass of the latter, under exhaustive treatment, assumes the same character as that which covers the former.

Most of our readers are familiar with the look of the herbage common to the tract referred to—to the Epsom and Brighton Downs, and to the North and South Downs generally. It is sweet herbage for sheep, and is as unproductive as it looks, nor can it be made otherwise by any system of cultivation ever yet attempted. But the better soils of the limestone are clothed with rich Grass, that feeds heavy Shorthorned cattle, whose bulky frames, seen on the horizon, have a singular appearance when the animals stand on the topmost edge of the great round hills to catch the air in hot weather. The few sheep which accompany the cattle in this rich but elevated district are, like them, natives of the plain. The condition of this pasturage is easily

maintained by restoring to the soil the elements removed in the cheese, butter, bone and flesh which are yearly sold to the more populous districts which require them: but, as we said before, the condition is lost when this restoration is neglected,—the pasturage then becomes poor, the best Grasses disappear, and the land, instead of retaining the succulent early and cultivated varieties which had been sown, is taken possession of by plants peculiar to the chalk and limestone, several of which are not Grasses, and are a month later in spring than those commonly cultivated.

It is observed that pastures from which hay is sold lose their herbage first; the process is much slower on the cheese farms, because pigs are kept to eat the whey, and a partial restoration takes place in the corn purchased to fatten them. The hill farms are occasionally farmed, or *spoiled*, by those who occupy land elsewhere, and hire for their convenience several "gates" of hill pasturage,—a "gate," being summer grazing for one ox, or for six sheep. There are, in short, many examples of farms where no proper or complete system is carried out, and the exhaustion of the soil, as shown by the injury done to the herbage, is found to be in exact relation to the management. Exhaustion, sooner or later, is inevitable, except under very high farming, which includes generally cattle feeding with cake and corn, and large purchases of manures. But the period is, of course, dependent also on the original quality of the land and subsoil.

We have often been struck by the appearance of two adjoining pastures, presenting the greatest possible contrast, though on land of similar original quality. Yet it seems that the Clovers, &c., are not banished from the exhausted soil, nor are they destroyed; they exist, though without vigour, and are present, though in portions too minute to be observed; and they can be made to appear suddenly (that is, in a single season), by sowing bones. Seed alone would be thrown away, because the conditions of growth are wanting, but the constituents contained in bones supply those conditions; and the plant, which had never been quite destroyed, immediately becomes luxuriant.

Bones have been systematically used in English farming for half a century, and the singular phenomenon described is familiar to agriculturists, but the lesson taught by it has yet to be made familiar, for the practice of modern farming has perhaps led us astray from simple truths; we are apt to overlook the fact that modern farming takes from the soil more rapidly than farming did of old, and that it only restores to the soil, clumsily and inadequately, by force of purchase.

Our great crops are obtained at great cost; we work the land harder than we once did; we plough it deeper and crop it faster—and we feed it better. Unless it be so fed, our deep cultivation and other operations do not pay. Even the richest land does not long bear our rotations of crops, without being fed by manures obtained. directly or indirectly, outside the farm. The German Professor was not far wrong when he said to his pupils "manure is the soul of agriculture." It is almost the one thing needful to the English farmer: all his other processes would fail without it.

Some persons have declared that the earth is inexhaustible. Let them attempt to farm without manures; meaning thereby all the fertilisers. The truth is, plants appropriate the substance of the soil, which is removed with them. The land has no power of continual self-restoration, and therefore, farm it as we will, by plough or by spade, we must constantly manure it. The expenditure for manures is an enormous and apparently an increasing item in English farming. Their cost controls the cost of food. If guano, superphosphates, and cakes were one-half their present price, there would shortly be more English and less foreign Wheat at market. For whether our fields may be properly called exhausted or not, there is no question of the effect of the extra feeding they would get. Need we point out that manures are more wanted because the land is less idle, and they get scarce because they are wasted? Plants are grown for man and stock: man is the great appropriator. Where does that portion of the substance of the earth which is consumed by man go to?

How to rouse the farmers of England to a sense of their wants, their privileges, and their true position, is a problem of no small difficulty. Isolated as they of necessity must be, it is by no means easy for them to assemble for mutual counsel: and it has been hitherto impossible to reach them through books or the Press. The great body of farmers know and care little for those questions which are discussed by its leaders, although these topics have a vital interest to every occupier of land. This inertness is being gradually broken down by education and the extension of agricultural associations, but it is still to be regarded as one of the greatest impediments to their progress. It is in fostering brotherly feeling or the sense of professional kinship that Chambers of Agriculture should find their greatest work. In this the usefulness of professional associations in a great measure lies, the body caring for, and, if necessary, protecting its members. This element of usefulness should be kept steadily in view by our Chambers of Agriculture, and as the season for their meetings advances it is advisable to call attention to the value of *united action*. When an important subject is discussed, agriculturists should endeavour to be present, on the principle that the larger the meeting the more influential will it prove. Too often have we heard a farmer say that he could read all about the meeting afterwards in the newspapers, forgetting that his personal influence in backing up the opinions of the Chamber was thereby sacrificed. To say that as much is learnt by perusing the report of the speeches at home as by hearing them delivered, indicates a want of appreciation of the main object of a public meeting. Why, we would ask, is so little progress made in the direction of secure tenure for the occupier of land? How is it that the question of game preserving continues in so unsatisfactory a condition, and why is not the necessity of better cottage accommodation more prominently brought before landowners? Free discussion, and the expression of definite opinions, supported by weighty arguments, would do much towards the settlement of these and other important topics, and we long for the day when tenant-farmers will interest themselves in the endeavours which are being made in other localities besides their own, for the advancement of a common interest. Agriculture has advanced, but until more attention is bestowed by farmers themselves on such subjects as have been named, our present knowledge cannot be fully developed.

With reference to the first question—the tenure of land—how is it possible that the resources of the soil can be fully brought out by yearly tenancies? It is not in the nature of things that it should. Further, when we remember the monopoly of land which exists it is at once clear that the landlord has the advantage in what is so often incorrectly stated to be "an equal contract between man and man." Let the tenant-farmers of England, however, awake from their stupor, and demand a better, a more secure, tenure; a tenure which will enable them to do justice to themselves and their country by raising produce under the most favourable circumstances. Then they will be backed by a strong public opinion, and the landlords will give way in a matter which can be shown to be for their own advantage. Our system of large estates becomes absolutely vicious when it acts as a drag upon the production of food for the people, and the only means of making it consistent with modern notions is to secure the tenant in quiet possession. It is positively sad to find the yearly tenancy and "good feeling" theory maintained by men of agricultural position; and we hold that it is simply absurd to talk of improving land as it ought to be improved, without the inducement of a long lease and security for capital invested. When will the majority of farmers see this question in the same liberal light in which it has been regarded and presented by, let us say, JOHN GREY and WREN HOSKYNS?—to choose our representative men from at once the living and the dead. It may be long before the views of such men are generally adopted, but they are the growing opinions of the day. The good of the many, not the pleasure of the few—this is the invincible weapon to be used. In conclusion, we once more lament the want of that lively interest in these matters on the part of farmers themselves. Their contentment, instead of being looked upon as indicative of a low state of vitality, is used as evidence that no reform is required. Farming associations are yet young, and if their active members can succeed in showing their less enlightened and worse educated brethren the importance of personal attendance at, if not of actual participation in, agricultural discussion, much good will be effected.

—— THE price of Wheat has declined at Mark Lane and generally throughout the country, from 1*s.* to 2*s.* per quarter, during the week. Barley, excepting fine malting qualities, and other spring grain and pulse, are also slightly lower. Maize, however, on which town horses are now largely fed, is 1*s.* per quarter dearer. 51*s.* per quarter is the highest price quoted for new English Wheat, and 56*s.* per quarter for foreign.——The beef trade has not recovered the recent small decline in price, except for very choice English qualities; but prime mutton is now making 5*s.* 10*d.* per 8 lb.——The agricultural seed trade has been almost limited to Trifolium, Rye-grass, and winter Tares, for which there has been a somewhat active demand.——The English wool trade has changed but little, and inferior foreign is no dearer; but fine qualities of Australian and New Zealand grown Merino have advanced 1*d.* to 1½*d.* per lb., in consequence, as Messrs. BRADBURY & COOK say, of the French manufacturers becoming "keen competitors."

—— The returns of acreage of our various corn crops, sent in to the statistical department of the Board of Trade, have just been published. It has not been practicable to obtain from all parts of England and Wales the information necessary for their completion for this year until the present date. With the view of making known as early as possible the chief results exhibited by the returns, the following particulars are furnished in anticipation of the returns in detail:—

EXTENT (IN ACRES) OF LAND IN GREAT BRITAIN UNDER

	Wheat.	Barley.	Oats.	Potatos.
1867 ..	.. 3,367,876 ..	2,259,164 ..	2,750,487 ..	492,217
1868 ..	.. 3,652,125 ..	2,151,324 ..	2,757,053 ..	541,543
1869 ..	.. 3,695,030 ..	2,256,177 ..	2,785,054 ..	586,301
	INCREASE (+) OR DECREASE (—).			
1869 .. over 1867 ..	.. +42,905 .. or 9.7 per ct. ..	+104,853 .. or 0.1 per ct. ..	+28,001 .. or 1.3 per ct. ..	+44,758 or 19.1 per ct.
1868 .. over 1867 ..	.. 1.2 per ct. ..	4.9 per ct. ..	1.0 per ct. ..	8.3 per ct.
1869 .. over 1868 ..	.. +327,154 .. or 9.7 per ct. ..	— 2,987 .. or 0.1 per ct. ..	+34,567 .. or 1.3 per ct. ..	+94,804 or 19.1 per ct.

TOTAL NUMBER OF LIVE STOCK IN GREAT BRITAIN UPON JUNE 25.

	Cattle.	Sheep.	Pigs.
1867	4,993,034 ..	28,949,101 ..	2,966,979
1868	5,423,981 ..	30,711,396 ..	2,308,539
1869	5,316,588 ..	29,580,954 ..	1,931,837
	INCREASE (+) OR DECREASE (—).		
1869 .. .. over 1867 ..	—107,393 .. or 6.5 per ct. ..	—1,130,442 .. or 2.3 per ct. ..	—376,702 or 34.9 per ct.
1868 .. .. over 1867 ..	2.0 per ct. ..	3.7 per ct. ..	16.3 per ct.
1869 .. .. over 1868 ..	+323,554 .. or 2.0 per ct. ..	+661,853 .. or 3.7 per ct. ..	—1,035,142 or 16.3 per ct.

The acreage of land in Great Britain under Hops in 1869 was 61,784, against 64,188 in 1868, and 64,284 in 1867. There is this year a considerable increase in the acreage of all the corn crops over 1868; but a very considerable and surprising decrease in the number of live stock—107,392 cattle, 1,130,442 sheep! and 376,702 pigs fewer, in 1869, than in the previous year.

—— The *Leeds Mercury* publishes the reports of a large number of its Yorkshire correspondents on the character of the past harvest, and comes to the conclusion that notwithstanding the variety of soil and cultivation, all accounts agree, not only that the Wheat crop is not equal to an average of the last four or five years, but that it is likely to be much below the unusually favourable yield of last year. Whilst Barley is an average crop, Oats are a deficient yield. The wet weather has been favourable for the root crops, and there is every reason to anticipate an abundance of food and fodder for cattle.

—— The Contagious Diseases (Animals) Act is imperfectly understood, at present, by many persons and owners of stock throughout the country. One clause in the Act requires that any farmer or owner of stock shall give notice of the existence of any contagious disease in his flock or herd to the officers appointed by the proper local authorities. A case was brought before the magistrates at Oldham, on Monday, when a person was convicted for not giving notice of an outbreak of foot-and-mouth disease among his cows. The magistrates, however, only inflicted a nominal fine, as this was the first case which had been brought before them. The full penalty is 20*l.*

—— A passenger by the boat from Bremen reaching the Thames on Tuesday afternoon, after almost difficult and stormy passage, lasting more than four days, informs us that of over 30 or 40 beasts and 100 sheep leaving Bremen 8 or 10 oxen and 30 sheep died on the passage, and were thrown overboard. The want of water, food, and shelter killed so many, and took probably 30 to 50 per cent. off the value of the survivors. The steamer had left in a storm, and the ship's officers were as indignant as the passengers at the inevitable cruelty to which the shipping company thus consigned them.

—— The Bingley Hall Company have issued their prize list for the next Birmingham show of live stock, corn, and roots, from Nov. 27 to Dec. 2, inclusive. The prizes are: The Earl of Coventry, 25*l.* cup; the Earl of Aylesford, 15*l.* cup; the Mayor of Birmingham, 10*l.* cup; the Hotel and Innkeepers, 25 guineas. There are, besides, four extra prizes and two gold medals, one for the best male, the other for the best female in the cattle classes. The money prizes consist of 120*l.*, in four classes, for each of the three English breeds of cattle, viz., Herefords, Shorthorns, and Devons. Longhorns are honoured with 30*l.* in four prizes; Scots, 75*l.*, in seven prizes; Welsh, 20*l.*, in two prizes; other pure breeds and cross-bred animals, 60*l.*, in six prizes; and extra classes, 10*l.*, in two prizes. For sheep there are the Linen and Woollen Drapers' four extra prizes, of

10*l.* each—10 gs. by Mr. Bromley-Davenport, M.P.; 10 gs. by Mr. Newdegate, M.P.; and 10 gs. by Messrs. Mapplebeck and Lowe. The money prizes are 30*l.*, in three prizes, for each of the six recognised breeds, viz., Leicesters, Lincolns, Cotswolds, Southdowns, Shropshires, and Oxfordshires. Fat pigs and breeding pigs have also several appropriate prizes besides silver medals. Full particulars, however, may be had by applying to the Secretary, Mr. Lythall, New Street. The entries for stock close Nov. 1, and for implements, &c., before Nov. 11.

—— The Staffordshire Agricultural Society held its annual meeting at Burton-on-Trent on Thursday last, and, under the good management of its secretary and active authorities, the show was in every way successful. There has been some discussion of late about the desirability of a county show having two days for stock. When, however, the expense of shedding and horse-boxes is considered, it is doubtful whether it is advisable to incur it. This matter is just a question of the cost being recouped by the attendance of visitors. So far as agricultural instruction goes, one day is just as good for farmers to make comparisons as 20 days would be. Staffordshire has only one day for stock, while Warwickshire has two days; yet the Staffordshire, as a rule, is by far the more instructive exhibition of the two. The question, however, now is, whether both of them, and several others in the midland counties, are now required. Would it not be better for them to amalgamate, and form an influential Midland Counties Association, and hold a week's show at each principal town once in ten years? If provincial agricultural shows are now required, it is obvious that this plan would be more in accordance with the spirit of the present time. Why not form a Midland Counties Agricultural Association, in imitation of the Bath and West of England and Southern Counties Society? Staffordshire, Warwickshire, Worcestershire, Leicestershire, Derbyshire, Shropshire, and Cheshire, would form a field for working in that would be able to yield an exhibition worthy of the Midland Counties, with Birmingham as its centre, as well as one worth going to see by any agriculturist in the county. At present, however, these shows are too numerous to do much good to their own county, and there is nothing for strangers to see when they go. There have been about a dozen of these shows this week and last, the prize animals at many of which have been the same. The Staffordshire meeting, however, has been successful, as county shows now go. The cattle, we learn, from a report in the *Birmingham Gazette*, were good.

"The Shorthorn bulls included some well-bred and useful animals, the 1st prize being awarded to a roan, 2 years and 9 months old, bred by Mr. E. Lythall. The 2d prize animal, 'Theodore,' the property of Mr. Sneyd, although seven months younger than his more successful rival, possesses great frame, and all the attributes of a Shorthorn male. The Duke of Sutherland obtains a high commendation for a fine roan, of great size and immense substance, which is scarcely inferior to his two successful rivals. In this class, Mr. Hardy, of Dunstall Hall, Burton, exhibited a well-grown animal, of great size, but somewhat unshapely. A roan bull, the property of the Marquis of Anglesey, although passed over by the judges, excited the attention of the practical farmers. The yearling bulls were of a serviceable character — Mr. Willoughby Wood's roan, which took the 1st prize, showing good breeding. Mr. Ratcliff, of Walton Hall, deservedly received a high commendation for a rich roan of great promise. The bull calves were of a variable character, Mr. Willoughby Wood's 1st prize animal being closely run by Mr. Hidson's 'Nimrod,' but as there was four months' difference in the age, it must remain for next year to decide which is the better of the two. In this class there are two fine roans, one the property of Lady Des Veux, and the other of Mr. Wakefield, which are promising animals, and will doubtless be heard of on some future occasion. The cow classes were good; indeed, it would be almost impossible to get together a collection of dairy stock in any county in England which could equal the lot shown at Burton. They were all in store condition. The dairy classes were of more than ordinary merit, and the Shorthorn element was the predominant feature. There were only five entries in the class for fat cattle. There was not a large show of sheep, but, as usual, the Shropshires predominated—Mr. Keeling, although coming off with a second award, showing some fine animals. In the long-woolled class, Mr. Johnson took the 1st prize with an improved Lincoln, in the old and shearling classes; and his pen of shearling ewes, of the same breed, were very fine. Indeed, all the 1st prizes in the long-woolled classes were taken by Mr. Johnson. As to the pigs, all that can be said is that they were of the porcine race, and the 1st and 2d prizes for pigs of a small breed were awarded to two of the largest animals in the yard. In contradistinction to this objectionable practice, a diminutive little boar, 8½ months old, was exhibited in the class for boars of a large breed by Mr. Bantock, of Wolverhampton. The majority of the pigs were white, and Tamworths, only two or three pens of Berkshire, and those of inferior quality, being shown. The horses were of not more than average quality, and the jumping was anything but satisfactory."

—— Steam ploughs and cultivators are to have an important trial at Peterborough, on Wednesday and Thursday next. We are informed that large and small sets will be put in competition, and also that Messrs. AMIES & BARFORD will exhibit a new self-moving anchor, which is described as a great advantage in working the well-known round-about system of Mr. SMITH, Woolston.

—— The Cambridgeshire Society held its annual meeting on Wednesday and Thursday, this being the first time of its show extending beyond one day. In a brief report the *Stamford Mercury* says:—"All the classes of the horse show were well supported, and whether for agricultural, hunting, or road purposes, the animals exhibited were, on the whole, of a high character. Cattle were a good display, although numerically we have seen better shows in the Eastern Counties. Sheep were not very numerous, and pigs were decidedly, as regards numbers, at a discount." The first prize for Shorthorn bulls over two years was awarded to Mr. Pawlett, 2nd to Lady Pigot; under two years old—1st, ditto; 2nd, Mr. J. How. In heifers Lady Pigot took the first prize.

OUR LIVE STOCK.

MR. THORNTON has given notice that the sale of Mr. E. J. Schollick's Shorthorns will take place on October 5, instead of the 1st, as previously advertised.

—— An important sale is announced by Mr. Strafford to take place on October 19, at the Prebendal Farms, Aylesbury. Mr. J. K. Fowler has long been known as a breeder of excellent stock, and we have every hope that his coming sale will be well attended, and that the quality of the 40 Shorthorns offered for sale will be appreciated by the public. Catalogues are not yet issued. We may, however, state that the stock is of Fawsley origin, with Kirklevington crosses, and that amongst them will be found some very good animals descended from *Catalina*, *Charmer*, *Cold Cream*, *Walnut*, *Fantail*, *Seraphina*, and other favourite sorts. The sire now in use is HARDICANUTE, bred by Mr. Adkins, of Milcote.

—— Mr. Duckham will hold his first sale of pure-bred Hereford cattle on October 21, the day after the show of the Herefordshire Agricultural Society and Great October Fair. The event is looked forward to with interest, and we are glad to learn that the entry is already exceedingly satisfactory. One eminent breeder has placed 40 head of cattle at Mr. Duckham's disposal for his first periodical sale.

—— The herd of Mr. G. R. Barclay was sold at Keavil, Dunfermline, on Tuesday last, by Mr. Thornton. The result was, on the whole, satisfactory, although on account of the advanced age of some of the cows they brought less money than was originally given for them. Thus, *Seraphina 13th*, purchased at one time for 240 gs., only realised 110 gs., and *Anne of Lancaster*, once sold for 150 gs., was bought for 54 gs. *Fan-fan*, a daughter of *Faith* and SIR JAMES, became the property of Mr. Whyte, of Clinterty, for 165 gs. Lord Sudeley was the purchaser of *Seraphina 13th*, and her two daughters, *Seraphina Carissima*, and Booth's *Seraphina*. Nineteen cows and heifers realised an average of 59*l.* 6*s.*, and eight bulls made 57*l.* 15*s.* each. The average of the 27 head disposed of was 58*l.* 16*s.* 9*d.* A large number of cattle breeders and farmers were present from all parts of the kingdom, and the whole of the stock was disposed of without reserve, Mr. Barclay having sold his estate. The following is a list of the names of the animals sold, of the purchasers, and the prices made:—

Name of Animal.	Price.	Name of Purchaser.
Cows and Heifers.	Gs.	
Annie Laurie	29	Mr. Smith, Balmains, Kincar-
Seraphina 13th	110	Lord Sudeley [dine
Lady Raglan	40	Mr. W. Goodsman, Mains of Federat, Aberdeenshire
Miss Burdett Coutts ..	51	Mr. Stewart, Craigneston
Fan-Fan	165	Mr. Whyte, Clinterty
Anne of Lancaster ..	54	Mr. N. Reid, Daneston
Miss Matchless 2d ..	41	Mr. R. Arkley, Ethiebeaton
White Nonpareil ..	30	Mr. W. Mackie, Petty, Fyvie
Baroness Laurie ..	34	Mr. Aitken, Fettercairn
English Heiress	31	Mr. Husband, Gellat
Seraphina Carissima ..	120	Lord Sudeley
Countess Laurie	30	Mr. Beveridge, Orrock
Booth's Nonpareil ..	34	Mr. W. Marr, Uppermill
Booth's Matchless ..	26	Mr. Husband, Gellat
Booth's Seraphina ..	150	Lord Sudeley
Booth's Lancaster ..	71	Mr. J. Beattie, Annan
Laura Booth	20	Mr. J. Hardie, Primrose
English Matchless ..	20	Mr. Duthie, Tarves
2d Countess Laurie ..	17	Mr. R. H. Harris, Earnhill
Bulls.		
BARON BOOTH	61	Mr. A. Mitchell, Alloa
HEIR OF ENGLISHMAN ..	100	Mr. W. Marr, Upper Mill
FREDERICK FITZ-BOOTH.	90	Mr. R. Chaloner, co. Meath
BARON COUTTS	21	Mr. Yule, Elgin
BARON LAURIE	40	Sir David Baird, Gartsherrie
EASTON	43	Mr. Hathorne, Ferrybridge
KNIGHT OF LANCASTER .	35	Mr. Beveridge, Orrock
PRINCE GEORGE	50	Mr. Duthie, Tarves

Sheep.—At Derby, in the Shropshire Sheep Class, Mr. Willoughby Wood secured the 1st place for rams, in competition with Mr. Baker's 2-shear sheep, which has been so frequently victorious this season. In the shearling class Mr. Baker was 1st, and Mr. Wood was 2d. In the ewe class Mr. Rose took the 1st prize, with a pen of very fat sheep, thought by some judges deficient in "character," and not quite so good as Mr. Baker's sheep, which were placed 2d. Mr. Wood's ewes were scarcely fat enough to attract the judge's eye, and this partiality for fat in judging a class of animals intended for breeding purposes gave rise to some little discontent. Everyone speaks or writes against this tendency to award prizes for obesity, and yet the evil does not decrease, and hence many of our best breeders will not exhibit. A well-known sheep-breeder writes to us as follows:—"I consider it buying a prize too dear to spoil one's best breeding animals to obtain it."

While speaking of Shropshire successes, we may mention that Lord Chesham took the 1st prize for yearling rams and for yearling ewes at the International Exhibition at Altona Konigstrasse. His lordship sold one ram for 40 gs., and three ewes for 10 gs. each during the show. This is very satisfactory, especially when it is remembered that the Latimer flock has been established but a comparatively short time.

RECENT RAM SALES AND LETTINGS.

Leicesters.—Mr. W. Torr, of Aylesby Manor, held his annual meeting on September 1, according to custom. This has usually been a private letting, but on this occasion some of Mr. Torr's views and the prices he made have been promulgated. We accordingly learn that:—"Mr. Torr had reduced the number of his rams to accommodate the lessening demand for pure blood, but out of the 60 shown 25 or 30 finer specimens of Leicester sheep were never exhibited, and these were let at remunerative prices. Some of those shown were the progenitors of successful competitors at various exhibitions of agricultural societies, and one of them, Quid, was the sire of the winner at Manchester. Major Taylor took one sheep at 20 gs. and another at 10 gs. One was let by auction (by Mr. Thornton) to Mr. Maw at 20 gs., the opponent being Mr. Harrison, who then hired one at 12 gs. The highest price made was 35 gs., and the lowest letting was at 10 gs. The average [of seven was 20 gs., and the general average was about 14 gs. The total number let on the day was 29, and there were also applications by letter."—The large sales in Scotland took place last week. At Edinburgh on Thursday week there was a good show. The highest price obtained during the day was 38*l.*, for the animal belonging to Mr. Simson, Blainslie, which was commended at the show on Wednesday. The purchase was made for Mr. Balfour, of Whittingham. The ram, also belonging to Mr. Simson, placed 1st on Wednesday, and 1st at the Highland Society's show as a Border Leicester shearling tup, was purchased by Mr. Hunter, Dipple, for 36*l.*; 35*l.* was given for a ram belonging to Mr. Smith, Castlemains. The Glasgow prize ram of Mr. Smith, Stevenson Mains, was sold for 20*l.* Mr. Watson, Asperton, sent 30: the highest price made was 19*l.*, and the average 7*l.* 16*s.* The Duke of Buccleuch sent 30: the highest price was 22*l.*, and the average 7*l.* 16*s.* Mr. Smith, Castlemains, sent 38, and, with the price above named, his average was 8*l.* 15*s.* Mr. Smith, of Stevenson Mains, sent 70, and averaged 6*l.* 8*s.* 3*d.*—Mr. Simson sent 38, and averaged 8*l.* 3*s.* 6*d.*—At Kelso last week the great annual sale of Leicester and half-bred rams, under the auspices of the Border Union Society, commenced in the Inch Park. There was a large attendance, including proprietors and flock-masters from distant parts of the United Kingdom, and also from Canada and Australia. There were four rings placed at various points in the park, three being for the sale of Leicester sheep, and one for the sale of half-bred rams. There were in all 64 lots entered for sale—54 of Leicesters, and 10 of half-breds—representing a grand total of 1765; last year the number was 1813, so that there has been a decrease this year of 48. The following are the principal prices made:—The lot belonging to Mr. Foster, Ellingham, sold well. One was sold at 50*l.* to Mr. Calder, Oxenrig; one at 40*l.* to Mr. Simson, Blainslie; one at 37*l.* to Mr. Smith, Stephouse; and one at 26*l.* to Mr. Angus, Whitefield. Mr. Robertson sold the ram that was highly commended at the show at Coldstream on the previous day at 24*l.*, while the tup that got the 2d prize, which belonged to another party, only brought 11*l.* The highest-priced ram in the lot of Mr. Bell, Linton, was purchased by Mr. Bell, Fans, at 20*l.* Mr. Dinning, Nilston Ridge, sold his highest-priced ram to Mr. Lumsden, Northumberland, at 31*l.*; and another to Mr. Foster, Curradon, at 24*l.* In the Rev. Mr. Bosanquet's lot, the ram which brought the highest price was sold to Lord Penrhyn at 30*l.*; another was sold to Mr. Robeson, Springwells, at 26*l.* Mr. Wood, Thornborough, bought the highest-priced animal in the lot of Messrs. Black, Coldstream, at 22*l.* Mr. Torrance, Sisterpath, sold his highest to Mr. Englis, Logan Bank, at 41*l.*; and one to the Marquis of Tweeddale at 30*l.* The Mellendean sheep, which have long held a leading place at this sale, came on for auction about six o'clock, when the ring was surrounded by a large company. The highest price obtained was 109*l.*, one of the highest figures ever obtained at this sale. It was purchased by Mr. Collingwood, Lincolnshire. Mr. Bruce, Aberdeen, purchased one at 40*l.*; Mr. Roberton, Harperton, one at 36*l.*; Mr. Torrance, Sisterpath, one at 31*l.*; Mr. Foster, Ellingham, one at 26*l.*, and one at 21*l.* The average was the highest obtained at this sale. Lord Polworth's are generally regarded with great interest by flockmasters, and the ring is generally crowded when the sale is going on. On this occasion, however, they were about the last on the list, when a great number of farmers had left, and hence the average and highest price were not so high as last year. The top price was 42*l.*, purchased by Mr. Elliot, Hollybush; Mr. Borthwick, Gowbog, purchased one at 33*l.*; Mr. Scott, Buckholm, one at 31*l.*; and Mr. Thomson, Rutherford, one at 20*l.* The following is a list of some of the highest and average prices obtained:—

Lots.	Owners.	Highest.			Average.		
14	Messrs. Dinning, Nilston Ridge, Haydon Bridge	31	0	0	9	2	8
34	Mr. Forster, Ellingham, Chathill	50	0	0	15	8	2
67	Rev. Mr. Bosanquet, Rock ..	30	0	0	12	18	8
45	Mr. Angus, Whitefield, Morpeth	25	0	0	9	5	0
44	Mr. Dinning, Belford	31	0	0	9	1	0
34	Messrs. Black, Heatherslaw, Coldstream	22	0	0	8	14	9
35	Mr. Simson, of Blainslie	27	0	0	7	14	6
100	Mr. Hardie, Harrietfield.. ..	20	0	0	9	2	4
30	Mr. Purves, Linton, Burnfoot ..	22	0	0	9	14	2
35	Mr. Roberton, Harpertoun ..	24	0	0	9	17	8
40	Mr. Bell, Linton	20	0	0	9	16	3
40	Mr. Simson, Courthill	20	0	0	9	14	0
40	Trustees of the late Colonel Nisbet of Mersington	10	0	0	7	8	4
30	Mr. Thomas Rutherford	17	10	0	8	6	8
49	Mr. Torrance, Sisterpath.. ..	41	0	0	9	8	9
45	Mr. Hogarth, Eccles Tofts ..	10	10	0	6	5	6
35	Miss Stark, Mellendean	109	0	0	16	9	4
19	Right Hon. Lord Polwarth ..	42	0	0	15	0	5
31	Messrs. Laing, Cornhill	26	0	0	9	1	3

Border Leicesters.—At Mr. Barclay's sale, at Keavil, on Tuesday, some of his sheep were disposed of. The tups and tup lambs met with a ready sale, at from 53*s.* to 80*s.* each, and two were sold to Mr. Heatherington for 5*l.* 10*s.* each. The females made: the ewes, from 63*s.* to 73*s.*, and 17 gimmers (theaves) became the property of the Hon. D. B. Ogilvy, at from 5*l.* to 8*l.* 5*s.* each.

Southdowns.—Lord Sondes' fourth annual sale took

place on Wednesday, September 8, at Elmham Park, Norfolk. 16 shearling rams averaged 15*l.* 4*s.* 3*d.* six 2-shear ditto averaged 16*l.* 9*s.* The highest shearling ram was let to J. J. Colman, Esq., for 36 gs.; highest 2-shear to Colonel Tomline, M.P., 33 gs. Some ewes and wether lambs were also let; 110 shearling ewes, 376*l.* 7*s.* 7*d.*, averaged 68*s.* 6*d.*; 50 full-mouthed ewes, 143*l.*, averaged 57*s.* 3*d.*; 90 ewe lambs, 146*l.* 15*s.*, averaged 32*s.* 7*d.*; 150 wether lambs, 257*l.* 5*s.*, averaged 34*s.* 3*d.* The highest pen of shearling ewes realised 6*l.* 16*s.* 6*d.*; ditto, full-mouthed ewes, 3*l.* 12*s.*; ditto, ditto, ewe lambs, 1*l.* 13*s.* 6*d.*; ditto, wether lambs, 1*l.* 18*s.*

Shropshires.—Mr. Charles Byrd, of Littlewood, near Stafford, held, on Monday (Sept. 6), a sale of the produce of his flock, which was started from good stock about 15 years ago. Amongst the prices given for rams were the following:—No. 1, Mr. Branburne, 60 gs.; No. 2, Mr. Henry Smith, 44 gs.; No. 3, Mr. Matthews, 35 gs.; No. 6, Mr. Fetherstone, 42 gs.; No. 7 (to let), Mr. Ford, 20 gs.: the others ranged from 7 to 12 gs. each. The ewes were low in condition, and realised from 46*s.* to 51*s.* each.—Mr. Walker, of Odstone, Leicestershire, has been working up a flock of this breed for about 20 years, and he recently held his first annual sale. Young Duke, a 4-shear, by Duke of Kent, which was let till November 1, with the right of sending 10 ewes, for Earl Howe, at 18*l.* gs. Then followed 16 shearlings, all by Young Duke, with many good strains on the dam's side. Mr. Swann, Odstone, gave 17 gs. for one; Earl Howe, 16 gs.; Mr. T. Drackley, 15 gs.; Mr. J. Bonnett, Ratby, 11½ gs.; Mr. Mudford, 17 gs.; Mr. T. Earp, 12½ gs.; Mr. Neal, Bilston, 10½ gs.; the lowest price being 8 gs.; the average of the 16 shearlings was within a fraction of 12*l.* each.—At Shrewsbury, on Thursday week, Mr. Preece held his second large sale. Amongst the lots were 40 belonging to Messrs. Crane, one of which was let at 51 gs., another at 30 gs., three others at 20 gs. each, and several sold at 15 gs.—Mrs. P. W. Bowen's ranged from 9 to 23 gs. each.—A shearling of Mr. Mansell's was sold to Lord Penrhyn for 30 gs.; and several of Lord W. de Broke's ran from 9 to 16 gs. each. —Mr. Henry Smith showed 20 sheep, some of which were let at 20 gs.—Mr. T. Horton exhibited very successfully, No. 1 being let at 20 gs., No. 3 at 19 gs., No. 4 at 28 gs., No. 5 at 24 gs., and the others making from 17 down to 12 gs. each.—Mr. Joseph Crane's 14 rams made an average of about 13 gs. each.

Cotswolds.—Mr. W. Hewer had a sale last week, in consequence of his retiring from business. There were 4 aged rams which sold as follows: 28 gs, purchased by Mr. Smith; 25 gs., purchased by Mr. Swannech: 12½ gs., by Mr. Holt; and 11½ gs., by Mr. B. Browne, being an average of 17*l.* 4*s.* 7*d.* The ram lambs were next offered, and prices ranging from 25 gs. down to 4*l.* 10*s.* were realised, Mr. Timms purchasing the highest priced animal. The average was 5*l.* 10*s.* 5*d.* Mr. Canning, of the firm of Canning & Russell, attended, and purchased 10 of the highest priced theaves, at 6*l.* 10*s.* each, for exportation to New Zealand; and Mr. Guerrier, of London, purchased 15 ewes for Prussia. Some ewes were also sold at high prices. They were in lots of five each. The first lot produced 6*l.* per head, and other lots realised from 5*l.* 15*s.* to 2*l.* 12*s.* 6*d.*, which was the lowest. The first pen of theaves brought 6*l.* 10*s.* each, and some ranging down to 2*l.* 10*s.* The average price for ewes was 3*l.* 12*s.* 6*d.*, and for theaves 3*l.* 16*s.* 9*d.*

Lincolns.—Mr. J. W. Kirkham held his annual sale at Cadsby Hall on Thursday week. The rams are descended from the Biscathorpe and old Hagnaby flocks. The 31 rams realised 415*l.* 5*s.* 6*d.*, being an average of 13*l.* 8*s.* each. Nos. 1, 2, 4, and 8 fetched the highest prices, and were bought as follows:—No. 1, by Mr. Wright, of Wold Newton, 21*l.*; No. 2, Mr. Williams, of Ashby, 22*l.* 1*s.*; No. 4, Mr. Kirkham, Hundleby, 21*l.*; No. 8, Mr. Kirby, Marsh Chaysal, 19*l.* 19*s.*—Mr. Iles, of Wold Newton, had 24 sold at Caiston last week. No. 4 was bought by Mr. C. Nainby at 13*l.*; No. 5 by Mr. Empson at 20*l.* Mr. C. Wood bought No. 6 at 10*l.* 10*s.*, and No. 12 at 11*l.* 10*s.* Mr. W. Hudson bought No. 14 at 15*l.*, and No. 19 at 17*l.* 10*s.* No. 15 was bought by Mr. Gooseman at 15*l.*; No. 18 by Mr. Bannard at 12*l.* 10*s.*; and No. 13 by Mr. Dixon at 10*l.* 10*s.* The average of the 24 rams was 10*l.* 12*s.* 6*d.*—At Partney Fair on Saturday the usual important sales of rams took place. There were sheep from seven different flocks, comprising about 200 very superior rams, nearly all shearlings. The Langton Grange rams, the property of Mr. Harwood Mackinder, were offered by Messrs. Briggs. The 34 rams realised an average of about 11*l.* 15*s.* The Huttoft rams, consisting of 32 shearlings, the property of Mr. J. L. Needham, averaged 10*l.* 7*s.* 6*d.* The Thurlby rams, belonging to Mr. Kemp, were 37 in number, the average for which was 11*l.* 12*s.* The Caventhorpe rams were disposed of by Mr. Law. There were 55. Mr. Palethorpe bought one at 16 gs., Mr. Pilkington one at 34*l.* 2*s.* 6*d.*, Mr. Marriot one at 19 gs., Mr. Downing one at 15*l.* 4*s.* 6*d.*, and Mr. Sanderson another at the same price. The 55 rams realised 559*l.* 2*s.* 6*d.*, being an average of 10*l.* 3*s.*

AGRICULTURAL MEMORANDA.

1. *The Harvest.*—I have been absent for two months in Hungary, and was therefore too late to reply to your circular as to the crops. From what I now learn, the deficiency in Wheat will be very great. Well-farmed lands of good quality and thoroughly drained may produce 4 quarters to the acre instead of 5½ quarters of average years; but many acres, where 4 quarters are usually reaped, will not this year exceed 2 quarters; and when cold and wet, the yield will be still smaller. Winter Beans and Oats are a good crop, and early sown spring Beans are fair, the later sown Peas have suffered from smother-fly.

The extreme heat and drought of August have checked the Mangel and Cabbage, which in July were most promising. This injury is much smaller where the subsoil plough has prepared the arable land to retain its moisture; and there, too, the Swede Turnips have escaped mildew, and may yet make a fair average crop.

Dairy produce was good to the end of July, but the dry weather since has checked the supply of milk.

All other stock, whether feeding or store, has done well.

2. *Draining.*—In a paper read by Mr. John Shuker, which in your leader you deservedly praised, the author recommends 4-feet drains under almost all circumstances, when laid in an open measure, and 3 feet with an impervious subsoil. I believe that the Enclosure Commissioners are influenced by a preference for drains 4 feet deep in all cases, in their consideration of applications for loans for the improvement of land. I was quite familiar with deep as well as shallow draining 50 years ago, and I am satisfied that in most cases in which the drains are required to be as near as 20 feet from each other, the subsoil is so impervious to water that a drain of 3 feet is as effective as one of 4 feet, and much less costly. I have watched drains made in 1824, of 4 feet and 2 feet 6 inches, in the same field, and I have never seen any advantage there in the deeper drain.

Then as to drains deeper than 4 feet, I was aware that drains of 5 or 6 feet drew the water from greater distances than 4 feet drains in case the measure into which they were laid was open, but for some years I thought that 4 feet drains, with 40 feet intervals, were sufficient and the cheapest. Having 200 acres of meadow to drain and irrigate at a time when I was unable to superintend it myself, I engaged an engineer to undertake the work. He obtained a depth of from 6 to 8 feet on a considerable area, and on this part he placed his drains 240 feet apart. The cost was at least 200*l.* less than the 4-feet drain would have required, and the work is so effectual that the land is perfectly dry in 24 hours after a flood has run off it.

I have also only one-sixth of the length of drain to keep in order, and I think at that depth, having a stream of water through them for more than 40 weeks in the year, they are less liable to be injured by animals getting into them.

The paper to which I allude speaks also of necessary air holes for drains; now, wherever water can go air can penetrate, at least 100 times as fast, so that no air holes can be necessary and may be mischievous, as encouraging the use of the drain by vermin.

3. *Lucerne.*—The best crop of Wheat I have seen this year is grown upon land which was occupied by Lucerne for 11 years previous to 1868. In the tenth year it was as productive as in any preceding year, but the extreme wet of 1867 decayed the roots, and I was obliged to plough it up. It gave me 5½ quarters of winter Beans to the acre last year, and a very heavy crop of Wheat this. The Lucerne was drilled at 18-inch intervals. The soil was ploughed between the rows twice in the winter each year, and kept clean by the horse-hoe between the rows after each mowing. We mow usually three times, a hot year gives four mowings. I am about to try it upon clayey land, where Grass does not grow very readily. I may here manage to keep a plant with 9-inch intervals, but I have failed to do this upon a free Turnip soil, and had given up Lucerne-growing until I learned that they succeeded well in Lincolnshire with 18-inch intervals. I followed these examples in 1852, and have never been without a good piece of Lucerne since. I find the best manure is nightsoil and ashes, of which I give 12 tons per acre, and it leaves the land in splendid condition. *Charles Paget, Ruddington Grange, Nottingham.*

AGRICULTURAL PROGRESS.

Our text naturally turns attention to the cultivation of land by steam-power—the mowing and reaping machine in our hay and corn harvest fields—sewage farming, with the other leading and great advances of the day. But there are little things that should not be overlooked, and it is these latter which we propose for discussion at this time, *i.e.*, the little improvements that follow in the wake of the big ones. For example, will steam culture and the sowing of sound seed, free from weeds, render the hand-hoeing of corn crops unnecessary, thereby effecting a saving of from 3*s.* 6*d.* to 5*s.* per acre? In this county (Surrey) we went early last June over three Wheat fields, two of which were not hoed; the other was, and the former were by far the best crops. They belong to three different farmers. The two unhoed fields exemplified the benefits arising from deep tillage and pure seed in a very striking manner, while the other illustrated the old plan of shallow tillage, weeds, and hoeing, and we quote the three examples for several reasons — 1st, because all were horse-tilled, and on what is here termed light land, in contrast with the heavy clay soils of the district; 2d, not one of the fields was rolled for the reaping-machine — the practice in harvest being to cut low with the bagging-hook, the straw being sold in the metropolis. And, 3d, when we remarked that this practice was exceptional, and did not apply generally, and the practical question arose as to the propriety of rolling such land in springs like the past, we were met with the reply:— "Put my teams in this 'ere field in April? Not for the life of me," which is plain English, and yet something must be done. As for rolling the other after hoeing, that was thrown aside as hopeless, even by steam, in the majority of seasons. On a similar quality of land, cultivated by steam, the secondary or resultant improvements, as they may be termed, are still more favourable, but not so great as on clay soils whose tenacious and binding character is gradually becoming changed by the improved drainage, aëration, and action of manures, and also by the greater diversity of crops grown, so that in cases of this kind the resultants which we have got to consider, are not one, but many.

Mowing and reaping-machines are changing greatly the details of practice in hay and corn harvest, while sewage farming is also producing fruits far beyond the limits of town sewage application.

"A penny saved is twopence gained," says the proverb; and if farmers can save the expense of horse and hand-hoeing their corn crops by steam tillage and the sowing of clean seed, they will doubtless realise the truth of the proverb in harvest. To sow weeds and then hoe them at an expense of 5*s.* per acre is an old practice, which bespeaks its own short-sighted economy, and that land can be cultivated by steam so as to meet all the requirements of cultivated crops, when grown without weeds, is a proposition which may safely be granted. When land is only cultivated to the depth of 6 inches—4 inches being no uncommon depth of plough furrow on some undrained cold clay under the old practice—the roots of the crops were obliged to search for their food laterally, on the surface, consequently hoeing the land between the drills became essentially necessary to promote the lateral ramification of the roots. But naturally our corn crops, as Wheat, Barley, and Oats, with Peas and Beans, strike their roots downwards to a great depth, as may be seen exemplified in all deep rich soils into which their rootlets can safely penetrate in search of food; and this is just what they do when land is deeply cultivated by steam, for the broken-up subsoil is purified by drainage and aëration, and fertilised by the application of manure and the decomposition of the roots, when they have fulfilled their function to the growing plants. By such means the roots penetrate and obtain food far below the share of the steam-drawn implement, as may be seen by carefully digging down with a spade. The advantages thus gained will be the more readily appreciated if contrasted with what was formerly experienced when the roots were confined to a few inches on the surface over what may be termed a poisoned subsoil. The seeds of weeds must of course be sown before they can vegetate on such land; but there is no difficulty in explaining how the weeds are propagated. It is not quite so easy to account satisfactorily in every part for the rapid manner deep steam tillage is now getting rid of them on soils where they previously grew in great abundance. The fact itself, however, is acknowledged by all who have reported their experience of steam culture, and the fact is all that we have to deal with on the present occasion.

The improvement of land by steam tillage is a work of progress, and as it advances many weeds gradually disappear, so that if weeds are not sown they cease to grow, and the fact is an all-important one to the steam tillage farmer.

In Scotland there is hardly such a thing as a hoe in a cornfield, weeds being kept under by deep tillage, hand-weeding, and the proper manuring and seeding of the land. There are no doubt exceptions to this general conclusion, many cornfields being still overrun with Thistles, Twitch, Knot-grass, and Charlock; but the area of land thus infested is annually becoming less with the progress of drainage, deep tillage, manuring, and seeding. So long as the land was improperly drained, the practice of deep ploughing in autumn was not attended with that success in getting rid of weeds which has been experienced since thorough draining and subsoil ploughing has become general; and there is yet much clay land, in the north as in the south, very imperfectly drained, but, relieved from the trampling of the horses' feet by the substitution of steam drainage, is being greatly improved.

The next question is the rolling of corn crops for the reaping-machine. In the north, where hoeing never stands in the way, and when the harvest, and hence the time for rolling, is considerably later, little or no difficulty is experienced. At the same time, the trampling of the horses' feet, and the "pitting," or footprints of their feet in light land in dry weather, and on clay land in wet, have long furnished matter for loud complaint, so that the advantages of a steam-hauled roller call for consideration even in the north. In the southern counties of England, where the reaping-machine is not unfrequently in the field before the roller is out of it in some parts of Scotland, things are widely different. Where hoeing is the practice, as it must continue to be so long as weeds grow and the land is only ploughed some 5 or 6 inches deep, the work, if practicable, should be done earlier than it generally is. Some farmers, who mowed short with the scythe for the sake of the straw, before the reaping-machine was introduced (we ourselves did so), always studied to get through with their hoeing in time for rolling. With spring-sown corn there was seldom much difficulty attending the work, as such farmers grew comparatively no weeds; but with autumn-sown Wheat it was often otherwise in seasons like the past, the horses' feet and roller both doing less or more harm to the land and young plants at the time. But were hoeing wholly done away with the period of rolling would be extended over a longer time, so that the work could then be done as soon as the land is sufficiently dry to carry the horses' feet. Under the old practice the roller was put over "crusty clays" to make them hoe. But steam culture is fast doing away with this crusty state of winter Wheat lands, by changing their tenacious and binding character to that of friable loams by the admixture of vegetable matter and oxidation of mineral; so that the passing of the roller over the land leaves it in a sufficiently pulverised state to meet the requirements of the young plants.

Let no one run away with the untimely notion that one year's successful steam culture, or even half-a-dozen years, will effect such changes in stubborn clay soils, which carry the horses' feet like a barn floor often by the month of March, for every successive year goes on adding to the change until it is completely effected. It may be one rotation in some soils, two in others, and three may be required to subdue the more tenacious

and binding clays of our southern counties; but change the land must when continuously stirred up by steam-power to the weather, the water being removed from below by efficient drainage.

The greater efficacy of manures is perhaps not wholly a resultant of steam culture, but the difference in the quality of the manure required is; and both merit special attention. So long as the land was only cultivated a few inches in depth, the manure, from its being so near the surface, and a noxious bottom to which it was liable to sink may not inaptly be said to have been situated as the poet describes, with

"Death i' the front, damnation in the rear,"

the waste from both causes being great; but the greater depth of cultivation and the purification of the soil to nearly the depth of the drains, not only obviate waste but affords a wider field for action. And besides this there are chemical changes otherwise effected by deep tillage and drainage in favour of economy: something like half the advantages as to efficacy of manure resulting from proper steam tillage will in theory remain a secret, although in practice it is realised.

Steam tillage produces from one to two quarters more corn per acre, with a finer quality of corn and straw. Roots and forage plants are being successfully grown on land which did not produce them profitably before the adoption of steam, so that what our forefathers termed "corn farms" are now stock farms also. It would take more space than we have at disposal to enumerate all the advantages under this head, owing to the common belief that stock do not pay for their keep; but whether we adopt the hypothesis that the farmer loses or gains by keeping stock, the balance nevertheless turns in favour of steam tillage with the other improvements at issue, owing to the richer manure produced by the growth of roots and forage plants. But, exclusive of the manure, we have always made money by stock, *i.e.*, procured the full market value of the produce the cattle consumed. Many others do so, and therefore we disclaim the old theory that bullocks and sheep are only at the best "muck-making machines to the farmer." At the present time, at all events, they are more than this (so say butchers and the consumers of beef and mutton), and the general conclusion to which attention requires to be called is that steam culture is sending more beef and mutton to market than was done under horse culture, other things being the same. Other things, however, are not exactly the same—on many farms, at least, owing to the effects produced by the late murrain in black cattle; but such does not lessen the force of the argument one iota, but the contrary, for the improvements in tillage and produce are greatly in favour of the health of live stock, and hence in warding off contagious disease by, in some measure, removing or reducing the action of the predisposing cause.

We now come to notice the change in the details of haymaking produced by the mowing machine, hay-tedder, and horse-rake, where a considerable saving of manual labour is effected, besides securing a better quality of hay in less time. In this case the advantages arising from the control which the farmer has over his crop is greater than the mere saving of money in making from 2 to 3 acres of hay instead of one, with the old number of hands. In fine haymaking weather more than this can be done by the hands, so that in a heavy crop of meadow Grass the carrying, if care is not taken, is liable to fall behind the mowing. The tedding-machines and horse-rakes are also liable to fall behind the mower. To time the several machines to each other and to the weather is often no easy task, so as to produce the finest possible quality of hay, and effect at the same time the greatest economy in labour of hands and horses. In making Rye-grass and Clover-hay, or Clover-hay alone, the tedding machine is not used while the hay, as it is made, is put up into small cocks, where it can remain until the whole field is secured. It is more easy, in this case, to proportion the different branches of the work to each other, but in scorching weather both the Clover and Rye-grass are liable to "roast" or "burn," as it is variously termed, so that a greater proportion of the hands are required to turn over, or half over, the broad, flat swathes left behind the mowing-machine. As a 'prentice fee has to be paid in learning any branch of farming, so at the present time not a few farmers are serving an apprenticeship in the hay field. But as practice is the best teacher, so progress is fast being made, and a higher degree of perfection being attained every successive year. Farmers, therefore, require to be closely present all day long in the hay harvest field, for the best of servants are not likely to arrive too soon at perfection in the working of new machines, more especially as to the economy of time and labour which should be effected.

The reaping-machine is also giving farmers the power of cutting down their crops in time in corn harvest. But two things require to be attended to in order to reap the greatest success; viz., 1st, a little forethought in seed time, so that all the fields shall not be ripe at one and the same time; and, 2d, the necessary means for carrying as fast as the corn is ready for stacking. On both these points of modern harvest practice the schoolmaster is unquestionably abroad. In point of fact, the latter may be said to be a corollary to the former, for as the fields ripen they must be cut, and are cut down in rapid succession with the reaping-machine, and when once cut stacking follows. No doubt, in fine weather the sheaves will not suffer much harm from being an extra day or two in the stook, but such is a very unwise expedient, and should never be trusted. Nor is it necessary that it should be so as a rule, for in seed-time it is easy to make the necessary provision for harvest in the different kinds of corn and times of sowing. In point of fact, it has long been done by those who do the whole work of harvest with the regular staff of hands on the farm, and it is done without sustaining any loss whatever, the balance in every case being in favour of the increased value of the crop as compared with the opposite practice, where corn that ripens generally a week later than another sort is actually sown a week earlier, in order, as it were, that both should ripen together. *W. B.*

THE TRANSIT OF STOCK BY SEA.

THE evils which afflict the various classes of stock during transit by sea are manifold. To begin with the deck, the first serious evil that presents itself is the almost total want of shelter. During two or three months in summer, when the weather is warm and fine, the want of this may not be much felt; but let anyone observe the appearance of animals as they are taken into the vessel, and watch the progress of the effects of exposure (intensified undoubtedly by the want of food and water); see how they first begin to look cold, and their coats stare; gradually their backs begin to arch, and continue to rise, while their bellies are tucked up until their natural shape is almost lost; their feet and legs become numbed; and, after two days of it perhaps, a more comptete picture of misery it would be difficult to find; while the discharge of mucus from the nose tells of mischief within which may, and often does, lead to fatal consequences. Be it remembered that these animals are exposed to all kinds of weather, wind, and rain, frost and snow, and, what is often worse than all, the lash of the spray in stormy weather. I have stood on the bridge of a steamer and watched how, even in a small storm, each wave as it was met sent a shower of spray over the vessel from stem to stern, and with a force which only those who have experienced it can fully appreciate; and the condition of the stock exposed to it was pitiable indeed. This state of things may not occur in every voyage, but it does occur sufficiently often to call for application of everything that can be done to increase shelter; and the following suggestions would perhaps help somewhat towards so desirable an end: 1st, Let the pens have light corrugated iron (galvanised) roofs thrown over them, slightly arched in the middle. The standards at present used for the boarding would be quite sufficient to carry them, if made of a suitable height, and a toprail added to receive it. 2d. In windy or cold weather it is essential to protect the animals from the sweep of the blast, and this might readily be done by tying a tarpaulin along the side of the pen exposed to the wind.

Along the bulwarks a light roof, as suggested for the pens, might be erected by increasing the height of the standards into which the planks already alluded to are fixed, keeping the inside higher considerably than the toprail of the bulwarks, to allow water to run off. Then, instead of a division plank, a light close-boarded partition might be inserted. These would break the force of the wind to the animals, and also keep them tolerably dry, and thereby greatly increase their comfort; and as they might be constructed to be readily erected and taken down, there does not appear to be any very serious objection to their use.

In the hold, the first, and perhaps the greatest, evil to the stock is exactly the reverse of what occurs on deck; fresh air is the great desideratum. The want of ventilation in the hold, and consequent foul air, heat, and stench, produce results more disastrous than even the exposure of the deck, rapidly producing low typhoid fever, which it is to be feared more frequently ends in pleuro-pneumonia than is generally supposed.

The condition of a hold filled with cattle or sheep, a few hours after they have been put in, must be actually examined to be fully appreciated; and the visitor must not be content with going merely down to the foot of the ladder, or even taking two or three steps towards the interior of the hold, as the stifling sensation experienced naturally suggests, but let him grope his way to the back corners, where nothing can be seen, but where the ventilation is worst, and where the quick breathing and constant moaning of the unhappy beasts only too truly indicate their sufferings, and we believe he will turn away sick at heart, and astonished that the animals can endure it. Then when a storm comes, and the hatches have occasionally to be closed, for however short a time, these evils are a thousandfold intensified.

The hatchway, and the sheet for increasing its ventilating power, have already been noticed; and, while these must be used to their utmost capacity, some other arrangements must be devised to bring these holds up to even a moderate state of ventilation, the absolute necessity of which is now recognised on all hands. The following method is suggested:—Holds sufficiently raised above the water-line to be fitted with windows similar to those used in ordinary passenger cabins. These might be made sufficiently numerous to thoroughly ventilate a hold, with the help of one or two openings through the deck, for the escape of foul air. Such an arrangement, in smooth water, would be very effectual; but, of course, the windows could only be used in comparatively smooth water, and therefore some arrangement to effect ventilation in all weathers, in these upper holds as well as in the holds which are below the water-line, must also be found; and for this purpose there appears nothing so good as the multiplication of air-pipes, similar to those now used to ventilate the engine-room of a steamer. These pipes are about 12 inches in diameter, are raised about 10 feet high from the deck, and have bell-shaped mouths, which are curved forward so as to face the direction in which the vessel is sailing, thus meeting the current caused by its passage through the air, intercepting it, and conveying it downwards. A row of these might be placed along the sides of the vessel, a sufficient number of which could be carried down to the lower holds by means of light wooden movable tubes, or gutta-percha ones, which, when not in use, would occupy very little space; then, along the centre line of the hold, another row of similar pipes would be required to carry off the foul air; these would be in shape precisely the same as the others, but the bell-shaped mouth would be curved in the reverse direction, so that the action of the external air on them would be to quicken the discharge of air from them. Movable connecting tubes might be used to carry the foul air from the lower holds through the upper ones, without any risk of increasing the contamination of the air in the latter. The effect of this arrangement would be, that a current of pure air would enter at the sides, and as the temperature of the air in the hold would nearly always be higher than that of the external air, this current would naturally sink to the lowest parts, and would pass from the sides to the centre, from which it would be discharged by the foul-air pipes. This circulation would be established, and all that would remain to be ascertained would be the capacity of the tubes required for a given number of cattle or sheep, to effect thorough ventilation. This latter question would soon be settled by practical experience; but, in the meantime, we suggest the down-pipe of 12 inches in diameter, and one up-pipe of similar capacity, for every five cattle or fifteen sheep; and we further suggest that the mouths of both sets of pipes be made movable, so that they can be faced to, or from, the direction in which the current of external air is moving most strongly. By this means, and with ample capacity of tubes, the ventilation of the holds could at all times be completely regulated. The next evils to be noticed affect both the stock on deck and in the hold—viz., the want of food and water. For stock that are only to be on board the steamer for not more than eight or 10 hours, the want of food is not of very much consequence, unless accompanied with severe exposure to cold or wet, and therefore the following remarks are intended to apply rather to stock which are to be a longer time on shipboard; water, however, we are inclined to insist on for all stock on board a steamer at least once in every six hours. The consideration of how these are best to be supplied brings up again what has been already alluded to—the usual method of securing the animals, cattle and horses, by tying their heads as closely as possible to a ring in the side of the vessel, and by placing them so closely together that access to their heads is almost impossible. If such is to continue to be the arrangement of these animals on board a steamer, the supply of the necessaries of life to them will continue, as it hitherto has been, practically impossible; but we believe the absolute necessity of supplying these will compel a change of arrangement, and therefore, as a preliminary to the main question, we suggest a method of effecting this. For the cattle on deck, let the standards and planks now placed along the buttocks of the animals be made a little stronger, and more securely fixed than they are at present, and the animal's position may be reversed, and its head tied to a ring in the plank, instead of to one in the bulwarks. For the cattle in the hold a similar erection might be used—such, indeed, as is at present used—to accommodate more animals than can be tied to the sides of the vessel. This arrangement would bring every animal's head within the most convenient reach of the cattleman that is possible, so that both food and water could be supplied with ease.

As to the kind of food to be supplied, there may be differences of opinion, but for general stock nothing appears to be better than hay, the natural food (dried) of horses, cattle, and sheep, and which, to the recommendations of being cheap and easily obtained in most places, adds this property—that its nature fits it for being supplied to the animals by an extremely simple means, viz., a net made of tarred cord, and for cattle and horses in the form of a bag containing 5 lb. or 6 lb. of hay. For ponies or sheep in a pen or hold, the net would require to be made oblong, of sufficient length to stretch across, secured at the ends to the sides of the pen or hold, and supported by light stakes when necessary. For horses and cattle, a bag-net should be suspended alongside of each animal's head: or, if made a little larger, one between each pair of animals might be found sufficient. The use of nets in the feeding of animals with hay is, perhaps, less known on the north side of the Tweed than on the south side; but from personal observation and experience every confidence is felt that the net, in one form or other, is capable of being adapted for the purpose in view, and that it offers greater facilities, when the requirements of a steamer are considered, than any other apparatus yet tried. Its chief advantages are these—it is portable and very cheap; the hay, once in it, is secure from the effects of wind, so that it forms the best vehicle for conveying hay in a steamer from the store to the stock (hay might be put into the nets before shipment), and for preserving it when placed before them; it occupies the least possible room when not in use, it won't become sour or injuriously dirty, and it will allow the animals to consume the food with less waste than an ordinary rack, while its use, as suggested, would place the supplies within the reach of each animal; and we therefore, without hesitation, suggest it as the best apparatus for supplying food to stock on board steamers.

The supply of water, fortunately, presents much greater facilities than food; and, bearing in mind the reversal of the animal's position, already suggested as a *sine quâ non*, we offer the following arrangement:—Let a small service-tank be erected on some elevated portion of the steamer (such as the small portion of deck usually built over the bowsprit), if possible, sufficiently high to send water by gravitation along the deck, the supply of which alone requires the elevation of this tank above the main deck. This service-tank may be supplied from the general tanks (probably themselves requiring enlargement) by help of the engine at any time, and from it let pipes be laid along the deck, near to the line of the heads of the animals arranged along the bulwarks and sides of the holds, having taps at intervals of 20 feet or so, to which a

gutta-percha pipe can be screwed. One set of pipes would supply both the deck and upper hold, the lower hold being supplied by a set of pipes laid in the floor above it. With such an arrangement as this, the watering of the stock would be made comparatively easy. To effect it, the cattlemen, keeping up the service-tank supplies, and having screwed on the gutta-percha pipe 10 or 15 feet long), would take it in one hand, and with a pail in the other (light movable wooden troughs being used for sheep), would pass from beast to beast, supplying each in turn in probably not more, on an average, than one minute each, and this would be quick enough for all practical purposes.

The only objection to this system that occurs as likely to be made is on the score of expense; but even although it entailed increased storage tank-room, the whole apparatus for a large steamer could not cost a larger sum than would be repaid tenfold by the benefit to the stock; and when it is further considered that water might thus be supplied without interfering with almost any of the existing arrangements of a steamer, and that quickly and conveniently too, the matter of expense becomes very small, and does not appear as a very great objection to such a mode of supply, and we therefore suggest it as the best arrangement possible in the circumstances.

The only other evil of this mode of transit to which we can allude here, is the knocking about, the falls, and consequent trampling, suffocation, and strangulation, to which cattle and sheep are especially liable during rough weather, and which appears to be simply, as to the last-named results, the effect of over-crowding. The animals are packed together as closely as they will stand, and when an ox falls, through its feet slipping on the slimy boards, the chances are very great that the animals next it on both sides will be thrown down on the top of it. This is easily understood, when it is remembered that the animals standing together in a row press mutually against each other; the moment, however, a vacancy is made by the fall of one, this pressure tends to fill up the space left, by pushing the adjoining beasts until they meet over the fallen one, which then has scarcely a chance to regain its feet, even when these don't fall over it; but when this happens, and in a storm, the confusion becomes inextricable, and the lives of three or four animals are lost through such a small accident as the slipping down of one beast. So much is this felt, that almost the whole vigilance of the cattleman is directed, during the voyage, to the one object of keeping the beasts on their feet, and the difficulties of achieving it can only be fully realised by those who have witnessed the effects of a storm on the occupants of the hold. As a remedy for this great evil, we suggest that, instead of a division plank to every tenth beast as is now usually allowed, a similar plank shall be fixed between each animal. The advantages of this would be very considerable; if a beast did get down it would prevent its being either trampled or stranglad to death by its neighbours before it had a chance to get up again, while the support these planks would give to all would relieve the individuals from the swaying and crushing effect now experienced in the rolling of the vessel, and which is productive of much mischief to all except the strongest animals. It may be thought a disadvantage to the introduction of these planks, that such a system would fix the limits of the space allowed to each beast, and that a large animal and a small one would have precisely the same accommodation; further, that these animals would occupy space which might be better employed. To the first of these it may be replied, that as nearly all steamers are built with a view to the requirements of the particular station on which they are to be employed, the descriptions and average sizes of the stock usually conveyed could be known, and suitable grades of space provided accordingly, and that as the fixing of the spaces would prevent overcrowding and all its attendant evils, a great advantage would thereby be gained; while the greater comfort and security of the animals would more than repay for the extra space occupied, and which, after all, would be comparatively trifling, only an addition of 3 inches (the thickness of the plank) for each beast, while its cost would be very trifling. *Mr. George Menzies, in the "Transactions of the Highland and Agricultural Society of Scotland."*

Home Correspondence.

Dairy Farming.—1. If a farmer gets 12*l.* per annum, besides the whey and manure, for the keep of a cow, it will pay him well enough to provide good food—say in winter, Oat straw cut into chaff, with plenty of roots; in spring, green Rye, Oats, and Vetches; and in summer good Grass. Such food will keep a dairy in full profit, if the cows are managed so as to calve in March and April. 2. A good ordinary cow will give 3000 quarts of milk during nine month, and will be dry for three months. Now, 12 quarts of milk will produce 1 lb. of butter, and the skim-milk will produce 3 lb. of cheese. Therefore, 3000 quarts of milk will give 250 lb. of butter and 750 lb. of cheese. If we value the butter at 1*s.* per lb., and the cheese at 5*d.* per lb., then a single cow would produce in a year,

250 lb. of butter at 1*s.*	..	£12	10 0
750 lb. of cheese at 5*d.*	..	15	12 6
Making in all	..	£28	2 6

yearly from each cow. 3. A dairy of 100 cows could be managed by three men and three women; and, supposing the men to be paid 13*s.* per week, and the women 9*s.* per week, they would cost in a year as follows:—

Three men, 52 weeks, at 39*s.*	..	£161	8 0
Three women, 52 weeks, at 27	..	70	4 0
Total wages	..	£231	12 0

4. In a dairy of 100 cows we must reckon two cows dying in the year, worth say 15*l.* each, or 30*l.* the pair. 5. There will be no loss on selling the cows when worn out, for as every cow is dry for three months she can be fattened off and sold to the butcher without loss. 6. There will be 100 calves, but these ought to be sold off at three days old, and will not do much more than pay for the bull. 7. The capital requisite to carry on a dairy of 100 cows may be put down at 1600*l.*, the interest on which, at 5 per cent., will be 80*l.* per annum. 8. Supposing, then, that any one with 1600*l.* and a taste for dairy farming could arrange with a farmer to keep 100 cows for 12*l.* per head per annum, the farmer getting the manure and the whey, then his dairy would cost him as follows:—

100 cows kept, at 12*l.* each	..	£1200	0 0
Wages, three men and three women ..	..	171	12 0
Deaths of two cows	..	30	0 0
Interest on 1600*l.* at 5 per cent. ..	..	80	0 0
Allow for petty expenses	..	30	18 0
Total expenditure ..	..	£1512	10 0

9. But each cow ought to produce 28*l.* 2*s.* 6*d.*, therefore the annual produce would be:—

100 cows, at 28*l.* 2*s.* 6*d.*	..	£2812	10 0
Deduct expenditure	..	1512	10 0
Net profit	..	£1300	0 0

to pay for careful supervision, or 13*l.* per cow per annum. These figures, no doubt, are a little surprising, nevertheless all the data I have assumed are well founded, and can be proved in many ways. The real fact is, that the success of a dairy depends wholly on careful attention to details, and it is the want of that care which makes many persons fail in carrying them on. If cows are not thoroughly milked, if milk is allowed to go sour, if butter is allowed to get bad, if curds are allowed to spoil, or if cheese is injured by bad making, all these things tend to bring down the profit at the year's end; but, if a dairy is properly superintended, there is no doubt of its being the most profitable branch of farming. *G. A. H.* [Your figures are wrong under No. 2. It is only an extraordinary cow that yields 3000 quarts of milk per annum, and no man ever yet owned 100 extraordinary cows.]

Filaria.—I have now 57 cattle suffering from "filaria" in the throat and lungs. The application of fumes of carbolic acid on hot bricks I find is a very difficult operation. In the first place, my medical man tells me, pure carbolic acid is rather costly, and then I fail to find a suitable hovel or barn in which to apply the remedy to 57 head of cattle. If all the needful requirements were obtained, I learn that the application needs the nicest management to prevent suffocation of the cattle. The medicine we are now using is ¼ pint turpentine and ¼ pint linseed oil mixed in ½ pint of water, and given to each bullock every morning. The cough is becoming less husky, and the skins are beginning to shine a little. I therefore decide to continue the dose until I hear of a better remedy. *John Fryer, Manor House, Chatteris, Isle of Ely, Sept.* 16.

Period of Cutting Corn.—I never before observed such a striking difference as in this year, in the practice of farmers, as to the time of cutting their corn crops, especially Wheat. Could you lay down some rules for guidance on this matter, or refer to some reliable work on the subject? A tenant-farmer, whose land adjoins mine, began reaping just twelve days after me. Who is right? This is only an example of the wide difference which prevails in practice. As to Oats, the same diversity is observable; but not so much in Barley. It seems to be generally admitted that Barley ought to be quite ripe before it is cut, and that this ripeness is indicated by its becoming "goose necked." *B. N. P.* [You will find Mr. Hannan's observations and experiments on the best period of ripening quoted in most works of agriculture. Wheat may be cut when you cannot squeeze any milk out of the grain. Oats should be cut while still greenish. Barley should be cut when all of one ripeness, and therefore not till all dead ripe.]

Harvesting Corn by Machinery.—In reply to your inquiry as to the cost of cutting, stooking, and raking, I beg to furnish an account of the expense incurred on the Earl of Zetland's farm at Aske during the late harvest. The reaper has been used on the farm for several years, has back-delivery action, and was manufactured by a local implement maker. The whole quantity cut was 80 acres—25 Wheat, average crop; 9 Barley, full average; and the rest Oats, light, with the exception of 10 acres, fair average crop. The whole was cut in nine days. The cost per day was 2*l.* 12*s.*, as under:—

Nine women binding, at 2*s.* per day ..	..	£0	18 0
Two men binding, at 2*s.* 6*d.* per day ..	..	0	5 0
Three men stooking, at 2*s.* 6*d.* per day	..	0	7 6
One man raking by hand, at 2*s.* 6*d.* per day		0	2 6
Two men with machine, at 2*s.* 6*d.* per day ..		0	5 0
Allowance of ½ men instead of beer, at 6*d.* do.		0	4 0
Two horses, at 3*s.* 6*d.* per day	..	0	7 0
Wear and tear and oil	..	0	3 0
		£2	12 0

Nine days, at 52*s.* per day, 23*l.* 8*s.*, the cost of the 80 acres, averages 5*s.* 10*d.* per acre. Four horses were employed for the reaper, each pair working half a day, and being employed in other work the remaining half. The hours of labour on this farm are—for men, from 7 A.M. to 5 P.M., with one hour for dinner; for women, from 8 A.M. to 5 P.M., with one hour for dinner. The three men were not actually stooking all day, but were engaged in removing the corn in front of the reaper before the arrival of the women in the morning, all of which corn had to be bound as well as stooked afterwards. *R. H. King, Ollivet, Richmond, York, Sept.* 21.

The Yield of Tiptree Hall Crops.—A correspondent, "Inquirer," in the *Times*, recently asked Mr. Mechi "to corroborate the statement as to this large yield of Wheat by giving the name of the field and its acreage on which the crop was grown, with a certificate from the corn merchant, who purchased the grain, of the quantity delivered, the bailiff attesting to the amount being the produce of the field specified. To this request "Inquirer" added,—"A confirmation would disarm a multitude of sceptics, and be an answer to the deputation who on visiting the Tiptree farm on the eve of harvest reported their estimate of the Wheat crop, irrespective of the Rivetts Wheat, at 32 bushels an acre." To this letter Mr. Mechi replied as follows:—

"I thank your correspondent 'Inquirer' for his desire to convince certain agriculturists about the yield of my crops, but I must decline to employ myself, my bailiff, and the persons who buy my corn, in making affidavits and declarations as to the truth of my statements, in order to convince those who do not desire to be convinced, and who would rather see my crops fail than succed. For 26 years my farm has been open to public inspection, and men who understand their business as farmers can as well judge of the probable yield of the crops as either I or my bailiff; and, although I was assured (when I began my improvements) by practical men that I should never grow enough on this poor farm to fill the great barn I had just completed, yet the barn was filled this harvest, and, in addition, 21 good corn and haystacks show their agreeable proportions. Such facts as these are worth more than a thousand affidavits and declarations. No doubt those unfortunate farmers who are still shut up in little fields, with great trees and hedgerows, their land undrained, their dilapidated premises inconvenient and without steam-power, and their farmyard manure well washed with the rains from untroughed buildings, can hardly realise the advantages arising from a totally different state of things. Am I to be blamed for agitating for and practically advocating such improvements as will benefit both landlord and tenant and increase and cheapen the food of the people? I know that I have the sympathy, support, and approbation of those whose good opinion is worth having, and I therefore can afford to pass by good-humouredly the attacks of either ignorance or prejudice. J. J. MECHI, Tiptree Hall, Kelvedon, Essex, Sept. 16."

Corn Reports, 1869.—In an article under the above heading in your last issue, and signed John Ford, Merton Hall, Warwick, I am represented as having stated in my harvest report, "that the Wheat crop of 1869 would prove very little inferior to that of 1868." I have made no such statement. Indeed, what I did state was as different from the above as possibly could be, viz., that the Wheat crop of this year would prove 10 bushels per acre, or 28 per cent., under last year's crop. The other assertions—I cannot say criticisms—respecting my harvest reports, coming as they do from so unscrupulous a writer, are not worthy of notice. *James Sanderson*, 11, *Pall Mall East, Sept.* 23.

Foreign Correspondence.

NEW ZEALAND: *Mr. Nairn's Bearded Wheat.*—I have further examined the specimen of bearded Wheat sent from Pourere, Hawke's Bay, New Zealand, by Mr. Henry Nairn—a notice of which appeared in this journal for June 26, p. 696,—and find that it is a red Wheat, and as perfectly smooth as red Wheat is, but rather lighter in colour than red Wheat usually is, and differs only in having a beard about one-third the length of Rivett's, which is, however, considerably stouter, and so gives the ear a somewhat prickly appearance. In the lowermost spikelets the beard is very short, and it then scarcely differs from red Wheat, which is not unfrequently slightly bearded in the uppermost spikelets. Although this Wheat was raised from a single plant in New Zealand, which had varied, it will be interesting to notice that a variation of the same or nearly the same kind, as far as regards the beard, appears to have originated elsewhere, as Mr. G. Clarke informs us that "some of the spring Wheats grown in Devonshire have a beard somewhat like Rivett's," and that when he resided in America some years since, "nearly all the Wheat grown in West Chester county, New York, was bearded red Wheat, the beard being two-thirds the length of Rivett's, but it was not a Rivett, and I considered it to be the same kind as our spring Wheat." This Wheat, however, he informs us, was not very remarkable for its productiveness, 5 quarters per acre being considered a good yield. I therefore consider that the most remarkable character of this Wheat is the increased number of spikelets, one of the ears sent having 32, which for the most part are four-set, 24 being a high number for red Wheat, although I have seen 26 and even 30; in the latter instance a few of the uppermost being barren, which is not the case in this Wheat. But although the ear contains so many spikelets it is not elongated as an ear of red or white Wheat with four or five spikelets less would be; for it is only 4¼ inches long, and in the form of a square dense mass. On this account it appears the more likely to be a really new variety. In its grain it is decidedly a red Wheat, the colour being as deep as any red Wheat we have seen. Mr. Nairn states that "it is a very heavy cropping kind, for with our bad farming it has produced 75 bushels of 62 lb. weight from 1 acre." It may be hoped therefore that it has an increased vigour of growth, and would stand against mildew and red rust better than ordinary kinds, the the latter being the cause of the extensive destruction of the Wheat crop in South Australia; and also that it would be less subject to "root falling" or "stem rotting," which is said to have deteriorated crops to the extent of 2 qrs. per acre.

It is stated in a letter to Dr. Hooker from a New Zealand correspondent in the "Proc. Linn. Soc." (about three years since) that certain British plants on being introduced into that country grow with much more vigour than in England. Watercress, for instance, nearly covers some of the streams, so as to become a serious impediment, and a Composite (Daisy tribe) has become so prolific as to prove destructive to a great extent to the Grasses of some pastures. May not this be the case with Wheat?—and, if so, the extraordinary produce of this bearded Wheat would be accounted for. Not improbably it was grown on freshly broken-up ground, or land recently in cultivation for the first time, but even then the yield would be extraordinary. I hope Mr. N. will supply us with further information, and it would be interesting to learn whether this Wheat is less liable to mildew than other kinds. *X.*

Societies.

LEICESTERSHIRE.

The Agricultural Labourer.—Mr. PELL, M.P., said:—As regarded the condition of the agricultural labourer a variety of broad assertions had been made, rather loose in character; among others he noticed the other day the absurd statement that when winter came round the labourers who were employed on farms in a certain county as a rule retired into the workhouse. With regard to education, Professor Leoni Levi, in a remarkable paper he read at a recent meeting of the British Association, pointed out that the condition of the agricultural labourers in this respect was not so bad as some of our manufacturing districts. They did not lag in the rear in point of education as was generally supposed. This extraordinary paper of Professor Leoni Levi, which was shortly to be published, stated that out of every hundred women married in the county of Rutland, which was altogether an agricultural county, no less than 84 were able to write their names, whilst in Lancashire—the manufacturing county—only 54 signed the register: an advantage of 30 in favour of the county where old and primitive institutions were kept up. It might be that educational institutions in rural districts were maintained in a rough and antiquated way, but they secured advantages to the people, specially the women, in education, which were lost to the working people of Lancashire. He did not wish to say this as a reproach to Lancashire; it was their misfortune. He could go further, and say—having carried out the figures beyond those of Professor Levi—he found, making use of the same basis (the Registrar General's return) that the advance was now more rapid in Lancashire than in Rutland. He was quite aware, no man more so, of the enormous difficulty there existed in keeping up the old relationship between employer and employed, where thousands were engaged, as compared with that where they had to deal with scores; but still agriculturists might rest contented that when the comparison was made, the condition of those they employed showed to their advantage. One word more. It would be a great blessing if our people were better educated; but they must bear this in mind, they, in the House of Commons, as well as those in the Upper House, must be practical as well as theoretical, and consequently could only attempt what they knew they could carry out to same practical end. He denied that landlords and farmers were the opponents of education, and pointed to Professor Levi's figures as irresistably proving the contrary. What was it that the farmers wanted now? They were not so far advanced in the application of machinery to agricultural pursuits as the manufacturers were to the goods they made, but there was a great difference between the circumstances of the two. On land they had to pass the implement over the surface of the ground, which might be irregular; they had also the condition of the atmosphere to contend with, difficulties which the manufacturer had not to combat. His machinery was steady and fixed, its condition of working less variable. He could introduce an artificial atmosphere, if it was necessary, into his factory. What the agriculturist still had to rely on to a great extent, was the physical strength of his men. There was an amount of hard work to be done in connection with farming that could not be better done by the book; there was an immense amount of work, which if they put a highly-educated man, and a fine strong physical man to do, there was no question which of the two would do the work the better. The times, no doubt, would change. There was a tendency to employ machinery wherever it could possibly be brought into use; the employment of it was intended to relieve mankind of the drudgery of work, and many a piece of machinery had been invented with that object. Now, when this machinery came to be further—as he hoped it would be—applied to agriculture, then the men of sheer animal strength will be less wanted, and better educated men, able to take charge of machinery and to attend to minor details, will find employment. Then the educated labourer will be more needed than he now was.

INVERURIE.

[THE following are Mr. BRUCE's concluding remarks, continued from p. 1003, on "The Breeding and Rearing of Sheep."]

Sheep are profitable.—In proof that sheep stock will pay if properly cared for, allow me to read the following extract from a letter I received from a friend who sold 200 fat wedders this spring:—"Two hundred wedders, bred and fed on the farm until 1 year and 9 months old. Breed—Cheviot ewe and Leicester tup. Keep when weaned—kept on Grass on cultivated land until March 10, Turnips until middle of April, link pasture until middle of October, Grass on cultivated land until 20th November, yellow Turnips eaten on the land until middle of February, when they were finished off on Swedish Turnips on a grass-field, with 1 lb. mixture of Peas and bruised Oats for about a month, when the whole were sent to London. Average price netted, 55*s.*; weight, about 70 lb. The clip at one year old averaged 6½ lb., and sold at 1*s.* 8*d.* per lb. On making a calculation, I find between wool and mutton 3*l.* 5*s.* 10*d.* to be the average, and realising on the gross 658*l.* 6*s.* 8*d.*, not taking into account the enriching of the land when eating off the yellow Turnips, and the superior top-dressing the Grass must have got when consuming the Swedes, Oats, and Peas."

Diseases of Sheep.—Inflammation of the womb is but too well known. A day or two after lambing the ewe will be found straining very much, the parts swollen and of a livid colour, showing that severe inflammation has taken place. Now I am almost certain that this dangerous complaint arises from one of two causes. Either the ewe has had access to too many Turnips, with little or any dry food during winter, thereby causing the fœtus to become overgrown, and thus injuring the ewe; or else rough handling at the time of lambing. When we commenced keeping sheep, we gave little else than Grass and Turnips in winter, and suffered accordingly; but from the time we discarded the Turnips and adopted the dry food, we have not had a single case. When a ewe is down in this complaint, I would recommend the following treatment:—Give 2 table-spoonfuls of treacle, 1½ oz. of common salt and 1½ oz. of salts, 2 tea-spoonfuls of sweet spirits of nitre, 2 tea-spoonfuls of laudanum, and as much ground ginger as will lay on a halfpenny; bathe the eye frequently with warm water, and use, as injections, a plentiful supply of Drilfield oil, mixed with an ounce of laudanum, keeping her raised a little behind, perfectly quiet, and drawing the teats often.

Garget, or inflammation of the udder, I have always found a most unmanageable complaint, owing, no doubt, to the fact that it had generally proceeded too far before being observed. Having, unfortunately, lost several valuable ewes, one time or another, by this trouble, and aware that it must have arisen from mismanagement of some sort, made me anxious to find out where the error existed. After pondering over the matter, I have arrived at the conclusion that these ewes were lost, not from want of, but by having got too much, attention, through our anxiety about the comfort of the new-born lamb. I fear we had cuddled the ewe too much up. I mean, that we had kept her too warm, and when sent out to the field, the cold frosty winds, common in spring, by chilling the udder, had caused the mischief. I am the more convinced that this had been the exciting cause, from the fact that, formerly, when allowing our ewes to rough it more than we do now, while then we had ailments of which we are now happily exempt, we were, at least, free from the udders going wrong. While it is right that every attention should be paid to the comfort of the lamb (and it is astonishing how much cold a lamb will stand, provided it is getting plenty of milk, and the weather dry) my experience is against overdoing the thing by too much kindness, "prevention being always better than cure." I would recommend that the ewes should be locked carefully through every day for some time, see if the lambs be all sucking, and none of the udders too full. Owing to the tits being kept continually wet with the lamb sucking, they are very apt to get chapped with the cold winds, and being very sore, the ewe will refuse to let the lamb suck, consequently the udder soon becomes overgorged with milk, and unless promptly attended to, serious mischief will follow. The only plan in a case of this sort is to take the ewe home and confine her for some days, and rub the sore tit as often as possible with an ointment composed of equal parts fresh butter and bee's-wax melted together, and before applying the ointment hold the ewe until the lamb suck, and bathe with a weak solution of sugar of lead and zinc, and very soon all will be right. Garget or inflammation is quite another thing. In this case the udder becomes very much swollen on one or both sides, showing a sharp, well-defined edge where it connects with the rim of the belly, has a dead, dull feel, and if pressed with the finger leaves a mark like putty, the udder is discoloured, and covered with a clammy sort of perspiration. In every case of this nature I lost the ewe, arising, no doubt, from having proceeded too far before being observed. If taken in time, I would recommend the following treatment: Turn the ewe and bleed from the vein that runs along the belly immediately before the udder, closing the wound with a pin and a little lint, giving the same purge prescribed for inflammation of the womb, with the addition of 3 or 4 drops of the "tincture of aconite," to allay the fever. Should the fever continue, give at the end of every two or three hours, for some time, say 3 drops of the aconite amongst a little water. Be careful, however, not to exceed 3 or 4 drops at a time, as aconite is a most deadly poison, and keep the udder constantly covered up with cloths wrung out of cold water, piled above to induce heat, and emptying the udder of any milk as often as possible.

Stomach Staggers, or founder, is caused by giving too much food, especially of an uncuddable nature, when newly lambed, or else by the Grass becoming too dry and little or any water in the field. I remember being advised at one time to give my ewes at the time of lambing some boiled Barley. I did so to two of them, and next morning neither of them could rise, and even when lifted up they couldn't stand. We gave a smart dose of medicine, but it was two days before either of them could rise; the boiled Barley, being of too short and sloppy a nature, had prevented the muscles of the stomach from throwing it up to be cudded, and thereby had become paralysed. Staggers, however, is most common on the Grass at the time when it becomes too dry, and when the Rye-grass is running to seed; and, as I said before, when water is deficient, a sheep suffering from staggers will be found very dull, and generally standing by itself at the dykeside, and showing a good many of the symptoms of sturdy. If sought to be driven about, it will often appear as if blind in one or both eyes, and should the stomach be very much impacted, it will at all times become quite wild and furious, and throw itself into the most fantastic attitudes. Some years ago we had a very bad case of this nature, and not knowing at that time the exact whereabouts of the eye-vein, I bled from the ears severely, gave a smart purge, along with injections, and as the animal was quite wild, two strong men had to keep it from hurting itself for an hour or so, by which time it became quieter, and by morning it was all right. It was brought on by being turned the same day into a field of rich rank Grass. Several lumps of rock-salt, placed in the field along with an abundant supply of pure water, is the best preventive in this case.

Sturdy.—The only cure in this complaint (the flesh being perfectly wholesome) is the knife. I tried the Ettrick Shepherd's cure on one or two occasions, but in no case could I ever get the wire far enough up; and, suppose I had, how could I have been sure of the exact spot? It proceeds, I think there can be no doubt, from a small worm of some sort getting up the nostril, and by this means reaching the brain.

Foot-rot, although not a deadly ailment, is often a very troublesome one if allowed to spread, and being extremely infectious, the wise course is to always check it in good time, as the longer it is allowed to continue among a flock the more virulent it becomes, and ending, as I have known it to do, in the mouth becoming affected as well. Sheep wandering on mountains, or those feeding on dry, sharp soils, and having to travel for their food, are seldom troubled with sore feet. Foot-rot chiefly attacks those grazing on rich old pastures, the Grass on which being soft and spongey, the hoof is not worn down nearly so fast as it grows. Another fruitful source of foot-rot is in allowing the bught to get damp and dirty, and by folding too many together. The following lotion will be found a specific if used in time:—1 oz. of nitric acid, mixed with 3 oz. of rain-water; the hoof to be carefully pared, and every vestige of the dark stringy roots that will be seen cut away, and then apply the lotion with a feather, folding the animal on a dry place for a little. Should the disease have run on for a time, and become festered above the hoof, in that case it should be poulticed for a day or two, and then washed with some weak caustic solution—such, for instance, as a little bluestone melted in warm water, inserting the foot amongst it while hot. There is another kind of sore feet that sheep are often bothered with, and which appears to pain them very much. The skin between the hoof becomes cracked and festered, and when not attended to the foot soon gets very much inflamed and swollen, causing the hoofs to stand widely apart. When the crack is not very deep, nor the foot much swollen, a very good plan is to get some one to hold the foot, while another rubs a bit of an old guano bag gently backward and forward between the hoofs, and then apply a little of the foot-rot lotion. Should the crack be very deep, however, and the foot much swelled and inflamed, in that case the foot should be poulticed for a day or two, until the swelling and inflammation be removed, and then bathe with a weak solution of sugar of lead and zinc.

Reviews.

The Cornell University Register. Ithaca, U.S. 1869.

The Cornell University has perhaps excited the interest of English people more than any other of the remarkable institutions for education which have been lately established in different parts of the United States. The novelty of the system by which students already possessed of technical knowledge in the shape of a trade have been able to support themselves while following other kinds of study—a system so absolutely cutting away the class restrictions which limit the usefulness of many of our own places of education—has no doubt been one cause of this interest; another has certainly been the attachment to the new university of so notable a man as Mr. Goldwin Smith, formerly Professor of Modern History at Oxford.

The older universities of America were founded more or less completely after the pattern of those in England. The new foundations are to be directed more distinctly to the material development of the country, without, however, neglecting the benefits derivable from the widest kinds of general education. In 1862 Congress passed an Act granting public lands to those States and territories which would provide colleges "for the benefit of agriculture and the mechanic arts." The share of the State of New York amounted to 990,000 acres, and the revenue arising from this or from its sale was the fund available for educational purposes. This fund was eventually appropriated to the university founded by Ezra Cornell, at Ithaca, on certain conditions, the most important being his endowing it with 500,000 dollars, and the free education of a certain number of students, one from each district of the State. The object of the university was defined to be the teaching of such branches of learning as would promote the liberal and practical education of the industrial classes. Other branches of knowledge might, however, be included in the plan, and this has since been done. Special provisions were also made to prevent any religious body obtaining the management of the university, and no religious disqualification can interfere either with students or teachers.

The university was formally opened on October 7, 1868, nearly 500 students applying for admission. The number at present on the books is 412; the difference is no doubt to be attributed to failure in the entrance examination, which, however, only consists in English grammar, geography, arithmetic, and elementary algebra. Three of the students apparently come from England, and there is no restriction as to nationality.

The course of study is somewhat complicated in its arrangements, but probably works simply in practice. There are three general courses, extending each over four years, in science, philosophy, and arts. The encyclopædic character of these is rather overpowering. The arts or classical course, for example, includes English, Latin, Greek, physiology, botany, chemistry, physics, philosophy, political and rural economy, two modern languages, and a good many other subjects too numerous to mention. It is intimated, however, that if this is not enough students may take extra subjects as well.

There are also optional courses, in which, subject to certain restrictions, the student is allowed to choose his own lectures, and special courses for students

taking up only a single branch of science; each of these is carried out by a separate faculty or college. First on the list is the College of Agriculture, which has a farm of 200 acres. "Laboratory and field practice are combined with the usual lecture-room work to the utmost extent possible; to this end laboratories, live stock, tools, models, and apparatus are supplied." The subjects taught are agricultural chemistry and geology, mechanics, botany, zoology, and the economics of agriculture, or as we should say, agriculture proper. But the complete course leading to the degree of Bachelor of Science includes all these subjects, and a good many others, and requires four years. There are, however, abridged courses of three and two years. Students are also allowed by special permission to attend some only of the courses, and to spend the rest of their time in farm or garden work.

The other special faculties are equally elaborate in their arrangements, some of them being even divided into subsidary "schools," each with its prescribed course of study. The advantage of this system is that the waste of power which attaches to isolated places of special education is avoided. Besides teaching its own special pupils, each faculty is available for giving a general knowledge of its subjects to students with less restricted studies. All these departments, moreover, do not seem to be in any sense merely paper schemes. The museums and collections belonging to them are already extensive, and there is a library of 25,000 volumes common to the whole university.

Considering the short space of time in which all this has been initiated, it is not a little astonishing how much progress has been made. The dependence of future material prosperity upon the capacity in the industrial classes to apply and utilise knowledge has been thoroughly recognised and acted upon. The work to be done, says the Register, "is to aid earnest, determined, manly young men in obtaining the best education which their talents allow." This language is, perhaps, a little more gushing than is usual with us in such books, but the very simplicity of purpose from which it arises is in itself characteristic. The university is definitely meant for work, and is incompatible with idleness, and hence "whenever a young man is pursuing such a course as to render his stay not conducive to his own interests," he is at once removed as a discordant element.

"Professors," again, "have been sought whose methods of teaching are such as to awaken enthusiasm." There is, therefore, no marking system. The whole account of these arrangements reads, to those who are acquainted with education in this country, like a Utopian dream. However that may be, they already seem in the first year of their existence to have gone a long way towards realising the wish of the founder to "found an institution where any person can find instruction in any study."

The fees are very moderate. About 300 students can live in the university buildings. Their total expense of maintenance is 232.40 dollars a year, the university fees are 30 dollars more, making a total of 262.40 dollars, or less than 55*l.* a year. Other students have to live in the university town, which is probably rather more costly.

The programme of the studies for the four years' agricultural course is worth quoting. The range and variety of the kinds of learning which enter into it would probably surprise even those who are devoted amongst us to the cause of agricultural education.

"THE FULL COURSE OF 12 TRIMESTERS, OR FOUR YEARS.

"*First Year.*—Fall Trimester: Algebra, English language and vocal culture, French, and human and comparative physiology. Winter Trimester: English language and vocal culture, French, geometry, history, and zoology. Spring Trimester: Botany, embryology, English language and vocal culture, French, and trigonometry.

"*Second Year.*—Fall Trimester: Chemistry, English literature and elocution, experimental mechanics, German, psychology, and vegetable physiology. Winter Trimester: Chemistry, elementary geology, English literature and elocution, German, philosophical anatomy, and physics. Spring Trimester: Acoustics and optics, chemistry, book-keeping (or laboratory practice), German, and physics.

"*Third Year.*—Fall Trimester: Agricultural and economic botany, agricultural chemistry, English literature and rhetoric, and veterinary anatomy and physiology. Winter Trimester: Agricultural chemistry, agricultural and economic botany, English literature and rhetoric, horticulture, and veterinary medicine and surgery. Spring Trimester: Agricultural chemistry, arboriculture, English literature and rhetoric, landscape gardening, and veterinary medicine and surgery.

"*Fourth Year.*—Fall Trimester: Agricultural chemistry, agricultural geology, astronomy (or comparative anatomy and history), practical agriculture, and rhetoric and oratory. Winter Trimester: Agricultural architecture, agricultural technology, practical agriculture, moral philosophy and political economy, and rhetoric and oratory. Spring Trimester: Agricultural mechanics, architecture and rural economy, practical agriculture, international and constitutional law, and meteorology."

The Farm Well Managed: or a Treatise on Green-feeding and Wheat-growing. Showing how double the quantity of Wheat can be grown per Acre, and as many Cows of the largest breed well fed the whole year round as there are Acres on the Farm. By a Man of Forty Years' Experience. With a useful Appendix. J. Heywood, 141, Deansgate, Manchester.

Here is a whimsical bit of authorship! In the first place, what is the writer's "acre?" But, indeed, one need not trouble himself much with the inquiry. It is quite possible for the tenant of ordinarily good land to keep a cow even on the imperial acre; and there are a good many hints in this little tract which will assist him. It is, however, out of the odd individuality of the writer, which is displayed obtrusively, that the reader of this little publication will extract his chief amusement. From the introduction, where it is grotesquely enough exhibited, we extract the following passage:—

"The writer has done business for his parent, a gentleman once holding 1900 acres of land, about 300 acres of which he cultivated; and used to have, in one season, 50 acres of Turnips and upwards of 200 acres of Wheat. It would require 120 sheep-shearers to shear his sheep, as he had 3000. He fattened 400 heifers annually; he had in Smithfield every market day (Thursday), from the 1st November till the 1st of May following, fat stock on sale. He kept a small dairy of 10 milch cows; none of the milk was sold, being used in rearing calves, lambs, and pigs, and also in the family, and any remaining was given to tenants and the poor. It generally took six men daily to prepare corn for the market; he employed daily 30 or 60 men, besides lads and women; he kept 25 horses and beasts at work. I have seen in his stackyard Wheat three years old. I never saw his desk without money in it, and he had also much money out at interest, beside having landed property for ever. He had a nice Swiss carriage, and on the sideboard, in the parlour, was paraded a quantity of silver plate. He kept a splendid table (mostly from the produce of his own farms), at which the best crusted old port wine and several other liquors daily appeared. He brewed every month for family use, and made his own cider. There were fat heifers killed occasionally, as required, and a sheep every Monday morning, besides, at other times, lamb, veal, kid, and lots of poultry. The roasting-jack was daily in requisition; he never allowed a goose to be killed singly, there should be three at one time, as he said the giblets of one goose made but a poor dish. When our hung-beef and bacon was put in chaff, during hot weather, to preserve it, every crook in the kitchen loft, where it had been suspended, was re-occupied by a loaf of sugar, to be kept dry, so that the kitchen resembled a grocer's shop. He had a stand, with 12 moulds, and he borrowed two more stands from his neighbours, Captain Berry, of Eglish Castle, and Captain Drought, of Whigsboro, with whom he was on visiting terms many years. With these 36 moulds, by wicking and filling one by one, the first was fit to draw by the time the last was filled. By this means the housekeeper was enabled to make as many candles in two October days as was sufficient for the household consumption for 12 months; they were then hung up in the larder, in bunches, to bleach. A large number was required, as there were never less than two lights in the parlour and four in the drawing-room at one time, without taking into account the number required for the six bed-chambers; the other apartments were well supplied with dips, as were also the stables for the hunters and cart-horses, and the coach-house. In the larder stood a large deep crock filled with sweetmeat, consisting of stoned raisins, currants, suet, sugar, whisky, and lemon-peel, always ready whenever a plum-pudding or a mince pie was ordered. The minister of the parish, if unmarried, boarded and lodged with us, and a single old gentleman, the father of Sir John Kingston James, Lord Mayor of Dublin, not liking the din and noise of a city, likewise boarded and lodged with us many years. Those gentlemen knew well they would have a well-supplied sumptuous table, and the opportunity of intermixing with genteel society. My parent was a sheer industrious man, and understood his business well, having a set day for beginning and finishing all farm operations, and deferred nothing. He made an inside servant man lay the breakfast table in the parlour every night before he retired to bed, and for 20 successive winters all the members of his own household ate their breakfast by candle-light. There was a horse saddled, ready for his own use, from an early hour in the morning till late in the evening, and a land steward assisted him and his two sons to conduct the business, besides righthand men residing on his distant farms, which were visited daily, in turn, by his sons, mounted on horseback, to see if all was right; still it did not debar his sons or himself of taking their share of recreation in the way of fox hunting, they being well experienced and courageous horsemen, and well mounted, having often returned with three fox-brushes in the bridle head-stall as trophies. He had his business on all his farms well executed and timely, without any tyranny, and died prosperous, wealthy and respected. He made a fair will, dividing his property among 22 legatees. His funeral was numerously attended by relatives and acquaintances, out of the latter were taken 12 bearers, all gentlemen of respectability, some of whom were magistrates and grand jurors. A hearse and horses carried, in an oak and deal coffin, his remains, now entombed."

Farm Memoranda.

WEST SUSSEX.—Harvest is all over, and everything has been secured in good order, except where some were rather too quick from having been frightened at the commencement, as the weather then was rather unsettled, and weather prophets told us sad things about Saturday moons and such-like. Though we pretend not to believe these alarmists, yet they sometimes make us feel a little timid. But we don't intend to trust to anybody's prognostications any more. We shall take the weather as it comes, and make the best of it; that is, if our faith don't give way again. However, we have got together a fair crop, but we are now getting the thatch blown off at a rapid rate. There is hardly a whole roof on any rick in the parish, and in many cases they are nearly stripped and the sheaves blowing off. The wind has been terrific since Saturday night, and at present no signs of abating, but we have had some nice showers which have got to ploughing depth. They were much wanted, for pastures are very bare, and stock are on short allowance. The Turnip crop will not be so good as we expected, especially the latter sown. Mangel has not done so well, the summer, on the whole, having been too cold, though for three weeks of harvest it was excessively hot. There has not been quite so much threshing as is usually done up to this time—the price being on the whole low, and having fluctuated so much, and in such unexpected ways. Upon the whole the crop appears to be about an average, and the sample of Wheat is not far behind that of last year; Barley is a good crop, and of good quality; Oats too are of good quality, but can hardly be a full crop; Peas are good, and have been well secured. Our markets are well supplied with both fat and lean stock, but the sale is rather slow; stock sheep will rather drop in value, on account of the root crops. There has been a little of the Potato disease, but not to a great extent, and the crop upon the whole is good. Getting ready for Wheat sowing will now be our chief work, and as the land will work up easily, should the weather be favourable we may get well forward. Cattle will soon have to get some indoor food, as the nights will get cold, and the pasture bare. They have been more annoyed by the flies this summer than usual, and we have been obliged to put them in the sheds by day to protect them a little; still they have done very well, and there is likely to be a fair supply of beef during the early part of winter, but it is likely to fall off at a later period. The foot-and-mouth disease is reported to be not far from us—around Arundel; and unless timely precautions are taken it will soon spread. People will be rather cautious in sending stock to market for a time. *G. S., Sept.* 13.

The Poultry Yard.

THE BIRMINGHAM PRIZE LIST.—"Long looked for come at last." Heartily welcome, but received with an alloy of grumbling caused by the line of big print that says, "The entries close on Monday, the 1st of November."

Everyone expects great things from Bingley Hall, and he will be hard to please who is not satisfied with the prize-list for 1869. A show that runs into 140 classes, with some of them six prizes to a class, is of a magnitude to command entries; and that it does so is proved by the numbers that are rejected year after year by the committee because they are one or two posts late, ostensibly, but equally for want of room. Coloured Dorkings head the list, and have four classes allotted to them, including in their prizes an extra one of 2*l.* from a railway fund, and two cups, each of the value of 5*l.*—one for the best cockerel, and the other for the two best pullets. We have already this year seen wonderful Dorking chickens, pullets especially; but, with such incentives, breeders will spare no pains, and we may expect to record a great advance on 1868. Silver-greys are allotted two classes, and we think an over-liberal allowance of prizes (nine in number). White Dorkings are fighting hard to improve a bad position, and to make a reputation; they are making way, although but slowly. Their admirers will think the encouragement held out to them a slight one when they find they have but two classes, and that the birds compete irrespective of age. It is a breed the fanciers of which do not supplement the ordinary prize-sheet, and we suppose the amount allotted is proportionate to the number of entries hitherto received. Four classes for buff Cochins, each one headed by a silver cup, value 5*l.*; two of them are offered by Mr. Mapplebeck, a supporter of the Birmingham show from its commencement. The brown and partridge-feathered, and the white Cochins are well provided for by eight classes between them.

We may fairly expect the Brahma Poutras this year to be among the most prominent features of the show, and many and close will the comparisons be between the pencilled and the light varieties. There are people who say that the value of the prize has no weight with the real amateur, but what brought out the light Brahmas but the judicious distribution of a few handsome and heavy prizes at the principal shows? We wish well to the light birds, but think they are to the pencilled ones what the Harvard crew was to that of Oxford; they may, and we hope they will, get better each year, but the position, we think, will remain unchanged. The pencilled Brahmas this year have the stimulus of two silver cups in addition to the money prizes.

We do not say that every one will be surprised, but, we think, nine amateurs out of ten will be when we say that the breeders of Malays are awaking from their years of lethargy, and that the prize-sheet contains the announcement, under the head of the Malay classes, that, "by the donations of a few amateurs the council are enabled to increase the prizes for Malays." The committee and the amateurs are equally to be congratulated, and we hope the entries will spring up in proportion. The Malay fowl has not nearly enough credit for its many good qualities, and deserves a much better character than is generally given to it. We may fairly hope that this is a fresh start for the breed, and that we may see it take the position it held before poultry shows, as we understand them, were thought of. The Crèvecœurs, Houdans, and La Flèche, have two classes each, and a very close rivalry and keen competition may be looked for therein; Spanish, four classes, with a silver cup for the best cockerel. We can readily endorse the allotment of two classes to black Hamburghs, and think they will make their way. Golden and silver pencilled and spangled are, as heretofore, in the prize-sheet, and may be expected in great force in the pens. If Polish fowls make no progress, they try hard to hold their ground, and get three classes.

The inducement to introduce new varieties is not extravagant, the class allotted to them being one of the poorest, if not the poorest, of the whole list.

Sixteen classes, with three prizes of plate and one railway prize, are allotted to the game fowls. Those who know the Birmingham show, know what the game fowls are there; those who don't know it, should go and see them.

The Bantams are wisely to be shown in pens of a cock

and two hens. The black-breasted reds are to have a silver cup, value 5*l.*, for their 1st prize.

The principal varieties of ducks have a class each; the Rouens and the Buenos Ayrean, or black East Indian, have each an extra prize. We think the geese of all ages might compete together, but cordially approve the separation of the turkeys.

The pigeon list must be reserved for next week.

Miscellaneous.

Foot-and-Mouth Disease is a light matter among stirks and lean cattle—they will be little, if any, the worse of it; but it is very serious amongst heavy-feeding cattle and milch cows. If fat cattle are attacked, they should have their Turnips sliced, with crushed oilcake and meal. There is no treatment of any avail in the fever stages. When the fever is gone, there will be a beast or two out of a lot whose feet will require attention. The horn of the hoof gets loosened from the flesh. The animals may require to be thrown, and the dead horn cut away. It must be remembered that it will never attach itself again. The veterinary surgeon should generally perform the operation, unless the owner is skilful himself. Cows require great attention. The disease seats itself in their udders, and unless they are most carefully milked out they may be rendered useless as milkers—losing one, two, or even all the quarters of the udder. The foot-and-mouth disease is very infectious. I recollect having carried it home from a neighbouring farm, by merely handling a bull which was down with the disease. I came straight home, and handled the first beast opposite the door in one of my own byres; in three days he was seized with the complaint; and in two or three days thereafter nearly every beast through the steading was down in it. Out of 40 fat cattle, 38 had it, only two escaping. Upon inquiry I found that one of them had had it before. I lost from 4*l.* to 5*l.* of condition on an average off every one of the 38. From the same farm, and at the same time, a veterinary surgeon had been called in. He went straight to another farm, six miles distant, and in a few days every animal there was seized with the same complaint. It is the general belief that an animal will not take the foot-and-mouth disease twice. This is a mistake. I have a cow that took it twice, but there were seven years between the attacks. *Cattle and Cattle Breeders, by W. M'Combie, M.P.*

Calendar of Operations.

SEPTEMBER: *Wheat Seed-time.*—The sowing of Wheat commences about the close of the month. It used to be the busiest season of the year on what were termed Wheat and Bean farms, but the increased breadth of root crops grown on soils of this kind has extended the period of sowing over the next three months. Still, during the current month and early in October, everything is got ready for preparing and sowing the land intended for winter Wheat.

Seed Wheat newly threshed is to be preferred, provided the crop has been stacked in thorough good order, and care is generally taken that this shall be the case. Nothing pays better than the selection during harvest time of the best Wheat for seed; clean flinty straw, and crisp plump corn only should be stacked for this purpose. Great improvements have recently been made in the scouring of Wheat, so as to remove by mechanical means the germs of animal and vegetable life, and all such improvements are highly to be commended. But they should not be wholly trusted to, and it is just as imprudent to trust alone to the process of pickling. Both processes should be carried out with equal care. Besides, those who cannot grow good sound seed Wheat for themselves, should purchase of others who can. Some soils and climates are defective some way or other in the growth of Wheat, so that annually losses of quality and vigour occur, according to the season. We need hardly add that for such farms seed Wheat should always be bought, for the simple reasons that it is worth more money than the home-grown, and that the difference of value in favour of the change of seed is greater than generally credited. Some only change every second or third year, but unless under exceptionally fine years, when there is no falling off in the quality, the practice is wrong. The more advisable rule is to change your seed when you do not grow it up to the proper standard, and this is easily known in good time to purchase.

Pickling Wheat.—Some use blue vitriol (sulphate of copper) dissolved in warm water, half a pound or so to a sack of Wheat, using no more water than will wet the surface of the grains when rapidly turned over on the barn floor. For clean fine white Wheats, which have few spines for holding the germ of smut, a quarter of a pound of this mineral to a bucket (two gallons) of water is enough, as for this thin-skinned Wheat a stronger solution is dangerous to the vitality of many of its grains. With Rivetts and other coarse Wheats, with their long spines or hairy end, the half pound per bucket of water may be used, while the Wheat should be immersed in a tub, well stirred for a few minutes, and all floating grains, whether wrapped in chaff or not, skimmed off. The moisture is soon absorbed, so that in a few hours the Wheat is ready for the drill. No more should be dressed at a time than is required for immediate sowing. Others wash the Wheat in brine of a sufficient strength to carry an egg or Potato, and then dry it by sifting hot lime over it on the floor, mixing the two rapidly together until the surface of the grains is covered. No more should be washed than is required for sowing at the time, and any remainder left in the drill or sack should be spread out thin upon a dry floor, otherwise its vitality will be injured, and it may be wholly destroyed, thereby rendering it unfit for seed. The washing over-night should therefore be sown the next day, or, if wet prevent, the spreading out thinly should be adopted for the whole batch.

Kind of Seed.—Soil, climate, and the like must be considered before it can be determined which is the best sort of seed to sow. The different varieties are very generally known under local names, derived from the persons who selected them, as Hallett's Pedigree Wheats; or the district in which they were first grown, as Essex Wheat. Red and White Wheats form another distinction. Some are more hardy than others, and better adapted for this or that kind of soil, climate, and management; so that small trials should be carefully made before extensive changes are carried out.

Thick and thin sowing is a controversy of long standing; much depends upon the weather and state of the land. Some soils tiller abundantly, others sparingly and unequally, when sown thin, the result being more green ears than ripe ones in harvest. The latter soils, however, are capable of much improvement. In the one case from 2 pecks to a bushel per acre is considered more profitable than a thicker seeding. According to other opinions, from 2 to 3 bushels per acre are not found too thick a seeding; but the 3 bushels are generally sown broadcast upon a rough seed furrow, so that much of it is buried too deep and rots. The probability, therefore, is that, on an average, not much over 2 bushels braird and tiller under the thick broadcasting plan.

Wheat sowing is now chiefly done by seed-drills, the coulters being from 8 to 12 inches asunder, and each coulter kept down to a regulated depth by a weighted leverage. The seed is thus put in to a uniform depth, comparatively speaking, so that if sound the whole of it brairds and tillers. The latter, however, only follows when the land is in good condition, and no harm is done by the frosts of winter and spring or from other causes. On some soils, and in some exposed places, less or more loss is generally sustained during winter, so that due provision must be made for such thinnings in the plants. It is hardly possible to estimate, without local experience, the difference between soils and places in this respect.

Potato harvesting commences about the end of the month. The digging is done by hand, by the common plough, or double-mouldboard plough, and by the Potato digger. When dug with a three-pronged fork one man will keep two women or boys gathering with baskets. When turned up by the common, or double-mouldboard plough, one man will shake out to six or eight gatherers. The Potato digger turns up and shakes out at the same time, thus dispensing with hands to shake out. A cart follows the gatherers, into which the potato-baskets are emptied, and the loaded carts are backed into the pit-bottom, generally made about the breadth between the wheels outside—the Potatos being raised as high as possible. They are first covered with straw, and a slight covering of earth, not quite up to the top, and ultimately with a foot to 15 inches of earth, with straw vents at short intervals along the ridge. Some extensive growers sort their Potatos in the gathering into three lots—the large for marketing immediately, the next for seed, and the remainder for pigs; the latter two sorts only being stored. But the more common practice is to pit the whole sound crop as above, and, when sold, to sort them by means of potato-riddles, or sieves, the width of the mesh being a matter of agreement.

Housing stock at night takes place about the latter end of the month. The working horses, milch cows, and fattening bullocks are taken up earlier, as previously noticed. Foals, young colts, and idle horses should either have a dry bed in a hovel to go to, or else be taken home to the stable or strawyard; young cattle suffer much from lying over-night on a wet cold bed, and the finer the breed and the higher the condition the greater the loss. Even the hardy Highland cattle in their native glens look out for shelter overnight, or, if the weather is open, they choose a thick comparatively dry bed of long heath. But our lowland herds have no such choice.

Stock sheep require to be provided for in various ways. On some Highland sheep walks, in bad seasons, the shepherds and their flocks have to begin by the end of September, moving towards the lowlands for their winter quarters. In other walks further south, in the border counties of England and Scotland, while lowland farmers are finishing corn harvests, the shepherds are finishing theirs, by the stacking of hay for the winter months beside the stalls or sheep-pens, some of it having to be carted from the tramp-cocks, where it grew, several miles distant, over rough mountain roads. About 2 stones per month or so is provided for every sheep, assuming that something can be scraped from under the snow; and those who do not grow hay themselves purchase. *W. B.*

Notices to Correspondents.

GRASSES: *Briton.* For permanent Pasture on heavy soils, to be sown without a crop, put in about 50 lb. of seeds per acre, including 2 or 3 lb. of each of the usual Fescues except F. rubra, a large quantity of F. loliacea, 3 lb. each of Timothy, Cocksfoot and Foxtail Grass, 5 lb. each of Perennial and Italian Ryegrass, 3 lb. each of Poa trivialis and P. nemoralis, and 5 lb. each of red and white Clovers. Sow them without a crop.

RAISING WATER, &c., BY WHEEL: *J B M.* says:—If the "Old Subscriber" who wanted information on this subject can come to me at Reading, I can show him a wheel I put up nearly 20 years ago which has threshed and cut chaff, ground, and pumped for me ever since, without stopping the floods or interfering with the rights of the millers. [We can give an "Old Subscriber" our correspondent's address.]

TO LAY DOWN SANDY WASTE TO GRASS: *T S B.* You are right in getting rid of root and brush by burning. The ashes, however, are not a sufficient manuring. You had better puf in a dressing of bones early in spring, before you sow Grass seeds. The better plan indeed would be to burn, and then bone heavily; then grow Turnips; then feed them off with cake-fed sheep; and *then* sow your Grass seeds.

Seeds Direct from the Growers, the most Effectual Means of Preventing Disappointment.

SUTTON AND SONS, SEED GROWERS, deliver their Home-grown Seeds, Genuine as Harvested, to all parts of the kingdom. Carriage free (except very small parcels).—Prices and full particulars on application.

SUTTON AND SONS, Seed Growers, Reading.

To Market Gardeners.

TWO HUNDRED THOUSAND extra strong plants (now ready for planting out) of JENKINSON'S DEFIANCE EARLY CABBAGE, which is unquestionably the finest early Cabbage in cultivation; being very early, hardy, and not liable to run. The seed is specially selected. Price, put on rail here, 5*s.* per 1000, or 1000 for 40*s.* Also, about 30 lb. of SEED of the above superior Cabbage, of this year's growth; price 6*s.* per lb.

GEORGE T. FOX, The Nurseries, Wetley Rocks, near Leek, Staffordshire. (Post-office orders payable at Leek).

SPECIMEN ORCHIDS,
to be Sold a bargain, viz.:—
AERIDES ODORATUM, extra fine, 3 to 4 feet, £1.
CATTLEYA CRISPA, extra fine, 60 pseudobulbs, £4.
" MOSSIÆ, extra fine, 60 pseudobulbs, £3 10*s.*
ZYGOPETALUM MACKAYI, extra fine, 30 pseudobulbs, £3.
" 10 pseudobulbs, £1.
MILTONIA CANDIDA, extra fine, 18 pseudobulbs, £2 10*s.*
LÆLIA ANCEPS, 10 pseudobulbs, £1 10*s.*
DENDROBIUM KINGIANUM, 50 pseudobulbs, £2.
STANHOPEA INSIGNIS, 20 pseudobulbs, £1 10*s.*
" TIGRINA, 20 pseudobulbs, £1 10*s.*
Or the 10 fine specimens for £20.

W. B. J. also offers, in good small plants, 5*s.* to 10*s.* each, or the 8 varieties 30*s.*, viz.:—Cattleya Mossiæ, Maxillaria grandiflora, Dendrobium nobile, D. Kingianum, Cypripedium insigne, C. barbatum, Trichopilia tortilis, and Calanthe V. lutea.

W. B. JEFFRIES, Nurseryman, Ipswich.

First Prizes for Pomology and Arboriculture
At the INTERNATIONAL EXHIBITION, 1867.

F. MOREL, Rue du Souvenir, Vaise, Lyons, France, offers the following:—
New SEEDLING PEAR, PROFESSOR HORTOLES, vigorous growth on Quince or Pear, very abundant bearer. Fruit average size, and first quality. Ripens in October. Obtained First Prize. Price, 6 francs each, or 12 for 60 francs.
New PEAR, SOUVENIR DU CONGRES, 2 francs.
DE PONTBRIANT PLUM, the best of large Plums; very juicy. Ripens August 10 to 20. Dwarfs, 1 franc each; Standards, 2 francs each.
Choice Collections, as adopted by the Pomological Congress of France, of PEACHES, NECTARINES, PEARS, APPLES, CHERRIES, and APRICOTS.
Fifty varieties of TREE PEONY, 2 50 francs each.

TO the TRADE.—The Undersigned solicits orders for the following:—

Dwarf Maiden Peaches	Arbutus, twice and thrice transplanted
" Nectarines	Sweet Bays, do.
" Cherries	Rhododendrons, do.
" Pears and Apples	Laurels, Common, do.
" Plums	" Portugal, do.
" trained of all the above	Pinus austraca, 2 feet
Standards and Pyramids do.—strong clean stuff, and of the most approved kinds	Arbor-vitæ, American
	" Chinese
Fruit Tree Stocks, of all sorts	Berberis Darwini
Roses, Standards, strong	" aquifolia
" Dwarfs, worked, do.	Acacia, 1 foot
" " own roots, do.	Cupressus Lawsoniana
Manetti Rose Stocks, do.	Cedrus atlantica
	Phillyreas, sizes

Most of these articles can be supplied by the 1000, at very reasonable prices, on application to
G. GRAY AND SON, Nurserymen, Brox, Chertsey, Surrey.

Must be Sold, for want of room.

NEW GOLD and BRONZE ZONAL PELARGONIUMS.—Large plants of the following kinds taken up from the beds, affording lots of cuttings, are offered cheap, viz.:—
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MARBLE-SHADED FOLIAGED VARIETIES, very strong plants.—John Gibson, Lord Lyon, Lucy, Mutabilis, Penelope, Rosette, Rustic, Vanguard, Wonderful.
ZONAL PELARGONIUMS.—Gaiety, F. & A. Smith's Magnificent, F. & A. S.'s Scarlet Dwarf, F. & A. S.'s Perfection, F. & A. S.'s Comte de Morny, Waltham Nosegay and Crystal Palace Gem, great improvement on Cloth of Gold and Gold Chain. All at 6*s.* per dozen.
JAPANESE CHRYSANTHEMUMS.—12 varieties of these new novel and beautiful flowers, in pots, to bloom this season. 6*s.* the set; sent out last year at 7*s.* 6*d.* each. See Catalogues.
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A liberal number of plants thrown in against carriage.
DESCRIPTIVE CATALOGUES free on application. 5% per cent. allowed to the Trade.
Apply to T. L. MAYOS, Seedsman, &c., Lugwardine, Hereford.

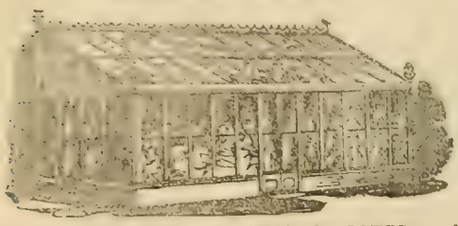
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NEW CHRYSANTHEMUMS of 1869, 12 of the best and most distinct, 9*s.* per dozen; 24 do. do. do., 7*s.* 6*d.* per dozen.
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NEW GERANIUMS, 6 of the most beautiful of the season, all received Certificates, 1*s.* 6*d.* each.
DOUBLE GERANIUM, Madame Lemoine, 9*s.* per dozen.
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NEW HELIOTROPES of 1869, 6 of the most distinct, 1*s.* each.
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For above and CATALOGUE of Bulbs, Roses, Primroses, Violets, Polyanthus, and other Hardy Herbaceous and Alpine Plants, &c., apply to
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Fine New Hardy Clematises.

GEORGE JACKMAN AND SON are now sending out their two following NEW CLEMATISES, that they can warrant as distinct, vigorous, and abundant flowering as those varieties which have already obtained such general approbation.
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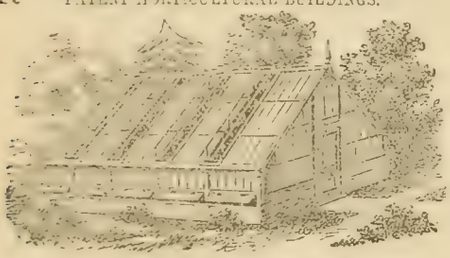
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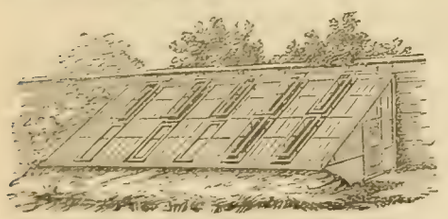




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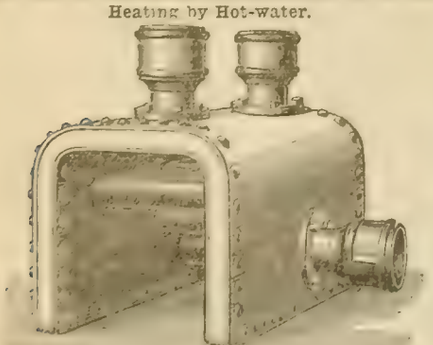
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NEW OVAL TUBULAR BOILER,

Acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in GARDENERS' CHRONICLE *of International Exhibition, May* 24, 1862, *page* 476.

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY'S variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

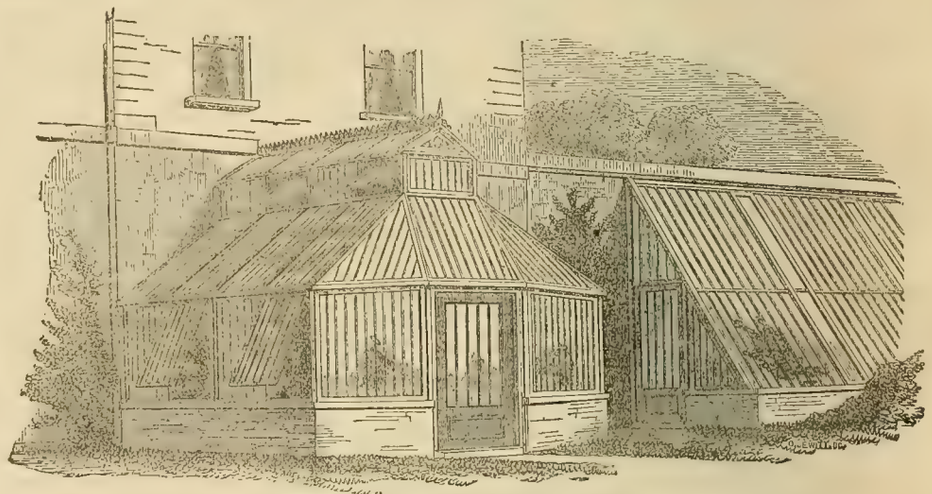
☞ *They are made of all sizes, which, with prices, may be had on application.*

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

CONSERVATORIES, ORCHARD HOUSES, &c.,

PLAIN OR ORNAMENTAL, PORTABLE OR PERMANENT.

MANUFACTURED in LONDON, at GLOUCESTER, COVENTRY, ULVERSTONE, PAISLEY, and ABERDEEN.



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Illustrated Price Lists of Sir J. Paxton's Patent Roofs on application.

Designs prepared and Estimates given for Conservatories to suit any style of Mansion, on receipt of particulars of size required with rough sketch or description; also for Heating Apparatus to any extent, fixed complete in any part of the United Kingdom.

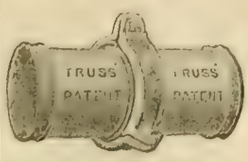
HEREMAN AND MORTON, 7, PALL MALL EAST, LONDON, S.W.,
HORTICULTURAL BUILDERS AND HOT-WATER ENGINEERS.

A HANDBOOK of VINE and FRUIT TREE CULTIVATION, with full particulars of Patent Roofs, Views of Conservatories, Hints for Heating, &c. By S. HEREMAN, Chatsworth. Post Free, 13*d*.

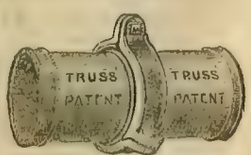
PORTABLE AND FIXED HOT-WATER APPARATUS,

FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH

TRUSS'S PATENT UNIVERSAL FLEXIBLE AND LEAKLESS PIPE-JOINTS.



T. S. TRUSS



Begs to state that the immense number of APPARATUS annually Designed and Erected by him in all parts of the kingdom, and for the ROYAL HORTICULTURAL SOCIETY at SOUTH KENSINGTON and CHISWICK, with unrivalled satisfaction, is a guarantee for skill of design, superior materials, and good workmanship; while the great advantages obtained by his IMPROVED SYSTEM cannot be over-estimated, consisting of perfectly tight joints with neatness of appearance; EFFECTS A SAVING OF 25 PER CENT. on cost of Apparatus erected compared with other systems; facility for extensions, alterations or removals without injury to Pipes or Joints; can be erected by any Gardener; an ordinary size Apparatus erected in one day; and PERFECTNESS of DESIGN SUPPLIED, INSURING NO EXTRAS. Complete Apparatus, of the best materials, delivered to any Railway Station in England, and Erected at the following prices. Erection beyond 25 miles of London, railway fare for one man additional. Considerable reduction on large works.

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Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
20 feet by 10 feet ..	£9 0 0 ..	£2 0 0	50 feet by 15 feet ..	£17 10 0 ..	£3 0 0
30 feet by 12 feet ..	11 15 0 ..	2 10 0	75 feet by 15 feet ..	20 0 0 ..	3 0 0
40 feet by 15 feet ..	15 0 0 ..	2 15 0	100 feet by 15 feet ..	26 0 0 ..	3 5 0

Bath and Gas Work erected in town or country. **The Trade Supplied.**

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IRON MERCHANT, HOT-WATER APPARATUS MANUFACTURER,
AND HORTICULTURAL BUILDER,
FRIAR STREET, BLACKFRIARS ROAD, LONDON, S.E.

HOT-WATER PIPES.
CASH PRICES.

	2-inch.	3-inch.	4-inch.
PIPES .. .. per yard	1s. 6d.	1s. 6d.	2s. 0d.
ELBOWS .. .. each	1 6	2 3	3 0
TEES .. .. „	2 6	3 6	4 6
SYPHONS .. .. „	2 6	3 6	4 6
VALVES .. .. „	10 0	11 6	13 0

No credit will be given when Pipes, &c., are invoiced at the above prices.

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6, Redcliffe, Southwark, London, S.E.

Price Lists, with terms for credit and for delivery at country stations, will be sent on application.

Heating by Hot Water.

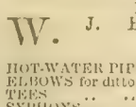
W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, S.E.

	2-inch.	3-inch.	4-inch.
HOT-WATER PIPES, from stock—per yard	1s. 6d.	1s. 6d.	2s. 6d.
ELBOWS for ditto .. .. .. each	1 6	2 3	2 9
TEES .. .. „	2 3	3 6	4 6
SYPHONS .. .. „	2 3	3 6	4 6
THROTTLE VALVES .. .. .. „	10 0	11 6	13 0

Cash remittance with order.

N.B. All Goods of fit 2-inches manufacture. No second quality kept. Estimates given, and orders punctually attended to the same day.

W. H. LASCELLES' MACHINE-MADE MELON LIGHTS.



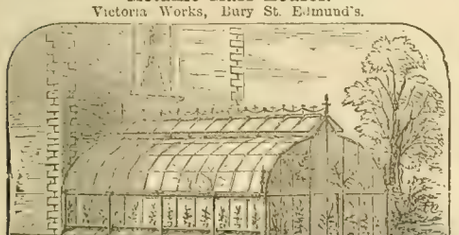
	Each.
6 ft. by 1 ft. Lights, 24ins. thick, unglazed	£0 5 0
„ „ Primed and Glazed with 16 oz. Sheet	0 11 0
„ „ with stout Portable Box, not Painted..	1 3 0
„ „ Painted four coats, and Hurdles on	1 8 0
„ „ Packed and Delivered in Railway Van..	1 10 0
6 ft. by 8 ft., Double Lights, do.	2 15 0

GREENHOUSES.

	Per ft. super.
Woodwork only Prepared and Fitted	0 0 6
„ Primed and Glazed with 16 oz. Sheet ..	0 0 9
„ Delivered, and Fixed with Ironwork ..	0 1 0
„ Painted four coats, two sides, ready for use	0 1 3

Finsbury Steam Joinery Works, 121, Bunhill Row, E.C.

IRON GREENHOUSES CHEAPER THAN WOOD.
Beard's Patent Non-conducting and Ventilating Metallic Glass Houses.
Victoria Works, Bury St. Edmund's.



MANUFACTURED BY

CHARLES BEARD,

Senior Partner in the late Firm of Sanders, Frewer & Co., which Firm was dissolved by mutual consent.

The Patentee wishes to observe his Patent Houses obtained the First and only Prize at the Royal Horticultural Congress, South Kensington, 1866;

The First-class Certificate at the Grand Manchester Horticultural Show, 1867;

The Three First-class Certificates at the Royal Horticultural Show, at Bury St. Edmund's, 1867, viz.:—One Prize for Patent Glazing without Putty; One Prize for Best System of Patent Ventilation; One Prize for S. F. & Co.'s Improved Flower Stands.

These much-approved Patent Systems of Glazing and Ventilation are also extensively adapted for all Agricultural Buildings, Public Halls, Churches, Factories, Railway Stations, &c., &c.

Full particulars and Prices of the Patent Houses, glazed with 26 oz. Sheet Glass from 1s. 2d. per foot super and upwards. As also Illustrated Catalogues for 12 postage stamps, may be obtained on application to CHARLES BEARD, Victoria Horticultural Works, Bury St. Edmund's.

PATENT GLAZING BARS, to screw on wood, may be had separately. Full particulars for stamped envelope.

Vases and Fountains, for the Garden and Conservatory.



ANDREW HANDYSIDE AND CO.,
Britannia Foundry, Derby. | 32, Walbrook, London.

The Britannia Iron Works have for the last 40 years been well known for the production of fine Iron Castings. The use of Cast-iron permits a delicacy of outline, and smoothness of surface, impossible in cheap Stone or Terra-cotta. Cast-iron Vases, if occasionally painted, are imperishable, and will not crack when exposed to wet or frosty weather.



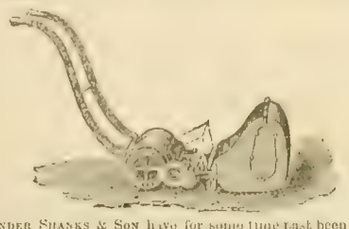
Five large Sheets of Designs and Price Lists post free for 6 stamps.

A. H. & Co. make the better kind of IRON and GLASS CONSERVATORIES, and have constructed some of the largest and finest in the kingdom.

SHANKS'S PATENT LAWN MOWERS for 1869.
The Patent Improvements recently introduced give
SHANKS'S MACHINE
Several important advantages possessed by no other Lawn Mower.
PATENT DOUBLE-EDGED SOLE-PLATE, WIND-GUARD, &c.

The unprecedented Sale for 1868, notwithstanding the Dryness of the Season, forms the most convincing testimony how much these advantages have been appreciated.

ALEXANDER SHANKS & SON beg to intimate that, among all the Exhibitors of Lawn Mowers at the Paris Exhibition, they are the only Firm to whom the Jury awarded a Medal. The Silver Medal then awarded is the highest Prize ever given at any Exhibition for Lawn Mowers.



ALEXANDER SHANKS & SON have for some time past been making the Revolving Cutter of their Machines Self-Sharpening—that is, with Steel on both Sides of each Blade, so that when the Cutter becomes blunt by running one way, it can be reversed, thus bringing the opposite or sharp edge of the Cutter to act against the Sole-Plate. In addition to this, A. S. & Son now make the Sole-Plate or Bottom Blade of their Machine with Two Edges—one in front as usual, and one in reserve at the back; when the front edge gets worn down, the plate has only to be unscrewed and the unused edge brought to the front. It will be seen at a glance that this arrangement enables the cutting parts to last twice as long as in other machines, where the single-edged Sole-plate must be entirely renewed when the edge is worn down.

A Wind-Guard has also been introduced to prevent the Mown Grass being blown past the Box during the prevalence of wind.

There is no ribbing with these Machines. The Lawn when mown has a most beautiful appearance, being as smooth as a piece of velvet.

Every Machine warranted to give ample satisfaction, and if not approved of can be at once returned.

Illustrated Circulars, with full particulars, sent free on application.

A. SHANKS AND SONS, Dens Iron Works, Arbroath; and 27, Leadenhall Street, London, E.C.

☞ A Stock of all sizes of Lawn Mowers always kept at 27, Leadenhall Street.

Rosher's Garden Edging Tiles.



THE above and many other PATTERNS are made in Terro-Metallic Ware, Terra-Cotta, Stoneware, and Redware, and of great durability. The planer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability and superior finish, and in much variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.E. Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E. Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs. Likewise more elaborate designs. Pattern Sheets of Pavements, with prices, forwarded for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.

To be obtained of F. & G. ROSHER, at their premises as above.

SILVER SAND (REIGATE), at the above addresses—14s. per Ton, 1s. 2d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less. A coarser grained Sand 4s. per ton more. Samples of Sand by post on receipt of stamp.

FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEAT and LOAM supplied at lowest rates.

F. & G. ROSHER.—Addresses see above.

N.B. Orders promptly executed by Railway or Vessel.
A liberal discount to the Trade.

POULTRY FARMING.—To Amateurs and Breeders of Useful and Fancy Poultry, Feeding for Market, &c.—The Advertiser, having a House, Buildings and Land suitable for the above purpose, desires to make terms of mutual advantage with any one qualified in establishing the above, with a view to profit.

Address proposals to A. B., The Cooperage, 40, St. Mary-at-Hill, City, E.C.

WANTED, near London, a HOUSE, with a few Acres of Ground, for Nursery purposes.

M. M., Messrs. Debenham, Tewson & Farmer, 80, Cheapside, London, E.C.

Crystal Nursery, Sydenham.

TO BE LET or SOLD, the whole of this Concern, comprising Plant and Fruit Houses, Seed Department, Grounds, Stabling, Dwelling House, &c., &c.

Apply on the premises to Mrs. RHODES.

Sales by Auction.

To Nurserymen and Others.

SALE of the whole of the SHRUBS, EVERGREENS, TIMBER, PLANTS, SHEDS, OUTBUILDINGS, and Appointments, in the Grounds of the Old Manor House, Brixton Hill, near the Church and Railway Station, the Site being required for Building Purposes.

WALTER RICHARDSON AND CO. are favoured with instructions to SELL by AUCTION, on the Ground, on MONDAY, September 27, at 11 for 12 o'Clock, the whole of the above, comprising some excellent matured specimens of Variegated HOLLY, AUCUBA JAPONICA, NATIVE and FOREIGN SHRUBS, YEW TREES, &c.; also a quantity of Prolific Wall and Standard FRUIT TREES, Growing TIMBER, ELM, BIRCH, OAK, &c.; several thousand yards of BOX EDGING, a large area of TURF, and numerous Appointments, Sheds, and Outbuildings.

Now on View. Catalogues of the Auctioneers, 13, Regent Street, Waterloo Place, S.W., and on the Premises.

To Noblemen, Gentlemen, Nurserymen, and Others,
THE SANDIACRE STATION NURSERY, EREWASH VALLEY LINE.

MESSRS. POTT AND NEALE are favoured with instructions from Mr. John Frettingham, to OFFER BY AUCTION, on TUESDAY, September 28, at 12 o'Clock precisely (without the least reserve, the ground being required for building purposes), between 8000 and 9000 TREES and SHRUBS, varying in height from 1 to 8 feet, consisting for the most part of Golden Queen Hollies, Silver Queen Hollies, English Yews, Rhododendrons, Taxus elegantissima (the Silver Yew), Cupressus Lawsoniana, Green Hollies in variety, Chinese Junipers, Arbor-vitæs, &c., the whole of which were carefully transplanted last spring, and are in splendid condition for removal, and quite close to the Railway Station.

Refreshments (by Ticket) will be provided at 11 o'Clock, at the Warren Arms Inn.

Catalogues may be obtained from Mr. JOHN FRETTINGHAM, Stapleford Nursery, Nottingham; at FRETTINGHAM'S Shop, 18, Corn Market, Derby; or at the Offices of the Auctioneers, Wheeler Gate, Nottingham, and 20, Cockspur Street, London.

Dutch Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Room, 38, King Street, Covent Garden, W.C., on MONDAY, September 27, at half-past 12 o'Clock precisely, 700 Lots of choice BULBS, just arrived from Holland, in lots, to suit private Buyers and the Trade.

On view the Morning of Sale, and Catalogues had.

Great and Entirely Unreserved Sale,

At MALVERN HALL, SOLIHULL, WARWICKSHIRE, Of the extensive and very valuable COLLECTION of STOVE, GREENHOUSE, and other PLANTS; CARTS, BARROWS, Carpenters' Tools, Garden Tools, and other Garden Effects; also a quantity of Timber, Garden Frames, &c., the property of J. E. Williams, Esq.

The Collection is made up of three large Houses of Fruiting and Successional Plants, one House of Variegated Plants, the whole perfectly free from scale, mealy-bug, or other pests; also Thirty-one handsome varieties, procured this year in Belgium; and very large plants of Phœnix reclinata, Pandanus utilis, Dracæna terminalis splendida, Alsophila australis, Latania borbonica, Croton pictum, variegatum, and many others; Alocasias, Ixoras, Dracænas, Alocasias, Tree and other Ferns; Ferns, Lapagerias, Yuccas, Agaves, Auratum and other Japanese Lilies; and other Plants, too numerous to mention by Advertisement.

The above Collection has been regularly exhibited for miles around Birmingham, and has gained Hundreds of First Prizes.

MESSRS. PROTHEROE AND MORRIS will SELL the whole by AUCTION, at the Gardens, as above, without the least reserve, on TUESDAY and WEDNESDAY, September 28 and 29, at 11 o'Clock each day precisely.

Catalogues, 6d. each, returnable to purchasers, may be obtained from JOHN STEVENS, the Gardens, Malvern Hall, Solihull; at the *Midland Counties Herald* Office, Birmingham; and of the Auctioneers, Leytonstone, Essex.

High Beech, Essex.

CLEARANCE SALE of STOVE and GREENHOUSE PLANTS and NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. James Crawford to SELL by AUCTION, without Reserve (in consequence of the Nursery being Let), on the Premises, The Nursery, High Beech, Essex, 20 minutes' walk from Loughton Station on the Great Eastern Railway, on MONDAY, October 4, at 12 o'Clock precisely, the whole of the Choice STOVE and GREENHOUSE PLANTS, comprising Gardenias, Ferns, Lycopods, Azalea indica, Fuchsias, Crassula, &c.; also the remaining Nursery Stock.

May be viewed any day previous to Sale; Catalogues had on the Premises, and of the Auctioneers and Valuers, Leytonstone, Essex, N.E.

Sale of Kentish Sheep, Stacks of Hay, Oats, and Straw, Horses, and Farm Implements.

MR. JOHN THORNTON will SELL by AUCTION, on the Premises, at Brockley Farm, between Lewisham and Forest Hill, Kent, on WEDNESDAY, September 29, the small Flock of KENTISH SHEEP, comprising some Fat Sheep, and 100 Shearling Ewes and Wethers, the property of J. T. Nokes, Esq.

Also four large Stacks of fine MEADOW HAY, well got; two Stacks of OATS, unthreshed, and one large Stack of Wheat-straw; together with the team of Cart Horses and Waggons, very superior Race Horse, Van, Carts, Implements, and other effects upon the Farm, in consequence of the expiration of the Lease, and disposal of the Land for Building purposes. The SALE of the SHORTHORNS is unavoidably POSTPONED.

Catalogues may be had of JOHN THORNTON, 15, Langham Place, London, W.; or of Mr. AKEHURST, at the Farm.

Important Annual Sale of Nursery Stock.

To NOBLEMEN, GENTLEMEN, NURSERYMEN, AND OTHERS.

MR. HENRY WALTERS has received instructions from Mr. B. Whitham, to offer for SALE by AUCTION, at his Nursery, Redlish, near Stockport, on WEDNESDAY and THURSDAY, September 29 and 30, at 11 o'Clock each day, a portion of his VALUABLE NURSERY STOCK, comprising about 10,000 Choice Hybrid Rhododendrons, well set with bud, 2 to 4 feet high, which have been raised from the very finest varieties in England; fine Azaleas, 1½ to 2½ feet high, well set with bud and bushy; Forest and Ornamental Trees and Shrubs of every variety. The above stock is well worthy the attention of intending planters, being in fine healthy condition, and possessing the great advantage of having been grown on a stiff clay subsoil, and in a cold climate. The plants have also been periodically transplanted to insure safe removal.

Catalogues and further information may be had post free on application to B. WHITHAM, the Nurseries, Reddish, near Stockport; Mr. GREEN, Falstaff Inn, Market Place, Manchester; and at the Auctioneer's Office, Blyth Bridge, Stafford.

To Nurserymen, Gentlemen, Florists, &c.

Fine Collection of large CAMELLIAS and other GREENHOUSE TREES and PLANTS, capital Roan Cart Mare, Waggons, Carts, Farm Implements, Outdoor effects, at Harringay House, Hornsey.

MESSRS. FOSTER respectfully announce for SALE by AUCTION, at The Farm at Harringay House, close to the Hornsey Station on the Great Northern Railway, on FRIDAY, October 1, at 1 o'Clock precisely, about 100 splendid CAMELLIA TREES, some of them 15 feet high; other large ORANGE and CITRON TREES, AZALEAS, CACTI, &c., STOVE PLANTS, prime Meadow Hay, Cart Mare and Harness, Farming and Garden Implements, Rick Cloths, and other Outdoor Effects.

On view the day prior to and Morning of Sale, when Catalogues may be had at the Farm, and of Messrs. FOSTER, 54, Pall Mall, S.W.

Important Sale of Nursery Stock by Auction.

TO BE SOLD by AUCTION, in Lots, on THURSDAY and FRIDAY, October 7 and 8, at 10 o'Clock precisely, the large and valuable Stock of FOREST, ORNAMENTAL, and FRUIT TREES, SHRUBS, FLOWERS, GREENHOUSE PLANTS, and other Stock, in Ness Walk Nurseries, Inverness.

A considerable part of the Stock consists of very fine LARCH and SCOTCH FIR, which are well worth the attention of Buyers.

The Nurseries are open, and the Stock may be inspected any day previous to the Sale.

Catalogues are now ready, and may be had free on application to D. G. ROSS, Dingwall; or JOHN CHISHOLM, 106, Church Street, Inverness.—Sept. 10.

Preliminary Notice.

THE ANNUAL AUTUMN SALE of FOREST TREES, FRUIT TREES, SPECIMEN CONIFERÆ, EVERGREEN SHRUBS, &c., will take place at the King's Acre Nurseries, near Hereford, on TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY, October 12, 13, 14, and 15.

JOHN CRANSTON, Proprietor.

Catalogues may be had one week prior to the Sale, on application to the Nurseries; or to the Auctioneer, Mr. EDWIN H. SUNDERLAND, Saint Owen Street, Hereford.

Notice of Important Sale.

CASTLE NURSERY, BROX, near CHERTSEY, SURREY, within 1¼ mile of the Addlestone, Chertsey, and Woking Stations, on the South-Western Railway.

MESSRS. WATERER AND SONS have received instructions from the Executrix of the late Mr. Hoade to SELL by AUCTION in OCTOBER NEXT, the whole the exceedingly valuable STOCK of the above NURSERY, of which further particulars will appear in future Advertisements, and Catalogues had upon the premises, and of Messrs. WATERER AND SONS, Auctioneers and Valuers, Chertsey, Surrey, who will forward them on application by post.

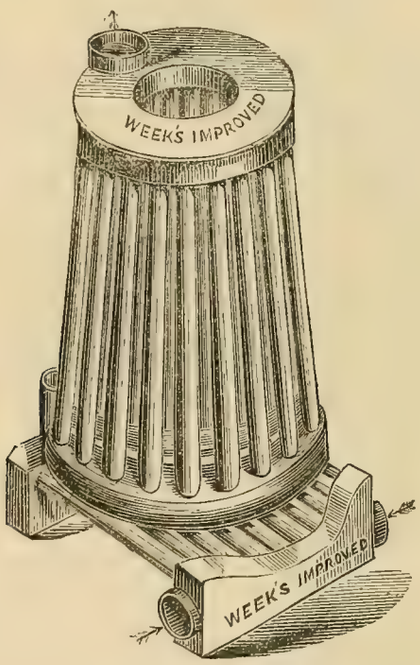
Prebendal Farms, Aylesbury.
IMPORTANT SALE OF SHORTHORNS.

MR. STRAFFORD is instructed to announce for SALE by AUCTION, without reserve, on TUESDAY, October 19 next, at the Prebendal Farms, Aylesbury, the very select HERD of pure-bred SHORTHORNED CATTLE, belonging to John K. Fowler, Esq., which consists of about 40 Head of Bulls, Cows, and Heifers, chiefly of Fawsley blood, with Kirklevington crosses. Amongst them will be found some very desirable animals descended from Catalina, Charmer, Cold Cream, Walnut, Fantail, Seraphina, and other favourite sorts. The sire now in use is Hardicanute, bred by Mr. Adkins, of Milcote.

Catalogues and pedigrees will shortly be issued, and may be had on application to Mr. STRAFFORD, 13, Euston Square, London or of Mr. FOWLER, at Aylesbury.

TEN FACTS WORTH KNOWING.

1. In the year 1843 the Horizontal Tubular Boiler was invented by J. WEEKS AND CO.
2. In the year 1855 WEEKS AND CO. discovered the superiority of the Upright Tubular over every other description of Boiler.
3. WEEKS AND CO.'S No. 6 is the only Boiler capable of warming four miles of 4-inch piping.
4. WEEKS AND CO.'S Cast Upright Tubular is 75 per cent. more durable than any Wrought Iron Tubular or Saddle Boiler that can be manufactured.
5. WEEKS AND CO.'S Upright Tubular Boiler is in constant operation at all leading Horticultural Establishments throughout Great Britain and the Continent.



6. The largest Hot-water Apparatus in the world was erected by WEEKS AND CO., and worked on their One-Boiler System.
7. WEEKS AND CO.'S No. 6 Upright Tubular Boiler (as exhibited at Manchester) has proved itself the most clean, efficient, durable, economical, and powerful Boiler extant.
8. WEEKS AND CO.'S Upright Tubular Boiler, after having undergone the most severe and critical tests for the last 15 years, has in every case proved itself the best for Horticultural purposes.
9. WEEKS AND CO. are daily receiving the most flattering Testimonials as to the satisfactory working of their One-Boiler System.
10. Write for their "ILLUSTRATED CATALOGUE" (12th Edition), post free.

John Weeks & Comp.y

JOHN WEEKS AND CO.,

HORTICULTURAL BUILDERS AND HOT-WATER APPARATUS MANUFACTURERS,

KING'S ROAD, CHELSEA, S.W.

Editorial Communications should be addressed to "The Editor." Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by JAMES MATTHEWS, at the Office of Messrs. BRADBURY, EVANS & Co., Lombard Street, Precinct of Whitefriars, City of London, in the Co. of Middlesex, and Published by the said JAMES MATTHEWS, at the Office, No. 41, Wellington street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, September 25, 1869.

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 40.—1869.] SATURDAY, OCTOBER 2. {Price Fivepence. {Stamped Edition, 6d.

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NOTICE to ADVERTISERS.—In answer to constant inquiries, the Proprietors have fixed the following SCALE of CHARGES for ADVERTISING:—

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B. S. WILLIAMS' stock is remarkably fine, and in good condition. Can supply all the best kinds. Prices on application.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

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HENRY BAILEY has to offer good planting Canes of leading kinds. Price on application.
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F. AND A. SMITH have an extensive Collection of extra strong CANES of all the leading sorts, in fine condition. Intending purchasers would do well to see them.
The Nurseries, West Dulwich, S.E.

THOMSON'S WHITE LADY DOWNE'S GRAPE.—Plants of this remarkable White Grape, the latest keeping in cultivation, are now being sent out. The Canes are strong and thoroughly ripened. Immediate orders are respectfully requested Price 21*s.*, 42*s.*, and 63*s.* each.
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OSBORN AND SONS can supply good CANES of the above-named remarkable GRAPE, which has again been exhibited and very much admired, fully sustaining the high character previously formed of it. Price 10*s.* 6*d.*, 21*s.*, and 30*s.* each.
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JAMES CARTER AND CO. can now offer strong, well-grown CANES, this year's growth. For description of Varieties and Prices, see AUTUMN CATALOGUE, now published.
JAMES CARTER AND CO., Seedsmen and Nurserymen, 237 and 238, High Holborn, W.C.

Vines from Eyes.

EWING AND CHILD can now supply strong, well-ripened, short-jointed CANES of all the new and leading kinds.
Strong Planting Canes, 3*s.* 6*d.* to 5*s.* each.
Strong Fruiting Canes, 7*s.* 6*d.* to 10*s.* 6*d.* each.
Prices of new kinds on application to
The Royal Norfolk Nurseries, Norwich.

Vines.

FRANCIS & ARTHUR DICKSON & SONS have this season a magnificent lot of VINES, grown from Eyes, without bottom-heat, in very strong short-jointed Fruiting Canes, as well as Planting Canes. Their collection embraces ALL the NEW and leading kinds. Prices on application. F. & A. D. & SONS invite inspection of their stock.
The "Upton" Nurseries, Chester.

Vines and Strawberries.

E. G. HENDERSON AND SON are now sending out a first-class Stock of the above. See CATALOGUE 139, published this autumn, for prices and descriptions.
Wellington Nursery, St. John's Wood, London, N.W.

NEW PERPETUAL PINE STRAWBERRY (M. GLOEDE).—Strong plants, 7*s.* 6*d.* per 100. I gathered a dish of fine fruit on the 26th ult. See List of 40 other kinds.
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CHARLES TURNER can supply good plants of the above variety, at 7*s.* 6*d.* per 100.
The Royal Nurseries, Slough.

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CHARLES TURNER is now prepared to supply strong plants of all the leading kinds. DESCRIPTIVE LIST may be had on application.
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JAMES CARTER AND CO. have a splendid Stock now ready. For Prices and Varieties, see AUTUMN CATALOGUE, now published.
JAMES CARTER AND CO., Seedsmen and Nurserymen, 237 and 238, High Holborn, W.C.

Camellias, Azaleas, Ericas, and Roses.

JOHN KELLETT has a most extensive stock of all the leading varieties, which he can offer cheap, being short of room. CATALOGUE of DUTCH FLOWER ROOTS, ROSES, &c., on application. Wellington Nursery, Heaton Chapel, Stockport.

1869.—Dutch Flower Roots.

JAMES DICKSON AND SONS have a very large and excellent Stock of these, of the best and soundest description. Early orders are solicited. PRICED CATALOGUE on application. Old Established Nursery and Seed Business, 102, Eastgate Street, and "Newton" Nurseries, Chester.

M. A. IVERY'S CATALOGUE of DUTCH BULBS can be had post free. All kinds of SHRUBS and FRUIT TREES of the very best quality. The Trade supplied with superior MUSHROOM SPAWN.
Hanover Nursery, Peckham, London, S.

Dutch Flower Roots, &c.

B. S. WILLIAMS' CATALOGUE of HYACINTHS, TULIPS, CROCUSES, NARCISSUS, and other Spring-flowering Bulbs; also FRUIT TREES, ROSES, &c., is now ready, post free to all applicants.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

Dutch Bulbs, just Imported.

JAMES CARTER AND CO.'S AUTUMN CATALOGUE of HYACINTHS, CROCUS, and other Bulbs, also ROSES and FRUIT TREES, is now ready, and will be forwarded gratis and post free on application.
238, High Holborn, London, W.C.

SUTTONS' COLLECTIONS of FLOWER ROOTS, See page 1037 of this day's *Gardeners' Chronicle.*

SUTTONS' COLLECTIONS for OPEN GROUND, 10*s.* 6*d.* to £2 2*s.* For particulars, see page 1037 of this day's *Gardeners' Chronicle.*

SUTTONS' COLLECTIONS for POTS or GLASSES, 10*s.* 6*d.* to £2 2*s.* For particulars, see page 1037 of this day's *Gardeners' Chronicle.*

The Successful Cultivation of Hyacinths.—See SUTTONS' AUTUMN CATALOGUE for 1869, which may be had gratis and post free on application.
SUTTON AND SONS, Reading, Berks.

Hyacinths, Tulips, &c.

BUTLER, McCULLOCH AND CO. beg to announce the publication of their AUTUMN CATALOGUE of the above, which will be sent gratis and post paid on application. Orders for Bulbs can now be executed.
BUTLER, McCULLOCH AND CO., South Row, Covent Garden Market, London, W.C. Established upwards of a Century.

Arrival of Bulbs.

BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.
CATALOGUE containing much additional valuable information now ready, and on application sent free to the Readers of the *Gardeners' Chronicle.* BULBS for Early Flowering now ready to send out, of first-class quality.

Dutch and other Bulbs.

WM. CUTBUSH AND SON are celebrated for HYACINTHS, TULIPS, CROCUSES, and other DUTCH BULBS. All the Great Prizes, including the Two Special Prizes offered by the Dutch Growers, awarded to their Collections again last Spring. They import only ONE QUALITY, therefore Customers may rely upon having the finest Bulbs. CATALOGUES post free.
Highgate Nurseries, London, N.

Dutch Flower Roots.

FRANCIS & ARTHUR DICKSON & SONS, have received from the most celebrated Growers in Holland their first large importation of the above, and have the satisfaction to say that the Bulbs are large, sound, and well ripened. Early orders respectfully solicited. DESCRIPTIVE PRICED CATALOGUES post free on application.
The "Old" Established Seed Warehouse, 106, Eastgate Street, Chester.

Dutch Flower Roots.

JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, Borough Market, London, S.E., beg to announce that they have received a selection of the above from eminent growers in Holland, in very fine condition, and extra fine roots, which they feel convinced will give satisfaction.
CATALOGUES of FLOWER ROOTS, ROSES, FRUIT TREES, &c., sent free on application.

SPIRÆA PALMATA. This magnificent plant is now being distributed for the first time in Europe. Good plants at 21*s.* each.
CHARLES NOBLE, Bagshot.

ALLAMANDA WARDLEIANA (True), from the Plant exhibited at the Royal Horticultural Society's Meetings, at 10*s.* 6*d.* each.
R. TANTON, F.R.H.S., The Nurseries, Epsom.

CENTAUREA RAGUSINA COMPACTA. Packets for 13 or 25 stamps; 100 seeds for 4*s.*, of
C. YOUNG, Balham Hill Nursery, London, S.W.

Centaurea candidissima (ragusina).

HOOPER AND CO. offer fine fresh SEED of the above Plant, just saved, 2*s.* 6*d.* per packet. Sown now, it will produce fine plants for bedding next year. Price to the Trade on application.
HOOPER AND CO., Seed Merchants, Covent Garden, London, W.C.

WANTED, 50 or 100 PLANE TREES, as large as possible, to transplant safely.
Apply to Mr. CLAPHAM, Royal Park, Leeds.

WANTED, extra fine 2 and 1-yr. Seedling LARCH. Say lowest cash price; or in exchange, fine transplanted, from our own superior Larch ground.
JOSEPH TREMBLE AND SONS, Penrith.

Seedling Wellingtonias.

WANTED, 5000 to 10,000, 1 and 2-yr. old, for Grafting.—State price to
R. HARTLAND, The Lough Nurseries, Cork.

LARGE POPLARS, PLANES, LIMES, CHESTNUTS, and other Forest and Ornamental Trees; large AUCUBAS, ARBOR-VITÆS, COMMON and PORTUGAL LAURELS, IRISH and COMMON YEWS, and a variety of other Trees and Evergreens, suitable for immediate effect, at
R. T. PENNETT'S Nursery, Park Lane, Tottenham, N.

FIELD BROTHERS, Tarvin Road Nursery, Chester, beg to offer the following, viz.:—CHINESE ARBOR-VITÆ, 3 feet, 2-yr. bedded, handsome plants, 40*s.* per 100, 6*s.* per doz. WHITE CEDAR, 2 feet, handsome, compact Plants, 40*s.* per 100, 6*s.* per doz. TREE BOX, Gold Edged, 2 feet, 25*s.* per 100, 4*s.* per doz. A remittance or reference from unknown correspondents.

Rose Catalogue.

JOHN CRANSTON'S ROSE CATALOGUE for 1869 is now ready, and will be sent post free on application.
The Nurseries, King's Acre, near Hereford.

FIFTY THOUSAND TEA-SCENTED and NOISETTE ROSES, in pots, all the most popular and best kinds, at 9*s.* to 18*s.* per dozen. DESCRIPTIVE LIST on application.
RICHARD SMITH, Nurseryman, Worcester.

Established 1806.

T. HANDASYDE AND DAVIDSON have a large stock of TEA, HYBRID PERPETUAL, BOURBON, and CHINA ROSES in pots. Special prices to the Trade on application.
Seed Warehouse, 24, Cockburn Street, Edinburgh.
Nurseries, Brunstane Glen, Musselburgh.

Paul's Roses.

"Mr. PAUL'S Roses * * * are things to see once and dream of for ever."—*Athenæum.*

WM. PAUL begs to announce that his ROSES are NOW in BLOOM. Inspection respectfully invited. Trains from London, Bishopsgate Station, to Waltham, Great Eastern Railway, 13 times daily.
PAUL'S Nurseries & Seed Warehouse, Waltham Cross, London, N.

Standard Roses.

LEWIS WOODTHORPE having a most splendid collection this year, begs to offer them at the following low rates, with good heads, clear stems, and true to name:—
STANDARD ROSES, the best sorts, including Maréchal Niel, &c., £5 per 100; 27*s.* 6*d.* per 25; 15*s.* per dozen.
CATALOGUES free. Wholesale prices upon application.
Munro Nursery, Sible Hedingham, Essex.

Paul & Son's New Rose Catalogue.

PAUL AND SON, the Old Nurseries, Cheshunt, N., have now ready Copies of their new LIST, post free on application. A Copy will in course of next week be forwarded to all Customers of the past three years. They state this to save their friends the trouble of applying.

Dwarf and Standard Roses.

FRANCIS & ARTHUR DICKSON & SONS have an immense stock (many thousands) of very strong well-grown plants of all the best ROSES, including ALL THE NEW VARIETIES, for Autumn planting; also a large quantity of STRONG PLANTS, in POTS, of the best sorts, which can be planted out at ONCE. PRICED DESCRIPTIVE CATALOGUE sent free by post. Inspection respectfully invited.
The "Upton" Nurseries, Chester.

Gladioli—New Roses.

EUGÈNE VERDIER Fils Aîné, NURSERYMAN, 3, Rue Dunois, Paris, publishes in August and September of each year complete and descriptive CATALOGUES, with prices. They comprise all the finest and newest varieties of Gladioli, Pæonies, and New Roses. Gratis and post free on application.

WM. POTTEN'S LIST of new and select TRICOLOR, BICOLOR, ZONAL, and DOUBLE GERANIUMS can be had post free on application to
WM. POTTEN, Florist, Sissinghurst, Staplehurst, Kent.

SUPERIOR GERANIUM SEED, saved from a select stock, carefully hybridised for the production of Tricolors. In packets of 20 seeds for 12 stamps, or 5*s.* per 100 seeds.
JAMES MARSHALL, Seedsman and Florist, Montrose.

Special Offer.—Madame Lemoine.

WILLIAM BADMAN offers strong plants of this most beautiful of Double Pelargoniums, in single pots, 6*s.* per dozen. LORD DERBY, finest Pelargonium grown, 4*s.* per dozen. Package included. Terms cash.
Cemetery Nursery, Gravesend.

British Fern Catalogue.

ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, Sidcup Hill, Kent.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY (Limited),
CORN, SEED, MANURE, and OILCAKE MERCHANTS.
Address, 26, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and prices post free on application. Prize Medals, 1851 for Wheat; 1862, for "Excellent Seed Corn and Seeds."

THE Cheapest and most Effectual of all Plants for Game and Fox Covert, PAMPAS GRASS. Surplus stock, strong, healthy Seedling plants, twice transplanted, 25*s.* per 100, or £12 per 1000, delivered free to Bealing's Station.
BUNDY, Kesgrave, Woodbridge, Suffolk.

EVERY GARDEN REQUISITE KEPT in STOCK at CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

FRENCH MUSHROOM SPAWN.—Any one desirous of trying this article, can have a few Flakes, free of expense, on application to
BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.

NEW RAPE SEED.—Samples and quotations of the above forwarded post free on application to
CHARLES SHARPE AND CO., Seed Merchants, Sleaford.

DRUMHEAD CATTLE CABBAGE, ENFIELD MARKET, IMPERIAL, and BATTERSEA CABBAGE, well rooted and extra fine, price 3*s.* per 1000, carefully packed in crates, and delivered to the Railway Station direct.
S. WELLAND, Surrey Gardens, Godalming, Surrey.

New English Sowing Rape Seed.

H. AND F. SHARPE have fine Samples of NEW RAPE SEED, which they can offer to the Trade at low figures. Price and samples on application.
Seed Growing Establishment, Wisbech.

Seed Potatos.

H. AND F. SHARPE'S WHOLESALE LIST of all the new and best varieties of Early and Late POTATOS is now ready, and may be had on application. The quality is very fine, and prices low.
Seed Growing Establishment, Wisbech.

Early Sandringham Kidney Potato.

H. AND F. SHARPE are prepared to execute wholesale Orders for the above, which is the most prolific First Early POTATO grown. Being short in the Haulm, it is more suitable for Forcing than any other variety. Prices and further particulars on application.
Seed Growing Establishment, Wisbech.

NEWSPAPER

New Nosegay Geranium Charley Casbon.

CASBON AND SON are now sending out the above beautiful GERANIUM. It is of dwarf spreading growth; the flowers, which have broad petals, are freely borne in immense trusses. Colour, the richest scarlet of any variety known. Strong plants 5s. each. The usual allowance to the Trade.

Gravel Walk Nursery, Peterborough.

VARIEGATED PELARGONIUMS.

Lucy Grieve	Lady Cullum	Mrs. John Todd
Louisa Smith	Caroline Lounsfield	Duke of Edinburgh
Sophia Cusack	Queen of Tricolors	Her Majesty
Spanish Beauty	E. G. Henderson	Kentish Hero

The 12 above-named plants, for 21s., package included. Remittances requested from unknown correspondents.

ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

H. CANNELL'S AUTUMN CATALOGUE is now ready, and will be sent free for One Stamp. It contains a full description, with lowest prices consistent with quality and cheapness, of all the best new and most distinct varieties of PELARGONIUMS (both of Tricolors and Bicolors, Doubles and Zonals), FUCHSIAS, VERBENAS, PETUNIAS, COLEUS, CHRYSANTHEMUMS, HELIOTROPES, VERONICAS, LOBELIAS, VIOLAS, and all the popular bedding Plants of the Season. Also, the names and lowest price of all the best older varieties in cultivation. For further particulars see Catalogue.

To Raisers of Geraniums.

H. CANNELL begs to inform all lovers of GERANIUMS that he has a small quantity of Seed of the very best Hybridised Zonals in cultivation, at 2s. per packet. It is picked with great pains from all the best new kinds of the present season, including T. Moore, Acme, Lord Stanley, Sir R. Napier, Our Future King, Monster, &c.: the two latter certainly are the finest varieties ever sent out, and as every bloom is carefully attended to daily, H. C. is convinced that some grand new Varieties will be the result from the Seed.

GOLDEN FEATHER.—As this plant has thoroughly proved itself to be the greatest bedding acquisition that has been sent out for many years, H. CANNELL begs to remind all lovers of the golden that now is the best time to sow.

It comes perfectly true from seed; such seeding plants stood all last season, and were the admiration of all throughout the winter and spring, and equally as effective for Conservatory decoration.

500 New Seeds free for 13 stamps.

New Florists' Flower and Florists' Flower Seed Merchant, Woolwich.

F. AND A. SMITH invite an inspection of their large Collection of GOLD and SILVER TRICOLOR and GOLDEN BRONZE GERANIUMS, now in good colour and fine condition for **Autumn Decoration.** As a proof of their excellence they quote the following Prizes, awarded to them during the past season :—

First Prize, Royal Horticultural, Kensington	First Prize, Northampton
Second Prize, Royal Botanic, Regent's Park	First Prize, Manchester
First Prize, Leeds	First Prize, 36 plants, Hamburgh
First Prize, York	First Prize, 12 ,, Hamburgh
First Prize, Spalding	First Prize, 3 ,, Hamburgh
	First Prize, 15 ,, Bronze, Hamburgh

Reduced List of Prices will be forwarded on application.

The Nurseries, West Dulwich, S.E.

New and Choice Tricolor Geraniums.

J. ELCOMBE AND SON have great pleasure in offering the following splendid varieties, at greatly reduced prices for cash :—

Achievement	Moonstone
Edward Milner	Mrs. John Clutton
Howarth Ashton	Jetty Lacy
Victoria Regina	May Queen
Wonderful (Smith's)	Humming Bird
Florence	Lucy Grieve
Crown Jewel	Defiance (Smith's)
Charming Bride	L'Empereur
Sophia Cusack	Mrs. Dix
Miss Watson	Spanish Beauty

List of prices on application.

The following at 6s. per dozen :—Lady Cullum, Louisa Smith, Sophia Lunariæfolia, Meteor, Edwinia Fitzpatrick, Lady Palmerston.

Strong plants in 48's and 32's, with many cuttings, of the following, at 1s. per dozen :—Mrs. Pollock, Sunset, and many bronze varieties.

New Zonal and Nosegay Geraniums of 1869, the best varieties, 1s. each; new Double, Prince of Novelties, 2s. 6d. each; new Doubles, Marie Lemoine, Marie Crousse, Wilhelm Pfitzer, Victor Lemoine, 3s. 6d. each.

Nursery and Seed Establishment, Romsey, Hants.

New Hybrid Pelargoniums, Willsii and Willsii rosea.

Undoubtedly the finest Novelties of the season.

Numerous Certificates and First Prizes have been awarded.

J. W. WIMSETT has much pleasure in announcing that the above splendid Novelties are now ready for sending out.

WILLSII, strong plants, 1 guinea each.

WILLSII ROSEA, strong plants, 1 guinea each.

In order to place the above splendid Novelties within the reach of every one, and having now worked up a large stock of them, J. W. W. has determined on offering them at the above reduced prices.

"Culford Hall, Bury St. Edmund's, June 9, 1869.

"To Mr. Wimsett.

"DEAR SIR,—I was much disappointed at not seeing you at the Pelargonium Show on the 22d. I, however, saw your beautiful hybrid Pelargonium Willsii rosea, which ought to carry your name down to posterity. It is really a very great triumph. If you had never done anything else in the cause of Flora with the exception of effecting this cross you would have done much more than your share; but you have done much more than this for the Floriculturist Public, who are very much indebted to you.—I am, dear Sir, yours very truly, "P. GREIVE."

DIPLADENIA AMŒNA.

J. W. W. begs to announce that he has also reduced the price of this beautiful plant, and can now supply strong plants at 7s. 6d. and 10s. 6d.; extra strong, at 21s. and 31s. 6d.

DUTCH FLOWER ROOTS.

J. W. Wimsett's Consignment of Dutch Flower Roots are this season unusually fine. They can now be supplied in large or small quantities.

Ashburnham Park Nursery, King's Road, Chelsea, S.W.

J. WILLS, F.R.H.S., Manager.

Special Offer to the Trade.

JEAN VERSCHAFFELT begs to offer the following, viz. :—

CAMELLIAS, with Buds, 1 to 1½ feet high, named sorts, £6 to £8 per 100.

AZALEA INDICA, fine sorts, with Buds, true to name, £4 to £5 per 100; do. extra, £6 to £7 per 100.

OTAHEITE ORANGES, with Fruit, 24s. per doz.

TREE CARNATIONS, flowering throughout the winter months, 18s. per doz.

Early Orders are respectfully solicited by

JEAN VERSCHAFFELT, Ghent, Belgium.

The Nurseries, Coventry.

J. OGDEN begs to return his sincere thanks to the Nobility, Clergy, Country, and Public in general for the kind support he has received during the last 25 years, and to inform them that he has DISPOSED of the BUSINESS to Mr. JOHN STEVENS, on whom he can most earnestly and respectfully confer its continuance.

JOHN STEVENS, late Gardener to F. E. Williams, Esq., Moor Hall, Sutton, begs to inform his Friends that he has taken the Nurseries of Mr. Ogden, at Coventry, and hopes by strict attention to business, and moderate terms, to merit a share of their patronage. J. S. will make a specialty of Fruit Trees, particularly of Dwarf Trained and Standard Pears, Apples, Peaches, Nectarines, and Plums of Espalier and Dwarf Shape, Standard Hollyhocks, Pæonies, Roses, Herbaceous Plants, several Houses of Camellias, Azaleas, Geraniums, &c., and Garden Seeds.

In addition to the above, J. S. has one acre of Glasshouses, which he intends to devote to the Nurseries, Coventry.

Orders by Rail will be attended to promptly, and goods delivered to Coventry Station, or by own conveyance within reasonable distance.

Hyacinths, &c.

CHARLES YOUNG, who annually visits Holland, has been twice this season in order to select the finest flowers as well as large roots, now offers to forward the following Collection (this being the proper time to plant to insure early bloom), enclosed in a box, on receipt of Post Office Order for One Guinea :—24 choice Hyacinths, all by name; 6 Polyanthus Narcissus, by name; 12 Pheasant's Eye Narcissus; 12 Double White Narcissus; 12 Double Due Van Thol Tulips; 12 Single Due Van Thol Tulips; 12 beautifully Striped Tulips; 6 splendid White Tulips; 6 splendid Yellow Tulips; 200 Crocus, four colours; and 100 Snowdrops.

Balham Hill Nursery, London, S.W.



"Messrs. DICK RADCLYFFE'S Establishment contains a great number of new and attractive objects."—Vide *Queen*, August 21, 1869.

Gratis and Post Free.

CATALOGUE of DUTCH BULBS, SEEDS, FERNS, HORTICULTURAL ELEGANCIES.

DICK RADCLYFFE AND CO., 129, High Holborn, W.C.

Seed Grounds, Erfurt, Prussia.

Dutch Flower Roots.



ARCHIBALD HENDERSON begs to announce that he has received a large Consignment of Dutch and other Roots, carefully selected from the most celebrated growers.

DESCRIPTIVE and PRICED CATALOGUES are now ready, containing practical directions for their successful cultivation on all the various systems now adopted.

Also a CHOICE and SELECT LIST of VEGETABLE and HARDY FLOWER SEEDS for Autumn Sowing. Catalogues gratis and post free upon application.

Sion Nursery, Thornton Heath, Surrey, and at the East Surrey Seed Warehouse, College Grounds, North End, Croydon.

Bulbs.

STEPHEN BROWN, late of Sudbury, Suffolk, has removed his renowned and valuable Collections of LILIUM, GLADIOLI, and extensive variety of other BULBS, FLOWER ROOTS, HERBACEOUS and ALPINE PLANTS, &c., to Weston-super-Mare, where he will continue the cultivation of these superb and increasingly popular tribes of Flowers.

S. B.'s FIRST IMPORTATION for the SEASON of DUTCH BULBS has arrived in splendid and sound condition.

Full Collections of Bulbs for outdoor planting, 10s., 20s., 40s., 60s.

Full Collections for potting and forcing, 20s., 40s., 60s.

BULB CATALOGUES post free, descriptive, cultural and illustrated.

STEPHEN BROWN, Seedsman and Florist, Walliscott Road, Weston-super-Mare, Somersetshire.

Dutch Flower Roots.

DOWNIE, LAIRD, AND LAING have now received their first Importations of Flower Roots, consisting of HYACINTHS, POLYANTHUS NARCISSUS, Double NARCISSUS, CROCUS, TULIPS, JONQUILS, RANUNCULUS, ANEMONES, SNOWDROPS, &c., &c., which have all been carefully selected from the most celebrated establishments in Holland. The Bulbs are this season well ripened, large, and very heavy, and have arrived in splendid condition.

D., L., AND L. offer the following assortment for One Guinea :—

12	choice named Hyacinths	24	fine mixed Ranunculus
12	,, mixed Hyacinths	24	,, ,, Anemones
6	,, Polyanthus Narcissus	12	,, ,, early Tulips
100	,, named Crocus	12	,, ,, late Tulips
50	,, mixed Snowdrops	12	,, ,, Jonquils

Packed in hamper. Carriage paid.

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OAK, ASH, BEECH, ELM, and other FOREST TREES, from 1½ foot to 3½ feet, 5s. to 30s. per 1000; Sycamores and Laburnums, from 5 to 9 feet, 1s. 6d. per dozen, 8s. per 100; Walnuts, 3 and 4 feet, ditto; Spruce Fir, 3 and 4 feet, 3s. per dozen; Austrian Pine, 6s. per dozen; Laurels, 1, 2, and 3 feet, 5s., 7s., and 10s. per 100; Laurustinus, good plants, 2s., 3s., and 4s. per dozen; Ribes sanguinea and aurea, 2s. and 3s. per dozen; Guelder Rose, 1s. 6d. per dozen; Red Currant Bushes, strong plants, 1s. 6d. per dozen, 8s. per 100; Roses, the best sorts only, 1, 1½, 2, and 2½ feet stems, 12s. per dozen, for cash only, of A. WILKIN, Tiptree, Kelvedon, Essex.

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"The best and fullest account of this Plant (the Hyacinth) which I have met with is by a famous Horticulturist, Mr. PAUL, of Waltham Cross."—DARWIN'S *Animals and Plants under Domestication*.

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In proof of the quality of Bulbs imported by him, he begs to refer to his Annual Exhibition in the Royal Horticultural Gardens in March and April, which has been visited by Her Most Gracious Majesty the Queen, Her Royal Highness the Princess of Wales, and several other Members of the Royal Family.

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MESSRS. VEITCH & SONS

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CATALOGUE OF ROSES FOR 1869

Is now ready, and can be had on application.

They desire to call particular attention to their large STOCK of ROSES, a considerable portion of their

COOMBE WOOD NURSERY

Being devoted to their culture. All descriptions, either in pots or from the open ground, can be supplied at the most moderate prices.

*** *A PERSONAL INSPECTION IS SOLICITED.*

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AUTUMN 1869.

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AZALEA INDICA, BIJOU DE LEDEBERG, 8s.; very strong, 12s.
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BLACK MUSCAT | ROYAL ASCOT
In Fruiting Canes, or second size for planting out; also the established old varieties, in fine plants.
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First Prizes for Pomology and Arboriculture

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DE PONTBRIANT PLUM, the best of large Plums; very juicy. Ripens August 10 to 20. Dwarfs, 1 franc each; Standards, 2 francs each.
Choice Collections, as adopted by the Pomological Congress of France, of PEACHES, NECTARINES, PEARS, APPLES, CHERRIES, and APRICOTS.
Fifty varieties of TREE PEONY, 2.50 francs each.

Violets, Strawberry Plants, &c.

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VIOLETS, all well established in pots.
The KING of VIOLETS, finest double indigo blue, 6s. per dozen.
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DOUBLE TREE VIOLET, dark blue, and very double, 1s. each.
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STRAWBERRY PLANTS, of the best and new kinds.
For descriptions, a CATALOGUE of New Plants and general Nursery Stock will be forwarded free.
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Dwarf Maiden Peaches	Arbutus, twice and thrice transplanted
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Standards and Pyramids do.—strong clean stuff, and of the most approved kinds	Arbor-vitæ, American
	,, Chinese
Fruit Tree Stocks, of all sorts	Berberis Darwini
Roses, Standards, strong	,, aquifolia
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,, ,, own roots, do.	Cupressus Lawsoniana
Manetti Rose Stocks, do.	Cedrus atlantica
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Most of these articles can be supplied by the 1000, at very reasonable prices, on application to
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Awarded R. HARTLAND, for two groups of GOLDEN VARIEGATED WELLINGTONIAS. Prices on application.
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Choice Belgian Pansy.

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Splendid New Rhododendron,

BARONESS LIONEL ROTHSCHILD.

JOHN WATERER AND SONS are now prepared to execute orders for the above new SEEDLING RHODODENDRON; in colour it is a clear bright crimson, the margin of the bloom of a fiery scarlet, of fine handsome form, and remains a great length of time in bloom. Price 21s. each. The usual Trade allowance.
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J. MATTHEWS has a large stock of 4-yr. RHODODENDRONS, 6s. per 1000; 3-yr. (1-yr. transplanted), 10s per 1000; 1 to 1½ foot, bushy, 16s. per 100; 1½ to 2 feet, 40s. per 100; Splendidum, white Rhododendron, budded, 1½ foot, 10s. per dozen; Corsicum pictum, 1 foot, 12s. per dozen.
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JEAN VERSCHAFFELT begs to announce that he has received a fine Importation of this splendid ORCHID, in capital condition, and begs to offer them at the following low prices, viz.:—Plants with 6 to 8 and 10 Bulbs, 8s. each; 6 Plants for 36s., 12 do. for 60s., 100 do. for £20. Early orders will oblige.
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Welsh Winter Vetches	Winter Rye
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Together with all other Seeds, for present sowing, of best new quality, and at moderate prices.
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SUTTON AND SONS are now prepared to execute orders for their MIXTURES of PERMANENT PASTURE GRASSES and CLOVERS for AUTUMN SOWING. For prices and full particulars apply (stating the nature of the soil to be laid down) to SUTTON AND SONS, Seedsmen to the Queen, Reading.

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9d. per lb., or 80s. per cwt.
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The Cheapest and Best Insecticide.

DUTY-FREE TOBACCO.

BY HER MAJESTY'S ROYAL LETTERS PATENT, AND BY PERMISSION OF THE HON. BOARD OF CUSTOMS.

POOLEY'S TOBACCO POWDER, for the Prevention and Destruction of Blight and other Diseases in Plants.
Sold by Nurserymen, Seedsmen, and Florists,
In Tins at 1s., 2s. 6d., and 5s.
Powder Distributors, 2s. 6d. and 3s. 6d. each.
"I find it exceedingly useful for killing the Aphides on Roses and other Plants."—GEO. EYLES, Superintendent, Royal Horticultural Gardens, South Kensington. May 7, 1868.
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Red Spider — Magnified.

GISHURST COMPOUND.

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
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MASTIC L'HOMME LEFORT (the new French Cold Grafting Wax), indispensable for Budding, Grafting, Healing, Stopping Bleeding, &c. In tins, 6d., 1s., 2s., 4s., and 6s., of all Seedsmen, and
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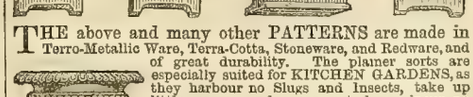
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SEED BAGS and SACKS, and BAGS of every description in use, supplied at the lowest possible prices. ARCHANGEL and TAGANROG MATS of good quality, for Covering, Tying, or Shading; also Petersburg and Prussian DUNNAGE MATS. Price-list forward d post free on application.
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To be obtained of F. & G. ROSHER, at their premises as above.

SILVER SAND (REIGATE), at the above addresses—14s. per Ton, 1s. 2d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less. A coarser grained Sand 4s. per ton more. Samples of Sand by post on receipt of stamp.
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N.B. Orders promptly executed by Railway or Vessel.
A liberal discount to the Trade.

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TANNERS, CURRIERS, and MANUFACTURERS of IMPROVED TANNED LEATHER DRIVING STRAPS for MACHINERY.
PRIME STRAP and SOLE BUTTS.
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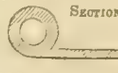


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The best and most powerful
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15 Gallons .. .. £1 10s.
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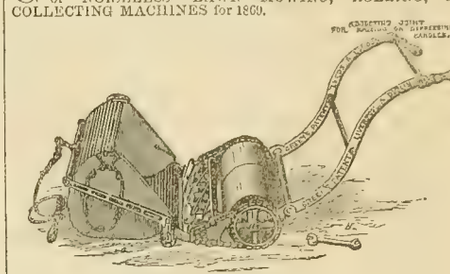
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HORSE SINGEING APPARATUS, with GAS BURNERS, and INDIA-RUBBER TUBING.
Improved INDIA-RUBBER DOOR STOPS.
WATERPROOF CART and WAGGON COVERS made any size.
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BELTING for SAW MILLS, THRESHING MACHINES, and FLOUR MILLS.
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FLANGE TUBING, for excluding Draught and Dust, and preventing the Slamming of Glass Doors.



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GREEN'S PATENT SILENS MESSORS, or NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES for 1869.

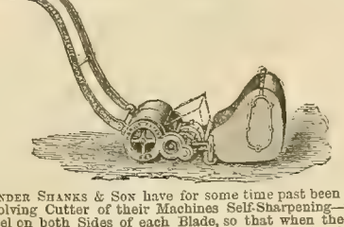


Every Machine is warranted to give entire satisfaction, and if not approved of, can be returned at once unconditionally.

PRIZE MEDALS AWARDED to GREEN'S PATENT LAWN MOWERS.
First Prize Medal at the International Exhibition, London, 1862.
First Prize Medal at the International Exhibition, Dublin, 1865.
First Prize Medal at the Namur Exhibition.
First Prize Medal at the Gand Exhibition.
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First Prize Medal at the Brussels Exhibition, on two occasions.
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GREEN'S Patent Lawn Mowers have proved to be the best, and have carried off every Prize that has been given, in all cases of competition.
The extraordinary success of GREEN'S Patent Lawn Mowers is an established fact. During the last five years the demand has been unprecedented, which alone is a proof of their superiority over all others. The following are their characteristic features:—1st. Simplicity of construction, every part being free of access. 2d. They are worked with far greater ease than any other Lawn Mower. 3d. They are the least liable to get out of order.
GREEN'S Patent Lawn Mowers combine all the advantages of self-sharpening, and when the cutters become blunt by running one way round, they can be reversed again and again, bringing the sharp edge of the cutters against the bottom blade, which operation can be done by any inexperienced person, owing to the peculiar adaptation of the Machine, which is possessed by no other. Illustrated Price Lists free on application.
THOMAS GREEN AND SON, Smithfield Iron Works, Leeds; and 54 and 55, Blackfriars Road, London, S.
N.B.—All orders are executed on the day they are received.

SHANKS'S PATENT LAWN MOWERS for 1869.
The Patent Improvements recently introduced give
SHANKS'S MACHINE
Several important advantages possessed by no other Lawn Mower.
PATENT DOUBLE-EDGED SOLE-PLATE, WIND-GUARD, &c.
The unprecedented Sale for 1868, notwithstanding the Dryness of the Season, forms the most convincing testimony how much these advantages have been appreciated.
ALEXANDER SHANKS & SON beg to intimate that, among all the Exhibitors of Lawn Mowers at the Paris Exhibition, they are the only Firm to whom the Jury awarded a Medal. The Silver Medal then awarded is the highest Prize ever given at any Exhibition for Lawn Mowers.



ALEXANDER SHANKS & SON have for some time past been making the Revolving Cutter of their Machines Self-Sharpening—that is, with Steel on both Sides of each Blade, so that when the Cutter becomes blunt by running one way, it can be reversed, thus bringing the opposite or sharp edge of the Cutter to act against the Sole-Plate. In addition to this, A. S. & SON now make the Sole-Plate or Bottom Blade of their Machine with Two Edges—one in front as usual, and one in reserve at the back; when the front edge gets worn down, the plate has only to be unscrewed and the unused edge brought to the front. It will be seen at a glance that this arrangement enables the cutting parts to last twice as long as in other machines, where the single-edged Sole-plate must be entirely renewed when the edge is worn down.
A Wind-Guard has also been introduced to prevent the Mown Grass being blown past the Box during the prevalence of wind.
There is no ribbing with these Machines. The Lawn when mown has a most beautiful appearance, being as smooth as a piece of velvet.
Every Machine warranted to give ample satisfaction, and if not approved of can be at once returned.
Illustrated Circulars, with full particulars, sent free on application.
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☞ A Stock of all sizes of Lawn Mowers always kept at 27, Leadenhall Street.

MILFORD NURSERIES, NEAR GODALMING.

MAURICE YOUNG

BEGS TO INVITE ATTENTION TO

THE FOLLOWING NEW PLANTS:—

OSMANTHUS ROTUNDIFOLIA.

A new hardy Evergreen Shrub, from Japan, with dark green shining leaves, of good substance, free in habit, and making a compact and ornamental bush. Without doubt, the best of all the Osmanthus.

Good Plants, 42s. per dozen.
Larger Plants, 5s., 7s. 6d., to 10s. 6d. each.

RETINOSPORA FILIFERA.

A most distinct and beautiful Conifer, from Japan, of pyramidal yet graceful habit, producing numerous drooping shoots, sometimes crested at the point. A most desirable plant, and quite hardy.

Good Plants, 42s. per dozen.
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RETINOSPORA FILICOIDES.

A very distinct and remarkable hardy Conifer, recently introduced from Japan, having rich bright green foliage, the branches assuming a lovely Fern-like character. When it is more generally known, it will doubtless become an universal favourite.

Good Plants, 5s. each.
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RETINOSPORA PLUMOSA,

Also from Japan, and a species deserving special notice. Its habit is pyramidal and compact, the foliage a pale glaucous green, particularly light and graceful in appearance; very hardy.

Good Plants, 42s. per dozen.
Larger Plants, 7s. 6d. to 10s. 6d. each.

RETINOSPORA PLUMOSA AUREA.

A golden variety of the above; a free grower, forming a fine contrast to the various green shades of the other species.

Good Plants, 30s. per dozen.
Larger Plants, 10s. 6d. to 21s. each.

RETINOSPORA PLUMOSA VARIEGATA.

Perhaps one of the most elegant and attractive little Conifers known. The foliage is similar to that of R. plumosa, thickly spotted with white, giving it the appearance of being covered with small flakes of snow.

Good Plants, 42s. per dozen.
Larger Plants, 7s. 6d., 10s. 6d., and 21s. each.

RHUS GLABRA LACINIATA.

A new hardy deciduous shrub, with deeply cut feathery foliage, which changes to rich deep crimson and brown in autumn.

Strong Plants, 10s. 6d. each.

THUJOPSIS BOREALIS VARIEGATA.

A silver variegation of the well-known Thujopsis borealis.

Good Plants, 24s. per dozen.
Larger Plants, 7s. 6d. to 10s. 6d. each.

ULMUS CAMPESTRIS AUREA.

A very ornamental Golden Elm, the foliage and wood being of a rich bronzed yellow. **Good Plants, 24s. per dozen.**

M. Y. has a large stock of all the NEW HARDY PLANTS recently introduced from Japan and elsewhere; particulars of which will be found in his NEW CATALOGUE, which will shortly be published.

NEW AUCUBAS.

Having a stock of several thousands of these really valuable plants, I am prepared to offer those kinds of the earliest introduction in

12 varieties of male and female at £5 per 100, or 12s. per doz.

Larger Plants at proportionately increased prices.

Varieties of more recent introduction, in about 10 varieties, at

18s. to 24s. per dozen.

AUCUBA JAPONICA, IN FRUIT.

For Winter Decoration.

Of these I have a large stock of pretty little plants, in 48-sized pots, with two or three bunches of berries, suitable for small vases for the table, at

18s. per dozen.

Of larger plants in fruit I have also a large quantity, in good well shaped bushes, at from **30s. per dozen to 10s. 6d. each.**

SEEDLING AUCUBAS,

Of both males and females, containing many fine varieties, from

30s. to 100s. per 100.

RHODODENDRONS.

The best named kinds, in all shades of crimson, white, and purple, at from

£7 10s. per 100 upwards.

Of the older named varieties of CATAWBIENSE and PONTICUM, I have a large quantity, in fine bushy plants, at from

75s. per 100 upwards.

RHODODENDRON PONTICUM,

For Cover and Wood Planting, from

21s. per 100 upwards.

A LARGE STOCK of EVERGREEN and DECIDUOUS TREES and SHRUBS

For general planting.

A FINE COLLECTION of HARDY CONIFERÆ.

TRANSPLANTED FOREST TREES

Receive special attention in this Nursery, and the stock this season consists of—

ALDER | ASH | BIRCH	SCOTCH, SPRUCE, SILVER,	HORNBEAM
CHESTNUT (Spanish and Horse)	and AUSTRIAN FIRS	OAK (English and Turkey)
	HAZEL	SYCAMORE, &c.

TWO MILLIONS of STRONG QUICK THORNS.

FINE STANDARD APPLES.

PLANS AND ESTIMATES CAREFULLY PREPARED FOR LAYING-OUT NEW GROUNDS, OR FOR IMPROVING PARKS, SHRUBBERIES, OR OTHER PLANTATIONS.

Forest Trees planted by the acre, and failures replaced.

☞ **RAILWAYS.**—The Nurseries are 10 minutes' walk from Milford Station; one mile from Godalming New Station, on the Portsmouth Direct Line; two miles from Godalming Old Station (all on the South-Western Line); four miles from Shalford Station, on the South-Eastern Railway; and four and a-half miles from Bramley Station, on the Guildford and Horsham Branch of the London, Brighton, and South Coast Railway.

MAURICE YOUNG, MILFORD NURSERIES, NEAR GODALMING, SURREY.

ECONOMY IN THE GARDEN.

James Carter & Co. Seed Growers

COLLECTIONS OF

HYACINTHS, CROCUS, TULIPS, &c.,

TO PRODUCE A

PRETTY AND PERMANENT DISPLAY

DURING WINTER AND SPRING.

JAMES CARTER AND CO. strongly recommend the following COLLECTIONS, assorted from the most popular varieties:—

No. 1.—CARTER'S COLLECTION for WINDOW or CONSERVATORY DECORATION £4 4 0

CONTAINING:

Hyacinths, 50 in 25 extra fine named sorts	Tulips, extra fine, named, Double, 50
Polyanthus Narcissus, 36 in 12 named varieties	Do. do. do. Single, 50
Jonquils, Sweet-scented, 50	Dielytra spectabilis, 4
Crocus, finest, named, 200	Lilium speciosum, in variety, 4
Cyclamen persicum, 4	Scilla sibirica, 36 [100
	Snowdrops, extra large, selected.

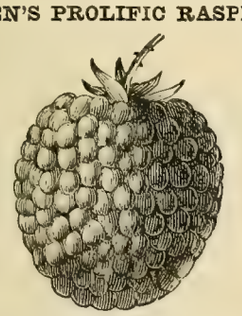
No. 2.—CARTER'S COLLECTION, reduced quantities £3 3 0

No. 3.—CARTER'S COLLECTION, reduced quantities £2 2 0

No. 4.—CARTER'S COLLECTION, reduced quantities £1 1 0

No. 5.—CARTER'S COLLECTION for CONSERVATORY and OUTDOOR PLANTING £4 4 0

McLAREN'S PROLIFIC RASPBERRY.



For full description, see page 986, in Gardeners' Chronicle Sept. 18.

AWARDED A FIRST-CLASS CERTIFICATE.

JAMES CARTER AND CO. are now booking orders for the above valuable fruit, to be supplied this autumn at the following prices:—

6 Strong Canes, 7s. 6d.	25 Strong Canes, 20s.
12 Strong Canes, 12s.	100 Strong Canes, 60s.

No. 6.—CARTER'S COLLECTION of BULBS for CONSERVATORY and OUT-DOOR PLANTING £3 3 0

No. 7.—CARTER'S COLLECTION, reduced quantities £2 2 0

No. 8.—CARTER'S COLLECTION, reduced quantities £1 10 0

No. 9.—CARTER'S COLLECTION, reduced quantities £0 15 0

No. 10.—CARTER'S COLLECTION for OUTDOOR PLANTING £4 4 0

CONTAINING:

Hyacinths, 75 in 3 colours	Anemones, extra fine mixed, 100
Narcissus, Double, White, 50	Gladiolus Brenchleyensis, 24
,, Poeticus or Pheasant-eye, 50	Iris, ex. choice mixed English, 50
Double Daffodils, 50	,, extra fine mixed Spanish, 50
Tulips, extra fine mixed, Double, 75	Lilium candidum, 6
,, ,, Single, 75	,, aurantiacum, 6
Crocus, Blue, 200	,, martagon rubrum, 6
,, Striped, 200	,, tigrinum, 6
,, Large Yellow, 200	Ranunculus, extra fine mixed, 100
,, White, 200	Snowdrops, 400
	Winter Aconites, 100

No. 11.—CARTER'S COLLECTION, reduced quantities £3 3 0

No. 12.—CARTER'S COLLECTION, reduced quantities £2 2 0

No. 13.—CARTER'S COLLECTION, reduced quantities £1 1 0

☞ *No charge for packing any of above Collections.*

For the fullest information to ensure successful cultivation and particulars of the above Assortments, send for

CARTER'S

ILLUSTRATED LIST of BULBS, &c.,

Forwarded Gratis and Post Free.

JAMES CARTER AND CO.,
THE ROYAL SEEDSMEN,
237 AND 238, HIGH HOLBORN, LONDON, W.C.

SUTTONS'



IMPORTED FLOWER ROOTS



SUTTON & SONS,
SEEDSMEN TO THE QUEEN,

READING, BERKS,

having received their FIRST CONSIGNMENT of

CHOICEST DUTCH FLOWER ROOTS,

Selected by themselves from the leading Growers in Holland, are now prepared to receive orders for their COMPLETE COLLECTIONS for WINTER and SPRING BLOOMING, either for indoor or outdoor cultivation.

Suttons' £2 2s. Collection of Flower Roots,

For OPEN GROUND, Carriage Free, contains—

24 fine mixed Border Hyacinths	12 fine mixed Gladiolus
12 ,, Polyanthus Narcissus	25 Duc Van Thol Tulips
25 Pheasants' Eye Narcissus	12 mixed Single Early Tulips
25 Double White Narcissus	12 fine mixed Double Tulips
50 Double Daffodils	12 ,, Parrot Tulips
12 large Campernelle Jonquils	12 Gesneriana Tulips
100 fine mixed Double Ranunculus	50 fine mixed Tulips
100 Scarlet Turban Ranunculus	12 ,, English Iris
25 fine mixed Double Anemones	12 ,, Spanish Iris
25 ,, Single Anemones	6 Lilies, of sorts
300 Crocus, in 6 sorts	6 Ferraria pavonia
100 Snowdrops	12 Dog's Tooth Violets
50 Winter Aconites	6 Crown Imperials

Suttons' £1 1s. Collection of Flower Roots,

For OPEN GROUND, Carriage Free, contains—

12 fine mixed Border Hyacinths	6 fine mixed Gladiolus
6 ,, Polyanthus Narcissus	12 Duc Van Thol Tulips
12 Pheasant's Eye Narcissus	6 mixed Single Early Tulips
12 Double White Narcissus	6 fine mixed Double Tulips
25 Double Daffodils	6 ,, Parrot Tulips
6 large Campernelle Jonquils	6 Gesneriana Tulips
50 fine mixed Double Ranunculus	25 fine mixed Tulips
50 Scarlet Turban Ranunculus	6 ,, English Iris
12 fine mixed Double Anemones	6 ,, Spanish Iris
12 ,, Single Anemones	3 Lilies, of sorts
150 Crocus, 3 sorts	3 Ferraria pavonia
50 Snowdrops	6 Dog's-Tooth Violets
25 Winter Aconites	3 Crown Imperials

Suttons' 10s. 6d. Collection of Flower Roots,

For OPEN GROUND, contains a choice assortment for a Small Garden.

Suttons' £2 2s. Collection of Flower Roots,

For POTS or GLASSES, Carriage Free, contains—

24 fine Hyacinths, by name	6 Persian Iris
12 fine Miniature Hyacinths, do.	6 Peacock Iris
12 Polyanthus Narcissus, do.	100 Crocus, by name
12 large Double Jonquils	12 choice Ixias, by name
12 Single Sweet-scented Jonquils	6 choice Sparaxis, by name
12 Scilla præcox	1 Cyclamen persicum
12 Single Duc Van Thol Tulips	1 Jacobea Lily
12 Double Tournesol Tulips	2 Lilium lancifolium album
50 Early Tulips, 10 sorts	2 ,, ,, rubrum

Suttons' £1 1s. Collection of Flower Roots,

For POTS or GLASSES, Carriage Free, contains—

12 fine Hyacinths, by name	3 Persian Iris
6 Miniature Hyacinths, by name	3 Peacock Iris
6 Polyanthus Narcissus, do.	50 fine Crocus, by name
6 Large Double Jonquils	6 choice Ixias
6 Single Sweet Jonquils	3 choice Sparaxis
6 Scilla præcox	3 choice Oxalis
6 Single Duc Van Thol Tulips	1 Jacobea Lily
6 Double Tournesol Tulips	1 Lilium lancifolium album
25 Early Tulips, 5 sorts	1 ,, ,, rubrum

Suttons' 10s. 6d. Collection of Flower Roots,

For POTS or GLASSES, contains a choice assortment of most useful and showy kinds.

The best 12 Hyacinths, by Name, for 12s.,

Extra fine Double and Single varieties.

For further particulars, with complete Cultural Instructions, see

SUTTONS'

AUTUMN CATALOGUE FOR 1869,

Gratis and Post Free on application.

FLOWER ROOTS and SEEDS CARRIAGE FREE, except very small parcels.

☞ *Five per cent. allowed for cash payments.*

SUTTON AND SONS,

ROYAL BERKS SEED ESTABLISHMENT,

READING.

Primulas, Fuchsias, Vines.

PRIMULA.—New SEED, from the choicest strains in cultivation, Red, Purple, White, and Striped, now offered to the Trade, in liberal Trade packets, mixed, 7s. 6d. and 10s. 6d. Retail, 2s. 6d. and 5s. 6d. per packet. Fine PLANTS, 6s. per dozen. Strong Plants of our four New FUCHSIAS, with plenty of Cuttings on, 2s. 6d. each. These are four of the best yet sent out for Market or Exhibition.

A large collection of choice VINES for fruiting and planting. DESCRIPTIVE LISTS and prices on application to FELTON AND SONS, Birmingham Nursery, Harborne Road, Birmingham.

To the Trade.

MRS. PINCE'S MUSCAT VINE, Planting Canes, 6 feet, 12s. per doz.
CLEMATIS STANDISHII, very strong, in pots, 75s. per 100.
H. P. ROSES, in pots, good sorts, our own selection, 50s. per 100.
ROSES, New, of this season, in pots, 1s. per doz.
HEDERA MACULATA and H. MACULATA LATIFOLIA, extra strong, in pots, 60s. per 100.
CATALOGUES of General Nursery Stuff on application to G. BAKER AND SON, American Nursery, Bagshot, Surrey.

To Market Gardeners and Planters.

THE SUBSCRIBERS beg to offer the aftermarked, in fine healthy well-ripened Standard and Pyramid Trees, by the dozen, hundred, or thousand, of a sort, at low prices, which may be had on application. The Standard Trees are on stems, 5 to 6½ feet high; the Pyramids average from 3½ to 5 feet.

PEARS—Beurré de Capiaumont	PLUMS—Belle de Louvain
Fray's Seedling	Diamond
Hessel	Mitchelson
Welbeck Bergamot	Prince Englebert
&c. &c.	Victoria, &c, &c.

RICHARD BRADLEY AND SONS, Halam, near Southwell, Notts.

Fruits and Fruit Trees.

J. SCOTT, The Nurseries, Merriott, Somerset, has now in his fruit room about 550 sorts of PEARS, which he offers, in named collections, at 1s. per dozen sorts. Cash with order; small sums in stamps. Orders for FRUIT TREES will be carefully attended to. 1000 sorts of Pears, 700 of Apple, 170 of Plum, 150 of Cherry, and other kinds in proportion. They are grown as Standards, 6 to 7 feet; Pyramids, 6 to 7 feet; and Bushes, 3 to 4 feet high; also Dwarf-trained fine healthy plants, and are described in the "Orchardist," the best work on Fruits in England, price 1s. 6d. A printed List or Index sent gratis.

Spring Flowers, Roses, Fruits, &c.

THOS. S. WARE'S new AUTUMN CATALOGUE of ROSES, EVERGREEN and ORNAMENTAL TREES, SHRUBS, FRUITS, &c., is now ready, and will be forwarded free on application. To which will be added a select List of SPRING-FLOWERING PLANTS, especially requiring to be planted in the Autumn, in order that they should be thoroughly established for flowering well and early in the Spring.

Hale Farm Nurseries, Tottenham, Middlesex, N.E., adjoining the Railway Station.

Roses, New Roses, Gladioli.

LÉVÊQUE ET FILS, NURSERYMEN, 132 and 134, Boulevard de l'Hôpital, Paris, have a very large stock of strong ROSES, Standards, Half-Standards, Dwarfs, and on their own roots, including all the best sorts and novelties.

NEW ROSES for this YEAR (to be sent out for the first time next November).—They can supply all these, with a large discount.

GLADIOLI SEEDLINGS (first-rate), per thousand, and all the best sorts by name. LISTS and prices sent free on pre-paid application.

Ranunculuses, Anemones, Tulips, &c.

C. TYSO, FLORIST, &c., Wallingford, Berks, is offering these beautiful hardy flowers, in great variety of colour, at reduced prices, as under. They can be forwarded safely by post.

RANUNCULUSES, choice named, Double, 3s. to 5s. per dozen.
,, fine mixed, from 6s. to 10s. per 100.
ANEMONES, fine Double sorts, 2s. 6d. to 3s. per dozen.
,, single, beautiful colours, 8s. to 10s. per dozen.
TULIPS, fine late sorts, named, 10s. to 15s. per dozen.
,, good Double do., named, 3s. to 4s. per dozen.
RANUNCULUS and ANEMONE SEED, 2s. 6d. per packet.
Treatise on Ranunculus, 7 stamps; Treatise on Anemone, 4 stamps.
CATALOGUES free for one stamp.

The Gardeners' Chronicle.

SATURDAY, OCTOBER 2, 1869.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, October 5 { Royal Horticultural (Fruit and Floral Committees), at South Kensington .. 11 A.M. / Ditto (General Meeting) .. .. .. 3 P.M.

WHAT decision the ROYAL HORTICULTURAL SOCIETY may have come to as to its future operations in the matter of PROVINCIAL SHOWS we know not—indeed we are ignorant whether any decision at all has yet been arrived at. In any case we imagine that there is still ample time for outside discussion, and we believe it would be very much to the interests of the Society and of horticulture generally, did such discussion take place. We take it for granted that the balance of evidence would be in favour of continuing these provincial trysts. Assuming that this postulate is granted, these questions then arise—Is it desirable that the Society's exhibition be held, as heretofore, at the same time and place as that of the Royal Agricultural Society, or is it not preferable, with last year's experience in view, that the two exhibitions should be dissociated? In the latter case, where should the place of meeting be? We do not wish to obtrude any opinion of our own—we merely invite discussion, and in so doing we may state one or two facts which must be duly considered, in order to arrive at a satisfactory solution. Fact number one is, that the meeting of the Royal Agricultural Society for the ensuing year is to be held at Oxford, than which few towns can be better placed in regard to accessibility and convenience of visitors, while certainly no city can surpass it in interest. On the other hand, Oxford is not a horticultural centre in the same sense as Manchester or Glasgow are, and whether, with the manifold attractions of the old university town, superadded to the "bovine furor," poor Flora would not pine neglected in "Port Meadow," "Jericho," "Paradise," or some other locality known to old

Oxonians but little likely to be explored by visitors, is one of the questions we should like to see discussed.

Fact number two is, that Dublin holds out the hand of fellowship. From across St. George's Channel a suggestion is wafted which assuredly merits attention. It is this, that the Royal Horticultural Societies of London and Dublin respectively should unite their forces, and hold a grand horticultural meeting in the Irish metropolis. The proposal is made in the current number of the *Gardeners' Record*, and the project, if carried out in the same spirited manner as that in which it is conceived, must of necessity prove successful. The success or failure of such gatherings depends in great measure, we may say almost entirely, upon the efficiency and completeness of the local arrangements. Exhibitors may fill the allotted space to overflowing with the products of their skill and industry—prize lists may be ample, crowds of visitors even may be forthcoming, but if the local arrangements be badly planned or imperfectly carried out, and specially if there be not harmonious co-operation between the local and the central authorities, the result is sure to be unsatisfactory, and in all probability will be discreditable to all concerned. It is very significant that in the very same number of the *Record* is a report of a meeting held in Dublin for the purpose of considering the propriety of establishing a horticultural club. This proposal, it appears, was well received, and is likely to be carried into effect. We infer from this that the prospects in Dublin of united action in matters horticultural are favourable. Every one knows the *empressement* with which our Irish brethren take up a cause dear to them, and hence if it should be decided to listen to the persuasive tones of Erin, and hold a grand show in her metropolis, we shall have no cause to dread any lukewarmness in the matter. We shall revert to these subjects on a future occasion, and in the meanwhile we should be glad, in the interests of horticulture, to see the subject discussed in a manner commensurate with its importance.

—— We are informed that at the MEETING of the ROYAL HORTICULTURAL SOCIETY to be held on October 5 the following prizes will be offered, viz.:—

For W. WILSON SAUNDERS, Esq., V.P.R.H.S.—Collection of Edible and Poisonous Fungi, 5*l*., 3*l*., 2*l*. These should be tastefully set up, and, as far as possible, correctly and conspicuously named.

For Messrs. J. & C. LEE, F.R.H.S.—Best three bunches of Matresfield Court Black Muscat Grapes, 5*l*.

For [illegible]—Grapes: three bunches of Chasselas Musqué (open), 1*l*., 10*s*.; three bunches of Muscat Hamburgh (open), 1*l*., 10*s*.; three bunches of Frankenthal or Humburgh (open), 1*l*., 10*s*.; three bunches of White Muscat of Alexandria (open), 1*l*., 10*s*.; three bunches of Alicante (open), 1*l*., 10*s*.; three bunches [illegible] or recent variety (open), 1*l*., 10*s*.; the best collection, named (open), 2*l*. 10*s*.

—— At the meeting of the Royal Horticultural Society on Tuesday next we are informed that Mr. HOOLEY, of Wollaton, near Nottingham, intends to exhibit some specimens of his CONQUEROR PRIZE CELERY, a variety which is said to be superior to all others. As the seed was not sown until the first week in April, and as the specimens to be exhibited are expected to weigh from 6 lb. to 7 lb. each, it may be fairly inferred that the variety is of quick growth as well as large size. After the exhibition at Kensington the specimens may be seen at the establishment of Messrs. BARR & SUGDEN.

—— A paragraph appeared at p. 993 relating to the fall of a large BEECH TREE, in which accidentally nothing was said as to the condition of the roots. We have now examined them carefully, and we find on the larger fragments abundant white spawn which undoubtedly belongs to some Polyporus, and possibly to P. adustus, though that is not the only species which affects the Beech. On the smaller portions there is a granular brownish mass, the nature of which is very uncertain: it is also doubtful whether this is due to the exusion of sap from the decaying roots, or whether it is wholly extraneous. The question before us at present is, how shall we ascertain or even suspect that the roots are in an unsound condition, and so prevent the possibility of accident by timely removal? In general something wrong may be anticipated if the foliage assumes an unhealthy appearance, or if some of the branches perish, or if the trees become stag-headed. But this is not always an indication of total decay, and in the latter case it is the primary roof which is the only one which is in general affected. We have seen many trees which have fallen in high winds from the roots being decayed either from the natural effects of old age or from the attack of Fungi, of which there was a remarkable instance a short time since in a fine Elm in the pleasure-ground at Kew. A few years since specimens, according very closely with those now before us, were forwarded by the late Sir W. MIDDLETON, who was anxious, if possible, to save some fine Beech trees which had assumed an unhealthy condition. We recommended then a close examination of the roots, and the removal of every one which was attacked by Fungus. We never heard what was the result of the examination and the supply of fresh compost, but if there were any sound superficial roots of sufficient size we have little doubt that the treatment would have been effectual.* *M. J. B.*

—— The LUCERNE DODDER, Cuscuta hassiaca, seems to be spreading here. We have heard of it in Cambridgeshire and elsewhere, and recently a correspondent forwarded us specimens from Adwell, in Oxfordshire. No doubt it has been introduced with foreign seed. Its clear orange stems, abundant pure white and exquisitely-scented flowers, make us, from our point of view, regard it as anything but a weed, though the farmer would no doubt join issue with us in this matter.

—— The following letters appeared in the *Standard* of the 18th ult. The EFFECTS OF THE STORM described in the latter one are singularly similar to the effects of heat mentioned by a correspondent, writing from Penge, three weeks previously (p. 945):—"In reply to the correspondent in your journal of to-day, the Elm, Chestnut, Apple, Filbert, and many other trees and bushes in this neighbourhood, are all in the same state: the leaves on the western side of the trees are shrivelled, and quite brown and black speckled; on the other parts quite fresh and green. This is 30 miles from the nearest point of the sea. JOHN HILL, Westbury, Wilts, Sept. 16. ——"The same extraordinary effects of the late gale as reported by your correspondent from Winterbourne, near Bristol, were very strongly marked here; though, as we are situated quite 45 miles from the nearest seashore, I cannot suppose the phenomena to be caused by the sea water, as he imagines. In my garden, on the W.S.W., or weather side, the trees and tall shrubs (particularly the Horse Chestnut and Damsons) are scorched and withered, exactly as though fire had passed over them; whilst on the opposite side they are still as green as ever. But the most remarkable feature in the matter is that though these trees and shrubs are standing on very high ground in my garden, and were fully and completely exposed to the fury of the gale, they are only thus withered and seared in the upper branches, and in no case are they injured within 9 or 10 feet of the ground; the lower branches of the Damsons and shrubs being still as green as ever. A. SHIBLEY, Chisledon, near Swindon, Wilts, Sept. 17."

—— A correspondent sends us the following interesting communication relating to the production of COLOUR IN LEAVES of the IVY-LEAVED PELARGONIUM, by simply bending the leaf-stalk:—"L'Elégante, the Ivy-leaved Pelargonium, makes a very nice cover for a pillar, or for a trellis. If, when it is 4 or 5 feet high, a leafstalk here and there be bent, so as not to impede the circulation entirely, the effect, after a few days, will be very good. The leaves on the injured footstalks become beautifully coloured with shades from pink to purple, and afford a fine contrast to the clear creamy white colour of the natural leaf. *A. B.*" No doubt some of our readers will try this simple experiment, and if so they will be doing good service by communicating the results.

—— In addition to the British exhibitors at the INTERNATIONAL HORTICULTURAL EXHIBITION at HAMBURGH, to whom we have before referred, we may state that Mr. W. S. BOULTON, of Norwich, succeeded in carrying off no less than four prizes for garden implements and furniture, such as lawn-mowing machines, water barrows, engines, and chairs. Mr. BOULTON has also taken a Silver Medal for the best collection of horticultural implements, &c., shown by him at the International Industrial and Agricultural Exhibition now being held at Altona, in Sleswig-Holstein.

—— Intending visitors to Chiswick will be glad to learn that the LARGE VINERY is now in fine condition. The Vines are in excellent health, and have produced this season about 4000 bunches, of a good average description. We understand that a photograph of the interior has recently been taken.

—— Our funny friend, that is to say "FUN," has been perpetrating a piece of mischief at our expense. He has administered a playful whack with his staff and bladder on our shoulders—all for fun of course, and so we will not be such ill-conditioned curmudgeons as to grumble at *him*, particularly as his assertions, like idle dreams, should be taken *contrarywise*; and we are far too fond of fun to grumble at it, even when it is Puckish. Here is what "Fun" says:—

"The 'Gardeners' Magazine' holds too high a position to be suspected of ulterior motives, when it condemns the Horticultural Society for making the *Gardeners' Chronicle* its exclusive and favoured organ. If the Society possessed a Journal of its own no one would complain, but that it should thus favour—if [illegible] the power of 'if'] such questionable practice does favour—the *Chronicle* is disgraceful to the Society and the periodical alike. It is as if the Agricultural Society, for instance, compelled its members to take in the *Daily Telegraph* by giving its reports to that journal. The Horticultural Society ought to be re-named. It is a sham under its present management. It is a Dilke and Cole-tural Society, and solely intended to promote the undertakings, glorifications, and periodicals of members of the clique. Oh! for another Peabody to relieve the other poor of London—poor art, poor science, poor horticulture! If he would buy up South Kensington, the garden, and the Museum, and convert them into a wilderness, he would not only avert disgrace from England, but give some chance of a regeneration in horticulture, science, and art."

Well, certainly this is about as funny a tissue of misunderstandings and misstatements as could well be woven, even by AUTOLYCUS or Mrs. PARTINGTON. We leave the Society, the *Telegraph*, the Museum to take care of themselves; but as to our not over courteous garden contemporary, we are not disposed, at his bidding, to take part in the revival of the Pickwickian farce of the "rival editors;" we would simply, in all good fellowship, ask him to make sure of his facts before he launches a diatribe against us. As it is, we entirely deny his allegation, and we do him a neighbourly turn—at least, we hope so—by telling him that the same sources of information are open to him as to us, that is, provided he be a Fellow of the Society, and avail himself of the privileges of his Fellowship by obtaining as, we did, the sheets of the supposed defunct Journal in the manner provided by the regulations of the Society for that purpose enacted. For the sake of "Fun," who does not appear to be over well posted in matters horticultural, we append the following:—

> Three journals, in three diff'rent ages born,
> The spacious world of gard'ning do adorn:
> Its even way the *Chronicle* pursues,
> Promptly the "Journal" doth record the news;
> The "Magazine"—the others doth abuse.
> Add Ireland's "Gard'ners' Record" for a fourth;
> A "Farmer" and a "Gard'ner" in the north.
> And in the south, besides the "Florist,"
> The "Field" for garden, farm, or forest.
> Good luck to all the eight! Should there be more,
> Here's to them all! and "Gard'ning to the fore."*

* We must apologise if, from the exigencies of our metre, we have omitted to specify any other of our friends. Perhaps "Fun" will oblige us with the loan of a poet.

New Plants.

MORMODES VARIABILE, *sp. n.*

Sepalis late ligulatis acutis, petalis subæqualibus; labello brevi unguiculato hastato triangulo apiculato revoluto, limbo ciliolato valde piloso; flore aurantiaco (α aurantiacum) seu atropurpureo (β atropurpureum).

A many-flowered species, like Mormodes Cartoni, introduced first by Messrs. Backhouse, no doubt from Western South America, and afterwards by W. W. Saunders, Esq. (β atropurpureum), and Director Linden (α aurantiacum). The purplish variety is nicely spotted with darker spots on the lip.

CYPRIPEDIUM NIVEUM, *sp. n.*

Aff. Cypripedio concolori: sepalo dorsali transverso ovato apiculato, sepalo inferiori ovato triangulo labello bene breviori; petalis ovatis apice bilobulo-emarginatis; labello obtuse saccato lobis implicitis obtusangulis; staminodio oblongo basi bicruri, antice trilobi; foliis obscure viridibus, albido striatulis.—*Cypripedium concolor*, var. *niveum*, Rchb. f. in litt.

This is quite a little gem, having flowers like those of Selenipedium Schlimii, white, with delicate violet spots and a deep yellow blotch on the staminode. The question, whether it is a variety of Cypripedium concolor cannot now well be decided. The leaves are mottled in a very different way, there being very distant white stripes, on the dark green surface. Then the shape of the sepals is very different—and we remember how constant it is in Cypripedium purpuratum. The petals are much broader, shorter, and emarginate; the lip is rounder and shorter. We believe that ochre-coloured Orchids have little tendency to bear white flowers. Whatever may be the final decision as to the position of the plant, it is no doubt totally distinct for amateurs, who will certainly like it. It comes from India, having been the last Orchid that puzzled our much-lamented correspondent, James Veitch.

POLYCYCNIS LEPIDA, *Lind. et Rchb. fil.*

Racemo nutante pluriflore; rhachi velutina; bracteis lanceis acuminatis, dorso scabriusculis, ovaria velutina non attingentibus; sepalis ligulatis acutis calvis; petalis a basi lineari lanceis, labelli auribus in basi linearibus acutis, callo interposito, laciniis posticis triangulis obtusis, antice non angulatis, callo lineari anciptiti antice angulato assurgente in disco, lacinia antica utrinque obtusangula dein antice triangulo extensa, apiculata puberula; columna filiformi apice dilatato; androclinio postice obtusangulo.

A very interesting addition to the genus Polycycnis. For a long time we knew it only from the inspection of some shrivelled flowers, and we hesitated to judge it fully. Having, however, lately had the opportunity of seeing the plant at the Hamburgh show, and having seen in an adjacent room the true P. barbata (ill represented in Bot. Mag. as to the base of the lip) from Frau Senatorin Jenisch's garden, where it was grown by M. Kramer, we were able to see the scientific distinction of what the amateur sees immediately is different, without understanding what peculiarities of the flower are to be looked at in order to get characters. The flowers are very much like those of Polycycnis muscifera in colour and shape, but a little larger and nearly as numerous. The auricles at the base of the lip are far more developed than in P. barbata, but straight, not curved, as in muscifera. The lip itself, however, is more like that of P. barbata, since there are no anterior angles to the side laciniæ. The sepals of the old barbata are hairy outside, here they are glabrous. One might say it is a Polycycnis with the nodding raceme of barbata, but with the flowers of muscifera. Yet it should be added that if much like these in the less elegant colours, they are a little larger, and have the side laciniæ of the lip as in P. barbata. It is one of the interesting new Granadian discoveries, for which M. Linden has to thank M. Gustav Wallis. *H. G. R.*

HYPOCAUST HEATING.

SOME years ago an article appeared in the *Gardeners' Chronicle*, describing at some length a new mode of applying heat to glass structures, as well as to open spaces not always covered with glass. The plan in question is the invention of Mr. C. W. Martin, M.P., of Leeds Castle, Kent, and has been by him applied to the heating a range of houses in the gardens there, as well as to give warmth to a large piece of ground devoted to the growth of early vegetables, and such other things as will bear exposure to the open air, when the coldness of mid-winter is past. Mr. Martin, who is an ardent antiquarian, acknowledges taking the hint he has so successfully carried out from works of a

* We suppose that our correspondent in stating the butt was 11 feet in diameter, included the soil which was torn up with it. We conclude that this must have been the case, as the tree is described as 11 feet in girth.

somewhat similar kind which the Romans adopted in domestic matters; in other words, from researches he has made, he has discovered that the mode the Romans adopted in warming their dwellings in winter, was by so constructing the lower floor as to have a fire underneath it, warming it and the enclosed space above. The ascent of heated air was thus known to that enterprising people, who availed themselves of this property in their "hypocausts," a term by which Mr. Martin also designates the mode he has adopted of heating horticultural buildings. The simplicity and non-liability to get out of order of such an arrangement would seem to recommend it for more extensive use than it has yet been put to.

The glasshouses so heated were ordinary lean-to's, resting against a brick wall, as is usually the case, but instead of the floor being of earth, it has the appearance of being covered with York pavings, which, however, are not of stone; in fact the whole floor of one of the houses was composed in the same way that, I believe, large breadths of the floors of London houses are made —that is to say, by three or more flat tiles being cemented together to form a sort of slab about 3 inches thick, 9 inches wide; piers a yard apart support this floor; the chamber below might be about 2 feet high, and it is simply in this that a fire is kept, with whatever rubbish comes to hand. A proper fireplace is formed, large enough to receive anything that one or two men can lift, and an outer door encloses the whole, while a chimney at one corner allows of the escape of smoke; but this is checked by a damper, so as not to allow the escape of heat in any way if possible; by attention to this, combustion is retarded, and nothing is lost: and as the whole of the floor of each house is so acted upon, the area of heated space exceeds that of any other known mode of heating. In one of the houses even more than this was accomplished, for the front wall was on pillars, or arches, and the border in front, to the width of 6 feet or more, was also heated in a similar way; and early vegetables, and such-like things, seemed to succeed admirably. The heat imparted to the houses and their contents being akin to that furnished by the flues of old, the plants were healthy and in good condition; and as a proof that sufficient heat was at command for most ordinary purposes, I may mention that on the floor of one of the houses, a bed of soil was formed by an artificial stone kerbing, upwards of a foot high. Pines were planted out in this, and had made stout, stubby, healthy growth, which indicated that they relished their quarters, although they would not have objected to some additional heat, as the cubic area to be heated occasioned great waste of heating power, but they were then furnishing suckers in abundance, and very fair fruit had been cut at times. In the other houses, where Grapes and plants were grown, the heat at command seemed ample.

The success attending the heating of the houses above described induced Mr. Martin, a few years ago, to try its effects in another place; and on a piece of ground adjoining the kitchen garden a slight excavation was made, and a series of brick piers, 9 inches square, and about 2 feet high, were made, enclosed by a 9-inch brick wall. A flooring of the same description as that of the house above alluded to was made, resting on those brick piers, which were about a yard apart, and the side walls were carried up about a foot higher all round, forming a sort of edging to keep in the soil by which the whole was covered after the flooring became sufficiently dry and hard to bear it, which was not long, as it was made of Portland cement between three layers of flat tiles, scarcely 3 inches in all. At one corner, where the fire was, the excavation was a trifle deeper, to allow head room, and a capacious fireplace, large enough to receive the stump of a tolerably sized tree, was formed; the whole was closed in by an outer door, shutting in the whole of the heat created by the combustion. A chimney at one corner formed an exit for what little smoke was allowed to escape, but the interposition of a damper reduced this to the smallest possible quantity, Mr. Martin's intention being as far as possible to economise all the heat he could command. The flooring above the fireplace was, I believe, somewhat thicker than the remaining portion, but in other respects it was all alike, and the heat had the means of playing through the whole chamber. A trap-door or two around the sides, more for the purpose of showing its action than for any other purpose, proved how well it worked. The space so heated was a square of some 50 feet or thereabouts, and I am told early vegetables of sundry kinds have been raised every year, and a cheap description of protection afforded them, by wooden shutters resting on a sort of framework of simple construction, but the heating had been so satisfactory that Mr. Martin had built an ordinary lean-to pit, covered with glass lights. Upon one side of this heated bed, at the time of my visit, Pines were planted out in one of the compartments, and appeared to be doing well, a portion of the flooring in the front of this pit not being covered, so as to command top-heat. I forget what the other compartments contained, but the main bed was thickly cropped with French Beans, Salads, young Onions, and other things useful for late autumn supplies, the whole being in a healthy and promising condition. I was told that a succession of useful crops had preceded the one I then saw. Its uses being most important in late autumn and early spring, in summer the fires are not kept on, and I believe in future some means will be taken to confine the heat in a great measure to heating the pits the Pines are growing in, excepting when the state of the weather or other circumstances renders it advisable to heat the other also, but at all times the waste heat will pass under it, after having expended much of its warmth in supporting the more tropical vegetation it is called on to assist; but early Potatos, Radishes, and the like will not be forgotten, and they will receive the advantage of this new mode of applying bottom-heat at the time it is most wanted.

Leeds Castle is one of the few feudal residences that have passed down to the present day in a habitable condition, without having been spoiled by the ravages of turbulent times or the equally mischievous effects of architectural alterations, which during the last century destroyed so many other places of interest. A bold Norman tower, surrounded by water many feet deep, and to which there is access only by one bridge, formerly a drawbridge, it must have presented an impregnable appearance during the middle ages, when the modes of attack were less formidable than now. To make its defence more sure, a series of outworks seem to have flanked the gateway, while the inner citadel was divided into two parts, which would have to be won, one after the other,—a narrow passage now uniting the two where a second drawbridge once existed, while the stern solidity of the whole gives it a charm which the most careless observer cannot but admire. *J. R.* [The hypocaust system of heating, as carried out by Mr. Martin, has been frequently alluded to in our columns and elsewhere. It is very satisfactory to find its success so well assured. Eds.]

INDIAN FORESTS.

(*Concluded from p.* 1015.)

It is thought by some—and they seem to have at least plausible reasons for so thinking—that horticulture and arboriculture are not two different arts, but that the latter is merely a minor branch of the former, although not by any means an unimportant one. Still I think few will deny that it does not require the same lengthened experience, nice tact, and scientific knowledge to make an accomplished arboriculturist that it does to make an accomplished horticulturist; no principles are adopted by the former that are not greatly amplified and extended by the latter. Is British horticultural skill on the wane, or has that of Germany quite outstripped it? Men from Germany come over here to study the higher branches of an art, and, by way of mutual compliment, I suppose, others from this country must go there to study the minor. "Oh! but in Germany they learn organisation, which they have not the means of doing in Britain." To finally dispose of that objection, those who join the Indian Forest Department must organise a working system for themselves, as the climate they have got to work in, and the men—shall I call them?—they have got to work with, will make that a necessity. "Oh! but why is it, if there be so much rare talent in this country, that it is not forthcoming at the India House? or how is it that much of what does come is rejected, simply because it does not come up to our standard of ability?" The tests are simply no tests whatever of a man's ability as a forester, although they may be of his ability as a surveyor and chemist, or a mathematician, and a great many other things besides these. Those who could overstep the barrier that this standard has erected across the entrance into the Indian Forest Department will hardly try it, as the prospects held out on the other side are not sufficient to induce them to make the attempt, while some of those who do try it fail—not in forestry, but in other subjects that have nothing whatever to do with it. By that standard they no doubt get men, whom if tried by another, a little more utilitarian, might be found wanting. As the term educated may have more than one meaning, to prevent misconception I shall give the sense in which I use it. The training, whether limited or extended, that best qualifies a man for the performance of the duties and responsibilities of that particular station that he may be called on to fill, is certainly superior to that which, so far as regards the proper performance of a certain class of duties, if a novice before, leaves him not less one still. The education that best fits a man for the profession of a gentleman, and that which would best fit him for the profession of a forester, are widely different in character; of necessity, they must be, as the ends to be attained are in themselves widely different. This leads one to ask the question, Is there not a little too much of the genteel and pseudo-scientific, and a very great deal too little of the practical and thoroughly scientific, in the training that the present class of forest officers have to undergo? It strikes me that it fits them equally as well for a dozen other professions, as it does for that of a forester. If I am not greatly mistaken, it seems well calculated to make a man a smatterer—teaches him a little about everything, and nothing particular about anything. Men are not all heaven-born geniuses, as those who had the fixing of that standard would seem to suppose; some men are, but a great many more are not, and unless they can thoroughly digest and assimilate that strong stimulating food that they are compelled to cram themselves with, they would certainly thrive better on something plainer. Indeed, unless they can do so, such a heterogeneous mass of things, all valuable in their way, leaves their intellects as disorderly as a broker's shop, the contents of which have no value to the owner whatever, beyond their money value to others. Neither was the great mass of what they are required to cram themselves with—to the individual—beyond its utility in procuring for him an appointment that brings him a definite sum monthly, or annually.

If they are still determined on keeping up this high educational standard, about which so much has been said, in addition to the subjects already included, I would suggest, in hopes of their being found useful, that astrology, mediæval theology, music and dancing, French, and particularly German waltzes, ought to be allowed a high number of marks. In including so many other studies, highly valuable because of their greater utility to the drawing-room forester, such omissions as I have attempted to supply were most serious. If rumour is to be credited—which I leave an open question—some of these model foresters have already been weighed in the balance and found wanting in what, above all other accomplishments, was the most needful for them to have; that is, a thorough practical knowledge of the duties of a forest officer. Instead of cramming the men they now propose sending out with a variety of subjects that have no direct bearing whatever on the art of forestry—in addition to the education that a man intending to fill such a situation may be supposed have had—they should insist upon his being well grounded in systematic botany, morphology, physiology, and something of teratology and geology, something more than a mere smattering would be extremely useful; and though last mentioned, not the least useful, would be a good knowlege of the theory and practice of horticulture. And if the examiners would be at some pains to ascertain that the candidates had in them as much of what vulgar folks call common sense as would enable them to apply the teachings of these subjects to the art of forestry—or, what would perhaps be a more correct way of putting it, out of the teachings of those construct a system suited to the surrounding circumstances, which, call it what you please, no matter whether British, Indian, or German, would be a successful one. It would also be needful, on the part of the examiners, to ascertain that the candidates knew something more about the uses of the implements employed in forestry than can be learned from any handbook of popular knowledge, as they will be expected to teach the natives how to use them properly, if selected in that character, for success in imparting to them instruction will not be so great as it otherwise would be. It is not only to tell a man how a piece of work ought to be done, but to be able to show him how to do it, in the most plain of intimating to him that you are not to be taken in by any of his careless, lazy, possible practices so easily as he may feel disposed to think, and to let you know the difference between a piece of work that ought to occupy him a day, and that which ought properly to occupy him an hour.

The foregoing remarks apply only to the class of men which I suppose may occupy the lower rounds of the Indian forest ladder. Regarding the education of those that are to occupy the upper, I shall not presume to speak, further than that it is not with minor details regarding seed-sowing, transplanting, or thinning, that they can be expected to occupy themselves, but with general considerations of far greater importance; indeed, they who would venture to do so are unfit for such a position. Such trifling details may be safely left to subordinates to work out; if they fail in doing so to the satisfaction of their superior and to their own credit, the inevitable conclusion is that they are unfit for such a position, because of their ignorance, or else because they are not conscientious workmen.

An article in the *Pall Mall Gazette* of August 11 reminds me, that in speaking of the different causes that have wrought so energetically and steadily, hand in hand, in ruining the Indian forests, there are yet one or two others that I have omitted to mention. Some may, however, look upon those now to be alluded to as too insignificant and trivial for particular notice. But on that point, as well as on others connected with the same subject, opinions may differ. The subjects omitted are, 1st, wounding, as a means of making the trees produce gum (an article for which there is considerable demand all over India), next, destroying the bark for drugs, dyes, &c. I have also heard that decorticating and charring the decorticated surface for the purpose of making it exude resin, is extensively practised in the hill districts.

The excessive exudation of gum from the stems and branches of some kinds of fruit trees is often spoken of as being the cause of bad health and untimely death, but perhaps oftener only an evidence of bad health rather than the cause. Any explanation that satisfactorily answers that question might, perhaps, do something towards clearing up some others that naturally arise out of the subjects above introduced. These are, will systematic wounding—hashing and hacking—with the view to induce gumming (which the practice undoubtedly does), ultimately lead to bad health and unsoundness in the timber? or will decorticating lead to the same result, viz., bad health and unsoundness? That decorticating and charring certainly will, there cannot be a doubt. Whether these practices be more, or less, injurious to the forests than others that have been spoken about, is nothing to the purpose. Are such practices beneficial, or are they injurious to the production of clean-grown sound timber? No doubt, enormous numbers of those gnarled stumps that rank as trees in some portions of the Indian forests are fit for little else. Decorticating, scoring, and notching the stems, to facilitate the ascent and descent of the gum collectors, when following their lawful calling, can scarcely make them more worthless than they are. Still, it might be highly judicious on the part of those who give their sanction to these practices to ascertain whether their further extension or restriction would, in the end, prove the most profitable. Resin-collecting evidently has not improved the condition of some of the French forests, neither has it improved the condition of some of the hill ones in India, if report speaks the truth. Yet resin-collecting, and the mode of producing it, will, I have no doubt, be one of the arts taught the British ignoramus in the schools of France and Germany. *Scots bengalensis.*

Home Correspondence.

Grafted Potatos.—The experiments on Potato grafting, so ably advocated by your correspondent, Mr. Fenn, I fear will hardly be worth the trouble and time he has bestowed upon this valuable root. My experience with regard to procuring new varieties is decidedly against the practice. It is true my experiments have been very limited, for want of faith in the method. I have been a very successful exhibitor and grower of the Potato for several years, and during the time I lived with the late Sir Offley Wakeman, Bart., Pridiswell Hall, Worcester, I grew a great many varieties—indeed, all I could meet with, as the back volumes of the *Gardeners' Chronicle* testify. Indeed, I was at one time quite as enthusiastic in the culture of the Potato and its different varieties as your correspondent, Mr. Fenn. During the time I grew so many varieties, I had many curious sports or freaks; such as round Potatos turning to kidneys, and *vice versâ*, red Potatos turning to white, and so forth; the same thing occurred in the gardens of Mr. Berkley, Cotheridge, near Worcester, where Mr. Marshall, gr., planted a row of Potatos that entirely changed colour (see also p. 662 of the *Gardeners' Chronicle*, 1857). Now, had these been grafted sets, I should have concluded I had worked a wonderful change, and that it was the result of grafting; but at that time I believe that method was not in practice; but if grafting the Potato should change its shape, size, and colour, why should not the colour change in other root-grafted plants, and other things. We all know that a white Grape grafted on a black stock will not alter in colour from white to black; but such things have been known as for a black variety occasionally to produce a white bunch. The same with other fruits and flowers, and it is frequently the case with the Potato. This, it may be said, has nothing to do with Potato grafting. True; but I will come nearer to the point, and unfold a little secret that perhaps was only known to the late eminent florist, Mr. Gaines, and myself. Many of your readers will no doubt remember a Dahlia, named Princess Radziwill, raised in 1844 by me, at the time I had charge of the florists' department under Mr. Gaines. It being one of the very best light Dahlias of that time, it will no doubt easily be called to mind. The seedling plant, when taken up, was put in a pot to be kept during the winter. When starting time came, the root was turned out of the pot, and examined by myself and my employer, and we discovered that it fortunately had a double crown. My employer at once spoke of dividing it, but I objected for fear of losing it. But he said a "faint heart never won a fair lady;" and accordingly divided the root into two parts before it was set to work. It so happened that in dividing the root two pieces were cut off with eyes attached to

them; and as I had orders to make all the stock I could, I grafted them, in order to keep them plump, into another root, without the least idea of their uniting, but singular to say they both grew. All the eyes of the other variety, Burnham Hero, were carefully rubbed off, and finally the root was divided. I need hardly state that this, being a novel experiment, was watched with much eagerness, but not one bit of difference was visible, either in colour or shape. The varieties were very different in shape and in colour, Princess Radziwill being a light flower with a reflexed petal, the other a large dark maroon with cupped petals. Surely if Potatos change colour and shape in grafting, we might reasonably expect the same change in the Dahlia. That Potatos grow from grafted sets I fully acknowledge, but the change from rounds to kidneys, and *vice versâ*, and from red to white, I am at present not able to comprehend. I can quite understand that a red Potato grafted into a white one will produce red Potatos, and a white grafted into a red will produce white Potatos; that is, if all the other eyes are destroyed (not otherwise), or that there will be a mixture of colours. It may not be generally known that Potatos will even grow without eyes. One square inch of the substance of the inside of a tuber will grow—this becomes the difficulty of experimental grafting—and further, the young tubers will vary in shape. *Edward Bennett, Gr. to G. S. Foljambe, Esq., Osberton Hall, Worksop.*

Special Pelargonium Show.—It has this season been very generally remarked by lovers of the flower-garden, that their Pelargoniums have flowered particularly well; indeed, I never remember to have seen them look better. The only drawback has been the frequent slight frosts which have from time to time caused the flowers to appear variegated by turning the petals whitish. The Pelargonium is doubtless the most effective and important plant that we possess for the flower-garden, taking all its various classes into consideration. I think therefore that too much encouragement can hardly be given to it by the Royal Horticultural Society, the more particularly as regards the introduction of new and improved varieties. I have heard of a double white one; I have also seen a nice striped flower, others nearly purple, some approaching to yellow. When we look back at the extraordinary changes that have been wrought in this family during the last few years, one cannot help thinking that the popularity of the plant must be very great; and I think I may venture to say with safety that quite 75 per cent. of gardeners and amateurs have a batch of seedlings, many of them, I know, feeling convinced that if they only had the opportunity to compete with their neighbours, they could achieve an easy victory. Again, as to the double varieties—many of our best florists declared only two or three years ago, that they would neither take the florists' taste nor the public fancy, but even the staunch and veteran florist, Mr. Banks, of Deal, on seeing a fine plant of Marie Lemoine the other day, exclaimed "This is a grand object! I have been well satisfied with Madame Lemoine this season, and I intend going extensively into this class." I think all who have seen a good and well-grown collection of the doubles, will admit that a wonderful improvement has been made in a very short time. In fact, in every class a rapid progress is being made, and I much question if ever there was a more bountiful season than the present for really good varieties, whether tricolors or bicolors. Therefore the importance of holding a special Pelargonium show every season can scarcely be over-estimated either by societies or the public. I, for one, should be glad to continue my subscription towards such a show, and to learn the views of others on this subject. If the show is to be continued, the time should be announced, and the schedule prepared speedily. Every class of Pelargonium should be encouraged, and, moreover, the voice of the smaller growers should be allowed to be heard, so that all may have an equal chance of success, for nothing can be more glaringly wrong than to see the first prize in almost every class carried off by large plants of new varieties, some of which have only a few days before been distributed to the public at a high price. I am also disposed, from the knowledge I gained from the last essays, to continue my subscription towards a prize for another next season, on the condition that the same person is not allowed to win twice. *H. Cannell, Woolwich.* [The above suggestion, which has emanated from a grower, is one which the growers must decide on for themselves. If the general feeling should be to repeat the exhibition, our services may be commanded, as on previous occasions. But the expression of opinion should be prompt. Eds.]

Iris (Vieusseuxia) Pavonia.—Your correspondent "A. W." complains in last week's number of your Journal (p. 1016), of his want of success in the cultivation of this very pretty bulbous-rooted plant. Mons. Van Houtte was so charmed with it, that he described it, by saying "s'il y a une plante celeste, c'est elle;" and I quite concur with the opinion so well expressed. It is most easy of culture, either in pots or the open air, when protection can be afforded it from severe frost during the period of growth. Perhaps pot culture would suit "A. W." best, and I will describe it for his benefit and that of your readers generally. Select good sound roots, plant six in a 48-size pot, one-fourth filled with potsherds, over which place a little moss or similar material to perfect the drainage; fill the pots with well-prepared loam, *i.e.*, loam which has been turned over two or three times and well aired previous to using. Press the roots in the mould half an inch deep, and smooth over the surface. Plunge these pots in coal ashes, in a cold pit or frame; water very sparingly until the growth is an inch or two high, and carefully afterwards. Give abundance of air in fine weather, by drawing the lights off; the more air and light the better. The bulbs will fill the pots with roots, and a second potting in March will cause them to throw up their pretty spathes of bloom freely. I generally use a little decomposed manure over the potsherds at this potting, and 32-sized pots, replunging them. Should it be desirable to have the flowering out-of-doors, the pots may be plunged in the open borders as soon as the spathes are 6 or 8 inches high. I am confident success will attend "A. W.'s" operations if he follows these instructions. Leaves only are produced, when the roots are weak or the planting is neglected until spring. *Charles B. Saunders, Cæsarean Nurseries, St. Saviour's, Jersey.*

Packing Fruit for Transmission Abroad.—I am about to send to Jamaica a quantity of Pears and Apples, in an unripe state of course, and they will be about 22 days on the way. The time is not long, but the heat will be great, and the knocking about greater still; in fact, this is the principal danger. Damp, though, may perhaps be also a danger to be guarded against. It has been suggested that chopped straw would be a good thing, or perhaps bran, as neither of these would impart a taste to the fruit. I should like to elicit the opinions of some of your readers, as there may be some who have had experience in this matter; and by publishing their experience they will be doing others a service as well as myself. *John Kirby.* [Cork dust, Cocoa-nut fibre, or charcoal, have been recommended. Eds.]

Hothouse Boilers.—Much has been written and said about the various boilers now before the public. Can anything be done to have a just trial of their powers in a fair field, and no favour? Suppose, for instance, that, say 2000 feet of piping be put together, and a fire-hole got ready, say 7 feet deep, in a field near to some central railway station, some time next summer; then let there be an opportunity given for any one who chooses to try a boiler of a fixed price, and with a certain weight of fuel. Let the test be—which boiler heats the whole of the piping soonest to the highest degree of heat, and retains the heat the longest with the allowed fuel. This trial might continue as long as comers brought their boilers, and a fee of 10*l.* might be paid to cover the expenses of fixing, piping, &c.; each competitor to fix his own boiler, at his own expense, and remove it the day after his trial. Three days—one for setting, one for trial, and one for removal—will be quite enough for each competition. I think we shall find, if such a trial takes place, it will bring out a boiler better than any at present in use, and I, for one, shall try one of my own invention, or, rather, an improvement on one already in use, which, set on my principle, will take a deal of beating. *A Nurseryman.*

The Lady-bird. — I was somewhat surprised to observe, in last week's *Gardeners' Chronicle*, that such an acute observer as our worthy friend, Mr. James Barnes, expressed a doubt about the fruit-consuming propensities of the Lady-bird. There is no doubt that they not only hide in, but rapidly devour fruit. They likewise go to it for the express purpose of eating it. There is but little hiding place in a Peach or Apricot, an Apple, or Pear, or a Plum half eaten by birds; and I have seen such raw, tender, and fully exposed surfaces again and again covered with nibbling Lady-birds hard at work, making a hearty meal of such matters. This very day I observed a Bergamot Pear with half of it picked off by birds; what was somewhat unusual, the birds had carried off the peel somewhat beyond the level of the mellow pulp, and on this projecting mass of sweetness, fully exposed, without a cavity that would have hidden a midge, I counted 12 Lady-birds hard at work, filling themselves. I moved them several times, but they were most tenacious over their dinner. They shifted unwillingly, as a dog does from a bone, and seized the fruit with greater intensity from being moved. They seemed even to look up angrily at being disturbed; and could one have heard it, doubtless they either buzzed defiance at or expressed hatred of the intruder upon their feast. On another Pear a score of ants were feeding quietly beside and among eight Lady-birds. On another six Lady-birds were employed in enlarging a cavity which looked as if it had been entirely made by themselves. I saw some of them bite off bits of the rind, while those who were in took good care to keep the others out. The law seemed to be that each must dig through its own crust before being permitted to luxuriate on the soft crumb. The quarrying in through the rind seemed a slow process, but when it was accomplished, how their mandibles did flutter, and their greedy delight seemed unbounded. Doubtless, like woodlice and earwigs, the Lady-birds do creep into holes in fruit for shelter; but, like them also, the more they like the sheltering material the shorter is its duration. Their house of to-day fills their stomach to-morrow; and though they are unable, like some other insects, to carry their houses on their backs, they have a more convenient mode of imparting to it rapid locomotion, by giving to it wings, and flying away with it. I have at times suffered so much from the ravages of Lady-birds among Apricots, that their golden coat of mail has often reminded me of my lost fruit; and though I have never mustered courage enough to kill them in any quantity, I cannot pretend to any compunction when I see them drowned in wasps' bottles, or hear that ants can tickle them to death. *D. T. Fish.*

A Monster Melon.—Mr. Paterson, head gardener at Pontypool Park, Monmouthshire, has succeeded in producing a monster Melon, of the superb Rock variety. Its weight was 24 lb., and it measured 42 inches in circumference by 8 inches deep. A photograph of it has been taken. *Reporter.*

The Royal Vineyard Grape.—Will any of your readers, who have grown or are growing this Grape, say how it does with them? I have had one for several years, but the bunches have only produced a few large berries with a great many little ones about the size of Peas. Is it considered a good variety? *M., Greenock.* [The Royal Vineyard Grape is not a first-class sort as regards flavour. Its remarkably good keeping properties render it valuable, however. We have never experienced any difficulty in its cultivation. Mr. Stevens, of Trentham, grows it remarkably well along with Black Hamburghs, and recommends it highly as one of the best late white Grapes in cultivation. It looks well. *B.*]

Orchid Culture.—The two following aphorisms are favourite stock phrases:—"In the multitude of counsellors there is wisdom," and "Too many cooks spoil the broth." Every partisan holding a brief on some favourite topic may make his selection of one or the other, and use it as an axiom against the opposing party. As it is with some things bearing more directly upon the comforts and well-being of mankind, so it has always been with the treatment of the poor Orchid, that has been forced from its proper home, and compelled to live under a variety of cultural treatment. It is pronounced either to be too hot or too cold, too dry or too wet, too far from or too near to the roof of its artificial home, too copiously or too sparingly supplied with root *pabulum*, placed under the influence of too much light or too much darkness. The more discussion we have the more puzzling and perplexing must it be for all who read with the view of profiting; and little is it to be wondered at that not a few turn from an attempt to digest the pith of opposing opinions with disgust if not contempt. I have been led into this sort of reverie by the utterances of Mr. Gammie (see p. 991) concerning the amount of light that Himalayan Orchids should be exposed to. Orchid growers are at all times exceedingly indebted to those gentlemen who give information concerning native habitats. As affording data for founding a line of cultural treatment upon, such information is of the highest consequence, but to imitate these conditions exactly would be attendent with the worst possible effects. Mr. Gammie in substance says now what has been said before by "R. H." at p. 1061, 1864, and by Mr. Gosse, both very careful observers of the native habitats of Orchids—the latter gentleman in a valuable letter (see p. 1109, 1864). Speaking of Dendrobiums generally, and of Falconeri in particular, after detailing the proper season of rest, Mr. Gammie says that "shading should be entirely dispensed with, and that the plants should be as freely exposed to the sun as possible." Inconsiderate advice, indeed, if coupled with that gentleman's recommendation of a high growing temperature, sufficient to maim, if not to kill, all the tender Dendrobiums ever imported and grown under the best sheet-glass that was ever made. Even the partial shade of the trees on the wrong side of the sun has its influence in mitigating the severity of its burning rays, and then the dispersion of the rays; and the moisture with which air, earth, and trees are loaded, give of their abundance to keep these epiphytes in a state of life and health. I say, with the experience of trials in a variety of ways with most of the Orchidaceæ that have been imported from all countries, beware of imitating to a nicety all natural conditions in an artificial home. I endeavoured to reply at the time to the observations of both your able correspondents "R. H." and Mr. Gosse; and as since then my opinions in that particular remain unchanged, I reproduce a portion of the remarks bearing more directly upon the points at issue. Readers will find them *in extenso* at p. 76, 1865:—"All exotic Orchids, whether epiphytal or terrestrial, when caged up in an artificial structure, and subject to an atmosphere somewhat foreign to their nature, even when best imitated, require more or less shade from a scorching sun. The very plants that will thrive under a variety of circumstances in the countries where they are indigenous, might succumb to similar treatment here. It is well enough to know—indeed, such information is most valuable—the range of temperature, the degree of moisture, the exposure, whether shady or open, of all plants under cultivation, but it is not so desirable for growers to imitate to the very letter the precise habitat. . . . There are some epiphytes which, doubtless, are growing in their native country pretty much exposed to sun-heat, as witness, for example, 'R. H.'s' allusion (1864, p. 1061) to Broughtonia sanguinea, and some other species not named, which grow in 'Jamaica, exposed to the light and heat of the sun.' Bring these home, however, tie them upon blocks, get them as well established as possible, before you suspend them close to the glass in the face of a full meridian sun in the months of June, July, and August, and what is the consequence? Evaporation goes on so rapidly from the leaves and pseudobulbs that your artificial climate fails to provide the necessary food for assimilation, the leaves get scorched, and if not the chlorophyll is all but burned out of them, the plant sickens, and, unless remedial measures be resorted to, it may die. . . . Most epiphytal Orchids do require light, and light in abundance; but some slight screen must intervene between the sun and the plants that are grown under a glass covering; the reason for which must be obvious to the merest tyro in horticultural art." Just so; the intense light and heat of a meridian sun must be obviated in every glasshouse, but so soon as it begins to wane, and when a number of the species are ripening off their pseudobulbs, dispense with your canvas, and clear away all obstruction to the action of diminished light. I have said before, and now reiterate, that more Orchids are killed with burning summer treatment in a stifling atmosphere, accompanied with painful aridity, than have ever been killed by any stupid winter treatment to which they may have been subjected. I have seen evidences of that times without number, and I am exceedingly unwilling that the evil should be aggravated by the Orchid grower dispensing with his blinds. *James Anderson.*

Cedar of Lebanon. — In the letter I sent you respecting the specimen of this tree in the grounds of F. B. Johns, Esq., at Bishop Stortford (p. 991), the age of the tree is omitted. It was planted in 1821,

being then about 2 feet in height, and having been grown in a small pot. *J. Nicholls, Windhill, Bishop Stortford.*

Tenure of Nursery Grounds.—I have had a nursery for 22 years, and have paid my rent quarterly. Now, my landlord has given me notice to quit next March, or else to pay double rent. I am told he cannot get me out under three years except by paying me for stock; will you please inform me if this is so. *Constant Reader.* [We think it clear that the tenancy referred to in the above letter is a yearly tenancy, and, in the absence of any special agreement (which, so far as the letter shows, does not exist in the present case), we believe the law in such cases is that the tenancy is determinable by six months' notice, expiring at the expiration of any current year of the tenancy. If, therefore, the tenant in the present case commenced holding at Lady-day, the notice given is good; but if he commenced holding (say) at Christmas, the notice would not be good, and he could not in that case be removed until Christmas, 1870, it being too late now to give notice for Christmas next. We think it clear that he cannot claim to be paid for his stock. There are sometimes local customs which have the effect of laws, and which would be known to local land-agents; but there cannot, we think, be any local custom such as he mentions. Our correspondent should consult his solicitor in the matter. Eds.]

Picea cephalonica.—I see the Rev. M. J. Berkeley observes that the cones of Picea cephalonica are very rarely to be seen (see p. 1018). The tree here has produced cones for several years in succession, and I have raised plants from them; this year there are a great quantity. Picea Pinsapo has produced a cone this season for the first time; it is quite distinct from cephalonica, as the scales are smooth, like the Norway Spruce, but the cones of cephalonica, from the base to the apex, have loose ovate acuminate scales, and which spread nearly horizontally, very differently from any cones I have seen. Abies Smithiana and Picea Nordmanniana have many cones this year, and, if desirable, I will take some specimens to the meeting at South Kensington ere long. *Philip Frost, Dropmore.* [Pray do. Eds.]

The Royal Horticultural Society's Floral Committee.—From the remarks of your correspondent "R. D." I learn that it is a matter of surprise that I have not exhibited seedlings at the Horticultural Society this year. It is not because I could not have done so. The fact is I do not approve of the way in which the Horticultural Society dismisses members of the committee. For more than 30 years I have never, until this season, ceased to be a member of the Floral Committee in London. My dismissal was very trite, merely stating that my name had been erased from the list, and thanking me for my services. I have since found that the reason assigned is that I had not attended a sufficient number of times to admit my retention on the list. Had I been aware that it required any given number of attendances to continue a member, I should not have transgressed now. I do not write this so much in regard to myself as others. I live about 100 miles from London, and many others, who live a long distance off, are first-rate judges in the department they are constituted to judge, and generally attend when the flowers or plants they cultivate are before the committee; but if this rule is to be carried out, all the judges will soon come from the vicinity of London alone. Now this should not be; and I feel persuaded that the efficiency of the Horticultural Society will be best secured by selecting the best men from any distance that will attend, and that will allow no influence to interfere with their judgment. I write this without prejudice. I shall never again sit on this committee, but I should not like to see other old friends dismissed, like myself, without warning. *John Keynes, Salisbury.* [There is much force in what Mr. Keynes urges, and it is well worth consideration, whether the rule adopted should not be relaxed in certain cases. As an old member of the committee, however, Mr. Keynes must surely know that it has been customary—and we think it is a proper custom—to make a slight change annually, so as to admit some three or four new members; and in order that this may be done without injustice or invidiousness, we believe the plan of selection has been to strike off those whose attendances have been fewest during the year. We suppose that at the last revision Mr. Keynes came under the operation of this law. Next year some one else will doubtless have to be make way for Mr. Keynes. Eds.]

Foreign Correspondence.

Tiflis, Persia.—Whilst the north and south of Europe as well as the empire of Russia have suffered from an unexampled hot and dry summer, the south, and particularly the trans-Caucasian provinces, have, contrary to the usual course of Nature, enjoyed such an uninterrupted temperate heat and such a degree of moisture, as may be reckoned amongst the things of extraordinary occurrence.

This year might do much for the enrichment of meteorological science, were it possible to determine the boundary line through Europe at which this strikingly remarkable depression of atmosphere ceased, and by a comparison of the prevalent winds to find a means of explaining this remarkable phenomenon. It is perfectly clear that the abnormal weather would also occasion irregular appearances in the vegetable kingdom. Before proceding to an enumeration of them, a *resumé* of the state of the weather of winter and spring may not be out of place, especially as many appearances in the growth of plants in summer will be the easier of explanation. The dry autumn of the previous year was succeeded by a very dry winter, which awakened the most lively fears for the condition of the corn crops. It was only at the end of the winter, in February, when usually the first buds of spring appear, that rain and snow fell in the mountains, and still more at Tiflis. It is worthy of remark that the high mountains, the principal chain of the Caucasus, as well as the higher of the less important ones, and the mountains on the Turkish boundaries were covered with unusual, and towards spring time with extraordinarily heaped, masses of snow, so that postal traffic met with constant interruptions, and had to contend with the greatest difficulties. Whilst, then, in the mountains almost uninterrupted evaporation threw itself off in fabulous masses of snow, the flat country was almost dried up. March and part of April again were dry, though not so warm as usual. In April followed a kind of rupture of the clouds—the first continuous refreshing of the earth in this year, to which a few heavy showers in May and June, though weaker, bore most resemblance. Between times, however, it was again hot, and during the whole year prevailing weak east winds only increased the effect of the sun. In the low country, as well as upon the slopes of the mountains, both the hay and corn harvests were under the average in quantity; and, as the farmer says, nothing will grow this year. In spite of the moderate heat, and the though rare yet plentiful rain, we scarcely remember to have seen such a miserable crop either of hay or corn. But as if to spite the rapidly passing season, which is here usually distinguished for its excessive droughts, the east and south winds continued, and brought such a thick mass of clouds, that from the middle of July until the end of August clear sunny days were rare, and frequent heavy showers of rain caused continuous moisture of the atmosphere, to which the neighbourhood of Tiflis is otherwise quite unaccustomed. From August 19 until about September 10 there was a pause in which the whole-fierceness of the Asiatic sun again raised the temperature considerably; then it rained again almost every day, and after a few clear warm days, on the evening of September 21, a perfectly tropical thunderstorm broke forth, and for three hours one did not know which to admire most, the never-ceasing glitter of the lightning, or the as unceasing roar of the thunder, or the rushing masses of water, which threatened to destroy everything. Since that day we have again the healthy refreshing north-west wind, which, like a true angel of heaven, purifies the stagnant oppressive atmosphere, the result of the damp east and south-east winds, and makes it enjoyable. The cool of the evening only made itself felt in contrast to the temperature during the day about September 10; on the 16th there was a slight hoar frost, but otherwise only a heavy fall of dew.

It has already been said that the cereals, as a rule, were not favoured by the weather, their harvest and the setting in of the rain coming in at the same, in consequence of which the harvest was not only hindered, but much grain was left growing in the fields, owing to the want of storage, and the threshed corn was kept in underground cellars, into which the floods of rain often forced their way, and the saved provision was lost. The Vine promised a harvest rich beyond all precedent; whole rows of Vines were to be seen in the vineyards, each bearing not under 10 bunches of Grapes, and many having above 20. During the blossom, however, rain fell, mildew followed irregularly, in the month of July, Oidium succeeded, and though arrested by violent rains, it afterwards spread in a way never before observed. Until then the Muscatelles, Isabellas, Labruscas, or some similar kinds had been quite, or at any rate in a great degree, free from the disease; now there is no difference to be seen, the most tender Grapes, whose place of origin is popularly believed to be the East Indies, as well as the strongest, are all and equally ill. Here, too, it is to be noticed that the stagnant, almost windless, atmosphere favoured the disease, particularly in those districts which were open to the south and south-east winds, whilst other places only 60 versts from Tiflis were spared, and without any artificial protection bore a good harvest. Only those who have regularly smoked their Grapes with brimstone can show good ones. It is asserted that in and near Erivan, &c., where, on account of the winter cold, the Vine is kept covered with earth, and where for want of wooden supports it is made to creep along the ground, the Vine disease is an unknown thing. I, myself, have tried this method in a garden where the Vine had suffered from the disease for six years, and, with the assistance of sulphur, have had a good result. An old white, small-berried Vine, called Portala, which had remained unclipped as an experiment, as well as a black one, which had trailed itself up a tree, and was also unclipped, were quite passed over by the disease. I emphasize these observations particularly, and add that another experiment of clipping a Vine short, after the French fashion, was quite a failure, in the same way that a French gardener in the neighbourhood has destroyed a Peach and Apricot plantation in two years, through the short French cut, as he himself confesses, and says that the trees have died from the loss of sap.

The abnormal activity of the atmosphere has shown itself not only in the cultivated plants, but also in the forest trees. I give a few proofs, which will speak for themselves. It has been much noticed that the second shoots, or so-called August shoots, were much stronger than the early shoots; for instance, in the Oak (Quercus) they were very remarkable. Others, like many Robinia Pseud-Acacia, Tilia, Acer obtusatum, Rosa hybrida bifera of various kinds, &c., lost their leaves in the beginning of August, suddenly threw out new leaves, and immediately after short, weak side shoots; others remained quite bare, and mostly the totally yellow foliage dried up on the tree. Most of the evergreens have an exuberant green, such as one very seldom sees in Tiflis, and more particularly all Coniferæ distinguish themselves by their enormous growth; and I have never seen a single example out of many hundreds which in the least degree showed signs of disturbed growth. As far as I know, the following trees have blossomed twice:—Cercis Siliquastrum and Syringa persica in full foliage; Corylus Avellana, male and female catkins shortly before opening, this usually blossoms in January; Glycine sinensis, Cytisus Laburnum, Spartothamnus junceus. The smallness in number of these species is remarkable, as usually after a dry summer and moist autumn this appearance occurs much more frequently. Apparently, this year has missed the period of repose occasioned by the drought of the summer, so that the growth was not interrupted. As a sign that the moisture of the spring and even winter has more influence upon the thriving of the perennial plants, especially upon trees, the following observations may find a place. Such newly-bedded plants as were not well watered in the spring gave unsatisfactory results, and also in the well-watered plantings the growth of wood, &c., was very unequal, weak, and unfavourable. It was only in the second shoots in August that a stronger growth was noticeable. In most cases, too, the second hay harvest was better than the first. The green of the steppes has only given place to the withered yellow of winter towards the end of September, instead of, as usual, in May. The perennial Grasses have also bloomed in September, and the stalks of hay are very tall. All orangeries and ornamental plants in gardens have a striking richness in growth. Up to now, the end of October (1868), night frosts have not been noticed, and the garden flourishes still in the full beauty of foliage and flowers. A few flowers have suffered through the depression of the atmosphere—Balsams and Petunias have decayed at once, Verbenas flowered late, Heliotropes turned yellow and died off, Remontante Roses have run extraordinarily to wood, without giving a single flower; Fuchsias, as usual in July, leafless. All so-called foliage plants—Aroids, Musæ, Dracænas, Begonias, &c., have thriven excellently.

The quality of fruits, the Vine included, is under the average. The best winter fruit, carefully plucked, does not keep, but decays in masses in the store-rooms. Even the trees, particularly the Apples and Plums, are clothed in the same ugly grey garment, as the sick Vines, the fruits fall off before they are ripe, and are uneatable. The Peaches lost their foliage as early as August, and, with it their fruits, which were excessively watery and tasteless. It might be worth while to find out whether these appearances were caused by a Fungus allied to the Oidium, as even forest trees suffered in numbers from Fungus-like formations, lost their leaves, and produced but sickly after-shoots.

In gardens in the town of Elisabethpol (200 versts distant) the Vine disease made great ravages; but I noticed that, contrary to the state of things in Tiflis, the driest vineyards suffered most, whilst those in marshy ground were but slightly affected, or, indeed, quite healthy. *M. Scharrer, in "Bulletin of the Imperial Society of Naturalists of Moscow."*

Notices of Books.

The Malay Archipelago. By A. R. Wallace. 2 vols. 8vo, Cuts. London: Macmillan. 1869.

It is well known to the scientific world that Mr. Wallace, almost simultaneously with Mr. Darwin, arrived at similar conclusions respecting the origin of species, and that from the distant shores of the Malay Archipelago he communicated these conclusions to Mr. Darwin, at the very time when the latter was about to give to the world what is now known as the Darwinian theory.

Wandering amongst semi-civilised nations, closely noting their types, manners, and languages, making large collections of the hitherto almost unknown birds and insects of these regions, and recording their habits and geographical distribution, he accumulated during the space of eight years a vast number of observations bearing especially on the latter question, and, as such, of enormous value towards the elucidation of the difficult question of the former distribution of land and water over the surface of the globe. To obtain evidence bearing on this point, and on that of the origin of species, was Mr. Wallace's great aim, to which even the collecting of birds and insects was secondary; and while the "125,660 specimens of natural history," recorded in his preface, show his energy and industry in the latter department, the almost as numerous facts and observations gathered by him on physical subjects, and the clearness and accuracy with which he has arranged and utilised them, equally testify to a mind capable not only of seizing and accumulating the various points which bear upon his subject, but of so placing them before his readers as to bring irresistible conviction to their minds.

Knowing Mr. Wallace's high standing as a scientific collector and observer, and occasionally receiving instalments of his results in the shape of short papers in various periodicals, naturalists waited impatiently for a fuller account of his expedition; but unlike those travellers who rush into print immediately on their return home, simply publishing their journals as written, and consequently issuing bulky and but partially interesting volumes, Mr. Wallace waited six years before giving us, in two small volumes, the desired book of travels. The consequence is that he has digested and arranged his materials in such a way as to produce, not only a highly interesting, but a most valuable addition to our knowledge of that portion of the world in which he lived and worked so long.

He has followed a somewhat peculiar plan in his book; the best idea of which may perhaps be given by calling it a physico-geographical arrangement. Each group of islands, closely connected by its fauna and human inhabitants, is taken separately; his differen

journeys and collections in each island are first described, and a chapter is then devoted to the natural history of the group in general. The book thus naturally divides itself into five portions. Of course Mr. Wallace's various expeditions did not correspond with this division; but he has wisely thought that it is less instructive to his readers to ascertain the precise order in which he visited the different islands, than to obtain a clear and connected idea of each.

The first chapter is devoted to the physical geography of the entire region, which Mr. Wallace divides into two portions, easily traceable on his physical map by the shallow sea which on the one hand connects Sumatra, Java, and Borneo with the Asiatic continent, and a similar shallow sea which connects New Guinea and some of the adjacent islands with Australia. "We have here a clue to the most radical contrast in the Archipelago, and by following it out in detail I have arrived at the conclusion that we can draw a line among the islands, which shall so divide them that one-half shall truly belong to Asia, while the other shall no less certainly be allied to Australia. I term these respectively the Indo-Malayan and the Austro-Malayan divisions of the Archipelago." (I., 13.)

This division is completely supported by an examination of the animal productions of the various islands (though not to the same extent by the plants), and

"The general result therefore at which we arrive is, that the great islands of Java, Sumatra, and Borneo resemble in their natural productions the adjacent parts of the continent, almost as much as such widely separated districts could be expected to do even if they still formed a part of Asia; and this close resemblance, joined with the fact of the wide extent of sea which separates them being so uniformly and remarkably shallow, and lastly, the existence of the extensive range of volcanoes in Sumatra and Java, which have poured out vast quantities of subterranean matter and have built up extensive plateaux and lofty mountain ranges, thus furnishing a necessary cause for a parallel line of subsidence, all lead irresistibly to the conclusion that at a very recent geological epoch the continent of Asia extended far beyond its present limits in a south-easterly direction, including the islands of Java, Sumatra, and Borneo, and probably reaching as far as the present hundred-fathom line of soundings." (I., 19.)

And further:—

"The whole of the islands eastward beyond Java and Borneo do essentially form a part of a former Australian or Pacific continent, although some of them may never have been actually joined to it. This continent must have been broken up not only before the Western Islands were separated from Asia, but probably before the extreme south-eastern portion of Asia was raised above the waters of the ocean; for a great part of the land of Borneo and Java is known to be geologically of quite recent formation, while the very great difference of species, and in many cases of genera also, between the productions of the Eastern Malay Islands and Australia, as well as the great depth of the sea now separating them, all point to a comparatively long period of isolation." (I., 22.)

These two main divisions are then subdivided into the five districts already mentioned; comprising the Indo-Malay, Timor, Celebes, Moluccan and Papuan groups; and in his account of each, Mr. Wallace not only gives a vivid picture of the ways and customs of its inhabitants, and describes the glorious birds and butterflies he was fortunate enough to discover, but, keeping his main object in view, he shows throughout how the differences in the various natives, the mammalia, the birds and the insects, all bear evidence in favour of his theory, and in short, how the singular and unexpected facts of their distribution can be accounted for in no other way. Well may he conclude his sketch of the physical geography by saying—

"From this outline of the subject it will be evident how important an adjunct natural history is to geology, not only in interpreting the fragments of extinct animals found in the earth's crust, but in determining past changes in the surface, which have left no geological record. It is certainly a wonderful and unexpected fact, that an accurate knowledge of the distribution of birds and insects should enable us to map out lands and continents which disappeared beneath the ocean long before the earliest traditions of the human race. Wherever the geologist can explore the earth's surface, he can read much of its past history, and can determine approximately its latest movements above and below the sea level; but wherever oceans and seas now extend, he can do nothing but speculate on the very limited data afforded by the depth of the waters. Here the naturalist steps in, and enables him to fill up this great gap in the past history of the earth." (I. 27.)

In forming his collection, Mr. Wallace mainly devoted himself to birds and insects; he did not, however, neglect the curious mammalia, &c., which came in his way, but preserved skins and skeletons whenever it was practicable. For instance, while in Borneo he took some pains to procure specimens of the large Orang-Utan, or Mias, as it is called by the natives, and also as much information as possible respecting its habits. He also obtained a young one, which he kept for three months; and the account of this little creature forms an amusing episode, which is, however, too long to extract. Altogether he killed 16 of these animals, for which he was looked upon by the Dyaks as a benefactor, these animals being great nuisances from the havoc they commit on the Durion trees, especially as they waste and destroy a great deal more of the fruit than they eat.

Of the difficulties to be encountered we have many graphic instances, and it seems perfectly marvellous how well he succeeded, considering the means at his disposal. His plan on arriving at a fresh locality was to search for a place where insects were likely to abound, namely, a clearing in a forest, and to establish himself for some weeks as near to this as he could; hiring a house when one was to be had, and building one when there was none. And what houses they were! Here is the description of one:—

"Immediately above was a large newly-made plantation of Yams and Plantains, and a small hut, which the chief said we might have the use of, if it would suit me. It was quite a dwarf house, just 6 feet square, raised on posts, so that the floor was 6 feet above the ground, and the highest part of the ridge only 5 feet above the floor. As I am 6 feet and an inch high in my stockings, I looked at this with some dismay; but finding that the other houses were much further from water, were dreadfully dirty, and were crowded with people, I at once accepted the little one, and determined to make the best of it. At first I thought of taking out the floor, which would leave it high enough to walk in and out without stooping; but then there would not be room enough, so I left it just as it was, had it thoroughly cleaned out, and brought up my baggage. The upper storey I used for sleeping in and for a store-room; in the lower part (which was quite open all round) I fixed up a small table, arranged my boxes, put up hanging-shelves, laid a mat on the ground, with my wicker chair upon it, hung up another mat on the windward side, and then found that, by bending double and carefully creeping in, I could sit on my chair with my head just clear of the ceiling. Here I lived pretty comfortably for six weeks, taking all my meals and doing all my work at my little table, to and from which I had to creep in a semi-horizontal position a dozen times a day, and after a few severe knocks on the head by suddenly rising from my chair, I learnt to accommodate myself to circumstances. We put up a little sloping cooking hut outside, a bench on which my lads could skin their birds. At night I went up to my little loft; they spread their mats on the floor below, and we none of us grumbled at our lodgings." (II., 359.)

Amongst the miseries incident to collecting in a tropical country, insect plagues must certainly stand foremost. More than once Mr. Wallace was confined to his house for weeks by ulcerated feet, brought on by the attacks of mosquitos, sandflies, &c., and he speaks very piteously of the interruption thus caused to his work:—

"The stings and bites and ceaseless irritation caused by these pests of the tropical forests, would be borne uncomplainingly; but to be kept prisoner by them in so rich and unexplored a country, where rare and beautiful creatures are to be met with in every forest ramble—a country reached by such a long and tedious voyage, and which might not in the present century be again visited for the same purpose—is a punishment too severe for a naturalist to pass over in silence." (II., 251).

Moreover, his birds and insects, when once caught, prepared, and added to his collection, still required the utmost watchfulness and care to prevent their being destroyed by ravenous creatures:—

"The lean and hungry dogs before mentioned were my greatest enemies, and kept me constantly on the watch. If my boys left the bird they were skinning for an instant, it was sure to be carried off. Everything eatable had to be hung up to the roof, to be out of their reach. Ali had just finished skinning a fine King Bird of Paradise one day, when he dropped the skin. Before he could stoop to pick it up, one of this famished race had seized upon it, and he only succeeded in rescuing it from its fangs after it was torn to tatters. Two skins of the large Paradisea, which were quite dry and ready to pack away, were incautiously left on my table for the night, wrapped up in paper. The next morning they were gone, and only a few scattered feathers indicated their fate. My hanging shelf was out of their reach; but having stupidly left a box which served as a step, a full-plumaged Paradise bird was next morning missing, and a dog below the house was to be seen still mumbling over the fragments, with the fine golden plumes all trampled in the mud. Every night, as soon as I was in bed, I could hear them searching about for what they could devour under my table, and all about my boxes and baskets, keeping me in a state of suspense till morning, lest something of value might incautiously have been left within their reach. They would drink the oil of my floating lamp and eat the wick, and upset and break my crockery if my lazy boys had neglected to wash away even the smell of anything eatable. Bad, however, as they are here, they were worse in a Dyak's house in Borneo where I was once staying, for they gnawed off the tops of my waterproof boots, ate a large piece out of an old leather game-bag, besides devouring a portion of my mosquito curtain." (II., 259.)

Ants, of course, were ubiquitous, and it must have been a work of no small difficulty to circumvent them:—"They swarmed on my table as I was at work, setting out my insects, carrying them off from under my very nose, and even tearing them from the very cards on which they were gummed, if I left them for an instant." (II., 328.)

In spite of all these troubles, in spite of occasional fevers, bad food, voyages in native boats against contrary winds, when he seems to have been invariably sea-sick—difficulties thrown in his way by the indolence or suspicion of the natives, Mr. Wallace worked steadily on, collecting, observing, and noting, and apparently on the whole thoroughly enjoying his nomadic existence.

"It sometimes amuses me to observe how, a few days after I have taken possession of it, a native hut seems quite a comfortable home. My house at Waypoti was a bare shed, with a large bamboo platform at one side. At one end of this platform, which was elevated about 3 feet, I fixed up my mosquito curtain, and partly enclosed it with a large Scotch plaid, making a comfortable little sleeping apartment. I put up a rude table on legs buried in the earthern floor, and had my comfortable rattan-chair for a seat. A line across one corner carried my daily-washed cotton clothing, and on a bamboo shelf was arranged my small stock of crockery and hardware. Boxes were ranged against the thatch walls, and hanging shelves, to preserve my collection from ants while drying, were suspended both without and within the house. On my table lay books, penknives, scissors, pliers, and pins, with insect and bird labels, all of which were unsolved mysteries to the native mind." (II., 133.)

"Then what delightful hours I passed wandering up and down the dry river-courses, full of water-holes and rocks and fallen trees, and overshadowed by magnificent vegetation. I soon got to know every hole and rock and stump, and came up to each with cautious step and bated breath to see what treasures it would produce. At one place I would find a little crowd of the rare butterfly Tachyris zarinda, which would rise up at my approach, and display their vivid orange and cinnabar red wings, while among them would flutter a few of the fine blue-banded Papilios. Where leafy branches hung over the gully, I might expect to find a grand Ornithoptera at rest and an easy prey. At certain rotten trunks I was sure to get the curious little tiger beetle, Therates flavilabris. In the denser thickets I would capture the small metallic blue butterflies (Amblypodia) sitting on the leaves, as well as some rare and beautiful leaf beetles of the families Hispidæ and chrysomelidæ." (I., 365.)

Occasionally Mr. Wallace notices a beautiful flower, but it is not often. The reason for this is not, however, that he was so engrossed by his own special pursuits as to overlook them, but that in tropical forests bright coloured flowers really play a subordinate part in the aspect of Nature. The following extract may serve to dispel illusions on this subject, which may be entertained by those who have never visited the tropics:—

"The reader, who is familar with tropical nature only through the medium of books and botanical gardens, will picture to himself in such a spot many other natural beauties. He will think that I have unaccountably forgotten to mention the brilliant flowers, which, in gorgeous masses of crimson, gold, or azure, must spangle these verdant precipices, hang over the cascade, and adorn the margin of the mountain stream. But what is the reality? In vain did I gaze over these vast walls of verdure, among the pendent creepers and bushy shrubs, all around the cascade, on the river's bank, or in the deep caverns and gloomy fissures—not one single spot of bright colour could be seen, not one single tree, or bush, or creeper bore a flower sufficiently conspicuous to form an object in the landscape. In every direction the eye rested on green foliage and mottled rock. There was infinite variety in the colour and aspect of the foliage, there was grandeur in the rocky masses, and in the exuberant luxuriance of the vegetation, but there was no brilliancy of colour, none of those bright flowers and gorgeous masses of blossom, so generally considered to be everywhere present in the tropics. . . . . During 12 years spent amid the grandest tropical vegetation, I have seen nothing comparable to the effect produced on our landscapes by Gorse, Broom, Heather, and wild Hyacinths, Hawthorn, purple Orchises, and Buttercups." (I., 371.)

The number and variety of the topics discussed in these two volumes cannot be even touched on within the limits of a review; all bears evidence of careful observation and thought, and deserve study and consideration. Mr. Wallace's work is by no means to be classed merely as an interesting book of travels; it will take its place on our library shelves, and will be referred to, as a standard authority regarding the countries he has so carefully studied, and so ably described.

Florists' Flowers.

ANY notice of the new show PELARGONIUMS of the present year would be incomplete without mention of the honoured name of Beck. That name—so high up in the annals of floriculture—has been so long, and so honourably and successfully associated with the production of new Pelargoniums, that, were it to be struck out of our modern records, it would be like the snapping of one of the strongest bonds binding together much of pleasant reminiscence of the past, with much of success in the present, and hope in the future of floriculture. When, a few years ago, Mr. E. Beck "shuffled off this mortal coil," the work of Pelargonium raising was continued by his son and by Mr. Wiggins, who for the past 25 years has borne an important part in all that has been so worthily achieved at Worton Cottage.

The fact that Mr. Wiggins has not publicly exhibited his seedling Pelargoniums this season is at least not owing to the fact that he has none to show, as it will be remembered that, both at the June and July meetings of the Royal Botanic Society in 1868, Mr. Wiggins exhibited some very promising yearling flowers. In the improvement of the large-flowering Pelargonium, Mr. Beck had his particular line of procedure. Those who were readers of the early volumes of the "Florist" will remember the lofty ideal Mr. Beck had before him, and to the attainment of which he unceasingly laboured. One of his great requisites was a habit moderately dwarf, with stout foliage, and short stalks to the leaves, so as to form a compact bushy plant. Perhaps it may be said that in a large degree Mr. Beck associated this habit with his new varieties, and one has only to inspect the new varieties of the past three years at Worton Cottage to see how much this has been fulfilled in the later forms of the new kinds. Form was another leading feature of Mr. Beck's ideal; and though it was always his firm opinion that what was necessary to form a first-rate flower was to a great extent attained by high cultivation, and that alone, he yet as firmly believed that the coveted breadth of petals, and consequent roundness and fulness of flower, were all obtained by the judicious cultivating and crossing of different flowers. It is also true that form is a leading characteristic of the Isleworth flowers, down to the present time. In further working out his improvements, it would seem that Mr. Beck placed form on a very much higher elevation in the category of his desired improvements than size; while some other raisers endeavoured to get size, with a view of attaining form at a later date, Mr. Beck, it would appear, inverted this process—a process still continued at Worton Cottage. I think every impartial observer must have been driven to admit, that during the past six or eight years at least the new flowers raised by Mr. Wiggins have been inferior in point of size to those shown by Messrs. Foster and Hoyle; but that they had qualities of form and habit commensurate with that of size will perhaps be as freely admitted. Still, in point of size, Mr. Wiggins shows a marked advance in the flowers he intends to distribute in the coming autumn. I had an opportunity to inspect these a few weeks ago, under circumstances favourable to arriving at a pretty just conclusion as to their merits; they were alike removed from the taint of dressing or the wrappings of "floricultural millinery," sometimes pretty thickly spread about new things on particular occasions. Six of these flowers seemed to stand out boldly as acquisitions, viz., Bacchus, rose ground, lower petals heavily painted with dark; maroon top petals, with regular pink margin, and white throat; flowers large, bold, and of fine shape. Dove, a large pure white flower, of very fine shape and substance; large dark blotch on top petals, lit up with fine carmine, and edged with pink. Firefly, bright red, having a dark spot in each petal, with dark top petals, fine shape, and remarkably free blooming. Hebe, lower petals pink, spotted with dark chocolate; dark top petals, margined with pink; flower large and bold. Rosea floribunda, rose lower petals, with large white throat; large dark blotch on top petals, margined with lively rose; flower large in size, and of good shape: and Victoria, a fine and striking flower, salmon-rose lower petals, large white throat, dark top petals, lit up with vermilion, and edged with deep rose.

The others forming Mr. Wiggins' batch of flowers for this year are—Bouquet, pure salmon lower petals with slight pink spots, white throat, dark top petals

margined with rosy salmon; flowers large and free-blooming. Cardinal, bright maroon lower petals, painted with dark; dark top petals; a flower of good shape. Corporal, a bright crimson-scarlet flower, with dark top petals lit up with vermilion, and margined with deep rose. Flora, a large white flower, with dark top petals; an abundant bloomer. Florence, lilac lower petals, pencilled with rose; dark maroon top petals. Garland, a rich-looking flower, in the way of Diadem; large white throat, dark top petals; a bold and showy flower. Modesty, a pretty lilac flower, with dark top petals, margined with pale pink. Multiflora, lower petals pale rose, white throat, dark maroon top petals, with broad margin of rose. Pluto, another large dark painted flower, with rich shaded dark top petals, margined with lively crimson. Prince of Wales, lower petals pure white, dark maroon top petals, with broad pale margin. Rosy Circle, warm rose lower petals, pure white throat, dark blotch on top petals, and broad margin of rose; flowers large and stout. Sultana, rich rosy salmon lower petals, fine dark maroon top petals, margined with rosy salmon; free, and of fine shape. Salamander, lower petals warm orange-rose, with large dark maroon top petals, and broad rosy margin; and Snowflake, pure white lower petals, the upper petals having large purple blotches and edging of white.

There is therefore no lack of new large-flowering Pelargoniums for the present autumn, as the foregoing, combined with what Mr. Turner has to distribute of Messrs. Foster and Hoyle's flowers, will give Pelargonium fanciers abundant material to select from.

As a general rule the exhibitors of large-flowering and fancy Pelargoniums both, the former especially, should, and really ought to raise a little the standard of quality in the flowers they exhibit at provincial shows. Both at the Whitsun exhibition of the Manchester Horticultural Society, and at the great show of the Royal Horticultural Society, the large-flowering Pelargoniums were not of so high an order as might be looked for in such a plant-growing district. Leeds and York, and Oxford, are no doubt exceptions, but the exceptions are very few comparatively. Very often different varieties are seen well grown—cultivated in a manner worthy of better sorts to operate upon; and while it is the continuous aim of raisers to produce new and improved varieties, it should also be the endeavour of exhibitors to keep pace to some extent with the raisers, and so strengthen their hands and crown with success their praiseworthy efforts. *R. D.*

—— Mr. Wimsett has issued coloured illustrations of Mr. Wills' new Ivy-leaved Hybrid Pelargoniums, named Willsii and Willsii rosea, both of which were shown nicely in bloom at the last Floral meeting. They are evident crosses between the lateripes and scarlet or inquinans sections, have the flowers of two pretty and distinct shades of rose-colour.—We have also a plate of Variegated and Variegated Zonal varieties, issued by M. de Beucker, of Antwerp, which, if correct as to colouring, offers some novelty, the zone in the case of one, named Frans de Beucker, being well defined and of a pale orange-buff tint. Another, named Silverwitje, seems to be a good silver-edged sort, with broad, well-defined white margins.

—— We have just received from Mr. Cannell a series of blossoms of some of Mr. Banks' new Fuchsias, which are of remarkable size and beauty. One is quite a monster in size, the corolla being fully 3 inches in expansion, the individual petals an inch and a-half long, and an inch and five-eighths broad. Another more refined flower of the expanded class measures fully 2½ inches across the corolla. Both the foregoing are of a reddish violet; while another of the same form, and nearly equal in size, has the colour of a rosy lilac hue. There are besides many fine acquisitions of other types amongst them; but as the blooms are not named, we cannot refer to them more particularly.

The Apiary.

The "Long Economic Bee Hive."—We extract the following from "The American Bee Journal" for September:—

"I wish for the benefit, if it may be, of all the readers of the Journal, to speak again of the convenience of something like the 'long economic hive' described in the May number, for keeping up a supply of celled queens. It will be remembered that, in this hive, the frames are inserted crosswise, with two entrances on the sunny side, one near either end. Let such a hive, full and in good order, contain the choicest queen. Then, at the proper season of the year, or when it is desired to raise queens, lift out a frame near the middle, and insert a closely fitting division-board in its place, thus making for the time two hives of one, with a separate honey-board for each part. The queen being in one part of the hive, the bees in the other part will, from her eggs, proceed to construct queen cells, which, after nine days, may be carefully cut off and removed to other hives, or to queen-rearing boxes, and the queen, with due precaution, changed to that end of the hive; when the unqueened part will, in turn, proceed to construct queen cells, and so on alternately. The advantages of this method are:—

1. Its convenience in having statedly, through the season, a supply of maturing cells.

2. Its safety. The bees in both parts having the same mother smell alike, and like her, on which account she is not likely to be injured.

"3. Its utility. The bees not being much disturbed in the change, nor removed from their stand, are not in so much haste, and consequently commence with younger grubs, or with eggs; and the stock being stronger than a small nucleus, keeps up a more equable temperature and a better supply of food, producing more perfect queens for future mothers.

"4. Its certainty. By this process one is sure of cells at the time, and as there is supposed to be nothing impure about the hive, there can be no mistake about the queen as raised, unless spoiled or injured in the process of fertilisation afterwards. I continually use three of my best queens in this way, and so have every three or four days a fresh supply of cells, to be made use of according to circumstances, in the yard, or otherwise, to mature for market. I have as yet lost no queen by the frequent change, and like the method much better than any that I have seen described. *J. W. Truesdell.*"

The Editor of the "Bee Journal" remarks on the foregoing paper, that the hive alluded to and "described by the Rev. Mr. Truesdell in a former number, seems to be substantially a more convenient form of the Dzierzon twin hive—that is, a hive that may be used, at pleasure, for the multiplication of stocks and the storage of honey; or with due alternation, as a nucleus hive for rearing queens, or supplying queen cells continuously."

Garden Memoranda.

Lea Bridge Road Nurseries, Leyton, Essex.—This old establishment has been long and favourably known for its Heaths, Azaleas, and Camellias, which are grown in large quantities. The cultivation of this class of plants may be said to be the leading feature of the place, but other subjects are also done well here, as a visit in the months of August and September will prove to any one who has the slightest fancy for the many kinds of the ever popular "florists' flowers."

The principal attractions at so advanced a period are, of course, the plants grown outside, nevertheless we may notice a few things in the houses. In the show-house, which had contained a fine display of Lilium auratum, were some small nicely-furnished plants, in 48-sized pots, of that elegant scarlet-flowered succulent the Rochea falcata: this, when well grown, makes one of the handsomest autumn-blooming plants for indoor decoration. The Campanula fragilis, a free-growing trailing variety, with grey-blue flowers, and admirably adapted for hanging in baskets, was also very effective. Another plant that has flowered well this summer, and is remarkable for the sweetness and delicacy of its flowers, is Nerium album, sometimes called the White Oleander. This plant belongs to a beautiful though very much neglected class of evergreen shrubs, which are easily grown, and flower freely in a stove for the greater portion of the year. In a small stove were some dwarf bushy plants of Ixoras, which Mr. Fraser informed us were seedlings, about one year old; they seem to flower very freely, and produce many quite new tints of colour. Another remarkable character in them is that no two flowers come exactly alike in colour. This method of growing dwarf bushy free-flowering examples of the lovely Ixora must be something new in cultivation, and is at any rate worthy of adoption in establishments where plants of this kind are always in demand or for growing largely for market purposes. Some specimens of the rather new and magnificent Allamanda nobilis were flowering very freely; this is a fine yellow-flowered robust growing kind, worthy of a place in every stove. Lapageria rosea was growing in great luxuriance, trained to the roof of a cool house. In this position it flowers well up to Christmas: it is a fine flower for a lady's head-dress. The beautiful Gnaphalium eximium is one of the old favourites that used to appear at exhibitions in years gone by, but is now seldom seen. Its flowers, which are produced in clusters, are of a beautiful coral-red colour, and have a considerable resemblance to a Strawberry. A more useful class of plants there cannot be, as when they have done growing the flowers can be cut, and in most cases they retain their colour, and are well suited for filling vases in winter. Of Clematises, two varieties were growing out-of-doors which deserve a word of commendation, *i. e.*, candida, white, one of the best and freest bloomers; and lanuginosa nivea, pale blue, a good flower and a continuous bloomer.

A bed of Verbenas here was very showy, all the varieties contained in it being in fine condition, notwithstanding the unfavourable season for this class of plants. On remarking the fine appearance of the bed, we were told by Mr. Fraser that it contained only those kinds which had been tried by time, and had proved to his satisfaction to be first-rate for general bedding-out. As it may be of some service to know what are really good, we give the following list of varieties, which are so highly esteemed by Mr. Fraser, and are honoured with a place in the "extra selected" bed:—Reine des Roses, rose, lemon eye; Moonlight, white; Achievement, deep rose; Foxhunter, scarlet; Annie, pink and white striped; Blue King, light purplish blue; Princess of Wales, white striped, pale pink; King Charming, bright orange-rose, with lemon eye; Grand Duchess, white, with lilac-crimson centre; Crimson King, crimson-scarlet, with lemon eye; Snowball, white; Mademoiselle Marie Rendatler, purple, lemon eye; Delicata, rosy crimson, pale lemon eye; Dante, scarlet; Ariosto Improved, rich purplish maroon; Mrs. Holford, white; and last, though not least, Purple King. These are all first-rate, and can be depended upon for a display of bloom. Amongst new kinds sent out this season, Lady Folkestone, rosy crimson; Caroline Smith, rosy pink, very free bloomer; Fanny Martin, of a lighter shade than the former, and equally as free a bloomer; and Coleshill, a rich dark scarlet, of good substance, all appear to be very promising varieties.

The Zonal Pelargonium receives great attention here, Mr. Fraser being one of our most able cultivators of this class of plants, as is evinced by the fact of his specimens nearly always taking first honours at the various metropolitan exhibitions. Amongst nosegays, Monseigneur Dupanloup, creamy white, an immense trusser, is a fine bedder; Cham, very fine, deep scarlet, with large white centre, is first-rate; Mdle. Nilsson, pink, a large trusser and free bloomer, is one of the best of the pink bedding nosegays, and a great acquisition. Docteur Legrand, carmine-purple, large and compact truss, and free flowering, is a good variety for pot culture as well as bedding; Lucius, cerise-scarlet, is very fine for the latter purpose. In the variegated section, Princess Alexandra, bright green foliage, with a broad margin of pure white, is an excellent bedding kind. Amongst the double-flowered varieties, the best for bedding purposes appeared to be Madame Lemoine, very fine pink, and dwarf in habit; and Impératrice Eugénie, with fine flowers, of a brighter shade of colour than the former, and with little or no zone in the leaf. These, however, always appears to greater advantage grown in pots under glass, under which treatment they are very handsome.

Of herbaceous Phloxes Mr. Fraser has a fine collection; indeed the cultivation of this flower is one of the specialities of the establishment, and the collection when in flower offers a very pretty sight. The later blooming kinds, which are derived from Phlox decussata, are the most grown here, Mr. Fraser decidedly preferring them to the P. suffruticosa, or the early flowering section. Amongst the newer Continental varieties are several very desirable acquisitions, inasmuch as they are of fine form, and in various colours, approaching to scarlet, from which we hope to see a good scarlet flowering variety raised. Of the recent introductions of this character, the following are specially fine—Monsieur Paulmier, rich salmon-rose; Gloire de Neuilly, deep rosy scarlet with crimson centre, very fine; Roi des Roses, rose suffused with salmon, afterwards becoming more rosy; Aurantiaca superba, rich orange-red with fine crimson centre, a fine flower; L'Avenir, fine bright crimson, of good form; Monsieur de Lannay, brilliant rosy red; Professor Koch, brilliant rose suffused with salmon; and Dr. Parnot, pale orange-rose. These are all very fine flowers, and worthy of recommendation. Amongst whites,—Czarina, dwarf and good; Boule de Neige, a little taller grower; Madame la Comtesse de Turenne, very clear, with pale violet eye; Madame Domage, splendid white with large violet-crimson eye; and Comtesse de Malart, suffused white with large rich crimson centre, first rate, are first-class kinds. Monsieur Malet, delicate lilac, is quite distinct, blooms freely, and very dwarf, not growing much more than 12 inches in height; Madame Lemort, bright rose with large crimson centre; Madame Godefrey, rosy purple, very fine; Souvenir de M. Pirole, brilliant reddish crimson, very distinct; Soulouque, purplish lilac; and Comte Lambertye, rich glowing crimson, are all very fine flowers, bloom freely, and are very distinct.

Another plant that is grown here as an article of trade is the Pentstemon, a flower that has lately undergone considerable improvement at the hands of the florist. Amongst a lot of fine new sorts the following appear to be the best:—Richard Llanour, lilac-purple, beautifully pencilled throat; George Bruant, white, suffused with lilac; Surpasse Victor Hugo, scarlet, with conspicuous white throat; Pauline Dumont, pale rosy lilac throat, beautifully pencilled; Indispensable, rose, rich crimson pencilled throat; Bons Villageys, dark red, throat white, faintly pencilled; Grinchu, puiplish lilac, white pencilled throat, large, and very distinct; Léon la Prevoste, crimson; Grande Condé, deep crimson, conspicuous white throat; Josephine Dumont, a lighter shaded crimson, with a richly marked throat; and Richard Gutterman, scarlet, very showy, and one of the best. In addition to the above, there are several varieties that are remarkable for their dwarfness of growth, and compact free-flowering habit. The following may be mentioned as being the best amongst this very pretty and useful class:—Emile Chatè, crimson, pencilled throat; Molière, of a pale lilac tint, with deeper marked throat; Apollon, scarlet, white throat, large and fine; Duc Job, rosy red, deep crimson throat: Maria Heed, pale lilac, pure white throat; and Henry Rerson, rosy scarlet, with white, faintly-lined throat.

Amongst other kinds of bedding plants were several varieties of Lobelias, of which L. pumila grandiflora, blue, was the best of the compact-growing section. Most of the new hybrid Coleuses have been tried here, Princess Royal, in Mr. Fraser's estimation, being the best for general cultivation. This nursery is one of the principal emporiums for Heaths, and a healthier lot of dwarf bushy plants, which consist of over 30,000, principally winter-blooming kinds, is seldom seen. The other parts of the grounds, which are about 100 acres in extent, are well stocked with the usual description of shrubs, Roses, fruit trees, &c. This brief notice of the place would be incomplete if we did not refer to a specimen of the original Macartney Rose, growing against the end of Mr. Fraser's residence. The flowers are large, white, with bold yellow centre, and are produced up to the end of November in favourable seasons. The plant is evergreen, and is a fine subject for similar positions.

Obituary.

Arboriculture has lost one of its most enthusiastic supporters in the person of George Patton, Esq., Lord Justice Clerk of Scotland, whose melancholy, and for a while mysterious, fate, has lately created so much sympathetic interest. Mr. Patton, who was born in 1803, was called to the Bar in 1828, was appointed Solicitor-General in 1859, and Lord Advocate in 1866, and, in March, 1867, succeeded to the Lord Justice Clerkship. He took a great interest in gardening, and especially in arboriculture, the Coniferæ being his favourite study. Much of his vacation was spent in planting and beautifying his estate of the Cairnies, and his brother's estate of Glenalmond, to which latter he succeeded only three weeks ago. As the originator and

chairman of the Oregon Botanical Association, he was instrumental in introducing many valuable new hardy trees to our collections, Cupressus Lawsoniana amongst the number, and one of the novelties thus introduced was named after him, Abies Pattoniana. It appears that his lordship, in a fit of temporary insanity, left his house on the morning of September 20, and proceeded to the bank of a deep pool in the river Almond, in Perthshire, where he committed suicide—a tragic end, which has excited in the community a deep feeling of sorrow, and awakened much sympathy for his surviving relatives.

Miscellaneous.

To Render Timber Incombustible.—Herr Reinsch concludes, as the result of his experiments as to the best means of preventing timber bursting into flame, that impregnating timber with a concentrated solution of rock-salt is as good, if not better, preservative against it bursting into flame as water-glass (silicate of soda), while the price of the former salt is, of course, only a mere trifle; moreover, rock-salt thus applied to timber is a preservative against dry rot and noxious insects. He recommends the use of salt water, that is to say, a solution of rock-salt of moderate strength for the use of fire-engines during a fire, as by far more effective than water; but in order that the salt should not injure the working parts of the engines, they will immediately afterwards have to be played with fresh water. *Builder.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

THE lovely *Eucharis amazonica*, with liberal treatment, may be induced to form flowering spikes at this time, which will come into bloom and prove very useful at or about Christmas. A nice amount of bottom-heat, and full exposure to the sun, from this time onwards, will materially influence them in this direction. Few plants delight more in a plentiful supply of moisture than do these. When the leaves are frequently sponged over, they thrive much better than when a quantity of dirty particles are permitted to accumulate on them. The free-flowering and useful *Tritonia aurea* will now, in most instances, have done flowering, and the leaves will have become more or less yellow. At such a time it is customary with most cultivators to lay the pots upon their sides, so as to dry both the soil and bulbs. This treatment, however, is antagonistic to the real requirements of the plant; for immediately they cease to flower, and the surface-growth begins to ripen off, certain offsets, which spring from the old bulbs, at the base of the current season's growth, will commence to grow fast, winding their roots around the inner sides of the pots in dense masses. Therefore, to dry the bulbs off at such a juncture is neither more nor less than to starve these new roots to death; a very injurious procedure when it is remembered that they alone produce really fine flower-spikes, and, indeed, are often double the size of those produced by old bulbs, which have been prematurely forced to rest. To grow this plant successfully it is necessary to treat it precisely in the same way as evergreens; in fact, never to let it be entirely at rest. Those varieties of *British Ferns* which have been grown in pots for conservatory or similar decorative purposes, and especially those which are deciduous in their nature, should now be somewhat dried off, preparatory to resting them for the winter, after which they may, if not unduly pushed on at this time, be plunged into a sheltered position out-of-doors until the ensuing spring. The beautiful *Ipomœa Bona nox*, which is now becoming somewhat exhausted by flowering, may be greatly assisted by the application of a little weak manure water. The richly barred white flowers of this plant, the Midnight Lily or Moon-flower of the native Indians, open only in the evening, diffusing perfume all around. It should be grown more generally, as it does well in a cool stove, and is an annual, or at least does best with me treated as such.

FORCING HOUSES.

The weather whilst I write is all that can be desired for the final ripening of *Late Grapes*. Where any do not ripen properly, have a tolerably free resort to artificial heat in the early part of the day, with as plentiful a supply of fresh air as is convenient at all times. Without the latter, artificial warmth is of but questionable utility. The present fine weather will in like manner assist *Pines* which are flowering to set their fruit well, a fact of no little importance when it is taken into consideration what unfavourable weather is often experienced during some part of this month. Let all good varieties which are now pushing up their flowering spikes be removed into as light and warm a structure as it is possible to afford them, where they may receive a routine of treatment peculiarly adapted to themselves, irrespectively of what other plants in the same house may require, as no makeshift practices will suffice for them at this time. I scarcely need say that these remarks do not apply to those varieties which adapt themselves to the exigencies of such a period, such as the Black Jamaica, the St. Vincent, &c. In regard to *Vineries*, of course it will be necessary to expose fully to the outer air all those which have become denuded of their crop of fruit as quickly as possible after the last bunch has been removed. This applies equally to the small vinery of the amateur. No artificial means will ripen off the wood so well as a nice dry air of moderate warmth. Afford a nightly covering, as by throwing a mat over all late frame *Cucumbers* or *Melons*, so as to maintain a moderate warmth by night to the last. The nights are now beginning to be much cooler; hence the need of attention in this respect. The early *Mushroom-beds*, which were soiled over some two or three weeks since, and the surface of which show symptoms of cracking, should be occasionally sprinkled over with clear tepid water from a fine-rosed watering-pot. Continue to collect materials for other successional beds, now that the weather is dry, and the droppings may be obtained in the best possible condition.

HARDY FRUIT GARDEN.

The crop of *Peaches* or *Nectarines* not having been heavy this season, it may be well to remove entirely those shoots which have borne fruit. This will allow the air to pass more freely around those which remain, and tend to ripen the young wood better. It has been demonstrated beyond doubt that cutting the large leaves in two, across the midrib, conduces greatly to the formation of flower-buds; hence, as much gross wood exists this season, it may be well to resort to this system of restricting the cruder sap. Persist in pinching back all young growths which form after this date, and by these means endeavour to force the trees to rest as early as possible.

HARDY FLOWER GARDEN.

Those cuttings of *Pelargoniums* and other tender subjects which are used for summer decorative purposes, such as *Maurandias, Heliotropes, Iresines, Coleus*, &c., and which have already been struck and become well-established, should now be removed under the shelter of a frame. We may now anticipate a slight frost at any moment, this caution is therefore the more necessary. *Dahlias* often suffer greatly from early frosts: I have, doubtless in common with some of your readers, known the earlier autumnal frosts to be so severe as to injure the tubers which are in the soil. I do not hesitate therefore to advise all who place a value upon their stock, to draw a little additional soil up around the base of each forthwith. *Verbena cuttings* must now be got in where the operation has been delayed. They strike best placed into a cold frame, kept rather close, and shaded during bright sunshine. A general survey should now be made of all choice *Perennials, Biennials*, &c., and any which it is intended to increase or secure, by means of cuttings, such as *Antirrhinums, Pentstemons*, &c., the latter, against the severity of the winter, had better be placed into pots or boxes in the form of cuttings; they can then be properly cared for. Secure the necessary seeds of *Phlox Drummondii;* when choice is made from amongst those grown at home, save only the very choicest. Sow a pan of *Nemophila insignis:* these will come in for blooming in pots or baskets in the early spring months.

KITCHEN GARDEN.

Choose now a dry day for the purpose of clearing the late *Celery* of all useless leaves, minor side-shoots, &c., and so aid it in establishing a robust framework, preliminary to the first earthing-up. The early-sown crop of *Carrots* may be taken up and properly stored away in some convenient place for first use. Remove the larger, finer *Endive* and *Lettuces*, which have been grown on for planting, into cold frames, orchard-houses, or other similar make-shift places, giving all a good watering immediately they are transplanted, first treading in the soil firmly around each. Keep a watchful eye upon the weather, and should symptoms of coming frost occur, remove the whole stock of *Tomatos* into a warm, dry place, to forward the ripening process. *W. E.*

TOWN GARDENING.

Grass Plots and verges should now be well rolled, preparatory to the last mowing. The edgings should also be trimmed with the edging-iron before digging the borders, which will give them a neat appearance. The beds intended for *Hyacinths* and other bulbs should now be cleared. A good dressing of leaf-mould and sand should be dug in, and left rough to sweeten till the latter end of the month, when they should be levelled down, and the bulbs planted. *Pits* and *Frames* should now be got ready for the reception of plants, putting in 3 inches of fine ashes to stand the pots on, and to keep down the worms. The plants should be moved into them as soon as possible, so that they can be protected from excessive rains. Early *Tulips* which are suitable for window culture, should be at once planted, three in a 48-size pot, about an inch below the surface, in two-thirds of sandy loam, and one of leaf-mould. I believe there are no better varieties for this purpose than the red, white, scarlet, and yellow Duc Van Thol. *Crocuses* should also be potted, putting five in a pot, four round the edge, and one in the centre; also *Narcissi*, putting only one bulb in a pot, about an inch below the surface. The pots should be placed out-of-doors on fine ashes, and be covered with Cocoa-nut fibre, till they have made plenty of roots, when they should be removed into the house at different times, so as to keep up a succession. *Aucubas, Lilacs, Box, Bladder Senna, Viburnum Lantana*, &c., may now be transplanted. In planting them, see that the holes are made large enough for the roots to be spread out. The earth should be well shaken in among the roots, and be trodden in firmly all round the balls. If the surface is afterwards covered with short litter, it will be of great benefit to them. *J. D.*

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending Oct 9, 1869.

October.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday.. 3	63.7	41.5	52.6	10	1.01 in.	2	5	3	1	11	11	5	4
Mon. .. 4	63.7	42.3	53.1	21	1.06	1	8	2	4	7	17	3	1
Tues. .. 5	63.5	40.3	50.4	21	0.82	5	4	4	2	6	13	7	2
Wed. .. 6	61.8	43.2	52.5	22	0.78	1	4	7	4	6	12	6	3
Thurs. .. 7	64.7	43.4	54.6	21	0.59	2	7	5	2	4	15	7	1
Friday .. 8	61.7	42.0	51.8	22	0.63	1	8	5	4	6	8	9	2
Satur. .. 9	60.7	42.4	51.5	24	0.79	—	9	2	3	6	15	6	2

The highest temperature during the above period occurred on the 5th, 1831—therm. 90 deg., and the lowest on the 5th, 1865—therm. 25 deg.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Sept. 29, 1869, as observed at the Horticultural Gardens

Sept.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind	Rain.
Thurs. 23	17	30.147	30.088	68	58	63.0	57	56	S.W.	.00
Friday 24	18	30.066	30.002	74	47	60.5	59	56	W.	.00
Satur. 25	19	29.962	29.780	74	51	62.5	60	57	S.W.	.00
Sunday 26	20	29.853	29.836	69	36	52.0	60	57	W.	.00
Mond. 27	21	29.977	29.891	64	38	51.0	58	57	S.W.	.00
Tuesd. 28	22	29.763	29.588	67	43	55.0	57	56	S.	.00
Wed. 29	23	29.480	29.452	76	55	65.5	58	56	S.	.02
Average.		29.907	29.791	70.1	46.9	58.5	58.4	56.4		0.02

Sept. 23—Overcast, cold wind; fine, densely overcast.
— 24—Slight rain; cloudy, but fine; densely overcast.
— 25—Very fine; exceedingly fine; clear and fine.
— 26—Very fine; fine and warm; clear, starlight.
— 27—Cloudy, but fine; densely overcast; cloudy.
— 28—Very fine; cloudy, but fine; clear and fine.
— 29—Fine, very mild; very fine; densely overcast.
Mean temperature of the week, 3 5-10 deg above the average.

Notices to Correspondents.

BOOKS: *I K.* The "Gardeners' Dictionary" (Bell & Daldy) will suit you.—*True Blue.* Bradbury, Evans & Co., Bouverie Street, E.C., price 25*s.*—*D K.* A new French work on the Rose is advertised as about to be published by the "Librairie de la Maison Rustique, 26, Rue Jacob, Paris." The author is M. Lachaume, and the price little more than a shilling. This will probably meet your requirement of a "little French book on Roses." Should you wish an English work we advise you to get Rev. O. Fisher's "Notes on Rose Growing," price 6*d.* (Bradbury, Evans & Co.), or Rev. S. R. Hole's forthcoming work on the Rose. Lemaire's work, to which you allude, can be had from the Maison Rustique above cited, or through Messrs. Williams & Norgate, Henrietta Street, Covent Garden.

GRAPE SOIL: *Constant Subscriber.* In reply to your inquiry, Mr. Cramb kindly answers that the red sandstone soil employed by him is that kind which overlies rocks of that particular geological formation, and is not derived, as "Subscriber" imagines, from pounded or pulverised rocks. The colouring matter that gives the designation "red" has no doubt been furnished by the decomposition of hornblende, or mica, which contain larger or smaller portions of oxide of iron. Its porosity or tenacity will just be in proportion to the amount of silica or alumina it may contain, and its fertility is according to the quantity of organic matter. Mr. Cramb uses it without any mixture whatever, and feeds with liquid manure. As to the failures in the growth of one Vine, and the success of the others, several causes could be adduced, but without fuller particulars we could not advise you.

GRAVELLING PATHS: *T Floyd.* We cannot say the probable cost of regravelling your paths; all depends upon the price of gravel, and labour, in your district.

MYRTLE: *B D.* This will not do out-of-doors without protection in your locality.

NAMES OF FRUITS: *T A S, Tenby.* Pear Sanguinole.—*W D F, G N,* and *J Innes,* as soon as possible.

NAMES OF PLANTS: *W J, Graham's Town, South Africa.* You don't tell us what the habit of your plant is, but from the flowers we should suppose it to be Lissochilus (Eulophia) streptopetalus, or it may be Eulophia platypetala, but as the specimen sent was so much crushed we cannot fully determine. Send a better one.—*T S S, Thirsk.* Your plant is Phytolacca decandra; the fruit is not poisonous. The others, which were badly packed, we will name shortly.—*W C.* Lagerstrœmia indica.—*C D.* 1, Hypolepis tenuifolia; 2, Pleopeltis Billardieri. We cannot name Begonias from crushed and withered leaves—probably yours is B. Griffithii.—*R A P.* 1, not recognisable; 2, Asplenium obtusilobum, a pretty little basket Fern.—*H Munro.* 1, Hypolepis tenuifolia; 2, Lastrea tenericaulis, often known as Polypodium trichodes.—*An Old Subscriber.* Gunnera scabra.—*C Quinet.* Pardanthus chinensis.—*W T.* Aster cyaneus.—*Constant Reader.* 1, 2, 3, and 4, Athyrium Filix-fœmina, the two first tasselled forms; 5, Lastrea Filix-mas.—*A B.* 1, Aster Novæ-Belgii; 2, may probably be a leaf of the Longan (Nephelium Longan); 3, Phymatodes lineare.—*R A P.* Alstrœmeria (or Bomarea) edulis.—*Trescawen.* The common Hornbeam, Carpinus Betulus.—*B.* Anthemis tinctoria.—*B Duffill.* 1, Platyloma rotundifolium; 2, Gasteria verrucosa; 3, A Sedum, past recognition; 4, Cotoneaster microphylla.—*Anon.* 1, Carica Papaya, the Papaw; 2, 3, 4, We cannot undertake to name plants from leaves only.

PINE-APPLE POTATO.—Can any of our readers say where this curious variety of Potato may be obtained?

STENOGRAPHY: *Inquirer.* Pitman's.

STRAWBERRY CULTURE: *Devoniensis.* The Strawberry will grow in any good garden soil. A rich loam, not too light in texture, that will retain moisture, but not too much, suits it well. The ground should be prepared at once, by giving it a good coating of well-decomposed manure, such as that of exhausted Cucumber beds, &c., with rotten leaves and leaf-mould, if either of the latter be obtainable. The ground should then be trenched, mixing the manure well with the soil when digging it in. If your beds are old, or the surface consist of old garden soil, this will be essentially necessary. The best time for planting is early this month, whilst the ground is warm enough to encourage the plants to make a healthy root growth before winter. The sorts best adapted for cultivation greatly depend upon your requirements. Say what you wish in this respect, and we will endeavour to furnish you with the desired information.

THE LATE JAMES VEITCH: *A B.* As you rightly say, the Araucaria avenue at Bicton forms a living monument to this lamented gentleman. The glories of Bicton have recently been amply pourtrayed in our columns.

THOMPSON TESTIMONIAL: *Subscriber.* In answer to several subscribers, we may state on authority that Mr. Thompson received the greater part of the money subscribed for his benefit during his lifetime, in periodical instalments. The balance of the fund will be applied in accordance with the directions made in his will. The Royal Horticultural Society continued to give Mr. Thompson his full salary up to the time of his decease.

VINES: *A B. Narberth.* The statement in "Pearson's Vine Culture," respecting the Trentham Black Grape, is quite correct, and the other statement you mention is wrong. It must be cut as soon as ripe, in fact before the Black Hamburgh, if both grow in the same house. We will look up the other information you require.—*B. Duffill.* The cause of your Vine leaves dropping off is attributable to damp. Give more air. This accident was very prevalent in the early part of the season.

ERRATUM.—The double-flowered Pelargonium Miss Evelyn, noticed at p. 1018, was shown by Messrs. Bell & Thorpe, and not by Mr. George, as there stated.

COMMUNICATIONS RECEIVED.—G. E. L.—R. W.—H. V.—H. B. (next week).—R. B. (with thanks).—C. W.—J. E.—T. L.—G. T. (with thanks).—A. B.—J. S.—C. P.—A Subscriber.—W. E.—G. E. L. (insects not arrived).—R. W.—C. McD.—H. C.

LAWES' WHEAT MANURE, for AUTUMN SOWING, now ready for delivery.
All other Manures and Cakes as per Price List, supplied on the lowest terms. Apply for prices, &c., to JOHN BENNETT LAWES, 59, Mark Lane, London, E.C.; Dublin, and Shrewsbury.

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ODAMS'S NITRO-PHOSPHATE or BLOOD MANURE for WHEAT.—This Manure, specially prepared for Autumn Sowing, is rich in Ammonia, Phosphates, and other ingredients required for the healthy growth of Grain Crops. Analysis of Blood and the grain of Wheat show that they are nearly identical in composition, hence the value of Blood as an ingredient in Manure. It may be applied at the rate of from 3 to 4 cwt. per acre, according to the condition of the soil, either drilled with the seed or sown broadcast; if the latter, it should be well harrowed in. Prepared by the Patent Nitro-Phosphate or Tenant-Farmer's Manure Company, whose Members are Cultivators of upwards of 50,000 acres of land, which has been for years under management with Manures of their own manufacture; consequently the Consumer has the best guarantee for the genuineness and efficacy of the Manures manufactured by this Company.
Particulars will be forwarded upon application to the Secretary, or may be had of the Local Agents. C. T. MACADAM, Sec.
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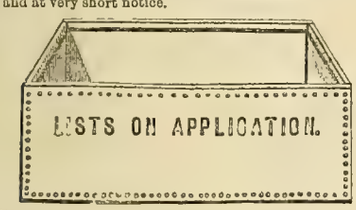
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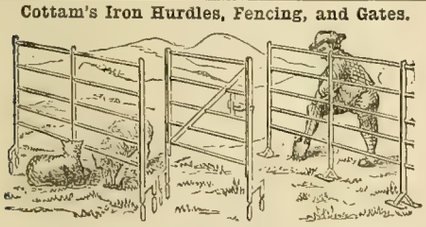
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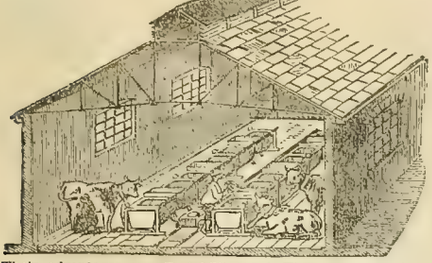
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THE BIRMINGHAM CATTLE and POULTRY SHOW.—The TWENTY-FIRST GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS, and IMPLEMENTS, will be held in BINGLEY HALL, on SATURDAY, MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 27, 29, and 30, and December 1 and 2, 1869, when PRIZES to the amount of nearly £2100 will be awarded in the following Divisions, viz.:—

FAT CATTLE	£807 19 0	BREEDING PIGS	£77 2 0
FAT SHEEP	310 8 0	ROOTS and CORN	76 16 0
FAT PIGS	59 11 0	POULTRY and PIGEONS	747 14 0

Prize Lists, Certificates of Entry, and every information may be obtained from the Secretary.
The ENTRIES CLOSE on MONDAY, November 1.
JOHN B. LYTHALL, Secretary.
Offices, 39, New Street, Birmingham.

SMITHFIELD CLUB FAT CATTLE SHOW.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY afternoon, December 6, and Four following Days.
Intending Exhibitors are requested to apply for Certificate Forms by the reference letters as under.

CATTLE.—Form A.		For an OX or STEER (in any Class).
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	,, C.	For a BEAST in Extra Stock.
SHEEP.	,, D.	For a PEN of three WETHERS (in any Class)
	,, E.	For a SINGLE SHEEP in Extra Stock.
PIGS.	,, F.	For a PEN of three PIGS (in any Class).
	,, G.	For a SINGLE PIG in Extra Stock.

ENTRIES for LIVE STOCK CLOSE NOVEMBER 1.
Prize Lists, Forms of Certificates, and all information may be obtained on application to Mr. DAVID PULLEN, Assistant Secretary, at the Office of the Honorary Secretary, corner of Half-Moon Street, Piccadilly, London, W.
N.B. All communications respecting the Show must be addressed to the Assistant Secretary, as above, and should bear outside the words "Smithfield Club Show."

The Agricultural Gazette.
SATURDAY, OCTOBER 2, 1869.

MEETINGS FOR THE ENSUING WEEK.
October 4—Committee of Central Farmers' Club (Special), at the Salisbury Hotel.
— 5—Central Chamber of Agriculture, ditto.
— 5—East Berks Agricultural, at Henley.
— 6—South Bucks Agricultural, at Stoke Pogis.
— 8—Devon Chamber of Agriculture, at Exeter.

WE recur to the subject of the actual cost of REAPING by MACHINERY, as illustrated by our practical experience during the past season.

The extent to which we shall refer comprised 54½ acres of Wheat, 54½ acres of Barley, 18¼ acres of Oats, and 18½ acres of Beans, being a total of 146 acres. The Wheat was a fair average crop of straw, and not at all broken down or twisted. One half the Barley was a light crop—about 4 quarters per acre, and the other a full heavy crop of 5½ quarters per acre. The Oats and Beans were an average. On the whole, the crops must be considered to have been favourable for the use of the reaper. There were no patches of corn prematurely down, and grown through; the Clover in the seeds was not too high, and there were no weeds. The weight of straw, too, was such as to be quite within the power of the man upon the machine.

For the sake of an actual standard of comparison, 9 acres of Wheat were let off by contract to a scytheman to mow, bind, stook, and rake at 10*s.* per acre, leaving 137 acres to be cut by machinery.

The machine we used was a combined mower and reaper, back manual delivery, with tilting rails in the place of board; and our experience of it may be fairly put alongside the story of "an old screw," given so cleverly in our columns the other day. The reaper in question we have found to work where the ground was soft and wet. In the wet harvest of 1867 we cut all our corn with it when no other machine in the district was worked at all. And on many occasions it acted efficiently even where the ground was so soft and sticky that the wheels gathered dirt, so that the whole machine ultimately became one solid mass of clay and soil, from which it took several hours to clean it before further progress could be made. With wet corn, and wet soil, it did its work when no reaper proper could get on, owing to its single wheel sinking into the ground. In this experiment on a large scale we deemed it best to adopt the combined machine, which, with its two wheels, we could depend upon to complete the harvest, should wet weather occur.

The labourers engaged for the work and reaping with the machine were, a foreman at 5*s.* per day; a boy to ride on the reaper and drive, at 2*s.* per day; five men, averaging 4*s.* 3*d.* each per day, to make bands and tie the sheaves; four women, at 2*s.* per day each, and one man at 3*s.* 6*d.*, to "make up" or gather the sheaves, and put them into the bands. One or two of the binders were higher priced than the others, as they were wanted for superior work when stacking came on. These constituted the full personal staff of the machine, their gross wages amounting to 39*s.* 9*d.* per day. To complete the force, we also put on two good men to open out the fields at the corners with the scythe, and to stook the sheaves, and a boy to drive the horse-rake, and heap the rakings, &c. These men were paid 4*s.* 6*d.* per day each, and the boy 2*s.* The amount of 11*s.* per day, added to 39*s.* 9*d.*, the cost already stated of the hands engaged directly with the reaper, made a gross expenditure in manual labour of 50*s.* 9*d.* per day. To this we may add the cost of 16 pints of beer twice a day, at 1*s.* per gallon, 4*s.*, making a total of 54*s.* 9*d.* as the total daily cost of "manning" the machine. This beer was supplied to the men direct from the brewery, so that the cost is exact. Incidental expenses must also be added, after the work is done, as it is only then that they can be ascertained; as the term implies, they fall as a charge upon the work at irregular periods, and in variable amounts.

On August 16 we began harvest work, and at noon on the 19th we had completed 36 acres 2 roods of Wheat. On the same day the Oats were begun, and finished on the following day. A delay of three hours occurred during the time this was under the process of cutting, or the work would have been completed a little sooner. The Barley was begun on Saturday, August 21, and finished on Thursday, August 26, 54½ acres being completed in five days. The Beans (18½ acres), and the spring Wheat (9 acres), were completed in two and a half days, and the whole of the crops were down at noon on Monday, August 30—the entire period which the reaper was at work was 12½ days, from Monday, August 16, to Monday the 30th. During this time there was only one compulsory stoppage from an accident, and this only for a few hours: not a single shower or damp morning intervened to delay the progress of the work. We would observe that no attempt was made to hurry the work, or even to push it. It would have been easy to have done at least 2 acres per day more than was done. We may also note here that one of the two good men at 4*s.* 6*d.* per day, engaged to stook the corn and open out fields, was taken away to cart and stack Wheat, after the reaper had been at work six days, three additional men and two boys being engaged at this time to make up a set for carting and stacking. We were enabled thus to remove one of the stookers, as it was necessary that the Barley should lie in sheaf unstooked for a day or two, to kill the Clover tied up in the sheaf; so that, when the stooker required help, the men attached to the machine were able to assist in the evening, and early in the morning, before the dew or moisture was out of the Clover, and the Barley fit for cutting. This was an important point to attend to, and it can be as easily attended to with a reaper as with a scythe. To cut Barley with Clover in it, before it is dry, and to tie up and stook immediately, causes much delay in the crop being fit for carting; and should rain occur, before the sheaves are quite dry after cutting, the Barley is very liable to sprout.

It may be asked why we have four women and a lad as "takers-up" after the machine? Why not have five women? Our reason was, that when the crop happened to be light of straw, eight hands were able to follow the reaper instead of ten. The two men forming one set were then taken to stooking, &c. Had we employed five men and five women to follow the reaper, when it was necessary to call off two men, there would have been left three men and five women; so that one woman would have

been compelled to bind the sheaves—work which women most properly object to, and which is unsuitable for them.

The actual cost of reaping will, therefore, stand thus :—

Manual labour as follows, per day :—			
1 foreman, at 5s. per day	£0	5	0
1 boy to drive, at 2s. ditto	0	2	0
5 men to bind, at 4s. 3d. ditto.	1	1	3
4 women to gather, at 2s. ditto	0	8	0
1 man to gather, at 3s. 6d. ditto	0	3	6
2 men for extra work and to stook, at 4s. 6d. ditto	0	9	0
1 boy to rake, at 2s.	0	2	0
15 Per day	£2	10	9
32 pints of beer, at 1s. per gallon	0	4	0
	£2	14	9
Amounting, for 12½ days, for the gross cost and manual labour in reaping 137 acres, to ..	£34	4	4½

To this we have to add for incidentals paid by foreman—Repairs, 3s. 6d.; oil, 1s. 6d.; and files, 2s.; and to deduct for wages of the man who was taken off after six days' work, viz., 6½ days at 4s. 6d. = 1l. 9s. 3d. So that the total amount will stand as follows :—

Cost of 12½ days' manual labour	£34	4	4½
Less for 6½ days as above	1	9	3
	£32	5	1½
Incidentals as above	0	7	0
Total	£32	12	1½

—being the actual cost of reaping 137 acres of corn by machinery, or 4s. 9d. per acre, exclusive of horse and machine power. If to this, then, we add 1s. per acre for the horses, and 6d. per acre for the wear and tear of machine (a liberal allowance), we have the result of 6s. 3d. per acre for the actual cost of manual labour, machine, and horse-power, as nearly as it can be ascertained by actual experience.

The sum of 4s. 9d. per acre represents the actual payment for the manual labour and incidentals in harvesting in this manner, and it represents to a fraction our payments for the 12½ days that it took us to cut, tie, stook, and rake 137 acres of an average crop of corn.

Into this account no element of mere estimate enters; the figures represent the amount of physical power employed absolutely in the work accomplished—in days' work; these days' work being paid for at the full prices of the district. They fully substantiate the assertions of Mr. MECHI and his correspondents as to the cost of this now common operation. Mr. MECHI'S Yorkshire correspondent, in his estimate of 4s. 4d. per acre, most probably took no account of horse-power or depreciation of machinery; if so, nothing can be much nearer than his payment to ours. And in reference to our own experience as now detailed, we have only to say that, though in recording it we give a leaf out of the ordinary farm practice, it is no less an experiment, designed to ask a question and to obtain a correct answer, and its results are as trustworthy as they could possibly have been had they arisen from a trial on an experimental plot however carefully conducted.

Experience, indeed, is at all times an experiment; but it is only when all the attendant circumstances can be fully ascertained, as in this instance, that the information obtained therefrom is precise enough to be valuable.

We are in possession of the figures and facts connected with the cost of reaping by machinery as practised upon two other large farms with which we are connected, and where the work is conducted in a manner totally distinct and different from each other and from that which we have now detailed. We reserve these particulars for another occasion.

—— AT Mark Lane yesterday, the decline of 1s. to 2s. per quarter, which has been general since Monday, was more than acquiesced in, and something lower was obliged to be taken to effect sales.—The meat trade is very dull, and top quotations for beef have again touched 5s., while prime mutton has fallen to 5s. 4d. per stone. Common beasts are 2s. 8d. to 3s. 4d. per stone, and sheep, 4s. to 4s. 6d.

—— The Contagious Diseases (Animals) Act is now attracting much attention and discussion in most of the cities and boroughs in the kingdom. At the Michaelmas Quarter Sessions the Act will be a prominent subject for consideration, it is therefore advisable that any information and decisions that may transpire should be disseminated. At Norwich last week a committee for carrying out the Act was proposed and agreed to unanimously by the Town Council. In proposing the committee Mr. Taylor said :—

One thing he would mention, and that was that the appointment of this committee would not entail any serious expense on the Council; the only thing that would have to be provided was a proper place to which to send infected animals, and they must look out for a proper spot for that purpose. He would remind gentlemen that it had been necessary to take proceedings before the magistrates in the case of some animals suffering from the foot-and-mouth disease. The owner was proceeded against, and a penalty, altogether with costs, amounting to 25l., was recovered. But he (Mr. TAYLOR) wished he could say the matter ended there, but unfortunately they had two bullocks sent to their market at 2 o'clock one morning, which animals had been seized, and the matter would again come before the magistrates on Thursday.

The case to which Mr. TAYLOR referred was sufficiently complex to show that much consideration must be given to it before the provisions and working of the Act can be thoroughly understood even by magistrates and their legal advisers. The case in question was as follows :—

THOMAS FISHER, of Ber Street, butcher, was summoned for wilfully knowing and allowing to be driven, on the 17th, on a certain highway called Magdalen Road, two steers which were infected with a contagious and infectious disease called pleuro-pneumonia. Mr. I. O. H. TAYLOR supported the information, and Mr. LINAY appeared for the defendant. Mr. TAYLOR asked the permission of the Bench to withdraw the case against the drover, THOMAS HALL, as they had now the right person before them. Mr. SMITH described the disease as so positively manifest that no person could fail to see it. The cattle, it appeared, have been slaughtered under the joint consent of defendant and Mr. BENJAMIN LEE, of whom he bought them. Mr. SMITH said the lungs of one weighed 18 lb., and of the other 19 lb. In answer to Mr. LINAY, Mr. SMITH said that he could not tell what had become of the carcases. He knew that under the 54th section of the Act, a declaration ought to be sent to the Privy Council. He had not done that yet, but it would be done by next Saturday. He (Mr. SMITH) was appointed inspector by the Corporation of Norwich. Mr. LINAY, on behalf of the defendant, raised as a point of law that the case must fall through on the ground that the Act of Parliament had not been properly published or made public. The real charge against the defendant was that he did knowingly and wilfully allow these cattle to be driven on the highway suffering from a contagious disease. The defendant did not, nor did Mr. LEE, the cattle dealer, of whom he bought the two steers, know that anything was the matter with the beasts, with the exception of one of them, which had a slight sore throat. Mr. LEE was a man through whose hands thousands of cattle were going, and he would tell the Bench that he did not know that these animals were diseased. Mr. LEE was called, and gave evidence to that effect. He said that one of the animals was quite sound, and the other had a tumour inside its throat. The cattle had been slaughtered, and the carcases had been sent up to London and passed as good meat. The defendant was fined 10l., and the costs, 5l. 19s. 6d. Mr. LINAY applied for a case, on the ground that the regulations of the Act had not been properly applied to the city. The Bench granted him a case.

The appointment of Mr. SMITH, "at so much per annum for his services," was carried unanimously by the Town Council. Some other cities and boroughs have adopted the same means. At the petty sessions at Bearstead, in Kent, Mr. GOULD did not see the necessity of appointing a professional inspector, and therefore moved that the superintendent of police be appointed, at a remuneration to be fixed by the committee in accordance with the amount of service performed. This was seconded by Mr. TAYLOR, and carried unanimously. Upon the suggestion of the Clerk, it was also moved by Mr. JEWELL, seconded by Mr. WARD, and carried *nem. dis.*, "That every police constable shall be an officer for putting in force the provisions of the Act."

—— An account of the first series of experiments made on the banks of the Seine in the direct application and decomposition of the sewage of Paris was given in the *Agricultural Gazette* of July 17 in the present year, and mention was then made of the experiments commenced on an increased scale in another place; the second series has now been carried on for several months, and a general statement respecting them is now before us. The plot of ground selected for the experiments is on the plain of Genevilliers, adjoining Asnières, and opposite to the hamlet of Clichy, where the former trials took place. At the mouth of the great collector-sewer at Clichy are established steam pumps which convey about one-tenth of the whole sewage of Paris across the river through cast iron pipes 18 inches in diameter; these pipes are placed along a new bridge which crosses two islands and connects the two banks of the river. The pipes end in large reservoirs on the Genevilliers side, placed on the highest point of the plain, and thence the sewage is conveyed by means of a brick conduit 2 feet in diameter, which embraces a piece of land about 25 acres in extent, and returns to the Seine at some distance down stream. This canal is above the level of the surrounding soil, and at various places the sewage runs off into lateral canals and trenches, so as to feed all the lands under the experiment, the supply is shut off from the small trenches, when necessary, by simply damming their mouths with turf or mould. Near the spot where the sewage re-enters the Seine are three large basins about 6 feet deep, in which the surplus liquid is received and purified by means of sulphate of alumina, in the proportion of 6½ oz. to a ton of the liquid sewage; after purification the water is turned into the Seine, and the precipitate is collected to be used as manure. The soil of the plain of Genevilliers is anything but promising: it is sandy, and at no part many inches deep, and beneath this is a thick stratum of flints. In consequence of its unproductiveness it has not, like the other outskirts of Paris, been converted into market gardens, and a more wretched plain could scarcely be found. The city of Paris rented 25 acres of this land, which was parcelled out amongst a number of farmers and gardeners, and this, as well as the surrounding lands, are supplied with sewage without any charge. It is now eight months since this experimental ground was inaugurated, and almost every variety of crop has been raised—forage plants, cereals, vegetables and flowers; and all exhibit remarkable vigour, especially when compared with like crops produced in the immediate vicinity without the aid of sewage—the Maize, Beetroot and Cabbages, are magnificent. Of course there is nothing remarkable in such a result, it has been produced in 20, perhaps 100 places in England, but the arrangements are excellent, and, above all, economic, and the experimental ground attracts great attention, the Emperor having been amongst the visitors. The main, or rather the direct object, is to show agriculturists and market gardeners the actual value of sewage, and thus to create a demand for it; if the city succeeds in that object it will have done a great service. Those who may visit Paris this autumn have only to take the Clichy omnibus, cross the new bridge, and study the matter for themselves.

—— The old controversy on the relative merits of large and small farms has broken out again, and the *Mark Lane Express* pours out its sarcasm on the advocates of *petite culture*. We fear but little service can be done by advocating either view. The course of events will not be affected in the slightest degree by any such discussion. Farms inevitably increase in size as successive generations of their tenants prosper, and that is the very satisfactory explanation of many of the largest holdings in this country. We would indeed quote Mr. HOSKYNS himself, whose letter to the *Times* has excited this discussion, in most effective illustration of its powerlessness to do either harm or good. In the course of an argument representing views of the whole subject of land tenure, in which a strongly held position is most ably defended, without a trace of that ill-conditioned personality which sometimes disfigures controversy, Mr. HOSKYNS thus exclaims :—

"Never do folks 'talk wisely, and in the street too!' in a vein of more presumptuous folly on landed topics than when they argue preferentially for 'large' or 'small' holdings, 'grande culture' or 'peasant-proprietorship.' The one true and simple rule is—Free the Land; let it alone; to find its own natural equilibrium of ownership, and tenancy, of large holdings, and small. Must we have King Canute back again, and reverse his chair, and his lesson, in order to explain that the land is governed by its own eternal and irrefragible laws, as well as the sea? and that nothing but the obtuseness of courtier skulls, and the narrowness of sycophant thought, would essay or propose to wield with human hand the Supreme sceptre—'So far shalt thou go, and no further!'"

—— Corn Averages and Michaelmas Rents are dealt with in a concise and intelligible manner by Mr. MONTAGUE MARRIOTT, editor of "WILLICH'S Tithe Commutation Tables," who forwards the following communication on these subjects, in connection with the quantity and value of Wheat and flour imported :—

"At the close of the agricultural year I beg to send, for the information of your readers, and especially those who may have adopted the system of corn rents, a statement of the average prices of British corn, founded on the returns published weekly in the *London Gazette*. For the year ending Michaelmas, 1869 :—Wheat, 49s. 8¼d. per imperial quarter; Barley, 41s. 6¾d. do.; Oats, 27s. 2d. do. The fluctuations in price during the same time are as follows :—

	Highest price.			Lowest price.			Difference.	
		s.	d.				s.	d.
Wheat ..	1868 Oct. 3,	54	4 ..	1869 May	8,	44 4 ..	10	0
Barley ..	1869 Jan. 23,	49	7 ..	,,	July 24,	30 3 ..	19	4
Oats ..	1868 Dec. 5,	29	8 ..	,,	Sept. 18,	25 5 ..	4	3

The net imports during the year (the exports having been subtracted) have been—

Wheat	6,976,427 qrs.
Wheat Flour	4,277,183 cwts.
Total value	£20,861,600

The net imports for the year ending Michaelmas, 1868, were—Wheat, 8,107,472 qrs.; Wheat flour, 3,046,654 cwts.; total value, 30,709,700l."

—— Foreign competition in Hop growing is at present a vexed question among Kentish and Sussex planters. The following pertinent letter to the *Standard* is therefore too good to be hid under a bushel. If it be not exceptional, it is conclusive; and if it be exceptional, an equally pertinent reply ought to be provoked :—

"Seeing a correspondence in your paper respecting the Hop duty, and being one of those foolish planters, as your correspondents would have the public believe, who cut their own throats by clamouring for a repeal of the duty, I send you herewith a statement of the prices at which I have sold my Hops for the last 14 years. I think you will then see that the Hop planters have not much cause to complain of free trade :—

1855	£4	12	0	1862	£7	7	0
1856	4	0	0	1863	6	7	6
1857	4	1	0	1864	6	15	6
1858	3	2	6	1865	5	3	6
1859	3	12	6	1866	8	0	0
1860	14	10	0	1867	9	8	6
1861	9	5	0	1868	4	4	0
	7)£43	3	0		7)£47	6	0
Average ..	£6	3	0½	Average ..	£6	15	1½

Showing that we get a better price without the duty than with it on, besides saving nearly 1l. per cwt., or 15 per cent. on the value."

Does "A Hop Planter" give an ordinary quality of Hops? Or, does he grow the fine pale ale quality, for which there is a greater demand than supply, and which therefore do not come into competition with the common Continental produce?

OUR LIVE STOCK.

A LARGE company met at Brailes House on the 17th ult. to witness the sale of a selection of Shorthorns from Mr. Sheldon's admirable herd. The cattle were brought out in good order, but the competition was not brisk, although the result was, on the whole, satisfactory. The fair average of 46l. 17s. 9d. for 37 head was obtained, and good prices were given for several animals. *Surmise* 2d, by MAY DUKE, and from Mr. Tanqueray's *Surmise* by DUKE OF GLOUCESTER (11,382), although nine years old, attracted some attention, and was purchased by Mr. Clayden for 67 gs. *Johanna Southcott*, by JOHN O' GAUNT, was bought for 73 gs. by Mr. Cheney, and her daughter, *Joan of Arc*, by DUKE OF BRAILES, went into the same hands at 41 gs. *Venetia*, by Duke of Brailes' dam, *Hyampea*, by ÆSOP, and previously descended from EARL OF DUBLIN, JANIZARY, SNOWBALL, LITTLE JOHN, CALIPH, and finally from the Fawsley cow *Rosy*, is a yearling heifer, plain in colour, but of great substance. She, after some competition, was sold to the Messrs.

Leney for 130 gs., but has since, we hear, been resold at a profit, to Mr. Dangar, for Australia. The highest price was given for *Lady Ellen Barrington*, of the Bates Barrington tribe, who was bought by Mr. Drewry for the Duke of Devonshire at 155 gs. Duke of Brailes (23,721), a capital sire, got by the Duke of Thorndale, and of the *Acomb* family on the maternal side, was reserved at 200 gs., and the highest price for bulls was given by Mr. Ladds, who purchased Earl of Barrington 2d, a two months' old calf, for 55 gs.

—— No great prices were realised at Farnborough on Tuesday, the 21st ult. Unfortunately, the Keavil and Farnborough sales were fixed for the same day, and most Shorthorn breeders were drawn away by the greater attraction in Fifeshire. The 33 cows and heifers were sold for an average of 26*l.* 15*s.* 10*d.*, while the 14 bulls only made 23*l.* 15*s.* 9*d.* each.

—— Our readers are reminded of two important sales which will be held during the coming week. The first is that of Mr. Gamble, of Shouldham Thorp, on Wednesday, when some good cattle, of Brawith extraction, will be offered. The second, on Friday, when the late Mr. Benjamin Wilson's stock will be disposed of. In our impression of the 18th ult. we gave some particulars regarding the origin and condition of these herds.

—— Mr. Thornton has issued a catalogue of the Aldingham Hall Shorthorns, the property of E. J. Schollick, Esq. The sale takes place next Tuesday, when 27 very well bred cattle will be offered to the public. The herd consists of three families, two of which were obtained from the late Mr. W. F. D. Dickinson about 12 years ago. Of these, one traces to the Rev. J. Benson's noted Winifred tribe, and the other is full of Colling blood. The third tribe was bought at the Ulverston sale, on the death of Mr. Dickinson in 1866; this was the celebrated Cressida family, of which there are several representatives in the catalogue The first bull used was Cambridge Barrington 1st (14,223), of Bates blood, bred by the Duke of Devonshire; he was succeeded by Mr. Peel's Cerdic (19,415), of the Warlaby Bliss or Broughton tribe. Of late years sires of the Cressida family have been used. A contemporary, looked upon as an oracle in matters relating to Shorthorns, speaks very decidedly to the merits of the Cressida tribe. The four lots, *Andromache*, *Cressida 6th*, *Macco*, and *Maia*, "are worthy, as regards the composition of their lineage, to go into any herd; and we shall be surprised if they do not provoke the competition of men who know the value of the blood they inherit." The stock is reported to be in good condition, and will be sold without reserve. Aldingham Hall is 5½ miles from Ulverston, on the Lancaster, Furness, and Whitehaven Railway.

The same auctioneer has published a catalogue of Mr. P. J. Kearney's entire herd of Shorthorns, which will be brought to the hammer on Wednesday, the 13th inst. This is an Irish herd, situated at Miltown House, Clonmellon, county Meath, and is principally of Booth and Mason blood. Two-thirds of the number trace directly to animals purchased at the great Chilton Sale, county Durham, in 1829. Kearney's Bull (4144), although without a pedigree, was well known to be of this stock, and his fame brought purchasers to Chilton across the Channel. Mr. Latouche gave 270 gs. for Monarch (2324), and Mr. Robert Holmes, of county Meath, raised his best tribes from lots 1 and 8. Sixteen cows and heifers, and two bulls trace back to *Britannia*, by Monarch, daughter of lot 8; 13 cows and heifers are descended from lot 2, *Portia* by Cato (119), whose portrait may be seen in the third volume of the Herd Book; there are also four members of the Bates Waterloo family, and the pedigrees of the remaining animals are very excellent, as for instance that of *Victorta Alba*, bred by Lady Pigot, by Prince Alfred (13,494), and from a daughter of Mr. Barnes' *Victoria*, sold in 1860 for 500 gs. Booth bulls have been recently used. Monk (11,824) and Ravenspur (20,628), were hired from Warlaby; Dr. McHale (15,887), Duke of Cornwall (21,578), and Duke of York, were all bred by Mr. Barnes, of Westland, from his Mantalini family; and Prince Bertram, the sire of all the young calves, was bred by Lady Pigot, and is of the Broughton tribe, to which the famous cow, *Lady Fragrant*, also belongs. There is a railway to Kells, from Dublin, and cars can be obtained at Kells for Miltown House, which is five miles distant.

STEAM PLOUGHING AND CULTIVATING TRIALS.

One of the most successful meetings of this character that we have ever attended was carried out on Wednesday and Thursday last, on the farm of Mr. Beecroft, at Eye, about three miles north-east from Peterborough. This display of steam-power and its accompanying machinery was organised by Mr. Barford, of the firm of Messrs. Amies & Barford. The leading motive for calling together the public, and that part of the business people of this country who are more directly interested in cultivating the soil at the cheapest possible cost, was to introduce a new self-acting anchor, which was invented by Mr. Campion, a practical farmer, near Spalding, the patent of which Messrs. Amies & Barford have purchased. To make the performance more attractive and instructive, however, the makers of other systems were invited to join in displaying their engines and tackle, according as they may think their system is more practicable and economical. Messrs. Fowler & Co., of Leeds, under the energetic direction of Mr. Greig, made a strong response to Mr. Barford's suggestion or invitation. The performances of the two firms we will take separately.

Messrs. Amies & Barford advocate the round-about system, as originally supplied by Mr. Smith, of Woolston, but with modern improvements, and particularly with the use of their new self-acting anchor. This anchor is like every other valuable application, it is of the most simple character. It is an addition to, and a self-evident improvement of, the original disc anchor, to recall the form of which we need only say that steel or iron discs revolve on an axis and cut their way along the headland, the "stay" of the implement depending on the depth to which the said discs cut into the soil. In many cases these discs were not found to be sufficient to accomplish the resistance required when a plough or cultivator was being drawn up to this form of anchor. This would be the case even when the draught of the engine was direct abroadside or at a right angle with the line in which the discs were cutting. To increase the "staying" capacity something therefore was required beyond merely loading the frame with earth or anything heavy that might be at hand. This fact every one saw, and Mr. Campion has cleverly overcome the difficulty.

The manner of accomplishing this object is simply to put a strong revolving bar of iron where the cross or end bar of the old frame was fixed. On this bar there are eight or 12 tines fixed, according as the soil may be soft or hard, and the length for grappling is also regulated according to the hardness or softness of the soil. There are two or three tines clasped to each side of this iron bar. The object of these several sets of two or three tines is that the anchor may advance when required, by setting free the tumbling apparatus, and a fresh set of tines act as grapnels when the anchor has moved as far as the work done, or to be done, requires. This performance is accomplished by the simple possible means. On one end of the bar which carries the tines is a ratchet with four catches, into which falls a notched lever. When this lever is left to itself, or is in position, the grapnel tines are held in a rigid position, and they then hold fast to the soil. And when it is necessary for the anchor to advance, the lever is raised from one catch, which allows the tumbler to revolve, and the next set of tines to work down or forward, and so come in contact with the soil as to enter it, and again bring the anchor to a dead stop.

The efficiency of this anchor, according to its apparent strength and weight, is something extraordinary at first sight. The resisting power acquired by its use is, however, easily apprehended; for by the use of it with the round-about system, the draught is equally divided between the grappling tines described and the dics. This will be understood by recollecting that there is a forward motion, which acts on the grapnels, and a side notion, which acts on the discs. As the rope runs round a block in the centre of the anchor-frame,the draught is equally divided, the one part being towards the snatch-block, to which the anchor is working, and the other to the implement which is being drawn through the soil.

Into the work done we need not enter. For it is the same with steam ploughs and cultivators as it is with reaping and mowing machines. The operation is, for all practical purposes, sufficiently perfected. And the only question left in either case is, how can the operation be executed at the least cost of power and wear and tear of machinery. For the small farm and fields, where the round-about system is more suitable, we believe this self-acting anchor is destined to act as the finishing touch to the economy of the system. In saying this we are not disparaging the large sets, to which we have shortly to refer as being adapted for large occupations and fields, and for letting out, for there is ample room for both systems in this country; and, while one is suitable in its own particular way, so is the other. In connection with the round-about system, however, Messrs. Amies & Barford are now sending out complete sets for using with an 8 or 10-horse engine, at the small cost of 250*l.* This set includes windlass to be driven with tumble shaft or band, snatch-blocks and anchors as ordinarily sent out, and 1600 yards of ¾-inch steel rope. The patent self-acting anchors are an additional cost of 50*l.* the pair. But as these anchors save the labour of two men, and three men and two boys can now do the work as easily and efficiently as seven pairs of hands could do it with the original claw anchors for drawing the implement to,it is a fair conclusion that this 50*l.* is well spent. Messrs. Amies & Barford are evidently of this opinion, for they would not have invested in purchasing this invention of a practical farmer unless they had taken every means to assure themselves of its value. And as Mr. Campion has worked 500 acres of land with one which he had made in his own blacksmith's shop, there is strong evidence that its character is not over-rated. Its performance was seen at various times by the Peterborough firm, and in some cases it had a strain upon it of 20-horse power without once turning over or giving way, while in no case were there more than the three men and two boys mentioned employed in doing the work in connection with which this self-acting anchor was so conspicuous a figure.

Messrs. Fowler & Co.'s engines and machines, and the work they did, need but little description. They worked two 10-horse traction engines, one at each end of the field, the draught thereby being direct. The implement they used was a cultivator, which was turned at the ends in the most perfect manner that we have ever seen anything done in connection with so important an agricultural operation. When the cultivator has advanced close up to the engine the slack rope is brought into play, in doing which an arm is caught, and the rope is conducted to a lever, which is fixed just above the frame of the cultivator. Thus, while the machine is being turned—or, rather, as a preliminary process to its being turned round—the pressure by the tightening rope raises the tines of the implement well clear of the ground, whereby that great resistance, which would otherwise necessarily happen, is simply reduced to the mere weight of the implement riding on its three wheels. In short, it is the principle which has been practised by hand of raising the tines of horse-cultivators clear of the soil at the ends; but in this case the action is entirely mechanical.

As we have said, the work done need not be discussed. But we may mention that 18 acres were thus cultivated 10 inches deep between 7 o'clock A.M. on Wednesday morning and 2·30 P.M.

In connection with this steam cultivation, we cannot, however, omit saying that some astounding facts are accumulating under another order of practice. The two 30-horse power engines, which we saw at the Royal meeting at Manchester, have been worked since harvest by Mr. Campbell, of Buscote Park, Berks, for whom they were specially made. Between two and 3000 acres have been done during the last two months at the rate of 36 acres average per day, the depth being 10 inches, and the soil "the strongest in England." The actual cost of this work is 2*s.* 6*d.* per acre. And so satisfied are Mr. Campbell and the Messrs. Fowler with the performance of these heavy engines, that they intend to try what a pair of 50-horse power engines will do; and from the lesser coal and oil per acre required with this greater power of the 30-horse engines, and the reduction of wear and tear, they are assured, from the calculations they have made, that the work can be even more efficiently done at 1*s.* 6*d.*, or even 1*s.* per acre. We adopt the term "more efficiently," since it is clear that the more rapidly a cultivator is drawn through the soil, the more it becomes shattered or disintegrated for the action upon it of air and water.

The cost of these 30-horse engines is 1100*l.* each; of the implements and 800 yards of rope, 400*l.*; or, in all, 2600*l.* The cultivator used with these carries 21 tines, 9 inches apart. But the first time, if the soil be very crude, only 13 tines are used. Last year Mr. Campbell used two 20-horse engines, and did from 20 to 25 acres a day. The rate at which the present implement is now driven is three and a-half to four miles an hour. The greater effect this pace has on the soil, with the increased amount of 10 to 15 acres per day of work done, not forgetting the lesser coal, and oil, and wear and tear, make this performance a stride in steam cultivation which no one has hitherto mastered at one venture.

Mr. Pirie's two-furrow and three-wheel plough, which is carried bodily, and without sliding on any part while at work, was used close by, and doing some of the best work we ever saw. This plough is growing rapidly into public favour for preparing land for sowing with grain. Several farmers on the ground ordered one, two, or three of them, as they were readily convinced that the three horses and one man could do more and better work with it than four horses and two men could with the ordinary plough. Messrs. Fowler & Co., who are the makers of these ploughs, have increased their plant for this purpose, till they can turn out 50 per week,which they have done during the last six months. But their orders are accumulating so rapidly that they will have to double and treble their force in this department, if they would respond to the demands of their customers.

THE CONTAGIOUS DISEASES (ANIMALS) ACT, 1869.

(32 and 33 Vict. chap. 70.)

Quoting the long title, this is "An Act to consolidate, amend, and make perpetual the Acts for preventing the introduction or spreading of contagious or infectious diseases among cattle and other animals in Great Britain." It consists of 126 sections or clauses, and nine schedules, the whole being the reverse of *multum in parvo*. The Act is framed, as the preamble declares, "to confer on her Majesty's Most Honourable Privy Council power to take such measures as may appear from time to time necessary," and so on. We may conclude, but solely on the grounds that one less defective statute is better than the eight more defective ones which it repeals, that the Act may be received as an improvement and step in advance. As to its working, we need hardly tell our readers that this will depend mainly upon the practical judgment and fidelity of local authorities, committees, inspectors, and other officers. The orders of the Privy Council of August 10 are rather ominous than promising, and will soon require to be supplemented; but it will be high time to pass sentence on practical merits when good or bad work, as the case may be, is done. In this paper I confine my observations to the statute itself.

The Act makes provisions both for the commerce of home and foreign live stock, and also for the management of live stock at home in times of contagious disease with a view to prevent its spread. It extends to England and Scotland, but not to Ireland; and it is not very clearly defined whether Irish stock are to be considered foreign or home. The Act is subdivided into ten parts.

Part I. Preliminary, gives the definition of terms, titles, old Acts repealed, &c. It includes what is meant by contagious or infectious disease, as cattle plague, pleuro-pneumonia, foot-and-mouth disease, sheep pox, scab, glanders, and any other disease the Privy Council may declare infectious or contagious. Part II. is on local authorities in England, and provides how they are to be appointed. Part III. Foreign animals, provides chiefly for the foreign trade, and includes the new market about to be erected by the Corporation of London. Part IV. Discovery and prevention of disease, sec. 31—64, charts out rather dimly how the Privy Council are to carry out the more important division of the work within the districts of the different local authorities and inspectors. It extends to the home and foreign trade, and to live stock generally when infected, and to carriers of disease. Part V. Slaughter in cattle plague and compensation. Part VI.

Orders of Council and local authorities—points out how the Privy Council and local authorities are to frame their orders—publications, and how the expenses of the same are to be covered. Part VII. Lands: grants powers to local authorities to rent or purchase land for the purposes of the Act, as for wharves, lairsheds, and markets. Part VIII. Expenses of local authorities, such as compensation for slaughtered cattle, general expenses, and borrowing powers—as to how the money is to be raised. Part IX. Offences and legal proceedings. Part X. Scotland: how the Act is to be applied by providing for the difference of the laws and execution from those of England. Such is a cursory notice of the sections. The first schedule names the Acts repealed; the 2d, the local authorities of England; 3d, regulations respecting committees and sub-committees; 4th, regulations that may be applied to landing, movement, and disposal of foreign animals; 5th, maximum tolls, dues, and payments in the metropolitan market after opening of foreign cattle market; 6th, rules with respect to infected places, including cattle and sheep-pox; 7th, pleuro-pneumonia rules; 8th, forms for use of inspector; 9th, local authorities in Scotland. The schedules form part of the Act. They contain some 40 sections, and form perhaps the best half, so to speak, of the statute.

We shall now proceed to discuss the application of the Act under the three heads—of (1) foreign trade, (2) home trade, and (3) home management of live stock. And before entering upon each separately we may observe that the practical question is not so much what the Act provides as what the Privy Council and local authorities are empowered to do—not only by this statute but others relating to the subject. This is obviously the view the Privy Council take in their recent Order, when they say—"In exercise of the powers in them vested under the Act of 1869, and of every other power enabling them in this behalf." It follows that farmers and the public generally will require to look sharply after their respective interests, otherwise they may be taken advantage of by municipal corporations, as the Corporation of London, who may acquire an adverse monopolising interest, with the view of keeping up the consumer's price to a maximum, but the farmer's or producer's price down to a minimum, the difference being of course their profit. In short, the bearing of the Act is too much in favour of monopolies of this kind, hence its working will require to be watched, more especially by the agricultural interest, home and foreign.

The Foreign Trade Abroad.—A healthy state of this trade is evidently the grand object of the statute, and foreign farmers and the consumers of foreign meat in this country are more deeply interested in preserving the health of foreign stock in the different countries where they are produced than the English farmer, however great may be his loss when cattle plague and other diseases are introduced from abroad. This arises from three causes—1st, the rapid manner disease abroad thins the herds and flocks from which England has her supplies of foreign meat; 2d, the impetus which this and the improvement of agricultural implements and machinery is giving to the growth of corn in those countries of the Continent from which we used to get our chief supplies of foreign stock; and 3d, the rapid increase of the manufacturing population on the Continent, and hence the greater consumption of farm produce which naturally follows. The effects of the last outbreak of cattle plague in those countries were such that they find it more profitable to increase the breadth of corn and reduce the weight of stock in proportion thereto, than to produce animal food exclusively for England in the present unhealthy state of the trade. The decreasing supplies from those countries are facts which speak for themselves. What else could be expected from the existing unhealthy state of trade? for, ever since railway communication was extended to Russia, almost to her steppes, which some consider the birthplace and natural breeding ground of rinderpest, the farmers of countries which used to supply us have been compelled by the losses sustained to shape their practice to the exigencies of the case, and at the present time are bidding fair to outrival us in manufacturing and commercial industry, and the consumption of animal food. Prior to the last outbreak of cattle plague they were good customers at our annual sales of improved breeding stock, but since then they look upon upon England just with as much suspicion as upon Russia. What surplus stock they have they continue to send us so long as we are free from disease, but the less they have to do with us the better, so long as we import increased supplies from Russia, Hungary, and the other places seldom free from cattle plague. To overlook such facts is to lose sight of the foundation upon which the Contagious Diseases Act is based, and upon which it must be worked; for our foreign supplies now come from a foul stable naturally, and the British farmer and consumer must time their action accordingly.

The foreign trade includes, according to the Act of 1869, and powers vested in the Privy Council and local authorities by virtue of it and other statutes, and the freedom of trade generally, not only the exporting of sheep, beasts, calves and pigs to Britain, but also horses, dogs, dead meat, including rabbits, poultry, game, raw hides, wool, and all products, dead or alive, which may be termed "carriers of disease." At present the Order of the Privy Council applies the regulations of the fourth schedule of the Act to—1, The dominions of the Emperor of Russia; 2, The Austrian-Hungarian Empire; 3, The States of the North German Confederation; 4, The dominions of the Sultan; 5, The dominions of the King of Italy; 6, The Papal States; 7, Belgium; 8, The Netherlands; 9, The dominions of the King of the Hellenes." This is rather a sweeping territory to begin with, but not an inch more than the present state of trade on the Continent demands. And the duty of the local authorities, &c., in this country, is to see that disease is not imported with any of the above products or carriers of disease from any of the above States. Some of them can send us large supplies for a long time to come, double and quadruple what they now do, if rinderpest &c., could be stamped out. A healthy state of the trade abroad, therefore, is just as much in favour of their producers as it is in favour of the British farmer and consumer. In point of fact it is more in favour of the foreign producer and home consumer than the home farmer, although too many of our large towns view the facts of the case in a different but distorted light.

The trade in foreign stock, and products termed carriers of disease, in the metropolis and other places, has acquired a magnitude sufficient to require statute law and an executive exclusively for itself. At the present time it can neither be said to be in a healthy nor stationary state, more especially in the capital. For the former (health) the Act of 1869 provides, but it makes no satisfactory provision for the rapid manner the trade in foreign live stock is being converted into that of dead meat, and the way the trade in foreign live stock is leaving the capital for other places to supply the capital with dead meat. Foreign beasts and sheep yield a better quality of meat than outward appearances indicate. This has given an increased stimulus to the intermediate jobbing between the live and dead meat markets so much complained of—a pernicious system, which has been slowly working its own ruin, not only in the foreign trade, but home trade also. Hence the increasing supplies of dead meat from the country. On August 13 we left London per Great Northern Railway for the Highlands of Scotland. In the same carriage a Sussex auctioneer, well acquainted with stock sales, and a gentleman from Berwick, were fellow-travellers, and during the conversation we were informed by the latter that one butcher in Berwick now slaughtered upwards of a thousand sheep weekly for London, &c. At Leith and Aberdeen we were informed that the prime dead meat that comes up from the North is not all the produce of Scotland. In short, the objectionable manner the trade in foreign live stock has hitherto been carried on is fast rectifying itself by the natural laws of commerce, so that ultimately the demand for foreign beasts and sheep would, there is every reason to believe, give rise to markets and abattoirs exclusively for foreign stock to supply this demand.

We now come to the practical question—What provision does the Act of 1869 make for the renovation and improvement in the trade in foreign live stock and dead meat? And the obvious answer will readily be anticipated. The monopoly conferred on the Corporation of London is against the freedom of trade thus to rectify itself. True, there is nothing in the statute to prevent the foreign trader from erecting abattoirs in more favourable situations than the polluted atmosphere of the capital, and from these consign his hindquarters and forequarters to the best markets, in a much more superior way than is now done, provided the Privy Council and the local authorities do their duty. But as we said before, the foreign trader and his customers will require to look sharply after their respective interests, otherwise the freedom of trade will be thwarted by monopolising corporations and others, to whom the Act gives too much encouragement.

There remains for consideration the importation and spread of disease. However carefully the foreign trade is conducted abroad, in compliance with the spirit of the Act and powers vested in the Privy Council, it may be taken for granted that disease will be imported to Britain either in live stock or the carriers of disease. If it breaks out in live stock on their passage across the Channel it may be stamped out by the inspectors, so as to prevent its spread, if they are vigilant; but if landed in the incubatory state in live stock, or active form in the carriers of disease, an exclusive foreign market, as provided for the capital, and the immediate slaughtering of stock, form together but a very poor safeguard against contagion and infection, as the seeds of disease may be spread by the dead meat and hides, by drovers and their dogs, butchers' horses and dogs, by coming in contact with those of farmers and dairymen, and by cattle salesmen who live and farm in the provinces, and by none more readily than the "between jobbers" in the market, who do not shift their dirty clothes before they return home. And in large towns like the metropolis disease is more liable to be spread than in isolated places in a purer atmosphere and under a separate jurisdiction of its own, where live stock, dead meat, carriers of disease, and traders themselves could be disinfected before leaving the market, or abattoir. In short, it is possible to erect establishments, public and private, in certain places under the Act and powers vested in the Privy Council, in which foreign trade can be carried on to any extent with comparative safety as to the spread of disease. And although we do not deny the application of this to the capital, yet it is manifest the Corporation of London will have to act differently from what they have hitherto done, or it will be otherwise, *i. e.*, the metropolis will continue to prove itself not only the "plague spot" of Britain, but also of Western Europe, as it has hitherto done.

Of the trade in home stock, dead meat, &c., little requires to be said, as much of the foregoing on foreign applies to it. Improved railway conveyance is much needed, the present practice being barbarous in the extreme and out of all date. The idea of cattle being 30 consecutive hours, or even 12 hours, according to the 64th section of the Act, without food and water, is not easily reconciled with the successful conveyance of fat stock either by road or rail. Live stock when travelling drink more frequently than when at home, and a railway cattle truck that does not provide food and water for stock when they like to eat and drink ought not to be. The quantity of water at starting need not be large, and the supply required on the way will be known when the troughs are empty, which, from our own experience, might be about once in five hours. The Act, however, provides that stock shall be watered and fed as agreed upon by farmers and graziers with railway and steamboat companies. It is only when they neglect to do so that railway companies can water stock at the farmer's expense, and if they also fail to do so for 30 or 12 hours, if so ordered by the Privy Council, both become guilty of an offence against the Act. Those who send their stock by railway will therefore have to bear this in mind, for the penalty due to the offence will be greater than the expense of food and water. The Act makes 20*l.*, or 5*l.* per head, or three months' imprisonment with hard labour, the maximum, but the Privy Council and the local authorities have to determine the law on such points, so that farmers and graziers will have to make themselves acquainted with what is law in their own localities, which they can obtain free of charge. As to how stock are to be watered and fed no provision, of course, is made or is likely to be made, by the Privy Council, &c. To this we shall return, with suggestions how it may be done, &c. As to the cleaning and disinfecting of cattle trucks, pens, &c., the 21st section of the Order of the Privy Council, August 10, provides how this is to be done by railway and steamboat companies; so that all that farmers and inspectors have to do is to see that the trucks, &c., are disinfected before stock are put into them. Any attempt to put a diseased animal into a truck or on board a steamboat is punishable with fine and imprisonment, in addition to the loss of the animal, which will be slaughtered and buried or sent to the knacker's, at the owner's expense, without compensation. Diseased animals on board ship will be thrown into the deep sea.

When stock at the homestead or in the pastures of the farmer are seized with any complaint of a suspicious character, it is the duty of the owner, according to the Act, to call in either the inspector of the district or his own veterinary surgeon; otherwise, should foot-and-mouth disease, cattle plague, &c., break out, the consequences may be serious, as the limits of the statute, in the absence of the laws or orders of the local authorities, are sweeping; consequently, local authorities, if they discharge their duties in the spirit of the statute, are vested with powers to enact laws sufficiently stringent either to check the spread of disease, or ruin the unprincipled grazier or drover who attempts to override the law. To this indirect and antiquated mode of statute law for farmers we have already objected, on the twofold grounds—first, that the Act leans too much in favour of municipal authorities; and, second, that powers are vested in the Privy Council, &c., which, although once vested in the sovereign, now exclusively belong to Parliament. Nevertheless, if the local authorities and committees are fairly selected, the liberal working of details may compensate in a great measure for the sacrifice of constitutional principle. But we aver that farmers will find it no easy matter to maintain their rights, in this respect, with municipal corporations, owing to the short-sighted notions so generally entertained by consumers; viz., that the stringent laws required by farmers to prevent the spread of disease, unjustly interfere with trade. But if consumers would only make themselves practically acquainted with the fact, how fast the foot-and-mouth disease, &c., eat the meat off the bones, and that foot-and-mouth disease at the time we write is actually consuming more meat daily, at home and abroad, than all the foreign meat imported into England, they would see the propriety of joining farmers in the most stringent laws possible for preventing the introduction and spread of contagious and infectious diseases. And this is not all that consumers have to weigh in the balance, for when herds and flocks at home and abroad are decimated by disease, they experience two losses, not easily estimated; but the price of meat rises far above its normal level, at which it remains for a length of time; and second, a vast amount of diseased and unwholesome meat is sent into the market. If, therefore, consumers cannot view with an impartial eye the case of producers, they ought, at least, to be able, by this time, to calculate their own losses since 1866, and so on, for the future. *W. B.*

Home Correspondence.

Harvesting Corn in Wet Weather.—I must beg to take exception to the statement of your reviewer in the last *Agricultural Gazette*, that the award of the prizes of the Society of Arts is not to be considered as an approving recognition of the principle upon which Mr. Gibbs' system of drying wet corn in sheaves and hay was based. If the Society's prize was not given in that sense, for what was it given? Surely not for an essay reiterating the advantages of saving corn and hay in wet harvests, which the Society itself had so substantially asserted to be an important national object by offering the extraordinary prize of a Gold Medal and 50 guineas! nor for a mere exposition of methods that had been practised in other countries, without being deemed worthy of adoption here; nor for any other general treatment of an object which every one admitted was desirable, but which no one had shown could be satisfactorily (profitably) accomplished by farmers at large. As I was on the Council of the Society of Arts at the time the prize was given, and was one of the special committee appointed to deal with the matter (though I did not act as a judge) I can say that my own impression and that of others with whom I spoke was that the intention of the Society was to elicit, by a distinctive and valuable prize, a means of carrying into practice an object so generally admitted to be desirable. Anything short of accomplishing this purpose would, in my experience, have been simply throwing the medal and money away; and had I thought that Mr. Gibbs would have received

these without giving the world the benefit of a discovered "principle" of action, or a workable machine which the judges approved, I should have protested against the proceeding altogether. It is possible that I do not rightly understand the meaning of the word "principle," which in this case I take to signify the actuating mode of expelling the injurious wetness. If I am wrong it would be well to make the matter clear, for, as it stands at present, nine persons out of ten consider that, though the judges would not take the crude implement by which Mr. Gibbs first illustrated his "principle" as practically perfect, the prize of the Society of Arts was given for the mode of drying wet corn in sheaves and hay which Mr. Gibbs had so fully described in the Essay he presented for competition. The report criticised by your reviewer was not written by me, but by my able colleague, though I am responsible for the particular statement objected to. *J. Bailey Denton.* [We have not the terms on which the prize was offered before us; but we believe it was offered for the best essay descriptive of harvest work and of the artificial aids to it during wet weather.]

Mr. Mechi's Balance-Sheet.—"Another Farmer" has dropped upon a point that I had watched and guarded myself upon from the first. Let "Another Farmer" look to my letter in your paper of Jan. 30, 1869, p. 119; he will see that I wrote that "Mr. Mechi's average price of Wheat in 1868 stands at 63*s.* 9*d.* per quarter; I should like to know how much of that Wheat grew in 1867, and how much in 1868?" Neither Mr. Mechi nor "Another Farmer" attempted to answer that question at the time. The figures now shoved in by "Another Farmer" are a mere make-shift to confound the whole thing, or why did they not tell me at the time, or even now? I will prove to you that his figures will not help either Mr. Mechi or himself out of the mess in which the balance-sheet has placed them. I had noticed that the valuation of corn, hay, &c., stood at 558*l.* 6*s.* on Jan. 1, 1868 (that was my main reason for asking about the Wheat grown in 1867), and I had also noticed that the valuation of corn, hay, &c., at Jan. 1, 1869, stood at 379*l.* The last item proves plainly that there was not much Wheat left on Jan. 1, 1869, for this sum of 379*l.* includes other things as well as Wheat. It includes hay, cake, bran, other corn, and all the feeding stuff on the farm at that period. At p. 202 of your paper of Feb. 20, 1869, to which "Another Farmer" refers me, Mr. Mechi tells us that "he had just threshed the remaining portion of his Wheat; 30 quarters of it were sold on the 12th inst., at 56*s.* per quarter:" this item comes to 84*l.*, and reduces the valuation of 379*l.* to 295*l.* Mr. Mechi tells us that he was selling his surplus straw that stood included in this valuation of Jan. 1, 1869, at 3*l.* 10*s.* per ton. When such items as that are taken into consideration, as well as the hay and feeding stuff, and other corn besides Wheat on the farm on Jan. 1, there could not have been much Wheat left, yet there must have been more than the "30 quarters just sold." Just add this 30 quarters to the 387½ quarters that the 1235*l.* 5*s.* 9*d.* for Wheat in the balance-sheet represents, and we find a total of 417½ quarters, yet not enough by 20½ quarters to make up Mr. Mechi's "over 6 quarters to the acre on his 73 acres." Now let us make up his average of 6 quarters to the acre by pulling this 20½ quarters, at say 56*s.* per quarter, from his 295*l.*, and we get a balance of 237*l.* 12*s.* remaining for the valuation of corn (other than Wheat), hay, cake, and all feeding stuffs, as well as straw on the farm on Jan. 1, 1869; which plainly proves that there was but little or none of this high-priced 1867 Wheat to which "Another Farmer" is looking for help included in the valuation on Jan. 1, 1868; for this remnant of 237*l.* 12*s.* must represent corn other than Wheat, cake, straw, and all the feeding stuff on the farm. The fact is, Mr. Mechi's balance-sheet cannot be right, for his figures—of 46*s.* to 62*s.* per quarter for Wheat in 1868, with his over 6 quarters to the acre on his 73 acres, and his balance of 379*l.*, valuation, January 1, 1869—are dead against it. If either he or "Another Farmer" can show that I am wrong, they will vastly enlighten my understanding. They must deal with the valuation of 379*l.* at Jan. 1, 1869, with the 73 acres at over 6 quarters to the acre, with the 46*s.* to 62*s.* per quarter for 1868 Wheat, and they must leave a balance for hay, &c. Mr. Mechi ought not to have been angry with me for looking into his balance-sheet and remarking upon it, and when he charges me with treating him unjustly it shows that he wants it to be held up to the public gaze and passed off hand without an audit. Look at his rent; it is mere patchwork: 4 acres without any rent, 45 acres at 1*l.* an acre, and 128 at 2*l.* an acre, just for the sake of saying that his improved rent stands at 40*s.* an acre, whereas the average rent is only 34*s.* Then look at his Wheat; it shows at 63*s.* 9*d.* for 1868, and when asked he would not tell me how much of it was grown in 1867: the remnant of 237*l.* 12*s.* proves that there could not have been much. For instance, take the "20 acres of Rivetts," which represents a total of "310*l.* 2*s.* 6*d.*," and thus represents, at say 47*s.* a quarter (the average between "48*s.* and 46*s.*" per quarter), 132 quarters; now fetch them up from 47*s.* to 63*s.* 9*d.*, by adding 16*s.* 9*d.* per quarter, we get a total of 110*l.* 11*s.* to be pulled from the remnant, and then the rest of the Wheat must be made up to 63*s.* 9*d.* The total remnant is not large enough to represent one-fourth of the high priced 1867 Wheat required to do all this, without leaving a penny to represent hay, &c. Surely these facts will prove to "Another Farmer" that Mr. Mechi has made a mistake, to say the least of it. And then look at the tenant's capital. It stands, January 1, 1869, at 2707*l.* 19*s.* 4*d.*, all in stock, with not a penny of a balance in the cash-book to go on with, not even for the first week's labour. Mr. Mechi's reasoning this week upon it would be acceptable provided other things were made right, but it is of no use your publishing balance-sheets if they are only to be looked at and thrown aside without an audit. And besides, this his valuation of 558*l.* 6*s.* in January, 1868, having been cut down to 379*l.* in January, 1869, cuts his reasoning from under him; for although Wheat was cheaper at the latter period than at the former, everything else was very dear, especially hay and straw. *William Smith, Woolston, Bletchley Station, Bucks, Sept.* 21.

Harvest Work.—My brother, Mr. John Brown, keeps a pretty good account of his harvest operations, and has furnished me with sundry information relating thereto. He cut

47½	acres of Wheat by machine.		
6½	"	" by hand, at 16*s.* per acre.	
9	"	" at 12*s.*	"
19	"	" at 14*s.*	"
—	(the latter 6 to 7 feet high).		
Total, 82			

His machine is by Burgess & Key. He admits that the modern machines, laying it in heaps, ready to bind, save from 2*s.* to 2*s.* 6*d.* per acre, but considers this is counterbalanced by Wheat laid in a continuous swathe drying much faster, and thus carted quicker. One man mows round the field about three hours in the morning, and then with his two horses follows on by machine, averaging 10 hours per day. He does not change his horses, averages 7 acres per day, the crop being about an average one, 32 to 35 bushels per acre, and land level. He calculates the cost as under:—

	£	s.	d.
Two horses and wear and tear	0	10	0
Man's standing wages	0	3	4
3*d.* per acre extra for this work	0	1	9
Five pints of beer	0	0	10
	£0	15	11
Average cost per acre	£0	2	3
Tying and setting up shocks	0	6	6
Raking by horse and tying up	0	1	6
	0	10	3
Carting home and stacking	0	6	9
Thatching rick, besides straw for thatching ..	0	1	6
	£0	18	6

For Barley and Oats the average, by the same strength, 10 acres per day, or 1 acre per hour:—

	£	s.	d.
Cost for cutting	£0	1	8
Tying and setting up shocks	0	6	0
Raking	0	1	4
	£0	9	0

We have compared the expense of tying up this description of corn with the expense of carting it loose, and find but little difference. When tied it can be carted and stacked in less than half the time. The crops above referred to will average six quarters per acre. He took two pieces of Wheat by valuation, containing 12 a. 0 r. 17 p. The produce was carted and threshed by machine in the field, the result being:—Wheat, 42 quarters 2 bushels, or 28 bushels per acre; straw, 618 shocks, produced 26 loads and 32 trusses, or 80 trusses per acre. Nine acres were reaped by hand at 12*s.*, and three acres by machine at 10*s.* 3*d.* I have the details of this up to the completion ready for market. P.S.—I observe in Saturday's *Agricultural Gazette* a statement from Lord Zetland's steward as to harvesting expenses. He gives women 2*s.* per day, and men only 2*s.* 6*d.* and money for three pints of beer. I can hardly think the men would work at such wages, unless they had (what is customary in many parts) 2*l.* for harvest and hay-time in addition. In this part women do not take part in agricultural work, except, with the families, assist the man in reaping and tying. 3*s.* 6*d.* per day for horses is too low. The information I have sent you is more with reference to your article of Saturday week, where you referred to an intention of settling the question between such conflicting statements as had been sent you. *William Brown, Tring.*

On the Relation of the Beard in Cereals to the Prevalence of Mildew.—My garden at Hampstead being surrounded by palings, houses, and trees, and deprived of sunshine for half the day, supplies, from the deficiency of light, a good test of the vigour of growth of many plants, and their power of resisting the attacks of Fungi. For the purpose of learning the effects it would have on cereals, a piece of ground about 2 feet square was thinly planted with Rye, Rivett Wheat, Red Winter Wheat, Nursery Wheat, White Winter Wheat, and a White Spring Wheat. The result was the Rye was scarcely affected by mildew, and much more fertile than the Wheats. Rivett Wheat was not much affected by the mildew, but only two fertile ears were produced, one of which, however, was an average good ear. The Red Wheat was affected by rust, and in a less degree with white mildew, and produced only one fertile ear, which was thinly set. Nursery Wheat became affected with white mildew to such a degree as to be more mildewed than the Red Wheat, even supposing the rust to represent mildew, and was enfeebled in growth, but produced three small fertile ears. The White Winter Wheat was intensely mildewed with the white mildew, the upper leaves being almost covered with it, and although it produced two small ears they were barren; and the White Spring Wheat was affected by the white mildew, almost to the same extent, and only one small ear was produced, which was nearly barren. The inference to be drawn from this experiment is, that the same vigour of growth which causes a Wheat to form a beard also enables it to resist the attacks of Fungi, coldness of the weather, and other causes of disease; and that where there is a tendency to produce a beard, the Wheat will be hardier than where that tendency does not exist, and if so the well known fact that White Wheat suffers more from mildew than Red Wheat, would be accounted for, as I am informed by a very experienced farmer that he has never seen White Wheat with a beard, so that if it does occur I suppose it must be much less frequent. The bearded wild Oat stands the winter better than the beardless cultivated Oat, Barley is remarkably free from mildew, and although Rye is subject to ergot, it is so, I believe, to a very limited extent, scarcely diminishing the crop, and becomes a calamity only because it is poisonous. As I have made this experiment only once, it may appear rather premature to give the particulars of it, but as Mr. Hallet regards Mr. Nairn's Bearded Red Wheat (*Gardeners' Chronicle*, June 26, p. 696) as well deserving attention, and will grow it, I thought it would be better to offer the results without delay, that the attention of those farmers who grow this Wheat in New Zealand may be directed to the cause of mildew, because if this Wheat is found to resist mildew better than any other except Rivett's, it would be of great importance to introduce it into Adelaide, South Australia, where, in 1867, owing to red rust (Trichobasis rubigo vera) the average produce of Wheat was only four bushels per acre, and 55,399 acres were not reaped at all. *B. Clarke, F.L.S., Mount Vernon, Hampstead.*

The Coming "Bad" Winter.—Will you allow me, through your columns, respectfully to call the attention of the landowners of the Hop districts to the fearful prospect that stares a great many of the agricultural labourers in the face in the coming winter. This is the third year, from different causes, of almost total failure of the Hop crop on many farms; the consequence will be that a great many labourers must be discharged, from the utter inability of the farmer to find money to pay his usual workmen, and it will be almost impossible for these to find work elsewhere, there being large numbers from the building, brick-making, and other trades already out of employ. Now, sir, if every landlord will do, what I most respectfully, but most decidedly beg to call his duty—for "property has its duties as well as its rights,"—the agricultural labourer need not swell the ranks of the unemployed. The way is this,—wherever draining would be beneficial to the land let the landlord have it done, of course charging a fair interest on the outlay to the farmer. Then, again, every one who has turned his attention to the matter is aware that great improvement can be made in many woodlands, by grubbing up old useless stubs and replanting—replanting is frequently done without grubbing these old stubs. If every owner of such land would take this opportunity, now labour is at a discount, of improving his own property, he would be a benefactor to his country as well as to himself. Again, if every landowner, who has neither draining to do nor woodland to improve, would look his estate through to see if there is not some stone or hedgerow grubbing, pond filling up, or other improvement to be made, and will have it done (I don't mean useless alterations, but real improvements, such as any tenant would willingly pay five per cent. on), he also would benefit himself and the district at the same time. If the landlords will, in this crisis, only improve their own property, they will at the same time be administering the greatest of all charity, viz., enabling destitute men to earn an honest living, very different from that most pernicious alms-giving, which tends to demoralise and pauperise. *A Farmer who is forced to discharge many of his Workmen.*

Societies.

STAFFORDSHIRE.

The following is a list of the principal prizes awarded by this Society at their recent meeting at Burton-on-Trent:—

CATTLE.—Shorthorns.

Bulls.—1st, 10*l.* and Silver Medal, W. H. Kidson, Saredon, Wolverhampton; 2d, 5*l.*, R. Sneyd, Keele Hall.

Yearling Bull.—1st, 10*l.* and Silver Medal, W. Wood, Burton, 2d, 5*l.*, J. Neville, Tamworth.

Bull Calf.—1st, 10*l.*, William Wood; 2d, 5*l.*, W. H. Kidson.

Cows.—1st, 6*l.*, W. Bradburn, Wednesfield; 2d, 4*l.*, J. Hardy, M.P., Burton

In-Calf Heifers, in pairs.—1st, 6*l.*, R. Ratcliff; 2d, 4*l.*, C. J. Webb, Tamword.

Yearling Heifers, in pairs.—1st, 5*l.*, W. T. Wakefield; 2d; 3*l.*, W. Wood.

Cattle for Dairy Purposes.

Bulls.—1st, 10*l.* and Silver Medal, S. Burchnall, Burton; 2d, 5*l.*, T. Nash, Featherstone.

Cows in pairs.—1st, 10*l.*, T. Nash; 2d, 5*l.*, W. Bradburn.

Four Cows.—1st, 10*l.*, D. Walker, Burton; 2d, 5*l.*, T. Robinson, Burton.

In-calf Heifers in pairs.—1st, 5*l.*, J. Hawksworth, Derby; 2d, 3*l.*, H. Wardle, Burton.

Yearling Heifers in pairs.—1st, 4*l.*, W. Bradburn; 2d, 2*l.*, H. Wardle.

Fat Cattle.—1st, Silver Cup, value 10*l.*, the Marquis of Anglesey; 2d, 5*l.*, R. Ratcliff.

SHEEP.

Leicester, or other Long-woolled Breed.—1st, 5*l.*, R. Johnson, Worksworth; 2d, 3*l.*, C. Mellor, Ashbourne.

Shearling Rams.—1st and 2d and Silver Medal, R. Johnson.

Ram Lambs.—1st, 3*l.*, C. Mellor; 2d, 2*l.*, R. Johnson.

Breeding Ewes.—5*l.*, R. Johnson.

Shearling Ewes.—5*l.*, R. Johnson.

Ewe Lambs.—3*l.*, R. Johnson.

Shropshire and Black or Grey-faced Sheep.

Rams.—1st, 5*l.*, W. Baker, Atherstone; 2d., 3*l.* W. Wood.

Shearling Rams.—1st, 5*l.*, and 2d, 3*l.* and Silver Medal, W. Baker.

Ram Lambs.—1st, 3*l.*, and 2d, 2*l.*, W. Stubbs, Bickerscote.

Breeding Ewes.—1st, 5*l.*, J. Coxton, Lichfield; 2d, 3*l.*, C. R. Keeling.

Shearling Ewes.—1st, 5*l.*, W. Baker; 2d, 3*l.*, C. R. Keeling.

Ewe Lambs.—1st, 3*l.*, W. Baker; 2d, 2*l.*, C. Smith, Derby.

HORSES.—For Hunting Purposes.

Thoroughbred Stallions.—Prize, 20*l.*, W. Robinson, Tamworth.

Hunting Horse or Mare.—1st, 20*l.*, R. Turner, Borcote; 2d, 10*l.*, T. H. Walwyn, Doveridge.

Four-year-old Gelding or Filly.—1st, 15*l.*, G. J. Mitchell, Burton; 2d, 10*l.*, G. Swift.

Mare with a foal at foot.—1st, 6*l.*, Earl of Chesterfield; 2d, 4*l.*, R. W. Abbots.

Mares in Foal.—Prize, Cup value 10*l.* 10*s.*, E. Pratt, Burton

For Agricultural Purposes.

Entire Horses.—1st, 21*l.*, and Silver Medal, J. Ash, Cheadle 2d, 15*l.*, J. Collingwood, Ashby; 3d, 10*l.*, J. Pegge, Sudbury.

Gelding or Mares, in pairs.—1st, 10*l.*, M. T. Bass, M.P.; 2d, 6*l.*, W. Worthington, Burton.

Mare and Foal.—1st, 8*l.*, J. Hawksworth; 2d, 5*l.*, D. Walker.

Two-year-old Geldings or Fillies.—1st, 5*l.*, J. Skermer, Burton; 2d, 3*l.*, Stretton Colliery Company.

Yearling Geldings or Fillies.—1st, 5*l.*, W. S. Tavernor, Stoke; 2d, 3*l.*, S. Bloom, Atherstone.

PIGS.

Boar of a Large Breed.—1st, 4*l.* and Silver Medal, W. Smith, Ramsmore; 2d, 2*l.*, H. Tomlinson, Rugeley.

Breeding Sow of a Large Breed.—1st, 4*l.*, M. Walker; 2d, 2*l.*, T. Bostock, Wolverhampton.

Boar of Small Breed.—1st, 4*l.* and Silver Medal, H. Wardle; 2d, 2*l.*, M. Walker.

Breeding Sow of a Small Breed.—1st, 4*l.*, M. Walker; 2d, 2*l.*, J. Faulkner, Derby.

Pigs in Pens.—1st, 4*l.*, Earl Shrewsbury, Ingestre; 2d, 2*l.*, W. Smith.

Small Breed.—1st, 4*l.*, M. Walker; 2d, 2*l.*, R. Wyatt, Acton Hill, Stafford.

Judges.—Dairy Cattle and Leicester Sheep: T. Brough, Alsop-in-the-Dale, Ashbourn; and W. Tomlinson, Bradley Pastures, Ashbourn. Shropshire Sheep and Pigs: T. Mansell, Erall Park, Wellington; and J. Evans, Uffington, Shrewsbury. Shorthorns and Fat Stock: G. H. Sanday, Holmpierrepoint, Nottingham; and J. Woods, Clipstone Park, Mansfield. Agricultural Horses: R. Swale, Sarodon, Wolverhampton; and R. Warner, Weston Hill, Nuneaton. Hunting Horses and Brood Mares: J. E. Bennett, Bosworth Grange, Rugby; and H. J. Cartwright, Wolverhampton.

Farmers' Clubs.

KILKENNY.

Hints on Horse-breeding.—In a paper by Mr. J. PALLIN on this subject, lately read before this club, are the following passages:—The first object of every horse-breeder should be profit, with the view of producing a saleable, marketable article, exactly the same as you do your crops. To do so requires a fair knowledge of the subject, and a sufficient amount of care, patience, and intelligence. We have two kinds of breeders—namely, those who breed by chance, and those who go systematically about it. Of the former we have the most frequent instances. A gentleman or farmer happens to have a mare which has carried him safely and comfortably for years on the road or in the hunting-field, or has been his trusty slave in harness; and for either a kindness for past services, or some other cause, he wishes to have a foal from his favourite, feeling quite happy to have so good an animal to breed from. No further consideration is bestowed; her shape, temper, constitution, and action may be all good for a hunter or roadster; still she may not be suited at all for a brood mare.

Again, a person may have a mare which he intends to make a brood mare, which has not any of the qualities possessed by the other. She may be old, badly shaped, bad tempered, broken down, or of a washy constitution, blind, spavined, or curdy hocked; still she is used as a brood mare, simply because she is on the farm. Now, can anything be more foolish than to expect success in breeding in such a way? And as it is by far the most common practice, can it be wondered at that so many farmers complain that horse-breeding is unprofitable? Disappointment and pecuniary loss must accrue to the breeder, and a great injury is done to the country at large. I am willing to allow that a good foal may be produced from such a mare as described, but in 99 cases out of every hundred a useless brute is the result.

Choice of Sire.—Again, how does the chance breeder proceed in the choice of his sire? Does he look for one which has all the points and parts of perfection in which his mare is defective?—one which resembles her in size and form, but superior in breeding? If he did, half the evils might be avoided; but chance is again trusted to, and all the anxiety he evinces in the matter is the cost of his horse's services; while, in other cases, it is the one which passes the gate, or is close at hand, or perhaps the property of a neighbour or a friend, who is glad to give the service for other compliments. He may have every defect to which horse-flesh is liable; but this is no matter to the chance breeder: a foal is all he seems to desire. He never pictures to himself the cost of rearing it up to three or four years old, and bringing it to a fair, when, if he is sold, and comes under the eye of a veterinary surgeon, he has the unpleasant task of informing him that his horse is a roarer, or has a pair of diseased hocks; he is taken home, sold for a trifle, or put to work on his master's farm, which, in a short time, reduces him, by more fully developing the diseases, to a cripple, and he drags out his weary existence in misery. The systematic breeder never allows any chance work to creep into his concerns. Whether he breeds racers, hunters, carriage, saddle, or cart-horses, he selects with deep anxiety his breeding mares, and those which he can trace back to blood of unquestionable family in their class. They select the best sires, and scrutinise their performance, pedigree, and shapes; and, in all probability, breed from those which have been already tried and found to produce animals of the right stamp. Any defects in his mares he endeavours to correct in his foals by having the sire super-excellent in those points, so that, by close attention to those matters, he can almost calculate with certainty what sort of animal he will have to dispose of at a certain age, the market for him, and what in all probability he will be worth. Breeders of this description are yet not numerous in those counties. There is, however, nothing to prevent them becoming so; and they will generally succeed best by confining themselves to breeding the one class of horses. I will boldly assert that horse-breeding will pay the Irish tenant-farmer who breeds systematically and knows its management. We know how difficult it is to succeed in any undertaking when we do not understand it; and the same difficulty exists in horse-breeding. The demand for some years has rapidly increased, from the fact of foreign dealers purchasing a large number of our best colts and fillies. The fame of our Irish horses has extended far and wide; and the further we go away from home, the more are prized our "Irish nags." I can only account for it by the fact that they must have that great recommendation, which is an inheritance, not alone of Irishmen, but Irish horses—namely, pluck, stamina, and hardihood. The French and Austrian soldiers are now carried by Irish horses; and if it were not that some striking peculiarity existed, they would certainly find remounts in their own country.

Choice of Dams.—In selecting the second part of my subject, I take the mare, as on her, I consider, depends three-fourths of the importance in, I may say, any breeding, but especially in horses. I have scarcely ever seen a bad horse of any class out of a good mare; and there is scarcely an instance of extraordinary horses but the prevailing point of excellence could be traced in some way to the dam. At the same time, we must not throw over the consideration of the stallion's properties. In racing, I could give you several instances where the same mare, with different sires, produced almost every year a horse of character, such as the dam of Stockwell, which has been justly styled the Emperor of Stallions, from the number of winners he has produced. Pocahontas, his dam, almost to her last foal, transmitted to each that peculiar gift of speed which makes a race-horse; and at present there are no less than six of her sons at the stud, and each of these has, to a greater or less extent, the same peculiar power. Rataplan, although an own brother to Stockwell, and said to have been a gamer race-horse, has not been so successful, but still was above the average with several sons at the stud—good horses, from their power and stoutness—one, I may add, in this county, which will, I am confident, be of service to the country in getting good half-bred stock. Amongst our home-blood we have the great Birdcatcher, whose dam, old Guiccioli, with almost any sire, produced running horses, she being also the dam of Faugh-a-ballagh, which went to France, and whose progeny are now the cream of the French studs. I only bring forward these few instances to illustrate the fact I have found must be first looked to—namely, the dams. In breeding hunters, carriage, or farm horses, you will find it equally marked, and at present I know of a farmer who has a mare up to last year which produced nine or ten foals, and he never got less than from 70*l.* to 100*l.* for them at four years old; while every year she got different horses. Temper, power, endurance, spirit, I think, generally follow the dam; form, action, &c., the sire. In selecting your mares, the following particulars should be inquired into:—True blood, soundness, shape, action, age, height, and temper. As I do not intend to particularise any class of horse, the remarks I offer are applicable to all. Of course, each has its peculiarities. For instance, a thorough-bred shoulder is a bad one to put to a collar; and thorough-bred action would not answer in a four-horse plough. General rules I can only give you, and you can apply them to all classes of horses. It is not my intention to enter into the due observance of the crossing of different and peculiar strains of blood to produce a first-class racer; nor shall I dwell on the breeding of thorough-bred stock. The horses bred by us are of a lower class, and to those I will direct your attention. The pedigree of a hunter does not require that nicety of selection as in blood stock; still, I consider it almost indispensable to have at least a couple of crosses of the thorough-bred. There are certain breeds which are peculiar for the natural qualities of jumping, and mares from such strains should have a preference. Wexford has long been famous for its hunters, and I think it has been due principally to that famous sire Elvas, who I may say stocked the country with his progeny for many years. They were all peculiarly made, long, low, strong horses, with shapes eminently suited for the hunting field, besides being natural fencers. Some of the sons and daughters of the famous Irish Birdcatcher have given us splendid natural hunters. In Carlow we had two of his sons—The Trapper and The Bird—which have produced nice stock; while in Kilkenny, Doctor O'Toole has not disgraced his sire's name. In Kilkenny and Tipperary, the Welcomes and Greathearts were well-known hunting blood, and some of the mares from them in the country still are breeding well.

Hunters, Hacks, and Ponies.—Without losing sight of size and power, for they are often called on to perform extraordinary acts of gameness, and from the thorough-bred blood comes all the pluck and courage to stay a distance, and by their blood-like action to give their riders a comfortable seat in their saddles. In a hunting-field the blood will always tell, and although I have sometimes seen true-made hunters to look at got by a cart-horse, I have scarcely ever seen one of them reach the end of a run with a moderate pack of foxhounds. It is not necessary for a brood mare to produce hunters to have been a performer herself; but there are a few points indispensable, namely, a fine, well-laid shoulder, depth of girth, short cannon bones, with size, a good back, plenty of rib, big quarters, thighs, and hocks, with her hind-legs in the proper position under her. In the breeding of carriage horses, pedigree is not of great importance; but without a dash of thorough-bred blood in her veins, it is impossible to have them step well.

Mares to breed a carriage horse may be of a plainer kind than hunting brood mares, but they must bend the knee, and have plenty of quality about their head, neck, and shoulders. Some years ago there was a class of clean-legged Irish draught horses in the country that could pull their 30 cwt. in a cart, or trot their master to market 10 miles an hour. They were bays, blacks, or chestnuts, of no particular breed. They stood on short sinewy legs, with long bodies, flat off their ribs, and generally high-hipped; long thin heads, with hairy rough muzzles, but with a good prominent eye, which denoted determination. Such a class of horses has now nearly vanished from our country, and those which are still left are producing the best carriage and harness horses I meet. At present I know of a mare of the kind, 25 years of age, which has produced 15 or 16 live foals, with a small farmer in the county Carlow. She has been almost his principal support, and with different sires, her colts almost all brought a uniform price of from 50*l.* to 60*l.* at four years old in the halter, and, as the old man told me, a veterinary surgeon has never had the fortune to pass his hand over one of her progeny. Fortunate for the profession to which I belong, such a breed has died out, for disease was almost unknown amongst them in any form; but unfortunate to the tenant-farmers and the country at large, for we shall never see their like again; for, besides being a class of animals well suited to their wants, they were easily kept in condition, and came to maturity at an early age. Some of the best hacks I have seen have been the produce of our Connemara pony and a good thorough-bred horse, when they can be had large enough; besides, they generally have wonderful durability, and a share of quality. The shoulders and legs should be the principal parts to look to in the mare, as without they are well forward the animal cannot be a good hack. Thick weighted shoulders are almost worse in this class of horse than any other, as they seldom can exist in any horse without his having a tendency to stumble and trip more or less. Good legs and feet are indispensable to stand the road, and to produce which the dams should always have them well shaped, and in the proper position.

Draught-horses.—There are, perhaps, no class of the equine species which will bear so much hardship as the Connemara pony, and they were well suited to the wants of the small tenant-farmer of half a century ago. There is no part of my subject which will interest you, as a body of advanced practical farmers, as a few remarks on what we want to constitute a good draught brood mare—a breed which, I have come to the conclusion, even with the the number of horses and mares of the kind which have been imported into the country of late years, has not improved proportionately. Clydesdales have, for years past, been looked on as a most desirable breed to introduce into the country; but I must say, in my short experience, I failed to think so, as I do not consider them, in general, suited to the wants of our ordinary tenant-farmers. There is no doubt that they are fine, powerful animals, and can draw enormous burthens; but in our land, as we have here in this county, such an amount of power is seldom required; besides, where is the farmer holding 20 or 30 acres of land could feed a pair of those for a year, to keep them in proper condition (which must amount to fat)? Their action is slow, and until they are aged, they are generally what may be termed "soft horses." At the same time there are some Clydesdale mares with clean legs, compact make, that can bend their knee, and don't dish in their trotting action, breed well with a thorough-bred horse; but for such a cross the breeder should always select a sire with thin and well laid back shoulders, and light head and neck, as it is in those points that Clydesdale mares are generally at fault. For draught purposes, the thick, straight-shouldered, wide-chested horses are best: but with such a conformation they must have a corresponding want of pace, which invariably, if not counteracted in the opposite sex, will come out in the progeny. A good draught mare should stand from 15 hands to 16 hands high, and need only excel in walking, which she should do light and freely, placing her foot firmly and flat on the ground. Her head should be light, but well-shaped, with round, plump, and full shoulders, strong, muscular, and fully developed, as I have said, standing upright more than oblique; neck strong and thick, as from this formation a greater weight is thrown into the collar than if the head and neck were light, with oblique shoulder; legs should not be too short for the weight of the body, which should be lengthy; pasterns strong and short; firm, round, well-formed feet, which should be rather large, with darf-coloured hoofs; loins and haunches powerful, with plenty of breadth, which assist also in throwing weight into the collar. Any one who has watched a steady puller under a heavy load must have observed how the animal lowers the head, bends the knee, and digs the hind toe into the ground. Some of the Suffolk and Cleveland bays which have been imported into this country, and crossed with our Irish mares, have produced the most useful class of draught horses to be met; they have all the spirit and quickness of action of our Irish horse, and, at the same time, the power and weight of the Suffolk. Some of the half Clydesdale bred in the same way are good farm-horses, and when not too tall suit our wants admirably. I have met some animals got by a Norfolk horse, which stood in this county some time since, which were particularly serviceable animals. I would strongly recommend such a class of horses to you; but it is somewhat difficult to get a sire of the actual stamp, as they are much looked for both for this country and for exportation.

Soundness.—The all-important point of soundness is now to be considered. It is the essential one in the brood mare for all purposes. It is a notorious fact that there are certain diseases of which the parents are the subjects, and which will descend to the progeny. To prevent such results, which I think cause most disappointment, we should be particular in the examination of our mares required for the stud. In many cases a mare is never put to the stud until she is fit for nothing else; but let me impress on you that when you have a mare fit for nothing else, consign her to the kennels rather than encumber yourself with her useless progeny, for such they must be. It is often difficult to draw a line between hereditary diseases and those the result of accident. In general, those which depend on defective conformation, such as spavin, splents, curbs, ringbones, sandcrack—all diseases affecting the wind.

Bindness and navicular disease come under the former class, although they may be the result at any time of the latter also. Spavin and curbs, although distinct diseases, and depending on different causes, are found in the produce of horses which have badly-formed hocks, although both diseases may be the result of accident. With curbs, if I found a mare with what is termed round or bent hocks, with a small os calcis or point, I would not breed from her, as it is almost certain to come out in her progeny. On the contrary, if you had a straight, well-formed hock, and only a curb on one leg, I would not consider it of any consequence. Spasm, ringbones, and sidebones, I consider, are hereditary in almost any form. Indeed, ringbones will come out in generations, and I consider these hereditary dispositions depend on peculiar weak formation of the large and small pastern bones; or at other times, where the legs are so shaped as the centre of gravity comes over the top of the hoof, Nature throws out an ossification as a strengthener to the parts. Another hereditary disease I consider of much importance is blindness dependent on disease of the eyes—specific ophthalmia, a special disease of horses, which is certain to follow breeds, and on no account would I recommend breeding from either sex affected with it. A mare may lose an eye or become blind of both from an accident; but in any case it renders them more or less unfit as a brood mare to fill that office which Nature has destined her to protect and shield from injury her offspring. Diseases of the respiratory organs, as roaring, whistling, broken wind, thick wind, &c., I consider hereditary diseases. Roaring, dependent on imperfect formation of the throat,—horses with thick, hairy jaws, thick at their angles, and badly set on, large heads, all have a tendency to this disease, while I have sometimes found it in horses with long thin necks. Diseases in the feet in most cases are hereditary, navicular disease particularly so. Mares with narrow, mulish-looking hoofs, contracted at their heels, are invariably bad to breed roadsters, especially if this be accompanied by short pasterns, which make them more liable to the result of concussion. Sandcracks I have seen follow in families, and as it depends on a certain want of the connecting materials between the fibres of the hoof, and will often render a horse useless, it is certainly imprudent to use animals so affected for breeding, particularly if it is accompanied by flat feet, which is generally the case. In concluding my remarks on soundness, I may add that it is most important to have both horse and mare in a healthy condition, as the progeny of sickly or emaciated parents must inherit some of the debilities, besides having a tendency in any case to materially retard and interfere with the healthy development of the foal during gestation. Perfect conformation and soundness in both male and female is of the greatest importance, and he who breeds from either in an unhealthy or diseased state must feel assured that he cannot expect their progeny to be otherwise; as the old adage says, "like produces like."

Farm Memoranda.

Lodge Farm, Castle Acre, Norfolk.—This farm consists of 997 acres of land, and was taken by Mr. Hudson in the year 1822, together with an adjoining farm of 500 acres, which now forms part of the occupation of his son, Mr. Thomas Moore Hudson. The two farms had been refused by three persons before Mr. Hudson took them. They were both poor and foul, and the outgoing crop, which was carried by the new occupier, amounted to 20 bushels of Wheat and 24 bushels of Barley per acre, while the roots did not enable him to winter more than 10 bullocks. After being cleaned and fertilised by the liberal use of rape-cake, the land gradually improved, and now, after the expenditure for the last 30 years of between 2500*l.* and 3000*l.* per annum in oilcakes and other feeding stuffs, as well as from 800*l.* to 1100*l.* per annum in artificial manures, according to their price, the 1000 acres will winter from 100 to 140 steers, according to the root crop.

Grass Land.—The grass-land consists of about 200 acres, all of which is pasture, and fed principally by sheep. From 40 to 50 acres of it are irrigated, but even this, although very good as feeding land, is useless for meadowing. Irrigating is begun in November, after the Grass has been eaten off, and the water is shifted in succession from one part to another, after having remained a few days on each, until the beginning of March. The cost of cleaning out drains, the river, and so forth, is about 10*s.* per acre annually. Sheep are put on the irrigated pastures by day as soon as there is good feed for them—generally about the end of March or beginning of April.

Arable Land.—Five-and-twenty years ago, when this Society offered a prize for the best essay on the agriculture of Norfolk, Mr. Hudson farmed on the indigenous four-field system, and his *modus operandi* was described in some detail by Mr. Barugh Almack in his commended essay, published in the fifth volume of this Journal. For some years past Mr. Hudson has farmed on the five-course system, getting some catch crops in addition, as follows:—1, Wheat; 2, Barley, followed by (*a*) Tares and winter Oats, (*b*) early Peas, or (*c*) Rye for feeding; 3, Turnips; 4, Barley; and, 5, seeds. At present, however, Mr. Hudson is gradually getting his shift back to the ordinary four-course system, as, on the whole, he considers it better adapted to the West Norfolk land. This is particularly worthy of mention, because about 11 or 12 years ago the five-course system—taking, however, Oats after Wheat instead of Barley, and no "catch crops"—appeared to be finding favour in the eyes of the Norfolk farmers.*

1. *Wheat.*—The Clover ley is manured with 10 loads of farmyard manure as soon as possible after the Cow-grass has been mown, or the Trefoil and white Dutch have been fed off. The manuring is generally done in July, August, and September. The land is then ploughed to a depth of 5 inches, heavily rolled, sometimes with a Cambridge roller, and harrowed four times; and afterwards drilled with from 8 pecks of Spalding Wheat at the commencement of the season, to 10 pecks at the end of the year, the drills being 7 inches apart. It is then harrowed twice, and rolled with a Cambridge roller. In either February or March the Wheat is hoed either by horse or by hand, and is top-dressed with 2 cwt. of guano per acre.

Wheat is cut with a Burgess & Key's reaping machine just before it is ripe; it is sheafed by men and women at 3*s.* per acre, and is shocked by odd hands, the fields being gone over afterwards with wood-tined horse-rakes. The sheaves stand about a week on the shock, and are then put into long stacks on the field where the crop has been grown. This system of stacking is pursued with every kind of crop, and thus the necessity of stackyards is entirely done away with. The stacks are generally 13 yards long and 7 yards wide, and the distance from the eaves to the ridge is about 15 feet. The thatching is done at 5*d.* per yard run at the eaves, which is equal to about 1*d.* per square yard. Round stacks of 9 feet diameter at the base were formerly very much in vogue, but they are, comparatively speaking, rarely made now—certainly by no means so frequently as in former years. Threshing is done partly by fixed and partly by portable steam-threshing machines, and the corn is dressed by hand finishing and winnowing machines. Previous to sowing the Wheat is dressed with Down's Farmer's Friend.

2. *Barley.*—After the Wheat is harvested the stubbles are forked over by hand, at a cost of from 6*d.* to 1*s.* per acre, so as to thoroughly clean it and get rid of Twitch. The land remains thus until February, when it is ploughed to a depth of about 4½ inches, and dressed with 2 cwt. of guano per acre, by means of Chambers' manure distributor, drawn by two horses. It is then immediately harrowed again, and drilled with 3 bushels per acre of Golden Melon Barley. Sowing commences about the middle of February, and is finished as soon as possible. After sowing, the land is harrowed twice over, but seeds are not sown on the Barley in this course. Barley is weeded in June by women at from 4*d.* to 5*d.* per acre.

The crop is mowed with a Burgess & Key's machine; it is collected with gathering forks, the land being raked between the heaps, and the corn is afterwards pitched, loaded, and stacked, Barley being neither sheafed nor shocked.

Harvesting white crops is generally done by gangs of men, who engage for the harvest. Mr. Hudson hires 27 men annually to harvest the white crops, on a farm comprising about 800 acres of arable land. These men are divided into three companies of nine men each, namely, two loaders, two forks, and five at the stacks. These men get about 6*l.* 10*s.* each for about three weeks' harvest work, including trimming the stacks, putting up the implements, and clearing up generally.

Oats are seldom or never grown as a white crop, but their place in the rotation would be instead of Barley in the course just described.

3. *Roots.*—The 160 acres devoted to this course are generally subdivided as follows:—15 acres white Tankard Turnips, 100 acres Swedes, 15 acres green round Turnips, and 30 acres Mangels.

(*a.*) *Turnips and Swedes.*—The Barley stubble is forked over in the same manner as already described in the case of Wheat stubble. After Wheat sowing is finished it is ploughed 6 inches deep; it lies all the winter, and as soon as Barley sowing is finished it is again ploughed—across the previous furrows. Subsequently it is scarified and harrowed, as may be required. In May the land is ploughed again, and ridged in the beginning of June, eight loads of farmyard manure per acre being put in the ridges. Just before sowing, a dressing of 3½ cwt. of superphosphate, and 1½ cwt. of ground rape-cake, mixed together, is drilled on the ridges, and immediately upon this 4 lb. per acre of Turnip seed is drilled with a small seed drill. All the Turnip seed is sown on the ridge, except a small quantity in the autumn, which is sown on the flat.

White Tankard Turnips are sown for September and October feeding, Hudson's Swede (a kind of Purple-top) for winter use, and green round Turnips are sown in autumn after Tares (which are sown on Barley stubble after Wheat) for use in the spring.

As the Turnips come up they are first horse-hoed, then cut out to 11 inches apart, at a cost of 2*s.* per acre, being singled by a gang of women at 1*s.* 6*d.* per acre. After singling, they are horse-hoed again, and finally each plant is hoed round—an operation which is locally termed "scouring."

The Swedes are pulled when ready, and six drills of them are placed together in a row; a furrow is then ploughed on each side, so as nearly to cover the roots with earth, and thus protect them from frost, &c. The white Tankards are first fed off, being generally consumed before the hard weather commences. They are pulled and sliced for the sheep, to which they are given in troughs, with an allowance of cut hay, and about half a pound of linseed-cake each per diem. After these are finished the Swedes are topped and tailed, and thrown into heaps, from which they are sliced and given to the sheep. The green round Turnips are fed off by ewes and lambs in March and the beginning of April, and the land is immediately afterwards sown with Barley.

(*b.*) *Catch Crops.*—The 15 acres intended for green round Turnips perform another duty previous to being devoted to that crop, being sown with either Tares and winter Oats, or early Peas. Rye for feeding is also grown as a catch crop before green round Turnips.

In the first case, after the Barley stubble has been forked over to get out Twitch, it is manured with ten three-horse loads of farmyard manure per acre, which is ploughed in 5 inches deep, and the land is immediately drilled with 2½ bushels of Tares and half a bushel of winter Oats per acre. This crop is generally fit to mow for the horses about the middle of May, and the land is immediately afterwards ploughed and cleaned, and soon after the middle of July sown with green round Turnips.

Early Peas are sometimes sown on Barley stubble instead of Tares. The land having been forked as before, it is manured with eight three-horse loads per acre; this is ploughed in 5 inches deep, and 3½ bushels of early Peas per acre are drilled in about the end of November or early in December, the rows being 9 inches apart. When well up, they are hand-hoed at 2*s.* per acre. Harvesting is done the third week in July, the whole strength of the farm being employed in cutting and carrying as quickly as possible. The Peas are cut with hooks, and are immediately carted on to a piece of seeds or hay stubble to ripen. They are laid out in beds with paths between them, so that they may be easily and frequently turned until ripe.

As soon as the Peas are carted away the land is cleaned, ploughed, and drilled with green round Turnips, and a dressing of 3½ cwt. of superphosphate and 1½ cwt. of rape-cake per acre.

For Rye the land receives the same preparation, except that no manure is applied, and it is sown in September or October, with 3 bushels of Giant Rye per acre. This crop comes in for spring food for the ewes and lambs in April. After the Rye is fed off, the land is ploughed 6 inches deep, rolled with a three-horse roller, and then harrowed. After this treatment it lies for three weeks, when it is again ploughed, and afterwards sown with green round Turnips, and treated as ordinary Turnip land.

(*c.*) *Mangels.*—The 30 or 40 acres of Mangels usually grown are sown on the strongest and best land available in the shift. The land is ploughed and otherwise prepared in the winter, and ridged about the middle of April, when ten three-horse loads of manure per acre are put in the ridges, and covered with from 2 to 3 cwt. per acre of guano; the ridges are afterwards closed up by a double-breast plough, and drilled with 7 lb. per acre, generally of Long Yellow and Long Red, Globe Mangels being grown only on the very best land. Since steam cultivation has been adopted the land for Mangels has been tilled in the autumn to the depth of 8 or 9 inches, and the seed has generally been got in earlier than formerly, from which great benefit has been derived.

The plants are first horse-hoed, then cut out with a 14-inch hoe, at a cost of 2*s.* per acre, and singled, in the same manner as Turnips, for 1*s.* 6*d.* per acre, after which they are horse-hoed again.

The Mangels are taken up the last week of October or the first week in November, topped, but not tailed, and put into "clamps" 6 feet wide at the bottom, and coming to a ridge at a height of 4 feet from the base. They are covered with a thick gavel of straw, and afterwards with about 4 inches of mould; the ridge is left open for about a fortnight, after which it is entirely closed. Pulling, topping, loading, and stacking cost altogether from 6*s.* 6*d.* to 7*s.* per acre, according to the crop. Mangels are chiefly given to the feeding beasts in the foldyards, commencing in January or February, these also getting from 10 to 12 lb. of cake per day, with cut hay or straw; and a few are also used in the spring for fat sheep after the Swedes are finished. Mangels are always sliced with the Turnip-cutter.

4. *Barley.*—After the Turnips are fed off, the land is ploughed, and then allowed to remain untouched until the middle of February, when it is harrowed, ploughed again, and drilled with 3 bushels per acre of Golden Melon Barley; it is then laid down with 20 lb. per acre of small seeds. The harvesting and other operations connected with Barley have already been described in treating of Barley after Wheat.

5. *Seeds.*—Half the Barley of the above course is laid down with 14 lb. of Trefoil and 6 lb. of white Dutch per acre for summer feeding, and the other half with 20 lb. of Cow-grass per acre for mowing. After sowing, the land is harrowed, and as soon as the Barley is sufficiently strong it is gone over with a one-horse roller.

The Cow-grass, of which there would be about 80 acres, is mown with a Burgess & Key's Grass-mowing machine, and the labour is paid for as day-work. The stacks are about 5 yards wide, and as long as necessity requires. As soon as the hay is off, the land is manured for Wheat, as already described. The remaining half of this course is fed off by sheep during the summer, and then manured as soon as possible. *Mr. H. M. Jenkins, in "Royal Agricultural Society's Journal."*

* See Mr. Clare Sewell Read's Essay on "Recent Improvements in Norfolk," in the 19th volume of this Journal, pp. 284 and 285.

The Poultry Yard.

The Coming Birmingham Show (*Continued from last week*).—The pigeon classes at Bingley Hall are always well worthy of notice, and although the classification does not always meet the approval of those who are disposed to make one breed of birds their especial favourites, to the prejudice of others, yet we think that the committee shows its anxiety to make progress by constantly adding new classes, and extending its already lengthy list.

Pigeon fanciers, while spirited in carrying out and developing the birds to which they are most attached, regard the other classes with an apathy that is discouraging. Some go so far as to count only carriers, pouters, and tumblers as worthy of classification, and dismiss the other varieties as "toys." We think that the progress made in the last few years in some other breeds will lead to a more general acknowledgment of the merits and beauties of other kinds of pigeons. Almond tumblers head the Birmingham list, with a class giving them three prizes. Carriers follow, with half a dozen classes, each furnishing two prizes. Still

more greedy are the pouters, monopolising ten classes. We think they might be curtailed with advantage. It is true the birds are very handsome, but why should not the tried birds compete one against the other?

The favourites of London fanciers of past generations, the little baldheads and beards, come next; we hope they may muster well. Tumblers follow, with two classes, which we suppose are intended to take all varieties except almonds. The improvement that has been noticeable in the runts exhibited during the last few years, is this year to be still further encouraged by a five-guinea cup, offered as first prize by Messrs. Baily & Son, of London. The birds now exhibited are heavier by more than a pound per pair than were the winners a few years since; and when it is considered that a pair of ordinary young pigeons weigh about 20 ounces, while we now see runts that pull down four and a half pounds per pair, it is worth while to try to what extent this growth can be developed. We are aware that the comparison of the runt with the almond tumbler or carrier is not to the advantage of the former as regards appearance; but we may recall the Dorkings of years ago with those we now see, and see the beauty and symmetry to which careful breeding has brought a breed formerly called "dunghill" and "barndoor." The same result might be looked for to a certain extent with pigeons; and that which seems a great weight to us now for a pair may be only an average in a few years' time.

Jacobins come next on the list, and few prettier pigeons are seen in the pens. Fantails have two classes —we should like to have seen a third for, so-called, Indian fantails. We get from them a perfection in points hardly ever attained by the larger and coarser English birds. Trumpeters are rising in importance as a class, and are now showing what may be done by the introduction of fresh blood. Two classes are alotted for owls—one for the foreign and one for the English variety; one class of three prizes for nuns of all colours. Owls and nuns rank among the first favourites in small pigeons, followed in estimation, as in position, at Birmingham, by the turbits.

Barbes, a very important breed of pigeons, and one that takes a high standing with amateurs in all parts of the world, have two classes; one for blacks, and one for birds of any other colour. That three classes should be alotted to dragons will excite surprise everywhere but in the town where the show is held. No one will grudge the class apportioned to the pretty little magpies; and we hope that the two classes following, which are to be filled with Antwerps, may bring both judges and breeders to one opinion as to what the real Antwerp should be. Archangels and swallows close the list of classes for single varieties. Following them comes the class which is the nursery of all new varieties, in which six prizes are given. We omitted to notice earlier that Mr. W. R. Rose offers a cup, value three guineas, for the best pouter in the show. There are 42 classes for pigeons; and as in some cases the competition is so close as to involve the close handling and examination of many birds, we would suggest an increase in the number of the pigeon judges.

WE are afraid that goose-eating at Michaelmas is going out of fashion. Certain it is that seldom has the demand been so small and the supply so indifferent as this year; and we think hardly ever has the weather been so much against the feeders. On Saturday last there was a good demand for geese, and but very few at market. On Monday—the first real Michaelmas market —very few geese, and nearly all of those spoiled by the closeness of the weather, and from having been killed when full of food in order to increase their weight. On Tuesday the supply was good as regards number, but the geese generally were very small. There were one or two lots which showed the cross of the large Toulouse birds, and they sold well; others again showed the head and stripped neck of the Chinese, and were avoided. The Essex geese were many of them small geese, that had been imported from Holland and Ireland when goslings and turned down to fatten at the feeders' in England. They hardly ever attain any size, and are seldom good eating. The best geese that come are those fed by the Norfolk and Cambridgeshire farmers. They make up full of meat, of good quality; and where attention is paid to the breed, so that good size is coupled with quality, they sell very well. The Irish and French geese were below the average, both in number and quality; and those from southern England had, as a rule, been but poorly fed.

—— We are of course unable to report any general result of the bags made yesterday; but we think it will be found that in the west and southern parts of the country the first hatch of pheasants was not so bad as has been imagined. The reports from the eastern counties up to the present are not encouraging.

Calendar of Operations.

OCTOBER: *Harvest* in late districts of the North is seldom finished before the beginning of the month, and in late seasons much corn is often abroad in the North towards its close. But unless the wet is accompanied with a high temperature, there is not that tendency to sprouting which exists in the early and wet harvests of the South. In cold weather small loosely bound sheaves and well set stooks stand a good deal of water without sustaining much harm, the straw often suffering more than the corn. This is especially the case with Oats, the straw of which is chiefly consumed as fodder by cattle. Fine Oat straw is highly prized as feeding material, and hence to get a good crop of Oats, and that crop safely harvested, is no secondary question in the North.

Michaelmas Entries to Farms.—New servants, where changes take place, and the balancing of the books, &c., engross attention in our southern counties at the commencement of the month, as the farmer's year very generally commences with October. In the olden time it was common for the incoming tenant to purchase out his predecessor for a "lump" sum, as agreed upon, the former taking everything on the farm, including hired servants. But owing to the great improvements which have recently taken place in live and dead stock, old-fashioned farmers who have fallen behind in the march of improvement cannot thus be purchased out when they give up their farms. For, at the present time, very great circumspection and skill are required by the incoming tenant in the selection of live stock and implements at his entry. No doubt cheap entries suit men with limited capital at the present day, as they always have done hitherto. But tenants who enter with limited capital will find it better to hire steam ploughs, cultivators, and other implements of tillage, threshing machines, &c., than to start on the old plan with an extra strength of inferior working horses and ineffective implements; and the same principle applies to live stock, *i.e.*, if the incoming tenant cannot consume the whole of the root crops, hay, &c., with a paying stock, it is better to let part to some other person, than to attempt to consume the whole with a worthless stock that will not pay. It is not necessary that the live stock should be expensive thorough-breds. Indeed, this should rather be avoided; but the live stock should be a paying stock; and for a similar reason it is not necessary that the working cattle and implements should be all new, and of the most expensive sort. Such are the contracts which, in the case of limited capital, should be carefully avoided. But the teams should be fit for their work, and the implements, &c., although not new, should be of the best make, and thus capable of making good work. It is by attention to such practical data that some intelligent farmers start successfully with about half the capital which others find a losing concern, or else experience very great difficulty in keeping their own.

Wheat Seed-time extends over a greater portion of the autumn months than formerly. This arises from the reduced breadth of naked fallows, and the greater area of land under root and green crops now followed by Wheat. When to have summer fallowing of what was then termed Wheat soils was the common practice. Wheat-sowing about the beginning or first week of October was the general rule, South and North; and so closely was this rule adhered to, that many farmers were of opinion that later seeding of the land was attended with less promise, and no doubt it was on undrained tenacious clay soils. But improvements in drainage, cultivation, and manuring, enable farmers to get a fine seed-bed for Wheat after mangels and Swedes are removed from the land in November, the young Wheat plants, too, having time to be thoroughly established before the winter sets in. Indeed, in our southern counties some degree of caution is necessary in mild seasons in sowing early, otherwise the Wheat will be "winter proud." To obviate this "sow thin," say the advocates of thin seeding. In the North, where winter sets in earlier, there is less liability to harm, but even in our northern counties, as Easter Ross, early sown Wheat in mild seasons is liable to be "winter proud," more especially when sown thick. But when the autumn is cold, the winter early, and the spring late, thin sowing in the North is attended with a deficiency of plant, but not to the extent formerly experienced before the land was thorough drained. More seed is thus required in the North than in the South, generally speaking; and in each case less seed is required in mild seasons than in cold ones, and with early sowing than late sowing.

Live Stock.—The comparative question resulting from improved agriculture in the management of our herds and flocks is the reverse of that of Wheat, given above. Thus the stock that used to be starving at our hedge sides in November and December under the old practice, is now improved and put up to fatten in September and October of the previous season, so to speak, as we now have an abundance of feeding materials outdoors and indoors with which to force them forward to early maturity and the shambles. Thus in our southern counties, as Surrey, Hants, Dorset, and Devon, the horned Dorset ewes begin to lamb and are put upon the young Clover seeds and Italian Rye-grass and Turnips, whereby both are sometimes ripe together for the shambles by Christmas, without either cake or corn. In other cases cake, corn, &c., are needed. Over the greater breadth of the southern and midland counties the rams are put to the breeding ewes with a view to lambing the last week in February or first week in March. The fattening sheep are put upon Rape or Coleseed, or Turnips; sometimes the wether hoggs are treated in the same way, or the latter may be folded during the day and turned back into the pastures over-night. The practice is very diversified, much depending upon the weather, the state of the pastures, and the crop that is to succeed the Rape and Turnips. If Wheat, and the land be heavy clay, it may be advisable to feed off as early as possible, or before the weather breaks, with the view of getting in the Wheat in a proper seed-bed.

Notices to Correspondents.

FARM ACCOUNTS: *Bath.* You might adopt Mr. Jemmett's system as developed in his books for the farmer's use. His address is Muswell Hill Farm, near Reading.

WEEDS: *M. W.* In pastures weeds are discouraged by drainage, close pasturage, and artificial top-dressings, and by perseverance in spudding or pulling large plants at all seasons of the year, especially in the spring and summer, and before their seed time. If these means will not avail, the land must be ploughed up, well fallowed, and laid down again.

COMMUNICATIONS RECEIVED (Too late for this week).—"The Crops of 1869" (J. B. Lawes and Henry Watkins); "How much Milk and Butter will a Cow give" (G. A. H.); "Recent Analyses" (E. O. Greening); "The Potato Crop of 1869" (W. Paterson); "Half-inch Bones for Meadow-land" (T. B. F.). Next week.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, and Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, Royal Gardens, Kew, &c.

The best Shading is "Frigi Domo" Netting.

White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for

PROTECTION from the COLD WINDS and MORNING FROSTS.

"FRIGI DOMO" NETTING, 2 yards wide, 1*s.* 6*d.* per yard run.

"FRIGI DOMO" CANVAS.

Two yards wide .. .. 1*s.* 9*d.* per yard run.
Four yards wide .. .. 3*s.* 6*d.* per yard.
An improved make, 2 yards wide .. 1*s.* 9*d.* per yard.
An improved make, 3 yards wide .. 2*s.* 8*d.* per yard run.

"Rochford, Essex, June 4, 1869.

"SIR,—Will you be good enough to send me 50 yards of Frigi Domo, 2 yards wide, of your improved make, 1*s.* 9*d.* per yard run. You can foward it per London, Tilbury, and Southend Railway. I had some of you several years since, but have not found any substitute so good for Greenhouse and Stove Shadings.—I am, Sir, yours respectfully, "GEORGE WOOD (Solicitor, Rochford).

"Mr. E. T. ARCHER, 7, Great Trinity Lane, Cannon Street, E.C."

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.

Horticultural Glass Warehouse.

THOMAS MILLINGTON AND CO., 87, Bishopsgate Street Without, London, E.C.

NEW LIST for ORCHARD-HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD-HOUSE SIZES.

in.	in.		4ths.	3rds.	2nds.	Best
20 by 12						
20 by 13						
20 by 14	Per 100 feet	15 oz.	12*s.* 3*d*	15*s* 6*d*	16*s* 9*d*	18*s* 0*d*
20 by 15						
20 by 16		21 oz.	18*s* 0*d*	20*s* 0*d*	22*s* 0*d*	24*s* 0*d*

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7			11*s* 3*d*	12*s* 6*d*	14*s* 0*d*	16*s* 6*d*
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½						

Per 100 feet.

10 by 8	12 by 9	12½ by 10½	14½ by 10½						
10½ by 8½	12½ by 9½	13 by 10	15 by 10			11*s* 9*d*	14*s* 9*d*	15*s* 3*d*	17*s* 6*d*
11 by 9	13 by 9	13½ by 10½	13 by 11						
11½ by 9½	12 by 10	14 by 10	14 by 11						

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
15½ by 10½	14 by 12		22 by 12		22 by 16						
16 by 10	14½ by 12½		17 by 13		24 by 16						
14½ by 11½	15 by 12		23 by 13		20 by 17						
15 by 11	15½ by 12½		18 by 14		22 by 17			12*s* 3*d*	15*s* 6*d*	16*s* 9*d*	18*s* 0*d*
15½ by 11½	16 by 12		22 by 14		24 by 17						
16 by 11	16½ by 12½		24 by 14		20 by 18						
21 by 11	17 by 12		22 by 15		22 by 18						
13 by 12	18 by 12		24 by 15		24 by 18						

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.

In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	34*s.*	4ths quality, per 200 feet case,	34*s.*
3ds " "	40*s.*	3ds " "	40*s*
2ds " "	60*s.*	2ds " "	60*s.*
Best " "	75*s.*	Best " "	75*s.*

SHEET GLASS is made only in the following substances, 15 oz. 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.

HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.

BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.

STUCCO PAINT, 24*s.* per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

WHITE ZINC PAINT, 36*s.* per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a-half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.

IMPROVED ANTI-CORROSION PAINT, 28*s.* to 34*s.* per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4*s.* per gallon.

	Per cwt.—*s. d.*		Per gallon.—*s. d.*
GENUINE WHITE LEAD	30 0	LINSEED OIL	2 9
SECONDS WHITE LEAD	28 0	BOILED OIL	3 2
GROUND PATENT DRYERS, 3*d.* to 4½*d.* per lb.		TURPENTINE	2 9
" OXFORD OCHRE, 3*d.* to 4½*d.* per lb.		LINSEED OIL PUTTY, 8*s.* per cwt.	
" RAW UMBER, 4½*d.* to 6*d.* per lb. [per lb.		Fine OAK VARNISH, 10*s.* to 12	0
" BURNT do., 6*d.* to 9*d.*		" CARRIAGE do., 12*s.* to 14	0
GREEN PAINT, all shades,		" PAPER do. 10*s.* to 12	0
28*s.* to 60	0	" COPAL	16 0
BLACK PAINT, 24*s.* to 36	0	KNOTTING	10 0
RED PAINT .. 28*s.* to 36	0	Patent GOLD SIZE ..	10 0
		" BLACK JAPAN ..	12 0
		GLAZIER'S DIAMONDS and TOOLS	
GROUND BRUSHES.		MILLED LEAD and PIPES	
DUSTERS. SASH TOOLS.		OLD LEAD Bought or taken in	
DISTEMPER BRUSHES.		exchange.	

The above are Net, for Cash, and as such cannot be booked.

Lists of any of the above on application.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

GLASS for ORCHARD HOUSES,

As supplied by them to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.

Each Box contains 100 feet. The prices only apply to the sizes stated.

Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.

	16 oz. to the foot.	21 oz.
Fourth quality	16*s.* 0*d.*	.. 19*s.* 6*d.*
Third ditto	18*s.* 0*d.*	.. 22*s.* 6*d.*
Seconds	18*s.* 6*d.*	.. 23*s.* 0*d.*
English	20*s.* 0*d.*	.. 27*s.* 0*d.*

The above prices include the boxes, which are not returnable.

HORTICULTURAL GLASS.

Stock sizes, 16-oz., in 100 feet boxes, boxes included.

These prices only apply to the sizes stated.

				4ths.	3rds.	2nd.
				s. d.	*s. d.*	*s. d.*
11 by 9	12 by 9	13 by 9	14 by 9			
12 „ 10	13 „ 10	14 „ 10	15 „ 10	13 6	15 6	17 0
13 „ 11	14 „ 11	..	..			
14 „ 12	15 „ 12	15 „ 11	16 „ 11			
18 „ 12	19 „ 12	16 „ 12	17 „ 12			
16 „ 13	17 „ 13	20 „ 12	..	15 0	16 0	18 6
10 „ 14	20 „ 13	18 „ 13	..			
	17 „ 14	18 „ 14	..	16 to 17 oz. to the foot.		
	20 „ 14					

SMALL SHEET SQUARES.

In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	..	12*s.* 6*d.*
8 by 6	8½ by 6½	9 by 7	9½ by 7½		
		10 by 8	10½ by 8½	..	13*s.* 6*d.*

Boxes 2*s.* each returnable at full price.

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS. PAINTS of various colours ground ready for use.

SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of Prices and Estimates forwarded on application to JAS. PHILLIPS AND CO., 180, Bishopsgate Street Without, E.C.

SIR J. PAXTON'S PATENT HOTHOUSES for the MILLION, are cheap, substantial, and easily fixed.
Illustrated Price Lists, with sizes, &c., free on application.
ESTIMATES given for CONSERVATORIES, HEATING APPARATUS, &c. A HANDBOOK of VINE and FRUIT-TREE CULTIVATION, post free, 13d.
HEREMAN AND MORTON, 7, Pall Mall East, London, S.W.
Works in London, Gloucester, Coventry, and Scotland.

HOT-WATER APPARATUS of every description, fixed complete in any part of the country, for Warming Greenhouses, Conservatories, Forcing Pits, &c.
Plans and Estimates on application.
J. JONES AND SONS, 35, King Street, Cheapside, London, E.C.
Manufactory, 6, Bankside, Southwark.

HOT-WATER PIPES.
CASH PRICES.

		2-inch.	3-inch.	4-inch.
PIPES	per yard	1s. 0d.	1s. 6d.	2s 0d.
ELBOWS	each	1 6	2 3	3 0
TEES	„	2 6	3 6	4 6
SYPHONS	„	2 6	3 6	4 6
VALVES	„	10 0	11 6	13 0

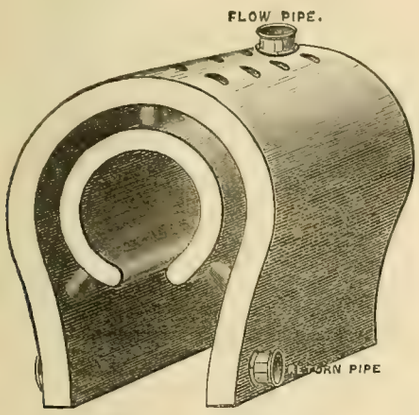
No credit will be given when Pipes, &c., are invoiced at the above prices.
J. JONES AND SONS,
6, Bankside, Southwark, London, S.E.
Price Lists, with terms for credit and for delivery at country stations, will be sent on application.

JAMES BOYD AND SONS, HORTICULTURAL BUILDERS, Paisley, N.B., Manufacturers of CONSERVATORIES, GREENHOUSES, VINERIES, and every description of HOTHOUSE in Wood or Iron; also of HOT-WATER HEATING APPARATUS for Horticultural Buildings, Churches, Mansions, Warehouses, &c.

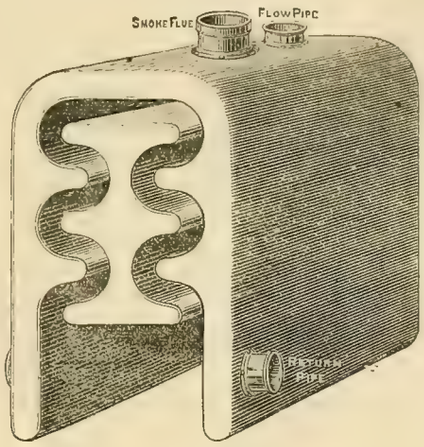
JAMES BOYD & SONS beg to call attention to the superior facilities they possess for executing all orders entrusted to them, in a first-class style, at a moderate price, and with despatch. Their works are fitted up with the most improved machinery, specially adapted for this trade. Their system of ventilation gives the least possible trouble, each range of sashes or ventilators opening by one movement without the risk of cords breaking, as in sliding sashes, and thorough ventilation is secured during wet weather, without admitting the rain. Plans and Estimates on application.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

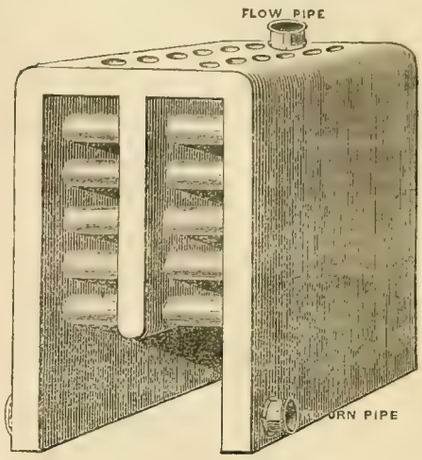
ORMSON'S NEW PATENT ECONOMIC BOILERS.



ORMSON'S PATENT CONCENTRIC SADDLE BOILER.



ORMSON'S PATENT CONVOLUTED BOILER.



ORMSON'S PATENT TUBULAR BOILER.

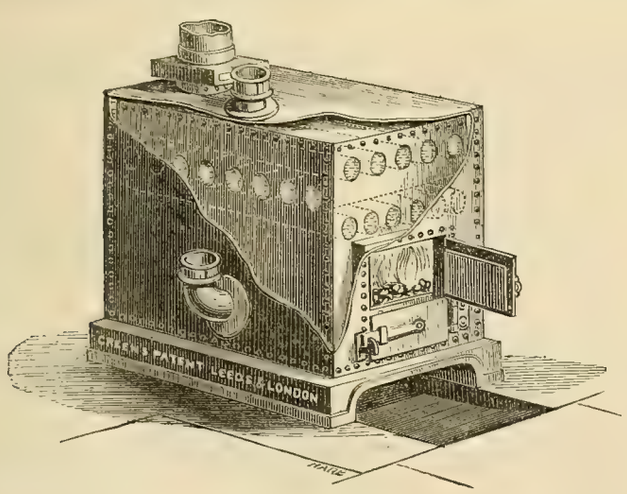
From the Construction of these Boilers, it will be at once seen that the object of the Inventor is to economise fuel, by concentrating its entire force and vertical action on the surfaces of the Boiler, and not wasting it by Heating Brickwork and Chimneys, a fault common to the great majority of Boilers now in use.

These Boilers are made of the best Welded Wrought-iron, of good substance, having no overlapping plates, holes, or rivets, and are therefore perfectly secure against failure from expansion and contraction of the metal, an occurrence so frequent and fatal to all forms of Cast-iron Boilers.

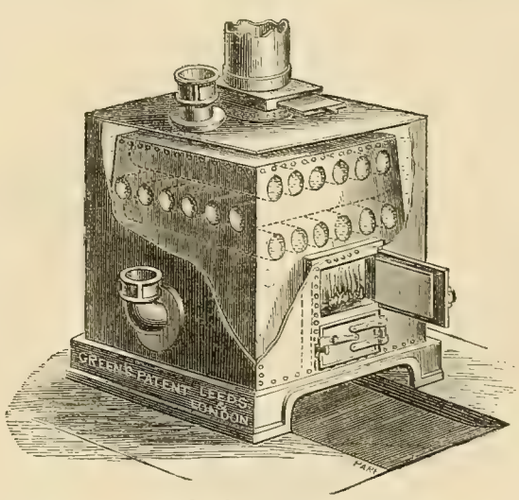
Please to state diameter and length of Pipe to be Heated.

HENRY ORMSON, HORTICULTURAL BUILDER TO HER MAJESTY,
AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,
STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

GREEN'S PATENT IMPROVED TUBULAR HOT-WATER BOILERS



OBLONG BOILER.



SQUARE BOILER.

THE ABOVE BOILERS ARE

THE MOST EFFECTIVE AND DURABLE EVER INVENTED.

They can be set to work at a nominal cost, inasmuch as no brickwork is required; as will be seen from the above drawing, they are placed upon a Cast-Iron Sole-plate, which answers the purpose of Foundation and Ashpit.

From the peculiar and substantial manner in which these Boilers are made, they are warranted to last for years without getting out of order; in fact, we guarantee them for ten years, but feel convinced that they will serve all the purposes for which they are intended for a much longer period.

They are specially adapted for Heating Greenhouses, Churches, Chapels, Schools, Public Buildings, Entrance Halls, Warehouses, Workshops, &c.

THE FOLLOWING ARE THE ADVANTAGES OF THESE BOILERS:—

1st, They require no setting in brickwork.
2d, They are complete in themselves, having perfect means of regulation.
3d, They take up little room, and can be put in places inaccessible to other Boilers.
4th, They are economisers of fuel, owing to the great amount of heating surface upon which the fire acts in a direct manner, and the consumption of smoke.
5th, The fire can be made to last from 12 to 24 hours without attention.
6th, Any number of Flows and Returns can be annexed to the Boilers by means of T-pipes.
7th, By means of mud doors, they can be readily cleaned out when required.
8th, The Chimney is made of cast-iron, which can either be taken through a roof or turned into a flue, to meet the convenience of the situation that it may be fixed in.

☞ *PRICE LISTS ON APPLICATION.*

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;
and 54 & 55, BLACKFRIARS ROAD, LONDON, S.E.

NOTICE.

ROYAL HORTICULTURAL SOCIETY, LONDON.
ROYAL ZOOLOGICAL SOCIETY, LONDON.
ROYAL BOTANIC SOCIETY, LONDON.
ROYAL BOTANIC GARDENS, DUBLIN.
ROYAL BOTANIC GARDENS, LIVERPOOL.
ROYAL BOTANIC GARDENS, CAMBRIDGE.
ROYAL WINTER GARDEN, DUBLIN.
ROYAL DEPARTMENT OF SCIENCE AND ART, LONDON.

It is with great gratification that we announce our permission to refer upon any occasion to the various

HEATING APPARATUSES at the above, where our "ONE BOILER SYSTEM"

HAS FOR YEARS BEEN SUBJECTED TO THE MOST CRITICAL TESTS WITH EVERY SATISFACTORY RESULT.
IT IS MATCHLESS FOR EFFICIENCY, AND IS WORKING THE LARGEST APPARATUS ON RECORD.

These are no theoretical statements, but positive facts, and it is not too much to add, that no boiler can boast a parallel.

For List of Details, see "ILLUSTRATED BOOK of DESIGNS" (12th Edition), which can be obtained by addressing a note to

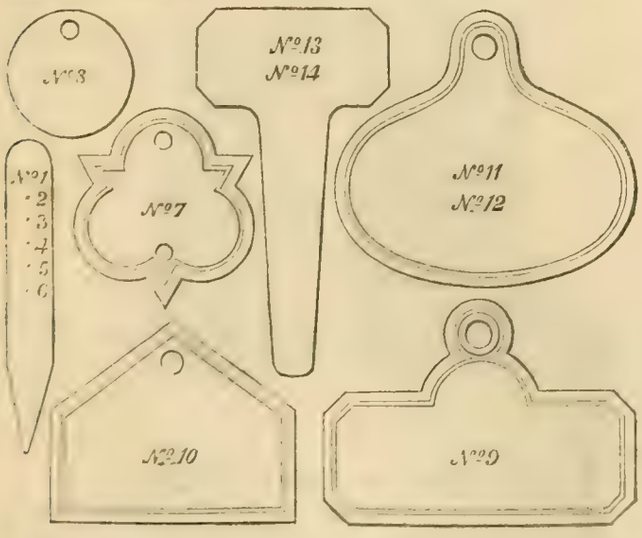
JOHN WEEKS AND COMPANY, HORTICULTURAL ENGINEERS, &c., KING'S ROAD, CHELSEA, S.W.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

TO MEET A WANT WHICH HAS BEEN LONG FELT BY THE HORTICULTURAL PUBLIC,

MAW & CO.'S PATENT IMPERISHABLE TERRA-COTTA PLANT MARKERS.

Are offered as a cheap and permanent substitute for WOODEN and ZINC TALLIES for the Labelling of Plants in Pots, and in the Open Border, and for suspending to Roses, Orchids, Ferns, Fruit Trees, &c. These Labels, unlike Wood and Zinc, combine perfect durability with a lasting legible inscription, and form an elegant adjunct to the Garden and Conservatory for the naming of Horticultural and Botanical Collections. They are also invaluable for the labelling of Wine Cellars and for general use in situations where other materials are perishable by damp.



Commended by the Editors of the *Gardeners' Chronicle*, and the Floral Committee of the Royal Horticultural Society. (See *Gardeners' Chronicle*, July 11, 1868.)

Can be procured from the Manufactory, or through any Nurseryman, Seedsman, or Ironmonger.

Specimens sent Post Free on application.

No. 1	3½ by ½ inch.	No. 8	1½ inch diam.
No. 2	4½ „ ⅝ „	No. 9	3½ by 2½ inches.
No. 3	5½ „ ¾ „	No. 10	2¾ „ 2¼ „
No. 4	6 „ ⅞ „	No. 11	3½ „ 3 „
No. 5	7 „ 1 „	No. 12	5 „ 4½ „
No. 6	8 „ 1 „	No. 13	2 „ 4 „
No. 7	2¼ „ 2 „	No. 14	3 „ 5 „

Can be seen in use at the Royal Gardens, Kew; the Gardens of the Royal Horticultural and Royal Botanic Societies, Battersea Park, the Royal Botanic Garden, at Edinburgh; and Botanic Gardens, Glasnevin, near Dublin, &c.

Directions for Writing on the Labels with Black-lead Pencil.—Apply a little white-lead paint thinly over the part to be written upon, and *whilst wet*, write with a hard fine-pointed black-lead pencil. The writing will be perfectly indelible and unaffected by wet immediately the paint is set.

Black Enamel Writing on the Labels.—All the above sizes can be supplied in several colours, ready written upon, with black enamel, having the appearance of jet black ink, but perfectly permanent. On receipt of Lists of Names, Estimates of Cost will be sent for any quantities of Pot or Border Labels, Suspending Labels for Orchids, Roses, Ferns, Fruit Trees, &c. Consecutive Sets of Numerals printed on the Labels, and Labels for Wine Bins, ready written with Enamel, kept in stock.

MAW & CO.'S ENCAUSTIC TILE and GEOMETRICAL MOSAIC PAVEMENTS and WALL LININGS

FOR CONSERVATORIES, GREENHOUSES, ENTRANCE HALLS, VERANDAHS, DAIRIES, &c.

Printed Patterns of various Designs suitable for the above will be forwarded on application, and Drawings, free of charge, of any of the Designs adapted to the given dimensions of spaces proposed to be Paved, will be supplied, accompanied by estimates of cost, including the expense of laying or otherwise. Applications for Estimates should be accompanied by an exact plan of the space drawn to scale, with all the dimensions marked in figures, and care should be taken that the size and position of all door-entrances and recesses that have to be paved are correctly represented; and when the walls are not exactly parallel, the measurements between the *opposite* angles, as well as along each wall, should be given.

WHITE GLAZED TILES for DAIRIES, &c.

Address—MAW AND CO., BENTHALL WORKS, BROSELEY, SALOP.

The Telegraph and Railway Station at Ironbridge, on the Severn Valley (Great Western) line is within three minutes' walk of the Works.

W. H. LASCELLES' MACHINE-MADE MELON LIGHTS.



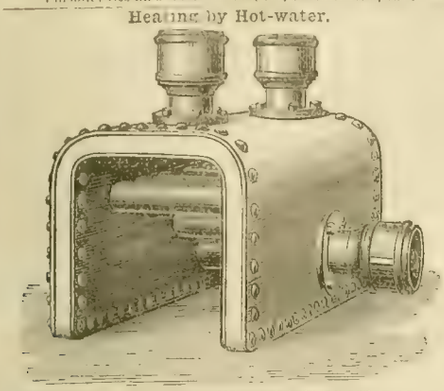
		Each.
6 ft. by 4 ft. Lights, 2½ in. thick, unglazed		£0 5 0
" "	Primed and Glazed with 14 oz. Sheet	0 11 0
" "	with stout Portable Box, nailed	1 3 0
" "	Painted four coats, and Handles on	1 8 0
" "	Packed and Delivered in Railway Van	1 10 0
6 ft. by 8 ft., Double Lights, do.		2 15 0

GREENHOUSES. Per ft. super.

Woodwork only	Prepared and Fitted	0 0 6
"	Primed and Glazed with 16 oz. Sheet	0 0 9
"	Delivered, and Fixed with Ironwork	0 1 0
"	Painted four coats, two sides, ready for use	0 1 3

Finsbury Steam Joinery Works, 121, Bunhill Row, E.C.

Heating by Hot-water.



SHANKS' IMPROVED WROUGHT-IRON BOILER.—This Boiler is made on the principle of the Saddle and Tubular combined. The Tubes, Fire-box, and Shell-plates are all of Wrought-iron, and consequently are not liable to break from expansion and contraction of the metal, as Cast-iron Boilers are. The Tubes are placed in the Fire-box, and so arranged as to expose a very large effective heating surface to the direct action of the fire, the advantage of which is obvious.

A. S. AND SON will be glad to furnish their IMPROVED BOILERS separately, or to furnish Plans and Estimates for Erecting Hot-water Apparatus complete in any part of the country.

HORTICULTURAL BUILDINGS in IRON or WOOD.

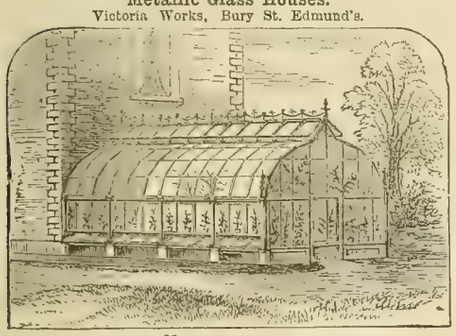
Catalogues, containing Designs of Houses, &c., will be forwarded on application. Special Plans and Estimates for Ranges of Houses to be erected in any part of the country will also be furnished.

A. SHANKS AND SON, Deus Iron Works, Arbroath, N.B.; and 27, Leadenhall Street, London, E.C.

IRON GREENHOUSES CHEAPER THAN WOOD.

Beard's Patent Non-conducting and Ventilating Metallic Glass Houses.

Victoria Works, Bury St. Edmund's.



MANUFACTURED BY

CHARLES BEARD, Senior Partner in the late Firm of Sanders, Frewer & Co., which Firm was dissolved by mutual consent.

The Patentee wishes to observe his Patent Houses obtained the First and only Prize at the Royal Horticultural Congress, South Kensington, 1866;

The First-class Certificate at the Grand Manchester Horticultural Show, 1867;

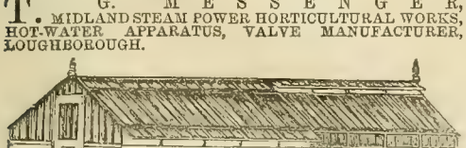
The Three First-class Certificates at the Royal Horticultural Show, at Bury St. Edmund's, 1867, viz.:—One Prize for Patent Glazing without Putty; One Prize for Best System of Patent Ventilation; One Prize for S. F. & Co.'s Improved Flower Stands.

These much-approved Patent Systems of Glazing and Ventilation are also extensively adapted for all Agricultural Buildings, Public Halls, Churches, Factories, Railway Stations, &c., &c.

Full particulars and Prices of the Patent Houses, glazed with 26 oz. Sheet Glass from 1s. 2d. per foot super and upwards. As also Illustrated Catalogues for 12 postage stamps, may be obtained on application to CHARLES BEARD, Victoria Horticultural Works, Bury St. Edmund's.

PATENT GLAZING BARS, to screw on wood, may be had separately. Full particulars for stamped envelop.

T. G. MESSENGER, MIDLAND STEAM POWER HORTICULTURAL WORKS, HOT-WATER APPARATUS, VALVE MANUFACTURER, LOUGHBOROUGH.



Honourable Mention awarded at the International Exhibition, 1862, and at the Dublin Exhibition, 1865; also a First-class Certificate by the Royal Horticultural Society.

T. G. MESSENGER, Patentee of many important improvements in Buildings and Implements connected with Horticulture, and which meet with unqualified approbation, is prepared to give reference to hundreds of works entrusted to him and pre-eminently answering the purpose for which they were constructed.

Any House Glazed, single or double, with or without putty. The mode adopted by T. G. MESSENGER for Heating and Ventilating Forcing Houses is particularly successful, drip being entirely prevented.

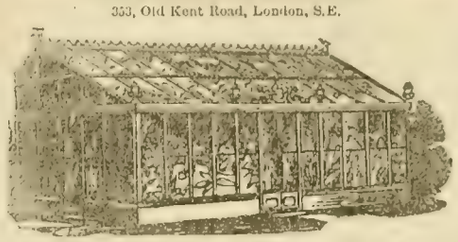
Houses can be constructed on his Patent Ventilating principle to open the whole of roof and sides as though the glass were entirely removed, at once placing the plants in the external atmosphere.

T. G. MESSENGER'S Boiler possesses all the advantages of the Tubular and Saddle combined, has hollow furnace bars, requires but a shallow stokehole, exposes as much surface to the direct action of the fire as can possibly be obtained, the whole of which can be easily cleaned; and it is an important fact, that out of upwards of 500 now at work made upon the improved principle not one has cracked.

T. G. MESSENGER'S Valve (single or double) is effective, simple, easy to work, and as durable as the pipe to which it is attached.

Designs and estimates supplied for all kinds of Horticultural Work, and guaranteed to answer the purpose for which they may be intended. A richly Illustrated Catalogue, with descriptions, forwarded post free on receipt of 33 stamps.

JAMES WATTS AND CO., HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, 353, Old Kent Road, London, S.E.



200 CUCUMBER and MELON BOXES and LIGHTS, all sizes, Glazed and Painted complete, ready for immediate use, packed and sent to all parts of the Kingdom.

Strong ZINC HAND-GLASSES, all sizes.

References to the Nobility, Gentry, and Trade in most of the Counties in England.

HOT-WATER APPARATUS Erected Complete, or the Materials Supplied for Heating GREENHOUSES, HOTHOUSES, CONSERVATORIES, CHURCHES, PUBLIC BUILDINGS, &c.

Peill's Conical. Tubular Boiler.





HOT-WATER PIPES at wholesale prices, Elbows, T Pieces, Syphons, and every other connection kept in stock.

WROUGHT and CAST IRON CONICAL, SADDLE, and IMPROVED PEILL'S and ELLIPTIC BOILERS, from 24s. each.

IMPROVED and EXTRA STRONG CAST IRON TUBULAR BOILERS, with or without Water Bars, from 52s. 6d. each.

CAST and WROUGHT IRON PORTABLE BOILERS on STAND, for use without brickwork, from 60s. each.

PATENT and IMPROVED THROTTLE and other VALVES, FURNACE DOORS, BARS, and FURNACE WORK of every description and size.

LYNCH WHITE, Old Barge Iron Wharf, Upper Ground Street, London, S.E. (Surrey side Blackfriars Bridge). Price List on application.

Vases and Fountains, for the Garden and Conservatory.



ANDREW HANDYSIDE AND CO., Britannia Foundry, Derby. | 32, Walbrook, London.

The Britannia Iron Works have for the last 40 years been well known for the production of fine Iron Castings. The use of Cast-iron permits a delicacy of outline, and smoothness of surface, impossible in cheap Stone or Terra-cotta. Cast-iron Vases, if occasionally painted, are imperishable, and will not crack when exposed to wet or frosty weather.





Five large Sheets of Designs and Price Lists post free for 6 stamps. A. H. & Co. make the better kind of IRON and GLASS CONSERVATORIES, and have constructed some of the largest and finest in the kingdom.

WM. DILLISTONE, HORTICULTURAL AUCTIONEER and VALUER, Sible Hedingham, Essex.

North Road Nursery, Sleaford, Lincolnshire.

TO BE LET, in consequence of the present Proprietor, Mr. F. Warwick, being obliged to retire through ill health. The Stock will be found clean and healthy, and every advantage will be given to keep the existing first-class connection. The whole to be taken at a fair valuation.—An inspection solicited.

TO BE LET, for a Term of Years, a NURSERY, SEED, and FLORIST BUSINESS, doing a good trade. Established 10 years; close to a Town and Railway Station. There is a good Stock of Plants, Forest Trees, Evergreens, and other Plants and Shrubs, all well transplanted and movable. There are Vineries, Plant Houses, and Pits—Propagating, &c.; and every convenience for doing a large trade. Satisfactory reasons given for leaving. Price £1000, or at Valuation.

May be viewed at any time on application to Mr. R. WILLIAMS, Corve Street, Ludlow, Salop.

An Excellent Opportunity.

FOR SALE, with Immediate Possession, a capitally situated NURSERY and FLORIST'S BUSINESS, the extent of Land 10 Acres, long Lease, adjacent to important Towns, and a few miles South-west of London, also close to a Railway Station. The Growing Stock is various, with Greenhouses, Pits, Frames, and Buildings, and every convenience. Loamy soil, surrounded by good Roads, &c. Rent very moderate. Half of purchase money may remain at interest. To a Business Man or Men really an excellent opportunity.

Parties seriously entertaining this can have full particulars on application to W. ABRAHAM, Horticultural Auctioneer, Valuer, &c., Goldworth Nurseries, Woking, Surrey.

Sales by Auction.

High Beech, Essex.

CLEARANCE SALE of STOVE and GREENHOUSE PLANTS and NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr James Crawford to SELL by AUCTION, without Reserve (in consequence of the Nursery being Let), on the Premises, The Nursery, High Beech, Essex, 20 minutes' walk from Loughton Station on the Great Eastern Railway, on MONDAY, October 4, at 12 o'clock precisely, the whole of the Choice STOVE and GREENHOUSE PLANTS, comprising Gardenias, Ferns, Lycopods, Azaleas, Heaths, Cinerarias, Cyclamens, &c.; also the remaining Nursery Stock.

May be viewed any day previous to Sale; Catalogues had on the Premises, and of the Auctioneers and Valuers, Leytonstone, Essex, N.E.

Richmond, Surrey.

HIGHLY IMPORTANT SALE of VALUABLE NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Mortlake Nursery, adjoining the Gasworks, Richmond, Surrey; 10 minutes' walk from the Richmond Station, South-Western Railway, on MONDAY, October 25, and three following days, at 12 o'Clock precisely each day, by order of Messrs. G. & W. Steel (without reserve), the following valuable NURSERY STOCK, comprising 10,000 fine bushy Aucubas, 1 to 4 feet; 2000 Cupressus Lawsoniana, 1 to 8 feet; 1500 Laurustinus, 1000 Cedrus Deodara, 12 to 15 inches, and specimens, 6 to 8 feet; 1000 Green Hollies, 18 inches to 5 feet; 1000 Araucaria imbricata, 18 inches to 3 feet; 1000 English Yews, 2 to 6 feet; 6000 Variegated Hollies, 1 to 5 feet; 1500 Picea Pinsapo, 9 to 18 inches; 800 very fine Wellingtonia gigantea, 1 to 6 feet; 100 Cotoneaster, sorts, 1 to 3 feet; 2000 Thujopsis borealis, bushy; 1000 Lilacs, 600 Euonymus, 400 Irish Yews, 500 Juniperus chinensis, 3 to 4 feet; 300 Arbutus, 2 to 4 feet; 600 specimen Thuja Aurea, 2 to 4½ feet, very handsome; Berberis, sorts; Bays, Portugal Laurels, large Phillyreas, and many other choice Evergreens; 5000 Standard and Dwarf Roses, of the finest sorts; Poplars, Laburnums, Copper Beech; 600 Standard Thorns, sorts; 700 Dwarf Moss Roses, also a large quantity of clean grown Fruit Trees; 3 magnificent specimen Wellingtonia gigantea, 15 to 20 feet high, &c.

☞ P. & M. respectfully inform the Public that the Stock is unusually healthy, and in excellent condition for removal, the whole of it having been transplanted within two years, and the greater portion of it last spring.

May be viewed previous to the Sale. Catalogues, when ready, can be obtained of Messrs. G. & W. STEEL, Home Nursery, Kew Road, Richmond; and of the Auctioneers and Valuers, Leytonstone, Essex, N.E.

Notice of Important Sale.

CASTLE NURSERY, BROX, near CHERTSEY, SURREY, within 1½ mile of the Addlestone, Chertsey, and Woking Stations, on the South-Western Railway.

MESSRS. WATERER AND SONS have received instructions from the Executrix of the late Mr. Heade to SELL by AUCTION in OCTOBER NEXT, the whole the exceedingly valuable STOCK of the above NURSERY, of which further particulars will appear in future Advertisements, and Catalogues had upon the premises, and of Messrs. WATERER AND SONS, Auctioneers and Valuers, Chertsey, Surrey, who will forward them on application by post.

Sale of a very select Herd of Pure-bred Shorthorns.

MR. JOHN THORNTON will SELL by unreserved AUCTION, on TUESDAY next, October 5, at Aldingham Hall, near Ulverston, the very select HERD of Pure-bred SHORTHORNS, belonging to E. J. Schollick, Esq. It comprises about 30 head, bred entirely from the noted Herd of the late W. F. D. Dickinson, Esq. Among the animals are several of the esteemed Cressida tribe. High-class Sires have been in use, and the stock is not only very choice in itself, but of a useful character, and from its management and breeding may be well recommended.

Catalogues, with Pedigrees, may be had of JOHN THORNTON, 15, Langham Place, London, W.; or of Mr. NICHOLSON, at the Farm.

Wollaton Nurseries, Nottingham.

Three miles from Nottingham, and half-a-mile from Radford Station, on the Midland Line.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. POTT AND NEALE will have the honour of SELLING by AUCTION, on MONDAY, October 11, at 11 o'Clock precisely (Refreshments will be provided at 10), the SURPLUS STOCK in the above Nurseries, comprising 30,000 transplanted SPRUCE FIR, from 2 to 3 feet; and choice CONIFERÆ, including upwards of 6000 beautifully grown specimen plants of Cupressus Lawsoniana, Wellingtonia gigantea, Thuja Lobbii, Cedrus Deodara, Picea nobilis, &c.

Catalogues may be obtained at the Estate Offices, Wollaton; of Mr. ASHTON, Woodman, Wollaton, Notts; or at the Auctioneers' Offices, Wheeler Gate, Nottingham.

THE ANNUAL AUTUMN SALE of FOREST and FRUIT TREES, CONIFERÆ, EVERGREEN SHRUBS, &c., will take place at the King's Acre Nurseries, near Hereford, on TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY, October 12, 13, 14, and 15. The Stock to be offered for Sale will comprise a choice assortment of Specimen Conifers, from 3 to 10 feet in height; Choice Evergreens and other Shrubs, of various sizes; Standard, Pyramid, and Dwarf-trained Pears, Plums, Peaches, Nectarines, &c.; also,

30,000 transplanted English Oak, 2 to 4 feet	3,000 transplanted Laurels
50,000 do. Ash, 2½ to 5 feet	5,000 do. Pinus austriaca, 3 to 4 ft.
60,000 do. Hawthorn Quick, 2 to 3½ feet	4,000 do. Privet
40,000 do. Larch Fir	2,000 do. Rhododendrons, choice named varieties, ponticums and hybrids
5,000 do. Scotch Fir	1,000 do. extra strong English Yew
5,000 do Spruce Fir, 2 to 3½ feet	

Beech, Sycamore, Hornbeam, Hazel, Poplars, &c., together with a general assortment of new Conifers, new Aucubas, and other choice and rare plants.

Catalogues may be had one week prior to the Sale, on application to the Nurseries; or to the Auctioneer, Mr. EDWIN H. SUNDERLAND, Saint Owen Street, Hereford.

JOHN CRANSTON, Proprietor.

Preliminary Notice.

HIGHLY IMPORTANT to GENTLEMEN, NURSERYMEN, and OTHERS PLANTING NEW PLACES.

MR. ABRAHAM begs to inform intending Planters he has received instructions from Messrs. W. Virgo & Son, of the Wonersh Nurseries, near Guildford, Surrey, to SELL by AUCTION, on the premises, on MONDAY, October 25, and following days, a large quantity (surplus stock) of fine CONIFERÆ, ORNAMENTAL EVERGREEN, DECIDUOUS TREES and SHRUBS; also FRUIT and FOREST TREES; all well-rooted, healthy stuff, just adapted for producing an immediate effect.

Further particulars in future advertisements, or of W. ABRAHAM, Horticultural Auctioneer, Valuer, &c., Goldsworth Nurseries, Woking, Surrey.

Clapton, near Thrapston.

VERY IMPORTANT SALE of PURE-BRED SHORTHORNS.

MR. STRAFFORD is instructed by Mr. Rowland Wood to announce for SALE by AUCTION on WEDNESDAY, November 3 next, the celebrated CLAPTON HERD, consisting of about SIXTY HEAD of BULLS, COWS, and HEIFERS. They are all in a healthy breeding state, and have not been forced for sale. The whole were bred by Mr. Wood, with the exception of the renowned Lord Chancellor (20,160), on whom the moderate reserve of 100 guineas will be put; the remainder of the lots will be sold without the slightest reserve. This Herd has been long and carefully bred from animals purchased of the Marquis of Exeter, F. Sartoris, Esq., Mr. W. D. Manning, of Rothersthorp, and other noted Breeders; many of the Cows, Heifers, and Young Bulls being of the same family as Mr. Wood's famous Gold Medal Ox of 1865, and his other Prize Animals. There are also several of the same tribe as Mr. Manning's memorable Gold Medal Ox at the Smithfield Club Show, in 1847.

Catalogues, with pedigrees, will shortly be issued, and may be had on application to Mr. STRAFFORD, 13, Euston Square, London; or of Mr. Wood, at Clapton, near Thrapston.

WILLIAM S. BURTON,

GENERAL FURNISHING IRONMONGER

BY APPOINTMENT TO H.R.H. THE PRINCE OF WALES,

Sends a CATALOGUE gratis and post paid. It contains upwards of 700 Illustrations of his unrivalled Stock, with Lists of Prices, and Plans of the

TWENTY LARGE SHOW-ROOMS,

AT 39, OXFORD STREET; 1, 1A, 2, 3, AND 4, NEWMAN STREET; 4, 5, AND 6, PERRY'S PLACE, AND 1, NEWMAN YARD, LONDON, W.

THE PERFECT SUBSTITUTE

for SILVER.—The real NICKEL SILVER, introduced more than 30 years ago by WILLIAM S. BURTON, when Plated by the Patent Process of Messrs. Elkington & Co., is beyond all doubt the best article next to sterling silver that can be employed as such, either usefully or ornamentally, as by no possible test can it be distinguished from real silver.

A small, useful Set, guaranteed of First Quality and for finish and durability, as follows:

	Fiddle or Old Silver	Bead.	Thread.	King's or Shell and Thread.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
12 Table Forks	1 10 .	2 1 .	2 2 .	2 5 .
12 Table Spoons	1 10 .	2 1 .	2 2 .	2 5 .
12 Dessert Forks	1 2 .	1 7 .	1 10 .	1 11 .
12 Dessert Spoons	1 2 .	1 7 .	1 10 .	1 11 .
12 Tea Spoons	. 14 .	. 19 .	1 1 .	1 2 .
6 Egg Spoons, gt. bowls..	. 9 .	. 12 .	. 12 .	. 13 6
2 Sauce Ladles	. 6 .	. 8 .	. 8 .	. 8 .
1 Gravy Spoon	. 6 .	. 8 6	. 9 .	. 9 6
2 Salt Spoons, gt. bowls..	. 3 .	. 4 .	. 4 .	. 4 6
1 Mustard Spoon, gt. bwl.	. 1 6	. 2 .	. 2 .	. 2 3
1 Pair of Sugar Tongs ..	. 2 6	. 3 6	. 3 6	. 4 .
1 Pair of Fish Carvers ..	. 19 6	1 3 .	1 3 .	1 3 .
1 Butter Knife	. 3 .	. 4 .	. 4 .	. 4 3
1 Soup Ladle	. 10 .	. 12 .	. 14 .	. 15 .
1 Sugar Sifter	. 3 .	. 4 .	. 4 .	. 4 6
Total	9 1 6	11 16 0	12 8 6	13 2 6

Any article to be had singly at the same prices. An Oak Chest, to contain the above, and a relative number of Knives, &c., £2 15s.

A Second Quality of Fiddle Pattern

Table Spoons and Forks ..	£1 2 0	per doz.
Dessert Spoons and Forks ..	0 16 0	,,
Tea Spoons	0 10 0	,,

The largest stock in existence of Plated Dessert Knives and Forks, and Fish-eating Knives and Forks and Carvers.

TEA and COFFEE SETS, Electro Silver, in great variety, from £3 15s.

DISH COVERS, Electro Silver, from £9 the set of four to £26.

CORNER DISHES, Electro Silver, from £7 10s. to £18 18s.; Warmers, £7 2s. 6d. to £15 15s. the set of four.

CRUET and LIQUOR FRAMES, Electro Silver, &c., at Manufacturers' prices.

ALL KINDS of PLATING done by the Patent Process.

TEA URNS of LONDON MAKE

ONLY.—The largest assortment of London-made TEA URNS and KETTLES in the world (including all the recent novelties, many of which are registered) is on sale, from 30s. to £6.

COAL SCOOPS.—WILLIAM S.

BURTON has 400 different patterns of COAL SCOOPS ON SHOW, of which he invites inspection. The prices vary from 1s. 9d. to 150s.

Plain black open Scoops from 1s. 9d.; do. do. zinc lined, from 4s. 6d.; covered Box-scoops, from 4s. 6d.; do. with Hand-scoop, from 10s. 6d.; do. do. with fancy gold ornamentation, from 19s.; highly finished and ornamented, and fitted with imitation ivory handles, from 30s. to 150s.

There is also a choice selection of Wooden Coal Boxes, with iron and brass mountings.

WILLIAM S. BURTON confidently asserts his to be the largest, and at the same time the best and most varied, assortment in the world.

GARDEN WIRE WORK, consisting

of ARCHES, BASKETS, FLOWER STANDS, &c.

GARDEN SYRINGES	4s. 6d. to 20s.
GARDEN ENGINES	25s. 0d. to 105s.
GARDEN WATER BARROWS	45s. 0d. to 90s.
GARDEN ROLLERS	35s. 0d. to 70s.
GARDEN CHAIRS	6s. 6d. to 30s.
GARDEN SEATS	10s. 0d. to 90s.
GARDEN TOOLS and WATERING POTS.	
PATENT LAWN MOWERS	70s. 0d. to 130s.
To cut 10 inches	£3 10 0
,, 12 inches	4 10 0
Suitable for a Lady.	
To cut 14 inches	£5 10 0
,, 16 inches	6 10 0
Suitable for a Man.	

THE BEST SHOW of IRON BEDSTEADS

in the KINGDOM.—There are EIGHT LARGE ROOMS devoted to the exclusive show of Iron and Brass Bedsteads and Children's Cots, with appropriate Bedding and Bed-hangings. Portable Folding Bedsteads, from 10s.; Patent Iron Bedsteads, fitted with dovetail joints and patent sacking, from 11s.; and Cots, from 15s. 6d.; handsome Ornamental Iron and Brass Bedsteads, in great variety, from £1 13s. 6d. to £45.

BEDDING MANUFACTURED on the Premises,

and guaranteed by WILLIAM S. BURTON.

For Bedsteads, Wide.	3 Feet.	4 Feet 6 Inches.	5 Feet.
	£ s. d.	£ s. d.	£ s. d.
Best Straw Paillasses	. 12 .	. 15 .	. 18 .
Best French Alva Mattresses	. 11 6	. 16 .	. 18 .
Best Cotton Flock Mattresses	. 16 .	1 2 6	1 6 6
Coloured Wool Mattresses	. 17 .	1 5 .	1 8 6
Best Brown Wool Mattresses	1 1 6	1 11 6	1 14 6
Good White Wool Mattresses	1 8 6	2 3 .	2 7 .
Extra Super Do. Do.	2 10 .	3 13 .	4 1 .
Superior Horse-hair Do.	2 . .	2 18 .	3 6 6
Extra Super Do.	2 14 .	3 18 .	4 10 .
German Spring Hair Stuffing	3 5 .	4 7 6	4 15 .
Extra Super Do.	4 . .	5 10 .	6 . .
French Mattress for use over spring ..	2 . .	2 17 .	3 4 .
Extra Super Do. Do.	3 7 6	5 . .	5 11 .
Beds, Poultry, at 1s. per lb.	1 11 .	2 7 .	..
Do. Best Grey Goose, at 2s. 2d. per lb.	3 . .	5 . .	5 13 .
Do. Best White, at 3s. per lb.	4 . .	6 17 6	7 12 .

Feather Pillows, 3s. 6d. to 14s.; Bolsters from 6s. to 29s. 6d.
Down Pillows from 10s. 6d. to 17s. 6d.
Blankets, Counterpanes, and Sheets in every variety.

FURNITURE, in complete suites

for Bedrooms, of Mahogany, Birch, Fancy Woods, Polished and Japanned Deal, always on show. These are made by WILLIAM S. BURTON, at his Manufactory, 84, Newman Street, and every article is guaranteed. China Toilet Ware in great variety, from 4s. Set of Five Pieces.

BATHS and TOILET WARE.—

WILLIAM S. BURTON has ONE LARGE SHOW-ROOM devoted exclusively to the display of BATHS and TOILET WARE. The Stock of each is at once the largest, newest, and most varied ever submitted to the Public, and marked at prices proportionate with those that have tended to make his Establishment the most distinguished in this country. Portable Showers, 8s.; Pillar Showers, £3 to £5 12s.; Nursery, 18s. to 38s.; Sponging, 6s. to 32s.; Hip, 13s. to 33s. A large assortment of Gas Furnace, Hot and Cold Plunge, Vapour and Camp Shower Baths. Toilet Ware in great variety, from 11s. 6d. to 45s. the Set of Three.

GASELIERS in GLASS or METAL.

—The increased and increasing use of Gas in private houses has induced WILLIAM S. BURTON to collect from the various Manufacturers in Metal and Glass all that is new and choice in Brackets, Pendants, and Chandeliers, adapted to Offices, Passages, and Dwelling Rooms, as well as to have some designed expressly for him; these present, for novelty, variety, and purity of taste, an unequalled assortment. They are marked in plain figures, at prices proportionate with those which have tended to make his Establishment the largest and most remarkable in the Kingdom, viz., from 12s. 6d. (two-light) to £22.

LAMPS of ALL SORTS and PATTERNS.

—Inspection is invited to this Season's SHOW of LAMPS. The collection of French Moderateur Lamps, carefully selected at Paris, defies competition. The prices vary from 8s. to £17 17s. Each Lamp is guaranteed perfect, but to ensure their proper action

Pure Colza Oil is supplied at the Wholesale Price, 3s. 6d. per gallon. Moderateur Globes, full size, 2s. 6d. each.

Chimneys, 6d. each; Cotton Wicks, 3d. per doz.

Lamps of all other descriptions are on Show, in great variety.

CUTLERY, WARRANTED.—The

most varied assortment of TABLE CUTLERY in the world, all warranted, is on Sale at prices that are remunerative only because of the largeness of the Sales.

Ivory Handles.	Table Knives.	Dessert Knives.	Carvers
	s. d.	s. d.	s. d
3½-inch ivory handles .. .. Per dozen	13 .	10 6	5 .
3¾-inch fine ivory handles	18 .	14 .	6 9
4-inch ivory balance handles	21 .	16 .	6 9
4-inch fine ivory handles	28 .	21 .	8 .
4-inch finest African ivory handles	35 .	27 .	12 .
Do., with silvered blades	46 .	33 .	13 6
Ditto, with silver ferules	42 .	35 .	13 6
Nickel electro-silver handles	23 .	19 .	7 6
Silver handles, of any pattern	84 .	54 .	21 .

FENDERS, STOVES, KITCHEN RANGES, FIRE-IRONS, and CHIMNEY-PIECES.

—Buyers of the above are requested, before finally deciding, to visit the SHOW-ROOMS. They contain such an assortment of Fenders, Stoves, Ranges, Chimney-pieces, Fire-irons, and General Ironmongery, as cannot be approached elsewhere, either for variety, novelty, beauty of design, or exquisiteness of workmanship.

Black Register Stoves .. .. 8s. to £9 5s.
Bright do. with ormolu ornaments £3 8s. to £33 10s.
Bronze Fenders .. .. .. 3s. 6d. to £5 12s.
Steel and Ormolu Fenders, from £3 3s. to £25.
Chimney-pieces, from .. .. £1 8s. to £100.
Fire-irons, from .. .. 3s. 3d. the set to £4 10s.

KITCHEN REQUISITES (including BRUSHES and TURNERY), and every Article for the FURNISHING of KITCHENS, are arranged in Four Sets, each complete in itself.

	1	2	3	4
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Kitchen Utensils	0 8 8	1 4 8	1 10 12 9	3 18 1
Brushes and Turnery to suit ..	1 1 0	1 6 15	1 6 17 19 0	3 2 5
Total per Set	1 9 8	2 9 7	2 11 9 7	7 0 6

No. 1 suitable for any Mansion.
,, 2 ditto 2d-class Houses.
,, 3 ditto 3d-class ditto.
,, 4 ditto 4th-class ditto.

Any single article may be had at the same price quoted for it in the different Lists.—For particulars see Illustrated Catalogue, which can be had free by post.

PAPIER MACHE and IRON TEA-TRAYS.

—An assortment of TEA-TRAYS and WAITERS, wholly unprecedented, whether as to extent, variety, or novelty.

Oval Papier Mâché Trays, per Set of Three .. .. from 25s. to 10 guineas.
Ditto Iron ditto .. .. from 7s. 6d. to 4 guineas.
Waiters, Cake, and Bread Baskets equally low.

DISH COVERS and HOT-WATER DISHES,

in every variety, and of the newest and most recherche patterns, are ON SHOW. Block Tin, 19s. the Set of Six; elegant Modern Patterns, 35s. 6d. to 49s. 6d. the Set; Britannia Metal, with or without Silver-plated Handles, £3 2s. to £6 8s. the Set of Five; Electro-plated, £9 to £26 the Set of Four; Block Tin Hot-water Dishes, with Wells for Gravy, 12s. to 30s.; Britannia Metal, 21s. to 80s.; Electro-plated, on Britannia Metal, full size, £5 5s.; ditto on Nickel, full size, £10.

REFRIGERATORS, or PORTABLE ICE-HOUSES,

constructed on the same principles as those recommended by the Wenham Lake Ice Company.

	Long.	Wide.	High.	Price.
No. 0. ..	1 ft. 11 ins.	1 ft. 6 ins.	1 ft. 10 ins.	£3 3 .
No. 1. ..	2 ft. 6 ins.	1 ft. 11 ins.	2 ft. 0 ins.	4 4 .
No. 2. ..	2 ft. 10 ins.	2 ft. 0 ins.	2 ft. 0 ins.	4 15 .
No. 3. ..	3 ft. 4 ins.	2 ft. 0 ins.	2 ft. 0 ins.	6 6 .
No. 4. ..	3 ft. 9 ins.	2 ft. 3 ins.	2 ft. 0 ins.	7 10 .

A Small Size, with Water Tank, £2 10s.; a Large Cabinet ditto, £14 14s.; Ice Pails or Pots, 8s. to 30s.; Ice Moulds, 6s. 6d. to 13s.; Ice-making Machines, 35s. to 130s.

THE VANS DELIVER GOODS IN LONDON AND ITS SUBURBS AS UNDER:—

TWICE DAILY:—Bayswater, Camden Town, St. John's Wood, West End (all parts).

DAILY:— Belgrave Park | Brompton | City | Chelsea | Haverstock Hill | Highbury | Holloway | Islington | Kensington | Kentish Town | Kilburn | Notting Hill | Pimlico | Shepherd's Bush

MONDAY, WEDNESDAY, and FRIDAY:—Fulham, Hammersmith

TUESDAY, THURSDAY, and SATURDAY:— Borough | Brixton | Camberwell | Clapham | Herne Hill | Kennington | Lambeth | Peckham | Tulse Hill | Walworth | Wandsworth

WEDNESDAY and SATURDAY:—Dalston, Hackney, Hampstead, Holloway (Upper), Highgate, Kingsland.

☞ Goods beyond the above-named places delivered by special arrangement. With the present RAILWAY FACILITIES, the cost of delivering Goods to the most distant parts of the United Kingdom is trifling. WILLIAM S. BURTON will always, when desired, undertake delivery at a small fixed rate.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 41.—1869.] SATURDAY, OCTOBER 9. {Price Fivepence. {Stamped Edition, 6d.

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Arbor-vitæ, do.	..	..	Do., do.
Arbutus, do.	..	..	Do., do.
Bay, do.	..	..	Do., do.
Common Box, do.	..	..	Do., do.
Privet, do.	..	..	Do., do.
FOREST TREES:—			
Spanish Chestnut, 3 feet high	..	..	Do., 6 feet high
Lombardy Poplars, do.	..	..	Do., do.
Italian Poplars, do.	..	..	Do., do.
Sycamore Poplars, do.	..	..	Do., do.
Scotch Firs, 1 foot 6 inches	..	..	Do., 2 feet 6 inches
Larch do.	..	..	Do., do.
Silver Firs, do.	..	..	Do., do.
Common Ash, do.	..	..	Do., do.
Mountain Ash, do.	..	..	Do., do.
Beech, 3 feet high	..	..	Do., 6 feet high
Planes, do.	..	..	Do., do.
Quick, per 1000, 1 foot high	..	..	Do., 1 foot 6 inches
Do., to lay, transplanted	..		

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Cley (Calvados), France.—September, 1869.

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Welsh Winter Vetches	Winter Rye
Trifolium incarnatum	Winter Oats
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Together with all other Seeds, for present sowing, of best new quality, and at moderate prices.

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Good Rhubarb Roots for Forcing.

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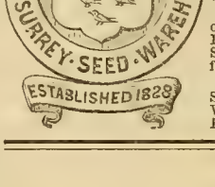
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Seed Grounds, Erfurt, Prussia.

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DOWNIE, LAIRD, AND LAING have now received their first Importations of Flower Roots, consisting of HYACINTHS, POLYANTHUS NARCISSUS, Double NARCISSUS, CROCUS, TULIPS, JONQUILS, RANUNCULUS, ANEMONES, SNOWDROPS, &c., &c., which have all been carefully selected from the most celebrated establishments in Holland. The Bulbs are this season well riponed, large, and very heavy, and have arrived in splendid condition.

D., L., AND L. offer the following assortment for One Guinea:—

12	choice named Hyacinths	24	fine mixed Ranunculus
12	,, mixed Hyacinths	24	,, ,, Anemones
6	,, Polyanthus Narcissus	12	,, ,, early Tulips
100	,, named Crocus	12	,, ,, late Tulips
50	,, mixed Snowdrops	12	,, ,, Jonquils

Packed in hamper. Carriage paid.

D., L., AND L. can supply fine Bulbs of the Prize HYACINTHS at Kensington, Regent's Park, and the Royal Caledonian Society's Shows, at 12s., 18s., and 24s. per dozen.

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Full Collections of Bulbs for outdoor planting, 10s., 20s., 40s., 60s.

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DUTCH FLOWER ROOTS.

JAMES VEITCH & SONS,

ROYAL EXOTIC NURSERY, CHELSEA, S.W.,

BEG TO ANNOUNCE THAT THEY HAVE RECEIVED

THEIR ANNUAL SUPPLY OF BULBOUS ROOTS FROM HOLLAND,

And are pleased to say that they are in excellent condition.

CATALOGUES are now ready, and will be forwarded Post Free on application.

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"The best and fullest account of this Plant (the Hyacinth) which I have met with is by a famous Horticulturist, Mr. PAUL, of Waltham Cross."—DARWIN'S *Animals and Plants under Domestication*.

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WILLIAM PAUL

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HYACINTHS, TULIPS, CROCUSES, and other DUTCH FLOWER ROOTS,

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AUTUMN 1869.

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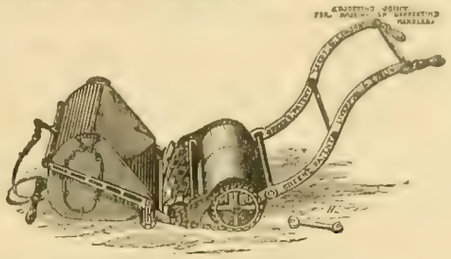
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The Patent Improvements recently introduced give

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Several important advantages possessed by no other Lawn Mower.

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The unprecedented Sale for 1868, notwithstanding the Dryness of the Season, forms the most convincing test to timely how much these advantages have been appreciated.

ALEXANDER SHANKS & SON beg to intimate that, among all the Exhibitors of Lawn Mowers at the Paris Exhibition, they are the only Firm to whom the Jury awarded a Medal. The Silver Medal then awarded is the highest Prize ever given at any Exhibition for Lawn Mowers.



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INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

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NEW OVAL TUBULAR BOILER,

Acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in GARDENERS' CHRONICLE *of International Exhibition, May* 24, 1862, *page* 476.

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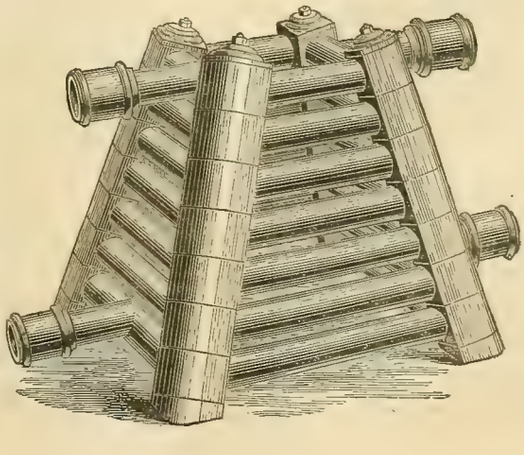
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Its heating surface exceeds all others, its efficacy exceeds all others, its economy exceeds all others, and its durability and simplicity are unequalled. Several have been in use for some time, and many are now being fixed in various parts of the country. They have been severely tested and compared with other Boilers, and in all cases have proved themselves to be what they are designated, viz., A 1.



Hot-water Heating in connection with the above is carried out with great success by the Firm, who are prepared to give Estimates for carrying out the most extensive, as well as elaborate systems of heating—satisfactory results being guaranteed in every instance.

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WILLIAM BADMAN offers strong plants of this most beautiful of Double Pelargoniums, in single pots, 6s. per dozen. LORD DERBY, finest Pelargonium grown, 4s. per dozen. Package included. Terms cash.
Cemetery Nursery, Gravesend.

New Nosegay Geranium Charley Casbon.

CASBON AND SON are now sending out the above beautiful GERANIUM. It is of dwarf spreading growth; the flowers, which have broad petals, are freely borne in immense trusses. Colour, the richest scarlet of any variety known. Strong plants 5s. each. The usual allowance to the Trade.
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Lucy Grieve	Lady Cullum	Mrs. John Todd
Louisa Smith	Caroline Longfield	Duke of Edinburgh
Sophia Cusack	Queen of Tricolors	Her Majesty
Spanish Beauty	E. G. Henderson	Kentish Hero

Two 12, in strong plants, for 21s., package included. Remittances requested from unknown correspondents.
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NEW and CHOICE TRICOLOR GERANIUMS.—

Twelve of the very best and most brilliant varieties for 21s., package included, viz.:—

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Sophia Cusack	Mr. John Clutton	Lady Cullum
Louisa Smith	Defiance (Smith's)	Sophie Dumaresque

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GOLDEN FEATHER.

—As this plant has thoroughly proved itself to be the greatest bedding acquisition that has been sent out for many years, H. CANNELL begs to remind all lovers of the genus that now is the best time to sow.
It comes perfectly true from seed; such seedling plants stood all last season, and were the admiration of all throughout the winter and spring, and equally as effective for Conservatory decoration.
300 New Seeds free for 13 stamps.
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PRIMULA.—New SEED, from the choicest strains in cultivation, Red, Purple, White, and Striped, now offered to the Trade, in liberal Trade packets, mixed, 7s. 6d. and 10s. 6d. Retail, 2s. 6d. and 3s. 6d. per packet. Fine PLANTS, 6s. per dozen.
Strong Plants of our four New FUCHSIAS, with plenty of Cuttings on, 2s. 6d. each. These are four of the best yet sent out for Market or Exhibition.
A large collection of choice VINES for fruiting and planting.
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MADRESFIELD COURT	MRS. PINCE, and
BLACK MUSCAT	ROYAL ASCOT

In Fruiting Canes, or second size for planting out; also the established old varieties, in fine plants.
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MRS. PINCE'S MUSCAT VINE, Planting Canes, 6 feet, 42s. per doz.
CLEMATIS STANDISHII, very strong, in pots, 75s. per 100.
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CAMELLIAS, with Buds, 1 to 1½ foot high, named sorts, £6 to £8 per 100.
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Early Orders are respectfully solicited by
JEAN VERSCHAFFELT, Ghent, Belgium.

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TREES, from 1½ foot to 3 feet, 5s. to 20s. per 1000; Sycamore and Laburnums, from 5 to 9 feet, 1s. 6d. per dozen, 8s. per 100; Walnuts, 3 and 4 feet, ditto; Spruce Fir, 3 and 4 feet, 3s. per dozen; Austrian Pine, 6s. per dozen; Larches, 1, 2, and 3 feet, 5s., 7s., and 10s. per 100; Laurustinus, good plants, 2s., 3s., and 4s. per dozen; Ribes sanguineum and aurea, 2s. and 3s. per dozen; Gueldre Rose, 1s. 6d. per dozen; Red Currant Bushes, strong plants, 1s. 6d. per dozen, 8s. per 100; Roses, the best sorts only, 1, 1½, 2, and 2½ feet stems, 12s. per dozen, for cash only, of A. WILKIN, Tiptree, Kelvedon, Essex.

Violets, Strawberry Plants, &c.

LEWIS WOODTHORPE begs to offer the following, now being a good time to plant:—
VIOLETS, all well established in pots.
The KING of VIOLETS, finest double indigo blue, 6s. per dozen.
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RUBRO-PLENA, dark red, double, and fragrant, 6s. per dozen.
DOUBLE TREE VIOLET, dark blue, and very double, 1s. each.
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The CZAR, the largest and most fragrant single Violet, 6s. per dozen.
DOUBLE WHITE COMPACTA, pure white, and double, 4s. p. doz.
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HEPATICAS, double red, single blue, and single pink, 4s. per dozen.
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STRAWBERRY PLANTS, of the best and new kinds.
For descriptions, a CATALOGUE of New Plants and general Nursery Stock will be forwarded free.
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KNAP HILL NURSERY,

WOKING, SURREY.

ANTHONY WATERER

Solicits the notice of intending Planters to the following LIST of specimen CONIFERS, &c., all of which he believes are as handsomely grown, as carefully managed, and as finely rooted as can be desired.

ABIES ALBERTUS, 5 to 9 feet, 30s. to 60s. per dozen. Transplanted April, 1869.
ABIES DOUGLASII, 6, 7, to 10 feet, 7s. 6d. to 10s. 6d. each. Transplanted August, 1868.
ABIES ORIENTALIS, 5, 6, and 7 feet, 7s. 6d. to 21s. Splendid plants, moved April, 1869, 10 to 12 feet high, 15 and 20 feet in circumference.
ABIES EXCELSA, the Common Spruce Fir, beautifully furnished, 5, 6, to 8 feet high, £5, £7 10s., to £12 10s. per 100.
The dwarf varieties of Spruce, such as pumila, pygmæa, Gregorii, Clanbraziliana, &c., large numbers, many of them 20 and 30 years' growth.
CEDRUS DEODARA, 5 to 6 feet, 60s. per dozen; 7 to 8 feet, 84s. per dozen; 10 to 12 feet, 10s. 6d. to 21s. each, and upwards. We have several thousands of these large Deodars. All have been removed since August, 1868; many since April, 1869.
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CEDRUS LEBANON, 6, 7, to 10 feet. Moved September, 1868.
CUPRESSUS LAWSONIANA, 6 to 7 feet, 30s. to 42s. per dozen; 8 to 10 feet, 5s. to 10s. 6d. each.
„ „ ARGENTEA, 3 and 4 feet, and as much in circumference, 7s. 6d. to 10s. 6d. each.
„ „ GRACILIS, 4 to 5 feet high, and 7 and 8 feet round, 7s. 6d. to 21s.
JUNIPER, CHINESE, 4 to 5 feet, 42s. per dozen, £15 per 100; 5 to 6 feet, 60s. per dozen, £20 per 100; 7 to 8 feet, 7s. 6d. to 10s. 6d. each. All removed since August, 1868. Purchasers may select from a stock of many thousands of this fine plant, 5 to 8 ft. high.
PICEA NOBILIS, hundreds of splendid specimens, 5, 6, 7, to 10 ft. high, all recently removed, and are undoubtedly the finest plants to be found in any Nursery. None are grafted.
PICEA NORDMANNIANA, 5, 6, to 8 feet, 21s. to 42s. each, and upwards. Splendid plants, moved August, 1869, 10 to 15 ft. high.
PICEA LASIOCARPA.—Hundreds of most beautiful plants, 4, 5, 6, 8, and 9 feet high. All recently removed.
PICEA MAGNIFICA, 3, 4, and 5 feet.
PICEA PINSAPO, 4, 5, 6, and 8 feet, 21s. to 63s. each. Some grand plants, 10 to 15 feet high, transplanted April, 1869.
THUJA AUREA, beautiful specimens, 3, 4, 5, and 6 feet high; 10 to 20 feet in circumference. This plant originated in this Nursery, and our stock is unsurpassed.
THUJA GIGANTEA, 5, 6, to 12 feet high. Moved August, 1869.
THUJA LOBBII, 8 to 14 feet high, and as much in circumference; transplanted April, 1869.
THUJOPSIS BOREALIS, 5 to 6 feet, 7 and 8 feet round; 42s. to 60s. per dozen; 7 to 8 feet, 7s. 6d. to 10s. 6d. each. All removed since August, 1869.
WELLINGTONIA GIGANTEA, 4 to 5 feet, 7s. 6d. to 10s. 6d. each; 6, 7, 8, and 9 feet, 21s. to 42s. each. Transplanted in August.
PINUS AUSTRIACA, 3 feet, £5 per 100. Transplanted, Sept. 1868.
PINUS CEMBRA, 8 to 10 feet, 10 to 12 feet round, 10s. 6d. to 21s. each.
YEWS, the COMMON ENGLISH, 4, 5, 6, 7, 8, 10, and 12 feet high. Thousands, all constantly removed; invaluable where immediate effect is sought.
YEWS, GOLDEN and ELEGANTISSIMA.—We have these in large numbers, and of all sizes, as pyramids, globes, and worked as standards, with from 3 to 5 feet of gold, and up to 10 feet high.
YEWS, IRISH, handsome plants, up to 10 feet high.
HOLLIES.—The stock of Hollies at this Nursery is, we believe, the finest to be met with in Europe; it comprises, as well as ordinary sizes, together, many thousands of the following varieties:—
HOLLY, VARIEGATED SILVER and GOLD, of sorts, 4 to 10 feet.
HOLLY, GOLDEN QUEEN, magnificent plants, 4 to 8 feet high, and as much in circumference.
HOLLY, SILVER QUEEN, 4, 5, and 6 feet.
WATERER'S HOLLY.—This variety originated in this Nursery; we have hundreds 4, 5, and 6 ft. high, 10 and 15 ft. circumference.
PERRY'S WEEPING HOLLY.—Standards, 10s. 6d. to 21s. each.
HOLLY, COMMON WEEPING.—The finest specimens we have seen. Moved, April, 1869.
HOLLY, COMMON GREEN, 4, 5, 6, 7, 8, 10 to 14 feet high, by the thousand. All moved since April, 1868.
HOLLY, Green varieties of the following kinds. An immense stock of splendid plants, all transplanted in 1868-9:—
LAURIFOLIA and SCOTTICA, 4, 5, 6 to 10 feet high.

HODGINS'	ANGUSTIFOLIA,
YELLOW BERRIED,	MYRTIFOLIA, &c.

4, 5, 6, and 8 feet high.
STANDARD, WATERER'S and GOLDEN QUEEN HOLLIES, 4 to 6 feet stems, with heads 6 to 10 feet in circumference. A large number.
N.B.—Purchasers of Hollies may select from a stock occupying at the present moment considerably over 6 acres of ground; finer or better rooted plants cannot be wished or obtained. The prices are fair and reasonable.
BOX, Green and Variegated, 4, 5, 6, to 8 feet.
BOX, do. do., fine pyramids, up to 8 feet.
BAYS, standards and pyramids.
LAURUSTINUS, standards.
AUCUBA JAPONICA, thousands of beautiful plants, all moved 1868, 3 and 4 feet high.
AUCUBA JAPONICA, Berried, hundreds, 1½ to 4 feet high; in the open ground and in pots, from 18s. to 120s. per doz. and upwards.
AMERICAN PLANTS.—The Stock of American Plants at Knap Hill is, we believe, as fine as, and more extensive than, anything of its kind to be met with in England, considerably over 50 acres of land being devoted to their cultivation. We shall be pleased to supply—
RHODODENDRONS, nice bushy plants, from layers, named kinds, £5 per 100, £40 per 1000. A dozen sent as sample on application.
RHODODENDRONS, the finer kinds, by name, from £7 10s. to £12 10s. per 100, and upwards.
RHODODENDRON PONTICUM, good plants for Cover, from £10 to £15 per 1000.
STANDARD RHODODENDRONS.—Of these we possess a large number of the oldest and finest specimens in the country, many being from 20 to 30 years old, with heads varying from 15 to 30 feet in circumference. There is probably no kind better adapted for standards than that we call roseum elegans, many of which we supplied to Rotten Row. We have also Rhododendrons, standards, of many other kinds.
RHODODENDRONS, fine hybrids, of good hardy habit, and great variety in colour, from £5 to £12 10s. per 100. Sample on application. Large and handsome plants by the 1000, 4 to 8 feet high.
AZALEAS, the very best kinds, nice plants, £10 per 100, upwards.
AZALEAS, common kinds, £5 per 100.
AZALEAS, splendid plants, of the finest varieties, 3, 4, 5, and 6 feet high, and as much in circumference.
KALMIA LATIFOLIA, nice plants, bushy, healthy, and covered with bloom, £5 to £10 per 100.
ANDROMEDA FLORIBUNDA, £5 to £7 10s. per 100, and upwards.
HARDY HEATHS, a very fine collection, every plant a specimen, and all removed in 1869, from 20s. to 40s. per 100.
ERICA CARNEA, for winter blooming, many thousands.
ERICA MEDITERRANEA ALBA, remains in bloom from October to May, and smells like new-mown hay—indispensable for Winter Gardening.
SKIMMIA JAPONICA, nice healthy plants, moved April, 1869, covered with berries, 12s. to 18s. per dozen.

As well as the above, the Knap Hill Nursery contains upwards of 200 Acres of ordinary NURSERY STOCK of a superior class, such as Flowering Shrubs (Deciduous and Evergreen), Roses, Ornamental Trees for Avenues, &c.

A PRICED and DESCRIPTIVE CATALOGUE will be forwarded on application. Purchasers to any extent are strongly recommended to make a personal inspection of our stock, and obtain the prices on the spot. No Catalogue can fairly describe many of the plants we offer.

The Nursery is readily reached by train from Waterloo to Woking in 40 minutes.

N.B.—There is now no difficulty in sending Plants through in the same truck, without package, from Woking to almost any Railway Station in England.

British Fern Catalogue.

ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, Sidcup Hill, Kent.

Choice Belgian Pansy.

THE CELEBRATED SHIPLEY STRAIN.
GEORGE JOHN CHILD (Successor to WM. DEAN) can supply the above, just harvested, at 1s. 6d. and 2s. 6d. the packet, post free; also choice ENGLISH SHOW PANSY at 1s. 6d. and 2s. 6d. the packet.
49, Darley Street, Bradford, and Bradford Nurseries, Shipley.

HAMBURGH INTERNATIONAL EXHIBITION,

1869, First-Class Medal.
EDINBURGH INTERNATIONAL EXHIBITION, 1869, First-Class Certificate.
Awarded R. HARTLAND, for two groups of GOLDEN VARIEGATED WELLINGTONIAS. Prices on application.
Cork, the Lough Nurseries.—Sept. 25, 1869.

Paul's Rose Catalogue.

"A very complete and able Catalogue."—*Floral World.*
WM. PAUL begs to announce that his NEW CATALOGUE of ROSES is now ready, and will be forwarded post free on application. The stock of Plants is large and excellent.
Paul's Nurseries, Waltham Cross, London, N.

Standard Roses.

LEWIS WOODTHORPE having a most splendid collection this year, begs to offer them at the following low rates, with good heads, clear stems, and true to name:—
STANDARD ROSES, the best sorts, including Maréchal Niel, &c., £5 per 100; 27s. 6d. per 25; 15s. per dozen.
CATALOGUES free. Wholesale prices upon application.
Munro Nursery, Sible Hedingham, Essex.

Dwarf and Standard Roses.

FRANCIS & ARTHUR DICKSON & SONS have an immense stock (many thousands) of very strong well-grown plants of all the best ROSES, including ALL THE NEW VARIETIES, for Autumn planting; also a large quantity of STRONG PLANTS, in POTS, of the best sorts, which can be planted out at ONCE. PRICED DESCRIPTIVE CATALOGUE sent free by post. Inspection respectfully invited.
The "Upton" Nurseries, Chester.

Roses.

JOHN HARRISON begs to inform his Friends and the Public that his stock of ROSES this season surpasses any that he has previously had to offer. Those on the Manetti cannot be excelled, as well as an immense stock on their own roots in pots, which might be planted at once, or at any season of the year. Prices exceedingly low. The new varieties of the present season, 18s. to 24s. per dozen; older varieties, 6s., 9s., 12s., to 18s. per dozen.
CATALOGUES of Roses, Ornamental Trees and Shrubs, Fruit Trees, Forest Trees, Florist Flowers, &c., can be had free on application. North of England Rose Nursery, Darlington.—Oct. 1.

Roses, New Roses, Gladioli.

LÉVÊQUE ET FILS, NURSERYMEN, 132 and 134, Boulevard de l'Hôpital, Paris, have a very large stock of strong ROSES, Standards, Half-Standards, Dwarfs, and on their own roots, including all the best sorts and novelties.
NEW ROSES for this YEAR (to be sent out for the first time next November).—They can supply all these, with a large discount.
GLADIOLI SEEDLINGS (first-rate), per thousand, and all the best sorts by name. LISTS and prices sent free on pre-paid application.

Gladioli.—Roses.

M. CH. VERDIER Fils (late Firm of Victor Verdier, Père, and Ch. Verdier, Fils), NURSERYMAN, 12, Rue Dumeril, Paris, has just published his new CATALOGUE of GLADIOLI, containing all the Novelties of the Season, which may be had free on application to his London Agents, Messrs. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, E.C.
N.B.—His CATALOGUE of NEW ROSES (which will be sent out next season) is also ready, and can be had on application to the above.

Spring Flowers, Roses, Fruits, &c.

THOS. S. WARE'S new AUTUMN CATALOGUE of ROSES, EVERGREEN and ORNAMENTAL TREES, SHRUBS, FRUITS, &c., is now ready, and will be forwarded free on application. To which will be added a select List of SPRING-FLOWERING PLANTS, especially requiring to be planted in the Autumn, in order that they should be thoroughly established for flowering well and early in the Spring.
Hale Farm Nurseries, Tottenham, Middlesex, N.E., adjoining the Railway Station.

Jackman's Hardy Hybrid Clematises.

AWARDED 20 FIRST-CLASS CERTIFICATES and 2 SPECIALS.
GEO. JACKMAN AND SON are desirous of drawing the attention of those who intend using their CLEMATISES for Climbers or Permanent Bedding Plants, &c. The present time is most favourable for Planting.
OPINION OF THE PRESS.
"They have in their several varieties the very colour of which our summer gardens are in a great measure deficient."—*Gardeners' Chronicle.*
An Engraving and a general Descriptive Catalogue of prices will be forwarded by enclosing a stamp.
Woking Nursery, Surrey.

To the Trade.

CHRYSANTHEMUMS of 1869.—
Set of 12 varieties of Japanese Chrysanthemums, sent out by Mr. Salter this Spring, 5s.
Set of 11 large-flowered varieties, sent out by Mr. Salter, 4s. 6d.
Set of four varieties sent out by Mr. Forsyth this Spring, 3s.
The plants are in 3-inch pots, and will give many more cuttings than plants bought later on. They have been struck two months, and some will have flowers on. If the three sets are taken, the price will be 10s. Flowering plants, in 5-inch pots, 6s. per dozen. package included in all. Cuttings of any may be had at 2s. 6d. per dozen, post free. Terms cash.
WM. CLIBRAN, Millbank Nursery, near Warrington.

Echeverias.

H. CANNELL has perhaps the finest and largest blooming lot of Plants of METALLICA in the kingdom, varying in size from seedlings to plants 4 feet high; and H. C. has spared neither expense nor pains in bringing a large quantity of seed to perfection. Each pod contains quite a 100 dust-like seeds, and if sown at once, will make splendid little plants for next season. One pod, just ripe, sent free for 13 stamps.
R. C. has also a fine lot of the three following beautiful edging kinds:—SECUNDA, SECUNDA GLAUCA, and PUMILA. A packet of either of these sent free for 18 stamps.
Plants of all the above from 5s. per dozen to 20s. per plant.
New Florist Flower and Florist Flower Seed Merchant, Woolwich.

Cattleya Mossiæ.

JEAN VERSCHAFFELT begs to announce that he has received a fine Importation of this splendid ORCHID, in capital condition, and begs to offer them at the following low prices, viz.:—Plants with 6 to 8 and 10 Bulbs, 8s. each; 6 Plants for 30s., 12 do. for 60s., 100 do. for £20. Early orders will oblige.
Address, JEAN VERSCHAFFELT, 134, Faubourg de Bruxelles, Ghent, Belgium.
N.B.—J. V.'s new CATALOGUE, just issued, may be had free on application, either to himself or to his London agents.

To the Trade.—Lilium lancifolium.

JEAN VERSCHAFFELT begs to intimate that he holds now a large and extra fine Stock of the above, in most splendid condition. The Bulbs are exceedingly large, and especially recommended to Seedsmen. Each Bulb will produce a great quantity of Flowers next season. The prices are very low, and the Bulbs unequalled:—LILIUM LANCIFOLIUM RUBRUM, extra large and fine, 60s. per 100; ALBUM, 60s. per 100; PUNCTATUM, magnificent bulbs of that very rare variety, true, 20s. per doz., £6 8s. per 100.
A special arrangement where large quantities are wanted. Early orders solicited by
JEAN VERSCHAFFELT, 134, Faubourg de Bruxelles, Ghent, Belgium.

SUTTONS'

FRESH IMPORTED FLOWER ROOTS

FOR WINTER AND SPRING BLOOMING.

MESSRS. SUTTONS' FLOWER ROOTS Have been selected from the principal Growers in Holland.



MESSRS. SUTTON DELIVER ALL FLOWER ROOTS, Except very small parcels, Carriage Free by Rail.

Special Estimates for large quantities on application.

Suttons' Complete £1 1s. Collection,

For Cultivation in POTS and GLASSES, Carriage Free.

12 fine Hyacinths, by name	3 Persian Iris
6 Miniature Hyacinths, by name	3 Peacock Iris
6 Polyanthus Narcissus, do.	50 fine Crocus, by name
6 Large Double Jonquils	6 choice Ixias
6 Single Sweet Jonquils	3 choice Sparaxis
6 Scilla præcox	3 choice Oxalis
6 Single Due Van Thol Tulips	1 Jacobea Lily
6 Double Tournesol Tulips	1 Lilium lancifolium album
25 Early Tulips, 5 sorts	1 " " rubrum

Suttons' Fine New Crocus for Pots.

1000 splendid named, in 25 vars.	£1	15	0	100 splendid named, in 10 vars.	£0	4	0
500 do. do., in 25 vars.	0	18	0	50 do. do., in 10 vars...	0	2	0
250 do. do., in 25 vars.	0	9	0	25 do. do., in 5 vars. ..	0	1	0

Suttons' Dutch Crocus for Open Ground.

1000 in 10 vars.	£0	18	6	250 in 5 vars.	£0	5	0
500 in 10 vars.	0	10	0	100 in 5 vars.	0	2	3
Large Blue .. per 100	£0	1	9	Large Yellow .. per 100	£0	1	9
" White .. "	0	1	9	Largest Yellow "	0	2	6
" Purple .. "	0	2	6	Cloth of Silver "	0	2	0
Common Yellow "	0	1	0	Cloth of Gold .. "	0	2	0
Large Mixed .. .. per 100	£0	1	6				

Suttons' Choice Polyanthus Narcissus,

For POTS, GLASSES, or OPEN GROUND.

100 in 20 choice sorts ..	£1	5	0	12 in 12 choice sorts ..	£0	4	0
50 in 10 choice sorts ..	0	14	0	100 fine mixed	0	15	0
25 in 12 choice sorts ..	0	7	6	12 fine mixed	0	2	0

Garden Narcissus, finest mixed, 7*s.* 6*d.* per 100.

Suttons' Early and Large Double Tulips,

Early Varieties.

100 in 20 choice vars. ..	£0	18	0	50 in 10 choice vars. ..	£0	8	0
100 in 10 choice vars. ..	0	15	0	25 in 5 choice vars. ..	0	4	0

12 in 4 choice vars., 2*s.*

Double Tournesol, p. 100	£0	12	6	Rose Due Van Thol, p. 100	£0	14	0
" Due Van Thol "	0	3	6	Scarlet " " "	0	18	0
Single Due Van Thol "	0	5	0	Yellow " " "	1	0	0

Choice named varieties, separate, 1*s.* to 12*s.* per dozen.

Large Double Varieties.

100 in 10 choice sorts ..	£0	17	6	50 in 10 choice sorts ..	£0	10	0
25 in 5 choice sorts ..	0	5	0	12 in 4 choice sorts ..	0	2	6

For COMPLETE LIST of BEDDING TULIPS (with an original article on Cultivation), showing the date of blooming, height, size of flowers, and colours of the varieties most worthy of cultivating, see SUTTONS' AUTUMN CATALOGUE for 1869, gratis and post free on application.

SUTTONS' SUPERB DUTCH HYACINTHS

FOR CULTIVATION IN POTS OR GLASSES.



The best 12 HYACINTHS for 12*s.*



Messrs. SUTTONS' COLLECTION of HYACINTHS consists of more than 200 varieties, a PRICED and DESCRIPTIVE LIST of which may be had on application.

Suttons' Collections of Named Hyacinths.

100	HYACINTHS in 100 very choice sorts ..	£4	4	0
100	" 50 very choice sorts ..	3	10	0
50	" 50 very choice sorts ..	2	2	0
50	" 25 very choice sorts ..	1	15	0
25	" 25 very choice sorts ..	1	1	0
12	" 12 extra fine sorts ..	0	12	0
12	" 12 choice sorts	0	9	0
12	" 12 good sorts	0	6	0

The order should specify whether they are intended to be grown in water or earth, as all kinds are not equally suited to both purposes. It should also be stated whether single or double blossomed kinds are preferred; otherwise we usually supply about two-thirds double and one-third single. The single varieties generally thrive best in water, but their merits are never apparent until the flowers are fully expanded.

SUTTONS' MIXED HYACINTHS for Beds or Open Borders.—Double, Single, and various colours, 2*s.* 6*d.* per doz., 17*s.* 6*d.* per 100.

SUTTONS' HYACINTHS in DISTINCT COLOURS for Massing, Bedding, Ribbon Gardening, &c.—Double and Single, various shades, separate, 4*s.* per dozen, 30*s.* per 100.

Suttons' Complete £1 1s. Collection

For OPEN GROUND CULTIVATION, Carriage Free.

12 fine mixed Border Hyacinths	6 fine mixed Gladiolus
6 " Polyanthus Narcissus	12 Due Van Thol Tulips
12 Pheasant's Eye Narcissus	6 mixed Single Early Tulips
12 Double White Narcissus	6 fine mixed Double Tulips
25 Double Daffodils	6 " Parrot Tulips
6 large Campernelle Jonquils	6 Gesneriana Tulips
50 fine mixed Double Ranunculus	25 fine mixed Tulips
50 Scarlet Turban Ranunculus	6 " English Iris
12 fine mixed Double Anemones	6 " Spanish Iris
12 " Single Anemones	3 Lilies, of sorts
150 Crocus, 3 sorts	3 Ferraria pavonia
50 Snowdrops	6 Dog's-Tooth Violets
25 Winter Aconites	3 Crown Imperials

For further particulars and Prices of GLADIOLUS, RANUNCULUS, ANEMONES, &c., see SUTTONS' AUTUMN CATALOGUE, gratis and post free on application.

SUTTON AND SONS,
SEEDSMEN TO THE QUEEN, READING, BERKS

ECONOMY IN THE GARDEN.

James Carter & Co
Seed Growers

COLLECTIONS OF

HYACINTHS, CROCUS, TULIPS, &c.,

TO PRODUCE A

PRETTY AND PERMANENT DISPLAY

DURING WINTER AND SPRING.

JAMES CARTER AND CO. strongly recommend the following COLLECTIONS, assorted from the most popular varieties:—

No. 1.—CARTER'S COLLECTION for WINDOW or CONSERVATORY DECORATION £1 4 0

CONTAINING:

Hyacinths, 50 in 25 extra fine named sorts	Tulips, extra fine, named, Double, 50
Polyanthus Narcissus, 36 in 12 named varieties	Do. do. do. Single, 50
Jonquils, Sweet-scented, 50	Dielytra spectabilis, 4
Crocus, finest, named, 200	Lilium speciosum, in variety, 4
Cyclamen persicum, 4	Scilla sibirica, 36 [100
	Snowdrops, extra large, selected,

No. 2.—CARTER'S COLLECTION, reduced quantities £3 3 0

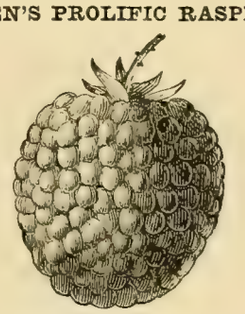
No. 3.—CARTER'S COLLECTION, reduced quantities £2 2 0

No. 4.—CARTER'S COLLECTION, reduced quantities £1 1 0

No. 5.—CARTER'S COLLECTION for CONSERVATORY and OUTDOOR PLANTING £4 4 0

McLAREN'S PROLIFIC RASPBERRY.

For full description, see page 986, in Gardeners' Chronicle Sept. 18.



AWARDED A FIRST-CLASS CERTIFICATE.

JAMES CARTER AND CO. are now booking orders for the above valuable fruit, to be supplied this autumn at the following prices:—

6 Strong Canes, 7*s.* 6*d.*	25 Strong Canes, 20*s.*
12 Strong Canes, 12*s.*	100 Strong Canes, 60*s.*

No. 6.—CARTER'S COLLECTION of BULBS for CONSERVATORY and OUTDOOR PLANTING £3 3 0

No. 7.—CARTER'S COLLECTION, reduced quantities £2 2 0

No. 8.—CARTER'S COLLECTION, reduced quantities £1 10 0

No. 9.—CARTER'S COLLECTION, reduced quantities £0 15 0

No. 10.—CARTER'S COLLECTION for OUTDOOR PLANTING £4 4 0

CONTAINING:

Hyacinths, 75 in 3 colours	Anemones, extra fine mixed, 100
Narcissus, Double, White, 50	Gladiolus Brenchleyensis, 24
" Poeticus or Pheasant-eye, 50	Iris, ex. choice mixed English, 50
Double Daffodils, 50	" extra fine mixed Spanish, 50
Tulips, extra fine mixed, Double, 75	Lilium candidum, 6
" " Single, 75	" aurantiacum, 6
Crocus, Blue, 200	" martagon rubrum, 6
" Striped, 200	" tigrinum, 6
" Large Yellow, 200	Ranunculus, extra fine mixed, 100
" White, 200	Snowdrops, 400
	Winter Aconites, 100

No. 11.—CARTER'S COLLECTION, reduced quantities £3 3 0

No. 12.—CARTER'S COLLECTION, reduced quantities £2 2 0

No. 13.—CARTER'S COLLECTION, reduced quantities £1 1 0

☞ *No charge for packing any of above Collections.*

For the fullest information to ensure successful cultivation and particulars of the above Assortments, send for

CARTER'S

ILLUSTRATED LIST of BULBS, &c.,

Forwarded Gratis and Post Free.

JAMES CARTER AND CO.,
THE ROYAL SEEDSMEN,
237 AND 238, HIGH HOLBORN, LONDON, W.C.

Rhododendrons,

As EXHIBITED in the ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON.

ANTHONY WATERER begs to announce that his PRICED and DESCRIPTIVE CATALOGUE for the present season is now ready, and will be forwarded on application. It fully describes the kinds most worthy of cultivation, and gives, as well, a general summary of his extensive general Nursery Stock.

Knap Hill Nursery, Woking, Surrey.

Rhododendrons.—To the Trade.

J. MATTHEWS has a large stock of 4-yr. RHODODENDRONS, 6*s.* per 100; 3-yr. (4-yr. transplanted), 10*s.* per 100; 1 to 1½ feet, bushy, 15*s.* per 100; 1½ to 2 feet, 10*s.* per 100; Splendidum, white Rhododendron, budded, 1½ feet, 10*s.* per dozen; Corsicum pictum, 1 foot, 12*s.* per dozen.

SPRUCE FIR, 1½ to 2 feet, 2*s.* per 100; and 2 to 3 feet, 5*s.* per 100. PRIVET EVERGREEN, 2 to 3 feet, 15*s.* per 100; 3 to 4 feet, 30*s.* OAKS, 3-yr. budded, 1 to 1½ foot, 5*s.* per 100.

Milton Nurseries, Stoke-on-Trent, Staffordshire Potteries.

Splendid New Rhododendron,

BARONESS LIONEL ROTHSCHILD.

JOHN WATERER AND SONS are now prepared to execute orders for the above new SEEDLING RHODODENDRON; in colour it is a clear bright crimson, the margin of the bloom of a fiery scarlet, of fine handsome form, and remains a great length of time in bloom. Price 21*s.* each. The usual Trade allowance.

The American Nursery, Bagshot, Surrey.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—Notice is hereby given that an ADDITION to the LIST of PENSIONERS will be made in January next. All Persons desirous of becoming CANDIDATES are required to send in their Papers and Testimonials to the Committee on or before MONDAY, November 8 next, after which day they will not be received.

Preference will be given to those Persons who may have been subscribers for 15 Years and upwards. Should there not be sufficient number of that class, then the claims of those who have not subscribed so long, or not at all, will be considered.

By order, EDWARD R. CUTLER, Secretary.
October 6. 14, Tavistock Row, Covent Garden, W.C.
P.S.—Printed Forms may be had upon application to the Secretary.

The Gardeners' Chronicle.

SATURDAY, OCTOBER 9, 1869.

THE FUNGUS MEETING at the Royal Horticultural Society passed off successfully on Tuesday last. There was a decided improvement in the mode of displaying these productions as compared with that adopted last year, though there is still room for further improvement in this respect. The edible Fungi also require to be distinctly set apart from those which are known to produce injurious effects, and from those which are not worth cooking. In an educational point of view, too much stress can hardly be laid upon this point, the more so as, to the unpractised eye, the difference between noxious and harmless varieties is sometimes very slight, especially in the case of the Boleti. Mr. WORTHINGTON SMITH'S excellent charts might well have been suspended in the room, to have facilitated the recognition of Apician dainties from others only fit for MEDEA'S cauldron. The species exhibited were naturally pretty much the same as those shown last year, and the comments made on them contained little novelty, if we except the interesting communication from Dr. CURTIS to Mr. BERKELEY, and for permission to make use of which we have to thank the latter gentleman. For figures and descriptions of the principal edible and noxious varieties, we may refer our readers to our last year's volume, pp. 1064, 1091. The Council of the Society very properly caused some of the species exhibited on this occasion to be cooked, and equally properly set a good example by themselves partaking of the dainty fare. We may, however, suggest to the cook that moderation in the use of butter would be a virtue, and the heating of plates a still greater one.

The species most relished were the Fairy-ring Champignon, Marasmius Oreades, broiled; the Vegetable Sweetbread, Agaricus prunulus, stewed in white sauce; the Parasol Agaric, A. procerus, broiled; the Giant Puff-ball, cut in slices, dipped in the white of egg, and fried; and the maned Agaric, Coprinus comatus, broiled. The only Fungus exhibited that was new to our lists was the true Cantharellus carbonarius, of Albertini and Schweinitz, sent by the Rev. W. HOUGHTON, from charcoal heaps in the woods round the Wrekin, in Shropshire. The same species was found on burnt earth by Mr. W. G. SMITH and others, on Saturday, Sept. 25 last, during the excursion of the Reigate Natural History Society, under the presidency of Mr. W. WILSON SAUNDERS. It here occurred in some plenty on burnt earth and charcoal near the Fir woods about Gomshall. Mr. HOUGHTON also sent fine specimens of Lactarius controversus, Pers., and Geaster rufescens, P.; the former species appears to be now cropping up in various places, but invariably under Poplars. The specimens exhibited by Mr. SMITH, together with Boletus cyanescens, Bull, came from Staplehurst, Kent. Mr. ENGLISH had some grand plants of Agaricus Ceciliæ, Berk. and Br., from Epping Forest, where it is common. Many of the edible varieties are undoubtedly

excellent, and it is a matter for regret that, while so many thousands of our poorer countrymen hardly taste fresh meat from one year's end to the other, vast quantities of wholesome and nutritious Fungi are allowed to rot ungathered. A good deal may be done to promote a knowledge of the good sorts, and a taste for them by such exhibitions as that at Kensington, and by the local naturalist clubs, of which that at Woolhope (to whose volume of "Proceedings" we shall have shortly to allude) may be mentioned as in the van of progress in this matter. Nevertheless, we can scarcely believe that edible Fungi will ever take any important place among articles of food for general consumption till they can be cultivated, and a regular supply in due season counted on with something like certainty. We would then urge those who have this matter at heart to try what they can do in the way of culture. Already, we suspect, some trials are being made in this direction, for we notice that Messrs. CARTER pretty frequently exhibit specimens of the Giant Puff-ball, one of the very best of the sorts for culinary purposes. When we hear of armies being fed for months on Fungi, it is surely time to begin to utilise our resources.

—— WE have received from Mr. MCDONALD, of Woodstock Park, Ireland, as well as from several other gardeners, letters advocating the propriety of taking some steps to perpetuate the memory of the late Mr. JAMES VEITCH. The suggestion has been spontaneously and independently made, and has met with approval in various quarters, and we gladly give publicity to it, believing that Mr. VEITCH has done more than almost any other man in modern times for the advancement of gardeners and gardening, not only by his direct example in regard to cultivation and the introduction of novelties, but by the tact and ability displayed in placing intelligent men in positions calculated to develop their capabilities. We would suggest that a committee should be at once formed, with a view to give effect to this proposal; and we shall ourselves be happy to receive the names of persons willing to act on the committee, and also to take steps to convene an early meeting.

—— Connected with the subject of GRAPE-GROWING IN POTS, which is now exciting some little discussion, we have been favoured with a photograph of a house of pot Vines now growing at Newstead Abbey, near Nottingham; and if the crop is not the finest we ever saw, it is certainly such an one as is rarely seen, and is well worthy of description. There are two houses filled with pot Vines, both of the same size, and both containing the same number of plants. That of which the photograph is taken is filled with the Black Hamburgh exclusively, the other containing a variety of kinds, with a good sprinkling of the Mrs. Pince's and Alexandrian Muscats. The houses are span-roofed, and each is about 30 feet long by 14 feet wide. A walk runs through the centre, and on either side there is a bed, with a bottom of strong slate slabs, the latter resting upon pillars of dry brickwork, so that they may be raised or lowered, as no bed of soil, or a deep one, may be required by the exigencies of cultivation. The whole of the heating pipes are placed under the bed, and the heat is admitted to the atmosphere of the house through valves in the side walls, thus securing a constant circulation, as the cold air from its natural gravity sinks into the path, passes under the bed among the heated pipes, and forward up the valves to the atmosphere of the house. Into this bed, which last year was used for the growth of Melons and Cucumbers, pots containing strong, well-ripened Vines, were partly plunged about the time in the spring the buds began to break naturally, the object being to have the crop ripe at the commencement of the shooting season. Each house contained 34 Vines, 17 in either bed. The Hamburgh house was the most uniform in the crop, and contained upwards of 300 bunches, many of them being more than 2 lb. in weight, few less than half a pound; indeed a fruiterer from a neighbouring town said he would purchase the crop at 250 lb., which would be nearly 8 lb. to each Vine. The berries were of good size and well coloured, and the roof of the house looked a mass of Grapes. The mixed house was not quite so well filled; the Muscats, both Mrs. Pince's and White, not being so well set or swelled as the other varieties. Mrs. Pince's Grape, as seen here, is certainly not a suitable Vine for pot cultivation, whatever it may be for other purposes, the bunches being thin and the leaves wanting in vigour. The crop of the two houses, taken altogether, was such as is rarely seen in any place; and as we have given the weight, say 500 lb., in the two houses, it will be easy for any person to calculate what such a crop would be worth in June or July, when Grapes such as those are worth from 5s. to 15s. per lb.; and when they have done so they will find that pot Grapes would be found a very remunerative crop. It is, however, only fair to say that these Vines were allowed to root into the border of plunging material, and that they there received every assistance in the way of liquid manure and other aids to good growth. The crop, and the style in which it was finished, reflected the greatest credit upon Mr. JOHN ANDERSON, the intelligent gardener at Newstead, whose permanent Vines, now carrying their first crop, can scarcely be surpassed by any Vines of the same age in the country.

—— We are glad to hear that next year it is proposed to bring out a new illustrated work on British Hymenomycetous Fungi, from the pen of W. WILSON SAUNDERS, F.R.S., and WORTHINGTON G. SMITH, F.L.S. It will consist of descriptions and figures of some 200 or 300 species of such Fungi as are new, rare, or such as have been unsatisfactorily figured before. One hundred coloured plates (super-royal) are being drawn on stone by Mr. SMITH, partly from drawings by Mr. SAUNDERS, and partly from his own sketches. The book will appear in four parts, each part containing 25 plates, price 10s., the parts to appear on the 1st of January, April, July, and October. Any rare species our subscribers may meet with in their walks will be thankfully received by Mr. W. G. SMITH, 12, North Grove West, Mildmay Park. Subscribers can send their names to Mr. VAN VOORST, Paternoster Row.

—— We have received for publication the following circular relating to SCIENCE INSTRUCTION for WOMEN:—An important experiment is about to be tried at the South Kensington Museum, to promote the instruction of women in science. By permission of the Lord President, Professors HUXLEY, GUTHRIE, and OLIVER are about to commence a course of lectures on Natural Science, beginning in November. The fees will not exceed a shilling a lecture, with voluntary examinations, and the terms will even be lower to schools and governesses. The Duchess of ST. ALBAN'S, MARY, Marchioness of SALISBURY, the Countesses of TANKERVILLE, DE GREY, and GRANVILLE, Lady NORTHCOTE, and many other ladies, have expressed their willingness to assist in carrying out this experiment. The Hon. and Rev. F. BYNG, of Onslow Gardens, London, S.W., is the Treasurer and Secretary.

—— Messrs. MOSES & Sons, and similar firms, are no longer to monopolise the services of the Muses in the ADVERTISEMENT of their wares. Most fitting is it that they wait on Flora; so thinks the writer of the subjoined advertisement, taken from the columns of a suburban journal *verbatim et literatim*:—

A GARDENER, of his employment bereft,
When death a dear lady removed,
Experienced great loss when so pain fully left,
For he had for nine years been approved;
Now seeks a new service, and where there is wanted
Skill, diligence, merit's best face,
Assur'd when he finds himself fairly transplanted,
He's the right Gardener in the right place.

—— We are informed by Messrs. BARR & SUGDEN that any one desirous of trying the FRENCH MUSHROOM SPAWN can have a few flakes gratis for that purpose. Since this article was noticed in the *Field*, inquiries have been very numerous, and as Messrs. BARR & SUGDEN know nothing of it practically, they have thought it best to make the above offer.

—— We learn that we were mistaken in our statement that Mr. BRITTEN was appointed to an ASSISTANTSHIP in the KEW HERBARIUM without an examination, inasmuch as that gentleman had to submit to the ordeal prescribed by the Civil Service Commissioners, although he had already satisfactorily passed an Arts examination. Our statement was copied from the *Pall Mall Gazette*.

FERN CULTURE.

FERNS are the plants of the million. They are not confined to any particular country: they have a wide geographical distribution. Indigenous Ferns provide a treat of no common character to all who choose to collect them, and tend them with care afterwards, a much greater one than any other tribe of native plants, barring, of course, a few of the choicer alpines. Beautiful as the majority of our native plants are, and particularly suited for artificial cairns of rockwork, collectors and growers generally who have means at their disposal cannot rest contented with the possession of them alone. The love of plants and flowers in some natures is true and deep. Once the affection is grounded, its extension laterally follows intuitively, and the Fern collector, after he has explored and secured all that are good in the British Islands, longs to accommodate the more beautiful and interesting of the exotic species. The mason, the carpenter, the glazier, and the engineer are all consulted, and the upshot is that the house is reared—probably the beginning of a collection hereafter to be famous, possibly the whole thing ending in defeat. Unfortunately some people are defeated by having or allowing things of first importance to be done upon a wrong principle; and it is because of this, and because we occasionally see a good principle carried out, and corresponding success following it, that I beg to trouble your readers, as a matter of interest to them, with the following line of success in a remarkably short period of time.

A very enthusiastic admirer of trees and plants, and one holding a fine collection of Coniferæ, of Roses, of Rhododendrons, of Hollies, and of border florist-flower plants generally, latterly took to Ferns. He had, after battling a little with indigenous plants—having, with the aid of an excellent wife and growing-up family, collected much with his own hands—indulged in the very praiseworthy idea of having a house, not of the princely Mendelian character, which can only be imitated by the few, but of such a kind as thousands can well afford to rear. It was a simple span-roof, so erected as that the plants could never be more than a yard from the glass. This could not be filled at once with fine species, for it would be a too extravagant entrenchment upon the nice little sums that are apportioned out of a year's income for detached projects outside the household concerns altogether. It was made to do duty, therefore, for a collection of Coleuses, some Dracænas, and such-like plants, that put in a respectable appearance, and are come-at-able at a small figure. The one side was reserved for Ferns, and by extraordinary attention they have grown up wonderfully fine, getting up in the space of 18 months from the common nursery stock to be nice half specimen plants.

The house is 40 feet long, and about 12 feet wide, with a path up the centre. It is heated by water-pipes. On either side the path is a brick partition about 4 feet high. Within this enclosure is a bed of Cocoa-nut fibre, which forms capital groundwork for the plants to rest upon, the finer particles at the top being especially fitted for rearing the thousands of spores that are shed indiscriminately over the surface. The heating is effected by hot water, a flow and return pipe round the house being sufficient to provide heat at all times. The atmosphere, nicely modulated in point of heat and moisture, is striking to the senses on entrance; and the health of the collection amply testifies to the good and simple mode planned and carried out for the successful cultivation of a tribe that is wondrously beautiful at all times.

Prominent among the lot stood out Adiantum farleyense, than which a more beautiful species does not exist, especially seen under the influence of what might be called the semi-Wardian case culture adopted by Mr. Gair and his gardener, Mr. Crombie, in the suburbs of Falkirk. It evidently delights at times to be bathed in a profusion of atmospheric moisture, for the quadripinnate fronds, that are handsome at all times, seem to grow with exuberance in a climate of the kind. The grand pendulous fronds in their varying shades of green, and the elegant pendulous habit with which they are invested, single this out as a plant suitable to be placed in company with any of Flora's subjects. Without the case, in the ordinary atmosphere of the house, the following kinds were particularly noteworthy:—The superb forms of Gymnogramma Laucheana, and the more beautiful G. Parsonsii, as if dipped in gold, contrast well with the tassel-like silvery G. Wettenhalliana; then G. Pearcei has very fine pinnæ, so multitudinous and so nicely cut as to look more beautiful in its relation, as a work of Nature, than the finest piece of lace as a work of art.

Then the Maiden-hairs (Adiantum) are quite captivating, and have probably more admirers than all the other races put together. Their fitness for intermixing with a variety of flowering plants is beyond question, and the wonder is why this sort of garnishing is not more common. A. concinnum latum, grown on cleverly, is a grand form, and well repays liberal treatment. A. curvatum, a plant not often seen in good condition, is unusually promising, as it is decidedly beautiful, from the form and curvature of its pinnæ and generally good looking fronds. A. glaucophyllum is an acquisition to the dwarf forms of the family. A. pubescens is another fine dwarf species, the fronds growing closely together, and the pinnules and pinnæ being invested with interest from the distinct pink tinge that adorns the normal green. A. cardiochlæna is a noble-looking plant among some of its tiny compeers, and was here in fine style; the pinnæ lie very flat, and look very lustrous. A. cristatum and A. velutinum were both noticeable species in the collection, and well done.

Among other genera are Phegopteris (Polypodium) sancta, like a dwarf Trichomanes, elegant among others, and well adapted for a choice position. Polypodium appendiculatum had long and depending fronds with brown and crimson stipes and rachis, and contrasted well with the dark green pinnæ, being a capital match plant for Acrophorus chærophyllus, at all events as grown in the collection in question, the light green fronds reaching to a good size, and the colour fine toned in proportion. Davallia aculeata is one of the most distinct of Ferns for contrasting with its fellows, the rachis being adorned with prickles, and the pinnæ of a bright shade of green. Pteris ternifolia has fine fronds with almost entire pinnæ of a distinct glaucous hue, and would strike a superficial observer. Others too numerous to particularise are doing equally well in the low house of an intermediate temperature. The beauty of the groups is very much enhanced by a proper system of culture at work, and they all provide a feast to every onlooker, no matter what his plant proclivities may be. Add to this the no very great cost incurred from beginning to end, and the wonder is why their cultivation is not far more general. A real enjoyable hour could be spent daily amongst them, and the writer is indebted to Mr. Gair for giving him an opportunity of seeing so much upon so small and economical a scale. After all, there is some virtue yet in Cocoa-nut refuse, all other conditions being equal. The field of seedlings was apparently a fruitful one, for it yielded enough for reinforcing "our own collection," and supplying quantities to friends and acquaintances to try their "'prentice hand" upon. *A.*

OUR FRUIT FAILURE AND ITS LESSONS.

IT has often been said, with much truth, that we learn as much or more from our failures as from our successes. Be this as it may, I take it that the great lesson taught us by the loss of our superior stone fruits this year is the necessity or desirability of having more Glass. No skill in culture, no training, no ordinary means of protection will enable us to baffle such frosts in May and June as we have had this season. They cut into some tender fruit, and become like the keen edge of a lancet. Like that bright morsel of steel, they also make light of such flimsy thatches as mere bunting, mats, or feathery boughs. The frost passes right on through such weak lines of so-called defence, and hits the fruit beyond them with withering, deadly force. The risk of such catastrophes is seen yearly, though it is only now and then that such ruin and havoc as we have endured this season is wrought. But the unusual scantiness of our autumnal desserts will suggest an inquiry into the wisdom of running such annual risks

of failure, which may end any season, as they have done this, in sweeping the whole of our superior stone fruits off our walls. The loss in actual pleasure is great; in the artistic setting-out of dinner tables it is perhaps greater still. What fruit can equal in beauty the luscious Nectarine? or in soft, downy charms, the handsome Peach? Why should these be sacrificed? and at what shrine are they offered up? Is our loss inevitable? or who or what is responsible for it? It arises chiefly from three mistaken notions: that our climate may be trusted; that the ordinary means of protection can master it; and that the natural constitutions of trees can be hardened by skilful cultivation.

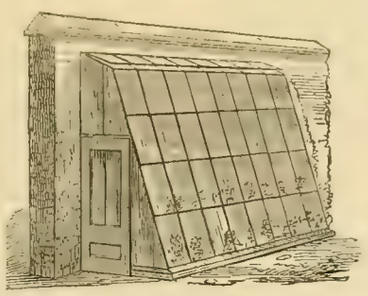
It is unnecessary to discuss the question of the trustworthiness of our climate. It is fickleness, caprice, and hypocrisy, in their most subtle and destructive forms. It cannot be relied on for a single hour, far less a night, a week, a month, or the whole danger period of flowering trees and embryo fruit. Woe, woe be to the British gardener that puts faith in the climate! But, then, may we not fall back on the ordinary means of protection? We might possibly, if these were again protected from the rain and the dew. Dry protectors have a great power of resisting the egress of heat or the ingress of cold; but when saturated with water they become active coolers in themselves, and draw away heat from the trees when they need it most. And then, what does the biting Nor'-easter reck of porous canvas, overhanging branches, rough-spun strawbands, or flapping mats? Why, it laughs their opposition to scorn, and even uses them as so many flappers, to impart greater subtlety and force to its scathing wings.

But what have we left to oppose to these two terrible foes—the frost and the wind—that so far have haughtily worked their destructive will among our fruits? How is skill to meet these enemies? It cannot change the climate, at least not to any great extent. It cannot alter the natural forces of hoar or black frost; far less can it chain, though it may to some extent shut out, the terrible east wind. It can, but it is only expected to operate upon the subjects exposed to the climate, and materials employed to protect them. Doubtless, within this narrow range, skill may accomplish much. The trees may be planted on well-drained land, they may be preserved from overcrowding, overfruiting, and other debilitating influences, and their growth may be kept clean and early matured. They may be kept dormant as late as possible in the spring, and the protection may be skilfully regulated in regard to time, quality, and quantity. But beyond this we can scarcely go, once the floodgates of a new and tender life are opened by the gentle touch of spring, and flowers, and leaves, and young fruit spring forth joyously at her bidding. What amount of skill can, under such circumstances, and with such appliances, protect these children of the glowing summer from the ravenous mouth of devouring winter when he angrily returns to us amid all this tenderness, beauty, and glory, and mows it all down with his ten-pounders—ten-degree-of-frost artillery! The skill of the cultivator, however great, is no match for such an antagonist, armed with such piercing projectiles as these. Are we then to give up the contest? Far from it. Let us try other means of defence, and especially glass, for glass never wears nor rusts out, while canvas and all such material is always on the road to rottenness and ruin.

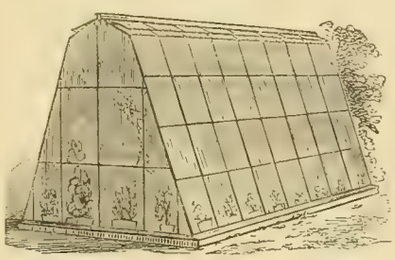
But doubtless I shall be told that the testimony of this season is against the efficacy of glass. Alone and by itself it seems to have failed. There is almost as little fruit in unheated orchard-houses as on open walls. But this state of things is exceptional. It is the first season in their history that unheated orchard-houses have failed. And they have not wholly failed this year. Further, the fact of their failing does not prove the inefficacy of glass protection under the best conditions; it only shows that sometimes, and under extraordinary pressure, it may give way. Neither can orchard-houses, especially if span-roofed, be cited as good examples of the resistance offered by glass to the inroads of cold. Many of such houses are openly constructed and glazed. They permit a tolerably free interchange of air between the outside and the in. In most of them, too, a maximum amount of radiating surface is associated with a minimum of heat-absorbing power. The earth is covered over with trees, and there is but little brick or other solid work to act as absorbents and husbanders of heat. Supposing we reverse the conditions by providing a maximum area of absorbents, and covering these with a minimum extent of radiators, might not the protecting force of the glass be more felt and the results obtained more satisfactory. The chief fault of most unheated glass structures is that they are too large in proportion to their heat-storing capacity. The great superiority of glass over all other protectors, is that it is water-proof and air-tight. It prevents the heat from being swept or washed out with a rush; but it does not hinder its passage through. Heat is too subtle to be thus shut in. The transparency of glass shields becomes in one sense their weakness. They radiate heat from within to without with much greater energy than more porous but opaque barriers. Unlike the latter, also, the anti-radiating power of glass can hardly be affirmed to be in the direct ratio of its thickness. It is, in fact, rather doubtful to what extent the thickening of glass affects its radiating force, though doubtless, upon other grounds, thick glass proves a more efficient protector than thin. The thick barrier is a greater obstacle to the direct loss of heat by conduction. For this reason no lighter glass should be used for screens than from 20 to 30 oz. to the foot.

But the efficiency of all glass protectors depends greatly upon the absorbent properties of the enclosed area. We must make hay—that is, lay up caloric—when the sun shines; and this heat will battle and triumph over the climate, while the frost comes unbidden and walks with silent and nimble feet over our glass protectors while we sleep. To derive the maximum amount of protection from glass covering, then, I think the glass should somewhat closely hug the walls rather than be spread out into wide-bottomed houses. We want portable glass screens more than lofty, wide, or expensive permanent structures.

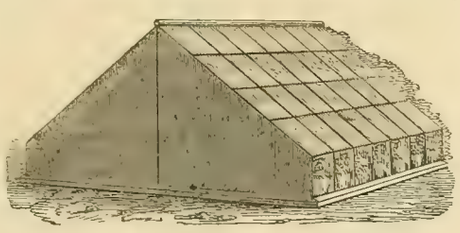
The glass coverings at Welbeck, so admirably described at the Manchester Congress by Mr. Tillery (see p. 892), partake of the latter character. No one can question their usefulness for all the purposes named—in fact, they constitute a magnificent range of fruit houses. They are just too good to be generally come-at-able. What is needed for universal use is a simple, portable, efficient glass screen that any one with a head on his shoulders can put up for himself, and as readily take down and devote to other purposes when it is no longer needed to screen the heat in or the cold out. By the employment of such screens the wall trees will continue to be in the open air unless at the critical and dangerous crises of flowering and setting. In the North, again, where the autumn is cold and sunless, the screens might be called into



requisition to finish the fruit. When not in use for these purposes they could be converted into coverings for pits or frames used as ground vineries, or to finish choice Pears; placed over Strawberries or early Peas in the open ground—converted into late vineries, Melon, Cucumber, or plant houses, either as lean-to's or narrow spans, by being placed back to back. To give the easiest possible portability to, and endow with the utmost range of convertibility, such screens, they must be readily disintegrated into their primary elements and re-formed.



The best screens for protective purposes that I have seen are those that have been designed by Mr. Beard, of Bury St. Edmund's, during this summer. It will be remembered that this gentlemen is the patentee of a new mode of glazing, that dispenses with the use of putty or other adhesive substance, and that he uses a remarkably light T-shaped metallic sash-bar, a padding of felt forming the buffer at all points between the iron and glass; and the whole being firmly knit together by a few bolts and nuts. By withdrawing these the entire screen or house can be instantly



resolved into a package of glass, a bundle of iron, and a roll of felt. Hence the screen of to-day may be a Melon, Cucumber, or plant-house to-morrow. Another great advantage of these malleable iron bars is that they can be bent out from the wall at the top, thus giving more space where it is most needed, and yet be brought closer to the wall at the bottom than any other description of rafter. Most protecting screens are made too wide, owing to the non-pliability of ordinary bars, unless a short span is formed at the top, which adds immensely to the expense, or a dangerously acute angle is formed at the upper portion of the wall. Width at bottom is a structural necessity with most glass screens; but unless such screens are to be used as at Welbeck, and orchard-house trees are grown in front,—a practice which can hardly fail to injure the bottom of the wall trees,—it is much better to keep the screens as close as possible to the wall from top to bottom. The whole wall is then equally exposed to light and air, and can hardly fail to exhibit that great charm so rarely met with, equality of vigour and of fruitfulness from topping copestone to nethermost base. The pliability of these rafters affords every facility for such furnishing of walls. The above sketches will give greater force to these remarks, and reveal the merits of Beard's bar for screening purposes better than any mere description. The upper cut shows the screen in use, and reveals the merits of the bent bar, which enables the screen to be placed close to the wall without either sprawling out at the bottom or forming a dangerously acute angle at the top. Mr. Tillery prevents this by raising the front of the structure, which adds greatly to the expense, and in fact converts it into a house, to the endangering of the trees on the bottom of the wall. The ready convertibility of the screens into houses may be seen in the middle and lower cuts, the former shows a useful house for a late Vinery, formed by simply placing two bars top to top. In the lower cut the bars are reversed and are made to form a span-roofed house with front lights. A capping to make the whole watertight, and a few bolts, are all that are needed to effect the conversion. Ventilation can be provided for at the top by leaving a small space between the two screens and covering it with wood or glass.

The position of the screen made with the bent bars seems also the best possible for reducing the radiation of heat from its surface. The open sky is the most powerful radiator. The bent bar turns the larger portion of its face away from this greedy devourer of heat, and looks toward surrounding objects to get back from them possibly as much warmth as it gives. The limited direct sky line may readily receive additional covering, or it may be occupied wholly with an anti-radiator, such as a shutter of wood, in all localities where severe frosts are anticipated. This would probably increase fourfold the protective power of the screen.

Again, this bending of the bar affords rare facilities for ventilation. In Mr. Beard's glass screens the entire upper portion is converted into ventilators, to be opened or shut to any extent at pleasure. The mode of erecting the screens is extremely simple. An iron-wallplate is laid down on the ground, or placed upon bricks or wooden posts at any desired distance from the wall, say at 4 feet, the distance of course determining the bottom width of the screen. Cast on this plate are raised lugs at intervals of 20 inches, for the reception of the rafter or bar. The ground end of the rafter is dropped into these double lugs and made fast with an iron pin, the upper and bent end being placed against the wall just under the coping. The under side of the rafter is pierced at the upper end, and likewise in the middle of the space between the ground line and the bend. Through these holes iron bars of convenient length are passed. These rods are connected with coupling screws, which bind them tight, and make the rods continuous bars without break for any distance. Between each rafter and upon these rods pipes, in length the exact width of the glass, are placed. These butt up against each bar and keep them in exact position, acting as immovable side braces. The upper rod that runs along the wall under the coping is kept in its place by a few staples or eyes, driven into or passed through the wall. These arrangements make the entire framework quite fast to the wall, rendering the slim rafters stiff as pokers and as tight as drums. The felt is then rolled on, followed by the glass, and another layer of felt, succeeded by the covering bars in convenient lengths, with their fixing screws, and the screen is completed in less time than is needed to describe the operation. Every extension of it is but a repetition of the preceding. The ends are made to fit anywhere. The glass may run on for a mile, or be cut off at any point, at the end of a 20-inch square, with the same facility, as every two rafters are complete in themselves. The glass is laid end to end, or butted, and the square that fills the upper or ventilating portion is carried beyond the end, to throw the drip clean over on to the glass below. The glass used is 20 inches by 30. The bent portion of the bar may run in width from 12 inches to 24, or even more if desired; and for walls 10 feet high, screens 4 feet wide at the bottom would be sufficient, though of course they are made to any width and any height of wall. With such ample ventilation at the top, it would seldom be necessary to provide bottom ventilation, and on excessively hot days one or both ends might be thrown open.

One great means of increasing the efficiency of such protectors is to shut up a good houseful of heat early in the afternoon. This reserve of heat, supplemented by the liberation during the night of that hidden away in the brickwork, &c., in the day, would generally prove sufficient to resist the frost. Another caution is needful: glass protectors should not be used until the flower is ready to expand. If erected too early, they would prematurely force the flowers into blossom, at a time when the frost would prove more than a match for the screens. This late application of the needed shelter is a strong point in favour of their portability. Our chances of success in mastering the severities of the climate are largely determined by the time we begin the contest. These portable glass screens will, to a considerable extent, give us our own choice of time. They also enable us to choose our ground and position, and put under us efficient agents. With a skilful handling of these strong, elegant, efficient glass screens for walls, we may reasonably expect to see them in the far North or in the sunny South, covered with luscious wall fruit. *D. T. Fish.*

Home Correspondence.

Duke of Cornwall and other Melons. — This Melon deserves to be extensively grown. I saw it exhibited last year, and being much struck with its large and handsome appearance, I determined to give it a trial this season, to see if its flavour was equal to its other good qualities. The result has been very satisfactory. All the fruits have been of an unusual size; the last we cut weighed 9¼ lb., and was of a delicious flavour. The fruit is oval-shaped, of a rich yellow colour; flesh green, and very deep. I have tried Queen Emma, Golden Queen, and others that have recently been sent out with high characters, but have found none of them equal to the Duke and another variety which I have grown here,

almost exclusively, for the last five years, under the name of Austin's Incomparable,—a green-fleshed variety, fruit large, round, yellow skinned, and finely netted. I got it originally from Dalkeith, where, I believe, it is still grown by Mr. Thomson, and is a favourite of his. The Duke of Cornwall is a very late variety, and a good keeper, but requires a high temperature to ripen it properly. *J. Simpson, Wortley Hall Gardens.*

Wellingtonia gigantea.—There are two specimens of this noble tree growing in the grounds at Lamorbey Park, near Bexley, Kent, the seat of R. Bousfield, Esq., of which the following are the dimensions:—No. 1 was planted in 1854, and has attained the height of 29 feet 10 inches; circumference of bole, one foot from the ground, 6 feet 9 inches; and the diameter of the branches 19 feet. No. 2 was planted in 1856, and is now 25 feet 2 inches in height; circumference of bole, at the same height as the former, 5 feet 3 inches; and the diameter of branches 14 feet 8 inches. They were not injured during the severe winter of 1866-7, nor have the dry summers of 1868 and 1869 interfered with their growth. *Alex. Baxter, Gr.*

Roses.—I was very much gratified to read Mr. A. Godwin's letter on Roses, and as a grower of this justly called queen of flowers, have been anxiously looking out for the Rev. W. F. Radclyffe's annual comments on the Roses of 1868. Florists in this part of Ireland have few opportunities of seeing the novelties yearly introduced, so that we are principally guided in ordering by the notes of such men as the "Rose-grower of Okeford Fitzpaine." I can cordially endorse all that "A. G." says, with reference to the way we are fleeced by our Continental friends, who yearly send us such quantities of worthless varieties. For years past I have bought all the new Roses as they were offered, and of course "paid for my whistle." Last year I had about 40, and of this lot I only intend growing the following, which have done very well with me, and which will be found in list No. 1. These are all good growers, and I believe improvements on existing sorts:—Abbé Vernière, Baron Haussmann, Baroness Rothschild, Boule de Neige, Duke of Edinburgh, Elie Morell, François Fontaine, Impératrice Charlotte, La France, Madame Christine Nilsson, President Villermoz, Vicomtesse des Vezins. The following are varieties which I purpose growing a second season before discarding:—Baron de Beauverger, Coquette des Alpes, Curé de Charentay, Duchesse d'Aoste, Enfant d'Ameugny, Madame Alice Dureau, Madame Noman, Madame Grondier, *Madame Rolland, *Merveille d'Anjou, Reine du Midi, Souvenir du François Ponsard, Tournefort, Charles Turner, Pitord, Prince Humbert, *Miss Ingram, *General Barral. The following is a list of varieties which have flowered here, and which I consider positively worthless:—Barillet-Deschamps, Ernest Boucenne, Jean Brosse, Lisette de Beranger, Souvenir de Madame de Corval, Souvenir du Ponsard, Jules Bourgeois, Comtesse de Falloux, Comte de Raimbaud. Now this I think a rather hard matter, that as the case stands at present I could only recommend, "if referred to," about 12 varieties out of my 40. I will conclude by saying, that in the second list there are some varieties which have not flowered with me; these I have marked with an asterisk, and trust, if I am spared to see them flower, that I may be able to add them to list No. 1. *Hibernicus.*

The Royal Horticultural Society's Floral Committee.—As Mr. Keynes has detailed his experience of the Floral Committee, I will add mine. I should have done this before, but I understood that "the clique" had been broken up, and that better things might be expected. As it does not seem to be so, my experience may be useful to those who, like myself (once) may think it a pleasure to belong to it; but to these one's advice must be that of "Punch" "to young gentlemen about to marry, 'don't.'" I am one of the earliest members of the Committee, and although attendance on it involved every time a journey of upwards of 200 miles, and an expenditure of between 2*l.* and 3*l.*, I managed to attend pretty often. After, I think, two or three years of office, the annual displacement and election of three members took place; three names were struck out, and we were requested to name three, which we did. What was my surprise, then, to receive a curt note, a week or two after, saying my name had been struck out by the Council. This was bad enough, but worse followed. I have many friends—personal friends—on the Floral Committee, and the following year they replaced my name, and sent it in to the Council, with two others; mine was again cut out, and some stranger substituted. Without vanity, I suppose I may say I do know something of florists' flowers, and am pretty well known in the horticultural world. Since then I have, of course, not attempted, nor encouraged my friends to attempt, to have my name restored. One kind and influential friend offered to do so this year, but as Mr. Keynes' letter shows that the same leaven is at work, I decline the honour (?). I know perfectly well how all this was brought about, but there is one fatal error at the bottom of the Council's proceedings—they imagine that they are conferring an honour and favour on all whom they admit to have anything to do with them. Go ahead of the clique, and ask anyone who has had anything to do with the Society, "Have you any confidence in it?" and, a "guinea to a ducat," I know what the reply will be. It is a thousand pities; the Royal Horticultural Society has missed a grand opportunity. It might have been a noble institution, it is now the greatest *fiasco* I know. *D., Deal.*

The Royal Horticultural Society's Provincial Show.—You state truly that no town is more accessible or more interesting to visitors than Oxford. It is also true to a certain extent that Oxford is not, in the strict sense of the term, a horticultural centre; but in my opinion that matter should have but little weight with the Council in their decision, as the great desideratum seems to me to be the convenience of bringing exhibitors and their products together, and the general public to view them. Setting aside minor considerations, there can scarcely be a doubt of the successful issue of the affair, if the Society succeed in obtaining a good locality for the show; and in my opinion the best place, if obtainable, would be either the Parks or Christchurch Meadows. The Parks doubtless would be preferable, as that is a fine open space, and near to the centre of the town, besides being a very favourite resort; but, if neither of the above-named places can be obtained, I say emphatically to the Royal Horticultural Society, do not go to Oxford; for if they are compelled to go to any such out-of-the-way place as Port Meadow, I am sadly afraid the result in a pecuniary sense would be a failure. The general attractions of Oxford must bring great numbers of visitors to the town. There are also some well-kept gardens in the neighbourhood, such as Blenheim and Nuneham, which would doubtless be thrown open on such an occasion, and which would add to the pleasure of all lovers of gardening. *H. B.*

Vine Roots.—Do Vines make roots without the action of leaves and branches? I have made some observations as to this point for myself, and will give your readers the result of my experience. In May last I planted a Vine—the Muscat of Alexandria—in a good border; I then inarched it on the Royal Vineyard (that being, in my opinion, a worthless variety). It grew well, and made a fine cane. But what about the roots? I examined them at different times, and to my surprise the newly-planted Vine has not made a single root that I can find. I have also tried the application of bottom-heat to the Vine roots for two years past, beginning the first day of the new year. I put good stable-dung on one-half of the border, and kept up a nice gentle warmth until April, the other half remaining cold through the winter. I could see no difference in either part of the house throughout the seasons of both years. We have had fine Grapes ripe in May in both parts alike. *F. Gill, Plymouth Nursery.*

Packing Fruit for Transmission Abroad.—The following communication from R. Haliburton, Esq., Halifax, in *Gardeners' Chronicle*, 1863, p. 100, describing the packing of the Nova Scotia Apples sent to the Great Exhibition of 1862, may not have been noticed by Mr. Kirby, and may prove useful to him:—"A wooden box filled with trays, each 2 feet long, 18 inches wide, and 5 inches deep, divided by partitions into spaces 4 inches wide. These trays had a layer of dry ground plaster of Paris strewed over the bottom, on this a layer of Apples was placed in a single row; more plaster was carefully filled in between the Apples, and the whole was covered with about an inch of plaster, well shaken down, so that the fruit became immovable. Packed in Halifax on January 9, the box arrived on January 25." *S. M. O.*

Cedar of Lebanon.—A fine specimen of this tree at Mount Edgcumbe Park, near Plymouth, was roughly measured by me the other day, with the following results:—Trunk (1 foot above soil), 12 feet round; from trunk to the tip of branches on one side, 48 feet; the man who showed me it said it was 423 years old. There were also many other smaller but still fine trees. A Cork tree measured 9 feet. There are also some fine Orange trees here, some 20 feet high, pictures of health; one Mandarin Orange had 1543 ripe Oranges upon it, besides hundreds of green ones. A fine Citron was noticed, with fine fruit, growing against a wall without any protection. The Oranges referred to are taken into a house in winter. *H. M., Hartley, Oct. 4.*

Liliums.—I differ from "J. D." (p. 1020) in the advice he gives with regard to the bulbs of these plants. Experience has taught me to newly pot them, if they require it, as soon as the stem is dead; then keep them dry through the winter, they will begin to make roots before spring. To take away all the small bulbs and to shift the larger ones without disturbing them is still better; to thin out the bulbs, letting those left remain in the pots without disturbance for three seasons at least, and giving nutriment in the water when growing, is the best plan of all. This practice will be found to answer in respect to all Lilies. *M.*

Pelargonium Show.—You remark, in your foot-note to Mr. Cannell's letter upon the subject of the continuance of the Special Pelargonium Show by the Royal Horticultural Society, that the speedy expression of public opinion would be desirable. It appears to me that the numerous attendance at last year's show was sufficient evidence to the Society of its popularity. The Pelargonium, too, has been the adopted child of the Society; it would never do to cast it adrift now that it is showing itself worthy of the attention and care bestowed upon it, by the wonderful progress it is making both as regards foliage and flower. I anticipate that next year's exhibitions will display some startling improvements upon the tricolors of last. In the flower, also, the progress is wonderful, both as regards form and colour. I do not despair of seeing, ere long, every colour that our Flora possesses produced on the Pelargonium of the scarlet section, not even blue and yellow excepted. The bare idea of the Horticultural Society abandoning such a promising child seems to me impossible. I would rather suggest the setting apart two days for its exhibition than giving up the one. I agree with Mr. Cannell that greater encouragement should be offered to the small growers and amateurs. Let not our great growers and florists be too greedy in wishing to usurp to themselves the credit for the production of new varieties, or appropriate to one another the award of all the prizes. I am certain they would find it far more to their interest as well as credit to encourage in every possible way the amateur, which means the general public, or, in other words, the million, to grow, to produce, and to compete at our floricultural exhibitions, especially in new varieties. By so doing an amount of enthusiasm would result, more telling upon our horticultural societies' and florists' annual balance-sheets than has yet been dreamt of. Let us have free trade in the production of all florists' flowers—free trade and fair play in judging of their merits and in the award of some mark of distinction to the producer—and I maintain that such a state of things would enlist the interest of the million; that where there are now 50 buyers and visitors to our florists' establishments there would be thousands. It is the greatest mistake to imagine (as I know some florists do) that it is to the interest of the florist to keep the public in ignorance of the cultivation and the production, say, of florists' flowers; it is the old and exploded principle of monopoly, which in the long run does not pay. The Pelargonium offers an enticing field for the amateur, because it is easy of management, easily hybridised; but there are many other florists' flowers equally easy of cultivation, equally capable of improvement, which, in their beauty, would equally repay for time and attention. For instance, what can be more beautiful than the Cyclamen? I know of no flower more beautiful, and I believe it to be capable of immense improvement. What more lovely sight could be imagined than a special exhibition of Cyclamens? One might dilate upon the subject of the number and beauty of our florists' flowers that I would encourage the culture of, until I occupied the entire space of your journal: therefore I must conclude by saying, that I trust many will be found appealing to you for space to urge upon the Horticultural Society the desirableness of continuing its special Pelargonium show. *An Amateur.*

International Exhibitions.—I am glad that you have at last given expression to what are the feelings of many correspondents and exhibitors as to the conduct of these affairs on the Continent. I am still more pleased to think that you have done so in a way which should not offend our friends across the Channel. I have made from time to time the acquaintance of many there for whom I have great respect, and I should be sorry if any of them felt hurt at a little plain speaking on our side of the water. You have stated the probable cause of their not seeing as we see, viz., that they live under different forms of political government to what we do. But how shall we account for the managers of the St. Petersburg show issuing printed papers, stating that any one sending plants by rail should have free passes given them for the return journey, and then when application was made, and the railway companies refused, these same managers admitted they could not compel them? Were not the exhibitors got to St. Petersburg by—well, if not a fraud, by something very much like deception? This show, moreover, was held (so it was stated in print) under the highest patronage. I have attended the Brussels, Amsterdam, London, Paris, Ghent, and St. Petersburg Internationals, and in all, save London, the judging, in my opinion, has been altogether on a wrong principle; the wonder, therefore, is that the complaints are not more numerous. The system is one that must cause numerous errors, even supposing that no advantage is taken of the great facilities for packing juries, and reversing their decisions afterwards, in a way that no one can understand. *Robert Warner, Broomfield.*

Lilium auratum.—The following are the particulars of a plant of this grand Lily, which has been grown in the conservatory of James Bland, Esq., Quarry Bank, Allerton, near Liverpool, and of which a photograph was exhibited at South Kensington, at the meeting of the Floral Committee, on September 7. The plant is the produce of a single bulb from the year 1865 to the present time. On August 25 it had 140 blooms fully expanded; eight had fallen from the lower stems, and in addition there remained 53 blooms nearly ready to expand, making a total of 193 blooms. On August 27 164 blooms had expanded, out of which number 153 remained perfect, which was the greatest number borne at any one time. The first flower opened on August 10, and on September 4 one flower remained to open. My experience with the auratum varieties leads me to conclude that their average duration is about nine days, but in this instance I have kept some of the flowers in perfection for 13, which is the longest period I have ever known them to keep. I invariably find the blooms to expand during the night. Having taken great interest in this class of plants, and tried various ways of growing them, I will give the history and progress of the plant in question from the year 1865 to the present time. The soil I find most suitable for the growth of this Lily, and which I have used for the plant above referred to, consists of good turfy loam, leaf soil, decayed cow manure, a little peat, and silver sand well incorporated, care being taken to secure good drainage, and to water freely during the growing season. In 1865 a single bulb was potted in a 7-inch pot, and placed in a cool greenhouse, where it remained until it flowered and produced three flowers. In 1866 the plant was repotted in a 9-inch pot, and received similar treatment, the produce being 17 flowers. In 1867 the bulb was repotted in an 11-inch pot, and threw up three strong flowering stems and three smaller ones, producing in the whole 53 blooms. In 1868 the plant was transferred to a 16-inch pot, and placed in a temperature of 45° to 50° in the month of February, where it remained until the stems were about a foot in length; it was then taken to a cool greenhouse, where it remained till it flowered. The bulb threw up five strong flowering stems and seven smaller ones, producing in the whole 100 flowers. In 1869 it was turned out of the pot, and a small portion of the old soil was taken away from the ball; it was then put into a 17-inch pot, and treated as before. The plant threw up 39 flowering stems, ranging from 2 to 9 feet in height from the top of the pot, and producing in the whole 193 blooms, many of which measured from 11 to 12 inches across. After the plants have done flowering, I set them out on a sunny border to ripen their bulbs, when they are cut down, and stored away until the season arrives to start them into growth. *J. Smith, Gr.*

to James Bland, Esq., Quarry Bank, Allerton, near Liverpool. [This was a splendid specimen, very similar in its general aspect to the plant from Melchet Court, but having a larger number of blossoms. Eds.]

Potato Grafting.—Mr. Bennett, of Osberton, my valued friend, and indeed principal tutor, is a well-known practical gardener, and a particularly good Potato grower; and I should not have the slightest hesitation in accepting his teaching on any subject connected with the Potato, excepting the question at issue; but on this little matter I must beg to differ slightly with him. About a fortnight ago I was down at Osberton, and was talking the matter over with him, but he could not recognise that the stock had any influence on the scion. Now, it is a well-known fact that the Potato is self-supporting, therefore if the stock and scion have no influence on each other, then Potato grafting must fall to the ground. Mr. Bennett, too (see p. 1039), in endeavouring to substantiate his argument, adduces some striking illustrations of the liability of the Potato to sport, and, indeed, to entirely change colour; and probably this circumstance may be attributed to a great change of soil, as from limestone to clay soils, or *vice versâ*. Now, in the face of all this, it is not surprising that Mr. Bennett should be incredulous in the matter of Potato grafting; and it would be well if other growers would record their experience in this matter, that the world may know what the Potato is capable of doing of itself, without any interference beyond planting. In continuation of stock and scion, Mr. Taylor, of Bedale, has done good service in this matter (see p. 220, 221), as also has Mr. Fenn; indeed the latter gentleman has done more service in this cause than any other man, by publicly exhibiting the results of his practice, and I, for one, most heartily endorse the sentiments expressed by the Editors of this paper in commendation of Mr. Fenn's practice. This, together with my own experience, which I hereunder adduce, is, I think, sufficient to prove the fact that the stock influences the scion. This year I had the misfortune to get all my grafted Potatos cut off by frost; some of them were entirely killed, and what did survive are very small indeed. It may be remembered that in my letter to the *Gardeners' Chronicle* on this subject (see p. 250) I signified my intention of grafting the Potato into the Jerusalem Artichoke, and *vice versâ*, which statement created a little "wit" and ridicule at my expense. However, as an experimentalist, I did not allow that to daunt me, and thinking the Editors might possibly know no more about the matter than myself, I resolved at all hazards to gratify my inclination, and accordingly put my idea into practice; and I am now happy to be able to state that the Artichoke grafted into the Potato has produced the most wonderful cross of any of my experiments! The Potatos grafted into the Artichokes were each killed by frost. Now, if need be, I am prepared to make oath and say, that the following is a correct statement of facts, viz.:—No. 1, Artichoke grafted on Fluke, produced a round pinkish tuber; No. 2, Ashleaf grafted on Daintree's Seedling, produced both round and kidney-shaped tubers, resembling both stocks; No. 3, Ashleaf grafted on Red Regent, produced a light pink round Potato, much the same as No. 1; No. 4, Daintree's Seedling grafted on Fluke, produced tubers much the same as the stock; No. 5, Artichoke grafted on Daintree's Seedling, result similar to No. 4; No. 6, Ashleaf grafted on Fluke, produced a coarse skinned kidney Potato, rather pink; Nos. 7, 8, 9, 10, 11, and 12 killed by frost. Certain of the men in the garden can testify to the above statement, and any person may see for himself on paying me a visit, and presenting me with his name and address. More I cannot say. Now in connection with this subject, the question that occurs to me is, "Is it possible to effect any improvement in the Potato by grafting?" My answer is, "I am doubtful;" for after three years' experience and careful observation, I cannot truthfully state that I have effected the slightest improvement by the grafting process; on the contrary the produce has invariably been most ugly—some of the tubers real "mongrels;" which has almost killed my interest, for I am a poor fisherman if without luck. I shall however continue to watch with much interest my Artichoke produce, and shall hope to again communicate to you the result, after another year's trial with it on its own roots. *Thomas Simpson, The Gardens, Bromfield Lodge, near Chelmsford.* [Our correspondent must excuse us if we put a very different interpretation upon his Jerusalem Artichoke experiment from what he does. He has not *yet* got his sunbeams from Cucumbers. Eds.]

Sambucus racemosa.—The reason why that beautiful shrub, the scarlet-berried Elder, is not cultivated to a greater extent in England, may be that it does not succeed in the vast majority of English gardens, in which the few plants I have seen were not worth looking at. The plant seems to require for its development, perhaps for its continued existence in a locality, either a considerable elevation above the sea level, or a north latitude higher than that of England. The luxuriant specimens seen by "I. O. W." in Sweden, Finland, &c., were under the latter favourable condition. In the middle and the south of Europe, it is only met with under the former. The first time I saw it in its beauty, it was straggling over a garden wall in Pontaralier, one of the most elevated, if not the most elevated town in France (2716 above the sea-level) close to the Swiss frontier, just before the railway takes the grand plunge down to the lake of Neufchâtel. Both the Jura range and the Alps are adorned by the scarlet-berried Elder. At my first visit to the Pyrenees I looked out for it in the valleys about Eaux Chaudes. Not finding it, I hastily guessed that it might not be a Pyreneean plant; but taking a walk into higher regions, in the direction of the Pic du Midi d'Ossau, I reached the level above which it becomes abundant, but below which it is not to be found. In my own garden, a few yards above the sea level, not far from the Channel coast, a Sambucus racemosa grew rapidly to a considerable size. Every year it flowered abundantly, but as soon as the berries were as big as a half-grown currant, they dropped off till the ground was covered with them. A very few remained a little longer and grew a little bigger; but during the whole period of its existence the tree never gave me a single scarlet berry. A year or two ago it died, whether from a lingering consumption caught in the winter of '60, or from a summer sunstroke, I cannot say. I hesitate to plant another, unless some of your correspondents will give me hopes of obtaining, down on the plain, not only its vigorous branches but its panicles of fruit, which, as "I. O. W." truly states, "resembling miniature bunches of Grapes, of intense scarlet, render it the most beautiful wild fruit we have ever seen." I should be more sanguine as to the result of a trial of its aptitude for Highland shrubberies. *E. S. D.*

New Method of Fruit-growing.—Finding your columns so liberally open to the gardening fraternity of all denominations, to enable them to lay before the public the result of their labours, I hope to be allowed to make a few remarks on my new method of growing fruit, being especially desirous of calling the attention of the public to the new house erected for the purpose in Chiswick Gardens. Seeing this will enable any whose attention may have been called to the subject, to judge of the process by its own merits, and save me much trouble in explanation. You invited the public last week to take a peep at the magnificent vinery at Chiswick; to see which is alone worth a pilgrimage to any lover of fruit-growing under glass. If any one can condescend to look at my humble house, after viewing such a noble structure as the large vinery certainly is, I will try and raise my head, and say something about it. Though in a small way, I have great pretensions, and profess to grow Grapes, and stone-fruit, and what not besides, in this same house. And it certainly can be done to the greatest perfection, both as to the size and flavour of the fruit. I venture to think (*en passant*) that this latter quality of flavour is not sufficiently considered in the general way. It is satisfactory, however, to see that the judges at our fruit shows are beginning to appreciate it more and more in their estimate of the different fruits that are submitted to their approval. I ordered the fruit here to be retarded as much as possible, in order to keep it for show on the trees. The result is, that I have still a few Peaches and Nectarines left. Some of the latter, gathered yesterday, were as delicious in flavour as I ever tasted them in August, in spite of having been kept back so long, and the weather during the last fortnight having, moreover, been sunless, and otherwise unfavourable for the ripening process. The Plums left are Transparent Gage, which is now softening, very large in size, as are also Jodoigne and Brahy's Plums. The crop of Peaches and Nectarines was below an average in quantity; Plums very good; Pears small, and below average. But this has been a sad year for fruit everywhere; and when we hear of such men as Mr. Rivers, of Sawbridgeworth, and Mr. Pearson, of Chilwell, failing, who are never in the habit of disappointing their visitors, I may, on the whole, congratulate myself upon having made a pretty good fight of it. *John Fountaine, Southacre Rectory, Brandon, Oct. 4.*

The Troubles of the English Exhibitor.—A good deal of justifiable grumbling has lately been manifested in your columns concerning the strange ways of foreign committees, and the extraordinary decisions of foreign jurors; and we have plumed ourselves that their ways were not our ways, and that, moreover, our ways were so much better than theirs. Well, certainly; and yet there are exceptions, as the following tale will tell:—About three weeks ago there was a great fruit tournament northwards. Growers from all nations were invited. The names of the jurors were exhibited beforehand, and displayed to the full in broad-sheets to inspire confidence; and everything that the experience of the learned and the wisdom of the wise could do to ensure success, and to give satisfaction was done. And yet here is the experience of a southern exhibitor. The great tilt of fruits took place on September 8 and 9. Our exhibitor entered in good time in class 3, for two Pines of any variety. On September 6 the fruits were sent off by mail, correctly addressed, to the secretary. A letter was posted at the same time, giving notice of the fact, and it was further notified that a Royal gardener would call for the Pines, pay the carriage, and stage the fruit. Another letter was despatched by the same post to the latter, who received it all right on the following morning at 7 A.M. This sent the Royal gardener Pine hunting on that day, and the two next, without finding them, however. Nothing more was heard of them until Saturday the 11th, when the *Gardeners' Chronicle* was eagerly opened as the Book of Fate. No notice, however, of the Pines. The exhibitor concluded that he had been beaten, and philosophically chewed the cud of disappointment by reflecting that they must have been good specimens to beat them. He then waited patiently, hoping that his Pines would appear; but no Pines came home. On the 14th, the secretary as custodian of all fruit, beaten or not, was written to. Another silence of four days. No answer. On the 18th the exhibitor's temper became somewhat like a Pine-leaf rubbed against the grain, and he wrote again, stating that he had heard through his friend, the Royal gardener, that his fruit had not arrived during the show, and begging an answer, stating the time of their arrival, as he was only waiting for this information before making a claim on the Great Northern Railway for non-delivery. The secretary broke silence—a silence of over 12 days' duration be it noted by all fervent exhibitors—on the 20th, telling our exhibitor, for his soothement, that his Pines had arrived all right, that they were seized on by a third party, and exhibited as grown by a gardener to a noble lord, and awarded the 1st prize (see p. 971, first sentence of fourth paragraph from the top, col. *a*). After the show, one of the fruit had been sold, and the other was returned to the secretary as soon as the mistake was discovered; sorrow was also expressed for the mishap. Two days more passed: our exhibitor's impatience reached a white heat, that found expression in a telegram on the 23d. A reply is written on the same day, stating that the prize Pine had rotted on their hands, that it was not delivered to them till 10 days after the show, and regretting that it had not been eaten for dinner rather than spoiled. On the 25th another letter arrived, enclosing the prize-money and price of Pine, minus the cost of the post-office order—a piece of sharpness, under the circumstances, worthy of the canniest Scot in a' that braw country. The northern worthies have also promised to have the name altered in the "Gardener;" but, to an appeal to alter it officially in the *Gardeners' Chronicle*, they have remained dumb. To add to the zest of the disappointment, the proprietor of the Pines had the satisfaction of hearing of them being praised by a duke as wonderful examples of high cultivation, most creditable to the gardener of the noble lord in whose name they were exhibited. On reading this "ower true tale" one hardly knows which most to wonder at—the long silence of the secretary for more than a week, his carelessness in allowing fruit addressed to himself to be removed by any one besides the gentleman specified in the letter of advice, the dumbness of the nobleman's gardener under honours which he must have known for many days to be undeserved, and what has become of his Pines, as also that the officers of such an old society as the Royal Caledonian Horticultural and its experienced secretary, Mr. Stewart, should have made such a blunder. This fact ought to make us charitable to our bungling friends over the water. "Let him that is without sin (fault) throw the first stone." Possibly, however, our northern friends will think they have had pelting enough. So, requesting your readers to turn to the page and paragraph already adverted to, instead of "In Pine-apples there were two superb fruits, especially the Charlotte Rothschild from Mr. Miles, gr. to Lord Carrington, Wycombe Abbey," read "from Mr. Ward, gr. to Thomas N. Miller, Esq., Bishop Stortford, Herts." *Observer.*

Conifers.—We have a number of very handsome trees of Picea cephalonica, varying from 30 to 40 feet high, that are this year bearing cones freely. With this I send you some specimens gathered from two separate trees, and you will observe that they are very dissimilar, leading me to suppose that we have two varieties of this most beautiful Conifer. Please say if it is so. I may just add that the finest specimens of the above are growing on a well sheltered westerly slope, quite out of reach of the early morning sun. The soil is a loose grey sandy loam, in which they appear to revel. Picea Pinsapo, growing in a similar soil, has over 200 cones, specimens of which I send you. This tree is about 50 feet high, and the whole of the cones are on about 10 feet of the top. Picea Webbiana has six of its dark singular-looking cones. This, I fear, is too tender to be of value for extensive planting; it grows too early, and suffers much from frosts, and the soft fleshy buds get destroyed in the winter. Abies Douglasii, Morinda, and most of the Coniferæ are coning very freely this season, probably owing to the tropical heat of last summer. Abies Douglasii grows here almost as freely as the Larch, and as the timber is likely to be of great value it should be planted extensively. The inflorescence of the Althea frutex is very great this year. Several plants here are literally loaded with bloom. This lovely shrub is deserving of more extended cultivation. *J. Sheppard, Gr. to J. Berners, Esq., Woolverstone Park.* [The varieties of P. cephalonica are different, the one has shorter, blunter leaves, smaller and more deeply coloured cones than the other, and more prominent bracts. Eds.]

Societies.

Royal Horticultural: *Oct. 5.*—James Bateman, Esq., F.R.S., in the chair. The preliminary business of the meeting being concluded, the Rev. J. Dix and G. F. Wilson, Esq., announced the awards, and commented upon the products brought before the Fruit and Floral Committees. The Rev. M. J. Berkeley then addressed the meeting, first stating that the pretty Epidendrum, shown at the last meeting by Dr. Rogers, was found to be E. glumaceum. With respect to the doubt respecting the correctness of the name of Mr. Cox's specimen of Picea cephalonica, expressed at the last meeting, Mr. Berkeley said that on examining some specimens sent by Mr. Frost, he found that the cones of P. Pinsapo were quite different from those of P. cephalonica, the latter having projecting and pointed bracts, which was not the case with the cones of P. Pinsapo. Mr. Berkeley then proceeded to notice the Fungi, and referred to the interesting lecture delivered by Dr. Bull at the exhibition last year. Shortly afterwards Mr. Berkeley received a letter from Dr. Curtis, stating that during the latter part of the American war, Fungi formed the principal food of the Southern army. The speaker then announced the names of the winners of the prizes offered, and referring to Mr. English's collection, called attention to the excellence of the preserved specimens, which looked like models, but which were in reality the Fungi themselves, prepared by a process the nature of which had not yet been made known. Boletus edulis was then alluded to, as one of the best of the edible Fungi, though not well known. It was a species of which Dr. Badham, a great authority on such matters, had said that it was good when cooked in any way. It was recognisable from other Boleti by a fine whitish network on the stipes, and occurred in abundance in the pleasure grounds at Kew. Mr.

Berkeley, whilst in Hanover a few weeks back, went into the markets there, and saw bags full of slices of this species, which was greatly appreciated on the Continent. He also saw in the same market another species which he had not seen before, Clavaria rufescens. The genus Boletus, said Mr. Berkeley, had been often described as gall tasting, but this remark did not apply to all the species, as he exhibited a specimen of B. castaneus, which was no doubt eatable. B. luridus possesses the singular property of being, when first broken, quite yellow, and then immediately turning blue. Agaricus orcella, a species not often found in this country, was then said to be one of the best, as also was A. nebularis. A. Oreades, the Champignon, of which there were several specimens, was then alluded to, as being one of the very best. In reply to a question often asked, Mr. Berkeley stated that there was no absolute distinction between harmless and noxious Fungi. Observation and experience furnished the only safe guide. This applied equally to other plants, as the Wild Celery might be mistaken for Water-cress. Illustrations were given of the noxious effects of some species, and the intoxicating powers of others; and in conclusion Mr. Berkeley read the following communication from Dr. Curtis, of South Carolina:—

"You have asked me to give you my 'experience with the eatable Mushrooms of America.' This will be most satisfactorily done, I presume, in pretty much the same style in which I would narrate it to you at your own fireside. My experience runs back only about 12 or 15 years. You may remember that, previous to this period, I expressed a fear of these edibles, as I had grown up with the common prejudices against them, entertained by most people in this country. Having occasionally read of fearful accidents from their use, and there being abundance of other and wholesome food obtainable, I felt no inclination to run any risks in needlessly enlarging my bill of fare. Thus I had passed middle life without having once even tasted a Mushroom.

"But as under your guidance and assistance my knowledge of Fungi increased, a confidence in my ability to discriminate species grew up with it, and a curiosity to test the qualites of these much-lauded articles got the better of timidity; and now, I suppose, I can safely say that I have eaten a greater variety of Mushrooms than anyone on the American continent. I have even introduced several species before untried and unknown. From the beginning of my experiments, however, I have exercised great caution, even with species long recognised as safe and wholesome. In every case I began with only a single mouthful. No ill effect following, I made a second essay upon two or three mouthfuls, and so on gradually until I made a full meal of them. Fortunately, I have never blundered upon any kind that was mischievous, although I have eaten freely of forty species. This is due, perhaps, to my general acquaintance with species which have been long used in Europe, and hence I have made no experiments upon new species which had not some affinity or analogy with them.

"For instance, A. campestris and arvensis being wholesome, I did not doubt but that A. amygdalinus (a new species closely allied to A. arvensis), might be safely attempted, as it has proved equally safe and palatable. Indeed, this may be regarded as the safest of all species for gathering, as it can be discriminated from all others, even by a child or a blind person. Its taste and odour are so very like those of Peach kernels or Bitter Almonds, that almost invariably the resemblance is immediately mentioned by those who taste it crude for the first time. This flavour is lost by cooking, unless the Mushroom be underdone. When thoroughly cooked I cannot myself distinguish it from A. campestris. One or two persons have expressed the opinion that they can distinguish it, and that it is not quite so good. Others, again, are equally positive that it is better. In the crude state I deem it the most palatable of all Mushrooms, as it leaves a very grateful aftertaste upon the palate, fully equal to that of Almonds. This is the thing I sent you some years ago for cultivation, but which failed to grow. I very much wish it might be propagated in England, so that we might ascertain whether it would undergo any change of qualities in a different soil and climate. I have for some time been entertaining the suspicion that such is the case with many of our species. Thus, in European books the Morel is described as possessing a peculiar flavour, that has given its name to the Morello Cherry. I can detect nothing of the sort in our Morel. You speak of A. cæsareus (in Intr. Crypt. Bot.) as being 'perhaps the most delicious of all Fungi.' This grows in great quantities in our Oak forests, and may be obtained by the cartload in its season; but to my taste, and that of all my family, it is the most unpalatable of all our Fungi, nor can I find many of our most passionate mycophagists who will avow that they like it. I have tried it in almost every possible mode of cookery, but without success. There is a disagreeable saline flavour that we cannot remove nor overlay.

"In the Tricholoma section, in which are several species long known as edible, I did not hesitate to experiment upon any that had the odour and taste of fresh flour. I began with A. personatus, not learning from books whether it had been eaten in Europe. To this I subsequently added three new American species belonging to the same group. All are excellent when stewed, and are especially valuable for their appearance in late autumn, even during hard frosts, when other Agarics are mostly out of season.

"Again, there seemed such a similarity of texture and habit between A. cæspitosus (lentinus, Berk.) and A. mellens, although the former belongs to Clitocybe, that the temptation to a trial of it was irresistible. As it is found here in enormous quantities, and a single cluster often contains two to five stems, it might well be deemed a valuable species in a time of scarcity. It would not be highly esteemed where finer and better sorts can be had; but it is generally preferred to A. mellens. I have found this species very suitable for drying for winter use.

"Among Boleti I ventured, in ignorance if it had ever been eaten, to try B. collinitus, on account of its close relationship with B. elegans. I am not particularly fond of Boletes, but this species has been pronounced delicious by some to whom I have sent it.

"So among the Polypores, I had no fear of harm from the use of a new American species (P. poripes, Fr.), on account of its relation to P. ovinus, of its texture and its flavour. The taste of the crude specimen is like that of the best Chestnuts or Filberts. It has been compared even with the Cocoa nut, and is certainly of very agreeable flavour. It does not, however, make a superior dish for the table, being rather too dry, but it is innocent and probably nutritious.

"Of the Meriuma group of Polypores, having already tried P. frondosus, sordidus, and sulphureus, I ventured, after some hesitation, and with more than usual caution, to test the virtues of a new American species (P. Berkeleii, Fr.), notwithstanding the intense pungency of the raw material, which bites as fiercely as Lactarius piperatus. When young, and before the pores are visible, the substance is quite crisp and brittle, and in this state I have eaten it with impunity and with satisfaction, its pungency being all dissipated by stewing. I do not, however, deem it comparable with P. confluens, which is rather a favourite with me, as it is with some others to whom I have introduced it. P. sulphureus is just tolerable; safe, but not to be coveted when one can get better. When I say safe, I mean not poisonous. I cannot recommend it as a diet for weak stomachs, which should be said of some other Fungi of similar texture. I am here reminded of an experience I had three or four years ago with this species, which would have greatly alarmed me had it happened at an early date in my experiments, and which would, probably, have deterred any one unused to this kind of diet from ever indulging in it again. I had a sumptuous dish of it on my supper table, of which most of my family, as well as a guest staying with us, partook very freely. During the night I became exceedingly sick, and was not relieved until relieved of my supper. My first thought on the accession of the illness was of Polyporus sulphureus; but as I remembered that inflammation was one of the symptoms of Fungus-poisoning, and I could detect no indications of this in my case, I soon dismissed the rising fear, did not send for the doctor, nor take any remedy. Others, who had partaken of the Fungus more freely than myself, were not at all affected; and I presume my sickness was no more induced by the Polyporus than by the bread and butter I had eaten. And yet, had I alone partaken of the dish, or had one or two others been affected in like manner, doubtless the night attack would have been very confidently attributed by some to the Mushroom; or had this been my first trial of that article, possibly I might ever after have regarded it with suspicion. I learned a few days afterwards, from one of our physicians, that this kind of sickness was then somewhat prevalent in the community, and could be attributed to no known cause. For the credit of this species, therefore, we were fortunately able to distinguish the *post hoc* from the *propter hoc*.

"There are families in America that for generations have freely and annually eaten Mushrooms, preserving a habit brought from Europe by their ancestors. In no case have I heard of an accident among them. I have known no instance of Mushroom-poisoning in this country, except where the victims rashly ventured upon the experiment without knowing one species from another. Among the families above mentioned, I have not met with any whose knowledge of Mushrooms extended beyond the common species (A. campestris) called Pink Gill in this country. Several such families live near me, but not one of them was aware, until I informed them, that there are other edible kinds. Everything but the Pink Gill, which had the form of a Mushroom, was to them a Toadstool, and poisonous. When I first sent my son with a fine basket of Imperials (A. cæsareus), to an intelligent physician, who was extravagantly fond of the common Mushroom, the lad was greeted with the indignant exclamation, 'Boy, I wouldn't eat one of those things to save your father's head!' When told that they were eaten at my table, he accepted them, ate them, and has eaten many a one since, with all safety and with no little relish. Since that time our mycophagists eat whatever I send them, without fear or suspicion.

"I have interested myself to extend the knowledge of these things among the lovers of Mushrooms, and also their use among those who have not before tried them. In the latter work I am not always successful, on account of a strong prejudice against vegetables with such contemptible names, and an unconquerable fear of accidents. Yet, as in my own case, curiosity often conquers these errors. When away from home I have frequently obtained ready permission from a kind hostess to have cooked a dish of Mushrooms that I have found on her premises. It has rarely occurred in such cases that the dish, then tasted for the first time, was not declared to be delicious, or the best thing ever put in the mouth. This latter phrase was once used in reference to so indifferent an article as A. salignus. Indeed, I have found several persons who class this among the most palatable species. To such persons a dish of fresh Mushrooms need seldom be wanting, as this one can be had every month of the year in this latitude. I am induced to believe that the quality of this species varies with the kind of wood it grows from, and that it is better flavoured when gathered from the Mulberry, and especially from the Hickory, than when taken from most other trees. Its fitness for the table seems also to depend much upon the rapidity of its growth; those which grow slowly, as is the case with some of our garden vegetables, being of tougher texture and of less delicate flavour. A warm sun after heavy rains brings them out in greatest perfection.

"I have several times been asked by persons eating Mushrooms for the first time, whether these things belong to the vegetable or animal kingdom. There is certainly a very noticeable resemblance in the flavour of some of them to that of flesh, fish, or mollusc, so that the question, as founded merely on taste, is not an unnatural one. But I was much struck with its propriety when reading an article in 'Fraser's Magazine,' a few years since, written by the late Mr. Broderip, who therein says that Mushrooms contain osmazome. If this be so, it accounts both for their flavour and for their value as food. Of this latter quality I had become so well convinced that, during our late war, I sometimes averred, and I doubt if there was much, if any, exaggeration in the assertion, that in some parts of the country I could maintain a regiment of soldiers five months of the year upon Mushrooms alone.

"This leads to a remark which should not be overlooked, upon the great abundance of eatable Mushrooms in the United States. I think it is Dr. Badham who boasts of their unusual number in Great Britain, stating that there are 30 edible species in that kingdom. I cannot help thinking that this is an under-estimate. But if the doctor is correct, there is no comparison between the number in your country and this. I have collected and eaten 40 species found within 2 miles of my house. There are some others within this limit which I have not yet eaten. In the catalogue of the plants of North Carolina, you will notice that I have indicated one hundred and eleven species of edible Fungi known to inhabit this State. I have no doubt there are 40 or 50 more, as the alpine portion of the State, which is very extensive and varied, has been very little explored in search of Fungi.

"In October, 1866, while on the Cumberland Mountains in Tennessee, a plateau less than 1000 feet above the valleys below, although with little leisure for examination during the two days spent there, I counted 18 species of edible Fungi. Of the four or five species which I collected there for the table, all who partook of them, none of whom had before eaten Mushrooms, declared them most emphatically delicious. On my return homeward, while stopping for a few hours at a station in Virginia, I gathered eight good species within a few hundred yards of the depôt. And so it seems to be throughout the country. Hill and plain, mountain and valley, woods, fields, and pastures, swarm with a profusion of good nutritious Fungi, which are allowed to decay where they spring up, because people do not know how or are afraid to use them. By those of us who know their use their value was appreciated as never before during our late war, when other food, especially meat, was scarce and dear. Then such persons as I have heard express a preference for Mushrooms over meat had generally no need to lack grateful food, as it was easily had for the gathering, and within easy distance of their homes if living in the country. Such was not always the case, however. I remember on one occasion during the gloomy period, when there had been a protracted drought, and fleshy Fungi were to be found only in damp shaded woods, and but few even there, I was unable to find enough of any one species for a meal; so, gathering of every kind, I brought home 15 different kinds, had them all cooked together in one grand *pot-pourri*, and made an excellent supper. Among these was the Chantarelle, upon which I would say a few words in confirmation of what I have already said upon the varying qualities of Mushrooms in different regions and localities. You have somewhere written of this Mushroom as being so highly esteemed a delicacy, that it is much sought for when a dinner of state is given in London. Can this be because it is a rarity? (for nothing common and easily obtained is deemed a delicacy, I believe), or because you have it of finer flavour in England? Here, where it abounds, no one seems to care at all for it, and some would forego Mushrooms entirely rather than eat this. It certainly varies much in quality, as I have occasionally found it quite palatable, and again, though cooked in the same mode, very indifferent. I have been unable to ascertain whether this difference is due to locality, exposure, shade, soil, moisture, or temperature. That soil has much to do with the flavour of some species of Mushrooms I am well convinced. In a parcel of Pink Gills I have sometimes found one or two specimens, though perfectly sound, of such unpleasant odour and taste as would spoil a whole dish. So also with the Snowball (A. arvensis), of which I annually find a few beautiful specimens growing near my residence, upon a grassy turf which covers a pile of trash made up of decomposed sticks, leaves, and scrapings from the adjoining soil. Their taste and odour is perfectly detestable. I had one specimen cooked, but no amount of seasoning could abate the offensiveness of the odious thing; yet within 100 yards of these I gather specimens of the same identical species, which are of fine flavour, equal to that of the best Mushrooms. As I have before intimated the varying flavour of Mushrooms growing on different kinds of wood, so here I suppose the unpleasant qualities of some specimens of these two well-known and favourite species may be owing to something in the soil where they grow which they cannot assimilate, and so render a palatable and wholesome species totally unfit for the table. Whether such specimens, if eaten, would be poisonous or unwholesome I do not feel any temptation to prove. It is not probable that they will ever do any mischief, for it is incredible that any human being should so pervert his instincts as to swallow such a villainous concoction.

"Experience and observations like these would perhaps justify the inference that an innocent species may sometimes be deleterious, on account of its taking up some bad element from the soil. But as I have never known a case of poisoning in families that are well acquainted with the common Mushroom or Pink Gill, that gather the specimens for themselves, and have used this article of food annually for many generation, I cannot agree with a suggestion somewhere made by you, that perhaps all Mushrooms contain a poisonous element, but some of them in such small quantity as to have no appreciable effect. Now, had you seen the quantities of stewed Mushrooms swallowed at a single meal which I have seen thus devoured, and with no more harm than from the same amount of oyster or turtle soup, I think you would be forced to the conclusion that such an amount, even of poisonous infinitesimals, must have had some very unpleasant manifestations, or else be a very innocent diet.

"It is said that the sale of the Pink Gill (A. campestris) is forbidden in the Italian markets, because that species has often proved to be poisonous. May not this have been occasioned by ignorant and careless collectors or by worthless inspectors? To us in America, who use this species so freely and fearlessly, the Italian's curse, 'May he die of a Pratiola,' would have no more terror than 'May he die of aromatic pain.'

"Our best and standard Mushrooms are the Pink Gill (A. campestris); Snowball (A. arvensis); Peach Kernel (A. amygdalinus); Nut (A. procerus); French (A. prunulus); Morel (M. esculenta); Coral (Clavariæ); and Omelette (Lycoperdon giganteum). These are almost universally in high esteem. Yet tastes differ on these things as on fruits and vegetables; some putting one, some another, at the head of the list, though fond of all and ever ready to use either of them—as one who prefers a Peach may yet relish an Apple. There are some among us who regard A. procerus as fully equal to A campestris, and I am almost of the same opinion. When broiled or fried it truly makes a luscious morsel. I must mention in this connection, that this species here bears the name of Nut Mushroom, from a quality that I do not find mentioned in the books which describe it. The stem when fresh and young has a sweet nutty flavour, very similar to that of the Hazel Nut. Is this the case with you? Its flavour is so agreeable that I am fond of chewing the fresh stems. From this peculiarity in connection with its movable ring, its form and colours, I deem it a perfectly safe species to recommend for collecting. We have no species likely to be mistaken for it, except A. rachodes, and I fully tested the innocence of this before commending the first to others. This has been suspected by some, but I have found it harmless. Though pretty well flavoured, it is not comparable with A. procerus, and the flesh is so thin and spongy that no one would choose it when those of more compact texture are to be had. A. excoriatus, of the same group, is a much preferable species.

"The Morel is one of my greatest favourites, but this is not found in quantity except in calcareous districts. A few days since (April 21) I had a dozen for supper, the largest number I ever had at one time.

"The Lycoperdon giganteum is also a great favourite with me, as it is, indeed, with all my acquaintances who have tried it. It has not the high aroma of some others, but it has a delicacy of flavour that makes it superior to any omelette I have ever eaten. It seems, furthermore, to be so digestible as to adapt it to the most delicate stomachs. This is the South Down of Mushrooms.

"In this latitude (about 36°) we can find good Mushrooms for the table during nine or ten months of the year. Including A. salignus, which some are quite fond of, we can have them in every month, as this species comes out during any warm spell in winter. A. campestris makes its appearance here as early as March, but is not in full crop until September. Several excellent species of the Tricholoma group do not spring up until after frost sets in, and continue into December. Such is the case too with Boletus Collinitus, which sometimes emerges from the earth frozen solid.

"These observations and experiences are confined chiefly to the Carolinas; though, I presume, from casual observations elsewhere, and from information derived from correspondents in other States, that, making some allowance for difference of climate and length of seasons, what I have said is generally applicable to the whole country. *M. A. Curtis.*"

Mr. Saunders then stated his intention of offering a prize again next season, and suggested that to make the edible species better known, they should be staged separately from the poisonous ones, and be legibly labelled so as to direct more attention to those species which were useful to man.

The Chairman having adverted to a few minor subjects, said that many years ago the late Sir Joseph Banks had predicted that the fruit of the Mango and Mangosteen would be exposed for sale in Covent Garden Market, though he might not live to see it; and he (Mr. Bateman) was happy to say that that prophecy had been partly fulfilled, for a few days previously he had bought fruit of the Mango in Covent Garden, which were obtained from Madeira. The Mango had fruited at Chatsworth

and in the gardens of Lord Powis, but he believed this was the first time they had been offered for sale in this country. Some specimens of Truffles gathered in the New Forest were then alluded to, as being inferior to those produced in the earlier part of the year. Mr. Bateman also remarked that Truffles were still hunted for in this country by regularly trained dogs, but in France these had been superseded by a species of fly which alighted on the ground where Truffles were found. The specimen of the beautiful Hippeastrum reticulatum, from the gardens of Lord Egerton, where it was grown under the incorrect name of Bertolonia marmorata, was next commented upon as being a charming plant that was seldom seen, but which was an admirable subject for stove decoration. Mr. Bateman then concluded by referring in feeling terms to the deaths of Mr. Veitch and Mr. Thompson, and to the great blow which the Society and horticulture in general had sustained in the loss of the energy and enterprise so characteristic of the late Mr. Veitch, and in the learning and practical knowledge of Mr. Thompson.

Floral Committee.—The Rev. J. Dix in the chair. This was a very good meeting, considering the lateness of the season. The Messrs. Veitch contributed a really grand group of Odontoglossum grande, together with other Orchids and new plants. Amongst the former were specimens of Masdevallia Veitchiana, with four fine flowers, a plant which was said to be worth 100 guineas, and to which a Special Certificate was awarded; Oncidium Forbesii, a handsome Brazilian species; Odontoglossum Warneri, beautiful white and brown spotted; ×Cattleya Dominiana, with large flowers, delicately shaded pink; Zygopetalum Gautierii, a new species from Brazil; and Miltonia Warscewiczii, a New Granadan species, with rather small flowers, the petals of which are of a bronze colour, tipped with green, and with a warm slate-coloured lip, deeply bordered with white; to the latter a First-class Certificate was given. A similar award was also made to Anæctochilus Dawsonianus pictus and A. Ordiana, both very beautifully marked; to Seaforthia Veitchii, a fine new Australian species; to Tydæa Nero, a garden hybrid, with rich scarlet flowers, having deep, dark, velvety markings in the throat; and to Rhododendron Lobbii, a stove flowering shrub from the East Indies, with crimson, curved, tubular flowers. To the finest specimen of Darlingtonia californica hitherto exhibited, a Special Certificate was given, and the same award was made to the collection. From Mr. Bull came a fine collection of Palms, to several of which First-class Certificates were given, not on account of their being absolutely new, as some at least were well known, but owing to its being the first time they have been brought before the Committee; and as the public taste for such plants is now becoming manifested, it is necessary that their introduction should be encouraged by these means. Those which received Certificates were Dekenia nobilis, a Seaforthia-like species, with whitish spines around the stem and up the leaf stalk; Ptychosperma elegans, with broad two-lobed leaves; Plectocomia elongata, a similar looking plant, with powdered stem; and Martinezia caryotifolia. With these came Mesembryanthemum cordifolium variegatum, a dwarf free-growing plant, with greenish leaves, having creamy yellow edges, which is likely to become a useful bedding plant; and nice specimens of Burlingtonia venusta and Odontoglossum grande. A Special Certificate was awarded to the collection. From Messrs. Standish & Co., Ascot, came several examples of Ficus macrophylla, a very free-growing species; the leaves are broader, of a thinner texture, and of a lighter green colour than F. elastica. It is said to be a native of New Zealand, and may properly be described as an Epiphyte, commencing its growth from the seed deposited on the tree, and sending down roots to the ground, sometimes a distance of 20 feet, when it commences to grow rapidly. It is a much faster growing plant, and is more hardy than F. elastica, and will no doubt be a valuable acquisition for subtropical gardening. With it came flowering plants of the beautiful Nerine Fothergillii; several small specimens of Ixora Dixiana, nicely flowered; and Actiniopteris radiata, a pretty little dwarf Fern, with divided palmate fronds. To Mr. Turner a Special Certificate was awarded for six fine specimens of Tricolor Pelargoniums, including Mrs. Turner, Lucy Grieve, Lady Cullum, Sophia Cusack, Italia Unita, and Sophie Dumaresque. From the same exhibitor also came a new fine white variegated Ivy-leaved Pelargonium, named Compactum, decidedly the best of its kind; and Tropæolum ochroleucum, a compact-growing yellow-leaved variety, that seldom flowers or runs; this is a plant that is in all probability destined ere long to play a prominent part in ribbon borders. To both of these First-class Certificates were given. Mr. Turner also sent a fine collection of cut Dahlias, to which a Special Certificate was awarded. From Mr. William Paul came 6 boxes of cut Roses, consisting principally of well-known varieties of Teas and Hybrid Perpetuals. A Special Certificate was given; and to 2 boxes of similar kinds from Messrs. Paul & Son, the same award was made. Mr. Wm. Paul also contributed a nice group of his new golden-leaved Euonymus flavescens, and cut blooms of Pelargoniums, &c. To Messrs. Paul & Son a First-class Certificate was given for Cupressus Lawsoniana pendula alba, a beautiful silvery foliaged kind, with a graceful pendulous habit. Mr. J. W. Lawrence, gr. to the Bishop of Winchester, Farnham Castle, sent a specimen of Houlletia Brocklehurstiana, a Brazilian species, with flag-shaped leaves and large flowers having petals of orange-brown, with darker spots, and a yellow-brown spotted lip. Unfortunately this fine plant did not arrive in time to be noticed by the Committee. Messrs. Downie, Laird & Laing, showed some remarkably fine flowers of Pentstemons, obtained from a batch of seedlings, and a free-flowering white bedding Dahlia, named Princess Mathilda, which on account of its neat and compact habit of growth may come in useful for bedding purposes, but the flowers were not up to the standard form in shape. From Messrs. E. G. Henderson & Son came dwarf bushy plants of Achyrocline Sandersoni and Cineraria acanthifolia, removed from the open ground; also the new winter flowering Bouvardia jasminiflora. To Mr. Green, gr. to W. W. Saunders, Esq., a Special Certificate was awarded for a collection of small but interesting Orchids, including Bolbophyllum Careyanum, a species with spikes of brownish purple flowers produced so densely as to resemble a cone of a Conifer; and the same award was made to a splendid collection of cone-bearing sprays of Conifers, sent by Mr. Archer, gr. to W. M. Dolben, Esq., Finedon Hall, Wellingborough, consisting of Picea nobilis, cephalonica, Pinsapo, and Nordmanniana, Pinus insignis, Massoniana, Pinaster, maritima, Cupressus Corneyana, and others. The same award was also made to a collection, including magnificent cones of Picea cephalonica, Pinsapo, and others, from Mr. Frost, of Dropmore. From Mr. Cliffe, gr. to Lord Egerton, of Tatton Park, Cheshire, came a beautifully flowered specimen of Amaryllis (Hippeastrum) reticulata, an old favourite free-flowering Amaryllidaceous plant. A Special Certificate was awarded on account of its superior culture.

Fruit Committee.—G. F. Wilson, Esq., in the chair. This was a very interesting meeting, the prizes offered for Fungi, Grapes, &c., drawing together a large number of objects. The prizes offered were:—1, For the best collection of edible and poisonous Fungi; 2, three bunches of Chasselas Musqué Grapes (open); 3, three bunches of Muscat Hamburgh (open); 4, three bunches of Frankenthal or Hamburgh (open); 5, three bunches of White Muscat of Alexandria (open); 6, three bunches of Alicante (open); 7, three bunches of any new or recent variety (open); 8, the best collection, trained (open). The 1st prize in class 1 was awarded to Mr. English, of Epping, whose collection, though not containing so many species as that which came in 2, was well arranged and legibly labelled. In this collection were specimens of the following Agarics:—A. muscarius, excelsus, rachodes, mellous, personatus, cylathiformis, lucatus, primulus, squarrosus, arvensis, fasciularis, and laccatus amethystinus; Coprinus comatus, Lactarius quietus, Russula rosacea, R. fragilis, Clavarius cibarius, C. lutescens, Boletus luridus and subtomentosus, Hydnum repandum and crinaceus, Lycoperdon giganteum, and others. Mr. Worthington G. Smith was 2d, with a collection of 70 named species, containing some rarities, including Gomphidius glutinosus, Agaricus gambosus, rubescens, orcella, and rachodes; Boletus edulis, Lycoperdon giganteum, Marasmius Oreades, Coprinus comatus, Clavaria rugosa, Fistulina hepatica, Lactarius deliciosus; Paxillus involutus, Boletus subtomentosus, Russula rosacea and fragilis, Boletus luridus, Lactarius vellarius, and many others. Mr. Hoyle, of Reading, was 3d. Other good but smaller collections were furnished by Mr. Edmonds, Chiswick, and Messrs. Carter, of Holborn. In class 2 there was no competition. In class 3, the only collection came from Mr. Osman, of Stanmore Hill, and as these were grown in a greenhouse, and were but ordinary examples, the 2d prize only was awarded. For the best three bunches of Frankenthal, or Hamburgh, Mr. Stevens, gr. to his Grace the Duke of Sutherland, was 1st with well-finished specimens, not over large in bunch, but these were well shouldered, and filled with good and finely-coloured berries. Mr. Wattam, gr. to C. Longman, Esq., Shendish, Hemelhempstead, took the 1st prize for three bunches of Muscat of Alexandria. The specimens exhibited were excellent in every respect, being large and well shouldered, with fine, well-ripened berries. In class 6, the best collection came from Mr. G. Egerton, gr. to the Countess Waldegrave, Strawberry Hill, Twickenham. The three bunches weighed 15 lb. 15 oz.; they were remarkably fine in berry, colour, and shape, and carried a good bloom. They were shown in fine condition, and do Mr. Egerton great credit. The 2d prize was taken by Mr. Laytham, gr. to Messrs. Bertram & Roberts, Rockhills, Sydenham, with good bunches, but wanting in finish, being rather loose; better shaped and much better finished examples came from Mr. Lynn, gr. to Lord Boston, Hedsor, but they were not so ripe as the former, and as no 3d prize was offered, a Special Certificate was voted to Mr. Lynn for their good cultivation. Messrs. Standish & Co. took the 1st prize in class 7 with three well-ripened bunches of Royal Ascot; and the 2d prize was awarded to Mr. Baxter, gr. to C. Keiser, Esq., Broxbourne, who showed Royal Vineyard: the bunches were large, not well filled, and the berries were uniformly small, nevertheless they were in better condition than is usual in this variety. The only examples of the Madresfield Court Black Muscat that were sent for competition for Messrs. J. & C. Lee's prize came from Mr. Stevens, Trentham, but the largest bunch was unripe, and the prize was withheld. It is, however, the intention of Messrs. Lee to offer the prize again next year, when it is to be hoped that the competition will be a good one. To Mr. Rivers a Special Certificate was awarded for a further fine collection of Apples, from trees grafted on the Nonsuch English Paradise stock. From Mr. William Paul also came a named collection of Apples, and further samples of his new seedling Grapes, some of which were considered to be worth further cultivation. Mr. Turner sent a good bunch, with handsome berries, of Muscat Eschalata, produced on a cane grown from an eye this year. To Mr. Forsyth, gr. to Baron Rothschild, Gunnersbury, a Special Certificate was given for three very fine Pines, including one of Charlotte de Rothschild, weighing 9 lb., probably the finest fruit of this variety ever seen, and another of smooth-leaved Cayenne, weighing 8 lb. From Mr. H. Clark, gr. to Earl Cowper, came a fruit of the prickly Cayenne, which weighed 6 lb. 12 oz., and to which the same award was made. Mr. A. Colbourn, gr. to J. Blythe, Esq., Woolhampton, sent six specially fine Salway Peaches, which were said to be better in flavour than the Committee had before tasted. A Special Certificate was awarded. From Mr. Tillery, of Welbeck, came a dish of Late Admirable Peaches, grown on the glass-covered walls at that place. Mr. James, gr. to the Earl of Dartmouth, Patshull, Staffordshire, sent two bunches of a promising seedling white Grape, attained between Alicante and Chasselas Musqué. The berries were very large, oval, and of excellent flavour. It was highly commended by the committee, and requested to be sent again next year. From Messrs. Carter & Co. came a collection of American Tomatos, consisting of the Yellow Cherry, Red Currant, a smooth round variety, named General Grant, and other well-known sorts. Mr. Wells exhibited a large basket of very good Black Hamburgh Grapes, grown in Ground Vineries, for which he received a Special Certificate. From Mr. Melville, Dalmeny Park, came a bunch of Melville's Golden Prince Grape, which was tough in the skin and poorly flavoured. Messrs. Downie, Laird & Laing exhibited the Egyptian Turnip-rooted Beet, and Mr. Cox, of Redleaf, a good dish of St. Martin Quetche Plums. Mr. Gilbert, gr. to the Marquis of Exeter, sent a good early seedling kitchen Apple, raised by the present Marquis; a dish of fine Figs grown in the open air, which were highly commended: and two bottles of catsup, one made from Morells and the other from forced Mushrooms. The latter was considered to be the best by the Chairman, who had previously tried them both. Mr. Laxton, Stamford, sent a well kept dish of French Crab Apples, gathered last year, and a collection of young Potatos, the produce of grafted sets. Mr. Drewitt, of The Denbies, sent two brace of hybrid white-spined Cucumbers; and from Mr. J. Wrench, gr. to J. Knight, Esq., Padnell Grove, Essex, came a brace of Knight's King Christmas Cucumber. Messrs. Cutbush & Son, of Highgate, exhibited a fine collection of well-known Onions, grown in various parts of the country, to which a Special Certificate was awarded. Messrs. Barr & Sugden again showed a large collection of Onions, grown in various parts of the country, and a report on them was prepared by Mr. Barr, which we hope to print next week. From Mr. Hooley, of Woolaton, near Nottingham, came several large sticks of his Conqueror Prize Celery. They were fine in size, but one at least had bolted, and the sample altogether was considered too large and coarse for general use.

Notices of Books.

Flora of Middlesex, &c. By H. Trimen, M.B., F.L.S.; and W. T. Dyer, B.A. Hardwicke. 8vo, pp. 428. Map.

The full title of this book runs thus:—"Flora of Middlesex: a Topographical and Historical Account of the Plants found in the County; with Sketches of its Physical Geography and Climate, and of the Progress of Middlesex Botany during the last Three Centuries." In point of fact, the title-page might serve for a table of contents, so expressive is it of what the book really contains.

The introductory portion is devoted to a sketch of the topography, physical features, and geological conformation of the county, followed by a brief account of the climatal peculiarities, and the consequent nature of agricultural operations.

Excluding the strictly metropolitan area, a patch or two of plastic clay here and there, a capping of Bagshot sand on some of the hills (*e. g.*, Hampstead, dear to cockney botanists), and, quite in the far north-western corner, an outcrop of chalk—excluding these, which really form but an infinitesimal portion of the area of the county, the surface of Middlesex may be divided into two main divisions, which we may roughly call the northern and the southern.

The northern is of the clay—clayey. Its surface presents all the features of the London clay scenery to perfection—rich pasture lands permeated by small streams, and here and there diversified with undulating hills. The timber trees consist of Oaks and Elms chiefly. There is scarcely an arable field to be seen, but everywhere meadows and pastures, furnishing excellent hay for the London market. So thinly populated is the greater portion of this district that whole parishes comprise sometimes only some dozen families. In one such parish there are only five houses, and this within less than ten miles from Charing Cross. It might at first be thought that such a county would be a very paradise for the botanist, but it is not so; although the flora has not been much interfered with by builders or farmers, yet it is not a rich flora by any means. Those whose only thought is the number of species they can find or add to their collection will find this county little to their tastes.

In the south and south-western parts of the county we get somewhat different conditions—rich friable loams, brick earth, and valley drifts. In consequence, pasture lands no longer form the predominant features, but here and there Wheat fields—Heston Wheat is as famous as Hendon hay—and market gardens whose produce, thanks to constant tillage and abundant manure, is wonderful in its extent. Orchards, too, abound; not such orchards as those of Kent or Hereford, with Grass beneath the trees, but orchards between whose trees are grown Cabbages, Onions, Gooseberry bushes, Currants, Wallflowers, Stocks, double Daffodills,—anything in short that can be made saleable in Covent Garden Market. There is no squeamishness here about injuring surface roots, no banner is here erected with the motto, "Sacred to the roots," but rather a pretty constant system of root-pruning is carried out. Another feature of this part of the county consists in the abundant brickfields. These are not inviting in a pictural sense, but they are not uninteresting botanically, as they often harbour newly introduced plants, and allow the rejected scraps of gardens to establish themselves in a semi-native state. Quite in the south is the Thames, but so far as we have seen the Surrey bank is the richer in rare and interesting plants. We could have wished that our authors had contrived to bring more prominently into view than they have done the differences in the flora of the two main divisions of the county above sketched. The plan they have followed has been to map out the county into seven districts, drained by as many rivers. Of course so far as physical geography is concerned, such an arrangement is very convenient, but for strictly botanical purposes the floras of districts i., iv., and vi. are London clay floras; and districts ii. and iii. are loam, brick earth, and valley floras; while v. and vii. are partly one and partly the other.

The body of the work on whose introductory portion we have been commenting consists of a complete catalogue of all the plants known to exist in the county, with references to books and figures; localities carefully arranged under the seven districts before alluded to; and lastly—novel, but most valuable features in such a work—a reference to the book wherein occurs the first record of the plant's having been found in the county, a notice of its first introduction, or of the last time when it was noted within the limits of the flora. Of strictly botanical or descriptive comment there is little or none; that is left for the larger floras, though many will feel with us a little sense of disappointment that the views of the authors on certain critical plants, such as the Rubi, have not been given; the more so, as the authors freely acknowledge the assistance they have had from numerous friends, amongst whom are most of our best critical botanists.

Twenty-seven forms of Bramble are cited, most of them as sub-species—we think a wiser course than the attributing to these forms the dignity of specific rank. By the way, how is it that our critical "rubologists" have not cast an eye on the Hawthorn, so often associated with their Brambles? In Osterley Park, in the lanes near Willesden and East Acton, one might pick at least half-a-dozen Jordanic species of Crataegus, but which are doubtless only seedling varieties of C. Oxyacantha.

Eight hundred and fifty-nine species, comprising Ferns, are enumerated in the volume before us, of which 58 are mentioned as former natives, but which are no longer to be found in the county; 91 are mentioned as originally introduced, and now more or less naturalised. These introduced plants are of great interest in many ways—they are often historical—*e.g.*, Lepidium Draba, the history of whose introduction and its connection with the Walcheren Expedition has been told in our own pages. The Great Exhibition of 1862 also will date as the period of introduction of several exotics, most of which will or have already disappeared.* How curious is it to see how plants once common disappear. For instance, Sisymbrium Irio, once very common near London, is now never found. How curious also is it to see with what rapidity plants sometimes spread in certain localities, and how long they are passing the boundaries into adjacent districts. Take Galinsoga parviflora as an instance. It has been known in the market gardens and lanes near Kew for some years. It has lately increased enormously in the neighbourhood of the new railway station in consequence of the works there, and yet it has hardly made a footing in Middlesex. A still more remarkable instance of the difficulty which plants have of passing over a slight barrier, is manifest at the Kew Bridge Railway Station. On the banks on the "up side," close by the platform, Erigeron canadensis is a common plant; on the opposite bank not a plant of it is to be seen, in spite of pappus fruits and

* Malva verticillata may be added to our authors' list of "exhibition" plants. We saw the same plant also last year by the water side near Kew.

constant communication from one side to the other, and in spite of identity of soil.

The botany of railway banks and railway stations indeed is a subject well worth the attention of botanists, and in these days of junction stations and consequent delays, not the most unpleasant mode of whiling away the time is to note the "aliens" and strangers that make their appearance in such localities. Railways offer in many ways facilities for the introduction and dispersion of "alien" plants. At Battersea, for instance, is an embankment, the surface of which is composed of chalk brought from the Surrey hills, and here grow, or lately grew, Reseda, Chlora, Euphrasia, and other plants quite out of character with Battersea, even in the olden days.

Our notice has extended to such length that we can only mention without further comment the sketch of the progress of botany in Middlesex from the time of Mr. Turner, the first part of whose "Herball" was printed in 1551, to that of Mr. Melvill, whose "Harrow Flora" bears date 1864. This is a most interesting summary, comprising short biographical notices of most of the botanical worthies of the metropolitan district, and containing much new and hitherto unpublished information—a most valuable contribution to the literature of the subject. Lastly, there are lists of the Mosses and higher Fungi found in the county.

So many tastes and interests are catered for in this volume that our authors are sure to get full meed of praise and thanks from all sorts and descriptions of plant-lovers, and we too are happy to aid in the general chorus.

The Apiary.

BEE NOTES: SUPERS.—I have seen two very beautifully worked boxes of honeycombs lately, and was induced to take notice of the manner in which the bars were arranged. The boxes were perhaps 13 inches square, by 7 inches in depth below the bars. This is guesswork however, as I did not take any actual measurement. The bars were very wide, and also placed rather widely apart, so that there must have been at least 2 inches distance from centre to centre of each. It may have been rather more, as some of the combs were about 2½ inches thick, and none appeared to be much under 2 inches. Each bar had been sawn through the middle lengthwise, and a narrow slip or plate of artificial worker-celled wax sheet had been inserted, and the two halves screwed together, thus holding the sheet or narrow slip of wax securely. The combs were built very straight, were mostly worker-celled, and free from brood. The idea of the owner is that by compelling, as it were, the bees to work combs widely apart, very thick combs are the result, and there is little inducement to the queen ascending and making use of them for breeding. Certainly in his case the object desired was most fully realised. It is not often that we see the combs in an ordinary bell-glass super spoiled by brood. The reason appears to be that, from the increased difficulty of attaching the combs to the glass, they are generally constructed very unevenly, the majority of them being of unusual thickness, and therefore unsuitable for brood. In glass boxes, where the bars are arranged at the same distance apart, or nearly so, as those in the stocks, the ascension of the queen, and the appropriation by her of the combs for brood, is of very frequent occurrence.

I have hitherto been particular in constructing my supers of the proper dimensions for taking the same bars as are in use in the frames of my stock-boxes, only placing them rather further apart. Though this method possesses many undoubted advantages, yet, as my bars are very narrow, being only ⅞ inch in width, I have found that they were hardly capable of supporting very wide and heavy combs, and have, therefore, refrained from placing them so widely asunder as I otherwise should have done. It seems advisable, therefore, in future, to forego the advantages arising from the use of the same bars for stock hives and supers, and to substitute in the latter wider bars, placed so as to be from 2 inches to 2¼ inches apart from centre to centre. It must, however, be borne in mind that it is absolutely necessary, in order to insure thick worker-celled honeycombs free from every vestige of brood, to attach to each bar suitable guide-combs, or strips of impressed wax sheets, otherwise the bees will almost certainly make the combs approximate to the ordinary breeding distances and dimensions. Some of the specimens of Ayrshire honey, which I have noticed in the warehouse of Messrs. Neighbour, in Regent Street, have been remarkable for width and regularity of combs, the wide honey-bar being usually employed. I have occasionally, while using the narrow bars and spaces, had combs constructed from 3 inches to 3½ inches in thickness, in consequence of the bees using two bars for the foundation of one comb. Generally, under such circumstances, honey is plentiful, and is being stored with great rapidity. *S. Bevan Fox.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

THE species of *Eranthemum*, considering their usefulness and the variety in their forms, are not met with in collections of stove plants nearly so frequently as they should be. Some are grown for the beauty of their flowers, and others are cultivated for their beautiful foliage alone. E. elegans and E. pulchellum may be mentioned amongst the former, and of the latter, the following varieties—igneum, sanguinolentum, leuconeurum, with others under the synonyms of Fittonia, or Gymnostachyum, such as the lovely Pearcei, argyroneura, and Verschaffeltii. The latter seldom looks better than when grown quickly into neat plants in small-sized pots, as they are more serviceable for general decorative purposes, besides being better adapted for keeping throughout the winter months than larger specimens, which often show symptoms of decay in the leaves. These when compared with the clear, vivid, and well-defined markings upon the more youthful plants, afford a very disagreeable contrast. Less water and less artificial heat than heretofore should now be afforded them, the minimum to be arrived at during the middle of winter should be from 48° to 50°. Place them after this date into as light and airy a position as is practicable. The above remarks apply equally to *Sonerilas*, regarding which I may state that even greater care is necessary not to have the balls containing the roots at all sodden after this time, otherwise the loss of the plants will assuredly be the consequence. Gradually lessen the supply of water to the roots of *Orchids*, that the young growths of the current season may become thoroughly ripened off, without which there can be little hope of a plentiful show of flower. Those *Greenhouse* or *Conservatory Climbing Plants* which have done flowering and ceased growing strongly may now be well cut back. Many of them, such as the old *Mandevilla*, will stand cutting back to the old and more matured wood, and, being deciduous, will quietly rest in this condition until the spring months arrive. Be particular to afford air freely to all plant structures whenever the sun shines out well, so that all late growths may become properly matured. Specimen plants of the good old *Salvia splendens* should now be taken up from the open borders and be carefully potted into good rich compost; and if they are placed into a cool, shady place for a week or so they quickly recover, and bloom beautifully throughout the early winter months.

FORCING HOUSES.

Where *Vines* are forced early no further delay should take place in pruning them, if this be not already done. If the least symptom of bleeding occurs let white lead be immediately placed over the wounds, or use other methods, of which there are several, to prevent it. In pruning, choose as much as possible such firm, well-plumped eyes as are likely to afford the best growths, taking care to make the canes look as uniform as possible throughout the whole structure. Those who have prepared *Pot Vines* for very early forcing should now see to getting them indoors. Let the pots be well scrubbed over, and a good surfacing of rich compost placed firmly upon the balls; let them then be placed along the curbs, in the most sunny part of the house. In the meantime get together a sufficiency of fermenting material, wherewith to form a good heat in the pit into which the pots are to be eventually plunged. When the fixity of the sun's rays is not too intense keep the house closed, boxing up the steam formed therein for the benefit of the canes, as they fruit much more freely with such aids than by any other means. The floors, moreover, should be constantly damped down. Reduce very gently the night temperature in connection with *Pines* generally; for, as I have frequently urged, a high night warmth is, to say the least, very debilitating to the "stock." Do not delay longer to cover the earlier Vine-borders with a good thick coating, as previously suggested. Let all repairs in these structures be completed at the earliest possible moment. This tends to maintain a latent warmth therein to an almost indefinite time.

HARDY FRUIT GARDEN.

The advent of foggy or drizzling weather, some of which we have already experienced, will make the ingathering of all fruits a matter of more care should bright clear days not ensue. Be very particular not to pick any until it has become thoroughly dried. The natural sweating, which it always undergoes when laid by, is sufficient of itself without storing it away in a damp state. Where a good crop of *Figs* is still ripening upon any wall it will be well to devise means to protect them alike from the heavy dews and colds of night, by throwing over them some makeshift light, or other protective material. Besides forwarding the fruit somewhat, this will enhance the flavour. Those who wish to keep late ripening *Plums* as long as possible, such as the varieties of Impératrice, Coe's Golden Drop, &c., may pick them when dry; place them upon shelves in an open, airy room, or the like; and, after a few days, wrap them up, each fruit separately, in tissue paper, place them loosely into boxes, which are moderately air-tight, when they will keep for a moderate length of time.

HARDY FLOWER GARDEN.

Well-kept walks, without which a garden at this season loses that nice neat tone which is so desirable, will now need all our attention to keep them in thorough order. They must be constantly swept and rolled over—as often, in fact, as leaves and other litter accumulate. Weeds especially must be removed. Immediately those *Verbena* cuttings which were put in lately have struck, remove them for a week or so to a fully exposed situation where exposure to the sun and air may combine to render them hardy, and in a fit state to stand well through the winter. These remarks apply equally to all other cuttings which are similar in regard to hardihood. Those who propose removing *Evergreens* may now do so with immunity from any great risk. Those who have the power so to do—and it should be so with all—will now do well to commence potting up and housing all the more delicate bedding stuff, and especially such specimen plants of Dracænas, Echeveria metallica, and other rarer varieties which are the most likely to receive injury from early autumn frosts. A commencement, however, should be made with the general potting-up of all, even to Pelargoniums, by those who value their stock or wish a gardener well started for the winter, and for next season's display. Bulbs generally, such as *Crocuses*, *Tulips*, and *Hyacinths*, may be placed into the vacant beds immediately they have been turned over in process of digging and otherwise properly attended to.

KITCHEN GARDEN.

In this department the chief work will be to manure all vacant ground at the earliest possible moment, after the removal of the crop which may have been upon it, and to well dig or trench it over. The atmosphere will thereby be able to exert to the full its resuscitating influences. *Herb beds* or plantations should now be cleaned of all superfluous growths, and then have a good coating of coarsely sifted leaf-mould and common loam placed amongst the stools or crowns of the several sorts. This, whilst it tends to ward off the frosts of winter, aids the roots besides by affording additional nutriment to the soil and to themselves when the growing period arrives. For the rest, successional plantings must still be made of *Endive* and *Lettuces* for winter standing and the earlier spring uses; and continue to earth-up *Celery* upon favourable occasions when the weather is dry. *W. E.*

TOWN GARDENING.

THE *Ivy* is a most valuable plant for town gardens, and the present is a good time to plant it, so as to cover walls, or to twine round wirework to form basket beds, which make a pretty feature, and are very useful for growing early bulbs in. It should now be nailed close, and all straggling shoots should be cut out, and particular care taken to secure the top well, or the wind or snow may break it down during the winter. The *Virginian Creeper*, *Clematis*, &c., should be attended to in like manner. *Privet Hedges* should now be clipped into shape. The oval-leaved variety makes a fair bush for town if cut-in at this season to any shape. Look well after the *Chrysanthemums* where specimen flowers are required, taking care to remove all the buds as fast as they appear, with the exception of the terminal or top bud; keep them well secured by the main stem, and do not bind the side-shoots up together after the fashion of a birch-broom. Cuttings of the *Shrubby Calceolarias* may still be put in as directed last week. These will make nice plants for next spring. Boxes on the balcony and windows should now be cleared of the summer plants, and fitted with *Pompon Chrysanthemums*; after which, *Bulbs* that have been started in pots can be turned in, so that a goodly display can be kept up for most of the season. The *Gravel Walks* should be cleared of weeds, well swept and rolled once or twice a week, which will give them a neat and agreeable appearance for the autumn. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending Oct. 6, 1869, as observed at the Horticultural Gardens.

Sept. and Oct.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind	Rain.
Thurs. 30	24	29.570	29.512	70	47	58.5	58	56	E.	.32
Friday 1	25	29.730	29.694	67	50	58.5	60	57	S.	.04
Satur. 2	26	29.705	29.600	62	52	57.0	58	56	S.E.	.24
Sunday 3	27	29.956	29.764	69	41	55.0	60	57	N.W.	.00
Mond. 4	28	30.114	30.096	67	47	57.0	57	56	W.	.00
Tuesd. 5	29	30.134	30 104	68	38	53.0	56	56	N.	.00
Wed. 6	1	30.149	30.136	65	34	49.5	56	55	S.E.	.00
Average		29.908	29.844	66.8	44.1	55.5	57.8	56.1		0.60

Sept. 30—Overcast; cloudy, very close; heavy showers at night.
Oct. 1—Showery; cloudy, but fine; clear and fine.
— 2—Overcast, slight rain; densely overcast; showery.
— 3—Cloudy, very damp; very fine; clear and fine.
— 4—Dense fog; very fine; dense fog, cold air.
— 5—Dense fog; hazy; foggy, and cold at night.
— 6—Foggy; very fine; clear and fine at night.
Mean temperature of the week, 2 4-10 deg. above the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 43 years, for the ensuing Week, ending Oct. 16, 1869.

October.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..10	61.6	43.3	52.4	24	0.66 in.	4	4	7	1	8	10	6	3
Mon. ..11	61.7	42.4	52.1	22	0.34	2	5	6	2	4	15	5	5
Tues. ..12	59.2	41.4	50.3	23	1.00	2	3	4	2	11	6	10	5
Wed. ..13	60.7	41.8	51.2	22	0.33	2	4	4	1	7	10	9	5
Thurs. ..14	59.9	40.5	50.2	20	0.30	2	6	4	1	10	8	6	6
Friday ..15	59.0	40.5	49.8	21	1.04	2	2	4	2	12	6	7	8
Satur. ..16	59.0	40.1	49.5	18	0.58	1	7	5	1	6	11	9	4

The highest temperature during the above period occurred on the 14th, 1861—therm. 80 deg.; and the lowest on the 15th, 1860—therm. 24 deg.

Notices to Correspondents.

GRASS: *Duff.* We never before heard of any such Grass as Poa ferciles.

INDIAN FORESTS: *A Young Gardener.* Apply at the India Office, Westminster.

MEDLARS: *An Amateur.* These should be allowed to hang on the trees as long as they will, or until they begin to fall off of themselves; a slight frost will do them little harm, it is, however, in no way beneficial. When gathered, place them singly in layers, and treat them exactly as you would the finest Pears.

NAMES OF PLANTS: *X Y Z.* 1, Colchicum autumnale; 2, C. byzantinum.

PEAR LEAVES ATTACKED BY FUNGUS: *A Subscriber.* The parasite attacking your Pear leaves is a Fungus, Rœstelia cancellata. It is too common this year. You must pick every leaf which is affected and burn it. You will probably have it again next year, when you must repeat the process at an earlier period, and so try to stamp out the disease. *M. J. B.*

SPECKED APPLES: *Sir W C Trevelyan.* We can by no means satisfy ourselves as to the injury to your Apples having been caused by frost. We are more inclined to agree with "S. P. H.," p. 992, that it is caused through the action of the sun. It is not an uncommon occurrence with fruits on walls which are exposed to the fierce heat of the sun after, it may be, a cold night. We have never observed it so on open standards or away from walls, which certainly are more likely to be affected by frost, and loss by heat or burning. Were the temperatures you give taken from the same position as the fruit sent—against the south wall, or from the open? The temperature against a wall is generally some 3° or 4° higher than in the open; so that your register, if from the wall, would give the lowest temperature ever recorded in the month of August. The affection of your Plums is entirely different, being caused through a defect in the stone, which prevented the fruit from swelling regularly. It is very common.

VERBENA: *Ecton Hall.* Apparently a good purple, but much withered.

VINES: *G S.* 1, yes, it is mildew; 2, a most destructive disease, caused by damp; 3, as soon as it makes its appearance keep the air warm, and as dry as possible, and wash the pipes with flowers of sulphur mixed with milk. If convenient look over the foliage, and carefully dust the leaves with sulphur, through a muslin bag.

COMMUNICATIONS RECEIVED.—J. M'I.—F. C.—J. W.—P. C.—E. B.—N. A. P. B.—Oxon.—C. P.—S. C. P.—J. B.—T. V.—A. Y. H. Nairn (thanks).—J. W.

THE LANDS IMPROVEMENT COMPANY.—
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Frederick L. Dashwood, Esq., Kirtlington Park, Oxford.
Henry Farquhar, Esq. (Messrs. Herries, Farquhar & Co.), 16, St. James Street, S.W.
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The whole outlay and expenses are liquidated by a rent-charge upon the land, redeeming principal and interest, over 25 years.
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ODAMS'S NITRO-PHOSPHATE or BLOOD MANURE for WHEAT.—This Manure, specially prepared for Autumn Sowing, is rich in Ammonia, Phosphates, and other ingredients required for the healthy growth of Grain Crops. Analysis of Blood and the grain of Wheat show that they are nearly identical in composition, hence the value of Blood as an ingredient in Manure. It may be applied at the rate of from 3 to 4 cwt. per acre, according to the condition of the soil, either drilled with the seed or sown broadcast; if the latter, it should be well harrowed in. Prepared by the Patent Nitro-Phosphate or Tenant-Farmer's Manure Company, whose Members are Cultivators of upwards of 50,000 acres of land, which has been for years under management with Manures of their own manufacture; consequently the Consumer has the best guarantee for the genuineness and efficacy of the Manures manufactured by this Company.
Particulars will be forwarded upon application to the Secretary, or may be had of the Local Agents. C. T. MACADAM, Sec.
Chief Offices, 109, Fenchurch Street, London, E.C.; Western Counties Branch, County Chambers, Exeter; Irish Branch, 40, Westmoreland Street, Dublin.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)
Have now ready for delivery, in fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES.
Also Genuine PERUVIAN GUANO, and NITRATE of SODA ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c. E. PURSER, Secretary.
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All other Manures and Cakes as per Price List, supplied on the owest terms. Apply for prices, &c., to JOHN BENNETT LAWES, 59, Mark Lane, London, E.C.; Dublin, and Shrewsbury.

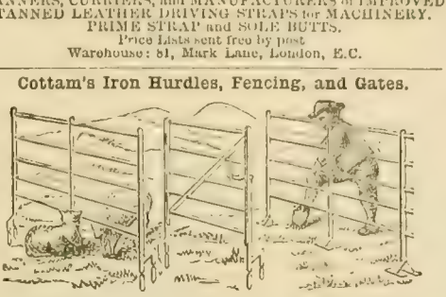
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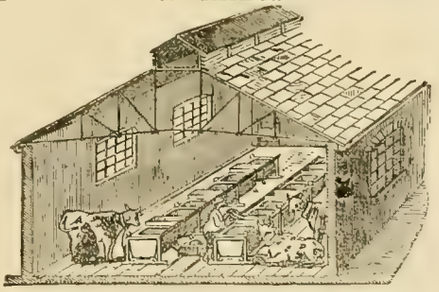
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Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rick dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of Iron. Prices of Fittings per Cow, 55s.
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SMITHFIELD CLUB FAT CATTLE SHOW.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY afternoon, December 6, and Four following Days.
Intending Exhibitors are requested to apply for Certificate Forms by the reference letters as under.
CATTLE.—Form A. For an OX or STEER (in any Class).
" B. For a COW or HEIFER (in any Class).
" C. For a BEAST in Extra Stock.
SHEEP. " D. For a PEN of three WETHERS (in any Class)
" E. For a SINGLE SHEEP in Extra Stock.
PIGS. " F. For a PEN of three PIGS (in any Class).
" G. For a SINGLE PIG in Extra Stock.
ENTRIES for LIVE STOCK CLOSE NOVEMBER 1.
Prize Lists, Forms of Certificates, and all information may be obtained on application to Mr. DAVID PULLEN, Assistant Secretary, at the Office of the Honorary Secretary, corner of Hall-Moon Street, Piccadilly, London, W.
N.B. All communications respecting the Show must be addressed to the Assistant Secretary, as above, and should bear outside the words "Smithfield Club Show."

THE BIRMINGHAM CATTLE and POULTRY SHOW.—The TWENTY-FIRST GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS, and IMPLEMENTS, will be held in BINGLEY HALL, on SATURDAY, MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 27, 29, and 30, and December 1 and 2, 1869, when PRIZES to the amount of nearly £2000 will be awarded in the following Divisions, viz.:—

FAT CATTLE	£807 19 0	BREEDING PIGS	£77 2 0
FAT SHEEP	310 8 0	ROOTS and CORN	76 16 0
FAT PIGS	69 11 0	POULTRY and PIGEONS	747 14 0

Prize Lists, Certificates of Entry, and every information may be obtained from the Secretary.
The ENTRIES CLOSE on MONDAY, November 1.
JOHN B. LYTHALL, Secretary.
Offices, 39, New Street, Birmingham.

The Agricultural Gazette.

SATURDAY, OCTOBER 9, 1869.

MEETING FOR THE ENSUING WEEK.
October 12—Sleaford Agricultural Society, at Sleaford.

STEAM-POWER is, no doubt, the parent of modern enterprise, and the life and source of our industrial system. It has reformed—or, rather, transformed—every branch of industry in turn. Whatever new kinds of labour it may have created—and some of them are hard enough—it has in general lightened toil and superseded brute drudgery. It is said that steam is to effect equal changes in agriculture—that it is to lessen its labour and expedite its processes. As the shuttle passes through the warp in the power-loom, so the plough and the drill and the instruments of husbandry are to pass through the soil, steam-driven. The whistle of the plough-boy is to be replaced by that of steam, and "Gee-woa!" or "Come hither!" are to be heard no more in our arable fields. Agriculture has always been a handicraft; it is to be ennobled, and to become a manufacture.

We hardly know with what feelings to anticipate these changes; and, whether they shall be ultimately realised or not, we must confess we do not think them imminent. It is said that the mode of culture affects flavour in certain vegetables, but we cannot yet detect a smack of steam in agricultural produce. There are no factory flavours in our bread at present, on the contrary we fancy it has a beyond-sea taste; at least a third of the Wheat consumed has a character of rude foreign farming about it. And if bullocks were as portable as corn, there is no doubt that Bison beef would soon compete with the joints of our domestic breeds! Much as we should like to see this foreign help supplanted by self-help, it seems to us a mistake to rely solely upon steam.

The largest cotton mill in England has six immense floors, which we ascended by a steam hoist. An engine of 300-horse power drives the vast and complicated machinery of the establishment. The representative busts of great mechanics and economists adorn the handsome engine-room. In one immense apartment 1200 power-looms weave threads into fabrics. In this mill we heard more noise, and smelt more oil, than in all our showyard practice combined. Steam is here supreme, for without the concentrated power that drives them, those myriad wheels and spindles would stop at once, and the industry of Lancashire, and all kindred labours, would come to an end. Steam is essential to our railways, to the rapid ocean-traffic, and to many of our grandest undertakings; but there is no indispensable relation between steam and progress in agriculture. English farming might be deprived of steam, and nevertheless be made much more productive than it is now. Our trade and manufactures are sustained by steam, and would collapse without it, but it is not even the foster-parent of our agriculture. While we talk of its mighty power and of the revolution it will accomplish in farming, we become daily less dependent on it. We will not say as the satirist said of virtue—*laudatur et alget;* but at any rate this country depends more and more for its food-supply on the ruder farming of distant countries, where

labour is cheap and the soil unexhausted. And it must be so while we continue to rely on mechanics, and neglect to repair those broken links in the chain of natural causes. We cannot expel "Nature" by steam-power.

No doubt clay soils will yield a certain crop of Wheat, year after year, without manure. Mr. LAWES still gets about one-third of a crop on his strong land. We quote that single fact in his valuable experiments to illustrate what mechanics alone can do for agriculture; they can enable us to farm with economy as to labour, but they will never supply us with a system of agriculture. It used to be thought otherwise. JETHRO TULL maintained that minute subdivision would obviate the use of manure, believing that the plant fed on the finely divided particles of earth. When the true theory of the nutrition of plants was little understood, there was a current saying, "mechanics for the clays, chemistry for the light lands"—we have learned that chemistry is necessary for clays also; in fact, we apply more chemistry to clays than to light land, in the removal of the stagnant water by draining, and in the liberation of the locked-up "inorganics" by burning. We must not, however, be too critical on a mere saying—which, like many common sayings, has a foundation in only partial truth. But let the cost of tillage be reduced to the standard of that gallant pioneer—Mr. SMITH, of Woolston—and allow for a considerable saving to be effected in some unforeseen way in the cost of harvesting and preparing for market, still the main items—including that heavy one, manure—must remain untouched.

Agriculture is too big to be moved much by any number of steam tugs. We must rely on the laws of Nature, not on any mistaken expectations of the power of mechanics.

We are glad to observe that one leading question, in which the continued prosperity of agriculture is involved, was handled before the British Association at Exeter, where two papers were read on the liquid and dry earth schemes of dealing with house waste.

—— AT Mark Lane and throughout the country Wheat has declined in price 1*s.* to 2*s.* per quarter. Fine malting Barley has been actively inquired after, and made full prices. Old and new Oats are both cheaper, the former 1*s.*, and the latter 2*s.* per quarter. ——The live stock and meat trades have been brisk for all good qualities, beef having risen to 5*s.* 6*d.* per stone, and mutton to 5*s.* 8*d.*——The seed trade is nearly confined to winter Tares.——English wool more freely inquired after, but there has been no advance in prices.

—— The Peterborough Ploughing and Draining Matches took place on Wednesday last, when the interest displayed in reference to them was even greater than has been shown for several years past. There were 50 entries, and 48 teams came to the fields, which were provided by Mr. Wagstaff, on his Woodstone Farm, a mile or so from the town. The teams were divided into seven classes. The champion class included eleven competitors, whose work was extraordinary for straightness and uniformity. But the 1st prize was won under protest, as STEPHEN BLUNT, to whom it was awarded, and who was recommended by Mr. LOVELL, secretary to the Northamptonshire Society, had for some months been occupied as a butcher, and therefore had departed from, or risen above, the character of a labourer. This prize is therefore left to the consideration of the committee. The competition among farmers' sons or pupils under 21 years of age, and over that time of life, is a very interesting part of the contest. By the interest taken in these trials, too, it is clear the farmers of the Peterborough district do not reckon that horse-ploughing will be entirely superseded by steam-power during the next generation. In the older class Mr. JAMES NEALE not only beat Mr. GOODYEAR, who had been a successful ploughman for years, but the judges awarded him Messrs. HOWARDS' plough, offered as a special prize for the "best work in any of the classes (implement makers excepted)." The younger hands also did excellent work, the 5*l.* cup going to Mr. TEMPLEMAN, jun. The work in the class of men who had not taken a 1st prize was but little inferior to the champion's performance, which foreshadows the keenness of the trials in this class in future years. The boys under 18 years of age did work that was highly creditable both to them and their masters. Three men were recommended by implement makers to compete for the 5*l.* cup offered. The well-known JAMES BARKER, and the equally well-known GEORGE BROWN, here came together—the former for Messrs. RANSOME, SIMS & HEAD, and the latter for Messrs. COOKE & CO. JAMES BARKER won the prize. Messrs. FOWLER & Co.'s Pirie's Plough was used by one of Mr. WAGSTAFF'S men, who had never held one before that day, and although he had not got quite into the way of steering its wheels as straight as a line, it did some efficient work; the stubble being well buried, and the soil left in an admirable condition for aeration. The drainers did some wonderful work. There were three classes, including 19 competitors. The young hands did their work well, but the drains out by the experienced men were, in several instances, only 6 to 8 inches wide at the top, although they were 4 feet deep. JOHN NICKERSON, sent by Mr. WHITTON; and WILLIAM WOODS, sent by Mr. CHENEY—each of whom took 1st prize in his class—were worthy of particular praise, for the drains were almost as straight and smooth as if they had been sawn out. It ought to be said, however, that these men were fortunate in their ground; the soil was not uniform enough to give each man the same chance, for when gravel and water were come upon, there being no outlet for the water, the sides dropped in, till the work, however skilled, was spoiled in appearance.

—— At a special meeting of the committee of the Central Farmers' Club, held last Monday, the circular letter from the Privy Council Office on the transit of animals came under consideration, and the following answer was agreed to:—The committee of the Club would in the outset impress the great importance of the more speedy transit and delivery of animals carried by railway; while it would further recommend:—That all trucks for the conveyance of animals upon railways should be fitted with spring buffers. That, in order to prevent the injurious effects upon the animals by the shunting of the trains and from other causes, the trucks should be divisible into compartments. That it is undesirable to unload animals during transit by railway. That animals should not be upon a railway for more than 12 hours without water; and that railway companies should be compelled to provide means for the proper watering of cattle before loading.—That any appliances for the watering of animals should be attached either to the carriages, or troughs should be so placed at the stations that animals travelling for more than 12 consecutive hours can drink from such troughs without being removed from the trucks.—With respect to the feeding of cattle, the committee is of opinion that there are great difficulties in the adoption of any plan, and is not sure that the feeding is necessary or desirable.—That all vessels for the conveyance of cattle should be licensed for the purpose, and that the number of animals such vessels should be laden with be defined, on the same principle as is adopted with emigrant ships.—That the vessels should be divided or divisible into compartments in the same way the committee has recommended for railway trucks.—That pleuro-pneumonia and other diseases are no doubt engendered by the exposure to which animals are subjected on landing, and that sheltered accommodation should be provided on their disembarking.—The reply of the committee concludes with a reference to the fact that the course of circumstances has amply justified their memorial presented to the Lords of the Privy Council from the Club in March, 1868, and wherein the chief point dwelt upon was the establishment of a foreign market, as the only means by which the stock of this country can be defended from the importation of cattle plague and other foreign diseases."

—— At the Council Meeting of the Central Chamber of Agriculture held last Tuesday, the questions for discussion related to the Privy Council inquiry about the transit of animals. Professor BROWN attended the meeting for the Committee of Privy Council, and stated that the Committee was most anxious to have from that Chamber suggestions of a practical character, not only as to what was the best thing to do, but also the best way in which to do it. The Privy Council had nearly absolute power in making regulations. It was absolutely necessary that the suggestions made for its guidance should be such as could without very serious expense be carried into effect, but if there was a large increase in the cost of transit it would not be liked either by the farmers or the importers. A good deal of discussion ensued upon Professor BROWN'S address, and ultimately the following resolutions were unanimously agreed to:—

"1. That, in the opinion of this Council, animals travelling by railway ought to have the opportunity of drinking at intervals of time not exceeding 12 hours." 2. "That a supply of water should be accessible to animals at all loading-places of railway stations." 3. "That railway companies should publish time tables of their trains carrying live stock; and that each lot of animals travelling by railway should be accompanied by a way-bill, showing the times of arrival and departure, and the causes of detention, if any." 4. "That railway waggons for the conveyance of cattle should be constructed with spring buffers and spring couplings, roofed over, and divisible into compartments, and that freedom from overcrowding, and a proper cleanliness of waggons and loading places, should be enforced." 5. "That ships and steam-vessels carrying animals should be licensed, and placed under a thorough system of inspection."

—— In his monthly report to the vestry of Marylebone, Dr. Whitmore, the medical officer of health, refers to the extent to which the foot-and-mouth disease among cattle is prevailing, and its effect upon the food of the people. He finds the number of cows now kept in Marylebone to be 464, and of these 310 have been attacked by the disease, to which may be added some 35 or 40 others that were removed either on the first appearance of symptoms or soon after recovery. It causes serious loss, owing to the great diminution of milk. Cows which, before the disease, gave 15 and 20 quarts of milk per day, give only 8 or 12 quarts two months after apparent recovery. The secretion of milk does not stop altogether, except in the most severe cases during the disease, and most cowkeepers frankly admit that this milk is mixed with that from healthy cows and sold to their customers; the probability, therefore, is that the inhabitants not only of Marylebone, but of all other districts of London, have been drinking milk from infected animals for some time past, but as the weekly return of sickness from charitable institutions shows no appearance of disease among children, such as the drinking of milk from animals suffering from an eruption of vesicles on the feet and in the mouth would be likely to produce, the doctor comes to the conclusion that the risk or danger of drinking such milk is very small, although it is impossible for him to say that there is absolutely none. The cowkeepers are of opinion that milk is not deteriorated by the disease, and give it freely to their own children, who are healthy. He, however, states it as his duty to urge the wisdom and policy of always throwing away the milk from infected animals, and this the cowkeepers have generally promised to do in future.

OUR LIVE STOCK.

THE catalogue of the entire herd of pure-bred Shorthorns, the property of Mr. Fowler, Prebendal Farms, Aylesbury, is now before us. The high character of this stock is sure to attract a large number of Shorthorns breeders on Monday the 19th inst., the day fixed for the sale, and we fully expect to see a very brisk competition. Fawsley, Tortworth, and Kirklevington, all sound well, especially to the lovers of Bates' blood, and the 37 cattle all trace to one or other of these famous stockss. Mr Fowler will place a moderate reserve on one cow, and with this exception the lots will be sold to the highest bidder. First on the catalogue we find *Princess Royal*, by DUKE OF BOLTON, a 12-year-old cow, from Sir Charles Knightley's *London Pride*, by Mr. Bolden's JANIZARY (8175), and previously tracing back to *Aline* by that excellent sire SNOWBALL, *Lilla* by CALIPH, *Walnut* by WHITEBOY (1530), and finally, to Mr. Charge's stock. Of this good old strain is also *White Princess*, by 3D GRAND DUKE, and *Crown Princess*, by HARDICANUTE (22,537), (lot 1, bulls), daughters of the first-named cow; *Lady Aylesbury*, by HARDICANUTE, and two bulls both by 2D DUKE OF CLARO, named respectively GRAND DUKE OF CLARO and ROYAL CLARO. Occupying the next place in the list is *Sunrise*, by Sir Charles Knightley's MAMELUKE, and from *Sweetheart* 3*d*, of Milcote extraction. The name of *Charmer*, by LITTLE JOHN, and *Sylph*, by SIR WALTER, will remove any doubt as to the excellence of this pedigree. To the same well known family belong *Seraph*, by LONDONDERRY (13,169); *Sunbeam*, by HARDICANUTE, and from *Sunrise*, and among the bulls, FAWSLEY ROYAL, by PRINCE CHRISTIAN (22,582). *Florentia* 3*d*, by VICEROY (17,181), was purchased for 60 gs. at the last Didmarton sale; her mother was *Fleta*, by Mr. Sainsbury's CUPID, and her great-grandmother was *Flourish*, by the 400 gs. USURER, the cow from which Mr. Rich raised his celebrated Florentia tribe. When to this excellent history is added the fact that she is due to calve in November to 2D DUKE OF COLLINGHAM, she may be expected to bring a high figure. We may as well mention at this point *Ursula* 28*th*, by 13TH GRAND DUKE, another Didmarton heifer, bought as a calf at the first sale for 61 gs. *Verbena*, by MOSQUITO (14,964), was bred by Captain Blathwayt, as was also her dam, *Victory* 2*d*, by 4TH DUKE OF OXFORD, and her grandmother *Victory*, by USURER, was bred by the late Earl Ducie. She is full of York and Oxford blood. *Seraphina* 18*th* (lot 7) by IMPERIAL OXFORD (18,084) was bred by Mr. Lawford, of Southcott, and is sprung from his well-known Seraphina tribe. Immediately descended from her we find *Princess Seraphina* and *Imperial Seraphina*, both by PRINCE CHRISTIAN, two young heifer calves by HARDICANUTE, and a yearling bull by 8TH BARON WETHERBY, who is a son of the 7TH DUKE OF YORK. *Nymphalin*, by BULLS RUN, is the oldest representative of a very pure Knightley family. She was bred at Fawsley, as was also her sire, who traces back to JANIZARY, LITTLE JOHN and CALIPH. Her mother, *Sylphide*, was another Fawsley cow, by SARAWAK, also bred by Sir Charles Knightley; this most excellent pedigree finds its limit in FAVOURITE (252), and the STUDLEY BULL (627). *Pipalee*, by BULLS RUN, possesses an identical pedigree with *Nymphalin* and *Edith of Fawsley*, and *Knightley Princess*, by PRINCE CHRISTIAN, *Knightley Grand Duchess*, by 4TH GRAND DUKE, *Fawsley Queen*, by HARDICANUTE, and, lastly, BARON FAWSLEY, by 8TH BARON WETHERBY, are all immediate descendants of these two cows. *Fantail* 2*d*, by Mr. Graham's COSTA (21,487), and out of *Fantail* by BARLEYCORN, sold at the last Killhow sale, is a well-bred Shorthorn. Her sire was of good Knightley stock, and on the mother's side she is thorough Bates, as the three consecutive sires, 5TH DUKE OF YORK, 4TH DUKE OF NORTHUMBERLAND, and SHORT TAIL satisfactorily show. One heifer calf of this sort and a young bull, MARQUIS OF AYLESBURY, will be offered. To trace the pedigree of every animal in this catalogue would occupy too much space, and we must close this sketch by a reference to the bulls lately used in the herd. These are PRINCE CHRISTIAN (22,582), bred by Mr. Graham, of Yardley; 8TH BARON WETHERBY, bred by Mr. Bowley, of Siddington, a thorough well-bred Bates bull, full of York and Oxford blood; and HARDICANUTE, by POTENTATE by CHANTER (19,423), dam *Harmony*, by CHERRY GRAND DUKE 3D (15,763).

Two bulls of first-rate descent, bred by and the property of Lord Braybrooke, will be sold with Mr. Fowler's stock. Both are by 4TH DUKE OF GENEVA, a bull by DUKE OF GENEVA (19,614), and of the Cherry Duchess tribe. The first, GENEVA DUKE, is out of *Haydon Rose*, a daughter of ENGLISHMAN (19,701), and *The Beauty*, by PURITAN (9523); and the second, CHERRY DUKE, is from *Christmas Rose*, a daughter of 4TH DUKE OF THORNDALE, and *The Beauty* by PURITAN. Both bulls, therefore, are of the Cambridge Rose tribe, so long bred by Mr. Bates at Kirklevington. We are reminded in the catalogue that 10 animals of this family sold at the Preston sale in 1867 for an average of 214*l.* 18*s.* 8*d.*

—— *Bride of the Vale*, the 1000 guineas heifer, purchased of Mr. Booth, of Warlaby, a few months ago by Mr. Gibson for Messrs. Walcott & Campbell, State of

New York, has unfortunately cast her calf during her outward passage. She was heavy in calf to Commander-in-Chief, the 1st prize bull at Leicester last year.

—— A large and carefully bred stock, comprising upwards of 47 head of Shorthorns and a flock of Leicester sheep, were dispersed at Cotham, near Newark, on Monday, the 27th ult. Mr. Booth has long been known as a breeder of stock, and a considerable company assembled to witness the sale. The cattle were of nice colour, full of hair, somewhat deficient in character, and low in condition. It was also the opinion of many who attended the sale that the contagious diseases now so prevalent exerted a depressing effect upon buyers. The 42 Shorthorns realised 933*l.*, or an average of 19*l.* 16*s.* 9*d.* No high prices were given, but among the highest may be noticed 17 gs. for a bull calf scarcely six months old, and 32½ gs. for a cow.

Peterborough Great Fair.

This meeting for the sale of cattle, horses, wool, and other articles, took place on Saturday. It seems to be a general opinion that the last day of the week is a very inconvenient one for so large and important a gathering, and particularly as Peterborough market is also on a Saturday. In connection with this opinion it has been suggested that the first Wednesday, or Thursday, or Friday in October would be a far more convenient arrangement for all parties than for it to be regulated by the day of the month, and it is probable that steps will be taken to effect this alteration. As it happens that great fear and difficulty now exist in respect to the foot-and-mouth disease, an increased amount of inconvenience, and expense too, occurred on Saturday; for every distant purchaser was anxious to get the 10, 20, 30 or more beasts which he had bought, off by railway at once, lest they should, after standing a public fair, fall down with the disease before they got home, and be stopped on the way by the authorities. How this was managed we cannot say; but from the crush at the stations on Saturday afternoon, we should say that the leading of cattle ran far into Sunday, or many lots had to be kept in the town or neighbourhood over Sunday, which might greatly increase their own danger, and probable injury to others. For these several reasons, it seems clear that so great a meeting as this might be advisedly prevented from falling on a Saturday.

Of the animals there is but little to say. As there are no regular tolls paid for exposing them in the fair fields, no comparative statistics of the number "pitched" from year to year can be ascertained. But, so far as we could estimate them, there was a far greater number of cattle on Saturday than we have seen at any previous fair during the several years we have been present. The condition of the stock, too, we have never seen better. As regards the trade there were far more beasts, both large and small, than there were customers; the result being that many remained unsold, or they were passed into other dealer's hands for tramping the country to stand other fairs or markets. Prices were also considerably lower, as may be judged. From this, however, an exception must be taken, for the high price of meat would secure for the oxen in forward condition a brisk demand at high figures. This was the case. The Norfolk men were early in the field for the good beasts to put in their yards for the great Metropolitan Christmas market-day. The animals made from 22*l.* to 30*l.* a head, according to their size, quality, and condition.

The Irish beasts were the most numerous, and the best in quality and condition, that we have ever seen. At present the Irish herds at home are said to be free from disease; and as this is attributable to the isolated condition of Ireland, and to its being an exporting country, a strong case is here made out for the believers in the cause of the present disease in England existing in the landing and circulating foreign cargoes of animals. Many of these Irish beasts were four years old; some of them were as well-bred as any one need to look at, and the whole of them were in either a forward or sleek growing condition. Now, therefore, that the Irish herds have attained this character, surely the best thing which Irishmen could be engaged in at this time would be to improve their traffic in animals, and thereby redeem the character they bear for short-sighted barbarous treatment of their stock, whereby the value of them in this country is lowered ten times more than it would cost to treat them in a civilised way.

There were only a few hundred Devons, and they were apparently but little sought after. Of Herefords there were only two or three small lots. All, however, were in fair condition.

As regards disease, we are pleased to be able to say there was not the slightest sign of the foot-and-mouth complaint to be seen. We trust, that the mixture of so many together, some of which may have had the disease in an incipient form, will not result in making it general in the districts over which they will be distributed.

Some few of the remnants of recent long-woolled ram sales were offered by Mr. Law and Mr. Briggs, jun., and the prices these inferior sheep made were equal to some of the averages of the best of flocks. The averages were 10*l.* and 11*l.* a-head.

The horse fair was confined principally to the trade in young Irish horses and Welsh ponies. The barbarities which the men commit who "show off" these animals are as great as ever. Many a young animal was no doubt lamed for life by the manner in which it was thrashed and pulled about. Good colts and cart-horses are scarce and dear. A cart foal, we were informed, was sold for 21*l.* In the nag and saddle-horse department there was nothing but screws, or shapeless animals that are of but little use; for the trade in sound and stout animals is now so good that dealers and their agents look them up at home, and it is an exception if they ever appear in a market or a fair at all.

AGRICULTURAL COUNTY SHOWS.

The suggestion in your last number (p. 1023) with regard to amalgamating the shows of the separate midland counties into one association, with Birmingham for its centre, deserves serious consideration. At present I am scarcely prepared to assent to the proposal without further inquiry. The reasons you have adduced in its favour are weighty, but something may be said on the other side. A too limited area is certainly to be deprecated, and the tendency of such associations has of late been to amalgamation. Thus our society, which was once confined to North Staffordshire, now embraces the entire county. In like manner the Sparkenhoe Club has expanded into the Leicestershire Society. No one can deny that in both these instances the amalgamated societies have gained in influence and prestige. But if you make the area of a Society embrace something like the third or fourth of England, you totally change its character. We have already, in addition to the Royal Agricultural Society, our great meetings, such as the Yorkshire, the Bath and West of England, &c., and noble gatherings they are. But the bulk of the exhibitors at country shows would never venture to meet the competitors whom they would have to encounter in such an arena. Virtually its shows would be open to the kingdom, and heading the prize lists would be found the old familiar names of Booth, Fawkes, Foljambe, Lady Pigot, &c. The emulation of ordinary breeders, which it is so difficult yet so desirable to excite, would run much risk of being completely extinguished by encountering antagonists like these. We want to rouse ordinary farmers to emulation among themselves, instead of gazing passively at high-bred stock as they might at the beasts in a menagerie. Local shows have materially assisted in the diffusion of superior animals, and nowhere are they more numerous than in Yorkshire, where, during the summer months, there appears to be a show once a week. Men may have extremely well-bred stock, the diffusion of which would much conduce to the general improvement of dairy or grazing herds, who would not care to meet the picked animals of the kingdom. It is well that farmers should have an opportunity of inspecting these, and thus form an idea where, for example, they may best supply themselves with a bull, without going to the price expected by Captain Gunter or Mr. Booth.

With regard to the duration of the show, I agree with you that one day is sufficient for those carried on on the present plan. For one on a larger scale a week might be requisite, but there ought to be some great benefit to compensate for the risk and suffering involved in confining animals so long under unnatural conditions. For my own part I would, if it were possible, rather shorten the show of the Royal Society than lengthen any others. The real benefit of such exhibitions is to farmers, to whom they afford an important means of instruction. It is very well for the inhabitants of towns to amuse themselves by inspecting the stock, but I see no adequate good to be derived from detaining the poor creatures longer than necessary from home for the mere amusement of factory operatives and children.

If, however, agricultural exhibitions are to fulfil their highest purpose, as means of educating the public mind, there must be more confidence felt in the decisions of the judges than is the case at present. As one means of attaining this, might it not be possible at the larger meetings to allow the judges an opportunity of revising first impressions, by going a second time over their work? One of the most eminent judges of poultry mentioned to me that he had on one occasion reversed his first decision, by being accidentally allowed a second glance at two pens of birds, and that he had thus escaped committing a serious error. Again, there is a tendency on all such occasions, unconscious it may be, to give the preference to size, fat, and flourishing condition, over those less showy indications of high breeding which at home could not fail to press themselves on the private observer. On this ground I sympathise with Mr. Ellman in his protest on the decision in the Southdown classes, and that quite independently of the merit of the pens in question. Mr. Ellman deserves the thanks of breeders for his moral courage in upholding the true character of a breed against more showy claims. There is another point worthy of consideration. At present the judges have only the appearance of the animal to guide them. Who would buy a Shorthorn or a racehorse in this manner? Is breeding worth more or is it not, than the mere appearance which it happens to impress on the individual animal? Of course it is worth money, or else we should not see one colt knocked down for 50*l.*, while the next, which is no better looking, fetches 1000*l.* The judges therefore ought, in common fairness, to be allowed to possess this necessary element in arriving at a correct decision. Men who were fit to hold that responsible office, would allow it due weight and no more. If it be objected that such information might induce partisanship, I reply that in numerous cases the judges employed at the Royal and other great shows, not only know the blood, but are perfectly familar with the animals themselves. So far from any party feeling influencing the awards, they are, as a rule, far more satisfactory than at smaller meetings. Of course I allude to the preference which may be entertained for one strain of blood over another, for no one would for a moment impute the suspicion of personal partiality to any gentleman filling such an office. As an illustration of the confidence placed in them, Mr. Wilson mentions that at the great Hamburgh International exhibition, the judges were furnished with the name of each exhibitor, a piece of information which is perfectly useless. On the other hand, it is matter of everyday observation, that at provincial shows, animals win prizes, as Shorthorns, which are not only less well-bred than others in the same class, but which are not even qualified to be in the Herd Book. Nay, on one occasion I remember seeing a cow take a 1st prize, of which the pedigree and the breeder were alike unknown. With fat stock the best animal ought to have the prize; with breeding stock the pedigree cannot with safety be left out of the account. It may even be that a reference to pedigree would in many cases assist the judges at provincial shows, in placing the best animal in his rightful position. For instance, a person not accustomed to first-class Shorthorns, might easily, among a lot of young bulls, prefer one shaped like a prize bullock to another having the proper type of a male animal not yet arrived at maturity. A reference to the respective parentage of the two might possibly induce a doubt as to the correctness of the standard which the judge had hitherto held. As a first step in the right direction, I would press on local societies to adopt the rule carried out in the catalogue of the Royal Society, where the name and Herd Book number of the sire, and that of the dam with her sire and number, are appended to every animal exhibited. If it is thought by any one that I lay too much stress on pedigree, I advise his careful study of Mr. Darwin's great work on the "Variations of Animals and Plants under Domestication," a work which ought to be in the hands of every breeder who desires to possess more than an artificial knowledge of his art. For patient research, extensive reading, and generalisation alike cautious and profound, it is not approached by any book on the subject.

Willoughby Wood, Burton-on-Trent.

THE WHEAT CROP OF 1869.

In the *Agricultural Gazette* of September 18, your correspondent, Mr. Ford, of Merton Hall, Warwickshire, gives it as his opinion that the statements which I have put forward with regard to the yield of the Wheat crop of 1869 are "most erroneous;" and, indeed, that my estimate of the smallness of the deficiency compared with the average, is "perfectly ridiculous." Mr. Ford says, that on July 17 he reported his belief that the Wheat crop of this year would fall short of that of 1868 by at least 2 quarters per acre; that since that time there occurred some fine hot forcing weather, which materially improved the Wheat crop; that still he is of opinion that the yield will be nearly 2 quarters per acre less than last year. The material improvement which he admits thus only reduced his estimate of the deficiency compared with last year from "at least" to "nearly" 2 quarters per acre. I freely grant that, in the early part of July, the Wheat crop was in a very critical condition; but I am disposed to attribute a far more improving effect to the splendid weather which followed than that which your correspondent assigns to it.

The following facts in addition to those I have before adduced in reference to the Wheat crop of the harvest just passed, have a considerable independent value; but they will, perhaps, also aid your readers in forming their own conclusions among the conflicting opinions which have been published on the subject. In a field of 30 acres which has now yielded 9 grain crops during the last 14 years, Clover was grown in 1868, and this was followed by Wheat of various descriptions, the land being equally dressed with artificial manure for all when the seed was sown. The results were as follows:—

Harvest, 1869.

Description of Wheat.	Bushels per acre	Weight per bush.
Burwell	48¼	63
Bristol Red	54½	61
Red Langham	53	61
Red Wonder	54⅔	60½
White Chiddam	49⅝	60½
Woolly Ear	52⅞	61½
Nursery	49½	63
Rostock	51¼	61½
Niagara	47¾	60
Golden Drop	50½	62½
Mean.	50⅝	61¼

Thus the average yield in these 10 experiments with as many different descriptions of Wheat, is over 50 bushels per acre; and I have probably 60 acres on my farm which will yield an average of 6 quarters per acre. It will not be doubted that an equally large produce has been obtained by many others; whilst, on the other hand, on my farm, as on many others, some of the Wheat was thin and root-fallen. I cannot, however, suppose that, in a season which, side by side with failures, is capable of affording such large produce, the crop of the country generally can be so deficient as it is represented by some. Your correspondent does not say what he estimates the average produce of the country to have been last year; so that his estimate that the yield is 2 quarters per acre less this year does not clearly indicate his figure for the present year.

I estimate the produce of 1868 to average, over the United Kingdom, 34 bushels per acre. This, at the time, was considered to be rather high; and the imports of Wheat during the succeeding 12 months would seem to indicate that it was at any rate not too low. If, however, we take 34 bushels per acre as the yield of 1868, and deduct from this 2 quarters per acre, we should have only 18 bushels as the average yield for 1869! The price of Wheat at the present time certainly affords no indication of any such deficient yield; and I leave your readers to judge of the validity of such an estimate. *J. B. Lawes, Rothamsted, Sept. 28.*

P.S. Since writing the above, I have seen Mr. Kains-Jackson's letter, quoted in the Money Article of the

Times of Sept. 25. He there sums up the various estimates of the Wheat crop of 1869, as under:—

J. B. Lawes, from experiment .. .. .. million qrs.	12½
A Buckinghamshire Farmer, average, from threshing ..	13
Mr. Sanderson, 25 bushels per acre	12
"Floating Cargoes List," Sept. 3	11
Agricultural Gazette, say	11
"Chamber of Agriculture Journal," say	11
Mr. Mechi, an average	13
His (Mr. K. J.'s) own observation and advices, short average	12½

ON THE TECHNICAL EDUCATION OF THE AGRICULTURAL LABOURER.

By J. Bailey Denton, C.E., F.G.S.

[The following paper was read at the meeting of the British Association at Exeter.]

With the general interest felt in the condition of the agricultural labourer, and the promise held out by the Government of measures for the education of the people during the next session of Parliament, it may not be inopportune to address a few observations to the Association on those points, by attention to which it is hoped the promised mode of education may take a form which, at no distant period, may have the effect of instructing rural labourers of coming generations how to earn higher wages, and thereby obtain more and better food, and increased social comforts.

It is not to be doubted that the prevailing absence of education is the cause of the depressed and inferior condition of rural compared with urban labourers, which renders them the worst paid class of the community, and that the first step to be be taken is the establishment of a system of primary education, which can only be successfully carried out at school. The object of the writer is not in any way to interfere with this elementary school teaching; it is rather to show, while the subject is under public consideration, that it should be associated with technical information, whereby the labourer may make his work more valuable and better appreciated by his employer, and thus secure more money in return.

Up to the present time the country at large has laboured under the mistaken opinion that the operations of the farm require no initiation, that physical health and strength alone are required to make the farming labourer all that he need be. Gradually, however, the business of the farm in its several branches is becoming more like other businesses, and elementary education and technical knowledge are admitted to be as essential to the full return from agricultural as from manufacturing labour, with this difference only, that, the work of the farm being dependent on more subtle influence than those of trade, the technical knowledge required to bring each operation to the most profitable bearing is wider than that which is required in perhaps any other calling in which manual labour is the chief active power. Yet no special learning in any branch of farming is imparted to the young agricultural labourer, although there is not a trade which does not require its working members to undergo apprenticeship before they can take part in a trades' union, showing distinctly how the more intelligent appreciate apprenticeship as a means of becoming skilled workmen. Any mechanic, following a trade involving only a monotonous repetition of the same work, is not considered qualified for the privileges of combination, unless he has gone through the form of apprenticeship. It is upon this ground, and this ground only, that in all the better trade societies the first rule is, that no one shall be admitted "unless he possesses good abilities as a workman," in which case "he shall not work for less than the average rate of wages paid to members in the same branch of trade in which he is employed." The act of apprenticeship is, in fact, the very basis of trades unions. It is very different with the farm labourer, though if, for instance, he would thoroughly succeed as a horse-keeper, a herdsman, or a shepherd, and obtain full wages, he must not only do his routine work with industry and care, but, to do it perfectly, must understand the nature of the animal with which he has to deal, and how best to maintain its health and productiveness, knowledge which is not to be gained in the ordinary course of the farm labourer's life, though it may be quickly acquired by special servitude and technical teaching. So with the ploughman, the drillman, the hedger and the ditcher, if either would do his work thoroughly he must not only understand the nature of the seed he may have to sow, and the plants he may have to raise, but he must be conversant with the influence of seasons upon their growth, and upon the soil in which they grow. This quality of knowledge is now gained by a few only, who are observant, and teach themselves. Speaking generally, it is the imperfect way in which the manual work of the farm is done, which for the most part keeps down the price of agricultural labour; yet there is not a farmer of any intelligence in the country who will not readily pay 2*s.* to 3*s.* a-week more for an adept in any branch of duty than for a casual hand who, being put to every kind of work, is master of none.

It has been advanced that the simple payment of higher weekly wages to agricultural labourers, without seeking to make them more skilful in their duties, would be generally beneficial. This, however, is opposed to the first principles of economy, as such a system could only be maintained by impoverishing the farmer without increasing the produce of the soil. If, on the contrary, the work of the labourer is made more productive, not only will the farmer be rendered better able to pay higher wages, but the soil, by yielding more, will better support increasing population, and so add to the wealth of the nation. The first proposition is advanced on the ground that, by raising the wages of agricultural labourers, they will be immediately enabled, by the purchase and consumption of more food, to put forth greater strength, and be able to endure more. To prove that this is well founded reference has been made to their casual employment in railway, draining, and other public works, and the better wages they then get. It has been further supported by the statement that when farm labourers from Dorsetshire, Somersetshire, and Cornwall, earning from 7*s.* to 12*s.* a week, have migrated into the higher priced counties of the North, they have directly received the prevailing higher wages of the district, and have become as valuable to their new employer as native men. The experience and observations of the writer—who, for the last 20 years, has had the conduct of works of land improvements in nearly every county in England and Wales, and generally has under his control from 1500 to 2000 agricultural labourers—do not confirm this view of the question. He has found that the quality of labour varies in different counties or districts, distinguishing one from another as distinctly as any other characteristic feature, and that the value of the work performed in the low-waged districts is very much less than that of districts where wages are higher, although there are some special works which are even better performed on the low-waged than in the high-waged districts. If every instance of migrated labour which has afforded satisfaction could be investigated, it would be found that although the want of hands may have raised the wages given beyond what immigrant labourers may have received at home, it has only been when they have become skilful in their new duties by practice that they have risen to the level of superior native men.

In spite of the fact that the agricultural labouring population has decreased, it is not to be denied that in some rural districts there is still an excess which has the effect of keeping down the price of labour below what it ought to be, while there is a scarcity in other districts which has necessarily the contrary effect of raising local wages above the average amount, though the scarcity may not extend to the whole of the year. Neither can it be denied that where this seasonal scarcity of hands exists it has been caused in most instances by the same species of migration as that by which it is very properly desired to counteract this unequal state of things.

In 30 out of the 42 counties in England, reckoning the ridings of Yorkshire as counties, Mr. Thornhill Harrison shows (see "Fraser's Magazine" of April last), that there has been a gradual decrease in the number of persons employed in agriculture, the reduction being traceable to the migration of the young and active men from the country to towns, and from agricultural to manufacturing pursuits. He says:—"Not only was the number of agricultural labourers fewer in 1861 than in 1851, but the quality of the labour was seriously deteriorated. No doubt fewer women were employed in the fields, but the proportion of boys and old men to full-grown men in the prime of life was much increased, as appears from the following table:—

Labourers Employed in Agriculture.

	1851.	1861.
Under 15	105,700 ..	119,000
Above 40	393,500 ..	427,500
	499,200	546,500
Able-bodied	733,400 ..	659,700
	1,232,600	1,206,200

Thus, if we compare 1861 with 1851, we find that the total number employed in agriculture in the former year included 73,700 fewer who were able-bodied, and 47,300 more who were either lads under 15 or men over 40."

The progress of agriculture, nevertheless, has been so remarkable and rapid within the last 30 years, that, notwithstanding the increasing application of steam machinery and horse labour to objects in which manual labour alone a few years back was the only means of production, the actual demand for men has increased, and is still increasing, particularly in those parts of the country where arable prevails over pasture culture. But as long as the fallacious opinion rules, that physical power without the exercise of mental ability is the measure of the value of manual labour, so long will the farmer treat his labourers with the same consideration as he does a threshing-machine, or a steam-plough, which is only set in motion when circumstances call for its use, to be put away again when its work has been performed; whereas, if the head more frequently directed the hands of the farm labourer, this casual description of employment would give place to constant engagement. The farmer would, in fact, find that the return on his capital would be in proportion to the intelligence of his workmen and the extent to which he employed them.

At the present moment, no sooner is the boy sent by his parents to earn a shilling or two a-week on the farm, than he commences a career of empty thought; the little exercise of the child's mind, which had been exerted in reading, or in writing, or in doing a sum of addition or subtraction when at school, ceases. He is made a bird-keeper, or a crow-clapper, or a ploughboy, or a pig-driver, or anything else which can be performed without mental effort. No one takes the least trouble to teach him his duty. If he does contrary to what he has been told to do, he may receive a blow from his master or from the man he is working with, and if he is considered to be doing too little for the 2*d.* or 3*d.* a day which is paid him, he is sent home to his mother to find another master, from whom he will receive similar treatment.

The age usually devoted in all trades and occupations of life to apprenticeship is thus wasted, and the time when the human mind is most susceptible of beneficial impressions lost. At the same time the worst habits incident to agricultural life are imbibed, and the pernicious influences of beer and cider take effect. The wretched compounds sold as beer and cider, which create thirst when taken to allay it, soon tell their tale in habitual drunkenness and enfeebled health.

It is striking to observe how closely the habit of drinking is associated with low wages and inferior work, and it is curious and instructive to trace how early in the age of the agricultural labourer the influence of beer and cider take effect and prevent improvement in labour. There are not any statistics by which we can ascertain the quantity of beer sold or cider drank in England, but we find by the population returns of Dorsetshire—a county famous for its low wages, and in which much cider is privately made and supplied by the farmers to their labourers—that the number of agricultural labourers in 1861 was 19,434, while the number of beer and cider sellers was 582, showing a proportion of 33 labourers to one publican. In Lincolnshire—where the average wages are 30 per cent. higher than in the south-western counties, where no cider is made, and where beer only is drank—the number of agricultural labourers in 1861 was 52,871, and the number of publicans 1317, which is in the proportion of 40 labourers to one publican. Any one acquainted with the value of labour in these two specimen districts will confirm the statement that the higher wages of the Lincolnshire labourer yield more profit to the employer than those of the south-western counties.

Having laid so much stress upon technical instruction as a means, when associated with primary education, of improving the condition of the agricultural labourer, I would point out the means by which it may be gained. At school the child should be taught to read, if only in monosyllables, of the common things of the farm, and children's books might be specially prepared for this use. Children of rural districts are well known to take great interest in the animals, insects, and crops of the farm, and they would readily seize and retain further details conveyed in an instructive and pleasing form. Thus, primary and technical education might proceed together. These books would not only be useful to the children of the labourer but to the children of the farmer too, and, if prepared to suit different ages, would command a very large circulation. The teacher at the school, too, should be qualified to lead the children to think on matters connected with their future occupations.

As soon as a child is considered old enough to leave school and take part in farming duties, he might be placed under a leading man of a particular department on the farm,—not treated as he now is by being placed one day to one thing and the next another,—and thus gain under the shepherd, or the housekeeper, or the cowkeeper, or the engineer, or the hedger and ditcher, or the thatcher, or the drainer, that special knowledge which would qualify him to earn higher wages than he otherwise could. There could not be any insuperable difficulty in carrying out this plan, particularly if farmers generally would take an interest in seeing that the sons of their labourers were placed where they would obtain the most useful information. By such means, a boy employed on the farm would practically be apprenticed in one department until he had gained a thorough knowledge of it, and then might pass on to another. In order to encourage master-labourers to impart such information as they possess a small bonus should be given to those who produce the best scholars, while competition for prizes might be organised amongst the scholars themselves.

THE PETERBOROUGH TRIALS.

Messrs. Amies & Barford, the enterprising firm at Peterborough, have this week given to steam ploughmen, and all farmers who take an interest in steam, a great treat. They did on their own account what, I believe, hitherto was supposed to be only the privilege of societies. They arranged a steam-plough trial, wishing the agriculturists in their locality to judge for themselves which might be the best tackle for their own peculiar circumstances; and certainly a better opportunity never was offered for that object. You have, no doubt, had a representative upon the ground, so that I need not here expatiate upon the fine weather for the occasion, the very numerous company, the magnificent field, the welcome lunch, and the discussion after lunch. My intention is, by argument, to examine which really is the best way of making steam cultivation more general, and in what way the implements at the Peterborough exhibition contribute to that end.

First of all, I will analyse Campain's invention of a movable anchor, which, according to the programme, is to dispense with the anchor-men. There is not the least doubt that when I saw the apparatus at work, there were no anchor-men required, and the porter-boys, who have nothing to do but raise the lever to allow the anchor to travel forward, were sufficient to perform that duty. As regards the novelty of the invention, I am quite certain it exists only in the very ingenious arrangement of the revolving claws at the hind end of the travelling anchor. But travelling anchors were made by John Fowler & Co. from 1860 to 1862; they had not the revolving claw, but their travel was regulated by a chain; and in my opinion, although the claw performs its duty admirably upon soils such as we saw at Peterborough, still upon very light sands and upon rocky soils the chain is preferable. But John Fowler & Co. abandoned the roundabout system, and with it the travelling anchor; very much, I believe, because it did not admit of steam-ploughing on a large scale, which means, saving in labour, saving in time, and saving in all working expenses. But the travelling anchor of Mr. Campain might, I doubt not, easily meet with situations in which it would not work at all. In irregularly-shaped fields it would occur that the rope would pass over the anchor at an angle of more than 90°, even 150° and 160°. In that case I very much question whether the anchor would "move on" without help. Then there is this further disadvantage in Mr. Campain's, as in any other, travelling anchor—that when the work in a field has been completed, it has to be fixed upon travelling wheels to remove it; the large

earth-box, carrying the dead-weight, has to be emptied, a horse is wanted to transport it into another field; when arrived there, the travelling wheels must be taken off again, and the earth-box refilled. All this means labour, means time, and requires skill. It is a matter of calculation whether the two half-crowns saved daily in the wages of two anchor-men will pay for the extra outlay over the snatchblock, for the labour and time expended in removing and refixing the travelling-anchor.

Mr. Campain's anchor, although highly ingenious, only adds to the complication of the system without adequate saving. In my opinion, Bulstrode's patent snatchblock-sling is a much more serviceable addition to a roundabout tackle. There was nothing new in any other part of the roundabout tackle exhibited. The whole apparatus was manufactured by Fowler & Co., and their windlass, with its compensating brake, and their blocks, as well as the portable engine, were constructed with that due regard for strength which characterises all the machinery made at their works.

The other tackle exhibited was one of Fowler's double-engine tackle, of 12-horse power, working a turning cultivator with nine tines, each 10 inches apart. The work it performed was well done: the circumstances were very favourable, and from 7 o'clock in the morning until 2 P.M. 18 acres were "got over," at a depth of about 8 inches. There was a novelty in the gear of the engines: the horizontal shaft, which communicates the power to the winding-drum and all its bearings and bevil-wheels, have been entirely dispensed with, so that the whole design now is a model of simplicity. During the discussion, it was clear, a great interest was evinced in the question—Which is the best tackle to suit the men who farm from 200 to 400 acres? The custom of small fields, crooked hedges and hedgerow timber, was again denounced as one of the elementary hindrances to successful steam culture. Although Mr. Smith, of Woolston, came in for a large share of sentimental eulogium, every whit of which he deserves, still it was evident that the practical agriculturists then present did not consider the roundabout tackle, even with Mr. Campain's anchor, as sufficiently meeting their wants. The roundabout system has, since it was originated, remained the same. Most of the attempts to improve it have only added to its complication. I have upon former occasions expressed my belief in the hiring system being the best mode of making steam cultivation more general, and bringing it within the reach of every farmer; and, in my opinion, the latest improvements of Messrs. John Fowler & Co. in their hiring-out tackle are unquestionably confirming my opinion. I am alluding to their new 20 and 30-horse power tackle. I consider the best steam-plough to be the one which can do the greatest number of acres per day. At one time the outcry against the double-engine tackle was, that "the engines were too heavy." We now have practical proof that heavier engines than any formerly in existence can be moved about with the greatest facility. We (the North Lincolnshire Steam Cultivating Company) have two 20-horse power engines, which we purchased at the Manchester Show. The whole of the gear and the fittings of the engines are of steel. The weight of the engine is about 4 tons in excess of our old 14-horse power engines, but the power is almost doubled, so that, when travelling, the power they exert "beats" their weight, and these heavier engines move with facility upon ground where our old engines would be in difficulties.

Now for the economy of working a large power tackle in preference to one of small power. One man is necessary to drive even the smallest engine, and one man suffices to drive a 20 or 30-horse power engine. One man is necessary to steer Mr. Smith's 3-tined cultivator, taking one yard in width, and one man, with the same ease, steers Fowler's widest cultivator, 18 feet wide. Clearly there must be economy in the large power tackle, at least as regards labour. But, I believe, there is a great economy, in every respect, with the more powerful and simple tackle. I am under the mark when I state that, on an average, one 20-horse double tackle can do as much work as four sets of the roundabout tackle. The cost of four roundabout tackle is considerably above 2000*l.*, which is the cost of a 20-horse power Fowler tackle. Non-steam ploughmen might say, why not put a 20 or 30-horse power engine to the roundabout tackle? Practical steam ploughmen will agree with me, that more than 10-horse power are not suitable for a roundabout tackle.

The hiring-out tackle will, I believe, always have a great share of public patronage. It is so convenient to farmers. Without one farthing in outlay, nay at a saving of working capital to them, for they are enabled to dispense with some of their horses and implements, and it necessitates no knowledge of the management of a steam-plough to the employer, the hiring tackle does its work, even when farmers pay dearly for this convenience, at a cost less than that of their own horse-labour. Of course the hiring system, in its present stage, is most unsatisfactory. Disappointment to customers is of daily occurrence now in our business. Few are fortunate enough to get the use of an apparatus during this season; but then surely that is not the fault of the hiring system; on the contrary, it is an argument in favour of it, for it shows a great demand, which will in time be met by a proportionate supply. Precisely as there are now steam threshing machines enough let out for hire for the demand, so there will be steam ploughs enough for the work to be done. My advice to the agriculturists desiring to obtain each on their farms cheap steam cultivation, is this, that two, three, or four neighbours, according to the size of their farms, should join and buy a steam cultivating tackle of at least 20-horse power, with double engine (the less number of partners the better), or to encourage and assist some industrious working man in their parish, who has a knowledge of machinery, in purchasing a tackle of the most powerful description to let it out on hire in their locality. *Richard Toepffer, North Lincolnshire Steam Cultivating Company.*

Home Correspondence.

How much Milk and Butter will a Cow give?—In the *Agricultural Gazette* for Feb. 8, 1868, p. 134, you will find one of your correspsndents gives his experience of dairy farming. He says, "I consider 720 gallons (2880 quarts) a fair return in a year for a cow, and this quantity of milk, if the food do not contain more than 80 per cent. of moisture, will produce from 280 to 290 lb. of butter." This same writer says that 25¼ lb. of milk, or about 10 quarts, will make 1 lb. of butter. He also states that 5 gallons, or 20 quarts, was the highest daily yield of one cow. He was evidently a practical man, for he actually kept 48 cows. He states that 47 cows actually gave throughout the year an average of 84 gallons daily, or 84×365=30,660 gallons, or 122,640 quarts in one year, from 47 cows, or 2610 quarts from each cow, and if 10 quarts produced 1 lb. of butter, that would be 261 lb. of butter yearly from each cow, as the average from 47 cows in one year. Again, in the "Farmers' Almanac" for 1868, I find it stated that a Holderness cow gave 29 quarts daily, yielding a pound of butter from each 12 quarts. An Ayrshire cow gave 20 quarts daily, yielding a pound of butter from 9½ quarts; an Alderney cow gave 19 quarts, yielding a pound of butter from 12 quarts; and a Devon cow gave 17 quarts, yielding a pound of butter from 9¾ quarts. Of course these last are exceptional cases, but your own correspondent gave his actual experience of one year of a dairy of 47 cows. Now I reckoned on 3000 quarts, but I allowed 12 quarts to produce a pound of butter, which gave 250 lb. in a year instead of 261. I do not think that I have greatly over-estimated the produce of a cow. Moreover, in Dorsetshire, it is by no means uncommon for a farmer to let out his dairy to a dairyman at 15*l.* and even 18*l.* per cow per annum, and that dairyman makes a profit out of it. *G. A. H.*

Poultry and Pasture.—I have always found my best corn within 30 feet of the fowl-house, although the poultry have free access to the field. Many of my brother farmers come to a different conclusion, and say that their fowls eat off the young Wheat, and Mangel, and other plants. On inquiring as to the cause of this discrepancy I soon discovered it. Poultry are as fond of grazing as either sheep or cattle. Near my hen-house I have a small pasture, not so those who suffer by poultry, and as they cannot get Grass they eat the young Wheat and other plants. There should always be pasture land near the hen-house. I am more and more convinced that poultry are profitable and pay better than either sheep or bullocks. Compare the live weight of both, and you will find that while you sell the former at 4½*d.* per lb. live weight (5*s.* per stone of 8 lb. net dead weight) you get from 9*d.* to 14*d.* per lb. live weight for your poultry. I speak, of course, of well-bred poultry properly fattened. Experience has convinced me that birds, poultry, and winged game are the farmer's best friends, and that without them his crops would suffer great damage. *J. J. Mechi, Tiptree, October 4.*

The Crops of 1869.—I was very glad to see that Mr. Ford, of Morton Hall, had exposed the fallacies of such writers as Mr. Saunderson, who are always writing and praising up the crops every year, in order, I suppose, to please the landlord; for what other purpose can it be? He says he has been in this county and in that, and then hazards a conjecture as to the yield. How is it possible for him to arrive at that while rushing along in a train? No wonder, then, his predictions are always falsified. Everywhere he is set down as a false prophet, on whom no one can place any reliance. He appears somewhat nettled at Mr. Ford's remarks; but Mr. Ford is quite right,—"No practical man believes what Mr. Saunderson says, or credits his opinions." But there is no doubt the yield of the Wheat crop is very indifferent, and is at least 15 bushels per acre short of last year; indeed, the crop is very much under an average. It is of no use, besides, for Mr. Lawes to say the contrary. *Henry Watkins, Whilam, near Birmingham.*

The Potato Crop of 1869 at different periods was almost threatened with a total failure in the early part of the year. In west Devonshire and in several other counties it was so much affected with disease, that growers sent their crops to market and sold them for what they would make. The very dry weather followed the disease, and the crop of early Potatos was very poor nearly all over Britain. The cold weather and frosts in Scotland did much harm in the month of August, but the weather in September has been all that could be desired for maturing the later kinds of Potato for winter consumption, and it is the opinion of practical men that the crop of 1869 will be the heaviest crop and best quality that we have had for years. The London market was never better supplied at this season, and the price has seldom been so low. The Potato crop on the Continent is very heavy, and in an advanced state of maturity. *Wm. Paterson, 1, Union Street, Dundee.*

Emigration to the Southern States.—May I request a small space in your columns for an extract from a letter received from a friend residing in the North of England. It bears upon a subject of very considerable importance in the present day, and will probably be read with much interest by your agricultural readers:—

"A friend of mine, a farmer in this neighbourhood (Durham), has been to South Carolina with a view of buying land. He has returned, having purchased an estate of 4000 acres, 2000 of which are as fine land as can be bought, and capable, with capital and good cultivation, of producing a bale of Cotton (500 lb.) per acre, the present value of which is from 15*l.* to 20*l.* per bale. The cost price of the land (freehold) is considerably under 1*l.* per acre! What say you to this? It beats even Norfolk farming. The other 2000 acres are virgin forests of Oak, Maple, Walnut, &c.,—I imagine, worth but little, but capable of feeding cattle from the undergrowth of Grass, and pigs from the Peaches, Walnuts, and other fruits which fall from the trees. The estate is near to Sumpterville, within three miles of a railway station, and 60 miles from Charlestown (the great Cotton market), and the river which runs through the estate is navigated considerably above that town by steamers. Negro labour is plentiful, but not very cheap; the negroes get 1*s.* 6*d.* per day, nearly as much as your labourers. This contrasts with the slow, uphill work of English farming. To tell the truth, if I were a farmer I would go at once, but am not satisfied that it would be prudent without some knowledge of the business. I ought to tell you that the Southern planters (the old slave-owners) have been utterly ruined by the war, and have nothing left to work their farms, hence the great depreciation of land, and the opportunity for English farmers with capital. The hatred against the Northerners is so intense, that they dare not buy land. Nor will the Southerners sell to them. This is one reason for its being so cheap. I think this emigration of capital and skill in the hands of Englishmen to the very centre of the old slave trade is one of the most remarkable and hopeful signs of the times. My friend met with an English gentleman—a young man who had been nearly all round the world—in America, for several months looking for a place to settle down upon. He had gone into most of the Northern and Western States, and said he saw no such chance as in the Southern States, and they have gone into the matter as joint spec."

The foregoing would seem highly coloured, but it comes from a reliable source. The subject is one, as I before stated, of deep interest to the younger farmers of the present day, believing, as I do, that ere this generation passes, such will be the competition for land in this country as to render farming a most unsatisfactory and unremunerative business. I almost feel as my friend, and wish that I were a younger man, and had such an opportunity before me. Surely it would be wise for young men (who have sufficient spirit of enterprise) before entering upon poor and dear farms in this country, with the certain prospect of losing their capital, to take a trip to the Southern States of America, and judge for themselves. It has long been my opinion, that since the war a good opportunity was there offered to English farmers. This letter seems to conform to that impression. Nor is the social and political state of the question, to which my friend alludes, of less interest; it plainly shows how, under the hands of an all-wise Providence, events are working for the general good of this great human family. *William Cubitt, Bacton Abbey, Norfolk.* [The above letter of our correspondent Mr. Cubitt is taken from the *Norwich Mercury*].

Thin Seeding.—I send you the results of the comparative quantities of Wheat sown in 1868. In both cases the 4 pecks per acre beat the 2 pecks and 1 peck per acre by about 1 quarter per acre. The yield of each field was 47 bushels and 48 bushels per acre of White Club-headed Rough Chaff. Only half an acre in each field was sown with the 1 and 2 pecks. The general seeding of my 65 acres of Wheat was with 4 pecks per acre (my usual quantity). The thin sown Wheats were finer in sample and 3 lb. heavier per bushel, and worth 2*s.* per quarter more than the thicker sown. The general opinion was in favour of the thinner sown before harvest, but the 4 pecks carried the day. In two former years the 1 peck per acre produced my largest crop, 57 and 58 bushels per acre, but on the heavy land I look upon 4 pecks per acre as the safe quantity, and on the light land, when sown late in the season, 5 pecks to 5½ pecks per acre. Each farmer should judge for himself by comparative trials, for soils and climates vary; the crop is also influenced by season, and especially by high or low farming. Eight pecks per acre I have always found diminished the yield by nearly 6 bushels per acre. I generally sow from the middle of October to Christmas. The following statement may probably remove many doubts and dispel many quibbles. It is copied from my book (Routledge & Sons), pp. 43 and 45:—

Tiptree Hall Farm (with Chapel Land), 173 acres.—Net Surplus in hard Cash available for Rent and Profit after paying every Expense.

		Farmers' Capital.
1865 ..	.. £543 7 4	.. £2165 0 0
1866 ..	.. 573 11 6	.. 2503 0 0
1867 ..	.. 773 5 10	.. 2571 0 0
1868 ..	.. 572 13 6	.. 2853 0 0
	£2462 18 2	

Annual average, 615*l.* 13*s.* 3½*d.*

I must decline any further correspondence on the subject. *J. J. Mechi, Tiptree Hall, Essex, Oct. 4.*

Milk of Diseased Animals.—When we had the cattle plague in our herd, a scientific gentleman wished to have some milk from a cow suffering from the disease. We had at that time three animals in our hospital suffering intensely. Our bailiff managed to get out of the three cows about a pint of milk, which he put down on the ground whilst readjusting their clothing. A greyhound dog, a great favourite, followed me unobserved to the shed, and whilst our attention was concentrated on the poor sufferers, I suddenly observed the dog had lapped up all the milk. We all thought some mischief to the dog must follow, but we never could discover any difference in him whatever, and, if I remember rightly, he ran two or three courses the next day. I mention this to allay the fears some persons seem to have of being injuriously affected by the milk of cows affected with foot-and-mouth disease. As a fact, too, the milk ceases, or nearly so, when the animal is attacked *B. M. F.*

Foreign Correspondence.

Paris: *The Periods of Assimilation of the Principal Elements of Plants.*—M. Isidore Pierre, Professor of Chemistry in the Faculty of Sciences of Caen, has given much time and labour to the very important question, At what period of their growth do plants assimilate the various elements of their composition? and he has recently given the results to the world.

The determination of this question has an obvious

and very important practical result, namely, that of enabling the cultivator to supply those elements which are under his control, with nearly the same regularity that the farmer deals out food to his cattle and poultry. Among the consequences flowing from such solution are:—1. At what period in the life of a plant various manures act efficiently, and when does their effect cease? and 2. When the plant attains its maximum power of assimilating the elements which it derives from the soil, and when does that power cease?

The Professor confines his remarks at first to Wheat, and afterwards proceeds to the consideration of other plants. His plan consists in noting the variations which a plant undergoes at different periods of its development in its weight and chemical composition, thus ascertaining the periodic increase of its organic matter and of each of its mineral elements, when it is at its height, and when it begins to decline.

The first experiments were made in 1862: on April 19 the stems of the Wheat began to elongate; on May 16, on unrolling carefully the upper leaves, it was difficult to find and remove the ear; on June 13 the ear began to show itself; on the 29th of the same month the flowering was entirely completed; on July 13 the greater portion of the ears had commenced to turn yellow; and, lastly, on the 30th of the same month the Wheat was cut. The results obtained from the experiments made at the dates above given were, per hectare, as follows:—

	April 19.	May 16.	June 13.	June 29.	July 13.	July 30.
	Kilog.	Kilog.	Kilog.	Kilog.	Kilog.	Kilog.
Organic matter, deducting nitrogen and ashes	888.0	2141.1	4962.5	6083.0	6520.0	6510.5
Nitrogen	35.8	57.8	72.6	73.2	68.7	67.8
Silica	25.2	67.2	153.7	192.0	203.8	206.6
Oxide of iron, with trace of manganese	1.3	6.3	14.2	20.5	14.8	15.8
Phosphoric acid ..	7.2	13.5	16.7	18.3	17.4	18.8
Lime	14.8	26.1	37.6	38.0	40.3	32.3
Magnesia	2.7	6.8	7.4	8.0	7.0	7.5
Potash	16.3	22.6	37.2	42.7	33.2	32.7
Soda	3.9	4.2	8.2	9.7	9.5	5.7
Totals	995.2	2348.1	5310.1	6485.4	6915.6	6897.7

The second series of experiments was made in 1864. On May 11, before the ears were formed, the Wheat was a little more forward than that of May 16, 1862; on June 3 the formation of the ears was rather more advanced than on June 13, 1862; on June 22, when the flowering was over, the Wheat was in about the same state as on June 29, 1862, if anything rather behind than otherwise; on July 6 the grains were still easily crushed; on July 25 the corn was reaped. The plants not containing always the same amount of moisture, the Professor reduced all the samples experimented on to complete dryness.

The results of the second series of experiments were as follow:—

	May 11.	June 3.	June 22.	July 6.	July 25.
	Kilog.	Kilog.	Kilog.	Kilog.	Kilog.
Organic matter, deducting nitrogen and ashes..	1230.3	2767.8	5399.1	5743.3	5731.6
Nitrogen	50.9	52.1	89.9	81.6	78.6
Silica	35.3	67.3	127.8	194.0	108.8
Oxide of iron, with trace of manganese ..	5.6	5.2	6.9	6.9	5.9
Phosphoric acid ..	9.8	11.9	18.7	17.7	16.2
Lime	17.5	21.7	31.3	28.6	23.8
Magnesia	3.5	3.7	7.5	6.7	7.5
Potash	22.0	23.4	27.0	27.9	23.5
Soda	13.8	21.0	24.5	20.6	14.8
Totals ..	1397.7	2564.1	5642.7	6040.1	6010.7

The two crops were grown upon different fields. The last dressing of the former crop consisted of what is called terreau, earth mixed with manure; that of the second crop consisted of street refuse, containing a great deal more salt. These facts explain, no doubt, in a certain measure, the great difference which exists in the relative proportions of soda which is always found in the slightly salted soil in the neighbourhood of Caen.

The two Tables of results show that when the flowering is over the plants have acquired nearly all their weight, but, especially, that they have taken up all the mineral substances which enter into their composition. It has been found also, by other experiments, that the most rapid daily increase takes place a little previous to that period, and that not only as regards the whole plant, but also with respect to each of the most important constituents—nitrogen, phosphoric acid, potash, magnesia, and lime. One of two things, then, is certain, either that the plant, by a continual interchange between the elements absorbed and those expelled, remains in a state of equilibrium, or that it ceases to borrow from the soil, and to absorb new elements, and digests as it were those which it had previously taken up, causing them to take that form which fits their special nature and destination. If, as everything tends to prove, the second hypothesis is the least distant from the truth, the active intervention of manures and of the elements of the soil is reduced to a minimum if it does not cease entirely. From this period, then, any new addition of manure can have little effect upon the crop. In other words, after the flowering is completed, from the moment when the grain is formed, all addition of manure is either superfluous or injurious. Experience has in fact taught the farmer that it is of no use adding manure after this period, with the hope of improving the existing crop.

The next question is, whether these facts are equally true of other crops besides Wheat. We possess few data respecting the composition of plants at various stages of their life and development. M. Pierre then gives a series of observations made on a crop of Colza.

The first experiment was made on March 22, when the plants were 20 inches high, and nearly on the point of flowering; the second on April 2, the plants being 36 to 37 inches high, and in flower; the third on May 6, the plants having attained an average height of 4 feet, and the flowering completely over; the fourth on June 6, the plants being full 6 feet high, and the seed far advanced; and the fifth on June 20,—at the time the crop was cut—all the leaves having fallen and the stems turning yellow.

The results obtained from the whole plant, roots excepted, after being thoroughly dried, were, per hectare, as follow:—

	Mar. 22.	April 2.	May 6.	June 6.	June 20.
	Kilog.	Kilog.	Kilog.	Kilog.	Kilog.
Crop entire ..	289.6	339.3	717.2	804.5	800.5
Mineral matters (ashes)	338.7	393.3	853.9	806.9	578.1
Nitrogen	77.6	82.4	121.7	116.7	111.1
Phosphoric acid ..	30.8	37.0	73.0	73.6	78.1
Lime	95.6	112.2	259.9	255.0	175.9
Magnesia and alkaline salts ..	139.3	152.3	259.9	213.3	209.6

Thus, as in the case of Wheat, we find that when the flowering is completely finished, nearly the whole of the organic matter and the whole of the nitrogenous and mineral substances had been taken up by the plant. If we consider that these two plants not only belong to different species, but to botanic families wide apart from each other (Graminacea and Crucifera), it is fair to assume that the facts indicated have a certain generality.

The inferences, therefore, are, that up to the moment of the formation of the head, and even until the flowering, the influence of manure may still make itself felt in an energetic manner, but that after that period, when the seed is formed, the effect of manure, whether old or new, has little or no influence on the plant. These experiments and inferences are derived from large crops; it remains to be seen whether plants grown under glass or in pots yield the same result.

The Professor concludes with the following observations:—Amongst the practical consequences arising out of the above results is, that a plant has exercised its exhaustive action in the soil long before it has come to maturity; but it results also from the same data, that the organic matter properly so called, the carbonaceous matter, has not acquired its full limit when the provision of mineral matter is already, apparently, complete.

As regards the ulterior accumulation of carbon, two distinct sources may contribute. 1. The soil, furnishing free carbonic acid in solution in the sap, or humid matter soluble in the sap; 2. The atmosphere, bringing carbonic acid to be decomposed by the leaves of the plants. The assimilation of carbon by the roots, during the last period in the life of plants, seems to be improbable in any form, for in the state of carbonic acid in aqueous solution it would take up with it a certain quantity of mineral substances, and the weight of the latter would be increased in the plant, whereas we find it is actually diminished. The same remark will apply to the absorption of humid matter in whatever state of solution, because they always contain a notable proportion of mineral substances.

It remains, then, only to consider the carbonic acid of the atmosphere, of which a portion may be given out of the soil in which the plants are vegetating. Supposing that the active portion of the crop averages at the period in question 20 inches in height, corresponding to a layer of air amounting to 5 tons, that the said air contains only the average proportion of $\frac{5}{10000}$ of its volume of carbonic acid, and that only half the latter be taken up for the benefit of the crop,—the carbonic acid decomposed would represent about 5 lb. in weight, and, supposing the air to be renewed only 20 times a day, there would be a fixation of the carbon contained in about 100 lb. of carbonic acid, or in round numbers about 29 lb. of carbon.

If it be remembered that the carbon does not equal half the weight of the organic matter, there would, according to the above hypothesis, be a daily production of at least 58 lb. of organic matter, or for the 15 days following the flowering of the Wheat about 400 kilogs. per hectare, which is in fact the actual increase at that period. As regards the Colza, by the same calculation, the production of organic matter during the month following the flowering would reach about 800 kilogs., which is rather more than is found to be the actual increase. *G. W. Y.*

Farmers' Clubs.

WEST CUMBERLAND.

Are not our Root Crops and Cereals Cultivated beyond their Natural Powers of Production?—At a recent meeting of this club, Mr. Ross, of Ravenglass, read the following paper:—I ask your attention to this preliminary question,—Has Nature set limits to the productions of animal and vegetable life? In other words, in the case of animals, does Nature supply a certain and limited force to all and every organ of the body, enabling each to perform its proper function, necessary to healthy existence and the generation of its species? and in the case of plants—is there a limit to the force which Nature supplies for their perfect health, enabling them to yield sound fruit to the cultivator, and leave in his hands sound and healthy seed to reproduce their kind? I presume to say that so it is, and I think none present will question it. These remarks lead me to the subject for to-day—Are not our root crops and cereals cultivated beyond their natural powers of production?

Turnips.—And, first, let me notice the latest crop put in—Turnips. Is it not a mistake, too often committed by the grower, to have all his thoughts and efforts directed exclusively to the capability of the soil, and none towards the nature and powers of the root which he has planted? It is with him, how much weight per acre can I raise, and not how far dare I stimulate the plant, consistent with a sound and healthy crop—a portion to be used as good food for cattle and sheep; and a portion to be transplanted in order to supply seed for future crops. Consequently he tries to grow 20 or 30 tons per acre; if he could get 40 or even 50 tons that would be still better. Just look for a moment at his operations. He procures good seed probably from some cottager who grows a limited quantity regularly, and who has the good sense when selecting his seed roots to take only healthy little Turnips of about 9 to 12 inches in circumference. The farmer plants this seed in well prepared soil, and applies the most approved and most powerful stimulants. He gives rather an extra distance between the drills, weeds out his plants thin, and the result is a very heavy crop of very large Turnips. He may win a prize from some encouraging society, it may be either for the field as a whole, or for a dozen roots selected. Out of this prize lot either he or some one else must secure some roots for seed, the rest of the crop is removed to store. As an extra crop is secured, he can afford to give an extra supply to his cattle. In this way the winter passes over and a cold spring succeeds; at such a time you all know that sound root crops are invaluable; but what does the farmer find now? Even this, that what remains of his large Turnips are either rotten or rotting fast. At first sight they don't look so bad. The skin (that wonderful skin) seems whole, but when it is broken he finds the contents already pulped to his hand. About this time a neighbour may hear him remark, that this has been a bad year for keeping Turnips. But the end is not yet. Some time about Michaelmas he may be heard again remarking that the young cattle, which he fed so largely with his fine large Turnips, had not done so well at Grass as others which he knew to have got smaller Turnips and much less in quantity.

Seed Turnips.—Now let us look after the lot saved for seed. They have been planted in some quiet corner, and anon they grow, showing fine and full blossoms; but long ere this the bulbs have become empty shells, the seed stalks are solely supported by the skin, with a thin coating of the heart adhering, but they do come to maturity, and the seeds are duly prepared for use in the following year. Then where do they go? He who rears them probably needs none, and he who grew the parent bulbs must have a change, so they fall into new hands. Their new owner commits them to land well prepared as he thinks, *i.e.*, setting up the soil in drills to facilitate evaporation, and again splitting those drills with the dried surface inwards, including a due allowance of stimulants as before. Some of the seeds sprout in due course, some are very lazy about it, and some never do it at all; hence the field is blanky, but having some moderately healthy-looking Turnips and a great many finger-and-toe roots; and some tiny worm along with some sort of weather gets the whole blame of the failure.

Cause of Degeneration.—How or why we have got so soon from a crop of giants to one of dwarfs? I admit to the fullest extent the influence of weather upon crops, both as to quantity and quality, but we often see results whose causes must be something else. In this case I think that the first crop is the result of forcing the plant beyond its natural limits, and the second is the result of the waste of that force by so much as was overdrawn by the first. Suppose that I get a post horse whose natural force is equal to 20 miles per day, and if I urge him on to 60, which may be done; and if one of you get the same horse next day, and, not knowing what was done with him the day before, try to do the same, I think you will not succeed by, at most, a sixth of the distance; and why? Simply because I overdrew by two days his natural yield of work. Of course if you had known what I did, you would not have had him. Ay, there's the rub; you paid as much and lost as much time over your 10 miles as I did over my 60. I think that this may in some measure illustrate the practice of some at the present time. We have a few fast farmers in the country, and really they do get on wonderfully, always getting the best of the horse, leaving others to fight with jaded Nature as best they can. The only pity is that these fast men are not compelled to use seed from their own overforced crops; then their race would not be borne fast and long.

I have one word more to say about Turnips. I do not think, as many do, that a farmer is so very dependent upon them for wintering his cattle. Fewer roots of good quality would serve his purpose better. You will find that the crop which yields the largest amount of skin in proportion to heart are the best feeders and the best keepers. If you put two bullocks in a stall, and give the whole of the skin and a part of the heart to one, and only heart to the other, and watch their progress, you will seek no further proof. Therefore I would single a crop of Turnips, so that the largest bulbs would measure from 15 to 17 inches round. If you take a Turnip, whose diameter is 4 inches, you will have about 50 superficial inches of skin to about 30 cubic inches of heart. Then take one whose diameter is 8 inches; on it the skin will be only four times that of the former, but you will get nine times the amount of heart; that is, assuming that the Turnips are spheres, but they are often more conical than globular; in that case the proportion of heart to skin would be greater. Therefore I think that growing very large Turnips is unprofitable.

Potatos.—What I have said of Turnips is applicable to Potatos. By undue forcing beyond their natural powers they have been reduced to the condition of a very sickly family whose members can only go forth in a very fine season. They are constitutionally predisposed to disease, and any sudden change of atmosphere may develop it. Various theories, and as many ob-

jections to them, have been put forth regarding this disease. I shall only mention one of each, and the objection first. It has been said—"Granting that the undue forcers of the crop did all you say, those who did so were few compared with the many who did not; and it would be a long time indeed before the work of the spoilers could pass over the whole country." But I reply that it did take a long time, and they got it too. I myself remember the decay going on for 19 years previous to the crisis in 1846. The first symptom which I remember was what was locally called *blenaeyes, i. e.* the eye of the seed did not sprout, and yet the seed remained sound in the soil for months. The next symptom was a peculiar form of stem, which consisted of the main stalk with a cluster of branches at the top, resembling in form the weed called Field Spurge, and the leaves crimpled and curled at the edges. The next phase was a dry rot in the pits or store heaps in the spring season; and the next a wet rot in the fall of the year; and the next was the deluge. Each of these successive symptoms was observable for three years, and a noticeable feature of the whole was that each preceded the other by a few weeks in the age of the Potato, and by so much shortening its healthy existence. During all this time forcing went on frightfully. Large planting was resorted to in order to secure large crops. Instead of putting the seed in the soil when the temperature of both were equal, the watery and bleeding tubers were committed to soil whose temperature exceeded theirs by 10° to 15°; that for a covering, and very likely hot manure for a bed, produced fermentation; and by the time the sprout had well left the surface of the ground, nothing remained of the seed but the skin. And yet many men wondered what produced disease in the Potato.

Electricity.—This leads me to notice one of the theoretical causes given, namely electricity, which was unhesitatingly adopted by many clever farmers, one of whom said to me, in order to justify his conclusions, "Come to my field and I will show you the course of the current through it; the outlines are so well defined that there is no mistake about it." I said, "I'll go, but I will tell you what I shall find then—that all the plants on the thin, poor hills are safe, and all these in the deep rich hollows are gone; and it was so with all the precision of a contour map. In a word, I think the Potato has been forced beyond its natural power of production, and we must either return it to its type or suffer its extinction."

Grain Crops.—The results of over stimulating grain crops are less obvious, but no less certain. Doubtless there is a gain in straw, but clearly a loss in the quality and weight of grain. A good dressing machine with a strong blast diminishes the quantity greatly. In this locality, where grain is sold in weight by stones, and the quality left to the judgment of the buyer, the difference is not readily detected; but when it is sold by the double test of weight and measure, inferior grain is detected at once. I may be mistaken, but it does occur to me that we have not the quality of grain now which we used to have. Instead of Oats weighing 42 lb. per imperial bushel, they are now generally 32, and some even less; Barley, which was from 54 to 56, is now not above 50; and Wheat has descended from 66 to 62. Whatever doubts may obtain regarding the use of strong stimulants to grain and root crops, so far as I can learn, there exists none as to their application to Grass. But I think there is Grass and Grass. We have, perhaps, a greater variety of quality in that crop than in any other with which we have to deal. It is not that herbage which bulks largest to the eye that goes to make either the best hay or the best grazing land. The mistress of your dairy can tell without looking beyond her milk dishes whether her cows have been feeding on that fine old olive-coloured pasture, with Grass as thick as a Brussels carpet, or on that field of rank dark green Grass, where strong chemical stimulants have been applied. The former yields the superior quality, the latter the inferior, but larger quantity.

Grain.—I am loth to lose this opportunity of saying what may be worthy our consideration regarding the cultivation of Grass. The rage for continually stirring the soil, and making a fine tilth is nearly over, I hope, because while it lasts we cannot have good Grass. You have heard, I dare say, of land being grass-sick, but I don't think that land is so apt to get sick of Grass as of other crops, because it is the most natural of all. If you will have a good crop of Rye-grass and Clover to cut for hay, and good pasture for two years following, you must put your seeds into dry, firm, and compact soil. If your green crop land be light and soft, and if you sow seed with the first white crop, your Rye-grass will be thin and your Clover will be amiss. But if you take a second white crop, giving manure, and ploughing with a light furrow just sufficient to cover your manure and stubble, then sow your Grass and Clover seeds, and you will be astonished at the result. The reason is obvious. All small seeds require a firm and compact soil, to enable their very fine and slender roots to get a firm hold and keep it. Just look at your paved yards and road sides, where you cannot keep Grass down; or look at the headland of a field where Grass has failed, and you will rarely find it amiss; because the treading of the horses' feet in turning have pressed the granulous earth together and made it so that Grass and Clover seeds can get a firm hold and grow, and resist the action of frost. It is difficult to say anything worth saying on so wide a subject, and where individual experience so greatly varies, but if I succeed in calling the attention of others, more careful observers than myself, to the subject so imperfectly introduced, I shall have accomplished my purpose.

I have only to add that if there be no natural limits to the sound and healthy production and reproduction of our green and cereal crops then let drop from your minds all that I have said, and continue your forcing process as long as you can. But if Nature has set bounds to the size of every plant—to its fruit-bearing capacities, and to the magnitude of its fruit—then it becomes us as wise men to try and learn the natural laws of the seeds we cultivate—to know both their powers of production and generation—because we may not violate either with impunity.

DISCUSSION.

Mr. R. [illegible] said he had been very much pleased with Mr. R[illegible]'s paper, but that it did not agree with his experience in [illegible]. He allowed that the [illegible] of the Turnip crop. In his opinion, the Turnip crop was the best [illegible] farmer could grow. He would take the cost of [illegible] at 1*l.* per acre, 2*l.*, working 2*l.*; seed, manure, &c., 1*l.*; interest he would put down at 3*l.* He would call the outlay of 8*l.* per acre. Now the yield per acre would [illegible] more than 15 tons, which, at 8*s.* per ton, would be [illegible] per acre. When farmers sowed seed, they did not want to [illegible] an acre by the crop. In the case of high farming, the rent and wages would be the same as in low farming, namely, 5*l.* Then there was 3*l.* for farmyard manure, and 2*l.* for artificial manure to be added, making an outlay of 10*l.* per acre. He would calculate the crop at 25 tons per acre, which, sold at 10*s.* per ton, amounted to 12*l.* 10*s.*, or a gain of 2*l.* 10*s.* per acre. He granted that there would be some loss by insects, finger and toe, &c. He would estimate that at 1*l.* 10*s.* per acre, and there would still be a gain per acre of 1*l.*, which he thought would suit farmers better than losing 10*s.* per acre. He preferred to have a crop of good-sized Turnips rather than small undergrown Turnips. He thought that finger-and-toe was rather attributable to low farming than high farming. Nature wanted assisting, and that high farming was the best way to do it. With regard to Clover and Grass crops, he always had a better crop on stiff clay land, and on the headlands of fields where the horses trod.

Mr. W. E. Clarke had seen more good come from high farming than low farming. He had attended many agricultural meetings, and he had conversed with many practical farmers, and they had told him that in their opinion the land ought to be farmed as high as possible. If they were to leave farming to Nature, he was afraid that there would be a considerable falling off in the size of their mutton and beef. The whole system of farming was reduced to this: How much can you get from your land, and how far can you stimulate Nature to get as much from her as you can. To obtain this end, farmers drained their land, they manured their land, both with artificial and farmyard manure, they cultivated the land. In fact, they did everything in their power to aid the perfection of the seed. Any farmer would tell them that in order to get a heavy crop from the land they must give back to the land part of the crop; and this high farmers did by the use of manure. With regard to seed, he had no doubt whatever that the bigger seeds they used the better their crop would be. In the case of Potatos, he thought it better to use a whole Potato, and a good big one too, than a quarter of one. The larger they grew the better their crop would pay them; that was his experience, and until he saw it proved by practice to the contrary, he should maintain that opinion. Mr. Ross had said that the rind of the Turnip was more nutritious than the heart. He did not know whether this was the case or not, but until he saw it proved by experiment he should be in favour of giving the heart. He agreed with what Mr. Jefferson had said about Clover growing best on firm land. If what Mr. Ross had said about the quality of the seed deteriorating was correct, it would teach them this lesson, that they should get their seed from plants grown on poor land.

Mr. Borthwick was quite of Mr. Ross's opinion with regard to deterioration. In the first place he thought it was injudicious in any one to force young cattle to their mature growth, for if they were thus forced they would the sooner die. Mr. Ross thought that the Potato disease was brought on with too much forcing. He (Mr. B.) was hardly of that opinion. He had also always thought that the nutritious qualities of the Turnip were contained in the heart. There might be some virtue in the skin, but he had not noticed it. He thought a moderate sized Turnip was the best. He must say a word about change of seed. Many gentlemen had expended capital in making experiments with seed. He believed that they had principally brought their seed from warmer countries. He was in favour of bringing seed from colder countries, and if possible from a virgin soil, that is, a soil upon which the same sort of seed had not been sown before. If the farmers did not get as much as they possibly could out of their land by high farming, he was afraid they would not be able to come up to time on the rent-day.

Mr. Musgrave concurred with Mr. Ross that there is a limit to the production of crops; that you may over-stimulate vegetable and animal life, and thereby do injury. No farmer would give to any living creature the rank Grass produced by the sewage running from a manure-heap. That was just over-stimulation in an extreme form. He quite agreed with Mr. Ross in his remarks about making the soil too light for the growing of Grass from seeds. Heavy rolling, he believed, was judicious. After touching upon some other points in Mr. Ross's paper, Mr. Musgrave noticed Mr. Jefferson's figures with respect to the cost of growing Turnips. The question, he said, was not, How much do you make by one crop? but, What do you make by your succession of crops? The crop might be a heavy one, but it might exhaust the soil, which would have to be restored, so it was a question whether a very heavy crop would be a benefit or not. A moderately good crop might, after all, be the most advantageous to the farmer.

Mr. Pattson said that as a rule he thought their crops were not over-stimulated. As to Turnips, he thought that large Turnips grown from artificial manures, and especially from ammoniacal manures, would not keep so long, and were not so nutritious, as roots of a moderate size. Turnips were sometimes used—and he should like to see them more used—for eating off the ground by sheep. For 5½ acres of Turnips, he received between 13*l.* and 14*l.* per acre for eatage. The following year he had an excellent crop of Oats from the same field, and this year he had eight cartloads to the acre of lea hay. In considering the cost of Turnip growing he maintained they must look beyond the one season. He thought it the duty of everyone in this island to make the most of his land: it was of the utmost importance in this populous country that they should make two blades of Grass grow where only one grew before, and have the greatest weight of crop possible.

Mr. R. Jefferson, in reply to some of Mr. Borthwick's remarks, said what he meant was that it was better to have a paying than a non-paying crop of Turnips as a preparation for another crop. As to what Mr. Musgrave had said about exhausting the soil by a heavy crop, he would just say, that if one part of a field grew 15 tons, and another 25 tons to the acre, he would rather have the part that grew the 25 tons, because one good crop was generally the precursor of another.

Mr. Ross replied. He remarked that every speaker had admitted there might be something of the truth in his paper. They had quite misunderstood him if they supposed he was inimical to a good crop. He wished to see a good crop, but he wished also to see a good crop obtained by legitimate and fair means, so that the crop might not only be large, but also sound and healthy, capable of yielding good food and capable of reproducing itself. If they took a flower which grew naturally out-of-doors, and put it in a greenhouse, they would succeed admirably so far. Next year they might be astonished at the clusters of flowers, but the third year after he thought they would find it a blank. That illustrated what he meant. There was a limit to the sound and healthy cultivation of every seed. He cordially thanked the meeting for the reception they had given his paper.

Farm Memoranda.

Lodge Farm, Castle Acre, Norfolk (*Concluded from p.* 1051).—*Cattle.*—Mr. Hudson does not breed any beasts now. In former years he had, at different times, herds of various breeds; but now all the cattle on the farm, except two or three Alderney cows, are steers bought in during the autumn and fed off during the winter and spring. A few are also bought for summer grazing, but many beasts could not be kept during the summer. From 100 to 140 steers (mostly Shorthorns), according to the root crop, are bought in every year at from two and a-half to three years old at Peterborough fair, which is held in the first week of October, and any deficiencies are made up at Norwich.

In the winter these steers are kept in lots of about ten or a dozen in small foldyards, having sheds along about one side and a half of each. They get about 2 bushels of roots and from 10 to 12 lb. of linseed-cake each per diem, as well as a bushel of cut hay (when there is any), or cut straw after the hay is finished, and the yards are well littered with straw every morning. They begin to be sold off in January, and they ought all to be gone by May.

The manure is carted out in January and put into heaps, being subsequently used for Mangels and Swedes; that made afterwards is put on the land intended for Wheat. The heaps are made in the following manner:—A bottom of good mould, about 6 inches thick, is first laid, and the manure is then carried on by carts, which are drawn on to the heap, tilted, and then return the same way, being drawn over what has just been brought. The heaps are from 25 to 30 yards long, from 9 to 10 yards wide, and about 5 feet high.

When nearly the whole of the winter-fed beasts are sold, a sufficient number are bought to feed off the Grass. They go into the pastures in the middle of May during the daytime, and in the evening come up to the foldyards, getting then about 7 lb. of linseed-cake each. If the weather is very hot, they go into the pastures by night and remain in the yards all day. The greater the number of these summer-grazed beasts, the fewer are those bought at Peterborough.

Sheep.—There are 400 breeding ewes kept on the farm. These are from Hampshire Down ewes by a Cotswold ram. The ewes are bought-in every year as ewe-lambs, and the rams are, as a rule, hired. The ewes are put to the ram on the best keep that may be on the farm. The lambs, both male and female, are all fed off from 10 to 12 months, and go to the London market. In July and August as many additional lambs are bought as may be required to feed off the Grass and Turnips. The hoggets are put on the water-meadows by day as soon as there is sufficient keep for them,—about the end of March. The ewes and lambs are kept on seeds, the ewes having some locust beans, and the lambs a little cake and lentils, until they are weaned in July, when they are put on the Clover eddishes. When the Tankard turnips are ready to draw, about the latter end of August, some are thrown to the lambs every day until the Turnips are ready to be folded off. After the lambs are weaned, some of the ewes are put on the water-meadows, and sold to the butcher as soon as fat.

During the winter the hoggets are kept on cut Turnips and Swedes with an allowance of cake, going on Rye in the spring as soon as the Turnips are finished; they are drawn for shearing, for the London market, early in March; and they are generally all gone by the middle of April, when fresh ones are bought for the irrigated pastures, Rye, &c. Those on the irrigated pastures by day are removed to the uplands at night. Fleeces range from 7 to 9 lb. in weight.

The lambing ewes live on anything they can get until a fortnight before lambing, when they begin to receive a few Turnips. After lambing, which commences in February, they get better keep, including more Turnips or some Mangels.

The hoggets are washed, from 10 to 14 days before they are clipped, by the farm labourers, in ordinary wash-pits, except those which go off early in the spring, which are washed in tepid water from the steam engine. Clipping is done by a kind of piece-work, which is practically task day-work. The price paid is 4*s.* and half a gallon of beer per score, but a man is not allowed to do more than a score in one day. Soon after the lambs are weaned, generally towards the end of July, they are dipped in a solution of "Allen's composition."

In February the hoggets are sometimes watered with a bottle, using 1 lb. of arsenic with soft soap and Tobacco juice to every score of sheep. As a rule this is not required if the dipping has been properly done in the summer.

Great attention is paid to the arrangements for folding sheep. Instead of the ordinary hurdle the sheep-pens are inclosed with iron "lifts" which run on two pairs of wheels. They are each 12 feet long, 3 feet 6 inches from the ground to the top rail, and cost about a sovereign; but their durability is proportionate to their cost, and they last more than 20 years. The gain in using them is that there is no need to drive hurdles or anything else into the ground, when it is hard and dry in summer, thus effecting a considerable saving in labour.

When the sheep are feeding-off Turnips in winter, 4-inch square mesh-nets are used before and behind them, the iron lifts being used to divide them into lots of about 300 each. Each of such lots is attended by a strong lad at about 8*s.* per week, a boy at 5*s.*, and another boy at 4*s.*, who top, tail, and cut the Turnips, feed the sheep, move the nets, hurdles and cribs, and

do anything else that may be required for the 300 sheep. These cost, therefore, for attendance, a little more than 1*s.* per score per week.

When the ewes and lambs are together these arrangements are supplemented by a wooden "lift-hurdle" or lamb-gate, which enables the lambs to run out of the pens and get the best of the feed on the next day's fold before the ewes are put on it, as well as their rations of cake and lentils. This lift-hurdle is about 7 feet long, and the usual height; it is divided into two portions by a horizontal bar midway between the ground and the top rail, and the lower half is subdivided by rolling upright bars 10 inches apart, just wide enough to allow the lambs to get through. The upper half has a sufficient number of uprights to give the whole the requisite strength.

Horses.—From 26 to 28 horses, of the Norfolk and Suffolk breeds, are kept to work 800 acres of tillage, being considerably more than three horses to every 100 acres of arable land.

Fourteen of these horses are kept in boxes; the remainder are fed in stalls and turned into the horse-yards at night. From the beginning of harvest through the winter they get a peck and a quarter of crushed oats, and a quarter of a peck of crushed beans; also 1 bushel of hay, wheat or barley-straw, both cut into chaff. This food is continued until the middle of May; they then get as much Tares and winter Oats as they can eat, leaving off the corn and chaff after they have have had green food about a week. In this way they are kept as long as the Tares last, generally until the middle of July, when the Cow-grass is mown, after which they are turned into the pastures and remain there until harvest begins, when corn and chaff are given to them, and their winter treatment recommences.

Horses are occasionally bred to replace some of those that go off, but not otherwise; and as a general rule they are bought as 2-year-old colts, in preference to breeding for home use. Hitherto the number of horses employed has not been reduced by steam cultivation.

The delivery waggons are drawn by four horses in two pairs, and take 25 sacks of Wheat or 30 of Barley. With this exception all the yoking is in a line, the carts being three-horse tumbrils, and the harvest waggons drawn in the same manner by three horses in a line.

Labour.—After the elaborate and, we may almost say, paternal methods pursued in the north, the Norfolk system of labour is not very attractive. There is no such thing as a yearly labourer, no boarding paid for by the farmer, and, in short, no connection between master and man except work on the one hand and payment on the other. The bailiff gets a guinea per week, the yardman 14*s.* 6*d.*, the engine-driver 3*s.* per day, and the ordinary farm labourers from 10*s.* to 12*s.* per week. Lads are paid from 8*s.* to 9*s.* per week, and boys from 4*s.* 6*d.* to 5*s.*, while women get from 10*d.* to 1*s.* per day. All the payments are made in money, there being no privileges in addition to the wages. Cottages, with gardens, are paid for by the men at the rate of from 1*s.* 3*d.* to 1*s.* 6*d.* per week; they are tolerably good, and the labourers do not often take lodgers.

A considerable amount of field work is paid for by the piece, as has already been described; but much of it is done under a system of "gangs," one or more of which can usually be got at short notice. These gangs are composed either of men or women, according to the nature of the work. Women generally do the weeding and other light work.

A wheelwright, a carpenter, and a blacksmith, are kept on the farm, and all the carts and waggons, as well as the harrows, are home made.

The labour account, including the wages of the bailiff, blacksmith, carpenter, amounted last year (1868) to nearly 2000*l.*, or very nearly 2*l.* per acre on 1000 acres of land, about 200 of which are in Grass.

Steam Cultivation.—For the last three years Mr. Hudson has had steam cultivating machinery on Fowler's single-engine direct anchor system; the engine is a double cylinder of 10-horse power, and is also used for the threshing machine and other purposes. The chief benefit hitherto derived from steam cultivating is in the root crops, and more particularly in the crop of Mangels, as previously mentioned. The use of steam has also tended to the substitution of cultivating under certain circumstances; for instance, Wheat stubbles are now cultivated twice and ploughed once, instead of being ploughed three times.

Before Mr. Hudson bought this set he was in the habit of hiring steam tackle, and paid 8*s.* per acre for cultivating from 9 to 10 inches deep, besides the cost of coal and of carting water; ploughing was done under the same arrangement as to coal and water, at 7*s.* 6*d.* per acre. *Mr. H. M. Jenkins, in the "Royal Agricultural Society's Journal."*

WEST GLOUCESTERSHIRE: *Oct.* 1, 1869.—Although the stormy weather of the last three weeks has somewhat hindered us from getting on with our autumn cleaning, it has nevertheless been more favourable than otherwise for ploughing up the land for Wheat. This, by the way, had got rather behindhand, owing to the harvest being later than usual, and the continuance of the drought; but now that the horse-power of the farm has been more concentrated, the ploughing has been got well forward, and Wheat sowing has begun on the hills, and will soon be begun hereabouts.

As there is now so much talk about thick and thin seeding, and as the opinions of many practical farmers are so conflicting and unsatisfactory, it would, perhaps, be as well to let the matter drop for the present, and let those who feel inclined to differ from Mr. Mechi's views upon the subject try a few plots of ground in the same field, with different quantities of seed; and then bring the whole produce, straw and grain, to the weights and scales, for there is no other means whereby the question can be correctly tested. So far as we are concerned we agree with neither too thick nor too thin seeding; our practice for years has been to drill from 5 to 6 pecks per acre, according to the time of year and the condition of the soil. We think that every farmer should be able to judge for himself what quantity of seed his land requires; but sometimes custom gets the upper hand of his judgment, and he sows 2 bushels, or sometimes 2½, where 1½ bushel would do, simply because it is his wont. No doubt 2 or 3 pecks of seed would be sufficient upon some rich or maiden soils, but upon our old arables, and these not of the best quality, we must draw a line, and seed according to our experience. It is reasonable enough to argue, that if the land cannot support one plant, it certainly cannot support two, but upon our cold clays some allowance must be made for loss of plant. In a wet winter, wherever there should happen to be a low place in the land, or horses' footmarks, they fill full of water, and there it remains till the sun and wind dry it up; the consequence is that the plant perishes. This often happens upon well farmed and thoroughly drained land. In this neighbourhood the harvest was secured in the best possible condition, and in most cases thatched before the rain set in. The deficiency in the yield is greater than was at one time anticipated, and the quality very middling, especially when the Wheat was badly laid. A considerable amount of threshing has been done in the neighbourhood, and the results are from 5 to 6 sacks per acre, and the weight 58 to 60 lb. per bushel. Very little Barley or Oats have yet been threshed. The Mangel and Swedes sustained a severe check during the drought, but have somewhat recovered since the rain. Late Turnips are growing rapidly; there is every prospect of an average crop. The early sown are being fed off, in order to get the land sown with Wheat. The Potato crop is good hereabouts; no disease has appeared here at present; growers are busily engaged digging them up. The sowing of Rye, Vetches, and Winter Oats for spring feed is now pretty well completed.

Stock of every description is healthy, good stores are selling better since the rain set in, there being a prospect of autumn Grass; sheep are also rather dearer, stock ewes selling from 40*s.*, and good lambs from 24*s.* to 30*s.* per head. Pigs are still very dear. *J. W.*

The Poultry Yard.

"THE Poultry" in the City is quoted as an obstruction; although why Temple Bar should stand and the Poultry be pulled down, few who dwell *extra muros* and the privileges thereof would be able to say. The only way in which the poultry of which we treat can be an obstruction is, when the supply exceeds the demand, and such is our present case.

Much has been written and said about the superiority of the French poultry and its cheapness, compared with our own. We think the only point on which we suffer is our cookery and management of the bird after the purchase of it. It is very difficult to say at what price a couple of fowls is really cheap to a middle-class man, when purchased by his good-wife to form the staple of the mid-day meal for his growing, numerous, and thriving family. With the decision arrived at, when breakfast is finished, commence the troubles. Mamma, when she goes out, orders the fowls. She knows her maid can't or won't truss them, and therefore they are sent home ready for cooking, by which arrangement a very valuable addition to the family stock-pot is lost. The importance of the giblets or *abattis* would be so great in a Frenchwoman's eyes that she would carry home, pick, singe, and draw the fowls herself, rather than lose the smallest portion of them. Were the same thing attempted in English town homes, we should be inclined to ask at what time the dinner might be expected? Not that our English maid-servants would not do more for their employers than perhaps those of any other nation; but that, in the present instance, they don't know how.

The temptation to run into a discursive, roundabout story as to the proper education for girls intended for the kitchen is here very great, more especially when one has just read the telling and home-hitting addresses of such men as Professors Kingsley and Maurice at the Social Science Congress. It would be delightful to train a batch of really good cook-maids. The difficulty is in doing it. It has been, and is, we think, fairly tried in nearly all parts. In "Tom Brown's School-days" Mr. Hughes gives Mrs. Brown the credit of doing much for the rising generation; but when Tom is at Oxford the nursing the old villagers get (as described) at the hands of their dames is not of the first order. Kitchens have been established by painstaking ladies, model markets started by sanguine traders, all to tempt our mechanics, artisans, and lower middle-class to improve, or at least change, their mode of providing for their daily meals; but while we know of more than one failure, we doubt if the successful cases are numerous. It may be that our natural taste leads to the rejection of those dishes which our forbears called "kickshaws;" but we think the old saying that "Heaven sent the food and the Devil the cook" would be leading to the root of our objection as a nation to make dishes (as we make them)

They manage those things better abroad. We constantly say so; but except that their trains keep better time than ours, we confess those things are hard to find. On one other point we think, however, we must yield,—they cook their poultry better. From the time the unlucky chicken draws his last breath he is the object of constant attention. To begin with: All his feathers are carefully saved. We will suppose he is killed in the summer, and therefore, like the featherless bipeds in the same country (France) he is not left long. His comb, feet, head, and trimmings furnish the principal part of a *ragout*, which figures at breakfast, and gives the intending diners an inkling of what is in store for them later. Two medium-sized fowls in a *pensionnat* in France serve for the *rôti* for a dozen or more people. They are skilfully carved into much smaller pieces than we should cut, and can consequently be much more equally divided. Handed round with cresses, they are appreciated; but we serve them with one or more vegetables, bread sauce, gravy, &c., and the two fowls are nearly always deemed unpresentable unless flanked by a ham or piece of pork. The foreigners say we know that our poultry is inferior, because we add all sorts of things to it, and eat all sorts of things with it to conceal its real flavour. Returning to our starting point, we repeat with sadness that at present the supply of poultry exceeds the demand. In so doing we must not be misunderstood. The choice poultry retains its price, the supply and demand being nicely balanced. But it is the common kinds, the barndoor chickens, and farmyard ducks which find a difficult sale at any price. The Emerald Isle—although we are not at present in her good graces—overwhelms us with mongrel bred geese, chickens, and ducks, alive, dead, and dying. Many of them never find a sale at all, and the greatest wonder is, how the producers find a profit, when the chicken passes through the hands of higgler, railway agent, salesman, and eating-house keeper, and figures on the placard in the window of the latter as "Chicken, with gravy and bread sauce, 1*s*"

Roup in Fowls.—Roup is a somewhat general term for most diseases, but is most properly applied to a cold. The fowl becomes drooping, fœtid matter running from the nostrils, swollen eyes and disordered excrement. The symptoms most prevalent in roup are difficult and noisy breathing, or a kind of rattling in the throat, beginning with what is generally termed gapes. The head becomes feverish and much swollen, and the eyelids livid, with decay of sight, and even total blindness. There is considerable discharge from the nostrils, and even from the mouth, of fœtid matter, at the commencement thin and limpid, but afterwards becoming thick and purulent and very offensive. As secondary symptoms, the appetite is all but gone, except for drink; the crop feels hard to the touch, and the feathers are staring, ruffled, and without a healthy gloss. The fowl sits moping and wasting in corners, always apparently in great pain. In this stage of the disease it is supposed to be infectious, and whether so or not it is certainly proper, for cleanliness' sake, if nothing else, to separate the diseased from the healthy ones, to prevent the disease from spreading. They should, above all, be kept warm and have plenty of pure water. *Treatment:* In general we would advise the killing of a roupy fowl at once, unless it be valuable, as the risk of its contaminating the whole flock is great. At all events, let it be removed from the yard as soon as discovered. Warm, dry bedding and nutritious food are the first essentials to recovery; in addition, the frequent removal of the dried discharge from around the eyes and nose by warm bathing the nostrils with Castile soap-suds as often as necessary, and the swollen eyes with warm milk and water. In the way of internal remedies, we find that nearly equal numbers recover under various modes of treatment. "For grown fowls affected by the roup," says Mowbray, "warm lodging is necessary, and even the indulgence of the kitchen fire or the bake-house. Wash the nostrils with Castile soap-suds as often as is necessary, and the swollen eyes with warm milk and water." We have tried the following remedies, viz., a peppercorn in a pill of dough, the three following days the patient being much chilled. Afterwards bathe the swollen parts with camphorated spirits or alcohol and water. As a finish to the cure, give sulphur in the drink, or a small pinch of calomel in dough three times a week. Dr. Bennett says: "For roup and all putrid affections, I confidently prescribe the following, and consider it the only true treatment: Take finely pulverised fresh-burnt charcoal and new yeast, of each three parts; flour of sulphur, two parts; flour, one part; water, quantity sufficient; mix well, and make into boluses of the size of a hazel nut, and give one three times a day. Cleanliness is no less necessary than warmth, and it will sometimes be desirable to bathe the eyes and nostrils with warm milk and water, or suds, as convenient." Mr. John Giles says: "As soon as the disease is discovered, if in warm weather, remove the infected ones to some warm place; then give a dessert spoonful of castor oil; wash their heads with warm Castile soap-suds, and let them remain until the next morning fasting; scald for them Indian meal, adding 2½ ounces Epsom salts, for ten hens, or in proportion for a less or greater number; give it warm, and repeat the dose in a day or two if they do not recover." *Albany Cultivator.*

Calendar of Operations.

Threshing seed Wheat is generally best done out of the stook; but in early seasons in our southern counties it may often be stacked without harm. On the other hand, nothing is more ruinous to seed Wheat than the stacking of it in a damp state, or in a state that the grain becomes damper and softer after stacking. In such cases it is better to thresh out of the stook, and then spread the grain thin upon the granary until required for sowing. Newly threshed Wheat, however, is always to be preferred to that which has lain upon the granary for only a month or six weeks. In the north of Ireland some of the small farmers "lash out their Wheat," as they term it, handful and handful, over a barrel or tub; and when lashing out seed, they sometimes only lash out the best of the grain for this purpose, by turning round and lashing out the inferior into a different barrel—the best quality being the more easily separated from the straw. They also pick the smutty ears and weeds out of the handfuls before they begin to lash. In this way very fine seed is obtained, which is thought to

braird more equally than can be obtained by threshing and dressing machines, or by the flail and winnowing sieve, &c. In bad seasons some prefer good old seed to the inferior new, but in this case there is the greater reason that it should be newly threshed, as the vitality of Wheat suffers rapidly in our climate after it is threshed, a third or a half more seed being required to seed an acre, whilst many of the young plants come up sickly and die out in severe winters. Where old seed is used, it should be well dressed, all the lighter grain being winnowed out, and its vegetative powers should also be tried, either below a sod or in a flower-pot. Many farmers never sow an ounce of new seed without proving its vitality. This enables them to seed their land with greater accuracy, for although much is said about thick and thin seeding as a comparative question all farmers know that no two counties or seasons are alike, as to the vitality of seed, and the actual quantity required to seed an acre. So far as the condition of Wheat for seed goes, this should always be experimentally determined as soon as the Wheat is threshed, or immediately before sowing, when it has been placed in the granary.

Dressing seed Wheat.—Some attempts have been made to separate by means of sieves the larger and coarser grains and the smaller, leaving the medium size only for seed. In some of our best Wheat climates, as Essex and Kent, where the sample is of a uniform size of grain, there may be less occasion for such a mode of dressing in fine seasons. But, generally speaking, Wheat is far from being uniform in this respect.

Time of Sowing is becoming later than it was, both South and North, for reasons similar to those given under an extension of the period. Resolving the question into a comparative one, Wheat now sown the second week in October is earlier than what was formerly sown the first week, and even in the latter part of September, under the old practice, the season being the same; and we aver most practical men who can speak from 40 years' experience will conclude that the difference is even greater than a week or 14 days in favour of the improvements made in modern agriculture.

Varieties of Wheat.—The experience of the district should always determine the best sort of Wheat for sowing, both early and late in their season. When new varieties of promise in any one district are introduced, trials should be given them in other districts, and the experiments should be made early and late, *i.e.*, sowings should be made throughout October and November, and even into December in exceptional cases. But as a number of years are necessary to settle the practical question of success, it follows that old varieties which have proved suitable for this or that district or farm should not be hurriedly superseded by new ones, however successful they may be in other places, where soil, climate, and management all less or more differ.

The Seed-bed at this season should be rather firm than loose, and on strong land a little cloddy rather than a fine mould. Hence, after Beans, Peas, Vetches, and naked fallows, the land should lie three or four weeks to dry, and consolidate, and acquire a body, more especially the heavier class of Bean soils; otherwise, when newly ploughed, and broken fine by the harrows, they are more apt to run together with heavy rains than when consolidated in a dry state. Friable soils, whether newly-ploughed or not, if too soft and loose, should be consolidated by means of the clod-crusher or roller, both before and after seeding, should the land so require. The newly-ploughed furrow-slice of Clover leys is best consolidated by a "presser." In each case, the less harrowing before and after the coulters the better, provided the drills are opened properly, and the seed covered; and the later and more wet the season, the rougher should be the seed-bed. When newly-ploughed land has to be sown in wet weather, the sowing should be kept as close up to the ploughs as practicable; and when the harrowing and drilling is done by horses, the land should be laid into stetches or ridges twice or thrice the breadth of the drill, so that the horses can walk in the furrows on each side, with the drill and harrows between them by means of a long yoke. In such cases more seed will be required, as some will fall to the bottom and never braird, and others will be left on the surface and consumed by birds. When sown by the hand, the loss of seed was sometimes nearly a half, but better sustain this heavy sacrifice of seed than poach the land or allow it to run together by heavy rains before seeding.

Winter Beans are now got in: they generally follow Wheat or Oats. If the land is clean and free from weeds, the manure may be carted on and spread upon the stubble, and either ploughed in on the flat and the seed afterwards drilled from 18 to 24 inches apart, or the Beans may be sown broadcast on the manure, and the land then ridged up with a double-mouldboard plough, so as to gather up the manure and seed in the middle of the drill, or the stubble may be scarified and harrowed: shallow drills may then be formed, the manure spread in these, and over the manure the seed may be sown by a common Bean-barrow or a Suffolk drill, sowing three rows at a time. The manure and seed may then be covered by splitting the drills. Roll after, if the state of the land will permit, but if too damp cover lightly, leaving the ridge open and flat on the top, which is better than harrowing at this season. If the land is deficient of lime, lime should be applied and spread on the stubble and well harrowed in before ridging, as this crop never does well without lime, owing to the large percentage required to mature both the straw and grain. In the United States of America they sow about four bushels of gypsum per acre. This grain also contains a very large percentage of potash. A specific manure for this crop is much required for drilling in along with the seed. Winter Beans may be sown in lighter soils than spring crops. The former has also other advantages over the latter, inasmuch as they ripen earlier and are less liable to the attacks of mildew and fly. But, on the other hand, unless the land is clean and in good heart for their growth, the crop seldom comes to much.

Live Stock.—Sheep-folding and general management of the flock as last week. Neat cattle intended for the shambles are now put up to fatten; and whether home-bred or bought in, the familiar old rule requires to be borne in mind, viz., "Get rid of an ill-doer,—the first sacrifice being the best." In other words, animals that will not pay for their keep, sell at what they will bring. No doubt a liberal allowance of corn and cake will do much to force forward such animals before they have attained to what has been technically termed a "ripe age" for fattening. But we aver that much of the complaint now so general,—that fattening stock do not pay for their keep,—arises from the want of due attention to the drafting out of animals that have not attained the ripe age; for when the whole herd is tied up promiscuously, the ripe ones pay, but the "green ones" don't; hence the complaint: what else could be expected? The latter are generally sent to the fat stock market only "half fat" in the spring, where they are sometimes bought by good judges for fattening out on the Grass—which they pay for. *W. B.*

Miscellaneous.

Dead Meat.—In a report compiled for the Health Committee of Liverpool by the borough engineer, Mr. James Newlands, C.E., with reference to the establishment of the abattoir of La Vilette in Paris and the abattoir of Brussels, which was printed last session, he states that the amount of meat, &c., obtained from an animal is very variable. It depends on the race, the condition, and many other circumstances. Thus certain animals yield only 50 per cent. of their live weight, and others produce as much as 70 per cent. But the mean of meat produced may be stated at about 58 per cent. of the live weight. In the case of sheep the proportion is from 40 to 50 per cent. The different products which are obtained from beef and mutton may be approximately stated as follows:—

Products.	Ox of the live weight of 1,322 lb.	Sheep of the live weight of 110 1-5 lb.
Meat	771.400 lb.	55.100 lb.
Skin	110.200	7.714
Grease	88.000	5.510
Blood	55.100	4.408
Feet and hoofs	22.000	2.204
Head	11.000	4.408
Tongue	6.60	4.408
Lungs and heart	15.33	
Liver and Spleen	22.05	
Intestines	66.15	6.612
Loss and evaporation	154.322	19.836
Total	1,322.000	110.200

Pall Mall Gazette.

Notices to Correspondents.

CIDER AND DAMP CELLARS: *Spring.* Water in a cellar will not turn cider to vinegar if the casks, containing the cider, are properly corked. Fermented liquors are turned to vinegar by exposing them to the atmosphere.

COMFREY: *G W.* It has been recommended as a forage plant. It likes river-banks and wet, shady places; and its succulent leaves are, we believe, liked by cattle; but it is of no general agricultural value.

COWS; THEIR FOOD AND DUNG: *Inquirer* asks,—"1. What is the best food for a cow when there is a deficiency of Grass? 2. Would there be any advantage in removing the droppings from a cow, instead of allowing them to remain, and thus generate a rank, sour Grass, which the cow will not eat?" [Meal of Barley, Maize, and Beans is the best addition, for milk cows, to grains, good hay, and Mangel Wurzel. As to which would be more advisedly used depends on the relative price of each. In regard to the hay or straw to be given with the corn, this also must depend on the cost and the convenience with which each can be obtained. If meal and chaff of any kind be given, it is advisable to either steam the mixture or scald it with as much boiling water as it will absorb after thorough mixing. Cow-dung is frequently gathered two or three times a week, but a good knocking to pieces with the back of a fork, after it has become dry, is all that is usually required, or that is profitably done.]

HALF-INCH BONES FOR MEADOW LAND: *J B T* asks,—"What effect half-inch bones would have on meadow-land,—light red land, not sandy? And what will be the proper quantity per acre, and time for applying?" [Local experience is the best guide; in the absence of this advantage, try small experiments. We say this because, while in Cheshire the Grass will be doubled and tripled in quantity, the cows will eat the Grass which has been "boned" into the earth, leaving any "unboned" part of a meadow long and untouched. But, while this is so, in some parts of the country, as in Essex, particularly near London, a dressing of bone has little or no effect in increasing the fertility of the pasturage. In Cheshire, however, a quarter of a ton of half-inch raw bone is put on per acre, which lasts, it is calculated, seven years. The first year its effect is scarcely seen; the second year the Grass greatly improves; in the third year the bone takes full effect, when it gradually decreases in influence, until it is exhausted at the end of the sixth or seventh year. It will be seen by this that the time of application is unimportant, with this exception: if the soil be deficient in phosphates, the sooner it is supplied in the form of bone the better. We may add that, from the experience of Cheshire men, feeding pastures with cows for making cheese exhausts the soil per annum as nearly as possible of the amount of phosphates contained in 1 cwt. of raw bone.

HOP CULTURE: *H D.* Read Mr. Paine's article on Hops in the "Cyclopædia of Agriculture."

OILCAKE: *M A.* There are machines for breaking oilcake, by which it is reduced partly to small fragments and partly to powder. It is generally put in the troughs after they have been cleaned out from the previous meal—chaff or Turnips. We have also given cake broken and mouldered down in water, thrown over mixed hay and straw chaff, to cattle and sheep. Give from 2 to 4 or 6 lb. of cake to oxen or cows, and from ½ to 1 lb. daily for sheep.

WEEDS: *A Subscriber.* Your weeds are Linaria vulgaris (Toad Flax, yellow); Centaurea nigra (Knapweed). Tanners' offal must be used, not as food, but as manure.

Caution to Gardeners.—When you ask for

SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the Corporate Mark, OBTAIN WARRANTED without which none are genuine

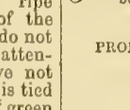
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make all of which are warranted both by Sellers and Makers.

S. & C.'s PRUNING and BUDDING KNIVES are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 126 years.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their REDUCED PRICES as follows:—

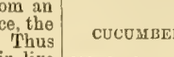
PROPAGATING  GLASSES.

Each.—s. d.		Each.—s. d.	
2 inches in diameter	0 3½	12 inches in diameter	1 9
3 " "	0 4½	13 " "	2 0
4 " "	0 6½	14 " "	2 6
5 " "	0 6½	15 " "	3 0
6 " "	0 8	16 " "	3 6
7 " "	0 10	17 " "	4 0
8 " "	1 0	18 " "	5 0
9 " "	1 2	19 " "	6 0
10 " "	1 4	20 " "	7 0
11 " "	1 6		

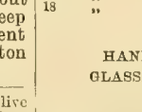
BEE GLASSES, with ventilating hole through knob.

4 inches in diameter	0s. 6d.	9 inches in diameter	1s. 8d.
5 " "	0 8	10 " "	2 0
6 " "	0 10	11 " "	2 6
7 " "	1 1	12 " "	3 0
8 " "	1 4		

Either flat or conical tops.

CUCUMBER  GLASSES.

24 inches long	2s. 0d.	16 inches long	1s. 4d.
22 "	1 10	14 "	1 2
20 "	1 8	12 "	2 6
18 "	1 6		

HAND GLASSES,  WITH OPEN TOPS.

Each.—s. d.		Each.—s. d.	
12 inches	6 6	18 inches	9 6
14 "	7 6	20 "	10 6
16 "	8 6	22 "	11 6
		24 "	12 6

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS. PAINTS of various colours ground ready for use.

SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of Prices and Estimates forwarded on application to JAS. PHILLIPS AND CO., 180, Bishopsgate Street Without, E.C.

Horticultural Glass Warehouse.

THOMAS MILLINGTON AND CO., 87, Bishopsgate Street Without, London, E.C.

NEW LIST for ORCHARD-HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD-HOUSE SIZES.

in.	in.		4ths.	3rds.	2nds.	Best
20 by 12						
20 by 13						
20 by 14	Per 100 feet		15 oz.	12s 3d	15s 6d	16s 9d	18s 0d
20 by 15			21 oz.	18s 0d	20s 0d	22s 0d	24s 0d
20 by 16						

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7	11s 3d	12s 6d	14s 0d	15s 6d
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½				

Per 100 feet.

10 by 8	12 by 9	12½ by 10½	14½ by 10½	11s 9d	14s 9d	15s 3d	17s 6d
10½ by 8½	12½ by 9½	13 by 10	15 by 10				
11 by 9	13 by 9	13½ by 10½	13 by 11				
11½ by 9½	12 by 10	14 by 10	14 by 11				

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	4ths.	3ds.	2uds.	Best.
15½ by 10½	14 by 12	22 by 12	22 by 16	12s 3d	15s 6d	16s 9d	18s 0d
16 by 10	14½ by 12½	17 by 13	24 by 16				
14½ by 11½	15 by 12	23 by 13	20 by 17				
15 by 11	15½ by 12½	18 by 14	22 by 17				
15½ by 11½	16 by 12	22 by 14	24 by 17				
16 by 11	16½ by 12½	24 by 14	20 by 18				
21 by 11	17 by 12	22 by 15	22 by 18				
13 by 12	18 by 12	24 by 15	24 by 18				

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.

In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	34s.	4ths quality, per 200 feet case,	34s.
3ds " "	40s.	3ds " "	40s
2ds " "	60s.	2ds " "	60s.
Best " "	75s.	Best " "	75s.

SHEET GLASS is made only in the following substances, 15 oz. 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.

HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.

BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.

STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a-half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.

IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4s. per gallon.

Per cwt.—s. d.		Per gallon.—s. d.	
GENUINE WHITE LEAD	30 0	LINSEED OIL	2 9
SECONDS WHITE LEAD	28 0	BOILED OIL	3 2
GROUND PATENT DRYERS, 3d. to 4½d. per lb.		TURPENTINE	2 9
" OXFORD OCHRE, 3d. to 4½d. per lb.		LINSEED OIL PUTTY, 8s. per cwt.	
" RAW UMBER, 4½d. to 6d. per lb. [per lb.		Fine OAK VARNISH, 10s. to 12	0
" BURNT do., 6d. to 9d.		" CARRIAGE do., 12s. to 14	0
GREEN PAINT, all shades, 28s. to 60	0	" PAPER do. 10s. to 12	0
BLACK PAINT, 24s. to 36	0	" COPAL	16 0
RED PAINT 28s. to 36	0	KNOTTING	10 0
		Patent GOLD SIZE	10 0
		" BLACK JAPAN	12 0
		GLAZIER'S DIAMONDS and TOOLS	
GROUND BRUSHES.		MILLED LEAD and PIPES	
DUSTERS. | SASH TOOLS.		OLD LEAD Bought or taken in	
DISTEMPER BRUSHES.		exchange.	

The above are Net, for Cash, and as such cannot be booked. Lists of any of the above on application.

Indestructible Terra Cotta Plant Markers.

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F. A. HAAGE'S WOOD GARDEN STICKS and TALLIES, recommended by the Royal Horticultural Society, acknowledged to be the neatest, cheapest, and best Training Sticks and Tallies made.

For above can now be had, of all sizes, Wholesale, of BETHAM & BRADSHAW, Coal Quay, Lower Thames Street, London, E.C.; and Retail, of the Trade and Florists.

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LABELS, LABELS.—PARCHMENT or CLOTH LABELS.—Tree or Plant Labels, punched parchment, 4 inches long, 4s. per 1,000, or 1,000 for 3½, cash on delivery. Sample Label sent on receipt of a postage stamp. Orders delivered free in London by JOHN FISHER AND CO., Label Works, Boston, Lincolnshire.

HOT-WATER APPARATUS

Erected Complete, or the Materials Supplied for Heating

Peill's Conical. GREENHOUSES, Tubular Boiler.



HOTHOUSES,
CONSERVATORIES,
CHURCHES,
PUBLIC BUILDINGS, &c.



HOT-WATER PIPES at wholesale prices, Elbows, T Pieces, Syphons, and every other connection kept in stock.

WROUGHT and CAST IRON CONICAL, SADDLE, and IMPROVED PEILL'S and ELLIPTIC BOILERS, from 24s. each.

IMPROVED and EXTRA STRONG CAST IRON TUBULAR BOILERS, with or without Water Bars, from 52s. 6d. each.

CAST and WROUGHT IRON PORTABLE BOILERS on STAND, for use without brickwork, from 60s. each.

PATENT and IMPROVED THROTTLE and other VALVES, FURNACE DOORS, BARS, and FURNACE WORK of every description and size.

LYNCH WHITE,
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(Surrey side Blackfriars Bridge).
Price List on application.

JAMES WATTS AND CO., HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, 179, Old Kent Road, London, S.E.

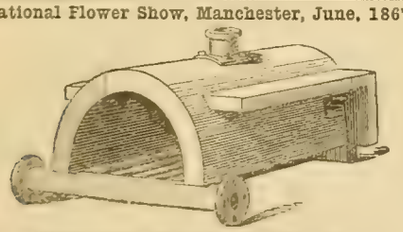


200 CUCUMBER and MELON BOXES and LIGHTS, all sizes, Glazed and Painted complete, ready for immediate use, packed and sent to all parts of the Kingdom.

Strong ZINC HAND-GLASSES, all sizes.

References to the Nobility, Gentry, and Trade in most of the Counties in England.

National Flower Show, Manchester, June, 1867.



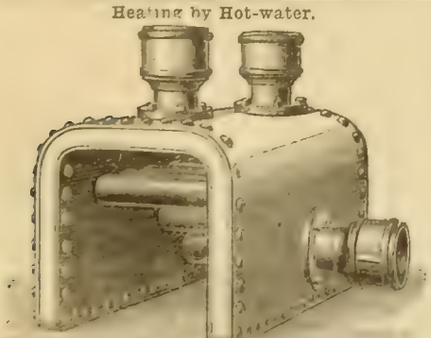
FIRST-CLASS CERTIFICATE AWARDED TO THE PATENT TERMINAL SADDLE BOILER, with the following note:—

"The Judges consider this one of the most powerful and useful Boilers for general purposes."

See *Gardeners' Chronicle*, December 7, 1867.
See *Gardeners' Chronicle*, January 25, 1868.
See *Gardeners' Chronicle*, February 1, 1868.
See *Gardeners' Chronicle*, February 8, 1868.
See *Gardeners' Chronicle*, March 14, 1868.
See *Gardeners' Magazine*, June 15, 1867.
See *Gardeners' Magazine*, August 24, 1867.

J. IRELAND, Edward Street, Broughton Lane, Manchester.

Heating by Hot-water.



SHANKS' IMPROVED WROUGHT-IRON BOILER.—[illegible] of Wrought-iron, and [illegible] of Cast-iron Boilers. The Patent [illegible] a very large [illegible] to the direct action of the fire, the advantage of which is obvious.

A. SHANKS AND SON [illegible] other IMPROVED BOILERS separately, or to furnish Plans and Estimates for Erecting Hot-water Apparatus complete in any part of the country.

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Catalogues, containing Descriptions of Houses, &c., will be forwarded on application, or Plans and Estimates for Ranges of Houses to be erected in any part of the country will also be furnished.

A. SHANKS AND SON, Deas Iron Works, Arbroath, N.B.; and 27, Leadenhall Street, London, E.C.

W. H. LASCELLES' MACHINE-MADE MELON LIGHTS.



	Each.
6 ft. by 4 ft. Lights, 2ins. thick, unglazed	£0 6 0
" " Primed and Glazed with 10 oz. Sheet	0 11 0
" " with stout Portable Box, not Painted	1 3 0
" " Painted four coats, and Handles on	1 8 0
" " Packed and Delivered in Railway Van	1 10 0
6 ft. by 8 ft., Double Lights, do.	2 15 0

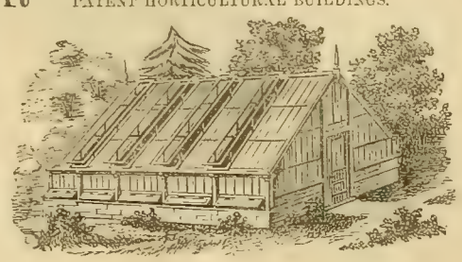
GREENHOUSES. Per ft. super.

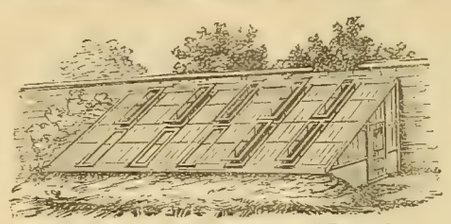
Woodwork only Prepared and Fitted	0 0 6
" Primed and Glazed with 16 oz. Sheet	0 0 9
" Delivered, and Fixed with Ironwork	0 1 0
" Painted four coats, two sides, ready for use	0 1 3

Finsbury Steam Joinery Works, 121, Bunhill Row, E.C.

FOR SALE, THREE GREENHOUSES, and a quantity of PIT and other LIGHTS, fit for immediate use, GARDEN FRAMES, &c. Apply to JAS. SMITH, Hothouse Builder, 205, King St., Hammersmith, W.

RICHARDSON'S PATENT HORTICULTURAL BUILDINGS.





These Buildings are CHEAP, PORTABLE, and EASILY FIXED.

PERFECT VENTILATION is obtained, whilst the interior of the house has complete protection from rain, wind, or a direct down-draught.

Illustrated Price Lists, containing prices of 240 different sized Houses, free on application to the Makers, enclosing a stamp for postage. Also the improved PORTABLE HOTHOUSES for the PEOPLE, cheapest ever offered. Guaranteed sound and good quality. Apply to

W. RICHARDSON AND CO., Horticultural Builders, Darlington.

HOT-WATER PIPES.
CASH PRICES.

	2-inch.	3-inch.	4-inch.
PIPES per yard	1s. 0d.	1s. 6d.	2s. 0d.
ELBOWS each	1 6	2 3	3 0
TEES "	2 6	3 6	4 6
SYPHONS "	2 6	3 6	4 6
VALVES "	10 0	11 6	13 0

No credit will be given when Pipes, &c., are invoiced at the above prices.

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6, Bankside, Southwark, London, S.E.

Price Lists, with terms for credit and for delivery at country stations, will be sent on application.

IRON GREENHOUSES CHEAPER THAN WOOD.

Beard's Patent Non-conducting and Ventilating Metallic Glass Houses.

Victoria Works, Bury St. Edmund's.



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CHARLES BEARD,

Senior Partner in the late Firm of Sanders, Frewer & Co., which Firm was dissolved by mutual consent.

The Patentee wishes to observe his Patent Houses obtained the First and only Prize at the Royal Horticultural Congress, South Kensington, 1866;

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The Three First-class Certificates at the Royal Horticultural Show, at Bury St. Edmund's, 1867, viz.:—One Prize for Patent Glazing without Putty; One Prize for Best System of Patent Ventilation; One Prize for S. F. & Co.'s Improved Flower Stands.

These much-approved Patent Systems of Glazing and Ventilation are also extensively adapted for all Agricultural Buildings, Public Halls, Churches, Factories, Railway Stations, &c., &c.

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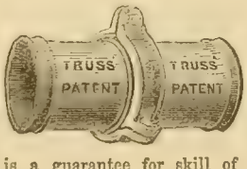
PATENT GLAZING BARS, to screw on wood, may be had separately. Full particulars for stamped envelop.

ON SALE, 200 SQUARES HARTLEY'S PATENT ROUGH PLATE GLASS, 3 feet long, 1 foot wide; price, £14 15s. Also, 500 SQUARES good SHEET GLASS, 9 inch by 12 inch; price, £3 10s. 6d. All well packed, and delivered to the Railway Station. G. B. WANSBROUGH, Barrow-in-Furness.

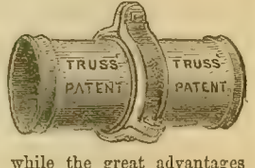
PORTABLE AND FIXED HOT-WATER APPARATUS,

FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH

TRUSS'S PATENT UNIVERSAL FLEXIBLE AND LEAKLESS PIPE-JOINTS.



T. S. TRUSS



Begs to state that the immense number of APPARATUS annually Designed and Erected by him in all parts of the kingdom, and for the ROYAL HORTICULTURAL SOCIETY at SOUTH KENSINGTON and CHISWICK, with unrivalled satisfaction, is a guarantee for skill of design, superior materials, and good workmanship; while the great advantages obtained by his IMPROVED SYSTEM cannot be over-estimated, consisting of perfectly tight joints with neatness of appearance; EFFECTS A SAVING OF 25 PER CENT. on cost of Apparatus erected compared with other systems; facility for extensions, alterations or removals without injury to Pipes or Joints; can be erected by any Gardener; an ordinary size Apparatus erected in one day; and PERFECTNESS of DESIGN SUPPLIED, INSURING NO EXTRAS. Complete Apparatus, of the best materials, delivered to any Railway Station in England, and Erected at the following prices. Erection beyond 25 miles of London, railway fare for one man additional. Considerable reduction on large works.

TWO FOUR-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
20 feet by 10 feet	£9 0 0	£2 0 0	50 feet by 15 feet	£17 10 0	£3 0 0
30 feet by 12 feet	11 15 0	2 10 0	75 feet by 15 feet	20 0 0	3 0 0
40 feet by 15 feet	15 0 0	2 15 0	100 feet by 15 feet	26 0 0	3 5 0

Bath and Gas Work erected in town or country. **The Trade Supplied.**

Price Lists, Plans, and Estimates forwarded on application to

T. S. TRUSS, C.E., CONSULTING HORTICULTURAL ENGINEER, &c., SOLE MANUFACTURER,
IRON MERCHANT, HOT-WATER APPARATUS MANUFACTURER,
AND HORTICULTURAL BUILDER,
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PORTABLE ENGINES, FROM 4 TO 25-HORSE POWER.

THRESHING MACHINES, SINGLE, DOUBLE and TREBLE BLAST,

WITH PATENT ROLLED STEEL BEATER PLATES, AND ALL OTHER RECENT IMPROVEMENTS.

PATENT ROLLED STEEL BEATER PLATES



CLAYTON AND SHUTTLEWORTH, Sole Licensees and Manufacturers.

These Plates have been thoroughly tested, and are found to wear more than three times as long as the Malleable Iron Plates hitherto in use. C. & S. are prepared to supply Threshing Machine Owners and the Trade in any quantity.

CLAYTON AND SHUTTLEWORTH,
STAMP END WORKS, LINCOLN, and 78, LOMBARD STREET, LONDON, E.C.
Catalogues on application, Free by Post.

SHAW'S TIFFANY.
For Samples and Prices apply to
J. SHAW AND CO., 29, Oxford Street, Manchester.

SCRIM CANVAS, 72 inches wide, from 7½d. per yard; and HESSIAN, 71 inches wide, at 7½d. per yard, is the best and cheapest material for Protecting Fruit Trees or Shading Greenhouses. Samples forwarded on application.
BLIND TICKING, SAIL CLOTH, and TORPAR SHEETING at the lowest prices.
Estimates given for outside SHOP BLINDS, fitted on the improved self-acting spring roller.
JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London.

SEED BAGS and SACKS, and BAGS of every description in use, supplied at the lowest possible prices. ARCHANGEL and TAGANROG MATS of good quality, for Covering, Tying, or Shading; also Petersburg and Russian DUNNAGE MATS. Price-list forward post free on application.
JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London.

CAPES, TARPAULINGS, &c.—Waterproof Capes for Gardeners, Gamekeepers, Watchers, Carters, and Farm Servants, 3 feet deep, 1s. and 1s. 6d.; Policemen's Capes, 1s8., 1s9., and 2s8. per dozen; Stone Leggings, 2s. and 2s. 6d.; Pony Loin Cloths, 1s.; Horses' do., 1s. 6d.; cloth, lined with Woollen, and Strapped, 5s. 6d. Garden Tarpaulings, 6 feet by 4 feet, 21s. per dozen; Second-hand Tarpaulings, re-dressed, large and small, 1d. per square foot.
N.B. NEW TARPAULINGS, 1s. and 2s. per square yard.
R. RICHARDSON, 99, Euston Road, London, N.W.

SUNDRIES.—HAND LIGHTS for Gardens, 20 in. by 10 in., 11s. per dozen; 24 in. by 20 in., 21s.—pack 4 ft.—glass more than ¼ of an inch thick. 1500 RAILWAY CARRIAGE WINDOWS, in Mahogany Frames, Plate Glass, 4d. per square foot. 300 yards of STRAINED WIRE FENCING, IRON STANDARDS and BOLTS, 6 Wires, £12. TOOL HOUSE, 6 ft. by 6 ft. £1 10s.; 6 ft. by 4 ft., £2. POULTRY HOUSE, 6 ft. by 4 ft., £3. PORCH, 5 ft. by 5 ft., £3. GARDEN TRELLIS FENCES of Wood, 3½ diamond, 2d. per square foot, 3 ft., 3 ft. 6 in., and 4 ft. high; carriage paid, 2½d. per foot. ORNAMENTAL WINDOW FLOWER BOXES, 2s. 6d. per foot, 8 inches deep. ORNAMENTAL FLOWER POTS, 4s. each, for Tables and Conservatories. PAINTED CHURCH WINDOWS, and HOUSE and CONSERVATORY WINDOWS.
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TRY MECHI'S SHILLING RAZORS, Shilling Penknives, Shilling Scissors, Ninepenny and Sixpenny Toothbrushes, his Magic Strop and Paste, his Table Cutlery, his Dressing Cases, Dressing Bags, Despatch Boxes, and a host of fancy and elegant Wares suitable for Wedding Presents or Birthday Gifts.
No. 112, Regent Street, W. Catalogues post free. Quality first-rate. Prices moderate.

COAL SCOOPS.—WILLIAM S. BURTON has 400 different Patterns of COAL SCOOPS on SHOW, of which he invites inspection. The prices vary from 1s. 9d. to 150s.
Plain black open Scoops from 1s. 9d.; do. do., zinc-lined, from 4s. 6d.; covered Box-scoops, from 4s. 6d.; do., with Hand-scoop, from 10s. 6d.; do. do., with fancy gold ornamentation, from 15s.; highly finished and ornamented, and fitted with imitation ivory handles, from 30s. to 150s.
There is also a choice selection of WOODEN COAL BOXES, with iron and brass mountings.
WILLIAM S. BURTON confidently asserts his to be the largest, and at the same time the best and most varied, assortment in the world.

WILLIAM S. BURTON, GENERAL FURNISHING IRONMONGER, by appointment to H.R.H. the Prince of Wales, sends a CATALOGUE gratis and post-paid. It contains upwards of 700 Illustrations of his unrivalled Stock of

Electro-plate.	Table Cutlery.
Britannia Metal Goods.	Clocks and Candelabra.
Dish Covers, Hot-water Dishes.	Baths and Toilet Ware
Stoves and Fenders.	Iron and Brass Bedsteads.
Marble Chimney-pieces.	Bedding and Bed-hangings.
Kitchen Ranges.	Bedroom Cabinet Furniture.
Lamps, Gasoliers.	Turnery Goods.
Tea Trays, Urns and Kettles.	Kitchen Utensils, &c.

With Lists of Prices, and Plans of the Twenty large Show Rooms, at 39, Oxford Street, W.; 1, 1a, 2, 3, and 4, Newman Street; 4, 5, and 6, Perry's Place; and 1, Newman Yard, London.

WM. DILLISTONE,
HORTICULTURAL AUCTIONEER and VALUER,
Sible Hedingham, Essex.

THE GOODWILL and BUSINESS of H. BROWN, SEEDSMAN, Liverpool, to be disposed of; or, a PARTNERSHIP can be arranged. For particulars, apply to
S. D. WORSHIP, Esq., Solicitor, Liverpool.

North Road Nursery, Sleaford, Lincolnshire.
TO BE LET, in consequence of the present Proprietor, Mr. F. Warwick, being obliged to retire through ill health. The Stock will be found clean and healthy, and every advantage will be given to keep the existing first-class connection. The whole to be taken at a fair valuation.—An inspection solicited.

TO BE LET, for a Term of Years, a NURSERY, SEED, and FLORIST BUSINESS, doing a good trade. Established 10 years; close to a Town and Railway Station. There is a good Stock of Plants, Forest Trees, Evergreens, and other Plants and Shrubs, all well transplanted and movable. There are Vineries, Plant Houses, and Pits—Propagating, &c.; and every convenience for doing a large trade. Satisfactory reasons given for leaving. Price £1000, or at Valuation.
May be viewed at any time on application to Mr. R. WILLIAMS, Corve Street, Ludlow, Salop.

Sales by Auction.

THE ANNUAL AUTUMN SALE of FOREST and FRUIT TREES, CONIFERÆ, EVERGREEN SHRUBS, &c., will take place at the King's Acre Nurseries, near Hereford, on TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY, October 12, 13, 14, and 15. The Stock to be offered for Sale will comprise a choice assortment of Specimen Conifers, from 3 to 10 feet in height; Choice Evergreens and other Shrubs, of various sizes; Standard, Pyramid, and Dwarf-trained Pears, Plums, Peaches, Nectarines, &c.; also,

30,000 transplanted English Oak, 2 to 4 feet	3,000 transplanted Laurels
50,000 do. Ash, 2½ to 5 feet	5,000 do. Pinus austriaca, 3 to 4 ft.
60,000 do. Hawthorn Quick, 2 to 3½ feet	4,000 do. Privet
40,000 do. Larch Fir	2,000 do. Rhododendrons, choice named varieties, ponticums and hybrids
5,000 do. Scotch Fir	1,000 do. extra strong English Yew
5,000 do Spruce Fir, 2 to 3½ feet	

Beech, Sycamore, Hornbeam, Hazel, Poplars, &c., together with a general assortment of new Conifers, new Aucubas, and other choice and rare plants.
Catalogues may be had one week prior to the Sale, on application to the Nurseries; or to the Auctioneer, Mr. EDWIN H. SUNDERLAND, Saint Owen Street, Hereford.
JOHN CRANSTON, Proprietor.

Isleworth, Middlesex.
To GARDENERS, NURSERYMEN, FRUIT-GROWERS, and OTHERS.

MR. CHARLES NEWMAN has been favoured with instructions from Mr. John Wilmot to SELL by AUCTION, on the Premises, Sion Lane, Brentford End, Isleworth, Middlesex, on TUESDAY, October 19, at 11 o'Clock, the Surplus Stock of 30,000 2-yr. and 3-yr. FRUIT TREES, in a most healthy condition. They have been propagated under the Owner's immediate superintendence, and consist of the best sorts in about 6260 Apples, 3180 Pears, 9620 Plums, and a few Cherries; also 9900 Red, and 1100 White Currants, 2-yr. and 3-yr., of the best and choicest sort.
May be viewed the day previous and morning of Sale, by applying to Mr. CHAPMAN, at Mr. Wilmot's, Brentford End, Isleworth. Catalogues may be had at the Chequers Inn, Uxbridge; Conch and Horses and Rose and Crown Inns, Brentford End, Isleworth; and at the Auctioneer's Offices, Church Farm, Harlington, Middlesex.

Bulbs and Plants.
MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, on WEDNESDAY, October 13, at half-past 12 o'Clock precisely, Choice HYACINTHS; TULIPS, CROCUSES, NARCISSUS, IRIS, GLADIOLI, RANUNCULI, SNOWDROPS, and other Bulbs, just arrived from Holland; CARNATIONS, PICOTEES, PINKS, AURICULAS, GAZANIAS, DAISIES, VIOLETS, STRAWBERRY PLANTS, &c.
On view the morning of Sale, and Catalogues had.

Established Orchids.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, October 15, at half-past 12 o'Clock precisely, choice ESTABLISHED ORCHIDS, in good health, comprising—

Phalænopsis grandiflora	Aërides Fieldingii
,, Schilleriana	,, nobile
,, amabilis	Odontoglossum Blumii
,, roseum	,, Phalænopsis
Stanhopea Hollordiana	,, triumphans
Cymbidium eburneum	,, Alexandra

&c. &c. &c.
On view the Morning of Sale, and Catalogues had.

Royal Nursery, Bagshot, Surrey.
MR. J. C. STEVENS begs to announce that he has received instructions from Mr. Hannay to SELL by AUCTION, on the Premises, The Royal Nursery, Bagshot, Surrey, on THURSDAY, October 21, at 1 o'Clock precisely, SPECIMEN CONIFERS and ORNAMENTAL SHRUBS, consisting of Cedrus Deodara, Cupressus Lawsoniana, Cephalotaxus Fortunei, 3000 Laurels, 2000 Privet, 500 Cotoneasters, 150 Rhododendrons, 1000 Currant and Gooseberry Bushes, 500 Poplars, 40 Acacias, &c., all moved within the last 2 years; 50,000 1-yr. and 2-yr. Chestnuts and Oaks. Also a quantity of plants in pots, consisting of Retinospora pisifera aurea, Euonymus, Ligustrums, Osmanthus, Bambusas, Aucubas, Tacsonias, Skimmias, Hydrangeas, Erythrinas, Clematis, Echeverias, 350 Camellias, 300 Coleus, Lomarias, and other Ferns, Sikkim Rhododendrons, &c.
On view the day prior, and morning of Sale, and Catalogues had on the Premises, and of Mr. J. C. STEVENS, Horticultural Auctioneer and Valuer, 38, King Street, Covent Garden, W.C.
A Van will meet the mid-day train to convey parties to the Sale, and Lunch will also be provided.

Large Sale of a First-class Herd of Shorthorns in Ireland.
MR. JOHN THORNTON will SELL by UNRESERVED AUCTION, on WEDNESDAY, October 13, at Miltown House, Clonmellon, near Kells, County Meath, Ireland, the entire HERD of PURE-BRED SHORTHORNS, belonging to P. J. Kearney, Esq. It consists of Sixty Head of exceedingly well-bred Animals, the majority of which trace direct to the celebrated Chilton Stock sold in 1829, the most numerous families being the Britannia's and Louisa's descendants of No. 8 and No. 2 respectively. There are also some pure Booth animals of the Mantalini tribe, and the Sires for the last 10 years have been Bulls of Booth blood, some of which were hired from Mr. Booth, and the others from Mr. Barnes and Lady Pigot. The Stock are very healthy, and are reared in a fine district.
Catalogues may be had of JOHN THORNTON, 15, Langham Place, London, W.; or at the Farm.

MR. ORLANDO SHELLARD will SELL by AUCTION, at the White Cross Nurseries, Hereford, on THURSDAY, FRIDAY, and SATURDAY, October 14, 15, and 16, commencing at 12 o'Clock each day, fine STANDARD and DWARF ROSES, SPECIMEN CONIFERS, FOREST TREES, and EVERGREEN SHRUBS, in great variety. The Stock to be offered comprises—

6,000 choice Standard and Dwarf Roses [pots	100,000 strong Ash
1,000 New Roses of 1869, in	15,000 Scotch Firs
120,000 Transplanted Larch (1½ to 2½ feet)	15,000 Spruce Firs
150,000 strong Hawthorn Quick	10,000 Austriaca Firs
	15,000 Common Laurels
	3,000 Cider Apple Trees

Also a large number of other Trees, including Pot Vines, Rhododendrons, Arbor-vitæ, Pyramid Yews, Portugal Laurels, Laurustinus, Oak, Privet, &c., all frequently transplanted, and in the finest condition, for which these Nurseries are celebrated.
Catalogues to be had the first week in October, at the Nurseries, or at the Auctioneer's Offices, 13, King Street, Hereford.
GEORGE DAVISON, Proprietor.

To Nurserymen, Gentlemen, Builders, and others.
POTTERS BAR, 12 minutes' walk from the Great Northern Railway Station.
NOTICE.—The GREAT TRIENNIAL SALE of SHRUBS, TREES, CONIFERS, &c, including the most popular kinds of sorts; Arbor-vitæs, Thujopsis, Cedars of sorts, Piceas of all kinds, Pinus of sorts, 3000 Larch, 2000 Spruce, Scotch, Weymouth; 4000 fine Laurels, 3000 strong Quick, Fruit Trees of sorts, Aucubas, Arbutus, Cupressus, Taxodiums; 40 pairs of Irish Yews, with Common ditto; Oak, Elm, Mountain and other Ash; Creepers, Dwarf and Standard Roses, Rhododendrons of sorts; Azaleas, &c.—by Messrs. CLAYTON AND KEMP, on FRIDAY and SATURDAY, October 15 and 16, at 11 for 12 o'Clock, on account of the number of lots.
By order, JAMES BUTTERFIELD, Proprietor.

Periodical Sale of Pure-bred Hereford Cattle.
MR. DUCKHAM has the pleasure of announcing that he has received instructions to SELL by AUCTION, at his First Periodical Sale, to be held in the Showyard at Hereford, on THURSDAY, October 21 (being the day after the Show of the Herefordshire Agricultural Society, and Great October Fair), upwards of 100 Head of BULLS, COWS, and HEIFERS, from the Herds of the following celebrated Breeders:—

Rev. A. Clive, Whitfield	Mr. J. Williams, Kingsland
J. Rankin, Esq., Bryngwyn	,, T. Fenn, Downton
Tomkyns Dew, Esq., Whitney Court	,, J. Harding, Bicton House, Salop
Mr. W. Tudge, Adforton	,, A. Rogers, The Rodd
,, B. Rogers, The Grove	,, J. Rawlings, Stoke Tenbury
,, P. Turner, The Leen	,, E. Tanner, Aynthee House, Salop
,, T. Edwards, Wintercott	,, H. Gibbons, Hampton Bishop
,, T. S. Bradstock, Cobrey Park	,, E. Tudge, Credenhill
,, H. Griffiths, Davoreux Wootton [morgan	,, T. Nott, Brampton Bryan
,, W. S. Powell, Taibach, Glamorgan	,, J. Bennett, Ingeston
,, R. Chutson, Llanwarne	,, R. Hill, Orleton Court
,, J. Wigmore, Bickerton Court	,, H. R. Evans, Swanstone Court
,, J. Williams, Stretford Bury	

Full particulars will appear in Catalogues, to be obtained at the Offices of the Auctioneer, 50, Broad Street, Hereford.

Castle Nursery, Brox, near Chertsey, Surrey,
About 1¼ mile from the Chertsey, Woking, and Addlestone Stations, on the South-Western Railway.
MESSRS. WATERER AND SONS have received instructions from the Executrix of the late Mr. W. Heade to SELL by AUCTION, on the Premises, Castle Nursery, on MONDAY, October 25, and following days, at 11 for 12 o'Clock precisely, the whole of the exceedingly valuable NURSERY STOCK, comprising 4000 Variegated Hollies, 15,000 Green Hollies, 1500 Aucubas, 2500 Portugal Laurels, 1500 Common Laurels, 3000 Arbor-vitæ, 2000 large Birch, 400 large Weymouth Pines, 500 large Spruce Firs, 300 fine Silver do., 200 Hemlock Spruce, 2000 Conifers, 5000 Rhododendrons, 2600 Dwarf and Standard Roses, 250 Azaleas, 2000 Yews, 400 Thujii, 800 Laurustinus, 400 Arbutus, 4500 Dwarf-trained and Standard Fruit Trees (named), 4200 Fruit Stocks, various; 2000 Variegated Box and Box Edging, about 100 lots of valuable choice mixed Shrubs, and Specimen Plants fit for immediate and ornamental planting, and a variety of other Stock. The Auctioneers beg to call the special attention of Gentlemen, Nurserymen, and others to this Stock; the whole is remarkably good, and in a safe state for removal. Also the Erection of TWO GREENHOUSES heated with hot water, Valuable Horse, Light nearly new Spring Van, Dung Cart, Nursery Cart, Harness, Garden Lights, and other effects.
May be viewed seven days previous to the Sale. Catalogues had on the premises, and of Messrs. WATERER AND SONS, Auctioneers and Valuers, Chertsey, who will forward them on application by post.

Bitterne, near Southampton.
To GENTLEMEN, NURSERYMEN, GARDENERS, and OTHERS.
MR. W. ABRAHAM begs to inform persons intending to Plant that he has received instructions to SELL by AUCTION, in the Grounds of the Red Lion Hotel, Bitterne, near Southampton, on THURSDAY, October 21, at 12 o'Clock punctually, a large quantity of choice EVERGREEN and DECIDUOUS TREES and SHRUBS, Standard, Trained, Dwarf, and Pyramidal FRUIT TREES, named kinds; about 2000 strong QUICK, Standard and Dwarf ROSES, Hardy CREEPERS, PRIVET, &c.
Catalogues free by post on application at the Hotel, or of Mr. W. ABRAHAM, Horticultural Auctioneer, Valuer, &c., Goldworth Nurseries, Woking, Surrey.

Wonersh Nurseries, Surrey.
HIGHLY IMPORTANT SALE of SURPLUS NURSERY STOCK.
MR. W. ABRAHAM begs to announce that he has received instructions from Messrs. W. Virgo & Son, of the Wonersh Nurseries, near Guildford, Surrey, to SELL by AUCTION, on the premises, on MONDAY, October 25, and four following days, at 11 for 12 o'Clock punctually each day, a fine COLLECTION of specimen CONIFERÆ, ORNAMENTAL EVERGREEN and DECIDUOUS TREES and SHRUBS, all in the best possible health, and well adapted in new grounds to produce an immediate effect. They consist of Araucaria imbricata, 4 to 6 feet; Weymouth Pine, 4 to 8 feet; Cedars of Lebanon, 9 feet; Balm of Gilead Fir, 8 feet; American Arbor-vitæ, 10 to 12 feet; Cryptomeria japonica, 8 to 10 feet; Red Cedars, 8 feet; China Arbor-vitæ, 6 to 7 feet; Siberian ditto, 5 to 6 feet; English and Irish Yew, 5 to 6 feet; Pinus excelsa, 6 to 8 feet, &c; 2000 Portugal Laurel, 3 to 8 feet; Lombardy, Italian and Ontarian Poplars, 8 to 15 feet; Scarlet and Turkey Oak, 6 to 7 feet; Silver Birch, 8 to 10 feet; Spanish Chestnut, 7 feet; Mountain and Common Ash, 7 to 8 feet; Hornbeam, 5 to 10 feet; Weeping Ash, Standard Laburnums, Sycamore, 8 to 10 feet; English Oak, 8 to 10 feet; 10,000 Common Laurel, all sizes; Tree Box, splendid bushes; Limes, English Elm, 10 feet; Scarlet Maple, 12 feet; Walnuts, Sweet Bay, &c. Also upwards of 3000 Standard, dwarf, and pyramidal APPLE, Pear, Plum, Cherry, Quince and Medlar Trees, Gooseberry and Currant Bushes; also FOREST TREES, including 10,000 Spruce Fir, 2 to 4 feet; 20,000 Larch, 2 to 3 feet; 30,000 Spanish Chestnuts, 2 to 3 feet; 50,000 Ash, 2½ to 4 feet; 60,000 Scotch Fir, 1½ to 2½ feet; 10,000 Pinus austriaca, 2 to 4 feet; 10,000 Berberis aquifolia, 500,000 Strong Quick, 6000 Manetti Rose Stocks, Standard, Dwarf and Climbing Roses, Seedling Hazel, strong Grape Vines in pots, Green Holly, &c.
The Nurseries are situated 1¼ mile from the Bramley Station on the Guildford and Horsham branch of the London, Brighton and South Coast; 2½ miles from the Shalford Station on the South-Eastern, and 4 miles from the Guildford Station on the London and South-Western Railways.
For the convenience of purchasers any lots can remain upon the ground until December 13, following the Sale.
May be viewed, and Catalogues (free by post) obtained one week prior to the Sale, at the Nurseries, White Lion and White Hart Hotels, Guildford; White Lion, Cobham; Sun, Chobham; Talbot, Ripley; Albion, Woking Station; and of
Mr. W. ABRAHAM, Horticultural Auctioneer, Valuer, &c., Goldworth Nurseries, Woking, Surrey.

Richmond, Surrey.
HIGHLY IMPORTANT SALE of VALUABLE NURSERY STOCK.
MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Mortlake Nursery, adjoining the Gasworks, Richmond, Surrey—10 minutes' walk from the Richmond Station, South-Western Railway—on MONDAY, October 25, and three following days, at 12 o'Clock precisely each day, by order of Messrs. G. & W. Steel (without reserve), the following valuable NURSERY STOCK, comprising 10,000 fine bushy Aucubas, 1 to 4 feet; 2000 Cupressus Lawsoniana, 1 to 8 feet; 1500 Laurustinus, 1000 Cedrus Deodara, 12 to 18 inches, and specimens, 6 to 8 feet; 4000 Green Hollies, 18 inches to 5 feet; 1000 Araucaria imbricata, 18 inches to 3 feet; 1000 English Yews, 2 to 6 feet; 6000 Variegated Hollies, 1 to 5 feet; 1500 Picea Pinsapo, 9 to 18 inches; 800 very fine Wellingtonia gigantea, 1 to 6 feet; 400 Cotoneaster, sorts, 1 to 3 feet; 2000 Thujopsis borealis, bushy; 1000 Lilacs, 600 Euonymus, 400 Irish Yews, 500 Juniperus chinensis, 3 to 4 feet; 300 Arbutus, 2 to 4 feet; 600 specimen Thuja aurea, 2 to 4½ feet, very handsome; Berberis, sorts; Bays, Portugal Laurels, large Phillyreas, and many other choice Evergreens; 5000 Standard and Dwarf Roses, of the finest sorts; Poplars, Laburnums, Copper Beech; 600 Standard Thorns, sorts; 700 Dwarf Moss Roses, also a large quantity of clean grown Fruit Trees; 3 magnificent specimen Wellingtonia gigantea, 15 to 20 feet high, &c.
☞ P. & M. respectfully inform the Public that the Stock is unusually healthy, and in excellent condition for removal, the whole of it having been transplanted within two years, and the greater portion of it last spring.
May be viewed previous to the Sale. Catalogues, when ready, can be obtained of Messrs. G. & W. STEEL, Home Nursery, Kew Road, Richmond; and of the Auctioneers and Valuers, Leytonstone, Essex, N.E.

Surrey.—Windlesham, near Bagshot.
EXTENSIVE SALE of VERY VALUABLE NURSERY STOCK
MESSRS. PROTHEROE AND MORRIS have received instructions from Messrs. Geo. Baker & Son to SELL by AUCTION, without reserve, on the Premises, the American Nursery, Windlesham, Surrey, 10 minutes' walk from the Sunningdale Station, on the South-Western Railway, on TUESDAY, November 2, and three following days, at 12 o'Clock each day, the following valuable NURSERY STOK, including many unusually grand and effective Specimens, from 6 to 15 feet, carefully prepared for removal, comprising Cedrus Deodara, Picea nobilis, Pinsapo, lasiocarpa, and Nordmanniana; Araucaria imbricata, Pinus macrocarpa, Thuja gigantea, Warreana, Lobbii, and chinensis; Wellingtonias, Irish Yews, Standard Variegated Hollies; likewise 4000 Variegated Hollies, 9 inches to 2 feet; 2000 Portugal Laurels, 1 to 4 feet; 1000 Thujopsis borealis, 5000 Common Laurels (bushy), 2000 Aucuba japonica, thousands of Thuja Lobbii, Retinospora pisifera and obtusa, Thujopsis dolabrata variegata, Thuja gigantea and Warreana, Standard worked Irish Yews, 10,000 Cupressus Lawsoniana, 5000 Deutzia crenata flore-pleno, 2000 Variegated Ivies, 200 Ligustrum coriaceum (in pots), 500 Mrs. Pince's Muscat Vine, 1000 New Clematis, 500 Picea nobilis (seedlings), Standard worked Osmanthus of sorts, a large quantity of Yucca flaccida, Cotoneasters Double Furze, Gladiolus, &c.; 15,000 AMERICAN PLANTS, comprising 3000 best named Rhododendrons, 1 to 3 feet, fine furnished plants, many of which are well set with bloom buds; 3000 Rhododendron ponticum (bushy), 2000 Ghent and Hardy Azaleas, 2000 Taylor's Red Azaleas, 1000 Kalmia latifolia; also a large quantity of fine Standard Rhododendrons, Ericas, &c.; 2000 Standard and Dwarf ROSES, with a quantity of Roses in pots, &c.
May be viewed until the Sale. Catalogues may be had on the premises, and of the Auctioneers and Valuers.

Prebendal Farms, Aylesbury.
IMPORTANT SALE OF SHORTHORNS.
MR. STRAFFORD is instructed to announce for SALE by AUCTION, without reserve, on TUESDAY, October 19 next, at the Prebendal Farms, Aylesbury, the very select HERD of pure-bred SHORTHORNED CATTLE, belonging to John K. Fowler, Esq., which consists of about 40 Head of Bulls, Cows, and Heifers, chiefly of Fawsley blood, with Kirklevington crosses. Amongst them will be found some very desirable animals descended from Catalina, Charmer, Cold Cream, Walnut, Fantail, Seraphina, and other favourite sorts. The sire now in use is Hardicanute, bred by Mr. Adkins, of Milcote.
Catalogues, with Pedigrees, may be had on application to Mr. STRAFFORD, 13, Euston Square, London; or of Mr. FOWLER, at Aylesbury.

Important Sale of Shorthorns at Northway Farm,
Close to the First-class Station of Ashchurch, on the Midland Railway, between Birmingham and Gloucester.
MR. STRAFFORD has received instructions, from Wm. Woodward, Esq., to announce for SALE by AUCTION, without reserve, on WEDNESDAY, October 27 next, FIFTY HEAD of BULLS, COWS, and HEIFERS, from his old and well-established HERD of SHORTHORNS, which have been carefully bred for the last 40 years. This is the first portion, and will be followed by a still larger one in the Spring, in consequence of Mr. Woodward having given up one of his Farms, and being overstocked.
Catalogues, with Pedigrees, may be had on application to Mr. STRAFFORD, 13, Euston Square, London; or of Mr. WOODWARD, at Hardwicke Bank, near Tewkesbury.

HOT-WATER APPARATUS of every description, fixed complete in any part of the country, for Warming Greenhouses, Conservatories, Forcing Pits, &c.
Plans and Estimates on application.
J. JONES AND SONS, 35, King Street, Cheapside, London, E.C.
Manufactory, 6, Bankside, Southwark.

CRANSTON'S PATENT GLASS BUILDINGS for HORTICULTURE. Plans and Estimates free.
Just Published, free for 36 stamps, Third Edition, DESCRIPTIVE BOOK, splendidly Illustrated from existing Buildings. By the Author and Patentee, JAMES CRANSTON, Architect, Temple Row West, Birmingham. H. J. GROWTAGE, Manager.

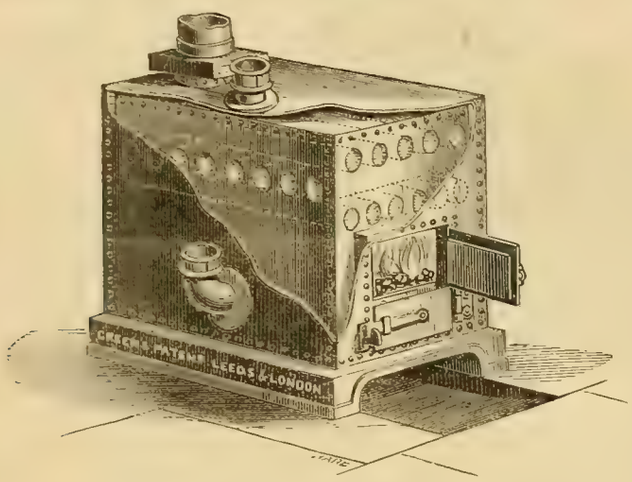
SIR J. PAXTON'S PATENT HOTHOUSES for the MILLION, are cheap, substantial, and easily fixed.
Illustrated Price Lists, with sizes, &c., free on application.
ESTIMATES given for CONSERVATORIES, HEATING APPARATUS, &c. A HANDBOOK of VINE and FRUIT-TREE CULTIVATION, post free, 13d.
HEREMAN AND MORTON, 7, Pall Mall East, London, S.W.
Works in London, Gloucester, Coventry, and Scotland.

VIRGIN CORK for GROTTOES, FERNERIES, and SUMMER HOUSES, on SALE, by the LONDON and LISBON CORKWOOD COMPANY (Limited), 28, Upper Thames Street, E.C. AGENTS WANTED for Country Towns.

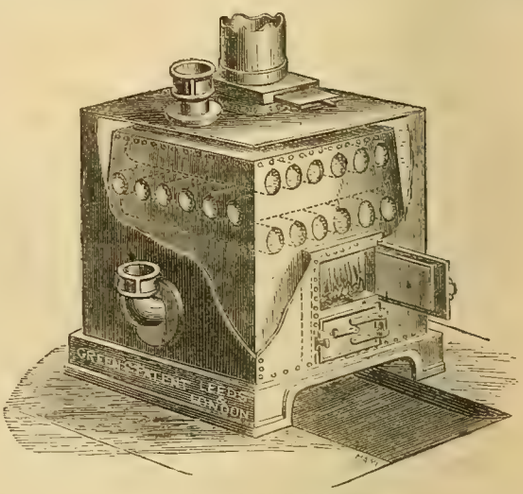
By Royal Letters Patent.
G. SHREWSBURY'S NONPAREIL GAS BOILER, for Heating Conservatories, Propagating, and Fern Cases, Coach Houses, Halls, Public Buildings, &c., from 45s. Approved of by all purchasers. Prices and testimonials on application. Enclose stamp. G. SHREWSBURY, Lower Norwood, S.

VINERIES and HOTHOUSES of Wrought Iron, with Heating Apparatus complete. Eight separate Houses, covering 300 square yards. Must be cleared in six weeks. Price £175.
THOS. GREEN, 137, Warwick Street, Leamington.

GREEN'S PATENT IMPROVED TUBULAR HOT-WATER BOILERS



OBLONG BOILER.



SQUARE BOILER.

THE ABOVE BOILERS ARE

THE MOST EFFECTIVE AND DURABLE EVER INVENTED.

They can be set to work at a nominal cost, inasmuch as no brickwork is required; as will be seen from the above drawing, they are placed upon a Cast-Iron Sole-plate, which answers the purpose of Foundation and Ashpit.

From the peculiar and substantial manner in which these Boilers are made, they are warranted to last for years without getting out of order; in fact, we guarantee them for ten years, but feel convinced that they will serve all the purposes for which they are intended for a much longer period.

They are specially adapted for Heating Greenhouses, Churches, Chapels, Schools, Public Buildings, Entrance Halls, Warehouses, Workshops, &c.

THE FOLLOWING ARE THE ADVANTAGES OF THESE BOILERS:—

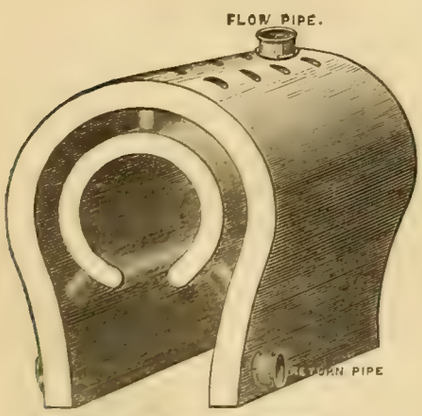
1st, They require no setting in brickwork.
2d, They are complete in themselves, having perfect means of regulation.
3d, They take up little room, and can be put in places inaccessible to other Boilers.
4th, They are economisers of fuel, owing to the great amount of heating surface upon which the fire acts in a direct manner, and the consumption of smoke.
5th, The fire can be made to last from 12 to 24 hours without attention.
6th, Any number of Flows and Returns can be annexed to the Boilers by means of T-pipes.
7th, By means of mud doors, they can be readily cleaned out when required.
8th, The Chimney is made of cast-iron, which can either be taken through a roof or turned into a flue, to meet the convenience of the situation that it may be fixed in.

☞ *PRICE LISTS ON APPLICATION.*

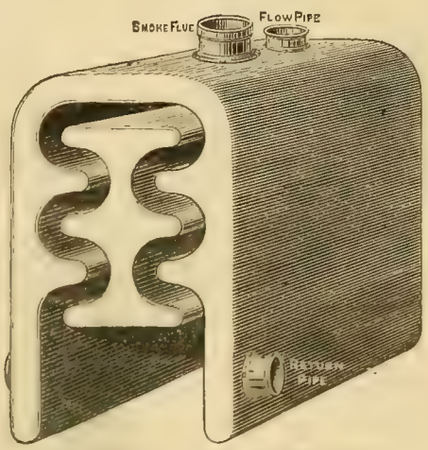
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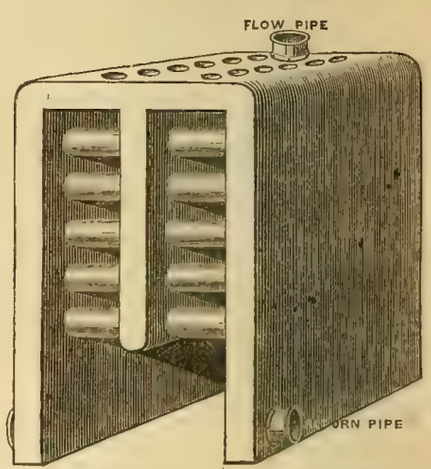
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STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

Editorial Communications should be addressed to "The Editor," Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 42.—1869.] SATURDAY, OCTOBER 16. {Price Fivepence. {Stamped Edition, 6d.

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NOTICE to ADVERTISERS.—In answer to constant inquiries, the Proprietors have fixed the following SCALE of CHARGES for ADVERTISING:—

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To the Trade.

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Two Thousand ROSES, MARÉCHAL NIEL, strong and healthy plants. Standards, £6 per 100; Half-Standards, £5; Dwarfs, in pots, £4. A great many other sorts.

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Gladioli.—Roses.

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Ussy (Calvados), France.—September, 1869.

To the Trade.—Lilium lancifolium.

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A special arrangement where large quantities are wanted. Early orders solicited by

JEAN VERSCHAFFELT, 131, Faubourg de Bruxelles, Ghent, Belgium.

Laurus latifolius

(CERASUS LAUROCERASUS, var. LATIFOLIA).

L. PAILLET, NURSERYMAN, Chatenay les Sceaux, near Paris, France, offers to the Trade for the first time his splendid new LAURUS, obtained from seed, between a seedling of Laurus colchica and caucasica. The immense size of its beautiful deep green foliage, its great hardiness and rusticity, combine to make this novelty the most valuable of ornamental Evergreen Shrubs for Parks and Gardens. After having been planted in the open air for two years, the leaves of this variety attain a length of from 11 to 12 inches, and a width of from 4 to 5 inches. Price 12s., 18s., 20s., and 30s. per plant, according to size. One plant over, sent gratis, when six are ordered. An Engraving and further particulars will be sent on application by prepaid letter.

All kinds of new and other ROSES, disposable in large quantities, at low prices.

Special culture of FRUIT TREE STOCKS, Young SHRUBS, and FOREST TREES, disposable in immense quantities at very low prices.

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Azalea Indica.

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482. MADAME ALEX. HARDY (VAN HOUTTE).—Very large and finely formed flowers of rosy orange with broad violet spot shading to a beautiful amaranth, which entirely covers the three upper petals. A variety of first quality.

501. MADAME ALEX. VAN LANGENHOVE (VAN HOUTTE).—Charming variety, very effective. Ground white, with transparent edges, the whole flower broadly flaked, similar to a Carnation, barred and speckled with bright rose shading to deep red, spot of lightest rose. A new variety of first quality.

485. MADAME CAMILLE VAN LANGENHOVE (VAN HOUTTE).—Stock white, a number of the flowers are barred with salmon, while others are striped with pale rose and carmine; all these markings may be observed more or less on the same flowers. The whole of the petals are transparent with green, shaded off to a deeper yellow, and spotted with rose. A very beautiful and effective variety.

487. MADAME LOUIS LEFEBVRE (VAN HOUTTE), ("Flore," xviii., Nos. 1, 2, 3).—Flowers large, double and constant; dark orange, with very broad [illegible], charmingly enlivened by a slender [illegible] the whole of the upper petals and edged with pale rose. A variety of first quality.

213. MADAME LOUIS VAN HOUTTE (LOUIS VAN HOUTTEN).—NEW—L. VH. is the perpetual-flowering stock of this fine variety. Of medium form, with smooth and rounded petals, of good appearance; white, broadly [illegible] with clear saturated flesh and crimson.

482. MADEMOISELLE LEONIE VAN HOUTTE (VAN HOUTTE), ("Flore," xviii., Nos. 1, 2, and 3).—Very fine variety, flaked with rose and marbled with [illegible] on a pale yellow. Medium size and form.

486. MADEMOISELLE MARIE LEFEBVRE (VAN HOUTTE).—White flowers, of an extraordinary size, of excellent form, somewhat similar to [illegible].

488. MADEMOISELLE MARIE VAN HOUTTE (VAN HOUTTE), ("Flore," xviii., Nos. 1, 2, and 3).—Large semi-double flowers, colour [illegible], striped, flaked and [illegible] with rose, salmon, resembling a Carnation; petals [illegible] and finely notched.

Price of The Collection of 5 Varieties:

Medium-sized plants, 3 feet £5 0 0
" " 2½ " 3 0 0
Extra size for purchaser, each 0 15 0

To the Trade.

CHRYSANTHEMUMS of 1869.—Set of 12 varieties of Japanese Chrysanthemums, sent out by Mr. Salter, 1s. 6d.

Set of 12 varieties sent out by Mr. Forsyth this Spring, 2s.

The plants are in 3-inch pots, and will give many more cuttings than usually supplied later on. They have been struck two months, and some will have flowers on. If the three sets are taken, the price will be 5s. Flowering plants, in 5-inch pots, 6s. per dozen. Package included in all. Cuttings of any may be had at 2s. 6d. per dozen, post free. Terms cash.

WM. CLIBRAN, Mildbank Nursery, near Warrington.

A. VAN GEERT,

NURSERYMAN, GHENT, BELGIUM,

BEGS TO OFFER

THE FOLLOWING PLANTS,

Of which he has a good Stock, at the annexed reasonable Prices:—

100	CAMELLIAS, without flower buds, fine plants	£4 to £5	0 0
100	Indian AZALEAS, of sorts, with flower buds, nice plants	4 10	0
100	small LATANIA BORBONICA	1 15	0
12	large LATANIA BORBONICA	1 10	0
25	SABAL ADANSONI	0 10	0
25	CHAMÆROPS HUMILIS	0 15	0
12	CHAMÆROPS, fine plants	1 4	0
25	CHAMÆROPS SINENSIS	0 18	0
12	strong plants of THEA BOHEA	0 12	0
12	strong AGAVE AMERICANA	1 10	0
12	AGAVES, of choice sorts	1 16	0
12	SOLANUM CAPSICASTRUM, foliis variegatis	0 18	0
6	PHORMIUM COOKII	0 12	0
12	AMARYLLIS SPECIOSA	0 6	0
25	AMARYLLIS, in fine mixed varieties, flowering roots	3 3	0
6	ROEZLIA REGIA, strong plants	0 18	0
12	BONAPARTEA JUNCEA	0 18	0
12	DASYLIRION, of sorts	1 10	0
25	ARDISIA CRENULATA	0 12	0
12	BEGONIA PEARCEI, bulbs	0 9	0
12	DRACÆNA VEITCHII	0 18	0
100	DRACÆNAS, in many varieties	4 4	0
12	DRACÆNA INDIVISA, fine plants	1 10	0
24	plants CYPERUS PAPYRUS	0 8	0
12	plants STRELITZIA JUNCEA	3 3	0
50	OTAHEITE ORANGES	2 2	0
12	ORANGE TREES, on stems, fine	3 0	0
12	PASSIFLORAS, of sorts	0 12	0
12	RONDELETIA ANOMALA	0 9	0
12	LOMARIA CILIATA	0 9	0
12	LOMARIA FALCATA	0 6	0
12	CIBOTIUM PRINCEPS	1 4	0
12	DARÆA DIVERSIFOLIA	0 9	0
12	ALSOPHILA EXCELSA	0 18	0
12	ACROSTICHUM CRINITUM, strong plants	2 8	0
24	ADIANTUM, of sorts	0 12	0
24	SELAGINELLA, of sorts	0 12	0
12	ASPLENIUM VIVIPARUM	0 9	0
12	GYMNOGRAMMA, of sorts	0 12	0
12	CYCAS REVOLUTA	3 0	0
6	ZAMIAS, of sorts	3 0	0
24	ACACIAS, in varieties	0 10	0
12	BORONIA POLYGALÆFOLIA	0 5	0
12	POLYGALAS, of sorts	0 6	0
24	MAMILLARIA and ECHINOCACTUS	1 10	0
12	ECHEVERIAS, in varieties	0 12	0
12	ELÆAGNUS JAPONICA, foliis aureis marginatis	1 4	0
12	ILLICIUM RELIGIOSUM	0 18	0
12	EUGENIA UGNI	0 9	0
12	GREVILLEA ROBUSTA, for dinner-table decoration	0 9	0
6	GREVILLEA LONGIFOLIA	0 12	0
12	JASMINUM GRANDIFLORUM	0 18	0
12	JASMINUM ODORATISSIMUM	0 18	0
12	KENNEDYA, of sorts	0 9	0
24	LACHENALIA TRICOLOR	0 4	0
12	LAURUS NOBILIS, fine young stems, with heads	6 0	0
12	dwarf LAURUSTINUS, full of bud	1 4	0
12	MYRTUS BULLATA	0 9	0
12	MYRTUS COMMUNIS, flore-pleno, on stems	1 4	0
12	choice VARIEGATED ZONAL GERANIUMS	0 15	0
12	YUCCA ALOIFOLIA	0 9	0
100	GLOXINIAS, in fine mixed varieties	1 1	0
50	GLOXINIAS, named	1 5	0
25	ACHIMENES, in varieties	0 5	0
12	TYDÆAS	0 5	0
12	strong bulbs of GESNERA MEEROULT	0 18	0
12	LYGODIUM SCANDENS, the Climbing Fern	0 18	0
12	BIGNONIA ARGYRÆA VIOLACEA	0 15	0
12	CALADIUMS, fine varieties	0 18	0
12	CROTONS, in varieties	0 10	0
12	MARANTAS, of sorts	1 4	0
24	tropical ORCHIDS	3 0	0
12	PALMS, different sorts	1 4	0
24	PANDANUS UTILIS	1 0	0
100	choice hardy RHODODENDRONS, of sorts	4 4	0
20	varieties of DELPHINIUM	0 7	6
100	GYNERIUM ARGENTEUM	1 5	0
50	strong GINKGO BILOBA	1 10	0
50	small GINKGO BILOBA	0 15	0
25	GLYCINE SINENSIS	0 12	0
25	choice varieties of Chinese Herbaceous PÆONIES	0 10	0
20	ditto Tree PÆONIES	1 5	0
25	varieties of IRIS GERMANICA	0 5	0
25	OSMANTHUS, in three varieties	1 1	0
25	MAGNOLIA GRANDIFLORA	1 1	0
6	MAGNOLIA THOMPSONI, strong	0 18	0
25	MAGNOLIA TRIPETALA	0 12	0
12	MAGNOLIA MACROPHYLLA, fine	1 10	0
12	strong plants of ARUNDO DONAX, foliis variegatis	1 5	0
12	choice CLEMATIS	0 12	0
100	selected CONIFERS, of sorts	2 10	0
50	EUONYMUS, in varieties	0 15	0
24	ILEX, of sorts	1 0	0
100	LILIUM LANCIFOLIUM RUBRUM, strong bulbs	3 3	0
100	LILIUM PUNCTATUM	6 0	0
12	SKIMMIA JAPONICA	0 6	0
12	VIBURNUM MACROCEPHALUM	0 15	0
12	CHAMÆCYPARIS SPHÆROIDEA, foliis aureis	0 9	0
12	CRYPTOMERIA LOBBII, fine plants	0 9	0
50	CUPRESSUS LAWSONIANA, fine	1 1	0
12	LARIX KÆMPFERII	3 12	0
12	RETINOSPORA PISIFERA AUREA	0 15	0
50	RETINOSPORA ERICOIDES, strong	1 1	0
50	THUJA TOM POUCE, new	2 2	0
100	THUJA AUREA, fine	2 2	0
25	sorts of hardy FERNS	1 1	0
12	sorts of new AUCUBA	0 18	0
100	PERPETUAL ROSES, own roots	2 2	0
50	varieties of GLADIOLUS GANDAVENSIS.		

AGENTS,

MESSRS. SILBERRAD AND SONS,

5, HARP LANE, TOWER STREET, LONDON, E.C.

KNAP HILL NURSERY,

WOKING, SURREY.

ANTHONY WATERER

Solicits the notice of intending Planters to the following LIST of specimen CONIFERS, &c., all of which he believes are as handsomely grown, as carefully managed, and as finely rooted as can be desired.

ABIES ALBERTUS, 5 to 9 feet, 30s. to 60s. per dozen. Transplanted April, 1869.

ABIES DOUGLASII, 6, 7, to 10 feet, 7s. 6d. to 10s. 6d. each. Transplanted August, 1868.

ABIES ORIENTALIS, 5, 6, and 7 feet, 7s. 6d. to 21s. Splendid plants, moved April, 1869, 10 to 12 feet high, 15 and 20 feet in circumference.

ABIES EXCELSA, the Common Spruce Fir, beautifully furnished, 5, 6, to 8 feet high, £5, £7 10s., to £12 10s. per 100.

The dwarf varieties of Spruce, such as pumila, pygmæa, Gregorii, Clanbraziliana, &c., large numbers, many of them 20 and 30 years' growth.

CEDRUS DEODARA, 5 to 6 feet, 60s. per dozen; 7 to 8 feet, 84s. per dozen; 10 to 12 feet, 10s. 6d. to 21s. each, and upwards. We have several thousands of these large Deodars. All have been removed since August, 1868; many since April, 1869.

CEDRUS ARGENTEA, 6 to 7 feet, 42s. to 60s. per dozen; 8 to 10 ft., 7s. 6d. to 10s. 6d. each. All removed since September, 1868.

CEDRUS LEBANON, 6, 7, to 10 feet. Moved September, 1868.

CUPRESSUS LAWSONIANA, 6 to 7 feet, 30s. to 42s. per dozen; 8 to 10 feet, 5s. to 10s. 6d. each.

" " ARGENTEA, 3 and 4 feet, and as much in circumference, 7s. 6d. to 10s. 6d. each.

" " GRACILIS, 4 to 5 feet high, and 7 and 8 feet round, 7s. 6d. to 21s.

JUNIPER, CHINESE, 4 to 5 feet, 42s. per dozen, £15 per 100; 5 to 6 feet, 60s. per dozen, £20 per 100; 7 to 8 feet, 7s. 6d. to 10s. 6d. each. All removed since August, 1868. Purchasers may select from a stock of many thousands of this fine plant, 5 to 8 ft. high.

PICEA NOBILIS, hundreds of splendid specimens, 5, 6, 7, to 10 ft. high, all recently removed, and are undoubtedly the finest plants to be found in any Nursery. None are grafted.

PICEA NORDMANNIANA, 5, 6, to 8 feet, 21s. to 42s. each, and upwards. Splendid plants, moved August, 1868, 10 to 15 ft. high.

PICEA LASIOCARPA.—Hundreds of most beautiful plants, 4, 5, 6, 8, and 9 feet high. All removed 1868-69.

PICEA MAGNIFICA, 3, 4, and 5 feet.

PICEA PINSAPO, 4, 5, 6, and 8 feet, 21s. to 63s. each. Some grand plants, 10 to 15 feet high, transplanted April, 1869.

THUJA AUREA, beautiful specimens, 3, 4, 5, and 6 feet high; 10 to 20 feet in circumference. This plant originated in this Nursery, and our stock is unsurpassed.

THUJA GIGANTEA, 5, 6, to 12 feet high. Moved August, 1868.

THUJA LOBBII, 8 to 14 feet high, and as much in circumference; transplanted April, 1869.

THUJOPSIS BOREALIS, 5 to 6 feet, 7 and 8 feet round; 42s. to 60s. per dozen; 7 to 8 feet, 7s. 6d. to 10s. 6d. each. All removed since August, 1868.

WELLINGTONIA GIGANTEA, 4 to 5 feet, 7s. 6d. to 10s. 6d. each; 6, 7, 8, and 9 feet, 21s. to 42s. each. Transplanted in August.

PINUS AUSTRIACA, 3 feet, £5 per 100. Transplanted, Sept. 1868.

PINUS CEMBRA, 8 to 10 feet, 10 to 12 feet round, 10s. 6d. to 21s. each.

YEWS, the COMMON ENGLISH, 4, 5, 6, 7, 8, 10, and 12 feet high. Thousands, all constantly removed; invaluable where immediate effect is sought.

YEWS, GOLDEN and ELEGANTISSIMA.—We have these in large numbers, and of all sizes, as pyramids, globes, and worked as standards, with from 3 to 5 feet of gold, and up to 10 feet high.

YEWS, IRISH, handsome plants, up to 10 feet high.

HOLLIES.—The stock of Hollies at this Nursery is, we believe, the finest to be met with in Europe; it comprises, as well as ordinary sizes, together, many thousands of the following varieties:—

HOLLY, VARIEGATED SILVER and GOLD, of sorts, 4 to 10 feet.

HOLLY, GOLDEN QUEEN, magnificent plants, 4 to 8 feet high, and as much in circumference.

HOLLY, SILVER QUEEN, 4, 5, and 6 feet.

WATERER'S HOLLY.—This variety originated in this Nursery; we have hundreds 4, 5, and 6 ft. high, 10 and 15 ft. circumference.

PERRY'S WEEPING HOLLY.—Standards, 10s. 6d. to 21s. each.

HOLLY, COMMON WEEPING.—The finest specimens we have seen. Moved, April, 1869.

HOLLY, COMMON GREEN, 4, 5, 6, 7, 8, 10 to 14 feet high, by the thousand. All moved since April, 1868.

HOLLY, Green varieties of the following kinds. An immense stock of splendid plants, all transplanted in 1868-9:—

LAURIFOLIA and SCOTTICA, 4, 5, 6 to 10 feet high.

HODGINS' YELLOW BERRIED, | ANGUSTIFOLIA, MYRTIFOLIA, &c. 4, 5, 6, and 8 feet high.

STANDARD, WATERER'S and GOLDEN QUEEN HOLLIES, 4 to 6 feet stems, with heads 6 to 10 feet in circumference. A large number.

N.B.—Purchasers of Hollies may select from a stock occupying at the present moment considerably over 6 acres of ground; finer or better rooted plants cannot be wished or obtained. The prices are fair and reasonable.

BOX, Green and Variegated, 4, 5, 6, to 8 feet.

BOX, do. do., fine pyramids, up to 8 feet.

BAYS, standards and pyramids.

LAURUSTINUS, standards.

AUCUBA JAPONICA, thousands of beautiful plants, all moved 1868, 3 and 4 feet high.

AUCUBA JAPONICA, Berried, hundreds, 1½ to 4 feet high; in the open ground and in pots, from 18s. to 120s. per doz. and upwards.

AMERICAN PLANTS.—The Stock of American Plants at Knap Hill is, we believe, as fine as, and more extensive than, anything of its kind to be met with in England, considerably over 60 acres of land being devoted to their cultivation. We shall be pleased to supply—

RHODODENDRONS, nice bushy plants, from layers, named kinds, £5 per 100, £40 per 1000. A dozen sent as sample on application.

RHODODENDRONS, the finer kinds, by name, from £7 10s. to £12 10s. per 100, and upwards.

RHODODENDRON PONTICUM, good plants for Cover, from £10 to £15 per 1000.

STANDARD RHODODENDRONS.—Of these we possess a large number of the oldest and finest specimens in the country, many being from 20 to 30 years old, with heads varying from 15 to 30 feet in circumference. There is probably no kind better adapted for standards than that we call roseum elegans, many of which we supplied to Rotten Row. We have also Rhododendrons, standards, of many other kinds.

RHODODENDRONS, fine hybrids, of good hardy habit, and great variety in colour, from £5 to £12 10s. per 100. Sample on application. Large and handsome plants by the 1000, 4 to 8 feet high.

AZALEAS, the very best kinds, nice plants, £10 per 100, upwards.

AZALEAS, common kinds, £5 per 100.

AZALEAS, splendid plants, of the finest varieties, 3, 4, 5, and 6 feet high, and as much in circumference.

KALMIA LATIFOLIA, nice plants, bushy, healthy, and covered with bloom, £5 to £10 per 100.

ANDROMEDA FLORIBUNDA, £5 to £7 10s. per 100, and upwards.

HARDY HEATHS, a very fine collection, every plant a specimen, and all removed in 1869, from 20s. to 40s. per 100.

ERICA CARNEA, for winter blooming, many thousands.

ERICA MEDITERRANEA ALBA, remains in bloom from October to May, and smells like new-mown hay—indispensable for Winter Gardening.

SKIMMIA JAPONICA, nice healthy plants, moved April, 1869, covered with berries, 12s. to 18s. per dozen.

As well as the above, the Knap Hill Nursery contains upwards of 200 Acres of ordinary NURSERY STOCK of a superior class, such as Flowering Shrubs (Deciduous and Evergreen), Roses, Ornamental Trees for Avenues, &c.

A PRICED and DESCRIPTIVE CATALOGUE will be forwarded on application. Purchasers to any extent are strongly recommended to make a personal inspection of our stock, and obtain the prices on the spot. No Catalogue can fairly describe many of the plants we offer.

The Nursery is readily reached by train from Waterloo to Woking in 40 minutes.

N.B.—There is now no difficulty in sending Plants through in the same truck, without package, from Woking to almost any Railway Station in England.

ECONOMY IN THE GARDEN.

James Carter & Co's Seed Warehouse

AND NURSERYMEN,
237 AND 238, HIGH HOLBORN, LONDON, W.C.

CARTER'S
COLLECTIONS OF HYACINTHS,
CROCUS, TULIPS, &c.,
TO PRODUCE A
PRETTY AND PERMANENT DISPLAY DURING WINTER AND SPRING.

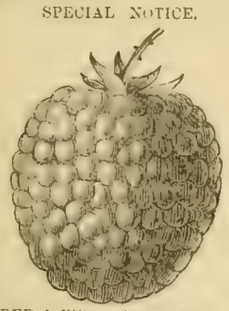
JAMES CARTER AND CO. strongly recommend the following COLLECTIONS, assorted from the most popular varieties:—

Carter's Collection for Window or Conservatory Decoration, £1 1s.
CONTAINING:

12 fine named Hyacinths	9 fine named Poly. Narcissus
12 Jonquils, sweet-scented	1 Dielytra spectabilis
50 named Crocus, finest	9 Scilla sibirica
1 Cyclamen persicum	3 Tournesol Tulips
1 Linum speciosum	3 Rex Rubrorum Tulips
36 extra selected Snowdrops	3 Yellow Rose Tulips
3 La Candeur Tulips	6 Red and Yellow Van Thol Tulips
3 Royal Standard Tulips	3 Rose Van Thol Tulips

Subject to variation as the season advances.
CARTER'S COLLECTIONS, with increased quantities of the above varieties, 42s., 63s., and 84s., packing included in all cases.

McLAREN'S PROLIFIC RASPBERRY.
SPECIAL NOTICE.



For full description, see page 986, in Gardeners' Chronicle, Sept. 18.

AWARDED A FIRST-CLASS CERTIFICATE.

JAMES CARTER AND CO. beg to state that in consequence of the rapid demand for this valuable novelty their stock of strong Canes is now exhausted.
The entire stock will be held next season by J. C. & Co., and Orders are now booked to be supplied in rotation next autumn at the following Prices:—
As the supply next year will be limited, early Orders are recommended.

6 Strong Canes, 7s. 6d.	25 Strong Canes, 20s.
12 Strong Canes, 12s.	100 Strong Canes, 60s.

Carter's Collection of Bulbs for Conservatory and Outdoor Planting, price 15s.
CONTAINING:

6 Hyacinths, extra fine named	12 Narcissus, double White
6 ,, fine bedding	12 ,, Pheasant's Eye
3 Tulips, Tournesol	3 Tulips, Yellow Prince
3 Tulips, Rex Rubrorum	3 Tulips, White Pottebakker
12 Tulips, extra fine mixed	60 Crocus, fine Blue
50 Crocus, fine White	50 Crocus, fine Yellow
18 Anemones, extra fine mixed	4 Gladiolus Brenchleyensis
6 Iris, choice English	12 Iris, choice Spanish
9 Jonquils, Campernel	18 Ranunculus, extra fine

24 fine selected Snowdrops.
Subject to variation as the season advances.
CARTER'S COLLECTIONS, with increased quantities of the above varieties, 30s., 42s., and 63s. No charge for packing.

Decoration of the Drawing-room.
JAMES CARTER AND CO. offer for this purpose their choice Selections of HYACINTHS as below, including glasses.

12 choice Hyacinths and 12 new-shaped Glasses	..	21s. 0d.
12 fine ,, and 12 new-shaped Glasses	..	19s. 6d.
12 good ,, and 12 new-shaped Glasses	..	18s. 0d.

Carter's Collection of Bulbs, for Outdoor Planting only, price 21s.
CONTAINS:

18 Hyacinths, choice in 3 colours	6 Gladiolus, Brenchleyensis
12 Narcissus, double white	12 Iris, extra choice mixed, English
12 ,, Pheasant's Eye	12 Iris, extra fine mixed, Spanish
12 Double Daffodils	3 Lilium candidum
36 Tulips, extra fine mixed	3 ,, tigrinum
50 Crocus, blue	24 Ranunculus, extra fine mixed
50 ,, striped	100 Snowdrops, selected
50 ,, large yellow	24 Winter Aconites
50 ,, white	
24 Anemones, extra fine mixed	

Subject to variation as the season advances.
CARTER'S COLLECTIONS, with increased quantities of the above varieties, 42s., 63s., and 84s. No charge for packing.

For full instructions for cultivation, and particulars of the above Assortments, see

CARTER'S
ILLUSTRATED BULB CATALOGUE
For 1869, Gratis and Post Free.

JAMES CARTER AND CO.,
THE ROYAL SEEDSMEN,
237 AND 238, HIGH HOLBORN, LONDON, W.C.

SUTTONS'



IMPORTED FLOWER ROOTS



SUTTON & SONS,
SEEDSMEN TO THE QUEEN,
READING, BERKS,

having received their FIRST CONSIGNMENT of

CHOICEST DUTCH FLOWER ROOTS,

Selected by themselves from the leading Growers in Holland, are now prepared to receive orders for their COMPLETE COLLECTIONS for WINTER and SPRING BLOOMING, either for indoor or outdoor cultivation.

Suttons' £2 2s. Collection of Flower Roots,
For OPEN GROUND, Carriage Free, contains—

24 fine mixed Border Hyacinths	12 fine mixed Gladiolus
12 ,, Polyanthus Narcissus	25 Duc Van Thol Tulips
25 Pheasants' Eye Narcissus	12 mixed Single Early Tulips
25 Double White Narcissus	12 fine mixed Double Tulips
50 Double Daffodils	12 ,, Parrot Tulips
12 large Campernelle Jonquils	12 Gesneriana Tulips
100 fine mixed Double Ranunculus	50 fine mixed Tulips
100 Scarlet Turban Ranunculus	12 ,, English Iris
25 fine mixed Double Anemones	12 ,, Spanish Iris
25 ,, Single Anemones	6 Lilies, of sorts
300 Crocus, in 6 sorts	6 Ferraria pavonia
100 Snowdrops	12 Dog's Tooth Violets
50 Winter Aconites	6 Crown Imperials

Suttons' £1 1s. Collection of Flower Roots,
For OPEN GROUND, Carriage Free, contains—

12 fine mixed Border Hyacinths	6 fine mixed Gladiolus
6 ,, Polyanthus Narcissus	12 Duc Van Thol Tulips
12 Pheasant's Eye Narcissus	6 mixed Single Early Tulips
12 Double White Narcissus	6 fine mixed Double Tulips
25 Double Daffodils	6 ,, Parrot Tulips
6 large Campernelle Jonquils	6 Gesneriana Tulips
50 fine mixed Double Ranunculus	25 fine mixed Tulips
50 Scarlet Turban Ranunculus	6 ,, English Iris
12 fine mixed Double Anemones	6 ,, Spanish Iris
12 ,, Single Anemones	3 Lilies, of sorts
150 Crocus, 3 sorts	3 Ferraria pavonia
50 Snowdrops	6 Dog's-Tooth Violets
25 Winter Aconites	3 Crown Imperials

Suttons' 10s. 6d. Collection of Flower Roots,
For OPEN GROUND, contains a choice assortment for a Small Garden.

Suttons' £2 2s. Collection of Flower Roots,
For POTS or GLASSES, Carriage Free, contains—

24 fine Hyacinths, by name	6 Persian Iris
12 fine Miniature Hyacinths, do.	6 Peacock Iris
12 Polyanthus Narcissus, do.	100 Crocus, by name
12 large Double Jonquils	12 choice Ixias, by name
12 Single Sweet-scented Jonquils	6 choice Sparaxis, by name
12 Scilla præcox	1 Cyclamen persicum
12 Single Duc Van Thol Tulips	1 Jacobea Lily
12 Double Tournesol Tulips	2 Lilium lancifolium album
50 Early Tulips, 10 sorts	2 ,, ,, rubrum

Suttons' £1 1s. Collection of Flower Roots,
For POTS or GLASSES, Carriage Free, contains—

12 fine Hyacinths, by name	3 Persian Iris
6 Miniature Hyacinths, by name	3 Peacock Iris
6 Polyanthus Narcissus, do.	50 fine Crocus, by name
6 Large Double Jonquils	6 choice Ixias
6 Single Sweet Jonquils	3 choice Sparaxis
6 Scilla præcox	3 choice Oxalis
6 Single Duc Van Thol Tulips	1 Jacobea Lily
6 Double Tournesol Tulips	1 Lilium lancifolium album
25 Early Tulips, 5 sorts	1 ,, ,, rubrum

Suttons' 10s. 6d. Collection of Flower Roots,
For POTS or GLASSES, contains a choice assortment of most useful and showy kinds.

The best 12 Hyacinths, by Name, for 12s.,
Extra fine Double and Single varieties.

For further particulars, with complete Cultural Instructions, see

SUTTONS'
AUTUMN CATALOGUE FOR 1869,
Gratis and Post Free on application.

FLOWER ROOTS and SEEDS CARRIAGE FREE, except very small parcels.

☞ *Five per cent. allowed for cash payments.*

SUTTON AND SONS,
ROYAL BERKS SEED ESTABLISHMENT,
READING.

Choice Belgian Pansy.
THE CELEBRATED SHIPLEY STRAIN.

GEORGE JOHN CHILD (Successor to WM. DEAN) can supply fine plants, well harvested, at 1s. 6d. and 2s. 6d. the packet, post free; also ENGLISH SHOW PANSY at 1s. 6d. and 2s. 6d. per packet.
Dr. Deane's Street, Bradford, and Bradford Nurseries, Shipley.

NEW CATALOGUE of choice AZALEAS (Indian and Hardy), CAMELLIAS, RHODODENDRONS, ORCHIDS, LILIUMS, &c., also the ROSES of LACHAUME.
Copies of the above may be had free from Ghent, or from L. VAN HOUTTE, R. STILLEBRAD AND SON, 3, Harp Lane, Great Tower Street, London, E.C.
Royal Nursery, Ghent, Belgium.

Splendid New Rhododendron,
BARONESS LIONEL ROTHSCHILD.

JOHN WATERER AND SONS are now prepared to execute orders for the above new SEEDLING RHODODENDRON; in colour it is a clear bright crimson, the margin of the bloom of a fiery scarlet, of fine handsome form, and remains a great length of time in bloom. Price 21s. each. Trade allowance.
The American Nursery, Bagshot, Surrey.

Rhododendrons.—To the Trade.

J. MATTHEWS has a large stock of 4-yr. RHODODENDRONS, 6s. per 100; 3-yr. 4s. per 100 (transplanted), 10s. per 100; 1 to 1½ foot, bushy, 12s. per 100; 1½ to 2 feet, 18s. per 100; Splendidum, white Rhododendron, budded, 1½ foot, 18s. per dozen; Corsicum pictum, 1 foot, 12s. per dozen.
SPRUCE FIR, 1½ to 2 feet, 9s. per 100; and 2 to 3 feet, 24s. per 1000. PRIVET EVERGREEN, 2 to 3 feet, 15s. per 100; 3 to 4 feet, 20s. OAKS, 3-yr. budded, 1 to 1½ foot, 5s. per 100.
Milton Nurseries, Stoke-on-Trent, Staffordshire Potteries.

RHODODENDRON MULTIFLORUM.—A most abundant blooming, hardy plant; many of the buds may be seen in my Nursery, only 1 foot high, with 5 trusses in bloom; 1 each as well.
AZALEA HYBRIDA ODORATA.—Best fine trusses of fragrant white flowers, most valuable for bringing in winter. Both the above gained First-class Seedling Prizes. A full description, with prices, of these and other new Hybrids, forwarded on application to the raiser,
ISAAC DAVIES, Brook Lane Nursery, Ormskirk.
J. D. has also a few hundreds of DAPHNE INDICA RUBRA to offer.

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HENRY WALTON, having a large stock of the above, finest plants possible, well set with bud, being all home worked, can with confidence recommend them.
AZALEAS, 24s. to 63s. per doz. | CAMELLIAS, 24s. to 63s. per doz.
EPACRIS, 15s. to 24s. per dozen.

Having several hundreds of beautiful trained Azaleas, from 2 to 4 feet, fine for exhibition purposes, 10s. 6d. to 63s. each; also fine half and Specimen Camellias, 10s. 6d. to 10os. each—this is a favourable opportunity for parties furnishing new houses or improving their present collections. Trade liberally dealt with.
CATALOGUES on application.
Edge End, Marsden, near Burnley, Lancashire.

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H. CANNELL has perhaps the finest and largest blooming lot of Plants of METALLICA in the kingdom, varying in size from seedlings to plants 4 feet high; and H. C. has spared neither expense nor pains in bringing a large quantity of seed to perfection. Each pod contains quite a 100 dust-like seeds, and if sown at once, will make splendid little plants for next season. One pod, just ripe, sent free for 13 stamps.
H. C. has also a fine lot of the three following beautiful edging kinds:—SECUNDA, SECUNDA GLAUCA, and PUMILA. A packet of either of these sent free for 18 stamps.
Plants of all the above from 5s. per dozen to 20s. per plant.
New Florist Flower and Florist Flower Seed Merchant, Woolwich.



New Plant.



MR. WILLIAM BULL
is now sending out the beautiful
LASIANDRA MACRANTHA,
Which can be easily cultivated in an ordinary Greenhouse. Price, 7s. 6d. and 10s. 6d. each.
The flowers of this plant are truly marvellous, 1½ foot in circumference; are produced nearly throughout the year, and on plants when only an inch or two high. Some blooms of it were sent last Christmas to the Editor of the *Gardeners' Chronicle*, and the following remarks were made in the columns of that Journal, January 2, 1869:—
"We have before us fine blooming specimens of the noble Lasiandra macrantha, sent us by Mr. BULL, which shows that the flowers of this grand plant may be had in winter as well as in summer, which is an additional recommendation. Notwithstanding what may seem to be an unfavourable season, the blossoms are even now nearly 5 inches across, and are of the richest violet-blue, a tint which has not been reproduced in any of the illustrations which have yet appeared."
A DESCRIPTIVE CATALOGUE of other NEW PLANTS, just published, may be had on application.
Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

The Gardeners' Chronicle.
SATURDAY, OCTOBER 16, 1869.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, Oct. 19 { Royal Horticultural (Fruit and Floral Committees, at South Kensington .. 11 A.M.
{ Ditto (General Meeting) .. .. .. 3 P.M.

A GREAT deal has been said and written on the subject of SEWAGE, both as to its qualities as a manure, and as to the most effectual mode of disposing of it in cases where it has been collected by drainage. As any facts bearing upon these important subjects are valuable, we need make no excuse for citing the experience of one of our veteran horticulturists, Mr. MASTERS, of Canterbury, as to the application of sewage to ordinary nursery stock. We may premise that the Vauxhall Nurseries, where the experiments we are about to call attention to have been carried on, have been used for the growth of trees for upwards of a century; consequently, without the application of manure many crops would be so weakened, from the impoverishment of the soil, as to be unfit for market. The subsoil of the establishment in question consists of brick-earth and valley drift, over which lies a few spades'-depth of a stiffer clay, which is the part requiring manure, and for which purpose heaps of town rubbish and various animal manures were employed till, remembering how the Chinese utilised their fœcal matters, Mr. MASTERS caused a large tank to be constructed for the reception of the manure from the

adjacent barrack-yards. This is conveyed into the tank by pipes, and yields a large supply, which is rendered available by first filtering the watery particles through a filtering screen, and returning the semi-fluid to the mass in the tank. Preparations of zinc and charcoal were at one time applied as deodorants, but latterly an easier and better process has been adopted. In a nursery of large extent there must be great accumulations of weeds and refuse; these, instead of being dug in, are collected together, and with the clay are burnt in large heaps. The dry earth and vegetable ash act at once as a deodorant and as a manure. Then the tanks are emptied into an area of 2 feet depth; the surface is covered with the burnt earth, which destroys bad odours, and is in time incorporated into a compost fitting a nurseryman's purposes. It seems applicable to all sorts of evergreens and shrubs, which attest, by the rapid growth they make, and the colour of their foliage, how congenial the manure is to their natures. Fruit trees seem especially to relish it, as the growth of Apples, Pears, Cherries, Plums, of Peaches and Nectarines, is beyond average, and the trees show unusual vigour of constitution. That these good effects are brought about by this manure is shown by the striking difference in the growth of the trees and shrubs on a portion of the ground which has not been so treated. Roses, either upon the Manetti or the Dog Rose stocks, thrive remarkably, and produce flowers in abundance and for long continuance.

But it is not to nursery plants alone that this matter is valuable, for it is equally beneficial to all the Brassica family in the kitchen garden. Potatos thrive with an application of it amazingly, though unfortunately it does not prevent the prevailing disease.

It appears to us that the above system is as nearly perfect in theory, as it is excellent in practice. We have here a manure rich in all the elements that plants require, applied in a way that enables them to avail themselves of it readily, and which must materially improve the mechanical texture of the soil to which it is added.

When we remember how many nurseries there are in the country to which the application of sewage manure in a similar manner would be an easy matter, we can but recommend the extensive adoption of the practice. It seems to us, in its degree, to solve the two questions we alluded to at the outset, as to the value of the sewage matter, as a manure, and as to the mode of dealing with it without annoyance to others. The plan is doubtless not so applicable in all instances as in the case of large towns, and even for smaller ones it would be an expensive matter to get a series of such tanks as above described into working order, but the money would not be thrown away, as they would become the means of enriching the respective neighbourhoods by affording a continual supply of what is equally essential to purposes of horticulture and of agriculture.

—— We have received numerous letters from gardeners in all parts of the country, expressing, in the warmest manner, approval of the proposal made in our last number, that the memory of the late Mr. JAMES VEITCH should be perpetuated amongst horticulturists, for whom he did so much, by some fitting MEMORIAL. It is proposed to form an unlimited General Committee, of which the London members would form a central or managing body, and the country members would act as collectors in their several districts. There should also be a committee for Scotland, and another for Ireland. Those who are desirous or willing to render aid are requested to send in their names, in order that early action may be taken. As to the nature of the memorial, which must be a matter for the determination of the General Committee, and in which determination the wishes of Mr. VEITCH's family must be consulted, we may quote the following passage from a letter addressed to us by Mr. W. THOMSON, of Dalkeith, which contains a suggestion well worthy of consideration:—"One gardener of first-class position and judgment suggests a monument. To my own mind the choice lies between that, and the institution of a fund, the interest of which should be given as a 'Veitch Prize' or 'Veitch Medal,' to be awarded in all time coming, to the man who during the year shall make the most important additions to our garden productions, whether by importation or hybridisation." For the present we merely add, that as Mr. VEITCH was a man who never did things by halves, so neither should this memorial question be left half worked out, either by those—gardeners—whose interests he has in so many ways advanced, or by those—employers—to whose pleasures and gratifications, in a gardening point of view, he has in so many ways, and in so large a degree, contributed.

—— Mr. MARTIN MÜLLER, of Strasbourgh, issues with his catalogue a coloured drawing of three NEW GRAPES which were sent from the Crimea by MARÉCHAL PELLISSIER, Duc de Malakoff, to his friend M. RUDLER, from whom M. MÜLLER has obtained them. One, named Ribier du Maroc, has large roundish black berries, not unlike a Hamburgh, and is said to be good. Another, called Malakoff usum, has large clusters and remarkably long and large rose-coloured berries (four weighed 54 grammes: 1 gramme = 15½ grs. nearly). This must at least be a very handsome Grape, with something the colour of the Ahbee, but of a deeper tint. The third is the Tschaousch sofra usum, a large oblong yellowish white sort, described as being of very good quality and magnificent. This, from its appearance, may possibly be the Chaouch or Chavoush, already known amongst us. A Chasselas de Hüsseren, also announced as new, is described as having the quality of the Chasselas de Fontainebleau, but with berries twice as large, and ripening earlier.

—— Visitors to the late INTERNATIONAL EXHIBITION AT ST. PETERSBURG will be glad to know that the Federation of the Belgian Horticultural Societies has just issued a report of the proceedings on that memorable occasion, illustrated with portraits of General GREIG, Dr. REGEL, and others who worked so hard to ensure the pleasure of their guests. The report in question will form an acceptable souvenir.

—— The following inscription to the memory of the late Professor DAUBENY has been placed in the chapel of Magdalen College, Oxford:—

℞

AD · GLORIAM · DEI
ET · IN · MEMORIAM
CAROLI · ÆGIDII · BRIDLE · DAUBENY · M · D
ANNOS · LI · HUJUSCE · COLL · SOCII
LITERARUM · HUMANIORUM · EXIMIE · DOCTUS
CHEMIÆ · BOTANIÆ · GEOLOGIÆ
SCIENTIA · INSIGNIS
AMICIS · AMICISSIMUS
TAM · ACADEMIÆ · QUAM · COLLEGIO · DEVINCTUS
DEUM · TOTA · MENTE · COLUIT
IN · CHRISTO · OBDORMIVIT
DIE · MENSIS · DECEMBRIS · XIII
A · S · MDCCCLXVII
ÆTATIS · LXXIII
AVE · ANIMA · SIMPLEX · PIA · DESIDERATISSIMA

VINE GROWING AT TRENTHAM.

VINES, Grapes—Grapes and Vines—one or other of the words are hardly ever absent from your columns, their praises are ever being sung, and their glories ever chronicled. To some no doubt, perhaps to many, of your readers, there may be just a little too much of this Vine or wine glorification; and to tell the truth, I think there is, so that I owe your readers an apology for meddling with the subject. I would just beg to remind them, however, that a great deal of the matter brought before them is unfermented, so that although they may partake pretty freely, it can do them little harm—or good. Haven't we during the past 12 months or so been treated to all the extremes of opinion in regard to the necessity or absurdity of bottom-heat, and the merits and demerits of early forced and late kept Grapes?—each party maintaining that, except by the adoption of their particular practice, nothing satisfactory could be attained; and have we not more recently been told by one who ought to know, from his lengthened experience, that by the admixture of calcareous matter in the soil of our Vine borders, we do a very foolish thing? Calcareous matter forsooth! the very thing which we nearly all have been so anxious to obtain for our Vines, and in which we believed they loved to dwell—but which Mr. Cramb tells us is the most injurious matter we can use. Facts, however, will hardly bear out Mr. Cramb's assumptions, and his protest falls unheeded. The plain truth is, that all these extreme doctrines, opinions, and practices, require a good deal of the fermentation of common sense. Major Clarke very aptly observed at the Manchester Congress, that tact or ability to take advantage of, and turn to the best account, existing materials or conditions was the main thing wanted to ensure success; that he believed it was possible to produce good Grapes with bottom-heat, though another person could produce equally as good without it; and that good Grapes can be grown in land charged with calcareous matter, as well as in soils from which it is totally absent. All or nearly all depends upon the skill of the cultivator and his adaptation, of his means to the end.

That some soils and situations are much more favourable for Vine cultivation and gardening operations generally than others, there is little doubt, and when these exist naturally the skill of the cultivator is but little tried. There is, in my opinion, a great deal of nonsense written about the composition of soils for our Vine borders. The Vine, after all, is not so very hard to please in that respect. There is more to contend with as regards locality and situations. In low, damp localities, with cold watery subsoils, such as at Trentham and some other places I could name, it is a ten times more difficult matter to produce Grapes than on some high-lying, warm-subsoiled situations. The treatment required in the two instances is as opposite as the two poles, and when success equal or superior to that in the favourable situation is achieved in the adverse the credit due is all the greater.

Given, one of the coldest and most unfavourable localities in this country for Grapes, Trentham—the noble but badly situated seat of one of our noblest Dukes—he of Sutherland,—I say that the condition of the Grapes there, as well as that of every other department, reflects the very highest credit on Mr. Stevens, the Duke's able gardener. Sensation houses may for a time be here and there found to outvie anything at Trentham, and this may sound rather paradoxical, Trentham having been so long under the great Mr. Fleming, the seat of sensational gardening. Now, however, under the *régime* of practical Stevens, that is changed; and we find instead good sound practical gardening carried on in every part of this most extensive establishment, and that too, in a very modest and unpretentious manner. Not to detract one whit from the credit due to the great originator of this place, I can without the slightest hesitation say, that the Trentham of to-day exhibits more good sound practical gardening than ever did Trentham of the past. But, lest I be taunted with these assertions having no proof, I simply say, go and see.

To give a lengthened and detailed account of all that Mr. Stevens has done since his transshipment from Mr. Veitch's big Azaleas at Chelsea, to Trentham, six years ago, is not within the meaning of my act. But when it is told that every fruit tree, Peaches, Plums, Cherries, &c., and nearly every Vine in the "almost miles" of houses and "Trentham cases," have been removed, and new soil, new borders, made for each, some idea may be gained of the labour involved. Those who can cast their eyes backward, and remember the fine fruit exhibited by Mr. Fleming when in the zenith of his glory, and the poor appearance of the same a little later on, and can contrast that with that now produced by Mr. Stevens, as exhibited by him at the Manchester show, will know how great the resuscitation has been; and all practical gardeners are also well aware how much more difficult it is to resuscitate an old place, keeping up at the same time the regular supply to the family, than to make an entirely new affair, when nothing is expected until it is actually there.

To the Vines, however; and in the first place I am afraid to say how many houses of these there are. All of the Vines, old and young, were, when I saw them, not long since, looking remarkably well, and making strong, robust wood, ripening off gloriously. The shoots are kept thin on the Vines, so that all the leaves have abundance of space to develop themselves. And such leaves!—of a deep healthy green, large, and in substance like Laurel, clean, and perfectly clear of insects. And here one word as to the importance of the proper leaf cultivation of the Vine. Just according to the amount of foliage properly developed, will be, not only the root action, but the quality of the crop affected, as every particle of sap drawn up by the roots must be elaborated through the agency of the leaves. It would be a very important matter for our learned physiologists to determine how much leaf surface, or what amount of respiratory or other organs, is required by a Vine to produce a certain amount of Grapes. I hope some day that some one may be able to grapple with a question like this. We assume certain proportions in our own rough way, and practically we may not be far wrong. It is, however, all a matter of guesswork, but Mr. Stevens appears to guess pretty near the mark, for although the bunches were not enormously large—some 5 or 6 lb., nor the crop extraordinarily heavy, the berries were of the largest size, and the most beautifully coloured I ever saw. I was so captivated with some Black Hamburghs in one house that I must needs taste them, when to my intense astonishment they were only half ripe; then Mr. Stevens assured me they had coloured so within little more than a fortnight: and every one knows it takes generally a month to do this part of the business.

The soil at Mr. Stevens' command is naturally a rich one. It is of the new red sandstone, somewhat close and adhesive for Vines, so to improve it in this respect and to render it more porous, Mr. Stevens has it all cleaned, *i. e.*, half burnt, and so it becomes all that can be desired. Very little organic matter, or other material, if I understood Mr. Stevens properly, is added to this, and certainly no Vines could seem to be happier. The gardens at Trentham lie low, very nearly on a level with that sluggish river the Trent, and many of the Vine-borders are close on the water stratum, and are therefore naturally extremely low in temperature. To prove this, registers were kept last March, and it was found that while the average temperature of the outside borders in the garden was 33°, that half a mile distant on the side of the neighbouring hill was 42°, a difference of 9° in the two instances. Can it then be wondered at that Mr. Stevens, in his low, cold, and damp locality, is a great believer in the beneficial effects of bottom-heat for his Vine roots? No; with him it is almost a matter of necessity. It was from Trentham, a long time ago, that I heard the first of the conoreting of the Vine border, and at Trentham it is still practised, and with advantage. The surface of the concrete bed is 5 feet below the level of the border, then there is a lot of rubble, through which are placed, at every 2 yards or so, open drain tiles across the border, communicating with an open chamber in front, in which are situate the hot-water pipes. The plan is simple, easy of application, and satisfactory. One capital instance of its effectiveness is thus afforded. A large house of Muscats with full-grown rods some eight years old had in its turn to be supplied with a new border last autumn; so to make short work of it, instead of tracing out the roots, they were more than the half of them chopped clean off, &c. Then in spring the Vines were started as usual, with the advantage of the application of bottom-heat, and the result is a really splendid crop of fruit, equally good as if their roots had never been disturbed. The wood for next season is also in splendid condition. Now this is a very unusual success, and it is entirely attributed to the fact of the roots having been in such a comfortable medium, and their action having begun so early by the assistance of the bottom-heat applied.

Vines in pots are only cultivated at Trentham to fill up an occasional gap—their fitting purpose. At Trentham, as in all well conducted places, houses are devoted to the cultivation of one sort—Muscats by themselves, Hamburghs and late sorts by

themselves. The Frankenthal is the most esteemed variety grown for general use, and there were hundreds of bunches weighing over 4 lb. of it. I also observed a fine example of that splendid but scarce old variety, the Black Damascus, with some very handsome bunches; also that noble new Grape of Messrs. Veitch's, the Muscat Champion, which seems to puzzle ordinary cultivators. The examples here were splendid; bunches large, the berries like great grizzly Plums. It is a fine Grape, and of most excellent flavour, deserving of extended cultivation. Royal Vineyard, a much-abused late white variety, also finds favour here for its fine keeping qualities, and its appearance favours it.

Although, as I have stated, the days of sensational gardening at Trentham are over—excepting, indeed, all-round successes may be called such — I have just one little feat to chronicle of a very important character. It is so important, and so entirely new a proceeding amongst Vines, and so successful, that it ought by rights to have had a paper to itself. It is the summer budding of Vines. In September last, when Messrs. Lee sent out their first plants of Madresfield Court Vines, Mr. Stevens had one; and, to make the most of it, having a young houseful of nice vigorous Lady Downe's, it occurred to him to bud them with the Madresfield, which was then accordingly done, and every bud succeeded, though a few were lost after. wards through undoing the ligatures too soon. Further, almost every eye thus budded has produced a handsome bunch of Grapes, and made strong rods as thick as one's thumb this season, the stock having been cut away, as in other budding; so that now Mr. Stevens has nearly a houseful of this, the best of all late black Grapes, in a fine bearing condition in one season. To graft and inarch Vines are not uncommon operations now, but to bud them whilst in this growing state is altogether a new practice, and our thanks are specially due to Mr. Stevens for this discovery. As far as I understand the operation, it is a sort of bud-grafting of the half-ripened wood, the woody portion not being extracted from the bud, as with Roses, but left entire, as in ordinary grafting. It is thus simply a joining of the alburnum of the stock and bud, or scion, together; and this it will be seen can be effected at any time after the young wood is firm enough, and before the sap thickens too much to prevent their mingling together and uniting.

Thus ends my chapter on the Vines at Trentham. My notes on the other departments of this princely establishment must be deferred till another occasion. *B.*

PLANTS IN BLOOM AT KEW.

Among the extensive collections of plants in these magnificent gardens are to be seen plants of great interest, either to the horticulturist on account of their beauty, rarity, or other special quality which may recommend them as desirable for more general cultivation, or interesting to the botanist as affording means by which to clear up some of the confusion now existing as to the correct names of plants, and so lessen the disparity which exists between the names by which certain plants are known in gardens, and those adopted for them by systematic botanists. In the present article an attempt will be made to point out some of the plants now to be seen at Kew, and which are of special interest under one or other of the counts before named.

The blooming of a fine specimen of the Agave filifera (Salm Dyck), in the Succulent-house, is worthy of remark, so rarely is the opportunity afforded of seeing this species, or, indeed, any of its congeners, in bloom. Agave filifera is well known in cultivation, on account of its noble appearance recommending it, and is readily distinguished from all but A. filamentosa and A. schidigera by the thread-like appendages borne on the margins of the leaves. The inflorescence is a simple spike, some 10 or 11 feet in height, all of which, except about 3 feet from its base, is densely crowded with flowers or buds. The flowers individually are of a deep chocolate colour, tubular-campanulate in form, with the segments much reflexed, and with the anthers considerably exserted. From the great length of the spike, and its habit of unfolding its flowers in succession from the base to apex, it promises to continue in bloom some considerable time. The distinctions between A. filifera and its ally, the A. filamentosa, appear by no means clear; the blooming of the former species in M. Verschaffelt's garden some few years ago, however, afforded an opportunity of publishing a well-executed plate in the "Illustration Horticole," vol. vii., t. 243, which appears in every way the counterpart of that now in bloom at Kew.

Among the numerous specimens of the common Agapanthus umbellatus, employed in the decoration of the conservatory — large plants, and most admirably bloomed, giving quite an enlivening aspect to the house—are examples of two well-marked forms. One, the variety "minor," differs only in its smaller flowers, and very much shorter and narrow leaves, than the typical form; but the other, the var. "minimus," considerably departs from the type, insomuch that Dr. Lindley, who figured it in the "Botanical Register" (tab. 699) appears to have hesitated whether or not to regard it as a distinct species. The flowers, in addition to being of a much lighter blue, are shorter in the tube, and with their segments considerably more spreading, whilst its leaves are as small as in the var. minor. It is altogether a most desirable plant, and worthy of far more general cultivation than, I believe, it receives.

In the Orchid-house is to be seen a nice plant of the Angræcum Chailluanum, in bloom, one of the very few Orchids native of western tropical Africa to be seen in cultivation. It is far inferior in beauty to its congener A. sesquipedale; indeed, much cannot be said of it on that account; its flowers are produced in spikes of six or eight blooms, having very narrow acuminate sepals and petals of a greenish white, becoming of a yellowish cast as they grow old, and with the labellum quite as narrow as the two petals. The disparity in size between the labellum and the two petals, so general in almost all Orchids, and especially marked in A. sesquipedale, is here reduced to a minimum. The spur of the flower attains some 3 inches in length, and the foliage is peculiar in having remarkably undulated margins, by which it may at any time be readily distinguished. The plant is comparatively new, having been recently described by Dr. Hooker, and figured in the "Botanical Magazine" (tab. 5889). Two or three Oncids may perhaps be worthy of mention—viz., O. Wentworthianum, a fine spike; O. excavatum, and O. Harrisonianum. A plant of Odontoglossum bictoniense appears to have made a grievous mistake; evidently purposing to display its beautiful flowers, it has thrown up a spike, but, changing its mind, has, instead of producing flowers, enlarged its bracts (especially in the upper part of the shoot) into leaves, about 2 or 2½ inches long, has altogether neglected the formation of flowers in the axils, and there remains—an Odontoglot, bearing a shoot, having very much the semblance of a young growth of some such Dendrobe as D. calceolaria. In the same house are several Dorstenias, two of which, the D. Barteri, native of western tropical Africa, and a D. villosa, native of Brazil, are producing their very singular inflorescences.

Within the Palm-house, among the collection of shrubs which occupy the centre of the N.E. wing, occur three Araliaceous shrubs, simultaneously in bloom. The first, not unfrequently met with in gardens under the name Aralia Thibautii, is a somewhat ornamental plant, with dark green digitate leaves, with some six to eight oblong-acute leaflets of thick texture. From the extremities of the branches are produced rigid, erect, conical-shaped panicles, appearing at first sight more like racemes than panicles. The flowers, which are very small, are densely crowded into somewhat globular heads, which heads are stalked, and arranged so as to resemble a raceme. Its correct name is Oreopanax xalapense, Dcne. and Planch. It is native of Mexico, being found around the town of Xalapa, from whence its specific name is derived. The second is the plant, more frequently met with than the last, usually known as Aralia digitata. The foliage here also is digitate, with several leaflets—from 5 to 9—each borne on a stalk about 2 inches long, the leaflets ovate in form, and of a light green. The inflorescence is also terminal, and consists of several dense roundish umbels, in their turn arranged racemosely along a stout, irregularly-compressed, reddish-brown rachis; several such racemes diverging irregularly from the end of the branch, together constitute a terminal panicle. The name Aralia digitata, by which it is commonly known, should give way to that of Heptapleurum venulosum, Seem. Another synonyme is Paratropia venulosa, Wt. and Arn., under which name it was figured by Dr. Wight in his "Illustrations of Indian Botany" (tab. 118), of which country is it native, and appears to be there very widely distributed.

The third is in general appearance exceedingly like the last, so much so as to be scarcely distinguishable at first sight. The stalk of the middle leaflet is a little longer than the rest, whilst in the basal ones they are very short. The inflorescence is widely different. Here, the little green flowers are arranged in lax simple umbels, which in their turn are stalked, and arranged in a long, loose, slender raceme, several of which arise from the upper axils of the branch. This plant is known, in Continental gardens at least, as Paratropia Teysmanniana—a name which should be suppressed in favour of Heptapleurum polybotryum, Seem., with which it appears to be identical, and which is a native of Java.

Within the same house, but in the opposite wing, occurs a fine shrub of a Hernandia, evidently from its size an old inhabitant of the garden, and which is now blooming, very probably for the first time. Its name is H. Werenhoutiana, a species very little known even to botanists. It is a native of the Friendly Islands. It differs from all its congeners in having the parts of its flowers arranged in fives instead of threes or fours. To the cultivator the plant has little to recommend it beyond its fine bold habit and foliage. The leaves are large, ovate-oblong and obtuse in form, thick in texture, and somewhat crowded at the extremity of the branches. Its inflorescence is a lax, much branched panicle, each shoot of which terminates in a four-leaved involucre of a dusky brown colour, containing three flowers, the two outer of which are male, the central one female. The corolla is of five white spreading petals, containing five stamens in the male, with a single gland at the back of each; in the female the parts are also in fives, surrounding a peculiar peltate stigma. Its chief interest lies in the fact that it is one previously very little known, and one which departs from the floral arrangement previously ascribed to the genus.

Passing round the S.W. end by the Cycads, near to a fine Allamanda Hendersoni, may be seen the beautiful yellow-flowered Bignonia Chamberlaynii, a climber which has existed many years in British gardens, but which appears to be less appreciated and less cultivated than it deserves. Its branches terminate in a raceme of some eight or ten flowers, each much of the form of a Foxglove flower, though considerably larger, and of a pure yellow. Still further on, and above the shelf devoted to the Bromeliaceous plants, the beautiful flowered Convolvulacea, usually known in gardens as Calonyction speciosum, is yielding fine trusses of blossoms at every axil. The plant being frequent in gardens need not be described; it is, however, no Calonyction, but appears to be a fine variety of the Rivea zeylanica of Thwaites, a native of the peninsula of India and of Ceylon. The great number of flowers successively produced in each of its trusses, its freedom in blooming, together with its beautiful foliage—of a deep purple beneath, of large size, and of a cordate form—combine to make this a really first-rate climber, wherever sufficient room can be afforded it to properly develop itself. Passiflora quadrangularis and P. macrocarpa may likewise be seen growing side by side. Both have produced flowers and fruits, the latter of such a size as to justify Mr. Hullett's assertion, except that he multiplied the weight by two! *R. C. K.*

ONIONS; THEIR VARIETIES AND SYNONYMES.

An extensive collection of Onions was submitted by Messrs. Barr & Sugden to the Fruit Committee of the Royal Horticultural Society on the 5th inst. for adjudication, the primary object being to determine whether we had in cultivation in this country Onions which corresponded with the Onion sold by the grocers under the various names of Spanish, Portugal, or Oporto Onion; and at the same time Messrs. Barr & Sugden availed themselves of the opportunity to bring from their experimental grounds specimens of the Onions cultivated generally in this country, and on the Continent.

It may not be out of place here to remark that last spring this firm received from the British Consulate at Oporto a small parcel of Onion seed, with an account of the manner in which the Onion was cultivated in Portugal. This seed they distributed amongst various gardeners and amateurs interested in the cultivation of the Onion. At lifting-time, the following sent up specimens of the Onion raised from the seed sent to them, along with other varieties for comparison:—

Mr. Parsons, Danesbury
Mr. John Standish, Ascot
Mr. Rogers, Berry Hill
Mr. Dancer, Chiswick
Mr. Bousie, Quantock Lodge
Mr. Penfold, West Moulsey
Mr. Goldsmith, Polesden Lacey
Mr. Simpson, Stoke Farm
Mr. Burton, Heathfield
Mr. Luckhurst, Egerton House, Hawkhurst
Mr. Earley, Digswell
Mr. Thos. Record, Lillesden
Mr. Horley, Toddington
Rev. W. F. Radclyffe, Okeford Fitzpaine
Stuart & Mein, Kelso
Royal Horticultural Gardens, Chiswick
Mr. Gilbert, Burghley
Mr. Stewart, Nuneham Park
Mr. Rutland, Bentley Priory
Mr. Lidgard, Albion Road, Hammersmith

These Onions Messrs. Barr & Sugden classified as follows:—

1. *Oblong or Pyriform.*—To this section belong the Spanish Onion of the grocers, James' Keeping, Pear-shaped, Globe, Giant Madeira, Brown Globe, White Globe, Oxhorn, and Bedfordshire Champion. A fine sample of James' Keeping and the Pear-shaped approximated most nearly to the imported Onion, evidently showing that the latter either sprung from the former or *vice versâ*. It is maintained by some, however, that the Globe Giant Madeira is the variety in this country that represents the imported Onion. Messrs. Barr & Sugden's collection, however, showed most completely that this conclusion is erroneous; as, the Giant Madeira and Oporto Onion seed being sown side by side, the former attained a much greater size than the latter; whereas James' Keeping and the Pear-shaped would have shown about an equal weight in produce, and about an equal size, when compared with the Oporto Onion. The specimens of the Oporto Onion grown in this country—which were supplied [by the gentlemen whose names are given above—showed conclusively that we can grow the Onion as large and in half the time that it can be grown in Portugal. This was done more especially by Mr. Standish, who showed the finest specimens raised from the imported seed. He states that he sowed the seed on April 1, and lifted the Onions in the middle of September, being 5½ months; whereas in Portugal they are grown in from 10 to 12 months. Mr. Standish's specimens were larger than a sample of imported Onions which formed part of the collection, and when cooked they were found to be equally delicate in flavour. The difference between the English-grown and the imported Onion consisted principally in the silkiness of the outer skin of the latter, which would make them more attractive in the shop window. The question, however, might be still further ventilated, and we hope that some one will bring up the subject next year.

2. *Flat Onions which attain a great size.*—The principal specimens exhibited of these were—Giant Rocco, New Venetian Giant, Flat Giant Madeira, Red Flat Tripoli, Red Sallon, and Santa Anne Giant Madeira, The last named was evidently a selected flat variety of the Oporto Onion. All the others are variations from one stock, viz., Flat Giant Madeira or Flat Tripoli. None of them appeared to be very good keepers, but they grow to a great size, and are very delicate in flavour.

3. *Pale red and brown-skinned flat Onions.*—Of these there were specimens of Danvers', St. Brienne. Pale Red Viort, Pale Red Flat Keeping, Common Pale Red, Strasburg, French Strasburg, Flesh-coloured Strasburg, Red Spanish, Yellow Flat Keeping, Very Large Yellow and Straw Colour. All these have a very strong family resemblance. Under ordinary treatment they are medium-sized Onions, but with extra cultivation they attain a large size. The best of them appeared to be St. Brienne, Red Viort, and Danvers'.

4. *Light-skinned flat Onions.*—Large Dutch Yellow, Sulphur, Sulphur Flat Keeping, White Spanish, Reading, and Nuneham Park, all very much resembled each other. The Nuneham Park (true) is evidently a good variety of the White Spanish Onion. It is cultivated to a great size by Mr. Stewart, of Nuneham Park, and from his specimens a sample was cooked, and the flavour of this Onion was considered to be superior to that of the imported Onion of the grocers. White Spanish Onion, mostly grown in Bedfordshire, appears a finer breed; it has a finer neck and ripens off sooner. This is the pretty little Onion, which is sold in Covent Garden market in the autumn for pickling. The seed is sown thickly on light warm soil in the month of May.

5. *Red Onions.*—These were exhibited under their various names of Blood-red, Dark Blood-red, Very Dark Blood-red, and Very Deep Blood-red. Blood-red was the largest and Very Dark Blood-red the finest coloured.

6. *White or silver-skinned Onions.*—These were exhibited under a great many names, such as Very Early Silver-skinned, Early Silver-skinned, Very Early Paris Silver-skinned, Early Paris Silver-skinned, Large Early Paris Silver-skinned, Early Nocera Silver-skinned, Extra Early Nocera Silver-skinned, White Tripoli, White Valentia, Silver Keeping, and White Lisbon. The differences seemed but trifling. White Lisbon appeared the coarsest, and White Tripoli from imported seed were the finest.

7. *Two-bladed Onion.*—This is a pretty little variety, much prized for pickling.

8. *Potato, or Underground Onion.*—This is a large and mild-flavoured variety, not usually produced from seed. There were, however, specimens from Mr. Gilbert, of Burghley Park Gardens, the produce of roots, and Messrs. Barr & Sugden showed specimens from seed.

The Tree or Bulb-bearing Onion, sometimes called the *Rocambole Onion.*—This variety produces small bulbs on the stalk instead of flowers, and these are considered the most valuable of all Onions for pickling.

The collection, as exhibited before the Fruit Committee, is on view at Messrs. Barr and Sugden's warehouse, King Street, Covent Garden.

Home Correspondence.

Potato Grafting.—Our good cousins over the water would probably observe "A pretty considerable f—l you are for your pains." Well, be it so: I speak personally as to this observation, for I know that, whether by grafting or by any other means, the raising of new varieties of Potatos can never, in a monetary point of view, compensate me for "the trouble and time I have bestowed upon this valuable root." But what of that? It has been to me a wonderful study during a period of 30 years, whilst laying hands upon every variety which crossed my path; and what by selection, then by crossing the best sorts, and of late years by practising the grafting process, an insight into Nature's workings has been gained sufficient to convince me that a Potato is a Potato, that it always was and ever will remain a Potato. In my most recent crosses with the Potato this season I can distinguish in the 60 specimens I took to South Kensington, blended in colours, and in form and flavour, every sort that I have operated upon, from the two first parents of my original cross, and more—even retrograding—by the production of one which, in habit of growth and appearance of tuber, is like the wild esculent as it was received this season by the Royal Horticultural Society from Peru, which I saw growing in the gardens at Chiswick. I will defy anyone to prove the Potato capable of receding farther, or to add to the species any other form or colour further than those exhibited by me, because I then produced them from black, changing through intermediate colours and spottings to white, and of every intervening shape from round to kidney. I own it is a most difficult matter to improve upon the species, as in all my previous workings, excepting my last early and late batches of crosses, out of hundreds of new seedlings I have not been able to succeed in raising a new variety coming up to the standard of what I consider a Potato should be in quality, coupled with good bearing properties and habit of growth. It is yet capable of great improvement even on my last essays; and is the race of man at a standstill, when by striving to improve our lowly, though important esculent, as being a part of our means of subsistence, I have been taught by the simple yet wonderful workings of Nature, to consider about the origin of existence? I trust your old and most worthy correspondent, Mr. Edward Bennett, will allow me to warn him never to prostrate his abilities entirely to a consideration of profit. I have been compelled to know the importance of monetary matters as much as any man—carking cares have caused "the grey sorrow to flow o'er my head" before its time—but it is not good always to allow "enthusiasm" to become cooled by placing the idea of £ *s. d.* before our eyes. "Want of faith" in the practice of grafting the Potato may fairly be excused, still I have succeeded in gaining a hybrid cross; and if the result is in a wrong direction, let us hope for better luck next time. Personally, I do not consider the subject sufficiently exhausted, either in a practical or scientific point of view, to induce me to give it up; so along with cross-breeding I propose to "drag my weary step, though slow," in the matter of grafting. Mr. Bennett may thank himself for the infliction, as it was, I believe, that very experiment of his in the grafting of the Dahlia (p. 1039) which gave me confidence to stand out, and confront the disbelief in the possibility of gaining a cross through grafting the eye of one variety of Potato into the tuber of another. I have never been able to gain an infusion of colour through grafting the eye of a white sort on a coloured kind, though that has been stated to have been achieved. In the instance of Paterson's Scotch Blue, grafted on to the Royal Albert (white), which I sent to Dr. Masters, the divergence of colour seen in the immature tubers could not have been caused by the grafting process, because the skins of the graft and the stock had never united, or the tissue either; therefore that instance of variegation of colour must be attributed either to the immatureness of the tubers or to a changing in the colour, similar to that which Mr. Bennett speaks of as having occurred both with himself and in the garden of Mr. Berkeley, near Worcester. The case of the bunch of white Grapes on a black Vine is not quite so familiar for analogy as is that of the blue racemes of flowers occurring on the yellow Laburnum, &c. I cannot quite understand the two last paragraphs of Mr. Bennett's paper. All the eyes, from the tuber to be grafted on, are, or should be, scooped or quite cut out, otherwise, of whatever colour they may be, they would produce their kind from the eyes left in; and if the uniting of either skins or pulp does not take place in the graft stock, the eye or graft will independently and simultaneously produce Potatos of its kind, though in the cases of perfect or partial cicatrisation, resulting in my practice, as above stated, I have never yet been able to achieve a "mixture of colours" in the hybrid. The circumstance of "one square inch of the substance of the inside of a tuber" being able to "grow," viz., I suppose, to produce shoots, foliage, and tubers, without a fang or symptom of an eye in its composition, is something quite beyond my experience, the mere mention of which has caused Mr. Bennett to send me on another tack. I fear I shall have more difficulty to "weather that point" than I had in making "port grafting." If a square inch of the inside of a tuber will grow, why will not a whole tuber do so when deprived of all its eyes? In the latter case I almost invariably find my tubers, when the grafts do not "take," to remain plump and inert in the soil, unless they become devoured by ground grubs; they are generally highly approved of by that family as thechoicest of victuals. *Robt. Fenn, Woodstock.*——Upon what principle a Potato can be called a stock I am utterly at a loss to conceive. It may be sheer ignorance on my part, but I cannot understand how the simple insertion of a piece of one tuber into another can in any way affect its character or change its constitution. In days gone by, when all sorts of unavailing recipes were propounded for extinguishing the Potato disease, one was not only recommended but put to the test that has some similarity to the idea of grafting. This was to scoop out a small hole in the tuber when being planted, and insert therein a Pea, which said Pea was to grow, and in its growth absorb from the tuber all its tendency to disease. Of course when planted the Pea grew, but the expected result did not follow, neither did I ever hear that on any occasion the experimental cultivator was astounded by shelling out from the produce young Potatos instead of green Peas. I may be told that this incident is utterly beside the question at issue, but I think it is not, although the two vegetables mentioned are so widely divergent in character. I should just as soon expect, were I to scoop out a hole in a cricket ball, and insert the eye of a Potato, and then plant it, that its produce would be "leathery," as I expect to find that the same experiment, carried out with Potato tubers only, can be productive of change. The fact is (and here is the fallacy that runs through the whole of these experiments), a Potato tuber is not—cannot be—a stock at all. What is a stock in the sense in which the word is here used? A rooted medium. Is there any known stock in the horticultural vocabulary that is not a rooted or rooting medium? But who ever saw a rooted Potato? Let there be no misapprehension of my meaning when I say this. A Potato is so utterly dissimilar to other tuberous or bulbous roots in this respect, that it has no capacity to emit roots from itself in any way. [There are exceptions. EDS.] In this respect how much does it differ from the Jerusalem Artichoke, or the Dahlia, or such roots as the Parsnip, Carrot, or Turnip. If anyone were to scoop out the head of a Parsnip, and insert therein the crown of a Carrot, that would be grafting in reality, as, in the event of growth, all root action must come from the former, and the flow of sap would be through it into the latter. But how different with the Potato, for here it may be said its tail comes out of its head; instead of roots, a shoot is first emitted, and this puts forth the rootlets that are its feeders; consequently, there is no passage or flow of sap through the the tuber into the haulm, but from the roots into the haulm direct, and thus as a result the so-called stock can have no active connection with the graft or its produce. It is rather a nice point to determine as to how long a period during growth the original set continues to influence the haulm. If some of those enthusiastic gentlemen who have devoted their energies to the grafting mania would try by experiment to elucidate this idea, they may possibly perform for horticultural science some service. Is it possible to plant a small number of equal sized Potatos of the same variety, and then without disturbing the roots, and at various stages of growth, sever the connection between the old and new? We are told by Vine growers that if the roots that are so often emitted from the branches of a Vine are supplied with the elements of nutrition, the action of the ordinary roots will be checked: does this fact apply to the Potato to this extent that when roots are formed at the base of the shoot and furnish food to it, its connection with the tuber ceases? if so, it but furnishes another proof that the practice of grafting Potatos, so-called, is just so much labour lost. To work out this suggestion may after all be productive of but little gain, but I may venture to assert that its result will not be a crop of mongrels. *Alex. Dean.* [The above remarks are suggestive of grafting together the young sprouts of such varieties of Potatos as it may be thought desirable to intermix. As to the "stock," we refer our correspondent to our article at p. 1012. We shall have more to say by and by. EDS.]

Roses.—"Hibernicus" is a bold man. Forty new Roses at 3*s.* each amount to 6*l.* For a trifle more I can buy 200 plants of C. Lefebvre, which will take half a century to beat. I used to buy "whistles," but I have got more prudent. I know but little of the Roses of 1868-9, but, as far as I can read and learn, I think he would be right to buy the Tea Roses Adrienne Christophle and Marie Sisley, and the H. P.'s Charles Lee, Marquise de Montemart, Duke of Edinburgh, Madame Creyton, Madame Jacquier, and Souvenir de Poiteau. M. Eugène Verdier has sent me his list of new Roses for 1869-70. As he has not given the raisers' names, I shall only refer to those sent out by himself. Of his seedlings these read the best:—"Auguste Neumann (E. V.), vigorous, large, full, fine form, good habit, magnificent colour, brilliant poppy-shaded fiery red and violet, often mottled white; a very remarkable variety." "Ferdinand de Lesseps (E. V.), very vigorous, large, full, fine form, purple shaded violet, very fine." I have bought in dormant bud, which I prefer to plants ready made, plants of the Duke of Edinburgh and Charles Lee, 6*d.* each. Mr. Blandford's foreman told me C. Lee was very superior. I shall buy Marquise de Montemart, Souvenir de Poitou, Marie Sisley, and Mons. E. Verdier père. I hope the "whistle" will be cheap. Madame Alice Dureau is first-rate, and Reine du Midi has been blooming freely. Neither bloomed freely during the fore part of the season. *W. F. Radclyffe.*

Destroying Wasps' Nests.—I have succeeded so well in taking wasps' nest and two hornets' nests with chloroform, that I think it a public duty to give the information in your journal. Dr. Ormerod, in his dear little book, advises the covering up the face and head with crape, and tying the wrists and ankles, &c., but I go to work, without fear of failure, without any change of usual attire. Thus I wait till two hours after dark, when pretty well all the wasps are in their nest for the night; no stragglers are about, as is the case with hornets. I take a handful of straw, some matches, a lantern, tow, and methylated chloroform about 6 oz. I may say that, as a rule, wasps prefer taking a rat's hole for breeding in, and generally in some bank (I found only one in flat ground). Having ascertained the direction of the passage to the nest by a slender stick (I used my naked finger), I then wound some tow loosely around the stick, and pouring half the chloroform over it, thrust it into the hole in the direction of the nest. To make perfectly sure of success this may be withdrawn, and another stick with tow and chloroform inserted: the first, however, always served my purpose. The full effect is obtained in five minutes if the operation is well performed, and the nest may be dug out, even handled with naked hands, and if perfect may be placed under a wire cover, or, if mutilated, burnt at once on the lighted straw. There are many females in each nest, and these are the founders of future nests, so it is most desirable to destroy them. The taking hornets' nests is a more formidable undertaking, for the hornet does not keep such good hours as the wasp; he comes home all hours of the night, and sometimes don't come home till morning. I gave them three hours after dark to settle down, and then proceeded to take the first nest. It must be remembered that I had already taken eight wasps' nests, and I would recommend others to try their hand on the wasps, and gain some experience in the way of managing the operation, before they attempt the hornets. Seeing that I could take a wasp's nest so easily, and with perfect safety, I went to work with more self-possession on this terrible insect, the hornet. The nest was built above an opening in the side of a wood barn where a board had come off, and it was necessary to fill up the space between the lining boards and outer boards with some cloths tucked in below where the hornets entered; this was done on a previous night. On the night we took the nest my man and myself laid tow on this ledge, poured a quarter of a pint of chloroform on it, nailed a sack over the opening, then going into the barn, we made holes with an auger on either side of the nest, and squirted chloroform into it; in five minutes the sack was removed, and all the hornets—about 200—lay quite motionless; these were immediately burnt on a handful of lighted straw. Stragglers kept coming home; some were caught in a net on which the light of a bull's eye lantern was thrown, and some would settle on the barn, and when the light was fully cast upon them they were easily crushed by a stick. I clothed my man with netting about his head and gloves on his hands, but I made no difference in my ordinary dress, and we escaped being stung. I may state that my man afterwards took another hornet's nest in the thatched roof of a cottage in the manner described for taking a wasp's nest with chloroform, without my assistance, and with the same impunity. On examining what might perhaps be called the comb, *i.e.*, the aggregation of cells, there were five tiers of these, containing about 1000 pupæ. I found also between these boards what I take to be the commencement of a new series; it was in an oval form on one side, flat on the other: on the oval side were cells deep in the centre, and shallower by degrees as the edges were approached; they were very beautifully formed hexagonal cells, and at first sight appeared empty, but a closer inspection revealed white grubs attached to the bottom of the cell, from the eighth of the size of a full grown maggot down to the size of the smallest pin's head, showing the progress from the egg to the pupæ. On examining the pupæ in the large pieces of comb I found grubs, or rather maggots, in different stages and sizes; and I found when the maggot began to change into the form of insect, a very tough membrane, resembling thin parchment, sealed the cell until the fully perfected insect was strong enough to burst its way through and escape. There was lying in the woodyard a tree with a hole in it; this tree was decayed in the centre, the hornet's passage in and out this tree gave rise to a belief that there was a second nest, but when they discontinued their visits, it was evident they went there only for material to make paper. The cells and covering of the parts not wedged by the sides of the board were so regularly marked in deep and light fawn-coloured striæ, that one might imagine they had worked in concert for artistic effect. I placed masses of comb under a wire meat cover, and extracted the whole of

the hornets as fast as they showed their heads through the parchment-covered cells, and found a very large number of female hornets, measuring from 1 inch to 1¼ inch in length, furnished with a sting; the males have a different process, and do not appear to be furnished with a true sting. The contents of this nest, taken this month (October), shows the importance of thus destroying hornets' and wasps' nests, for there are more females, I think, amongst the later formed pupæ than there are in the summer months, and each female is capable of forming a new nest in the spring. *P. Squire, Besmead Manor, St. Neot's.*

Royal Vineyard Grape.—In your paper of October 2, I see an inquiry as to the merit or otherwise of the Royal Vineyard Grape, your correspondent stating that the bunches only produce a few large berries with many little ones the size of peas. The same thing occurred with our Vine for the last four years, and we were thinking of removing it, when one day this spring, when the Vines were in flower, we took a bunch of Muscat of Alexandria (then in bloom) and dashed it over the flowers of the Royal Vineyard. It set perfectly, and the fruit has been very fine, many considering the flavour as good as the Muscat of Alexandria. *R. M., Chesterfield.*——In reply to "M., Greenock," as regards Royal Vineyard Grape, I beg to state that I have grown it for four years, but have only allowed it to fruit these last two years. I find it just the same as "M., Greenock," states, with only a few large berries, all the others being very small and stoneless; in fact, some of the bunches had not a single large berry on them. I grow mine in a house with Muscat of Alexandria, Muscat Escholata superba, and other kinds, all of which (with the exception of Royal Vineyard) set their fruit well. I mean to graft my Vine (which is a most rampant grower) with some other kind. I could name other gardeners who have found it such as I describe, and who have discarded it with very little ceremony. With regard to its good keeping qualities, as stated by "B.," I beg to state that with me the few large berries obtained, crack almost as soon as ripe, whilst all other kinds in the same house hang till quite shrivelled without showing any symptoms of decay. *J. M., Hampshire.*

Miss Becker's Lychnis.—The perusal of your editorial remarks on Miss Becker's paper on a peculiar form of the common Lychnis dioica (p. 1012), brought to my recollection some remarks I had published nearly 20 years ago, on a somewhat similar occurrence in the case of Carica Papaya, another dicœcious plant, where many of the flowers on the male panicles had become fertile, and bore perfect fruit. That happened, not in a solitary instance, but in a number of trees growing in a garden at Kandy, in Ceylon, and again on a tree near Guilom in Malabar. On turning to the article in my "Illustrations of Indian Botany," vol. ii. p. 33, I find the transfer of the developing force or current, from the male to the female set of organs, is attributed to the modifying power of soil and climate, acting on the dormant energies of the rudimentary ovary always present in these flowers, and developing them into prolific fruit, but at the cost of the male organisation. May not, then, the question mooted by Miss Becker be answered by attributing the change recorded to irregular distribution, or misdirection of developing force, however produced, causing the development of pre-existing but rudimentary or dormant organisation? The growth, for example, of a Fungus in the anthers of Miss Becker's Lychnis seems to have paralysed their proper formation [In the specimens we saw, the anthers were perfect. Eds.], but leaving the flower otherwise perfect, thereby causing a change in the direction of the vital currents to the rudimentary but excitable female organisation. This theory, the transfer namely of the developing force from one set of organs to another, will, I expect, be found to supply probable explanations of many hitherto puzzling cases. Let us, for example, apply it to the curious case of Bæckea diosmæfolia (Veget. Teratol. p. 184), merely assuming—a very likely assumption—that the stigmatic function had somehow become paralysed or destroyed, say by a Fungus, or some insect using it as the nidus for its eggs, the flower meanwhile remaining otherwise perfect. Then, according to this theory, the developing force which should have been equally distributed to both male and female organs, became concentrated on the male, and with such effect that it transformed embryonic ovules into stamens. In the cases of the Lychnis and Carica the male organisation had succumbed, and the female became exalted. This view, if accepted, opens a door for much further and profounder speculation on morphological botany and vegetable physiology. *Robert Wight.* [The following is the extract from "Illustrations of Indian Botany," vol. ii., p. 33:—"The next plate (No. 107) presents two panicles of male flowers, every branch of the larger of which is furnished with one or more fertile flowers; the smaller is the usual form without fertile flowers: the former was taken in June from a tree growing in moist rich soil on the bank of a canal, in the then cool and humid climate of Guilom; the other grew in Madras. The monœcious plant is also of frequent occurrence in the cool climate of Kandy in Ceylon, but I have never seen a single instance of the kind in the hot dry climate of the Carnatic. This fact affords a strong confirmation of the truth of an observation of Mr. Knight, that he could render Melon plants much more prolific of fruit by cultivating them in a very cool atmosphere, almost every flower produced in such circumstances being fertile, while male flowers predominated in opposite circumstances. In the Papaw, this is accounted for by each male flower being furnished with an ovary, usually rudimentary, but which is yet capable of becoming fertile." See Dr. Spruce's remarks, p. 1092.]

Orchid Spot.—I have but recently returned home, and consequently have not been able sooner to answer my friend Mr. Anderson's letter, upon this subject, in which he takes exception to my treatment of Orchids for the prevention and cure of the disease known as spot. He says "vegetable pathology does not admit of so easy a solution as this." Now I never preach a thing which I do not practise, and the advice given in my "Notes on Orchids," at Manchester, is just what I have adopted with my own plants, with the view of keeping them free from spot, for many years; but because the scientific bodies, whom he appears to think the only parties who should solve the question, have done nothing for him, he refuses to accept any other. I have heard of the perambulations of the Scientific Committee, but they have not yet paid me a visit; and I earnestly invite them to inspect my collection of Orchids, as proof that under the directions I lay down, they are free from spot. From long practice extending now over many years, I am equally convinced that the disease is not infectious; in proof of which I will allow any Orchid grower to place a plant as badly "spotted" as he can find, in the house with my own plants, provided it be free from everything but "spot" (I allude to thrips, &c.). In buying Orchids from various sources spotted plants frequently enter my houses, but I never think of keeping them separate on that account; and further, as all my observations convince me that the "spot" is the result of disease in the plants, and not the cause, until Mr. Anderson brings forward something more substantial than mere assertion to the contrary, I must still hold to my own opinion. *B. S. Williams.*

Application of Hot-water System to the Manufacture of Tea.—The cultivation of tea in India has now been entered into in right earnest, large capitals have been invested, and equally large tracts of country brought under cultivation, more especially in the Assam and Himalayan districts. The manufacture has had the greatest care and attention bestowed upon it, and as a consequence improvements are constantly being introduced. Withering machines, presses, and improved furnaces are inventions or adaptations of long-ago, and we now have rolling machines, hot-air and steam apparatus for drying, &c.; and I understand that one gentleman at least has taken out a hot-water apparatus, but nothing definite can be learnt concerning it. Having been connected with a tea plantation for nearly five years past, and having given the subject of heating by hot water a great deal of careful consideration during that time, I may be permitted to offer a few remarks on the subject, through the medium of your paper. The advantages of the introduction would be briefly these—1st, great economy; 2d, extreme cleanliness; 3d, simplicity of management. Under the present primitive system charcoal fires are used for the final drying of black tea; indeed, so common is the use of charcoal in the final desiccation, that the belief has taken a hold of many persons that the fumes of charcoal are a chemical necessity in the manufacture. This is not the case; black teas of a very excellent quality may be finally dried on the pan or in the sun, and their quality will depend upon the fineness of the leaf, the rolling and exposure to the sun and air, and the period and degree of the fermentation, and not upon the fumes of charcoal. The Chinese themselves are said to employ a basket which fits into their pans, which they place in them for the final drying, and here again we have a tea manufactured without the fumes of charcoal. Indeed, the instances in which good black teas have been produced without charcoal are almost as numerous as the instances in which good hay has been produced without it. Providing you can be quite certain of an abundance of suitable sunshine, either hay or tea may be equally well manufactured without artificial heat. But in either crop you are not always certain about suitable sun, and in the manufacture of tea, at all events, it becomes a matter of economy to introduce the most economical means of supplying artificial heat for the facilitating the manufacture of the ingathering harvest of raw produce. Tea cannot be transported in its raw state, it must be manufactured before leaving the estate, as well to reduce the bulk as to preserve the quality. Here, then, is the necessity; artificial heat must be employed, and by all means let it be supplied in the most cleanly, manageable, simple, and economical manner. No system of heating can be employed which will so well meet these conditions as the hot-water system; all that is required is to modify the apparatus, so as to adapt it to a tea manufactory. Now in the manufacture of black tea nothing can vary more than the degrees of heat employed in the various manufactories. If a very great degree of heat be employed, say as much as 220° of Fahr. for the first roasting, and 100° for the final drying, the sap will be driven off very rapidly from the green leaves roasted at the higher temperature, and as a consequence less pans, but harder work, will be the consequence. The workmen must work faster at the higher temperature, or they will burn their leaves: on the other hand the low temperature of 100° for the final drying results in a simple question of space. Plenty of room will be required, for the drying will necessarily be a slow process. But equally good black tea has been made at a lower first heat—say 180° Fahr., and from 146° to 150° in the final drying; and the only consequence has been that the workmen have to remain at the pans a minute or two longer in the first roasting, and that you can afford your tea rather more sun and less fire in the final drying. Seeing then that the degrees of heat are so variable, we have simply to determine what the maximum amount of heat should be, and consider the best means of supplying it. Now, 200° of heat may be maintained on the surface of any hot-water pipe, and a considerably greater amount if the pipes be of small bore and the fire be directly applied to a coil, as in Perkins' system. Now, for an apparatus for a tea manufactory the desideratum would be the heating of the whole roasting and drying apparatus from one fire, the maintaining a maximum degree of heat under the pan, which might be a modified boiler, and then the pipes themselves should be so small as to present a minimum charge for freight to India, and a maximum rapidity of circulation. All these conditions I feel sure could very easily be met; there is no reason why a tea pan should not be modified in such a manner that it would act as a hot-water boiler, and at the same time be of a minimum weight: then for the drying pipes they should be of the smallest diameter, for two reasons—firstly, as before mentioned, to reduce the freight to a minimum, and secondly, to provide the greatest possible rapidity of circulation, one, or at the most, two-inch pipes, should be made to connect with the boiler by screw joints, to provide for facility of erection. Of course screw-joint pipes would be a greater first expense, but they would be by far the most suitable for India, inasmuch as they could at any time be taken to pieces for alteration or removal. These small pipes would be connected with the boiler, and laid parallel in a brick and chunam trough round the sides of the house; above these would be placed the tea, for drying, and above this again, on open shelves, the green leaves; everything would thus be carried on in one building—withering, roasting, rolling (by a machine, perhaps), in the centre, and then the final drying above hot-water pipes, to the exclusion of charcoal, which is a present woeful expense, and an ungovernable, dusty, dirty nuisance. *James McPherson.*

Royal International Show, Edinburgh.—Permit me to correct the impression which must have been made on the minds of your readers by the remark of "Observer," in your issue of the 9th inst., referring to the mishaps which befel the Pines exhibited by Mr. G. Ward at the above show, and to state that I was not present at the show, that I did not exhibit any Pines, having only sent Pears, and that, immediately upon receiving an intimation of a prize having been awarded to me for Pines, I wrote to my correspondent to correct the (to me) unaccountable error. *George Miles, Gr. to Lord Carrington.* [At the moment of going to press we have received an explanatory letter from the Secretary to the Society, confirming Mr. Miles' statement. As the mistake, in some degree, seems to have turned on the fact of some letters having been misdirected, we may add, that the Secretary's letter to us was also misdirected, and hence cannot be inserted till next week. Eds.]

Hylurgus piniperda.—I have only just seen the note on Hylurgus piniperda by "A. M." (p. 992), or would have said earlier that my statement that the economy of this beetle is well known, is to be taken as an answer to your remark, that little is known of it, rather than as implying that nothing more is to be learnt about the beetle; and for the rest, that everything I stated as a fact was derived from personal observation, though I did not claim this as a merit, as all the facts had been previously recorded. My recommendations for escaping the attacks of the pest were founded on these facts, and on my observations of other species of Xylophaga. If "A. M." has ever seen a number of Pine logs which had afforded *pabulum* for these beetles, he must, as I have often done, have wondered where the swarms that had left them have all gone to; and will find little difficulty in understanding that the shoots of young trees at a great distance from any felled logs were perforated,—a fact which I have observed, though as very small timber will sometimes support the larvæ, and as we cannot be quite sure of the absence of larger logs, it is difficult to say how far the perfect insects have travelled. "A. M." also appears to have misunderstood my recommendations, and as others may also have done so, I hasten to explain them. The attack from which I wish to save a valued tree is not that of the beetles in the shoots, for which immediately I think I distinctly said I knew no remedy, but should it be sickly, either from the beetles burrowing in its shoots, or from any other cause, and so likely to have the beetles oviposit in its bark in the following spring, the result of which is certain death to the tree; then lay logs beside it, in which the beetle will by preference oviposit, and in which they may be easily destroyed, the beetle being quite unable to abscond with the plate chest until he has been there six weeks, the ordinary time required for rearing a brood. Again, in the second recommendation noticed by "A. M." the tree attacked means attacked as to its bark for oviposition, which is synonymous with certainly killed, when there can be no objection to barking or felling it. The whole of my suggestions amount simply to this—that the beetle may be easily found and destroyed whilst ovipositing, and in the larva state, say in May and June, as it is then in the bark of felled timber or dying trees, to remove and destroy which does no injury. On account of the perfect insect travelling (on the wing) long distances, I pointed out the inefficiency of even this in any region where Pines are abundant, unless carried out over a large area. Unlike "A.M.," I have seen a good many large Pine trees apparently killed by this beetle ovipositing in them. I say apparently, because I believe the trees must have been first in ill-health to be attacked, yet I have usually been unable to detect such a cause. "A. M." wants to know when the larva is found in the young shoots and why? I should like to know if they are ever found there. It has been suggested, and I have verified it by observation in several species, that where the Scolytidæ attack living trees for oviposition, their success is prevented by the flow of sap drowning them out. Perhaps some one learned in vegetable physiology could tell us whether this natural protection would be less efficacious in a dry season. I have seen a living Pine tree entered by H. piniperda, whilst the sap was sufficiently active to exude and form tubes and

papillæ of resin around the entries of their burrows, and yet the beetles persevered, and the young broods emerged abundantly, the tree being quite dead next season. *M. D.*

Boilers.—Your space has been a good deal occupied with the question of hothouse boilers and stoves for the generation of steam, a question of no small importance to the nurseryman. A dweller in town, I have not much right to ask you to let me obtrude my views into the discussion, but I should like to point out how I believe more economy might be obtained than has yet occurred to those professionals concerned in this question, and what means I should take to obtain the greatest amount of heating power with the smallest cost. From a commercial point of view I should ask, if something might not be done to utilise the waste steam generated in the kitchen of the nurseryman? I believe a great deal might be accomplished in this direction, and which would at the same time tend to economise the domestic arrangements of his household. In my kitchen I have a stove which, with a small amount of fuel, is capable of generating any quantity of steam. This stove, the invention of Capt. Warren, is manufactured by Messrs. Adams & Son, of Marshall Street; in an hour after the fire is lighted, the steam is up, and goes on generating with a small fire throughout the day. The whole of my work is done by the agency of steam, but for domestic purposes this steam is only required for a few hours, and then comes the time when it might at a very small cost be conveyed to the hothouse, and it would not be difficult to keep the fire going throughout the greater part of a long night at any time it may be required. In this way the air of the dwelling-house would also be rendered more healthy and constantly warm. The stove offers a very economical and superior mode of cooking, this being accomplished entirely by using hot-air, which, while it in nowise deprives the meat of its juices, retains the greatest amount of phosphates in both animal and vegetable food. Ignorance of the great importance of this cooking, constitutes one of the main causes of the great national deficiencies in respect of food, and the bad uses which our working classes make of such elements of food as lie within their grasp. *W. C.*

Packing Fruit for Transmission Abroad.—Your correspondent, Mr. John Kirby (p. 1040), may possibly find the following plan worthy of consideration. When I lived at Stanton Lacey, near Ludlow, 30 years ago, in default of a proper fruit room I used to adopt the following plan, viz., collect some ripe Fern, allow it to become thoroughly dry, strip off the fronds from the stalks, and place each fruit singly in a handful of these leaves, packing them away in hampers, boxes, or any other convenient receptacle. Those fruits which may become rotten, will not easily contaminate their neighbours; and a surprising quantity can thus be stored away in a small space, by allowing one hamper to stand upon the top of another, and so on. I should continue this practice in preference to any other that I know, but there is a difficulty here in procuring the Fern. Let me advise your correspondent not to use "chopped straw," or straw in any shape, as the fruit would be almost certain to acquire an unpleasant flavour from it. I really do think that for his purpose thoroughly dried Fern fronds would be "the thing." *Robert Fenn, Woodstock.*

Flight of Greenflies and Lady-birds. — In the morning of July 24 I observed my young Peas covered with innumerable greenflies, and slight observation led me to consider them as a new enemy. They had large brownish wings, well adapted for flight. Since then I learned that the same kind of aphis appeared about the same time in various parts in this quarter, as Bury St. Edmund's, Thetford, and Norwich. The flies were somewhat like those of their family which attack Plum trees, except their mealy powder that resists water. In my haste to destroy the green pests I regret not having preserved some of them, so that their history might be better known, but I trust others have done so. I syringed them with lime-water, and though they were easily washed down they were as soon up again, and the Pea sticks were green during their ascent. Afterwards I shook them into watering-pots amongst greasy lime-water, and destroyed those on the ground with a spade. Repeating the operation I stopped the plague, but not before the crops were destroyed, for the insects had sucked the juice from the tender tops, which soon withered in the hot sunshine. I have said that the aphides came suddenly, meaning that they were not bred near or upon the plants, on which they alight like others of the family. Besides, the insects seemed to disappear as mysteriously as they came, at least, from other plants where they were not disturbed. Now, if these greenflies left eggs as other aphides do, they may reappear in such numbers that no amount of Lady-birds can keep them down. I mention this because the latter insects were so abundant this season that some were led to consider that they followed the greenflies to devour them. However this may be, Lady-birds are also fond of soft fruit, on which I have seen them in twos and threes, in company with wasps, where no common fly would dare venture. Perhaps their shell-like covering is too hard for wasps. The Lady-bird is called also Lady-cow. The Linnæan name is Coccinella septempunctata. By the children in Norfolk it is called Bishy Bar-na-bee. It may be seen nearly at all seasons, and early in the spring during a glimpse of sunshine, when other insects are torpid, or inclosed in chrysalids. The above was written before I had seen T. Southwell's remarks on this subject in "Science Gossip." He mentions that on July 24 a "yacht belonging to Mr. Creswell, of Lynn, sailing off Hunstanton, passed through a mass of dead Lady-birds, accumulated on the surface of the water, about 10 feet broad, and extending for 2 or 3 miles." The same writer also notices Mr. Cordeaux's note on greenflies in the "Zoologist," and who says, "On July 24, the same day above referred to, about 13 miles from the Lincolnshire coast, his cutter ran through numerous belts of water, from a few yards to some hundreds in breadth, and extending both to port and starboard as far as the eye could reach, so full of myriads of green winged aphides as to present a thick pea-soup-like appearance." It is rather remarkable for the insects to have been seen in so many different parts on the same day; they were noticed in Norwich on the 23d or previous day. *J. Wighton, Cossey Park.*

Cockchafers.—I herewith send you some grubs which have been a source of great annoyance to me during the present season. About the middle of June they attacked a bed of dwarf Roses, eating the roots to such an extent that the leaves soon became yellow. I tried lime and soot, which seemed to check them for a time, but never fairly routed them, and I have this day taken up some of the plants which have not sufficient roots left to keep them alive, the fibrous ones being all gone, and the larger ones have the bark peeled off entirely. Could you inform me of a remedy for getting rid of them without transplanting the Roses, as some of them have only been budded this summer. *T. V., October* 6. [The grubs sent with the preceding note proved to be nearly full-grown larvæ of the cockchafer—Melolontha vulgaris. They must have been very short of more succulent food to have attacked the rootlets of the Roses. We know of no application which would drive them away from the roots, but they might be attracted from them by burying slices of Turnips or Potatos about the roots, which might be examined once a week. Cockchafers would not be so numerous, and their larvæ so injurious, if the rooks were not so unmercifully shot. *I. O. W.*]

Yellow Bedding Pansies.—Of late years the Calceolaria has proved very uncertain in many localities, and the question is, What shall we get for a substitute? The yellow-leaved Pelargoniums have in some measure come to the rescue, the golden Pyrethrum has also proved very useful, but, although these give us colour through the foliage, a plant with yellow flowers is more attractive and more appreciated. During a late tour in Yorkshire and Nottinghamshire I saw the yellow Pansy used with very good effect; indeed it has quite superseded the Calceolaria in one or two large establishments which I visited. At Sandbeck, the seat of the Earl of Scarborough, about 6000 plants of it are in use, scarcely a plant of the Calceolaria being grown. This Pansy is certainly one of the best-formed yellow bedding varieties I have seen. The flower is stiff and well-formed, with a neat eye, which makes it additionally attractive, and it is moreover a very free bloomer. I have forwarded you a few flowers so that you may see that it is distinct from the Cliveden variety, which is so extensively used at Thoresby, where it graces the matchless panel borders in the kitchen garden. But for profusion of blossoms the kind in use at Rufford, the residence of Captain Saville, carries off the palm; it is called the Pride of Rufford, and I can assure your readers it was with joy that I beheld it. It is used in lines, in diamonds, and in panel works; indeed, Mr. Holah, the gardener, uses it by the thousand as freely as some people use the Cerastium. Viola lutea is also very extensively used, and is here well grown. But enough of yellows, for after all there is nothing like a true blue, and here it is to be found in a blue seedling Pansy with a velvety texture and a dark eye: a small bed of this was very telling, and promises to be quite an acquisition amongst bedding Pansies. I cannot conclude these few remarks without referring to the ribbon border (112 feet long) which I saw at Rufford, and which was exceedingly well done, beautifully arranged, and kept as even as though it had been cut with a scythe. It was composed as follows:—1st row Cerastium, 2d Lobelia speciosa, 3d Pelargonium Harry Hieover, 4th Yellow Pansy, 5th Pelargonium Brilliant, 6th Centaurea candidissima, 7th Perilla, 8th Centaurea candidissima, 9th Pelargonium Stella, 10th Zelinda Dahlia, 11th mixed Dahlias. I also saw some grand beds of Verbena venosa, but not a single Calceolaria was visible in the principal flower garden. *Edward Bennett, Osberton, Worksop.* [See note at p. 1092. EDS.]

A Monster Potato.—During my recent visit to Scotland, on the occasion of the International Fruit Show in Edinburgh, I called at Dunnikeir, the seat of Captain Oswald, near Kirkcaldy, Fifeshire. Mr. Dewar, the gardener there, showed me a "pet Potato" he had growing in a cosy corner, the tuber of which he selected from a crop grown on the home farm there last year. He could give me no name for it, but he described it as "a long red Potato, with deep-set eyes." This tuber being planted, sent up some 10 or 12 shoots, these formed laterals, which, as they grew, Mr. Dewer kept staked and trained; the whole forming what one would call a beautifully furnished plant, which when I saw it (September 10) measured 7 feet in height and 24 feet in circumference. I think this is something out of the common in Potato culture. What the produce of this enormous top may be remains yet to be seen, but Mr. Dewar promised to let me know the weight of tubers when taken up, which might be interesting to the readers of the *Gardeners' Chronicle.* Have any of your correspondents ever seen a Potato plant grown to such gigantic dimensions? *George Grieve, Mount Stewart, Newtownards, Co. Down, Ireland.*

Wellingtonia gigantea.—The following is a description of a fine specimen which is under my charge, and which I believe to be one of the first batch that was sent out. The plant in question was purchased from Messrs. Rollisson, and was planted out early in the spring of 1859, in unprepared ground, the subsoil being a very strong clay. The height when planted was about 15 inches, the present dimensions are as follows:—height, 27 feet; circumference of bole, 1 foot from the ground, 4 feet 10 inches; ditto at 3 feet, 3 feet 6 inches; circumference of branches, 41 feet. It has withstood the extremes of temperature that we have experienced during the last few years without any check whatever. *James Wood, Gr. to E. R. Northey, Esq., Woodcote House, Epsom.*

The Weather on the West Coast of Scotland.—The weather, which had been exceedingly dry, changed suddenly on Sept. 5th to be very wet. Since that time rain has fallen every day during the month to the amount of 7.73 inches, being 3.11 inches above the average of the last 10 years. The barometer has been very unsteady, and fell to 28.96 on the 22d, when we had 1.39 inch of rain in 16 hours, accompanied by a strong gale, which suddenly changed the gay appearance of many beds in the flower garden, and some of the rows in the borders. Still we congratulated ourselves that we (on the banks of the salt-water Clyde) were not as others were, who suffered from early frost, were parched up for months, and were visited with greenfly or Lady-bird, as in the south-east and midland counties (p. 945). We began planting out Calceolarias and Salvias, &c., on May 11, and finished with Mrs. Pollock, Heliotropes, Perilla, Amaranthus, and Coleus on June 14. We had several frosty nights in May, the minimum thermometer indicated 28° after the Calceolarias were put out, and 30° in June, after several lines of Pelargoniums were bedded out, without being hurt. Our Pelargoniums are struck in the open border in July and August, and kept in a dry airy pit during winter, so that they are strong and hardy when planted out. We for many years put in cuttings of Calceolarias at this time in cold pits; they are kept there through the winter, and we have never experienced a deficiency for planting out. The monthly fall of rain here during the dry season was—May, 0.49 inch; June, 2.71 inches; July, 4.01 inches; August, 1.18 inch, which suits us better than the average fall. We never had bedding-out plants so gay before; Pelargoniums in particular flowered very profusely. Vegetables were also abundant and good. We have still plenty of Peas: Laxton's Prolific and Prizetaker are fine; Champion of England did well in summer, but has failed since the 10th; also plenty of Kidney Beans and Cauliflowers. Hollyhocks and Gladiolus were fine, but are about done. Dahlias, being well set with buds during the dry sunny weather, are now covered with large bold flowers, and seem to be enjoying the wet; Roses, Heliotropes, and Ageratums also stand it well. Among the more hardy plants that have stood the wet well are Pentstemons, and a dwarf scarlet seedling Calceolaria, in the way of Lang's Ambassador, but which stands the wet better. The latter continued in flower outside last winter after the new year. *J. McIntosh, Castle Toward, Sept.* 30.

Our Fruit Failure and its Lessons.—There can be no doubt of the season of 1869 being well and long remembered. After the hot season of 1868, so well adapted for the full ripening the wood of all fruit trees, much fruit was naturally expected this year. In the spring the shoots literally teemed with fruit buds. What hopes were entertained and joy experienced at such an abundant show of bloom! But the trying ordeal of drifting sleet and piercing cold, damp and darkened days, had to be combated, and the result is too well shown in every garden by the scanty supply of autumn fruits, whilst in some it has proved a total failure. This is an exceptional season, we know. Still, I doubt not it will prove a serviceable one, by inducing all gardeners to calculate their resources should another such season be experienced by them. So many plans have been tried, and all having failed, one and all are brought to the same inquiry—Which is the most efficient method of our obtaining superior stone fruit in all seasons? Mr. Fish has done well to call attention to this subject, as it requires the immediate attention of all concerned. Hitherto, whilst ordinary means of protection have secured in many places an abundant supply of fruit, in others the results have not always been so satisfactory. This has given rise to the more extensive use of glass coverings, their superior advantages over ordinary methods being so decidedly apparent. Then again, the successful career of glass coverings for many years had instilled in the minds of many the idea of their being invulnerable. At length, however, we find their capacit of resistance is limited; and this year's experience "shows that sometimes, and under extraordinary pressure, they may give way." This is an admission Mr. Fish is constrained to admit by the almost unanimous testimony of this year's failure. But to palliate this defeat, Mr. Fish complains of "many houses being openly constructed and glazed." With such the argument so far stands good. But what of the failures of closely glazed and properly constructed houses? We have an unheated Peach-house here, covering 16 feet length of wall; height at back, 10 feet; width, 9 feet; with a front wall 3 feet high, on which rest front lights 2 feet high; each of these lights, as well as the top lights, open for ventilation. Figs in pots are grown along the front. This house is flanked at each end by walls, running north and south, so that it must be perceived this house is greatly sheltered from either east or west gales. Notwithstanding which, I have secured only three dozen fruits, Peaches and Nectarines, from this house. The trees are very healthy, and the wood was studded with bloom buds, very few of them, however, did fully expand. They did not want for water, neither were they saturated with wet. But the continued damp, dark, and bitter weather lapped up the heat from within, and left the bloom equally prostrate with those on trees out-of-doors, merely covered with Spruce boughs, and their results are about equal. I maintain, therefore, that to ensure the crops we must insure the houses, by having sufficient amount of piping to defy the ingress of paralysing weather, and keep the enclosed air constantly in motion. Mr. Fish gives some excellent designs of glass screens, which for light are all that can be wished for; but I know of a house almost identical in design to the lean-to shown—the wall being 18 feet or 20 feet high; the front raised

about 5 feet by upright sashes, which are within 1 foot of the ground, and the width of base of the house being 6 feet. In this house last year I saw excellent Peaches, chiefly Royal George, the majority of which would weigh 10 ounces each. I learn, however, this house is not insured, and has therefore failed. The portable screens designed by Mr. Beard, together with the mode of glazing, will doubtless be considered by many as far preferable for protectors to the ordinary methods in use, of netting, &c.; but until they are supplied with portable heating apparatus they will ever be liable to succumb when under excessive pressure. Nevertheless, even with the knowledge of this liability many will be found to use them. But surely, in the majority of unheated Peach-houses, the estimated value of the crop lost in one season would defray all expenses of their insurance, independent of relieving the anxiety of mind experienced by gardeners during such inclement weather. *T. C. Sage, Surrenden.*

Potting Liliums.—We cannot attach too great a value to all communications bearing upon actual practice and observation which appear in these pages; hence the authoritative tone of denial given by "M." to a remark made by your able correspondent "J. D.," concerning the best time in which to pot Liliums, will not fail to be of use. We could have wished, however, that "M.," whilst giving his own personal success, the result of such opposite practice to that of "J. D.," had nevertheless conceded somewhat to the known practice of him he had chosen to oppose. I am prepared, however, to endorse most emphatically the advice given by the latter, and indeed so palpably confirmed by "M." himself; for, in conclusion, it is said, in fact, that not to pot at all is better than to disturb the roots at any period. This is a well-known fact, and shows how detrimental it must be to wound the roots at the advent of their rest period. If at all, why not just previously to their natural swelling and root-making, about the last week in January? As a purchaser and grower of imported L. auratum and others, I may inform "M." that the very act of taking these bulbs up in their native habitat at the advent of their resting period, and thereby injuring the roots, and the process of transportation, so deteriorates their keeping qualities that thousands have been lost in this country from no other cause. Mr. J. Smith, at p. 1064, has given a summary of his success, and the road thereto, and those who value their bulbs should do as he does. *W. E.*

The Royal Horticultural Society's Floral Committee.—Our forefathers prided themselves on bearing with courage and fortitude the punishments to which they had been justly condemned; and at the present day it shows a noble spirit when a man acknowledges his faults, and admits that his punishment is what he deserves: "I have transgressed, and will bear the consequences without murmuring; the officials have only done their duty." But what say "D., Deal," and Mr. Keynes? They acknowledge that they seldom attended the meetings. Now was not this very non-attendance likely to have been the cause of faulty decisions in the plants brought before the committee? Moreover as they attended only when their own particular fancy flowers were in season, and their superior judgment was not allowed to be expressed except in the case of their antagonists' produce, what, I ask, was likely to be the value of such opinions? I have been a good deal connected with various societies for many years, and I find it is always the rule that when those in office do not attend to their duties others are chosen in their place—care being taken to put, if possible, the right man in the right place. The majority of the Fellows will, I think, be of the same opinion as the Council, namely, that fresh blood ought to be infused into the committee every year; in fact, this is the very life of all societies. I have attended most of the Floral meetings since they have been held at Kensington, and if any one has had reason to be dissatisfied with the decisions, I believe I have; but I hold on, and hope the "clique" which "D., Deal," refers to has been broken up. He says: "I am one of the earliest members of the committee, and after, I think, two or three years of office, the annual displacement and election of members took place (these proceedings were nothing new), three names were struck out, and we were requested to name three, which we did;" whereupon he appears to be annoyed, because in casting lots it happened to fall upon himself. Before this I suppose no "clique" existed, but as soon as his discharge was received the "clique" began to manifest its presence. These are his own words: "What was my surprise when I received a curt note a week or two after, saying my name had been struck out by the Council. This was bad enough, but worse followed. I have many friends on the Floral Committee, and the following year they replaced my name and sent it in to the Council, and it was again struck out." Again, "One kind and influential friend offered to do so this year." Now all this seems to me to show the very essence of cliqueism. I am sorry to have to use the term, because it is a disgrace to the members of any honourable society. I earnestly hope the Council will continue to make these annual changes, and outroot some of these "influential friends" who have served three and four apprenticeships, and almost claim a settlement on its grounds, and that they will choose younger members, equally able perhaps to serve the Society and the public. I fear "D., Deal's," extraordinary amount of "friendship" is brought into use too frequently for the health of the gardening community. Let us have fair play, and no favour. "D., Deal," goes on to ask those who have had anything to do with the Society—"Have you any confidence in it?" I say decidedly—yes! and I hold that it occupies such a position that every lover of horticulture ought to pride himself on upholding it. I do not suppose for one moment that the Society is perfection, and it certainly is not without its enemies, but I hope the Council will be wise, and return "good for evil." At the next general meeting I will propose that "D., Deal," and all others who rail against the Society, and at the same time boast of the initials F.R.H.S., shall have a place on the Council; and we may then expect all cliqueism and mismanagement will vanish, and the missed "grand opportunity" will be realised. One word more and I have done. It is no more than right that the Council should hold itself perfectly independent of any particular periodical, or even all of them if necessary. Truth and justice are sure to find their proper level. I sincerely trust that all journals that make gardening their chief object may have an equal share of the Royal Horticultural Society's patronage and information. [Hear, hear! Eds.] *H. Cannell, F.R.H.S., Woolwich.*——I do not like the *animus* of the letter in the *Gardeners' Chronicle* of last week (p. 1064), signed "D., Deal." The public is, I think, about as likely to take the writer's advice not to belong to the Society, as young gentlemen about to marry are to be induced to abstain from that honourable state by that joker "Punch." "D., Deal" speaks of the clique within, but says nothing of the clique without! It is unjust to speak of the Floral Committee, as a body, as a clique, although there are doubtless cliques in the body, and, unless they can be controlled and directed aright, I for one should be glad to see them broken or eliminated. But of the clique without! It is well known that there is a clique without, which while striving to get power within, is yet pursuing and ever has pursued a line of conduct in itself unjust, and intended to lessen the influence of the Society. The Society has, I believe, erred in showing too much consideration to this clique, instead of pursuing a more decided course. But neither a Society nor an individual can please everybody, though each may please enough for all ordinary purposes by doing what is just and right. To depart from this rule lays a Society, no less than an individual, open to the charge of being influenced by fear, or yielding to pressure, and, to say the least of it, invites aggression. I know nothing of the cause of the displacement of "D., Deal," from the committee; but the rule of the Society is to remove three members annually, and the members removed are those who have attended the fewest times. Is it fair to call the Society "the greatest *fiasco* I know," when its Tuesday meetings have been above the average in importance during the present year, and the last meeting (Oct. 5) was perhaps the fullest and grandest October meeting ever held? In conclusion, "D., Deal," shows rather a large share of vanity in parading his knowledge of florists' flowers, and his being known in the floricultural world. Even granting these claims, something more than these is required to fit a man to pass judgment on others' doings; just as a knowledge of the law or theology, and being known in the legal or theological world, are not the only, or even the highest, qualifications for a judge or a bishop. *Veritas, F.R.H.S.*

The Provincial Shows of the Royal Horticultural Society.—Assuming, as you do in your recent leader (p. 1037), that the provincial shows of the Royal Horticultural Society are to be continued, the question for discussion is pretty well narrowed to this one issue—Shall it take the road alone, or in company with the Royal Agricultural Society of England? A second question is suggested by the facts you reveal—that while the Royal Agricultural Society of England hold their show in Oxford next season, "Dublin" has suggested that the Royal Horticultural Society should visit the capital of Ireland. The second question is—Whether the Horticultural Society might not hold more than one provincial show in the year? Can any good reason be advanced why it should not hold two, or even three, if desired? With such prudent and business-like arrangements as the Society has hitherto made with the provinces, it certainly reaps a maximum of credit at a minimum of risk. Looked at, first in a mere pecuniary aspect, the Society may gain much, it can hardly lose anything, by going into the provinces. It netted 200*l.* at Bury; and, I should think, must have done better at Manchester (I have not the returns of Leicester by me). Horticulture gains much by the stimulus of the London Society, and the Society itself will become wider and broader in its sympathies and management by every successive trip into the provinces. It has doubtless suffered at times from plethora of the heart. Confining its efforts mostly to London, Kensington and Chiswick, a score or so of regular exhibitors, have formed, as it were, its whole world of horticulture. It is well at times to leave all this, and go and judge, by ocular demonstration, what the outside unknown barbarians can do. Years ago I advised the adoption of a national rather than a metropolitan policy by the Royal Horticultural Society, and it will be a brilliant illustration alike of its willingness and power to adopt this course if it will but lay its hand on Oxford and Dublin in the same season. There can be no great difficulty in the matter. The English show will be held in July, the Dublin in (say) May or June, August or September. There need be no clashing, no antagonism between the two shows. The enthusiasm of Messrs. Douglas, McDonald, and others would soon raise a guarantee fund for Dublin; and if there is not enough horticultural enthusiasm in Oxford and its neighbourhood to render a similar service there, I threaten to run through for a couple of days and do the work myself. By holding the two shows some useful statistics would be gained upon the relative advantages and disadvantages of independent and joint action. Notwithstanding all that has been advanced on the other side, I am still strongly in favour of the union of the two societies, or, at least, of their shows being held together, in the same place, at the same time. We are told that the experience of Manchester is dead against the simultaneity of the two shows. Allow me to ask what was that experience? Flowers, fruits, sales are told; beauteous Flora and richly-endowed Pomona pining their lives away in utter neglect, and the most exquisite music wasting its sweetness on the desert air, while fat oxen, horses, and swine were hustled and trod upon by crowded hosts of fervid admirers. Admitting that there is much truth in this over-drawn contrast, it is neither logical nor reasonable to leap at once to the conclusion that the comparative neglect of the one show, or the homage paid to the other, were the natural or necessary result of the two being held together in the same town. This has been taken too readily for granted, without one tittle of evidence. Perhaps some of your correspondents will furnish us with proofs that the comparative neglect of the show was caused by the proximity of the agricultural show. Apart from any real or assumed defects in the show itself, here are four good causes against a full attendance:—A bad site, a local disagreement alienating thousands, inaccessibility and ignorance of its whereabouts, and the counter attractions of the Heir-Apparent and his charming Princess. Now, it is manifestly as illogical as it is absurd to hold the Royal Agricultural Society responsible for any or all of these *contretemps*. Its presence might indeed have increased the difficulty of securing a better site, and it may be held responsible for bringing Royalty within reach; but it was in no way responsible for the lamentable want of direction to our show, nor for the disagreement with the Manchester Botanical Society. These two last probably did more to reduce the visitors to the Horticultural Show than all other untoward incidents. For after all it must be remembered, that the position of the site was less objectionable than its condition. It at least abutted against the agricultural grounds at one or more points. Why were not these made the most of by being conspicuously revealed or made manifest by placards? And the site surely might have been put into decent order. The counter-attraction of Royalty could scarcely be called a drawback in itself. It certainly brought the raw material of success—teeming thousands—within reach, to our very doors, and the fault is probably chiefly that of the management, that more profit was not made out of this favourable opening. The company was nigh, but no effort seemed to be made to bring it in. And so they crowded along on the other side, footsore and weary, all unconscious of the sweetness, beauty, and rest that might have refreshed and delighted them at the other end of the stupidly bent link that concealed the horticultural show. Under the circumstances I think we have reason to be satisfied with the actual results. Looking at the expense incurred, and the efforts put forth, probably the 1800*l.* taken by the Horticultural is almost as good a return all and the end all of life. The public thinks otherwise, especially that portion of the most largely gathered together on such occasions. Many of our best farmers even look down upon all horticulture with a scornful lip and a contemptuous eye. They consider us the victims of a sentimental enthusiasm, the effeminate votaries of an art fit enough for ladies and weak-minded men, but altogether unworthy of the notice of a man who knows horse-flesh, can pass a stock with a glance of his eye, and reckon up the points of a fat pig or sheep with the rapidity of lightning and the unerring certainty of a rifle shot. On the other hand, we are only too apt to despise the men whose common talk is of muck, corn, roots, bullocks, or swine. Now it is just because of these points of antipathy that I wish the two sister sciences, whose business it is to replenish, subdue, and adorn the earth, to join hands for life, and take the road into the provinces together. The two are not antagonistic, but complementary the one to the other. The one busies itself with the sterner realities, the bold utilities of life; the other clothes that life with the elegancies of art and the graces of beauty. No good gardener can study agriculture as exhibited at these great shows without becoming a wiser man, and few farmers could walk through floral tents without being made better men. A fuller knowledge of the skill and power of each is all that is needed to break down any jealousy that may exist between the twin brother cultivators of the soil, the farmer and the gardener. These joint shows furnish the best means for acquiring this knowledge, and therefore I hope that the two societies will long be joined together, and each rejoice to make one great grand show between them. I cannot believe in any lasting severance between the two societies—I feel annoyed at the weaker for following him about the country, &c.; for are not both mainly composed of the self-same persons, banded together for similar objects, the subjection of the earth to the service of man, the clothing of its surface with plenty, and the covering of it with beauty? *D. T. Fish.*

—Two propositions have been laid down in these columns by the Editors concerning the future of these shows; the first is that, with the Manchester experience fresh upon us, the Council of the Society would be unwise to trust to the chances of another failure next year by going to Oxford and there play the part of the penny peepshow to the "Grand Tame Beast Exhibition" of the Royal Agricultural Society. The second proposition is, that a suggestion has been made from Dublin to the effect that the Royal Horticultural Society of England should visit the sister society in Ireland for the purpose of holding a grand show in the Vice-regal metropolis during the ensuing year. To these propositions particularly, as well as to the question generally, I take it that discussion is invited. The first is too self-evident to admit of much contrariety of opinion, as no one, however horticulturally enthusiastic, would desire to see these provincial shows become either pecuniarily or professionally a failure; and that this would (or at least the former one) will ensue there can be but little doubt. Theoretically, exhibitions of horticultural produce are intended to aid in the development of horticultural science, and when rightly conducted do so very materially, but there is always a very serious question that enters into the consideration of their promoters, "Will they pay?" and if they do not they must collapse. If there is, as asserted, a grave cause to fear that the Oxford flower show at Oxford will not pay, it would be manifestly unwise to hold it. I will venture to put a proposition: Why should not the Council of the Royal Horticultural Society, if it desires to hold a grand peripatetic provincial exhibition in England every year, do so quite independently of the Agricultural Society, selecting, as that Society does, the best provincial centres for the purpose, and not limiting itself exclusively to one period of the year, but holding it sometimes in the summer and sometimes in the autumn, so that a wider range of specimens may be obtained, and thus a far larger number of growers become interested. If in combination with this, opportunity for the exhibition of their productions was given to manufacturers of all descriptions of horticultural machinery and implements, useful and decorative garden requisites, articles of domestic use, and the thousand-and-one useful things that appertain to life, there can be no doubt but that such a chance would be eagerly seized by them, and thus not only would the attractiveness but the financial part of the show be materially aided. The formation of a local committee of influence and professional capacity in each centre would be a work of no great difficulty, and this would be enabled to advise as to the nature of the productions peculiar to the several localities, so that schedules of prizes might be so formed as to draw out the best material at command for an exhibition. No doubt also the character of the congress might be largely improved, its radius extended, and its usefulness popularised; there is no lack of intellect in the ranks of horticulture, and with the experience of previous years to guide its managers, there is no doubt but that it would materially aid in the attainment of success for the exhibition generally. The suggestion that the Royal Horticultural Societies of England and Ireland should unite for the purpose of holding a grand show in Dublin next year merits careful consideration, not only because of the beneficial results that might flow from its realisation, but also because of the eminently friendly and graceful manner in which it has been put. Horticulture in Ireland needs developing greatly, though perhaps there are reasons why it is so backward there that exhibitions, however grand, cannot remove: but as other causes are operating that may achieve that purpose, and a few years hence may see not only agriculture but horticulture more progressive in Ireland than now, so would it be well, as far as exhibitions can, to aid in that progression, and assist

in the development of gardening resources of what might yet become, under happier auspices, truly the "Emerald Isle." I believe, however, it would be a mistake were the Royal Horticultural Society of England to quit its legitimate field of operations and try its fortunes across the Channel. While it has much comparatively unexplored territory at home to cultivate, and it is to be hoped, reap, [illegible]. The best way to meet the suggestion of [illegible] in Dublin would be to hold in that capital [illegible] of the great International Fruit Show [illegible] in Edinburgh; and that it might be [illegible] annual, another should be held the succeeding year in London, so that each of the capitals of the three kingdoms might have in perpetuity its great triennial [illegible] the Royal Society undertake to get up a great [illegible] and to do it as well as the Caledonians do it? Let them try. If they will submit a [illegible] prizes, and get first-class judges, there will [illegible] competitors; and having done it well, the credit will be all their own. As far as London is concerned, that can give a good account of itself when the time comes to need it. *J. P.* [Not a bad suggestion. EDS.]

Foreign Correspondence.

THE BOTANIC GARDEN, PADUA.—The Botanic Garden at Padua possesses unusual interest from being the oldest in Europe, having been founded in 1545. Here is one of the finest collections of trees on the Continent. In a large conservatory raised on a terrace there is a splendid Norfolk Island Pine, some 35 feet high, and very thickly clothed with branches; a large specimen of the Todea africana, from the Cape of Good Hope; and a very fine Ficus stipulata, covering the walls of the house. In various parts of the garden are some unusually large plants of rare trees; among these may be specially noticed the Magnolia grandiflora, which were raised from seed by Farsetti, the director of the garden in 1742. Some of these trees have trunks 4 feet in diameter, and over 60 feet in height, and are thickly clothed with leaves and branches. When in flower they must be a magnificent sight. The Acacias are also very fine plants. The A. Farnesiana is between 60 and 70 feet high, and A. Julibrissin about the same height. Of other large trees there are Gymnocladus canadensis, Diospyros virginiana; Vitex Agnus-Castus, 160 years planted, 40 feet high; Chamærops humilis, 25 feet; Sterculia platanifolia, 30 feet; Lycium japonicum, 30 feet; Aralia spinosa, nearly 30 feet; Smilax Sarsaparilla, from 60 to 70 feet; and many others of a size and growth only to be met with in such a favourable climate. There is also a wonderful Platanus orientalis, planted the year the garden was formed, with a remarkably knotted stem which is quite hollow in the lower part. The shape of this tree is very singular, having a long trunk without any branches, and forming a spreading [illegible] umbrella-like head.*

The garden is divided in one part by a lofty ornamental wall, in which are two gateways with high and bold pillars at the sides. These pillars in April were covered with glorious masses of the Wistaria in full bloom, and were a lovely sight. The plan of training the Wistaria as a standard, with a broad-spreading head, was also most successfully carried out, there being a very fine specimen in a prominent position, with a stem of some 10 feet in height. Dr. Visiani, the resident director of these gardens, has evidently taken great care and pains to bring them into their present condition, everything being in the most perfect order; and a visit to the gardens at any time of the year would be a source of the greatest pleasure to the horticulturist or lover of nature.

The library and herbarium are both extensive. The latter contains about 6000 specimens. The collection of fossils (comprising some magnificent examples of Palms and Ferns) is of rather recent formation, and is one of the finest in existence. Most of the specimens were brought from Monte Berico, in the neighbourhood of Vicenza.

In the library are some very beautifully executed water-colour drawings by a Venetian artist, taken from different points in the garden. One is a general view of the garden, in which the remarkable church of St. Antonio, with its seven domes, is introduced. A second shows one of the principal fountains in the garden, with the church of S. Giustina in the background; and the last is a most careful and correct [illegible] of the remarkable old Plane tree previously alluded to. *J. W. C.*

Notices of Books.

A Book about Roses: How to Grow and Show Them. By S. Reynolds Hole. Blackwood & Sons. Square 8vo, pp. 277.

If there be still on this earth a lineal descendant of the flowers that bloomed in Eden, that one is assuredly the Rose. Other flowers are as beautiful; some, like the Lily, are as exquisite; the Camellia more nearly realises the ideal of the florist; Orchids are more surprising; many plants exhibit grander foliage or greater range of colour in their flowers; but, taken for all in all, the Rose combines a more perfect harmony, both in form and colour, a more refined perfume, a more fitting association of leaf and flower, than any other plant; and hence it has held, and long will hold, undisputed sway as *regina florum*—the queen of flowers.

Volumes have been written, replete with lore and legend, concerning the history and origin of the Rose. Poets major and poets minor, in all ages and in all tongues, have lavished her praises; and yet more remains to be sung. No one has done full justice to the theme, and as the "new Roses" make their appearance "new poets" must invent new "conceits" to account for their origin; for instance, it is very pretty to read that the rosy tint is due to translusion, as doctors would say, from the veins of the queen of beauty herself.

> "Alba fui quondam rubri qua causa coloris
> Me proprio tinxit sanguine pulchra Venus."

But how about Maréchal Niel or Gloire de Dijon? Could Venus have had the jaundice? The thought is too dreadful. It must have been jealous Juno in one of her wrathful moods, who gave origin to the yellow Rose; or was it Minerva, "sicklied o'er with the pale cast of thought"? We leave the question for Mr. Hole's decision, and in the meantime commend his book to general attention. It is not at all necessary that the reader should be a rosarian to appreciate this volume; should he be one, he will like it all the more; should he be contemplating entering the ranks of the floral sybarites, he will, from a study of Mr. Hole's pages, learn how to do it, and how not to do it;—how, when, and where the Rose should be planted, and budded, and pruned; what it should eat, drink, and avoid—as the title says, how it should be grown, and how shown. Should our imaginary reader, however, be reading for reading's sake, he will enjoy the genial fun and playfulness, the wit, the easy flow of language, and the pleasant spice of scholarship that pervades "A Book about Roses." From this point of view—and the same remark applies in a cultural sense—the chief defect of the book is, that it is written too much "*de l'abondance du cœur*," as the author has it; it is too cloying. It is like a feast where sparkling wines are served with every dish, and where *entrées* of sweetmeats and crackers are handed round between each course. Such diet is likely enough to engender a fit of indigestion, and the reader of Mr. Hole's pages is likely to throw down the book after a short time—assuredly, however, to take it up again after no long interval. In the monthly instalments in which it was first issued through the pages of the "Gardener," this mental indigestion was not felt, as the conditions of the publication provided wholesome seasons of rest between the courses. But the rosarian—he who has graduated and gone out in honours—well, it would be a matter of inexorable necessity for him to procure the volume, were it written in the dullest, prosiest vein that ever sickened a reader, for it is the production of a man who boasts of thirty "all England" cups, whose Roses are always looked for anxiously at flower shows, who took the lion's share in originating the first Rose Show *pur et simple*, whose assistance as judge or *amicus curiæ* is always courted at such exhibitions. Such a man "ought to have something to say worth hearing to those who love the Rose," and he *has* said it. Having written so much, we may well conclude our notice by bidding our readers "go and hear;" in other words, read the book, not forgetting the two appendices, which are about the most *useful* chapters in the volume.

Florists' Flowers.

IT was stated not long since, in one of the monthly gardening publications, that "the day for named POLYANTHUSES has passed away." To that remark exception was taken by one of those fine old amateur cultivators of the Auricula and Polyanthus who helped to make the annals of floriculture illustrious 20 years ago, and who still lives to link that renowned past with the less glorious (in a certain sense) but not less active present, in these words:—"I am loth to admit this, as I cannot see why it should be, any more than with the Pink, the Auricula, or any other florists' flowers. Types of these may be and are raised from seed, and if superior in any point to the original are deserving of a name. But these types are the result of self-fertilisation; and if florists would only take the Polyanthus into their especial care, as is the case with the Auricula, the effect of careful crossing would soon be manifest by the appearance of different and improved varieties. For example, take Buck's George IV., give it the tube of Tantarara and the refinement of Saunders' Cheshire Favourite, and you have a model flower to work upon for further operations." Alas! that's the floricultural rub. With rueful face and sinking heart the desponding florist inquires, "Where are these three flowers to be obtained for purposes of comparison?" and the light-hearted mocking Echo replies "Where?" Probably from no single grower for sale can a set or any of the named Polyanthuses that figured at exhibitions and in lists 10 or 15 years ago be obtained. Of recent years, and dating back to 1856-7, a kind of disease ravaged the beds of many a cultivator of the Polyanthus. Some subtle influence, never satisfactorily accounted for (unless it was a kind of inevitable deterioration, resulting from high breeding), committed sad havoc, and the "rude slayer, death," seized "the flowerets gay." The late Mr. James Woods, of Harwich, a noted Polyanthus grower in his day, once complained of all his best show varieties having been attacked and almost annihilated, and one variety he was just on the point of sending out was reduced from 60 to six plants. Singularly enough, the losses Mr. Woods sustained were but the counterpart of those of others, and in all cases the common border varieties were untouched. Two years later Mr. Woods had to record the same baleful experience, and with similar aggravating results, for on this occasion he lost the whole of the stock of two new varieties, one of which, named Star of the West, must indeed have been a star of some magnitude, for it is recorded of this flower that it was exhibited at Ipswich with "nearly 90 perfect pips, and rounded like a ball." The restoration of such a magnificent variety as that is an aim well worthy the enterprising florist, and he who succeeds in producing it will deserve well of floriculture.

The ordinary type of the garden Polyanthus is still very popular with many: it is one of those charming spring-flowering plants no lover of flowers would willingly let die. It is pleasant to know it is still popular, and it deserves to be well regarded, but it is valued more as a decorative plant for the open ground than as a pot-plant, and the nearer the flowers approach the florist's ideal of perfection the more highly are they esteemed; and this is proper, for it is one of the achievements of floriculture that the highest point it can attain to becomes gradually translated into an index of the popular taste; though, at best, the highest outcome of approximate perfection is but an earnest of what can yet be reached.

As far as the London district is concerned the improvement of the Polyanthus appears to be a task almost wholly in the hands of Mr. Wiggins, of Worton Cottage, Isleworth. Not but what others are similarly engaged, but the type of Mr. Wiggins' flowers mark an advance nearer towards the florist's ideal than those of his contemporaries. It is said that Mr. Turner has a lot of fine things at Slough, of which something will no doubt be heard ere long. There is an arbitrariness about this ideal most sharply defined, and hedged round by severe limitations. In the improvement of most other flowers, variation of colour is held to be a desideratum, other points being in a properly adjusted correspondence. It is laid down that the centre of the pip of the Polyanthus shall be yellow, the edge the same shade of colour exactly as the centre, and the ground colour a rich dark crimson. This appears very rigid indeed, and some raisers, craving for novelty, have asked why we should not have scarlet as well as crimson grounds, and the bright and brilliant intermediate shades of each colour, with a blue ground for the grey and white edges; and so with black and gold, and red and gold, or even blue and silver, black and silver, &c. But the answer has come back, distinct and peremptory:—"That the eye and lacing should be of the same shade of yellow is a property not to be given up for the vagaries of any mottled or spotted sport in a batch of seedlings;" and so a rapid collapse of "craving after novelty" ensued. Strange as it may at first sight appear—but it is nevertheless true—another of the old-fashioned laws was, perhaps is still, "that the flower should die well." Some have pronounced this as "perfectly contemptible," and yet it was well illustrated some time since by Mr. Read, of Market Rasen, in "Gossip of the Garden," who wrote as follows:—"I have this season had ocular proof of the real practical knowledge of the framers of these laws in two seedling Polyanthuses, the one an exact counterpart of the other until they arrived at the meridian of their existence. In its decline, one preserved its colour and marking until fairly decayed; not so with the other, the eye of which assumed a deeper tint, and seemed to drain the colour from the lacing, which bleached to a dirty white; and here at the decline of their existence all comparison ceased, and I was struck with the force of perhaps similar experience to that which guided the framers of the code of laws."

Coming now to matters relating to the cultivation of the Polyanthus, it may be said that as named flowers (of any pretensions to quality at least) cannot be obtained the grower must depend on seed, in the hope of getting something that will repay his exertions. Seed can be sown at any time during the summer, the seed pan or pot should be well drained with "crocks" or coal-cinders, over which can be placed a layer of Moss. Good drainage is very essential, as it is often found that the constant watering of the seed pan for the length of time required before the seed begins to germinate causes an accumulation of moss on the surface through which the seeds will not penetrate. After filling the pan, and sowing the seed, plunge the pot up to the rim in a pail of water, until the moisture is perceived to be forcing itself through the top soil; then let it stand and drain, and cover the surface lightly with a few sprays of damped Moss, over this place a square of glass, and plunge the pan in a cold frame in ashes or sawdust, where it will only get the morning sun. It will suffice to place the pan under a wall or in the shade, but so many accidents are possible that it would be well to protect it in a frame. Here it can remain, and will require no other attention for a fortnight; after that careful waterings may be given, and in four or five weeks the seedlings will be making their appearance. After this the Moss may be removed by degrees, the glass tilted to admit air, and finally removed altogether; but the plants must be well shaded from a southern sun. For raising seedlings use a soil composed of sand, loam, and leaf-mould in about equal proportions. When the plants are large enough to handle, they can be transplanted into boxes, or to an intermediate bed to which shelter can be given, placing the plants pretty close together. When sufficiently established, the next process will be to transfer the plants to their blooming beds. Here an important consideration presents itself—that of aspect. "The north or east of a wall or fence or temporary shade, where they will get only the morning sun, is the aspect most favourable for their well-doing. Second, suitable soil. Good loam from a field that will grow good Wheat, well sweetened by exposure to frost, sun, and air, or good turfy loam well mixed with one-third of either two-year-old well-rotted cow or horse-dung, well sweetened by exposure and frequent turning over: about 9 inches deep of such soil will grow the Polyanthus healthily and well." Such is the opinion of one of the foremost amateur cultivators of the Polyanthus in the present day. The same authority is emphatic in a degree rising to impressiveness on a point that should never be overlooked by cultivators. "But the great secret of success lies in deep planting. In making the hole ready for the reception of the plant (which ought to have its roots washed and examined to see that they are all healthy and vigorous, and any decaying parts removed), raise it up in the centre in the form of a cone. Spread out the roots around it, gather the foliage erect, and fill up to about 1 inch above the collar of the plant. The advantage derived

from deep planting is, that the best rootlets growing from the top part of the tap-root derive more nourishment from the soil, and are more secured from drought in summer and frosts in winter." It is also necessary that they should have regular attention by frequent stirring, top-dressing with fresh soil, and watering when necessary; and as soon as the truss makes its appearance, cover it over with a square of glass firmly fixed on a short stake: this will be a sufficient protection to keep off wet and some insects which injure the bloom. These simple attentions will insure a bloom which might prove a gratification to the most fastidious florist. Shallow planting is a prolific cause of destruction among Polyanthuses, especially when dry weather sets in. In cases where it is sometimes difficult to get a shady spot for them, the plants are so much the more open to the injurious influences of drought. To screen them from the drying effects of the hot sun, it is well to shake some fine soil about the plants, and then give the bed a thorough watering through a coarse rose watering pot. Then some dry stable manure, or any short litter can be shaken over the plants, so as to almost entirely hide them from view. As a matter of course, when wet weather sets in, the litter should be removed.

Generally, growers recommend that the plants capable of being divided should have that operation performed on them soon after blooming time. Perhaps it would be best, however, to defer this till the young growth that invariably follows the period of bloom has fully developed itself. Plants cultivated in pots can be divided earlier than those growing in the open ground. When dividing the roots, take away only those pieces that have rootlets attaching to them. There is always some trouble in inducing unrooted pieces to throw out the fibres, unless very carefully attended to. The plants obtained by division would succeed best planted out in an open border on the north or north-east side of a wall or hedge, but not too near it, where they can get plenty of air, little sun, and no drip; and beware of snails and slugs.

Those growers who cultivate for exhibition purposes, and those who make a leading speciality of the Polyanthus, generally cultivate all their best flowers in pots. The cultivators of the Polyanthus in the northern districts always recommended an inch of crocks for drainage, and over these the same thickness of dried rushes. In regard to soil, one grower of some note always recommended a soil composed of "two parts decayed Potato haulm, not above one year old, and one part rotten horse-dung and cow-dung (about equal parts of each), and a little river sand." The plants should be potted in August, and during this operation it is of the first importance to see that the "tap-root is sound at the bottom, otherwise the plant will never do well." When potted, the plants should be placed in a shady situation for about five or six weeks, and if dry weather sets in they should be gently watered once or twice a week, but never be allowed to receive any splashing rain. In the latter part of September they should be removed into their winter quarters (a common garden frame facing the south), and, when needed, well protected from frost, by covering the lights with mats, yet give abundance of air on all favourable occasions to prevent the possibility of their drawing. In February about an inch of the old surface soil may be removed, but in doing this be careful not to disturb the roots; then fill up with a richer compost than the preceding—say, half rich maiden loam, and half well decomposed horse and cow dung. Finally, to ensure a good bloom, keep the plants from colds winds and hot sun, otherwise the flowers will possess none of the richness of the Polyanthus, but will be small and of a dull red colour. Old James Hogg, in his treatise of nearly 50 years ago, thus wrote regarding the Polyanthus:—"Let it be remembered, that these flowers, if planted in the grounds, and which indeed is the only successful way of growing them, should be in a situation exposed to the morning rays of the sun, and excluded from them the rest of the day. It is folly, and a waste both of time and plants, to keep them all the year round in pots, especially in the near vicinity of London; I have found it so: others may be more successful. I admit it is convenient to have them in pots in the spring, both for exhibition and sale; in this case, the moment the pips begin to fade turn them into the ground, and let them remain there till near Michaelmas, when they may again be placed in their pots. Keep slugs and snails from them. The Polyanthus, in coming into flower, should be set under a hand-glass raised upon bricks and shaded; constant exposure to the air soon tans the bright lemon-coloured eye and lacing." Hogg also enumerates 42 named varieties of the Polyanthus. It will be seen from the foregoing how little we have modified the routine of cultivation laid down by this grand old florist, even after an interval of 50 years.

There is no lack of named Polyanthuses at the present time, but there is a great want of worthiness about them. Early this last spring I received five named plants from a grower; on their reaching me I suspected their quality from the names they bore, and on their blooming I found them to be much inferior to flowers in my seedling bed. Intending purchasers should therefore proceed with caution. From a bed of very fine seedling plants, Mr. Wiggins has this season selected and named about 20 kinds. I had an opportunity to inspect these on two or three occasions, and the following appeared to be the very cream of them:—Princess Alice, fine; Premier and Prince of Wales, both very fine; President, Golden Cluster, a finely laced flower; Vanguard, the lacing very dark; Bracelet, fine; Golden Champion, rather small, but promising exceedingly well; Nonsuch, Beadsman, Florence, and King's Acre. Even should these prove to be inferior to the named flowers of 15 years ago—now, it is to be feared, almost wholly lost to us—we have here something good to work with; and, combined with so much quality, there appears to be much vigour of constitution. The Isleworth flowers were, no doubt, seen at a disadvantage, as they were all blooming in the open ground, affected by cold winds, occasionally alternated by hot sunny days.

Mr. John Read, of Market Raisen, has left on record some capital suggestions for fertilising, or, as he terms it, hybridising the Polyanthus, with a view of obtaining finer kinds, that are well worthy of being reproduced here. He starts by stating that if size be wanted a large flower should be selected as the seed-bearing parent, suppressing other good qualities within a commensurate degree; if refinement be wanted, then select as the seed-bearing parent a flower having this in the largest degree likewise; and impregnate them with the pollen from a flower containing such properties, in colour or marking, as it may be sought to impart. The *modus operandi* is as follows:—Take a strong truss of the variety selected for the purpose; remove the small pips, leaving five or six to be operated upon; take out the anthers with a pair of small forceps or tweezers as each pip opens. When fully expanded, collect the pollen from the best pips of the variety selected as the pollen parent with a camel's-hair pencil, that will not scatter it; introduce it into the tube, and forcibly turn it round upon the stumps of the removed anthers; repeat this process several times, and afterwards cover over the truss with a piece of glass, to keep wet or insects from injuring the fertilised pips, and Nature will work her own way. When the seed-pods are turned brown, and just about to open, gather them, and store them in a dry place till sowing time: the best time for this is probably in February. Fill some boxes, pans, or shallow pots to within 1 inch of the top with rich garden mould; then sift or rub half an inch of very fine soil, and sow the seed; only just cover it with fine sifted soil, water with a small-rose pot, and take care never to let the seeds get dry after they begin to germinate. When the seedlings are large enough to handle, transplant them on a shady border, free from drip, about 3 inches apart; attend to watering and top-dressing, and in due time this labour will be rewarded by the appearance of some "gems of purest ray serene." *R. D.*

Garden Memoranda.

Mount Merrion, the seat of the Earl of Pembroke, from its fine position and the lovely scenery which it commands, has always been considered attractive. Latterly, however, through the able management of Mr. Welsh, his lordship's gardener and steward, the establishment has become famous for the perfection to which bedding-out gardening has been brought; a condition which has caused a visit to Mount Merrion to be considered a great treat by the thousands who are favoured with permission to enjoy it.

The principal entrance is at the top of Mount Merrion Avenue, which is situate about one mile from the Blackrock station of the Dublin and Kingstown Railway. This noble avenue, which is about 500 yards long, leads in a straight line to the mansion, and is bordered on each side with forest trees from 50 to 60 feet high. Between the trees and the walk is a broad margin of grass, which is kept mown. The walk is of ample width, and the effect of the view from the entrance gate is very fine.

Entering the bedding-out garden from the lower gate, a splendid mass of colouring is seen on the right and left borders. The one to the left is about 100 yards long and 4 yards broad, with beds of circular form alternating with oblong squares. The front and back of the borders is beautifully margined with Cerastium, very pure in colour; the angles defining the beds are filled with Lobelia speciosa (from cuttings). The beds are principally filled with zonal Pelargoniums, the centre of each circular bed has a pyramidal plant of Acer Negundo variegatum, which gives a graceful appearance to the border and relieves it from flatness. Two beds next the entrance-gate at once claim attention—a circular one of Cybister, literally loaded with its immense scarlet trusses, the square bed next it being a complete contrast in its chaste colouring, viz., a square centre of Perilla (four lines), surrounded with Centaurea candidissima. This bed, which is placed between one of Christine on one side, and one of Cybister on the other, and set off with blue Lobelia in the spaces, is a gem in its way. Of the other beds the most noticeable are those filled with Amy Hogg, Rival Nosegay, Circlet (very distinct), Madame Rudersdorf, Pauline, and Stella. Facing the entrance-gate and filling the end view, is a raised mound, with a clump of Centaurea gymnocarpa in the centre; the remainder is filled with Scarlet Pelargoniums, which surround very large single plants of Centaurea, about a yard apart; this is very effective in the distance.

The right-hand border (from the entrance-gate) is 200 yards long, and is a very effective piece of bedding, being remarkable for its beautifully-toned colouring, and the clever manner in which the flatness of the border is relieved by raised beds or clumps about 20 feet apart, which are filled with the quiet colours of Acer Negundo variegatum and Centaurea candidissima. About 100 yards of this border is planted with seven lines, running parallel with the walk: the centre line is Pelargonium Christine, pink; those on each side are planted with Miss Kingsbury, very pure silver edge; then two lines of Iresine Herbstii; the line next the walk is composed of Lady Cullum, and the back row strong plants of Mrs. Pollock. The effect of the variegated Pelargoniums is greatly enhanced by Mr. Welsh's practice of keeping one-half the flowers pulled off, thus allowing the foliage to come out distinctly in the design. This border is broken by a second entrance-gate, and the remainder of the border is planted with circles and squares of bedding, much in the style of the first-mentioned border, except that it is margined back and front with Flower of Spring variegated Pelargonium instead of Cerastium. In this border Mr. Welsh, feeling the necessity for relief to the eye from the vast mass of colouring, has planted entire beds with Centaurea, Cerastium, and silver variegated Pelargoniums. The east border at the top of the garden is about 50 yards long, and is continued with bedding of the same class: here Indian Yellow Pelargonium, planted in a very dry soil, comes out very well, as also a bed next it of the golden variegated Sophie Dumaresque, which for strong growth and bright colouring is much before Lady Cullum in effect. To the left of the border are two square grass plots with circular and oval beds planted with the choicest of zonal and variegated Pelargoniums and Verbenas. Particularly noticeable are grand beds of Amy Hogg, Waltham Seedling, Rubens Improved, and Violet Hill Nosegay, Wiltshire Lass, Madame Rudersdorf, and Rose Rendatler; these are all that can be desired for grand masses of bloom and habit. Duchess of Sutherland and Lady Constance Grosvenor are both good, but the former is not so fine as Amy Hogg, neither does the latter surpass Cybister, except in the dwarfer habit, which is an improvement. The two centre beds in these plots are filled, the one with Lady Cullum (60 plants), the other with Sunset. Lady Cullum is disappointing at present; the habit is free and strong, but there is a dulness in the colouring, it wants more yellow and less black in the leaf. In comparison Sophie Dumaresque is much more effective. Sunset is a failure for bedding, the foliage being too crumpled out-of-doors. The oval beds are filled with Verbenas, of which Firefly (scarlet) and Ne Plus Ultra (pink) are much the best bedders. Passing down from this bright spot, which is divided from the under portion by a thick Beech hedge, we come to an intermediate piece of grass, in the centre of which stand two splendid Mulberry trees, with seats underneath. Under these trees are three large beds filled with Centaurea candidissima lit up with Christine and Dr. Hogg Pelargoniums planted through them sparingly, and at the opposite side by the wall (which divides this portion from the kitchen garden) runs a line of Viola cornuta in full bloom. Taking a seat under the Mulberry trees, we enjoy a view of Mr. Welsh's grand effort, and which alone would make him famous as a colourist in bedding out. No art could paint the lines of colour so effectively as it is pourtrayed in these perfect ribbon borders, which are about 70 yards long, by 12 feet broad, bordered with eight lines of bedding plants, viz., the back row of silver and green colours (variegated Acer and Hollyhocks); 2, scarlet (Excellent, zonal Pelargonium); 3, silver grey (Centaurea); 4, magenta-rose (Amy Hogg); 5, Purple King Verbena; 6, silver variegated (Pelargonium, Flower of Spring); 7, crimson (Iresine); 8, gold and red (Mrs. Pollock). At the end of these ribbon borders, three beds come in with very good effect, a centre square bed of Pelargonium Circlet, and the two side beds alike of Perilla and Centaurea. The perfection of this piece of bedding may be estimated by the fact that every plant in it is so well grown as to be fit to put on an exhibition table. Turning to the right we come to an enclosure near the greenhouses, the circular beds in which are filled with a mixture of plants such as Arundo variegata, Cannas, Aloes, Bambusa variegata, Brugmansias, variegated Pampas Grass, Echeveria metallica and glauca, &c.; an edging of Polemonium variegatum is very good in the centre beds. In front of these a bed of Pelargonium, Beauty of Calderdale, is perhaps the most *recherché* in the whole place. There is also a bed filled with the new variegated zonal Pelargoniums, and another with the new bicolors, far more effective for bedding purposes than the tricolors, the latter being wanting in the distinctness of colouring which marks the former.

Amongst the new tricolors were noticeable, Louisa Smith (very fine), Mrs. Dix, Countess of Craven, Miss Watson, Queen Victoria, Prince Silverwings (very crumpled), and Glen Eyre Beauty; whilst in the new bicolors we noticed the Queen (with white flowers and fine foliage), Egyptian Queen, Artemus Ward (very distinct), Earl of Dublin, and Model (very neat foliage). Perilla is very coarse, though effective; but of all, Beauty of Calderdale comes out here far ahead, the colour is grand and well defined, and the foliage of the largest size and smooth. Among other plants, the Golden Feather Pyrethrum (seedling) was very good, but we cannot say as much of Fuchsia Golden Fleece, which seemed a complete failure.

When it is considered that this bedding ground is surrounded by a wall 8 feet high, it will be understood at once that there is great difficulty in making a successful bedding display, far more than when there are shrubberies and lawns as adjuncts.

In the square of grass behind the two ribbon borders are some fine plants of various choice Conifers, about 10 or 12 feet high, such as Araucaria, Cedrus, Cupressus, Pinus, &c., which serve greatly to improve the appearance of this portion of the grounds.

Mr. Welsh must feel well repaid by the large amount of success which has attended his labours since undertaking the management of this property, and also by the pleasure which his grand display affords to numerous visitors through the season, and the emulation which he excites in the gardening community to imitate or approach him in success. *Alexander Campbell, Jun., Dublin.*

[The publication of this communication has been unavoidably delayed. Eds.]

Obituary.

In the death of Dr. Maclean, of Colchester, horticulture loses one of that small band of practical experimentalists whose labours are so valuable. For many years Dr. Maclean practised as a physician in Colchester; but his leisure hours were devoted to

horticulture, and his experiments in hybridisation and grafting are among the most curious. Dr. MACLEAN, in the matter of Peas, may be said to have been the precursor of Mr. Laxton.

Miscellaneous.

Alternation of Function in Palms.—I first ascertained its existence when at San Carlos del Rio Negro, near the debouchure of the Casiquiarie, in this way. In May, 1852, I found a small plot of ground in the forest covered with plants of a delicate Palm, a species of Geonoma, growing about 10 feet high. The plants were all females, and bore young fruits. On revisiting the spot in the same month of the following year, I saw, to my astonishment, the very same plants all bearing male flowers alone! But the mystery disappeared when, on examination, I made out that male and female spadices must have alternated all the way up the stem. Afterwards I found that the same or a similar alternation of function existed in many other Palms, and that plants exercising (*pro tem.*) the male function stood rarely far apart from others exercising the female function. The following are the types of alternation that have fallen under my notice:—

♀ ♂ in Geonoma discolor and other species.
♀ ~ ♀ ♂ in G. paniculigera, chelidonura, &c.
♂ ~ ♀ ♂ in Maximiliana regia and some other Palms.

It is quite possible that extended observation might disclose the existence of all these modes of alternation in one and the same species; and I suppose that they must all be regarded as intermediate steps towards that complete dioicity which many species of Palms have already attained. It is easy to conceive how this change of function may operate as a kind of repose to the plant, whose energies will be less severely taxed when every alternate year (or season) it is relieved from the burden of maturing the fruit. In species that have (apparently) become permanently dicœcous it is curious to note how the female flowers still stand singly, the male flowers in pairs, on their respective spadices and stems, the missing flowers of the opposite sex being sometimes indicated by scars or by empty bracteoles. In Lepidocaryum the flowers are distichous on the ramuli of the spadices, solitary in their receptacles on the female plant, twin on the male. From all this it is obvious that the specific characters that have been drawn from the flowers standing by ones, twos, or threes, in or on their receptacles, are absolutely null, for they merely indicate sexual conditions, not specific differences. *Journal of the Linnean Society.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

WHERE economy of space in glass structures has to be studied—and there are few places where such is not the case—it would be advisable for those who are fortunate enough to have under their charge a tank-house or aquarium, such as the *Victoria regia* is usually grown in, to use such a place for storing away specimens of out-door foliage plants, or bedding stuff in general. To do this it will be necessary to remove the plants which were formerly grown in them, and to convert the structure for a time into a cool house. No great sacrifice need be made to carry out this arrangement. The *Victoria Lily* will do equally well, if not better, by being planted out each spring and treated as an annual. *Nymphæas*, and many other aquatic plants, if taken up and potted, will stand the winter well if the pots are simply stored in pans which constantly contain water. There are few, if any, forms of structure that are better adapted for storing away large specimen plants that have made a good summer's growth than these. It is well known how greatly fine specimen plants enhance the effect during the summer in comparison with such as are turned out small, and which require the whole season for growth before their characteristic form and beauty are seen. The amount of both heat and moisture should now be decidedly reduced in all Orchid-houses. This will induce the young growths of the current season's formation to ripen or harden off more readily. Keep the young stock of autumn-struck *Poinsettias* as near to the glass as possible, as this will conduce to a more sturdy and dwarfer growth. In this condition they are better adapted for dinner-table and similar decorative purposes, than when the plants are drawn and lengthy in appearance. Specimens of *Hibiscus*, the *Euphorbia jacquiniflora*, and *Justicias* should now have all the light and air possible, so that the wood may be properly matured, without which it is impossible to have a good display of bloom at the proper season. It will now be necessary to divide the stock of *Chrysanthemums* into two or more lots, viz., the early-flowering section, and those which bloom later. The former of these are already showing bloom, some of which may therefore have their pots well washed, and be surfaced with some rich material, afterwards placing them in a greenhouse or conservatory. If it is desirable to continue the display of these flowers as long as possible, the later ones may be placed under some sort of temporary protection, near to a north wall, or other similar place, which will materially keep them back. Encourage all autumn-flowering *Pelargoniums*, such as Sidonia, Madeline, &c., with the aid of a little weak manure-water and a slight amount of heat; they will then come into bloom, and prove very useful at an early date. Place a few of the earliest potted bulbs into heat, where there is an early demand for such plants. If they have already rooted moderately freely they will soon make a start.

FORCING HOUSES.

Should the foliage over bunches of *late Grapes* be very much crowded, it will be advisable to thin it out somewhat. This will admit both light and air more freely around them, and conduce to their keeping the longer in a fresh state. Take advantage of any further continuation of the present fine weather to afford air freely, this, whilst it will not cause toughness, will imbue the skins with a more enduring tissue, and tend greatly to aid them in regard to keeping well. More and more circumspection will be needed in regard to the root-watering of *Pines* generally. I lean to the belief, that those plants which receive the least amount of actual waterings at the root, provided a moderate amount of moisture can be assured, will be found to have by far the healthiest roots in the early spring, and be in a far better state to undergo the summer campaign than others, which, having been kept over-moist, have lost their roots through decay. Be careful at this period not to afford an excess of atmospheric moisture to those Pines which are swelling their fruits; as this invariably tends to create an enlarged crown, often very disproportionate to the size of the fruit beneath it. Those who persist to the last in keeping frame *Cucumbers* in bearing must continue to maintain a goodly warmth with the aid of heated linings. Give air betimes in the morning. Close early, and cover up at night with mats, or other suitable materials. Keep the air as dry as possible in all *Peach* and *Nectarine* houses, the lights upon which have not been removed. If the leaves do not ripen freely on the trees in those houses from which the lights have been removed for a time, the lights had better be replaced and be treated in like manner, and for the same purpose. The sooner the trees are at rest, the longer time will they have to collect their energies for the ensuing season's work.

HARDY FLOWER GARDEN.

The several varieties of flowering plants which have been potted and placed under the shade of a north wall, and which are intended to flower in-doors, such as *Intermediate Stocks*, *late Asters*, *Salvias*, *Ageratums*, *Tree Carnations* and *Violets*, &c., should now be brought forward and placed facing a south wall, or in any similar warm position. Here they will perfect their bloom-buds, and become established preliminary to flowering. In taking up and potting the tenderer sorts of bedding Pelargoniums, such as the tricoloured varieties, be careful not to crowd them together too much, potting them as singly as possible into small pots, in a mixture of sandy loam and leaf mould. The smaller the pots are the better, and a little heat should be given them at starting to induce fresh root formations. I may state *en passant* that some of the larger leaves should in all cases be removed, and that the roots should be neatly shortened before potting. A dry air will suit them the best for some time to come. *Alstrœmerias* should now be planted in a warm, sunny border: from 6 to 7 inches will be ample depth for them. Immediately the frost has cut down *Dahlias*, *Marvel of Peru*, &c., take the roots up, and expose them in an open, dry shed to dry before storing them away for the winter. Divide and transplant *Irises* at the earliest opportunity. They like a deep rich soil, abounding in natural moisture. *Box Edgings* may now be divided, transplanted, and otherwise made good in all instances where deficiencies occur.

HARDY FRUIT GARDEN.

As soon as the leaves upon *Peach* or *Nectarine trees* will part at all easily from those against walls, let some of the ripest be cautiously wiped off with a new soft besom; this will aid the whole in ripening off more freely, and afford an opportunity to loosen the trees from the walls at an earlier date than would otherwise be the case were they permitted to take their chance.

KITCHEN GARDEN.

Transplant successional batches of the young seedling *Cauliflowers* into frames or under handlights, there to stand the winter, preparatory to planting out in the early spring for a first supply. They grow firmer, and are capable of withstanding frost better when transplanted at this season into good firm soil. Take up and store away the summer crop of *Beet*. In doing so, dig first well under it with a fork, and remove it carefully, so that none of the roots are broken. This is a great drawback to these roots, as they lose their colour, if not their flavour, in cooking, where any wounds exist. The main quantity should be clamped precisely as Potatos are in the open ground, as they maintain their freshness much longer when stored away in this manner than when freer access of air is permitted around them. *W. E.*

TOWN GARDENING.

THE *Carnations*, *Intermediate Stocks*, *Pyrethrums*, and *Double Rockets* that were potted off to stand the winter, should now be placed in their winter quarters, which may be in a cold frame or any other place where they can be readily protected from bad weather. Let the pots be set close together, and be raised up so that the tops of the plants are about 2 inches from the glass. In this position they may remain through the winter, remembering at all times that when the weather is wet or frosty they should be covered over with the glasses. When the frost is very severe, an extra covering should be placed over the glass, but when the weather is dry and mild let the plants have at all times as much air as possible. That universal favourite and most delicious esculent, the *Mushroom*, delights in a dark cellar or outhouse. Any person possessing such a place in a town can cultivate it with as much success as if in the country. Hence a few practical hints on the cultivation of Mushroomsin such positions will not be out of place here. Provide at once some short horse-dung and some droppings collected from the street, and if these are mixed with a little road sand so much the better. This should be placed in a heap and turned over once a week for three weeks, which will allow the rank heat to pass off, and deprive it of its noxious qualities. It can then be put into boxes or baskets, or a bed may be formed on the ground. It should be well beaten down until it is about 12 inches in thickness. A stick or two should then be put in to enable the grower to judge of the internal heat. If this trial stick gets too hot for the hand to bear, the heat is too great to receive the spawn; and it should be replaced and there left till the bed becomes about milk warm. Artificial spawn can be purchased at any seed shop; this should be broken into lumps about the size of Walnuts. These lumps should have a thready appearance, and smell like Mushrooms. In spawning the bed they should be placed about 1 inch deep, 4 inches apart, and the bed should then be gently beaten down again, and if in a few days the trial stick does not indicate an increase in the temperature, cover the bed at once with fresh mould, about 2 inches thick, and well beat it down. If by chance the heat should rise, plunge in a thick stick and leave the hole open for the heat to pass off, and delay soiling a few days. A covering of litter will be of service, in proportion to the heat of the cellar. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Oct. 13, 1869, as observed at the Horticultural Gardens.

October.	Moon's Age.	Barometer.		Temperature. Of the Air.			Of the Earth		Wind	Rain.
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 7	2	30.151	30.084	69	45	57.0	55	55	S.E.	.00
Friday 8	3	30.088	30.019	76	48	62.0	57	55	W.	.00
Satur. 9	4	30.142	30.119	75	45	60.0	57	55	S.	.00
Sunday 10	5	30.132	30.086	75	41	58.0	58	56	S.	.00
Mond. 11	6	30.124	30.074	73	40	56.5	58	56	S.	.00
Tuesd. 12	)	30.122	30.043	71	53	62.0	58	55	S.W.	.12
Wed. 13	8	30.096	29.934	68	34	51.0	58	56	W.	.00
Average .		30.122	30.051	72.4	43.7	58.0	57.0	55.4		0.12

Oct. 7—Foggy; cloudy, but fine; densely overcast.
— 8—Cloudy; fine, very warm; clear and fine.
— 9—Dense fog; very fine; clear, very mild.
— 10—Foggy; very fine; foggy, starlight.
— 11—Foggy; very fine; clear and fine at night.
— 12—Foggy; fine, bright sunshine; densely overcast.
— 13—Rain; cloudy; densely overcast at night.
Mean temperature of the week, 6 1-10 deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending Oct. 23, 1869.

October.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..17	58.8	40.7	49.8	19	0.31 in.	—	5	5	1	3	13	10	5
Mon. ..18	60.4	40.7	50.6	21	0.85	3	4	5	1	3	9	14	4
Tues. ..19	59.4	41.7	50.5	22	0.61	2	3	7	3	2	11	9	6
Wed. ..20	59.0	39.2	49.1	20	0.34	—	6	2	3	7	10	11	4
Thurs. ..21	58.4	39.5	49.0	18	0.64	3	7	5	5	5	10	6	2
Friday ..22	58.9	42.4	50.6	23	0.96	2	2	4	1	13	12	5	4
Satur. ..23	58.2	39.8	49.0	23	0.56	3	3	1	4	4	16	8	4

The highest temperature during the above period occurred on the 22d, 1963—therm. 69 deg.; and the lowest on the 23d, 1859—therm. 17 deg.

Notices to Correspondents.

ASPARAGUS: *L R S.* The specimens enclosed are more or less thickly infested with a parasitic Fungus (Puccinia Asparagi), which has established itself beneath the outer bark. This, we have no doubt, according to your statements, is the cause of the ill-health, especially as we notice that the sprays enclosed not greatly infested are the healthiest. If not too late, dust the whole surface growth over with an admixture of fresh lime and wood ashes, finely sifted. Considering that the roots, though you say they "seem healthy," are, through the loss of the upper aids, not over well developed, we advise that the beds be kept as dry as possible during the incoming winter; excessive moisture, otherwise, will doubtless cause them to rot away. In view of this, do not loosen the soil above them, or cover them more deeply than is absolutely needful to ward off frosts. *W E.*

BEDDING PANSY: *E Bennett.* Yellow, with small and well defined dark eye; a handsome bedding variety, of moderate size, and, so far as we can judge from the blooms sent, an acquisition in its class.

BEETLE ATTACKING CUPRESSUS LAWSONIANA: *A Y.* The insect is Hylobius Abietis. In the perfect state it feeds on the juice of the Pine, and a sawpit in a Pine wood is a sure place wherein to find numbers of them. It does, not, however, occur generally in such numbers as to do any serious damage, and we never met with any instance of so much injury being done as you describe. We would recommend you to send a characteristic specimen or two of the gnawed twigs or bark to the Horticultural Society, South Kensington, for their collection of economic entomology. The beetle need not be sent, as it is already in the collection and is common; but a good specimen, showing the mischief it does, is still wanted. *A M.*

BOOKS: *Amateur Florist.* Thomson's "Flower Garden," Blackie & Co., *7s. 6d.*

FUCHSIA: *H Cannell.* Champion of the World is a most remarkable variety. It is a full double, with the expanded or crinoline form, and measures fully 2 inches in the expansion of the corolla without being coarse, the colours being the usual red and violet. If the habit is good it must be a fine thing.

LADY DOWNE'S GRAPE: *W K, Fairlight.* You have kept the house too moist, and have not given heat enough. Your berries are not attacked by mildew, but have gone off, in the manner described, through being starved. This variety is very much subject to this failing.

NAMES OF FRUITS: *W Lavender.* Pear—Beurré de Capiaumont. —*E B.* Pyrus japonica var.—*Anon.* Pears: 1, Beurré Diel; 2, Chaumontel; 3, Beurré Rance. Apples: 1, Golden Russet; 2, Kerry Pippin.—*Old Subscriber.* Pears: 1, Beurré Bosc; 2, Gansel's Bergamot; 3, Flemish Beauty; 4, Eyewood. Fruits received from other correspondents will be shortly attended to.

NAMES OF PLANTS: *G G.* Rhamnus catharticus.—*N A P B.* Hedychium Gardnerianum.—*C P.* 1, Lapageria rosea; 2, Mandevilla suaveolens; 3, Chorozema varium; 4 and 5, we cannot undertake to name scraps such as these; 6, Wellingtonia gigantea.—*W Lee.* 1, Erythrochiton brasiliense; 2, Stapelia bufonis.—*S C C.* Cornus mas—the Cornelian Cherry.

PEAR LEAVES ATTACKED BY FUNGUS: *Charles Langdon.* The parasite is a Fungus, Roestelia cancellata. See answer to "A Subscriber" in our last.

WATER-WEED: *A Mell.* The only chance of checking the water-weed is to have a strong herd of swans, who are fond of it. It is probable that the bad smell to which you allude arises from Chara, and not from Anacharis, for both sometimes grow in the same water. *M J B.*

COMMUNICATIONS RECEIVED.—H. L. & Son.—H. J. C.—J. D. —A Young Gardener.—R. H.—Sigma.—W.—G. H.—E. B.— D. W.—Mushroom.—G. N. V.—J. M.—A. P.—G. R.— W. J. E.—D. & Son.—A. L. K.—W. P. R.—Stewkley.— C. T.—A. B.—W. K.—A 2.—M., Potter's Bar.—Cutler.—T. R. —W. T.—J. E. L.—W. M.—W. D.—J. P.—W. E.—E. B. —C. M'D.—D. T. F.—Z. S.—J. F.

Look to your Grass Lands.

JAMES CARTER AND CO.'S RENOVATING MIXTURE of GRASSES and CLOVERS SHOULD NOW BE SOWN. This Mixture is specially prepared to suit the various soils, and consists of the most desirable kinds *to produce a Permanent Pasture of first-class quality* on old decayed Pastures and other lands *that have suffered through the extreme dryness of the past season.* 9*d.* per lb., or 80*s.* per cwt.

CARTER'S "PRIZE MEDAL" PASTURE GRASSES for FORMING NEW MEADOWS, mixed to suit all Soils, from 21*s.* to 32*s.* per acre. Special low quotations for quantities on application to JAMES CARTER AND CO., Seed Farmers, 237 and 238, High Holborn, London, W.C.

1869.—GREEN FOOD SEEDS.—

Welsh Winter Vetches	Winter Rye
Trifolium incarnatum	Winter Oats
Italian Rye-grass	Winter Rape

Together with all other Seeds, for present sowing, of best new quality, and at moderate prices.

JAMES DICKSON AND SONS, 102, Eastgate Street, Chester.

To Seedsmen and Others.

TO BE SOLD, on Commission, 200 bushels of GREY STONE TURNIP, 60 bushels of SKIRVING'S SWEDE, 50 bushels of GREEN ROUND, 13 bushels of SIX-WEEK WHITE STONE, 1 cwt. of HOLLOW CROWN PARSNIP, 30 bushels of GREEN TOP SCOTCH, 1 cwt. of EAST HAM CABBAGE, 4 tons of YELLOW GLOBE WURZEL, and 12 bushels of WHITE SPANISH ONION SEED, also about 8 quarters of DICKSON'S FAVOURITE PEA; all the growth of 1869.

Price on application, to be made to THOMAS AYRES, Seedsman, Biggleswade, Beds.

Special Offer of New Potatos.

THOMAS PIERPOINT, Warrington, begs to offer the POTATOS introduced by him in 1868-69 at prices one-third below the fixed quotations for 1870. The Harry, a very early variety, is thus reported in the "Gardeners' Magazine," Feb. 6, 1869, p. 53:—"Harry, Kidney, combines in an exceptionally perfect manner the finest quality with elegance of appearance and great productiveness." Rixton Pippin, a large, handsome, and heavy Fluke-shaped Potato, of the very finest flavour, fit for table when taken up, and remains so until July. See report in "Gardeners' Magazine," April 10, 1869, and Sept. 11, 1869, where it is pronounced "unquestionably the best Potato of the year."

Harry, Kidney .. .. 7*s.* per 56 lb., 12*s.* per cwt.
Rixton Pippin .. .. 12*s.* per 56 lb., 21*s.* per cwt.
Nett cash prices, not binding after October 30.

THOMAS PIERPOINT, Seedsman and Seed Grower, 126, Bridge Street, Warrington.—[Please to note address, as there is another of the same Name and Trade in town.]

HALLETT'S

PEDIGREE HUNTER'S WHITE WHEAT,

ALSO THE

ORIGINAL RED.

Price, including bags, Five Guineas per Quarter, by the Quarter or Half-quarter; One Guinea per Bushel for less than a Half-quarter, delivered at the Brighton Station, in bags sewed up, sealed, and containing printed directions for planting, upon receipt of Cheque or Post Office Order, without which it will not be sent to unknown Correspondents. Less than a bushel not supplied.

Apply to Captain HALLETT, F.L.S., The Manor House, Brighton.

Wheat  **Sowing.**

DOWN'S FARMER'S FRIEND for Preventing the Smut in Wheat, and the Ravages of the Slug, Grub, and Wire-worm. A 9*d.* packet is sufficient for Six Bushels of Seed Wheat, which can be dressed and fit to sow in a quarter of an hour.

Testimonials from the largest Wheat Growers in the Kingdom, bearing testimony to its great power and efficacy, may be had of Agents, who are appointed for every district.

Full directions for use are given with each packet.
Prepared at the Manufactory, Woburn, Beds.

CAUTION.—To guard against fraudulent imitation and consequent disappointment, see that the signature of HENRY DOWN is on the label.

Agents in every Town throughout England, Scotland, and Ireland.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)
Have now ready for delivery, in fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES.
Also Genuine PERUVIAN GUANO, and NITRATE of SODA ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c. E. PURSER, Secretary.
Offices, 116, Fenchurch Street, E.C.

LAWES' WHEAT MANURE, for AUTUMN SOWING, now ready for delivery.

All other Manures and Cakes as per Price List, supplied on the lowest terms. Apply for prices, &c., to JOHN BENNETT LAWES, 59, Mark Lane, London, E.C.; Dublin, and Shrewsbury.

REES AND CO.'S BIPHOSPHATED PERUVIAN GUANO (Registered Trade Mark, Flying Albatross), is now ready for delivery in quantity and in fine condition. It is believed to be the best Artificial Manure yet produced. Its base is Peruvian Government Guano; it contains 21 per cent. of Soluble Phosphates, 6 to 7 per cent. of Ammonia with Salts of Potash. See reports of Dr. Voelcker, Dr. Anderson, Professor Way, Mr. Ogston, and Mr. Sibson. Delivered in 2 cwt. bags, each of which is secured by a leaden seal, bearing the Company's Trade Mark. The analysis is guaranteed so long as the seals remain unbroken.

Agents for the North of England—Messrs. Keighley, Maxstead & Co., Hull. [Aberdeen.

Agents for Scotland—Messrs. Richard Connor & Co., Glasgow and Agents for Ireland—Messrs. R. F. Gladstone & Co., Dublin.

REES AND CO.'S Biphosphated Peruvian Guano Company (Limited), 32, King William Street, London, E.C.

Autumn Sowing.

ODAMS'S NITRO-PHOSPHATE or BLOOD MANURE for WHEAT.—This Manure, specially prepared for Autumn Sowing, is rich in Ammonia, Phosphates, and other ingredients required for the healthy growth of Grain Crops. Analysis of Blood and the grain of Wheat show that they are nearly identical in composition, hence the value of Blood as an ingredient in Manure. It may be applied at the rate of from 3 to 4 cwt. per acre, according to the condition of the soil, either drilled with the seed or sown broadcast; if the latter, it should be well harrowed in. Prepared by the Patent Nitro-Phosphate or Tenant-Farmer's Manure Company, whose Members are Cultivators of upwards of 50,000 acres of land, which has been for years under management with Manures of their own manufacture; consequently the Consumer has the best guarantee for the genuineness and efficacy of the Manures manufactured by this Company.

Particulars will be forwarded upon application to the Secretary, or may be had of the Local Agents. C. T. MACADAM, Sec.

Chief Offices, 109, Fenchurch Street, London, E.C.; Western Counties Branch, County Chambers, Exeter; Irish Branch, 40, Westmoreland Street, Dublin.

THE BIRMINGHAM CATTLE and POULTRY SHOW.—The TWENTY-FIRST GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS, and IMPLEMENTS, will be held in BINGLEY HALL, on SATURDAY, MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 27, 29, and 30, and December 1 and 2, 1869, when PRIZES to the amount of nearly £2400 will be awarded in the following Divisions, viz.:—

FAT CATTLE	£807 19 0	BREEDING PIGS	.. £77 2 0
FAT SHEEP	.. 310 8 0	ROOTS and CORN	.. 70 16 0
FAT PIGS ..	.. 69 11 0	POULTRY and PIGEONS	74 11 0

Prize Lists, Certificates of Entry, and every information may be obtained from the Secretary.

The ENTRIES CLOSE on MONDAY, November 1.
JOHN B. LYTHALL, Secretary.
Offices, 39, New Street, Birmingham.

SMITHFIELD CLUB FAT CATTLE SHOW.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY afternoon, December 6, and Four following Days.

Intending Exhibitors are requested to apply for Certificate Forms by the reference letters as under.

CATTLE.—Form A. For an OX or STEER (in any Class).
" B. For a COW or HEIFER (in any Class).
" C. For a BEAST in Extra Stock.
SHEEP. " D. For a PEN of three WETHERS (in any Class)
" E. For a SINGLE SHEEP in Extra Stock.
PIGS. " F. For a PEN of three PIGS (in any Class).
" G. For a SINGLE PIG in Extra Stock.

ENTRIES for LIVE STOCK CLOSE NOVEMBER 1.

Prize Lists, Forms of Certificates, and all information may be obtained on application to Mr. DAVID PULLEN, Assistant Secretary, at the Office of the Honorary Secretary, corner of Half-Moon Street, Piccadilly, London, W.

N.B. All communications respecting the Show must be addressed to the Assistant Secretary, as above, and should bear outside the words "Smithfield Club Show."

The Agricultural Gazette.

SATURDAY, OCTOBER 16, 1869.

MEETINGS FOR THE ENSUING WEEK.

October 18, 19, 20—Herefordshire Agricultural, at Hereford.
— 21—Ayrshire, at Kilmarnock.

THIS, upon the whole, has been a pretty fair season for green crops. Turnips, Mangels, Swedes, as a rule, look well; most of them are uncommonly late; nearly all have more top than usual. Many green crops also manifest an unusual tendency to run to seed; this has been especially the case with Sugar-Beet. This crop stood the roasting of last summer, but the sudden and frequent alternations of temperature this season seem to have made probably 10 per cent. of it run. This will probably affect the sugar-maker more than the farmer, but however this may be, some means will have to be adopted to check this evil. Probably late sowing, deep culture, and a careful selection of seed, will be the likeliest preventive measures.

The middle of April is time enough to sow the crop. Every day the seed is put in before the 15th increases the risk of runaways. The Lavenham crops this year have been sown from the end of March to the end of April, and with the exception of one crop, which we believe was put in in May, they are all run more or less, and most of them in almost equal proportion. This one crop seems too late to acquire weight enough to make it profitable, so that the cultivator must try to choose a medium time for sowing as the likeliest to avoid running, while securing a maximum weight of roots.

Deep culture, by providing a well-filled cellar all around and beneath the roots for them to draw upon during drought, must likewise prove useful as a means of preventing "bolting." The irregular feeding of plants—gorging to-day, and starving to-morrow—is one of the surest means of sending them into seed, and such irregularities are much more common on shallow than on deep tilths.

But probably the surest remedy against bolting consists in a careful selection and storage of the seed sown. It is, however, a singular fact, that the seed of last year and of this is the same; it is a year older, and that is all! We can hardly suppose that another 12 months having passed over the seed, could develop the greater energy seedwards. We have often heard aged gardeners say that the older the Cucumber and Melon seed the more freely the plants would bear fruit. If so, old seed of other plants, such as Beet, might readily manifest the same peculiarity. Have our readers observed any unusual tendency to run away in old Mangel seed? We hope some of them may record their experience on this head, as the point is important. Sugar-Beet from forming a larger top than most of the Mangels, might possibly manifest this seedward tendency, if such exists in plants raised from old seed, in an exaggerated form. Another season or two's experience will set this matter at rest. Most of the growers are saving next year's seed from a careful selection of their best roots; and next year's produce will be the offspring, not only of new seed, but of that grown under their own eyes and garnered by their own hands. It cannot be denied that, although this season common Mangels and early Swedes and Turnips manifest an unusual elongation of top and tendency to bolt, yet the Sugar-Beet has done so much more than others. The fault, therefore, must either be in the seed, the skies, or the constitution of the plant. It would be folly, as well as directly opposed to many years' experience, to look for it in any constitutional bias, while either the changeable weather or the age or quality of the seed might account for it. The weather alone has been enough to make any susceptible crop take a wrong turn. Biting frosts and burning heats, deluges of cold rain succeeded by the most withering droughts, have succeeded each other in rapid succession, like the combinations in a kaleidoscope. Hence, possibly, the large percentage of runaways. They are probably merely the abnormal products of an exceptional season. Next to the runaways the wireworm and grub have been the greatest foes to the crops. A great many fields are blanky; in fact there is scarcely one with a full regular crop. We were told that the seed came up well, but the plants in a young state were attacked by wireworm and ruthlessly destroyed thereby. The best remedy for this scourge was found to be a roll, to crush down the plants, and compress the earth so firmly together as to present a mechanical barrier to the devastations of these pests. It seems doubtful whether the rolling killed the worms or merely shut them in; the point of most moment is, that it is asserted to have saved the crop. In fact, amongst the best growers strong opinions were held in favour of a solid seed-bed and a firm surface for the young plants. A deep, well-worked, richly-manured tilth, and then solid rolling before sowing and after the plants appeared, was the panacea advanced against blanks; and those who had practised it had the most regular plant.

But it must not be inferred that these drawbacks have spoiled the crops. A sweepstakes had been entered upon by the growers for the best crop of three acres, to be judged by Sept. 20, and on that day the crops were examined. Several of the gentlemen, from irregularity of plant, &c., withdrew from the competition; but the crops of most of them were looked at, and five of the best were judged and weighed. It should be noted that the plants are still in full growth, making rapid progress in size and weight. In fact, with fine weather, there is every prospect of another fourth being added to the gross yield within the next month.

Yet on September 20 this year the maximum weight is greater than that reached a month later last year, that is, over 21 tons per acre. Another grower has reached 19 tons, a third 15, a fourth 14½, and a fifth 13½. Had there been a regular plant, the average would have been about 18 or 20 tons per acre.

The common Mangel crop will not greatly exceed this average this season. As a means of comparing the respective weights of the two crops, a portion of one of the best fields of Mangel in the whole district was examined and weighed. It was a model crop of a choice variety of Tankards. The soil was naturally good, and it had had a heavy dressing of farmyard manure. The crop had been skilfully cultivated and scrupulously cleaned. The plant was regular, at distances of 32 inches between the rows, and about 18 inches asunder in the rows. This gave 7 rows to 6 yards in width. The yield was 30 tons gross weight—that is, 24 tons of roots and 6 tons of tops per acre. The following tabular statement will exhibit at a glance the respective weights of each grower, and the difference between the Sugar-Beet and the best crop of Mangel:—

Stones per Rod, or Tons per Acre.

	Gross Weight.	Roots, Weight.	Leaves, Weight.	Roots, per Rod
	Tons.	Tons.	Tons.	No.
Common Mangel—Grown by Mr. Alen, Lavenham	30	24	6	100
Sugar-Beet—Grown by Mr. Hitchcock, Lavenham	31	21½	9½	182
Mr. Robert Edgar, Cockfield	30	19	11	175
Mr. G. S. Mumford, Lavenham	23	15	8	165
Mr. Robert Hawkins, Milden—first field ..	23	14½	8½	182
Ditto—second field ..	19	13	6	160
Mr. William Biddel, Lavenham	19.9	13.9	6	132

The results are given in tons per acre, as a stone per rod may be so stated. By multiplying the number of roots per rod by 160, the number per acre is found.

This tabular statement conclusively shows that as much gross weight of Sugar-Beet may be

grown as of Mangel. An excess of top will, however, be noticed. This will probably be corrected to a great extent by a careful selection of seed. It is, however, a lesser evil than may be imagined, as sheep, cows, and bullocks are passionately fond of the tops, and they form a sweet succulent article of food, either neat or cut up with dry chaff. It has been proposed by some to consume the tops with sheep before the roots are harvested, in order that they may be consumed in a clean state. This would, of course, make the harvesting more difficult, though it could hardly injure roots for sugar-making, as it will be remembered that, for this purpose, the crown is dispensed with. Attention will doubtless, however, be directed to the growth of heavier roots and less tops. It will be observed, that the best grower this season has reduced the percentage of top to root considerably below all the others.

Another fact rendered patent by this tabular statement of results, is the light average weight of the roots—the prize Beet only exceeded by a fraction 1½ lb. a-piece; while the others descend gradually down to a pound per root. There is no reason, in the nature of the Sugar-Beet, why 2 or even 3 lb. per root should not be reached. It is in this direction that a maximum weight must be looked for. Mr. Alen's weight of Tankards has only to be given to the Sugar-Beet, and his number of roots doubled, and then no crop could for a moment compete for profit with Beet-sugar. Such results seem quite within the range of possibility, for we observed little difference in the size of the Sugar-Beet when, either from accident or design, the roots were placed wide asunder. Most of the growers, for convenience of cleaning, had five rows on the three yards stetch, one or two had six, and one had less than five. The roots in the six rows were equal in size to the five, and the thinner plants were among the lightest seen. Two hundred plants to the rod should be about the average, and these, developed pretty well, would give a splendid return. It is astonishing how irregularity of size and a loss of a few ounces on each root brings down the gross yield. Blanks, again, play havoc with final results. There was not a single field with a uniformly perfect plant. Wireworm and grub must be vigorously fought against and extirpated to enable farmers to make a full return from this new money-maker. These pests seem to enjoy the sweets as much as ourselves, but, of course, what they win we lose, and unfortunately their pound of sweet food may deprive us of tons of roots.

By growing a full plant, economising the leaves, and making beef out of the pulp, there is no doubt but that Sugar-Beet growing will prove profitable to the British farmer and useful to the nation. It puts money into the farmer's pocket, and finds employment for his workmen at a season when both are likely to be scarce.

A subject of especial agricultural interest at this season of the year, and well worth examination at any time, has been mooted in a recent communication from Mr. C. Paget, of Ruddington Grange, near Nottingham. The proper depth of drains, more especially in the case of pasture land, has long been a question on which great difference of opinion has existed; and the discussion is one which may be usefully revived just before the winter's drainage works begin. Mr. Paget on page 1024, and Mr. Willoughby Wood on page 875, have contended for 3 feet, as being generally a sufficient depth for the drainage of grass-lands; and in both cases instances are described in which this opinion had been amply confirmed by experience. On the other hand, one does not see why, if the use and fertilisation of an additional foot of subsoil by the deeper drain is good for the crops proper to plough-land, it should not be equally serviceable for many of the Grass plants and the Clovers of green fields. In the former case, indeed, we can by deep and thorough tillage let down the surface water almost half way to the deeper drain at once; but, in the long run, old grass-lands whose subsoil it is not possible to stir, will let the rain-water percolate throughout their subsoil to a pipe laid 4 feet deep; and, that being proved by the activity of 4-foot draining soon after rainfall, it is hard to doubt that the crops of Grass sown on land thus fertilised must be better than those which are fed from a shallower, and therefore less abundant, store of food. We have also the experience of many drainage engineers, which can be quoted to the effect that whatever may be the immediate result upon grass-lands, the deeper draining ultimately tells to the advantage of the crops they yield, just as it does upon the produce of the Wheat and roots and Clover crops of arable farming. On the whole, therefore, we believe it is a fortunate thing that the Enclosure Commissioners stand committed to the general adoption of the deeper drain, alike on grass-lands and on plough-lands. We shall be glad, however, to hear from any correspondent on this subject any statement of experience on which his own opinion may be founded.

— The price of Wheat lowered from 1*s.* to 2*s.* a quarter at Mark Lane on Monday, and trade has been dull throughout the country at that decline. Other grain and feeding stuff have been without much alteration.—The live stock and meat trades have again been in an active state for fine qualities, 5*s.* 6*d.* being the highest quotation for beef, and 5*s.* 11*d.* for mutton.—The agricultural seed trade is still nominal in amount.—English wool is in better demand, but dearer.

— At the Educational Congress held during the past week at Birmingham, Mr. Paget, of Ruddington Grange, Nottingham, thus referred to his experience on half-time labour for boys upon the farm:—"He had been alluded to as an employer of agricultural labour who had for many years insisted upon the education of his farm boys, that thay should spend some days in the schools as well as at work, and what was the result of that system? In the first place it had been in operation 16 years; and, although the experience of one farmer could not cover a great extent of ground, the results had been so uniformly alike, and so successful, that he had no hesitation in saying the system was a decided success. Upon his farm he had 34 boys employed, upon the condition that they spent the alternate days of the week in school. He had done this without any sacrifice on his own part, because he felt at the outset that it must be a business success; and it had proved, commercially speaking, successful. He had, too, been better served under the system than before its introduction. His system was this:—He received the boys at nine years of age, on condition that they were able to read decently, and at the annual examination of his school it was proved that his boys fully maintained their own with the boys of those persons who sent their children to school in the regular way. At 13 they were examined, and those who could write accurately from dictation, read correctly, and do the first four rules in arithmetic received from him a prize. He had written to the employers of some of the children who had been taught under his system, and the uniform reply of the masters was that they were perfectly satisfied with their servants, and the servants themselves had written to him letters of the most creditable kind. That was a proof that after leaving his farm they continued their education. After they left his farm they had no difficulty whatever in obtaining situations, because they were better servants than the majority of their class. To obtain admission to his farm, the children of the locality attended the village school to learn to read, a proof that in education they saw promotion in the distance. As to the general question of how far education should be compulsory, he had contended for many years, while member for Nottingham, that as society was bound to provide for the poor and criminal classes it was bound to see that the poor were brought up in such a manner that there should be the least probability of their becoming paupers or criminals."

— A very important and urgent question is mooted by an "Inquirer" in the following note:—Being resident in a neighbourhood where straw costs 70*s.* per ton, I desire to elicit from any of your readers a method whereby one can obtain a substitute for straw, either by the use of boarded floors, sawdust, or any other means to save expense. I have heard that in the large cowhouses in London, coir-mats are sometimes used—are they efficient? Would they answer for horses as well as cows? Any information would be thankfully received. I remember reading of a farm where sand was used for animals to lie on—has experience shown that system to answer?" To all which questions we direct the attention of our correspondents.

— A police report of Tuesday last throws some light on the London milk manufacture. A dairyman and cowkeeper, of Green Lanes, Stoke Newington, employed a cowman and his wife, who resided in a cottage near the sheds, where he keeps about 60 cows. These people have been charged before the Clerkenwell magistrates with stealing milk. At their cottage the prosecutor retails milk, which it was the prisoner's duty to sell, receive the money, and hand it over to the prosecutor's clerk. The male prisoner had left for a week's holiday, and the prosecutor having made certain discoveries, went to the cottage, and, on measuring the milk for sale, found 12 quarts, being 5 quarts more than had been supplied that day from the house. In the 12 quarts that he took there were only 7¼ quarts of milk, the rest had been made up with water. On cross-examination he declared that he never added cochineal, salt, or other deleterious matter to the milk he sold. He never adulterated his milk. The male prisoner held up a large bottle containing a nasty-looking brownish liquid, and said that was what was put into the milk to make it look rich. Ultimately Mr. Barker committed the prisoners to the Middlesex Sessions for trial, when possibly further details may be forthcoming.

— At the Great Braxted meeting, last week, the Rev. J. Branston, vicar of Witham, called the attention of the employers of agricultural labourers to the need of conciliating and retaining the lads and young men on their farms. Employed during the bright sunny days of the year, they are not certain of employment the whole year round, and so they look out for other employment. They go to a town or manufacturing district, or to some railway, and try to get employment where they shall be sure of work during the whole of the winter; and in consequence of this they are lost to the farming interest, as it were, and having once tasted the sweets of higher wages than they received at home, they never return to farming employment. This is one cause why labour is becoming more and more scarce, and will eventually prove a detriment to the employers, unless they look to it well, and see to their young men. The remedy suggested by Mr. Branston—the establishment of friendly personal relations with the growing lads of the farm—will no doubt exert some influence of the kind he anticipates; but the idea that boys are to be thus kept in ignorance of the sweets of higher wages is ludicrous. The competition of other employments for the services of the labourer ought not to be deprecated as unwholesome or unfortunate by any class of employers. Let every master pay wages according to work, and boys and young men will have no ground for dissatisfaction. Piecework payments would do more than all the petting in the world to satisfy young men. This, with that habitual personal consideration which is always due to "neighbours," whether they be masters or men, and whether they be young or old, would go farther to retain growing lads upon the farm than any special conduct with a particular end in view.

— The reviewer of the new number of the English Agricultural Society's Journal in our columns objected, some weeks ago, to its statement that the award of the Society of Arts' prize to Mr. Gibbs, for his method of drying damp agricultural produce, implied that the judges, who had been unanimous in their decision, thereby necessarily sanctioned and affirmed the principle of Mr. Gibbs' invention. Mr. Bailey Denton has taken exception to this statement, maintaining (p. 1048) that the decision must be considered an award, as he had stated it to be, not indeed for the machine described in the essay, but for the principle on which it was founded. The terms in which the offer of the prize was announced should terminate the discussion. The gold medal of the Society and a prize of 50 guineas were offered "for the best essay on the harvesting of corn in wet seasons:—

"The first part of such essay—after noticing the various systems at present adopted in damp climates for counteracting the effects of moisture upon cut corn in the field, and for avoiding such exposure in wet seasons by peculiar harvesting processes—should furnish a practical and analytical exposition of the best available means:—

"1. Whereby cut corn may be protected from rain in the field.

"2. Whereby standing corn may, in wet seasons, be cut and carried, for drying by artificial process.

"3. Whereby corn so harvested may be dried by means of ventilation, hot air, or other methods; with suggestions for the storage both in the ear and after threshing.

"4. Whereby corn, sprouted, or otherwise injured, by wet, may be best treated for grinding or feeding purposes.

The whole to be supplemented by a statement of practical results, and actual cost of each system described; and authenticated estimates of any process proposed for adoption, based upon existing but incomplete experiments.

"The above requisitions are given suggestively; not to bind the writer to the order or to limit the treatment of the subject, provided it be kept within the scope of practical experience and utility."

It is probable, as a matter of fact, that the gentlemen who undertook the award of the prize for "the best essay" as aforesaid, may have severally approved of the principle involved in Mr. Gibbs' invention, and even of the actual machine which he described in his essay; but we have the best reason for knowing that neither the principle involved nor the machine described was made the subject of discussion amongst them. They probably concluded that their duty was performed when they had carefully considered the relative merits of the essays before them, and could certify that the one which they had selected did "furnish a practical and analytical exposition of the best available means, &c." And we do not think that the award need have been dissented from by any of them, even though the machine, one of many means described, had not commended itself to their judgment, as based upon a good or satisfactory principle. In all probability the judges, if they had been canvassed on the report, would have said, that the principle involved in the machine was sound, but the Society of Arts have not been, we think, committed by their judges to any such assertion.

— The Rev. F. O. Morris writes to the *Times* an account of the Agricultural Labourer in Yorkshire, quoting with approval a remark of Mr. Walter at the Berkshire agricultural meeting:—"All I can say is that a labouring man with tolerable prudence, if he enjoys good health, may enjoy life a good deal more than the hard-working mechanics in our smoky towns." He says:—

"I was sitting yesterday in one of our cottager's houses, when I saw the wife of our largest farmer, who lives about a mile and a half from here, at the top of our Wold (about the highest ground, I believe, in the East Riding), passing by. He farms about 700 acres of land, which, however, is not large compared with some of the Wold farms. I went out to speak to her for a moment, but it ended in a long talk, chiefly about a late farm servant of theirs, whom I had buried about ten days before, and whom I had daily attended for the last seven days of his illness, which was only a fortnight from the day he was first taken ill to the day of his funeral. I had some further conversation with her afterwards, when she came down to decorate the church for

our harvest thanksgiving service, and she mentioned to me that when he died he had left, in the savings-bank, and had also just bought a new suit of clothes. He came originally from the neighbourhood of Peterborough, and his master had found him at Dereham the first day he came into the county. He lived with him a year, then went to another master for a year, when he came back to his first again, and stayed with him other ten years, till his death, 12 in all, first as waggoner, then as groom. His wage was 20*l.* a year, with his food and house room. He was a very quiet, steady man, and hardly ever took any beer, even when he might. In this village, I am thankful to say, there is no temptation to drink, there being no public house or beer shop in it, and though the people nearly all belong to the poorer class, there is nothing approaching to poverty, either here or in any village far or near, that I know of. This is in contradiction to the statement of Canon Girdlestone that the agricultural labourer 'cannot save;' and there are numberless such cases in all this part of the country, and it is far from uncommon for a farm servant to save enough to set him up as a small farmer, from which he often gets on to be a larger one. I have had two or three of such instances in this parish. I think some of your readers, if prejudiced by the remarks I have alluded to, will be surprised to hear the way in which farm servants live about here, and you may be glad of the opportunity of disabusing the public mind of the erroneous notions that seem to be abroad on the subject. An ordinary day labourer's wages are 2*s.* 6*d.* a day, or 15*s.* a week, or 8*s.* at least, if with his meat. All the farm servants who live in the house have three meals a day; and, if they like, boiled beef at each of those meals,—viz., the beef is boiled three days in the week, and in pies the other three, besides any quantity of small beer, milk and bread, &c., of course, also, besides fruit-pies or cheesecakes. In harvest time, for five weeks, they have five such meals in the day, and 18*s.* a week. So, also, on machine days, that is to say, when steam threshing is going on, the ordinary labourers have their meat besides the 2*s.* 6*d.* a day, and strangers, if called in, 3*s.* to 3*s.* 6*d.* perhaps, or sometimes 4*s.*"

The Yorkshire agricultural labourer is no doubt better off than the labourer in Devonshire, and that is the very fact on which, no doubt, Canon GIRDLESTONE relies as the explanation and justification of his efforts.

—— In two instances lately tenant-farmers have been punished—the sentence on one, a man of wealth and position, near Tring, Hertfordshire, having been three months' imprisonment with hard labour—for cruelty to their cattle. The prosecution in the latter case was instituted by the Society for Preventing Cruelty to Animals. Horses on the farm of Mr. GINGER, of Boxted, Hemel Hempstead, having long been in a state of great suffering and utterly unfit for work, and the evidence proving that Mr. GINGER knew of their state, and that they were worked by his authority, he was sentenced to be imprisoned for three months, with hard labour, in the House of Correction at Hertford. In passing this sentence the Chairman remarked that it would be a farce to impose a fine in such a case upon a man who farmed 500 acres of land, and had private property besides. ROBERT SHARPE, Mr. GINGER's foreman, was sentenced to be imprisoned for six weeks, and the ploughmen who were with the horses were fined 11*s.* each, including costs. It should be stated that Mr. GINGER and his foreman had been previously convicted, and fined for a similar offence.

—— Leases, and their advantages to both landlords and tenants, were recently treated of in the following conclusive and encouraging manner by Lord PORTSMOUTH:—

"Since 1822 the experiment of 31 years' leases, with free liberty to sell them, and practically vesting all buildings in the tenant, has been tried on my estates in the county of Wexford with the following results:—Badly cultivated patches of land, with wretched hovels on them, have been changed into well-cultivated farms, with first-rate homesteads. The rental has been more than doubled, is punctually paid instead of irregularly paid. Discontent and misery existed in 1822; prosperity and contentment exist in 1869. . . . With such results, are not landlords blind to their own interests who refuse to their tenants the common justice of leases with equitable covenants? By what law of right can buildings which a tenant built and paid for belong to his landlord? If it be made plain from day to day, simple justice—which as the rule neither Irish nor English tenant-farmers have received from their landlords—will work a vast and beneficial revolution in the rural districts of Ireland."

OUR LIVE STOCK.

WE beg to remind our readers of Mr. Fowler's sale next Tuesday. The Prebendal Farms are within a very short distance of the Great Western and London and North-Western railway stations at Aylesbury. A review of the catalogue of this herd will be found in our issue of last week.

—— Mr. Duckham's first periodical sale of pure-bred Hereford cattle will take place next Thursday, when 100 head of first-class stock from the herds of many of the best known breeders will be offered. The sale will be held in the showyard at Hereford, the day after the county agricultural meeting.

—— Mr. Thornton will sell the entire herd of Shorthorns belonging to Henry Empson, Esq., of West Ravendale, near Grimsby, on Wednesday, 20th inst. We are informed in the preface of the catalogue that "this is one of those old-fashioned herds for which the county of Lincoln has long been celebrated." Sires from Messrs. Torr, Dudding, Lawrie, and Cartwright having been used, which is a good guarantee of purity of blood. The pedigrees, however, are very short, usually registering two or three crosses of pure blood only. We do not include *Faunist* in this statement, a well-bred young bull (lot 73), from Aylesbury, by LORD BLITHE (22,126), and of the *Flower Girl* tribe. Mr. Thornton speaks of the cattle as very uniform in character, and recommends them as "admirably adapted for the foundation of a future herd."

—— The Aldingham Hall sale came off on Tuesday, the 5th inst. The respectable average of 30*l.* 15*s.* 3*d.* was realised over the whole of the 27 animals offered, while the cows and heifers brought 32*l.* 1*s.* 5*d.* each. The highest prices were given for the four females of the Cressida tribe, a most excellent strain, as we pointed out last week. The first of these, *Andromache*, became the property of Mr. J. P. Foster, at 60 gs.; *Cressida 6th* was bought for 62 gs. by Mr. Jefferson; *Maveo*, by PARIS (20,169), and a daughter of *Andromache*, was sold to Mr. W. Ashbourne for 28 gs.; while *Maria*, by GRAND DUKE 10TH, and also a daughter of *Andromache*, became the property of Mr. Foster at 40 gs., and goes with her mother to Killhow. The highest figure for bulls, 37 gs., was given by Mr. Carard, for MAGAR, also of the Cressida tribe. *Labda*, by CAMBRIDGE BARRINGTON 1ST, proved the ancestress of some of the highest priced stock, her daughters *Leona* and *Leda* making respectively 32 and 38 gs., and her grand-daughters, *Godiltha* and *Libya*, 39 gs. each. *Ira*, by CERDIC, and of the Winifred family, was sold for 39 gs., and *Juanita*, a six-months-old calf of the same strain, was bought for 21 gs. by Mr. J. Bowness. The remainder of the herd brought little over ordinary prices for cattle of similar age.

—— A month ago we gave some account of the late Mr. Benjamin Wilson's stock at Brawith, near Thirsk, in Yorkshire. The herd consisted of four families, two of which, the Vesta and Certainty strains, were long bred at Brawith. *Miss Milward* is of a good sort, bred by Earl Cathcart, and several animals are descended from the stock of Sir R. Crompton, Wood End. The sale of this herd took place on Friday, the 8th inst., the Messrs. Wetherell, of Richmond, acting as auctioneers. A large local company assembled, and although no extraordinary prices were given, the good average of 23*l.* 6*s.* 9*d.* was obtained over 24 animals disposed of. The three heifers of the Certainty tribe brought an average of 38*l.* 6*s.* 8*d.* each. The first of these, *Beauty of Brawith*, by YOUNG EMPEROR, was bought by Mr. Atkinson for 28 gs. *Certainty 12th*, by EARL OF BRAWITH, of the same strain, and out of *Beauty of Brawith*, became Mr. Metcalfe's property for 56 gs.; and *Certainty 13th*, full sister to the last-named lot, was secured by Mr. David Neasham for 25½ gs. Among other fair prices may be mentioned 33 gs. for *Vesta 2d*, a 9-year-old cow, the oldest representative of the Vesta tribe, and now the property of Mr. Mason, of Skelton. *Venus*, by EARL OF BRAWITH, was purchased by Mr. Swaine for 34 gs.; and *Vesta 5th*, by the same sire, was knocked down to Mr. Barby for 35 gs.

—— One of the largest and most important Shorthorn sales of the present season took place at Shouldham Thorpe, Downham Market, on Wednesday, the 6th inst., when the Messrs. Wetherell, of Richmond, disposed of 44 cows and heifers and 6 bulls, bred by and the property of Mr. Gamble. On the 18th ult. we gave some account of the origin of this herd, and mentioned particularly several members of the Brawith Certainty tribe, and of the famous Telluria sorts. Mr. Gamble may be congratulated upon the result of his sale, as the 50 animals offered brought the famous average of 42*l.* 2*s.* 4*d.* each; the female portion, comprising 44 head, averaged 41*l.* 11*s.* 7*d.*, and the 6 bulls brought 44*l.* 19*s.* 6*d.* each. Mr. Aylmer secured the 11-year-old cow *Chance*, by GOLDFINDER, bred by Mr. Benjamin Wilson, for 35 gs., and this was looked upon as a good beginning. Lot 4, *Fairwater*, by PLATO (18,552), was bought by Mr. Micklethwaite for 70 gs.; and Mr. John Aylmer took the next lot, *Fame*, by 2D DUKE OF THORNDALE, and of the Telluria family, at 60 gs. Next came a daughter of *Fairwater* (lot 4), a nice roan heifer, which was purchased by Mr. Durrant for 73 gs. *Friendly* (lot 7), half-sister of lot 4, was bought by Mr. Micklethwaite for 60 gs. Mr. Barclay, who could not leave *Pearl*, by THE SKIPPER, finally bought her for 90 gs., and the same spirited breeder bought *Charmful*, by FELIX, of the Certainty tribe, for 100 gs. Another Certainty heifer, *Conquest*, by ZEALOT, was purchased by Mr. Micklethwaite for 56 gs., and the same gentleman secured *Flawless*, a daughter of ZEALOT and *Fairwater*, for 60 gs., and ZEALOT (25,480), the sire already mentioned, for 56 gs. We have not space to give a full list of the prices obtained at this remarkable sale; but we may mention that the eight numbers of the Certainty family brought on an average 47*l.* 12*s.* 9*d.* each; that the 18 representatives of the Zinc and Zeal tribes made 42*l.* 17*s.*; and that the 17 descendants of *Fuchsia*, by THE CAPTAIN, made 43*l.* 12*s.* each

—— The prize list of the Staffordshire Agricultural Society, at their recent meeting at Burton-on-Trent, as published in p. 1049, contains an error, which, though not likely to mislead, ought to be corrected. The "William Wood" to whom the 1st prizes in the classes for yearling bulls and bull calves, and the 2d prize for yearling heifers, were awarded, is, of course, Mr. Willoughby Wood, of Holly Bank, Burton-on-Trent.

SMITHFIELD CLUB FAT CATTLE SHOW.

I BELIEVE no one can fail of seeing that the rules and regulations as respects exhibitors at the Smithfield Club Cattle Show at Islington are increasing in number and complexity year after year. In fact, in a short time the committee will require a pamphlet to embody their endless regulations; however, if it pleases these gentlemen, perhaps the exhibitors have no particular objection as long as the regulations (however numerous) are of an innocent character, but this year the committee have introduced what I am sure will be considered a very whimsical idea, I should almost be tempted to believe it is a little bit of fun on their part, did I not feel assured that such steady men as the committee of the Smithfield Club never could condescend to be playful.

In the printed document that is forwarded to intending exhibitors with the form of application for space, I find in the second column the following queer announcement:—"It is contemplated that in the year 1870 all the signboards shall be uniform in size, colour, and lettering;" and they kindly add, "This notice is given for the information of exhibitors, so as to prevent their unnecessarily ordering new signs, which may not come within the regulation." Good gracious, sir! are all our present signboards to be thrown overboard? Is this levelling up or levelling down? The latter it must surely be; for how could A. B. with a 4-foot frontage have a signboard as long as C. D. with his 20 yard of space? Let us put it clearer. We know that Messrs. Gibbs and some of the other large seed growers have a space of about 50 or 60 feet frontage. Now, I want to know how their signboard can be reduced, or whether they will be willing to have a signboard of the same size, for example, of that of Mr. Tree, the cattle guage man, whose stand is about 4 or 5 feet frontage. You see the less must govern the greater, for how could a 4 or 5-foot space man contrive to put up a signboard of the length of Messrs. Gibbs' 60-feet signboard? You well know the signboards generally run the whole length of the space each exhibitor occupies; the 60-foot space man, or even a 20-foot exhibitor, would be compelled to have a zigzag, roundabout, up-and-down or spiral line, if his avocation is to be compressed into a board 4 or 6 feet long only.

But leaving the size of the signboards, let us speak of the insisting on all the signs being the same colour. What tint it is to be they do not say (rose-pink I stick to); and all the same lettering—Old English, German text, Roman, Italic—none is named; this is left, I suppose, for another committee meeting. That which they have already announced may be considered sufficient information for our little minds to take in for a time; we shall be enlightened further in due course. Only imagine the state of anxiety Mr. Thorley would have been in had such an idea occurred in his day! I recollect at Battersea he had a splendid signboard, the king of placards it might have been called. It was about the size of the side of a small house (though it did not exceed the space he paid for). This board, if I recollect rightly, had a bull or two in one corner, a lot of sheep in another, a true Suffolk Punch and colt in the third, and some beautiful fat pigs and poultry in the fourth corner; the whole board was emblazoned with splendid gold letters. Why, sir, that signboard alone drew a crowd of people round it, the country fellows and town folk stood gazing at it all day long. The very look at it, even without swallowing any of the celebrated spice, made the sightseers sleek upon the spot.

It is really melancholy to think that in 1870 all our present signboards will be disestablished, and woe to the painters and writers of that period—all private judgment and taste will be obliterated from the Agricultural Hall. If the regulation should be carried out, what a miserably dull place the Hall would be. Variety is pleasing—it matters not what colour the committee adopt—pea-green, drab, sky-blue, yellow, black and tan, mauve, or brickdust. If all the boards are to be the same, our eyes will sicken at the sight, ladies and gentlemen of the slightest artistic taste will flee from us. Surely some deep plot must underlie this contemplated regulation. Some poor painter—perhaps a relative—has to be provided for; he is to be the appointed official to whom we are all to go, when we ask the momentous questions—What size? What colour? What lettering is our signboard to be? In fact, there is really no time to be lost; two or three hundred new signboards cannot be manufactured in a day.

Now, if this new regulation is really to come into operation in 1870, the committee will be bound not to stop at mere signboards. The next order will be, that all the exhibitors are to dress alike, and all the men to be of the same size. A guage will have to be put up; we shall have to be weighed, perhaps. If 5 feet 10 inches is to be the height, I am a doomed man; and even though height be not insisted on, yet I never look well in green. And should there be no restrictions about the cattle? Should not they also be the same size, colour, &c.? though for the matter of tint, the bullocks could easily be painted. If white is the order of the day, what a commotion would be raised should it be discovered that the prize pig had some black on his ear or tail! Now, though some of your readers may say this is all a joke, yet, believe me, it really is no fun, when the order, or rule, or regulation is there to be seen in black and white. Pray think over the matter, and favour the numerous exhibitors with your views on this subject. *True Blue.*

RECENT ANALYSES.

THE sample sent herewith, marked No. 5, is a German phosphate, with an appearance remarkably like solidified guano. Dr. Benjamin H. Paul's report upon it is follows:—"I have examined the sample of guano, or mineral phosphate, sent to me by Mr. E. O. Greening, and find that it contains 69 per cent. of insoluble phosphate of lime, but neither ammonia nor organic substance."

In North Germany and France these phosphates are generally applied as manure after simple crushing, without manufacture into superphosphate. The French and German farmers have great faith in this plan, and a member of our governing Council who has tried the experiment upon a small farm this year reports satisfactory results. I ought, however, to add that Professor Voelcker, in one of his reports, does not express approval of the plan, but otherwise; and it is for English agriculturists to decide how far the common practice of France and Germany renders the experiment worth further trial in this country in the face of this adverse scientific opinion. As compared with English coprolites, the German phosphate I send you is very cheap. I am told it can be extracted, washed, and crushed at a cost, including royalty and all expenses, of 30*s.* per ton, and that the selling price in Prussia is about as follows:—

45 per cent. of soluble, 32*s.* per ton.
50 per cent. of soluble, 34*s.* per ton.
55 per cent. of soluble, 32*s.* per ton.
60 per cent. of soluble, 41*s.* per ton.
65 per cent. of soluble, 45*s.* per ton.

There are, it is said, millions of tons awaiting extrac-

tion, and one enterprising English firm has already established works upon the spot, utilising the cheap labour of the country and sending superphosphates to England at a good profit to themselves. For purposes of comparison I quote the present prices of English coprolites. Whole Cambridge coprolites, as raised, containing 57 to 60 per cent. phosphate, are worth about 52*s.* 6*d.* to 55*s.* per ton, and if ground, about 65*s.* per ton. Brown Cambridge coprolites, containing 47 to 50 per cent. of phosphate, are worth about 35*s.* per ton, and if ground, about 45*s.* to 47*s.* 6*d.* Suffolk coprolites, containing 53 to 55 per cent. of phosphates, are worth 45*s.* whole, and about 52*s.* 6*d.* ground, per ton. It is very evident from these figures that the German agriculturists have a considerable advantage over British farmers in the cost of phosphatic manures.

Sample No. 6 is the celebrated Driffield Company's pure cake. Dr. Paul's recent analysis of it is as follows:—

Oil	9.96
Albuminous compounds	32.63
Mucilage, &c.	33.18
Total of feeding parts	75.77
Moisture	10.32
Woody fibre	7.77
Ash	6.14
	100.00
Nitrogen, per cent.	5.02

The company are now charging 11*l.* 10*s.* per ton for their cake at the works, making a small allowance to the trade and to co-operative associations like our own.

Sample No. 7 is "pure" English linseed-cake, made for us under contract at a present cost of 10*l.* 10*s.* per ton. Its analysis by Dr. Paul is as follows:—

Oil	10.82
Albuminous compounds	31.46
Mucilage, &c.	36.64
Total of feeding parts	78.92
Moisture	10.19
Woody fibre	4.11
Ash	6.78
	100.00
Nitrogen, per cent.	4.84

We sell this cake to our members at 11*l.* 5*s.* per ton present price, and as our working expenses absorb about one-half the gross profits, there is the return of the other half to be reckoned as a deduction from the cost.

Sample No. 8 is a Liverpool-made pure cake, standing very high in the locality, and well spoken of by practical farmers.

As will be seen by Dr. Paul's analysis, it does not compare in percentage of nitrogen with the "Driffield," or the Association's oilcake, and is somewhat high in woody fibre and mineral matter. This illustrates the necessity of testing by analysis even the best oilcakes, to know their comparative money value in purchasing:

Analysis of Liverpool Pure Cake.

Oil	10.04
Albuminous compounds	24.25
Mucilage, &c.	38.55
Total of feeding parts	72.84
Moisture	10.45
Woody fibre	8.75
Ash	7.96
	100.00
Nitrogen per cent.	3.73

Edward Owen Greening, Managing Director, Agricultural and Horticultural Co-operative Association, 29, Parliament Street, Westminster.—P.S. Since the above letter was written there has been an advance in the price of English cakes of 5*s.* to 10*s.* per ton, and in American cakes of about 7*s.* 6*d.* I may add, for the information of your readers, that the Peruvian Government have just advanced the price of guano another 10*s.* per ton. As the higher the value, the greater the temptation to adulterate, farmers cannot now be too careful in giving their orders for guano.

THE PLACE OF PEDIGREE IN AN ESTIMATE OF LIVE STOCK.

On the Necessity of Furnishing Judges at Shows with Pedigrees.—It is sometimes asked what is the value of pedigree if it does not produce animals probably superior to those which are less well bred? In answer to this it may be replied that, as a rule, the most highly bred animals are intrinsically the best. But the tokens of this superiority are sometimes so minute as to escape the notice of all except the most practical and accurate of observers. Two yearling heifers, for example, may resemble each other so closely in form and size that it would be difficult to give precedence to either, unless the hand, coming to the assistance of the eye, was able to detect a softness of touch (certain indication of high breeding) in the one which was wanting in the other. Or, if there is a difference of form, it may be in some part which may appear insignificant to those who are solely guided by considerations of marketable value; as, for example, a well-shaped head, with tapering muzzle, and a mild prominent eye. And yet so important were the indications of the head held by no less a judge than Mr. Bates, that he was accustomed to say (with exaggeration of course) that he would buy a bull by seeing his head looking out of a window. It is probable that some persons may regard these minutiæ of touch, shape of the head, &c., as mere matters of fancy, devoid of practical importance. I warn any breeder who buys a bull whose touch is deficient in mellowness, whose head is coarse, and whose eyes are small and sunken, that he will have to exercise abundant patience before the stock of that animal are ready for market. Surely the time which bullocks take to feed, and the amount they consume before they become fat, are no matters of fancy, but of pounds, shillings, and pence, of profit or of loss. It is fortunate that observations have been made which place the effects of even a remote cross beyond dispute. "The most remarkable statement which I have met with," says Mr. Darwin, "of the persistent endurance of a single cross is given by Fleischman, who, in reference to German sheep, says that the original coarse sheep have 5500 fibres of wool on a square inch; grades of the third or fourth Merino cross produced about 8000, the twentieth cross 27,000, the perfect pure Merino blood 40,000 to 48,000. So that in this case common German sheep crossed 20 times successively with Merinos, have not by any means acquired wool as fine as that of the pure breed." Admitting with Mr. Darwin that the above is an extreme instance, and to be accounted for by peculiar circumstances, we have here positive proof of the necessity for pedigree in forming a correct conclusion of the value of breeding stock. We can well imagine, supposing the cross-bred and pure Merino sheep in question had been exhibited, that if an ordinary farmer had been the judge, he would have given the prize to the sheep with the 20 Merino descents, instead of to the pure Merino, in case the former had been larger or fatter than the latter. But a reference to their respective pedigrees would have reversed the decision, as far as their value for breeding was concerned.

To apply the foregoing reasoning to Shorthorns, I can conceive it quite possible to produce a bull with only three or four descents of pure blood, and whose g.g.g. dam was either a cross-bred cow or a Highlander, should be equal in outward appearance to one of the largest and purest Herd Book descent. To withhold from the judges their respective pedigrees, would in this case be to incur the risk of placing the g.g.g. son of a mongrel before the descendants of Bates' Duchess or Booth's Bracelet family. At county shows especially, it is a matter of everyday occurrence for animals of inferior pedigree to win prizes over the heads of those better bred than themselves. I would expressly guard against its being supposed that I advocate giving a prize to an intrinsically inferior animal on account of his pedigree. All I desire is that this should be taken into account, in weighing his claims to that distinction. And I believe that the admission of the evidence of descent would not unfrequently (especially at provincial shows) have the effect of calling the attention of the judges to the merits of animals which they might otherwise have overlooked.

It is difficult to overrate the importance of sound decisions at our agricultural meetings. When a prize is given to an underbred animal, simply because his condition has been made up regardless of expense, it is equivalent to giving a fictitious value to his blood, while better bred animals are placed below their rightful position. Whenever showy mediocrity is thus held up to public admiration, while the claims of pure blood are ignored, the effect is to put those who desire to improve their stock upon a false scent, and to convert what ought to be a valuable lesson into a delusion all the more mischievous because it is backed by authority. But, until authentic evidence of pedigree is placed before the judges, it is difficult for them always to do strict justice. *Willoughby Wood, Holly Bank, Burton-on-Trent.*

Home Correspondence.

The Potato Disease has come at last, with more than its usual virulence. About five weeks ago black specks fell down upon the haulm; they looked like round blemishes that might have been made by hailstones. These round dots gradually expanded into black rings of rottenness, giving forth the unmistakable smell of the Potato plague. The gangrene then run down the stems, and now almost every tuber is unsound. My practice for years has been to grow chiefly early Potatos, and take them all up and store them in earth before or immediately after a speck of disease appears. The Potatos will thus keep sound, but once the virus has gangrened the stems many of the tubers will rot though taken up apparently sound. The seeds of the malady has reached them, and it bears fruit into rottenness afterwards. Till the middle of September I do not think there was one unsound tuber to be found. But one short month, and there is scarcely a sound one. Potatos do not keep well if taken up green and stored in the usual manner; but stored in earth, they keep sweet and sound, tasting, when used, like fresh-raised Potatos. But it is difficult to impress the importance of early harvesting of Potatos on farmers and labourers generally. It seems they would rather lose the crop than lift them before Michaelmas; and I am sorry to say that many of them will lose almost the entire bulk this season. It will be a sad loss to the poor, and it is all the worse to bear from the fact that it might have been prevented. I have no panacea to offer against the disease; but by early planting and early harvesting we may have our crops safely stored before it comes. By having the crops in the ground we only invite the disease down the useless stems to the sound tubers; and the result is rottenness and destruction of thousands of tons of the best Potatos. *D. T. Fish, Bury St. Edmund's.*

The Potato Crop of 1869.—I cannot allow the letter of your correspondent (Mr. Paterson, of Dundee), in regard to this crop, to pass unchallenged. He says, in your last week's issue, that "It is the opinion of practical men that the crop of 1869 will be the heaviest crop, and the best quality, that we have had for years." Now, with all deference to his opinion, I must, as a practical man and a grower of Potatos, take exception to this statement, for unfortunately, in this neighbourhood, where there are many thousands of acres grown this year, the crop is, to say the least, anything but a heavy one; and, as for the quality, all the farmers in the district complain that they have many—some a fourth others a third, and some unhappy few one half,—already diseased, and probably many more will be unfit for market if kept any length of time in the "grave." Doubtless your correspondent has reliable information with regard to the district from which he writes, but I must protest against his *ipse dixit* being taken as conclusive evidence of the state of the entire Potato crop of the present year. *A Subscriber, Wisbech, October* 11.

Steam Cultivation; the Peterborough Trials.—In connection with this subject there appeared in your last impression a lengthy exposition of the views of Mr. Toepffer, of the North Lincolnshire Steam Ploughing Co., and we commend the temperate manner in which he treats the subject; but we feel that we ought not to allow some of his statements to pass unchallenged. Your readers will remember his spirited and able advocacy of the direct system of John Fowler & Co. on previous occasions, and no one can doubt the thorough belief he has in the superiority of that system, as the only profitable and practicable method of cultivating land by steam power; but nearly the whole of his lengthy letter is devoted to the disparagement of the "roundabout" system as originated by Mr. Smith, of Woolston, and to Mr. Campain's new anchor in particular. We feel bound, therefore, as the owners of that patent, to offer some remarks in its defence. Mr. Toepffer candidly admits that the anchors performed well at the trials, and that the two men stated to be saved were not required and were actually dispensed with; and this establishes all that the patentee claims. And yet while thus acknowledging that two out of five men are positively saved by their use, he goes on to state that the "roundabout" system is still in its primitive state, and that most attempts to improve it have only added to its complication, without any adequate advantage. "Also, that while the anchors answered well on the Peterborough soil, they would probably fail on very light sand or upon rocky soils;" but surely these are conditions so strange and so exceptional that no practical farmer will heed them for a moment. Facts are stubborn things, and we are prepared to prove that Mr. Campain has, during 1868 and 1869, cultivated over 500 acres with the aid of his patent anchors (made upon his own premises), with a working staff of only three men and two boys, and without any mishap, and the anchors have never once failed to hold, and this upon land varying from light fen to strong clay. Again, Mr. Toepffer suggests that in fields with irregular boundaries the anchors may be found to require help to move them on; but here he is at fault, as upon one of Mr. Campain's farms there is scarcely a straight headland, and yet the difficulty he invents has never occurred. We hope to convince Mr. Toepffer that his theory is beaten by practical results; and there are other points in his arguments that may readily be dispersed if he will pay Mr. Campain a friendly visit and see the tackle working upon his own farm. But as our letter now has run to a considerable length, we would only further remark that no one more fully appreciates the advantages of the double engine system than ourselves, and it is clearly the only one that can develope the letting-out system which Mr. Toepffer so ably advocates; but he is, in our opinion, decidedly wrong in supposing that it will meet the wants of the thousands of British farmers, who (in the autumn especially) want their work done at the same time, for it is well known that there are many who have the ability, the means, and the desire too, to do their work within themselves, and thus utilise the steam-power already in their possession. And there is abundant proof that this is being accomplished at a small outlay, and both profitably and well. *Amies, Barford & Co., Peterborough, Oct.* 14.

Cost of Steam Cultivation.—So Mr. Toepffer has turned up from the Peterborough trials, and after some friendly talk, and then some running down of the roundabout tackle, as well as puffing up the big engine sets upon the contract plan, he winds up thus:—"My advice to the agriculturists desiring to obtain each on their farms cheap steam cultivation is this—that two, three, or four neighbours, according to the size of their farms, should join and buy a steam-cultivating tackle of at least 20-horse power with double engine (the less number of partners the better), or to encourage and assist some industrious working man in the parish, who has a knowledge of machinery, in purchasing a tackle of the most powerful description, to let it out to hire in their locality." Now, this is blind advice, for the farmer who is to use this tackle is not told what he is to pay per acre for its use, neither does Mr. Toepffer tell these men who are to find the money what interest they are to get as well as pay for its use, yet he jumps to the conclusion that an industrious working man may be found in their parish who has a knowledge of machinery. Let him do as I do—give quantities, costs, and particulars—and we shall be getting on in the matter, without which his statement is of no use. My costs (this year) per acre stand thus:—Smashing: men, coal, water, and oil, 3*s.* 2*d.*; interest and wear and tear, 1*s.* 6*d.*; total, 4*s.* 8*d.*; then add 2*s.* for a scuffling with horses, this brings my total cost of seed-bed for Wheat up to 6*s.* 8*d.* Ridging and subsoiling: men, coal, water, and oil, 5*s.* 1*d.*; interest and wear tear, 1*s.* 6*d.*; total, 6*s.* 7*d.*—the actual cost of a seed-bed for roots or Beans. That is the stuff that Mr. Toepffer should get to guide the money-lender and farmer. Yes; and it is stuff that will make the horse farmer look hard at, and he may, for it is a fact that I can stand by. There are my 109 acres of work just done to be looked at that the horse farmer cannot equal at any cost, whatever Mr. Toepffer can do with his latest improved double engine set. The last evidence that we have got upon this point is from Mr. Charles Bates. He told us that

* Variation of Animals and Plants, Vol. II., p. 88.

he hired such a set to do 7½ acres twice over 10 inches deep; that he paid 15*s.* an acre for the engines; that in doing it they burnt 4 tons of coals, at a cost of 4*l.* 10*s.*, and that they used four horses to fetch water at a cost of 2*l.* With such figures as th se before us it is of no use for Mr. Toepffer to talk of "economy," and now that he is talking upon that point he does not talk truly, for he must have two engine-men to a set of his double tackle, and the wide cultivator that he talks about is a thoroughbred Smith, the one I found and claimed at Leicester Show, without which he cannot do his wide work at all. Let him give over talking of what he can do, and instead tell us what he does do. Surely he ought to be in a position, as the manager of his grand company, to give us the work done with a set for a fortnight, with all the particulars. That is the stuff to fetch up. We do not want his cans, we want his does. In doing my 109 acres we consumed 8 tons 18 cwt. of coal, or an average of 1 cwt. 2 qrs. 17 lb. per acre. That tells you that we did not need four horses to fetch water as well as men to go with them. The "economy" is all on my side, let him say what he may; if not, let him bring his data to prove it. He can talk about doing as much work as four sets of roundabout tackle. Yes, anybody can talk; let him do his 34 acres a day if he can, and tell us all about it. He can burn coal in two engines, one at work and the other idle—that we know all about; but whether he can do his work with 1 cwt. 2 qrs. 17 lb. per acre, we know nothing about, yet we want to know all about it. Mr. Bates has told us a bit; if Mr. Toepffer can do better let him do so, and let us have the particulars. *William Smith, Woolston, Bletchley Station, Bucks, Oct.* 11.

The Crops of 1869.—If I have misrepresented Mr. Saunderson, I am quite ready to apologise; but really the many exaggerated statements he makes are so prejudicial to the agriculturist, that I trust he will be more careful for the future. His sayings may be read with interest by his employers, but they are of no practical value, for it is impossible for him to arrive at any accurate idea of the crops while rushing through several counties in a day, quietly sitting in a railway carriage. With respect to Mr. Lawes, I must say at once I have no doubt he fully believes in his experiments, and in the result of them. Now, I candidly confess I place no reliance upon them whatever, any more than I did in the experiment he conducted some time ago of feeding animals on malt. Surely there never was a more one-sided affair than that! What is the value of Mr. Lawes' experiments of growing Wheat with artificial manure? My theory is this—that the soil upon which Wheat is planted or sown should be in a proper condition for growing a crop without the aid of any artificial manure at all; that it is wrong in principle to make any such application, and certainly attended with no profitable results. In an experience of more than 20 years I have only twice tried the effect of artificial manures for Wheat, and each time with the same unsatisfactory result. I have often seen my neighbours try the same thing, but without any benefit whatever. I would, therefore, urge others to be cautious in their application of artificial manures for the Wheat crop. Mr. Lawes, in your impression of Sept. 4, says—"The Wheat crop of 1869 is slightly below the average in quantity, and that it will be also deficient in quality, as estimated by the weight per bushel: assuming that an average crop is represented by a produce of 28½ bushels, weighing 61 lb. per bushel, I am disposed to fix the present crop as equal to 27 bushels of the same weight." Does the experience of the threshing machine verify Mr. Lawes' conclusions derived from the results of his experiments? I say it does not; on every side one hears of the disastrous yield of this year. In some cases so low as 12 bushels per acre, others 16, but the generality 23 or 24 bushels. What are we then to understand by Mr. Lawes writing: "The price of Wheat at the present time certainly affords no indication of any such deficient yield"? Mr. Lawes' arithmetic is very ingenious and clever, but rather "artificial." He assumes the crop of 1868 at 34 bushels per acre, which I question. He deducts two quarters per acre as my alleged deficiency, which is not correct, and he arrives at the wonderful conclusion that "we have only 18 bushels as the average yield for 1869!" He evidently seems surprised at the result of his own calculations, and well he may be when he tells us, "I have probably 60 acres on my farm which will yield an average of six quarters per acre. What can the farmers of England be doing? Surely they must be asleep." I will now give Mr. Lawes my opinion of the harvests of 1868 and 1869. The yield of the former was very abundant, being one of the heaviest I have ever known. I estimate the average at 36 bushels per acre. That of 1869 I believe will be found very deficient both in quantity and quality. I estimate the yield at 24 bushels per acre, or 12 bushels less than last year. Mr. Lawes estimates the deficiency at 1½ bushel per acre. I will leave your readers to decide which opinion is the most correct. *John Ford, Merton Hall, Warwick, October* 12.

The Farmers' Present Prospects.—There is something very discouraging in the farmers' present prospects. His corn crops are bad. The Wheat crop in particular yields badly, and the quality is light and thin. Moreover the price has fallen some 20 per cent. since the commencement of harvest. This is inexplicable—a light crop and defective yield used to enhance prices. Imports have been liberal, but not in excess of our requirements, and by no means commensurate with the nation's ultimate wants. Barley will in all probability be the only remunerative crop, but this is only cultivated in Barley districts. In many parts of the country it is not grown. The Beans and Peas occupying these acres are far from profitable crops. Potatos, which have been very extensively planted, and are now being harvested, are proving one of the worst crops ever grown. The disease on all strong lands has nearly destroyed the crop, and on mild soils they are very bad. To add to the farmer's catalogue of discouragements, the foot-and-mouth disease amongst farm stock is very prevalent, cattle, sheep, and pigs alike being affected seriously by it. Verily, we say, the farmer's prospects are very discouraging. Well, it may be said, surely his sales of fat stock are satisfactory—the price of meat is exorbitantly dear. So it is; and the very cause of that is, that the farmer has so little to sell. The summer of 1868 proved disastrous in so many ways. A vast percentage of stock was necessarily slaughtered because in consequence of the drought they had nothing to eat. These animals, for the most part being in little better than store condition, did not greatly enhance the market supplies. Pigs being so cheap, owing to the cost of food, were so neglected that piglings were not deemed worth the raising. The drought and heat also influenced the generative power of breeding sows, so that at the present time the stock of pigs is unsually small, and the price of pork unusually dear. The farmer then is no great gainer by the high price of meat. The only satisfactory and encouraging thing is the beautiful season through which he is passing, and the kindly growth of his green food and winter crops. Mangels, Turnips, Coleseed, are all progressing admirably, and his grazing fields present a luxuriant pasturage, the stock upon which are doing well. This is some consolation, but how is the farmer to work through these sore discouragements? Well, advice is easily offered, but not often of great worth, nor can it always be taken. My first point is to thresh as sparingly as possible. The present supplies will speedily be dispersed. Imports will fall off as winter approaches. Seeding is at hand, and less corn will be shown in the market. This will cause a reaction ie price, and as the fact of deficient produce will soon be universally acknowledged, the price will in all probability be increased, and grain become dearer throughout the year. My next point is the adoption and practice of every economy in farm practice consistent with good management both indoors and out. I would next say that the chief hope of recouping this state of things during the winter must be in attention to the farm stock. The fatting of the stock of the farm will be of immense importance to every farmer in the ensuing winter. The price of meat must be high, and stock will no doubt well repay any reasonable outlay to promote their progress. Every attention then must be given, nor must the farmer object to fatten animals he would at other times class as stores. These, in times of high prices, will generally prove profitable graziers. Pigs are remarkably dear, but in the Potato districts, where "blights" are so sadly plentiful, they will best pay as consumers, and these "blights," aided by Indian corn at present prices, will speedily fatten them and prove an advantageous investment. Indian corn, either steeped or ground, has in the past year proved a very serviceable and adventitious aid in the fatting of all kinds of stock, and, if the price is satisfactory during the forthcoming winter, it may and will be the great resort of graziers. Cake is so abominably adulterated as to become unpopular as feeding stuff, hence resort is more had to meal and corn. Mangels and Swedes, if liberally supplied to cattle in cold weather, should be supplemented by cotton-cake or Indian corn. It prevents scouring or looseness of body in a great measure, in fact it permits the free use of such watery roots, and aids in the more profitable wintering of cattle by acting as a "corrective" against a too succulent ration. *X. Y.*

Thin Seeding.—The evidence upon the seeding point is conclusive that the farmer must judge for himself as to the best quantity of seed needed, according to the quality and condition of the soil on which he works, and that seasons may upset the best judgment. See Mr. Mechi upon this point:—"Each farmer should judge for himself by comparative trials, for soils and climates vary, the crop is also influenced by season, and especially by high or low farming." I am glad to find that Mr. Mechi has yielded to reason. Mr. Mechi has made an extract from his book, and it reads thus—"Tiptree Hall Farm (with chapel land) 173 acres." In the *Times* he quoted thus from his book: "Tiptree Hall Farm (with chapel land), 170 acres," and now I will quote from his balance-sheet: "Tiptree Hall Farm. Total landlord's measure, 177 acres," (see *Agricultural Gazette*, January 23, 1869). This proves that his statements are not to be relied upon, and the "doubts" about his 6 quarters of Wheat per acre on 73 acres in 1868, his 63*s.* 9*d.* per quarter for Wheat sold in 1868, with his valuation for corn, hay, &c., 379*l.* on Jan. 1, 1869, are not "dispelled," not even by his statement about "hard cash available." He must dispel them by positive proof, or they will hang on for ever. *William Smith, Woolston, Bletchley Station, Bucks, Oct.* 11.

Mr. Mechi's Balance-Sheet.—I fear Mr. Smith, as also myself, must be satisfied with our own opinions regarding Mr. Mechi's balance-sheet. He asserts that I have "shoved in figures as a mere makeshift to confound the whole thing;" at the same time informs us that corn, hay, &c., unsold, means corn, hay, cake, bran, and all feeding stuff on the farm. I am not aware that farmers purchase cake, bran, and feeding stuff to sell again. What quantity of Wheat was included in the 558*l.* 6*s.* on Jan. 1, 1868, we have no means of knowing; but looking at the amounts received in 1867 and 1868 for Barley, Peas, and Beans sold at market, hay sold, corn and hay sold to live stock, Oats, Beans, and hay sold to horses, and bearing in mind the land on which these items were grown, there could not be any large quantity included in the valuation of 1867 or 1868. He is in error in his assumed remnant of 237*l.* 12*s.* when he says, "Then look at his Wheat: it shows at 63*s.* 9*d.* for 1868, and, when asked, he would not tell me how much of it was grown in 1867; the remnant of 237*l.* 12*s.* proves that there could not have been much." This sum he gets by subtracting 84*l.*, the value of 30 quarters, at 56*s.*, sold on Feb. 12, 1869, from valuation of corn and hay unsold on Jan. 1, 1869, viz., 379*l.*, forgetting that the higher-priced Wheat, to which he says I am "looking for help," was in valuation of 1867, which amounted to 558*l.* 6*s.*, not 379*l.* The Rivetts must, on the whole, have sold for a higher price than 47*s.*; for Mr. Mechi says (February 20, 1869), "My 73 acres of Wheat have thus yielded an average of over 6 quarters per acre—20 acres, which were of Rivett Wheat after white Wheat, did not yield so well as the white Wheat, nor did the red Wheat;" the white yielding 72 quarters and 8 quarters, as mentioned (at least off two fields); the 20 acres of Rivetts could not have produced 132 quarters—a trifle over 6½ quarters per acre, but if we assume some Rivetts were included in valuation of 1867, and selling for a higher price, a difference of at least 10*s.* per quarter, we can at once account for the 310*l.* 2*s.* 6*d.* amount of Rivetts sold in 1868. The red Wheat could not have been grown largely, as quantity sold in 1868 realised but 157*l.* 8*s.* 6*d.* thus we might infer that 45 acres were in white Wheats, the higher priced corn: still, as the valuation does not specify each kind of corn, we must take the accounts as correct, and I see no reason to doubt them; and until a better and more systematic form of farm accounts be introduced, much must be left to conjecture. *Another Farmer.*

Societies.

GREAT BRAXTED.

"*Prosperity to Agriculture.*"—At the late annual meeting of this Society, Colonel Brise proposed, and Mr. Mechi acknowledged this toast.

Colonel Brise said—He hardly knew what the position of this country was at the present moment so far as the late harvest was concerned. They had hardly yet had sufficient information to enable them to form any decided opinion upon the yield of the harvest, but as far as they had been able to gather they found that the Wheat crop was a deficiency. With that exception he believed agriculturists had not very much to complain of. He must say, however, that they had had cause for complaint and alarm at the virulent epidemics that had lately overtaken their herds in this country. Very few farms in their own and other counties had escaped—the foot-and-mouth disease had been prevalent in almost every hole and corner of the county; he had been visited by it himself, and although he did not look upon it as a very serious epidemic, or as anything like the cattle plague they had in the country a year or two ago, yet it was very disagreeable and inconvenient, and, moreover, was attended with loss to those engaged in farming. It was unfortunate that this epidemic should have come upon them at the present time, for an Act of Parliament was passed during last session which some people thought would have had a very great effect in stopping the spread of this disorder, but that Act did not come into force quite soon enough to test its effects. He believed that the disease was in a great measure atmospheric, and that it had been here for some years, although no doubt it originally came from abroad. He could only tell them that in his own case he had a considerable herd of Shorthorns; no animals being affected with the complaint had been within some miles of them, and yet it broke out among them, thus showing that if the Act had been put in force it would not altogether have remedied the evil. They had this year, however, passed a Contagious Diseases (Animals) Act, which appeared to give great satisfaction to a great many of their fellow countrymen, but he confessed he was not satisfied with it, and never had been. He contended against the principle of the measure in the House of Commons and elsewhere on every occasion on which he had the opportunity. However, he thought every credit was due to Mr. Forster, the Vice-President of the Privy Council, for no man could have given more diligent attention to the subject than he had, and he believed that he really and earnestly had the desire to satisfy the agricultural community as far as he could, but circumstances were against him, other pressure was put upon him from different quarters, and among others from the commercial interest—those men who were so blinded that they would not see that the interests of the consumer and the producer were identical on this subject. But he must say that he did not consider it right that a matter of such serious importance as the health of their cattle should be left to the will of any single individual, whoever he might be, or of any Privy Council. There was one other subject connected with their interest as agriculturists to which some attention had been given in the last session, and that was the adulteration of seeds. When the Bill on that subject was first introduced into the House of Commons he did not think it would be of any value to the agricultural community—he thought it would be very difficult to find out whether the seed had been heated in the rick, in the hold of a ship, or in the factory; and he thought it was one of those things in which the intelligence of the agriculturists and the good feeling of the seedsmen would find out in the end that honesty was the best policy. However, he was glad the Bill went on, for they had a select committee upon it, and the evidence that came out was most valuable to all connected with the agricultural interest. It came out before the committee that out of every 100 lb. of Turnip seed that the agriculturists had been sowing on their farms, 25 lb. of it was dead or crushed seed It was extraordinary that the wholesale seedsmen, high-minded and honourable as men in other business, had not thought it wrong, or they had seen no harm, in selling this adulterated seed to the retail seedsmen, the latter having a thorough knowledge of the fact, but the poor farmer knowing nothing whatever about it. This had not been the case with the Turnip seed only, for other seeds had been similarly adulterated: and it had had this bad effect, that when a seedsman had had any really first-

rate seed to sell in the market he had been obliged to compete with this adulterated seed of which he was altogether ignorant. The gallant colonel remarked that the wholesale seedsmen had been conscience-stricken at the imposition they had practised upon the farmer, and they had come forward in the most honourable way and given evidence before the committee. The toast he had to propose was "Prosperity to Agriculture." He would rather not give them any advice upon agricultural matters, as they understood them better than he did, but if he must do so it would be this, to continue and progress in the old beaten track, at the same time taking advantage of all the modern appliances and improvements of the day, cultivating deeply and manuring highly—[Mr. MECHI: Hear, hear]—at the same time not to be led away by any ideas of the very large fortune and successful issue of those who experimentalised, but to examine carefully all those experiments and to form their own opinions upon them. This was one way of farming. Another way was to farm very highly, to experimentalise, to write letters to the *Times*, to tell everybody how much they grew and how much they ought to grow. He thought some of his friends would agree with him that it was a capital plan to farm like that if they had any other business to depend upon; but at any rate they were under deep obligations to those gentlemen who did experimentalise and gave them the benefit of their experience. He did not know one subject on which those gentlemen had advised them, and on which they had profited more than thin seeding. This had been a capital year for those who had adopted thin seeding. He did not imagine that any season had been more suitable for it; and having himself experimented in some measure, he must fairly and honestly state that, although this year it had been successful, he had lost more money by thin seeding than he ever did by thick. He believed that for thin sowing they must adhere to conditions—deep cultivation, well manuring, &c., and they must be free from insects, slugs, wireworms, rooks, and rabbits—(applause, and a Voice, "Game")—and they were ever dependent upon atmospheric influences. If they steered clear of all this he believed thin sowing would be successful. Many people formed their ideas of the value of land from large crops that were grown upon it, and they heard a good deal about this in certain localities. Now he thought those who formed their opinion in this way were very often misled. He wanted to know whether they were to form their idea of the value of land from the extent of the crops grown upon it, or whether—which he contended was the right way—from the rent the farmer or occupier could afford to pay for it to get a fair living out of it. If a farmer wanted to hire a farm he calculated what the land would produce. If he found that by the ordinary way of farming it would produce 4 quarters per acre he made his offer for the land on that basis, and that, he maintained, was the value of the land. If the farmer chose to invest another 1000*l.* of his capital on that land he might grow 5 or 6 quarters per acre, but that was merely a speculative business—it was lucrative sometimes, but it was speculative, and did not increase the value of the land—it was merely a matter for the farmer and his own business—he risked his money, improved the land, and produced a greater crop. He did not think but there was plenty of intelligence, ability, and enterprise among the farmers of this country, and he did not think there was any deficiency of capital where the farmers thought that capital could be employed with any certainty—but a man was not always inclined to speculate and risk his capital. Farming differed very much from other businesses, for if a trader went into the market he could obtain any money he might require, on certain securities, to enable him to carry on his business; but if a farmer went into the money market the capitalist looked askew at him—he did not consider his security of tenure good enough, and he was too dependent on the seasons—he was not therefore inclined to advance his money on speculative and high farming. He did not think it was to the interest of the landlord to throw two or three holdings into one, to square all his fields, pull down his trees and fences, and to build factories and cottages here and there over his estate; and if he wanted any evidence to still further confirm him in this opinion which he had always held, he had only to turn to a recent letter in the *Times* from a commissioner in Ireland. That gentleman told them that a certain Mr. Allen Pollock purchased an enormous estate in Ireland, got rid of the fences, squared the fields, built immense factories on the estate, drained the land, reclaimed all the uneven land, and did everything that an improver could do. Why, what was the result? The Marquis of Clanricarde's estate, which runs into the estate of Mr. Pollock, had been carried on under the old system for many years, and his tenants could afford to give nearly as much rent as could the tenants of Mr. Pollock, although the latter had spent on the land more than the fee simple of the estate. In connection with the toast he had been asked to propose, he should couple the name of his old friend Mr. Mechi, assuring him that in any remarks he had made in the course of his speech he did not mean anything personal—[Mr. MECHI: Hear, hear.]—and that he always entertained a hearty cordial feeling towards him, and hoped that for many years to come he would give them his advice and be their agricultural Mentor.

Mr. MECHI rose amidst plaudits, and said he thanked Colonel Brise and the company for wishing him good health. He believed they and many of the farmers of England wished him good health, but he could not conceal from himself that there were a few, and he hoped only a misled few, who would wish to see Mr. Mechi swept from the face of the agricultural world. [Laughter, and "No, no."] They were there that evening to speak the truth, and he assured them that he could forgive those who happened to have such a feeling towards him. He congratulated the company present and the district generally on the success of the gathering that day and on the general growth of the Society. Most of them recollected that this Society had grown out of and was founded upon the ashes of a once excellent institution at Witham, and he felt sure that the good sense and greater intelligence of modern times would prevent the good ship from being wrecked, like its predecessor, by reason of the personal attacks and abuse of a few ill regulated persons who were the means of its destruction. However, that had all passed away, and he rejoiced in the regeneration of the Society. He believed that they were one and all—landlords, tenants, and the public at large—agreed in wishing prosperity to agriculture, and they asked, as a natural consequence, how that prosperity was to come. It was quite clear that it had not always prospered to the full extent of their wishes, for while his friend Colonel Brise had been censuring the squaring of fields, cutting down of fences, and doing away with small farms, &c., he had told them that the poor little farmer was working as hard as two labourers, and yet only living as well as one. He could not see the consistency of those two remarks. He would tell them where the small farmer was suffering—it was from being shut up by trees and hedgerows, small, bad, muddy roads, &c., and having to compete with men who were working on an improved and more intelligent principle. The little farmer naturally gave way in the unequal contest. Were they, then, satisfied with agriculture as it was? Then they agreed with him that they ought to do all they could to progress. He did not consider that progression was to be the mere act of the tenant; he believed that agricultural progress, to be complete, must be by joint action of landlord and tenant. Steam power was multiplying, and, as the population also increased, the demand for food was greater, and the manufacturing people, who were their customers, demanded that they (the agriculturists) should no longer muddle along in the old track, which Colonel Brise so strongly recommended, but that they should get out of that deep and uncomfortable rut by improved education, enlarged views on the subject of landlord and tenant, and, by the use of steam and other machinery, go on progressing. Colonel Brise told them that the banker would not advance money to the farmer in consequence of the insecurity of his tenure and the uncertainty of the seasons, but he omitted to tell them that if the farmer had a 21 years' lease, and if he had the power to transfer that lease, the banker would take a very different view of his customer; but so long as the agriculturist remained in the uncertain position of annual tenure, he was placed in a disadvantageous position compared with traders in towns. Did they suppose that he, as a trader, should invest large amounts on premises which belonged to another man, and of which he had only an annual tenure, without any security that those expenses would be returned to him? Certainly not—and therefore he said agriculture was in an anomalous position, a position which should not exist in these days of improvement. While he said this he did not believe that the landlords had not the welfare of their tenants deeply at heart. He believed that the landlords of this country were desirous that agriculture should prosper, and he thought it only required a little thought and consideration of what was now going on in the country to cause a great change in their opinions. There had already been a great change in their opinions as to trees and fences, and he believed the time was approaching that while the tenant would be bound, as every tenant ought to be, on a fair and just condition, he would be no longer restricted by those antiquated practices suited to another period—instead of keeping in the old and uncomfortable rut, they would adapt themselves to the greater intelligence and necessities of the age they lived in. He daily received communications from agriculturists from all parts of the world, and probably, therefore, no man had a better opportunity than he had of judging what was going on, not only in British, but also in foreign agriculture; and to what conclusion did it lead him? First, on the subject of education. The very style of the writing in the letters he received from different counties, and in his visitors' book, was almost an indication of the style of education in the different parts of the country; and he could not agree with his friend Mr. Carter, that the education of Essex was satisfactory. Why, without blaming any one, the best man he had at work for him, and who had been on his farm 25 years, could neither read nor write.

Mr. CARTER.—I referred to the young people—to the children.

Mr. MECHI agreed that there had been an improvement in the education of the children, and there was plenty of room for it. He was of opinion that they were backward in the education of their labouring people, and although he did not go so far as to advocate compulsory education—he would have a compulsory education rate. [Cries of "No, no" and "Yes, yes."] Did they approve of a compulsory rate for mending the roads? ["No."] Well, what sort of roads would they have if they had not a compulsory rate? [A Voice, "As good as now," and "No, no."] Why, 80 years ago Arthur Young told them they could not drive a coach through the country, but Macadam and compulsory rates had enabled them to improve their roads; and he asserted without fear of just contradiction, that leaving the education of the people to mere benevolence was an injustice and imperfect mode of action. In the parish of Tollesbury, with 5000 acres there was at one time only a small dame school with 12 children stifled together in a room. This state of things had been partially altered by the benevolence of friends like Mr. Du Cane, but at the same time he had known men, with 700 or 800 acres of land, who considered that education spoilt their best labourers, and would not, therefore, contribute a shilling. He maintained that such people ought to be compelled by a rate to do that which was admitted as a necessity by the Government and the public at large. He knew this was a sore point, but they were here to speak the truth.

He would now change the subject, and refer to the matter mentioned in the afternoon by the Chairman—namely, the housing of the agricultural labourer. Could they wonder at Ireland being uncomfortable, when recent statistics showed that there were 100,000 one-roomed cottages, each occupied by five persons, who lived and slept together? It was a disgrace to the nation that this should be so. Now, let them look to the condition of their own labourers. He agreed with the Chairman that, taking the agricultural labourers of Essex and many other counties, their condition was quite equal to that of the mechanics in towns. As a magistrate of the city of London, he had had before him all the circumstances and conditions of the working classes in times of distress and trouble, and he knew that where an agricultural labourer had a decent cottage with two or three rooms and a piece of garden for 1*s.* 6*d.* or 2*s.* a week, the mechanic of the town was packed in two rooms at 5*s.* or 6*s.* per week, and very often in one room at 4*s.* 6*d.* per week. [Hear, hear, and a Voice: "This has nothing to do with farming."] Yes, it had to do with farming. They were now discussing the condition of the agricultural labourer, and they ought rather to be pleased at his remarks than otherwise, because it was often said that the farmers were grinding their labourers down, whereas he did not admit anything of the kind. The labourer who earned on an average 14*s.* a week—he believed that was about the sum in Essex, taking the whole year round—was quite as well off as the mechanic in the town who had 1*l.* or 1*l.* 1*s.* per week.

Now they came to the question of poultry. Several gentlemen laughed at Mr. Watson's remarks about poultry keeping, but he was inclined to think that many of them knew very little about it. He always kept 300 or 400 fowls, which he sold at 9*d.* a-pound live weight, while he sold his bullocks and sheep at 4½*d.* a-pound. The poultry sold for double the price of the bullocks, without costing a penny extra, but, on the contrary, less per pound than the meat. If 100 per cent. was not considered anything, he did not know what was. He urged upon the farmers not to be afraid of birds, especially of partridges, and remarked that his fowls went about the farm just as they liked, and the land within 30 feet of the hen-house always produced the largest crops of straw and corn from a bushel of seed per acre. And this result was obtained notwithstanding that the fowls had free access to the field from within a week after sowing. If they wanted to keep insects down, they must have plenty of winged game. Alluding to the progress being made in agriculture at the present day, Mr. Mechi mentioned that at Lavenham they were expending 10,000*l.* on machinery for the purpose of converting Beet into sugar; and a similar amount at Farringdon for converting Beet into spirits; and he then advocated the further extension of the use of machinery; spoke in complimentary terms of various recent new implements, &c., including the patent corn drying apparatus, and expressed his intention of offering a prize to the labourer who best carried out Moule's earth closet system in his cottage.

Mr. HERBERT LEIGH proposed the health of "The Judges," coupling with the toast the name of Mr. C. Hall.

Mr. HALL, in responding, referred to the advice he had given the labourers upon the way in which to do their work, as previously alluded to, and said he had noticed great improvements in the character of the work in that neighbourhood since the establishment of the society. He had been a practical farmer for more than 40 years, and he noticed that they were now growing one-third more corn upon the same acreage of land than they were formerly.

Reviews.

Practice with Science: a Series of Agricultural Papers. Vol. II. Longman, Green & Co.

A valuable collection of papers by several of the professors and lecturers of the Royal Agricultural College is here presented to the reader. The Laws of Real Property, Reports of Experiments on Wheat and Barley, Cattle Grazing, Farm Accounts, Task Work, Stock Feeding, Rural Education, the Land Question in Ireland, and other topics of agricultural interest are very ably discussed: and the publication will, we hope, be the means of making generally known the vigorous and substantial character of the teaching given at the Cirencester College. We extract passages from Mr. Edwards' capital paper on Stock Feeding as being proper to the time of year:—

"*What should guide our Choice in the Purchase of Stock for Feeding?*—I would first say, never buy culls—it is the worst thing a grazier can do, for although they may appear cheap, they really are not so, for they are either ill-proofed, and consequently in will not do justice to the food they eat, or (especially in the case of sheep) they have received a check, and as they begin to thrive, so surely do they begin to die. As an instance that I am not alone in this idea, I may mention the case of an eminent grazier, I believe it was the late Mr. Trinder of Wantage, who always after purchasing his different lots of graziers, the best he could find, looked over them, and picked out all those he considered as not likely to fatten well and quickly, and sold them to a dealer at the best price he could get. It may be asked who is to fatten the ill-bred and cull animals? I will answer that the more they are at a discount, the more careful will breeders and dairymen be to improve their stock; and so avoid keeping that kind which graziers dislike to buy. One of the best points to guide a grazier in the purchase of his stock, is that of a well-formed head, with a full yet mild eye. We generally find in all animals if we can get that, we

are tolerably sure to have with it a well-made frame and an aptitude to fatten, and why? Because it is a proof that such animals are well bred, and thus have good qualities. Of course there may be exceptions—for instance, we may meet with thin-fleshed ones, or what are called shelly ones, they should be at once rejected; indeed, we cannot do better than study Mr. Rham's description of a well-made frame. He says, speaking of cattle, 'There are certain forms and appearances which are anatomically connected with a perfect conformation of the body, and especially of the organs of respiration and digestion. Of this kind are a wide chest, well-formed barrel, strong and straight spine, hip-bones well separated, and length of quarter—all which can be proved to be essential to the perfect functions of the body. Small and short bones in the leg give firmness without unnecessary weight. A thick skin well covered with hair insures proper warmth, and its soft loose feel indicates a good coat of cellular substance underneath, which will readily be filled with deposited fat. All these are indispensable points in an ox which is to be profitably fatted, and whatever be the breed they will always indicate superiority.' With regard to sheep, we have Mr. Ellman's opinion of the necessary shape and quality of the Southdown, and Mr. Culley's opinion of the points necessary to be observed in the purchase of Longwools. Mr. Ellman, after describing the shape of the head, &c. (beautiful and living specimens of which are to be seen in the sheep which so often browse in Lord Bathurst's park), goes on to say, 'The neck should be of medium length, thin towards the head, but enlarging towards the shoulders, where it should be broad and high, and straight in its whole course above and below; the chest wide, deep, and projecting between the fore legs, indicating a good constitution and a disposition to thrive; the shoulders on a level with the back, and not too wide above, but bowing outward from the top to the breast, leaving room for the springing rib behind. The ribs coming out horizontally from the spine, extending far backwards, and the last rib projecting more than the others; the back flat from the shoulders to the setting on of the tail; the loin broad and flat, the rump long and broad, the hips wide; the space between them and the last rib on either side as narrow as possible; and the ribs presenting a circular form like a barrel.' Further on he says, 'The meeting of the thighs should be particularly full and the bones fine, but having no appearance of weakness.' Mr. Culley's description of the proper form and character of a Longwool sheep is very similar. He says, 'The head should be long, small, tapering towards the muzzle, the eyes prominent, but with a quiet expression. The ears thin, rather long, and directed backwards; the neck full and broad at its base, gradually tapering towards the end, the neck seeming to project straight from the chest, so that there is, with the slightest possible deviation, one continued horizontal line from the rump to the poll; the breast broad and full, and there should be no uneven formation where the shoulders join either the neck or the back, particularly no rising of the withers or hollow behind the situation of those bones.' Then he speaks of the chest, barrel, and quarters, in the same strain as Mr. Ellman, especially mentioning that the thighs should be wide and full. In the same way with store pigs, regard must be had to their general good quality, and hence to their breed, if we wish to make pig-feeding pay; and although we may not be able to find grazing stock generally to bear out in all points the descriptions I have quoted as given by Mr. Rham and others, yet I would suggest that in buying to graze, buy good ones of the sort, whatever the breed and whatever the description. One thing we should never lose sight of, and that is, that the public, and as a consequence the butchers, want plenty of lean meat with the fat, therefore we should always select those animals which carry, or are likely to carry, plenty of natural flesh, as well as have an aptitude to fatten."

Some of the papers collected in this volume have been read before the Cirencester and other neighbouring Farmers' Clubs—others have formed part of lecture courses delivered in the College hall—and some are contributed as original reports and discussions, appearing for the first time in these pages. The whole form a very serviceable and valuable series of agricultural papers, which should generally be welcome to agricultural readers; and we hope the volume will have a wide circulation.

Calendar of Operations.

October: *Potato Harvest.*—When only an acre or so of Potatos is grown for home use the digging is generally done some dry day set apart for the purpose, but when large crops are grown for market the harvest work may extend over a week or more, and hence has to be organised. Thus two or three varieties may be grown, some for immediate use, others for Christmas or thereabout, others for the spring, and these require to be kept separate. If the tubers are of uniform size, or nearly so, they may be gathered and sent to market, or stored as they grow. But this is seldom the case, and in sorting the crop into two or three qualities, two plans are in use. According to the first the whole crop is gathered and stored in pits or barns, and when to be sent to market, or sold at home to Potato dealers, are sorted by Potato riddles, the size of the mesh and the number of riddles being a matter of agreement—generally one riddle suffices. According to the second plan the separation takes place in the field at the time of gathering, the marketable Potatos being first gathered, and afterwards the "chats." Potatos are lifted either of three ways—1st, with forks; 2d, turned up with the plough, and then shaken out with forks; and 3d, with a Potato digger: the latter is the more expeditious plan, and makes equally good work as the former. The land is harrowed, the Potato tops or haulm carted off to the dunghill or strawyard, and any Potatos turned up gathered. If intended for winter Wheat, the land may be scarified across and the Wheat drilled in. If for spring Barley it should be ploughed, and it will sometimes pay to put a boy after each plough to pick up any Potatos, or the Potatos thus left may be given to some of the labourers who have children for the gathering. In Ireland, where the Potatos are grown in lazy-beds, the tops are pulled by the hand and removed, the Wheat is then sown, and covered by the operation of digging. The braird generally comes up well, but there is a considerable sacrifice of seed, so that for the small holdings dibbling in the Wheat after the digging would be preferable.

Carrots are dug with a spade, two roots at a time, if the spade has been properly put in at the side. The spade should not touch the Carrot. If the roots are very long it may be necessary to lay hold on the top with one hand while the other presses down the handle of the spade. But it does not take much to loosen a Carrot in the soil in which they are grown, and an active man will loosen as fast as a boy or woman can top the roots into a basket, the tops being left on the ground. The baskets are emptied into a cart. Carrots are stored in pits and barns as Potatos.

Chicory, when grown for its root, as a substitute for Coffee, is dug up the same way as Carrots. But as the roots have to be washed or cleaned and kiln-dried before they are roasted, the after work is often different. The crop, however, may, in the first place, be stored in sand, like Carrots, and the scraping, washing, splitting, and drying deferred until the time of sale. But the sooner the kiln-drying takes place after the crop is lifted the better, and there is some art in kiln-drying so as to retain the bitter and aromatic properties of the root. Hence some manufacturers prefer buying the fresh roots when dry.

Chicory is also grown as a forage plant for soiling, and it yields four or five cuttings, the last about this time. It is best adapted for mixing with other forage plants as hay, given to stock when on Vetches and Globe Turnips, both fattening sheep and neat cattle, and also for young stock of every kind, at this peculiar season of the year, when the health is liable to get into an abnormal state. When milch cows are exclusively fed upon Chicory it affects the milk; but a small quantity mixed with sewage Grass, Vetches, or Globe Turnips, will improve both the health of the cows and the quality of their milk.

Steam Culture.—Large areas of land are cultivated by steam during this month, and those who have to hire should not postpone to a later period; for, although steam does less harm than horses after the land becomes soaked with rain, yet the highest beneficial effects of steam, as compared with horse work, is to plough or smash up the land, more especially clay soils, when dry in autumn. The old rule was to plough between the wet and the dry, but the rule with steam-power is to cultivate during suitably dry weather, and this applies, not only to stubble, but also to lea. True, so long as cattle are out at grass on farms where there is no natural meadow and pasture, leas cannot be ploughed until the cattle are finally housed for the winter. But the moment the arable pastures are cleared of stock, those who have to hire steam should embrace the first opportunity, always taking advantage of dry weather if possible. Those who have tackle of their own experience no difficulty in keeping pace with the season, but those who have to hire must wait their turn.

Spring Beans, when late, are frequently abroad in the north at the middle of the month; and, when this is the case, the crop is sometimes stooked on the pastures and Oat stubble adjoining, so as to get the land ploughed and sown with Wheat. Steam is of incalculable value in such cases, as the land may be ploughed and sown as fast as it is cleared of the Bean crop.

Sewage Farming.—Sewage continues to be successfully applied during this month, not only to Italian Rye-grass, for soiling, but also to land from which corn and root crops have been removed, and Cabbages planted. A fresh break of Italian Rye-grass may yet be laid down, and the old broken up.

Water Meadows should now be ready, as the first floods are the richest.

Sundries.—Paint and put past implements as they are done with for the season. Keep the stackyard clean and neat. Finish cutting and plashing fences. Clean ditches, catch moles. Farm roads repair, so that no water shall stand in pools during winter. "October ale," brew from the best quality of malt only.

Live Stock.—Horses require particular attention, both as to food and grooming, while casting their summer coats and putting on their winter clothing; they also experience the change from green to dry food; the work is likewise heavy. All this they have to endure at a period when their physical energies are naturally in a lax state. The change from green to dry food should be by degrees, but hardly any rule can be laid down to meet all the exigencies of the stable in different localities at this season. The grand relief is the extension of steam tillage and steam power to do all the heavy work of the farm in cultivating and threshing. Other stock also require peculiar attention at this season, for many of the maladies experienced by lambs, calves, year-olds, and older stock, are less or more due to an oversight of their natural requirements at this season. It should always be borne in mind that the farther and faster we advance in improved agriculture, the more artificial is the state of live stock, and the greater the care they consequently require artificially. *W. B.*

Notices to Correspondents.

Erratum.—The sense of the last sentence but one in Mr. Willoughby Wood's paper last week (p. 1071) is marred by the misprint of "artificial" for "empirical." What the writer recommended was the possession of "*something* more than an *empirical* knowledge of his art."

New Hardy Trees.

PAUL AND SON will be glad to receive Orders, which will be executed in strict rotation, for the following NEW HARDY TREES, each in its section a first-rate novelty:—

CUPRESSUS LAWSONIANA ALBA PENDULA (Paul & Son).—Of free pendulous habit, leaves almost white, except when starting into growth, when the whole green tint forms a charming contrast with the last year's leaves. Awarded Certificate, Royal Horticultural Society's last meeting. Owing to the already great demand, we are compelled to postpone its distribution till August next. Plants then, 10s. 6d. each.

IMPERIAL CRAB (Lang).—Large scarlet fruit, of true Siberian Crab flavour, juicy, and probably rich for preserving, but of more importance as a fine ornamental fruited tree. Trees now ready. Standards and Pyramids, 7s. 6d. each; Dwarfs, 5s. Coloured Drawing at the Nursery.

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Aucuba japonica, 2 to 6 feet	Lombardy ditto, 20 feet
Portugal Laurels, 2 to 6 feet	Horse Chestnut, 10 to 15 feet
Chinese Arbor-vitæ, 5 to 12 feet	Spanish Chestnut, 10 feet
American ,, 5 to 10 feet	Limes, 10 to 15 feet
Thuja aurea, 1 to 4 feet	Walnuts, 10 to 15 feet
Green Box, 1 to 6 feet	Ash, 10 to 20 feet
Striped ditto, 2 to 4 feet	Elm, 10 to 15 feet
Evergreen Oak, 7 to 10 feet	Acacia, 10 feet
Yew, Common, 4 to 10 feet	Mountain Ash, 10 feet
Irish Yew, 3 to 5 feet	Turkey Oak, 10 to 12 feet
Laurel, 2 to 6 feet	Sycamore, 10 to 14 feet
Araucaria imbricata, 10 feet	Weeping Willow, 10 to 15 feet
Green Hollies, 1 to 12 feet	Lilac, Common, 8 feet
Weymouth Fir, 3 to 6 feet	Persian ditto, 6 feet
Spruce ditto, 2 to 4 feet	Yellow Azalea, 3 feet
Birch, 14 feet	Privet (evergreen), 8 feet

The Nurseries, Lea Bridge Road, Leyton; and Wood Street, Walthamstow, Essex, N.E.

SILVER SAND and PEAT, from Bedfordshire, in any quantity. This Sand is acknowledged by Florists to be the best yet obtained. Price Lists on application to MR. JOHN ARNOLD, Builder, 29, Clarendon Square, St. Pancras, N.W.

MASTIC L'HOMME LEFORT (the new French Cold Grafting Wax), indispensable for Budding, Grafting, Healing, Stopping Bleeding, &c. In tins, 6d., 1s., 2s., 4s., and 6s., of all Seedsmen, and

HOOPER AND CO., Covent Garden Market, London, W.C.

GENUINE TOBACCO PAPER, of the finest quality, 10d. per lb., or 8½s. per cwt.

WILLIAM RUSHFORTH, Nurseryman and Seed Merchant, Leeds.

The Cheapest and Best Insecticide.

DUTY-FREE TOBACCO.

By Her Majesty's Royal Letters Patent, and by Permission of the Hon. Board of Customs.

POOLEY'S TOBACCO POWDER, for the Prevention and Destruction of Blight and other Diseases in Plants.

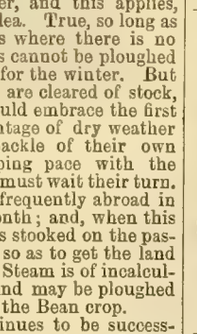
Sold by Nurserymen, Seedsmen, and Florists,

In Tins at 1s., 2s. 6d., and 5s.

Powder Distributors, 2s. 6d. and 3s. 6d. each.

"I find it exceedingly useful for killing the Aphides on Roses and other Plants."—Geo. Eyles, Superintendent, Royal Horticultural Gardens, South Kensington. May 7, 1868.

Sole Manufacturer, T. A. POOLEY, Bonded Warehouse, Sussex Wharf, Wapping, E.



Red Spider Magnified.

GISHURST COMPOUND.

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

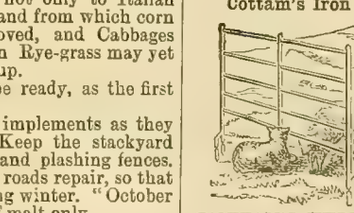
Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d.

Wholesale by

PRICE'S PATENT CANDLE COMPANY (Limited),

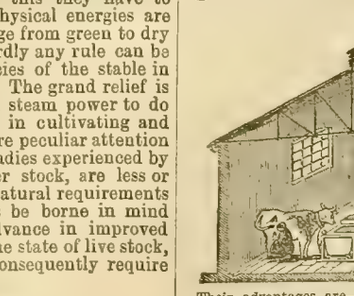
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Cottam's Iron Hurdles, Fencing, and Gates.



COTTAM'S HURDLES are made in the best manner, of superior Wrought Iron, by an improved method. Illustrated Price Lists on application to COTTAM AND CO., Iron Works, 2, Winsley Street, Oxford Street, London, W.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rick dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of Iron. Prices of Fittings per Cow, 55s.

Prospectuses free of COTTAM AND CO., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

W. H. LASCELLES' MACHINE-MADE MELON LIGHTS.



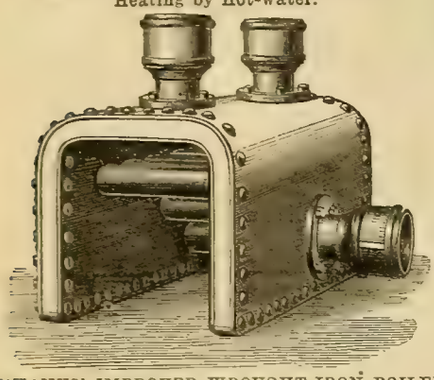
	Each.
6 ft. by 4 ft. Lights, 2 ins. thick, unglazed	£0 5 0
" " Primed and Glazed with 10 oz. Sheet	0 11 0
" " with stout Portable Box, not Painted	1 3 0
" " Painted four coats, and Handles on	1 8 0
" " Packed and Delivered in Railway Van	1 10 0
6 ft. by 8 ft., Double Lights, do.	2 15 0

GREENHOUSES. Per ft. super.

Woodwork only Prepared and Fitted	0 0 6
" Primed and Glazed with 16 oz. Sheet	0 0 9
" Delivered, and Fixed with Ironwork	0 1 0
" Painted four coats, two sides, ready for use	0 1 3

Finsbury Steam Joinery Works, 121, Bunhill Row, E.C.

Heating by Hot-water.



SHANKS' IMPROVED WROUGHT-IRON BOILER.—This Boiler is made on the principle of the Saddle and Tubular combined. The Tubes, Fire-box, and Shell-plates are all of Wrought-iron, and consequently are not liable to break from expansion and contraction of the metal, as Cast-iron Boilers are. The Tubes are placed in the Fire-box, and so arranged as to expose a very large effective heating surface to the direct action of the fire, the advantage of which is obvious.

A. S. AND SON will be glad to furnish their IMPROVED BOILERS separately, or to furnish Plans and Estimates for Erecting Hot-water Apparatus complete in any part of the country.

HORTICULTURAL BUILDINGS in IRON or WOOD.

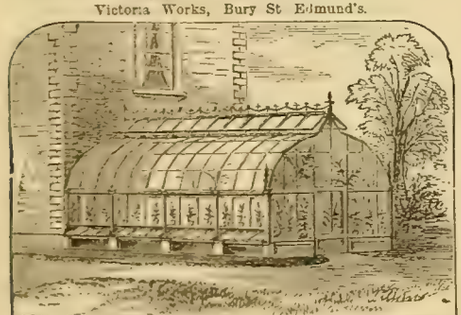
Catalogues, containing Designs of Houses, &c., will be forwarded on application. Special Plans and Estimates for Ranges of Houses to be erected in any part of the country will also be furnished.

A. SHANKS AND SON, Deas Iron Works, Arbroath, N.B.; and 37, Leadenhall Street, London, E.C.

IRON GREENHOUSES CHEAPER THAN WOOD.

Beard's Patent Non-conducting and Ventilating Metallic Glass Houses.

Victoria Works, Bury St Edmund's.



MANUFACTURED BY

CHARLES BEARD, Senior Partner in the late Firm of Sanders, Frewer & Co., which Firm was dissolved by mutual consent.

The Patentee wishes to observe his Patent Houses obtained the First and only Prize at the Royal Horticultural Congress, South Kensington, 1866;

The First-class Certificate at the Grand Manchester Horticultural Show, 1867;

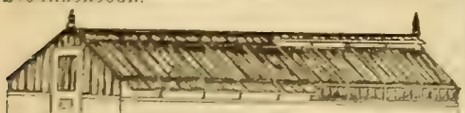
The Three First-class Certificates at the Royal Horticultural Show, at Bury St. Edmund's, 1867, viz.:—One Prize for Patent Glazing without Putty; One Prize for Best System of Patent Ventilation; One Prize for S. F. & Co.'s Improved Flower Stands.

These much-approved Patent Systems of Glazing and Ventilation are also extensively adapted for all Agricultural Buildings, Public Halls, Churches, Factories, Railway Stations, &c., &c.

Full particulars and Prices of the Patent Houses, glazed with 26oz Sheet Glass from 1s. 2d. per foot super and upwards. As also Illustrated Catalogues for 12 postage stamps, may be obtained on application to CHARLES BEARD, Victoria Horticultural Works, Bury St. Edmund's.

PATENT GLAZING BARS, to screw on wood, may be had separately. Full particulars for stamped envelop.

T. G. MESSENGER, MIDLAND STEAM POWER HORTICULTURAL WORKS, HOT-WATER APPARATUS, VALVE MANUFACTURER, LOUGHBOROUGH.



Honourable Mention awarded at the International Exhibition, 1862, and at the London Exhibition, 1866; also a First-class Certificate by the Royal Horticultural society.

T. G. MESSENGER, Patentee of many important improvements in Buildings and Implements connected with Horticulture, and which meet with unqualified approbation, is prepared to give reference to hundreds of works entrusted to him and pre-eminently answering the purpose for which they were constructed.

Any House Glazed, single or double, with or without putty. The mode adopted by T. G. MESSENGER for Heating and Ventilating Forcing Houses is particularly successful, drip being entirely prevented.

Houses can be constructed on his Patent Ventilating principle to open the whole of roof and sides as though the glass were entirely removed, at once placing the plants in the external atmosphere.

T. G. MESSENGER'S Boiler possesses all the advantages of the Tubular and Saddle combined, has hollow furnace bars, requires but a shallow stokehole, exposes as much surface to the direct action of the fire as can possibly be obtained, the whole of which can be easily cleaned; and it is an important fact, that out of upwards of 100 now at work made upon the improved principle not one has cracked.

T. G. MESSENGER'S Valve (single or double) is effective, simple, easy to work, and as durable as the pipe to which it is attached.

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CRANSTON'S PATENT GLASS BUILDINGS for HORTICULTURE. Plans and Estimates free.

Just Published, free for 30 stamps, Third Edition, DESCRIPTIVE BOOK, splendidly Illustrated from existing Buildings. By the Author and Patentee, JAMES CRANSTON, Architect, Temple Row West, Birmingham. H. J. GROWTAGE, Manager.

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363, Old Kent Road, London, S.E.



200 CUCUMBER and MELON BOXES and LIGHTS, all sizes, Glazed and Painted complete, ready for immediate use, packed and sent to all parts of the Kingdom.

Strong ZINC HAND-GLASSES, all sizes.

References to the Nobility, Gentry, and Trade in most of the Counties in England.

By Royal Letters Patent.

G. SHREWSBURY'S NONPAREIL GAS BOILER, for Heating Conservatories, Propagating, and Fern Cases, Coach Houses, Halls, Public Buildings, &c., from 45s. Approved of by all purchasers. Prices and testimonials on application. Enclose stamp. G. SHREWSBURY, Lower Norwood, S.

HOT-WATER APPARATUS Erected Complete, or the Materials Supplied for Heating

Peill's Conical. GREENHOUSES, Tubular Boiler.



HOTHOUSES, CONSERVATORIES, CHURCHES, PUBLIC BUILDINGS, &c.

HOT-WATER PIPES at wholesale prices, Elbows, T Pieces, Syphons, and every other connection kept in stock.



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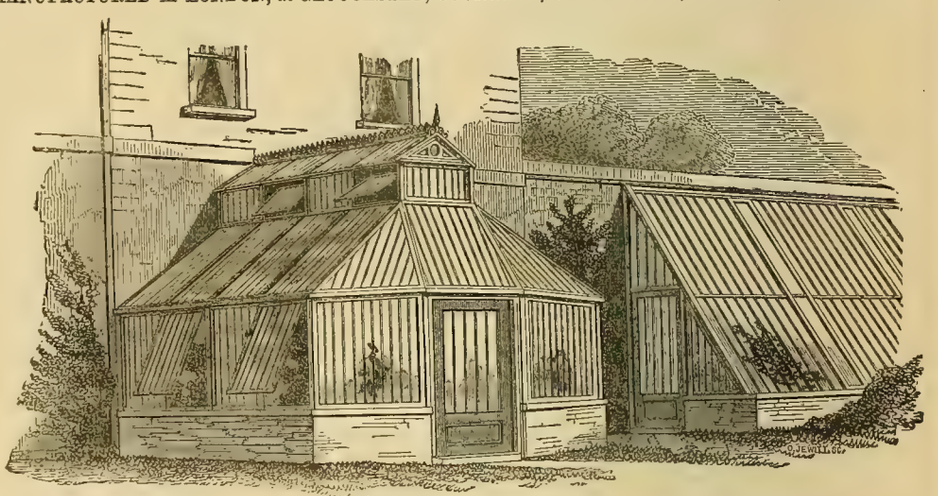
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Price List on application.

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Designs prepared and Estimates given for Conservatories to suit any style of Mansion, on receipt of particulars of size required with rough sketch or description; also for Heating Apparatus to any extent, fixed complete in any part of the United Kingdom.

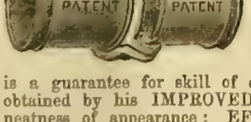
HEREMAN AND MORTON, 7, PALL MALL EAST, LONDON, S.W., HORTICULTURAL BUILDERS AND HOT-WATER ENGINEERS.

A HANDBOOK of VINE and FRUIT TREE CULTIVATION, with full particulars of Patent Roofs, Views of Conservatories, Hints for Heating, &c. By S. HEREMAN, Chatsworth. Post Free, 13d.

PORTABLE AND FIXED HOT-WATER APPARATUS,

FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH

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Begs to state that the immense number of APPARATUS annually Designed and Erected by him in all parts of the kingdom, and for the ROYAL HORTICULTURAL SOCIETY at SOUTH KENSINGTON and CHISWICK, with unrivalled satisfaction, is a guarantee for skill of design, superior materials, and good workmanship; while the great advantages obtained by his IMPROVED SYSTEM cannot be over-estimated, consisting of perfectly tight joints with neatness of appearance; EFFECTS A SAVING OF 25 PER CENT. on cost of Apparatus erected compared with other systems; facility for extensions, alterations or removals without injury to Pipes or Joints; can be erected by any Gardener; an ordinary size Apparatus erected in one day; and PERFECTNESS of DESIGN SUPPLIED, INSURING NO EXTRAS. Complete Apparatus, of the best materials, delivered to any Railway Station in England, and Erected at the following prices. Erection beyond 25 miles of London, railway fare for one man additional. Considerable reduction on large works.

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Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
20 feet by 10 feet	£9 0 0	£2 0 0	50 feet by 15 feet	£17 10 0	£3 0 0
30 feet by 12 feet	11 15 0	2 10 0	75 feet by 15 feet	20 0 0	3 0 0
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Bath and Gas Work erected in town or country. **The Trade Supplied.**

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It is with great gratification that we announce our permission to refer upon any occasion to the various

HEATING APPARATUSES at the above, where our "ONE BOILER SYSTEM"

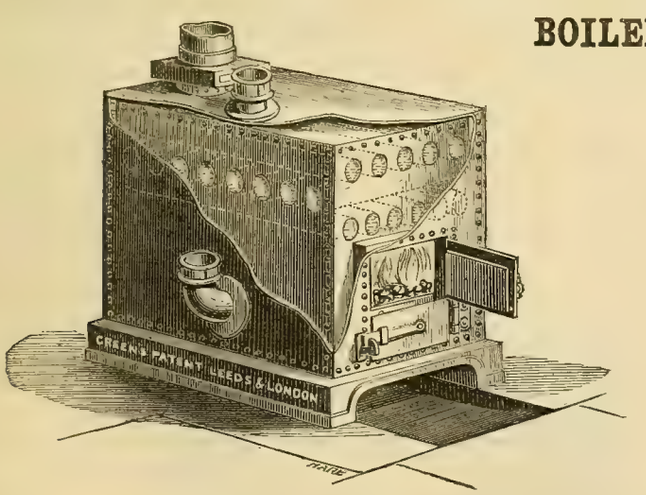
HAS FOR YEARS BEEN SUBJECTED TO THE MOST CRITICAL TESTS WITH EVERY SATISFACTORY RESULT.
IT IS MATCHLESS FOR EFFICIENCY, AND IS WORKING THE LARGEST APPARATUS ON RECORD.

These are no theoretical statements, but positive facts, and it is not too much to add, that no boiler can boast a parallel.

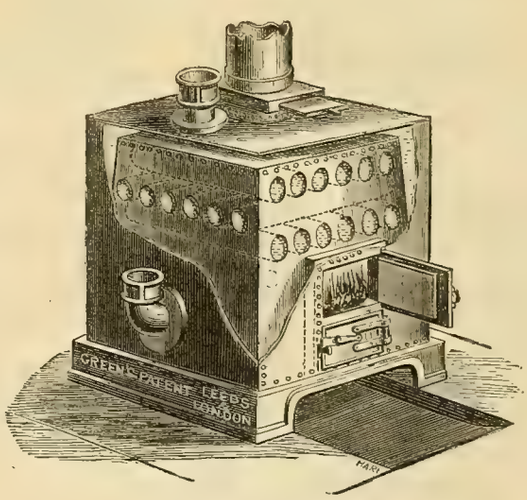
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GREEN'S PATENT IMPROVED TUBULAR HOT-WATER BOILERS.



OBLONG BOILER.



SQUARE BOILER.

THE ABOVE BOILERS ARE

THE MOST EFFECTIVE AND DURABLE EVER INVENTED.

They can be set to work at a nominal cost, inasmuch as no brickwork is required; as will be seen from the above drawing, they are placed upon a Cast-Iron Sole-plate, which answers the purpose of Foundation and Ashpit.

From the peculiar and substantial manner in which these Boilers are made, they are warranted to last for years without getting out of order; in fact, we guarantee them for ten years, but feel convinced that they will serve all the purposes for which they are intended for a much longer period.

They are specially adapted for Heating Greenhouses, Churches, Chapels, Schools, Public Buildings, Entrance Halls, Warehouses, Workshops, &c.

THE FOLLOWING ARE THE ADVANTAGES OF THESE BOILERS:—

1st, They require no setting in brickwork.
2d, They are complete in themselves, having perfect means of regulation.
3d, They take up little room, and can be put in places inaccessible to other Boilers.
4th, They are economisers of fuel, owing to the great amount of heating surface upon which the fire acts in a direct manner, and the consumption of smoke.
5th, The fire can be made to last from 12 to 24 hours without attention.
6th, Any number of Flows and Returns can be annexed to the Boilers by means of T-pipes.
7th, By means of mud doors, they can be readily cleaned out when required.
8th, The Chimney is made of cast-iron, which can either be taken through a roof or turned into a flue, to meet the convenience of the situation that it may be fixed in.

☞ *PRICE LISTS ON APPLICATION.*

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;
and 54 & 55, BLACKFRIARS ROAD, LONDON, S.E.

HOT-WATER PIPES.
CASH PRICES.

	2-inch.	3-inch.	4-inch.
PIPES .. .. per yard	1s. 0d.	1s. 6d.	2s 0d.
ELBOWS .. .. each	1 6	2 3	3 0
TEES .. .. ,,	2 6	3 6	4 6
SYPHONS .. .. ,,	2 6	3 6	4 6
VALVES .. .. ,,	10 0	11 6	13 0

No credit will be given when Pipes, &c., are invoiced at the above prices.
J. JONES AND SONS,
6, Bankside, Southwark, London, S.E.
Price Lists, with terms for credit and for delivery at country stations, will be sent on application.

RIDDELL'S PATENT ELASTIC-JOINTED PIPES are admirably adapted for HOT or COLD WATER, STEAM, or GAS. They are cheap, easily put together, or removed without injury or trouble, save 75 per cent. of the labour of making joints, are perfectly leakless, and are the best ever introduced for HEATING by the CIRCULATION of HOT-WATER.

RIDDELL'S PATENT SLOW COMBUSTION BOILERS, for WARMING CONSERVATORIES, CHURCHES, WAREHOUSES, &c., by the Circulation of Hot Water, are quite Portable, and require no Brickwork Setting; are easily regulated, will keep in action from 8 to 20 hours without attention, are very durable, are the most Economical in the Consumption of Fuel, and may be seen in operation daily at the Patentee's Warehouse, 135, Cheapside, London, E.C. Prospectus free.



The Only Stove without a Flue.

NASH AND JOYCE'S PATENT, for WARMING HALLS, SHOPS, GREENHOUSES, &c.

These Stoves burn without attention or replenishing 12 to 24 hours. From 12s. 6d. to Six Guineas. PATENT FUEL, 4s. 6d. per bag.

STOVES made expressly for Greenhouses, to Burn all Winter by filling up with the Patent Fuel every 12 hours.

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Vases and Fountains, for the Garden and Conservatory.



ANDREW HANDYSIDE AND CO., Britannia Foundry, Derby. 132, Walbrook, London.

The Britannia Iron Works have for the last 40 years been well known for the production of fine Iron Castings. The use of Cast-Iron permits a degree of outline, and smoothness of surface, impossible in Stone or Terra-cotta. Cast-iron Vases, if occasionally painted, are [illegible], and will not crack when exposed to wet or frost.





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Rosher's Garden Edging Tiles.



THE above and many other PATTERNS are made in Terra-Metallic Ware, Terra-Cotta, Stoneware, and Redware, and of great durability. The planer sorts are especially suited for KITCHEN GARDENS, as they resist the attacks of worms and insects, take up little room, and cause just enough labour to [illegible] labour and expense, as do "grown" Edgings, whilst being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability and superior finish, and in much variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.E. Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E. Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs. Illustrated Sheets of Patterns, with prices, forwarded for inspection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Coloured and other Glazed Paving Bricks of great durability. Dutch and Ornamental Chimney Pots, Wall Copings, Red and Stock Bricks. Drain Pipes, Sewers, Cements, &c.

To be obtained of F. & G. ROSHER, at their premises as above.

SILVER SAND (REIGATE), at the above addresses—1s. per Ton, 1s. 2d. per Bushel; 2s. per Ton extra for delivery within Seven miles, and to any London Railway or Wharf. Quantities of 1 Ton, 1s. per Ton less. A coarser grained Sand 1s. per ton more. Samples of Sand to be sent on receipt of stamp.

FLINTS and BRICK BITS for Boilers or Furnaces. KENT PEAT and LOAM supplied at lowest rates.

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N.B. Orders promptly executed by Railway or Vessel.

A liberal discount to the Trade.

"Every Cottage should be provided with a Water Tank." *Disraeli.*

Iron Cisterns.

F. BRABY AND CO. having laid down more extensive and Improved Machinery on their Deptford premises (IDA WHARF), are prepared to supply WROUGHT-IRON TANKS, GALVANISED or PAINTED, of superior quality, at reduced prices, and at very short notice.

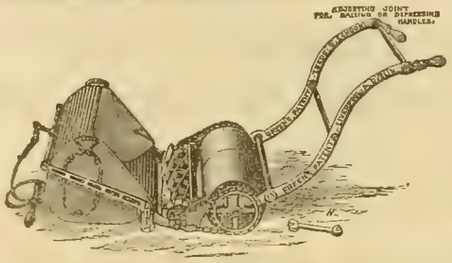


An Illustrated Price List of Galvanised Iron, and other of BRABY'S special Manufactures, sent on application.

F. BRABY AND CO., Limited, Fitzroy Works, Euston Road, London; or through all respectable Ironmongers.

N.B. Open Tanks of different sizes packed one in another to save carriage.

GREEN'S PATENT SILENS MESSORS, or NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES for 1869.



Every Machine is warranted to give entire satisfaction, and if not approved of, can be returned at once unconditionally.

PRIZE MEDALS AWARDED to GREEN'S PATENT LAWN MOWERS.

First Prize Medal at the International Exhibition, London, 1862.
First Prize Medal at the International Exhibition, Dublin, 1865.
First Prize Medal at the Namur Exhibition.
First Prize Medal at the Gand Exhibition.
First Prize Medal at the Laeken Exhibition.
First Prize Medal at the Lineene Exhibition.
First Prize Medal at the Brussels Exhibition, on two occasions.
First Prize Medal at the Hamburg Exhibition.

GREEN'S Patent Lawn Mowers have proved to be the best, and have carried off every Prize that has been given, in all cases of competition.

The extraordinary success of GREEN'S Patent Lawn Mowers is an established fact. During the last five years the demand has been unprecedented, which alone is a proof of their superiority over all others. The following are their characteristic features:—1st. Simplicity of construction, every part being free of access. 2d. They are worked with far greater ease than any other Lawn Mower. 3d. They are the least liable to get out of order.

GREEN'S Patent Lawn Mowers combine all the advantages of self-sharpening, and when the cutters become blunt by running one way round, they can be reversed again and again, bringing the sharp edge of the cutters against the bottom blade, which operation can be done by any inexperienced person, owing to the peculiar adaptation of the Machine, which is possessed by no other. Illustrated Price Lists free on application.

THOMAS GREEN AND SON, Smithfield Iron Works, Leeds; and 54 and 55, Blackfriars Road, London, S.

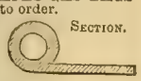
N.B.—All orders are executed on the day they are received.

IRON HURDLES (Silver Medal of the Royal Agricultural Society):
SHEEP, 3s. 6d.; CATTLE, 4s. 2d; OX, 5s. 11d.
List by post. GATES and FENCING of every description.
St. Pancras Iron Work Company, Old St. Pancras Road, London, N.W.

Established 1833.

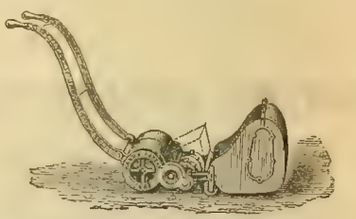


HANCOCK'S INDIA-RUBBER HOSE and TUBING.
Trade Mark.
CARRIAGE, GIG, & DOG-CART APRONS.
HORSE SINGEING APPARATUS, with GAS BURNERS, and INDIA-RUBBER TUBING.
Improved INDIA-RUBBER DOOR STOPS.
WATERPROOF CART and WAGGON COVERS made any size.
HORSE-LOIN COVERS (Waterproof), with Straps complete.
BELTING for SAW MILLS, THRESHING MACHINES, and FLOUR MILLS.
IMPROVED INDIA-RUBBER WEDGE-SHAPED GAS BAGS for Microscopes and Dissolving Views; any size to order.
FLANGE TUBING, for excluding Draught and Dust, and preventing the Slamming of Glass Doors.



VULCANISED INDIA-RUBBER BILLIARD CUSHIONS.
WATERPROOF BILLIARD TABLE COVERS.
Illustrated Price Lists on application.
JAMES LYNE HANCOCK, Vulcanised India-Rubber Works, 266, Goswell Road, London, E.C.

SHANKS'S PATENT LAWN MOWERS for 1869.
The Patent Improvements recently introduced give
SHANKS'S MACHINE
Several important advantages possessed by no other Lawn Mower.
PATENT DOUBLE-EDGED SOLE-PLATE, WIND-GUARD, &c.
The unprecedented Sale for 1868, notwithstanding the Dryness of the Season, forms the most convincing testimony how much these advantages have been appreciated.
ALEXANDER SHANKS & SON beg to intimate that, among all the Exhibitors of Lawn Mowers at the Paris Exhibition, they are the only Firm to whom the Jury awarded a Medal. The Silver Medal then awarded is the highest Prize ever given at any Exhibition for Lawn Mowers.



ALEXANDER SHANKS & SON have for some time past been making the Revolving Cutter of their Machines Self-Sharpening—that is, with Steel on both Sides of each Blade, so that when the Cutter becomes blunt by running one way, it can be reversed, thus bringing the opposite or sharp edge of the Cutter to act against the Sole-Plate. In addition to this, A. S. & SON now make the Sole-Plate or Bottom Blade of their Machine with Two Edges—one in front as usual, and one in reserve at the back; when the front edge gets worn down, the plate has only to be unscrewed and the unused edge brought to the front. It will be seen at a glance that this arrangement enables the cutting parts to last twice as long as in other machines, where the single-edged Sole-plate must be entirely renewed when the edge is worn down.
A Wind-Guard has also been introduced to prevent the Mown Grass being blown past the Box during the prevalence of wind.
There is no ribbing with these Machines. The Lawn when mown has a most beautiful appearance, being as smooth as a piece of velvet.
Every Machine warranted to give ample satisfaction, and if not approved of can be at once returned.
Illustrated Circulars, with full particulars, sent free on application.
A. SHANKS AND SONS, Dens Iron Works, Arbroath; and 27, Leadenhall Street, London, E.C.
☞ A Stock of all sizes of Lawn Mowers always kept at 27, Leadenhall Street.

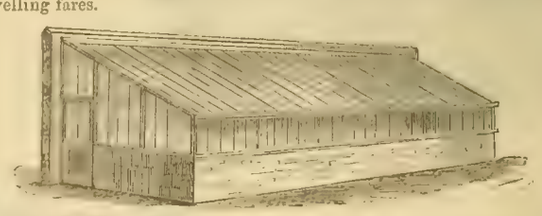
A LONG-FELT WANT PROVIDED.

A NEW ERA IN THE HORTICULTURAL WORLD.

EVERY PERSON POSSESSING a GARDEN CAN NOW ERECT for HIMSELF a GREENHOUSE at a TRIFLING COST.

DENNIS & COMPANY, CHELMSFORD,

Have succeeded in producing a really good, strong, and useful Building for less than £5, so simple in its construction that any ordinary mechanic can fix it with ease, thereby doing away with the cost of expensive mechanics' time and travelling fares.



LEAN-TO, with Front Lights to Open (Class B.)

Suitable for Cucumber or Melon Houses, Stoves or General Forcing Houses, Small Vineries, Greenhouses, Peach-houses, &c. They are made only of the following external widths, with two glass ends and one door, including 16-oz. Horticultural Glass, cut up, and one priming coat of paint on the wood framing:—

Width.	Height to Eaves.	Height to Ridge.	Length 6 feet 4½ inches.	For every additional 6 feet, add	For glass partition and door, add	If doors at both ends, add	If only one glass end, deduct
Ft. Ins.	Ft. In.	Ft. In.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
5 1½	5 0	7 8	4 11 0	2 8 3	1 4 6	0 5 3	0 18 6
6 3½	5 0	8 1½	5 6 9	2 14 3	1 9 3	0 5 3	1 13 3
			12 ft. 4½ in.				
			£ s. d.				
7 2½	5 0	8 7	8 16 0	2 17 6	1 13 9	0 5 3	1 7 9
8 1	5 0	9 0	9 15 2	3 3 0	1 17 9	0 5 3	1 11 6
10 0	5 0	10 0	12 10 3	3 16 9	2 11 6	0 5 3	2 5 6
12 0	5 0	11 0	11 6 9	4 7 6	3 3 0	0 5 3	2 17 9

Note.—For every additional length of less than 6 feet, the cost of 6 feet will be charged.

Full particulars as to the various classes of Buildings, their dimensions, adaptations, and suitability for different purposes are contained in their Catalogues, which will be forwarded on application to

T. H. P. DENNIS AND COMPANY, HORTICULTURAL BUILDERS and ENGINEERS,
ANCHOR IRON WORKS, CHELMSFORD.

JAMES PHILLIPS AND CO.
beg to submit their prices as follows:—
GLASS for ORCHARD HOUSES,
As supplied by them to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.
Each Box contains 100 feet. The prices only apply to the sizes stated.
Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.
10 oz. to the foot. 21 oz.
Fourth quality .. .. 13s. 6d. .. .. .. 19s. 6d.
Third ditto .. .. .. 16s. 6d. .. .. .. 22s. 6d.
Seconds .. .. .. 19s. 6d. .. .. .. 25s. 6d.
English .. .. .. 20s. 6d. .. .. .. 27s. 6d.
The above prices include the boxes, which are not returnable.
HORTICULTURAL GLASS.
Stock sizes, 16-oz., in 100 feet boxes, boxes included.
These prices only apply to the sizes stated.

				4ths.	3rds.	2nd.
11 by 9	12 by 9	13 by 9	14 by 9	s. d.	s. d.	s. d.
12 „ 10	13 „ 10	14 „ 10	15 „ 10	13 6	15 6	17 0
13 „ 11	14 „ 11	..	..			
14 „ 12	15 „ 12	15 „ 11	16 „ 11			
18 „ 12	19 „ 12	16 „ 12	17 „ 12			
10 „ 13	17 „ 13	20 „ 12	..	15 0	16 0	18 6
16 „ 14	20 „ 13	18 „ 13	..			
	17 „ 14	18 „ 14	..	16 to 17 oz. to the foot.		
	20 „ 14					

SMALL SHEET SQUARES.
In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	..	12s. 6d.
8 by 6	8½ by 6½	9 by 7	9½ by 7½		
		10 by 8	10½ by 8½	..	13s. 6d.

Boxes 2s. each returnable at full price.
London Agents for HARPLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS. PAINTS of various colours ground ready for use.
SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of Prices and Estimates forwarded on application to
JAS. PHILLIPS AND CO., 180, Bishopsgate Street Without, E.C.



THE "CASSIOBURY."
The best and most powerful
GARDEN ENGINE.
15 Gallons .. .. £4 10s.
24 Gallons .. .. £5 10s.
S. OWENS AND CO.,
Whitefriars Street, London, E.C.

WM. DILLISTONE,
HORTICULTURAL AUCTIONEER and VALUER,
Sible Hedingham, Essex.

To Florists.
TO BE LET, a Bargain, a SMALL CONCERN in a main thoroughfare at the West End. Lease, 14 years.—Full particulars of Mr. GOODSON, 20, Maida Vale, W.

FOR SALE, by Private Contract, an ESTABLISHED NURSERY GARDEN STOCK, together with Greenhouse, Propagating House, Pits and Frames. The above would be a first-rate chance for a young Beginner. There is a good Seed Trade also attached. Can be taken at once. Coming in light.
Apply to JOHN INNELL, Auctioneer, Ross, Hereford.

Sales by Auction.

Bulbs from Holland.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY and WEDNESDAY, October 18 and 20, at half-past 12 o'Clock precisely, First-class Double and Single HYACINTHS, TULIPS, CROCUSES, NARCISSUS, LILIUMS, GLADIOLI, SNOWDROPS, RANUNCULI, and other BULBS, just arrived from well-known Farms in Holland.
On view the morning of Sale, and Catalogues had.

Royal Nursery, Bagshot, Surrey.

MR. J. C. STEVENS begs to announce that he has received instructions from Mr. Hanafy to SELL by AUCTION, on the Premises, The Royal Nursery, Bagshot, Surrey, on THURSDAY, October 21, at 1 o'Clock precisely, SPECIMEN CONIFERS and ORNAMENTAL SHRUBS, consisting of Cedrus Deodara, Cupressus Lawsoniana, Cephalotaxus Fortunei, 3000 Laurels 2000 Privet, 800 Cotoneasters, 150 Rhododendrons, 1000 Currant and Gooseberry Bushes, 500 Poplars, 40 Acacias, &c., all moved within the last 2 years; 50,000 1-yr. and 2-yr. Chestnuts and Oaks. Also a quantity of plants in pots, consisting of Retinospora pisifera aurea, Euonymus, Ligustrums, Osmanthus, Bambusas, Aucubas, Tacsonias, Skimmias, Hydrangeas, Erythrinas, Clematis, Echeverias, 350 Camellias, 300 Coleus, Lomarias, and other Ferns, Sikkim Rhododendrons, &c.
On view the day prior, and morning of Sale, and Catalogues had on the Premises, and of Mr. J. C. STEVENS, Horticultural Auctioneer and Valuer, 38, King Street, Covent Garden, W.C.
A Van will meet the mid-day train to convey parties to the Sale, and Lunch will also be provided.

Highly Important Sale of Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 21, and TUESDAY, October 26, at half-past 12 o'Clock precisely, the valuable SPECIMEN PLANTS, the property of W. Marshall, Esq., of Enfield, who is giving up exhibiting, and reducing his Collection. They are in first-rate order, and true to name. Among them will be found specimens of the following, many being as fine as any in the country:—

Cypripedium villosum	Cattleya Schilleriana (Regnelli)
„ Parishii	Cyclogyne cristata
„ Lowii	Selenipedium Schlimii
„ Stonei	Odontoglossum triumphans,
„ caudatum roseum	Marshallianum, and Wilsoni
Oncidium Marshallianum	Odontoglossum mulus
Lælia elegans and Wolstenholmiæ	„ nævium majus
	„ phalænopsis

Also a splendid series of Lycaste Skinneri and Cattleya Trianæ which gained the Lindley Medal at the Royal Horticultural Society, March 3, 1868.
On view the Morning of Sale, and Catalogues had.

IMPORTANT SALE of ORCHIDS, containing many fine Established Specimen Plants from the Collection of a Private Grower, including Cattleya Dowiana, Cypripedium lævigatum, Oncidium sarcodes, Angræcum sesquipedale, Phalænopsis grandiflora, Aerides Dayanum, Oncidium macranthum, Dendrobium Huttoni, Aerides Larpentæ, Cattleya maxima, Dendrobium Veitchianum, &c., which will be SOLD by AUCTION, on THURSDAY, October 28, by Mr. J. C. STEVENS, at his Great Rooms, 38, King Street, Covent Garden. Catalogues will be ready shortly.

Kingston-on-Thames.—Valuable Nursery Stock.

JOHN COLLINGS will SELL by AUCTION, in convenient Lots for Planting, on the Premises, Poplar Nursery, Washington Road, near the Cemetery, about half a mile from the Norbiton Station, on the London and South-Western Railway, on THURSDAY and FRIDAY, October 21 and 22, at 11 for 12 o'Clock, the valuable NURSERY STOCK, consisting of Laurels, Hollies, Aucubas, Irish Yews, Thuja aurea, Thuja Lobbii, Thuja chinensis, Thuja americana, Thujopsis borealis, Cupressus Lawsoniana, Junipers, Retinosporas, Cotoneasters, Euonymus, Ligustrum, Laurustinus, Berberis, Laurus Colchicum, Spruce, Climbing Roses, White Broom, Limes, Poplars, Laburnums, Beech, Hornbeam, Birch, &c.
Catalogues of the Auctioneers, Maybank Nursery, Kingston-on-Thames.

Isleworth, Middlesex.

To GARDENERS, NURSERYMEN, FRUIT-GROWERS, and OTHERS.

MR. CHARLES NEWMAN has been favoured with instructions from Mr. John Wilmot to SELL by AUCTION, on the Premises, Sion Lane, Brentford End, Isleworth, Middlesex, on TUESDAY, October 19, at 11 o'Clock, the Surplus Stock of 30,000 2-yr and 3-yr FRUIT TREES, in a most healthy condition. They have been propagated under the Owner's immediate superintendence, and consist of the best sorts in about 6,000 Apples, 3,000 Pears, 3,000 Plums, and a few Cherries; also 3000 Red, and Two White Currants, 2-yr. and 3-yr., of the best and choicest sort.
May be viewed the day previous and morning of Sale, by applying to Mr. CHAPMAN, at Mr. Wilmot's, Brentford End, Isleworth. Catalogues may be had at the Chequers Inn, Uxbridge; Couch and Heaver's, and Rose and Crown Inns, Brentford End, Isleworth; and at the Auctioneer's Offices, Church Farm, Harlington, Middlesex.

Periodical Sale of Pure-bred Hereford Cattle.

MR. DUCKHAM has the pleasure of announcing that he has received instructions to SELL by AUCTION, at his First Periodical Sale, to be held in the Showyard at Hereford, on THURSDAY, October 21 (being the day after the Show of the Herefordshire Agricultural Society, and Great October Fair), upwards of 100 Head of BULLS, COWS, and HEIFERS, from the Herds of the following celebrated Breeders:—

Rev. A. Clive, Whitfield
J. Rankin, Esq., Bryngwyn
Tomkyns Dew, Esq., Whitney Court
Mr. W. Tudge, Adforton
„ B. Rogers, The Grove
„ P. Turner, The Leen
„ T. Edwards, Wintercott
„ T. S. Bradstock, Cobrey Park
„ H. Griffiths, Dovoreux Wootton [morgan
„ W. S. Powell, Tarbach, Glamorgan
„ R. Chitson, Llanwarne
„ J. Wigmore, Bickerton Court
„ J. Williams, Stretford Bury
Mr. J. Williams, Kingsland
„ T. Fenn, Downton
„ J. Harding, Bicton House, Salop
„ A. Rogers, The Rodd
„ J. Rawlines, Stoke Tenbury
„ E. Tanner, Ayntree House, Salop
„ H. Gibbons, Hampton Bishop
„ E. Tudge, Credenhill
„ T. Nott, Brampton Bryan
„ J. Bennett, Ingeston
„ R. Hill, Orleton Court
„ H. R. Evans, Swanstone Court

Full particulars will appear in Catalogues, to be obtained at the Offices of the Auctioneer, 50, Broad Street, Hereford.

Bitterne, near Southampton.

To GENTLEMEN, NURSERYMEN, GARDENERS, and OTHERS.

MR. W. ABRAHAM begs to inform persons intending to Plant that he has received instructions to SELL by AUCTION, in the Grounds of the Red Lion Hotel, Bitterne, near Southampton, on THURSDAY, October 21, at 12 o'Clock punctually, a large quantity of choice EVERGREEN and DECIDUOUS TREES and SHRUBS, Standard, Trained, Dwarf, and Pyramidal FRUIT TREES, named Kinds; about 3000 strong QUICK, Standard and Dwarf ROSES, Hardy CREEPERS, PRIVET, &c.
Catalogues free by post on application at the Hotel, or of Mr. W. ABRAHAM, Horticultural Auctioneer, Valuer, &c., Goldworth Nurseries, Woking, Surrey.

Wonersh Nurseries, Surrey.

HIGHLY IMPORTANT SALE of SURPLUS NURSERY STOCK.

MR. W. ABRAHAM begs to announce that he has received instructions from Messrs. W. Virgo & Son, of the Wonersh Nurseries, near Guildford, Surrey, to SELL by AUCTION, on the premises, on MONDAY, October 25, and four following days, at 11 for 12 o'Clock punctually each day, a fine COLLECTION of specimen CONIFERÆ, ORNAMENTAL EVERGREEN and DECIDUOUS TREES and SHRUBS, all in the best possible health, and well adapted in new grounds to produce an immediate effect. They consist of Araucaria imbricata, 4 to 6 feet; Weymouth Pine, 4 to 8 feet; Cedars of Lebanon, 9 feet; Balm of Gilead Fir, 8 feet; American Arbor vitæ, 10 to 12 feet; Cryptomeria japonica, 8 to 10 feet; Red Cedars, 8 feet; China Arbor-vitæ, 6 to 7 feet; Siberian ditto, 5 to 6 feet; English and Irish Yew, 3 to 6 feet; Pinus excelsa, 6 to 8 feet, &c.; 2,000 Portugal Laurel, 3 to 8 feet; Lombardy, Italian and Ontarian Poplars, 8 to 15 feet; Scarlet and Turkey Oak, 6 to 7 feet; Silver Birch, 8 to 10 feet; Spanish Chestnut, 7 feet; Mountain and Common Ash, 7 to 8 feet; Hornbeam, 5 to 10 feet; Weeping Ash, Standard Laburnums, Sycamore, 8 to 10 feet; English Oak, 8 to 10 feet; 10,000 Common Laurel, all sizes; Tree Box, splendid bushes; Limes, English Elm, 10 feet; Scarlet Maple, 12 feet; Walnuts, Sweet Bay, &c. Also upwards of 3000 Standard, dwarf, and pyramidal APPLE, Pear, Plum, Cherry, Quince and Medlar Trees, Gooseberry and Currant Bushes; also FOREST TREES, including 10,000 Spruce Fir, 2 to 4 feet; 20,000 Larch, 2 to 3 feet; 30,000 Spanish Chestnuts, 2 to 3 feet; 50,000 Ash, 2½ to 4 feet; 60,000 Scotch Fir, 1½ to 2½ feet; 10,000 Pinus austriaca, 2 to 4 feet; 10,000 Berberis aquifolia, 500,000 Strong Quick, 6000 Manetti Rose Stocks, Standard, Dwarf and Climbing Roses, Seedling Hazel, strong Grape Vines in pots, Green Holly, &c.
The Nurseries are situated ¼ mile from the Bramley Station on the Guildford and Horsham branch of the London, Brighton and South Coast; 2½ miles from the Shalford Station on the South-Eastern, and 4 miles from the Guildford Station on the London and South-Western Railways.
For the convenience of purchasers any lots can remain upon the ground until December 13, following the Sale.
May be viewed, and Catalogues (free by post) obtained one week prior to the Sale, at the Nurseries, White Lion and White Hart Hotels, Guildford; White Lion, Cobham; Sun, Chobham; Talbot, Ripley; Albion, Woking Station; and of
Mr. W. ABRAHAM, Horticultural Auctioneer, Valuer, &c., Goldworth Nurseries, Woking, Surrey.

Castle Nursery, Brox, near Chertsey, Surrey,

About 1½ mile from the Chertsey, Woking, and Addlestone Stations, on the South-Western Railway.

MESSRS. WATERER AND SONS have received instructions from the Executrix of the late Mr. W. Hoade to SELL by AUCTION, on the Premises, Castle Nursery, on MONDAY, October 25, and following days, at 11 for 12 o'Clock precisely, the whole of the exceedingly valuable NURSERY STOCK, comprising 40,000 Variegated Hollies, 15,000 Green Hollies, 1500 Aucubas, 2500 Portugal Laurels, 1500 Common Laurels, 3,000 Arbor-vitæ, 2000 large Birch, 400 large Weymouth Pines, 500 large Spruce Firs, 300 fine Silver do., 200 Hemlock Spruce, 2000 Conifers, 5000 Rhododendrons, 2000 Dwarf and Standard Roses, 250 Azaleas, 2000 Yews, 400 Thujii, 800 Laurustinus, 300 Arbutus, 4500 Dwarf-trained and Standard Fruit Trees (named), 4200 Fruit Stocks, various; 2000 Variegated Box and Box Edging, about 100 lots of valuable choice mixed Shrubs, and Specimen Plants fit for immediate and ornamental planting, and a variety of other Stock. The Auctioneers beg to call the special attention of Gentlemen, Nurserymen, and others to this Stock; the whole is remarkably good, and in a safe state for removal. Also the Erection of TWO GREENHOUSES heated with hot water, Valuable Horse, Light nearly new Spring Van, Dung Cart, Nursery Cart, Harness, Garden Lights, and other effects.
May be viewed seven days previous to the Sale. Catalogues had on the premises, and of Messrs. WATERER AND SONS, Auctioneers and Valuers, Chertsey, who will forward them on application by post.

The Old Established Nursery, Sudbury.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. ROLFE, WHEELER AND WESTOBY will SELL by AUCTION, on the Premises, Cornard Road, Sudbury, on TUESDAY, WEDNESDAY, and THURSDAY, October 26, 27, and 28, at 10 o'Clock precisely each day, on account of the number of Lots, the valuable and choice Collection of FRUITS, CONIFERÆ, HERBACEOUS and HARDY PLANTS, GLASS-HOUSES, &c., being all the remaining NURSERY STOCK of Mr. S. Brown, who has removed to a distant county, comprising about 2000 Pyramidal and other Fruit Trees, of the choicest sorts, principally in a Fruiting condition; 5000 choice Conifers, handsomely grown; a large quantity of Specimen Conifers, in excellent condition for moving, and many thousands of other Evergreens, as Holly, Laurel, Box, Yew, Privet, &c.; a quantity of new and choice Japanese and other Hardy Shrubs, Flowering Plants in pots, and all the choice collection of various Trees and Shrubs, Climbing Plants, &c., growing on the ground, together with all the remaining Glass-Houses, Side and Frame Lights, about 10,000 Flower Pots, and other Nursery Effects.
The whole may be viewed on the Saturday and Monday preceding the Sale, and will be described in Catalogues to be obtained on the Premises, or at the Offices of the Auctioneers, Market Hill and Friars Street, Sudbury, or posted free on application.

City Auction Rooms, 38 & 39, Gracechurch Street, E.C.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Rooms as above, on THURSDAY, October 21, at half-past 12 o'Clock precisely, a first-class Collection of DUTCH BULBS, consisting of the finest Double and Single Hyacinths, Narcissus, Jonquils, Anemones, Crocus, Tulips, Ranunculus, Snowdrops, &c.; a fine assortment of 300 handsome standard and dwarf ROSES, of the best varieties; selected AMERICAN PLANTS, comprising Ghent and other Azaleas, Rhododendrons, Kalmias, Andromedas, with some hardy Climbers, &c.
On view the morning of Sale. Catalogues had at the Rooms of the Auctioneers and Valuers, Leytonstone, N.E.

Richmond, Surrey.

HIGHLY IMPORTANT SALE of VALUABLE NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Morthake Nursery, adjoining the Gasworks, Richmond, Surrey—10 minutes' walk from the Richmond Station, South-Western Railway—on MONDAY, October 25, and three following days, at 12 o'Clock precisely each day, by order of Messrs. G. & W. Steel (without reserve), the following valuable NURSERY STOCK, comprising 10,000 fine bushy Aucubas, 1 to 4 feet; 2000 Cupressus Lawsonianas, 1 to 8 feet; 1500 Laurustinus, 1000 Cedrus Deodara, 12 to 18 inches, and specimens, 6 to 8 feet; 1000 Green Hollies, 18 inches to 5 feet; 1000 Araucaria imbricata, 18 inches to 3 feet; 1000 English Yews, 2 to 6 feet; 6000 Variegated Hollies, 1 to 5 feet; 1500 Picea Pinsapo, 9 to 18 inches; 800 very fine Wellingtonia gigantea, 1 to 6 feet; 100 Cotoneaster, sorts, 1 to 3 feet; 2000 Thujopsis borealis, bushy; 1000 Lilacs, 600 Euonymus, 400 Irish Yews, 500 Junipers chinensis, 3 to 4 feet; 300 Arbutus, 2 to 4 feet; 600 specimen Thuja aurea, 2 to 4½ feet, very handsome; Berberis, sorts; Bays, Portugal Laurels, large Phillyreas, and many other choice Evergreens; 5000 Standard and Dwarf Roses, of the finest sorts; Poplars, Laburnums, Copper Beech; 600 Standard Thorns, sorts; 700 Dwarf Moss Roses, also a large quantity of clean grown Fruit Trees; 3 magnificent specimen Wellingtonia gigantea, 15 to 20 feet high, &c.
☞ P. & M. respectfully inform the Public that the Stock is unusually healthy, and in excellent condition for removal, the whole of it having been transplanted within two years, and the greater portion of it last spring.
May be viewed previous to the Sale. Catalogues, when ready, can be obtained of Messrs. G. & W. STEEL, Home Nursery, Kew Road, Richmond; and of the Auctioneers and Valuers, Leytonstone, Essex, N.E.

Sydenham, S.

SHORT NOTICE of a CLEARANCE SALE of NURSERY STOCK, GREENHOUSE PLANTS, HOUSEHOLD FURNITURE, and numerous other EFFECTS.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from the Executors of the late Mr. Osman Rhodes to SELL by AUCTION, without reserve (the Nursery being Let), on the Premises, the Crystal Nursery, Sydenham, Kent, on TUESDAY, October 26, at 11 for 12 o'Clock precisely, the whole of the valuable NURSERY STOCK, com rising a quantity of fine specimen Conifers and Evergreen Shrubs, also some Chinese Arbor-vitæ, 3 to 4 ft.; Cupressus Lawsoniana, Berberis aquifolia, Laurels, Aucubas, &c.; thousands of Geraniums, a quantity of large Azalea indica, Crassulas, Camellias, Cinerarias, &c.; a fresh importation of DUTCH BULBS, a quantity of Hot-water Pipe Fittings, India-rubber Hose, some new Glazed Sashes, a capital Lathe, a heavy Spring Cart, nest of Seed Drawers, the Wood Patterns of Rhodes' new Horizontal Tubular Boilers, together with the genuine HOUSEHOLD FURNITURE.
On view the day prior to Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, Leytonstone, N.E.

St. John's Wood Road, N.W.

CLEARANCE SALE OF VALUABLE NURSERY STOCK, GREENHOUSE PLANTS, GREENHOUSES, PITS, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Guy to SELL by AUCTION, without reserve (the Land being Sold, and immediate possession required), on the Premises, the Nursery, St. John's Wood Road, Middlesex, N.W., on THURSDAY, October 28, at 11 for 12 o'Clock precisely, the whole of the NURSERY STOCK, comprising common Laurels, 3 to 5 feet; Euonymus, Box, Chinese Arbor-vitæ, Lilacs, Aucubas; also thousands of Geraniums, some Azalea indica; likewise three GREENHOUSES, in good condition, consisting of a Lean-to House, 25 feet 6 inches long by 10 feet wide; two three-quarter Span-roof Houses, each 35 feet long by 15 feet wide; Pits, Shed (nearly new), a quantity of Hot-water Piping, Conical and Tubular Boilers, Brickwork, Garden Pots, &c.
On view the day prior to Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Surrey.—Windlesham, near Bagshot.

EXTENSIVE SALE of VERY VALUABLE NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS have received instructions from Messrs. Geo. Baker & Son to SELL by AUCTION, without reserve, on the Premises, the American Nursery, Windlesham, Surrey, 10 minutes' walk from the Sunningdale Station, on the South-Western Railway, on TUESDAY, November 2, and three following days, at 12 o'Clock each day, the following valuable NURSERY STOCK, including many unusually grand and effective Specimens, from 6 to 15 feet, carefully prepared for removal, comprising Cedrus Deodara, Picea nobilis, Pinsapo, lasiocarpa, and Nordmanniana; Araucaria imbricata, Pinus macrocarpa, Thuja gigantea, Warreana, Lobbii, and chinensis; Wellingtonias, Irish Yews, Standard Variegated Hollies; likewise 4000 Variegated Hollies, 9 inches to 2 feet; 2000 Portugal Laurels, 1 to 4 feet; 1000 Thujopsis borealis, 5000 Common Laurels (bushy), 2000 Aucuba japonica, thousands of Thuja Lobbii, Retinospora pisifera and obtusa, Thujopsis dolabrata variegata, Thuja gigantea and Warreana, Standard worked Irish Yews, 10,000 Cupressus Lawsoniana, 5000 Deutzia crenata flore-pleno, 2000 Variegated Ivies, 200 Ligustrum coriaceum (in pots), 500 Mrs. Pince's Muscat Vine, 1000 New Clematis, 500 Picea nobilis (seedlings), Standard worked Osmanthus of sorts, a large quantity of Yucca flaccida, Cotoneaster, Double Furze, Gladiolus, &c.; 15,000 AMERICAN PLANTS, comprising 3000 best named Rhododendrons, 1 to 3 feet, fine furnished plants, many of which are well set with bloom buds; 3000 Rhododendron ponticum (bushy), 2000 Ghent and Hardy Azaleas, 2000 Taylor's Red Azaleas, 1000 Kalmia latifolia; also a large quantity of fine Standard Rhododendrons, Ericas, &c.; 2000 Standard and Dwarf ROSES, with a quantity of Roses in pots, &c.
May be viewed until the Sale. Catalogues may be had on the premises, and of the Auctioneers and Valuers.

Prebendal Farms, Aylesbury.

IMPORTANT SALE OF SHORTHORNS.

MR. STRAFFORD is instructed to announce for SALE by AUCTION, without reserve, on TUESDAY, October 19 next, at the Prebendal Farms, Aylesbury, the very select HERD of pure-bred SHORTHORNED CATTLE, belonging to John K. Fowler, Esq., which consists of about 40 Head of Bulls, Cows, and Heifers, chiefly of Fawsley blood, with Kirklevington crosses. Amongst them will be found some very desirable animals descended from Catalina, Charmer, Cold Cream, Walnut, Fantail, Seraphina, and other favourite sorts. The sire now in use is Hardicanute, bred by Mr. Adkins, of Milcote.
Catalogues, with Pedigrees, may be had on application to Mr. STRAFFORD, 13, Euston Square, London; or of Mr. FOWLER, at Aylesbury.

Clapton, near Thrapston.

VERY IMPORTANT SALE of PURE-BRED SHORTHORNS.

MR. STRAFFORD is instructed by Mr. Rowland Wood to announce for SALE by AUCTION on WEDNESDAY, November 3 next, about SIXTY HEAD of BULLS, COWS, and HEIFERS, from the celebrated CLAPTON HERD. They are all in a healthy breeding state, and have not been forced for sale. The whole were bred by Mr. Wood, with the exception of the renowned Lord Chancellor (20,160), on whom the moderate reserve of 100 guineas will be put; the remainder of the lots will be sold without the slightest reserve. This Herd has been long and carefully bred from animals purchased of the Marquis of Exeter, F. Sartoris, Esq., Mr. W. D. Manning, of Rothersthorp, and other noted Breeders; many of the Cows, Heifers, and Young Bulls being of the same family as Mr. Wood's famous Gold Medal Ox of 1865, and his other Prize Animals. There are also several of the same tribe as Mr. Manning's memorable Gold Medal Ox at the Smithfield Club Show, in 1847.
Catalogues, with Pedigrees, may be had on application to Mr. STRAFFORD, 13, Euston Square, London; or of Mr. WOOD, at Clapton, near Thrapston.

Hyacinths, Tulips, &c.

BUTLER, McCULLOCH AND CO. beg to announce the publication of their AUTUMN CATALOGUE of the above, which will be sent gratis and post paid on application. Orders for Bulbs can now be executed

BUTLER, McCULLOCH AND CO., South Row, Covent Garden Market, London, W.C. Established upwards of a Century.

New Catalogue of Dutch Bulbs, Plants, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select Descriptive and Priced Lists of Amaryllis, Crocuses, Cyclamens, Gladioli, Hyacinths, Liliums, Narcissus, Tulips, and other bulbs, Miscellaneous Plants, Fruit Trees, Sweet Violets, &c., is now published, and will be forwarded to applicants.—Exotic Nursery, Tooting, Surrey, S.W.

Dutch Flower Roots.

JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, Borough Market, London, S.E., beg to announce that they have received a selection of the above from eminent growers in Holland, in very fine condition, and extra fine roots, which they feel convinced will give satisfaction.

CATALOGUES of FLOWER ROOTS, ROSES, FRUIT TREES, &c., sent free on application.

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STEPHEN BROWN, late of Sudbury, Suffolk, has removed his renowned and valuable Collections of LILIUM, GLADIOLI, and extensive variety of other BULBS, FLOWER ROOTS, HERBACEOUS and ALPINE PLANTS, &c., to Weston-super-Mare, where he will continue the cultivation of these superb and increasingly popular tribes of Flowers.

S. B.'s FIRST IMPORTATION for the SEASON of DUTCH BULBS has arrived in splendid and sound condition.

Full Collections of Bulbs for outdoor planting, 10s., 20s., 40s., 60s.

Full Collections for potting and forcing, 20s., 40s., 60s.

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ARCHIBALD HENDERSON begs to announce that he has received a large Consignment of Dutch and other Roots, carefully selected from the most celebrated growers.

DESCRIPTIVE and PRICED CATALOGUES are now ready, containing practical directions for their successful cultivation on all the various systems now adopted.

Also a CHOICE and SELECT LIST of VEGETABLE and HARDY FLOWER SEEDS for Autumn Sowing. Catalogues gratis and post free upon application.

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D., L., AND L. offer the following assortment for One Guinea:—

12	choice named Hyacinths	24	fine mixed Ranunculus
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Packed in hamper. Carriage paid.

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JOHN KEYNES begs to announce that he has secured the stock of those two first-rate flowers which have excited so much admiration at the Royal Horticultural Society; First-Class Certificates have been awarded them. They comprise COLESHILL (ECKFORD), bright scarlet Zonal, the finest of its class; and LADY EDITH, a bright purply pink Ivy-leaf. These are the two best acquisitions of the season. They will be sent out in April next, at 10s. 6d. each. Drawings may be had on receipt of 15 postage stamps.

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Lucy Grieve	Lady Cullum	Mrs. John Todd
Louisa Smith	Caroline Longfield	Duke of Edinburgh
Sophia Cusack	Queen of Tricolors	Her Majesty
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The 12, in strong plants, for 21s., package included. Remittances requested from unknown correspondents.

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Strong Plants of our four New FUCHSIAS, with plenty of Cuttings on, 2s. 6d. each. These are four of the best yet sent out for Market or Exhibition.

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Catalpa syringæfolia, 7 to 8 feet	Pyrus aria latifolia, 7 to 8 feet
Laburnums, 4 to 6 feet	American Weeping Willows, 6 to 8 feet
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TREES, from 1½ foot to 3½ feet, 5s. to 30s. per 1000; Sycamores and Laburnums, from 5 to 9 feet, 1s. 6d. per dozen, 8s. per 100; Walnuts, 3 and 4 feet, ditto; Spruce Fir, 3 and 4 feet, 3s. per dozen; Austrian Pine, 6s. per dozen; Laurels, 1, 2, and 3 feet, 5s., 7s., and 10s. per 100; Laurustinus, good plants, 2s., 3s., and 4s. per dozen; Ribes sanguinea and aurea, 2s. and 3s. per dozen; Gueldor Rose, 1s. 6d. per dozen; Red Currant Bushes, strong plants, 1s. 6d. per dozen, 8s. per 100; Roses, the best sorts only, 1, 1½, 2, and 2½ feet stems, 12s. per dozen, for cash only, of A. WILKIN, Tiptree, Kelvedon, Essex.

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In proof of the quality of Bulbs imported by him, he begs to refer to his Annual Exhibition in the Royal Horticultural Gardens in March and April, which has been visited by Her Most Gracious Majesty the Queen, Her Royal Highness the Princess of Wales, and several other Members of the Royal Family.

PRICED DESCRIPTIVE CATALOGUE Free by Post.

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 43.—1869.] SATURDAY, OCTOBER 23. {Price Fivepence. {STAMPED EDITION, 6d.

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BIRMINGHAM and MIDLAND COUNTIES' GREAT FRUIT and FLOWER EXHIBITION, to be held in the TOWN HALL on MONDAY and TUESDAY in the Cattle Show week, Nov. 29 and 30. Schedules are now ready, and may be had of the Secretary, WM. HUDSON, Clifton Grove, Bell Barn Road, Birmingham. ENTRIES CLOSE on OCTOBER 29.

The Successful Cultivation of Hyacinths.—See SUTTONS' AUTUMN CATALOGUE for 1869, which may be had gratis and post free on application. SUTTON AND SONS, Reading, Berks.

SUTTONS' COLLECTIONS of FLOWER ROOTS, for open ground decoration, 10s. 6d. to 42s. See SUTTONS' AUTUMN CATALOGUE.

SUTTONS' COLLECTIONS of FLOWER ROOTS, for Greenhouse and Conservatory Decoration, 10s. 6d. to 42s. See SUTTONS' AUTUMN CATALOGUE.

SUTTONS' COLLECTIONS of HYACINTHS, for cultivation in pots and glasses. See SUTTONS' AUTUMN CATALOGUE.

SUTTONS' AUTUMN CATALOGUE for 1869, gratis and post free on application. SUTTON AND SONS, Importers, Reading.

FRESH IMPORTED HYACINTHS, CROCUS, TULIPS, NARCISSUS, &c.—For prices, see Messrs. SUTTONS' Advertisement on page 1109 of this day's *Gardeners' Chronicle*. SUTTON AND SONS, Seedsmen to the Queen, Reading.

SUTTONS' GUINEA COLLECTION of FLOWER ROOTS, for Indoor and Outdoor Cultivation, forwarded carriage free by rail. In ordering, please say whether for indoors or outdoors. SUTTON AND SONS, Importers, Reading, Berks.

Dutch Bulbs, just Imported.

JAMES CARTER AND CO.'S AUTUMN CATALOGUE of HYACINTHS, CROCUS, and other Bulbs, also ROSES and FRUIT TREES, is now ready, and will be forwarded gratis and post free on application. 238, High Holborn, London, W.C.

Arrival of Bulbs.

BARR AND SUGDEN, 12, King Street, Covent Garden, W.C. CATALOGUE containing much additional valuable information now ready, and on application sent free to the Readers of the *Gardeners' Chronicle*. BULBS for Early Flowering now ready to send out, of first-class quality.

Dutch Flower Roots, &c.

B. S. WILLIAMS' CATALOGUE of HYACINTHS, TULIPS, CROCUSES, NARCISSUS, and other Spring-flowering Bulbs; also FRUIT TREES, ROSES, &c., is now ready, post free to all applicants. Victoria and Paradise Nurseries, Upper Holloway, London, N.

Narcissus.

H. J. HARDY has a few thousand good Bulbs, Double White and Single Pheasant-eye NARCISSUS to Dispose of at a low price. Apply to H. J. HARDY, Seed Grower, Stour Valley Seed Grounds, Bures, Essex.

GLADIOLI SEEDLINGS (mixed).—Beautiful flowers, equal to any collection, of all colours. Strong flowering Bulbs, 7s. per 100, £3 per 1000. Sorts per name at the lowest prices. Apply to LEVEQUE ET FILS, Nurserymen, 132 and 134, Boulevard de l'Hôpital, Paris.

FUCHSIAS, new varieties of 1869.—12 of the most beautiful ever raised, 6s.; 24 ditto, 10s. 6d. Above post free. N.B.—CATALOGUES of above post free. W. DILLISTONE, Nurseries, Sible Hedingham, Essex.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.—Mr. WEBB, Calcot, Reading

Everlasting and Dried Natural Flowers.

JAMES CARTER, DUNNETT, AND BEALE'S WHOLESALE LIST of the above is now ready, and will be forwarded immediately on application. 237 and 238, High Holborn, London, W.C.

200,000 Dwarf Hybrid Perpetual Roses.

WM. WOOD AND SON have a magnificent Stock of the above to offer. Early orders are respectfully solicited.

ROSE CATALOGUE for 1869, post free.—The finest Rose plants this season are to be obtained from E. P. FRANCIS AND CO., The Nurseries, Hertford.

Rose Catalogue.

JOHN CRANSTON'S ROSE CATALOGUE for 1869 is now ready, and will be sent post free on application. The Nurseries, King's Acre, near Hereford.

FIFTY THOUSAND TEA-SCENTED and NOISETTE ROSES, in pots, all the most popular and best kinds, at 9s. to 18s. per dozen. DESCRIPTIVE LIST on application. RICHARD SMITH, Nurseryman, Worcester.

To the Trade.—Hybrid Perpetual Roses.

HUSSEY AND SON beg to offer fine DWARFS on MANETTI at 6s. per dozen, £2 per 100. LISTS of sorts upon application. Mile End Nursery, Eaton, Norwich.

Splendid Roses.

TRY the SALISBURY ROSES. CATALOGUES ready. JOHN KEYNES, Castle Street Nursery, Salisbury.

Fifty First Prizes this Season.

PAUL AND SON'S NEW ROSE CATALOGUE, and PAUL AND SON'S NEW DESCRIPTIVE FRUIT and HARDY TREE CATALOGUE, are now ready, and will be sent post free on application to PAUL AND SON, Old Nurseries, Cheshunt, N.

Roses.

CHARLES TURNER'S DESCRIPTIVE and PRICED CATALOGUE of ROSES is now ready; it also contains full LISTS of FRUIT TREES, SHRUBS, CONIFERÆ, &c., and may be had post free on application. The Royal Nurseries, Slough.

Paul's Rose Catalogue.

"A very complete and able Catalogue."—*Floral World.*

WM. PAUL begs to announce that his NEW CATALOGUE of ROSES is now ready, and will be forwarded post free on application. The stock of Plants is large and excellent. Paul's Nurseries, Waltham Cross, London, N.

Vines.

JAMES CARTER AND CO. can now offer strong, well-grown CANES, this year's growth. For description of Varieties and Prices, see AUTUMN CATALOGUE, now published. JAMES CARTER AND CO., Seedsmen and Nurserymen, 237 and 238, High Holborn, W.C.

Grapes the First Year.

VINES, from Eyes, to bear 10 to 12 bunches, 10s. 6d. VINES, from Eyes, to bear 6 to 8 bunches, 7s. 6d. Strong Planters, from 2s. 6d. R. TANTON, F.R.H.S., The Nurseries, Epsom.

EXTRA STRONG FRUITING VINES.—2000 close-jointed thoroughly ripened Canes can be supplied of Black Hamburgh, Golden Champion, Mrs. Pince, and other varieties, for fruiting in pots and for planting. Descriptive CATALOGUE upon application. JAMES DICKSON AND SONS, Newton Nurseries, Chester.

THOMSON'S WHITE LADY DOWNE'S GRAPE.—Plants of this remarkable White Grape, the latest keeping in cultivation, are now being sent out. The Canes are strong and thoroughly ripened. Immediate orders are respectfully requested. Price 21s., 42s., and 63s. each. THOMAS METHVEN, Leith Walk Nurseries, Edinburgh.

Golden Champion Grape.

OSBORN AND SONS can supply good CANES of the above-named remarkable GRAPE, which has again been exhibited and very much admired, fully sustaining the high character previously formed of it. Price 10s. 6d., 21s., and 30s. each. Fulham Nursery, London, S.W.

Grape Vines.

B. S. WILLIAMS' stock is remarkably fine, and in good condition. Can supply all the best kinds. Prices on application. Victoria and Paradise Nurseries, Upper Holloway, London, N.

Pines.

B. S. WILLIAMS has all the best kinds, in splendid condition, warranted clean. Prices on application. Victoria and Paradise Nurseries, Upper Holloway, London, N.

PINES WANTED.—From 100 to 150 Fruiting and Succession Pines, of best kinds, healthy and perfectly free from scale and other pests. The Fruiting Pines must be strong, and include several which will fruit early next spring. Full particulars as to varieties, price, &c., to G. D. R., Post Office, Worcester.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LIST of these varieties from Mr. WEBB, Calcot, Reading.

TO GENTLEMEN, GARDENERS, and OTHERS, having to DISPOSE of CHOICE FRUIT, FLOWERS, VEGETABLES, &c., may meet with good Sale and quick returns by sending to A. IRETON, Covent Garden Market, W.C. Stamp for inquiry.

Fruit Tree Culture.—Just published, A DESCRIPTIVE and ILLUSTRATED CATALOGUE of FRUITS for 1869. By THOS. RIVERS. Free per post. Nurseries, Sawbridgeworth.

EVERY GARDEN REQUISITE KEPT in STOCK at CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

EWING AND CHILD'S GENERAL NURSERY CATALOGUE, which contains descriptions of a select assortment of Fruits, Roses, Conifers, Evergreens, Ornamental Deciduous Trees, &c., is now ready, and may be had Gratis and Post free on application to The Royal Norfolk Nurseries, Norwich.

Spring Flowers.

THOMAS S. WARE'S SELECT LIST of SPRING FLOWERS (the Planting of which ought not to be delayed) may be had on application. Also his new AUTUMN CATALOGUE of ROSES, FRUIT TREES, SHRUBS, &c. Hale Farm Nurseries, Tottenham, Middlesex, N.E.

To the Trade.

THOS. BUNYARD AND SON'S TRADE LIST may now be had on application. It contains specially low offers of Trained Fruit Trees, Roses, Arbutus (1 to 3 feet), Berberis Bealii, Chinese Juniper, Thuja aurea, Biota elegantissima, Elms, Climbers, &c. The Old Established Nurseries, Maidstone, Kent.

Pelargoniums, Carnations, Picotees, Pinks, Cloves, Auriculas, &c.

CHARLES TURNER can supply fine plants of the above. A CATALOGUE, containing select Collections of each, is now ready. The Royal Nurseries, Slough.

VARIEGATED PELARGONIUMS.—Mrs. Dix, Pictus, Spanish Beauty, Jock o' Hazeldean, Louisa Smith, Lizzie, Caroline Loughfield, Oberon, Dragon, Countess Tyrconnell, Golden Circle, Glen Eyre Beauty. 2s. CASBON AND SON, Gravel Walk Nursery, Peterborough.

WM. POTTEN'S LIST of new and select TRICOLOR, BICOLOR, ZONAL, and DOUBLE GERANIUMS can be had post free on application to WM. POTTEN, Florist, Sissinghurst, Staplehurst, Kent.

Special Offer.—Madame Lemoine.

WILLIAM BADMAN offers strong plants of this most beautiful of Double Pelargoniums, in single pots, 6s. per dozen. LORD DERBY, finest Pelargonium grown, 4s. per dozen. Package included. Terms cash. Cemetery Nursery, Gravesend.

Carnations and Picotees.

JONATHAN BOOTH, FLORIST, Pole Lane, Failsworth, near Manchester, can supply a choice Collection of the above in all the leading show varieties. Prices on application. Trade supplied.

Wholesale Catalogue of Good Transplanted Nursery Stock.

GEO. JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1869-70 will be forwarded free on application. Woking Nursery, Surrey.

CENTAUREA RAGUSINA COMPACTA. Packets for 13 or 25 stamps; 100 seeds for 4s., of C. YOUNG, Balham Hill Nursery, London, S.W.

FOR SALE, ACORNS (QUERCUS COCCINEA), the true scarlet Oak. Good sound new seed. C. HASTIER, 12, Water Street, Blackfriars, London, E.C.

NOBLEMEN'S AGENTS, &c., wanting strong SPRUCE, SCOTCH, LARCH, and AUSTRIAN FIRS, ELM, OAK, THORN, &c., will be liberally treated by JOSEPH TREMBLE AND SONS, Penrith.

EVERGREEN OAKS.—1-yr. Seedlings, in drills, 12s. 6d. per 1000. These being upon ground that must be cleared, are offered very cheap. T. JACKSON AND SON, Nurseries, Kingston, Surrey.

WANTED, 50 or 100 PLANE TREES, as large as possible, to transplant safely. Apply to Mr. CLAPHAM, Royal Park, Leeds.

WANTED, a large quantity of BERBERIS AQUIFOLIUM, not less than 1 foot or more than 3 feet; also a quantity of fine young BIRCH, ASH, SYCAMORE, and HORSE CHESTNUT, not less than 2 feet. Send price per 100 to CHARLES CAMMELL, Esq., Norton Hall, Sheffield.

To the Trade.

MULBERRIES, MULBERRIES. Prices per dozen or 100 on application. Choice PRIMULA SEED of 1869 growth, in Trade packets, 5s., 10s. 6d., 21s., extra fine. FONSFORD AND SON, Nurserymen, Brixton, Surrey, S.W.

SPECIAL OFFER, to the TRADE. 30,000 BERBERIS DARWINII, 1½ to 2 ft., twice transplanted, bushy, 15s. per 100. [plants. 50,000 Bedded MANETTI STOCKS, 25s. per 1000, fine healthy 2,000 PTERIS SERRULATA, nice plants, in pots, 15s. per 100. ANDW. G. DALY, Nurseryman and Seedsman, Newry.

LARGE POPLARS, PLANES, LIMES, CHESTNUTS, and other Forest and Ornamental Trees; large AUCUBAS, ARBOR-VITÆS, COMMON and PORTUGAL LAURELS, IRISH and COMMON YEWS, and a variety of other Trees and Evergreens, suitable for immediate effect, at R. T. PENNETTS Nursery, Park Lane, Tottenham, N.

NEW WINTER TARES.—For sample and price, apply to EDWARD TAYLOR, Seed Merchant, Malton, Yorkshire.

CHARLES YOUNG offers new seed of TELEGRAPH CUCUMBER. Packets for 13 or 25 stamps. Price to the Trade on application. Balham Hill Nursery, London, S.W.

NARCISSUS POETICUS, good blooming roots, 10s. per 1000, for ready money. THOMAS KITLEY, Oldfield Nursery, Bath.

TELEGRAPH CUCUMBER, warranted true. 4 seeds, 1s.; 12 seeds, 2s. 6d., post free, for ready money. THOMAS KITLEY, Oldfield Nursery, Bath.

WILLIAMS' PARADISE GEM MELON, warranted true. 6 seeds, 1s.; 18 seeds, 2s. 6d. THOMAS KITLEY, Oldfield Nursery, Bath.

Seed Potatos.

H. AND F. SHARPE'S WHOLESALE LIST of all the new and best varieties of Early and Late POTATOS is now ready, and may be had on application. The quality is very fine, and prices low. Seed Growing Establishment, Wisbech.

EARLY ENFIELD CABBAGE PLANTS, per 1000, 3s.; per 10,000, 25s. DRUMHEAD, 2s. 6d. per 1000, per 10,000, 20s. Strong ASPARAGUS ROOTS, for forcing, 4-yr., 3s. per 100, 25s. per 1000; 5-yr., 3s. 6d. per 100, 30s. per 1000. Free on rail. Four bushel Sacks, 1s. 4d. each. Remittances to accompany all orders. CHRISTMAS QUINCEY, Seedsman, &c., Peterborough.

Champion Ox Cabbage.

MR. S. ROBINSON, the Producer of this fine Stock, showed at the Melbourne Horticultural and Agricultural Show, on the 18th, three Specimens, weighing respectively 70 lb., 68 lb., and 62 lb.—Total, 200 lb. Shaw House, Melbourne, Derbyshire.

RICHARD WALKER has the following to offer for cash.—Splendid SEAKALE, for forcing, extra fine, 10s. per 100; fine GIANT ASPARAGUS, for forcing, at £1 per 1000, or 3s. per 100; ROBINSON'S CHAMPION DRUMHEAD CABBAGE plant at 2s. 6d. per 1000. RICHARD WALKER, Market Gardens, Biggleswade, Beds.

SEAKALE ROOTS. Fine strong roots for Forcing, 10s. per 100. GIANT ASPARAGUS.—Fine 2-yr., 2s. 6d. per 100, 18s. per 1000; extra strong large 5-yr. roots, for Forcing, 2s. 6d. per doz., 16s. p. 100. Usual discount to the Trade. STEPHEN BROWN, Seedsman, &c., Weston-super-Mare, Somerset.

Splendid New Rhododendron,
BARONESS LIONEL ROTHSCHILD.

JOHN WATERER AND SONS are now prepared to execute orders for the above new SEEDLING RHODODENDRON; the ... a clear bright crimson, the margin of the ... [illegible] ... and returns a great ... Price 21s. each. Free on a Trade allowance.
The American Nursery, Bagshot, Surrey.

RHODODENDRON MULTIFLORUM.—A most ... early plant; many bushes may be seen in my ... each 500 dozen buds on; forces well.
AZALEA HYBRIDA ODORATA.—Bears fine trusses of fragrant ... suitable for bouquets in winter. Both the above gained First-class Seedling Prizes. A full description, with prices of these and other new Hybrids, forwarded on application to the raiser.
ISAAC DAVIES, Brook Lane Nursery, Ormskirk.
J. D. has also a few hundreds of DAPHNE INDICA RUBRA to offer.

Rhododendrons.—To the Trade.

J. MATTHEWS has a large stock of 4-yr. RHODODENDRONS, 6s. per 100; 3-yr. (1-yr. transplanted), 10s. per 100; 1 to 1½ foot, bushy, 15s. per 100; 1½ to 2 feet, 40s. per 100; Splendid dark, white Caledonian, budded, 1½ foot, 10s. per dozen; Coreanum, pictum, 1 foot, 12s per dozen.
SPRUCE FIR, 1½ to 2 feet, 20s. per 1000; and 2 to 3 feet, 30s. per 1000. PRIVET EVERGREEN, 2 to 3 feet, 16s. per 1000; 3 to 4 feet, 30s. OAKS, 3-yr. budded, 1 to 1½ foot, 5s. per 100.
Milton Nurseries, Stoke-on-Trent, Staffordshire Potteries.

Jackman's Hardy Hybrid Clematises.

AWARDED 20 FIRST-CLASS CERTIFICATES and 2 SPECIALS.

GEO. JACKMAN AND SON are desirous of drawing the attention of those who intend using their CLEMATISES for Climbers or Permanent Bedding Plants, &c. The present time is most favourable for Planting.

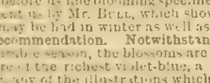
OPINION of the Press.

"They have in their several varieties the very colour of which our summer gardens are in a great measure deficient."—*Gardeners' Chronicle*.

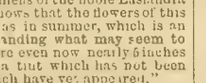
An Engraving and a general Descriptive Catalogue of prices will be forwarded by enclosing a stamp.
Woking Nursery, Surrey.

Echeverias.

H. CANNELL has perhaps the finest and largest blooming lot of Plants of METALLICA in the kingdom, varying in size from seedlings to plants 1 foot high; and H. C. has spared neither expense nor pains in bringing a large quantity of seed to perfection. Each pod contains quite a 100 dust-like seeds, and if sown at once, will make splendid little plants for next season. One pod, quite ripe, sent free for 13 stamps.
H. C. has also a fine lot of the three following beautiful edging kinds:—SECUNDA, SECUNDA GLAUCA, and PUMILA. A packet of either of these sent free for 18 stamps.
Plants of the above from 3s. per dozen to 20s. per plant.
New Forest Flower and Floral Flower Seed Merchant, Woolwich.



New Plant.



MR. WILLIAM BULL is now sending out the beautiful
LASIANDRA MACRANTHA,
Which can be easily cultivated in an ordinary Greenhouse. Price, 7s. 6d. to 21s. each.
The flowers of this plant are truly marvellous, 1½ foot in circumference; are produced nearly through out the year, and on plants when only an inch or two high. Some blooms of it were sent last Christmas to the Editor of the *Gardeners' Chronicle*, and the following remarks were made in the columns of that Journal, January 2, 1869:—
"We have before us fine blooming specimens of the noble Lasiandra macrantha, sent us by Mr. Bull, which shows that the flowers of this grand plant may be had in winter as well as in summer, which is an additional recommendation. Notwithstanding what may seem to be an unfavourable season, the blossoms are even now nearly 5 inches across, and are of the richest violet-blue, a tint which has not been reproduced in any of the illustrations which have yet appeared."
A DESCRIPTIVE CATALOGUE of other NEW PLANTS, just published, may be had on application.
Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

GERANIUMS.—Mrs. Pollock, 3s. per doz., 22s. per ... Sophia ... per doz.; Mrs. Ben ..., 6s. per doz.; Mrs. Pox, 12s. per doz.; Louisa Smith, 12s. per doz.; Queen of Trumps, 9s. per doz.; Sophia Lucas, 12s. per doz.; Beauty of the Day, 18s. per doz.; Perilla, 4s. per doz.; Antonia Mary, 9s. per doz.; Luna, 18s. per doz.; Anna Williams, ... per doz.; Lucifer, 9s. per doz.; Lord Derby, 9s. per doz.; Crystal Palace Gem, 6s. per doz.; Andrew Anderson, 6s. per doz.; Mrs. Lowther, 6s. per doz.; Triumph, 6s. per doz.; Tom Thumb, ... 6s. per doz. The 20 varieties, six of each, for £4; three of each for 22s. 6d., package included. ROSES, on their own roots, strong plants, 6s. to 9s. per doz., 50s. per 100. Sorts on application.
N. LAWRENCE, The Nurseries, Station Street, Chatteris, Cambs.

H. CANNELL'S AUTUMN CATALOGUE is now ready, and will be sent free for One Stamp. It contains a full description, with lowest prices consistent with quality and ..., of all the best new and most distinct varieties of PELARGONIUMS, such as Tricolors and Bicolors, Doubles and Zonales, FUCHSIAS, VERBENAS, PETUNIAS, COLEUS, CHRYSANTHEMUMS, HELIOTROPES, VERONICAS, LOBELIAS, VIOLAS, and all the popular Bedding Plants of the Season. Also, the names and ... of all the best older varieties in cultivation. For further particulars see Catalogue.

To Raisers of Geraniums.

H. CANNELL begs to inform all lovers of GERANIUMS that he has a small quantity of Seed of the very best ... Zonals, at 2s. per packet. It is ... of the best kinds of the present season, ... Mrs. Ashe, Lord Derby, Sir R. Napier, Our Future Rose, Mrs. ..., &c.; the two latter certainly are the finest ... that have ever been ... A careful hybridising has been attended to, and H. C. is convinced that some grand new Varieties will be the result from the Seed.

GOLDEN FEATHER.—As this plant has thoroughly ... proved ... to be one of the ... that has been sent out of late years, H. CANNELL begs to remind all lovers of ... that he ... a large stock.
It ... a ... Golden plant; ... plant stood all last winter, with ... the ... and ... the winter and spring, and ... for Edging or ... decoration.
New Forest Flower and ... Seed Merchant, Woolwich.

GOLD and SILVER VARIEGATED GERANIUMS. ... Cannell, ... Beauty of Cranford, ... Fragrance, Lucius, ... Lucy, Dolly Varden, Queen Victoria, Lady Cullum, Mrs. Turner, Queen Victoria, Golden Chain, Mrs. Pollock, Star of Love, Dr. Nelson, Beauty of Ireland, Mrs. Gibson, Flower of ..., Princess ..., Sunray, &c.
GOLD and SILVER ZONALS.—ANIMA ... Lucifer, Emperor for ..., Andrew ..., A. H. Wilson, Countess of Essex, Duke of Edinburgh, L. C. ..., Empress, Emperor, Queen, Eye ... Empress, Golden Empress, Her Majesty, Kentish Hero, Lady Cullum, Golden Chain, Princess of Wales, The Sultan, Beauty of Cumberdale, Beauty of Rydal, &c.
The finest ... DOUBLE GERANIUMS for 12s.—Andrea Hofer, ... E. G. Hemmerle, Impératrice Eugénie, Madame de St. Pern, Madame Lemoine, Marie Crousse, Marie Lemoine, Victor Lemoine, Wonder of Pitzer.
The finest ... of ZONAL and NOSEGAY GERANIUMS for 12s.—Blanchards alba, Jean Hoitz, Kentish Hero, Lizzie, Madame Jules Audusset, Madame Jules Ecle, Madame Lemoine, Madame Mezard, Masterpiece, Maurice Bernardin, Prince of Orange, Robert Brydon.
The above good plants, ... package included.
WM. POTTER, Florist, ..., Sittingbourne, Kent.

A. VAN GEERT,

NURSERYMAN, GHENT, BELGIUM,

BEGS TO OFFER

THE FOLLOWING PLANTS,

Of which he has a good Stock, at the annexed reasonable Prices:—

100	CAMELLIAS, without flower buds, fine plants	£4 to £5	0 0
100	Indian AZALEAS, of sorts, with flower buds, nice plants	4	10 0
100	small LATANIA BORBONICA	1	15 0
12	large LATANIA BORBONICA	1	10 0
25	SABAL ADANSONI	0	10 0
25	CHAMÆROPS HUMILIS	0	15 0
12	CHAMÆROPS, fine plants	1	4 0
25	CHAMÆROPS SINENSIS	0	18 0
12	strong plants of THEA BOHEA	0	12 0
12	strong AGAVE AMERICANA	1	10 0
12	AGAVES, of choice sorts	1	16 0
12	SOLANUM CAPSICASTRUM, foliis variegatis	0	18 0
6	PHORMIUM COOKII	0	12 0
12	AMARYLLIS SPECIOSA	0	6 0
25	AMARYLLIS, in fine mixed varieties, flowering roots	3	3 0
6	ROEZLIA REGIA, strong plants	0	18 0
12	BONAPARTEA JUNCEA	0	18 0
12	DASYLIRION, of sorts	1	10 0
25	ARTEMISIA CRENULATA	0	12 0
12	BEGONIA PEARCEI, bulbs	0	9 0
12	DRACÆNA VEITCHII	0	18 0
100	DRACÆNAS, in many varieties	4	4 0
12	DRACÆNA INDIVISA, fine plants	1	10 0
24	plants CYPERUS PAPYRUS	0	8 0
12	plants STRELITZIA JUNCEA	3	3 0
50	OTAHEITE ORANGES	2	2 0
12	ORANGE TREES, on stems, fine	3	0 0
12	PASSIFLORAS, of sorts	0	12 0
12	RONDELETIA ANOMALA	0	9 0
12	LOMARIA CILIATA	0	9 0
12	LOMARIA FALCATA	0	6 0
12	CIBOTIUM PRINCEPS.	1	4 0
12	DARÆA DIVERSIFOLIA	0	9 0
12	ALSOPHILA EXCELSA	0	18 0
12	ACROSTICHUM CRINITUM, strong plants	2	8 0
24	ADIANTUM, of sorts	0	12 0
24	SELAGINELLA, of sorts	0	12 0
12	ASPLENIUM VIVIPARUM	0	9 0
12	GYMNOGRAMMA, of sorts	0	13 0
12	CYCAS REVOLUTA	3	0 0
6	ZAMIAS, of sorts	3	0 0
24	ACACIAS, in varieties	0	10 0
12	BORONIA POLYGALÆFOLIA	0	5 0
12	POLYGALAS, of sorts	0	6 0
24	MAMILLARIA and ECHINOCACTUS	1	10 0
12	ECHEVERIAS, in varieties	0	12 0
12	ELÆAGNUS JAPONICA, foliis aureis marginatis	1	4 0
12	ILLICIUM RELIGIOSUM	0	18 0
12	EUGENIA UGNI	0	9 0
12	GREVILLEA ROBUSTA, for dinner-table decoration	0	9 0
6	GREVILLEA LONGIFOLIA	0	12 0
12	JASMINUM GRANDIFLORUM	0	18 0
12	JASMINUM ODORATISSIMUM	0	18 0
12	KENNEDYA, of sorts	0	9 0
24	LACHENALIA TRICOLOR	0	4 0
12	LAURUS NOBILIS, fine young stems, with heads	0	6 0
12	dwarf LAURUSTINUS, full of bud	1	4 0
12	MYRTUS BULLATA	0	9 0
12	MYRTUS COMMUNIS, flore-pleno, on stems	1	4 0
12	choice VARIEGATED ZONAL GERANIUMS	0	15 0
12	YUCCA ALOIFOLIA	0	9 0
100	GLOXINIAS, in fine mixed varieties	1	1 0
50	GLOXINIAS, named	1	5 0
25	ACHIMENES, in varieties	0	5 0
12	TYDÆAS	0	5 0
12	strong bulbs of GESNERA MEEROULT	0	18 0
12	LYGODIUM SCANDENS, the Cumbing Fern	0	18 0
12	BIGNONIA ARGYRÆA VIOLACEA	0	15 0
12	CALADIUMS, fine varieties	0	18 0
12	CROTONS, in varieties	0	10 0
12	MARANTAS, of sorts	1	4 0
24	tropical ORCHIDS	3	0 0
12	PALMS, different sorts	1	4 0
24	PANDANUS UTILIS	1	1 0
100	choice hardy RHODODENDRONS, of sorts	4	4 0
20	varieties of DELPHINIUM	0	7 6
100	GYNERIUM ARGENTEUM	1	5 0
50	strong GINKGO BILOBA	1	10 0
50	small GINKGO BILOBA	0	15 0
25	GLYCINE SINENSIS	0	12 0
25	choice varieties of Chinese Herbaceous PÆONIES	0	10 0
20	ditto Tree PÆONIES	1	5 0
25	varieties of IRIS GERMANICA	0	5 0
25	OSMANTHUS, in three varieties	1	1 0
25	MAGNOLIA GRANDIFLORA	1	1 0
6	MAGNOLIA THOMPSONI, strong	0	18 0
25	MAGNOLIA TRIPETALA	0	12 0
12	MAGNOLIA MACROPHYLLA, fine	1	10 0
12	strong plants of ARUNDO DONAX, foliis variegatis	1	5 0
12	choice CLEMATIS	0	12 0
100	selected CONIFERS, of sorts	2	10 0
50	EUONYMUS, in varieties	0	15 0
24	ILEX, of sorts	1	0 0
100	LILIUM LANCIFOLIUM RUBRUM, strong bulbs	3	3 0
100	LILIUM PUNCTATUM	6	0 0
12	SKIMMIA JAPONICA	0	6 0
12	VIBURNUM MACROCEPHALUM	0	15 0
12	CHAMÆCYPARIS SPHÆROIDEA, foliis aureis	0	9 0
12	CRYPTOMERIA DOBBII, fine plants	0	9 0
50	CUPRESSUS LAWSONIANA, fine	1	1 0
12	LARIX KEMPFERII	3	12 0
12	RETINOSPORA PISIFERA AUREA	0	15 0
50	RETINOSPORA ERICOIDES, strong	1	1 0
50	THUJA TOM POUCE, new	2	2 0
100	THUJA AUREA, fine	2	2 0
25	sorts, of hardy FERNS	1	1 0
12	sorts, of new AUCUBA	0	18 0
100	PERPETUAL ROSES, own roots	2	2 0
50	varieties of GLADIOLUS GANDAVENSIS.		

AGENTS,

MESSRS. SILBERRAD AND SONS,

7, HARP LANE, TOWER STREET, LONDON, E.C.

KNAP HILL NURSERY,

WOKING, SURREY.

ANTHONY WATERER

Solicits the notice of intending Planters to the following LIST of specimen CONIFERS, &c., all of which he believes are as handsomely grown, as carefully managed, and as finely rooted as can be desired.

ABIES ALBERTUS, 5 to 9 feet, 30s. to 60s. per dozen. Transplanted April, 1869.
ABIES DOUGLASII, 6, 7, to 10 feet, 7s. 6d. to 10s. 6d. each. Transplanted August, 1868.
ABIES ORIENTALIS, 5, 6, and 7 feet, 7s. 6d. to 21s. Splendid plants, moved April, 1869, 10 to 12 feet high, 15 and 20 feet in circumference.
ABIES EXCELSA, the Common Spruce Fir, beautifully furnished, 5, 6, to 8 feet high, £5, £7 10s., to £12 10s. per 100.
The dwarf varieties of Spruce, such as pumila, pygmæa, Gregorii, Clanbraziliana, &c., large numbers, many of them 20 and 30 years' growth.
CEDRUS DEODARA, 5 to 6 feet, 60s. per dozen; 7 to 8 feet, 84s. per dozen; 10 to 12 feet, 10s. 6d. to 21s. each, and upwards. We have several thousands of these large Deodars. All have been removed since August, 1868: many since April, 1869.
CEDRUS ARGENTEA, 6 to 7 feet, 42s. to 60s. per dozen; 8 to 10 ft., 7s. 6d. to 10s. 6d. each. All removed since September, 1868.
CEDRUS LEBANON, 6, 7, to 10 feet. Moved September, 1868.
CUPRESSUS LAWSONIANA, 6 to 7 feet, 30s. to 42s. per dozen; 8 to 10 feet, 5s. to 10s. 6d. each.
" " ARGENTEA, 3 and 4 feet, and as much in circumference, 7s. 6d. to 10s. 6d. each.
" " GRACILIS, 4 to 5 feet high, and 7 and 8 feet round, 7s. 6d. to 21s.
JUNIPER, CHINESE, 4 to 5 feet, 42s. per dozen, £15 per 100; 5 to 6 feet, 60s. per dozen, £23 per 100; 7 to 8 feet, 7s. 6d. to 10s. 6d. each. All removed since August, 1868. Purchasers may select from a stock of many thousands of this fine plant, 5 to 8 ft. high.
PICEA NOBILIS, hundreds of splendid specimens, 5, 6, 7, to 10 ft. high, all recently removed, and are undoubtedly the finest plants to be found in any Nursery. None are grafted.
PICEA NORDMANNIANA, 5, 6, to 8 feet, 21s. to 42s. each, and upwards. Splendid plants, moved August, 1868, 10 to 15 ft. high.
PICEA LASIOCARPA.—Hundreds of most beautiful plants, 4, 5, 6, 8, and 9 feet high. All removed 1868-69.
PICEA MAGNIFICA, 3, 4, and 5 feet
PICEA PINSAPO, 4, 5, 6, and 8 feet, 21s. to 63s. each. Some grand plants, 10 to 15 feet high, transplanted April, 1869.
THUJA AUREA, beautiful specimens, 3, 4, 5, and 6 feet high; 10 to 20 feet in circumference. This plant originated in this Nursery, and our stock is unsurpassed.
THUJA GIGANTEA, 5, 6, to 12 feet high. Moved August, 1868.
THUJA LOBBII, 8 to 14 feet high, and as much in circumference; transplanted April, 1869.
THUJOPSIS BOREALIS, 5 to 6 feet, 7 and 8 feet round; 42s. to 60s. per dozen; 7 to 8 feet, 7s. 6d. to 10s. 6d. each. All removed since August, 1868.
WELLINGTONIA GIGANTEA, 4 to 5 feet, 7s. 6d. to 10s. 6d. each; 6, 7, 8, and 9 feet, 21s. to 42s. each. Transplanted in August.
PINUS AUSTRIACA, 3 feet, £5 per 100. Transplanted, Sept. 1868.
PINUS CEMBRA, 8 to 10 feet, 10 to 12 feet round, 10s. 6d. to 21s. each.
YEWS, the COMMON ENGLISH, 4, 5, 6, 7, 8, 10, and 12 feet high. Thousands, all constantly removed; invaluable where immediate effect is sought.
YEWS, GOLDEN and ELEGANTISSIMA.—We have these in large numbers, and of all sizes, as pyramids, globes, and worked as standards, with from 3 to 5 feet of gold, and up to 10 feet high.
YEWS, IRISH, handsome plants, up to 10 feet high.
HOLLIES.—The stock of Hollies at this Nursery is, we believe, the finest to be met with in Europe; it comprises, as well as ordinary sizes, together, many thousands of the following varieties:—
HOLLY, VARIEGATED SILVER and GOLD, of sorts, 4 to 10 feet.
HOLLY, GOLDEN QUEEN, magnificent plants, 4 to 8 feet high, and as much in circumference.
HOLLY, SILVER QUEEN, 4, 5, and 6 feet.
WATERER'S HOLLY.—This variety originated in this Nursery; we have hundreds 4, 5, and 6 ft. high, 10 and 15 ft. circumference.
PERRY'S WEEPING HOLLY.—Standards, 10s. 6d. to 21s. each.
HOLLY, COMMON WEEPING.—The finest specimens we have seen. Moved, April, 1869.
HOLLY, COMMON GREEN, 4, 5, 6, 7, 8, 10 to 14 feet high, by the thousand. All moved since April, 1868.
HOLLY, Green varieties of the following kinds. An immense stock of splendid plants, all transplanted in 1868-9:—
LAURIFOLIA and SCOTTICA, 3, 5, 6 to 10 feet high.
HODGINS' | ANGUSTIFOLIA,
YELLOW BERRIED, | MYRTIFOLIA, &c.
4, 5, 6, and 8 feet high.
STANDARD, WATERER'S and GOLDEN QUEEN HOLLIES, 4 to 6 feet stems, with heads 6 to 10 feet in circumference. A large number.
N.B.—Purchasers of Hollies may select from a stock occupying at the present moment considerably over 6 acres of ground; finer or better rooted plants cannot be wished or obtained. The prices are fair and reasonable.
BOX, Green and Variegated, 4, 5, 6, to 8 feet.
BOX, do. do., fine pyramids, up to 8 feet.
BAYS, standards and pyramids.
LAURUSTINUS, standards.
AUCUBA JAPONICA, thousands of beautiful plants, all moved 1868, 3 and 4 feet high.
AUCUBA JAPONICA, Berried, hundreds, 1½ to 4 feet high; in the open ground and in pots, from 18s. to 120s. per doz. and upwards.
AMERICAN PLANTS.—The Stock of American Plants at Knap Hill is, we believe, as fine as, and more extensive than, anything of its kind to be met with in England, considerably over 50 acres of land being devoted to their cultivation. We shall be pleased to supply—
RHODODENDRONS, nice bushy plants, from layers, named kinds, £5 per 100, £40 per 1000. A dozen sent as sample on application.
RHODODENDRONS, the finer kinds, by name, from £7 10s. to £12 10s. per 100, and upwards.
RHODODENDRON PONTICUM, good plants for Cover, from £10 to £15 per 1000.
STANDARD RHODODENDRONS.—Of these we possess a large number of the oldest and finest specimens in the country, many being from 20 to 30 years old, with heads varying from 15 to 30 feet in circumference. There is probably no kind better adapted for standards than that we call roseum elegans, many of which we supplied to Rotton Row. We have also rhododendrons, standards, of many other kinds.
RHODODENDRONS, fine hybrids, of good hardy habit, and great variety in colour, from £5 to £12 10s. per 100. Sample on application. Large and handsome plants by the 1000, 4 to 8 feet high.
AZALEAS, the very best kinds, nice plants, £10 per 100, upwards.
AZALEAS, common kinds, £5 per 100.
AZALEAS, splendid plants, of the finest varieties, 3, 4, 5, and 6 feet high, and as much in circumference.
KALMIA LATIFOLIA, nice plants, bushy, healthy, and covered with bloom, £5 to £10 per 100.
ANDROMEDA FLORIBUNDA, £5 to £7 10s. per 100, and upwards.
HARDY HEATHS, a very fine collection, every plant a specimen, and all removed in 1869, from 20s. to 40s. per 100.
ERICA CARNEA, for winter blooming, many thousands.
ERICA MEDITERRANEA ALBA, remains in bloom from October to May, and smells like new-mown hay—indispensable for Winter Gardening.
SKIMMIA JAPONICA, nice healthy plants, moved April, 1869, covered with berries, 12s. to 18s. per dozen.

As well as the above, the Knap Hill Nursery contains upwards of 200 Acres of ordinary NURSERY STOCK of a superior class, such as Flowering Shrubs (Deciduous and Evergreen), Roses, Ornamental Trees for Avenues, &c.

A PRICED and DESCRIPTIVE CATALOGUE will be forwarded on application. Purchasers to any extent are strongly recommended to make a personal inspection of our stock, and obtain the prices on the spot. No Catalogue can fairly describe many of the plants we offer.

The Nursery is readily reached by train from Waterloo to Woking in 40 minutes.

N.B.—There is now no difficulty in sending Plants through in the same truck, without package, from Woking to almost any Railway Station in England.

Strawberry Runners.

JAMES CARTER AND CO. have a splendid Stock now ready. Per Price and Varieties, see AUTUMN CATALOGUE, now published.

JAMES CARTER AND CO., Seedsmen and Nurserymen, 237 and 238, High Holborn, W.C.

Vines.

CHARLES TURNER can supply
GOLDEN CHAMPION
MADRESFIELD COURT | MRS. PINCE, and
BLACK MUSCAT | ROYAL ASCOT
In Fruiting Canes, or second size for planting out; also the established old varieties, in fine plots.
The Royal Nurseries, Slough.

Vineries.

JOHN KEYNES has for several years grown some of the finest VINES in the Trade. He has not been in a position to offer any until this season. They are all of only one year's growth, from the eye, never having been cut down, as is often the case. These Vines will always ensure a crop; they are best adapted for planting, never having been checked in their growth.

They comprise all the leading varieties, and are now 9d. for immediate forcing, being well ripened to the top. LISTS will be forwarded on application.

Castle Street Nursery, Salisbury.

VINES, and ALLAMANDA HENDERSONII.—500 strong, well-pointed fruiting Canes, in 11-inch pots, 3s. 6d. to 5s. each; extra strong, capable of carrying a fine crop, 7s. 6d. each. Also a fine specimen of Allamanda Hendersonii, true, 5 feet by 1 foot. This was the best plant of the kind exhibited last season. Price £2 2s.

EDWARD MORSE, Original Nursery, Epsom, Surrey.

Fruit Trees and Onions.

J. SCOTT, The Nurseries, Merriott, Somerset, calls attention to his fine Stock of FRUIT TREES, one of the largest and healthiest in the Kingdom. He has also for Sale several tons of prime large ONIONS, and from 10 to 15 bushels of Pickling do.

The ORCHARDIST, the best work on Fruit Trees, with Descriptive and Cultural Directions, price 1s. 6d., in stamps.

Fruits and Fruit Trees.

J. SCOTT, The Nurseries, Merriott, Somerset, has now in his fruit room about 500 sorts of PEARS, which he offers, in named collections, at 1s. per dozen sorts. Cash with order; small sums in stamps. Orders for FRUIT TREES will be carefully attended to. 1000 sorts of Pears, 700 of Apple, 170 of Plum, 150 of Cherry, and other kinds in proportion. They are grown as Standards, 6 to 7 feet; Pyramids, 6 to 7 feet; and Bushes, 3 to 4 feet high; also Dwarf-trained fine healthy plants, and are described in the "Orchardist," the best work on Fruits in England, price 1s. 6d. A printed List or Index sent gratis.

Spiræa Palmata.

THOMAS S. WARE begs to state that he is now in a position to offer the above New Plant for 10s. 6d. each. For SPRING FLOWERS, see my select LIST. For GENERAL COLLECTION see my LIST of PERENNIALS for 1869. Both of which may be had on application; also a CATALOGUE of ROSES, FRUITS, SHRUBS, &c.

Hale Farm Nurseries, Tottenham, Middlesex.

Azalea Indica.

LOUIS VAN HOUTTE, Royal Nursery, Ghent, Belgium, offers Novelties of Autumn, 1869, which have carried off 1st Prizes at the Ghent and Brussels Exhibitions, as follows:—

482. MADAME ALEX. HARDY (VAN HOUTTE).—Very large and finely formed flowers of rosy orange with broad violet spot shading to a beautiful amaranth, which entirely covers the three upper petals. A variety of first quality.

501. MADAME ALEX. VAN LANGENHOVE (VAN HOUTTE).—Charming variety, very effective. Ground white, with transparent edges, the whole flower broadly flaked, similar to a Carnation, barred and speckled with bright rose shading to deep red, spot of light green. Also a variety of first quality.

455. MADAME CAMILLE VAN LANGENHOVE (VAN HOUTTE).—Snow-white, a number of the flowers are barred with salmon, while others are striped with pale rose and carmine; all these markings may be occasionally seen on the same flowers. The whole of the papillæ are ornamented with green, shading off to a decided yellow, and spotted with deep green. A very beautiful and effective variety.

487. MADAME IRIS LE FEBVRE (VAN HOUTTE), ("Flore," xviii., Nos. 4, 5, 6).—Flowers exceedingly double and constant; dark orange, with very broad spot of deep chocolate, charmingly enlivened by a shading of bright violet extending over the whole of the upper petals and suffusing also the lower rows. A variety of first quality.

213. MADAME LOUIS VAN HOUTTE (ED. VANDERCRUYSSEN).—N.B.—L. V. H. is the proprietor of the entire stock of this fine variety. Of model form with smooth well rounded petals, of good substance; white, broadly banded with clear rose and flaked with cochineal.

513. MADEMOISELLE LEONIE VAN HOUTTE (VAN HOUTTE), ("Flore," xviii., Nos. 4, 5 and 6).—Very fine white, flaked with rose and handsomely spotted with sulphur-yellow. Magnificent form.

498. MADEMOISELLE MARIE LE FEBVRE (VAN HOUTTE).—White flowers, of an extraordinary size, of excellent form, somewhat similar to the preceding.

486. MADEMOISELLE MARIE VAN HOUTTE (VAN HOUTTE), ("Flore," xviii., Nos. 4, 5, and 6).—Immense semi-double flowers, colour white, striped, flaked and blotched with rosy salmon, resembling a Carnation; petals broad and finely rounded.

Price—The Collection of 8 varieties:
Medium-sized heads, in bud £5 0 0
" " at choice of purchaser, each 0 16 0

New Catalogue of Dutch Bulbs, Plants, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select Descriptive and Priced Lists of Amaryllis, Crocuses, Cyclamens, Gladioli, Hyacinths, Ixias, Narcissi, Tulips, and other Bulbs, Miscellaneous Plants, Fruit Trees, Sweet Violets, &c., is now published, and will be forwarded to applicants. Exeter Nurseries, Pavilion Square, S.W.

Dutch and other Bulbs.

WM. CUTBUSH AND SON are celebrated for HYACINTHS, TULIPS, CROCUSES, and other DUTCH BULBS. All the Great Prizes, including the Two Special Prizes offered by the Dutch Growers, awarded to their Collection at the last Spring. They import only one quality, therefore Customers may rely upon having the finest Bulbs. CATALOGUES post free.

Highgate Nurseries, London, N.

Dutch Flower Roots.

JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, Borough Market, London, S.E., beg to announce that they have received a selection of the above from eminent growers in Holland, in very fine condition, and extra fine roots, which they feel confident will give satisfaction.

CATALOGUES of FLOWER ROOTS, ROSES, FRUIT TREES, &c., sent free on application.

Hyacinths, Tulips, &c.

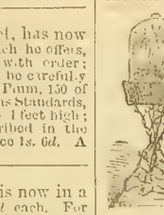
BUTLER, McCULLOCH AND CO. beg to announce the publication of their AUTUMN CATALOGUE of the above, which will be sent gratis and post paid on application. Orders for Bulbs can now be executed.

BUTLER, McCULLOCH AND CO., South Row, Covent Garden Market, London, W.C. Established upwards of a Century.

Dutch Flower Roots.

FRANCIS & ARTHUR DICKSON & SONS, Lave received from the most celebrated Growers in Holland their first large importation of the above, and have the satisfaction to say that the Bulbs are large, sound, and well ripened. Early orders respectfully solicited. DESCRIPTIVE PRICED CATALOGUES post free on application.

The "Old" Established Seed Warehouse, 106, Eastgate Street, Chester.



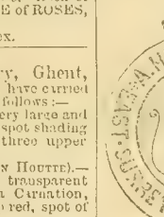
"Messrs. DICK RADCLYFFE'S Establishment contains a great number of new and attractive objects."—Vide *Queen*, August 21, 1869.

Gratis and Post Free.

CATALOGUE of DUTCH BULBS, SEEDS, FERNS, HORTICULTURAL ELEGANCIES.

DICK RADCLYFFE AND CO.,
129, High Holborn, W.C.
Seed Grounds, Erfurt, Prussia.

Dutch Flower Roots.



ARCHIBALD HENDERSON begs to announce that he has received a large Consignment of Dutch and other Roots, carefully selected from the most celebrated growers.

DESCRIPTIVE and PRICED CATALOGUES are now ready, containing practical directions for their successful cultivation on all the various systems now adopted.

Also a CHOICE and SELECT LIST of VEGETABLE and HARDY FLOWER SEEDS for Autumn Sowing. Catalogues gratis and post free upon application.

Sion Nursery, Thornton Heath, Surrey, and at the East Surrey Seed Warehouse, College Grounds, North End, Croydon.

Dutch Flower Roots.

DOWNIE, LAIRD, AND LAING have now received their first Importations of Flower Roots, consisting of HYACINTHS, POLYANTHUS NARCISSUS, Double NARCISSUS, CROCUS, TULIPS, JONQUILS, RANUNCULUS, ANEMONES, SNOWDROPS, &c., &c., which have all been carefully selected from the most celebrated establishments in Holland. The Bulbs are this season well ripened, large, and very heavy, and have arrived in splendid condition.

D., L., AND L. offer the following assortment for One Guinea:—

12	choice named Hyacinths	24	fine mixed Ranunculus
12	" mixed Hyacinths	24	" " Anemones
6	" Polyanthus Narcissus	12	" " early Tulips
100	" named Crocus	12	" " late Tulips
50	" mixed Snowdrops	12	" " Jonquils

Packed in hamper. Carriage paid.

D., L., AND L. can supply fine Bulbs of the Prize HYACINTHS at Kensington, Regent's Park, and the Royal Caledonian Society's Shows, at 12s., 15s., and 24s. per dozen.

DESCRIPTIVE CATALOGUE of DUTCH BULBS forwarded post free.

Stanstead Park Nurseries, Forest Hill, London, S.E., and at Edinburgh.

Established 1806.

P. HANDASYDE AND DAVIDSON have a large stock of TEA, HYBRID PERPETUAL, BOURBON, and CHINA ROSES to spare. Special prices to the Trade on application.

Seed Warehouse, 24, Cockburn Street, Edinburgh.

Nurseries, Bron Lan Glen, Musselburgh.

Gladioli—New Roses.

EUGÈNE VERDIER Fils Aîné, NURSERYMAN, 3, Rue Dunois, Paris, publishes in August and September of each year a complete and descriptive CATALOGUES, with prices. They comprise all the finest and newest varieties of Gladioli, Peonies, and New Roses. Gratis and post free on application.

Standard Roses.

LEWIS WOODTHORPE, having a most splendid Collection this year, begs to offer them at the following low rates, well-grown heads, clear stems, and true to name:—

STANDARD ROSES, the best sort, including Maréchal Niel, &c., £5 per 100; 27s. 6d. per 25; 15s. per dozen.

CATALOGUES free. Wholesale prices upon application.

Manor Nursery, Sible Hedingham, Essex.

Roses, New Roses (Trade Price).

LÉVÊQUE ET FILS, NURSERYMEN, 129 and 131, Boulevard de l'Hôpital, Paris, begs to offer good and healthy plants of—

TEA ROSES, grafted on their own roots, grown in small pots.
Maréchal Niel, £1. per 100.
Souvenir d'Elise Vardon, Jean Pernet, M. Furtado, Madame Margottin, Rose du Rutland, Cumbine Devonlensis, 10s. per doz.
Marie Sisley, Marie Dubois, Adrienne Christophle, Celina Noirey, Madame, &c., 15s. per doz.
Vicomtesse de Cazes, Madame Falcot, Niphétos, Safrano, Triomphe de Luxembourg, Bouquet, Adolphe Jouzant, Ophélia, Souvenir d'un Ami, Isabelle, and all the best sorts, 6s. per 100.
SOUVENIR DE LA MALMAISON, on their own roots, in pots, 30s. per 100.
DWARFS, Hybrid Perpetual, the best sorts, strong plants (our choice), 10s. per 100, £9 per 1000.
STANDARDS, clean stems, strong heads, all the best sorts (our choice), £5 per 100.
Do., Maréchal Niel, £6 per 100.
BARONNE DE ROTHSCHILD, splendid sort, strong dwarfs, £4 per 100.
Fifteen per Cent. Discount on the NEW ROSES of this YEAR. To be sent out for the first time next November.
LISTS and CATALOGUES on prepaid application.

EARLY WHITE ROMAN HYACINTHS.—Being largely stocked with Bulbs of this exceedingly useful but scarce variety, I am enabled to offer it at 11s. 6d. per 100.

N.B.—The NEW PRICED CATALOGUE (English) of all sorts of Fruits, Hardy Trees and Shrubs, Conifers, Roses, Choice Herbaceous Plants, &c., will be ready immediately. For Copies, apply either to Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C., or direct to

LOUIS VAN HOUTTE, Royal Nursery, Ghent.

To the Trade.

CHRYSANTHEMUMS of 1869.—
Set of 12 varieties of Japanese Chrysanthemums, sent out by Mr. Salter this Spring, 5s.
Set of 11 large-flowered varieties, sent out by Mr. Salter, 4s. 6d.
Set of four varieties sent out by Mr. Forsyth this Spring, 3s.

The plants are in 3-inch pots, and will give many more cuttings than plants bought later on. They have been struck two months, and some will have flowers on. If the three sets are taken, the price will be 11s. Flowering plants, in 5 inch pots, 6s. per dozen. package included in all. Cuttings of any may be had at 2s. 6d. per dozen, post free. Terms cash.

WM. CLIBRAN, Mill-bank Nursery, near Warrington.

NEW PLANTS, 1869.

Special Offer to the Trade:—

2 Iresines, Lindeni and acuminata	9 Chrysanthemums
6 Fuchsias	1 Viola cuttea grandiflora
4 Zonal Geraniums	1 Alternanthera amabilis
6 Bicolor Geraniums	1 Alopecurus pratensis aureo-variegatus
6 Double Geraniums	1 Holcus lanatus albo-variegatus
6 Coleus	
6 Lobelias	

On receipt of Post Office Order for One Guinea,

H. CANNELL will send the above Collection, package free. All strong, healthy little Plants. This offer only extends for 28 days.

New Chrysanthemums.

H. CANNELL has now a splendid Stock of 217 varieties, consisting of all the New, and best older varieties in cultivation, and will supply them either as Cuttings or Rooted Cuttings, or Potted Plants; at the very lowest price consistent with quality and economy.

See H. C.'s FLORAL GUIDE, giving particulars how to grow the Japan and other varieties. Other kinds are classed according to what they are best adapted for, and a great deal of other valuable information, including the Second Chapter on the Art of Gardening and the Natural Requirements of Plants. Free for Four Stamps.

New Florist Flower and Florist Flower Seed Merchant, Woolwich.

OAK, ASH, BEECH, ELM, and other FOREST TREES, from 1½ foot to 3½ feet, 5s. to 30s. per 1000; Sycamores and Laburnums, from 5 to 9 feet, 1s. 6d. per dozen, 8s. per 100; Walnuts, 3 and 4 feet, ditto; Spruce Fir, 3 and 4 feet, 3s. per dozen; Austrian Pine, 6s. per dozen; Laurels, 1, 2, and 3 feet, 5s., 7s., and 10s. per 100; Laurustinus, good plants, 2s., 3s., and 4s. per dozen; Ribes sanguinea and aurea, 2s. and 3s. per dozen; Guelder Rose, 1s. 6d. per dozen; Red Currant Rushes, strong plants, 1s. 6d. per dozen, 8s. per 100; Roses, the best sorts only, 1, 1½, 2, and 2½ feet stems, 12s. per dozen, for cash only, of A. WILKIN, Tiptree, Kelvedon, Essex.

BEAUTIFUL SPRING FLOWERS.

Now ready, in strong Plants.

HEPATICA, sorts, 4s. per doz.
PRIMROSES, double Lilac, 4s.; White, 6s. per doz.
" double Yellow, 9s; Purple, 6s. per doz.
" double Rose, 9s.; double Crimson, 12s. per doz.
ROCKETS, double White and Purple, 6s. per doz.
VIOLETS, 20 distinct sorts (see Catalogue), 4s. per doz.
POLYANTHUS, the finest strain in the world, 2s. 6d. per doz.; 15s. per 100.
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HOLLYHOCKS, 24 distinct kinds, to name, 3s. per doz.
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ADONIS VERNALIS, 6s. per doz.
BULBOCODIUM VERNUM, 3s. per doz.
MYOSOTIS DISSITIFLORA, 4s. per doz.; 25s. per 100.
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FOXGLOVE, finest Spotted, 3s. per doz.; 20s. per 100.
WALLFLOWER, double Yellow and Dark, 4s. per doz.
DIELYTRA SPECTABILIS, 6s. per doz
ARABIS ALBIDA VARIEGATA, 2s. 6d. per doz., 20s. per 100.
ŒNOTHERA MISSOURIENSIS, 6s. per doz.
PHLOX NELSONI, PROCUMBENS and VERNA, 4s. per doz.
PYRETHRUMS, Single and Double, to name, 6s. per doz.
SPIRÆAS, sorts, 6s. per doz.
TRITOMA UVARIA, 6s. per doz.
CLOVES, Double Purple, Crimson and Striped, 6s. per doz.
PICOTEES, fine, to colour, 6s. per doz.
COWSLIP (Giant), 3s. per doz.

ROSES.—24 choice distinct Varieties to name, Dwarfs, 15s.
Do. 24 do. do. do., Standards, 25s., or half the number for half the amount.
STRAWBERRIES.—DR. HOGG and NEW PERPETUAL PINE, 7s. 6d. per 100.
Do., 40 other kinds (see List), 7s. 6d. to 5s. per 100.
CHRYSANTHEMUMS.—20 New Chrysanthemums of 1869, 10s.
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1. ROSES.

	Per dozen.—s. d.
STANDARDS	18s to 24 0
DWARF STANDARDS ..	12s to 18 0
NEW ROSES, Dwarfs ..	24s to 30 0
CLIMBING ROSES ..	9s. to 12 0
ROSES, for Forcing, in pots	24s. to 42 0
Mixed ROSES, for Shrubberies, per 100 ..	30 0
DWARF PERPETUAL ROSES, „ 75s to 100	0
MANETTI STOCKS .. .. „	8 0

2. FRUIT TREES.

APPLES, PEARS, CHERRIES, PLUMS, &c., Standards	18s. to 21 0
Do. Pyramids	18 0
Do. Pyramids, fruiting	21s. to 35 0
Do. Dwarfs or Cordons	12s. to 18 0
Do. Dwarfs, trained	30s. to 42 0
APRICOTS, NECTARINES, & PEACHES, Standards	30 0
Do. Standards, trained .. each, 5s. to	10 6
Do. Dwarfs .. .. „ ..	1 6
Do. Dwarfs, trained .. .. „ 3s. 6d. to	5 0
Do. Pyramids for orchard houses „ 3s. 6d. to	5 0
FRUIT TREES, various, in pots, for orchard houses .. each, 3s. 6d. to	10 6
GOOSEBERRIES and CURRANTS, the best sorts .. per 100, 20s.; 3s. to	1 0
FIGS .. The best sorts, in pots, each, 2s 6 d to	5 0
GRAPE VINES— In sorts, planting canes .. each, 2s. 6d. to	5 0
The best sorts, fruiting canes „ 7s. 6d. to	10 6
FILBERTS, in sorts .. .. .. 4s. to	9 0
RASPBERRIES, of sorts, per 100 .. 16s. to	25 0
STRAWBERRIES, of sorts „ 3s. 6d. to	15 0
MEDLARS .. .. each ..	2 6
QUINCES .. .. .. „ 1s. 6d to	2 0
WALNUTS .. .. „ 1s. 6d. to	3 6

3. EVERGREENS.

ALATERNUS, .. to 5 feet	18 0
ARBUTUS, Common, 2 feet, bushy ..	12 0
Do. ANDRACHNE, 1½ feet .. .. each	2 6
Do. GLOOMII, 1½ feet .. .. .. „	2 6
AUCUBA JAPONICA, 2 feet, bushy ..	18 0
Do. do., 2½ feet, bushy	24 0
Do., 10 best sorts, male and female, green and variegated .. .. 12s. to	30 0
BAMBUSA FORTUNEI .. .. each	1 6
BAYS, Sweet, 2 to 3 feet .. 12s. to	24 0
BERBERIS DARWINII, 2 to 4 ft., 12s. to	18 0
Do DULCIS, 2 feet	9 0
Do. do., 3 to 4 feet .. .. 12s. to	18 0
Do SIEBOLDII, 2 to 3 feet	18 0
BOX, oversized variegated, 2 to 3 feet ..	12 0
Do., 4 to 5 feet	30 0
Do., 6 to 7 feet .. .. .. each, 5s. to	10 6
Do., 4 feet stems .. .. the pair	21 0
BROOM, white and yellow, 4 feet	9 0
COTONEASTER MICROPHYLLA, 2 ft.	6 0
EUONYMUS RADICANS VARIEGATA, ... 9s. to	18 0
Do. FLAVESCENS .. .. .. each	10 6
Do. JAPONICUS, 2 to 2½ feet	12 0
Do. of ROSEA .. .. 9s. to	18 0
FURZE, double-flowering, strong, in pots	9 0
HOLLIES, Green, 2 feet .. per 100	40 0
Do. do., 3 feet	60 0
Do. do., 4 feet .. .. .. 12s. to	18 0
Do do., 5 feet .. .. .. 30s. to	42 0
Do do., 6 feet .. .. each, 5s. to	7 6
Do. Variegated, 1½ to 2 feet	24 0
Do. do., 3 feet	42 0
Do. do., 4 feet	60 0
Do. do., 5 to 6 feet .. each, 7s. 6d. to	10 6
Do., 50 varieties, gold, silver, and green, each, 1s. 6d. to	10 6
IVY TREE, 1½ feet	12 0
LAURELS, Common .. .. per 100, 8s. to	50 0
Do. COLCHICUM, 2 feet	6 0
Do. do., 3 feet	9 0
Do. do., 4 feet	12 0
Do. do., 5 to 6 feet	18 0
Do. CAUCASICUM, 2 feet	18 0
Do. do., 3 feet	24 0
Do. do., 4 feet	30 0
Do. do., 5 feet	42 0
Do. do., 6 feet	60 0
Do. do., 7 to 8 feet .. each, 10s. 6d. to	15 0
Do., 60 varieties, gold, silver, and green, each, 1s. 6d. to	10 6
IVY TREE, 1½ feet	12 0
LAURELS, Common .. .. per 100, 8s. to	50 0
Do. COLCHICUM, 2 feet	6 0
Do. do., 3 feet	9 0
Do. do., 4 feet	12 0
Do. do., 5 to 6 feet	18 0
Do. CAUCASICUM, 2 feet	18 0
Do. do., 3 feet	24 0
Do. do., 4 feet	30 0
LAURESTINUS, 1½ feet, each, 1s. 6d. to	2 6
LAURESTINUS, 1½ feet, variegated, each, 2s. 6d. to	3 6
Do. do., 2 feet, each .. .. 12s. to	30 0
MAHONIA AQUIFOLIUM, per 100, 8s. to	50 0
Do. FASCICULARIS HYBRIDA, 1 to 2 feet .. .. 9s. to	18 0
Do. do., 2 to 3 feet .. .. .. 18s. to	24 0
Do. JAPONICA, 1½ feet	12 0
Do. do., 2 feet .. .. .. 18s. to	30 0
OAK, Evergreen, Hedge, each, 2s. 6d. to	5 0
OSMANTHUS ILICIFOLIUS, 1 foot ..	18 0
Do. do. VARIEGATA .. each, 1s. 6d. to	3 6
PRIVET, EVERGREEN .. .. per 100, 15s. to	25 0
Do. OVALIFOLIUM, gold edged, 2 feet ..	18 0
Do. do., 3 feet	24 0
Do. do., 4 feet	30 0
Do. JAPONICUM, green and variegated, 1½ feet	18 0
Do. COREANUM, 2 inches .. .. 12s. to	24 0
PHILLYREA, 2 feet	15 0
Do. do., 3 feet .. .. .. 24s. to	30 0
RHAMNUS HYBRIDA, 2 feet	12 0
Do. do., 3 feet	24 0
RAPHIOLEPIS OVATA, 1½ feet	30 0
Do. do., 2 feet, strong	12 0
SKIMMIA JAPONICA, 1½ feet .. 12s. to	18 0
ST JOHN'S WORT, 1 foot .. per 100	25 0
YUCCA FILAMENTOSA, strong, 12s. to	18 0
Do. RECURVA .. .. .. 18s. to	24 0
Do. GLORIOSA .. .. each, 3s. 6d. to	5 0

4. CONIFERÆ.

ABIES EXCELSA, Spruce Fir, 2 to 3 ft., per 100	15 0
Do. do., 3 to 4 feet	18 0
Do. do., 4 to 5 feet	24 0
Do. do., 5 to 6 feet .. .. each, 2s. 6d. to	3 6
Do. ALBA, White Spruce, 3 feet	12 0
Do. do. do., 4 feet	18 0
Do. do. do., 5 feet	24 0
Do. NIGRA, Black Spruce, 3 feet	12 0
Do. do., 4 feet	18 0
Do. do., 5 feet	24 0
Do. CANADENSIS, Hemlock Spruce, 2½ to 3 feet .. .. .. 9s. to	12 0
Do. do. do., 4 to 5 feet .. .. 18s. to	24 0
Do. DOUGLASII, 3 feet .. each ..	2 6
Do. do., 7 to 12 feet .. „ 7s. 6d. to	21 0
Do. EXCELSA, 2½ to 3 feet	5 0
Do. do., 3 feet .. .. „ ..	7 6
Do. do., 5 feet .. .. „ ..	10 6

	Per dozen.—s. d.
ABIES PINEDONENSIS, Silver Spruce, 1 feet .. .. each	5 0
Do. do. do., 5 feet .. .. .. „	7 6
Do. STRICTA and CLANBRASILIANA, Dwarf Spruce .. each, 2s. 6d. to	7 6
ARAUCARIA IMBRICATA, 2 feet, each	3 6
Do. do., larger sizes .. .. each, 5s. to	42 0
CEDRUS ATLANTICA, Mount Atlas Cedar, 3 to 4 feet	30 0
Do. do. do., 4 to 5 feet .. .. .. each	3 6
Do. DEODARA, 2 feet	24 0
Do do , 2½ to 3 feet	30 0
Do. do., 5 to 6 feet	60 0
Do. do. 6 to 8 feet .. .. .. each	7 6
Do. do., larger specimens each, 10s. to	63 0
CEDRUS LIBANI, Cedar of Lebanon, 3 ft.	42 0
Do. do. do., 6 feet .. .. .. each	7 6
Do. do. do., 10 to 12 feet each, 21s. to	42 0
CEPHALOTAXUS FORTUNEI, 2 feet ..	30 0
Do. do., 3 feet	42 0
CHAMÆCYPARIS SPHÆROIDEA VARIEGATA, 2 to 3 feet.. 24s. to	30 0
CRYPTOMERIA LOBBII, 3 feet	18 0
Do. do., 6 to 8 feet .. each, 3s. 6d. to	5 0
CUPRESSUS, Cypress, Common, 2 to 3 ft.	6 0
Do. do. LAMBERTIANA, 4 feet	18 0
Do. do. LAWSONIANA, 2 to 3 feet ..	12 0
Do. do. do., 3 to 4 feet	18 0
Do. do. do., 4 to 5 feet	24 0
Do. do. do., 5 to 6 feet	30 0
Do TORULOSA, 3 to 4 feet .. .. each	2 6
JUNIPERUS, Juniper, Irish, 3 to 4 ft., 18s. to	24 0
Do. CHINENSIS, Chinese, 2 to 3 feet ..	18 0
Do. do. do., 4 feet .. .. 30s. to	42 0
Do. do. do., 5 to 6 feet	60 0
Do. do. do., 6 to 8 feet .. each, 7s. 6d. to	10 6
Do. VIRGINIANA, Red Cedar, 3 to 4 feet	18 0
Do. do. do., 5 feet	30 0
Do. do. do., 6 to 9 feet .. each, 3s. 6d. to	7 6
Do , 20 other handsome sorts, 2 to 3 feet..	30 0
Do. do., 3 to 4 feet	42 0
Do. do., 5 to 6 feet	60 0
PICEA AMABILIS, 1½ foot .. .. each	10 6
Do. LOBII, 2 to 3 feet.. each, 10s. 6d. to	21 0
Do. NOBILIS, 1½ to 2 feet .. each, 5s. to	7 6
Do. do., 3 feet .. .. each, 10s. 6d. to	42 0
Do. do., larger specimens, each, £3 3s. to £5	5 0
Do. NORDMANNIANA, 1 foot	21 0
Do. do., 1½ to 2 feet	42 0
Do. do., 3 feet .. .. each	15 0
Do. do., 4½ feet .. .. „	21 0
Do. do., larger specimens, each, £2 2s. to £5	5 0
Do. PINSAPO, 2½ to 3 feet	60 0
Do. do., 4 feet .. .. each	15 0
Do do., larger specimens each, 21s. to	105 0
PINUS AUSTRIACA, 3 feet	18 0
Do. do., 4 feet	21 0
Do. do., 5 feet	30 0
Do. do., 6 feet	42 0
Do. BENTHAMIANA, 3 feet	24 0
Do. CEMBRA, 3 feet	30 0
Do. do., 4 feet	42 0
Do. do., 5 to 6 feet	60 0
Do. do., 8 to 9 feet .. each, 10s. 6d. to	15 0
Do. EXCELSA, 3 to 4 feet	30 0
Do. do., 4 to 5 feet	42 0
Do. do., 6 feet .. .. each, 5s. to	7 6
Do. do., larger specimens, each, 10s. 6d. to	21 0
Do. INSIGNIS, 2 to 3 feet .. .. each	1 6
Do. LARICIO CALABRICA, 4 to 5 feet..	24 0
Do. do., 6 to 7 feet	36 0
Do. do., 8 feet	60 0
Do. MACROCARPA, 3 feet	42 0
Do. do., 6 feet	60 0
Do. MONTICOLOR, 3 feet	42 0
Do do., 4 feet	60 0
Do. PINEA, 3 feet	30 0
Do. PYRENAICA, 3 to 4 feet	30 0
Do. do., 5 feet	60 0
Do. SABINIANA, 3 feet	42 0
Do. do., 5 feet	60 0
Do. STROBUS, Weymouth Fir, 3 feet ..	12 0
Do. do. do., 4 feet	15 0
Do. do. do., 5 feet	18 0
Do. do. do., 6 feet	21 0
Do. do. do., 7 to 8 feet .. each, 3s. 6d. to	5 0
Do. do. NIVEA, Snow Pine, 7 to 9 feet, each, 21s. to	63 0
TAXODIUM DISTICHUM, 3 feet	18 0
TAXUS, Yew, Common, 2 feet per 100	40 0
Do. do. do., 3 feet	18 0
Do. do. do., 4 feet	30 0
Do. do. do., 5 feet	42 0
Do. do. do., 6 feet	60 0
Do. FAN, for hedges .. .. each, 2s. to	5 0
Do. Irish, 2 feet	12 0
Do. do., 3 feet	15 0
Do. do., 4 feet	21 0
Do. do., 5 feet	30 0
Do. do., 6 feet	42 0
Do. do., 8 to 9 feet .. each, 7s. 6d. to	10 6
Do ELEGANTISSIMA, 1½ to 3 ft., 30s. to	84 0
Do., 20 best kinds, 2 to 3 feet..	30 0
Do. do., 3 to 4 feet	42 0
Do. do., 4 to 5 feet	60 0
Do. do., larger specimens, each, 7s. 6d. to	10 6
Do., Standard, variegated, 4 to 5 ft. stems, good heads .. .. .. each	21 0
THUJA ARBOR-VITÆ, American, 3 to 4ft.	9 0
Do. do. do., 5 feet .. per 100, 75s.;	12 0
Do. do. do., 6 feet .. „ 100s.;	18 0
Do. do. do., 7 to 8 feet	30 0
Do. do. COMPACTA, 2 ft., 12s. p. doz.; 4 to 5 ft.	30 0
Do. do., Variegated, 2 feet .. each	2 6
Do. do. WARREANA, 2 feet .. per 100	50 0
Do. do. do., 3 to 4 feet .. per 100, 100s.;	18 0
Do. do. do., 5 feet .. .. .. each	5 0
Do. do. GIGANTEA, 2 to 3 feet	21 0
Do. do. do., 4 feet	42 0
Do. do. do., 5 feet .. .. .. each	5 0
Do. do. do., 6 feet .. .. .. „	21 0
Do. do. ELEGANTISSIMA, 1½ feet	18 0
Do. do. do., 2 feet	30 0
Do. do. do., 3 feet	60 0
Do. do. COMPACTA, 2 to 3 feet	30 0
Do. do., 4 feet	42 0
Do. do., 6 feet .. .. each, 7s. 6d. to	10 6
Do. DOUGLASII, 3 feet	12 0
Do. do., 4 feet	18 0
Do. do., 5 feet	24 0
Do. do., 6 feet .. .. each, 7s. 6d. to	10 6
Do. PYRAMIDALIS, 2 to 3 feet	9 0
Do. do., 4 feet	24 0
Do. do., 5 feet	30 0
Do. do., 6 feet	42 0

	Per dozen —s. d.
THUJA PYRAMIDALIS, 8 ft., each, 5s. to 10	6
Do. NEPALENSIS, 3 feet	12 0
Do. do , 4 to 5 feet	30 0
Do. PLICATA, 2½ feet	24 0
THUJOPSIS BOREALIS, 2 to 3 feet ..	18 0
Do. do., 3 to 4 feet	24 0
Do. do., 4 to 5 feet	36 0
Do. do., 5 to 6 feet .. .. .. each	5 0
Do. do., 7 feet .. .. .. „	7 6
Do. DOLABRATA, 1 foot	42 0
Do. do., 1½ foot	60 0
Do. do., 14 feet .. each, 7s. 6d. to	21 0
WELLINGTONIA GIGANTEA, 2 feet ..	30 0
Do. do., 3 to 4 feet .. each, 5s. to	7 6
Do. do., 5 to 6 feet .. each, 10s. 6d. to	21 0
Do. do., larger .. .. each, 42s. to	105 0

5. DECIDUOUS TREES and SHRUBS.

ACACIA, Common, 6 ft. stems, good heads	18 0
Do. MONOPHYLLA, 6 feet	12 0
Do. PYRAMIDALIS, 6 to 8 feet	12 0
Do. ROSEA, 2 to 3 feet	9 0
Do. do., 6 feet stems	30 0
Do. GLUTINOSA, 6 feet stems	18 0
ACER (MAPLE) NEGUNDO, 10 to 12 feet	30 0
Do. do. VARIEGATA, 3 to 4 feet ..	9 0
Do. do. do., 6 feet	18 0
Do. do., 4 to 6 feet stems	30 0
Do. Scarlet, 6 to 8 feet	18 0
Do. do., 8 to 10 feet	30 0
Do. Norway, 10 to 12 feet	18 0
Do. do., 14 feet	30 0
ALDER (cut-leaved), 10 feet	30 0
ALMONDS, 5 feet stems	18 0
APPLE, Variegated, 4 to 5 feet	12 0
ARALIA JAPONICA, 5 to 6 feet	18 0
ASH, MOUNTAIN, 10 to 12 feet	18 0
Do. FLOWERING, 10 feet	30 0
Do. MONOPHYLLA, 10 to 12 feet ..	30 0
Do. AUCUBÆFOLIA, 5 feet	18 0
Do. SPECTABILIS, 8 feet	18 0
BEECH, Purple .. .. .. 18s. to	42 0
Do. Silver, 8 to 10 feet	18 0
BERBERIS, Purple, 3 to 4 feet	12 0
CARAGANA, 6 sorts, 4 feet stems	18 0
CATALPAS, 4 to 5 feet	12 0
CHERRY, Double Blossom, Dwarfs	12 0
Do. do., 5 feet stems	24 0
Do. AUCUBÆFOLIUS, 5 feet stems	30 0
Do., Var. Mahaleb, 4 to 5 ft. stems each	3 6
CHESTNUT, Horse, 8 feet	9 0
Do. do., 9 feet	12 0
Do. do., 10 feet	18 0
Do. Scarlet, 6 to 8 feet	18 0
Do. do., 8 to 10 feet .. .. 24s. to	42 0
Do. Variegated, 5 feet stems	30 0
CYTISUS, 6 sorts, 5 feet stems	18 0
ELM, English, 8 feet	9 0
Do. do., 10 feet	18 0
Do. Hertfordshire, 6 to 8 feet	12 0
Do. Huntingdon, 8 feet	9 0
Do., best sorts, 8 to 10 feet .. 12s. to	24 0
Do., WYCH, 12 feet	18 0
GLEDITSCHIA TRIACANTHOS, 5 feet stems	18 0
GYMNOCLADUS, 3 feet	12 0
HIBISCUS SYRIACUS, 2 to 3 feet	9 0
KOLREUTERIA PANICULATA, 6 feet	12 0
LABURNUMS, 8 feet	9 0
Do., 10 feet	15 0
LEYCESTERIA FORMOSA, 4 feet	6 0
LILACS, Common, stout, 4 feet .. 9s. to	12 0
Do. Persian, 3 to 4 feet .. .. 9s. to	12 0
Do. do., 5 feet stems, fine heads, each, 2s. 6d. to	5 0
LIMES, Common, 8 feet	12 0
Do. do., 9 to 12 feet .. .. 18s. to	30 0
Do., 6 best sorts, 3 to 4 feet	12 0
LIQUIDAMBAR	30 0
NUT, Purple-leaved, 2½ to 3 feet .. 9s. to	12 0
OAK, Turkey, Standards, 8 feet	12 0
Do. do. do., 10 feet	18 0
Do. do. Variegated, 5 ft. stems, each, 3s. 6d. to	5 0
Do. do. Scarlet, 4 to 6 feet	9 0
PAULOWNIAS, 5 feet .. .. .. each	1 6
PAVIA RUBRA, 5 feet .. .. .. „	2 6
Do. FLAVA, 5 feet	2 6
PHILADELPHUS GRANDIFLORUS, 3 to 4 feet	6 0
PLANES, Occidental, 7 to 8 feet	12 0
Do. do., 9 feet	18 0
Do. do., 10 to 12 feet	30 0
Do. Oriental, 8 feet	18 0
POPLARS, Silver, 10 to 12 feet	18 0
Do. Lombardy, 10 to 12 feet	12 0
Do. Black Italian, 10 to 12 feet	12 0
Do. Laurel-leaved, 10 to 12 feet	18 0
Do. Ontario, 10 to 12 feet	18 0
Do., the above sorts, 5 to 6 feet per 100	30 0
PRUNUS, Double Sloe, Pyramids	18 0
Do. do., 4 to 5 feet stems	24 0
Do. TRILOBA, Dwarfs	12 0
Do. Cherry Plum, Dwarfs	12 0
Do. do., 5 feet stems	24 0
PYRUS ARIA, 6 feet	9 0
Do. SORBUS, Service Tree, 6 feet	9 0
Do. SPECTABILIS, 4 to 5 feet	12 0
Do. RINGO and TORINGO, 4 feet ..	12 0
Do. 12 sorts, Hybrids, beautiful foliage, 6 to 8 feet	18 0
RIBES SANGUINEUM, stout, 3 to 4 feet	9 0
ROBINIA INERMIS, 4 to 7 feet stems, 30s. to	42 0
SALISBURIA ADIANTIFOLIA, 3 to 4 ft.	30 0
SIBERIAN CRAB, 5 feet	12 0
SNOWBERRY, stout, 4 to 5 feet	9 0
SOPHORA JAPONICA, 5 feet stems ..	30 0
SPIRÆA, 20 sorts, 2 to 4 feet .. 6s. to	9 0
SYCAMORE, Common, 8 to 12 feet 9s. to	18 0
Do., Purple, 5 feet	9 0
SUMACH, Stag's Horn, 6 to 10 feet 9s. to	18 0
Do. Venice, 3 feet	12 0
THORNS, Single Scarlet, Double Pink, Double White, new Double Scarlet, and 30 other best varieties, 6 feet stems, fine heads .. .. .. 18s. to	21 0
Do., new Double Scarlet, plants, established in pots, well set with bloom for forcing .. each, 2s. 6d. to	3 6
Do., Standards and Pyramids .. each	2 6
TULIP TREES, 6 feet	18 0
VIRGILIA LUTEA, 5 feet	12 0
WEIGELIA ROSEA, 3 feet	9 0
WILLOW, Gold and Purple, 7 to 8 feet ..	9 0
Collections of TREES and SHRUBS, selected from more than 1000 varieties, from 21s. per 100 upwards.	

6. WEEPING TREES.

	Each.—s. d.
ASH, Common Weeping, 8 to 10 feet stems	3 6
Do. Chinese do., 6 feet stems	2 6
Do. Gold-barked do., 6 feet stems ..	2 6
Do. Mountain do., 5 feet stems	2 6
Do. do. Variegated do., 8 feet stems ..	2 6
ALMOND, Weeping, 5 feet stems	2 6
BIRCH, Cut-leaved, Weeping, 7 feet stems	2 6
CHERRY, Weeping, 5 feet stems	2 6
ELM, 6 best sorts, 5 to 12 ft. stems, 2s. 6d. to	7 6
HOLLY, Variegated, 6 ft. stems, 10s. 6d. to	21 0
LIME, 7 to 8 feet stems .. 2s. 6d. to	5 0
OAK, Turkey, 6 feet stems	5 0
POPLAR, Weeping, 10 to 12 ft. stems, 3s. 6d. to	7 6
WILLOW, Common Weeping, 6 to 8 ft., p. doz.	9 0
Do. do., 10 feet .. per dozen, 12s. to	18 0
Do. American do., fine, 5 to 6 ft. stems, p. doz.	12 0
Do. Kilmarnock, 5 to 6 feet stems	2 6
Do. WOLSEYANA, 5 to 6 feet stems ..	3 6

7. AMERICAN PLANTS.

	Per dozen.—s. d.
ANDROMEDA FLORIBUNDA	18s. to 42 0
AZALEA PONTICA	12s. to 18 0
Do. GHENT varieties	18s. to 30 0
GAULTHERIA SHALLON	6s. to 9 0
HEATHS, in 24 best sorts	6 0
KALMIA LATIFOLIA ..	18s. to 30 0
MAGNOLIA PURPUREA ..	18s. to 30 0
RHODODENDRON PONTICUM, of various sizes, very bushy, from 30s. p. 100 to	24 0
Do. do. HYBRIDUM	18s. to 42 0
Do. WILSONI	12s. to 30 0
Do., finest named sorts ..	30s. to 60 0

8. CLIMBING and WALL PLANTS, in pots.

	Each.—s. d.
ALATERNUS, Gold, 2 feet	1 6
Do., Silver, 1 to 1½ foot	1 6
BIGNONIA RADICANS MAJOR	2 6
BUDDLEA GLOBOSA	1 6
CLEMATIS, 24 best sorts .. .. 1s. to	2 6
ELEAGNUS REFLEXA AUREA MACULATA, 2 feet	1 6
Do. PUNGENS VARIEGATA, 1 foot ..	2 6
ESCALLONIA MACRANTHA, 2 feet ..	1 6
Do. MONTEVIDENSE, 2 to 3 feet ..	1 6
Do. RUBRA, 2 to 3 feet	1 6
EUONYMUS JAP. AUREO-VARIEGATUS, 2 feet	2 6
Do. do. do. MARGINATUS, 2 feet ..	2 6
Do. do. MACROPHYLLUS, 2 to 3 feet ..	1 6
GUM CISTUS, 2 to 3 feet	1 6
GRISLENIA, 1½ foot	1 0
GARRYA ELLIPTICA	1 6
IVY, IRISH, 4 to 5 feet .. per dozen	9 0
Do., 20 best green sorts .. „	12 0
Do., 20 best variegated sorts .. „	18 0
JESSAMINE, White, 3 to 4 feet	1 0
Do. do. Variegated, 2 feet	1 6
Do. NUDIFLORUM, 3 feet	1 0
Do. REVOLUTUM, 2 feet	1 6
LONICERA (Honeysuckle), 12 best sorts, named .. .. .. per dozen, 6s. to	9 0
MAGNOLIA GRAND EXONIENSIS, 3s. 6d. to	7 6
PASSION FLOWERS .. .. 1s. to	1 6
PHOTINIA SERRULATA, 2 feet	1 6
PYRACANTHA .. .. .. 9d. to	1 6
PYRUS JAPONICA, White and Red, 9d. to	1 6
VINE, Purple-leaved	1 6
Do., Variegated .. .. 1s. 6d. to	2 6
VIRGINIAN CREEPER .. .. 9d. to	1 0
WISTARIA SINENSIS .. 1s. 6d. to	2 6

9. HERBACEOUS PLANTS.

Principally Spring-flowering.

	Per dozen.—s. d.
ALYSSUM SAXATILE per 100, 20s.;	3 0
Do. do. VARIEGATA	6 0
ARABIS ALPINA .. per 100, 16s.;	3 0
Do. do. VARIEGATA	4 0
ARUNDO CONSPICUA .. .. each	1 6
Do. DONAX VARIEGATA, each, 1s. 6d. to	3 6
AUBRIETIA, of sorts .. .. .. 3s. to	8 0
DAISIES, of sorts .. per 100, 16s.;	3 0
HEPATICAS, of sorts .. .. .. 6s. to	9 0
HOTTEA JAPONICA .. each, 1s. to	1 6
GYNERIUM ARGENTEUM, „ 9d. to	1 6
Do. do. .. .. .. 6s. to	12 0
Do. do. VARIEGATUM each, 2s. 6d. to	5 0
LILY of the VALLEY .. per 100, 6s.;	1 0
MYOSOTIS SYLVATICA, p. 100, 12s. 6d.;	3 0
POLYANTHUS, of sorts .. .. 3s. to	6 0
PRIMROSES, of sorts .. .. 5s. to	12 0
PHLOXES, 30 best sorts .. .. 6s. to	12 0
ROCKET, double white	6 0
SILENE, of sorts .. per 100, 8s.;	1 6
VIOLETS, 6 sorts .. .. .. 4s. to	12 0
WALLFLOWERS, blood and yellow, per 100, 8s. to 16s.;	3 0

10. GREENHOUSE PLANTS.

	Each.—s. d.
ACACIA, 12 best sorts .. 1s. 6d. to	2 6
CAMELLIAS, a very fine collection, per dozen, 30s. to	60 0
Do. large specimens from 10s. 6d. to	210 0
CORRÆAS, of sorts .. .. 1s. 6d. to	2 6
EPACRIS, 24 best sorts .. 1s. 6d. to	3 6
HEATHS, winter and spring flowering, 1s. 6d. to	3 6
CLIMBERS, various 1s. 6

SUTTONS'

FRESH IMPORTED FLOWER ROOTS

FOR WINTER AND SPRING BLOOMING.



Messrs. Suttons' FLOWER ROOTS Have been selected from the principal Growers in Holland.

Messrs. Sutton deliver all FLOWER ROOTS, Except very small parcels, Carriage Free by Rail.

Special Estimates for large quantities on application.

Suttons' Complete £1 1s. Collection,

For Cultivation in Pots and Glasses, Carriage Free.

12 fine Hyacinths, by name	3 Persian Iris
6 Miniature Hyacinths, by name	3 Peacock Iris
6 Polyanthus Narcissus, do.	50 fine Crocus, by name
6 Large Double Jonquils	6 choice Ixias
6 Single Sweet Jonquils	3 choice Sparaxis
6 Scilla præcox	3 choice Oxalis
6 Single Duc Van Thol Tulips	1 Jacobea Lily
6 Double Tournesol Tulips	1 Lilium lancifolium album
25 Early Tulips, 5 sorts	1 ,, ,, rubrum

Suttons' Fine New Crocus for Pots.

1000 splendid named, in 25 vars. £1 15 0		100 splendid named, in 10 vars. £0 4 0	
500 do. do., in 25 vars. 0 18 0		50 do. do., in 10 vars... 0 2 0	
250 do. do., in 25 vars. 0 9 0		25 do. do., in 5 vars. .. 0 1 0	

Suttons' Dutch Crocus for Open Ground.

1000 in 10 vars. £0 18 0		250 in 5 vars. £0 5 0	
500 in 10 vars. 0 10 0		100 in 5 vars. 0 2 3	
Large Blue .. per 100 £0 1 9		Large Yellow .. per 100 £0 1 9	
,, White .. ,, 0 1 9		Largest Yellow ,, 0 2 6	
,, Purple .. ,, 0 2 6		Cloth of Silver ,, 0 2 0	
Common Yellow ,, 0 1 0		Cloth of Gold .. ,, 0 2 0	
Large Mixed .. .. per 100 £0 1 6			

Suttons' Choice Polyanthus Narcissus,

For Pots, Glasses, or Open Ground.

100 in 20 choice sorts .. £1 5 0		12 in 12 choice sorts .. £0 4 0	
50 in 10 choice sorts .. 0 14 0		100 fine mixed 0 15 0	
25 in 12 choice sorts .. 0 7 6		12 fine mixed 0 2 0	

Garden Narcissus, finest mixed, 7*s.* 6*d.* per 100.

Suttons' Early and Large Double Tulips,

Early Varieties.

100 in 20 choice vars. .. £0 18 0		50 in 10 choice vars. .. £0 8 0	
100 in 10 choice vars. .. 0 15 0		25 in 5 choice vars. .. 0 4 0	

12 in 4 choice vars., 2*s.*

Double Tournesol, p. 100 £0 12 6		Rose Duc Van Thol, p. 100 £0 14 0	
,, Duc Van Thol ,, 0 3 6		Scarlet ,, ,, ,, 0 18 0	
Single Duc Van Thol ,, 0 5 0		Yellow ,, ,, ,, 1 0 0	

Choice named varieties, separate, 1*s.* to 12*s.* per dozen.

Large Double Varieties.

100 in 10 choice sorts .. £0 17 6		50 in 10 choice sorts .. £0 10 0	
25 in 5 choice sorts .. 0 5 0		12 in 4 choice sorts .. 0 2 6	

For COMPLETE LIST of BEDDING TULIPS (with an original article on Cultivation), showing the date of blooming, height, size of flowers, and colours of the varieties most worthy of cultivating, see SUTTONS' AUTUMN CATALOGUE for 1869, gratis and post free on application.

SUTTONS' SUPERB DUTCH HYACINTHS

FOR CULTIVATION IN POTS OR GLASSES.



The best 12 HYACINTHS for 12*s.*



Messrs. SUTTONS' COLLECTION of HYACINTHS consists of more than 200 varieties, a PRICED and DESCRIPTIVE LIST of which may be had on application.

Suttons' Collections of Named Hyacinths.

100 HYACINTHS in	100 very choice sorts	.. £4 4	0
100 ,,	50 very choice sorts	.. 3 10	0
50 ,,	50 very choice sorts	.. 2 2	0
50 ,,	25 very choice sorts	.. 1 15	0
25 ,,	25 very choice sorts	.. 1 1	0
12 ,,	12 extra fine sorts	.. 0 12	0
12 ,,	12 choice sorts ..	.. 0 9	0
12 ,,	12 good sorts ..	.. 0 6	0

The order should specify whether they are intended to be grown in water or earth, as all kinds are not equally suited to both purposes. It should also be stated whether single or double blossomed kinds are preferred; otherwise we usually supply about two-thirds double and one-third single. The single varieties generally thrive best in water, but their merits are never apparent until the flowers are fully expanded.

SUTTONS' MIXED HYACINTHS for Beds or Open Borders.—Double, Single, and various colours, 2*s.* 6*d.* per doz., 17*s.* 6*d.* per 100.

SUTTONS' HYACINTHS in DISTINCT COLOURS for Massing, Bedding, Ribbon Gardening, &c.—Double and Single, various shades, separate, 4*s.* per dozen, 30*s.* per 100.

Suttons' Complete £1 1s. Collection

For Open Ground Cultivation, Carriage Free.

12 fine mixed Border Hyacinths	6 fine mixed Gladiolus
6 ,, Polyanthus Narcissus	12 Duc Van Thol Tulips
12 Pheasant's Eye Narcissus	6 mixed Single Early Tulips
12 Double White Narcissus	6 fine mixed Double Tulips
25 Double Daffodils	6 ,, Parrot Tulips
6 large Campernelle Jonquils	6 Gesneriana Tulips
50 fine mixed Double Ranunculus	25 fine mixed Tulips
50 Scarlet Turban Ranunculus	6 ,, English Iris
12 fine mixed Double Anemones	6 ,, Spanish Iris
112 ,, Single Anemones	3 Lilies, of sorts
50 Crocus, 3 sorts	3 Ferraria pavonia
50 Snowdrops	6 Dog's-Tooth Violets
25 Winter Aconites	3 Crown Imperials

For further particulars and Prices of GLADIOLUS, RANUNCULUS, ANEMONES, &c., see SUTTONS' AUTUMN CATALOGUE, gratis and post free on application.

SUTTON and SONS,
SEEDSMEN TO THE QUEEN, READING, BERKS.

ECONOMY IN THE GARDEN.

Lane's Carter & Co's Seed Growers

AND NURSERYMEN,
237 and 238, HIGH HOLBORN, LONDON, W.C.

CARTER'S

COLLECTIONS OF HYACINTHS,

CROCUS, TULIPS, &c.,

TO PRODUCE A

PRETTY AND PERMANENT DISPLAY DURING WINTER AND SPRING.

JAMES CARTER and CO. strongly recommend the following COLLECTIONS, assorted from the most popular varieties:—

Carter's Collection for Window or Conservatory Decoration, £1 1s.

Containing:

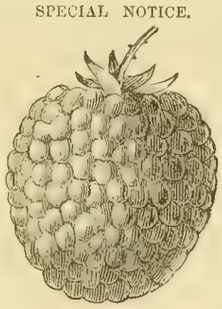
12 fine named Hyacinths	9 fine named Poly. Narcissus
12 Jonquils, sweet-scented	1 Dielytra spectabilis
50 named Crocus, finest	9 Scilla sibirica
1 Cyclamen persicum	3 Tournesol Tulips
1 Linum speciosum	3 Rex Rubrorum Tulips
36 extra selected Snowdrops	3 Yellow Rose Tulips
3 La Candeur Tulips	6 Red and Yellow Van Thol Tulips
3 Royal Standard Tulips	3 Rose Van Thol Tulips

Subject to variation as the season advances.

CARTER'S COLLECTIONS, with increased quantities of the above varieties, 42*s.*, 63*s.*, and 84*s.*, packing included in all cases.

McLAREN'S PROLIFIC RASPBERRY.

SPECIAL NOTICE.



For full description, see page 986, in *Gardeners' Chronicle*, Sept. 18.

AWARDED A FIRST-CLASS CERTIFICATE.

JAMES CARTER and CO. beg to state that in consequence of the rapid demand for this valuable novelty their stock of strong Canes is now exhausted.

The entire stock will be held next season by J. C. & Co., and Orders are now booked to be supplied in rotation next autumn at the following Prices:—

As the supply next year will be limited, early Orders are recommended.

6 Strong Canes, 7*s.* 6*d.*	25 Strong Canes, 20*s.*
12 Strong Canes, 12*s.*	100 Strong Canes, 60*s.*

Carter's Collection of Bulbs for Conservatory and Outdoor Planting, price 15s.

Containing:

6 Hyacinths, extra fine named	12 Narcissus, double White
6 ,, fine bedding	12 ,, Pheasant's Eye
3 Tulips, Tournesol	3 Tulips, Yellow Prince
3 Tulips, Rex Rubrorum	3 Tulips, White Pottebakker
12 Tulips, extra fine mixed	50 Crocus, fine Blue
50 Crocus, fine White	50 Crocus, fine Yellow
18 Anemones, extra fine mixed	4 Gladiolus Brenchleyensis
6 Iris, choice English	12 Iris, choice Spanish
9 Jonquils, Campernel	18 Ranunculus, extra fine

24 fine selected Snowdrops.

Subject to variation as the season advances.

CARTER'S COLLECTIONS, with increased quantities of the above varieties, 30*s.*, 42*s.*, and 63*s.* No charge for packing.

Decoration of the Drawing-room.

JAMES CARTER and CO. offer for this purpose their choice Selections of HYACINTHS as below, including glasses.

12 choice Hyacinths and 12 new-shaped Glasses	..	21*s.* 0*d.*
12 fine ,, and 12 new-shaped Glasses	..	10*s.* 6*d.*
12 good ,, and 12 new-shaped Glasses	..	7*s.* 6*d.*

Carter's Collection of Bulbs, for Outdoor Planting only, price 21s.

Contains:

18 Hyacinths, choice in 3 colours	6 Gladiolus, Brenchleyensis
12 Narcissus, double white	12 Iris, extra choice mixed, English
12 ,, Pheasant's Eye	12 Iris, extra fine mixed, Spanish
12 Double Daffodils	3 Lilium candidum
36 Tulips, extra fine mixed	3 ,, tigrinum
50 Crocus, blue	24 Ranunculus, extra fine mixed
50 ,, striped	100 Snowdrops, selected
50 ,, large yellow	24 Winter Aconites
50 ,, white	
24 Anemones, extra fine mixed	

Subject to variation as the season advances.

CARTER'S COLLECTIONS, with increased quantities of the above varieties, 42*s.*, 63*s.*, and 84*s.* No charge for packing.

For full instructions for cultivation, and particulars of the above Assortments, see

CARTER'S

ILLUSTRATED BULB CATALOGUE

For 1869, Gratis and Post Free.

JAMES CARTER and CO.,
THE ROYAL SEEDSMEN,
237 and 238, HIGH HOLBORN, LONDON, W.C.

British Fern Catalogue.

ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties), 36 pages, including process of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Frost's Gray Nursery, Sidcup Hill, Kent.

Carnations and Picotees (in Choice Show Varieties).

JOHN J. HASLAM, Bradshaw Gardens, Chadderton, Manchester, again calls the attention of the Trade, &c., to his unrivalled Collection of the above. He can also supply APPLE and GOOSEBERRY TREES in Lancashire show sorts with AURICULAS, POLYANTHUS, PRIMROSES, PANSIES, PINKS, &c. Priced LISTS on application.

VARIEGATED ARABIS, for Edging.—Good strong Offsets, 1*s.* per box, or 100 for £1, cash.
MADRESFIELD COURT VINE.—Strong Canes, 10*s.* 6*d.* and 15*s.* each. Extra or Grafts, 6*d.* each.
MRS. PINCE'S BLACK MUSCAT.—Strong Canes, 5*s.*, 7*s.* 6*d.*, and 10*s.* 6*d.* each. Extra or Grafts, 2*d.* each.
J. HOUSE, Eastgate Nursery, Peterborough.

NEW CATALOGUE of choice AZALEAS (Indian and Hardy), CAMELLIAS, RHODODENDRONS, ORCHIDS LILIUMS, &c., offered by LOUIS VAN HOUTTE.
Copies of the above may be had direct from Ghent, or from L. V. H.'s Agents, R. SILBERRAD and SON, 6, Harp Lane, Great Tower Street, London, E.C.
Royal Nursery, Ghent, Belgium.

Gladioli.—Roses.

M. CH. VERDIER Fils (late Firm of Victor Verdier, Père, and Ch. Verdier, Fils), Nurserymen, 12, Rue Dunont, Paris, has just published his new CATALOGUE of GLADIOLI, containing all the Novelties of the Season, which may be had free on application to his London Agents, Messrs. SILBERRAD and SON, 6, Harp Lane, Great Tower Street, E.C.
N.B.—His CATALOGUE of NEW ROSES (which will be sent out next season) is also ready, and can be had on application to the above.

SPRING BEDDING PLANTS.—Large Surplus Stock, consisting of the most approved varieties for Ribbons, Beds, &c., as DAISIES (White, Red, Pink); PANSIES, perpetual blooming, for both seasons, as Blue and Yellow of various shades, Purple, Black, White, a very few of the new Red; with other popular Spring Bedding Plants. Lists on application to
JOHN FLEMING, Chveden, Maidenhead.

Polyanthus.

STEPHEN BROWN offers splendid Mixed POLYANTHUS, beautifully laced, grown from seed saved from his first-class Sudbury Collection.
First quality, 3*s.* per doz., 21*s.* per 100, 160*s.* per 1000.
Second quality, fine, 2*s* per doz., 15*s.* per 100, 120*s.* per 1000.
Usual discount to the Trade.
STEPHEN BROWN, Seedsman and Florist, Weston-super-Mare, Somerset.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—Notice is hereby given that an ADDITION to the LIST of PENSIONERS will be made in January next. All Persons desirous of becoming CANDIDATES are required to send in their Papers and Testimonials to the Committee on or before MONDAY, November 8 next, after which day they will not be received.
Preference will be given to those Persons who may have been subscribers for 15 Years and upwards. Should there not be sufficient number of that class, then the claims of those who have not subscribed so long, or not at all, will be considered.
By order, EDWARD R. CUTLER, Secretary.
October 6. 14, Tavistock Row, Covent Garden, W.C.
P.S.—Printed Forms may be had upon application to the Secretary.

The Gardeners' Chronicle.

SATURDAY, OCTOBER 23, 1869.

Among the many Horticultural Exhibitions that have taken place during the past summer, that held at Lisbon seems worthy of special remark, from the rarity of such events in the South of Europe, and in the Iberian peninsula in particular.

From a report lying before us, signed by Bernardino Antonio Gomez, it appears that the exhibition originated under the auspices of the Real Associação Central da Agricultura Portugueza, and was mainly supported by private persons, though the Municipal Council of Lisbon contributed largely to its enrichment by sending their large collections. The Duke of Cadaval's park was the site selected, and in it a glass house was specially erected for the reception of the more tender subjects. This structure was designed and executed by M. Street de Arriaga e Cunha, and for elegance and judicious arrangement was well adapted for the purpose in view. From the enumeration of the plants—which, however, is chiefly restricted to generic names—it would appear that the same preference for ornamental foliage plants, so prevalent in North and Central Europe, has at length manifested itself in the South. A magnificent group of Caladiums and Begonias, belonging to José Martinho Pereira de Lucena, remarkable alike for variety and luxuriance of growth, formed the chief point of attraction in the exhibition. The numerous ornamental forms of Eranthemum, Alocasia, Echites, Coleus, Achyranthes, and others, were likewise conspicuous, associated with Pelargoniums, Fuchsias, Petunias, Rhododendrons and Azaleas, together with Dracænas, Gloxinias, Cinerarias, and Bonaparteas. Two splendid specimens of Latania Commersoni elicited universal admiration, as also did fine examples of Clerodendron Thomsonæ, Theophrasta imperialis, Pandanus javanicus, and various species of Magnolia, Erythrina, Metrosideros, Aucuba, &c. The exhibition was further enriched by several species of well-cultivated Cycads and Palms, and the Tree Ferns were particularly attractive. A numerous and well-grown collection of Coniferæ excited equal interest, notably some fine specimens of Thuja Lobbii, Thujopsis dolabrata, and Sciadopitys verticillata. Forming a surprising contrast with the foregoing were some good

collections of Eucalyptus, Acacia, Mimosa, Casuarina, and Ficus, chiefly raised from seed.

Advantage was taken of this opportunity to exhibit seedlings of several species of Cinchona, and it is to be hoped that Portugal will establish plantations of this tree in some of her widely spread tropical colonies.

It may be here remarked that the principal difficulty attending the establishment of Cinchona plantations does not consist in the raising plants from seed, as any intelligent careful gardener can accomplish this, but in the transplanting of the seedlings to their permanent destination. Good results depend solely or principally upon the amount of care and protection accorded to them in their new home. That such plantations are practicable, providing due care and shelter be given to them, even in somewhat unfavourable climates, we have ample proof from the recent reports received from St. Helena. Many of the higher mountain ravines of that island are already planted with thousands of Cinchona trees, whose luxuriant growth promises to replace in time the former arborescent vegetation of the island in a manner both useful and ornamental.

We cordially agree with the judges, over whom the King, DOM FERNANDO, presided, in lamenting the paucity in this and previous exhibitions of the many highly ornamental and interesting plants peculiar to the flora of Portugal, some of which have never been introduced into our gardens; and we might extend this remark with still greater emphasis to the numerous magnificent plants of the Portuguese colonial possessions, especially those of tropical Africa. The splendid Monodoras, the gigantic-flowered Camoensia maxima, the Bandeiraea speciosa, and many others, highly remarkable in habit or beauty of flower or foliage, belonging to the flora of Angola and Mozambique, are still among the desiderata of our gardens. And we naturally look forward with more confidence to their early introduction by the Portuguese Horticultural Society, as Portugal possesses in the island of Madeira an intermediate station for acclimatisation such as scarcely any other nation can boast of. The Portuguese colonial flora was, however, not wholly unrepresented in the exhibition, for Sanseviera angolensis was exhibited by the Duke of PALMELLA, and Welwitschia mirabilis by M. LEROY. It is uncertain, from the judges' report, whether the Sanseviera was shown in bloom, in which state its flowers, which are produced in clusters about a foot in length, diffuse a most delicious odour, perceptible at a great distance. But even for its foliage alone, this remarkable plant merits a place in the temperate house, the leaves having a curious snake-like mottled appearance. As for the Welwitschia, its woody nature and slow growth give very little hope of living plants being introduced into our gardens, even if the greatest care be taken in its removal and transport. But there should be no insuperable difficulty in the way of raising it from perfectly-ripened seed, and by this means an opportunity would be afforded of observing the mode of germination of one of the most remarkable productions of the vegetable kingdom; and at the same time the original form of the two permanent cotyledonary leaves might be scientifically determined, for hitherto they have only been seen split up into many fragments.

With this evidence of progress in view, while wishing Portugal all success in her endeavours to advance horticulture, we cannot refrain from expressing an earnest desire that these floricultural fêtes may become more frequent, and that at future exhibitions due regard will be paid to the native plants of Portugal, and especially to the many interesting products of her colonial flora brought to light by the researches of WELWITSCH and other botanists.

—— WE are requested to state that a meeting in furtherance of the proposed MEMORIAL of the late Mr. VEITCH, will be held on Wednesday next, the 27th inst., in the Council-room of the Royal Horticultural Society, at South Kensington, when all horticulturists who are interested in the movement are invited to attend. The meeting will take place at noon.

—— The recent meeting of the AMERICAN POMOLOGICAL SOCIETY in Philadelphia has been one of the most successful ever held in America. Upwards of 15,000 people visited the Exhibition. The following is the total of dishes of fruit exhibited:—Apples, 1254; Pears, 1591; Grapes (native), 220; Grapes (exotic), 11; Plums, 51; Peaches, 38; Quinces, 3; Nectarines, 2; Figs, 2: total, 3205. Mr. MARSHALL WILDER alone contributed a collection of 180 varieties of Pears. The next meeting (in September, 1871) will be held in Richmond.

—— The CHANGE in the flowers of LYCHNIS DIOICA from a UNISEXUAL to a BISEXUAL CONDITION when attacked by a parasitic Fungus (Ustilago antherarum), as observed by Miss BECKER (see pp. 1012, 1087), had been, we find, previously noted by MM. TULASNE in their "Monographie des Ustilaginées." In the last issued part of the "Bulletin of the Botanical Society of France" is a note on the subject by M. CORNU, in which he says that the hermaphrodite plant presents an ovary slightly different from the normal one in shape, being pyriform instead of cylindrical, and having the styles short and straight instead of long and curved. The ovules are well formed, and fertilised by pollen from unaffected plants, while the anthers of the affected plant are filled with spores of the Ustilago. Now what is the cause of this pseudo-hermaphroditism? We call it pseudo-hermaphroditism, because it is clear that though structurally bisexual, the flowers are physiologically unisexual. Is it due to the formation of stamens in a flower which ordinarily produces pistils only, or is it due to the development of the pistil in a flower that should contain stamens only? M. CORNU considers that the plant in this case has become structurally hermaphrodite from the development of stamens in a normally pistil-bearing flower. The Ustilago penetrates the plant, but, as it can only fructify in the stamens, it would appear to be the determining cause of the production of those organs in the normally female flower. This opinion is confirmed by the existence on an hermaphrodite plant of purely female flowers. The veteran Indian botanist propounds the opposite opinion, and considers that the pistil in those flowers was developed, as it were, by compensation for the arrested or perverted development of the stamens and pollen. For our own parts we rather lean to M. CORNU'S view, for these reasons, that in the male flowers of Lychnis affected with Ustilago which have come under our own observation the pistil was undeveloped. As the anthers are perfect, it cannot be from any check in their growth that the ovary grows by compensation, though it is certainly reasonable to suppose that the non-formation of the pollen might bring about the consequences mentioned by Dr. WIGHT.

—— Nottingham is a great locality for CELERY growing, and at this season of the year numerous exhibitions of this useful esculent are held in its neighbourhood. We print the annexed particulars of a show held at Carlton on October 5, as giving some idea of the standard attained by the Nottingham growers—although, of course, size is not always or necessarily to be taken as an index of quality. In this case there were 28 exhibitors placed on the list of awards—the weights of the first six prize lots being as follows:—1st, T. Ryalls, sen., 7 lb. 14 oz.; 2d, G. Fletcher, 7 lb. 10 oz.; 3d, T. Ryalls, jun., 7 lb.; 4th, Wm. Ryalls, 7 lb. 2 oz.; 5th, S. Armstrong, 6 lb. 10 oz.; 6th, C. Armstrong, 5 lb. 11 oz.

—— A curious instance, showing the advantage of a little exact scientific knowledge, has lately occurred. M. BIDARD, in some observations on the FLOWER of GRASSES, shows that fertilisation of the ovary is effected before the flowers open, so that when, as we say commonly, the Wheat is in flower, the fertilisation is really over, and the now useless stamens project outside the flower. Assuming this to be true, what is the value of the plan proposed for facilitating fertilisation in Wheat by violently shaking the ears by means of a cord stretched along the rows, when the Wheat is in bloom? Again, if this be true, hybridisation or cross-breeding in Wheat is impossible, unless effected artificially. What explanation then is to be given of the supposed hybrid between Triticum and Ægilops?—and which, it may be remembered, was offered in explanation of the alleged transformation of Ægilops to Wheat.

—— M. ISIDORE SAINT PIERRE, as a result of numerous experiments, has come to the conclusion that the WHEAT PLANT gets all the MINERAL matters it stands in need of by the time flowering is over, when it contains as many of these ingredients as it does when the ear is ripe. Hence, any application of manure after flowering would be unnecessary. M. PIERRE obtained the same results in the case of Colza, which, when flowering is over, contains nearly as much organic matter and quite as much nitrogen and mineral ingredient as it would do at a later period. The carbon, however, does not attain its maximum of development till after the complement of the mineral ingredients is obtained. Hence, then, a crop exhausts the soil to nearly or quite as great an extent before full maturation as it does if allowed to ripen thoroughly.

—— The PEAR-LEAF FUNGUS (Rœstelia cancellata) seems to be unusually abundant this year. Its connection, if not its identity, with the curious yellow fleshy Fungus often found on the Savin Juniper (Podisoma Sabinæ) has been asserted by M. ŒRSTED and confirmed by M. DECAISNE. The latter botanist placed two plants of Savin affected with Podisoma, one in the ground in the midst of four perfectly healthy young Pear trees, and the other among the branches of a large equally healthy Pear tree (Bon Cures), at a distance of 6 to 8 feet from the ground. After a few days the Rœstelia appeared upon almost all the leaves of the five Pears. Moreover, some leaves which were purposely smeared on their under surface with the slimy mucus of the Podisoma were speedily reddened over by the Rœstelia. M. ROZE, however, has not succeeded in his endeavours to repeat this experiment, and he calls attention to a circumstance which is very significant, that is to say, the presence of true Puccinia (smut) on the Podisoma of the Savin in some seasons and its absence in others, from which he cautiously surmises that the Pear-leaf Fungus may be a form of the Puccinia.

—— We learn from a correspondent that a WINTER GARDEN in EDINBURGH will shortly be commenced. The credit of this undertaking—a somewhat novel one in that part of the country—must be awarded to the enterprising firm of Messrs. DOWNIE, LAIRD & LAING, nurserymen. According to the plans, a handsome structure, of a composite order, will be laid down in front of the present grounds, and facing the Glasgow Road. The façade extends to 130 feet, the height of the building will be 26 feet, and the breadth 30 feet. The designs of the building have been prepared under the superintendence of Mr. DOWNIE, and should they be carried out in their entirety, the new winter garden is likely to prove worthy of the metropolis of Scotland. The work has been entrusted to Messrs. ALEXANDER SHANKS & SON.

—— We learn from a Russian journal that there is some question of an INTERNATIONAL EXHIBITION of FRUIT next year, in the CRIMEA. It is also proposed to have a Congress of Fruit-growers, for the discussion of the best modes of cultivation.

—— The following suggestions with reference to the character of the VEITCH MEMORIAL, are abstracted from the letters of our correspondents, and are printed in order to give those who may attend the committee meeting on Wednesday, an opportunity of considering their relative importance previous to the meeting. The original idea, we believe, was that of a monument, and we observe that this form of memorial has many supporters. A Veitch Prize or Medal has also been named, as mentioned in our columns last week. We proceed to summarise the further suggestions which have reached us:—"A." supports the proposed Veitch Medal, but objects to its being given year after year to novelties. He notes the feeling which is gaining ground in favour of a triennial show in London, Edinburgh, and Dublin, and thinks the Veitch Medal should be disposed of at these great exhibitions. He also suggests a marble bust or a portrait; and if the funds suffice, the adding a Veitch Pension to the benefits of the Royal Gardeners' Benevolent Institution.—"B." objects to the medal, and suggests a Veitch Memorial Education Fund, to be devoted to giving a better finish to the education of orphan children of gardeners left in bad circumstances. This, he thinks, would meet with universal support, and would have met with Mr. VEITCH'S warm approval and ready help.—"C.," like several others, suggests the limitation of the subscription amongst gardeners to one guinea. He supports the Veitch Prize proposition, but thinks a fund to produce 50*l.* per annum should be raised, and this given, in say five prizes, for different subjects in succeeding years, the object being to reward good cultivation over a wide area in succession.—"D." throws out the notion of a Veitch Club, to be established in London, as a rendezvous for gardeners; and, if funds suffice, a Veitch Horticultural Library on the circulating principle; further, that a portrait should be painted, and hung in the Council-room of the Royal Horticultural Society.—"E." proposes that there should be three Gold Medals, to be awarded at the principal exhibition of the year wherever held—one for the best 12 dishes of fruit, another for the best 12 stove and greenhouse plants, giving the preference to those that are new; and the third to the person who shall, within any given year, according to Mr. W. THOMSON'S suggestion, "make the most important additions to our garden productions, whether by importation or hybridisation." It is obvious that the end, in this, as in some other cases, depends very much upon the "means" that are forthcoming. Before the matter passes into the hands of a committee, we think it but just to record that most important aid has been given to the movement by Mr. STEVENS, of Trentham, to whom belongs the credit of having entered into an extensive correspondence, in order to ascertain the views of the leading members of the profession in reference to the proposed memorial. The result must be extremely gratifying to him.

New Plants.

EPIDENDRUM CALIGARIUM, *n. sp.*

Amphiglottium inflorescentiæ ramis approximatis multifloris secundifloris; ovariis bene cuniculatis longe pedicellatis; sepalis petalisque oblongo-triangulis, labelli laciniis lateralibus tri-quadripartitis, partitionibus linearibus apice dilatato denticulatis, lacinia media obovato emarginata denticulata, callo depresso ligulato apice bidentato flavo in basi, columna ampla apice quadriloba, lobis integris.

Very near Epidendrum myrianthum, but totally different, in the pitted ovary and the callosity at the base of the lip, much like a boot—hence the name. It is Centro-American. We have to thank for it Mr. Wentworth W. Buller, who informs us that its growth is dwarfer than that of old E. myrianthum. *H. G. Rchb. fil.*

LUISIA MACROTIS, *sp. n.*

"Habitu foliisque Luisiæ Psychis:" sepalis triangulis dorso medio carinatis; petalis triangulo-ligulatis acutis bene longioribus planis basi lata sessilibus, labello basi utrinque auricula parva erecta, a basi lato ligulata linea impressa circumdante ovato triangulo sulcato; columna basi coarctata, fovea tantum superiorem partem columnæ occupante.

Sepala et petala viridulo-flaveola. Labellum atroviolaceum. Columna atroviolacea limbata.

This small species is very near the old Luisia Psyche, but very different in its sessile, not dilated petals, and in its wholly violaceous lip, shaped in a different manner from that of the species just named. It comes from Assam, having been introduced by John Day, Esq. *H. G. Rchb. fil.*

PHALÆNOPSIDS.

BIDDING for favour and public patronage is the rule of everyday life. The morning meal is hastily partaken of, letters scanned, and the busy brain at work, planning how the business of the day shall be best and most profitably conducted. One thing is popular, another unpopular; one thing will take the market readily, another has to be forced to a disadvantage. The turn of the money expeditiously and well, is the great

aim of all commercial men. Cotton, wool, grain have their ups and downs according to demand or supply, and so have genera and species of plants. The Orchid market, although the articles to be disposed of are purely luxuries to the eye, fluctuates about as much as any of the markets where the necessaries of life are to be disposed of.

The Orchid family at the outset was limited; in these days it appears to have multiplied far beyond anticipation, and the cry is "still they come." Many are the acquisitions, from an eye-sweet point of view, that have been chronicled time after time, but nothing more lovely than the white Moth Orchids—nothing so exquisitely beautiful, not a single individual that can lay claim to the same pure chasteness of colour, and to a form that can leave nothing to be desired. The date of their introduction to the plant-houses of our country is coeval with the beginning of Orchid cultivation, and their career, under the care of our cultivators, is somewhat checquered. At times they are seen in great beauty, both of foliage and inflorescence—not a speck to mar the fine circling flower panicles, nor a blotch of disease upon their broadly ovate succulent leaves. At other times their foliage is seen loathsome with disease, their very substance being extracted, leaving wrinkled orbicular blotches, thickly set together, each apparently having a decided centre, but all indefinitely huddled together, and betokening eventual decay and death. Following the inevitable natural law of the family, the greater the signs of debility shown the greater the disposition to get into a state of inflorescence; and, although the gardener in charge may pinch the coming flower stem as a corrective measure, with the view of saving his plant, it either in course of time breaks away again from the top eye remaining, or starts afresh from the base of the foliage. The flowers, if allowed to form, often prove equally beautiful with those on unexceptionably healthy plants, and contrast ill with the diseased foliage, looking as if they ought to be in better company. Some, by careful watching and under the influence of remedial treatment, do survive and start away on their own account from the fleshy-looking crown—indeed, the tendency is to reproduction by lateral extension, but it is the reproduction of deterioration induced by an impaired constitution; and although we have experienced it going on, two and three times removed, it eventually ends in death.

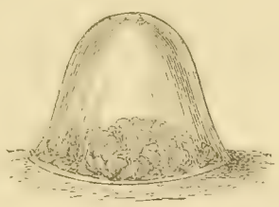
But the wearing-out process asserts its prerogative even among healthy plants—plants that have been so always, that have lived a life where admiration was never once withdrawn. There has been abundant evidence to collate, showing that the Phalænopsis amabilis and grandiflora—species which have been nearly 30 years under cultivation in this country—can be grown a certain time, say for a dozen years, with uninterrupted success, and then the deteriorating tendency of the lifetime of the plants unmistakably shows itself. I know many orchidophilists who dispute the accuracy of this theory, but let them study the history of the genus, and then report. The strongest argument I have heard in defence, is to this effect—that granted P. amabilis or P. grandiflora will lose their vigour in course of time, and as a consequence lose the principal leaves, and probably their whole foliage, yet they easily break away again; and the living plant only requires to be sustained, and nourished and treated properly, to keep up undiminished interest in the beauty of its foliage, and the plenteousness of its flowers. All I have to say is, follow out the life history of the plant, and the grower or owner will see that by no process can the same vigour be infused, nor the same dimensions attained, proving conclusively that dissolution is only a matter of time. In good hands, the lives of plants can be prolonged like the lives of individuals, if not subjected either to fast living, to injudicious checks in the shape of food or water supply, to improper aëration, or to extremes of heat or cold. Many growers can rear first-rate specimens of the plants in question, by refusing to allow them to flower, and by so doing add to the years of their life. But what is gained by this is lost in the want of the same quantity of flowers during the lifetime of the plant. It may be good enough practice for a great spurt to astonish and electrify the sightseer by the hugeness of the specimen (comparatively speaking) and the quantity of flowers produced, but to the real Orchid lover this is but a questionable return. Moreover, plants grown in this plethoric condition—for the predisposition is in that direction, if you stay the process which Nature assigns — are apt to become diseased. The least injudicious management will induce that dire plague—plant spot; and once into the system of a Phalænopsis, no skill, up to the present time, has been found able to prescribe for its eradication. It is so thoroughly mixed up with the system, that the usual recipes which may stay its inroads, are futile to coax away or dispel it. Indeed, this part of vegetable pathology is but imperfectly understood, as a variety of causes may operate to produce the same disease.

But the plant is popular. It must be grown, can be grown, for years; but what about the supply? It is one of the most difficult of plants to import. The two oldest, P. amabilis and P. grandiflora, notwithstanding the attractions of others known to science or cultivation, are the most beautiful, and therefore the best. In recent years we have had new fields to replenish our stores. In addition to the old district, we have Borneo and Pulo Penang, which have supplied quantities of the grandiflora variety, and many excellent forms have been already proved. The constitution and the appearance of the plants from the three different districts vary so much that a skilful grower, or a careful observer, will be able to separate them all. Looking, however, to the increased demand, which is steadily going on, increasing still, notwithstanding the fluctuations and depression of trade, we apprehend there will be some difficulty in maintaining an adequate supply. At the present time the two species named above cost as much gold to secure in this country as ever they did, and the market is rising. All those who hold stock have nothing to fear so long as they keep them free from spot, in fair healthy condition. As an instance of how importers of the greatest experience in the country are affected by circumstances over which they have no control, I append a passage from a letter of Mr. Stuart Low, received in August last, which I trust he will excuse my publishing, in support of the plea I have propounded as to difficulty in importation and consequent losses incurred:—"We have recently had one or two hard hits on theory of importation. Just recently we have had what, when packed, was perhaps the most valuable lot ever sent us—a grand lot of A 1 species, and bulk was great also, but losses about total—so much so that out of this, and previous lots, we have not offered a single plant to any one, only a few odds and ends being saved from the wreck. Add to these two lots a third of Phalænopsis, of which out of 480 we saved *one*, and you will agree with me that results are not brilliant." Here is an instance of the enterprise of that firm, with returns absolutely *nil*. Had these 480 Phalænopsis come to this country alive, they were worth, in round numbers, 1000*l*., and would have exercised very little effect upon the market, so few there are to offer at anything like tempting prices. Native localities get cleared out of such valuable marketable commodities, and unless the collectors stumble upon new districts we have need to be watchful over the stock now in the country. Reproduction by seed is a slow process, taking years to make plants fit to send home. Then all our efforts at rearing the genus from seed have failed. There is no difficulty in hybridising the species and getting seed capsules, and quite as little difficulty in crossing varieties—the great matter is to get the seed to germinate. I effected an excellent cross between P. amabilis and P. Schilleriana, and was all excitement for years, hoping against hope that the seed would germinate; but, like many others in rearing Phalænopsis, I was doomed to disappointment. *J. Anderson.*

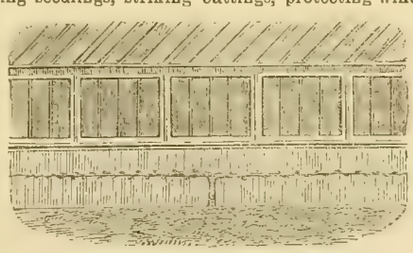
(To be Continued.)

THE CLOCHE AND THE CORDON.

We are enabled, with Mr. Robinson's permission, to avail ourselves of two cuts from his "Parks, Promenades, and Gardens of Paris," illustrating these two



subjects, concerning which not a little has been already said in our columns. No one will deny the handiness of the *cloche* for winter salad growing, raising seedlings, striking cuttings, protecting winter



flowers, and the like. In France the cost of these *cloches* is about a franc a-piece, and they may now be obtained in this country at as cheap a rate.

Our second cut shows the way in which the cordon may be advantageously used to fill vacancies at the bottom of walls, the front of pits or plant-houses, or any low naked wall with a warm exposure. In small establishments, or in the hands of amateurs, this method of fruit growing has its advantages.

Home Correspondence.

Acalypha tricolor.—It appears singular to me that this plant has not been exhibited worthy of special comment at any of the principal exhibitions this season. I cannot account for it, as it is one of the finest variegated foliage plants I am acquainted with. The specimen which I exhibited at Worksop on Sept. 2 was the most admired plant in my group, and for contrast of colour in a collection of variegated foliage plants it has no equal, the colour being so varied; indeed, it may be termed a plant of many colours. I have one specimen that measures more than 6 feet by 6 feet, which is truly fine, and pronounced by competent judges and visitors to be the finest plant in England. I had the same in grand condition last season, but for want of room in the winter I cut it down close, just as I would a Pelargonium. I shall be compelled to do the same thing again this winter, otherwise I shall not be able to remove it out of the house, in consequence of the enormous size it will attain. This I much regret, as I find the plant improves in size of foliage and colour with age. Would Mr. Veitch kindly inform your readers what size it attains in its native country (Fiji Islands), its height, size of foliage, and appearance? I should imagine it to be one of the most beautiful foliage plants imaginable in its wild state. I find no difficulty in its culture, plenty of water being the only secret. I have sent some of the foliage for your inspection. *Edward Bennett, Gr. to G. S. Foljambe, Esq., Osberton, Worksop.* [Very large, and extremely handsome. The plant is described and figured in Dr. Seemann's "Viti Flora," from which we will shortly extract an account. Eds.]

International Fruit Show, Edinburgh.—My attention has been called to a letter in the *Gardeners' Chronicle* of the 9th inst., signed "Observer," and headed "The Troubles of the English Exhibitor," reflecting on my conduct, as secretary of the Royal Caledonian Horticultural Society, at the International Fruit and Flower Show held here last month, in regard to two Pines which were sent by Mr. Ward for competition in class 3, and I shall be obliged by your inserting the following statement in answer. On September 7 a box was delivered at the Music Hall, and opened by Mr. Young, assistant secretary, who found it contained two Pines, the one a Charlotte Rothschild, the other a Blood, but no card was inclosed stating from whom they came, nor was there any marking on the address to lead to it. The box was therefore laid aside, and in the course of the day Mr. John Methven, gardener, Blythewood, applied to Mr. Young to know if a box with two Pines had arrived, and he produced a letter from Mr. Miles, instructing him to get the Pines staged and disposed of after the show. Mr. Young accordingly delivered the box to Mr. Methven, who took charge of staging the fruit and disposing of it afterwards. The letter, which is said to have been addressed to me by Mr. Ward, when the box was sent away, was never received; and I did not see Mr. Carmichael, the Royal gardener alluded to, till the morning of the 8th, when he came to act as a judge. In the course of the forenoon, Mr. Carmichael asked me if I had received a box with two Pines and a letter regarding them, when I informed him I had not, and in the evening he again asked if the box had cast up, and showed me Mr. Ward's letter to himself of the 6th, wherein he asked Mr. Carmichael to desire me to have the Pines returned to Mr. W. after the show, which I agreed to do if the box came; but as I did not know the address, I asked him to give me the letter, which he did, and the same is now in my possession. On Saturday the 11th I left town, and did not return till Monday the 20th, when I found a letter had been delivered at my house that morning from Mr. Ward, addressed thus: "Mr. John Stewart, St. George's Hall, Edinburgh," being the letter of the 18th referred to, and the only one I have received from him, his two former letters never having reached me, and no wonder, if they were addressed the same as his letter of the 18th. How that one should have been delivered at my house I cannot understand. As I saw from that letter that the box had never cast up, I called on Mr. Young to know if he had heard anything of it, and showed him the letter, which explained to him the mystery about these Pines, and he then informed me for the first time that the box had been delivered to Mr. John Methven (as detailed above), that the Pines having gained the 1st prize, Mr. M. had written Mr. Miles, informing him of his success, and that he had sold the Rothschild, but could not get a purchaser for the other; that Mr. Miles had written to Mr. Methven in answer that there must be some mistake, as after having written to him to take charge of the Pines, he had changed his mind, and not sent any, and on this being communicated to him (Mr. Young), he had written Mr. Ward, who had entered for the same class, to know if the Pines were his, but had not received an answer, which he supposed was owing to his letter being addressed to Stortford in place of Bishop Stortford. He, therefore, agreed that he would write him again, explaining everything, which he did, and I afterwards understood that Mr. Ward had expressed himself as satisfied with the explanation he had received. In the prize list, published in the "Gardener," the error was corrected, and an advertisement was sent by Mr. Young to the "Journal of Horticulture" and the *Gardeners' Chronicle*, correcting the same. [Not received.] The above are the exact circumstances connected with the mistake about Mr. Ward's Pines, and I must express my surprise that, after the explanation given to him by Mr. Young, he should either have written the letter signed "Observer," or given the information to enable another to write it. The mistake did not occur through any of the officials of the Society, it was caused solely by Mr. Ward himself,—first, by his not putting a card into his box stating from whom the fruit came; and, secondly, by his putting a wrong address on his letter of advice to me, in consequence of which it has never reached me. *John Stewart, Sec., 6, Alva Street, Edinburgh, Oct. 13.*

Victory of Bath Melon.—I think it would be a great boon to the gardening public to be in possession of a really first-rate Melon. According to my judgment no Melon comes up to Victory of Bath, considering all its merits. The plant is very hardy, that is, will bear treatment that would kill such sorts as Golden Perfection, and sets abundantly without artificial impregnation; in fact, I have this season gathered three crops from the same plants, and was obliged to pull them up to make room for winter Cucumbers, or I believe they would have ripened a few more. The fruit is beautifully netted, of a fine golden yellow colour; the flesh, which is green, may be eaten to the rind. It is of most exquisite flavour, and may be eaten like a Jargonelle Pear. An average fruit weighs about 3 lb., quite large enough for a gentleman's table. I have not grown any other sort this season, hence I may presume my stock pure. I shall feel pleasure in giving a few seeds for trial upon receipt of a stamped directed envelop. *A. S. Kemp, Haughton, Shifnal, Salop.*

Special Pelargonium Show.—If the question were asked as to which is the most popular plant at the present time, the Rose or the Pelargonium, it would, I think, be a somewhat difficult matter with many to

decide, and there would be found numbers who would say the Pelargonium; and certainly, whether we glance at the garden of the cottager or the peer, we shall find them both very extensively cultivated, and perhaps the latter will be found in more places than the former. This being the case I, with many others, think that if the Rose is of sufficient importance to have a special day set apart for a show, the Pelargonium is equally entitled to the same honour; and as during the last three seasons it has been thus favoured, it is highly desirable, considering the prominent part it plays in the decoration of our flower gardens and conservatories—and in view, too, of the improvements continually being effected in the various sections of this popular plant—that a special show should still be held, either apart from or in conjunction with one of the other shows. Your correspondent Mr. Cannell, a few week's back, touched upon one or two points, about which I think there would be found some difference of opinion, but if the former subscribers to this special show were to meet, I think it probable that some alterations might with advantage be made in the schedule; but, as you remarked then, there is no time to lose. I hope that those principally interested will take the matter up, and if so, from the amount of interest displayed in the past, I feel sure that the movement would be attended with the same success which rewarded those who organised the show of the past season, there being numbers of amateurs and others who attend these shows, for whom the large shows possess little or no attraction. *Philos.*

Cantharellus carbonarius.—Will you allow me to correct an error in your leading article at p. 1061. The Cantharellus carbonarius found by me about a fortnight ago was not found on charcoal heaps in the woods around the Wrekin, but in the Duke of Sutherland's wood at Lilleshall. I have carefully examined several charcoal heaps in the Wrekin woods, but hitherto have failed to detect a single specimen of this Fungus. Yesterday I went again to the Lilleshall woods, and examined some eight or ten charcoal heaps of different ages; but, with the exception of one heap, where I found three specimens, I could discover no additional heaps that afforded the Cantharellus. From the heap where I had previously found this Fungus I gathered about 40 specimens, most of which I have this day forwarded to Mr. Broome. Should I discover more in the course of a week or ten days, I shall be happy to send specimens to mycologists who wish to make drawings of the Charcoal Chantarelle. *W. Houghton, Preston Rectory, Wellington, Salop, October* 15.

Shanking of Grapes.—"Twenty sovereigns would I give, if I had as much," said a veteran horticulturist the other day, "if I could only find out to my satisfaction the real cause of that evil. Thrips, red spider, and mildew I can form some conception of, but this shanking beats me." There is much truth in this; it beats a good many besides my friend. I have seen more of it this year than I ever remember before, and all who have to contend with it assign some reason of their own for its presence. Bad borders and overcropping are frequently mentioned, and, no doubt, are likely to bring it about. Spider and thrip attacking the foliage may be added. I venture to suggest another cause, which I have never seen hinted at before: it is this—an excessive reduction of the amount of atmospheric moisture at the time the Grapes begin to colour. This, I should say, hastens the maturing of the wood before the Grapes are supplied with the necessary amount of organisable matter to perfect themselves. To give any more physiological reasons in support of this hypothesis I will not attempt; but I should like the contrary to be proved, *i. e.*, that the proper balancing of atmospheric moisture has not much to do with shanking and deficiency of colour in Grapes. We have here a vinery which three years ago was infested with all the known diseases and pests. Last year we reduced them to three, viz., shanking, spider, and thrip; this year to two—shanking, with slight appearance of the return of mildew. The latter we mastered in three weeks; this I think is the worst of all—it spreads so rapidly, and leaves traces of its stealthy steps on the berries to the last. To inquire the cause of shanking in such a case as that would be absurd. There is enough visible at once, without having to pry into the earth beneath. The fact of the Vines having been infested with spider for a dozen years would be sufficient in itself; but when it occurs on apparently clean healthy young Vines, growing in borders of modern construction, and managed by men whose skill one can scarcely doubt, one cannot help being possessed of the feelings of my friend with his 20*l*. *W. P. R., Oct.* 12.

Destroying Wasps' Nests.—The public is indebted to Mr. Spiers for his information on destroying hornets' nests with chloroform, but that portion relating to wasps must be received with caution. For instance, wasps are always found at night guarding the entrance to their nests, and a very slight disturbance will put them on the *qui vive*; even a light thrown on them from a lantern will often do it, so that to put a stick or one's finger into the hole to ascertain its direction, would be to destroy all chances of killing the whole of the wasps. I have destroyed in one season upwards of 100 nests, and without being once stung (using the old-fashioned squib), my first care always being not to disturb the doorkeepers. I never felt the slightest fear, but was never courageous enough to put my finger into the hole. There are many queer places I would put my finger into rather than into a wasps' nest. Nor do I think we must take it as a general rule that wasps use rats' holes, or even a bank. I have found more nests on an average in flat ground, and with one small entrance hole made by the wasps themselves. But these, I think, depends in a great measure on the locality and the season, for when dry they prefer the flat ground. When living in Scotland, on the banks of the Clyde, a proverbially wet part, I destroyed in one season 14 nests, all of them hanging to branches of trees. This I attributed to the dampness. On closely watching a wasp's nest, it will be observed that they come out as well as go in loaded, the load out being the earth they remove in making room for their nest and its passages, which load they drop soon after taking wing. *A. M., High Trees, Red Hill.*

The Veitch Memorial.—Though believing firmly that the genius, enterprise, and unconquerable energy of the late Mr. James Veitch will ever remain his most fitting memorial, it is yet natural and proper that his contemporaries should do something worthy of themselves, and, if possible, of him, in testimony of their esteem and regard for his memory. I wish to share, however humbly, in this good work, and to join with you in urging that what is done may be done, not only thoroughly, but promptly and spontaneously. Respect for the dead, and a sensitive regard for the deepest feelings of the living, suggest the propriety of pushing the good work through to completion with the least possible delay. While the matter is undecided, permit me to offer the following suggestions as aids to determining the character and form of the testimonial. It must, as you observe, be agreeable to the family, and it ought to be appropriate to the man and his works. Now, whatever else Mr. James Veitch was, he was pre-eminently a horticulturist. He had a large hand in making horticulture what it is to-day; and that work, steady, progressing, absorbing, largely moulded, may we not almost say, made the man. Would he have cared for a monument? I think not. Mr. Thomson's suggestion of a Veitch Prize or Medal is much more appropriate, and would be serviceable to horticulture for all time coming. If it were practicable, a Veitch Club in London, forming a rendezvous for gardeners in the capital, for social recreation, the reuniting of old ties and the formation of new, a bond of union among gardeners, and a centre of intellectual culture and professional instruction, would be a grand memento of the dead, and might become a tower of strength and a source of blessing to the living. Such an institution is one of the horticultural wants of the age. A Veitch Horticultural Library, on the circulating plan, open to all gardeners on paying a nominal subscription, could be easily established, and would bind up the name of our lamented friend with the sweets of knowledge and the pleasures of our higher literature. There is another thing which ought certainly to be done, that is, to have a portrait painted by a good artist and placed in the council chamber of the Royal Horticultural Society at South Kensington. This, with either the Veitch Library, Club, or special prize projects, would make the name of the deceased still a quickening power in horticulture. A word upon the last point, and I have done. The memorial should be a measure, as far as such things can be made so, of the width and depth of our esteem and regard. All that can should have a hand in it. Money will be needed, but money is not the chief thing. As much love and sympathy can be given with a shilling as with a guinea, and there is no fear of our esteem being measured out by such base standards. By all means let the men with guineas to spare place them at the disposal of the committee; but let not these guineas stay the flow of shillings and pence in the same direction, if these are the promptings of a true regard. Let every gardener but determine to have a hand in the Veitch Memorial, and the work is done; and what we do, let us do quickly. *D. T. Fish.*

The Royal Horticultural Society.—I naturally expected to get some hard hits in answer to what I wrote about the Royal Horticultural Society. It is always so easy to "abuse the opposite counsel," and I was, of course, so actuated by "malice, hatred, envy, and all uncharitableness," that to hear only of mortified pride, disappointed ambition, and interested motives, is quite a relief. If my friends had said I wanted to get on to the committee to "rob the till," that would have been something. But I did not expect that any one who took the trouble to read my note could have taken the view that Messrs. Cannell and "Veritas" have done. If I had been excluded from the committee for non-attendance, I should have said nothing, but at the meeting to which I alluded the three names had already been struck out, and not only was mine not among them, but I believe I had attended much oftener than many of the others who were left on. No; my name was struck out by the Council in direct opposition to the rule they profess to be guided by; and so far from attending only when certain flowers were before the committee, I tried to attend whenever I could. Did I say a word against the Floral Committee, as Mr. Cannell seems to infer I did? Where? let me ask. I should be, indeed, ungrateful to do so, for I have ever experienced from its members, with but one or two exceptions, the utmost kindness; and I admire them for their patient endurance of much which nothing but their love of floriculture would lead them to submit to. The fault is higher up; and until we see an infusion of fresh blood into the Council—not gentlemen of fortune or amateurs, but some of our leading nurserymen and chief gardeners—I fear much we shall see no improvement. Let Mr. Cannell agitate for this, and he will do good service. I have too great a love for flowers to wish ill to any institution connected with gardening. I have written what I know are the opinions of a large number of persons in every branch of horticulture. *D., Deal.*——As political chiefs have brought peace to their bosoms, and benefits to the State, by inviting into office representative men, and have found in fierce and restless adversaries their wise and stedfast friends, so I believe would the Council of the Royal Horticultural Society do well at this time to recognise a feeling prevalent among its fellows, that the legislature might be enlarged to the advantage of the Society. There are many of us who, highly esteeming the active members of the Council, would like to see their number increased by the admission of practical horticulturists, forming a communicating link between the wealthier and poorer members of our gardeners' guild, between the employers and the employed, as well as between the town and country contingents, mixing freely with exhibitors and visitors, hearing and reporting any just dissatisfaction or any sagacious hint. We would have the expenses of travelling and attendance paid; and that there might be no jealousies, a fresh election at intervals. We want these men to bring us into complete harmony and union, by bridging over the gulf which separates at present two sections of the Royal Horticultural Society. Why should not the names of such men as Veitch and Turner, Lee, Henderson, Williams, and 50 others in their turn, be found on the Council's list? There need be no alterations, but merely additions. We all of us esteem gratefully officers and officials, and we only ask the Council to increase its popularity by increasing a power, which seems to us, at this crisis most precious—the power to add to its numbers. *S. R. H.*

Potato Grafting.—Mr. Simpson states, at p. 1065, that I do not recognise that the stock has any influence on the scion. I did not assert this, but I do assert that the stock has no influence in changing the colour from white to red, &c. It is a well-known fact that the Potato is self-supporting, and in this case I do not recognise that the stock and scion of the Potato have any influence on each other, and even if they had, the produce would most likely be deformed and worthless. In September, 1853, Dr. Maclean, of Colchester, whose death has lately been recorded, grafted a young plant of the white Silesian Beet upon a root of Red Beet, and *vice versâ*—see *Gardeners' Chronicle*, 1855, p. 20. At the time of the experiment the plants were each about as thick as a straw. A complete junction was effected, and when in 1854 the plant of White Beet grafted on Red was taken out of the ground there was seen a slight contraction at the line of junction, much like that formed by "choking" a rocket case. Above the line of contraction the plant was absolutely white, below it was absolutely red—not a trace of blending the two colours could be discovered. By similar experiments on other vegetables and plants Dr. Maclean had so far assured himself of the perfect independence of scion and stock as to acquire the belief that neither the colouring nor any of the specific characters of the one or the other would or could be altered by the union. The result of the trial wholly confirmed that view, and demonstrated that the White Beet adhered to the Red Beet by mere junction of cellular matter, and also that the scion and stock thus held together in the first instance, each afterwards produced its own colouring matter in its own new cells as they formed superficially, the red cells adhering to the white cells while in the nascent state, but retaining each the peculiarity belonging to it, without any interchange of contents through the sides of the cells in contact. This is entirely consistent with all that has been discovered by modern physiologists, who have applied themselves to a study of the nature of the individual cells of which plants consist. In the cells of the Red Beet resides a power of forming red matter, and in those of the White Silesian Beet, that of forming yellow; and this peculiarity is not affected by the one growing into the other; red-forming cells produce their like, and yellow-forming cells theirs. Thus the limit between the scion and its stock is unmistakeably traceable, and notwithstanding the combination of the two sorts in one, each perseveringly retains that which is natural to it. What is true in Beet is quite true of other plants, and, as I before stated, I am not able to comprehend the change of colour that has been stated to have been obtained through grafting. Nothing can possibly be gained by grafting Artichokes into Potatos, unless it is to waste both. That Artichokes grafted into Potatos will grow I have no doubt, but I am not prepared to acknowledge that they will cross; but "nothing venture, nothing win," seems to be Mr. Simpson's motto, and one I would advise him to follow, as he is very intelligent and persevering. He, however, says that after three years' trial he cannot truthfully state that he has effected the slightest improvement by the grafting process; on the contrary, the produce has invariably been most ugly. This one point he concedes to me, which is one of the points in my communication; my statement being, "Potato grafting, I fear, will hardly be worth the trouble and time bestowed upon it." My experience with regard to procuring new varieties is decidedly against the practice. I trust we shall satisfactorily settle this question ere we sheathe our swords. *Edward Bennett, Gr. to G. S. Foljambe, Esq., Osberton Hall, Worksop.*——Since writing the above communication on the 11th inst., I see your able correspondent, Mr. Fenn, has replied to my former letter, and concludes his remarks by stating he cannot quite understand the two last paragraphs of my former letter, therefore I will quote that portion of my remarks again, and endeavour to be more explicit. "That Potatos grow from grafted sets I fully acknowledge, but the change from rounds to kidneys, and *vice versâ*, and from red to white, I am at present not able to comprehend. I can quite understand that a red Potato grafted into a white one will produce red Potatos, and a white grafted into a red will produce white Potatos, that is, if all the other eyes are destroyed (not otherwise), or there will be a mixture of colours—that is to say, both the stock and the scion will produce Potatos of their respective colours and shapes." Grafting, as stated in the above communication, will not alter the colour, and I cannot see the possibility of its altering the shape; indeed, to produce true hybrids by grafting appears to me impossible, and I believe Mr. Fenn's success in obtaining his two new varieties may be accounted for in some other way than by grafting, although I am quite convinced

Mr. Fenn believes they were obtained by that process, and he certainly ought to know more about them than any other person. We all know that in digging up a crop of Potatos the tubers are found to vary. The other day I was at Handsworth Nursery, where they were engaged in digging Paterson's Zebra Potato. Here were to be seen purple, white, striped and mottled, all from one variety. Thus we see the peculiarities of the class, and also the difficulties of coming to a just conclusion with regard to the grafting process, which may prove in the end a delusion, although it may appear at the time quite conclusive. In the second paragraph alluded to, I stated "it may not be generally known that Potatos will even grow without eyes—one square inch of the substance of the inside of a tuber will grow." This appears incredible to Mr. Fenn, who states it is something beyond his experience, the mere mention of which will send him on another track. I hope he will give us the benefit, should any occur, in his next experiments. I again assert such will grow, make haulm, and form tubers, without a fang or symptom of an eye in its composition. The young tubers will vary in shape and be small. I do not assert every piece will grow; probably some may rot, while others will grow. Even a much smaller piece than what I have stated will grow. Indeed I assert the Potato is vital to the core; in this lies the difficulty of experimental grafting, for if all the eyes were removed from the stock it would not prevent it (at times) from throwing up haulm and forming tubers. I state "at times," because every tuber may not start into growth. *Edward Bennett, Osberton Hall, Worksop.* —— Is not the tuber-grafting of Potatos sheer humbug? and are not the so-called results mere accidents? I knew a gardener who took the 1st prize for round and kidney Potatos for years from the self-same stock of Ashleaf Kidneys. *Paddy.*——[From an article in a Forres paper we learn that Dr. Innes, of that town, has been experimenting on the subject of Potato grafting. "The Doctor, last spring, took black kidney Potatos and cut out the eyes by a wedge-like notch. Into the cavity thus made, in one set, he inserted the eye of a Regent Potato, and into the cavity of another the eye of a Fortyfold. The sets, it will be observed, were black kidneys, and the inserted eyes were (white) Regents and Fortyfolds. The product is a mongrel group of large, pink, round-shaped Potatos, intermixed with white, round, and pink and black kidney-shaped ones. It is clear that the graft between the black kidney and the white round Regents and Fortyfolds produced a hybrid of a round kind modified in colour. Potatos, white and round, were also got from the same stem, as well as pink and black kidneys."]

Radiation.—Here is a question for the wise men of the *Gardeners' Chronicle*—What is the difference in the amount of heat lost by radiation through glass of different thickness or weight per foot, such as 16-oz., 26-oz., &c.? *Enquirer.*

Boilers.—I would like to know how much good is to result from the projected trial of boilers. It seems to me almost an infatuation which the trade in hot-house boilers is drifting to, and only to be productive of uncertain good to the buying community. Upon the principle of "little good little harm," it may be tolerated; but what about the economy of the boiler itself, even supposing makers and patent holders were to have trials to their hearts' satisfaction? Heating is a simple question of calculation, and gives forth no uncertain sound to those who care to investigate properly, and take action accordingly. It is not a matter of heavy or lighter draught, requiring the dynamometer to test, as in the various implements used in field operations, or in having furrows set up with the nicest cut and the greatest mathematical precision; it is simply a question of what kind of fuel is to be consumed, and what amount of work is expected to be done with the selected article. There is an idea abroad, that the more turnings and windings you have in a boiler, so that the flame can play hide-and-seek in various storeys of metal, the more powerful it is, and the more eligible for general work. False impression indeed! The supporters of this theory forget that a portion of their vaunted boiler is nothing else than a smoke flue, which the tongues of flame possibly never touch, and the coating of soot that gathers on the metal is about the best non-conductor known. One might ply the office of chimney sweep every day to a boiler of this description, and the amount of heat utilised in the passage through it is inappreciable. What should be studied, therefore, is how shall we present a surface that radiant heat shall most efficiently impinge upon? If it be in a locality where dross or small coal is cheap, I should say that some form or another of the saddle is decidedly the most economical, as it is most durable. If it be winged transversely to catch the action of the flame in its passage over the boiler sides, so much the better. The best coals that have ever been quarried will not give out beyond a limited number of yards of flame, and therefore some limit to multitudinous passages is desirable, for it is perfectly clear that what the smoke disperses in heat it nullifies with its gathering sooty covering; and for people to propound that they can utilise all the caloric in their favourite boilers, and ultimately send forth the smoke cool from the top of the chimney, is simply an impossibility. I opine, that in all the modern and ancient systems the water in the bothy kettle might yet be boiled at the top of the respective chimneys, serving to show that under the best system so much heat is bound to be lost. Given a cold frosty night and several thousand feet of piping to heat properly, and I would like to see the nurseryman or gardener, or anybody else, who would tell his stoker to fire cautiously, in order to economise the heat in the desired quarter; and if you fire vigorously a certain quantity will vault up the chimney and disperse in smoke. If coke be about as cheap as coal, as it generally is at certain distances outside of the coal country, I have no objection to some or other of the forms of tubular boilers, with their network of piping, which carry heat more generally and more expeditiously than any of the forms of saddle; but to attempt to use common coal with such a boiler, would be futile and uneconomical. But withal, I have a decided partiality for the horizontal form of boiler, which lies better to the fire. If proof were wanted, from a scientific point of view, we need only point to the Cornish boiler, as used and recommended by the foremost engineers of the age as the one best suited for purpose and economy; and bear in mind that the Cornish boiler presents the saddle outline to the fire when the bars are placed in position. In point of durability, even makers themselves are bound to admit that a properly made saddle has no equal. We have four of them occasionally at work at Meadow Bank, two kept as emergency boilers, which enables one to sleep quietly at all times. In times of a spurt—as witness 1860-61, the thermometer being 13° below zero—we can keep out the enemy without hard working, which is more due, however, to the arrangement and sufficiency of the pipes placed, than probably to boiler power; but we have both as vouchers. I was going to say, however, that I have wrought one of these cast-iron saddles 15 years, and it is as efficient now as ever it was, and likely, from the uniformity of the play of the fire, to last quite as many years more. I would not vouch so much for the best made of the tubulars, from the different junctions of metal, and from the partial action of the fire. The proper arrangement of the pipes, so as to present a minimum friction to the circulation of the water, is of first import, meriting far more attention than it receives. Let the water have an unimpeded passage, and it will flow upwards, and onwards, and backwards, in such a style, that it must be a very badly set boiler, and a very bad boiler to boot, that will not do its duty. I like, amongst the many forms I have seen, that of the "concentric saddle boiler," advertised in your columns, as likely to be powerful, economical, and good. If it had a transverse wing at the back end of the fire, it would, in my opinion, be about the best form practicable for utilising heat, and sending the water forth in rapid and constant circulation. *James Anderson.* [Such a boiler has lately been fixed to heat the herbarium and library at Kew. We may hereafter be able to report on its performance. Eds.]

The Royal Vineyard and other Vines.—My experience with this Grape is that it does best grafted or inarched on some other variety; I have not yet seen it do well on its own roots. It is planted in a house at this place, on its own roots, with Lady Downe's, Trentham Black, and Black Hamburgh. Compared with the others it is the weakest grower; the berries are not large, and they are unequal on the bunches, which are also small; none of them ever weighed over 1 lb., while Black Hamburghs, in the same house, have had bunches weighing over 6 lb., Trentham Black and Lady Downe's from 2 to 3 lb. In other gardens where I have seen Royal Vineyard growing on its own roots the results have been similar. At one place celebrated for good gardening the gardener told me he did not thin-out the berries at all, and yet the Vine was making strong shoots. I fancy the bunches which were exhibited of it before the Vine was sent out were from inarched or grafted Vines. I have seen it growing in a Muscat-house, inarched on another variety, with bunches of from 3 to 4 lb., the berries large and equal in size; but the gardener told me it did not keep well; it hangs late here, up to February, with care. Is it possible that grafting, so as to increase the size of bunch and berry, deteriorates the quality of the fruit? Be that as it may, in the case of the variety in question the results which have been arrived at by grafting one variety of Grape Vine upon another are most remarkable. Grafting such weak-growing and difficult-to-manage varieties as Grizzly Frontignan and Chasselas Musqué on the Black Hamburgh is said to improve those sorts, and yet I have seen both sorts grafted on the Hamburgh without any improvement. On the other hand, a house of Black Hamburghs with which I am acquainted, in a retrograding condition, was resuscitated by being grafted with Canon Hall Muscat, and produces far superior Grapes as Muscats, to the Hamburghs. Again, the Muscat Hamburgh, on its own roots, is seldom seen with well-set bunches, but grafted on the Hamburgh the bunches are large, and well set with berries equal in size. That new variety, Mrs. Pince's Black Muscat, I have not yet found to be improved by grafting. It has succeeded best on its own roots, both in regard to colour and flavour; grafted on Lady Downe's the berries are larger, but colour and flavour are very much deficient. Royal Ascot is a very indifferent Grape grafted on the Black Hamburgh; the bunches are medium-sized, the flavour and texture of the flesh not unlike that of Gros Guillaume. They both fruited in the same house, and some persons thought the Gros Guillaume the better flavoured of the two. Muscat Champion and Buckland Sweetwater are improved by being grafted on Black Hamburgh. The first named is a new Grape, with a decided Muscat flavour, and that is more than I can say of Mrs. Pince as yet. It is always deficient in colour, and is not a free bearing variety, but is one of the finest flavoured of Grapes, new or old. Buckland Sweetwater is perhaps not improved in flavour by being grafted, but the berries are firmer in the flesh, and consequently keep better. Much more may be written on this subject, but these few notes may be useful to some of your readers, and may perhaps be the means of inducing others who have had more experience than I have, to state their views on the subject. While writing about Grapes, I observe the account of the awards at the meeting of the Fruit Committee of October 5. In class 2 there was no competition, and in the others but little. If, instead of the best three bunches of Chasselas Musqué, it had been for three bunches of white Grapes, any variety except White Muscat of Alexandria, there might have been a good competition. There might have been a class of the same sort among the black Grapes—three bunches of any variety of black Grapes exclusive of Black Hamburgh. I make these suggestions because I think there would be a better competition, and a more interesting one. *J. Douglas, Gr., Loxford Hall, Ilford.*

Orchid Culture. — Mr Gammie's letter at p. 991 of your Journal appeared while I was having a holiday in Switzerland, or I should have noticed it, and thanked him for his observations, before. Mr. Anderson seemed to think I had no proper right to question the treatment he advised for Dendrobium Falconeri; but that I have been the means of drawing out such a letter from Mr. Gammie—which, I hope, is only one of a series—abundantly satisfies me of the advantage of ventilating in your pages questions upon which information is wanted. At that time I had just purchased a plant of Falconeri; previously I had only had three very small plants; but since then I have also bought some of the newly-imported pieces, and I now feel, from closely observing them all, more at my ease in the matter. I shall not try the cool treatment to my Orchids yet, and particularly to this one; for I find what upon a Vine would be called air-roots upon most of these newly imported pieces. This tendency in Dendrobiums I hold to be the best proof that they are doing well,—during their season of growth, I mean, though they should not lose them when resting. I want Mr. Gammie, if he will be so kind, to tell me if he has seen Falconeri growing what is called *in situ;* and can he confirm my opinion, from its drooping habit, and tendency to root and propagate from its bulbs, if it is, so to speak, the Ivy among Orchids? Mr. Gammie is fortunate in his position among the Himalayas, and we must picture him rich indeed in Orchids; but I am yet of the opinion, judging from the imported pieces, that our well-grown plants far surpass anything that is purely wild there; but if he has any under his own cultivation and care, I should like to know the size of the bulbs. Mr. Anderson took offence at this question—why, I do not know, but I trust Mr. Gammie will not, for what other test have we? Do we not read that So-and-so showed bunches of Grapes, or a Pine, of such-and-such a weight? or Mr. So-and-so sent Pelargoniums a mass of bloom, the plants being of such a diameter? the canes in such a vinery were a model of growth, being the extraordinary thickness of blank, though they have only been planted two years, &c.? Therefore, I entirely disclaim want of courtesy in such questions. Dendrobiums are, I think, the most valuable class of Orchids, and the most easily grown and propagated; with this valuable merit, that you can, I believe, force or retard them all, and the flowers of nearly all stand, when cut, to perfection. I sent last winter to a lady five flowers of D. heterocarpum and four of D. moniliforme, and she told me they served her three successive nights. She added no foliage, and had the pleasure of being envied by all the ladies who saw them. I have a D. nobile now in flower, and shall try to keep going as nearly as I can till next June; and live in hope that when I have more plants of what I should call the nobile section, that we may have some of them every week the year through. I will, therefore, put it to all gardeners who have to supply their employers with flowers, are they not worthy of more attention than any other class of plants they can grow? I have read Mr. Gammie's advice as to temperature and light, and quite agree with him, as also upon watering. Nature has provided two distinct seasons, the growing season and the resting season, and we must provide two distinct treatments. As to atmospheric moisture, and the mode of feeding and stimulating them during growth by that means, I have already said what I can. During the resting season, the temperature being lower, makes the air dryer, and diminishing the watering does all the rest. As regards shading, my gardener says that our nobiles flowered much better when they were not shaded, and, he thinks, made better bulbs, and he is anxious to try all strong-growing sorts so again; we are therefore going to feel our way in this matter next summer. The shading we have used has been the thinnest tiffany, which lets the house feel the sun, though it prevents burning. I find I have omitted to ask, Is not Falconeri one of the deciduous class? We grow all Dendrobiums we have room for in baskets suspended from the roof; they are "potted," if I may use the term, in crocks and Moss; but the whole class prefer to have their roots outside, and as soon as time becomes an object, the syringe is found to be the best watering-pot. *G. H.*

A Monster Potato.—I believe the monster Potato (p. 1088) that Mr. Grieve saw at Dunikier, in Fifeshire, is a variety which I have grown for the last nine or ten years. I had it under the name of Millett's Manifold, and it came, I believe, originally from Ireland. It is an enormously strong grower, the stems as thick as a good sized walking-stick, and nearly as hard in texture. The tubers are kidney-shaped, and some merely oblong, of a large size, with deep eyes, and the skin of a leathery deep red, almost like red Beet when rubbed off. In the years when the Potato disease was very virulent it never attacked this variety, either in the stems or tubers; and when all other varieties were leafless, this kept quite green till the frosts blackened it. I grow them in rows, 4 feet wide, from their length of stem, and I have no doubt if grown in rich soil, and trained upwards, they would form monster specimens as at Dunikier. It is only a field or cattle Potato, but in June or July it is not bad for eating when boiled or roasted. A few years ago I gave some to a friend to set, and he took the 1st prize for kidney field Potatos with them, at the Birmingham great root show that year, exhibiting them, however, under a new name, namely Tillery's Goldfinders. *William Tillery.*

Sambucus racemosa (pp. 1016, 1065).—By way of encouraging your correspondent "E. S. D." to renew

his cultivation of this plant "down on the plain," I would say that last year I saw a magnificent bush, covered with its intense scarlet fruit, in the Kursaal Garden at Wiesbaden, situate in a sheltered valley, remarkable for its warmth and moisture, to say nothing of the bottom-heat due to its warm springs. *W. Marshall, Esq., October 16.*

Subtropical Gardening.—Allow me to recommend to those who wish for a tropical looking scene to plant in an island or a bed, isolated as much as possible, the two Pampas Grasses, Arundo Donax and Arundo Donax variegata, New Zealand Flax, and white-leaved Acer Negundo; and if sheltered from winds, the Cannas and Castor-oil plants—they must have a deep humus, but not be too damp—and not to forget the Chinese Bamboo. These will at this time of year give quite an idea of subtropical growth. *Somerset.*

Fruit Tree Protection.—I have read with much interest Mr. Fish's contribution to your columns (p. 1063). It satisfies my previous impression of the cause of my good fortune in the enjoyment of good crops of every kind of wall fruit during this season. My residence is on a clay soil, at 300 feet above the level of the sea, and therefore not subject to the same intensity of frost as that by which my neighbours are visited, in the grand gardens of Welbeck, Clumber, Thoresby, and Osberton, all of which are on the banks of streams, and, with the exception of Welbeck, on a sandy foundation. Mr. Fish well develops the principle of providing a maximum area of absorbents, and covering these with a minimum area of radiators, so that the structure should not be too large for its heat-storing capacity. With this view he recommends Mr. Beard's system of iron bars, and I entirely assent to their merits as propounded by him. But I should be glad to know the expense per foot of this plan, and to be able to compare it with that of my own arrangement as constructed here. I have garden walls, 14 feet high, flued throughout, and well coped with stone. I seldom heat the flues, and only in the autumn occasionally when damp weather has left the wood imperfectly ripened. I have provided frames of glass of the length of 12 feet to cover 100 feet of one of these walls, for the protection of eight Peach and Nectarine trees. Plugs are let in under the coping for the purpose of placing a wallplate for these frames to rest on at a distance of a foot from the wall; and a series of ventilating flaps are arranged in the line of boarding which passes between the frames and the wall. The lower end of the frames rests on a wall plate, supported by a series of brick pillars, about 3 feet high, and there are ventilating flaps between each of these pillars; at the ends there are triangular frames of glass to complete the enclosure, in one of which there is a door. The pillars are 4 feet from the wall. From the middle of October to the middle of March these frames are laid up in an adjacent shed, and are easily moved there by a man and a boy, which could not be done with the same convenience in the case of Mr. Beard's bars. The cost to me of this structure was 50*l.*, or 10*s.* per running foot. I have in some years found a great advantage as to quantum of fruit from this protection, and about a week of advance in its maturity. In the present year I had good crops, but not grand ones as usual, under the glass, but I had also fair crops of both Peaches, Apricots, and Plums, and Pears on the open walls, while my neighbours had failures in most of these fruits; and from former similar experience I attribute my luck to the absorbing power of these hollow walls, and their resistance to the cold influence from the opposite side, in conformity to the theory expounded by Mr. Fish. *G. N. V.*—To this communication Mr. Fish replies as follows:—In answer to "G. N. V." I may state that I see little objection to his plan of protecting his wall trees. The brick piers, &c., must be somewhat unsightly when the glass lights are removed, and on this ground I should prefer Beard's system. But any plan by which the trees can be screened with glass on the principle I have stated, is likely to be useful and efficient. Your correspondent also seems to have done his work very cheaply, provided the 10*s.* per foot run includes the brick pillars, bottom wallplate, and all complete as it stands, the price of labour as well as the cost of material. Of course the structure is also formed of wood, and possibly glazed with 16 oz., or even lighter glass. If so, and the squares are smaller, this would very much reduce the price. But wooden structures are very liable to decay, and cost a good deal for paint. It is needful to bear all these points in mind when making a comparative estimate of cost. Working expenses must be added to or taken from prime cost to arrive at the true solution of value. Taking such considerations into account, I doubt whether within a dozen years Mr. Beard's plan of protecting trees with indestructible iron and glass screens would not prove the cheapest. Your correspondent covers 12 feet of his wall with glass. A screen 12 feet in height, with 1 foot 3 inches glass ventilator at the top, is offered for 21*s.* per foot run. The bars are coated with metallic paint, and glazed with strong large squares of glass 30 inches by 20, and weighing 26 oz. to the foot. Such strong durable materials are of course more expensive at first cost than those of a lighter and more perishable character. But it is the wear-and-tear, the working expenses of gardening, that absorb capital, and whatever lessens these, must in the long run cheapen production. Your correspondent thinks that the expense of moving his screen will be less than that of Mr. Beard's. There would be less difference than he supposes; and in the storage Mr. Beard's screen would occupy less space, and be subject to fewer risks. The glass could be packed away in boxes, the felt in rolls, and the rafters in bundles. But every important portion of these screens being imperishable, it would be the best policy to keep them in constant use. If not needed for the walls or for conversion into houses, they might be turned to good account in the open ground for ripening late Strawberries, sheltering or growing winter Cauliflowers, very early or late Radishes, Carrots, Peas, Potatos, forcing winter Asparagus, &c.; in fact, there is room in any good garden for 200 or 300 feet of such screens, and as many yards of Rendle's protectors, to prolong the season of growth, and defy the cold at both ends of the year. I agree with your correspondent as to the value of hollow or flued walls, and with Mr. T. C. Sage in his instructing communication. The latter will bear in mind that my object was, if possible, to master the severities of the climate by the aid of glass, and without artificial heat. With such heat we create a new climate for ourselves, which renders us invulnerable; and perhaps there is no better mode of economically applying heat for this purpose than by means of flued walls, as described by "G. N. V."

The Occidental Plane.—I have long felt assured that the Plane tree so common in the parks near London, and known by nurserymen as Platanus occidentalis, is not the American species, having a vivid recollection of the almost lobeless leaves of seedlings I raised from seed imported from the United States many years ago. Wishing to throw a little light on the question, I wrote to a friend at Rochester, New York, for a few leaves of P. occidentalis, at the same time asking him if there were two varieties known, one peculiar to the Southern States (as my seed came from Charleston, S.C.), and another to the North. He has recently sent me some leaves, one of which I enclose, and says, "I know of but one species of Plane in this country, North or South, except one in California—Platanus racemosa." *T. R.* [The form of the leaf *per se* is not to be relied on at all in the discrimination of Planes. The tree at Chiswick nearest to the Council room seems to us to be nearer to the true occidentalis than any other we have seen, if, indeed, it be not that species. Its leaves are like those of the specimen sent, but are not so downy on the under surface. No doubt "T. R." is perfectly right about the park Plane trees. They are not of the American breed (see p. 940). EDS.]

Lady-birds.—I have read with much interest your pleasant notes respecting the pretty Coccinella which has paid our gardens a visit this summer. That these pretty insects have a use in Nature I had an instance of during the hot weather of August 27 last. On that day I noticed a swarm on two large Hanwell Souring Apple trees, which were smothered with American blight. They began in the morning, and ere the evening not a symptom of the blight remained. Even the portion which had fallen on the ground was sought after by the Lady-birds, who devoured it greedily. Near these trees were several Allamanda neriifolia nearly smothered with mealy-bug, which our lady visitors cleared in a few hours. We should not begrudge them their modicum of fruit, when we remember how much good they do in devouring every species of aphis. They in their turn fall an easy victim to the spiders, for once they are entangled in the webs they are devoured without making the least resistance. *Edward Perkins, jun., Victoria Nursery, Leamington.*

Societies.

ROYAL HORTICULTURAL: *October* 19.—James Bateman, Esq., F.R.S., in the chair. In the absence of the Rev. J. Dix, the chairman announced the awards of the Floral Committee, which on this occasion were few in number. Mr. Blenkins having performed a like office for the Fruit Committee, said that the Rev. G. Kemp would again offer prizes for outdoor Grapes, to be competed for under the same conditions as on this occasion, at the meeting of the Committee in October, 1870; and then directed attention to the fruit of the Avocado Pear, Persea gratissima, a tropical fruit from the West Indies, which is also sometimes called the Alligator Pear, and Midshipman's Butter. The fruit, which was said to be produced by a large, bold-foliaged shrub, which grew to 20 or 30 feet in height, was much improved in flavour when eaten with pepper and salt. In appearance and flavour it strongly resembled a dark green Vegetable Marrow. It produces one solitary seed, which is very astringent, and from which ink, suitable for marking linen, is sometimes made, though only in small quantities, as the tree is rather a shy fruiter. The Chairman then directed attention to the singular form of the well-known Lady Fern, shown by Mr. Moore, of the Botanic Garden, Chelsea, and then alluded to a beautiful specimen of Pleione Wallichiana, with 34 flowers, as being amongst Orchids what the autumn-flowering Crocuses and Chrysanthemums are amongst autumn-flowering plants. In the Himalayan mountains they are said to correspond exactly to these plants. Mr. Bateman remarked with reference to the culture of these plants that they liked damp and heat during the growing season, and the reverse condition during the period of rest, which in their native habitats occurs during the dry season. Lord Londesborough's magnificent specimen of Vanda cœrulea, which had three good spikes and probably 50 fully expanded flowers, was then alluded to. The plant was said to be difficult of cultivation, but it seems to be rightly treated by Mr. Denning, his lordship's gardener, who grows it in the corner of a house facing north-east, in which position it obtains plenty of light. In reference to this species Mr. Bateman read several quotations from Dr. Hooker's Himalayan Journal, describing the beauty of the plants as seen on the dry grassy hills on the Himalayan range, some 3000 or 4000 feet above the sea level. ×Cattleya exoniensis, one of Mr. Dominy's hybrids, and Barkeria Skinneri, one of the first of the Guatemalan Orchids that flowered in this country, were then alluded to, the latter being of easy cultivation, and lasting a long time in bloom. A species of Cypripedium (Reichenbachianum) from Costa Rica was then noticed, not so much for its handsome appearance, as from its being a free bloomer, but though a spike will sometimes produce as many as 40 flowers only one is fully expanded at one time.

Floral Committee.—John Gibson, Esq., in the chair. A small and generally unimportant meeting, though there was an attractive display of Orchids. From Mr. B. S. Williams came a fine group, consisting of the pretty free flowering Oncidium ornithorhynchum, with three graceful drooping spikes of delicate rose-coloured flowers; the fine white flowered Angræcum eburneum; the dwarf and pretty Pleione lagenaria; Miltonia Moreliana, with one of its large deep purple-veined flowers; Aerides suavissimum, and a fine distinct deeper rose-tinted variety of the latter; Barkeria Skinneri, finely coloured; Zygopetalum Mackayi, and others. A Special Certificate was awarded. Mr. J. W. Laurence, gr. to the Bishop of Winchester, Farnham Castle, sent a curious species of Gongora, from Rio Negro, of a rosy slate colour, delicately barred and spotted with chocolate. Mr. W. Wilson, gr. to W. Marshall, Esq., Clay Hill, Enfield, sent a very pretty variety of Odontoglossum Rossii, named Warneri, to which a First-class Certificate was awarded. From Mr. Denning, gr. to Lord Londesborough, Grimston Park, Tadcaster, came a magnificent specimen of Vanda cœrulea, and two smaller plants, showing six grand spikes of noble flowers, and a small specimen of ×Cattleya exoniensis. A Special Certificate was awarded. To Mr. Moore, of the Botanic Garden, Chelsea, a First-class Certificate was awarded for Athyrium Filix-fœmina var. Elizabethæ, a dwarf and exceedingly curious variety of the Lady Fern, having the rachis irregularly dilated, so as to bear some resemblance to a narrow elk's horn. Messrs. Standish & Co., Ascot, sent a flowering plant of the tree Picotee, Ascot Yellow; and from Mr. Eckford, Coleshill, came a zonal Pelargonium, named Purity, with white flowers and faint salmon eye. To a fine collection of Orchids from the Society's garden, a Special Certificate was given. The collection comprised examples of Odontoglossum grande; the beautiful Pleione Wallichiana, noticed above; Odontoglossum Uro-Skinneri, Cypripedium insigne, the new Cypripedium Reichenbachianum, &c. A new Fumigating and seed-cleaning machine, the invention of Mr. F. J. Drechster, Euston Road, was shown at the meeting. The apparatus, which is very simple in construction, is made so as to fumigate houses from the outside; it is quickly set to work, and can either be used on the self-acting principle or by turning a small wheel, which moves an upright wire basket in the interior; the operation may be carried on quickly. It is, moreover, said not to consume so much material as ordinary instruments; and this, with the saving in time and the no small pleasure of being out of the smoke, stamps it as a useful garden implement. By putting seeds into the wire basket instead of tobacco-paper, it answers all the purposes of a thorough seed-cleaning machine, and being made of a useful portable size, it can be used anywhere, and will clean small quantities equally well as a larger bulk. With very slight alteration in the movable working parts, it can be converted into a portable kitchen, as it is said to slice Cucumbers, grind ginger and nutmegs, and boil water. Mr. Drechster was until recently engaged in the seed trade, so that the requirements of the trade were amply understood by him when he introduced this useful apparatus. We hope shortly to figure it, and give our readers the opinion of those who have tried it.

Fruit Committee.—G. E. Blenkins, Esq., in the chair. At this meeting prizes of 3*l.* and 2*l.* respectively were offered by the Rev. G. Kemp, a member of the Committee, for the best 6 bunches of Grapes, any variety, grown in the open air, against a wall, without any protection. The 1st prize was taken by Mr. Miller, gr. to J. F. Friend, Esq., Northdown, Margate, with 6 excellent bunches of Royal Muscadine; the berries were very good in size and well ripened; Mr. Tranter, Upper Assenden, Henley-on-Thames, who showed remarkably good examples of White Sweetwater, was 2d. Royal Muscadine was also shown, mostly in an unripe state, by Mr. Lynn, gr. to Lord Boston, Hedsor; Mr. Earley, Digswell Park; Mr. Foster, Pittington House, Leigh, Essex; Mr. J. Garland, gr. to Sir T. D. Acland, Bart., Killerton, Devon; and Mr. R. Nash, of Slough. Monsieur Spinks, Jardinier en chef, Château de Chantilly, France, sent several bunches of Chasselas de Fontainebleau, grown there, which unfortunately were much bruised in transit. The bunches were fair in size, and the berries bore the rosy tint so characteristic of Continental Grapes. In flavour they were not so good as the 1st prize collection, which shows that with care and a little extra trouble, as good Grapes may be grown out-of-doors in this country, as on the Continent. From W. Looke, Esq., Cleve House, Melksham, Wilts, came a curious sport from the Citronelle Grape of no particular merit as regards quality, but which was otherwise interesting in having berries, some black, some white, and others piebald in the same bunch. Mr. Eckford, gr. to the Earl of Radnor, Coleshill, sent two bunches of the Coleshill White Hamburgh, a variety that was shown at one of the meetings in June last; it was not, however, considered to be worthy of special distinction. From the Society's garden at Chiswick came specimens of the stoneless Black Monukka, and a bunch of Frankenthal grown in the cylinder vinery: the bunch and berries were good in size but deficient in colour, and, moreover, they were unripe, which, considering the late period of the season, is not very good testimony in favour of the value of such structures. To Mr. J. Richards, gr., Stoke Park, Slough, a Special Certificate was awarded for three remarkably handsome smooth-leaved Cayenne Pines, which averaged in weight 8 lb. each. From Mr. Woodward, gr. to Mrs. Torr, Garbrand Hall, Ewell, came a fine box of British Queen and Sir Charles Napier Strawberries, grown in the open air on plants that were forced last spring and subsequently planted out, and to which the same award was made. From Messrs. Veitch came a collection of Beet, consisting of the large-leaved scarlet Brazilian, Pine-apple, Dickson's Dwarf, Dell's crimson, Nutting's dark red, Osborne's red, Cattell's crimson, Beck's Improved Scalale Beet, white large green or Spinach Beet, Egyptian Turnip-rooted, coarse and bad in flavour, and two varieties numbered 1 and 2. With the exception of No. 2, there was no particular merit in the samples sent to recommend them—the latter variety, which is fine in colour and flavour and a dwarf compact grower, was awarded a First-class Certificate. To Messrs. Sutton & Sons a Special Certificate was given for a fine collection of 53 varieties of Potatos, including the very curious Fir Apple Potato, which produces tubers, about 4 inches long, resembling the cone of a Spruce Fir; to Mr. Wm. Paul the same award was made for a collection of 25 varieties, which were shown in very good condition. Colonel Le Couteur, President of the Royal Agricultural and Horticultural Society of Jersey, sent six very large specimens of Onions, grown at Belle Vue, Jersey, supposed by the Committee to be the Globe Tripoli; and from Messrs. Rutley & Silverlock, 412, Strand, came fine clean examples of the new Bedfordshire Champion Onion. Mr. Hepper, gr. to J. Walmsley, Esq., The Elms, Acton, sent a dish of Dillistone's Early Peas; a brace of a seedling Cucumber, from a cross between Manchester Prize and Masters' Prolific; and a dish of Plums produced on wood of this season's formation. Mr. Miller, gr. to J. T. Friend, Esq., sent a hardy ridge scarlet-fleshed Melon, of poor flavour. Mr. Moor, gr. to the Duke of Marlborough, Blenheim, sent a very good flavoured scarlet-fleshed variety. From Mr. J. Carr, gr. to P. L. Hinds, Esq., The Lodge, Byfleet, came a fine fruit of the Avocado Pear, noticed above. This is the first time that this fruit has bee

exhibited, though the plant has been long in cultivation, and is recorded to have flowered both at Syon and at Kew. Mr. Carr was highly commended for its production.

United Horticultural: Oct. 11.—At the monthly meeting, held at the Green Dragon Hotel, Bishopsgate-street, Messrs. E. G. Henderson & Son, of Wellington Road Nurseries, St. John's Wood, exhibited specimens of Achillea umbellata, a dwarf and compact growing silvery leaved plant, likely to become useful for edging and surface purposes, to which a First-class Certificate was awarded; Boronia pinnatifida, a white free growing autumn and winter flowering kind, resembling longifolia, highly scented,—a useful addition to our cool green house plants, to which a First-class Certificate was also given; Coleus Emperor Napoleon, with intensely dark foliage, dwarf robust habit, hardy constitution, and said not to drop its leaves, like most other Coleus when exposed: this is likely to prove a rival to the well-known Perilla for bedding purposes, and Messrs. Henderson were requested to exhibit it again; Crassula Cooperi, a pretty little tree flowering plant, 2 inches in height, which, from its dense habit, will be a useful plant for marginal rows. An interesting paper on coloured leaved plants was read by Mr. R. H. Bard, of St. John's Wood, showing the merits, and mode of cultivation, of many of these universal favourites.

The Mysore Agri-Horticultural Society: *Sept.* 18.—As a mere display of great masses of popular flowers usually exhibited, this show is reported decidedly inferior to former ones held in the Lall Bagh. This was partly attributable to an unfavourable season. Roses in pots were an entire failure. The many new and charming varieties of Gladioli, Achimenes, Gloxinias, and dwarf Dahlias, recently introduced into Bangalore, were over. The showy-foliaged Caladiums were also past their prime. To make up for so many gaps in the monsoon exhibition catalogue, was no easy task. Ferns were in great force. No less than 71 fine varieties, from different countries, were exhibited in one collection (Major Pearse's, 2d silver medal awarded). Another splendid collection of noble Ferns was General Haines' (bronze medal), which would have received honourable mention in any exhibition. Twenty-six distinct varieties of the new hybrid Coleus with beautiful tinted foliage (1st silver medal), by Colonel Beddam. The new Alocasias, metallica, Jenningsii, and Veitchii. Alternantheras, and three fine double Pelargoniums, by Major Pearse. Seedling tricolor and bicolor Pelargoniums, also gold and bronze zonal Pelargoniums, by General Haines and two other competitors. Mrs. Pollock, Italia Unita, and Bullion (foliage Pelargoniums), by the Secretary of the Horticultural Society. Chamæpeuce diacantha, Dracæna terminalis, Maranta zebrina, and a new unnamed foliaged plant, by Colonel Beddam. Fine bushes of Iresine Herbstii and Iresine aureo-variegata. Many varieties of the most advanced kinds of Asters, as Victoria, Schiller, Cockade, Pæony-flowered, quilled, and Perfection; eight very fine varieties of German Phlox Drummondii. Several varieties of Japanese double Chrysanthemums, Gold Feather Pyrethrum (new golden foliage), Salvia argentea, and Centaurea ragusina (silver foliage). Fuchsias were not in good condition this year, and only a few fine specimens of double kinds shown. There were also exhibited three double and some of the new large flowering crimson Petunias.

Notices of Books.

Figures of Hymenomycetous Fungi not previously illustrated. (Icones Selectæ Hymenomycetum nondum delineatorum. Editæ ab Elias Fries. Fasc. 1—3. 4to maj. Tabulæ pictæ 1—30. Holmiæ: Norstedt et Filii.)

We are sometimes deceived by the unwarranted commendation given by reviewers to works not only of inferior quality but positively bad. For example, we were ourselves induced to buy a treatise on suspicious or deleterious Fungi by Valenti-Serini, at an expense of something above a sovereign and a half, in consequence of its being characterised "as this important work," the figures in which are so bad that we are almost ashamed to have the book lying on our table. We are therefore afraid to use the same phrase respecting that before us, though it would be fully justified on a close examination. We have on a former occasion stated that it has been proposed to prepare figures for the museum at Stockholm of all those Swedish Fungi which lose much of their character in drying. The collection is now become of considerable interest, as it enables one at once to verify the species which have been characterised in the typical work of Fries. We have ourselves been for some time in possession of copies of a great number of these figures, which have been of considerable use in the verification of British species, and the engravings are fully equal if not superior to the drawings. A fourth number, consisting principally of species belonging to the difficult subgenus Tricholoma, is almost ready. Two, or even three species are often given on the same plate, and we hear that the next number will contain in its 10 plates 25 species. It is much to be desired that British mycologists should at once put themselves in possession of what has already appeared, as the rapid continuation of the work will, of course, depend in some measure on the support it meets with out of Sweden. Those who are acquainted with the very useful work by the same author on the eatable and poisonous Fungi of Sweden, will understand at once the style of illustration and the faithfulness of the figures. The text is not, as in that publication, which was intended especially for Sweden, in the Swedish language, but is in Latin, which makes it accessible to every student. Our list of the fleshy Fungi is by no means complete, and it is highly desirable that, at least in the new publications which are announced on Fungi, which appear to command more and more interest every day, any new species which may be proposed should be collated with those already characterised by Fries, which cannot be done effectually without having recourse to the figures.

The Apiary.

Hives.—There is no question relating to bee management more frequently put to me than as to the best kind of hive, or as to the one I would recommend for general use. There is, perhaps, no question connected with this subject which I feel to be so difficult to answer. Visitors come to see my bees and honey; are pleased and surprised at the prosperous condition of the first, and delighted with the quantity and fine quality of the latter, and are often at once smitten with a desire to become bee-masters. "What hives do you recommend?" "Where can I get such hives as these? I should not like to have any common hives." "But I shall look to you to tell me how to manage them; I could never lift out the frames." To such people it is hard to be obliged to say that hives such as I use are totally unsuited to their abilities. I have often seen an incredulous look, which spoke, as plainly as words could do, the belief of the inquirer that I only wished to prevent his getting a good hive, and setting up as a rival to myself in successful bee-keeping. It has occurred more than once, that after I have declined to furnish plans and dimensions of my hives to an aspiring individual whom I knew to be totally ignorant of the first principles of bee-keeping, or afraid to approach within 20 yards of a bee-hive, or who stated candidly that he knew nothing about bees, but should leave their management to an equally ignorant gardener, he has hurried off to the carpenter I usually employ, and ordered a supply of hives after my pattern—the first intimation of which has been made to me by the carpenter calling to obtain information as to some minutiæ in the measurements which he had forgotten.

To such applicants I usually recommend some simple form of hive, requiring no great amount of knowledge of bees, or manipulation in management, to insure a successful result. When I find that some progress has been made, and that they are really desirous of working on an improved principle, it affords me much pleasure to lend them a helping hand, and not only to put them in the way of procuring the best form of hive, but to render them personal aid towards effecting a satisfactory beginning. Before doing so, I insist on the necessity of a close adherence to certain rules of management, such as thorough supervision of the construction of the combs from the very first; immediate rectification of the least departure from the straight line of comb along the very centre of the frames; frequent removal of frames and occasional transposition to insure the requisite straightness; the judicious use of guide combs, and the preservation of all pieces of worker comb in good condition that can be made available for future use.

I can, with much gratification, point to a few apiarians who, having followed my instructions, have now become tolerable adepts in the manipulation of bees in frame hives; but I must confess that too often it is the case that, notwithstanding a satisfactory start has been made, in the second year, when a swarm has arrived, the bees have been bundled into the box with frames totally unprepared with guide combs, and allowed to build as they pleased. The frames being, from the manner in which the combs were constructed, quite immovable, the hive has been left to take its chance, and the owner is loud in his condemnation of the principle of frame hives, they being, in his opinion, not a whit better than, if so good as, the common cottage hives.

Such results are, to say the least of them, disappointing, but they only tend to make one doubly careful as to the advice given to temporarily enthusiastic inquirers. I think great injury has been done to general progress in scientific bee-keeping by indiscriminate recommendation to all sorts of people to start at once with movable comb hives. It is absolutely necessary that they should first be made acquainted with what there is to do, and also how to do it, otherwise failure must be the result, and unmerited obloquy is cast on a really valuable system. *Apiator.*

Garden Memoranda.

Thoresby, as most of your readers are aware, is the seat of Earl Manvers, and formerly the seat of the Duke of Kingston. The present noble owner is now engaged in making some very extensive alterations, including a new and princely mansion, indeed I may say the whole place is undergoing such a metamorphosis that one can scarcely recognise it as the Thoresby of half-a-dozen years since. The old kitchen garden has been entirely done away with, and a new one made nearly on the same site. The glass structures, which are numerous, are all new, and chiefly erected by Mr. Ormson, of Chelsea.

It is not my intention now to enter into details respecting the gardens and grounds, but I trust when the place is completed you will give me permission to do so. My present notes will be confined to the flower borders and beds, with a few remarks on Pines, &c. Of the former there is certainly nothing better out of London, and I question if their equal is to be found in either of the parks. The first border I am about to describe runs the whole length of the kitchen garden, (550 feet), and is 12 feet wide, at the back of which is trained, on a wire trellis, a fine row of, not cordon, but espalier Pear trees. Looking at this border from either end I must confess it was grand, and worth going miles to see. The border contains 11 lines, and is planted as follows:—1st row, Cliveden Yellow Pansy; 2d row, Little David Pelargonium; 3d row, Bennett's variety of Viola cornuta; five lines of Cerastium, forming the grounduork; 9th row, Purple King Verbena; 10th row, Kayii Calceolaria; 11th row, Stella Pelargonium. At intervals of 21 feet apart are circles extending to the width of the Cerastium, and forming the centre of the bed without breaking the lines; these circles are planted with Cybister Pelargonium, and Crimson King Verbena, alternately.

A centre border on either side of the centre walk was even more attractive than that above described. Here were five lines of Viola cornuta Purple Queen, used to form the centre groundwork, which has now grown into a mass, and such a mass is not to be seen anywhere else but at Thoresby. What have we to equal it in its lovely colour, which, lighting up the whole, looks in the distance a most beautiful mauve tint? This border is the same width as the one before alluded to, and planted as follows:—1st row, Cerastium; 2d row, Little David Pelargonium; 3d row, Cliveden Yellow Pansy; five lines of Viola cornuta, forming the groundwork; 9th row, Tropæolum luteum improved—grand beyond all praise; 10th row, Crimson King Verbena; 11th row, Lady Middleton Pelargonium and Ageratum alternately. Circles extending to the width of the Viola, and at the same distance apart, as previously stated, are planted with Little David Pelargonium and Centaurea candidissima alternately. Both these borders at the time of my visit were as good as it was possible for them to be, and reflected great credit on the skill displayed in arranging and planting them by Mr. Henderson.

The flower garden near the old mansion is also exceedingly gay this season. The following beds were particularly good and attractive:—Cybister Pelargonium, edged with Polemonium cœruleum variegatum; a second bed of Cybister, edged with Lady Plymouth; Golden Chain, Calceolaria, edged with Crimson King Verbena; Excellent Pelargonium, edged with Golden Feather; Stella Pelargonium, edged with Cliveden Yellow Pansy; Golden Chain Pelargonium, edged with Lobelia speciosa; Alyssum (variegated), and Crimson King Verbena mixed; Centaurea, edged with Little David Pelargonium; Flower of Spring Pelargonium, edged with Purple King Verbena; and a match bed of Le Grand, &c. A bed composed of Queen of Queens Pelargonium, and Purple and Crimson King Verbenas, was very attractive; Abutilon Thompsoni was finely coloured, and makes a very useful bedding plant. All of these beds looked remarkably well, and so did many others not here enumerated.

The Pine houses are all built with full spanned roofs, having glass sashes on either side, and glass ends, so that plenty of light is insured. The fruiting house contains some of the best Pines it has ever fallen to my lot to behold, the varieties being Cayennes, and Ripley, Moscow, and Thoresby Queens, &c.; but the Thoresby Queen reigns supreme as the queen of Queens. Fancy plants not 2 feet high, sturdy as an Oak, in the finest possible health, with fruit upon them from 5 to 8 lb. weight. It is astonishing how little this Pine is known in the country. What have our great Pine growers been doing to lose sight of so truly valuable a Pine?—one, I have not the least hesitation in pronouncing, worthy of a place in every collection, however limited. I do not draw hasty conclusions in this case, for, having visited Thoresby for the past 10 years, generally twice in a season, I am able to form a pretty correct opinion of its merits, and can recommend it with confidence. I do not say it is perhaps equal in flavour to a good Queen, but it is superior to many of the larger varieties grown. In one house of successions, that looked in fine health, I witnessed a plant of the smooth-leaved Cayenne, planted out a sucker on August 12, 1868, with a ripe fruit upon it, weighing from 4 lb. to 5 lb.

In passing through one of the houses, used for the cultivation of the Melon, I was surprised to see the extending system being practised exactly on the same principle as laid down by Mr. Cannell for the Vine, and to every appearance successfully. Another novelty was to find a house entirely allotted to the cultivation of the Cape Gooseberry, which is grown largely for preserving. The Fig-house contains a very large assortment, bearing heavy crops. The vineries contain some magnificent bunches of Grapes, such as do credit to the name of Henderson; indeed, everything is quite up to the mark, both indoors and out, and Thoresby may be classed as in every respect a first-class forcing establishment; from the Strawberry to the "King of Fruits" everything is well done, and every modern convenience is at hand to do it with. Peaches and Nectarines, both out-of-doors and in glass cases, without artificial heat, are a failure as elsewhere, but the trees look in remarkable good health. Dry weather has but little effect on vegetation here, for water is laid on at intervals all over the gardens, and, by means of a gutta-percha hose, the whole place can be thoroughly watered. The gardener's house is certainly one of the best and most convenient houses I have seen, well supplied with water, and lighted with gas. Indeed, the men's rooms, fruit rooms, sheds, &c., are all done in a princely style, and such as become a first-rate place. *E. Bennett, Osberton, September* 9.

Miscellaneous.

The Flowers of Palms were probably at first Bi-sexual.—That all Palms (or, we might almost say, all plants) had in the remote past bi-sexual flowers, and have ever been tending towards a complete separation of the sexes, is highly probable; for the multiplication of individuals leads to the division of labour in the processes of plant life, as well as in those of men, bees, ants, and other animals dwelling in communities. That the flowers of Palms were originally all bi-sexual and self-fertilised, seems proved also by the existence of peculiarities of organisation calculated to facilitate the process, and (though now become useless) still preserved, wholly or in part. The structure of the male flowers of Geonoma is a case in point. The pistils in these flowers (when present at all) are short and included, and such I suppose to have been their primitive state. The stamens, united below into a tube, have the free portion of the filament folded in at the apex, so as to bring the anthers into contact with the stigmas; and as the anthers burst by the effort the filament makes to unfold itself, some of the pollen must necessarily remain adhering to the stigmas. But the style having grown beyond the stamen-tube in some flowers, the stigmas become exposed and accessible to insects, by whose agency they would be more thoroughly fertilised by the pollen of other flowers. The offspring of the long-styled flowers, being more vigorous, would

at length supplant the original form; so that we now find in Geonoma an effete ovary in the male flowers, a castrated stamen-tube in the female flowers—neither of the two of any actual use, but remnants of a structure which combined active organs of both sexes in the same flower. Some eastern Palms, especially among the Spathelliflorae, are said to have at this day truly hermaphrodite flowers. Among American Palms one finds in some species an occasional bi-sexual flower with all the organs perfect, but it is a case of extreme rarity. Even in Mauritia, where stamens are certainly present in the fertile flower, they have always seemed to me emasculated. *Journal of the Linnean Society.*

Cocoa-nut.—The cultivation of the Cocoa-nut is limited to the regions bordering the Atlantic and Pacific Oceans. As we ascend the Amazon it gradually becomes sterile. At Manaos, 800 miles up, the fruits appear fully formed externally, but are invariably empty. At San Carlos del Rio Negro, almost exactly midway between the two oceans, there were, in 1854, two well grown Coco Palms which had never even flowered. *Journal of the Linnean Society.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

GREENHOUSE or tuberous-rooted *Tropæolums* will have generally commenced growing freely by this time, and will therefore need particular attention. Where any have not yet received the necessary shift into the blooming pots, they should be attended to forthwith. For the rest, as soon as the young rambling shoots have become sufficiently long to require support, this must be afforded them. The full-sized trellis or other support intended to be covered should be placed in the pots at once, and a judicious and artistic system of training be entered upon. The first or primary shoots generally grow pretty freely before there are any symptoms of lateral shoots being likely to follow. If the former are trained in the best manner possible across the whole support, it must follow that the minor shoots which will follow will better aid in filling in all immediate spaces. Where this is not studied, the whole growth will quickly establish itself at the apex, leaving the lower space more or less unoccupied. They like abundance of fresh air and light, and are not fond of too damp an atmosphere. *Blandfordias* may now be shifted into fresh soil. Equal parts of loam, sand, and peat, will suit them well, with a good sprinkling of silver sand. Great care should be taken not to make them too wet at the root during the incoming winter months. They will then make fresh roots early in the spring, and push up robust flower spikes, which are very telling in comparison with their narrow grass-like foliage. Afford the early or winter blooming strain of *Pelargoniums*, such as Rubens, Gauntlet, &c., a nice warm, light, and airy situation, with a moderate supply of root moisture, and give them an occasional damping overhead. These, as I have before intimated, should now be shifted finally into their blooming pots, which it is essential should be small in size compared with the extent of the plants themselves. Those plants which are now about to show flower, such as the many beautiful varieties of *Epiphyllum truncatum*, *Gesnera Cooperi*—an old but very beautiful species, various Orchids, such as certain *Cattleyas* and *Dendrobiums*, and the beautiful and free-flowering *Calanthe vestita*, with its three or more varieties, should be all brought to the fore, and receive that amount of attention which they deserve. In instances where it is not advisable to afford water to the roots of any, no little aid may be afforded them by simply sponging over the leaves with fresh tepid water, as by simply increasing the surface-absorbing capacity, increased aid is insured, to compensate for the strain placed upon plants in the act of blooming.

FORCING HOUSES.

I can add little this week to my reiterated advice regarding *Vineries*, which at this season require but little direct attention, though thoughtfulness should always be observed until the last bunch of Grapes has been cut. The chief point to be attended to in reference to late Grapes arises from the necessity of keeping them back as much as possible as soon as they are sufficiently ripened. The weather we have experienced has assisted us in that respect, when a moderately dry atmosphere prevailed. The *Pines* in various stages of growth should now, as I have more than once suggested, be all nicely housed for the early winter campaign. Plants on which are ripe fruits not required for a few days, may be taken, pot and all, into the snuggest corner of the latest vinery. Here the fruits will keep longer than when severed from the parent plant, and be fresher when required than when hung up under the roof of a fruit room or other similar situation. Those which are swelling freely in a primary stage, immediately succeeding the blooming period, may be excited advantageously by affording a stimulant to the roots in the form of manure water. Keep up a moderate amount of atmospheric moisture constantly, especially in fine bright weather. This should at all times be diminished or increased in conjunction with the external atmosphere. Considering that young *Cucumber plants* have now made a fair start in those houses intended to furnish the mid-winter supply, and that the roots of such plants have begun to extend and ramify throughout the soil, it will be advisable to choose a bright warm sunny day upon which to give them a slight root-watering. First afford an increase of bottom-heat, and have soft tepid water to hand, when it may be freely applied. As they continue to grow, do not omit to pinch out all such tendrils as may form as soon as they appear, as they rob the plants of what they require for ulterior uses. A successional sowing of *French Beans* (dwarf) should also be made, to succeed those already placed in the fruiting pots. Prepare the necessary fermenting materials for the early beds of *forced Asparagus*, and if not previously attended to, see that the surface growth has been removed from such as is intended to be forced, that at least a little rest may be afforded it.

HARDY FRUIT GARDEN.

Persist in brushing the leaves off wall-fruit trees, for the sooner those upon *Peaches* and *Nectarines* are removed the better. These cling very tenaciously to the parent stems this season, and should a sharp frost occur before the wood has had an opportunity of becoming somewhat hardened by exposure to the air, after the leaves have fallen, no little risk of injury will be encountered. The sooner we can get them off without undue violence the better. Give to the *Fruit Room* abundance of fresh air until after the primary sweating of the fruit is completed.

HARDY FLOWER GARDEN.

Those who value present appearances more than the absolute security of many scarce plants, or their gardener's peace of mind, and have still all their bedding stuff fully exposed and not potted up, should at least have all the more important things taken up, and laid in a closed shed, or so, until it is possible to finish all, immediately succeeding the first frost we may experience; for the season wears, and it may not be wise to run any risk beyond what is unavoidable. Plants taken up late should have many of the grosser, more sappy leaves removed; and should dull, November-like fogs prevail, a little fire should be kept slightly going in connection with all structures containing such plants. Give a surface dressing of finely sifted leaf mould or other rich material to beds containing old plants of *Polyanthuses*, and to all plantations of *Pansies*, double *Violets*, &c. This will not only tend to ward off frosts, but will materially assist the roots.

KITCHEN GARDEN.

The old, and now decaying, stems of *Asparagus* should be at once cut off at the ground line and cleared away, and along with them any weeds which may be on the ground. At the earliest opportunity afterwards 2 or 3 inches of well decomposed manure should be spread all over the beds and alleys, if any. It is customary to advise digging the beds over; this I object to, as the *Asparagus* is a surface-rooting plant. The abundant supply of manure we so constantly afford will keep the ground well open, however tenacious the soil may be originally; besides, the roots delight in firmness. This more immediately in relation to large flat beds, not constructed with mid-alleys. The latter will require some of the soil out of the alleys to be placed upon them, in thickness according to the shallowness of the soil, or upon or over the surface of the crowns, for, under any circumstances, the frost must be kept from these latter. Where beds are formed separately, as intimated, a neat workman-like finish should be given to the whole by running a line along the edges, and packing them up straight and neatly therewith. Remove all the lower leaves which part readily from *Brussels Sprouts*, and clear them off. This will admit the air more freely into and around them, and, irrespective of a neat and tidy appearance, will tend to harden them more fully, preparatory to the severe period we may anticipate.

W. E.

TOWN GARDENING.

Chrysanthemums, both large-flowered and *Pompons*, are fast coming into flower. They should be housed, and allowed all the air possible consistent with avoidance of wind, rain, and frost. They should be watered as they may require, with soft water. Waterings of liquid manure should now be discontinued altogether. Where there is not the convenience of a house, a canvas tent will do equally well. This should be so made that the sides can be drawn up during fine weather. Look to the *Hyacinths* that were put aside in glasses in the dark last month. Some of the earliest may be brought to the light; if any of the roots are diseased at the base, and not started, take them out, well wipe them, and replace them in soft water with a small lump of charcoal. By this means I have seen roots recover and flower well, but late. More bulbs should be put in pots and glasses as directed last month, to follow in succession. The beds and borders intended for bulbs should be at once forked over and levelled, and the roots planted. *Tulips* should now be planted about 6 inches apart, and the same distance from row to row diagonally, and about 3 inches deep from the upper side of the root. Each hole should be made with a trowel, and a little silver sand put in; the bulb should be placed in the hole and covered with a little more sand, the earth should be then levelled over and gently patted down with the spade. The following varieties are very distinct, and flower well in town:—Double Tournesol, yellow and red; double Yellow Rose, and double Rex Rubrorum, scarlet; single Pottebakker, white; Triton, crimson; and Yellow Prince. The Hyacinths should now be planted in the same manner as the Tulips, and when the planting is complete, the beds should be hooped over so as to protect them from excessive rains and severe frost. The following varieties are all single, but they are the choicest, and the best adapted for bedding:—Amy, bright crimson; Robert Steiger, crimson; Grand Vainqueur, pure white; Voltaire, waxy white; Charles Dickens, pale blue; William I., purple. The following varieties of *Crocus* are all fine flowers and free bloomers, and make a nice edging round the margins of the beds, planted 2 inches deep, and 2 inches apart, or in patches of five, 2 inches apart, in separate colours:—Queen Victoria, pure white; Sir Walter Scott, lilac purple; David Rizzio, deep purple; Ne Plus Ultra, light blue, tipped with white; Proserpine, fine lilac; and Large Yellow. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Oct. 20, 1869, as observed at the Horticultural Gardens.

October.	Moon's Age.	Barometer.		Temperature. Of the Air.			Of the Earth		Wind	Rain.
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 14	9	30.056	30.005	57	43	50.0	55	54	W.	.00
Friday 15	10	29.783	29.548	59	50	54.5	55	54	W.	.00
Satur. 16	11	29.368	29.248	68	30	44.0	55	54	S.W.	.20
Sunday 17	12	29.821	29.681	50	30	40.0	53	53	N.W.	.04
Mond. 18	13	29.488	29.289	49	33	39.5	50	52	S.W.	.37
Tuesd. 19	14	29.862	29.482	47	26	36.5	50	51	W.	.00
Wed. 20	○	30.121	30.028	51	36	43.5	47	50	N.W.	.00
Average.		29.785	29.611	53.0	35.0	44.0	52.1	52.5		0.61

Oct. 14—Very fine; cloudy; densely overcast.
— 15—Densely overcast; overcast and cold; cloudy.
— 16—Slight rain; showery; clear, and very boisterous.
— 17—Very fine; clear and fine; overcast.
— 18—Heavy rain; heavy showers; clear and fine.
— 19—Overcast; densely overcast; clear and frosty.
— 20—Fine and frosty; very fine; overcast and cold.
Mean temperature of the week, 5 9-10 deg below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending Oct. 30, 1869.

October.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..24	56.3	39.6	47.9	20	0.88 in.	1	1	4	2	10	13	7	2
Mon. ..25	55.9	38.5	47.2	21	0.80	6	6	9	3	4	7	6	3
Tues. ..26	55.6	36.5	46.1	18	0.72	6	7	3	2	8	8	5	4
Wed. ..27	55.1	38.4	46.7	27	0.92	2	7	3	1	7	8	7	8
Thurs. ..28	54.5	35.9	45.2	27	1.03	4	7	3	—	7	14	3	5
Friday ..29	54.0	35.7	44.8	20	0.63	4	8	4	1	5	17	1	3
Satur. ..30	54.9	38.3	46.6	22	0.98	3	8	4	3	6	15	2	2

The highest temperature during the above period occurred on the 25th, 29th, and 30th, 1833; 26th, 1853—therm. 67 deg.; and the lowest on the 28th, 1836—therm. 22 deg.

Notices to Correspondents.

CONSERVATORY PLANTS: *P M.* The plants in a conservatory with the glass left "muffled" through the winter, that is, we presume, constantly covered up, would be in a very sorry condition by the return of spring. As a rule, to which the exceptions are very limited, they require all the light our climate affords at that season. In any severe frost the covering might be retained for a few days without material damage, but the sooner it is removed the better. Of course the ingress of frost must be prevented by artificial heat.

DISEASED CUCUMBERS: *J L C.* Your Cucumbers are affected with that disease which is peculiar to them, and which has committed such ravages throughout the country. It is as inexplicable in its causes and remedies as that of the Potato. We think chills, cold water at the root, or unevenness of temperature may have something to do with its cause. We have, however, never practically had to contend against the evil, although frequently it has come under our observation.

EXAMINATIONS: *G.* asks if an examination will make him an experienced nurseryman and florist! We trow not, unless it were *self* examination and the examiner were possessed of common sense.

FERNS: *Constant Reader.* Lomaria gibba is described by those who have seen it in its native habitats to be an arboreous species, with a stem from 2 to 3 feet high. It is, therefore, quite permissible to class it as a Tree Fern.

FOREIGN FRUIT: *R J.* Yours is a knotty point, the determination of which would turn on the wording of the schedule. Taking the broad view of the question, fruit from the Channel Islands ought not to be shown at an English exhibition as English produce, or put on equal terms with that grown in the climate of England. The reason is obvious—the more favoured climate of the islands in question. And yet, as the Channel Islands are officially included in the English county of Hants, it is difficult to find any legal ground of exclusion.

FUNGI: *G R, Rumford.* Your large Fungus is Agaricus giganteus, an uncommon species, the smaller one Agaricus personatus; both are edible, but the latter is not held in much esteem, and but little is known of the former from its comparative rarity: neither are in any way related to the Chantarelle.—*Mushroom, Gloucester.* Your Fungus is the edible Fairy-ring Champignon. Cook it as you do the Mushroom. —*G M.* The Pear-leaf Fungus, Roestelia cancellata: see p. 1110.

HEATING CONSERVATORY: *A Rosling.* Trotman's hot-water gas Stove proves, we believe, very efficient for heating small houses such as yours. We cannot recommend ordinary gas stoves for the purpose.

NAMES OF FRUITS: *T S M.* Pears: 1, Fondante d'Automne; 2, Passe Colmar; 3, Beurré Bosc.—*G N.* Pears: 1, Beurré Bosc; 2, Comte de Lamy; 3, Glou Morçeau; 4, Figue de Naples; 5, Verulam; 6, Chaumontel; 7, unknown; 8, rotten; 9, Beurré d'Amanlis; 11, Eastern Beurré; 13, Doyenné gris; others unknown. —*Rev. W. M. Rowland.* Apple: Grand Faros.—*J Innes.* 1, Williams' Bon Chrétien; 2, Louise Bonne of Jersey; 3, Flemish Beauty; 4, unknown; 5, Glou Morçeau; 6, Beurré Diel; 8, Beurré Diel; 10, Shobden Court; 11, Vicar of Winkfield; 12, Glou Morçeau; 13, Williams' Bon Chrétien; others unknown.

NAMES OF PLANTS: *Stewkley.* 1, Pyrus pinnatifida; 2, Staphylea pinnata; 3, Berberis (Mahonia) Aquifolium?—*A D B.* Maxillaria ochroleuca, a very old kind, not seen for the last 25 years, and not worth re-introducing.—*R G L.* The plant is Galinsoga parviflora, introduced from Mexico some few years since, and now spreading widely in market gardens near London.

NUT: *W J Epps.* Corylus Colurna, the Constantinople Hazel.

PAINT FOR HOT-WATER PIPES: *A D.* Use the black oxide of manganese.

SUMMER VINE BUDDING: Will "J. S." oblige us with his address, and further state where and when he practised summer Vine budding for seven years?

THE EARLY SANDRINGHAM KIDNEY POTATO: *D W* asks "if the Potato advertised under this name was raised at Sandringham, and whether it is really good for anything. It would be very satisfactory to our correspondent and others "to know this, because they might be tempted to purchase any new vegetable raised at Sandringham, believing that Mr. Carmichael would not sanction its being introduced to the public unless it were really good." We learn from Mr. Carmichael that the Potato was not raised at Sandringham, and that he did not know anything about it until he saw it advertised.

TUBEROSES: *Young Gardener* will find the culture of these plants fully explained in our last year's volume, p. 1016. The soil should be a very rich loam.

TULIP TREE: *H J C.* This tree ripens its seed occasionally in England, and generally in France. It is, however, stated that these seeds do not germinate so freely as those imported from America.

ERRATA.—In Mr. Bonnett's remarks on the ribbon border at Rufford, at p. 1088 col. *b*, read 112 yards instead of feet.—P. 1088, in Mr. Sago's letter, for 16 feet read 160 feet.

COMMUNICATIONS RECEIVED.—Vilmorin & Co.—J. J.—A. B.—W. C. (thanks).—T. J.—D. M.—J. Y.—W. W.—H. Hepburn, —J. M.—M. A.—A. S.—F. W. B.

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Price, including bags, Five Guineas per Quarter, by the Quarter or Half-quarter; One Guinea per Bushel for less than a Half-quarter, delivered at the Brighton Station, in bags sewed up, sealed, and containing printed directions for planting, upon receipt of Cheque or Post Office Order, without which it will not be sent to unknown Correspondents. Less than a bushel not supplied.
Apply to Captain HALLETT, F.L.S., The Manor House, Brighton.

LAWES' WHEAT MANURE, for AUTUMN SOWING, now ready for delivery.
All other Manures and Cakes as per Price List, supplied on the lowest terms. Apply for prices, &c., to JOHN BENNETT LAWES, 59, Mark Lane, London, E.C.; Dublin, and Shrewsbury.

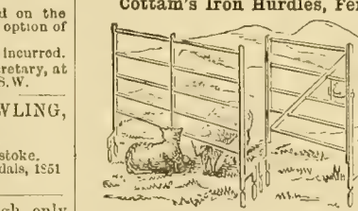
REES AND CO.'S BIPHOSPHATED PERUVIAN GUANO (Registered Trade Mark, Flying Albatross), is now ready for delivery in quantity and in fine condition. It is believed to be the best Artificial Manure yet produced. Its base is Peruvian Government Guano; it contains 21 per cent. of Soluble Phosphates, 6 to 7 per cent. of Ammonia with Salts of Potash. See reports of Dr. Voelcker, Dr. Anderson, Professor Way, Mr. Ogston, and Mr. Sibson. Delivered in 2 cwt. bags, each of which is secured by a leaden seal, bearing the Company's Trade Mark. The analysis is guaranteed so long as the seals remain unbroken.
Agents for the North of England—Messrs. Keighley, Maxstead & Co., Hull. [Aberdeen.
Agents for Scotland—Messrs. Richard Connor & Co., Glasgow and
Agents for Ireland—Messrs. R. F. Gladstone & Co., Dublin.
REES AND CO.'S Biphosphated Peruvian Guano Company (Limited), 32, King William Street, London, E.C.

Autumn Sowing.
ODAMS'S NITRO-PHOSPHATE or BLOOD MANURE for WHEAT.—This Manure, specially prepared for Autumn Sowing, is rich in Ammonia, Phosphates, and other ingredients required for the healthy growth of Grain Crops. Analysis of Blood and the grain of Wheat show that they are nearly identical in composition, hence the value of Blood as an ingredient in Manure. It may be applied at the rate of from 3 to 4 cwt. per acre, according to the condition of the soil, either drilled with the seed or sown broadcast; if the latter, it should be well harrowed in. Prepared by the Patent Nitro-Phosphate or Tenant-Farmer's Manure Company, whose Members are Cultivators of upwards of 50,000 acres of land, which has been for years under management with Manures of their own manufacture; consequently the Consumer has the best guarantee for the genuineness and efficacy of the Manures manufactured by this Company.
Particulars will be forwarded upon application to the Secretary, or may be had of the Local Agents. C. T. MACADAM, Sec.
Chief Offices, 109, Fenchurch Street, London, E.C.; Western Counties Branch, County Chambers, Exeter; Irish Branch, 40, Westmoreland Street, Dublin.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)
Have now ready for delivery, in fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES.
Also Genuine PERUVIAN GUANO, and NITRATE of SODA ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c.
E. PURSER, Secretary.
Offices, 116, Fenchurch Street, E.C.

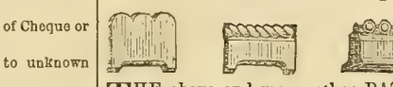
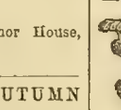
"Every Cottage should be provided with a Water Tank." *Disraeli.*
Iron Cisterns.
F. BRABY AND CO. having laid down more extensive and Improved Machinery on their Deptford premises (IRA WHARF), are prepared to supply WROUGHT-IRON TANKS, GALVANISED or PAINTED, of superior quality, at reduced prices, and at very short notice.


An Illustrated Price List of Galvanised Iron, and other of BRABY'S special Manufactures, sent on application.
F. BRABY AND CO., Limited, Fitzroy Works, Euston Road, London; or through all respectable Ironmongers.
N.B. Open Tanks of different sizes packed one in another to save carriage.

Cottam's Iron Hurdles, Fencing, and Gates.

COTTAM'S HURDLES are made in the best manner, of superior Wrought Iron, by an improved method. Illustrated Price Lists on application to COTTAM AND CO., Iron Works, 2, Winsley Street, Oxford Street, London, W.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.

Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rick dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of Iron. Prices of Fittings per Cow, 55*s.*
Prospectuses free of COTTAM AND CO., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

Rosher's Garden Edging Tiles.

THE above and many other PATTERNS are made in Terro-Metallic Ware, Terra-Cotta, Stoneware, and Redware, and of great durability. The planer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability and superior finish, and in much variety of design.
F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.E. Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs. Likewise more elaborate designs. Pattern Sheets of Pavements, with prices, forwarded for selection.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.
To be obtained of F. & G. ROSHER, at their premises as above.

SILVER SAND (REIGATE), at the above addresses—14*s.* per Ton, 1*s.* 2*d.* per Bushel; 2*s.* per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1*s.* per Ton less. A coarser grained Sand 4*s.* per ton more. Samples of Sand by post on receipt of stamp.
FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEAT and LOAM supplied at lowest rates.
F. & G. ROSHER.—Addresses see above.
N.B. Orders promptly executed by Railway or Vessel.
A liberal discount to the Trade.

Wheat Sowing.
DOWN'S FARMER'S FRIEND for Preventing the Smut in Wheat, and the Ravages of the Slug, Grub, and Wireworm. A 9*d.* packet is sufficient for Six Bushels of Seed Wheat, which can be dressed and fit to sow in a quarter of an hour.
Testimonials from the largest Wheat Growers in the Kingdom, bearing testimony to its great power and efficacy, may be had of Agents, who are appointed for every district.
Full directions for use are given with each packet.
Prepared at the Manufactory, Woburn, Beds.
CAUTION.—To guard against fraudulent imitation and consequent disappointment, see that the signature of HENRY DOWN is on the label.
Agents in every Town throughout England, Scotland, and Ireland.

MOST UNDOUBTEDLY the LARGEST ROOT SHOW in the Kingdom is held at GLOUCESTER annually on NOVEMBER 9. PRIZE LISTS for the forthcoming Show are Now Ready. The following PRIZES are offered for—

SWEDES and TURNIPS	..	..	..	..	£37
MANGELS	..	..	..	..	20
POTATOS	..	..	..	..	10
WHEAT and BARLEY	..	..	..	..	11
APPLES and PEARS	..	..	..	..	15
CIDER and PERRY	..	..	..	..	10
					£103

A comparison of these figures with those of any other Root Show in the Kingdom will show that the Gloucestershire Root Show is the largest. The number of Entries at the last Show exceeded 500.
Forms of Entry may be had gratis of
Gloucester. A. C. WHEELER, Hon Sec.

The Largest Root Show in the Kingdom.

THE ROYAL BERKS ROOT SHOW will be held at READING, on SATURDAY, November 27, when PRIZES amounting to more than THIRTY-FIVE POUNDS will be awarded to the best specimens of MANGEL WURZEL, SWEDES and TURNIPS, KOHL RABI, CARROTS, &c. Latest day for receiving Goods, November 25. No charge made for entry. For complete Lists of Prizes, apply to
SUTTON AND SONS, Reading, Berks.

THE BIRMINGHAM CATTLE and POULTRY SHOW.—The TWENTY-FIRST GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS, and IMPLEMENTS, will be held in BINGLEY HALL, on SATURDAY, MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 27, 29, and 30, and December 1 and 2, 1869, when PRIZES to the amount of nearly £2100 will be awarded in the following Divisions, viz.:—

FAT CATTLE	£807 19 0	BREEDING PIGS	.. £77 2 0
FAT SHEEP	.. 310 8 0	ROOTS and CORN	76 16 0
FAT PIGS	.. 59 11 0	POULTRY and PIGEONS	747 14 0

Prize Lists, Certificates of Entry, and every information may be obtained from the Secretary.
The ENTRIES CLOSE on MONDAY, November 1.
JOHN B. LYTHALL, Secretary.
Offices, 39, New Street, Birmingham.

SMITHFIELD CLUB FAT CATTLE SHOW.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY afternoon, December 6, and Four following Days.
Intending Exhibitors are requested to apply for Certificate Forms by the reference letters as under.

CATTLE.—Form A.		For an OX or STEER (in any Class).
	,, B.	For a COW or HEIFER (in any Class).
	,, C.	For a BEAST in Extra Stock.
SHEEP.	,, D.	For a PEN of three WETHERS (in any Class)
	,, E.	For a SINGLE SHEEP in Extra Stock.
PIGS.	,, F.	For a PEN of three PIGS (in any Class).
	,, G.	For a SINGLE PIG in Extra Stock.

ENTRIES for LIVE STOCK CLOSE NOVEMBER 1.
Prize Lists, Forms of Certificates, and all information may be obtained on application to Mr. DAVID PULLEN, Assistant Secretary, at the Office of the Honorary Secretary, corner of Half-Moon Street, Piccadilly, London, W.
N.B. All communications respecting the Show must be addressed to the Assistant Secretary, as above, and should bear outside the words "Smithfield Club Show."

The Agricultural Gazette.

SATURDAY, OCTOBER 23, 1869.

WHETHER it be the best "steam tackle," or the best invention of any other kind that is desired, there are at least two ways in which the truth upon the subject may be sought for. One very easy method is that the public should simply pin their faith to official judgment. The other is that they should trust themselves; using all the opportunities for self instruction with which the energy of rival salesmen, rival manufacturers, rival advertisers if you will, is certain to supply them. In considering the relative merits of these two methods, we may in the first place readily admit that it is a very fortunate thing for the efficiency of each that the other is in full swing of influence and operation alongside of it. It is well that National Agricultural Societies should organise public trials of competing implements, and issue reports of them drawn up by men specially selected as trustworthy. Their awards cannot fail of being among the most weighty of the particulars by which the private judgment of a purchaser will be influenced. But it is very fortunate for him and for the "public"—which is only another word for *him*—that such official trials are not satisfactory. Not that *that* word does not generally apply with a certain degree of fitness; but that, as a matter of fact, such trials do not satisfy. It is only the First Prize-man who is satisfied, and he not always. Everybody else, from the *Mark Lane Express* downwards, is "never loath to bring these authorities to book."

We quote our contemporary as thus inevitably agreeing with us that, after all, private judgment is the better and the higher court by which the question of merit has finally to be determined, notwithstanding that the general tone of its remarks upon the recent steam cultivation trials at Peterborough is calculated to discourage any other assistance to private judgment than the official programme offers. The *Mark Lane Express* does not indeed object to the farmers present at these trials having had the opportunity given them of judging for themselves; but understanding beforehand about the proposed meeting that "the proceedings are mainly advertisements," it resolved not to send a reporter. But this seems to us to be abdicating

the position of a journalist altogether. In the first place — Why should a newspaper object to advertisements? And, in the second place, what purpose does an agricultural journal serve if it will not work for the information of those farmers who cannot be present. We do not see that the writer justifies himself by the explanation which he offers:—

"Let us still more thoroughly illustrate this," he says, "by assuming that we had deputed some one to attend at Peterborough; and gentlemen who occasionally favour us with reports often act as judges themselves. To have made, then, his account worth anything, our representative would have had to speak out, to give a preference to, or to declare against some particular performance, or some particular implement; and so surely as he did so would somebody straightway write to correct any such an impression."

Well, but surely this is exactly what, in the interests of truth, we all desire! For ourselves, we believe that our columns are the most serviceable, not when the Editors have them nearly all to themselves, but when correspondents, differing possibly as black and white, are in full tide of discussion.

We cordially welcomed Mr. TOEPFFER on one view of the Peterborough results, and Mr. SMITH upon the other. Our readers thank us for the picture which has thus been given of both sides of the shield. And so may the readers of the *Mark Lane Express;* for the interest of its article on the Peterborough meeting rests very much upon the extracts which it gives from papers which, it seems, we had unwittingly accepted after it had refused to publish them.

One other extract, however, we must give, which is original. The contrast which our contemporary asserts to exist between the official judgment and that of any independent person, whether its own reporter or not, is very amusingly put:—

"When judges are appointed it is a very different matter: we are then quite willing to give the lucky recipient all the benefit of the decree in his favour, although if the judges should have made a mistake our readers will allow that we have never been loath to bring these authorities to book."

Of course! Everybody knows the perfect independence and straightforwardness of the *Mark Lane Express*. We say so with the most cordial admiration of it. All we contend for is that our contemporary is not very logical in refusing to give, publish, or promote a private discussion, decision, or award, on account of objections, to which, on its own showing, it appears that the official reports, which it allows, are equally obnoxious.

THAT part of the CONTAGIOUS DISEASES (ANIMALS) ACT, which relates to the management of live stock when attacked by contagious or infectious diseases, has excited a good deal of interest during the past fortnight.

At the Michaelmas Sessions, special, general, or quarterly, which have been held throughout the kingdom, the question—how to carry out the Act—has come under consideration. In most instances the magistrates have delegated their powers to a general committee, who in turn have appointed local committees of magistrates and farmers, whom they have designated as the local authority to put the Act in force.

In most of our cities and boroughs, also, the municipal authorities have nominated committees to carry out the details of the enactment, so that the measure, as it affects our home stock under disease, may be stated to be now in general operation throughout the country.

The first part of it, which has been in operation some time, has been already fully discussed. The regulations affecting the home transit of cattle have not yet, however, been definitely settled; and instead of acting hastily and inefficiently, the Lords of the Privy Council have, as our readers are aware, appointed a special committee to consider the whole subject. And they, with equally commendable prudence, have issued circular letters, asking for information and suggestions for their guidance from various agricultural authorities.

Many of these suggestions have been published. It is for the committee to winnow and sift the several proposals, after which the Privy Council may issue its Orders, so as to complete and perfect this part of the Act.

It is to the third division of the subject—the management of our home-fed stock when affected by contagious or infectious disease—that we refer especially, when we speak of the adoption of the Act by the several Michaelmas Quarter Sessions now being held in England and by the municipal authorities of our cities and boroughs. And we ask, What is the reason of the extraordinary delay which has taken place in carrying into effect this portion of the Act?

Six weeks ago we wrote, "the question is simply this—unless the powers of the Act are put in force at once in every district where there is a local bench of magistrates, the inquiry will not be, Where is the disease? but, Where is it not? The loss on the live cattle of England, should the disease continue to progress at the rate it is now spreading, will in a month amount to as much as would buy a small principality."

This was not done; and hence, no doubt, in great part the news of foot-and-mouth disease which we receive from every part of the kingdom. After a delay, during which the disease has had time to spread without hindrance, it will be a much more costly and laborious work to wield the powers of the Act over so wide an area as now requires their operation.

Permissive legislation is at all times unsatisfactory; and to make regulations which have an important influence over our foreign and home trade in live stock, and to leave the agency by which they have to be carried out to be appointed by an authority which is not bound to act *for two* or *three months* is a grave mistake, unjust to the measure itself, by not giving it a fair chance, and injurious to the public interest.

The Orders issued by the Privy Council should have been not only imperative, as the term implies, but also immediate in operation. If this had been the case we should not have seen the authorities deliberating in October on the best mode of working an Act and Orders published two months ago. At the West Riding of Yorkshire Sessions, Mr. J. D. DENT, M.P., in introducing the subject alluded to this delay, and said, "It would have been a good thing if the Act had been earlier put in force;" and we are surprised that there has not been more general surprise expressed that a measure which was deemed urgent in July has not been called into operation, in one of its most important sections, till now, three months later.

All the powers of that section of the Act which relates to the foreign trade were put in exercise at once. Another equally important section has been left inoperative for ten weeks, and has passed almost unnoticed. The results are before us in the presence of pleuro-pneumonia, fatally in many localities, and in the almost universal spread of foot-and-mouth disease throughout Great Britain. It has entered nearly every feeding house and dairy, destroying tons of beef, and reducing the value of thousands of store stock from 2*l.* to 5*l.* each. The capital of the farmer has been wasted, and the food of the consumer has been destroyed. To the working man, who without meat cannot work, and to his children, who ought to have milk, the scarcity which has been thus created is a visitation of consequence, beyond money estimate.

— A TURN in the downward prices of Wheat has at length taken place, and throughout the country the rise of 1*s.* to 2*s.* at Mark Lane has been fully sustained. Oats are 1*s.*, and Maize 6*d.* per quarter dearer. Fine malting Barley is actively inquired after, at extreme rates.——The trade in British animals and meat is good, but an unusually large supply on Thursday caused prices to fall to 5*s.* 6*d.* per 8 lb. for beasts. Prices for prime sheep touched 6*s.* per 8 lb.——The seed trade is limited; winter Tares and Rye are both cheaper.——In wool a steady business has been done, but not at higher prices.

— We have received just as we are going to press the following letter on the foot-and-mouth disease and on the Act of last session, from Mr. C. RANDELL, of Chadbury:—"While acting under the recent Order in Council in carrying out the provisions of the Cattle Diseases Act, 1869, with the view of checking the spread of foot-and-mouth disease, it has appeared to me most desirable that we should know what we are to do, when, in spite of all precautions, it attacks our flocks and herds. I have asked one of the highest veterinary authorities we have to tell me, for the benefit of others as well as on my own account, what course to pursue, and I feel sure you will willingly make known the advice which he kindly allows me to publish. He says: Simple remedies are much to be preferred, and in very many cases nitrate of potash thrown into the drinking water, at about the rate of half an ounce to a gallon, is all that is required. It is, however, better that nitrate of potash be alternated with the sulphate of soda, given in the same quantity and in the same manner. The feet should be kept as clean as possible, and only the detached horn removed with the knife. I believe also that a solution of the nitrate of potash, 4 ounces to a pint of water, is as good an agent as can be used in the early stages of the disease; diluted carbolic acid one part, water 20 parts, may be required later on. Nothing but strict isolation is likely to succeed as a preventative. When the disease exists in a district, farmers ought to use means equally as rigid as those adopted for the sequestration of their animals at the time of cattle plague. As a rule, sheep suffer less than cattle, excepting in their feet. Local applications are, therefore, all that will be required, and these may be the same as used to the feet of cattle."

— We direct attention to the annual prize list of the Smithfield Club. The special prizes offered this year include 100*l.* for the best beast; 50*l.* for the best pen of sheep, 10*l.* for the best single sheep; and the above are in addition to the usual Cups and Prizes, so that the best beast may win the 100*l.* Plate and 40*l.* Cup, the money prize in the class, and a Gold Medal to the breeder. The sheep may win the 50*l.* Plate and 20*l.* Cup, the money prize in the class, and a Silver Medal to the breeder. The entries will close on Monday, November 1.

— Cattle diseases were reported on by Mr. DUNNE, chief constable of Cumberland and Westmoreland, to the Quarter Sessions, on Wednesday last. He gave details of several cases of both pleuro-pneumonia and foot-and-mouth disease. This latter appears to have been introduced into Westmoreland by the cattle sold at Appleby on the 24th of September last by Mr. ATKINSON, of Spittal, Stainmore, who has accordingly been summoned before the magistrates at Appleby and fined. At the Warwickshire Quarter Sessions on Tuesday, a return of animals affected by the foot-and-mouth disease was presented to the Court by the Clerk of the Peace. Since September 5, when it first broke out, 2565 cattle have been attacked, of which 1859 recovered, 60 died, two were killed, and 644 remain under treatment. Only two petty sessional divisions are entirely free from the disease, which is most prevalent at Coleshill, Atherstone, Kirby, Kenilworth, Warwick, and Brailes. A committee of magistrates of each petty sessional division was appointed by the Court to strictly enforce the provisions of the Cattle Diseases Act in the county.

— The Herefordshire Society held its show at Hereford, on Tuesday last, when 26 classes of cattle, sheep, horses, and pigs were exhibited. For the best bull, cow, and offspring, Mr. A. ROGERS, of Kington, was awarded the 1st prize, and Mr. ARKWRIGHT, Hampton Court, Leominster, the 2d. Mr. EVANS, jun., of Swanstone, was 1st in yearling bulls. The prizes of M. BIDDULPH, Esq., M.P., for 2-year-old bulls, were taken by Mr. HARDING, Bicton, Shrewsbury; and Mr. EDWARDS, Wintercott, Leominster. The Rev. Sir G. H. CORNEWALL'S prizes for 3-year-old bulls were taken by Mr. WILLIAMS, Kingsland, and Mr. TAYLOR, Ledbury. Only one entry was made for Lord BATEMAN'S prizes for the best lot of beasts, irrespective of sex; and the highest prize was awarded to Mr. EVANS, jun., of Dilwyn. For yearling heifers, Colonel CLIVE, M.P., offered prizes, the 1st of which was awarded to Mr. HARDING, and the 2d to Mr. FENN, of Ledbury. Sir H. G. COTTRELL, Bart., offered prizes for 2-year-old heifers, the 1st going to Mr. TUDGE, and the 2d to Mr. WILLIAMS. J. KING, Esq., offered prizes for pairs of young steers, but there was no competition. Sir H. CROFT, Bart., M.P., and C. W. HOSKYNS, Esq., M.P., offered prizes for pairs of older steers, but the awards were of local importance only. Thus, it will be perceived that the Herefordshire Society has the good fortune to find its funds and prize lists largely supplemented by the public spirit of gentlemen of the county. Many of the prizes for other animals are raised in the same way. Mr. TANNER, of Dorrington, took the lead in Shropshire sheep, Mr. DAVIS, of Webton Court, being a good 2d. The pigs and horses were only of local interest. With two entries of hunter stallions, the prize of 10*l.* was awarded to Mr. J. PRICE, jun., Ludlow. The cart stallion prize was withheld for want of merit; and for the prize given by J. H. ARKWRIGHT, Esq. (10*l.*), there were only two entries.

— Competition in fertilisers is, it appears, to be largely added to the present elements of rivalry between this country and the Continental States. According to the *Economist*:—

"The arrangement which the Peruvian Government has just entered into, with a combination of French and German houses, for the sale to them of 2,000,000 tons of guano, is said to obviate the necessity of any public loan, but has the borrowing element clearly mixed up with it. The so-called buyers are to have 'a mortgage on all the guano in Europe, and the proceeds of sales, and also on all the guano deposits in Peru,' in return, we suppose, for the 10,000,000*l.* which the Peruvian Government is to net by the transaction, and which it is to repay by delivering 2,000,000 tons of guano instead of a sum in money. Until the repayment the mortgage on all the guano of the Peruvian Government is general. The arrangement is altogether a peculiar one, and is complicated by the circumstance that the 'combination' are only to be second mortgagees, and that the present consignees are to conduct the sales of the article under existing contracts until October 31, 1872. The combination will certainly be powerful monopolists, though they will not exactly control all the guano in the world; and though it is also stated artificial manures are coming into more and more formidable competition with the natural guano.

OUR LIVE STOCK.

THE sale of Mr. Kearney's Shorthorns at Miltown, Kells, Ireland, came off on the 13th inst. Two-thirds of the animals trace directly back to purchases obtained at the great Chilton sale, in the county of Durham, in 1829. Sixteen of the cows and heifers and two bulls are descendants of *Britannia*, by MONARCH (lot 8, Chilton sale), and 13 females are representatives of *Portia*, by CATO (119) (lot 2, Chilton sale), whose portrait may be seen in the 3d vol. of the Herd Book. The cattle were poor and low in condition, especially the heifers, the company was not large, and with two or three exceptions the prices realised were not high. The 51 cows and heifers averaged 26*l.* 11*s.* 4*d.*, and the five bulls 25*l.* 14*s.* 6*d.* each—the average over the 56 animals being 26*l.* 9*s.* 10½*d.*, and the entire sum

realised 1183*l.* 13*s.* The first four lots sold at prices varying from 19 gs. to 24 gs. *Waterloo 22d*, one of the Bates' Waterloo tribe, must have been cheap at 25 gs.; *Britannia 3d*, by Rex (16,833), was bought by Mr. Garnett for 32 gs.; *Britannia 4th* was bought by Col. Leslie, of Glasstough, for 30 gs. *Victoria Alba*, by Prince Alfred, and from a daughter of Mr. Barnes' 500-gs. *Victoria*, was bred by Lady Pigot. When she entered the ring a considerable excitement ensued, and bidding did not cease till she was knocked down at 200 gs. to Mr. How, of Broughton. After this prices ranged from 20 to 30 gs., until *Louisa 6th* (lot 19) was put up, and sold at 11 gs. to Mr. Garnett; *True Love*, by Dr. McHale, was bought by Mr. E. J. Smith for 44 gs.; *Louisa 7th* fetched 30 gs., and goes to King's Fort; and *Village Belle*, by Royal Duke, was sold to Mr. G. Atkinson, of Seaham, for 56 gs. The bulls brought a higher average than the cows. Prince Bertram, by Prince Bertie, and of the well-known *Bonnet* and *Bliss* family, was purchased by Mr. Garnett for 50 gs.; and Lord Branches, a son of Belligerent (23,401) and *Victoria Alba* (lot 9), became the property of Mr. W. S. Woodroffe for 40 gs. The remaining bulls were mere calves, and brought respectively 7, 8½, and 17 gs.

—— Mr. Thornton announces a sale of pure-bred Alderney cattle, the property of Charles Hill, Esq., at Harrow Lodge, near Romford. The sale will take place on Tuesday, November 9, and will afford an excellent opportunity for obtaining animals which will yield to none for dairy purposes. The cattle are described as thoroughly acclimatised, of dark fawn colour with black points, of large size, and accustomed to be out-of-doors all the winter.

—— Fifteen cows and heifers and five bulls, all pure-bred Shorthorns, are to be offered for sale, near the railway station at Kendal, on Monday, November 1. These cattle are the property of the Rev. Thos. Staniforth, and will be sold by Mr. Wm. Kirby, of Windermere, auctioneer. Five of the lots are served by the well-known Peer of the Realm, one is served by Evanda (23,897), a Cressida bull bred by Mr. Dickinson, of Ulverstone, and another is in calf to Grenadier (21,876), bred by Mr. Staniforth, and descended from *Foggathorpe* by Marlboro' (1189). "The females," writes a contemporary, "which will commend themselves most directly to the Shorthorn public, are probably *Minstrel 3d*, *Georgie*, *Grace*, *Red-and-White*, and a 3-year-old heifer of the same name. The first of these, *Minstrel 3d*, by 10th Grand Duke (17,739), from the Holkar sale of 1861, is of the Gwynne tribe. Considered rather doubtful as a breeder when bought, she has produced five calves since then, and is now in calf to Peer of the Realm since June 21. *Georgie* is of the same family as *Grenadier*, and is by Mr. Richard Booth's Elfin King. *Grace* springs from *Medora* by Ambo, with subsequent crosses of Farnley and Springfield bulls; and the two lots named *Red-and-White* are both of the Foggathorpe line—the latter (lot 10) doubly so, Grenadier being her sire."

—— The seventh volume of the Hereford Herd Book appeared at the commencement of the present month. The list of bulls ends with No. 3636, and the volume is pretty equally divided between bulls and cows. Mr. Duckham, in his preface, speaks of the increasing number of his supporters in carrying on this important work, but expresses his regret that owing to the difficulty of obtaining the necessary information from breeders, the publication of the present volume has been delayed for some months. Excellent lithographs of no fewer than 12 famous Herefords enliven the pages of the volume. At the conclusion of the long list of cows and the usual index of names of breeders and animals, is the appendix promised in the sixth volume, showing the prizes won at agricultural shows by animals entered in the preceding pages. It is to be regretted that in this valuable addition the indexing should be so imperfect. In attempting to look up the pedigree of prize animals mentioned in this list, we were frequently unable to find it on the page to which we were referred. Thus, the pedigree of *Duchess of Gloucester*, first at Birmingham and Smithfield in 1864, is said in the appendix to be on p. 3, the portion devoted to bulls; and he who seeks for the pedigree of Ostorius, first at Manchester last summer, is referred to p. 328, devoted to cows. We should not have mentioned this had not similar errors occurred throughout the appendix. The able lecture read by Mr. Duckham before the Breconshire Chamber of Agriculture, upon Hereford cattle, last January, forms a very readable and instructive termination to this volume.

—— A New Zealand correspondent, whose letter has only just come to hand, says:—"I was very much pleased to see that Mr. Rich's sale of cattle went off so well, as we have some of his stock here. We have had two bulls and a cow from him—one of the bulls by 7th Duke of York; and have now the commencement of a herd of pure-bred Shorthorns, namely, two bulls and seven females, besides three bulls sold, which I think is very well for five years' increase. I can quite corroborate what Mr. Willoughby Wood says about the value of blood and its effect on common stock, for we have now about 300 of what we call half-bred stock, some of which are now calving to a pure-bred bull, and it would take a good judge to distinguish the calves from pure-bred Shorthorns.

—— The entries for live stock at the annual exhibition of the Smithfield Club close on November 1. The show at the Agricultural Hall, Islington, commences on Monday afternoon, December 6, and will remain open for the four following days.

Sheep.—If our last report from Ravenstone may be taken as a fair criterion of the prosperity of Leicester flocks, Leicester men need not fear the competition of other breeds. We select Mr. Cresswell's flock as a fairly representative one: it is not large numerically, but for quality, size, wool, and character, the sheep composing it will give place to few. There are 93 ewes, and these last season produced 154 lambs, counting all dead and alive. This is only additional evidence as to the unwonted largeness of the fall of lambs last spring. The rams let and sold remarkably well, several lots going into France, in some cases accompanied by ewes; others went to Denmark, and the home demand was above the average. Mr. Cresswell has somewhat reluctantly shipped some of the present year's lambs into France. The flock has not been so fortunate as usual in taking showyard honours, but in spite of this drawback the demand for rams has been larger than in any past year.

THE AGRICULTURAL LABOURER.

[The following letter on this subject appeared in yesterday's *Times*.]

In the *Times* of Friday, Oct. 15, there appeared a letter from the Rev. F. O. Morris, which gave an account of the condition and prospects of the agricultural labourer on the Yorkshire Wolds, and which showed that with care and prudence, and if blessed by health, he is by no means so destitute of present comfort, or so unable to make provision for the future, as Canon Girdlestone, Professor Rogers, and others holding similar opinions represent him to be.

I believe that in the agricultural districts of the West Riding of York our labourers are quite as well off as in the East Riding. Wages range from 13*s.* to 15*s.* per week, and at the harvest time, when men are engaged by the day, they receive from 18*s.* to 20*s.* per week for four or five weeks, as well as their meat. At the same time many married men take harvest work by piece, and with their wives and children follow the reaper, taking up, binding, and setting up the corn; and the wages which they earn are certainly equal to those of the single men. As an instance of what may be done at these times, I can mention a boy of 12 years of age, who earned, in 1868, 20*s.* and his meat, and in 1869, 25*s.* and his meat at harvest work during his Midsummer holidays, 1*l.* 17*s.* 6*d.* of which I am happy to say he has invested in the savings' bank.

In this neighbourhood a portion of land sufficient to keep a cow is attached to many cottages, and if no garden be contiguous to the house, there is generally an allotment of a rood of land in the garden field. A cottage with a rood of land lets for 3*l.* to 4*l.* a year. The parish in which I reside contains about 600 inhabitants, and is purely agricultural. We have in it 25 holdings, containing from 3 to 8 acres of Grass each, which, together with the cottage, cow-house, &c., are let at rents varying from 10*l.* to 30*l.* per annum. Of these 20 are occupied by men who are either at present agricultural labourers or have been so for the greater portion of their lives; and who have made what money they possess by care, industry, and good management as agricultural labourers. Several own a couple of cows, and probably winter three or four ewes. On one of these small takes I saw 12 ewes this autumn, the property of a man working as an agricultural labourer, but whose wife and daughters make something by taking in washing. In several of these cases the occupiers would gladly take more land; indeed, one of them has recently taken 16 acres of arable land in addition to his Grass, but I am rather afraid he may have undertaken more than he can manage.

The Claro Savings' Bank, which has branches at Knaresborough, Wetherby, and Pately Bridge, numbers among its depositors a very large proportion of agricultural labourers of both sexes. Our single men and women are usually hired for farm service from year to year at the statutes at Martinmas. For many years I attended as one of the managers of the savings' bank on the market-day in November after the yearly wages are paid, and I can, therefore, speak from personal experience of the number of male and female agricultural servants who came at that time to deposit a portion of their wages in the bank. They often commence as mere boys and girls with a sovereign, and increase the deposit each year, until by the time they are one or two and twenty young men will have sums varying from 30*l.* to 40*l.*, and women from 20*l.* to 30*l.* Some, indeed, who are careful, industrious, and have got situations as foremen or shepherds, will have very much larger sums; and, with reasonable care and health, no young couple in this neighbourhood who wait to marry until 25 should have less than 50*l.* to 60*l.* with which to start in the world. Unfortunately very many, probably the greater number of them, do not save. Dress with the girls, drink and careless love of pleasure and company with the lads, sometimes the wants of improvident parents, take all their earnings; and if they marry at one or two and twenty they have to take any cottage they can get, and are hardly tried to bring up in decency the large families which usually follow such early marriages.

Much may be done by the clergyman or schoolmaster in the way of inculcating the habit of saving. At the last Martinmastide my brother, who has charge of this parish, received for investment in the savings' bank 102*l.* from 14 young men and women, all in agricultural service, who had been educated at the National School, and several others invested their wages themselves.

I can also corroborate Mr. Morris' statements as to the kindness and sympathy generally shown by farmers to their servants and labourers. There is among some of them a carelessness with their lads in their houses, and a want of kindly supervision, which I fear is not peculiar to them, but is shared by many in higher ranks; but to the old and sick poor their ready help and sympathy are seldom wanting; and many are the regular dinners sent from the farmhouse, together with other comforts, if there be sickness or distress in the labourer's cottage.

At the same time I must confess that there are many cottages here and in this neighbourhood which are deficient in sleeping accommodation and in sanitary arrangements. Very much wants doing, and the difficulty is to find the means to do it, and to secure a fair return for the money laid out. Many landowners have the will but not the means to put their cottages into thorough order, for there is not merely the outlay upon new cottages to be considered, but also the loss of rent, on those which ought to be pulled down. If the Government would advance money for cottage building, as was formerly done for draining, I believe many landowners would welcome it as a great boon.

There is another point, too, in which I think we have, perhaps, gone too far, viz., in throwing together farms and doing away with small occupations. We have been trying to get men of larger capital, with improved implements, and a wider field for agricultural science, and have overlooked the incentive to industry which the hope of a small farm held out to many a provident labourer. Too often a small man of that class has embarked in an undertaking beyond his means, and has failed; but to compensate for this there are many who have started as agricultural labourers, and by their own industry alone have raised themselves to the class of comfortable farmers. I must apologise for the length of the letter, but I believe it is a fair statement of the condition of many of our labourers. *John Dent-Dent, Ribston Hall, Wetherby. October* 18.

THE STEAM CULTIVATION CONTROVERSY.

The steam-ploughing and steam-cultivating controversy does not appear to be in a happy state, viewing it sentimentally, nor in a satisfactory condition, if we apply to it either a logical or commercial test. The points in dispute are those which belong to the less expensive roundabout system and the details of the direct method of draught. The one need not be described, but the other is composed of its two traction engines of 10 to 20, 30, or 50-horse power, with weight and first cost in proportion—the former (weight) varying from 15 to 40 tons per engine, and the latter (cost) from 1500*l.* to 4000*l.* at one blow.

Each of these two systems has its vigorous champion. On the one side we have our old friend Mr. Smith, of Woolston, and on the other Mr. Toepffer, of the North Lincolnshire Steam Ploughing Company. Into the merits of steam-power for cultivating the land we need not now enter, for cultivators are like reaping and mowing machines—there is no difficulty about getting a variety to do the work equally well, and therefore the whole matter resolves itself into a question of wear and tear, and the surrounding costs which form items in the balance-sheet.

Mr. Smith adheres to the outlay of 450*l.*, and the performance of work at the rate of 6 to 10 acres per day, the cost being only 4*s.* 8*d.* to 6*s.* per acre, according to the depth and character and condition of the soil. Mr. Toepffer, on the other hand, attempts to ridicule the roundabout system, and all other light forms of engines, tackle, or general first cost. Mr. Toepffer, however, studiously avoids any statement in regard to the actual cost per acre at which land can be cultivated by the expensive appliances which he advocates. He does not, indeed, tell us what he, as the representative of a company for letting out tackle, charges per acre for the work he does for the Lincolnshire farmers. As matters now stand, therefore, we cannot do less than admit that Mr. Smith has the best of it, both logically and practically. In regard to the latter, Mr. Smith has far the best of the argument. Mr. Toepffer, and the other advocates of the heavy and expensive system, make it a part of the conditions of their ultimate success that small farms must be absorbed into large occupations, and occupied by men of capital, while the "useless fences" of small fields must be so levelled as to be more profitable in themselves, at the same time that an open farm is created for the application of the ponderous engines and tackle which Mr. Toepffer says constitute the only correct and profitable method.

Thus, all be perceived, while Mr. Smith takes all things in connection with farms and farmers as they are, calculating on the small fields and abrupt undulations as they exist in many parts of this country and the limited amount of capital which farmers can command to invest in auxiliary machinery, Mr. Toepffer dwells on the condition in which Nature ought to have constructed, and our forefathers to have mapped out and fenced, the land.

By this line of argument Mr. Toepffer raises all the questions which are now being so anxiously discussed in reference to small farms and large farms, or a mixture of both, and the advisability or not of dividing some of our present large occupations into small holdings, so that men with small capital, and good judgment and moral character, may have a chance of rising from their humble position as peasants or 2-horse farmers. Into these questions of social and political economy, it is not our purpose or duty on this occasion to enter at length. But Mr. Toepffer inadvertently raises these questions, although his "arguments" mainly consist of bare statements. Is Mr. Toepffer prepared to prove the following points:—That it is necessary for a small farmer to have the portion of his land to be fallowed ploughed at the rate of 30 or 36 acres a day? That the wholesale work he advocates is better adapted for small undulating valleys, with their small fields and tortuous water-courses, than is a lighter, albeit a slower, system of work? That the saving of labour, as he puts it, is good either for the farmer or the country, thickly populated as it is? That it is a mistake for each small farmer to have a set of the low-priced tackle, or for three or four small farmers to join and have one of them, drawing lots for the first turn? That it is more economical in the present embarrassed state of the labour market for large numbers

of men to be engaged for a few weeks in wholesale cultivation after harvest, with the certainty of being left to their own resources, or having to flee to towns for employment during the winter? There are many other questions which suggest themselves in this place, but is Mr. Toepffer prepared to answer these and work them out, with their usual surroundings, to their logical conclusion?

Without desiring to complicate this subject further, we should like to know whether the farm labour question has not been reduced to this condition—that farmers now have to look upon their men, not only as to how much they are worth per week during spring hoeing, hay time, and harvest, but how much they can afford to pay them per annum so as to be able to keep them all the year round. It is rapidly coming to this position. If, therefore, farmers would have the services of their men in the busy season, they must find employment for them in October, November, December, January, and February. If this view be not taken and acted upon, there are many agricultural districts in this country where there will be no skilled labourers at busy seasons of the year to work the few machines we already have. Horses, too, must be kept to the extent of a certain number. On both the grounds, therefore, of horse labour and manual labour, it is a serious question whether more than half the land of this country could not be more economically cultivated with a small portable engine, and the roundabout tackle and cultivators, than it could with traction engines and tackle which could do from 20 to 36 acres per day. What farmer of 100, 200, 300, or 400 acres wants his work done at the latter rate?

In conclusion, we may give this illustration:—If there had never been any coasting vessels, there would never have been any three-masted ships for crossing the seas; and if there had never been any river steamers, there never would have been the magnificent Cunard and Peninsular and Oriental lines of steam packets. Mr. Toepffer, in those interests which he professes to advocate, may take a lesson from these data. If steam cultivation be economical and profitable, and at the same time farmers are timid in investing their money in the system, the very best thing Mr. Toepffer and his friends can do is to promote as far as possible the small and inexpensive system of doing the work; for what they want is, for the farmers of every corner of this country to be shown the effect of steam cultivation. Thus, the smaller and cheaper sets will be a "roundabout" system of advertisement for the larger or the "Great Eastern" character of performance. This is not a matter of feeling or sentiment, or friendship, or anything of that sort; but it is a question of expenditure and return of money on the outlay. If, therefore, Mr. Toepffer and his friends would cultivate the large open fields of this country, as the wolds of Lincolnshire and Yorkshire, and the heavy clays of other counties, they will do well not to divide the manufacturing interest, but to look upon the roundabout system as a pilot which, if steam cultivation be right, cannot fail to lead the way to the direct, and, as it is characterised, more perfect and expeditious method. *W. W. G.*

TRANSIT OF ANIMALS.

THE committee of the Scottish Chamber of Agriculture having considered the communication from the Privy Council on this subject, have agreed, for the approval of the directors, to report, in answer to the question—

I. How a Sufficient Supply of Food and Water may be Provided for Animals brought by Sea to British Ports.

1. In voyages not exceeding five days and five nights, a supply of food, equal to 4 lb. per day, of good wholesome Oatmeal, draked in water, seems sufficient, and very suitable for horned cattle; a less supply—say 1 lb. per day—would suffice for sheep. In voyages exceeding five days, cut hay, in addition, seems requisite,—the allowance not being less than 1 stone hay and 3 lb. meal per 24 hours. Where hay is given, it might be moistened with molasses and water, to sweeten it; and even when the water may be bad through keeping, the molasses will remove the bad smell, and sweeten it to the taste, and cattle will eat it readily. Each large animal should have two gallons of water each 12 hours, and smaller animals in proportion.

2. It should be compulsory on all owners of animal-carrying vessels to have on board, and to supply to each animal daily, a sufficient allowance of food and water, as above specified. Oatmeal could be carried in no great bulk, and with no risk from fire; and cut hay, closely pressed, could be put up in convenient parcels for using, and could be stored apart from risk of danger by fire; while fresh water might be carried in tanks down the ship's sides, without interfering materially with cargo room. A vessel constructed in every way suitable for cattle trader has yet to be built.

II. How a Sufficient Supply of Food and Water may be provided for all Animals carried by Railway in Great Britain.

1. It should be made compulsory on every railway company to provide ample drinking troughs, abundantly supplied with pure water, at all the principal loading and unloading stations in Great Britain.

2. It should be compulsory on railway companies to expedite the speed of animal trucks. In no case should they be permitted to run animal trains slower than 15 miles an hour, stoppages included.

3. Were Nos. 1 and 2 enforced, very little food or water would be required for animals in transit in Great Britain; but if the time of transit exceeded 12 hours, it should be compulsory on all railway companies to supply water at the end of the first 12 hours after receiving them at the station of loading, and food and water on the close of every 12 hours thereafter they are in charge of the railway company.

4. The best and most convenient food for both railway companies, and cattle owners, and stock, seems to be Oatmeal draked with pure water given in drink. The allowance should be not less than 4 lb. per head of horned cattle, 1 lb. per head of sheep, each feeding time. Such food is easily carried—not bulky, nor liable to accident by fire, and is more suitable for animals in transit than hard hay or softer food.

5. The only means of supplying animals with food and water on transit in the present truck is by pails and men, or by troughs in the trucks. Water could be run into the troughs by means of the water nozzle shown by Mr. Reid, without causing disturbance to the animals, or much delay at the drinking stations; and Mr. Reid's truck, which the committee understand has been under the notice of the Privy Council officials, might suggest a mode of watering and feeding animals on long journeys.

III. How Animals may be Protected from Unnecessary Suffering by Overcrowding or other Causes during—(1) Sea Passage, (*a*) from Foreign to Home Ports, (*b*) from Ports in United Kingdom to Ports in Great Britain; (2) on Landing, and during Inland Transit.

1. *During Sea Passage.*

1. All vessels carrying animals should, on inspection, be licensed to carry only a given number of stock, regulated by the size of the animal and the vessel's cubic space.

2. The present system of packing animals in vessels as deck load causes them much suffering by exposure to weather, and want of means of supplying them with food and water. To prevent, so far, diseases, the animals when so carried should be so arranged on deck as that their heads are to the centre of the vessel, and their bodies protected from spray and seas that may be shipped during the voyage. A protection on deck, formed of galvanised sheet iron, sprung from the bulwarks of the ship on either side, extending towards the centre of the deck, leaving sufficient room for supplying food and water, and behind each row for cleaning, would be no appreciable hindrance to sailing and working, and would protect deck animals from starvation, spray and seas often shipped, and the injuries they sustain by sliding on their own damp and dung. When carried as below, vessels might be ventilated by removing a plank on each side of the upper deck above where animals are. The open space might be protected by louvre boarding to keep out the sea, and upright iron ventilators, fore and aft, to create a current when the hatches are down, and ample room should be given for supplying food and water. Such changes, made under practical builders, in the construction of cattle-carrying vessels, would remove the cause of most of the unnecessary sufferings animals endure in transit by vessel.

3. The committee are of opinion—

(*a*) Passages from Foreign to Home Ports.

(1.) That all foreign-going vessels should be subjected to the closest inspection, and thoroughly cleansed and disinfected, before being permitted to take animals on board. (2.) That animals only should be taken on board after a strict veterinary inspection, and none but sound animals, which had not come into contact with animals labouring under contagious disease, be permitted to be taken on board or carried. (3.) That a log of animal health and casualties during the voyage be kept by the captain, in which every illness and death experienced shall be entered, along with the times at which they are fed and watered, and mucked during the voyage. (4.) That such log should be exhibited to the inspector at the port of landing, and similar inspection should be made by him at that port, and no animals labouring, or which had laboured, under contagious or infectious disease, or which had come in contact with such diseased animals, be permitted to be landed in life. While (5.) Vessels only should be permitted to carry animals which had been specially fitted for the purpose, with sufficient standing and breathing room, properly ventilated, and having the means of supplying the animals carried regularly with food and water.

(*b*) Passages from ports in the United Kingdom.

As the committee believe that much of the pleuro experienced in Great Britain is brought by animals from Ireland, the same rules as to cleansing and disinfecting and ventilating vessels is necessary, so is a similar inspection at the port of embarkation and debarkation, and the same consequences for disregard thereof ought to ensue. They also believe that other lung diseases may be induced or hastened by overcrowding and exposure to weather, and, in consequence, the same rules as to the construction of vessel, mode of placing and protecting the animals in it, and supplying them with food and water, as suggested in foreign-going vessels, should be observed and strictly enforced.

2. *On Landing and during Inland Transit.*

1. Waggons carrying animals should all have spring buffers, and be coupled same as passenger trains, and should be constructed so as to form a protection against weather and shut out draughts, and at the same time leave abundance of air. The trucks should in every case be roofed, and should be thoroughly cleansed and disinfected, and none but healthy animals permitted to be trucked.

2. Animal traffic ought to take precedence of all other save passenger; and if cattle cannot be sent by special train, they should, if possible, be sent by fast goods train; and in animal traffic, all railways should be viewed and treated as one company, and engine-drivers ought to be put under the same regulations as to stopping, starting, and shunting animal trains as in passenger trains; and a way-bill ought to be kept of every lot, containing the time and every incident of the journey.

3. All animals should be watered at the end of the first 12 hours from the time of loading, and fed and watered every 12 hours thereafter; and they should have water offered to them before being allowed to quit the station of their destination.

N.B.—During the years 1868-69 the directors made an investigation into the diseases which are believed to be imported into Great Britain, or to be induced in animals through sufferings endured during transit by sea and land, and more especially in reference to the disease of pleuro-pneumonia; and they take the liberty of annexing their report, and the veterinary opinions on which it was in part founded.

The report is to be submitted to a general meeting of the Chamber on November 9.

Home Correspondence.

Mr. Patrick Shirreff, of East Lothian.—I would ask the attention of your readers, in the words of the *North British Agriculturist*, to the claims of Mr. Patrick Shirreff for a substantial token of their appreciation of his great merits as a propagator of several distinct varieties of Wheat and Oats. Some months ago the idea of presenting him with a testimonial was taken up, but the sum hitherto subscribed does not exceed 200*l.*, notwithstanding that in the list of subscribers there are the names of several eminent agriculturists connected with the Lothians and Berwickshire. Few persons resident in other districts of the United Kingdom have contributed; and it is intended to close the subscription in a short time. Landed proprietors and farmers should therefore hasten to subscribe, and thereby bear their testimony to the meritorious efforts of so devoted a labourer in the field of improving the cultivated cereals. Some of your readers may not know the services which have been rendered by this gentleman in the prosecution of agricultural progress. Mr. Patrick Shirreff has spent the greatest portion of a long life in the endeavour to promote the interests of agriculture by raising new and superior kinds of Wheat and Oats. One who has laboured so assiduously and devotedly in the behalf of those directly dependent upon the produce of the farm, should be acknowledged as a benefactor. *J. C. M.*

Last Words on the Tiptree Balance-sheet.—Let me inform "Another Farmer" that I never said that Mr. Mechi kept "cake, bran, and feeding stuff" for sale. Mr. Mechi has frequently told us about bran and feeding stuff, therefore whatever there was of that kind of stuff upon the farm on January 1, 1869, it must have been included in the valuation of 379*l.* for "corn, hay, &c.;" and there must have been some, or Martin's Act ought to have been brought to bear upon Mr. Mechi for starving his cattle. We have nothing to do (as I will hereafter show) with the balance of 558*l.* 6*s.* on January 1, 1868, for the balance on January 1, 1869, ought to have been big enough to have included the 73 acres of 1868 Wheat, at 6 quarters per acre, with his average standing at 63*s.* 9*d.*; but to make the case quite clear to "Another Farmer" I will go over the ground again.—The total of 1235*l.* 5*s.* 9*d.* for Wheat sold in 1868 represents 387½ quarters at 63*s.* 9*d.* per quarter. Now we must make the 73 acres up to 6 quarters per acre. To do this 50½ quarters must be added to the 387½ quarters represented by the 1235*l.* 5*s.* 9*d.* The value of these 50½ quarters stands (according to Mr. Mechi's sale of 30 quarters of it at 56*s.*) at 141*l.* 8*s.*—Now we must look to the Rivetts. They sold for 310*l.* 2*s.* 6*d.*, and Mr. Mechi tells us that he made 48*s.* to 46*s.* of them. Therefore I fix the price at 47*s.*, and it is of no use "Another Farmer" quibbling for a mere trifle upon that point—a penny or so per quarter, for it is Mr. Mechi alone who can put us right upon the point. This 310*l.* 2*s.* 6*d.* represents 132 quarters at 47*s.* per quarter, and we must fetch them up to 63*s.* 9*d.* per quarter. To do this 132, at 16*s.* 9*d.* are needed, which gives a total of 110*l.* 11*s.*; to do this we must fetch in a lot of 1867 Wheat, and as I fixed the price in my last letter at 78*s.* per quarter, I shall stick to it. 78*s.* per quarter is 14*s.* 3*d.* over the average, at 63*s.* 9*d.*, therefore we must divide the 110*l.* 11*s.* by 14*s.* 3*d.*, which shows that 155 quarters of 1867 Wheats, at 78*s.* per quarter, are needed to make the Rivetts up to 63*s.* 9*d.* The total value of the 155 quarters is 604*l.* 10*s.*—Now, let me look at the white Wheat. It sold for 767*l.* 14*s.* 9*d.*, and Mr. Mechi tells us that he made from 56*s.* to 62*s.* per quarter of it. I shall strike my average here as I did in my last letter, and fix the price at 59*s.* per quarter. The 767*l.* 14*s.* 9*d.*, at 59*s.* per quarter, represents 260 quarters; this needs 4*s.* 9*d.* per quarter to make it up from 59*s.* to 63*s.* 9*d.* per quarter, the total of which is 61*l.* 15*s.* Now, we must fetch in a lot of 1867 Wheats to make this up, and as the excess over the average is 14*s.* 3*d.* per quarter, the same as in the preceding case, to do this, 86 quarters of 1867 Wheat, at 78*s.* per quarter, is needed; the total of which is 335*l.* 8*s.*—Now I will fix a price upon the Red Wheat by striking an average between the Rivetts, at 47*s.*, and the White Wheat, at 59*s.* This fixes it at 53*s.* per quarter. The 157*l.* 8*s.* 6*d.* at which they stand represents, at 53*s.* per quarter, 59 quarters: to make them up to 63*s.* 9*d.* per quarter, 59 at 78*s.* are needed. The total of this is 230*l.* 2*s.*—Now I will fix a price on the hay, straw, bran, cake, corn, other than Wheat, &c., on the farm on January 1, 1869. I will fix it at 100*l.* Mr. Mechi can correct me if I am wrong; "Another Farmer" cannot. Now we will go in and strike the balance:—

Valuation, Jan. 1, 1869:—			
Corn and hay, &c. (unsold)	£379	0	0
Balance—"over the left"	1032	8	0
	£1411	8	0
50½ qrs. of Wheat needed to make the average of 1868 up to 6 qrs. per acre on 73 acres ..	£141	8	0
155 qrs. of 1867 Wheat, at 78*s.* per qr., to make the Rivetts up to 63*s.* 9*d.* per qr.	604	10	0
86 qrs. of 1867 Wheat, at 78*s.* per qr., to make the White Wheat up to 63*s.* 9*d.* per qr.	335	8	0
59 qrs. of 1867 Wheat, at 78*s.* per qr., to make the Red Wheat up to 63*s.* 9*d.* per qr. ..	230	2	0
Valuation of hay, &c.	100	0	0
	£1411	8	0

"Another Farmer's" balance of 558*l.* 6*s.*, January 1, 1868, is of no use against this balance of 1032*l.* 8*s.* The balance of 1032*l.* 8*s.* to loss will show to "Another Farmer" that Mr. Mechi's balance-sheet was a highly seasoned dish, spiced well up with 1867 Wheat to bring the average up to 63*s.* 9*d.* You tell us that he said at Great Braxted:—"He believed they and many of the farmers of England wished him good health, but he could not conceal from himself that there were a few, and he hoped only a misled few, who would wish to see Mr. Mechi swept from the face of the agricultural world." Now I take it that this might apply to me, for I have written as plainly against his balance-sheet as man can, for I will not be "misled" by it, and I will do all I can to prevent others. Yet I have no desire to see "Mr. Mechi swept off the face of the agricultural world," but I do hope that his balance-sheets hereafter may upon every point (if questioned) be supported by positive proof. If they cannot stand that, he had better never publish another. *William Smith, Woolston, Bletchley Station, Bucks, Oct.* 18.

Steam Cultivation.—In your impression of January 9, you kindly granted me space to make a few remarks on this subject. I then alluded to a correspondent in *Bell's Weekly Messenger*, signing himself "Ploughboy," having closed his correspondence on steam cultivation, expressing a hope that he would have filled up the space kindly offered by the Editor of *Bell's Weekly Messenger*, in these words—"If any one will send us the history of a steam cultivated farm where the cost of cultivation is as low as that of Mr. Smith's, we will gladly give it a place in our columns." I also wished to know if the statement quoted by Mr. Smith, of Woolston, taken from *Agricultural Gazette*, January 20, 1866, was correct or not? His reply to me was unsatisfactory (see *Agricultural Gazette*, January 30, 1869), and as I then remarked, he

"began with the beginning and ended with the ending of my letter, but did not answer it." As the subject has again been brought forward by Mr. Toepffer—who, being the manager of the North Lincolnshire Steam Ploughing Company, must have considerable knowledge of these matters, and writes from experience—will he kindly inform me if the *Agricultural Gazette*, January 20, 1866, is in error; or, it may be that since that date, the one system may have progressed in the path of economy and effectiveness, the other remaining at a standstill; or, as he remarks of Mr. Campain's anchor, "only adds to the complication of the system without adequate saving." Has he any reason to doubt Mr. Smith's figures, as given in last week's *Agricultural Gazette*, and, in fact, on many former occasions? Has he any knowledge of Mr. Charles Bates' evidence, as brought forward by Mr. Smith? I with him will say, "let us have the particulars." *Agricola.* P.S. I see "West Indian" in *Agricultural Gazette*, September 18, is desirous of knowing if the instance of a traction engine being used in the wagoning of corn at the Britannia Farm, Bedford, is the first on record. Has Mr. Toepffer any experience on this point?

Mangel Running to Seed.—In answer to your inquiry whether old Mangel seed tends to run, I can state that a large field of Mangel—long red—half of which is from seed from harvest of 1867 or before, and half from French seed bought as new in winter 1868, from Vilmorin & Co., appears to have run to seed on both plots in equal quantity. *Richard Binns, Ulverston.*

Foreign Correspondence.

Ontario (Upper Canada): *The Provincial Exhibition.*—From the returns made to this department the average of farm crops in this province appears to be considerably greater than for some years past. There are a few sections of the country, not of large area, in which the midge (Wheat-fly) and rust have been very destructive, and in other places their effects have been felt, but in a much inferior degree. The midge has been gradually diminishing for several years, and in large districts it may now be regarded as almost entirely gone. The yield of Wheat, in the unaffected districts, will vary from 18 to 30 bushels per acre, the latter being occasionally exceeded in cases of superior cultivation. Oats in general are a heavy crop, say from 40 to 60 or 70 bushels an acre. Barley from 30 to 40 bushels, when anything like proper cultivation has been given. The culture of the latter is annually increasing, a large portion of the crop finding a market in the States. Notwithstanding the high import duty of the American tariff, Canadian Barley, from its good malting quality, is regarded by the Americans as a necessity, and the same remark will apply to the finer varieties of Peas, which are a heavy crop this year, and in general of excellent quality. Indian Corn is in most places very inferior, the summer temperature having fallen below the requirements of that crop, and the unusual rainy character of the season has also, to some extent, been prejudicial, as likewise in the case of Grapes, Melons, Tomatos, &c., grown in the open air. The pastures have maintained a beautiful green all through summer, a phenomenon quite rare in this climate. Keep for stock has consequently been plentiful, and hay has yielded from 1½ to 3 tons per acre; the quality in some instances is more or less injured in the making. Haymaking with us is generally a very simple and rapid process, and when a rainy season comes on our farmers, from inexperience, work to a disadvantage, or rather don't work enough, and the hay consequently unnecessarily suffers. Potatos are a heavy crop, but some varieties on wet land are suffering badly from the rot. Root crops of all kinds will be generally abundant. The cultivation of Turnips, Carrots, and Mangels is, in the better favoured districts of the province, steadily, if not rapidly, increasing; and I have seen as heavy crops, and of equal quality, grown in Canada, as are usually to be met with under a more thorough and expensive cultivation in England. Although the average of our cereal and root crops per acre must be regarded as comparatively low, owing mainly to the rough state of newly but imperfectly cleared land, and often very superficial preparation, I am convinced that a large portion of the arable soils of Britain would produce even less, certainly no more, if subjected to similar treatment. On the whole, Canadian farmers have every reason to feel satisfied and thankful for a bountiful harvest; and, although prices may look lower than what we have been accustomed to of late, the greatly increased growth of the present year will more than compensate for any diminution of prices that we are likely to experience.

The 24th annual exhibition of the Agricultural and Arts Association of Ontario was held last week at London, and proved a great success. The entries in the various departments, comprising live stock, agricultural and horticultural products, implements and machines, manufactures and fine arts, amounted to upwards of 7000, being equal to, if not greater than, previous occasions. The horses and finer breeds of cattle and sheep were not in number, and in some instances, perhaps in quality, quite equal to what I have seen on similar occasions in older and more central parts of the province; but the display of pure-bred stock of the principal breeds that are to be found in the mother country, from which we are frequently receiving importations, are certainly highly creditable to the skill and energy of our farmers. The display of grain and dairy products was remarkably good; and in implements, machines, carriages, &c., the skill of the mechanic in adapting his productions specially to our wants was strikingly manifest. In a country where labour is scarce and consequently dear, we have to look to agricultural mechanics mainly for improving and cheapening cultivation; and in this respect much yet remains to be accomplished. In fruits and vegetables, including field root crops, the display was really magnificent, and in some respects, particularly in fruits, actually surpassed any previous occasion. I doubt whether this department of the show has ever been exceeded, as a whole, on this continent. The extensive display of Apples, Pears, Peaches, &c., would have astonished a stranger accustomed to associate only frost and snow with the climate of Canada. Outdoor Grapes, which are now cultivated extensively in some places, will not generally ripen well this season, but those of indoor growth on exhibition were not only numerous, but of great size and of superior quality.

During the two principal days of the show week, upwards of 70,000 people entered the grounds, which, with the extensive buildings they contain, were densely and inconveniently crowded. The presence of his Royal Highness Prince Arthur, and his Excellency Sir John Young, Governor-General of the dominion of Canada, and our Lieutenant-Governor, tended, no doubt, to increase the number of visitors, for Canadians are proud of British connection, and are always ready to show their attachment to their sovereign by a hearty and loyal welcome to any of her representatives that may come among them. The wise liberality of the Legislature, seconded by the voluntary aid of the people, enables the directors of the Association to offer prizes, both in value and number, that will always command an extensive competition—the whole list amounting to 12,000 or 14,000 dollars, or nearly 3000*l.* sterling; and while of late years the progress of the Society may be said to have been rapid, its growth has been healthy and enduring. To old-country people, who have had no personal experience or observation of the rapid development of new settlements, it would appear marvellous, bordering on the incredulous, to be told that the pretty and thriving city of our London, surrounded by a rich and extensive farming country, was 40 years ago an unbroken wilderness, and that there were several persons at the recent exhibition held in the "Forest City," who assisted in making the first clearances! Truly this is an age, in more senses than one, of transformation and rapid progress, of which this new world on the western side of the Atlantic affords very many striking exemplifications. *Geo. Buckland, Bureau of Agriculture, Toronto, October 2.*

Farmers' Clubs.

LAVENHAM.

The Agricultural and Town Labourer.—At the last meeting of this club Mr. Baker read the following paper:—I think I may say this subject would not have been thought of had not a stigma been cast upon the agricultural labourers, by some members of a conference held in London, at Willis's Rooms, to consider their position. It is not to be wondered at that the town labourer should be considered the better off when many talk, as though the country labourer belonged to a race of some inferior beings, when at a conference they were spoken of as "helpless and downtrodden and depressed," and as much too "helpless" to help themselves, or possess any independence, on account of the aforesaid ignorance and helplessness. These are some of the epithets indulged in by some of the speakers at the above Willis's Rooms conference, who, if they had taken the trouble to extend their vision, would have found such language not any more deserved by our rural than our urban population.

We will now come to the question of wages at the present time, and in doing so I shall only draw a comparison between the agricultural labourer and the unskilled labouring classes in our towns, and shall deal, as a rule, only in general terms, and approximate as near as I can to a fair view of the two sides. I find that in 1867 our country weekly labour wage was 11*s.* per week; in 1868, 10*s.*; in 1869, 10*s.* 9*d.*; so we may fairly, at the least, take the average at 10*s.* per week for the last three years; and the unskilled labour in our town populations from 12*s.* 6*d.* to 15*s.* per week, or say an average of 14*s.* per week; and, whether the country wage is 9*s.* or 11*s.*, and the town labour 13*s.* or 15*s.*, it will not materially affect their comparative or relative positions to each other. I contend, and I think I shall be able to show, that although our rural classes, as farm labourers, do not receive so much in a weekly money wage as town labourers, yet with their harvest and other advantages, they more than equal those in the town. Amongst these advantages is that of having a cottage garden, in which, as a rule, he can grow all his vegetables for his daily use; in addition, there are great numbers who have allotments likewise, and many get sufficient hedge stuff, with wood, roots, &c., as rough firing, to carry them through the year—all of which the town labouring classes have to pay for in hard cash, and to this we may add the little item of gleaning corn to the country labourer's advantage and account. We will not say anything about piece-work, and the additional earnings made thereby, with the exception of harvest, which is a material addition to the weekly income. Take a harvest at 6*l.* 5*s.* to 6*l.* 15*s.*, for four weeks per man, it will add 4*l.* 10*s.* to the 10*s.* per week, or make an addition to the 10*s.* of 1*s.* 8¾*d.* per week, or 11*s.* 8¾*d.* per week through the year. Gleaning, which I have spoken of, and which is not to be picked up in the streets of our towns, is a nice little adjunct in aid of the necessaries and comfort of our rural cottage homes; and I think, when we have heard of from 2 to 4 bushels per cottage being gleaned, we may fairly assume 3 bushels to be about an average, and, by taking Wheat at 48*s.* per quarter, this will be 18*s.*, or say about 4¼*d.* per week added to the 11*s.* 8¾*d.*, which will make 12*s.* 1*d.* per week; the wood, scrap faggots, and rough stuff that arise through the winter months are frequently enough to be worth in many cases 6*d.* per week through the year; nor can the urban labourers and cottagers supply themselves with vegetables, &c., of all descriptions so plentifully and well for 6*d.* per week, as the cottager in our rural districts can from his own garden; and this, added to the above 6*d.* worth of firing, and to the 12*s.* 1*d.*, will make 13*s.* 1*d.* per week. Then there is the difference in the rental of the cottages in town and country to be compared, and here we shall find an important difference in favour of our rural and agricultural men; in our country parishes they vary from 1*s.* to 1*s.* 6*d.* per week, or from 2*l.* 12*s.* to 4*l.* per annum, whilst those of the urban class will range from 1*s.* 11*d.* to 2*s.* 7*d.* per week, or or from 5*l.* to 6*l.* 15*s.* per year, which in the agricultural class will give an average of 3*l.* 5*s.* and of 5*l.* 17*s.* 6*d.* for the town classes, or an advantage of 1*s.* per week in favour of our country friends, which will raise the 13*s.* 1*d.* to 14*s.* 1*d.* per week. Now, in striking a balance between the two sides of the question, the calculations as above will stand thus:—

Country Class.	£	*s.*	*d.*
Forty-eight weeks at 10*s.* per week	24	0	0
Four ditto, harvest	6	10	0
Gleaning, 3 bushels, at 48*s.* per quarter	0	18	0
Rough fuel, wood, roots, &c., worth 6*d.* per week	1	6	0
Vegetables, worth 9*d.* to 2*d.* per week, say 6*d.* ..	1	6	0
1*s.* per week less rent	2	12	0
	£36	12	0
Town Class.			
Fifty-two weeks, at 14*s.* per week	£36	8	0
Balance in favour of country class	£0	4	0

But, to make it quite clear, I will take the above in another way. The farm labourer will get nearly all the wood fuel he requires, and he will only spend 6*d.* per week for coals against the town labourer who will have to buy all his fuel, which cannot cost less than 1*s.* per week for kindling, coals, and so forth. The difference between the two classes will then stand thus:—

Country Class.	£	*s.*	*d.*
Agricultural labourer, 48 weeks at 10*s.* per week	24	0	0
Harvest, &c., 4 weeks	6	10	0
Gleaning corn, 3 bushels, at 48*s.* per quarter ..	0	18	0
	£31	8	0
Deduct—			
Fifty-two weeks' fuel at 6*d.* .. £1 6 0			
Rent 3 5 0			
	4	11	0
	£26	17	0
Town Class.			
Fifty-two weeks at 14*s.* per week	£36	8	0
Deduct—			
Fifty-two weeks' fuel at 1*s.* per week £2 12 0			
Vegetables, 6*d.* per week 1 6 0			
Rent 5 17 6			
	9	15	6
	£26	12	6
Balance in favour of the country labourer ..	0	4	6
	£26	17	0

Now, thus far, it is quite obvious, comparing the two classes side by side, that our agricultural labouring friends need not feel at all humiliated in comparison with their town compeers, for the purchasing power of our country class, even taking them at the average wage of 10*s.* per week, is quite equal, if not superior to that of their competitors. But if we take our horsemen, who, as many well know, earn from 1*s.* to 1*s.* 6*d.* and 2*s.* per week above the other men, the comparison is even yet more on the side of the rural class. Besides, many of the men spend more time in the year at piece-work than by the day, and many thus, with threshing, draining, and haysel taken into account, earn from 2*l.* 10*s.* to 4*l.* in addition to what I have calculated, and which would increase the balance in favour of our country friends by that amount.

We will just look at the physical and moral condition of the two classes, which may be very well taken into account; and I do not think our agricultural labourers ought to be stigmatised as a helpless race, when we can see with regret that their fellow labouring classes, and the poor in the large towns, are, in too many cases, in a dreadful state of poverty, squalor, and wretchedness. By their overcrowding they become a debilitated and degenerated race, a state of things which happily amongst the rural classes has no parallel. From what is stated by an able writer, Dr. Stallard, while writing of pauperism and the poor and labouring classes in London—which town he looks upon as "a magnified representation of all large towns,"—it would seem that the helpless dependence of these classes is so great that one-sixth of the population in the first half of 1868 received parochial relief. Speaking of the Holborn Union, Dr. Stallard says the physical condition of the labouring classes has undoubtedly degenerated; of Bethnal Green he says the same. "I venture to assert," he says, "without fear of contradiction, that there is scarcely a native male adult in Bethnal Green who is fit for military service; nowhere is the standard of comfort so low." A very large proportion of the "debility, deformity, disease, and premature deaths" amongst the London poor, as well as the want of stamina in after life, is owing to insufficient, irregular, and unwholesome feeding during the period of growth. The late Mr. Bryson, the town surveyor of Newcastle, strongly laments the want of good accommodation for the working classes. Mr. Errington, the registrar, writes that many of the houses in the overcrowded parts of Newcastle are wholly unfit for human beings. This is a representation of the state of our large urban labouring classes, who are often huddled together as closely as pigs, without any regard to sex. With reference to education, the rural labouring classes in some of our most purely agricultural counties are proved, by the Registrar-General's report, not at all behind some of the great manufacturing and mining centres; for instance, in Westmoreland, out of those married, the men signed their names in the proportion of 89.1, and the women 85.2 per 100. The proportion in Rutland was 79.0 and 87.4 per 100 respectively; while in manufacturing Lancashire the proportion was

76·8 for men, and 50·0 for women per 100. In mining and manufacturing Staffordshire, it was 64·8 for men and 35·3 for women; so that Lancashire men are behind Westmoreland nearly 13 per cent., and Staffordshire is lower still; but if anyone will take the trouble to look over the Registrar-General's report, he will see that the agricultural and rural counties and districts are equal in their intelligence with the boasted superiority of the urban population in our manufacturing and trading counties.

Then again, if we look at the question from a sanitary point of view, the position I maintain is still carried out, for I am sure our country labourers are quite equal in health and robustness to the town labourers; and, indeed, their position is far preferable to that of the town labourers. In many of our rural districts I find, according to the Registrar-General's returns, the deaths are annually from 16½ to 17 for each 1000 of the population, while in many of our large towns they vary from 21 to 40, making a difference in favour of the country of from 6 to 14 per 1000. I am sure, if the question is looked at in a broad light, and the value of health and longevity taken into account, it will be admitted that the country labourer's position is the best, for he can breathe the pure air, and live in a bracing atmosphere. If a man working in the fields is compared to one working in a factory, one perhaps even situate in the midst of a rural district, a vast difference will be found. I have been struck sometimes by the difference in the appearance of the two, although occasionally they are members of the same family. The labourer looks robust, healthy, strong, and hale, while the factory hand is pale, squalid, and languid; and I believe that this is the same throughout the two classes in all their varied ramifications. At the outset of my paper I referred to a conference at which men who might be presumed to know better—such men as Professor Fawcett, Canon Girdlestone, and others of that stamp—spoke of our labourers as being down-trodden and helpless. But there are instances in our locality to which we can point, of men now occupying good stations in society, some of them almost equal with our own, and who have risen from the ranks to be substantial occupiers of land, solely by their own industry, energy, and perseverance. This proves that these men are not slaves, but that they feel, in common with all Englishmen, that it is their duty to aspire and their privilege to excel.

DISCUSSION.

THE CHAIRMAN: There is one item which Mr. Baker did not include in his calculations, and that was the allotments, acres of which are let to cottagers at a rent of about 1s. per rod.

Mr. BIDDELL: Mine only pay 6d.

Mr. OLIVER: I know some places where they get 40 rods for 5s.

THE CHAIRMAN said: Newcastle-upon-Tyne had been mentioned, and he would state from experience of three years' residence in that town they would find nowhere stronger men, women, boys, and girls. They would find houses there, too, as neat and as clean as he could wish to see. The people there, instead of living upon Potatos, as they did in this part of Suffolk, lived upon oatmeal, broth, and Peas, and their arms were twice as large as the country labourer's. In proof of this he might mention that a gentleman who had an estate in the North, took some men there from Kent, but he found that they could not do anything like the day's work that the North countrymen could. The badness of the town houses had been mentioned, but perhaps it would have been better if that subject had not been mentioned at all, as he could find places in that very town (Lavenham) which were not fit for a pig to live in. Then, again, he did not think it was fair to compare the rates of mortality in towns with those in the country, for wherever large manufactories were carried on people would be sure to go in search of employment; sometimes they would get work, sometimes not, and many of them were really starved to death. He thought the country places were as bad as the towns as regarded overcrowding. A great deal was said about drainage, but he was persuaded one of the great causes of illness among the country people was overcrowding. He had been into houses where the father and mother, four or five grown-up boys and girls, and three or four children, all slept in one room.

Mr. BIDDELL said he was sure the Chairman would bear him out when he said that half the workmen did not deserve nice respectable cottages; they tore down the staircases, and broke up the shutters, to use for firewood. There really was no encouragement for any gentleman to build nice, respectable cottages.

Mr. VINCE said it must be borne in mind that these Newcastle men, who were spoken of as being so strong, originally came from the country, and this might account, perhaps, for their deficiency in education. He could recollect the time, some years ago, when the people went from this county to the Northern counties in hundreds.

The CHAIRMAN said he must disagree with Mr. Baker, for he thought the state of education in the North was higher than it was here.

Mr. HAWKINS thought this a very difficult subject for them, as a Farmers' Club, to discuss; for each kind of labour had its own needs, and each its own peculiar difficulties. From his experience, he knew that the position of the agricultural labourer was far better than it had been in former years, and was infinitely preferable to that of the town labourer. With regard to wages, he had taken the trouble to look through his books for the past year, and he had taken three men as specimens of the rest—one his horseman, and the other two that he had long employed, and to whom he was in the habit of putting out work by the piece. His son assisted him in making the calculations, and if anyone doubted his statements he would be willing to show the book, and prove that what he said was true. The horseman's wages for last year—that was, from Michaelmas, 1867, to Michaelmas, 1868—exactly averaged 16s. 3d. per week, and the other two men, after deducting the days lost from illness or pleasure—and it was generally more pleasure than illness—came to about 15s. per week. This year, as far as it had gone, his horseman's wages had been, on the average, something like 16s., and the other men 15s. per week. This subject was one to which all farmers must direct their attention, if they wished to get their work done, and, in his opinion, the only way to obtain it was to put it out to work out by the piece. He could only speak from experience, and he found that the demand for labour was increasing for piece work, and he had had to put the land that he had under that system, and more especially the land he gave to the labourers' gardens. He paid great attention to the land he gave to his men, and got their labour done. The only way to do it would be to let that work to be accomplished done by means of piece labour, and the more that kind of it the better it would be for them. He quite agreed with what had been said about the rent of the cottages. In his parish—and beyond its area his experience did not extend—good and healthy cottages were let at 1s. per week, many of them with capital gardens, which of themselves were almost sufficient to raise vegetables for the use of the family the year through. No man was in so comfortable a position as the provident man in a rural district, who might earn, year in and year out, 15s. a-week. He was much more independent than a town labourer. As far as his experience went during the last few years, if any of his men wanted a day they had it. Some of the best men would come and say they were going to take it, but many of the men never said a word about it, and he for one should never wish to mar their pleasure, or prevent them enjoying themselves.

Mr. VINCE said he could confirm all that Mr. Hawkins had said about the wages earned by the men. He preferred employing the best men he could get; they did not require near so much looking after as the cheaper sorts. It was absolutely necessary that they as farmers should put out as much of their work as possible, for he was convinced by that means they got more labour for their money. He had been a farmer for 30 years; he had spent a great deal of time amongst labourers,—more, perhaps, than was necessary; but that was his fancy, and he always found more was to be got by coaxing than by scratching. There was another point which they ought to consider as farmers. Sometimes, when flour was dropping, the farmers were all talk about dropping the men's wages; but he found that whenever he dropped the men's wages they wanted a great deal more looking after, and there was less work done. He did not agree with what had been said by Mr. Baker and Mr. Hawkins about the gleaning and cottage gardens; he did not think a garden would supply anything like enough vegetables for the use of the family for the year; but both the gentlemen he had mentioned were practical men, more so than himself perhaps, and he could bear them all out in many of their observations.

Mr. HAWKINS said when he lived at home with his father he remembered one harvest their horseman's wife and family gleaned four coombs of Wheat, which was worth at that time 35s. a coomb. As to the gardens, he knew for a fact that some of the men living in his parish grew nearly vegetables enough to carry them through the year.

Mr. BIDDELL thought the question had not been treated in the right way. The comparison must be drawn between the unskilled labourer in town and country; skilled labourers like colliers ought not to have been mentioned. The difference of wage between the two sorts of unskilled labourers could not, he thought, be put higher than from 3s. to 4s. Did, then, the disadvantages under which the townsman laboured balance the difference in wage? In his opinion it did. He thought the country labourer was in a better position to obtain and enjoy the comforts of life than the labourer in the town. The main item of difference between the two was in house-rent; and he thought that this, without the slightest exaggeration, might be put at 1s. per week. The man in the country occupied a better house, with perhaps a garden, for 3l. 10s., than the townsman did for 6l. He heard the other day of a man who had gone from Lavenham to a situation in London, and whose wages were 1l. a week, having to pay 6s. a week for two rooms, and those not situate in a remarkably pleasant locality, or having a beautiful prospect from the windows. Then the harvest, which he had not calculated in the difference of wages, made another addition of 1s. 6d. per week. As to the allowance Mr. Baker had made for fuel, he thought as a rule the benefit did not nearly approach that sum. Threepence a week was quite sufficient.

Mr. BAKER: I know in many cases it is worth fully that.

Mr. BIDDELL said the next thing in which the town labourer was at a disadvantage was in uncertainty of employment, which he certainly thought amounted to 6d. per week. There was another item, which it was very difficult to put into a money form—the loss of health from living in a town. But there was no doubt that the great excess of pauperism in the town over the country was due more to want of health than want of employment; and, as ill health meant loss of wages, it resolved itself at last into a money question. This could not be put down at less than 6d. to 9d. per week; and, adding all these items together, they fully balanced the advantage the town labourer had over his compeer in the country in the shape of wages. Although he did not wish to take more credit to the country people than was their due, still he thought the country labourers had more attention paid to their illnesses, and other requirements, than those in the town. In large manufacturing districts the labourers were always called "hands;" this was all their employers looked to; and when their hands ceased to be able to earn money, then they were no more use to their masters, and they did not care where they went to, or what became of them. He must admit, however, that a man had a better chance of educating his children in the towns. Referring to the Chairman's observations, Mr. Biddell said he really did not mean to contend that the inhabitants of towns were physically finer men than the country population.

The CHAIRMAN: Mr. Baker mentioned Newcastle-upon-Tyne, and I mean to say that you could not wish for a finer race of men than you see there.

Mr. BIDDELL said there was overcrowding, too, of which the Chairman had spoken. He thought that that evil existed to quite as great an extent in the town as it did in the country.

Mr. RINDER: And to a greater extent.

Mr. BIDDELL could not agree with Mr. Rinder that if a good cottage was built for a labourer, and he was made comfortable, he took no pride in it. He thought that in nothing had the cottagers so improved of late years as in this. Twenty years ago a cottage with paper on its walls could scarcely be found, and now they existed by hundreds. With regard to what labourers earned, he quite agreed with Mr. Hawkins. In 1847 and 1848 he was asked to search his books, and what the better class of labourers earned. He found that a horseman earned from 41l. to 42l. per annum; and a great many other persons who searched their books at the same time came to the same result, within a pound or two. But the best answer to the question before them was given by the labourers themselves, for they could not be induced to leave the country for the town, so that he thought the conclusion they must come to was this—that unless there was greater difference between the wages of the two than 4s., the country labourer had much better stop where he was. Of course there were exceptions, in parishes where there were no schools, and the masters were not very liberal; but otherwise he did not think a man bettered himself by changing.

Mr. HAWKINS said in his opinion the labourers were never so comfortable as they were now, and while piecework enabled the labourer to employ his wife and family.

Mr. BAKER proposed, "That it is the opinion of this meeting that the position of the agricultural labourer in the county of Suffolk is superior to that of the unskilled labourer in large towns."

Mr. HAWKINS seconded the resolution, which was carried unanimously.

Mr. BAKER said that the question of skilled labour in town and country had been mentioned that evening, and of course if that was taken into consideration, it would open a wide field for discussion, but he believed the position he had taken could be proved to unskilled labour as it had been well established with regard to their carpenters, blacksmiths, wheelwrights, masons, &c. He knew an instance of a man who left the country to live in town as a gardener at 21s. a week, but he found it would not answer, and he returned again to his country wages. In his calculation he had not taken into account the extra money a man made by piecework, which would add from 2l. 10s. to 4l. to his yearly wages, and he had taken the wages at a dead level 10s., whereas sometimes it was a good deal more. If they carefully examined his statements, he believed they would find that nothing was overdrawn.

The CHAIRMAN said he might mention that in three cottages in Brent Eleigh he once had 18 people ill of the scarlatina, and there was only one bedroom in each.

Mr. BIDDELL said perhaps one explanation of this was that the cottages were in Chancery.

Reviews.

The Quarterly Journal of Science. Conducted by W. Fairbairn, F.R.S., W. Crookes, F.R.S., R. Hunt, F.R.S., and H. Woodward, F.G.S., F.Z.S.; and James Samuelson, Editor. No. XXIV. October, 1869.

The present number contains papers on the spectral phenomena of opals, on coal washing, on science-teaching in our universities, and on Irish mineralogical resources. There are besides these the usual chronicles of science—and we shall make our accustomed extract of the agricultural paragraph under this head—and there is a detailed report of the British Association meeting at Exeter. The whole is a periodical enjoyment, which ought to find a special "public" of its own among country readers: for they have not those opportunities of acquaintance with the progress of discovery which are possessed by townsmen.

The following is the page of agricultural chronicle in which the events of the past quarter, so far as the farm is concerned, are described:—

"A good harvest month has somewhat improved the grain produce of the year, which, however, as regards the Wheat crop, is considerably below the average, and very much inferior to our experience of last year. The great agricultural meeting at Manchester has given to our leading manufacturing population a better idea than they before possessed of the real status as well as of the relative position of the food manufacture among the other manufactures of the country. So admirable a collection of specimen products, and especially of our various breeds of live stock, was never before exhibited; and the immense collection of agricultural machinery, which Manchester spectators most of all were likely to appreciate, could not fail to give the impression that the agricultural body had contributed quite their share to that ideal of energy, promptitude, practical ability, and success to which we give the name—John Bull.

"In the Parliamentary session just closed two important agricultural measures have been enacted, one of which assumes, properly enough, that English farmers cannot take care of themselves; of the other, differences of opinion on this point exist. The former lays certain restrictions on the trade in foreign live stock, providing for such a separation or quarantine of imported animals as shall hinder the introduction of infectious diseases; the latter inflicts penalties on any one who shall kill or dye seeds for fraudulent purposes. The practice had become notorious, and called for remedy: but it is believed by many that the true remedy is already in the hands of the farmer, and needs no legislative supplement. Better teach a great community, whose ability is so well illustrated by every agricultural meeting, the art of taking care of themselves, than surround them with enactments for their safety.

"The analysis of manures, however, much more than the analysis of seeds, has long been known as an efficient protection against fraud in the artificial manure market; but it appears now that a guarantee by the chemist of so much per cent. of soluble phosphate cannot be depended on for any length of time. Soluble phosphates do under certain circumstances fall back into their original chemical condition by mere lapse of time; and a recent trial proves that 21 per cent. of soluble phosphate may in a few weeks become 18 or 19 per cent., without any taint of dishonesty to either salesman or warehouseman. Other phosphates besides those of lime are now used in the manufacture; and thus, use as much sulphuric acid in their conversion as you will, a portion of the phosphate which it makes soluble in water becomes in time insoluble in water—reprecipitated, as it were, in the substance of the superphosphate itself, or in other words, it is again reduced. After all, however, the effect of the original solution is not entirely lost: the process which thus prematurely takes place does in every case ensue upon the addition of a superphosphate to the soil; and it is the finely divided condition of the resultant neutral phosphate in the soil, not the easily soluble condition of superphosphate which is applied to the soil, on which the immediately fertilising power of the manure depends.

"The subject of thin seeding has occupied a good deal of attention lately in agricultural journals. The practice of sowing 2 or even 3 bushels of Wheat per acre seems, on the face of it, a monstrous waste of seed. There are thus 1,200,000 to 1,800,000 grains sown on every acre, corresponding to from 30 to 40 seeds on every square foot of ground! which is apparently absurd. And no doubt it is really wrong in the great majority of cases; nevertheless the case is one not for the arithmetician, but for the agriculturist. The object is to get the greatest possible crop; and if, as the *Agricultural Gazette* points out, the practice of sowing 20 or 30 seeds per foot proves right during the harvest month, we can well afford to neglect the arithmetical proof of its folly and absurdity which it will receive during all the other 11 months of the year. In practice the quantity of seed sown per acre has gradually diminished of late years, and 5 or 6 pecks of Wheat are now commonly sown per acre, where 8 or 10 used to be the common allowance. Among matters of personal interest which have occupied attention during the past quarter, we may name the publication of a memoir of the late John Grey, of Dilston, by his daughter, Mrs. G. Butler. It is the biography of a large-hearted and accomplished man, whose great and

good influence upon agricultural progress it will materially help to maintain. The labours of Mr. W. Smith, of Woolston, as the pioneer of steam cultivation, have been the subject of discussion and recognition. The visit of M. Dumas, the distinguished French chemist, to this country, and notably to the experimental farm of Mr. Lawes, at Rothamsted, and to the sewage farm at Barking, deserves a record for the attention which was directed by it at once to the long-continued and most valuable labours of our great agricultural chemists, Messrs. Lawes and Gilbert, in the domain of agricultural theory, and to the leading question in the field of agricultural practice, which is receiving so satisfactory a solution in the hands of the Metropolis Sewage Company."

Handbook of Hereford Cattle. Vol. VII. (Hereford: Printed at the *Times* Steam Printing Offices, Maylord Street.)

Mr. Thomas Duckham has issued another volume of Eyton's Handbook of Hereford Cattle. It contains the pedigrees of 731 bulls, from No. 2906 to No. 3636, and of about the same number of cows; and about 300 separate herds and breeders are referred to in its pages. The book is illustrated with lithographs of several of the most noteworthy animals, and there is an appendix giving the prize lists since the last issue; and a report of a lecture on the breed, given by Mr. Duckham before the Brecon Agricultural Society.

We may add to our notice of this book some reference to Mr. Duckham's quarterly record of Hereford transactions—a pamphlet which he circulates among both sellers and breeders of Hereford stock in promotion of his business as an auctioneer in connection with the breed. The present number contains some memoranda as to the fortunes of the breed in other countries, and we quote the following notice of how they are liked in Michigan. Governor Crapo, of Flint, speaks thus of them:—

"The Herefords have done extremely well; in fact they could hardly have done better. They have had no more than ordinary fair keeping, and yet they are in prime condition, and their coats are very fine. I have little doubt that the Herefords will yet be the stock for Michigan. They are docile and hardy, besides being very easy keepers; and I have no doubt will stand a long severe winter, and come out ahead of the Shorthorns in the spring, on two-thirds the cost of keeping. I am highly pleased with them, and shall increase the number of my herd as rapidly as possible, being confident that as soon as their merits are known they will be appreciated. There is now almost a mania through the country in favour of the Shorthorns, which I am free to admit are a noble and valuable breed of cattle; but they are adapted to the luxuriant pastures and milder climate of Kentucky, rather than to Michigan. You have seen my Hereford bull Velvet Jacket, and my Shorthorn bull Lucifer, both about the same age—a little over two years. Now, I am obliged to feed my Shorthorn on nearly twice the grain, &c., that I do the Hereford, to keep him in equally good condition. The Shorthorns are undoubtedly a valuable breed from which to procure grades by crossing with our native or common stock, where meat is the object; but for a thorough-bred race of cattle I have no doubt that, in Michigan, the Herefords will prove unrivalled. I intend, however, to give the Herefords, Shorthorns, and Devons a fair trial, both as full-bloods and grades, if my health will permit me to carry out my original plan."

Farm Memoranda.

Banffshire, Boyne District: *Oct.* 18.—A long and tedious harvest is all but completed; a few fields of corn remain out yet, but the crop was generally in about 10 days ago. The harvest in this quarter was begun about September 1, and quick work was made in the cutting down of it—cutting with machines being the rule, and the scythe the exception. Every kind of them is being tried, but the manual delivery by Brigham & Bickerton, Berwick, seems to be most in favour, and some excellent work has been made; I suppose no one could tell how much it has cost them per acre, but as much as 12 acres a day has been cut by some of them. It was mostly all cut before the weather broke, but very little was carried, so that much was stacked in bad condition, and a good deal of it was sprouted in the stook before it could be got in condition for carrying. Some of the stooks stood more than a month, so that very few fine samples will be found in this quarter, but all acknowledge to having a third more than last year, although scarcely an average, and to go through the country a person could form little estimate of the bulk of the stackyards, as the stacks are built in all sizes and shapes, and mostly all have wood in the inside of them. A great deal of it has been heated, and some, we believe, turned and returned, and after all we have had to get the steam threshing-machine and thresh out a great deal of it, and send it to the market, which has taken on the prices considerably.

The rain, which did so much harm to the grain crop, as been very beneficial for the Turnips, and a bad ield this year is scarcely to be seen. Very few of the Potato crops are taken up yet, but they appear to be about an average crop, and of excellent quality.

Our live stock in this quarter are all very healthy, and very few cases of foot-and-mouth disease are in the shire: however, we are well prepared to deal with it now, as all the machinery of the Contagious Diseases Act has been set in motion, while stock are mostly all housed now, and the trade and traffic for some time will mostly be in fat stock. A good few bullocks are training for the Christmas shows, and we have no doubt Banffshire will stand its ground manfully as heretofore.

The plough is at work on most farms, turning over the stubble fields intended for Turnips; the wet weather is keeping back the Wheat sowing; clay-land is very wet. Saturday the 16th was the wettest day we have had for many years, and, in consequence, low-lying fields are standing in pools.

When the weather clears up, Potato-lifting and Wheat-sowing will be the pressing operations of the farm here, but until the land is in better condition we must work and wait. *W. J.*

The Poultry Yard.

We recollect, many years since, when geese were supposed to belong to Lincolnshire, the fenny parts of Cambridgeshire, and places where there were extensive commons, that it was said nothing would eat after a goose. We believe the first who said so was a wag, and belonged to the society where they said that in an adjoining parish only one bell was rung at a wedding, but all were tolled at a funeral (there was but one). That at another place you must be careful not to tie your horse to a tree, because it involves a fine of 100*l.* (The place is on the seashore, and there is not a tree.) So the goose; it is not that nothing will eat after it, but if it be Grass, the truth is the goose leaves nothing to eat. The sharp sides of their bills cut it off close to the ground. We said a short time since, when speaking of Michaelmas, that geese seemed to be out of season at that time, there being little or no demand. The quarrel is not, however, with the bird, but with the season. Where one goose was eaten at Christmas 10 years ago, 100 are eaten now, and they make good prices, provided they are large. Poultry in general is, however, fast becoming a trade. The geese that used to remain the property of the breeder till the Barley stubbles were ready for them, are now sold when a few weeks old to a travelling collector. Such men go about the country where there are commons; they go to Ireland, France, and Belgium. They collect all the geese they can, and bring them to England. Stratford enjoyed almost a monopoly of goose-feeding for many years. A tale is told that when Oats were very dear, there was a meeting of coach proprietors at Romford to consider the price. When they had hailed all their acquaintances, there still remained a man in the room whom no one knew. They looked at him and at each other; they coughed significantly; at last they begged him to leave. He said he thought it was a meeting to consider the price of Oats. "So it was. Who was he?" "A goose feeder." The announcement was received with shouts of laughter. This soon ceased when he showed he consumed many more Oats than the largest coach proprietor in the room. Those days are gone; the coaches are become things of the past, and the goose-feeders have gone to Lincolnshire and Cambridgeshire. Railways have rendered carriage easy and cheap. Contiguity to London is no longer an essential. When all was brought to London in cart or waggon, every mile was of importance, on account of cost and time. Now the "iron horse" snorts his way, heedless of weight or speed.

We suppose it is natural for men to grumble. It prevents fits of ill temper. There are those who say the milk that travels up 100 miles, and is then dispensed by unquestionable cockneys, clad for the occasion in white smock frocks, is not so good as that which used to be carried by the strapping milkmaids, wearing their shiny leather ankle-boots, and notorious for their gaily-coloured cotton kerchiefs. And Strawberries are now brought to town in long skeleton carts, while many can recollect, during the Strawberry season, a line of fast-walking and gaily-dressed young women, each carrying a large round basket on her head, filled with Strawberries. These came about every two hours, and supplied the principal dealers. People say they were better then than now. All this is to end by saying that in our fast-living days a man can hardly allow himself to wait till September to sell the bird he hatched in March or April, he therefore sells his gosling to the "feeder."

Many years ago the distinction was so marked, that in the market they were known as "country" and "feeder's" geese. There is now little need of any distinction—all are "feeder's." But we mourn over the legitimate farmer's goose—the stubble goose. No other bird of the tribe is as good; no other feeding made so good meat. What a depth of breast, of rich, juicy, tender, succulent meat! What flavour! Such an one, eaten with Apple sauce as brown as itself, and leaving the question of stuffing an open one, would go far to make us wish there were at least one Michaelmas Day every week, and that, eschewing the modern style, we had an old-fashioned stubble goose to keep it upon.

Poultry Keeping.—[The following is the advice of the Rev. F. Watson at the late meeting of the Great Braxted Labourers' Friend Society:]—The first question was, Does poultry-keeping pay? Perhaps just now, when pigs are selling at very high prices, it may be more profitable to give the dross corn to them; but, generally speaking, he was sure poultry did pay. Mr. Fowler, of Aylesbury, who is celebrated for his poultry, says that his poultry-yard has yielded him a return of 500*l.* per annum for many years past, and the profit varies from 60*l.* to 80*l.* He is very successful in prize taking; he cannot expect every one to be so, but he feels sure a profit of 10*l.* per 100 acres on all farms ought to be made from poultry alone. In Norfolk there are market people who make a good livelihood by their traffic in poultry. Their custom is to purchase the poultry and eggs from the farmers in their neighbourhood, and take them to Norwich market. Every Saturday the large space opposite the Town Hall is filled with them; these are the persons who purchase young turkeys of the farmers every autumn, and fatten them for the London market at Christmas. If poultry-keeping does not pay, it ought to do so, when the London public are content to pay 7*s.* and 8*s.* for a pair of spring chickens about the size of partridges, and 2*s.* for eggs called English new-laid. The best kinds of Poultry are the Dorkings and the Brahma Pootra; the largest dead chickens Mr. Watson ever saw were a cross between these breeds. At Chelmsford show last year Mr. Dowsett carried off both prizes for chickens, with two pairs which weighed respectively 16 lb. 14 oz., and 16 lb. 9 oz. But if people were satisfied with plump, rich-flavoured chickens, weighing about 3½ lb. each, they could not do better than keep game fowls. With regard to ducks, the Aylesbury were the best. Mr. Fowler has exhibited some weighing 18 lb. per couple. The best food for fowls is Barley and Wheat, barley-meal and oatmeal; and for ducks the best food is tallow greaves, soaked or boiled in hot water, and then barley-meal and bran mixed with them in the liquor altogether. Grains mixed with barley-meal are very good; all whole corn given to ducks should be thrown into water. Oats thrown into a pan of water whole are the best for geese.

Miscellaneous.

Death of Mr. H. Strafford, Jun.—We very much regret to see the announcement of an inquest at Camboise, Northumberland, before Mr. Lonsdale M. Cockcroft, on the body of a young gentleman named Henry Strafford, of the Civil Service, who died on the preceding Saturday from injuries received in a coal mine. From the evidence it appeared that the deceased, together with his friend, Mr. F. Vine Rainsford, a Swedish engineer, and the chief viewer's son, under the care of four colliery *employés*, made a descent down the West Sleekburn Pit, when a roof stone, coming away, struck his back, broke his thigh-bone and foot, besides causing other injuries. Mr. Strafford made great progress towards recovery for the first week, but then a change for the worse set in, and the unfortunate gentleman expired on Saturday, October 2, at Camboise Vicarage, where he and his friend were on a visit. Verdict, "Accidental Death." He was the only son of Mr. H. Strafford, of Euston Square, the Shorthorn auctioneer, and was a well known member of the London Athletic Club.

The Earl of Rosslyn and his Tenantry.—On Saturday evening the Earl and Countess of Rosslyn entertained their tenantry at Dysart, on the occasion of the birth of an heir to the estates. The noble earl, in proposing "The Dysart Tenantry," said that they were second to none in Scotland in point of the antiquity of their holdings, as well as second to none in prosperity. That was owing, he would say without hesitation, to a good understanding between the landlord and tenants. It was owing to the fact that the landlord and tenants on the estate, if they had any differences and difficulties, had come together. The landlord had always been accessible to the tenant, and the tenant ready to hear what the landlord had to say; and between them, without any recourse to third parties, they settled matters amicably and pulled together well. They heard in the newspapers of large estates well managed, and yet the tenants were not contented. They heard of the law of hypothec on one side, and the game damages on the other, and 50,000 things rising to distract the amicable relations between landlord and tenant. As to the law of hypothec, it was so simple, and entirely a matter between man and man, that he could not understand any party trying to make it a political question at all. It had nothing to do with politics. It was a law which gave the landlord the first claim on his farm. At this moment the question was complicated with a great cry about tenant-right in Ireland, and the great cry about that at this moment was simply because the Irish had never had leases. They had had holdings of lands without leases, and if a tenant spent any money upon his farm he might be turned off, especially by a capricious landlord, without getting compensation. Nothing could be more unjust or unfair. If it had been carried out in this country we should have had a rebellion long ago. In this country, however, it had always been the custom to have leases, and he hoped it would continue. He did not want the landlord to have an unjust and undue power, but merely that he should have a security for that back rent which it was the custom to have in Scotland, and which enabled men who might not have an accumulation of capital to enter farms which otherwise they would be unable to stock. As to the game question, he was quite satisfied of this, that if there was an undue proportion of game on a farm doing damage to a crop, the landlord must be a knave or a fool who did not remedy it. How could a man maintain a farm and be expected to keep a large amount of game? He could not understand that for a moment. He, for one, declared that he would destroy every single head of ground game, if necessary, rather than that his tenants should suffer from their ravages. But he was sure there was not a man present but would be sorry if his landlord wanted a day's shooting and could not get a shot at a rabbit or a hare. Common sense and fair play was what should prevail in a matter of this kind between landlord and tenant. For himself he proposed after this term to give his tenants the right of killing their own rabbits.

Calendar of Operations.

October: *Mangel harvest* generally takes place about the end of October. The crop should be pulled and stored before frost sets in, otherwise it is liable to rot in the pits or barn. In tailing no more should be removed than the small rootlets and earth, and the tops should be twisted and not cut off the bulb. The roots are generally stored in pits and barns like Potatos and Carrots, but in some cases in narrow bins between hurdles stuffed with straw. The Mangels in the bins above the hurdles are raised in the form of a roof, and

thickly thatched with straw, and the bins are placed alongside each other sufficiently close to keep out frost, while they let steam out and air in. The tops are generally ploughed in for manure. Dry settled weather should be selected for the work.

Autumn manuring for Spring Beans.—The operation is similar to that for winter Beans. During this month farmyard manure can be carted on to the land without doing comparatively any harm in dry seasons, and in wet ones what little harm is done is greatly rectified by the winter frost. It is otherwise in early spring, and besides the carting, when the manure is applied at this season, the drills are in a better and more forward state to receive the seed in spring by dibbling in on the winter made staple, which forms a fine seed-bed for this crop—much better than when the land is newly cultivated.

Parsnips require to be early sown in spring, by the middle of February, and as the land can be more easily manured at this season, it should be done. But, apart from this, the Parsnip is a plant that requires the manure to be thoroughly incorporated with the land before the seed is sown. The land should be a fine deep, dry, friable or sandy loam, deeply cultivated, and in a high state of fertility. The land requires to be deeply ploughed, then smashed across. It is then drilled and dunged in the usual way, and in covering the manure the drills should be well ridged up to the winter frost; or if the intention is to sow on the flat, which is generally the preferable plan, the manure should be carefully covered 4 to 6 inches deep.

Carrots.—The Belgian and common field Carrot require the land to be cultivated, manured, and prepared for them at this season as above described for Parsnips. The former is grown on a greater variety of soils, and the latter on sandy soils, of a less fertile description naturally; but they both grow more freely on land that has been manured the previous autumn.

Potatos.—Many manure the land at this season purposely to improve the quality of the crop, likewise for getting the earlier varieties planted in time in spring. Cultivation and manuring similar to that for Carrots.

Mangel Wurzel.—Some apply farmyard manure at this season, either on the flat or in drills, and then artificial manures at the time of sowing. Manuring at this season is a great relief to spring work cultivation.

Steam Ridging and subsoiling. In all the above examples of autumn manuring for Beans, Carrots, Parsnips, Potatos and Mangels, the ploughing, smashing, ridging and covering the manure is best done by steam, and where land requires it, it may be subsoiled at the same time. After the land has been cultivated for a length of time by steam to the depth of 12 and 14 inches, it may then be turned up to this depth, placing the furrow slice upside down. But at the commencement of steam tillage, when the land previously has only been ploughed to the depth of from 6 to 7 inches by horse teams, subsoiling for a few years is preferable to turning up the land to twice the old depth with the plough. It may be smashed up to twice the depth without danger, but it is seldom advisable to plough deeper than the old furrow. But after the subsoil has been thoroughly loosened and aërated, and noxious salts either oxidised or washed into the subsoil or through drains, the land may then be ploughed to the proper depth at this season. Over a large area of Scotland and the north of England all the stubble lands for the ensuing green crops are ploughed to the depth of 12 or 14 inches at this season by four-horse teams, and we have followed the same practice in Huntingdonshire with equal success. But, at the commencement, the land must either be subsoiled for a few years, or the work of deepening done by degrees, not more than 2 inches of the subsoil being brought to the surface at a time. By steam, however, the work of deepening may be done much more advantageously by a subsoiler below the common plough or ridge plough. Thus, in opening the ridge furrows for the manure, the ground on which the manure is to fall is subsoiled; and, in covering the manure by splitting the ridges, the open furrows are subsoiled, leaving it in the best possible condition for the successful winter drainage of the land.

Live Stock.—Brood mares require double attention at this season, for independently of their physical condition naturally, the foetus now begins to draw heavily upon the dam's sustenance of the body, more especially if only recently separated from their foals. The diet should be nourishing, cooling, and slightly laxative. Foals, whether newly or recently weaned, also require special care, otherwise their growth will be checked, and their symmetry, beauty, and usefulness impaired. The old saying, "Starve a foal at this season, and twice the food saved will not recover the loss sustained," is a true one. After this season, what they gather in the pastures is unfit to support them. Outdoor exercise is needed, but the essentials of the dietary must now be supplied indoors; and whatever the dietary is, they should have been taught to eat it before they were weaned.

Milch cows should now have plenty of green food indoors, as Sewage Grasses, where they can be got, and Vetches, Cabbages, and Turnips. In our southern counties they may gather something daily in rich pasture—in the north, very little; and with such soft food hay, chaff, and meal mixed should be given. In short, milch cows are now gradually put upon their winter keep. The old practice of not housing at night before November, when the fires are lighted, is out of date; for although the nights during October are often free from frost in our southern districts, the ground is wet, and nothing is more injurious to a milch cow than a wet, cold bed.

The Dairy during October can seldom be kept sufficiently dry, and at the proper temperature, without artificial heat, and no greater mistake can be made than to allow the milk room and other departments to become damp and mouldy at this season. Always kindle the fires in time, for "it is easier to keep out than to put out." If this is done, very fine butter and cheese may be made throughout the month, for the milk, although less in quantity, is rich in quality when the cows are properly fed, groomed, and attended to. When fed on Turnips the tops should be given to store cattle. Many farmers prefer ploughing down the green-tops for manure, estimating them at more value for this purpose than for feeding material, owing to the large percentage of the tops being in a rotten and unwholesome state. But, even when all green and fresh, the tops should not be given to milch cows, as they disagreeably flavour the milk. *W. B.*

Notices to Correspondents.

AGRICULTURAL IMPORTS DURING 8 MONTHS, 1868 AND 1869: *R.*

Articles.		Importations. 1868.	1869.
Oxen, Bulls, and Cows	No.	65,518	134,284
Calves	,,	17,636	20,741
Sheep	,,	239,889	530,498
Lambs	,,	17,708	17,942
Swine and Hogs	,,	19,536	40,487
Bones, burnt or not, or as animal Charcoal	tons	45,293	54,029
Corn—Wheat, from Russia	cwt.	6,214,731	4,217,061
Denmark	,,	276,063	269,678
Prussia	,,	2,512,805	3,271,194
Schleswig, Holstein, & Lauenburg	,,	35,699	37,290
Mecklenburg	,,	441,682	422,591
Hanse Towns	,,	429,812	456,136
France	,,	14,424	231,077
Illyria, Croatia, and Dalmatia	,,	895,210	755,034
Turkey and Wallachia & Moldavia	,,	2,676,491	1,636,839
Egypt	,,	2,726,372	653,143
United States	,,	4,529,266	6,515,807
Chili	,,	1,023,933	462,496
British North America	,,	272,396	910,393
Other Countries	,,	670,281	350,822
Barley	,,	3,847,916	5,275,516
Oats	,,	5,789,837	3,696,081
Peas	,,	564,333	519,632
Beans	,,	1,538,022	1,199,850
Indian Corn, or Maize	,,	7,291,579	10,055,674
Wheatmeal and Flour—From Hanse Towns	cwt	340,611	351,803
France	,,	256,778	938,769
United States	,,	469,508	782,662
British North America	,,	101,111	189,969
Other Countries	,,	656,370	724,380
Indian Corn Meal	,,	5,226	3,651
Flax and Tow or Codilla of Flax—From Russia	cwt.	774,573	595,458
Holland	,,	9 1,991	86,240
Belgium	,,	126 573	119,751
Other Countries	,,	121,091	137,190
Guano, from West Coast of Africa, tons		1,056	2,147
United States	,,	1	363
Peru	,,	115,281	73,440
Bolivia	,,	3,105	1,612
British West India Islands	,,	..	1,161
Other countries	,,	13,247	2,264
Hemp and Tow or Codilla of Hemp—From Russia	cwt.	140,928	246,703
Venetia	,,	155,619	176,021
Illyria, Croatia, and Dalmatia	,,	27,029	38,102
British India	,,	6,588	13,821
Philippine Islands	,,	95,281	62,315
Other Countries	,,	68,125	58,391
China Grass	,,	8	11
Jute and substances of the nature of Hemp	cwt.	1,242,384	1,745,159
Hides, untanned, dry—From British India	cwt.	86,782	145,404
Other Countries	,,	48,591	44,776
Wet—From Argentine Confederation and Uruguay	cwt.	137,880	94,705
Brazil	,,	53,767	62,711
Australia	,,	34,224	22,946
Other Countries	,,	61,905	93,770
Tanned, Tawed, Curried, or Dressed (except Russia)	lb.	6,218,875	5,728,822
Hops	cwt.	50,407	169,046
Oil Seed Cakes	tons	80,374	103,322
Potatos	cwt.	1,057,295	1,319,439
Provisions—Butter	,,	618,548	744,812
Cheese	,,	407,680	407,309
Eggs	No.	279,278,520	331,206,240
Fish, cured or salted	cwt.	114,118	303,020
Lard	,,	146,600	165,166
Meat, fresh or slightly salted—Beef	cwt.	3,652	7,474
Pork	,,	3,747	12,565
Meat, salted—Bacon and Hams	,,	412,440	500,348
Beef, salted	,,	188,051	175,030
Pork	,,	100,587	114,031
Meat, not otherwise described	,,	20,547	40,739
Saltpetre	,,	78,671	165,907
Cubic Nitre	,,	660,221	553,791
Seeds—Clover	cwt.	170,451	171,065
Flaxseed and Linseed	qrs.	796,148	610,089
Rape	,,	216,340	74,060
Wool, Sheep and Lambs'—From Europe	lb.	10,477,186	13,674,252
British Possession in South Africa	,,	18,917,908	19,900,942
British India	,,	9,277,023	10,503,565
Australia	,,	113,202,980	124,772,110
Other Countries	,,	13,490,980	11,013,465
Alpaca and the Llama Tribe	,,	733,350	1,671,817
Yeast, dried	cwt	75,515	75,889

BLACK LEG: *H. H.* When young animals are progressing too rapidly upon rich food, a condition of things which commonly precedes "black leg," setons may help to lower the plethora of the system, and thus do some little good: but they certainly have no specific influence, and in practice they constantly fail to prevent the disease.

BOOKS. There is no manual of agriculture of much service at "about 2*s.* 6*d.* to 5*s.* in value." You had better apply to Mr. Allnutt, at the Agricultural Library, No. 200, Fleet Street, for his list and advice.

CLOVER DODDER: *H. H.* Your plant is Clover Dodder. Clover is to be thrashed out of the rick, and if not by a special Clover seed machine, it must be passed through the thrashing machine two or three times. It is cleaned by Rotten and "seeding" sieve.

THE FIRE PLOUGH: *H Notice.* It is a two horse iron-framed plough, for horse-work, made by Fowler & Co., Steam Plough Works, Leeds.

Extra large Trees for Ornamental Planting
IN PARKS AND AVENUES.

WM. WOOD AND SON have to offer a magnificent STOCK of the following:—

Sycamores, 7 to 8 feet	Poplars, Black Italian and Lombardy, 8 to 10 feet
,, variegated, 5 to 6 feet	Mountain Ash, 7 to 8 feet
Horse Chestnuts, 8 to 10 feet	,, Weeping, 6 to 7 ft.
,, scarlet, 8 to 10 feet	Pyrus aria laciniata, 7 to 8 feet
Catalpa syringæfolia, 7 to 8 feet	American Weeping Willows, 6 to 8 feet
Laburnums, 4 to 6 feet	Elms, English, Chichester, Wych, 6 to 8 feet, and 8 to 10 feet
,, purple, 4 to 6 feet	
Weeping Ash, ex. fine, 7 to 9 feet	
Ash-leaved Maple, 7 to 8 feet	

Price on application.
Address—Woodlands Nursery, Maresfield, Uckfield, Sussex.

Large Evergreens and Forest Trees.

MESSRS. PAMPLIN AND SON have a large quantity of the following, and offer them at low prices, part of their Grounds being required for building purposes.

Cedar of Lebanon, 10 to 20 feet	Black Italian Poplar, 20 feet
Cedrus Deodara, 6 to 15 feet	Balsam ditto, 10 to 15 feet
Aucuba japonica, 2 to 6 feet	Lombardy ditto, 20 feet
Portugal Laurels, 2 to 6 feet	Horse Chestnut, 10 to 15 feet
Chinese Arbor-vitæ, 5 to 12 feet	Spanish Chestnut, 10 feet
American ,, 5 to 10 feet	Limes, 10 to 15 feet
Thuja aurea, 1 to 4 feet	Walnuts, 10 to 15 feet
Green Box, 1 to 6 feet	Ash, 10 to 20 feet
Striped ditto, 2 to 4 feet	Elm, 10 to 15 feet
Evergreen Oak, 7 to 10 feet	Acacia, 10 feet
Yew, Common, 4 to 10 feet	Mountain Ash, 10 feet
Irish Yew, 3 to 5 feet	Turkey Oak, 10 to 12 feet
Laurel, 2 to 6 feet	Sycamore, 10 to 14 feet
Araucaria imbricata, 10 feet	Weeping Willow, 10 to 15 feet
Green Hollies, 1 to 12 feet	Lilac, Common, 8 feet
Weymouth Fir, 3 to 6 feet	Persian ditto, 6 feet
Spruce ditto, 2 to 4 feet	Yellow Azalea, 3 feet
Birch, 14 feet	Privet ovalifolia, 8 feet

The Nurseries, Lea Bridge Road, Leyton; and Wood Street, Walthamstow, Essex, N.E.

Special Offer of New Potatos.

THOMAS PIERPOINT, Warrington, begs to offer the POTATOS introduced by him in 1868-69 at prices one-third below the fixed quotations for 1870. The Harry, a very early variety, is thus reported in the "Gardeners' Magazine," Feb. 6, 1869, p. 63:—"Harry, Kidney, combines in an exceptionally perfect manner the finest quality with elegance of appearance and great productiveness." Rixton Pippin, a large, handsome, and heavy Fluke-shaped Potato, of the very finest flavour, fit for table when taken up, and remains so until July. See report in "Gardeners' Magazine," April 10, 1869, and Sept. 11, 1869, where it is pronounced "unquestionably the best Potato of the year."

Harry, Kidney .. .. 7*s.* per 56 lb., 12*s.* per cwt.
Rixton Pippin .. .. 12*s.* per 56 lb., 21*s.* per cwt.
Nett cash prices, not binding after October 30.

THOMAS PIERPOINT, Seedsman and Seed Grower, 126, Bridge Street, Warrington.—[Please to note address, as there is another of the same Name and Trade in town.]

LEAF MOULD WANTED.—Any person having the article to Dispose of may apply to J. KENNARD, Swan Place, Old Kent Road, S.E.

SILVER SAND and PEAT, from Bedfordshire, in any quantity. This Sand is acknowledged by Florists to be the best yet obtained. Price Lists on application to MR. JOHN ARNOLD, Builder, 29, Clarendon Square, St. Pancras, N.W.

GENUINE TOBACCO PAPER, of the finest quality, 10*d.* per lb., or 84*s.* per cwt.
WILLIAM RUSHFORTH, Nurseryman and Seed Merchant, Leeds

APPLEBY'S GENUINE TOBACCO PAPER, in 2 lb. and 4 lb. packets. Testimonials too numerous for insertion. Price on application to HENRY APPLEBY (Foreman to Messrs. Ivory & Son, Nurserymen), Dorking, Surrey.

The Cheapest and Best Insecticide.
DUTY-FREE TOBACCO.
BY HER MAJESTY'S ROYAL LETTERS PATENT, AND BY PERMISSION OF THE HON. BOARD OF CUSTOMS.

POOLEY'S TOBACCO POWDER, for the Prevention and Destruction of Blight and other Diseases in Plants. Sold by Nurserymen, Seedsmen, and Florists, In Tins at 1*s.*, 2*s.* 6*d.*, and 5*s.*
Powder Distributors, 2*s.* 6*d.* and 3*s.* 6*d.* each.
"I find it exceedingly useful for killing the Aphides on Roses and other Plants."—GEO. EALES, Superintendent, Royal Horticultural Gardens, South Kensington. May 7, 1868.
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GISHURST COMPOUND.

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
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BENJAMIN LOOKER, Inventor and Sole Manufacturer, Kingston-on-Thames.

SHAW'S TIFFANY.
For Samples and Prices apply to J. SHAW AND CO., 29, Oxford Street, Manchester.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen for Windsor Castle and Frogmore Gardens, the Duke of Northumberland, Duke of Devonshire, late Sir J. Paxton for the Crystal Palace; Royal Gardens, Kew; Professor Lindley for the Horticultural Society, &c.
The best Shading is "Frigi Domo" Netting,
White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for
PROTECTION from the COLD WINDS and MORNING FROSTS.
"FRIGI DOMO" NETTING, 2 yards wide, 1*s.* 6*d.* per yard run.
"FRIGI DOMO" CANVAS.

Two yards wide	1*s.* 9*d.* per yard run.
Four yards wide	3*s.* 6*d.* per yard.
An improved make, 2 yards wide	1*s.* 9*d.* per yard.
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Scrim Canvas, 72 inches wide, 70 yards long, 5½*d.*, 6½*d.*, 7½*d.*, 7½*d.*, and 8½*d.* per yard.
Hessian Canvas, 54 and 72 inches wide, 6½*d.* and 8½*d.* per yard.
½*d.* extra for cut lengths.
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Erected Complete, or the Materials Supplied for Heating
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Illustrated Price Lists, with sizes, &c., free on application.
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	Each.
6 ft. by 4 ft. Lights, 21ns. thick, unglazed	£0 5 0
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" " with stout Portable Box, not Painted	1 3 0
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6 ft. by 8 ft., Double Lights, do.	2 15 0

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Woodwork only Prepared and Fitted	0 0 6
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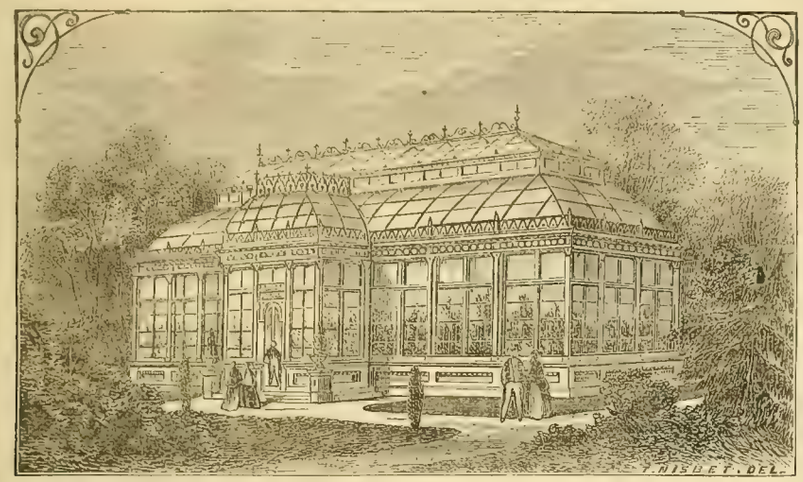


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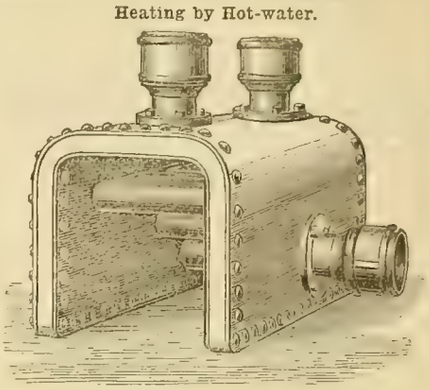
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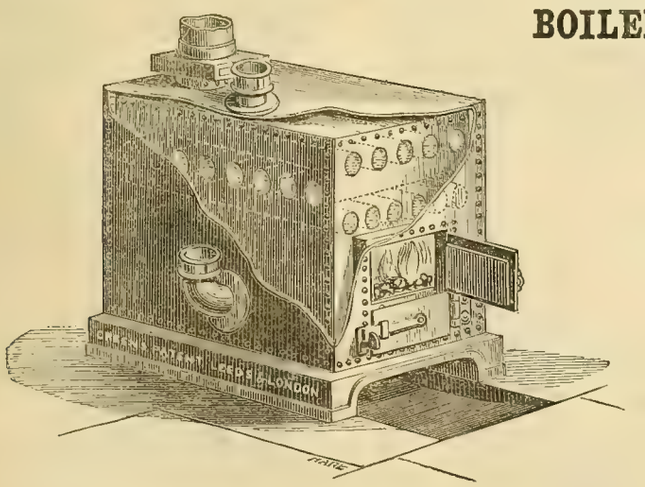
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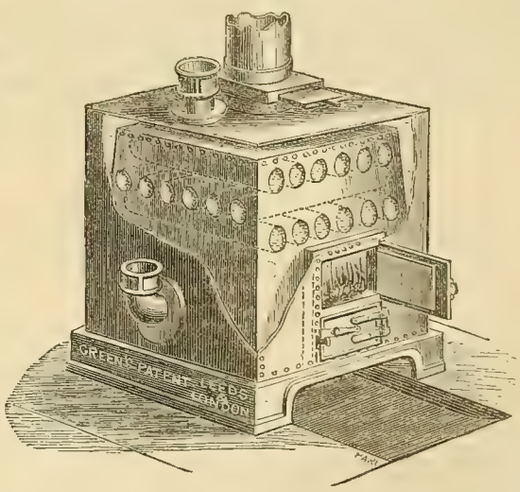
Catalogues, containing Designs of Houses, &c., will be forwarded on application. Special Plans and Estimates for Ranges of Houses to be erected in any part of the country will also be furnished.

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OBLONG BOILER.



SQUARE BOILER.

THE ABOVE BOILERS ARE

THE MOST EFFECTIVE AND DURABLE EVER INVENTED.

They can be set to work at a nominal cost, inasmuch as no brickwork is required; as will be seen from the above drawing, they are placed upon a Cast-Iron Sole-plate, which answers the purpose of Foundation and Ashpit.

From the peculiar and substantial manner in which these Boilers are made, they are warranted to last for years without getting out of order; in fact, we guarantee them for ten years, but feel convinced that they will serve all the purposes for which they are intended for a much longer period.

They are specially adapted for Heating Greenhouses, Churches, Chapels, Schools, Public Buildings, Entrance Halls, Warehouses, Workshops, &c.

THE FOLLOWING ARE THE ADVANTAGES OF THESE BOILERS:—

1st, They require no setting in brickwork.
2d, They are complete in themselves, having perfect means of regulation.
3d, They take up little room, and can be put in places inaccessible to other Boilers.
4th, They are economisers of fuel, owing to the great amount of heating surface upon which the fire acts in a direct manner, and the consumption of smoke.
5th, The fire can be made to last from 12 to 24 hours without attention.
6th, Any number of Flows and Returns can be annexed to the Boilers by means of T-pipes.
7th, By means of mud doors, they can be readily cleaned out when required.
8th, The Chimney is made of cast-iron, which can either be taken through a roof or turned into a flue, to meet the convenience of the situation that it may be fixed in.

☞ *PRICE LISTS ON APPLICATION.*

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;
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HOT-WATER PIPES.
CASH PRICES.

	2-inch.	3-inch.	4-inch.
PIPES per yard	1s. 6d.	1s. 6d.	2s. 0d.
ELBOWS each	1 6	2 3	3 0
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No credit will be given, when Pipes, &c., are invoiced at the above prices.
J. JONES AND SONS,
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Price Lists, with terms for credit and for delivery at country stations, will be sent on application.

IRON GREENHOUSES CHEAPER THAN WOOD.

Beard's Patent Non-conducting and Ventilating Metallic Glass Houses.

Victoria Works, Bury St. Edmund's.



MANUFACTURED BY

CHARLES BEARD.

Sole Partner in the late Firm of Sanders, Frewer & Co., which has been dissolved by mutual consent.

The Patentee begs to announce his Patent Houses obtained the First Class Prize at the Royal Horticultural Gardens, South Kensington, in 1861;

the Grand Manchester Horticultural Show, in 1863;

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The Patent Ventilation and Construction are now adopted in Botanic Gardens, Public Parks, Conservatories, Railway Stations, &c., &c.

The Patent Glass Houses, glazed with 36oz. Sheet Glass, in 24 feet lengths, as also Lean-to Houses, for 12 months, may be obtained on application to CHARLES BEARD, Victoria Horticultural Works, Bury St. Edmund's.

PATENT GLAZING BARS, to screw on wood, may be had separately. Estimates and Designs free of charge.

VIRGIN CORK for GROTTOES, FERNERIES, and SUMMER HOUSES, on SALE, by the LONDON and LISBON CORKWOOD COMPANY (Limited), 28, Upper Thames Street, E.C. AGENTS WANTED for Country Towns.

The Only Stove without a Flue.



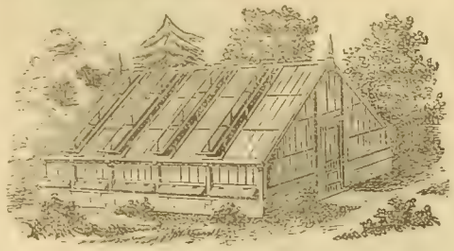
NASH AND JOYCE'S PATENT, for WARMING HALLS, SHOPS, GREENHOUSES, &c.

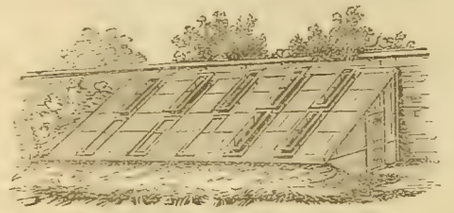
These Stoves burn without attention or replenishing 12 to 24 hours. From 12s. 6d. to Six Guineas. PATENT FUEL, 4s. 6d. per bag.

STOVES made expressly for Greenhouses, to Burn all Winter by filling up with the Patent Fuel every 12 hours.

S. NASH, Patentee, General Furnishing Ironmonger, 253, Oxford Street, W.; Joyce's Stove Depôt, 109, Newgate Street, E.C.; and Leinster Terrace, Bayswater, W. Prospectus of Patterns and Prices post free.

RICHARDSON'S PATENT HORTICULTURAL BUILDINGS.





These Buildings are CHEAP, PORTABLE, and EASILY FIXED.

PERFECT VENTILATION is obtained, whilst the interior of the house has complete protection from rain, wind, or a direct down-draught.

Illustrated Price Lists, containing prices of 250 different sized Houses, free on application to the Makers, enclosing a stamp for postage. Also the improved PORTABLE HOTHOUSES for the PEOPLE, cheapest ever offered. Guaranteed sound and good quality. Apply to

W. RICHARDSON AND CO., Horticultural Builders, Darlington.

SCRIM CANVAS, 72 inches wide, from 7½d. per yard; and HESSIAN, 74 inches wide, at 7½d. per yard, is the best and cheapest material for Protecting Fruit Trees or Shading Greenhouses. Samples forwarded on application.

BLIND TICKING, SAIL CLOTH, and FORFAR SHEETING at the lowest prices.

Estimates given for outside SHOP BLINDS, fitted on the improved self-acting spring roller.

JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London.

SEED BAGS and SACKS, and BAGS of every description in use, supplied at the lowest possible prices. ARCHANGEL and TAGANROG MATS of good quality, for Covering, Tying, or Shading; also Petersburg and Prussian DUNNAGE MATS. Price-list forwarded post free on application.

JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London.

Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the Corporate Mark, OBTAIN WARRANTED without which none are genuine

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make all of which are warranted both by Sellers and Makers.

S. & C.'s PRUNING and BUDDING KNIVES are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.



THE "CASSIOBURY."

The best and most powerful

GARDEN ENGINE.

15 Gallons .. .. £4 10s.
24 Gallons .. .. £5 10s.

S. OWENS AND CO.,
Whitefriars Street, London, E.C.

Vases and Fountains, for the Garden and Conservatory.



ANDREW HANDYSIDE AND CO.,
Britannia Foundry, Derby. | 32, Walbrook, London.

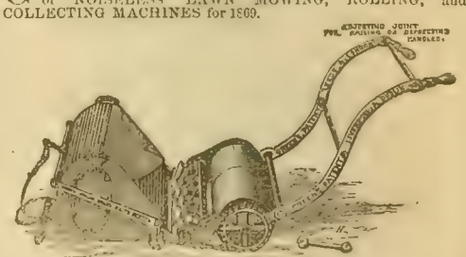
The Britannia Iron Works have for the last 40 years been well known for the production of fine Iron Castings. The use of Cast-iron permits a delicacy of outline, and smoothness of surface, impossible in cheap Stone or Terra-cotta. Cast-iron Vases, if occasionally painted, are imperishable, and will not crack when exposed to wet or frosty weather.





Five large Sheets of Designs and Price Lists post free for 6 stamps.
A. H. & Co. make the better kind of IRON and GLASS CONSERVATORIES, and have constructed some of the largest and finest in the kingdom.

GREEN'S PATENT SILENS MESSORS, or NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES for 1869.



Every Machine is warranted to give entire satisfaction, and if not approved of, can be returned at once unconditionally.

PRIZE MEDALS AWARDED to GREEN'S PATENT LAWN MOWERS.

First Prize Medal at the International Exhibition, London, 1862.
First Prize Medal at the International Exhibition, Dublin, 1865
First Prize Medal at the Namur Exhibition.
First Prize Medal at the Gand Exhibition.
First Prize Medal at the Lucken Exhibition.
First Prize Medal at the Linneo Exhibition.
First Prize Medal at the Brussels Exhibition, on two occasions.
First Prize Medal at the Hamburg Exhibition.

GREEN'S Patent Lawn Mowers have proved to be the best, and have carried off every Prize that has been given, in all cases of competition.

The extraordinary success of GREEN'S Patent Lawn Mowers is an established fact. During the last five years the demand has been unprecedented, which alone is a proof of their superiority over all others. The following are their characteristic features:—1st. Simplicity of construction, every part being free of access. 2d. They are worked with far greater ease than any other Lawn Mower. 3d. They are the least liable to get out of order.

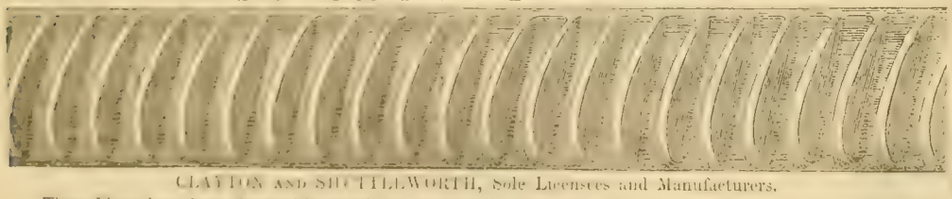
GREEN'S Patent Lawn Mowers combine all the advantages of self-sharpening, and when the cutters become blunt by running one way round, they can be reversed again and again, bringing the sharp edge of the cutters against the bottom blade, which operation can be done by any inexperienced person, owing to the peculiar adaptation of the Machine, which is possessed by no other. Illustrated Price Lists free on application.

THOMAS GREEN AND SON, Smithfield Iron Works, Leeds; and 51 and 55, Blackfriars Road, London, S.

N.B.—All orders are executed on the day they are received.

PORTABLE ENGINES, FROM 4 TO 25-HORSE POWER.
THRESHING MACHINES, SINGLE, DOUBLE and TREBLE BLAST,
WITH PATENT ROLLED STEEL BEATER PLATES, AND ALL OTHER RECENT IMPROVEMENTS.

PATENT ROLLED STEEL BEATER PLATES



CLAYTON AND SHUTTLEWORTH, Sole Licensees and Manufacturers.

These Plates have been thoroughly tested, and are found to wear more than three times as long as the Malleable Iron Plates formerly in use. C. & S. are prepared to supply Threshing Machine Owners and the Trade in any quantity.

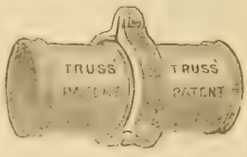
CLAYTON AND SHUTTLEWORTH,
STAMP END WORKS, LINCOLN, and 78, LOMBARD STREET, LONDON, E.C.
Catalogues on application, Free by Post.

PORTABLE AND FIXED HOT-WATER APPARATUS,
FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH

TRUSS'S PATENT UNIVERSAL FLEXIBLE AND LEAKLESS PIPE-JOINTS.



T. S. TRUSS



begs to state that the immense number of APPARATUS annually Designed and Erected by him [illegible] throughout the kingdom, and for the ROYAL HORTICULTURAL SOCIETY at SOUTH KENSINGTON and CHISWICK, with unrivalled satisfaction, [illegible] for all [illegible] and good workmanship; while the great advantages obtained by the IMPROVED SYSTEM cannot be over-estimated, consisting of perfectly tight joints with [illegible]. EFFECTING A SAVING OF 25 PER CENT. on cost of Apparatus erected compared [illegible] for extension, alterations or removals without injury to Pipes or Joints; can be [illegible] erected in one day; and PERFECTNESS OF DESIGN [illegible] Apparatus, of the best materials, delivered to any Railway [illegible] Erection beyond 25 miles of London, railway fare for one [illegible].

TWO FOUR-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
20 feet by 10 feet ..	£2 0 0	..	50 feet by 15 feet ..	£17 10 0 ..	£3 0 0
30 feet by 10 feet ..	11 15 6	..	75 feet by 15 feet ..	20 0 0 ..	3 0 0
40 feet by 15 feet ..	15 0 0	..	100 feet by 15 feet ..	26 0 0 ..	3 5 0

Boiler and Gas Work erected in town or country. **The Trade Supplied.**

Price Lists, Plans, and Estimates forwarded on application to

T. S. TRUSS, C.E., CONSULTING HORTICULTURAL ENGINEER, &c., SOLE MANUFACTURER,
IRON MERCHANT, HOT-WATER APPARATUS MANUFACTURER,
AND HORTICULTURAL BUILDER,
FRIAR STREET, BLACKFRIARS ROAD, LONDON, S.E.

SHANKS'S PATENT LAWN MOWERS for 1869.
The Patent Improvements recently introduced give
SHANKS'S MACHINE
Several important advantages possessed by no other Lawn Mower. PATENT DOUBLE-EDGED SOLE-PLATE, WIND-GUARD, &c.
The unprecedented Sale for 1868, notwithstanding the Dryness of the Season, forms the most convincing testimony how much these advantages have been appreciated.
Alexander Shanks & Son beg to intimate that, among all the Exhibitors of Lawn Mowers at the Paris Exhibition, they are the only Firm to whom the Jury awarded a Medal. The Silver Medal then awarded is the highest Prize ever given at any Exhibition for Lawn Mowers.



Alexander Shanks & Son have for some time past been making the Rounding Cutter of their Machines Self-Sharpening—that is, with Steel on both Sides of each Blade, so that when the Cutter becomes blunt by running one way, it can be reversed, thus bringing the opposite or sharp edge of the Cutter to act against the Sole-Plate. In addition to this, A. S. & Son now make the Sole-Plate or Bottom Blade of their Machine with Two Edges—one in front as usual, and one in reserve at the back; when the front edge gets worn down, the plate has only to be unscrewed and the unused edge brought to the front. It will be seen at a glance that this arrangement enables the cutting parts to last twice as long as in other machines, where the single-edged Sole-plate must be entirely renewed when the edge is worn down.
A Wind-Guard has also been introduced to prevent the Mown Grass being blown past the Box during the prevalence of wind.
There is no rubbing with these Machines. The Lawn when mown has a most beautiful appearance, being as smooth as a piece of velvet.
Every Machine warranted to give ample satisfaction, and if not approved of can be at once returned.
Illustrated Circulars, with full particulars, sent free on application.
A. SHANKS AND SONS, Deas Iron Works, Arbroath; and 27, Leadenhall Street, London, E.C.
☞ A Stock of all sizes of Lawn Mowers always kept at 27, Leadenhall Street.

FOR SALE, some fine HOUDAN COCKERELLS, price 10s. each.
Apply to Mr. S. PRESTON, 20, Mercer Row, Louth.

To Seedsmen, Horticulturists, and Others.

TO BE SOLD, the GOODWILL, STOCK in TRADE, and FIXTURES, of an old-established Seed and Horticultural Implement Business in Liverpool. For particulars apply to
MR. WORSHIP, Solicitor, Liverpool.

FOR SALE, by Private Contract, an ESTABLISHED NURSERY GARDEN STOCK, together with Greenhouse, Propagating House, Pits and Frames. The above would be a first-rate chance for a young Beginner. There is a good Seed Trade also attached. Can be taken at once. Coming in light.
Apply to JOHN INNELL, Auctioneer, Ross, Hereford.

TO BE LET, SILVER HALL NURSERY, Isleworth. Ten Years' Lease. Stock in Trade at Valuation. No Letters answered.

To Florists.

TO BE LET, a Bargain, a SMALL CONCERN in a main thoroughfare at the West End. Lease, 14 years.
Full particulars of Mr. GOODSON, 20, Maida Vale, W.

TO BE LET, a capital NURSERY, in a First-class Situation, within 6 miles of London, consisting of about 8 Acres of Ground, part with Stock, together with Dwelling-house and Seed-shop, 3 Greenhouses, Pits, &c.
Apply for further particulars to Messrs. PROTHEROE AND MORRIS, Auctioneers and Valuers, Leytonstone, Essex.

Sales by Auction.

Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 28, at half-past 12 o'Clock precisely, Four small Collections of Choice ESTABLISHED ORCHIDS, including many fine specimen plants in good condition. Also an importation of BORNEAN ORCHIDS.
On view the morning of Sale, and Catalogues had.

Loughborough Nurseries, Leicestershire.

TO BE SOLD by AUCTION, the early part of next month, the whole of the STOCK of this Nursery, consisting of FOREST TREES and SHRUBS of all kinds, and FRUIT TREES, &c. Further particulars in future Papers.

The Old Established Nursery, Sudbury.
To GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. ROLFE, WHEELER AND WESTOBY will SELL by AUCTION, on the Premises, Cornard Road, Sudbury, on TUESDAY, WEDNESDAY, and THURSDAY, October 26, 27, and 28, at 10 o'Clock precisely each day, on account of the number of Lots, the valuable and choice Collection of FRUITS, CONIFERÆ, HERBACEOUS and HARDY PLANTS, GLASS-HOUSES, &c., being all the remaining NURSERY STOCK of Mr. S. Brown, who has removed to a distant county, comprising about 2000 Pyramidal and other Fruit Trees, of the choicest sorts, principally in a Fruiting condition; 5000 choice Conifers, handsomely grown; a large quantity of Specimen Conifers, in excellent condition for moving, and many thousands of other Evergreens, as Hollys, Laurel, Box, Yew, Privet, &c.; a quantity of new and choice Japanese and other Hardy Shrubs, Flowering Plants in pots, and all the choice collection of various Trees and Shrubs, Climbing Plants, &c., growing on the ground, together with all the remaining Glass-Houses, Side and Frame Lights, about 10,000 Flower Pots, and other Nursery Effects.
The whole may be viewed on the Saturday and Monday preceding the Sale, and will be described in Catalogues to be obtained on the Premises, or at the Offices of the Auctioneers, Market Hill and Friars Street, Sudbury, or posted free on application.

Cambridge.

MR. WM. DILLISTONE has received instructions to SELL by AUCTION, on WEDNESDAY and THURSDAY, October 27 and 28, at 10 for 11 o'Clock each day precisely, at the Corn Exchange, Cambridge, Large and Valuable Collections of the Choicest FRUIT TREES, ROSES, CAMELLIAS, AZALEAS, RHODODENDRONS, HARDY EVERGREEN SHRUBS, and ORNAMENTAL TREES, DUTCH BULBS, &c.
Catalogues to be had, post free, of the Auctioneer and Valuer, Sible Hedingham, Essex.

Prize Alderneys.
VERY IMPORTANT SALE of FIRST-CLASS ALDERNEY CATTLE.

MR. JOHN THORNTON will SELL by AUCTION, at Harrow Lodge, Hornchurch, near Romford, on TUESDAY, November 9, the very celebrated HERD of PURE-BRED ALDERNEY CATTLE, including several Prize Bulls and Heifers, the property of Charles Hill, Esq. The animals are bred to a colour, (dark fawn, with black points), and, being accustomed to run out all winter, have become thoroughly acclimatised. They are of large size, good Milkers, producing a large quantity of rich, full-flavoured Butter, and have been most successful in the Showyard. Also will be offered about 20 very choice Pure-bred BERKSHIRE PIGS.
Catalogues, with particulars, may be had of JOHN THORNTON, 15, Langham Place, London, W., or at the Farm.

Richmond, Surrey.
HIGHLY IMPORTANT SALE of VALUABLE NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Mortlake Nursery, adjoining the Gasworks, Richmond, Surrey—10 minutes' walk from the Richmond Station, South-Western Railway—on MONDAY, October 25, and three following days, at 12 o'Clock precisely each day, by order of Messrs. G. & W. Steel (without reserve), the following valuable NURSERY STOCK, comprising 10,000 fine bushy Ancubas, 1 to 1 feet; 2000 Cupressus Lawsoniana, 1 to 8 feet; 1500 Leonardslea, 1000 Cedrus Deodara, 12 to 15 inches, and specimens, 6 to 8 feet; 4000 Green Hollies, 18 inches to 5 feet; 1000 Araucaria imbricata, 18 inches to 3 feet; 1000 English Yews, 2 to 6 feet; 6000 Variegated Hollies, 1 to 6 feet; 1500 Picea Pinsapo, 9 to 15 inches; 500 Yews in Pots, globe standard, 4 to 6 feet; 400 Cotoneaster, sorts, 1 to 3 feet; 2000 Thujopsis borealis, bushy; 1000 Libocedrus, 400 Eleagnuses, 100 Irish Yews, 500 Juniperus chinensis, 3 to 4 feet; 300 Arbutus, 2 to 3 feet; 600 specimen Thuja aurea, 2 to 4½ feet, very handsome; Berberis, sorts; Bays, Portugal Laurels, large Phillyreas, and many other choice Evergreens; 500 Standard and Dwarf Roses, of the finest sorts; Poplars, Laburnums, Copper Beech; 600 Standard Thorns, sorts; 700 Dwarf Moss Roses, also a large quantity of clean grown Fruit Trees; 3 magnificent specimen Wellingtonia gigantea, 15 to 20 feet high, &c.
Mess. P. & M. respectfully inform the Public that the Stock is unusually healthy, and in excellent condition for removal, the whole of it having been transplanted within two years, and the greater part out of it last spring.
May be viewed previous to the Sale. Catalogues, when ready, can be obtained of Messrs. G. & W. STEEL, Home Nursery, Kew Road, Richmond; and of the Auctioneers and Valuers, Leytonstone, Essex, N.E.

Sydenham, S.

SHORT NOTICE of a CLEARANCE SALE of NURSERY STOCK, GREENHOUSE PLANTS, and numerous other EFFECTS.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from the Executors of the late Mr. Osman Rhodes, to SELL by AUCTION, without reserve (the Nursery being Let), on the Premises, the Crystal Nursery, Sydenham, Kent, on TUESDAY, October 26, at 11 for 12 o'Clock precisely, the whole of the choice EVERGREEN and CONIFERÆ SHRUBS, comprising some fine specimens adapted for immediate effect; some fine Standard and Dwarf ROSES; clean-grown FRUIT TREES; also the remaining GREENHOUSE PLANTS, including fine Double Cape Bar, Azalea indica, Crassula, Ericas, Acacias, Vallotta purpurea, Variegated and Scarlet Geraniums, large Coleus, &c.; the whole of the choice DUTCH BULBS, imported this season from Holland, comprising first-class roots of named Double and Single Hyacinths, Tulips, Crocus, Snowdrops, Narcissus; together with a quantity of new Glazed and Unglazed Sashes, a capital 6-feet Lathe, Iron Lights, a heavy Spring Cart, Cannon and other Boilers, sundry Hot-water Piping, New Furnace Doors, Carpenters' Benches, Two Nests of Seed Drawers, Chaff Box, several Casts of Garden Pots; Edging Tiles, the Patterns of Rhodes' last new Boilers; Scales, Weights, Water Cans, Blind Rollers, Garden Tools, Heap of Rotten Manure; and numerous other effects.
N.B.—The genuine HOUSEHOLD FURNITURE will be SOLD the following day, WEDNESDAY, October 27, at 12 o'Clock.
May be viewed two days prior to the Sale. Catalogues may be obtained on the Premises; of Mr. G. BAKER, Gardener to G. Bassett, Esq., Sister House, Clapham Common; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

St. John's Wood Road, N.W.
CLEARANCE SALE OF VALUABLE NURSERY STOCK, GREENHOUSE PLANTS, GREENHOUSES, PITS, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Guy to SELL by AUCTION, without reserve (the Land being Sold, and immediate possession required), on the Premises, the Nursery, St. John's Wood Road, Middlesex, N.W., on THURSDAY, October 28, at 11 for 12 o'Clock precisely, the whole of the NURSERY STOCK, comprising common Laurels, 3 to 5 feet; Euonymus, Box, Chinese Arbor-vitæ, Lilacs, Aucubas; also thousands of Geraniums, some Azalea indica; likewise three GREENHOUSES, in good condition, consisting of a Lean-to House, 25 feet 6 inches long by 10 feet wide; two three-quarter Span-roof Houses, each 35 feet long by 15 feet wide; Pits, Shed (nearly new), a quantity of Hot-water Piping, Conical and Tubular Boilers, Brick-work, Garden Pots, &c.
On view the day prior to Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Highgate Hill, N.
TO GENTLEMEN, NURSERYMEN, BUILDERS, AND OTHERS ENGAGED IN PLANTING.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Whittington Nursery, Highgate Hill, Middlesex, by order of Messrs. McGregor and Middlemiss, without reserve, on FRIDAY and SATURDAY, October 29 and 30, at 12 o'Clock precisely each day, the VALUABLE NURSERY STOCK, comprising thousands of choice EVERGREENS admirably adapted for the neighbourhood of London, viz., 7000 bushy Euonymus, of sorts; 5000 Oval and Box-leaved Privet, Arbutus, Portugal Laurels, 800 Green Box, 2000 common Laurels, 1000 Aucuba japonica, 1000 Laurustinus, full of bloom; 1000 Chinese Arbor-vitæ, a quantity of Spruce Firs, Cedrus Deodara, Cupressus, Thujopsis, Wellingtonias, Araucarias, &c., likewise a quantity of Ribes, Lilacs, Deutzias; also some fine Standard and Dwarf Roses, by name; clean grown Fruit Trees, Climbing Roses, 500 Black Italian Poplars, 10 to 12 feet; Scarlet and Horse Chestnuts, Sycamores, Laburnums, &c., fine Hardy Climbers, consisting of 250 Irish Ivies, in pots, Virginian Creepers, &c.
May be viewed two days previous to the Sale. Catalogues may be obtained on the Premises, and of the Auctioneers and Valuers, Leytonstone N.E.

City Auction Rooms, 38 & 39, Gracechurch Street, E.C.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Rooms as above, on SATURDAY, October 30, at half-past 12 o'Clock precisely, a first-class Collection of DUTCH BULBS, consisting of the finest Double and Single Hyacinths, Narcissus, Jonquils, Anemones, Crocus, Tulips, Ranunculus, Snowdrops, &c.; a fine assortment of 300 handsome Standard and Dwarf ROSES, of the best varieties; selected AMERICAN PLANTS, comprising Ghent and other Azaleas, Rhododendrons, Kalmias, Andromedas, with some hardy Climbers, &c.
On view the morning of Sale. Catalogues had at the Rooms of the Auctioneers and Valuers, Leytonstone, N.E.

Surrey.—Windlesham, near Bagshot.
EXTENSIVE SALE of VERY VALUABLE NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS have received instructions from Messrs. Geo. Baker & Son to SELL by AUCTION, without reserve, on the Premises, the American Nursery, Windlesham, Surrey, 10 minutes' walk from the Sunningdale Station, on the South-Western Railway, on TUESDAY, November 2, and four following days, at 12 o'Clock each day, the following valuable NURSERY STOCK, including many unusually grand and effective Specimens, from 6 to 15 feet, carefully prepared for removal, comprising Cedrus Deodara, Picea nobilis, Pinsapo, lasiocarpa, and Nordmanniana; Araucaria imbricata, Pinus macrocarpa, Thuja gigantea, Warreana, Lobbii, and chinensis; Wellingtonias, Irish Yews, Standard Variegated Hollies; likewise 4000 Variegated Hollies, 9 inches to 2 feet; 2000 Portugal Laurels, 1 to 4 feet; 1000 Thujopsis borealis, 5000 Common Laurels (bushy), 200 Aucuba japonica, thousands of Thuja Lobbii, Retinospora pisifera and obtusa, Thujopsis dolabrata variegata, Thuja gigantea, and Warreana, Standard vertical Irish Yews, 10,000 Cupressus Lawsoniana, 5000 Deutzia crenata flore-pleno, 2000 Variegated Ivies, 200 Ligustrum coriaceum (in pots), 500 Mrs. Pince's Muscat Vine, 1000 New Clematis, 500 Picea nobilis (seedlings), a large quantity of Yucca flaccida, Cotoneasters, Double Furze, Gladiolus, &c.; 15,000 AMERICAN PLANTS, comprising 3000 best named Rhododendrons, 1 to 3 feet, fine furnished plants, many of which are well set with bloom buds; 3000 Rhododendron ponticum (bushy), 2000 Ghent and Hardy Azaleas, 2000 Taylor's Red Azaleas, 1000 Kalmia latifolia; also a large quantity of fine Standard Rhododendrons, Ericas, &c.; 2000 Standard and Dwarf ROSES, with a quantity of Roses in pots, &c.
N.B.—A Van will meet the London Mid-day Train at Sunningdale Station, to convey Passengers to the Sale.
Refreshments will be provided for Purchasers.
May be viewed until the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers.

Tooting, S.W.
IMPORTANT SALE of THRIVING YOUNG NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. Robert Parker to SELL by AUCTION on the premises, Exeter Nursery, Tooting, Surrey, on TUESDAY and WEDNESDAY, November 9 and 10, at 11 for 12 o'Clock precisely each day, without reserve (a portion of the Land being required for the completion of a New Road on the Martin's Park Estate), the following valuable NURSERY STOCK, in excellent condition for removal, comprising thousands of Common Laurels, 2 to 3 feet; Portugal Laurels, 2 feet; Laurels, Green Box, fine Aucubas, 2 to 4 feet; Cupressus Lawsoniana, 1 to 8 feet; 1000 Limes, 10 to 12 inches, and specimens, 6 to 8 feet; 1000 Green Hollies, 18 inches to 5 feet; 1000 Araucaria imbricata, 18 inches to 3 feet; 1000 English Yews, 2 to 6 feet; 6000 Variegated Hollies, 1 to 6 feet; 1500 Picea Pinsapo, 9 to 15 inches; 500 Yews in Pots, globe standard, 4 to 6 feet; 400 Cotoneaster, sorts, 1 to 3 feet; 2000 Thujopsis borealis, bushy; 1000 Libocedrus, 600 Eleagnuses, 100 Irish Yews, 500 Juniperus chinensis, 3 to 4 feet; 300 Arbutus, 2 to 3 feet; 600 specimen Thuja aurea, 2 to 4½ feet, very handsome; Berberis, sorts; Bays, Portugal Laurels, large Phillyreas, and many other choice Evergreens; 500 Standard and Dwarf Roses, of the finest sorts; Poplars, Laburnums, Copper Beech; 600 Standard Thorns, sorts; 700 Dwarf Moss Roses, also a large quantity of clean grown Fruit Trees; 3 magnificent specimen Wellingtonia gigantea, 15 to 20 feet high, &c.
Mess. P. & M. respectfully inform the Public that the Stock is unusually healthy, and in excellent condition for removal, the whole of it having been transplanted within two years, and the greater part out of it last spring.
May be viewed previous to the Sale. Catalogues, when ready, can be obtained of Messrs. G. & W. STEEL, Home Nursery, Kew Road, Richmond; and of the Auctioneers and Valuers, Leytonstone, Essex, N.E.

Castle Nursery, Brox, near Chertsey, Surrey,
About 1½ mile from the Chertsey, Woking, and Addlestone Stations, on the South-Western Railway.

MESSRS. WATERER AND SONS have received instructions from the Executrix of the late Mr. W. Hoode to SELL by AUCTION, on the Premises, Castle Nursery, on MONDAY, October 25, and following days, at 11 for 12 o'clock; precisely, the whole of the exceedingly valuable NURSERY STOCK, consisting of 40,000 Variegated Hollies, 15,000 Green Hollies, 15,000 Laurels, 2,000 Portugal Laurels, 1,000 Common Laurels, 3,000 Arbor-vitæ, 1,000 large Birch, 100 large Weymouth Pines, 5,000 large Spanish Lime, Sweet Chestnut, Sycamore, and Hornbeam Saplings, 2000 Cupressus, 2000 Irish Yews, 2000 Dwarf and Standard Roses, 250 Azaleas, 50 Yews, 400 Limes, 500 Laurustinus, 300 Arbutus, 1,000 Deutzias, 1 and 2 year Standard Fruit Trees (grafted), 1,200 Fruit Stocks, various; 2,000 Variegated Box and Box Edging, about 100 lots of valuable choice mixed Shrubs, and Specimen Plants fit for immediate and ornamental planting, and a variety of other Stock. The Auctioneers beg to call the special attention of Gentlemen, Nurserymen, and others to this Stock; the whole is remarkably good, and in a safe state for removal. Also the Erection of TWO GREENHOUSES heated with hot water, Valuable Horses, Light nearly new Spring Van, Dung Cart, Nursery Cart, Harness, Garden Lights, and other effects.
May be viewed seven days previous to the Sale. Catalogues had on the premises, and of Messrs. WATERER AND SONS, Auctioneers and Valuers, Chertsey, who will forward them on application by post.

Wonersh Nurseries, Surrey.
HIGHLY IMPORTANT SALE of SURPLUS NURSERY STOCK.

MR. W. ABRAHAM begs to announce that he has received instructions from Messrs. W. Virgo & Son, of the Wonersh Nurseries, near Guildford, Surrey, to SELL by AUCTION, on the premises, on MONDAY, October 25, and four following days, at 11 for 12 o'Clock punctually each day, a fine COLLECTION of specimen CONIFERÆ, ORNAMENTAL EVERGREEN and DECIDUOUS TREES and SHRUBS, all in the best possible health, and well adapted in new grounds to produce an immediate effect. They consist of Araucaria imbricata, 4 to 5 feet; Weymouth Pine, 4 to 8 feet; Cedars of Lebanon, 9 feet; Balm of Gilead Fir, 8 feet; American Arbor-vitæ, 10 to 12 feet; Cryptomeria japonica, 8 to 10 feet; Red Cedars, 8 feet; China Arbor-vitæ, 6 to 7 feet; Siberian ditto, 5 to 6 feet; English and Irish Yew, 3 to 6 feet; Pinus excelsa, 6 to 8 feet, &c.; 2,000 Portugal Laurel, 3 to 8 feet; Lombardy, Italian and Ontario Poplars, 8 to 15 feet; Scarlet and Turkey Oak, 6 to 7 feet; Silver Birch, 8 to 10 feet; Scotch Chestnut, 7 feet; Mountain and Common Ash, 7 to 8 feet; Hornbeam, 5 to 10 feet; Weeping Ash, Standard Laburnums, Sycamore, 8 to 10 feet; English Oak, 8 to 10 feet; 10,000 Common Laurel, all sizes; Tree Box, splendid bushes; Limes, English Elm, 10 feet; Scarlet Maple, 12 feet; Walnuts, Sweet Bay, &c. Also upwards of 3,000 Standard, dwarf, and pyramidal APPLE, Pear, Plum, Cherry, Quince and Medlar Trees, Gooseberry and Currant Bushes; also FOREST TREES, including 10,000 Spruce Fir, 2 to 4 feet; 20,000 Larch, 2 to 3 feet; 30,000 Spanish Chestnuts, 2 to 3 feet; 50,000 Ash, 2½ to 4 feet; 60,000 Scotch Fir, 1½ to 2½ feet; 10,000 Pinus austriaca, 2 to 4 feet; 10,000 Berberis aquifolia, 500,000 Strong Quick, 6000 Manetti Rose Stocks, Standard, Dwarf and Climbing Roses, Seedling Hazel, strong Grape Vines in pots, Green Holly, &c.
The Nurseries are situated 1½ mile from the Bramley Station on the Guildford and Horsham branch of the London, Brighton and South Coast; 2½ miles from the Shalford Station on the South-Eastern, and 4 miles from the Guildford Station on the London and South-Western Railways.
For the convenience of purchasers any lots can remain upon the ground until December 13, following the Sale.
May be viewed, and Catalogues (free by post) obtained one week prior to the Sale, at the Nurseries, White Lion and White Hart Hotels, Guildford; White Lion, Cobham; Sun, Chobham; Talbot, Ripley; Albion, Woking Station; and of
Mr. W. ABRAHAM, Horticultural Auctioneer, Valuer, &c., Goldworth Nurseries, Woking, Surrey.

Woolston, near Southampton.
To GENTLEMEN, NURSERYMEN, GARDENERS, and OTHERS.

MR. W. ABRAHAM begs to inform persons intending to Plant that he has received instructions to SELL by AUCTION, in the Grounds of the Railway Hotel, Woolston, near Southampton, on TUESDAY, November 2, at 12 o'Clock punctually, a large quantity of choice EVERGREEN and DECIDUOUS TREES and SHRUBS, Standard, Pyramidal, Trained and Dwarf FRUIT TREES, named kinds; about 3000 strong QUICK, Standard and Dwarf ROSES, Hardy CREEPERS, PRIVET, &c.
Catalogues obtained at the Hotel, or (post free) of W. ABRAHAM, Horticultural Auctioneer, Valuer, &c., Goldworth Nurseries, Woking, Surrey.

Stoke Road Nursery, Guildford, Surrey.
TO GENTLEMEN and OTHERS ENGAGED in FARMING.

MR. W. ABRAHAM begs to announce that he has received instructions from the proprietors, Messrs. A. Hart & Son, to SELL by AUCTION, in the Grounds of their Stoke Road Nursery, Guildford, Surrey, on TUESDAY and WEDNESDAY, November 9 and 10 next, at 12 o'Clock punctually (in consequence of the number of the Lots), a very excellent Collection of choice EVERGREEN and DECIDUOUS TREES and SHRUBS, consisting of Cupressus Lawsoniana, 6 feet; Thujopsis borealis, fine specimen Wellingtonia gigantea, 6 feet, moved last spring; Chinese Arbor-vitæ, 4 feet; English and Irish Yews; Taxus erecta, nice plants, 4 feet; Juniperus sinensis and hibernica; Thuja Lobbii; Silver and Spruce Fir, 5000 Common Laurel, bushy plants; Portugal Laurel, excellent Tree Box, Evergreen Privet, Scotch Fir, 2½ to 3 feet; Pinus austriaca, Rhododendron ponticum, Aucuba japonica, and upwards of 4000 Standard and Dwarf H. P., Moss, Cabbage, and other Roses by name; Strong Hazel, 4 to 5 feet; English Oak, 4 to 5 feet; Laburnum, Italian and Lombardy Poplar; also Standard, Pyramidal, Trained, and Dwarf FRUIT TREES, including Apples, Pears, Plums, Cherries, Peaches, Nectarines, Apricots, Gooseberry and Currant Bushes; Hardy Evergreen and other Climbers, Pampas Grass, &c. Also 2000 very strong ASPARAGUS Roots (fit for immediate Forcing).
The Nursery is 10 minutes' walk from the Guildford Station.
Catalogues may be obtained one week prior to days of Sale on application (or post free) to Messrs. A. HART AND SON, Florists, High Street, Guildford; or of Mr. ABRAHAM, Horticultural Auctioneer, Valuer, &c., Goldworth Nurseries, Woking, Surrey.

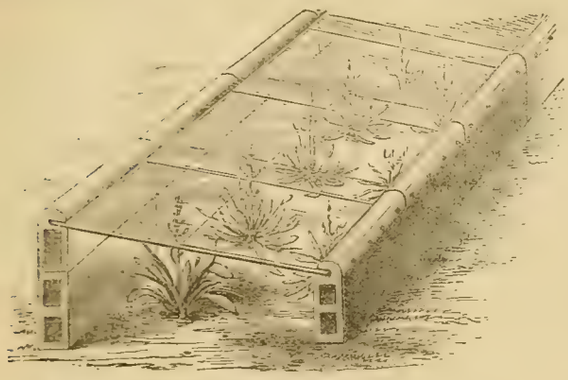
Important Sale of Shorthorns at Northway Farm,
Close to the First-class Station of Ashchurch, on the Midland Railway, between Birmingham and Gloucester.

MR. STRAFFORD has received instructions, from William Woodward, Esq., to announce for SALE by AUCTION, on WEDNESDAY, October 27 next, FIFTY HEAD of BULLS, COWS, and HEIFERS, from his old and well-established HERD of SHORTHORNS, which have been carefully bred for the last 40 years. This is the first portion, and will be followed by a still larger one in the Spring, in consequence of Mr. Woodward having given up one of his Farms, and being overstocked.
Mr. STRAFFORD begs to add that his instructions are to Sell the whole without any reserve, so that he can with confidence invite the attention of Breeders and Purchasers to the same, and that they will be found in a healthy breeding state of condition.
Catalogues, with Pedigrees, may be had on application to Mr. STRAFFORD, 13, Euston Square, London; or of Mr. WOODWARD, at Hardwicke Bank, near Tewkesbury.

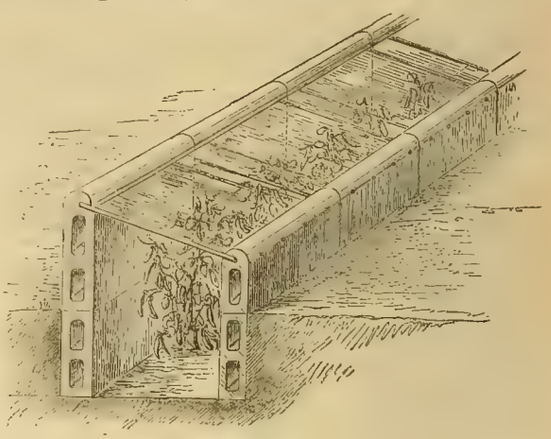
RENDLE'S PATENT GROUND VINERIES
AND PLANT PROTECTORS.



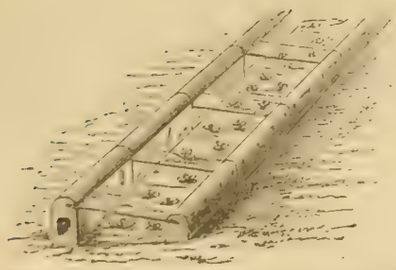
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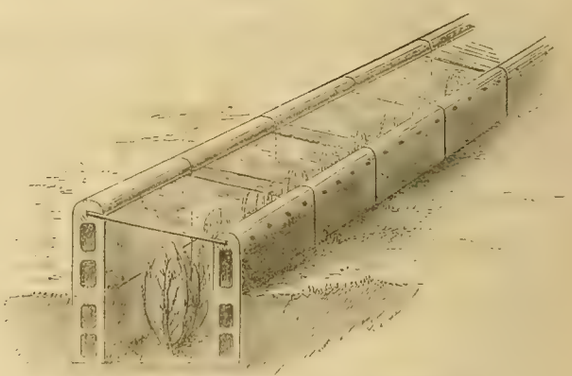
PLANT PROTECTOR.



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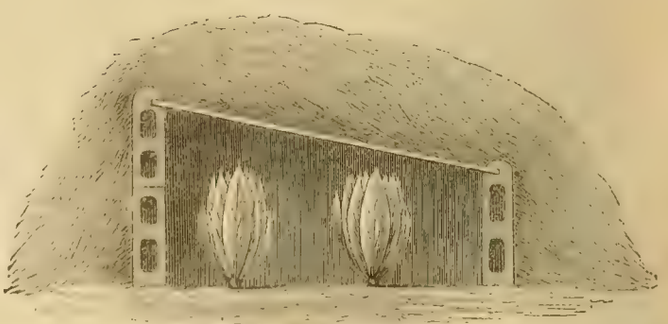
PROTECTOR for RAISING SEEDLINGS.



PROTECTOR for LETTUCES.



PATENT CIRCULAR HAND-GLASS.



SECTION, SHOWING HOW EASILY the PLANTS can be PROTECTED in COLD or FROSTY WEATHER.

CARRIAGE-FREE TERMS.—ALL ORDERS ABOVE £20 DELIVERED CARRIAGE FREE TO ANY RAILWAY STATION IN ENGLAND. FRIENDS JOINING TOGETHER IN A LOCALITY CAN OBTAIN THIS ADVANTAGE.

All Orders above £5 carriage free at 3d. per running foot extra.

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MR. W. E. RENDLE, 68, WELBECK STREET, CAVENDISH SQUARE, LONDON, W.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 44.—1869.] SATURDAY, OCTOBER 30. {Price Fivepence. {Stamped Edition, 6d.

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Post Office Orders payable to JAMES MATTHEWS, at the Post Office, King Street, Covent Garden, W.C.

BRISTOL CHRYSANTHEMUM and FRUIT SHOW SOCIETY.—The SIXTH GRAND SHOW of CHRYSANTHEMUMS, FRUIT, &c., will be held in the Rifle Drill Hall, Queen's Road, Clifton, on THURSDAY, November 11. Prize Schedules may be obtained on application to the Hon. Secretaries, G. WEBLEY, Henleaze Park, Westbury-on-Trym, H. STEVENS, Cotham House Lodge, Tyndall's Park.

HENRY RAMSAY (late Foreman at Messrs. Veitch's), begs to return his most SINCERE and GRATEFUL THANKS to those kind and generous Friends who have so liberally contributed towards making good the loss he sustained by Robbery. H. RAMSAY, 141, Syston Street, Leicester.

ROSE CATALOGUE for 1869, post free.—The finest Rose plants this season are to be obtained from E. P. FRANCIS AND CO., The Nurseries, Hertford.

Rose Catalogue.

JOHN CRANSTON'S ROSE CATALOGUE for 1869 is now ready, and will be sent post free on application. The Nurseries, King's Acre, near Hereford.

STANDARD and DWARF ROSES, by the dozen 100, or 1000. CATALOGUES on application. WM. WOOD AND SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

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To the Trade.—Hybrid Perpetual Roses.

HUSSEY AND SON beg to offer fine DWARFS on MANETTI at 6s. per dozen, £2 per 100. LISTS of sorts upon application. Mile End Nursery, Eaton, Norwich.

Splendid Roses.

TRY the SALISBURY ROSES. CATALOGUES ready. JOHN KEYNES, Castle Street Nursery, Salisbury.

Fifty First Prizes this Season.

PAUL AND SON'S NEW ROSE CATALOGUE, and PAUL AND SON'S NEW DESCRIPTIVE FRUIT and HARDY TREE CATALOGUE, are now ready, and will be sent post free on application to PAUL AND SON, Old Nurseries, Cheshunt, N.

Roses.

CHARLES TURNER'S DESCRIPTIVE and PRICED CATALOGUE of ROSES is now ready; it also contains full LISTS of FRUIT TREES, SHRUBS, CONIFERÆ, &c., and may be had post free on application. The Royal Nurseries, Slough.

Paul's Rose Catalogue.

"A very complete and able Catalogue."—*Floral World.*

WM. PAUL begs to announce that his NEW CATALOGUE of ROSES is now ready, and will be forwarded post free on application. The stock of Plants is large and excellent. Paul's Nurseries, Waltham Cross, London, N.

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WM. WOOD AND SON have a magnificent Stock of the above to offer. Early orders are respectfully solicited.

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Gladioli—New Roses.

EUGÈNE VERDIER Fils Ainé, NURSERYMAN, 3, Rue Dunois, Paris, publishes in August and September of each year complete and descriptive CATALOGUES, with prices. They comprise all the finest and newest varieties of Gladioli, Pæonies, and New Roses. Gratis and post free on application.

The Successful Cultivation of Hyacinths.—See SUTTONS' AUTUMN CATALOGUE for 1869, which may be had gratis and post free on application. SUTTON AND SONS, Reading, Berks.

SUTTONS' COLLECTIONS of FLOWER ROOTS, for open ground decoration, 10s. 6d. to 42s. See SUTTONS' AUTUMN CATALOGUE.

SUTTONS' COLLECTIONS of FLOWER ROOTS, for Greenhouse and Conservatory Decoration, 10s. 6d. to 42s. See SUTTONS' AUTUMN CATALOGUE.

SUTTONS' COLLECTIONS of HYACINTHS, for cultivation in pots and glasses. See SUTTONS' AUTUMN CATALOGUE.

SUTTONS' AUTUMN CATALOGUE for 1869, gratis and post free on application. SUTTON AND SONS, Importers, Reading.

FRESH IMPORTED HYACINTHS, CROCUS, TULIPS, NARCISSUS, &c.—For prices, see Messrs. SUTTONS' Advertisement on page 1133 of this day's *Gardeners' Chronicle.* SUTTON AND SONS, Seedsmen to the Queen, Reading.

Arrival of Bulbs.

BARR AND SUGDEN, 12, King Street, Covent Garden, W.C. CATALOGUE containing much additional valuable information now ready, and on application sent free to the Readers of the *Gardeners' Chronicle.* BULBS for Early Flowering now ready to send out, of first-class quality.

Dutch Flower Roots, &c.

B. S. WILLIAMS' CATALOGUE of HYACINTHS, TULIPS, CROCUSES, NARCISSUS, and other Spring-flowering Bulbs; also FRUIT TREES, ROSES, &c., is now ready, post free to all applicants. Victoria and Paradise Nurseries, Upper Holloway, London, N.

FELTON AND SON'S PLANT and BULB CATALOGUES now ready, post free on application. Birmingham Nursery, Harborne Road, Birmingham.

Huntingdon Nurseries.

WOOD AND INGRAM'S GENERAL and TRADE CATALOGUES of NURSERY STOCK of all descriptions are now ready, and may be had on application.

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THOMAS S. WARE'S SELECT LIST of SPRING FLOWERS (the Planting of which ought not to be delayed) may be had on application. Also his new AUTUMN CATALOGUE of ROSES, FRUIT TREES, SHRUBS, &c. Hale Farm Nurseries, Tottenham, Middlesex, N.E.

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British Fern Catalogue.

ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7. Foot's Cray Nursery, Sidcup Hill, Kent.

Fruit Tree Culture.—Just published, A DESCRIPTIVE and ILLUSTRATED CATALOGUE of FRUITS for 1869. By THOS. RIVERS. Free per post. Nurseries, Sawbridgeworth.

Wholesale Catalogue of Good Transplanted Nursery Stock.

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MAGNIFICENT, strong, well grown, transplanted COMMON LAURELS, from 4 to 6 feet. Prices on application. WM. WOOD AND SON, Nurseries, Maresfield, Uckfield, Sussex.

Splendid Large Trees for Avenue Planting.

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OAK, in drills, 1, 2, and 3 feet. Through rates to all Stations. R. MORRISON, Nurseryman, Elgin, N.B.

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J. FRYER can supply fine healthy Trees, 4 feet, 1s. 6d. each; 5 feet, 2s.; 6 feet, 2s. 6d.; 7 feet, 3s.; 8 feet, 4s.; 9 feet, 5s. Clarendon Nurseries, Camberwell, S.

To the Trade.

MULBERRIES, MULBERRIES. Prices per dozen or 100 on application. Choice PRIMULA SEED of 1869 growth, in Trade packets, 5s., 10s. 6d., 21s., extra fine. PONSFORD AND SON, Nurserymen, Brixton, Surrey, S.W.

EVERY GARDEN REQUISITE KEPT in STOCK at CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

SEAKALE ROOTS. Fine strong roots for Forcing, 10s. per 100. GIANT ASPARAGUS.—Fine 2-yr., 2s. 6d. per 100, 18s. per 1000; extra strong large 5-yr. roots, for Forcing, 2s. 6d. per doz., 16s. p. 100. Usual discount to the Trade. STEPHEN BROWN, Seedsman, &c., Weston-super-Mare, Somerset.

NARCISSUS POETICUS, good blooming roots, 10s. per 1000, for ready money. THOMAS KITLEY, Oldfield Nursery, Bath.

TELEGRAPH CUCUMBER, warranted true. 4 seeds, 1s.; 12 seeds, 2s. 6d., post free, for ready money. THOMAS KITLEY, Oldfield Nursery, Bath.

WILLIAMS' PARADISE GEM MELON, warranted true. 6 seeds, 1s.; 18 seeds, 2s. 6d. THOMAS KITLEY, Oldfield Nursery, Bath.

TO BE SOLD, about 60 lb. of true ASIATIC CAULIFLOWER SEED (of present year's growth). For price, &c., apply to A. STENHOUSE, Seed Grower, Osbourn-by-Falkingham, Lincolnshire.

SEASIDE.—MONA'S PRIDE, still the very earliest of Earlies, and the top of the list for Prolificacy. Attention of Merchants and Growers respectfully solicited by the first Introducer, and only extensive holder of the True Seed, Mr. R. W. O. R., Hague House, Douglas, Isle of Man.

MILFORD NURSERIES, NEAR GODALMING.

MAURICE YOUNG

BEGS TO INVITE ATTENTION TO

THE FOLLOWING NEW PLANTS:—

OSMANTHUS ROTUNDIFOLIA.

A new hardy Evergreen Shrub, from Japan, with dark green shining leaves, of good substance, free in habit, and making a compact and ornamental bush. Without doubt, the best of all the Osmanthus.

Good Plants, 42s. per dozen.
Larger Plants, 5s., 7s. 6d., to 10s. 6d. each.

RETINOSPORA FILIFERA.

A most distinct and beautiful Conifer, from Japan, of pyramidal yet graceful habit, producing numerous drooping shoots, sometimes crested at the point. A most desirable plant, and quite hardy.

Good Plants, 42s. per dozen.
Larger Plants, 10s. 6d. to 21s. each.

RETINOSPORA FILICOIDES.

A very distinct and remarkable hardy Conifer, recently introduced from Japan, having rich bright green foliage, the branches assuming a lovely Fern-like character. When it is more generally known, it will doubtless become an universal favourite.

Good Plants, 5s. each.
Larger Plants, 21s. each.

RETINOSPORA PLUMOSA,

Also from Japan, and a species deserving special notice. Its habit is pyramidal and compact, the foliage a pale glaucous green, particularly light and graceful in appearance; very hardy.

Good Plants, 42s. per dozen.
Larger Plants, 7s. 6d. to 10s. 6d. each.

RETINOSPORA PLUMOSA AUREA.

A golden variety of the above; a free grower, forming a fine contrast to the various green shades of the other species.

Good Plants, 30s. per dozen.
Larger Plants, 10s. 6d. to 21s. each.

RETINOSPORA PLUMOSA VARIEGATA.

Perhaps one of the most elegant and attractive little Conifers known. The foliage is similar to that of R. plumosa, thickly spotted with white, giving it the appearance of being covered with small flakes of snow.

Good Plants, 42s. per dozen.
Larger Plants, 7s. 6d., 10s. 6d., and 21s. each.

RHUS GLABRA LACINIATA.

A new hardy deciduous shrub, with deeply cut feathery foliage, which changes to rich deep crimson and brown in autumn.

Strong Plants, 10s. 6d. each.

THUJOPSIS BOREALIS VARIEGATA.

A silver variegation of the well-known Thujopsis borealis.

Good Plants, 24s. per dozen.
Larger Plants, 7s. 6d. to 10s. 6d. each.

ULMUS CAMPESTRIS AUREA.

A very ornamental Golden Elm, the foliage and wood being of a rich bronzed yellow. **Good Plants, 24s. per dozen.**

M. Y. has a large stock of all the NEW HARDY PLANTS recently introduced from Japan and elsewhere; particulars of which will be found in his NEW CATALOGUE, which will shortly be published.

NEW AUCUBAS.

Having a stock of several thousands of these really valuable plants, I am prepared to offer those kinds of the earliest introduction in

12 varieties of male and female at £5 per 100, or 12s. per doz.

Larger Plants at proportionately increased prices.

Varieties of more recent introduction, in about 10 varieties, at

18s. to 24s. per dozen.

AUCUBA JAPONICA, IN FRUIT.

For Winter Decoration.

Of these I have a large stock of pretty little plants, in 48-sized pots, with two or three bunches of berries, suitable for small vases for the table, at

18s. per dozen.

Of larger plants in fruit I have also a large quantity, in good well shaped bushes, at from **30s. per dozen to 10s. 6d. each.**

SEEDLING AUCUBAS,

Of both males and females, containing many fine varieties, from

30s. to 100s. per 100.

RHODODENDRONS.

The best named kinds, in all shades of crimson, white, and purple, at from

£7 10s. per 100 upwards.

Of the older named varieties of CATAWBIENSE and PONTICUM I have a large quantity, in fine bushy plants, at from

75s. per 100 upwards.

RHODODENDRON PONTICUM,

For Cover and Wood Planting, from

21s. per 100 upwards.

A LARGE STOCK of EVERGREEN and DECIDUOUS TREES and SHRUBS

For general planting.

A FINE COLLECTION of HARDY CONIFERÆ.

TRANSPLANTED FOREST TREES

Receive special attention in this Nursery, and the stock this season consists of—

ALDER | ASH | BIRCH	SCOTCH, SPRUCE, SILVER,	HORNBEAM
CHESTNUT (Spanish and Horse)	and AUSTRIAN FIRS	OAK (English and Turkey)
	HAZEL	SYCAMORE, &c.

TWO MILLIONS of STRONG QUICK THORNS.

FINE STANDARD APPLES.

PLANS AND ESTIMATES CAREFULLY PREPARED FOR LAYING-OUT NEW GROUNDS, OR FOR IMPROVING PARKS, SHRUBBERIES, OR OTHER PLANTATIONS.

Forest Trees planted by the acre, and failures replaced.

☞ **RAILWAYS.**—The Nurseries are 10 minutes' walk from Milford Station; one mile from Godalming New Station, on the Portsmouth Direct Line; two miles from Godalming Old Station (all on the South-Western Line); four miles from Shalford Station, on the South-Eastern Railway; and four and a-half miles from Bramley Station, on the Guildford and Horsham Branch of the London, Brighton, and South Coast Railway.

MAURICE YOUNG, MILFORD NURSERIES, NEAR GODALMING, SURREY.

KNAP HILL NURSERY,

WOKING, SURREY.

ANTHONY WATERER

Solicits the notice of intending Planters to the following LIST of specimen CONIFERS, &c., all of which he believes are as handsomely grown, as carefully managed, and as finely rooted as can be desired.

ABIES ALBERTUS, 5 to 9 feet, 30s. to 60s. per dozen. Transplanted April, 1869.
ABIES DOUGLASII, 6, 7, to 10 feet, 7s. 6d. to 10s. 6d. each. Transplanted August, 1868.
ABIES ORIENTALIS, 5, 6, and 7 feet, 7s. 6d. to 21s. Splendid plants, moved April, 1869, 10 to 12 feet high, 15 and 20 feet in circumference.
ABIES EXCELSA, the Common Spruce Fir, beautifully furnished, 5, 6, to 8 feet high, £5, £7 10s., to £12 10s per 100.
The dwarf varieties of Spruce, such as pumila, pygmæa, Gregorii, Clanbrazilliana, &c., large numbers, many of them 20 and 30 years' growth.
CEDRUS DEODARA, 5 to 6 feet, 60s. per dozen; 7 to 8 feet, 84s. per dozen; 10 to 12 feet, 10s. 6d. to 21s. each, and upwards. We have several thousands of these large Deodars. All have been removed since August, 1868; many since April, 1869.
CEDRUS ARGENTEA, 6 to 7 feet, 42s. to 60s. per dozen; 8 to 10 ft., 7s. 6d. to 10s. 6d. each. All removed since September, 1868.
CEDRUS LEBANON, 6, 7, to 10 feet. Moved September, 1868.
CUPRESSUS LAWSONIANA, 6 to 7 feet, 30s. to 42s. per dozen; 8 to 10 feet, 5s. to 10s. 6d. each.
" " ARGENTEA, 3 and 4 feet, and as much in circumference, 7s. 6d. to 10s. 6d. each.
" GRACILIS, 4 to 5 feet high, and 7 and 8 feet round, 7s. 6d. to 21s.
JUNIPER, CHINESE, 4 to 5 feet, 42s. per dozen, £15 per 100; 5 to 6 feet, 60s. per dozen, £20 per 100; 7 to 8 feet, 7s. 6d. to 10s. 6d. each. All removed since August, 1868. Purchasers may select from a stock of many thousands of this fine plant, 5 to 8 ft. high.
PICEA NOBILIS, hundreds of splendid specimens, 5, 6, 7, to 10 ft. high, all recently removed, and are undoubtedly the finest plants to be found in any Nursery. None are grafted.
PICEA NORDMANNIANA, 5, 6, to 8 feet, 21s. to 42s. each, and upwards. Splendid plants, moved August, 1868, 10 to 15 ft. high.
PICEA LASIOCARPA.—Hundreds of most beautiful plants, 4, 5, 6, 8, and 9 feet high. All removed 1868-69.
PICEA MAGNIFICA, 3, 4, and 5 feet.
PICEA PINSAPO, 4, 5, 6, and 8 feet, 21s. to 63s. each. Some grand plants, 10 to 15 feet high, transplanted April, 1869.
THUJA AUREA, beautiful specimens, 3, 4, 5, and 6 feet high; 10 to 20 feet in circumference. This plant originated in this Nursery, and our stock is unsurpassed.
THUJA GIGANTEA, 5, 6, to 12 feet high. Moved August, 1868.
THUJA LOBBII, 8 to 14 feet high, and as much in circumference; transplanted April, 1869.
THUJOPSIS BOREALIS, 5 to 6 feet, 7 and 8 feet round; 42s. to 60s. per dozen; 7 to 8 feet, 7s. 6d. to 10s. 6d. each. All removed since August, 1868.
WELLINGTONIA GIGANTEA, 4 to 5 feet, 7s. 6d. to 10s. 6d. each; 6, 7, 8, and 9 feet, 21s. to 42s. each. Transplanted in August.
PINUS AUSTRIACA, 3 feet, £5 per 100. Transplanted, Sept. 1868.
PINUS CEMBRA, 8 to 10 feet, 10 to 12 feet round, 10s. 6d. to 21s. each.
YEWS, the COMMON ENGLISH, 4, 5, 6, 7, 8, 10, and 12 feet high. Thousands, all constantly removed; invaluable where immediate effect is sought.
YEWS, GOLDEN and ELEGANTISSIMA.—We have these in large numbers, and of all sizes, as pyramids, globes, and worked as standards, with from 3 to 5 feet of gold, and up to 10 feet high.
YEWS, IRISH, handsome plants, up to 10 feet high.
HOLLIES.—The stock of Hollies at this Nursery is, we believe, the finest to be met with in Europe; it comprises, as well as ordinary sizes, together, many thousands of the following varieties:—
HOLLY, VARIEGATED SILVER and GOLD, of sorts, 4 to 10 feet.
HOLLY, GOLDEN QUEEN, magnificent plants, 4 to 8 feet high, and as much in circumference.
HOLLY, SILVER QUEEN, 4, 5, and 6 feet.
WATERER'S HOLLY.—This variety originated in this Nursery; we have hundreds 4, 5, and 6 ft. high, 10 and 15 ft. circumference.
PERRY'S WEEPING HOLLY.—Standards, 10s. 6d. to 21s. each.
HOLLY, COMMON WEEPING.—The finest specimens we have seen. Moved, April, 1869.
HOLLY, COMMON GREEN, 4, 5, 6, 7, 8, 10 to 14 feet high, by the thousand. All moved since April, 1868.
HOLLY, Green varieties of the following kinds. An immense stock of splendid plants, all transplanted in 1868-9:—
LAURIFOLIA and SCOTTICA, 3, 4, 5, 6 to 10 feet high.
HODGINS' YELLOW BERRIED, | ANGUSTIFOLIA, MYRTIFOLIA, &c. 4, 5, 6, and 8 feet high.
STANDARD, WATERER'S and GOLDEN QUEEN HOLLIES, 4 to 6 feet stems, with heads 6 to 10 feet in circumference. A large number.
N.B.—Purchasers of Hollies may select from a stock occupying at the present moment considerably over 6 acres of ground; finer or better rooted plants cannot be wished or obtained. The prices are fair and reasonable.
BOX, Green and Variegated, 4, 5, 6, to 8 feet.
BOX, do. do., fine pyramids, up to 8 feet.
BAYS, standards and pyramids.
LAURUSTINUS, standards.
AUCUBA JAPONICA, thousands of beautiful plants, all moved 1868, 3 and 4 feet high.
AUCUBA JAPONICA, Berried, hundreds, 1½ to 4 feet high; in the open ground and in pots, from 18s. to 120s. per doz. and upwards.
AMERICAN PLANTS.—The Stock of American Plants at Knap Hill is, we believe, as fine as, and more extensive than, anything of its kind to be met with in England, considerably over 50 acres of land being devoted to their cultivation. We shall be pleased to supply—
RHODODENDRONS, nice bushy plants, from layers, named kinds, £5 per 100, £40 per 1000. A dozen sent as sample on application.
RHODODENDRONS, the finer kinds, by name, from £7 10s. to £12 10s. per 100, and upwards.
RHODODENDRON PONTICUM, good plants for Cover, from £10 to £15 per 1000.
STANDARD RHODODENDRONS.—Of these we possess a large number of the oldest and finest specimens in the country, many being from 20 to 30 years old, with heads varying from 15 to 20 feet in circumference. There is probably no kind better adapted for standards than that we call roseum elegans, many of which we supplied to Rotten Row. We have also Rhododendrons, standards, of many other kinds.
RHODODENDRONS, fine hybrids, of good hardy habit, and great variety in colour, from £5 to £12 10s. per 100. Sample on application. Large and handsome plants by the 1000, 4 to 8 feet high.
AZALEAS, the very best kinds, nice plants, £10 per 100, upwards.
AZALEAS, common kinds, £5 per 100.
AZALEAS, splendid plants, of the finest varieties, 3, 4, 5, and 6 feet high, and as much in circumference.
KALMIA LATIFOLIA, nice plants, bushy, healthy, and covered with bloom, £5 to £10 per 100.
ANDROMEDA FLORIBUNDA, £5 to £7 10s. per 100, and upwards.
HARDY HEATHS, a very fine collection, every plant a specimen, and all removed in 1869, from 20s. to 40s. per 100.
ERICA CARNEA, for winter blooming, many thousands.
ERICA MEDITERRANEA ALBA, remains in bloom from October to May, and smells like new-mown hay—indispensable for Winter Gardening.
SKIMMIA JAPONICA, nice healthy plants, moved April, 1869, covered with berries, 12s. to 18s. per dozen.

As well as the above, the Knap Hill Nursery contains upwards of 200 Acres of ordinary NURSERY STOCK of a superior class, such as Flowering Shrubs (Deciduous and Evergreen), Roses, Ornamental Trees for Avenues, &c.

A PRICED and DESCRIPTIVE CATALOGUE will be forwarded on application. Purchasers to any extent are strongly recommended to make a personal inspection of our stock, and obtain the prices on the spot. No Catalogue can fairly describe many of the plants we offer.

The Nursery is readily reached by train from Waterloo to Woking in 40 minutes.

N.B.—There is now no difficulty in sending Plants through in the same truck, without package, from Woking to almost any Railway Station in England.

A. VAN GEERT,

NURSERYMAN, GHENT, BELGIUM,

BEGS TO OFFER

THE FOLLOWING PLANTS,

Of which he has a good Stock, at the annexed reasonable Prices:—

100	CAMELLIAS, without flower buds, fine plants	£4 to £5	0 0
100	Indian AZALEAS, of sorts, with flower buds, nice plants	4	10 0
100	small LATANIA BORBONICA	1	15 0
12	large LATANIA BORBONICA	1	10 0
25	SABAL ADANSONI	0	10 0
25	CHAMÆROPS HUMILIS	0	15 0
12	CHAMÆROPS, fine plants	1	4 0
25	CHAMÆROPS SINENSIS	0	18 0
12	strong plants of THEA BOHEA	0	12 0
12	strong AGAVE AMERICANA	1	10 0
12	AGAVES, of choice sorts	1	16 0
12	SOLANUM CAPSICASTRUM, foliis variegatis	0	18 0
6	PHORMIUM COOKII	0	12 0
12	AMARYLLIS SPECIOSA	0	0 0
25	AMARYLLIS, in fine mixed varieties, flowering roots	3	3 0
6	ROEZLIA REGIA, strong plants	0	18 0
12	BONAPARTEA JUNCEA	0	18 0
12	DASYLIRION, of sorts	1	10 0
25	ARDISIA CRENULATA	0	12 0
12	BEGONIA PEARCEI, bulbs	0	9 0
12	DRACÆNA VEITCHII	0	18 0
100	DRACÆNAS, in many varieties	4	4 0
12	DRACÆNA INDIVISA, fine plants	1	10 0
24	plants CYPERUS PAPYRUS	0	8 0
12	plants STRELITZIA JUNCEA	3	3 0
60	OTAHEITE ORANGES	2	2 0
12	ORANGE TREES, on stems, fine	3	0 0
12	PASSIFLORAS, of sorts	0	12 0
12	RONDELETIA ANOMALA	0	9 0
12	LOMARIA CILIATA	0	9 0
12	LOMARIA FALCATA	0	6 0
12	CIBOTIUM PRINCEPS	1	4 0
12	DARÆA DIVERSIFOLIA	0	9 0
12	ALSOPHILA EXCELSA	0	18 0
12	ACROSTICHUM CRINITUM, strong plants	2	8 0
24	ADIANTUM, of sorts	0	12 0
24	SELAGINELLA, of sorts	0	12 0
12	ASPLENIUM VIVIPARUM	0	9 0
12	GYMNOGRAMMA, of sorts	0	12 0
12	CYCAS REVOLUTA	3	0 0
6	ZAMIAS, of sorts	3	0 0
24	ACACIAS, in varieties	0	10 0
12	BORONIA POLYGALÆFOLIA	0	6 0
12	POLYGALAS, of sorts	0	6 0
24	MAMILLARIA and ECHINOCACTUS	1	10 0
12	ECHEVERIAS, in varieties	0	12 0
12	ELÆAGNUS JAPONICA, foliis aureis marginatis	1	4 0
12	ILLICIUM RELIGIOSUM	0	18 0
12	EUGENIA UGNI	0	9 0
12	GREVILLEA ROBUSTA, for dinner-table decoration	0	9 0
6	GREVILLEA LONGIFOLIA	0	12 0
12	JASMINUM GRANDIFLORUM	0	18 0
12	JASMINUM ODORATISSIMUM	0	18 0
12	KENNEDYA, of sorts	0	9 0
24	LACHENALIA TRICOLOR	0	4 0
12	LAURUS NOBILIS, fine young stems, with heads	6	0 0
12	dwarf LAURUSTINUS, full of bud	1	4 0
12	MYRTUS BULLATA	0	9 0
12	MYRTUS COMMUNIS, flore-pleno, on stems	1	4 0
12	choice VARIEGATED ZONAL GERANIUMS	0	15 0
12	YUCCA ALOIFOLIA	0	9 0
100	GLOXINIAS, in fine mixed varieties	1	1 0
50	GLOXINIAS, named	1	5 0
25	ACHIMENES, in varieties	0	5 0
12	TYDÆAS	0	5 0
12	strong bulbs of GESNERA MEEROULT	0	18 0
12	LYGODIUM SCANDENS, the Climbing Fern	0	18 0
12	BIGNONIA ARGYRÆA VIOLACEA	0	15 0
12	CALADIUMS, fine varieties	0	18 0
12	CROTONS, in varieties	0	10 0
12	MARANTAS, of sorts	1	4 0
24	tropical ORCHIDS	3	0 0
12	PALMS, different sorts	1	4 0
24	PANDANUS UTILIS	1	0 0
100	choice hardy RHODODENDRONS, of sorts	4	4 0
20	varieties of DELPHINIUM	0	7 6
100	GYNERIUM ARGENTEUM	1	5 0
50	strong GINKGO BILOBA	1	10 0
50	small GINKGO BILOBA	0	15 0
25	GLYCINE SINENSIS	0	12 0
25	choice varieties of Chinese Herbaceous PÆONIES	0	10 0
20	ditto Tree PÆONIES	1	5 0
25	varieties of IRIS GERMANICA	0	5 0
25	OSMANTHUS, in three varieties	1	1 0
25	MAGNOLIA GRANDIFLORA	1	1 0
6	MAGNOLIA THOMPSONI, strong	0	18 0
25	MAGNOLIA TRIPETALA	0	12 0
12	MAGNOLIA MACROPHYLLA, fine	1	10 0
12	strong plants of ARUNDO DONAX, foliis variegatis	1	5 0
12	choice CLEMATIS	0	12 0
100	selected CONIFERS, of sorts	2	10 0
50	EUONYMUS, in varieties	0	15 0
24	ILEX, of sorts	1	0 0
100	LILIUM LANCIFOLIUM RUBRUM, strong bulbs	3	3 0
100	LILIUM PUNCTATUM	6	0 0
12	SKIMMIA JAPONICA	0	6 0
12	VIBURNUM MACROCEPHALUM	0	15 0
12	CHAMÆCYPARIS SPHÆROIDEA, foliis aureis	0	9 0
12	CRYPTOMERIA LOBBII, fine plants	0	9 0
50	CUPRESSUS LAWSONIANA, fine	1	1 0
12	LARIX KÆMPFERII	3	12 0
12	RETINOSPORA PISIFERA AUREA	0	15 0
50	RETINOSPORA ERICOIDES, strong	1	1 0
50	THUJA TOM POUCE, new	2	2 0
100	THUJA AUREA, fine	2	2 0
25	sorts of hardy FERNS	1	1 0
12	sorts of new AUCUBA	0	18 0
100	PERPETUAL ROSES, own roots	2	2 0
50	varieties of GLADIOLUS GANDAVENSIS.		

AGENTS,

MESSRS. SILBERRAD AND SONS,

5, HARP LANE, TOWER STREET, LONDON, E.C.

THE AMERICAN NURSERY,

BAGSHOT, SURREY.

Near Sunning Dale Station, South-Western Railway.

JOHN WATERER & SONS

Respectfully invite the attention of Gentlemen and Planters to the undernamed selections from their general stock; every plant may be depended upon as in the best order possible for removal, having been transplanted within the last season.

ARAUCARIA IMBRICATA, grand specimens, 4 to 6 to 8 to 12 feet.
CUPRESSUS LAWSONIANA, 3 to 4 to 6 to 10 feet.
" LAWSONIANA ARGENTEA (JOHN WATERER'S var.).—By far the most desirable of all the glaucous varieties, 5s. to 7s. 6d. each.
" MACROCARPA, 4 to 6 feet, 42s. per dozen.
THUJA AUREA.—Beautiful plants, about 2 feet, 42s. per dozen; larger, 5s. to 21s. each.
" GIGANTEA.—An unequalled stock of hundreds of Seedlings, 4 to 6 to 8 feet, 3s. 6d. to 6s. each.
We would remark, that unless plants are on their own roots of this fine Thuja they are quite worthless.
THUJOPSIS BOREALIS, 3 to 4 feet, 30s. per dozen; extra fine, 5 to 6 and 7 feet, 5s. to 10s. 6d. each.
" DOLABRATA.—Fine plants, 5s. to 7s. 6d. each.
" " VARIEGATA, 5s. to 7s. 6d. each.
WELLINGTONIA GIGANTEA.—Good plants, 30s. per dozen; 2 to 3 feet, 42s. to 60s.; larger, up to 10 feet, 7s. 6d. to 63s. each.
ABIES NOBILIS, 2 to 3 feet, 21s. each; larger, 4 to 5 feet, 42s.
" NORDMANNIANA, 2 to 3 feet, 7s. 6d. to 10s. 6d.; 3 to 4 feet, 21s.; 4 to 8 to 12 feet, 31s. 6d. to 105s. each.
" LASIOCARPA, 3 to 4 to 5 feet, 10s. 6d. to 42s. each.
" GRANDIS, 4 to 5 to 6 and 10 feet, 10s. 6d. to 63s. each.
" PINSAPO, 2 to 3 feet, 5s.; 3 to 5 to 8 feet, 7s. 6d. to 63s.
" DOUGLASII, 3 to 4 feet, 42s. per dozen; 4 to 6 to 10 feet, 5s. to 21s. each.
" MAGNIFICA, 3 to 4 feet, 31s. 6d. to 42s.
" ORIENTALIS, 3 to 5 to 8 feet, very beautiful examples, 21s. to 63s. each.
CEDRUS DEODARA, 2 to 3 feet, 30s. per dozen; larger, up to 12 feet
YEWS, COMMON.—Immense quantities, 2 to 3 to 4 to 6 feet, from 18s. to 60s. per dozen.
" IRISH.—Perfect columns, up to 12 feet.
" GOLDEN, as Standards on Irish stems, perfect globes, 31s. 6d. to 42s. each.
HOLLIES, GREEN COMMON.—Many thousands, of all sizes, from 1 foot up to 10 feet.
" the best GOLDEN, WATERERS', and SILVER varieties, in any quantity, and of all sizes.
STANDARD HOLLIES, GREEN, 10s. 6d. to 21s. each.
" " WATERERS' variety, many hundreds of symmetrically grown specimens, perfectly straight stems, 42s. to 105s. per pair.
" WEEPING, GREEN, and SILVER VARIEGATED, fine plants, from 21s. each.
" PORTUGAL LAURELS.—Very close grown handsome plants, 10s. 6d. to 21s. each; very large imposing specimens, 42s. to 63s. each.

AMERICAN PLANTS.

Of this very popular tribe of plants we have the pleasure of observing that our stock is unequalled, and that it is from our Establishment that nearly all the approved crimson varieties of Rhododendrons have emanated. The Grand Exhibition of Rhododendrons annually displayed at the Royal Botanic Gardens, Regent's Park, has been for the past 20 years supplied from our Nursery.

RHODODENDRON PONTICUM, for undercover or shrubberies, strong established plants, £10 10s. per 1000; larger, 25s. to 63s. per 100.
" CATAWBIENSE and HYBRIDS, bushy well-grown plants, 50s. to 75s. per 100.
" better class (SEEDLINGS) and named varieties for extensive planting, £5 per 100.
" of superior kinds, many on own roots, £7 10s. to £10 per 100.
" very superior, leading, crimson, rose, white, £12 10s. to £20 per 100.
" STANDARD and HALF-STANDARD, of the most imposing varieties, of all shades of colour, from 21s. to 63s. to 105s. each.
AZALEAS, common kinds, 50s. to 75s. per 100.
" very best, in fine plants, £10 per 100.
KALMIA MYRTIFOLIUM, very handsome, 30s. per dozen.
" LATIFOLIA, 18s. to 30s. per dozen.
ANDROMEDA FLORIBUNDA, fine plants, 18s. to 42s. per dozen.

We have likewise immense quantities of the leading kinds of

EVERGREENS OF ALL SIZES,

SUCH AS

AUCUBAS, BAY, BOX, LAURUSTINUS, COMMON and PORTUGAL LAURELS, ARBOR-VITÆ, PHILLYRÆA, &c.

As well as **FOREST TREES,** 2 to 3 and 4 to 5 feet,

CONSISTING OF

ASH, BIRCH, BEECH, HAZEL, SPANISH CHESTNUTS, ALDER, SPRUCE, PINUS AUSTRIACA, &c.

From the immensity of our stock, we are enabled to treat on most liberal terms, and Purchasers are recommended in every practicable case to visit and choose for themselves, it being an impossibility to adequately describe by advertisement.

CATALOGUES, describing faithfully the colours of Rhododendrons, with height and prices, will be forwarded on application.

Purchasers of large quantities are informed that Goods can be forwarded from Sunning Dale to all parts of England in through truck, thereby causing a great saving in transit as well as diminishing the cost of package.

THE AMERICAN NURSERY,

BAGSHOT, SURREY.

PAUL'S NURSERIES AND SEED WAREHOUSE, WALTHAM CROSS, LONDON.

WILLIAM PAUL

RESPECTFULLY SOLICITS ORDERS FOR

THE FOLLOWING TREES, SHRUBS, &c.—ALL OF THE BEST QUALITY.

THE Public is requested to observe—1, That they are all growing on the COOL MOIST STRONG SOIL of Waltham and Loughton, and have consequently suffered nothing from the past dry, hot summer; and 2, That the whole of the stock is KEPT CONSTANTLY REMOVED, so that the plants are stout and bushy, the roots are fibrous and brought into a small compass, by which practice the losses by removal are comparatively trifling.

1. ROSES.

	Per dozen.—s.	d.
STANDARDS .. .. 15s. to	24	0
DWARF STANDARDS .. 12s. to	18	0
NEW ROSES, Dwarfs .. 24s. to	30	0
CLIMBING ROSES .. .. 9s. to	12	0
ROSES, for Forcing, 6-inch pots 24s. to	42	0
Mixed ROSES, for Shrubberies, per 100 ..	30	0
DWARF PERPETUAL ROSES, „ 75s to	100	0
MANETTI STOCKS .. .. „	8	0

2. FRUIT TREES.

APPLES, PEARS, CHERRIES, PLUMS, &c., Standards .. .. 18s. to	24	0
Do. Pyramids	18	0
Do. Pyramids, fruiting .. .. 24s. to	36	0
Do. Dwarfs or Cordons .. .. 12s. to	18	0
Do. Dwarfs, trained .. .. 30s. to	42	0
APRICOTS, NECTARINES, & PEACHES, Standards	30	0
Do. Standards, trained .. each, 5s. to	10	6
Do. Dwarfs	1	6
Do. Dwarfs, trained .. .. „ 3s. 6d. to	5	0
Do. Pyramids for orchard houses „ 3s. 6d. to	5	0
FRUIT TREES, various, in pots, for orchard houses .. each, 3s. 6d. to	10	6
GOOSEBERRIES and CURRANTS, the best sorts .. per 100, 20s.; 3s. to	4	0
FIGS, all the best sorts, in pots, each, 2s. 6d. to	5	0
GRAPE VINES—		
60 sorts, planting canes .. each, 2s. 6d. to	5	0
The best sorts, fruiting canes „ 7s. 6d. to	10	6
FILBERTS, of sorts .. .. .. 4s. to	9	0
RASPBERRIES, of sorts, per 100 16s. to	25	0
STRAWBERRIES, of sorts „ 3s. 6d. to	15	0
MEDLARS .. .. each	2	6
QUINCES .. .. .. „ 1s. 6d. to	2	0
WALNUTS .. .. .. „ 1s. 6d. to	3	6

3. EVERGREENS.

ALATERNUS, 2 to 3 feet	18	0
ARBUTUS, Common, 2 feet, bushy ..	12	0
Do. ANDRACHNE, 1½ foot .. .. each	2	6
Do. CHAMÆROPS, 1½ foot	2	6
AUCUBA JAPONICA, 2 feet, bushy „ ..	18	0
Do. do., 2½ feet, bushy	24	0
Do., 10 best sorts, male and female, green and variegated .. .. 12s. to	30	0
BAMBUSA FORTUNEI .. .. each	1	6
BAYS, Sweet, 2 to 3 feet .. 12s. to	24	0
BERBERIS DARWINII, 2 to 4 ft., 12s. to	18	0
Do. DULCIS, 2 feet	9	0
Do. do., 3 to 4 feet .. .. 12s. to	18	0
Do. STENOPHYLLA, 2 to 3 feet	18	0
BOX, green and variegated, 2 to 3 feet ..	12	0
Do., 4 to 5 feet	30	0
Do., 6 to 7 feet .. .. .. each, 5s. to	10	6
Do., 4 feet stems .. .. the pair	21	0
BROOM, white and yellow, 4 feet	9	0
COTONEASTER MICROPHYLLA, 2 ft.	6	0
EUONYMUS RADICANS VARIEGATA, 9s. to	18	0
Do. FLAVESCENS .. .. .. each	10	6
Do. JAPONICUS, 2 to 2½ feet	12	0
Do. do ROSEA .. .. 9s. to	18	0
FURZE, double-flowering, strong, in pots	9	0
HOLLIES, Green, 2 feet .. per 100	40	0
Do. do., 3 feet .. .. „	60	0
Do. do., 4 feet .. .. .. 12s. to	18	0
Do. do., 5 feet .. .. .. 30s. to	42	0
Do. do., 6 feet .. .. .. each, 5s. to	7	6
Do. Variegated, 1½ to 2 feet	30	0
Do. do., 3 feet	42	0
Do. do., 4 feet	60	0
Do. do., 5 to 6 feet .. each, 7s. 6d. to	10	6
Do., 80 varieties, gold, silver, and green, each, 1s. 6d. to	10	6
IVY TREE, 1½ foot	12	0
LAURELS, Common .. per 100, 8s. to	50	0
Do. COLCHICUM, 2 feet	6	0
Do. do., 3 feet	9	0
Do. do., 4 feet	12	0
Do. do., 5 to 6 feet	18	0
Do. CAUCASICUM, 2 feet	18	0
Do. do., 3 feet	24	0
Do. do., 4 feet	30	0
LAURELS, Portugal, 2 by 2 feet broad ..	12	0
Do. do., 3 feet	18	0
Do. do., 4 feet	30	0
Do. do., narrow-leaved, 3 ft., each, 1s. 6d. to	2	6
LAURUSTINUS, 1½ft (well set with bloom)	9	0
Do., 2 to 3 feet, bushy .. .. 12s. to	30	0
MAHONIA AQUIFOLIUM, per 100, 8s. to	60	0
Do. FASCICULARIS HYBRIDA, 1 to 2 feet .. .. .. 9s. to	18	0
Do. do. do., 2 to 3 feet .. .. 18s. to	24	0
Do. JAPONICA, 1½ foot	12	0
Do. do., 3 feet .. .. .. 18s. to	30	0
OAK, Evergreen, 4 to 6 ft., each, 2s. 6d. to	5	0
OSMANTHUS ILICIFOLIUS, 1 foot ..	18	0
Do. do VARIEGATA .. each, 1s. 6d. to	3	6
PRIVET, Evergreen .. per 100, 8s. to	25	0
Do. OVALIFOLIUM, gold edged, 2 feet ..	18	0
Do. do., 5 feet stems .. .. each	3	6
Do. JAPONICUM, gold edged, 1½ foot ..	18	0
Do. CORIACEUM, 9 inches .. 18s. to	24	0
PHILLYREAS, 2 feet	15	0
Do., 3 feet .. .. .. 24s. to	30	0
RHAMNUS HYBRIDA, 2 feet	12	0
Do do., 3 to 4 feet	24	0
RAPHIOLEPIS OVATA, 1 foot	30	0
Do. do., Seedlings, single pots	12	0
SKIMMIA JAPONICA, in pots 12s. to	18	0
ST. JOHN'S WORT, 1 foot .. per 100	25	0
YUCCA FILAMENTOSA, strong, 12s. to	18	0
Do. RECURVA .. .. .. 18s. to	30	0
Do. GLORIOSA .. .. each, 2s. 6d. to	5	0

4. CONIFERÆ.

ABIES EXCELSA, Spruce Fir, 2 to 3 ft., per 100	40	0
Do. do. do., 3 to 4 feet .. .. „	60	0
Do. do. do., 5 feet	18	0
Do. do. do., 6 to 8 feet .. .. each, 2s. to	3	6
Do. ALBA, White Spruce, 3 feet	12	0
Do. do. do., 4 feet	18	0
Do. do. do., 5 feet	24	0
Do. NIGRA, Black Spruce, 3 feet	12	0
Do. do. do., 4 feet	18	0
Do. do. do., 5 feet	24	0
Do. CANADENSIS, Hemlock Spruce, 2½ to 3 feet .. .. .. 9s. to	12	0
Do. do. do., 4 to 5 feet .. .. 18s. to	24	0
Do. DOUGLASII, 3 feet .. each ..	2	6
Do. do., 7 to 12 feet .. .. „ 7s. 6d. to	21	0
Do. ORIENTALIS, 3 feet .. „ ..	5	0
Do. do., 4 feet .. .. „ ..	7	6
Do. do., 5 feet .. .. „ ..	10	6
ABIES FINEDONENSIS, Silver Spruce, 4 feet .. .. each	5	0
Do. do. do., 5 feet	7	6
Do. STRICTA and CLANBRASILIANA, Dwarf Spruce .. each, 2s. 6d. to	7	6
ARAUCARIA IMBRICATA, 2 feet, each	3	6
Do. do., larger sizes .. .. each, 5s. to	42	0
CEDRUS ATLANTICA, Mount Atlas Cedar, 3 to 4 feet	30	0
Do. do. do., 4 to 5 feet .. .. .. each	3	6
Do. DEODARA, 2 feet	24	0
Do. do., 2½ to 3 feet	30	0
Do. do., 5 to 6 feet	60	0
Do. do., 6 to 8 feet .. .. .. each	7	6
Do. do., larger specimens each, 10s. to	63	0
CEDRUS LIBANI, Cedar of Lebanon, 3 ft.	42	0
Do. do. do., 6 feet .. .. .. each	7	6
Do. do. do., 10 to 12 feet .. each, 21s. to	42	0
CEPHALOTAXUS FORTUNEI, 2 feet ..	21	0
Do. do., 3 feet	42	0
CHAMÆCYPARIS SPHÆROIDEA VARIEGATA, 2 to 3 feet .. 24s. to	30	0
CRYPTOMERIA LOBBII, 3 feet	18	0
Do. do., 6 to 8 feet .. each, 3s. 6d. to	5	0
CUPRESSUS, Cypress, Common, 2 to 3 ft.	6	0
Do. do. LAMBERTIANA, 4 feet	18	0
Do. do. LAWSONIANA, 2 to 3 feet ..	12	0
Do. do. do., 3 to 4 feet	18	0
Do. do. do., 4 to 5 feet	24	0
Do. do. do., 5 to 6 feet	30	0
Do. TORULOSA, 3 to 4 feet .. .. each	2	6
JUNIPERUS, Juniper, Irish, 3 to 4 ft., 18s. to	24	0
Do. CHINENSIS, Chinese, 2 to 3 feet ..	18	0
Do. do. do., 4 feet .. .. 30s. to	42	0
Do. do. do., 5 to 6 feet	60	0
Do. do. do., 6 to 8 feet .. each, 7s. 6d. to	10	6
Do. VIRGINIANA, Red Cedar, 3 to 4 feet	18	0
Do. do. do., 5 feet	30	0
Do. do. do., 6 to 9 feet .. each, 3s. 6d. to	7	6
Do., 20 other handsome sorts, 2 to 3 feet..	30	0
Do. do., 3 to 4 feet	42	0
Do. do., 5 to 6 feet	60	0
PICEA AMABILIS, 1½ foot .. .. each	10	6
Do. LOWII, 2 to 3 feet.. each, 10s. 6d. to	21	0
Do. NOBILIS, 1½ to 2 feet .. each, 5s. to	7	6
Do. do., 3 to 4 feet .. each, 10s. 6d. to	42	0
Do. do., larger specimens, each, £3 3s. to £5	5	0
Do. NORDMANNIANA, 1 foot	24	0
Do. do., 1½ to 2 feet	42	0
Do. do., 3 feet .. .. each	15	0
Do. do., 4½ feet .. .. „	21	0
Do. do., larger specimens, each, £2 2s. to £5	5	0
Do. PINSAPO, 2½ to 3 feet	60	0
Do. do., 4 feet .. .. .. each	15	0
Do. do., larger specimens each, 21s. to	105	0
PINUS AUSTRIACA, 3 feet	18	0
Do. do., 4 feet	24	0
Do. do., 5 feet	30	0
Do. do., 6 feet	42	0
Do. BENTHAMIANA, 3 feet	24	0
Do. CEMBRA, 3 feet	30	0
Do. do., 4 feet	42	0
Do. do., 5 to 6 feet	60	0
Do. do., 8 to 9 feet .. each, 10s. 6d. to	15	0
Do. EXCELSA, 3 to 4 feet	30	0
Do. do., 4 to 5 feet	42	0
Do. do., 6 feet .. .. .. each, 5s. to	7	6
Do. do., larger specimens, each, 10s. 6d. to	21	0
Do. INSIGNIS, 3 to 3 feet .. .. each	1	6
Do. LARICIO CALABRICA, 4 to 5 feet..	24	0
Do. do., 6 to 7 feet	36	0
Do. do., 8 feet	60	0
Do. MACROCARPA, 3 feet	42	0
Do. do., 6 feet	60	0
Do. MONTICOLOR, 3 feet	42	0
Do. do., 4 feet	60	0
Do. PINEA, 3 feet	30	0
Do. PYRENAICA, 3 to 4 feet	30	0
Do. do., 5 feet	60	0
Do. SABINIANA, 3 feet	42	0
Do. do., 5 feet	60	0
Do. STROBUS, Weymouth Fir, 3 feet ..	12	0
Do. do. do., 4 feet	15	0
Do. do. do., 5 feet	18	0
Do. do. do., 6 feet	24	0
Do. do. do., 7 to 8 feet .. each, 3s. 6d. to	5	0
Do. do. NIVEA, Snow Pine, 7 to 9 feet, each, 21s. to	63	0
TAXODIUM DISTICHUM, 3 feet	18	0
TAXUS, Yew, Common, 2 feet per 100	40	0
Do. do. do., 3 feet	18	0
Do. do. do., 4 feet	30	0
Do. do. do., 5 feet	42	0
Do. do. do., 6 feet	60	0
Do. FAN, for hedges .. .. each, 2s. to	5	0
Do. Irish, 2 feet	12	0
Do. do., 3 feet	15	0
Do. do., 4 feet	21	0
Do. do., 5 feet	30	0
Do. do., 6 feet	42	0
Do. do., 8 to 9 feet .. each, 7s. 6d. to	10	6
Do. ELEGANTISSIMA, 1½ to 3 ft., 30s. to	84	0
Do., 20 best kinds, 2 to 3 feet..	30	0
Do. do., 3 to 4 feet	12	0
Do. do., 4 to 5 feet	60	0
Do. do., larger specimens, each, 7s. 6d. to	10	6
Do., Standard, variegated, 4 to 5 ft. stems, good heads .. .. .. each	21	0
THUJA ARBOR-VITÆ, American, 3 to 3½ft.	9	0
Do. do. do., 5 feet .. per 100, 75s.;	12	0
Do. do. do., 6 feet .. „ 100s.;	18	0
Do. do. do., 8 feet	30	0
Do. do. Chinese, 3 ft., 12s. p. doz.; 4 to 5 ft.	30	0
Do. do. Variegated, 2 feet .. .. each	2	6
Do. do. WARREANA, 2 feet .. per 100	50	0
Do. do. do., 3 to 4 feet .. per 100, 100s.;	18	0
Do. do. do., 5 feet .. .. .. each	5	0
Do. do. GIGANTEA, 2 to 3 feet	24	0
Do. do. do., 4 feet	42	0
Do. do. do., 5 feet .. .. .. each	5	0
Do. do., 8 feet .. .. „	21	0
Do. AUREA, 1½ foot	18	0
Do. do., 2 feet	30	0
Do. do., 3 feet	60	0
Do. do., 4 feet .. .. each, 5s. to	10	6
Do. COMPACTA, 2 to 3 feet	30	0
Do. do., 4 feet	42	0
Do. do., 6 feet .. .. each, 7s. 6d. to	10	6
Do. LOBBII, 2 to 3 feet	12	0
Do. do., 3 to 4 feet	15	0
Do. do., 4 to 5 feet	30	0
Do. do., 7 feet .. .. .. each, 5s. to	7	6
Do. JAPONICA, 3 feet	42	0
Do. do., 4 feet	60	0
Do. do., 5 to 6 feet .. each, 7s. 6d. to	10	6
Do. PYRAMIDALIS, 2 to 3 feet	9	0
Do. do., 4 feet	21	0
Do. do., 5 feet	30	0
Do. do., 6 feet	42	0
THUJA PYRAMIDALIS, 8 ft., each, 5s. to	10	6
Do. NEPALENSIS, 3 feet	12	0
Do. do., 4 to 5 feet	30	0
Do. PLICATA, 2½ feet	24	0
THUJOPSIS BOREALIS, 2 to 3 feet ..	18	0
Do. do., 3 to 4 feet	24	0
Do. do., 4 to 5 feet	36	0
Do. do., 5 to 6 feet .. .. .. each	5	0
Do. do., 7 feet .. .. „	7	6
Do. DOLABRATA, 1 foot	42	0
Do. do., 1½ foot	60	0
Do. do., 1½ foot .. .. each, 7s. 6d. to	10	6
WELLINGTONIA GIGANTEA, 2 feet ..	30	0
Do. do., 3 to 4 feet .. each, 5s. to	7	6
Do. do., 5 to 6 feet .. each, 10s. 6d. to	21	0
Do. do., larger .. .. each, 42s. to	105	0

5. DECIDUOUS TREES and SHRUBS.

ACACIA, Common, 6 ft. stems, good heads	18	0
Do. MONOPHYLLA, 6 feet	12	0
Do. PYRAMIDALIS, 6 to 8 feet	12	0
Do. ROSEA, 2 to 3 feet	9	0
Do. do., 6 feet stems	30	0
Do. GLUTINOSA, 6 feet stems	18	0
ACER (MAPLE) NEGUNDO, 10 to 12 feet	30	0
Do. do. VARIEGATA, 3 to 4 feet	9	0
Do. do. do., 6 feet	18	0
Do. do. do., 4 to 6 feet stems	30	0
Do. Scarlet, 6 to 8 feet	18	0
Do. do., 8 to 10 feet	30	0
Do. Norway, 10 to 12 feet	18	0
Do. do., 14 feet	30	0
ALDER (cut-leaved), 10 feet	30	0
ALMONDS, 5 feet stems	18	0
APPLE, Variegated, 4 to 5 feet	12	0
ARALIA JAPONICA, 5 to 6 feet	18	0
ASH, MOUNTAIN, 10 to 12 feet	18	0
Do. FLOWERING, 10 feet	30	0
Do. MONOPHYLLA, 10 to 12 feet	30	0
Do. AUCUBÆFOLIA, 8 feet	18	0
Do. SPECTABILIS, 8 feet	18	0
BEECH, Purple .. .. .. 18s. to	42	0
BIRCH, Silver, 8 to 10 feet	18	0
BERBERIS, Purple, 3 to 4 feet	12	0
CARAGANA, 6 sorts, 4 feet stems	18	0
CATALPAS, 4 to 5 feet	12	0
CHERRY, Double Blossom, Dwarfs	12	0
Do. do., 5 feet stems	24	0
Do. AUCUBÆFOLIUS, 5 feet stems	30	0
Do. Var. Mahaleb, 4 to 5 ft. stems each	3	6
CHESTNUT, Horse, 8 feet	30	0
Do. do., 9 feet	12	0
Do. do., 10 feet	18	0
Do. Scarlet, 6 to 8 feet	18	0
Do. do., 8 to 10 feet .. .. 21s. to	42	0
Do. Variegated, 5 feet stems	30	0
CYTISUS, 6 sorts, 5 feet stems	18	0
ELM, English, 8 feet	9	0
Do. do., 10 feet	18	0
Do. Hertfordshire, 6 to 8 feet	12	0
Do. Huntingdon, 8 feet	9	0
Do., best sorts, 8 to 10 feet .. 12s. to	24	0
Do., WYCH, 12 feet	18	0
GLEDITSCHIA TRIACANTHOS, 5 feet stems	18	0
GYMNOCLADUS, 3 feet	12	0
HIBISCUS SYRIACUS, 2 to 3 feet	9	0
KOLREUTERIA PANICULATA, 6 feet	12	0
LABURNUMS, 8 feet	9	0
Do., 10 feet	15	0
LEYCESTERIA FORMOSA, 4 feet	6	0
LILACS, Common, stout, 4 feet .. 9s. to	12	0
Do. Persian, 3 to 4 feet .. .. 9s. to	12	0
Do. do., 5 feet stems, fine heads, each, 2s. 6d. to	5	0
LIMES, Common, 8 feet	12	0
Do. do., 9 to 12 feet .. .. 18s. to	30	0
Do., 6 best sorts, 3 to 4 feet	12	0
LIQUIDAMBAR	30	0
NUT, Purple-leaved, 2½ to 3 feet .. 9s. to	12	0
OAK, Turkey, Standards, 8 feet	12	0
Do. do. do., 10 feet	18	0
Do. do. Variegated, 5 ft. stems, each, 3s. 6d. to	5	0
Do. do. Scarlet, 4 to 6 feet	9	0
PAULOWNIAS, 5 feet .. .. each	1	6
PAVIA RUBRA, 5 feet .. .. „	2	6
Do. FLAVA, 5 feet	2	6
PHILADELPHUS GRANDIFLORUS, 3 to 4 feet	6	0
PLANES, Occidental, 7 to 8 feet	12	0
Do. do., 9 feet	18	0
Do. do., 10 to 12 feet	30	0
Do. Oriental, 8 feet	18	0
POPLARS, Silver, 10 to 12 feet	18	0
Do. Lombardy, 10 to 12 feet	12	0
Do. Black Italian, 10 to 12 feet	12	0
Do. Laurel-leaved, 10 to 12 feet	18	0
Do. Ontario, 10 to 12 feet	18	0
Do., the above sorts, 5 to 6 feet per 100	30	0
PRUNUS, Double Sloe, Pyramids	18	0
Do. do., 4 to 5 feet stems	24	0
Do. TRILOBA, Dwarfs	12	0
Do. Cherry Plum, Dwarfs	12	0
Do. do., 5 feet stems	24	0
PYRUS ARIA, 6 feet	6	0
Do. SORBUS, Service Tree, 6 feet	9	0
Do. SPECTABILIS, 4 to 5 feet	12	0
Do. RINGO and TORINGO, 4 feet	12	0
Do. 12 sorts, Hybrids, beautiful foliage, 6 to 8 feet	18	0
RIBES SANGUINEUM, stout, 3 to 4 feet	9	0
ROBINIA INERMIS, 4 to 7 feet stems, 30s. to	42	0
SALISBURIA ADIANTIFOLIA, 3 to 4 ft.	30	0
SIBERIAN CRAB, 5 feet	12	0
SNOWBERRY, stout, 4 to 5 feet	9	0
SOPHORA JAPONICA, 5 feet stems	30	0
SPIRÆA, 20 sorts, 2 to 4 feet .. 6s. to	9	0
SYCAMORE, Common, 8 to 12 feet 9s. to	18	0
Do., Purple, 5 feet	9	0
SUMACH, Stag's Horn, 6 to 10 feet 9s. to	18	0
Do. Venice, 3 feet	12	0
THORNS, Single Scarlet, Double Pink, Double White, new Double Scarlet, and 30 other best varieties, 6 feet stems, fine heads .. .. 18s. to	24	0
Do., new Double Scarlet, plants, established in pots, well set with bloom for forcing .. .. each, 2s. 6d. to	3	6
Do., Standards and Pyramids .. each	2	6
TULIP TREES, 6 feet	18	0
VIRGILIA LUTEA, 6 feet	12	0
WEIGELIA ROSEA, 3 feet	9	0
WILLOW, Gold and Purple, 7 to 8 feet ..	9	0
Collections of TREES and SHRUBS, selected from more than 1000 varieties, from 21s. per 100 upwards.		

6. WEEPING TREES.

	Each.—s.	d.
ASH, Common Weeping, 8 to 10 feet stems	3	6
Do. Chinese do., 6 feet stems	2	6
Do. Gold-barked do., 6 feet stems	2	6
Do. Mountain do., 8 feet stems	2	6
Do. do. Variegated do., 8 feet stems ..	2	6
ALMOND, Weeping, 5 feet stems ..	2	6
BIRCH, Cut-leaved, Weeping, 7 feet stems	2	6
CHERRY, Weeping, 5 feet stems	2	6
ELM, 6 best sorts, 5 to 12 ft. stems, 2s. 6d. to	7	6
HOLLY, Variegated, 6 ft. stems, 10s. 6d. to	21	0
LIME, 7 to 8 feet stems .. 2s. 6d. to	5	0
OAK, Turkey, 6 feet stems	5	0
POPLAR, Weeping, 10 to 12 ft. stems, 3s. 6d. to	7	6
WILLOW, Common Weeping, 6 to 8 ft., p. doz.	9	0
Do. do., 10 feet .. per dozen, 12s. to	18	0
Do. American do., fine, 5 to 6 ft. stems, p. doz.	12	0
Do. Kilmarnock, 5 to 6 feet stems	2	6
Do. WOLSEYANA, 5 to 6 feet stems ..	3	6

7. AMERICAN PLANTS.

	Per dozen.—s.	d.
ANDROMEDA FLORIBUNDA 18s. to	42	0
AZALEA PONTICA .. .. 12s. to	18	0
Do. GHENT varieties .. .. 18s. to	30	0
GAULTHERIA SHALLON 6s. to	9	0
HEATHS, in 24 best sorts	6	0
KALMIA LATIFOLIA .. 18s. to	30	0
MAGNOLIA PURPUREA .. 18s. to	30	0
RHODODENDRON PONTICUM, of various sizes, very bushy, from 30s. p. 100 to	24	0
Do. do. HYBRIDUM .. .. 18s. to	42	0
Do. WILSONI .. .. .. 12s. to	30	0
Do., finest named sorts .. 30s. to	60	0

8. CLIMBING and WALL PLANTS, in pots.

	Each.—s.	d.
ALATERNUS, Gold, 2 feet	1	6
Do., Silver, 1 to 1½ foot	1	6
BIGNONIA RADICANS MAJOR	2	6
BUDDLEA GLOBOSA	1	6
CLEMATIS, 24 best sorts .. .. 1s. to	2	6
ELEAGNUS REFLEXA AUREA MACULATA, 2 feet	1	6
Do. PUNGENS VARIEGATA, 1 foot ..	2	6
ESCALLONIA MACRANTHA, 2 feet ..	1	6
Do. MONTEVIDENSE, 2 to 3 feet ..	1	6
Do. RUBRA, 2 to 3 feet	1	6
EUONYMUS JAP. AUREO-VARIEGATUS, 2 feet	2	6
Do. do. do. MARGINATUS, 2 feet ..	2	6
Do. do. MACROPHYLLUS, 2 to 3 feet ..	1	6
GUM CISTUS, 2 to 3 feet	1	6
GRISLIENIA, 1½ foot	1	0
GARRYA ELLIPTICA	1	6
IVY, IRISH, 4 to 5 feet .. per dozen	9	0
Do., 20 best green sorts .. „	12	0
Do., 20 best variegated sorts .. „	18	0
JESSAMINE, White, 3 to 4 feet	1	0
Do. do. Variegated, 2 feet	1	6
Do. NUDIFLORUM, 3 feet	1	0
Do. REVOLUTUM, 2 feet	1	6
LONICERA (Honeysuckle), 12 best sorts, named .. .. .. per dozen, 6s. to	9	0
MAGNOLIA GRAND EXONIENSIS, 3s. 6d. to	7	6
PASSION FLOWERS .. .. 1s. to	1	6
PHOTINIA SERRULATA, 2 feet	1	6
PYRACANTHA .. .. .. 9d. to	1	6
PYRUS JAPONICA, White and Red, 9d. to	1	6
VINE, Purple-leaved	1	6
Do., Variegated .. .. 1s. 6d. to	2	6
VIRGINIAN CREEPER .. .. 9d. to	1	0
WISTARIA SINENSIS .. 1s. 6d. to	2	6

9. HERBACEOUS PLANTS.

Principally Spring-flowering.

	Per dozen.—s.	d.
ALYSSUM SAXATILE per 100, 20s.;	3	0
Do. do. VARIEGATA	6	0
ARABIS ALPINA .. per 100, 16s.;	3	0
Do. do. VARIEGATA .. .. each	4	0
ARUNDO CONSPICUA .. each	1	6
Do. DONAX VARIEGATA, each, 1s. 6d. to	3	6
AUBRIETI

ECONOMY IN THE GARDEN.

James Carter & Co.
Seed Growers

AND NURSERYMEN,
237 AND 238, HIGH HOLBORN, LONDON, W.C.

CARTER'S
COLLECTIONS OF HYACINTHS,
CROCUS, TULIPS, &c.

JAMES CARTER AND CO. strongly recommend the following COLLECTIONS, assorted from the most popular varieties:—

Carter's Collection for Window or Conservatory Decoration, £1 1s.

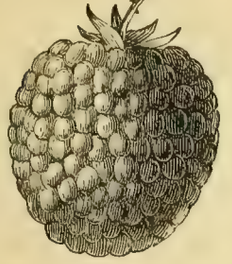
CONTAINING:

12 fine named Hyacinths	9 fine named Poly. Narcissus
12 Jonquils, sweet-scented	1 Dielytra spectabilis
50 named Crocus, finest	9 Scilla sibirica
1 Cyclamen persicum	3 Tournesol Tulips
1 Lilium speciosum	3 Rex Rubrorum Tulips
36 extra selected Snowdrops	3 Yellow Rose Tulips
3 La Candeur Tulips	6 Red and Yellow Van Thol Tulips
3 Royal Standard Tulips	3 Rose Van Thol Tulips

Subject to variation as the season advances.

McLAREN'S PROLIFIC RASPBERRY.

SPECIAL NOTICE.



For full description, see page 986, in Gardeners' Chronicle, Sept. 18.

AWARDED A FIRST-CLASS CERTIFICATE.

JAMES CARTER AND CO. beg to state that in consequence of the rapid demand for this valuable novelty their stock of strong Canes is now exhausted.

The entire stock will be held next season by J. C. & Co., and Orders are now booked to be supplied in rotation next autumn at the following Prices:—

As the supply next year will be limited, early Orders are recommended.

6 Strong Canes, 7s. 6d.	25 Strong Canes, 20s.
12 Strong Canes, 12s.	100 Strong Canes, 60s.

PARISIAN MUSHROOM SPAWN.

J. C. AND CO. are prepared to supply French Spawn, which is said to be a great improvement upon the ordinary Spawn. (*Vide* Horticultural Press.)

Price 6s. 6d. per Box

(sufficient to Spawn a moderate-sized Bed);

Half Boxes, 4s.

Decoration of the Drawing-room.

JAMES CARTER AND CO. offer for this purpose their choice Selections of HYACINTHS as below, including Glasses.

12 choice Hyacinths	and 12 new-shaped Glasses	.. 21s. 0d.
12 fine "	and 12 new-shaped Glasses	.. 19s. 6d.
12 good "	and 12 new-shaped Glasses	.. 18s. 0d.

Carter's Collection of Bulbs, for Outdoor Planting only, price 21s.

CONTAINS:

18 Hyacinths, choice in 3 colours	6 Gladiolus Brenchleyensis
12 Narcissus, double white	12 Iris, extra choice mixed, English
12 " Pheasant's Eye	12 Iris, extra fine mixed, Spanish
12 Double Daffodils	3 Lilium candidum
36 Tulips, extra fine mixed	3 " tigrinum
50 Crocus, blue	24 Ranunculus, extra fine mixed
50 " striped	100 Snowdrops, selected
50 " large yellow	24 Winter Aconites
50 " white	
24 Anemones, extra fine mixed	

Subject to variation as the season advances.

For full instructions for cultivation, and particulars of the above Assortments, see

CARTER'S
ILLUSTRATED BULB CATALOGUE

For 1869, Gratis and Post Free.

JAMES CARTER AND CO.,
THE ROYAL SEEDSMEN,
237 AND 238, HIGH HOLBORN, LONDON, W.C.

SUTTONS'
FRESH IMPORTED FLOWER ROOTS
FOR WINTER AND SPRING BLOOMING.

MESSRS. SUTTONS' FLOWER ROOTS Have been selected from the principal Growers in Holland.

SEEDSMEN BY APPOINTMENT TO H.M. THE QUEEN. Sutton AND Sons. READING

MESSRS. SUTTON DELIVER ALL FLOWER ROOTS, Except very small parcels, Carriage Free by Rail.

Special Estimates for large quantities on application.

Suttons' Complete £1 1s. Collection,
For Cultivation in POTS and GLASSES, Carriage Free.

12 fine Hyacinths, by name	3 Persian Iris
6 Miniature Hyacinths, by name	3 Peacock Iris
6 Polyanthus Narcissus, do.	50 fine Crocus, by name
6 Large Double Jonquils	6 choice Ixias
6 Single Sweet Jonquils	3 choice Sparaxis
6 Scilla præcox	3 choice Oxalis
6 Single Duc Van Thol Tulips	1 Jacobea Lily
6 Double Tournesol Tulips	1 Lilium lancifolium album
25 Early Tulips, 5 sorts	1 " " rubrum

Suttons' Fine New Crocus for Pots.

1000 splendid named, in 25 vars. ..	£1 15 0	100 splendid named, in 10 vars.	£0 4 0
500 do. do., in 25 vars.	0 18 0	50 do. do., in 10 vars. ..	0 2 0
250 do. do., in 25 vars.	0 9 0	25 do. do., in 5 vars. ..	0 1 0

Suttons' Dutch Crocus for Open Ground.

1000 in 10 vars.	£0 18 6	250 in 5 vars.	£0 5 0
500 in 10 vars.	0 10 0	100 in 5 vars.	0 2 3
Large Blue .. per 100	£0 1 9	Large Yellow .. per 100	£0 1 9
" White .. "	0 1 9	Largest Yellow "	0 2 6
" Purple .. "	0 2 6	Cloth of Silver "	0 2 0
Common Yellow "	0 1 0	Cloth of Gold .. "	0 2 0
Large Mixed .. .. per 100	£0 1 6		

Suttons' Choice Polyanthus Narcissus,
For POTS, GLASSES, or OPEN GROUND.

100 in 20 choice sorts ..	£1 5 0	12 in 12 choice sorts ..	£0 4 0
50 in 10 choice sorts ..	0 14 0	100 fine mixed	0 15 0
25 in 12 choice sorts ..	0 7 6	12 fine mixed	0 2 0

Garden Narcissus, finest mixed, 7s. 6d. per 100.

Suttons' Early and Large Double Tulips,
Early Varieties.

100 in 20 choice vars. ..	£0 18 0	50 in 10 choice vars. ..	£0 8 0
100 in 10 choice vars. ..	0 15 0	25 in 5 choice vars. ..	0 4 0

12 in 4 choice vars., 2s.

Double Tournesol, p. 100	£0 12 6	Rose Duc Van Thol, p. 100	£0 14 0
" Duc Van Thol "	0 3 6	Scarlet " " "	0 18 0
Single Duc Van Thol "	0 5 0	Yellow " " "	1 0 0

Choice named varieties, separate, 1s. to 12s. per dozen.

Large Double Varieties.

100 in 10 choice sorts ..	£0 17 6	50 in 10 choice sorts ..	£0 10 0
25 in 5 choice sorts ..	0 5 0	12 in 4 choice sorts ..	0 2 6

For COMPLETE LIST of BEDDING TULIPS (with an original article on Cultivation), showing the date of blooming, height, size of flowers, and colours of the varieties most worthy of cultivating, see SUTTONS' AUTUMN CATALOGUE for 1869, gratis and post free on application.

SUTTONS' SUPERB DUTCH HYACINTHS
FOR CULTIVATION IN POTS OR GLASSES.



The best 12 HYACINTHS for 12s.



Messrs. SUTTONS' COLLECTION of HYACINTHS consists of more than 200 varieties, a PRICED and DESCRIPTIVE LIST of which may be had on application.

Suttons' Collections of Named Hyacinths.

100	HYACINTHS in 100 very choice sorts ..	£4	4 0
100	" 50 very choice sorts ..	3	10 0
50	" 50 very choice sorts ..	2	2 0
50	" 25 very choice sorts ..	1	15 0
25	" 25 very choice sorts ..	1	1 0
12	" 12 extra fine sorts ..	0	12 0
12	" 12 choice sorts	0	9 0
12	" 12 good sorts	0	6 0

The order should specify whether they are intended to be grown in water or earth, as all kinds are not equally suited to both purposes. It should also be stated whether single or double blossomed kinds are preferred; otherwise we usually supply about two-thirds double and one-third single. The single varieties generally thrive best in water, but their merits are never apparent until the flowers are fully expanded.

SUTTONS' MIXED HYACINTHS for Beds or Open Borders.—Double, Single, and various colours, 2s. 6d. per doz., 17s. 6d. per 100.

SUTTONS' HYACINTHS in DISTINCT COLOURS for Massing, Bedding, Ribbon Gardening, &c.—Double and Single, various shades, separate, 4s. per dozen, 30s. per 100.

Suttons' Complete £1 1s. Collection
For OPEN GROUND CULTIVATION, Carriage Free.

12 fine mixed Border Hyacinths	6 fine mixed Gladiolus
6 " Polyanthus Narcissus	12 Duc Van Thol Tulips
12 Pheasant's Eye Narcissus	6 mixed Single Early Tulips
12 Double White Narcissus	6 fine mixed Double Tulips
25 Double Daffodils	6 " Parrot Tulips
6 large Campernelle Jonquils	6 Gesnerians Tulips
50 fine mixed Double Ranunculus	25 fine mixed Tulips
50 Scarlet Turban Ranunculus	6 " English Iris
12 fine mixed Double Anemones	6 " Spanish Iris
112 " Single Anemones	3 Lilies, of sorts
50 Crocus, 3 sorts	3 Ferraria pavonia
50 Snowdrops	6 Dog's-Tooth Violets
25 Winter Aconites	3 Crown Imperials

For further particulars and Prices of GLADIOLUS, RANUNCULUS, ANEMONES, &c., see SUTTONS' AUTUMN CATALOGUE, gratis and post free on application.

SUTTON AND SONS,
SEEDSMEN TO THE QUEEN, READING, BERKS.

VEITCH MEMORIAL.

At a MEETING held in the Council Room of the ROYAL HORTICULTURAL SOCIETY, on WEDNESDAY, October 27, in furtherance of the Proposal to establish a MEMORIAL of the late Mr. JAMES VEITCH, James Bateman, Esq., F.R.S., in the Chair, the following RESOLUTIONS were adopted:—

Proposed by G. F. Wilson, Esq., F.R.S., seconded by Mr. Gibson:—

1. "That, as a desire has been expressed by many gardeners, both in private letters and through the public journals, that the memory of the late Mr. James Veitch, and of the many benefits conferred by him on gardeners and gardening, by the impulse given to horticultural pursuits through his enterprise, influence, and example, should be perpetuated by some fitting Memorial, this meeting, fully appreciating Mr. Veitch's claims on the grateful remembrance of horticulturists and the loss which his family and horticulturists generally have sustained by his early demise, determines that effect shall be given to the desire thus expressed."

Proposed by Dr. Masters, seconded by Mr. Standish:—

2. "That a General Committee, consisting of the following gentlemen, who have signified their approval of a 'Veitch Memorial,' is hereby constituted for the purpose of carrying out the foregoing Resolution—

GENERAL COMMITTEE.

Mr. J. Anderson, Meadow Bank	Mr. Lamb, Colston Bassett
Mr. James Barnes, Exmouth	Mr. W. B. Latham, Birmingham Botanic Gardens
Mr. W. Barnes, Camberwell	Mr. T. Lees, Tynninghame
Mr. A. F. Barron, Chiswick	Dr. Masters, London
Mr. R. Beebie, Bicton	Mr. D. Matheson, Tullialian Castle
Mr. T. Blair, Shrubland	Mr. C. McDonald, Woodstock Park
Mr. J. H. Brookes, Carshalton	Mr. J. McPherson, Osborne
Mr. R. Budd, late of Cobham Hall	Mr. A. McKenzie, Alexandra Park
Mr. R. Bullen, Glasgow Botanic Garden	Mr. J. McNab, Edinburgh Botanic Garden
Mr. W. Carmichael, Sandringham	Mr. T. Methven, Edinburgh
Mr. W. Coleman, Eastnor Castle	Mr. J. Methven, Blytheswood
Mr. J. R. Cox, Crown East, Worcester	Mr. D. Mitchell, Edinburgh
Mr. J. Cox, Redleaf	Mr. W. Miller, Combe Abbey
Mr. A. Cramb, Tortworth	Mr. J. Monro, Potter's Bar
Mr. J. Cross, Rendcomb	Dr. Moore, Glasnevin
Mr. W. Culverwell, Thorpe Perrow	Mr. T. Moore, Chelsea [Hall
Mr. E. R. Cutler, London	Mr. C. W. Mounsdon, Moreton
Mr. T. Davis, Bures, Colchester	Mr. J. Pearson, Rangemore
Mr. W. Dean, London	Mr. J. R. Petch, Manley Hall
Mr. W. Dodds, Bower Ashton	Mr. T. Rabone, Alton Towers
Mr. J. Douglas, Loxford Hall	Mr. A. J. Ramsay, Castleboro'
Mr. J. Douglas, Kilkea	Mr. T. Record, Lillesden
Mr. Downie, Edinburgh	Mr. J. Robertson, Dublin
Mr. Drummond, Edinburgh	Mr. W. Robinson, London
Mr. M. Dunn, Fowerscourt	Mr. J. Rust, Bridge Castle
Mr. W. Earley, Digswell	Mr. J. Rutherford, Dublin
Mr. G. Eyles, South Kensington	Mr. T. Rutland, Bentley Priory
Mr. D. T. Fish, Hurdwicke	Mr. W. Smythe, Elmham Hall
Mr. J. Fleming, Cliveden	Mr. Z. Stevens, Trentham
Mr. W. G. Gaiger, Burton Closes, Bakewell	Mr. J. G. Temple, Packington
Mr. W. Gardiner, Weston	Mr. W. Thomson, Dalkeith
Mr. J. Gibson, Battersea Park	Mr. D. Thomson, Drumlanrig
Mr. A. Granam, Tedworth	Mr. G. B. Tillyard, Brocklesby Park
Mr. H. Hepburn, Scaresbrick	Mr. A. Toward, Osborne
Dr. Hogg, London [Hall	Mr. E. Welsh, Armagh Palace
Mr. A. Ingram, Alnwick	Mr. C. West, Carton
Mr. D. James, Carton Park	Mr. R. Westcott, Raby
Mr. Johnston, Glamis Castle	Mr. G. Westland, Witley Court
Mr. T. Jones, Petworth	Mr. W. Wright, Plas Newydd
Mr. J. Knight, Floors Castle	Mr. J. Young, Wentworth

And that the following Members of this body—namely, Messrs. Gibson, Eyles, Fleming, Hogg, Masters, McKenzie, Moore, W. Dean, and Penny, form a Central London Committee; the following—namely, Messrs. W. Thomson, Anderson, Dowrie, Drummond, Johnston, Knight, Lee, Matheson, McNab, Methven, Methven (Blytheswood), Mitchell, Syme, Bullen, and D. Thomson, act as a Committee for Scotland; and the following—namely, Messrs. McDonald, Dr. Moore, Douglas, Dunn, Robertson, Welsh, West, and Rutherford, act as a Committee for Ireland, with power to add to their numbers."

Proposed by Mr. W. Dean, seconded by Mr. Rust:—

3. "That the various Members of the Committee be authorised to obtain subscriptions in aid of the Veitch Memorial, in their several districts, and that Mr. G. F. Wilson be appointed Treasurer to the Fund thus obtained."

Proposed by Mr. Standish, seconded by Mr. Gibson:—

4. "That Mr. Moore be requested to act as Secretary."

5. "That the Subscription List be closed at Lady Day."

6. "That these Resolutions be advertised in the Gardening Periodicals."

Subscriptions may be sent to G. F. WILSON, Esq., Treasurer of "Veitch Memorial Fund," care of Mr. RICHARDS, Royal Horticultural Society, South Kensington, London, W.

Post Office Orders to be made payable at Kensington High Street. Cheques crossed London and County Bank.

The Gardeners' Chronicle.

SATURDAY, OCTOBER 30, 1869.

MEETING FOR THE ENSUING WEEK.

THURSDAY, Nov. 4—Linnean .. .. 8 P.M.

IN a recent number of the "Bulletin of the Botanical Society of France," M. ALPHONSE DE CANDOLLE replies to much of the criticism evoked by the publication of his LAWS OF BOTANICAL NOMENCLATURE, and by the discussion on them at the Paris Congress. We need not enter into the strictly botanical part of the subject, but we may set before our readers the gist of M. DE CANDOLLE's remarks on the nomenclature of cultivated plants. The laws laid down by the learned Professor, and recommended for adoption by the Congress, were given in our columns, 1868, p. 405. M. DE CANDOLLE gathers from what has been said in this and other journals, that horticulturists are not altogether satisfied with the regulations sought to be established. The dissatisfaction arises, in M. DE CANDOLLE's opinion, not so much from any absolute defect in the code, as it does from the want of sufficient knowledge on the part of those who have to apply it. In many cases the necessary data for the application of an exact name are not forthcoming, a state of things unhappily too common, but one not fairly chargeable to any defect in nomenclature. To make his meaning more clear, M. DE CANDOLLE gives by way of illustration the case of a person entering a crowded drawing-room. It may happen that he does not know the name of anybody in the room, or he may mistake one person for another. This is sufficiently annoying, but it furnishes no reasonable ground of complaint against the laws or customs of the country, because every individual in the room has his family and baptismal

names duly registered somewhere or other. The essential thing is to know the persons, or, failing such knowledge, to be able to acquire the desired information. But some persons may have changed their name. True; nevertheless the change is not effected without public notice being in some way or another given of the fact. So in the case of plants; it is not the nomenclature which is at fault. The inconvenience arises from the difficulty which the gardener experiences in carrying out his researches among the botanical records. Ordinary gardeners are not sufficiently instructed to make use of botanical treatises, while more highly educated horticulturists often experience a difficulty from the absence of libraries or herbaria. There are many cities of horticultural note wherein, from the reasons just cited, it would be next to impossible for the inquirer to determine the name of a plant with certainty.

M. DE CANDOLLE then proceeds to express himself in favourable terms as to the establishment of the Scientific Committee, which he calls *parfaitement composé*, and urges the adoption in catalogues of certain signs to indicate seedlings or sports (see p. 492, 1868). These signs are only to be used in cases where the origin of the plant is known with certainty, and where there can therefore be no hesitation as to the proper use of the symbol.

M. DE CANDOLLE, as it appears to us, has omitted one great source of inconvenience in plant nomenclature, and that is the use, or rather misuse, by gardeners and others not acquainted with the laws of botanical terminology, of scientific expressions and denominations. We, of course, acknowledge the right of any gardener or raiser to give names to those productions in whose origination he has had so great a share: what we object to is the application, to such hybrids or sports, of names which in form are identical with those applied by botanists to species. If, for instance, a new seedling Phlox be christened Phlox Fraseri, any botanical reader would infer that a new species was intended; but if it were named Phlox John Fraser, no mistake could possibly occur. The botanist would know that he had to deal with a garden variety, and the horticulturist would in his turn be the gainer, because he would know immediately that he was not talking of a newly-imported or little-known species. The signs proposed by M. DE CANDOLLE for garden varieties might still be attached in catalogues, though they could not be made use of colloquially. This last circumstance affords additional reason for preferring vernacular designations for the quasi-artificial productions generally classed under the head of "garden varieties." Another difficulty in nomenclature arises from the practice some nurserymen have, though we are glad to say this is much on the decline, of naming their newly-imported plants at once on their own authority, without waiting to ascertain from some competent botanist whether the name be properly applicable or not. This of course arises from the necessity, for commercial purposes, of attaching *some name* to the plant. In catalogues such appellations should be distinctly given as provisional only, and have the word *Hort.* after them. But even in such cases it would be desirable that, pending the registration of the plant in due form, some appellation different in construction from the recognised scientific epithets should be applied, so as to avoid all risk of error, and obviate the dreadful incubus of synonym on synonym.

THE VEITCH MEMORIAL scheme is now fairly launched, and we wish it God-speed. The meeting on Wednesday, over which Mr. BATEMAN presided, was unanimous in its favour, and since some 80 committeemen have signified their intention to work heartily to give it effect, there need now be no fear that it will not be brought to a speedy and successful issue.

The fact that the movement is a spontaneous outpouring of the feelings of gardeners towards one who ever befriended their class, is extremely gratifying, and the sympathy which finds its expression in this graceful public act will no doubt be fully appreciated by Mr. VEITCH's family. To some extent, doubtless, the moving cause is that of gratitude to a benefactor for personal favours, or of affectionate remembrance of a valued friend, but now that a commencement has been made, the sympathies of a more numerous class may be enlisted in giving effect to the scheme, as a mark of sympathy with a bereaved family sorrowing for the loss of its head.

The many suggestions which have been made as to the form which the memorial should take—all good in their way, but not all equally practicable—and which were brought under the notice of the meeting in the various letters of those who had signified their approval of the movement, naturally elicited some discussion, but it was agreed that nothing definite could as yet be determined, since the result must be governed by the amount subscribed. Instead, therefore, of attempting to solve this point, the meeting was content to affirm generally its preference for a portrait rather than a monument, supplementing this by one or more Veitch Prizes—annual, biennial, or triennial, according to the means at the disposal of the committee—a conclusion which we are able to state will be acceptable to Mr. VEITCH'S family, by whom a preference has been expressed for a monument or a portrait, either with or without the suggested prizes or medals as might be found practicable.

The sense of the meeting was taken as to some other subsidiary points, in order to facilitate the working out of the scheme. Thus, though it was felt that the action should be prompt, and the decision as speedy as possible, it was not considered wise to close the subscription list before next Lady-day. The opinion of those who were present was in favour of limiting gardener's subscriptions generally to a guinea, not of course to the exclusion of smaller offerings—the shillings and pence, as Mr. FISH puts it—of under-gardeners and others, while of course the larger offerings of the wealthy will be made at the option of the donors. As regards the prizes, should it be found practicable to establish them, the meeting unanimously decided against adopting the form of a medal, and in favour of a Veitch Prize, to be awarded in money or otherwise, as may hereafter be decided. The prizes, it was understood, should be offered for competition amongst gardeners only; and, whatever number might be forthcoming, it was considered that they should be given to reward the meritorious cultivation of plants and fruits alternately, rather than for novelties, and that they should be distributed in rotation at one or other of the principal exhibitions in London, Edinburgh, or Dublin respectively. The difficulties likely to arise in carrying out the otherwise unobjectionable proposals of a club and a library, were considered fatal to the adoption of these proposals, and much the same difficulty would attend that of the education of orphan children of gardeners, or that of Dr. MOORE'S, read to the meeting, to establish a fund for supporting disabled collectors, or their too-often bereaved survivors. The suggestion to add a Veitch Pensioner to the roll of the Royal Gardeners' Benevolent Institution met with greater favour, though, judging from the opinions expressed, the Prize and the Portrait seem to be the forms most likely to be eventually adopted.

We understand that the mode of working out the scheme will be, to consider the members of the General Committee, scattered as they are throughout the United Kingdom, as Local Secretaries and Collectors in their respective neighbourhoods. In this way many hands will make light labour; while as all these gentlemen have come forward spontaneously, we can but conclude that such duties will be to them a labour of love.

—— WE extract the following remarks on the management of LAKES and PONDS from the pages of the *Medical Times*:—"Common water exposed to the atmosphere soon becomes mixed with organic matter, from the droppings of birds and beasts and the decayed leaves and other vegetable matter washed into it. What next happens depends on the fact whether the water is in motion or at rest. If in motion, as in a rapid river or a lake, the bottom may be swept clean; for a lake, be it observed, is a body of living moving water—an expansion in the course of a river, not a mere motionless pond. If at rest, the organic matter sinks and accumulates, and undergoes changes which may be detrimental to the health of the neighbourhood. Then the question comes—What is the scientific mode of treatment?—bearing in mind that some ponds, like the London Serpentine, require not only to be made free from noxious emanations, but to be safe means for bathing and skating. One summary mode was adopted with the ornamental water in St. James's Park. It was made universally shallow, with an impervious bottom, so that it may be at times emptied and cleansed. The results are not good. The colour is frightful, the water offensive, and the bottom becomes covered with black mud. The eye gets none of the natural gratification and repose which it expects, the water is shallow and therefore heated, and the accumulation of organic *débris* considerable. In the Serpentine the colour was better, the water full of minute green threads of confervæ. On keeping a jar of water from the Serpentine, and one from St. James's Park, in the window for many months, the former yielded abundant bubbles of oxygen in the sunshine, and no unpleasant odour. But the fact remains that, in this and all other water with no outlet, organic matter accumulates, and each successive crop of organisms falls to the bottom as it dies, and forms mud; for the true mud of ponds is not clay or common mire, but the accumulation of decayed vegetable matter. Even when the Serpentine bottom is remodelled, this will require some provision to prevent its accumulation. Our plan would be to encourage the growth in it of plants which absorb the "previous sewage contamination," and which, unlike the microscopic confervæ, can be themselves easily removed. Such a plant is the Anacharis, of speedy growth, greedily using up all impurity, and converting it into oxygen-breathing vegetable tissue, and capable of being fished out easily once a year, thus representing a certain quantity of organic impurity removed from the water. The edges of the Serpentine—at least in Kensington Gardens—should be fringed with a belt of those most beautiful of English plants which inhabit our rivers—the showy Caltha palustris, the Menyanthes trifoliata, Butomus umbellatas, the Epilobia, Lythrum Salicaria, the Sagittaria, Nymphæa, Nuphar, and the like—so that the crowds who haunt the banks may get a glimpse of Nature, however slight."

—— In a recent article in the "Revue Horticole" M. DUBREUIL, speaking of the employment of the UNILATERAL CORDON (one-armed pensioners!) for the Apple, commends its use as an edging for fruit gardens, on the ground that it serves to fill a space which it would otherwise be difficult to occupy advantageously. At the same time M. DUBREUIL cautions growers against two prevalent errors in this mode of culture, and which it may be serviceable to our readers to point out. The first error consists in attaching to the wire support the terminal bud which is to prolong the cordon. The consequence is that the current of sap is impeded, so that the lateral buds receive an undue quantity, and hence form gross shoots instead of fruit-spurs. To obviate this, M. DUBREUIL recommends that the terminal bud be allowed to take its natural upward direction, and develop itself freely during the period of growth. At the time of winter pruning the branch is to be bent downwards and fixed horizontally to the wire, except for about 6 or 8 inches at the extremity, which may be allowed to ascend obliquely, so as to favour the development of the new bud which is to prolong the branch. 2. When, through the lengthening of the cordons, the branches of adjacent trees join, the ordinary practice has been to inarch the extremity of one cordon into the trunk of its neighbour at the point where it branches, so that a continuous current is established between all the trees forming the cordon. This process, says M. DUBREUIL, entails the serious objection that it deprives the trees of their vigorous terminal bud, the development of which induces the formation of new vessels for the circulation of the sap, and favours the development of new roots, which may seek nutriment in spots not impoverished by the growth of preceding years. Moreover, the lateral buds, from the "pinching" they undergo, can only imperfectly favour the production of the roots; hence M. DUBREUIL recommends the inarching process to be discontinued, and advises that the terminal bud of each cordon be allowed to develop itself freely into a branch. When pruned, the branch may be cut away near its base, above a well-formed bud destined to form a new and vigorous shoot. If in consequence of these repeated pruning operations, effected nearly at the same point, a gouty swelling be formed, hindering the proper flow of the sap to the new bud, it is advisable to preserve another bud lower down, so as to secure the formation of a shoot for the next season. The extremity of the old branch is cut away immediately above the point of attachment of the new shoot, which latter at the winter pruning is shortened to 3 or 4 inches. Successive shoots are closely pruned, and so on year after year, the main things to be attended to being the prevention of the ill consequences of any swelling that may be formed, and the securing every year a vigorous bud at the extremity of the branch, to promote the flow of the sap.

POTATOS.

I AM grieved to hear on all sides such a bad account of Potatos. Here they are excellent, and free from disease. They were dug up by August 7, ripe; and not one has decayed in store. Mr. Knox and Mr. Leach, the gardeners respectively of Mr. Farquharson and Lord Portman, called here this week to see the Roses, Strawberry plants, and Peach and Nectarine trees. Mr. Knox stated that he had taken out 20 sacks (!) of diseased Potatos from his stores already. On this occasion Mr. Leach, according to his promise, brought me some noble tubers—I never saw better—of his seedling Potato, the "Bryanston" Kidney. It is uniform in shape, well formed, clean in the skin, and perfectly level on the surface. He raised it some years ago, but never "sent it out." I have not tasted it, but will report on it, if permitted, next year. Uniformity of shape is desirable; but, from imprudent hybridisation or grafting, we have got into kidney-rounds—that is, the Potato is round at one end and kidney-shaped at the other. Rounds should be crossed with rounds, and kidneys with kidneys. Strawberry raisers make the same mistake. Thus we see on the same plant cockscomb, coned, and round berries. M. de Jonghe, and Mr. Ingram, late of Frogmore, understand formation and flavour. The berries of La Constante, Lucas, and Bijou, raised by M. De Jonghe, and of Frogmore Pine and John Powell, raised by Mr. Ingram, both first-rate, prove my assertion. Be it however observed, that the shapes of Potatos and Strawberries, too, are much influenced

by the soil. Very strong rich soil will often force a coned Strawberry into a cockscomb, and a level Potato into a deep-eyed coarse one. Miss Burt, of Clenstone, won the 1st prizes at Blandford with the Silverskins and Early Blues. I never saw more beautiful Potatos. Here the Silverskins were so scurfy, and the Early Blues so deep-eyed and coarse, that I allotted them to the pigs. I sent to the same show Napoleon, given to me by Mr. Turner, and Cobbler's Lapstone, given to me by Mr. Fenn, and they won high honours. They were very good indeed. Not thinking of exhibiting, I gave away to a poor man, at Bere Regis, from six to twelve each of the best of all my Potatos. As I was driving along he ran across the field and "fed my vanity!" saying, "I read your noble articles on 'taters.' Could you give me

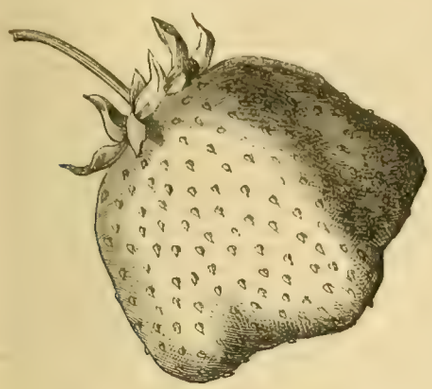


Fig. 1.

Yorkshire Hero?" I sent him, with others, 12 such Lapstones as I never saw before. Another year Miss Burt must take extra care. I am, however, always glad when the ladies win. She exhibited the best specimens of "taters" I ever saw at an exhibition. As the destruction of Potatos is not only a national loss but a national discomfort, I venture to press on my readers the necessity of planting "early ripeners and late keepers." Yorkshire Hero and Taylor's Yorkshire are the sorts to have; they come out of the ground by August 7, and keep good till June. I dug new Potatos June 4, but so good were the Heros that my servants preferred them to the new Royal Ashleafs. Get these Potatos—they are really good, and come out early:—Round Potatos: Gryffe Castle Seedling and Napoleon, *alias* Early Emperor. Kidneys: Royal Ashleaf, Yorkshire Hero, Taylor's Yorkshire Hybrid, Cobbler's Lapstone, and Pebble White, sent here by Mr. Fenn. As far as I have tasted my Potatos of the year, the last has been the best: it is a species of Lapstone. I have not got Mr. Myatt's Kidney, but I know it to be a very good early sort. As Hero and Taylor's Hybrid are much alike in appearance and identical in flavour and quality, observe the former has short haulm and a white flower, and the latter rather longer and stronger haulm and a pale blue flower. Both are said to have been raised by grafting, the former by Mr. Almond, of Little Fencote, Bedale, Yorkshire, and the latter by Mr. Taylor, of Great Fencote. I know nothing of grafting myself, but I never read greater marvels than were in Mr. Taylor's grafting notes, written five years before he sent them to me, and which, on permission, I forwarded to Mr. Fenn, who has them still. "Natur," said Squeers, "is a rum 'un;" so we must not decide too quickly. Mr. Fenn will do all that can be done in the matter. I think if a weak-growing kidney was inserted into a strong-constitutioned one, constitution might be imparted. At present I must rest here. We want to know, as Mr. Dean says, when the new roots become independent of the tuber. I imagine they draw from it a very long time, because, if you cut a piece off a tuber it will rot, and the crop will ripen some days before it will ripen from an uncut tuber. So say the shrewd Yorkshiremen. Mind the words—"Early ripeners and late keepers." I am safe till next June. It is fair to say the Cobbler's Lapstone and Pebble White do not ripen quite so early as the above; and when supertuberation sets in early, none will grow out more quickly than the Cobbler's Lapstone. It is the King! *W. F. Radclyffe.*

NEW STRAWBERRIES.

We are indebted to Messrs. Vilmorin-Andrieux & Co., for the following descriptions and engravings of eight new varieties of Strawberries raised by the late Dr. Nicaise, whose fame as a successful raiser and grower has long been favourably known.

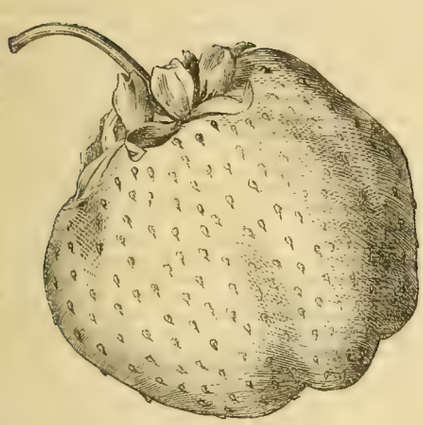


Fig. 2.

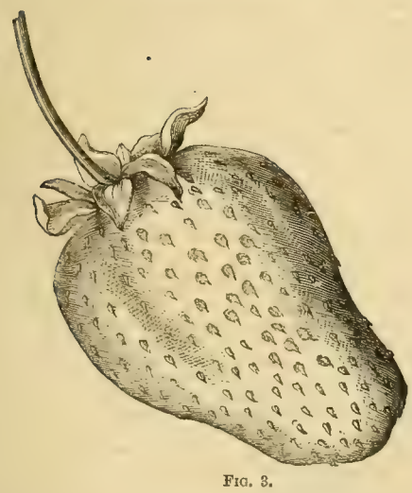


Fig. 3.

Alexandra (fig. 1).—Fruit very large, roundish, and flattened, sometimes assuming the shape of a horse-shoe, in which case the fruit is sometimes larger than the variety called Dr. Nicaise; colour, deep orange-red; seeds close, not very prominent, of a yellowish colour; flesh rosy, and highly flavoured. A very good and distinct variety.

Penelope (fig. 2).—Fruit very large, round, sometimes flattened, of a pale red colour; seeds small, distant and rather prominent; flesh salmon-coloured, sweet, juicy, slightly acidulous, and strongly flavoured. The plant is dwarf in growth, and produces few leaves, with hairy leaflets. It is hardy, and very prolific.

Amazone (fig. 3).—Fruit large, of an elongated conical form, which is almost always regular in outline; seeds not deeply embedded; skin of a light reddish colour, with a tinge of vermilion on the top; flesh white, inclining to rosy, sweet, and very aromatic. The plant is vigorous in growth, of a medium height, hardy, and prolific.



Fig. 4.

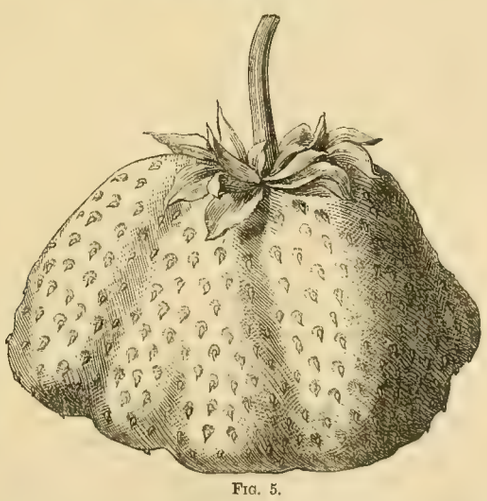


Fig. 5.

Perfection (fig. 4).—Fruit large, conical, and pretty regularly formed; seeds prominent and regularly disposed, of a lively reddish colour, contrasting with that of the skin, which is of a dark red, merging into a deeper tint; flesh dark red, juicy, sweet, and fine flavoured. The aroma somewhat resembles that of Brune de Gilbert. The plant is a strong grower and hardy, resembling Marguerite (Lebreton) in the disposition of the foliage and in the form of the fruit. It is very prolific, and appears to be exceptional in quality.

Passe-Partout (fig. 5).—Fruit very large, the first crop producing broad and flat specimens, after which they come of a more elongated form; seeds almost black, slightly prominent, and widely separate; skin of a deep glossy red colour; flesh red, streaked with white, sweet, slightly acidulated, and aromatic. The plant is of medium height, with very dark green leaves and hairy leaflets; it is a vigorous grower, and late.



Fig. 6.

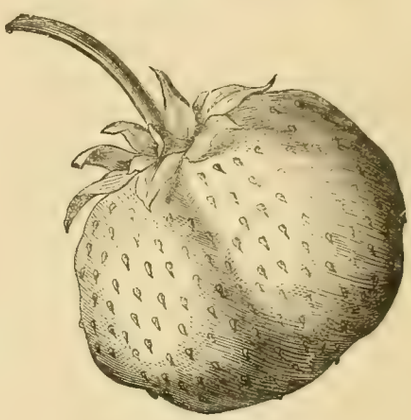


Fig. 7.

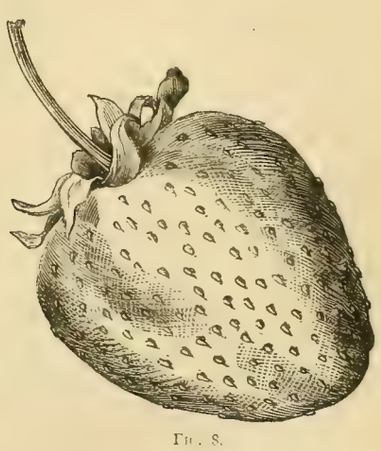


Fig. 8.

Abd-el-Kader (fig. 6).—Fruit very large, sometimes enormous, usually elongated, but often roundish; seeds prominent; skin of a bright vermilion-red colour; flesh dark salmon-coloured; sweet, slightly acidulous, aromatic, and highly flavoured. The plant is dwarf, but vigorous, in growth, having small leaves, with elongated leaflets, supported on smooth slender stalks. A pretty variety, of a peculiar structure, which would make a fine contrast in a collection.

Gabrielle (fig. 7). — Fruit medium-sized, round; seeds not very prominent; skin of a rather dark shining red; flesh red, firm, very juicy, sweet, and exquisitely flavoured. The leaves of the plant are strong and straight, with nearly round leaflets on long smooth and very stiff stalks. It is a hardy, prolific, and very late variety, of great merit.

François Joseph II. (fig. 8).—A fine large fruit, of a

beautiful roundish heart-shaped form; seeds yellowish and prominent; skin of a brilliant rose colour; flesh rosy, and of a most agreeable flavour. The foliage of this variety is of a bright shining green colour. A vigorous-growing, hardy, and prolific variety.

REVIEW OF THE GENUS NARCISSUS.—V.

Group III. *(Continued).*—PARVICORONATÆ; crown less than half as long as the divisions of the perianth.

In this paper we propose to treat of the four remaining vernal species of the Parvicoronatæ group, which taken together may be known from all other Narcissi by their saucer-shaped crowns, from a line to one-eighth of an inch in depth. Of the four, three are quite common in cultivation.

14. *N. pachybulbos* (Durieu, Revue Bot. 2, p. 425).—Bulb ovoid, 2 inches or more thick. Leaves 4—5 to a scape, glaucescent, about a quarter of an inch broad, flattish, with a blunt keel. Scape under a foot high, compressed and ancipitous, 5—8 flowered. Longer pedicels about equalling the spathe. Tube pure white, half an inch long above the ovary. Expanded flower 6—7 lines across, pure white, the segments of the limb not more than a quarter of an inch long, and consequently only about half as long as the tube, roundish, much imbricated, cuspidate. Crown not more than a line deep, subentire, pure white. Anthers biseriate, subsessile. Walpers' Annales, 1, p. 836; Durieu, Expl. Alger. t. 47, fig. 1.

A native of Algeria, not yet, so far as we are aware, in cultivation in England. It comes very near to some of the small varieties of Tazetta; even if it were introduced, the flowers are too small for it to be likely to be a popular species. It is said to be slightly scented.

15. *N. Jonquilla* (Linn. Sp. Plant. p. 417).—Bulb ovoid, under an inch in thickness. Leaves 1—2 to a scape, deep glossy green, 8—12 inches long, semicylindrical, channelled down the face, about a line in thickness. Scape equalling or shorter than the leaves, slender, subterete, bearing 2—6 fragrant flowers in the latter part of April. Spathe 18—21 lines long, the longer pedicels about the same. Tube 10—11 lines long, exclusive of the ovary. Divisions of the limb a bright full yellow, spreading horizontally when fully expanded, ⅜—½ inch long, slightly imbricated, oblanceolate or obovate cuspidate. Crown saucer-shaped, not more than a line deep, about the same colour as the limb, the edge faintly crenulate, about ⅜ inch across. Anthers sessile, biseriate, the three upper ones protruded into the crown. Curt. Bot. Mag. t. 15. Redouté Lil. t. 159, Reich. Ic. t. 811; *Queltia Jonquilla*, Herbert and Kunth; *Jonquilla major, minor, media*, and *parvicorona*, Haworth, Mon. p. 7.

This, the well-known Jonquil of the gardens, extends in a wild state from Spain, through the south of France and Italy, to Dalmatia. It has often been confounded, both in books and gardens, with N. juncifolius, but is much more robust in general habit, with larger and more numerous flowers, and a crown considerably shorter in proportion to the divisions of the limb. We have never seen any variation of the colour, which is a beautiful bright yellow. It is, perhaps, the most fragrant of all the species, and is often seen with double flowers in gardens.

16. *N. biflorus* (Curt. Bot. Mag. t. 197.)—Bulb ovoid, more than an inch in thickness. Leaves about four to a scape, ⅜—½ inch broad, slightly glaucous, flattish, bluntly keeled, often more than a foot long. Scape compressed, with two salient edges, bearing typically two, rarely one or three, flowers about the beginning of May near London. Spathe about 2 inches long, usually exceeding the pedicels. Tube about an inch long, exclusive of the ovary; expanded flower 15—18 lines across, the divisions milk-white (not so pure a white as in the next), spreading horizontally when fully expanded, ¾—1 inch long, ⅜—½ inch broad, obovate, much imbricated, blunt or cuspidate; crown 1—1½ line deep, less spreading than in poeticus, yellow, about a quarter of an inch across, the edge conspicuously crispato-crenulate. Anthers sessile, uniseriate at the throat of the tube. Eng. Bot. t. 276, Red. Lil. t. 405, Kunth, Enum. 5, p. 733, Reich. Ic. t. 810; *N. poeticus*, Hudson; *N. calthæolius*, Salisb. Prodr. p. 225; *N. triflorus* and *dianthus*, Haworth, Mon. p. 14.

Though this is said never to perfect its ovules and pollen, it is very common as a wild plant, has become naturalised in abundance in many counties of Britain, and is distributed on the Continent, through France to Switzerland, Italy, and the Tyrol. Grenier and Godron (Fl. Franc. 3, p. 257) describe an intermediate between this and Tazetta, under the name of Tazetta poeticus, with smaller and more numerous flowers than in biflorus, and a longer, deeper-coloured crown, which is the N. biflorus, var. hybridus, of De Candolle's "Flore Française;" and Dr. Henon, who made during many years a special study of the French Narcissi, writes as follows:—"The station of Lattes, near Montpellier, is remarkable in that it offers many species mixed in the same meadow (poeticus, angustifolius, biflorus, Tazetta), as well as a considerable quantity of intermediate forms, varieties, or hybrids. In 1840, along with MM Dunal, Delille, and Bouchet, I asserted that at this station might be seen all the passages from poeticus to Tazetta passing through biflorus without any appreciable line of demarcation. This assertion was strongly criticised; but verification being made on the spot with M. Delille, it was established that the fact was beyond doubt."

17. *N. poeticus* (Linn. Sp. Plant. p. 414.)—Bulb ovoid, about an inch in thickness. Leaves 3—4 to a scape, flat, with a blunt keel, glaucescent, often a foot or more long in cultivation, ½—¾ inch broad. Scape a foot or more high, compressed and two-edged in the typical plant, producing near London one or very rarely two flowers in the latter part of April. Pedicel generally much shorter than the spathe, which is 1½—2 inches long; tube white, 12—14 lines long above the ovary, and about a line in thickness; expanded flower 21—24 lines across when expanded, with a distinct and agreeable odour, the divisions a pure snow-white, obovate, blunt or cuspidate, slightly imbricated, 6—9, or sometimes in cultivation even 12 lines broad; crown 1—1½ line deep, saucer-shaped, very much crisped, with a bright scarlet edge, the mouth ¼—⅓ lines across, anthers sessile, subuniseriate at the throat of the tube. Eng. Bot. t. 275, Red. Lil. t. 169, Reich. Ic. t. 808.

Very common in cultivation, and extending as a wild plant all through the south of Europe, from France to Greece. The principal varieties are as follows:—

Var 1, *radiiflorus*.—A more slender plant than the type, with narrower leaves, and obovate divisions of the limb of the flower so much narrowed downwards that they are not at all imbricated in the expanded flower, and also more narrowed at the point. Crown rather narrower, and consequently more erect. Flowers at least a fortnight earlier than the type, generally in the first week in April near London, or even the last in March. *N. radiiflorus*, Salisb. Prodr. p. 225, Reich. Icones, t. 809; *N. angustifolius*, Ait. Kew, edit. 2, vol. 2, p. 241, and figured by Curtis in the "Botanical Magazine" under the name of *N. maialis*, which is afterwards corrected to *angustifolius*. A very handsome plant, truly wild in the Alps of Central Europe, and admitted both by Koch and Reichenbach as a distinct species.

Var. 2, *stellaris* (N. stellaris, Haw. Mon. p. 15, Sweet, Brit. Flow. Gard. ser. 2, t. 132).—A late-flowering form, with the divisions of the limb, as in the last, narrowed at the base, and not imbricated.

Var. 3, *recurvus* (N. recurvus, Haw. Mon. p. 15, Sweet, Brit. Flow. Gard. ser. 2, t. 188).—A late-flowering form, with weak recurved leaves, and the divisions of the limb reflexed and crisped towards the edge.

Var 4, *poetarum* (N. poetarum, Haworth, Mon. p. 14, N. poeticus, var. grandiflorus, Herbert and Kunth).—An early form, with the expanded flower 2½ or even 3 inches across, and much imbricated divisions.

Var. 5, *verbenensis* (Herb. Amaryl. t. 37, fig. 2; N. verbenensis, Roem. Amaryl. 240).—A very slender late variety, with oblanceolate much reflexed divisions, 8—9 lines long, which are yellowish at the base.

This concludes the series of the species, with the exception of some little-known narrow-petaled autumn-flowering species, and the very abnormal N. Broussonetii, to which my next paper shall be devoted. *J. G. Baker.*

Home Correspondence.

The Royal Vineyard Grape. — Having had great experience in Grape growing, including the Royal Vineyard, I will here explain my mode of setting its fruit. The Royal Vineyard is one of those kinds that produce a quantity of little water-like beads on the pistil of each flower as soon as it opens, and which, in my opinion, is the cause of its bad setting; and, to further the process, I gently draw my hand down the bunches about twice during the few days they are in bloom, taking care to keep my hands dry; and I have no hesitation in saying they will then set as freely as any Hamburg or Sweetwater. Like some other kinds, they will crack a little at times, but I have not found much of this with Vines planted inside, and where the borders are kept moderately dry when the fruit is beginning to ripen. Unlike the Barbarossa, and some other late-keeping varieties, that crack across the centre and point of the berry, the Royal Vineyard cracks just round the footstalk. In point of flavour, for a late-keeping white Grape, I consider the Royal Vineyard next to the Muscat of Alexandria. *A. S.*

Yellow Bedding Plants.—Some few weeks ago I was travelling from Chelmsford to Ipswich by railway, when I was very much struck with some remarkably long rows of a beautiful yellow flower (not unlike a Tropæolum), in what seemed to me to be nursery ground, not far from the Ardleigh station. I am unable to say whether it was a Tropæolum or not, as our speed was too great to define it. I have just been informed that the above grounds belong to Messrs. Carter & Co. If such is the case, and these gentlemen would kindly state what the plant in question was, they might possibly be doing a service to the gardening world. Judging from what I saw of the Viola lutea at Battersea and other places this summer, I should be indeed chary about doing away with the Calceolaria and substituting it; after all, the Calceolarias are not to be despised, for with a little system and forethought we may have them in bloom from June till the end of the season—I allude to Gaines' seedling and aurea floribunda. The Tagetes signata pumila, though considered rather dingy, is nevertheless very effective for autumn work. *Thomas Simpson, Broomfield, Chelmsford.*

[Messrs. Carter & Co. inform us that the part of their seed farm which borders the Great Eastern Railway near Manningtree Station was set out with annuals as follows, arranged in long rows the entire length of the field:—Mignonette, Virginian Stock (white), Candytuft (Dunnett's extra crimson), Nasturtium Tom Thumb (yellow), Collinsia atrorubens (purple and white), Nasturtium Tom Thumb (scarlet), Virginian Stock (rose), Chrysanthemum (new golden), Candytuft (purple), Candytuft (white), Collinsia multicolor marmorata (pink and white); and they further say, "We arranged them to contrast colours, as we thought they would be admired by the railway passengers as they passed down the line; and we are very pleased to learn, from your correspondent's inquiry, that they have produced the desired effect."]——In your impression of October 16, Mr. Bennett, of Osberton, in again adverting to the Calceolaria having proved uncertain in many places, asks "Where shall we get a substitute?" That has yet to be found, but not in yellow Pansies, although they are very good in their way. I see no difficulty, however, in growing the yellow Calceolaria. All the plant wants is a deep soil with a cool bottom. The largest Calceolaria plants I ever saw were grown in a farm garden where the soil was undrained, and consequently very damp. A little dung from the farmyard was dug in before winter into the strong clay border. Small plants planted out in May became large shrubby specimens by October. In light soils, dig the soil out of the beds you mean to plant; put a good layer of rotten cow-dung in the bottom; fill in the soil again, and plant. All the Calceolaria plants that I have treated in the above way have done admirably. They were watered when planted out, and only once after (in 1868), and they bloomed up to Christmas. *W. Hutchinson, Llwyndu House, Aberpennny.*

Passiflora macrocarpa.—Yesterday I cut one of these fruits, which in colour and shape resembled very much a rather unhandsome Vegetable Marrow. It weighed 4 lb. 13 oz., girthed lengthwise 27 inches, and round the middle 19½ inches. Its smell was rich, and I should be rather inclined to say heavy—certainly not so tempting as the smell either of a Pine-apple or a Melon. This fruit is the first ripened from a small plant, which in spring was planted in a brick box in a Pine stove. I have sent the fruit to the family, and I hope by-and-by to have a description of its eating qualities, which I will forward to you if you wish it. [It is far better made into a compôte. EDS.] At the same time, and in the same box was planted a Stephanotis floribunda, which grew amazingly, and flowered freely on the end of the Pine stove; also in the same box was planted a Passiflora edulis, which, however, grew so freely that it had to be cut away to make room for the P. macrocarpa; but in a tub at the other end of the house grew a P. edulis, which fruited freely, setting its fruit without assistance. The P. macrocarpa is shy to set, and requires to be fertilised. I cannot say that the fruit of the P. edulis is disagreeable, but my taste did not get sufficiently educated to like it, though I have been told that when eaten with a little sherry and sugar it is excellent. *Wm. Miller, Combe Abbey Gardens, October* 26.

Judging Melons at Edinburgh.—The method by which the Melons at the late International Show, held in Edinburgh, were judged, has, both among exhibitors and onlookers, excited much inquiry. It would appear that there was something new in the means adopted by the censors in finding out the merits of the Melons in question. A reporter remarks that old growers were taken by surprise; I may add that many young growers were equally astonished at the fruit not being cut, neither did the largest or handsomest take honours. Some suppose that the smell would be the only means by which the judges were guided. The "old growers" who were taken by surprise know well that the best of Melons often have very little perfume till they are past use, and some of the worst smell strongly and pleasantly. There were two classes at the above exhibition, scarlet-fleshed and green ditto. We do not know how the one colour can be known from the other without cutting. It often occurs, when there is a cross between two kinds, that the fruit has the outward appearance of one parent, and the flesh the colour of the other. When cutting is not practised, the same coloured flesh could easily be exhibited in both classes. I merely write for information. Being an extensive grower of Melons, I am eager to learn this new method of proving their quality, as it has sometimes happened that I have sent to table what I considered a first-rate Melon, which after it had been cut was found to be unfit for use. So much for appearance and smell. I have, when suspicious of bad quality, tasted Melons by the same method that vendors try cheese, replacing the rind without deforming the fruit. I think this could be also applied at exhibitions, and then the unsightly appearance arising from cutting the fruit would be avoided. *J. O.*

Wasp's Nests.—I have had a good deal of experience in taking wasp's nests in various ways. The simplest, but not the best, is that practised by boys at school, where one digs out the nest in the middle of the day, whilst two or three others stand round with branches to knock down the wasps as they come out. Of course half the wasps belonging to the nest are left flying about, to do more mischief, I believe, to fruit than if they had the nest to work at. Then there is the old plan of putting a squib into the nest at night, and digging out the nest whilst the wasps are stupified with the smoke. I used squib cases made of iron tubing. Some skill is required in mixing the composition so that it should always be effectual. The nest is sometimes 2 or 3 feet from the entrance hole, and the passage may run horizontally close under the Grass, and in such cases it requires a well made squib to reach them. But I have given up this plan for the simpler one of pouring about half a pint of gas tar into the nest at night. This also will sometimes not reach the nest. The wasps will then in a day or two make a fresh entrance nearer to the nest, and if the dose of gas-tar be repeated, it will almost certainly kill them. I generally dig the nests out about three days after, and give the larvæ to the chickens, which are very fond of them. I have occasionally known the result of this to be that the eggs have tasted of gas-tar! No doubt chloroform would do instead of gas-tar, or a squib; but I have never tried it. It would be rather expensive if there were many nests to take. But the most curious way of destroying wasps, is with a piece of sponge or rag dipped in cyanide of potassium and placed just at the entrance of the nest. Every wasp that comes near it drops down dead. In a few minutes no more wasps come out of the nest, and all those which come back to it die—so poisonous is the cyanogen which it gives off. When nests are taken at night there will still always be a few wasps that have not been at home. Every one of these may be caught by placing a bottle upright in the ground, where the entrance to the nest was, buried up to its mouth. The wasps will go in more readily if a piece of the comb be put into the bottle. They never come out again. I have sometimes had a common quart bottle nearly full, and sometimes there will be not more than a dozen or two of stray wasps. *C. W. Strickland.*

The Troubles of Exhibitors.—As Mr. Stewart's letter confirms mine in every particular, it needs no reply from me; but as he winds up by throwing the sole blame upon Mr. Ward, perhaps "Observer" is fairly entitled to a line or two in extenuation. It would, however, be a good rule for all exhibitors to write their name and address in large characters on the inside of their box lids, as an instruction to all unpackers, and as an address for their consignments on the return journey. Doubtless Mr. Ward and all other exhibitors will do this for the future. And his not doing so was the only mistake that he committed. In every other point he took especial care to be right. Mr. Stewart seems surprised that Mr. Ward should have moved in the matter. What! sit down quietly with

another gardener reaping all the honour, and the public generally not to be informed of the truth through the usual channels! He seems equally astonished that any one should expect letters to find him addressed to "St. George's Hall." [? Music Hall, George Street. Eds.] What! the secretary of the Royal Caledonian Horticultural Society not known? nor his residence discoverable on the field of his triumph—on the very spot where one would naturally have thought every brick in the building, to say nothing of shrewd letter carriers, would have known all about him. But Edinburgh is such a mighty capital that the secretary would appear to be lost in it. Neither is he the only thing that is lost. There must be letter-eaters somewhere about Auld Reekie, getting fat upon missing epistles. There are the two of Mr. Ward's and the two of the secretary's, one your advertisement [We have ascertained, on further inquiry, from our publisher, that the advertisement in question was received; but as it was forwarded by an agent from Guildford, and the usual conditions were not complied with, it was not inserted. Eds.], and the other that to the "Journal of Horticulture." What can have become of all these? Truly, the post-office at Edinburgh needs overhauling if, as it seems from this affair, it loses as many letters as it delivers. Has it no dead letter office, or does it bury or burn its dead, instead of returning them to the writers? Mr. Ward has had none of his letters back. Have Mr. Stewart's advertisements been returned, or is Mr. Ward to be credited with all the blame of the loss of all four? *Observer.*

Fertilisation.—Your remarks on the fertilisation of Grasses (see p. 1110) are suggestive, and remind me of several freaks in the fertilisation of Orchids. Darwin has propounded that the fertilisation of (most of) the members of that numerous family can only take place through foreign agency, viz., either by insects, by irritation, or by manipulation; and, as a rule, judging from what is seen in this country with both indigenous and exotic Orchids, his observations must be confirmed. However, apparently there is no rule without exceptions, for certain Orchids do fertilise themselves without expanding the floral envelope at all, and when pollinia and stigmatic surface are not only hermetically sealed, but the whole reproductive organs bound up so tightly that displacement of any of the pollen grains, and contact with the stigma seems almost impossible; and yet it must take place, for I have had as perfectly developed ovaries from Dendrobium crepidatum and Schomburgkia crispa, that never expanded their flowers, as I have had from a careful crossing, or from bees, or from irritation. The capsules swelled, and produced, not chaff, but multitudinous good seed. May not M. Bidard's observations on Grasses be considered rather an exceptional than a general state of fertilisation, and in that particular tally with what must be considered an extraordinary deviation from the usual state of things tending to reproduction? If Wheat, or any other cereal, be fertilised in that sort of embryo condition, it is almost incompatible with the rearing of improved or dissimilar sorts. Notwithstanding the tendency of plants to variation from seed, one would rather incline to the belief that it is more an abnormal than a normal state of things; and it is to be hoped, in the interests of both science and practice, that the matter may undergo further investigation. *J. Anderson.*

Vine Budding.—Is Vine budding a new discovery? At p. 1084 an account is given of the Vine growing at Trentham, and your correspondent, "B.," asserts that we have to thank Mr. Stevens for this new discovery; namely, Vine budding. I maintain that it is not a new discovery, for it is eight years since I first saw the art of Vine budding performed, and with the best results; had I considered it a great feat I might have given publicity to it long ago. How long my superior practised Vine budding, I am not in a position to say; but during these last eight years I have frequently seen the operation performed, and the only difference from Rose budding is that the wood is left in the bud. If your readers value the information, they ought to thank your correspondent, "B.," for giving publicity to such a useful practice. There are plenty of good practical gardeners throughout the country who never pen their experience, which might be valuable information for the rising generation of gardeners. I say to all those who are successful in budding Roses, they may do likewise in budding Vines. *D. Bain, Bromley, Kent, October* 26.

Potato Grafting.—Mr. Fitzpatrick's method of grafting the Potato, detailed in your columns at p. 334, seemed to me not unlikely to combine the forms and qualities of two sorts; I accordingly gave it a trial, but on the smallest scale, my garden being now of the smallest. Two Potatos, a round white and a blue kidney, were severed through the crowns, and the half of the one tied to the half of the other, the crown eyes being thus brought close together: all others visible were cut out. These prepared sets were planted in small flower-pots, and set on a greenhouse shelf. When the shoots had grown up about 6 inches, all were removed but two, one on each set; these were grafted by approach about 1 inch above the sets, one half of each stem being cut away, and then united to the other by a soft ligature of woollen yarn; pots and all were then sunk in the open border, so as just to cover the grafted parts. No clay was used, but the soil close pressed round the grafts, a method I had found sufficient in root-grafting fruit-trees. Besides these, two shoots, one from each kind, which had begun to form rootlets, were similarly grafted together about an inch above the rootlets, the ends of the stems being left free, and planted out, also without claying. These, with a little shading, soon struck and grew, but not freely. The two potted plants went off without a check, until one, a fortnight after grafting, was accidentally broken, the grafted stem being very brittle, and cut into by the bandage; it was, however, satisfactory to find, on examination, that a perfect and healthy union had already taken place. The remaining plants, with their double tops, were pruned now and then through the summer to preserve some equality of growth, and two or three weak shoots from the sets in the pot immediately removed on their appearance aboveground. The object in view was to induce the plants to form tubers from the stems below the graft, where there might be a commingling of sap and of vegetative power from the foliage of both tops. On digging, however, it was disappointing to find that no such mixture had taken place. In both cases I found Potatos, except in size, exactly like those I had operated on. *S. S.*

Hardy Ornamental Shrubs.—I do not recollect having observed ornamental shrubs and trees so profusely covered with fruit as they are this autumn. Several varieties of Holly, Cotoneaster, Berberis, Mahonia, also Gaultheria Shallon, Leycesteria formosa, and Eugenia Ugni are very ornamental, some are exquisitely lovely; and while the stormy and withering blasts of autumn change the scene into winter, the Holly at least grows more beautifully—its shining scarlet hues peeping out of such a variety of foliage, prickly and plain, green, golden, and silver, still getting brighter until the gloomy days of Christmas-eve, when all feel an interest in its cheerful display, being valued alike for decorating not only the castle hall but the cottage. *J. McIntosh, Castle Toward.*

Vine Soil.—In justice to myself, and for the sake of truth, I must say a word or two upon that part of "B.'s" paper on Vine-growing at Trentham, in which allusion is made to me. "B." has either not read my paper on soil for Vines carefully, or he deliberately brings a charge against me for which there is no foundation. My opinion on the matter in question has been derived entirely from the teaching of experience and observation, and all my statements are supported by facts. But "B." declares that facts are against my theory. Will he bring forward his facts? Will he take the trouble to inform us where Grapes are grown in perfection in soil composed in a great part of calcareous matter? At Trentham, as he himself curiously enough tells us, the soil is new red sandstone. Does not "B." see that this admission is an additional fact on my side? If there exists any difference between the component properties of the old and new red sandstone, will "B." have the kindness to state in what the difference consists? All the information I have been able to glean on this subject through private intercourse strongly supports my argument. In conclusion I would merely notice, that before we endeavour to controvert we should not slur over facts. No man has a right to silt up truth by throwing dust in our eyes. *Alexander Cramb, Tortworth Court.*

Picea Pinsapo.—There having been—especially of late—considerable interest manifested by a portion of the horticultural community in the fructification of some of our choicer Conifers, I have thought it might not be uninteresting to state under what circumstances a nice specimen of that gem amongst Conifers, Picea Pinsapo, has this season for the first time fruited here. I exhibited at the Royal Horticultural Society's Floral Committee Meeting, on the 5th ult., a bunch of nine cones, which, conjointly with cones of Abies Menziesii, was awarded a Special Certificate. I may remark that the tree in question was planted here when in a very young state, about 25 years ago, in a strong dark coloured loam on the lias formation, and that it has assumed a symmetrical cone-like form, being about 26 feet high and 18 feet across its lower branches. I regret to say, however, that for the last four or five years arrested growth became very evident—as it annually made less progress—the cause of which escaped notice, until one morning, early in 1867, we found it blown down, and upon investigation the roots, excepting one of the main surface roots, were found in a complete state of decay occasioned by an attack of Fungus, which had also penetrated for about 18 inches up the bole; hence it almost precluded all hopes of its recovery. However, it was resolved to raise it to its original position—which was accordingly done by means of a pulley-block and tackle attached to a neighbouring Elm, and the combined efforts of nine or ten men. It was then supported in position by stout poles, and this apparently secured it from further downfall. Guess, however, my unfeigned astonishment the next morning, after a very windy night, to behold it prostrate once more—but in the opposite direction to that in which it was in the first instance. Of course this additional *contretemps* seemed for the moment to render all hopes of resuscitation impossible, inasmuch as the already injured large root had sustained additional injury, from being twisted in a contrary direction—still not sufficiently to prevent our resolving to raise it once more, and making it more secure from further harm. It is almost needless to remark, that after such rough treatment, combined with the excessive heat and drought of the ensuing summer, the general health of the tree was thereby materially affected, insomuch that nearly all of the foliage on the maturer parts of the lower branches dropped off, and little or no growth was made in the shoots. The foliage, however, still retained its pristine colour, and, *mirabile dictu!* it has this season evinced unmistakable symptoms of resuscitation by making terminal growths from 2 to 5 inches in length, in addition to a crop of upwards of 100 well-developed cones, creating a somewhat novel effect upon its uppermost branches. Without any doubt this premature fructification arises from arrested growth, which I trust, however, may not be the precursor of dissolution for many years to come; and in this hope I am sustained by the fact that the main root still enjoys an immunity from the disease; as also by the formation of new bark gradually enclosing the dead portion of its bole. Its future well-being is, however, a problem that time alone can solve, as it is doubtful what effect such a serious attack of the Fungus may produce. I had almost forgotten to say that, as far as I can ascertain, the Fungus is now apparently in a state of non-vitality. In conclusion, it may not be irrelevant to state that there is also a Tulip tree, Liriodendron tulipifera, growing in the grounds here, that has been attacked by a Fungus similar to that on the Picea, and which has lost nearly the whole of the bark round the base of the bole, excepting about 4 inches on one side of it; but as the greater portion of the interior of the bole is decayed through the inroads of the pest, I opine there is but faint chance of its re-establishment. *William Gardiner, The Gardens, Eatington Park, Stratford-on-Avon.*

Vine Roots.—Your correspondent Mr. Gill (see p. 1064), asks if Vines make roots without the action of leaves and branches? I think the most pertinent way of putting the question, judging from the context, would have been—Do Vines make leaves and branches without the aid of *new* rootlets? This is a question worth more than a mere passing notice. I remember it was ventilated and discussed at what might be called a sub-Congress of gardeners in Mr. Williams' dining-room, during the International of 1866. Mr. Cramb, who is an original thinker, stoutly asserted and argued, in effect, that the thing was an impossibility—was against Nature, and quite untenable. Mr. Rose, then at Floors, now a Royal gardener, on the contrary, maintained that leaves and branches were generated in the forcing process before a single root was formed, as he had practically proved by examining numerous pot Vines. This theory was supported by Mr. Knight, then of the Château de Pontchartrain, now of Floors, by Mr. Mitchell, then of Hamilton Palace, and now of Edinburgh, and by some others. I was very doubtful at that time which side to take, not being "posted up" by the best of all tests, a practical investigation. Since then I have examined several pot Vines after being partially advanced, and found the old roots in capital condition, but none of those fat white spongioles that abound during the growing and ripening process. Not satisfied with that proof alone, I examined a lot of Vines that had been root-pruned as one would do an Apple tree, where roots large and small were severed in almost a straight line, and some untouched, not having crossed the barrier, in order to replenish an old border with new material. None of these showed symptoms of starting for a month after the buds began to burst into leaf, so that virtually the plants were living upon the old matured roots for the initiatory period of their annual growth. Judging by this test the young roots are apparently more the consequence than the cause of leaf and branch manufacture. This subject does not seem to be generally probed by the horticultural fraternity, for many, like myself, until put to the test, could not found any opinion they might give upon practice, and were therefore groping in the dark. Even "B.," who is a clever practitioner and a very "sensible" writer—as witness his capital article on the Trentham Vines—was not prepared to give a definite opinion upon the point at issue, during my visit and *tête-à-tête* with him last May. One thing is clear, that the question ought to be definitely decided upon. *J. Anderson.*

Pears.—I find that many of my Pear trees set their fruit poorly, even though root-pruned; but one which has been injured half-way up the stem, and which has less than a quarter of the bark left to depend upon, bears profusely above that injury, while below it is barren. [A not uncommon occurrence, which finally ends in the loss of the tree. Eds.] It has occurred to me to try the effect of partial ringing of the stem or principal branches of the barren Pears; and I wish to know at what season would it be best for the bark to be cut away—now, or in spring? [Not at all; "ringing" is a barbarous practice, which should be shunned by legitimate horticulturists. Eds.] It is plain that excess of vigour is the cause of barrenness in the lower part of the tree mentioned, as that part gives vigorous shoots each year, while the upper fruitful part above the injury makes but little growth. I have seen trees, the stems of which were injured by the puncture of an insect, set their fruit, while the rest dropped off. And what Mr. Rivers tells us about Pears on the Quince, transplanted when just coming into flower, setting their fruit, while those which had been transplanted in autumn refused to do so, all points in the same direction. It was evidently the check in the supply of nourishment to the blossoms in this case that caused fruitfulness. Did you ever hear of Pears (on the Pear stock), dying from being planted in soil from which Plums has been recently dug up? That appears to be the only mode of accounting for the death of some young Pear trees here. *A. B., Narberth.*

Acalypha tricolor.—Your correspondent in last week's paper (p. 1111) was quite right when he drew attention to this plant as one of the finest of leaf plants now in the gardens. I was quite charmed when I first met with it in the Viti Islands in 1860; and I have no doubt that, under proper cultivation, the various tints which it displays may be brought out, and even new varieties raised. In my "Viti Flora" I have given a pretty full account of the plant, but I have not mentioned anything about its introduction. I believe I was the first who brought living specimens of it to Sydney, some of which I gave to Mr. Charles Moore, who propagated them, and sent some of them to his friends in England; some of those I retained were forwarded to Kew (*viâ* Cape Horn), where no doubt they were taken care of. The name A. tricolor is not a garden name, but was given by me at the time I shared my living specimens with Mr. Moore. I applied this name from the resemblance of the tints of the leaf to Amaranthus tricolor. On coming home I found at Kew that Professor Asa Gray had named the specimens collected in Wilkes' Expedition A. circinata, a name which Dr. Müller (Arg.) did not

adopt, as the flowers are only exceptionally circinate; Muller gave the name A. Wilkesiana. The synonymy of the plant would therefore be, Acalphya Wilkesiana, Mull. Arg. (A. circinata, A. Gray, MSS. in Herb. Kew; A. tricolor, Seem. MSS.). *Berthold Seemann.*

Viola Blue Perfection.—Mr. Bennett's remarks about yellow bedding Pansies (p. 1088), in which he has so ably championed their adaptability for the summer decoration of the flower garden, has induced me to say what I know about the good qualities of this Viola for a like purpose. I had the pleasure of first making its acquaintance at Wilton Park last August, and if I did not lift my hat to it on so doing, I at least paid the homage of declaring it to be the gem of the flower garden there. It was used as a belting for a round bed, with, I think, a centre of white variegated Pelargonium, and the effect it produced was so good, and its character, whether in habit or colour, so striking, that I vainly tried to ascertain what it was, but no one could tell me. Mr. Challis, the gardener to Earl Pembroke, was unfortunately not to be met with, so that I could gather no information from that source; however, I at last met with Mr. Waring, of Salisbury, and he informed me that, though growing it himself, he was ignorant of its correct designation, and it was not common in the locality, but he would vouch for it that it was a most continuous bloomer from early spring to late autumn. Fortunately Mr. Jobson, of Rotherfield Park, Hants, sent a plant of it to South Kensington, and got for it a First-class Certificate under the above name, and so cleared up that mystery; but how it originated seems to be yet unknown. Gardeners will find this Viola to be a great acquisition as a blue bedding plant, as it is an immense improvement on common *Miss Dean.*

Potting Liliums.—Allow me to thank "W. E." for the very practical hints which he gives us week after week. It will be admitted on all hands that the Calendar has never been filled with better instruction. I have been a reader of the *Gardeners' Chronicle* for at least 20 years, and have never seen the "Calendar of Operations" so well filled with useful matter as now. But does "authority" exclusively belong to that page? or is it ground whereon those only who will sing "Quantum libet" may tread? What means "W. E.'s" phrase, "authoritative tone of denial?" I stated my experience; what better authority is there than that? I grew up amongst Liliums, and have had the advantage of seeing them potted under many circumstances, and have potted them myself times enough to enable me to condemn the practice of storing away the bulbs until spring. I can scarcely understand "W. E." No one will blame him for acting as a *chaperone* to "J. D.," who possibly may be of the fair sex. But "W. E." says he can emphatically endorse the advice given by "J. D.," *i.e.*, pot your Liliums in the spring; and afterwards he says, the best time would be somewhere in January. This is said in a tone not "authoritative" enough to please me. "J. D." will have something to do to make even town folks believe January to be spring. I say you cannot state within a week when to pot all Liliums at every place. My advice was, to do so when the stem is dead; and I still uphold it. The stem is kept alive sometimes by roots emitted from itself, independent of the bulb. These roots sustain it after the bulb has stopped its supply, consequently the bulb is at rest previously, and the stem becoming dead—and when that is dead, "the advent of the resting period" is long passed. Leaving the bulbs until they have begun to make roots is the cause of more failures than "W. E.'s" *argumentum ad ignorantiam.* "W. E." advises those who "value their bulbs" to follow the advice of Mr. Smith. I have no doubt Mr. Smith can give sound advice, but your readers will be discouraged to find that Mr. Smith has said absolutely nothing about the time of "potting" Liliums! Who will set us right? and "authoritatively" tell us which is wrong? *M., Oct. 18.*

Duke of Cornwall Melon.—I can endorse all that Mr. Simpson has said in favour of this valuable, but little known variety. It is to be had in perfection to the end of December or middle of January, and is particularly well adapted for pot culture in Pine stoves, as it delights in a strong heat. Poor soil increases its fertility and diminishes its size. It has filled up a blank long felt, viz., a first-class late Melon. *James C. Smythe.*

Coloration of Leaves.—The case you give at p. 1038 of the change of the colour of the leaves of Pelargonium L'Elegante, by simply twisting the leaf-stalks, is one of considerable interest, and opens up a wide field for experiment. There can be no doubt of the fact, that in many cases the first result of a check to the sap, or a bruise on the tissue of leaf, flower, or stem, is a change of colour. In the latter case, the change may simply be the result of a disarrangement of cellular structure. The normal organisation is broken up, the cells are pressed higgledy-piggledy into each other, and consequently the light is reflected or absorbed in a different manner to a different extent; and at a change of angle, the light medium being changed, a change of colour would necessarily follow. But it is not quite so easy to see why a change in the quantity or quality of the sap should result in a change of colour, and yet such changes may also be simply mechanical. Vessels fully distended with fluid will present somewhat different angles to such as are partially collapsed, and the light falling upon the latter would be reflected differently. But it is not simply that the amount of sap would be lessened by the twisting advocated, but its quality would be altered. The mere hindrance at the injured portion would affect the sap that had to wait at the barrier. The interruption would gorge the sap vessels underneath to repletion. This would force the fluids below the barrier into closer contact with the light, and thus bring a maximum amount of inspissatory force to bear upon it at that particular point. The result would be, that the sap that passed through the barrier would be thicker beyond it than if it had not been stopped; and this difference of quality, combined with the contracted state of the half-filled upper cells, would produce the change of colour. The quantity and quality of the sap being thus changed, such changes necessarily affect the structural arrangement of the leaf. The latter being altered, ever so slightly, would necessarily affect the number, rate, and direction of the rays of light reflected from, or absorbed by it. This change of quality and position of the leaves is probably the chief reason of all the varied tints they manifest throughout the season. The bright greens of the opening spring, the sober and staid colours of the summer, and the glowing tints of autumn, what are these but the reflexes of altered structure and the sure indexes of changed position? The sun impinges upon them at different angles all through the season, and very largely according to the transparency, or opaqueness of the reflector, the leaf or flower, will be the colour. Of course I am not advancing this as a satisfactory theory of colour, but simply as a reasonable explanation of the changes in the same plants throughout the season, and of others that may be artificially induced. Change of front, or of check to the colouring medium alone, has a wonderful effect upon colour. For example, take this very plant, Pelargonium L'Elegante, train it up to a stake—that is, connect it with a pillar or a pyramid—and the leaves will begin to glow into a pink at once, without any artificial tinting or bending. This is a fact that I have proved for myself, and therefore there is no uncertainty about it. Many of your readers cannot have failed to notice the two very fine pillars of this plant shown at the Royal Horticultural Show at Manchester. They were exquisite examples of cultivation, and their leaves glowed almost into scarlet from top to bottom. But none of the leaf-stalks seemed to have been twisted. If they were, of course we shall hear about it from the exhibitor whose name I regret to have forgotten. But assuming that they were not bent, whence the colouring? Why, they bent themselves. There may be exceptions, but as a rule this variety does not colour much, if at all, when running on the ground. It has shown no pink whatever with me in the flower garden. It is naturally a true Ivy-leaf, keeping close to the ground; and with leaves, hugging it pretty closely, offering up the whole surface to the sun, at nearly a right angle. Train it up to a stake or over a pyramidal trellis, and this position is much changed. The fact is, the leaf of this Pelargonium has this peculiarity—it is dense and weighty for its size and the strength of its footstalk. Hence, no sooner is an attempt made to make it grow upright, than down go the leaves to an unnatural position; and this, I believe, is the chief secret of the excess of, or the change of, colour. Mere intensity of light will produce the same effects in a modified manner. Some plants of L'Elegante grown on brackets in the spring were suffused slightly with pink. But here again the natural position of the leaves was affected by hanging down, so that is impossible to say how much of the colour was owing to the closeness to the glass, and how much to the weeping position. Scarcely any plant seems more susceptible to this pinking than the Panicum imbecile variegatum. Its beautifully green and white variegation may be made almost red by growing it in a strong light. I have seen a basket plant of this, with the very stems changed into the brightest colour, and both the white and red portions of the leaves crimsoned over with glowing brightness. The colouring of this Panicum is likewise much affected by the temperature in which it is grown. In the stove it dresses itself in its gayest colours, and is a charming addition as a basket plant among roof climbers on brackets, or covering a trellis. It is also good for running among ferneries, &c. Permit me to conclude with the following question: How is it that so many of our tricolor Pelargoniums are so much more perfectly coloured in the autumn than at any other season? That they are so, few flower-gardeners will deny. At the present moment such varieties as Lady Cullum, Lucy Grieve, Miss Watson, Mrs. Pollock, Sunset, glow their brightest just before the frost chases them away from our sight. Is it the hectic flush of coming death? But how, then, is it displayed? Is it the dying sun painting his loveliest before he sinks into winter somnolency? or is the long night of darkness preparing for him a better canvas for the fixing of its tints? or what is it? The fact of the beauty of such plants growing with the declining year must be acknowledged by all careful observers. How comes it, and by what ministry? *D. T. Fish.*

Tropæolum Bothwellianum.—One of the most effective wall plants that has ever come under my observation is the Tropæolum named above. It covered 100 yards of a wall 7 feet high that separates the quaint and beautiful flower garden at Bothwell Castle from the pleasure grounds; but it not only covered it in the ordinary way that Tropæolums do, but with a sheet of the most brilliant orange-scarlet that ever eyes beheld; and as it is probably the most valuable acquisition of its kind, and has been distributed by Mr. Turnbull to many of his noble employer's friends, I proceed to give some description of it in the interests of gardening. It is one of the Lobbianum section, and may be considered as a selected seedling several times removed off Brilliant, having much of the characteristics of that flower, with the additional decided advantages of being of denser habit and infinitely more prolific in bloom. The fine purple or claret-coloured stems, and the entire almost orbicular leaves, of an olive colour, render it very marked. To that must be added the short footstalks which carry them, and the shortness of the intervals which enable the flowers in the one case to throw themselves clearly in advance when fully expanded, and in the other to increase the yield of bloom in any given distance. The flowers themselves are of a brilliant orange-scarlet, with the two top petals adorned with black radiating lines. On the southern exposure of this north wall these flowers were literally studded along its surface, comparable only to a dense bloomed Azalea, of a colour so dazzling that none of the tribe referred to can compare with it, and with the additional advantage, on close inspection, of beautiful foliage set behind them to garnish them. I saw this on October 1, when flower gardening generally in the more inhospitable positions of the North showed most things flat and dull, and I have not exaggerated the picture. Even at Bothwell the low part of the garden was "over" in point of interest, but this and the 8-feet border adjoining it, which may be represented as an instance of a mixed border improved, and keeping pace with the "refinement" of the times, was as showy and generally captivating a piece of flower gardening as could anywhere be seen—thanks to the Tropæolum referred to, and to the parti-coloured hues of thousands of Dahlias blooming, all in grand style. All hail to the Dahlia yet as an autumn bedder, and never too fiery in effect from its plenteous clothing of leaves. Delphiniums, Stocks, and the white, blue, and orange of Alyssum, Lobelia, and Gazania, made up, with some other mixtures, a glorious *tout ensemble* that might feast the eyes of flower seekers for days and days. One other word by way of compliment to Mr. Turnbull's seedling, and that is, a portion of it was associated with the common China Rose, and the fine soft pinky blooms peeped out with immense advantage at intervals, and so would Fellenberg, or some of the selected hybrid perpetuals, only give them the chance of association. *A.*

Foreign Correspondence.

CENTRAL PARK, NEW YORK.—The general features of this park having been described (p. 1017), I will now advert to a few particulars respecting its ornamentation.

One department worthy of special attention is its Arboretum, which occupies about 40 acres, in a position selected so as to interfere as little as possible with the more special requirements of the park. It contains a collection of American and other trees, so that any one who wishes to become acquainted with the kind of arborescent vegetation that will flourish in the open air in the northern and middle sections of America may do so. This Arboretum is not arranged in a formal manner, but is so planned that all the most beautiful features of lawn and woodland landscape are presented, while it preserves intact, so far as is practicable the natural relationship existing among trees. The arboricultural student is thus enabled to find any particular trees or shrubs, which he may be in search of, without difficulty.

As regards plantations in the park generally, they have been made about 11 years, and the growth of the trees and shrubs is highly satisfactory. The style of planting for the most part is in groups or masses of one kind of tree, similar to the way in which planting is carried out in the public gardens of Milan, as well as in other public parks in Italy and France, the system being an improvement as regards picturesque effect on our parks at home, where the dotting and mixed plan of treating trees and shrubs is followed, without respect to kind, character, colour, or foliage. As regards trees and shrubs of a deciduous character, the Americans have a much richer field in which to work than we have; and the pictorial effects which they produce, especially in public parks, are, for the most part, all that can be desired.

Flower gardening seems to occupy but little attention, even in places where one might expect to find it, as in public parks and open town spaces scarcely a flower is to be met with. It is intended, however, I believe, some day to have a flower garden in the Central Park. Among the most noteworthy trees in it are, of course, the "big tree" of California, and a fine collection of Conifers in general, various Rhododendrons, including the pretty little hairy-leaved species of the Alps; nearly a dozen different kinds of Magnolia, which, when in bloom, have a rich and striking appearance; various other flowering trees and shrubs, and a good sprinkling of weeping trees.

An essential feature of most metropolitan parks is an avenue or grand promenade, level, spacious, and shady; and this has not been overlooked in the Central Park, in which there is a short but fine avenue or mall of American Elms. This is appropriately situated and has a fine effect. Our own avenue in Hyde Park, leading from Lancaster Gate to South Kensington, would doubtless be equally appreciated by the public had it a proper termination at its southern end, but unfortunately the fine monument, now being erected in commemoration of the late Prince Consort, is some 50 yards out of the line, so that the opportunity of having a termination worthy of the name has been lost. Let us therefore hope that in future park improvements more foresight may be exercised before sites for such erections as that under notice have been decided upon. In connection with the promenade in the Central Park is what the Americans term a Vine-covered walk, the "Vine" in this instance being Wistaria sinensis; this is led over a flat top, supported by means of rustic pillars placed 9 feet apart, and set in stone-encircled plant-boxes. Of the latter there are 70, and each contains one plant of Wistaria, which is trained so as to cover both top and pillars. When I saw this elegant sun-screen, which was about the 20th of May last, it was in full bloom, and of all the floral displays I ever saw, either indoors or out, I never witnessed anything with which I was so delighted as this Wistaria-covered walk. An amazing amount of surface is covered, and when in blossom few who have not seen the Wistaria flowering under American influences can have any adequate idea of its great beauty.

Of water there is plenty, and it forms a conspicuous object in the landscape. True, the great reservoirs which supply the town are placed a little too high to be seen from points from which it might be desirable to see them; but besides these there are other ornamental waters which have received skilful treatment, and which are most effective. These cover an area of nearly 45 acres, a portion of which is in the form of lakes, and some in other shapes. At one part a ravine has been opened, and a small stream of water is here and there caught in pools from miniature cascades as it falls over boulders. Numerous rustic rock fountains for supplying pedestrians with drinking water have been provided in different localities; fountains of this simple, natural character have the merit of being less expensive and much more pleasing and satisfactory than any other for park purposes. There are also large ornamental drinking basins for horses, with tazzas in their centres, furnished with cups for birds. It is also proposed to have an establishment in the park where springs and wells of artificial mineral waters may be dispensed to convalescents and invalids, as well as to the public generally; and a firm, eminent in the preparation of such waters, has, I believe, been appointed to erect an establishment of the kind. Boating on the lake is a favourite amusement, and is every year on the increase. In this way the visitor can pass an hour very pleasantly, and derive new impressions of portions of the park from the water, while the Park Commissioners get a considerable rental from the boat contractors, all of which helps towards the better maintenance of the park. These lakes, with their boats and water-fowl, have a truly picturesque appearance. Road and other watering in the park is an operation requiring great attention. There are several elevations to which water will not rise, and these have to be kept in order either by means of engines or water carts. The water distributed over the park by means of carts amounts annually to many thousands of gallons, costing in its distribution many thousand dollars. Some more economical plan of watering is, however, I believe under consideration.

That portion of the park which is termed the terrace, is extremely effective. In the valley sleeps a placid lake, while a little higher up is a noble stone basin, about 90 feet in diameter, and fountain, overlooked by a terrace set on arches, and flanked on either side by flights of steps, the whole being backed up by a fine plantation of thriving trees on grassy slopes.

Skating is a favourite pastime with the Americans in winter, and for this ample accommodation has been secured. Ice disasters are also provided against, but in a different way from that in which we manage the matter in this country. There, by a well-ordered provision, water can be withdrawn at any time from the height in which it is kept in the reservoirs and lakes in summer, to a lower level, thus leaving only a safe depth below the skaters. The ice, at a large annual expense, is kept constantly clear of snow, which sometimes falls to a depth of 90 inches during the year. It will thus be seen that between boating in summer and skating in winter, the Americans manage to get the maximum amount of enjoyment out of their ornamental waters. What, therefore, need hinder us at home from doing the same? Now that the Serpentine is about to be cleaned out, the American plan as regards skating facilities might be readily applied to it. The water could easily be withdrawn to a safe depth, while, from the fountains near the Bayswater road the ice could be fresh surfaced as often as might be required.

The comfort and convenience of pedestrians in American parks are better cared for than with us about London, for under all crossings of drives and rides subways for pedestrians are provided. These subways are not damp or uninviting; on the contrary, they are light, attractive, and ornamental, the principal one among them being used as a refreshment department. They are faced with stone beautifully dressed, and furnished and ornamented with "stars and stripes" in different colours. Cannot we introduce some improvement of this kind into our London parks, in which, as at Hyde Park Corner, for instance, people on foot have to stand waiting for lengthened periods before even the police can conduct them across in safety. In such cases elegant subways would surely be acquisitions. The principal subway in the Central Park cost a million of dollars.

As regards material for walks, which are generally about 15 feet in width, experiments have been made for several years with cement, asphalt, concrete, and pavement of various sorts, none of which have proved entirely satisfactory, though some have developed valuable qualities. Several pieces of walk have been laid down with a composition of tar, gravel, and cement, coal tar having been first used, and subsequently the ordinary tar of commerce. The appearance when the materials are properly mixed and laid down, is, as far as it has been tested, the most satisfactory of anything that has yet been tried; and it has the advantage of being dry and free from dust, while heat or cold does not diminish its practical utility.

The rusticwork employed in American decoration is of a more substantial character than with us. The seats and arbours are ample also; most of the former are furnished with canopies, the brightness of the transatlantic sun rendering shade more necessary than in England. Other buildings in this park are also of a highly decorative character, the band-house, or orchestra, having very much the appearance of those at South Kensington, while the casino, both internally and externally, is very ornamental. In front of the last-named building are a fine drive and grass terrace, with the Vine-covered walk already alluded to, the whole being finished off by means of a dwarf wall. The approaches from the lower ground to the walk are furnished with flights of 20 steps.

The entrances to the park are not yet complete, but udging from what I saw of them they will be in keeping with the surrounding objects. The names to be attached to them sound singularly to European ears. Among them are the Scholars' Gate, Artists' Gate, Artisans' Gate, Merchants' Gate, Women's Gate, Hunters' Gate, Mariners' Gate, Gate of All Saints, Boys' Gate, Children's Gate, Miners' Gate, Engineers' Gate, Woodman's Gate, Girls' Gate, Pioneers' Gate, Farmers' Gate, Warrior's Gate, and Strangers' Gate. These names have a certain significance attached to them as regards the objects to which they lead. Few glasshouses are as yet erected, but one not unlike the Palm-house at Kew with its lake in front is, I believe, in contemplation.

I may add that rockwork, in connection with water, is extensively introduced into several parts of the park, and is generally so constructed as to be of a bold, natural character. Ferns are used for the decoration of the rocks, but not in sufficient abundance. Intermixed with rock creepers, as they are here, their elegant fronds have, I need not say, a charming appearance. A rock garden forms an interesting screen to the zoological department, which is as yet badly furnished with both beasts and birds. I may note here that, with the view of gathering information on the subject of the insects of the park, a collection of caterpillars has been made, and a proper record taken of the trees which they seem to frequent. This, if well carried out, may afford some useful entomological information. Near a gymnasium is one of the largest and finest trees of Quercus rubra I ever saw; it is one of the trees saved from the natural forest, and is one of the largest in the park. A little further on, the visitor gets a glimpse of the highest ground in the neighbourhood, and here it is intended to build an observatory 140 feet high, which, together with the natural elevation of the ground, will be some 300 feet above the datum line of the river. This will form a conspicuous object, seen either from the casino, refreshment pavilion, mall, or terrace.

Before leaving this Central Park I may add that flowering shrubs, especially Cornus florida and Magnolias, bloom beautifully in it; its water, islands, bridges, which are mostly of a rustic character, its rides, drives, terraces, and avenues are all on a grand and effective scale; and when the band plays on a fine summer evening, one feels that it is what it should be, truly a place for recreation and enjoyment. *Joseph Newton, Oxford Terrace, Hyde Park.*

Notices of Books.

Transactions of the Woolhope Naturalists Field Club for 1868. (Hereford.) 8vo, pp. 277, cuts and photographs.

A day with a field club in fine weather is almost as enjoyable as a day with the hounds, far more so to some people. In most cases, on such occasions, a great deal is said which, however apposite it may be at the time, is hardly worth recording, unless in the columns of the local journals. The managers of some of these bodies, however, think differently, and the result is that their "Transactions" too often contain a vast amount of twaddle, a large proportion of crude compilation, and a *minimum* of honest observation. Let us hasten to say that these remarks do not apply, except to a very limited extent, to the volume before us. There is in it, indeed, a slight infusion of what is very pleasant to read of in the county paper a few days after the event, but which is apt, when reproduced in the "Transactions" after a year's interval, to lose its interest. But in the case of the Woolhope Club the proportion of chaff to grain is really very slight, and the papers on local geology and natural history are admirably adapted to convey sound and accurate information, and to excite an interest among the residents in the natural features of their district. The Woolhope Club is fortunate in possessing among its members several accomplished naturalists, who appear thoroughly to understand what are the legitimate objects of such a club, and what are the best means of carrying them out. Two special subjects of investigation, in addition to the general natural history of the county, engage the attention of the club, viz., the remarkable trees of the district, of many of which, in this as in former volumes, small but characteristic photographs are given, and the edible Fungi, of which, also, some excellent coloured figures are supplied. By way of illustration we may cite a passage from a paper of Dr. Bull's, on the Elm:—

"The English Elm, in ordinary Herefordshire soil, will grow more rapidly than that most vigorous growing of all the varieties of the Wych Elm, the Chichester Elm, a tree that in suitable soil will often make shoots of from 6 to 10 feet long in a single year. The actual experiment has been made. Planted side by side the English Elm grows more quickly, and general observation here seems to confirm it. I wish to lay stress on this point, because it seems to explain the complaint that has met me from several quarters, that the English Elms you buy now are 'such poor Elms that they won't grow well, and no dependence is to be placed upon them.' The fact is, the English Elms are now sent out grafted on the Mountain, or Wych Elm; they make wood much more rapidly, and have not the disadvantage of sending up suckers from the roots. 'I think I may say, sir, that grafted English is universal in the trade' was the result of my inquiries of a nurseryman. So long as the tree is planted in the rich loamy soil, so prevalent in nurseries the advantage is undeniable, a larger tree is grown in a shorter time, and equally good; but remove it to the ordinary stiff clay loam of the county (Hereford), and the roots of the Wych Elm rebel. The tree may grow, but will not thrive. The conclusion is evident. If you wish to plant English Elms in common soil, you must get them on their own hardy rootstocks; and to do this you must make a home nursery, and grow them from suckers yourself."

A little more editorial care in revising the proof-sheets would be advisable in future years, not only as to the correct rendering of scientific names, but also as to the list of honorary members, among whom we find the names of some, such as Professor John Lindley, who have paid the debt of Nature; Professor John Phillips, too, is still stated to reside at St. Mary's Lodge, York, though it must be some 14 years since he migrated from the northern city to Oxford. But these are minor blemishes, not seriously impairing the value of a very interesting volume.

Catalogues Received.—H. Lane & Son, Roses, Fruit Trees, &c.; W. Ball, New and Rare Plants; J. Scott, Nursery Stock—T. Waters, Fruit Trees, Roses, &c.—W. Paul, Rose Catalogue—Paul & Son, Rose Catalogue; Ewing & Child, General Catalogue—T. Bevan, Flower Roots.—W. Armitage & Son, Bulbous Roots, &c.—T. S. Ware, Trees, Shrubs, &c.; also Spring Flowers—W. Wood & Son, Catalogue of Roses; also Fruit Catalogue; and Hardy Ornamental Trees—T. McKenzie & Sons, Dutch Bulbs—J. J. Crocker, General Descriptive Catalogue—W. Robinson & Son, Dutch and other Bulbs—S. Glendinning & Sons, Dutch Bulbs—G. Lee Brown & Son, Wholesale Catalogue—C. Turner, Roses, Fruit Trees, &c.; also Pelargoniums, Auriculas, &c.—Vilmorin Andrieux et Cie., Catalogue des Fraisiers—Martin Muller, Arbres Fruitiers—Lévêque de Vilmorin, Catalogue Général—V. Lemoine, Prix Courant—Eugène Verdier fils aîné, Glaïeuls, Pivoines, Roses, &c.—M. Koster & Son, Trade List of Nursery Stock—D. Dauvesse, Catalogue Général.

Garden Memoranda.

Meadowbank, the residence of Thomas Dawson, Esq., is situate seven miles south of Glasgow, in a very quiet part of the country, and is of easy access by railway from the Southside station. This spot cannot fail to attract the notice of travellers by the Caledonian Railway, after crossing the Clyde near Uddingston station, from the extensive ranges of glasshouses, and neatly kept grounds, which at once suggest the idea of a village of glass, surrounded by a miniature park, and reminding one of old stories of moats and fortifications; being skirted on the west by the river Clyde, on the north by the embankment of the Caledonian Railway, on the east by the Uddingston turnpike-road, bounded by a substantial stone wall, on the south by the kitchen garden wall, gardener's house, &c.—access to this garden of treasures being by a small door in the boundary wall.

The first thing to attract the notice of the visitor is the enchanting but unpretending appearance of this garden and châtelet of modern times,—

"Where Scottish scene does sit serene,
And Flora's beauties reign supreme,"

—the residence and the grounds being alike free from any attempt at architectural grandeur, while Mr. Anderson has made the most of the ground by a series of successful and happy combinations of hardy and half-hardy plants, which are at the same time both pleasing and picturesque. In the more exposed parts of the grounds many half-hardy plants had suffered much from the frost at the end of August. The glass erections are 16in number, and appear to have been built at different times, according to the requirements of an ever increasing collection; but, from their neat and clean appearance, bear ample evidence of being well cared for.

The collection of Orchids, for which this place is justly celebrated, is in itself unique; and, doubtless, a list of some of the best specimens will be very acceptable to many of your readers, particularly the long list of species in flower on the occasion of my visit on September 17. Having recently visited some of the leading London and other gardens, I was frequently asked what was to be seen at Meadowbank, and some little surprise was expressed by some, and a little disappointment by others, on learning that my visits were few and far between. I trust this short, but very incomplete list, may be the means of satisfying their wants to some extent, while to others it will be a means of extending their knowledge of species which may be had in flower at this season. To attempt anything like a detailed account of this wonderful collection would occupy too much space in your pages. I shall, therefore, confine myself to some of the most remarkable specimens, and to the general species in cultivation in most collections, more as a means of showing the various subjects cultivated together in the same house at this season, than to enter into a description of the numerous varieties with which the collection abounds, not only of those which are described, but those also which are undescribed. Of the latter I had the good fortune to find three in flower.

House No. 1 contained, amongst many others, in flower, the following, which create at this season a magnificent display:—Miltonia Regnelli full of flower, five spikes; Zygopetalum rostratum, fine; Aerides quinquevulnerum, several fine specimens in flower, one of the finest I ever saw producing six unusually strong spikes on a single stem; several varieties of Vanda tricolor, one very scarce, *i. e.*, Vanda tricolor meleagris; Cypripedium Stonei, one stem with three fine flowers; Miltonia virginalis, associated with M. Moreliana, a specimen 2 feet across, full of flower, the striking contrast of colour producing a grand effect; Epidendrum cochleatum major, fine; the Java variety of Aerides suavissimum, with four fine spikes; Dendrobium formosum, with one lead and two flowers; Vanda cœrulea, with one strong spike; Oncidium barbatum, several plants of this lovely species making a grand display; Lælia elegans, in several varieties, one in particular far surpassing anything I ever saw before, both for size and depth of colour, being much darker than any of the varieties called Turneri, of which there is a fine example in flower in the same house. Cymbidium Mastersii, good; as also the old Cattleya guttata; two plants of Miltonia Clowesiana, with 13 spikes each; Aerides Thibautianum, with five noble spikes; two plants of Eriopsis rutidobulbon, with two and three fine spikes respectively; Cattleya Leopoldi, a glorious lot of plants, mostly getting past flower; a hybrid Cattleya, between guttata and Loddigesii, partaking in a marked degree of the characters of both parents, the growth being not quite so strong as is usually seen in C. guttata, while the sepals and petals, flushed with a delicate shining rose, are of the same size as and spotted like guttata, with a labellum indicative of its close affinity with Loddigesii,—

altogether a lovely plant, with an apparently strong constitution; Miltonia Clowesiana superba, with extra large flowers; Miltonia virginalis, also fine; Zygopetalum Mackayi; Cattleya speciosissima, one of the most showy species at this season; Miltonia Moreliana, with 22 flowers; Saccolabium Blumei majus, Calanthe veratrifolia, Vanda suavis, Oncidium Batemanni, Oncidium Papilio, Cypripedium Hookeræ, Cattleya Aclandiæ, the good old Cœlogyne speciosa, a grand plant, near 3 feet across, full of bloom; one of the finest of all the Miltonias, candida Jenischiana, four fine spikes, with flowers of unusual size and colour, in both respects reminding one of Odontoglossum Insleayi, with the lip of Miltonia candida grandiflora, only brighter in colour and double the size. Cattleya Trianæ and its varieties will shortly make a fine display in this house, there being many specimens with from five to ten sheaths each in luxuriant health. From the roof are suspended grand specimens of Dendrobium Cambridgeanum, D. cumulatum, Limatodes rosea, Calanthes in varieties, &c.

House No. 2.—One of the grandest features which meet the eye on entering this house is the unique specimen of × Cattleya exoniensis, Mr. Dominy's greatest achievement, and certainly one of the most beautiful Cattleyas in cultivation. This specimen has 13 growths or leads, which will convey some idea of the size of the specimen; it was just beginning to unfold its flowers, which at a hasty glance would remind one of the most brilliant variety of C. labiata: the specimen in question would doubtless be undervalued at 150 guineas. There were also grand examples of the following in this house:—Cattleya Mossiæ, the Syon House variety, with several leads; also Cattleya quadricolor, C. Dawsoni, C. maxima, C. Mossiæ, C. marginata, C. Aclandiæ; Dendrobium thyrsiflorum, with growths 2 feet 6 inches in length; Oncidium nebulosum, showing for flower; Oncidium Kramerianum, O. sessile, Burlingtonia fragrans, and many other grand specimens.

House No. 3 is rather a span-roofed pit, but of large proportions, having no path inside; the cool end of this is devoted to the cultivation of Odontoglossums, and a few other plants requiring similar treatment, and the warmer end to a collection of seedling Amaryllis, and, judging from the exuberant growth of many of the Odontoglots contained in this pit, it answers the purpose admirably. A long stage, covered with gravel, occupies the centre of the pit, and is of such a thickness as to exclude any direct circulation of air or heat from the pipes below; while the heat rising from the sides disperses itself more evenly, and is a check against a sudden current of cold air from without, the lights having to be tilted in front in the usual way. To enumerate the species of Odontoglossum contained in this pit would alone make a long list, and many of the species are represented by the score, some of the following being unusually fine:—Odontoglossum nebulosum, O. Alexandræ, O. Pescatorei, O. luteo-purpureum, O. latro, &c.; Oncidium caudatum, the rare Masdevallias, quite at home, as well as many other gems. *Robert Bullen, Curator, Botanic Garden, Glasgow.*

(To be Continued.)

Garden Operations.

(For the ensuing week.)

PLANT HOUSES.

VERY careful management will now be required in *Heath-houses* as regards their requirements, under the varying fluctuations of the external temperature, &c. In regard to the inmates, greater attention will be requisite in respect to those varieties, whether of the true *Ericas* or their near allies the *Epacrises*, which are cultivated amidst the various drawbacks always associated with houses in which mixed collections are kept, such, for instance, as many of our greenhouses and semi-conservatories. In either case, a cool temperature, free from any form of draught, is of the first importance. Too dry an atmosphere, or one too densely charged with moisture, are alike objectionable. Then, again, a sour stagnant soil, whether caused by imperfect drainage or a too retentive compost, through an insufficiency of sandy matter, or from the pots becoming dirty on the outside, tends to cause unhealthiness at the root. However trivial the original causes may be, ill health quickly increases in intensity, and hence the need of carefully guarding against these and all similar apparently trifling circumstances. Dispense with artificial heat as much as possible to the last. Covering the exterior of low-roofed houses or roomy pits with mats, as a protection against frosts of moderate intensity, is much better than a resort to fire-heat, however little. In connection with the above, I may refer to another lovely genus, namely, *Leschenaultia;* similar treatment to that which is given to *Heaths* will suit them well, the same attention to trifles being also equally necessary in this case. They thrive best when placed near to the glass, and seldom do better than when elevated to within a few inches of it. Both are very liable to the attacks of mildew, which can only be prevented by keeping the atmosphere moderately dry and fresh. The only safe cure is to apply a good dusting of finely-powdered flowers of sulphur all over. There is also another family of Australasian plants, to which the above remarks may be applied with much force. I refer to the fragrant and beautiful *Boronias*, and especially to *B. serrulata.* These are equally impatient of heat, draught, or damp, and especially dislike being kept over-moist at the roots. Added to which I may draw attention to a fact of no little importance, which is too frequently overlooked in regard to these latter. As is well known, the native habitat of *Boronia serrulata* is a somewhat protected locality upon the coast of New Holland, where it is enabled to fully develop and to ripen well the wood it annually makes. Now we too frequently overlook this fact. With a little extra heat we may somewhat hurry the growth onward, and then by placing the plants in a moderately exposed, dry, and sunny aspect, we may ripen the artificially formed wood in like manner. Hence, much of the ill-success will be done away with, as the want of a better developed wood-formation is often the cause of the ill-health of this particular species. Let the temperature in all stoves be gradually reduced to an average of 60° by night for the next few weeks, bearing in mind the fact that to start any hard-wooded plants into growth which should now be resting, will be to irretrievably spoil them for a good summer display.

FORCING HOUSES.

All that is required in *Late Vineries* having fruit still hanging, is a minimum temperature of about 40°. This should be constantly maintained by the aid of very slight fires on frosty nights. During fine bright warm days persist in keeping the house as cool and airy as possible, so as to keep the berries from any material change. Remove every symptom of decayed or decaying leaves, and so keep all sweet and wholesome. In regard to *Pines* there may be instances where, for want of more room, the sucker-cuttings have been potted, and placed on a temporary hot-bed composed of fementing materials alone. Here, in an atmosphere best suited to them, they root and grow freely; but they must not be permitted to remain in such a place one day longer than is necessary at this time, otherwise they will become drawn and weakly, and will not prove so stocky as they should be to form a basis for producing good fruit. A drier atmosphere, with a gradually reduced temperature, must, therefore, be sought for them. Be careful in regard to watering all young successionals, those near to flues or other heating mediums will require more frequent supervision in this wise. Get the lights ready for placing upon *Peach* and *Nectarine* houses without further delay, and let them now be put on at the earliest opportunity.

HARDY FRUIT GARDEN.

Persist in wisping off the ripening leaves upon *Peach* and *Nectarine* trees. Already these are very late before they part, and I fear the wood will not be fully ripened, causing the many evils attending such a state to follow, such as gumming, &c. The removal of all leaves at the earliest moment, therefore, becomes a matter of importance. In view of the above facts, I do not advise that the wood should be loosened from the walls quite so soon this season, but rather to keep it attached a week or two longer that the sun may act more powerfully thereon. Do not longer delay the necessary plunging to the pot-rim of all *Strawberry* plants intended for forcing, or others potted up for transplanting out in the early spring, as a protection against frost.

HARDY FLOWER GARDEN.

Those who do not make a display with spring blooming plants, by means of planting those that will flower early into the beds immediately the bedding stuff has been removed, should, now that the frost has destroyed the beauty of the summer plants, have all vacant borders immediately forked or dug up and finished off neatly without delay. It will be advisable at the same time to give the borders or beds a moderate dressing with manure, which, if forked in thus early, will become thoroughly incorporated with the soil, and lose much of that crude strength which is apt to cause strong sappy growth, and comparatively little flower. Where spring bedding is adopted no further delay should now take place in regard to getting all the necessary subjects planted in their permanent blooming quarters. As regards height I may say that the pink *Silene pendula* may be planted in the centre of beds containing either the blue or white *Forget-me-Not.* The thicker these latter are planted now, so much the more densely will the bloom be at flowering time. The stronger the plants of any of the above are now, the sooner by a week or two will they bloom in the spring. This is a matter of some importance, to which I believe I before referred, at the time of sowing. As edgings to the Forget-me-Nots, either the lovely little *Saponaria calabrica, var. rubra,* the *yellow bedding Pansy* or *dwarf Tulips*, &c., will match well. Whilst the white variety of *Saponaria,* the *Clarkias, Collinsias, Limnanthes, Nemophilas*, &c., would do well to edge the Silene or others to which their flowers afford a proper contrast. *Wallflowers* will transplant well at this time, if proper care be taken not to injure the roots, and a good soaking be given to them immediately after being planted. I would advise that all grass plots which did not happen to be mown last week, be mown during the incoming one, commencing with the 1st of October; that is, if sharp frosts, and such as are likely to stop such work, do not prevail.

KITCHEN GARDEN.

Do not delay any longer the necessary taking up and housing of all root crops, such as *Carrots, Beet, Salsafy, Scorzonera*, &c., which have been left out so long to insure a more perfect growth. It would not be safe to risk them longer after this date. I suggested a week or two since that the main crops of Beet-root should be stored away out in the open borders, and clamped precisely in the same way as Potatos habitually are. The same remarks apply with equal force to the keeping of *Carrots*, as the crop lasts far better so treated, than when the roots are packed in dry sand or in underground cellar-like places, where the air can penetrate to them pretty freely, and where dry-rot and other similar evils are known to exist and to multiply greatly. Remove as much of the surface growths as will part freely both from *Rhubarb* and *Seakale.* Give the former a sound dressing with good rotten manure, and keep the latter free of weeds or other litter likely to keep the sun and air therefrom, each of which should now have uninterrupted play, duly to ripen off the crowns, preparatory to the process of early forcing. *W. E.*

TOWN GARDENING.

THE *Golden Rod, Double Sunflower*, and *Michaelmas Daisy*, particularly the latter, of which there are many varieties, are very showy plants for towns. These, like all other plants, are improved by cultivation, which unfortunately they seldom receive, for, in most instances, when once planted they are allowed to remain for years undisturbed. One would suppose from their rubbishly appearance that they were only grown to harbour insects. If these are divided into separate shoots, and planted three in a patch, and neatly tied up as they progress in growth during summer, they would produce a gay appearance, and well repay the trouble bestowed on them. The *Fraxinella* (*Dictamnus albus*) is a plant that will do well in any open space, throwing up pyramids of flowers 2 feet 6 inches in height, and emitting an odour like that of lemon peel. For its beauty and fine scent it should be introduced into every town garden; and now is the season to remove it, or to propagate it, by dividing the root. The *Epilobium*, or Willow herb, is valuable in shrubberies as thriving under the drip of trees, and succeeding everywhere. It grows about 3 feet high; the roots should be planted in patches about 4 inches deep. This is likewise a good season for dividing and transplanting the *Iris germanica*, an excellent plant for town gardens. As soon as the *Dahlias* and *Marvel of Peru* are touched with the frost they should be cut down to within 3 inches of the ground, taken up and placed to dry for a few days, when they should be put away for the winter, either in a cellar, or in a pit dug in the ground, covered with straw, and banked over with mould to keep out the frost. By this method the roots keep plump and fresh, and start freely in spring. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending Oct. 27, 1869, as observed at the Horticultural Gardens.

October.	Moon's Age.	Barometer.		Temperature. Of the Air.		Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
		Max.	Min.	Max.	Min.					
Thurs. 21	16	30.220	30.124	56	25	40.5	50	49	N.	.00
Friday 22	17	30.399	30.326	50	42	46.0	47	48	W.	.00
Satur. 23	18	30.273	30.113	54	46	50.0	50	49	N.	.08
Sunday 24	19	30.167	30.108	57	26	41.5	51	49	W.	.00
Mond. 25	20	30.194	29.869	53	38	44.5	48	49	N.W.	.00
Tuesd. 26	21	29.879	29.804	50	23	36.5	50	49	N.	.00
Wed. 27	22	29.732	29.682	42	22	32.0	47	48	N.W.	.00
Average		30.123	30.004	51.7	31.4	41.5	50.4	48.7		0.08

Oct. 21—Densely overcast; cloudy, but fine; clear at night.
— 22—Frosty, foggy; densely overcast; overcast and cold.
— 23—Densely overcast throughout; rain at night.
— 24—Cloudy, very damp; fine, but cloudy; clear at night.
— 25—Densely overcast, foggy; very fine; cloudy.
— 26—Very fine and clear; cloudy, cold wind; clear and frosty.
— 27—Very fine, frosty air; clear and fine; fine and frosty.
Mean temperature of the week, 6½ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 43 years, for the ensuing Week, ending Nov. 6, 1869.

October and November.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..31	51.0	39.0	46.0	22	0.88 in.	1	5	5	4	2	14	10	4
Mon. .. 1	54.3	37.9	46.1	25	0.58	3	2	6	3	4	9	13	3
Tues. .. 2	54.4	37.3	45.8	19	0.61	2	4	6	3	2	16	3	7
Wed. .. 3	53.5	35.9	44.7	19	0.82	2	3	10	—	7	10	9	2
Thurs. .. 4	52.1	36.6	44.3	22	0.44	3	5	8	1	7	9	8	2
Friday .. 5	52.9	37.2	45.0	20	0.69	4	5	4	4	5	13	4	4
Satur. .. 6	52.4	36.9	44.7	19	0.76	2	9	2	3	5	14	7	2

The highest temperature during the above period occurred on the 31st, 1854—therm. 67 deg.; and the lowest on the 5th and 6th, 1868—therm. 20 deg.

Notices to Correspondents.

BARNES TESTIMONIAL. Mr. Pottle, Gardener, Little Bealings, Woodbridge, *5s.*

CLOCHES: *J C*, and others. Messrs. Hooper & Co., Central Avenue, Covent Garden Market, W.C., have these on sale.

CORRESPONDENCE: *J S, Nuncham.* The publication of your letter would injure the cause you have at heart.

FERNS: *W T.* Lastrea rigida, Adiantum Capillus-Veneris, Nothochlæna lanuginosa and Maranta, Ceterach officinarum, Cheilanthes fragrans, Cystopteris fragilis and regia, Scolopendrium vulgare.

FUNGUS: *Sigma.* Your Fungus is Clavaria pistillaris, Linn. The fructification is totally different from that of Verpa. *M J B.*

GROWING GRAPES FOR PROFIT: *A B.* It is rather beyond our province to advise you as to how you can best make money by your Grapes, money-making in whatever shape or form being rather a difficult matter now-a-days. To attain success in any undertaking requires a practical knowledge of the subject; and much depends upon surrounding circumstances. There is firstly the production, secondly, the selling of the same, which is the most important. One man may at one place, for example, dispose of a crop of fruit at just double what another may be able to secure. When can you most readily dispose of your fruit? Where firing is costly, late Grapes will generally pay better than early forced fruit. If you force your Vines one season they will more readily bear forcing the year following. It is quite a mistaken notion of yours that they should have a rest every third or fourth year. Cultivate them properly, and every year they will repay your trouble by a satisfactory crop.

LATE FRANKFORT CAULIFLOWER: *W. Drummond & Sons.* The "heads" sent were large, compact, and very white; when cooked they were not particularly good; but being very late in coming into use, it may be considered a good useful variety.

NAMES OF FRUITS: *A G. Pears:* 1, Beurré Clairgeau; 21, Bon Chrétien d'Hiver; 4, Duchesse d'Angoulême; 19, Beurré Rance; 23, Gansell's Bergamot; 22, Glou Morceau; 6, Old Crassane; 15, Figue de Naples; 16, Beurré Van Mons; 13, 13, Belle et Bonne; 14, Autumn Colmar; 8. Chaumontelle; 3, 7, 9, 11, 17, quite rotten. *Apples:* 1, Perle Reinette; 4, probably Lemon Pippin; 6, Borton Russett; 8, Bath Apple; 10, a small Alfreton; 11, Winter Codlin; 9, Hollandburgh, 13, Hawthornden; 21, Round Winter Nonsuch.—*Charles Turner, Pear:* Hacon's Incomparable.

POTATOS: *R. Headly.* Your seedling Potatos were quite first-rate; white, mealy, and excellent in flavour.

ERRATA. At p. 1114, col. c, 5 lines from the bottom, read *Mr. W. Lee* instead of *Mr. Moor.*

COMMUNICATIONS RECEIVED:—J. M.—T. S.—G.—A Sub.—A Correspondent.—J. C.—Stowkley.—J. O. W.—G. J. C.—S. L.—D. T. F.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY (Limited),
CORN, SEED, MANURE, and OILCAKE MERCHANTS.
Address, 20, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and prices post free on application. Prize Medals, 1851 for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Seed Potatos.

H. AND F. SHARPE'S WHOLESALE LIST of all the new and best varieties of Early and Late POTATOS is now ready, and may be had on application. The quality is very fine, and prices low.
Seed Growing Establishment, Wisbech.

FOR IMMEDIATE SALE, about 2 tons of MONA'S PRIDE POTATOS, at 1s. 6d. per stone; also a quantity of SORBUS DOMESTICA TREE SEED (the true Service), at 2s. 6d. per lb., now seed.
Apply to the Proprietors of the Onchan Nursery, Isle of Man.

RICHARD WALKER has the following to offer for cash:—Splendid SEAKALE, for forcing, extra fine, 10s. per 100; fine GIANT ASPARAGUS, for forcing, at £1 per 1000, or 3s. per 100; ROBINSON'S CHAMPION DRUMHEAD CABBAGE plant at 2s. 6d. per 1000.
RICHARD WALKER, Market Gardens, Biggleswade, Beds.

Prize Pedigree Wheat.

JAMES CARTER AND CO. offer the following choice samples of SEED WHEAT, grown from Prize Stocks, with the utmost care in Selection, &c.:—
TALAVERA WHITE WHEAT.
SHIRREFF'S BEARDED WHITE WHEAT.
ROUGH CHAFF WHITE WHEAT.
FENTON WHITE WHEAT.
Price 16s. per bushel, or 110s. per quarter. Stock limited.]
WHEAT, other leading varieties, for Seed.
BARLEY, leading varieties, choice samples, for Seed.
OATS, leading varieties, choice selected samples, for Seed.
Lowest prices on application.
JAMES CARTER AND CO., the Royal Seedsmen, 237 and 238, High Holborn, London, W.C.

H A L L E T T ' S

PEDIGREE HUNTER'S WHITE WHEAT,

ALSO THE

ORIGINAL RED.

Price, including bags, Five Guineas per Quarter, by the Quarter or Half-quarter; One Guinea per Bushel for less than a Half-quarter, delivered at the Brighton Station, in bags sewed up, sealed, and containing Printed Directions for Planting, upon receipt of Cheque or Post Office Order, without which it will not be sent to unknown Correspondents. Less than a Bushel not supplied.

Apply to Captain HALLETT, F.L.S., The Manor House, Brighton.

LAWES' WHEAT MANURE, for AUTUMN SOWING, now ready for delivery.
All other Manures and Cakes as per Price List, supplied on the lowest terms. Apply for prices, &c., to JOHN BENNETT LAWES, 59, Mark Lane, London, E.C.; Dublin, and Shrewsbury.

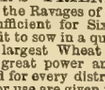
THE LONDON MANURE COMPANY
(ESTABLISHED 1840)
Have now ready for delivery, in fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES.
Also Genuine PERUVIAN GUANO, and NITRATE of SODA ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c. E. PURSER, Secretary.
Offices, 116, Fenchurch Street, E.C.

REES AND CO.'S BIPHOSPHATED PERUVIAN GUANO (Registered Trade Mark, Flying Albatross), is now ready for delivery in quantity and in fine condition. It is believed to be the best Artificial Manure yet produced. Its base is Peruvian Government Guano; it contains 21 per cent. of Soluble Phosphates, 6 to 7 per cent. of Ammonia with Salts of Potash. See reports of Dr. Voelcker, Dr. Anderson, Professor Way, Mr. Ogston, and Mr. Sibson. Delivered in 2 cwt. bags, each of which is secured by a leaden seal, bearing the Company's Trade Mark. The analysis is guaranteed so long as the seals remain unbroken.
Agents for the North of England—Messrs. Keighley, Maxstead & Co., Hull. [Aberdeen.
Agents for Scotland—Messrs. Richard Connor & Co., Glasgow and
Agents for Ireland—Messrs. R. F. Gladstone & Co., Dublin.
REES AND CO.'S Biphosphated Peruvian Guano Company (Limited), 32, King William Street, London, E.C.

Autumn Sowing.

ODAMS'S NITRO-PHOSPHATE or BLOOD MANURE for WHEAT.—This Manure, specially prepared for Autumn Sowing, is rich in Ammonia, Phosphates, and other ingredients required for the healthy growth of Grain Crops. Analysis of Blood and the grain of Wheat show that they are nearly identical in composition, hence the value of Blood as an ingredient in Manure. It may be applied at the rate of from 3 to 4 cwt. per acre, according to the condition of the soil, either drilled with the seed or sown broadcast; if the latter, it should be well harrowed in. Prepared by the Patent Nitro-Phosphate or Tenant-Farmer's Manure Company, whose Members are Cultivators of upwards of 50,000 acres of land, which has been for years under management with Manures of their own manufacture; consequently the Consumer has the best guarantee for the genuineness and efficacy of the Manures manufactured by this Company.
Particulars will be forwarded upon application to the Secretary, or may be had of the Local Agents. C. T. MACADAM, Sec.
Chief Offices, 109, Fenchurch Street, London, E.C.; Western Counties Branch, County Chambers, Exeter; Irish Branch, 40, Westmoreland Street, Dublin.

MASTIC L'HOMME LEFORT (the new French Cold Grafting Wax), indispensable for Budding, Grafting, Healing, Stopping Bleeding, &c. In tins, 6d., 1s., 2s., 4s., and 6s., of all Seedsmen, and
HOOPER AND CO., Covent Garden Market, London, W.C.

Wheat  Sowing.

DOWN'S FARMER'S FRIEND for Preventing the Smut in Wheat, and the Ravages of the Slug, Grub, and Wire-worm. A 9d. packet is sufficient for Six Bushels of Seed Wheat, which can be dressed and fit to sow in a quarter of an hour.
Testimonials from the largest Wheat Growers in the Kingdom, bearing testimony to its great power and efficacy, may be had of Agents, who are appointed for every district.
Full directions for use are given with each packet.
Prepared at the Manufactory, Woburn, Beds.
CAUTION.—To guard against fraudulent imitation and consequent disappointment, see that the signature of HENRY DOWN is on the label.
Agents in every Town throughout England, Scotland, and Ireland.

THE BIRMINGHAM CATTLE and POULTRY SHOW.—The TWENTY-FIRST GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS, and IMPLEMENTS, will be held in BINGLEY HALL, on SATURDAY, MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 27, 29, and 30, and December 1 and 2, 1869, when PRIZES to the amount of nearly £2100 will be awarded in the following Divisions, viz.:—

FAT CATTLE	£807 19 0	BREEDING PIGS	£77 2 0
FAT SHEEP	310 8 0	ROOTS and CORN	76 16 0
FAT PIGS	59 11 0	POULTRY and PIGEONS	747 14 0

Prize Lists, Certificates of Entry, and every information may be obtained from the Secretary.
The ENTRIES CLOSE on MONDAY, November 1.
JOHN B. LYTHALL, Secretary.
Offices, 39, New Street, Birmingham.

SMITHFIELD CLUB FAT CATTLE SHOW.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY afternoon, December 6, and Four following Days.
Intending Exhibitors are requested to apply for Certificate Forms by the reference letters as under.

CATTLE.—Form A.	For an OX or STEER (in any Class).	
	" B.	For a COW or HEIFER (in any Class).
	" C.	For a BEAST in Extra Stock.
SHEEP.	" D.	For a PEN of three WETHERS (in any Class)
	" E.	For a SINGLE SHEEP in Extra Stock.
PIGS.	" F.	For a PEN of three PIGS (in any Class).
	" G.	For a SINGLE PIG in Extra Stock.

ENTRIES for LIVE STOCK CLOSE NOVEMBER 1.
Prize Lists, Forms of Certificates, and all information may be obtained on application to Mr. DAVID PULLEN, Assistant Secretary, at the Office of the Honorary Secretary, corner of Half-Moon Street, Piccadilly, London, W.
N.B. All communications respecting the Show must be addressed to the Assistant Secretary, as above, and should bear outside the words "Smithfield Club Show."

The Agricultural Gazette.

SATURDAY, OCTOBER 30, 1869.

MEETINGS FOR THE ENSUING WEEK.

Nov. 2 { London Farmers' Club (Mr. J. Howard, M.P., on Continental Farms), at Salisbury Hotel—6 P.M.
— 3 { Central Chamber of Agriculture (Present unsatisfactory Method of Taking the Corn Averages, and the Need of a Uniform System of Weights and Measures), at Salisbury Hotel—11 A.M.

"AGRICULTURE is too big to be moved much by any number of steam-tugs." The writer of this sentence could hardly have remembered the enormous power of the steam engines which are now being brought to bear on the work of steam tillage! He had not thought of the Buscott 30-horse power engines which "get over" more than 30 acres daily of stiff clay ground! He did not know that Mr. CAMPBELL is contemplating the use of 100-horse power in a single field! Surely a steam-tug of these dimensions must move English agriculture, however "big" she be! But, indeed, we need not imagine from the quoted sentence anything more than that the writer was urging the undoubted truth that agriculture includes much that is beyond steam-power, whatever quantity of it be brought to bear—much to which directly it cannot be applied. He did not mean to disparage steam-power. He only desired to point out that Life and the Individuality of plant and animal, and the chemical tendencies and character of atoms, limit the power of the farmer, whatever may be the aid derived from steam. Steam-power cannot force the circumstances proper for the Turnip upon the acceptance of the Wheat-plant—it cannot of itself enrich soil which is barren by reason of the absence of fertilising matter—it cannot maintain the life and vigour of a biennial plant after it has matured its seed. There is much beyond its power, and agriculture, which includes the whole, is "too big" to be moved by it alone.

There is much, however, undoubtedly that it does move most effectually. Indeed so great a part of agriculture consists of the proper tillage of the soil, so much of all depends on this one item, that we may say not only that the agriculture of particular localities and farms, but that the agriculture of whole districts—that English agriculture generally in fact, is being benefited by steam-power. Messrs. FOWLER & Co.—one likes to feel a continued indebtedness to the name—are as a matter of fact pulling the agriculture of all England along. So is Mr. SMITH, of Woolston. The steam plough works at Leeds are virtually in themselves a spoke in the great wheel of English agricultural progress. On a recent visit we were glad to hear of the great demand for engines of great power which now exists. The essential point to be desired is that the clay lands of the country be deeply broken up and tilled. Whether that is done by engines let out on hire or by engines owned by the tenants of the land, matters nothing to an outsider interested only in the due tillage of the land. But the facts before us prove unquestionably that the contract system is extending, that an increasing number of engines of great power are being issued to companies and firms who undertake the cultivation of the land at so much per acre; and that farmers of plough land, without any need of increased capital—with, indeed, a diminished need of capital (for they can dispense with horses in the neighbourhood of a good steam plough)—are getting all the advantages of steam cultivation.

Agriculture includes the cultivation of animals and plants as well as soil; and steam-power has hitherto had comparatively little influence upon these other departments of its field. A good herdsman has been hitherto supposed to be a man of quiet, easy, kindly temperament, dealing gently and leisurely with the living creatures he has charge of—a man as far removed as may be, in idea, from that of the snorting, reckless, irresistible steam-horse. But even he (with the living creatures which he tends) is dependant on the fertility of the farm, and that again hinges very much—not exclusively, indeed, but still materially—upon a well-tilled soil. The writer of our text was right in his assertion that fertility depends on other things as well as on that process of aëration and pulverisation which we call tillage—he was right in pointing out that fertilising matter from without needs to be actually added to the soil from the manure heap or the factory, as well as in admitting that fertilising matter from within needs to be made accessible by tillage, in order to the best result. But most people will, we think, pronounce him wrong if, without the qualifications we have pointed out, he should persist in saying that "Agriculture is too big to be moved much by any number of steam-tugs."

THE relative positions of the agricultural and town labourer is a very good subject for the labourer himself to discuss; but we doubt whether much service is done by bringing it under the notice of a Farmers' Club. The jury, whose verdict alone is material to the issue, generally arrive at their decision without much consultation with members of Agricultural Societies and Chambers: and there can be no doubt as to which way their award is tending. Our increase of population takes place mainly through our towns; and the class calling themselves agricultural labourers have with each decennial census been for many years decreasing. No doubt a young man, whether in this class or any other, is often incompetent to judge what is for his true interest, but it is not always till he comes of age that the decision in his case is delayed. If he has entered young enough as ploughboy, he will rarely change his lot, unless, indeed, unfortunately, he should be caught up by the recruiting sergeant. It is thus with the father that the determination of his future generally rests. And a jury of labourers, partly fathers and partly grown-up sons, are likely to give as true a verdict as a jury of their employers, in Farmers' Clubs assembled, upon what is for their benefit.

We notice that at Lavenham the other day Mr. BAKER, a member of the local Farmers' Club, proved to his hearers, as he has since proved probably also to most of his readers, that the ordinary agricultural labourer of Suffolk is upon the whole at least as well paid as the ordinary unskilled labourer of the town. Assuming fairly enough the wages in the two cases to be 10s. and 14s. a week respectively, and valuing to the former his harvest money and his gleaning, his garden and his cheaper cottage, it is found that they are nearly paid alike—the whole of these advantages covering the difference in the actual money payment, amounting in fact to 4s. a week and 4s. over—thus making him 4s. per annum better than the other on the whole as regards mere power of purchasing. But when the physical and moral condition of the two are contrasted, Mr. BAKER says that, what with overcrowding and all its evils, sanitary and social, in town, there is no possibility of resisting his conclusion, that the country man is by far the more fortunate of the two. Many instances moreover can be named, he says, of men in good social position, substantial occupiers of land around Lavenham, who have risen from the ranks of the common agricultural labourer, showing that such men are not the downtrodden [helpless class which it suits the purpose of some people to call them.

The discussion which followed Mr. BAKER'S paper (p. 1122) is well worth reading. The meeting was fortunately presided over by an outspoken chairman, who began apparently with a little bit of sarcasm:—"There is one item which Mr. BAKER does not include in his calculation, viz., the allotment ground—acres of which are let to cottagers at a rent of 1s. per rod!" To this, however, Mr. BIDDELL replied—"Mine pay only 6d.;" and Mr. ORPEN—"I know some places where they get 40 rods for

8s."—Newcastle had been referred to by Mr. BAKER as exhibiting many of the worst features of town life; and certainly if any one desires to see his ideal of black dirt realised, he should visit the mass of houses clustered in the valley on both sides of the river Tyne. The Chairman fortunately knew Newcastle-upon-Tyne, and this is what he said of town labourers there:—

"Newcastle-upon-Tyne had been mentioned, and he could state, from experience of three years' residence in that town, that they would find nowhere stronger men, women, boys, and girls. They would find houses there, too, as neat and as clean as he could wish to see. The people there, instead of living upon potatos, as they did in this part of Suffolk, lived upon oatmeal, broth, and peas, and their arms were twice as large as the country labourer's. In proof of this, he might mention that a gentleman who had an estate in the North took some men there from Kent, but he found that they could not do anything like the day's work that the North countrymen could. The badness of the town houses had been mentioned, but perhaps it would have been better if that subject had not been mentioned at all, as he could find places in that very town (Lavenham) which were not fit for a pig to live in. Then, again, he did not think it was fair to compare the rates of mortality in towns with those in the country, for wherever large manufactories were carried on, people would be sure to go in search of employment; sometimes they would get work, sometimes not, and many of them were really starved to death. He thought the country places were as bad as the towns as regarded overcrowding. A great deal was said about drainage, but he was persuaded one of the great causes of illness among the country people was overcrowding. He had been into houses where the father and mother, four or five grown-up boys and girls, and three or four children, all slept in one room."

Mr. RINDER did not much help the case of the agricultural labourer when he offered an explanation:—

"He was sure the Chairman would bear him out when he said that half the workmen did not deserve nice respectable cottages; they tore down the staircases and broke up the shutters to use for firewood. There really was no encouragement for any gentleman to build nice respectable cottages."

It is plain then that, whether the question be one on which a discussion before agricultural employers can bear useful fruit or not, there is a good deal to be said on both sides of it. "Town labourers are huddled together in miserable lodgings unfit for human beings." "Country labourers live in places unfit for pigstyes." "There is scarcely a native male adult in Bethnal Green who is fit for military service." "Nowhere will you find stronger men, women, boys, and girls, than in Newcastle-upon-Tyne." "No man is in so comfortable a position as the provident man in a rural district, who may earn year in and year out 15*s.* a week."

Probably the safest conclusions at which an outsider, patiently considering the various allegations and opinions, can arrive, may be stated thus:—Both in country and in town great poverty and great misery exist; both in country and in town the provident and well-conducted man is able to rise in his position; whether in country or in town, there is no help, even for the "helpless" classes, that can approach *self-help* for its power and efficiency. In the worst paid agricultural districts the young unmarried agricultural labourer has plenty of pocket-money. He can squander it and acquire habits which will render comfort in after life impossible, whatever be his earnings; or he can save it and begin life with a good character, a houseful of furniture of his own, and the best girl in the parish for his wife.

The possibilities of the agricultural labourer, whether for decent comfort or for utter misery, are at least equal to those of the corresponding class in town. And we feel sure that any considerate master, who by the interest which he takes in the lads and young men upon his farm, shall retain them in his service, and thus keep them from the chances of town life, will at least have done them no harm. Paying them as much as possible according to their work, *i. e.* "by the piece," and interfering successfully by friendly advice in the alternative before them of saving or of wasting wages in their youth, he will have secured for them a place in the higher division of a class which contains a large proportion of individuals living in comfort and respectability.

—— THE corn trade on Monday relapsed into the inactivity and low prices of the week before last. New English Wheat is quoted at 40*s.* per qr. at Mark Lane, and the highest figure named for White is 44*s.* per qr. Fine samples of Barley are in demand, at full rates. Inferior Barley, however, and other spring grain and pulse, have followed the decline in the price of Wheat. —— Beasts and sheep, and beef and mutton have also declined considerably in the metropolitan markets, the supply having been in excess of the demand.—— The seed trade has no prominent feature.—— English wool, although steady in demand, does not increase in value.

—— The following question deserves a prominent place. If any of our readers can help our correspondent, he and others will be very much obliged. "A Constant Reader" writes as follows:—"Will any of your able correspondents be so kind as to favour me with their opinions as to the best mode of reclaiming a large tract near to the sea, which, by neglect, and the annual cutting of Bent, has been reduced from a flourishing rabbit warren to a blank waste of shifting sand. My object is to get it coated over, if possible, with a herbage suitable to rabbits and sheep. Bent, if left undisturbed, will, in the course of time, spread over the ground, but it is not a Grass on which animals can thrive. It has been stated that extensive sand-wastes in Russia have been restored and made firm by the use of a Lupine, which has spread over their surface a coat of verdure. Could you inform me which Lupine this may be, and whether it is wholesome provender for sheep and rabbits?"

—— A large public meeting of Cheshire farmers and landowners, led by Mr. G. JACKSON, of Tattenhall, Mr. BARBOUR, of Bolesworth Castle, and others, has resolved:—

"That looking at the fearful loss Cheshire has sustained by the unrestricted spread of pleuro-pneumonia, and the lessons taught at Aberdeen and throughout England by the cattle plague restrictions, which stopped the progress of pleuro-pneumonia for the time, this meeting strongly favours the opinion that slaughter should follow in all cases certified by the Chief Constable to be pleuro-pneumonia."

And—

"That the Cheshire cattle owners, relying on their own independence, approve of the formation of a county association, to provide compensation for all animals slaughtered under the certificate of our Chief Constable, that have been slaughtered in consequence of having pleuro-pneumonia, and that the Cheshire Chamber of Agriculture be invited to patronise such a county cattle insurance association."

The last resolution was not carried without opposition, and a declaration of that failure which had overtaken many similar associations; but Mr. HARROP, of Frodsham, said for the last 17 or 18 years he had been connected with a society which had not come to grief, and which had paid some thousands of pounds compensation. It went through the cattle plague, and he could see many to whom he had paid money—one to whom he had paid 300*l.*; and every shilling was paid that that association had agreed to pay. He believed that a Mutual Cattle Insurance Society was practicable, and it was the thing he had been agitating for the last 10 years, as agent for the Norfolk Farmers' Insurance Company. The opinion of their manager was that 1*s.* per head, or at most 1*s.* 6*d.*, would insure compensation to the extent of 10*l.* or 12*l.* That would not quite compensate for three-fourths or more of the loss. As to the working part, don't be afraid of that. He was sure they had intelligent men in every village, who, with the assistance of a veterinary surgeon, could distinguish between pleuro and other complaints; and supposing they did make a mistake, it was better to slaughter one in error than to leave it to spread disease throughout the neighbourhood. The resolution was put and carried.

—— The prospectus of a Farmer's Supply Association has been issued, which proposes to bridge the interval between the purchaser and the producer, much after the fashion of co-operative agencies. The following extracts explain the principle on which the Association is to act; and it is, we think, so far sound, inasmuch as, by the addition of another active firm to the many rival agencies at work, it contributes to increase the intensity of that competition on which we all depend for cheapness. Among the names on the council are those of the Hon. H. W. PETRE, of Essex; Mr. F. S. CHAMPION, of Sussex; Mr. G. B. SOLLY, of Kent; and Mr. TRASK, of Hampshire; and other gentlemen. The prospectus says:—"The consumer is at present separated from the manufacturer and producer, and large commissions and profits are made by intermediate agents, the burden of which falls upon the purchaser. This can only be met by farmers combining their purchases, and thereby obtaining farming requisites at a considerable reduction in cost. This combination will give farmers the control of the agency through which they purchase, and enable them to obtain genuine and first-class manufactured foods and manures, which it is now almost out of the power of a single purchaser to secure, for adulterations are now systematically practised, and the markets are full of inferior articles. It will be the object of the Association to obtain genuine articles of every kind, by purchasing only under formal contracts, guarantees by analyses, and direct of the manufacturer and merchant, so that fraud can be immediately exposed and dealt with."

—— Among the subjects to come under the attention of the Central Chamber of Agriculture next Tuesday, is the variety of weights and measures still in use in corn and other markets. Mr. E. SMITH, of Amotherly, Malton, read a paper on this subject the other day before the Malton Farmers' Club, in which a number of instances of this variety are given. For example, an imperial bushel of good Wheat will weigh 63 lb., Barley, 56 lb. At Malton, however, part of the Wheat is sold at 70 lb. to the bushel, and part at 63 lb. The factors, in making their returns to the excise, estimate Wheat at 63 lb. and Barley at 56 lb. The excise, whose duty it is to give the averages, calculate Wheat at 60 lb. the bushel, Barley at 47 lb., and Oats at 38 lb. Beans and Peas are returned by the factors at 63 lb.; the excise give Beans at 63 lb., but Peas at 64 lb. These divergencies are therefore misleading in the settlement of way-going crops, where the price is fixed by the Malton averages. If we go northward we find Wheat sold by the "boll" of two bushels, Barley and Oats by the quarter, though this is not universal The report of Carlisle market quotes down 6*d.* per "Carlisle bushel," leaving us to infer it is different from other bushels. In Lancashire the "windle" of 220 lb. and "pack" prevail as measures. At Leeds and Hull the farmers sell Wheat at 63 lb. to the bushel, the factors at 60 lb. In Wakefield, Doncaster, and Pontefract, farmers sell Wheat by the load of 14 st., including the sack; Barley at 56 lb. per bushel. In Liverpool Wheat is sold by the "cental" of 100 lb., English Wheat by the bushel of 70 lb., Irish Wheat by the barrel of 196 lb. Southward we find the quarter and the comb (4 bushels) in use, and in Hampshire the load of 5 quarters. The report of the Shrewsbury market runs thus:—"White Wheat, 7*s.* 9*d.* to 8*s.* for 75 lb.; Barley, from 6*s.* to 6*s.* 3*d.* per imperial bushel for malting qualities, and at from 22*s.* 6*d.* to 23*s.* per sack of 13 score 10 lb. for grinding, Oats sold up to 23*s.* 6*d.* per sack of 14 score 10 lb., and Beans from 22*s.* 6*d.* to 23*s.* 6*d.* per 12-score sack." Thus, each county contributes its quota to the general confusion prevailing. Of meat, in some places 14 lb. are given to the stone, in others 16 lb., and in others 8 lb.; and in some places it is sold by the score. Then if we look at butter, we have 16 oz., 18 oz., 20 oz., and 24 oz. to the lb. We have "long roll," "short roll," and variety without end.—It will be a useful service if the Central Chamber shall, through their affiliated branches, bring about agreement upon a point which now exhibits so much variety and difference.

—— Mr. BAILEY DENTON calls attention in the *Times* to the need of draining the sites of towns as well as of merely sewering its streets for the purpose of house drainage. The combination of both offices in one system of pipes results in an interchange between pipe and surrounding earth of their respective contents; and in dry weather, when the natural subsoil water becomes low, the earth becomes charged with the filthy sewage imperfectly conveyed in leaking sewers. The fouling of a town's site in this way with excrementitious matter is inevitably followed by disease. The proper remedy would be to have tight sewers for sewage—that is, for house drainage, and ordinary drains for subsoil drainage. In this way the town site would be kept dry, without any chances of becoming fouled. Dr. HAWKESLEY does indeed declare that dry earth is able to economise all the animal excreta of a dwelling; but we imagine that few will conclude with him that town sewers for house draining are therefore unnecessay, or that Mr. BAILEY DENTON'S difficulty would not arise even if dry earth conservancy were in universal operation.

—— Mr. GOODWIN, the Secretary and Editor of the Bath and West of England and Southern Counties Agricultural Society, has issued the first part of the new volume of that Society's Journal. It is noticeable chiefly for Professor BROWN'S exhaustive treatise on the foot-and-mouth disease, which will certainly be more generally read and studied just at this particular time than is generally, we fear, the fate of journal articles. There are also good reports on the Southampton meeting, and on local breeds of cattle and sheep. The appended Note-book is a collection of well selected paragraphs from contemporary journals.

—— We regret our inability to give a full report this week of the very interesting agricultural meeting and discussion held the other day at Lavenham, under the auspices of the local Farmers' Club. Mr. DUNCAN'S very energetic promotion of the Sugar-Beet cultivation in that neighbourhood has given a good deal of general interest to the agricultural proceedings of the district, and we shall next week report some of the speeches on topics of current importance, delivered by Mr. MECHI, Mr. BIDDELL, and other members of the Club.—We understand that Mr. DUNCAN'S sugar factory is now at work day and night, dealing with several hundred tons of roots per week; and there is every prospect of its proving a permanent addition to the general industry and to the agricultural profits of the neighbourhood.

OUR LIVE STOCK.

MR. DUCKHAM'S first periodical sale of pure-bred Herefords was held on the 21st inst., upon the show ground at Hereford, the day after the county agricultural meeting. The result was satisfactory, about 80 animals being sold at fair prices. STANWAY, a remarkably fine bull, bred at Adforton, and the sire of some of Mr. Tudge's prize stock, brought the high figure of 190 gs. Mr. H. R. Evans' PRINCE OF WALES was sold for 105 gs., and WELLINGTON, the property of the same gentleman, went for 60 gs.; Mr. Sparkman's CORONET 3D, a 2-year-old bull, made 100 gs.; Messrs. Fenn & Harding's NOBLE made 60 gs.; and several other bulls fetched from 40 to 50 gs. The cows did not go off so briskly, the highest price being obtained for Mr. B. Rogers' *Miss Stanton*, which made 46 gs.; her three months' old bull-calf was sold for 40 gs.; making 86 gs. for cow and offspring. The Grove cows, belonging to Mr. T. Jeffries, realised an average of 30*l.* 2*s.* each. Nearly all of them had calved recently, and when, as the *Hereford Times* says, the prices of the calves are added to those of their dams, there is satisfactory evidence of the increasing demand for good Herefords. This last summer's bull-calves brought from 16 to 40 gs. each, and averaged more than 25*l.* 5*s.*, and the young heifer calves averaged more than 20*l.* These figures refer especially to the Grove stock, but good prices, according to quality, were given for other animals.

—— On Tuesday, the 19th inst., Mr. J. K. Fowler's sale took place at the Prebendal Farms, Aylesbury, Mr. Strafford officiating as auctioneer. The prices were for the most part satisfactory, as may be seen by reference to the accompanying list. The sum of 1811*l.* was realised, which represents an average of 46*l.* 8*s.* 10*d.* upon the 39 animals disposed of. The 30 cows and heifers averaged 51*l.* 11*s.* 9*d.* each, and the

nine bulls 29*l.* 5*s.* 8*d.* Two of the cows and a calf were bought for the Queen :—

Name of Animal.	When calved.	Price.	Purchaser.
Bulls.		Gs.	
HARDICANUTE	April, 1867	54	Mr. Stopford
CAWSTON ROYAL ..	April, 1868	17	Mr. R. Paxton
MARQUIS OF AYLESBURY	April, 1868	24	Mr. Shepherd
WELLINGTON	July, 1868	16	Mr. Sturgeon
PRINCE OF WETHERBY ..	Sept., 1868	22	Mr. Sturgeon
GRAND DUKE OF CLARO	Oct., 1868	23	Mr. Hartell
ROYAL CLARO	Oct., 1868	42	Mr Woodward
BARON CAWSTON ..	Nov., 1868	33	Capt. Winnell
PRINCE	Nov., 1868	22	
*GUERNSEY DUKE ..	Mar., 1868	110	
*CHERRY DUKE ..	Sept., 1868	70	Capt. Winnell
Cows and Heifers.			
Princess Royal	Mar., 1857	31	Capt. Winnell
Sovereign	Nov., 1859	62	Mr. R. P. Davies
Scraph	Sept., 1860	46	Mr. Leney
Flower Girl 3d ..	Nov., 1860	80	Mr. J. K. Fowler
Verbena	April, 1860	31	Mr. Latham
Lucretia	May, 1861	33	Mr. H. Tait, for the Queen
Lucretia calf		13	Do.
Seraphina 18th ..	June, 1864	50	Mr. R. P. Davies
Nonpareil	Sept., 1864	56	Mr. Leney
Fairhill 2d	April, 1865	120	Mr. Graham
Lady Ellen	Aug., 1865	40	Mr. Sherbourne
Pigotte	Sept., 1865	70	Mr. Leney
Princess Charlotte ..	Oct., 1865	44	Mr. H. Tait, for the Queen
Lady Mabel	April, 1866	29	Mr. Tappenden
White Princess	June, 1866	30	Mr. R. P. Davies
Edith of Fawsley ..	Nov., 1866	55	Mr. Sheldon
Princess Seraphina ..	Dec., 1866	40	Mr. R. P. Davies
Imperial Seraphina ..	Oct., 1867	80	Mr. R. P. Davies
Knightley Princess ..	Nov., 1867	40	Reserved by Mr.
Knightley Grand Duchess	Nov., 1867	210	Mr. Leney [Fowler
Ursula 28th	Feb., 1868	56	Mr. Woodhouse
Queen Seraphina ..	June, 1869	40	Col. Kingscote
Fawsley Queen	June, 1869	30	Capt. Winnell
Miss Belle	July, 1869	20	Mr. Forbes
Sunbeam	Aug., 1869	44	Mr. Barton
Lady Fantail	Aug., 1869	29	Capt. Winnell
Empress Seraphina ..	Aug., 1869	28	Mr. J. Denchfield
Crown Princess	Sept., 1869	26	Capt. Winnell
Lady Ashbury	Sept., 1869	27	Mr. Sheldon
Knightley Queen ..	Oct., 1869	15	Mr. Surtees

—— We are constantly reminded, by the results of sales, of the importance attached to pedigree by breeders of cattle. The sale of Mr. Empson's most excellent stock at West Ravendale on the 20th inst. was only a new proof of this fact. Only seven out of the 74 females offered for sale brought above 30 gs., and the top price given was 37 gs. The average over the 74 animals disposed of was 22*l.* 14*s.* 9*d.*, and the sum total realised, 1796*l.* 3*s.* 6*d.* The exception to the above statement was FAUNIST, by LORD BLITHE (22,126), and of the Aylesby *Flower Girl* tribe, who brought 46 gs. Here was a herd, undoubtedly well-bred, and possessing "all the points of true Shorthorns,"—good in form, quality, and hair, and withal a level lot, "a general likeness prevading the whole," and yet in the case of the older stock, owing to their short pedigree, little extra appears to have been given for these good qualities. The calves by the Aylesby-bred bull GRAND CROSS (24,060), commanded a better sale, and were bought at from 12 to 16 gs. each. Let cattle be as grand as *Lady Fragrant* or BOLIVAR, without pedigree they are nothing. This is what Mr. Willoughby Wood has been lately impressing upon us, and the idea is perfectly familiar to all breeders of stock. But, we would ask, why is pedigree important? Is an animal good and valuable because he has a pedigree, or is the pedigree esteemed because it indicates good qualities in the animal? In other words, does it follow that because an animal has a splendid lineage he is necessarily better than one less favoured in this particular? Although valuing pedigree very high, we would ask—Is there not a fear, at the present day, of a list of distinguished names being thought too much of?—"pedigrees on paper," as Lady Pigot has termed them. Let us suppose the case of a Duchess bull begetting an inferior animal, which is possible, and further that this inferior animal begets a worse, which is a shade more likely, then you have a splendid pedigree on paper, but a produce bringing disgrace upon it. In other words, the best herds require weeding to keep up their character. Once give too high an importance to pedigree, and you digress from one of the main principles of careful breeding—selection. Now is not the award of prizes at shows to animals excelling in quality, symmetry, and early maturity, without reference to pedigree, a healthy check upon too great reliance on blood? We want *good* animals, not high-pedigreed ones; and a fine pedigree is only valuable because experience has shown that it is accompanied with other good qualities. If, however, your high-bred animal is inferior to one of less aristocratic descent, what becomes of the value of your pedigree? We anticipate the answer. His stock will be better. Let him then get stock, which will be prizetakers, if he cannot take prizes himself; but why should he be victorious because of some latent good qualities, which may or may not develop themselves in the next generation?

THE IRISH LAND QUESTION.

[The following is a speech by Mr. C. R. Read, M.P., at the recent meeting of the Blofield Agricultural Society, Norfolk.]

I WAS at a little local show three weeks ago in the county of Roscommon, where there were 500 entries besides those for Flax, poultry, and butter—500 entries, and no less than 400 head Roscommon sheep on the ground. Each animal was numbered, and there was a printed catalogue, there was a set of judges for each class of stock; and although we think we do the thing very well here, I can assure you that in many societies in Ireland they do it a great deal better. Now, I have a few words to say about the Irish land question.

You naturally suppose that I, as a tenant-farmer, had all my sympathies with the farmers of Ireland, and I was distressed beyond measure when I found that their demands and desires were such as I think no Government, no Parliament, and no country will ever gratify. In the first place they are all unanimous on one point—they demand fixity of tenure. What does this mean, but that every man who is now occupying an acre of land in Ireland should occupy it as long as ever he likes, at the present rent; that as long as he pays the landlord his present rent the power of eviction shall be removed from the landlord; the landlord shall become a sort of lord of the manor,—but he will hardly be this, because the lord of a manor inflicts a fine whenever he has a new tenant. He will not be so well off as this, but be something like a receiver of tithe rent-charge; the only alteration is to be in case of a depression or advance of prices. I would ask if it is good for the country—independent of its being a flagrant assault on the rights of property—is it good for agriculture, and is it good for the nation at large, that anything so preposterous should be granted?

There is another thing brought forward—namely, that the landlords in Ireland do nothing. I can assure you that is the greatest exaggeration. There is no doubt that in buildings there is a difference betwcen us in England and the landlords of Ireland. If a landlord here has a farm of 500 acres he erects the farm buildings and farmer's house, and perhaps some half-dozen cottages; but if he had it in Ireland he would have to erect 50 cottages, 50 pig-styes, 30 cow-houses; and is there anybody, unless he is a millionnaire, who could afford to do that over a large estate? On a good and well-managed estate there is a considerable assistance given to a tenant. If he wants to build a house he generally gets the slates and timber, which constitute the chief part of the expense, from the landlord. I have had shown me the result of an immense amount of money expended by landlords, which they borrowed from Government, in draining and improving estates, and not a single sixpence has been charged against the tenant.

Then, again, there is a great rage against the absentee landlords. Many hard things are said about them; but I find, for the most part, that those landlords are the most generous; that their rents are cheaper; and that their agreements, when there are any (agreements in Ireland being the exception and not the rule), are more liberal, and their estates are better cultivated than those of the smaller resident proprietors. Then you have read, and you have heard a great deal said, about the cruel evictions in Ireland. I believe that the landlords in Ireland change their tenants so very seldom that they would do anything rather than turn a man out if it is possible for him to pay his rent. So much is this so, that instead of consolidating and improving some of their properties, as I think they ought to do, they allow them to be subdivided in a most injudicious manner. I believe that since the Potato famine there have been few evictions in Ireland; and when they tell me of the wholesale confiscation of the tenant's property by the landlord, I am sure of this, that the rabbit confiscates more of the property of the tenant in Great Britain in twelve months than the whole of the Irish landlords have confiscated in the last 12 years.

But you will tell me very truly that two wrongs do not make a right, and that if anything exists which causes even exceptional injustice, that is no reason why the law should legalise that injustice. If a landlord will not grant a good tenant a lease, if he evicts him, or unfairly raises his rent when that tenant has spent a large sum of money in improving his estate before he has had a fair opportunity of reimbursing himself, I say there ought to be some cheap, competent, and ready tribunal to which that tenant could appeal to decide what compensation he is entitled to. It may be asked, what sort of court would you have? Well, there are throughout Ireland certain courts held by assistant barristers (who are something like our county court judges), and it is my opinion if you had four commissioners appointed in each county, two appointed by the landlords and two appointed by the tenants, with this legal gentleman to preside over them and only to give his vote in case they could not agree, such a tribunal would command the confidence of the tenants and would be accepted by the landlords.

There is only one thing I have altered my opinion about since I have been in Ireland, and that is the buildings. I was bold enough to say in the House of Commons that I thought the present law sufficient—that if the tenant built upon the land, and the incoming tenant or landlord would not buy those buildings, he could sell them or remove them as he pleased. I thought that would be enough; but, having been in Ireland for five weeks, I do not now believe it. If a landlord lets a lot of land in small patches to people, and knows they are going to build upon them,—if he winks at their putting up their cabins, or pig-styes, or whatever they be, and then evicts them, it is his bounden duty to pay the full value of those buildings, though they may be to him a source of nuisance rather than profit.

Then with regard to leases in Ireland, it is said there are no leases. There are more leases in Ireland than in this part of Norfolk—there are leases for lives, for 90 years, for 60 years, for 30 years, for 20 years, and I have seen piles and piles of leases which the tenants have declined to sign, but to which I should have cheerfully put my signature, and have considered the rents to be very liberal. I am in favour of every good tenant having a lease, but sometimes you cannot make them take these leases. We were told at the North Walsham dinner the other day that the cure for Ireland was to make everyone take a 30 years' lease, and then at the expiration of this 30 years' lease the landlord should pay for every single improvement during that time. How could you possibly have that doctrine in Ireland and not have a similar one in England and Scotland? In Scotland they have leases for 19 or 21 years, and I am sure a Scotch tenant, as a rule, expends ten times more in the improvement of the land than an Irish tenant. Then you see what happens at the end of the lease. If you take up any newspaper you see that the Duke of Argyll, for instance, has a whole list of farms to be let by tender, and the out-going tenant is no more regarded than you or I should be. Thank God, that is not extended to Norfolk, and I hope it never will be.

One other remedy put forth is, that the Ulster tenant-right in the North of Ireland should be extended to the whole country. I don't think you are aware what this is. If this tenant-right was for the payment of unexhausted improvements no one would give it more hearty support than I would do; but it is paying for the goodwill of the farm—nothing more nor less than this; and depends, not on the condition of the farm, nor on the improvements that the tenant has made, but it depends for its value on the rent that the tenant has paid, and on the good-nature of the landlord who allows it to be sold. I speak to you as practical men. Suppose that Ulster tenant-right was to become law in Norfolk to-day, and suppose we who happen to take a new farm have to pay 10*l.* an acre down for the goodwill of the farm, why, it would ruin every one of us at this table. Instead of having 10*l.* an acre to lay out on our land, as we have now, we should have 20*l.* to lay out, and we should not receive one penny more interest for our 20*l.* than for 20*l.* at present. I ask you to raise your voices against this, and I ask you, as practical men, to say that such an extension of that tenant-right would be the most damaging thing that could happen to agriculture.

One other little matter is, that there should be written agreements. Well, that may sound, and doubtless is, a very good policy; but when you have agreements in Ireland—and I have seen them—Paddy particularly objects to put his name to the agreement; he is allowed, perhaps a fortnight to think it over, and then, when asked what he thinks of it, says—"Think of it! faith, your honour, I am sure you would not put in anything against me; I have not looked at it." Then he signs the agreement, and also invariably breaks it.

I have heard of another thing in the House of Commons, and that is the tyranny of landlords in seizing a man's crop upon the land, and not paying him for what we call covenants and tillages. I asked a very respectable man, "Would you not think it a better custom than you have now, that when you left a farm you should have your straw, your hay, your Turnips taken at the consuming value?" "Consuming value," he said, "what would that be?" "Why," I said, "two-thirds of the market value." He said, "Your honour, I would much rather sell it as I do." What is the case? When a tenant goes he sells off the manure, the hay, the straw, the Turnips, and the man who pays his tenant-right for the goodwill of the farm comes in and finds nothing upon it whatever.

There is a little improvement which I think might be made, and that is with regard to a six months' notice to quit. I say there ought to be a 12 months' notice to quit farms, not in Ireland only, but in England and Scotland. But I found out that in Ireland the tenancies there are so long and so uncertain as to when they began,—as to the time of year—that it is the invariable custom to give 12 months' notice, and, therefore, what I thought would have done them a great deal of good would be nothing more than carrying out what they practise now. Then I tried to find out a practical grievance, and I discovered what I think a little one. In Ireland the poor's rates are half paid by the landlord, and half by the tenants. This seemed a good arrangement, but the poor's rates in Ireland are so small, sometimes being only 6*d.* in the pound for the year, that the tenant does not get a great pull out of it; but you come to the county rate, which they call cess, and which includes the roads, and this is frequently 2*s.* to 2*s.* 6*d.* in the pound. This is all paid by the tenant, and I say if the policy is as good in the one case it would be still more so in the other, because those gentlemen who levy the cess very often make new roads and bridges which are permanent improvements, and sometimes the drainage of a river is done by the Board of Works, and the whole of this expense is put on the county cess, whereas I think it should be equally divided between the landlord and the tenant. I believe honestly and truthfully what I have shadowed out would meet the approval of all right-minded men concerned in the management of the land in Ireland.

* The property of Lord Braybroke.

MUSTARD.

AMONG the few monopolies which are now in existence in this country, perhaps the most exclusive is that of the Mustard trade, which is entirely in the hands of some half-dozen manufacturers. Such a state of affairs is highly detrimental to the growers of the seed, who form a large class of agriculturists.

Red or Black Mustard seed (Sinapis nigra), is almost exclusively grown in the southern division of Lincolnshire, the Isle of Ely, and some part of Norfolk; there is, however, only one market for it, and all growers must come to Wisbeach to sell their produce. This fact in itself seems contrary to present customs; besides which, only on about four Saturdays in the year can it be sold at all. This year the crop has been unusually large, the yield being far in excess of that of late years; but owing to the showery weather prevailing at the time when it was being harvested, a great deal of the seed was secured in a damp condition.

Last Saturday was the chief market day for Mustard,

the town of Wisbeach being almost full of growers, the offices of the buyers were crowded from an early hour, and in the Corn Exchange all other trade was nearly at a standstill.

The manufacturers, as usual, were very independent, and the farmers, not being able to make the rates they wished, had to be contented, or the reverse, with the highest price the buyers would give. Several of the manufacturers refused to bid for grey samples, and the few who were not particular as to the colour of the seed showed a remarkable determination to give very little for it.

Although a large quantity of the seed shown was much discoloured, yet there were many samples of very fine seed, and these made fair prices: one gentleman from Gosbiton, in Lincolnshire, sold a parcel of 2000 bushels—of his own growth—for 14*s.* 3*d.* per bushel; this, however, was an exceptionally fine sample. The average price for this years' seed will not exceed 10*s.* 6*d.* per bushel, and the yield will perhaps reach 24 bushels per acre; but on some of the newly broken up pasture-land the crop has been very heavy, more than 30 bushels being obtained.

Loud and long were the complaints to be heard from those who had been holders of grey seed, and some irascible individuals consigned the whole of the buyers, Mustard, and all connected therewith, to a place where, according to report, Mustard and all other calefacients will be superfluous. That the manufacturers are able to lay their heads together, and thus compel the growers to take their price, is undoubtedly unjust to the farmer; but so long as the whole trade of the article is in the hands of a few large firms, the poor producer must grin and bear it, or grow something else. Messrs. Royle and Headland state in their "Materia Medica" that commercial flour of Mustard consists of—Red Mustard, 98 parts; White Mustard, 147 parts; Wheat flour, 56 parts; Capsicums, 1; Ginger, ½; and Turmeric, 2½ parts. Such being the case, it appears that Mustard really is not Mustard, but a compound in which the genuine seed plays only a part.

Possibly, but not probably, the Mustard-seed crushers are going to give the great British public the benefit of this cheapness of the seed, and lower the price of the manufactured article. If they do so, they may perhaps lose the bad reputation they have acquired, for it is a common complaint that good Mustard is about double the price it ought to be; consequently the temptation to small dealers to sell an adulterated article, either of their own or a manufacturer's mixing, is hard to withstand. The result is that, oftener than not, the article put on the table for Mustard is what appears to be a base compound of pea or bean meal, or bakehouse sweepings, disguised with a little oil, common Ginger, Pepper, or Chili-pods. If it be thought that bakehouse refuse is too foul a compound to use for this purpose, we would ask—how often has the reader seen a coarse dusty-looking compound on the table, in a high state of fermentation? This is German yeast, or barm, which has been introduced in some nefarious manner. No matter whether we go into hotels or private houses, one of the most unusual things we meet with on the table, is a pot of decently pure Mustard. Where this is found, however, there is no condiment like it, and with the price of raw Mustard what it now is when it leaves the grower's hands, this pure article ought to be general. At any rate, there ought not to be that monopoly which makes the pure article so dear that a great inducement is held out to unprincipled manufacturers and dealers to sell a spurious compound.

Mustard makers will do well to beware in time, for as matters now stand, with the calculation which may be made that raw seed may be always obtained at a reasonable price, a great inducement is held out to the many capitalists who now want profitable employment for their money; and if these Mustard monopolists do not reform themselves, competition will be sure to do its proper work—indeed, the very best opening, we believe, which could suggest itself now in the whole business of the country, is the manufacture of Mustard, with the view of selling a pure article at such a fair price as would stop adulteration, and thereby enable travellers and housekeepers to be sure of a good condiment when they "dine out" or send to the family grocer. *Nemesis.*

LARGE AND SMALL FARMS.

[At the late quarterly meeting of the Dalrymple Farmers Club, Mr. Smith, the President of the Society, read the following paper.]

In considering this subject I refer, of course, to the advantages accruing to the farmer, but a very slight examination will show that any advantages which we would derive would be shared in by the people at large; and for this reason, that by whatever process—whether by obtaining the same crop at a smaller outlay, or a larger crop at the same outlay, the result is in either case cheapening the products of the earth to the consumer, along with an increased profit to the cultivator. Whether this end can be best attained by large or small holdings is an undecided point, and involves the question—Which offers the best opportunity for exhaustive cultivation? Now, it must be borne in mind that the words large and small are in this case only relative—what is large in one county or district, or on one class of land, being small in another. For example, a small sheep or hill farm might be a large agricultural one. A great part of the first might not pay to be ever otherwise than in pasture, and the rent of the one might be two or three times, per acre, the rent of the other. It follows, of course, that the exhaustive cultivation of the one is impossible in the other, and the labour and superintendence required in the one case might be two or three times more than is necessary for the same extent of land in the other.

I am disposed to think, for the reasons now to be mentioned, that a medium-sized farm is the best, and a medium-sized farm I would define as one which the lessee can fairly and carefully superintend himself, neither more nor less. There are, of course, exceptions to every rule—this as well as others—but the exception proves the rule. The disadvantages of a large arm against which there is no set-off are numerous and very evident. In the first place, and chiefly, there is scarcely any trade or profession in which a man has to trust so implicitly to servants, and in large farms this, of course, becomes more and more the case; while only faithful service can ensure satisfactory results. Practical men like yourselves can readily appreciate the difference between saying to your servant come to your work, and having to say to him go to your work. It may, quite possibly, be the difference between profit and no profit. This is a matter of much greater importance than in manufactures, because in a factory the workpeople are concentrated in one building, and constantly under the eye of the managers and foremen. To effect so complete a supervision in agricultural operations you would require a foreman for every man; it would, at least, be quite impossible for any one man to overlook the working of other men employed, perhaps two or three miles from each other. I have heard manufacturers remark (and I find the same holds good in agriculture) that the larger the concern is the greater is the danger, and, indeed, the certainty of waste and extravagance creeping into its operations. For instance, a plough may want some trifling repairs, or a horse-shoe want nails, or any one of the hundred wants continually cropping up, may be supposed to require attention, and man, horse, and implement may go off to the smithy, the wright's shop, or saddler's, perhaps two or three miles off, and at a loss of half a day. One half of these journeys, I am satisfied, would be found unnecessary were the farmer in a position always to examine the grounds of the necessity himself. On moderate-sized farms it is quite possible to find useful employment for the field hands detained indoors in winter by stress of weather; but where the servants are very numerous this is much more difficult, and involves an expenditure of wages without return. In large farms there may be some saving to the landlord, and consequently in rent to the tenant, by the concentration of buildings in one place, but I question whether this is not more than counterbalanced by the loss of time involved in men, horses, and implements having to travel long distances to and from their work. In any size of farm the extent of crop primarily depends on the amount of seed sown, but the value of the profit depends on the economical working, which in its turn depends upon personal and careful supervision. I am therefore disposed to think, for the reasons I have indicated, that medium farms may be worked most economically, and that farmers will find that after they have passed some such limit as I have laid down their profits are in an inverse ratio to the extent of their holdings. As their holdings increase, their profits get less in proportion. Of course, I do not mean that this would go on till there was nothing left, but after a certain point I believe that the farmer does not earn the proportion of profit which a large outlay and constant labour deserves, and a considerable part of his capital would probably realise as much for him if invested at fair mercantile interest, without any of the risk or toil and anxiety attendant upon money outlaid on a business. Every man in any business of an honest kind is fairly entitled to be recompensed for his anxiety and trouble and risk, and if the returns on his capital do not sufficiently reward him for these, his business cannot be said to be a paying one; and in this sense, to which I do not see how any objection can be taken, I question whether large farms can be said to pay. One advantage which a large farm undoubtedly possesses over a small one is the power which the holder has, on account of his extensive holding and his larger capital, to employ machinery in his agricultural operations with economy. The use of machinery involves at first a very large outlay, which, however cheap in the long run, is too expensive for a small holder. The interest, even if he could command the capital, forms a serious addition to his rent, while in the opposite case the interest will be but a small item in the whole expenditure. The possession of it gives the owner, among many obvious advantages, the power of getting his work done with the greatest possible expedition, in suitable weather, with an important saving of wages; the speedy and economical ingathering of his crops, and with the power to be early in the market, and to sell at once, should prices rule high. The last is a matter of great importance, and would weigh materially against any argument, but that I hold that machinery may be as cheaply applied on medium as on large farms.

There are two points to be considered in this connection: first, the suitability of machinery to the extent of the farm; and secondly, its suitability to the means of the farmer. As to the first, I speak from experience, because my own farm is a medium-sized one, and I find that, taking everything into account, the interest on field machinery during the time it is idle, the expense of working, &c., I saved considerably by its possession. In proportion, I am convinced, is the saving effected on larger farms, because my first outlay is proportionately less. I have a machine just now, for instance, which in three or four seasons will pay itself in wages saved, and I shall have it for nothing during the rest of its existence, which will be a very long period. I speak generally of the machinery in use in our neighbourhood, and I except steam ploughs, which, while very costly, we need not here take into account, as they are not adapted to the formation of the land around us. As to the second point, I am bound to say that those farmers who cannot or will not spare sufficient capital to provide themselves with scientific appliances for the cultivation of their farms, are placed at a great disadvantage; and in the existing race of competition they are easily distanced. I do not for a moment pretend to have exhausted this subject in this brief space and time. I can only hint to you the reasons which have established in my mind the truth of the proposition that, while large farms are good, moderate sized farms are better: small holdings I do not think advantageous. I do not here speak of small or peasant proprietorships. Were that question imported into the discussion, my argument might have to be revised. Now, speaking generally, and without regard to the argument, I wish to add a few words more. The progress of science in its application to agriculture is rapid, and the farmer who neglects its teaching will speedily be stranded on the shore, while his neighbours are carried on the flood; and if there is one thing which science, as well as common sense, teaches more clearly than another, it is that if you are ungenerous and unkind to the land, it will certainly not be liberal to you. It is a willing servant when well treated, and generosity is seldom thrown away. Bear in mind that, whatever you do, you must always incur the bulk of the expense of generous treatment, and it is the extras that often make the profit. You have, say, a field of poor soil, you must plough it, but it may be that it only wants a little extra labour to make it bear a good crop. Then, should you put in inferior seed, a great part of your labour may be lost, which would have been saved by the use of good seed, only a little dearer; or it may be that at a critical time in the growth of the crop a little extra manure for forcing will make the difference between only a moderate and an excellent crop. I should like to see everybody thoroughly alive to this, in order that the most may be made of the lands. We have none too much of it for our population, and I hope to see the time when all the soil shall be made available for the wants of the people, and the whole land shall flourish like a well-trimmed garden.

Home Correspondence.

Depth of Drains.—I observe at p. 1094 a short article on the subject of drainage, recommending the pipes to be laid from 3 feet to 4 feet deep in grass-lands, and that drainage engineers seem to think the deeper drainage is best. Now it has always appeared to me that the depth of the drainage must depend mainly on the nature of the soil. You may conclude from the address of this letter that the soil for some miles around this neighbourhood is stiff clay, admirably suited for brick-making, and running from 5 feet to 10 feet deep. A neighbour of mine bought an estate a few years ago, and laid out a considerable sum in draining his fields for annual crops, and, according to advice, laid his pipes 4 feet deep, 2 feet below the clay. He found, however, that the water did not run off, and his fields were none the better. On the cause being explained to his foreman, he was persuaded to take up his drains, and lay them above the clay, instead of below it, where the soakage never reached. I found this to be the case in a five-acre meadow of my own, and have been obliged to relay my pipes about 15 inches deep from the surface, resting upon, instead of lying under, the clay. So that the depth of the drains must depend on the nature of the soil. *Experientia docet, Clayton, Sussex.*——In your article (p. 1094) you say, "Mr. Paget contends for 3 feet as generally a sufficient depth for drains on pasture land." I have not therefore made myself clearly understood. I think that 4 feet drains will generally be as efficient as any other, if placed sufficiently near to each other; but that when an impervious subsoil requires frequent drains, and there is no bottom water at the depth of 6 feet, a drain of 3 feet is much cheaper and equally effective. I also know that when an open measure is found at a greater depth, say 6 or 8 feet, drains of that depth suffice at much wider intervals, and that the saving made by using them has been, in my case, at the least 20 per cent. On these grounds I think the Enclosure Commissioners would do well to vary the depth of these drains according to the circumstances of the case. *Charles Paget, Ruddington Grange, Nottingham.*

Woolston against Tiptree.—Mr. Smith is a terrible man for smashing, and no doubt thinks he smashed up Mr. Mechi in his farm accounts, although any one with any knowledge of accounts can easily see that Mr. Smith is not an "accountant," either by nature or by teaching. In your number for October 16 he falls foul of another opponent, and talks very glibly of his own doings in the way of steam ploughing. He puts down 3*s.* 2*d.* for men, coal, water, and oil, for "smashing," and 1*s.* 6*d.* for interest and wear and tear per acre, stating that the whole work done was 109 acres. Now 109 acres, at 1*s.* 6*d.* per acre, just amounts to 8*l.* 3*s.* 6*d.*, and this represents interest and wear and tear on his ploughing apparatus! Mr. Smith's engine is not a locomotive, and therefore can do no other work about the farm except threshing, chaff-cutting, pulping, and such like. We may, then, safely assume that one half the cost of the engine, or, say, 125*l.* out of 250*l.*, must be put down to the ploughing tackle. Then the ploughing tackle itself, with windlass, wire ropes, and implements, cost 250*l.*, so that we have 375*l.* on which to charge interest, wear and tear, and, what Mr. Smith has forgotten altogether, "depreciation." It is customary to reckon 5 per cent. for interest, and 10 per cent. for wear and tear and depreciation; or 5 per cent. for depreciation and the actual repairs account for wear and tear. We have not got Mr. Smith's "repairs account," so I will take it in the usual way of 15 per cent. to cover all three. Now, 15 per cent. on 375*l.* amounts to 56*l.* 5*s.*, instead of only 8*l.* 3*s.* 6*d.*, which Mr. Smith allows! I believe, however, that 109 acres is not the whole quantity of land under plough each year at Woolston, but I think I do not under-estimate it if I reckon it to be 225 acres

actually ploughed each year. But 56*l.* 5*s.* spread over 225 acres would amount to 5*s.* per acre for interest, wear and tear, and depreciation, instead of the simple 1*s.* 6*d.*, which Mr. Smith puts down. Can Mr. Smith clear himself of this alleged miscalculation as easily as Mr. Mechi shook off the Woolston sophisms? *G. A. H.* [Mr. Smith's 1*s.* 6*d.* per acre means so many shillings a-day; and that, over the number of days in the year on which, if Mr. Smith's farm were large enough, the engine would be at work, is, we presume, his justification of the item. One shilling and sixpence an acre is 12*s.* a day, and a use of the engine during 100 days per annum would, at this rate, involve a charge of 60*l.* for interest.]

Cost of Steam Cultivation on the Woolston System.—"Agricola" (p. 1120) shall have the particulars for which he asks. Mr. Bates' letter was in the *Times* of August 9, 1869; "Agricola" had better get a copy of that paper, and also a copy of your paper of January 20, 1866, and see to the "correctness" of them himself; and he will do so, for it is not gentlemanly to openly "doubt" statements when a sufficient reference is given. Now for the particulars:—

1869.
Sept. 15. Finished harvest.
21. Started the smashors by steam-power on part of No. 3, heavy land, 20 acres.
22. Worked all day.
23. Finished the 20 acres at 10.55 A.M. Then shifted the tackle to No. 2, heavy land, and started.
24. Worked all day.
25. Finished No. 2, heavy land, at 5.10 P.M., 22¾ acres; then shifted to No. 1, heavy land.
26. Sunday.
27. Worked all day.
28. Worked all day.
29. Finished No. 1, heavy land, at 8.20 A.M., 16½ acres. The men were at dung-cart the rest of the day.
30. The men at dung-cart all day.
Oct. 1. Tackle shifted to, and started on light land, No. 6, working the ridger and subsoiler.
2. Worked all day on No. 6.
3. Sunday.
4. Finished No. 6 (14 acres) at 11.20 A.M., then shifted and started the ridger and subsoiler on No. 1, light land.
5. Worked all day on No. 1.
6. Finished No. 1 (12 acres) at 8.20 A.M., then shifted the tackle and set the smasher to work on No. 4, light land.
7. Finished No. 1 (12 acres) at 11.50 A.M., then shifted the tackle to No. 5, light land, setting the ridger and subsoiler to work.
8. Worked all day on No. 5.
9. Finished No. 5 (12 acres) at 11.15 A.M., and then packed up the tackle for the year.

The total consumption of coal has been (on the 109 acres) 8 ton 18 cwt., or an average of 1 cwt. 2 qr. 17 lb. per acre. A boy only 15 years of age worked the implements during the whole period.

I have noticed Sundays and dung-cart to make it quite clear as to the working days. It may be seen that I smashed 71 acres in 8½ days, and that I ridged and subsoiled 38 acres in 6⅜ days. The former was done at a depth of 6 inches, and the latter from 10 to 12 inches. Now, I must give a day's working expenses when working the ridger and subsoiler.

Engine-man	per day	3*s.*	6*d.*
Windlass-man	,,	2	6
Two anchor-men	,,	5	0
15-year-old plough-boy	,,	1	6
Plough-boy's assistant	,,	2	6
Two roller-boys	,,	1	6
Water fetchers	,,	2	0
		18	6

The ploughboy's assistant is not needed with the smasher, therefore the cost for men at that work stands at 16*s.* per day. The average daily consumption of coal was 11½ cwt. and a fraction, 99 cwt. to smashing, and 79 cwt. to ridging and subsoiling. The 71 acres of smashing in eight and a-half days stands thus:—

Men for 8½ days, at 16*s.* per day ..	£6	16	0
Coal—4 tons 19 cwt., at 16*s.* per ton ..	3	19	2½
Oil, at 9*d.* per day..	0	6	4½
	£11	1	7

—or an average of 3*s.* 2*d.* per acre, yet not quite, for I had thrown fractions away. The 38 acres of ridging and subsoiling in six and three-quarter days stands thus:—

Men for 6¾ days, at 18*s.* 6*d.* per day ..	£6	4	10½
Coal—3 tons 19 cwt., at 16*s.* per ton ..	3	3	2½
Oil, at 9*d.* per day..	0	5	0½
	£9	13	1½

—or an average of 5*s.* 1*d.* per acre, and a very little fraction over, and that is all. In my letter of October 11, I stated that the smashing cost 3*s.* 2*d.*, and the ridging and subsoiling cost 5*s.* 1*d.* per acre; therefore "Agricola" may now see the data upon which my statement was founded in both cases: 1*s.* 6*d.* per acre must be added for interest of money and wear and tear. Now, let me tell "Agricola" one fact: I am now getting my 6 acres of Mangels up, and the last year's ridging and subsoiling for them, at a cost of 7*s.* 3*d.* per acre, has left the land in such a beautiful condition that it will need only a cultivating with horses, at a cost of 2*s.* per acre, for Wheat this autumn. "Agricola" may, if he likes, see this done, and he may also see my Wheat that has already been planted on seed-beds costing only 6*s.* 8*d.* per acre, steam and horse-power work included. Yes; and there is my ridged work to see if he likes: I will stand no nonsense about his "doubts." *William Smith, Woolston, Bletchley Station, Bucks, Oct.* 25.

Mangel Running to Seed.—Referring to your article on the running to seed of Mangels, I have a small field of 5 acres planted with this root. One half of it was drilled with seed obtained from Sutton's, and on this portion very few indeed have run away. On the other half, from seed purchased of a local dealer, a very large percentage have bolted, and I have from time to time had them topped. I must observe that the field was cultivated and treated in every respect alike, and only one day intervened in the drilling. This would appear to do away with the theory of the season being the cause, as the weather was the same in both parts of the field, and in my case it would appear to be caused by the difference of seed. *F. W. Bignell, Loughton, Stony Stratford, Oct.* 22.

Sand for Bedding.—Sea-sand has been used in my stables, in place of straw, for the last two seasons. Eleven horses, seven of which were hunters, have been free from colds; they have also had cool feet, and there has been no scent of any sort. *Hampton-Lewis, Heallys, Beaumaris, October* 24.

Societies.

BATH AND WEST OF ENGLAND.

Bath: October 26.—At the usual meeting of the Council it was resolved that the Taunton meeting (1870) shall commence on Monday, June 6; and the Council having approved the stock and poultry prize sheets, ordered that they be forthwith printed and circulated. The total amount offered in prizes exceeds 1350*l.* To encourage proficiency in horse-shoeing Mr. Miles, of Exeter, again offers three prizes; it being stipulated that no man who has won a 1st prize in this competition will be eligible to enter. In the stock classes all entries must be made on or before April 20; in the poultry classes on or before May 1. Among the special conditions affecting the exhibition of stock are (1) the appointment of "two inspectors to examine sheep on their admission to the showyard, with instructions to report to the stewards any cases in which sheep have not been really and fairly shorn bare," and (2) that "all cattle will be required to be paraded in the ring at least once a day, at the discretion of the stewards."

The Meeting of 1871.—Mr. Ramsden having presented an invitation to the Council from a public meeting of the inhabitants of Guildford and neighbourhood, for the Society to hold its meeting there in 1871, a deputation was appointed to visit the town, to inspect the ground offered for showyard and fields, and to report to the Council at the next meeting.

Farmers' Clubs.

HEXHAM.

The Development of the Agricultural Resources of Great Britain.—Mr. J. Hope, jun., read, on Tuesday week, a paper on the above subject, from which we make the following extracts:—When I consider the great importance of British agriculture in its relation to the supply of food to the people of the United Kingdom, I think I have introduced a subject worthy of the attention of all who take an interest in the prosperity of the British isles. I may say, in commencing, that I have no extravagant theory to present to you, or Utopian scheme to enforce, nor even to indulge in flights of imagination, but in a sober, rational, and earnest manner to present to you some considerations of a matter-of-fact character, that may tend in some very humble way to the development of the agricultural resources of this country. I do not expect (in our time, at least) to see Turnips growing on the top of Skiddaw, Potatos on the crest of Snowdon, white Wheat on the summit of Ben Nevis, nor even Cabbages on the ridge of the Dunkerroon Mountains of Kerry. As the quantity of land in these islands cannot be increased as the inhabitants increase, and as we do not possess the resources of Brother Jonathan in being able to go "further west," as found necessary, we must make the best (the very best) use of what resources are at our disposal. In this age of wonderful schemes it is not very likely that any great engineer will be able to shift us from our insular position by drifting us down south, say between Madeira and Morocco, therefore we must be content with our temperate, rather foggy, and uncertain climate. However, it has this important advantage, that it is able to grow the finest beef and mutton in the world.

Population.—According to the census of April, 1861, the number of inhabitants in the United Kingdom, including the Channel Islands, Isle of Man, &c., was 29,334,710, and now in October, 1869, taking into our calculation the annual addition to our population, our numbers will be 31½ millions; and in 50 years more, according to the present ratio of increase, our people will have doubled their numbers. And still further to show the development of the Anglo-Saxon race, we may say that the United States doubles its population in 25 years. "Should the same rate of increase go on (I here quote from C. A. Coke's census) England and Wales (not the United Kingdom) in 1901 may be expected to number 36 millions of the human race, which in the succeeding 50 years, or in 1951, may be increased to 73 millions, nearly four times its present inhabitants. This, however, is a point none can determine. We can but estimate the probabilities of the future by the increase of past years." On an average 373 persons reside on a square mile of surface in England, and, with the exception of Belgium, with 400 persons to a square mile, is one of the most densely populated countries on the face of the earth.

Food.—The supply of food to the nation is one ever increasing in its urgency, and its importance brings us to our subject. It is granted that our population numbers 31½ millions, we may ask the question, how much corn is required annually for our own consumption? Some political economists of eminence calculate that 1 quarter of corn is required on an average to feed every man, woman, and child for one year, and some also, of good authority, calculate 6 bushels per head. As the truth generally lies between extremes, so probably it may do so in this case. In my calculations I will assume the medium quantity to be nearest the truth, and I find we will require about 27 million quarters of corn for the food of the people of the British Isles.

Our Corn Growing Resources.—Taking the Board of Trade returns for 1868, which is the latest and best authority we could get, we find the following results for the United Kingdom;—England: 3,396,890 acres of Wheat (310,000 acres increase over 1867, partly in consequence of the failure of the Turnip crop); 1,780,210 do. Barley; 1,488,470 do. Oats. Wales: 130,552 acres of Wheat; 151,608 do. Barley; 257,153 do. Oats. Scotland: 124,683 acres of Wheat; 219,515 do. Barley; 1,011,430 do. Oats. Ireland: 286,790 acres of Wheat; 188,252 do. Barley; 1,699,919 do. Oats.

Wheat Grown.—For the present we will only concern ourselves with Wheat, or human food. We had in the United Kingdom in 1868, 3,951,018 acres of Wheat, or in round numbers 4,000,000 of acres; taking 3½ quarters (some say more) as an estimate, we find that in 1868 we grew in these isles about 14 million quarters of corn.

Wheat Imported.—According to the *Economist*, our importation of Wheat for 1868 was in round numbers rather over 8 millions of quarters, which practical agriculturists say can be grown at home. For a period of years past our average annual importation was 10 millions of quarters of corn. The annual increase of corn required is about 200,000 quarters for the increase of population. And now, taking into account the proportion of Rye, Oats, and Barley consumed for human food, you will find our original estimate of the annual consumption per head to be very near the truth.

Dr. and Cr. Account.—I look upon every effort that is made for the increased productive power of our isles as being to the credit or profit side of our country; and I also look upon all land that is farmed under its productive power for want of capital, knowledge, industry, energy, or other causes, as being to the debtor or losing side of our country.

Beef and Mutton.—Leaving this corn question for a time I will now turn your attention to the question of beef and mutton, and taking Dr. Wynter's statement of the annual consumption of London as the basis of our calculation, I find it requires (exclusive of fish, fowls, rabbits, hams, bacon, &c.) 1,500,000 sheep, 250,000 oxen, 30,000 calves, and 30,000 pigs; and taking into account the fact that the population of London is 3,000,000, which forms about the tenth part of the population of the United Kingdom—in round numbers 30,000,000 (the *Mark Lane Express* of the 11th inst., in speaking of the corn question, makes use of the same quantities, and as this was written a week previously, it is a coincidence and also a confirmation)—and I find that we require, as near as I can come, for our annual consumption, 15,000,000 sheep, 2,500,000 oxen, 300,000 calves, and 300,000 pigs.

Cattle Imported.—The cattle imported are as below specified. I arrived at the conclusion by adding one-third to the first eight months made up and published by the Board of Trade so as to bring in the last four months of the year:—Cattle, all kinds, 124,731; sheep and lambs, 386,394; swine and hogs, 29,304. There are also comparatively minor imports of salt beef, pork, bacon, hams, &c., which I do not take into account. It will be observed that in comparison with our corn importations, our importation of live cattle is of a very minor character.

Number of Live Stock.—The following figures will show the number of live stock in the United Kingdom in 1868, with the increase and decrease over and under 1867:—

Cows, 3,625,137	Increase,	52,343 over 1867
Other kinds, 5,458,279 ..	,,	299,800 ,,
Sheep and lambs, 35,607,812	,,	1,789,861 ,,
Pigs, 3,189,167	Decrease,	1,031,933 under 1867

Effect of High-priced food on Stock.—"The high price of pigs and sheep in 1866 had the effect of increasing the number in 1867, and the very large decrease of pigs in 1868 was caused by the high price of food in that year." We see how wonderfully the law of supply and demand—the only just standard of value—can regulate our supplies of food with a precision that is perfectly astonishing, and with results that are of most reliable data for our information, and help us to understand the science of Political Economy, and to know that the balance can be kept without any paternal Government aid or centralizing influence.

Land and Crops Required.—The total area of the United Kingdom is 77,513,000 acres. Of these, 22,164,584 are under permanent pasture, and 11,659,855 under corn crops—a part of which, Barley, Oats, Beans and Peas, are used for cattle food—and under Turnips, Mangels, &c., 2,782,131. The total acreage under crops is 45,652,545, which leaves a balance of 32,000,000 acres of what is called waste lands, which we will not take upon ourselves to specify, as the Board of Trade say "that land capable of cultivation, but lying waste and untilled is erroneously returned under the heading of 'bare fallow or uncropped arable land.'"

Importations of Feeding Stuff.—We import in vast quantities Oats, Barley, Maize, Peas, Beans, Millet, Lentils, &c., the quantities of which we cannot now go into, and also immense quantities of linseed, cotton, rape and rubsen cakes, containing, as our agriculturists have found, the highest and most nutritious and flesh-forming substances, with least waste of ash, moisture, and other useless matter, and also containing, as a matter of necessity, the richest manurial value—in fact, being worth nearly half the cost for that only—and with Peruvian guano advanced 10*s.* per ton last month, this item forms a very important estimate in the grazier's calculation. Linseed cake is, in its nature, the article that can be quickest manufactured into beef, &c.; it is, in fact, concentrated ready for immediate transformation into the living organism. In this wonderful arrangement of indirect manure purchase we see the compensating clause of Nature, and how also "the liberal soul shall be made fat" in increased fertility and larger crops.

Turnip Crop.—We know that Turnips contain an average proportion of 90 per cent. of water, and being now rather an uncertain crop—to a certain extent—and the corn-land being required for food for man, not for cattle (as per statements of foreign corn imported as previously stated), we find we are fairly brought to

the question of "The development of the agricultural resources of the United Kingdom."

Waste Lands.—We have 32,000,000 acres of what are technically called waste lands. Of these there are (published in 1863) 2,000,000 acres occupied with woods and plantations, 7,000,000 acres in Scotland consist of sheep pasture (at a considerable elevation, and little improved), 8,000,000 in Ireland unenclosed (generally quite unimproved), 3,000,000 acres are mountain and bog, 12,000,000 acres consist of unimproved and very unproductive lands of every other kind. While I admit most freely that a large portion of land is farmed in very high, first-class condition, I also am compelled to say, from practical agricultural authority, that a very large proportion is cultivated in such a way as to be very unproductive, and also very unprofitable. In the matter of the reclamation of waste lands much has been done, but more remains to be done, and I look forward to the future of our country with promise, because the spirit of enterprise is abroad, and young England is putting on the armour for the foe. There are new victories, bloodless conquests, to obtain over the vast resources of the forces in Nature, and countless laurels for agricultural heroes to obtain, in which they will receive the blessings of the poor, the hungry, and too often famishing, proportion of our people, and in which they will know that "Peace hath her victories, not less renowned than war."

Suggestions.—In the few suggestions that I have to make I feel the need of much wisdom in touching on those great questions which lie before us, and wish to speak with perfect kindness and forbearance, and humility, knowing, as I do, that many older and wiser heads than mine have failed to solve or settle the following problems, which bear directly on the solution of our subject. The conveyance of land should be shorn of its cumbrous and expensive character, and be placed on a simple and equitable footing, so that the sale of land may become as simple—though not quite so quick—as a quarter of corn; as it is, the premium charged and the delay attendant is a disgrace to our legislators. The law of landlord and tenant might be so contrived as to be not "one-sided justice" to either, but with such covenants for the mutual protection of the rights and properties of each as to produce a good understanding between them. In homely language, we may say that they sail in the same boat, their interest being incidental; and where this is not the case improvement is stopped, and land deteriorates in value. Good leases, and fair compensation for improvements on both sides, and in cases of dispute a reference to a wise arbitrator, would lead to this desirable consummation, as will also the consideration of the next point. A settlement of the Game Law question, probably by the medium of a mutual compromise between the landlord and tenant, treating rabbits simply as vermin to be quickly destroyed as a nuisance, leaving the landlord the enjoyment of the hares and winged game, as already suggested by a large number of tenant-farmers and landlords, and thus doing away with the prolific source of dispute, the "gamekeeper," the tenant himself seeing that the hares and winged game are looked after for his landlord's shooting. I believe this question will soon be settled by the sheer force of common sense, and I heartily wish it a speedy burial. The waste lands to be improved, so as to develop our resources, and employ our able-bodied paupers who cannot get work. As land is a sound investment, it is to be hoped that there need be no lack of capital after the bursting of the bubble "limited liability," with its extensive depressing results; and after the money lost on foreign loans and Quixotic enterprises, I doubt not that money would be to be had on a safe, though slower, investment in the reclamation and improvement of the land of our own country. No more wilful waste should be countenanced in the matter of sewage, which is nothing else than "national loss," and the utilisation of it will be a source of national gain. The sanitary laws alone (apart from the question of finance) will compel us to take up this question.

More Meat, more Manure.—The manufacture of more meat, more manure, should be encouraged, primarily as a source of profit in the animal; and, secondly, as a fertilising power to aid in developing our resources. It can be proved that the quality of a farm is before its quantity, so that as far as possible every acre of land should be brought up to the highest state of efficiency, so as to double its producing power, and sell off 200*l.* or more instead of 100*l.*, and still under liberal treatment maintain its efficiency.

Rents.—As rents have increased, so have our crops, and power of producing corn and cattle. This shows that it has stimulated enterprise, by introducing improvements on every hand, in the shape of drainage and machinery. Free Trade showed this country the necessity of flinging aside notions of standing still, and induced us to go on with the spirit of progress, so that it has not by any means been an unmixed evil to the agriculturist, but otherwise.

Education.—The lack of good education in an agriculturist is simply undeveloped power, for if in any age the aphorism is true that "knowledge is power" it is so now. The leading general principles of science should be taught, so as to enable the farmer to grasp the leading principles of cause and effect in all their varied relationship with the laws of Nature; character of the soil, with regard to its capacity for bearing certain crops; the nature of the growing plant, its culture, and proper nourishment; the knowledge of the laws of life and health of the living animal, so as to develop this knowledge in a utilitarian way, with a view to increase and profit. This knowledge must go hand in hand with experience, to be of a strictly practical character, it being quite impossible for any man actively engaged in the business of farming to sit in his study all the day long; this can only be done by the literary man. "We must have men of thought," and we must also have "men of action."

The Peasant.—Better dwellings are in many places required by our peasantry. Better houses often mean better morality. The better education of the working power of the farm would enable the labourer to take a deeper interest in his work, and an intelligent pride in the working of the same. A well-educated peasantry would also prove the best safeguard of our country's prosperity, and would help to solve the puzzling social questions awaiting solution, to wit—pauperism, crime, and other kindred questions. I most cordially sympathise with all men who are labouring in an earnest and thorough way for the amelioration and solid instruction of our working people, for I believe the training and development of a noble race of men and women to be of vital importance to our nation.

Reviews.

Horses and Stables. By Colonel Fitzwygram, 15th (the King's) Hussars. (Longmans, Green, Reader & Dyer.)

A title-page with not a wasted word, a list of plates, a table of contents; and then Chapter I. on Ventilation, beginning "Pure air is as important to the integrity of the blood as wholesome food to the maintenance of the body;" no "Introduction," no "Preface":—the character of the whole work is illustrated by this directness and simplicity of its commencement. "Horses and Stables" is a very good and useful book, containing a fund of serviceable information in a succession of well-arranged short paragraphs. In section 10 of Chapter I., which relates to the ventilation and construction of stables, we read the cubical dimensions per horse in a number of public and private stables. They vary from 300 cubic feet in many of the inferior cab stables, up to 2500 cubic feet in the Royal Mews. A common dimension is 700 cubic feet; all the barrack stables quoted being, however, more. This and the other chapters of the book are illustrated. We have, for example, plans and elevations of good and faulty stables, the former yielding light, fresh air, and ample room to every horse, the latter imperfect in all these particulars. The first part of the volume relates to stables and stable management; the other parts more directly to the horse and to its treatment under disease. We shall bring the work under the notice of our readers by occasional extracts.

The Poultry Yard.

EACH season brings its duty, and to those who love order, even in their hobbies, the preparation for winter comes as naturally to them when thinking of their poultry, as it does when the first chill suggests the wisdom of making some difference in costume.

With the recollection of the unusual heat of last week fresh in our minds, we thought a friend was mistaken when, while looking with us at some stock, he said, "You must now look for daily decreasing light and increasing darkness, for cold nights and mornings." Impossible, thought we, the change would be too great; but it came.

Many do not sufficiently calculate the great change that takes place while the days shorten and the nights lengthen. The sun loses power, the earth becomes chilly; no growth of Grass, no animal life, nothing for poultry to eat but that which is given by hand. In many places, till this time, the chickens, now nearly as large as their parents, have roosted out and about. They have squeezed themselves still into the rip, in which they roosted when they were first deserted by their mother. They have perched on low rails and in hedges, but that must now be put an end to. During the long nights between this and Christmas they want more shelter than Nature has given to them. It is perfectly true that all her works are perfect, and that all are fitted for the weather they have to encounter, but anyone who has had the opportunity of watching birds will soon know the difference. Instinct teaches a bird at roost in wet weather to form a slope of its body to shoot off the rain. With the head tucked into the feathers, the legs drawn up and the body drooping from the shoulders, the rain runs off. We have seen it run a stream from the tail of a pheasant; but we have brought up our birds artificially, and they cannot bear the same hardships that one can which has never been sheltered. We have often wondered that in a wet time partridges should find the places they do. On the shelves of beetling banks, in the mouths of rabbits' burrows, under the roots of large trees—they choose fit shelter with admirable instinct. They are equally clever at sheltering themselves from cold winds. Our fowls, however, look for shelter to the places and contrivances they have always known, and it is for that reason we must, now the weather is changed, make fresh arrangements for them.

Where there is plenty of room there is no difficulty. All that has to be done is to bring the chickens into the fowlhouse to roost. This is sometimes troublesome, because after the hen has left the chickens they still roost in the rip, and when they are too large to do so, they roost, some in, some outside. We find the easiest way is to move the rips away. Nothing else is of any use; fowls firmly believe there is no place like home. Where twelve little chickens roosted for warmth after their mother had left them, 12 nearly full-grown fowls persist in lodging. It is a squabble towards roosting time, squeezing and screaming; the strong ones making good their entry, the weaker fidgetting about till they get opposite the door, when they are out in a minute. This goes on till it is quite dark, when they settle down as they can. Some, however, roost on the top of the rip. It may be suffered while the nights are warm and comparatively short, but as soon as the weather breaks, and the nights lengthen, they must be brought to warmer and more secure roosting. The rips must be taken away, and the birds driven into the house where they are intended to live After this has been done for a few nights they will take to it regularly. It may be that young and old are almost too many for the place. If they were allowed to live in it, disease would be the consequence. If you have no other space to give them, do at once that which should have been done long since, sell or kill the faulty birds; care and food are probably thrown away upon them, and the older they get the less they are worth. The perfect birds increase in value as they get older, till they attain maturity. Those that, from defects or absence of merit, are destined for the table, become less valuable because they get older and more unprofitable, from each meal increasing their cost. Nothing destroys profit and lessens pleasure so much as overstocking, and overlooking the fact that the little chickens of March are large fowls now. If you mean to do well, the time is now come to kill or sell.

Enquirer: The Birmingham entries close on November 1.

Minster: There is no accepted definition of the word "pen," used in an exhibition sense. When Birmingham first began each pen contained a cock and three hens or pullets; then it was altered to two; then, in the case of game, to one; and now the cocks and pullets are shown separately. If compelled to give a definition of an exhibition pen, we should say a cock and two hens.

Thrifty: We advocate moderate feeding, with the best food. We give all the helps we can, but as we like to know what we are giving, we avoid prepared foods.

Farm Memoranda.

WESTER ROSS: *Oct.* 20.—A more backward and tantalising harvest we have not had in the north of Scotland for a very long period, and much loss has been sustained. In the later districts a great deal of the crop remains out, and much of it must be all but useless from the length of time it has lain in a thoroughly soaked condition. On August 19 we commenced our harvest with six scythes, a smaller number than usual, as the crops did not ripen simultaneously. We finished on September 9, and on the evening of September 11 we left in the fields as much of the crop as would occupy three days in carting home. The rain began, however, on the 12th, and no less than four weeks elapsed ere we got the three days' leading required to ingather the remainder of the crop. The last of it was brought home, it is superfluous to say, in anything but good condition, on the evening of October 9. There were cut 150 acres of Wheat, Oats, and Barley, and the number of stacks was about 80. The whole expense for cutting, gathering, binding, stooking, leading, and thatching was 26*l.*, or a little under 3*s.* 6*d.* per acre. Scythemen had 3*s.*; binders, 2*s.* 6*d.*; women for gathering, 1*s.* 6*d.*; and rakers, 1*s.* 2*d.* per day, without rations. All the half-year servants were constantly engaged in the harvest work, and their wages are not included in the harvest expenses, consequently the outlay is very much lessened. We employed a reaper for several days in cutting the crops on the land best adapted for it. The work was admirably done, almost every ear being in its right place, but the expense was certainly not less than with the scythe. The same hands followed the machine as at other times were engaged with the scythe, and it was found that, although all after the machine seemed to have quite enough ado to have the sheaves out of the way, yet, when night came, there was scarcely so much ground gone over as would have been by the same number of hands with the scythe. We did not anticipate that the expense of harvesting would be lessened by the use of a reaper, and consequently felt no disappointment at the result, and neither do we anticipate that there will be any material lessening of the expense in this quarter so long as labourers are so abundant and wages so low; but the advantages resulting from having the work incomparably better done are quite sufficient to lead to their universal use, especially when the crops are light. Notwithstanding the beneficial changes that of late years have been made on the reaper, there is yet room for improvement. There is a liability to breakages and interruptions which are not convenient on a harvest day, besides numerous evils resulting therefrom, for which one never bargained. A servant, a short time ago, reached a neighbouring farm breathless, and said that she had been sent to ask what tremendous calamity had befallen them, as they had seen one of their servants pass on horseback at a life-and-death rate. She was informed that the servant referred to had gone to the smithy with a broken limb of the reaper. Our grain this year is of very various quality: all that was secured before the rain is very fine, but what was overtaken by it is greatly discoloured, and much of it sprouted, and must be in an unfit state for market for months to come. The weather appears now to have settled, and the remainder of the grain crop is being gathered in. Potato lifting, which was also hindered by the weather, is now being proceeded with. Few fields of Wheat have as yet been sown, but preparations for it are now going on, and with a continuation of settled weather, a large breadth would soon be sown. We in the North are taking very slowly to thin-seeding, but the tendency is fairly in that direction. With good soil, in fine condition, a very small quantity of seed is sufficient. Cattle are selling well, while sheep have greatly advanced in price, assisted thereto, no doubt, by the disease among cattle.

ABBERTON, WORCESTERSHIRE: *The Allotment System.*—We have much pleasure in calling attention to the result of a trial of the allotment system upon the estate of William Laslett, Esq., at Abberton. It appears that about 20 years ago Mr. Laslett, ever active in his benevolence, and always a friend of the agricultural labourer, ready to express his friendship in a substantial manner, determined upon making an experiment with a few small allotments, so that he might use them as a means by which the hard-working men of

his neighbourhood would be raised in their own estimation and in social importance also. Accordingly that gentleman set apart 60 acres of the best land at Abberton, and the experiment has been tried fully and fairly. The holdings varied according to the requirements of the holders. Some held 2 or 3 acres, some a mere patch, and the rents ranged from 1s. 6d. per annum to 5l. Having said thus much by way of preface, we give the following particulars:—

The land was let, some at 20s. per acre, and some at 30s., according to quality, and free of tithes, rates, and taxes. Tenants soon presented themselves, and all the holdings were speedily let. Having succeeded so far, the question of how the rent was to be met received consideration. Earnings of agricultural labourers allow small margin for savings, and country places, unlike towns, offer little ready markets for garden crops, and none for cereal, and if markets were available, the latter kind of crop takes a long time to mature. Hence slender prospect appeared of a labourer making the rent out of the land in time to meet his payments in case of the reservation of rent half-yearly, in the usual way. To remove as much as possible the difficulties besetting the way of payment, it was conditioned to wait for the rent till after the housing of the crops, and preliminaries being adjusted, the venture commenced. In the settlement of the conditions of the project there was, however, another interest to be considered, another consent to be won. The labouring interest had been considered, and its assent had been evinced in the ready taking up of the holdings, but how did the farming interest regard the project, and certainly this great and intelligent interest had undoubted claims to fair consideration. Well, it was thought that the interest of this class lay in the contentment and well-being of the labouring classes, and that any measure which would improve the conditiou of the one class would tend to the benefit of the other. Confessedly, however, at the outset the assent of the farmer was given with reluctance; the movement was viewed with sentiments of no little doubt and apprehension. The cultivation of independent holdings might take up time unduly and might result in neglect of the ordinary farm work, and while the employed were benefited the employers might be injured. Twenty years have rolled by. Doubts are dissipated, apprehensions dispelled, and farmers are the fast friends of the movement. Employers' interests are not neglected. Farm work is done with a hearty good will, and consequences little foreseen have followed the progress of the movement. The farmer gives half a day to help the labourer to till his holding, another half day to gather the crop, and gains good will and confidence, and the relations of master and man are on a healthy footing. The labourer has a pig in the stye, Potatos in the bury, and meal in the sack, needs no parish pay, suffers less sickness, is able to do and does a good day's work, poor-rates diminish; so the farmer's interest is better cared for, the strain on his pocket eased, and master and man are better off.

There had been hard times since 1849. Twenty years ago beef could be got for 4d. per lb.; now it costs 8d. For all that, the condition of the labourer has gone on improving, and many elements of success in the movement are assured.

Granting the advance of the labourer in material comfort, has the movement affected his social grade? The holdings are some 100 in number. Of these, the occupiers of two are no longer labourers, having raised themselves to the position, in a modest way, of thriving farmers; one renting a farm of 40l. per annum, the other one of 150l. 'Tis for Social Science to say whether the advance in grade of two in a hundred is a sufficient result. But it must remembered that no movement is strong enough to turn all tenant labourers into farmers. In the present order of things there must still be "hewers of wood and drawers of water." Enough is proved to stamp the success of the movement in showing that grade has been altered, material comfort increased, self-reliance strengthened, and usefulness extended. Mr. Laslett has set out land on similar conditions, and in a similar manner, in the neighbouring parishes of Kington, Dormstone, and Flyford Flavell.

At the close of every year—that is, the allotment year, dating from the period of the establishment of the system—the tenant labourers assemble at Abberton Hall, around a table well stored with the old English fare of roast beef and plum pudding, and keep the day as a festival. The one kept very recently was the 19th tenant-day and the 20th anniversary of the movement. The day was celebrated by upwards of 100 guests in a happy and genial spirit. All the old familiar faces of 20 years ago were present save four; two of those had taken to farming, and two "rested from their labours;" and it is remarkable that in 20 years there have been but two deaths among the tenant labourers. At the dinner tributes embodying the cordial expressions of a satisfied and grateful tenantry were freely offered to the hospitable host and good landlord, and warmest wishes uttered for unfailing health and unending happiness. *Worcester Herald.*

Calendar of Operations.

October: *Autumn Fallowing* for the Turnips of the ensuing season is prosecuted throughout the month on what are usually termed Turnip and Barley farms. Steam is always to be preferred to horses, but the latter we must admit are as yet the dominant or general power. When the land is full of Twitch and other weeds, the work of scuffling and cleaning may be more difficult than last month, but this is only a good reason why it should be more assiduously persevered in. A little rain, if followed by dry weather, often makes the long Twitch shake out the easier; but when the weather is broken at the time, and unsettled, it is better to make clean work as you go along, than to leave the whole field exposed to the weather for days in succession after scuffling. In other words, keep the harrows and gathering of the long weeds close up to the scuffling, taking no more on in a day than can be finished.

Lea ploughing for winter Wheat often takes precedence of stubbles for Turnips, but for spring Wheat and Oats it follows the latter. When the stubbles are ploughed the teams enter the lea fields. If the tillage is exclusively done by horses, it is seldom that they get through the stubbles before the middle of next month, but when steam is employed it is otherwise. Thus, where the practice prevails of smashing up the stubbles with cultivators, the ploughing of the lea is done with horses, and, in such cases, the teams should be in the lea fields by the end of October, and sooner if the work of carting will permit. Steam culture is, however, giving rise to more carting in autumn, with fewer teams to do the work, hence when they have to plough the leas, it may be next month, and even December before they can begin their work; and, besides the leas, the teams have to follow up close to the sheep-folding, and then clearing off the Turnip fields for house-fed stock.

Top-dressing leas for cropping may be done as late as October, the ploughing being deferred until the top-dressing has produced the proper effect upon the vegetation, which it very soon does, if broken sufficiently fine and properly worked into the surface by bush or chain harrows. In other words, the Grass should grow up about the top-dressing, so as to prevent it falling to the bottom of the furrow when the land is ploughed, the value of the top-dressing being at the same time washed into the furrow-slice by the rains. In examples where the land lies two years in Grass, the first hay and the second pasture, some prefer applying the compost the first year, and the sooner the work is done after the cattle are taken off the Grass the better, if liable to be cut by the carting. And besides the injury from carting, rich composts are more readily washed into the land before it is soaked to the maximum by the winter rains. There is another kind of top-dressing, which may be done in frosty weather, but of this afterwards.

Meadows for hay should now be top-dressed, if the work has not been done in the previous months. The old plan was to apply farmyard manure, but the practice is a wasteful one. Rich composts made by saturating peat-earth, scourings of ditches, &c., with the liquid from the homestead, composts made with farmyard manure, town sewage, with the refuse of fisheries, with lime, refuse of gasworks, or artificial manures mixed with ashes, and the like, are to be preferred to farmyard manure alone. Composts of this kind, when properly made, may be applied by broadcast manure distributors and well harrowed in by chain-harrows; and when the work is well done the November rains will wash in the fertilising qualities, and set up a lively greensward.

Threshing Wheat, Barley, and Oats—the corn for market, and the straw for provender and litter—gives employment to hands at the homestead. Many thresh out largely at this season, believing early sales the more profitable, the straw being stacked for after use; but on stock farms, where the whole of the straw is consumed by stock for food and litter, the more common practice is to thresh out no faster than the straw is required.

Live stock: Swine.—This is a good month both for dairy porkers and bacon hogs. The skimmed milk of butter dairies is less in quantity, but it will stand rather more hot water and meal, and a few weeks on this diet will produce nice porkers. Full grown hogs fatten fast, and faster if their meal-wash is soured; but steamed Potatos, mashed with barleymeal, or Indian cornmeal, seasoned with a handful of acornmeal, and a little sour wash to swill it down with, makes excellent bacon, either for market or family use. Small porkers thus fattened yield first-rate hams, and generally return the full market price for their meal and Potatos.

Highland sheep walks present a different practice from that of the lowlands at this season, October being corn harvest month in many districts. Frost, with heavy falls of snow, is common on the more elevated farms, the stooks when dritted up having to be removed on to clear ground when the storm is over. At one time kilns for drying corn in the straw were common. We once saw a small one capable of drying a stook at a time. Rams are selected and put upon Turnips to be in good condition and to turn in with the ewes about Martinmas, *i. e.*, the middle of next month. Towards the close of the month sheep are "bathed," which may occupy shepherds for 10 days or a fortnight. Various baths are used—as the "turpentine bath," or the more common one, which consists of a decoction of tobacco mixed with spirit of tar and soap. The object is to kill sheep-tick and obviate cutaneous eruptions. To kill scab, some add "sulphur vivum" to the above, but in bad cases of scab, sheep ointments (preparations of carbolic acid and mercury) are needed. Others smear with a mixture of tar and butter profusely to kill sheep-tick and defend the skin from cold and rain in the rigorous winters of the North, but the practice is injurious to the quality of the wool. The proportion of tar and butter varies. A gallon of tar poured into from 6 lb. to 8 lb. of melted butter is perhaps a common salve, and will smear a score of blackfaced or Cheviot wedders. Old wedders are sold for fattening on Turnips in the lowlands and southern counties, and draught ewes not sold last month are disposed of as early in October as sales can be effected for breeding early lambs, Leicester rams being put to them as soon as they reach their winter quarters. *W. B.*

Notices to Correspondents.

Address: Several letters have been sent to us for "Half Pay," whose address we have not got. Will he communicate with us?

New Geraniums.

JOHN KEYNES begs to announce that he has secured the stock of those two first-rate flowers which have excited so much admiration at the Royal Horticultural Society; First-Class Certificates have been awarded them. They comprise COLESHILL (Exhibition), bright scarlet Zonal, the finest of its class; and LADY EDITH, a bright purply pink Ivy-leaf. These are the two best acquisitions of the season. They will be sent out in April next, at 10s. 6d. each. Drawings may be had on receipt of 15 postage stamps.
Castle Street Nursery, Salisbury.

To Growers for Market, Gardeners, and the Trade.

JOHN MONRO, of the Great North Road, Potter's Bar, N., has 20,000 plants of the choicest sorts of PELARGONIUMS that are grown for the London Market; also 2000 plants of the best strain of Red and White PRIMULAS. Packed and put on Railway at Potter's Bar Station at £1 per 100.
Post Office or Inn payable at Potter's Bar, N.

H. CANNELL'S AUTUMN CATALOGUE is now ready, and will be sent free for One Stamp. It contains a full description, with lowest prices consistent with quality and economy, of all the best new and most distinct varieties of PELARGONIUMS (both of Tricolors and Bicolors, Doubles and Zonals), FUCHSIAS, VERBENAS, PETUNIAS, COLEUS, CHRYSANTHEMUMS, HELIOTROPES, VERONICAS, LOBELIAS, VIOLAS, and all the popular Bedding Plants of the Season. Also, the names and lowest price of all the best older varieties in cultivation. For further particulars see Catalogue.

To Raisers of Geraniums.

H. CANNELL begs to inform all lovers of GERANIUMS that he has a small quantity of Seed of the very best Hybridised Zonals in cultivation, at 2s. per packet. It is picked with great pains from all the best new kinds of the present season, including T. Moore, Acme, Lord Stanley, Sir R. Napier, Our Future King, Monster, &c.; the two latter certainly are the finest varieties ever sent out, and as every bloom is carefully attended to daily, H. C. is convinced that some grand new Varieties will be the result from the Seed.

GOLDEN FEATHER.—As this plant has thoroughly proved itself to be the greatest bedding acquisition that has been sent out for many years, H. CANNELL begs to remind all lovers of the garden that now is the best time to sow.
It comes perfectly true from seed; such seedling plants stood all last season, and were the admiration of all throughout the winter and spring, and equally as effective for Conservatory decoration.
300 New Seeds free for 13 stamps.
New Florists' Flower and Florists' Flower Seed Merchant, Woolwich.

GOLD and SILVER VARIEGATED GERANIUMS.—The following 18 varieties for 24s.:—Aurora Borealis, Countess of Craven, Edwinia Fitzpatrick, Florence, Goliah, Lady Cullum, Louisa Smith, Lucy Grieve, Mrs. Turner, Queen Victoria, Sophia Cusack, Sophie Dumaresque, Star of India, Impératrice Eugénie, International, May Queen (Turner's), Princess Alexandra, Snowdrop.
GOLD and BRONZE GERANIUMS.—The following 15 varieties for 10s.:—Admiration, A. H. Wills, Countess of Kellie, Duke of Edinburgh, E. G. Henderson, Egyptian Queen, Empress Eugénie, Golden Nugget, Her Majesty, Kentish Hero, Little Golden Christine, Princess of Wales, The Sultan, Beauty of Caulderdale, Beauty of Ribblesdale.
The following nine DOUBLE GERANIUMS for 12s.:—Andrew Henderson, E. G. Henderson, Impératrice Eugénie, Madame de St. Paul, Madame Lemoine, Marie Crousse, Marie Lemoine, Victor (Smith's), Wilhelm Pitzer.
The following 12 new varieties of ZONAL and NOSEGAY GERANIUMS of 1869 for 10s.:—Floribunda alba, Jean Holtz, Kentish Fire, Lizzie, Madame Jules Aldebert, Madame Jules Elie, Madame Lemoinier, Madame Mezard, Masterpiece, Maurice Bernardin, Princess Christian, Robert Bowley.
The above good plants, in 3-inch pots, package included.
WM. POTTEN, Florist, Sissinghurst, Staplehurst, Kent.

GERANIUMS.—Mrs. Pollock, 3s. per doz., 22s. per 100; Sunset, 3s. per doz., 22s. per 100; Lady Cullum, 6s. per doz.; Mrs. Benyon, 6s. per doz.; Mrs. Dix, 12s. per doz.; Louisa Smith, 12s. per doz.; Queen of Tricolors, 9s. per doz.; Sophie Dumaresque, 6s. per doz.; Beauty of Oulton, 4s. per doz.; Perilla, 4s. per doz.; Artemus Ward, 6s. per doz.; Luna, 4s. per doz.; Anna Williams, 4s. per doz.; Leonidas, 9s. per doz.; Lord Derby, 9s. per doz.; Crystal Palace Gem, 4s. per doz.; Andrew Anderson, 6s. per doz.; Madame Lemoine, 9s. per doz.; Triumph, 6s. per doz.; Tom Thumb, double, 6s. per doz. The 20 varieties, six of each, for £1; three of each for £2 5s., package included. ROSES, on their own roots, strong plants, 6s. to 9s. per doz., 50s. per 100. Sorts on application.
N. LAWRENCE, The Nurseries, Station Street, Chatteris, Cambs.

Rhododendrons.—To the Trade.

J. MATTHEWS has a large stock of 4-yr. RHODODENDRONS, 6s. per 1000; 3-yr. (1-yr. transplanted), 10s. per 1000; 1 to 1½ foot, bushy, 16s. per 100; 1½ to 2 feet, 40s. per 100; Splendidum, white Rhododendron, budded, 1½ foot, 10s. per dozen; Corsicum pictum, 1 foot, 12s. per dozen.
SPRUCE FIR, 1½ to 2 feet, 20s. per 1000; and 2 to 3 feet, 30s. per 1000. PRIVET EVERGREEN, 2 to 3 feet, 16s. per 1000; 3 to 4 feet, 20s. OAKS, 3-yr. budded, 1 to 1½ foot, 5s. per 1000.
Milton Nurseries, Stoke-on-Trent, Staffordshire Potteries.

RHODODENDRON MULTIFLORUM.—A most abundant blooming, hardy plant; many bushes may be seen in my Nursery, only 1 foot high, with 500 bloom buds on: forces well.
AZALEA HYBRIDA ODORATA.—Bears fine trusses of fragrant white flowers, most valuable for bouquets in winter. Both the above gained First-class Seedling Prizes. A full description, with prices, of these and other new Hybrids, forwarded on application to the raiser,
ISAAC DAVIES, Brook Lane Nursery, Ormskirk.
J. D. has also a few hundreds of DAPHNE INDICA RUBRA to offer.

BEAUTIFUL SPRING FLOWERS.
Now ready, in strong Plants.
HEPATICA, sorts, 4s. per doz.
PRIMROSES, double Lilac, 4s.; White, 6s. per doz.
" double Yellow, 9s.; Purple, 6s. per doz.
" double Rose, 9s.; double Crimson, 12s. per doz.
ROCKETS, double White and Purple, 6s. per doz.
VIOLETS, 20 distinct sorts (see Catalogue), 4s. per doz.
POLYANTHUS, the finest strain in the world, 2s. 6d. per doz.; 15s. per 100.
PANSIES, finest border varieties, 2s. 6d. per doz.; 15s. per 100.
DAISIES, 6 distinct kinds, 4s. per doz.
AURICULA, Perrin's Red, 3s. per doz.
HOLLYHOCKS, 24 distinct kinds, to name, 3s. per doz.
PAMPAS GRASS, 3s. per doz.; 20s. per 100.
LEUCOJUM VERNUM (Snowflake), 2s. 6d. per doz.
AUBRIETIAS, sorts, 4s. per doz.
ADONIS VERNALIS, 6s. per doz.
BULBOCODIUM VERNUM, 3s. per doz.
MYOSOTIS DISSITIFLORA, 4s. per doz.; 25s. per 100.
ALOPECURUS PRATENSIS AUREO VARIEGATUS (new Golden Grass), 1s. 6d. each; 12s. per doz.
HOLCUS LANATUS ALBO VARIEGATUS (new Striped Grass), 1s. 6d. each; 12s. per doz.
FOXGLOVE, finest Spotted, 3s. per doz.; 20s. per 100.
WALLFLOWER, double Yellow and Dark, 4s. per doz.
DIELYTRA SPECTABILIS, 6s. per doz
ARABIS ALBIDA VARIEGATA, 2s. 6d. per doz., 20s. per 100.
ŒNOTHERA MISSOURIENSIS, 6s. per doz.
PHLOX NELSONI, PROCUMBENS and VERNA, 4s. per doz.
PYRETHRUMS, Single and Double, to name, 6s. per doz.
SPIRÆAS, sorts, 6s. per doz.
TRITOMA UVARIA, 6s. per doz.
CLOVES, Double Purple, Crimson and Striped, 6s. per doz.
PICOTEES, fine, to colour, 6s. per doz.
COWSLIP (Giant), 3s. per doz.

ROSES.—24 choice distinct Varieties to name, Dwarfs, 15s.
Do. 24 do. do. do., Standards, 25s., or half the number for half the amount.
STRAWBERRIES.—DR. HOGG and NEW PERPETUAL PINE, 7s. 6d. per 100.
Do., 30 other kinds (see List), 3s. 6d. to 5s. per 100.
CHRYSANTHEMUMS.—20 New Chrysanthemums of 1869, 10s.
P.O. Orders on Castle Hedingham. A CATALOGUE of Choice New Plants of 1869, Bulbs, Roses, Fruit Trees, &c., free on application.
WM. DILLISTONE, Nurseryman, &c., Sible Hedingham, Essex.

New Bedding Plant, Veronica Blue Gem.

THOMAS CRIPPS AND SON have great pleasure in announcing that they have purchased from Mr. H. Warren, of Salisbury, the entire STOCK of this very distinct and useful plant, which excited so much admiration at South Kensington on the 21st ult. Unlike other shrubby Veronicas, it is of a neat, dwarf habit, the parent plant being only 9 inches high; the foliage is small and B. x-like, the axil of nearly every leaf producing large spikes of mauve flowers, making the plants appear literally clothed with bloom. It commences flowering when only 2 inches high, and continues in bloom throughout the season. Awarded First-class Certificates this year at Salisbury, Sherborne, Shirley, Bath, and South Kensington, and described by the *Gardeners' Chronicle* as "a fine acquisition," and by the "Cottage Gardener" as "one of the prettiest plants that have been exhibited this year; its dwarf, neat habit will make it very useful for bedding and decorative purposes." Plants ready in May next, at 5*s.* each, with the usual discount to the Trade on six plants.

The Nurseries, Tunbridge Wells, Kent.

Camellias, Azaleas, and Epacris.

HENRY WALTON, having a large stock of the above, finest plants possible, well set with bud, being all home worked, can with confidence recommend them.

AZALEAS, 24*s.* to 63*s.* per doz. | CAMELLIAS, 24*s.* to 63*s.* per doz.
EPACRIS, 15*s.* to 24*s.* per dozen.

Having several hundreds of beautiful trained Azaleas, from 2 to 4 feet, fine for exhibition purposes, 10*s.* 6*d.* to 63*s.* each; also fine Half and Specimen Camellias, 10*s.* 6*d.* to 100*s.* each—this is a favourable opportunity for parties furnishing new houses or improving their present collections. Trade liberally dealt with.

CATALOGUES on application.
Edge End, Marsden, near Burnley, Lancashire.

Gladioli.—Roses.

M. CH. VERDIER Fils (late Firm of Victor Verdier, Père, and Ch. Verdier, Fils), NURSERYMAN, 12, Rue Dumeril, Paris, has just published his new CATALOGUE of GLADIOLI, containing all the Novelties of the Season, which may be had free on application to his London Agents, Messrs. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, E.C.

N.B.—His CATALOGUE of NEW ROSES (which will be sent out next season) is also ready, and can be had on application to the above.

Roses, New Roses (Trade Price).

L'ÉVÊQUE ET FILS, NURSERYMEN, 132 and 134, Boulevard de l'Hôpital, Paris, begs to offer good and healthy plants of—

TEA ROSES, grafted and on their own roots, grown in small pots.
Maréchal Niel, 24. per 100.
Souvenir d'Elise Vardon, Jean Pernet, M. Furtado, Madame Margottin, Reine du Portugal, Climbing Devoniensis, 10*s.* per doz.
Marie Sisley, Marie Ducher, Adrienne Christophle, Celina Noirey, Montplaisir, &c., 15*s.* per dozen.
Vicomtesse du Cazes, Madame Falcot, Niphétos, Safrano, Triomphe du Luxembourg, Bougère, Adèle Jougant, Ophélia, Souvenir d'un Ami, Pactole, and all the best sorts, 60*s.* per 100
SOUVENIR DE LA MALMAISON, on their own roots, in pots, 40*s.* per 100.
DWARFS, Hybrid Perpetual, the best sorts, strong plants (our choice), 40*s.* per 100, £9 per 1000.
STANDARDS, clean stems, strong heads, all the best sorts (our choice), £5 per 100.
Do., Maréchal Niel, £6 per 100.
BARONNE DE ROTHSCHILD, splendid sort, strong dwarfs, £4 per 100.

Fifteen per Cent. Discount on the NEW ROSES of this YEAR. To be sent out for the first time next November.

LISTS and CATALOGUES on prepaid application.

Laurus latifolius

(CERASUS LAUROCERASUS, var. LATIFOLIA).

L. PAILLET, NURSERYMAN, Chatenay les Sceaux, near Paris, France, offers to the Trade for the first time his splendid new LAURUS, obtained from seed, between a seedling of Laurus colchica and caucasica. The immense size of its beautiful deep green foliage, its great hardiness and rusticity, combine to make this novelty the most valuable of ornamental Evergreen Shrubs for Parks and Gardens. After having been planted in the open air for two years, the leaves of this variety attain a length of from 11 to 12 inches, and a width of from 4 to 5 inches. Price 12*s.*, 18*s.*, 20*s.*, and 25*s.* per plant, according to size. One plant over, sent gratis, when six are ordered. An Engraving and further particulars will be sent on application by prepaid letter.

All kinds of new and other ROSES, disposable in large quantities, at low prices.

Special culture of FRUIT TREE STOCKS, Young SHRUBS, and FOREST TREES, disposable in immense quantities at very low prices.

All orders must be sent to Mr. L. PAILLET as above; or to his Agents, Messrs. B. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

Fruit Trees and Onions.

J. SCOTT, The Nurseries, Merriott, Somerset, calls attention to his fine Stock of FRUIT TREES, one of the largest and healthiest in the Kingdom. He has also for Sale several tons of prime large ONIONS, and from 10 to 15 bushels of Picklingdo.

The ORCHARDIST, the best work on Fruit Trees, with Descriptive and Cultural Directions, price 1*s.* 6*d.*, in stamps.

Fruits and Fruit Trees.

J. SCOTT, The Nurseries, Merriott, Somerset, has now in his fruit room about 350 sorts of PEARS, which he offers, in named collections, at 1*s.* per dozen sorts. Cash with order; small sums in stamps. Orders for FRUIT TREES will be carefully attended to. 1000 sorts of Pears, 700 of Apple, 170 of Plum, 150 of Cherry, and other kinds in proportion. They are grown as Standards, 6 to 7 feet; Pyramids, 6 to 7 feet; and Bushes, 3 to 4 feet high; also Dwarf-trained fine healthy plants, and are described in the "Orchardist," the best work on Fruits in England, price 1*s.* 6*d.* A printed list or Index sent gratis.

STRONG STANDARD APPLES and PEARS.—Large horizontal Trained and Pyramid Apples and Pears; fine Standard and Dwarf-trained PEACHES and NECTARINES; fine healthy LAUREL-leaved LAURUS COLCHICUM, up to 4 feet; extra bushy LAURESTINUS and PORTUGAL LAURELS, 1½ to 3 feet; a large collection of Standard and Dwarf Perpetual, Dwarf China, and Climbing ROSES of the leading sorts; deciduous flowering SHRUBS, ASH, 2 to 3 feet; LARCH, SCOTCH, SPRUCE, and AUSTRIAN FIRS, and all kinds of FOREST TREES; strong Evergreen PRIVET and THORN QUICK for Hedges. All the above have been recently transplanted, and are well rooted. Prices on application to

CHARLES BURGESS, The Nurseries, London Road, Cheltenham.

OAK, ASH, BEECH, ELM, and other FOREST TREES, from 1½ feet to 3½ feet, 3*s.* to 30*s.* per 1000; Sycamores and Laburnums, from 5 to 6 feet, 1*s.* 6*d.* per dozen, 8*s.* per 100; Walnuts, 3 and 4 feet, 4*s.* per 100; Spruce Fir, 3 and 4 feet, 2*s.* per dozen; Austrian Pine, 6 to per dozen; Larches, 1, 2, and 3 feet, 6*s.*, 7*s.*, and 10*s.* per 100; Laburnums, good plants, 2*s.*, 3*s.*, and 4*s.* per dozen; Ribes sanguineum and aurea, 2*s.* and 3*s.* per dozen; Gooseberry Roses, 1*s.* 6*d.* per dozen, Red Currant Bushes, strong plants, 1*s.* 6*d.* per dozen, 8*s.* per 100; Roses, the best sorts only, 1, 1½, 2, and 3 feet stems, 12*s.* per dozen, for cash only, of A. WILKIN, Tiptree, Kelvedon, Essex.

Planting Season.—Walton Nursery, Liverpool.

To PLANTERS of PUBLIC or PRIVATE PARKS, CEMETERIES, PLEASURE GROUNDS, or WOODS and FORESTS.

W. SKIRVING begs to announce that his STOCK of TREES and SHRUBS is this season very extensive and well grown, and that he is now prepared to execute orders to any amount for Trees and Shrubs of all sizes, at moderate prices.

W. considers the present and following month two of the best for transplanting Evergreen Trees or Shrubs, and solicits Planters to inspect his Stock, which consists of many thousands of the Holly, of the most choice varieties of the Gold and Silver Variegated kinds, and of the large broad-leaved Holly (the finest of all Evergreen Trees), hundreds of which are of large size and fine specimens for giving immediate effect, with many thousands of smaller sizes for general planting.

Also an immense Stock of all other cultivated Trees and Shrubs, either for Villa, Park, or Forest planting, and of Fruit Trees for Gardens or large Orchards.

N.B.—Fifty Acres of Walton Nursery being required for Villa Building, the Stock thereon must be cleared as soon as possible, therefore reduced prices will be accepted.—October, 1869.

Extra large Trees for Ornamental Planting

IN PARKS AND AVENUES.

WM. WOOD AND SON have to offer a magnificent STOCK of the following:—

Sycamores, 7 to 8 feet	Poplars, Black Italian and Lombardy, 8 to 10 feet
,, variegated, 5 to 6 feet	Mountain Ash, 7 to 8 feet
Horse Chestnuts, 8 to 10 feet	,, ,, Weeping, 6 to 7 ft.
,, scarlet, 8 to 10 feet	Pyrus aria latifolia, 7 to 8 feet
Catalpa syringæfolia, 7 to 8 feet	American Weeping Willows, 6 to 8 feet
Laburnums, 4 to 6 feet	Elms, English, Chichester, Wych, 6 to 8 feet, and 8 to 10 feet
,, purple, 4 to 6 feet	
Weeping Ash, ex. fine, 7 to 8 feet	
Ash-leaved Maple, 7 to 8 feet	

Price on application.

Address—Woodlands Nursery, Maresfield, Uckfield, Sussex.

Dried Natural Flowers.



BOETTNER BROTHERS, Greussen, near Erfurt, Prussia, have just published their NEW PRICED LIST of BOUQUETS, FLOWER BASKETS, WREATHS, &c., of DRIED NATURAL FLOWERS for this season. It may be obtained gratis and post free on application to their London Agents, Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, E.C.

GENUINE TOBACCO PAPER, of the finest quality, 10*d.* per lb., or 84*s.* per cwt.

WILLIAM RUSHFORTH, Nurseryman and Seed Merchant, Leeds.

APPLEBY'S GENUINE TOBACCO PAPER, in 2 lb. and 4 lb. packets. Testimonials too numerous for insertion.

Price on application to HENRY APPLEBY (Foreman to Messrs. Ivery & Son, Nurserymen), Dorking, Surrey.

The Cheapest and Best Insecticide.

DUTY-FREE TOBACCO.

BY HER MAJESTY'S ROYAL LETTERS PATENT, AND BY PERMISSION OF THE HON. BOARD OF CUSTOMS.

POOLEY'S TOBACCO POWDER, for the Prevention and Destruction of Blight and other Diseases in Plants.

Sold by Nurserymen, Seedsmen, and Florists,
In Tins at 1*s.*, 2*s.* 6*d.*, and 5*s.*

Powder Distributors, 2*s.* 6*d.* and 3*s.* 6*d.* each.

"I find it exceedingly useful for killing the Aphides on Roses and other Plants."—GEO. EYLES, Superintendent, Royal Horticultural Gardens, South Kensington. May 7, 1868.

Sole Manufacturer, T. A. POOLEY, Bonded Warehouse, Sussex Wharf, Wapping, E.



Red Spider

Magnified.

GISHURST COMPOUND.

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.*

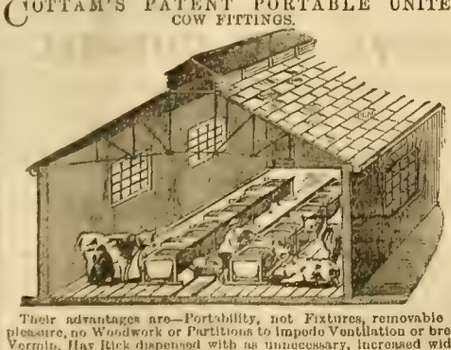
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Battersea, London, S.W.

Cottam's Iron Hurdles, Fencing, and Gates.



COTTAM'S HURDLES are made in the best manner, of superior Wrought Iron, by an improved method. Illustrated Price Lists on application to COTTAM AND CO., Iron Works, 2, Winsley Street, Oxford Street, London, W.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rick dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of Iron. Prices of Fittings per Cow, 55*s.*

Prospectuses free of COTTAM AND CO., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in stable Fittings just secured by Patent.

E. T. ARCHER'S "FRIGI DOMO."—

Patronised by Her Majesty the Queen for Windsor Castle and Frogmore Gardens, the Duke of Northumberland, Duke of Devonshire, late Sir J. Paxton for the Crystal Palace; Royal Gardens, Kew; Professor Lindley for the Horticultural Society, &c.

The best Shading is "Frigi Domo" Netting,

White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for

PROTECTION from the COLD WINDS and MORNING FROSTS.
"FRIGI DOMO" NETTING, 2 yards wide, 1*s.* 6*d.* per yard run.
"FRIGI DOMO" CANVAS.

Two yards wide	1*s.* 9*d.* per yard run.
Four yards wide	3*s.* 6*d.* per yard.
An improved make, 2 yards wide	1*s.* 9*d.* per yard.
An improved make, 3 yards wide	2*s.* 8*d.* per yard run.

Scrim Canvas, 72 inches wide, 70 yards long, 5½*d.*, 6½*d.*, 7½*d.*, 7½*d.*, and 8½*d.* per yard.

Hesian Canvas, 54 and 72 inches wide, 6½*d.* and 8½*d.* per yard.

½*d.* extra for cut lengths.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.

JAMES PHILLIPS AND CO.

beg to submit their prices as follows:—

GLASS for ORCHARD HOUSES,

As supplied by them to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.

Each Box contains 100 feet. The prices only apply to the sizes stated.

Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.

	16 oz. to the foot.	21 oz.
Fourth quality	15*s.* 0*d.*	19*s.* 6*d.*
Third ditto	16*s.* 0*d.*	22*s.* 6*d.*
Seconds	18*s.* 6*d.*	26*s.* 0*d.*
English	20*s.* 0*d.*	27*s.* 0*d.*

The above prices include the boxes, which are not returnable.

HORTICULTURAL GLASS.

Stock sizes, 16-oz., in 100 feet boxes, boxes included.
These prices only apply to the sizes stated.

				4ths.	3rds.	2nd.
11 by 9	12 by 9	13 by 9	14 by 9	*s. d.*	*s. d.*	*s. d.*
12 ,, 10	13 ,, 10	14 ,, 10	15 ,, 10	13 6	15 6	17 9
13 ,, 11	14 ,, 11	..	..			
14 ,, 12	15 ,, 12	15 ,, 11	16 ,, 11			
18 ,, 12	19 ,, 12	16 ,, 12	17 ,, 12			
16 ,, 13	17 ,, 13	20 ,, 12	..	15 0	16 0	18 6
16 ,, 14	20 ,, 13	18 ,, 13	..			
	17 ,, 14	18 ,, 14	..	16 to 17 oz. to the foot.		
	20 ,, 14					

SMALL SHEET SQUARES.

In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	.. 12*s.* 6*d.*
8 by 6	8½ by 6½	9 by 7	9½ by 7½	
		10 by 8	10½ by 8½	.. 13*s.* 6*d.*

Boxes 2*s.* each returnable at full price.

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS.

PAINTS of various colours ground ready for use.

SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of Prices and Estimates forwarded on application to

JAS. PHILLIPS AND CO., 130, Bishopsgate Street Without, E.C.

Horticultural Glass Warehouse.

THOMAS MILLINGTON AND CO., 87, Bishopsgate Street Without, London, E.C.

NEW LIST for ORCHARD-HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD-HOUSE SIZES.

in.	in.		4ths.	3rds.	2nds.	Best
20 by 12						
20 by 13		15 oz.	12*s.* 3*d.*	15*s.* 6*d.*	16*s.* 9*d.*	18*s.* 0*d.*
20 by 14	Per 100 feet					
20 by 15		21 oz.	18*s.* 0*d.*	20*s.* 0*d.*	22*s.* 0*d.*	24*s.* 0*d.*
20 by 16						

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7								
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½					11*s.* 3*d.*	12*s.* 6*d.*	14*s.* 0*d.*	15*s.* 6*d.*
Per 100 feet.											
10 by 8	12 by 9	12½ by 10½	14½ by 10½								
10½ by 8½	12½ by 9½	13 by 10	15 by 10					11*s.* 9*d.*	14*s.* 9*d.*	15*s.* 3*d.*	17*s.* 6*d.*
11 by 9	13 by 9	13½ by 10½	13 by 11								
11½ by 9½	12 by 10	14 by 10	14 by 11								

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
15½ by 10½	14 by 12	22 by 12	22 by 16								
16 by 10	14½ by 12½	17 by 13	24 by 16								
14½ by 11½	15 by 12	23 by 13	20 by 17								
15 by 11	15½ by 12½	18 by 14	22 by 17					12*s.* 3*d.*	15*s.* 6*d.*	16*s.* 9*d.*	18*s.* 0*d.*
15½ by 11½	16 by 12	22 by 14	24 by 17								
16 by 11	16½ by 12½	24 by 14	20 by 18								
21 by 11	17 by 12	22 by 15	22 by 18								
13 by 12	18 by 12	24 by 15	24 by 18								

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.

In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	34*s.*	4ths quality, per 200 feet case,	34*s.*
3ds ,, ,,	40*s.*	3ds ,, ,,	40*s.*
2ds ,, ,,	60*s.*	2ds ,, ,,	60*s.*
Best ,, ,,	75*s.*	Best ,, ,,	75*s.*

SHEET GLASS is made only in the following substances, 15 oz. 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.

HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.

BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.

STUCCO PAINT, 24*s.* per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

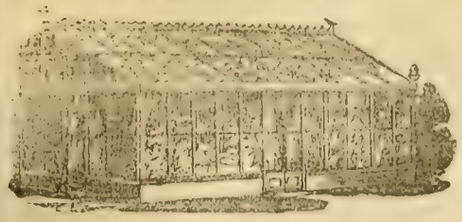
WHITE ZINC PAINT, 36*s.* per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a-half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.

IMPROVED ANTI-CORROSION PAINT, 28*s.* to 34*s.* per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4*s.* per gallon.

Per cwt.—*s. d.*		Per gallon.—*s. d.*	
GENUINE WHITE LEAD	30 0	LINSEED OIL	2 9
SECONDS WHITE LEAD	28 0	BOILED OIL	3 2
GROUND PATENT DRYERS, 3*d.* to 4½*d.* per lb.		TURPENTINE	2 9
,, OXFORD OCHRE, 3*d.* to 4½*d.* per lb.		LINSEED OIL PUTTY, 8*s.* per cwt.	
,, RAW UMBER, 4½*d.* to 6*d.* per lb.	(per lb.	Fine OAK VARNISH, 10*s.* to 12	0
,, BURNT do., 6*d.* to 9*d.*		,, CARRIAGE do., 12*s.* to 14	0
GREEN PAINT, all shades,	28*s.* to 30 0	,, PALE do. 10*s.* to 12	0
BLACK PAINT,	24*s.* to 36 0	,, COPAL	16 0
RED PAINT	28*s.* to 36 0	KNOTTING	10 0
		Patent GOLD SIZE	10 0
		,, BLACK JAPAN	12 0
GROUND BRUSHES.		GLAZIER'S DIAMONDS and TOOLS	
DUSTERS. | SASH TOOLS.		MILLED LEAD and PIPES	
DISTEMPER BRUSHES.		OLD LEAD Bought or taken in exchange.	

The above are Net, for Cash, and as such cannot be booked.
Lists of any of the above on application.

JAMES WATTS AND CO., HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS,
363, Old Kent Road, London, S.E.

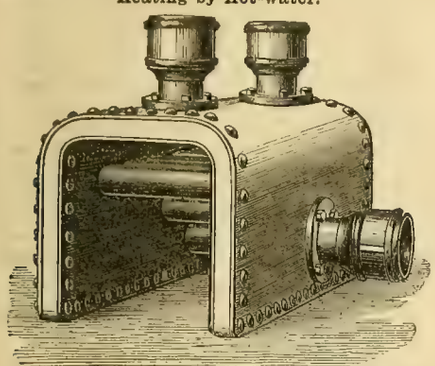


200 CUCUMBER and MELON BOXES and LIGHTS, all sizes, Glazed and Painted complete, ready for immediate use, packed and sent to all parts of the Kingdom.

Strong ZINC HAND-GLASSES, all sizes.

References to the Nobility, Gentry, and Trade in most of the Counties in England.

Heating by Hot-water.



SHANKS' IMPROVED WROUGHT-IRON BOILER.—This Boiler is made on the principle of the Saddle and Tubular combined. The Tubes, Fire-box, and Shell-plates are all of Wrought-iron, and consequently are not liable to break from expansion and contraction of the metal, as Cast-iron Boilers are. The Tubes are placed in the Fire-box, and so arranged as to expose a very large effective heating surface to the direct action of the fire, the advantage of which is obvious.

A. S. AND SON will be glad to furnish their IMPROVED BOILERS separately, or to furnish Plans and Estimates for Erecting Hot-water Apparatus complete in any part of the country.

HORTICULTURAL BUILDINGS in IRON or WOOD.

Catalogues, containing Designs of Houses, &c., will be forwarded on application. Special Plans and Estimates for Ranges of Houses to be erected in any part of the country will also be furnished.

A. SHANKS AND SON, Deus Iron Works, Arbroath, N.B.; and 27, Leadenhall Street, London, E.C.

HOT-WATER APPARATUS
Erected Complete, or the Materials Supplied for Heating
Peill's Conical. GREENHOUSES, Tubular Boiler.



HOTHOUSES,
CONSERVATORIES,
CHURCHES,
PUBLIC BUILDINGS, &c.



HOT-WATER PIPES at wholesale prices, Elbows, T Pieces, Syphons, and every other connection kept in stock.

WROUGHT and CAST IRON CONICAL, SADDLE, and IMPROVED PEILL'S and ELLIPTIC BOILERS, from 21s. each.

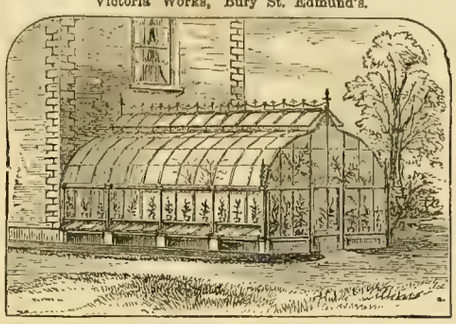
IMPROVED and EXTRA STRONG CAST IRON TUBULAR BOILERS, with or without Water Bars, from 62s. 6d. each.

CAST and WROUGHT IRON PORTABLE BOILERS on STAND, for use without brickwork, from 60s. each.

PATENT and IMPROVED THROTTLE and other VALVES, FURNACE DOORS, BARS, and FURNACE WORK of every description and size.

LYNCH WHITE,
Old Barge Iron Wharf, Upper Ground Street, London, S.E.
(Surrey side Blackfriars Bridge).
Price List on application.

IRON GREENHOUSES CHEAPER THAN WOOD.
Beard's Patent Non-conducting and Ventilating Metallic Glass Houses.
Victoria Works, Bury St. Edmund's.



MANUFACTURED BY

CHARLES BEARD,
Senior Partner in the late Firm of Sanders, Frewer & Co., which Firm was dissolved by mutual consent.

The Patentee wishes to observe his Patent Houses obtained the First and only Prize at the Royal Horticultural Congress, South Kensington, 1866;

The First-class Certificate at the Grand Manchester Horticultural Show, 1867;

The Three First-class Certificates at the Royal Horticultural Show, at Bury St. Edmund's, 1867, viz.:—One Prize for Patent Glazing without Putty; One Prize for Best System of Patent Ventilation; One Prize for S. F. & Co.'s Improved Flower Stands.

These much-approved Patent Systems of Glazing and Ventilation are also extensively adapted for all Agricultural Buildings, Public Halls, Churches, Factories, Railway Stations, &c., &c.

Full particulars and Prices of the Patent Houses, glazed with 26 oz. Sheet Glass from 1s. 2d. per foot super and upwards. As also Illustrated Catalogues for 12 postage stamps, may be obtained on application to CHARLES BEARD, Victoria Horticultural Works, Bury St. Edmund's.

PATENT GLAZING BARS, to screw on wood, may be had separately. Full particulars for stamped envelop.



The Only Stove without a Flue.

NASH AND JOYCE'S PATENT, for WARMING HALLS, SHOPS, GREENHOUSES, &c.

These Stoves burn without attention or replenishing 12 to 24 hours. From 12s. 6d. to Six Guineas. PATENT FUEL, 4s. 6d. per bag.

STOVES made expressly for Greenhouses, to Burn all Winter by filling up with the Patent Fuel every 12 hours.

S. NASH, Patentee, General Furnishing Ironmonger, 257, Oxford Street, W.; Joyce's Stove Depôt, 119, Newgate Street, E.C.; and Leinster Terrace, Bayswater, W. Prospectus of Patterns and Prices post free.

W. H. LASCELLES' MACHINE-MADE MELON LIGHTS.

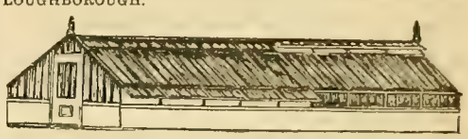


		Each.
6 ft. by 4 ft. Lights, 2 ins. thick, unglazed	£0	6 0
" " Primed and Glazed with 10 oz. Sheet	0	11 0
" " with stout Portable Box, not Painted..	1	3 0
" " Painted four coats, and Handles on	1	8 0
" " Packed and Delivered in Railway Van..	1	10 0
6 ft. by 8 ft., Double Lights, do.	2	15 0

GREENHOUSES.	Per ft. super.
Woodwork only Prepared and Fitted	0 0 6
" Primed and Glazed with 16 oz. Sheet	0 0 9
" Delivered, and Fixed with Ironwork	0 1 0
" Painted four coats, two sides, ready fo. use	0 1 3

Finsbury Steam Joinery Works, 121, Bunhill Row, E.C.

T. G. MESSENGER, MIDLAND STEAM POWER HORTICULTURAL WORKS, HOT-WATER APPARATUS, VALVE MANUFACTURER, LOUGHBOROUGH.



Honourable Mention awarded at the International Exhibition, 1862, and at the Dublin Exhibition, 1865; also a First-class Certificate by the Royal Horticultural Society.

T. G. MESSENGER, Patentee of many important improvements in Buildings and Implements connected with Horticulture, and which meet with unqualified approbation, is prepared to give reference to hundreds of works entrusted to him and pre-eminently answering the purpose for which they were constructed.

Any House Glazed, single or double, with or without putty. The mode adopted by T. G. MESSENGER for Heating and Ventilating Forcing Houses is particularly successful, drip being entirely prevented.

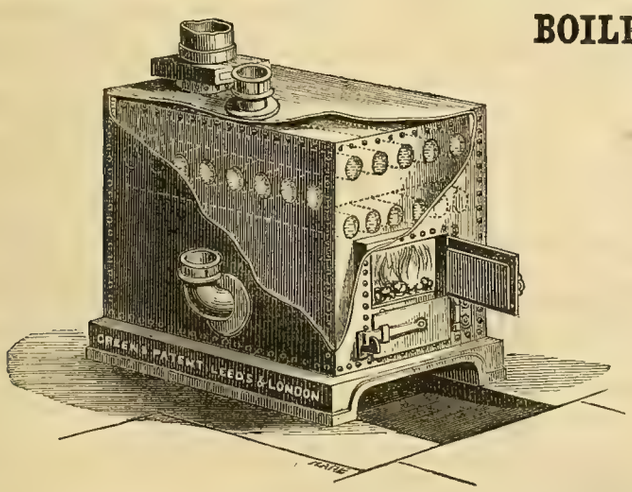
Houses can be constructed on his Patent Ventilating principle to open the whole of roof and sides as though the glass were entirely removed, at once placing the plants in the external atmosphere.

T. G. MESSENGER'S Boiler possesses all the advantages of the Tubular and Saddle combined, has hollow furnace bars, requires but a shallow stokehole, exposes as much surface to the direct action of the fire as can possibly be obtained, the whole of which can be easily cleaned; and it is an important fact, that out of upwards of 500 now at work made upon the improved principle not one has cracked.

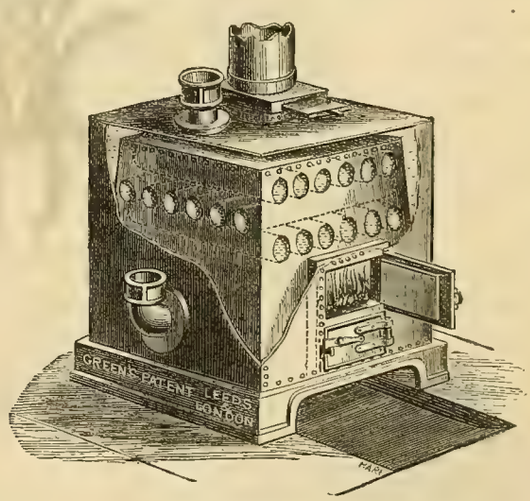
T. G. MESSENGER'S Valve (single or double) is effective, simple, easy to work, and as durable as the pipe to which it is attached.

Designs and estimates supplied for all kinds of Horticultural Work, and guaranteed to answer the purpose for which they may be intended. A richly Illustrated Catalogue, with descriptions, forwarded post free on receipt of 33 stamps.

GREEN'S PATENT IMPROVED TUBULAR HOT-WATER BOILERS.



OBLONG BOILER.



SQUARE BOILER.

THE ABOVE BOILERS ARE

THE MOST EFFECTIVE AND DURABLE EVER INVENTED.

They can be set to work at a nominal cost, inasmuch as no brickwork is required; as will be seen from the above drawing, they are placed upon a Cast-Iron Sole-plate, which answers the purpose of Foundation and Ashpit.

From the peculiar and substantial manner in which these Boilers are made, they are warranted to last for years without getting out of order; in fact, we guarantee them for [illegible] years, but feel convinced that they will serve all the purposes for which they are intended for a much longer period.

They are specially adapted for Heating Greenhouses, Churches, Chapels, Schools, Public Buildings, Entrance Halls, Warehouses, Workshops, &c.

THE FOLLOWING ARE THE ADVANTAGES OF THESE BOILERS:—

1st, They require no setting in brickwork.
2d, They are complete in themselves, having perfect means of regulation.
3d, They take up little room, and can be put in places inaccessible to other Boilers.
4th, They are economisers of fuel, owing to the great amount of heating surface upon which the fire acts in a direct manner, and the consumption of smoke.
5th, The fire can be made to last from 12 to 24 hours without attention.
6th, Any number of Flows and Returns can be annexed to the Boilers by means of T-pipes.
7th, By means of mud doors, they can be readily cleaned out when required.
8th, The Chimney is made of cast-iron, which can either be taken through a roof or turned into a flue, to meet the convenience of the situation that it may be fixed in.

☞ *PRICE LISTS ON APPLICATION.*

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;
and 54 & 55, BLACKFRIARS ROAD, LONDON, S.E.

SIR J. PAXTON'S PATENT HOTHOUSES for the MILLION, are cheap, substantial, and easily fixed.
Illustrated Price Lists, with sizes, &c., free on application.
ESTIMATES given for CONSERVATORIES, HEATING APPARATUS, &c. A HANDBOOK of VINE and FRUIT-TREE CULTIVATION, post free, 13d.
HEREMAN AND MORTON, 7, Pall Mall East, London, S.W.
Works in London, Gloucester, Coventry, and Scotland.

CRANSTON'S PATENT GLASS BUILDINGS for HORTICULTURE. Plans and Estimates free.
Just Published, free for 30 stamps, Third Edition, DESCRIPTIVE BOOK, splendidly Illustrated from existing Buildings. By the Author and Patentee, JAMES CRANSTON, Architect, Temple Row West, Birmingham. H. J. GROWTAGE, Manager.

HOT-WATER APPARATUS of every description, fixed complete in any part of the country, for Warming Greenhouses, Conservatories, Forcing Pits, &c.
Plans and Estimates on application.
J. JONES AND SONS, 35, King Street, Cheapside, London, E.C.
Manufactory, 6, Bankside, Southwark.

By Royal Letters Patent.
G. SHREWSBURY'S NONPAREIL GAS BOILER, for Heating Conservatories, Propagating, and Fern Cases, Coach Houses, Halls, Public Buildings, &c., from 45s. Approved of by all purchasers. Prices and testimonials on application. Enclose stamp. G. SHREWSBURY, Lower Norwood, S.

HOT-WATER PIPES.
CASH PRICES.

	2-inch.	3-inch.	4-inch.
PIPES .. .. per yard	1s. 0d.	1s. 6d.	2s. 0d.
ELBOWS .. .. each	1 6	2 3	3 0
TEES .. .. „	2 6	3 6	4 6
SYPHONS .. .. „	2 6	3 6	4 6
VALVES .. .. „	10 0	11 6	13 0

No credit will be given when Pipes, &c., are invoiced at the above prices.
J. JONES AND SONS,
6, Bankside, Southwark, London, S.E.
Price Lists, with terms for credit and for delivery at country stations, will be sent on application.

STOVES (Terra Cotta), for GREENHOUSES, BEDROOMS, &c., give healthy heat 24 hours for 1d., without attention, at MAPPIN AND WEBB'S, 77, Oxford Street, and 71, Cornhill; DAVIES, 288, Camberwell Road; JOHN ROBERTS, 20, Vassall Road, North Brixton.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.
For particulars apply to JOHN FOWLER AND CO., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

Rosher's Garden Edging Tiles.



THE above and many other PATTERNS are made in Terro-Metallic Ware, Terra-Cotta, Stoneware, and Redware, and of great durability. The plainer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability and superior finish, and in much variety of design.
F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.E. Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs. Likewise more elaborate designs. Pattern Sheets of Pavements, with prices, forwarded for selection.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.
To be obtained of F. & G. ROSHER, at their premises as above.

SILVER SAND (REIGATE), at the above addresses—14s. per Ton, 1s. 2d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less. A coarser grained Sand 4s. per ton more. Samples of Sand by post on receipt of stamp.
FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEAT and LOAM supplied at lowest rates.
F. & G. ROSHER.—Addresses see above.
N.B. Orders promptly executed by Railway or Vessel.
A liberal discount to the Trade.

LABELS, LABELS.—PARCHMENT or CLOTH LABELS.—Tree or Plant Labels, punched parchment, 4 inches long, 4s. per 1000, or 10,000 for 35s., cash on delivery. Sample Label sent on receipt of a postage stamp. Orders delivered free in London by JOHN FISHER AND CO., Label Works, Boston, Lincolnshire.

Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the Corporate Mark, OBTAIN WARRANTED without which none are genuine
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make all of which are warranted both by Sellers and Makers.
S. & C.'s PRUNING and BUDDING KNIVES are the best and the cheapest in the market.
Paxton Works, Sheffield. Established upwards of 125 years.

"Every Cottage should be provided with a Water Tank." *Disraeli.*

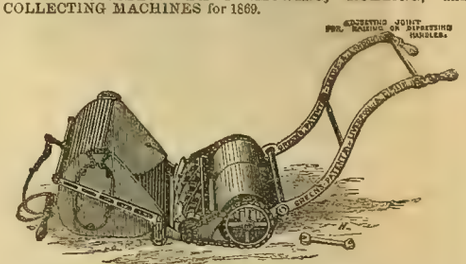
Iron Cisterns.

F. BRABY AND CO. having laid down more extensive and Improved Machinery on their Deptford premises (IDA WHARF), are prepared to supply WROUGHT-IRON TANKS, GALVANISED or PAINTED, of superior quality, at reduced prices, and at very short notice.



An Illustrated Price List of Galvanised Iron, and other of BRABY'S special Manufactures, sent on application.
F. BRABY AND CO., Limited, Fitzroy Works, Euston Road, London; or through all respectable Ironmongers.
N.B. Open Tanks of different sizes packed one in another to save carriage.

GREEN'S PATENT SILENS MESSORS, or NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES for 1869.



Every Machine is warranted to give entire satisfaction, and if not approved of, can be returned at once unconditionally.

PRIZE MEDALS AWARDED to GREEN'S PATENT LAWN MOWERS.
First Prize Medal at the International Exhibition, London, 1862.
First Prize Medal at the International Exhibition, Dublin, 1865
First Prize Medal at the Namur Exhibition.
First Prize Medal at the Gand Exhibition.
First Prize Medal at the Liecken Exhibition.
First Prize Medal at the Lineene Exhibition.
First Prize Medal at the Brussels Exhibition, on two occasions.
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GREEN'S Patent Lawn Mowers have proved to be the best, and have carried off every Prize that has been given, in all cases of competition.
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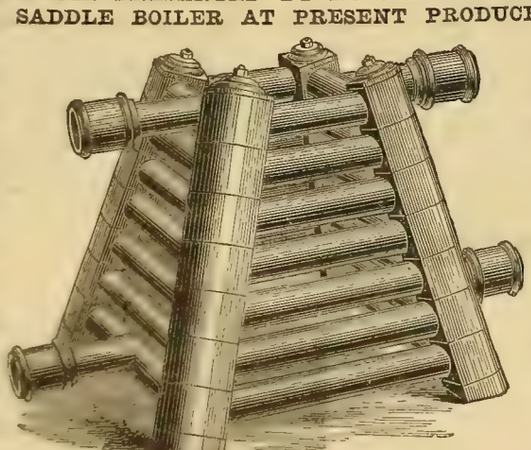
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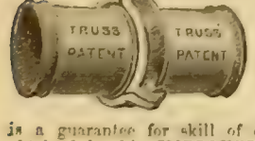


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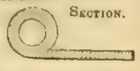
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CONTENTS of the November Number.
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Seasonable Hints for November	The Children's Garden
English-raised Roses	Bougainvillea glabra
The Vine Disease (Woodcuts)	Propagation of Draccenas
Thuja Lobbii as a Hedge Plant	Hardy Clematises
Epiphyllum truncatum	Early-blooming Scillas
The Early Rose Potato	Blue Hydrangea
Vanda Denisoniana (Woodcut)	The Yucca [cuts]
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On view the morning of Sale, and Catalogues had.

Bulbs and Plants from Holland.
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MR. J. C. STEVENS begs to announce that he will include in his SALE, on FRIDAY NEXT, November 5, the STOCK of SEEDS, consisting of MANGEL, TURNIP, SPINACH, RADISH, PARSNIP, PEAS, BEANS, and other Seeds. Also the OFFICE FURNITURE and SHOP FITTINGS, removed from Russell Street, Covent Garden. The whole will be sold without the slightest reserve.
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Plants from Ghent and Bulbs from Holland.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, November 6, at half-past 12 o'Clock precisely, choice CAMELLIAS, AZALEAS, TRITOMAS, LAURUSTINUS, EUONYMUS, AUCUBAS, LAURELS, HOLLIES, CARNATIONS, Standard and Dwarf ROSES, &c.; also a Consignment of DOUBLE and SINGLE HYACINTHS, TULIPS, CROCUSES, NARCISSUS, LILIUMS, GLADIOLI, RANUNCULI, &c., from Holland.
On view the morning of Sale, and Catalogues had.

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MR. STRAFFORD is instructed by Mr. Rowland Wood to announce for SALE by AUCTION on WEDNESDAY, November 3 next, about SIXTY HEAD of BULLS, COWS, and HEIFERS, from the celebrated CLAPTON HERD. They are all in a healthy breeding state, and have not been forced for sale. The whole were bred by Mr. Wood, with the exception of the renowned Lord Chancellor (20,160), on whom the moderate reserve of 100 guineas will be put; the remainder of the lots will be sold without the slightest reserve. This Herd has been long and carefully bred from animals purchased of the Marquis of Exeter, F. Sartoris, Esq., Mr. W. D. Manning, of Rothersthorp, and other noted Breeders; many of the Cows, Heifers, and Young Bulls being of the same family as Mr. Wood's famous Gold Medal Ox of 1866, and his other Prize Animals. There are also several of the same tribe as Mr. Manning's memorable Gold Medal Ox at the Smithfield Club Show, in 1847.
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THE OLD ESTABLISHED NURSERY, SUDBURY.
MESSRS. ROLFE, WHEELER, AND WESTOBY beg to announce that the SALE by AUCTION of the NURSERY STOCK, &c., of Mr. Stephen Brown, Cornara Road, Sudbury, Suffolk, which was discontinued in consequence of the bad state of the weather, will be RESUMED on FRIDAY, November 5, at 10 o'Clock precisely. It includes all the handsomely grown Specimen Conifers and Flowering Shrubs, Ornamental Trees, Trained Fruits, Herbaceous Plants, &c., growing on the west and north sides of the Nursery, together with all the Garden Tools, Flower Pots, &c.
Further particulars and Catalogues may be had of the Auctioneers, Sudbury, Suffolk.

Surrey.—Windlesham, near Bagshot.
EXTENSIVE SALE of VERY VALUABLE NURSERY STOCK.
MESSRS. PROTHEROE AND MORRIS have received instructions from Messrs. Geo. Baker & Son to SELL by AUCTION, without reserve, on the Premises, the American Nursery, Windlesham, Surrey, 10 minutes' walk from the Sunningdale Station, on the South-Western Railway, on TUESDAY, November 2, and four following days, at 12 o'Clock each day, the following valuable NURSERY STOCK, including many unusually grand and effective Specimens, from 6 to 15 feet, carefully prepared for removal, comprising Cedrus Deodara, Picea nobilis, Pinsapo, lasiocarpa, and Nordmanniana; Araucaria imbricata, Pinus macrocarpa, Thuja gigantea, Warreana, Lobbii, and chinensis; Wellingtonias, Irish Yews, Standard Variegated Hollies; likewise 4000 Variegated Hollies, 9 inches to 2 feet; 2000 Portugal Laurels, 1 to 4 feet; 1000 Thujopsis borealis, 5000 Common Laurels (bushy), 200 Aucuba japonica, thousands of Thuja Lobbii, Retinospora pisifera and obtusa, Thujopsis dolabrata variegata, Thuja gigantea and Warreana, Standard worked Irish Yews, 10,000 Cupressus Lawsoniana, 5000 Deutzia crenata flore-pleno, 2000 Variegated Ivies, 200 Ligustrum ovalifolium (in pots), 500 Mrs. Pince's Muscat Vine, 1000 New Clematis, 500 Picea nobilis (seedlings), a large quantity of Yucca flaccida, Cotoneasters, Double Furze, Gladiolus, &c.; 15,000 AMERICAN PLANTS, comprising 3000 best named Rhododendrons, 1 to 3 feet, fine furnished plants, many of which are well set with bloom buds; 3000 Rhododendron ponticum (bushy), 2000 Ghent and Hardy Azaleas, 2000 Taylor's Red Azaleas, 1000 Kalmia latifolia; also a large quantity of fine Standard Rhododendrons, Ericas, &c.; 2000 Standard and Dwarf ROSES, with a quantity of Roses in pots, &c.
N.B.—A Van will meet the London Mid-day Train at Sunningdale Station, to convey Passengers to the Sale.
Refreshments will be provided for Purchasers.
May be viewed until the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers.

City Auction Rooms, 38 & 39, Gracechurch Street, E.C.
MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Rooms as above, on SATURDAY, November 6, at half-past 12 o'Clock precisely, a first-class Collection of DUTCH BULBS, consisting of the finest Double and Single Hyacinths, Narcissus, Jonquils, Anemones, Crocus, Tulips, Ranunculus, Snowdrops, &c.; a fine assortment of 300 handsome Standard and Dwarf ROSES, of the best varieties; selected AMERICAN PLANTS, comprising Ghent and other Azaleas, Rhododendrons, Kalmias, Andromedas, with some hardy Climbers, &c.
On view the morning of Sale. Catalogues had at the Rooms of the Auctioneers and Valuers, Leytonstone, N.E.

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MESSRS. PROTHEROE AND MORRIS are directed by Mr. Robert Parker to SELL by AUCTION on the premises, Exotic Nursery, Tooting, Surrey, on TUESDAY and WEDNESDAY, November 9 and 10, at 11 for 12 o'Clock precisely each day, without reserve (a portion of the Land being required for the completion of a New Road on the Martin's Park Estate), the following valuable NURSERY STOCK, in excellent condition for removal, comprising thousands of Common Laurels, 2 to 4 feet; Portugal Laurels, 2 feet; bushy Green Box, fine Arbutus, 2 to 4 feet; Green Hollies, 1 to 3 feet; Berberis Darwinii, Privet, Colchic, Laurels, bushy Laurustinus, full of flower; large quantities of Spruce Firs, 1 to 3 feet; Chinese and American Arbor-vitæ, 2 to 4 feet; English Yews, Pinus austriaca, 2 to 4 feet. Also thousands of ornamental and Forest Trees, choice Standard and Dwarf Roses. A large stock of Boursault, Inermis, and Amadis, Manetti Celine, and other kinds. Some clean-grown fruit Trees; together with a quantity of Hardy Herbaceous Plants, &c.
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MESSRS. PROTHEROE AND MORRIS have received instructions from the Executors of the late Mr. E. Bowman, to SELL by AUCTION, on the Premises, as above, on TUESDAY, November 16, and following days, without reserve (the Nurseries being Let), the WHOLE of the VALUABLE NURSERY STOCK and MARKET GARDEN PRODUCE.
Further particulars will appear in future Advertisements.

Preliminary Notice of an Important Sale of Nursery Stock.
MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Nursery, Lea Bridge Road, Essex, N.E., on MONDAY and TUESDAY, November 22 and 23, without reserve (in consequence of the expiration of Lease), the whole of the Valuable NURSERY STOCK, including thousands of large Shrubs, well adapted for immediate effect; also the Greenhouses and sundry effects.

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MR. W. ABRAHAM begs to inform persons intending to Plant that he has received instructions to SELL by AUCTION, in the Grounds of the Railway Hotel, Woolston, near Southampton, on TUESDAY, November 2, at 12 o'Clock punctually, a large quantity of choice EVERGREEN and DECIDUOUS TREES and SHRUBS, Standard, Pyramidal, Trained and Dwarf FRUIT TREES, named kinds; about 3000 strong QUICK, Standard and Dwarf ROSES, Hardy CREEPERS, PRIVET, &c.
Catalogues obtained at the Hotel, or (post free) of W. ABRAHAM, Horticultural Auctioneer, Valuer, &c., Goldworth Nurseries, Woking, Surrey.

Stoke Road Nursery, Guildford, Surrey.
TO GENTLEMEN and OTHERS ENGAGED in PLANTING.
MR. W. ABRAHAM begs to announce that he has received instructions from the proprietors, Messrs. A. Hart & Son, to SELL by AUCTION, in the Grounds of their Stoke Road Nursery, Guildford, Surrey, on TUESDAY and WEDNESDAY, November 9 and 10 next, at 12 o'Clock punctually (in consequence of the number of the Lots), a very excellent Collection of choice EVERGREEN and DECIDUOUS TREES and SHRUBS, consisting of Cupressus Lawsoniana, 6 feet; Thujopsis borealis, fine specimen Wellingtonia gigantea, 6 feet, moved last spring; Chinese Arbor-vitæ, 4 feet; English and Irish Yews; Taxus erecta, nice plants, 4 feet; Juniperus sinensis and hibernica; Thuja Lobbii; Silver and Spruce Fir, 5000 Common Laurel, bushy plants; Portugal Laurel, excellent Tree Box, Evergreen Privet, Scotch Fir, 2½ to 3 feet; Pinus austriaca, Rhododendron ponticum, Aucuba japonica, and upwards of 4000 Standard and Dwarf H. P., Moss, Cabbage, and other Roses by name; Strong Hazel, 4 to 5 feet; English Oak, 4 to 5 feet; Laburnum, Italian and Lombardy Poplar; also Standard, Pyramidal, Trained, and Dwarf FRUIT TREES, including Apples, Pears, Plums, Cherries, Peaches, Nectarines, Apricots, Gooseberry and Currant Bushes; Hardy Evergreen and other Climbers, Pampas Grass, &c. Also 10,000 very strong ASPARAGUS Roots, and 300 strong RHUBARB Roots (fit for immediate Forcing).
The Nursery is 10 minutes' walk from the Guildford Station.
Catalogues may be obtained one week prior to days of Sale on application (or post free) to Messrs. A. HART AND SON, Florists, High Street, Guildford; or of Mr. ABRAHAM, Horticultural Auctioneer, Valuer, &c., Goldworth Nurseries, Woking, Surrey.

Velsdon Road, Croydon.
GENUINE SALE of VALUABLE LIVE and DEAD STOCK, HAY, and EFFECTS.
ROBERT W. FULLER is directed by Mr. George Lloyd, who has Disposed of the Lease of his Market Garden, and is leaving England, to SELL by AUCTION, on the Premises, in Velsdon Road, Croydon, on TUESDAY, November 9, at 1 for 2 o'Clock, the genuine LIVE and DEAD STOCK, including five valuable Cart Horses, two strong Vans, a capital Waggon with side ladders, two 2-ton Market Carts, a Water Cart, a Spring Market Cart, two Tumbril Carts; Turnwrist, Round, Double-breasted, and Subsoil Ploughs; Iron and Wood Harrows, two Horse Hoes, a Double Cultivator Iron Land Roller, a small Hand Roller, a Racer, Trace and Thill Harness, an Iron Cauldron, a quantity of useful Timber, Pig Trough, quantity of Bushel and other Baskets, and the usual Market Garden Tools, also about 4½ tons of Regent Potatos, Part Stack of Pea Haulm, and Part Stack of Meadow Hay and Pea Haulm.
May be viewed the day prior, and morning of Sale, and Catalogues obtained at the place of Sale at the Rail View, and Drover's Inn, Velsdon Road, Croydon, and at the Auctioneer's offices, 37, High Street, Croydon.

Hyacinths, Tulips, &c.

BUTLER, McCULLOCH AND CO. beg to announce the publication of their AUTUMN CATALOGUE of the above, which will be sent gratis and post paid on application. Orders for Bulbs can now be executed.

BUTLER, McCULLOCH AND CO., South Row, Covent Garden Market, London, W.C. Established upwards of a Century.

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FRANCIS & ARTHUR DICKSON & SONS, have received from the most celebrated Growers in Holland their first large importation of the above, and have the satisfaction to say that the Bulbs are large, sound, and well ripened. Early orders respectfully solicited. DESCRIPTIVE PRICED CATALOGUES post free on application.

The "Old" Established Seed Warehouse, 106, Eastgate Street, Chester.

New Catalogue of Dutch Bulbs, Plants, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select Descriptive and Priced Lists of Amaryllis, Crocuses, Cyclamens, Gladioli, Hyacinths, Liliums, Narcissus, Tulips, and other bulbs, Miscellaneous Plants, Fruit Trees, Sweet Violets, &c., is now published, and will be forwarded to applicants.—Exotic Nursery, Tooting, Surrey, S.W.

Dutch Flower Roots.



ARCHIBALD HENDERSON begs to announce that he has received a large Consignment of Dutch and other Roots, carefully selected from the most celebrated growers.

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Dutch Flower Roots.

DOWNIE, LAIRD, AND LAING have now received their first Importations of Flower Roots, consisting of HYACINTHS, POLYANTHUS NARCISSUS, Double NARCISSUS, CROCUS, TULIPS, JONQUILS, RANUNCULUS, ANEMONES, SNOWDROPS, &c., &c., which have all been carefully selected from the most celebrated establishments in Holland. The Bulbs are this season well ripened, large, and very heavy, and have arrived in splendid condition.

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12	choice named Hyacinths	24	fine mixed Ranunculus
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6	,, Polyanthus Narcissus	12	,, ,, early Tulips
100	,, named Crocus	12	,, ,, late Tulips
50	,, mixed Snowdrops	12	,, ,, Jonquils

Packed in hamper. Carriage paid.

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CARTER'S SPECIAL COLLECTION of BULBS for Indoor and Outdoor Cultivation.

JAMES CARTER & Co. beg to offer the following liberal assortment, price 21s., including packing:—

12 Very Fine Named Hyacinths, for Pots or Glasses	100 Purple Crocus
12 Mixed Bedding Hyacinths	50 Striped Crocus
6 Named Polyanthus Narcissus	50 White Crocus
24 Named Border Narcissus	12 Campernel Jonquils
12 Extra Fine Mixed Double Tulips	24 Extra Choice Mixed Spanish Iris
12 Extra Fine Mixed Single Tulips	12 Double Daffodils
	12 Gladiolus Brenchylensis
	24 Gladiolus Byzantinus

JAMES CARTER AND CO., The Royal Seedsmen, 237 and 238, High Holborn, London, W.C.

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WM. CUTBUSH AND SON are celebrated for HYACINTHS, TULIPS, CROCUSES, and other DUTCH BULBS. All the Great Prizes, including the Two Special Prizes offered by the Dutch Growers, awarded to their Collections again last Spring. They import only ONE QUALITY, therefore Customers may rely upon having the finest Bulbs. CATALOGUES post free.

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Only First Quality Bulbs Imported.

HYACINTHS, Exhibition Varieties, for Pots or Glasses, 5s. per dozen.

TULIPS, Single and Double, from 2s. 6d. per 100; Exhibition kinds, to name, from 10s. per 100.

POLYANTHUS NARCISSUS, Exhibition kinds, 2s. 6d. per dozen.

CROCUS, Yellow, 1s. 2d.; Blue, White, and Striped, 1s. 6d. per 100.

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New Plant.



MR. WILLIAM BULL is now sending out the beautiful

LASIANDRA MACRANTHA,

Which can be easily cultivated in an ordinary Greenhouse. Price, 7s. 6d. and 10s. 6d. each.

The flowers of this plant are truly marvellous, 1½ foot in circumference; are produced nearly throughout the year, and on plants when only an inch or two high. Some blooms of it were sent last Christmas to the Editor of the *Gardeners' Chronicle*, and the following remarks were made in the columns of that Journal, January 2, 1869:—

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First quality, 3s. per doz., 21s. per 100, 160s. per 1000.

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BERBERIS AQUIFOLIA, 2 feet high and very bushy.

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THUJOPSIS BOREALIS, 6 to 7 feet.

IRISH YEWS, 8 to 9 feet. | THUJA AUREA, 3 feet by 3.

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STANDARD ROSES, the best sorts, including Maréchal Niel, &c., £5 per 100; 27s. 6d. per 25; 15s. per dozen.

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VARIEGATED ARABIS, for Edging.—Good strong Cuttings, 4s. per 100, or 600 for £1, cash.

MADRESFIELD COURT VINE.—Strong Canes, 10s. 6d. and 15s each. Eyes or Grafts, 6d. each.

MRS. PINCE'S BLACK MUSCAT.—Strong Canes, 5s., 7s. 6d., and 10s. 6d. each. Eyes or Grafts, 3d. each.

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Vines.

CHARLES TURNER can supply

GOLDEN CHAMPION	
MADRESFIELD COURT	MRS. PINCE, and
BLACK MUSCAT	ROYAL ASCOT

In Fruiting Canes, or second size for planting out; also the established old varieties, in fine plants.

The Royal Nurseries, Slough.

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EDWARD MORSE, Original Nursery, Epsom, Surrey.

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Autumn Planting.

PETER LAWSON AND SON will be glad to send their CATALOGUE (just published) of FOREST and ORNAMENTAL TREES and SHRUBS, free upon application.

The stock of LARCHES, SCOTCH FIRS, AUSTRIAN and CORSICAN PINES, &c., comprises some millions of healthy, well-grown plants, and special offers will be made for large quantities when personal inspection is not convenient.

Edinburgh and London.

NEW PLANTS, 1869.

Special Offer to the Trade:—

2 Iresines, Lindeni and acuminata	9 Chrysanthemums
6 Fuchsias	1 Viola lutea grandiflora
4 Zonal Geraniums	1 Alternanthera amabilis
6 Bicolor Geraniums	1 Alopecurus pratensis aureo-variegatis
6 Double Geraniums	1 Holcus lanatus albo-variegatus
6 Coleus	
6 Lobelias	

On receipt of Post Office Order for One Guinea,

H. CANNELL will send the above Collection, package free. All strong, healthy little Plants. This offer only extends for 28 days.

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H. CANNELL has now a splendid Stock of 217 varieties, consisting of all the New, and best older varieties in cultivation, and will supply them either as Cuttings or Rooted Cuttings, or Potted Plants, at the very lowest price consistent with quality and economy.

See H. C.'s FLORAL GUIDE, giving particulars how to grow the Japan and other varieties. Other kinds are classed according to what they are best adapted for, and a great deal of other valuable information, including the Second Chapter on the Art of Gardening and the Natural Requirements of Plants. Free for Four Stamps.

New Florist Flower and Florist Flower Seed Merchant, Woolwich.

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H. C. has also a fine lot of the three following beautiful edging kinds:—SECUNDA, SECUNDA GLAUCA, and PUMILA. A packet of either of these sent free for 18 stamps.

Plants of all the above from 5s. per dozen to 20s. per plant.

New Florist Flower and Florist Flower Seed Merchant, Woolwich.

Large Evergreens and Forest Trees.

MESSRS. PAMPLIN AND SON have a large quantity of the following, and offer them at low prices, part of their Grounds being required for building purposes.

Cedar of Lebanon, 10 to 20 feet	Black Italian Poplar, 20 feet
Cedrus Deodara, 6 to 15 feet	Balsam ditto, 10 to 15 feet
Aucuba japonica, 2 to 6 feet	Lombardy ditto, 20 feet
Portugal Laurels, 2 to 6 feet	Horse Chestnut, 10 to 15 feet
Chinese Arbor-vitæ, 5 to 12 feet	Spanish Chestnut, 10 feet
American ,, 5 to 10 feet	Limes, 10 to 15 feet
Thuja aurea, 1 to 4 feet	Walnuts, 10 to 15 feet
Green Box, 1 to 6 feet	Ash, 10 to 20 feet
Striped ditto, 2 to 4 feet	Elm, 10 to 15 feet
Evergreen Oak, 7 to 10 feet	Acacia, 10 feet
Yew, Common, 4 to 10 feet	Mountain Ash, 10 feet
Irish Yew, 3 to 5 feet	Turkey Oak, 10 to 12 feet
Laurel, 2 to 6 feet	Sycamore, 10 to 14 feet
Araucaria imbricata, 10 feet	Weeping Willow, 10 to 15 feet
Green Hollies, 1 to 12 feet	Lilac, Common, 8 feet
Weymouth Fir, 3 to 6 feet	Persian ditto, 6 feet
Spruce ditto, 2 to 4 feet	Yellow Azalea, 3 feet
Birch, 14 feet	Privet ovalifolia, 8 feet

The Nurseries, Lea Bridge Road, Leyton; and Wood Street, Walthamstow, Essex, N.E.

EARLY SANDRINGHAM KIDNEY POTATO.

THE EARLIEST, MOST PROLIFIC,

AND BEST VARIETY FOR FORCING PURPOSES IN CULTIVATION.

Price to the Trade and further particulars may be had on application to

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PAUL'S HYACINTHS, TULIPS, &c.

"The best and fullest account of this Plant (the Hyacinth) which I have met with is by a famous Horticulturist, Mr. PAUL, of Waltham Cross."—DARWIN'S *Animals and Plants under Domestication*.

"The Bulbs used in forming this brilliant display (Hyde Park), were supplied by Mr. WILLIAM PAUL."—*Gardeners' Chronicle*, April 24, 1869.

WILLIAM PAUL

BEGS TO ANNOUNCE THAT HIS

HYACINTHS, TULIPS, CROCUSES, and other DUTCH FLOWER ROOTS,

Have just arrived in excellent condition, and he respectfully solicits early orders for the same.

In proof of the quality of Bulbs imported by him, he begs to refer to his Annual Exhibition in the Royal Horticultural Gardens in March and April, which has been visited by Her Most Gracious Majesty the Queen, Her Royal Highness the Princess of Wales, and several other Members of the Royal Family.

PRICED DESCRIPTIVE CATALOGUE Free by Post.

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☞ *It is this Firm which during the past three years have gained* **149 FIRST PRIZES** *for* **ROSES** *alone.*

PAUL & SON, THE OLD NURSERIES, CHESHUNT, N.,

BEG TO QUOTE AUTUMN PRICES OF ROSES:—

STANDARDS, of older kinds, 18s. to 24s. per dozen
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DWARFS and DWARF STANDARDS, 12s. to 18s. p. doz.
DWARFS, 24s. to 36s. per dozen.

Extra sized Plants, established in pots, for forcing, 30s. to 42s. per dozen.

Quarter, half, full Specimens, in pots, 5s. to 9s. 6d., 10s. 6d. to 21s., 21s. to 42s. each.

PAUL AND SON have recently published a comprehensive PRICED LIST of all HARDY TREES, SHRUBS, FRUIT TREES, &c., the items of which are too numerous to quote here, but which they beg to offer to Planters. They are of first-rate quality and in large quantity.

STANDARD LIMES, SYCAMORES, SCARLET and COMMON HORSE CHESTNUTS, PLANES, WILLOWS, and other DECIDUOUS TREES, Variegated and Green HOLLIES, PORTUGAL LAURELS, YEWS, ARBUTUS of all sizes, and other EVERGREENS.

RHODODENDRONS, 1 to 5 ft.; KALMIAS, MAGNOLIAS (grown at High Beech), and other American Plants.

Specimen WELLINGTONIAS, 2 to 9 ft. (moved 1869); ARAUCARIAS, 2 to 4 ft., and other Coniferous Plants.

STANDARD APPLES and PEARS (magnificent, and unsurpassed in the Trade); PALMETTE, CORDON, PYRAMID, and other trained Fruit Trees.

PRICED LIST of the above, also DESCRIPTIVE ROSE CATALOGUE, Post Free on application.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.

Printed by JAMES MATTHEWS, at the Office of Messrs. BRADBURY, EVANS, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the Co. of Middlesex, and Published by the said JAMES MATTHEWS at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, October 30, 1869.

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 45.—1869.] SATURDAY, NOVEMBER 6. {Price Fivepence. {STAMPED EDITION, 6d.

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NOTICE to ADVERTISERS.—In answer to constant inquiries, the Proprietors have fixed the following SCALE of CHARGES for ADVERTISING:—

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All Advertisements connected with Gardening or Agriculture, four lines	3	0
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THE STOKE NEWINGTON CHRYSANTHEMUM SOCIETY will hold its TWENTY-THIRD ANNUAL EXHIBITION of CHRYSANTHEMUMS, FRUIT, &c., in the New Assembly Rooms, Defoe Road, Church Street, Stoke Newington, on WEDNESDAY and THURSDAY, November 10 and 11. Admission, first day, 1s.; second day, 6d.
W. T. HOWE, Hon. Sec.
1, Down's Park Road, Shacklewell, N.E.

BRISTOL CHRYSANTHEMUM and FRUIT SHOW SOCIETY.—The SIXTH GRAND SHOW of CHRYSANTHEMUMS, FRUIT, &c., will be held in the Rifle Drill Hall, Queen's Road, Clifton, on THURSDAY, November 11. Prize Schedules may be obtained on application to the Hon. Secretaries,
G. WEBLEY, Henleaze Park, Westbury-on-Trym,
H. STEVENS, Cotham House Lodge, Tyndall's Park.

HORTICULTURAL SOCIETY of LIVERPOOL.—The SEVENTH GREAT EXHIBITION of CHRYSANTHEMUMS and FRUIT will be held at St. George's Hall on TUESDAY and WEDNESDAY, November 23 and 24. For Schedules, &c., apply to R. WILSON KER, Hon. Sec.,
6, Basnett Street, Liverpool

Chrysanthemums.

ADAM FORSYTH begs to inform his Friends and the Public that his Specimen and other CHRYSANTHEMUMS are unusually fine this season, and may be seen every day (Sundays excepted). A visit is respectfully solicited.
Brunswick Nursery, Stoke Newington, N.

The Successful Cultivation of Hyacinths.—See SUTTONS' AUTUMN CATALOGUE for 1869, which may be had gratis and post free on application.
SUTTON AND SONS, Reading, Berks.

SUTTONS' COLLECTIONS of FLOWER ROOTS, for open ground decoration, 10s. 6d. to 42s.
See SUTTONS' AUTUMN CATALOGUE.

SUTTONS' COLLECTIONS of FLOWER ROOTS, for Greenhouse and Conservatory Decoration, 10s. 6d. to 42s.
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SUTTONS' COLLECTIONS of HYACINTHS, for cultivation in pots and glasses.
See SUTTONS' AUTUMN CATALOGUE.

SUTTONS' AUTUMN CATALOGUE for 1869, gratis and post free on application.
SUTTON AND SONS, Importers, Reading.

FRESH IMPORTED HYACINTHS, CROCUS, TULIPS, NARCISSUS, &c.—For prices, see Messrs. SUTTONS' Advertisement on page 1166 of this day's *Gardeners' Chronicle*.
SUTTON AND SONS, Seedsmen to the Queen, Reading.

FELTON AND SON'S PLANT and BULB CATALOGUES now ready, post free on application.
Birmingham Nursery, Harborne Road, Birmingham.

Dutch Bulbs, just Imported.

JAMES CARTER AND CO.'S AUTUMN CATALOGUE of HYACINTHS, CROCUS, and other Bulbs, also ROSES and FRUIT TREES, is now ready, and will be forwarded gratis and post free on application.
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G. WALKLING, Nurseryman, High Road and College Park, Wisham, S.E.

EVERY GARDEN REQUISITE KEPT in STOCK at CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

Carnations and Picotees.

JONATHAN BOOTH, FLORIST, Pole Lane, Failsworth, near Manchester, can supply a choice Collection of the above in all the leading show varieties. Prices on application. Trade supplied.

EWING AND CHILD'S GENERAL NURSERY CATALOGUE, which contains descriptions of a select assortment of Fruits, Roses, Conifers, Evergreens, Ornamental Deciduous Trees, &c., is now ready, and may be had Gratis and Post free on application to The Royal Norfolk Nurseries, Norwich.

To the Trade.

PAUL AND SON, while preparing a TRADE CATALOGUE, beg to offer to wholesale buyers, STANDARD FRUIT TREES (extra fine), dwarf-trained PLUMS, APPLES, PEARS, and CHERRIES; LAURELS, LIMES (large), ARAUCARIAS, RHODODENDRON PONTICUM, all in quantity.
The "Old" Nurseries, Cheshunt, Herts, N.

Rose Catalogue.

JOHN CRANSTON'S ROSE CATALOGUE for 1869 is now ready, and will be sent post free on application.
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STANDARD and DWARF ROSES, by the dozen 100, or 1000. CATALOGUES on application.
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RICHARD SMITH, Nurseryman, Worcester.

To the Trade.—Hybrid Perpetual Roses.

HUSSEY AND SON beg to offer fine DWARFS on MANETTI at 6s. per dozen, £2 per 100. LISTS of sorts upon application. Mile End Nursery, Eaton, Norwich.

Splendid Roses.

TRY the SALISBURY ROSES. CATALOGUES ready.
JOHN KEYNES, Castle Street Nursery, Salisbury.

ROSE CATALOGUE for 1869, post free.—The finest Rose plants this season are to be obtained from
E. P. FRANCIS AND CO., The Nurseries, Hertford.

200,000 Dwarf Hybrid Perpetual Roses.

WM. WOOD AND SON have a magnificent Stock of the above to offer. Early orders are respectfully solicited.

Fifty First Prizes this Season.

PAUL AND SON'S NEW ROSE CATALOGUE, and PAUL AND SON'S NEW DESCRIPTIVE FRUIT and HARDY TREE CATALOGUE, are now ready, and will be sent post free on application to
PAUL AND SON, Old Nurseries, Cheshunt, N.

Roses.

CHARLES TURNER'S DESCRIPTIVE and PRICED CATALOGUE of ROSES is now ready; it also contains full LISTS of FRUIT TREES, SHRUBS, CONIFERÆ, &c., and may be had post free on application.
The Royal Nurseries, Slough.

ROSES.—Fine Hybrid Perpetual, best kinds, up to 1868, 16s. per dozen; Dwarf do., 8s. ROSES of 1869, in pots, 20s. per dozen, strong plants. COMMON LAURELS, 15s. per 100; strong HAWTHORN QUICK, 20s. per 1000, cash. Special prices for large quantities on application.
GEORGE DAVISON, White Cross Nursery, Hereford.

Paul's Rose Catalogue.

"A very complete and able Catalogue."—*Floral World.*

WM. PAUL begs to announce that his NEW CATALOGUE of ROSES is now ready, and will be forwarded post free on application. The stock of Plants is large and excellent.
Paul's Nurseries, Waltham Cross, London, N.

Established 1806.

T. HANDASYDE AND DAVIDSON have a large stock of TEA, HYBRID PERPETUAL, BOURBON, and CHINA ROSES in pots. Special prices to the Trade on application.
Seed Warehouse, 24, Cockburn Street, Edinburgh.
Nurseries, Brunstain Glen, Musselburgh.

FOR SALE, 8000 MANETTI STOCKS. To be Sold, cheap.
Apply to E. SMITH, North Camp Nursery, Farnborough, Hants.

FUCHSIAS, new varieties of 1869.—12 of the most beautiful ever raised, 6s.; 24 ditto, 10s. 6d. Above post free.
N.B.—CATALOGUES of above post free.
W. DILLISTONE, Nurseries, Sible Hedingham, Essex.

Pelargoniums, Carnations, Picotees, Pinks, Cloves, Auriculas, &c.

CHARLES TURNER can supply fine plants of the above. A CATALOGUE, containing select Collections of each, is now ready.
The Royal Nurseries, Slough.

VARIEGATED PELARGONIUMS.—Mrs. Dix, Plutus, Spanish Beauty, Jock o' Hazeldean, Louisa Smith, Lizzie, Caroline Longfield, Oberon, Dragon, Countess Tyrconnell, Golden Circle, Glen Eyre Beauty. 21s.
CASBON AND SON, Gravel Walk Nursery, Peterborough.

Pelargoniums for the Million.

JAMES HOLDER'S unrivalled Collection of French, Fancy, and Show varieties is now ready, at the following low prices:—100 plants, distinct sorts, for 50s.; 50 plants for 30s.; or 25 plants, distinct sorts, for 20s., hamper and package included.
Crown Nursery, Reading.

Special Offer.—Madame Lemoine.

WILLIAM BADMAN offers strong plants of this most beautiful of Double [illegible]rgoniums, in single pots, 6s. per dozen. LORD DERBY, fines POrgonium grown, 4s. per dozen. Package included. Terms cash.
Cemetery Nursery, G[illegible]ING[illegible]ad.

Asparagus Plants.—To the Trade.

JAMES CARTER AND CO. having grown a splendid lot of strong 3-yr. old plants, are prepared to make special quotations.
JAMES CARTER AND CO., 237 & 238, High Holborn, London, W.C.

SEASIDE.—MONA'S PRIDE, still the very earliest of Earlies, and the top of the list for Prolificacy. Attention of Merchants and Growers respectfully solicited by its first Introducer, and only extensive holder of the True Seed.
Mr. R. W. O. R., Hague House, Douglas, Isle of Man.

Seed Potatos.

H. AND F. SHARPE'S WHOLESALE LIST of all the new and best varieties of Early and Late POTATOS is now ready, and may be had on application. The quality is very fine, and prices low.
Seed Growing Establishment, Wisbech.

MANGEL (150 Tons for SALE).—The above will be put on Rail at Reigate or Merstham Stations at 18s. per ton during this month. Dung, on Rail in London, will be taken in payment if preferred.
G. W. GRAY, Galton, Reigate.

THE Cheapest and most Effectual of all PLANTS for Game and Fox Covert, PAMPAS GRASS. Surplus stock, strong, healthy, seedling plants, twice transplanted, 25s. per 100, or £12 per 1000, delivered free to Bealings Station.
BUNDY, Kesgrave, Woodbridge, Suffolk.

Vines.

JAMES CARTER AND CO. can now offer strong, well-grown CANES, this year's growth. For description of Varieties and Prices, see AUTUMN CATALOGUE, now published.
JAMES CARTER AND CO., Seedsmen and Nurserymen, 237 and 238, High Holborn, W.C.

Grape Vines.

B. S. WILLIAMS' stock is remarkably fine, and in good condition. Can supply all the best kinds. Prices on application.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

Pines.

B. S. WILLIAMS has all the best kinds, in splendid condition, warranted clean. Prices on application.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

EXTRA STRONG FRUITING VINES.—2000 close-jointed thoroughly ripened Canes can be supplied of Black Hamburgh, Golden Champion, Mrs. Pince, and other varieties, for fruiting in pots and for planting. Descriptive CATALOGUE upon application.
JAMES DICKSON AND SONS, Newton Nurseries, Chester.

PINES and VINES.—Pines, best sorts, Fruiting and Succession, very strong and fine, from a stock that never had scale. Vines, fruiting, in 13-inch pots, 20 feet long, unusually strong, short-jointed, and finely ripened, fit for immediate forcing.
M. ROCHFORD, Market Gardener, Page Green, Tottenham, N.

Golden Champion Grape.

OSBORN AND SONS can supply good CANES of the above-named remarkable GRAPE, which has again been exhibited and very much admired, fully sustaining the high character previously formed of it. Price 10s. 6d., 21s., and 30s. each.
Fulham Nursery, London, S.W.

Strawberry Runners.

JAMES CARTER AND CO. have a splendid Stock now ready. For Prices and Varieties, see AUTUMN CATALOGUE, now published.
JAMES CARTER AND CO., Seedsmen and Nurserymen, 237 and 238, High Holborn, W.C.

STRAWBERRIES.—Vicomtesse Hericart de Thury, Dr. Hogg, Sir Joseph Paxton, The Lady, Sir Harry, Marguerite, Princess of Wales, and 60 other leading kinds. The above, in extra strong, well-rooted Plants, and true to name, at 10s. per 1000, or 2s. per 100.
W. JACKSON, Blakedown Nursery, near Kidderminster.

NEW APPLE, ANNIE ELIZABETH (was awarded First-class Certificate by the Royal Horticultural Society, 1868), now being sent out by HARRISON AND SON, Seed Growers, &c., Leicester. Price 7s. 6d. The usual discount to the Trade. One of the finest varieties ever introduced. See Advertisement, p. 1154.

Figs, Oranges, Citrons, and Lemons.

T. R. PEARSON has a large stock of the above, many of them to be Sold cheap.
Also a splendid stock of FRUITING VINES.
Chilwell Nurseries, Notts.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LIST of these varieties from Mr. WEBB, Calcot, Reading.

TO GENTLEMEN, GARDENERS, and OTHERS, having to DISPOSE of CHOICE FRUIT, FLOWERS, VEGETABLES, &c., may meet with good Sale and quick returns by sending to A. IRETON, Covent Garden Market, W.C. Stamp for inquiry.

GLADIOLI SEEDLINGS (mixed).—Beautiful flowers, equal to any collection, of all colours. Strong flowering Bulbs, 7s. per 100, £3 per 1000. Sorts per name at the lowest prices. Apply to LEVEQUE ET FILS, Nurserymen, 132 and 134, Boulevard de l'Hôpital, Paris.

TO the TRADE.—1-yr. Seedling LARCH, of very fine quality. Price and sample on application.
R. MORRISON, Nurseryman, Elgin, N.B.

OAK, in drills, 1, 2, and 3 feet. Through rates to all Stations.
R. MORRISON, Nurseryman, Elgin, N.B.

SEEDLING and Transplanted SCOTCH FIR of all sizes; also LARCH, SPRUCE, SILVER FIR, PINUS AUSTRIACA, LARICIO, &c. Price on application.
R. MORRISON, Nurseryman, Elgin, N.B.

FRUIT TREE STOCKS.—2-yr. Seedling PEARS, of fine quality; 1, 2, and 3-yr. Seedling APPLES, fine, also transplanted, of all sizes; 2-yr. Seedling and Transplanted CHERRIES, 2-yr. Seedling PLUMS.
R. MORRISON, Nurseryman, Elgin, N.B.

Planting Season.

THE SUBSCRIBERS announce that their PRICED LIST for the season may now be had on application.
WM. URQUHART AND SONS, Dundee.

LAURELS.—Large surplus stock of Laurels, of all sizes, from 1 to 6 feet, good bushy stuff, to be Sold, cheap.
Apply to JOHN MITCHINSON, Nurseryman, Truro.

ANDREW G. DALY has 10,000 6-yr. old LAURELS, strong, three times transplanted, 3 to 4 feet.
ANDREW G. DALY, Nurseryman and Seedsman, Newry, Ireland.

ANDREW G. DALY has 200 quarters of ITALIAN RYE-GRASS, 18lb. per bushel. To the Trade at 25s. per qr.
ANDREW G. DALY, Nurseryman and Seedsman, Newry, Ireland.

Huntingdon Nurseries.

WOOD AND INGRAM'S GENERAL and TRADE CATALOGUES of NURSERY STOCK of all descriptions are now ready, and may be had on application.

Wholesale Catalogue of Good Transplanted Nursery Stock.

GEO. JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1869-70 will be forwarded free on application. Woking Nursery, Surrey.

MAGNIFICENT, strong, well grown, transplanted COMMON LAURELS, from 4 to 6 feet. Prices on application.
WM. WOOD AND SON, Nurseries, Maresfield, Uckfield, Sussex.

Splendid Large Trees for Avenue Planting.

SCARLET and Common HORSE CHESTNUTS, ELMS, POPLARS, &c. CATALOGUES on application.
WM. WOOD AND SON, Nurseries, Maresfield, Uckfield, Sussex.

EVERGREEN OAKS.—1-yr. Seedlings, in drills, 12s. 6d. per 1000. These being upon ground that must be cleared, are offered very cheap.
T. JACKSON AND SON, Nurseries, Kingston, Surrey.

Standard and Dwarf Roses.

LEWIS WOODTHORPE begs to offer STANDARD and DWARF ROSES at the following low rates:—
Standard Roses, £5 per 100; 27s. 6d. per 25; 15s. per dozen.
Dwarf Roses, upon Manetti, £2 per 100; 6s. per dozen.
Dwarf Roses, in pots, 9s. per dozen.
Wholesale prices upon application. CATALOGUES of Roses, New Plants, and general Nursery Stock free.
Munro Nursery, Sible Hedingham, Essex.

To the Trade.

PYRETHRUM AUREA (New Golden Feather), strong Plants, 10 inches to 1 foot through, 12s. to 16s. per 100. Seed of the above to produce 200 Plants, 6d. per packet.
CYCLAMEN PERSICUM, showing Bloom, 60s. per 100.
SOLANUM CAPSICASTRUM, for Winter and Spring Berrying, 30s. to 35s. per 100.
ROSES, Tea, Safrano, 50s. per 100, in pots.
ROSES, Tea, Madame Falcot, 60s. per 100, in pots.
ROSES, China, in four good and distinct varieties, 35s. to 40s. per 100, in pots.
ROSES, Manetti Stocks, strong, for immediate working, 35s. per 1000.
The above can be had in strong Plants at
GODWIN'S Rose Nursery, Angel Road, Edmonton, N.

The Present Time is most favourable for Planting.

GEORGE JACKMAN AND SON'S Hybrid and Hardy CLEMATISES awarded Twenty First-class Certificates and Two Specials. A Set of Five Engravings, from Photographs taken at Woking Nursery, and a general DESCRIPTIVE CATALOGUE of prices will be forwarded by enclosing two stamps.

FIRST-CLASS HARDY and PERMANENT PLANTS.
Engraving No. 1. For Conservatories, Terraces, &c.
Engraving No. 2. For Lawn, Flower Garden, &c.
Engraving No. 3. For Hardy and Permanent Bedding, &c.
Engraving No. 4. For Festoons, Verandahs, &c.
Engraving No. 5. For Rootery, Rockwork, Ruins, &c.
GEO. JACKMAN AND SON, Woking Nursery, Surrey.

New Bedding Plant, Veronica Blue Gem.

THOMAS CRIPPS AND SON have great pleasure in announcing that they have purchased from Mr. H. Warren, of Salisbury, the entire STOCK of this very distinct and useful plant, which excited so much admiration at South Kensington on the 21st Oct. Unlike other shrubby Veronicas, it is of a neat, dwarf habit, the parent plant being only 9 inches high; the foliage is small and Box-like, the axil of nearly every leaf producing large spikes of mauve flowers, making the plants appear literally clothed with bloom. It commences flowering when only 2 inches high, and continues in bloom throughout the season. Awarded First-class Certificates this year at Salisbury, Sherborne, Shirley, Bath, and South Kensington, and described by the *Gardeners' Chronicle* as "a fine acquisition," and by the "Cottage Gardener" as "one of the prettiest plants that have been exhibited this year; its dwarf, neat habit will make it very useful for bedding and decorative purposes." Plants ready in May next, at 5s. each, with the usual discount to the Trade on six plants.
The Nurseries, Tunbridge Wells, Kent.

Cheap, Cheap, Cheap.

JOHN BARRETT begs to offer his strain of HERBACEOUS CALCEOLARIAS at the following low prices:—In small pots, 1s. per doz., 2s. per 100; from pans, free by post, 2s. per doz., 12s. 6d. per 100.
The following choice GERANIUMS:—
LADY CULLUM, 6s. per dozen, 45s. per 100.
SOPHIE DUMARESQUE, 5s. per dozen, 45s. per 100.
ITALIA UNITA, 3s. 6d. per dozen, 25s. per 100.
MRS. POLLOCK, 3s. 6d. per dozen, 25s. per 100.
BEAUTY of OULTON, 3s. 6d. per dozen, 25s. per 100.
Fine healthy plants, package included.
St. John's Nursery, Bury St. Edmund's.

GERANIUMS.—Mrs. Pollock, 3s. per doz., 22s. per 100; Sunset, 3s. per doz., 22s. per 100; Lady Cullum, 6s. per doz.; Mrs. Benyon, 6s. per doz.; Mrs. Dix, 12s. per doz.; Louisa Smith, 12s. per doz.; Queen of Tricolors, 9s. per doz.; Sophie Dumaresque, 5s. per doz.; Beauty of Oulton, 4s. per doz.; Perilla, 4s. per doz.; Artemus Ward, 6s. per doz.; Luna, 4s. per doz.; Anna Williams, 4s. per doz.; Leonidas, 9s. per doz.; Lord Derby, 9s. per doz.; Crystal Palace Gem, 4s. per doz.; Andrew Anderson, 6s. per doz.; Madame Lemoine, 9s. per doz.; Triumph, 6s. per doz.; Tom Thumb, double, 6s. per doz. The 20 varieties, six of each, for £4; three of each for £2 5s., package included. ROSES, on their own roots, strong plants, 6s. to 9s. per doz., 50s. per 100. Sorts on application.
N. LAWRENCE, The Nurseries, Station Street, Chatteris, Cambs.

GOLD and SILVER VARIEGATED GERANIUMS.—The following 18 varieties for 21s.:—Aurora Borealis, Countess of Craven, Edwina Fitzpatrick, Florence, Goliah, Lady Cullum, Louisa Smith, Lucy Grieve, Mrs. Turner, Queen Victoria, Sophia Cuzacq, Sophie Dumaresque, Star of India, Impératrice Eugénie, International, May Queen (Turner's), Princess Alexandra, Snowdrop.
GOLD and BRONZE GERANIUMS.—The following 15 varieties for 18s.—Admiration, A. H. Wills, Countess of Kellie, Duke of Edinburgh, E. G. Henderson, Egyptian Queen, Empress Eugénie, Golden Nugget, Her Majesty, Kentish Hero, Little Golden Christine, Princess of Wales, The Sultan, Beauty of Coulderdale, Beauty of Redgeldyne.
The following nine DOUBLE GERANIUMS for 12s.:—Andrew Henderson, E. G. Henderson, Impératrice Eugénie, Madame de St. Paul, Madame Lemoine, Marie Crousse, Marie Lemoine, Victor Lemoine, Wingfield Pfitzer.
The following 12 new varieties of ZONAL and NOSEGAY GERANIUMS of 1869 for 10s.:—Floribunda alba, Jean Holtz, Kentish Fire, Lizzie, Madame Jules Aldebert, Madame Jules Elie, Madame Lemoine, Madame Mezard, Masterpiece, Maurice Bernardin, Princess Christian, Robert Bowley.
The above good plants, in 3-inch pots, package included.
WM. POTTEN, Florist, Sissinghurst, Staplehurst, Kent.

BEAUTIFUL SPRING FLOWERS.
Now ready, in strong Plants.
HEPATICA, sorts, 1s. per doz.
PRIMROSES, double Lilac, 1s.; White, 6s. per doz.
" double Yellow, 9s.; Purple, 6s. per doz.
" double Rose, 9s.; double Crimson, 12s. per doz.
ROCKETS, double White and Purple, 6s. per doz.
VIOLETS, 12 distinct sorts (see Catalogue), 1s. per doz.
POLYANTHUS, the finest strain in the world, 2s. 6d. per doz.; 15s. per 100.
PANSIES, finest border varieties, 2s. 6d. per doz.; 15s. per 100.
DAISIES, distinct sorts, 1s. per doz.
AURICULA, Perry's Red, 3s. per doz.
HOLLYHOCKS, 24 distinct kinds, to name, 3s. per doz.
PAMPAS GRASS, 3s. per doz.; 20s. per 100.
LEUCOJUM VERNUM (Snowflake), 2s. 6d. per doz.
ALBUCAS, sorts, 4s. per doz.
ADONIS VERNALIS, 6s. per doz.
HELLEBORUS MAXIMUS, 3s. per doz.
MYOSOTIS DISSITIFLORA, 4s. per doz.; 25s. per 100.
ALSTŒMERIA PRAETERMISA AUREO VARIEGATUS (new Golden Grass), 1s. 6d. each; 12s. per doz.
HOLCUS LANATUS ALBO VARIEGATUS (new Striped Grass), 1s. 6d. each, 12s. per doz.
FOXGLOVE, fine Spotted, 3s. per doz.; 20s. per 100.
WALLFLOWER, double Yellow and Dark, 4s. per doz.
DIELYTRA SPECTABILIS, 9s. per doz.
ARABIS ALBIDA VARIEGATA, 2s. 6d. per doz., 20s. per 100.
ŒNOTHERA MISSOURIENSIS, 6s. per doz.
PHLOX NELSONI, PROCUMBENS and VERNA, 4s. per doz.
PYRETHRUMS, Selected Double, to name, 6s. per doz.
SPIRÆAS, extra, 6s. per doz.
TRITOMA UVARIA, 6s. per doz.
CLOVES, Double Purple, Crimson and Striped, 6s. per doz.
PICOTEES, fine, to colour, 6s. per doz.
COWSLIP (Giant), 3s. per doz.

ROSES—24 choice distinct Varieties to name, Dwarfs, 15s.
Do. 24 do. do. do., Standards, 25s., or half the number for half the amount.
STRAWBERRIES.—DR. HOGG and NEW PERPETUAL PINE, 7s. 6d. per 100.
Do. 30 other sorts (see List), 2s. 6d. to 5s. per 100.
CHRYSANTHEMUMS.—30 New Chrysanthemums of 1869, 10s.
POT Onions on Cotton Hedgebanks. A CATALOGUE of Choice New Plants of 1869, Bulbs, Roses, Fruit Trees, &c., free on application.
WM. BULLIS (Son), Nurseryman, &c., Sible Hedingham, Essex.

Vines.

CHARLES TURNER can supply
GOLDEN CHAMPION
MADRESFIELD COURT | MRS. PINCE, and
BLACK MUSCAT | ROYAL ASCOT
In Fruiting Canes, or second size for planting out; also the established old varieties, in fine plants.
The Royal Nurseries, Slough.

Fruits and Fruit Trees.

J. SCOTT, The Nurseries, Merriott, Somerset, has now in his fruit room about 550 sorts of PEARS, which he offers, in named collections, at 1s. per dozen sorts. Cash with order; small sums in stamps. Orders for FRUIT TREES will be carefully attended to. 1000 sorts of Pears, 700 of Apple, 170 of Plum, 160 of Cherry, and other kinds in proportion. They are grown as Standards, 6 to 7 feet; Pyramids, 6 to 7 feet; and Bushes, 3 to 4 feet high; also Dwarf-trained fine healthy plants, and are described in the "Orchardist," the best work on Fruits in England, price 1s. 6d. A printed List or Index sent gratis.

Fruit Trees and Onions.

J. SCOTT, The Nurseries, Merriott, Somerset, calls attention to his fine Stock of FRUIT TREES, one of the largest and healthiest in the Kingdom. He has also for Sale several tons of prime large ONIONS, and from 10 to 15 bushels of Pickling do.
The ORCHARDIST, the best work on Fruit Trees, with Descriptive and Cultural Directions, price 1s. 6d., in stamps.

NEW APPLE, HARRISON'S ANNIE ELIZABETH.—This valuable new culinary Apple, which was awarded First-class Certificate by the Royal Horticultural Society, 1868, is now being sent out by HARRISON & SON, Leicester. It is one of the finest Apples ever introduced, and should be in every collection of fruit. It is of large size, colourv, with white, solid flesh, and very juicy. A most remarkable good keeper, having been in good condition twelve months after gathering, and after Christmas is an excellent Dessert Apple. The tree is of sturdy upright growth, with immense leaves, some this season measuring 4½ inches across; an abundant cropper. Figured in "Florist and Pomologist" this month. Price 7s. 6d. The usual discount to the Trade. The stock is limited, and early orders insure the best plants.
HARRISON AND SON, Seed Growers and Nurserymen, Leicester

To the Trade.

JOHN PERKINS, Sen., begs to offer the following FRUIT TREES, all of the finest quality:—
STANDARD PEARS, 5 to 7 feet stems, with good heads, at 50s. per 100, consisting of the following and other leading varieties:—

Louis Bonne of Jersey	Doyenne d'Eté
Williams' Bon Chrétien	Comte de Flandre
Jargonelle	Lammas | Marie Louise
Beurré de Amanlis	Swan's Egg, &c. &c.

STANDARD MAYDUKE CHERRIES, 5 to 6 ft. stem, 75s. per 100.
Dwarf-trained do. do., ex. fine, 6 to 10 shoots, 18s. p. doz.; 130s. p. 100.
Do. do. MORELLO do., do. 6 to 10 do., 18s. per doz.; 130s. per 100.
All letters to be addressed
JOHN PERKINS, Sen., 52, Market Square, Northampton.

EARLY SANDRINGHAM KIDNEY POTATO.

THE EARLIEST, MOST PROLIFIC,

AND BEST VARIETY FOR FORCING PURPOSES IN CULTIVATION.

Price to the Trade and further particulars may be had on application to

H. AND F. SHARPE, SEEDGROWING ESTABLISHMENT, WISBECH.

FRUIT TREES OF EVERY DESCRIPTION.

WILLIAM ROLLISSON & SONS

BEG RESPECTFULLY TO ANNOUNCE THAT THEIR

NEW CATALOGUE OF HARDY AND ORCHARD-HOUSE FRUITS

Is now about being published, which contains a full and Descriptive List of all the Popular Favourites in Cultivation, together with additions of most of the Novelties, worthy of merit, of the season; and will be forwarded, Gratis and Post Free, on application to

THE NURSERIES, TOOTING, LONDON, S.W.

ROSES.

"The Roses of Mr. PAUL * * * are things to see once and dream of for ever."—*Athenæum.*

WILLIAM PAUL

HAS AS USUAL A MAGNIFICENT STOCK OF ROSES,

For which he respectfully solicits Orders.

STANDARDS and HALF-STANDARDS, sound healthy heads and clear straight stems, well varied, 18s. per doz., £6 10s. per 100.
STANDARD and HALF-STANDARDS, ditto, ditto, very superior sorts, 24s. per dozen.
DWARF STANDARDS, fine sorts, 12s. to 18s. per dozen, £5 per 100.
DWARFS, well varied and good sorts, 9s. to 18s. per dozen, 60s. to 100s. per 100.
" new sorts, 24s. to 36s. per dozen.
DWARFS, mixed summer kinds, for borders or shrubberies, 30s. per 100.
CLIMBING ROSES, in variety, 9s. to 12s. per dozen.
EXTRA-SIZED ROSES, in pots, for forcing or greenhouse culture, 21s. to 42s. per dozen.
SPECIMEN POT ROSES, 5s. to £10 10s. each.
STANDARD and DWARF ROSES of all the finest and most effective sorts for bedding, massing, or forming a Rosarium, at special and reduced rates, by the 100 or 1000.

For FRUIT TREES, EVERGREENS, CONIFERÆ, DECIDUOUS TREES and SHRUBS, WEEPING TREES, AMERICAN PLANTS, CLIMBING PLANTS, &c., see previous and future Advertisements.

PRICED DESCRIPTIVE CATALOGUES Free by Post.

IMPORTANT.—ADDRESS, WM. PAUL, PAUL'S NURSERIES AND SEED WAREHOUSE, WALTHAM CROSS, LONDON, N.

PAUL & SON'S ROSES, &c.

IT IS THIS FIRM,

PAUL & SON,

THE "OLD" NURSERIES, CHESHUNT, HERTS, N.,

WHICH DURING THE PAST THREE YEARS HAS TAKEN

139 FIRST PRIZES FOR ROSES ALONE.

STANDARDS, unsurpassed in the Trade, 18s. to 24s. per dozen.
DWARFS and DWARF STANDARDS, very fine, 9s. to 18s. per dozen.
NEW ROSES of 1869, large and healthy plants, 36s. per dozen.
Extra sized Plants, established in pots, for immediate or early forcing, 30s. to 42s. per dozen.
Quarter Specimen Roses, in pots, 5s. to 7s. 6d. each; Half Specimens, 10s. 6d. to 21s.; Specimens, 21s. to 42s.

FRUIT TREES IN VARIED FORMS.

STANDARD APPLES and PEARS, 6 feet stem, magnificent orchard trees, 18s. per dozen, £6 per 100.
ESPALIER PEARS, APPLES, CHERRIES, PLUMS, Fan or Palmette trained (the best French form), 42s. p. doz.
PYRAMID APPLES, PEARS, PLUMS, &c., 18s. to 42s. per dozen.

PAUL AND SON feel they can confidently invite intending planters to inspect their stock of these Fruits and of Hardy Plants.

PRICED DESCRIPTIVE FRUIT, ROSE, and HARDY TREE CATALOGUE, Post Free.

THOMSON'S WHITE LADY DOWNE'S GRAPE.—Plants of this remarkable White Grape, the latest keeping in cultivation, are now being sent out. The Canes are strong and thoroughly ripened. Immediate orders are respectfully requested. Price 21s., 42s., and 63s. each.
THOMAS METHVEN, Leith Walk Nurseries, Edinburgh.

Vineries.

JOHN KEYNES has for several years grown some of the finest VINES in the Trade. He has not been in a position to offer any until this season. They are all of only one year's growth, from the eye, never having been cut down, as is often the case. These Vines will always insure a crop; they are best adapted for planting, never having been checked in their growth.
They comprise all the leading varieties, and are now fit for immediate forcing, being well ripened to the top. LISTS will be forwarded on application.
Castle Street Nursery, Salisbury.

Echeverias.

H. CANNELL has perhaps the finest and largest blooming lot of Plants of METALLICA in the kingdom, varying in size from seedlings to plants 4 feet high; and H. C. has spared neither expense nor pains in bringing a large quantity of seed to perfection. Each pod contains quite a 100 dust-like seeds, and if sown at once, will make splendid little plants for next season. One pod, just ripe, sent free for 13 stamps.
H. C. has also a fine lot of the three following beautiful edging kinds:—SECUNDA, SECUNDA GLAUCA, and PUMILA. A packet of either of these sent free for 18 stamps.
Plants of all the above from 3s. per dozen to 20s. per plant.
New Florist Flower and Florist Flower Seed Merchant, Woolwich.

Roses, New Roses (Trade Price).

L'ÉVÊQUE ET FILS, NURSERYMEN, 132 and 134, Boulevard de l'Hôpital, Paris, begs to offer good and healthy plants of—
TEA ROSES, grafted and on their own roots, grown in small pots.
Maréchal Niel, £4. per 100.
Souvenir d'Elise Vardon, Jean Pernet, M. Furtado, Madame Margottin, Reine du Portugal, Climbing Devoniensis, 10s. per doz.
Marie Sisley, Marie Bucher, Adrienne Christophle, Celina Noirey, Montplaisir, &c., 15s. per dozen.
Vicomtesse du Cazes, Madame Falcot, Niphétos, Safrano, Triomphe du Luxembourg, Bougère, Adèle Jougant, Ophélia, Souvenir d'un Ami, Pactole, and all the best sorts, 60s. per 100.
SOUVENIR DE LA MALMAISON, on their own roots, in pots, 40s. per 100.
DWARFS, Hybrid Perpetual, the best sorts, strong plants (our choice), 40s. per 100, £9 per 1000.
STANDARDS, clean stems, strong heads, all the best sorts (our choice), £5 per 100.
Do., Maréchal Niel, £6 per 100.
BARONNE DE ROTHSCHILD, splendid sort, strong dwarfs, £1 per 100.
Fifteen per Cent. Discount on the NEW ROSES of this YEAR. To be sent out for the first time next November.
LISTS and CATALOGUES on prepaid application.

Forest, Fruit, and other Trees.

JAMES DICKSON AND SONS' NURSERY STOCK is not surpassed in Britain; therefore, they have EVERY CONFIDENCE in soliciting Orders, and inviting intending planters to visit their EXTENSIVE NURSERIES, which can now be reached, on foot, in seven minutes, from the Chester Railway Station, by their new private road from the foot of the Flookersbrook Railway Bridge, east end.
PRICE LISTS on application.
(*Old Established Nursery and Seed Business.*)
"Newton" Nurseries, Chester.

LUCOMBE, PINCE AND CO., beg to call special attention to their surplus and unrivalled stock of the following hardy ORNAMENTAL TREES and SHRUBS, which have been yearly transplanted, and can now be sent to any distance with perfect safety:—
ABIES ORIENTALIS, 5, 6, and 7 ft. high, from 7s. 6d. to 21s. each.
" DOUGLASII, fine specimens, 12 to 15 ft. high, 15s. and 21s. each.
CEDRUS DEODARA, 10 to 15 ft. high, 15s. to 21s. each.
CUPRESSUS LAWSONIANA, 4 to 7 ft. high, 5s. to 10s. 6d. each.
JUNIPERUS CHINENSIS, 3 to 4 ft. high, 3s. 6d. each.
PICEA NORDMANNIANA, 2 to 4 ft. high, 21s., 31s. 6d., and 42s. each.
" PINSAPO, 3 to 4 ft. high, 21s., 31s. 6d., and 42s. each.
" LASIOCARPA, 3 to 4 ft. high, 31s. 6d., and 42s. each.
SKIMMIA JAPONICA, in pots, 18s. per dozen.
THUJA AUREA, 3, 4, and 5 ft. high, 7s. 6d. to 15s. each.
THUJOPSIS BOREALIS, 5 to 7 ft. high, 15s. and 21s. each.
WELLINGTONIA GIGANTEA, 4 to 12 ft. high, 10s. 6d. to 42s. each.
YEWS, IRISH, magnificent plants, grown on a single stem, from 4 to 10 ft. high, 3s. 6d. to 21s. each.
Exeter Nursery, Exeter.

Large Evergreens and Forest Trees.

MESSRS. PAMPLIN AND SON have a large quantity of the following, and offer them at low prices, part of their Grounds being required for building purposes.

Cedar of Lebanon, 10 to 20 feet	Black Italian Poplar, 20 feet
Cedrus Deodara, 6 to 15 feet	Balsam ditto, 10 to 15 feet
Aucuba japonica, 2 to 6 feet	Lombardy ditto, 20 feet
Portugal Laurels, 2 to 6 feet	Horse Chestnut, 10 to 15 feet
Chinese Arbor-vitæ, 5 to 12 feet	Spanish Chestnut, 10 feet
American " 5 to 10 feet	Limes, 10 to 15 feet
Thuja aurea, 1 to 4 feet	Walnuts, 10 to 15 feet
Green Box, 1 to 6 feet	Ash, 10 to 20 feet
Striped ditto, 2 to 4 feet	Elm, 10 to 15 feet
Evergreen Oak, 7 to 10 feet	Acacia, 10 feet
Yew, Common, 4 to 10 feet	Mountain Ash, 10 feet
Irish Yew, 3 to 5 feet	Turkey Oak, 10 to 12 feet
Laurel, 2 to 6 feet	Sycamore, 10 to 14 feet
Araucaria imbricata, 10 feet	Weeping Willow, 10 to 15 feet
Green Hollies, 1 to 12 feet	Lilac, Common, 8 feet
Weymouth Fir, 3 to 6 feet	Persian ditto, 6 feet
Spruce ditto, 2 to 4 feet	Yellow Azalea, 3 feet
Birch, 14 feet	Privet ovalifolia, 8 feet

The Nurseries, Lea Bridge Road, Leyton; and Wood Street, Walthamstow, Essex, N.E.

To the Wholesale Trade.

HERBERT H. NICHOLSON, SEED GROWER, Great Clacton (near St. Osyth), Essex, has the following SEEDS to offer:—

ROBINSON'S PRIZE CHAMPION OX CABBAGE	80s.	per cwt.
NONPAREIL CABBAGE	120s.	"
WHITE CELERY (Leviathan)	95s.	"
SELECTED DARK RED BEET	140s.	"
STUDENT PARSNIP	80s.	"
MYATT'S CURLED PARSLEY	28s.	per bush.
STUBBLE TURNIP	18s.	"

&c. Also all the Annual FLOWER SEEDS.

Autumn, 1869.—Special Offer.

MAGNIFICENT SEAKALE ROOTS, extra strong, for forcing, 10s. 6d. per 100
Magnificent ASPARAGUS ROOTS, ex. strong, for forcing, 10s. 6d. p. 100
Good plants CABBAGE ROSES, 2s. 6d. per dozen
Good plants ROSE DE MEAUX, 2s. 6d. per dozen
Strong RED and BLACK CURRANTS and GOOSEBERRIES, 2s. 6d. per dozen; STRAWBERRY Plants, 2s. 6d. per 100
Very strong Standard and Pyramidal PLUMS and PEARS, 12s. per doz. PRICED LIST on application.
WILLIAM HOOPER, New Wandsworth, S.W.

Autumn Gardening.

SEAKALE, ASPARAGUS, and RHUBARB ROOTS, &c.
JAMES CARTER AND CO. offer the following, in splendid quality:—
SEAKALE, extra fine roots, for Forcing, 15s. per 100.
" very fine roots, for Forcing, 10s. 6d. per 100.
" large, 7s. 6d. per 100.
ASPARAGUS, Giant, extra large plants, for Forcing, 10s. per 100.
" " strong, 3-yr. old, 6s. per 100.
" strong, 2-yr. old, 4s. per 100.
RHUBARB ROOTS, Baldry's Scarlet, extra strong, 1s. 6d. each.
" other varieties, extra strong, 8s. to 12s. p. doz.
MUSHROOM SPAWN, best Milltrack, 6s. per bushel.
" " the French, 4s. to 6s. 6d. per box.
JAMES CARTER AND CO., the Royal Seedsmen, 237 and 238, High Holborn, London, W.C.

RICHARD WALKER has the following to offer for cash:—Splendid SEAKALE, for forcing, extra fine, 10s. per 100; fine GIANT ASPARAGUS, for forcing, at £1 per 1000, or 2s. per 100; ROBINSON'S CHAMPION DRUMHEAD CABBAGE plant at 2s. 6d. per 1000.
RICHARD WALKER, Market Gardens, Biggleswade, Beds.

To Nurserymen and Gardeners.

THE ADVERTISER has a fine specimen of the CASTLE KENNEDY FIG TREE, trained to the wall of a Forcing-house, which he will be glad to EXCHANGE for some Black Hamburgh or other hardy Vine Canes that will fruit this season. Apply to
Mr. MARK KYLE, Elliston, St. Boswell's, N.B.

Dried Natural Flowers.



BOETTNER BROTHERS, Greussen, near Erfurt, Prussia, have just published their NEW PRICED LIST of BOUQUETS, FLOWER BASKETS, WREATHS, &c., of DRIED NATURAL FLOWERS for this season. It may be obtained gratis and post free on application to their London Agents, Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, E.C.

SILVER SAND and PEAT, from Bedfordshire, in any quantity. This Sand is acknowledged by Florists to be the best yet obtained. Price Lists on application to MR. JOHN ARNOLD, Builder, 29, Clarendon Square, St. Pancras, N.W.

GENUINE TOBACCO PAPER, of the finest quality, 10d. per lb., or 8s. per cwt.
WILLIAM RUSHFORTH, Nurseryman and Seed Merchant, Leeds.

APPLEBY'S GENUINE TOBACCO PAPER, in 2 lb. and 4 lb. packets. Testimonials too numerous for insertion.
Price on application to HENRY APPLEBY (Foreman to Messrs. Ivery & Son, Nurserymen), Dorking, Surrey.

TOBACCO TISSUE, for Fumigating Greenhouses. Will destroy all the Insects, and not injure the Plants, and Burns without the assistance of Blowing. Price 3s. 6d. per lb., carriage free. A reduction in price for large quantities.
To be had of Messrs. R. ROBERTS AND SONS, 112, St. John Street, Clerkenwell, London, E.C.; and of all Seedsmen and Nurserymen.

The Cheapest and Best Insecticide.

DUTY-FREE TOBACCO.
BY HER MAJESTY'S ROYAL LETTERS PATENT, AND BY PERMISSION OF THE HON. BOARD OF CUSTOMS.

POOLEY'S TOBACCO POWDER, for the Prevention and Destruction of Blight and other Diseases in Plants.
Sold by Nurserymen, Seedsmen, and Florists,
In Tins at 1s., 2s. 6d., and 5s.
Powder Distributors, 2s. 6d. and 3s. 6d. each.
"I find it exceedingly useful for killing the Aphides on Roses and other Plants."—GEO. EYLES, Superintendent, Royal Horticultural Gardens, South Kensington. May 7, 1868.
Sole Manufacturer, T. A. POOLEY, Bonded Warehouse, Sussex Wharf, Wapping, E.

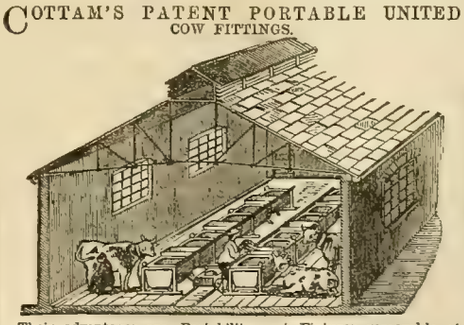

Red Spider. Magnified.

GISHURST COMPOUND.

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d.

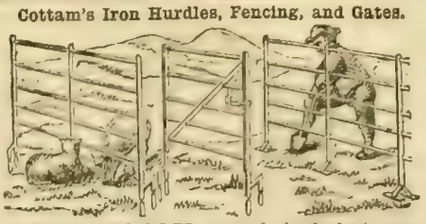
Wholesale by
PRICE'S PATENT CANDLE COMPANY (Limited),
Battersea, London, S.W.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rick dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of Iron. Prices of Fittings per Cow, 55s.
Prospectuses free of COTTAM AND CO., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in stable Fittings just secured by Patent.

Cottam's Iron Hurdles, Fencing, and Gates.



COTTAM'S HURDLES are made in the best manner, of superior Wrought Iron, by an improved method. Illustrated Price Lists on application to COTTAM AND CO., Iron Works, 2, Winsley Street, Oxford Street, London, W.

"Every Cottage should be provided with a Water Tank." *Disraeli.*

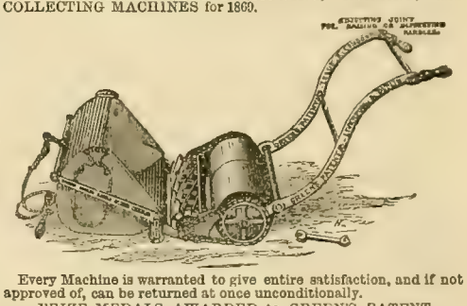
Iron Cisterns.

F. BRABY AND CO. having laid down more extensive and Improved Machinery on their Deptford premises (IDA WHARF), are prepared to supply WROUGHT-IRON TANKS, GALVANISED or PAINTED, of superior quality, at reduced prices, and at very short notice.



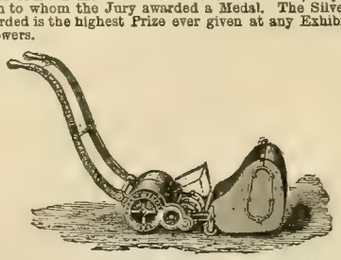
An Illustrated Price List of Galvanised Iron, and other of BRABY'S special Manufactures, sent on application.
F. BRABY AND CO., Limited, Fitzroy Works, Euston Road, London; or through all respectable Ironmongers.
N.B. Open Tanks of different sizes packed one in another to save carriage.

GREEN'S PATENT SILENS MESSORS, or NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES for 1869.



Every Machine is warranted to give entire satisfaction, and if not approved of, can be returned at once unconditionally.
PRIZE MEDALS AWARDED to GREEN'S PATENT LAWN MOWERS.
First Prize Medal at the International Exhibition, London, 1862.
First Prize Medal at the International Exhibition, Dublin, 1865
First Prize Medal at the Namur Exhibition.
First Prize Medal at the Gand Exhibition.
First Prize Medal at the Laeken Exhibition.
First Prize Medal at the Lineene Exhibition.
First Prize Medal at the Brussels Exhibition, on two occasions.
First Prize Medal at the Hamburg Exhibition.
GREEN'S Patent Lawn Mowers have proved to be the best, and have carried off every Prize that has been given, in all cases of competition.
The extraordinary success of GREEN'S Patent Lawn Mowers is an established fact. During the last five years the demand has been unprecedented, which alone is a proof of their superiority over all others. The following are their characteristic features:—1st. Simplicity of construction, every part being free of access. 2d. They are worked with far greater ease than any other Lawn Mower. 3d. They are the least liable to get out of order.
GREEN'S Patent Lawn Mowers combine all the advantages of self-sharpening, and when the cutters become blunt by running one way round, they can be reversed again and again, bringing the sharp edge of the cutters against the bottom blade, which operation can be done by any inexperienced person, owing to the peculiar adaptation of the Machine, which is possessed by no other. Illustrated Price Lists free on application.
THOMAS GREEN AND SON, Smithfield Iron Works, Leeds; and 54 and 55, Blackfriars Road, London, S.
N.B.—All orders are executed on the day they are received.

SHANKS'S PATENT LAWN MOWERS for 1869
The Patent Improvements recently introduced give
SHANKS'S MACHINE
Several important advantages possessed by no other Lawn Mower.
PATENT DOUBLE-EDGED SOLE-PLATE, WIND-GUARD, &c.
The unprecedented Sale for 1868, notwithstanding the Dryness of the Season, forms the most convincing testimony how much these advantages have been appreciated.
ALEXANDER SHANKS & SON beg to intimate that, among all the Exhibitors of Lawn Mowers at the Paris Exhibition, they are the only Firm to whom the Jury awarded a Medal. The Silver Medal then awarded is the highest Prize ever given at any Exhibition for Lawn Mowers.



ALEXANDER SHANKS & SON have for some time past been making the Revolving Cutter of their Machines Self-Sharpening—that is, with Steel on both Sides of each Blade, so that when the Cutter becomes blunt by running one way, it can be reversed, thus bringing the opposite or sharp edge of the Cutter to act against the Sole-Plate. In addition to this, A. S. & SON now make the Sole-Plate or Bottom Blade of their Machine with Two Edges—one in front as usual, and one in reserve at the back; when the front edge gets worn down, the plate has only to be unscrewed and the unused edge brought to the front. It will be seen at a glance that this arrangement enables the cutting parts to last twice as long as in other machines, where the single-edged Sole-plate must be entirely renewed when the edge is worn down.
A Wind-Guard has also been introduced to prevent the Mown Grass being blown past the Box during the prevalence of wind.
There is no ribbing with these Machines. The Lawn when mown has a most beautiful appearance, being as smooth as a piece of velvet.
Every Machine warranted to give ample satisfaction, and if not approved of can be at once returned.
Illustrated Circulars, with full particulars, sent free on application.
A. SHANKS AND SONS, Dens Iron Works, Arbroath; and 27, Leadenhall Street, London, E.C.
☞ A Stock of all sizes of LAWN MOWERS always kept at 27, Leadenhall Street.

Arrival of Bulbs.

BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.

CATALOGUE containing much additional valuable information now ready, and on application sent free to the Readers of the *Gardeners' Chronicle*. BULBS for Early Flowering now ready to send out, of first-class quality.

Dutch Flower Roots, &c.

B. S. WILLIAMS' CATALOGUE of HYACINTHS, TULIPS, CROCUSES, NARCISSUS, and other Spring-flowering Bulbs; also FRUIT TREES, ROSES, &c., is now ready, post free to all applicants.

Victoria and Paradise Nurseries, Upper Holloway, London, N.

Hyacinths, Tulips, &c.

BUTLER, McCULLOCH AND CO. beg to announce the publication of their AUTUMN CATALOGUE of the above, which will be sent gratis and post paid on application. Orders for Bulbs can now be executed.

BUTLER, McCULLOCH AND CO., South Row, Covent Garden Market, London, W.C. Established upwards of a Century.

New Catalogue of Dutch Bulbs, Plants, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select Descriptive and Priced Lists of Amaryllis, Crocuses, Cyclamens, Gladioli, Hyacinths, Liliums, Narcissus, Tulips, and other bulbs, Miscellaneous Plants, Fruit Trees, Sweet Violets, &c., is now published, and will be forwarded to applicants.—Exotic Nursery, Tooting, Surrey, S.W.

Dutch and other Bulbs.

WM. CUTBUSH AND SON are celebrated for HYACINTHS, TULIPS, CROCUSES, and other DUTCH BULBS. All the Great Prizes, including the Two Special Prizes offered by the Dutch Growers, awarded to their Collections again last Spring. They import only ONE QUALITY, therefore Customers may rely upon having the finest Bulbs. CATALOGUES post free.

Highgate Nurseries, London, N.

Dutch Flower Roots.

FRANCIS & ARTHUR DICKSON & SONS, have received from the most celebrated Growers in Holland their first large importation of the above, and have the satisfaction to say that the Bulbs are large, sound, and well ripened. Early orders respectfully solicited. DESCRIPTIVE PRICED CATALOGUES post free on application.

The "Old" Established Seed Warehouse, 106, Eastgate Street, Chester.

Only First Quality Bulbs Imported.

HYACINTHS, Exhibition Varieties, for Pots or Glasses, 5s. per dozen.

TULIPS, Single and Double, from 2s. 6d. per 100; Exhibition kinds, to name, from 10s. per 100.

POLYANTHUS NARCISSUS, Exhibition kinds, 2s. 6d. per dozen.

CROCUS, Yellow, 1s. 2d.; Blue, White, and Striped, 1s. 6d. per 100.

Post Office orders payable at Whitechapel. Before ordering, send for List of Guinea Collection.

B. G. ROBINSON, Royal Nursery, Old Ford Road, Old Ford, E.

Dutch Flower Roots.

CROYDON. A. HENDERSON EAST SURREY SEED WAREHOUSE ESTABLISHED 1828

ARCHIBALD HENDERSON begs to announce that he has received a large Consignment of Dutch and other Roots, carefully selected from the most celebrated growers.

DESCRIPTIVE and PRICED CATALOGUES are now ready, containing practical directions for their successful cultivation on all the various systems now adopted.

Also a CHOICE and SELECT LIST of VEGETABLE and HARDY FLOWER SEEDS for Autumn Sowing. Catalogues gratis and post free upon application.

Sion Nursery, Thornton Heath, Surrey, and at the East Surrey Seed Warehouse, College Grounds, North End, Croydon.

New Japanese and other Chrysanthemums.

JOHN SALTER AND SON beg to announce that the CHRYSANTHEMUMS are unusually fine this season. Their large Collection, NOW in BLOOM in the Winter Garden, may be seen throughout the months of November and December, every day except Sunday. Admittance free.

Versailles Nursery, William Street, Vale Place, Hammersmith, W. (near Kensington Railway Bridge).

NEW PLANTS, 1869.

Special Offer to the Trade:—

2 Iresines, Lindeni and acuminata	9 Chrysanthemums
6 Fuchsias	1 Viola lutea grandiflora
4 Zonal Geraniums	1 Alternanthera amabilis
6 Bicolor Geraniums	1 Alopecurus pratensis aureo-variegatis
6 Double Geraniums	1 Holcus lanatus albo-variegatus
6 Coleus	
6 Lobelias	

On receipt of Post Office Order for One Guinea, H. CANNELL will send the above Collection, package free. All strong, healthy little Plants. This offer only extends for 28 days.

New Chrysanthemums.

H. CANNELL has now a splendid Stock of 217 varieties, consisting of all the New, and best older varieties in cultivation, and will supply them either as Cuttings or Rooted Cuttings, or Potted Plants, at the very lowest price consistent with quality and certainty.

See H. C.'s FLORAL GUIDE, giving particulars how to grow the Japan and other varieties. Other kinds are classed according to what they are best adapted for, and a great deal of other valuable information, including the Second Chapter on the Art of Gardening and the Natural Requirements of Plants. Free for Four Stamps.

New Florist Flower and Florist Flower Seed Merchant, Woolwich.

Polyanthus.

STEPHEN BROWN offers splendid Mixed POLYANTHUS, beautifully laced, grown from seed saved from his first-class Show Collection.

First quality, 2s. per doz., 21s. per 100, 190s. per 1000.

Second quality, fine, 2s. per doz., 15s. per 100, 120s. per 1000.

Usual discount to the Trade.

STEPHEN BROWN, Seedsman and Florist, Weston-super-Mare, Somerset.

RHODODENDRON MULTIFLORUM.—A most abundant blooming, hardy plant; many bushes may be seen in my Nursery, only 1 foot high, with 500 bloom buds on; forces well.

AZALEA HYBRIDA ODORATA.—Bears fine trusses of fragrant white flowers, most valuable for bouquets in winter. Both the above gained First-class Special Prizes. A full description, with prices, of these and other new Hybrids, forwarded on application to the raiser.

ISAAC DAVIES, Brook Lane Nursery, Ormskirk.

J. D. has also a few hundreds of DAPHNE INDICA RUBRA to offer.

Rhododendrons.—To the Trade.

J. MATTHEWS has a large stock of 4-yr. RHODODENDRONS, 6s. per 100; 3-yr. (1-yr. transplanted), 10s. per 100; 1 to 1½ feet, bushy, 15s. per 100; 1½ to 2 feet, 40s. per 100; Specimens, white Exoniensis, budded, 1½ feet, 10s. per dozen; Caractacus potens, 1 feet, 12s. per dozen.

SPRUCE FIR, 1½ to 2 feet, 20s. per 1000; and 2 to 3 feet, 30s. per 1000. PRIVET EVERGREEN, 2 to 3 feet, 16s. per 1000; 3 to 4 feet, 30s. OAKS, 2yr. budded, 1 to 1½ feet, 2s. per 100.

Mutton Nurseries, Stoke-on-Trent, Staffordshire Potteries.

Autumn Planting.

PETER LAWSON AND SON will be glad to send their CATALOGUE (just published) of FOREST and ORNAMENTAL TREES and SHRUBS, free upon application.

The stock of LARCHES, SCOTCH FIRS, AUSTRIAN and CORSICAN PINES, &c., comprises some millions of healthy, well-grown plants, and special offers will be made for large quantities when personal inspection is not convenient.

Edinburgh and London.

SUTTONS'

FRESH IMPORTED FLOWER ROOTS

FOR WINTER AND SPRING BLOOMING.

MESSRS. SUTTONS' FLOWER ROOTS Have been selected from the principal Growers in Holland.

SEEDSMEN BY APPOINTMENT TO THE QUEEN. Sutton AND Sons. READING.

MESSRS. SUTTON DELIVER ALL FLOWER ROOTS, Except very small parcels, Carriage Free by Rail.

Special Estimates for large quantities on application.

Suttons' Complete £1 1s. Collection,

For Cultivation in POTS and GLASSES, Carriage Free.

12 fine Hyacinths, by name	3 Persian Iris
6 Miniature Hyacinths, by name	3 Peacock Iris
6 Polyanthus Narcissus, do.	50 fine Crocus, by name
6 Large Double Jonquils	6 choice Ixias
6 Single Sweet Jonquils	3 choice Sparaxis
6 Scilla precox	3 choice Oxalis
6 Single Duc Van Thol Tulips	1 Jacobea Lily
6 Double Tournesol Tulips	1 Lilium lancifolium album
25 Early Tulips, 5 sorts	1 ,, ,, rubrum

Suttons' Fine New Crocus for Pots.

1000 splendid named, in 25 vars.	£1 15 0	100 splendid named, in 10 vars.	£0 4 0
500 do. do., in 25 vars.	0 18 0	50 do. do., in 10 vars.	0 2 0
250 do. do., in 25 vars.	0 9 0	25 do. do., in 5 vars.	0 1 0

Suttons' Dutch Crocus for Open Ground.

1000 in 10 vars.	£0 18 6	250 in 5 vars.	£0 5 0
500 in 10 vars.	0 10 0	100 in 5 vars.	0 2 3
Large Blue per 100	£0 1 9	Large Yellow per 100	£0 1 9
,, White ,,	0 1 9	Largest Yellow ,,	0 2 6
,, Purple ,,	0 2 6	Cloth of Silver ,,	0 2 0
Common Yellow ,,	0 1 0	Cloth of Gold ,,	0 2 0
Large Mixed ,,	per 100 £0 1 6		

Suttons' Choice Polyanthus Narcissus,

For POTS, GLASSES, or OPEN GROUND.

100 in 20 choice sorts	£1 5 0	12 in 12 choice sorts	£0 4 0
50 in 10 choice sorts	0 14 0	100 fine mixed	0 15 0
25 in 12 choice sorts	0 7 6	12 fine mixed	0 2 0

Garden Narcissus, finest mixed, 7s. 6d. per 100.

Suttons' Early and Large Double Tulips,

Early Varieties.

100 in 20 choice vars.	£0 18 0	50 in 10 choice vars.	£0 8 0
100 in 10 choice vars.	0 15 0	25 in 5 choice vars.	0 4 0

12 in 4 choice vars., 2s.

Double Tournesol, p. 100	£0 12 6	Rose Duc Van Thol, p. 100	£0 14 0
,, Duc Van Thol ,,	0 3 6	Scarlet ,, ,, ,,	0 18 0
Single Duc Van Thol ,,	0 5 0	Yellow ,, ,, ,,	1 0 0

Choice named varieties, separate, 1s. to 12s. per dozen.

Large Double Varieties.

100 in 10 choice sorts	£0 17 6	50 in 10 choice sorts	£0 10 0
25 in 5 choice sorts	0 5 0	12 in 4 choice sorts	0 2 6

For COMPLETE LIST of BEDDING TULIPS (with an original article on Cultivation), showing the date of blooming, height, size of flowers, and colours of the varieties most worthy of cultivating, see SUTTONS' AUTUMN CATALOGUE for 1869, gratis and post free on application.

SUTTONS' SUPERB DUTCH HYACINTHS

FOR CULTIVATION IN POTS OR GLASSES.



The best 12 HYACINTHS for 12s.



Messrs. SUTTONS' COLLECTION of HYACINTHS consists of more than 200 varieties, a PRICED and DESCRIPTIVE LIST of which may be had on application.

Suttons' Collections of Named Hyacinths.

100 HYACINTHS in	100 very choice sorts	£4 4	0
100 ,,	50 very choice sorts	3 10	0
50 ,,	50 very choice sorts	2 2	0
50 ,,	25 very choice sorts	1 15	0
25 ,,	25 very choice sorts	1 1	0
12 ,,	12 extra fine sorts	0 12	0
12 ,,	12 choice sorts	0 9	0
12 ,,	12 good sorts	0 6	0

The order should specify whether they are intended to be grown in water or earth, as all kinds are not equally suited to both purposes. It should also be stated whether single or double blossomed kinds are preferred; otherwise we usually supply about two-thirds double and one-third single. The single varieties generally thrive best in water, but their merits are never apparent until the flowers are fully expanded.

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6 ,, Polyanthus Narcissus	12 Duc Van Thol Tulips
12 Pheasant's Eye Narcissus	6 mixed Single Early Tulips
12 Double White Narcissus	6 fine mixed Double Tulips
25 Double Daffodils	6 ,, Parrot Tulips
6 large Campernelle Jonquils	6 Gesneriana Tulips
6 fine mixed Double Ranunculus	25 fine mixed Tulips
6 Scarlet Turban Ranunculus	6 ,, English Iris
12 fine mixed Double Anemones	6 ,, Spanish Iris
12 ,, Single Anemones	3 Lilies, of sorts
50 Crocus, 3 sorts	3 Ferraria pavonia
50 Snowdrops	6 Dog's-Tooth Violets
25 Winter Aconites	3 Crown Imperials

For further particulars and Prices of GLADIOLUS, RANUNCULUS, ANEMONES, &c., see SUTTONS' AUTUMN CATALOGUE, gratis and post free on application.

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24 Named BORDER NARCISSUS.
12 Extra Fine Mixed DOUBLE TULIPS.
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100 PURPLE CROCUS.
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12 Narcissus, double white	12 Iris, extra choice mixed, English
12 ,, Pheasant's Eye	12 Iris, extra fine mixed, Spanish
12 Double Daffodils	3 Lilium candidum
36 Tulips, extra fine mixed	3 ,, tigrinum
50 Crocus, blue	24 Ranunculus, extra fine mixed
50 ,, striped	100 Snowdrops, selected
50 ,, large yellow	24 Winter Aconites
50 ,, white	
24 Anemones, extra fine mixed	

Subject to variation as the season advances.

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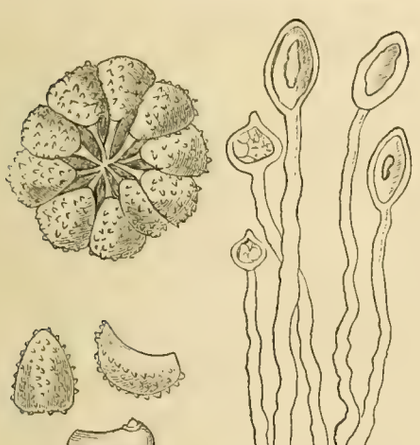
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The Gardeners' Chronicle.

SATURDAY, NOVEMBER 6, 1869.

WE have recently received from our excellent friend Mr. THWAITES a specimen of a minute FUNGUS which has caused some consternation amongst the coffee planters in Ceylon, in consequence of the rapid progress it seems to be making amongst the COFFEE PLANTS. A few trees were noticed to be infected in May last, and at the time of Mr. THWAITES' communi-



cation (July 24) two or three acres were showing the Fungus upon the leaves. These latter fall off before their proper time, and fears are entertained as to the effect on the amount of the crop.

The most curious circumstance is, that amongst more than a thousand species of Fungi received from Ceylon this does not occur; and that it is not only quite new, but with difficulty referable to any recognised section of Fungi. Indeed it seems just intermediate between true moulds and Uredos, allied on the one hand to Trichobasis and on the other to Rhinotrichum. Though the Fungus is developed from the parenchym of the leaf there is not any covering to the little heaps such as is so obvious in Uredo and its immediate allies, while the mode of attachment reminds one of Rhinotrichum. We are obliged, therefore, to propose a new genus for its reception.*

As the Fungus is confined to the under surface of the leaves, and the mycelium is not superficial, it may be difficult to apply a remedy; but we should be inclined to try sulphur by means of one of the instruments which are used in the Hop grounds in Kent, or syringing with one of the sulphurous solutions which have been recommended for the extirpation of the Hop mildew. *M. J. B.*

* *Hemileia*, Berk. and Broome: sori somewhat circinating, hypophyllous, naked; flocci distinct, inarticulate, flexuous; spores somewhat kidney-shaped, at first smooth, then granulato-verrucose on one side, attached obliquely at the base by a little papillæform point.

Hemileia vastatrix, Berk. and Br., forming little white orbicular patches on the under side of the leaves, consisting of minute tufts of flexuous threads surmounted by a single subreniform spore attached obliquely at the base, rough externally with wart-like papillæ, quite smooth on the side nearest the flocci.—The upper portion of the leaf above the patches looks as if it were burnt.

Our figure represents a group of threads with young immature spores highly magnified, together with one of the tufts as seen from above, and spores in different positions.

ESSENTIAL to the tree when living, serviceable to it when dead, beautiful in all stages, from that of the tender bud to that of the "sere and yellow" fall, it is no wonder that the leaves attract universal attention. Age does but lend them additional charms. Constant to their purpose throughout, in death they are well nigh as important to the tree as when living. Thus AUTUMN LEAVES appeal to the most varied sympathies. Every one admires their rich hues. Poets and painters naturally revel in such things of beauty, moralists find in them most appropriate illustrations to give point to their teachings, and more practical gardeners utilise them by collecting them for their compost heaps!

While still green they are the agents by means of which the plant breathes, absorbs, and exhales. They serve to build up and consolidate its tissues; they are all-important agents in the formation of the starch, the sugar, the gum, the resin, the oil, the scores of ingredients elaborated in the plant. Without their aid the plant cannot, in most cases, avail itself of the supplies of nutriment stored up in its own tissues, still less can it draw from earth or air the food necessary for its support. No sooner do they lose their healthy green colour in autumn than they cease to be directly useful to the tree, though still, as we have seen, doing excellent service in the compost-heap. All this is so well known that it may seem trite to refer to it. The cause of all these changes, however, is by no means so generally understood, and as some valuable practical hints may be derived from the investigation of these matters, we need offer no apology for stating in general terms what is known of those changes in the leaf which precede its fall. The colouring matter of the healthy leaf consists of small granules of waxy or fatty matter, often encrusting a central nucleus of starch. These green grains constitute the chlorophyll of the botanist, and they are the very life-blood of the plant. If they are healthy the plant is vigorous, if they are diseased or deficient the plant is sickly. Hence the autumnal change of colour in the leaves is due in great measure, but not entirely, to the alteration in this "leaf-green." Its granules acquire a yellow or orange tint, gradually disintegrate, lose their kernel of starch, and ultimately disappear completely, leaving in their stead a few very small orange-coloured granules, and often a few drops of some oily substance. In this manner the leaf becomes, before its fall, emptied of all its active ingredients, such of them as are fluid or soluble are transferred to the stem or branch, there to aid in the consolidation of the tissues, the ripening of the wood, and the formation of the various secretions. The conduits and pipes passing from leaf to stem, the cells and vessels, are at this time filled with starch, the organising layer between the bark and the wood is gorged with nutritive material, in part transferred from the foliage. What remains behind in the leaf is either effete matter, no longer serviceable to the plant, or insoluble mineral substance, useless at this stage of the plant's existence, but returned to Mother Earth to be again utilised, perhaps by the same plant, in some other way at some other time.

While all this is going on slowly and surely, provision is being made for the severance of the useless and exhausted leaf from the stem. A thin layer of mealy cells gradually insinuates itself across the leaf-stalk at right angles to the other tissues, and by this living knife-edge or wedge the dead is separated from the living, as when a surgeon removes the gangrened extremity of a limb. The practical significance of all this lies in the word "rest," the discoloured leaf in autumn indicates the necessity for repose. If the "wood be well ripened" the rest after all is more apparent than real—in other words it is a change, or at most a slackening of work rather than absolute inactivity. With the returning warmth of spring a new set of actions begin, whose vigour is proportionate not only to the favourable or unfavourable conditions at the time, but also, and this markedly, to the perfection with which leaf action, and consequent ripening of the wood, have been carried on in the preceding autumn.

These facts offer a rational explanation of the practice recommended by "W. E." at pp. 1092, 1140, and approved of by most gardeners, of removing at this season, with a broom or otherwise, the leaves of Nectarine or Peach trees grown against walls. As many of these leaves, perhaps the majority, are still green, and their removal is not easy, so forcible a mode of detachment looks at first sight like a barbarous process, antagonistic to the natural state of things, as above explained. But when we remember that, owing to the deficiency of light and heat at this season, leaf action and its consequences can hardly be carried on effectively or profitably, and that such unseasonable activity may even induce disastrous effects, it becomes easy to see the propriety of what at first seems questionable practice. The truth seems to be, that such plants as the Peach have not adapted themselves thoroughly to our climate; they require a certain aggregate amount of heat, and a certain intensity of light. In the East, where these trees are nearly wild, these requirements are fulfilled in the course of a comparatively short time; here, if they do get a sufficiency of light and heat, a much longer period is occupied in the process, and the trees are often surprised by autumn frosts before they have received their proper share—before, therefore, their work is complete. It is better, nevertheless, to allow the tree to rest, even if the work be not fully accomplished, rather than to incur the risk of exhausting or destroying the tree by allowing it to continue its operations under unfavourable conditions.

—— WE extract from the columns of the *Devon Weekly Times* the following particulars relating to the TESTIMONIAL to Mr. BARNES, late of Bicton:—"The retirement of Mr. JAMES BARNES, for nearly 30 years director and manager of the Bicton Gardens, Arboretum, Home Farm, &c., and the eminent services he has rendered to practical gardening and horticulture for a period of 50 years, induced some friends to co-operate, with the view of marking their sense of his services by some visible token of their warm appreciation and esteem. Only such as were personally acquainted with Mr. BARNES, or were familiar with and had received benefit from his labours, were invited to contribute; and the testimonial, simple as it is, and as it was wished to be, may be regarded as the spontaneous expression of friendship and admiration for a venerable, skilful, and excellent man. The presentation was made on Friday afternoon, at the Bude Haven Hotel. Mr. LANG (manager of Lord POLTIMORE'S gardens, &c.) presided, and Mr. FOSTER, sen., Exmouth, occupied the vice-chair. The testimonial consisted of a very handsome silver tea service, on which was the following inscription:—'Presented to Mr. JAMES BARNES, for 30 years director and manager of the Bicton Gardens, &c., by attached friends, in recognition of his manly sincerity, integrity of character, and benevolence and geniality of disposition; and in appreciation of the valuable services he has rendered, through a long and useful life, to horticultural science, practical gardening, and agriculture.' Mr. BARNES returned thanks for the testimonial in a few appropriate words."

—— M. DÉHÉRAIN has recently addressed to the French Academy of Sciences, a note on the DECOMPOSITION of carbonic acid by the LEAVES of PLANTS, under the influence of light. M. PRILLEUX, he observed, had attributed the same decomposing faculty to all the luminous rays of equal intensity, while M. DECAISNE had affirmed that in plunging equal weights of marsh-plants into vessels filled with carbonic acid surrounded by liquids of divers colours and of equal transparency, he has constantly found that more oxygen was disengaged from plants lighted by the yellow and red rays, than by those which were lighted by the blue or green. In former researches M. DÉHÉRAIN had demonstrated that evaporation is more active in plants exposed to yellow and red lights than in those exposed to green and blue. This coincidence he regarded as establishing a connection between the two vital functions of the leaves—the evaporation of water and the decomposition of carbonic acid by the disengagement of oxygen.

—— A PRESENTATION of a gold watch and an address was made at Altrincham, on the 27th ult., to Mr. THOMAS BAINES, gardener to HORATIO MICHOLLS, Esq., of Summerfield, Bowdon, on the occasion of his removal to the vicinity of London, with his employer. The address, illuminated on vellum, and mounted in a handsome gilt frame, was as follows:—"Presented, with a gold watch, to Mr. THOMAS BAINES, by the gardeners and friends of Altrincham, Bowdon, &c., on his leaving the neighbourhood, as a mark of their esteem and regard, October 27, 1869." The watch, a very handsome and massive one, bore an inscription in nearly similar terms. Mr. BAINES' high position as a cultivator is well known, and this mark of appreciation from those amongst whom he has long sojourned must be particularly grateful to his feelings. May he long live to take a prominent place in metropolitan horticulture!

—— A copy of the OBITUARY record of FELLOWS of the LINNEAN SOCIETY deceased during the year ending May 24, 1869, has just reached us. It has a special interest for us in many ways, amongst others in containing the names of such men as WALKER ARNOTT, WARD, DILKE, VON MARTIUS, and others connected with Botany and Horticulture. As in former years, the Society has done us the honour in many instances of extracting and adopting the biographical notices that have appeared in our own pages, a compliment that we may well be proud of. A remarkable feature in the list in question is the great age attained by so many Fellows of the Society. This is illustrated by the fact

that of 14 deceased Fellows whose age is mentioned in the above list (comprising 17 in all), the youngest was 51, the oldest 94; the numbers run thus—51, 54, 58, 59, 70, 75, 76, 80, 82 (two), 86, 88, 92, and 94. It is curious to observe that not one of the 14 died within the sixth decade. Dividing the number of years (1047) spent by the deceased Fellows on this earth by the number of individuals, we get as a result that the average longevity of a Fellow of the Society is 75 years, a circumstance that ought to induce our young naturalists to join the Society, and might be pleaded as a valid reason why insurance offices should reduce the amount of their premiums on the production of evidence that the insurer had joined the Society. Fellows have the option of compounding for all future payments by paying a sum equal to ten years' annual subscription at the time of their election, or at any subsequent period. Clearly the Society is in most cases a loser by this compounding process, a circumstance which perhaps induced the venerable Dean of Winchester, a year or two back, while in his eighth decade, to cease paying the annual subscription, as he had done for half a century or more, and compound for all future payments by tendering the usual composition fee. Reverting to the 14 gentlemen whose ages we have recorded above, it is satisfactory to find that addiction to natural history assuredly does not tend to shorten life. Moreover, it is noteworthy that in most cases the naturalists mentioned above were not stay-at-home philosophers. Many had been travellers in extreme or unhealthy climates, several had served in the navy, several had passed great part of their lives in the incessant labour and harass of medical practice; almost all were, as the brief history of their lives shows, men of active habits.

—— What does the reader think a PAPASICULTIVATOR (*papasiculteur*) is?—a grower of Papaws, or a trainer of papas? No; only a Potato grower. "Papas" is good Peruvian for Potato, so says the "Revue Horticole."

—— In a recent issue, Mr. BENNETT, of Osberton, called attention to the beauty as a foliage plant of the plant known in gardens by the name of Acalypha tricolor. Having seen Mr. BENNETT'S plant, we can endorse all that he says as to its striking and novel appearance. It is not only beautiful in itself, but it affords variety, a quality that is very often charming, and certainly is so in this case. The proper name of this plant is ACALYPHA WILKESIANA, and it is thus spoken of by Dr. SEEMANN in his "Flora Vitiensis:—"This shrub attains about 10 feet in height, and its foliage has generally the colour of our Copper Beeches; but very often the leaves assume a great variety of tints—pink, yellow, and brown, and then the plant is highly ornamental. It is often cultivated by the natives (of the Fiji Islands), together with other fine foliage plants, such as Dracæna ferrea, Codiæum variegatum, Nothopanax fruticosum, &c." The flowers are small, whitish, and borne on long, slender, feather-like spikes. What little elegance the flower-spikes may possess is quite eclipsed by the splendour of the leaves. Dr. SEEMANN'S communication on the subject will be found at p. 1137.

—— In the volume of "Transactions of the Woolhope Naturalists' Field Club for 1868" (noticed at p. 1139), there is amongst other interesting papers to which we may hereafter refer, a note of Mr. EDWIN LEES on the formation of FAIRY RINGS, and on the Fungi that inhabit them. Mr. LEES includes among fairy rings a variety of appearances which we have not been accustomed to consider as fairy rings. Our notion of a true fairy ring has always been associated with a circular outline, and with the presence of Fungi; but Mr. LEES includes rings (?) on which, owing to the irregular form, not even fairies could trip a round dance, and in which Fungi may or may not be present. Mr. LEES, however, includes them all under one head, and attributes them all to one cause—the subterranean gyrations of the mole. "In making his runs he disturbs the roots of the Grass, and the Grass itself withers and dies in the round that he has made. This offers a pabulum to the wandering sporules of Fungi not to be neglected. * * * For an uncertain time their occupation increases the size of the ring, but they do not originally form it."

—— The fine specimen of the Ginkgo or Maidenhair tree, SALISBURIA ADIANTIFOLIA, at Panshanger, described by Mr. W. PAUL at p. 1067, in our volume for 1868, is nearly equalled by one at Whitfield, the residence of the Rev. ARCHER CLIVE, in Herefordshire. According to the account in the "Transactions of the Woolhope Naturalists Club," this tree is the largest specimen of its kind in England, except that at Panshanger. The Woolhope tree now measures 7 feet 2 inches in girth, at 5 feet from the ground, is 50 feet 6 inches in height, and has a diametric spread of foliage of 40 feet. It is graceful in form, resembling a Beech in outline, and is supposed to have been planted about 1776, and therefore may be about 96 or 97 years old.

New Plants.

ONCIDIUM EUXANTHINUM, *sp. n.*

Tetrapetala *inter petala*: "habitu Oncidii bifolii, *Sims*." Panicula ampla; sepalis oblongis obtusis acutis, lateralibus ter ta infra connatis; labello basi lunato, lacinia postica cordato-orbiculata nitide dentata, isthmo subnullo, lacinia antica reniformi bilida, calle ante basin laciniæformi transverse plicatilem, calle papilliformi supposito prope disci verrucis multis striisque aureis apicem versus; tabula, infra stigmatica porrecta; alis subnullis, labello.

A very pretty Oncid, with the habit of Oncidium bifolium. The flowers have greenish sepals and petals, with transverse brownish bars, and a lip of the most beautiful yellow, having numerous brown blotches between the basilar side lobes. The flowers are as large as those of the old Oncidium reflexum. It was imported from Brazil by Messrs. Veitch. *H. G. Rchb. fil.*

LÆLIA ELEGANS *var.* LOBATA.

Petalis angustis utrinque medio rotundo unilobatis, labelli laciniis lateralibus prope rectangulis.

A curious variety of the old Lælia elegans, having the petals very narrow, and bearing one obtuse lobe in the midst on either side, and having also rectangular side laciniæ of the lip as in L. elegans Houtteana. We have to thank J. Day, Esq., for it. *H. G. Rchb. fil.*

PASSIFLORA ORGANENSIS. *Gardn.*

Glabra, foliis basi rotundatis eglandulosis subpeltatis 3-nerviis divaricato sub 3-lobis, lobis lateralibus ovatis obtusis, medio lato obtusissimo; petiolis eglandulosis; pedicellis geminis petiolo longioribus (nonnunquam brevioribus); calycis segmentis oblongis obtusis, petalis longioribus; corona filamentis seriei interioris complanato-petaloideis, petalis brevioribus, seriei interioris connatis. *Gardner in Hook. Lond. Jour. Bot.* iv. p. 104, *Walp. Rep.* v. 772.—Crescit in Brasiliæ montibus Organensibus. *Gardner*, n. 428! et ab aliis fere omnibus collectoribus allata. V. sp. sic.

Var. marmorata.—Foliis supernè albido maculatis. Prope urbem Rio. Miers! Bowman! V. sp. sic et cult.

This, though apparently a common species, does not appear to have been introduced into cultivation till recently. It is a stove climber, with much of the appearance of P. punctata, but has more pointed leaf-lobes, and only a single row of threads in the mouth of the flower tube. The under surface of the leaves is sometimes of a rich claret colour. The flowers are small, greenish white, the coronal threads violet, and tipped with white.

In the variety marmorata, now for the first time described, the upper surface of the leaves is prettily mottled with whitish or yellowish blotches. This form was introduced into Messrs. Veitch's establishment by the late Mr. Bowman. For specimens of the flowers we are indebted to Messrs. Veitch. As an ornamental foliage plant it will not take first rank, as it is perhaps inferior in that respect to P. Maximiliana (=P. discolor, Link and Ott, et Hort. Angl. plurim; P. vespertilio, Lemaire nec Linn.). On the other hand it is superior to P. punctata, which is occasionally met with in our gardens. *M. T. M.*

CYPRIPEDIUM PARISHII, *Rchb. fil.* (See p. 814.)

We have quite forgotten to state that the first introduction of this most extraordinary plant to Europe is due to Mr. Stuart Low. It appears that the firm of Low & Co. have a special title for Cypripediums, having introduced no less than eight new species, probably even more, viz., Lowei, Lindl.; Stonei, Low; Dayanum, Rchb. fil.; virens, Rchb. fil.; Hookeræ, Rchb. fil.; Bullenianum. Rchb. fil.; concolor, Parish; Parishii, Rchb. fil. *H. G. Rchb. fil.*

PLANT PORTRAITS.

ACER RUFINERVE ALBO-LIMBATUM. — *Bot. Mag.* t. 5793. Aceraceæ. This noble Japanese Maple is of stout vigorous growth, and bears broad palmately 3–5 lobed leaves which are of a deep green colour, margined with white, while the petioles, peduncles, and under-side of the midrib is of a pale red. It is a native of Japan, and has been shown by Messrs. Standish & Co. under the provisional name of Acer japonicum.

ANECTOCHILUS DAWSONIANUS.—*Flore des Serres*, t. 1830. Orchidaceæ. One of the finest of dwarf variegated-leaved Orchids, its tints and markings being of exquisite beauty; the leaves are ovate of a dark velvety rich olive-green, traversed by about seven longitudinal copper-coloured veins, the space on each side of the midrib being filled with fine reticulations of the same colour. It comes from the Malay Archipelago, and was introduced by Messrs. Low & Co.

AERIDES LOBBII.—*L'Illust. Hort.* t. 559. Orchidaceæ. A beautiful stove epiphyte, with distichous loriform leaves, obliquely bilobed at the apex, and long dense cylindrical pendent spikes of flowers, which are white in the centre, slightly tinted with blush-rose towards the outside, somewhat spotted with violet, the lip marked with a whitish central bar, and stained with deep violet on either side. Native of Moulmein, introduced by Messrs. Veitch & Sons.

CATTLEYA ELDORADO.—*Flore des Serres*, t. 1826. Orchidaceæ. This remarkably showy species has short clavate stems, which terminate in an oblong ligulate leaf. The flowers are about the size of those of C. Trianæ, and have whitish sepals and petals, while the lip is strongly tipped with rich amaranth, and its disc conspicuously marked with a broad stain of bright orange. It was introduced by M. Linden from Central America.

CHAMÆCYPARIS SPHÆROIDEA ANDELYENSIS.—*Rev. Hort.* 1869, 31, fig. 8. Coniferæ. A compact-growing hardy evergreen shrub, of conical outline, and which is sometimes erroneously named in gardens Retinospora leptoclada. The cones resemble those of Biota in form, but are described and represented as being much smaller, glaucescent, with imbricated scales, bearing a mucronate protuberance. "The fructification," observes M. Carrière, "shows clearly its relationship to C. sphæroidea." It was raised at Andelys, a French town, in the department of the Eure.

CLEMATIS ÆTHUSIFOLIA.—*Rev. Hort.* 1869, 10, fig. 1. Ranunculaceæ. This distinct-looking species is described as a hardy sub-shrubby climber, growing to a height of 7 feet or upwards, producing three-parted leaves having lobulate segments, and numerous pretty, bell-shaped, nodding, yellowish white flowers, having rather long narrow tubes, and forming, as it were, axillary panicles, more or less branched. It was introduced to the French gardens from the Botanic Garden of Naples.

COMMELYNA DEFICIENS VARIEGATA.—*Flore des Serres*, t. 1824. Commelynaceæ. This is a diffuse, low growing, stove perennial, and seems to be well adapted for summer gardening. It has terete branching stems, clothed with ovate-lanceolate leaves, which are freely and elegantly striped with longitudinal bands of white, the small blue flowers being produced at the ends of the branches. A native of Brazil, and cultivated by M. Van Houtte.

COMMELYNA PROSTRATA.—*Gartenflora*, t. 592, fig. 1. A stove perennial of prostrate habit, resembling in growth the well known Cyanotis vittata (Tradescantia zebrina of gardens). It has succulent rooting stems, oval green leaves, and small blue flowers. A variegated variety is sometimes met with. It is a native of Peru.

DRIMIA COOPERI.—*Refug. Bot.* t. 18. Liliaceæ. One of a curious and rather pretty group of dwarf greenhouse bulbous plants, the present species having rather large bulbs, from which issue the broad, oblong lanceolate, green, unspotted leaves, and several dense racemes, usually 30–40 flowered, of nodding green and purple flowers, on short scapes. It comes from the Cape of Good Hope, and has been introduced to the unique collection of W. Wilson Saunders, Esq.

ERYTHROXYLON MEXICANUM.—*Gardeners*, t. 615. Erythroxylaceæ. This is described as a slender branching shrub, with elevate oblong obtuse leaves, and small solitary greenish flowers growing in the leaf-axils. The plant is cultivated under the name of Erythroxylon Coca, and is a native of Mexico.

GEONOMA GHIESBREGHTIANA.—*Bot. Mag.* t. 5782. Palmaceæ. A dwarf almost stemless Palm, requiring intermediate temperature. Its fronds are pinnately divided into unequal lanceolate-acuminate segments, the two upper of which are much broader. The spathes are simple, elongate-linear, on tall erect peduncles, which overtop the leaves. Introduced to the Continental gardens from Chiapas, Mexico, by M. Ghiesbreght. Flowered at Kew.

GRIFFINIA DRYADES.—*Bot. Mag.* t. 5786. Amaryllidaceæ. A stove bulb, remarkable in the genus for its tall robust habit, and its large flowers. It produces spreading leathery leaves, a foot long, and stout scapes as thick as the finger, supporting from 10 to 13 large blue-lilac flowers, which are whitish along the centre of the segments towards their base. Introduced from Brazil, and cultivated by W. Wilson Saunders, Esq. M. Lemaire says the name should be rendered Dryadum.

GYMNOTHRIX LATIFOLIA. — *Rev. Hort.* 1869, 69, fig. 18. Graminaceæ. A remarkably ornamental perennial Grass, with robust-growing cane-like stems, attaining a height of 9 or 10 feet, and furnished with broad lanceolate spreading leaves, which have a short hairy ligule, and are of a bright green colour, with the broad medium vein whitish. The inflorescence consists of amentiform nodding spikes. It is a fine tall-growing Grass, forming handsome tufts, and rivalling the noble Arundo Donax. The roots may be taken up in winter, and placed under cover, as in the case of Cannas, or a slight protection may be afforded to them in the open ground. It has been sent from Monte Video, by M. Lasseaux, to the Jardin du Muséum, at Paris.

IRIS STYLOSA.—*Bot. Mag.* t. 5773. Iridaceæ. A beautiful spring-flowering perennial, of slender erect habit, and moderate height, furnished with narrow ensiform leaves, and large sweet-scented pale violet-coloured flowers, the outer segments of which are mottled with yellow, and marked with pale curved transverse bands. It is a native of Algiers, whence it was sent to Kew by Mrs. Bodichon. It has been referred to the genus Neubeckia by Alefeld, on account of the elongate perianth.

MACKAYA BELLA.—*Bot. Mag.* t. 5797. Acanthaceæ. A tall-growing and remarkably beautiful greenhouse shrub, of slender growth, nearly glabrous, with virgate branches, ovate-oblong sinuately-toothed leaves, and terminal unilateral racemes, 4–6 inches long, bearing numerous large pale lilac erect flowers, having a slender tube campanulate above, and a spreading 5-lobed nearly equal limb, the throat and lower part of the limb pencilled with transverse concentric delicate purple lines. It is dedicated to the late Dr. Mackay, of Dublin, and was sent from Natal to the Kew Gardens by Mr. McKen, of the D'Urban Botanic Gardens.

SEWAGE.

YOUR leader upon sewage and nursery stock has carried my thoughts back more than 20 years—to the time when I had charge for a short period of the young Camellia stock at the Royal Exotic Nursery, Chelsea, then under the management of Messrs. Knight & Perry. At that period the late Mr. Joseph Knight was a firm believer in the value of liquid sewage as a fertiliser. He had a pump put down for lifting the liquid excrements from the stables, privy, &c. I remember well being somewhat shocked one day, when watering the pits, then stocked with young Camellias, to be accosted by Mr. Knight, and asked to bring a watering-pot that way. He went straight to the pump, and I was requested to fill the pot. The stuff looked and smelt vilely. Mr. Knight read disgust and indignation in my face, and his voice and manner assumed their gentlest, smoothest style. "Now, Mr. Fish," said he, "I am going to give you a valuable lesson, and show you how to make Camellias grow like weeds. Every day when you water these plants, come to this pump, and put a pint of manure into each pot of water, and take notice of the effect it will have." Annoyed as I was at first, I obeyed my instructions to the letter, and soon became convinced my instructor was right. The Camellias prospered well under my care, and Mr. Knight often smiled when he saw me at the pump, or smelt the stimulating compound as he passed by.

That possibly has been the most fruitful lesson of my life. I have never fogotten it. It set me thinking on the place of waste in the economy of production, and has borne fruit in helping to solve one of the most difficult, and certainly the dirtiest, questions of the day. Dirt, however, is necessarily one of the great facts of a working world, and it cannot be exorcised nor rendered innocuous by being ignored. It forces itself on our attention on all hands, and even threatens to engulf life in its horrible vortex, or enfeeble it into wretchedness in its slimy embrace. For what is disease, suffering, and much of the death that we see around us? It is, as Lord Palmerston, I think, first designated it, simply dirt in the wrong place. Like casting grinding grit between delicate machinery, dirt wears life, and prematurely extinguishes it.

As I showed in my paper read at Manchester, we can only escape from its enervating force and destructive power by enlisting it into our service. There is only one outlet for the world's filth, and that the world's vegetable life. The refuse that fills the air with fever, pollutes the earth and poisons the water we drink, may be built up into Apple, Pear, Cherry, Peach, Plum, or Apricot trees, or into such or other fruits. It may be worked up into a juicy Cabbage or tender Pea—a sweet Lettuce, or crisp Cucumber, or a luscious Pine-apple or Melon. It may be transformed into wine in the clusters in our finest Grapes, or made to glow into the sweetest Rose-bud, or be blanched into a Lily without spot or wrinkle or any such thing.

These views are neither new nor fanciful. The transforming of the waste of the world into produce has proceeded from the very beginning. Even now the major portion of the work goes on to perfection. It is alike removed beyond our need and power of helping it. Our dead bodies and the products of combustion and decay are mostly distributed through the air or dissolved in the water without either help or hindrance from us. Every day, possibly, a pound weight of every human being is thus distributed, first ethereal ised, then transported, and finally transformed. And who shall compute the amount of waste that ascends from all the smoking chimneys and every reeking dunghill? All this is removed and carried

away without our ministry. It is only the more gross excrements and their appropriation, that have been deputed to us. Their offensiveness is the voice of love and mercy urging us to remove them from our sight, and place them on one side, so that they may be absorbed. These offensive matters are but the necessary food, the daily bread of plants. Set bread and butter, beef, sugar, or tea before living plants, they can make nothing of these in a sweet and perfect state. Give them a feed of offal, the offscourings of the earth, in a liquid or semi-gaseous form, and they will lap up that as a thirsty dog laps up water.

Such views are not more sound in theory than fruitful in practice. They have been amply confirmed by 20 years' experience. For that period I have applied liquid and solid sewage or excrement to almost every garden plant, with manifest advantage,—excepting to Heaths, and a few other hard-wooded plants. It has mostly been applied in a liquid state. The best portions of such matters are easily soluble, but such liquids have been absorbed by ashes, dry, common, and burnt earth, sawdust, Cocoa-nut refuse, leaves, strawy dung, short grass, and almost every conceivable absorbent that could be converted into solid manure or compost. I, however, do not approve of burning weeds; there seems a loss of manure in doing so. These are treated thus, when any are about. But no well-kept garden should ever have a weed large enough to be carried out of it; they ought never to get beyond the seed-leaf, for they rob the proper crops, and impoverish the soil in growing more than their remains, however carefully treasured, can possibly enrich it. But occasionally weeds are to be found, especially in large nurseries, and the best place for them is either the linings, which not only destroys them but kills the seeds, if any; or they may be disposed of in layers with short grass edgings of walks, lawns, &c., and frequently soaked with sewage. Towards autumn, if enough hot dung can be added to the mass to generate a gentle fermentation, a heap of manure will be formed that will grow anything in the garden in a most satisfactory manner.

The solid deposits of sewage I consider of less value than the liquid, and by having a second well to pump from, and a deeper cesspool for the reception of the solid, and by keeping the pump in constant use, and if possible occasionally flushing out the solid by a strong rush of water, it is surprising how slowly the sediment accumulates.

However, Mr. Masters had to do with a large amount of solid, and his mode of managing it seems alike economical and successful. With the exception of charring the weeds, the refuse could not be turned to better account. There seems no part of his practice that could be improved upon. And even the burning forms ash, as you point out, which may be most useful as a deodoriser. But dry and burnt earth are powerful deodorisers, and living plants beat all dead substances whatever in extracting offensiveness out of the world's waste. Some of these may neutralise or bind up dead odours for a time, but plants extinguish them; they do more and better—they transform them into sweetness. The sewage of to-day becomes the perfume of the Violet and the sweetness of the valley Lily, as it rings its tiny bells in its silvery steeple above its broad church of ample, cool, rich, and fresh leaves, to a feast of pleasure, not many months hence. *D. F. Fish, F.R.H.S.*

LARGE MELONS.

Several letters appeared in the *Gardeners' Chronicle* of last year from correspondents who had evidently been successful Melon growers, and at p. 1040, 1869, I see one is mentioned that weighed 21 lb. Very good work indeed, but four Melons of 6 lb. each would be more useful for the dessert table. Nine years ago, when examining the market gardens about Lyons and the South of France, I found a very vigorous, strong-growing kind of Cantaloupe, which had a very thick rind, and was not very good in flavour. I had at the same time growing here a small American kind, that I got from New Orleans, which only grows about the size of an Orange, is very thin rinded, of an exquisite Muscat flavour, and is a very free setter.

By crossing these two, I have got a first-class hybrid, with the fine flavour, thin skin, and free-setting properties of the small American, and the strong, hardy constitution of the Lyons Cantaloupe. I now grow no other kind, and so keep the stock pure. Two years ago I cut three from one plant, the weights of which were 23 lb. 15½ oz., 17 lb. 12 oz., and 16 lb. 1 oz.—making a total of 57 lb. 12½ oz. from the one plant. We cut many more very heavy fruit, but I kept no record of the weight. I was rather surprised to find the flavour quite as good as those of the smaller size. The flesh is pink in colour.

The mode of culture is very simple. Our Melon ground was, till this year, on the south slope of an old gravel pit. In November the ground is thrown up in ridges to sweeten, and remains thus till spring, when the spaces between the ridges are filled with hot manure, and all levelled neatly down. The seeds are sown in 3-inch pots, one seed in a pot, and placed in a cool frame, for if raised in heat they are often too delicate for outdoor culture. By about May 15 a fine stock of plants ought to be ready for planting out. Choose a fine day, and arrange your *cloches* about 3 feet apart. Under each *cloche* plant a Melon; water and shade for a few days. When the plant has filled the *cloche* with foliage, it (the *cloche*) must be lifted and supported on three forked sticks about 6 inches above the collar of the plant. If the *cloches* are not wanted for other purposes they may be left in this position till the end of the season, to keep the collar of the plant dry.

The Melon, if the collar be kept dry, is a hardier plant than most of us think it is. In the autumn I put a handful of dry powdered charcoal round the neck of each plant, which I find very good for the prevention of canker. I cover the ground all over with clean straw, which prevents evaporation in hot weather, and keeps both fruit and foliage clean during rainy weather. For the latest crops, we sow the seeds under the *cloches* where they are to remain. I have this day (October 19) cut 22 fine Melons from plants the seeds of which were sown on the 21st of last May, and the flavour of one cut is nearly as good as those I cut in July and August. *John A. Watson, Campagne Lammermoor, Geneva, Switzerland.*

HOW I GOT OVER MY "DISENDOWMENT."

About two years ago, owing to a change in the government of this place, I was "disendowed" from having my usual supply of manure from the farmyard, and was told that if I must have manure I must buy it. These were hard lines; and to send "to Coventry" for manure would take more of our time and our money than my estimate would permit. There was, however, no getting away from the fact that I was disendowed of my chief staple, "manure," that which gardeners so much depend upon for the production of good vegetables, and which are required at this place in no very moderate quantities. The problem generally held before the gardener to solve is this,—Given a piece of land, on which during all your life and the lives of as many as may live and die in the culture of that piece of land, from one to some hundreds of years: how to grow a good and plentiful supply of vegetables, rich and crisp, and in every way equal to vegetables seen at anyone else's table. In my case, the supply of vegetables was to be nothing short of that produced previous to the disendowment of manure, and I had to set about the manufacture of manure as best I could.

Having a large tract of pleasure-ground kept under the mowing machine, it occurred to me that this short Grass, which hitherto had been a nuisance, might in some way be utilized. I could not give it away, and when it was thrown into heaps it stunk intolerably. I resolved, therefore, to try how cattle could be fed upon it. On the strength of this idea I immediately set to work, and in the rubbish yard made a cattle-shed and fold-yard, sufficiently large for the accommodation of four animals. The yard littered down, and the water laid on, I was prepared for the cattle. A farmer close by let me have four yearling heifers, for which he allowed me so much per week for their keep. This was about Christmas, and until Grass came these animals were fed with hay, which I had saved from parts of the pleasure-ground which it is not so necessary to keep mown. When, however, grass-mowing with the machine commenced, it was carted into the fold-yard, and readily eaten up by the cattle, and any excess of what they required to eat was trodden under foot and speedily made into manure. All refuse from the garden was thrown into this place, and was either eaten or trodden into manure. In the course of the summer the cattle throve amazingly, and it was now evident that the scheme was a good one, as I could manufacture manure as fast as it could be dug in, and not in very moderate quantities either.

Having thus given a brief statement of how, in the manufacture of manure, I got over my "disendowment," I may be allowed also to state in what other respects the fold-yard proved useful. Every one knows what luxury there is in the keep of a cow for a family, and on the strength of what I knew the cattle-yard could do, I bought a milch cow, for which I paid 15*l.* 10*s.*, and during the first year, besides supplying my house with what milk and butter we wanted, we sold, including the price of the calf, milk and butter, as much as exactly realized the purchase-money of the cow. The cow is this year free to begin with, and I am pleased to say in better condition; and so far as the season has gone, yields more and of even better quality than her yield of last year, which is proof sufficient that her keep and habitation in the rubbish yard is as nearly as possible that which she likes. In addition to the animals mentioned I have also some pigs, which thrive amazingly on short Grass, Cabbage leaves, run Cauliflower, &c., and which add much to the richness of the manure. In the same yard I have also some fowls, so that this yard not only produces a plentiful supply of manure for the garden, but supplies my house as plentifully with good milk, butter, bacon, and fresh-laid eggs,—things not much to be despised either in town or country.

In this case of "disendowment" it happened to prove better for me in the end than if my supply from the "state farmyard" had been continued. I should only have got my supply in driblets, now I have it in abundance, either well made or under-made, and at any time I want it. Lest it be considered that I was eagerly selfish in establishing a cow for my own use, I should say, in justice to myself, that eight years ago this formed part of my agreement, but during that period circumstances in my house did not particularly require a cow, and not until I really wanted it did I make use of my privilege.

If a man has for his motto "Live and let live," and this coupled with a fair share of well-directed energy, depend upon it, it matters little whether or not that man be "disendowed;" even if "disestablished," he will right himself again. I have no doubt there are many large gardens similarly circumstanced to those of which I have now charge, where the short Grass might be utilized something after the manner above described. *Wm. Miller, Combe Abbey Gardens, in "Florist and Pomologist."*

HEATING VINE BORDERS.

Soon after the late Mr. Thompson's (of Welbeck) experiments on the flow of sap in trees were published in the volume of "Loudon's Gardeners' Magazine" for 1829 (p. 253), and it became known that means were taken at that place not only to protect the external borders of the early forcing-houses from the inclemency of the weather, but that heat was also applied in order to stimulate a healthy action between the roots and branches of the growing plants, public attention became directed to the great revolution taking place in the practice of early forcing. In the same season a new forcing-house was erected in the gardens of the Earl Fitzwilliam, at Wentworth, in the external borders of which hot-water pipes were laid, but with what amount of success I never could ascertain. At Syon, about the same period, Mr. Forrest planted Vines on a bed of fermenting material in some of the forcing-pits, and they did admirably for a time, until the material of which the beds were composed became effete.

At Canon Hall, in Yorkshire, from whence the grand Muscat of that name was sent to the Horticultural Society nearly half a century since, and which Grape has so signally failed in the hands of most cultivators, experiments were instituted by Mr. Alexander Wilson, and are described by him at p. 26, vol. iii. of the "Transactions of the Royal Horticultural Society." The most successful was from a "Vine grown in a pit on a bed of rotten leaves, which might be described as neither hot nor cold," until the Vine began to grow, and the heat in the pit increased, when a little heat could be perceived at the time the Vines were in blossom, not one of which failed to set, nor was there one bad berry when ripe; it was, therefore, inferred that if the "border of a vinery can be heated a little, success will be sure." The discussion which has recently taken place in the *Gardeners' Chronicle* on this subject shows that a system of chambering, aërating and border heating is practised by many of our best producers of early fruit, and that others are still content to call in the aid of well protected fermenting matter to guarantee the latent heat of the previous season stored up in the border, in order that a healthy co-operation may be carried on between the roots and branches of the Vine.

At p. 260 of the same volume of the "Transactions" of the Society, there is a plan and description of an early vinery erected at Trentham by Mr. Fleming, and which I had an opportunity of seeing some time since; the borders of which are chambered, and from which drains are laid into the house at intervals, and the whole is heated by fermenting dung closely covered in—the ammonia penetrating into the border, and also through the drains into the house when required. Wide cement troughs are fixed under the border into which manure water is placed when it is required to give an extra stimulus. Mr. Fleming also states that the "bunches and berries attain a very large size," but is of opinion "that moderate sized bunches, except for the purposes of exhibition, are much more satisfactory than very large ones, since the berries swell and colour better, and the bunches retain their bloom more perfectly, and look better when dished up; keep up a supply longer, and when it is necessary to send the supply to a distance, they travel infinitely better: it will therefore be well to reduce the large bunches to a moderate size."

A very successful mode of producing early Grapes has recently come under my own observation, in the gardens at Bereleigh Lodge, the delightful residence of Mrs. Forbes, near Petersfield, in Hampshire. The vinery was erected for the late G. Forbes, Esq., some 13 or 14 years since, for the purpose of growing Vines in pots, in the management of which, however, the gardener did not prove very successful. The whole length of the house is 27 feet 6 inches, and the width 11 feet. A bed 25 feet in length occupies the middle part of the house from the north end, and is surrounded by a path on the sides and southern end. The roof is fixed, and ventilation is effected by 13-inch openings on either side, and also by an opening light at the top of the southern end, which is glazed; the northern end is opaque. The heating, which is very effective, is by hot-water pipes from a conical boiler, and regulated by stop valves.

Eight Vines were planted along the centre of the bed, in a foot of soil, 11 years ago; each presents the general contour of a Currant bush, the branches extending to the pipes on either side of the bed, and reaching almost to the apex of the roof, which is 4 feet 6 inches from the surface of the bed. They consist of the following sorts, viz., Charlesworth Tokay, Dutch Sweetwater, White Muscadine, and the remaining five Vines are Black Hamburghs. The house was begun to be forced the second week in February, and the Sweetwater Grapes were ripe on May 15. The Vines, notwithstanding the limited space in which the roots have to range, are in the most robust health, some of the leaves I put my rule across and found them to be 16 inches in diameter. The bunches were thinned down to an average of 10 on each Vine—and they were admirably finished, some of the Tokays being more than 2 lb. in weight, and of that beautiful amber colour which is often so difficult to obtain. The Hamburghs were from about 1 to 1½ lb., and of excellent colour and quality, nor did I observe a streaked or imperfect berry in the house.

The bed in which they are grown is full of roots to the very surface, and Mr. Adcock, the present excellent and intelligent gardener, told me that he top-dressed early in the spring with good yellow loam, well mixed with pig-dung and superphosphate of lime—simply removing the crust from the surface before applying the mixture. Mulching with sheep droppings is resorted to during the progress of growth, and over this mulching tepid water is plentifully poured when the state of the bed requires it.

I do not by any means wish to assert that the house in question is the best that could have been devised, or even that its arrangement is of the most economical kind, or that the selection of sorts is the best that could have been made; on the contrary, I believe that by restricting the path to the centre of the house, double the amount of equally efficient border and training-space may be obtained; but to show that by

tue application of sound principles to everyday practice, very favourable results may be obtained. Thus the apparatus for heating this small unpretending structure is so arranged that the very shallow bed—one foot in thickness—in which the Vines are grown, is sufficiently warmed without the aid of any extra heating or protecting material. Look on this picture and on that—of wide external borders not only heated at a very considerable expense, but over which covering of some kind is also indispensable during the season of forcing, as a shelter alike from the ill effects of frost, rain, and snow, and this has hitherto been effected by masses of fermenting material, or leaves and fern thatched over, or a covering of tarpaulin; temporary roofs of glass, tiles and boards have also been employed, and these in front of grand ranges of ornamentally constructed forcing-houses.

A few such easily heated simple structures as the one I have attempted to describe would prove an admirable supplement to many such ranges, not only in point of economy, which I hold to be very considerable, but these more majestic houses would then at a lessened expense, come later into use, and with a more telling effect in the autumn months, when families are usually residing at their country seats.

In some parts of the country coals are cheap enough. I recollect the late Mr. McIntosh, when gardener at Dalkeith, telling me that coals were delivered into the garden at 5*s.* per ton. To a like question, Mr. Fleming informed me a few years since that the expense of coals at Trentham was about 8*s.* 6*d.* per ton, whilst at this place the price is seldom under 28*s.*; and where forcing is carried on extensively, such a price is, to say the least of it, a very serious drawback. We are told, however, that great results are to be expected from some newly invented boilers, which, if fully realised, will prove a great boon to all engaged in the protection of plants or early forcing, and more especially in districts of the country where fuel is scarce and expensive. *S. N.*

Home Correspondence.

Potting Lilies.—I was glad to find the remarks of your correspondent "M," at p. 1138, are likely to lead to some expression of opinion as to the correct treatment and period of potting Lilies. Many amateur growers are very anxious to know how and when to perform this operation, as we find from inquiries from customers when ordering bulbs. From close practical observation I have found that Lilies generally, more especially the Japan species, are often greatly mismanaged during growth, and equally abused during dormancy. Now, although I am thoroughly convinced of the necessity of repose to all plants, and advocate its universal observance, it is plain there are limits, "variable, I admit, in their application," beyond which we may not with impunity carry the system, any more than we may its opposite. In this case it is apparent the usual period of rest beneficial to many bulbs is, to members of this genus, by far too lengthened; the vitality of the bulb is very materially weakened, and the utmost its remaining powers can effect is the development of leaves and flowers, bearing little or none of that beauty so characteristic of this tribe. I have no doubt but that the precise period of potting is of more importance than are the general ingredients of the soil. In fact I have long considered it an absurdity to attach an undue consequence to the minutiæ of soil, as we find soils of the same kind differ chemically in different localities. In the case of Lilies, fine plants with wonderful blooms have been obtained by different growers, and produced in different soils, of very different composition. The mainspring of success lies in the proper period of potting, and the handling of the bulb at this time. I have found that as soon as the growth matures and the stem changes yellow to the base, the bulbs should be turned out of the pot, and if division is required this operation must be performed with such care as to mutilate as few of the roots attached to each bulb as possible. These appendages are the chief organs which impart vigour to the plant, and should to all intents and purposes be as much, or more, cared for and regarded than the scales of the bulbs. Each of these roots has an important office to perform, and will be found provided with organs which are active all the year round, contributing to and storing up in the reservoir of the bulbs nutriment during dormancy, and aiding the growth during the active stage. If potted at the season abovenamed, say about the middle of November, and stored away in a quiet cool place, in less than a month growth by the root will have commenced. This fact is of itself a sufficient guarantee that the practice of turning out of pots, lacerating and tearing off the so-called old roots, and storing in sand or similar material, is barbarous in the extreme, and is as opposed to Nature as is the practice of storing away as they decline for the season, and repotting in spring at a period when activity by the root is at its maximum height, and a young embryo growth very vigorous. My Japan Lilies are treated all alike, and I have at this moment hanging in my establishment stems of L. auratum bearing the pedicels of from 60 to 75 flowers upon each stem, and this season I have had from 25 to 40 flowers upon a single stem in a 32-sized pot. My system of management is based upon the above formula: I repot in November, and if bulbs have been individually grown in small pots for decorative purposes, without disturbing a root or piece of crock I repot into a larger size as desired. The same is done with compound specimens; they are simply repotted on with the same care and regard to roots as in the case of an Imea or similar plant. If bulbs are wanted for commercial purposes, they are sized out and potted with all the root possible into such sizes as are suitable for sale and transmission. Bulbs kept exposed for sale or other purposes during winter lose at least 50 per cent. of their strength; this great reduction, it must be admitted, materially deteriorates from their value. As before said, I attach little importance to soil, but rely almost exclusively upon the ammonia extracted from animal manures, and abundantly applied during the process of growing, also during the swelling and opening of the buds. The ammonia facilitates the due maturation of growth, and enhances the colour and odour of the flowers. Without tendering any positive rules as to soils, I have found the staple ingredient a rich fibry loam, as devoid of mineral impurities as possible, a small quantity of peat as rich in humus as can be secured, and sharp river sand; these, well incorporated together, form a compound which will be found exactly what these denizens of the East require. *Ransley Tanton, F.R.H.S., The Nurseries, Epsom, Surrey.*—I am pleased with the compliment "M.," a reader of your paper for 20 years, pays myself and my colleague, when he says he has never seen the Calendar so well filled with useful matter. I beg to inform him that "J. D." is not one of the fair sex, but an old practical gardener, requiring no *chaperone*, for he learnt the mode of wintering and potting Lilies from the late Mr. H. Groom, of Walworth, who was one of the best growers of his day, and whose system he ("J. D.") has adopted in town with tolerable success for many years. *J. Dale, F.R.H.S., Gardener to the Hon. Society of the Middle Temple.*—I notice that in your paper there is a discussion going on anent the proper time for potting Lilies. Now, I am only a young learner, but of course that is the more reason why I, like others, should know the why and wherefore of things. Where I work, it is our practice to put by the Lilies when they have finished blooming, and after the lapse of a few weeks to cut down the dried-off stems, and then to store the pots of Lilies under the house stages in a cool but dry corner, where they lie protected from frost until just before Christmas, when they are repotted after a comparatively long season of rest. On the other hand our Gladioli are topped (*i. e.*, the stems are cut) immediately after being taken up from the bed, and put by to dry until again required. Now it seems to me that both Lilies and Gladioli should, after blooming, have time allowed them in which their stems may die away, and then should come a still further period of rest for the bulbs, before being required to start into life again. I should also like to ask another question, and that is—What time for potting the Lily bulb is most advantageous to the wear of the bulb? I suppose bulbs, as well as mankind, have their term of existence, although in this respect they may vary; but what I mean is—would "M.'s" or "W. E.'s" method preserve the bulb the best? *Youngster.*

Yellow Bedding Plants.—At page 1136 Mr. Hutchinson states, in reply to my remarks on the above, that he finds no difficulty in growing the yellow Calceolaria. Perhaps not. He also states that all that the plant wants is a deep soil with a cool bottom. This is, no doubt, very suitable to the growth of the Calceolaria, but this will not ensure its success in all parts of the country. It may do so at Abergavenny, but not in Notts or Yorkshire, although in some situations in both these counties it succeeds remarkably well, whilst in others it defies the skill of the gardener and chemist. The situation and seasons have more influence on the growth and successful culture of the Calceolaria than any soil it can be planted in. I can enumerate several places within ten miles of Osberton where nearly every kind of soil has been tried, both in damp and dry situations, without success; and I am fully convinced, if soil would ensure its success, such practical men as Mr. Miller of the Manor, Holah of Rufford, Henderson of Thoresby, Hall of Sandbeck, and several others who bed out largely in this neighbourhood, would grow it more extensively. Indeed, at some of these establishments there is hardly a Calceolaria to be seen. At Osberton they generally do pretty well, only twice during the past ten years have they proved fickle, but this is enough to shake my entire confidence in them. The only sort I can fully rely on is amplexicaulis. This never fails. I grow extensively Tropæolum "luteum improved," in the more conspicuous places, but for the future I intend to plant more extensively the yellow bedding Pansies, so charmed was I with their appearance at Sandbeck and Rufford. Tagetes signata pumila I believe I had the honour of first recommending as a very useful bedding plant, fine for autumn, and continuing in blossom a very long season. The true dwarf variety is certainly a gem, but I find it very difficult to procure true. I, however, saw a very striking bed of it lately, at J. Garside's, Esq., of Carlton House, Worksop. It was a large circular bed of the best variety, and stood out very conspicuous, being in full beauty, whilst the remainder of the garden occupants were entirely destroyed by frost. Yet notwithstanding the yellow foliage plants that have come to our rescue lately—the Tagetes, the yellow Tropæolums, Pansies, &c., we cannot dispense with the Calceolaria where it will succeed in any moderate degree of certainty; but in places where it will not grow or live a substitute must be found, and I have at present met with nothing more suitable than the Pansy for the purpose, if a true yellow is required. Those I spoke of in my former communication, and Viola lutea grandiflora (Tyerman's), are in every way suitable for yellow bedders. *Edwd. Bennett, Osberton.*

Lawn Mower.—The report of the International Exhibition of Horticulture at Hamburgh, published in your journal of September 11, I beg leave to state is incomplete, so far as it refers to Williams' American "Archimedean" Lawn Mower. Having officially represented my State at that exhibition, the invention received my particular attention. Your reporter is right in saying, that at the first trial of lawn mowers, in the presence of the judges, no one appeared to show off the "Archimedean," the agent having received no notice that the trial was to take place on that day. My appeal to the committee in charge induced the judges to grant another trial, which resulted in gaining for our mower the silver medal offered for one of the two best constructed lawn mowers. *H. Glafcke, late Major U.S.A., State Commissioner at the International Horticultural Exhibition of Hamburgh, Hartford, Connecticut.*

Golden Champion Grape.—There has of late been considerable doubt thrown upon the character of this fine Grape, as to its strength of constitution, arising most likely from the fact that to maintain the supply requisite to the great demand that has been made upon it the stock has been unduly forced and propagated, and its constitution consequently injured. It may therefore be of interest to some of your readers to mention that the Golden Champion will make a splendid growth when grafted upon the Black Hamburgh. I called recently upon Mr. Jones, gardener to Lady Mill, Mottisfont Abbey, Romsey, and he showed me, in one of his vineries, a rod of the Golden Champion, the growth of a graft upon the Black Hamburgh in February last, that was as fine and well ripened as a rod of any other Vine would have been under the same conditions. Perhaps those who have not hitherto been entirely satisfied with the growth of their plants will try grafting, or, if disposed to be even more experimental, may bud it on some well-established but inferior kind, as Mr. Stevens does at Trentham. Judging by what I saw of the way in which Grapes are done at Mottisfont, it is likely that Mr. Jones will be able to give a good account of the Golden Champion Grape next May. *Alex. Dean.*

Our Fruit Failure and its Lessons.—To remedy this evil as far as possible should be our endeavour, and Mr. Fish gives us excellent advice in his elaborate article at p. 1088. Mr. T. C. Sage supplements it with a recommendation that a portable hot-water apparatus should be invented to use with the improved class of houses recommended by Mr. Fish, and which I fully endorse; not that I altogether blame the frost of last spring for all the damage done. To arrive at the nearest possible conclusion as to the causes of failures in this one particular branch, I think it would be of great service if records were given of failures, with notes on the day and night temperature during the time the trees were in bloom, the state of the atmosphere during the time, class of soils, &c. We should then gain much useful information on this point, which would assist us in guarding against much of the evil in the coming season. My own belief, in regard to the failures of the fruit crops of the past season is, that the whole of the blame should not be laid to frost alone. We have two orchard-houses here with trees trained to wires on the back walls. The outside border is 2 feet 6 inches in width, then a path of 3 feet, with a centre border of 6 feet, in which are planted bush trees of Peaches and Apricots. The spaces between these are filled up with Peach and Nectarine trees in pots. The two houses, which are respectively 25 and 30 feet long each, and nearly 14 feet wide, contain three Peach trees trained to the back walls, one Nectarine, and one Apricot, six bush trees planted out, and 20 pot trees of Peaches and Nectarines. The whole has now had three seasons' work, and produced this year about three parts of a fair crop for young trees—one tree of the Chancellor Peach had only one inferior fruit. This tree has failed every season; I do not think this variety is suitable for orchard-house culture. The best and finest fruit was obtained from a variety called Dymond, which no one who has seen it here seems to know anything about. I bought it from the Messrs. Veitch two years ago, and it is really a very fine Peach, quite distinct from any other kind that I have. Altogether these two houses have produced this season about 580 fruit of Peaches, Nectarines, and Apricots. In the same houses I have now from 90 to 100 lb. of Grapes nearly ready for use. The soil in one house is a heavy loam, with a liberal mixture of chalk, and in the other it is the natural garden soil, which is a heavy clay, with nearly a sixth part of chalk. The trees do remarkably well in both houses, and are now looking very promising for another season. The weather here during nearly the whole time the trees were in bloom was bright and sunny during the day, with a very keen easterly wind the whole time. The bright hot days rendered it necessary to give a liberal amount of air during the middle of the day, which was an evil, as the strong current of cold wind seemed to congeal the pollen so hard that it was with difficulty it could be separated with a camel-hair brush. The weather during the nights was generally cold and cloudy, with more or less frost, and one or two storms of sleet and snow just as they were in full bloom; but, notwithstanding that some Peach and Nectarine trees on the open wall had a good crop. Taking all the trees together in the open air, we had rather more than half a crop. I should state the trees on the open wall were protected by having two 9-inch boards side by side, nailed on to some stakes leaning from the border up to the wall, which formed a broad coping standing out over the tops of trees about 14 or 15 inches; this, I believe, in ordinary seasons, is the best covering for open walls. I have tried a great many things, but cannot find anything to answer the purpose so well as this. They were put on as soon as the blooms began to show colour, and remained on till the leaves were large enough to afford a slight protection to the young fruit. Now, my conclusion is this—if the frost is to be blamed for the loss of the unheated orchard-house fruit here, why did it not destroy the whole crop on the open wall, which was very much more likely to suffer than that in the orchard-house, where care was taken to box up as much of the sun-heat as possible every afternoon, and which could be perceptibly felt at midnight, when at the same hour the surface of the walls in the open air would be disagreeably cold to the touch, and in the morning ice would often be seen hanging from the edges of the boards farthest from the wall, while inside

the houses the temperature was hardly down to 31° Fahr. The lowest point touched during the blooming season was 2° below freezing, and this only once. I found, as a rule, that the pollen worked best in the dull morning, before the cutting east wind was admitted. I had a hive of bees in the houses during part of the time, but they did not seem to move the pollen any better than was done with a camel-hair brush, which was kept going every day, both in the houses and on the open wall. On making inquiries of others, I find one cultivator attributes the loss of his crop to an insufficient supply of water to the roots previous to the blooming period—a point in which I believe there is much truth. Others, who have the assistance of a hot-water pipe, turned a little heat on at daylight in the morning, and gave air almost immediately, have a good crop. To ascertain as far as possible the results from different quarters must be my apology for the length of this letter. I desire to see better crops of fruit, to obtain which let us have good houses, properly constructed, for the cultivation of the superior fruits, with just enough piping to keep out frost during the blooming season. The walls can then be devoted to choice Pears, Plums, &c., which will be much improved by being grown against a south wall. *J. May, Hants.*

Vine Roots.—A subject to which for some considerable time I have given particular attention, has been adverted to by two of your correspondents. The first, Mr. Gill (see p. 1064), asks "if Vines make roots without the action of leaves and branches?" the second, Mr. Anderson (see p. 1137), putting the question in rather a different form, asks, "Do Vines make leaves and branches without the aid of new rootlets?" My answer to both of these questions is an emphatic No. It is as absurd to believe that, as it would be to believe a tree to live without roots altogether. These views of the subject are antagonistic to sound reason, and all the laws of the vegetable kingdom bearing thereupon. Mr. Anderson makes reference to opinions given by several gentlemen of very high standing in the horticultural world, and whose opinions are worthy of every respect. These gentlemen appear to have held different views upon the subject, but I am of opinion a little explanation would have shown "that yet, with all their differences, they all agreed!" The best way to come to a correct conclusion upon this subject is to examine it physiologically. Now, much attention to not only Vines, but all sorts of trees, shrubs, &c., has brought me to form very different opinions from those which are commonly held upon many of the laws which govern the rise and flow of the sap, the formation of buds, branches, roots, and such like. I am prepared to receive much opposition from those who may have hurriedly examined the question, and who have not given it that attention it so well deserves. Those however who year after year, and at various seasons, will take the trouble to examine the roots of Vines, fruit trees, or anything else they like, will I think in the end arrive at much the same conclusion as I have done. In the first place I would draw the notice of the reader to the fact, that the roots have absolute and entire control over the whole tree—stem, branches, and leaves—and this being the fact, when a tree becomes unhealthy, do not gardeners at once examine the roots to ascertain the cause? This is proof positive that whatever they may believe regarding the matter, their practice is antagonistic to the foregoing questions. To come more closely, however, to the subject in hand, let me notice that in autumn—for it is here I must begin to properly handle the subject—in autumn, when the fruit of the Vine begins to ripen, then to a certain extent the roots cease to act. Gradually and by slow degrees the roots become less active, until by the time the leaves have fallen the action has entirely ceased. This is Nature gradually sinking into sleep—or rest if you will; and this is as absolute for the Vine or any other tree, as it is for the animal kingdom. You will notice this is a gradual and progressive process, and therefore fulfils all the known laws of Nature. By referring to "Lindley's Theory of Horticulture," you will there see the author's reasons for this. I, however, differ from him in some of the points; although what he says is to a certain extent true, yet, nevertheless, it is not the whole truth. The passages and surface become to a certain extent choked up, but every gardener knows well enough that they do not become entirely incapable of performing their functions, as we can by artificial means prolong the period of their existence. The roots, therefore, must have something to do with the matter. Yes, undoubtedly they have, and by their desire to go to rest refuse to supply the food necessary for keeping the leaves upon the trees. The roots are the mouths—the leaves the stomachs—so that it would be as unreasonable to suppose that the leaves and branches of a tree would develop and grow without the action of the roots, as it would be to entertain the idea that the human stomach could be filled without the mouth providing it with food. At the end of the natural period of rest for the Vine, the buds begin to "swell," as it is popularly said; but how and by what means is this swelling process carried on? Not certainly without the action of the roots. Some I know declare that this is accomplished without the aid of the roots—that a store is laid up for this very purpose, and that this process takes place quite independently of root action. How can this possibly be the case? There must be a vacuum left somewhere, equivalent to the increased bulk of every bud upon the tree. Nay more, if, as Mr. Anderson says, the roots were dormant after the buds began to burst into leaf, we must expect a very large vacuum to have been made in the roots of the Vine; so much so indeed, that a perceptible difference must have been visible in their circumference. And, further, it is admitted by most physiologists that the leaf draws the sap to it in much the same way as a valve draws water in a pump. Now, if this be the case, a great number of the channels must have been entirely dried up in the roots, and as we in Scotland say, must have lost the "fang;" that is to say, that these channels would require to be re-filled ere the leaves could perform their pump-like functions. Now as I deny *in toto* that the roots do not work as early as the leaves, I will ask you to prove the matter for yourselves. After the buds have swollen for a short time, and the leaves begin to develop—at which time Mr. Anderson says his roots were still dormant—let a Vine be cut over near the ground, and what is the result? why, bleeding of course. Now what is the cause of this bleeding? Nothing more nor less than the action of the roots gathering food and forcing it up to the leaves or stomach of the tree. If the roots were dormant there would be no bleeding, and if the leaves alone were the cause of circulation of the sap there would be no bleeding, as, these having been removed, if the roots did not act independently, the flow of sap would at once cease when the union had been broken. This is the reason, although perhaps imperfectly understood, why all good gardeners incline to prune their Vines as soon as possible after they lose their leaves, as then and then only there is no danger of bleeding. Now although I have spoken thus, I do not deny that to all appearance the Vines were dormant. But such was not the case. As soon as the buds began to swell so soon did the action of the roots begin. Let us not suppose, however, that the starting into action of the roots as a natural cause should produce young roots or spongioles. Oh no, it is an after consequence. The food taken up by the roots has to be digested in the stomach of the plant—that is, the leaves—and return again ere young rootlets are formed. So that there may be no misconception upon this point, let me say that buds are leaves, flowers, and branches, in embryo, and consequently, act as stomach and lungs, until such time as the leaves begin to develop. The food or sap, therefore, is provided by the roots, and passing up through the tree to the bud, becomes there digested, and afterwards part thereof descends, and forms young spongioles; hence the reason why the action of the roots is not visible till some time after their real work has commenced. If anyone has the least doubt that it is the descending sap which forms the young rootlet, let him have one of the sections magnified, and he will at once perceive that it is done in much the same way that an icicle is formed, viz., by a descending deposit on the outside and point of the old wood. At page 18 of "Lindley's Theory of Horticulture" will be found a cut which will amply illustrate what I mean. I know that what I here advance is antagonistic to the views of many of our leading men; yet, nevertheless, unless they are prepared to give a better, a clearer, and more convincing proof of the correctness of their theory—for it is nothing more—I must abide by my own conclusions. *James M'Millan, Erskine Gardens, Glasgow.* [Our correspondent is not quite up to time in his notions of vegetable physiology. EDS.]

Lilium lancifolium.—Without venturing on a lengthened disquisition as to the general culture of this lovely genus—on which much diversity of opinion exists—I wish merely to state that at the present time we have here several plants of the above growing in only 4-inch pots, varying from 12 inches to 18 inches high in the main stems, each being furnished with five or six fully developed and deliciously scented flowers; hence affording admirable subjects for *jardinet* and sitting-room purposes. The bulbs in question were procured from a London firm early last spring, and arrived here in a somewhat shrivelled dormant state. They were forthwith potted in a mixture of peat, loam, and silver sand, in 4-inch pots, in which they have grown up to the present time, resulting as I have previously detailed. Possibly there may be nothing new in the mode of culture; it is, however, the only instance that has ever come under my cognisance, and I have had considerable experience in the culture of them. Here I may be allowed to remark that some of the finest and best-bloomed specimens I ever saw were grown by me in 12-inch and 16-inch pots—several bulbs in a pot, and they were received and treated under similar conditions, excepting the small pots, to those which form the subject of the foregoing remarks. *William Gardiner, Eatington Park.*

Picea Pinsapo.—It was very interesting to read Mr. Gardiner's paper on Picea Pinsapo (see p. 1137), how it was attacked by a Fungus, blown down twice, and twice reared up; how, after all these casualties, it was thrown into a state of fructification—on the principle, I should say, that, finding its constitution gradually becoming weaker, it concentrated its remaining strength, like other races of plants and animals, in an effort, before death, to perpetuate its species. Mr. Gardiner says, that of late years the tree became less healthy, and that he subsequently found that the cause was an attack of Fungus. Now, in my opinion, this is a point which requires some clearing up. Was Fungus the primary cause of the decay, or was it only a consequence of decay arising from a totally different cause? In the "dark-coloured loam" in which the tree was planted might there not be something lurking which eventually proved distasteful to the roots? or did not the roots penetrate deeply (as the roots of Conifers do sometimes), to the formation of lias, which abounds in lime, and there sicken and die, and during their decay became attacked by the Fungus? This opinion is strengthened by Mr. Gardiner's description of the state in which he found the roots, "one of the main surface roots was healthy." This is almost of itself evidence enough to prove that the Fungus was not the primary cause of decay; there is, indeed, direct evidence from Mr. Gardiner himself to prove that it was only a consequence of some other decay, as he says, "so far as I can ascertain, the Fungus is now apparently in a state of non-vitality." We may, then, almost safely infer that decay originated in those roots which penetrated deeply into the subsoil, for, we observe, in its after history, that the tree showed marked evidence of renewed vigour by a formation of new bark at the bole, and of terminal growth in the branches. All this, to me, seems evidence that Fungus was not the primary cause of the decay. Perhaps Mr. Gardiner could furnish other information respecting the situation where his Pinsapo is planted, whether the situation is wet or dry—extremes either way might induce decay. "M. J. B." might be induced to say something in this case, but would that he could shift the primary cause of decay on to the shoulders of anything but this horrid Fungus, which haunts every gardener like a nightmare—lest either his Conifers, Peach trees, or Vines, should become irretrievably affected with it. There are three beautiful specimens of the P. Pinsapo here, which are respectively 20, 25, and 30 feet high, healthy, and otherwise well developed, but I trust we may be more fortunate than Mr. Gardiner has been with his. I should rather see cones produced upon them through maturity of years than by circumstances such as appear to have brought about the premature coning of Mr. Gardiner's trees. *Wm. Miller, Combe Abbey Gardens.*

The Early Maturation of Potatos, so as to secure the crop in a healthy condition, is the great desideratum, and, with early sorts, this may generally be safely accomplished, but with late kinds it is occasionally well not to be in too great a hurry. This season we took up our principal crop in the first week in September, which for late sorts, in a general way, I consider too early, excepting in such a season as the present. The rainfall here for the last three years, in the months of June, July, and August, has been as under:—

	1867.	1868.	1869.
June .. inches,	0.82	1.40	0.88
July .. ,,	4.90	0.25	0.45
August .. ,,	2.34	5.49	0.83
Inches. ..	8.06	7.14	2.16

This year, owing to the diminished amount of rainfall, especially in August, we have suffered more from drought than we did last season, though later in the season, and in a different manner. The park has in many places showed more brown than I have ever before observed. August-sown seeds, as Cabbage, Spinach, &c., at first came up badly, and many trees, particularly Beech, were prematurely shedding their leaves; but other things that failed last season have done well this, as late Peas, but then in May of this year we had 5.82 inches of rain. Potatos ripened off early, the haulm being generally withered by the end of August; and fearing a repetition of the supertuberation of last year, they were taken up as mentioned above, excepting part of a late kind, called here Scilly Reds, the tubers of which were found too small to be useful; the tops of these being still somewhat green, though the leaves were mostly gone, they were left in the ground, in the hope they might still improve. Upon taking them up on the 15th October we were not disappointed. This fact proves that though the leaves may be mostly gone, yet, while matured juices are left in the stems, the tubers will grow and increase the value of the crop, other conditions being favourable. Early Potatos in the garden were all that could be desired, both as to quantity and quality; in the field we had quality, but the quantity below average. *T. C. Elliott, Melbury House Gardens.*

"The Question."—Nothing stimulates a man so much to industry and good conduct as the hope of being, in the end, well rewarded for his pains. The Devil knew this when he said, in his malice, "Does Job serve God for nought?" Gardeners are very apt to look upon their remuneration as inadequate, because they do not go into the matter in a business-like way, to see what they really do get. I once tried to convince an old pensioner that he had had about 2*s.* 6*d.* per day for all the years he had been a foot soldier, and he smiled at my view of the matter; but when he saw how I accounted for the Government securities, for the whole term of his natural life, at even 1*s.* per day, and that he would have had to save from 300*l.* to 500*l.*, and let the same out at good interest, to bring in 18*l.* 5*s.* a year, and that this represented a saving of 20*l.* or 30*l.* a year for 15 years, he saw clearly that he had had 2*s.* 6*d.* a day, and something over. Now the only way to right the matter between the gardener and his employer, is to state clearly, in the first place, what the employer really does pay, for he must not be condemned without a hearing. Some proprietors of mines in Wales once sent a deputation to London, to confer with the Government about abatements and allowances; and when the items of cost were fairly set against the selling price, they were all convinced that they had an excellent paying business, for they had never had their balance-sheet so well audited before. The writer of this letter was duly examined by the Income Tax officials, and had to state the value of his salary in cash, and not only that, but the cash value of house-rent, fuel, milk, vegetables, and the use of furniture, bed and table linen, candles, and the like; but this is not all, for comparing town life with country life, and adding to the rent the various taxes usually paid—poor rates, highway rates, inhabited house duty, pew rent in the church, gas, water, &c., all of which the gardener attached to a country mansion or gentleman's seat does not pay, or, in other words, has it saved or added to his wages—and, as there can be no wrangling about figures, it is quite clear that the salaries of some gardeners, like the pay of the soldier abovementioned, are certainly larger than they usually reckon them to be. But two and two will only make four, and not either three or five to please either party. The gardener who has been honourably dealt with by a generous employer usually becomes grateful, and firmly attached to his patron's interest; and the employers described by the late Dr. Lindley as persons who "should be allowed to serve themselves," who use their position as masters to get their work done for less than its fair and just value, need not be at all surprised at the servant copying so plain an example, and using his abilities, not for his employer's interest, but for his own. In Lancashire and elsewhere, where the effects of trade unions are felt, the wages for skilled labour have lately risen to an enormous extent, and these unions, in some instances, have dragged not only their own members but others out of the low wages formerly paid, into a very different state. As an instance of this I would quote that the papers teem with advertisements for masons and bricklayers at 7½*d.* per hour, which, at 55 hours per week, gives 34*s.* 4½*d.*, or within a fraction of 90*l.* a-year, and this, be it observed, is not for masters but for journeymen. When well

educated boys are leaving school they aspire to learn some business, which encourages them to climb after the coveted prize, and, in the case of the 7½ per hour, with an assistant, or labourer, to do the drudgery, always looks forward to the end of his bricklaying apprenticeship as to a land of Goshen not very far off. All the interested parties must be convinced that, unless well educated boys, of good character and strong constitution, can be induced to learn gardening, we shall feel the effects of a low status, and the art will assuredly go down to meet the scale. But how are these men got their wages raised? Simply by the close-fisted and the labouring hand, to combine and persevere, and, with the natural imperfections of human nature, ill-starred ideas have often been entertained to compel numbers to support the union by which their wages had been got up. Still there stands the fact unquestioned, that the whole of the trades have bettered their condition; and it is to the union, with all its faults, that they owe the debt. I will now give one example of the unfairness of prices as affecting gardeners. Taxation, a fifth of the necessaries of life, gets 50 per cent. advance for his skilled labour, whilst the wages of gardeners have been almost a fixture, to my knowledge, for the last 30 years. The science and practice of gardening, like that of railways, is but a thing of yesterday, for it had no literature even in my time. The gathering of Fern seed at stated times, &c., for witchcraft, and the "vertues" ascribed to certain plants, as the Chaste tree, and the superstitious pieces of information to be derived from Herbals and the like, furnish important evidence to show our patrons the "datum peg," or the low-water mark, from which we started; while the great fruit, flower, and vegetable shows will mark the progress that gardening and gardeners have made during the lifetime of living men. My namesake, Mr. Forsyth, got a grant from Government for improvements in fruit growing, and I name it here to show that the Government of that day set a good example, and did not let a public servant who had done some service to the community go unrewarded. The jealousy caused by this grant was discreditable to the Opposition, and some of us can now look and laugh at their failures. For example, the late Thomas Andrew Knight experimented with Pine-apples mounted on shelves to produce their fruit without bottom-heat, to fulfil a theory that the heat should go the other way. One would have thought that the Cucumbers and Melons, and all the host of cuttings from the hot-beds, would have exhorted the President, and warned such a shrewd observer. Mr. Knight's failure to grow Pine-apples without bottom-heat has been like a bell on that rock, and has warned all his followers to give it a wide berth, and this gentleman was louder than any one in condemning the grant to the King's gardener. I am not expecting Government aid for gardeners, but I do expect that as they have a multitude of cares, and as their business requires great attention to be paid to it on Sundays, as well as on other days, and by night as well as by day, some adequate consideration for unremitting labour of head as well as of hand should be given. But some one will say, How are we to know who are gardeners and who are not? Easily enough. You do not mistake the boatman of the bricksetter for the craftsman he is waiting upon, although he may be the best man in dress as well as in person. You have no difficulty in telling who are tailors, and who are not, although nearly half of all the human family "stitch at times." When learned men want to distinguish the human family from others having a brute resemblance, they say man is a cooking animal (using fire) to which the knight of the thimble might add that he is a dressing animal (using clothes), but he certainly is a gardening animal, a real cultivator, which no brute has ever been. All gardeners ought to be able to show that they are, or have been, recognised by some competent authority as such. An indenture of apprenticeship, on stamped paper, after the Scottish fashion, tells the fee paid, the time served, and the restraints used to learn the business. Moreover, it gives dates, and a clue to the history of the man, and subsequent papers will show the times and places where further proficiency has been acquired, without subjecting the gardener to any more prying or examination than would be required by an insurance office before granting a life policy. If a gardeners' club were established in London, with branches in the country, it would soon become impossible to palm off inferior men as well educated gardeners, and the head-quarters would always be something like a home to fall back upon, and a source from which good gardeners could be drawn. We see the value of this in their "Home" in Liverpool. When we had only the wattled hurdle for a house, and the rushes for a floor, the mason of the middle ages came, and was honoured as well as rewarded. He it was that took us out of the hut and the log cabin, and laid the foundations of the church, the castle, and the palace, of which it has been well said, "their very ruins are tremendous." In like manner, the craft confided to old gardeners, or rather to gardeners now living, is so well worthy of being handed down to posterity, that we shall commit a great blunder if we let it slip over one generation. And a society for the preservation of the craft is much wanted. The well-educated youth leaving school with a strong constitution should pay some one a fee, and submit to the restraints of an apprenticeship, and thus the relationship of master and apprentice would be of the greatest value in securing the best interests of both: and as this would add to the gardener's income, it would at the same time make a legal demand for a course of instruction which no man could afford altogether to ignore, which is far from being the case now, where money is paid, and the young man is left to his own resources. Too much stress cannot be laid upon the simple fact that the gardener must be born an amateur, with sufficient force of character to grapple with the difficulties attending a thorough knowledge of plants, and their culture. He should have a great love for the other branches of natural history, and, generally speaking, of what may be termed rural life; for it would be perfectly useless to look for high class attainments where these are wanting. I could at any time during the last 20 years point to men who have been pitched into situations of trust as gardeners by patronage, to the great detriment of better men, and to the utter ruin of the gardens entrusted to them. I recollect an instance of one of these would-be gardeners appointed as one of the judges at an exhibition of fruit and flowers, and when his decision was called in question, he astonished the exhibitor and the other judges by calling sweetwater Grapes "Green Muscats," the said gardener never having grown a bunch of Grapes in his life, and no amount of patronage can bestow this style of practical information. There has been too much fulsome upon-stering in crying out against the low rate of wages for gardeners, without stating honestly both sides of the question; for one gardener of the above-named stamp would of himself be able to weigh down the scale against ten meritorious men. Far be it from me to speak slightly of patronage when it is bestowed on real merit by those who are competent to judge, but few will deny that among the number of young gardeners now learning the business, as well as among the young men with whom the writer of this letter has been associated, a goodly portion never could be good gardeners, for they never took root in their business. I am happy to be able to state, however, that the greater part of those who really loved the craft, and studied hard to master it, among my acquaintances, got well rewarded. The gardener's wages and the comforts of his residence, and the like, can never be of the slightest importance as influencing the fortune of his employer, and therefore it is too often from sheer thoughtlessness that his interest is overlooked. If we could only get young men to understand the great value of high moral training, which is a cheap commodity, then when high class information has been engrafted upon that stock, the fruit will, generally speaking, be forthcoming in due season. *Alex. Forsyth.*

Notices of Books.

Field, Forest, and Garden Botany; a Simple Introduction to the Common Plants of the United States East of the Mississippi, both Wild and Cultivated. By Asa Gray. New York: Ivison. 8vo., pp. 386.

In our student days, we hardly know why, unless from a supposed difficulty (purely imaginary) in procuring specimens, it was the fashion for students of botany to disregard, or even disparage, the study of any but "wild" plants. The fact that such and such a flower was a garden plant was, with many students, a sufficient reason for casting it aside without more than a passing glance. Of course, we are speaking of those who studied botany because it was part of the curriculum, and who "crammed" as much of the subject as was necessary for a "pass," never cared to digest what they had learnt, and, having obtained their object, straightway forgot all they had learnt. In the case of the few who studied botany for its own sake, and because they liked it, there was still a difficulty about garden plants, because few or none of the ordinary text-books make more than a passing notice of them. This has always seemed to us a great oversight, because garden plants are often more readily and constantly accessible than wild ones; they have as a rule larger and more conspicuous flowers, so that their structure is more readily made out by the inexperienced student, and they present a greater range and diversity of conformation than do wild plants. Again, if the student be desirous of studying the comparative anatomy or morphology of flowers, garden plants and garden varieties, such as double flowers and the like, offer facilities not possessed by our native plants. For physiological purposes, for investigations into the life-history of plants, garden specimens are indispensable. Some such opinion seems to have induced the eminent Professor of Botany in Harvard University to draw up the present volume. "It is very desirable," says he in his preface, "that students should be able to use exotic as well as indigenous plants in analysis; and a scientific acquaintance with the plants and flowers most common around us in garden, field, or greenhouse, and which so largely contribute to our well-being and enjoyment, would seem to be no less important than in the case of our native plants. If it is worth while so largely to assemble around us ornamental and useful trees, plants, and flowers, it is certainly well to know what they are, and what they are like." Hence "one of the main objects of this book is to provide cultivators, gardeners, and amateurs, and all who are fond of plants and flowers, with a simple guide to a knowledge of their botanical names and structure."

Of course, the book will be mainly serviceable to American students, but it will be of use also on this side of the Atlantic, and may serve as a model for some one to draw up a similar work for this country. There are one or two similar works in the French language, but none in English that can boast anything like completeness. The present work consists of a description, in as simple language as possible, of the majority of the more conspicuous and easily studied plants of the United States, east of the Mississippi, and of the principal garden flowers. These are all arranged according to their natural orders. The name of Professor Asa Gray is an ample guarantee for the accuracy of the book, which is intended to be used as a companion volume to the "First Lessons in Botany" by the same author.

It is curious to see how the idiom of the language is changing in America. One would hardly expect to notice this in a technical work written by so accomplished and correct a writer, and yet it seems strange to English eyes to read "for" in cases where we should say, "in honour or in commemoration of." Thus "Martynia, named by Linnæus *for* Prof. Martyn," meaning, not as might be inferred that Linnæus had been requested by Martyn to name his plant for him, but simply that he bestowed the name "in honour of" Martyn. And so in the case of "Paulownia, named *for* a Russian Princess." The same expression is made use of in every case where a genus is named after a person else we might have thought it accidental. As it is, we point it out as an instance of a change in language going on in our own time, pretty much in the same way that species are supposed to be undergoing modification.

—— Some time since we had occasion to speak in terms of high commendation of the series of elementary Atlases intended for use in village schools and similar institutions, and published by Messrs. W. & A. K. Johnston, of Edinburgh and London. We may now announce the publication, by the same firm, of a similar series of *Atlases of Physical Geography*, at the extremely low price of 2*s.* 6*d.*, 1*s.*, and 6*d.* respectively. The maps are not so clear as was the case in the preceding series, indeed too much seems to have been attempted in a little space, nevertheless they will be of service for giving instruction in the main physical and climata peculiarities of the globe.

Florists' Flowers.

NOT many years since the HERBACEOUS CALCEOLARIA formed an important feature of our large metropolitan exhibitions, and though it is scarcely represented now, there is reason to hope the day is not far distant when it will be once more seen, in all its gay and gorgeous hues of colour. Probably one of the most attractive features of the exhibition held at the Crystal Palace in May last was a group of seedling Calceolarias exhibited by Messrs. Dobson & Son, Woodlands Nursery, Isleworth, for crowds of visitors hung about them as if they were something altogether new, and not a well-known flower with which every florist has been familiar from his childhood. The old tall-growing type of herbaceous Calceolaria, that used to be exhibited of a size so large as to resemble in bulk one of Mr. B. S. Williams' splendid Crotons, appears now to be a thing of the past; but with it has gone to a great extent that ideal of form that used to be so much worshipped by florists 20 years ago. "The flowers should be smooth and full, like a small distended bladder, not flattened, nor indented like a Melon, perfectly round in the outline whichever way it is viewed." I have no doubt but that when Mr. Glenny wrote this, he had the shrubby rather than the herbaceous Calceolaria in view, for it must be confessed that a higher type of perfection of form is found in the shrubby rather than in the herbaceous Calceolaria. Mr. James, of Isleworth, whose strain of herbaceous Calceolarias is now among the very finest in cultivation, claims to have obtained his dwarf growth by crossing with the shrubby varieties. This was a decided gain, whether obtained in this way, as Mr. James states, or whether it was simply the result of selection. If by the former, then it is surely well worth another effort to bring about what is now badly wanted in all our finest strains of herbaceous Calceolarias—an improved form, and, if it can also be obtained, an admixture of the rich dark hues found on the flowers of the shrubby kinds.

It was my privilege during the past summer to inspect, when at their best, the splendid groups of Calceolarias grown by Mr. James and Messrs. Dobson & Sons. Actually these two strains, so-called, may be termed identical without adding to or detracting from the glory of either. I thought Mr. James had a greater variety of colours, and of these there were some pretty new types in the mauve spotted way, and the indication of a near approach to a decided purple spot, while there was a larger preponderance of dark flowers—rich shaded crimson hues—than has generally appeared. Not that the mauve type was absent from Messrs. Dobson's strain; but if there was less of variation, it was to a great extent compensated for by some brilliant golden flowers of great size, handsomely spotted with dark crimson; and here, too, were some grand dark flowers. Equally as good as either of these, except in the matter of variation, was a fine strain in the hands of Mr. George Wheeler, Warminster, which I saw at the meeting of the Bath and West of England Agricultural Association during the past summer; but all of them are wanting in that which will no doubt soon be reached—perfected form. Flowers, wonderful in point of size, have been seen this season, but in many instances, long, flat, and indented, and the orifice and upper lip large and wide apart. Then in the matter of variation, we have perhaps branched out widely enough for the present, for "the colours and the markings of the Calceolaria are becoming exceedingly numerous, and within the last few years they have been diverted from their general characteristic in an extraordinary manner, and from speckles and blotches of all forms and sizes they have produced blossoms with stripes like a Carnation, ramifying from the hollow which is at the top, like rays from the centre to the outer edge." So said Mr. Glenny in 1860, and if to these positive gains of dwarf habit and variation some of our growers can presently add "the roundness and freedom from indenture—so large a majority of the present varieties are deficient in these respects"—then we shall have attained comparative perfection with the Calceolaria.

But little propagation of the Calceolaria by cuttings appears to be attempted now. Growers like Mr. James, who exhibit occasionally, grow on a few good varieties for the purpose, and name them, and the splendid specimen plants he sometimes produces represent three or four years' growth. Sometimes too, a fine variety, having the quality of form in a high degree, is propagated for the purpose of getting seed to improve the strain. The Calceolaria is now almost generally grown from seed. The latter part of Aguust or the beginning of September—if there be ample convenience for wintering the plants, and giving them every encouragement, or even earlier in cases where house-room is limited, and the plants have to struggle against fate—is a good time at which to sow the seed. It should be sown in pans or large pots about 10 inches in diameter. If pots are used, they should be filled about half way up with crocks; and over this soil, say composed of equal quantities of peat and good rich loam, passed through a fine sieve, and to which should be added a liberal quantity of silver sand. Sow the seeds very thinly, as they are so minute, and after slightly shaking over them a little fine soil, water with a very fine rose. Perhaps as a general rule it is best to press the seed slightly into the soil rather than to attempt to cover it. Place the pots or pans in a frame, and protect them well from the mid-day sun. By placing a piece of glass over the pots, the soil will be kept regularly moist without too frequent waterings, and thus the germination of the seed will be greatly facilitated. As soon as the plants can be handled they should be pricked off into larger pots, about an inch apart, using a compost containing less of peat and more of loam in it. As soon as the plants thus transplanted begin to touch each other, plant them out singly into small 60-pots, and continue to shift them into pots a size larger as the fibres touch their sides. With a little attention, and the usual treatment during the winter and spring months, they will make fine plants, and bloom early in summer. All plants exhibiting a bad, weakly, and straggling habit should be thrown out as worthless.

I am afraid that the interesting class of shrubby Calceolarias is dying out, although it has been said respecting these that they "are more hardy and easily

managed." Round London they appear to have almost entirely passed from sight. Occasionally they are to be met with in some remote country show, and when seen are invariably well grown, and highly effective. It is to be hoped that they will be taken in hand again by some one ere long, and presented to us in new and more attractive colours, combined with that fine free style of growth that some 15 years ago used to be seen at the Royal Nurseries, Slough. *R. D.*

The Apiary.

SUPERS.—I do not wonder at tradesmen who retail honey being unwilling to heave over a heavy box of 30 lb. and upwards every time a comb is required. The box is properly kept bottom upwards not only during carriage but on the tradesman's counter, to exhibit the comb to his customers; then, if the combs are to be lifted out by the bars, which is unquestionably the only neat way of doing it as boxes are at present constructed, a great weight has to be turned over, and a risk run of making a mess by setting honey running, which had dripped down into the top of the box as it lay undermost. The alternative, to break out comb as the box lies, is a clumsy and troublesome business too. Could not all this be prevented by a different construction of the boxes, according to a plan that Taylor recommends in the case of straw supers? Let the top of an octagonal super be formed of two boards, glued together across the grain, one made to fit the inner diameter of the super, and a quarter of an inch thick; the other made wide enough to cover its outside diameter, and of thicker material. This could be fastened to the super's sides with screws. Now, when it is desired to remove any combs, all that would be necessary to do it with perfect ease would be to unscrew the top, place the box on its top, turned down, to remain there, and remove the sides of the box all at once, leaving the combs standing up on a flat board, and thus in the easiest of all positions to cut them from their foundations. Of course it would be necessary to fix guides to the flat board-top, and I see different ways of doing this, and at the same time leaving a flat surface for cutting from. A glass case, instead of the box, may be used to cover the combs when lying on the tradesman's counter.

Square or oblong boxes are still more easily constructed, so that the comb will be available by this method. Large boxes may have two opposite sides made movable by being fastened by screws, and brass hooks and eyes may be added to come into use when the screws have been taken out. One movable side would be sufficient for a small box. I have seen such boxes as the above with a pane of glass over the mouth, as they lay on a tradesman's counter, showing the honey beautifully through a couple of windows, while the comb was taken out with the greatest ease, and without the loss of a drop of honey. *A. B., Narberth.*

ABOUT a month ago I placed a small super, weighing about 6 or 7 lb., over a hive of bees, as it was wet weather, and they could not get out. I thought they would clear out the combs, so that I should have them clean and empty for next summer's campaign. Can you tell me whether it is necessary to remove the supers, and if so, how soon? It seems a great pity, such cold weather, to subject the poor bees to ejectment. My hive stands in a bee-shed, of which the back is open, but sheltered by a wall. Will it be necessary to wrap it round with hay-bands, or any other covering? The climate is very damp, and the situation windy, but the front and sides of the hive, and the top, are all covered in. *Lancashire.*

[We do not approve of allowing partially filled supers to remain on during the winter. Unless the stock is very strong in bees, or only poorly supplied with stores, it is more than probable that the bees will already have descended from the super. In that case it would be easy to remove it. At any rate, on some cold morning you could lift it up to see whether there are many bees there; if so, wait until some very mild day, when, having removed the super, place it in a warm room, facing a partially open window; the bees will return to the parent stock without injury. The cover of the hive must, of course, be put on as soon as possible after the removal of the super. We do not, in the south of England, need to wrap up our hives, when protected by a bee-house, with hay bands, cloths, or other material. Possibly in your climate a mat made of loosely twisted straw might be of advantage. It should be so managed as to throw off any rain that may drive in from the back of the bee-house. The great thing, however, is to have your stocks very populous, and well provided with stores, when the bees will be able to stand any of our winters without any other protection than what may be just sufficient to shelter them from rain.]

Garden Memoranda.

MEADOWBANK, THE RESIDENCE OF THOMAS DAWSON, ESQ. (*continued from* p. 1140).—Proceeding from House No. 3, we enter No. 4, which is a large span-roofed structure, erected for the cultivation of the Camellia, of which there is here a fine collection, some of them being planted out in the centre of the house. The side stages are arranged for effect with flowering Orchids and foliage plants. Extending the entire length of the stage are a great many fine plants of Odontoglossum grande, on many of which I counted eight or ten spikes of bloom in grand perfection—the total number of expanded blooms at the time being between 800 and 900. So gorgeous a display may be more easily imagined than described. In front of these was a row of Epidendrum vitellinum, mostly large plants, and producing their brilliant orange-scarlet flowers in vast profusion, and, belted with foliage plants and other Orchids, it looked as if the idea it was to carry out the fashionable style of ribbon borders. The following Orchids were also noticed, either as fine varieties, or as specimens of gigantic proportions:—Oncidium incurvum, 4 feet across, but getting past its best, though even then I counted 23 spikes of bloom in fine condition; Odontoglossum falcipetalum, O. Kramerii, O. Lindleyanum, O. Uro-Skinneri, Trichopilia turialvæ, with upwards of 100 flowers; Oncidium excavatum, a specimen 2 yards across, and having 17 of its large spikes just in perfection, was of itself worth a day's journey to see; O. serratum, O. obryzatum, O. incurvum majus, Lycaste Schilleriana, &c., all in flower. I cannot leave this house without alluding to one other specimen, although it was not in flower; this is Angulοa Clowesii, which measures about 5 feet across, and invariably produces about 70 flowers. The growth of this fine specimen this season is as good as ever.

House No. 5 is in two divisions—the first being occupied by a collection of Amaryllis, in the cultivation of which Mr. Dawson takes great interest, and possesses one of the most complete collections in the country; but being their dormant season, I had no opportunity of making notes on varieties. The second division contains a great number of fine specimens of Aerides Lobbii and Saccolabium curvifolium; in this house are also several plants of Saccolabium guttatum, and S. præmorsum; Phalænopsis amabilis, and others, amongst which was a fine plant of P. cornu-cervi, and the curious Plocoglottis Lowei, besides a quantity of the finest Cypripediums.

House No. 6 is chiefly devoted to a collection of Cattleyas in magnificent condition, and far too numerous to name and describe here; the collection consists mostly of fine specimens of the leading kinds found in trade catalogues. Conspicuous also in this house were grand examples of Gomezia planifolia, Polystachya pubescens in flower, Oncidium ensiferum, Oncidium reflexum in flower, Lælia autumnalis, a great quantity, with scores of flower-spikes, sufficient in themselves to create a grand display during the dull season; Maxillaria venusta, Lælia flava, Lælia cinnabarina, Trichopilia suavis, T. picta, and T. crispa; Epidendrum dichromum amabile, Zygopetalum maxillare, Odontoglossum Insleayi, O. hastatum, O. hastilabium, O. Uro-Skinneri, O. cristatum, O. pendulum roseum, and O. nævium, the two last being enormous specimens; Epidendrum campylostalix, Cattleya citrina, Sophronitis grandiflora and others, were suspended from the roof of this house, and doing admirably.

House No. 7 is certainly the crowning point of the whole; indeed I hesitate to note the gigantic proportions of the specimens contained in this house, more especially considering the extreme rarity of some of them; I shall, therefore, confine myself to the names of a few of the most familiar species, which in most instances may not only be seen in fine specimens, but in great variety and quantity, the following being prominent:—Dendrobium Parishii, D. formosum, D. albosanguineum, D. Bensonæ, D. Farmeri, D. taurinum, D. Veitchianum, D. sessile, D. crepidatum, D. primulinum, D. cumulatum, D. macrophyllum giganteum, D. Wardianum, D. Devonianum, D. chrysotoxum, and D. crassinode, with Dendrochilum glumaceum, D. filiforme, and Aerides maculosum. On the centre stage are some Vandas of remarkable size, 5 or 6 feet high from the pot, clothed with foliage to the bottom, many with four growths and upwards, while one specimen has 50 growths of various sizes, Vanda Batemani is 8 feet high, Vanda Lowei 4 feet, Cypripedium villosum, 3 feet across; Oncidium Lanceanum, very fine and in great quantities; also Cattleya Dowiana, C. amethystoglossa, Oncidium Cavendishianum, O. Limminghei, and great quantities of Aerides, such as A. Larpentæ, A. nobile, A. "fox-brush," and A. roseum; Vanda Bensoni, and V. Hookeri; the old Ansellia africana, unusually fine; Angræcum sesquipedale, A. eburneum, A. caudatum, Chysis Limminghii, Cœlogyne pandurata, Saccolabium ampullaceum, Cattleya superba, all fine specimens, together with numerous other fine species and varieties of little moment to the general reader, many being comparatively unknown except to those who are continually novelty-hunting.

House No. 8 contains, amongst a general temperate collection, the following, most of which may be counted by the dozen, the plants as a rule being small, but in fine health:—Cattleya Warneri, C. Mossiæ, C. bicolor, C. Trianæ, C. speciosissima, C. Skinneri, C. Leopoldi, C. Dawsoni, C. bulbosa, &c.; Lælia anceps, and its varieties Dawsoni and Barkeri, L. purpurata, L. gigantea, Epidendrum rhizophorum, very large and in flower; E. nemorale majus, one of the finest Orchids, and a noble specimen; Trichopilia coccinea, T. suavis, T. crispa; Oncidium Forbesii, O. Papilio, with upwards of 30 flowers expanded, quite a feature in themselves; O. sarcodes, grown in small pots, suspended from the roof in quantity, and very fine. There are here, also, many Dendrobes, amongst which were fine examples of D. heterocarpum, and other fine species. One other plant, deserving of special notice, is a magnificent specimen of Lælia superbiens, fast rivalling the famous Broomfield plant. Adjoining this house is a lean-to frame, in which are some fine examples of the lovely Disa grandiflora in flower.

House No. 9 is devoted to a small but choice collection of novelties belonging to the cool Orchid section, amongst which are several gems of sterling merit, either as new and rare species, or older ones seldom seen in such good condition. The following are a few species, which are evidently quite at home in this house, a portion of which is partitioned off, and forms a sort of closed box, having a northern aspect; the plants are close to the glass, and kept very cool, and I never saw Lælia majalis anything near so fine as it is here. Barkerias, too, are doing well, in the other portion of the house, and occupying one end are several plants of Flore de San Joseph (Epidendrum erubescens) growing in wild luxuriance on the stage, uncontrolled by pots or other incumbrances; Lælia albida, and its varieties, by dozens, Lælia furfuracea, Oncidium leucochilum, O. ornithorhynchum; Odontoglossum Phalænopsis; some of the Lycastes—one new species very fine, and a beautiful Odontoglot, which will doubtless be shortly described and named.

There were various other houses, devoted to other objects, but it is not my purpose here to enter into any details of the contents of these houses; suffice it to say, that there is here also a good collection of miscellaneous plants, Mr. Dawson having many pet varieties amongst them. Long may he live to enjoy the fruits of his labours, and maintain the proud position he has so deservedly won, and in which he has been so materially aided by Mr. Anderson's skill and sagacity. *Robert Bullen, Curator, Royal Botanic Garden, Glasgow.*

Miscellaneous.

Gigantic Trees.—Passing and stopping for a few hours at Pueblo Nuevo, with its curious Cactus fences, I put up for the night at Nagarote, where I measured a famous Genisaro tree (Pithecolobium Saman, Benth.), belonging to the Mimosa tribe, of which the villagers are justly proud, and for which 200 dollars have been offered—a high price in a country where timber abounds; and yet they had the public spirit—the rarest of virtues in a Spanish American—to refuse the offer (others say the Government made them refuse). The tree, of which a woodcut is given in Squier's "Central America," is but 90 feet high; but some of the lower branches, which are quite horizontal, are 92 feet long and 5 feet in diameter. The stem, 4 feet above the base, is 21 feet in circumference, and the crown of the tree describes a circle of 348 feet. A whole regiment of soldiers may seek repose in its shade. If this vegetable monster had been a denizen of any part of the eastern hemisphere, it would have become a fit object of tree-worship, that singular religion which flourished long before temples and churches were thought of, and which enjoyed a more extensive geographical range than any creed has done since. At one time it was diffused over the whole of Europe, Asia, Africa, and Polynesia. Throughout Europe and some islands of Polynesia it has been supplanted by Christianity, in parts of Asia and Africa by Mohammedanism; but nowhere have its rites been entirely suppressed. Deprived of their religious character and import, many of them have survived to this day, everywhere associated with mirth, good feeling, and festivity. No trace of tree-worship has been noticed amongst the natives of Australia, nor amongst those of the New World, though it had penetrated to the eastern-most islands of Polynesia. The fact is most singular, as no continent boasts of such magnificent and venerable trees as America. In the virgin forests of Brazil there are trunks of such gigantic size that fifteen Indians with outstretched arms could hardly span them; trunks which, by counting the concentric rings of their wood, must have been in existence when Homer wrote his immortal poem. In Upper California and along the whole north-western coast of America the vegetation attains enormous dimensions and age. Three hundred feet is no uncommon height for a tree, and some of the Wellingtonias overtop St. Peter's, and almost rival the height of the pinnacle of Cheops, whilst their age is such that they must have been in full growth long before the Saxon invasion of England. Yet these peculiarities do not seem to have made any impression on the mind of the American Indian, evidently proving that size, venerable look, and age of trees are not sufficient to account for their worship by the largest section of the human race. Indeed, tree-worship can scarcely have sprung from simple admiration. We have plenty of people among us with a strong leaning that way, and can pretty well judge of its range and scope. The Rev. Charles Young tells us that from childhood nothing in Nature had a greater attraction for him than trees; and a giant tree, such as that of which the bark existed at the Crystal Palace, had been the height of his ambition among the sights of Nature. To gratify this feeling he made purposely a voyage to the Amazon, of which he has given an interesting account to Galton's "Vacation Tourists," and one might suppose that when at last he found himself among the vegetable giants of Brazil feelings superior to those of gratified curiosity would come to the surface. But there was nothing of the kind; even a botanical interest does not appear to have been roused in him. Mr. Young's predilection is rather prevalent in the United States, where travellers are almost bored to death by being taken to see big trees. Dr. Russell, who went thither for a very different purpose, and during a period of great civil commotion, repeatedly mentions his being forced to visit such objects; and he tries to account for the admiration Americans have for their vegetable monsters by the fact that in the United States few things are old and venerable, and any exception to that rule is carefully noticed. I remember, in passing through Cambridge, Massachusetts, seeing a black board, recording that the mayor and aldermen of that town had been such Vandals as to cut down an old and large tree which stood in the middle of the road, and underneath was written with chalk, "Let this be remembered at the next election!" A ride of three days from Managua, by way of Tipitapa and Juigalpa, brought me to Chontales, the finest and most fertile district of Nicaragua. Approaching it from the west, as I did, you find yourself amongst rich undulating grass-lands, which even at the end of the dry season retain their verdure and afford pasture to thousands of heads of cattle. On nearing Libertad, the ground becomes more elevated, the climate considerably cooler, and you get occasional glimpses of the Lake of Granada, with its islands and majestic volcanoes... Close to Libertad commences a dense virgin forest, which extends to the Atlantic seaboard, and a singular feature of which is, that the stems of

the trees are of a very light grey, as well indicated by Mr. George Chambers in some of his clever sketches; but the correctness of which I was inclined to doubt until I had actually seen it in the landscape itself." *Dr. Seemann's "Bottings in Nicaragua."*

A Natural Left-Right.—"Only a traveller's story!" such used to be the reception of many curious and wonderful "natural history" facts related by travellers before the beginning of the present century. The study of Nature was then in its infancy, or more correctly speaking, illustrations in aid of the study were then few in comparison with those of the present day. The increase of the facilities for travel during the last 50 years has been the means, more than all other items in the progress of civilisation, of making us acquainted with Nature's work, and has also proved, in general "travellers tales" to be true, or at least "founded on fact." If our grandmothers had been told that in "outlandish parts of the world" there grew water-lilies with such big leaves that one of them would support herself and her good man sitting comfortably in their easy chairs,—"Ah! only a traveller's tale!" would have been the answer. But in her days there were no such journals as "Land and Water," and natural history was then treated almost as a mystery, and not, as now, a popular study. Although we are all familiar with the wonderful tales told by voyagers on the Amazon of the buoyant power of the leaf of Victoria regia, now a common and well-known water-plant, I have not seen recorded the actual weight supported: it may therefore interest your readers to mention an experiment made here last week:—A leaf was selected, the worst but one of eight on the plant, as we did not like to destroy the best; it was, however, pretty perfect, only a few holes within 6 inches of the margin; diameter 5 feet 6 inches. On this leaf I placed a wheel 3 feet 6 inches diameter, with eight spokes made of thin wood, and a small footboard, on which I stood and floated "high and dry;" the wheel was necessary to distribute the pressure over a considerable portion of the surface, the texture of the leaf being exceedingly tender (the footboard did not touch the leaf, but rested on the spokes of the wheel). I have no doubt that if the wheel had been of the same diameter as the leaf it would have served as a life-raft for a small family, as the next experiment will show. The wheel and footboard were removed from the leaf and its surface left quite free; we then gradually spread over the surface shell gravel previously weighed out in lots of half cwt.; basketful after basketful was shovelled on up to 3 cwt., when the gardeners standing by would not believe their own eyes, and began feeling under the leaf thinking there must be some other support than water,—but no, the leaf floated quite free, —another 20 lb., and another, and another, was thrown on, and yet the good ship remained seaworthy and no signs of foundering; 426 lb. called, water began to leak in through the holes; the excitement or, perhaps, the heat of the "stove" in which we worked, made us rather hasty and unsteady in loading cargo, the weight of which was being augmented by the leakage, and an unlucky cast tilted the leaf on one side, the water rushed over, it crumpled up like a sheet of paper and sank in deep water, carrying with it a load of 436 lb. (besides water). This is the greatest weight I have yet seen a leaf support, and the eight now on the plant may be considered equal to 1½ tons. *William Sowerby, Botanic Gardens, Regent's Park, in "Land and Water."*

Coal Plants.—The Lepidodendron was as abundant as the Sigillaria, and though nearly related to it, it had a very different appearance. The stem was covered with beautiful markings, arranged spirally, and was repeatedly branched like our ordinary forest trees. The leaves were short and flat, and the fruit was a cone produced at the end of the branches. Although as large as the cones of many Fir trees, it has all the characteristics of the small cones of the Club Moss. This tree grew to a eight of 50 to 70 feet. *World of Wonders.*

Garden Operations.

(For the ensuing week.)

PLANT HOUSES.

We are now entering upon the dullest and most unfavourable period of the whole year, so far as the culture of plants under glass is concerned. The artificial heat, which is necessary as a security against frosts, and, in the case of soft-wooded plants, is needed to dispel the excessive dampness so characteristic of our atmosphere, should receive our constant attention. If we are to grow plants to anything like fair specimens, or indeed, if we only wish to keep the general stock in good and thriving health, we must aim at something more than giving waterings at regular intervals, affording air daily, and keeping out the frost. As the days shorten, light decreases; so that everything should be discouraged which tends to keep a plant in active growth, except so much as is needed to insure permanent healthiness. The nearer we approach to the shortest day the more fully should these rules be carried out, by gradually affording less heat and moisture, without, if possible, decreasing the amount of fresh air. Now, in regard to the supply of water during the winter months, it is well known that plants in general thrive better, and imbibe the proffered nutriment with far greater zest, if, as in the case of root waterings, it is afforded somewhat sparingly; or withheld until the ball attains an extent of dryness short of incurring a risk of the plants flagging. When we consider that these rules can be safely acted upon during the dry summer months, with perfect immunity from injury to the plants, it will be readily seen how very essential it is to the well-being of individual specimens—more especially those at rest—that all root waterings, save those that are absolutely required for their existence, should be withheld at this time, when no great tax, either from direct sun-heat or atmospheric influences is likely to be placed upon them. For this reason, I would not place any specimen which should now be undergoing a season of rest near to any form of artificial heating apparatus, because if the ball is forced into a dry state, a corresponding frequent supply of water must in the course of things be given. This acts as a stimulant to active growth, and a derangement of the system consequently follows. In most structures there are of necessity some certain corners or positions where, during severe frosty periods, the forced heat will make itself felt; here we should place what soft-wooded plants we require in continuous activity, or those of any variety that we value the least. Those specimens of the lovely *Hedychium*, which have ceased to flower should now be removed to an intermediate house, in a dry warm corner of which they may be permitted to ripen off the old growths, which will then die down and make room for those which will be produced successively in the ensuing spring. *Anomatheca cruenta* is one of the prettiest little bulbs we know for pot culture. If potted about this time in sandy loam they will make a good growth of bright green foliage during the winter; and commencing to bloom late in May, will produce a succession of brilliant crimson flowers, tinted with scarlet throughout the summer. *A. juncea* is another pretty free-flowering variety, with pink flowers, having a dark blotch at the base. I may state that the former of these makes a very pretty display when planted separately in a bed in the open ground. As natives of the Cape of Good Hope, their general treatment will be understood without further comment being needed.

FORCING HOUSES.

The necessary preparations must now be made preparatory to commencing forcing the earlier *Vineries*. In cases where the roots are growing in outside borders, the necessary protective substances should be obtained, and a good covering of fermenting materials should be properly prepared and placed thereon. It is a good plan to place a nice layer of well-ripened bracken Fern over the surface of the border, upon which to place the warm material. This, whilst it neutralises the intensity of the heat upon the immediate surface of the border and near to the surface roots, affords them additional encouragement to grow, and aids in retaining the body of heat both latent and artificial. I have recently stated that hot stable litter, if moderately sweet, or, next to this, heated leaves, afford the best possible medium withindoors to aid Vines in breaking, or making their young shoots. In structures of moderate extent advantage should be taken of such assistance. The renewal of the heat in tan beds connected with *Pines* generally should be seen to in the early part of this month, when the tan beds are finally made up for the mid-winter season. The pots may be cased up to and around the rim where there is any certainty that no further fluctuations of any consequence will occur. Gradually reduce the artificial temperature to 62° or 63° by night, with an increase of 8° to 9° by day, this, of course, with an additional increase of 7° or 8° by sun-heat. The bottom-heat should not greatly exceed 75° or 77° by the middle of the month. Attend to the necessary shifting of *Cherry trees* grown in pots for early forcing. The same advice applies to *Fig trees* under like circumstances. Top-dress such as do not need fresh potting with an admixture of good rotten manure and fibrous loam. Place this upon the surfaces of the old balls, after first removing all unnecessary or loose soil therefrom.

HARDY FLOWER GARDEN.

Auriculas should now be placed in the cold pits or other places where it is intended they should winter. *Climbing plants* generally attached to walls should be first pruned back somewhat, and then nailed in, preparatory to covering up any of the semi-hardy ones which may need protection, such as the Banksian and other tender Roses, &c. Lose no time in planting-out, or potting for future planting all bulbs intended for blooming in the outer borders. Our best old gardeners used to fix the 9th November as the latest date when all such should be got in, considering that they would then have time to root and establish themselves ere severe weather set in. In the last Calendar, under this heading, for "October," read "November."

KITCHEN GARDEN.

Those who have not attended to the storing away of their *Root-crops* will have run some risk of getting them frozen, for already we have experienced somewhat severe frosts. Those who have delayed the operation so long should lose no further opportunity. *Potatos*, whether withindoors, in sheds, or in clamps, will require constant attention, as indications of disease are exhibiting themselves in cases where few if any of the symptoms were seen at the getting-up time. All diseased tubers should be sorted out and removed at the earliest possible time. Take advantage of each fine day to push forward the final earthing-up of successional or late *Celery* and *Cardoons*. The sharp weather we have already had should induce additional activity upon all proper occasions. Bank the main crop up substantially as an additional security against any sort of weather which may ensue. *W. E.*

TOWN GARDENING.

Grass-plots and verges should not be mown again this season. They should be well swept and rolled, and, to give the walks a neat appearance, the margins should be cut with the edging iron. Collect together all dead leaves and cuttings off bushes, and prepare them for manure by burning them, and mixing the ashes with rotten grass which has previously been collected into a heap. This should be well turned over and mixed thoroughly together; it will then make an excellent manure for digging into the beds and borders. If a larger stock of *Chrysanthemums* is required, continue to take off suckers from large plants, pot them separately in 60-sized pots, and keep them through the winter in a cold frame. Freshly planted trees and shrubs should be securely staked, to prevent them from being disturbed in the ground by the wind. This is of the utmost importance to their well doing, and therefore should not be neglected for a single day. If a covering of leaves or rotten dung be spread on the ground to cover the roots, it will greatly facilitate them in making a fresh growth. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Nov. 3, 1869, as observed at the Horticultural Gardens.

October and Nov.	Moon's Age.	Barometer. Max	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind	Rain.
Thurs. 28	☾	29.775	29.737	45	37	41.0	44	47	N.W.	.00
Friday 29	24	30.134	30.064	51	28	39.5	45	46	N.	.00
Satur. 30	25	30.076	30.031	52	32	42.0	45	46	N.	.09
Sunday 31	26	30.172	30.150	50	36	43.0	47	46	W.	.02
Mond. 1	27	30.237	30.196	54	41	47.5	48	46	W.	.00
Tuesd. 2	28	30.232	29.856	58	43	50.5	50	47	W.	.00
Wed. 3	●	29.847	29.650	57	40	48.5	51	48	N.W.	.08
Average.		30.067	29.955	52.4	35.7	44.5	47.1	46.6		0.16

Oct. 28—Sharp frost; fine, overcast; cold wind, starlight.
— 29—Fine; very fine, cold wind; overcast at night.
— 30—Densely overcast; slight rain; overcast and cold.
— 31—Foggy, densely overcast; heavy air; overcast.
Nov. 1—Cloudy, but fine; overcast, clear and fine.
— 2—Densely overcast; very fine; overcast, very mild.
— 3—Very fine; densely overcast; cloudy, heavy rain.
Mean temperature of the week, 1 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending Nov. 13, 1869.

November.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday.. 7	52.1	36.7	44.4	20	1.02 in.	2	8	2	3	4	13	7	4
Mon. .. 8	52.0	34.3	43.1	19	0.58	2	6	2	2	2	16	9	5
Tues. .. 9	50.5	33.8	42.2	16	0.40	3	6	5	3	5	10	5	6
Wed. ..10	50.4	34.0	42.2	24	0.67	4	8	4	2	9	11	2	3
Thurs. ..11	50.2	34.2	42.2	15	1.02	3	7	7	1	7	9	7	3
Friday ..12	50.2	33.8	42.0	17	0.50	4	7	9	3	3	8	7	2
Satur. ..13	49.9	35.2	42.6	22	1.16	3	9	5	2	7	6	7	4

The highest temperature during the above period occurred on the 12th, 1841—therm. 63 deg.; and the lowest on the 9th, 1864—therm. 17 deg.

Notices to Correspondents.

Boiler: *Subscriber of 20 Years.* The saddle boiler, which is one of the shallowest, is also one of the most efficient of boilers. We cannot recommend one that will meet your case better. Of the different saddles, that called the Terminal saddle is probably the best.

Cloches: *H D H* (see p. 1140). We do not know if they are to be had in Dublin. People should advertise their wares.

Coke: *Subscriber.* Coke gives off, weight for weight, more sulphurous vapours than coal.

Colletia cruciata: *G.* We believe this to be a true species.

Cucumber Roots: *I O U.* Your Cucumber roots are attacked by a minute worm of the genus Vibrio. We see both eggs and the perfect insect, but in small quantities. You had better burn the roots, and take care not to use the soil again in which they have grown. *M J B.*

Gherkin: *Cucumber.* Cucumis prophetarum—the variety of Gherkin commonly found in the bottles of West Indian pickles.

Late Vinery: *J Wright.* If the wood is not ripened off, give a little fire-heat and plenty of air.

Names of Fruits: *J J, Constant Reader. Pears:* 1, Vicar of Winkfield; 2, Winter Crassane; 3, Beurré Diel; 4, not known; 5, Bishop's Thumb; 6, Flemish Beauty.—*J O U. Apple:* Boston Russet.—*C D.* Apple probably Potts' Seedling. Specimen sent very scrubby.—*George Browne. Pears:* 3, Crassane; 54 and 55, Beurré Diel; 19, Urbaniste; 15, Knight's Winter Crassane. *Apples:* 3, Dumelow's Seedling; 4, King of the Pippins; 1, Winter Strawberry; 5, Nonsuch; 6, Ribston Pippin; 7, Stagg's Nonpareil; 9, Alfreston; 10, Gloria Mundi; 2 and 8, not known.—*C E. Pears:* 1, Gilogil; 4, Old Colmar. *Apples:* 6, Dutch Codlin; 8, Zimt Reinette; 10, Golden Russet; 11, Winter Majeting; 12, Cornish Gilliflower; 15, Nonpareil Russet; 16, Waltham Abbey Seedling; 18, Hoyasche Golden Reinette; 19, Old Golden Pippin; 20, Coe's Golden Drop. Others unknown.

Names of Plants: *Alpha.* We cannot pretend to name Oaks or Planes, or any other trees, from the leaves only. — *W R.* Thuja orientalis, var. frencloides.—*J S.* Trifolium minus, as far as we can tell, in the absence of flowers. Certainly not white Clover or Lotus corniculatus.—*S E.* Periploca græca.

Removal of Vines: *A Correspondent* inquires if a tenant, upon leaving the property, is entitled to take up Vines that he has planted.

Testimonials: *G.* With many of your remarks we agree, but certainly not in your special application of them. An overwhelming majority are against you. You are in error on some points; for instance, Dr. Lindley's portrait hangs in the Council Room of the Royal Horticultural Society. A testimonial was presented to him before his death—a medal instituted in his honour subsequently. Thomson had a testimonial, though truly it was less than it ought to have been. Loudon had a monument erected to him where no one sees it, and substantial relief was afforded to his survivors. We suspect that your name did not appear on the subscription lists, or you would not have fallen into these oversights.

Veitch Memorial: *J M.* We will forward your letter to the London Committee. A good suggestion, often acted on in similar cases.

Wellingtonias: *T F.* Wellingtonias in pots are subject to be attacked like yours, probably from the roots getting into a bad condition. The late frost does not seem to have affected the young shoots, and it is probable that the roots of your trees may be affected with Fungus. It would be well to examine the roots of the affected trees carefully. See the account of a Pinaspo in the last *Gardeners' Chronicle.* Conifers often suffer from this cause. *M J B.—Ripley.* There are now several instances in which this has produced cones.

Worms: *D H.* Lime water, perfectly clear, may be used with safety for bringing worms out of the pots, except in the case of such plants as Heaths, which do not like calcareous matter.

Yews: *Hollies.* Plant at once.

Erratum.—In notice of Viola Blue Perfection, at p. 1138, for Mr. "Waring," read Mr. "Warren."

Communications Received. — T. T.—E. & C.—O. M.—H. K. —S. E.—J. S.—W. E.—C. P.—F. H.—Subscriber (yes).—W. B. —P. G.—W. P.—J. H.—R. H.—G. T.—G. R.—J. J.—D. T. F. —W. S.—J. D.

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A comparison of these figures with those of any other Root Show in the Kingdom will show that the Gloucestershire Root Show is the largest. The number of Entries at the last Show exceeded 500.

Forms of Entry may be had gratis of
Gloucester. A. C. WHEELER, Hon. Sec.

The Agricultural Gazette.

SATURDAY, NOVEMBER 6, 1869.

AN important contribution towards the settlement of the Irish Land Question has appeared during the current week, in a pamphlet from the pen of Mr. CAIRD. * Treating the Irish farmers and landowners as belonging to the same species as ourselves—amenable to the same motives—liable to the same influences (which some students and speakers on the subject appear to deny)—Mr. CAIRD treats the question as anyone interested in the prosperity of an estate might do. The land is half cultivated, the tenantry are purposeless and helpless, the labourers are in miserable plight. But this is no new thing, requiring any special theory for its explanation, or any heroic treatment for its remedy. Such things have happened before. The very counties which now furnish us with examples of the best agriculture, the highest rents and largest produce, were a century ago no better off. In the Lothians, as in the northern counties generally, "leases for lives, no outlay by the landlord, on the contrary, *grassums*, or fines paid to him for renewal, subletting, and subdivision to crofters, strict entails tying up the land in the hands of needy owners, then kept Scotland in a state of stagnation and chronic poverty."

What is the history of the wonderful improvement which has since then been witnessed? From 1780, owing chiefly to "enabling laws" affecting the condition of strictly entailed estates, the principle has become established, and the practice has become universal, "that the duty of the landlord is to provide his farms with buildings, and other permanent improvements, and that of the tenant to find the capital for cultivation, under the security of a lease for a fixed term of years." And it is to the influences of the lease for a term of years that the whole change is to be attributed.

What, then, is Mr. CAIRD's remedy for the present state of Irish agriculture? Would he yield to any cry for "fixity of tenure?"—that would be both futile and dishonest. No law can ever fix a rent, and circumstances may again arise, as heretofore, to diminish the value of an Irish farm below its present rental. No law, moreover, can interfere between the two parties to a bargain, and alter the terms of it by mere enactment, without a display of dishonesty which one instinctively would call lawless. But does the law never interfere between the landlord and the tenant? Undoubtedly it does. It gives a year's holding to the man who is accepted as tenant for however short a period. In this its practice rests on the very nature of things—on the fact that the land yields its return only once a year.

Why should not the presumption of law, based upon this natural condition of things, which gives 12 months tenancy without consulting the will of the landowner, be extended?—and, on the ground of the equally natural and unquestionable fact that the return to the enterprising farmer is *not* realised within the year, why should not the tenant, "holding without written lease, be secured in possession by presumption of law (except for failure to pay rent) for an equitable term, say five years, sufficient to recoup the expenditure necessary to a proper system of cultivation?"

It is in this way, and pleading the existing practice and presumption as its precedent, that Mr. CAIRD would, as it were by force, introduce into Ireland generally that wonderfully fertilising and enriching agency which everywhere else the agricultural lease for a term of years has proved to be.

We shall recur to the pages of this publication for the purpose of again discussing some of the points to which Mr. CAIRD refers. Meanwhile many of our readers will no doubt read and study the pamphlet for themselves.

* "The Irish Land Question." By James Caird. Pp. 32. Longmans.

THE Council of the Royal Agricultural Society unanimously adopted the report of their committee, recommending that their usual annual grant in connection with agricultural education be made for 1870. The expediency and usefulness of their educational examinations have always been consistently maintained in these columns, even upon those practical grounds which in all probability will supply the point of attack upon them. It may, however, be useful to take the opportunity of again stating the reasons why we think the examination system should be maintained.

The Royal Agricultural Society necessarily represents to the outside world the great body of farmers in the country, and its action is to a great extent looked upon as representing the opinion of farmers generally, and the extent to which they are disposed to keep on a level with the ideas of the community at large. The effects of any distinct want of sympathy between the farming and other classes would sooner or later be serious, but in the present position of political parties they would certainly fall most heavily on the farmers. In all reasonable matters, therefore, it is clearly their policy to fall in with the general current of opinion. Now, if there is one question at the present time which has taken a decided hold of the popular mind, it is that of popular education, technical as well as general—nor is this merely a temporary popular whim; it is, on the contrary, the expression of a growing national need. The opinion is gradually gaining ground; though expressed some years ago by men like Dr. PLAYFAIR, that England has been falling behind in manufacturing excellence on account of her incapacity to compete with the intelligence that more highly educated artisans bring to their work in other countries. Quite lately this has supplied the text for articles in the *Times*. As long as we maintained our superiority in the more substantial manufactures we were indifferent to our known inferiority in matters of taste and art. This was a mistake; the sense of beauty shown in other nations more than amongst ourselves indicated a capacity of culture which only wanted turning into more utilitarian directions to convince even practical men of its value. While the latent power of other nations has been developed, we have been content to rest at the same level. But though technical education has been and still is neglected among us, general education, its necessary forerunner, is every day receiving more attention. The prestige of the Universities could not prevent their funds being looked into and applied to the endowment of new professorships: endowed schools have been dealt with in the same spirit. The turn of the landed interest will come next: it will be required to do something for education, and the demands that will be made from it will depend on the disposition that it shows to act independently of coercion. It is however well to remember that, by a natural process of gravitation burdens thrown on landowners tend to fall on rent. This will be remembered, and an enlightened spirit among farmers themselves will undoubtedly favourably affect their position when national education comes to be dealt with.

The connection between these considerations and the examinations of the Royal Agricultural Society may seem to be slight, but it is far less so than it seems. The matter is in truth a crucial one. If the examinations are discontinued farmers must be held to be guilty of greater indifference to education than any other class in the country whose work deals with matters requiring an equal degree of intelligence. If that should unhappily come to be the case, they will not be credited with much sympathy for national education generally. This simply means that, as less will be expected from them, more will be required.

In the present day no class can afford to stand still. Other countries understand this better than we do, because they see that no class in a community can confine the effects of its deficiences to itself. The Americans can hardly be called unpractical or unprosperous, yet they are everywhere founding agricultural colleges, and they have the greatest confidence in scientific and technical education as promoters of material prosperity and national progress. This is the root of the matter. Education gives a man

a capacity for adapting himself to altered conditions and turning them to his advantage. The practical man always remains in his groove, and sooner or later falls to the rear; the well educated farmer is armed at all points, he is progressive as well as practical, and on progressive men a country depends for its permanent well-doing.

To abolish these examinations would be reactionary. It would have been far better not to have commenced them than to give them up after only two years' trial. They have not yet attracted a large number of candidates, but they are a means, not an end. The object of all examinations is to direct and give method to professional study; and that so little of it at present exists among agriculturists is the very reason why the examinations are wanted. As soon as it began to be found that it gave a man some stamp to have passed these examinations, as in all other cases of the kind a body of students would be created. It can hardly be contended that this would not be desirable. Some students there would always be, and it would not be very creditable that the Highland Society only should give these their opportunities of distinction.

To conclude, one argument against the scheme will doubtless be the expense. For this there is an easy remedy—give no prizes, but merely certificates, which will cost nothing more than the paper on which they are printed. The highest rewards at Oxford and Cambridge are only the appearance of a list in a newspaper. The prize system is economically absurd. No labourer could be worse paid than the man who looks to a few pounds' worth of books as the only reward of perhaps months of exertion. *D.*

—— THE Wheat trade at Mark Lane, and throughout the country, has continued during the week without any alteration in price. The lowest figure now quoted at Mark Lane is 40*s.* per quarter; but we are informed that in the Isle of Thanet even, a district usually celebrated for its fine quality of Wheat, the price has been as low as 38*s.* per quarter. Thus it seems inferior Wheat does not come to London. Malting Barley has been inquired after, and fine qualities have advanced 1*s.* per quarter in value. Oats, beans, peas, and other feeding stuffs, have remained without alteration.——The trade at the Metropolitan stock and meat markets has been dull, at previous prices, the best beasts making 5*s.* 6*d.*, and the best sheep 5*s.* 8*d.* per 8 lb. On Monday there was the large supply of 5096 beasts, more than half of which were foreign, and 14,995 sheep, only 1570 of which were imported.—— The agricultural seed trade continues in a very depressed condition.——English wool is no dearer, but factors are speculating, on the ground that the home-grown wool trade must soon participate in the general improvement in the prices of manufactured cloths.

—— Mr. HOWARD'S lecture on Continental Farming, before the London Farmers' Club last Monday, which occupies so many columns of our paper to-day, will be read with interest for its picture of both merits and defects. From both sides of the picture English agriculturists may learn. The possibilities of improvement by the more general adoption of irrigation, and by the extension of Beetroot cultivation, are very forcibly put, and attention will no doubt be directed to them. The light thrown by Mr. HOWARD'S pictures on the policy or impolicy of cottier farming and petty landowning is also most serviceable and timely. We may next week refer more in detail to the lesson thus given to us, for the present the lecturer must be left to tell his story without comment.

—— At a meeting of the Council of the Central Chamber of Agriculture, held on Tuesday, Mr. C. S. READ, M.P., president, in the chair, it was decided that the annual meeting of the Council should be held at 2 o'clock P.M. on the Wednesday in the Smithfield Club show week, and that the question for discussion at the February meeting, 1870, should be the "Best Mode of Providing for the Future Maintenance of Highways and Turnpike Roads." The subject of the day was "The Present Unsatisfactory Method of Taking the Corn Averages." A resolution to the effect "That, in the opinion of this Council, the corn averages as at present taken are fallacious, and that the buyers' returns should be limited to purchases from growers only," was proposed by Mr. GARDNER (East Kent), and seconded by Mr. CLAY (West Yorkshire). An amendment, "that the returns should be made by the growers only," was proposed by Mr. W. SMITHEN (Worcestershire), and seconded by Mr. VARDEN (Worcestershire). A lively discussion ensued, in the course of which Mr. DUCKHAM said that in Herefordshire they had resolved to recommend the adoption of the standard at which the tithes were commuted, and to drop the averages altogether; but if the present system were to be continued, then he maintained that all buyers should return to the Inland Revenue Office the quantity of corn they had purchased, and the price; and no great difficulty would arise in regard to such a system as that being adopted. Ultimately the amendment was withdrawn, and the original motion carried unanimously. With respect to "The Necessity for a Uniform System of Weights and Measures," the disadvantages of the differing weights of the market bushel were exposed. Newspaper reports of markets were generally unintelligible, except to people expert in local customs. The superiority of weight as a rule of sale over measure was insisted on. Disputes and risks of litigation would then be avoided. Mr. DUCKHAM moved "That, in the opinion of this Council, all agricultural produce should be sold by weight only." The motion was seconded by Mr. WILLSON, and carried unanimously. It was agreed that the resolutions should be forwarded by the secretary to the provincial Chambers, and that a copy of them should be sent to the President of the Board of Trade.

—— The value of fresh brewers' grains has long been known to cowkeepers. Their serviceableness has, however, hitherto been confined to the neighbourhood of the mash tun, where they are made, for they do not "keep." Messrs. MILBURN have, as our readers know, conceived the idea of drying them, or making them available at a distance. They have hitherto, however useful as cow-food, been supposed comparatively of little value for general purposes, but it is found that they are largely bought, when dried, at a price we should have hardly thought them likely to command. It has been generally alleged that there can be no goodness in the husk of Barley, but grains do not altogether consist of mere husk; and it is urged besides that linseed-cake is only husk, and still realises 12*l.* a ton. Desiccated grains, they say, are specially good, because the stomach of the animal can so easily extract what nutriment they contain, which arises from the "cooking" they have undergone by both the maltster and the brewer. The chemical view of the desiccated grain is presented in the following analysis from Dr. VOELCKER and from Mr. SIBSON:—

COMPARATIVE ANALYSES.

	Grains.*	Oats.	Beans.	Linseed cake.†	Barley.	Wheat.
Moisture	5 18	15.09	14.8	12.70	14.65	15.26
Oil	7.88	..	..	11.32	..	..
Albuminous compounds	24.87	11.85	23.3	28.21	10.84	11.54
Gum, starch, and digestible fibre ..	42.55	63.34	48.5	29.42	68.31	68 47
Woody fibre	16 26	7.02	10	13.51	3.45	2 61
Mineral matter ..	3.26	2.70	3.4	4.84	2.75	1.75
	100.00	100.00	100.00	100.00	100.00	100.00

These figures are presented to us by Messrs. MILBURN as fairly contrasting the value of their food with that of other well-known substances. They seem, however, to prove, if, indeed, they *do* prove, too much for the grains. It is difficult to read with intelligence such a classification of ingredients as is here presented. We see, for instance, that brewers' grains contain 24.87 per cent. of albuminous compounds, while Barley contains only 10.84. That certainly needs further explanation. We are quite willing, however, to believe there is more in grains than the cowkeepers' use of them has yet taught us, and the following passage from MUSPRATT'S "Chemistry" is worth consideration. He says:—"The grains left after malting (with superfluous moisture evaporated) are very beneficial for the use of swine and cattle, as they contain gum and some of the nitrogenous or protein constituents of Barley in the shape of gluten, together with a certain amount of cellulose, which is valuable; and are as effective in nourishing as an equivalent weight of the original unmalted grain."

—— A correspondent points out to us how desirable it is that the weekly country returns now being made by inspectors or chief constables, as to the progress or condition of the foot-and-mouth disease, and pleuro-pneumonia, in the several counties should, in order to the presentation of a complete picture of our losses, also publish the losses which had taken place prior to the adoption of the Act.

—— A case before the magistrate at the Thames Police Court on Monday last, in which a young man was accused of stealing 64 stones of suet, reveals the existence of a Dutch butter factory near Bromley. Mr. CHARLES YOUNG, solicitor, said he was prosecuting a case of nuisance on Bow Common a year ago, and Mr. LEWIS, solicitor, produced some of the fat from the Dutch butter factory, and said it was sent to Holland and mixed with Dutch butter, and re-exported to England. The Dutch butter factory manufactures tons upon tons of the stuff, and it is sold in our shops as "real Dorset" and "real Cambridge," or "genuine dairy-fed butter."

THE FARMING AND PEASANTRY OF THE CONTINENT.

[The following is a condensed report of the Paper read by Mr. James Howard, M.P., at the meeting of the London Farmers' Club on Monday evening.]

FRENCH FARMING.

I WOULD first invite attention to the agriculture of France. French agriculture has long had what many have advocated for England—viz., a Government Department of Agriculture, presided over by a Minister, who takes under his paternal wing the whole family of French agriculturists. The collection of statistics, agricultural colleges, veterinary colleges, experimental farms, mechanical museums, schools, roads, drainage, horse-breeding, chemistry, the necessary supply of food for the people, an experimental implement factory, and a hundred other things are under his control, and the expense of these various institutions is defrayed by the State. Again, the State establishes horse shows and agricultural meetings. The whole country has been divided into 12 districts, in each of which a show (termed a "Concours Regional") is held, and large sums are distributed, with a view to stimulate improvements in the various departments of farming. At these shows everything is under the control of an Inspector-General of Agriculture, the whole expense being borne by the State. Further, the French Government, with a view to raise the general standard of farming, offers in each of the districts 200*l.*, and a silver cup worth another 120*l.*, called the "Premium of Honour," as a prize for the best-managed farm on which the most useful improvements have been introduced. With all these various agencies in full force, one might expect that agriculture throughout France would be stripped of everything primitive, and that the motto of the new French Agricultural Society—"Practice with Science, Progress with Prudence"—would be everywhere realised.

If an intelligent English agriculturist were to form his estimate of French farming by what he could see from the railway between Calais and Paris, he would, from the small number of animals and other indications, come to the conclusion that the whole country was going to the bad. This, however, is not the case. Improvement is very slow, scarcely perceptible, except to those who make an inspection at long intervals. In England, it was years before such farms as the Earl of Leicester's in Norfolk, the Duke of Bedford's at Woburn, and Earl Spencer's in Northamptonshire, exerted any marked influence in farms throughout this country. So in France, there are farms scattered up and down—farms which are as far in advance of the general agriculture of the country as were the farms of the spirited noblemen I have referred to at the beginning of the present century. The farms I have alluded to have many of them received the "premium of honour," and are exerting a quiet but powerful influence in their respective neighbourhoods.

(1.) Notably among such farms is that of M. Decrombecque, at Lens, about 50 miles from Calais. M. Decrombecque is a very remarkable man: although upwards of 70 years of age he is full of energy, is well read in agriculture, knows England, and is familiar too with English methods of farming, of which he has not been slow to avail himself. His farm is 1200 acres in extent. Half the land is his own, purchased out of profits made by farming; indeed, he told me he had very little capital when he commenced 46 years ago. On the occasion of my visit in the harvest of 1867, his Wheat crop was very fine. I saw also 500 acres of Beetroot, all on the ridge, without a single blank spot in any part. He estimated that the produce would weigh about 18 tons per acre. The land had all been ploughed 16 to 18 inches deep, with huge ploughs drawn by ox-teams, 16 in a team. On all the large farms I visited I found two sets of ploughs, one set for ordinary ploughing, and the other for deep work called *charrue profonde*. Thirty horses and 80 working oxen were kept, the latter only working half time. M. Decrombecque has had a sugar factory on his farm for many years; he thinks that farming without this adjunct must be a very slow affair. 300 to 400 cattle per year are fatted on pulp from the sugar factory. He has adopted the "box" system, which he came over to England to see nearly 20 years ago. He finds great advantage in keeping the cattle in darkness; the animals are not so troubled with flies, they eat better, and he has found that they are much sooner ready for the butcher than when kept in daylight. An operation I saw going on I thought worth making a note of. As soon as, and sometimes before, the Wheat was carted, heavy flexible or chain spiked harrows were run over the surface with a view to set the annual weeds and shed corn germinating. The operation is expeditious, and not very costly; and M. Decrombecque, after many years' experience, finds he is amply repaid for the trouble. He prefers it to any system of paring or shallow ploughing.

(2.) Another highly cultivated farm is that of M. Gustave Hamoir, at Saultain, near Valenciennes, about 200 miles north of Paris. This gentleman is a very superior and intelligent man—quite my notion of what a farmer ought to be—observant, shrewd, well informed, and in manners the gentleman. In M. Hamoir's district the country is covered with sugar factories, and the properties are much subdivided—25 acres in one plot being considered quite a large field. One-third, and even one-half the land is cropped with Beetroot. There are a few farms of 400 to 600 acres, but the general run is about 30 to 40 acres. For five years M. Hamoir has had fully half of his farm cropped with Beet, all the rest Wheat, except small portions for growing fodder, Clover, and Lucerne. Guano is becoming less esteemed, as it does not produce so good Sugar-Beet as oilcake [rape-cake], which now is applied to the land as manure. M. Hamoir, like M. Decrombecque, ploughs his land some 16 inches deep for the root crop. The rent in this district is higher than in any other I know—the average is said to be 72*s.* per acre, and in large plots it sells for as high a price as 100*l.* per acre. The price of land is enhanced from the fact that the French farmer does not and will not appreciate any other investment than land, and will therefore buy at almost any price when the opportunity offers. M. Hamoir says he has known land sell as high as 192*l.* per acre. His opinion is that it would be better for all interests that the small farmer should not be a proprietor or landowner, especially at the price he has to pay. The interest of his money invested in ordinary securities would enable him to hire, even at a high rate, double the quantity of land he can hold as an owner; but this course is not adopted because of the ignorance which prevails, and the fear of investing money in other ways. Another reason, says M. Hamoir, and at least as painful a one, is that of the short duration of leases, which are for nine years. The tenant stands in fear and dread that at the end of his lease he may be ousted for some other competitor.

(3.) I will now give you a picture of a very different district, that of Sologne, about 150 miles south of Paris, in which M. Edouard Lecouteux, Editor of the

* Milburn & Co.'s desiccated. † Good average.

Journal d'Agriculture Pratique has a farm, and to the improvement of that poor region has devoted himself. In this part of the country there are large estates, some being 5000 acres in extent, let off, however, in farms varying from 500 acres down to two acres. The rent of the large farms is from 5*s.* to 8*s.* an acre, and the freehold value as low as 3*l.* 10*s.* to 8*l.* an acre, and much of it is held upon the "métayer" system, about which I shall have something to say shortly. M. Lecouteux states in his graphic style, "that the peasantry and small farmers are possessed by the demon of property." They buy land and have no capital to work it with. Not much Wheat is grown in this district, and the yield is as low as 15 to 18 bushels per acre. In well-cultivated fields the yield may reach 24 to 30 bushels per acre. Rye is the principal crop grown, the produce being 18 to 24 bushels per acre. The wages are 1*s.* 8*d.* per day in summer, and 1*s.* 3*d.* in winter; no extras in harvest, but some piecework. Low as these wages are, they are said to have doubled within a few years.

(4.) I now refer to the large farm of M. Cail, which is situated at La Briche, near Tours, 200 miles south-west of Paris. M. Cail is proprietor of one of the largest engineering establishments in France—a great builder of locomotives. In the early part of August, 1867, I accompanied him to his farm of La Briche. It consists of about 3800 acres, which he has reclaimed from waste land—bog and wood. Being a thorough utilitarian, not a tree or a fence of any kind has been left: the whole is laid out in large fields, some nearly a mile across, which have been drained, and good hard roads made through the whole property. One good central homestead and eight minor ones have been erected. It requires but a glance to be convinced that the proprietor of such a place is a man with an iron will. The central homestead, the most wonderful place of the kind I have ever seen, is worth making the journey to see. The corn barn, with a triple roof like a railway station, is 366 feet long and 130 feet wide, and 32 feet high in the walls. It will contain 1250 acres of unthreshed corn. A line of shafting with pulleys runs down the centre throughout the length. The threshing machine, a portable one, is drawn forward as the threshing is accomplished. Everything is on the same scale—sheds for 600 bullocks, a covered fold for 3000 sheep, a huge granary for threshed grain, tramways to every part, a large Beetroot distillery at which the roots are made into sugar or spirit according to the prospect of the market. Every vehicle on entering and leaving the homestead passes over a weigh-bridge at the gates, and the weight of the load is recorded and charged to or credited to the respective fields. The farm is cultivated on the three-course shift:—1st, Wheat; 2d, Beetroot; 3d, Clover. I rode over 1250 acres of fine Beetroot, beautifully cultivated. Little attention is given to the hoeing of corn by Sugar-Beet growers, as the land is supposed to be thoroughly cleaned when under the root crop.

Boys sent to reformatories in France are employed in agriculture till their turn comes for conscription. The reformatories are called agricultural colonies, and are distributed over the rural districts. I found at La Briche 130 of these boys, from 14 to 18 years old: they work in gangs, under a superintendent sent with them from the Mettray Reformatory. During the winter evenings they are taught reading, writing, arithmetic, and measuring. The condition of the labourer in this part of France, as in most others, is a very hard one. At each of the eight homesteads is a married couple, who supply food to the labourers employed in their division, the greater part of whom are unmarried. The team men sleep with the cattle, two in a bed, or rather in a box, on a sack of straw, a rude floor being put up at one end of the sheds. Up to that period I had never seen men so nearly reduced to a state of slavery. I arrived at the farm about daylight, and found all hands at work. The hours in summer, I learned, were from 4 A.M. to 8 P.M.; and, mark you, till noon on Sundays. The wages, without any perquisites for these long hours, are 1*s.* 8*d.* per day. A good crop of Wheat was being cut, the men using a fagging-hook; 5*s.* was the price paid for cutting and binding an imperial acre; and the wages paid by M. Cail are higher than the current wages of the neighbourhood. In spite of the rigid condition in which the labourers of La Briche work, I noticed a deal of apparent good feeling, as well as an approach to familiarity, between employer and employed. The men addressed M. Cail with a kindly salutation, whilst, to my astonishment and intense amusement, this gentleman of polished exterior, living in great style at one of the most elegant houses in Paris, saluted the various foremen by kissing them on both cheeks, receiving a corresponding salute in return. I managed to keep my risible faculties under restraint until arriving at the blacksmith's shop, when a similar scene between M. Cail and the foreman, a grimy son of Vulcan, proved irresistible. M. Cail is a shrewd man of the world, and noticing my amusement, remarked, that conforming in this way to the custom of the province had given him a hold upon the people he could not have obtained had he totally disregarded their notions of equality and fraternity.

At the time of my visit I thought the condition of the farm labourer of La Briche might be exceptional, but I find upon inquiry that it is not at all an unfavourable specimen of the condition of the French peasantry, and that a franc per day has not been an unusual scale of pay. This condition of things is now beginning to bear the fruit it might be expected; ground down in this manner, the peasantry have been flying to the cities. About a month ago an article on the subject appeared in a newspaper published at Vendôme, 450 miles south of Paris. It commenced by saying "that the fact of the depopulation of the agricultural districts is the gravest thing we have to register at present. It is nothing less than life or death for the whole country." Agriculture in France, says the writer, has till lately followed its traditional course, and allowed all other industrial pursuits to outstrip it. Wages have been kept down, and with a view to this object marrying has been discouraged by proprietors and farmers. Families have become proverbially small, even among the labouring population; then there has been the conscription—an army of 700,000 to 800,000 men is no slight drain upon the rural population of a nation. It is not difficult to perceive how the present condition of things may lead to a solution of the European question, by rendering a large standing army in France an impossibility. Things have reached such a pitch in the district of Vendôme that the owners of some of the richest land in France, the Count de Gouvello and others, unable to find tenants, have been compelled to resort to the co-operative system for the working of the farms.

GERMAN AGRICULTURE.

(1.) At Cologne I visited a large concern belonging to the Rhenish Beetroot Sugar Company, a firm composed of three partners. In addition to the roots grown on their own extensive farm of 7200 imperial acres, which I shall notice presently, large quantities are bought of the surrounding farmers at 20*s.* per ton, the pulp being given back free. The firm has issued printed instructions for the guidance of the farmers of the neighbourhood. [These we shall publish hereafter.]

About 18 to 20 per cent. is the proportion of pulp left; the worse the quality of roots the smaller the quantity of pulp. It is preserved in deep pits generally bricked like a grave; very often, however, the expense of bricking is avoided: a covering of earth is laid upon the top. The pulp is generally consumed within the year; but if well covered up it can be kept sweet and good for two years; or, as I was assured, even for three years. Many practical men maintain that a ton of pulp is equal in value to a ton of roots. I think the money worth is best settled by the price it fetches. The average price at the factories I visited will amount to about 13*s.* per ton. Although horses do not like it, bullocks, which cannot be fattened on the root alone, can and are sometimes fattened for the English and foreign markets without any other food than the pulp. Pigs do well upon it when cooked. Sheep will eat about 12 lb. a day of raw pulp. It is unquestionably more easily digested than the root itself; but cows kept upon it are said not to produce much milk. In addition to the sugar factories I have alluded to there are an immense number of distilleries for extracting spirit from the Beet. In France the number reaches 500. The distilling of spirit is said to be far more profitable than the manufacture of sugar. On many farms both processes are carried on, and a few years ago—stimulated by the high price of raw spirit, the result of the Vine disease—many sugar factories were converted into distilleries.

(2.) After an inspection of the distillery at Cologne, I paid a visit to the farms cultivated by the firm. The company holds five farms, divided into plots of about 1500 acres, in all 7200. M. Joest, one of the partners, is manager in chief, with stewards under him at the several farms. The accounts appeared to be most accurately kept, and the land well and carefully managed. The course of cropping is, 1st, Rape, highly manured; 2nd, Wheat; 3rd, Rye, slightly manured; 4th, Clover; 5th, Oats or Wheat, manured; 6th, Sugar-Beet, without manure; 7th, Rye; 8th, Clover; 9th, Oats. Forty bushels per acre is considered a good crop of Wheat; of Sugar-Beet, 12½ tons per acre. As in France, deep ploughing is practised for Beetroot, 13 to 14 inches being the rule. I saw one field of Beet containing some hundreds of acres, and, on observing the leaves on certain portions to be crinkled, was told that it was an indication of good quality. The Vilmorin and the Gerlibogt are the varieties most highly spoken of. Great care is taken of the tap roots, as they are said to contain the most sugar. Great care is also exercised in not injuring the leaves, especially in the latter stages of the growth. Here, as in many other parts of the Continent, Indian corn is grown and cut green for fodder; as I found in America, it is everywhere highly spoken of. I found that Browick Wheat had been introduced and, after careful experiments as to yield, is preferred to any other variety. On these farms I found the use of the clod-crusher for consolidating land planted with Wheat was understood, but on no other farm out of France did I find the value of this practice recognised. From this neglect in consolidating the land, a large portion of the Wheat all over the Continent grows tall and weakly, and gets laid long before harvest. A large number of working oxen are kept, of the Birkenfeld race; they are fed on pulp. The men, as in France and other parts of the Continent, sleep in the stable with their bullocks and horses. The wages to farm labourers are paid all in money, and are from 1*s.* 2*d.* to 1*s.* 6*d.* per day in summer, and 1*s.* to 1*s.* 3*d.* in winter. Labour is said here and in almost every part of the Continent I visited to be becoming both scarcer and dearer, and in this district wages have risen during the last 25 years from 25 to 30 per cent. Children are not allowed to be employed in agriculture in Prussia until 14 years of age, the Prussian national system of education being a compulsory one.

(3.) The next farm I visited was a very beautiful place—Ostendorf, a few miles from Cologne—belonging to and farmed by M. Pfeiffer. It consists of 1440 acres, 360 of which are in Wheat, 360 in Beet, and the rest in Clover, Indian corn, and Potatos. Two self-acting reaping machines were in operation, cutting down some fine fields of Wheat, and a third machine stood ready. The implements upon this farm were very numerous and various, but with the exception of those of English manufacture, they are rude and badly made; and, I may say, this remark applies generally to the Continent. M. Pfeiffer fats off 180 oxen a-year. His oxen all work on alternate days, except those which have got fresh in condition. These are put into a stall for a few weeks, to make them up for market. This alternate plan of working bullocks I found was considered by all the large farmers throughout the Continent to be the most profitable. In addition to this large force, M. Pfeiffer keeps 20 working horses. M. Pfeiffer has a fine Beetroot sugar factory, and, in addition to the Beet of his own growing, buys large quantities from the neighbouring farmers. The price paid is 19*s.* a ton, 8 lb. per cwt. being deducted for dirt. A price is put upon the pulp, which is prohibitory, M. Pfeiffer preferring to consume it with his own animals. The wages on this farm throughout the year are 14*d.* per day; in the summer months the working hours are from 5.30 A.M. to 8 P.M. The women get 10*d.* per day.

As in France and Belgium, in this part of Germany there are a great number of small holdings. In Prussia there are 900,000 farms under 4 acres in extent. The small farms hereabouts are much better cultivated than in many other parts of the Continent. As there really is nothing for the English farmer to learn from them, it would be useless for me to take up your time in describing them. What I have said with respect to the same kind of farm in France is of general application. Baron Elsner von Gronow, a large landed proprietor in Silesia, is a well-known agriculturist. In his district the four-course system is followed. The farming may be judged by what is considered a good average yield, viz., 12 bushels of Rye per acre, 10 bushels of Wheat, 15 of Barley, 16 of Oats, and 5 tons of Mangel. The wages of labourers in the district are 4*d.* a day in winter, and 5*d.* in spring and autumn, and 7½*d.* to 10*d.* in harvest time. Labour is said to be becoming a little scarce, and wages are rising. Twenty years ago, Baron von Gronow informed me, the wages were not more than 2½*d.* a day in winter, and 4*d.* for mowing and binding an acre of Wheat.

(4.) Leaving Germany I passed on into Austria, paying a visit to Mr. Smallbones, a gentleman well known to many in this room. I cannot, however, stay to describe this gentleman's beautifully managed place, nor the agriculture of that great empire with its farms of tens of thousands of acres. The homesteads are of immense size, as the animals are all brought home at night; if kept in the field they would be stolen. This practice of bringing home the cattle prevails throughout Europe. In Austria a law exists against the subdivision of what are termed peasant farms, the maximum size of which is 60 acres, and the minimum 15 acres. When a proprietor dies his eldest son takes the land; an assessor is called in who fixes the amount to be paid to the other children; the eldest son, it is said, is often crippled by this arrangement. No class of tenant-farmers exist, all are proprietors except in a few districts and rare instances. The labourers I found to be badly off, wages being about 9*d.* to 10*d.* per day. At one village I went to, I had an opportunity of seeing how they were lodged. One large barn-like building, with only a ground-floor, I found divided into two rooms. In one, 40 feet long, 20 feet wide, and 10 feet high, I found six beds and four families; in the other, somewhat smaller, were five beds, and three families. Small-pox having broken out a fortnight before, I was told some tenants of this wretched abode had been removed in order to thin it. There was one common cooking-stove to the whole, and to add to the wretchedness of the place it was infested with rats. A more deplorable scene it had never been my lot to witness. To return to Mr. Smallbones, his cattle had recently been attacked with foot-and-mouth disease. As he had found considerable benefit from the following remedy, I sent it home at the time for publication in the newspapers. The remedy has been tried by many people in different parts of the country, and in all cases that I have heard of, with good effects. My own cattle have recently been attacked, and recovered very rapidly under the treatment. The recipe is as follows:—

"Take honey 1 lb., muriatic acid 1½ oz., mix them well with a wooden spoon in an earthenware vessel; apply with a wooden spatula about a small dessert spoonful to the tongue, three times a day, leaving the animal to distribute it over the inside of its mouth by the champing motion which is sure to follow its application." For the feet: "Take aloes ½ oz., rectified spirit half pint, alum ½ oz., dissolve them in one pint of water; mix, and apply a little twice a day between the claws." In addition to the above treatment, Rye-meal, ground very fine, should be placed in the manger, a little being dusted on the noses of the animals in order to induce them to eat; the meal being almost impalpable, they could lick a little without increasing irritation.

On leaving Vienna I passed through the beautiful country of Styria, and crossed over into Italy. Before, however, I say anything upon the agriculture of Italy, I would take you back for a few moments to Belgium. As Dr. Voelcker and the Editor of the Royal Agricultural Journal have recently spent some weeks in Belgium, with a view to the early publication of a report upon the agriculture of that country, I shall content myself with a very brief sketch.

BELGIAN AGRICULTURE.

Belgium has long had the reputation of being the best farmed country on the Continent. I had so often heard it held up by English travellers as an example to the world—I had read such glowing accounts of the farming to be met with over there—that when I saw the country for the first time with my own eyes, I must say my expectations were very far off being realised. Certainly no one can visit Belgium without perceiving at once that the country is occupied by an industrious race, and that great pains are taken in the cultivation of the land; but to one who is acquainted with the highest style of farming—who knows what appliances and requirements are needed for carrying on such farming—as such an one rides through the districts occupied by the cottiers and small farmers, he cannot but be impressed with the absence of the necessary capital for the development of the resources of the

soil. Like France, agriculture in Belgium is in possession of a State department; and, like France, the land is much subdivided. There are a quarter of a million peasant farms under 2 acres, about 120,000 farms of 30 acres, about 10,000 farms of 100 acres, and about 1000 farms of 250 acres and upwards—the average being about 11 acres. Rather more than half the country is cultivated by the owners of the soil. But in Flanders, however, there are few proprietors; the rent of land, as has been asserted, is by no means extravagant; nor do I think you will conclude that the peasantry are overpaid. In Hainault, the highest rented province (and very fine lands, according to the last official returns), the rent averaged 35*s.* per acre; in Luxemburg, the lowest, it was 12*s.* 9*d.* per acre; the average throughout Belgium was 27*s.* per acre. The average wages of the farm labourer is 1*s.* 1*d.* per day, without food, the maximum being 1*s.* 8*d.* and the minimum 8½*d.* per day; wages, nevertheless, are said to have advanced 25 to 30 per cent. since 1846. From inquiries I made among the older labourers, I found that 6*d.* per day was no unusual pay but a few years ago. I had travelled through Belgium several times, but had never set foot upon a farm until last year, when I went over to Brussels to act as a judge of implements. The trial of mowing-machines took place a few miles from the city. The meadow selected was naturally a rich soil, but the crop of Grass was poor, and the field had evidently not been invaded by the roller for many a long day. The farmer attributed the poorness of the crop to Providence—he had expected a better one, as he had got the priest to pray for it! I remarked that Providence should not be held responsible for the omission of rolling; whilst my colleague, M. Hamoir, dryly told him he thought the prayers would be answered if he put on plenty of dung! I mention this as one of many instances I have met with of superstition. It is not an uncommon sight, especially in the Rhenish provinces, to see the image of a patron saint erected at the head of a field, in the hope that the crops would be thereby protected. On the occasion of my visit to the Brussels Show, I went across the plains of Waterloo; it was just previous to harvest. The farms here are large, much of the land is fine, but neither my brother nor I thought the crops, considering the fine season, anything remarkable.

In July last, landing at Ostend, I stayed there a few days, and made excursions in the neighbourhood. The farmers seemed plain, plodding people, knew very little of what was going on in the agricultural world: their houses seemed comfortless, and their living very frugal. The rotation of many farms is Rye, Oats, Potatos, or Sugar-Beet, then Rye; no Wheat. I found very little in farm produce worth noting down. The practice of ploughing up the land before the crop is carted is general in this, as well as in most parts of the Continent. One farmer showed me his flock, of which he appeared very proud. The Flemish breed are long-legged, small-scragged, narrow animals, which cannot pay the farmer to breed. The same man has some really good Shorthorns and pigs. Boars in this neighbourhood travel like stallions, fresh blood being obtained every year. The labourers seemed dejected and in a low condition. I looked in at the village inn and had a conversation with the landlady, from whom I learned that she never saw a farm labourer in her house, except after dinner on Sunday, when a few would drop in to have a glass of beer. She drew a gloomy picture of their condition, remarking, "Poor things! they have not much comfort in this life."

(1.) At Baron Peers', at Oostcamp, near Bruges, I found a better state of things—good cattle, Hampshire Down and Oxfordshire sheep, white Yorkshire pigs, better paid and better fed labourers, and higher rents. The Baron adopts the following rotation:—Wheat, Rye, Oats, Clover, Flax, Potatos or Mangel. Two, and, as in this case, three white straw crops in succession is not an uncommon practice: to an Englishman it seems unscientific, and none but thorough good land could long stand such treatment. The Baron thinks highly of the practice of growing a little Chicory, which he sows in May; the tops are cut twice during the summer and autumn for green food: the roots remain in the ground all the winter, and are said to be the best food to give to ewes after lambing. At Beernem, a few miles beyond Baron Peers', is a large Government reformatory, well worthy of a visit; a farm of 600 acres and a garden of 40 acres is attached. The lads receive an excellent training; but I have not time to describe what I saw. A few miles from Brussels is the parish of Dilbeck, containing 2750 acres. In this village, which may be considered an average specimen, there are five or six farms of 88 to 150 acres, ten from 37 to 45 acres, many of about 20 acres, and a large number of 2, 3, and 4 acres. M. Verheyden is the principal farmer of the place, occupying 110 acres, at a rental of 240*l.*, and is a plain, but keen thoughtful man. The cottier farmers work for the larger ones, and get 1*s.* 3*d.* per day. M. Verheyden told me that the small farmers above the cottiers could never live and pay their way by mere farming; that their mainstay was fruit, vegetables, and poultry; that, if not too far from a large town, a steady man with a careful wife might get on. The rent of a 10-acre farm, with house, is about 55*s.* per acre in this parish; and he further said that the farms in his neighbourhood were increasing in size; that wages had more than doubled—20 years ago they were only 6*d.* per day, without food. Leases are for nine years, without covenant as to crops. He informed me that farmers were no politicians, and voted as their landlord wished. I heard from M. Verheyden a good deal on practical matters; but I must not dwell, for I wish to say something of the finest farm I saw in Belgium—

(2.) That of M. Dumont, of Chassart, near Fleurus. The extent is about 1500 acres, divided into five farms, with a homestead to each. At the central homestead is a large sugar factory and grain distillery. The homesteads are connected by iron tramways, which intersect the whole farm: 12 kilomètres or eight miles of tramway in one farm was a novel sight. The rail is used to bring home the Beet and other crops—to take back manure, pulp, &c. I had been for days previously among the cottier farmers, who almost invariably use great wheelbarrows for carrying off their crops. Two-thirds of the land is the property of M. Dumont; the other one-third is hired. The rotation adopted is—1st, Beet; 2d, Wheat and Oats, half of each; 3d, Clover and Flax, half of each; 4th, Wheat. M. Dumont adopts the English practice of cutting Wheat before becoming quite ripe. The almost universal practice on the Continent is the very uneconomical one of leaving it till dead ripe. I saw one splendid field of Sugar-Beet, of 175 acres, which was estimated at over 20 tons an acre. The tops of the Sugar-Beet are cut off, and given to the sheep on the pastures. An acre of Flax is on the average worth 21*l.* M. Dumont keeps over 600 head of cattle. Large numbers are fed upon pulp and the residuum of the distillery. Pleuro-pneumonia has made such ravages that M. Dumont and many others have adopted the practice of inoculation; the pus is obtained from the State Veterinary College, and inserted at the tail. If the operation is performed in hot weather the tail drops off through mortification setting in, but when done in cool weather no injurious consequences ensue. Having suffered much from this fatal disease among my cattle I was determined to try it, but have hitherto been prevented by order of the veterinary inspector of the county, who has acted on the advice of Professor Simonds. The Professor opposes the practice; but those practical Belgian farmers who have had extensive experience regard it, to use M. Dumont's own words, as a "sovereign remedy." For foot-rot in sheep M. Dumont gave me the following recipe, which he has found an unfailing remedy:—

"One pound of Egyptiac, half a pound of sulphate of copper reduced to a fine powder, one ounce avoirdupois of bi-chloride of mercury reduced to a very fine powder; these materials should be mixed up with strong vinegar until they assume a proper consistency."

The sheep are fed under cover, the prevailing plan on the Continent; a sheepfold is a very rare sight. The food is 12 lb. of pulp per head per day. Wages on the farm are 2 francs per day in summer, and 1 franc 50 cents in winter—no board and lodging; but the employment is continuous, and not intermittent, as in the small-farm districts. The people seemed comparatively well off. Chassart is in the Walloon district, Waterloo being in sight; it is the district for large farms: however, I passed a good many large homesteads unused, the land belonging thereto having been cut up into small farms. That such holdings required no such accommodation is a suggestive fact. M. Dumont's farm is one well worth a journey to see, and the pleasure of my visit was greatly enhanced by the kindness and hospitable reception I met with.

Soon after my return from Belgium, I was greatly surprised at the contents of a letter addressed by Mr. C. W. Hoskyns, M.P., to the *Times*, affirming that Belgium produced a larger amount of animal food in proportion than was raised in England. I confess that a very different impression was produced by my visit. Except upon the large farms, very little stock is to be seen. I have taken the trouble to ascertain the relative number of cattle in the two countries. The Inspector-General of Agriculture in Belgium has favoured me with the following most recent published return: Cattle, 1,257,649; sheep, 583,485; pigs, 458,418. The taxation of Belgium does not appear to weigh heavily on the land. There are no poor-rates—no taxation for the church. The cost of punishment of crime and the support of the prisons is borne by the state. The whole amount of taxation which falls upon the land is about 2*s.* 6*d.* per acre per annum. Schools for boys and girls exist all over the country. Education is not compulsory; but few parents neglect to send their children to school: the expense is borne partly by the State and partly by the parish.

IRRIGATION.

I will now for a few moments direct your attention to the subject of irrigation. Some four years ago I spent a few weeks in Egypt. I was so impressed with the astonishing results obtained by the simple application of water to land in the valley of the Nile, that I came home under a strong conviction that in England, notwithstanding the difference between the two climates, we do not reap half the advantages we might do from the water which a beneficent Providence sends us. By the aid of very primitive pumps, worked by a mule or bullock, or a couple of donkeys, sufficient water is often raised by the Egyptian farmer to irrigate 30, 40, or 50 acres of land, which fields produce prodigious crops of a kind of Clover called "Burseem." My recent visit to Italy and Switzerland has confirmed me in this opinion. I am aware that water-meadows in England are almost as old as the hills. The practice of irrigation is, however, confined to a very few localities—not one farmer in 500 in England, I venture to say, knows anything of the subject, or has ever given the matter serious consideration; and I believe there are reasons which have produced the indifference, for which, I think, the State is in great measure answerable. To the consideration of this part of the question I will return presently. The practice of irrigation in Europe is carried out on the greatest scale, and with probably the best results, in the plains of Lombardy and Piedmont. In Lombardy, out of a total area of 6,000,000 acres, upwards of 1,000,000 are artificially irrigated; upwards of 3000 miles of main or minor canals have been cut in the province, beside a vast extent of small arteries belonging to private individuals. Although some of the main canals are used for the purposes of navigation, they are mainly constructed with a view to a comprehensive plan for irrigating the country. The grand canal, which brings the water of the Ticino to Milan, has been in existence some 700 years, and for this long period has the practice of irrigation been carried on. I would also remark in passing that for almost a longer period a portion of the sewage of Milan has been utilised. I believe the credit is due to the monks of the monastery of Chiaravalle. I visited some of the fields which had been irrigated for centuries; and although not furnished with all the modern appliances to be seen at the irrigated fields at Bedford, the results are most satisfactory. I may mention that at Bedford the growth of Italian Rye-grass by town sewage is a most complete success; as many as six crops have been raised this year, realising some 20*l.* per acre. I visited an irrigated farm of 90 acres at Milan, rented by a M. Antonio Monti, and at which the water is used 11 times over, from the point at which it reaches the farm to where he parts with it to his neighbour. The rent of the farm is about 64*s.* per acre. The rent was considered a low one, as 5*l.* an acre is not an unusual rent. The Grass I saw growing was 24 days old, and was fit to cut. Seven crops had previously been mown since the beginning of the year. The Grass in the irrigated fields is perennial. A good deal of the arable land is susceptible of irrigation. After a Wheat crop Cabbages are planted. The Wheat in one field I saw was cut on June 24th; on July 7th the Cabbages were planted, and on August 24th (the day I was there) the ground was completely covered. The Cabbages are sent to the Milan market. The land was irrigated once before the Cabbages were planted, and once after. On this farm I saw a fine dairy of 18 Swiss cows. Having heard much of the milch qualities of this breed, I inquired into the quantity of milk produced, and found it varied from 38 to 44 gallons per day. The cows are fed on Grass from the irrigated meadows, and are milked at noon and at 10 o'clock at night. The price realised for milk, which is fetched from the farm by the buyer, is from 5*d.* to 5½*d.* per gallon. On this farm of 90 acres, one-third is irrigated meadow, and the other arable. Six men, four women, and three or four lads are employed. I would call special attention to the mode of paying the labourers. They are paid 5*l.* per day all the year round. Each family has in addition one-third of the produce of 2½ acres of Indian corn. The land is set apart for the labourer by the farmer, who finds horses, implements, and seed. The labourer performs the work, and gets one-third of the produce. A good crop of Indian corn is reckoned to yield 48 to 54 bushels per acre.

On this farm I had another opportunity of seeing how the labourers are lodged. A box suspended from the stable roof furnished a bed for the horseman. In some adjoining rooms, without windows, I found several beds. Finding one man down with the fever I speedily made my exit, but anything more wretched and indecent can scarcely be conceived. Families never have more than one room, but often two or three families occupy the same apartment. M. Chizzolini, who is an engineer by profession, and also a landed proprietor and farmer in the neighbourhood, employs a centrifugal pump, driven by a portable engine, for pumping back the water when it has reached the lowest part of his farm, a plan with which he is well satisfied. The watered plains of Lombardy present a most rich and luxuriant appearance; the kind of Grass is the very opposite of the blue Grass found on some of the western plains of America, which, as the Yankees say, is "as crisp as hair and wants lathering before you can mow it." On leaving the plains of Lombardy I passed over the Alps to Switzerland. Everywhere along the hillsides are to be seen devices for catching and spreading the water on the Grass slopes; then again it is arrested on its way to the valley and turned over the meadows and fields of Maize; indeed, as the fertility of the country depends upon the utilisation of the water, every little stream is turned to the best account.

When in Spain some years ago I passed through districts which, in the time of the Moors, were most fruitful, through being irrigated, but which, through the neglect of the Spaniards in not maintaining the works left them by the Moors, are now barren wastes. The question is often asked by thinking men, What is the next great step which can be taken in agriculture? I remember some three years ago Mr. Gladstone, when talking to Mr. Clayden, Mr. Leeds, and myself upon increasing the meat supply, propounded this very question. I smiled and remarked as gravely as I could, that I did not see how we could make another move until he repealed the Malt-tax. In England, cultivation on the best farms has arrived at a state of perfection in the growth of cereals and root-crops, that I believe it is idle to expect any very great increase in the produce per acre—the general average of the country will unquestionably be considerably raised. I am now speaking solely of the highest style of farming, with a view to discover what next great step is possible. Putting out of sight for a moment sugar-making, and even the repeal of the Malt-tax, I take it that the great question of the day is—not so much how any more cattle or sheep can be fed on bought feeding stuffs, as how they can be raised and profitably kept upon crops grown upon the farm. In other words, how a greater supply can be economically produced. I believe no gentleman present will differ from me in the opinion that, if upon a given portion of land, especially of friable soil, he could always command a supply of water for irrigation, a larger quantity of green food could be raised, and if so, it would furnish the means of keeping a greater number of animals. Is there any great difficulty, mechanical, or otherwise, in placing the power of irrigating the lands in the hands of a vast number of English farmers? Along our valleys, where water is to be obtained in abundance at a few feet from the surface, a centrifugal or chain pump, worked by a horse or an engine, would supply sufficient water for the irrigation of scores of acres. More, however, than this, I take it, is required; the water in our

rivers, I maintain, should not be the exclusive property of individuals, but be free for the good of the whole people. M. Durand, a French agriculturist of remarkable energy, alive to the importance of irrigation, determined to avail himself of the water of the Aveyron. For this purpose he turned a branch of the river, constructed a canal two miles long, and erected a weir at the junction. With the earth dug out he made an embankment, to prevent the flooding of 50 acres of his land, whilst on the other 75 acres he turned the water brought by the canal. This arrangement enabled him to keep double the number of cattle and sheep, as well as to raise one-third more corn. For 30 long years, however, he was at war with opponents, but at length he succeeded in putting down all opposition, and was rewarded by the State with a gold medal for the work he had accomplished. The rivers and running water of France are not under the control of private individuals as in England. The water only belongs to the owner of the land through which it flows during its transit; when it passes his boundary he has no further control over it. As long ago as 1669, Louis XIV. abolished the feudal rights of the proprietors in rivers, the ownership thereof being reserved by the State. Owing to the want of energy in France, the great boon secured by this enactment has not been taken advantage of to any great extent. Far be it from me to advocate such spoliation or confiscation as was adopted by France, but I sincerely wish that the Rivers Commission, which is yet pursuing its inquiries, may see its way to recommend to Government the placing of all rivers and watercourses under a central authority, having power to buy up the acquired rights of individual owners, in order that the water of the rivers, not only for irrigation, but in other respects may be as free for the benefit of the whole people as the air we breathe. I would also express a hope that the Commission will see its way to some plan for securing our rivers and streams against being polluted by the fertilising matter which now runs to waste.

Conclusions.

After having seen a good deal of the Continent of Europe, I have arrived at the conclusion that, with the land cut up into small farms, a greater number of people can manage to live, or exist upon it. The question then arises, What is the more desirable condition of things—a system under which the greatest population can subsist upon a given area, or a system under which the largest amount of food can be raised at the least cost? That the small farmer can raise produce as cheaply as it can be raised on a large scale I apprehend no practical man will maintain; and again, when the conditions are favourable, as in Belgium, the crops of the cultivators of a few acres are as a rule far inferior to those of the large stock farmer. There are many at the present day whose only notion about the use of land is, how it can be made to support the greatest population. Lord Palmerston once made the trite remark, "dirt simply meant matter in the wrong place." When a broad view is taken of the subject of population—when it is considered what millions of acres of virgin land throughout the world invite the industry of man, upon which he could subsist in comfort and independence, we must conclude that a wise and beneficent Providence has given us a world large enough; yea, far larger than is required for the present family of man. Take alone the great prairies and plains of the Western States of America, capable of supporting millions on millions. I remember the impression the sight of them made upon me. It occurred to me that Lord Palmerston, on seeing them, would have exclaimed: Overpopulation, why it simply means men in the wrong place!

The condition of the English farm labourer has of late occupied a large share of public attention. Whilst I am sensible of the degradation and comparative poverty of the peasantry in some parts of our own country, and whilst I am a strenuous advocate for the better housing, the better education, and the adoption of other means of raising their position, I say fearlessly that their condition is superior, and if they would spend less in beer would be incomparably superior, to any of the same class upon the Continent. I was talking over this subject the other day with two of my own men, who are engaged going about to start machinery. In this employment they have during the past 10 years travelled half over Europe; they were both brought up as agricultural labourers. One said to me, speaking of the Continental labourer, "Poor things, I have often pitied them; they do live hard with their black bread and broth, and Cabbage and red-herring, and such like." He also said, "You know, sir, they can't do what I call a day's work, for there is nothing inside 'em." This man, though no political economist, remarked, "You know, sir, their labour don't cost much, and their masters don't get much work out of 'em." Whilst for reasons I have stated I am opposed to the land being cut up into small holdings, I would not have it supposed that I think it desirable a whole country should be divided into monster farms. To such a state of things I am equally opposed. I believe that to be the best condition of things for all interests, when there is a considerable variety in the size of farms, so that a farmer with a family of sons has a chance of finding for them a choice of holdings suited to the means at his command; and notwithstanding the sentiments I have uttered, I hold that the industrious, thrifty labourer ought to be able to look forward with some degree of probability to his occupying a position in which he will not be solely dependent upon his daily labour. The notion that a minute subdivision of land has a tendency to raise wages is a great mistake. Go into almost any part of England where small holdings predominate, and there will be found not only a lower scale of wages, but, what is worse, a want of continuous employment. In a tour I made last spring through the centre of Tipperary and Cork, I found precisely the same results; work on large farms was continuous; on small, intermittent. The same state of things I found to exist in every part of the Continent. Another conclusion I have arrived at is, that in all countries nothing tends to keep back agriculture so much as insecurity of tenure. Leases are all but universal on the Continent, but wherever I went there was the same complaints, the same reason for not making permanent improvement, the leases were said to be too short, the tenure too insecure. The province of Groningen, in Holland, possesses, I believe, the greatest agricultural wealth of any part of Europe: here the tenancy is hereditary. I mention this not by way of advocating the principle of fixity of tenure, but as a proof that the tendency of length of tenure is to increased production.

[Mr. Howard's remarks on the small farm system prevalent in France and Germany must be postponed for a week.]

Home Correspondence.

Steam Cultivation: Small and Large Tackle.—Some time ago I had a friendly passage of arms with Mr. Toepffer, on the respective merits of large and small steam cultivating apparatus. Since that time I do not remember to have met with his name until since the occasion of the Peterborough trials. These have afforded him the opportunity of mounting his great hobby, and trying to ride over everybody else. I have had some years' experience, and I have always been ready to say a word in behalf of the small roundabout; and the most apt comparison I can make is that of a little hardy horse, which over a difficult country will always beat a great ungainly brute. Let it be clearly understood that my remarks will be restricted, and apply only to farms of moderate size, say from 200 to 400 acres arable. On such farms a steam-engine should generally be found for threshing, grinding, chaff-cutting, &c., and if the hardy horse which does all this can be fetched out to give a lift with the ploughing or cultivating, it appears to me just what most of us want. With farms of large size it is my opinion that a couple of sets would then be desirable over the big set. I have spoken of ploughing as well as cultivating, for I had recently an opportunity of witnessing the performance of a very ingenious and handy plough, which was invented, and is worked unobtrusively, by Mr. T. Beards, of Stowe. It consists of a light frame, in which are fixed two double ploughs, one at each end. On reaching the end of the field, while the anchor is being shifted, the ploughman loops up one pair of ploughs by a short chain to the framework, and in turning the rope, as it tightens, raises one pair of ploughs out of the ground and draws the other pair in. This is effected by a simple but clever contrivance, which shows that the inventor has a bit of engineering skill. To those who prefer ploughing to cultivating, or may wish to use a plough occasionally, I would say, go and see the beautiful work which is being, or has been, done at Stowe. I confess my own predilection for cultivation for strong clay land, such as that which I occupy, but there are seasons and occasions when a plough may be used with advantage, and this want the latter tool of Mr. Beards would supply, for the small extra outlay of about 50*l*. The greatest mistake which, in my opinion, inventors and manufacturers of, not only steam, but also horse-drawn implements make, is attempting too much. If half the cultivators and scarifiers in use were reduced one-third or one-half in width, and made to do the work properly with a team of four horse, instead of merely going over and giving a surface scratching, we should see less Twitch, and cultivation would be regarded with more favour. Monsters, from the Great Eastern downwards, have been always more or less failures. The great ship may do for laying submarine cables, but for ordinary work she is a great failure. I have to-day walked over the Woolston farm, and certainly nothing can look better. The cultivation for the whole year has been completed. One piece of land, from which a crop of Mangels has just been removed, needed nothing, owing to the cultivation it received for the last crop, but a horse-scarifying to prepare a good seed-bed for Wheat, which was to-day being drilled. On an adjoining farm, recently purchased by Mr. Smith, the fences have all been cleared away, and a large number of men are engaged in draining, preparatory to a general smashing up, and the place is, in fact, undergoing a speedy and complete transformation; and will, no doubt, in the hands of its energetic owner, soon be on a par with the older cultivated portion of the estate. To a farmer with ordinary means, the purchase of a large set of tackle involves too much capital, and hiring is very uncertain. Joint sets, too, are objectionable, as it is hardly likely that B. will rest satisfied while A. has finished his work; and if the tackle is to be removed backwards and forwards as each has finished a field, too much time, wages, and coals are wasted in travelling. I have for several years been in the habit of cultivating for hire among my neighbours, but I never do this sort of work until my own is finished, and then the season has been sometimes too far advanced for it to have done the hirers much service. I have never coveted this kind of business. On a farm where steam is constantly used, the land is generally more or less prepared for it. In other cases it is often the reverse,—crooked fences, deep water gutters ploughed out, high-backed lands, excess of filth, &c.; in fact, I find that I can never do the same amount of work abroad as I can at home. There may possibly be farms, such as Mr. Campbell's, of Buscott, where there may be room for a leviathan set of tackle, but ordinary occupations will not justify the outlay, and the hiring system is too uncertain to depend upon. Some years since the large Suffolk drills were introduced and hired out. At the present time such an implement is, in this part of the country, rarely seen. Instead of hiring, each farmer prefers to keep a little handy six or eight furrow drill of his own, which can be brought out at a minute's notice. Steam plough companies will, I think, never be found paying concerns, at all events I should be sorry to invest money in one. Several have come to grief, and others have enjoyed but a very limited amount of success. After 11 years' experience, I do not hesitate to say that any occupier, if he has over 200 acres of strong land, will find it answer his purpose to become the owner of a set of the small tackle for his own use, and, if inclined, he may, when he has finished, give his neighbours a lift and reduce the cost of his own. This is what I have done, and, so far, I am satisfied with the result. *F. W. Bignell, November 2.*——"'Agricola' (p. 1120) shall have the particulars for which he asks," writes Mr. Smith; and he would lecture me; "for it is not gentlemanly to openly doubt statements when a sufficient reference is given." If Mr. Smith will kindly and attentively read over my last communication, he will observe I wished to obtain the required particulars from Mr. Toepffer, as a champion of the larger and more expensive tackle, *versus* the smaller or Woolston system. Can Mr. Toepffer, or any gentleman using the larger tackle, question the correctness of the *Agricultural Gazette* of January 20, 1866?—if so, will they point out the error? Mr. Smith puts forward Mr. Bates' evidence, as given in his letter in the *Times* of August 9, 1869. I asked, has Mr. Toepffer any knowledge of such evidence? and has he any reason to doubt Mr. Smith's figures, as given in the *Agricultural Gazette* of October 16? These are the particulars I require, and long to see the gap in *Bell's Messenger* filled up. Mr. Smith's last sentence I will not notice, but let me hope that he may reply to the postscript of mine of October 23. Having referred me to your paper of January 20, 1866, it gave me an opportunity of reading over his several communications on this subject, also those of "West Indian." Will Mr. Toepffer give his experience on the waggoning of corn? or is the instance at the Britannia Farms, Bedford, of a traction engine being thus used, the first on record? *Agricola.*

Mangel Running to Seed.—The letter of Mr. Bignell in your last week's impression, in reference to the above subject, says one half of the 5 acres of Mangel he sowed "bolted" very badly; the other, which was sown from seed supplied by Messrs. Sutton, was not near so bad, there having been only one day's difference in the sowing, and all treated alike. Mr. B. says this does away with the theory of the season being the cause. I must beg leave to differ on the point with Mr. B., as I have this season seen and examined a few fields of Mangels, several of which were sown from seed supplied by Messrs. Sutton, and in no single instance can I find them less seeded than the others, or better in either quantity or quality. *Francis Hutchinson, Northallerton.*

Societies.

Royal Agricultural of England.

Monthly Council: *Wednesday, November* 3.—Present the Duke of Devonshire, K.G., in the chair; the Earl of Lichfield, Lord Chesham, Lord Kesteven, Lord Tredegar, Sir Watkin W. Wynn, Bart., M.P.; Mr. Baldwin, Mr. Barthropp, Mr. Booth, Mr. Bowly, Mr. Bramston, Mr. Cantrell, Colonel Challoner, Mr. Clayden, Mr. Clive, Mr. Davies, Mr. Druce, Mr. Brandreth Gibbs, Mr. Holland, Mr. Hornsby, Mr. Wren Hoskyns, M.P.; Colonel Kingscote, M.P.; Mr. Leeds, Mr. Milward, Mr. Pain, Mr. Rigden, Mr. Sanday, Mr. Shuttleworth, Mr. Thompson, Mr. Torr, Mr. Wells, M.P.; Major Wilson, Mr. Jacob Wilson, Professor Simonds, and Dr. Voelcker.

The following new members were elected:—

Aitkin, James, Peterborough
Bradshaw, Richard, Tubury House, Abingdon
Brown, Wm. Henry, Brookfield House, Bellbroughton, Stourbridge
Dear, Henry Charles, North Stonham Park, Southampton
De Schroder, Baron, The Dell, Staines, Berkshire
Godson, Nicholls S., Hook Norton, Chipping Norton
Hilton, Robert S., Milstead Rectory, Sittingbourne
Jonas, Henry, 4, Whitehall, London, S.W.
Maxwell, Captain J. R. Heron, Springkell, Ecclefechan, Dumfries
Merriman, Edward Baverstock, Marlborough
Neve, Richard, Benenden, Staplehurst
Parkin, Paxton W., Ridgemount, Bassett, Southampton
Perkins, William, Minster, Ramsgate
Rayment, Edward D., 307, Vauxhall Road, Liverpool
Sadler, William, Ferrygate, Drem, N.B.
Senior, James, The Pennecroft, Stafford
Wyles, Robert, Little Ponton, Grantham

Finances.—Colonel Kingscote, M.P., presented the report, from which it appeared that the Secretary's receipts during the past three months had been duly examined by the Committee, and by Messrs. Quilter, Ball & Co., the Society's accountants, and found correct. The balance in the hands of the bankers on October 31, was 1341*l*. 10*s*. 1*d*. The quarterly statement of subscriptions and arrears to September 30 and the quarterly cash account were laid on the table. The arrears then amounted to 1572*l*. The funded property had been raised to the sum of 20,000*l*. New Three per Cents., and an additional sum, the balance of 8000*l*., which had been ordered to be invested as a Reserve Show Fund, had purchased 4612*l*. 7*s*. 8*d*. New Three per Cents. This report having been adopted, Colonel Kingscote stated that the committee had received two letters from members of the Council asking for payment of their services as judges at the Manchester meeting, which the committee begged to lay before the Council. A discussion having ensued on the laws of the Society as bearing on the subject, as also on the custom of the Council with respect to it, the President suggested that notice of a definite resolution on the subject should be given. Mr. Sanday therefore gave notice that at the next monthly Council he should move "that the rule for the non-

payment of judges who are members of the Council be rescinded."

JOURNAL.—Mr. Thompson (chairman) reported that the Editor and Dr. Voelcker had carried out their tour in Belgium very successfully, and that their report will be published in the next Number of the Journal; they had applied to be allowed to have an illustrative map lithographed, at a cost not exceeding 10*l*., which application the committee had endorsed. The committee also recommended that not more than 6000 copies of the next Number of the Journal be printed.—This report was adopted.

SELECTION.—Mr. Thompson (chairman) reported that the gentleman who had been highly recommended as a member of Council to represent the county of Kent had died within the last few days; they therefore recommended that the election of a member of Council to fill the existing vacancy be postponed until December. This report having been adopted, Mr. Thompson called attention to the pending revision of the bye-laws, and suggested that the existing rules as to weekly Councils should be made applicable to only one intermediate meeting between the monthly Councils during the session of Parliament. This suggestion, having been seconded by Colonel Challoner, was carried unanimously.

GENERAL, OXFORD.—Colonel Challoner reported that the authorities of Oxford having requested information as to the water supply of the showyard, the Secretary had been instructed to acquaint them with the conditions of their agreement. This report having been adopted, it was moved by Mr. Torr, seconded by Mr. Milward, and carried unanimously, that the names of Mr. M. W. Ridley, M.P., and Mr. Robert Leeds, be added to the list of the committee.

IMPLEMENT.—Colonel Challoner (chairman) reported that the proof of the Oxford prize sheet, with conditions, had been adopted, subject to a few minor alterations.—This report was adopted.

STOCK PRIZES.—Mr. Milward reported that a list of prizes for the Oxford meeting had been provisionally agreed to and ordered to be printed. It was recommended that the name of Mr. N. Stone be added to the list of the committee.—This report was adopted.

A letter having been read from Mr. Mason, High Sheriff of Oxfordshire, it was proposed by Mr. Thompson, seconded by Mr. Jacob Wilson, and carried unanimously, "that Mr. Mason's offer to give a piece of plate of the value of 100 guineas for the best managed farm in a district named by him near Oxford be accepted; that the Council, however, are not prepared to offer a second prize; and that the Society do appoint, and defray the expenses of, judges and a reporter, and fix the conditions of competition, all details to be arranged by the Journal Committee after communicating with Mr. Mason, it being understood that the report shall be first published in the Journal of the Society."

A memorial from the breeders of Norfolk and Suffolk polled cattle having been read, the Secretary was instructed to inform the memorialists that the Stock Prizes Committee had complied with their request, viz., that prizes should be offered for the above breed of cattle at the next country meeting of the Society.

A letter from Mr. Swannick, on the subject of pigs being entered for exhibition which do not comply with the regulation of having had a litter within a certain time, or being so far gone in farrow as to farrow before September 1, was referred to the Stock Prizes Committee.

EDUCATION.—Mr. Holland (chairman), in applying for the renewal of the grant of 200*l*., gave an outline of the result of this year's examinations, as has already been published in the last report of the Council, and stated that all those gentlemen who had passed the examinations were, with one exception, about to become either farmers or land-agents. Mr. Thompson having asked whether the result of this year's experiment had been satisfactory to the committee, and received a reply in the affirmative, a discussion arose as to the maximum age at which candidates should be admitted to compete for the Society's prizes; but the recommendation of the committee, that the maximum age be fixed at 21, was ultimately adopted, and the grant was unanimously renewed for the year 1870.

The judges of Potato-diggers reported that the adjourned trials had taken place on October 6, at Manchester, and that the prize of 10*l*. had been awarded to No. 573, Messrs. Coleman & Morton.

A protest having been lodged against Mr. Nixey's Devon cow "Pink" (No. 630), on the ground that she had not produced a calf within the time specified in the conditions (12 months before the date of the show), and Mr. Nixey being unable to certify that she had—the Council decided that the prize awarded to the above-mentioned cow had been forfeited.

An application to have an authorised inscription engraved on a piece of plate, purchased with prize-money won at Manchester, was granted.

The Oxford meeting was arranged to commence on Monday, July 18, and to close on Friday, July 22, at 4 o'clock.

Reports on the recent International Horticultural Exhibition at Hamburg, and on the taking of samples for analysis of the guano from the Guanape Islands, both forwarded by the Secretary of State for Foreign Affairs, as well as a report on the exhibition of the Agricultural Society of New South Wales, held at Sydney, forwarded by the Secretary of State for the Colonies, were laid before the Council.

It was moved by Mr. Thompson, seconded by Col. Kingscote, M.P., and carried unanimously:—(1) That the Council at its rising to-day stand adjourned to Wednesday, December 8, at 12 o'clock. (2) That a committee consisting of any members of Council who are willing to attend, shall meet on Tuesday the 7th of December, at 12 o'clock, to prepare a report to the general meeting,—the report to be laid before the Council the following day. (3) That the half-yearly general meeting of the Society be held on Thursday, December 9, at 12 o'clock.

The Council then adjourned until Wednesday, December 8, at 12 o'clock.

SMITHFIELD CLUB.

A COUNCIL meeting was held November 3. Present—His Grace the Duke of Marlborough, President, in the chair; Hugh Aylmer, John Baldwin, J. N. Beasley, W. B. Canning, John Clayden, Joseph Druce, Samuel Druce, Thomas Duckham, Brandreth Gibbs, Hon. Secretary; Richard Hornsby, Charles Howard, James Howard, M.P.; H. W. Keary, Robert Leeds, E. W. Moore, Henry Overman, John Painter, Wm. Sanday, J. T. Senior, Wm. Torr, Lord Tredegar, Vice-President; J. S. Turner, Jacob Wilson.

The honorary secretary was authorised to apply for the usual license from the Privy Council for holding the Club show.

A committee was appointed to make the necessary arrangements as to disinfecting cattle conveyances. The Council prepared a house list of the eight members whom they recommend to be selected on the Council, in place of those who retire by rotation at the close of the ensuing show.

The offer of the Agricultural Hall Company to prepare, at a cost of 15*l*., temporary accommodation for any animals that may be taken ill during the show was accepted.

It was determined that the Club's annual dinner shall take place in the new dining hall attached to the show, on Monday, Dec. 6, at 4.30 punctually. The stewards and hon. secretary were requested to make the necessary arrangements connected therewith.

Authority was given for the preparation of the pieces of plate and silver cups offered by the Club at the ensuing show.

The following were duly elected members of the Club:—The Earl of March, M.P.; Charles M'Niven, Perrysfield, Godstone; Mr. Milburn, 76, Church Lane, E.; Rowland Wood, Clapton, Oundle; John Unite, 291, Edgeware Road; James G. Unite, 291, Edgeware Road; Frank John Unite, 291, Edgeware Road; James Hart, 244, Whitechapel Road; Nathaniel Stilgoe, Manor Farm, Adderbury, Oxfordshire; Wm. T. Franklin, Ascott, Wallingford; Joseph Pulley, Lower Eaton, Hereford; Francis Dodd, Rush Court, Wallingford; C. Stephenson, Woburn, Beds; John C. F. Ramsden, Busbridge Hall, Godalming; J. E. Heasman, Angmering, Arundel; Eli Benjafield, Stalbridge, Dorsetshire; James Mason, Eynsham Hall, Witney; Thomas Franklin, Ascot, Wallingford; Joseph Franklin, Milton, Wheatley, Oxon; Philip Turner, The Leen, Pembridge, Hereford; Sir Anthony D. Rothschild, Bart., Aston, Clinton, Tring; James Reid, Graystone, Alford, Aberdeen; Thomas C. Booth, Warlaby, Northallerton; the Earl of Radnor, Coleshill, Highworth.

The Council determined that the report on the live stock exhibited at the show be written, as for the last two years, by Mr. H. H. Dixon.

The Council, having considered whether by the rules certain entries of live stock could be received, came to decisions on the same, and gave instructions accordingly.

The best thanks of the meeting were voted to his Grace the President for his able conduct in the chair.

Farmers' Clubs.

LONDON.

Nov. 1: *Continental Farming.*—After Mr. Howard's lecture, reported in another page, a short discussion ensued.

Mr. J. K. FOWLER had seen much of the farming on the Continent, and regretted that Mr. Howard had not more fully described its dairy management. He quite agreed with him that Sugar-Beet would make great headway in this country; but distilling from Beet would not pay, as the spirit was so inferior to Grape spirit. Another subject was the sheep and cattle imports to the Continent from this country. English machinery did not take so well, as in many instances there were not mechanics capable of repairing our highly-finished and expensive productions. In some instances, however, as on the large farms and estates of noblemen and princes, machinery has been successfully used. He referred to the Continental beer. He had never seen anything in which so great an improvement had occurred in the last few years as had taken place in Continental beer. This he attributed to the fact that there was no odious Malt-tax.

Mr. READ, M.P., said the paper just heard would be as valuable in a political as in an agricultural sense. He was glad to find that the labourers in this country were better cared for than they were on the Continent. John Bull is apt to be very conceited and stupid. It must be remembered, however, that though 20 years ago the Continental farmers were in the very depths of misery, if we do not mind, they will go on improving till, instead of our being first in the race, we shall be very far behind.

Dr. VOELCKER was very pleased to hear Mr. Read say that the agriculture of some parts of the Continent had greatly improved during the last 20 years. But he regretted that this could not be applied to Belgium, for during his recent tour with Mr. Jenkins, after an interval of 16 years, he only saw a certain improvement in stock, which he traced to strains of English animals. He believed the corn grown was better formerly than now. He must not, however, say more about Belgian farming, or he should take the gilt off their coming report. He might remark, however, that the Belgians on more than one occasion expressed their astonishment at finding English gentlemen coming over to look at their farming, as everything which was good there had, they said, been learned in England, or by reading English publications. In regard to Sugar-Beet, he believed England was better adapted for growing this root than was the climate of Belgium. If any English farmer wanted a lesson in growing Sugar-Beet, he must not go to Belgium, but to Northern Germany, in the neighbourhood of Mecklenburg. He then described minutely the proper plan of growing the Sugar-Beet root, the gist of which was that it should vegetate entirely below the soil. He then gave the results of analysis which he recently made, viz., there was only one-half as much sugar in that grown above the ground as there was in that grown under the soil.

Mr. CROSSKILL questioned whether the result of the profitable growth of Sugar-Beet on the Continent was not due to the protective system under which it began, viz., the high duty on colonial sugar imported into the Continent. He also questioned Mr. Read's conclusion that Continental farmers had improved more rapidly than English farmers had during the last 20 years. He then referred to Mr. Fowler's remarks about beer. By them he was reminded of an agent for Bass's ale in Yorkshire, who was wont to exclaim, "Beer is the great civiliser of the human race. Missionaries even sent beer to precede them; they took beer to fortify themselves; thus they were able to convert the heathen to Christianity!" This was of course only calculated to create a laugh, but it was appropriate to Mr. Fowler's conclusions. For his part he thought it would be better to teach the labourer to avoid an increased consumption of beer.

Mr. EVE had found the beer on the Continent very bad. He could not but remark on the large importation of eggs and even milk, which was about as rich as London milk, and very much purer, from Switzerland.

Mr. PELL, M.P., said Mr. Howard had touched on the improvement only in large farms, and had scarcely touched on cottier farming. He expressed his opinion that the conclusions of Mr. Howard as regards *petit culture* and large farming were likely to convey an erroneous impression to the Club. These conclusions were very likely to be arrived at by a man like Mr. Howard, who has done so much for the advancement of English agriculture. As regards irrigation, they were much before us on the Continent, and he believed the sewage of our towns might be utilised to a much more profitable extent. The water of our streams, too, might also be raised for irrigating fields at a very small cost in many cases. As regards Sugar-Beet, he (Mr. Pell) did not place much faith in the attempt of the English farmer to compete with tropical countries in producing sugar. With beef and mutton at 8*d*. and 9*d*. a pound, he thought the practice was wrong in principle, both for the farmer and the consumer. For his part he would rather preserve and increase his flock of sheep than sell his roots or establish a sugar factory.

The CHAIRMAN thanked Mr. Howard, and said, the character of the subject had made his paper more of a lecture and less suitable for discussion; but he was sure that when they came to read it quietly they would be better able to understand its points. One thing was perfectly clear from Mr. Howard's remarks, viz., that the labourer on the Continent worked much harder for much less pay.

Mr. HOWARD, in regard to Mr. Pell's remarks, said that he had not advised the English farmer to alter his system, he had only described what he saw, both as regards large farms and *petit culture*. If Mr. Fowler were present, he would advise him to read a paper next year "On the Pasture Farming of the Continent." In reply to Mr. Croskill's observations, he would say, if we had a free breakfast table, as was talked of, there would be nothing for the British farmer to complain of in regard to the sugar duties.

LAVENHAM.

Annual Meeting.—At the annual meeting of this Club last week there was quite a display of vigorous eloquence, and we take the following passages from the report in the *Suffolk Chronicle*:—

Mr. T. P. HITCHCOCK said we had heard a good deal lately of the condition of the agricultural labourer, and we had read a good deal about it in the newspapers. Now, the primary object of the Lavenham Farmers' Club was to improve the condition of the agricultural labourer. If they offered prizes for labourers and got them to compete for them they improved their labour and made them more skilful, and by that means enabled them to earn more money, and thus improve their social condition. At the late Social Science Congress, Canon Girdlestone, the would-be improver of the agricultural labourer, said no deductions should be made from wages for beer or cider or for wet weather, as if they were to claim for the agricultural labourer alone of all classes perfect immunity from "all the ills that flesh is heir to." They might as well say the labourers should never be ill, should never grow old, and should never be like every other man. How was that to be? It was perfect rubbish. The farmers did not pretend to be philanthropists, but they lived among their labourers, their interests were to a great extent identified with those of their labourers, and he was sure they were as much the friend of the labourers as those theorists and visionaries who went trudging about the country talking of what they knew nothing about.

Mr. J. J. MECHI said he was instructed by the Chairman to propose the health of the President and Vice-President, whose absence they regretted, and in their absence of their Vice-Chairman, Mr. Wm. Biddell. It would, perhaps, be expected of him that he should say a word or two about agriculture. He was only an apron-string farmer, but still he was a partially practical farmer—a scientific farmer if they liked. He had formed certain views upon the subject of the general agriculture of the kingdom, but before he proceeded to the general subject they would allow him to say he

had been very much interested in what he had seen that day. He had been exceedingly pleased and glad to find in their comparatively retired part of the country they were luxuriating in steam, not only in their fields but also in the conversion of their produce into an article of everyday use—sugar. The sugar manufactory was a very fine and splendid undertaking, and he had been exceedingly interested in going over it that day; and if they studied the operations going on in that manufactory they would find that science had had almost everything to do with the rendering those operations profitable, and they would conclude that it would be well for agriculture to seek the aid of science to render its pursuit more profitable to themselves and advantageous to the community at large than at present. We were in a transition state—passing from the primitive pastoral state, when the people were few and Grass superabundant to one in which there was a treble population. We now had a population of 32 millions instead of 10 millions in the year 1800. Those millions who were engaged in manufactures required to be fed every day, and looked to their brother countrymen, who were agriculturists, to produce more than they used to do by the investment of greater capital and enlarged intelligence.

Then came the question—has that been done, or has the limit of it been exhausted? He thought they would agree with him that we were only on the threshold of agricultural progress. It was only the other day that we discarded the flail for the horse threshing machine, and soon after doing so we found steam-power cheaper than horse-power; and could they not carry this further and see if steam is not also applicable to the cultivation of the land? To show them the extent of the power of steam he would tell them that he asked the engine-driver that day what was the power of the engine of 14-horse power which he was driving comparatively with horses, and also the pressure per inch at which he was working? and he was rather astonished to learn that at a pressure of 160 lb. to the inch, and with the power fully applied, it was equal to 56 horses. What did they see in the great marine engines? One of these was nominally of a 1000-horse power, but was equal to 6000 actual horses. Let them make up their minds never to use a man where they could use a horse, and never to use a horse where they could use a steam-engine.

This brought him to the question "Have we capital enough for the purpose?" It could not be denied that they were going now from the expenditure of a small capital to the necessity for a large one in agriculture—a much larger one—and if they had not got it themselves they must get it from some one who had got it. They did that practically in the matter of steam-engines, for if they could not afford to have one on the farm, or if the farm was not large enough to employ one fully, they went to some one who had capital and embarked it in an engine which he was willing upon payment of fair interest to let to them. But he was not a believer in agriculture being short of capital. Go into what place he would, he could find a number of quiet comfortable men with very large capital invested in everything but agriculture. He could point to a case near him where a very respectable gentleman told him he could not afford to put up covered yards and steam-engines, but he (Mr. Mechi) knew that gentleman had 40,000*l.* out in loans and mortgages. He would not admit that there was a want of capital; what was wanting was the belief in the power they had to invest the capital. They were not in a different position to the manufacturers, for the history of all manufactures was that those engaged in them were at first opposed to all the most profitable and interesting inventions that were brought to bear upon those manufactures. Let them remember how, in the early days of railways, great cities looked upon the railway-engine as a horrible thing, and would not have the lines brought near them, and what had been the consequence? Why, they had had to make lines at great expense to bring them into communication with the great systems, simply because they would not believe in the advantage of railways in the first instance. Let both landlord and tenant open their minds to this fact, for recollect that agricultural improvement must be done by landlord and tenant for their mutual benefit.

One improvement must strike every landlord, as it struck him that day, when he saw a nasty awkward corner of the field they were cultivating interfering with those two engines of Fowler's. A great nuisance existed there, causing loss to the farmer and deterioration in the value of the land, so that the tenant could not afford to pay to the landlord the full value of the farm. A great many years ago he (Mr. Mechi) made war upon the pollards of Suffolk, and he believed it had been admitted, although he was a good deal abused at one time, that a good many of these nonsensical pollards had succumbed to the attack. But they had not half done the work yet; and their enlightened landowners—they were enlightened, but, like the tenants, their prejudices could not be overcome at once—must be convinced on another point. They still retained a love for the rural and forest-like appearance of the country arising from the many hedgerows and small fields, but when they thoroughly understood that these horrible little fields and hedges were the cause of such a loss both to themselves and to the tenants who invested 800*l.* or 1000*l.* in engines for steam cultivation, they would no longer wish them to exist. Everyone would see that if a tenant made a greater profit he could afford to pay a better rent to his landlord, and, practically, that was what would follow improvements.

Were they aware what is the produce of this kingdom per acre? He had had to look out what the produce came to, taking the United Kingdom, and he believed from the best authorities our present produce does not exceed 3*l.* 12*s.* per acre. He would tell them how it was. Half the United Kingdom is in pasture, and a great deal of it is poor, miserable, wretched pasture, which is robbed for the sake of the uplands and other good land. Before our country can take her proper position, before she produces the 365,000,000 eggs a year that Colonel Parker told them we import from abroad, these worthless grass lands, which on the average do not produce more than 40*s.* a year, must be made by cultivation to produce, as some of theirs produced as he had heard that day, 20 tons of good Beet, worth 20*l.* an acre. Was it right for them to allow the present state of things, when this land could be made to produce more? Let landlords and tenants lay their heads together and give up old prejudices, and the belief that they were short of capital when they were not, because they were lending millions to foreigners—something like 300,000,000*l.* sterling—and cease to cry out "Where is the money come from?"—that was a little piece of hypocrisy; and when they were convinced (as they were being convinced), that it answered their purpose to take 20*l.* an acre for a good crop of Beetroot, let them not spend it all when they had got it, but put a little back in the shape of cake, and a little in corn.

This led him to the question whether it was profitable for them to support this excellent sugar manufactory—the only one existing in the United Kingdom. To arrive at a proper conclusion, he would ask them—What would the bullocks pay for this 20 tons of Beetroot, and how much the manure they make was worth? The question was not yet solved, whether it would pay them better to sell the Beet to the sugar maker, or to feed bullocks on it. He had heard it said that it takes a ton of Beet to make 14 lb. of meat, and, perhaps 5*s.* or 6*s.* worth of manure; and if that calculation were correct, and they could grow 20 tons of Beet an acre, it would pay them very handsomely to sell it to the sugar maker. He had been laughed at a great many times, but he farmed for profit, and he obtained it by draining his land, throwing down fences, having all the land growing something, feeding a large quantity of cake and corn which did not grow on his land. He thus made a profit for both landlord and tenant. Did they believe in his profits? [A Voice: No.] He thought not. [Cheers and laughter.] That was a very honest answer, and he expected some such reply from some quarter, but he was there to speak the truth, and he could only tell them this—that on his farm, which was almost all arable—he had only 14 acres of Grass—he found he had 16*l.* an acre capital as tenant, and he found that was not enough, and he could not hold his corn as he would like, but had to sell a good deal of it to buy bullocks. He wanted 20*l.* an acre capital as tenant. If they asked how it was invested he would tell them. There was 6*l.* an acre in live stock when he took stock, which was at Christmas; his tillages, which were deep and included all manure, came to 3*l.* 10*s.* per acre; horses, 1*l.* per acre; implements, between 2*l.* and 3*l.*; and the unsold stock, corn, &c., he had came to 3*l.* or 4*l.* an acre; which brought up his capital to 16*l.* an acre: but he could make a greater profit if he had 20*l.* or 24*l.* an acre to land all arable, excepting 14 acres. That was a question of pounds, shillings, and pence. Was it better to put 20*l.* on 1 acre than on 2 acres with two rents, tithes, and taxes, two seeds, and so on? [Mr. H. Biddell: And two crops.] They would grow maximum crops as large on one acre as with ordinary farming they would on two, and that was the way he made his profits; and when he told them his profit, as landlord and tenant, on 170 acres was something like 612*l.* a year, they would think it was not so very bad considering that he was an apron-string farmer. He could not do it with 10*l.* an acre capital, nor with 12*l.*, but he could with 16*l.*, and he could do more with 20*l.* He knew many thought 10*l.* an acre was ample, and if they had plenty of poor Grass it was, but not if they had all arable land. The great want, especially if they grew roots to sell off their farm, was more manure; and there was no way, his experience had taught him, of producing that manure so cheaply and of such good quality as by feeding animals under cover on what did not grow on the farm—cake, especially, and corn—that was better than all the artificial manure, except in some peculiar soils where superphosphate was needed. Then, as to the treatment of manure, when they had got guano it would not do to put it down in the farmyard and let the rains of heaven wash it away—if a man were to do that they would think he was insane or a great fool; but that was just what they did when they allowed that still better guano they made at home to be so washed and turned over and made into muck heaps by the side of the road and rained upon. They were, in so doing, making a fatal economical mistake.

Those who had seen his crops would know whether the estimate he was going to give them were correct. He got his bailiff to measure his root crops before he came, and he found on each square rod 78 roots averaging 7 lb. each, representing 39½ tons of long red Mangels per acre; and the globe Mangels, with the same number of roots to the rod, came to 37½ tons an acre. How were such crops produced on poor land which let before he had it at 18*s.* or 20*s.* an acre? It was by drainage, deep cultivation, and above all by the consumption of 20 tons of cake and corn fed under shelter, taken like hotch-potch pudding directly from under the animals and put on to the land and ploughed in like guano. The finish of the rotation on part of his farm was two Wheat crops—White Wheat followed by Rivetts. He was asked what he had after Wheat, and he replied that he rested it with 40 tons of Mangels. That was his resting crop, and he could not make it except with the quantity of stock he kept, and if he could get it off in time he went in for another Wheat crop. Let them have their land clean, and get their landlord to drain it for them and put up good buildings, paying him a fair interest, and they could increase the food for the people grown in the kingdom from 3*l.* to 10*l.* or 12*l.* an acre, and thus retain in the kingdom a large proportion of the 70,000,000*l.* a year we pay for foreign produce, including tea and articles of that kind. But then came the question, did they put all this food which they consumed on to the land again and thus increase their crops? No, we are only coming gradually to that, and the gentlemen in Ipswich, Norwich, and other large places are just coming to believe that 30,000,000 of sheep being good for the land, if 30,000,000 of people were added to the 30,000,000 of sheep in manurial power we should be in a different position with regard to the production of meat and other food to that we now occupied. That was a question for the towns, and it was a question for the agriculturists too. He knew a party who had the grant of all the sewage of North London for 50 years, but what was the use of carrying gas or coals to people who won't have it? He believed the Corporation of Norwich had taken 1300 acres of land, and were going to pump their sewage on to it, and they had already been bid 6*l.* an acre for the land on which the sewage would be used. A very eminent man connected with Liverpool had informed him that people were willing to give 25*s.* a-day for the use of a 2-inch pipe of sewage, and at that rate they would get a very good return for the large investment in machinery. That enormous stream of food that goes into London should come out again. It can come out again into the country provided they were all prepared to say—landlords particularly, for it was to their especial interest—that when it is brought they would pay a fair price for it—such a price as would leave a satisfactory profit, because none of these things would be done without a profit. Let them believe him, it was for their interest that landlords as well as tenants should work together to make agriculturists as free as they could. He could not agree with the statement that if Manchester was in ruins the land would still prosper. Don't believe it. Your beef, mutton, and corn would not fetch the prices they do now if you could sweep away from England that which employs the largest number of her children—her manufactures. It was her manufactures that made her great and wealthy, and it is through them that she will retain her greatness. I hope we shall see town and country united for their mutual good, and with no jealousy between them—and that buyer and seller may see that they are necessary for each other's profit and the good of the country.

Mr. Hitchcock said Mr. Mechi misrepresented him when he said that he (Mr. Hitchcock) stated that the country would prosper if these great towns were in ruins. He said no such thing. What he said was that their fields would be cultivated then, and in proof of his assertion he pointed to the Campagna of Rome, which was cultivated though Rome had fallen. He did not mean that they would be equally prosperous, and, said Mr. Hitchcock, when I said "you," I did not mean you, but your posterity long years to come.

Mr. Wm. Biddell, the Vice-Chairman, returned thanks, and after an allusion to the flourishing condition of the Lavenham Farmers' Club, said they had been asked for their opinions with regard to the Sugar-Beet. He had not experienced those great crops that the sanguine among them expected last year, but he had come so near them that he was inclined to grow a greater breadth next year if Mr. Duncan would offer the same inducements that he had done this year. He believed when they selected their seed they would improve both in the bulk and quality of their crops, for he could not but think the seed they had was very bad. For his own part Mr. Mechi's statement required a great deal of digestion before they became assimilated into his (Mr. Biddell's) agricultural system—but at the same time they had to thank Mr. Mechi for a great many things. He did not agree with all Mr. Mechi's experiments, and he should not be wrong if he said that he agreed with very few of them; but as Mr. Mechi had become public property, and possessed such a wonderfully good temper—he did not feel any diffidence in making some comments upon them. He must think Mr. Mechi, when called to a better world, would leave his mark upon the day in which he lived. Did they know what had been the effect of his crusade against thick sowing? He would tell them. There were about 3½ million acres of Wheat grown a year in the country, and he did not exaggerate when he said Mr. Mechi had decreased the quantity of seed by half a peck per acre; and, spread over the whole breadth grown, that half peck per acre became a great saving of food, and a gain to the country of between 100,000*l.* and 200,000*l.* A man who had done that deserved well of his country, to say nothing of his war against pollards and his advocacy of deep draining. Not that he (Mr. Biddell) was altogether one of those who believed in 5 or 6 feet draining, but they were going wrong when Mr. Mechi set them right. Mr. Mechi was one of the sanguine people who were the leaders of the world. It was they who took steps in advance of the common run of people—sometimes they broke their necks over the obstacles, but without them we should not have advanced as we have. As to the heavy outlay of which Mr. Mechi spoke, he could understand that by making a double outlay of 20*l.* an acre he could largely increase his produce, but the difficulty remained that they could not get two crops in one year. He had never seen the year when a double crop was obtained to pay for this double outlay of capital.

Mr. H. Biddell said the gentleman who alluded to the condition of the agricultural labourer only went into the question a little way. He got as far as Canon Girdlestone, and there he pulled up, and just where he pulled up, he (Mr. Biddell) wanted to begin. The Canon had been from one end of the kingdom to the other preaching right and left that the agricultural labourer is not paid sufficient to keep body and soul together; but while he was preaching this they saw him linked hand in hand with men like Mr. Potter,

Mr. Beales, and Professor Fawcett, who were bringing forth resolutions which they said they were going to press, the effect of which was, that we are to have compulsory education. Whether the labouring man can keep his children or not, still he shall educate them. Whether they should put the child to work at eight, or 10, or 12, was another question; but he should like to put this question—if a man with five or six children gets 10*s.* a week, which Canon Girdlestone protests is more than they earn in his neighbourhood, and one of the children earns 2*s.* and and another 3*s.* a week, if you compel that man to drop 50 per cent. of his income by preventing his children from earning anything and compelling them to be educated, how are the man, his wife, and children to live on 10*s.* a-week? That was a point he wanted cleared up, and the man who brought the matter to that point should clear it up. He was no enemy to education. He thought every man should be able to read and write, and to see a man neither able to read his Bible nor sign his name was a state of things no one wished to continue. At the same time, if a labourer and his family had hardly enough to subsist on it was a cruel thing, because you persist that his children shall be educated, to say he shall have less to support them upon. He could see no solution to the question at all, but would be very much gratified to see it solved. No doubt it was gratifying to see a clergyman of a parish where the inspector came round, to find the children at his schools ready at once with the latitude and longitude of Seringapatam, and able to answer all sorts of questions of that sort, but if this knowledge were gained at the expense of a glass of beer to the father and a piece of meat to the mother, when in a weak state, they had no right to expect it. Till we have put labourers in a condition to keep themselves and their children, and have their children at school, we have no right to force them to go there. The last resolution of the National Educational League was, that education should be compulsory, and he could not conceive of compulsion without imprisonment as the alternative of disobedience, and the effect would be that whether the father had the money to feed his children or not he must not take advantage of their labour on pain of being sent to gaol. That wanted very careful handling. He did not want to stand up as an enemy to education—he wished to further it, and if a Bill were introduced into the House of Commons he would not counsel factious opposition to it, and he would ask his brother farmers to give their information and assistance to their members, in order that such a bill might be framed as would meet the case, but he would at all times protest against compulsory education, which would bring compulsory starvation in its wake. He knew the same parties who formed the Education League would tell us it was not the plodding man—it was the brilliant intellect and the faculty of inventive genius that we want to further, but to such he would say as the Spanish minister said to his Queen, "It is not so much philosophers your Majesty stands in need of as happy and contented subjects." He did not wish to follow Mr. Hitchcock into the agricultural subjects that are not connected with agriculture, on which that gentleman had spoken. He had heard Mr. Mechi allude to the land he occupied at Tiptree, as being poor land. The question he was going to put to Mr. Mechi was not in the spirit of opposition, but it was a plain question, which he knew he would answer. He had heard it asserted by gentlemen living in the neighbourhood of Tiptree, whose integrity he could not doubt and whose veracity it would be folly to question, that a good part of the land Mr. Mechi occupies was capable and did produce on an average 4 quarters of Wheat an acre before he took the farm. Now land that did that could not be very poor land, or we had a vast quantity of very poor land in the best districts of Suffolk. He hoped wherever Mr. Mechi went he would be received in the manner which his equal temper entitled him to expect. He had had to meet attacks in which the writers and speakers would have done well to copy the equal temper of the man they attacked, and they would have got out of it a little better. He (Mr. Biddell) did not disbelieve Mr. Mechi's word, but he disbelieved the conclusions at which he arrived, and he was not a believer in the profits of the Tiptree Hall Farm.

Mr. MECHI, in reply, said Mr. Biddell said he did not believe his statements. That was a point on which he (Mr. Mechi) could not argue, but Mr. Biddell said that Tiptree Hall land was not poor land. The other day some of the land adjoining his, of the same quality as his was, unimproved, undrained, and with fences like his had when he bought, it was sold for 20*l.* an acre. He had no doubt there were portions of his farm on which 4 quarters an acre had been grown—perhaps 35 acres. In 1842, his land was undrained and full of fences, and he was told that the yield of Wheat that year was 1½ quarter an acre. Last year he had 75 acres of Wheat which averaged 6 quarters an acre, and that was some improvement. Having built a very large barn he was told by all his friends that he should never fill it, and consequently he was rather sparing in his first purchase of rick frames, but bought four; the next year he bought four more, and then added another four, and this year he had his barn and rick frames full and stacks besides. He believed the time was coming when no bullocks would be allowed to range on the land or pastures but all would be kept under cover; and he advocated folding sheep on the land with iron hurdles, changing them twice a day, and taking the proper mixed food to them, and they would make more meat at a cheaper rate and manure the land better than by being allowed to range on the old system. Another thing he wished to mention was, that whilst everyone around him had the foot-and-mouth disease none of his bullocks under cover had taken it, and in the same way he escaped the cattle plague.

Farm Memoranda.

ROXBURGHSHIRE, TWEEDSIDE, *October* 30.—There has been a good deal of grain brought into the markets this month, and we have now a good idea how the crops are going to yield. Barley was very bulky, and is threshing out a capital crop; in the earliest districts it was cut and carried without getting a single shower; the colour is not so fine as last year, but the weight much the same—from 57 to 60 lb. per bushel, and it fetches from 38*s.* to 40*s.* per quarter. In the later districts they were caught by the broken weather, which discoloured the grain, and a good deal of it was carried in bad order, and heated, which accounts for the large number of inferior samples that are coming into the markets. Oats were generally short in the straw, and will be a light crop—they were very much damaged by the weather, not only in the stook, but also in the stack, particularly where they were not thatched, for the heavy rains drenched them down, and they had to be carted out dry. There is also a large quantity spoiled by heating, especially in the high districts: the samples that were got in early are fine and heavy. Potatos are a capital crop, and we have heard of no disease amongst them; Turnips are also very good. Stock of all kinds has done well through the summer, and are put on to Turnips in capital condition. The murrain has been prevalent amongst the cattle, and in a few cases the sheep have taken it also, but it has been of a mild type, and has not thrown them very much back. There is a good demand for the cattle that are coming into the markets, and high prices are given for them. Sheep have also been much inquired after, and are selling dear. Draft ewes will be up from 8*s.* to 10*s.* a head from last year. A number of farms have been advertised to let this month, for which there has been a great competition, and are letting at a considerable rise over the old rents. *H.*

Calendar of Operations.

NOVEMBER.—*Wheat-sowing* on autumn fallows that have been manured should now be concluded with all possible despatch, and after root crops as soon as they are removed from the ground. Although Wheat likes a stale furrow seed-bed, it is beside the question, practically speaking, to talk of a stale seed-bed in lands ploughed during November, which is generally cold and rainy. There are no doubt exceptions to this, viz., long periods of dry frosty weather. But even in such cases November weather should not be trusted to a single night, and therefore the safest plan is for the steam tackle to go back to the seed-drill and harrows, and bring up the seeding every day close to the ploughing; for if rain falls over-night the seed-bed is better to-day than to-morrow, and if it continues dry and frosty the land will make the seed-bed improve just as well, if not in many cases better, after being seeded than before.

Mangel Wurzel, however favourable the weather may have been hitherto, should now be stored without delay, as directed during last month. If frost has set in before they are lifted, so as to affect the roots, it may be advisable to give them a few days fresh weather to recover; but if the risk is greater than the prospect of advantage, pull and store in pits of a less size. The roots thus stored will require to be examined in the course of ten days or so, as the pits may need to be turned, and any frost-bitten roots which have not recovered thrown out. The pits may be so made that in turning them two or three may be made into one of twice or thrice the size, and, as a rule, if Mangels are the least touched with frost they should be thus stored and turned before being finally earthed up for the winter. The expense is little compared with the safety of so valuable a crop. Select a fine drying day for turning, and throw aside all roots in the slightest degree affected, the bulk of which may be turned to some account in feeding store stock.

Early lambs for Christmas should now be forced forward, bearing in mind that the fineness of the quality depends upon the food of the ewes and what little the lambs themselves eat exclusive of milk, and that plenty of rich milk is the natural and best food for making lamb which will fetch the top price in the London market; and further, that quantity of milk will not make up for quality. Corn is better than cake for making rich milk, Clover hay than meadow hay, Cabbages than Turnips, and the yellow-fleshed varieties of Turnips are to be preferred to the white-fleshed. Sheltered pastures should be set apart for ewes and lambs, and where there is not shelter naturally, stuffed hurdles should be used or straw webbing, as directed in spring-time, one row above the other slanting so as to form a semi-roof for the ewes and lambs to go under in rainy weather. This will also serve the ewes that are lambing to supply the demands of the new year, and the season onwards. As a rule the skins of ewes and lambs must be kept dry, and if this cannot be done outdoors, it is better to house the flock at once in roomy pens, and feed wholly on artificial food. *W. B.*

Notices to Correspondents.

MANGELS AND FROST: *W M.* If "W M" means that he moved and bruised his Mangels whilst frozen, then, probably, they will not keep long. But Mangels will now stand a good bit of Autumn frost, if left untouched till their frozen condition has been altered by a change of temperature.

PEDIGREE IN LIVE STOCK.—*Mr. Willoughby Wood's* paper on this subject must, unfortunately, be delayed a week.

THE WOOLSTON ACCOUNT OF STEAM CULTIVATION: *G A H.* and *Mr. Smith.* We have letters from both of these gentlemen, and must ask them to forgive the delay of a week. The Farmers' Club reports have taken all our available space.

SULPHURIC ACID: *L S D.* Your question about gas water has been forwarded to a competent authority, and will be answered next week. Do not mix it in composts. An alkali would be more serviceable than an acid for such a use. Vegetable composts will rot under the influence of moisture, air, and time, without any other aid.

Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the Corporate Mark, OBTAIN WARRANTED without which none are genuine

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make all of which are warranted both by Sellers and Makers.

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ORCHARD-HOUSE SIZES.

in.	in.		4ths.	3rds.	2nds.	Best
20 by 12						
20 by 13						
20 by 14	Per 100 feet	15 oz.	12*s.* 3*d.*	15*s.* 6*d.*	16*s.* 0*d.*	18*s.* 0*d.*
20 by 15		21 oz.	18*s.* 0*d.*	20*s.* 0*d.*	22*s.* 0*d.*	24*s.* 0*d.*
20 by 16						

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7	11*s* 3*d*	12*s* 6*d*	14*s* 0*d*	15*s* 6*d*
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½				

Per 100 feet.

10 by 8	12 by 9	12½ by 10½	14½ by 10½	11*s* 9*d*	14*s* 9*d*	15*s* 3*d*	17*s* 6*d*
10½ by 8½	12½ by 9½	13 by 10	15 by 10				
11 by 9	13 by 9	13½ by 10½	13 by 11				
11½ by 9½	12 by 10	14 by 10	14 by 11				

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
15½ by 10½	14 by 12	22 by 12	22 by 16	12*s* 3*d*	15*s* 6*d*	16*s* 9*d*	18*s* 0*d*
16 by 10	14½ by 12½	17 by 13	24 by 16				
14½ by 11½	15 by 12	23 by 13	20 by 17				
15 by 11	15½ by 12½	18 by 14	22 by 17				
15½ by 11½	16 by 12	22 by 14	24 by 17				
16 by 11	16½ by 12½	24 by 14	20 by 18				
21 by 11	17 by 12	22 by 15	22 by 18				
13 by 12	18 by 12	24 by 15	24 by 18				

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SHEET GLASS.

In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	34*s.*	4ths quality, per 200 feet case,	34*s.*
3ds " "	40*s.*	3ds " "	40*s*
2ds " "	60*s.*	2ds " "	60*s.*
Best " "	75*s.*	Best " "	75*s.*

SHEET GLASS is made only in the following substances, 15 oz. 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.

HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.

BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.

STUCCO PAINT, 24*s.* per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

WHITE ZINC PAINT, 36*s.* per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a-half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.

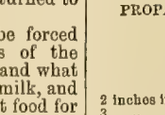
IMPROVED ANTI-CORROSION PAINT, 28*s.* to 34*s.* per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4*s.* per gallon.

	Per cwt.—*s.* *d.*		Per gallon.—*s.* *d.*
GENUINE WHITE LEAD	30 0	LINSEED OIL	2 9
SECONDS WHITE LEAD	28 0	BOILED OIL	3 2
GROUND PATENT DRYERS, 3*d.* to 4½*d.* per lb.		TURPENTINE	2 9
" OXFORD OCHRE, 3*d.* to 4½*d.* per lb.		LINSEED OIL PUTTY, 8*s.* per cwt.	
" RAW UBER, 4½*d.* to 6*d.* per lb.		Fine OAK VARNISH, 10*s.* to 12	0
" BURNT do., 6*d.* to 9*d.*	[per lb.	" CARRIAGE do., 12*s.* to 14	0
GREEN PAINT, all shades,	28*s.* to 60 0	" PAPER do. 10*s.* to 12	0
BLACK PAINT,	24*s.* to 36 0	" COPAL	16 0
RED PAINT ..	28*s.* to 36 0	KNOTTING	10 0
		Patent GOLD SIZE ..	10 0
		" BLACK JAPAN ..	12 0
GROUND BRUSHES.		GLAZIER'S DIAMONDS and TOOLS	
DUSTERS. | SASH TOOLS.		MILLED LEAD and PIPES	
DISTEMPER BRUSHES.		OLD LEAD Bought or taken in exchange.	

The above are Net, for Cash, and as such cannot be booked. Lists of any of the above on application.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their REDUCED PRICES as follows:—

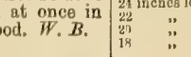
PROPAGATING  GLASSES.

	Each.—*s.* *d.*		Each.—*s.* *d.*
2 inches in diameter ..	0 3½	12 inches in diameter ..	1 9
3 " " ..	0 4½	13 " " ..	2 0
4 " " ..	0 5½	14 " " ..	2 6
5 " " ..	0 6½	15 " " ..	3 0
6 " " ..	0 8	16 " " ..	3 6
7 " " ..	0 10	17 " " ..	4 0
8 " " ..	1 0	18 " " ..	5 0
9 " " ..	1 2	19 " " ..	6 0
10 " " ..	1 4	20 " " ..	7 0
11 " " ..	1 6		

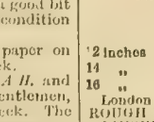
BEE GLASSES, with ventilating hole through knob.

4 inches in diameter ..	0*s.* 6*d.*	9 inches in diameter ..	1*s.* 8*d.*
5 " " ..	0 8	10 " " ..	2 0
6 " " ..	0 10	11 " " ..	2 6
7 " " ..	1 1	12 " " ..	3 0
8 " " ..	1 4		

Either flat or conical tops.

CUCUMBER  GLASSES.

24 inches long ..	2*s.* 0*d.*	16 inches long ..	1*s.* 4*d.*
22 " ..	1 10	14 " ..	1 2
20 " ..	1 8	12 " ..	2 6
18 " ..	1 6		

HAND GLASSES,  WITH OPEN TOPS.

	Each.—*s.* *d.*		Each.—*s.* *d.*
12 inches	6 6	18 inches	9 6
14 "	7 6	20 "	10 6
16 "	8 6	22 "	11 6
		24 "	12 6

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS. PAINTS of various colours ground ready for use.

SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of Prices and Estimates forwarded on application to JAS. PHILLIPS AND CO., 180, Bishopsgate Street Without, E.C.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

MR. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

Acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in GARDENERS' CHRONICLE *of International Exhibition, May* 24, 1862, *page* 476.

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

☞ *They are made of all sizes, which, with prices, may be had on application.*

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

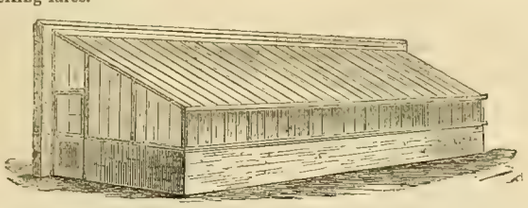
A LONG-FELT WANT PROVIDED.

A NEW ERA IN THE HORTICULTURAL WORLD.

EVERY PERSON POSSESSING a GARDEN CAN NOW ERECT for HIMSELF a GREENHOUSE at a TRIFLING COST.

DENNIS & COMPANY, CHELMSFORD,

Have succeeded in producing a really good, strong, and useful Building for less than £5, so simple in its construction that any ordinary mechanic can fix it with ease, thereby doing away with the cost of expensive mechanics' time and travelling fares.



LEAN-TO, with Front Lights to Open (Class B.)

Suitable for Cucumber or Melon Houses, Stoves or General Forcing Houses, Small Vineries, Greenhouses, Peach-houses, &c. They are made only of the following external widths, with two glass ends and one door, including 16-oz. Horticultural Glass, cut up, and one priming coat of paint on the wood framing :—

Width.	Height to Eaves.	Height to Ridge.	Length 6 feet 4½ inches.	For every additional 6 feet, add	For glass partition and door, add	If doors at both ends, add	If only one glass end, deduct
Ft. Ins.	Ft. In.	Ft. In.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
5 4½	5 0	7 8	4 11 0	2 8 3	1 4 6	0 5 3	0 18 6
6 3½	5 0	8 1½	5 6 9	2 14 3	1 9 3	0 5 3	1 13 3
			12 ft. 4½ in.				
			£ s. d.				
7 2½	5 0	8 7	8 16 0	2 17 6	1 13 9	0 5 3	1 7 9
8 1	5 0	9 0	9 15 2	3 3 0	1 17 9	0 5 3	1 11 6
10 0	5 0	10 0	12 10 3	3 16 9	2 11 6	0 5 3	2 5 6
12 0	5 0	11 0	14 6 9	4 7 6	3 3 0	0 5 3	2 17 9

Note.—For every additional length of less than 6 feet, the cost of 6 feet will be charged.

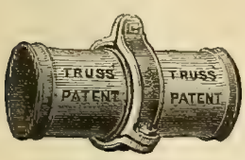
Full particulars as to the various classes of Buildings, their dimensions, adaptations, and suitability for different purposes are contained in their Catalogues, which will be forwarded on application to

T. H. P. DENNIS AND COMPANY, HORTICULTURAL BUILDERS and ENGINEERS,
ANCHOR IRON WORKS, CHELMSFORD.

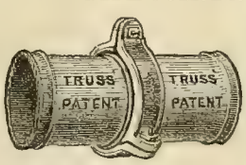
PORTABLE AND FIXED HOT-WATER APPARATUS,

FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH

TRUSS'S PATENT UNIVERSAL FLEXIBLE AND LEAKLESS PIPE-JOINTS.



T. S. TRUSS



Begs to state that the immense number of APPARATUS annually Designed and Erected by him in all parts of the kingdom, and for the ROYAL HORTICULTURAL SOCIETY at SOUTH KENSINGTON and CHISWICK, with unrivalled satisfaction, is a guarantee for skill of design, superior materials, and good workmanship; while the great advantages obtained by his IMPROVED SYSTEM cannot be over-estimated, consisting of perfectly tight joints with neatness of appearance; EFFECTS A SAVING OF 25 PER CENT. on cost of Apparatus erected compared with other systems; facility for extensions, alterations or removals without injury to Pipes or Joints; can be erected by any Gardener; an ordinary size Apparatus erected in one day; and PERFECTNESS of DESIGN SUPPLIED, INSURING NO EXTRAS. Complete Apparatus, of the best materials, delivered to any Railway Station in England, and Erected at the following prices. Erection beyond 25 miles of London, railway fare for one man additional. Considerable reduction on large works.

TWO FOUR-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
20 feet by 10 feet ..	£9 0 0 ..	£2 0 0	50 feet by 15 feet ..	£17 10 0 ..	£3 0 0
30 feet by 12 feet ..	11 15 0 ..	2 10 0	75 feet by 15 feet ..	20 0 0 ..	3 0 0
40 feet by 15 feet ..	15 0 0 ..	2 15 0	100 feet by 15 feet ..	26 0 0 ..	3 5 0

Bath and Gas Work erected in town or country. **The Trade Supplied.**

Price Lists, Plans, and Estimates forwarded on application to

T. S. TRUSS, C.E., CONSULTING HORTICULTURAL ENGINEER, &c., SOLE MANUFACTURER,
IRON MERCHANT, HOT-WATER APPARATUS MANUFACTURER,
AND HORTICULTURAL BUILDER,
FRIAR STREET, BLACKFRIARS ROAD, LONDON, S.E.

W. H. LASCELLES' MACHINE-MADE

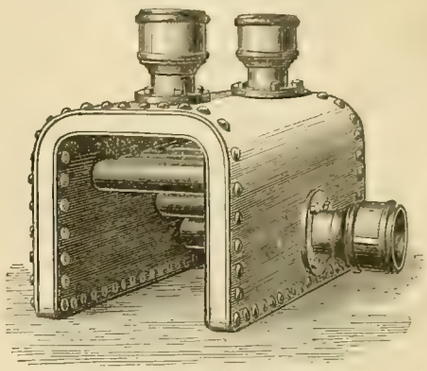


MELON LIGHTS.	Each.
6 ft. by 4 ft. Lights, 21ns. thick, unglazed	£0 5 0
" " Primed and Glazed with 19 oz. Sheet	0 11 0
" " with stout Portable Box, not Painted..	1 3 0
" " Painted four coats, and Handles on	1 8 0
" " Packed and Delivered in Railway Van..	1 10 0
6 ft. by 8 ft., Double Lights, do.	2 15 0

GREENHOUSES.	Per ft. super.
Woodwork only Prepared and Fitted	0 0 6
" Primed and Glazed with 16 oz. Sheet ..	0 0 9
" Delivered, and Fixed with Ironwork ..	0 1 0
" Painted four coats, two sides, ready fo. .se	0 1 3
"	

Finsbury Steam Joinery Works, 121, Bunhill Row, E.C.

Heating by Hot-water.



SHANKS' IMPROVED WROUGHT-IRON BOILER. —This Boiler is made on the principle of the Saddle and Tubular combined. The Tubes, Fire-box, and Shell-plates are all of Wrought-iron, and consequently are not liable to break from expansion and contraction of the metal, as Cast-iron Boilers are. The Tubes are placed in the Fire-box, and so arranged as to expose a very large effective heating surface to the direct action of the fire, the advantage of which is obvious.

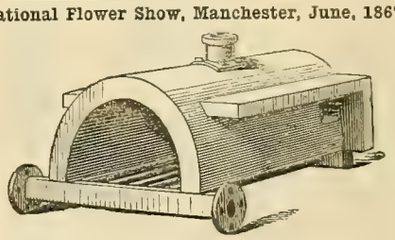
A. S. AND SON will be glad to furnish their IMPROVED BOILERS separately, or to furnish Plans and Estimates for Erecting Hot-water Apparatus complete in any part of the country.

HORTICULTURAL BUILDINGS in IRON or WOOD.

Catalogues, containing Designs of Houses, &c., will be forwarded on application. Special Plans and Estimates for Ranges of Houses to be erected in any part of the country will also be furnished.

A. SHANKS AND SON, Deus Iron Works, Arbroath, N.B.; and 27, Leadenhall Street, London, E.C.

National Flower Show, Manchester, June, 1867.



FIRST-CLASS CERTIFICATE AWARDED TO

THE PATENT TERMINAL SADDLE BOILER,

with the following note :—

"The Judges consider this one of the most powerful and useful Boilers for general purposes."

GARDENERS' MAGAZINE.—"This Boiler possesses the rare merit of sucking all the heat from the fire, so that it furnishes a maximum of power for a minimum of outlay in respect of fuel."—*S. H.* (See Magazine for August 24, 1867.)

THE GARDENER.—"Of Boilers, by far the best, according to our judgment, was the Terminal Saddle."—*W. Thomson.*

JOURNAL OF HORTICULTURE.—"I have no doubt the best Boiler that will burn any kind of fuel is the Terminal Saddle."—*G. Abbey.*

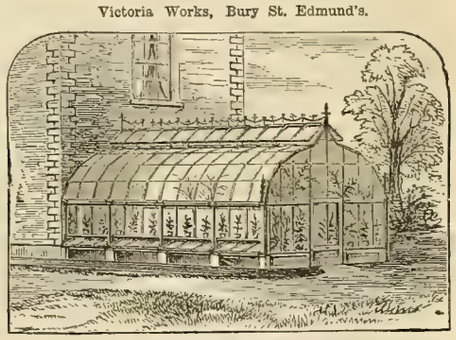
GARDENERS' CHRONICLE.—"The Terminal Saddle contains the best old and modern inventions. If a substantial cheap article be wanted, get this improved Saddle. It will last a lifetime."—March 14, 1868.

J. IRELAND, Edward Street, Broughton Lane, Manchester.

IRON GREENHOUSES CHEAPER THAN WOOD.

Beard's Patent Non-conducting and Ventilating Metallic Glass Houses.

Victoria Works, Bury St. Edmund's.



MANUFACTURED BY

CHARLES BEARD,

Senior Partner in the late Firm of Sanders, Frewer & Co., which Firm was dissolved by mutual consent.

The Patentee wishes to observe his Patent Houses obtained the First and only Prize at the Royal Horticultural Congress, South Kensington, 1866;

The First-class Certificate at the Grand Manchester Horticultural Show, 1867;

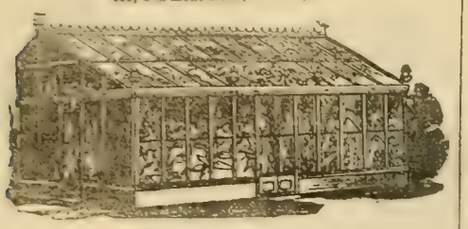
The Three First-class Certificates at the Royal Horticultural Show, at Bury St. Edmund's, 1867, viz.:—One Prize for Patent Glazing without Putty; One Prize for Best System of Patent Ventilation; One Prize for S. F. & Co.'s Improved Flower Stands.

These much-approved Patent Systems of Glazing and Ventilation are also extensively adapted for all Agricultural Buildings, Public Halls, Churches, Factories, Railway Stations, &c., &c.

Full particulars and Prices of the Patent Houses, glazed with 26 oz. Sheet Glass from 1s. 2d. per foot super and upwards. As also Illustrated Catalogues for 12 postage stamps, may be obtained on application to CHARLES BEARD, Victoria Horticultural Works, Bury St. Edmund's.

PATENT GLAZING BARS, to screw on wood, may be had separately. Full particulars for stamped envelop.

JAMES WATTS AND CO., HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, 353, Old Kent Road, London, S.E.



200 CUCUMBER and MELON BOXES and LIGHTS, all sizes, Glazed and Painted complete, ready for immediate use, packed and sent to all parts of the Kingdom.

Strong ZINC HAND-GLASSES, all sizes.

References to the Nobility, Gentry, and Trade in most of the Counties in England.



Cheap Cisterns.

GALVANIZED IRON CISTERNS, with Lid and Brass Tap.

20 Gallons ..	20s.	150 Gallons ..	48s.
50 ,, ..	24s.	200 ,, ..	64s.
80 ,, ..	31s.	250 ,, ..	72s.
100 ,, ..	38s.	300 ,, ..	82s.

Square Cisterns, Strand Fencing, Gates, Netting, &c. Price Lists free.

S. SOTHERN, Henblas Street, Wrexham.



The Only Stove without a Flue.

NASH AND JOYCE'S PATENT, for WARMING HALLS, SHOPS, GREENHOUSES, &c.

These Stoves burn without attention or replenishing 12 to 24 hours. From 12s. 6d. to Six Guineas. PATENT FUEL, 4s. 6d. per bag.

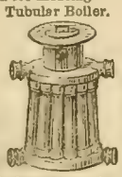
STOVES made expressly for Greenhouses, to Burn all Winter by filling up with the Patent Fuel every 12 hours.

S. NASH, Patentee, General Furnishing Ironmonger, 253, Oxford Street, W.; Joyce's Stove Depôt, 119, Newgate Street, E.C.; and Leinster Terrace, Bayswater, W. Prospectus of Patterns and Prices post free.

HOT-WATER APPARATUS Erected Complete, or the Materials Supplied for Heating

Feill's Conical. Tubular Boiler.





GREENHOUSES, HOTHOUSES, CONSERVATORIES, CHURCHES, PUBLIC BUILDINGS, &c.

HOT-WATER PIPES at wholesale prices, Elbows, T Pieces, Syphons, and every other connection kept in stock.

WROUGHT and CAST IRON CONICAL, SADDLE, and IMPROVED PEILL'S and ELLIPTIC BOILERS, from 24s. each.

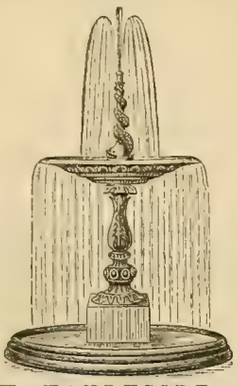
IMPROVED and EXTRA STRONG CAST IRON TUBULAR BOILERS, with or without Water Bars, from 52s. 6d. each.

CAST and WROUGHT IRON PORTABLE BOILERS on STAND, for use without brickwork, from 60s. each.

PATENT and IMPROVED THROTTLE and other VALVES, FURNACE DOORS, BARS, and FURNACE WORK of every description and size.

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Vases and Fountains, for the Garden and Conservatory.



ANDREW HANDYSIDE AND CO., Britannia Foundry, Derby. | 32, Walbrook, London.

The Britannia Iron Works have for the last 40 years been well known for the production of fine Iron Castings. The use of Cast-iron permits a delicacy of outline, and smoothness of surface, impossible in cheap Stone or Terra-cotta. Cast-iron Vases, if occasionally painted, are imperishable, and will not crack when exposed to wet or frosty weather.





Five large Sheets of Designs and Price Lists post free for 6 stamps. A. H. & Co. make the better kind of IRON and GLASS CONSERVATORIES, and have constructed some of the largest and finest in the kingdom.

SIR J. PAXTON'S PATENT HOTHOUSES for the MILLION, are cheap, substantial, and easily fixed. Illustrated Price Lists, with sizes, &c., free on application. ESTIMATES given for CONSERVATORIES, HEATING APPARATUS, &c. A HANDBOOK of VINE and FRUIT-TREE CULTIVATION, post free, 13d. HEREMAN AND MORTON, 7, Pall Mall East, London, S.W. Works in London, Gloucester, Coventry, and Scotland.

HOT-WATER APPARATUS of every description, fixed complete in any part of the country, for Warming Greenhouses, Conservatories, Forcing Pits, &c. Plans and Estimates on application. J. JONES AND SONS, 35, King Street, Cheapside, London, E.C. Manufactory, 6, Bankside, Southwark.

By Royal Letters Patent.

G. SHREWSBURY'S NONPAREIL GAS BOILER, for Heating Conservatories, Propagating, and Fern Cases, Coach Houses, Halls, Public Buildings, &c., from 45s. Approved of by all purchasers. Prices and testimonials on application. Enclose stamp. G. SHREWSBURY, Lower Norwood, S.

CRANSTON'S PATENT GLASS BUILDINGS for HORTICULTURE. Plans and Estimates free. Just Published, free for 30 stamps, Third Edition, DESCRIPTIVE BOOK, splendidly Illustrated from existing Buildings. By the Author and Patentee, JAMES CRANSTON, Architect, Temple Row West, Birmingham. H. J. GROWTAGE, Manager.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen for Windsor Castle and Frogmore Gardens, the Duke of Northumberland, Duke of Devonshire, late Sir J. Paxton for the Crystal Palace; Royal Gardens, Kew; Professor Lindley for the Horticultural Society, &c.

The best Shading is "Frigi Domo" Netting.

White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for

PROTECTION from the COLD WINDS and MORNING FROSTS.

"FRIGI DOMO" NETTING, 2 yards wide, 1s. 6d. per yard run.

"FRIGI DOMO" CANVAS.

Two yards wide	1s. 9d. per yard run.
Four yards wide	3s. 6d. per yard.
An improved make, 2 yards wide ..	1s. 9d. per yard.
An improved make, 3 yards wide ..	2s. 8d. per yard run.

Scrim Canvas, 72 inches wide, 70 yards long, 5½d., 6½d., 7½d., 7½d. and 8½d per yard.

Hesian Canvas, 54 and 72 inches wide, 6½d. and 8½d. per yard. ½d. extra for cut lengths.

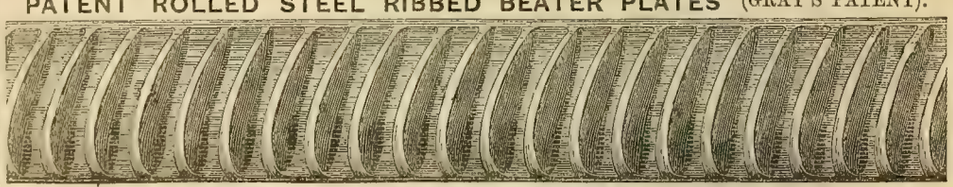
ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.

PORTABLE ENGINES, FROM 4 TO 30-HORSE POWER.

THRESHING MACHINES, SINGLE, DOUBLE and TREBLE BLAST,

WITH PATENT ROLLED STEEL RIBBED BEATER PLATES, AND ALL OTHER RECENT IMPROVEMENTS.

PATENT ROLLED STEEL RIBBED BEATER PLATES (GRAY'S PATENT).



CLAYTON AND SHUTTLEWORTH, Sole Licensees and Manufacturers.

These Plates have been thoroughly tested, and are found to wear more than three times as long as the Malleable Iron Plates previously in use.

C. AND S. are prepared to supply Threshing Machine Owners and the Trade in any quantity; and they would caution purchases against spurious imitations in Cast-steel, which, from their brittleness, are exceedingly dangerous to use. CAUTION.—Infringers of this Patent, whether makers or users, will be immediately prosecuted. CATALOGUES sent Free by Post on application to

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THE IMPROVED SELF-ACTING HYDRAULIC RAM.

This useful Self-acting Apparatus, which works day and night without needing attention, will raise water to any height or distance, without cost for labour or motive power, where a few feet fall can be obtained, and is suited for supplying Public or Private Establishments, Farm Buildings, Railway Stations, &c.

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S. OWENS AND CO. Manufacture and Erect every description of Hydraulic and General Engineers' Work for Mansions, Farms, &c., comprising PUMPS, TURBINES, WATER WHEELS, WARMING APPARATUS, BATHS, DRYING CLOSETS, GAS WORKS, Apparatus for LIQUID MANURE distribution, FIRE MAINS, HYDRANTS, HOSE PIPES, &c., &c. *Particulars taken in any part of the Country. Plans and Estimates furnished.*

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Indestructible Terra Cotta Plant Markers.

MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c. MAW AND CO., Benthall Works, Broseley.

LABELS, LABELS.—PARCHMENT or CLOTH LABELS.—Tree or Plant Labels, punched parchment, 4 inches long, 4s. per 1000, or 10,000 for 35s., cash on delivery. Sample Label sent on receipt of a postage stamp. Orders delivered free in London by JOHN FISHER AND CO., Label Works, Boston, Lincolnshire.

F. A. HAAGE'S WOOD GARDEN STICKS and TALLIES, commended by the Royal Horticultural Society, acknowledged to be the neatest, cheapest, and best Training Sticks and Tallies made.

The above can now be had, of all sizes, Wholesale, of BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London, E.C.; and Retail of the principal Seedsmen and Florists.

Price Lists on application.

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RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post-free on application.

JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.

For particulars apply to JOHN FOWLER AND CO., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

IRON HURDLES

(Silver Medal of the Royal Agricultural Society):

SHEEP, 3s. 6d.; CATTLE, 4s. 9d.; OX, 5s. 11d.

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LOOKER'S PATENT EARTHENWARE PROPAGATING BOXES.—The most simple, effective, and by far the cheapest arrangement for Raising Seeds, Striking Cuttings, and other Horticultural purposes. Price, complete, from 1s. each.—Hooper & Co., Covent Garden; Rosher & Co., Upper Ground Street, Blackfriars, Kingsland Road, and Queen's Road West, Chelsea; and Dixon & Co. 48a, Moorgate Street.

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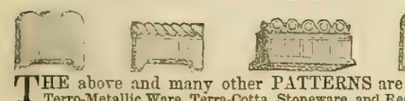
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Thirty years' experience of the durability of this material, for the above and many other purposes, testifies to its value. A List of all such and other works can be had on application to J. FARRELL, Secretary, 5, Parliament Street, S.W.

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THE above and many other PATTERNS are made in Terro-Metallic Ware, Terra-Cotta, Stoneware, and Redware, and of great durability. The planer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability and superior finish, and in much variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.E. Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E. Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs. Likewise more elaborate designs. Pattern Sheets of Pavements, with prices, forwarded for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.

To be obtained of F. & G. ROSHER, at their premises as above.

SILVER SAND (REIGATE), at the above addresses—14s. per Ton, 1s. 2d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less. A coarser grained Sand 4s. per ton more. Samples of Sand by post on receipt of stamp.

FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEAT and LOAM supplied at lowest rates.

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THE "WORCESTERSHIRE," pronounced by connoisseurs "the only good Sauce," improves the appetite and aids digestion. Unrivalled for piquancy and flavour. Ask for LEA AND PERRINS' SAUCE.

Beware of imitations, and see the names of LEA & PERRINS on all bottles and labels.

Agents—CROSSE AND BLACKWELL, London; and sold by all Dealers in Sauces throughout the World.

WINTER COUGHS, COLDS, ASTHMA, and INFLUENZA are speedily CURED by the use of SPENCER'S PULMONIC ELIXIR.

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THE SAFEST

FAMILY APERIENT.

In boxes at 1s. 1½d., 2s. 9d., 4s. 6d., and 11s.

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in use the last 69 years for

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in use the last 69 years for

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CHARLES H. VINCENT, OPTICIAN, of 23, Windsor Street, Liverpool), consists of a TELESCOPE well adapted for Tourists, &c., to which is added an excellent MICROSCOPE of great power and first-class definition, quite equal to others sold at ten times the price. Wonderful as it may seem, the price of this ingenious combination is only 3s. 9d.; and Mr. VINCENT sends it (carriage free) anywhere, with printed directions, upon receipt of Post-office order or stamps to the amount of 3s. 10d.

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THE "VOWEL" WASHING MACHINE sent to all parts of Great Britain upon trial, carriage free. Particulars free by post.

BRADFORD AND CO., 63, Fleet Street, London, E.C.; Cathedral Steps, Manchester; 23, Dawson Street, Dublin.

WM. DILLISTONE,

HORTICULTURAL AUCTIONEER and VALUER,

Sible Hedingham, Essex.

MR. A. CHANDLER, HORTICULTURAL AGENT and VALUER, 10, Wynell Road, Forest Hill, S.E.

N.B.—Valuations made of Nursery Stock, Private Collections of Plants, and everything connected with Horticulture.

WANTED, a PARTNER, in a Small NURSERY, FLORIST, and JOBBING BUSINESS, in Islington. Cash required, £50.

G. R., 32, Rotherfield Street, Islington, N.

TO BE LET, a capital NURSERY, in a First-class Situation, within 6 miles of London, consisting of about 8 ACRES of GROUND, partly Stocked, together with DWELLING HOUSE and SEED SHOP, Three GREENHOUSES, PITS, &c.

Apply for further particulars to Messrs. PROTHEROE AND MORRIS, Auctioneers, Leytonstone, N.E.

TO be SOLD, the valuable NURSERY STOCK and GOODWILL of a Business established upwards of 50 years. The Nursery Ground contains 10 Acres of the best Land, well stocked with Fruit Trees, Ornamental Shrubs, Garden and Greenhouse Plants, &c., in great variety. The Land is peculiarly suited to the growth of Roses, Coniferæ, and Fruit Trees, of all of which there is a large stock. The Great Western Railway passes close to. A great deal of Contract Work has been done at this Nursery. No situation can be more desirable for carrying on an extensive Trade.

For particulars apply to Mr. GEORGE ELLISON, Chester Road Wrexham; or Mr. JAMES STANDING, Aigburth, near Liverpool.

Sales by Auction.

Dutch Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, November 8, at half-past 12 o'Clock precisely, a first-class assortment of BULBS, just arrived from Holland, and lotted to suit large and small growers.

On view the morning of Sale, and Catalogues had.

1000 Standard and Dwarf Roses, Plants from Surrey, and Bulbs from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, November 10, at half-past 12 o'Clock precisely, 1000 Standard and Dwarf ROSES, from two well-known Nurseries; Specimen CONIFERS, LAURELS, FRUIT TREES, SPRAWBERRY PLANTS, LAURUSTINUS, ARBUTUS, RHODODENDRONS, IVIES, and other Hardy Trees and Plants from Surrey and Middlesex. Choice Double and Single HYACINTHS, TULIPS, CROCUSES, NARCISSUS, LILIUMS, IRIS, GLADIOLI, &c., from Holland.

On view the morning of Sale, and Catalogues had.

Lilium auratum.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, November 12, at half-past 12 o'Clock precisely, 1600 fine BULBS of LILIUM AURATUM, just arrived from Holland; and about 300 English-grown Roots, in pots; and a Collection of choice STOVE and GREENHOUSE PLANTS, the property of a Gentleman.

On view the morning of Sale, and Catalogues had.

Liverpool.

To GARDENERS, NURSERYMEN, SEEDSMEN and OTHERS.

MR. WRIGHT will SELL by AUCTION, without Reserve, on MONDAY NEXT, the 8th inst., at 11 o'Clock, upon the premises, No. 4, Commutation Row, Liverpool, the GOODWILL-IN-TRADE, FIXTURES, and POSSESSION of the above premises, for many years past established in the Business of a Seedsman, together with the remaining Stock-in-Trade, and other effects.

On view prior to Sale, and for further particulars and Catalogues, apply to S. D. WORSHIP, Esq., Attorney, 57, Dale Street, or at the Auctioneer's Offices, 145, Dale Street, Liverpool.

Prize Alderneys.

VERY IMPORTANT SALE of FIRST-CLASS ALDERNEY CATTLE.

MR. JOHN THORNTON will SELL by AUCTION, at Harrow Lodge, Hornchurch, near Romford, on TUESDAY, November 9, the very celebrated HERD of PURE-BRED ALDERNEY CATTLE, including several Prize Bulls and Heifers, the property of Charles Hill, Esq. The animals are bred to a colour, (dark fawn, with black points), and, being accustomed to run out all winter, have become thoroughly acclimatised. They are of large size, good Milkers, producing a large quantity of rich, full-flavoured Butter, and have been most successful in the Showyard. Also will be offered about 20 very choice Pure-bred BERKSHIRE PIGS.

Catalogues, with particulars, may be had of JOHN THORNTON, 15, Langham Place, London, W., or at the Farm.

Stockton, Norfolk, Midway between Bungay and Beccles.

VALUABLE FREEHOLD MARKET GARDEN, VINERIES, DWELLING HOUSE and COTTAGES.

MR. FENN has received Instructions to SELL by AUCTION, in One Lot, on THURSDAY, November 18, at 4 for 5 o'Clock in the Afternoon, at the King's Head Hotel, Bungay, all the valuable highly cultivated and productive MARKET GARDEN, of nearly Six Acres, judiciously planted with the very best Pear, Apple, Plum, Cherry, and Nut Trees, Gooseberry and Currant Bushes, Strawberries, Raspberries, Rhubarb, &c., and divided into well-sheltered compartments by excellent Beech Fences; a large VINERY, with the choicest Grapes, now in full perfection; a Span-roofed CUCUMBER HOUSE, with Heating Apparatus complete; together with a very substantial Modern Brick and Slate DWELLING HOUSE, with convenient Offices attached; STABLES, Cart Sheds, Game Houses, Fruit Houses, Packing Sheds, Yards, Piggeries, &c., for many years in the occupation of Mr. John Barber, Market Gardener and Game Dealer. Also, in Two Lots, adjoining the above Property, FOUR comfortable COTTAGES, in Eight Tenements, with good Gardens.

Mr. FENN can strongly recommend the above Property either for Investment or Occupation. Mr. Barber having, with the greatest care and skill, planted it with Fruit Trees and Bushes of the choicest descriptions, and suitable for Market Garden purposes especially. The cultivation has been done in a style that leaves nothing to be desired. The land is a strong loam, very fertile, well drained, and tender to work. Without any exaggeration, this is one of the best and highest cultivated Market Gardens in the Kingdom. Beccles and Bungay Railway Stations are within three miles, Geldeston and Ellingham within one mile, giving a quick and direct communication with London, Liverpool, Newcastle, Norwich, Yarmouth, and Lowestoft Markets, to all which places there have been large and profitable consignments for many years.

Particulars, with Plan of the Estate, may be shortly obtained of Messrs. HARTCUP AND SON, Solicitors, Bungay; and of Mr. FENN, Auctioneer and Estate Agent, Beccles.

City Auction Rooms, 38 & 39, Gracechurch Street, E.C.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Rooms as above, on MONDAY, November 8, at half-past 12 o'Clock precisely, a first-class Collection of DUTCH BULBS; a fine assortment of 200 hand-some Standard and Dwarf ROSES; selected AMERICAN PLANTS, with some Hardy Climbers, in pots.

On view the morning of Sale. Catalogues had at the Rooms as above; and of the Auctioneers, Leytonstone, Essex, N.E.

Tooting, S.W.

IMPORTANT SALE of THRIVING YOUNG NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. Robert Parker to SELL by AUCTION on the premises, Exotic Nursery, Tooting, Surrey, on TUESDAY and WEDNESDAY, November 9 and 10, at 11 for 12 o'Clock precisely each day, without reserve (a portion of the Land being required for the completion of a New Road on the Martin's Park Estate), the following valuable NURSERY STOCK, in excellent condition for removal, comprising thousands of Common Laurels, 2 to 4 feet; Portugal Laurels, 2 feet; bushy Green Box, fine Arbutus, 2 to 4 feet; Green Hollies, 1 to 3 feet; Berberis Darwinii, Privet, Colchic, Laurels, bushy Laurustinus, full of flower; large quantities of Spruce Firs, 1 to 3 feet; Chinese and American Arbor-vitæ, 2 to 4 feet; English Yews, Pinus austriaca, 2 to 4 feet. Also thousands of ornamental and Forest Trees, choice Standard and Dwarf Roses. A large stock of Bourgault, Inermis, and Amadis, Manetti Celine, and other kinds. Some clean-grown fruit Trees; together with a quantity of Hardy Herbaceous Plants, &c.

May be viewed two days previous to the Sale. Catalogues may be obtained, on the premises, of Mr. PARKER, and of the Auctioneers and Valuers, Leytonstone, N.E.

Leicestershire.—Loughborough Nurseries,

MESSRS. PROTHEROE AND MORRIS have received instructions from the Executors of the late Mr. E. Bowman, to SELL by AUCTION, on the Premises, the Loughborough Nurseries, Leicestershire, near the Loughborough Station on the Midland Railway, on TUESDAY, November 16, and two following days, at half-past 11 o'Clock each day (without reserve), the whole of the valuable NURSERY STOCK, including many handsome specimens from 6 to 10 feet, carefully prepared for removal; viz., Cedrus Deodara, Libani and atlantica; Cupressus (sorts), Wellingtonias, Thujas (sorts), Irish Yews, Cryptomerias, Thujopsis borealis, &c.; likewise 3000 Green Hollies, 1000 Variegated Hollies, 2000 Portugal Laurels, 5000 Common Laurels, 1000 Aucubas, 3000 Green and other Box, 1000 Berberis acquifolia, 1500 Irish Yews, 2000 English Yews, 1000 Laurustinus, thousands of Arbor-vitæ, Arbutus, Pinus (sorts), Thujopsis, Cupressus, Juniperus, Thujas, Wellingtonias, Phillyreas, Abies, &c.; a choice collection of clean-grown FRUIT TREES, comprising 5000 standard, pyramid, and dwarf Apples, 2000 Plums, 800 Cherries, 500 Pears, 2000 Gooseberries, 4000 Currants, some fine standard and dwarf-trained Peaches and Apricots, Damsons, Quince, Walnuts, Raspberries, &c.; about 8000 Crab, Pear and Plum stocks, &c.; also many thousands of ORNAMENTAL and FOREST TREES, including worked Thorns, Acacias, Maples, Mountain Ash, Laburnums, Sycamores, Planes, Weeping Willows, Scarlet Chestnuts, 5000 Limes, 2500 Poplars, 25,000 Larch, 2000 Balm of Gilead Firs, 4000 Spanish Chestnuts, 43,000 Common Ash, 2000 Scotch Firs, 87,000 strong Quick, 60,000 Seedling and Turkey Oaks, Elms, Spruce Firs, Pinus austriaca; together with a large quantity of Ornamental Shrubs, Hardy Climbers, choice Greenhouse and Bedding Plants, Standard Roses, 300 yards of Box Edging, half-an-acre of Mangel Wurzel, and other miscellaneous articles too numerous to mention.

May be viewed a week prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, Leytonstone, Essex, N.E.

Alteration of Date from Nov. 22 and 23, to 29 and 30.

LEA BRIDGE ROAD, LEYTON, ESSEX.

IMPORTANT SALE of VALUABLE NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Nursery, Lea Bridge Road, on MONDAY and TUESDAY, November 29 and 30, at 12 o'Clock precisely each day, by order of Messrs. Pamplin & Son, the ground being required for Building purposes, the whole of the valuable NURSERY STOCK, including handsome specimens of the leading kinds of Coniferæ and Evergreen Shrubs; Ornamental, Fruit, and Forest Trees, Standard Roses; several Greenhouses, Fits, &c.; a 2-Horse power Threshing and Chaff-cutting Machine, by Hensman & Son; and numerous other Effects.

Further particulars will appear in future Advertisements.

Leytonstone, Essex.

PRELIMINARY NOTICE of an IMPORTANT SALE.

MESSRS. PROTHEROE AND MORRIS have received instructions to offer for PUBLIC COMPETITION by AUCTION, at an early date, the whole of the Specimen GREENHOUSE PLANTS, ORCHARD-HOUSE TREES in pots and tubs, the Erection of ORCHARD HOUSES, several GREENHOUSES, PITS, GARDEN TOOLS, CARTS, FARMING IMPLEMENTS, together with TWO COWS in Milk, &c.

Further particulars will appear in future Advertisements.

Clapham Rise.

TWO DAYS' SALE of valuable NURSERY STOCK (the ground being required for Glass Erections and other purposes), including a choice collection of FRUIT TREES, about 200 Matthew's Eliza Pears, Apples, Plums, Peaches, Apricots, Gooseberries, Currants, Raspberry Canes, and Vines; SHRUBS and EVERGREENS, embracing Cedars of Lebanon, Cedrus Deodara, Cupressus, Thuja aurea, Araucaria, Chinese and Golden Arbor-vitæ, Wellingtonia, Portugal Laurels, Persian Lilacs, Box, &c., standard and dwarf Roses, Hot-water Apparatus, 160 feet run of 4-inch piping, trellis-work, 22-inch iron roller, butts, lights, implements and effects.

MR. WILLIAM HARDING will SELL the above by AUCTION, on the premises, Bedford Road, Clapham Rise, on THURSDAY and FRIDAY, November 11 and 12.

Auctioneer's Offices: 17, High Street, Clapham, S.W.

Stoke Road Nursery, Guildford, Surrey.

To GENTLEMEN and OTHERS ENGAGED in PLANTING.

MR. W. ABRAHAM begs to announce that he has received instructions from the proprietors, Messrs. A. Hart & Son, to SELL by AUCTION, in the Grounds of their Stoke Road Nursery, Guildford, Surrey, on TUESDAY and WEDNESDAY, November 9 and 10 next, at 12 o'Clock punctually (in consequence of the number of the Lots), a very excellent Collection of choice EVERGREEN and DECIDUOUS TREES and SHRUBS, consisting of Cupressus Lawsoniana, 6 feet; Thujopsis borealis, fine specimen Wellingtonia gigantea, 6 feet, moved last spring; Chinese Arbor-vitæ, 4 feet; English and Irish Yews; Taxus erecta, nice plants, 4 feet; Juniperus sinensis and hibernica; Thuja Lobbii; Silver and Spruce Fir, 5000 Common Laurel, bushy plants; Portugal Laurel, excellent Tree Box, Evergreen Privet, Scotch Fir, 2½ to 3 feet; Pinus austriaca, Rhododendron ponticum, Aucuba japonica, and upwards of 1000 Standard and Dwarf H. P., Moss, Cabbage, and other Roses by name; Strong Hazel, 4 to 5 feet; English Oak, 4 to 5 feet; Laburnum, Italian and Lombardy Poplar; also Standard, Pyramidal, Trained, and Dwarf FRUIT TREES, including Apples, Pears, Plums, Cherries, Peaches, Nectarines, Apricots, Gooseberry and Currant Bushes; Hardy Evergreen and other Climbers, Pampas Grass, &c. Also 10,000 very strong ASPARAGUS Roots, and 300 strong RHUBARB Roots (fit for immediate Forcing).

The Nursery is 10 minutes' walk from the Guildford Station.

Catalogues may be obtained one week prior to days of Sale on application (or post free) to Messrs. A. HART AND SON, Florists, High Street, Guildford; or of Mr. ABRAHAM, Horticultural Auctioneer, Valuer, &c., Goldworth Nurseries, Woking, Surrey.

Corn Exchange, Reading.

To GENTLEMEN, NURSERYMEN, GARDENERS, and OTHERS.

MR. W. ABRAHAM begs to inform persons intending to Plant that he has received instructions to SELL by AUCTION, in the Corn Exchange, Reading, Berks, on WEDNESDAY, November 17, at 12 o'Clock punctually, a large quantity of choice EVERGREEN and DECIDUOUS TREES and SHRUBS, Standard, Trained, Dwarf, and Pyramidal FRUIT TREES, named kinds; about 3000 strong QUICK, Standard and Dwarf ROSES, Hardy CREEPERS, PRIVET, &c.

Catalogues on application at the Corn Exchange; or of Mr. W. ABRAHAM, Horticultural Auctioneer, Valuer, &c., Goldworth Nurseries, Woking, Surrey.

KNAP HILL NURSERY,
WOKING, SURREY.

ANTHONY WATERER

Solicits the notice of intending Planters to the following LIST of specimen CONIFERS, &c., all of which he believes are as handsomely grown, as carefully managed, and as finely rooted as can be desired.

ABIES ALBERTUS, 5 to 9 feet, 30s. to 60s. per dozen. Transplanted April, 1869.
ABIES DOUGLASII, 6, 7, to 10 feet, 7s. 6d. to 10s. 6d. each. Transplanted August, 1868.
ABIES ORIENTALIS, 5, 6, and 7 feet, 7s. 6d. to 21s. Splendid plants, moved April, 1869, 10 to 12 feet high, 15 and 20 feet in circumference.
ABIES EXCELSA, the Common Spruce Fir, beautifully furnished, 5, 6, to 8 feet high, £5, £7 10s., to £12 10s. per 100.
The dwarf varieties of Spruce, such as pumila, pygmæa, Gregorii, Clanbrazilliana, &c., large numbers, many of them 20 and 30 years' growth.
CEDRUS DEODARA, 5 to 6 feet, 60s. per dozen; 7 to 8 feet, 84s. per dozen; 10 to 12 feet, 10s. 6d. to 21s. each, and upwards. We have several thousands of these large Deodars. All have been removed since August, 1868: many since April, 1869.
CEDRUS ARGENTEA, 6 to 7 feet, 42s. to 60s. per dozen; 8 to 10 ft., 7s. 6d. to 10s. 6d. each. All removed since September, 1868.
CEDRUS LEBANON, 6, 7, to 10 feet. Moved September, 1868.
CUPRESSUS LAWSONIANA, 6 to 7 feet, 30s. to 42s. per dozen; 8 to 10 feet, 5s. to 10s. 6d. each.
" " ARGENTEA, 3 and 4 feet, and as much in circumference, 7s. 6d. to 10s. 6d. each.
" GRACILIS, 4 to 5 feet high, and 7 and 8 feet round, 7s. 6d. to 21s.
JUNIPER, CHINESE, 4 to 5 feet, 42s. per dozen, £15 per 100; 5 to 6 feet, 60s. per dozen, £20 per 100; 7 to 8 feet, 7s. 6d. to 10s. 6d. each All removed since August, 1868. Purchasers may select from a stock of many thousands of this fine plant, 5 to 8 ft. high.
PICEA NOBILIS, hundreds of splendid specimens, 5, 6, 7, to 10 ft. high, all recently removed, and are undoubtedly the finest plants to be found in any Nursery. None are grafted.
PICEA NORDMANNIANA, 5, 6, to 8 feet, 21s. to 42s. each, and upwards. Splendid plants, moved August, 1868, 10 to 15 ft. high.
PICEA LASIOCARPA.—Hundreds of most beautiful plants, 4, 5, 6, 8, and 9 feet high. All removed 1868-69.
PICEA MAGNIFICA, 3, 4, and 5 feet
PICEA PINSAPO, 4, 5, 6, and 8 feet, 21s. to 63s. each. Some grand plants, 10 to 15 feet high, transplanted April, 1869.
THUJA AUREA, beautiful specimens, 3, 4, 5, and 6 feet high; 10 to 20 feet in circumference. This plant originated in this Nursery, and our stock is unsurpassed.
THUJA GIGANTEA, 5, 6, to 12 feet high. Moved August, 1868.
THUJA LOBBII, 8 to 14 feet high, and as much in circumference; transplanted April, 1869.
THUJOPSIS BOREALIS, 5 to 6 feet, 7 and 8 feet round; 42s. to 60s. per dozen; 7 to 8 feet, 7s. 6d. to 10s. 6d. each. All removed since August, 1868.
WELLINGTONIA GIGANTEA, 4 to 5 feet, 7s. 6d. to 10s. 6d. each; 6, 7, 8, and 9 feet, 21s. to 42s. each. Transplanted in August.
PINUS AUSTRIACA, 3 feet, £5 per 100. Transplanted, Sept. 1868.
PINUS CEMBRA, 8 to 10 feet, 10 to 12 feet round, 10s. 6d. to 21s. each.
YEWS, the COMMON ENGLISH, 4, 5, 6, 7, 8, 10, and 12 feet high. Thousands, all constantly removed; invaluable where immediate effect is sought.
YEWS, GOLDEN and ELEGANTISSIMA.—We have these in large numbers, and of all sizes, as pyramids, globes, and worked as standards, with from 3 to 5 feet of gold, and up to 10 feet high.
YEWS, IRISH, handsome plants, up to 10 feet high.
HOLLIES.—The stock of Hollies at this Nursery is, we believe, the finest to be met with in Europe; it comprises, as well as ordinary sizes, together, many thousands of the following varieties:—
HOLLY, VARIEGATED SILVER and GOLD, of sorts, 4 to 10 feet.
HOLLY, GOLDEN QUEEN, magnificent plants, 4 to 8 feet high, and as much in circumference.
HOLLY, SILVER QUEEN, 4, 5, and 6 feet.
WATERER'S HOLLY.—This variety originated in this Nursery; we have hundreds 4, 5, and 6 ft. high, 10 and 15 ft. circumference.
PERRY'S WEEPING HOLLY.—Standards, 10s. 6d. to 21s. each.
HOLLY, COMMON WEEPING.—The finest specimens we have seen. Moved, April, 1869.
HOLLY, COMMON GREEN, 4, 5, 6, 7, 8, 10 to 14 feet high, by the thousand. All moved since April, 1868.
HOLLY, Green varieties of the following kinds. An immense stock of splendid plants, all transplanted in 1868-9:—
LAURIFOLIA and SCOTTICA, 4, 5, 6 to 10 feet high.
HODGINS' YELLOW BERRIED, ANGUSTIFOLIA, MYRTIFOLIA, &c. 4, 5, 6, and 8 feet high.
STANDARD, WATERER'S and GOLDEN QUEEN HOLLIES, 4 to 6 feet stems, with heads 6 to 10 feet in circumference. A large number.
N.B.—Purchasers of Hollies may select from a stock occupying at the present moment considerably over 6 acres of ground; finer or better rooted plants cannot be wished or obtained. The prices are fair and reasonable.
BOX, Green and Variegated, 4, 5, 6, to 8 feet.
BOX, do. do., fine pyramids, up to 8 feet.
BAYS, standards and pyramids.
LAURESTINUS, standards.
AUCUBA JAPONICA, thousands of beautiful plants, all moved 1868, 3 and 4 feet high.
AUCUBA JAPONICA, Berried, hundreds, 1½ to 4 feet high; in the open ground and in pots, from 18s. to 120s. per doz. and upwards.
AMERICAN PLANTS.—The Stock of American Plants at Knap Hill is, we believe, as fine as, and more extensive than, anything of its kind to be met with in England, considerably over 50 acres of land being devoted to their cultivation. We shall be pleased to supply—
RHODODENDRONS, nice bushy plants, from layers, named kinds, £5 per 100, £40 per 1000. A dozen sent as sample on application.
RHODODENDRONS, the finer kinds, by name, from £7 10s. to £12 10s. per 100, and upwards.
RHODODENDRON PONTICUM, good plants for Cover, from £10 to £15 per 1000.
STANDARD RHODODENDRONS.—Of these we possess a large number of the oldest and finest specimens in the country, many being from 20 to 25 years old, with heads varying from 15 to 20 feet in circumference. There is probably no kind better adapted for standards than that we call roseum elegans, many of which we supplied to Rotten Row. We have also Rhododendrons, standards, of many other kinds.
RHODODENDRONS, fine hybrids, of good hardy habit, and great variety in colour, from £5 to £12 10s. per 100. Sample on application. Large and handsome plants by the 1000, 4 to 8 feet high.
AZALEAS, the very best kinds, nice plants, £10 per 100, upwards.
AZALEAS, common kinds, £5 per 100.
AZALEAS, splendid plants, of the finest varieties, 3, 4, 5, and 6 feet high, and as much in circumference.
KALMIA LATIFOLIA, nice plants, bushy, healthy, and covered with bloom, £5 to £10 per 100.
ANDROMEDA FLORIBUNDA, £5 to £7 10s. per 100, and upwards.
HARDY HEATHS, a very fine collection, every plant a specimen, and all removed in 1869, from 20s. to 40s. per 100.
ERICA CARNEA, for winter blooming, many thousands.
ERICA MEDITERRANEA ALBA, remains in bloom from October to May, and smells like new-mown hay—indispensable for Winter Gardening.
SKIMMIA JAPONICA, nice healthy plants, moved April, 1869, covered with berries, 12s. to 18s. per dozen.

As well as the above, the Knap Hill Nursery contains upwards of 200 Acres of ordinary NURSERY STOCK of a superior class, such as Flowering Shrubs (Deciduous and Evergreen), Roses, Ornamental Trees for Avenues, &c.

A PRICED and DESCRIPTIVE CATALOGUE will be forwarded on application. Purchasers to any extent are strongly recommended to make a personal inspection of our stock, and obtain the prices on the spot. No Catalogue can fairly describe many of the plants we offer.

The Nursery is readily reached by train from Waterloo to Woking in 40 minutes.

N.B.—There is now no difficulty in sending Plants through in the same truck, without package, from Woking to almost any Railway Station in England.

THE AMERICAN NURSERY,
BAGSHOT, SURREY.
Near Sunning Dale Station, South-Western Railway.

JOHN WATERER & SONS

Respectfully invite the attention of Gentlemen and Planters to the undernamed selections from their general stock; every plant may be depended upon as in the best order possible for removal, having been transplanted within the last season.

ARAUCARIA IMBRICATA, grand specimens, 4 to 6 to 8 to 12 feet.
CUPRESSUS LAWSONIANA, 3 to 4 to 6 to 10 feet.
" LAWSONIANA ARGENTEA (JOHN WATERER'S var.). — By far the most desirable of all the glaucous varieties, 5s. to 7s. 6d. each.
" MACROCARPA, 4 to 6 feet, 42s. per dozen.
THUJA AUREA.—Beautiful plants, about 2 feet, 42s. per dozen; larger, 5s. to 21s. each.
" GIGANTEA.—An unequalled stock of hundreds of Seedlings, 4 to 6 to 8 feet, 3s. 6d. to 63s. each.
We would remark, that unless plants are on their own roots of this fine Thuja they are quite worthless.
THUJOPSIS BOREALIS, 3 to 4 feet, 30s. per dozen; extra fine, 5 to 6 and 7 feet, 5s. to 10s. 6d. each.
" DOLABRATA.—Fine plants, 5s. to 7s. 6d. each.
" " VARIEGATA, 5s. to 7s. 6d. each.
WELLINGTONIA GIGANTEA. — Good plants, 30s. per dozen; 2 to 3 feet, 42s. to 60s.; larger, up to 10 feet, 7s. 6d. to 63s. each.
ABIES NOBILIS, 2 to 3 feet, 21s. each; larger, 4 to 5 feet, 42s.
" NORDMANNIANA, 2 to 3 feet, 7s. 6d. to 10s. 6d.; 3 to 4 feet, 21s.; 4 to 8 to 12 feet, 31s. 6d. to 105s. each.
" LASIOCARPA, 3 to 4 to 5 feet, 10s. 6d. to 42s. each.
" GRANDIS, 4 to 5 to 6 and 10 feet, 10s. 6d. to 63s. each.
" PINSAPO, 2 to 3 feet, 5s.; 3 to 5 to 8 feet, 7s. 6d. to 63s.
" DOUGLASII, 3 to 4 feet, 42s. per dozen; 4 to 6 to 10 feet, 5s. to 21s. each.
" MAGNIFICA, 3 to 4 feet, 31s. 6d. to 42s.
" ORIENTALIS, 3 to 5 to 8 feet, very beautiful examples, 21s. to 63s. each.
CEDRUS DEODARA, 2 to 3 feet, 30s. per dozen; larger, up to 12 feet
YEWS, COMMON.—Immense quantities, 2 to 3 to 4 to 6 feet, from 18s. to 60s. per dozen.
" IRISH.—Perfect columns, up to 12 feet.
" GOLDEN, as Standards on Irish stems, perfect globes, 31s. 6d. to 42s. each.
HOLLIES, GREEN COMMON.—Many thousands, of all sizes, from 1 foot up to 10 feet.
" the best GOLDEN, WATERERS', and SILVER varieties, in any quantity, and of all sizes.
STANDARD HOLLIES, GREEN, 10s. 6d. to 21s. each.
" " WATERERS' variety, many hundreds of symmetrically grown specimens, perfectly straight stems, 42s. to 105s. per pair.
" WEEPING, GREEN, and SILVER VARIEGATED, fine plants, from 21s. each.
" PORTUGAL LAURELS.—Very close grown handsome plants, 10s. 6d. to 21s. each; very large imposing specimens, 42s. to 63s. each.

AMERICAN PLANTS.

Of this very popular tribe of plants we have the pleasure of observing that our stock is unequalled, and that it is from our Establishment that nearly all the approved crimson varieties of Rhododendrons have emanated. The Grand Exhibition of Rhododendrons annually displayed at the Royal Botanic Gardens, Regent's Park, has been for the past 20 years supplied from our Nursery.

RHODODENDRON PONTICUM, for undercover or shrubberies, strong established plants, £10 10s. per 1000; larger, 25s. to 63s. per 100.
" CATAWBIENSE and HYBRIDS, bushy well-grown plants, 50s. to 75s. per 100.
" better class (SEEDLINGS) and named varieties for extensive planting, £5 per 100.
" of superior kinds, many on own roots, £7 10s. to £10 per 100.
" very superior, leading, crimson, rose, white, £12 10s. to £20 per 100.
" STANDARD and HALF-STANDARD, of the most imposing varieties, of all shades of colour, from 21s. to 63s. to 105s. each.
AZALEAS, common kinds, 50s. to 75s. per 100.
" very best, in fine plants, £10 per 100.
KALMIA MYRTIFOLIUM, very handsome, 30s. per dozen.
" LATIFOLIA, 18s. to 30s. per dozen.
ANDROMEDA FLORIBUNDA, fine plants, 18s. to 42s. per dozen.

We have likewise immense quantities of the leading kinds of

EVERGREENS OF ALL SIZES,
SUCH AS
AUCUBAS, BAY, BOX, LAURUSTINUS, COMMON and PORTUGAL LAURELS, ARBOR-VITÆ, PHILLYRÆA, &c.

As well as **FOREST TREES,** 2 to 3 and 4 to 5 feet,
CONSISTING OF
ASH, BIRCH, BEECH, HAZEL, SPANISH CHESTNUTS, ALDER, SPRUCE, PINUS AUSTRIACA, &c.

From the immensity of our stock, we are enabled to treat on most liberal terms, and Purchasers are recommended in every practicable case to visit and choose for themselves, it being an impossibility to adequately describe by advertisement.

CATALOGUES, describing faithfully the colours of Rhododendrons, with height and prices, will be forwarded on application.

Purchasers of large quantities are informed that Goods can be forwarded from Sunning Dale to all parts of England in through truck, thereby causing a great saving in transit as well as diminishing the cost of package.

THE AMERICAN NURSERY,
BAGSHOT, SURREY.

ORCHARD-HOUSE TREES for SALE, in first-class Bearing order, the property of a Gentleman.—PEACHES and NECTARINES, fine specimens. Eight Standards, 8 feet high, good heads; Six Dwarf Bushes, 5 feet high. For further particulars apply to JAMES CARTER AND CO., Crystal Palace Nurseries, Forest Hill, S.E

To the Trade.

ONE MILLION THORNS, 3-yr. old, first size, 5s. per 1000, or 100,000 for £20; second size, 2s. 6d. per 1000; a reduction on taking 100,000. A few hundred fine grown and well-trained CHERRIES at 18s. per dozen. A remittance or reference from unknown Correspondents.
Apply to W. TRESEDER, Nurseryman, Cardiff.

To the Trade.

GEORGE R. DAVIDSON, The Nurseries, Newry, Ireland, offers 2 Acres of THORNS, 2-yr. old, 10 to 18 inches; 1,000,000 FOREST TREES; 40,000 COMMON LAUREL, transplanted, bushy plants, 1½ to 3 ft.; large lot PORTUGAL LAURELS, 2 to 3 feet. Samples sent on application.

OAK, ASH, BEECH, ELM, and other FOREST TREES, from 1½ foot to 3½ feet, 5s. to 30s. per 1000; Sycamores and Laburnums, from 5 to 9 feet, 1s. 6d. per dozen, 8s. per 100; Walnuts, 3 and 4 feet, ditto; Spruce Fir, 3 and 4 feet, 3s. per dozen; Austrian Pine, 6s. per dozen; Laurels, 1, 2, and 3 feet, 5s., 7s., and 10s. per 100; Laurustinus, good plants, 2s., 3s., and 4s. per dozen; Ribes sanguinea and aurea, 2s. and 3s. per dozen; Guelder Rose, 1s. 6d. per dozen; Red Currant Bushes, strong plants, 1s. 6d. per dozen, 8s. per 100; Roses, the best sorts only, 1, 1½, 2, and 2½ feet stems, 12s. per dozen, for cash only, of A. WILKIN, Tiptree, Kelvedon, Essex.

For Planting in the Isle of Thanet.

WANTED, 500 ELMS (Chichester, Huntingdon, and Wych), 100 SYCAMORE, 100 ASH, and 6000 3-yr. old strong healthy QUICK THORNS. To be delivered at Margate or Broadstairs Stations. The Trees must not be less than 10 feet high, straight, and well grown and well rooted.—Address, giving price per 100 for Trees, and per 1000 for Quick,
A. B., Mr. White's, Stationer, Lower Phillimore Place, Kensington.

To Nurserymen, Railway and Enclosure Planters.

S. ROBINSON, Shaw House, Melbourne, near Derby, has to offer a large quantity of
Transplanted QUICKS, 1½ to 4½ feet.
50 to 100 strong well furnished HOLLIES, 6 to 8 feet;
200 to 300 do., 4 to 5 feet.
2000 bushy and ornamental SPRUCE, 2 to 4 feet.
1800 ELMS, 6 to 7 feet.
10,000 to 20,000 PRIVETS, 2½ to 3½ feet.

Red Lodge Nursery, Southampton.

W. H. ROGERS begs to call attention to this extensive Nursery, which offers unlimited supplies of FRUIT, FOREST, and Ornamental TREES, SHRUBS, and AMERICAN PLANTS of every size and description. For specimen CONIFERS, Hardy, Scarlet, and other choice RHODODENDRONS, the Nursery is unrivalled. PRICED CATALOGUES and every information may be had gratis on application.

Shrubs, Evergreens, and Fruit Trees.

ROBERT CORNWELL AND CO. have to offer SPRUCE, SILVER SCOTCH, LARCH, and AUSTRIAN FIRS, 3 to 5 feet; PRIVET, 4 to 5 feet; Variegated and Green BOX, 2 to 4 feet; IRISH YEWS, 3 feet; PINUS EXCELSA, 6 to 8 feet; Bushy LAURELS, 3 to 8 feet; PORTUGAL do., 2½ feet; LAURUSTINUS, 2 to 3 feet; some extra handsome ones, 4 by 4 feet; 2, 3, and 4-yr. ASPARAGUS; Box Edging, Fruiting GOOSEBERRIES, CURRANTS, RASPBERRIES, and STRAWBERRY Plants cheap, the Ground being wanted for a Railway.
Opposite Red Lion, Barnet, Herts.

MAURICE YOUNG, Milford Nurseries, near Godalming, has the following to offer:—1-yr. Seedling SPANISH CHESTNUTS, in drills, stout and good rooted, at 8s. per 1000; 5s. 6d. if 50,000, and 5s. if 100,000 are taken. 1-yr. Seedling GREEN HOLLIES, very fine, 5s. per 1000; 2-yr. Seedling, 1-yr. Bedded GREEN HOLLIES, 25s. per 1000; 1-yr. Seedling PORTUGAL LAURELS, very fine, 8s. per 1000; 2-yr. QUICKS, good, 2s. 6d. per 1000; Two Millions of strong QUICKS, from 5s. to 12s. 6d. per 1000. See also large Advertisement on page 1130 of last week's *Gardeners' Chronicle*.

SURPLUS STOCK. Reduced Prices. Mostly transplanted in 1868 and 1869.

Abies Nordmanniana, 4, 6, 9, to 12 inches; ditto, 1 to 2 feet	Ash, Common, 9 to 12 feet
Juniperus chinensis, 3, 4, to 5 feet	Deutzia crenata flore-pleno, 2 to 3 ft
Pinus austriaca, 1 to 2 feet	Laurels, Common, 2 to 3 feet
Thuja Warreana, 3½ to 4½ feet	Laurels, Portugal, 1, 2, to 3 feet
Fir Larch, 10 to 12 feet	" " 3 to 4 feet
	Phillyrea, Ilex-leaved, 3 to 4 fee

All well furnished, bushy, and good rooted.
Standard and Pyramid Pears and Plums, fine; besides a general stock of Fruit and Rose Trees, American Plants, Conifers, Hardy Evergreen and Deciduous Trees and Shrubs, Climbers, and Forest Trees, &c. Prices on application to
GEO. JACKMAN AND SON, Woking Nursery, Surrey.

Extra large Trees for Ornamental Planting
IN PARKS AND AVENUES.

WM. WOOD AND SON have to offer a magnificent STOCK of the following:—

Sycamores, 7 to 8 feet	Poplars, Black Italian and
" variegated, 5 to 6 feet	Lombardy, 8 to 10 feet
Horse Chestnuts, 8 to 10 feet	Mountain Ash, 7 to 8 feet
" scarlet, 8 to 10 feet	" " Weeping, 6 to 7 ft.
Catalpa syringæfolia, 7 to 8 feet	Pyrus aria latifolia, 7 to 8 feet
Laburnums, 4 to 6 feet	American Weeping Willows, 6 to
" purple, 4 to 6 feet	8 feet
Weeping Ash, ex. fine, 7 to 9 feet	Elms, English, Chichester, Wych,
Ash-leaved Maple, 7 to 8 feet	6 to 8 feet, and 8 to 10 feet

Price on application.
Address—Woodlands Nursery, Maresfield, Uckfield, Sussex.

LARGE CEDRUS DEODARA, 10, 15, and 20 ft. high; Green and Variegated HOLLIES, 9 to 12 feet high; ENGLISH YEWS, 6 and 7 feet high; TARTARIAN ARBOR-VITÆS, 9 to 12 feet high; PINUS CEMBRA, 10 to 15 feet high; and SPANISH CHESTNUTS, 15 to 20 feet high.
WILLIAM GEORGE CALDWELL respectfully invites the attention of intending Planters to his stock as above. The quality of the plants cannot be surpassed, as they have been grown as single specimens, and have been often transplanted, thereby rendering them perfectly safe for removal. Price on application.
Also strong plants of the KEELE HALL BEURRE PEAR, which has this season borne very freely on Standards and Pyramids. Standards and Pyramids, 1s. 6d. to 2s. 6d. each. Price to the Trade on application. The Nurseries, Knutsford, Cheshire.

Planting Season.—Walton Nursery, Liverpool.

To PLANTERS of PUBLIC or PRIVATE PARKS, CEMETERIES, PLEASURE GROUNDS, or WOODS and FORESTS.

W. SKIRVING begs to announce that his STOCK of TREES and SHRUBS is this season very extensive and well grown, and that he is now prepared to execute orders to any amount for Trees and Shrubs of all sizes, at moderate prices.
W. S. considers the present and following month two of the best for transplanting Evergreen Trees or Shrubs, and solicits Planters to inspect his Stock, which consists of many thousands of the Holly, of the most choice varieties of the Gold and Silver Variegated kinds, and of the large broad-leaved Holly (the finest of all Evergreen Trees), hundreds of which are of large size and fine specimens for giving immediate effect, with many thousands of smaller sizes for general planting.
Also an immense Stock of all other cultivated Trees and Shrubs, either for Villa, Park, or Forest planting, and of Fruit Trees for Gardens or large Orchards.
N.B.—Fifty Acres of Walton Nursery being required for Villa Building, the Stock thereon must be cleared as soon as possible, therefore reduced prices will be accepted.—October, 1869.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by JAMES MATTHEWS, at the Office of Messrs. BRADBURY, EVANS, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the Co. of Middlesex, and Published by the said JAMES MATTHEWS at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, November 6, 1869.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 46.—1869.] SATURDAY, NOVEMBER 13. {Price Fivepence. {Stamped Edition, 6d.

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NOTICE to ADVERTISERS.—In answer to constant inquiries, the Proprietors have fixed the following SCALE of CHARGES for ADVERTISING:—

	s.	d.
All Advertisements connected with Gardening or Agriculture, four lines	3	0
Each additional line	0	6
Wants Places, three lines or thirty words	1	6

Advertisements extending across two or three columns, or Block Advertisements, according to Contract.
Post Office Orders payable to JAMES MATTHEWS, at the Post Office, King Street, Covent Garden, W.C.

HORTICULTURAL SOCIETY of LIVERPOOL.—The SEVENTH GREAT EXHIBITION of CHRYSANTHEMUMS and FRUIT will be held at St. George's Hall on TUESDAY and WEDNESDAY, November 23 and 24. For Schedules, &c., apply to R. WILSON KER, Hon. Sec., 6, Bassnett Street, Liverpool

Chrysanthemums.

ADAM FORSYTH begs to inform his Friends and the Public that his Specimen and other CHRYSANTHEMUMS are unusually fine this season, and may be seen every day (Sundays excepted). A visit is respectfully solicited.
Brunswick Nursery, Stoke Newington, N.

TO GENTLEMEN, GARDENERS, and OTHERS, having to DISPOSE of CHOICE FRUIT, FLOWERS, VEGETABLES, &c., may meet with good Sale and quick returns, by sending to A. IRETON, Covent Garden Market, W.C. Stamp for inquiry.

STANDARD and DWARF ROSES, by the dozen 100, or 1000. CATALOGUES on application.
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RICHARD SMITH'S ROSE LIST, containing all the leading and most popular kinds of Roses, may be had free by post.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

FIFTY THOUSAND TEA-SCENTED and NOISETTE ROSES, in pots, all the most popular and best kinds, at 9s. to 18s. per dozen. DESCRIPTIVE LIST on application.
RICHARD SMITH, Nurseryman, Worcester.

ROSES, 9s. per dozen, of the best sorts; stems about 1½ foot high. For cash only.
A. WILKIN, Tiptree, Kelvedon.

To the Trade.—Hybrid Perpetual Roses.

HUSSEY AND SON beg to offer fine DWARFS on MANETTI at 6s. per dozen, £2 per 100. LISTS of sorts upon application. Mile End Nursery, Eaton, Norwich.

ROSE CATALOGUE for 1869, post free.—The finest Rose plants this season are to be obtained from
E. F. FRANCIS AND CO., The Nurseries, Hertford.

Splendid Roses.

TRY the SALISBURY ROSES. CATALOGUES ready.
JOHN KEYNES, Castle Street Nursery, Salisbury.

Rose Catalogue.

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The Nurseries, King's Acre, near Hereford.

200,000 Dwarf Hybrid Perpetual Roses.

WM. WOOD AND SON have a magnificent Stock of the above to offer. Early orders are respectfully solicited.

Roses.

CHARLES TURNER'S DESCRIPTIVE and PRICED CATALOGUE of ROSES is now ready; it also contains full LISTS of FRUIT TREES, SHRUBS, CONIFERÆ, &c., and may be had post free on application.
The Royal Nurseries, Slough.

Established 1806.

T. HANDASYDE AND DAVIDSON have a large stock of TEA, HYBRID PERPETUAL, BOURBON, and CHINA ROSES in pots. Special prices to the Trade on application.
Seed Warehouse, 24, Cockburn Street, Edinburgh.
Nurseries, Brunstain Glen, Musselburgh.

Paul's Rose Catalogue.

"A very complete and able Catalogue."—*Floral World.*
WM. PAUL begs to announce that his NEW CATALOGUE of ROSES is now ready, and will be forwarded post free on application. The stock of Plants is large and excellent.
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ROSES.—Fine Hybrid Perpetual, best kinds, up to 1868, 16s. per dozen; Dwarf do., 8s. ROSES of 1869, in pots, 20s. per dozen, strong plants. COMMON LAURELS, 15s. per 100; strong HAWTHORN QUICK, 20s. per 1000, cash. Special prices for large quantities on application.
GEORGE DAVISON, White Cross Nursery, Hereford.

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B. S. WILLIAMS' stock is remarkably fine, and in good condition. Can supply all the best kinds. Prices on application.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

Pines.

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Victoria and Paradise Nurseries, Upper Holloway, London, N.

Vines.

JAMES CARTER AND CO. can now offer strong, well-grown CANES, this year's growth. For description of Varieties and Prices, see AUTUMN CATALOGUE, now published.
JAMES CARTER AND CO., Seedsmen and Nurserymen, 237 and 238, High Holborn, W.C.

THOMSON'S WHITE LADY DOWNE'S GRAPE.—Plants of this remarkable White Grape, the latest keeping in cultivation, are now being sent out. The Canes are strong and thoroughly ripened. Immediate orders are respectfully requested. Price 21s., 42s., and 63s. each.
THOMAS METHVEN, Leith Walk Nurseries, Edinburgh.

EXTRA STRONG FRUITING VINES.—2000 close-jointed thoroughly ripened Canes can be supplied of Black Hamburgh, Golden Champion, Mrs. Pince, and other varieties, for fruiting in pots and for planting. Descriptive CATALOGUE upon application.
JAMES DICKSON AND SONS, Newton Nurseries, Chester.

Golden Champion Grape.

OSBORN AND SONS can supply good CANES of the above-named remarkable GRAPE, which has again been exhibited and very much admired, fully sustaining the high character previously formed of it. Price 10s. 6d., 21s., and 30s. each.
Fulham Nursery, London, S.W.

Value for Value.

GRAPES the first year.—Extra strong Canes, 10s. 6d. and 7s. 6d. each; good Fruiters at 5s. each.
Extra strong SEAKALE for immediate forcing. Price on application.
R. TANTON, F.R.H.S., The Nurseries, Epsom.

WANTED, CROWN BOB and ASHTON GOOSEBERRIES; BLACK CURRANTS, 2 and 3-yr. old plants; and good CANES of RED RASPBERRIES. Say quantity to offer, and lowest price per thousand.
JOSEPH TREMBLE AND SONS, Penrith.

TEN ORANGE and TWO LEMON TREES for SALE, height from 6 to 8 ft., with stems about 3 feet. For particulars apply to J. GIBSON, Jun., 29, Bridge Road West, Battersea, S.W.

ORCHARD-HOUSE TREES for SALE, in first-class Bearing order, the property of a Gentleman.—PEACHES and NECTARINES, fine specimens. Eight Standards, 8 feet high, good heads; Six Dwarf Bushes, 5 feet high. For further particulars apply to JAMES CARTER AND CO., Crystal Palace Nurseries, Forest Hill, S.E

Fruit Trees and Hardy Plants of every description.

LOUIS VAN HOUTTE'S CATALOGUE, No. 130, will appear this week, and be sent as usual to all Customers. Copies may also be had on application to L. V. H.'s Agents, R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London. Royal Nursery, Ghent, Belgium.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LIST of these varieties from Mr. WEBB, Calcot, Reading.

NEW RHODODENDRON (Scarlet Hybrid), EARL DERBY. See Advertisement on page 1179.

EWING AND CHILD'S GENERAL NURSERY CATALOGUE, which contains descriptions of a select assortment of Fruits, Roses, Conifers, Evergreens, Ornamental Deciduous Trees, &c., is now ready, and may be had Gratis and Post free on application to The Royal Norfolk Nurseries, Norwich.

To Nurserymen, Gentlemen, and Others.

FOR SALE, 10,000 to 20,000 PRIVET.
W. TAYLOR, Nurseryman, Willingham, Gainsborough.

TO the TRADE.—1-yr. Seedling LARCH, of very fine quality. Price and sample on application.
R. MORRISON, Nurseryman, Elgin, N.B.

OAK, in drills, 1, 2, and 3 feet. Through rates to all Stations.
R. MORRISON, Nurseryman, Elgin, N.B.

SEEDLING and Transplanted SCOTCH FIR of all sizes; also LARCH, SPRUCE, SILVER FIR, PINUS AUSTRIACA, LARICIO, &c. Price on application.
R. MORRISON, Nurseryman, Elgin, N.B.

FRUIT TREE STOCKS.—2-yr. Seedling PEARS, of fine quality; 1, 2, and 3-yr. Seedling APPLES, fine, also transplanted, of all sizes; 2-yr. Seedling and Transplanted CHERRIES, 2-yr. Seedling PLUMS.
R. MORRISON, Nurseryman, Elgin, N.B.

MAGNIFICENT, strong, well grown, transplanted COMMON LAURELS, from 4 to 6 feet. Prices on application.
WM. WOOD AND SON, Nurseries, Maresfield, Uckfield, Sussex.

Splendid Large Trees for Avenue Planting.

SCARLET and Common HORSE CHESTNUTS, ELMS, POPLARS, &c. CATALOGUES on application.
WM. WOOD AND SON, Nurseries, Maresfield, Uckfield, Sussex.

Planting Season.

THE SUBSCRIBERS announce that their PRICED LIST for the season may now be had on application.
WM. URQUHART AND SONS, Dundee.

LAURELS.—Large surplus stock of Laurels, of all sizes, from 1 to 6 feet, good bushy stuff, to be Sold, cheap.
Apply to JOHN MITCHINSON, Nurseryman, Truro.

SCOTCH FIR, true Native, 40,000 to 50,000, Transplanted, 9 to 15 inches.
MUNRO BROTHERS, Inverness, N.B.

Larch, Scotch, Spruce, Quick, &c.

G. FARNSWORTH has to offer a large quantity of the above. Prices and samples on application at The Nurseries Matlock.

STANSFIELD'S Selections of ALPINE PLANTS for Rockwork.—Fifty beautiful and distinct species, named, for 12s. 6d.; 100 do. do., for 25s. British and Exotic FERNS, and general NURSERY STOCK in great variety. LISTS on application.
The Kersal Nurseries, Manchester.

The Successful Cultivation of Hyacinths.—See SUTTONS' AUTUMN CATALOGUE for 1869, which may be had gratis and post free on application.
SUTTON AND SONS, Reading, Berks.

SUTTONS' COLLECTIONS of FLOWER ROOTS, for open ground decoration, 10s. 6d. to 42s.
See SUTTONS' AUTUMN CATALOGUE.

SUTTONS' COLLECTIONS of FLOWER ROOTS, for Greenhouse and Conservatory Decoration, 10s. 6d. to 42s.
See SUTTONS' AUTUMN CATALOGUE.

SUTTONS' COLLECTIONS of HYACINTHS, for cultivation in pots and glasses.
See SUTTONS' AUTUMN CATALOGUE.

SUTTONS' AUTUMN CATALOGUE for 1869, gratis and post free on application.
SUTTON AND SONS, Importers, Reading.

FRESH IMPORTED HYACINTHS, CROCUS, TULIPS, NARCISSUS, &c.—For prices, see Messrs. SUTTONS' Advertisement on page 1180 of this day's *Gardeners' Chronicle.*
SUTTON AND SONS, Seedsmen to the Queen, Reading.

FELTON AND SON'S PLANT and BULB CATALOGUES now ready, post free on application.
Birmingham Nursery, Harborne Road, Birmingham.

Dutch Bulbs, just Imported.

JAMES CARTER AND CO.'S AUTUMN CATALOGUE of HYACINTHS, CROCUS, and other Bulbs, also ROSES and FRUIT TREES, is now ready, and will be forwarded gratis and post free on application.
238, High Holborn, London, W.C.

Dutch Bulbs.

MORLE'S (late Hopgood's) ONE GUINEA and TWO GUINEA COLLECTION is the best and cheapest in the Trade. All Bulbs reduced 10 per cent. from Catalogue prices. Send at once for one to 9, Queen's Road, Bayswater, W.

Bulbs and Bulb Catalogue.

BARR AND SUGDEN'S BULB CATALOGUE free on application. See p. 1180 for particulars.
BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.

Notice.

THOSE who have neglected to Purchase their Supplies of BULBS for indoor decoration, to secure a satisfactory result should purchase during the present month.
BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.

Notice.

THOSE who have not yet Furnished their Beds with SPRING-FLOWERING PLANTS and BULBS, should do so during this month.
BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.

Special Offer to the Trade.

YELLOW CROCUS and Named CROCUS, SNOWDROPS, TULIPS, &c. Prices on application.
BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.

Wholesale Catalogue of Good Transplanted Nursery Stock.

GEO. JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1869-70 will be forwarded free on application. Woking Nursery, Surrey.

FUCHSIAS, new varieties of 1869.—12 of the most beautiful ever raised, 6s.; 24 ditto, 10s. 6d. Above post free.
N.B.—CATALOGUES of above post free.
W. DILLISTONE, Nurseries, Sible Hedingham, Essex.

GLADIOLI SEEDLINGS (mixed).—Beautiful flowers, equal to any collection, of all colours. Strong flowering Bulbs, 7s. per 100, £3 per 1000. Sorts per name at the lowest prices. Apply to LEVEQUE ET FILS, Nurserymen, 132 and 134, Boulevard de l'Hôpital, Paris.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.—Mr. WEBB, Calcot, Reading.

PYRETHRUM AUREA (Golden Feather) and LOBELIA SPECIOSA.—Enough SEED of either to produce 500 Plants for 13 stamps. Price to the Trade on application.
CHARLES YOUNG, Balham Hill Nursery, London, S.W.

New Cinerarias, 1869.

F. AND A. SMITH are now sending out their beautiful new varieties of the present season, including ORB of DAY, PRESIDENT, VESUVIUS, &c. LIST, with prices and descriptions, on application. A larger collection of older varieties.
The Nurseries, West Dulwich, S.E.

20,000 Pairs Carnations and Picotees, named sorts.

JOHN J. HASLAM can now supply choice named CARNATIONS and PICOTEES (true to name), to the Trade, at a reduction of 12 per cent.
Bradshaw Gardens, Chadderton, Manchester.

Pelargoniums, Carnations, Picotees, Pinks, Cloves, Auriculas, &c.

CHARLES TURNER can supply fine plants of the above. A CATALOGUE, containing select Collections of each, is now ready.
The Royal Nurseries, Slough.

EVERY GARDEN REQUISITE KEPT in STOCK at CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

ASPARAGUS, extra strong, for forcing. For price, &c., apply to
HENRY PAGE, Walham Green, Fulham, S.W.

To the Trade.

ASPARAGUS ROOTS.—A large quantity, of from 2 to 4-yr. old, strong Asparagus roots. No reasonable offer refused.
GEO. WINFIELD, Gloucestershire Seed Warehouse, Gloucester.

Asparagus Plants.—To the Trade.

JAMES CARTER AND CO. having grown a splendid lot of strong 3-yr. old plants, are prepared to make special quotations.
JAMES CARTER AND CO., 237 & 238, High Holborn, London, W.C.

STRONG ASPARAGUS PLANTS, for Forcing.—Per 100, 3s.; per 1000, 25s. Extra strong, per 100, 5s.; per 1000, 40s. The latter guaranteed to weigh 30lb. to the 100. Sacks, 1s. 4d. each. Remittances to accompany all orders.
CHRISTMAS QUINCEY, Seedsman, Peterborough.

THE AMERICAN NURSERY,

BAGSHOT, SURREY.

Near Sunning Dale Station, South-Western Railway.

JOHN WATERER & SONS

Respectfully invite the attention of Gentlemen and Planters to the undermuned selections from their general stock: every plant may be depended upon as in the best order possible for removal, having been transplanted within the last season.

ARAUCARIA IMBRICATA, grand specimens, 4 to 6 to 8 to 12 feet.
CUPRESSUS LAWSONIANA, 3 to 4 to 6 to 10 feet.
„ LAWSONIANA ARGENTEA (JOHN WATERER's var.). — By far the most desirable of all the glaucous varieties, 5s. to 7s. 6d. each.
„ MACROCARPA, 4 to 6 feet, 42s. per dozen.
THUJA AUREA.—Beautiful plants, about 2 feet, 42s. per dozen; larger, 5s. to 21s. each.
„ GIGANTEA.—An unequalled stock of hundreds of Seedlings, 4 to 6 to 8 feet, 3s. 6d. to 6s. each.
We would remark, that unless plants are on their own roots of this fine Thuja they are quite worthless.
THUJOPSIS BOREALIS, 3 to 4 feet, 30s. per dozen; extra fine, 5 to 6 and 7 feet, 5s. to 10s. 6d. each.
„ DOLABRATA.—Fine plants, 5s. to 7s. 6d. each.
„ „ VARIEGATA, 5s. to 7s. 6d. each.
WELLINGTONIA GIGANTEA. — Good plants, 30s. per dozen; 2 to 3 feet, 12s. to 60s.; larger, up to 10 feet, 7s. 6d. to 63s. each.
ABIES NOBILIS, 2 to 3 feet, 21s. each; larger, 4 to 5 feet, 42s.
„ NORDMANNIANA, 2 to 3 feet, 7s. 6d. to 10s. 6d.; 3 to 4 feet, 21s.; 4 to 8 to 12 feet, 21s. 6d. to 105s. each.
„ LASIOCARPA, 3 to 4 to 5 feet, 10s. 6d. to 42s. each.
„ GRANDIS, 4 to 5 to 6 and 10 feet, 10s. 6d. to 63s. each.
„ PINSAPO, 2 to 3 feet, 5s.; 3 to 5 to 8 feet, 7s. 6d. to 63s.
„ DOUGLASII, 3 to 4 feet, 42s. per dozen; 4 to 6 to 10 feet, 5s. to 21s. each.
„ MAGNIFICA, 3 to 4 feet, 31s. 6d. to 42s.
„ ORIENTALIS, 3 to 5 to 8 feet, very beautiful examples, 21s. to 63s. each.
CEDRUS DEODARA, 2 to 3 feet, 30s. per dozen; larger, up to 12 feet
YEWS, COMMON.—Immense quantities, 2 to 3 to 4 to 6 feet, from 15s. to 60s. per dozen.
„ IRISH.—Perfect columns, up to 12 feet.
„ GOLDEN, as Standards on Irish stems, perfect globes, 31s. 6d. to 42s. each.
HOLLIES, GREEN COMMON.—Many thousands, of all sizes, from 1 foot up to 10 feet.
„ the best GOLDEN, WATERERS', and SILVER varieties, in any quantity, and of all sizes.
STANDARD HOLLIES, GREEN, 10s. 6d. to 21s. each.
„ „ WATERERS' variety, many hundreds of symmetrically grown specimens, perfectly straight stems, 42s. to 105s. per pair.
„ WEEPING, GREEN, and SILVER VARIEGATED, fine plants, from 21s. each.
„ PORTUGAL LAURELS.—Very close grown handsome plants, 4 to 6 ft. to 21s. each; very large imposing specimens, 42s. to 63s. each.

AMERICAN PLANTS.

Of this very peculiar tribe of plants we have the pleasure of observing that our stock is unequalled, and that it is from our Establishment that nearly all the improved crimson varieties of Rhododendrons have originated. The Grand Exhibition of Rhododendrons annually displayed at the Royal Botanic Gardens, Regent's Park, has been of the best specimens supplied from our Nursery.

RHODODENDRON PONTICUM, for undercover or shrubberies, strong established plants, £10 10s. per 1000; larger, 25s. to 30s. per 100.
„ CATAWBIENSE and HYBRIDS, bushy well-grown plants, 5 to 7 ft., per 100.
„ better sorts (SEEDLINGS) and named varieties for extensive plantations, £5 per 100.
„ of superior kinds, many on own roots, £7 10s. to £10 per 100.
„ very superior, leading, crimson, rose, white, £12 10s. to £20 per 100.
„ STANDARD and HALF-STANDARD, of the most imposing varieties, of all shades of colour, from 21s. to 63s. to 105s. each.
AZALEAS, common kinds, 50s. to 75s. per 100.
„ very best, in fine plants, £10 per 100.
KALMIA MYRTIFOLIUM, very handsome, 30s. per dozen.
„ LATIFOLIA, 18s. to 30s. per dozen.
ANDROMEDA FLORIBUNDA, fine plants, 18s. to 42s. per dozen.

We have likewise immense quantities of the leading kinds of

EVERGREENS OF ALL SIZES,

SUCH AS

AUCUBAS, BAY, BOX, LAURESTINUS, COMMON and PORTUGAL LAURELS, ARBOR-VITÆ, PHILLYREA, &c.

As well as **FOREST TREES**, 2 to 3 and 4 to 5 feet,

CONSISTING OF

ASH, BIRCH, BEECH, HAZEL, SPANISH CHESTNUTS, ALDER, SPRUCE, PINUS AUSTRIACA, &c.

From the immensity of our stock, we are enabled to treat on most liberal terms, and Purchasers are recommended in every practicable case to visit and choose for themselves, it being an impossibility to adequately describe by advertisement.

CATALOGUES, describing faithfully the colours of Rhododendrons, with height and prices, will be forwarded on application.

Purchasers of large quantities are informed that Goods can be forwarded from Sunning Dale to all parts of England in through truck, thereby causing a great saving in transit as well as diminishing the cost of package.

THE AMERICAN NURSERY,
BAGSHOT, SURREY.

SUNNING DALE NURSERY,

BAGSHOT, SURREY.

Five minutes' walk from Sunning Dale Station, South-Western Railway.

CHARLES NOBLE

Invites special attention to the select PLANTS and TREES he has to offer, which will be found in quality unsurpassed, in PRICE lower than most other houses.

CATALOGUES should be written for by ALL INTENDING PLANTERS.

ROSES.

ROSES.—A large number of HYBRID, PERPETUAL, BOURBON, and NOISETTES.
„ TEAS, fine plants in pots.

RHODODENDRONS.

RHODODENDRONS.—One of the most select and extensive collections of named kinds extant.
„ SEEDLINGS, from finest varieties.
„ SEEDLING, HYBRID CATAWBIENSE.
„ PONTICUM, for cover planting.
„ STANDARDS, fine specimens. In fact, Rhododendrons of all colours, all sizes, and all prices.

SKIMMIA JAPONICA, covered with berries.
ERICA CARNEA, in any quantity, beautiful plants.
COMMON and COLCHIC LAURELS, 18 to 24 inches, 15s. per 100; 24 to 36 inches, 18s. per 100.
PORTUGAL LAURELS, 36 to 60 inches, specimens as far through as high.
VIOLETS, in 12 best varieties, 18s. per 100.
„ established in pots for winter flowering, 25s. per 100.

FRUIT TREES.

PEACHES and NECTARINES, maiden and dwarf-trained.
PLUMS, PEARS, and CHERRIES, maiden and dwarf-trained.
APPLES, PEARS, PLUMS, and CHERRIES, standard, pyramid, and dwarf.
These are remarkably healthy and good, and the selection very carefully made.

CONIFERS.

ARAUCARIA IMBRICATA, 1 to 10 feet, fine specimens.
ABIES DEODARA, 1 to 10 feet, fine specimens.
„ DOUGLASII, 1 to 10 feet, fine specimens.
„ GRANDIS, 1 to 10 feet, fine specimens.
„ LASCIOCARPA, 1 to 10 feet, fine specimens.
„ MAGNIFICA, 1 to 10 feet, fine specimens.
„ MENZIESII, 1 to 10 feet, fine specimens.
„ NOBILIS, 1 to 10 feet, fine specimens.
„ NORDMANNIANA.—Of this last (perhaps the most magnificent tree in the world) an unusually fine stock, from 3 to 5 feet, are offered. For AVENUES this would be invaluable, and the facilities here offered can scarcely be overrated.
CUPRESSUS LAWSONIANA, 2 to 10 feet.
THUJA GIGANTEA, 2 to 10 feet.
„ LOBBII, 2 to 10 feet.
THUJOPSIS BOREALIS, 2 to 10 feet.
CUPRESSUS LAWSONIANA ERECTA. — Perfect columns, 6 to 10 feet. These plants are believed to be unequalled in any other establishment.

SPECIAL OFFER.

To Gentlemen, Builders, and others engaged in large planting operations.

DECIDUOUS FLOWERING SHRUBS and TREES, 3 to 6 feet, 42s. per 100.
CONIFERS, in variety, 1 to 2 feet, 50s. per 100.
„ „ 2 to 3 feet, 75s. per 100.
„ „ 3 to 4 feet, 100s. per 100.
„ „ 4 to 5 feet, 130s. per 100.
„ „ 5 to 6 feet, 150s. per 100.

CHRISTMAS TREES.

Extra fine, 2 to 5 feet, splendidly grown.
50,000 to select from.

The Sunning Dale Nurseries are easily reached from any part of England, being close to the Sunning Dale Station, South-Western Railway.

Purchasers will find their time saved by visiting this Establishment to select for themselves, but all Orders receive the most careful personal attention of the Proprietor; and he would here mention that an advertisement can give but a faint idea of the subject on which it treats.

All interested are invited to write for a CATALOGUE, pay a Visit, or send an Order, and their interest will be studied.

BAGSHOT.—November, 1869.

KNAP HILL NURSERY,

WOKING, SURREY.

ANTHONY WATERER

Solicits the notice of intending Planters to the following LIST of specimen CONIFERS, &c., all of which he believes are as handsomely grown, as carefully managed, and as finely rooted as can be desired.

ABIES ALBERTUS, 5 to 9 feet, 30s. to 60s. per dozen. Transplanted April, 1869.
ABIES DOUGLASII, 6, 7, to 10 feet, 7s. 6d. to 10s. 6d. each. Transplanted August, 1868.
ABIES ORIENTALIS, 5, 6, and 7 feet, 7s. 6d. to 21s. Splendid plants, moved April, 1869, 10 to 12 feet high, 15 and 20 feet in circumference.
ABIES EXCELSA, the Common Spruce Fir, beautifully furnished, 5, 6, to 8 feet high, £5, £7 10s., to £12 10s. per 100.
The dwarf varieties of Spruce, such as pumila, pygmæa, Gregorii, Clanbraziliana, &c., large numbers, many of them 20 and 30 years' growth.
CEDRUS DEODARA, 5 to 6 feet, 60s. per dozen; 7 to 8 feet, 84s. per dozen; 10 to 12 feet, 10s. 6d. to 21s. each, and upwards. We have several thousands of these large Deodars. All have been removed since August, 1868: many since April, 1869.
CEDRUS ARGENTEA, 6 to 7 feet, 42s. to 60s. per dozen; 8 to 10 ft., 7s. 6d. to 10s. 6d. each. All removed since September, 1868.
CEDRUS LEBANON, 6, 7, to 10 feet. Moved September, 1868.
CUPRESSUS LAWSONIANA, 6 to 7 feet, 30s. to 42s. per dozen; 8 to 10 feet, 5s. to 10s. 6d. each.
„ „ ARGENTEA, 3 and 4 feet, and as much in circumference, 7s. 6d. to 10s. 6d. each.
„ „ GRACILIS, 4 to 5 feet high, and 7 and 8 feet round, 7s. 6d. to 21s.
JUNIPER, CHINESE, 4 to 5 feet, 42s. per dozen, £15 per 100; 5 to 6 feet, 60s. per dozen, £20 per 100; 7 to 8 feet, 7s. 6d. to 10s. 6d. each. All removed since August, 1868. Purchasers may select from a stock of many thousands of this fine plant, 5 to 8 ft. high.
PICEA NOBILIS, hundreds of splendid specimens, 5, 6, 7, to 10 ft. high, all recently removed, and are undoubtedly the finest plants to be found in any Nursery. None are grafted.
PICEA NORDMANNIANA, 5, 6, to 8 feet, 21s. to 42s. each, and upwards. Splendid plants, moved August, 1868, 10 to 15 ft. high.
PICEA LASIOCARPA.—Hundreds of most beautiful plants, 4, 5, 6, 8, and 9 feet high. All removed 1868-69.
PICEA MAGNIFICA, 3, 4, and 5 feet.
PICEA PINSAPO, 4, 5, 6, and 8 feet, 21s. to 63s. each. Some grand plants, 10 to 15 feet high, transplanted April, 1869.
THUJA AUREA, beautiful specimens, 3, 4, 5, and 6 feet high; 10 to 20 feet in circumference. This plant originated in this Nursery, and our stock is unsurpassed.
THUJA GIGANTEA, 5, 6, to 12 feet high. Moved August, 1868.
THUJA LOBBII, 8 to 14 feet high, and as much in circumference; transplanted April, 1869.
THUJOPSIS BOREALIS, 5 to 6 feet, 7 and 8 feet round; 42s. to 60s. per dozen; 7 to 8 feet, 7s. 6d. to 10s. 6d. each. All removed since August, 1868.
WELLINGTONIA GIGANTEA, 4 to 5 feet, 7s. 6d. to 10s. 6d. each; 6, 7, 8, and 9 feet, 21s. to 42s. each. Transplanted in August.
PINUS AUSTRIACA, 3 feet, £5 per 100. Transplanted, Sept. 1868.
PINUS CEMBRA, 8, to 10 feet, 10 to 12 feet round, 10s. 6d. to 21s. each.
YEWS, the COMMON ENGLISH, 4, 5, 6, 7, 8, 10, and 12 feet high. Thousands, all constantly removed; invaluable where immediate effect is sought.
YEWS, GOLDEN and ELEGANTISSIMA.—We have these in large numbers, and of all sizes, as pyramids, globes, and worked as standards, with from 3 to 5 feet of gold, and up to 10 feet high.
YEWS, IRISH, handsome plants, up to 10 feet high.
HOLLIES.—The stock of Hollies at this Nursery is, we believe, the finest to be met with in Europe; it comprises, as well as ordinary sizes, together, many thousands of the following varieties:—
HOLLY, VARIEGATED SILVER and GOLD, of sorts, 4 to 10 feet.
HOLLY, GOLDEN QUEEN, magnificent plants, 4 to 8 feet high, and as much in circumference.
HOLLY, SILVER QUEEN, 4, 5, and 6 feet.
WATERER'S HOLLY.—This variety originated in this Nursery; we have hundreds 4, 5, and 6 ft. high, 10 and 15 ft. circumference.
PERRY'S WEEPING HOLLY.—Standards, 10s. 6d. to 21s. each.
HOLLY, COMMON WEEPING.—The finest specimens we have seen. Moved, April, 1869.
HOLLY, COMMON GREEN, 4, 5, 6, 7, 8, 10 to 14 feet high, by the thousand. All moved since April, 1868.
HOLLY, Green varieties of the following kinds. An immense stock of splendid plants, all transplanted in 1868-9:—
LAURIFOLIA and SCOTTICA, 4, 5, 6 to 10 feet high.
HODGINS' YELLOW BERRIED, | ANGUSTIFOLIA, MYRTIFOLIA, &c. 4, 5, 6, and 8 feet high.
STANDARD, WATERER'S and GOLDEN QUEEN HOLLIES, 4 to 6 feet stems, with heads 6 to 10 feet in circumference. A large number.
N.B.—Purchasers of Hollies may select from a stock occupying at the present moment considerably over 6 acres of ground; finer or better rooted plants cannot be wished or obtained. The prices are fair and reasonable.
BOX, Green and Variegated, 4, 5, 6, to 8 feet.
BOX, do. do., fine pyramids, up to 8 feet.
BAYS, standards and pyramids.
LAURUSTINUS, standards.
AUCUBA JAPONICA, thousands of beautiful plants, all moved 1868, 3 and 4 feet high.
AUCUBA JAPONICA, Berried, hundreds, 1½ to 4 feet high; in the open ground and in pots, from 18s. to 120s. per doz. and upwards.
AMERICAN PLANTS.—The Stock of American Plants at Knap Hill is, we believe, as fine as, and more extensive than, anything of its kind to be met with in England, considerably over 50 acres of land being devoted to their cultivation. We shall be pleased to supply—
RHODODENDRONS, nice bushy plants, from layers, named kinds, £5 per 100, £40 per 1000. A dozen sent as sample on application.
RHODODENDRONS, the finer kinds, by name, from £7 10s. to £12 10s. per 100, and upwards.
RHODODENDRON PONTICUM, good plants for Cover, from £10 to £15 per 1000.
STANDARD RHODODENDRONS.—Of these we possess a large number of the oldest and finest specimens in the country, many being from 20 to 30 years old, with heads varying from 15 to 30 feet in circumference. There is probably no kind better adapted for standards than that we call roseum elegans, many of which we supplied to Rotten Row. We have also Rhododendrons, standards, of many other kinds.
RHODODENDRONS, fine hybrids, of good hardy habit, and great variety in colour, from £5 to £12 10s. per 100. Sample on application. Large and handsome plants by the 1000, 4 to 8 feet high.
AZALEAS, the very best kinds, nice plants, £10 per 100, upwards.
AZALEAS, common kinds, £5 per 100.
AZALEAS, splendid plants, of the finest varieties, 3, 4, 5, and 6 feet high, and as much in circumference.
KALMIA LATIFOLIA, nice plants, bushy, healthy, and covered with bloom, £5 to £10 per 100.
ANDROMEDA FLORIBUNDA, £5 to £7 10s. per 100, and upwards.
HARDY HEATHS, a very fine collection, every plant a specimen, and all removed in 1869, from 20s. to 40s. per 100.
ERICA CARNEA, for winter blooming, many thousands.
ERICA MEDITERRANEA ALBA, remains in bloom from October to May, and smells like new-mown hay—indispensable for Winter Gardening.
SKIMMIA JAPONICA, nice healthy plants, moved April, 1869, covered with berries, 12s. to 18s. per dozen.

As well as the above, the Knap Hill Nursery contains upwards of 200 Acres of ordinary NURSERY STOCK of a superior class, such as Flowering Shrubs (Deciduous and Evergreen), Roses, Ornamental Trees for Avenues, &c.

A PRICED and DESCRIPTIVE CATALOGUE will be forwarded on application. Purchasers to any extent are strongly recommended to make a personal inspection of our stock, and obtain the prices on the spot. No Catalogue can fairly describe many of the plants we offer.

The Nursery is readily reached by train from Waterloo to Woking in 40 minutes.

N.B.—There is now no difficulty in sending Plants through in the same truck, without package, from Woking to almost any Railway Station in England.

Camellias, Azaleas, and Epacris.

HENRY WALTON, having a large stock of the above, finest plants possible, well set with bud, being all home worked, can with confidence recommend them.

AZALEAS, 21s. to 63s. per doz. | CAMELLIAS, 21s. to 63s. per doz.
EPACRIS, 15s. to 24s. per dozen.

Having several hundreds of beautiful trained Azaleas, from 2 to 4 feet, fine for exhibition purposes, 10s. 6d. to 63s. each; also fine Half and Specimen Camellias, 10s. 6d. to 100s. each—this is a favourable opportunity for parties furnishing new houses or improving their present collections. Trade liberally dealt with.

CATALOGUES on application.
Edge End, Marsden, near Burnley, Lancashire.

New Geraniums.

JOHN KEYNES begs to announce that he has secured the stock of those two first-rate flowers which have excited so much admiration at the Royal Horticultural Society; First-Class Certificates have been awarded them. They comprise COLESHILL (Ecrevoni), bright scarlet Zonal, the finest of its class; and LADY EDITH, a bright purply pink Ivy-leaf. These are the two best acquisitions of the season. They will be sent out in April next, at 10s. 6d. each. Drawings may be had on receipt of 15 postage stamps.

Castle Street Nursery, Salisbury.

Cheap, Cheap, Cheap.

JOHN BARRETT begs to offer his strain of HERBACEOUS CALCEOLARIAS at the following low prices:—In small pots, 4s. per doz., 25s. per 100; from pans, free by post, 2s. per doz., 12s. 6d. per 100.

The following choice GERANIUMS:—
LADY CULLUM, 6s. per dozen, 45s. per 100.
SOPHIE DUMARESQUE, 5s. per dozen, 45s. per 100.
ITALIA UNITA, 3s. 6d. per dozen, 25s. per 100.
MRS. POLLOCK, 3s. 6d. per dozen, 25s. per 100.
BEAUTY of OULTON, 3s. 6d. per dozen, 25s. per 100.

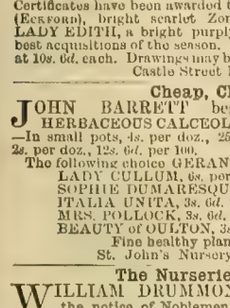
Fine healthy plants, package included.
St. John's Nursery, Bury St. Edmund's.

The Nurseries, Stirling, N.B.

WILLIAM DRUMMOND AND SONS beg to invite the notice of Noblemen and Gentlemen about to plant, to their NURSERY CATALOGUE for season 1869-70, which may be had, post paid, on application. It contains descriptions and prices of Seedling and Transplanted Forest Trees, Shrubs, Fruit Trees, &c., with a varied collection of Pines and other Conifers, which, being grown in light gravelly soil, are well rooted and of robust habit. Special attention is called to a select assortment of specimen Pines, very handsome plants, and excellent for immediate effect. These, they are confident, will well repay inspection.

Nursery and Seed Establishment, Stirling, N.B.

Dutch Flower Roots.



ARCHIBALD HENDERSON begs to announce that he has received a large Consignment of Dutch and other Roots, carefully selected from the most celebrated growers.

DESCRIPTIVE and PRICED CATALOGUES are now ready, containing practical directions for their successful cultivation on all the various systems now adopted.

Also a CHOICE and SELECT LIST of VEGETABLE and HARDY FLOWER SEEDS for Autumn Sowing. Catalogues gratis and post free upon application.

Sion Nursery, Thornton Heath, Surrey, and at the East Surrey Seed Warehouse, College Grounds, North End, Croydon.

Echeverias.

H. CANNELL has perhaps the finest and largest blooming lot of Plants of METALLICA in the kingdom, varying in size from seedlings to plants 4 feet high; and H. C. has spared neither expense nor pains in bringing a large quantity of seed top erfection. Each pod contains quite 100 dust-like seeds, and if sown at once, will make splendid little plants for next season. One pod, just ripe, sent free for 13 stamps.

H. C. has also a fine lot of the three following beautiful edging kinds:—SECUNDA, SECUNDA GLAUCA, and PUMILA. A packet of either of these sent free for 18 stamps.

Plants of all the above from 5s. per dozen to 20s. per plant.

New Florist Flower and Florist Flower Seed Merchant, Woolwich.

NEW PLANTS, 1869.

Special Offer to the Trade:—

2 Iresines, Lindeni and acuminata	9 Chrysanthemums
6 Fuchsias	1 Viola lutea grandiflora
4 Zonal Geraniums	1 Alternanthera amabilis
6 Bicolor Geraniums	1 Alopecurus pratensis aureo-variegatis
6 Double Geraniums	1 Holcus lanatus albo-variegatus
6 Coleus	
6 Lobelias	

On receipt of Post Office Order for One Guinea,

H. CANNELL will send the above Collection, package free. All strong, healthy little Plants. This offer only extends for 28 days.

New Chrysanthemums.

H. CANNELL has now a splendid Stock of 217 varieties, consisting of all the New, and best older varieties in cultivation, and will supply them either as Cuttings or Rooted Cuttings, or Potted Plants, at the very lowest price consistent with quality and economy.

See H. C.'s FLORAL GUIDE, giving particulars how to grow the Japan and other varieties. Other kinds are classed according to what they are best adapted for, and a great deal of other valuable information, including the Second Chapter on the Art of Gardening and the Natural Requirements of Plants. Free for Four Stamps.

New Florist Flower and Florist Flower Seed Merchant, Woolwich.

RICHARD SMITH'S LIST of EVERGREEN and DECIDUOUS SHRUBS, RHODODENDRONS, STANDARD ORNAMENTAL TREES, CLIMBING and TWINING PLANTS, with their generic, specific, and English names, native country, height, time of flowering, colour, &c., and general remarks, free by post.

RICHARD SMITH, Nurseryman and Seedsman, Worcester.

Rhododendrons.—To the Trade.

J. MATTHEWS has a large stock of 4-yr. RHODODENDRONS, 6s. per 100; 3-yr. (1 yr. transplanted), 10s. per 1000; 1 to 1½ foot, bushy, 15s. per 100; 1½ to 2 feet, 40s. per 100; Splendidum, white Rhododendron, budded, 1½ foot, 10s. per dozen; Corsicum pictum, 1 foot, 12s. per dozen.

SPRUCE FIR, 1½ to 2 feet, 20s. per 1000; and 2 to 3 feet, 30s. per 1000. PRIVET EVERGREEN, 2 to 3 feet, 16s. per 1000; 3 to 4 feet, 20s. OAKS, 3-yr. budded, 1 to 1½ foot, 5s. per 1000.

Milton Nurseries, Stoke-on-Trent, Staffordshire Potteries.

NEW SCARLET HYBRID RHODODENDRON, the EARL of DERBY.—This magnificent hybrid, raised by Mr. J. Faulkner, late of Kersal, and named by him after the illustrious Earl, lately deceased, is now offered to the Public, in robust thoroughly-hardened plants, from layers, at 21s. each. Noble alike in the large size of its foliage and in its immense trusses of flowers, of a fine crimson, of almost maximum size and exquisitely spotted (with dark spots), this splendid novelty is destined, beyond any question, to take and to hold a place in the very front rank of that host of beautiful hybrid Rhododendrons which are the glory and the pride of our British gardens. Such, in short, are its merits, that the Seller has no hesitation in guaranteeing against disappointment each and every Purchaser. The stock available for market being limited, it will be necessary to send orders in early.

The following Scarlet Hybrid Rhododendra, by the same raiser, and of surpassing merit, are offered at the low prices attached, viz.:—

MASTERPIECE, rosy crimson, strong plants from layers, thoroughly hardened, 5s. to 7s. 6d. each.
PHENOMENON, bright glossy crimson, finely spotted, do. do., 5s. to 7s. 6d. each.
" fine Standards, 7s. 6d. to 10s. 6d.
FAULKNERI, deep crimson, fine do. do., 3s. 6d. to 7s. 6d.
" fine Standards, 7s. 6d. to 10s. 6d.

A plant of the last named, in the Nursery here, carried, this season, upwards of 100 trusses of flowers, of exquisite colour and pencilling, and of immense size.

The Kersal Nurseries, Manchester. (Established 40 years.)

N.B. Post Office orders payable—ABRAHAM STANSFIELD, Manchester.

LUCOMBE, PINCE AND CO. beg to call special attention to their surplus and unrivalled stock of the following hardy ORNAMENTAL TREES and SHRUBS, which have been yearly transplanted, and can now be sent to any distance with perfect safety:—

ABIES ORIENTALIS, 6, 8, and 7 feet high, from 7s. 6d. to 21s. each.
" DOUGLASII, fine specimens, 12 to 15 feet high, 15s. and 21s. each.
CEDRUS DEODARA, 10 to 15 feet high, 15s. to 21s. each.
CUPRESSUS LAWSONIANA, 1 to 7 feet high, 5s. to 10s. 6d. each.
JUNIPERUS CHINENSIS, 3 to 4 feet high, 3s. 6d. each.
PICEA NORDMANNIANA, 2 to 4 ft. high, 21s., 31s. 6d., and 42s. each.
" PINSAPO, 3 to 4 feet high, 21s., 31s. 6d., and 42s. each.
" LASIOCARPA, 3 to 4 feet high, 31s. 6d., and 42s. each.
SKIMMIA JAPONICA, in pots, 18s. per dozen.
THUJA AUREA, 3, 4, and 5 feet high, 7s. 6d. to 15s. each.
THUJOPSIS BOREALIS, 5 to 7 feet high, 15s. and 21s. each.
WELLINGTONIA GIGANTEA, 4 to 12 ft. high, 10s. 6d. to 42s. each.
YEWS, IRISH, magnificent plants, grown on a single stem, from 4 to 10 feet high, 3s. 6d. to 21s. each.

Exeter Nursery, Exeter.

To the Trade.

ONE MILLION THORNS, 3-yr. old, first size, 5s. per 1000, or 100,000 for £20; second size, 2s. 6d. per 1000; a reduction on taking 100,000. A few hundred fine grown and well-trained CHERRIES at 18s. per dozen. A remittance or reference from unknown Correspondents.

Apply to W. TRESEDER, Nurseryman, Cardiff.

For Planting in the Isle of Thanet.

WANTED, 500 ELMS (Chichester, Huntingdon, and Wych), 100 SYCAMORE, 100 ASH, and 6000 3-yr. old strong healthy QUICK THORNS. To be delivered at Margate or Broadstairs Stations. The Trees must not be less than 10 feet high, straight, and well grown and well rooted.—Address, giving price per 100 for Trees, and per 1000 for Quick,

A. B., Mr. Winter's, Stationer, Lower Phillimore Place, Kensington.

Vines.

CHARLES TURNER can supply

GOLDEN CHAMPION	
MADRESFIELD COURT	MRS. PINCE, and
BLACK MUSCAT	ROYAL ASCOT

In Fruiting Canes, or second size for planting out; also the established old varieties, in fine plants.

The Royal Nurseries, Slough.

Fruit Trees.

J. LE CORNU, NURSERYMAN, SEEDSMAN, and FLORIST, begs to inform his Friends and the Public that he has this season to offer an immense quantity of beautiful and well-grown FRUIT TREES, all of the best leading varieties, such as Apples, Apricots, Peaches, Nectarines, Pears, Plums, and Cherry Trees, as Dwarf, Trained, and Standards, 4 to 6 feet stems.

CATALOGUE on application.

High View Nurseries, Mont a l'Abbé, St. Helier's, Jersey.

Fruits, Fruits.—Ground must be Cleared.

WM. DILLISTONE will forward, on receipt of order, any of the under named, in strong, healthy Trees, and all true to name:—

APPLES, Standards, 12 distinct kinds, 7s. 6d.; do. do., 24 distinct kinds, 12s.; do. do., 50 distinct kinds, £1 1s.
APPLES, Pyramids, strong and fine, at same prices.
" Dwarfs, strong and fine, at half the prices, i. e., 50 for 10s. 6d.
PEARS, Standards, 12 distinct kinds, 10s. 6d.; do. do., 24 distinct kinds, 17s. 6d.; do. do., 50, in 25 distinct kinds, £1 10s.
PEARS, Pyramids, same prices, and Dwarfs at half the prices.

For prices of other Fruits, &c., see List, free upon application.

Post Office Orders on Castle Hedingham.

WM. DILLISTONE, Nurseries, Sible Hedingham, Essex.

Forest, Fruit, and other Trees.

JAMES DICKSON AND SONS' NURSERY STOCK is NOT surpassed in Britain; therefore, they have EVERY CONFIDENCE in soliciting Orders, and inviting intending planters to visit their EXTENSIVE NURSERIES, which can now be reached, on foot, in seven minutes, from the Chester Railway Station, by their new private road from the foot of the Flookersbrook Railway Bridge.

PRICE LISTS on application.

(*Old Established Nursery and Seed Business.*)
"Newton" Nurseries, Chester.

Shrubs, Evergreens, and Fruit Trees.

ROBERT CORNWELL AND CO. have to offer SPRUCE, SILVER SCOTCH, LARCH, and AUSTRIAN FIRS, 3 to 5 feet; PRIVET, 4 to 5 feet; Variegated and Green BOX, 2 to 4 feet; IRISH YEWS, 3 feet; PINUS EXCELSA, 6 to 8 feet; Bushy LAURELS, 3 to 8 feet; PORTUGAL do., 2½ feet; LAURUSTINUS, 2 to 3 feet; some extra handsome ones, 4 by 4 feet; 2, 3, and 4-yr. ASPARAGUS; Box Edging, Fruiting GOOSEBERRIES, CURRANTS, RASPBERRIES, and STRAWBERRY Plants cheap, the Ground being wanted for a Railway.

Opposite Red Lion, Barnet, Herts.

Fruits and Fruit Trees.

J. SCOTT, The Nurseries, Merriott, Somerset, has now in his fruit room about 550 sorts of PEARS, which he offers, in named collections, at 1s. per dozen sorts. Cash with order; small sums in stamps. Orders for FRUIT TREES will be carefully attended to. 1000 sorts of Pears, 700 of Apple, 170 of Plum, 150 of Cherry, and other kinds in proportion. They are grown as Standards, 6 to 7 feet; Pyramids, 6 to 7 feet; and Bushes, 3 to 4 feet high; also Dwarf-trained fine healthy plants, and are described in the "Orchardist," the best work on Fruits in England, price 1s. 6d. A printed List or Index sent gratis.

Fruit Trees and Onions.

J. SCOTT, The Nurseries, Merriott, Somerset, calls attention to his fine Stock of FRUIT TREES, one of the largest and healthiest in the Kingdom. He has also for Sale several tons of prime large ONIONS, and from 10 to 15 bushels of Pickling do.

The ORCHARDIST, the best work on Fruit Trees, with Descriptive and Cultural Directions, price 1s. 6d., in stamps.

STRONG STANDARD APPLES and PEARS.—Large horizontal Trained and Pyramid Apples and Pears; fine Standard and Dwarf-trained PEACHES and NECTARINES; fine bushy LAURELS and LAURUS COLCHICUM, up to 4 feet; extra bushy LAURUSTINUS and PORTUGAL LAURELS, 1½ to 3 feet; a large collection of Standard and Dwarf Perpetual, Dwarf China, and Climbing ROSES of the leading sorts; deciduous flowering SHRUBS; ASH, 2 to 5 feet; LARCH, SCOTCH, SPRUCE, and AUSTRIAN FIRS, and all kinds of FOREST TREES; strong Evergreen PRIVET and THORN QUICK for Hedges. All the above have been regularly transplanted, and are well rooted. Prices on application to

CHARLES BURGESS, The Nurseries, London Road, Cheltenham.

Red Lodge Nursery, Southampton.

W. H. ROGERS begs to call attention to this extensive Nursery, which offers unlimited supplies of FRUIT, FOREST, and Ornamental TREES, SHRUBS, and AMERICAN PLANTS of every size and description. For specimen CONIFERS, Hardy, Scarlet, and other choice RHODODENDRONS, the Nursery is unrivalled. PRICED CATALOGUES and every information may be had gratis on application.

FOR SALE, by Private Contract, a valuable Collection of CONIFERS, ORNAMENTAL SHRUBS, CAMELLIAS in pots, and FRUIT TREES, comprising 32 Wellingtonia gigantea, from 5 feet to 10 feet; 25 Cupressus Lawsoniana; 8 Cedrus Deodara, 8 feet high; 2 Pinus Pinsapo, 6 feet high; 120 Ornamental Shrubs and Trees, 32 Camellias, in pots, and 200 Fruit Trees;—standing within half a mile of a Station on the Great Northern Railway.

For particulars, apply to Messrs. DUCKWORTH AND CLAYDEN, Auctioneers, &c., Hadley, Barnet, N.

SURPLUS STOCK. Reduced Prices. Mostly transplanted in 1868 and 1869.

Abies 'Nordmanniana, 4, 6, 9, to 12 inches; ditto, 1 to 2 feet	Ash, Common, 9 to 12 feet
Juniperus chinensis, 3, 4, to 5 feet	Deutzia crenata flore-pleno, 2 to 3 ft.
Pinus austriaca, 1 to 2 feet	Laurels, Common, 2 to 3 feet
Thuja Warreana, 3 to 4 feet	Laurels, Portugal, 1, 2, to 3 feet
Fir Larch, 10 to 12 feet	Phillyrea, Ilex-leaved, 3 to 4 feet

All well furnished, bushy, and good rooted.

Standard and Pyramid Pears and Plums, fine; besides a general stock of Fruit and Rose Trees, American Plants, Conifers, Hardy Evergreen and Deciduous Trees and Shrubs, Climbers, and Forest Trees, &c. Prices on application to

GEO. JACKMAN AND SON, Woking Nursery, Surrey.

Large Evergreens and Forest Trees.

MESSRS. PAMPLIN AND SON have a large quantity of the following, and offer them at low prices, part of their Grounds being required for building purposes.

Cedar of Lebanon, 10 to 20 feet	Black Italian Poplar, 20 feet
Cedrus Deodara, 6 to 15 feet	Balsam ditto, 10 to 15 feet
Aucuba japonica, 2 to 6 feet	Lombardy ditto, 20 feet
Portugal Laurels, 2 to 6 feet	Horse Chestnut, 10 to 15 feet
Chinese Arbor-vitæ, 5 to 12 feet	Spanish Chestnut, 10 feet
American " 5 to 10 feet	Limes, 10 to 15 feet
Thuja aurea, 1 to 4 feet	Walnuts, 10 to 15 feet
Green Box, 1 to 6 feet	Ash, 10 to 20 feet
Striped ditto, 2 to 4 feet	Elm, 10 to 15 feet
Evergreen Oak, 7 to 10 feet	Acacia, 10 feet
Yew, Common, 4 to 10 feet	Mountain Ash, 10 feet
Irish Yew, 3 to 5 feet	Turkey Oak, 10 to 12 feet
Laurel, 2 to 6 feet	Sycamore, 10 to 14 feet
Araucaria imbricata, 10 feet	Weeping Willow, 10 to 15 feet
Green Hollies, 1 to 12 feet	Lilac, Common, 8 feet
Weymouth Fir, 3 to 6 feet	Persian ditto, 6 feet
Spruce ditto, 2 to 4 feet	Yellow Azalea, 3 feet
Birch, 14 feet	Privet ovalifolia, 8 feet

The Nurseries, Lea Bridge Road, Leyton; and Wood Street, Walthamstow, Essex, N.E.

To the Trade.

PYRETHRUM AUREA (New Golden Feather), strong Plants, 10 inches to 1 foot through, 12s. to 16s. per 100. Seed of the above to produce 200 Plants, 6d. per packet.

CYCLAMEN PERSICUM, showing Bloom, 60s. per 100.

SOLANUM CAPSICASTRUM, for Winter and Spring Berrying, 30s. to 35s. per 100.

ROSES, Tea, Safrano, 50s. per 100, in pots.

ROSES, Tea, Madame Falcot, 60s. per 100, in pots.

ROSES, China, in four good and distinct varieties, 35s. to 40s. per 100, in pots.

ROSES, Manetti Stocks, strong, for immediate working, 35s. per 1000.

The above can be had in strong Plants at

GODWIN'S Rose Nursery, Angel Road, Edmonton, N.

Standard and Dwarf Roses.

LEWIS WOODTHORPE begs to offer STANDARD and DWARF ROSES at the following low rates:—

Standard Roses, £5 per 100; 27s. 6d. per 25; 15s. per dozen.
Dwarf Roses, upon Manetti, £2 per 100; 6s. per dozen.
Dwarf Roses, in pots, 9s. per dozen.

Wholesale prices upon application. CATALOGUES of Roses, New Plants, and general Nursery Stock free.

Munro Nursery, Sible Hedingham, Essex.

Roses, New Roses (Trade Price).

LÉVÊQUE ET FILS, NURSERYMEN, 132 and 134, Boulevard de l'Hôpital, Paris, begs to offer good and healthy plants of—

TEA ROSES, grafted and on their own roots, grown in small pots.
Maréchal Niel, £4, per 100.
Souvenir d'Elise Vardon, Jean Pernet, M. Furtado, Madame Margottin, Reine du Portugal, Climbing Devoniensis, 10s. per doz.
Marie Sisley, Marie Ducher, Adrienne Christophle, Celina Noirey, Montplaisir, &c., 15s. per dozen.
Vicomtesse du Cazes, Madame Falcot, Niphétos, Safrano, Triomphe du Luxembourg, Bougère, Adèle Jougant, Ophélia, Souvenir d'un Ami, Pactole, and all the best sorts, 60s. per 100.

SOUVENIR DE LA MALMAISON, on their own roots, in pots, 40s. per 100.

DWARFS, Hybrid Perpetual, the best sorts, strong plants (our choice), 40s. per 100, £9 per 1000.

STANDARDS, clean stems, strong heads, all the best sorts (our choice), £5 per 100.

Do., Maréchal Niel, £6 per 100.

BARONNE DE ROTHSCHILD, splendid sort, strong dwarfs, £4 per 100.

Fifteen per Cent. Discount on the NEW ROSES of this YEAR. To be sent out for the first time next November.

LISTS and CATALOGUES on prepaid application.

Laurus latifolius

(CERASUS LAUROCERASUS, var. LATIFOLIA).

L. PAILLET, NURSERYMAN, Chatenay les Sceaux, near Paris, France, offers to the Trade for the first time his splendid new LAURUS, obtained from seed, between a seedling of Laurus colchica and caucasica. The immense size of its beautiful deep green foliage, its great hardiness and rusticity, combine to make this novelty the most valuable of ornamental Evergreen Shrubs for Parks and Gardens. After having been planted in the open air for two years, the leaves of this variety attain a length of from 11 to 12 inches, and a width of from 4 to 5 inches. Price 12s., 16s., 20s., and 25s. per plant, according to size. One plant over, sent gratis, when six are ordered. An Engraving and further particulars will be sent on application by prepaid letter.

All kinds of new and other ROSES, disposable in large quantities, at low prices.

Special culture of FRUIT TREE STOCKS, Young SHRUBS, and FOREST TREES, disposable in immense quantities at very low prices.

All orders must be sent to Mr. L. PAILLET as above; or to his Agents, Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

FRUIT TREES OF EVERY DESCRIPTION.

WILLIAM ROLLISSON & SONS

BEG RESPECTFULLY TO ANNOUNCE THAT THEIR

NEW CATALOGUE OF HARDY AND ORCHARD-HOUSE FRUITS

Is now about being published, which contains a full and Descriptive List of all the Popular Favourites in Cultivation, together with additions of most of the Novelties, worthy of merit, of the season; and will be forwarded, Gratis and Post Free, on application to

THE NURSERIES, TOOTING, LONDON, S.W.

"A garden with empty flower-beds is like a house without furniture."

BARR & SUGDEN,

12, KING STREET, COVENT GARDEN, W.C.

November is the month to provide for a display of Flowers in Spring. The most desirable Bulbs to plant are

Hyacinths	Ranunculus
Narcissus	Anemones
Tulips	Scillas
Crocus	Muscari
Snowdrops	Lily of the Valley
Winter Aconites	Triteleias
Iris	&c., &c.

The most desirable Plants for a Spring display are

Alyssum	Polyanthus
Arabis	Dwarf Phloxes
Aubrietia	Primroses
Daisies	Silenes
Forget-me-Not (Myosotis)	Violas
Hepaticas	Wallflowers
Pansies	Gentiana acaulis, &c.

With the above a display in the Flower Garden can be effected far surpassing, in beauty and in general effect, the most brilliant productions of summer gardening. The Bulbs and Plants are all perfectly hardy. Designs the most elaborate may be carried out with a greater certainty of result than can be attained with summer-flowering plants. This has been eminently illustrated by Mr. Fleming at Cliveden, and Mr. Roger at Berryhill.

Purchasers of Spring-flowering

BULBS AND PLANTS,

SHOULD SEND FOR A COPY OF

BARR AND SUGDEN'S DESCRIPTIVE

PRICED AUTUMN CATALOGUE.

Collections of Bulbs for the Spring Flower Garden, 10*s.* 6*d.*, 21*s.*, 30*s.*, 42*s.*, 63*s.*, 84*s.*, 105*s.* and upwards.

Collections of Bulbs for Indoor Decoration, 10*s.* 6*d.*, 21*s.*, 30*s.*, 42*s.*, 63*s.*, 84*s.*, 105*s.*, and upwards.

Collections of Plants for the Spring Flower Garden, 15*s.*, 28*s.*, 55*s.*, 105*s.* and upwards.

In quantities of 100 or 1000,

THE FOLLOWING BULBS

are very cheap:—

HYACINTHS	SCILLAS
NARCISSUS	IRIS
TULIPS	ANEMONES
CROCUS	RANUNCULUS
WINTER ACONITES	TRITELEIAS, &c.

ALSO THE FOLLOWING PLANTS:—

ALYSSUM	DWARF PHLOXES
ARABIS	PRIMROSES
AUBRIETIA	WHITE PINKS
DAISES	SILENE
FORGET-ME-NOT	VIOLA of sorts
HEPATICAS	WALLFLOWER
PANSIES	GENTIANA ACAULIS.

EARLY and LATE SUMMER FLOWERS.

IRIS	CROCOSMIA
IXIAS	LILIES
SPARAXIS	GLADIOLI
AMARYLLI	&c., &c.

Are all fully described and priced in the

AUTUMN CATALOGUE,

which may be had free on application.

BARR AND SUGDEN,
12, KING STREET, COVENT GARDEN, W.C.

ECONOMY IN THE GARDEN.

James Carter & Co
Seed Growers

AND NURSERYMEN,
237 AND 238, HIGH HOLBORN, LONDON, W.C.

CARTER'S

COLLECTIONS OF HYACINTHS,

CROCUS, TULIPS, &c.

JAMES CARTER AND CO. strongly recommend the following COLLECTION:—

CARTER'S

SPECIAL "GUINEA" COLLECTION

For Indoor and Outdoor Decoration.

12 Very Fine Named HYACINTHS, for Pots or Glasses.
12 Mixed BEDDING HYACINTHS.
6 Named POLYANTHUS NARCISSUS.
24 Named BORDER NARCISSUS.
12 Extra Fine Mixed DOUBLE TULIPS.
12 Extra Fine Mixed SINGLE TULIPS.
100 PURPLE CROCUS.
50 STRIPED CROCUS.
50 WHITE CROCUS.
12 CAMPERNEL JONQUILS.
24 Extra Choice Mixed SPANISH IRIS.
12 DOUBLE DAFFODILS.
12 GLADIOLUS BRENCHYLENSIS.
24 GLADIOLUS BYZANTINUS.

Half the above for 10s. 6d.

A beautiful display in the Garden produced by planting the following varieties of Crocus:—

CROCUS, LARGE DUTCH.

100 of each of the following 10 sorts for **19s. 6d.**

	Per 1000. *s.*	*d.*	Per 100 *s.*	*d.*
Blue	18	0	2	0
Blue, light	18	0	2	0
Cloth of Gold, small deep yellow, brown striped	18	0	2	0
Purple	18	0	2	0
Scotch	21	0	2	6
Striped	18	0	2	0
Variegated	18	0	2	0
Versicolor	21	0	2	6
White	18	0	2	0
Yellow, large	18	0	2	0

The following are choice named varieties of CROCUS, producing bloom of great size and beauty:—

100 of each variety for **33s. 6d.**

	Per 100.—*s.*	*d.*
Caroline Chisholm, finest pure white	4	0
David Rizzio, dark purple, very fine	4	6
La Majestueuse, large violet, striped, splendid	4	6
Louis d'Or, large golden yellow, extra fine	4	6
Ne Plus Ultra, blue, white border	3	0
Prince Albert, lilac	3	6
Queen Victoria, pure white	3	6
Sir John Franklin, large purple	4	0
Sir Walter Scott, finely striped	3	6
Superb, pure yellow	3	0

PARISIAN MUSHROOM SPAWN.

J. C. AND CO. are prepared to supply French Spawn, which is said to be a great improvement upon the ordinary Spawn. (*Vide* Horticultural Press.)

Price 6s. 6d. per Box

(sufficient to Spawn a moderate-sized Bed);

Half Boxes, 4s.

Decoration of the Drawing-room.

JAMES CARTER AND CO. offer for this purpose their choice Selections of HYACINTHS as below, including Glasses.

12 choice Hyacinths and 12 new-shaped Glasses	..	21*s.* 0*d.*
12 fine " and 12 new-shaped Glasses	..	10*s.* 6*d.*
12 good " and 12 new-shaped Glasses	..	18*s.* 0*d.*

Carter's Collection of Bulbs, for Outdoor Planting only, price 21s.

CONTAINS:

18 Hyacinths, choice in 3 colours	6 Gladiolus Brenchleyensis
12 Narcissus, double white	12 Iris, extra choice mixed, English
12 " Pheasant's Eye	12 Iris, extra fine mixed, Spanish
12 Double Daffodils	3 Lilium candidum
36 Tulips, extra fine mixed	3 " tigrinum
50 Crocus, blue	24 Ranunculus, extra fine mixed
50 " striped	24 Snowdrops, selected
50 " large yellow	100 Winter Aconites
50 " white	
24 Anemones, extra fine mixed	

Subject to variation as the season advances.

For full instructions for cultivation, and particulars of the above Assortments, see

CARTER'S

ILLUSTRATED BULB CATALOGUE

For 1869, Gratis and Post Free.

THE ROYAL SEEDSMEN,
237 AND 238, HIGH HOLBORN, LONDON, W.C.

SUTTONS'

FRESH IMPORTED FLOWER ROOTS

FOR WINTER AND SPRING BLOOMING.

MESSRS. SUTTONS' FLOWER ROOTS Have been selected from the principal Growers in Holland.

MESSRS. SUTTON DELIVER ALL FLOWER ROOTS, Except very small parcels, Carriage Free by Rail.

Special Estimates for large quantities on application.

Suttons' Complete £1 1s. Collection,

For Cultivation in POTS and GLASSES, Carriage Free.

12 fine Hyacinths, by name	3 Persian Iris
6 Miniature Hyacinths, by name	3 Peacock Iris
6 Polyanthus Narcissus, do.	50 fine Crocus, by name
6 Large Double Jonquils	6 choice Ixias
6 Single Sweet Jonquils	3 choice Sparaxis
6 Scilla præcox	3 choice Oxalis
6 Single Duc Van Thol Tulips	1 Jacobea Lily
6 Double Tournesol Tulips	1 Lilium lancifolium album
25 Early Tulips, 5 sorts	1 " " rubrum

Suttons' Fine New Crocus for Pots.

1000 splendid named, in 25 vars.	£1	15	0
500 do. do., in 25 vars.	0	18	0
250 do. do., in 25 vars.	0	9	0
100 splendid named, in 10 vars.	£0	4	0
50 do. do., in 10 vars.	0	2	0
25 do. do., in 5 vars.	0	1	0

Suttons' Dutch Crocus for Open Ground.

1000 in 10 vars.	£0	18	6	250 in 5 vars.	£0	5	0
500 in 10 vars.	0	10	0	100 in 5 vars.	0	2	3
Large Blue per 100	£0	1	9	Large Yellow per 100	£0	1	9
" White "	0	1	9	Largest Yellow "	0	2	6
" Purple "	0	2	6	Cloth of Silver "	0	2	0
Common Yellow "	0	1	0	Cloth of Gold "	0	2	0
Large Mixed				per 100	£0	1	6

Suttons' Choice Polyanthus Narcissus,

For POTS, GLASSES, or OPEN GROUND.

100 in 20 choice sorts	£1	5	0	12 in 12 choice sorts	£0	4	0
50 in 10 choice sorts	0	14	0	100 fine mixed	0	15	0
25 in 12 choice sorts	0	7	6	12 fine mixed	0	2	0

Garden Narcissus, finest mixed, 7*s.* 6*d.* per 100.

Suttons' Early and Large Double Tulips,

Early Varieties.

100 in 20 choice vars.	£0	18	0	50 in 10 choice vars.	£0	8	0
100 in 10 choice vars.	0	15	0	25 in 5 choice vars.	0	4	0

12 in 4 choice vars., 2*s.*

Double Tournesol, p. 100	£0	12	6	Rose Duc Van Thol, p. 100	£0	14	0
" Duc Van Thol "	0	3	6	Scarlet " " "	0	18	0
Single Duc Van Thol "	0	5	0	Yellow " " "	1	0	0

Choice named varieties, separate, 1*s.* to 12*s.* per dozen.

Large Double Varieties.

100 in 10 choice sorts	£0	17	6	50 in 10 choice sorts	£0	10	0
25 in 5 choice sorts	0	5	0	12 in 4 choice sorts		2	6

For COMPLETE LIST of BEDDING TULIPS (with an original article on Cultivation), showing the date of blooming, height, size of flowers, and colours of the varieties most worthy of cultivating, see SUTTONS' AUTUMN CATALOGUE for 1869, gratis and post free on application.

SUTTONS' SUPERB DUTCH HYACINTHS



FOR CULTIVATION IN POTS OR GLASSES.



The best 12 HYACINTHS for 12*s.*

Messrs. SUTTONS' COLLECTION of HYACINTHS consists of more than 200 varieties, a PRICED and DESCRIPTIVE LIST of which may be had on application.

Suttons' Collections of Named Hyacinths.

100	HYACINTHS in 100 very choice sorts	£4	4	0
100	" 50 very choice sorts	3	10	0
50	" 50 very choice sorts	2	2	0
50	" 25 very choice sorts	1	15	0
25	" 25 very choice sorts	1	1	0
12	" 12 extra fine sorts	0	12	0
12	" 12 choice sorts	0	9	0
12	" 12 good sorts	0	6	0

The order should specify whether they are intended to be grown in water or earth, as all kinds are not equally suited to both purposes. It should also be stated whether single or double blossomed kinds are preferred; otherwise we usually supply about two-thirds double and one-third single. The single varieties generally thrive best in water, but their merits are never apparent until the flowers are fully expanded.

SUTTONS' MIXED HYACINTHS for Beds or Open Borders.—Double, Single, and various colours, 2*s.* 6*d.* per doz., 17*s.* 6*d.* per 100.

SUTTONS' HYACINTHS in DISTINCT COLOURS for Massing, Bedding, Ribbon Gardening, &c.—Double and Single, various shades, separate, 4*s.* per doz., 30*s.* per 100.

Suttons' Complete £1 1s. Collection

For OPEN GROUND CULTIVATION, Carriage Free.

12 fine mixed Border Hyacinths	6 fine mixed Gladiolus
6 " Polyanthus Narcissus	12 Duc Van Thol Tulips
12 Pheasant's Eye Narcissus	6 mixed Single Early Tulips
12 Double White Narcissus	6 fine mixed Double Tulips
25 Double Daffodils	6 " Parrot Tulips
6 large Campernelle Jonquils	6 Gesneriana Tulips
50 fine mixed Double Ranunculus	25 fine mixed Tulips
50 Scarlet Turban Ranunculus	6 " English Iris
12 fine mixed Double Anemones	6 " Spanish Iris
12 " Single Anemones	3 Lilies, of sorts
50 Crocus, 3 sorts	3 Ferraria pavonia
50 Snowdrops	6 Dog's-Tooth Violets
25 Winter Aconites	3 Crown Imperials

For further particulars and Prices of GLADIOLUS, RANUNCULUS, ANEMONES, &c., see SUTTONS' AUTUMN CATALOGUE, gratis and post free on application.

SUTTON AND SONS,
SEEDSMEN TO THE QUEEN, READING, BERKS.

Pelargoniums for the Million.

JAMES HOLDER'S unrivalled Collection of French, Fancy, and Show varieties is now ready, at the following low prices:—100 plants, distinct sorts, for 50*s.*; 50 plants for 30*s.*; or 25 plants, distinct sorts, for 20*s.*, hamper and package included.
Crown Nursery, Reading.

VARIEGATED PELARGONIUMS.—Mrs. Dix, Pluto, Spanish Beauty, Jock o' Hazeldean, Louisa Smith, Lizzie, Caroline Longfield, Oberon, Dragon, Countess Tyrconnell, Golden Circle, Glen Eyre Beauty. 21*s.*
CASBON AND SON, Gravel Walk Nursery, Peterborough.

Special Offer.—Madame Lemoine.

WILLIAM BADMAN offers strong plants of this most beautiful of Double Pelargoniums, in single pots, 6*s.* per dozen. LORD DERBY, finest Pelargonium grown, 4*s.* per dozen. Package included. Terms cash.
Cemetery Nursery, Gravesend.

British Fern Catalogue.

ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, Sidcup Hill, Kent.

Choice Seeds and Spores, for present Sowing.

JOHN H. LEY, NURSERYMAN, Croydon, has saved with great care SPORES from his extensive Collection of EXOTIC FERNS. If sown now in the manner described on each packet, would produce many fine varieties next season. Per packet, 2*s.* 6*d.* and 3*s.* 6*d.* CENTAUREA CANDIDISSIMA, good Seeds, 1*s.* per packet; PYRETHRUM GOLDEN FEATHER, 600 ditto, 6*d.*, post free.

Everlasting and Dried Natural Flowers.

JAMES CARTER, DUNNETT, AND BEALE'S WHOLESALE LIST of the above is now ready, and will be forwarded immediately on application.
237 and 238, High Holborn, London, W.C.

JAMES CARTER AND CO. have a beautiful Stock of Seedlings, in excellent condition, of their choicest Strains of CALCEOLARIA, CINERARIA, and PRIMULA, in 60-pots, fit for potting-on immediately for early Spring Blooming. Worthy the attention of those who have omitted to sow at proper time. Price, 21*s.* per 100, 3*s.* per dozen.
JAMES CARTER AND CO., 237 and 238, High Holborn, W.C.; and Crystal Palace Nurseries, Forest Hill, S.E.

Gladioli—New Roses.

EUGÈNE VERDIER Fils Aîné, NURSERYMAN, 3, Rue Dunois, Paris, publishes in August and September of each year complete and descriptive CATALOGUES, with prices. They comprise all the finest and newest varieties of Gladioli, Pæonies, and New Roses. Gratis and post free on application.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to announce that he has still some large plants of CAMELLIAS left, with flower buds, at 7*s.* 6*d.* to 15*s.* each; seedling plants of ABIES BRACTEATA, 2-yr. old, at 60*s.* per dozen.
Strong plants of UVARIA GRANDIFLORA, at 4*s.* per dozen; strong plants of LATANIA BORBONICA, at 7*s.* 6*d.*; CHAMÆROPS HUMILIS, at 15*s.*; and CORYPHA AUSTRALIS at 10*s.* 6*d.*

New Japanese and other Chrysanthemums.

JOHN SALTER AND SON beg to announce that the CHRYSANTHEMUMS are unusually fine this season. Their large Collection, NOW in BLOOM in the Winter Garden, may be seen throughout the months of November and December, every day except Sunday. Admittance free.
Versailles Nursery, William Street, Vale Place, Hammersmith, W. (near Kensington Railway Bridge).

New Catalogue of Dutch Bulbs, Plants, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select Descriptive and Priced Lists of Amaryllis, Crocuses, Cyclamens, Gladioli, Hyacinths, Liliums, Narcissus, Tulips, and other bulbs, Miscellaneous Plants, Fruit Trees, Sweet Violets, &c., is now published, and will be forwarded to applicants.—Exotic Nursery, Tooting, Surrey, S.W.

Dutch and other Bulbs.

WM. CUTBUSH AND SON are celebrated for HYACINTHS, TULIPS, CROCUSES, and other DUTCH BULBS. All the Great Prizes, including the Two Special Prizes offered by the Dutch Growers, awarded to their Collections again last Spring. They import only ONE QUALITY, therefore Customers may rely upon having the finest Bulbs. CATALOGUES post free.
Highgate Nurseries, London, N.

Dutch Flower Roots.

FRANCIS & ARTHUR DICKSON & SONS, have received from the most celebrated Growers in Holland their first large importation of the above, and have the satisfaction to say that the Bulbs are large, sound, and well ripened. Early orders respectfully solicited. DESCRIPTIVE PRICED CATALOGUES post free on application.
The "Old" Established Seed Warehouse, 106, Eastgate Street, Chester.

Hyacinths, Tulips, &c.

BUTLER, MCCULLOCH AND CO. beg to announce the publication of their AUTUMN CATALOGUE of the above, which will be sent gratis and post paid on application. Orders for Bulbs can now be executed.
BUTLER, MCCULLOCH AND CO., South Row, Covent Garden Market, London, W.C. Established upwards of a Century.

Arrival of Bulbs.

BARR AND SUGDEN,
12, King Street, Covent Garden, W.C.
CATALOGUE containing much additional valuable information now ready, and on application sent free to the Readers of the *Gardeners' Chronicle*. BULBS for Early Flowering now ready to send out, of first-class quality.

The Gardeners' Chronicle.

SATURDAY, NOVEMBER 13, 1869.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, Nov. 16 { Royal Horticultural (Fruit and Floral Committees), at South Kensington .. 11 A.M.
{ Ditto (General Meeting) .. .. .. 3 P.M.
THURSDAY, — 18—Linnean .. .. 8 P.M.

COMPLICATED as is the geographical distribution of organised beings, it would have been rendered still more so if, at an earlier stage of our knowledge, the two great ISTHMUSES of the world —those of DARIEN and SUEZ—had been cut asunder by the agency of man, so as to allow of the unrestricted spread of such plants and animals as are now found in their neighbourhood. There are many reasons to believe that at an early period of the present geological epoch, North and South America were not connected by that great bridge which now separates the Atlantic and Pacific Oceans; but that this was formed by one of those great upheavings which have added to the coast of Peru, Bolivia, and Chili, the greater part of its desert tracts, sparingly covered by vegetation, and but seldom visited by actual rain. In the narrowest part of the Isthmus of Darien we find beds of oyster shells, formed by a species still existing in a living state on the Pacific coast; the majority of the fishes, both fresh and salt water, as Dr. GÜNTHER has clearly shown in his admirable treatise in the "Zoological Transactions," are found on the coast of both the Atlantic and the Pacific; and the maritime and shore vegetation, consisting of plants chained to the water's-edge, and therefore not able to spread overland, is identically the same on both sides. Curiously enough the same conditions do not seem to prevail on the Isthmus of Suez—the fish fauna of the Red Sea, Dr. GÜNTHER reminds us, being absolutely different from that of the Mediterranean. It will be interesting to watch how far this state of things will be influenced by the great work now completed, we mean the canal across the Isthmus of Suez.

These and similar reflections are naturally forced upon us as the day approaches when one of the greatest engineering feats of our time, certainly one of the greatest our French neighbours have achieved, is to be thrown open to the commerce of the world, when trade is invited to resume its old channels—that trade which, in days of yore, when navigators did not pass by the Cape of Good Hope, covered the terraced gardens of the Mediterranean with precious works of art, and enabled the German merchant princes to heat their rooms with Cinnamon wood from India. It is humiliating to think that some of our greatest engineers, probably influenced more by political than other reasons, boldly pronounced against the possibility of a canal, and thereby added not a little to the embarrassments of that great *entrepreneur*, M. DE LESSEPS. Yet for all of that, like GALILEO'S world, the great project continued to move on, to progress, till at last it stands before us an accomplished task. But at this stage a difficulty begins to make itself felt, which, indeed, has long been foreseen, but requires now to be dealt with. This is the task of preventing the canal from silting up. On both sides of the canal we have *tyrdans*—hills of loose sand—which, like the *medanos* of the Peruvian deserts, are set in motion by moderately strong winds, and constantly change their position. Enormous quantities of this sand would in certain seasons of the year drift into the canal and cause, if not a complete choking up, at all events a serious outlay for dredging. What is to be done to prevent this mischief—to keep, in fact, the desert under control? You cannot pave so extensive a tract of country, but you can do the next best thing, you can cover it with vegetation. It is a question whether the gardener or the engineer shall be called in, whether cultivation or dredging is the cheapest method of dealing with this difficulty; and we are hardly in a position to work out the question of £ *s. d.* until we have more facts than are at present at our command, But we have no doubt that if cultivation is determined upon, we shall be able to establish our mastery over the sand. We have overcome much greater obstacles in Ascension—where, it will be remembered, that, acting under the advice of the late Dr. LINDLEY and of Dr. HOOKER, we took in hand an island which was a mere heap of ashes and cinders, without any water and no vegetation, save that of a few Ferns and Lichens at the very top of the highest hill, but which, by judiciously adding to the scanty flora Nature had provided, now possesses large trees, produces quantities of vegetables and abundant supplies of water for shipping. With such triumphant results achieved, gardeners need not shrink from the difficulties presented by the Isthmus of Suez.

NEGRETTI has drawn attention to the great danger from sand which threatens the canal from the western side, but the late Dr. KOTSCHY, who was attached to the mission of inquiry despatched to Suez by the Austrian Government some years ago, points out with justice that the eastern side is still more to be feared as a sand supply. If Suez were a fresh-water canal, nothing would be more easy than to establish such irrigating works as would speedily convert the desert into a garden; but being salt water we must commence by availing ourselves, in the first instance, of the little moisture that is found around the wells. There everything must be done to extend the existing vegetation. This would have the immediate effect of causing more dew, mist and rain, and would enable us gradually to connect these different centres of plant life, until the whole desert, as far as required, was put under the gardener's control. Of course, it would be desirable that this green covering should consist, as nearly as possible, of useful plants; but that would be merely an after-consideration. In the first instance, it would be desirable that every plant that will grow in a bare and heated soil of sand or gravel, such as a great part of the Isthmus is, should be sown. KOTSCHY has published a long list of such plants as he thinks suitable for this purpose; and we think that his list might be considerably extended by adding some of those found in arid parts of California, Peru, Chili, and Australia. The most suitable are species such as those whose roots penetrate deeply into the soil, and whose branches and foliage are sufficiently thick to act as a kind of break towards the clouds of sand that are raised; less useful, though also acceptable, would be those which creep along the ground, and keep the sand down; and of still minor importance, all annuals which can be made to grow.

AN appeal is made, at p. 1161, for information respecting the influence of FUNGOUS SPAWN on the ROOTS of CONIFERS. Unfortunately gardeners must still be haunted by the nightmare of "this horrid Fungus," and it is well if they are frightened into more diligent guarding against a very pressing evil. Nothing new is to be said upon the subject. Cases from time to time have been reported both as to the pernicious effects of fungous spawn, and of the benefit of lifting and cutting off the diseased roots. There is great unwillingness even in more scientific quarters to believe that Fungi can affect healthy plants or tissues. This, however, has been proved again and again in the case of Potato mould, Vine mildew, and other Fungi which attack leaves. The rapidly destructive powers of the threads of Mucor on the tissues of Apples was long since pointed out by Dr. HASSALL, and any cultivator may find confirmation of the fact for himself if he will observe closely what takes place in plants when they are shifted. A little piece of stick in the mould, should spawn grow upon it, will be a source of deadly mischief. Little threads are thrown off to the healthy roots, which soon decay, and if the mischief is not stopped, serious injury is almost sure to follow. We had ourselves an opportunity, in shifting some cuttings of Pelargoniums a few days since, of witnessing an incontrovertible instance of the way in which spawn travels to the healthy roots and destroys their vitality. The same thing unfortunately is sometimes experienced to an alarming extent in the case of the moulds belonging to the genus Polyactis. Mischief to the extent of many hundred pounds in a single nursery has ensued from these little moulds seizing on the branchlets of Conifers, Heaths, &c., and at once causing the decay of the subjacent tissues whereon they settled. It is seldom possible to ascertain precisely to what especial Fungus the spawn affecting roots belongs, but in the few cases where it has been fully developed it has always proved to belong to one of our commonest Polypori. No tree should ever be planted where one has stood before without the most careful grubbing up of the old roots. It is more frequently to the influence of fungous spawn that failure is due, than to the old theory of the soil being exhausted and not capable of supplying the necessary nutriment. *M. J. B.*

—— WE are informed that at the meeting of the ROYAL HORTICULTURAL SOCIETY to be held on Tuesday, November 16, the following prizes will be offered, viz.:—

By W. WILSON SAUNDERS, Esq., V.P.R.H.S.—Collection of winter bedding plants, to be exhibited in pots or boxes, 2*l.*, 1*l.*

By the Society.—4 Chrysanthemums, large-flowered, in pots, distinct (open), 1*l.*, 15*s.*, 10*s.*; 4 Chrysanthemums, Pompons, in pots, distinct (open), 1*l.*, 15*s.*, 10*s.*; 12 Chrysanthemums, cut blooms, distinct (nurserymen), 10*s.*, 7*s.*, 5*s.*; 6 Chrysanthemums, cut blooms, distinct (amateurs), 10*s.*, 7*s.*, 5*s.*; 12 plants bearing decorative fruits, in pots, varied (open), 1*l.* 5*s.*, 1*l.*, 15*s.*; 6 plants bearing decorative fruits, in pots, varied (open), 15*s.*, 10*s.*, 5*s.*

—— Through the courtesy of M. NAUDIN we have received some particulars of the METEOROLOGICAL OBSERVATORY, recently established by M. CHARLES ST. CLAIRE DEVILLE, in the park "Mont Souris," in the immediate neighbourhood of Paris. This establishment has been founded for the purpose of observing and recording meteorological phenomena *per se*, and also with special reference to agriculture and horticulture. The park is of large extent, and will soon be one of the prettiest near Paris. The observatory is provided with all the numerous instruments now required for ascertaining the temperature, pressure, humidity, rainfall, electric and magnetic conditions of the atmosphere, &c., as well as for observations on the direction and force of the winds, the nature and intensity of light, the forms of clouds, and other matters, not excepting shooting stars and earthquakes. It will

thus be seen that the establishment is very complete, and the range of observation very extensive. At the same time observations will also be made on the effect of the various physical agencies before mentioned on plants, animals, and mankind, with a view of ascertaining the manner and degree in which they are respectively affected by external conditions. It is clear we can hardly have too many of such observations, and we may confidently anticipate in the future that important deductions will be made which will influence cultural operations. M. ST. CLAIRE DEVILLE'S name is a sufficient guarantee that the observations will be carried out with all necessary accuracy.

—— Several notices have lately been published of the occurrence of that somewhat rare and interesting insect, the ASIATIC LOCUST in Cornwall; to which may be added, that an example was captured a few days ago in Higher Market Street, Penryn, and it still remains alive in the possession of Mr. S. COX, ironmonger, of that town. We have not heard that any have been seen in the eastern counties of England, which circumstance would seem to imply that they have flown to us over a wide expanse of sea on the south or south-west.

—— Horticulturists and botanists will read the following announcement with pleasure, as a compliment not only to the individual, but to his fellow-workers:—"War Office, November 6.—The Queen has been graciously pleased to give orders for the appointment of Joseph Dalton Hooker, Esq., M.D., Director of the Royal Botanical Gardens at Kew, to be an Ordinary Member of the Civil Division of the Third Class, or Companions of the Most Honourable Order of the Bath." It is open to question whether an honour of this kind is altogether the most suitable that could have been paid to a scientific man of such eminence; but it must be taken in the sense in which it was intended to be bestowed; and, moreover, there are now numerous precedents for the course followed. Some day, perhaps, we may attain to more discrimination in the matter of the honours paid to distinguished *savans* and literary men.

—— From Oxford we learn that influential meetings have been held, with a view to promote the PROVINCIAL SHOW of the ROYAL HORTICULTURAL SOCIETY in that city, to be held in the Observatory grounds at the same time as the show of the Royal Agricultural Society in July next. We can but look upon this renewed association with the Agricultural Society as a mistake, but we trust that every effort will be made to falsify our misgivings, and to secure an exhibition in all ways worthy of the grand old city.

—— The magnificent DAHLIA IMPERIALIS is now in bloom in the garden of the Royal Horticultural Society at Chiswick. The plant will, no doubt, weather permitting, be produced at the meeting at South Kensington on Tuesday next, when a good opportunity will be afforded to those who wish to see it. The plants, which have been grown in the new orchard-house during the summer, are upwards of 12 feet high, each of the numerous branches terminated by a grand paniculate inflorescence of beautiful white flowers. As a late-flowering conservatory plant, this Dahlia is a noble acquisition, its principal drawback being its great height. Mr. ALFRED SALTER, of the Versailles Nursery, Hammersmith, however, by grafting a young shoot of Dahlia imperialis on a tuber of one of the liliputian kinds, has succeeded in materially altering the habit of the former. It will be remembered that, as usually grown, the Dahlia imperialis sends up a long, naked, unbranched stem, more inconvenient than beautiful. Mr. SALTER has obviated this inconvenience, as the scion at once branches out into a pyramidal head, the upper branches of which are clothed with flower-buds not yet expanded. Mr. SALTER'S plant, in fact, looks as though the top of an ordinary Dahlia imperialis had been removed and struck as a cutting. This case is important with reference to the matter of Potato grafting, though, saving the difference in habit, which is as striking as that produced by the Paradise Stock on the Apple, we do not see any evidence of the effect of the stock in inducing a change in the scion. As comparatively few people can give this noble plant sufficient head-room under ordinary circumstances, this plan of Mr. SALTER'S is the more valuable. We may add that at the South Kensington meeting next Tuesday, Messrs. VEITCH & SONS intend to show a remarkably fine plant of the grand Oncidium Rogersii, of which a fading specimen was just saved to appear at one of the meetings of last year.

New Plants.

BOLBOPHYLLUM (CIRRHOPETALUM) RETUSIUSCULUM, *sp. n.*

Pseudobulbo pyriformi; pedunculo umbellato; bracteis triangulo; setaceis ovaria dimidia æquantibus; sepalo dorsali petaliisque oblongis retusis, obscuris, trinerviis; sepalis lateralibus falcatis multo longioribus (albis); labello curvato sagittato oblongulo ligulato, obscure tricarinato; columna trifida.

A species in the way of Bolbophyllum (Cirrhopetalum) auratum, discovered by Colonel Benson, in Moulmein, and introduced by the Messrs. Veitch. *H. G. Rchb. fil.*

CATASETUM SACCATUM, *Lind. var.* PLICIFERUM, *nov. var.*

Labello angustiori oblongo acuto replicato ciliolato fimbriato lira basi plano depressa, ostio semi transverse pandurato medio apice angulato, lamella plicata bicarni postice emarginata; calli tenui obtusis papilliformibus ante ostium antico.

It is gratifying that this most extraordinary plant should have appeared once more, and even in a new variety. Long since there was a specimen at Berlin, and another at Farnham Castle, in the Bishop of Winchester's collection. Is it still existing there? It is the giant among the Cataseta. The new variety has both sepals and petals dull olive-green, marbled with numerous brown spots. The lip is recurved, oblong, with numerous slender fimbriæ at the ides, and has a conical compressed spur. The basal part is flat. In front stands the opening of the spur, adorned by an ivory-white pandurate limb, having an erect plicate lamella on the posterior side, and a few blunt small tubercles before the middle tooth of the anterior part. The whole lip is green, with numerous cinnamon-brown blotches. The column is of a gay yellowish-green, with numerous small cinnamon-brown blotches. The long posterior tooth and the tendrils are well developed. It was imported from Peru by Messrs. Veitch & Sons last spring. *H. G. Rchb. fil.*

MESOSPINIDIUM BOWMANNI, *sp. n.*

"Pseudobulbo compresso oblongo diphyllo; foliis ligulatis acutis;" panicula ampla; sepalo summo ligulato angusto acuto, sepalo inferiori ligulato bifido; laciniis acutis; petalis ovatis acutis: labello naviculari pandurato acuto, angulo utrinque ante basin, carinis utrinque abruptis basi tomentosis, a basi in medium; columna valida crassa, caudicula hastata, glandula semilunari transversa.

A small-flowered species, of merely botanical value. Sepals and petals green, lip rosy (?). Discovered by the late Mr. Bowman in Columbia. It flowered in August with W. W. Saunders, Esq., under Mr. Green's able management. *H. G. Rchb. fil.*

PLANT PORTRAITS.

AGLAONEMA MANNII.—*Bot. Mag.* t. 5760. Araceæ. A stove perennial herb, with thickish erect stems, and elliptic oblong dark green leaves. The spathe is 2 inches long, whitish, with a spadix one-third shorter, bearing white anthers and scarlet ovaries. It was sent to Kew by M. Gustav Mann, from the Victoria Mountains, part of the Cameroons range in Western Tropical Africa.

AMOMUM SCEPTRUM.—*Bot. Mag.* t. 5761. Zingiberaceæ. A beautiful stove perennial, with a stout rhizome, leafy pseudostems 5 to 6 feet high, bearing narrow oblong-lanceolate leaves, and flowering scapes 6 inches high, supporting the large suberect flowers, of a bright rose purple, the most conspicuous portion of which is the orbicular wavy almost plicate lip, which is 2½ inches in diameter. It has been introduced from Old Calabar, and flowered by D. Hanbury, Esq.

BRASSIA LAWRENCEANA LONGISSIMA.—*Bot. Mag.* t. 5748. Orchidaceæ. A magnificent stove epiphyte, described at p. 1313 of our last volume. It has compressed oblong pseudobulbs, oblong lanceolate leaves, and many-flowered scapes 2 feet long, bearing remarkably handsome flowers, the sepals 6 or 7 inches long, the petals 3 or 4 inches, orange yellow, with red purple blotches near the base, the lip shorter, pale yellow with purple spots. A native of Costa Rica, flowered by Wentworth W. Buller, Esq.

CAMPTOPUS MANNII.—*Bot. Mag.* t. 755. Cinchonaceæ. A distinct-looking and handsome stove shrub, with stout cylindrical stems, large opposite obovate or obovate-lanceolate glabrous coriaceous leaves, having the thick midrib red beneath, and long scarlet drooping peduncles supporting a subglobose compound head of numerous erect white flowers. It was sent from Fernando Po, to Kew, by M. Gustav Mann.

CYCLAMEN AFRICANUM.—*Bot. Mag.* t. 5758. Primulaceæ. A fine hardy or half-hardy perennial, related to C. neapolitanum, but the largest of its family. The tubers are sometimes as large as a Turnip; the leaves large, cordate, more or less angulate, crenulate-dentate, dull green with a greyish green marbled variegation; the flowers blush-white, with the segments deep purple at the base. It is a common Algerian plant, and has been for some years cultivated in our gardens.

KÆMPFERIA PARISHII.—*Bot. Mag.* t. 5763. Scitaminaceæ. A stove herb, with stout tuberous roots, pale green oblong-lanceolate erect leaves, and white and purple flowers appearing on very short stems before the leaves are produced. It was sent to Kew from Moulmein by the Rev. C. Parish.

MILTONIA VIRGINALIS.—*L'Illust. Hort.* t. 573. Orchidaceæ. This charming epiphyte differs from the well-known M. spectabilis in its pure white flowers, which are marked at the base of the broad obcuneate lip, with a large, bifid, broadly wedge-shaped blotch, passing outwards into lines of rich violet. It was introduced by M. A. Verschaffelt, from Brazil.

MONOPANAX GHIESBREGHTII.—*Gartenflora*, t. 606. Araliaceæ. A smooth-growing, dwarf, stove shrub, with erect simple stems, becoming leafless below, and above furnished with long-stalked, digitate, bright green leaves, composed of from four to seven lanceolate-oblong, acuminate, leathery, entire, stalked leaflets, and producing a terminal, pyramidate, racemiform panicle of small, round, long-stalked heads of greenish-white flowers, with exserted stamens. It is sometimes grown in gardens under the name of Aralia Ghiesbreghtii, and comes from Mexico.

NERTERA DEPRESSA.—*Bot. Mag.* t. 5799. Rubiaceæ. A depressed densely-tufted herb, which, "when in flower, is one of the most insignificant of flowering plants," but, "when covered with its translucent orange fruit, which it keeps for a long period, is one of the most charming of rockwork plants." It has smooth creeping and rooting stems, thickly clothed with small ovate almost fleshy leaves, and bears minute inconspicuous funnel-shaped greenish flowers, succeeded by globose bright orange fruit, of the size of small Peas, which being freely produced render it extremely ornamental. It is a native of the bleak Antarctic mountains, following the Andes from Cape Horn to New Grenada, and is found also in Tristan d'Acunha, and on the mountains of New Zealand and Tasmania. "It was communicated to the Royal Gardens, Kew, by Mr. Niven, from the rich herbaceous collection of the Botanic Gardens of Hull."

PINUS STROBUS UMBRACULIFERA.—*Rev. Hort.* 1869, 38, fig. 11. Coniferæ. A dwarf variety of the Weymouth Pine, of a compact densely-branched habit, with the leaves shorter, more crowded, and more glaucous than those of the type. The cones are also much smaller than those of P. Strobus, very resinous, and borne on plants under a yard in height. In suitable soils it is said to form a very beautiful plant, constituting compact broad bushes. It may be met with in the Bois de Boulogne, and in the Paris nurseries.

POLYGONUM CAPITATUM.—*Refug. Bot.* t. 11. Polygonaceæ. A trailing perennial, with slender, diffuse, hairy rooting stems, clothed with ovate or elliptical leaves, 2 inches long, green, marked with a dark A-shaped bands, extending from the midrib at the centre nearly to the base of the leaf. The small pink flowers grow in dense round heads, on long stalks, from the upper leaf axils. It is said to make a good trailing basket plant for a cool house. Introduced from Nepal, through the late Dr. Royle, by W. Wilson Saunders, Esq.

PRIMULA PEDEMONTANA.—*Bot. Mag.* t. 5794. Primulaceæ. A lovely alpine herbaceous perennial, with the aspect of a dwarf self-coloured Auricula. The leaves form small rosettes, and are oblong or obovate; while the flower-scapes which issue from the centre are from 2 to 4 inches in height, and bear numerous large rosy-purple flowers, with a yellowish white eye, and collected into a dense head. Introduced by Messrs. Backhouse & Son, from the high alps of Piedmont and Switzerland, and flowers in April.

RESTREPIA ANTENNIFERA.—*L'Illust. Hort.* t. 601. Orchidaceæ. A choice gem amongst the smaller Orchids. It is a dwarf epiphyte, with slender, jointed stems, growing some 5 or 6 inches high, clothed with tubulose-vaginate fimbriated sheaths, and bearing each an ovate leathery terminal leaf, from the axil of which issues on a slender stalk a single flower of remarkable form, the upper sepal being lanceolate at the base, filiform above with a thickened apex, yellow striped with brown red, the two lateral sepals broad and connate into an oblong-lanceolate bifid limb opposite the dorsal sepal, of a rich tawny brown, thickly covered with small deep purple dots, while the narrow petals are antennæ-like, projecting on either side, and the lip is small and spathulate. It has been introduced by M. Linden, from the mountains of New Grenada and Columbia.

RICHARDIA MELANOLEUCA.—*Bot. Mag.* t. 5765. Araceæ. A pretty perennial greenhouse herb, with the habit and appearance of R. albo-maculata. The leaves are oblong or ovate-hastato acuminate, marked with oblong translucent white spots. The spathe is ovate, open to the base and expanded, of a creamy yellow with a large black purple spot at the base. It has been imported from South Africa by Mr. W. Bull.

THIBAUDIA ACUMINATA.—*Bot. Mag.* t. 5752. Ericaceæ. A showy conservatory evergreen shrub, of branching habit and leafy character, with subdistichous ovate or oblong-lanceolate acuminate leaves, and terminal and axillary racemes of ventricose tubular flowers, two-thirds of an inch long, bright red tipped with green. Introduced by the Messrs. Veitch & Sons from the Andes of Columbia and Ecuador. The fruit is said to be fragrant and eatable.

TILLANDSIA LINDENIANA.—*Gartenflora*, t. 619. Bromeliaceæ. This beautiful stove herb, which has been exhibited during the past summer, but without flowers, produces a tuft of spreading recurved subulate-ensiform leaves, which are entire, smooth above, minutely punctate-scaly beneath, and there marked with longitudinal reddish lines. The scape rises about 6 inches above the leaves, and is distichous, bearing about five large rich blue flowers, with a whitish throat, One of M. Linden's recent introductions, obtained from Brazil.

TRITELEIA CONSPICUA.—*Refug. Bot.* t. 43. Liliaceæ. A beautiful dwarf, almost, or perhaps, quite, hardy bulbous perennial, producing broadly linear, flaccid, garlic-scented leaves, and numerous large solitary white flowers, with a purplish green keel outside. This plant is often grown for T. uniflora, but is larger-flowered and more showy than that species, with less deeply coloured flowers. Native country unknown.

ZOMICARPA RIEDELIANA.—*Refug. Bot.* t. 15. Araceæ. A curious little stove tuberous-rooted perennial, with ternate leaves, having the lateral divisions pedately lobed or divided, and the three or five ovate segments all variegated with a broad feathered band of greyish white down the centre. The spathe is green, rolled round the spadix at the base, flattened out above, and having the apex deflexed over the spadix. Sent by Mr. Read from near Bahia, Brazil, to the collection of W. Wilson Saunders, Esq.

POTATOS.

I HAVE now lying before me two distinct lists of Potatos—one, containing the names of those I have myself grown during the past summer, and numbering about 80 distinct kinds; the other that of the varieties grown by a gentleman amateur, but a very able *connoisseur*, resident in the county of Somerset, who has kindly placed it and his excellent and useful notes therein, at my disposal. This latter list contains the names of 95 kinds; deducting however 35 as duplicates of sorts grown by myself, I have a gross total of 140 kinds, with the notes of their respective merits or demerits, as well as my own personal knowledge of them, to descant upon. What wonder, then, if I feel bewildered and lost in a maze of doubt and distrust? How shall I decide, or how say which is best? Why, of the 140 kinds there will be found for each separate one some individual who shall be ready to swear, if need be, that the particular one to which he pins his faith is the very best in cultivation. My worthy Somerset friend, whose excessive modesty will not permit the publication of his honoured name (I need scarcely say he is a layman), tells me that he has spared no expense to gather together for trial his 95 varieties. And I can believe him, for appended to each one is the name of the person or firm who sent it, and it is evident that 9-10ths of them were paid for; a remark appended to one kind, "My peck of this cost me 6*s*."—and it was almost identical with a common variety grown in the locality—will fairly prove this. But I find also amongst the list the names of many of the new American kinds, and these we know were sold at high fancy prices. I mention this only to show that I have notes here of the character of kinds that have hitherto been beyond the reach of a poor man's pocket, but of which it may be as well to know something as early as possible. Enough has already been said about the American Rose Kidney,—the Somerset experience of it tallies with my own; but here is mention of the Callao, an oblong variety, flesh colour, and large in size; and of the Early Calico, another oblong shape, colour blue, that may prove useful. Gleason's Late, a round kind, is evidently something to look at, as we are told "that it is beautifully flaked with bright red, and beats all other kinds in appearance; quality not yet tried." Harrison's Oval Round is denounced as "very ugly"—that's quite enough; but the Early Goodrich seems to be a good one to crop, and is a handsomely-shaped round. There is, however, an N.B. at the bottom of the sheet, that must be given in *extenso*:—"I find all the American Potatos much coarser in the grain than our English sorts." A little touch of the backwoods about them, I suppose; but if we can't lick them into better shape, at least we may refine their breeding. I must not omit mention of the American Red, sent out by Mr. Walker: it is a Red Regent, with white flesh, and a capital cropper. The note of it in the Somerset list is a disparaging one, except as to produce: but I have tried it myself, and found it really good,—it is just the thing for a poor man's garden, where the ground is not strong or too rich. By-the-by, I think if we understood the doctrine of square pegs in square holes in relation to Potatos, it would save many failures, for many a disappointment has been the result of growing good kinds in soils quite unfitted for their constitu-

tion, whilst their characters have been so much altered that even their own raisers could hardly recognise them. Strong-growing kinds I find, almost as a rule, are best adapted for dry soils; there is less tendency to grow to haulm, and the produce is less coarse in shape and of better quality. A contrary remark applies to varieties of a much less robust constitution, as these like the soil rich and holding; this is especially the case with such short-haulm kinds as Scotch Blue, Wimborne Kidney, Coldstream, and Onwards—kinds that I never could get large from cropping on light dry soils, but which will do well with plenty of nourishment. Mr. Fenn will be pleased to hear the latter spoken of from Somerset as "producing as good a crop as could be wished, and will prove a favourite with those who prefer quality to quantity."

I fancy some of the readers of the *Gardeners' Chronicle* are fearing that I purpose to inflict upon them the names and descriptions of all the 110 varieties. Let me at once still their fears. I shall not do so, for it would do no good; and looking at the peculiar conditions under which many of the trials take place, a writer is not often justified in publishing a disparaging opinion. My Somerset friend mentions a grievance against many seedsmen that I fully endorse; it is this—seed Potatos are often sent out that have been, in consequence of bad storage, two or three times spindled, and the shoots as often rubbed off. To expect to get anything like fair results from the produce of such is out of the question, and personally I have to complain that more of my failures in the spring resulted from seed thus shamefully saved, than from any of my own saved stocks. Housing seed for the winter is of the first importance, and no man or firm can do his or their customers justice who does not make this a primary consideration. Buyers, however, have the remedy in their own hands, and it is one that will give themselves and tradesmen equal satisfaction:—Buy in your stocks early, and do not leave it until planting time. The lists before me are specially valuable in one respect; there are in each three columns, the first for "produce," second for "quality," the third for "shape," three points to each feature being the maximum; and it is somewhat singular that out of the entire number not more than two dozen varieties get the full number of marks: but it would be unfair to publish the names of those only, as there are a large number that are but one or two short of the maximum, whilst also in both cases, in relation to new kinds, the appended note, "must give it another trial," is of frequent occurrence. I have a strong belief that, as between the trade and the public, there are but two ways of arriving at anything like a just conclusion as to the merits of all the various kinds of Potatos in the market. The first is a public trial in some public grounds, say at Chiswick, for instance, at which a given quantity of tubers of every available kind shall be simultaneously planted, and occasionally overlooked by a reliable committee of gentlemen thoroughly competent for the purpose, so that notes of each might be taken at certain stages of growth. The lifting of the whole should take place not later than the end of August, when the number of marks awarded to each under the several heads of "earliness, produce, and shape," might be entered. The matter of cooked quality could be easily adjudicated upon by each member of the committee separately at their own tables. A final and complete report, with any observations therein that the committee may think desirable to make, should be published as early as possible, not only for the satisfaction or otherwise of the persons supplying seed, but also for the information of the public. The committee should have the power to award First-class Certificates to those kinds that obtained the full number of marks only; Second-class Certificates to those that obtained three-fourths and upwards; and Third-class Certificates to those that attained to one-half the number.

Assuming that there was an unanimous agreement on the part of all concerned, to accept, first, the offer of the trial, and second, the verdict pronounced, it would have the beneficial result of at once making known to all the world what are the best kinds of Potatos we have, and of cutting down to something like reasonable dimensions our existing plethoric list of varieties that are good, bad, and indifferent. My second proposal, failing the first, would be to establish a preconcerted and simultaneous trial by reliable persons in various parts of the country, all growing the same kinds, under as nearly as possible the same conditions. Reports of these trials might also be published, but it is manifest that anything like the weight and importance that would attach to the verdict of a central and responsible body could not be given in the latter case. What should constitute in a Potato first-class qualifications? I suppose in this, as in other things, "doctors will differ," but surely on minor points only; however, there could be no difficulty in getting half-a-dozen capable men to agree, in the first place, that where earliness is in question it is more important to have a Potato that, if less productive than its neighbour, shall have a superior cooking quality, and be fit for table as soon as large enough. If you get high quality combined with extreme earliness and free production, here is at once a subject for first-class honours. But the bulk of Potatos, our second and main croppers, should be judged under the heads already mentioned. And first, I hold that a good variety should be a free cropper, an abundant bearer—one that will fill up the bushel quickly. Secondly, the quality should be of the highest; but what constitutes high quality?—white flesh, mealy texture, perfect freedom from core, and good flavour. We have many fine yellow Potatos, of good flavour and usefulness, but the colour is excessively objectionable. As to the texture, some of the very best kinds vary as to dryness when cooked, but a moderately dry flesh will generally be more appreciated than one excessively so. Mr. Fenn, in his note on Yorkshire Hero, says that "it is a little too dry in its eating to please the palates of an extreme few." I find the same fault with it, and think that not "an extreme few" will coincide with me. It has a roughness to the tongue that other good kinds not quite so dry do not possess; still the variety affords a capital criterion by which to judge of the mealy texture of other kinds. Then, as to shape: deep or protruding eyes should bring disqualification, and the surface should be even, and the outline graceful; the handsomest round kinds are oval or pebble-shaped, and many of these are almost perfect—Royal Albert, Scotch Blue, and Emperor, are examples: one of the truest rounds is the Red Regent, a coarse-growing kind; but almost as a rule in strong growers a coarse and uneven shape is to be found. Kidneys are outgrowing the old kidney form of round at one end and pointed at the other; and all the best kinds develop an improved form. For a fine, handsome show variety, the Waterloo Kidney beats all I have yet seen; but this is close run by Dickson's Premier, Huntingdon Kidney, the King of Potatos, Daintree's Kidney, and a few others. All of these will turn out with me tubers as smooth as though scraped with glass, and in form almost faultless. All of these kinds afford good guides as to what should constitute form. I do trust that my suggestion as to a central trial will be taken up in good earnest, and that it may be made a practical reality. I am willing to send for judgment any of my own varieties. Who else will offer to "do likewise?" *Alex. Dean.*

REVIEW OF THE GENUS NARCISSUS.—VI.

Group III. *(Continued).*—PARVICORONATÆ: crown less than half as long as the divisions of the perianth.

THE autumn-flowering species, with a star-like limb with narrow acute linear divisions, are three in number. I am not aware that any of them are in cultivation in England now.

18. *N. viridiflorus* (Schousb. Moroc. fasc. 1, t. 2).—Bulb small, globose, producing 1—2 slender terete fistulose leaves about a foot long, at the same time as the flower. Scape slender, 1—4 flowered. Spathe equalling or exceeding the pedicels. Flower with a Jonquil odour, the tube 7—8 lines long, the divisions slightly shorter, greenish, linear, very acute, spreading horizontally, not more than a line broad in the lower part. Crown very minute, the same colour as the limb, with six roundish subemarginate lobes. Anthers sessile, biseriate at the top of the tube. Sims, Bot. Mag. t. 1637; *Hermione viridiflora*, Herbert, Amaryl. p. 328, Kunth, Enum. 5, p. 759; *Chlorastur fissus*, Herb. Mon. p. 7; and doubtless also *C. integer* of Haworth, described from a figure of Parkinson's.

A native of Spain and Barbary. It resembles the next in general habit, but may easily be known by its green flowers, and subterete leaves.

19. *N. elegans* (Spach. Veg. Phan. 12, p. 452). — Bulb roundish, an inch or less in thickness. Leaves one or rarely two, appearing at the same time as the flowers, flattish, finely channelled, a line or less broad, equalling or exceeding the scape. Scape slender, flaccid, 6—12 inches long. Spathe lax, 15—18 lines long. Flowers usually 2—4, rarely 5—6, on pedicels 6—18 lines long, produced in September or October. Tube 7—8 lines long, under a line thick, greenish white. Divisions of the limb pure white, linear, very acute, 6—8 lines long by 1½—2 lines broad three-quarters of the way down, narrowed from this to the point and base. Crown yellowish, saucer-shaped, under a line deep, entire or slightly crenulate. Anthers subsessile, biseriate near the summit of the tube. *Hermione elegans*, Haworth, Mon. p. 13, Sweet, Flow. Gard. ser 2, t. 1, Herb. Amaryl. t. 41, fig. 27, Kunth, Enum. 5, p. 748; *H. autumnalis*, Roem. Amar. p. 231; *N. autumnalis*, Link, Linnæa, 9, p. 569; *N. Cupanianus*, Guss. Fl. Sic. Synops. p. 382; *N. oxypetalus*, Boiss. Esp. p. 606.—Var. *obsoletus* (*H. obsoleta*), Herb. Amaryl. t. 41, fig. 28. Segments of the limb rather broader and not quite so acute.

A native of Italy, Sicily, and Algiers. Differs from the next by its more robust habit, several flowers, and leaves contemporaneous with them.

20. *N. serotinus* (Linn. Sp. Plant. p. 417).—Bulb subglobose, 6—9 lines thick. Leaves solitary or two together, filiform, subterete, usually not appearing till after the scape dies down. Scape usually one, rarely two-flowered, very slender, under a foot high. Pedicel 6—9 lines long, shorter than the spathe. Tube, segments, crown and stamens, like those of the preceding. *Hermione serotina*, Haw. Mon. p. 13, Herbert, Amaryl. t. 41, fig. 29-30, Kunth, Enum. 5, p. 749; *N. deficiens*, Herb. Bot. Reg. 33, t. 22, fig. 1; *Hermione deficiens*, Kunth, Enum. 5, p. 750.

Extends from Spain through the south of Europe to the Barbary States, Greece, and Palestine. Flowers in September and October.

21. *N. Broussonetii* (Lagasca, Nov. Gen. p. 13).—Bulb ovoid, as large as a hen's egg. Leaves about four to a scape, 4—6 lines broad, about as long as the scape. Scape about a foot high, 4—8 flowered. Pedicels 6—10 lines long, shorter than the spathe. Tube 8—9 lines long, exclusive of the ovary, under a line thick, greenish at the base, white upwards. Divisions of the limb subcampanulately erecto-patent, pure white, oblong-lanceolate, about half an inch long by a quarter of an inch broad, narrowed suddenly to a bluntish point. Crown almost entirely confluent with the apex of the tube. Stamens biseriate, the lower filaments 1½—2 lines long, their anthers just reaching the top of the tube, the upper filaments 2½—3 lines long, reaching half way up the divisions. *Hermione obliterata*, Haworth, Mon. p. 13; *N. obliteratus*, Willd. in Schult. Syst. 7, p. 981; *Chloraster obliteratus*, Roem. Amar. p. 214; *Aurelia Broussonetii*, Gay, Ann. Sc. Nat. ser. 4, tome 9, part 2, p. 96.

A very rare and little known plant, gathered at Mogadore by Broussonet. I have seen a single dried specimen from the herbarium of Gay at Kew. It is exceedingly well-marked from all the other Parvicoronatæ by its nearly obsolete crown, subcampanulate flower, and developed filaments; in fact, it is a plant so distinct in habit and characters, that M. Gay proposed that it should have a genus to itself. This concludes my review of the known species. *J. G. Baker.*

Home Correspondence.

Vine Roots.—That roots are often made without any corresponding action taking place in the branches, is a common occurrence, and can be demonstrated by any gardener. Many years ago, I was set to take up a number of Gooseberry bushes in the autumn, just as they had lost all their leaves; these were put away for a few weeks before being permanently planted out, and in the meantime there had grown a number of young roots; in fact, when removed to be planted into their permanent quarters many of them were quite full of young rootlets, from ½ to 1½ inch long; but, of course, there was no corresponding action taking place with the leaves aboveground. Such will be the case at a particular season of the year, and under certain conditions; one part of a plant will manifestly give evidence of vitality and active growth, while the other portion of the same plant may to all appearance remain dormant. Where is the mystery here? Reverse the seasons, and then we shall see that portion of the plant which is acted upon by the atmosphere first manifest vitality, and development in the branches will become apparent before such is the case in regard to the roots. You may call this stored up force or energy, or anything else by which it may be better known, but still the simple facts remain the same. We have seen some trees, after being cut down and lying on the ground, throw out leaves and shoots of some inches in length. More than 20 years ago I took charge of a greenhouse that had Vines in it. The first winter proved mild, with little rain. The Vines broke tolerably well, and at first gave out average-sized leaves; but about the time when the bunches of Grapes should have begun to hang down, and open their flowers, both foliage and bunches seemed to receive a check. Six weeks passed over before the leaves seemed to recover, when young wood began to make healthier leaves; but still many of the young clusters retained a twist in the stem of the bunch, and several of them even in the bunch itself. I could not satisfy myself as to the cause, and fancied the house might have been opened too early some cold chilly morning. As the season advanced we gave them every attention, as also in the season following, but with no better results. They had made plenty of wood, although rather late, and perhaps some of it was scarcely well ripened; but as there was very little young wood left at pruning time, this unripeness could not have been the cause of the failure. Next winter we examined the roots, and here we found the evil. The border had not been made many years; but the Vines were there before the border had been renewed, and their roots had been cut in beyond any feeders, and replanted too deeply in an over-adhesive, not properly drained border. Was not the first growth of these Vines, the development of their first leaves, and the showing of the bunches, all due to atmospheric influences, without assistance from the roots? Did not the check which they received occur before the root-action began to be of any service to them? When the summer's sun had to some extent warmed the border, then their second growth took place. When we examined the border we found that several of the Vines had begun to throw out young roots just under where they entered the soil; and I inferred that, had they been allowed to grow on without being disturbed, they might ultimately in a degree have recovered themselves. In most instances, growth takes place in parts exposed to atmospheric action before root-action commences. Most practical men are aware that Nature does not keep such things in nutshells for the few to speculate on. *G. Dawson.*

——Last February, in order to ease the Vines of their labour, I cut off the remainder of our Lady Downe's Grapes, with the entire spur attached to the bunch, and inserted the end of the wood in claret bottles of water containing a little pounded charcoal. The last of the Grapes were cut in May when the spurs had commenced growing, and the flavour of the Grapes of course was nearly gone, owing to the growth on the spur. Out of curiosity I put half a dozen as they were in the bottles of water, into one of our vineries, and with the extra heat thus given the young shoots lengthened themselves to 7 inches, and bunches were also freely developed on each shoot. No roots up to this time were visible, but some of them had callused over, and no doubt roots would have shown themselves in time, had not a too hot blink of sun one day ended my experiment. Reasonably, if a branch of a Vine will produce growth in this way without the action of roots, a long broomstick-like Vine full of sap will surely do the same thing, after a little heat and dewing is applied, without the roots being in action. Those familiar with pot Vine culture—and I mean those who understand the advantage of having more roots in the pot than soil, after the young cane is matured—know well that root and bud do not move simultaneously till the bud is developed into a shoot and leaf. And if this be a fact, which I have no doubt about, where root and branch are in the same temperature, I am persuaded that root-action does not take place as quickly with Vines planted in an outside border. I believe Vines will in many cases, when planted in cold fatty soils, be advanced to the stoning period before real root-action takes place, and hence the great advantage in having Vine borders as much under command as a Vine in a pot, *i.e.*, heated or protected in such a way that cold, rain, snow, or frost may not lower the temperature of the soil too much. Mr. Thomson, I believe, gives slight artificial bottom-heat, in order to raise the soil to a proper temperature preparatory to root-action, and he increases it greatly as soon as root and branch work simultaneously together, but not before—as after this a greater amount of bottom-heat may be maintained with advantage; and this is exactly in accordance with what we find the Vine enjoying in its natural state, which he knows well, and which he adheres to as far as he is able. At the sub-Congress at Mr. Williams', to which Mr. Anderson refers, when this question was mooted, I was not so fully prepared to adhere to the opinion I then expressed as I am now, namely, that root-action does not take place in cold borders till some weeks after shoots are formed; this I believed in then—that Vine buds swell and form shoots before root-action takes place, when root and branch are in equal

temperatures, as in the case of pot Vines; this I believe in now—and I have a firm conviction, that when the roots are subjected to a greater heat than the branch, that even then growth is the forerunner of root manufacture. *H. Knight, Floors Castle Gardens.* ["Taties" begin to sprout before they begin to form roots. EDS.]

Vine Budding.—Some seven or eight years since, you were so good as to publish a short paper of mine on Vine budding, as being much the neatest and most certain way of working the Vine. It is only necessary to have the bud perfectly ripe, and to cut it off with a small portion of wood, for the operation to be as certain as any other kind of budding. In the paper alluded to above, I endeavoured to point out the great benefit likely to be obtained by working some of our weaker growing and delicately rooted Vines, on free-growing, vigorous stocks, such as the Trebbiano, Gros Guillaume, and White Nice; and I am yet of opinion that worked Vines will ultimately become an important branch of trade with our nurserymen. It would be most interesting to try what effect such stocks would have on the late-keeping properties of Muscats and other Grapes. Any Vine that retains its foliage very late in the season would appear a most desirable stock to bud late kinds on. *J. Sheppard, Woolverstone Park.*

——At p. 1137 D. Bain asks: "Is Vine budding a new discovery?" This was asked in reference to what Mr. Stevens has done rather cleverly, by budding a whole house of Vines at Trentham. Mr. Bain states that his superior had budded Vines eight years ago. I have a prior claim to that. Above 20 years ago I had a young Vine sent me, said to be a very early black kind. As I had no vacant situation for it, the thought struck me that I might try a bud on one of the old Vines. I took off a bud in the usual way, leaving the wood on, and inserted it in the thick stem of an old Vine. It was a very weak bud. It began to push rather weakly at first, but the longer it grew the stronger it grew, and eventually it ripened a good cane. It was cut down to about 4½ feet, and ripened eight bunches the following year. In Mr. Stevens' case he had fine young Vines to operate upon, while I had the stem of an old Vine. Vine budding is useful in many cases where grafting cannot be applied. On the naked stem of an old Vine, where you want a shoot, insert a bud, and the end is soon attained. *W. Hutchison, Llwyndu House, Abergavenny.*

Potting Lilies.—Your correspondent "M." has afforded no new facts in confirmation of his former statements regarding the proper time to pot Liliums. He has rather chosen to rest his defence upon some minor phrases incorporated with my last few observations, which are, however, extraneous to the point at issue. What I meant by "authoritative tone of denial" I have already explained, and it is simply this: that whilst "J. D." offered advice which he himself had acted successfully upon, and seen others do likewise, "M." differed *in toto* therewith. "M." questions the propriety of the advice offered by "J. D.;" it is not a question of differing with him as to his practice. I have referred to "the last week in January—previously to the advent of their natural swelling and root-making," as being a good time in which to perform the operation: not as "M." puts it, "somewhere in January." Surely "M." would not have me fix a given day when to do so. I take "J. D.'s" statement, "till spring," in its broadest sense, to imply "early time," as some authorities have it, and as it is accepted literally by gardeners generally, especially when speaking of greenhouse plants, or such as are cultivated under glass, as potted Liliums are. Now then, as to "M.'s" statements regarding the real subject at issue: "M." says, the moment the stems are dead we may infer the advent of the resting period is long past, through the fact that certain roots at the base of each stem exist alone to support the stems. Such a theory I can by no means support, *i. e.*, that living roots exist but to waste their energies upon dying stems, when the scaly bulbs below are actively engaged in collecting support from the stems continuously whilst an iota of life remains. I must needs go further: even after observable superficial activity is past, the long rambling succulent roots which have taken friendly hold of the soil comprising the ball, are yet, whilst slowly dying away, affording an additional aid to the same, until each bulb, replete with vitality—the collective working of root and stem during the growing season—is again prepared to shoot forth. Furthermore, I would attach some little weight to that amount of sympathetic action which necessarily exists between the roots and the soil in which they are imbedded, as being more suitable to them than when the roots are torn rudely therefrom, and placed loosely in other soil at a time when no immediate action is possible. So much for actual practice, but past observation has long suggested to my mind that we should not rest here—that, taking Nature as our guide, we are acting wrongly in "drying off" the balls containing Liliums, and more especially so in regard to the L. auratum. Let any one who may have L. lancifolium planted in the open ground, take up the bulbs in the early spring, and an examination of them will, I think, convince him of this fact. "M." rather taxes his imagination when he says Mr. Smith says "absolutely nothing" about potting his Lilium. I need do no more than make the following quotation from Mr. Smith's paper in regard to this. He says: "In 1868 the plant was transferred to a larger pot, and placed in a temperate house in the month of February. * * In 1869 it was turned out of the pot, and a small portion of the old soil removed, it was then potted and treated as before, the plant producing 193 blooms." Understand, this was all done in 1869!—the very month when potting was performed being given above. "Blooming past (he says, confirmatory of the above), they are cut down, and stored away until the season arrives to start them into growth." The primary remarks of "M." regarding "the Calendar," I cannot pass over unheeded. Perhaps there is not in connection with periodical literature a more monotonous task or a more thankless office than that of writing a "weekly calendar" for a leading gardening paper. I have likened it to an infant, which week by week you may nurse for long years and yet it never grows. You may never put it into "short clothes." The long clothes of routine must be kept to, and practices, however obsolete with some, in some way referred to. You may prime it up with a few modern scraps, and that is all—that is, if you would fall in with the views of all, and that "week after week," as he considerately has it. I thank "M." for his complimentary remarks. *Wm. Earley.*

Ornamental-foliaged Pelargonium.—My friend and neighbour, Mr. D. T. Fish, in concluding some very interesting remarks on the coloration of the leaves of the Ivy-leaved Pelargonium L'Elegante (see p. 1138) asks the following question:—"How is it that so many of our tricolor Pelargoniums are so much more perfectly coloured in the autumn than at any other season?" Now, I am not about to answer this question, for the best possible reason, viz., that I do not know how it is. But I can fully corroborate his statement as to such being the case; and what is more, I may also state that, under favourable conditions, they will retain this degree of brilliancy with little or no diminution during the entire winter months. This circumstance has induced me for some time past to regard these plants as being of the greatest importance for the purpose of winter decoration. And so convinced am I of their adaptability to this purpose that, in the second edition of my "Ornamental-foliaged Pelargoniums," I have earnestly recommended the use of a separate erection for their cultivation, more particularly during the winter and spring months. The great beauty of these interesting plants renders them, I think, worthy of the consideration which may be regarded as to some extent necessary, as the ordinary greenhouse is found to be too cold, and in other respects unsuited to their successful cultivation during winter; while the plant stove, on the other hand, is too close and warm. This being found to be the case, I am sanguine enough to think it quite possible that before long a "tricolor house" will be quite as likely to be found forming part of many extensive horticultural establishments as an orchard-house is at the present time; and certainly the former will be found to be fully as enjoyable, and possibly little less interesting than the latter. Nearly all that is really necessary to keep the various classes of ornamental-foliaged Pelargoniums in healthy and vigorous condition, and to continue to produce abundance of brilliantly coloured foliage throughout the winter and spring months, is moderate warmth, abundance of air, without subjecting the plants to sharp draughts; a position moderately close to the glass, or where little or no obstruction exists to the direct rays of light, and carefully avoiding overcrowding the plants. All these conditions can be best secured in a not over lofty span-roofed erection. *P. Grieve, Culford.*

Yellow Bedding Plants.—I have not yet observed in the discussion that has taken place concerning yellow bedding-plants, that anyone has recommended for that purpose the double Tagetes patula nana, or dwarf orange French Marigold. This is certainly one of the best of all the yellow annuals for bedding or ribbons. It grows to an even height of about 7 inches, commences blooming very early, and continues to do so until cut down by frost. It will also succeed much better on dry soils than will either the Pansy or Calceolaria. The dwarf bedding Tropæolums are also fast developing some good things; but the compactum section has beaten the Tom Thumbs out of the field, not only as regards habit, but also the quality and quantity of flower. Golden King of Tom Thumbs might have made a showy bedder, but for the very undesirable habit it has (common alike to all the Tom Thumbs) of crowding up its bloom with foliage. Those who have grown it, and been disappointed with the result, should not allow themselves to be prejudiced against the plants of the compactum section, as they are quite free from that defect. Luteum Improved is a capital thing; and there are some fine orange colours also to be had. Indeed, one might make a flower garden exclusively from dwarf Tropæolums, so great is the variety of colours that occur amongst them. I heartily acknowledge the good qualities of the yellow Pansy and Viola lutea grandiflora, but in arranging masses different heights are necessary; and, to meet this want, a variety of plants must be resorted to. *Alex. Dean.*

Coloration of Leaves.—Mr. D. T. Fish, in his essay upon this subject (p. 1138), has laboured hard to show that the pink colour occasionally seen in the foliage of the Ivy-leaved Pelargonium, L'Elegante, is necessarily the result of some unnatural contortion of the leaf-stalks. How far his argument holds good the following little fact may show. Not long since I was at the establishment of Messrs. Elcombe & Son, of Romsey, and in one of the houses there saw a lot of plants of this Pelargonium standing upon a shelf, where they had been for some time, with the foliage hanging downward all round the pots, but not a coloured leaf was there among them. On the stage, just opposite to these, however, was one plant that was beautifully coloured deep pink. On seeing this, I at once said to Mr. Elcombe, "I suppose you have been twisting the stalks or branches of this," but he replied, "Oh dear, no! nothing of the kind—the simple reason of it is, the plant has been allowed to go dry;" and this I found, on closer observation, to be the case. As to the bright coloration that Mr. Fish writes of as being so marked in some of the tricolor Pelargoniums in the autumn, it may seem cruel to cast a matter-of-fact stone at that gentleman's highly imaginative and poetical tablet of suppositions, but is it not really the case that the cool and humid atmosphere of autumn, combined with the fact that the soil is warm and root action excessive, constitutes the real cause of this high development of beauty? As to its being the "hectic flush of coming death," that is nonsense; high coloration in a tricolor Pelargonium is the accompaniment of rude health, not of disease. *Alex. Dean.*

Seedling Ferns.—The following fact may be of interest to those of your readers who are accustomed to raise Ferns from spores. A few weeks since I sowed spores of Nothochlæna candida, which germinated freely. I now see that each seedling is distinctly margined with silver, causing the whole mass to have a bright silvery appearance. I have raised many other sorts of Silver Ferns, but never observed a similar occurrence. *J. H. Ley.*

Pruning the Wellingtonia.—I have some fine plants of Wellingtonia gigantea, would any of your correspondents kindly inform me if it would injure them to cut off the lower branches, and at what season of the year to do it? *T. T.* [To the above question, which we submitted to Mr. Frost, of Dropmore, that gentleman replies:—I would never think of cutting off the lower branches of the Wellingtonia—why should it be done? If it is absolutely necessary, I would cut them off at once. We never prune here, with the exception of taking out forked leaders where they occur; by so doing we keep the trees to one stem.]

An Oak Tree Decaying.—I should feel extremely obliged by your advice regarding an Oak which for some years has been very sickly—it is, I should think, a tree of middle age. The branches at the extremities die off, and the foliage of the whole tree has a rather withered and sickly look. I am told that guano used at this season would restore it. May I ask if such is your opinion? and if so, how, and in what proportions of guano to water, how often, and at what season I should manure it?—whether for the purpose a trench should be dug round the tree, which stands upon the lawn? *An Old Subscriber.* [We sent your letter to Mr. Ingram, of Belvoir, who obliges us with the following reply. EDS.:—The premature decay of the Oak tree may result from poverty of soil, a wet subsoil, sour clay with pyrites, or gravelly bed with ferruginous conglomerates, or many other circumstances naturally obnoxious to timber trees; but as the nature of the soil has not been mentioned, a remedy exactly suited to the circumstances can scarcely be given. It will be advisable to ascertain the character of the soil and subsoil; this may be done by digging a hole 3 or 4 feet in depth, near, but not close enough to, the tree to injure the roots. If the subsoil exhibits wetness, drain; if dryness, due to a sloping position, and aggravated by the drought of the two seasons just passed, drench with manure-water made with cowdung, soot, and a little superphosphate: this latter may assist to destroy Fungus, which may have begun to prey upon the roots of the tree. If the soil be unmistakeably poor, or unsuitable as above described, feed by preparing a compost, the primary ingredient of which should be a good strong loam, or new red sandstone marl, mixed with leaf-soil, road-scrapings (if from a granite road, so much the better), and a little powdered gypsum. Pare the turf carefully beneath the tree to a distance equal to the distance covered by the branches; then spread the compost 4 inches in thickness, forking it in where practicable; carefully avoid injuring the roots; then water abundantly, and relay the turf. Do not let the raised soil come in contact with the stem of the tree—place bricks or stones round as a guard. Highly stimulating manure, such as guano, would be a hazardous application. A trench dug round the tree would probably destroy many valuable roots.]

Potato Grafting.—Some years since I tried Potato grafting on a small scale, but soon gave it up, as not being likely to lead to any improvement. I have for some time held the opinion, that if any improvement could be effected it must be by grafting the young shoots. This idea will perhaps be thought a rather wild one, yet I do not start this notion without a little experience, which I consider applicable to the case, both as to its practicability and its probable effect on the produce. Many years since I grew a lot of seedling Tulips, and it is a well-known peculiarity of the seedling Tulip to continue for years to bloom as a seedling, or what florists call a breeder—that is, without breaking into colours or flame and feather. To make them do so many experiments have been tried by florists during the last hundred years or more. Ten or twelve years ago, and for two or three years running, several of the above-named Tulip seedlings were experimented on by grafting, for the purpose of making them break into colour. The operation proved to be a complete success. In every case where the graft took and grew, that bulb the next year produced a feather or flamed flower. From this fact I argue that the graft produced a positive and decided effect on the stock or root, and I also presume that if the Tulip can be grafted, so may the Potato. The mode adopted with the Tulip was to take a feathered or flamed flower, just at the time it was commencing to open its petals, cutting it off with the leaf on the stem, and, having cut off the flower of the seedling, fixing it on as quickly as possible. I may also state that some of those transferred flowers lived and bloomed, bearing the sun and weather, some a fortnight, some three weeks. The following is the plan I would recommend for grafting the Potato:—Provide as many and various sorts as may be thought proper, and cut out all the eyes but one in each Potato; plant them as may be thought most convenient for performing the operation, either in pots or the open ground—the upper part of the Potato with the eye uppermost, and just even with the surface of the soil; place a stake to each, and allow only one shoot to each; cut off the tips of all side shoots as they appear; encourage all the roots with a little fine earth; grow them as much exposed to sun and weather as possible, so as to have them

hardy; and keep each shoot tied up to the stake. When the shoots have grown 8 or 10 inches long, perform the operation by the transfer of the shoots. Having provided some slips of soft matting, a little thin, soft but close-textured paper—if oiled paper all the better—also a little softened tallow, with a very sharp knife cut the shoot at 3 or 4 inches up the stem by a sloping cut; fix it on without any cleft or tongue; wrap a small piece of paper round it, binding it tight with the matting; after which rub over with the tallow. Then carefully tie and bind up all the grafts to the stake, so that no part may droop or hang down. For a few days a hand-glass might help; at any rate shade from the sun. Earth them up to the graft and expose them to sun and weather, still keeping the grafts tied up to the stakes all the season, and cutting off the tips of any shoots that may make their appearance from below the grafts. If I were asked what the result of these experiments would be if successfully carried out, I would say that each variety will still continue to produce its kind. But may not each imbibe something of the quality of the other—some of its richness, some of its vigour and prolificacy. What I should value most would be any seed that may be produced on the grafted plants. Should grafting fail, perhaps inarching might succeed. I think "S. S." (p. 1137) erred in one or two points in his operations. The shoots should not have been joined nearer to the set than from 3 to 4 inches, that being the part to produce the Potato; one of the shoots ought to have been cut off as soon as the union had taken place, as also the root of the other; there should have been no pruning of the tops except such shoots as sprung from below the grafts, and of these only the tips cut off as soon as they appeared, just below the surface of the soil. *Wm. Burnett, Monk Gate, York.*

Planting the Deodar for Timber.—About 15 or 20 years ago there was a dispute in your columns whether Deodar timber, grown in this country, would be valuable. The opinions about it were very conflicting; and I do not recollect, and cannot find out, that either side got the better of the argument. As I wish to make some plantations, I should be much obliged for your opinion, as more must be known about it now than was known 15 years ago. Would you also tell me whether trees grown from cuttings are as vigorous and well-shaped as seedlings? This also was a disputed point in your paper; and as most nurserymen raise their stock of Conifers from cuttings, it is a very important matter. *O. M.* [We sent the above to Mr. Frost, of Dropmore, who kindly replies as follows:—The Deodar should now be planted extensively; it is a fast grower, and there cannot be any doubt about the quality of the timber. We have some fine Deodars growing here from cuttings, which I have raised, and which are equal to the seedling plants: no one can see any difference. Abies Douglasii here, also raised from a cutting, is admired by all who see it. Picea grandis or amabilis, raised from a cutting by myself, is now a much handsomer plant than the parent tree; if they start with good leading shoots, I like them, if not, they are useless. Pinus insignis grows into fine specimens from cuttings; quite equal to seedlings with us.]

Californian Conifers.—For the following information respecting the "big tree" and other Californian Conifers in the Mariposa Grove, I am indebted to Mr. Olmsted, the well-known American garden architect, who, having spent many years in California, is well acquainted with its vegetable productions, and vouches for the truth of the subjoined measurements, which have been supplied by the person to whom the care of the Grove in question has been entrusted:—Of Wellingtonia gigantea (the big tree) there are 600 in the Mariposa Grove, and the largest measures between 90 and 100 feet in circumference near the ground. These trees seed pretty abundantly, and the seeds themselves meet with a ready market in San Francisco; indeed, all Conifers seed pretty abundantly here, except Picea nobilis, which furnishes cones but sparingly. Pinus Lambertiana and contorta are abundant. Of P. amabilis the largest specimens measure from 20 to 25 feet in circumference, and over or near 200 feet in height. Seeds of these are not generally good, being liable to be injured by worms. We have also P. grandis, and of Douglas Fir we have some fine specimens; of the latter some measure 20 feet in circumference, and 150 feet in height. Of Abies Williamsoni, the largest trees are 2 or 3 feet in diameter, and nearly 100 feet in height. Specimens of Libocedrus decurrens are 6 feet in diameter, and 200 feet in height. The largest trees of Pinus Jeffreyi measure from 4 to 5 feet in diameter, and 150 feet in height. P. ponderosa is 8 or 9 feet in diameter, and 200 feet in height. P. Lambertiana is of similar size with ponderosa, and its cones measure from 15 to 22 inches in length. P. Sabiniana is rather a scrubby Pine, measuring about 3 feet in diameter, and from 25 to 100 feet in height. Of P. contorta, the largest trees are from 3 feet in diameter, and 100 feet in height. The seeds of this tree are very small. About P. Benthamiana I am not certain; it is called here sometimes Cembra and sometimes Cembroides. It grows on the ummit of the Nevada Mountains, and is a scrubby Pine, with five leaves, and short thick chocolate-coloured cones, the seeds in which are about the size of a small Pea, and are difficult to obtain. P. monticola grows high up on the mountains, has a rather smooth light-coloured bark, is 5-leaved, and measures from 2 to 3 feet in diameter, with cones an inch in diameter, and about 6 inches in length. Of many of the finest specimens of these trees I have seen photographs in Mr. Olmsted's office in New York, and their appearance bears out what has just been said respecting their size. Of the value of the Douglas Fir as a timber tree, too much can scarcely be said; indeed its merits are all but universally appreciated, and most of the other kinds are also favourites in this country, in which, however, they seed but sparingly. In California the reverse is the case, and as I expect samples of seed from all the finest specimens there in the course of a few weeks, I shall be pleased to share my contributions with cultivators wishing to possess seeds of native growth. *Joseph Newton, 71, Oxford Terrace, Hyde Park.*

Salisburia adiantifolia.—There is a handsome specimen of the Maiden-hair Tree in Mr. Caldwell's nurseries at Knutsford, which, though not so large as either of the plants previously mentioned, is, nevertheless, of an unusual size for this kind of tree, being over 20 feet high, and proportionately large. With its beautiful pyramidal form, it well deserves the description given by Mr. Paul of the one at Panshanger. *Old Sub., Knutsford.*

Croton elegans.—In this very popular class of foliage plants, Croton elegans seems to be but little known. I have seldom met with it in my travels, and I cannot call to mind ever seeing but one specimen, independently of my own, placed on the exhibition table. I have a pyramid upwards of 6½ feet high, beautifully coloured; indeed I consider it one of the handsomest of the high-coloured varieties I have seen—I do not include Mr. Veitch's latest introductions, for it is impossible to form a correct opinion of these from small plants, since with age, if properly treated, they improve in colour. Croton elegans is smaller in the foliage than many of the other varieties, but equally free in its growth. Although, generally speaking, Crotons are free-growing plants, they require a little management to grow them well, and a good deal of skill to colour them properly. I have seen large specimens very indifferently coloured and some perfectly green; plenty of light is essential to the development of variegation, and they should never be shaded unless the sun is very powerful; even then, if they could enjoy a free circulation of air around them, they would be better without shade. Too frequent pottings and imperfect drainage will also prevent them colouring well. I have two immense plants, upwards of 7 feet high, viz., C. variegatum and C. angustifolium, that look like pillars of gold; the latter, with its beautiful drooping leaves, may justly be styled the golden fountain plant. These plants are fully exposed to the light and receive as much air as possible; they are the admiration of every one that has seen them, in consequence of their high colouring. I have forwarded a branch of C. elegans for your inspection; I have also sent some of its foliage, as well as that of the beautiful Sanchezia nobilis. *Edward Bennett, Osberton.* [The specimens sent were magnificent examples. EDS.]

Fairy Rings.—The way in which Mr. Lees (p. 1158) gives the mole the credit of being instrumental in preparing a suitable habitat for the Fungus which forms "fairy rings," is ingenious, but faulty. How will he account for the presence of fairy rings in Ireland, where they are most common, and where the mole does not exist? In the case of the rings which have a circular outline, I am inclined to think the appearance is caused by the spawn of the Fungus having originally started from a given point, whence it has uniformly radiated, till at length the fructification appears above the ground in a more or less regular manner. It would be interesting to note what species of Fungus produce these appearances; I once saw a most perfect ring, of about 3 yards in diameter, formed of the common Mushroom, on a lawn which was kept regularly cut with a machine. *W. H. F.*

Peruvian Name for Potato.—I see from your editorial note that your contemporary, the "Revue Horticole," says that "Papas" is good Peruvian for Potatos. It is certainly the name given to Potatos by all Spanish Americans, including Peruvians. There is no Peruvian language, properly so called. The Court language of ancient Peru (still spoken over a great part of the Andes of South America) was the Quichua, but that had no name for Potato. In the language of one of the tribes of the coast (the native country of the Potato) the esculent was called "Ascu," at least so says Tschudi, who gave much thought to the subject. Curiously enough, though there was no name for Potato in Quichua, I found one for sweet Potato, which is "Cumar;" and, still more curious, this is the name by which this Convolvulacea is known throughout the South Sea Islands, as far even as Fiji. *Berthold Seemann.*

Judging Melons at Edinburgh.—We often hear it said that there is nothing new under the sun; but it would seem that your correspondent "J. O." has found out the last new thing in Melon judging. Whatever was new in the means adopted by the judges to find out the merits of the Melons in question, they (the judges) are not entitled to the praise if the method was a success; neither are they deserving of censure if it was a failure, they being strictly enjoined by the assistant secretary and managers of the exhibition not to cut the Melons. "J. O." does not say that the judges were unsuccessful in their efforts to carry out this new system, which is very satisfactory to me as one of the judges, and, I doubt not, will be equally so to Mr. Speed, of Chatsworth, and Mr. Westcott, of Raby, who, like myself, were engaged in carrying out the new plan. And it is not quite clear to me but that very much may be said in its favour; it is sight and smell *versus* taste—two senses to one; and it is two to one the taste is more likely to be vitiated either by the morning dram or pipe, or from the extra glass of toddy indulged in over-night at great shows like the one in Edinburgh. It was rather a singular circumstance, and in favour of my argument, that both the 1st prizes for Melons were awarded to the same grower, and he from the sunny south. "J. O." has mentioned what a reporter has said in the matter. It would be better both for exhibitors and judges if reporters would give the particulars of such exhibitions with less of the censorial spirit; it is but a very cursory view they take, and often their report is second-hand. It is, to say the least of it, ill-judged to condemn the decisions of the men who are appointed as judges, and who try to the best of their ability to do justice. *George Thomson, Stansted Park, Sussex.*

Golden Champion and White Lady Downe's Grapes.—I availed myself of a recent visit to Edinburgh to inspect these two new Grapes at Dalkeith. The former can be seen growing under various circumstances, but always with the most robust growth and vigorous development. Mr. Thomson has it on its own roots, and also grafted on the following stocks: Black Hamburgh, Muscat of Alexandria, White Tokay, Lady Downe's, Muscat Trovereu, and Raisin de Calabre, and in each instance the growth is all that could be desired. So vigorous is it, that it actually causes the stocks to swell out, and thicken much more than any other Grape. It has another valuable characteristic: though the berries are covered with rich bloom, this does not rub off readily by any means; and when fully ripe, the bloom appears to be even more tenacious of its hold on the berry. This is suggestive of its being a good traveller. I saw the new White Lady Downe's both on its own roots and worked on the Black Hamburgh; on its own roots it was the most vigorous grower, though there was no room to find fault with its development on the Black Hamburgh; but the flavour appeared best in the Grapes taken from the Vine on its own roots,—there certainly did seem to be a smack of the Muscat flavour about them. The Fruit Committee will soon have an opportunity of testing the value of the Grape for themselves, as Mr. Thomson intends sending some bunches of it to London shortly. I think it very improbable that a similar charge to that brought against the Golden Champion, namely, delicacy of constitution will be laid against the White Lady Downe's. The canes I saw looked as stout and healthy as could be desired. *R. D.*

Vanda cœrulea and Rogiera gratissima.—Blooming specimens of these two plants are now to be seen at Dalkeith. There is a magnificent example of this grand Orchid: the plant is about 28 inches in height, the foliage good, though not so well furnished as in the case of Lord Londesborough's largest plant. It has two spikes of flowers: one has 23 expanded flowers and four buds, the other 21 expanded flowers and four buds, making, inclusive of the buds, 52 flowers. It is a striking object just now in the Orchid-house at Dalkeith. The Rogiera is, under the conditions by which it is cultivated at Dalkeith, an invaluable autumn and winter-blooming plant. It has bold trusses of deep blush-coloured flowers, not unlike those of the Laurustinus in appearance, and these are freely produced. Mr. Thomson states that it remains in bloom for a long time, and in his opinion would make a valuable window plant for large towns. *R. D.*

Wellingtonia gigantea.—The following are the dimensions of one now growing at Stoke Bishop, near Bristol. I planted it in June, 1859. It was then 18 inches high. On measuring it a few days since I found its height to be 30 feet 8 inches, and the circumference of the stem, at 3 feet from the ground, 4 feet 6 inches. The branches, where they rest on the turf, measure about 44 feet round. *Wm. Tothill, jun., Torquay.*——I have one Wellingtonia, planted from a pot, about a foot high, in October, 1858. It has never been affected by any changes in temperature, not even in the severe winter of 1866-67, which destroyed two large specimens of the Pinus insignis, and damaged so many evergreen shrubs. It measures now 26 feet 2 inches in height, and makes yearly growth of about 2 feet 6 inches to 3 feet. I should say that the county is Kent, and the soil, of course, excellent. *G. F.*

Protecting Fruit Trees.—Mr. D. T. Fish has fully illustrated the great want of some efficient means of protection for our wall fruits. As most of our ordinary appliances have failed, it is time to look about us and decide what is to be done for next season. In addition to other aids, I have found old herring nets most valuable protectors; and as these can be had cheap, and are in great request for protecting fruit from the ravages of birds, no garden should be without a good supply for the double purpose. We have some strong wires, strained from the top of the wall just under the coping to some small Oak posts, standing about a foot out of the ground, 5 feet apart, and 2 feet from the wall. On these we strain a double net, and as the meshes cross each other, with the net supported at a sharp angle from the trees, it forms a most admirable screen against pelting hail, snow, and rain, which are generally more fatal to the tender blossoms than cold winds or actual frost. It was perfectly delightful, standing behind the nets placed in this way during last season, to see the way they repelled the heavy storms of snow and rain; but the springs of late have been so exceptional as to set all ordinary means of protection at defiance, so that it has at last become a question of glass *versus* nets, canvas, &c.; and I doubt not but in the long run glass will be found the cheapest, as it can be turned to so many useful purposes as soon as the crop is safe. Sir J. Paxton's patent lights appear to me to be by far the most suitable for this double purpose, as they are so thoroughly portable, cheap, and durable. They can be moved from place to place with the greatest facility—in fact, just as easily as the lights of a pit or frame, thereby effecting a great saving of time and risk in removal over such structures as require taking to pieces before moving them. The system of ventilation, too, is of the most perfect kind, as every leaf is kept in motion; and as fruit-screens or protectors, I feel I cannot too strongly recommend them. We have some of the 14-feet sashes in use here as a Peach-house, giving us a good-looking house 64 feet by 11 feet 6 inches, through which I have just run a flow and return pipe, that we may be well prepared to cope with a spring like the past. The trees in this house have again made from 3 to 5 feet of short-jointed fruit-bearing wood, and are of the most perfect kind. *J. Sheppard, Woolverstone Park.*

Foreign Correspondence.

CENTRAL PARK, NEW YORK.—The accompanying representation from one of your former volumes (p. 456, 1858) will give your readers a good idea of the general appearance of this park, although the details of the plan have been somewhat altered in transferring them to the ground. It will be seen that it is rectangular in form, a description of outline which associates best with outside buildings, especially with those of New York, which are all placed along the sides of straight streets, themselves being again intersected by straight avenues—an arrangement which, together with the numbering of the streets, certainly has the advantage of enabling strangers to find any particular locality with greater facility than can be done in English towns of similar size.

The outlines of the park being straight, it may be imagined that the interior of it, near the boundary, has a formal appearance: but, owing to both natural and artificial undulations of the ground, together with skilful planting, such is not the case. Indeed, a person may often be within a few yards of the retaining wall without knowing he is near it, so well has it been concealed from view, and when the plantations shall have attained full size even surrounding buildings will be imperceptible.

One point worthy of remark in reference to American parks is that all work done in connection with them is done well, the garden architects having the full control not only of operations within the park, but also of those in connection with the new streets and avenues in its vicinity—the whole of which belongs to the Park Commissioners, who receive annually an improved rental from such property, which they buy up, and take care to keep in good condition. All unsightly objects are thus removed from the boundaries of American parks, which become interesting centres to wealthy neighbourhoods.

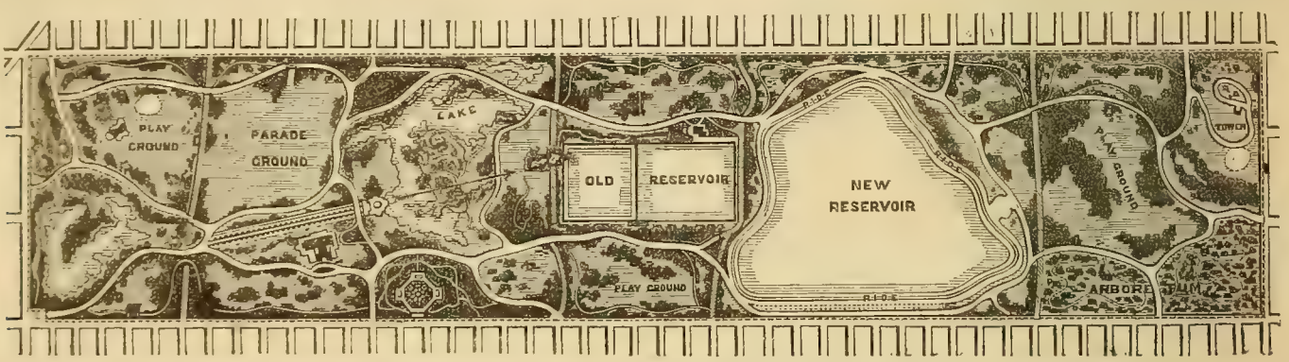
Nor is the garden architect bound down, as with us, to a certain contract. An approximate estimate is, as a matter of course, made in the first instance for the guidance of the Park Commissioners, but, if it is seen afterwards that more money is absolutely needed, it is obtained. Not so with us in London, except in the case of Government works. Let us see how the matter stands in reference to Finsbury Park, which the garden architect asserted would take some 9000*l.* to execute properly. For this work tenders were invited from contractors, the range of whose estimates varied from 4500*l.* to 12,500*l.*—the cheapest man getting the work to do: but, as might have been expected, he "broke down." Under such conditions how could the architect's plan be satisfactorily carried out? But, as I have said, they do things better in America.

Having the surroundings of a park under the direction of its architect is a great advantage, too, in the way of economy, for in preparing the plan for the park another is made for the neighbourhood. The situations of its streets and avenues are all set out, and the foundations of the residences excavated; if, therefore, additional soil is wanted in the park for boundary concealment, or for mounds, the quantity at command can be calculated to a nicety, and the sources from which it can be derived accurately determined.

From what has been stated about improved surroundings, it may be thought that American parks are made chiefly for the benefit of the rich, but that is not the case. They are intended to furnish healthful recreation for the poor as well as the wealthy, the young and the old, all of whom make good use of them; and although situated in the midst of a population approaching two millions, of diverse origin, the park regulations are as a rule well observed. Occasionally, a person who would not willingly be classed among the uneducated is found to take peculiar satisfaction in evading a rule, or, in the absence of the eye of authority, in violating some minor regulation; but such misdemeanors are happily exceptional. In short, the inhabitants as a whole, one and all, seem to feel that, while a large amount of money has been spent in its formation, a park has been produced which, for the extent of its area, the taste, elegance, and beauty of its adornment stands unrivalled; and, therefore, the interest in maintaining it unblemished is all but universal. Of 4,195,695 persons who visited this park in one year, but 135 arrests were made for violation of the regulations, the most frequent misdemeanour being fast driving.

The way in which the public roads have been carried across the park so as to conceal their traffic, is worthy of all praise, and indeed, against the carrying out of the plan in general I have little to say; the treatment of the water, drives, walks, and rides, is all that can be desired. The only thing with which I would be disposed to find fault is the planting, of which in my opinion there is a little too much; not at present, while the plantations are young, but which will become apparent when they have become full grown. If first cost, however, is not a consideration, overcrowding can be easily relieved by means of judicious thinning. "Plant thickly," say nurserymen; "but thin in time, that being the proper way of securing good woodland scenery;" and I quite agree with them; but in practice I have often to act differently on the score of economy.

The island on which New York, properly so called, is placed, contains about 30 square miles. The park to which I have been adverting occupies its centre, and the value of land in its vicinity has risen from comparatively nothing to some 30,000 dollars per block of 100 by 25 feet; and so satisfied are the Americans with the benefits of town improvements of this description, that no fewer than 22 parks and open spaces, varying from one to 843 acres, belong to New York alone. Need I state, therefore, that in few cities has the march of improvement been carried on to a greater extent during these last ten years than in that of New York. *Joseph Newton.*



Societies.

SCOTTISH ARBORICULTURAL: *November 2 (Annual General Meeting.*—The Sixteenth Annual General Meeting was held at Edinburgh, Robert Hutchison, Esq., of Carlowrie, F.R.S.E., President, in the chair. After the minutes of the last meeting had been read, the President delivered the Inaugural Address, from which we extract the following passages:—We are called upon to assist in endeavouring to ascertain exactly the influence which vegetation has, or rather the influence which woods exert, on the health of the country, both directly and indirectly, through their bearing on the rainfall. This is a most important and most interesting branch of arboricultural science, and one which is yet completely in its infancy. The attention of scientific men has only lately been aroused to the fact, that trees modify very materially both the climate and the rainfall of a country; and in order to ascertain the precise nature and extent of the influence they exercise, very minute and careful observations, and a series of registrations in different localities, under different circumstances, must be made. This is a work which falls very particularly within our immediate province as a society, and we must not shirk it, but must each one carefully, and conscientiously, do the portion of it which falls to his hand to do; and by all labouring together, an immense amount of light may be thrown on this important question, which may be useful to the more purely scientific minds and associations; and should we, in our humble investigations, aid thereby in defining laws by which our country will be benefited, both in the increased health of its inhabitants, and in the improved abundance of its harvests, the reward of the pains and trouble expended will be a rich one. But, gentlemen, besides the good we may help, by God's blessing, in doing to our countrymen, we shall certainly be conferring a great boon on ourselves by cultivating a habit of intelligent observation. We cease to be like "dumb driven cattle," and become "heroes in the strife," when we lift our daily work out of the mere routine of petty drudgery, into the willing co-operation in the great battle of knowledge against ignorance; and every day, as we go on striving, the field of our view will open up and enlarge, and we shall find an intensified interest in our lives, and in everything that surrounds us. The dignity and importance of arboriculture as a science, is at last, I am happy to say, forcing itself upon public attention; and the work of the forester is making itself felt as an agency of immense power for good or for evil, according as it is performed. Unfortunately, in former years, from ignorance of climatic and hygienic laws, which are now acknowledged, forestry was regarded as mainly a necessary work of destruction. This is now authoritatively admitted and referred to by the Under-Secretary of State for India—Mr. Grant Duff—who, in introducing his financial statement in the House of Commons, in the last session of Parliament, said (referring to Indian forest conservancy)—"No one who had not looked into this subject had the faintest idea how terrible were the effects, over wide regions of the globe, of carelessness in keeping up a proper proportion of trees. Let anyone to whom the whole matter is new, turn to the remarkable work of the American minister at Florence, Mr. Marsh, upon 'Physical Geography as Modified by Human Action,' and he will shudder at the dangers which we have only just escaped. If our predecessors in India had known what we know, much of the enormous expense which we are now being put to with regard to irrigation would have been quite unnecessary. But the mistakes of former days are past praying for, and we can only now rejoice that the conservation of the forest has been recognised as a great State necessity, and that a regular forest department has been inaugurated, which will take to India the science of France and Germany." Now, gentlemen, with regard to this speech of the Indian Secretary, I have a remark to make. The schools of forestry in these countries are famous, and deservedly so; but I am proud to say that, in my humble opinion, Scotland, without any school of forestry, is equally famous in this department. And one of the necessary qualifications, in fact *the* concluding touch to the education of those young foresters, who are, according to Mr. Grant Duff, "to carry to the East the science of France and Germany," is, that they must for a time, after being in France and Germany, have studied under some approved *Scotch* forester in Scotland—to rectify, I suppose, any erroneous ideas imbibed in France and Germany previously! Yes, gentlemen, in the ranks of this Society there have been found many scientific foresters, who have been chosen by the Government, and sent forth to our Indian Empire; and at the present moment, if I am not mistaken, two young men—members of the Scottish Arboricultural Society—are about to follow these pioneers, who have carried the name of our Society to the jungle and the Himalayan peak, and who are already showing that Scotch energy and shrewdness is not unequal to grapple with the difficult problem of the conservancy of the Indian forests. Let us then, gentlemen, endeavour to distinguish ourselves in such a way as a Society, by our scientific forestry and progress in the van of arboriculture that ere long the fact of membership in the Scottish Arboricultural Society will be a *sine quâ non* for a Government appointment to the Indian forests; and let our ranks be the source to which not our own Government, but that of other countries, will look for the best and most advanced foresters. But, gentlemen, to attain such a position, we must labour hard in the work of self-education, ever bearing in mind that the best, and indeed the only true education, is that which a man gives himself by training his mind to habits of close and accurate observation, and by accustoming himself to classify and arrange the facts he has ascertained by careful watching, and reasoning from these facts to general principles and laws. And let us never forget, gentlemen, the proverbial quality of our country, "caution." We must be quite sure that our theories are based upon facts, and not our facts on theories. The rock on which many scientific men have struck, is theorising first and observing afterwards, and so twisting and perverting facts to suit pre-conceived notions. And we must not be discouraged if at first, in our investigations into any department of Nature, it appears "a mighty maze, and quite without a plan." If we only persevere light will begin to dawn through the darkness, and order to emerge from what we had thought was chaos—the facts which at first sight presented a mere jumble of discordant and contradictory matter will group and arrange themselves into order, and we shall be rewarded by understanding the method and beautiful reason of Nature's workmanship, and of feeling that we can aid in modifying its effects to suit the wants and requirements of the human race. In cultivating arboriculture in a scientific spirit we shall also find our interest in every other field of knowledge and inquiry awakened and excited; for, as I before remarked, all knowledge is one, and as arboriculture influences climate and rainfall, these again influence the productiveness of the soil, and the health of man and beast; and from these spring, in endless ramifications, all the other branches of industry and knowledge: so in first labouring earnestly and sincerely in our own calling, we shall find ourselves made freemen of the great world of science and art.

A very fine collection of cones of the rarer Coniferæ was sent for exhibition, from Dropmore, by Mr. Frost, which created considerable interest.

The anniversary dinner of the Society (whose members now number upwards of 500) was held in the Albert Hotel, at the conclusion of the meeting—Robert Hutchison, Esq., President, acting as chairman, and Professor Balfour, V.P., and Mr. M'Corquodale, V.P., as croupiers.

LINNEAN: *Nov.* 4.—G. Bentham, Esq., President, in the chair. Mr. W. G. Smith exhibited a fresh specimen of Cantharellus carbonarius, a new British Fungus, discovered by him on burnt earth and charcoal heaps in Epping Forest. The President announced, in reference to a proposed memorial to the late Professor Faraday, that he had received intimation that the subscription list would shortly be closed, and that early payment would be necessary on the part of any Fellows of the Society who intended to contribute. Charles Lambert, Esq., was elected a Fellow of the Society. The following papers were read:—I. *Notes on some Brazilian Plants from the neighbourhood of Campinas.* By Joachim Correa de Mello, in a letter to the President (translated from the Portuguese). The author mentioned that Arachis hypogæa was cultivated near Campinas, on a small scale, for its seeds, which are eaten raw or roasted, or for its oil, which is used for burning. In order to observe whether this plant might not produce aërial as well as subterranean pods, he last year sowed some seeds of it, as well as of the Voandzeia subterranea—the latter imported from the African coast, and cultivated in some Fazendas by the negros for the seeds, which are eaten boiled—and contrived to prevent the ovaries of both from penetrating into the ground, either by the interposition of a resisting body, such as a dry leaf or slip of wood, or by raising the branch of A. hypogæa when the flower was not produced too low down, so that the ovary could no longer reach the ground. Under these circumstances, in the Arachis, the stipes proceeding from the torus at the end of which the ovary is formed, lengthened out even to 3 or 4 inches, but the ovary never enlarged, and remained in the same state till the plant perished. This was observed in many ovaries of many individuals. In the Voandzeia, whose slender compressed stems spread along the ground, and even penetrate beneath the surface when the soil is sufficiently soft and porous, the peduncle dried up immediately if the ovary could not penetrate the ground. The author was thus able to affirm that neither of these Leguminous plants produce aërial pods. Notwithstanding all the care and attention that could be bestowed, M. de Mello had failed in discovering the female apetalous flowers mentioned by Sprengel (under Cryptolobus), by De Candolle in the "Prodromus," by Lindley and Moore in "Treasury of Botany," and by Bentham and Hooker in "Genera Plantarum." The flowers in 12 individual plants examined were all uniform, and provided with petals (papilionaceous). "The fact of my not having seen these female apetalous flowers, mentioned by botanists of the first authority, suggests the following queries:—Has the existence of these apetalous flowers been verified? If so, are they constant on all individuals? Has the transference of this plant from Africa to Brazil had sufficient influence over it to cause their disappearance? Has the ovary, after the fall of the petals, but still enveloped at the base by the persistent calyx, been mistaken for a female apetalous flower? Or have the flowers really escaped my observation? These are questions which I cannot at present definitely solve, but I shall make a fresh plantation. In the meantime it appears to me to be placed beyond all doubt that the hermaphrodite petaliferous flowers do produce fruit." The author then made some lengthened observations on Brazilian Cucurbitaceæ, and concluded by offering some brief notes on species belonging to the Natural Orders Menispermaceæ, Euphorbiaceæ, Myrtaceæ, Scitamineæ, &c. A Maranta, probably imported, is cultivated for its

tuberiform rhizomes, from which is extracted a flour, the arrarcite or arrowroot.——II. *Note on Two Plants new to the Peninsula of India*, by N. A. Dalzell, Esq. The plants in question were Althæa Ludwigii, and Cystanche tubulosa. They were observed in the district of Mahim, on the Konkan coast, between the 19th and 20th degrees of lat. Both plants had been previously seen on the banks of the Indus, and reviewing all the circumstances, the conclusion of the author was, that the soil of the district, as well as the seeds of these plants had been brought down by the flood waters of the Indus, and deposited on the spot where they were found.——III. *On the occurrence of Adroptor Mamacator, or a closely allied insect, near Buenos Ayres.* By Roland Trimen, Esq; communicated by H. Trimen, Esq. The insect referred to was found by a pupil of Dr. Ogilvie, by whom the following particulars were given to the writer: — "As far as I remember, the larva looked by daylight like an ordinary grub. It was, I think, a little over 2 inches in length, and of a dark brownish colour. When put to travel across the table in a dark room it looked exactly like a miniature railway train. The head was lit up with a reddish light, and the tail with a greenish one, and at the point where each of its legs was joined to the body there was a tiny globe of white light."

Notices of Books.

The Scenery of England and Wales: its Character and Origin, &c. By D. Mackintosh, F.G.S. Longmans. Small 8vo. Pp. 399, figs. 86.

Here is a book which we may recommend alike to the notice of those who have lately returned from their autumnal holiday, and to the attention of those who may be contemplating a similar "outing" next year. Its style is not the most fluent, but its subject is so interesting that any slight literary deficiencies may well be passed over. It professes to give a rational explanation of the why and wherefore of the hills and dales, the bluffs and caves, the rocks and plains which diversify the surface of our little island, and give it so great a charm. The reader will remember the story of Eyes and No Eyes. We forget the actual names of the *dramatis personæ* in that charming little tale, but we may say that Mr. Mackintosh's book is addressed to those who, like the lads in Dr. Aikin's story, find endless pleasure in using their eyes. What a charm does it give to a country ramble to speculate on the causes which have given so singular a form to this or that rock or hill, or the forces which have scooped out that valley. Here is food for observation and reflection at all seasons. The study requires no elaborate apparatus; it does not even involve the labour and expense of collecting; it requires but little previous special knowledge, and only an average amount of observing powers and of common sense.

Upheavals and depressions there may have been in former epochs, and still are to a limited extent in this country, but its diversified surface is principally caused by what geologists call "denudation." So far there is a pretty general agreement in opinion among geologists. But as to the causes of this denudation there is a brisk conflict of opinion. Rain and rivers, glaciers and icebergs, cataracts and sea waves—all are pressed into the service to account for the physical features of the country as we now see them. The difficulty lies in estimating the precise degree of importance to be attached to these several causes. Is existing scenery the result of the action of one or more of these agencies to the exclusion of the others? or have all contributed their share to the general result, and if so in what proportion? We cannot enter into these points, but we may remark that the author's opinion, which he sustains by many a forcible illustration and cogent argument is that the sea has been the main cause of denudation, the principal inducing agent of those variations in the scenery which enhance the pleasure of travelling, and furnish so potent an antidote to its fatigues. The illustrations are well chosen, though no woodcut can rival a good photograph in the representation of the texture of rocks. It would have made the book more complete had the author alluded to the diversities in the character of the vegetation corresponding to the varied elevation, aspects, exposure, soil, &c., of the several districts he alludes to. This, however, is a point which did not fall within our author's plan, and is moreover a matter which any future observer can work out for himself with the assistance of Watson's "Cybele," and the "Geographical Distribution of Plants," by the same author.

—— Two new journals have recently put in a first appearance. The first, yoleped the *Academy* (Murray), is devoted mainly to literature with a dash of science, the second, entitled *Nature* (Macmillan), is devoted mainly to science, with a slight infusion of literature. Both journals are ushered in with an imposing array of "good names" as contributors. The *Academy*, so far as can be judged from a first number, justifies its title, as it is scholarly and perhaps a trifle heavy. *Nature*, as befits its title, is varied, and, as is natural under such circumstances, unequal. The second number is, to our fancy, better than the first. We shall probably have numerous opportunities of adverting to the contents of these journals, if their career belie not the promise of the present.

The Apiary.

GLASS HIVES.—Will you kindly inform me what is the best kind of glass beehive in which the bees can be seen at work, and from which the honey can most easily be taken?—what is the probable price, and where it can be purchased, and what is the best and simplest treatise on the management of bees, and price. *Subscriber.* [Glass hives, or observatory hives, are not generally considered to be adapted for obtaining large supplies of honey. Probably the one which would best suit your requirements is that invented by Mr. Tegetmier. The sides are each constructed of four panes of glass, having a very narrow space between each pane for air, which forms an excellent non-conducting medium, rendering it quite unnecessary to cover the box with any cloths or wrappers, or any other protection than is sufficient to throw off rain. You had better write to W. B. Tegetmier, Muswell Hill, who will furnish you with particulars as to cost, &c. The hive otherwise is an ordinary beehive, and can be worked with supers in the usual manner. A good and simple treatise on the management of bees can be obtained by sending five stamps for "Bee-keeping for the Many," to 171, Fleet Street, London.]

I LOOKED at my hives to-day (October 31), to see in what condition the bees are, and am glad to give a good report of them: they were all living and merry; but, strange to say, the hybrid Egyptians were the best of all. The bees in this stock were loading in with pollen finely, and none of the others; but strange, also, to say, the Egyptians have increased amazingly in numbers lately; good yellow bees and several young drones were out, and they all are yellow! How is that? This will be a fine hive next summer, I expect. *George Fox, Kingsbridge.*

[It may be remembered that this stock was originally a condemned lot of bees, driven from a cottager's common hive situated at a considerable distance from the apiary in which the pure Egyptian colony was kept. According to the generally received notions, the drones ought to be of the same colour as the mother, that is, black. Is it possible that the bees might have been a stray swarm from Mr. Fox's apiary?]

Garden Memoranda.

MR. SALTER'S NURSERY, HAMMERSMITH. — A visit to Mr. Salter's in the autumn season is almost one of the necessities of life to those who look affectionately on Chrysanthemums; and we can assure all such persons that, as in former years, such a visit will gratify them now, and create a yearning for some of the novelties to be offered for their home delectation hereafter. By the time these notes are in our readers' hands the general display will be reaching its best, and all the earlier novelties will be in fine condition, so that a visit should not be long delayed. A second visit will be necessary some three weeks or a month later, to take in many of the new flowers of the Japanese breed.

The novelties seem this year to run very much on the Japanese strain, and certainly some very decided acquisitions to these grotesque forms—forms admirable for conservatory decoration, true painters' flowers, but not at all modelled after the florist's standard—have been obtained. We noted especially the following as being of a novel character, and remarkably effective:—Aurora, a beautiful flame-orange, with darker centre, fine and full; The Sultan, a very showy light rosy purple; Chang, a very large buff; Mandarin, a clear yellow—all these have broad, flat, ribbon-like florets, which, as the flower-heads get to maturity, become curled and contorted in a singularly irregular manner, forming exceedingly picturesque objects. Emperor of China is of a purplish white when young, clear white when mature, having the centre tinted with the peculiar compound of rosy buff which decks the common Honeysuckle; Viceroy of Egypt has the outer surface of the florets white, the inner face of a bright rose-purple; and as the florets in both this and the former are quilled at the base and opened out flat at the tip, both colours are brought at once into view, with excellent effect. In these two sorts, the florets of the outer row representing the ray, are wholly quilled, while all the inner ones belonging to the disc are split open and flattened out for about a third of their length at the upper end. Giant has very large flower-heads, made up of long straight slender quilled florets, of a rosy lilac colour, and is very distinct. Gold Thread is something of the same type, forming great bunches of quilled florets, which open yellow, change to pale canary-yellow in the centre, and take on a buff tint towards the circumference. Negro, the only other Japanese novelty we found sufficiently developed, is one of those with narrow twisted florets in the way of Comet; this opens quite a deep maroon, which as the flowers perfect themselves changes to a dark rich maroon-red.

Amongst the novelties of the Chinese breed, occur some very pleasing flowers. Foremost we must place Duke of Edinburgh, a large incurved sort with abundant material, and of a handsome rosy lilac colour, paler towards the crown. Miss Hope is a medium-sized rosy lilac, with a very high and paler-coloured crown, and remarkably full. Norma, a close-habited sort, will be an excellent conservatory plant, and has dense high flowers, with stiff flattish florets, of a pure white. Mrs. Wreford Major is somewhat similar in style, with close moderate-sized flower-heads made up of stiff flattish florets, in this case of a rosy purple, the colouring not solid but as it were pencilled. One of the prettiest flowers, however, was Ondine, which, though flattish in the florets and moderate in size, had well-filled high centres, the colour blush tinted with buff at the centre, each floret being just turned up at the end sufficient to show a small purple tip, the effect of which is like that of some of the lightly tipped Dahlias; altogether this may be noted as a very neat and pretty variety. Finally, Princess Louise, a large Anemone-flowered sort, of a delicate rosy lilac, with full centre, was exceedingly chaste, and promises to be one of the best of this group.

Of older sorts the following were blooming well:—Incurved sorts—Pink Perfection, large delicate pink, very fine; Beethoven, large bronze-red, yellow at the back; Princess of Teck, blush, scarcely at its best; John Salter, large, flattish, but incurved, bright chestnut-red, yellowish at the centre; Golden John Salter, a sport from the foregoing, of a deep golden yellow; Lady Harding, delicate rose-pink, very fine; Ossian, a remarkably bold rosy purple; Prince of Wales, large, dark violet-purple, the back of the florets silvery; Sanguineum, large, crimson-red, the back of the florets also red; and Fingal, large, deep rosy violet, paler on the reverse of the florets. Aurea multiflora, pale clear yellow; Mrs. Rundle, pure white; and Rotundiflora, a pale rosy lilac, white-centred sport from Golden Beverley, are all smallish-flowered incurved varieties, but with the flower-heads so deep as to form a complete ball, and so closely similar in style as to form pretty companion kinds. Non-incurved—Auguste Mie, crimson tipped with gold; Purpurea elegans, dark purple; Compactum, silvery peach lilac; Mrs. Huffington, blush white tipped with purple—these all produce close high-built flower-heads, with short stiff florets. Lord Clyde is a beautiful deep red with flat florets; Orange Annie Salter, a reflexed tawny yellow sport; while Bronze Jardin des Plantes is a fine deep bronzy yellow sport, otherwise resembling its parent. Japanese:—James Salter, one of the earliest of this race, has been particularly fine, and with its broad twisted pale pink florets is still very effective; as is Comet, bright orange-yellow, with red centre; Meteor, yellow tinged with orange; and Hero of Magdala, Indian-red with yellow centre, and the backs of the twisted florets yellow.

The whole collection, owing doubtless to the fine autumn weather, has even a brighter appearance than usual, and many of the varieties are certainly blooming finer than they are generally seen in Mr. Salter's hands; who, however he may seek to tempt his visitors by the novelty and high quality of the varieties he puts before them, does not "overgrow" them, or subject them to the "millinery" process, which it is said gains for many floral subjects their high honours. We understand that this season a different soil from that usually employed has been made use of, the bulk being road scrapings, and that in the process of potting the soil was rammed as firmly as possible into the pots.

MR. A. FORSYTH, BRUNSWICK NURSERY, STOKE NEWINGTON, has, as usual, an excellent display. His show-house is now remarkably gay, the centre being filled with specimens grown in the usual manner to produce fine show blooms, and the outside stages effectively and tastefully arranged with well-grown and flowered specimens of the large-flowering and Pompon kinds. The specimens which Mr. Forsyth grows for exhibition, and especially the standard specimen plants of the Pompon, are excellent. Of the newer kinds of Chrysanthemum sent out this year, Mr. Forsyth has the following in perfection:—Blonde Beauty, white, delicately striped and tipped with pale rose; the florets are broad and finely incurved, and the flower is of the most perfect form: an acquisition deserving of a place in all good collections. Miss Mary Morgan is another fine flower, of a delicate pink colour, large, with broad incurved florets. Mr. Evans, dark chestnut, with a lighter shaded centre, beautifully incurved, dwarf in habit, and free-flowering, is well adapted either for growing as specimen plants or for cut blooms for exhibition. Mr. George Haskin is also a good show variety, with broad freely-converging florets, of a warm lilac-rose, or peach colour, with deeper coloured centre; a very large and beautifully incurved flower. The above were raised and selected by Mr. Morgan, of Plymouth, who has thus made a name for himself, as a raiser of fine novelties. Amongst newer kinds sent out in 1868, and not yet sufficiently known, are Princess Beatrice, rosy pink, showy, finely incurved, and exquisite in form; Le Grand, fine rosy peach, with faintly striped florets near the centre, and beautifully incurved; Guernsey Nugget, very fine; Bronze Jardin des Plantes, very fine; Mrs. Sharpe, rich pinkish rose, with the under side of the florets of a bright silvery tint; Princess of Teck, pure white, large, and finely incurved; Captivation, cream, shaded with carmine, fine; and Lord Derby, a very dark purple flower, finely incurved, and of good form. In the general collection are fine blooms of Alfred Salter, delicate pink; Cherub, golden amber; Isabella Bott, pearl white, tinted rosy lilac; Empress Eugénie, rosy lilac, very fine; Empress of India, very large, white; Alma, fine; Fingal, very large and grand in form; Queen of England, fine; Mrs. G. Rundle, very fine; Prince of Wales, violet-purple, a pleasing flower; Novelty, blush white, good; Princess of Wales, white tinted with rose; Robert James, fine; General Slade, Goria Mundi, and Golden Beverley, all showing admirable blooms. The above, with Lady Harding, delicate rose; Golden Christine; Purpurea elegans, rich purple crimson, very striking; Lady Talfourd, Venus, Annie Salter (golden-yellow), and Vesta, are all, from their free and short-jointed growth, fine foliage and free-flowering properties, excellent varieties for growing as specimen plants. The Anemone-flowered kinds are well represented, the most striking being Lady Margaret, fine white; Margaret of Norway, golden-red; and Prince of Anemones, lilac-blush, a fine full flower with a high centre. The Japanese kinds are here, as at Mr. Salter's, receiving considerable attention, and are well represented in Red Dragon, immense blooms; Comtesse de Beauregard, dark rose, fine in colour; grandiflora, large golden-yellow; the Daimio, delicate pink, changing to rose-lilac, a large double, and very attractive kind; Tarantula is perhaps the most curiously-formed flower in the collection, the centre is close and compact, and around it is a single spreading ray of slender tubular florets of a rich golden colour. Comet has singularly curious twisted florets, of a bright orange-yellow colour, which changes to a fine chestnut-red. The dwarf specimens of Pompons, in all the leading varieties, are very fine.

AT the TEMPLE GARDENS Messrs. Dale and Broome have their plants arranged, as usual, under awnings in the gardens. They are this year better than usual. The best flowers of the large-flowering kinds in Mr. Dale's collection (which, by-the-by, is not quite so large as formerly) were Cherub, golden-amber, finely incurved;

White Globe, very fine; Mrs. G. Rundle, white, large, fine form, very good; Golden Beverley, bright yellow, very fine;; Little Harry, bright golden-amber, a finely incurved flower; Venus, Gloria Mundi, General Slade, Indian-red, tipped with yellow, distinct and good; Dr. Sharpe, magenta, fine in colour; Golden Eagle, Prince of Anemones, Progne, bright carmine, fine colour; Jardin des Plantes, good; Prince Alfred, rosy crimson, a grand flower; and Prometheus. Mr. Broome has good flowers of Mrs. G. Rundle, General Slade, Hermione, John Salter, reddish cinnamon, with orange centre, fine; White Globe, Prince Alfred, Lady Talfourd, pale rosy lilac; Golden Hermine, fine; Golden Beverley, Little Harry, Faust, Nil Desperandum, rosy amber, large, and finely incurved; Bronze Jardin des Plantes, bronzy orange, yellow centre, very fine; Prince of Wales, Alfred Salter, Prince of Anemones, Lord Palmerston, Sir Stafford Carey, fine; Progne, fine; Golden Christine, Lord Derby, Rev. J. Dix, good; Edwin Landseer, and Captivation, fine and very showy. Mr. Dale has not so many planted-out in beds this year, which is somewhat to be regretted, seeing the interest that is taken in this fine autumn border-flower, and the great number of visitors that are attracted by such fine displays. Two large beds of Pompon varieties, consisting of Cedo Nulli and its varieties, Bob, and others, were first-rate, notwithstanding the strong winds.

Miscellaneous.

Panama Hats.—The leaves [Carludovica sp.] are folded in vernation exactly like a fan, each segment on its own medial vein or rib, so as to consist of 80 layers. It is only these young, unexpanded leaves that are used in weaving hats. With a small two-pronged fork, or with two needles stuck into the end of a stick, the whole 80 layers are split up at once into 160 strips, leaving out the midribs, which are then bent back and cut away, while the strips remain hanging from the top of the petiole, broom fashion. They are next boiled until they become white, and, having been carefully combed out with the fingers, are hung in the sun to dry. They curl in at the edges in drying, but do not twist in the least, so that from being one-fifth or one-fourth of an inch in width when fresh, they are only 1-20th of an inch or less when dry, and are nearly terete, but get flattened in weaving. For the finest hats, only a single narrow strip is taken from the margin of each segment, leaving a great breadth to be thrown away with the midribs; such strips dry to no more than 1-40th or 1-30th of an inch broad. *R. Spruce, in "Journal of the Linnean Society."*

The International Land and Labour Agency lately established at Birmingham, England, has an æsthetical as well as a practical side, and proposes to undertake a cheap and easy exchange of all kinds of productions, natural, mechanical and literary, as well as of lands and labour. Books, copyrights, money; flower and other seeds; cuttings from fruit trees for grafting, "so that English horticulturists may introduce into their orchards the Baldwin, Seek-no-Further, Greening, and Northern Spy, in exchange for their Blenheim Orange, Ribston Pippin, and others," are among the objects of its care. It will also endeavour "to promote an interchange of the song-birds of the two countries, so that the bobolink, robin, and bluebird may sing their best songs in England, and the English robin, lark, thrush and linnet sing theirs in America; so that the same sweet musicians of the heavenly city may be common to both nations, to give morning and evening tongue to the symphonies of the perpetual peace and brotherhood existing between the two great families of the English-speaking race." *Anglo-American Times.*

Garden Operations.

(For the ensuing week.)

PLANT HOUSES.

We must now turn our whole attention towards making conservatories, greenhouses, &c., as gay as possible with flowering plants. *Chrysanthemums*, which are so universally grown, will now afford some assistance in attaining this end; the individual blooms of these plants will be much finer if the sucker shoots at the base are kept carefully pinched back, and moderate waterings with guano-water of reasonable strength be given. The latter will be found far preferable to rank farmyard liquid at this time, as the action between the flowers and the roots will be accelerated in accordance with the purity or otherwise of the food supplied. *Salvia splendens*, which in the hands of good growers is one of the gayest of our autumn-blooming plants, will afford a striking contrast to the above, and should be kept in the full light in a warm house, with air freely moving around it. Late-flowered *Fuchsias*, especially the variety named Madame Cornelissen, which will continue to flower freely in a cool house till Christmas, *Epacris*, early-flowering *Coronillas*, *Zonal* and other *Pelargoniums*, &c., will all tend to make a display. To keep these latter, and, indeed, most other free-blooming subjects in perfection at this dull period, it will be necessary to pay particular attention to keeping the internal air in the houses as free as possible from damp. The latter will cause whole trusses of showy flowers to fog off almost in a single night. I referred last week more especially to this matter, therefore I need not here enter into details. A little air should be given at the apex, if possible, of all cool houses during mild weather, and the same will be necessary even if slight frosts occur, and it becomes really necessary to afford artificial heat, however little. This will tend to neutralise the effects of damp. Look regularly over all the plants, and remove as many of the leaves as show symptoms of early decay. Nothing but healthy thriving foliage should be permitted to exist in such structures at this time. Preparation must be made for the regular forcing of winter-forced plants generally, to which subject I hope to refer more fully at an early date. In the meantime continue to introduce bulbs in succession, choosing such varieties as are known to be the best adapted for this sort of culture.

FORCING HOUSES.

Do not delay the necessary renovation of tan or other beds contained in *Pine-pits* or other places which are intended to supply a minimum amount of heat through the sharper weather of winter, and to aid flues or pipes which may not be quite powerful enough to give a full amount of heat at such a time. In all such instances the tan, or heating materials, must be attended to at a later period than where there are larger bodies of tan, and less dependence must be placed upon it to assist the heating medium. Choose a calm fine day, such as sometimes occurs about the middle of this month, to undertake this operation. Keep all glass connected with *Pines* scrupulously clean at this time, that not a ray of light may be lost. In connection with such pits as above, a comparatively low temperature must be maintained, so that no great decrease of heat takes place should severe weather occur. In regard to artificial heating materials upon outside borders of early *Forced Vineries*, see that the heat does not fluctuate very materially, but maintain it as uniform as possible; about 80° should be the highest amount permitted under any circumstances thus early in the season, as nearly enough heat still exists, and it is well maintained within the borders by the aid of such surface coverings, without any assistance being needed. The necessity of protection against superficial rains I have so frequently urged in regard to all vineries, that it is scarcely necessary to revert to the subject. Where this has been thus far delayed, let it be attended to forthwith. Early-forced vineries must be kept constantly damped down; a moderate amount of fresh air should be given daily, and where, in the case of roomy vineries, the apex of the canes can be let down to a little below the level of their base, so much the better. Before I again offer any remarks on this matter, it will be necessary for some to start their first *Peach* and *Nectarine-houses*. This must be done after all the necessary preparations have been completed. Start cautiously, only giving a little air, closing up early in the afternoon, and slightly damping them over for the first week or so, when more heat and moisture will be necessary. Give as much air as possible to *Cucumbers*, and, what is of some importance, do not crop too heavily for a few weeks.

HARDY FLOWER GARDEN.

I suggest the propriety at this time of slightly uprooting such plants as Weigelas, Lilacs, Syringas, Deutzias, Prunus, which have been grown without pots in the open border, and which are intended for forcing. If this be done, it will not only prepare the roots for the latter process, but, by checking the plants, will materially tend to make them bloom more freely. It will cause a somewhat late-formed wood to ripen more freely, and so to economise its resources. Of course the roots, though released in greater part from the soil, must nevertheless not be exposed to the outer elements. Let sufficient litter be procured within which to plunge the pots of such things as the above, as a protection against frosts, and within which the roots may lie by until required. This advice, I scarcely need add, applies only to those places where such an amount of room does not exist as to enable them to be stored into more comfortable quarters. The above remark also applies to pot *Roses*, which should receive such attention at once. Bring to a close all operations connected with planting spring-flowering plants into beds. The *Golden Feather Pyrethrum*, if taken up, the old flowering shoots removed, and replanted into beds, will in all likelihood stand through the winter. I noticed a neat piece of work around the Round Tower of Windsor Castle last week. Stars were planted into round and oval beds of Wallflowers as centres, the intervening spaces being filled in with a variety of subjects, such as Arabis of the best purple varieties, Forget-me-Nots, &c. Those who value their *Echeverias* should have those which may still remain out potted forthwith.

HARDY FRUIT GARDEN.

Immediately the main part of the leaves are off *Peach* and *Nectarine trees*, set about loosening all the lesser flowering branchlets from the wall. Be careful in so doing not to let any dangle about them in such a manner as that injury can possibly accrue to them through the action of violent wind storms, whether by actually breaking them, or by producing wounds through frequent friction against the walls themselves; such wounds, however slight, often act as incentives to gum formation, which is often very injurious in its consequences. Any kind of *Fruit trees* may now be shifted or transplanted with impunity, where alterations on hand demand the operation thus early.

KITCHEN GARDEN.

Those who followed my suggestions regarding planting *Cabbages* intended for spring use upon the old Onion bed, without first digging it over, will do well—the plants having now fairly taken hold and established themselves for the winter—to neatly turn in the surface soil with a spade, and thus to bury those weeds which have sprung up lately, and to leave all fresh and nice amongst the plants. In greatly exposed gardens, and especially where the soil is a very moist or retentive one, it will be advisable to lay down the main crop of *Broccoli*. This may be done by using the spade neatly, loosening the soil on one side, so that the plant may fall nicely on to the ground, with its head to the north. In pushing forward the work of digging, trenching, &c., some amount of care will be needed in regard to the crops which are best adapted to follow in the spring those which have already been grown and taken off certain quarters this autumn. I hope from time to time to refer to this subject: suffice it for the present to state that the best crops to succeed such as Peas, Carrots, Beet, or Onions, will be Broad and Dwarf Beans, Scarlet Runners, Summer Spinach, or spring-sown Cabbages. The ground will therefore require good substantial digging for either of these, and if at all stiff in its nature, it should be ridged for all but the first. *W. E.*

TOWN GARDENING.

I consider the *Chrysanthemum* the very best plant for town gardens, as it produces fine foliage during the summer, and a great display of flowers in the autumn. Therefore I must beg to be excused for referring to this plant again. Both the large-flowered and the Pompon varieties are of easy culture; therefore I suggest to intending cultivators that now is the time to make selections of varieties from those in bloom out-of-doors. There are many splendid flowers to be seen, grown under glass, which are of no use for growing out-of-doors. I therefore think it would not be out of place to draw attention to this fact, and to give a list of those which do well without protection, and can now be seen in full flower in the Temple Gardens. At the same time I would recommend that offsets be taken off as fast as they appear, and be potted in 60-sized pots in sandy loam and dung. They should be wintered in a cold frame. Those flowers best adapted for growing in the open air without protection are:—*Whites:* Beverley, Christine, Defiance, Formosum, Mrs. Ashburton, Marchioness, Queen of the Isles, and Vesta. *Yellows:* Annie Salter, Aurea multiflora, Chevalier Domage, Delight, Gloria Mundi, Beverley, Christine, Hermine, Guernsey Nugget, Temple of Solomon, and Golden Queen. *Reds:* Antonelli, Nil Desperandum, Cardinal Wiseman, Oliver Cromwell, Sir Stafford Carey, Sydenham, Julia Lagravère, and Dr. Sharpe. *Peach and Rose:* Ariadne, Christine, Queen of England, Princess Marie, Alfred Salter, Pilot, and Webb's Queen. The above are all large free-flowering varieties. Of Pompon kinds the following are hardy and free-bloomers. *White:* Cedo Nulli, Miss Talfourd, Model, Mdlle. Marthe, and Trevenna. *Yellow:* Drin Drin, Cedo Nulli, General Canrobert, Berrol, Aigle d'Or. *Rose:* Duruflet, Ranuncula, Salamon, and Adonis. *Brown:* Autumna, La Liliputienne, Bob, Mustapha, Madame Pépin, Doctor Boisduval, Aurora Borealis, and Miss Julia. *Pink:* Supreme, Madame Rousselon, Adèle, and Gerald. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Nov. 10, 1869, as observed at the Horticultural Gardens.

Nov.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind	Rain.
Thurs. 4	1	29.452	29.401	57	36	46.5	51	49	N.W.	.00
Friday 5	2	29.717	29.308	55	41	48.5	48	48	W.	.20
Satur. 6	3	29.791	29.448	52	23	37.5	50	48	W.	.00
Sunday 7	4	29.887	29.848	52	37	44.5	46	47	W.	.00
Mond. 8	5	29.859	29.634	57	27	42.0	46	47	N.W.	.00
Tuesd. 9	6	29.788	29.662	54	25	39.5	47	47	N.	.04
Wed. 10	7	30.002	29.903	44	24	34.0	45	46	N.W.	.00
Average.		29.785	29.597	53.1	30.4	41.8	47.8	47.4		0.24

Nov. 4—Fine, strong wind; overcast; densely overcast.
— 5—Fine; heavy rain; clear and fine.
— 6—Cloudy, but fine; cloudy; densely overcast.
— 7—Frosty; very fine; clear and fine at night.
— 8—Densely overcast; cloudy, but fine; clear.
— 9—Overcast; showery; fine and clear; cold air.
— 10—Overcast, frosty air; very fine; snow and hail; clear and frosty.

Mean temperature of the week, 1.9-10 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending Nov. 20, 1869.

November.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..14	48.5	33.8	41.2	21	1.24 in.	6	5	4	6	3	7	6	6
Mon. ..15	49.0	34.8	41.9	19	0.34	3	6	5	4	4	11	8	2
Tues. ..16	48.9	33.2	41.0	14	0.34	6	3	6	3	5	11	6	3
Wed. ..17	48.1	33.9	41.0	19	0.38	9	7	3	1	9	8	2	4
Thurs. ..18	47.9	32.9	40.4	20	0.56	4	7	4	2	4	13	3	6
Friday ..19	48.9	33.5	41.2	17	0.87	1	6	4	4	15	13	2	9
Satur. ..20	48.7	34.6	41.7	14	0.35	2	7	3	—	7	10	7	7

The highest temperature during the above period occurred on the 20th, 1866—therm. 61 deg.; and the lowest on the 15th, 1848, and 19th, 1868—therm. 18 deg.

Notices to Correspondents.

Cloches: *M J.* Apply to Messrs. Hooper & Co., Covent Garden, W.C.

Fungi: *J H.* Your Fungus is Lycoperdon echinatum, Pers.; which is considered by Fries a state of Lycoperdon gemmatum. *M J B.*

Holly: *O.* Your berries of variegated Holly cannot be trusted to produce variegated plants. The probable result of sowing them will be that part will germinate with yellow, part with green cotyledons: the first will advance no further, but gradually die off; the second will grow on, and produce green Hollies. We cannot name scraps such as those sent.

Names of Fruits: *F Stephenson Leigh.* 1, Glou Morceau; 3, Bergamotte d'Esperen; 4, Old Crassane; 5, Easter Beurré. —*W P.* 1, Beurré do Caplaumont; 3, Easter Beurré; 6, De Deux Sœurs; 2, unknown.—*G T M.* 1, Round Winter Nonsuch; 2, Gravenstein; 3, Scarlet Nonpareil; 4, Waltham Abbey Seedling; 5, Rymer; 6, Thoresby Seedling; 7, Black Crab.

Names of Plants: *King's Langley.* The common Spindle Tree, Euonymus europæus.—*H Mills.* It is the strong growing incised variety of Maiden-hair, found in Ireland and elsewhere. It it your climate, doubtless, that is conducive to its great size and hardiness.—*W P, Shrewsbury.* Agaricus odorus (Bull). The stem is often attenuated downwards, as in your specimen, but it is not a specific character. *W G S.* —*J Hudspith.* 1, Vaccinium Vitis Idæa; 2, Selaginella Krausiana; 3, Selaginella uncinata; 5, Sedum acre; 6, Saxifraga hypnoides; 7, Athyrium Filix-fœmina; 8, Asplenium Adiantum-nigrum; 9, Pteris serrulata; 10, Asplenium flaccidum var.

Veitch Memorial: *T S.* The plan which you suggest is very much that which is being adopted.—*Subscriber.* We will hand your note to the committee.

Communications Received:—W. S. N.—Vectis.—Bude.—W. J. —Hibernicus.—W. P. A.—O.—A. A.—H. D.—N. B.—E. B. —A. D.

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2 ,,	264 Spring-flowering Bedding Plants,	price 12s.
3 ,,	50 Soft-wooded Greenhouse Plants,	price 3 3s.
4 ,,	72 ,, ,, ,, ,,	60s.
5 ,,	50 Stove Plants,	price 70s.
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10 ,,	100 ,, ,, ,,	30s.
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New Zonal Tricolor Geraniums	Chveden Bedding Plants
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Evergreen Trees and Shrubs	Hardy Climbers and Shrubs
Herbaceous Peonies	Herbaceous Plants

FRUIT TREES.

Apples	Figs	Peaches
Apricots	Gooseberries	Plums
Cherries	Medlars	Pears
Currants	Nectarines	Quinces

Raspberries, and other miscellaneous Fruit Trees.

NEW CONTINENTAL STRAWBERRIES.

STRAWBERRIES, older varieties.

VINES.

ROSES:—

Provence	Moss	Damask	Rosa Alba
Hybrid China	Hybrid Bourbon	Climbing	China Roses

Austrian Briars and Double Yellow,
Climbing Perpetual Musk,
Noisette, Tea-scented, Hybrid Perpetual, Perpetual Moss,
Ile de Bourbon.

COLLECTIONS of ROSES.

Dwarf Hybrid Perpetual Roses, in pots, for Forcing.

JAMES CARTER AND CO., 237 and 238, High Holborn, London, W.C.; and Crystal Palace Nurseries, Forest Hill, S.E.

LARGE CEDRUS DEODARA, 10, 15, and 20 ft. high; Green and Variegated HOLLIES, 9 to 12 feet high; ENGLISH YEWS, 6 and 7 feet high; TARTARIAN ARBOR-VITÆS, 9 to 12 feet high; PINUS CEMBRA, 10 to 15 feet high; and SPANISH CHESTNUTS, 15 to 20 feet high. Also a beautiful specimen of the MAIDEN-HAIR TREE (SALISBURIA ADIANTIFOLIA), over 20 feet high, perfect pyramidal form. Price on application.

WILLIAM GEORGE CALDWELL respectfully invites the attention of intending Planters to his stock as above. The quality of the plants cannot be surpassed, as they have been grown as single specimens, and have been often transplanted, thereby rendering them perfectly safe for removal. Price on application.

Also strong plants of the KEELE HALL BEURRÉ PEAR, which has this season borne very freely on Standards and Pyramids. Standards and Pyramids, 1s. 6d. to 2s. 6d. each. Price to the Trade on application. The Nurseries, Knutsford, Cheshire.

Notice to Debtors and Creditors.

WILLIAM HEALE, Deceased.—All Persons having any CLAIM or DEMAND against the Estate of WILLIAM HEALE, late of Calne and Chippenham, Nurseryman, Seedsman, and Florist, Deceased, are requested to send Particulars thereof in writing, either to Mrs. MARIA KIRBY, Calne, Executrix, or to Mr. JOHN SPENCER, Bowood, Executor, forthwith, that the same may be examined and, if found correct, Discharged.

And all Persons INDEBTED to the said WILLIAM HEALE at the time of his Death are desired to PAY the same to one of the above-named parties on or before JANUARY 1, 1870.

NOTICE to the PUBLIC.—The Business, in all its branches, will be carried on as heretofore by Mrs. MARIA KIRBY (late Heale), under the name of "HEALE AND CO." Nurserymen, Seedsmen, and Florists, at Calne and Chippenham, Wilts.—Calne, Nov. 10.

Extra large Trees for Ornamental Planting

IN PARKS AND AVENUES.

WM. WOOD AND SON have to offer a magnificent STOCK of the following:—

Sycamores, 7 to 8 feet	Poplars, Black Italian and
,, variegated, 6 to 6 feet	Lombardy, 8 to 10 feet
Horse Chestnuts, 8 to 10 feet	Mountain Ash, 7 to 8 feet
,, scarlet, 8 to 10 feet	,, Weeping, 6 to 7 ft.
Catalpa syringæfolia, 7 to 8 feet	Pyrus aria latifolia, 7 to 8 feet
Laburnums, 4 to 6 feet	American Weeping Willows, 6 to
,, purple, 4 to 6 feet	8 feet
Weeping Ash, ex. fine, 7 to 9 feet	Elms, English, Chichester, Wych,
Ash-leaved Maple, 7 to 8 feet	6 to 8 feet, and 8 to 10 feet

Price on application.

Address—Woodlands Nursery, Maresfield, Uckfield, Sussex.

Planting Season.—Walton Nursery, Liverpool.

To PLANTERS of PUBLIC or PRIVATE PARKS, CEMETERIES, PLEASURE GROUNDS, or WOODS and FORESTS.

W. SKIRVING begs to announce that his STOCK of TREES and SHRUBS is this season very extensive and well grown, and that he is now prepared to execute orders to any amount for Trees and Shrubs of all sizes, at moderate prices.

W. S. considers the present and following month two of the best for transplanting Evergreen Trees or Shrubs, and solicits Planters to inspect his Stock, which consists of many thousands of the Holly, of the most choice varieties of the Gold and Silver Variegated kinds, and of the large broad-leaved Holly (the finest of all Evergreen Trees), hundreds of which are of large size and fine specimens for giving immediate effect, with many thousands of smaller sizes for general planting.

Also an immense Stock of all other cultivated Trees and Shrubs, either for Villa, Park, or Forest planting, and of Fruit Trees for Gardens or large Orchards.

N.B.—Fifty Acres of Walton Nursery being required for Villa Building, the Stock thereon must be cleared as soon as possible, therefore reduced prices will be accepted.—October, 1869.

Victoria Nursery, Wisbeach.—Special Offer.

WOODCOCK offers for Sale:—5000 LAURELS, 1 to 5 feet, 3s. to 16s. per 100; 1000 LAURUSTINUS, 1½ to 2 feet, many in flower, 25s. per 100; 3000 OAK, stout, 3 to 5 feet, transplanted; CHESTNUT, Horse, 4 to 6 feet, in working order; MAHONIAS, 1-yr. WALNUTS, &c., &c.; 100 bushels of COMER'S NORFOLK SELECTED and SKIRVING'S PURPLE-TOP SWEDE.

WANTED, Standard CHERRIES and PLUMS, well up.

A reference at once from all unknown Correspondents will save time.

BEAUTIFUL SPRING FLOWERS.

Now ready, in strong Plants.

HEPATICA, sorts, 4s. per doz.
PRIMROSES, double Lilac, 4s.; White, 6s. per doz.
,, double Yellow, 9s.; Purple, 6s. per doz.
,, double Rose, 9s.; double Crimson, 12s. per doz.
ROCKETS, double White and Purple, 6s. per doz.
VIOLETS, 20 distinct sorts (see Catalogue), 4s. per doz.
POLYANTHUS, the finest strain in the world, 2s. 6d. per doz.; 15s. per 100.
PANSIES, finest border varieties, 2s. 6d. per doz.; 15s. per 100.
DAISIES, 6 distinct kinds, 4s. per doz.
AURICULA, Perrin's Red, 3s. per doz.
HOLLYHOCKS, 24 distinct kinds, to name, 3s. per doz.
PAMPAS GRASS, 3s. per doz.; 20s. per 100.
LEUCOJUM VERNUM (Snowflake), 2s. 6d. per doz.
AUBRIETIAS, sorts, 4s. per doz.
ADONIS VERNALIS, 6s. per doz.
BULBOCODIUM VERNUM, 3s. per doz.
MYOSOTIS DISSITIFLORA, 4s. per doz.; 25s. per 100.
ALOPECURUS PRATENSIS AUREO VARIEGATUS (new Golden Grass), 1s. 6d. each; 12s. per doz.
HOLCUS LANATUS ALBO VARIEGATUS (new Striped Grass), 1s. 6d. each; 12s. per doz.
FOXGLOVE, finest Spotted, 3s. per doz.; 20s. per 100.
WALLFLOWER, double Yellow and Dark, 4s. per doz.
DIELYTRA SPECTABILIS, 6s. per doz
ARABIS ALBIDA VARIEGATA, 2s. 6d. per doz., 20s. per 100.
ŒNOTHERA MISSOURIENSIS, 6s. per doz.
PHLOX NELSONI, PROCUMBENS and VERNA, 4s. per doz.
PYRETHRUMS, Single and Double, to name, 6s. per doz.
SPIRÆAS, sorts, 6s. per doz.
TRITOMA UVARIA, 6s. per doz.
CLOVES, Double Purple, Crimson and Striped, 6s. per doz.
PICOTEES, fine, to colour, 6s. per doz.
COWSLIP (Giant), 3s. per doz.

ROSES.—24 choice distinct Varieties to name, Dwarfs, 15s.
Do. 24 do. do. do., Standards, 25s., or half the number for half the amount.
STRAWBERRIES.—DR. HOGG and NEW PERPETUAL PINE, 7s. 6d. per 100.
Do., 40 other kinds (see List), 3s. 6d. to 5s. per 100.
CHRYSANTHEMUMS.—20 New Chrysanthemums of 1869, 10s.

P.O. Orders on Castle Hedingham. A CATALOGUE of Choice New Plants of 1869, Bulbs, Roses, Fruit Trees, &c., free on application.

WM. DILLISTONE, Nurseryman, &c., Sible Hedingham, Essex.

Autumn Planting.

PETER LAWSON AND SON will be glad to send their CATALOGUE (just published) of FOREST and ORNAMENTAL TREES and SHRUBS, free upon application.

The stock of LARCHES, SCOTCH FIRS, AUSTRIAN and CORSICAN PINES, &c., comprises some millions of healthy, well-grown plants, and special offers will be made for large quantities when personal inspection is not convenient.

Edinburgh and London.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY (Limited),

CORN, SEED, MANURE, and OILCAKE MERCHANTS.

Address, 26, Seed Market, Mark Lane, E.C.; or Basingstoke.

Samples and prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Seed Potatos.

H. AND F. SHARPE'S WHOLESALE LIST of all the new and best varieties of Early and Late POTATOS is now ready, and may be had on application. The quality is very fine, and prices low.

Seed Growing Establishment, Wisbech.

RICHARD WALKER has the following to offer for cash:—Splendid SEAKALE, for forcing, extra fine, 10s. per 100; fine GIANT ASPARAGUS, for forcing, at £1 per 1000, or 3s. per 100; ROBINSON'S CHAMPION DRUMHEAD CABBAGE plant at 2s. 6d. per 1000.

RICHARD WALKER, Market Gardens, Biggleswade, Beds.

Autumn, 1869.—Special Offer.

MAGNIFICENT SEAKALE ROOTS, extra strong, for forcing, 10s. 6d. per 100; Magnificent ASPARAGUS ROOTS, extra strong, for forcing, 10s. 6d. per 100; good plants CABBAGE ROSES, 2s. 6d. per dozen; good plants ROSE DE MEAUX, 2s. 6d. per dozen; strong RED and BLACK CURRANTS and GOOSEBERRIES, 2s. 6d. per dozen; STRAWBERRY Plants, 2s. 6d. per 100; very strong Standard and Pyramidal PLUMS and PEARS, 12s. per dozen. PRICED LIST on application.

WILLIAM HOOPER, New Wandsworth, S.W.

THE Cheapest and most Effectual of all PLANTS for Game and Fox Covert, PAMPAS GRASS. Surplus stock, strong, healthy, seedling plants, twice transplanted, 25s. per 100, or £12 per 1000, delivered free to Bealings Station.

BUNDY, Kesgrave, Woodbridge, Suffolk.

BIRMINGHAM CATTLE and POULTRY SHOW, 1869.—The TWENTY-FIRST GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, ROOTS, CORN, and IMPLEMENTS, will be held in BINGLEY HALL, on SATURDAY, MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 27, 29, and 30, and December 1 and 2.

TWO THOUSAND ONE HUNDRED POUNDS in PRIZES.

Admission:—On Saturday, November 27 (to witness the whole of the Judging), 10s.; on Monday, November 29, till 5 P.M., 5s., after that hour, 1s.; on Tuesday, November 30, 1s.; on Wednesday and Thursday, December 1 and 2, 1s. till 5 P.M., after that hour, 6d.

For Special Railway Arrangements, see the Advertisements and Bills of the several Companies.

EARLY SANDRINGHAM KIDNEY POTATO.

THE EARLIEST, MOST PROLIFIC,

AND BEST VARIETY FOR FORCING PURPOSES IN CULTIVATION.

Price to the Trade and further particulars may be had on application to

H. AND F. SHARPE, SEEDGROWING ESTABLISHMENT, WISBECH

JOHNSTONE'S ST. MARTIN'S RHUBARB.

W. P. LAIRD & SINCLAIR,

NURSERYMEN, DUNDEE, N.B.,

HAVE pleasure in offering the above NEW VARIETY of RHUBARB, which they have confidence in recommending as the earliest and best sort in cultivation. The raiser of it describes it "as one of a batch of Seedlings from 'Victoria;' the seedling plant was a fortnight earlier than any of the remainder of the lot, and grown beside 'Prince Albert' and 'Linnæus,' always ten days earlier than them, and giving a larger quantity of superior stems to either of these varieties. It forces better than any variety I know, and has a splendid colour."

Strong Roots, 2s. 6d. each. Usual Discount to the Trade.

The following TESTIMONIALS, selected from amongst many others,

speak to its merits by disinterested parties:—

"Taybank House, October 18, 1869.

"GENTLEMEN,—I have much pleasure in saying that Johnstone's St. Martin's Rhubarb is the best I have in my possession. It is a thick fleshy-stalked variety, bears a heavy crop twice a year, and if cut early, would, I have no doubt, give a third, as even ten days ago it was throwing up fresh leaves. One peculiarity it possesses of not throwing up flower-stems, only one having appeared on one of my plants in the course of two years. It makes an admirable preserve.—I am, &c., "CHAS. GUTHRIE."

From WM. GORRIE, Esq., *Horticultural Editor of* "*The Farmer.*"

"Edinburgh, October 20, 1869.

"GENTLEMEN,—I have fully tested the merits of your Johnstone's St. Martin's Rhubarb, both by cultivation and cooking, and compared with the well known Victoria variety, I find it to be considerably earlier in spring, to yield fully a heavier crop, and to stand out later in autumn; while in quality it is much milder and decidedly more agreeably flavoured, requiring considerably less sugar, which is no inconsiderable advantage in the estimation of cottage gardeners, and others with limited incomes. "WILLIAM GORRIE."

From Mr. LAMB, *Restaurateur, Dundee.*—October 18, 1869.

"GENTLEMEN,—I have pleasure in testifying to the fine quality of your St. Martin's Rhubarb. In the course of my business I use Rhubarb to a very large extent—many tons during the season. Yours is the first supplied to me from the open air, and I always give a preference to it over others in the market.

"THOMAS LAMB."

The Agricultural Gazette.

SATURDAY, NOVEMBER 13, 1869.

MR. HOWARD'S excellent Paper on CONTINENTAL FARMING is a sufficiently convincing proof that English agriculture, in spite of our higher northern latitude, is on the whole more productive than that of such districts as he has visited; and that taking even Belgian farming with which to compare it, and with which it has been occasionally contrasted to its discredit, the agriculture of our country is on the whole superior, whether as to its produce of grain, or of meat, or as to its maintenance of an intelligent and well-conditioned tenantry. The small farm system, and still more the small estate system, may possibly be defended on other grounds of State policy, but for its power to turn the soil to the most useful account, and for its power, or rather want of power, to "stock" the country with an intelligent middle-class population, it admits of no defence. No doubt, however, like every other existing system, those at present maintained by it upon the land will strongly object to be improved from off the face of the earth by any change. There is a multitude of families living in decent comfort, under circumstances to which they are accustomed, labouring their little plots, and living on them, who will care nothing as to the results of any English discussion of their condition. We may indeed learn little from them or their experience; but they, on the other hand, can receive no useful lesson from us. In good years they probably obtain as large a produce from the land as we do; and if they have a smaller surplus to dispose of than we send in to the towns, it is because of the much larger population living directly upon it in the country.

There are, however, certainly some large establishments in France, and Belgium, and Germany, which furnish ample instruction to the English farmer; and to one of these—one of the example farms of Europe—not mentioned by Mr. HOWARD, we may direct attention. The following are particulars supplied to us by the tenant representing the company, who, some 30 years ago, acquired the land by embankment and enclosure. The three decennial periods which have since elapsed have represented continual progress in improvement, economy, and fertility:—

Wilhelminapolder, province of Zeeland, in Holland, contains about 2990 acres in regular cultivation; the rest is wood, &c. Of this 2825 are of a clayey description, some heavy clay, but never so stiff as in some parts of England, and always a sandy subsoil at various depths. About 150 acres are sandy and poor

altogether (old sandbanks on which no alluvial clay was deposited). There are six farms, and on each 14 work-horses, with one old one for extra use, making 90; besides about 20 young horses, as we rear them ourselves. During part of the year 18 pairs, or 36 hired horses, are also employed. There are on each farm five ploughmen, young and unmarried men; they live with the bailiff, and get, besides their food and board—the first ploughman, 12*l.*; the second, 9*l.* 6*s.* 8*d.*; the third, 8*l.* 16*s.* 8*d.*; the fourth, 6*l.* 13*s.* 4*d.*; and the fifth, 5*l.* 5*s.* They are hired for nine months, from March to December. Generally the horse-work goes on till the middle of December. During winter, till March or till the end of February, there is nothing to do, but some carrying of straw, of corn, and such like. Besides the five ploughmen living on the farm, there are during nine months or less two labourers for the remaining two teams. In winter two or three ploughmen remain on each farm, for taking care of horses and cattle. For this they get 36*s.*, food and board. The labourers (not hired ploughmen) get 8*s.* 4*d.* in the week, and nothing else. Boys working the horses in spring for extra use, 1*s.* per day, without food. Other labourers working the horses in the winter get 1*s.* 3*d.* per day.

The food of the horses is as follows:—During about two and a-half months in winter, when they do not work, different kinds of straw, chiefly of Beans and Oats, and a little bit of hay. When they begin to work, a little more hay besides 11 bushels of Beans and 11 bushels of Oats per week, for the 14 horses on each farm. In May this food is gradually stopped, as they go to pasture. In June, July, August, till mid-September, they receive during the day cut Red Clover, and they are always in pasture during the night. And besides this, they receive on each farm in summer 70 bushels of Beans and Oats altogether. At mid-September feeding of Carrots is beginning, and the 15 horses receive besides 25 bushels of Oats or Beans per week, on each farm. In October they do not go to pasture any longer; they get a little hay, if possible, and the allowance of Carrots is increased to three-quarters of a cwt. per horse per day, and Oats the same as before. November the same as October. In December the feeding of Oats and Carrots is gradually stopped and again changed for different kinds of straw. The Carrots are always cut or pulped, and mixed with chaff of Wheat or cut straw, and given after Oats. Horse-work is severest in autumn, not only for ploughing but also for carrying Madder and roots.

Young horses get, till they are one year old, 1 bushel of Oats per week, besides hay and Clover in summer. When they get older, they do not get Oats any more, but go to pasture for the whole summer, and in winter they receive some cut Mangels and hay. Cost of food:—

12*l.* per horse on an average per year, from	1831–1840
9*l.* 16*s.* „ „ „ „	1841–1850
9*l.* 8*s.* 2*d.* „ „ „ „	1851–1860

From 1831 to 1840 more Beans and Oats were given than the quantities mentioned; so during the last 20 years the cost of food was about 10*l.* per horse. All is taken into account except the straw, as when the horses have taken the best of that it is partly used as litter.

Now, as to other expenses, the following account gives the annual averages of three decennial periods:—

Wages and food of the men working the horses				£730	2	0
Farrier and drugs				14	19	9
Sheer				15	14	0
Mending implements, purchase of implements, and harness maker, &c.				370	11	10
Cost of food of the horses				1079	12	5
				£2211	0	0
Purchase of horses	£33	15	9			
Value of horses at the beginning of the year	1163	7	0			
	£1202	2	9			
Sold old horses ..	£14	1	8			
Value, end of the year	1162	18	4			
	1177	0	0			
				25	2	9
Total				£2236	2	9
Value of the work done by the horses				2395	1	0
Profit				£158	10	0

This profit is realised notwithstanding that for ploughing the horses are credited with only 4*s.* per acre; for ploughing with three horses, only 5*s.* 6*d.* per acre is placed to their account; for harrowing about 1*s.* 6*d.* per acre; light harrowing about 11*d.* per acre; rolling 8*d.* to 11*d.* per acre; carrying crops in harvest time 4*s.* 8*d.* per acre; carrying Madder, roots, and corn, &c., 6*s.* 8*d.* per day, in winter 5*s.* per day. We hire men with horses and implements for these prices.

The 2825 acres of clayey soil are cultivated according to the following rotation:—1st year, Peas; 2d, Wheat; 3d, Mangels; dunged with 10 tons farmyard manure and 2 cwt. guano and bones per acre; 4th, Beans, dunged with 16 tons of manure per acre; 5th, Wheat; 6th, Oats, with Clover and Grass; 7th, Clover; 8th, fallow, dunged on some lands with 14 tons manure per acre; 9th, Winter Barley, the stubbles with 20 tons manure per acre; 10th, Madder; 11th, Madder; 12th, Madder, dug when 2½ years old; 13th, Peas; 14th, Wheat, with Clover; 15th, Clover; 16th, Oats; 17th, Mangels, Turnips, Potatos, and Carrots, dunged as the third year; 18th, Beans, dunged as the fourth year; 19th, Wheat, with Clover and Grass seeds; 20th, pasture; 21st, pasture.

Of each crop there are each year 135 acres, or 22 or 23 acres of each on each farm per annum. The 150 acres of sandy soil have the following system of cropping: 1, Turnips; 2, Chevalier Barley; 3, Clover; 4, Rye; 5, Potatos; 6th, Beans; 7th, Rye. Turnips, Potatos, and Beans are manured. The depth of ploughing varies from 2½ to 6 inches with two horses, and from 8 to 12 inches with three horses.

The weight of manure carried is about 10,000 tons per annum. As to the distance, the farmeries are situated about in the midst of their 500 acres. The manure is carried from the steadings to the fields. About 300 tons of manure of the 10,000 are bought at Goes; the distance from there to the fields is various, but often four miles and more. No considerable quantity of artificial manure is used. The weight of roots carried will be 12 to 25 tons per acre; of Madder 7 tons per acre. Roots are carried to the steadings; Madder to the village, to the kilns, for drying.

Produce of Wheat on an average, 38 bushels per acre; of winter Barley, 70 bushels per acre; of Chevalier and summer Barley, 50 bushels per acre; of Oats, 60 bushels per acre; of Rye, 36 bushels per acre; of Beans, 36 bushels per acre; of Peas, 33 bushels per acre.

The horses during summer are fetched from the pastures early in the morning. They set to work at half-past 3 till 8 o'clock. Then they are taken to the stables, where cut Clover is given to them. Some of them will do little jobs from 9 to 12 o'clock, as horse-hoeing, fetching of mown Clover, &c. At half-past 1 they set to work again till 6 o'clock in the evening, when they are brought back to the pastures. In spring and autumn they begin to work at half-past 5 and continue till 10; or from dawn till about 11; in the afternoon always the same, from half-past 1 till 6 o'clock, or till it is getting dark. So generally they work nine hours per day. During harvest, of course they work as long per day as is needed. In winter, when they have nothing to do, they are allowed once or twice a day to run in the yards, behind the stables. They are brushed and cleaned in the forenoon.

A usual day's work at ploughing will be different. Light ploughing 2 acres; ploughing at 5 or 6 inches 1¼ acre; deep ploughing, 1 acre per day; ploughing of ridges, 3 acres per day. Harrowing: say 4 acres per day for good harrowing, light harrowing more per day.

"Perhaps these particulars of a large Continental farm," adds our correspondent, "may be interesting for English readers. Our horses do a good deal, and they are cheap for food. You will agree with me that steam cultivation, therefore, could not be profitable here."

We only add at present, that certain portions of Mr. HOWARD'S lecture on Continental farming, whose publication has been delayed—relating especially to the Sugar-Beet cultivation, to our produce of meat as compared with that of Belgium, and to the whole small-farm system of the Continent—will be given next week.

PROBABLY we could hardly more effectively enforce the value of a liberal professional education to the agriculturist, on which we last week commented, than by publishing the following passage, in which LIEBIG describes the experimental farms at Hohenheim. It is translated from the eighth volume of the International Jury Reports (Paris, 1867), pp. 221-3:—

"The history of the farming at Hohenheim is particularly worthy of attention. Up to 1864 the directors placed at the head of the administration were what people call 'practical men;' that is to say, the management of the farm was entrusted to agriculturists who knew indeed how to work the soil with profit, meaning by this word the rent or the money got out of the earth without reference to the condition in which the earth has been put by this so-called profitable farming. One of the distinctive characteristics of these practical men was to ignore and disallow the doctrines of science; they considered it superfluous to study, in their applications to agriculture, the nutritive principles of plants, and the sources whence they are derived. They did not believe it necessary to know why we are obliged to manure our fields, nor of what manure really consists. The momentary successes of such men are often conspicuous enough, and provoke for a time the admiration of other farmers of the same calibre, who, moreover, ardently adopt their plans. But let a few years go by, their brilliant achievements lose their brilliancy; people no longer speak as heretofore of their abundant harvest; silence is kept as to what has become of these rich fields, which gave such excellent returns. At Hohenheim complete accounts are kept of the yearly yield, and the results of successive years give no uncertain image of the condition to which the soil is reduced. According to the rules adopted in the management of this farm, it was necessary that the conditions of fertility should be found perpetually in the soil, which should have been inexhaustible. According to these principles, success should solely depend upon the skill and dexterity of man, and consequently it was regarded as useless to employ manures drawn from other sources.

"The Hohenheim managers drew from their lands large supplies, but took no care to compensate the soil by [imported] manures. But it soon appeared, and in an alarming manner, that their skill, so highly prized, had lost its power over these fields. So long as the soil remained rich it reciprocated the care bestowed upon it, but since it became poor all appeals were in vain. The directors imagined that it was Nature that had changed; that climate and season, before so favourable, had become unaccountably hostile to their efforts. Nevertheless, and as if they thought that farmyard manure produced crops, and that they only wanted this material in order to obtain better harvests, they sought to remedy the evil by making a larger quantity of farmyard manure, which they were able to do.

"During the years 1832 to 1841 they employed at Hohenheim only one-fifth of the farmyard manure, and yet obtained from the same amount of land under cultivation 20 per cent. more corn than in the years 1854 to 1860. It is easy to understand this decrease. By the sale of cereal produce, the fields of Hohenheim lost, between 1821 and 1860, 108,000 lb. of phosphoric acid which had not been restored. The absence of one of those elements which are specially essential to the production of Wheat became very conspicuous in the diminution of the harvests. To keep the harvests constantly to the same level, it would be necessary to give to the fields of Hohenheim 396,000 lb. of bonedust. So the working of the Hohenheim lands, long considered a model of excellence and recommended for imitation, has proved very clearly that when nutritive principles are carried off the farm, and no compensation is given to the land, the soil, however good, will, little by little, lose its productiveness."

THE winter agricultural campaign is at hand, and the Birmingham and Smithfield Clubs have issued their liberal prize lists to competitors. About 2500*l.*, with cups and medals and special prizes in addition, are offered by the latter Club, and the premier animals may be almost overwhelmed with money and distinction. It is possible that a single beast may win the 1st prize in money in his class, the award of special plate, worth 100*l.*, a 40*l.* cup, and a gold medal for the breeder. The Birmingham Society offers 2100*l.* in prizes, with silver cups, gold medals, and special prizes to the amount of upwards of 180*l.*

Here, undoubtedly, a great portion of the public interest arises from the large sum of money appropriated to poultry—747*l.* is, indeed, a noble sum to offer as prizes for "poultry and pigeons." Certainly it is a remarkable sum to offer for such a purpose at a time when our national agricultural society, and many other large societies, are excluding poultry altogether from their exhibitions. The Smithfield Club has no prizes for poultry amongst its classes. But it never has offered prizes in such classes, and may be left to accomplish its prescribed objects in its own mode, with its usual satisfactory results.

It is well, however, that there is a society which makes this subject a principal consideration, and which thoroughly realises the fact that feeding, purchase, and transit of poultry cannot be ignored in any general effort to increase the supply of food for the population. The Birmingham Society constructs its prize list well knowing that poultry plays no insignificant part in furnishing the supplies necessary to maintain a carnivorous population of 30 millions. There is, we believe, no record of the imports of foreign poultry into this country; they are, however, enormous. For eggs alone in 12 months we have paid about 1,500,000*l.* But the extent of this foreign trade, compared with the home trade in poultry, is insignificant. In every provincial market poultry is poured in regularly and plentifully, and finds ready purchasers. Ducks and geese imported from Holland are purchased largely by farmers and speculators, who feed them for the English market. Geese, bred upon the moors in the north of England, by the occupiers of small enclosed patches, are collected by dealers, and brought down by rail to provincial towns, and driven into the arable districts and sold to farmers to feed on the stubbles till Michaelmas; after which they are fattened with meal and Potatos till Christmas. In spite, however, of all these efforts the supply is not equal to the wants of the public; for, with the exception of geese at particular seasons, the price of poultry when it reaches the table is frequently 50 per cent. higher than that of butcher's meat. At some seasons, when spring chickens sell at 7*s.* 6*d.* per couple in London, its comparative price is much higher. But beef and mutton are produced by the consumption of the same materials that poultry feed on, and one would expect therefore a gain in converting such food into the poultry flesh rather than into beef and mutton. Moreover, poultry, eating worms and insects in the field, do partly keep themselves.

Their flesh should, therefore, cost still less on this account than that of animals entirely fed on purchased food.

So far as our experience extends, we have found that, without trespassing on a farm for anything except the very light corn which is unsaleable, and not worth grinding for horses, and for a few bags of the smallest Potatos, with the run of the orchard, and of the home pastures after the feeding cattle have gone off at Michaelmas, a very handsome head of poultry may be kept on an arable farm, without interfering with the ordinary routine of management, or diminishing its other products.

The amount of profit per acre which may be realised after paying all incidental expenses and the cost of purchased food—meal, flesh, tallow-scraps, &c., our own poultry practice warrants us in fixing at a minimum of 2*s.* 6*d.* per acre; and we trust that our readers, who are poultry rearers, will furnish us with the means of answering such a question positively, on a wider basis of facts than our own experience supplies.

—— THE corn trade has been in a dull state. Inferior Wheat 1*s.* per qr. cheaper, Oats 6*d.* Fine qualities of Barley are inquired after. Stock food unaltered in value.——The stock and meat markets less fully supplied. Beef and mutton of equal value; top price 5*s.* 8*d.* per 8 lb.——Agricultural seed in a state of inactivity.——English wool at past value; foreign wool has risen 1*d.* per lb., the average recovery being 15 per cent.

—— The winter session of the Institution of Surveyors was opened this week with an address by Mr. CLUTTON, its President. He urged upon members the duty of preparing Papers on subjects within the scope of the Association for discussion at its meetings. Reports on completed works, for the guidance of others in the execution of works committed to them, would be most valuable. Valuations of land for railways—statements on the costs and results of disafforesting—the history of municipal improvements in this and other countries—the management of woodlands and many other subjects might thus be usefully discussed. In reference to the last-named topic, Mr. CLUTTON stated that he knew most of the large woodland tracts in the country, and he believed that "English plantations will compare most favourably with those of Scotland, which the foresters of that country so loudly proclaim to be the best in the United Kingdom, if not in Europe." One other field in which the Institution could most serviceably work was then referred to:—"A large area of land is occupied under no special agreement, and so long as amicable relations exist between landlord and tenant, all goes on well; but a time often comes when strictly legal rights have to be ascertained and enforced. Under these circumstances they are often found to rest on some ill-defined 'custom,' 'understanding,' or 'expectation,' that things would go on as they had done, perhaps, for the last 100 years or more. We all know how unsatisfactory is this state of things, and how each party professes a grievance in whatever way the matter may be settled. In fact, as I took occasion to say, in my remarks on Mr. E. J. SMITH'S interesting Paper, 'all customs are antiquated, and should be abolished, and everything reduced to writing.' I should like to see the following question taken up,—How far is it desirable to define, by legislation, the respective rights of landlord and tenant in the absence of a special agreement?"—On the conclusion of his address, a vote of thanks to the President was moved by Mr. H. A. HUNT, seconded by Mr. J. H. LLOYD, and carried unanimously. Mr. MENZIES and others then addressed the meeting, which was afterwards adjourned till Monday, November 22, when Mr. W. HOPE, V.C., will read a paper in continuation of that of last session, on "The Distribution and Agricultural Use of Town Sewage."

—— Another paragraph on the merits of Messrs. SUTTONS' seeds appears among our correspondence. We had no wish to originate this discussion, and it should now cease. It began with a letter from a known correspondent, who believed that the running to seed of Mangel Wurzel is often due to the quality of the seed sown, and who had seen a field of Mangel sown from Reading, which justified that opinion. Another correspondent, not personally known to us, thought he saw in Mr. BIGNELL'S letter a mere advertisement; and therefore came to the rescue with an instance in which Messrs. SUTTONS' seed had failed, like that of other seedsmen. We have to-day an additional testimony to the fact that Messrs. SUTTONS' seed succeeds—let us add here too, "as that of other seedsmen;" and now we think the discussion may be closed.

—— Yet another paragraph on the education question:—At the recent annual meeting of the Newton Agricultural Association, South Devon, Sir JOHN COLERIDGE, the Solicitor-General, in proposing success to the association, said: "I venture to ask, Do you think that the farmers, as a class, have yet sufficiently grasped the idea of the absolute necessity of considerable improvement in their own education? Of course I speak of them as a class. I am perfectly aware that many of them are men of excellent education, that some of them are men of high and thorough cultivation. But if anything is certain, it is that a great and thorough system of national education is the one great necessity of the time, and it is tolerably certain that if a national system of education takes place—and I believe that sooner or later it will take place—it will be a system which will not apply itself to farmers as a class, and they will have to find their own education for themselves. Depend upon it he is the truest farmers' friend who bids them to look well to this matter in order that they may not permit themselves as a class to be outstripped in knowledge and education by the class beneath them."

OUR LIVE STOCK.

WHETHER from the severity of the season or other causes, only a small company assembled to witness the dispersion of Mr. Woodward's stock on Wednesday, the 29th ult., at Northway Farm, Tewkesbury, Gloucestershire. The ring was indeed very sparingly surrounded, scarely more than 100 persons being present. With the exception of four lots, the prices given were low. Forty-two cows and the bulls made upon an average 26*l.* 2*s.* each, and a total of 1355*l.* Among the higher priced animals may be noticed *Queen of the Gipsies*, a rich roan 6-year-old cow, by Mr. Housman's LORD OF THE HAREM (16,430), and from Mr. Langston's (Sarsden House) *Gipsy Queen*, by ARCHDUKE. She became the property of Mr. J. Webb for 41 gs.; *Blue Breast*, a roan 5-year-old cow, by LORD OF THE HAREM, and out of *Blue Bottle*, by Earl Ducie's KOH-I-NOOR (11,642), was also bought by Mr. Webb for 41 gs.; and *Beeswax*, by the same sire as the last-named cows, and also of Tortworth extraction, went into the same hands at 56 gs. *Dawdle*, by HAWSER (18,038), dam *Flounce* by LONDONDERRY (13,169), and previously descended from *Frill* by ROCKINGHAM (2550) was bought cheap, by Mr. A. Winnell, at 40 gs. Another and still larger portion of this herd will be sold next spring, on account of Mr. Woodward having given up one of his farms.

—— The sale of Mr. John H. Jones' herd of Shorthorns took place on the 21st ult., at Mullinabro, county Kilkenny. No high prices were given. Twenty-nine cows and heifers averaged 26*l.* 5*s.* each, and the bulls 19*l.* each. The highest-priced cow was bought for 47 gs., and CHIEF BARON, a roan 2-year-old bull, by Mr. Booth's BRITISH CROWN (21,322), and on the female side descended from *Norma*, by DRUID, only made 42 gs.; a very low price for so well bred an animal

—— Mr. Rowland Wood's Shorthorns met with a successful sale, especially when we remember that the pedigrees, although sound, could not be described as "fashionable," whatever that most ambiguous term may mean. The sale took place at Clapton, Northamptonshire, on the 3d inst., Mr. Strafford acting as auctioneer. Forty-nine cows and heifers were sold at an average of 30*l.* 4*s.* 1*d.*: nine bulls made 31*l.* 8*s.* 10*d.* each, and the average over the 58 animals disposed of was 30*l.* 8*s.* Mr. Wood's greatest triumphs have been achieved at our annual fat cattle shows. We need scarcely remind our readers of the splendid Birmingham ox of 1865, afterwards exhibited to wondering crowds at the Crystal Palace; and subsequently Mr. Wood's name has been known in connection with other honours won both at Birmingham and Islington. At the recent sales no high prices were given, but a uniformly good demand was maintained throughout. *Joan* 3*d*, the dam of the Smithfield Club prize ox in 1866, and out of the same cow as the celebrated ox of 1865, was sold to Mr. Tomlinson for 37 gs. As no fewer than 20 of the lots were of the same family, the pedigree of *Joan* 3*d* is of some interest. She is by SCIMITAR (16,917), and from the mother of the Crystal Palace ox, *Joan*, by Mr. Booth's (of Killerby) DIAMOND (5918). Her grandmother was by the Kirklevington sire, 2D DUKE OF NORTHUMBERLAND; her great-grandmother was by Mr. W. Jobson's YOUNG SEA GULL (1500); and previously the names of BLUCHER (795), SULTAN (1485), CHARLES (6852), and YARBOROUGH (705) occur. *Joan* 5*th*, by HENRY 5TH (19,944), and of the above family, was purchased by Mr. T. Adwick for 49 gs.; *Flame*, by HENRY 5TH, was sold for 46 gs.; *Julia* 2*d*, for 41 gs.; *Olive Leaf*, for 45 gs.; and *Fuchsia*, for 43 gs. LORD CHANCELLOR (20,160), by USURER, and of the *Cambridge Rose* tribe, and sold for 400 gs. at the late Mr. Jonas Webb's sale, was reserved at 100 gs. LORD OLIVER, by LORD CHANCELLOR, was bought by Mr. W. Fawlkner for the sum of 42 gs.

—— The sale of the Rev. Mr. Stainforth's Shorthorns on Monday, the 1st inst., was well attended; and, better still, the excellent quality of the stock was appreciated by the company. The auctioneer (Mr. Kirby) commenced with *Rouge* and her very young heifer-calf. The mother was bought by Captain Gandy, of Eden Grove, and the calf became the property of Mr. Fawcett, of Scaleby Castle. *Minstrel* 3*d*, after a brisk competition between Mr. W. W. Slye, Mr. Fawcett, and Mr. Metcalfe, fell at last to the bidding of the first-named gentlemen at the respectable figure of 72 gs. *Georgie*, of Foggathorpe extraction, a 6-year-old cow, of substantial form, although somewhat old-fashioned in colour, was bought on commission by Mr. Thornton for 41*l.*, who also purchased her daughter by GRENADIER for the same price. *Grace*, of the *Medora* by AMBRO tribe, became the property of Mr. Metcalfe, of Ravenstonedale, for 31*l.* 10*s.* *Semired*, descended from Mr. Anthony Maynard's stock, was bought by Mr. R. Knight for 46 gs. Mr. Metcalfe, the buyer of *Grace*, was also fortunate in obtaining GRENADIER, a remarkably well-bred and magnificently formed bull, for the low figure of 41 gs. A pretty bull-calf, grandson of *Minstrel* 3*d*, was the last lot sold, and became the property of Mr. W. H. Wakefield, of Sedgwick, for 36 gs.

—— The Alderney cattle of Mr. C. Hill, Harrow Lodge, Romford, were sold on Tuesday last, when some of the females made remarkable prices. Major Wilson bought *Violet*, a 6-year-old cow, at 41 gs.; *Primrose*, a 5-year-old, at 35 gs.; and *May*, a yearling, at 30 gs. Mr. C. Barber bought *Cowslip*, a 4-year-old, at 23 gs.; and *Rose*, a 2-year-old, at 26 gs. Of bulls and bull-calves there were seven, in the sale of which a remarkable instance of the diversity of appreciation occurred, for THE DUKE, a 2-year-old, which was awarded the 1st prize at the Essex show this year, made 10 gs., while ROMULUS, a yearling, which was commended at the same meeting, made 17 gs., and his twin brother 15 gs. The 15 cows and heifer-calves averaged 20*l.* 12*s.* 4*d.*; the four bulls averaged 15*l.* 1*s.* 10*d.*, and the bull-calves made 5½ and 2½ gs. respectively. Mr. John Thornton officiated as auctioneer.

—— The 18th volume of "Coates' Herd Book" has just been published. We must defer our remarks upon it to a future number.

THE PLACE OF PEDIGREE IN AN ESTIMATE OF LIVE STOCK.

YOUR remarks with reference to pedigree in relation to the intrinsic merits of stock afford me an occasion for explaining my views on the subject, of which I willingly avail myself. I thoroughly agree with you that prizes ought to be awarded to the best animals; and in my second article I deprecated, in language as strong as your own, the idea of awarding a prize to an inferior animal simply on account of his pedigree. The grounds on which I advocate placing the lineage of animals before the judges are not, however, invalidated by these admissions; those grounds are, that at local shows judges being sometimes men little accustomed to high-bred animals, may consequently overlook merits of a different order to those with which they are familiar. Thus they might prefer a large but somewhat hard-touching animal, with a coarse head and sunken eye, to a smaller one with perfect touch and a head like *Lady Fragrant*, or an eye like a *Duchess*. With men whose practice has been in a certain line, quantity will generally bear the palm away from quality; but to show these men the evidence of chance breeding in the pedigree of the first, and of an illustrious lineage in that of the last, would probably call their attention to merits which had not previously been patent to them in the latter. Thus, the object which every one desires, viz., the award of the prize to the best animal, would be aided instead of counteracted. The other case, that of two animals of precisely equal merits in every respect but that of pedigree, is too plain to need further argument.

In reply to your question, whether there is not a risk of pedigree being too much thought of at the present day? I scarcely see how it can be valued too highly, although it is quite possible that individual breeders may carry out their ideas injudiciously. What is a good pedigree, but evidence that for many generations the ancestors of the animal before us have been uniformly of superior excellence? If the laws of inheritance are of any value, it follows that, as this animal has inherited the good qualities of its ancestors, so it is likely to transmit them to its progeny. But you suppose the case of a Duchess bull begetting an inferior animal, which, as you truly remark, is possible. In this case I should inquire—What was the dam? If of moderate or doubtful lineage, by no means breed from her son, as inferiority is probably thus to be accounted for; but if her pedigree is unimpeachable, I should again ask in what does his inferiority consist? Is he healthy and well shaped? There are some animals which acquire a reputation for plainness, which after all resolves itself into an unfashionable colour, or a deficiency in certain showy points, which are by no means essential. Where such is the case with a really well-bred bull, there need be no hesitation about using him. Every breeder is familiar with instances of bulls of moderate appearance which have been excellent sires, and, on the other hand, with those of first-rate appearance, whose stock never came up to themselves. Mr. Bates refused an unlimited sum for DUKE OF NORTHUMBERLAND (1910), considering him to be "the finest bull the world could produce." Mr. J. Bell, however, who then lived with Mr. Bates, and had the management of his herd, considered that it would have suffered no loss by the sale of this celebrated bull, because he seldom, if ever, got an animal equal to himself. On the other hand, he possessed another bull almost identical in blood, who, though far from equal in appearance, was superior as a sire, viz., 4TH DUKE OF NORTHUMBERLAND (3649). The stock of this bull was, according to Mr. Bell, not only better than himself, but on the whole superior to that of DUKE OF NORTHUMBERLAND. Of course, it would be absurd, as you remark, to exhibit such bulls, but they afford a remarkable illustration of the value of pure blood.

Again, judging of the value of blood solely from what we see at the Royal Society's and other first-class shows, we find that the great majority of the prize-takers are animals of high pedigree. What, for example, can be better bred than BOLIVAR and KNIGHT OF THE BATH among the bulls at Manchester, or than *Lady Fragrant* and *Baron Oxford's Beauty* among the cows and heifers? If we search the records of past years we find *Lady Oxford* 5*th* taking the 1st prize at Worcester, and *Duchess* 77*th* the 1st at Leeds, besides 18 other prizes and seven cups. Thus we see the coincidence of public opinion as evinced by the prices given for animals of these celebrated families, with verdicts framed upon their intrinsic merits. And here a case occurs to me where two animals were on one occasion wrongly placed at a provincial show of the first rank, which there can be no harm in stating, now that neither they nor their owners are any longer living. At the Yorkshire show many years since, the bull GLOSTER by DUKE OF GLOSTER (11,382), dam *Beatrice* by CRAMER (6907), gained the 1st prize, the 2d being awarded to 5TH DUKE OF OXFORD (12,762), also by DUKE OF GLOSTER, but out of *Oxford* 11*th*, by 4TH DUKE OF YORK (10,167). Both were good animals,

but while the former was somewhat coarse, the latter was perhaps the best Bates bull which has been exhibited since DUKE OF NORTHUMBERLAND took the 1st prize at Oxford. If the respective pedigrees of the two bulls had been before the judges, they would probably have placed 5TH DUKE OF OXFORD in the position which he held some months later at the Royal meeting at Chester, viz., 1st in his class. It has always been a subject of regret with me that so noble an animal should not have left his mark more extensively on Bates' families.

The excellence of pure-bred animals is, however, perhaps nowhere so strikingly proved as at the shows of fat stock at Birmingham, Islington, and elsewhere, where the animal is everything, and his pedigree as such counts for nothing. Passing over, as my limits compel me to do, the long line of winners which will doubtless recur to the recollection of your readers, I will only allude to Mr. Rowland Wood's Birmingham Gold Medal ox of 1865. The writer of the Shorthorn intelligence in *Bell's Messenger*, after enumerating many distinguished bulls to which this ox traces his descent, among which are Mr. Booth's DIAMOND, son of the Irish cow *Necklace* and Mr. Bate's 2D DUKE OF NORTHUMBERLAND, concludes by remarking that "it is not much of a marvel that so wonderful a beast should be able to show such goodly antecedents." Here, however, I must guard myself from being supposed to contend that cross-bred animals of surpassing merit do not make their appearance at our fat shows; all I desire to prove is the high standard to which the pure breeds habitually attain.

With regard to the necessity for selection in breeding animals, I entirely agree with you. We frequently see at the present day bulls brought forward for sale which, on account of colour, deficient size, want of head, or some other defect, are quite unsuited to be the sires of stock, and which consequently are unsaleable except at the price which they may be worth as inferior beef. And I cannot but hope that our breeders will pay more attention to the rearing of steers than they have done lately. Lord Spencer remarked long ago that an animal may make an excellent steer, which was quite unfit to be a bull. With meat at its present price a good lot of steers will pay much better than a number of inferior bulls.

In my next article I hope to say, with your permission, a few words on the inexpediency of making use of any but animals of pure blood as sires. *Willoughby Wood, Nov.* 3.

MR. SHIRREFF'S WHEAT AND OATS.

WHEN walking over a field of Wheat on the farm of Mungoswells, in the county of Haddington, in the spring of 1819, a green healthy plant attracted my attention—the crop generally then looking more dead than alive from the severity of the previous winter—and next day measures were taken to insure its vigorous growth. In the course of summer several stalks were nibbled off by hares, but, notwithstanding, 63 ears were gathered at harvest, yielding 2473 grains, which were carefully propagated—the fourth harvest producing about 40 quarters of grain. This Wheat proved to be a new variety, and was called Mungoswell's; but the name was not long of being changed, and it has been sold in Haddington market by the following names:—Hunter's, Eastbarns, Fraser's, Murray's, Lady Hall, and other *aliases*. In the summer of 1824, a tall stack of Oats was observed growing on Mungoswells, and in the following spring its seeds were sown beside several known varieties, the plants at harvest being still conspicuous for height. This variety became the Hopetoun Oat. On the farm of Drem, in 1832, there was picked up an ear of Wheat containing 99 grains—other three having dropped out before it came into my possession. From this ear Hopetoun Wheat was propagated, and although the name has been pretty generally retained, it is sometimes known in the west of Scotland as White Hunter's. The next cereal introduced into field practice was Shirreff's Oat, which is seldom to be met with in Haddinton market at the present time, but is generally to be had at Dalkeith, and also at Kelso, where it is known by the name "Make-him-rich."

Improvement had hitherto been taken up by fits and starts, and it was resolved to pursue the object systematically. With this view, Wheat fields far and near were examined, and ears selected for propagating their seeds, so that the experimental Wheat plot of 1857 contained plants of nearly all the kinds cultivated in Britain, together with plants from the seeds of ears which had been selected in the previous summer. From this mode of investigation, the following varieties have been added to the list of farm crops:—Shirreff's Bearded White, Shirreff's Bearded Red, Pringle's, Smith's, and Howden's. Efforts were likewise made to obtain superior Oats in the same way as had been done with Wheat. Twelve or fourteen ears were selected from fields in the neighbourhood of Haddington, and their seeds sown in a comparative trial plot, with 20 old kinds, in the spring of 1863, and from this source the Fellow family arose, consisting of Early Fellow, Fine Fellow, and Long Fellow. Crossing or hybridising varieties of Wheat has been attended with interesting and satisfactory results. Shirreff's Bearded White, with small, round, and pearly-looking seeds, on being fertilised with pollen from Talavera (famed for size and quality of grain), produced King Richard, scarcely equalled for length and strength of straw, and, if statements from various parts of Britain are to be relied on, unequalled for beauty of flour. Two varieties have sported from King Richard, which have been named King Red Chaff and King Beard. Both have been handed, for the purpose of propagating, to Mr. Begbie, Barneyhill, and are likely soon to attract notice. The named varieties from this cross inherit much of size and quality of Talavera. From experiments in the present year by crossing, new varieties are expected to be eight days earlier than the present ones.

Plants and animals play important parts in the economy of a well-managed arable farm in East Lothian. Animals, while being fattened, supply the means for promoting the growth of plants which are cultivated, and every addition to the vegetable produce increases the means of fattening live stock. Thus plants can be made to act and react upon each other, and through these agents the condition of the farm may be kept stationary, progressive, or deteriorating. But on such a farm animals ought to be considered of less importance than plants, because the latter forms the foundation and largest portion of the farmer's wealth, and without plants animals cannot exist. Agricultural associations devote almost their whole attention to animals, and the favourable change which all of them have undergone, from the ox to the bantam, testifies to the farmer's influence over the objects of his care. But, confining our view to the cereals, let us see what is done to improve this class of plants. Seed shows are held and premiums awarded, the competing parcels being previously prepared for exhibition by being frequently passed before a blower, round and round a sieve, and, if necessary, hand-picked over plates, or even tossed on a blanket. By these means the seeds of weeds are got rid of; but such appliances cannot change the nature of the grain.

The state of the cereals may be judged from what is seen at our great agricultural gatherings; and the recent meeting of the Royal Agricultural Society of England at Manchester afforded opportunity of examining into this matter. At the stall of the Society's seedsman Wheat was displayed in small bundles of ears, in small samples of grain, and in clusters of ears arranged on pasteboard. This kind did not exceed 12 or 14, and very few were correctly named. Oats were in a similar state of neglect and confusion, small bundles of ears being artistically displayed, interspersed with the words "Black Tartar" and "White Tartar." There were also grain samples—about 20 ears—each spread separately out on pasteboard and hanging upon the wall, all numbered, but very few named. After a careful scrutiny, no member of the Fellow family could be found, and the much older Hopetoun Oat was also wanting. This extensive stall did not cantain a cereal with which the name of Shirreff could be associated, unless it was the Shirreff Oat. At the last meeting of the Highland Society at Edinburgh, the most distinguished collection of seeds could boast of six varieties of Wheat in large sacks, marked with six different names; but there was little doubt of four of them being one and the same variety, and that none of the applied names was the correct one. Almost every species of plant can be modified by skilful treatment; and if improvement is seldomer seen in the field than in the garden, it may perhaps be owing to farmers viewing each kind of crop as a whole, and overlooking individual plants. Besides, gardeners are brought more closely into contact with individual plants, by studying their properties and habits; but in both professions similar measures will be followed by similar results. About 40 years ago there was laid before a society in East Lothian a plan for improving cereals, which was well received and favourably inaugurated; but eventually it was strangled from dislike to its author. This public, and, perhaps, unparalleled, recognition for having been instrumental in introducing new farm plants is particularly gratifying to me; but high as the pleasure may be arising from this source, it is equalled, if not supassed, by the evidence afforded of so many agriculturists being alive to the usefulness and propriety of improving the plants they cultivate. [The above remarks were made last week at Haddington by Mr. Patrick Shirreff, of East Lothian, on the occasion of a dinner given in his honour by his friends and neighbours.]

SEED WHEAT.

As ye sow, so shall ye reap. There is no doubt about it. Other things being equal, superior seed gives a superior return. And until we adopt, as a system, the same care and selection of growing and saving seed that the most careful breeders do in breeding for the improvement of their stock, we shall fall short of obtaining as fully developed crops as are of comparatively easy attainment. Every item of farm labour performed with care and good judgment pays well, but not one pays more abundantly than this of selecting and saving seed. A vast difference is realised, whether we plant the best seed—plump, full of nutriment—or blasted, or shrunken, where the germ of life is but just sufficient to vegetate. Such seed may come up and grow, but it is tardy in coming up, and still more tardy in growing; and being of a weakly growth, is also much more liable to disease than that from good healthy seed.

It is by careful attention to little things that the farmer is enabled to improve his crops from year to year, and thus to increase his fortune; for in farming, perhaps more than in any other calling, is good luck made up of attention to minor matters of detail.

But is it every decent looking sample that may be offered in the market that is worthy of the name of "seed wheat?" It is not. Good stocks ever do best, just as a pure-bred animal will thrive where a mongrel will starve. Take an analogous case: if a half-bred ewe is put to a pure-bred tup, the produce follows the sire; and one ram lamb in ten may even seem nearly as well bred as his progenitor. But use him with a similar class of ewe, in hopes of obtaining the like results, and failure is certain. So a Wheat that has been long, carefully, and successfully grown on the same soil, possesses inherent aptitudes and peculiarities which no chance cultivation can ever reach. In the stocks offered such qualities may be expected, and a vigorous prolific growth usually follows. Even at present prices, there is no better investment than in judiciously selected seed.

The cultivation of Wheat was the subject of discussion at the East Lothian Farmers' Club at one of the meetings last autumn, and it is noticeable that every one who took part in the discussion agreed as to the value of a judicious change of seed. Several of the leading speakers—Mr. Mill, Luggate; Mr. Elder, Bearford; and others—we have in previous years had the pleasure of supplying with seed. In ordering from us last season, Mr. Smith, of Stevenson Mains, said "I have got the premium two years in succession with Browick Wheat."

One word as to the origin of Browick Wheat, which we chiefly supply from this district, and we have done.

Five-and-twenty years ago last month, a Norfolk farmer was walking about among his reapers. A greater amount of personal oversight was probably needed then than now—for reaping-machines were not the order of the day. In going along by the standing corn, his eye was caught by the appearance of an ear somewhat different from the rest—fuller, and more equally developed from top to bottom, without dwindling away towards the apex. It was on a good stiff-strawed stem; and second thoughts led to its being carefully pulled up and carried home. In another month each grain was dibbled singly, 6 inches apart, in the farmer's garden. Towards harvest it had to be threaded to keep off the birds, for they like these small patches best. But the new Wheat—for a new variety it certainly proved to be—well repaid the pains and care bestowed upon it, and retained all its original characteristics of full, plump grain, square, equable ear, and clean stiff straw, with little liability for being lodged or sprouted in a wet season. In two years a small field was sown with it. It proved more prolific than any sorts tried alongside; neighbours wanted to try it, and readily paid a long price for it.

This occurred on a farm at the hamlet of Browick and parish of Wymondham. The painstaking grower was Mr. Robert Banham, who is, we are glad to say, still alive. May many happy days be in store for him! It was first offered to the public in 1848, and has annually been so ever since. From this small beginning, Browick Wheat has extended itself far and wide, until it is probably the most extensively grown Wheat in England. Nor has it confined itself to this country; for a Wheat grower near Dieppe informed us some time since that he every season purchases 80 quarters of it in Mark Lane, to be sent over for his own sowing. Ten years ago we were requested to send to a French marquis, in the department of Vaucluse, one quarter of it for trial, and had only half its produce year by year been sown since, it would now supply seed Wheat sufficient for France. "Let no one despise the day of small things."

The secret of Mr. Banham's success is probably this: He has repeatedly re-selected his stock, starting afresh from the finest ear he could obtain; thus getting, in the highest sense of the term, a "pedigree" to his Wheat. And hence also the oft-noticed fact is accounted for, that seed obtained direct from him has a greater robustness of growth than when grown several years on the same farm without the change of seed. On this principle any farmer has it in his power to obtain fresh seed, as it were, on his own farm, by simply taking the proper pains. Nothing that is worth doing in the world can be done without pains. The oft-repeated quotation about the man who makes two blades of Grass grow where only one grew before being a benefactor to his race, is surely in a high degree applicable to Mr. Banham. Therefore "honour to whom honour is due." *The Autumn Circular of T. Bowick & Co., Bedford.*

Home Correspondence.

Interest and Wear and Tear.—According to "G. A. H." (p. 1144) I am a bad "accountant." This implies that he is a good one, inasmuch as he sets himself up as a judge in such matters. This may be true, yet for all that he is a bad one at "estimates," or he would not have "reckoned" my work at 225 acres a year. The work on my farm has for 15 years been regularly recorded, and never until this year did it reach 100 acres, and here is the reason why it has done so this year. On September 29 last I entered upon 131 acres more land, of which 70 are in Grass, and 61 are under the plough. The latter is heavy clay, adjoining my old heavy clay-land. This has made it necessary that I should rearrange my farm: 10 acres of this additional ploughed land has been sown for permanent Grass, and the remaining 51 acres have been thrown together with my old ploughed land. The fields now stand thus—No. 1, 16¼ acres; No. 2, 22¾ acres; No. 3, 28 acres; and No. 4, 23 acres. The two former represent my old ploughed land, and the two latter represent my new ploughed land; and if you look at my letter published last week you may see that I did 20 acres in No. 3. This it is that has raised my quantity this year to over 100 acres. My occupation of arable land was 112 acres: hereafter it will be 163 acres. Why "G. A. H." should "estimate" my year's work at 225 acres I want to know, for he has got no data till now that my occupation was over 112 acres. If he had been careful in reading my letters he would have known that I never go twice over my land by steam-power for a crop, and he would also have known that I condemn such practice when carried out by others who do. My letter last week will show to him that my work this year on my 163 acres is 109 acres, and that is all, excepting 17 acres that I shall work next March for Peas. You have explained to him the 1*s.* 6*d.* per acre for interest and wear and tear.

but let me remind him that the Royal Agricultural Society took 200 days as the datum on which they made their calculations when they awarded the great 500*l.* prize at Chester; therefore I have no trouble to clear myself of his "alleged miscalculations;" and if Mr. Mechi can get out of his mess as easily he will not hurt. My great object in the application of steam-power to the cultivation of the soil is to get deep and clean seed-beds at the cheapest cost. This year I have got a seed-bed on 51 acres of Wheat at 6*s.* 8*d.* per acre; on 6 acres, after Mangels for Wheat, at 2*s.* per acre; and my ridging and subsoiling, from 10 to 12 inches deep, stands at 6*s.* 7*d.* per acre. These are figures that I pride myself in being able to show, and I am proud to support them (when questioned) with the data on which they are based; and I will show the condition of my land against any man's land; but I will not work land twice over by steam-power for the sake of appearances, and being busy with my tackle for no useful purpose. If "G. A. H." is learned as "an accountant," he has got a lot to learn about steam-power and culture; therefore, let me give him this little dose. I must, however, give him my "account of repairs:"—

1 new share to ridging plough	£0 2 0
8 new shares to smasher..	0 8 0
Total	£0 10 0

Since writing the preceding, it has occurred to me that I ought to have gone into the interest of money, and wear and tear question, to show that in my case no extra capital is needed to work my farm by steam. My old arable land needed six horses to work it under horse culture. Under steam culture I have never used but three, and they, as I have heretofore shown, only work 118 days a-year. On the farm that I have just bought, four horses have always been kept to work the heavy arable land, and I never knew a profit made by a horse on it; yet I have known of many a dead one. I have started off with five to do the two farms, and this week will complete their work for the year, excepting job work, and that will be very light, for nearly the whole of the tiles are already drawn, and laid upon the new portion of my farm for draining. Therefore, I am a gainer of six horses; let us put them with their tackle and implements to work with, at 40*l.* each. I need less capital upon that point, 240*l.* Now fix their keeping (less the value of their manure) at 25*l.* each; in this way, at the end of the year, I save 150*l.* Now, let us put the case, taking the half of the engine and tackle, as "G. A. H." says, at 375*l.* Now, for the other side:—

Six horses, with their tackle and implements (less needed)..	£240 0 0
Keep for a year of six horses	150 0 0
Total	£390 0 0

This gives a gain to me at the end of the first year of 15*l.*, therefore no extra money is needed, and I am a gainer every year afterwards of 150*l.* for horse-keeping, to say nothing about the cleaner and deeper farming and increased produce that I get; but I must say something about increased produce, for it has been, and will be, very considerable. My old heavy land under horse culture needed and had a dead fallow every fourth year, yet under steam culture it has never had one, neither will it ever need one, therefore I am a gainer of one-fourth in produce upon that point; and the farm that I have just entered upon has had a portion of dead fallow yearly, this year it had some, and I had to pay by valuation for three ploughings with four horses each ploughing and two scufflings, with half a year's rent and taxes for making them, without getting any produce. Now I shall never need any dead fallow or fallow of any kind upon this farm again, therefore I must hereafter be a great gainer in the shape of increased produce. I take it that "G. A. H." is a traction engineman; I have read a lot about these wonderful things of late, that they are getting them up to from 20 to 40 tons in weight. Years ago I read of less weighty things than these having got stuck in the mud, and it may be that some misty morning or other we may hear of the heavy weights in the mud. I still like my light-weight, that I can depend upon in any weather. Look at my letter last week. It comes out just at the moment when I want it, does the work when work is very valuable, and then gets packed up for the year; and everybody else must have it at the right time if they mean to be gainers by using it as well as having the work done cheap and well. *William Smith, Woolston, Bletchley Station, Bucks, Nov.* 1.

Woolston Steam Ploughing.—I cannot see why you should assume (see p. 1145) that 1*s.* 6*d.* per acre means 12*s.* per day, and then say that 100 days would give 60*l.* for interest, and wear and tear and depreciation. Does Mr. Smith work his tackle for 100 days? I trow not, otherwise he ploughs only an acre a day. Mr. Smith professed to give us facts and not theory; and if he does not keep his engine at work ploughing for 100 days, what right has he to put down 1*s.* 6*d.* per acre as the actual cost for interest and wear and tear? If Mr. Mechi did anything so utterly contrary to honest accounts, I warrant Woolston would be down upon Tiptree with a vengeance. If Mr. Toepffer were fool enough to tell his shareholders that 1*s.* 6*d.* per acre was ample to cover "interest and wear and tear," and were to advise them to set that sum aside for that purpose; and if he were, moreover, to hold his tongue about "depreciation," no one would laugh more loudly than Mr. Smith at the "blind advice." Yet, what is the blind advice that Mr. Smith is giving to his brother farmers? Why, simply to buy a set of steam ploughing tackle to cultivate 109 acres with. And then he says they will be able to make seed-beds for Wheat at 6*s.* 8*d.* per acre and seed-beds for roots or Beans at 6*s.* 7*d.* per acre. When Mr. Smith says he has made a seed-bed for 6*s.* 8*d.* per acre, I tell him he is deceiving himself, and in deceiving himself he is deceiving the public; for the sum of 1*s.* 6*d.* per acre put down for interest and wear and tear is a "mere estimate" (and a very ridiculous one); and besides this, he keeps out of sight altogether a very material item in the cost, viz., "depreciation." If I mistake not, Mr. Smith began with a much smaller engine than he has now. How much did he lose in it when he sold it? How much, too, did his present large engine cost? and how much does he suppose he will lose on it when in two or three years' time he replaces it with a road locomotive? It will not do for Mr. Smith to tell us he brings down his expenses, and makes up the interest and wear and tear by hiring out his ploughing apparatus to his neighbours (if he does do so), for a horse farmer might as reasonably say that his seed-bed only costs him so and so, because he makes a profit by hiring out his horses and waggons to the parson or the squire when they want some coal drawn. Moreover, if I mistake not, there was not long ago a terrible row kicked up because in the Tiptree accounts a small sum was put down as having been received by Mr. Mechi from his neighbours for grinding some corn with his little fixed engine which he has had for the last 20 years. If, too, Mr. Smith can scuffle heavy clay-land with horses for 2*s.* per acre, I think he must be a hen. A hen could scratch, and so could he; but I do not think that either of them would scratch it very deep. I have a 5-tine Coleman cultivator that works 3½ feet wide; and it is very hard work for four horses to do three and a half acres per day, and that costs me 14*s.*, or 4*s.* per acre. *G. A. H.*

Wages and Education.—Upon the condition of the agricultural labourer of the fens, allow me to give my experience as an employer and practical farmer. Much has been said about the "down-trodden," helpless state of the labouring class, but I must at once protest against those terms being applied to the labourer in this district (the Isle of Ely). I am now paying my men 12*s.* per week, some of whom have boys also working for me at 5*s.* and 6*s.* a week; and nearly all last month the wife, when she could go to work, was earning 1*s.* 3*d.* per day Potato picking, and in the spring for many weeks together women here obtain employment at 1*s.* per day weeding. Looking over the harvest labour account, I find that each set—that is, the man, his wife, and a child, or in some cases two children, during the 12 days they were cutting, earned on an average about 8*l.*: after this time, for 10 days, the men received 3*s.* 6*d.* and six pints of beer a day, whilst carting, stacking, &c. It may be said that this does not affect the question of their down-trodden state; but I think it will be allowed that a man who knows his work and does it, also knows that his labour is worth the wage he receives; and that at the end of the week when paid, he and his master are under no obligations the one to the other. That several—I cannot say many—of my best labourers, men who have been working for me for more than 20 years, can neither read nor write, is, I confess, a matter of regret; but in every case where these men have children, they have received a sufficient education to be able to read the Bible to their parents, to write fairly, and to tell, with a little consideration and a scratch of the head—for that process seems to have some occult virtue in calculation—the number of 7 lb. linseed cakes required to be crushed to give 24 fatting bullocks 6 lb. each; and I think that such an education is sufficient for them, in the station in life to which they have been called. What earthly use would it be to teach these lads astronomy, or the use of the globes? We cannot all be classical scholars, like Canon Girdlestone, or Mr. Beales, M.A., and I fancy those gentlemen would not be thanked by the labourer for his proposed compulsory education; for the poor man, and particularly the agricultural labourer, is very jealous of interference, and any attempt at coercion in connection with the training of his children would only tend to create ill-feeling between him and the authorities. It is not to be supposed that the education of the working-class will be as defective in the next generation as it has been; for as improvement is being carried on in all other matters, so education will continue to keep pace with them. But not by forcing can this be done. The labourer will see the advantage of knowledge, and avail himself of the opportunities afforded him for obtaining it. *Nemesis, Nov.* 9.

Mangel Running to Seed.—Having seen in the *Agricultural Gazette* several paragraphs on Mangels running this year, I give my experience from seed purchased of Messrs. Sutton & Co., sown April 24. A finer or more handsome lot of roots I have never seen. They were the admiration of all who saw them, not one showing the least sign of running. The sorts were the Berkshire Prize Yellow Intermediate, and Long Red and Yellow Mammoth. Having weighed several ranks, in different parts of the field, I found the average was 40 tons per acre. *Thos. Andrews, Box, Nov.* 9.

Foot-and-Mouth Disease.—In one of my byres my herdmen and myself estimate a destruction by the disease of from 80 to 100 stone (of 14 lb.); but this is only a small portion, for the suffering herd has had to be fed almost totally with expensive food—boiled linseed, bran, barley-meal, soaked oil-cake, &c., which, had the cattle been free from the disease, would have produced a large additional amount of beef; besides, my "fag" and pastures are wasting and deteriorating rapidly at this season, and which should have been assisting in producing the people's food. Again, as I have herds in other places free from disease, the hinds should be with their horses upon the arable land preparing for next year's crops. I have, however, been obliged to employ them in attending to the unafflicted stock, and thus the horses are partly idle, and considerably disjointing the farm operations. I was also put to serious inconvenience by Yarm Fair, as the highway runs, or more properly speaking, twists through and round the pastures in which I had 70 head of cattle, and prudence induced me to order these to be removed to fields adjoining the Tees, in which they were overcrowded, with a short supply of Grass for the whole; further, I was most desirous to buy in for winter 40 to 50 Scotch highlanders, but the risk of introducing the foot-and-mouth disease upon my farms deterred me, and therefore the Grass which would have fed these will be greatly wasted. I have also, for cognate reasons, bought no sheep or lambs, and farmers around are deterred sending their cows away from home for breeding purposes. No doubt, if I can preserve the 96 head, which are separated from the contaminated lots, the readier sale and increased price they are realising will go some way to liquidate the losses, from the disease wasting the cattle attacked; but, then, I am disposing of fattening animals which are scarcely fit for market, and thus is inflicted an injury upon the country—as, were it not for the risks of the "foot-and-mouth," I should not push them into the market. *W. A. Wooler, Sadberge Hall, Oct.* 27.

Shirreff's Bearded Wheats.—I read with great pleasure in your journal the proposal of a testimonial to Mr. Patrick Shirreff, as from perusal of the papers he has written, from correspondence, and from experience in the growth of his valuable varieties of Wheat, I am convinced that few persons more deserve an acknowledgment of their services to agriculture. Having had some share in introducing his varieties into Suffolk, I can speak highly of the quality of both his red and white bearded Wheats. I notice that your scientific correspondent (Mr. Brown), in a letter written a few weeks back, says he is informed there are no first-rate bearded varieties; I should be happy to send him an ear and a few kernels of Shirreff's White to prove the contrary, and for his comparative experiments, as to rust, &c., if he continues them this year. This kind has a plump, short kernel, and weighs well this year; the weight here was 18½ stones nett per sack, *i. e.*, 64¾ lb. per bushel; last year it reached 19 stones, or 66½ lb. per bushel. The land in this neighbourhood (near Bury St. Edmund's) is not sufficiently strong or fertile to produce extrordinary Wheat crops, nor can a fine White Wheat vie in point of quality with the coarser Browick or Spalding, yet both the red and white kinds have produced with us 10 sacks per acre. Mr. Brown, in his suggestive letter, is of opinion that vigour of Wheat is shown by the beard, and that probably the fungoid disease (the Take-all) of Australia, might be rendered less destructive by growing vigorous bearded varieties, less subject to blight or rust. I believe this idea is correct, and if so, Shirreff's Wheat would be well worth an Australian trial. I would make another suggestion: the Hessian fly is in many districts in America so very destructive to the grains of Wheat, that the cultivators have been compelled to grow a coarse kind of Rivetts, there called "anti-fly," which is guarded by its beard from the attack of the egg-producing fly. Now, if Shirreff's bearded Wheats should prove similarly exempt from attack, what a gain is here, both to Australia and America, and what an inducement to the suffering cultivators there to assist in the proposed testimonial. Whether bearded varieties are exempt from attacks of fly and Fungus, and if so, to what extent, is well worth investigation and experiment, and I would wish to call the attention of Mr. Brown, and other scientific men, to the subject. *W. R., November* 3.

Foreign Correspondence.

TORONTO: *Canadian Agriculture.*—The *Toronto Weekly Globe* of October 15 contains two articles on the remarks of a writer in the *Agricultural Gazette* of August 28, the substance of which you will no doubt be glad to lay before your readers. The difficulties in the way of Wheat growing on both sides of the St. Lawrence, to which your contributor had referred, lie not in any extreme rigour of the climate north of the river which he points out, or in any natural poverty of so much of the soil, but in the prevalence of the Wheat midge. It is this which has for a number of years past "devastated our Wheat crops, and caused that falling off in exports which we all feel so acutely, and suffer from so much." It is, however, from another article in the same paper that I shall ask you to give your readers some extracts. The writer says:—"I have lived in Canada 37 years, and during that time have been intimately acquainted with the Wheat-producing capabilities of every section of this Province, from Kingston to Sarnia, and northward from Lake Ontario to Cabot's Head, as well as those of very many portions of the United States, and must beg to differ most materially from the writer in the *Agricultural Gazette*, and the excellent authorities whom he quotes. Canada has not, as far as the land in Canada is concerned, disappointed any reasonable practical agriculturist in regard to her Wheat-growing powers. I have myself a hundred times verified by actual measurement very large yields of the best Wheat, often 30 to 40 and 50 bushels per acre—those yields occasionally extending over large areas. Only last year a tenant of mine harvested and measured 37½ bushels of good fall Wheat per acre from a field of about 18 acres, and the country papers are often found to contain statements, in which name, lot and concession are mentioned, where 50 bushels of excellent Wheat are harvested to the acre. Instances can be mentioned by the thousand of such yields as 30 to 35 bushels to the acre, and for Barley, Peas, and Oats, there is no country that will and does produce per acre more of these so-called coarser grains. It is not the fault of the land or climate—it is simply want of knowlege, capital, and above all, the low prices of produce, compared with the high cost of labour, deterring the Canadian husbandman from the necessary draining, and the heavy expenditure for manures that the English agriculturist so freely lavishes his money on. These are causes that render Wheat growing here more preca-

rious and less profitable than in the mother country. The fact that we see those heavy occasional yields so often quoted, and at the same time well know that the average yield often does not exceed one-half or one-third of those quantities, is due to many causes, not at all the fault of Canada generally, or the climate or soil, or its want of adaptation to Wheat culture.

"Now, and of late years, we have been compelled to sow such Wheat as will ripen in July instead of August, and thereby escape the dreaded ravages of the midge, notwithstanding our certain knowledge that the crop will not exceed one-half of other varieties. We are now so certain in some sections of destruction by midge to the best and most productive Wheats, that we consider it advisable to throw away one-half by sowing unproductive sorts, and thereby secure half a crop.

"Canada is in no way to blame for this. When I first came here there was no midge, nor for many years afterwards was the first imported. In many portions of the earlier injured parts of Canada, such as the frontier townships on Lake Ontario, a most sensible decrease in the midge and its ravages is now felt. Many are again growing Soule's Wheat, and are consequently obtaining once more heavy yields; and no doubt whatever exists that the parasite that Providence usually causes to accompany all such plagues has begun to assert its powers, and that we are feeling the benefits therefrom.

"But all these drawbacks are not due to Canada's ceasing to have the power of producing Wheat, nor are they due to its so-called rigorous climate. They are more properly due to the importation from other countries, along with emigration, of evils originating and prevailing elsewhere." *X.*

Societies.

HIGHLAND AND AGRICULTURAL.

AT the ordinary monthly meeting of the directors of this Society, on the report by the committee appointed to conduct the trial of implements, which took place on the farm of Nether Liberton on the 17th of August last, the directors awarded the following premiums:—

1st, Silver Medals to

Brigham & Bickerton, Berwick-on-Tweed, for side-delivery reaper.
A. C. Bamlet, Thirsk, for self-delivery reaper.
Brigham & Bickerton, for two-horse manual-delivery reaper.
J. & A. Douglas, Stranraer, for rotary hand-delivery reaper.
John Gregory, Weston, South Shields, for one-horse manual-delivery reaper.
R. L. Mactaggart, Edinburgh, for mower, manufactured by W. A. Wood, London.
Lillie, Goodlet, Elder & Co., Berwick-on-Tweed, for combined reaper and mower.
Robert Mitchell & Son, Peterhead, for double-furrow plough.
David Robertson, 153, Queen Street, Glasgow, for Phillips' pneumatic fire extinguisher.

2d, Medium Silver Medals to

Brigham & Bickerton, for side-delivery reaper.
Alexander Jack & Sons, Maybole, for two-horse manual-delivery reaper.
Andrew Hogarth, Kelso, for Border Chief reaper.
Samuelson & Co., Banbury, for Eclipse reaper.
Picksley, Sims & Co., Leigh, for mower.
Brigham & Bickerton, for combined reaper and mower.
Thomas Pirie & Co., Kinmundy, Aberdeen, for double-furrow plough.

3d, Commendation Medals to

Samuelson & Co., Banbury, for side-delivery reaper.
Lillie, Goodlet, Elder & Co., for two-horse manual-delivery reaper.
A. C. Bamlet, Thirsk, for one-horse manual-delivery reaper.
John Fowler & Co., Edinburgh and Leeds, for double-furrow plough.

Dumfries Show, 1870.—It was remitted to the Committee on General Shows to fix the money premiums and adjust the regulations for the show to be held at Dumfries next year.

Proposed Show in 1871.—Mr. F. N. Menzies read a letter from Mr. Smythe of Methven, convener of Perthshire, transmitting a requisition to the directors to hold the general show at Perth in the year 1871, for the district comprising the eastern division of Perthshire, western division of Forfarshire, Fifeshire, and Kinross-shire.

Farmers' Clubs.

NEWCASTLE.

Sheep Farming on Strong Land.—At a late meeting of this Club, Mr. WILLIAM BELL, of Harlow Hill, read a paper on this subject. He said:—This is of considerable importance, and must frequently have engaged the attention of all concerned in the cultivation of strong land, and more especially in this county, where land of this character is so extensive. Taking into consideration the improbability of a permanent rise in the price of grain, the increasing demand for labour, and, on the other hand, the enhanced price of butcher meat and consequent demand for pasturage, it becomes all the more imperative that the subject should be considered in all its bearings, and some decision arrived at as to the best mode of applying it to feeding purposes. On such soils the cereal crops are chiefly depended upon, and in the preparation for them, if the expenditure cannot be curtailed, or an increase takes place in the price of the produce, or crops of a more valuable description can be substituted, it appears to be very improbable that after the improvement effected by drainage the land will be much further increased in value. By the use of manures and good management it will be brought to a higher state of cultivation, thereby yielding a larger produce; but too frequently, as soon as these are withdrawn, it recedes to its former state. On the less retentive portions, Turnips, Rape, and Cabbages may be grown; but it is important to inquire whether these can be grown to advantage. For such crops it is essential to have the land prepared and the seed sown in proper season; and as the disadvantage of commencing operations too early is well known, the work must be performed in a much more limited time than is required on land of a freer nature; consequently more horse-power is required, greater expense and risk are entailed, and the objections to consuming the crops on the ground are so great as scarcely to warrant the production of them to any great extent. However, I believe it will be generally admitted that of the above-mentioned roots the cultivation of the Turnip will be found most profitable; and as there exists a diversity of opinion as to whether strong arable soils capable of growing green crops can be more remuneratively employed in the feeding of stock than if laid to Grass, I will endeavour to show the number of sheep likely to be profitably fed on the Turnips grown on such land, worked on the four-course system—assuming the roots are drawn off the land as early as possible—stored up and consumed upon a dry and well-sheltered pasture, care being taken that the land from which they are led is sufficiently dry to prevent it from being poached or cut in the operation, otherwise it not unfrequently follows that a deficiency is experienced in the yield of the succeeding corn and hay crops. I may here mention that sheep fed under cover will consume a less quantity of food, and perhaps feed quicker; but by such a mode I don't think there is much to be gained; they require considerably more attention, and if laid on to Grass in the spring, I have noticed that they do not make the same progress or feed so quickly as those fed in the usual way.

The extent of strong land a man and a pair of horses will be able to cultivate on the four-course system, one fourth being in Turnips, is 44 acres. We have first 11 acres Turnips, averaging say 14 tons per acre; and as a sheep cannot be depended upon leaving more than 3*s.* 4*d.* per month, and will consume in that time about 7 cwt. of Turnips, the 11 acres of Turnips will carry 73 sheep six months, leaving 73*l.*; 11 acres of Barley, 5 quarters per acre, at 28*s.* per quarter, 77*l.*; 11 acres of hay, 1 ton per acre, at 4*l.* per ton, 44*l.*; 11 acres of Oats, 5 quarters per acre, at 20*s.* per quarter, 55*l.*; 11 acres of Oat straw, 11*l.*—making a total of 260*l.* for the 44 acres. The straw and hay supposed to be eaten on the premises, and the manure made to be applied to the land for the corn crops. From the above we must deduct expenses as follows:—Keep of horses, wages for man, small work, blacksmith and joiner's work, &c., 110*l.*; seed for the above-named crops, 17*l.*; manure for Turnips, 27*l.* 10*s.* From the average value of crops we may put down rent, including rates, at 28*s.* per acre, *i.e.*, 61*l.* 12*s.*; total, 216*l.* 2*s.* The capital required will be six times the rent, or say 369*l.*, and the amount of profit, after deducting the expenses, being 43*l.* 8*s.*, is at the rate of 11*l.* 15*s.* per cent. for interest on capital, management, and casualties. You will perceive by those figures that the average yield of crops has not been taken, but is still liable to be affected by unfavourable seasons. Assuming such land to be worked with a bare fallow, 60 acres will be as easily cultivated with the same capital and at the same cost as 44 acres with a root crop; and calculating on the same principle, making allowance for extra small work and manure, which the root crop requires, it will be found to leave 13*l.* 10*s.* per cent., showing that the advantage of a Turnip crop on strong soils is more than met by the additional cost it is attainable at. From the above calculations it would appear to be unprofitable to grow root crops purposely for the feeding of the sheep on soils where they cannot be advisedly consumed, though, when horses are not kept solely for the purpose of working the whole of a strong fallow quarter for a root crop, to a certain extent a portion may be grown to advantage to assist in breaking up the straw, and carrying store cattle and sheep over the winter. On fine working soils the result is entirely different, they being worked at considerably less expense, and the roots drawn off or consumed on the ground, and the land ploughed at almost any season without incurring scarcely any risk to the succeeding crops. How, then, are we to keep pace in supplying a population increasing at the rate of about 200,000 per year with butcher meat? It has been suggested, to increase the stock in this country, that a prohibition of the slaughter of lambs and calves would be beneficial; but when we consider that even at present no hay, straw, Turnips, or Grass, go unconsumed, it appears such a mode would only tend to enforce the slaughter of older animals. The impossibility of increasing the stock without first increasing the articles of food for them must be evident to all; and the weekly variation of about 2*s.* per stone in the quality of cattle sold in our fat markets, is a proof that there is an ample supply of store stock in the country, and a scarcity of food to bring it to perfection.

On looking at the agricultural statistics which have been recently issued, we find 870,857 acres standing under the head of bare fallow. Now, supposing it to be cultivated on the four-field system, which is likely to be most generally adopted on inferior soils, we have 3,483,428 acres of this class of land in England and Wales; and, judging from what we see around us, comparatively speaking, doing little towards the keeping and feeding of stock. Then what might we suppose would be the result if a large portion of this description of land was laid down to pasture?—taking, for instance, the 44 acres to feed 73 sheep six months, and assuming it to be sown away with a spring corn crop. The capital required will be about 9*l.* per acre, or say 396*l.*, viz., 30*s.* per acre for seeds, 50*s.* per acre for manure for a top-dressing in the spring following the cutting of the corn, leaving 5*l.* per acre for the purchase of stock, management, &c. Now, it may with safety be estimated that one acre will carry two sheep throughout the year, and a sheep calculated to leave 2*s.* 6*d.* per month. We find on deducting rent, that the 44 acres will carry 88 sheep, and leave a profit of 17*l.* 15*s.* per cent., less the usual losses a sheep stock is subject to—against 44 acres arable feeding 73 six months, and leaving 11*l.* 15*s.* per cent. And assuming out of 3,483,428 acres of this kind of land there are 2,500,000 on which, from the nature of the soil, a root crop cannot be advantageously grown; and supposing it, after having been laid out by draining, to be sown to Grass in such a way as to enable it to carry two sheep to the acre, by this means the sheep stock of this country would be increased by 5,000,000, and mutton and wool produced to the value of 7,500,000*l.* per year. And as a sheep leaving 30*s.* should produce 2¾ stones of mutton, the addition to the country in butcher-meat would be 85,937½ tons, and equal to a yearly importation of 343,750 foreign cattle averaging 40 stones each. From this statement it must not be inferred that it is most beneficial to graze new lands solely with sheep, or that they will convert Grass into a greater weight of meat than cattle, but merely to give an idea of how our home supply of animal food might be augmented. The supply being regulated by the demand, stock of either description would be reared accordingly. Nor do I think any serious loss need be apprehended to the country in corn and straw.

Reviews.

On the Management of a Home Farm. By T. Bowick. W. Tweedie, 337, Strand, W.C.

This is a reprint of a very good prize essay, on a subject which interests a good many people. We extract a passage of general interest, on the influence of the landowner's home farm on the agriculture of the district:—

"The influence exerted on the neighbourhood at large depends greatly upon the nature of the management pursued. In some narrow minds there is a lurking prejudice, which manifests itself in this wise: "Ah, it may do very well for his lordship, but if there were a rent to pay, things would not be done quite in that fashion." If such a spirit is to be deprecated, neither should frequent occasion be given for its manifestation; still, where improvements are steadily pursued, and most new plans get a trial, failures must now and then occur; but failure often reads us as useful a lesson as success can ever do. If, then, an open, generous spirit pervades the whole, which conceals nothing, but welcomes truth in whatever garb, it may surely disregard cavilling of the sort alluded to at an occasional mischance. If the landlord's management be not exactly a pattern for his tenantry, yet its influence may be none the less useful or desirable.

"But a much more tangible influence is exerted where a thorough-bred bull, or stallion, is kept not only for the use of the home farm, but for the benefit of the tenantry as well. If pure-bred bull calves are also disposed of to those on the property at reasonable prices, material improvement in the stock may be expected. In like manner select varieties of seed corn, clean and true, may be disseminated with much advantage.

"Great difference of opinion exists as to whether the landlord and tenant should come into competition together at district agricultural associations. It is contended, on the one hand, that the former, from their larger means, have an unfair advantage over the other class as competitors. These objectors seem to overlook the simple fact that tenants take fully as many prizes as landlords have ever done. Rather, then, let this honourable rivalry continue.

"Upon the labourers of the district a material effect for good or evil may be produced by the manner in which such farms are conducted. If wages are higher than in the locality generally—which is often the case—there will be little difficulty in obtaining the best hands for constant employment; and if both good morals and expert workmanship be fairly recognised, a staff of men may be raised up of whom the employer may well be proud. Opportunity is thus afforded to those who wish to better themselves in the world to do so. Referring to but the past three or four years of our own experience in this respect, we can at this moment point to various hands, now in a higher position, who availed themselves of such opportunities. One is managing a farm for a widow lady near Coventry, another is bailiff to a gentleman in Wilts, a third is foreman to a good farmer in another locality, a fourth and a fifth are in charge of lads at a reformatory institution, a sixth is assistant teacher in a district school, two are engine-drivers, one a railway porter, while nearly a dozen boys have moved to better positions. Were we allowed to suggest, we would say, Never take on a permanent hand without obtaining a satisfactory written character, and never part with a man without furnishing him with a similar document, if he is worthy of it. Show men that character is of value in the world. Looking further back, we may refer to another case, in which three young men were employed on the Royal Agricultural College Farm, earning at that time—for wages were low—but 9*s.* or 10*s.* per week. Of these three, one has done well in the colonies, another is resident agent to a Berkshire baronet, and the third (the writer) is bailiff to a nobleman in one of the midland counties.

"Good hands for drilling, ploughing, stacking, &c., with a first-class shepherd and cowman, should be found upon every home farm. The other appointments will then match one another; the team will be well fed and lively-going, the harness well kept, with a spice of display about it; the stock will have an air of comfort, and the implements will be in good order, and in their proper places.

"But there is one drawback in having wages higher than the current rate of the district—the difficulty of setting piece-work to the hands, unless at a somewhat extravagant price. Now, piece-work should of all things be cultivated wherever practicable. It has many advantages, both for employer and employed, and not

the less because slack hands (for such will get in among others) have an idea that it is not needful to work quite so hard for the squire as for other employers. It is an excellent and praiseworthy plan to let the hands off on Saturday afternoon, say at four o'clock, summer and winter. It is a boon which they will value; its loss to the employer is not appreciable, and it affords an example worthy of imitation.

"Upon the owner himself a beneficial influence will assuredly be exerted, if he gives moderate attention to the farm in his own occupation. He gets a greater insight into rural affairs, he is better able to judge of all that pertains thereto, and he can more readily sympathise with the losses which his tenants at any time experience."

A Pharmacopœia, including the Outlines of Materia Medica, &c., for the Use of Practitioners and Students of Veterinary Medicine. By Richard V. Tuson, F.C.S., Professor of Chemistry and Materia Medica at the Royal Veterinary College, &c. John Churchill & Son, New Burlington Street.

A trustworthy dictionary of the various substance used in veterinary medicine, with their synonyms, composition, modes of preparation, actions and uses, doses, modes of application, antidotes, &c. Professor Tuson is an unquestionable authority on all these subjects.

Farm Memoranda.

HAMPSHIRE.—This, our usual record of agricultural matters, has been somewhat delayed by other pressing engagements. It is, however, an interesting period of the year to all engaged in the occupation of land, as it is now that the various crops of grain and Pulse have been tested by threshing, and the various root crops as food for cattle are showing and promising in their bulk and value. The aggregate produce of the county generally was never better, reckoning the food for man and cattle. It is true the produce of the Wheat crop this year is more difficult to estimate than usual, owing to the great disparity in produce, which, in some instances, amounts to only half a crop, in others a full crop, in fields of similar soil and cultivation; it must, therefore, be written as a bare average, and this view of the case is somewhat strengthened by the rates at which it is selling. Barley is a fair average crop, of indifferent quality. Oats a little over an average, both in weight and quantity. Beans and Peas are a good average produce. Hay, both field and meadow produce, was a full crop and well saved. There is a good bulk and quality of early crops, both Mangel and Swedish Turnips, and also the latter varieties of common Turnips are very promising, and more than usually so on the chalk hill farms. Cabbages of various sorts are coming into use more than formerly in field cultivation, being found good wholesome food for all the stock of the farm, and are ready for use earlier than other root crops. Cabbages this year planted the last week in June were fit for use September 1, and by setting after a green crop they are certain to succeed.

The large provision of cattle food has led to a very great and rapid rise in the price of store stock, and from Wilton Fair, September 13, to Winchester Fair, October 23, the increased value may be stated at from 7*s.* to 8*s.* per head, and even at this price it may fairly be expected that sheep will give an increase of value over cost price equal to the average of seasons. The breeders of stock on the hill farms ought to be satisfied with present prices, for although their stock sold very low last year, the average of three years must be satisfactory. In anticipation of prices for meat through the winter and spring months, many parties consider that it must be lower on account of the large quantity of cattle food to be consumed; but it should be remembered that we used to get, years ago, a large number of well-fed sheep and cattle at our fairs. But this is not the case at present, excepting exhibition stock, showing there is no accumulation of fat stock, but the reverse, and that the requirements of the consumer are so great that we are (notwithstanding an over average breed of lambs for the past three years) drawing very hard upon our supplies to meet the demand, and if our Government statistics are to be relied on, we are now 1,360,000 sheep short in number as compared with the previous year in the United Kingdom. If this is true, mutton and beef, notwithstanding foreign supplies, must be dearer rather than cheaper.

It is satisfactory to know that the flocks of sheep in this county were never more healthy, and that the large numbers of horned ewes which usually come into the southern division at this period are yielding a very numerous fall of lambs, which, together with the ewes, are in fine condition. It is much to be regretted that the same cannot be said of cow cattle, for the foot-and-mouth disease is very prevalent in different parts of the county, and it is generally admitted that recent regulations upon the question are not sufficient to check its extension. We are still receiving large importations of store cattle from Ireland, which sell readily in our ...rs and markets, owing to the abundance of fodder ...d roots. These are of a better description of stock ...an formerly, and are nearly allied to the Shorthorned ...reed, but they do not pay for wintering in straw yards, ...ike well-bred North Devon cattle, nor do they meet with so ready a sale in the spring. Unfortunately the supply of Devon cattle is very limited, hence the ready sale for the Irish importations. *Joseph Blundell, Southampton, Nov.* 3.

SOUTH LANCASHIRE.—The differences of climate in this little island of Great Britain are most surprising. In Lancashire we have had two months of wet and broken weather, interfering seriously with the raising of Potatos and the sowing of Wheat, while in the Midland Counties farmers complain of a want of rain to enable them to work their land. Drainers there will not take piece-work, because the ground is so dry and hard that they cannot make fair wages, and the hunting meets are arranged with the proviso that, unless rain falls, the hounds will not be brought out. In Lancashire Potato raising has been carried on as fast as was practicable, considering the wet weather. The produce is good as to both quantity and quality; but, unfortunately, the disease has set in, and two-thirds of the crop are lost. Growers, for this reason, are hurrying their tubers to market, and will accept very low prices in order to get rid of them. A large grower informed me to-day that his crop, which looked magnificent a few weeks ago, is completely spoiled, and that he has never had so much disease since the fatal Irish famine year. It is fortunate for the community that there is little or no disease in the warp soils in Marshland (Yorkshire), and in Scotland; but the losses in the Ormskirk and Southport districts, where the crop is extensively cultivated, will be serious. Fortunately for them, too, their Wheat crop was remarkably good, and, contrary to the experience of other districts, threshes out well. Their early Potatos, besides, were a sound and profitable crop. It would seem that the warm, muggy weather, and the thunder and lightning in the early part of October, brought on the disease which caught the later sorts. The results of the year's cropping in this district have been,—Grass and hay, very good—much above the average; Wheat very good; Oats very good, but many of them caught by the rain before carried, and injured; early Potatos, an excellent crop; late Potatos, a large produce, but two-thirds spoiled. Barley and Turnips are not much cultivated in this district, but where Swedes and Mangels are grown, the crops are magnificent. It is now excessively cold, and this morning the ground was covered with snow. *W. H. B., Nov.* 10.

The Poultry Yard.

Does Poultry Keeping Pay?—This homely question is frequently asked, but not often answered, or if answered, the replies are not altogether satisfactory. I am not prepared to give other than a general reply, founded upon observation. It is an unquestionable fact that a vast increase in our stock of poultry has taken place within the past few years; *ergo*, the keeping of poultry must be profitable, or they would not be so widely extended or so numerously bred. The rearing and management of farmyard poultry has become quite a scientific business in itself. The old-fashioned farmer's dame is gone, and her broods gone with her. Her geese and her poultry were desirable on the farm when she entered her new husband's home; these she personally tended, and these stock breeders remained till death, natural death, took them off. The modern dame has altogether new ideas of poultry economy. The majority of these modern farmer's dames, I regret to say, abjure for the most part personal attendance, but they have their poultry woman, and to her is committed the management of the poultry of the farm, subject to their supervision and (I must say it is) intelligent direction; for be it fully known, that the breeding and management of poultry has become as much a question of scientific breeding, of choice and selection, of judgment and careful crossing, as in any other department of farm practice or high breeding. Our highly interesting and beautiful poultry shows abundantly testify to this truth. Surprising birds are continually exhibited, and it is from these that fresh stocks are constantly raised. The best birds are speedily brought up, and go to replenish stale stocks, or for the improvement of the breed in many a farmyard—the great aim being to propagate the best breeds of healthy character, coming to great size in the shortest time. To accomplish this *desideratum*, judicious crossings of the very many breeds of poultry are resorted to in keeping to a true breed, the finest specimens alone are retained for breeding purposes. This is again aided by pure and choice selections of the same breed from fresh stocks. A cockerill should never be retained more than two years for service in the same yard, and the hens should be sold off before arriving at old age. Pullets should be kept from the cockerills till they are well grown, otherwise their full growth and development is much retarded, if not altogether curtailed. Most farmers' dames prefer the breeding and raising of poultry for sale, but there are many who prefer keeping a stock of poultry entirely for the production of eggs for sale, and these contend that their's is the most profitable course. It is true that certain breeds of poultry do produce an astonishing number of eggs, for which there is always a ready sale; but to do this a large stock of hens (layers) must be kept, which also entails some rearing to keep up the stock. This large stock is probably more costly to support than a moderate stock of breeding hens with their chickens. I certainly prefer the breeding and rearing for sale; and the way in which most poultry keepers get them up is novel and good. The poultry woman has usually near her residence, or in the farmyard poultry houses, suitable conveniences and nests for the hens to lay and sit in. As they come off, well sheltered hen coops are placed upon some dry spot, and in a warm situation. There the chicks are raised till they are able to provide for themselves. They are then taken to the poultry houses, which are distributed about the farm, and are fixed in the most suitable places upon the farm, and least likely to be detrimental to the cropping by trespass. These poultry houses are generally wooden frame houses, so as to be readily moved from place to place. Occasionally they are used for layers and sitters. They are from 6 to 10 feet square, and 7 or 8 feet in height, and are provided with suitable roosts, entrance, &c., and nests. The young cockerels are taken to a house apart from the pullets, and at a distance sufficient to keep them separate for a considerable time. At these houses they are fed daily, but their chief sustenance is derived from their strolling about in search of worms, flies, insects, berries, roots, weeds, &c., upon which they do well. Prior to harvest they are taken up to the yards, to prevent their mischievous attacks upon the crops. As soon as a field is clear, they are returned to their home and encouraged to pick the stubbles, to which they soon get accustomed. It is in this way that many large poultry establishments are upheld. The fatting is a separate department, and is done in houses or hovels especially provided with corn, meal, Potatos, bran, &c. *O. F.*

Miscellaneous.

The Condition of the Agricultural Labourer.—At a recent meeting of the Ongar Labourers' Friend Society, the Rev. F. A. Fane, one of the vice-presidents, delivered a speech which produced some astonishment. Gesticulating somewhat violently, the rev. gentleman said it was all very well for them to meet and chatter, and praise their good doings, and represent everything they did for the labouring classes in *couleur de rose*; but he was one of those who thought, if there were any points the discussion of which might add either to the improvement of themselves or others, they should "blurt out" their opinions upon them. He thought they ought not to be too squeamish in what they said. He was then understood to recommend wholesome and decent cottages for the respectable poor, and to speak in favour of beer-houses and public-houses being put under better control, rather than closed entirely; for, he said, he drank beer, they (the company) drank beer, and he did not see why they should altogether prevent the working classes from drinking it. What he proposed they should do was to raise the character of the labouring man, and then he would not go to the public-house. They should teach him that the money he spent there was wanted by his wife and family at home. And then they ought to get rid of the Poor-law. He believed that that "horrid law" encouraged improvidence, the parent of all vices, that it destroyed those kind feelings which ought to exist in families, that it separated class from class, that it encouraged fraud, dissipation, and lying. He believed that that law counteracted that which they all wished to encourage—providence, self-support, self-dependence, and frugality. He believed that that law filled our lanes with vagrants, and our public-houses with lazy drunkards. These were startling statements. Then they would ask him what remedy he had to suggest. Was he going to allow the poor to starve, and the sick and infirm to lie upon the roads and die? All who knew him would acquit him of any such thought? He wished to elevate the poor man. He did not wish to see him degraded and disgraced by the Poor-law. He was not very fond of trades' unions in one way, yet in another he admired them, and thought they had done an immensity of good. In some respects, indeed, trades' unions had been a blessing to them. They had shown them what men could do—that men could could support themselves in sickness and infirmity, and in times when they wished to contend against their masters, by their little weekly contributions. Coming to things more local, there was a society in this district of 12,000 people; in that society there were between 700 and 800 labourers, and at the present moment it had 8500*l.* to distribute among them in times of necessity, thus rendering them independent of the world and their parish, and enabling them to hold up their heads as Englishmen. Who, then, would tell him that the working classes could not support themselves? It was the vagabond and the rogue who came upon the parish, the liar and the thief. It would be of the greatest advantage to society in general, and it would be of the greatest benefit, morally and socially, to the poor man himself, if they could lift him from that degraded condition of going and walking before the board of guardians with his head down, to ask a morsel of bread from his brother rate-payers. These were novel views. He knew they struck some hard. He never looked upon the Poor-law as a charitable law, for charity meant ransom, and who ever saw an overseer with a Poor-rate book in his hand, and looked with any love upon him? The Poor-law system was not a charitable one; it was nothing of the sort; it was a maudlin sympathy, and by it they were keeping down the poor man whom they wanted to elevate to take a position among the citizens of this great country. —Mr. Chisenhale-Marsh rose and said he thought it was to be regretted that Mr. Fane had marred an otherwise excellent speech by the comments which he made at the opening of it. It so happened that on the subject of the inefficiency of the Poor-law he agreed with Mr. Fane, but even if he had not he wished to assure Mr. Fane that, so far from his speaking on any subject connected with the welfare of the poor against the will of anybody present, it was, on the contrary, with their thorough acquiescence. God forgive him if he did not meet them there as a true friend of the working man, prepared to listen to any suggestion for his improvement, without its being in any way "blurted out." All he objected to in Mr. Fane's speech was the accusation that they met there to cockle themselves up with the good things of this world, and only to pretend to be the friends of the poor. Did they think he would leave his comfortable home to come there—but, pshaw! why talk of himself? Did they think Mr. Stallibrass would toil as he had done, or Mr. Shepherd, of the Roding society, or Mr. Wentworth, of Harlow, if they had not the welfare of the poor really at heart? He hoped Mr. Fane would not in future intersperse the good things which he said with the insinuation that he was speaking to unwilling ears.—Mr. Fane said he made no accusations. He only wanted people to take his suggestions into consideration.—Mr. Chisenhale-Marsh: Sir, you remember the end, but forget the beginning of your speech. I wish it to be thoroughly understood

that we meet here for the welfare of the poor, and those who do not wish well to the poor are better out of our society.—Mr. Welch was sure Mr. Fane did not mean what he said at the beginning of his speech. He had often sat under Mr. Fane as a preacher, and no man uttered more truth with greater effect. His heart was so good that he hardly knew what he said.—Mr. Fane: I beg most emphatically to say that I don't retract a single word I have uttered. I adhere to what I have stated *in toto*, and I hope the reporters will say so in the newspapers.—Mr. Chisenhale-Marsh: And I hope the reporters will say that that observation was received with a loud laugh.

Calendar of Operations.

NOVEMBER: *Stubble lands.*—In late seasons in the North, where corn harvest is seldom concluded before the end of October, turning over the stubbles is the main work of the ploughs in November. In early seasons, when the harvest is finished by the end of September and beginning of October, and the weather is settled and dry, it is common to autumn fallow, by ploughing, scarifying, and cleaning the land, and also to apply manure; but in late seasons, and even in ordinary ones, the winter furrow is all that the land gets, and when intended for Turnips the following season it is common to plough deep with four horses, or subsoil as directed below. For Peas and Beans farmyard manure is not unfrequently spread upon the stubbles, and either ploughed or ribbed in. Manuring in December is preferred to manuring in early spring, on the twofold ground that it suits the Bean crop better, and that any injury done to the land in carting is rectified by the frost of winter. Up to a recent date the work of ribbing was exclusively done by horses and oxen, but it is now cheaper and much more effectually performed by steam ridging ploughs,—the covering of the manure and the leaving of the land exposed to the weather being both better done.

Lea ploughing follows stubble ploughing, South and North—a large breadth being turned over for spring corn during the current month. Where wireworm is suspected skim-plough the green sod into the open furrows, covering it well with the bottom slice, as this rots all vegetable matter, and thus deprives the insects of food in the spring, while it at the same time starts the spring corn—Oats or Wheat—more rapidly. Whereas, a green seam of Grass between every furrow slice robs the land of manure, and supplies food—fresh Grass roots—for the insects in the spring before the roots of the corn are available.

Claying and Compost.—Manuring open, porous, gravelly, sandy, and peaty soils, and marling and chalking clayey and peaty soils, are operations successfully performed during the month, as the frosts and rains that follow continue the process of disintegration throughout the winter months, thereby giving to poor sickly Clover and stunted Grass when spring comes a totally different appearance. Whenever it can be profitably done, so much ground should be gone over yearly. Some marly clays are sufficiently friable to be broken fine in the spreading, and worked in by chain-harrows; others require frost to break them down. All composts should be broken as fine as possible, and chain-harrowed. In some cases a bush-harrow or seed-harrows work better than chain-harrows, more especially when heavy top-dressings are given, as from 200 to 400 cartloads per acre for changing the texture of poor sandy, gravelly, or peaty soils. Drifted chalk, or chalk drift as it is otherwise termed, is found in some places under a thin stratum of clay, and so broken, when dug from the pits, as to be fit for application to heavy clay-lands adjoining, or to other soils within reach, to which it can be profitably applied. On farms where the ploughing is done by steam, such works form profitable employment for the teams during any spare time they have this month.

Water Meadows.—If the water has been let on during the last week in October, it may have to be shut off the second in November, according to the weather. If the sluices have been opened earlier, the meadows may be ready for another flooding by this time, and so on, the alternate process requiring close watching. Where there is a limited supply of water, provision if possible should be made, so that when the water is shut off one field it may be turned on to another, the periods of flooding and drying being timed accordingly.

Town Sewage and Farm Sewage continue to apply during the month. The yield of Italian Rye-grass now decreases rapidly, but the average of the month will run from a third to the half of the midsummer cuttings, and with an extra handful of meal the Grass forms the best food for milch cows at this season. Give Clover hay chaff along with it, or well browned meadow hay in the absence of Clover hay. Owing to the decrease of solar light the Grass is more liable to blanch towards the bottom, and therefore should be more frequently cut than in the summer time.

Turnip harvesting.—Swedes and yellow-fleshed varieties are stored in pits, in the same way as Mangel Wurzels are in our southern counties, but in the northern they are more commonly left in the drills. There are, however, not a few exceptions to this in the North, for we have seen them as successfully stored both in pits and barns in the counties of Inverness, Ross, and Caithness, as in Kent, Surrey, and Sussex; and it has often occurred to us that the exceptional practice of Scotland should become the rule, owing to the heavy loss sustained in giving frozen Turnips to live stock, either neat cattle or sheep. To obviate this, most farmers during winter keep 14 days' or a month's Turnips stored in barns or heaps outside to supply the wants of a snowstorm or season of hard frosty weather. Others pull and set the Turnips close to each other in clamps, technically termed clamping, in the field for sheep, or in some paddock adjoining the homestead for housed stock. But such supplies seldom meet the demands of northern winters. In those places where the climate and weather is favourable, the southern practice is becoming more general, but in the more exposed and elevated situations the great difficulty experienced is the unfavourable weather at this season for storing, as winter sets in before the roots are fully grown and ready for pulling. But this is no reason why farmers should not store when the weather permits, and the Turnips are in a state fit for it. As for the green tops, although they may be of some value in November for feeding, it is generally otherwise through the winter, so that they are worth more for ploughing in as green manure at this season, than for feeding material even during the current month. In storing in the field for sheep some make small round pits, one for each shift of the nets or folding of the sheep if the flock is small, or two or more pits if the flock is large. One turnip-cutter is required at each pit, the cut Turnips being carried in baskets by the shepherd or shepherds to the troughs. Others make larger pits, and distribute with a horse and cart. Some cast out a double furrow, and store in this 10 or 12 drills. Some store half the crop in the field for sheep, the other half at the homestead for housed stock. Globe, or white-fleshed Turnips, are generally pulled as required, or eaten off in the drills by sheep. Sometimes part of the crop is carted off, and consumed on stubble or grass-land; in other cases, the whole crop is so treated. Autumn Turnips are consumed in the same way; but in favourable seasons they continue to swell during this month, and may not be consumed until next. Some varieties are hardy, and may be kept on longer on dry land for sheep feed.

Potatos, Carrots, and Parsnips.—Finish digging as soon as possible. If in any way frost bitten, store in pits smaller than usual, and turn as directed for Mangel Wurzel. When stored in barns, spread them rather thinly over the floor for a month or so, using some other house as a temporary store, until they will permit of being all stored in the barn of the usual depth.

Kohl Rabi, store as Swedes, taking care not to cut or injure the root in topping and tailing, for although hardy when whole, it is otherwise when broken. This applies also to Swedes, and indeed to all the root crops with greater force than is generally credited. Cutting the top and tail off a Turnip should be deferred till the time of consumption.

Live Stock.—In some of the southern counties, store cattle and sheep are still abroad in the pastures, but the former would be better in the strawyards, and the latter should now be greatly thinned. When the inclosures adjoin, it is common to leave the gates between open, so as to give the flock, or division of the flock, as the case may be, the run of the whole at pleasure. Fields possessing peculiar shelter should be reserved for breeding ewes in stormy weather, and when shelter does not exist naturally, it should be provided artificially, for in-lamb ewes should be kept dry and sheltered, and so should young store sheep. *W. B.*

Notices to Correspondents.

CHINESE SWINE: *H V* asks where he can procure a sow of the pure black Chinese breed?

FROZEN MANGELS: *W M.* Mangels covered by their leaf, and by the soil in which they are standing, will bear a little frost uninjured; but if they have been pulled, and are lying exposed, a very little frost is certain to end in their rotting in the pit. Such roots had therefore better be eaten at once—pulped, and mixed with chaff.

GAS-WATER: *Hillsborough.* The quantity of sulphuric acid required depends entirely on the strength of the gas-liquor. For the gas-liquor you are likely to get, about 7 oz. of acid per gallon will be required; but be very careful how you mix it, on account of the sulphuretted hydrogen given off.

GRAINS: *Milburn & Co.* Next week.

MAIZE, DRIED GRAINS, AND MARK LANE: *Amateur.* The relative value of Maize for feeding animals will depend on the kind of animals to be fed. For fattening it has of late been cheaper than any other food; but for hard working horses, which exhaust a large amount of muscle, more nitrogenous food, as Beans and Oats, would probably be more profitably used. The value of dried grains for pigs is likely to be very low. What fresh grains are as food for pigs, desiccated grains are when re-scalded. The Mark Lane Corn Exchange is free to casual visitors and purchasers of corn, &c.

MOWING MACHINES: *North Staffordshire.* Wood's combined mower and reaper has been used to our knowledge with satisfactory results upon a hill-side dairy farm. But, as a rule, it is better to use a mowing machine for Grass and a reaper for corn.

THRESHING CLOVER: *Cor.* In reply to a question as to the method of getting the seed from a lot of ripe Clover hay, we extract the following from an American periodical:—"The Alsike Clover bears its seed in its first blossoms each year; consequently, when I wish to save seed, I let the Clover stand about two weeks longer than I would for a hay crop alone; then cut, and house it as soon as cured, the same as for hay. About November 1, so that I can have the hay for winter use, I employ a Clover-thresher, of which there are plenty here (they cost about 120 dols. gold), and thresh it out. They will thresh about 20 bushels in a day, and it will be about as clean as Wheat when it comes from the threshing machine. I then run it through my fanning mill, which blows out the dust and fine dirt, but it will still be full of bits of broken hay, and if there are any other seeds in it, they will be there still. I then take a very fine wire sieve, that will, with considerable shaking, let the Alsike seed through, and nothing else. Red Clover, when saved for seed, is managed in the same way, with the exception of the cutting. The Red Clover bears its seed in the second blossom, consequently it has to be cut for hay early in the season, then allowed to grow up the second time, and when ripe, cut and saved for seed, then threshed, and managed the same as the Alsike. The Alsike will yield from six to eight bushels to the acre, the Red Clover from four to six. Red Clover, when saved for seed, is worthless for hay, as it becomes dry and black, and when threshed it all goes to chaff. Such is not the case with the Alsike,—its stalks and leaves are as green and fresh after having ripened its seed as the Red Clover when cut in its prime; and after it has been threshed it makes as good hay for horses, or stock of any kind, as the Red Clover at its best."

*** Received for publication next week:—"Tenant-Right," "Glass Stables," &c.

Autumn Gardening.

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Particulars will be forwarded upon application to the Secretary, or may be had of the Local Agents. C. T. MACADAM, Sec.
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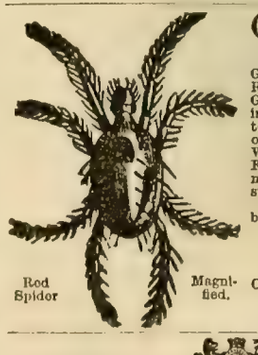
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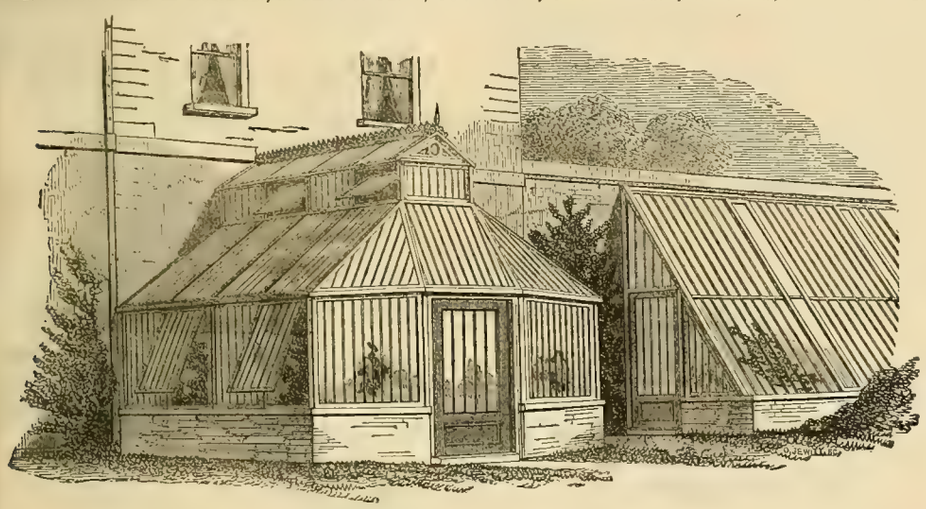
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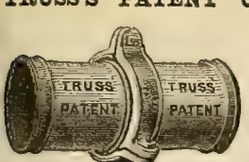
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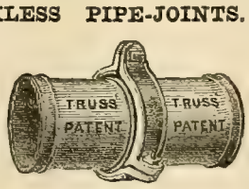
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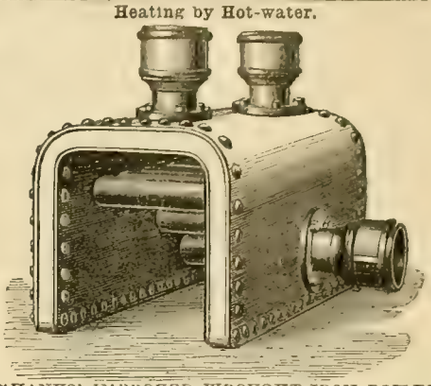
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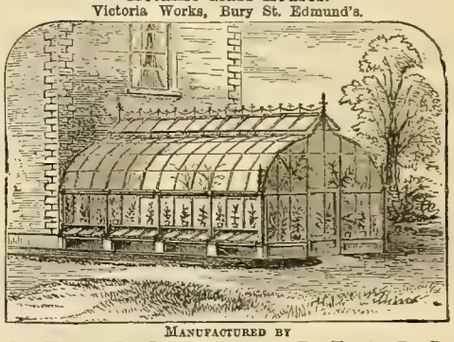
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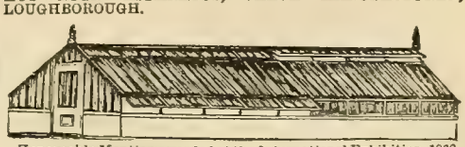
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ROYAL BOTANIC GARDENS, DUBLIN.
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ROYAL BOTANIC GARDENS, CAMBRIDGE.
ROYAL WINTER GARDEN, DUBLIN.
ROYAL DEPARTMENT OF SCIENCE AND ART, LONDON.

It is with great gratification that we announce our permission to refer upon any occasion to the various

HEATING APPARATUSES at the above, where our "ONE BOILER SYSTEM"

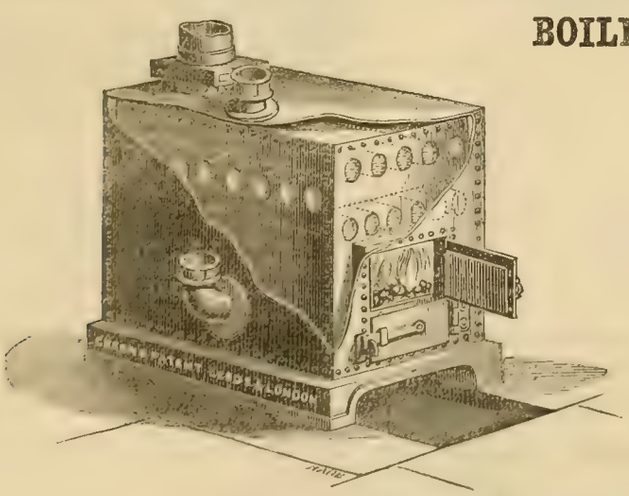
HAS FOR YEARS BEEN SUBJECTED TO THE MOST CRITICAL TESTS WITH EVERY SATISFACTORY RESULT.
IT IS MATCHLESS FOR EFFICIENCY, AND IS WORKING THE LARGEST APPARATUS ON RECORD.

These are no theoretical statements, but positive facts, and it is not too much to add, that no boiler can boast a parallel.

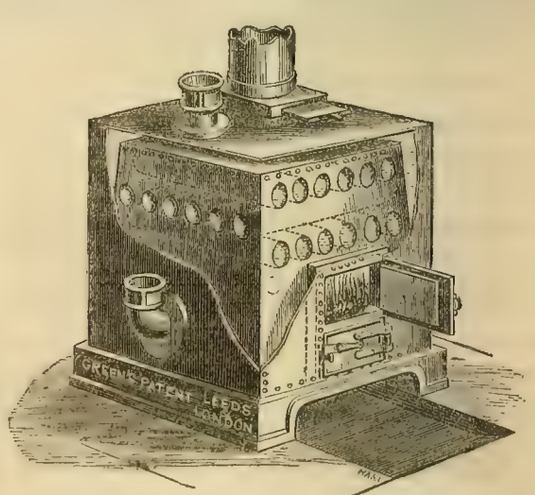
For List of Details, see "ILLUSTRATED BOOK of DESIGNS" (12th Edition), which can be obtained by addressing a note to

JOHN WEEKS AND COMPANY, HORTICULTURAL ENGINEERS, &c., KING'S ROAD, CHELSEA, S.W.

GREEN'S PATENT IMPROVED TUBULAR HOT-WATER BOILERS.



OBLONG BOILER.



SQUARE BOILER.

THE ABOVE BOILERS ARE

THE MOST EFFECTIVE AND DURABLE EVER INVENTED.

They can be set to work at a nominal cost, inasmuch as no brickwork is required; as will be seen from the above drawing, they are placed upon a Cast-Iron Sole-plate, which answers the purpose of Foundation and Ashpit.

From the peculiar and substantial manner in which these Boilers are made, they are warranted to last for years without getting out of order; in fact, we guarantee them for ten years, but feel convinced that they will serve all the purposes for which they are intended for a much longer period.

They are specially adapted for Heating Greenhouses, Churches, Chapels, Schools, Public Buildings, Entrance Halls, Warehouses, Workshops, &c.

THE FOLLOWING ARE THE ADVANTAGES OF THESE BOILERS:—

1st, They require no setting in brickwork.
2d, They are complete in themselves, having perfect means of regulation.
3d, They take up little room, and can be put in places inaccessible to other Boilers.
4th, They are economisers of fuel, owing to the great amount of heating surface upon which the fire acts in a direct manner, and the consumption of smoke.
5th, The fire can be made to last from 12 to 24 hours without attention.
6th, Any number of Flows and Returns can be annexed to the Boilers by means of T-pipes.
7th, By means of mud doors, they can be readily cleaned out when required.
8th, The Chimney is made of cast-iron, which can either be taken through a roof or turned into a flue, to meet the convenience of the situation that it may be fixed in.

☞ *PRICE LISTS ON APPLICATION.*

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;
and 54 & 55, BLACKFRIARS ROAD, LONDON, S.E.

Indestructible Terra Cotta Plant Markers.

MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c. MAW AND CO., Benthall Works, Broseley.

LABELS, LABELS.—PARCHMENT or CLOTH LABELS.—Tree or Plant Labels, punche Parchment, 4 inches long, 4s. per 1000, or 1cwlb for 35s., cash or its worth. Sample Label sent on receipt of a postage stamp. Orders delivered Free in London by JOHN FISHER AND CO., Label Works, Boston, Lincolnshire.

Vases and Fountains, for the Garden and Conservatory.



ANDREW HANDYSIDE AND CO., Britannia Foundry, Derby. | 32, Watercock, London.

The Britannia Iron Works have for the last 40 years been well known for the production of fine Iron Castings. The use of Cast-iron permits a delicacy of outline, and smoothness of surface, impossible in cheap Stone or Terra-cotta. Cast-Iron Vases, if occasionally painted, are imperishable, and will not crack when exposed to wet or frosty weather.

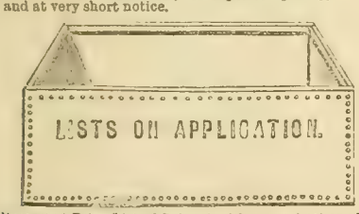


Five large Sheets of Designs and Price Lists post free for 6 stamps. A. H. & Co make the better kind of IRON and GLASS CONSERVATORIES, and have constructed some of the largest and finest in the kingdom.

"Every Cottage should be provided with a Water Tank." *Disraeli.*

Iron Cisterns.

F. BRABY AND CO. having laid down more extensive and improved Machinery on their Deptford premises (IDA WHARF), are prepared to supply WROUGHT-IRON TANKS, GALVANISED or PAINTED, of superior quality, at reduced prices, and at very short notice.

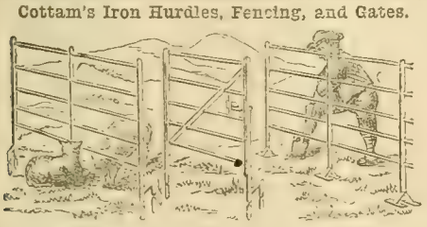


An Illustrated Price List of Galvanised Iron, and other of BRABY'S special Manufactures, sent on application.

F. BRABY AND CO., Limited, Fitzroy Works, Euston Road, London; or through all respectable Ironmongers.

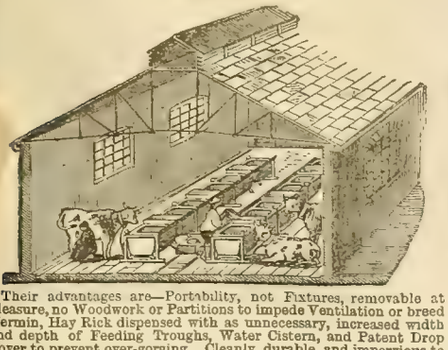
N.B. Open Tanks of different sizes packed one in another to save carriage.

Cottam's Iron Hurdles, Fencing, and Gates.



COTTAM'S HURDLES are made in the best manner, of superior Wrought Iron, by an improved method. Illustrated Price Lists on application to COTTAM AND CO., Iron Works, 2, Winsley Street, Oxford Street, London, W.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rick dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of Iron. Prices of Fittings per Cow, 55s.

Prospectuses free of COTTAM AND CO., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in table Fittings just secured by Patent.

MASTIC L'HOMME LEFORT (the new French Cold Grafting Wax), indispensable for Budding, Grafting, Healing, Stopping Bleeding, &c. In tins, 6d., 1s., 2s., 4s., and 6s., of all Seedsmen, and

HOOPER AND CO., Covent Garden Market, London, W.C.

Established 1833.



HANCOCK'S INDIA-RUBBER HOSE and TUBING.

CARRIAGE, GIG, & DOG-CART APRONS.

HORSE SINGEING APPARATUS, with GAS BURNERS, and INDIA-RUBBER TUBING.

Improved INDIA-RUBBER DOORSTOPS.

WATERPROOF CART and WAGGON COVERS made any size.

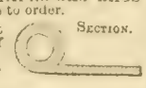
HORSE-LOIN COVERS (Waterproof), with Straps complete.

BELTING for SAW MILLS, THRESHING MACHINES, and FLOUR MILLS.

Trade Mark.

IMPROVED INDIA-RUBBER WEDGE-SHAPED GAS BAGS for Microscopes and Dissolving Views; any size to order.

FLANGE TUBING, for excluding Draught and Dust, and preventing the Slamming of Glass Doors.



SECTION.

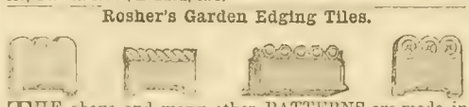
VULCANISED INDIA-RUBBER BILLIARD CUSHIONS.

WATERPROOF BILLIARD TABLE COVERS.

Illustrated Price Lists on application.

JAMES LYNE HANCOCK, Vulcanised India-Rubber Works, 260, Goswell Road, London, E.C.

Rosher's Garden Edging Tiles.





THE above and many other PATTERNS are made in Terro-Metallic Ware, Terra-Cotta, Stoneware, and Redware, and of great durability. The plainer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability and superior finish, and in much variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.E. Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs. Likewise more elaborate designs. Pattern Sheets of Pavements, with prices, forwarded for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.

To be obtained of F. & G. ROSHER, at their premises as above.

SILVER SAND (REIGATE), at the above addresses—14s. per Ton, 1s. 2d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less. A coarser grained Sand 4s. per ton more. Samples of Sand by post on receipt of stamp.

FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEAT and LOAM supplied at lowest rates.

F. & G. ROSHER.—Addresses see above.

N.B. Orders promptly executed by Railway or Vessel.

A liberal discount to the Trade.

MR. A. CHANDLER, HORTICULTURAL AGENT and VALUER, 10, Wynell Road, Forest Hill, S.E.

N.B.—Valuations made of Nursery Stock, Private Collections of Plants, and everything connected with Horticulture.

WM. DILLISTONE, HORTICULTURAL AUCTIONEER AND VALUER, Sible Hedingham, Essex.

To Seedsmen, Cornchandlers, and Others.

AN OLD-ESTABLISHED SEEDSMAN'S BUSINESS, a genuine concern, 7 miles North of London, doing a lucrative trade. Corn Business may be added with advantage. Premises comprise an excellent Shop and good Dwelling. Lease 16 years. Rent moderate. Goodwill, Fixtures, and Stock, £250. Will bear the strictest investigation.

Apply to F. W. SEARLE, Agent and Valuer, 6, Bishopsgate Street Without, and Tottenham, N.

TO be SOLD, the valuable NURSERY STOCK and GOODWILL of a Business established upwards of 50 years. The Nursery Ground contains 10 Acres of the best Land, well stocked with Fruit Trees, Ornamental Shrubs, Garden and Greenhouse Plants, &c., in great variety. The Land is peculiarly suited to the growth of Roses, Coniferæ, and Fruit Trees, of all of which there is a large stock. The Great Western Railway passes close to. A great deal of Contract Work has been done at this Nursery. No situation can be more desirable for carrying on an extensive Trade.

For particulars apply to Mr. GEORGE ELLISON, Chester Road, Wrexham; or Mr. JAMES STANDING, Aigburth, near Liverpool.

Sales by Auction.

Bulbs from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, November 15, at half-past 12 o'Clock precisely, 13 Cases of HYACINTHS, TULIPS, CROCUSES, NARCISSUS, LILIUMS, IRIS, RANUNCULI, GLADIOLI, and ANEMONES, and other Bulbs, just arrived from well-known Farms in Holland.

On view the morning of Sale, and Catalogues had.

Periodical Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, November 16, at half-past 12 o'Clock precisely, 200 Pens of first-class POULTRY and PIGEONS, from the yards and lofts of well-known Breeders and Exhibitors.

On view the morning of Sale, and Catalogues had.

Plants from Ghent, and Bulbs and Plants from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, November 17, at half-past 12 o'Clock precisely, choice Double CAMELLIAS, INDIAN AZALEAS, RHODODENDRONS, &c., from Ghent; Standard and Dwarf-trained FRUIT TREES, Standard and Dwarf ROSES, and other Plants, from Holland; Specimen CONIFERS, and HARDY SHRUBS, from Surrey; 400 English ROSES, from a well-known grower; and an importation of first-class Double and Single HYACINTHS, TULIPS, CROCUSES, NARCISSUS, GLADIOLI, RANUNCULI, &c., from Holland.

On view the morning of Sale, and Catalogues had.

Hardy Plants from Surrey, Roses from France, and Bulbs from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, November 20, at half-past 12 o'Clock precisely, Specimen CONIFERS, YEWS, PORTUGAL and COMMON LAURELS, THORNS, RHODODENDRONS, BERBERIS, YUCCAS, and other Plants, from a well-known Nursery in Surrey; and an importation of Double and Single HYACINTHS, TULIPS, CROCUSES, NARCISSUS, LILIUMS, GLADIOLI, RANUNCULI, ANEMONES, IRIS, and other Bulbs, from Holland.

On view the morning of Sale, and Catalogues had.

Leicestershire.—Loughborough Nurseries.

MESSRS. PROTHEROE AND MORRIS have received instructions from the Executors of the late Mr. E. Bowman, to SELL by AUCTION, on the Premises, the Loughborough Nurseries, Leicestershire, near the Loughborough Station on the Midland Railway, on TUESDAY, November 16, and two following days, at half-past 11 o'Clock each day (without reserve), the whole of the valuable NURSERY STOCK, including many handsome specimens from 6 to 10 feet, carefully prepared for removal; viz., Cedrus Deodara, Libani and atlantica; Cupressus (sorts), Wellingtonias, Thujas (sorts), Irish Yews, Cryptomerias, Thujopsis Borealis, &c.; Box in 3000 Green Hollies, 1000 Variegated Hollies, 2000 Portugal Laurels, 3000 Common Laurels, 1000 Aucubas, 2000 Green and other Box, 1000 Berberis aquifolia, 1500 Irish Yews, 2000 English Yews, 1000 Laburnums, thousands of Arbor-vitæ, Arbutus, Pinus (sorts), Thujopsis, Cupressus, Juniperus, Thujas, Wellingtonias, Phillyreas, Abies, &c.; a choice collection of clean-grown FRUIT TREES, comprising 5000 standard, pyramid, and dwarf Apples, 2000 Plums, 500 Cherries, 500 Pears, 2000 Gooseberries, 1000 Currants, some fine standard and dwarf-trained Peaches and Apricots, Damsons, Quince, Walnuts, Raspberries, &c.; about 4000 Crab, Pear and Plum stocks, &c.; also many thousands of ORNAMENTAL and FOREST TREES, including worked Thorns, Acacias, Maples, Mountain Ash, Laburnums, Sycamores, Planes, Weeping Widows, Scarlet Chestnuts, 5000 Limes, 2500 Poplars, 25,000 Larch, 2000 Balm of Gilead Firs, 1000 Spanish Chestnuts, 12,000 Common Ash, 2000 Scotch Firs, 87,000 strong Quick, 60,000 Seedling and Turkey Oaks, Elms, Spruce Firs, Pinus austriaca; together with a large quantity of Ornamental Shrubs, Hardy Climbers, choice Greenhouse and Bedding Plants, Standard Roses, 300 yards of Box Edging, half-an-acre of Mangel Wurzel, and other miscellaneous articles too numerous to mention.

N.B.—The Trustees of the Nursery are willing to grant a Lease to an incoming Tenant at the original rental of £105 per annum. There are 20 Acres of Land, Dwelling-house, and Seed Shop in the Market Place, where a good trade in Fruit and Vegetables is done.

May be viewed a week prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, Leytonstone, Essex, N.E.

Leytonstone, Essex.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Mrs. Hart, to SELL by AUCTION, without reserve, on the Premises, the Park, Leytonstone, five minutes' walk from the Station, on WEDNESDAY and THURSDAY, November 24 and 25, at 12 for 1 o'Clock each day, the whole of the GREENHOUSE PLANTS, including fine Azalea indica, large Double Camellias, Cytisus, Daphnes, Correas, Diosmas, Fuchsias, Geraniums, &c., about 1000 ORCHARD-HOUSE TREES, established in pots, including many skilfully trained specimens, 6 to 10 feet high, in bearing condition, comprising Peaches, Nectarines, Apricots, Plums, Pears, Apples, Figs, Vines, large Dwarf-trained Peaches, Nectarines, Apples, 400 yards Box edging, 1000 Strawberries, in pots; also the newly-erected GREENHOUSES, viz., a Span-roof rafter ORCHARD-HOUSE, 104 feet long, 40 feet wide, 10 feet high; a Lean-to rafter House, 240 feet long by 17 feet over; a Span-roof rafter House, 36 feet long by 17 feet over; Two 9-light BRICK PITS, Hot-water Piping, a Cannon Boiler, Bricks; likewise the modern and nearly new FARMING IMPLEMENTS, for steam or hand-power, from eminent manufacturers, comprising an American Grist-Mill, Chaff-Cutter, Turnip-Slicer, Oilcake-Crusher, Root-Pulper, a capital Haymaking Machine, Horse Drag-Rake, Ploughs, Carts, Carriages, Weighing Machine, an Incubator (in working order), Iron Hurdles and Stakes, a Gas Meter, Zinc Summer House, 12-box Bee-House, Cart Harness; together with the LIVE STOCK, viz., Two Milch Cows, 150 head of Poultry, and numerous other effects.

May be viewed two days prior to the Sale. Catalogues, 6d. each, returnable to purchasers, had of the Auctioneers, Leytonstone, E.

Lea Bridge Road, Leyton, Essex.

IMPORTANT SALE of VALUABLE NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Nursery, Lea Bridge Road, by order of Messrs. Pamplin & Son (without reserve, in consequence of the expiration of lease and the Ground being required for Building purposes), on MONDAY and TUESDAY, November 29 and 30, at 12 o'Clock precisely each day, the whole of the valuable NURSERY STOCK, including fine specimen Araucarias, Cedrus (sorts), Taxodiums, Thuja aurea, Variegated Hollies, Sweet Bays, Evergreen Oaks, Cupressus (sorts), Pines (sorts), Juniperus cryptomeria, &c., from 3 to 12 feet high; 100 English Yews, 4 to 12 feet; Common Laurels, Standard and Bushy Portugal Laurels; 1250 Green Tree and other Box, 1 to 8 feet; 600 Rhododendrons, 220 Chinese and other Arbor-vitæ, 4 to 12 feet; 150 Aucubas, 3 to 6 feet; 100 Irish Yews, 5 to 7 feet, &c.; a fine assortment of Standard and Dwarf H.P. Roses; selected Fruit Trees; a large quantity of Ornamental and Forest Trees; together with a 2-horse power Threshing and Chaff-cutting Machine, three capital Horses, two Cows, Heifer, handsome young Bull, and numerous other effects.

May be viewed three days prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers, Leytonstone, Essex.

Clapham Rise.

CONTINUATION of the UNRESERVED SALE of NURSERY STOCK (the Ground being required for Glass Erections), including choice Fruit Trees, Cedar of Lebanon, C. Deodara, Wellingtonia, borealis; Araucaria, Arbor-vitæ, Aucubæ, Laurels, Privet, Lilacs, Standard and Dwarf Roses, Heaths, Dutch Bulbs, &c.

MR. WILLIAM HARDING will SELL by AUCTION, on the Premises (entrance at 33, High Street, Clapham), on MONDAY and TUESDAY next, November 15 and 16.

Catalogues of the Auctioneer, 17, High Street, Clapham, S.W.

Corn Exchange, Reading.

To GENTLEMEN, NURSERYMEN, GARDENERS, and OTHERS.

MR. W. ABRAHAM begs to inform persons intending to Plant that he has received instructions to SELL by AUCTION, in the Corn Exchange, Reading, Berks, on WEDNESDAY, November 17, at 12 o'Clock punctually, a large quantity of choice EVERGREEN and DECIDUOUS TREES and SHRUBS, Standard, Trained, Dwarf, and Pyramidal FRUIT TREES, named kinds; about 3000 strong QUICK, Standard and Dwarf ROSES, Hardy CREEPERS, PRIVET, &c.

Catalogues on application at the Corn Exchange; or of Mr. W. ABRAHAM, Horticultural Auctioneer, Valuer, &c., Goldworth Nurseries, Woking, Surrey.

Romford.

MR. WM. DILLISTONE has received instructions to SELL by AUCTION, on THURSDAY, November 18, at 10 for 11 o'Clock, at the Corn Exchange, Romford, a valuable Collection of general NURSERY STOCK, consisting of choice Roses, Fruit Trees, Ornamental Trees and Shrubs of every description, valuable Coniferæ, choice Camellias and Azaleas, Hardy Herbaceous and Strawberry Plants, together with sundry other seasonable requisites for the Garden; the whole presenting an excellent opportunity to intending Planters for the purchase of the above-mentioned Stock.

May be viewed on the Morning of Sale, and the whole will be fully particularised in Catalogues, to be had at the *Romford Times* Office, and time and place of Sale, or post free of the Auctioneer, at his General Horticultural Agency Offices, Sible Hedingham, Essex.

A Select Herd of Valuable Shorthorned Cattle.

BELMONT, 2 miles from the City of Hereford.

MR. W. G. PREECE has the honour of giving notice that he has been appointed by F. R. Wegg Prosser, Esq. (in consequence of absence, caused by indisposition, to SELL by AUCTION, without reserve, at Belmont, on THURSDAY, November 18, his choice Herd of Pure-bred SHORTHORN CATTLE, of high pedigree and great beauty, viz., 20 COWS and HEIFERS, by Duke of Leinster (17,724), Paleface (18,515), Hero of Oxford (18,060), Barley Corn (17,348), Surprise (20,922), Duke of Darlington (21,536), Earl of Lancaster (21,647), Prince of Saxe-Coburg (20,576), Earl of Darlington (21,636), Prince Christian (22,582), and Duke of Brailes (25,726). Three BULLS, viz., Dairy Duke, calved May 22, 1866, bred by Mr. Bailey Denton, by Acrobat, by Booth's Monk (11,824), dam Antic, by Bridesman (12,493); Puzzle, calved December 18, 1867, by Duke of Darlington (21,536), dam Pansy, by Hero of Oxford (18,060); and Belmont Duke, by Dairy Duke, dam Emmiline, by Prince of Saxe-Coburg (20,576). Several of the Cows and Heifers are in-calf to Dairy Duke, which animal is now in service at Belmont.

Also will be Sold, at same time and place, a splendid Flock of 200 Pure-bred SHROPSHIRE SHEEP, guaranteed from the best blood in the County of Salop; 50 well-bred STORE and FAT CATTLE, and the general Farming Stock.

Pedigrees and Catalogues may be had from Mr. BIRCH, Belmont, Hereford, and Mr. W. G. PREECE, Shrewsbury.

PAUL'S NURSERIES AND SEED WAREHOUSE, WALTHAM CROSS, LONDON.

WILLIAM PAUL

RESPECTFULLY SOLICITS ORDERS FOR

THE FOLLOWING TREES, SHRUBS, &c.—ALL OF THE BEST QUALITY.

THE Public is requested to observe—1, That they are all growing on the COOL MOIST STRONG SOIL of Waltham and Loughton, and have consequently suffered nothing from the past dry, hot summer; and 2, That the whole of the stock is KEPT CONSTANTLY REMOVED, so that the plants are stout and bushy, the roots are fibrous and brought into a small compass, by which practice the losses by removal are comparatively trifling.

1. ROSES.

	Per dozen.—s.	d.
STANDARDS	15s. to 24	0
DWARF STANDARDS	12s. to 18	0
NEW ROSES, Dwarfs	24s. to 30	0
CLIMBING ROSES	9s. to 12	0
ROSES, for Forcing, 6-inch pots	24s. to 42	0
Mixed ROSES, for Shrubberies, per 100	30	0
DWARF PERPETUAL ROSES, „	7s. to 100	0
MANETTI STOCKS	„ 8	0

2. FRUIT TREES.

APPLES, PEARS, CHERRIES, PLUMS, &c., Standards	18s. to 24	0
Do. Pyramids	18	0
Do. Pyramids, fruiting	24s. to 36	0
Do. Dwarfs or Cordons	12s. to 18	0
Do. Dwarfs, trained	30s. to 42	0
APRICOTS, NECTARINES, & PEACHES, Standards	30	0
Do. Standards, trained .. each, 5s. to	10	6
Do. Dwarfs	1	6
Do. Dwarfs, trained „	3s. 6d. to 5	0
Do. Pyramids for orchard houses „	3s. 6d. to 5	0
FRUIT TREES, various, in pots, for orchard houses .. each,	3s. 6d. to 10	6
GOOSEBERRIES and CURRANTS, the best sorts .. per 100,	20s.; 3s. to 4	0
FIGS, all the best sorts, in pots, each,	2s. 6d. to 5	0
GRAPE VINES— 60 sorts, planting canes .. each,	2s. 6d. to 5	0
FILBERTS, of sorts	4s. to 9	0
RASPBERRIES, of sorts, per 100	16s. to 25	0
STRAWBERRIES, of sorts „	3s. 6d. to 15	0
MEDLARS .. each	2	6
QUINCES .. „	1s. 6d. to 2	0
WALNUTS .. „	1s. 6d. to 3	6

3. EVERGREENS.

ARBUTUS, Common, 2 feet, bushy	12	0
Do. ANDRACHNE, 1½ foot .. each	2	6
Do. CROOMII, 1½ foot	2	6
AUCUBA JAPONICA, 2 feet, bushy „	18	0
Do., 10 best sorts, male and female, green and variegated .. 12s. to	30	0
BAMBUSA FORTUNEI .. each	1	6
BAYS, Sweet, 2 to 3 feet 12s. to	24	0
BERBERIS DARWINII, 2 to 4 ft., 12s. to	18	0
Do. DULCIS, 2 feet	9	0
Do. do., 3 to 4 feet 12s. to	18	0
Do. STENOPHYLLA, 2 to 3 feet	18	0
BOX, green and variegated, 2 to 3 feet	12	0
Do., 4 to 5 feet	30	0
Do., 6 to 7 feet .. each, 5s. to	10	6
Do., 4 feet stems the pair	21	0
BROOM, white and yellow, 4 feet	9	0
COTONEASTER MICROPHYLLA, 2 ft.	6	0
EUONYMUS RADICANS VARIEGATA, 9s. to	18	0
Do. FLAVESCENS each	10	6
Do. JAPONICUS, 2 to 2½ feet	12	0
Do. do. ROSEA 9s. to	18	0
FURZE, double-flowering, strong, in pots	9	0
HOLLIES, Green, 2 feet per 100	40	0
Do. do., 3 feet „	60	0
Do. do., 4 feet 12s. to	18	0
Do. do., 5 feet 30s. to	42	0
Do. do., 6 feet each, 5s. to	7	6
Do. Variegated, 1½ to 2 feet	30	0
Do. do., 3 feet	42	0
Do. do., 4 feet	60	0
Do. do., 5 to 6 feet each, 7s. 6d. to	10	6
Do., 50 varieties, gold, silver, and green, each, 1s. 6d. to	10	6
IVY TREE, 1½ foot	12	0
LAURELS, Common per 100,	8s. to 50	0
Do. COLCHICUM, 2 feet	6	0
Do. do., 3 feet	9	0
Do. do., 4 feet	12	0
Do. do., 5 to 6 feet	18	0
Do. CAUCASICUM, 2 feet	18	0
Do. do., 3 feet	24	0
Do. do., 4 feet	30	0
LAURELS, Portugal, 2 by 2 feet broad	12	0
Do. do., 3 feet	18	0
Do. do., 4 feet	30	0
Do. do., narrow-leaved, 3 ft., each, 1s. 6d. to	2	6
LAURUSTINUS, 1½ ft. (well set with bloom)	9	0
Do., 2 to 3 feet, bushy 12s. to	30	0
MAHONIA AQUIFOLIUM, per 100,	8s. to 50	0
Do. FASCICULARIS HYBRIDA, 1 to 2 feet 9s. to	18	0
Do. do., 2 to 3 feet 18s. to	21	0
Do. JAPONICA, 1½ foot	12	0
Do. do., 2 feet 18s. to	30	0
OAK, Evergreen, 4 to 6 ft., each, 2s. 6d. to	5	0
OSMANTHUS ILICIFOLIUS, 1 foot	18	0
Do. do. VARIEGATA .. each, 1s. 6d. to	3	6
PRIVET, Evergreen per 100,	8s. to 25	0
Do. OVALIFOLIUM, gold edged, 2 feet	18	0
Do. do. do., 5 feet stems each	3	6
Do. JAPONICUM, gold edged, 1½ foot	18	0
Do. CORIACEUM, 9 inches	18s. to 24	0
PHILLYREAS, 2 feet	15	0
Do., 3 to 4 feet 21s. to	30	0
RHAMNUS HYBRIDA, 2 feet	12	0
Do. do., 3 to 4 feet	21	0
RAPHIOLEPIS OVATA, 1 foot	30	0
Do. do. Seedlings, single pots	12	0
SKIMMIA JAPONICA, in pots 12s. to	18	0
ST. JOHN'S WORT, 1 foot per 100	25	0
YUCCA FILAMENTOSA, strong, 12s. to	18	0
Do. RECURVA 18s. to	30	0
Do. GLORIOSA each,	3s. 6d. to 6	0

4. CONIFERÆ.

ABIES EXCELSA, Spruce Fir, 2 to 3 ft., per 100	40	0
Do. do., 3 to 4 feet „	60	0
Do. ALBA, White Spruce, 3 feet	12	0
Do. do., 4 feet	18	0
Do. do., 5 feet	24	0
Do. NIGRA, Black Spruce, 3 feet	12	0
Do. do., 4 feet	18	0
Do. do., 5 feet	24	0
Do. CANADENSIS, Hemlock Spruce, 2½ to 3 feet 9s. to	12	0
Do. do., 4 to 5 feet 18s. to	24	0
Do. DOUGLASII, 3 feet each	2	6
Do., 7 to 12 feet „	7s. 6d. to 21	0
Do. ORIENTALIS, 3 feet „	5	0
Do., 4 feet „	7	6
Do., 5 feet „	10	6
ABIES FINEDONENSIS, Silver Spruce, 4 feet each	5	0
Do. do., 5 feet	7	6
Do. STRICTA and CLANBRASILIANA, Dwarf Spruce each,	2s. 6d. to 7	6
ARAUCARIA IMBRICATA, 2 feet, each	3	6
Do. do., larger sizes .. each,	5s. to 42	0
CEDRUS ATLANTICA, Mount Atlas Cedar, 3 to 4 feet	30	0
Do. do. do., 4 to 5 feet each	3	6
Do. DEODARA, 2 feet	24	0
Do. do., 2½ to 3 feet	30	0
Do. do., 5 to 6 feet	60	0
Do. do., larger specimens each,	10s. to 63	0
CEDRUS LIBANI, Cedar of Lebanon, 3 ft.	42	0
Do. do. do., 6 feet each	7	6
Do. do. do., 10 to 12 feet each,	21s. to 42	0
CEPHALOTAXUS FORTUNEI, 2 feet	31	0
Do. do., 3 feet	42	0
CHAMÆCYPARIS SPHÆROIDEA VARIEGATA, 2 to 3 feet	30	0
CRYPTOMERIA LOBBII, 3 feet	18	0
Do. do., 6 to 8 feet each,	3s. 6d. to 5	0
CUPRESSUS, Cypress, Common, 2 to 3 ft.	6	0
Do. do. LAMBERTIANA, 4 feet	18	0
Do. do. LAWSONIANA, 2 to 3 feet	12	0
Do. do. do., 3 to 4 feet	18	0
Do. do. do., 4 to 5 feet	24	0
Do. do. do., 5 to 6 feet	30	0
JUNIPERUS, Juniper, Irish, 3 to 4 ft.,	18s. to 24	0
Do. CHINENSIS, Chinese, 2 to 3 feet	18	0
Do. do. do., 4 feet 30s. to	42	0
Do. do. do., 5 to 6 feet	60	0
Do. do. do., 6 to 8 feet each,	7s. 6d. to 10	6
Do. VIRGINIANA, Red Cedar, 3 to 4 feet	18	0
Do. do. do., 5 feet	30	0
Do. do. do., 6 to 9 feet each,	3s. 6d. to 7	6
Do., 20 other handsome sorts, 2 to 3 feet	30	0
Do. do., 3 to 4 feet	42	0
Do. do., 5 to 6 feet	60	0
PICEA AMABILIS, 1½ foot each	10	6
Do. LOWII, 2 to 3 feet each,	10s. 6d. to 21	0
Do. NOBILIS, 1½ to 2 feet each,	5s. to 7	6
Do. do., 3 to 4 feet each,	10s. 6d. to 42	0
Do. do., larger specimens, each,	£3 3s. to £5	5
Do. NORDMANNIANA, 1 foot	24	0
Do. do., 1½ to 2 feet	42	0
Do. do., 3 feet each	15	0
Do. do., 4½ feet „	21	0
Do. do., larger specimens, each,	£2 2s. to £5	5
Do. PINSAPO, 2½ to 3 feet	60	0
Do. do., 4 feet each	15	0
Do. do., larger specimens each,	21s. to 105	0
PINUS AUSTRIACA, 3 feet	18	0
Do. do., 4 feet	24	0
Do. do., 5 feet	30	0
Do. BENTHAMIANA, 3 feet	24	0
Do. CEMBRA, 3 feet	30	0
Do. do., 4 feet	42	0
Do. do., 5 to 6 feet	60	0
Do. do., 8 to 9 feet each,	10s. 6d. to 15	0
Do. EXCELSA, 3 to 4 feet	30	0
Do. do., 4 to 5 feet	42	0
Do. do., 6 feet each,	5s. to 7	6
Do. do., larger specimens, each,	10s. 6d. to 21	0
Do. INSIGNIS, 2 to 3 feet each	1	6
Do. LARICIO CALABRICA, 4 to 5 feet	24	0
Do. do., 6 to 7 feet	36	0
Do. do., 8 feet	60	0
Do. MACROCARPA, 3 feet	42	0
Do. do., 6 feet	60	0
Do. MONTICOLOR, 3 feet	42	0
Do. do., 4 feet	60	0
Do. PINEA, 3 feet	30	0
Do. PYRENAICA, 3 to 4 feet	30	0
Do. do., 5 feet	60	0
Do. SABINIANA, 3 feet	42	0
Do. do., 5 feet	60	0
Do. STROBUS, Weymouth Fir, 3 feet	12	0
Do. do. do., 4 feet	15	0
Do. do. do., 5 feet	18	0
Do. do. do., 6 feet	24	0
Do. do. NIVEA, Snow Pine, 7 to 9 feet, each,	21s. to 63	0
TAXODIUM DISTICHUM, 3 feet	18	0
TAXUS, Yew, Common, 2 feet per 100	40	0
Do. do. do., 3 feet	18	0
Do. do. do., 4 feet	30	0
Do. do. do., 5 feet	42	0
Do. do. do., 6 feet	60	0
Do. FAN, for hedges .. each,	2s. to 5	0
Do. Irish, 2 feet	12	0
Do. do., 3 feet	15	0
Do. do., 4 feet	21	0
Do. do., 5 feet	30	0
Do. do., 6 feet	42	0
Do. do., 8 to 9 feet each,	7s. 6d. to 10	6
Do. ELEGANTISSIMA, 1½ to 3 ft.,	30s. to 84	0
Do., 20 best kinds, 2 to 3 feet	30	0
Do. do., 3 to 4 feet	42	0
Do. do., 4 to 5 feet	60	0
Do. do., larger specimens, each,	7s. 6d. to 10	6
Do., Standard, variegated, 4 to 5 ft. stems, good heads each	21	0
THUJA ARBOR-VITÆ, American, 3 to 4 ft.	9	0
Do. do. do., 5 feet per 100,	75s.; 12	0
Do. do. do., 6 feet „	100s.; 18	0
Do. do. Chinese, 2 ft., 12s. p. doz.;	4 to 5 ft. 30	0
Do. do. Variegated, 2 feet each	2	6
Do. do. WAREREANA, 2 feet per 100	50	0
Do. do. do., 3 to 4 feet per 100,	100s.; 18	0
Do. do. do., 5 feet each	5	0
Do. do. GIGANTEA, 2 to 3 feet	24	0
Do. do. do., 4 feet	42	0
Do. do., 5 feet each	5	0
Do. do., 8 feet „	21	0
Do. AUREA, 1½ foot	18	0
Do. do., 2 feet	30	0
Do. do., 2½ feet	60	0
Do. do., 3 feet each,	5s. to 10	6
Do. COMPACTA, 2 to 3 feet	30	0
Do. do., 4 feet	42	0
Do. do., 6 feet each,	7s. 6d. to 10	6
Do. LOBBII, 2 to 3 feet	12	0
Do. do., 3 to 4 feet	15	0
Do. do., 4 to 5 feet	30	0
Do. do., 7 feet each,	5s. to 7	6
Do. JAPONICA, 3 feet	42	0
Do. do., 4 feet	60	0
Do. do., 5 to 6 feet each,	7s. 6d. to 10	6
Do. PYRAMIDALIS, 2 to 3 feet	9	0
Do. do., 4 feet	24	0
THUJA PYRAMIDALIS, 5 feet	30	0
Do. do., 6 feet	42	0
Do. do., 8 feet each,	5s. to 10	6
Do. NEPALENSIS, 3 feet	12	0
Do. do., 4 to 5 feet	30	0
Do. PLICATA, 2½ feet	24	0
THUJOPSIS BOREALIS, 2 to 3 feet	18	0
Do. do., 3 to 4 feet	24	0
Do. do., 4 to 5 feet	36	0
Do. do., 5 to 6 feet each	5	0
Do. do., 7 feet „	7	6
Do. DOLABRATA, 1 foot	42	0
Do. do., 1½ foot	60	0
Do. do., 1½ foot each,	7s. 6d. to 10	6
WELLINGTONIA GIGANTEA, 2 feet	30	0
Do. do., 3 to 4 feet each,	5s. to 7	6
Do. do., 5 to 6 feet each,	10s. 6d. to 21	0
Do. do., larger each,	42s. to 105	0

5. DECIDUOUS TREES and SHRUBS.

ACACIA, Common, 6 ft. stems, good heads	18	0
Do. MONOPHYLLA, 6 feet	12	0
Do. PYRAMIDALIS, 6 to 8 feet	12	0
Do. ROSEA, 2 to 3 feet	9	0
Do. do., 6 feet stems	30	0
Do. GLUTINOSA, 6 feet stems	18	0
ACER (MAPLE) NEGUNDO, 10 to 12 feet	30	0
Do. do. VARIEGATA, 3 to 4 feet	9	0
Do. do. do., 6 feet	18	0
Do. do. do., 4 to 6 feet stems	30	0
Do. Scarlet, 6 to 8 feet	18	0
Do. do., 8 to 10 feet	30	0
Do. Norway, 10 to 12 feet	18	0
Do. do., 14 feet	30	0
ALMONDS, 5 feet stems	18	0
ARALIA JAPONICA, 5 to 6 feet	18	0
ASH, MOUNTAIN, 10 to 12 feet	18	0
Do. FLOWERING, 10 feet	30	0
Do. MONOPHYLLA, 10 to 12 feet	30	0
Do. AUCUBÆFOLIA, 8 feet	18	0
Do. SPECTABILIS, 8 feet	18	0
BEECH, Purple 18s. to	42	0
BIRCH, Silver, 8 to 10 feet	18	0
BERBERIS, Purple, 3 to 4 feet	12	0
CARAGANA, 6 sorts, 4 feet stems	18	0
CATALPAS, 4 to 5 feet	12	0
CHERRY, Double Blossom, Dwarfs	12	0
Do. do., 5 feet stems	24	0
Do. AUCUBÆFOLIUS, 5 feet stems	30	0
Do., Var. Mahaleb, 4 to 5 ft. stems each	3	6
CHESTNUT, Horse, 8 feet	9	0
Do. do., 9 feet	12	0
Do. do., 10 feet	18	0
Do. Scarlet, 6 to 8 feet	18	0
Do. do., 8 to 10 feet 24s. to	42	0
Do. Variegated, 5 feet stems	30	0
CYTISUS, 6 sorts, 5 feet stems	18	0
ELM, English, 8 feet	9	0
Do. do., 10 feet	18	0
Do. Hertfordshire, 6 to 8 feet	12	0
Do. Huntingdon, 8 feet	9	0
Do., best sorts, 8 to 10 feet 12s. to	24	0
Do., WYCH, 12 feet	18	0
GLEDITSCHIA TRIACANTHOS, 5 feet stems	18	0
GYMNOCLADUS, 3 feet	12	0
KOLREUTERIA PANICULATA, 6 feet	12	0
LABURNUMS, 8 feet	9	0
Do., 10 feet	15	0
LEYCESTERIA FORMOSA, 4 feet	6	0
LILACS, Common, stout, 4 feet 9s. to	12	0
Do. Persian, 3 to 4 feet 9s. to	12	0
Do. do., 5 feet stems, fine heads, each, 2s. 6d. to	5	0
LIMES, Common, 8 feet	12	0
Do. do., 9 to 12 feet 18s. to	30	0
Do., 6 best sorts, 3 to 4 feet	12	0
NUT, Purple-leaved, 2½ to 3 feet 9s. to	12	0
OAK, Turkey, Standards, 8 feet	12	0
Do. do. do., 10 feet	18	0
Do. do. Variegated, 5 ft. stems, each,	3s. 6d. to 5	0
Do. do. Scarlet, 4 to 6 feet	9	0
PAULOWNIAS, 5 feet each	1	6
PAVIA RUBRA, 5 feet „	2	6
Do. FLAVA, 5 feet „	2	6
PHILADELPHUS GRANDIFLORUS, 3 to 4 feet	6	0
PLANES, Occidental, 7 to 8 feet	12	0
Do. do., 9 feet	18	0
Do. do., 10 to 12 feet	30	0
Do. Oriental, 8 feet	18	0
POPLARS, Silver, 10 to 12 feet	18	0
Do. Lombardy, 10 to 12 feet	12	0
Do. Black Italian, 10 to 12 feet	12	0
Do. Laurel-leaved, 10 to 12 feet	18	0
Do. Ontario, 10 to 12 feet	18	0
Do., the above sorts, 5 to 6 feet per 100	30	0
PRUNUS, Double Sloe, Pyramids	18	0
Do. do., 4 to 5 feet stems	24	0
Do. TRILOBA, Dwarfs	12	0
Do. Cherry Plum, Dwarfs	12	0
Do. do., 5 feet stems	24	0
PYRUS ARIA, 6 feet	6	0
Do. SORBUS, Service Tree, 6 feet	9	0
Do. SPECTABILIS, 4 to 5 feet	12	0
Do. RINGO and TORINGO, 4 feet	12	0
Do. 12 sorts, Hybrids, beautiful foliage, 6 to 8 feet	18	0
RIBES SANGUINEUM, stout, 3 to 4 feet	9	0
ROBINIA INERMIS, 4 to 7 feet stems, 30s. to	42	0
SALISBURIA ADIANTIFOLIA, 3 to 4 ft.	30	0
SIBERIAN CRAB, 5 feet	12	0
SNOWBERRY, stout, 4 to 5 feet	9	0
SOPHORA JAPONICA, 5 feet stems	30	0
SPIRÆA, 20 sorts, 2 to 4 feet 6s. to	9	0
SYCAMORE, Common, 8 to 12 feet 9s. to	18	0
Do., Purple, 5 feet	9	0
SUMACH, Stag's Horn, 6 to 10 feet 9s. to	18	0
Do. Venice, 3 feet	12	0
THORNS, Single Scarlet, Double Pink, Double White, new Double Scarlet, and 30 other best varieties, 6 feet stems, fine heads 18s. to	24	0
Do., new Double Scarlet, plants, established in pots, well set with bloom for forcing each,	2s. 6d. to 3	6
Do., Standards and Pyramids each	2	6
TULIP TREES, 6 feet	18	0
VIRGILIA LUTEA, 6 feet	12	0
WEIGELIA ROSEA, 3 feet	9	0
WILLOW, Gold and Purple, 7 to 8 ft., per doz.,	9s.	
Collections of TREES and SHRUBS, selected from more than 1000 varieties, from 21s. per 100 upwards.		

6. WEEPING TREES.

	Each.—s.	d.
ASH, Common Weeping, 8 to 10 feet stems	3	6
Do. Chinese do., 6 feet stems	2	6
Do. Gold-barked do., 6 feet stems	2	6
Do. Mountain do., 8 feet stems	2	6
Do. do. Variegated do., 8 feet stems	2	6
ALMOND, Weeping, 5 feet stems	2	6
BIRCH, Cut-leaved, Weeping, 7 feet stems	2	6
CHERRY, Weeping, 5 feet stems	2	6
ELM, 6 best sorts, 5 to 12 ft. stems,	2s. 6d. to 7	6
HOLLY, Variegated, 6 ft. stems,	10s. 6d. to 21	0
LIME, 7 to 8 feet stems 2s. 6d. to	5	0
OAK, Turkey, 6 feet stems	5	0
POPLAR, Weeping, 10 to 12 ft. stems,	3s. 6d. to 7	6
WILLOW, Common Weeping, 6 to 8 ft., p. doz.	9	0
Do. do., 10 feet per dozen,	12s. to 18	0
Do. American do., fine, 5 to 6 ft. stems, p. doz.	12	0
Do. Kilmarnock, 5 to 6 feet stems	2	6
Do. WOLSEYANA, 5 to 6 feet stems	3	6

7. AMERICAN PLANTS.

	Per dozen.—s.	d.
ANDROMEDA FLORIBUNDA	18s. to 42	0
AZALEA PONTICA	12s. to 18	0
Do. GHENT varieties	18s. to 30	0
GAULTHERIA SHALLON	6s. to 9	0
HEATHS, in 24 best sorts	6	0
KALMIA LATIFOLIA	18s. to 30	0
MAGNOLIA PURPUREA	18s. to 30	0
RHODODENDRON PONTICUM, of various sizes, very bushy, from 30s. p. 100 to	24	0
Do. do. HYBRIDUM	18s. to 42	0
Do. WILSONI	12s. to 30	0
Do., finest named sorts	30s. to 60	0

8. CLIMBING and WALL PLANTS, in pots.

	Each.—s.	d.
ALATERNUS, Gold, 2 feet	1	6
Do., Silver, 1 to 1½ foot	1	6
BIGNONIA RADICANS MAJOR	2	6
BUDDLEA GLOBOSA	1	6
CLEMATIS, 24 best sorts 1s. to	2	6
ELEAGNUS REFLEXA AUREA MACULATA, 2 feet	1	6
Do. PUNGENS VARIEGATA, 1 foot	2	6
ESCALLONIA MACRANTHA, 2 feet	1	6
Do. MONTEVIDENSE, 2 to 3 feet	1	6
Do. RUBRA, 2 to 3 feet	1	6
EUONYMUS JAP. AUREO-VARIEGATUS, 2 feet	2	6
Do. do. do. MARGINATUS, 2 feet	2	6
Do. do. MACROPHYLLUS, 2 to 3 feet	1	6
GUM CISTUS, 2 to 3 feet	1	6
GRISLENIA, 1½ foot	1	0
GARRYA ELLIPTICA	1	6
IVY, IRISH, 4 to 5 feet per dozen	9	0
Do., 20 best green sorts „	12	0
Do., 20 best variegated sorts „	18	0
JESSAMINE, White, 3 to 4 feet	1	0
Do. do. Variegated, 2 feet	1	6
Do. NUDIFLORUM, 3 feet	1	0
Do. REVOLUTUM, 2 feet	1	6
LONICERA (Honeysuckle), 12 best sorts, named per dozen,	6s. to 9	0
MAGNOLIA GRAND EXONIENSIS, 3s. 6d. to	7	6
PASSION FLOWERS 1s. to	1	6
PHOTINIA SERRULATA, 2 feet	1	6
PYRACANTHA 9d. to	1	6
PYRUS JAPONICA, White and Red, 9d. to	1	6
VINE, Purple-leaved	1	6
Do., Variegated 1s. 6d. to	2	6
VIRGINIAN CREEPER 9d. to	1	0
WISTARIA SINENSIS 1s. 6d. to	2	6

9. HERBACEOUS PLANTS.

Principally Spring-flowering.

	Per dozen.—s.	d.
ALYSSUM SAXATILE per 100,	20s.; 3	0
Do. do. VARIEGATA	6	0
ARABIS ALPINA per 100,	16s.; 3	0
Do. do. VARIEGATA	4	0
ARUNDO CONSPICUA each	1	6
Do. DONAX VARIEGATA, each,	1s. 6d. to 3	6
AUBRIETIA, of sorts	3s. to 8	0
DAISIES, of sorts per 100,	16s.; 3	0
HEPATICAS, of sorts	6s. to 9	0
HOTTEA JAPONICA each,	1s. to 1	6
GYNERIUM ARGENTEUM, „	9d. to 1	6
Do. do.	6s. to 12	0
Do. do. VARIEGATUM each,	2s. 6d. to 5	0
LILY of the VALLEY per 100,	6s; 1	0
MYOSOTIS SYLVATICA, p. 100,	12s. 6d.; 3	0
POLYANTHUS, of sorts	3s. to 5	0
PRIMROSES, of sorts	5s. to 12	0
PHLOXES, 30 best sorts	6s. to 12	0
ROCKET, double white	6	0
SILENE, of sorts per 100,	8s.; 1	6
VIOLETS, 6 sorts	4s. to 12	0
WALLFLOWERS, blood and yellow, per 100,	8s. to 16s.; 3	0

10. GREENHOUSE PLANTS.

	Each.—s.	d.
ACACIA, 12 best sorts 1s. 6d. to	2	6
CAMELLIAS, a very fine collection, per dozen,	30s. to 60	0
Do. large specimens from	10s. 6d. to 210	0
CORRÆAS, of sorts 1s. 6d. to	2	6
EPACRIS, 24 best sorts 1s. 6d. to	3	6
HEATHS, winter and spring flowering, 1s. 6d. to	3	
CLIMBERS, various 1s. 6d. to	3	
PELARGONIUMS, Beaton's race, new 1869	3	
Do. do., new 1868 per dozen	12	
Do. Variegated per dozen,	18s. to 63	
Do. Double „	18s. to 30	
Do. Standard, Variegated 5s. to	7	
Do. ZONAL, a very fine Collection of 200 sorts per dozen and upwards,	6	0

11. BULBS.

	s.	d.
LILIUMS, of sorts each, 6d. to	7	0
CYCLAMENS, of sorts each, 1s. to	3	6
GLADIOLUS, of sorts, a fine collection per dozen, 6s. to	30	0

ASPARAGUS and SEAKALE, Planting and Forcing; MUSHROOM SPAWN, RUSSIAN MATS, and GARDEN SEEDS of every description.

Picked specimens of TREES and SHRUBS at special rates.

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rainage, proper depth of .. 1214 a
ary cows ..... 1209 a
arm memoranda ..... 1218 a
arnham Castle Orchids .... 1209 b
lorists' flowers ..... 1211 b
oreign correspondence—
1209 c—1217 a
orest education on the Con
tinent ..... 1205 a
ame, over-preservation of .. 1213 c
odwinia gigas ..... 1205 c
rafting the Grape Vine .... 1209 a
rains, dried ..... 1217 a
lelons, judging at Edin-
burgh ..... 1209 b
liscellaneous ..... 1212 a
ongrel blood, its effects .... 1216 a
ectines ..... 1208 a
bituary ..... 1211 c

Picea Pinsapo ..... 1209 b
Plants, new ..... 1205 c
Potatoes, American ..... 1206 b
Poultry yard, the ..... 1220 a
Road-steamer, Thompson's
patent ..... 1215 b
Sands blowing, remedy for . 1214 b
Self fertilisation of winter
flowers ..... 1205 b
Sewage farming at Barking . 1213 b
Sewage, value of ..... 1214 b
Societies—
Royal Horticultural ..... 1210 a
London—Continental Agri-
culture ..... 1217 a
Lozic — Farmyard Manure 1217 c
Dorchester — Agricultural
Cottages ..... 1218 b
Steam cultivation charges .. 1216 b
Steam ploughing at Wool-
ston ..... 1216 c
Stock, our live ..... 1214 c
Tenure, fixity of, v. tenant
right ..... 1214 c
Town gardening ..... 1212 b
Transit of cattle ..... 1214 b
Vine roots ..... 1209 a
Weather in Scotland ..... 1209 b

ROYAL BOTANIC SOCIETY'S GARDENS, Regent's Park.—The days fixed for the EXHIBITIONS and FÊTES next year are WEDNESDAY and THURSDAY, March 30, 31; April 27, 28; May 25, 26; June 22, 23; July 6, 7.
MUSICAL PROMENADES on the other WEDNESDAYS in May, June, and July. AMERICAN PLANTS during JUNE. LECTURES, FRIDAYS in May and June. By Order of the Council.
J. DE C. SOWERBY, Secretary.

HORTICULTURAL SOCIETY of LIVERPOOL.—The SEVENTH GREAT EXHIBITION of CHRYSANTHEMUMS and FRUIT will be held at St. George's Hall on TUESDAY and WEDNESDAY, November 23 and 24. For Schedules, &c., apply to R. WILSON KER, Hon. Sec.,
6, Basnett Street, Liverpool

GRAND NATIONAL HORTICULTURAL EXHIBITION, 1870.—JUNE 3 to 9.
ONE THOUSAND POUNDS in PRIZES.
To be held in the BOTANIC GARDENS, MANCHESTER.
Schedules will shortly be issued. (By Order.)
Botanic Gardens, Manchester. BRUCE FINDLAY.

Veitch Memorial.

JAMES BARNES, late of Bicton, now of 1, Rolle Street, Exmouth, begs to announce to his Friends and the Public, that, having been appointed a member of the General Committee for carrying out the above-named object, he will gratefully RECEIVE, and promptly ACKNOWLEDGE, any SUBSCRIPTIONS that may be forwarded to him in furtherance of the good cause.

Choice Seeds.

HOOPER AND CO. beg to state that all TENDERS of CHOICE and RARE EXOTIC SEEDS of the present year, from any part of the world, must be submitted to them if possible before DECEMBER 31 next.
HOOPER AND CO., Seed Merchants, Covent Garden, London, W.C.

EVERY GARDEN REQUISITE KEPT in STOCK at CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

CINERARIAS, Show and Prize Flowers, 9s., 12s., 18s., and 24s. per dozen.
J. DOBSON AND SONS, Woodlands Nursery, Isleworth, W.

PYRETHRUM AUREA (Golden Feather) and LOBELIA SPECIOSA.—Enough SEED of either to produce 500 Plants for 13 stamps. Price to the Trade on application.
CHARLES YOUNG, Balham Hill Nursery, London, S.W.

GLADIOLI SEEDLINGS (mixed).—Beautiful flowers, equal to any collection, of all colours. Strong flowering Bulbs, 7s. per 100, £3 per 1000. Sorts per name at the lowest prices. Apply to LEVEQUE ET FILS, Nurserymen, 132 and 134, Boulevard de l'Hôpital, Paris.

Vines.

JAMES CARTER AND CO. can now offer strong, well-grown CANES, this year's growth. For description of Varieties and Prices, see AUTUMN CATALOGUE, now published.
JAMES CARTER AND CO., Seedsmen and Nurserymen, 237 and 238, High Holborn, W.C.

Value for Value.

GRAPES the first year.—Extra strong Canes, 10s. 6d. and 7s. 6d. each; good Fruiters at 5s. each.
Extra strong SEAKALE for immediate forcing. Prices on application.
R. TANTON, F.R.H.S., The Nurseries, Epsom.

FRUITING VINES, warranted to fruit well this following season, of all the most approved kinds, from 5s. to 10s. 6d. each; ditto Planting Canes, 2s. 6d. to 3s. 6d. each.
J. PEED, Effra Nursery, Brixton, S.W.

Grape Vines.

B. S. WILLIAMS' stock is remarkably fine, and in good condition. Can supply all the best kinds. Prices on application.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

Pines.

B. S. WILLIAMS has all the best kinds, in splendid condition, warranted clean. Prices on application.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LIST of these varieties from Mr. WEBB, Calcot, Reading.

DWARF ORANGE and TWO LEMON TREES for SALE, height from 6 to 8 ft., with stems about 3 feet. For particulars apply to J. GIBSON, Jun., 20, Bridge Road West, Battersea, S.W.

To Nurserymen.

WANTED, 200 2-yr. old PASSE MADELINE PEAR TREES. State price, to be delivered at
Mr. ALLAWAY'S, Earl's Court Farm, Old Brompton, S.W.

MULBERRIES.—Fine healthy Trees, 4 feet, 1s. 6d. each; 5 feet, 2s.; 6 feet, 2s. 6d.; 7 feet, 3s.; 8 feet, 4s.; 8 to 9 feet, 5s. If taken by the dozen, 5 per cent. discount for cash; by the 100, 10 per cent.
J. FRYER, Clarendon Nurseries, Camberwell, S.E.

TO GENTLEMEN, GARDENERS, and OTHERS, having to DISPOSE of CHOICE FRUIT, FLOWERS, VEGETABLES, &c., may meet with good Sale and quick returns by sending to A. IRELON, Covent Garden Market, W.C. Stamp for inquiry.

RICHARD SMITH'S ROSE LIST, containing all the leading and most popular kinds of Roses, may be had free by post.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

FIFTY THOUSAND TEA-SCENTED and NOISETTE ROSES, in pots, all the most popular and best kinds, at 9s. to 18s. per dozen. DESCRIPTIVE LIST on application.
RICHARD SMITH, Nurseryman, Worcester.

ROSES, 9s. per dozen, of the best sorts; stems about 1½ foot high. For cash only.
A. WILKIN, Tiptree, Kelvedon.

To the Trade.—Hybrid Perpetual Roses.

HUSSEY AND SON beg to offer fine DWARFS on MANETTI at 6s. per dozen, £2 per 100. LISTS of sorts upon application. Mile End Nursery, Eaton, Norwich.

Splendid Roses.

TRY the SALISBURY ROSES. CATALOGUES ready.
JOHN KEYNES, Castle Street Nursery, Salisbury.

Rose Catalogue.

JOHN CRANSTON'S ROSE CATALOGUE for 1869 is now ready, and will be sent post free on application.
The Nurseries, King's Acre, near Hereford.

200,000 Dwarf Hybrid Perpetual Roses.

WM. WOOD AND SON have a magnificent Stock of the above to offer. Early orders are respectfully solicited.

STANDARD and DWARF ROSES, by the dozen 100, or 1000. CATALOGUES on application.
WM. WOOD AND SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

Roses.

THOMAS S. WARE can supply Standard, Half-Standard, and Dwarf ROSES, by the dozen, 100, or 1000. Special offers to the Trade. CATALOGUES and prices on application.
Hale Farm Nurseries, Tottenham, Middlesex, N.

Roses.

CHARLES TURNER'S DESCRIPTIVE and PRICED CATALOGUE of ROSES is now ready; it also contains full LISTS of FRUIT TREES, SHRUBS, CONIFERÆ, &c., and may be had post free on application.
The Royal Nurseries, Slough.

Paul's Rose Catalogue.

"A very complete and able Catalogue."—*Floral World.*
WM. PAUL begs to announce that his NEW CATALOGUE of ROSES is now ready, and will be forwarded post free on application. The stock of Plants is large and excellent.
Paul's Nurseries, Waltham Cross, London, N.

To the Trade.

STANDARD ROSES, 80s. per 100; Dwarfs, on Manetti, 50s. per 100, fine plants and best kinds, to 1868.
VICOMTESSE HERICART DE THURY STRAWBERRY, and 60 other fine kinds, well rooted plants, 10s. per 1000.
W. JACKSON, Blakedown Nursery, Kidderminster.

WANTED, dark-blue GENTIANELLA, CHRISTMAS ROSES, and DOUBLE PRIMROSES, in variety. State number to offer, and price per 100, to
H. W. WARREN, Seedsman, Florist, &c., Salisbury.

WANTED, 100 bushels of ACORNS.—Apply, sending sample and stating the price, to
Mr. L. H. CUMBERBATCH, Queen's House, Lyndhurst, Hants.

WANTED, BLACK ITALIAN and LOMBARDY POPLARS.—Must be large and transplanted Trees, with well-shaped heads. State size and price, per dozen or 100, to
J. CHAPMAN AND SON, Vale Nursery, Ramsgate.

Wholesale Catalogue of Good Transplanted Nursery Stock.

GEO. JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1869-70 will be forwarded free on application. Woking Nursery, Surrey.

Tree Ferns and Todea superba.

FOWLER AND CO., NURSERYMEN, Glasgow, have a few hundred TREE FERNS, from 2 to 16 feet high, and TODEAS, 1 to 4 feet across, all splendid plant. Prices moderate.

STANSFIELD'S Selections of ALPINE PLANTS for Rockwork.—Fifty beautiful and distinct species, named, for 12s. 6d.; 100 do. do., for 25s. British and Exotic FERNS, and general NURSERY STOCK in great variety. LISTS on application.
The Kersal Nurseries, Manchester.

TWO MILLIONS of strong transplanted WHITE THORN. Price on application to
FREDK. PERKINS, Bedford Road Nursery, Northampton.

Spruce Firs.

THOS. CRIPPS AND SON, NURSERYMEN, Tunbridge Wells, have a large Stock of the above in all sizes, from 1 to 10, 12 and 15 feet. Prices on application.

TO the TRADE.—1-yr. Seedling LARCH, of very fine quality. Price and sample on application.
R. MORRISON, Nurseryman, Elgin, N.B.

OAK, in drills, 1, 2, and 3 feet. Through rates to all Stations.
R. MORRISON, Nurseryman, Elgin, N.B.

SEEDLING and Transplanted SCOTCH FIR of all sizes; also LARCH, SPRUCE, SILVER FIR, PINUS AUSTRIACA, LARICIO, &c. Price on application.
R. MORRISON, Nurseryman, Elgin, N.B.

FRUIT TREE STOCKS.—2-yr. Seedling PEARS, of fine quality; 1, 2, and 3-yr. Seedling APPLES, fine, also transplanted, of all sizes; 2-yr. Seedling and Transplanted CHERRIES, 2-yr. Seedling PLUMS.
R. MORRISON, Nurseryman, Elgin, N.B.

Planting Season.

THE SUBSCRIBERS announce that their PRICED LIST for the season may now be had on application.
WM. URQUHART AND SONS, Dundee.

MAGNIFICENT, strong, well grown, transplanted COMMON LAURELS, from 4 to 6 feet. Prices on application.
WM. WOOD AND SON, Nurseries, Maresfield, Uckfield, Sussex.

Splendid Large Trees for Avenue Planting.

SCARLET and Common HORSE CHESTNUTS, ELMS, POPLARS, &c. CATALOGUES on application.
WM. WOOD AND SON, Nurseries, Maresfield, Uckfield, Sussex.

Dutch Bulbs, just Imported.

JAMES CARTER AND CO.'S AUTUMN CATALOGUE of HYACINTHS, CROCUS, and other Bulbs, also ROSES and FRUIT TREES, is now ready, and will be forwarded gratis and post free on application.
238, High Holborn, London, W.C.

Bulbs and Bulb Catalogue.

BARR AND SUGDEN'S BULB CATALOGUE free on application. See p. 1180 for particulars.
BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.

Notice.

THOSE who have neglected to Purchase their Supplies of BULBS for indoor decoration, to secure a satisfactory result should purchase during the present month.
BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.

Notice.

THOSE who have not yet Furnished their Beds with SPRING-FLOWERING PLANTS and BULBS, should do so during this month.
BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.

Special Offer to the Trade.

YELLOW CROCUS and Named CROCUS, SNOWDROPS, TULIPS, &c. Prices on application.
BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.

FELTON AND SON'S PLANT and BULB CATALOGUES now ready, post free on application.
Birmingham Nursery, Harborne Road, Birmingham.

Dutch Bulbs.

MORLE'S (late Hopgood's) ONE GUINEA and TWO GUINEA COLLECTION is the best and cheapest in the Trade. All Bulbs reduced 10 per cent. from Catalogue prices. Send at once for one to 9, Queen's Road, Bayswater, W.

TO be SOLD, Cheap (fine Roots), about 2000 TOURNESOL TULIPS; 2000 REX RUBRORUM; 2000 DOUBLE DUC VAN THOL; 8000 YELLOW CROCUS; and 500 NAMED HYACINTHS. Price upon application to THOMAS SHERMAN, Seedsman, &c., 59, Newington Butts, London, S.E.

NEW RHODODENDRON (Scarlet Hybrid), EARL DERBY. See Advertisement on page 1202.

New Golden Coleus.

DOWNIE, LAIRD, AND LAING offer SEED, saved from their First Prize Collections at South Kensington and the Crystal Palace, in packets, at 1s. each. The Trade supplied.
Stanstead Park, Forest Hill, S.E.

Now Sending Out.

PELARGONIUMS.—Any 12 of the varieties for which we were awarded 14 First Prizes this season, for 21s., in good strong plants.
DOBSON AND SONS, Woodlands Nursery, Isleworth, W.

VARIEGATED PELARGONIUMS.—Mrs. Dix, Plutus, Spanish Beauty, Jock o' Hazeldean, Louisa Smith, Lizzie, Caroline Longfield, Oberon, Dragon, Countess Tyrconnell, Golden Circle, Glen Eyre Beauty. 21s.
CASBON AND SON, Gravel Walk Nursery, Peterborough.

Special Offer.—Madame Lemoine.

WILLIAM BADMAN offers strong plants of this most beautiful of Double Pelargoniums, in single pots, 6s. per dozen. LORD DERBY, finest Pelargonium grown, 4s. per dozen. Package included. Terms cash.
Cemetery Nursery, Gravesend.

Pelargoniums for the Million.

JAMES HOLDER'S unrivalled Collection of French, Fancy, and Show varieties is now ready, at the following low prices:—100 plants, distinct sorts, for 50s.; 50 plants for 30s.; or 25 plants, distinct sorts, for 20s., hamper and package included.
Crown Nursery, Reading.

Pelargoniums, Carnations, Picotees, Pinks, Cloves, Auriculas, &c.

CHARLES TURNER can supply fine plants of the above. A CATALOGUE, containing select Collections of each, is now ready.
The Royal Nurseries, Slough.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.—Mr. WEBB, Calcot, Reading.

Important Announcement.

ALFRED LEGERTON, SEED MERCHANT, 5, Aldgate, London, E., begs to inform the Trade his SPECIAL LIST of NEW SEEDS is now ready, and can be had upon application.
Stocks the best, and Prices the lowest, in London.

EWING AND CHILD'S GENERAL NURSERY CATALOGUE, which contains descriptions of a select assortment of Fruits, Roses, Conifers, Evergreens, Ornamental Deciduous Trees, &c., is now ready, and may be had Gratis and Post free on application to The Royal Norfolk Nurseries, Norwich.

Everlasting and Dried Natural Flowers.

JAMES CARTER, DUNNETT, AND BEALE'S WHOLESALE LIST of the above is now ready, and will be forwarded immediately on application.
237 and 238, High Holborn, London, W.C.

CUCUMBER and STRAWBERRY PLANTS, Wholesale and Retail.
G. WALKLING, High Road and College Park, Lewisham, S.E.

MUSHROOM SPAWN, of the best quality, in large or small quantities. Price for 10 Bushels and upwards, on application to
J. MAY, Seedsman, 35, Brydges Street, Covent Garden, W.C.

To the Trade.

ASPARAGUS ROOTS.—A large quantity, of from 2 to 4-yr. old, strong Asparagus roots. No reasonable offer refused.
GEO. WINFIELD, Gloucestershire Seed Warehouse, Gloucester.

Asparagus Plants.—To the Trade.

JAMES CARTER AND CO. having grown a splendid lot of strong 3-yr. old plants, are prepared to make special quotations.
JAMES CARTER AND CO., 237 & 238, High Holborn, London, W.C.

ASPARAGUS, from old Stools, for Forcing; ARBOR-VITÆS, 4 to 5 feet, fine; PINUS AUSTRIACA, large, transplanted, for blinds; SCOTCH FIR, 2 to 3 feet, transplanted ISES; ACER NEGUNDO VARIEGATA, WHITE SPANISH BROOM, &c.; Standard PEARS and APPLES.
JOHN STEWART, The Nursery, Norwich.

New Chrysanthemums.

H. CANNELL has now a splendid Stock of 217 varieties, consisting of all the New, and best older varieties in cultivation, and will supply them either as Cuttings or Rooted Cuttings, or Potted Plants, at the very lowest price consistent with quality and economy.

See H. C.'s FLORAL GUIDE, giving particulars how to grow the Japan and other varieties. Other kinds are classed according to what they are best adapted for, and a great deal of other valuable information, including the Second Chapter on the Art of Gardening and the Natural Requirements of Plants. Free for Four Stamps.

New Florist Flower and Florist Flower Seed Merchant, Woolwich.

JAMES CARTER AND CO. have a beautiful Stock of Seedlings, in excellent condition, of their choicest Strains of CALCEOLARIA, CINERARIA, and PRIMULA, in 60-pots, fit for potting-on immediately for early Spring Blooming. Worthy the attention of those who have omitted to sow at proper time. Price, 21s. per box, 3s. per dozen.

JAMES CARTER AND CO., 237 and 238, High Holborn, W.C.; and Crystal Palace Nurseries, Forest Hill, S.E.

To Growers for Market, Gardeners, and the Trade.

JOHN MONRO, of the Great North Road, Potter's Bar, N., has 5000 Plants of the choicest sorts of PELARGONIUMS that are grown for the London Market; also 1000 Plants of the best strain of Red and White PRIMULAS.

Packed and put on railway at Potter's Bar Station, at £1 per 100.

Post-office orders payable at Potter's Bar, N.

The Present Time is most favourable for Planting.

GEORGE JACKMAN AND SON'S Hybrid and Hardy CLEMATISES awarded Twenty First-class Certificates and Two Specials. A Set of Five Engravings, from Photographs taken at Woking Nursery, and a general DESCRIPTIVE CATALOGUE of prices will be forwarded by enclosing two stamps.

FIRST-CLASS HARDY and PERMANENT PLANTS.
Engraving No. 1. For Conservatories, Terraces, &c.
Engraving No. 2. For Lawn, Flower Garden, &c.
Engraving No. 3. For Hardy and Permanent Bedding, &c.
Engraving No. 4. For Festoons, Verandahs, &c.
Engraving No. 5. For Rootery, Rockwork, Ruins, &c.

GEO. JACKMAN AND SON, Woking Nursery, Surrey.

To the Trade.

PYRETHRUM AUREA (New Golden Feather), strong Plants, 10 inches to 1 foot through, 12s. to 16s. per 100. Seed of the above to produce 200 Plants, 6d. per packet.
CYCLAMEN PERSICUM, showing Bloom, 60s. per 100.
SOLANUM CAPSICASTRUM, for Winter and Spring Berrying, 30s. to 35s. per 100.
ROSES, Tea, Safrano, 50s. per 100, in pots.
ROSES, Tea, Madame Falcot, 60s. per 100, in pots.
ROSES, China, in four good and distinct varieties, 35s. to 40s. per 100, in pots.
ROSES, Manetti Stocks, strong, for immediate working, 35s. per 1000.
The above can be had in strong Plants at
GODWIN'S Rose Nursery, Angel Road, Edmonton, N.

Notice to Debtors and Creditors.

WILLIAM HEALE, Deceased.—All Persons having any CLAIM or DEMAND against the Estate of WILLIAM HEALE, late of Calne and Chippenham, Nurseryman, Seedsman, and Florist, Deceased, are requested to send Particulars thereof in writing, either to Mrs. MARIA KIRBY, Calne, Executrix, or to Mr. JOHN SPENCER, Bowood, Executor, forthwith, that the same may be examined and, if found correct, Discharged.

And all Persons INDEBTED to the said WILLIAM HEALE at the time of his Death are desired to PAY the same to one of the above-named parties on or before JANUARY 1, 1870.

NOTICE to the PUBLIC.—The Business, in all its branches, will be carried on as heretofore by Mrs. MARIA KIRBY (late Heale), under the name of "HEALE AND CO." Nurserymen, Seedsmen, and Florists, at Calne and Chippenham, Wilts.—Calne, Nov. 10.

Important to Nurserymen and Florists.

EDWARD FERRALL, NURSERYMAN and SEEDSMAN, Longford, Ireland, has for SALE 100,000 of the RHODODENDRON PONTICUM. They are grown in rich peat land, and have splendid bulbous roots. The heights and prices are as follows:—8 to 9 inches, 3s. 6d. per 100; 9 to 12 inches, 6s. per 100; 12 to 24 ins., 12s. per 100. 10 per cent off for sales of quantities of 5000. Samples can be seen at Mr. J. NEWTON'S, 33, Mark Lane, London.

Rhododendrons.—To the Trade.

J. MATTHEWS has a large stock of 4-yr. RHODODENDRONS, 6s. per 1000; 3-yr. (1-yr. transplanted), 10s. per 1000; 1 to 1½ foot, bushy, 15s. per 100; 1½ to 2 feet, 40s. per 100; Splendidum, white Rhododendron, budded, 1½ foot, 10s. per dozen; Corsicum pictum, 1 foot, 12s. per dozen.

SPRUCE FIR, 1½ to 2 feet, 20s. per 1000; and 2 to 3 feet, 30s. per 1000. PRIVET EVERGREEN, 2 to 3 feet, 16s. per 1000; 3 to 4 feet, 20s. OAKS, 3-yr. budded, 1 to 1½ foot, 5s. per 1000.

Milton Nurseries, Stoke-on-Trent, Staffordshire Potteries.

Rhododendrons, finest named Varieties.



MESSRS. VEITCH AND SONS beg to announce that they have a splendid Stock of the above, well set with flower-buds, and are enabled to offer beautiful Plants, 1½ to 2 feet high, suitable for Forming or Planting in Beds, at 30s. to 42s. per doz.

Messrs. VEITCH AND SONS have a large Stock of named sorts in other sizes, as also of HYBRID PONTICUM RHODODENDRONS, and will be happy to send samples and quote sizes and prices by the 100 or 1000.

Royal Exotic Nurseries, Chelsea; and Coombe Wood, Kingston, S.W.

RHODODENDRON MULTIFLORUM and AZALEA HYBRIDA ODORATA.—These plants gained First-class Seedling Prizes both in London and Liverpool, and the following Nurserymen have been purchasers, whose knowledge of this class of plants cannot be doubted:—W. Skirving and Thos. Davies & Co., of Liverpool; J. Veitch & Sons, W. Bull, and A. Henderson & Co., of London; Thos. Jackson & Son, Surrey; Lucombe, Pince & Co., Exeter; J. Backhouse & Son, York; Thos. Methven and Downie, Laird & Laing, of Edinburgh; J. Stewart & Sons and Urquhart & Son, Dundee; E. Sang & Sons, Kirkcaldy; Thos. Innie & Sons, Ayr; Thos. Cripps & Son, Tunbridge Wells; E. Holmes, Lichfield; Fisher, Holmes & Co., Sheffield; Jas. Smith, Matlock; E. P. Francis & Co., Hertford; H. Watson, Barnsley; Robert Morrison, Elgin.

Price—R. MULTIFLORUM, 3s. 6d. to 7s. 6d.; bushes 1 foot high, with fine large flower-buds, 12s. to 63s. each.

A. HYBRIDA ODORATA, 5s. to 7s. 6d., strong, with flower-buds, 21s., 42s., and 63s. each.

ISAAC DAVIES, Brook Lane Nursery, Ormskirk.

NEW SCARLET HYBRID RHODODENDRON, the EARL of DERBY.—This magnificent hybrid, raised by Mr. J. Faulkner, late of Kersal, and named by him after the illustrious Earl, lately deceased, is now offered to the Public, in robust two-year-hardened plants, from layers, at 21s. each. Noble alike in the large size of its foliage and in its immense trusses of flowers, of a fine crimson, of almost maximum size and exquisitely spotted (with dark spots), this splendid novelty is destined, beyond any question, to take and to hold a place in the very front rank of that host of beautiful hybrid Rhododendrons which are the glory and the pride of our British gardens. Such, in short, are its merits, that the Raiser has no hesitation in guaranteeing to each disappointment each and every Purchaser. The Stock available for market being limited, it will be necessary to send orders early.

The following scarlet Hybrid Rhododendrons, of the same raiser, and of surpassing merit, are offered at the low prices attached, viz.:—

MASTERPIECE, rosy crimson, strong plants from layers, three-year-hardened, 5s. to 7s. 6d. each.

PHENOMENON, bright rosy crimson, finely spotted, do. do., 5s. to 7s. 6d. each.
fine Standards, 7s. 6d. to 10s. 6d.

FAULKNERI, deep crimson, fine, do. do., 3s. 6d. to 7s. 6d.
fine Standards, 7s. 6d. to 10s. 6d.

A plant of the last named, in the Nursery here, carried, this season, upwards of 100 trusses of flowers, of exquisite colour and penetrating, and of fine size.

The Royal Nurseries, Manchester. (Established 40 years.)

N.B. Post Office orders payable—ABRAHAM STANSFIELD, Manchester.

FRUIT TREES OF EVERY DESCRIPTION.



WILLIAM ROLLISSON & SONS

BEG RESPECTFULLY TO ANNOUNCE THAT THEIR

NEW CATALOGUE OF HARDY AND ORCHARD-HOUSE FRUITS

Is now about being published, which contains a full and Descriptive List of all the Popular Favourites in Cultivation, together with additions of most of the Novelties, worthy of merit, of the season; and will be forwarded, Gratis and Post Free, on application to

THE NURSERIES, TOOTING, LONDON, S.W.

NEW APPLE.

HARRISON'S ANNIE ELIZABETH.

This valuable Apple, which was awarded a First-class Certificate by the Royal Horticultural Society, 1868 (and figured in the "Florist and Pomologist," November, 1869), is now being sent out by us, and is one of the best Apples ever offered. For culinary purposes it is unsurpassed, and after Christmas becomes a good fruit for dessert. It is of large size, deep colour on sunny side, white flesh, very solid and juicy, with an agreeable acid. A most remarkable keeper, having been in good condition 12 months after gathering.

The Tree is of sturdy upright growth, forming a beautiful pyramid, with immense leaves, some measuring this season 4½ inches across, and is a good cropper.

Price 7s. 6d. each. Usual discount to the Trade.

The stock is limited, and early orders will insure the best Trees.

HARRISON AND SON, MIDLAND SEED WAREHOUSE, LEICESTER.

ROSES.

"The Roses of Mr. PAUL * * * are things to see once and dream of for ever."—*Athenæum.*

WILLIAM PAUL

HAS AS USUAL A MAGNIFICENT STOCK OF ROSES,

For which he respectfully solicits Orders.

STANDARDS and HALF-STANDARDS, sound healthy heads and clear straight stems, well varied, 18s. per doz., £6 10s. per 100.
STANDARDS and HALF-STANDARDS, ditto, ditto, very superior sorts, 24s. per dozen.
DWARF STANDARDS, fine sorts, 12s. to 18s. per dozen, £5 per 100.
DWARFS, well varied and good sorts, 9s. to 18s. per dozen, 60s. to 100s. per 100.
" new sorts, 24s. to 36s. per dozen.
DWARFS, mixed summer kinds, for borders or shrubberies, 30s. per 100.
CLIMBING ROSES, in variety, 9s. to 12s. per dozen.
EXTRA-SIZED ROSES, in pots, for forcing or greenhouse culture, 24s. to 42s. per dozen.
SPECIMEN POT ROSES, 5s. to £10 10s. each.
STANDARD and DWARF ROSES of all the finest and most effective sorts for bedding, massing, or forming a Rosarium, at special and reduced rates, by the 100 or 1000.

For FRUIT TREES, EVERGREENS, CONIFERÆ, DECIDUOUS TREES and SHRUBS, WEEPING TREES, AMERICAN PLANTS, CLIMBING PLANTS, &c., see previous and future Advertisements.

PRICED DESCRIPTIVE CATALOGUES Free by Post.

IMPORTANT.—ADDRESS, WM. PAUL, PAUL'S NURSERIES AND SEED WAREHOUSE, WALTHAM CROSS, LONDON, N.

EARLY SANDRINGHAM KIDNEY POTATO.

THE EARLIEST, MOST PROLIFIC,

AND BEST VARIETY FOR FORCING PURPOSES IN CULTIVATION.

Price to the Trade and further particulars may be had on application to

H. AND F. SHARPE, SEEDGROWING ESTABLISHMENT, WISBECH.

SPECIMEN WELLINGTONIAS.—NEW HARDY TREES.

PAUL & SON,

THE "OLD" NURSERIES, CHESHUNT, N.,

BEG TO DRAW ATTENTION TO THEIR

UNRIVALLED STOCK OF WELLINGTONIAS, 5 TO 9 FEET,

Moved during the present Spring. Price 7s. 6d. to 42s. each.

When large quantities are required for avenue planting, special prices will be quoted.

ORDERS ARE SOLICITED FOR THE FOLLOWING NEW HARDY TREES

Each in its way a valuable novelty:—

IMPERIAL CRAB (LAING).—A most ornamental fruiting tree. A true Crab, ripening somewhat earlier than the Siberian. Fruit large, most richly coloured bright crimson-red. Its juicy rich fruit will be fine for preserving. Standards and Pyramids, now ready, 7s. 6d. each; Dwarfs, 5s.

CUPRESSUS LAWSONIANA ALBA PENDULA (PAUL & SON).—The foliage is greyish white, except when starting into growth, when it is light green, quickly changing to white. Most graceful pendulous habit pronounced by all when exhibited a most beautiful novelty. First-class Certificate Royal Horticultural Society. Plants will be ready early in September next, 10s. 6d. to 21s. Orders, to be executed in strict rotation, are now solicited.

PAUL AND SON'S NEW DOUBLE CRIMSON THORN.—Strong Standards and Pyramids of this now well-known tree, 2s. 6d. each.

DESCRIPTIVE HARDY TREE and FRUIT TREE CATALOGUE, Post Free.

THOMSON'S WHITE LADY DOWNE'S GRAPE.—Plants of this remarkable White Grape, the latest keeping in cultivation, are now being sent out. The Canes are strong and thoroughly ripened. Immediate orders are respectfully requested. Price 21s., 42s., and 63s. each.
THOMAS METHVEN, Leith Walk Nurseries, Edinburgh.

EXTRA STRONG FRUITING VINES.—2000 close-jointed thoroughly ripened Canes can be supplied of Black Hamburgh, Golden Champion, Mrs. Pince, and other varieties, for fruiting in pots and for planting. Descriptive CATALOGUE upon application.
JAMES DICKSON AND SONS, Newton Nurseries, Chester.

Golden Champion Grape.

OSBORN AND SONS can supply good CANES of the above-named remarkable GRAPE, which has again been exhibited and very much admired, fully sustaining the high character previously formed of it. Price 10s. 6d., 21s., and 30s. each.
Fulham Nursery, London, S.W.

FIFTY PINES, Fruiting Plants, QUEENS (in pots), perfectly clean and healthy. The above are splendid plants, and are only parted with owing to a death in the family.
For particulars as to price, &c., apply to the GARDENER, Chilworth Manor, Romsey, Hants; or, to Messrs. CUTBUSH, the Highgate Nurseries, London, N.

Vines.

CHARLES TURNER can supply
GOLDEN CHAMPION
MADRESFIELD COURT | MRS. PINCE, and
BLACK MUSCAT | ROYAL ASCOT
In Fruiting Canes, or second size for planting out; also the established old varieties, in fine plants.
The Royal Nurseries, Slough.

Vineries.

JOHN KEYNES has for several years grown some of the finest VINES in the Trade. He has not been in a position to offer any until this season. They are all of only one year's growth, from the eye, never having been cut down, as is often the case. These Vines will always insure a crop; they are best adapted for planting, never having been checked in their growth.
They comprise all the leading varieties, and are now fit for immediate forcing, being well ripened to the top. LISTS will be forwarded on application.
Castle Street Nursery, Salisbury.

To the Trade.

JOHN PERKINS, Sen., begs to offer the following FRUIT TREES, all of the finest quality:—
STANDARD PEARS, 5 to 7 feet stems, with good heads, at 50s. per 100, consisting of the following and other leading varieties:—

Louis Bonne of Jersey	Doyenne d'Eté
Williams' Bon Chrétien	Comte de Flandre
Jargonelle	Lammas | Marie Louise
Beurré de Amanlis	Swan's Egg, &c. &c.

STANDARD MAYDUKE CHERRIES, 5 to 6 ft. stem, 75s. per 100. Dwarf-trained do. do., ex. fine, 6 to 10 shoots, 18s. p. doz.; 130s. p. 100. Do. do. MORELLO do., do. 6 to 10 do., 18s. per doz.; 130s. per 100.
All letters to be addressed
JOHN PERKINS, Sen., 52, Market Square, Northampton.

Fruits, Fruits.—Ground must be Cleared.

WM. DILLISTONE will forward, on receipt of order, any of the under named, in strong, healthy Trees, and all true to name:—
APPLES, Standards, 12 distinct kinds, 7s. 6d.; do. do., 24 distinct kinds, 12s.; do. do., 50 distinct kinds, £1 1s.
APPLES, Pyramids, strong and fine, at same prices.
" Dwarfs, strong and fine, at half the prices, *i. e.*, 50 for 10s. 6d.
PEARS, Standards, 12 distinct kinds, 10s. 6d.; do. do., 24 distinct kinds, 17s. 6d.; do. do., 50, in 25 distinct kinds, £1 10s.
PEARS, Pyramids, same prices, and Dwarfs at half the prices.
For prices of other Fruits, &c., see List, free upon application.
Post Office Orders on Castle Hedingham.
WM. DILLISTONE, Nurseries, Sible Hedingham, Essex.

To the Trade.

FREDERICK PERKINS begs respectfully to offer, of very superior growth:—
Standard APPLES, 45s. per 100 | Standard CHERRIES, 50s. p. 100
" PEARS, 50s. " | " PLUMS, 50s. per 100
Strong GOOSEBERRIES and CURRANTS.
Also, in quantity, transplanted ENGLISH OAKS, ENGLISH and SCOTCH ELMS, Birch, Beech, Hazel, Poplars, Spanish Chestnuts, Ash, Sweet Briars, Sycamore, Alder, averaging from 2½ to 4½ feet; Laurels, Evergreen Privet, Spruce Fir, Green Box, &c. Prices on application to Bedford Road Nursery, Northampton.

Fruit Trees for Sale.

J. SCOTT, The Nurseries, Merriott, Somerset, will be glad to receive orders for the above, which will be carefully attended to. The Trees consist of 1000 sorts of PEARS, 700 do. of APPLE, 170 do. of PLUM, 160 do. of CHERRY, with other kinds in proportion. Standards, 6 to 7; Pyramids, 6 to 7; and Bushes, 3 to 5 feet high; also very fine Dwarf-trained Trees of all kinds, of superior growth, are offered. The above are described in the "Orchardist," the best work on Fruit Trees in England, price 1s. 6d. in stamps. A printed List or Index sent gratis.
J. S. also offers a splendid stock of FOREST TREES, DECIDUOUS SHRUBS and EVERGREENS in every variety.
CATALOGUE free on application.

Fruit Trees and Onions.

J. SCOTT, The Nurseries, Merriott, Somerset, calls attention to his fine Stock of FRUIT TREES, one of the largest and healthiest in the Kingdom. He has also for Sale several tons of prime large ONIONS, and from 10 to 15 bushels of Pickling do.
The ORCHARDIST, the best work on Fruit Trees, with Descriptive and Cultural Directions, price 1s. 6d., in stamps.

ORCHARD-HOUSE TREES for SALE, in first-class Bearing order, the property of a Gentleman.—PEACHES and NECTARINES, fine specimens. Eight Standards, 8 feet high, good heads; Six Dwarf Bushes, 4 feet high. For further particulars apply to JAMES CARTER AND CO., Crystal Palace Nurseries, Forest Hill, S.E.

Fruit Trees.

J. LE CORNU, NURSERYMAN, SEEDSMAN, and FLORIST, begs to inform his Friends and the Public that he has this season to offer an immense quantity of beautiful and well-grown FRUIT TREES, all of the best leading varieties, such as Apples, Apricots, Peaches, Nectarines, Pears, Plums, and Cherry Trees, as Dwarf, Trained, and Standards, 4 to 6 feet stems.
CATALOGUE on application.
High View Nurseries, Mont a l'Abbé, St. Helier's, Jersey.

Forest, Fruit, and other Trees.

JAMES DICKSON AND SONS' NURSERY STOCK is NOT surpassed in Britain; therefore, they have EVERY CONFIDENCE in soliciting Orders, and inviting intending planters to visit their EXTENSIVE NURSERIES, which can now be reached, on foot, in seven minutes, from the Chester Railway Station, by their new private road from the foot of the Flookersbrook Railway Bridge.
PRICE LISTS on application.
(*Old Established Nursery and Seed Business.*)
"Newton" Nurseries, Chester.

SURPLUS STOCK. Reduced Prices. Mostly transplanted in 1868 and 1869.

Abies Nordmanniana, 4, 6, 9, to 12 inches; ditto, 1 to 2 feet	Ash, Common, 9 to 12 feet
Juniperus chinensis, 3, 4, to 5 feet	Deutzia crenata flore-pleno, 2 to 3 ft
Pinus austriaca, 1 to 2 feet	Laurels, Common, 2 to 3 feet
Thuja Warreana, 3½ to 4½ feet	Laurels, Portugal, 1, 2, to 3 feet
Fir Larch, 10 to 12 feet	" 3 to 4 feet
	Phillyrea, Ilex-leaved, 3 to 4 feet

All well furnished, bushy, and good rooted.
Standard and Pyramid Pears and Plums, fine; besides a general stock of Fruit and Rose Trees, American Plants, Conifers, Hardy Evergreen and Deciduous Trees and Shrubs, Climbers, and Forest Trees, &c. Prices on application to
GEO. JACKMAN AND SON, Woking Nursery, Surrey.

DOWNIE, LAIRD, AND LAING beg to offer the undermentioned VALUABLE NURSERY STOCK, which is all in the best possible health. To ensure a Sale, the whole will be offered at (as near as possible) one-half the usual sale price. The Fruit Trees are all of the finest sorts, and true to name. Inspection invited.

45,000 Oak, English, 2½, 3, to 4 ft.	30 Cupressus Lawsoniana, 2 to 3 feet.
200 Portugal Laurel, 3 to 5 ft., very fine.	30 Cupressus Lawsoniana, 4 to 5 feet.
5,000 Laurel, Bay, 3 to 4 feet.	100 Thujopsis borealis, 2 to 2½ feet.
40 Irish Yew, 7 to 8 feet.	12 Wellingtonia gigantea, 5 to 7 feet, very fine.
150 Tree Box, 4 feet.	3,000 Miscellaneous Shrubs.
200 Thuja tatarica, 3 to 4 feet.	1,000 Dwarf Trained Apples, sorts named.
50 Picea Nordmanniana, 1 to 1½ foot, fine.	1,000 Dwarf Trained Pears, sorts named.
6 Thuja gigantea, 5 to 6 feet.	500 Dwarf Trained Cherries, sorts named.
30 Araucaria imbricata, 4 to 5 feet, very fine.	4,000 Gooseberries, sorts named.
20 Abies Mendesii, 5 to 6 feet.	1,000 Currants, sorts named.
30 Cedrus Deodara, 4, 5, to 6 feet.	
200 Aucuba japonica, 2 to 2½ feet, very fine.	

N.B.—As the above must shortly be cleared off to make way for building purposes, early orders are respectfully solicited.
West Coates Nursery, Edinburgh.—November 20.

Extra large Trees for Ornamental Planting IN PARKS AND AVENUES.

WM. WOOD AND SON have to offer a magnificent STOCK of the following:—

Sycamores, 7 to 8 feet	Poplars, Black Italian and Lombardy, 8 to 10 feet
" variegated, 5 to 6 feet	Mountain Ash, 7 to 8 feet
Horse Chestnuts, 8 to 10 feet	" " Weeping, 6 to 7 ft.
" " scarlet, 8 to 10 feet	Pyrus aria latifolia, 7 to 8 feet
Catalpa syringæfolia, 7 to 8 feet	American Weeping Willows, 6 to 8 feet
Laburnums, 4 to 6 feet	Elms, English, Chichester, Wych, 6 to 8 feet, and 8 to 10 feet
" purple, 4 to 6 feet	
Weeping Ash, ex. fine, 7 to 9 feet	
Ash-leaved Maple, 7 to 8 feet	

Price on application.
Address—Woodlands Nursery, Maresfield, Uckfield, Sussex.

Large Evergreens and Forest Trees.

MESSRS. PAMPLIN AND SON have a large quantity of the following, and offer them at low prices, part of their Grounds being required for building purposes.

Cedar of Lebanon, 10 to 20 feet	Black Italian Poplar, 20 feet
Cedrus Deodara, 6 to 15 feet	Balsam ditto, 10 to 15 feet
Aucuba japonica, 2 to 6 feet	Lombardy ditto, 20 feet
Portugal Laurels, 2 to 6 feet	Horse Chestnut, 10 to 15 feet
Chinese Arbor-vitæ, 5 to 12 feet	Spanish Chestnut, 10 feet
American " 5 to 10 feet	Limes, 10 to 15 feet
Thuja aurea, 1 to 4 feet	Walnuts, 10 to 15 feet
Green Box, 1 to 6 feet	Ash, 10 to 20 feet
Striped ditto, 2 to 4 feet	Elm, 10 to 15 feet
Evergreen Oak, 7 to 10 feet	Acacia, 10 feet
Yew, Common, 4 to 10 feet	Mountain Ash, 10 feet
Irish Yew, 3 to 5 feet	Turkey Oak, 10 to 12 feet
Laurel, 3 to 6 feet	Sycamore, 10 to 14 feet
Araucaria imbricata, 10 feet	Weeping Willow, 10 to 15 feet
Green Hollies, 1 to 12 feet	Lilac, Common, 8 feet
Weymouth Fir, 3 to 6 feet	Persian ditto, 6 feet
Spruce ditto, 2 to 4 feet	Yellow Azalea, 3 feet
Birch, 14 feet	Privet ovalifolia, 8 feet

The Nurseries, Lea Bridge Road, Leyton; and Wood Street, Walthamstow, Essex, N.E.

Fine Transplanted Larch, 1½ to 2½, and 2 to 3 feet.

FOREST TREES, FRUIT TREES, and SHRUBS.
W. JACKSON AND CO., NURSERYMEN and SEED MERCHANTS, Bedale, Yorkshire, have good STOCKS of the above, and recommend those engaged in planting to apply at once.—November 15.

Cedrus Deodara.

FINE SPECIMENS, 7, 8, 9, 10, to 15 feet, at 1s. per foot.
WM. MAULE AND SONS have to offer a large supply of extra fine EVERGREEN TREES and SHRUBS, calculated to give immediate effect to Parks, Cemeteries, and Plantations, and suitable for screening and blocking out new Buildings, that are springing up daily in the vicinity of all large towns.
The Nurseries, Bristol.

Planting Season.

DICKSONS AND CO., NURSERYMEN and SEEDSMEN, 1, Waterloo Place, Edinburgh, beg to call the attention of those about to plant to their very large and healthy Stock of FOREST TREES, FRUIT TREES, ORNAMENTAL TREES and SHRUBS, which are now in fine condition for Transplanting. They are growing on very exposed ground, are finely rooted, and their wood is thoroughly ripened. Samples and Catalogues on application. Special prices will be quoted where large quantities are taken.

TO the TRADE ONLY.

100,000 Pinus austriaca	100,000 Laurel
100,000 P. Laricio	100,000 Spruce
100,000 P. rigida	100,000 Turkey Oak
100,000 P. taurica	100,000 Alder
100,000 P. Pinaster	100,000 Acacia, for stocks
100,000 Scotch Fir	100,000 Chinese Arbor-vitæ, for stocks

All of the above were transplanted last spring, and are now in fine condition. Samples and prices forwarded on application to
THOMAS THORNTON, Heatherside, Bagshot, Surrey.

Autumn Planting.

PETER LAWSON AND SON will be glad to send their CATALOGUE (just published) of FOREST and ORNAMENTAL TREES and SHRUBS, free upon application.
The stock of LARCHES, SCOTCH FIRS, AUSTRIAN and CORSICAN PINES, &c., comprises some millions of healthy, well-grown plants, and special offers will be made for large quantities when personal inspection is not convenient.
Edinburgh and London.

RICHARD SMITH'S LIST of EVERGREEN and DECIDUOUS SHRUBS, RHODODENDRONS, STANDARD ORNAMENTAL TREES, CLIMBING and TWINING PLANTS, with their generic, specific, and English names, native country, height, time of flowering, colour, &c., and general remarks, free by post.
RICHARD SMITH, Nurseryman and Seedsman, Worcester.

Red Lodge Nursery, Southampton.

W. H. ROGERS begs to call attention to this extensive Nursery, which offers unlimited supplies of FRUIT, FOREST, and Ornamental TREES, SHRUBS, and AMERICAN PLANTS of every size and description. For specimen CONIFERS, Hardy, Scarlet, and other choice RHODODENDRONS, the Nursery is unrivalled. PRICED CATALOGUES and every information may be had gratis on application.

To the Trade.

ONE MILLION THORNS, 3-yr. old, first size, 5s. per 1000, or 100,000 for £20; second size, 2s. 6d. per 1000; a reduction on taking 100,000. A few hundred fine grown and well-trained CHERRIES at 18s. per dozen. A remittance or reference from unknown Correspondents.
Apply to W. TRESEDER, Nurseryman, Cardiff.

PARSONS' NEW HYBRID TREE MIGNONETTE.—This new Tree Mignonette has no equal, it is robust in growth, of very compact habit, and deliciously sweet.
G. P. has been improving it by careful selection for the last 10 years, and he is quite certain it will become a universal favourite, he has grown plants of it 3 feet in height, and 8 feet in circumference, in nine months from the time of sowing; moderate sized plants take about five months from the time of sowing. In sealed packets, 1s.
To be had from G. PARSONS, Nurseryman and Seedsman by appointment to her Majesty, 27 and 28, Western Road Brighton; and Hassock's Gate, Keymor, Hurstpierpoint. May also be had at HURST AND SONS, 6, Leadenhall Street, London, E.C.

Shrubs, Evergreens, and Fruit Trees.

ROBERT CORNWELL AND CO. have to offer SPRUCE, SILVER FIR, SCOTCH, LARCH, and AUSTRIAN FIRS, 3 to 5 feet; PRIVET, 4 to 5 feet; Variegated and Green BOX, 2 to 4 feet; IRISH YEWS, 3 feet; PINUS EXCELSA, 6 to 8 feet; Bushy LAURELS, 3 to 8 feet; PORTUGAL do., 2½ feet; LAURUSTINUS, 2 to 3 feet; some extra handsome ones, 4 by 4 feet; 2, 3, and 4-yr. ASPARAGUS; Box Edging, Fruiting GOOSEBERRIES, CURRANTS, RASPBERRIES, and STRAWBERRY Plants cheap, the Ground being wanted for a Railway.
Opposite Red Lion, Barnet, Herts.

FOR SALE, by Private Contract, a valuable Collection of CONIFERS, ORNAMENTAL SHRUBS, CAMELLIAS in pots, and FRUIT TREES, comprising 32 Wellingtonia gigantea, from 5 feet to 10 feet; 25 Cupressus Lawsoniana; 8 Cedrus Deodara, 8 feet high; 2 Pinus Pinsapo, 6 feet high; 120 Ornamental Shrubs and Trees, 32 Camellias, in pots, and 200 Fruit Trees;—standing within half a mile of a Station on the Great Northern Railway.
For particulars, apply to Messrs. DUCKWORTH AND CLAYDEN, Auctioneers, &c., Hadley, Barnet, N.

LUCOMBE, PINCE AND CO. beg to call special attention to their surplus and unrivalled stock of the following hardy ORNAMENTAL TREES and SHRUBS, which have been yearly transplanted, and can now be sent to any distance with perfect safety:—

ABIES ORIENTALIS, 5, 6, and 7 feet high, from 7s. 6d. to 21s. each.
" DOUGLASII, fine specimens, 12 to 15 feet high, 15s. and 21s. each
CEDRUS DEODARA, 10 to 15 feet high, 15s. to 21s. each.
CUPRESSUS LAWSONIANA, 4 to 7 feet high, 5s. to 10s. 6d. each.
JUNIPERUS CHINENSIS, 3 to 4 feet high, 3s. 6d. each.
PICEA NORDMANNIANA, 2 to 4 ft. high, 21s., 31s. 6d., and 42s. each
" PINSAPO, 3 to 4 feet high, 21s., 31s. 6d., and 42s. each.
" LASIOCARPA, 3 to 4 feet high, 31s. 6d., and 42s. each
SKIMMIA JAPONICA, in pots, 18s. per dozen.
THUJA AUREA, 3, 4, and 5 feet high, 7s. 6d. to 15s. each.
THUJOPSIS BOREALIS, 5 to 7 feet high, 15s. and 21s. each.
WELLINGTONIA GIGANTEA, 4 to 12 ft. high, 10s. 6d. to 42s. each
YEWS, IRISH, magnificent plants, grown on a single stem, from 4 to 10 feet high, 3s. 6d. to 21s. each.

Exeter Nursery, Exeter.

Special Offer of Laurustinus pyramidalis (New).

WM. KNIGHT solicits orders for the above new variety of LAURUSTINUS, having now grown it for five years past for Stock. It has been seen growing in his Nursery by many eminent Nurserymen, by whom it has been pronounced a fine hardy, compact plant, of sterling merit, the habit being robust, compact; flowers pure white, nearly twice the size of the old varieties, and very sweet-scented, with a continuation of flowers during the most severe winter.
W. K. feels great confidence in offering it in fine specimens, 4 to 5 feet, full of bud, per pair, 25s.; second size, 3 to 4 feet, do., 15s.; third size, 2 to 3 feet, do., 10s.; fourth size, 1½ to 2 feet, do., 5s. The usual discount to the Trade.
Floral Nursery, Hailsham.

The Nurseries, Stirling, N.B.

WILLIAM DRUMMOND AND SONS beg to invite the notice of Noblemen and Gentlemen about to plant, to their NURSERY CATALOGUE for season 1869-70, which may be had, post paid, on application. It contains descriptions and prices of Seedling and Transplanted Forest Trees, Shrubs, Fruit Trees, &c., with a varied collection of Pines and other Coniferæ, which, being grown in light gravelly soil, are well rooted and of robust habit. Special attention is called to a select assortment of specimen Pines, very handsome plants, and excellent for immediate effect. These, they are confident, will well repay inspection.
Nursery and Seed Establishment, Stirling, N.B.

JOHNSTONE'S ST. MARTIN'S RHUBARB.

W. P. LAIRD & SINCLAIR,

NURSERYMEN, DUNDEE, N.B.,

HAVE pleasure in offering the above NEW VARIETY of RHUBARB, which they have confidence in recommending as the earliest and best sort in cultivation. The raiser of it describes it "as one of a batch of Seedlings from 'Victoria;' the seedling plant was a fortnight earlier than any of the remainder of the lot, and grown beside 'Prince Albert' and 'Linnæus,' always ten days earlier than them, and giving a larger quantity of superior stems to either of these varieties. It forces better than any variety I know, and has a splendid colour."

Strong Roots, 2s. 6d. each. Usual Discount to the Trade.

The following TESTIMONIALS, selected from amongst many others, speak to its merits by disinterested parties:—

From CHAS. GUTHRIE, Esq., *of Taybank, Dundee; a well-known and celebrated Horticulturist.*—Taybank House, October 18, 1869.
"GENTLEMEN,—I have much pleasure in saying that Johnstone's St. Martin's Rhubarb is the best I have in my possession. It is a thick fleshy-stalked variety, bears a heavy crop twice a year, and if cut early, would, I have no doubt, give a third, as even ten days ago it was throwing up fresh leaves. One peculiarity it possesses of not throwing up flower-stems, only one having appeared on one of my plants in the course of two years. It makes an admirable preserve.—I am, &c., "CHAS. GUTHRIE."

From WM. GORRIE, Esq., *Horticultural Editor of "The Farmer."*
"Edinburgh, October 20, 1869.
"GENTLEMEN,—I have fully tested the merits of your Johnstone's St. Martin's Rhubarb, both by cultivation and cooking, and compared with the well known Victoria variety, I find it to be considerably earlier in spring, to yield fully a heavier crop, and to stand out later in autumn; while in quality it is much milder and decidedly more agreeably flavoured, requiring considerably less sugar, which is no inconsiderable advantage in the estimation of cottage gardeners, and others with limited incomes. "WILLIAM GORRIE."

From MR. LAMB, *Restaurateur, Dundee.*—October 18, 1869.
"GENTLEMEN,—I have pleasure in testifying to the fine quality of your St. Martin's Rhubarb. In the course of my business I use Rhubarb to a very large extent—many tons during the season. Yours is the first supplied to me from the open air, and I always give a preference to it over others in the market.
"THOMAS LAMB."

GENERAL TRADE NURSERY LIST may be had on application.

LONDON AGENTS:—MESSRS. HOOPER AND CO., COVENT GARDEN MARKET, W.C.

Hyacinths, Tulips, &c.

BUTLER, McCULLOCH AND CO. beg to announce the publication of their AUTUMN CATALOGUE of the above, which will be sent gratis and post paid on application. Orders for Bulbs can now be executed.

BUTLER, McCULLOCH AND CO., South Row, Covent Garden Market, London, W.C. Established upwards of a Century.

Dutch and other Bulbs.

WM. CUTBUSH AND SON are celebrated for HYACINTHS, TULIPS, CROCUSES, and other DUTCH BULBS. All the Great Prizes, including the Two Special Prizes offered by the Dutch Growers, awarded to their Collections again last Spring. They import only ONE QUALITY, therefore Customers may rely upon having the finest Bulbs. CATALOGUES post free.

Highgate Nurseries, London, N.

New Catalogue of Dutch Bulbs, Plants, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select Descriptive and Priced Lists of Amaryllis, Crocuses, Cyclamens, Gladioli, Hyacinths, Lilliums, Narcissus, Tulips, and other bulbs, Miscellaneous Plants, Fruit Trees, Sweet Violets, &c., is now published, and will be forwarded to applicants.—Exotic Nursery, Tooting, Surrey, S.W.

Arrival of Bulbs.

BARR AND SUGDEN,
12, King Street, Covent Garden, W.C.

CATALOGUE containing much additional valuable information now ready, and on application sent free to the Readers of the *Gardeners' Chronicle*. BULBS for Early Flowering now ready to send out, of first-class quality.

Dutch Flower Roots.

CROYDON. A. HENDERSON. EAST SURREY SEED WAREHOUSE. ESTABLISHED 1828.

ARCHIBALD HENDERSON begs to announce that he has received a large Consignment of Dutch and other Roots, carefully selected from the most celebrated growers.

DESCRIPTIVE and PRICED CATALOGUES are now ready, containing practical directions for their successful cultivation on all the various systems now adopted.

Also a CHOICE and SELECT LIST of VEGETABLE and HARDY FLOWER SEEDS for Autumn Sowing. Catalogues gratis and post free upon application.

Sion Nursery, Thornton Heath, Surrey, and at the East Surrey Seed Warehouse, College Grounds, North End, Croydon.

Suttons' Imported Dutch Flower Roots,

CARRIAGE FREE.

SUTTONS' £1 1*s.* COLLECTION of FLOWER ROOTS for Spring Blooming in the open ground—carriage free by rail—

CONTAINS:—

12 fine mixed Border Hyacinths	6 fine mixed Gladiolus
6 ,, Polyanthus Narcissus	12 Duc Van Thol Tulips
12 Pheasant's Eye Narcissus	6 mixed Single Early Tulips
12 Double White Narcissus	6 fine mixed Double Tulips
25 Double Daffodils	6 ,, Parrot Tulips
6 large Campernelle Jonquils	6 Gesneriana Tulips
50 fine mixed Double Ranunculus	25 fine mixed Tulips
50 Scarlet Turban Ranunculus	6 ,, English Iris
12 fine mixed Double Anemones	6 ,, Spanish Iris
12 ,, Single Anemones	3 Lilies, of sorts
50 Crocus, 3 sorts	3 Ferraria pavonia
50 Snowdrops	6 Dog's-Tooth Violets
25 Winter Aconites	3 Crown Imperials

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The Gardeners' Chronicle.

SATURDAY, NOVEMBER 20, 1869.

A REPORT to the Council of the Royal Horticultural Society "On the FOREST EDUCATION on the Continent and in England respectively," from the pen of Mr. ANDREW MURRAY, is before us. Mr. MURRAY, it appears, availed himself of the opportunity afforded him by his recent visit to St. Petersburg, to inquire into the working of the forest schools in Germany and in Russia. The inquiry was made with special reference to the question, whether it be advisable or no to send candidates for forest appointments in India, to pursue the greater portion of their education in Germany or France. It may be remembered that in our remarks on this matter, when the regulations sanctioned by the India Board were under discussion, we stated that in the forest schools of the Continent there was an organisation for teaching forestry such as does not exist in this country at present. Moreover, we alluded to the much larger area of the Continental forests, and also to the system followed in their management, which is more akin to that adopted in India, than is that acted on generally in this country.

Mr. MURRAY, we find, questions some of our remarks. He contends that the German forest schools do not offer greater facilities than are to be met with here. Now, as we have at present positively no organisation whatever for the purpose, it is difficult to admit the correctness of Mr. MURRAY'S conclusions. Again, Mr. MURRAY doubts the eminence of the teachers in the forest schools, unless in the case of some particular men. Whether this be so or no, what we may term forest literature—the treatises on the management of the woods in France, Belgium, and Germany, the splendid monographs on the insects and Fungi destructive to woods—monographs, to compare with which we have few or none at all in this country, are sufficient to show what was our main object—that the organisation for teaching on the Continent is far superior to anything we possess. Nor did we write solely from paper knowledge. We had documents before us giving the *rota* of studies pursued in the varied establishments; but more than this, our remarks were based upon considerable personal observation and experience of the practical working of these institutions, and on a knowledge of the existing state of things in India. We mention these things, as it were, in self-defence, and with no intention of carping at Mr. MURRAY'S report, which is, to our thinking, a valuable one, and one calculated to do good service. Moreover, Mr. MURRAY'S views and our own entirely coincide upon one point—after all, the most important one—that it is by no means essential, or even desirable, that the candidates for forest appointments in India should pass any lengthened time in Germany or France, if proper educational provision be made here. There is no reason whatever why not only a complete initiation into the principles of forestry science, and the numerous collateral subjects connected with it, but also a thorough training in the practical duties of a forest officer, should not be insured in this country. We have every facility for the purpose, if our resources were but organised and utilised. We have no lack of men able and willing to teach surveying, mensuration, vegetable physiology, and the various sciences which can be taught in the class-room or laboratory. We are by no means deficient in shrewd experienced craftsmen. We have at home a now somewhat numerous body of officers who have been connected with the forest department in India, who know its requirements, and are competent to carry out measures to supply them. We have also, as Mr. MURRAY shows, an area of forest ample for all purposes of teaching, and we have, too, in our limited space, a much greater diversity of timber than is to be met with in a much larger area on the Continent. The system followed in the Oak woods of the Weald, is of course unlike that required in the Pine woods and Larch plantations of Scotland. Surely a man who, as the result of practical training, can get the best results out of his woods, whether in the shape of Hop-poles, charcoal, Oak bark, loppings, timber, or what not, can be trusted to regulate the cutting of Indian forests. Such a man, while securing a due supply of sleepers for railways, or Teak for ship timber, will take care that the reckless and wanton mismanagement which has prevailed so frightfully in India in former years, shall have no place in the future.

We have the teaching both of the theory and the practice to our hands; we have ample materials for practical demonstration and experiment: by all means let us have the organisation, let us have a forest-school—a regularly ordered institute, which shall not interfere with the private tuition that we have now, but shall lead up to it, and ensure a better and more instructed class of pupils, and extend the scope of the teaching powers of the forester, at the same time that it quickens and concentrates them.

As it is now, while giving all praise to the practical acquirements of the majority of our foresters, we cannot overlook that too many of them are woefully deficient in any scientific knowledge. Many of them have, indeed, scarcely any knowledge whatever of trees, other than those with which they come daily into contact. Some of our best practical foresters, rambling through an arboretum, containing specimens of high promise as timber trees, would find it difficult to attach the right names to the trees they saw, if they did not happen to have similar ones growing under their own observation. How many foresters of experience could even tell the Douglas Fir? And, yet, these are the only men we have at present who can act as instructors in forestry. Under these circumstance it is no wonder the authorities turned to Germany and France, where at least better provision is made for instruction in forestral matters.

The Indian Forest Service is a profession intended to rank with other learned professions. Those who enter it should be as well trained in general knowledge, and as efficient in practical duties, as those who enter upon other professions of a similar character, such as civil engineering, surveying, and the like. This cannot be expected under our present want of system, but could readily be effected by proper organisation. The Institute of Surveyors has the matter in hand; the Scottish Arboricultural Society will not neglect its duties; the Royal Horticultural Society is alive to the requirements of the case. The establishment of an Arboricultural Committee would help on the cause, and contribute to better the position of the forester. So that we may look forward with confidence to the removal of the present anomalous state of things.

MR. A. W. BENNETT, in the first part of the new weekly scientific periodical, "Nature," has an article in which he shows that in some winter flowering plants, as the Gorse, the Dead Nettles, &c., the pollen is applied to the stigma of the flower while it is still unopened, and thus self-fertilisation is insured under the most favourable circumstances as regards complete protection from the weather and other adverse influences. In the Chimonanthus præcox, on the other hand, the stamens cover the pistil completely and discharge their pollen outwardly, so that none can fall on the stigma. As a necessary consequence, the fruit is not formed in this country, for want, at the season of flowering, of the proper insects to effect cross-fertilisation.

We may expect that many analogous observations will be forthcoming now that Mr. DARWIN has called renewed attention to this subject. It is one of great interest, and offers a fine field for observations which will commend themselves to amateurs from the ease with which they may be made. It would be desirable to ascertain whether, if a plant should happen to flower at different seasons, it is fertilised in the same manner at all times, or whether different climatal conditions are accompanied by corresponding diversities in physiological office. The researches of DARWIN, HILDEBRAND, and others show that the "setting" of a flower by its own pollen (self-fertilisation) is a rarer phenomenon than cross-fertilisation: the cross apparently imparting greater fertility and a greater degree of vigour to the offspring than arise from self-fertilisation. This being so, it becomes a matter of great interest to ascertain how and why it is that so large a contingent of flowers are "set" in the bud, or at least in such a manner that a cross is next to impossible, and self-fertilisation rendered inevitable. We are at present in the dark as to the why and wherefore of this, though it is so frequent an occurrence that there must be some good reason for it.

As any facts bearing on so important a subject are valuable, we may here record the arrangements for securing self-fertilisation in the flower of Alyxia daphnoides, a pretty evergreen shrub, with orange-coloured berries, too little known in this country. On examining unopened flower-buds of this plant (now in bloom), the anthers may be seen inclining inwards and downwards in such a manner that the pollen falls on the stigma placed a little beneath them. The tube of the corolla, moreover, is lined with hairs pointing in the same downward direction, as if to direct the pollen to the stigma, which is copiously dusted over with the pollen grains. Clearly self-fertilisation is the rule in this plant; the corolla is so tightly closed that an insect would have very great difficulty in affecting an entrance, unless indeed it were to bore a hole through the side of the tube, as some insects do. DARWIN strongly insists on the great advantages that are likely to accrue from an occasional cross, even where self-fertilisation is the rule. In some instances it is difficult to see how this could be effected save by insects boring into the flower, as we have supposed in the case of the Alyxia.

In any case the practical inference to be drawn by gardeners desirous of securing the setting of their Grape blossoms, or other flowers needing artificial assistance, is this, that they should avoid applying the pollen of any given flower to the stigma of the same flower. They should by preference use the pollen of one flower to set the pistil of another. If the two flowers are on two different plants (of the same species or variety, of course, understood) so much the better. If the reader will watch the operations of the bees in his orchard-house next spring, he will see at a glance how the humble-bees unconsciously effect the "cross" of which we have been speaking, and how comparatively rare it is for them to brush off the pollen of one blossom on to the stigma of the same flower. Almost invariably they carry it off to some other flower. Another illustration of the motto, *Nemo sibi vivat.*

—— IN the current number of the "Journal of Botany" is a full description and coloured representation of the LARGE AROID, described originally in our columns by Dr. SEEMANN (see pp. 220, 713). It will be remembered that "Punch" suggested that this plant should be named in honour of Gog and Magog. Dr. SEEMANN has to some extent acted on the suggestion, inasmuch as the specific name given to the plant is "gigas." Generically it forms a new genus of Aroideæ, which the discoverer has named in honour of Mr. GODWIN, the Editor of the "Builder," a gentleman well known, not only in his professional capacity as an architect, but as the persevering advocate of all measures likely to promote social improvement and refinement. "Godwinia gigas" has been exhibited by Mr. W. BULL before the Royal Horticultural Society, and will no doubt reappear at intervals, to the wonderment of the uninitiated. At some future time we shall probably cite Dr. SEEMANN'S article on the plant at greater length.

—— We understand that the Council of the Royal Horticultural Society has resolved on issuing a Bronze Medal, to be called the RARE PLANT MEDAL, and to be awarded at any of the Society's meetings, for the first exhibition in this country of plants of great botanical interest.

New Plants.

MORMODES UNCIA, *Rchb. fil., supra, p.* 892.

This species having flowered with W. Wilson Saunders, Esq., has just been published in the "Botanical Magazine," t. 5802, and named a second time, by an oversight, Mormodes Greenii. We are very sorry that the name, so justly deserved by Mr. Green, must give way for that of a Pardale (the Persian Uncia). The short diagnosis given by us is absolutely faithful and

complete, adding also the chief character of the callosity on the anterior disc of the lip.

If we are rightly informed, there was an impression at the meeting of the Royal Horticultural Society, when Mr. Saunders exhibited his plant, that it formed a connecting link between Mormodes and Cycnoches. That is not the case. All the species of Cycnoches have spherical pollinaria, all those of Mormodes have these organs ligulate, depressed, flat on the outside. *H. G. Rchb. fil.*

SELENIPEDIUM LONGIFOLIUM, *Rchb. fil.: Wswz.*

Foliis latius ligulatis apice attenuatis; pedunculo bene exserto pilis parvis demum deciduis pilosulo, subcalvo, apice racemoso: bracteis heliconiaceis; ovariis subcalvis (seu non velutinis, sed parcissime pilis minutissimis hinc sparsis pilosis); sepalo superiori oblongo-triangulo obtuse-acuto crispulo, sepalo inferiori duplo latiori oblongo labellum excedente; petalis a lata basi caudatis subpatulis, tortis, apice velutinis; labelli unguc complicato limbo æquali, sacci limbo antico retuso, gibbere porrecto angulato utrinque supra sacci ostium; staminodio late triangulo (subrhombeo), limbis posticis velutinis.

Cypripedium longifolium, Rchb. fil.; Wswz. in v. Mohl and v. Schlechtendal, Bot. Zeitung, 1852, 690!

Selenipedium longifolium, Rchb. fil.; Wswz. in Rchb. fil. Xenia, i. p. 3; Rchb. Beitr. Orch. Central Am. p. 44!

Selenipedium Reichenbachii, Enderes, in litt.

Cypripedium Reichenbachii, Enderes, in hortis.

When we first described this plant we had very bad materials—a broken leaf, pieces of three or four inflorescences, disarticulated floral organs, and a very poor sketch that would have done honour to the phantasy of modern artists. For all that, we had to thank our late friend, J. von Warscewicz, who discovered the plant in the Cordilleras of Chiriqui, at from 5000 to 8000 feet elevation. Much later, in 1867, we obtained an accurate sketch, and a very faithful description of Selenipedium Reichenbachii, from M. Enderes, who rediscovered the plant in a very inaccessible place. Next came Mr. W. Bull's Catalogue, No. 48, where, at p. 4, is a very tempting popular description of the plant. It being there named Cypripedium Reichenbachii, we may be entitled to protest against calling that black velvety back border of the staminode a moustache, for we have a better idea of that male ornament. The comparison with an elderly, ill-used old horse-brush, would perhaps have been better (!) We may add, that the tubercles standing right and left of the column, observed before, and noted in a very similar description of the Cypripedium caricinum (or Selenipedium Pearcei) in a certain periodical, would form a very nice addition to vegetable morphology in general, and to Cypripedology in particular, if they were not those organs which botanists call anthers. Finally, the large callosity observed in the same poor C. caricinum, is what we call the stigma. Excuse these morphological trifles! The *Gardeners' Chronicle* told us recently of the appearance of the plant at South Kensington; Messrs. Veitch inform us of its flowering with them; and we have now at hand a flower and a sketch of a leaf kindly sent from the Royal Horticultural Society's Garden, we believe, by Mr. Eyles.

The flowers remind one very much of Selenipedium dariense, Rchb. fil. in Act. Leop. (Cypripedium Hartwegii, Rchb. fil. in Seemann Herald, xliv.), a very interesting earlier discovery of Dr. B. Seemann's in Darien. It is easily distinguished by the two angles at the inner base of the channelled claw or unguis of the lip. Selenipedium Hartwegii stands even nearer, yet it appears to be very distinct, by its much larger and longer bracts, by an open channel of the unguis of the lip, and by some discrepancies in the lip. The other Selenipedia, with gibbous hollows on the sides of the lip, are Czerwiakowianum and Boissierianum. Our plant appears to have the habit of the old Selenipedium caudatum. The peduncle is very curious, as far as we can ascertain from dried specimens, on account of the deciduous hairs. The inflorescence has bracts very much like those of Heliconias. The flowers are greenish, very shining outside. The dorsal sepal is nearly oblong-triangular, with a brownish border. The inferior sepal is much broader and longer, or even quite as long as the lip. The petals have a broad, subcordate base, and taper into a tail, greenish, with white borders, and two brown streaks at the base, and brown at the ends—these tails being much shorter than those of the well-known long-tailed species. The lip is highly curious for the basilar margins of the unguis overlapping one another, so that there is no channel left. The side gibbous hollows stand over the pouch of the lip. It is whitish internally, with many small purplish dots. The edges of the unguis are yellowish-green, with many inconspicuous small brownish spots. The anterior part of the sac is olive-green, with a slight brownish hue, the superior border green. The trilocular ovary is port-wine coloured, with very small and inconspicuous scattered white hairs.

It rather appears (as M. Enderes kindly informed us), that but one flower opens at once. For men of science that is a characteristic feature; for amateurs it is an interesting fact. We may, however, expect to see one day or another an artistical caricature, bearing perhaps half-a-dozen open flowers at once on the same flower-stalk. *Trahit sua quemque voluptas! H. G. Rchb. fil.*

DENDROBIUM SUPERBUM ["MACROPHYLLUM"] VELUTINUM.

Petalis valde hastatis, labello densissime velutino, mento obtusissimo.

This very pretty variety has been introduced by Messrs. Veitch, who have twice kindly sent us supplies of it, so that these gentlemen would appear to flower it very freely. It is rather different from the old and not uncommon type. The mentum is singularly blunt and large. Both sepals and petals are light rosy purple. The lip bears two large dark violet-purplish spots, as also two smaller ones on the base. The very hastate base of the petals is striking. The profusion of hairs on the lip is extremely rich, and gives the effect of some modern hairy winter dress or the natural cover of an ice-bear. It comes from the Moluccas, and will form a good addition to the already numerous varieties of this fine Dendrobe. *H. G. Rchb. fil.*

DENDROBIUM SUPERBUM ["MACROPHYLLUM"] HUTTONI.

Perigonio candido, labelli disco ac ungue purpureis.

A very striking novelty. The flowers are clear white. The disc of the lip bears two beautiful purplish blotches, and its base is of the same colour. For this beautiful thing we have to thank Messrs. Veitch, who obtained it through their late excellent collector, Mr. Hutton, from the Malayan Archipelago. *H. G. Rchb. fil.*

AMERICAN POTATOS.

IN the spring of the year I received from the Editors of the *Gardeners' Chronicle* the following Potatos for trial—the Early Rose, Bresee's No. 4, Bresee's Prolific, and Climax. Through Mr. Shirley Hibberd, I received, from Mr. Bliss, of New York, No. 1, No. 4, the King of the Earlies, No. F., No. 5, and also more tubers of the Early Rose and Bresee's Prolific. The specimens of both lots were very fine. The first lot was planted tolerably early, and the last, which arrived on June 4, was planted June 5, and was dug up October 15.

My opinion of the Early Rose is the same exactly as that expressed by the Editors. I gave a tuber or two to the Rev. Robert Price, Rector of Child Okeford, to plant. He showed me two tubers taken from one plant, which were the finest kidney Potatos I ever saw, and beautifully shaped. I asked him to dress them, and report to me. He said they were hollow at the core, and not good. This was the only kidney sort sent to me. The others were of the line of round. I tasted several times the sorts sent, but they were not good enough for me. With the exception of a few of the Early Rose, which I shall try again, I gave them to "Steevie" to take to the dry chalky soil of Rushton, where I think they will be very valuable for cottagers. They had all here the same great fault—they were not dry enough; and their colour was, except the Early Rose, of a dull white. When cooked by steam their flesh was soft and flavourless. Still I admired the Potatos much, and the raisers deserve great credit for the following excellencies—the finest foliage I ever saw (some of the leaves were 6 inches by 5), great croppers, of large size, very handsome, very white in flesh, and very fine in the grain. I never saw finer Potatos than No. 5 and No. F.; still, when cooked by steam, they were soft and not good flavoured.

Dryness and firmness, combined with mealiness, are essential to a first-class Potato. The best of all the trial Potatos sent here, for quality and flavour, was Mr. Barron's Perfection. I shall plant it again. It is worth a trial. As the last lot was planted so late as June 5, it is no wonder that some of the tubers were diseased. I received from Mrs. Allen, of Shepton Mallet, the great Callao and Gleeson's Late, probably the same as Zebra. Neither are good enough for me. The last was not ripe till the first week in November, and hence was diseased. I have made up my mind to get rid of all late ripening Potatos, and I advise my readers to do the same. Two parts out of three of the late ripeners have perished already. The national wealth has been robbed to that amount, and domestic comfort has suffered in the same ratio.

The most valuable Potatos in England, so far as I have had experience, are the Royal Ashleaf, Hero, and Taylor's Hybrid. The last is not to be had; but the two former may be procured. The reason why Hero and Taylor's Hybrid are so valuable is, that they are great croppers, of first quality, come out early to escape disasters, and keep till the end of the season. If you keep three Potatos, buy these—Royal Ashleaf, Gryffe Castle, and Hero; they will carry you from June to June. Do not be led away with great croppers, and huge Potatos. There is, I am sorry to see, both as regards fruits and vegetables, a vulgar predilection for something huge or abundant, without the least reference to quality and flavour. You will find Turner's Gem Melon better far than those huge exhibition flavourless Melons!

I said in my last article that the Lapstone is apt to grow out early and supertuberate. Mr. Rivers in his letter complains that his have done so. He has sent for Hero, which he shall have. It ripens here a fortnight, three weeks, and sometimes a month before the Lapstone. Hence its great value. With your eyes closed you would not know it from the Lapstone, from which it was raised.

Till I have tried the Bryanston Kidney, I shall not say more on the subject of Potatos. I have read with pleasure and attention Mr. Dean's article. The difficulty lies here: if 140 Potatos, in sorts, were planted at Chiswick, it would hardly be a trial for other soils and situations. I should like to see them tried (and also cooked!) in clay soil, brown loam, chalky soil, and sandy soil. I should crown king that Potato which suited most of these conditions for seven years. I have had Hero and Taylor's Hybrid above seven years; and I never knew them go astray at any time. *W. F. Radclyffe, Nov.* 15.

THE ALOE.

[Abstract of a Paper read before the Scientific Committee of the Royal Horticultural Society.]

IN the cultivation of Aloes it is as well to bear in mind that they grow equally well with or without roots. There is scarcely any perceptible difference in the time required for re-establishment, between an Aloe carefully dug out of the ground with all its roots, and a rootless branch that has been broken or chopped off; both are at times liable to damp off or decay at the root.

Aloes are found growing in all kinds of soil,—rich alluvial soil, leaf-mould, red clay, yellow clay, hard limestone soil, brash soil, sandy soil,—in fact, every description of soil that occurs in South Africa has its Aloe or Aloes, provided always that it is rocky; for, as far as my observation extends, they do not grow where there are no rocks, neither will they continue to thrive for any length of time if they are planted in such localities. I attribute the great mortality among garden Aloes to this fact; it is not because the soils are unsuitable, for, as I have before stated, they will grow in almost any description of soil, if it be rocky.

I would therefore advise all who wish to cultivate their plants successfully, in the first place to excavate a moderate-sized hole—say, from 1 foot to 2 feet in depth, and breadth (according to the size of the specimen they are intending to plant); fill this hole with rocks, allowing some of them to project out of the ground (these should, if possible, be ornamental); then plant the Aloe amongst the rocks, fixing it in an upright position until it is found to stand alone; then fill up the interstices with soil—any moderately good soil will answer the purpose. Do not be too liberal in the supply of water, especially at first: if the soil is moist, the Aloe will require no water at all.

After some time has elapsed, if the plant is found to be looking red and unhealthy, its root should be examined, for it may have decayed; and if this is the case it should be taken up again, and the decayed parts carefully removed or cut away, until you arrive at the sound and healthy part of the stem. The Aloe should then be placed in the sun for several days (if the specimen is large and succulent, for several weeks) to dry and harden before it is again put into the earth. It does not follow that the plant should be altogether lost because it has decayed at the root, for Aloes may be planted again and again, "even until seventy times seven," always taking the same precautionary measures.

Moreover it will be found that Aloes will sometimes decay at the heart, or from that portion of the stem from whence spring the young growing leaves. This may be from two causes, viz., water lodging amongst the too crowded leaves, or the larva of some insect that feeds upon that portion of the plant. An Aloe thus affected should have the greater portion of its leaves removed, and the diseased parts cut away, and the wound carefully washed and dried, after which it will soon be found that the plant will recover, and either grow again from the centre or shoot from the side.

Aloes should not be watered often nor at stated periods, for the climate of South Africa is extremely variable, and subjected to great vicissitudes, and in their wild state they are unaccustomed to a plentiful and regular supply of water. They endure long seasons of severe drought, a burning summer sun, or a scorching north wind; and again, at other seasons they are deluged with torrents of rain, for such is the variability of the climate they inhabit; but from the construction of their leaves and roots, there is no succulent plant better enabled to endure these great changes than the Aloe, for in rainy seasons they extend every leaf and branch with moisture, and this supply is carefully stowed away, to be absorbed by degrees, in times of drought and scarcity, according to the requirements of the plant; and from this store of moisture the whole of the blossoms and seeds are frequently supplied with nourishment, which supply is obtained from the large succulent leaves of the plant, which then become red and attenuated.

Aloes should never be pruned or trimmed in any way whatever. The old leaves which accumulate beneath the large green ones, form a protection to the young growing stem, and if left to themselves they assume an oval-shaped mass of grey and hoary-looking dried foliage, which forms an excellent contrast with the green leaves above, giving the Aloe its peculiar and picturesque appearance. Moreover, the removal of this mass of old leaves frequently results in the death of the plant, which is much to be regretted.

Many of the dwarf species of Aloes are becoming much more rare within the colony than they formerly were, for I am sorry to state that Aloes, like many other succulent plants, are fast disappearing within the boundary of the colony. The sheep and goats are doing for this country what the goats did for St. Helena, rapidly altering the nature of its flora and pasture lands, and causing many plants to disappear before their destructive ravages, for in severe winter seasons, when there is a scarcity of grass, these animals are in the habit of browsing upon succulent plants, and even the bitter leaves of the Aloes are eaten with avidity, *M. E. Barber.* [Communicated by Dr. Hooker.]

CHURCH DECORATION.

[It has been suggested to us by a country clergyman that we might be able to assist those whose desire it is to ornament their churches on certain occasions in a suitable manner, with hints that may be useful. We applied to a valued correspondent, well known for his taste in such matters, and who has furnished us with some notes on the subject, and which we shall publish from time to time. "And in these our doing we condemn no other nations, nor prescribe anything but to our own people only; for we think it convenient that every country should use such ceremonies as they shall think best to the setting forth of God's honour and glory, and to the reducing of the people to a most perfect and godly living, without error or superstition." EDS.]

PERHAPS the simplest style of decoration is to be met with in those village churches where the clerk bores a dozen holes with a gimlet in the top of the partitions which divide pew from pew, and sticks in each a piece of Holly some 6 inches high, with a few red berries on it. The next step in advance is found in the church where small bushy pieces of Ivy alternate with the Holly in the ornamentation of the partitions. After this, Laurel from the Squire's garden comes into requisition, and so on, through Arbor-vitæ and Juniper, up to Camellias, immortelles, exotic Fern fronds, Eucharis amazonica, and Passiflora cœrulea.

In the use of all the different kinds of flowers and

foliage that are commonly laid under tribute, there is one important rule that is not sufficiently attended to generally, and it applies with greater force to churches than to any other places. It is, that the most agreeable general effect occurs were there is the least variety in the flowers, and when the display of foliage is in the proportion of three or four to one of the flowers or fruit. Whenever any combinations are employed the greatest care should be used to avoid vulgar, glaring effects. Soft, subdued tones of colouring should always be the aim of the church decorator.

And as with colours, so with designs. In our opinion, a church wall, covered with a museum-like collection of symbolical designs, artfully wrought in flowers and leaves, is not in good taste. A selection of two suitable designs, and their repetition alternately all round the church, would always have a better effect, not to mention the advisability of varying the form of the designs upon different occasions, in preference to the display of them all upon any one occasion.

One of the reasons why church decorations are so often displeasing arises from inattention to the latter part of the Apostolic injunction to the Corinthians, to do everything "decently and in order," or (as another translation renders it) "in a seemly and due order." All large undertakings, if they are to be executed "in order," must require a considerable exercise of forethought to be done well. It is too often the case that flowers and evergreens are collected indiscriminately at the last hour, that the workers have neither thought, nor have they been told beforehand what is to be done, and that each does something as his taste or fancy directs, the natural result of which is a medley of ornaments, a display more curious than pleasing.

Another reason is, that there is so frequently no competent person to be found, possessing the ability to design, the influence and social position to direct, and the inclination to undertake the responsibility of superintending, the decoration of a church; for it is useless to attempt to ignore or deny the fact, that *quot homines, tot sententiæ*—many men, many minds; or, as Cicero still more pointedly puts it, *quot homines, tot causæ*. The most pleasing effects invariably proceed from the orderly and systematic workings of many willing hands under the direction of one experienced head; and where any one member of a congregation has displayed such qualifications in the decorations of his or her own rooms, it would be well for the rest to resolve upon giving him or her at least one trial, as their acknowledged chief for the occasion, in the decoration of their place of worship; and if he or she succeeds, to retain the chieftainship until a better can be found.

It must have occurred to many as a somewhat curious circumstance that architects rarely if ever make any provision, in their designs for churches, for floral decoration. For instance, at certain distances up the aisles and elsewhere there might easily be arrangements for placing removable octagonal flower-pots, made of the same wood as the pews, and lined with zinc, which might either hold a bouquet of flowers, or a dwarf plant of Camellia in bloom, or a pot of some elegant Grass. The same contrivances might be permanently fixed (if ornamentally executed), at the foot of the pillars of the church, and be used for pot-plants of climbers, such as the Passion-flowers, Lapageria, &c. Again, in the carving which so often surrounds a font, it would be so easy to provide for the occasional insertion of glass or zinc tubes of water, for keeping choice flowers from drooping, as they too frequently do.

Residents in the country who have good gardens, and still more those who are fortunate enough to possess conservatories, might do much for church decoration, by growing plants especially for that purpose. And while no person might care to grow enough of any one plant for the purpose, lest it might make his garden too much like that of a nurseryman, yet by a combination amongst several parishioners to grow each a few of that particular plant, an ample supply of it might be provided upon the special occasion when it was intended to use it. Many, too, who have no greenhouse may nevertheless be able to assist by growing such tender shrubs as Myrtle, Oleander, &c., which do well in rooms and well-lighted halls.

Uniformity in the size of the flower-pots that are used for each kind of plant may seem to be a trifling matter, but is, nevertheless, one that would well repay little attention to it. Where pot plants are to be sed in rows, it looks very badly to see different-sized ots; besides which, uniformity in size of pots is more ikely than anything else to ensure uniformity in the size of the plants when fit for use.

As most of the principal festivals of the Church of England occur during the colder months of the year, it will be advisable to be prepared with some form of "sedan chair" or covered hand-barrow, in which to move the plants to and from the church. This will afford a necessary protection, not only against frost, but also against easterly wind, scorching sun, or heavy showers of hail or rain, either of which might injure the blooms, if not the foliage, of many a plant.

Plants intended to be used again should not be kept in churches for a longer time than can be helped; for though some will stand changes of temperature without injury, others are much more susceptible on this point. Gas in churches is likely to be very prejudicial to plants, unless great care be used. Not only must they be kept for as short a time as possible in places where gas is used, but the persons in charge of the gas should be cautioned about the manner in which they light it; for it is a too common practice with such people to turn on all the jets at once by a cock at the main, and then to walk leisurely round and light each jet separately—a proceeding which must necessarily allow a large (though perhaps not an explosively dangerous) quantity of gas to escape, to the discomfort of the congregation and the injury of all flowers and foliage, whether cut or growing. Every gas-burner should be turned on and lighted before the next one is turned on; and where, as in some cases, this cannot be done because several jets are turned on and off by one cock, then two or more persons should be employed to light simultaneously, so as to reduce to a minimum the escape of unconsumed gas. Again, after a service at which gas-lights have been used, it is important to clear out the foul air and the heated products of combustion, before shutting up the church for the night, if the plants are to be left there. Much care is necessary in doing this on a frosty night, or the plants will take as much injury from the cold as they would have done from the impure air. The object to be attained is a free circulation of air without a draught.

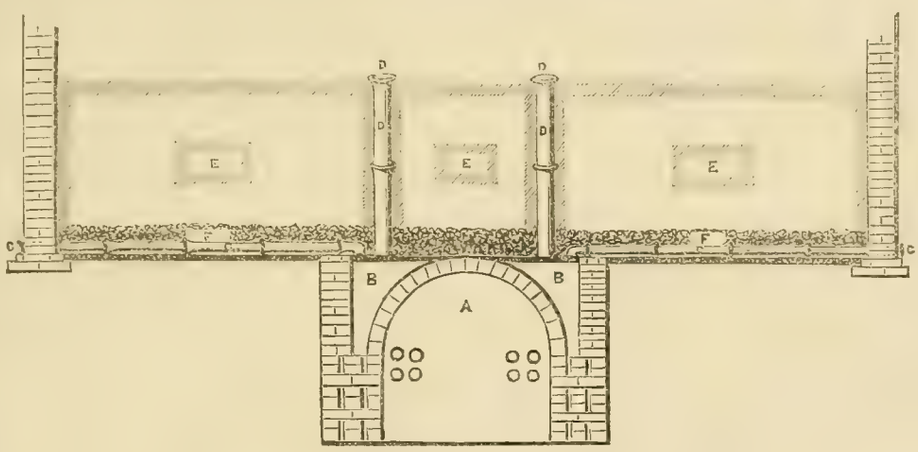
Draughts are quite as injurious to plants as they are to human beings who are not used to them. And, as invalids are sure to avoid seats near the entrance, so stove and greenhouse plants should have positions allotted to them where they will be free from such prejudicial influences.

These remarks, although made with reference to growing plants, apply with equal force to cut flowers and evergreens, which, by attention to them, can be made to keep much fresher than would otherwise be the case. *W. T.*

BOTTOM HEAT.

[A Paper read at the Manchester Congress.]

As a nurseryman, I have found bottom-heat to be of the greatest use for all kinds of propagation, not only for stove, but even for hardy plants, a great many cuttings of which cannot be made to root without it. The



best material for producing bottom-heat for this purpose, and for forwarding young plants after they have been potted off is tan. It retains its heating power for a long time, and gives out just such a genial, moist heat as all kinds of young plants, cuttings, and Orchids like. To keep up this genial heat, it is necessary to turn over the beds every six weeks or so, and add a little fresh tan at each turning.

The next best materials to tan are properly prepared dung and leaves; but they require so much management, and the heat is so changeable, that they are only adapted for a few plants, and require the exercise of great care. I now come to bottom-heat for large subjects, and for those growing in borders, such as tropical plants, Vines, &c.; and it is in their case, when the heat has not been properly applied, that the abuse of bottom-heat has been seen.

There has been a good deal of controversy lately about growing early Grapes without bottom-heat. Now, I maintain that you cannot strike cuttings of the Vine without it, neither can you grow good early pot Vines without it. Then why should Vines planted out in borders dislike it? My opinion is that they do not; while for forcing Vines year after year, very early, it is positively wanted, otherwise the Vines will wear themselves out. My experience tells me that it is from the want of sufficient water that mischief arises from the use of bottom-heat. I have been a victim from this very cause, for it is scarcely possible to make men of ordinary practice believe the quantity of water that is required to supply a border where there is bottom-heat, and in which the plants are planted out. I now adopt the plan of measuring the water. I maintain that plants indoors, and especially since the heat is greater, require quite as much water as those out-of-doors; therefore, I give them 24 inches per annum, or about 12 gallons to the square foot, giving the greatest quantity when the Vines are in a growing state. I do not say that even this would insure safety with badly applied bottom-heat, such as from hot-water pipes amongst the drainage or in the border. These would be failures; for as regards extremes of heat, cold, and dryness, we should be at the mercy of the stoker and waterer. In applying bottom-heat to borders, it should be perfectly under control, and capable of being conveyed to the roots of plants at will, and in such a manner that the heating medium can be extended by degrees to any distance. I have paid a good deal of attention to this subject, and I think the perfection of an early Grape-house would be one built after the plan shown. It should have a span roof 18 feet or more wide, with arches in the outer walls, so as to extend the borders, E E E, from the inside when wanted, and also to let out the bottom-heat to the outer border; in fact, to extend the roots to any distance. There should be an arch in the centre, A, extending the whole length of the border—the upper part pigeon-holed, to let up the heat from beneath the arch as quickly as possible to the chambers B B, to be conveyed into the earthenware socket distributing pipes C C, which should be laid quite level, otherwise the heat will not be regular. These pipes I recommend to be placed at intervals of 2 feet apart throughout the length of the house, on a concrete bottom, with 12 inches of brick rubbish over them, F. I have a great opinion of aërating borders for forcing plants—in fact, for all kinds of plants; therefore, in a house 50 or 60 feet long, I put three pipes on each side of the house D, in communication with the heating chambers, so that in winter air can pass from the inside of the house amongst the roots of the plants, and when the borders are formed, outside provision can be made so that in summer they can be aërated from the outside. I think that with provision like this for bottom-heat, air, and water, we should hear no more of failures in forcing early Grapes. *John Standish, Royal Nursery, Ascot.* [The publication of the above paper has been unavoidably delayed. Eds.]

SPRING BEDDING PLANTS.—No. I.

Spring bedding can be carried on at a very trifling expense every year, for after having once procured the plants to begin with, there will be but little trouble to perpetuate the stock for future supply. No expensive houses are required to protect them from the frost, all the subjects being hardy, and proof against the various vicissitudes of our fickle climate. There are, besides, many plants of great merit not adapted for bedding purposes in a general way, but which, on account of their beauty, must not be discarded, but a home found for them in the border, where they will be equally attractive. First and foremost among these border plants must be mentioned the Hepaticas, as they are among the first harbingers of spring. There are many varieties, pink, blue, red, and white, both single and double, as well as a very large flowered species from Transylvania called angulosa. The only rule necessary to grow these successfully is—plant them in a rich loam, if possible, where they are partially shaded in the summer but not in the winter, and then leave them alone. Follow this rule, and you will have each succeeding year some of the most charming masses imaginable.

The double-flowered Primroses and Polyanthuses stand next, as they flower about the same time, and will succeed in a similar situation to the Hepaticas. If any difference is made as to treatment, give them plenty of manure. There is almost every shade of colour to be found among them, and their lively masses of green, studded with large flowers, will amply repay care in their cultivation. There is a Himalayan species, too, of great merit, viz., Primula concolor; it is in the way of P. denticulata, but much more robust in growth. It throws up in February and March large heads of lavender-coloured flowers, from 9 to 12 inches in height, grows vigorously in the open border, and when once known will surely become a great favourite. P. cortusoides is another species adapted for the border; its rose-coloured flowers are produced in great abundance, and, if planted in a damp shady situation, it will continue to bloom at intervals during the whole of the summer. Most of the other Primulas require more care than can be given in the open border; therefore they should be placed upon the rockwork. Before leaving the Primulaceæ I must mention the Dodecatheons, or American Cowslips; they are very interesting plants, and remain in bloom a long time. D. Meadia and its varieties, and D. Jeffreyi, include the best.

Dielytra spectabilis is a gem of the first water, but it requires to be planted in a sheltered spot, or its delicate foliage will get injured by the early frosts. For pot culture it is very valuable. Orobus vernus is a charming leguminous plant; it forms neat bushes of light green foliage, which is smothered with its purple flowers early in the spring; there is a white-flowered variety, as well as a double-flowered form of both, all of which deserve unlimited cultivation. The old-fashioned double yellow and black Wallflowers demand notice for spring decoration; the best place to plant them is close against a wall, where they will flower much better than in the open borders. Adonis vernalis, the "Spring Pheasant-eye," is another gem for the borders, its large deep yellow flowers—frequently as large as a five-shilling piece—are produced in great abundance. A strong plant in flower is one of the most dazzling objects a garden can possess.

Then there is the charming little Dondia Epipactis, with its yellow disc-like flowers, which lay on the surface like so many Australian sovereigns fresh from the mint. This should not be planted anywhere near

the winter Aconite (Eranthis hyemalis). The latter should by no means be left out of any collection of early flowers. Some people say it becomes a nuisance. Why? because they disturb it, and its small roots get scattered about, and come up all over the garden. It wants planting where it will not be disturbed, and it will soon form a luxuriant mass of great beauty. One of my greatest favourites in the spring is Trillium grandiflorum; another is T. pendulum: those who have not got them should procure them without delay, plant them in plenty of peat, and let them alone; the Rhododendron bed, however, is the place for them, as their foliage will be slightly protected from the wind.

There are a great many others which I could mention, but space will not permit; however, if the borders are well filled with these, and clumps of such things as Arabis, Alyssum, Iberis, Saxifraga, Aubrietia, Phlox, Silene, Saponaria, Gentiana, Myosotis, and many others which are adapted for bedding purposes, a charming picture will be secured. With such a collection no one would ever think of discarding the perennial border for the sake of the fashionable summer bedding plants of the present day.

Let me now leave the borders, and mention a few things suitable for the beds. Edging plants will first occupy attention, and I will endeavour to adhere as much as possible to those that can be permanently used, and are alike suitable for summer or spring bedding. Arabis alpina fol. var. and A. albida fol. var. are too well known to need any comment, but too much cannot be said of them for general decorative purposes; they are very attractive the whole of the year, but more especially during the winter and spring months. In planting these I should leave a space between the edging and the grass for the introduction of such things as Scilla bifolia, S. sibirica, and others. The sky-blue flowers of those just mentioned will form a striking contrast with the rich varied foliage of the Arabis. A. lucida fol. var. is a beautiful plant, but it will not do in this list of permanent edging plants, as it will not thrive in all situations. Aubrietia purpurea fol. var. is another useful subject for edging; it is very uniform in growth and very lively in appearance, and groups well with almost every plant that can be used for spring or summer bedding. Alyssum saxatile compactum fol. var. is admirably adapted for edging purposes; it is very vigorous in growth and bold in outline; its variegation is very distinct, and in my opinion it is one of the best hardy variegated plants in cultivation. Ajuga reptans atropurpurea is a useful variety of the common Bugle, only much more vigorous in growth; it forms a very uniform mass of deep bronzy purple foliage, and it is a very striking object, especially when grouped with plants of a light pleasing foliage, or even with the variegated form of the common Ajuga.

Veronica glauca is another very neat and useful perennial, and deserves extensive cultivation. It forms a close compact mass not more than 2 inches in height, and in colour resembles the well-known Centaurea. It is very useful for continuous lines, as it requires no trouble to keep it in its place, and has a very pleasing appearance at all times of the year. Veronica spicata fol. var. is another of this class, and very similar in character to the preceding; its foliage is of a dark green colour variegated with yellow. Pyrethrum Parthenium aureum, the Golden Feather, must not be neglected in a selection of this character; the pleasing colour of its foliage is very attractive during the winter and spring, and it blends harmoniously with the prevailing colours of the spring garden. There are numerous others which might be mentioned for this purpose, such as the Bellis aucubæfolia, Trentham Blue, White, Yellow, and Purple Pansies, Sempervivum tectorum, Sempervivum californicum, the incrusted kinds of Saxifragas, besides a goodly array of bulbous plants.

All of those which I have mentioned, from their dwarf compact growth and perennial habit, can be planted permanently, as we do not depend upon their flower, but upon their rich varied foliage, which remains the same throughout the year. They may also be advantageously used for other positions in the beds, besides that of edging. For instance, take a small circular bed and plant close to the turf Scilla sibirica, and then Aubrietia purpurea fol. var., which will be considered the edging; for the second row, use Ajuga reptans atropurpurea; for the third row, plant Arabis albida fol. var.; for the fourth row, plant Pyrethrum Parthenium aureum; filling up the centre with Myosotis sylvatica, with a few Tulips planted between. By this arrangement you will have a permanent bed, attractive the whole of the year. It will be seen that the plants used for edging must depend entirely upon the taste of the cultivator. In my next paper I will give my ideas upon those plants most suited for bedding, with their propagation, dividing them into sections, viz., those of biennial, and those of perennial duration. *A. J. P., Tottenham.*

NERINES.

AMONG that class of plants that generally comes under the category of miscellaneous bulbs, there are none more worthy of attention and cultivation than the Nerines. They are eminently plants for the million—firstly, because of the ease with which they can be cultivated, the little attention in the way of greenhouse accommodation and service required; and secondly and mainly, because of the gorgeous character of the flowers, produced in umbellate heads of the most fascinating character. But unlike some of the plant race, they have an additional claim upon our notice, because their flowers do not spring from ungainly foliage, nor have they an awkward habit to provoke an offensive comparison; on the contrary, the bulbs are handsome, the glaucous foliage is during the time of inflorescence about as perfect, from its freshness and lustre, as foliage could be, and the limited area of pot room necessary for keeping up such a respectable state of things is somewhat remarkable. An 8-inch pot is sufficient to provide the necessary food for eight bulbs, which do not favour the idea of separation, but hold on together, Siamese twin-like, and have reciprocal connections for good or evil. These eight bulbs will each produce a scape, and out of the eight scapes are likely to come no less than 160 flowers, or an average of about 20 flowers to each scape. These grand floral umbels will span from 8 to 10 inches in diameter, according to cultivation. The floral envelop or perianth of most of the so-called species of the genus in question is of the most brilliant orange-scarlet conceivable. Some of the sorts, as Fothergillii, for instance, are tinted as if with burnished gold, so that the more brilliant the light the more dazzling is the effect, compelling on the part of even the most stolid sightseer the fullest admiration. The scape grows to about double the length of the foliage, so that nothing intervenes to mar this beautiful production of Nature. The brilliant colours are admirably relieved by the forest of stamens, with their conspicuous bundles of white anthers which stand stiff and erect projecting from the respective centres of the flowers, thus heightening the beauty of the flowers. This is no exaggerated picture, but a very faint portrayal of this brilliant Amaryllid. And yet its merits are not generally known. How often do we in the course of our peregrinations note many beautiful things conspicuous by their absence, and this is one of them!—a plant, forsooth, that would delight the hearts and flower-proclivities of thousands, within the reach of their pockets and establishments, and yet very few take advantage of the privilege of growing it.

The Guernsey Lily (Nerine sarniensis) even although the least conspicuous of the batch, is a grand object, hardy in many parts of the country, but, hardy or not, available and plastic in the hands of the cultivator for brightening up "the homes" indoors during the dull months of October and November, showing up grandly against the scowling winds and leaden sky that often prevail. Opining that no more seasonable time could be hit upon, I have ventured to solicit the attention of your readers, asking them to make inquiries in their respective districts if such things can be seen—for now the plants should be in the height of their inflorescence—resting well satisfied that their eyes will be feasted, and I, if not publicly thanked, shall be at least gratefully remembered. I know there is a grand sight of the kind at Mr. Rucker's once a year, and if he could be induced to transport a few of his specimens to Kensington, and the public be well advertised of the display, it would create a *furore* not second in importance to the Orchidomania of days present, or the Tulipomania of days past.

There are half-a-dozen so-called species that I have grown for years, and with the view of bringing them more particularly under the notice of your readers, I will describe in some measure their characters. I am by no means clear that all those which bear specific names are species; in fact, by the canonical law of botanical nomenclature it is quite clear that the majority are only selected varieties, differing so infinitesimally in habit, and chiefly in colour of flower, as to justify the position I have assumed respecting them. Botanically I should say, N. flexuosa, N. venusta, N. Fothergillii, and N. corusca, are only forms of one and the same species, and must be referred as varieties to the first-named. In truth the family likeness is very great, not only in respect of inflorescence, but also as to bulb, habit of plant, and form of flower, which are not essentially diverse from N. sarniensis in either of those named above.

N. undulata, sometimes called Nerine or Amaryllis crispa, is undoubtedly a distinct species. It yields the smallest bulbs of the family, smaller considerably than those of the Jacobæa Lily (Amaryllis formosissima), and not much larger than those of the Atamasco Lily (Zephyranthes candidissima). The bulbs are distinct, being clothed with a profusion of chaffy scales, and the narrow ligulate or strap-shaped pale green leaves generally precede the flower scapes. The latter reach to a height of 12 inches, and bear numerous flowers, whose perianth segments are of a wavy or undulating outline, as its cognomen indicates, and of a soft flesh tint. It is much the smallest and least showy of the family, but, nevertheless, is a distinct and beautiful object, flowering a month or two later than the venusta section.

N. sarniensis is a species having bulbs not much unlike a James' Keeping Onion, covered with brown scales. The foliage of this is handsome, from its shining viridescence, and the flower scapes will grow from 24 to 30 inches, bearing quantities of pale salmon-coloured flowers, the segments of the perianth being recurved at the extremity.

N. corusca possesses by far the strongest constitution in the family, for the bulbs grow so exuberantly as to dispense with their scaly coating. The scales in the family I am describing are formed by the bases of the annual decaying leaves that envelop the bulbs, but so powerful is the constitution of the variety in question that when it dispenses with its annual complement of leaves it retains the rudimentary bases in perfect health, and thus swells much faster into bulk of bulb. The flower scapes are strong, but the number of flowers is not proportionately increased. Individually they are of larger dimensions than in any other sort, but 20 seems to be about the maximum attainable; the colour is a brilliant orange-scarlet, as if the outcome of a fusion between the intensely bright flexuosa and the pale sarniensis. The reproductive parts of the flower are longer, and look, in comparison with the others, as if too far away from home to present the elegance of their compeers. The foliage is broad, oblong, entire, vigorous, light, and arching; hence sometimes the name of curvifolia is ascribed to it, but it is a synonym. Another variety bearing the name of corusca, or rather of corusca major (for vendors have seldom any minor varieties to offer), is tinted with a totally different hue from the one described above, neither has it the constitution, but it is, nevertheless, a most desirable variety, evidently several removes off sarniensis. It is of a pale orange-scarlet colour, the orange predominating largely over the other hue, and generally comes later into bloom than its more gigantic relation. The segments of the perianth are much narrower, scarcely so much recurved at the extremities, and the stamens are at a respectful distance from the perianth base, making altogether a handsomer though by no means so showy an umbel.

N. flexuosa has very finely finished bulbs, almost perfect in outline, and enveloped in a transparent silky sheath, which is large enough to envelop the whole bulb, and is so tautened up, to use a nautical phrase, as to appear to be artificially dealt with. The leaves are of a less dark green, and less glaucous, than the one described above, and the scapes, as a rule, are longer in proportion than any of the other sorts. The umbels are composed of a piece of the most magnificent flower colouring, being of the most vivid crimson-scarlet, tinted slightly with orange, immensely attractive, but not gaudy, and when in perfection of inflorescence, in point of form quite the *beau ideal* of a selected Covent Garden bouquet.

N. venusta has bulbs very much like those of sarniensis, and seems to be a selected seedling of that species, blended, however, in point of foliage and inflorescence with Fothergillii; it is exceedingly useful as being among the first to flower. It is an immense breeder, extending laterally even more freely than other sorts, although it is the shyest bloomer of the lot. It never throws a scape so tall as other sorts, and may be looked upon as the most wayward of the orange-scarlet varieties.

N. Fothergillii has bulbs in point of size and colour not unlike a fusion of Hippeastrum giganteum and James' Keeping Onion, surrounded with numerous chaffy scales. The leaves are scarcely so broad as in corusca, but they are of a beautiful glaucous hue, not unlike the coat of colour of some of the succulents, and the same tint also embellishes the flower scapes. The umbels present the most perfect outline of the family, the segments of the perianth of each individual flower being markedly recurved—indeed this is a characteristic of the family. The flowers are of a very pleasing character, the usual orange-scarlet shade being tinted as if with burnished gold. This is certainly the most eligible of the group, and grows with the greatest freedom in a mild atmosphere, with minimum amount of attention.

As to the *rationale* of culture, simplicity should be the order of the day. As hinted above, the family is all but hardy, and therefore only sufficient fire-heat to keep out frost is needed. If prolongation of the blooming period be desired, a little fire-heat to raise the house to an intermediate temperature will do no harm. A dry, rather than a moist medium is desirable to conserve the beauty of the inflorescence. When the blooming period is over, leaf-formation and consolidation must be attended to, in order to ensure a future year's success. Watering must take place until the ripening period becomes so far advanced that the leaves show signs of decay. Then let water be gradually withheld, and see that the bulbs get what is called a "good roasting" in the sun. Don't broil them, however, after they are matured, or even when they are growing, unless the water-pot be also industriously plied. Flowering and growing as these bulbs do in the winter and spring months, they rest during the hottest portion of the year, and can be stowed away in any cool corner at command. A slight dewing during the resting period is attended with good results, but a systematic watering would be decidedly bad. Far better not to look at them for four months during summer and early autumn, than to force them to grow out of season by injudicious watering. Then, as to soil, pot the bulbs as soon as they have done flowering, and keep them in under-sized rather than over-sized pots to induce profuse inflorescence. Any compost that will grow Pelargoniums, or Pines, or Vines, wherein fibre is largely incorporated, will grow them to perfection. *A.*

Home Correspondence.

Deodar.—I have observed with surprise Mr. Frost's recommendation, in the last *Gardeners' Chronicle*, of the Deodar as a timber tree. "The Deodar," says he, "should now be planted extensively; it is a fast grower, and there cannot be a doubt about the quality of the timber." Speaking by the letter, I should be very much disposed to say the same, but in the contrary sense to what he means. The fact is, that the question remains exactly where it was when doubts came to be entertained of its value as timber. Such additional information as has been obtained since then, according to my view, all goes to confirm these doubts. But the Deodar, although tolerably abundant in this country now, has in very few places been planted for timber, and I have heard of no place where it has been felled for timber; and if it had, enough time has not yet elapsed to test the endurance of the timber. We are still, therefore, without materials to answer the very pertinent inquiry of your correspondent, to whom Mr. Frost replies; and as I think his answer may do harm by misleading those who trust to his experience and well-known skill, I hope you will permit me to enter a *caveat* against it. The knowledge that others who take an interest in the subject not only still entertain doubts of the timber, but incline to the belief that it is inferior, may induce your correspondent to make further inquiry before acting on Mr. Frost's advice. I am only speaking of the quality of the timber; I do not dispute the beauty of the tree, nor the propriety of planting it for amenity, although even here it scarcely comes up to its reputation. Its special

beauty is in its youth. When older, the Cedar of Lebanon, to my taste, is far finer. Its habit of growth is now well known to be that of the Poplar, and any one who plants it with a view to posterity must look at it by that light, and not by the grace and elegance of its youth. *A. M.*—The controversy respecting the quality of the timber of the Deodar Cedar, referred to in your last number, was on this wise. At that time a large quantity of seed was imported, and landowners were urged to plant it largely, on account of the value of its timber. I wrote a letter to the *Gardeners' Chronicle*, expressing a doubt as to whether it were desirable to do this before the quality of the timber, as grown in England, was proved, instancing the different quality of the wood of the Cedar of Lebanon, as grown in its native mountains and in England, and the very various qualities of timber produced in different countries by the Scotch Fir. I was not successful in convincing some of your readers that it required proof in this country, until Dr. Hooker was so kind as to support my view by some much stronger instances of the different qualities of the same tree, when grown under different circumstances, taken from his own experience in India. This was the end of the correspondence on the subject. I am now glad to learn from Mr. Frost that the Deodar is promising to produce valuable timber in England, and I should be very much obliged to Mr. Frost or any other of your correspondents who have experience in the matter, if they would state what are the particular qualities of the timber which the Deodar produces in England, and also what are the differences between the timber (at similar ages) of the Deodar, the Cedar of Lebanon, and the Mount Atlas Cedar; of the three the last appears to be the hardiest in constitution, and the Deodar the least so. So far as I have been able to learn, this is so in Yorkshire. It would be very interesting to learn what the comparative value of the timber produced by the three is in places where they all three thrive equally well. *C. W. Strickland.*

Fairy Rings.—I remember reading last year in the *Hereford Times* an article of Mr. Lees' on Fungi, but I do not remember that he then advanced the theory of the gyrations of the mole as the cause of the Fairy Rings, although it seems that he does so now. In growing Mushrooms artificially, they generally grow in clusters, and it is customary with some to cut them off with a knife. This is a bad practice, as it causes the roots to rot in the soil, and of course no more Mushrooms will grow there. Instead of cutting them off they should be pulled off by the hand, by which means the roots and top will come out together, leaving a hole in the bed. This hole should be filled with fresh soil, and pressed hard, and Mushrooms will grow again in the same spot. Now, a Fairy Ring commences by a cluster of Fungi in one spot. Why is it that it extends outwards the following year? Simply because the *pabulum* is used up, and the mycelium or spawn extends outwards in search of food for a fresh ring. Mr. Lees' theory is quite opposed to the growth of Fungi, for the furrows made by the gyrations of the mole loosen the soil, and make it quite unfit for the spawn to run in. The best Fairy Rings I ever saw were in strong Warwickshire clay, where the turf was as hard as the turnpike road. I imagine that if, when a Fairy Ring is in full growth, a piece of it, say 18 inches long and broad, was cut out with the spade to a moderate depth, filled in with fresh soil and trodden hard, the spawn would run in this and spoil the ring. Further, I believe that, by digging out the soil a certain width inside the ring all round, and replacing with fresh soil, trod hard, you could induce the ring to grow inwards as well as outwards, and by following this up bring back the ring to where it originated. I should like to hear what others have to say on this hitherto knotty subject. *W. Hutchison, Llwyndu House, Abergavenny.*

Vine Roots.—I should feel greatly obliged if any of your correspondents who are sufficiently versed in the root and branch action of the Vine, and are perfectly conversant with its adaptability to circumstances, would say from whence comes the copious flow of sap that ascends so rapidly in its branches, as a prelude to growth? *J. R.*

Grafting the Grape Vine.—If any of your correspondents who may be interested in this mode of propagation of the Vine, were to look into the "Transactions of the Horticultural Society of London," they would find an article written, say 34 years ago, on the cuneiform mode of grafting the Vine. I have frequently practised this method successfully, and believe that it can be adopted more usefully than any other system of grafting or so-called budding. The stock as well as the scion should be ripe wood of one year's growth. An eye at the apex of the stock is allowed to grow till it is 2 inches in length; that of the scion should be kept dormant till the time of grafting. To proceed with the operation, the stock should be cleft about 2½ or 3 inches down, paring and tapering off the insides of this cleft with the utmost precision, so that it may splice exactly with the corresponding taper of the scion, but taking care not to shave too closely to the base of the shoot at the top of the stock. The scion must then be inserted, and bound moderately firm with a ligature in the usual manner. The incised part should next be covered with soft clay, and the whole, excepting the shoot and the eye of the scion, should be covered with Sphagnum, which must be kept moist. When the shoot at the top of the stock has grown 10 inches, its top should be pinched off, in order that in this condition it may render more effective service to the scion; and as soon as the eye of the latter begins to push, the shoot referred to can be completely cut off. It then follows, if this simple process has been perfectly performed and cared for, that the eye will break boldly, exhibiting the embryo cluster, which in process of time will be developed into a perfect bunch; thus not only proving the merits of a variety when desirable in one season, but also obtaining a strong cane 15 or 20 feet in length. I have not read the article referred to on this subject, but with these facts before us there seems but narrow space left for wrangling as to priority in budding the Grape Vine. *John Reid, Haigh Hall Gardens.* The budding of the Vine, as practised by Mr. Stevens, is quite different from all the modes of inserting ripened buds on the stock which have been alluded to, and which are neither more nor less than bud-grafting. The budding process which has excited this discussion consists in taking the bud from the fully developed but still leafy shoot towards autumn, paring it off with the bark and the thinnest possible layer of wood, and inserting this in the stock exactly as in budding Peaches, and differing from Rose-budding only in the non-removal of wood cut with the bud. The bud, thus inserted, forms an union with the stock, but remains dormant till spring, when it starts into growth—exactly as in ordinary budding. Eds.]

The Weather in Scotland.—On Martinmas term morning (Nov. 11) I found the minimum thermometer registering out-of-doors, 4 feet above the ground, 15°, with several inches of snow lying on the ground. On the morning of the 10th it had fallen to 28°, with a rising barometer and a somewhat murky atmosphere. Snow fell uninterruptedly for five hours in Lanarkshire, which, as it sometimes does, intensified the cold to the degree recorded above. To find the same parallel of cold I require to look back over regularly recorded temperatures—which, by the way, are as accurately taken as by most other observers—to March 21, 1867. Then the minimum was 14°, and on the 16th of the same month it was 12°. Since that date we have had no severe frosts in Scotland generally. Taking the present month with the view of establishing a fairer parallel of cold, I find that we must go back to 1866, when on the 10th, 19th, and 20th, the following minima are respectively recorded: 19°, 19°, 17°; while if we take the mornings of the 11th, in 1866, 1867, 1868, and 1869, they show the respective minima of 34°, 42°, 24°, and 15°. Hence it will be observed that during last night we had 17° of frost. It would appear, after all, that the influence of the Gulf Stream is not all-potent in rescuing us, at least, from sudden variations of temperature. *J. A.*

Farnham Castle Orchids.—In answer to Professor Reichenbach's query in your last Number respecting Catasetum saccatum, I am sorry to say it died soon after flowering in 1853. It was imported, together with many new and interesting species of Orchids, from a savage locality near the head waters of the Maranon, in 1852, by Warsczewicz. The cases were six months in reaching the port of embarkation, and upon their arrival in this country the contents were in an indescribable state of rottenness and confusion, consequently many fine things were lost. None of the living plants have changed owners since, that I am aware of, so that they are extremely rare and valuable. I presume the collectors are approaching the same locality from the Peruvian side of the continent, if so, we may expect many novelties. Brassia Lawrenciana var. longissima is now in bloom here. The lateral sepals measure 10½ inches in length, and from their extremity to the tip of the dorsal one is no less than 16 inches. The plant was Mr. Buller's, and is the same from which the figure in the "Botanical Magazine" was taken. Cypripedium caudatum has tails 28 inches in length, and attracts everyone's attention from its quaint and curious appearance. I grow this species in the cool house, but its variety roseum requires more heat. There is also in bloom here a very fine variety of Cattleya maxima; the bulbs are about 2 feet high, and the flower-spike is a foot in diameter, with nine fine flowers. The same plant has produced in former years as many as 13 flowers on a single spike, and is certainly a grand species. *J. W. Laurence, Gr., Farnham Castle.*

Picea Pinsapo.—I fully concur with Mr. Miller's opinion as to the desirability of clearing up so important a matter as far as may be practicable; consequently I have made a re-investigation of the soil in which the Picea is growing, but with little material results, excepting that it was found to be in a medium state as to moisture; also that I have subsequently learnt that many years prior to the introduction of this Conifer here, a considerable quantity of other kinds of earth was added to the ground surrounding the spot in which the tree in question is growing, for the purpose of extending the carriage drive, to which the tree is in close proximity; consequently, there may be, as Mr. Miller observes, something of a pernicious character lurking in this foreign addition, such as bits of decayed wood, old roots, &c., either of which would be liable to foster Fungi, and prove mischievous to the roots of the Picea. That the healthy roots of trees, and of Conifers especially, are susceptible to Fungus influence, I think it would be a work of supererogation to prove, inasmuch as there are innumerable instances on record of the baneful effects of planting trees on sites where the old roots of pre-existing trees have not been grubbed up; and, if necessary, I could instance two cases in particular at present existent in this neighbourhood, both being Deodar Cedars. See also what "M. J. B." has lately stated in your columns respecting the influence of Fungus spawn, both on the shoots and roots of Coniferæ, &c. (p. 1181.) In conclusion, allow me to add that I have recently searched amongst some of the roots of the Tulip tree, referred to by me at the same time with the P. Pinsapo, but failed to discover anything to lead to the supposition that anything other than the pestilent parasite was the cause of the decay; unless it arose primarily from the roots having come in contact with something pernicious in the soil, which I find is arranged as follows:—Top-soil, about 12 inches deep, on a thin layer of red sand, under which is a formation of an obdurate dry, argillaceous marl, into which the roots do not appear to have penetrated far, but the majority of the roots, both healthy and decayed, appear to ramify in the top soil, chiefly within a dozen yards of the Tulip tree. There is growing under similar conditions a fine and healthy Sequoia sempervirens, upwards of 36 feet high, and it exhibits as yet no evidences of ill-health. *Wm. Gardener, The Gardens, Eglington Park, Nov. 15.*

Arabis or Aubrietia.—The writer of your "Calendar of Operations," referring to the effective arrangement of some flower-beds on the grassy banks of the Round Tower at Windsor, speaks of the employment of a purple Arabis. He would much oblige a "Lover of Spring Flowers" by giving the specific name of this very effective Arabis. Such a plant has long been sought for by growers of spring flowers, and its acquisition would be hailed with no inconsiderable pleasure. An Arabis called purpurea, and subsequently "rosea," was sent out a few years since, but its tint of rose is of the slightest. Arabis blepharophylla superba is really a rose-coloured Arabis. Has the general who marshals the flowers on the Castle bank (Peace, perturbed shade of Sir Geoffrey Wyatville!) secured a large stock of this novelty? and is this the Arabis referred to? or has your talented writer mistaken Aubrietia græca, or purpurea, for an Arabis? In either or any case, information is sought for by a *Lover of Spring Flowers.*

Judging Melons at Edinburgh.—I have to thank Mr. Thomson for having thus far enlightened me on the subject of Melon judging at Edinburgh. I am not aware that the method of judging was either a success or a failure. And certainly the numbers who exhibited on the occasion referred to (many of whom are dissatisfied) can blame the committee of management for adopting a system of judging one season, and changing it the next. Whether right or wrong not to cut the fruit does not seem to be so much the complaint, as cutting them at one show, and leaving them uncut at another. It it had been known that colour and smell were to have been the standard of perfection, I believe a very different-looking lot of fruit would have appeared on that exhibition table. It is the exhibitors to whom the greatest amount of credit is due for such fine displays of horticultural skill, and they have a right to be treated with common justice. Surely it is right that they should know what is expected of them. I have heard many of the leading horticulturists in England express themselves freely on the matter, but I never heard one say a word in favour of the method by which the merits of the Melons referred to were decided. It is generally acknowledged that better men as judges could not have been found, but that is no reason why their system of judging should be kept a mystery from supporters of the exhibition. The advertising of the judges was a step in the right direction, and I observe in a contemporary this week some able remarks on the subject. Mr. Thomson's remarks on "dram and pipe" I should suppose are correct, but I, providentially, having avoided both as dangerous companions, cannot make any suggestion on the matter, further than that those who judge should have none of their senses impaired. *J. O.*

Foreign Correspondence.

Horticulture at Cannes.—The only garden at Cannes which I had time to visit was that of the Duc de Vallombrosa, situated towards the western extremity of the town. The grounds are bounded on one side by the steep rocky bank of a stream, which in time of rain may be copious enough, but which is usually a scanty and ill-favoured rill flowing in a broad stony bed. On entering from the main road by a handsome lodge, a fine broad walk conducts through a thicket of Olive, Acacia and Eucalyptus along a gentle ascent in the direction of the mansion: among these trees, and partially sheltered, by them are some noble specimens of Musa Ensete, producing a fine effect with the other vegetation. Diverging to the left is a small collection of Orange trees, near which I must not omit to notice a bower or tent composed of woody climbers, of which Hexacentris coccinea, an Acanthad from Nepal, just now in full flower, is the most remarkable. Each flower, when pressed, exudes two or three drops of water, having a pure, non-saccharine taste. Near this arbour are specimens of Musa Cavendishii, one of which had a few fruits in a half-ripe condition. Here, too, as in many other parts of the grounds, were some noble plants of Aralia papyrifera, throwing out great diverging flower-stems, also Bambusa arundinacea, which I had not before seen in outdoor cultivation, but which was developing its beauty in a promising manner. Other species of Bambusa, ticketed as B. nigra, B. Thouarsii and B. lutescens, are remarkably fine in the neighbourhood of some *jets d'eau*, which the garden is so fortunate as to possess. This reminds me to observe that water—that indispensable condition for vigorous vegetation on this coast—is plentiful in the beautiful grounds of this château, entering them at so great an elevation that even the highest terraces obtain a supply.

Near one of the *jets d'eau* of which I have spoken is a specimen of Eucalyptus globulus, which M. Opoix, the intelligent *jardiner en chef*, assured me was a seedling of 1863, and which is now a fine tree at least 40 feet in height. There are many other examples in the gardens of this country of the extremely rapid and vigorous growth of this Eucalyptus, which is a most valuable addition to the native vegetation, since it supports the drought of summer without suffering. But though it will grow in many situations it develops itself most rapidly in a good, deep, well-drained soil, with a fair allowance of moisture, and some preliminary shelter from other trees. Towering up out of the rounded masses of Olive, it has an admirable effect, which is not a little enhanced by the agreeable rufous tint of its bark. Several other species of this genus in

cultivation here are very striking, E. pendula being, as I think, one of the more beautiful.

The almost innumerable Australian species of Acacia, so remarkable for diversity of foliage, have furnished an important contingent to the gardens of this region, as that of which I am writing abundantly exemplifies. One of the most desirable, since it flowers almost all the year through, is Acacia longifolia. I also noted A. verticillata as an elegant shrub, likewise A. stenophylla, A. glutinosa, and A. paradoxa.

In front of the mansion are some Date Palms, which though nearly stemless are very vigorous, and fruiting abundantly; in this country, however, the fruit is small and valueless. Near to them, in a well sheltered spot, is a Sugar Cane, attaining a height of 12 to 15 feet, and a fair-sized specimen of Ficus elastica. There are several other Palms in cultivation, as Corypha australis, Phœnix leonensis, Seaforthia elegans, and Jubœa spectabilis; of the last named I observed a particularly fine example, with leaves 7 to 8 feet in length.

Among many other beautiful shrubs I may name Aralia guatemalensis, with shining Ivy-like foliage; Pittosporum undulatum, covered with oval berries the size of large Peas, and of a dull orange colour; Freylinia cestroides, with pendulous bunches of small tubular flowers, externally whitish, internally deep yellow; Fabricia laevigata, 10 to 12 feet high; Pomaderris apetala, and Cratægus glabra. The garden is not rich in succulents, yet there are a few noteworthy specimens of Aloe, an Agave (angustifolia?), and A. mexicana; and a superb plant of Yucca Treculeana. Echeveria metallica, now throwing up its long flower-stem, is common in this and other gardens of Cannes. [For a notice of the same garden in April, from the pen of Dr. Bennet, see p. 531 of our present volume. EDS.]

Four or five miles east of Cannes is Golfe Jouan, a favoured spot for horticulture. Here two nurseries are established, of which that of M. Nabonnand has a considerable stock of plants suitable for outdoor cultivation in Provence. There are some good private gardens, the most intetesting being that of M. Mazel, a liberal and enthusiastic amateur, who, though not a resident on the spot, is using his best endeavours to enrich it with fine ornamental plants. The moment of my visit to his garden was rather unfortunate, a hurricane of wind, that great enemy of the cultivator in these parts, having done grievous mischief a day or two previous. Still there was much of interest: among other things a splendid Eucalyptus, with stout quadrangular stems and extremely glaucous foliage, which I have seen nowhere else. M. Mazel had also one or two species of Dryandra, a genus which seems well worthy of trial in this climate, but of which specimens are very difficult to obtain. *Daniel Hanbury, Palazzo Orengo, near Mentone, November* 12.

Societies.

ROYAL HORTICULTURAL: *Nov.* 16.—W. W. Saunders, Esq., F.R.S., in the chair. The usual preliminary business being concluded, the Rev. J. Dix and G. F. Wilson, Esq., announced the awards of the Floral and Fruit Committees. The Rev. M. J. Berkeley, after alluding to some plants exhibited at the last meeting, and to the differences between Abies Pinsapo and A. cephalonica, stated that it would be very desirable to procure seeds of the Algerian form, known as A. baborensis. A. Pinsapo may generally be distinguished from cephalonica by its blunt untwisted leaves. The leaves of A. cephalonica are longer, more sharply pointed than those of A. Pinsapo, and twisted at the base. Macadamia ternifolia, a new Australian proteaceous plant with edible seeds, was then alluded to, and attention was called to the flowering branches of Dahlia imperialis, forwarded from Chiswick. The specimens, as shown, gave but a poor idea of the great beauty of the plant, which was too large for removal. The tubers had been procured from Cannes by Mr. Bateman, who presented them to the Society. The flowers exhibited showed that they were two distinct varieties, the one with a deep crimson blotch at the base, and of a larger size than the other, which was much paler in colour. The pretty blue-flowered Coleus barbatus, a native of India and Abyssinia, was then noticed. Messrs. Standish & Co.'s collection of hardy evergreen shrubs next came under review. It was stated that Podocarpus coriacea and Retinospora obtusa were hardy enough to stand the winters at New York uninjured. Abies japonica (Hort. Standish) was then alluded to, its recommendations consisting in the elegant habit, rapid growth, and facility of propagation by cuttings.

The Chairman then called attention to the great value of such plants as those exhibited by Messrs. Standish & Co. for growing in flower-beds, after the removal of the summer bedding plants. For this purpose the shrubs should be grown in pots, and be plunged, pots and all, into the beds when ready for their reception. In this way an interesting display might be made in mid-winter. In reference to the Dahlia, Mr. Saunders stated that the great objection to its culture consisted in the height of the stem; in his own case, he had been obliged to place the plant nearly on its side, his house not being high enough to admit of its being grown upright. This objection had been overcome by Mr. Alfred Salter, who had succeeded in grafting a shoot of the Imperial Dahlia on a tuber of one of the liliputian varieties (see p. 1182). Messrs. Veitch's specimen of Oncidium Rogersii was then alluded to as being worthy of extended cultivation, on account of its brilliant colour.

Scientific Committee.—W. W. Saunders, Esq., F.R.S. in the chair. There was a large attendance of members at this the first meeting since the recess.

The Rev. M. J. Berkeley exhibited some Walnuts, in which the outer rind was completely blackened and shrivelled by frost, the nut in the interior being unaffected. Mr. Glaisher remarked that during winter the temperature of the atmosphere was usually considerably warmer at a level of 20—50 feet above the surface than at a lower altitude. He expressed his opinion that the peculiar appearances presented by the Walnuts were due rather to dryness of the atmosphere than to actual frost. Prof. Austed called attention to the effect of wind in blackening the leaves on one side of a tree, while on the unexposed side they retained their green colour. The Chairman stated that an illustration of this fact might recently have been seen in Somersetshire, where the trees for a distance of 30 miles or more were thus affected.

Mr. A. Murray then alluded to a peculiar beetle preying on the foliage of Orchids introduced from widely diverse countries. On this subject we shall shortly publish some remarks, from the pen of Professor Westwood.

Dr. Masters, on the part of the sub-committee appointed to watch the progress of the plants in the experimental ground at Chiswick, exhibited a series of diagrams showing in a graphic form the relative degrees of vigour exhibited by the plants at the various dates of observation, and the fluctuations in the intervals between them. Similar tables had been prepared showing the amount of heat and rainfall during the entire period of observation, and the fluctuations in the intervals between each separate observation. Detailed notes on the condition of the plants were also laid on the table, and will probably form portion of a full report at some future time.

The most striking results shown in the diagrams were as follows:—In almost every case the plants in the unmanured boxes were the least vigorous. The application of purely mineral manures was productive of little or no result in the case of the grasses, but was much more effective in promoting vigour in the case of the Clovers. A striking contrast was exhibited in the case of almost all the 12 separate kinds of plants treated with ammonia salts, or with nitrate of soda respectively. It was shown in Dr. Masters' tables that almost invariably when the plants treated with ammonia salts manifested an increased degree of vigour, those treated with nitrate of soda showed a corresponding decrease. These contrasted fluctuations occurred at a time when the weather tables showed a high rainfall and a decreased temperature. Similar antagonistic results, but manifesting themselves at a later period, when the temperature was higher and the rainfall less, prevailed to a less extent in the boxes manured with a combination of mineral manures and nitrate of soda, and of mineral manures and ammonia respectively.

Dr. Gilbert remarked that the experiments, as conducted this year, were serviceable rather as indications of what to avoid in the coming year, than for any immediate use at present. The soil made use of was too fertile, and in consequence the plants made undue growth. The contrasting conditions alluded to by Dr. Masters probably depended on variations in the relative power of diffusion of the several salts, and the range of the roots. Nitrate of soda was distributed with great rapidity. The ammonia salts were converted into nitrates before absorption by the plant, and were thus distributed at a lower depth. Dr. Voelcker corroborated Dr. Gilbert as to the necessity of caution in drawing general inferences from this season's experiments, and advised that in future the plants should be grown in pots, so as to be more under control, and less subject to disturbing influences. Mr. Glaisher alluded to the effects produced by the roots of plants in increasing the temperature of the soil, and suggested that a thermometer should be inserted into each of the 72 boxes. These thermometers, moreover, should be made with great care, and the mercury in all should be derived from the same source, so as to secure uniformity of expansion.

A report from Mr. Barron on various experiments that have been carried on as to grafting on various stocks was then read. The results had been very varied, and were of a very interesting character. In those cases where failure had resulted the want of success was attributed to one or more of the following causes:—Imperfection in the mode of operating; the too advanced condition of the stocks or of the buds before the operation; the want of correspondence in point of time between the growth of stock and scion, &c. This report will be published *in extenso*.

A communication from Mr. Barber, forwarded by Dr. Hooker, relating to the culture of Aloes, was then read, an abstract of which appears at p. 1206. The Chairman remarked that the rocky nature of the country in which Aloes grew was serviceable in preventing excessive or long-continued moisture. He had ascertained from Mr. Cooper that many of the Haworthias grew naturally closely environed by herbage, and that when this was eaten by the sheep the plants became unduly exposed to the sun, and died in consequence, hence the sheep were only indirectly injurious (not directly, as Mr. Barber had stated) by removing the herbage. Mr. Saunders in practice substituted a fold of thin paper or muslin for the grass, and thus tempered the light, to the great advantage of the plants.

A report from Mr. Moore on the experiments carried out at Chiswick with various chemical manures on variegated zonal and other Pelargoniums, with a view to ascertain the effect of the manures on the coloration of the leaves and the production of flowers, was then read. The following is an abstract from Mr. Moore's report:—

At the suggestion of Major Trevor Clarke some experiments were commenced in July last, at Chiswick, with the view to ascertain the effects of certain chemical manures on the colouring of the leaves of Variegated Zonal Pelargoniums. A set of ordinary bedding Pelargoniums was also treated in a similar way, for the purpose of noting what would be the effect of these particular manures as regards the development of flowers. The experiments were on a limited scale, and their results have so far proved to be little more than negative—partly attributable perhaps to the late period at which they were commenced, and partly to the soil employed having been of too rich a quality. As, however, there were indications of differences observable, it is proposed to repeat the experiments under somewhat different conditions another year, in the hope of bringing these out more definitely. The varieties selected for the experiments were:—*Variegated Zonal*—Mrs. Pollock, of which there were six plots, each containing four plants. *Flowering Zonals*—Herald of Spring and Norah, of which also there were six plots, each containing three plants of the former variety, and one of the latter variety. The plots which were prepared and planted on July 1, were each 20 inches square, cut off by sinking four slates, the soil being prepared 12 inches deep. They were treated with the same kinds of manure, and used in the same proportions, as those employed in the series of experiments with grasses and other pasture plants now in progress, the manures having been kindly furnished by Mr. Lawes and Dr. Gilbert. It would appear that, in general terms, the unmanured soil, and the soils prepared respectively with a mixture of ammonia and mineral manures, and with a mixture of nitrate of soda and mineral manures, gave the best results, whilst the results in the cases of the soils prepared respectively with the mineral mixture only, and with the ammonia only, were the least encouraging, and that wherein it was treated with nitrate of soda alone gave the least development, and seemed to favour compactness of growth. It is proposed another season to extend the experiments over a larger area, adopting pot culture of the plants (grown in duplicate) as admitting of an earlier commencement being made, namely at the period of the first spring shift, when but little development has taken place; and also as permitting of a greater variety of treatment within possible limits.

A lengthy communication on the cultivation of Tea, by Mr. McPherson, was laid on the table, on which the secretary was instructed to report to a future meeting.

Dr. Masters exhibited, on the part of Mr. D. T. Fish, a sample of soil in which there was a thin layer of lime about 6 inches below the surface. This had evidently been put on as a top-dressing. Mr. Fish attributed the position of the lime beneath the surface to an annual superposition of a layer of carbonaceous matter on the surface, and to the decomposition of the roots. He advanced this view in opposition to that of Mr. Darwin, who attributes similar effects to the agency of worms. Dr. Voelcker remarked that lime so applied was always washed down gradually in the manner described.

Floral Committee.—The Rev. J. Dix in the chair. This was a full and very attractive meeting, the Council room being gay with Chrysanthemums, Orchids, &c. Several prizes were offered for competition, the 1st being for the best collection of winter bedding plants, to be shown in pots or boxes. Messrs. Standish & Co., of Ascot, were the only exhibitors in this class, and the 1st prize was awarded to them for a magnificent group of hardy shrubs. They were arranged in groups, in circular and oval beds. Amongst the most pleasing of these arrangements was a small circle, with a nice bushy Aucuba in the centre, edged with Euonymus latifolius albo-variegatus. Another circle had for a centre a good specimen of Aralia Sieboldii, then six medium-sized specimens of Yucca filamentosa, edged with dwarf bushy pots of Bambusa Fortunei variegata. A large oval group was composed of seedling Aucubas, as a centre mass, in which were five standard Aucubas, four of which were in fruit, the edging was composed of dwarf plants of Osmanthus variegatus aureus. The standard-fruiting Aucubas, being clear above the others, lent an additional charm to this very simple but effective arrangement. A group of Hollies was another good feature. In the centre was a tall specimen of the white variegated variety, then a row of beautiful pyramids about 4 feet high, amongst which was a perfect and handsome specimen of Ilex balearica (hybrida); this was edged with dwarf plants of the golden and white variegated varieties, arranged alternately in two rows. There were also several other fine specimens of Hollies, bearing plenty of berries; and good specimens of Conifers, &c. In class 2, for four large-flowered Chrysanthemums, distinct, the 1st prize was taken by Mr. James, gr. to F. W. Watson, Esq., Isleworth, who had rather tall but clean-grown specimens, with splendid blooms, of Empress of India, Jardin des Plantes, Mrs. G. Rundle, and Lady Talfourd; Mr. Rowe, gr. to Mrs. Lewis, Roehampton, came in 2d with much more compact specimens, but not such finely-finished blooms, of Prince of Wales, Lady Hardinge, Alma, and Golden Christine; and Mr. Forsyth, Brunswick Nursery, Stoke Newington, was 3d. For four Pompons in pots, Mr. Forsyth was placed 1st with well-grown and flowered specimens of Bob, Andromeda, Sainte Thaïs, and Golden Aurore; and Mr. Lowe was 2d with Miss Nightingale, Mr. Astie, Marguerite de Wildemar, and Antonis. For 12 cut blooms, distinct, Mr. Forsyth again came in 1st, with excellent examples of Isabella Bott, John Salter, Princess of Wales, Rev. Joshua Dix, Lady Hardinge, Prince of Wales, Mrs. Heale, General Slade, Prince Teck, Princess Beatrice, Golden Beverley, and Oliver Cromwell. Mr. Rowe was 1st for 6 cut blooms, distinct, with large flowers of Empress of India, large and fine; Prince Alfred, Lady Hardinge, Queen of England, John Salter, and Jardin des Plantes. Mr. J. Douglas, gr. to F. Whitbourne, Esq., Loxford Hall, Ilford, was 2d; and Mr. Berry, Roehampton, 3d—both showing some good blooms of similar varieties. Several other exhibitors competed in this class, some very large, but not always nicely finished, flowers being staged, conspicuous amongst which was Empress of India, white, and very large, which, in nearly every instance, occupied the topmost right-hand position of the stands. From Mr. Forsyth came two stands of Anemone-flowered varieties, both large and Pompon kinds, in excellent condition; and from Messrs. Salter & Son, Hammersmith, came a group of new Japanese varieties, amongst which a showy light rosy-purple variety, named Sultan, was awarded a First-class Certificate. To Messrs. Veitch & Sons a Special Certificate was awarded for a slendid group of Orchids and other plants, comprising a very handsome spike of the brilliant yellow Oncidium Rogersii, Lælia Wolstenholmiæ, the rare and beautiful Dendrobium bigibbum, a fine specimen of Saccolabium giganteum, x Cattleya Dominiana, Miltonia Moreliana splendens, with one large and richly coloured flower; a very singular species of Cycnoches named muscifera, and a specimen of the new Oncidium cuxanthinum, described at p. 1158, to which a First-class Certificate was awarded. With the above were also specimens of the deep scarlet-flowered Aphelandra aurantiaca Roezlii, showing the leaves not twisted as they are sometimes; and Primula sinensis variegata, broadly margined with greenish yellow, the beautiful drooping-flowered Urceolina aurea. From Mr. Bull came a group of Palms, to which a Special Certificate was awarded, and a good specimen of Litobrochia undulata, a new species of Fern, which was awarded a Second-class Certificate last year, but to which upon this occasion a First-class Certificate was voted, in consequence of its improved appearance. Mr. Bull was the only contributor of a collection of plants bearing decorative fruits, and he took the 1st prize for 12, with specimens of Skimmia japonica, Ardisia crenulata, Solanum Capsicastrum hybridum, and S. Capsicastrum hybridum erectum, and the scarlet-berried Rivina laevis. M. Linden, nurseryman, Brussels, sent a collection of Orchids, comprising a good specimen of Oncidium macranthum hastiferum, the pretty Oncidium Phalænopsis, and O. cucullatum; Warscewiczella marginata, Zygopetalum Gaulteri, Stenia fimbriata, and Maxillaria splendens, with white petals and sepals, and bright orange lip, with rosy tipped edges. A First-class Certificate was given to the latter, and a Special Certificate to the collection. A very effective group also came from Mr. B. S. Williams, comprising good specimens of Cymbidium Mastersii superbum,

Cypripedium insigne, and C. insigne Maulei, Calanthe vestita rubro-oculata, Lycaste lanipes, Cattleya labiata, and nicely coloured specimens of Anœctochilus Lowii and A. Dawsonii: a Special Certificate was awarded. From Messrs. Downie, Laird & Laing, came as fine a group of scarlet-flowering Zonal Pelargoniums as has ever been exhibited at this season; amongst them were several promising novelties, particularly a variety named George Peabody, with rich scarlet flowers the individual pips of which are broader than in any other variety, are very flat, and almost perfect in outline. In consequence of the lateness of the season they could not be individually judged, and a Special Certificate was voted to the collection. The same award was also made to a stand of 24 cut blooms of Chrysanthemums from Mr. E. Rowe. First Class Certificates were awarded to a Lobeliaceous plant named Siphocampylus Humboldtiana, misnamed fulgens, from Mr. Green, gr. to W. W. Saunders, Esq.; and to Sarcanthus bigibbum, with lemon-coloured petals and orange and white lip, from Mr. Wilson, gr. to W. Marshall, Esq., Enfield. From the Society's Garden, Chiswick, came blooming plants of Coleus barbatus; also several cut branches of the very beautiful Dahlia imperialis, in full bloom, to which a Special Certificate was awarded. Messrs. E. G. Henderson sent specimens of plants and fruit of the new Macadamia ternifolia, which we hope to refer to next week, and flowering specimens of Bouvardia Hogarth (true), Rogiera grati-sima, several varieties of Japanese Chrysanthemums, and a beautifully coloured example of Coleus Baroness Rothschild.

Fruit Committee.—G. F. Wilson, Esq., in the chair. This was a good average meeting for the season. From Messrs. H. Lane & Son, Berkhampstead, came magnificent examples of Alicante and Muscat of Alexandria Grapes. The latter had been ripe since June last, and the berries, which were fine in size, were for the most part plump and fresh. A Special Certificate was awarded. To Mr. Wottam, gr. to C. Longmans, Esq., Shendish, Hemel Hempsted, the same award was made for three specially fine bunches of Alicante, produced by canes growing in calcareous soil. The same kind was also shown by Mr. Wells, of Southend, grown in ground Vineries; they were not large in bunch, but considering where they had been grown, were a very fair production. To these also a Special Certificate was given. To Mr. Lovegrove, Maidenhead, a First-class Certificate was awarded for some good flavoured wine made from Black Hamburgh Grapes. Mr. Turner, Slough, sent, in addition to some good specimens of the Nuncham Park Onions, a good-looking new kidney Potato, named Beaconsfield, large and smooth-skinned, which also received a First class Certificate. From Mr. Fowle, gr. to Sir H. Mildmay, Bart., Dogmersfield Park, Hants, came very fine examples of Pitmaston Duchesse d'Angoulême Pears, produced by a tree planted in February last, against a west wall. To Colonel Le Coutier a Special Certificate was awarded for some very fine Onions, which had been shown at a former meeting, and had since been cooked with satisfactory results. The same award was made to Mr. Lidgard, Albion Road, Hammersmith, for very large and well-grown examples of Celery, comprising Manchester Solid Red, Wall's Invincible, Hooley's Conqueror, Ocean Pride, and a seedling pink variety. Captain J. R. Brookes, Middlesex Industrial School, Feltham, sent a monster specimen of the Mammoth Gourd, which weighed 124 lb., and measured 6 feet 8 inches in circumference. It was grown by the boys of the Institution, and to them the Committee gave a Special Certificate. A specimen of the same variety, weighing 60 lb., also came from M. E. Treeve, Esq., Edwardes Square, Kensington, where it was grown. Mr. Ingram, gr. to the Duke of Rutland, Belvoir Castle, sent a collection of Potatos, consisting of fine large specimens of Dalmahoy, Round Regent, Long Regent, Paterson's Economist, in the style of the latter; Paterson's Victoria, and Scotch Blue: a special Certificate was awarded. Messrs. J. & C. Lee exhibited examples of the Belvoir Castle Beet, which is recommended for flower-garden decoration; it is also said to be a good-flavoured variety, but the specimens shown were very coarse in this respect. Mr. Carmichael, gr. to H.R.H. the Prince of Wales, Sandringham, sent a seedling Capsicum, bearing medium-sized conical shaped yellow fruits, which it was suggested might be a seedling from a West Indian variety, known as the Scotch Bonnet[?], but dwarfer in growth. From Mr. Shepherd, gr. to P. N. Laurie, Esq., Paxhill Park, Sussex, came a good dish of Calville Blanc Apples, from small trees on the Paradise stock. To these also a Special Certificate was given. The Chairman showed some very fine Triomphe de Jodoigne Pears from an orchard-house pot-tree; and from the Society's Garden, Chiswick, came examples of Doyenné du Comice and Beurré de Cercle Pears. Mr. Whibley, Mount Pisgah, Sheffield, sent five bunches of Trebbiano, or Child of Hale, and Chaouch, both inarched on a wild American stock, planted last year, and grown entirely out-of-doors. The bunches, and some foliage sent with them, were large, and very clean in appearance. Mr. Fenn, The Rectory, Woodstock, sent specimens of Esperione Grapes, from which variety he has this season made 342 gallons of wine. Mr. Dancer, of Little Sutton, Turnham Green, exhibited several cobs of Indian Corn grown by Mr. Scarvell, Littlehampton, Sussex, who has grown and ripened this corn for many years. The cobs were very fine, and quite as good as those imported from America.

Notices of Books.

Punjab Plants, comprising Botanical and Vernacular Names and Uses of most of the Trees, Shrubs, and Herbs of Economical Value, growing within the Province. By J. Lindsay Stewart, M.D., Conservator of Forests, Punjab. Lahore, 1869. Pp. 270.

This work is the result of several years' research in the North-West Himalaya and in the plains of the Punjab. Dr. Stewart has been employed since 1864 in arranging a system of forest conservancy in the land of Five Rivers, having taken the charge from Dr. Cleghorn, whose preliminary report and survey were noticed at the time.

In the course of his forest tours the author made notes of the vegetation and resources of that fine province, and he has put together a very useful work, containing many original remarks; and, incorporating the observations of Jacquemont, Thomson, Edgeworth, Moorcroft, Madden and others, has brought the information up to the present date. He thus describes the opportunities he has enjoyed:—

"I have marched across almost every district in the plains, been a second time through considerable portions of Hazard and Kashmir, and traversed great parts of the intramontane basins of each of our great rivers. An extensive tour in Ladak during 1868 has completed my wanderings in search of information as to the flora in and near the Punjab."

In the preface are some interesting remarks as to the geographic and climatic conditions affecting the flora:—

"Some of the results of latitude and aridity on the families most apt to be modified by such conditions, will be apparent from the following. Ferns are nowhere very common on the plains of Northern India, but while Edgeworth found seven species in Banda (N.W. Provinces), only two occur rarely and locally in the Punjab plains, and not more than three have been found in the west, even in the Salt Range, which reaches 5000, and in the hills Trans-Indus up to 8000 feet."

"Orchidaceous plants are rare throughout the plains of Northern India, and in the Punjab only the ubiquitous Zeuxine sulcata occurs generally, while Eulophia is found locally,—and only one other was found in the Trans-Indus hills to 8000 feet. In the Himalaya this family, like the last, decreases very much in numbers towards the west. * * * Epipendric Orchids, like Epidendric Ferns, I have not observed west of the Rávi."

The following remarks on the occurrence of the Peepul and Banyan in certain districts, and the spreading of Argemone mexicana, are given by way of illustration:—

"The frequency of Ficus religiosa and F. indica depends very much on the proportion of Hindus among the population. In some parts, where the latter is almost entirely Mussulman, these trees are very rare, even allowing for difference of climate. Of plants now become quasi-indigenous, but which we know to have been introduced within the historical period, the most remarkable is perhaps Argemone mexicana, which is stated to have been introduced into India from Mexico three centuries ago, and is now abundant, wild in many parts of India, including the eastern part of the Punjab. In 1854, Edgeworth states that it had not reached Múltán, but within the last three years I and others have found it south of that place."

The vernacular names in various dialects are introduced, and the medicinal or economical properties of the plants are mentioned, with quotations and references to the various authors whose writings have been diligently studied. There is a copious index, and our pharmaceutical readers will find curious and novel information under Rheum, Papaver, Eulophia, Scopolia, &c. Regarding the extended culture of the Opium Poppy, Dr. Stewart remarks: "The area cultivated with Poppy has much increased in certain tracts of late years. The Shahpur Settlement report gives no less than 3000 acres for that district in 1865-66, an increase of 300 per cent. in about 10 years. The same report gives a good account of its cultivation, &c. Is generally grown in rich irrigated soil."

The industry and talents of Dr. Stewart have thus enabled him to present a mass of new particulars, and we are impressed with the progress which the British Government has made within the last few years in acquiring accurate information regarding the more remote Trans-Indus and Trans-Himalayan provinces.

There are various points in the book in which there is room for improvement, but in alluding to them the reader must bear in mind the enormous difficulties of preparing and bringing out such a book in India. We are glad to learn that the Secretary of State has sanctioned the publication of a "Flora Sylvatica" for Northern India, uniform in size and type with the series of Colonial Floras, and that Dr. Stewart has been entrusted with the undertaking. His experience and local knowledge qualify him to turn to good account the vast materials available at Kew and elsewhere for this purpose.

Florists' Flowers.

THAT very beautiful late summer-flowering plant, the PENTSTEMON, appears just now to be in the full swing of its improvement. Unlike many other florists' flowers, it is being well looked after both in this country and in France, and between the raisers on both sides it is not unreasonable to expect something good; and something good does certainly put in appearance year by year. I am not quite certain that it is correct to group the Pentstemon under the head of florists' flowers, as it would appear that the florists of 15 and 20 years ago gave it the cold shoulder, and while they waxed mighty in word and deed about Pinks, Pansies, &c., had not a word to say about the Pentstemon. I must confess that it was with great astonishment I made the discovery that in the whole of the 15 volumes of the first series of the "Florist," the Pentstemon is scarcely noticed except, in Vol. 7, for 1855, when Mr. Houlston gave descriptive notes of some 26 kinds cultivated at Kew, and of these 23 were species, two varieties of P. gentianoides, and one only of P. Hartwegii. But the results of later years have amply atoned for the apparent shortcomings of the previous years, and the Pentstemon is as far advanced in the march of improvement as any other popular flower.

To Messrs. Downie, Laird & Laing appear to have been committed the improvement of this flower, and both at Edinburgh and at Stanstead Park, Forest Hill, a batch of seedlings is every year raised, though the greatest success falls to the lot of Mr. Laing. It may be said, with the fullest truth, that a magnificent lot has bloomed for the first time during the summer at the Stanstead Park nurseries. There are many attractive features about a nursery of this character where florists' flowers play a prominent part, but the Pentstemons have eclipsed everything else, and became indeed the lions of the hour. Some two dozen fine flowers had been selected from seven beds of seedlings, and it is not too much to say that there was scarcely a flower among them that would not, some ten years ago, have been thought "a great acquisition." On comparing these new forms with the best of the Continental varieties of last year, I have no hesitation in saying that the English flowers are superior in size, variety of colour, and purity of the throat. From this batch of new kinds the following had been selected and named for sending out in the spring:—Agnes Laing, the tube pale violet-rose, the lobes deeper in colour, the throat pure white, the colours well defined; flowers of the finest form, and very pretty. Black Prince, very dark claret tube, white throat marked with lines of the same, a great improvement on Duc de la Reine; one of the most striking of the new Continental varieties of recent introduction. Bridesmaid, a very near approach to a white Pentstemon, though not so white as a seedling to be held over for another year's proof. Bridesmaid has a white tube, slightly tinted with rose as it first expands, and the throat suffused with primrose, but as the flowers age both become pure white; the flower is not of the most advanced type of form, but it is a great advance as a white variety. Henry King, a splendid flower, of a rich glowing scarlet hue, and white throat, pencilled with a few lines of dark; very fine and striking, and quite distinct, a marked advance. Grandis, carmine-red on the exterior of the tube, inside of lobes paler, having more rose, white throat, with dark crimson markings; fine, stout and showy. Mrs. Cator, bright pale rose, white throat, with thin lines of deep rosy crimson; large and fine. Painted Lady, clear rose, striped and blotched round the mouth with crimson, very fine, distinct, and novel. Stanstead Surprise, purplish blue, but of an unusual depth of colour in this type of flower, pure white throat, not a line being perceptible, form not first-rate—a decided novelty in point of colour.

Besides the seedling beds, there were also groups of named flowers, comprising the cream of Messrs. Downie, Laird & Laing's collection. Of the new flowers of last year the following were most noticeable:—Mrs. Arthur Sterry, very pretty soft rose, pure white throat; Purple King, fine and bold and of a shaded purplish violet hue, the throat pencilled with rosy purple; Purple Perfection, purple-crimson, the throat marked with slight veins of rose, a grand spike; Lovely, lilac-mauve, with white throat, very pleasing and novel; Sunrise, pale soft rosy crimson, with white throat, very pretty and distinct; Sir Robert Sinclair, dark scarlet-red, the throat heavily pencilled with dark, large and bold; and James McPherson, mauve, suffused with blue in large blotches on the tube, white throat pencilled with deep mauve, tube short, but very fine and distinct.

Of still older flowers, both Continental and English, the following deserve to be recorded as varieties worthy a place in a collection:—Marquis de Caux, rosy carmine, with large open white throat slightly pencilled with deep rose, very pretty; Apollon, something like the foregoing, but deeper in colour, and not so open in the throat, very good; James Rothschild, one of the very best of Continental varieties, pale bright claret, with white throat, slightly pencilled with rosy purple, very good, but inferior to English flowers of the same type; Grinchu, also a fine Continental variety, tube pale purplish violet, white tube heavily pencilled with dark mauve; John Pow, a very pretty deep pink flower, the throat heavily painted with deep carmine, which runs on to the interior of the lobes, distinct and pleasing; and Lady Hay, deep bright scarlet, very showy, the throat heavily painted with dark purple, very good indeed.

In the essentials of novelty, form, and habit, the advance is particularly marked. Novelty shows itself in the depth of the purple and mauve hues, and the presence of blue, in the singularly pretty and chaste pale rose and pink flowers, and in the presence of blotches and spots on the interior of the throat, like the improved Foxgloves. Form manifests itself in circular symmetrical tubes, in stout and well-rounded lobes, which are getting as circular as those of a Verbena; and in the shape of the mouth, which is neither too narrow nor too open, in relation to its diameter. As surely as we have obtained a dwarf growth in the Antirrhinum and Phlox, so surely is it perceptible in the Pentstemon, though not in such a marked degree. A few of the present year's seedlings have come with remarkably dwarf habit, and so a Tom Thumb race of Pentstemons is apparently not very far distant. Some of the Pentstemons have grown tall to a fault, so the dwarf-growing type is all the more welcome.

The propagation of the Pentstemon is a very easy and sure process. Cuttings should be taken in August and put in a prepared bed in a cold pit, where they soon root, and by October become nice young plants. As an invariable rule they keep best in the frame during the winter, and they can be planted out in their blooming quarters early in the spring. How grandly and continuously they bloom, and how attractive they look when in flower, has been abundantly proved at Chiswick during the past summer. The Pentstemon can also be propagated by seed. August is the best time to sow, and seed would have to be saved over from the previous year. It suffices to sow in pans, in a light sandy soil, covering the seeds but slightly, and they are certain to grow. It is enough to place the pans in a cold frame. Young plants so raised could be planted out in the autumn, as they invariably stand well at this stage of their growth—much better than older plants. A sowing can also be made in February in heat, allowing the seed to be almost on the surface of the soil; the plants soon appear. They should be pricked off into boxes when large enough, allowing them room to grow, and should be gradually hardened off. By May there will be fine young plants ready to place in their blooming quarters, and they will all bloom the same season. It is always interesting to watch the blooming of a batch of seedling plants; while so beautiful is the Pentstemon, that it is particularly interesting to watch the gradual unfolding of the beauties this flower possesses in such an eminent degree. *R. D.*

Miscellaneous.

An Entertainment was given by Messrs. Sutton, of Reading, according to their annual custom, on Tuesday, November 9, to their staff of assistants, numbering on this occasion nearly 100. One of the large stores was

set apart for the purpose, and, being gaily decorated, had a very cheerful appearance. The proceedings commenced with a dinner at six o'clock, and later on in the evening tea was served. A considerable portion of the time was occupied with vocal and instrumental music by those employed on the establishment. The principals, with members of their families, were present the whole of the evening. The company separated at ten o'clock, highly gratified with the social intercourse enjoyed. *Reading Paper.*

Coal Plants.—The aspect of the abundant fossil known as Calamites was very different from that of the other plants associated with it, and of any tree in our forests; but it exhibited at that early period of the earth's history the form and appearance of one of our humble marsh plants, the Equisetum, or Horsetail. It had a tall, slender, smooth stem, marked on the lower naked portion with rings of pits from which branches had fallen. The branches were given off at intervals in rings or whorls, and these again branched and re-branched in the same way. The leaves were needle or wedge-shaped, and arranged also in whorls. The fruit was borne at the ends of the branches, and agreed in the most minute particulars with those of the Horse-tail. *World of Wonders.*

Heliotropes as Conservatory Climbers.—In the summer of 1867 I found a plant of H. peruvianum had taken possession of a corner in a Peach pit; it grew at a surprising rate all through the summer and winter, and furnished an immense supply of cut flowers. This plant had been accidentally raised from seed, or some small cutting had been inserted between the stonework and soil in the pit. Every gardener knows the value of Heliotrope flowers, both for colour and perfume, in mixed bouquets or for decorative purposes. The plant is now a large bush, and might have been 3 or 4 feet in height had it not been cut in so much for the flowers. Where room can be spared for it, there is no plant that I know of more worthy than the Heliotrope of being planted out either as a climber or bush in the greenhouse or conservatory. The surprising growth and beauty of the plant is never seen when grown in a pot, and when planted out in the open air the winter settles its pretensions before it arrives at any great size. *William Tillery, in "Florist and Pomologist."*

Obituary.

AT Sydenham Nursery, Kelso, on the 11th inst., Mr. HENRY TAIT, for 36 years nurseryman and seedsman in that town.

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

IN connection with plant culture there is a simple practice, which is generally of far greater importance than to most casual observers would seem possible. I refer to the necessity which exists of periodically turning round such plants as are grown in old lean-to and other structures, so that what little sun there is may be advantageously used to the benefit of all sides of the plants alike. Such facts are well known by those who grow the best of our showy New Holland plants into fine specimens, but are often entirely overlooked by less pretentious cultivators. Again, soft-wooded plants and such as are very succulent, form much finer plants in far less time when turned round, say once a week, than others which are left to take care of themselves. Thoughtful and observant cultivators are aware how very much simply shifting a pot plant from one place to another is conducive to drying the ball. Here, then, is a fact confirmatory of the above remark, to say nothing of the good accruing to each plant by a uniform exposure of all its upper parts. If we have the means—and they are within our reach as above shown—of causing the roots to require fresh water a little oftener than is their wont at this dull humid period, we have a powerful incentive to a good onward growth, and should make the most of it. These facts are particularly useful in regard to *Cinerarias*, *Primulas*, and the like, when in full growth. *Poinsettias* are now showing the young bracts, and according to the treatment they receive so in proportion will be their fineness. A nice amount of bottom-heat, and a little weak guano-water applied to the roots will greatly assist them, and should by all means be afforded if possible, together with frequent dampings over-head with a syringe or fine-rosed water-pot.

FORCING HOUSES.

Early forced *Vines*, whether grown in pots, boxes, or otherwise—such, in fact, as were started late in September, or during the first week of October—should, if proper attention has been paid them, now be pushing into growth. Great care will therefore be necessary not to let the temperature by night exceed a moderate and safe *maximum*. More harm is likely to accrue to them through inattention to this matter than from most other causes. It is perhaps needless for me to observe, that whilst the heat should never be permitted to fall below temperate (55°), both in regard to Vines and all other subjects which are assuming the young leaf at this period, yet a few degrees above it may be safely admissible. I would therefore fix 58° as being the nearest approach, at such a juncture, to a safe and necessary mean. By day some 12°, or 14° rise may be permitted safely by artificial means alone, with a moderate supply of fresh air; with a further increase of 8° to 10° should bright sunshine diffuse its warmth. I repeat, that additional moisture, both directly to the roots, and indirectly in the form of moist vapour for the surface growth, must be afforded constantly in conformity with the rise of the temperature. Gently start the *second early Vineries* (doubtless the first with some), acting upon the same safe old principles during cold weather. Begin with an artificial temperature of 46° by night, with an increase of 4°, or 5° when the external weather is mild and less forced. I have before alluded to the great advantage of having a heap of fermenting materials placed in the house at the starting time: the moderate amount of warm steam which is constantly and uniformly given off tends greatly to soften the canes, which greatly helps them in pushing the buds, or in "breaking," as the operation is styled in gardening phraseology. Independently of what I have already said in regard to outside Vine borders, it may be well to suggest that that of the third house should have a thorough good covering of protecting materials placed upon it to keep out frost. Various means will suggest themselves, such as bracken Fern, which is one of the best materials for the purpose when attainable. In respect to the early Peach and Nectarine-houses, which I intimated last week might be started by this time, I may state that, as regards the temperature proper, from 45° to 47° will be a good mean, as an artificial night temperature, with a day one of from 50° to 52°. I also suggested last week the desirability of once damping the young wood, to induce a more ready activity in the buds. Push forward the necessary preparation of the later houses, keep them scrupulously clean, as it is upon a very strict application of this simple practice that freedom from a variety of evils is assured some few months hence. Prepare some pits or frames in which to plant successional beds of *Asparagus* for forcing. Let all the materials be as firm as possible at the time of planting, and especially is it necessary that the soil should be firmly pressed around each root when the crowns are planted in the beds. Place a few pots of *Tarragon* into a forcing-house or other similar structure, that a supply of young growths may be obtained when that which is now in use is finished. It seems somewhat early to suggest the putting in heat of a box or two of *Mint*; but I may here state suggestively that fine lambs, by the hundred, already exist in this neighbourhood (Herts).

HARDY FLOWER GARDEN.

If there is one season of the year when our old favourite flower, the *Auricula*, needs more attention than at another, it is during the present and the next two or three months. Remove every form of decay from around the stems, and indeed from the frame or pit containing them, immediately it is discernible, and keep everything about them as fresh and sweet as is possible. Abundance of air should always be freely admitted on proper occasions, consistently with safety from frosts severe enough to harm them. *Hardy Annuals*, which were sown some weeks since, such as *Nemophilas*, *Limnanthes*, and other varieties, somewhat succulent in their nature, should now be nicely thinned out, otherwise fluctuations in the weather will cause them, when grown too thickly, to rot or damp off, and thereby cause vacant or patchy places in the beds. Sometimes good show varieties of *Polyanthuses* grown in pots push up flower-spikes irregularly at this season. In all such instances the buds should be taken carefully out of the hearts while yet in the embryo state, and before they have made much growth; otherwise, if left to develop themselves, they prevent the plants from making a full and fine display in the early spring. Where alterations of any form are in contemplation in this department, they may be freely entered on now, during mild and convenient periods, as trees and grass, &c., may be removed with perfect immunity from risks of any sort.

HARDY FRUIT GARDEN.

I need add little under this heading to my suggestions of last week. Do not, however, delay longer the placing of a moderate mulching of manure over the roots of all recently planted trees, including those which were transplanted in exposed situations last autumn; as it is more than probable that many of the young roots exist very near the surface. Those who meditate taking dwarf pyramidal fruit trees up this season, for the purpose of pruning their roots, may likewise choose the first favourable opportunity for so doing. In all cases where this is done, attend to the proper staking of them as a protection against high winds, even if it be but to steady them against a slight oscillation only, as much injury may be done to the roots near to the collar of the trees.

KITCHEN GARDEN.

Appearances at the time of writing seem to foretell a somewhat rainy period; hence it may not be possible to do much upon the ground in this department. There is ample work, however, to fetch up in the matter of digging vacant spaces in the manner described last week. As soon as the green foliage can be safely removed from *Seakale*, there may be a few pots placed over some of the crowns, and fermenting materials added, so that a nice gentle warmth be insured at the first, increasing in slight gradations until a fair maximum of from 90° to 95° is insured; this in view of forcing the stools so operated on for a supply at an early date. The same remarks apply equally to *Rhubarb*, where it is intended to force it in the open ground. *W. E.*

TOWN GARDENING.

THOSE plants that have been stored away in frames should now be looked over. All the dead leaves should be at once removed, and the plants will be much benefited if the soil is stirred a little, and the pots turned round. At all times when the weather is fine the lights should be taken off, but when it is wet, foggy, or windy they should be kept on, and should be slightly tilted at the apex. Should the weather turn frosty, cover the frames up with mats, loose litter, &c. The *Helleborus niger*, or Christmas Rose, a useful and pleasing flower for town gardens, will flower freely if covered with a hand-glass, which should be at once placed over it, and be slightly tilted. Another plant which flowers about the same time, and is, moreover, sweet-scented, is the *Tussilago fragrans*, which likewise requires a little similar protection to flower it well. The flowers of these two plants, with a few sprigs of Holly, make a nice Christmas bouquet. As flowers suitable for the decoration of vestibules, &c., are now scarce, such places may be enlivened by a few nice bushy evergreens in pots, intermixed with plants of *Solanum Capsicastrum*, *S. Pseudo-Capsicum*, and *Acacia lophantha*. These plants make a very pleasing display at this season, and they bear indoor confinement in winter very well, and especially if they are taken out and syringed occasionally. If, when done with, they are planted out in the borders, they soon recover their strength and vigour. The sooner the planting-out of *Hyacinths*, *Tulips*, *Crocuses*, &c., as directed at p. 1116, is completed, the more satisfactory will be the display in spring. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Nov. 17, 1869, as observed at the Horticultural Gardens.

Nov.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth. 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs. 11	)	30.253	30.159	44	16	30.0	44	45	N.	.00
Friday 12	9	30.344	30.228	49	40	44.5	40	43	W.	.00
Satur. 13	10	30.131	29.937	54	41	47.5	44	43	S.W.	.00
Sunday 14	11	29.916	29.801	58	48	53.0	46	44	S.W.	.00
Mond. 15	12	29.924	29.881	58	41	49.5	49	46	S.W.	.14
Tuesd. 16	13	30.007	29.924	58	38	47.0	49	46	S.W.	.00
Wed. 17	14	30.352	30.214	40	30	35.0	49	47	W.	.00
Average.		30.132	30.021	51.5	36.0	43.7	45.8	46.3		0.14

Nov. 11—Sharp frost; very fine, cold wind; clear and frosty.
— 12—Fine; very fine; densely overcast.
— 13—Densely overcast; cold wind; overcast.
— 14—Overcast; very mild; fine, but overcast.
— 15—Densely overcast; rain; clear and fine.
— 16—Fine, but cloudy; very fine; cloudy, very mild.
— 17—Dense fog throughout; cold air.
Mean temperature of the week, 2 deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending Nov. 27, 1869.

November.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..21	49.6	36.2	42.9	26	0.41 in.	5	5	4	3	7	12	4	3
Mon. ..22	49.2	34.7	41.9	22	0.80	3	4	6	3	4	12	6	3
Tues. ..23	47.6	34.2	40.9	18	0.95	2	6	3	2	6	13	8	3
Wed. ..24	47.4	31.7	39.5	14	0.61	5	8	3	2	5	9	3	8
Thurs. ..25	46.4	33.7	40.0	22	0.34	3	4	6	4	9	9	5	3
Friday ..26	47.2	32.9	40.0	21	0.70	2	7	6	2	4	15	2	5
Satur. ..27	47.0	33.6	40.3	20	0.88	2	7	5	1	7	9	7	5

The highest temperature during the above period occurred on the 25th, 1863—therm. 62 deg.; and the lowest on the 25th, 1838—therm. 9 deg.

Notices to Correspondents.

ARTEMISIA STELLERIANA: *Subscriber*. This is a hardy perennial, with hoary stems and leaves, a native of Kamtschatka. We are not aware by whom or when it was introduced. The name does not occur in either Loudon, Don, or Paxton.

BROWN RUST: *Brown Rust*. It is really too late to ask whether brown rust is caused by an insect, as it is well known to be the effect of a parasitic Fungus. Get "Cooke's Microscopic Fungi," and you will learn all you want about it. The brown subcuticular substance of which you speak is the dung of a grub. *M J B.*

CONIFERS: *Mr Wooler* is thanked for his specimen of Thuja injured by Hylobius Abietis, which has been forwarded to the Horticultural Society's Collection of Economic Entomology.

DRESSING CHRYSANTHEMUM BLOOMS: *Constant Reader*. Such practices are not countenanced, but the difficulty lies in proving it.

FUNGUS: *H C*. Your Fungus reached us discolored by frost and full of maggots. It appeared to be Agaricus albus. We are not acquainted with its qualities.

GLOXINIAS: *A Sub, Stockport*. Your treatment of Gloxinias is right; they require very little water at this season. A suitable compost for potting Cinerarias and Calceolarias in, consists of two parts of turfy loam, one of leaf-mould, and one of well decomposed cowdung, with the addition of some silver sand or sandy peat. This however will not "grow them to perfection" without a considerable amount of skill in their after treatment. You will find what information you require about Roses in pots at p. 352, in our volume for 1867. You cannot grow Peaches and Nectarines in pots under Vines, the foliage of which, as you say, covers the glass. Get Mr. Rivers' little book, "The Miniature Fruit Garden."

LIME TREE: *J S H*. We would recommend you to do nothing more than cut away the dead branches. The tree will probably recover next spring, be weakly for a time, and ultimately recover. We do not recommend manure in such a case, but you might protect the roots from frost by covering the ground over them with dry leaves.

MILLET: *H D, Epping*. The sample received seems to be the Italian Millet, Panicum italicum, L.

NAMES OF FRUITS: *E Bennet*. 1, Calville Rouge d'Autômne; 2, Wyken Pippin.—*F L A*. 1, Vicar of Winkfield; 2, Gansel's Late Bergamot; 3, Marie Louise; 4, Maréchal à la Cour; 5, Beurré Diel; Apple unknown, worthless.—*Alexander Bogle*. Your Apple is believed to be the Golden Reinette.—*A F B*. The fruit in your box, we are sorry to state, have been lost.

NAMES OF PLANTS: *A F B*. 1, Phlebodium aureum; 2, Adiantum hispidulum; 3, Scolopendrium vulgare var. bimarginatum; the other No. 2 is Pilea serpyllifolia.—*R J B*. Smashed; apparently Mercurialis annua.—*J C*. Tamarix gallica.—*Stockley*. Your plants are true to name—Cotoneaster microphylla and Rhamnus Alaternus.—*I O U*. Salvia Grahami.—*Amateur*. 1, Chorozema varium; 2, Polygala grandiflora.—*Lymington*. 1, Whitfieldia lateritia; 4, Asplenium cicutarium in a starved condition.—*E C*. Metrosideros robusta.—*Bude*. Your Pinus is P. Pinaster, without any doubt. *A M.*—*A D B*. Lycaste lanipes.—*A McA*. Quercus rubra.—*C D*. Brassia Wrayæ.

RABBITS BARKING TREES: *C S T*. Take as much thoroughly skimmed milk as required, and mix it up with soot, to the consistency of paint. With this paint over the stems with a whitewash brush. It lasts well one season.

THE STUBBARD APPLE: *A Devonian*. We have often heard excellent accounts of the Stubbard Apple as grown in the south-west of England. It is not in cultivation about London that we are aware of, nor can we find it mentioned in any of the Apple lists. Perhaps some of our correspondents would send us a few specimens with a cutting or two.

TROTMAN'S GAS STOVE: *Correspondent*. You may safely use this in your greenhouse. There is no escape of gas, and all the foul air is conveyed out of the house by the chimney.

COMMUNICATIONS RECEIVED.—E. B.—J. S.—A. F.—Chownes.—M.—T. H. & Son, Solihull.—J. J. H.—T. C. S.—T. S.—T. C. —Aplator.—D. W.—P. G.—Amateur.—G. S.—M. N. O.—J. B.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY (Limited),
CORN, SEED, MANURE, and OILCAKE MERCHANTS.
Address, 20, Seed Market, Mark Lane, E.C. ; or Basingstoke.
Samples and prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

THE Cheapest and most Effectual of all PLANTS for Game and Fox Covert, PAMPAS GRASS. Surplus stock, strong, healthy, seedling plants, twice transplanted, 25s. per 100, or £12 per 1000, delivered free to Bealings Station.
BUNDY, Kesgrave, Woodbridge, Suffolk.

Seed Potatos.
H. AND F. SHARPE'S WHOLESALE LIST of all the new and best varieties of Early and Late POTATOS is now ready, and may be had on application. The quantity is very fine, and prices low.
Seed Growing Establishment, Wisbech.

To the Wholesale Trade.
HERBERT H. NICHOLSON, SEEDGROWER, Great Clacton (near St. Osyth), Essex, has the following SEEDS to offer, for cash only :—

ROBINSON'S PRIZE CHAMPION GX CABBAGE, 80s. per cwt.				
NONPAREIL CABBAGE	..	..	..	112s. "
WHITE CELERY (Lovinthan)	..	..	..	95s. "
SELECTED DARK RED BEET	..	..	..	140s. "
STUDENT PARSNIP	..	..	..	80s. "
MYATT'S CURLED PARSLEY	..	..	..	28s. per bush.
STUBBLE TURNIP	..	..	..	18s. "

&c. Also all the Annual FLOWER SEEDS, at low prices.

RICHARD WALKER has the following to offer for cash :—Splendid SEAKALE, for forcing, extra fine, 9s. per 100; fine GIANT ASPARAGUS, for forcing, at £1 per 1000, or 3s. per 100; ROBINSON'S CHAMPION DRUMHEAD CABBAGE plant at 2s. 6d. per 1000.
RICHARD WALKER, Market Gardens, Biggleswade, Beds.

Nursery Stock (one of the Largest in Scotland).
THOMAS KENNEDY AND CO. have as usual a very large and superior stock of FOREST, FRUIT, and ORNAMENTAL TREES, DECIDUOUS and EVERGREEN SHRUBS, &c., which they are selling at moderate prices. The Trees and Shrubs being of all ages and sizes, are particularly well suited for extensive planting, or giving immediate effect in the formation and improving of Ornamental Parks, Pleasure Grounds, &c.
Dumfries has long enjoyed the pre-eminence of being one of the best localities in Great Britain for rearing young Trees—its soil and climate being peculiarly adapted for that purpose; and wherever these Trees have been planted throughout the three Kingdoms (where Millions are sent by T. K. & Co. every season), they have invariably done well.
Dumfries, from its central position, is most favourably situated for the speedy transmission of goods to all parts of the United Kingdom. T. K. & Co. will forward a Copy of their DESCRIPTIVE PRICED CATALOGUE to any address on application.
Nursery and Seed Establishment, Dumfries.—November, 1869.

Planting Season.—Walton Nursery, Liverpool.
To PLANTERS of PUBLIC or PRIVATE PARKS, CEMETERIES, PLEASURE GROUNDS, or WOODS and FORESTS.
W. SKIRVING begs to announce that his STOCK of TREES and SHRUBS is this season very extensive and well grown, and that he is now prepared to execute orders to any amount for Trees and Shrubs of all sizes, at moderate prices.
W. S. considers the present and following month two of the best for transplanting Evergreen Trees or Shrubs, and solicits Planters to inspect his Stock, which consists of many thousands of the Holly, of the most choice varieties of the Gold and Silver Variegated kinds, and of the large broad-leaved Holly (the finest of all Evergreen Trees), hundreds of which are of large size and fine specimens for giving immediate effect, with many thousands of smaller sizes for general planting.
Also an immense Stock of all other cultivated Trees and Shrubs, either for Villa, Park, or Forest planting, and of Fruit Trees for Gardens or large Orchards.
N.B.—Fifty Acres of Walton Nursery being required for Villa Building, the Stock thereon must be cleared as soon as possible, therefore reduced prices will be accepted.—October, 1869.

Special Offer of Specimen Coniferæ, Evergreens, &c.
WM. KNIGHT solicits Orders for the following TREES and PLANTS, which have been recently Transplanted, are in perfect health, and cannot be surpassed in the Trade :—

Araucaria imbricata, 3 to 10 feet	Large Spruce Firs, perfect specimen, from 7 to 10 feet
Abies Douglasii, 4 to 8 feet	Laurustinus, Specimen, in bud, 4 to
Cryptomeria Lobbii, 6 to 10 feet	Portugal Laurels, 3 to 6 ft. [6 ft.
Picea magnifica, 3 to 5 feet	Common Laurels, 4 to 8 feet
" grandis, 5 to 8 feet	Arbutus, 3 to 5 feet
" Pinsapo, 3 to 5 feet	Rhododendron ponticum, fine
" nobilis glauca, 4 to 4 feet	plants, in bud, 2 to 4 feet
Pinus insignis, 4 to 6 feet	Rhododendrons, finest named,
" austriaca, 4 to 6 feet	60 leading sorts, well budded
Wellingtonia gigantea, 4 to 8 feet	

ROSES, 50,000, all heights, all the newest and best.
FRUIT TREES, 100,000, all the leading sorts; may give a good crop the first season.
ORNAMENTAL TREES, 100,000, all kinds.
CLIMBING PLANTS, ROSES, and other Plants, great variety, very cheap.
CATALOGUES and special prices on application.
Floral Nursery, Hailsham, Hurstgreen, Sussex.

Special Offer to the Trade by
MAURICE YOUNG, Milford Nurseries, near Godalming.
AUCUBAS (new Japanese varieties), in 20 varieties, at £5 per 100.
" JAPONICA, in fruit, 18s., 24s., 30s., up to 120s. per dozen.
ARALIA SIEBOLDII, 12s. to 24s. per dozen.
CRYPTOMERIA ELEGANS, 6 to 9 inches, 24s. per 100; 12 to 18 inches, 100s. per 100.
LIGUSTRUM CORIACEUM, 12s. per dozen.
DEUTZIA CRENATA, flore-pleno, strong, 20s. per 100.
OSMANTHUS ILLICIFOLIUS, 6 to 9 inches, 50s. to 75s. per 100.
" ROTUNDIFOLIA, new, 42s. per dozen.
RAPHIOLEPIS OVATA, 18s. per dozen.
RETINOSPORA FILICOIDES, 60s. per dozen.
" FILIFERA, 50s. per dozen.
" LEPTOCLADA, 9s. to 12s. per dozen.
" OBTUSA, 6 to 9 inches, 20s. per 100; 9 to 12 inches, 30s. per 100; 18 to 24 inches, 80s. per 100.
" OBTUSA NANA AUREA, 24s. per dozen.
" OBTUSA VARIEGATA, 30s. per dozen.
" PISIFERA, 6 to 8 inches, 20s. per 100; 9 to 12 inches, 30s. per 100; 18 to 24 inches, 80s. per 100.
" PISIFERA AUREA, 4 to 6 inches, 75s. per 100.
" PLUMOSA, 42s. per dozen.
" PLUMOSA AUREA, 24s. per dozen.
" PLUMOSA VARIEGATA, 42s. per dozen.
" SQUARROSA, 9s. per dozen.
SKIMMIA OBLATA, 12s. to 18s. per dozen.
THUJA PYGMÆA, 18s. to 30s. per dozen.
THUJOPSIS DOLABRATA, 4 to 6 inches, 30s. per 100; 6 to 9 inches, 9s. to 12s. per dozen.
" DOLABRATA VARIEGATA, 9s. to 12s. per dozen.
BERBERIS BEALII, 2-yr. seedlings, 40s. per 1000.
BIRCH (Young's New Weeping), standards, 30s. per dozen.
CHESTNUT (Young's New Silver Striped), 24s. to 42s. per dozen.
" (Young's New Cutleaf), 24s. to 42s. per dozen.
PICEA NORDMANNIANA, 15 to 18 inches, 18s. to 24s. per dozen; magnificent plants, 2 to 3 feet, 42s. to 80s. per dozen; 6 to 7 feet, 21s. to 63s. each.
PRUMNOPITYS ELEGANS, 9 to 12 inches, 75s. per 100.
THUJA LOBBII, 18 to 24 inches, 25s. per 100; 3 to 4 feet, 50s. to 75s. per 100.
One Million 1-yr. SEEDLING SPANISH CHESTNUTS, in drills, stout and good rooted, 6s. per 1000, 5s. 6d. if 50,000, and 5s. if 100,000 are taken.
Million SEEDLING and TRANSPLANTED QUICKS, samples and prices on application.
STANDARD APPLES, of leading kinds.
MAURICE YOUNG, Milford Nurseries, near Godalming, Surrey.

BIRMINGHAM CATTLE and POULTRY SHOW, 1869.—The TWENTY-FIRST GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, ROOTS, CORN, and IMPLEMENTS, will be held in BINGLEY HALL, on SATURDAY, MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 27, 29, and 30, and December 1 and 2.
TWO THOUSAND ONE HUNDRED POUNDS in PRIZES.
Admission :—On Saturday, November 27 (during the time of the Judging), 10s.; on Monday, November 29, till 7 P.M., after that hour, 1s.; on Tuesday, November 30, 1s.; on Wednesday and Thursday, December 1 and 2, 1s. till 5 P.M., after that hour, 6d.
For Special Railway Arrangements, see the Advertisements and Bills of the several Companies.

CENTRAL CHAMBER of AGRICULTURE.—The GENERAL BUSINESS COMMITTEE will meet at the Salisbury Hotel, Fleet Street, on WEDNESDAY, December 8, at 1 o'clock.
Same day, at 2 o'clock, MEETING of the COUNCIL, consisting of the Deputed Members from the Provincial Chambers, and of the Elected Members of Council.
Same day, at 3 o'clock, or when the business of the Council is concluded, ANNUAL MEETING of the Members of the Central Chamber.

AGENDA :
To receive the Report of the Council.
To Elect a Vice-Chairman for the year 1870.
To Elect Eight Members of the Central Chamber to be Members of Council, in lieu of the following, who retire by rotation, but who are eligible for re-election :—Mr. R. H. Masfen, Mr. R. Jasper More, Mr. J. Paine, Mr. Albert Pell, M.P., Mr. Charles Rea, Mr. C. S. Read, M.P., Mr. Edmond Riley, Mr. John Smyth.
To appoint Auditors, and to transact other Business.
JOHN ALGERNON CLARKE, Secretary.
The Salisbury Hotel, Fleet Street, E.C.

The Agricultural Gazette.

SATURDAY, NOVEMBER 20, 1869.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

Nov. 22	Institution of Surveyors, 12, Great George Street, Westminster (Mr. W. Hope, V.C., on the Distribution and Agricultural Use of Town Sewage)—8 P.M.
— 24	
— 25	Rutland, at Oakham.
Nov. 27 to Dec. 4	Birmingham and Midland Counties Fat Stock and Poultry Show, in Bingley Hall, Birmingham.

THE annual report of experience on a sewaged farm which has now for some years appeared with reference to the Lodge Farm, Barking, has just been published. The farm has for the last two years been under the direction of the Hon. HENRY W. PETRE, and his account of the period of his own more immediate responsibility is all the more satisfactory and complete because, having been one of the board of directors from the formation of the Metropolitan Sewage Company, he has shared in the direction and responsibility of the farm management since the beginning of the tenancy. As our readers know, Lodge Farm is some 200 acres of light and, for the most part, gravelly soil, just outside the market-garden limits on the east side of London. About 300,000 tons per annum of North London sewage, and nothing else in the shape of manure, have been used upon this farm for the last four years. To be sure, a large stock of cows has been kept—a very large stock during the first two years—and they have received quantities of grain and meal, in addition to the Grass and Mangels of the farm; but their manure has been either sold or used solely on that part of the farm to which sewage was not supplied. There are 80 or 90 acres on which none of that manure has been applied, and these 80 or 90 acres are on the poorest side of the farm, where the gravel lies nearest to the surface. This poor land has been dependant on sewage only now for four years. Some of it, in particular a field of about 13 acres, has borne grain crops for three years in succession; the rest of it has borne Mangel Wurzel, Potatos, Cabbage, and Grass. Enormous crops of Grass have been produced—very large crops of Potatos and Cabbages, and the heaviest crops of Mangel Wurzel, as, indeed, is testified by Mr. MORGAN'S letter, given below, have been produced; and the land is not impoverished by this exhaustive produce (for the whole is sold or carried away), but is wonderfully enriched. In particular instances the very heaviest growth of Oats has been grown with no dressing whatever—not even sewage—after 50 or 60 tons of Grass per acre during the previous year had been cut off the land and taken away; and upwards of 40 tons per acre of Mangel Wurzel, receiving three dressings of sewage, have been grown under similar circumstances.

It is impossible to doubt that Lodge Farm must ultimately give confidence to those who would speculate on the value of town sewage. It is influencing opinion and practice in its immediate neighbourhood; and as that which *is* must ultimately come to be believed to be, so we cannot doubt that the experience which is year by year being realised on this small Essex farm will ultimately convince, not only farmers, but citizens—for they are both interested in their several ways in the value of town sewage—that it is a mine of wealth in which they ought to work.

The change in public opinion which we thus foresee, will be due in no small degree to the simple, lucid, unpretentious way in which every autumn Mr. PETRE has stated the results of his own management. For the full details we refer the reader to his pamphlet.*

We may, however, mention here that 53 acres have yielded 1800 tons of Grass in 1869—that this Grass has been found serviceable, not only as cow food, but for fatting cattle and for stable use—that 1¼ acres of Wheat which yielded from gravel soil and sewage 25 quarters and 7 bushels in 1868, have this year, owing to a colder season, yielded from sewage only 18 quarters—that 6 acres of Barley and Wheat have, in like manner, yielded 26½ quarters—that 2 acres of Oats have yielded 22 quarters of grain—that Carrots, Potatos, Parsnips, French Beans have produced valuable crops—that Cabbages on a large scale have yielded abundantly, in every case from sewage only; and that Mangel Wurzel has been most successful—and that in all these cases the result has been obtained from soil which has received only sewage, most of it now for four successive years. The following is a summary :—

"During the year 360,000 tons of sewage have been sufficient to render highly productive 120 acres of the Lodge Farm. Of this quantity 53 acres have been in Rye-grass, bearing an average of five crops in that time, absorbing about two-thirds of the whole quantity of sewage, and more than 50 acres have had two crops, thus making 120 acres of land bear 382 acres of crop in the year. The value of the crops in the gross grown with the 360,000 tons of sewage is over 3,200*l.* As a specimen of the rapidity with which crops can follow each other with the aid of sewage, I may instance a field of Potatos which was planted in February with farm manure and dug during June and July. As the land was cleared Cabbage was planted, and in spite of the very hot weather the plants were well established. This crop will be cleared by November, in time for Wheat, yielding not less than 20*l.* nett per acre. A plot of exhausted Rye-grass, which had been cut four times since January, was ploughed up in July and sown with White Turnips, which will be off the land by November, giving 10*l.* nett per acre. It may be said that this succession of crops is attainable without the aid of sewage. No doubt it is under favourable circumstances of weather and with a large supply of manure, but the advantage of the sewage lies in the fact that the more unfavourable the weather for the ordinary mode of cultivation, the more certain the results from the use of sewage."

Mr. PETRE is not singular in the regret which he expresses in the last sentence of his pamphlet, that "the means of rendering many thousand acres (much in need of it) in the highest degree productive, should be still running to waste into the Thames, as if it were something to be got rid of at any sacrifice; whilst its equivalent, or rather an inferior substitute, is being imported from Peru and elsewhere, at an enormous annual cost."

THE subject of excessive game preservation was discussed the other day before the Leicester Chamber of Agriculture, who resolved, upon the motion of Mr. FORSTER :—

"That the over-preservation of ground game is fraught with much mischief; seriously tends to diminish the profits of the occupier of the soil, tends to increase crime in the rural districts, and diminish the food available for the supply of the population of this country; and that the time has come when the Government should be urged to take legislative action on the Game Laws, and that in any legislation thereon, ground game should be struck out of the category."

Most of these propositions were strenuously disputed and denied by Lord BERNERS; but his lordship's amendment, to the effect that the subject was not one for legislation, and must be left to mutual arrangement between landlord and tenant, was not accepted by the meeting. It is worth while, however, placing on record here that portion of Lord BERNERS' speech, in which the case is stated, to use his own word, "fairly!"

"He (Lord BERNERS) was opposed to the over-preservation of game; but he never was called upon to pay a single penny for damage. Game was one of the most certain rents they could have. If he did not want his shooting, instantly a man would give him 100*l.* for the partridge shooting in September. A baronet gave him 100*l.* for his partridge shooting in September, at the time he took the hounds in the county; and where he (Lord BERNERS) lived, it was constantly let for 100*l.*, 200*l.*, 300*l.*, 400*l.*, and 500*l.* a-year, simply for game. In all his experience in the game county of Norfolk, he never knew an instance of a valuer who was valuing a farm not making game a consideration. He would consider the farm worth 600*l.*, perhaps, with the present amount of game upon it, and would say, 'If you increase it much, I shall cut off 50*l.*, and if you increase it to an enormous extent, I cannot tell what it is worth.' But with his tenants he had never had a single complaint, nor was he ever called upon to pay anything; because he invariably made it a point to kill off the ground game early, and after that the tenants had all the coursing they liked for the rest of the season. He had known a flock of sheep to be

* "Notes for the Year Ending 31st August, 1869, upon the Sewage Cultivation of Lodge Farm, Barking," by the Hon. Henry W. Petre. Effingham Wilson, Royal Exchange.

turned on to a piece of Swedes, and remarked at the time that the tenant would come at Christmas, and say, 'See how the Swedes have been eaten by the game!' (Cries of 'Oh, oh!' and a voice: 'It's false.') He was telling them a fact. He would tell them another case: A man came to him and said the game was doing a great deal of mischief. He said, 'Will you show it me?' and they went into a field next the stackyard, and found the Swedes very much bitten. He (Lord BERNERS) turned round and said, 'Just look here: you tell me the hares have eaten these; there is scarcely a Turnip-top but what rats have been at; you have not killed the rats. There were tracks all across a 6 or 7-acre field, and the rats had done it. He said 'If you will take me to the cover side where, there are 400 or 500 hares, and show me 5*s.* worth of damage done, I will pay it you.' He took him round the farm, and said, 'Now show me 5*s.* worth of damage,' and he (the tenant) said he could not. He asked the man why he had not taken up his Swedes, and he replied that they were caught by the frost or he should have done so. He could not point out any damage. He (Lord BERNERS) simply said, what he began with, that the question should be one of agreement between landlord and tenant. On an estate of a deceased baronet who was passionately fond of sporting there was a farm nearly adjoining his house, the land of which was miserably bad, and the tenants had hardly cultivated it, and at one time did not cultivate it at all—it was all given up to game. That was what the landlord chose to do with it. The landlord could do just as he liked with his own, and he gave up that to game and took no rent, but let his own sheep run across the land. He wished on all occasions that people should look on that question fairly!"

THE question as to drainage, whether 3 feet is an efficient or a sufficient depth at which to lay the channel through which the otherwise stagnant water of the soil and subsoil is to press its way out of the field, and thus establish that current within their substance on which fertility in so many ways depends,—this question seems not to have excited much interest of late among our correspondents. Raised by a memorandum from Mr. C. PAGET, of Ruddington Grange, Nottingham, and since referred to by one or two, we had hoped that before winter drainage should have commenced we might have known from men in all parts of the country what the experience in various soils has been of 30 inches, 3 feet, 4 feet drainage. It is still not too late for such a record of experience to be immediately serviceable, and we venture again to recommend the subject as one to which our correspondents might most usefully address themselves.

Looking at the subject from the standpoint whence water is regarded not as a nuisance, poisoner, choaker, but a feeder, fertiliser, deepener of the soil, we prefer the deeper drain; but experience as to the good influence, and even the sufficiency of the shallower, is worth recording, and we shall be glad to receive it. Meanwhile, for those of our readers who are disposed to take the latter view—biassed, perhaps, by the impression that by drainage they ought to seek the cheapest way of getting rid of water—let us state the case once more, employing for the purpose the words of our excellent correspondent, Mr. D. T. FISH, which he used the other day in a most suggestive speech before the Lavenham Farmers' Club:—

"You look upon water as a thing to be got rid of in the easiest manner. For year after year you allowed it to water-log your land until it was licked up by the sun, or dismissed into the nearest ditch. By deep and thorough drainage the land is converted into a sieve. The rain-water falls upon the earth freighted with carbonic acid gas and ammonia. It is robbed of the valuable essence in its passage, and dismissed from your deep drains pure. More than this, every drop of water exerts a cleaving force on the land. It splits the ground into fragments, and thus forms a fine and friable tilth. Besides, wherever water goes air can follow, and the passage of water and presence of air bring the heat of the sun with them, and thus thorough drainage quickens the earth with warmth and enriches it with gases at the same time. Then why should these soil-forming processes be arrested at a depth of 6 or 8 inches from the surface? To look into the bottom of your furrows, one would suppose that you farmers were all devoted worshippers of the god Pan—not, indeed, the poetical deity of the shepherds, but that most impenetrable crust which is found at the bottom of your fields. Years ago, gardeners sent their sharp spades through this barrier, and thus increased the depth and productive power of the earth. Other conditions of climate and quality being the same, the productive power of the soil is in the direct ratio of its mass. There is not one of you that does not want more land for yourselves or your sons. I will tell you how to get it without any increase of rent or taxes—go deeper down for it. Steam has familiarised us with the term horse-power. Now I wish to apply a similar mode of reckoning to the land. Its power of production can be measured by its depth in inches. By examining your tilths we can tell whether your farm is a 4, 6, 8, 10, 12, 14, 16, or 18-inch power farm. Every inch you add to your depth you gain 100 tons per acre of working force. By mucking this deep tilth, such results as Mr. MECHI has brought before us may readily be reached, and the average produce of the nation be raised from 3*l.* or 4*l.* to 20*l.* per acre."

—— AT Mark Lane and throughout the country the price of Wheat has declined—home-grown 1*s.*, and foreign 2*s.*, per quarter. The quotations now show that at Mark Lane even, where the most inferior samples are not sent, prices for this year's growth have dropped to 39*s.* or below 5*s.* per bushel. Ordinary Barley is 1*s.* per. qr. cheaper, Oats a trifle dearer, other feeding-stuff at last week's prices.——With the large supply of 4,583 beasts, on Monday at the Metropolitan Market, there was a good demand for all the prime qualities, and the high price of 5*s.* 8*d.* per stone was maintained. Sheep, were in brisk demand, at 5*s.* 10*d.* per stone for best kinds. These prices were obtained on Thursday.——The agricultural seed trade, with the exception of a speculative demand for White Clover seed, is in a very quiet state.——English wool still stands at previous low prices.

—— We receive the following from Mr. C. S. READ, M.P., just as we go to press. It relates to a subject mooted some weeks ago by a correspondent:—"If I remember aright, a correspondent of the *Agricultural Gazette* a few weeks since asked for information on the best mode of preventing hillocks of sea sand from blowing. I hoped that some one better qualified than I am to offer advice would have answered the question, but as no one has spoken, I will give the result of my small experience. Plant the hills over with large patches of the Seamat weed or Sedge (Arundo arenaria); it will spread its lateral roots quickly, and do much to stop the sand from moving. Anywhere on the west coast of England or in Ireland, Grass will in a short time spring up with the Sedge, and when the Grass produces a sward, the Sedge, having done its mission, will presently die out. Rabbits must be exterminated, as they should be everywhere else, save in warrens. Their continual scratching exposes the fresh sand to the action of the wind, and effectually prevents the Sedge from growing."

—— An important meeting on the Transit of Cattle, a subject to which the interest and interference of Miss BURDETT COUTTS have of late largely contributed to direct public attention, was held last week at Peterborough. After a very instructive and energetic address by Mr. WALLER, Secretary of the Home Cattle Defence Association, the following resolutions were adopted by the Chamber of Agriculture:—

"1. That after careful consideration of the inquiries upon which their views have been asked by the Privy Council, they are of opinion that their suggestions should be confined to the simple question—'How a sufficient supply of food and water may be provided for all animals carried by railway in Great Britain?'

"2. That they consider themselves precluded from offering any suggestions with reference to the inland transit of foreign animals, holding as they do more strongly than ever the view that all foreign animals should be slaughtered at the port of landing.

"3. That it will be advisable in any future legislation to compel railway companies to improve the construction of their trucks for the transit of cattle, and to make them liable for damages for unnecessary delay arising in the transit of cattle."

—— The following letter, referring incidentally to the seeding of Mangel plants, a subject which was dismissed last week, is nevertheless published because of the very striking testimony which it contains to the serviceableness of town sewage as the best possible manure for succulent growth. Dry and solid manure is more likely to promote the early running of a biennial plant to seed, than a manure dissolved in water, which tends to develop leaf and bulb. Mr. MORGAN, in treating of the Metropolis Sewage Company, writes as follows from Lodge Farm, Barking: — "I observe in last Saturday's *Agricultural Gazette*, that Messrs. SUTTON'S Mangel seeds had grown fine roots, and that the crop had not run. Our experience on 4 acres of Mangels, under irrigation—half being sown with seed from Messrs. SUTTON, and the other half with seed from Messrs. CARTER—agrees with the observation made by Mr. ANDREWS. The crop was a very good one—a very even one—the land being well covered and the roots close, and the number of runners was very small, if compared with crops on other farms. I wish, however, to add for your information, that the same seed, *i.e.*, similarly procured, put into the land on a different part of the farm, which had farmyard manure, and which was not under sewage irrigation, did produce runners in average numbers. I think our experience rather confirms the belief that has been previously expressed, namely, that if the root is kept moist it does not run. The same seed planted in the lands at the Creek so sewaged presented a like satisfactory appearance, and the contrast which it presented to the crop of Sugar-Beet which grew alongside it, and which threw up a perfect forest of heads, was very marked. In contrasting the two crops of Mangels to which I have referred, I must give you the weight of each crop. That taken off the land under sewage (4 acres 1 rood 12 poles) weighed 201 tons. That taken off the other land (10 acres), which had received a dressing of about 20 loads of dung, weighed 200 tons. The whole crop was passed over the weigh-bridge, and a correct account kept. The result from dibbling Long Red Mangel seed (the crop before spoken of being Yellow Globe) in between Cabbages, upon 2 roods 6 poles, has given us 15 tons 7½ cwt. of roots, aided by sewage dressings. Our two nearest neighbours both put land under irrigation for the purpose of growing Mangel this year—lands thoroughly out of heart, admitted by them to be so; and I hear from one of them that he has over 30 tons an acre, and that he is perfectly satisfied, whilst the other, I believe, claims to have a greater weight, at least in part. The arrangement made with these two gentlemen was that they should pay a lump sum for the crop, and that dressings should be put on as they seemed needed. The price per acre was fixed (for this experiment) at 4*l.* an acre. We gave them each four good dressings, and when their land is better laid out, less sewage than that which they received will produce for them better crops."

OUR LIVE STOCK.

MR. STRAFFORD has advertised the entire herd of Shorthorns at Shobnall Grange for sale. This herd has been long and carefully bred by its present owner, Mr. J. Meakin, and represents some of the most fashionable strains of blood. The 40 animals composing it will be offered to the public on the 15th of next month.

—— That serious changes are pending in our sources of animal food is evident to every one who studies the subject. There is nothing impossible, and apparently even no great difficulty, in preserving meat for an indefinite length of time; and now that scientific men and commercial speculators have laid their heads together to perfect a cheap, simple, and effective process, no great time can elapse before the result of their ingenuity will begin to show itself. These remarks are due to the very spirited account recently given by Professor Gamgee before the Midland Farmers' Club The Professor has been engaged during the last three years in working out a problem, which may now be considered as finally settled. He is in a position to prove that meat can be kept moist and absolutely free from all taint by inexpensive means. It is not our intention here to fully describe Prof. Gamgee's process. It consists in causing sulphurous acid gas and carbonic oxide to act upon carcases of animals in closed chambers. The air is removed by a pump from vessels containing the meat, and carbonic oxide is substituted, subsequently a certain amount of sulphurous acid is added, which completes the operation. According to Professor Gamgee, consignments of meat can now reach us regularly from America. He also tells us that an apparatus can be provided for about 3000*l.* with which 500 sheep could be cured daily. When we take in connection with the above statements the increased facilities for the transport of living cattle, the meat trade of this country may well be looked upon as in a transition state. Professor Gamgee says that preserved meat of a quality which would be considered prime in the metropolitan market might be sold in England at prices varying from 4*d.* to 5*d.* per lb. Such a result, if ever realised, would exert a modifying influence on British agriculture; nevertheless, we concur in what Mr. Masfen said in the discussion following Professor Gamgee's remarks, that any feasible suggestion which would enable the poor to obtain a larger amount than heretofore of good substantial food should be hailed with delight.

—— The Hampshire Down sheep, according to Mr. E. P. Squarey, originated from the crossing of the old Wiltshire horned sheep, and the old Berkshire Knot, with the Southdowns which were introduced into Wiltshire and Hampshire early in the present century. These crosses were made with varying success, depending on the instinctive capacity of the farmer to select proper animals for the purpose. From 1815 to 1835 the Hampshire Downs of North Hants and those of South Wilts were, owing to the different conception as to what constituted a good sheep, totally dissimilar in character. The Wiltshire sheep was larger, perhaps less handsome, and not so uniform with respect to colour as those of Hampshire, and a ewe with speckled face and ears was not necessarily drafted, provided she was possessed of other good points. To Mr. Humphrey, of Oak Ash, near Newbury, is due, in a great measure, the present character and position of the Hampshire Down sheep. This agriculturist effected its improvement by careful crossing with the largest and best fleshed of the Babraham Southdown flock. This means, applied with wonderful ability, and at a great cost, has at length resulted in the present perfect animal. The old Hampshire type is still well represented in the flocks of Mr. F. Budd, Messrs. Parker, Barton, and others.

ON FIXITY OF TENURE *v.* TENANT-RIGHT.

NOW, when our crops have been gathered in, our harvest homes celebrated, and farmers have leisure and opportunity to attend agricultural meetings and talk over their affairs, it seems a favourable season to open again the question of the security enjoyed by the tenant-farmer, or claimed in his behalf, and to canvass the possibility by legislation or otherwise of encouraging him to improve his holding, without at the same time abridging the right of the owner to do what he likes with his own property. It is hardly fair that the Irishman should engross all talk of the coming winter, as if there is no grievance to be found on this side of the Channel. And it seems probable, on the principle of sauce for the goose being sauce for the gander, that any remedial measures applicable to them might be useful also to us. In approaching the subject of what is called tenant-right here or fixity of tenure in Ireland, let us first consider what are the chief differences that exist between the different occupiers

of the United Kingdom either in law or custom; secondly, the shortcomings evidenced in the practical farming of each party; we shall then be more likely to arrive at a solution of the third question—the remedy to be applied. In England the demand is limited to a lease of from 12 to 20 years, whereby the tenant may be able to recoup the capital expended at his first entry in raising the condition of his farm. The homestead buildings, roads, fences and drainage are the landlord's, and have been put into tenantable repair by him, and for these the tenant pays rent as well as for the bare soil; not so in Ireland. There the tenant takes to the land generally in a state of Nature; he has to build his own house and hovels for his cattle, he has to fence, drain, and otherwise reclaim his holding, and has perhaps doubled the value of his landlord's property before he begins to farm it in the English acceptation of the word. Hence he considers a large proportion of the fee simple to be his own property, as being his own creation. When we add to this the fondness for his native home, the unfitness for mechanical work, and the warmth of temper characteristic of the Irish, we see more clearly why they are tempted to resist anyone that offers to dispossess them, *i.e.*, why they proceed to take the law into their own hands, rather than endeavour to get legal or equitable security for their just claims. Like dogs with a bone, they are rapacious in getting possession of a holding, regardless of any future difficulties in retaining it; and like them, too, are equally ferocious in maintaining it against all aggressors.

Such is the Irish and aggravated form of the demand for tenant-right. And whatever we may think of the exaggeration of some of the claims put forward by interested parties, or of the heinous crimes by which they have been sometimes enforced, we must all agree that there is some reasonable ground for interference between a landlord and his tenant-at-will; some claim by the latter for forbearance, at any rate until such time as he has reaped where he was allowed to sow, and had the opportunity afforded him, at least, of repaying himself for all necessary outlay. In England this security can generally be obtained by means of a lease, which nine out of ten landlords have the power of granting, and the tenant can insist on. In Ireland, on the contrary, they are often refused by the tenant himself, or if accepted, treated as waste paper, and not acted on. It seems an idiosyncracy in the nation to feel no faith in written agreements. Under these exceptional conditions they come before Parliament and the public with a demand for redress. In England the cry is for tenant-right, or that the capital laid out in improvement of the landlord's estate shall be an available asset on removal. The Irish cry of fixity of tenure applies to a copartnership with the landlord in the ownership of the property itself; an hereditament which he can treat or part with as his own. But before Parliament or public opinion will consent to grant such exceptional powers to any class of persons they must be convinced that such powers will be not only beneficial to the community at large, as well as to the farmers, but also that the public benefit requires such unusual legislation that the general good so proposed to be acquired cannot be accomplished by any milder and more ordinary measures.

Now what the public, as representing the consumers, will require as the price of their interference will be that the land should be fully tilled, and the crops plentiful, *i.e.*, that the nation's food should be supplied in the largest quantities and at the lowest price, and it is clearly their interest that farming should be so carried on as to attain this result; and if it is not realised they will advocate any change that will promise to ensure it: and certainly we can hardly assert that in either country has this state of things been yet arrived at. If we take up any agricultural periodical, or look over any of the speeches made at farmers' dinners or farmers' clubs, we find the confession universally made, that our production might be doubled or largely increased, that our 14 million quarters of Wheat, our three million beasts, and 30 million sheep represent but a fraction of what might be supplied to these islands, if the proper amount of capital, skill, and energy were applied to their growth and maintenance; and that our population of 30 million mouths would consume double the present produce if they got it. This, then, is what the consuming public will require—better farming; and any legislation that will meet with their approval must have this for its object. From this point of view only will the farmers' demands for fresh powers be attended to; and if the public were once persuaded that any alteration of the Land Laws would lead to a large increase of production, they would soon force such changes on the Legislature; hence, we may expect the pressure to arise by which modifications of the Game Laws and laws of tenure will ultimately be forced upon us. The high farmers will gradually instruct the public that under certain circumstances our produce, both in corn and meat, might be doubled, with advantage to the farmer and the labourer; and the *vis inertiæ*, the conservative feeling which has hitherto prevailed, as long as the question was a mere squabble between landlord and tenant to prevent any active interference, will suddenly be broken down and carried away by the full tide of popular clamour. Before this outcry arises the farming interest should prepare itself to meet it. Let us, then, look carefully at our shortcomings, and see whether we can suggest any remedy. Why is it that while instances can be found in most counties, as well as the noted instance in Essex, of 550 sacks and of 600 sacks of corn being grown annually off each 100 acres as the result of fatting extra stock, yet the great majority of farms produce less than 400 sacks off the same acreage? Where lies the fault (for fault there must certainly be) that these rare examples are so slowly followed, and though over and over again insisted on, are so frequently denied? Why, after all our boasted improvements in stock and in implements, is successful farming still the exception, and slovenly mediocrity the general rule? We may safely assert there is no deficiency in skill. The farm labourer performs his work with dexterity and exactness equal to any other labourer at the same rate of pay. Certainly their masters are not reckoned bad hands at a bargain, either at market or at pricing task-work; then if the skill is not wanting, the deficiency must be in the employment of capital. The land is kept at the lowest amount of fertility. No full crops are reaped, because as soon as a field will bear half a crop that crop is taken off it. The necessary dressings for a full growth are not forthcoming at seed-time, because sufficient cattle have not been kept to produce it. The farmer lives too much from hand to mouth; he has not sufficient faith in a future return. Where fat stock do not actually pay a money profit for all they eat, he fears some accident may deprive him of the eventual gain on his outlay. This is a very short-sighted, but perhaps natural, misgiving.

The process of high farming is of this sort:—On entering, the tenant has to cultivate deeply and clean his land; then by artificials to grow an expensive root crop, then to buy a large stock of cattle, and feed them with bought cake and corn; and when by the end of the season he finds he has from the receipts from his butcher only just realised his outlay, if not incurred a money loss, and has still to await another season to thresh the extra corn that he has grown, his heart begins to misgive him; or, if he has undertaken too large a farm, his pocket begins to fail, and he fears that the few years' extra income from the remainder of his tenancy will not remunerate him for past expenses. He, perhaps, has qualms lest his landlord should raise his rent, or he himself should die, and leave another to enter into his labour and capital. Hence it is a common practice, even under leases, to spend the first half of the term in improving the land, and the last half in beggaring it again. It is to calm such fears, and give confidence to capital, so as to prevent this beggaring system, that interference on the part of the public is demanded. It is a more equitable adjustment of the rights of landlord and tenant that is required on either side the Channel; in England, as we have seen, limited chiefly to the artificial condition of the soil; in Ireland embracing all buildings and fences, and other additions to the bare freehold; and it is clearly necessary, in the interests of society, to encourage a higher system of farming, that some such equity should be established. The tenant-farmer ought to feel that the capital he has expended is still his own, as much as the landlord does who lays out his money in improving his own estate. He should be freed from anxiety and misgiving as much as a builder who lays out money in erecting a house on leasehold property, or a tradesman establishing a trade on another's premises; he should be allowed to sell his lease or his goodwill, or leave it for the use of his heirs or widow. In point of fact, a start in this direction has been made. The old law of emblements secured to a tenant-at-will or his heirs the use of the crops which he had planted. As farming became more costly, leases were given in many instances, securing the tenant a reasonable payment for tillages and half tillages, and other unexhausted improvements. In Ireland leases for long terms, or for lives in some cases, renewable for ever at fixed rentals, have been granted not uncommonly. In this latter instance there exists absolute fixity of tenure. In other instances shorter terms have been given, yet amply sufficient to repay the tenant with compound interest for all his necessary outlay. Again, tenants for life have been enabled by various Acts of Parliament to charge their property for 25 years with the expenses of drainage and other works of improvement. I propose in a future letter to consider how far we can build on these foundations, or enlarge the superstructure, so as to meet the growing necessities of modern improvements and increased capital. *J. B. M.*

MR. THOMSON'S PATENT ROAD-STEAMER.

[The following account of Mr. R. W. Thomson's road-steamer was read by Professor Archer at the recent meeting of the British Association. We quote from the report of it in the *Engineer*.]

One of Mr. Thomson's 6-horse power road-steamers has been working regularly for the last three months and a-half between Aberdeen and the Kettock Flour Mills. It runs four times daily through the town of Aberdeen on its way to and from the mills. The distance each way is three and a-half miles, and the road is of the worst possible character; indeed, it is doubtful whether in the whole kingdom any equally bad could be found with any considerable traffic on it. For one-half of this road, which is narrow, crooked, and excessively greasy in bad weather, the gradients vary from 1 in 9 to 1 in 7½. The duty of the road-steamer, whose own weight, including coals and water, is barely six tons, is to take a load of 10 tons up this acclivity, which it does with the most perfect ease. It will easily be seen on calculation that, taking the coefficient of road friction at 1-40th—which is established as the average on a good level road—the drawing of 10 tons of load plus 6 tons of road-steamer up 1 in 7½ is equivalent to drawing 100 tons on a level road. The nominal 6-horse power engine actually develops at certain points of its journey 45 indicated horse-power. It performs four single journeys daily with a load of 10 tons each way, taking Wheat to the mills and flour to the town, and it does the three miles and a-half in one hour. The consumption of coals, including the getting up of steam in the morning, the four journeys, and three hours for loading and unloading, during which steam is kept up, is a quarter of a ton per day.

Mr. Thomson's patent "pot boiler" proves a marvellous steam generator, and gives the completest satisfaction. The engineer of a company for whom a road-steamer is now building went down to Aberdeen to watch the working of the road-steamer employed there, and in a report, dated the 14th of the past month, he says:—"The driver told me that the boiler has twice been looked into during the last three months and a-half. On both occasions the pot was perfectly clean, and as far as could be seen the tubes were in good order, and not in any way affected by the super-heating. All the working parts of the engine have stood well, and seem as if they would last long enough. The toothed wheels show no appearance whatever of wear. The weather was so bad that I made no notes of time, or of coals burned. The performance was perfect." This gentleman's opinion bears weight, because it has not been arrived at hastily. He has gone several times from London to Aberdeen and remained there for days together to observe the working of the road-steamer, and convince himself of its capabilities, and he is now most thoroughly pleased with it. The durability of the india-rubber tires surpasses all expectation. No wear whatever is perceptible in their surface. The engineer just referred to mentioned lately that when the Aberdeen road-steamer was first started he privately scratched with his pen-knife his initials on one of the tires, and now that the road-steamer has run over a thousand miles he finds on examination his inscription is still intact. The inside of the moulds in which the tires are cast necessarily shows the fine markings of the turning tool, and these marks it communicates to the india-rubber. A set of tires which have travelled some hundreds of miles were recently inspected with a magnifying-glass, and the delicate markings were discovered to be as distinct and sharp as on the moment of issue from the moulds.

Some very interesting trials have been made during the last few weeks with two 6-horse power road-steamers, under the direction of the inventor, Mr. R. W. Thomson, C.E., of Edinburgh, which exhibited their tractive power and speed in a remarkable manner. The most extraordinary trial was one in which the little 6-ton road-steamer was harnessed to four huge waggons filled with pig iron—waggons and load weighing together 34 tons—which it drew without an effort or any stoppage from the foot to the top of Granton Road, a distance of a quarter of a mile, with inclines of from 1 in 18 to 1 in 25. Arrived at the top, it turned with its train in the road itself, and ran back to its starting-point. It may again be pointed out that the drawing of 34 tons, besides the engine's own weight, up 1 in 20, is equal to drawing 120 tons on a level road. Of course no claim is made that a 6-horse power road-steamer could habitually do work like this, but a record is here given of a test to which its powers were publicly put. The other road steamer was attached to an omnibus which conveyed a party of gentleman from Granton to Leith. The distance is 2¾ miles, and the journey was performed in 21½ minutes, or at the rate of 8 miles an hour, that being the highest speed at which it was deemed safe to run through a town. This road-steamer has been built specially for omnibus traffic, and is exceedingly light and compact.

On the following morning a road-steamer was taken down on to the sea sands at Portobello, and ran up and down there at the rate of 10 miles an hour, the rain pouring all the time in torrents. The following is an extract from a letter received within a few days from Mr. Abernethy, of Aberdeen, himself an engineer, who is a gentleman well-known in Scotland for his long experience in mechanical matters, and in whose judgment on such subjects great trust is put:—"We took out a 15-ton boiler to Stoneywood yesterday on a 4 or 5-ton waggon, with 2 feet 6 inches, and 3 feet wheels, right down Union Street, at a speed of 3 miles an hour, at the busiest hour of the day, all the way in the single gear, except about 100 yards of steep in Crown Street and the Brae of Greenburn, where the single gear failed us—at least it was about a balance, and we put on the double gear. Usually we have had to have men behind with ropes to hold back on the Brae down to Stoneywood, but the engine was drag enough of itself almost. It certainly is a feat for a 5-ton engine to drag out a 20-ton load and climb gradients of 1 in 20 with a single gear. We had all Aberdeen turned out as we passed. It was an unusual sight to see the infant Hercules in front of the great boiler, 30 feet long, and 7 feet diameter, bowling along with it like a plaything at its tail, whilst the plaything itself shook the houses again as it danced over the rough causeway."

The last, and perhaps most remarkable performance of the road-steamer took place as recently as Tuesday, the 17th ult., and on that day the question whether steam ploughing can be done by direct traction was most emphatically answered in the affirmative. The judges of the Royal Highland and Agricultural Society had decided that the ploughs and reaping and mowing machines selected by them at their last show should be tried on the fields of a farm in the neighbourhood of Edinburgh on Tuesday the 17th. Mr. Thomson had long been impressed with the idea that from the road steamer's facility of running over soft ground without sinking, owing to the india-rubber tires, which at the same time bite the surface with surprising tenacity, it would be eminently adapted for steam ploughing. Accordingly he resolved to avail himself of so good an opportunity for putting his engine to the test, and on the morning of the trial one of his 6-horse power road-steamers was on the ground. Whilst awaiting its turn it displayed its manageableness and handiness in various ways, and most strikingly when requiring water, it ran down a long steep grass hill with gradients of 1 in 4½ to a burn, where it filled its tanks, and then ran up the hill again. At last the moment came for it to engage in its new task. Two of Fowler's double-furrow ploughs were attached to it, and with an eager throng of spectators, composed of agriculturists and engineers, running along on either side of it, it commenced work. On and on it went, making four straight, deep, wide furrows. Nothing more perfect could be seen. With Fowler's ingenious

ploughs, when the handle is once set no guidance is needed, and so four furrows were thrown simultaneously without a hand being put to the plough. Arrived at the end of the field, it turned with far greater ease than horses could do, and ploughed its way back again up a hill with inclines of 1 in 12. The ploughs were set as deep as possible, and the work done was quite first-rate. The contrast between the road-steamer and the plough-horses was most remarkable. Whilst three horses were painfully struggling along with one double-furrow plough through the exceedingly hard, dry, stiff soil, it was drawing its two double-furrow ploughs with such facility that it was evident there was an immense supply of power to spare, and that it could have taken another couple of double furrow-ploughs behind it; indeed, the furnace-door had to be kept open the whole time. The road-steamer, too, was quite free from the dilemmas to which horses are liable, such as getting their feet entangled in the chains, &c., and when occasionally it accelerated its speed a little too much, a single "Woa!" would bring it to a stand. It ran in front of the ploughs on the unploughed ground, thus avoiding all possibility of compressing or poaching the soil after it had been turned up. The road-steamer ploughed its allotted portion without meeting with a single difficulty or impediment of any kind, and when it was led away all who had witnessed its performance declared that its behaviour was perfect, and that it could at once be put to practical work. It promises to be of incalculable advantage to farmers, as it will enable them to dispense almost entirely with horses, since it can fetch its own fuel and water, and can be employed in ploughing, reaping, and mowing, in carrying manure, and taking produce to market. Great gratification was expressed by all present, and a brilliant future predicted for the road-steamer.

THE CONSEQUENCES OF INTRODUCING MONGREL BLOOD.

ALTHOUGH good animals are, as I have shown, produced by pure breeds, I by no means deny that individual specimens of equal, or even occasionally of superior excellence, may be found among crosses. Thus if cows of any good Scotch breed are crossed with a Shorthorn bull, the offspring usually unite the hardihood and fine grained meat of the dam with the size and early maturity of the sire. Steers of this character would probably be worth more per lb. than pure Shorthorns, and be heavier than pure Scots of the same age. Mr. Darwin appears to consider increased vigour to be the general result of crossing two distinct breeds of domestic animals. This is probably part of the law which makes the union of near affinities injurious, when continued too long. While even a slight change of blood is beneficial, a complete cross appears, from the facts collected by Mr. Darwin, to have the effect of imparting peculiar vigour to the offspring. The success of a first cross is indeed proverbial, and where circumstances are favourable there is no better mode of producing animals for the butcher than the union of two distinct breeds. When, however, you ask, "Does it follow because an animal has a splendid lineage he is necessarily better than one less favoured in this particular?" I reply, that as an animal for the consumer, it is by no means a necessary consequence. We have seen cross-bred oxen take the medal at our great fat shows against all the pure breeds. The celebrated Durham ox himself was a son of Favourite, from a cow without a pedigree. But suppose that the half-bred steer, which has won the Gold Medal at Islington or Birmingham had been a bull, what would have been his value? As a breeding animal, absolutely *nil*. If there be any one point on which all breeders of reputation may be considered unanimous, it is that of never using a mongrel sire. Common sense indeed points out that, where we are uncertain of the antecedent parentage of an animal, we cannot place the same reliance upon the uniformity of his progeny as we can on that of one whom we know that for many generations back his ancestors have all belonged to one race. The liability to "breed back," as it is popularly termed, is a universally recognised fact, but it was reserved for Mr. Darwin fully to investigate this intricate subject, and to throw a light upon the laws which regulate "reversion," which must eventually expand our knowledge far beyond its present limits. By elaborate and accurate experiments, both with pigeons and with poultry, Mr. Darwin has conclusively shown that the result of crossing two pure breeds is "to give an impulse towards reversion, as shown by the reappearance of long-lost characters. The proof lies in certain peculiarities, which do not characterise the immediate parents, and therefore cannot have been derived from them, frequently appearing in the offspring of two breeds when crossed, which peculiarities never appear, or appear with extreme rarity in these same breeds, as long as they are precluded from crossing."* My limits will not permit me to attempt even an abridgment of the mass of evidence on which Mr. Darwin's important discovery rests. I refer my readers, therefore, to chapters 6 and 7 in the first volume of the work from which I have quoted, where Mr. Darwin relates his experiments in breeding pigeons and poultry, and then to chapter 13 in the second volume, where he recapitulates his views on the subject of inheritance, and more particularly of reversion. The general result of crossing certain breeds of poultry and of pigeons was to produce in the mongrel offspring certain characters which do not belong to the parents on either side, but which appear to have been derived from the wild species from which they originally descended. A similar effect is also shown sometimes to follow the crossing of sheep. The liability of black lambs to occur even in the best bred Leicester and Southdown flocks is well known, and, along with other evidence, points to the probability that the earliest sheep were brown or black. The following instance of reversion, given by Mr. Darwin, is curious:—"The Rev. W. D. Fox was informed that seven white Southdown ewes were put to a so-called Spanish ram, which had two small black spots in his side, and they produced 13 lambs, all perfectly black. Mr. F. believes that this ram belonged to a breed which he himself kept, and which is always spotted with black and white; and he finds that Leicester sheep crossed by rams of this breed always produce black lambs. He has gone on recrossing those crossed sheep with pure white Leicesters during three successive generations, but always with the same result. Mr. F. was also told by the friend from whom the spotted breed was procured, that he likewise had gone on for six or seven generations crossing with white sheep, but still black lambs were invariably produced."

Here another principle evidently was at work, viz., "prepotency," as Mr. Darwin terms the stronger influence of one breed over another on the offspring; and I am inclined to estimate the prepotency of aboriginal or early breeds more highly than he does. When prepotency appears to characterise more recent breeds, such as Leicester sheep and Shorthorn cattle, which undoubtedly have swallowed up a large proportion of rival races, this may be caused by the persistent use of near affinities, which has impressed upon them a unity of character not easily to be attained by more miscellaneous breeding. When we see, however, how persistent is the latent force of primeval character, it is to be hoped that all who desire to improve their herds will perceive the danger of using mongrel sires. The risk is not an imaginary one, for at local shows prizes are not unfrequently given to animals of whose pedigree all that is known is the name of the sire. Nay, I have never known a case in which a prize for breeding stock was given to a heifer which had been purchased at a market, and whose pedigree was uttterly unkown. She might have combined the blood of Scotch, Hereford, Welsh, Shorthorn, Longhorn, and countless other breeds. The injury which may accrue to a herd from the introduction of impure blood, can scarely be over-estimated. So far from the official sanction of prizes being awarded to such mongrels, every influence ought to be brought to bear to induce farmers to secure for their herds sires of pure pedigree. Although they are becoming more alive to the value of blood than formerly, still a considerable proportion of farmers deem it a mere fancy. If it were otherwise, we should hardly see well-bred bulls sold below their store value so frequently as is now the case. Take, for example, the recent sale at the Prebendal Farm, when the bulls, chiefly of Knightley blood, went for prices quite disproportioned to those make by their dams. Thus, one yearling, whose dam was sold for 120 gs., only made 24 gs. And I remember at the Birmingham sale last spring seeing a very nice young bull of the Princess family, for which not even an offer was made. On the whole, I am still of opinion that benefit would arise from placing the pedigrees of breeding animals before the judges, as one of the elements for enabling them to arrive at a sound decision respecting their merits. *Willoughby Wood, Holly Bank, Nov.* 12.

* "Variation of Domestic Animals," Vol. II., p. 39.

Home Correspondence.

Steam Cultivation Charges.—My letter at p. 1193, when speaking of the horses kept to work the heavy land just bought, should read thus: "Five horses have always been kept to work the heavy arable land." "G. A. H." was in a great hurry to give me another wipe with his stick, in fact, has "fallen foul" of me by giving me a second blow before I could get upon my legs to defend myself. At p. 1144 he charged me with having "fallen foul of another opponent," whereas it was Mr. Greig and Mr. Teopffer who "fell foul" of the roundabout tackle at Peterborough, and I stood up to defend it, yet for all that I was to be thrashed. Well, never mind, his blows do not hurt me; and I take it that the back-handed blow at you, about the 1*s.* 6*d.* an acre for wear and tear, did not fret you. My letter (p. 1193) has done all that is necessary for me to do upon the eighteen penny question; therefore, I will follow "G. A. H." to Tiptree, where, "if Mr. Mechi did anything so utterly contrary to honest accounts, I warrant Woolston would be down upon Tiptree with a vengeance." Now, I have never been "down upon Tiptree with a vengeance;" for all I have done has been merely to show up Mr. Mechi's own figures; and all the good "G. A. H." is now doing to his friend Mr. Mechi, is to keep the raw place open. I will not fret about his reference to "depreciation," for you all know that I have never concealed that or any other point upon the question of steam cultivation; and if my advice to the farmer is blind advice, it is what I am practising myself, finding it very profitable. Although my occupation was only 112 acres arable, and is only 163 acres now, I am not deceived about the cost of my seed-beds, nor am I wrong about the bit after Mangels, although it stands at only 2*s.* per acre. People on the spot who see never express a doubt, and when "G. A. H." falls upon me about the change of engine, he gets no ground, for I have long since told you that, 11 years ago, I gave my first 7-horse engine and 100*l.* for the engine I now use, and it is in capital trim, although it has done no end of threshing and grinding as well as my ploughing; and its cost in repairs during the whole period has not been so much as it would cost to shoe 10 horses during the same period; and he is vastly wrong when he says thus—"How much does he suppose he will lose on it when in two or three years' time he replaces it with a road locomotive?" I will not lose money in that way, for I will keep my good old engine that I can depend upon in any weather and at any work, that has served me faithfully for 11 years, and will for life, I have no doubt. And he is also vastly wrong when he talks about "hiring out my ploughing apparatus," for I have never done a bit of that work, neither will I, for I have condemned the practice from the start. At p. 1193 I show that work must be done at the right time, and I toss "interest of money, depreciation," and everything else out of the question to make sure of that; and you see that I was right about his being a traction-engine man. Here he is upon his hobby. Let him ride it, and I will leave him and Mr. Mechi to go on with their millering. Mr. Bignell is their man upon that point. But I must have a word with him about his "hen scratching." The scratching, as he calls it, was done by a four-horse cultivator, and my regular way of charging such work has been to allow each horse 2*s.* 6*d.* per day, the man 2*s.*, and two boys 6*d.* each. They do 6 or 8 acres a day, therefore the fair price comes out at 2*s.* per acre. Now let us compare the dead fallow that I have just paid for (see p. 1193), taking these figures as our mode of calculating, fixing three quarters of an acre as a day's work the first ploughing, and an acre a day the last two ploughings, and thus find out the cost per acre.

	Per acre.
One ploughing, 4 horses, a man and a boy, at ¾ acre per day	£0 16 6
Two ploughings, at an acre a-day, 4 horses, a man and a boy—two days	1 5 0
Two cultivatings, at 2*s.* per acre each time ..	0 4 0
Half a year's rent and taxes	1 0 0
	£3 5 6

I paid that and get no produce. Would "G. A. H." call that hen scratching? It is not yet planted, yet my Mangel land, scratched over at a cost of 2*s.* an acre, is, and well, too. It is of no use his comparing his hard horse-trodden work, that may cost him 14*s.* an acre, with mine; for he does not take into consideration the beautiful condition the previous operation for roots had left it for me to work upon. At p. 1169 Mr. Bignell tells him all about it. Mr. Bignell is a near neighbour, sees for himself, and tells you what he sees. There is a wide contrast between this and Mr. Mechi and his neighbour, Mr. H. Biddell, who gives him credit for intentional truthfulness, but told him (p. 1171) that he did not believe his statements; whereas I am backed up in my statements by my neighbours. "G. A. H." will learn a little after awhile. *William Smith, Woolston, Bletchley Station, Bucks, Nov.* 13.

Woolston Steam Ploughing.—I observe that Mr. Smith adopts your explanation of the 1*s.* 6*d.* per acre for interest and wear and tear, in which you say that it means 8 acres daily, at 1*s.* 6*d.*, or 12*s.* per day for 100 days of ploughing in each year. Now, 100 days' ploughing at 8 acres per day, would run up to 800 acres; but if a farm be worked on the usual four-course without bare fallows, the actual ploughed land is only three-fourths of that under rotation, for one-fourth is every year in grass-seeds and Clover. Eight hundred acres, then, of actual plough represent 1067 under rotation, but every farm has some waste corners, and some small portion in permanent Grass, so we may safely assume that 1067 acres under rotation represent a farm of at least 1100 acres. So then it comes to this, that in order to carry out the Woolston system of steam "smashing," at Mr. Smith's "estimated" cost, a man must have a farm of 1100 acres. Dear me, what a wonderful discovery Mr. Smith has made—steam "smashing" on the Woolston roundabout system actually will pay on a farm of 1100 acres! Let us not, however, be misled; this is not what Mr. Smith seeks to prove, or rather to insinuate, and though he seeks to smother the question under a cloud of figures (see p. 1192) I am not to be frightened by this Parthian mode of defence, and I have too keen a nose to be drawn off by a red-herring drawn across the scent. The question is this: Mr. Smith declares that with steam-power, and the partial assistance of horses, he has at Woolston "actually made a seed-bed for Wheat at a cost of 6*s.* 8*d.* per acre." I assert that Mr. Smith's own figures prove his declaration to be totally devoid of foundation; that he is, in fact, as I said last week, "deceiving himself, and, in deceiving himself, he is deceiving the public." He tells me that until this year he never ploughed as much as 100 acres in a year, and yet he has the hardihood to assert that 1*s.* 6*d.* per acre, which on "less" than 100 acres would amount to "less" than 7*l.* 10*s.* per annum, is enough to cover interest and wear and tear upon a set of ploughing machinery costing 375*l.*,—that is to say, less than two per cent. per annum for interest and wear and tear! The little question of "depreciation" he very conveniently ignores, and goes on to talk about 390*l.*, which he alleges, or rather estimates he saves, by not keeping six horses. But what have we to do with horses? We are not talking about the cost of ploughing with horses—we are not even comparing the cost by steam with the cost by horse-power; we are simply inquiring into the "actual cost" of making a seed-bed with steam-power at Woolston, which Mr. Smith asserts he has "actually made" for 6*s.* 8*d.* per acre, but which I most distinctly prove by his own figures he has not done. I am quite willing to admit that if he had a farm of 1100 acres, and was able to plough 800 acres every year with his present tackle, he might have done so; but he has not got 1100 acres, and he has not ploughed 800 acres in the year. What I complain of in Mr. Smith is that he endeavours to persuade small farmers, having only 100 acres to plough every year, that it will pay them to purchase "for their own use only" a set of steam tackle, and that when they have done so their seed-bed for Wheat will only cost them 6*s.* 8*d.* per acre. That is what I declare to be a fallacy, and a

deceiving of the public; and I venture to think the great majority of your readers agree with me. There is, however, another little question I would like to ask yourself (not Mr. Smith), and it is this:—Do you think that on a heavy clay farm, on which no bare fallows are allowed, you could in the ploughing season find 100 days suitable for working a steam-plough? On such a farm the ploughing season is practically limited to about five months, say from the end of September to the end of February, or about 150 days. How many of these will be rainy days or days after rain, or foggy days, or snow or hard frost? *G. A. H.*

Dried Grains.—In your issue of November 6 you make some remarks relative to our desiccated grains, and amongst others you state—taking the comparative analysis then shown—"that Milburn & Co.'s desiccated grains contain 24.87 per cent. of albuminous compounds, while Barley contains only 10.84. That certainly needs explanation;" that is to say, you cannot reconcile the fact that the desiccated grains should contain a greater percentage of albuminous matter than the Barley from which they are made. The explanation is very easy, and we beg the favour of making it. We would first remark, that the heat of the water used by the brewer coagulates the albuminous elements in the malt, and thus prevents them from dissolving, although a certain portion becomes mechanically detached, and passes into the beer, producing what is called "bottoms" in the casks; still, the main portion remains in the grains. Dr. R. D. Thomson, in his work on the "Food of Animals," page 110, as the mean of several experiments, estimates the albuminous compounds in malt at 8.66 per cent.; that is to say, 8⅔ lb. for every 100 lb. of malt, or 30¾ lb. for every quarter of malt. It requires the wet grains of 22½ quarters of malt to produce 1 ton of our desiccated grains, and consequently, 30¾ × 22½ = 682½ lb. as the quantity that should be in the ton of dry grains. What do we find from Dr. Voelcker's analysis? that there are 560 lb., the difference being due, as stated above, to the quantity mechanically carried off in the beer. We shall be pleased to give any gentleman who may call upon us a sample of our desiccated grains for analysis. A simple test of their nutritive properties is to moisten and expose them to a warm atmosphere: in a few days they become a mass of living matter. *Milburn & Co., 76, Church Lane, Whitechapel, Nov. 9.*

Foreign Correspondence.

SILESIAN AGRICULTURE.—In No. 45, p. 1167, of the *Agricultural Gazette*, Mr. Howard refers to my statements on Silesian agriculture. As there is a mistake in that statement, I beg you to correct it. The annual average yield of my part of the country is given at 12 bushels of Rye per acre, 10 of Wheat, 15 of Barley, 16 of Oats, and 5 tons of Mangels; it should be per Prussian morgen. One acre being equal to 1,5849 morgen, the average yield per acre would be—19,02 of Rye, 15,85 of Wheat, 22,77 of Barley, 24,35 of Oats, and 7,92 of Mangels. Silesia is divided by the Oder river in two parts; the right bank (where I dwell) is mostly of a poor sandy character, the left bank contains some of the richest soils in the world; the same is the case with the Elbe and Vistula rivers. The famous farms of M. von Schœnermark, at Trieborn; M. Friedenthal, at Giessmannsdorf; Baron von Talkenhausen, at Wallisfurth; vom Rath, at Roberwitz, and many others, would give you much higher averages, farming on the fine soils of the left Oder bank. The counties of Leobschütz, Frankenstein, Münsterberg, Strehlen, are among the best Wheat and Barley growing parts of the Continent; our part is only Rye and Potato growing. *Elsner von Gronow.* P.S. If you should like to acquire a good knowledge of Prussian agriculture in Prussia proper before the annexations of 1866, I can recommend you the work of Dr. August Meitzen, "Der Boden und die landwirthschaftlicher verhaeltnisse der Preussischen staater nach dem gebietsumfange, vor 1866." (4 vols. with maps. Berlin: Wiegandt et Hempel, 1869.) It is founded on official data, and contains every instruction desirable in reference to agricultural land—geological, climatal, statistical, and other points of view.

Farmers' Clubs.

LONDON.

Mr. Howard's Lecture on Continental Agriculture.—[We now publish, in a somewhat abridged form, the deferred portions of Mr. Howard's lecture.]

Small Farms of France.—The farms I have hitherto called your attention to are large ones; there really is little practical information to be gained from the small ones; but I cannot pass them over without a few remarks. Throughout the greater part of France small farms preponderate. There are thousands of one, two, and three-acre farms, held by peasants who fill up their time by working for the larger farmers. The size of farm considered necessary to support a family is about 4 hectares (10 acres). A couple of cows are generally kept on such holdings; these supply the family with milk and butter. They are yoked to the plough, and draw the cart to market. Not an uncommon sight is a bullock and a pony yoked to the plough, or a horse and an ass. I remember once seeing a horse, a bull, and an ass drawing a harrow. These farmers work from sunrise to sunset, doing double the work for themselves they would for an employer; and they live far harder than the English peasants. These small farms grow little beside Wheat, Rye, Oats, Clover, and Potatos; occasionally a patch of Turnips or Beet is to be seen. Thirty bushels of Wheat is considered an excellent crop. Leaving out of the question the Vine districts, rows of Apple, Pear, and Plum trees are often to be seen skirting the little farm. There is a very material difference between the habits of the French peasantry and the English agricultural labourer. The French are sober, live very hard, scrape together every penny they can lay hands upon with a view to becoming one of the hard-working, hard living farmers I have described. In drawing my observations upon France to a close, I would remark that the French farmers unquestionably enjoy both in soil and climate great advantages over the English. It may be that for centuries France relied too much upon her natural advantages, and thus reduced the fertility of her soil below the standard of England. Many attribute the smaller productiveness of France to the pernicious effect of the "Code Napoléon," in the distribution of the land: that the subdivision of the land to the extent it has been carried in most parts, offers an effectual barrier to agricultural improvement, I think few practical men will doubt. I will not just now pursue this question further, but will resume it before I finish. Just one word on the Government department of agriculture. A considerable number of influential landowners and agriculturists of France have come to regard the Government patronage of agriculture as an incubus, and some time since commenced the organisation of a National Agricultural Society, somewhat after the model of the English one; but it is said that Imperialism has frowned at this attempt at independent action; at all events, I learn that the scheme is placed for the present under the ban.

Beetroot Culture: Sugar and Spirit.—That sugar could be extracted from Beetroot was known as early as 1747. The discovery was made by Margraf, a chemist of Berlin; but his discovery excited but little attention. About the close of the last century another Berlin chemist, Achard, gave to the world an account of the process carried on at his Beetroot-sugar factory in Silesia, by which he extracted some 4 per cent. of sugar. The scientific men of the Continent from that time were aroused to the importance of the subject. The attention of Napoleon having been directed to it, he determined upon introducing the manufacture on an extensive scale, his view being the breaking-up of the colonial prosperity of Great Britain, by excluding from France and the Continent the important colonial produce of sugar. The first factory was established about 1809, since which time it has made steady and, considering the difficulties, fiscal and otherwise, rapid progress. In less than 30 years from its introduction no less than 50,000 tons of sugar were made from Beet; and, according to the last return, there are now in France 470 Beetroot-sugar factories, in Belgium 116, and in Prussia 255. In the Zollverein 2,500,000 tons of Beet are annually converted into sugar. In Austria, Hungary, Russia, and other parts of Europe the process is also successfully carried on. To France, that which was commenced as a military expedient has proved to be not only an important department of national industry, but the most powerful stimulant to French agriculture. To show the appreciation in which this branch of industry is held in France, at an agricultural meeting held a few years ago at Valenciennes, a triumphal arch was erected on which appeared the following inscription: "The growth of Wheat in this district before the production of Beetroot sugar was only 122,000 quarters, the number of oxen 700; since the introduction of this sugar manufacture the growth of Wheat has been 146,000 quarters, and the number of oxen 11,500." Since I have looked into this subject, I am surprised that it did not sooner occupy the serious attention of English agriculturists. Perhaps the indifference arose from the failure of early attempts made at Chelsea, Wandsworth, Minety, Belfast, and other places, as well as from a settled belief that our climate was not adapted for the growth of the particular kind of Beet required for the manufacture. That the climate and soil of the drier parts of England are well suited to the growth of the root is clearly set at rest not only by the analytical tests made by Professor Voelcker upon roots grown in England, in Belgium, and in France, but by the practical results obtained by Mr. Duncan at the sugar factory at Suffolk. The percentage of sugar in Beet is, upon an average, estimated on the Continent at about 10 or 11 per cent., whilst the roots analysed by Professor Voelcker grown at Barking with London sewage only as a manure contained 13 per cent., equal to the very best Silesian. That the Sugar-Beet requires for its perfection a better climate than ours will, I believe, be proved by further experience to be a fallacy. The temperature of the north of France and Germany is far more suitable to its growth than that of the southern parts of those countries. What I learned to be of most importance is, that the months of August, September, and the early part of October, should be warm and sunny; for it is in the latter stages that the sugar is formed. To ensure the best results, great care is necessary with the manuring and proper tillage of the soil, the choice of seed, the subsequent cultivation, and the harvesting. At Cologne I visited a large concern belonging to the Rhenish Beetroot Sugar Company, a firm composed of three partners. In addition to the roots grown on their own extensive farm of 7200 imperial acres, which I shall notice presently, large quantities are bought of the surrounding farmers at 20*s.* per ton, the pulp being given back free. The firm has issued printed instructions for the guidance of the farmers of the neighbourhood:—

"1. In order to grow good Sugar-Beet it is necessary that the land intended for the roots should be ploughed at least 10 inches deep before the winter; as the frosts render the soil as fine as ashes, it enables the farmer to work the land readily in spring, and the rapid growth of the plant is greatly facilitated. 2. From experience it is proved that roots planted in ground freshly manured either with farmyard dung or compost, suffer from unequal growth and various kinds of insects. The quality also in most cases is inferior. It is better, therefore, to highly manure the previous crops and avoid the direct application of manure to the Beet-field. 3. As soon in the month of April as the land has become sufficiently warm (say 45° to 50° Fahrenheit) the sowing of the seed should commence, for according to all experience the earliest planted Beet are always the best. Drilling in all cases is to be preferred to sowing by hand. The cultivator should always bear in mind that the soil should be as fine as meal, yet not too loose so that the seed is not deposited too deep. 4. If sown by hand, the roots should be in 14 inch squares; within the radius of the Cologne fortification, a rich district, the row should be 12 inches wide and the roots 8 inches apart, so that they do not become too big. If drilled with a machine, the distance should not exceed 15 inches, and thinned out at 10 inches. 5. As soon as the plants are visible, hoeing between the rows should commence. The growth of the weeds is thereby checked, and also the ever-forming crust, which shuts out the air, is broken, and insects and vermin are destroyed. When the plants have six leaves, the thinning or singling out should be begun. Frequent hoeing subsequently is also necessary to keep the land from becoming bound. When in the month of July the heads of the roots show aboveground, which heads are totally useless for the sugar manufacture, their development must be checked by moulding-up, which operation also facilitates the getting up of the roots when ripe. 6. Leaves are to a plant what lungs are to an animal, therefore nothing damages the Beetroot more than taking off the leaves before harvest. Such a senseless course reduces the value of the crop one-half. 7. Roots, which are to be kept for several weeks or perhaps months before being taken to the factory, should be quite ripe when gathered, should not have been exposed to frost, and should have been harvested in a fresh or moist condition. The roots are seldom ripe before the middle of October, yet frequent frosts occur at the beginning of November; the Beetroot cultivator must, therefore, make haste to harvest his crop before the frost commences, and postpone all other work until the crop is secured. If a long drought has occurred, the grower should wait until a good rain has fallen, for roots which are harvested in dry weather and after a long drought will not keep. 8. The raising of the roots is best performed by means of spades or shovels; forks are not suitable for this operation, for, from experiment, too many roots get pricked, and pricks are a certain cause of decay, whereas a smooth cut with a shovel is not so injurious. In any case, however, wounding of the roots must be most carefully guarded against. 9. The leaves of the gathered roots should be cut off with a sharp knife close to the crown, also the under leaves, which in most cases are decayed, must be removed by the hand or the knife, because they induce rottenness, and if left on are troublesome during the washing process. 10. Roots which are to be conveyed to the factory within three or four days of gathering should be plentifully covered with leaves, because the sun's rays beget decay of the roots, and rotten roots produce dark-coloured juices, which are valueless. If the roots have to be taken to the factory later, they must be thoroughly well covered with earth, either in pits or heaps, so as to protect them as well from the heat of the sun as from the frost, and thus prevent their losing quality or quantity. The Beetroot cultivator should remember the well-known proverb, "Out of the earth, into the earth," *i. e.*, the earth not only produces but preserves. 11. The pits or heaps should be 3 feet wide and one spit deep, and of any convenient length. The roots should be laid with the heads outwards. The work of covering up as well as the removal to the factory should be carefully performed, so as to avoid the bruising or wounding of the roots, as their soundness is of the utmost consequence. Heaps which are 3 feet wide should not be more than 3 feet high, so as to keep the roots cool and prevent their sprouting. The roots should be covered up immediately, with at least 2 feet of earth, in order to avoid thoroughly the admission of air, for every change of temperature is injurious to the roots. Ventilation by straw-chimneys or other methods must be most strictly avoided. If the heaps cannot be completed before night, a thick layer of leaves should be used as a temporary covering to prevent damage by night frosts. 12. In carting the roots to the factory great care must be taken against bruising or breaking off the tap-root (the tap-root is richest in sugar), for roots handled roughly soon show black spots and quickly rot. 13. That the foregoing rules are attended to properly, the inspector appointed by the sugar factory will satisfy himself from time to time by actual observation."

If I do not mistake, these rules contain matter for reflection, and may suggest to the thoughtful English farmer some useful lessons in the cultivation and harvesting of the ordinary Mangel crop. The processes pursued in the sugar factories of the Continent are very simple. The roots, being first washed in a machine, are dried and pulped, the juice pressed out by hydraulic machines, followed by the usual refining process. At the great manufactory I have referred to at Cologne, at which 150 tons of Beetroot are converted into sugar daily, the process of extracting the sugar is unique, and far more perfect than at any other factory I had the opportunity of inspecting.

LOGIE.

Farmyard Manure.—Mr. JOHN PEAT introduced this subject at a recent meeting of the Logie Farmers' Club with the following remarks:—Of the many different kinds of manure applied to the soil for growing crops—whether home, foreign, or artificial—farmyard manure is the most efficient. Our green crops are vastly increased when the land is manured with that made by feeding cattle. It is generally allowed that from 2 to 3 bolls of Beans an acre more are grown with the same quantity of this kind of manure than from that made by wintering cattle, prepared and put on the land in the same state, besides the after crops being materially better. I think oilcakes, along with Turnips, and a mixture of other feeding substances, answers the double purpose best for producing beef and enriching the manure. By giving 3 lb. of cake daily to store cattle it helps the manure considerably. A great deal of waste and neglect goes on with the way the manure heap is attended to. Our farm steadings are in general not well adapted for having it properly kept. The most of our cattle courts are by far too much exposed to provide against this waste. Covered courts are necessary to keep out rain and draught. The warm manure from the stable should be regularly mixed with the older and less fermenting kinds, which improves the whole, and makes it uniform in quality. The drains from the different byres should, if possible, run into the courts, and their contents thrown over the dung. This enriches the heap very much, and is the cheapest and most effective method of applying the liquid to the soil. Ashes and scrapings collected about the steading ought not to be put among the other dung, but by themselves, and put on extra to the other dung on bare parts of the fields. Notwithstanding that chemists tell us decay and loss almost

immediately begin and go on in the heap, I find it better to suffer this, and apply it in a rotten state to the crops, especially to those kinds that are rapid in their growth, and come early to maturity. Turnips and Potatos grow a better crop with short than with long dung. A braird of the former is sometimes got by using well-rotted dung, where it fails with that unfermented and recently made. Most kinds of crops thrive best when the land is dunged just before sowing. Beans are, perhaps, an exception. I think that though the land is dunged in November or December previous, and allowed to lie in that seemingly careless state—spread on the surface and exposed to all sorts of weather till ploughed in spring at sowing time—the crop turns out as good as the more recently manured portions. With Turnips and other green crops it turns out quite different. It certainly saves labour at a very busy season, by dunging in autumn and winter; but they never do so well as putting it in the drill before sowing, and allowing exposure in the heap drill as short a time as possible.

Mr. JAMES M'LAREN, Spittal, said—I at one time had an opportunity, under favourable circumstances, of testing whether liquid manure of good quality would pay the expense of pumping and carting; but I, like most others, after three years' trial, gave it up as an unprofitable speculation. When liquid can be made available over meadows by natural gravitation, there can be no doubt of its utility; but when this cannot be done, I have found it profitable to retain the liquid and return it back over the manure-heap frequently; or allow the liquid to pass slowly over a tank or large ditch, occasionally coated over thinly with any waste substances, such as dried wreck or weeds, Potato tops, or peat moss, &c. I have for years collected several hundred tons of good Turnip manure from the last mentioned plan.

Mr. J. FINLAYSON, Pendreich—The enlargement of the manure heap on the farm is most important, and whatever can be got off weeds, gathered off the land, sawdust, or the like, should be collected and spread amongst it; for, though these may be almost valueless apart and in themselves, all of them, and many things else beside, become valuable manures when mixed together and decomposed. It would be an immense saving, on dry field farms especially, if the strawyards were roofed in, as, where there is such dependence generally placed on the breeding and rearing of stock, all the straw requires to be used for fodder; but, as matters stand, a little of the above-mentioned ingredients, or such-like, spread under the cattle occasionally, will help to keep them dry, and augment the manure-heap. I believe that sawdust is very much under ban as a manure, but having used it so long as bedding for my feeding cattle and milch cow sheds, I find that it absorbs a great deal of the surplus liquid in the byres, and becomes, when mixed in the dunghill and decomposed, an excellent fertiliser for Potato, Turnip, and cereal crops, and although I have not experienced it, I believe it will be more so for clay land.

Mr. CHARLES WINGATE, Corntown, said—It appears that lime and animal and vegetable substances have been applied to land for many ages, without any definite knowledge higher than the experience of repeated application producing similar results; but chemistry has to some extent dispelled our ignorance, by disclosing the component parts of animal, vegetable, and mineral substances. We are told that vegetables have carbonic acid, water, and ammonia as their chief aliment, in combination with certain mineral substances, as these are found in plants—namely, lime, potash, soda, magnesia, silica, sulphates, and phosphates; and as these are taken from the soil, the quantity requisite for the growth and health of plants becomes exhausted, or so much reduced that means are resorted to, to supply the waste, and bring the various substances immediately essential within the reach of the roots of the grain and Grass plants destined to provide food for man and beast; that carbonic acid and ammonia, through the agency of the sun, are decomposed and assimilated by plants; that potash is essential for cultivated plants, and is supplied to a large extent from decayed Clover and Turnips; that soda, which is usually in union with potash, is found in the dungheap; that sulphur is found in all plants, and phosphoric acid is essential to their healthy growth; hence the increased and increasing demand for various sulphates and phosphates now so familiar in commerce. The sulphates of magnesia and lime are useful in the production of Turnips and Potatos, and lime is held as the only reliable substance for the cure of "finger-and-toe" in Turnips; that nitrates and salts of ammonia also increase the growth of cultivated plants when accompanied with the suitable mineral substances already alluded to. Lime decomposes all vegetable matter in the soil, and corrects acidity in the organic matter; that it assists in the decomposition of certain salts whose bases form the food of plants: in fact, it is an excellent solvent when applied in proper quantity and at the proper time. In regard to farmyard manure: this seems, from every account, to be the most important of manures to the farmer, as it contains all the elements upon which plants live. The richer the food is of the stock kept, the richer will the manure be. The loss sustained by the soil owing to the withdrawal to market of grain, hay, and dairy produce, can only be supplied timeously by artificial manures, which are happily so well understood. Farmyard manure is required for the nourishment of Potatos and also of Beans, and it is of the utmost importance in the production of Clovers and Grasses. The question, however, before us is, what is the best mode of preparing this manure? It may be difficult to decide it, as seasons and places may be so unlike each other. However, there is one mode which is recommended; it is, that the liquids should be allowed to flow from the stables or byres into tanks or pits placed 3 or 4 feet below the level of the ground, the solids being placed on the top, so as to admit of their absorbing the gases as they escape from the ground.

DORCHESTER.

Agricultural Cottages.—The following is an abridgement of a paper on this subject read by Mr. HOMER, of Martinstown, at a past meeting of this club, to which we have not hitherto given publication. He said:—The subject I have to bring before the club this evening for discussion is cottage accommodation on farms, and the way in which the cottage system affects generally the employer and employed. In the first place I will look at the present state of the cottages in general in the agricultural parishes, which I consider insufficient to meet the wants of a growing population. Take, for instance, the census from 1851 to 1861, and you will find that there has been no increase in many parishes, and it is solely attributable, in my opinion, to the want of houses to live in, and many good labourers are under the necessity of taking houses or lodgings in the nearest town, where they have to pay a high rent, and walk miles to their work. Many do this during the summer months, when work is plentiful; but in the winter, when work is short, they are driven to the greatest extremities. I know it has been said that by building more cottages in your parish the population would increase, and the poor's rate would increase also; but this would be so very trifling under the present system of union rating that I do not think this argument holds good, the union being assessed alike for the maintenance of the poor.

We will now look at the present state of some of the cottages, and the improvements we think necessary to be made. For some years past, upon many of the large estates in our county, these improvements have been carried out, by building new cottages of a more commodious and better description, adding greatly to the comfort of the poor. Still there is a great deal more that ought to be done, as in many cases the old cottages have but one bedroom, and in the majority only two, and, where the families are large, both sexes are obliged to sleep in the same bedroom, which is a great evil. Every cottage should have three bedrooms, and all other appliances for decency, which would improve very much the morals and health of the labouring classes. There is another improvement I think would greatly add to the comfort of old people after they are receiving parish pay. At present these old people must either receive out-door relief and live with their children or friends or go to the union workhouse. The former they always prefer, if possible, as they term the latter a prison, the man and his wife being separated after having lived perhaps 40 or 50 years together. Still these old people are adding to the family, the houses being generally in a crowded state before. In this case I will suggest a plan, which I think, if carried out, would add greatly to their comfort, and that is, to build small cottages of two rooms on the same floor, one for a sitting and the other a bedroom, with small offices attached and a little garden, and call them charity or alms houses, the overseers of the parish to have the sole control of them, to put deserving old people in, rent-free, for their lives.

We will now come to our subject—viz., on cottage accommodation on farms. In many cases there are sufficient for the use of the farm; in many others only two or three are allowed for the carters and shepherds, and I know a few cases when even these are withheld. For some years past many of our landed proprietors thought it expedient for the good of the farm labourer to take the cottages (with the exception of the two or three before-named) and let them at a low rent to the labourers, so that the men should be independent of any particular master, and get his work at the best market. I will give these gentlemen full credit for their philanthropy, but I think I shall be able to prove that the labourer has not been benefited by the change.

We will now consider whether it is an advantage for men to hire their cottages, or to have them rent-free, found by the employers. Take first the man that hires his cottage, and depends for his work at the best market, and make a calculation of his earnings. The first six months from Lady-day to Michaelmas, I calculate (if a good workman) 12*s.* per week; from Michaelmas to Lady-day, 9*s.*; making an average of 10*s.* 6*d.* per week for the year. He will have to pay at least 2*s.* per week for house rent, fuel, and rates, leaving 8*s.* 6*d.* per week for his maintenance. This I believe to be up to the general average of wages for out-door labourers, as there will be several weeks lost by bad weather and other things, and not always certain of getting work. Take another instance of a man renting his house. This man may hire himself for a year as a general labourer at 10*s.* per week; 20*s.* and his liquor extra for harvest. This man will have to pay his rent and rates, and also to buy fuel, which will leave him barely with 9*s.* per week. This man, however, I think better off than the man always depending on the labour market, as he has his regular pay, and loses no time from bad weather. The two cases that I have brought before you will not apply generally to all men renting their cottages, as there are some who from want of skill and perseverance cannot earn the wages first described, and others will not hire themselves by the year; consequently during the winter they are often out of work, and poaching and petty thieving are resorted to.

We will now take the case of the yearly servant, who is provided with his house on the farm. He is hired for a year at 8*s.* per week common work, to have piece-work, such as hedging, draining, mowing, reaping, and Turnip-hoeing, which will add from 1*s.* to 2*s.* per week more to the wages (this, however, must depend on the man, as some will earn much more at piece-work than others); to have his grist—from 2 to 4 bushels of Wheat per month, according to his working family—at 5*s.* per bushel, cottage, garden, and rates free; fuel, such as furze or wood faggots, for cutting, and generally coals given to some extent; from 20 to 30 lug of Potato land, the ground prepared for planting without pay; and liquor found him for the year. This, I calculate, is equal to 12*s.* or 13*s.* per week, besides all the comforts arising from taking his meals in his house, and being always near his work. In many cases gristing is not allowed, and 1*s.* per week more is given in wages: but the men in general prefer the former, as they have their Wheat at (on an average) 1*d.* per lb., and their bread is much better for family purposes. These men, I consider, are 2*s.* per week better off than men renting their cottages and depending on the labour market.

We will now look at the disadvantages that both the occupier of land and the labourers are under in too many cases from want of cottage accommodation to secure certain labour for the whole year. We all know that good farming cannot be carried on without sufficient manual labour, and certain labour cannot be secured without cottages for the men to live in attached to the farm or in the parish. We will take, for instance, a farm requiring 10 cottages, and it has only five; the consequence is, you must fill those houses with large working families, if possible, who in many cases are crowded together regardless of common decency. It also causes constant change, because as the young men grow up they leave their father to look out for themselves or get married. The consequence is, you lose a good young man for want of a cottage to put him in, and the father is obliged to leave too, as his family is not large enough; so a constant change is going on yearly, which is a great disadvantage to both parties. Take another instance; there are farms situated a mile or more from any parish, with only two or three cottages,—and I know cases of this sort; the farmer must then depend on the neighbouring parishes for his labourers. We will allow there are plenty there to be got, and they are hired at an extra 1*s.* per week. These men will have to walk a mile every morning and every night, which will take one hour every day, or 313 hours extra time, 626 miles extra to walk during the year more than the men living on the farm. These labourers, however, are very uncertain, and the farmers frequently put to great inconvenience in the summer, when the men can get work nearer home.

We will now consider the general effect on the labourers, farmers, and landlords, of having sufficient cottages attached to the farms. Take the labourer first. There cannot be a doubt but every man should be near his work and comfortably housed. The advantage he derives is one of the greatest luxuries of his life. He takes his meals at home with his family by the fireside, and when wet and tired he is near his home. Another advantage he has, is the time he can spend in his garden during the spring and summer months, more than the man that has to walk to and from his work. The farmer derives the benefit of having certain labour without fluctuation, the work of the farm going on regularly; his men and their families being near, he has an opportunity of observing their general conduct, and also assisting them in sickness, and in various other ways adding to their comfort. But here I must observe that he does not get his labour cheaper, as the cottages are filled for the spring and summer months; but in the winter there is in general more than is really required for the ordinary work of the farm. The landlord, by building cottages and letting them with the farms, would also derive great advantage, as I believe every farm with proper cottage accommodation is worth 10 per cent. more than it is without it, besides having his farm cultivated in a much better way.

Let us now see what number of cottages, in our opinion, is required for every 100 acres. This must depend in a great measure whether it is an arable or pasture farm, the former requiring considerably more labour than the latter; therefore there can be no general rule laid down. Small farms also require more in proportion than larger holdings. We will, however, take an arable and sheep farm of 400 acres and upwards. These farms, I calculate, ought to have at least two cottages to every 100 acres at the command of the tenant. This, I think, would be sufficient to carry on all the ordinary work of the farm with some extra men for harvest, &c. I have now endeavoured to bring before you the principal points on which this subject bears, and have put my ideas in as few words as possible, so that as much time as we have should be spent in observations to be made by the members present.

Reviews.

The Irish Land Question. By James Caird. Longmans.

Our recent notice of this pamphlet, of which we are glad to hear that a second edition is called for, was in one particular barely accurate, and in many particulars it was deficient.

It is not right to say of Mr. Caird that he would even, "as it were," enforce the lease of land for a term of years upon either landlord or tenant. Confident though he be, because of its proved influence elsewhere, in its power to promote agricultural enterprise, and industry, and fertility, and general prosperity—there is yet no proposal in his pages to interfere by direct enactment between the owner of the land and any reasonable use whatever he may desire to make of his property. Mr. Caird does, indeed, admit that the demand for fixity of tenure which Irish farmers and their political advisers are now making, extravagant in its intended sense, yet is "sound in principle to this extent, that the operations of agriculture, except where of the most primitive kind, naturally extend their effects beyond a single year, and outlays made by the farmer in cultivating and enriching his farm cannot be recovered in the first crop."

What he proposes, therefore, is not that a landowner

should be hindered from making any agreement just as now with a tenant, for as short a time as he may please, but that, where no agreement exists, the presumption of law which under such circumstances now gives the tenant 12 months' peaceable possession should, except for failure to pay rent, give the tenant peaceable possession for what, in the face of costly outlay, certainly is not unreasonable—a period of at least five years. And he recommends that various specified encouragements to a voluntary grant of leases for a still longer period be also given by enactment.

The following are the changes which he recommends for the consideration of Government:—

"1. Presumption of law as to buildings and other permanent improvements to be altered.—Tenant, on eviction, to be entitled to compensation at their value for all such as have been made by him. Landlord to be freed from all claim on granting lease of adequate duration, at present rent.

"2. A tenant holding without written lease to be secured in possession by presumption of the law (except for failure to pay rent) for an equitable term, say five years, sufficient to recoup the expenditure necessary to a proper system of cultivation.

"3. Encouragement to be given to the system of leases for a fixed term, by the Government loans for land improvement being made conditional on leases of not less that 20 years being given to tenant.

"4. Tenants for life and trustees to be empowered to grant farm leases, and charge the fee simple with compensation for improvements.

"5. Equitable claims already existing under Ulster Tenant-Right to be recognised by law. But where it is thought by both parties desirable to compensate and extinguish them, the extent and equitable value of the right to be ascertained, and compensated by the landlord, either by giving the tenants a lease of adequate duration, on terms agreed between them, or by paying the value of the right, for which latter purpose landlords to be empowered to take Government loans, to be charged on their estates in the same way as land improvement loans. These loans to be limited to a fixed sum yearly.

"6. In all cases of dispute, whether in regard to the value of existing improvements, and by whom executed, or the nature and value of tenant-right, power of reference by either party to some competent court, or special commission, whose decision to be final.

"7. No notice of eviction to be legal unless published at the proper time in such newspapers as the special court or commission shall from time to time appoint."

These proposals, in addition to Mr. Bright's plan of giving Government assistance to tenants willing to buy their farms from owners willing to sell, are what seem to Mr. Caird to embrace the main conditions required to enable the Irish people to work out for themselves the agricultural prosperity of their country. And to a defence and discussion of these proposals the pamphlet is addressed.

Farm Memoranda.

Isle of Ely (Aylesby House, Chatteris): *Nov.* 13.—The summer of 1869 will long be remembered as one of the most remarkable that agriculturists have experienced. The summer heat of April, and the floods and wintry cold of May and June, the alternations of heat and cold, dry and wet, during the summer months, have left impressions and produced results that will not easily be forgotten. And the autumn and early winter appear to be equally strange and exceptional. The 9th and 11th of October reminded us of the intense heat and oppressive temperature of the ever-memorable summer of 1868, and were quickly followed by snow and frost equal in intensity to what we generally look for in mid-winter—so sudden and so severe have been the changes. But one of the most striking peculiarities of the last two months has been the almost incessant gales that have been blowing. Instead of the proverbial November fogs and damp atmosphere, we have had November dust blowing in clouds, not only from the roads, but from the fields, in some instances leaving the Wheat, where sown, well nigh uncovered. Drifts of dust like snowdrifts, except for colour, have accumulated against hedgerows, and have had to be again carted on to the land. Five times since the completion of harvest we have seen the thatch blown from the corn stack, and many may now be seen half stripped, and still the wind is blowing a gale.

Threshing has been proceeded with, with great difficulty, and it has sometimes appeared as though sacks and people must all be blown away together. The tempestuous weather has doubtless been one agent in occasioning the supplies of English-grown Wheat to be shorter and more limited at market; but the foreigner, as though anticipating our difficulties, has kept us most liberally supplied—too much so, probably, for his own interest as well as for ours, but for the benefit, doubtless, of the community at large; once more confirming the truth of the old adage, "It's an ill wind that blows nobody any good." The price of Wheat is now quite unremunerative to the grower, and corn-producing farms, where but few stock can be kept, will yield a poor return for the capital and skill employed in their cultivation. On farms where large quantities of cattle and sheep are bred and fattened the prospect is brighter. Meat is high, and likely to continue so, and grazing is conducted at a good profit; and happy are the men who are favoured with the facilities for meat-making as well as for corn-growing, as the profits on the one will help to recoup them for the losses on the other, and they have a fair chance of making "both ends and the middle meet;" but we fear it will be far otherwise with some, less favourably circumstanced.

The threshing test proves the yield of Wheat to be extremely various. The heavy laid crops turn out badly, whilst some of the brighter and up-standing crops are yielding very well. The quality of the bulky crops is far better than could have been expected, although the yield in many instances is fearfully short. The better class of crops—say about 50 per cent. of the whole—will produce an average yield; the remainder will be seriously deficient, probably 30 per cent. below an average. These are the conclusions we have arrived at, from the knowledge obtained by the threshing test up to the present time.

Barley is yielding rather worse than we expected; probably the difference between our estimate and the actual yield will be about a quarter per acre.

As far as we have tried the Oat crop, we are inclined to regard it as the most satisfactory on the farm; but the good yield is to some extent neutralised by the low price. Beans and Peas are comparative failures.

The crop of hay was good, and has been followed by good average crops of Mangels and Kohl Rabi. We are taking them up and storing them now, and they are turning out well. Coleseeds were a good crop, but the cold wind and frosts of the last week in October did many of them serious mischief, reducing their value 30 per cent. or more. Potatos vary very much, but are reported as largely diseased. The Wheat seeding lingers. We have finished, but many people are still busy. The late and long harvest made the preparations late, and threw work very much "in heaps," a state of things always undesirable and perplexing. Much land too has been unfit to sow for want of moisture, and even now is too dry and unyielding. We are ploughing some stiff land for Beans, and it breaks up very hard and dry at bottom. Wheats, where early sown, come up very slowly, and look to want a little warmer and moister weather. Foot-and-mouth disease has appeared amongst us, but not generally in a severe form, and we have heard of no losses of life amongst the cattle. Importation of foreign cattle and disease appear to resemble cause and effect, and if we are to be free from the one we must forbid the other. *A. S. R.*

Meese of Berwickshire: *Nov.* 13.—The legitimate test of threshing has now confirmed, what might have been suspected from the turning over and carting out of stacks at the close of harvest, that our crop has suffered more from bad weather than it has done for these 12 years past. Fully one-half was a-field when the rain came on, Sept. 10. Much that was in stack had better been out, and badly built stacks were drowned by continuous rain. Things were worst under active management, as this made the work of twice or thrice carting. Slow coaches were content to keep their stooks a-foot, and wait for fair weather. And a right wind it was when it did come, for it soon dried everything; but colour was lost, sprouting more or less general, and very bad in sheltered places.

Of course, it comforted us during that weary time of rain and heat to learn from our "leading journal" that the bulk of the crop in Scotland was secured, and it would benefit the Turnips. And so it did; but winter's wind came too soon after this, and cut down the tops, so that we need look for no further increase. As it is, the crop is quite superior to any we have seen these three years past. There is not much Grass in the fields for ewes, now that tupping is done, but there will be no lack of Turnips for them when the time comes, and artificial food won't do instead of Turnips; here, at least, we find it so. Although there have fallen 2½ inches of rain since harvest, yet the ground is dry and firm for folding of sheep and storing of Swedes. Streams have been very little moved, and water is rather scarce for threshing mills, much to the advantage of those that travel for hire.

In spite of legislative wisdom and police surveillance, foot-and-mouth disease (our name of murrain is less clumsy) has kept its line across country. To well-conditioned cattle it does no harm, but on lean beasts and cows it is oppressive: not so much so, however, as the Act, which would actually compel a beast to remain in the field where first attacked, when he would be so much more comfortable in a straw-yard or shed. Care may delay the march of the disease—nothing can stop it; and we would rather take our chance and be free from inspection. Why not compel farmers, "in the interest of the consuming public," to keep twice as many cattle as they at present think they are able to do? *J. T.*

North Riding of Yorkshire: *November* 17.—Since the date of our last report we have in this district experienced weather of a very chequered description. Twice within the month we have had a cover of snow and about 6° of frost, and accompanied with strong north winds. We have had this interspersed with some days of fine mild weather, but the general character of the month has been wintry.

Several farmers brought their fatting cattle into the yards during the first week of November, and all store cattle have since been housed, being quite three weeks before the average time of housing.

A commencement has been made with pulling and storing the root crops. Swedes are a full plant, but in size the bulbs are short of an average. White Turnips sown early are in many places a failure; the late sown have done better, and are pulling off fairly; but, on the whole, our roots can scarcely come up to an average.

Potatos proved a good crop, and very little disease in this district. Some farmers sold in the field at from 15*l.* to 18*l.* an acre. The price now is about 3*s.* a bushel.

Wheat is threshing out quite as well as was expected, but on some farms the yield of Barley is complained of.

Store cattle have gone up in price, and sheep very much so, the latter quite 10*s.* a-head from the prices current at this date last year.

Foot-and-mouth disease still lingers in the district, and in the case of fat cattle we hear very serious losses have been sustained.

Early-sown Wheats have come up well, and so far look promising. *W. J. M.*

Caprera.—We have heard but little of late about Garibaldi's doings. Some of his most melancholy anniversaries occur in this and the forthcoming autumn months, and his best friends must rejoice at the almost perfect certainty that nothing this year will tempt him out of his island home—that home which he would never have quitted for his disastrous exploits of Aspromonte and Mentana, had not the seductions of some of his friends got the better of his sound, but not sufficiently self-relying, judgment. At Caprera, and away from the turmoil of politics, Garibaldi is himself again, and shows himself possessed of the practical brains as well as the kind heart for which the world gives him credit. There can be nothing more charming than the account some of the General's recent visitors give of the manner in which his love and labour have in little more than ten or 12 years contrived to turn a bare rock near the coast of Sardinia, not only into a smiling garden, but also into a richly productive estate.

It was natural to expect that a man of Garibaldi's simple tastes and abstemious habits would have chosen his island hermitage for the mere sake of its barren and desolate look, and that the tilling of a few acres for Wheat, and the growth of the commonest vegetables, should have met all his requirements. But the cultivation of the mere necessaries of life would not have filled up the cravings of an extraordinarily active mind. Unlike most of his countrymen, Garibaldi did not gratify his ambition by setting masons to work. He charged Nature with the embellishment of his home; and so marvellous is that Mediterranean climate, that in this short time luxuriant groves of Laurel and Myrtle have sprung up to overshadow his lowly roof. All round, in the hollows, wherever shelter could be found or made, the Orange and Lemon are growing in thickets, while on more exposed sites there spreads a wide plantation of Olive and Almond, overtopped by the Cypress, the Pine, and even the Date Palm, though the latter bears no fruit. Garibaldi himself drinks no wine, but he is, nevertheless, a wine-grower on a large scale. His hill sides are covered with low, closely pruned Vine stocks, an importation from the most celebrated Piedmontese and Tuscan vineyards; the young Vines, planted in straight rows at a mètre's distance from one another, are never suffered to rise above 2 or 3 feet from the ground, and never bear more than two or three bunches of Grapes. By this thrift the hospitable General is enabled to place choice wine before the guests who crowd upon him, while the Marsala and Malaga Grapes growing at will on his lofty arbours supply the dessert with such luscious fruit as the south alone knows of. The General's orchards do not yield many Apples, Pears, or Peaches, but the Prickly Pear and the Carob Tree are so prolific, that their produce is thrown with a full hand to fatten swine. Garibaldi's dairy is supplied with milk and butter by six cows of the tall Cremona breed, but numerous herds of cattle roam at large in the island, needing no shelter at any time in the year, and providing the establishment with mountain-fed butcher's meat, in return for the Lucerne and Clover which the General coaxes out of artificial meadows, where the Grass is cut five times in the year. The same constant prosperity does not attend all the General's undertakings. All his efforts to root out a poisonous weed with which the island once teemed have not been altogether successful, and the propagation of his flocks and herds is thereby sensibly checked. In the same manner the attempt to acclimatise the silkworm has turned out a failure, the soil being unpropitious to the growth of the Mulberry. Garibaldi, however, points with exultation to the flourishing condition of his Potato fields. No species of the favourite tuber is neglected, and there is no treat he so heartily enjoys as a dish of his own Potatos, baked under embers, with his own hand, in the open air—a treat which calls up reminiscences of his camp life on the Tonale or the Stelvio, or of his pioneer's experience in the backwoods of Mississippi or the Plate. Garibaldi indulges in the luxury of a flower-garden, but the bees which he has lately introduced, and of which he has already nine hives, "the object of assiduous and almost paternal care," are not dependent on his beds for their honey, but cull it out of the fragrant shrubs with which both Caprera and the adjoining Maddalena are covered. To get hives to do well on so gusty a spot as that bleak rock of Caprera has been accounted little less than a prodigy. On the coasts of his own island, all round Maddalena and along the shore of Sardinia, Garibaldi's nets have the pick of the Mediterranean fishery; while quails, partridges, and wild goats afford him plentiful home sports, without reckoning the pheasant and the wild boar, with which he has stocked some of the most unreclaimed heaths of his domain.

We must admit that Garibaldi has not been single-handed in these achievements. His right and left hands have been one Barberini, from Parma, for many years the General's companion at Caprera, and a German named Weber, whose aid and example supplied theory and practice to a man who could bring to his work little more than an amateur's earnestness and good-will. It should also be borne in mind that the General's friends are legion, and there is nothing in the shape of garden implements and agricultural machines, nothing under the denomination of seed, plant, or graft, of dead or live stock, nothing that could minister to his wants or gratify his fancy, that has not been forced upon him. Still, it is not every man who could turn such advantages to so good a purpose. Garibaldi, however, loves work for work's own sake; and he brings to his work that energy of will and that magnetic ascendency over other people's will which fit a man for the task of a ruler of men, and enable him to wield all subordinate forces as a mere instrument, whether the work in hand be the conduct of a campaign, the government of a state, or the mere management of a large farming establishment. It is, in the meanwhile, not a little interesting, to see a man who has played so striking and yet so unequal a part in contemporary events, who has had his sublime, and again his next-door-to-sublime moments—to see such

a man, we say, give so solid an evidence of strong sterling sense in a matter in which he takes counsel from himself alone.

It would be well for Garibaldi's countrymen if they would spare a little of their admiration for their hero in action to bestow it on their hero in repose. The world has heard enough of Garibaldi as a Camillus or Marcellus. It would be well if Italy could appreciate his worth as a Cincinnatus. It little matters whether or not the Italians have learnt from Garibaldi how to fight, for others have in a measure done that for them, and they can now afford to think their fighting days are over. But it would be well if they would learn from Garibaldi how to work; if they would strive to make as much of their rich plains and verdant hills as he has done of a naked rock, which before his time was hardly fit for human habitation. A body of well-meaning gentlemen have been lately "inaugurating an Agricultural and Sylvi-cultural Institute at Vallombrosa." It is to be hoped that a school of husbandry under those classical and monastic shades may have better results than to afford sinecures to a new batch of Professors in a country where the teachers so very nearly outnumber the pupils; but agriculture in Italy, unless we are greatly mistaken, is less in want of public help than of private exertion. It is not of model farms that it is in need, but of model farmers—of gentlemen and men of subsaance to speed the plough, to take the work from the hands of the mere labourer, and bring intelligence and energy, as well as capital, to multiply the forces of mere toil. *Times.*

The Poultry Yard.

On Marketing Poultry.—One of the principal things that stand in the way of farmers realising a good price for their poultry is the wrong time it is sent to market. As a rule, the poorest time to sell poultry in a great city is from after August till a week after Christmas. The market is then supplied with choice game, while every butcher's stall is hung with most tempting cuts of stall-fed beef. Some extra poultry will sell then at fancy prices, but there is really no demand for the great quantity of ordinary birds that come in every day, both in cars and in farmers' waggons. They are disposed of to the poorer class of customers, at prices considerably lower than is obtained for ordinary beef. As a rule, live poultry sells the best in the market, and this is particularly the case with spring chickens, that are likely to present a scrawny and bony appearance when dressed. The crates in which they are sent need not be made of expensive material, and they should not be heavy, as this would add to the cost of transportation. They should have a good floor, and strong partition or end pieces; but the sides and top may be formed of laths. Shippers often err in not having their coops roomy enough to accommodate the birds, and it is often the case that many die in consequence.

To ensure dressed fowls keeping well, they should have no food or drink for at least 12 hours before they are killed. For the same reason, it is not considered best to draw them or cut off their heads, as it is the air that goes inside of the carcase that principally causes the flesh to become tainted. If the head is cut off—and chickens look best beheaded—it should be done with a sharp knife or hatchet, and then the blood should be carefully washed off, the skin drawn forward over the neck and tied. If the skin of fowls is of sufficient strength to permit of their being plucked without tearing, it is better not to scald them, as their appearance, after a little time, is injured thereby. The plucking should commence as soon as the bird is dead, and before it becomes cold. Remove the wing and tail feathers first, then the smaller ones. Pin feathers may be removed by means of pincers.

If it is desired to kill the birds without beheading them—and turkeys are most saleable that have the heads on—a cord may be tied around the wings, fastening them to the body; then hang them on a pin, and with a sharp knife sever the under part of the neck, or simply cut the large blood vessels in it, being careful not to sever the neck bone. In this manner the bird will die, and no blood will come on the feathers.

The birds, like larger animals, should hang in a cool place till they become cold before they are packed; otherwise they would soon become tainted. The packing should be done in a nice clean box, that will help, and not injure, sale of the contents. If there are several sizes or kinds of fowls, they should be sorted, and packed in separate packages, the aim being to have the lot in each box as nearly uniform as possible. In placing them in the boxes, they should all lie in the same direction, in layers, with the breasts turned up. If you have clean Rye, or unbroken Wheat-straw, a little may be put between each layer; otherwise, use nothing between them. Pack them as closely as you can, without pressing them out of shape. Poultry treated in this way will sell, if sent to market at the right time. *Prairie Farmer.* [Every market has its own rules, and American rules are by no means necessarily obeyed here.]

Rearing Chickens.—The following are some rules that it would be well to observe in rearing chickens:—1. Keep the chicks in a warm, clean, dry coop. 2. Don't let them run out in the morning until the sun has removed the dew from the Grass. 3. Let them have plenty of food and fresh water. 4. The coop must be rat-proof. 5. Don't let the chicks have access to slops or stagnant water. 6. See that they are housed when a storm is threatening.—Rules for keeping the henery in proper order: 1. Clean out every day, and sprinkle a handful of lime. 2. Sprinkle ashes over the floor two or three times a week. 3. Frequently change the straw or hay forming the nests, and whitewash the nest-boxes at every renewal, and twice a year thoroughly whitewash the whole interior of the house. —Rules for the management of setting hens: 1. Set the hen in a place where she will not be disturbed. 2. Give a large hen 12 or 13 eggs, a medium-sized one 10 or 11, a small one eight or nine. 3. Don't let the hen come out of the setting-room until she has hatched, but keep her supplied with gravel, food, and water. 4. When the chicks are hatched leave them in the nest for eight or 10 hours. 5. Don't meddle with the eggs during incubation; turning them once a-day, and all such foolishness, is apt to prevent the eggs from hatching. *Rural New Yorker.*

Calendar of Operations.

NOVEMBER.—*Subsoil* all lands ploughed this month if the subsoil require loosening. From the soleing of the plough and the treading of the horses in the bottom of the furrow, a much larger breadth of the country is bottom-bound by heath-pan or moor-band, than is generally credited, and now that ploughing and subsoiling by steam can be done at one operation, the work should be so done at this season. Moor-band exists in calcareous and limestone soils and clays, as well as in ferruginous, sandy, and gravelly soils, &c. On the former there is seldom any difficulty experienced in letting in the air and water freely to the subsoil, so as to deepen the staple. In subsoiling it must ever be borne in mind that, as a rule, to double the depth of the staple, is to double the area of the field subsoiled.

Draining should now be executed on all lands requiring it. The pipes or stones should be put in and covered close up to the digging, so as to obviate harm from the weather and falling in of the sides.

Straightening open Ditches and water-courses is best done in the summer time, when the flow of water is low. There are, however, many cases where growing crops so interfere that the new cuts cannot be laid out until all the crops in the way are harvested; but the sooner the work is done in November the better, both as to opening the new cuts and filling up the old ones with the earth excavated therefrom. A drain should be put in the old cuts before the earth from the new ones is carted or wheelbarrowed in to level them.

Fences.—Finish plashing and switching thorn and other live hedges. Grub up crooked and superfluous fences, and plant new ones where required. For steam culture the boundaries or opposite sides of fields should be parallel and rectangular if possible. Where there is a command of stone from quarries, limestone walls make the best fences, and they are cheaper in the end than dry stone dykes, as they occupy much less ground, require fewer stones to build them, last longer, are free from the objection of sheltering and nursing weeds and vermin of various kinds, and they afford better and healthier shelter for the live stock of the farm.

Land-fast Stones and other obstructions to steam tillage and subsoiling should be removed. Many stones that are land-fast to horse-teams can be loosened and brought to the surface by steam, others require very little manual labour to enable steam trenching implements to turn them aside. From 20 to 100 tons of large stones per acre are thus being removed by steam itself in a manner almost incredible to those who have not seen the work done. There are, however, large stones that require to be blasted with blasting powder, and sledged off before the steam-plough can be started. As a rule, very few improvements pay better than the removal of large stones, and the deepening of the fields they occupy, such soils being naturally grateful, both in seeding and harvest for all they get.

Pools of Stagnant Water Remove Everywhere.—If Wheat after autumn fallows has been water-furrowed, it should be gone over as occasion demands, as after a heavy storm, &c.; and any clod that has fallen in, or setting which has taken place, should be carefully removed and spread thinly over the ridge. Where lands are being ploughed, cross water-furrows, if required, should be opened with the spade daily as the work advances, so as effectually to remove any rain-water that may fall overnight or between yokings during the day, and thus obviate stagnation and harm. Thorough under-drainage should render cross open water-furrows unnecessary; but it too frequently does not do it during very heavy November storms. Pools of water should not be allowed to stand in grass-lands, or on farm roads. The ditches should also be gone over, and the mouths of the main drains examined, so as to detect in time any stoppage that may have taken place, if they are not discharging as they should do. As a rule, half the expense will keep things right that is required to put them to rights when once they are allowed to go wrong.

Fatting stock as they take to their winter food will bear a little forcing. The expression is, we are aware, not relished by many, any more than the practice itself, but all who have any successful experience in the matter know that unless their bullocks and sheep now begin to lay on carcase-weight fast, it will not pay. It is simply manufacturing the produce of the farm into beef and mutton, and whether we use a chemical figure or a mechanical one, or the more correct expression, a combination of the two, the forces must be got up to their full effective action to produce so much increased carcase-weight daily, or the manufacture is a failure, ten to one, for the whole season. Hence the practical rule—start your beef and mutton manufactories into full play in November. *W. B.*

Notices to Correspondents.

Condiment for a Horse, or Ox. *M. A.* Fenugreek powder, 4 ounces; Pimento do., 1 ounce; Caraway seed do., 1 do.; Anise seed do., 2 drachms; Linseed cake meal, 1 lb. If a mineral tonic is wanted, add sulphate of iron, 4 drachms. The above to be well mixed and divided in 10 parts for daily mixture with the ordinary food.

Gas Water and Lime, &c.: *P. P. Elliot.* We shall endeavour to obtain the answers to your many questions, and send you them by post.

Scarlet Clover: *Sub.* A second cut is hardly ever attempted—the land is in good season for Turnips after the first.

JAMES CARTER AND CO. beg to call attention to their Stock, as under, full particulars of which are given in their DESCRIPTIVE CATALOGUE. Copies forwarded post free on application.

SPRING FLOWERING BULBS and PLANTS, for Shrubberies.
PALMS, for House Decoration.

JAMES CARTER AND CO.'S COLLECTION of PLANTS.

No. 1, containing	132	Hardy Plants, price 25s.
2	264	Spring-flowering Bedding Plants, price 42s.
3	50	Soft-wooded Greenhouse Plants, price 35s.
4	72	" " " " 60s.
5	50	Stove Plants, price 70s.
6		Half No. 5, price 38s.
7	52	Hard-wooded Greenhouse Plants, price 75s.
8		Half No. 7, price 38s.
9	48	Hardy Herbaceous Perennials, price 16s.
10	100	" " 30s.
11	6	Fruiting Vines, in pots, price 30s. and 36s.
12	12	" " " 60s. and 72s.
13	50	Hardy Ferns, price 21s.
14	25	Greenhouse Ferns, price 15s.
15	12	Stove Ferns, price 16s.
16	36	Cacti and Succulent Plants, price 21s.

NEW TRICOLOR GERANIUMS, to be distributed in the Spring of 1870.

New Zonal Tricolor Geraniums	Cliveden Bedding Plants
New Ivy-leaved Geraniums	New Hardy Clematis
Variegated Geraniums of 1868	New and Rare Plants
New Double Geraniums	New Coleus

ORNAMENTAL FOLIAGE PLANTS.
Stove, Greenhouse, Conservatory, and Outdoor Plants, for Autumn growing.

M'LAREN'S PROLIFIC RASPBERRY.

Collections of TREES and SHRUBS (see Catalogue), consisting of Standard Ornamental Trees of large size.

Plants for Hedges	Transplanted Forest Trees
Evergreen Shrubs	American Plants
Rhododendrons	Coniferæ
Evergreen Trees and Shrubs	Hardy Climbers and Shrubs
Herbaceous Pæonies	Herbaceous Plants

FRUIT TREES.

Apples	Figs	Peaches
Apricots	Gooseberries	Plums
Cherries	Medlars	Pears
Currants	Nectarines	Quinces

Raspberries, and other miscellaneous Fruit Trees.

NEW CONTINENTAL STRAWBERRIES.
STRAWBERRIES, older varieties.
VINES.
ROSES:—

Provence	Moss	Damask	Rosa Alba
Hybrid China	Hybrid Bourbon	Climbing	China Roses

Austrian Briars and Double Yellow,
Climbing Perpetual Musk,
Noisette, Tea-scented, Hybrid Perpetual, Perpetual Moss,
Ile de Bourbon.

COLLECTIONS of ROSES.
Dwarf Hybrid Perpetual Roses, in pots, for Forcing.

JAMES CARTER AND CO., 237 and 238, High Holborn, London, W.C.; and Crystal Palace Nurseries, Forest Hill, S.E.

Autumn Gardening.
SEAKALE, ASPARAGUS, and RHUBARB ROOTS, &c.

JAMES CARTER AND CO. offer the following, in splendid quality:—
SEAKALE, extra fine roots, for Forcing, 15s. per 100.
" very fine roots, for Forcing, 10s. 6d. per 100.
" large, 7s. 6d. per 100.
ASPARAGUS, Giant, extra large plants, for Forcing, 10s. per 100.
" " strong, 3-yr. old, 6s. per 100.
" " strong, 2-yr. old, 4s. per 100.
RHUBARB ROOTS, Baldry's Scarlet, extra strong, 1s. 6d. each
" other varieties, extra strong, 8s. to 12s. p. doz
MUSHROOM SPAWN, best Milltrack, 6s. per bushel.
" the French, 4s. to 6s. 6d. per box.
JAMES CARTER AND CO., the Royal Seedsmen, 237 and 238, High Holborn, London, W.C.

Autumn Sowing.
ODAMS'S NITRO-PHOSPHATE or BLOOD MANURE for WHEAT.—This Manure, specially prepared for Autumn Sowing, is rich in Ammonia, Phosphates, and other ingredients required for the healthy growth of Grain Crops. Analysis of Blood and the grain of Wheat show that they are nearly identical in composition, hence the value of Blood as an ingredient in Manure. It may be applied at the rate of from 3 to 4 cwt. per acre, according to the condition of the soil, either drilled with the seed or sown broadcast; if the latter, it should be well harrowed in. Prepared by the Patent Nitro-Phosphate or Tenant-Farmer's Manure Company, whose Members are Cultivators of upwards of 50,000 acres of land, which has been for years under management with Manures of their own manufacture; consequently the Consumer has the best guarantee for the genuineness and efficacy of the Manures manufactured by this Company.
Particulars will be forwarded upon application to the Secretary, or may be had of the Local Agents. C. T. MACADAM, Sec.
Chief Offices, 109, Fenchurch Street, London, E.C.; Western Counties Branch, County Chambers, Exeter; Irish Branch, 40, Westmoreland Street, Dublin.

LAWES' WHEAT MANURE, for AUTUMN SOWING, now ready for delivery.
All other Manures and Cakes as per Price List, supplied on the lowest terms. Apply for prices, &c., to JOHN BENNETT LAWES, 59, Mark Lane, London, E.C.; Dublin, and Shrewsbury.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)
Have now ready for delivery, in fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES.
Also Genuine PERUVIAN GUANO, and NITRATE of SODA ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c. E. PURSER, Secretary.
Offices, 116, Fenchurch Street, E.C.

REES AND CO.'S BIPHOSPHATED PERUVIAN GUANO (Registered Trade Mark, Flying Albatross), is now ready for delivery in quantity and in fine condition. It is believed to be the best Artificial Manure yet produced. Its base is Peruvian Government Guano; it contains 21 per cent. of Soluble Phosphates, 6 to 7 per cent. of Ammonia with Salts of Potash. See reports of Dr. Voelcker, Dr. Anderson, Professor Way, Mr. Ogston, and Mr. Sibson. Delivered in 2 cwt. bags, each of which is secured by a london seal, bearing the Company's Trade Mark. The analysis is guaranteed so long as the seals remain unbroken.
Agents for the North of England—Messrs. Keighley, Maxsted & Co., Hull.
Agents for South-West of England—Messrs. Wm. Smith & Co., Bristol.
Agent for Kent, Surrey, Sussex, Essex, and Middlesex—Mr. John G. Barry, 8, Old Jewry, London.
Agents for Scotland—Messrs. Richard Connor & Co., Glasgow and Aberdeen.
Agents for Ireland—Messrs. R. F. Gladstone & Co., Dublin.
Price £11 per ton, delivered free to Rail or Wharf in London.
REES AND CO.'S Biphosphated Peruvian Guano Company (Limited), 32, King William Street, London, E.C.
PERUVIAN GOVERNMENT GUANO, £13 10s. per ton.

GENUINE TOBACCO PAPER, of the finest quality, 10d. per lb., or 84s. per cwt.
WILLIAM RUSHFORTH, Nurseryman and Seed Merchant, Leeds.

TOBACCO TISSUE,
for Fumigating Greenhouses. Will destroy all the Insects, and not injure the Plants, and Burns without the assistance of Blowing. Price 3s. 6d. per lb., carriage free. A reduction in price for large quantities.
To be had of Messrs. R. ROBERTS AND SONS, 112, St. John Street, Clerkenwell, London, E.C.; and of all Seedsmen and Nurserymen.

The Cheapest and Best Insecticide.

DUTY-FREE TOBACCO.

BY HER MAJESTY'S ROYAL LETTERS PATENT, AND BY PERMISSION OF THE HON. BOARD OF CUSTOMS.

POOLEY'S TOBACCO POWDER, for the Prevention and Destruction of Blight and other Diseases in Plants.
Sold by Nurserymen, Seedsmen, and Florists,
In Tins at 1s., 2s. 6d., and 5s.
Powder Distributors, 2s. 6d. and 3s. 6d. each.
"I find it exceedingly useful for killing the Aphides on Roses and other Plants."—GEO. EYLES, Superintendent, Royal Horticultural Gardens, South Kensington. May 7, 1868.
Sole Manufacturer, T. A. POOLEY, Bonded Warehouse, Sussex Wharf, Wapping, E.



Red Spider — Magnified.

GISHURST COMPOUND.

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d.

Wholesale by
PRICE'S PATENT CANDLE COMPANY (Limited),
Battersea, London, S.W.

Rosher's Garden Edging Tiles.



THE above and many other PATTERNS are made in Terro-Metallic Ware, Terra-Cotta, Stoneware, and Redware, and of great durability. The planer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability and superior finish, and in much variety of design.
F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.E. Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs. Likewise more elaborate designs. Pattern Sheets of Pavements, with prices, forwarded for selection.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.
To be obtained of F. & G. ROSHER, at their premises as above.

SILVER SAND (REIGATE), at the above addresses—14s. per Ton, 1s. 2d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less. A coarser grained Sand 4s. per ton more. Samples of Sand by post on receipt of stamp.
FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEAT and LOAM supplied at lowest rates.
F. & G. ROSHER.—Addresses see above.
N.B. Orders promptly executed by Railway or Vessel.
A liberal discount to the Trade.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.
For particulars apply to JOHN FOWLER AND CO., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

"Every Cottage should be provided with a Water Tank." *Disraeli.*

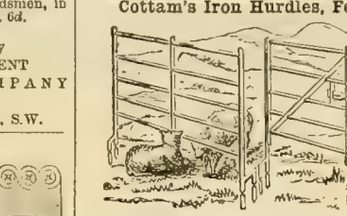
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F. BRABY AND CO. having laid down more extensive and Improved Machinery on their Deptford premises (IDA WHARF), are prepared to supply WROUGHT-IRON TANKS, GALVANISED or PAINTED, of superior quality, at reduced prices, and at very short notice.



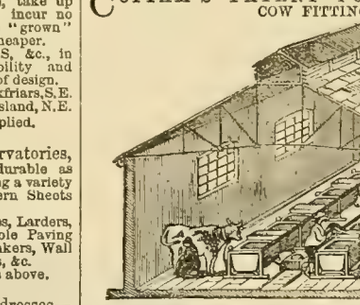
An Illustrated Price List of Galvanised Iron, and other of BRABY'S special Manufactures, sent on application.
F. BRABY AND CO., Limited, Fitzroy Works, Euston Road, London; or through all respectable Ironmongers.
N.B. Open Tanks of different sizes packed one in another to save carriage.

Cottam's Iron Hurdles, Fencing, and Gates.



COTTAM'S HURDLES are made in the best manner, of superior Wrought Iron, by an improved method. Illustrated Price Lists on application to COTTAM AND CO., Iron Works, 2, Winsley Street, Oxford Street, London, W.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rick dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of Iron. Prices of Fittings per Cow, 55s.
Prospectuses free of COTTAM AND CO., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them.
Observe the mark SAYNOR, also the Corporate Mark, OBTAIN WARRANTED without which none are genuine
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make all of which are warranted both by Sellers and Makers.
S. & C.'s PRUNING and BUDDING KNIVES are the best and the cheapest in the market.
Paxton Works, Sheffield. Established upwards of 125 years.

Horticultural Glass Warehouse.

THOMAS MILLINGTON AND CO., 87, Bishopsgate Street Without, London, E.C.
NEW LIST for ORCHARD-HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD-HOUSE SIZES.

in.	in.		4ths.	3rds.	2nds.	Best
20 by 12	Per 100 feet	15 oz.	12s 3d	15s 6d	16s 0d	18s 0d
20 by 13						
20 by 14						
20 by 15		21 oz.	18s 0d	20s 0d	22s 0d	24s 0d
20 by 16						

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7			11s 3d	12s 6d	14s 0d	15s 6d
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½						
Per 100 feet.									
10 by 8	12 by 9	12½ by 10½	11½ by 10½			11s 9d	14s 9d	15s 3d	17s 6d
10½ by 8½	12½ by 9½	13 by 10	15 by 10						
11 by 9	13 by 9	13½ by 10½	13 by 11						
11½ by 9½	12 by 10	14 by 10	14 by 11						

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
15½ by 10½	14 by 12	22 by 12	22 by 16			12s 3d	15s 0d	16s 9d	18s 0d
16 by 10	14½ by 12½	17 by 13	24 by 16						
14½ by 11½	15 by 12	23 by 13	20 by 17						
15 by 11	15½ by 12½	18 by 14	22 by 17						
15½ by 11½	16 by 12	22 by 14	24 by 17						
16 by 11	16½ by 12½	24 by 14	20 by 18						
21 by 11	17 by 12	22 by 15	22 by 18						
13 by 12	18 by 12	24 by 15	24 by 18						

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.

In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	36s.	4ths quality, per 200 feet case,	36s.
3ds " "	42s.	3ds " "	42s.
2ds " "	62s.	2ds " "	62s.
Best " "	75s.	Best " "	75s.

SHEET GLASS is made only in the following substances, 15 oz. 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.
HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.
BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.

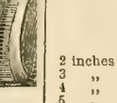
STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.
WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a-half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.
IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4s. per gallon.

Per cwt.—s. d.		Per gallon.—s. d.	
GENUINE WHITE LEAD	30 0	LINSEED OIL	2 9
SECONDS WHITE LEAD	28 0	BOILED OIL	3 2
GROUND PATENT DRYERS, 3d. to 4½d. per lb.		TURPENTINE	2 9
" OXFORD OCHRE, 3d. to 4½d. per lb.		LINSEED OIL PUTTY, 8s. per cwt.	
" RAW UMBER, 4½d. to 6d. per lb.		Fine OAK VARNISH, 10s. to	12 0
" BURNT do., 6d. to 9d.		" CARRIAGE do., 12s. to	14 0
GREEN PAINT, all shades,	28s. to 60 0	" PAPER do. 10s. to	12 0
BLACK PAINT,	24s. to 36 0	" COPAL	16 0
RED PAINT ..	28s. to 36 0	KNOTTING	10 0
		Patent GOLD SIZE ..	10 0
		" BLACK JAPAN ..	12 0
		GLAZIER'S DIAMONDS and TOOLS	
GROUND BRUSHES.		MILLED LEAD and PIPES	
DUSTERS. | SASH TOOLS.		OLD LEAD Bought or taken in	
DISTEMPER BRUSHES.		exchange.	

The above are Net, for Cash, and as such cannot be booked.
Lists of any of the above on application.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their REDUCED PRICES as follows:—

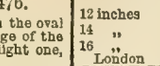
PROPAGATING  GLASSES.

Each.—s. d.		Each.—s. d.	
2 inches in diameter ..	0 3½	12 inches in diameter ..	1 9
3 " " ..	0 4½	13 " " ..	2 0
4 " " ..	0 5½	14 " " ..	2 6
5 " " ..	0 6½	15 " " ..	3 0
6 " " ..	0 8	16 " " ..	3 6
7 " " ..	0 10	17 " " ..	4 0
8 " " ..	1 0	18 " " ..	5 0
9 " " ..	1 2	19 " " ..	6 0
10 " " ..	1 4	20 " " ..	7 0
11 " " ..	1 6		

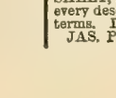
BEE GLASSES, with ventilating hole through knob.

4 inches in diameter ..	0s. 6d.	9 inches in diameter ..	1s. 8d.
5 " " ..	0 8	10 " " ..	2 0
6 " " ..	0 10	11 " " ..	2 6
7 " " ..	1 1	12 " " ..	3 0
8 " " ..	1 4		

Either flat or conical tops.

CUCUMBER  GLASSES.

24 inches long	2s. 0d.	16 inches long	1s. 4d
22 "	1 10	14 "	1 2
20 "	1 8	12 "	2 6
18 "	1 6		

HAND GLASSES,  WITH OPEN TOPS.

Each.—s. d.		Each.—s. d.	
12 inches	6 6	18 inches	9 6
14 "	7 6	20 "	10 6
16 "	8 6	22 "	11 6
		24 "	12 6

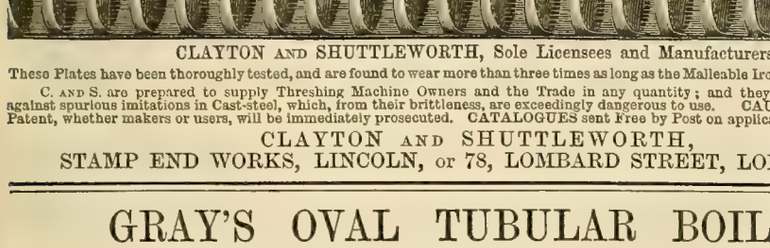
London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS. PAINTS of various colours ground ready for use.
SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of Prices and Estimates forwarded on application to JAS. PHILLIPS AND CO., 180, Bishopsgate Street Without, E.C.

PORTABLE ENGINES, FROM 4 TO 30-HORSE POWER.

THRESHING MACHINES, SINGLE, DOUBLE and TREBLE BLAST,

WITH PATENT ROLLED STEEL RIBBED BEATER PLATES, AND ALL OTHER RECENT IMPROVEMENTS.

PATENT ROLLED STEEL RIBBED BEATER PLATES (GRAY'S PATENT).



CLAYTON AND SHUTTLEWORTH, Sole Licensees and Manufacturers.

These Plates have been thoroughly tested, and are found to wear more than three times as long as the Malleable Iron Plates previously in use.
C. AND S. are prepared to supply Threshing Machine Owners and the Trade in any quantity; and they would caution purchases against spurious imitations in Cast-steel, which, from their brittleness, are exceedingly dangerous to use. CAUTION.—Infringers of this Patent, whether makers or users, will be immediately prosecuted. CATALOGUES sent Free by Post on application to

CLAYTON AND SHUTTLEWORTH,
STAMP END WORKS, LINCOLN, or 78, LOMBARD STREET, LONDON, E.C.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

MR. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

Acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in GARDENERS' CHRONICLE *of International Exhibition, May* 24, 1862, *page* 476.

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY'S variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

☞ *They are made of all sizes, which, with prices, may be had on application.*

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

Trotman's Hot-Water Gas Stoves.

THE SIMPLEST and BEST METHOD of HEATING SMALL GREENHOUSES. Price £2.
Spring Grove Nursery, Isleworth, W.

W. H. LASCELLES' MACHINE-MADE MELON LIGHTS.



	Each.
6 ft. by 4 ft. Lights, 2 ins. thick, unglazed	£0 5 0
" " Primed and Glazed with 10 oz. Sheet	0 11 0
" " with a tout Portable Box, not Painted	1 3 0
" " Painted four coats, and Handles on	1 8 0
" " Packed and Delivered in Railway Van	1 10 0
6 ft. by 8 ft., Double Lights, do.	2 15 0

GREENHOUSES.	Per ft. super.
Woodwork only Prepared and Fitted	0 0 6
" Primed and Glazed with 16 oz. Sheet	0 0 9
" Delivered, and Fixed with Ironwork	0 1 0
" Painted four coats, two sides, ready for use	0 1 3

Finsbury Steam Joinery Works, 121, Bunhill Row, E.C.

HOT-WATER APPARATUS
Erected Complete, or the Materials Supplied for Heating

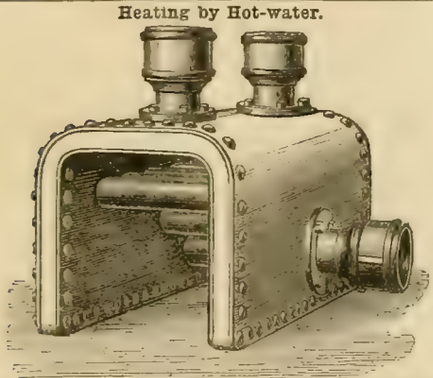
Peill's Conical. GREENHOUSES, HOTHOUSES, CONSERVATORIES, CHURCHES, PUBLIC BUILDINGS, &c. Tubular Boiler.





HOT-WATER PIPES at wholesale prices, Elbows, T Pieces, Syphons, and every other connection kept in stock.
WROUGHT and CAST IRON CONICAL, SADDLE, and IMPROVED PEILL'S and ELLIPTIC BOILERS, from 24s. each.
IMPROVED and EXTRA STRONG CAST IRON TUBULAR BOILERS, with or without Water Bars, from 52s. 6d. each.
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SHANKS' IMPROVED WROUGHT-IRON BOILER.—This Boiler is made on the principle of the Saddle and Tubular combined. The Tubes, Fire-box, and Shell-plates are all of Wrought-iron, and consequently are not liable to break from expansion and contraction of the metal, as Cast-iron Boilers are. The Tubes are placed in the Fire-box, and so arranged as to expose a very large effective heating surface to the direct action of the fire, the advantage of which is obvious.
A. S. AND SON will be glad to furnish their IMPROVED BOILERS separately, or to furnish Plans and Estimates for Erecting Hot-water Apparatus complete in any part of the country.
HORTICULTURAL BUILDINGS in IRON or WOOD.
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GALVANIZED IRON CISTERNS, with Lid and Brass Tap.

30 Gallons ..	20s.	150 Gallons ..	48s.
50 " ..	24s.	200 " ..	61s.
80 " ..	31s.	250 " ..	72s.
100 " ..	38s.	300 " ..	82s.

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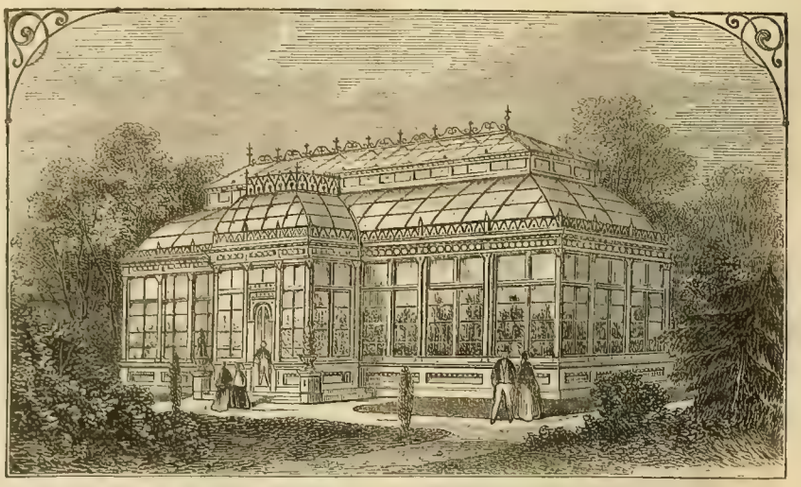
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The best Shading is "Frigi Domo" Netting.

White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for
PROTECTION from the COLD WINDS and MORNING FROSTS.
"FRIGI DOMO" NETTING, 2 yards wide, 1s. 6d. per yard run.
"FRIGI DOMO" CANVAS.
Two yards wide .. .. 1s. 9d. per yard run.
Four yards wide .. .. 3s. 6d. per yard.
An improved make, 2 yards wide .. 1s. 9d. per yard.
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Scrim Canvas, 72 inches wide, 70 yards long, 5½d., 6½d., 7½d., 7½d. and 8½d. per yard.
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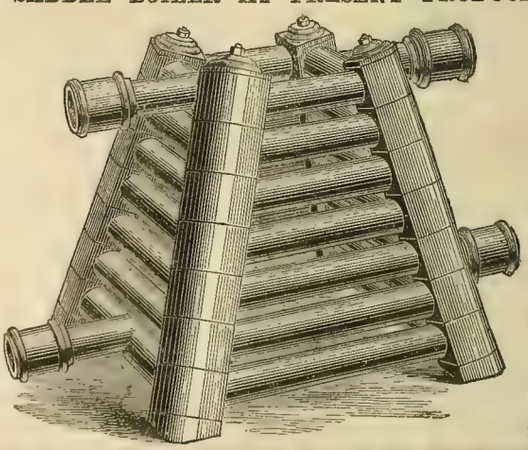


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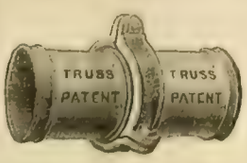
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MANUFACTURED BY THE PATENTEES,
T. H. P. DENNIS & COMPANY,
POSSESSES ADVANTAGES PRESENTED BY NO OTHER TUBULAR, CONICAL, OR SADDLE BOILER AT PRESENT PRODUCED.

Its heating surface exceeds all others, its efficacy exceeds all others, its economy exceeds all others, and its durability and simplicity are unequalled. Several have been in use for some time, and many are now being fixed in various parts of the country. They have been severely tested and compared with other Boilers, and in all cases have proved themselves to be what they are designated, viz., A 1.

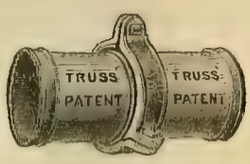


Hot-water Heating in connection with the above is carried out with great success by the Firm, who are prepared to give Estimates for carrying out the most extensive, as well as elaborate systems of heating—satisfactory results being guaranteed in every instance.

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FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH
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Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
20 feet by 10 feet ..	£9 0 0 ..	£2 0 0	50 feet by 15 feet ..	£17 10 0 ..	£3 0 0
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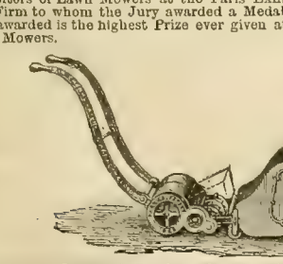


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N.B.—All orders are executed on the day they are received.

SHANKS'S PATENT LAWN MOWERS for 1869, The Patent Improvements recently introduced give SHANKS'S MACHINE
Several important advantages possessed by no other Lawn Mower.
PATENT DOUBLE-EDGED SOLE-PLATE, WIND-GUARD, &c.
The unprecedented Sale for 1868, notwithstanding the Dryness of the Season, forms the most convincing testimony how much these advantages have been appreciated.
ALEXANDER SHANKS & SON beg to intimate that, among all the Exhibitors of Lawn Mowers at the Paris Exhibition, they are the only Firm to whom the Jury awarded a Medal. The Silver Medal then awarded is the highest Prize ever given at any Exhibition for Lawn Mowers.



ALEXANDER SHANKS & SON have for some time past been making the Revolving Cutter of their Machines Self-Sharpening—that is, with Steel on both Sides of each Blade, so that when the Cutter becomes blunt by running one way, it can be reversed, thus bringing the opposite or sharp edge of the Cutter to act against the Sole-Plate. In addition to this, A. S. & SON now make the Sole-Plate or Bottom Blade of their Machine with Two Edges—one in front as usual, and one in reserve at the back; when the front edge gets worn down, the plate has only to be unscrewed and the unused edge brought to the front. It will be seen at a glance that this arrangement enables the cutting parts to last twice as long as in other machines, where the single-edged Sole-plate must be entirely renewed when the edge is worn down.
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There is no ribbing with these Machines. The Lawn when mown has a most beautiful appearance, being as smooth as a piece of velvet.
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Annual Income	200,000
Invested Funds	1,540,000
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GRATEFUL and COMFORTING.
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THE "WORCESTERSHIRE," pronounced by connoisseurs "the only good Sauce," improves the appetite and aids digestion. Unrivalled for piquancy and flavour.
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Beware of imitations, and see the names of LEA & PERRINS on all bottles and labels.
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TO be SOLD, the valuable NURSERY STOCK and GOODWILL of a Business established upwards of 50 years. The Nursery Ground contains 10 Acres of the best Land, well stocked with Fruit Trees, Ornamental Shrubs, Garden and Greenhouse Plants, &c., in great variety. The Land is peculiarly suited to the growth of Roses, Coniferæ, and Fruit Trees, of all of which there is a large stock. The Great Western Railway passes close to. A great deal of Contract Work has been done at this Nursery. No situation can be more desirable for carrying on an extensive Trade.
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SALE THIS DAY AT HALF-PAST TWELVE O'CLOCK.

Hardy Plants from Surrey, Roses from France, and Bulbs from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, November 20, at half-past 12 o'Clock precisely, Specimen CONIFERS, YEWS, PORTUGAL and COMMON LAURELS, THORNS, RHODODENDRONS, BERBERIS, YUCCAS, and other Plants, from a well-known Nursery in Surrey; and an importation of Double and Single HYACINTHS, TULIPS, CROCUSES, NARCISSUS, LILIUMS, GLADIOLI, RANUNCULI, ANEMONES, IRIS, and other Bulbs, from Holland.
On view the morning of Sale, and Catalogues had.

Bulbs and Plants from Holland and Norfolk.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, November 23, at half-past 12 o'Clock precisely, Standard and Dwarf ROSES, FRUIT TREES, and Hardy and Ornamental TREES and SHRUBS, from Holland. CONIFERS, LAURELS, CARNATIONS, PICOTEES, and other Plants, from Norfolk. Fine Foliage and Ornamental GREENHOUSE PLANTS, FERNS, &c.; and an importation of Double and Single HYACINTHS, TULIPS, CROCUSES, NARCISSUS, LILIUMS, GLADIOLI, IRIS, &c., from Holland.
On view the morning of Sale, and Catalogues had.

Redbridge, near Southampton.

To GENTLEMEN, NURSERYMEN, GARDENERS, and OTHERS.
MR. W. ABRAHAM begs to inform persons intending to Plant that he has received instructions to SELL by AUCTION, in the Grounds of the Anchor Hotel, Redbridge, near Southampton, on WEDNESDAY, November 24, at 12 o'Clock punctually, a large quantity of choice EVERGREEN and DECIDUOUS TREES and SHRUBS, Standard, Trained, Dwarf, and Pyramidal FRUIT TREES, named kinds; about 3000 strong QUICK, Standard and Dwarf ROSES, Hardy CREEPERS, PRIVET, &c.
Catalogues on application at the Hotel; or of Mr. W. ABRAHAM, Horticultural Auctioneer, Valuer, &c., Goldworth Nurseries, Woking, Surrey.

Tottenham—Expiration of Lease.

ABSOLUTE SALE of NURSERY STOCK, comprising Deciduous and Evergreen Shrubs, Specimen Chinese Arbor-vitæ, Irish Yews, Trained Fruits, Fruit and Forest Trees, Currants, Gooseberries, Asparagus, Hornbeam Hedges, &c., to be SOLD by AUCTION by

MR. F. W. SEARLE, at the Nursery, Park Lane, Tottenham, on TUESDAY, Nov. 30, at 12 o'Clock, in Lots.
Catalogues of the Auctioneer, 6, Bishopsgate Street, E.C.; and Tottenham, N.

Leytonstone, Essex.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Mrs. Hart, to SELL by AUCTION, without reserve, on the Premises, the Park, Leytonstone, five minutes' walk from the Station, on WEDNESDAY and THURSDAY, November 24 and 25, at 12 for 1 o'Clock each day, the whole of the GREENHOUSE PLANTS, including fine Azalea indica, large Double Camellias, Cytissus, Daphnes, Correas, Diosmas, Fuchsias, Geraniums, &c., about 1000 ORCHARD-HOUSE TREES, established in pots, including many skilfully trained specimens, 6 to 10 feet high, in bearing condition, comprising Peaches, Nectarines, Apricots, Plums, Pears, Apples, Figs, Vines, large Dwarf-trained Peaches, Nectarines, Apples, 400 yards Box edging, 1000 Strawberries, in pots; also the newly-erected GREENHOUSES, viz., a Span-roof rafter ORCHARD-HOUSE, 104 feet long, 40 feet wide, 19 feet high; a Lean-to rafter House, 240 feet long by 17 feet over; a Span-roof rafter House, 36 feet long by 17 feet over; Two 9-light BRICK PITS, Hot-water Piping, a Cannon Boiler, Bricks; likewise the modern and nearly new FARMING IMPLEMENTS, for steam or hand-power, from eminent manufacturers, comprising an American Grist-Mill, Chaff-Cutter, Turnip-Slicer, Oilcake-Crusher, Root-Pulper, a capital Haymaking Machine, Horse Drag-Rake, Ploughs, Carts, Carriages, Weighing Machine, an Incubator (in working order), Iron Hurdles and Stakes, a Gas Meter, Zinc Summer House, 12-box Bee-House, Cart Harness; together with the LIVE STOCK, viz., Two Milch Cows, 150 head of Poultry, and numerous other effects.
May be viewed two days prior to the Sale. Catalogues, 6d. each, returnable to purchasers, had of the Auctioneers, Leytonstone, E.

Lea Bridge Road, Leyton, Essex.

IMPORTANT SALE of VALUABLE NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Nursery, Lea Bridge Road, by order of Messrs. Pamplin & Son (without reserve, in consequence of the expiration of lease and the Ground being required for Building purposes), on MONDAY and TUESDAY, November 29 and 30, at 12 o'Clock precisely each day, the whole of the valuable NURSERY STOCK, including fine specimen Araucarias, Cedrus (sorts), Taxodiums, Thujà aurea, Variegated Hollies, Sweet Bays, Evergreen Oaks, Cupressus (sorts), Pines (sorts), Juniperus cryptomeria, &c., from 3 to 12 feet high; 100 English Yews, 4 to 12 feet; Common Laurels, Standard and Bushy Portugal Laurels; 1250 Green Tree and other Box, 1 to 8 feet; 600 Rhododendrons, 220 Chinese and other Arbor-vitæ, 4 to 12 feet; 150 Aucubas, 3 to 6 feet; 100 Irish Yews, 5 to 7 feet, &c.; a fine assortment of Standard and Dwarf H.P. Roses; selected Fruit Trees; a large quantity of Ornamental and Forest Trees; together with a 2-horse power Threshing and Chaff-cutting Machine, three capital Horses, two Cows, Heifer, handsome young Bull, and numerous other effects.
May be viewed three days prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers, Leytonstone, Essex.

KNAP HILL NURSERY,

WOKING, SURREY.

ANTHONY WATERER

Solicits the notice of intending Planters to the following LIST of specimen CONIFERS, &c., all of which he believes are as handsomely grown, as carefully managed, and as finely rooted as can be desired.

ABIES ALBERTUS, 5 to 9 feet, 30s. to 60s. per dozen. Transplanted April, 1869.
ABIES DOUGLASII, 6, 7, to 10 feet, 7s. 6d. to 10s. 6d. each. Transplanted August, 1868.
ABIES ORIENTALIS, 5, 6, and 7 feet, 7s. 6d. to 21s. Splendid plants, moved April, 1869, 10 to 12 feet high, 15 and 20 feet in circumference.
ABIES EXCELSA, the Common Spruce Fir, beautifully furnished, 5, 6, to 8 feet high, £5, £7 10s., to £12 10s. per 100.
The dwarf varieties of Spruce, such as pumila, pygmæa, Gregorii, Clanbrazilliana, &c., large numbers, many of them 20 and 30 years' growth.
CEDRUS DEODARA, 5 to 6 feet, 60s. per dozen; 7 to 8 feet, 84s. per dozen; 10 to 12 feet, 10s. 6d. to 21s. each, and upwards. We have several thousands of these large Deodars. All have been removed since August, 1868; many since April, 1869.
CEDRUS ARGENTEA, 6 to 7 feet, 42s. to 60s. per dozen; 8 to 10 ft., 7s. 6d. to 10s. 6d. each. All removed since September, 1868.
CEDRUS LEBANON, 6, 7, to 10 feet. Moved September, 1868.
CUPRESSUS LAWSONIANA, 6 to 7 feet, 30s. to 42s. per dozen; 8 to 10 feet, 5s. to 10s. 6d. each.
" " ARGENTEA, 3 and 4 feet, and as much in circumference, 7s. 6d. to 10s. 6d. each.
" " GRACILIS, 4 to 5 feet high, and 7 and 8 feet round, 7s. 6d. to 21s.
JUNIPER, CHINESE, 4 to 5 feet, 42s. per dozen, £15 per 100; 5 to 6 feet, 60s. per dozen, £20 per 100; 7 to 8 feet, 7s. 6d. to 10s. 6d. each. All removed since August, 1868. Purchasers may select from a stock of many thousands of this fine plant, 5 to 8 ft. high.
PICEA NOBILIS, hundreds of splendid specimens, 5, 6, 7, to 10 ft. high, all recently removed, and are undoubtedly the finest plants to be found in any Nursery. None are grafted.
PICEA NORDMANNIANA, 5, 6, to 8 feet, 21s. to 42s. each, and upwards. Splendid plants, moved August, 1868, 10 to 15 ft. high.
PICEA LASIOCARPA.—Hundreds of most beautiful plants, 4, 5, 6, 8, and 9 feet high. All removed 1868–69.
PICEA MAGNIFICA, 3, 4, and 5 feet.
PICEA PINSAPO, 4, 5, 6, and 8 feet, 21s. to 63s. each. Some grand plants, 10 to 15 feet high, transplanted April, 1869.
THUJA AUREA, beautiful specimens, 3, 4, 5, and 6 feet high; 10 to 20 feet in circumference. This plant originated in this Nursery, and our stock is unsurpassed.
THUJA GIGANTEA, 5, 6, to 12 feet high. Moved August, 1868.
THUJA LOBBII, 8 to 14 feet high, and as much in circumference; transplanted April, 1869.
THUJOPSIS BOREALIS, 5 to 6 feet, 7 and 8 feet round; 42s. to 60s. per dozen; 7 to 8 feet, 7s. 6d. to 10s. 6d. each. All removed since August, 1868.
WELLINGTONIA GIGANTEA, 4 to 5 feet, 7s. 6d. to 10s. 6d. each; 6, 7, 8, and 9 feet, 21s. to 42s. each. Transplanted in August.
PINUS AUSTRIACA, 3 feet, £5 per 100. Transplanted, Sept. 1868.
PINUS CEMBRA, 8 to 10 feet, 10 to 12 feet round, 10s. 6d. to 21s. each.
YEWS, the COMMON ENGLISH, 4, 5, 6, 7, 8, 10, and 12 feet high. Thousands, all constantly removed; invaluable where immediate effect is sought.
YEWS, GOLDEN and ELEGANTISSIMA.—We have these in large numbers, and of all sizes, as pyramids, globes, and worked as standards, with from 3 to 5 feet of gold, and up to 10 feet high.
YEWS, IRISH, handsome plants, up to 10 feet high.
HOLLIES.—The stock of Hollies at this Nursery is, we believe, the finest to be met with in Europe; it comprises, as well as ordinary sizes, together, many thousands of the following varieties:—
HOLLY, VARIEGATED SILVER and GOLD, of sorts, 4 to 10 feet.
HOLLY, GOLDEN QUEEN, magnificent plants, 4 to 8 feet high, and as much in circumference.
HOLLY, SILVER QUEEN, 4, 5, and 6 feet.
WATERER'S HOLLY.—This variety originated in this Nursery; we have hundreds 4, 5, and 6 ft. high, 10 and 15 ft. circumference.
PERRY'S WEEPING HOLLY.—Standards, 10s. 6d. to 21s. each.
HOLLY, COMMON WEEPING.—The finest specimens we have seen. Moved, April, 1869.
HOLLY, COMMON GREEN, 4, 5, 6, 7, 8, 10 to 14 feet high, by the thousand. All moved since April, 1868.
HOLLY, Green varieties of the following kinds. An immense stock of splendid plants, all transplanted in 1868-9:—
LAURIFOLIA and SCOTTICA, 4, 5, 6 to 10 feet high.
HODGINS' YELLOW BERRIED, | ANGUSTIFOLIA, MYRTIFOLIA, &c. 4, 5, 6, and 8 feet high.
STANDARD, WATERER'S and GOLDEN QUEEN HOLLIES, 4 to 6 feet stems, with heads 6 to 10 feet in circumference. A large number.
N.B.—Purchasers of Hollies may select from a stock occupying at the present moment considerably over 6 acres of ground; finer or better rooted plants cannot be wished or obtained. The prices are fair and reasonable.
BOX, Green and Variegated, 4, 5, 6, to 8 feet.
BOX, do. do., fine pyramids, up to 8 feet.
BAYS, standards and pyramids.
LAURUSTINUS, standards.
AUCUBA JAPONICA, thousands of beautiful plants, all moved 1868, 3 and 4 feet high.
AUCUBA JAPONICA, Berried, hundreds, 1½ to 4 feet high; in the open ground and in pots, from 18s. to 120s. per doz. and upwards.
AMERICAN PLANTS.—The Stock of American Plants at Knap Hill is, we believe, as fine as, and more extensive than, anything of its kind to be met with in England, considerably over 50 acres of land being devoted to their cultivation. We shall be pleased to supply—
RHODODENDRONS, nice sunny plants, from layers, named kinds, £5 per 100, £40 per 1000. A dozen sent as sample on application.
RHODODENDRONS, the finer kinds, by name, from £7 10s. to £12 10s. per 100, and upwards.
RHODODENDRON PONTICUM, good plants for Cover, from £10 to £15 per 1000.
STANDARD RHODODENDRONS.—Of these we possess a large number of the oldest and finest specimens in the country, many being from 20 to 30 years old, with heads varying from 15 to 30 feet in circumference. There is probably no kind better adapted for standards than that we call roseum elegans, many of which we supplied to Rotten Row. We have also Rhododendrons, standards, of many other kinds.
RHODODENDRONS, fine hybrids, of good hardy habit, and great variety in colour, from £5 to £12 10s. per 100. Sample on application. Large and handsome plants by the 100, 4 to 8 feet high.
AZALEAS, the very best kinds, nice plants, £10 per 100, upwards.
AZALEAS, common kinds, £5 per 100.
AZALEAS, splendid plants, of the finest varieties, 3, 4, 5, and 6 feet high, and as much in circumference.
KALMIA LATIFOLIA, nice plants, bushy, healthy, and covered with bloom, £5 to £10 per 100.
ANDROMEDA FLORIBUNDA, £5 to £7 10s. per 100, and upwards.
HARDY HEATHS, a very fine collection, every plant a specimen, and all removed in 1868, from 20s. to 30s. per 100.
ERICA CARNEA, for winter blooming, many thousands.
ERICA MEDITERRANEA ALBA, remains in bloom from October to May, and smells like new-mown hay—indispensable for Winter Gardening.
SKIMMIA JAPONICA, nice healthy plants, moved April, 1869, covered with berries, 12s. to 18s. per dozen.

As well as the above, the Knap Hill Nursery contains upwards of 200 Acres of ordinary NURSERY STOCK of a superior class, such as Flowering Shrubs (Deciduous and Evergreen), Roses, Ornamental Trees for Avenues, &c.

A PRICED and DESCRIPTIVE CATALOGUE will be forwarded on application. Purchasers to any extent are strongly recommended to make a personal inspection of our stock, and obtain the prices on the spot. No Catalogue can fairly describe many of the plants we offer.

The Nursery is readily reached by train from Waterloo to Woking in 40 minutes.

N.B.—There is now no difficulty in sending Plants through in the same truck, without package, from Woking to almost any Railway Station in England.

SUNNING DALE NURSERY,

BAGSHOT, SURREY.

Five minutes' walk from Sunning Dale Station, South-Western Railway.

CHARLES NOBLE

Invites special attention to the select PLANTS and TREES he has to offer, which will be found in quality unsurpassed, in PRICE lower than most other houses.

CATALOGUES should be written for by ALL INTENDING PLANTERS.

ROSES.

ROSES.—A large number of HYBRID, PERPETUAL, BOURBON, and NOISETTES.
" TEAS, fine plants in pots.

RHODODENDRONS.

RHODODENDRONS.—One of the most select and extensive collections of named kinds extant.
" SEEDLINGS, from finest varieties.
" SEEDLING, HYBRID CATAWBIENSE.
" PONTICUM, for cover planting.
" STANDARDS, fine specimens. In fact, Rhododendrons of all colours, all sizes, and all prices.

SKIMMIA JAPONICA, covered with berries.
ERICA CARNEA, in any quantity, beautiful plants.
COMMON and COLCHIC LAURELS, 18 to 24 inches, 15s. per 100; 24 to 36 inches, 18s. per 100.
PORTUGAL LAURELS, 36 to 60 inches, specimens as far through as high.
VIOLETS, in 12 best varieties, 18s. per 100.
" established in pots for winter flowering, 25s. per 100.

FRUIT TREES.

PEACHES and NECTARINES, maiden and dwarf-trained.
PLUMS, PEARS, and CHERRIES, maiden and dwarf-trained.
APPLES, PEARS, PLUMS, and CHERRIES, standard, pyramid, and dwarf.
These are remarkably healthy and good, and the selection very carefully made.

CONIFERS.

ARAUCARIA IMBRICATA, 1 to 10 feet, fine specimens.
ABIES DEODARA, 1 to 10 feet, fine specimens.
" DOUGLASII, 1 to 10 feet, fine specimens.
" GRANDIS, 1 to 10 feet, fine specimens.
" LASIOCARPA, 1 to 10 feet, fine specimens.
" MAGNIFICA, 1 to 10 feet, fine specimens.
" MENZIESII, 1 to 10 feet, fine specimens.
" NOBILIS, 1 to 10 feet, fine specimens.
" NORDMANNIANA.—Of this last (perhaps the most magnificent tree in the world) an unusually fine stock, from 3 to 5 feet, are offered. For AVENUES this would be invaluable, and the facilities here offered can scarcely be overrated.
CUPRESSUS LAWSONIANA, 2 to 10 feet.
THUJA GIGANTEA, 2 to 10 feet.
" LOBBII, 2 to 10 feet.
THUJOPSIS BOREALIS, 2 to 10 feet.
CUPRESSUS LAWSONIANA ERECTA.—Perfect columns, 6 to 10 feet. These plants are believed to be unequalled in any other establishment.

SPECIAL OFFER.

To Gentlemen, Builders, and others engaged in large planting operations.

DECIDUOUS FLOWERING SHRUBS and TREES, 3 to 6 feet, 42s. per 100.
CONIFERS, in variety, 1 to 2 feet, 50s. per 100.
" " 2 to 3 feet, 75s. per 100.
" " 3 to 4 feet, 100s. per 100.
" " 4 to 5 feet, 130s. per 100.
" " 5 to 6 feet, 150s. per 100.

CHRISTMAS TREES.

Extra fine, 2 to 5 feet, splendidly grown.
50,000 to select from.

The Sunning Dale Nurseries are easily reached from any part of England, being close to the Sunning Dale Station, South-Western Railway.

Purchasers will find their time saved by visiting this Establishment to select for themselves, but all Orders receive the most careful personal attention of the Proprietor; and he would here mention that an advertisement can give but a faint idea of the subject on which it treats.

All interested are invited to write for a CATALOGUE, pay a Visit, or send an Order, and their interest will be studied.

BAGSHOT.—November, 1869.

THE AMERICAN NURSERY,

BAGSHOT, SURREY.

Near Sunning Dale Station, South-Western Railway.

JOHN WATERER & SONS

Respectfully invite the attention of Gentlemen and Planters to the undernamed selections from their general stock; every plant may be depended upon as in the best order possible for removal, having been transplanted within the last season.

ARAUCARIA IMBRICATA, grand specimens, 4 to 6 to 8 to 12 feet.
CUPRESSUS LAWSONIANA, 3 to 4 to 6 to 10 feet.
" LAWSONIANA ARGENTEA (JOHN WATERER'S var.).—By far the most desirable of all the glaucous varieties, 5s. to 7s. 6d. each.
" MACROCARPA, 4 to 6 feet, 42s. per dozen.
THUJA AUREA.—Beautiful plants, about 2 feet, 42s. per dozen; larger, 6s. to 21s. each.
" GIGANTEA.—An unequalled stock of hundreds of Seedlings, 4 to 6 to 8 feet, 3s. 6d. to 6s. each.
We would remark, that unless plants are on their own roots of this fine Thuja they are quite worthless.
THUJOPSIS BOREALIS, 3 to 4 feet, 30s. per dozen; extra fine, 5 to 6 and 7 feet, 5s. to 10s. 6d. each.
" DOLABRATA.—Fine plants, 5s. to 7s. 6d. each.
" " VARIEGATA, 5s. to 7s. 6d. each.
WELLINGTONIA GIGANTEA.—Good plants, 30s. per dozen; 2 to 3 feet, 42s. to 60s.; larger, up to 10 feet, 7s. 6d. to 63s. each.
ABIES NOBILIS, 2 to 3 feet, 21s. each; larger, 4 to 5 feet, 42s.
" NORDMANNIANA, 2 to 3 feet, 7s. 6d. to 10s. 6d.; 3 to 4 feet, 21s.; 4 to 8 to 12 feet, 31s. 6d. to 105s. each.
" LASIOCARPA, 3 to 4 to 5 feet, 10s. 6d. to 42s. each.
" GRANDIS, 4 to 5 to 6 and 10 feet, 10s. 6d. to 63s. each.
" PINSAPO, 2 to 3 feet, 5s.; 3 to 5 to 8 feet, 7s. 6d. to 63s.
" DOUGLASII, 3 to 4 feet, 42s. per dozen; 4 to 6 to 10 feet, 5s. to 21s. each.
" MAGNIFICA, 3 to 4 feet, 31s. 6d. to 42s.
" ORIENTALIS, 3 to 5 to 8 feet, very beautiful examples, 21s. to 63s. each.
EDRUS DEODARA, 2 to 3 feet, 30s. per dozen; larger, up to 12 feet
YEWS, COMMON.—Immense quantities, 2 to 3 to 4 to 6 feet, from 18s. to 60s. per dozen.
" IRISH.—Perfect columns, up to 12 feet.
" GOLDEN, as Standards on Irish stems, perfect globes, 31s. 6d. to 42s. each.
HOLLIES, GREEN COMMON.—Many thousands, of all sizes, from 1 foot up to 10 feet.
" the best GOLDEN, WATERERS', and SILVER varieties, in any quantity, and of all sizes.
STANDARD HOLLIES, GREEN, 10s. 6d. to 21s. each.
" " WATERERS' variety, many hundreds of symmetrically grown specimens, perfectly straight stems, 42s. to 105s. per pair.
" WEEPING, GREEN, and SILVER VARIEGATED, fine plants, from 21s. each.
" PORTUGAL LAURELS.—Very close grown handsome plants, 10s. 6d. to 21s. each; very large imposing specimens, 42s. to 63s. each.

AMERICAN PLANTS.

Of this very popular tribe of plants we have the pleasure of observing that our stock is unequalled, and that it is from our Establishment that nearly all the approved crimson varieties of Rhododendrons have emanated. The Grand Exhibition of Rhododendrons annually displayed at the Royal Botanic Gardens, Regent's Park, has been for the past 20 years supplied from our Nursery.

RHODODENDRON PONTICUM, for undercover or shrubberies, strong established plants, £10 10s. per 1000; larger, 25s. to 63s. per 100.
" CATAWBIENSE and HYBRIDS, bushy well-grown plants, 50s. to 75s. per 100.
" better class (SEEDLINGS) and named varieties for extensive planting, £5 per 100.
" of superior kinds, many on own roots, £7 10s. to £10 per 100.
" very superior, leading, crimson, rose, white, £12 10s. to £20 per 100.
" STANDARD and HALF-STANDARD, of the most imposing varieties, of all shades of colour, from 21s. to 63s. to 105s. each.
AZALEAS, common kinds, 50s. to 75s. per 100.
" very best, in fine plants, £10 per 100.
KALMIA MYRTIFOLIUM, very handsome, 30s. per dozen.
" LATIFOLIA, 18s. to 30s. per dozen.
ANDROMEDA FLORIBUNDA, fine plants, 18s. to 42s. per dozen.

We have likewise immense quantities of the leading kinds of

EVERGREENS OF ALL SIZES,

SUCH AS

AUCUBAS, BAY, BOX, LAURUSTINUS, COMMON and PORTUGAL LAURELS, ARBOR-VITÆ, PHILLYRÆA, &c.

As well as **FOREST TREES,** 2 to 3 and 4 to 5 feet,

CONSISTING OF

ASH, BIRCH, BEECH, HAZEL, SPANISH CHESTNUTS, ALDER, SPRUCE, PINUS AUSTRIACA, &c.

From the immensity of our stock, we are enabled to treat on most liberal terms, and Purchasers are recommended in every practicable case to visit and choose for themselves, it being an impossibility to adequately describe by advertisement.

CATALOGUES, describing faithfully the colours of Rhododendrons, with height and prices, will be forwarded on application.

Purchasers of large quantities are informed that Goods can be forwarded from Sunning Dale to all parts of England in through truck, thereby causing a great saving in transit as well as diminishing the cost of package.

THE AMERICAN NURSERY,
BAGSHOT, SURREY.

Editorial Communications should be addressed to "The Editor," Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 48.—1869.] SATURDAY, NOVEMBER 27. {Price Fivepence. {Stamped Edition, 6d.

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ROSES, 9*s.* per dozen, of the best sorts; stems about 1½ foot high. For cash only.
A. WILKIN, Tiptree, Kelvedon.

To the Trade.—Hybrid Perpetual Roses.

HUSSEY AND SON beg to offer fine DWARFS on MANETTI at 6*s.* per dozen, £2 per 100. LISTS of sorts upon application. Mile End Nursery, Eaton, Norwich.

Splendid Roses.

TRY the SALISBURY ROSES. CATALOGUES ready.
JOHN KEYNES, Castle Street Nursery, Salisbury.

Rose Catalogue.

JOHN CRANSTON'S ROSE CATALOGUE for 1869 is now ready, and will be sent post free on application.
The Nurseries, King's Acre, near Hereford.

200,000 Dwarf Hybrid Perpetual Roses.

WM. WOOD AND SON have a magnificent Stock of the above to offer. Early orders are respectfully solicited.

STANDARD and DWARF ROSES, by the dozen 100, or 1000. CATALOGUES on application.
WM. WOOD AND SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

Roses.

THOMAS S. WARE can supply Standard, Half-Standard, and Dwarf ROSES, by the dozen, 100, or 1000. Special offers to the Trade. CATALOGUES and prices on application.
Hale Farm Nurseries, Tottenham, Middlesex, N.

Roses.

CHARLES TURNER'S DESCRIPTIVE and PRICED CATALOGUE of ROSES is now ready; it also contains full LISTS of FRUIT TREES, SHRUBS, CONIFERÆ, &c., and may be had post free on application.
The Royal Nurseries, Slough.

Paul's Rose Catalogue.

"A very complete and able Catalogue."—*Floral World.*

WM. PAUL begs to announce that his NEW CATALOGUE of ROSES is now ready, and will be forwarded post free on application. The stock of Plants is large and excellent.
Paul's Nurseries, Waltham Cross, London, N.

RICHARD SMITH'S ROSE LIST, containing all the leading and most popular kinds of Roses, may be had free by post.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

FIFTY THOUSAND TEA-SCENTED and NOISETTE ROSES, in pots, all the most popular and best kinds, at 9*s.* to 18*s.* per dozen. DESCRIPTIVE LIST on application.
RICHARD SMITH, Nurseryman, Worcester.

To the Trade.

STANDARD ROSES, 80*s.* per 100; Dwarfs, on Manetti, 50*s.* per 100, fine plants and best kinds, to 1868.
VICOMTESSE HERICART DE THURY STRAWBERRY, and 60 other fine kinds, well rooted plants, 10*s.* per 1000.
W. JACKSON, Blakedown Nursery, Kidderminster.

Established 1806.

T. HANDASYDE AND DAVIDSON have a large stock of TEA, HYBRID PERPETUAL, BOURBON, and CHINA ROSES in pots. Special prices to the Trade on application.
Seed Warehouse, 24, Cockburn Street, Edinburgh.
Nurseries, Brunstain Glen, Musselburgh.

ROSES.—Fine Hybrid Perpetual, best kinds, up to 1868, 16*s.* per dozen; Dwarf do., 8*s.* ROSES of 1869, in pots, 20*s.* per dozen, strong plants. COMMON LAURELS, 15*s.* per 100; strong HAWTHORN QUICK, 20*s.* per 1000, cash. Special prices for large quantities on application.
GEORGE DAVISON, White Cross Nursery, Hereford.

Gladioli—New Roses.

EUGÈNE VERDIER Fils Ainé, NURSERYMAN, 3, Rue Dunois, Paris, publishes in August and September of each year complete and descriptive CATALOGUES, with prices. They comprise all the finest and newest varieties of Gladioli, Pæonies, and New Roses. Gratis and post free on application.

GLADIOLI SEEDLINGS (mixed).—Beautiful flowers, equal to any collection, of all colours. Strong flowering Bulbs, 7*s.* per 100, £3 per 1000. Sorts per name at the lowest prices. Apply to LEVEQUE ET FILS, Nurserymen, 132 and 134, Boulevard de l'Hôpital, Paris.

LOUIS VAN HOUTTE'S CATALOGUE, No. 130–131 (pp. 128), of Hardy Perennials, Ornamental Trees and Shrubs, Conifers, Roses of all kinds, Gesneraceous Plants, and Fruit Trees, is now being sent to Customers.
Ghent Royal Nursery.—November 27.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.—Mr. WEBB, Calcot, Reading.

Bulbs and Bulb Catalogue.

BARR AND SUGDEN'S BULB CATALOGUE free on application. See p. 1180 for particulars.
BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.

Notice.

THOSE who have neglected to Purchase their Supplies of BULBS for indoor decoration, to secure a satisfactory result should purchase during the present month.
BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.

Notice.

THOSE who have not yet Furnished their Beds with SPRING-FLOWERING PLANTS and BULBS, should do so during this month.
BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.

Special Offer to the Trade.

YELLOW CROCUS and Named CROCUS, SNOWDROPS, TULIPS, &c. Prices on application.
BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.

Dutch Bulbs, just Imported.

JAMES CARTER AND CO.'S AUTUMN CATALOGUE of HYACINTHS, CROCUS, and other Bulbs, also ROSES and FRUIT TREES, is now ready, and will be forwarded gratis and post free on application.
238, High Holborn, London, W.C.

Dutch Bulbs.

MORLE'S (late Hopgood's) ONE GUINEA and TWO GUINEA COLLECTIONS are the best and cheapest in the Trade. All Bulbs reduced 10 per cent. from Catalogue prices. Send at once for one to 9, Queen's Road, Bayswater, W.

NEW RHODODENDRON (Scarlet Hybrid), EARL DERBY. See Advertisement on page 1226.

WANTED, RHODODENDRON PONTICUM, and COMMON HOLLIES, for Stocks. State size and price to WM. WOOD AND SON, Nurseries, Maresfield, near Uckfield, Sussex.

WANTED, a few hundred or a thousand Yards of the true DUTCH BOX, for Edgings. State quantity and price to B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, London, N.

WANTED, LARCH, 2 to 3 feet, stout.—Send sample and price to
JAMES BIRD, Nurseryman, Downham.

WANTED, LARCH, 1½ to 2 or 3 feet. State price per 1000 to
C. H. BURBRIDGE, Guilford Nursery, Whitfield, near Dover.

LARCH, and FRUIT TREE STOCKS.—The Advertiser is in want of Crab and other Fruit Tree stocks, and Larch, 2 to 3 feet.—Apply "Trade."
HURST AND SON, 6 Leadenhall Street, City, London, E.C.

Wholesale Catalogue of Good Transplanted Nursery Stock.

GEO. JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1869-70 will be forwarded free on application. Woking Nursery, Surrey.

Splendid Large Trees for Avenue Planting.

SCARLET and Common HORSE CHESTNUTS, ELMS, POPLARS, &c. CATALOGUES on application.
WM. WOOD AND SON, Nurseries, Maresfield, Uckfield, Sussex.

Spruce Firs.

THOS. CRIPPS AND SON, NURSERYMEN, Tunbridge Wells, have a large Stock of the above in all sizes, from 1 to 10, 12 and 15 feet. Prices on application.

STANSFIELD'S Selections of ALPINE PLANTS for Rockwork.—Fifty beautiful and distinct species, named, for 12*s.* 6*d.*; 100 do. do., for 25*s.* British and Exotic FERNS, and general NURSERY STOCK in great variety. LISTS on application.
The Kersal Nurseries, Manchester.

Ten Thousand Laurustinus.

TOOLE AND CO., The Nurseries, Cullenswood, Ranelagh, Dublin, beg to offer a fine stock of the above, from 2 to 3 feet in height, which they can supply from 20*s.* to 30*s.* per 100.

SPRUCE FIRS, suitable for CHRISTMAS TREES.—2 to 3 feet, 10*s.* per 100; 3 to 4 feet, 21*s.* per 100. Terms cash.
HY. MINCHIN, The Nurseries, Hook Norton, Oxon.

M. CROOK AND SONS have the following to offer, in fine healthy plants:—SPRUCE, 2 to 4 feet; ASH, 3 to 6 feet; WYCH ELM, 4 to 6 feet. Prices on application.
Walton le Dale, Preston.

TO BE SOLD, a very fine AUCUBA JAPONICA (matchless).—3, Kings North End, Fulham, S.W.

FOR SALE, ACORNS (Quercus coccinea), the true scarlet Oak, very scarce this year. Good sound new seed.
C. HASTIER, 12, Water Street, Blackfriars, London, E.C.

FOR SALE, 2000 BEDDED SETS, from the EARLY PROLIFIC HOPS, from which the first Pockets of the Season were sent to London in 1865, 1867, and 1868. Price 5*s.* per hundred.
J. MAYNARD, Palace Farm, Bromley, Kent, S.E.

PYRETHRUM AUREA (Golden Feather) and LOBELIA SPECIOSA.—Enough SEED of either to produce 500 Plants for 13 stamps. Price to the Trade on application.
CHARLES YOUNG, Balham Hill Nursery, London, S.W.

Tree Ferns and Todea superba.

FOWLER AND CO., NURSERYMEN, Glasgow, have a few hundred TREE FERNS, from 2 to 16 feet high, and TODEAS, 1 to 4 feet across, all splendid plant. Prices moderate.

JUST RECEIVED, a consignment of CHOICE ORCHIDS, 5*s.* to 21*s.* each, or in collections at £3 or £6 per dozen, established in pots; do. on wood, 5*s.* each, 42*s.* per dozen; and many rare FERNS and PALMS.
R. GREEN, Bedford Conservatories, Covent Garden Market, W.C.

Chrysanthemums.

ADAM FORSYTH begs to inform his Friends and the Public that his Specimen and other CHRYSANTHEMUMS are unusually fine this season, and may be seen every day (Sundays excepted). A visit is respectfully solicited.
Brunswick Nursery, Stoke Newington, N.

Lilium auratum.

WM. PAUL has to offer a magnificent lot of the above, Dutch-grown roots, at 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* each; 24*s.*, 36*s.*, and 50*s.* per dozen; a few extra large roots, 7*s.* 6*d.* each. The usual discount to the Trade off the dozen rates when ordered by the dozen.
PAUL'S Nurseries, Waltham Cross, London, N.

Value for Value.

GRAPES the first year.—Extra strong Canes, 10*s.* 6*d.* and 7*s.* 6*d.* each; good Planters at 5*s.* each.
Extra strong SEAKALE for immediate forcing. Price on application.
R. TANTON, F.R.H.S., The Nurseries, Epsom.

Vines.

JAMES CARTER AND CO. can now offer strong, well-grown CANES, this year's growth. For description of Varieties and Prices, see AUTUMN CATALOGUE, now published.
JAMES CARTER AND CO., Seedsmen and Nurserymen, 237 and 238, High Holborn, W.C.

Vines, Five Shillings each.

LEWIS WOODTHORPE having an enormous stock, begs to offer strong Fruiting and Planting CANES of all the leading sorts, at 5*s.* each. L. W.'s system of packing saves nearly half the cost of carriage.
Munro Nursery, Sible Hedingham, Essex.

FRUITING VINES, warranted to fruit well this following season, of all the most approved kinds, from 5*s.* to 10*s.* 6*d.* each; ditto Planting Canes, 2*s.* 6*d.* to 3*s.* 6*d.* each.
J. PEED, Elfra Nursery, Brixton, S.W.

Grape Vines.

B. S. WILLIAMS' stock is remarkably fine, and in good condition. Can supply all the best kinds. Prices on application.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

Pines.

B. S. WILLIAMS has all the best kinds, in splendid condition, warranted clean. Prices on application.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

To Orchard Planters and Market Gardeners.

PAUL AND SON beg to offer STANDARD WELLINGTON, BLENHEIM, and other leading APPLES; WILLIAMS, HAZEL, and BEURRE PEARS (sorts). Fine straight 6-feet stemmed Trees, in quantity, and at reasonable prices.
The Old Nurseries, Cheshunt, N.

Gooseberries.

WANTED, in the Trade, 2000 CROWN BOB, also some LANCASHIRE LAD and SPORTSMAN GOOSEBERRIES. State size and price to
A. Z., *Gardeners' Chronicle* Office, W.C.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LIST of these varieties from Mr. WEBB, Calcot, Reading.

TEN ORANGE and TWO LEMON TREES for SALE, height from 6 to 8 ft., with stems about 3 feet. For particulars apply to J. GIBSON, Jun., 29, Bridge Road West, Battersea, S.W.

TO GENTLEMEN, GARDENERS, and OTHERS, having to DISPOSE of CHOICE FRUIT, FLOWERS, VEGETABLES, &c., may meet with good Sale and quick returns by sending to A. IRETON, Covent Garden Market, W.C. Stamp for inquiry.

New Golden Coleus.

DOWNIE, LAIRD, AND LAING offer SEED, saved from their First Prize Collections at South Kensington and the Crystal Palace, in packets, at 1*s.* each. The Trade supplied.
Stanstead Park, Forest Hill, S.E.

Pelargoniums, Carnations, Picotees, Pinks, Cloves, Auriculas, &c.

CHARLES TURNER can supply fine plants of the above. A CATALOGUE, containing select Collections of each, is now ready.
The Royal Nurseries, Slough.

Special Offer.—Madame Lemoine.

WILLIAM BADMAN offers strong plants of this most beautiful of Double Pelargoniums, in single pots, 6*s.* per dozen. LORD DERBY, finest Pelargonium grown, 4*s.* per dozen. Package included. Terms cash.
Cemetery Nursery, Gravesend.

Everlasting and Dried Natural Flowers.

JAMES CARTER, DUNNETT, AND BEALE'S WHOLESALE LIST of the above is now ready, and will be forwarded immediately on application.
237 and 238, High Holborn, London, W.C.

EVERY GARDEN REQUISITE KEPT in STOCK at
CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

Home-grown Agricultural and Garden Seeds.

H. AND F. SHARPE'S WHOLESALE CATALOGUE of HOME-GROWN SEEDS is now ready. The prices are very low, and the quality of the Seeds very fine.
Seed Growing Establishment, Wisbech.

To the Trade.

ASPARAGUS ROOTS.—A large quantity, of from 2 to 4-yr. old, strong Asparagus roots. No reasonable offer refused.
GEO. WINFIELD, Gloucestershire Seed Warehouse, Gloucester.

Asparagus Plants.—To the Trade.

JAMES CARTER AND CO. having grown a splendid lot of strong 3-yr. old plants, are prepared to make special quotations.
JAMES CARTER AND CO., 237 & 238, High Holborn, London, W.C.

To the Trade.

WINDSOR and LONG-POD BEANS, SANGSTER'S No. 1, and BADMAN'S IMPERIAL PEAS, &c., on offer, at advantageous prices.
FREDK. GEE, Seed Merchant and Grower, Biggleswade, Beds.

Seed Potatos.

H. AND F. SHARPE'S WHOLESALE LIST of all the new and best varieties of Early and Late POTATOS is now ready, and may be had on application. The quality is very fine, and prices low.
Seed Growing Establishment, Wisbech.

Early Rose Potato.

H. AND F. SHARPE have just imported a very true Stock of the above extraordinarily prolific POTATO, direct from one of the best growers in America; and are prepared to offer it to the Trade at a reduced price.
Seed-Growing Establishment, Wisbech.

THE Cheapest and most Effectual of all PLANTS for Game and Fox Covert, PAMPAS GRASS. Surplus stock, strong, healthy, seedling plants, twice transplanted, 25*s.* per 100, or £12 per 1000, delivered free to Bealings Station.
BUNDY, Kesgrave, Woodbridge, Suffolk.

Dutch and other Bulbs.

WM. CUTBUSH AND SON are celebrated for HYACINTHS, TULIPS, CROCUSES, and other DUTCH BULBS. All the Great Prizes, including the Two Special Prizes offered by the Dutch Growers, awarded to their Collections again last Spring. They import only ONE QUALITY, therefore Customers may rely upon having the finest Bulbs. CATALOGUES post free.
Highgate Nurseries, London, N.

New Catalogue of Dutch Bulbs, Plants, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select Descriptive and Priced Lists of Amaryllis, Crocuses, Cyclamens, Gladioli, Hyacinths, Liliums, Narcissus, Tulips, and other bulbs, Miscellaneous Plants, Fruit Trees, Sweet Violets, &c., is now published, and will be forwarded to applicants.—Exotic Nursery, Tooting, Surrey, S.W.

Arrival of Bulbs.

BARR AND SUGDEN,
12, King Street, Covent Garden, W.C.
CATALOGUE containing much additional valuable information now ready, and on application sent free to the Readers of the *Gardeners' Chronicle*. BULBS for Early Flowering now ready to send out, of first-class quality.

Hyacinths, Tulips, &c.

BUTLER, McCULLOCH AND CO. beg to announce the publication of their AUTUMN CATALOGUE of the above, which will be sent gratis and post paid on application. Orders for Bulbs can now be executed.
BUTLER, McCULLOCH AND CO., South Row, Covent Garden Market, London, W.C. Established upwards of a Century.

CARTER'S COLLECTIONS of HYACINTHS, CROCUS, TULIPS, &c.—To any one desirous of producing an effective display at the most moderate cost, JAMES CARTER & Co. strongly recommend the following Collection:—

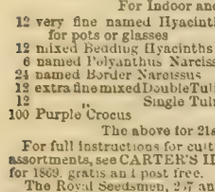
CARTER'S SPECIAL "GUINEA" COLLECTION
For Indoor and Outdoor Decoration.

12 very fine named Hyacinths, for pots or glasses	50 Striped Crocus
	50 White Crocus
12 mixed Feeding Hyacinths	12 Campernelle Jonquils
6 named Polyanthus Narcissus	24 extra choice mixed Spanish Iris
24 named Border Narcissus	
12 extra fine mixed Double Tulips	12 Double Daffodils
12 ,, Single Tulips	12 Gladiolus Brenchleyensis
100 Purple Crocus	24 Gladiolus Byzantinus

The above for 21s., or the half for 10s. 6d.

For full instructions for cultivation, and particulars of the above assortments, see CARTER'S ILLUSTRATED BULB CATALOGUE for 1869, gratis and post free.
The Royal Seedsmen, 237 and 238, High Holborn, London, W.C.

Dutch Flower Roots.



ARCHIBALD HENDERSON begs to announce that he has received a large Consignment of Dutch and other Roots, carefully selected from the most celebrated growers.

DESCRIPTIVE and PRICED CATALOGUES are now ready, containing practical directions for their successful cultivation on all the various systems now adopted.

Also a CHOICE and SELECT LIST of VEGETABLE and HARDY FLOWER SEEDS for Autumn Sowing. Catalogues gratis and post free upon application.

Sion Nursery, Thornton Heath, Surrey, and at the East Surrey Seed Warehouse, College Grounds, North End, Croydon.

Suttons' Imported Dutch Flower Roots,

CARRIAGE FREE.

SUTTONS' £1 1s. COLLECTION of FLOWER ROOTS for Spring Blooming in the open ground—carriage free by rail—

CONTAINS:—

12 fine mixed Border Hyacinths	6 fine mixed Gladiolus
6 ,, Polyanthus Narcissus	12 Duc Van Thol Tulips
12 Pheasant's Eye Narcissus	6 mixed Single Early Tulips
12 Double White Narcissus	6 fine mixed Double Tulips
25 Double Daffodils	6 ,, Parrot Tulips
6 large Campernelle Jonquils	6 Gesneriana Tulips
50 fine mixed Double Ranunculus	25 fine mixed Tulips
50 Scarlet Turban Ranunculus	6 ,, English Iris
12 fine mixed Double Anemones	6 ,, Spanish Iris
12 ,, Single Anemones	3 Lilies, of sorts
50 Crocus, 3 sorts	3 Fernaria pavonia
50 Snowdrops	6 Dog's-Tooth Violets
25 Winter Aconites	3 Crown Imperials

For further particulars and Prices of GLADIOLUS, RANUNCULUS, ANEMONES, &c., see SUTTONS' AUTUMN CATALOGUE, gratis and post free on application.
SUTTON AND SONS, Seedsmen to the Queen, Reading, Berks.

To Nurserymen and Others.

SHRUBS, SHRUBS, SHRUBS.—A large assortment of beautifully grown plants, comprising LAURUSTINUS, PRIVETS, LILACS, RIBES, ACCUBAS, DWARF ROSES, &c.; also a large quantity of mixed CURRANT and GOOSEBERRY TREES. The ground being about to be built on, it must be cleared at once. To be Sold by the lump or otherwise.
MOYS, Florist, &c., Nun Green, Peckham, S.E.

NEW SCARLET HYBRID RHODODENDRON, the EARL of DERBY.—This magnificent hybrid, raised by Mr. J. Faulkner, late of Kersal, and named by him after the illustrious Earl, lately deceased, is now offered to the Public, in robust thoroughly-hardened plants, from layers, at 21s. each. Noble alike in the large size of its foliage and in its immense trusses of flowers, of a fine crimson, of almost maximum size and exquisitely spotted (with dark spots), this splendid novelty is destined, beyond any question, to take and to hold a place in the very front rank of that host of beautiful hybrid Rhododendrons which are the glory and the pride of our British gardens. Such, in short, are its merits, that the Seller has no hesitation in guaranteeing against disappointment each and every Purchaser. The stock available for market being limited, it will be necessary to send orders in early.
The following Scarlet Hybrid Rhododendra, by the same raiser, and of surpassing merit, are offered at the low prices attached, viz.:—
MASTERPIECE, rosy crimson, strong plants from layers, thoroughly hardened, 5s. to 7s. 6d. each.
PHENOMENON, bright glossy crimson, finely spotted, do. do., 5s. to 7s. 6d. each.
,, fine Standards, 7s. 6d. to 10s. 6d.
FAULKNERI, deep crimson, fine, do. do., 5s. to 7s. 6d.
,, fine Standards, 7s. 6d. to 10s. 6d.
A plant of the last named, in the Nursery here, carried, this season, upwards of 100 trusses of flowers, of exquisite colour and pencilling, and of immense size.
The Kersal Nurseries, Manchester. (Established 40 years.)
N.B. Post Office orders payable—ABRAHAM STANSFIELD, Manchester.

RHODODENDRON MULTIFLORUM and AZALEA HYBRIDA ODORATA.—These plants gained First-class Seedling Prizes both in London and Liverpool, and the following Nursery men have been purchasers, whose knowledge of this class of plants cannot be doubted:—W. Skirving and Thos. Davies & Co., of Liverpool; J. Veitch & Sons, W. Bull, and A. Henderson & Co., of London; Thos. Jackson & Son, Surrey; Lucombe, Pince & Co., Exeter; J. Backhouse & Son, York; Thos. Methven and Downie, Laird & Lang, of Edinburgh; J. Stewart & Sons and Urquhart & Son, Dundee; E. Sang & Sons, Kirkcaldy; Thos. Innis & Sons, Ayr; Thos. Cripps & Son, Tunbridge Wells; E. Holmes, Lichfield; Fisher, Holmes & Co., Sheffield; Jas. Smith, Matlock; E. P. Francis & Co., Hertford; H. Weston, Bromley; Robert Morrison, Elgin.
Prices—R. MULTIFLORUM, 3s. 6d. to 7s. 6d.; bushes 1 foot high, with 30 to 50 flower-buds, 42s. to 63s. each.
A. HYBRIDA ODORATA, 5s. to 7s. 6d., strong, with flower-buds, 21s., 42s., and 63s. each.
ISAAC DAVIES, Brook Lane Nursery, Ormskirk

Fifty First Prizes.

PAUL AND SON'S ROSE CATALOGUE is now Ready. Also Descriptive Lists of FRUIT and HARDY TREES. Both are carefully prepared, and are pronounced by competent authorities as really useful Lists. For Roses, this Firm is unsurpassed.
PAUL AND SON, Old Nurseries, Cheshunt, N.

Standard and Dwarf Roses.

LEWIS WOODTHORPE begs to offer STANDARD and DWARF ROSES at the following low rates:—
Standard Roses, £5 per 100; 27s. 6d. per 25; 15s. per dozen.
Dwarf Roses, upon Manetti, £2 per 100; 6s. per dozen.
Dwarf Roses, in pots, 9s. per dozen.
Wholesale prices upon application. CATALOGUES of Roses, New Plants, and general Nursery Stock free.
Munro Nursery, Sible Hedingham, Essex.

Roses, New Roses (Trade Price).

LÉVÊQUE ET FILS, NURSERYMEN, 132 and 134, Boulevard de l'Hôpital, Paris, begs to offer good and healthy plants of—
TEA ROSES, grafted and on their own roots, grown in small pots.
Maréchal Niel, £4. per 100.
Souvenir d'Elise Vardon, Jean Pernet, M. Furtado, Madame Margottin, Reine du Portugal, Climbing Devoniensis, 10s. per doz.
Marie Sisley, Marie Ducher, Adrienne Christophle, Celina Noirey, Montplaisir, &c., 15s. per dozen.
Vicomtesse du Cazes, Madame Falcot, Niphétos, Safrano, Triomphe du Luxembourg, Bougère, Adèle Jougant, Ophélia, Souvenir d'un Ami, Pactole, and all the best sorts, 60s. per 100.
SOUVENIR DE LA MALMAISON, on their own roots, in pots, 40s. per 100.
DWARFS, Hybrid Perpetual, the best sorts, strong plants (our choice), 40s. per 100, £9 per 1000.
STANDARDS, clean stems, strong heads, all the best sorts (our choice), £5 per 100.
Do., Maréchal Niel, £6 per 100.
BARONNE DE ROTHSCHILD, splendid sort, strong dwarfs, £4 per 100.
Fifteen per Cent. Discount on the NEW ROSES of this YEAR. To be sent out for the first time next November.
LISTS and CATALOGUES on prepaid application.

British Fern Catalogue.

ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, Sidcup Hill, Kent.

Cheap, Cheap, Cheap.

JOHN BARRETT begs to offer his strain of HERBACEOUS CALCEOLARIAS at the following low prices:—In small pots, 4s. per doz., 25s. per 100; from pans, free by post, 2s. per doz., 12s. 6d. per 100.
The following choice GERANIUMS:—
LADY CULLUM, 6s. per dozen, 45s. per 100.
SOPHIE DUMARESQUE, 5s. per dozen, 40s. per 100.
ITALIA UNITA, 3s. 6d. per dozen, 25s. per 100.
MRS. POLLOCK, 3s. 6d. per dozen, 25s. per 100.
BEAUTY of OULTON, 3s. 6d. per dozen, 25s. per 100.
Fine healthy plants, package included.
St. John's Nursery, Bury St. Edmund's.

Epiphyllum truncatum, in 30 varieties.

WILLIAM BARNES has a fine healthy Stock of the above to offer. All are grafted on nice clean stocks, varying from 6 to 12 inches in height, with splendid heads, which are showing their bloom-buds in great profusion, and will continue to flower for several months to come. There cannot be a more lovely plant grown, as at this season of the year Flowering Plants are of great value for Table, Drawing-room, Conservatory, or Greenhouse Decoration.
W. B. has a very large stock of these, and can offer them at a very moderate price, which can be obtained upon application.
Camden Nursery, Camberwell, S.E.

Cedrus Deodara.

FINE SPECIMENS, 7, 8, 9, 10, to 15 feet, at 1s. per foot.

WM. MAULE AND SONS have to offer a large supply of extra fine EVERGREEN TREES and SHRUBS, calculated to give immediate effect to Parks, Cemeteries, and Plantations, and suitable for screening and blocking out new Buildings, that are springing up daily in the vicinity of all large towns.
The Nurseries, Bristol.

Golden Champion Grape.

OSBORN AND SONS can supply good CANES of the above-named remarkable GRAPE, which has again been exhibited and very much admired, fully sustaining the high character previously formed of it. Price 10s. 6d., 21s., and 30s. each.
Fulham Nursery, London, S.W.

EXTRA STRONG FRUITING VINES.—2000 close-jointed thoroughly ripened Canes can be supplied of Black Hamburgh, Golden Champion, Mrs. Pince, and other varieties, for fruiting in pots and for planting. Descriptive CATALOGUE upon application.
JAMES DICKSON AND SONS, Newton Nurseries, Chester.

THOMSON'S WHITE LADY DOWNE'S GRAPE.—Plants of this remarkable White Grape, the latest keeping in cultivation, are now being sent out. The Canes are strong and thoroughly ripened. Immediate orders are respectfully requested. Price 21s., 42s., and 63s. each.
THOMAS METHVEN, Leith Walk Nurseries, Edinburgh.

FIFTY PINES, Fruiting Plants, QUEENS (in pots), perfectly clean and healthy. The above are splendid plants, and are only parted with owing to a death in the family.
For particulars as to price, &c., apply to the GARDENER, Chilworth Manor, Romsey, Hants; or, to Messrs. CUTBUSH, the Highgate Nurseries, London, N.

Vines.

CHARLES TURNER can supply
GOLDEN CHAMPION
MADRESFIELD COURT | MRS. PINCE, and
BLACK MUSCAT | ROYAL ASCOT
In Fruiting Canes, or second size for planting out; also the established old varieties, in fine plants.
The Royal Nurseries, Slough.

To the Trade.

PLUM STOCKS, Prunus myrobalana, fine clean stuff, fit for immediate quartering, 35s. per 1000.
STANDARD MAY DUKE CHERRIES, stout, clean stems, 5 to 6 feet, and large heads.
BLACK HAMBURGH GRAPE VINES, in pots, strong, short-jointed, well-ripened Planting Canes; also a few dozen strong Fruiting Canes. Prices on application to
EWING AND CHILD, The Royal Norfolk Nurseries, Norwich.

ORCHARD-HOUSE TREES for SALE, in first-class Bearing order, the property of a Gentleman.—PEACHES and NECTARINES, fine specimens. Eight Standards, 8 feet high, good heads; Six Dwarf Bushes, 5 feet high. For further particulars apply to JAMES CARTER AND CO., Crystal Palace Nurseries, Forest Hill, S.E.

To the Trade.

JOHN PERKINS, Sen., begs to offer the following FRUIT TREES, all of the finest quality:—
STANDARD PEARS, 5 to 7 feet stems, with good heads, at 50s. per 100, consisting of the following and other leading varieties:—

Louis Bonne of Jersey	Doyenne d'Eté
Williams' Bon Chrétien	Comte de Flandre
Jargonelle	Lammas | Marie Louise
Beurré de Amanlis	Swan's Egg, &c. &c.

STANDARD MAYDUKE CHERRIES, 5 to 6 ft. stem, 75s. per 100.
Dwarf-trained do. do., ex. fine, 6 to 10 shoots, 18s. p. doz.; 130s. p. 100.
Do. do. MORELLO do., do. 6 to 10 do., 18s. per doz.; 130s. per 100.
All letters to be addressed
JOHN PERKINS, Sen., 52, Market Square, Northampton.

TWENTY THOUSAND GOOSEBERRIES, named, 2, 3, and 4-yr.
200,000 ASH, transplanted, 2 to 3, 3 to 4, and 4 to 5 feet.
100,000 SYCAMORE, transplanted, 2 to 3, 3 to 4, and 4 to 5 feet.
1,000 SYCAMORE, transplanted, 7 to 10 feet.
200,000 SPRUCE FIR, transplanted, 2 to 2½, and 2½ to 3 feet.
10,000 CHESTNUT, Horse, fine, moved in 1868, well rooted, 7 to 10 feet.
10,000 LIMES, Red, twigged, 4 to 5, and 5 to 6 feet.
20,000 HAZEL, 2 to 3 feet.
2,000 YEW, English, replanted every other year, moved in 1868, 3 to 4, 4 to 5, and 5 to 6 feet, fine pyramidal-shaped Plants.
2,000 LAUREL, Portugal, replanted every other year, very strong, 3 to 3½, and 3½ to 4½ feet, from 4 to 6 feet in circumference.
Prices on application to
H. AND R. STIRZAKER, Skerton Nurseries, Lancaster.

EARLY SANDRINGHAM KIDNEY POTATO.

THE EARLIEST, MOST PROLIFIC,

AND BEST VARIETY FOR FORCING PURPOSES IN CULTIVATION.

Price to the Trade and further particulars may be had on application to

H. AND F. SHARPE, SEEDGROWING ESTABLISHMENT, WISBECH.

RHODODENDRONS, FINEST NAMED VARIETIES.

MESSRS. VEITCH & SONS

Beg to announce that they have a splendid STOCK of the above, well set with flower-buds, and are enabled to offer beautiful Plants, 1½ to 2 feet high, suitable for Forcing or Planting in Beds, at 30s. to 42s. per dozen.

MESSRS. VEITCH AND SONS have a large STOCK of named sorts in other sizes, as also of

HYBRIDS AND PONTICUM RHODODENDRONS,

And will be happy to send samples and quote sizes and prices by the Hundred or Thousand.

ROYAL EXOTIC NURSERIES, CHELSEA; and COOMBE WOOD, KINGSTON, S.W.

FRUIT TREES OF EVERY DESCRIPTION.

WILLIAM ROLLISSON & SONS

BEG RESPECTFULLY TO ANNOUNCE THAT THEIR

NEW CATALOGUE OF HARDY AND ORCHARD-HOUSE FRUITS

Is now about being published, which contains a full and Descriptive List of all the Popular Favourites in Cultivation, together with additions of most of the Novelties, worthy of merit, of the season; and will be forwarded, Gratis and Post Free, on application to

THE NURSERIES, TOOTING, LONDON, S.W.

STRONG STANDARD APPLES and PEARS.—Large Horizontal Trained and Pyramid Apples and Pears; fine Standard and Dwarf-trained PEACHES and NECTARINES; fine bushy LAURELS and LAURUS COLCHICUM, up to 4 feet; extra bushy LAURUSTINUS and PORTUGAL LAURELS, 1½ to 3 feet; a large collection of Standard and Dwarf Perpetual, Dwarf China, and Climbing ROSES of the leading sorts; deciduous flowering SHRUBS; ASH, 2 to 5 feet; LARCH, SCOTCH, SPRUCE, and AUSTRIAN FIRS, and all kinds of FOREST TREES; strong Evergreen PRIVET and THORN QUICK for Hedges. All the above have been regularly transplanted, and are well rooted. Prices on application to

CHARLES BURGESS, The Nurseries, London Road, Cheltenham.

Fruit Trees for Sale.

J. SCOTT, The Nurseries, Merriott, Somerset, will be glad to receive orders for the above, which will be carefully attended to. The Trees consist of 1000 sorts of PEARS, 700 do. of APPLE, 170 do. of PLUM, 150 do. of CHERRY, with other kinds in proportion. Standards, 6 to 7; Pyramids, 6 to 7; and Bushes, 3 to 5 feet high; also very fine Dwarf-trained Trees of all kinds, of superior growth, are offered. The above are described in the "Orchardist," the best work on Fruit Trees in England, price 1s. 6d. in stamps. A printed List or Index sent gratis.

J. S. also offers a splendid stock of FOREST TREES, DECIDUOUS SHRUBS and EVERGREENS in every variety.

CATALOGUE free on application.

Fruit Trees and Onions.

J. SCOTT, The Nurseries, Merriott, Somerset, calls attention to his fine Stock of FRUIT TREES, one of the largest and healthiest in the Kingdom. He has also for Sale several tons of prime large ONIONS, and from 10 to 15 bushels of Pickling do.

The ORCHARDIST, the best work on Fruit Trees, with Descriptive and Cultural Directions, price 1s. 6d., in stamps.

Fruit Trees.

J. LE CORNU, NURSERYMAN, SEEDSMAN, and FLORIST, begs to inform his Friends and the Public that he has this season to offer an immense quantity of beautiful and well-grown FRUIT TREES, all of the best leading varieties, such as Apples, Apricots, Peaches, Nectarines, Pears, Plums, and Cherry Trees, as Dwarf, Trained, and Standards, 4 to 6 feet stems.

CATALOGUE on application.

High View Nurseries, Mont a l'Abbé, St. Helier's, Jersey.

Forest, Fruit, and other Trees.

JAMES DICKSON AND SONS' NURSERY STOCK is NOT surpassed in Britain; therefore, they have EVERY CONFIDENCE in soliciting Orders, and inviting intending planters to visit their EXTENSIVE NURSERIES, which can now be reached, on foot, in seven minutes, from the Chester Railway Station, by their new private road from the foot of the Flookersbrook Railway Bridge.

PRICE LISTS on application.

(*Old Established Nursery and Seed Business.*)

"Newton" Nurseries, Chester.

To the Trade.

MR. WILLIAM MASTERS, Exotic Nursery, Canterbury, has a fine stock of FRUIT TREES to offer, upon moderate terms.

MULBERRIES, 5 and 6 feet, Standards and Half Standards. Such a clean healthy set is seldom seen.

PEACH and NECTARINE, Dwarf Maiden and cut back, 2 and 3-yr. trained. In the most healthy state.

PLUMS and CHERRIES, Dwarf Maiden and cut back; also 2 and 3-yr. trained, of all the leading sorts, as well as Bush and Pyramids, for early fruiting.

PEARS, of very choice sorts, of the same descriptions.

WALNUT and QUINCE, Standards, of small and large sizes.

APPLES, of the leading kinds, both the Dessert and Kitchen use. They are as Standards, Pyramids, Dwarfs, and Trained.

FLOWERING SHRUBS and TREES.

ROSES, of the very best kinds that could be got together, both Standards and Dwarfs.

ACACIA INERMIS, clean, 6 feet stems.

ACER, or Negundium variegatum, of different sizes.

COPPER BEECH, 3, 4, 5, and 6 feet stems.

ROSE ACACIA, dwarfs. | CARAGANA, several sorts, 4 ft.

Double APPLE, CHERRY, PEACH, of sorts.

DROOPING MOUNTAIN ASH, LABURNUMS, WILLOWS, COMMON ASH, &c.

RHODODENDRONS, of choice named kinds, and also many thousands for Shrubbery and Wood planting.

HEATHS, AZALEAS, ANDROMEDAS, KALMIAS, &c.

Aucuba, 6 in., and 1, 2, and 3 feet
Althæa frutex, many named kinds
Box, of sorts, 1, 2, and 3 feet
Philadelphus, of many sorts
Lilacs, of many varieties
Spiræa, do. do.
Gueldres Rose, and other Viburnums
Sweet Bay, 1 and 2 feet
Laurestine, 1 and 2 feet
Thorns, of choice worked sorts 1, 2, and 3-yr.
Laurels, 2 to 3, and 4 to 5 feet
Berberis and Mahonia, many species
Variegated Hollies, 1, 2, and 2½ feet.
Daphne pontica, 2 feet
Yews, 3, 4, and 5 feet
Yucca recurva, 1, 2, and 3 feet

CONIFERS.

Firs and Pines, of many kinds
Cypress, do.
Cedar (Red), Atlantic, &c.
Junipers, of sorts
Biota and Thuja, or Arbor-vitæ
Araucaria, 1 to 2 feet
Chamæcyparis variegata, beautiful plants.

MISCELLANEOUS.

Lime layers, 3 to 4 feet
Asparagus, 1, 2, and 3-yr. old
Seakale, 1, and 2-yr. old
Rhubarb, strong roots

Prices upon application.

Shrubs, Evergreens, and Fruit Trees.

ROBERT CORNWELL AND CO. have to offer SPRUCE, SILVER SCOTCH, LARCH, and AUSTRIAN FIRS, 3 to 5 feet; PRIVET, 4 to 5 feet; Variegated and Green BOX, 2 to 4 feet; IRISH YEWS, 3 feet; PINUS EXCELSA, 6 to 8 feet; Bushy LAURELS, 3 to 8 feet; PORTUGAL do., 2½ feet; LAURUSTINUS, 2 to 3 feet; some extra handsome ones, 4 by 4 feet; 2, 3, and 4-yr. ASPARAGUS; Box Edging, Fruiting GOOSEBERRIES, CURRANTS, RASPBERRIES, and STRAWBERRY Plants cheap, the Ground being wanted for a Railway.

Opposite Red Lion, Barnet, Herts.

MESSRS. J. BROWN AND CO. can forward the following Plants:—

25 AZALEAS, new hardy Belgian vars., one of a sort, by name, 18s.
25 ,, American varieties, do., 15s.
12 RHODODENDRONS, hardy scarlet varieties, 10s. 6d.
12 Hardy RHODODENDRONS, one of a sort, by name, including scarlet, white, and rose, 12s.
12 Hardy HEATHS, one of a sort, by name, 6s.
12 KALMIAS and LEDUMS, of sorts, 6s.
Hardy CLIMBERS, including ROSES, per dozen, 6s.

American Nursery, near Farnham, Surrey.

Limes, Purple Beech, &c.

LIMES, best Red-twigged Variety, 6 to 10 feet, 15s. to 30s. per dozen.

PURPLE and COPPER BEECH, very fine, transplanted in spring of 1869, 6 to 10 feet, 18s. to 42s. per dozen.

WEEPING BEECH, very fine, 24s. to 36s. per dozen.

LARCHES, Chichester and Hertfordshire, 8 to 14 feet, 12s. to 30s. p. doz.

Price to the Trade on application to

EWING AND CHILD, the Royal Norfolk Nurseries, Norwich.

Nursery Stock (one of the Largest in Scotland).

THOMAS KENNEDY AND CO. have as usual a very large and superior stock of FOREST, FRUIT, and ORNAMENTAL TREES, DECIDUOUS and EVERGREEN SHRUBS, &c., which they are selling at moderate prices. The Trees and Shrubs being of all ages and sizes, are particularly well suited for extensive planting, or giving immediate effect in the formation and improving of Ornamental Parks, Pleasure Grounds, &c.

Dumfries has long enjoyed the pre-eminence of being one of the best localities in Great Britain for rearing young Trees—its soil and climate being peculiarly adapted for that purpose; and wherever these Trees have been planted throughout the three Kingdoms (where Millions are sent by T. K. & Co. every season), they have invariably done well.

Dumfries, from its central position, is most favourably situated for the speedy transmission of goods to all parts of the United Kingdom. T. K. & Co. will forward a Copy of their DESCRIPTIVE PRICED CATALOGUE to any address on application.

Nursery and Seed Establishment, Dumfries.—November, 1869.

RICHARD SMITH'S LIST of EVERGREEN and DECIDUOUS SHRUBS, RHODODENDRONS, STANDARD ORNAMENTAL TREES, CLIMBING and TWINING PLANTS, with their generic, specific, and English names, native country, height, time of flowering, colour, &c., and general remarks, free by post.

RICHARD SMITH, Nurseryman and Seedsman, Worcester.

LUCOMBE, PINCE, AND CO.

beg to call special attention to their surplus and unrivalled stock of the following hardy ORNAMENTAL TREES and SHRUBS, which have been yearly transplanted, and can now be sent to any distance with perfect safety:—

ABIES ORIENTALIS, 5, 6, and 7 feet high, from 7s. 6d. to 21s. each.
,, DOUGLASII, fine specimens, 12 to 15 feet high, 15s. and 21s. each
CEDRUS DEODARA, 10 to 15 feet high, 15s. to 21s. each.
CUPRESSUS LAWSONIANA, 4 to 7 feet high, 5s. to 10s. 6d. each.
JUNIPERUS CHINENSIS, 3 to 4 feet high, 3s. 6d. each.
PICEA NORDMANNIANA, 2 to 4 ft. high, 21s., 31s. 6d., and 42s. each
,, PINSAPO, 3 to 4 feet high, 21s., 31s. 6d., and 42s. each.
,, LASIOCARPA, 3 to 4 feet high, 31s. 6d., and 42s. each
SKIMMIA JAPONICA, in pots, 18s. per dozen.
THUJA AUREA, 3, 4, and 5 feet high, 7s. 6d. to 15s. each.
THUJOPSIS BOREALIS, 5 to 7 feet high, 15s. and 21s. each.
WELLINGTONIA GIGANTEA, 4 to 12 ft. high, 10s. 6d. to 42s. each
YEWS, IRISH, magnificent plants, grown on a single stem, from 4 to 10 feet high, 3s. 6d. to 21s. each.

Exeter Nursery, Exeter.

SPECIMEN CONIFERS, consisting of the following,

from 6 to 20 feet in height, handsome, suitable for immediate effect, will transplant with safety:—

ABIES DOUGLASII
,, MORINDA
ARAUCARIA IMBRICATA
CEDRUS ATLANTICA
,, DEODARA
,, LIBANI
CRYPTOMERIA JAPONICA
CUPRESSUS LAWSONIANA
JUNIPERUS CHINENSIS
,, EXCELSA
PICEA PINSAPO
PINUS AUSTRIACA
,, CEMBRA
,, EXCELSA
THUJA COMPACTA
,, GIGANTEA
,, LOBBII
,, AUREA, 3 to 5 feet—perfection.
THUJOPSIS BOREALIS
WELLINGTONIA GIGANTEA

JAMES W. TODMAN, Eltham Nursery, S.E., 1¼ mile from Blackheath Station (North Kent); 1 mile from Eltham Station (Loop Line).

TRANSPLANTED FOREST TREES, clean, healthy, and finely rooted.

	Per 1000.—s.	d.
ALDER, 2 to 3 feet	30	0
,, 3 to 4 feet	40	0
ASH, 2 to 3 feet	30	0
,, 3 to 4 feet	40	0
,, 4 to 5 feet	50	0
BEECH, 1 to 2 feet	40	0
,, 2 to 3 feet	50	0
BIRCH, 3 to 4 feet	50	0
CHESTNUT, Spanish, 2 to 3 feet	50	0
ELM, Chichester, 6 to 8 feet per 100	50	0
,, Hertfordshire, 6 to 8 feet ,,	50	0
FIR, Scotch, 1 to 2 feet	40	0
,, Spruce, 1 to 2 feet	40	0
,, ,, 2 to 3 feet	60	0
,, ,, 3 to 3½ feet	70	0
HAZEL, 2 to 2½ feet	40	0
NORWAY MAPLE, 6 to 8 feet per 100	20	0
,, 8 to 10 feet ,,	40	0
OAK, British, 2 to 3 feet	40	0
,, 3 to 4 feet	50	0
POPLARS, Lombardy, Black English, Black Italian, Ontario, 6 to 8 feet per 100	20	0
COMMON LAUREL, 1½ to 2 feet ,,	10	6
,, ,, 2 to 3 feet ,,	15	0
,, ,, 3 to 4 feet per 100, 25s. to	30	0
MAHONIA AQUIFOLIUM, fine per 100	12	6

Price to the Trade on application to

EWING AND CHILD, the Royal Norfolk Nurseries, Norwich.

Extra large Trees for Ornamental Planting

IN PARKS AND AVENUES.

WM. WOOD AND SON have to offer a magnificent STOCK of the following:—

Sycamores, 7 to 8 feet
,, variegated, 5 to 6 feet
Horse Chestnuts, 8 to 10 feet
,, ,, scarlet, 8 to 10 feet
Catalpa syringæfolia, 7 to 8 feet
Laburnums, 4 to 6 feet
,, purple, 4 to 6 feet
Weeping Ash, ex. fine, 7 to 9 feet
Ash-leaved Maple, 7 to 8 feet
Poplars, Black Italian and Lombardy, 8 to 10 feet
Mountain Ash, 7 to 8 feet
,, ,, Weeping, 6 to 7 ft.
Pyrus aria latifolia, 7 to 8 feet
American Weeping Willows, 6 to 8 feet
Elms, English, Chichester, Wych, 6 to 8 feet, and 8 to 10 feet

Price on application.

Address—Woodlands Nursery, Maresfield, Uckfield, Sussex.

DOWNIE, LAIRD, and LAING

beg to offer the undermentioned VALUABLE NURSERY STOCK, which is all in the best possible health. To ensure a Sale, the whole will be offered at (as near as possible) one-half the usual sale price. The Fruit Trees are all of the finest sorts, and true to name. Inspection invited.

45,000 Oak, English, 2½, 3, to 4 ft.
200 Portugal Laurel, 3 to 5 ft., very fine.
5,000 Laurel, Bay, 3 to 4 feet.
40 Irish Yew, 7 to 8 feet.
150 Tree Box, 4 feet.
200 Thuja tatarica, 3 to 4 feet.
50 Picea Nordmanniana, 1 to 1½ foot, fine.
6 Thuja gigantea, 5 to 6 feet.
30 Araucaria imbricata, 4 to 5 feet, very fine.
20 Abies Menziesii, 5 to 6 feet.
30 Cedrus Deodara, 4, 5, to 6 feet.
200 Aucuba japonica, 2 to 2½ feet, very fine.
30 Cupressus Lawsoniana, 2 to 3 feet.
30 Cupressus Lawsoniana, 4 to 5 feet.
100 Thujopsis borealis, 2 to 2½ feet.
12 Wellingtonia gigantea, 5 to 7 feet, very fine.
3,000 Miscellaneous Shrubs.
1,000 Dwarf Trained Apples, sorts named.
1,000 Dwarf Trained Pears, sorts named.
500 Dwarf Trained Cherries, sorts named.
4,000 Gooseberries, sorts named.
1,000 Currants, sort named.

N.B.—As the above must shortly be cleared off to make way for building purposes, early orders are respectfully solicited.

West Coates Nursery, Edinburgh.—November 20.

Large Evergreens and Forest Trees.

MESSRS. PAMPLIN AND SON have a large quantity of the following, and offer them at low prices, part of their Grounds being required for building purposes.

Cedar of Lebanon, 10 to 20 feet
Cedrus Deodara, 6 to 15 feet
Aucuba japonica, 2 to 6 feet
Portugal Laurels, 2 to 6 feet
Chinese Arbor-vitæ, 5 to 12 feet
American ,, 5 to 10 feet
Thuja aurea, 1 to 4 feet
Green Box, 1 to 6 feet
Striped ditto, 2 to 4 feet
Evergreen Oak, 7 to 10 feet
Yew, Common, 4 to 10 feet
Irish Yew, 3 to 5 feet
Laurel, 2 to 6 feet
Araucaria imbricata, 10 feet
Green Hollies, 1 to 12 feet
Weymouth Fir, 3 to 6 feet
Spruce ditto, 2 to 4 feet
Birch, 14 feet
Black Italian Poplar, 20 feet
Balsam ditto, 10 to 15 feet
Lombardy ditto, 20 feet
Horse Chestnut, 10 to 15 feet
Spanish Chestnut, 10 feet
Limes, 10 to 15 feet
Walnuts, 10 to 15 feet
Ash, 10 to 20 feet
Elm, 10 to 15 feet
Acacia, 10 feet
Mountain Ash, 10 feet
Turkey Oak, 10 to 12 feet
Sycamore, 10 to 14 feet
Weeping Willow, 10 to 15 feet
Lilac, Common, 8 feet
Persian ditto, 6 feet
Yellow Azalea, 3 feet
Privet ovalifolia, 8 feet

The Nurseries, Lea Bridge Road, Leyton; and Wood Street, Walthamstow, Essex, N.E.

To the Wholesale Trade.

HERBERT H. NICHOLSON, SEEDGROWER, Great Coxtead (near St. Osyth), Essex, has the following SEEDS to offer, for cash only:—

ROBINSON'S PRIZE CHAMPION OX CABBAGE, 80s. per cwt.		
NONPAREIL CABBAGE	11s.	,,
WHITE CELERY (Lee's Red)	95s.	,,
SELECTED DARK RED BEET	100s.	,,
STUDENT PARSNIP	80s.	,,
MYATT'S CURLED PARSLEY	2s. 6d. per bush.	
STUBBLE TURNIP	18s.	,,

&c. Also all the Annual FLOWER SEEDS, at low prices.

Autumn Planting.

PETER LAWSON AND SON will be glad to send their CATALOGUE (just published) of FOREST and ORNAMENTAL TREES and SHRUBS, free upon application.

The stock of LARCHES, SCOTCH FIRS, AUSTRIAN and CORSICAN PINES, &c., comprises some millions of healthy, well-grown plants, and special offers will be made for large quantities when personal inspection is not convenient.

Edinburgh and London.

C. DALY AND SON, NURSERYMEN and SEEDSMEN,

Coleraine, Ireland, have to offer a large stock of COMMON LAUREL, PORTUGAL ditto, LAURUSTINUS, IRISH YEW, Common ditto, and Nursery Stuff generally, which will be Sold Cheap. They will be delivered on board the London Steamboat at Belfast free. Prices on application. Orders sent to

Messrs. HURST AND SON, London, will have prompt attention.

To the Trade.

ONE MILLION THORNS, 3-yr. old, first size, 5s. per 1000, or 100,000 for £20; second size, 2s. 6d. per 1000; a reduction on taking 100,000. A few hundred fine grown and well-trained CHERRIES at 18s. per dozen. A remittance or reference from unknown Correspondents.

Apply to W. TRESEDER, Nurseryman, Cardiff.

PARSONS' NEW HYBRID TREE MIGNONETTE.—

This new Tree Mignonette has no equal, it is robust in growth, of very compact habit, and deliciously sweet.

G. P. has been improving it by careful selection for the last ten years, and he is quite certain it will become a universal favourite, he has grown plants of it 3 feet in height, and 8 feet in circumference, in nine months from the time of sowing; moderate sized plants take about five months from the time of sowing. In sealed packets, 1s.

To be had from G. PARSONS, Nurseryman and Seedsman by appointment to her Majesty, 27 and 28, Western Road Brighton; and Hassock's Gate, Keymor, Hurstperpoint. May also be had at HURST AND SONS, 6, Leadenhall Street, London, E.C.

Wandsworth Common Nursery.

Ten minutes' walk from Clapham Junction.

MR. ROBERT NEAL begs to invite the attention of the Nobility, Gentry, and the Trade in general to his very extensive and healthy stock of PLANTS, consisting of a large collection of Standard, Pyramidal, and Dwarf-trained FRUIT TREES, of all sizes; Standard and Dwarf ROSES, Coniferous and other Evergreens, Forest and Ornamental TREES and SHRUBS; also a large collection of RHODODENDRONS, all the very best in cultivation, and are of endless variety, from deep crimson and dark purple (every shade), up to white, and Hybrid Seedlings, and all the leading kinds of Scarlet, both Standard and Dwarf, set with Bloom-buds, which he can supply in large quantities at a very low price.

CATALOGUE will be sent on application.

To Noblemen, Gentlemen, Nurserymen, Planters, and Others.

Two Hundred fine Single Specimen GOLDEN QUEEN HOLLIES, varying in height from 3 to 8 feet, and from 3 to 6 feet in diameter.

JOHN FRETTINGHAM begs to offer the above, all of which are fine Single Specimen Plants, recently removed, and will carry splendid balls of earth. They are well furnished to the ground, in the best possible state of health, good in shape, and in every way fine specimens—probably such plants as cannot be seen anywhere else in England.

Also a quantity of similar sized SILVER QUEEN and SILVER-STRIPED HEDGEHOG HOLLIES; Standard-trained MOOR-PARK APRICOTS, on fine legs; strong Standard FRUIT TREES, by the 1000, suitable for orchard planting, on 6 feet stems, in a bearing state. The above are accurately described, and may now be seen growing in the Nursery. Full particulars as to price, &c., upon application. N.B.—One Hundred of the Golden Queen Hollies are from 3 to 5 feet, the rest from 5 to 8 feet in height.

JOHN FRETTINGHAM, Stapleford Nursery, Nottingham; or 18, Corn Market, Derby.

Planting Season.—Walton Nursery, Liverpool.

To PLANTERS of PUBLIC or PRIVATE PARKS, CEMETERIES, PLEASURE GROUNDS, or WOODS and FORESTS.

W. SKIRVING begs to announce that his STOCK of TREES and SHRUBS is this season very extensive and well grown, and that he is now prepared to execute orders to any amount for Trees and Shrubs of all sizes, at moderate prices.

W. S. considers the present and following month two of the best for transplanting Evergreen Trees or Shrubs, and solicits Planters to inspect his Stock, which consists of many thousands of the Holly, of the most choice varieties of the Gold and Silver Variegated kinds, and of the large broad-leaved Holly (the finest of all Evergreen Trees), hundreds of which are of large size and fine specimens for giving immediate effect, with many thousands of smaller sizes for general planting.

Also an immense Stock of all other cultivated Trees and Shrubs, either for Villa, Park, or Forest planting, and of Fruit Trees for Gardens or large Orchards.

N.B.—Fifty Acres of Walton Nursery being required for Villa Building, the Stock thereon must be cleared as soon as possible, therefore reduced prices will be accepted.—October, 1869.

Special Offer to the Trade by MAURICE YOUNG, Milford Nurseries, near Godalming.

AUCUBAS (new Japanese varieties), in 20 varieties, at £5 per 100.
,, JAPONICA, in fruit, 18s., 24s., 30s., up to 120s. per dozen.
ARALIA SIEBOLDII, 12s. to 24s. per dozen.
CRYPTOMERIA ELEGANS, 6 to 9 inches, 21s. per 100; 12 to 18 inches, 100s. per 100.
LIGUSTRUM CORIACEUM, 12s. per dozen.
DEUTZIA CRENATA, flore-pleno, strong, 20s. per 100.
OSMANTHUS ILLICIFOLIUS, 6 to 9 inches, 50s. to 75s. per 100.
,, ROTUNDIFOLIA, new, 42s. per dozen.
RAPHIOLEPIS OVATA, 18s. per dozen.
RETINOSPORA FILICOIDES, 60s. per dozen.
,, FILIFERA, 30s. per dozen.
,, LEPTOCLADA, 9s. to 12s. per dozen.
,, OBTUSA, 6 to 9 inches, 20s. per 100; 9 to 12 inches, 30s. per 100; 18 to 24 inches, 80s. per 100.
,, OBTUSA NANA AUREA, 24s. per dozen.
,, OBTUSA VARIEGATA, 30s. per dozen.
,, PISIFERA, 6 to 8 inches, 20s. per 100; 9 to 12 inches, 30s. per 100; 18 to 24 inches, 80s. per 100.
,, PISIFERA AUREA, 4 to 6 inches, 75s. per 100.
,, PLUMOSA, 42s. per dozen.
,, PLUMOSA AUREA, 24s. per dozen.
,, PLUMOSA VARIEGATA, 42s. per dozen.
,, SQUARROSA, 9s. per dozen.
SKIMMIA OBLATA, 12s. to 18s. per dozen.
THUJA PYGMÆA, 18s. to 30s. per dozen.
THUJOPSIS DOLABRATA, 4 to 6 inches, 30s. per 100; 6 to 9 inches, 9s. to 12s. per dozen.
,, DOLABRATA VARIEGATA, 9s. to 12s. per dozen.
BERBERIS BEALII, 2-yr. seedlings, 40s. per 1000.
BIRCH (Young's New Weeping), standards, 30s. per dozen.
CHESTNUT (Young's New Silver Striped), 24s. to 42s. per dozen.
,, (Young's New Cutleaf), 24s. to 42s. per dozen.
PICEA NORDMANNIANA, 15 to 18 inches, 18s. to 24s. per dozen; magnificent plants, 2 to 3 feet, 42s. to 80s. per dozen; 6 to 7 feet, 21s. to 63s. each.
PRUMNOPITYS ELEGANS, 9 to 12 inches, 75s. per 100.
THUJA LOBBII, 18 to 24 inches, 25s. per 100; 3 to 4 feet, 50s. to 75s. per 100.

ONE MILLION 1-yr. SEEDLING SPANISH CHESTNUTS, in drills, stout and good rooted, 6s. per 1000, 5s. 6d. if 50,000, and 5s. if 100,000 are taken.

TWO MILLION SEEDLING and TRANSPLANTED QUICKS, samples and prices on application.

STANDARD APPLES, of leading kinds.

AURICE YOUNG, Milford Nurseries, near Godalming, Surrey.

THE AMERICAN NURSERY,

BAGSHOT, SURREY.

Near Sunning Dale Station, South-Western Railway.

JOHN WATERER & SONS

Respectfully invite the attention of Gentlemen and Planters to the undernamed selections from their general stock; every plant may be depended upon as in the best order possible for removal, having been transplanted within the last season.

ARAUCARIA IMBRICATA, grand specimens, 4 to 6 to 8 to 12 feet.
CUPRESSUS LAWSONIANA, 3 to 4 to 6 to 10 feet.
„ LAWSONIANA ARGENTEA (JOHN WATERER'S var.). — By far the most desirable of all the glaucous varieties, 5s. to 7s. 6d. each.
„ MACROCARPA, 4 to 6 feet, 42s. per dozen.
THUJA AUREA.—Beautiful plants, about 2 feet, 42s. per dozen; larger, 5s. to 21s. each.
„ GIGANTEA.—An unequalled stock of hundreds of Seedlings, 4 to 6 to 8 feet, 3s. 6d. to 63s. each.
We would remark, that unless plants are on their own roots of this fine Thuja they are quite worthless.
THUJOPSIS BOREALIS, 3 to 4 feet, 30s. per dozen; extra fine, 5 to 6 and 7 feet, 5s. to 10s. 6d. each.
„ DOLABRATA.—Fine plants, 5s. to 7s. 6d. each.
„ „ VARIEGATA, 5s. to 7s. 6d. each.
WELLINGTONIA GIGANTEA. — Good plants, 30s. per dozen; 2 to 3 feet, 42s. to 60s.; larger, up to 10 feet, 7s. 6d. to 63s. each.
ABIES NOBILIS, 2 to 3 feet, 21s. each; larger, 4 to 5 feet, 42s.
„ NORDMANNIANA, 2 to 3 feet, 7s. 6d. to 10s. 6d.; 3 to 4 feet, 21s.; 4 to 8 to 12 feet, 31s. 6d. to 105s. each.
„ LASIOCARPA, 3 to 4 to 5 feet, 10s. 6d. to 42s. each.
„ GRANDIS, 4 to 5 to 6 and 10 feet, 10s. 6d. to 63s. each.
„ PINSAPO, 2 to 3 feet, 5s.; 3 to 5 to 8 feet, 7s. 6d. to 63s.
„ DOUGLASII, 3 to 4 feet, 42s. per dozen; 4 to 6 to 10 feet, 5s. to 21s. each.
„ MAGNIFICA, 3 to 4 feet, 31s. 6d. to 42s.
„ ORIENTALIS, 3 to 5 to 8 feet, very beautiful examples, 21s. to 63s. each.
CEDRUS DEODARA, 2 to 3 feet, 30s. per dozen; larger, up to 12 feet
YEWS, COMMON.—Immense quantities, 2 to 3 to 4 to 6 feet, from 18s. to 60s. per dozen.
„ IRISH.—Perfect columns, up to 12 feet.
„ GOLDEN, as Standards on Irish stems, perfect globes, 31s. 6d. to 42s. each.
HOLLIES, GREEN COMMON.—Many thousands, of all sizes, from 1 foot up to 10 feet.
„ the best GOLDEN, WATERERS', and SILVER varieties, in any quantity, and of all sizes.
STANDARD HOLLIES, GREEN, 10s. 6d. to 21s. each.
„ „ WATERERS' variety, many hundreds of symmetrically grown specimens, perfectly straight stems, 42s. to 105s. per pair.
„ WEEPING, GREEN, and SILVER VARIEGATED, fine plants, from 21s. each.
„ PORTUGAL LAURELS.—Very close grown handsome plants, 10s. 6d. to 21s. each; very large imposing specimens, 42s. to 63s. each.

AMERICAN PLANTS.

Of this very popular tribe of plants we have the pleasure of observing that our stock is unequalled, and that it is from our Establishment that nearly all the approved crimson varieties of Rhododendrons have emanated. The Grand Exhibition of Rhododendrons annually displayed at the Royal Botanic Gardens, Regent's Park, has been for the past 20 years supplied from our Nursery.

RHODODENDRON PONTICUM, for undercover or shrubberies, strong established plants, £10 10s. per 1000; larger, 25s. to 63s. per 100.
„ CATAWBIENSE and HYBRIDS, bushy well-grown plants, 50s. to 75s. per 100.
„ better class (SEEDLINGS) and named varieties for extensive planting, £5 per 100.
„ of superior kinds, many on own roots, £7 10s. to £10 per 100.
„ very superior, leading, crimson, rose, white, £12 10s. to £20 per 100.
„ STANDARD and HALF-STANDARD, of the most imposing varieties, of all shades of colour, from 21s. to 63s. to 105s. each.
AZALEAS, common kinds, 50s. to 75s. per 100.
„ very best, in fine plants, £10 per 100.
KALMIA MYRTIFOLIUM, very handsome, 30s. per dozen.
„ LATIFOLIA, 18s. to 30s. per dozen.
ANDROMEDA FLORIBUNDA, fine plants, 18s. to 42s. per dozen.

We have likewise immense quantities of the leading kinds of

EVERGREENS OF ALL SIZES,

SUCH AS

AUCUBAS, BAY, BOX, LAURUSTINUS, COMMON and PORTUGAL LAURELS, ARBOR-VITÆ, PHILLYRÆA, &c.

As well as **FOREST TREES,** 2 to 3 and 4 to 5 feet,

CONSISTING OF

ASH, BIRCH, BEECH, HAZEL, SPANISH CHESTNUTS, ALDER, SPRUCE, PINUS AUSTRIACA, &c.

From the immensity of our stock, we are enabled to treat on most liberal terms, and Purchasers are recommended in every practicable case to visit and choose for themselves, it being an impossibility to adequately describe by advertisement.

CATALOGUES, describing faithfully the colours of Rhododendrons, with height and prices, will be forwarded on application.

Purchasers of large quantities are informed that Goods can be forwarded from Sunning Dale to all parts of England in through truck, thereby causing a great saving in transit as well as diminishing the cost of package.

THE AMERICAN NURSERY,
BAGSHOT, SURREY.

SUNNING DALE NURSERY,

BAGSHOT, SURREY.

Five minutes' walk from Sunning Dale Station, South-Western Railway.

CHARLES NOBLE

Invites special attention to the select PLANTS and TREES he has to offer, which will be found in quality unsurpassed, in PRICE lower than most other houses.

CATALOGUES should be written for by ALL INTENDING PLANTERS.

ROSES.

ROSES.—A large number of HYBRID, PERPETUAL, BOURBON, and NOISETTES.
„ TEAS, fine plants in pots.

RHODODENDRONS.

RHODODENDRONS.—One of the most select and extensive collections of named kinds extant.
„ SEEDLINGS, from finest varieties.
„ SEEDLING, HYBRID CATAWBIENSE.
„ PONTICUM, for cover planting.
„ STANDARDS, fine specimens. In fact, Rhododendrons of all colours, all sizes, and all prices.

SKIMMIA JAPONICA, covered with berries.
ERICA CARNEA, in any quantity, beautiful plants.
COMMON and COLCHIC LAURELS, 18 to 24 inches, 15s. per 100; 24 to 36 inches, 18s. per 100.
PORTUGAL LAURELS, 36 to 60 inches, specimens as far through as high.
VIOLETS, in 12 best varieties, 18s. per 100.
„ established in pots for winter flowering, 25s. per 100.

FRUIT TREES.

PEACHES and NECTARINES, maiden and dwarf-trained.
PLUMS, PEARS, and CHERRIES, maiden and dwarf-trained.
APPLES, PEARS, PLUMS, and CHERRIES, standard, pyramid, and dwarf.
These are remarkably healthy and good, and the selection very carefully made.

CONIFERS.

ARAUCARIA IMBRICATA, 1 to 10 feet, fine specimens.
ABIES DEODARA, 1 to 10 feet, fine specimens.
„ DOUGLASII, 1 to 10 feet, fine specimens.
„ GRANDIS, 1 to 10 feet, fine specimens.
„ LASIOCARPA, 1 to 10 feet, fine specimens.
„ MAGNIFICA, 1 to 10 feet, fine specimens.
„ MENZIESII, 1 to 10 feet, fine specimens.
„ NOBILIS, 1 to 10 feet, fine specimens.
„ NORDMANNIANA.—Of this last (perhaps the most magnificent tree in the world) an unusually fine stock, from 3 to 5 feet, are offered. For AVENUES this would be invaluable, and the facilities here offered can scarcely be overrated.
CUPRESSUS LAWSONIANA, 2 to 10 feet.
THUJA GIGANTEA, 2 to 10 feet.
„ LOBBII, 2 to 10 feet.
THUJOPSIS BOREALIS, 2 to 10 feet.
CUPRESSUS LAWSONIANA ERECTA. — Perfect columns, 6 to 10 feet. These plants are believed to be unequalled in any other establishment.

SPECIAL OFFER.

To Gentlemen, Builders, and others engaged in large planting operations.

DECIDUOUS FLOWERING SHRUBS and TREES, 3 to 6 feet, 42s. per 100.

CONIFERS, in variety,	1 to 2 feet,	50s. per 100.
„	„ 2 to 3 feet,	75s. per 100.
„	„ 3 to 4 feet,	100s. per 100.
„	„ 4 to 5 feet,	130s. per 100.
„	„ 5 to 6 feet,	150s. per 100.

CHRISTMAS TREES.

Extra fine, 2 to 5 feet, splendidly grown.
50,000 to select from.

The Sunning Dale Nurseries are easily reached from any part of England, being close to the Sunning Dale Station, South-Western Railway.

Purchasers will find their time saved by visiting this Establishment to select for themselves, but all Orders receive the most careful personal attention of the Proprietor; and he would here mention that an advertisement can give but a faint idea of the subject on which it treats.

All interested are invited to write for a CATALOGUE, pay a Visit, or send an Order, and their interest will be studied.

BAGSHOT.—November, 1869.

KNAP HILL NURSERY,

WOKING, SURREY.

ANTHONY WATERER

Solicits the notice of intending Planters to the following LIST of specimen CONIFERS, &c., all of which he believes are as handsomely grown, as carefully managed, and as finely rooted as can be desired.

ABIES ALBERTUS, 5 to 9 feet, 30s. to 60s. per dozen. Transplanted April, 1869.
ABIES DOUGLASII, 6, 7, to 10 feet, 7s. 6d. to 10s. 6d. each. Transplanted August, 1868.
ABIES ORIENTALIS, 5, 6, and 7 feet. 7s. 6d. to 21s. Splendid plants, moved April, 1869, 10 to 12 feet high, 15 and 20 feet in circumference.
ABIES EXCELSA, the Common Spruce Fir, beautifully furnished, 5, 6, to 8 feet high, £5, £7 10s., to £12 10s. per 100.
The dwarf varieties of Spruce, such as pumila, pygmæa, Gregorii, Clanbrazilliana, &c., large numbers, many of them 20 and 30 years' growth.
CEDRUS DEODARA, 5 to 6 feet, 60s. per dozen; 7 to 8 feet, 84s. per dozen; 10 to 12 feet, 10s. 6d. to 21s. each, and upwards. We have several thousands of these large Deodars. All have been removed since August, 1868; many since April, 1869.
CEDRUS ARGENTEA, 6 to 7 feet, 42s. to 60s. per dozen; 8 to 10 ft., 7s. 6d. to 10s. 6d. each. All removed since September, 1868.
CEDRUS LEBANON, 6, 7, to 10 feet. Moved September, 1868.
CUPRESSUS LAWSONIANA, 6 to 7 feet, 30s. to 42s. per dozen; 8 to 10 feet, 5s. to 10s. 6d. each.
„ „ ARGENTEA, 3 and 4 feet, and as much in circumference, 7s. 6d. to 10s. 6d. each.
„ „ GRACILIS, 4 to 6 feet high, and 7 and 8 feet round, 7s. 6d. to 21s.
JUNIPER, CHINESE, 4 to 5 feet, 42s. per dozen, £15 per 100; 5 to 6 feet, 60s. per dozen, £20 per 100; 7 to 8 feet, 7s. 6d. to 10s. 6d. each. All removed since August, 1868. Purchasers may select from a stock of many thousands of this fine plant, 5 to 8 ft. high.
PICEA NOBILIS, hundreds of splendid specimens, 5, 6, 7, to 10 ft. high, all recently removed, and are undoubtedly the finest plants to be found in any Nursery, None are grafted.
PICEA NORDMANNIANA, 5, 6, 8 to 8 feet, 21s. to 42s. each, and upwards. Splendid plants, moved August, 1868, 10 to 15 ft. high.
PICEA LASIOCARPA.—Hundreds of most beautiful plants, 4, 5, 6, 8, and 9 feet high. All removed 1868-69.
PICEA MAGNIFICA, 3, 4, and 5 feet.
PICEA PINSAPO, 4, 5, 6, and 8 feet, 21s. to 63s. each. Some grand plants, 10 to 15 feet high, transplanted April, 1869.
THUJA AUREA, beautiful specimens, 3, 4, 5, and 6 feet high; 10 to 20 feet in circumference. This plant originated in this Nursery, and our stock is unsurpassed.
THUJA GIGANTEA, 5, 6, to 12 feet high. Moved August, 1868.
THUJA LOBBII, 8 to 14 feet high, and as much in circumference; transplanted April, 1869.
THUJOPSIS BOREALIS, 5 to 6 feet, 7 and 8 feet round; 42s. to 60s. per dozen; 7 to 8 feet, 7s. 6d. to 10s. 6d. each. All removed since August, 1868.
WELLINGTONIA GIGANTEA, 4 to 5 feet, 7s. 6d. to 10s. 6d. each; 6, 7, 8, and 9 feet, 21s. to 42s. each. Transplanted in August.
PINUS AUSTRIACA, 3 feet, £5 per 100. Transplanted, Sept. 1868.
PINUS CEMBRA, 8 to 10 feet, 10 to 12 feet round, 10s. 6d. to 21s. each.
YEWS, the COMMON ENGLISH, 4, 5, 6, 7, 8, 10, and 12 feet high. Thousands, all constantly removed; invaluable where immediate effect is sought.
YEWS, GOLDEN and ELEGANTISSIMA.—We have these in large numbers, and of all sizes, as pyramids, globes, and worked as standards, with from 3 to 6 feet of gold, and up to 10 feet high.
YEWS, IRISH, handsome plants, up to 10 feet high.
HOLLIES.—The stock of Hollies at this Nursery is, we believe, the finest to be met with in Europe; it comprises, as well as ordinary sizes, together, many thousands of the following varieties:—
HOLLY, VARIEGATED SILVER and GOLD, of sorts, 4 to 10 feet.
HOLLY, GOLDEN QUEEN, magnificent plants, 4 to 8 feet high, and as much in circumference.
HOLLY, SILVER QUEEN, 4, 5, and 6 feet.
WATERER'S HOLLY.—This variety originated in this Nursery; we have hundreds 4, 5, and 6 ft. high, 10 and 15 ft. circumference.
PERRY'S WEEPING HOLLY.—Standards, 10s. 6d. to 21s. each.
HOLLY, COMMON WEEPING.—The finest specimens we have seen. Moved, April, 1869.
HOLLY, COMMON GREEN, 4, 5, 6, 7, 8, 10 to 14 feet high, by the thousand. All moved since April, 1868.
HOLLY, Green varieties of the following kinds. An immense stock of splendid plants, all transplanted in 1868-9:—
HODGINS' / YELLOW BERRIED, — LAURIFOLIA and SCOTTICA, 4, 5, 6 to 10 feet high. / ANGUSTIFOLIA, / MYRTIFOLIA, &c.
4, 5, 6, and 8 feet high.
STANDARD, WATERER'S and GOLDEN QUEEN HOLLIES, 4 to 6 feet stems, with heads 6 to 10 feet in circumference. A large number.
N.B.—Purchasers of Hollies may select from a stock occupying at the present moment considerably over 6 acres of ground; finer or better rooted plants cannot be wished or obtained. The prices are fair and reasonable.
BOX, Green and Variegated, 4, 5, 6, to 8 feet.
BOX, do. do., fine pyramids, up to 8 feet.
BAYS, standards and pyramids.
LAURUSTINUS, standards.
AUCUBA JAPONICA, thousands of beautiful plants, all moved 1868, 3 and 4 feet high.
AUCUBA JAPONICA, Berried, hundreds, 1½ to 4 feet high; in the open ground and in pots, from 18s. to 120s. per doz. and upwards.
AMERICAN PLANTS.—The Stock of American Plants at Knap Hill is, we believe, as fine as, and more extensive than, anything of its kind to be met with in England, considerably over 60 acres of land being devoted to their cultivation. We shall be pleased to supply—
RHODODENDRONS, nice bushy plants, from layers, named kinds, £5 per 100, £40 per 1000. A dozen sent as sample on application.
RHODODENDRONS, the finer kinds, by name, from £7 10s. to £12 10s. per 100, and upwards.
RHODODENDRON PONTICUM, good plants for Cover, from £10 to £15 per 1000.
STANDARD RHODODENDRONS.—Of these we possess a large number of the oldest and finest specimens in the country, many being from 20 to 30 years old, with heads varying from 15 to 30 feet in circumference. There is probably no kind better adapted for standards than that we call roseum elegans, many of which we supplied to Rotten Row. We have also Rhododendrons, standards, of many other kinds.
RHODODENDRONS, fine hybrids, of good hardy habit, and great variety in colour, from £5 to £12 10s. per 100. Sample on application. Large and handsome plants by the 1000, 4 to 8 feet high.
AZALEAS, the very best kinds, nice plants, £10 per 100, upwards.
AZALEAS, common kinds, £5 per 100.
AZALEAS, splendid plants, of the finest varieties, 3, 4, 5, and 6 fe high, and as much in circumference.
KALMIA LATIFOLIA, nice plants, bushy, healthy, and cov with bloom, £5 to £10 per 100.
ANDROMEDA FLORIBUNDA, £5 to £7 10s. per 100, and upwa
HARDY HEATHS, a very fine collection, every plant a specim and all removed in 1869, from 20s. to 40s. per 100.
ERICA CARNEA, for winter blooming, many thousands.
ERICA MEDITERRANEA ALBA, remains in bloom from Octob to May, and smells like new-mown hay—indispensable f Winter Gardening.
SKIMMIA JAPONICA, nice healthy plants, moved April, 186 covered with berries, 12s. to 18s. per dozen.
As well as the above, the Knap Hill Nursery contains upwards o 200 Acres of ordinary NURSERY STOCK of a superior class, such as Flowering Shrubs (Deciduous and Evergreen), Roses, Ornamental Trees for Avenues, &c.
A PRICED and DESCRIPTIVE CATALOGUE will be forwarded on application. Purchasers to any extent are strongly recommended to make a personal inspection of our stock, and obtain the prices on the spot. No Catalogue can fairly describe many of the plants we offer.
The Nursery is readily reached by train from Waterloo to Woking in 40 minutes.
N.B.—There is now no difficulty in sending Plants through in the same truck, without package, from Woking to almost any Railway Station in England.

"A garden with empty flower-beds is like a house without furniture."

BARR & SUGDEN,

12, KING STREET, COVENT GARDEN, W.C.

November is the month to provide for a display of Flowers in Spring. The most desirable Bulbs to plant are

Hyacinths	Ranunculus
Narcissus	Anemones
Tulips	Scillas
Crocus	Muscari
Snowdrops	Lily of the Valley
Winter Aconites	Triteleias
Iris	&c., &c.

The most desirable Plants for a Spring display are

Alyssum	Polyanthus
Arabis	Dwarf Phloxes
Aubrietia	Primroses
Daisies	Silenes
Forget-me-Not (Myosotis)	Violas
Hepaticas	Wallflowers
Pansies	Gentiana acaulis, &c.

With the above a display in the Flower Garden can be effected far surpassing, in beauty and in general effect, the most brilliant productions of summer gardening. The Bulbs and Plants are all perfectly hardy. Designs the most elaborate may be carried out with a greater certainty of result than can be attained with summer-flowering plants. This has been eminently illustrated by Mr. Fleming at Cliveden, and Mr. Roger at Berryhill.

Purchasers of Spring-flowering

BULBS AND PLANTS,

SHOULD SEND FOR A COPY OF

BARR AND SUGDEN'S DESCRIPTIVE

PRICED AUTUMN CATALOGUE.

Collections of Bulbs for the Spring Flower Garden, 10*s.* 6*d.*, 21*s.*, 30*s.*, 42*s.*, 63*s.*, 84*s.*, 105*s.* and upwards.

Collections of Bulbs for Indoor Decoration, 10*s.* 6*d.*, 21*s.*, 30*s.*, 42*s.*, 63*s.*, 84*s.*, 105*s.*, and upwards.

Collections of Plants for the Spring Flower Garden, 15*s.*, 28*s.*, 55*s.*, 105*s.* and upwards.

In quantities of 100 or 1000,

THE FOLLOWING BULBS

are very cheap:—

HYACINTHS	SCILLAS
NARCISSUS	IRIS
TULIPS	ANEMONES
CROCUS	RANUNCULUS
WINTER ACONITES	TRITELEIAS, &c.

ALSO THE FOLLOWING PLANTS:—

ALYSSUM	DWARF PHLOXES
ARABIS	PRIMROSES
AUBRIETIA	WHITE PINKS
DAISIES	SILENE
FORGET-ME-NOT	VIOLA of sorts
HEPATICAS	WALLFLOWER
PANSIES	GENTIANA ACAULIS.

EARLY and LATE SUMMER FLOWERS.

IRIS	CROCOSMIA
IXIAS	LILIES
SPARAXIS	GLADIOLI
AMARYLLI	&c., &c.

Are all fully described and priced in the

AUTUMN CATALOGUE,

which may be had free on application.

BARR AND SUGDEN,

12 KING STREET, COVENT GARDEN, W.C.

SUTTONS'

FRESH IMPORTED FLOWER ROOTS

FOR WINTER AND SPRING BLOOMING.

MESSRS. SUTTONS' FLOWER ROOTS Have been selected from the principal Growers in Holland.

MESSRS. SUTTON DELIVER ALL FLOWER ROOTS, Except very small parcels, Carriage Free by Rail.

Special Estimates for large quantities on application.

Suttons' Complete £1 1s. Collection,

For Cultivation in POTS and GLASSES, Carriage Free.

12 fine Hyacinths, by name	3 Persian Iris
6 Miniature Hyacinths, by name	3 Peacock Iris
6 Polyanthus Narcissus, do.	50 fine Crocus, by name
6 Large Double Jonquils	6 choice Ixias
6 Single Sweet Jonquils	3 choice Sparaxis
6 Scilla præcox	3 choice Oxalis
6 Single Duc Van Thol Tulips	1 Jacobea Lily
6 Double Tournesol Tulips	1 Lilium lancifolium album
25 Early Tulips, 5 sorts	1 " rubrum

Suttons' Fine New Crocus for Pots.

1000 splendid named, in 25 vars.	£1	15	0
500 do. do., in 25 vars.	0	18	0
250 do. do., in 25 vars.	0	9	0
100 splendid named, in 10 vars.	£0	4	0
50 do. do., in 10 vars...	0	2	0
25 do. do., in 5 vars. ..	0	1	0

Suttons' Dutch Crocus for Open Ground.

1000 in 10 vars.	£0	18	6	250 in 5 vars.	£0	5	0
500 in 10 vars.	0	10	0	100 in 5 vars.	0	2	3
Large Blue .. per 100	£0	1	9	Large Yellow .. per 100	£0	1	9
" White .. "	0	1	9	Largest Yellow "	0	2	6
" Purple .. "	0	2	6	Cloth of Silver "	0	2	0
Common Yellow "	0	1	0	Cloth of Gold .. "	0	2	0
Large Mixed .. .. per 100	£0	1	6				

Suttons' Choice Polyanthus Narcissus,

For POTS, GLASSES, or OPEN GROUND.

100 in 20 choice sorts ..	£1	5	0	12 in 12 choice sorts ..	£0	4	0
50 in 10 choice sorts ..	0	14	0	100 fine mixed	0	15	0
25 in 12 choice sorts ..	0	7	6	12 fine mixed	0	2	0

Garden Narcissus, finest mixed, 7*s.* 6*d.* per 100.

Suttons' Early and Large Double Tulips,

Early Varieties.

100 in 20 choice vars. ..	£0	18	0	50 in 10 choice vars. ..	£0	8	0
100 in 10 choice vars. ..	0	15	0	25 in 5 choice vars. ..	0	4	0

12 in 4 choice vars., 2*s.*

Double Tournesol, p. 100	£0	12	6	Rose Duc Van Thol, p. 100	£0	14	0
" Duc Van Thol "	0	3	6	Scarlet " " "	0	18	0
Single Duc Van Thol "	0	5	0	Yellow " " "	1	0	0

Choice named varieties, separate, 1*s.* to 12*s.* per dozen.

Large Double Varieties.

100 in 10 choice sorts ..	£0	17	6	50 in 10 choice sorts ..	£0	10	0
25 in 5 choice sorts ..	0	5	0	12 in 4 choice sorts ..	0	2	6

For COMPLETE LIST of BEDDING TULIPS (with an original article on Cultivation), showing the date of blooming, height, size of flowers, and colours of the varieties most worthy of cultivating, see SUTTONS' AUTUMN CATALOGUE for 1869, gratis and post free on application.

SUTTONS' SUPERB DUTCH HYACINTHS

FOR CULTIVATION IN POTS OR GLASSES.



The best 12 HYACINTHS for 12*s.*

Messrs. SUTTONS' COLLECTION of HYACINTHS consists of more than 200 varieties, a PRICED and DESCRIPTIVE LIST of which may be had on application.



Suttons' Collections of Named Hyacinths.

100	HYACINTHS in	100 very choice sorts ..	£4	4 0
100	"	50 very choice sorts ..	3	10 0
50	"	50 very choice sorts ..	2	2 0
50	"	25 very choice sorts ..	1	15 0
25	"	25 very choice sorts ..	1	1 0
12	"	12 extra fine sorts ..	0	12 0
12	"	12 choice sorts	0	9 0
12	"	12 good sorts	0	6 0

The order should specify whether they are intended to be grown in water or earth, as all kinds are not equally suited to both purposes. It should also be stated whether single or double blossomed kinds are preferred; otherwise we usually supply about two-thirds double and one-third single. The single varieties generally thrive best in water, but their merits are never apparent until the flowers are fully expanded.

SUTTONS' MIXED HYACINTHS for Beds or Open Borders.—Double, Single, and various colours, 2*s.* 6*d.* per doz., 17*s.* 6*d.* per 100.

SUTTONS' HYACINTHS in DISTINCT COLOURS for Massing, Bedding, Ribbon Gardening, &c.—Double and Single, various shades, separate, 4*s.* per dozen, 30*s.* per 100.

Suttons' Complete £1 1s. Collection

For OPEN GROUND CULTIVATION, Carriage Free.

12 fine mixed Border Hyacinths	6 fine mixed Gladiolus
6 " Polyanthus Narcissus	12 Duc Van Thol Tulips
12 Pheasant's Eye Narcissus	6 mixed Single Early Tulips
12 Double White Narcissus	6 fine mixed Double Tulips
25 Double Daffodils	6 " Parrot Tulips
6 large Campernelle Jonquils	6 Gesneriana Tulips
50 fine mixed Double Ranunculus	25 fine mixed Tulips
50 Scarlet Turban Ranunculus	6 " English Iris
12 fine mixed Double Anemones	6 " Spanish Iris
12 " Single Anemones	3 Lilies, of sorts
50 Crocus, three sorts	3 Ferraria pavonia
50 Snowdrops	6 Dog's-Tooth Violets
25 Winter Aconites	3 Crown Imperials

For further particulars and Prices of GLADIOLUS, RANUNCULUS, ANEMONES, &c., see SUTTONS' AUTUMN CATALOGUE, gratis and post free on application.

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The Gardeners' Chronicle.

SATURDAY, NOVEMBER 27, 1869.

MEETING FOR THE ENSUING WEEK.

THURSDAY, Dec. 2—Linnean .. .. 8 P.M.

THOSE who have travelled through districts where mineral fuel is scarce, and where in consequence TREES are looked too to yield some heating material, have no doubt noticed what are called "pollard" trees, that is, trees from which the branches are periodically cut for faggots and cord wood; and others—long, lean, lanky things—trimmed up like a whip-stick, and with heads scarcely larger than a crow's nest. These are trees which rarely attain the timber size, and if they do they are such as the timber merchant, when he comes to purchase, will veto as being unsuitable for his purpose, unless perchance the incessant pruning may have given them a gnarled growth, and then they may yield a little veneer. Look into the primæval forest, where in the struggle for existence, might has crushed out right, and the few trees remaining have become monarchs of their locality, or go into the park or dressed grounds of the proprietor close by, where room has been given, but the pruning-hook has never gained admittance, and what do we find? Trees, possibly of the same age as the pollards or whip-sticks, each containing hundreds of feet of timber, and worth, it may be, scores of pounds; and what is the reason? Just this—the pollards had been pruned out of existence; while the trees where Nature had been allowed its natural action—where root and branch reciprocated each others services—had become in reality "property," ornaments of the country, cash to the owner, and such as we Britons are proud of.

We are not, however, going to write an essay upon forestry; our object is widely different; and we merely cite the preceding facts to illustrate a more utilitarian object, viz., the GROWTH of FRUIT.

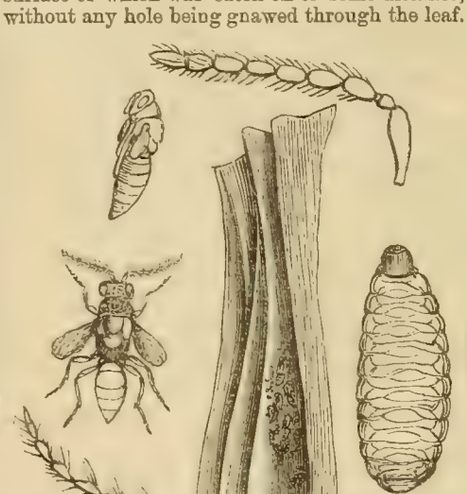
A few weeks back a correspondent gave the history of the Bishop Stortford VINES, concluding with the intelligence that, being worn out, they were to be rooted up, and new ones planted in their places. Upon reading the fact, the exclamation involuntarily rose to our lips—"Pollard Vines! Poor things, they have been dwarfed (pruned), if not to death, out of all useful existence!" Now, what is the difference between these Vines, and the pollard trees to which we

have before referred? Just this, that while the pollard may have been decapitated, or denuded of its branches every second or third year, or even less frequently, these Vines have been "whip-sticked" every year; and, not content with that, the more they attempted to develop themselves through the growing season, the more determinedly did the gardener, by his perpetual "pinching" process, say—"So far shalt thou go, but no further; Nature may know her ways, but we, the gardeners, are superior to Nature, and you, the plants, must submit to our ways as being better for you."

A quarter of a century ago, and for many years subsequently, the Vines in question were the pride of the country. Every autumn Covent Garden market revelled in the splendour of their produce, and now, in what ought to be considered their prime, they are to be rooted up and cast into the fire! Are we to regard this as an illustration of "fast life," wherein, by high feeding, hard drinking, and the neglect of hygienic rules, a man lives seven years in one, and at the age of 30 finds himself constitutionally a sexagenarian? Practically we think this to be the fact, and that constant pinching in the summer, and close pruning in the winter, engenders a something akin to those zymotic diseases, such as slow, low, and intermittent fevers, which, while they do not actually kill the patient, allow him to drag on but a wretched existence. When these Vines first came into bearing most of the great gardeners of that day wished to see them. Dr. LINDLEY wrote a glowing panegyric upon their cultivation, demonstrating the porosity of the border, by asserting that he could "push his walking-stick up to the handle anywhere into it." We accompanied GLENDINNING and BARNES, CHARLES MACINTOSH and BAILEY, of Nuneham, to see them; indeed, a gardener who had not seen Mr. JONES NASH'S Vines was scarcely recognised as belonging to progressive horticultural life. And what are they now? Just at the time when they ought to be in their prime they are "used up," "pumped out," useless cumberers of the ground. There must be a reason for this, and what is it? It is of no use to beat about the bush, but let us grapple honestly with their lives' history. We say the reason may be found in the slow and tormenting process of the pollard or restrictive system; and the fact that these Vines, notwithstanding the vigour of their early youth, have been pruned to death—have, in fact, by the hands of the gardener, been systematically deprived of that breathing space of foliage which was not only necessary but indispensable to their profitable existence. These Vines have been kept to the single-rod, restrictive, and close-pruning systems, and they have failed, as thousands of Vines have done before them. Had one of them, instead of being confined closely to a single rafter, been allowed gradually, year by year, to have filled 15 or 16 of them—in fact, a whole house, it is not improbable that, like the unrestricted monarchs of the forest, they would annually have accumulated strength, and been now in the full vigour of their youth. Such an inference is not improbable; on the contrary, it is in perfect accord with physiological induction and practical experience. By the process of restrictive pruning, we must have restricted root action. We cannot have one without the other, and though we may think to regulate and balance the forces, we do so at the expense of natural vigour; and though the plant may seemingly submit to our restrictions, it will be, by the dwarfing process, at the ultimate sacrifice of the vital force. These Vines are ruined, and the man in charge says there "is no knowing where the roots are." From the experience we had many years ago in lifting a quantity of old Vines originally planted by SPEECHLEY, we venture to say that the Stortford Vine roots have rambled little beyond the area of the border. When the branches are restricted, the roots follow the same law; and it is surprising how few and small they are, even upon Vines half a century old. Even if they did ramble at Stortford, they could scarcely in that elevated spot take any injury.

Here we pause for the present, with the intention of resuming our remarks shortly. *P.*

THE natural history of the different species of INSECTS which attack exotic species of ORCHIDACEÆ is necessarily but little known. The collector of such plants naturally selects, in their native haunts, only healthy specimens which, free from the attacks of insects, are able to bear the journey to England in good health; and it can but rarely happen that the economy of the insect parasites are likely to be investigated on the spot, because the collector, even if he were inclined to undertake such an investigation, remains but a short time on the same locality, and is hence unable to pursue the examination during the often long period which is necessary for the transformations of the different insects to be perfected. These remarks are necessary by way of apology for the incomplete history of the two species of insects represented in the accompanying engraving, the central figure of which represents the basal portion of the overlapping leaves of the bud of an exotic species of Orchid, to which the attention of the members of the Scientific Committee of the Horticultural Society was directed by Mr. BATEMAN on March 2, 1869. The species of Orchid attacked was unfortunately undetermined. Securely nestled between the overlapping leaves were two white fleshy grub-like larvæ, with chestnut-coloured shining heads of the natural size represented in the central figure. In this position they were feeding upon the thickened substance of the leaves, the upper surface of which was eaten off to some distance, without any hole being gnawed through the leaf.



The upper surface of the body, shown in the right-hand figure, is very much wrinkled, and on the underside the anterior segments are entirely destitute of articulated legs, their place being represented by fleshy tubercles. The mouth is furnished with two very strong, triangular, horny jaws, the inner margin of which is somewhat irregular, the right jaw having two small conical teeth, which are only blunt swellings in the left jaw. The under jaws are of a less robust consistence, having a somewhat oval terminal lobe, armed with about eight strong, short, blunt bristles, on the outside of which is the short maxillary palpus, consisting of only two joints. The lower lip is more fleshy, and rather heart-shaped, with the fore margin nearly straight, and having the two minute two-jointed labial palpi affixed near the anterior lateral angles. From the characters thus exhibited by these insects we have no hesitation in arriving at the conclusion that the larvæ before us are those of one of the weevil family, of which several thousand distinct species are known, and all of which are vegetable feeders.

Too little is known of the distinctive characters of the larvæ of the different sections of this great family to enable us to conjecture to what genus or even sub-family the insect belongs—unfortunately one of the larvæ had received an injury and died, as did also the second specimen soon after we had examined it.

Immediately in the vicinity of these larvæ were also found within the bud several minute dead pupæ, lying in a mass of hard dry particles of dark-coloured matter, which we had no difficulty in recognising as the excrement of the larvæ from which these pupæ had been developed. These pupæ, represented of the natural size in our central figure, and more highly magnified in the upper left-hand figure, evidently belonged to a species of the extremely numerous family Chalcididæ, and by very carefully scaling off the outer horny pellicle, under the microscope, we were enabled to extract the imago, or perfect insect, and to extend its limbs, as represented in the middle left-hand figure, magnified to the same degree as the pupæ. The insect thus brought to the light of day proved to be the male of a species of Eurytomidæ, a sub-family of the Hymenopterous Chalcididæ, and on denuding other specimens of the pupæ we obtained a female of the same species, the males having the antennæ more strongly setose, with the five intermediate joints of the flagellum angulated on the inner margin, whereas these joints are oval and less setose in the female antenna, which is represented in the upper figure, and that of the male in the lower left hand figure.

As the Chalcididæ have been almost universally regarded as parasites upon other insects, like the Ichneumonidæ, the question of the connection of this species before us with the plant, or with the above-described larvæ, has to be determined. Certain it is that the larvæ were uninjured, and the pupæ were no longer in a condition to attack them parasitically, so that these minute larvæ must have fed either upon curculionideous larvæ or upon the plant itself. The possibility of the latter suggestion is greatly increased by some observations which have been made upon the habits of certain American species of Eurytomidæ (known under the name of joint-worms from being found in the joints of the straws of Barley) by the late Mr. T. W. HARRIS, in his fine work upon the injurious insects of the United States, and by Mr. WALSH, in the eighth Number of the "American Entomologist," in which the non-parasitic habits of these particular species of Eurytomidæ are insisted upon, Mr. WALSH having shown that they belong to a distinct subgenus Isosoma, whereas the typical Eurytomæ are insectivorous. The insects which we have extracted from the pupæ before us belong not to Eurytoma but to the restricted genus Isosoma, so that it is most probable that they fed like the curculionideous larvæ upon the plant itself, and were not parasites on the white grubs first above described. For identification we suggest the name of Isosoma Orchidearum for these little insects. *I. O. W.*

—— IT is officially announced that his Majesty the KING of the BELGIANS intends to honour the Royal Horticultural Society's Gardens, at South Kensington, with a visit this morning. Many of the leading nurserymen have signified their desire to exhibit. The usual promenade and band will commence at 11.30 A.M., instead of 2 P.M. Scarcely even the Volunteers have more reason to acknowledge gratefully the cordial hospitality extended to them on various occasions by the Belgian King and his people, than have our horticulturists. We hope that the Council of the Society, as the representatives of British Horticulture, will do what in them lies to show how deeply we feel indebted alike to the King and his subjects for their invariable courtesy and good feeling.

—— We are informed that Lieut.-Colonel SCOTT, R.E., F.L.S., Honorary Secretary of the Royal Horticultural Society, offers for competition at the Society's first meeting in 1870 (viz., January 19) Five Guineas for an ESSAY on the PRINCIPLES of FLORAL CRITICISM.

—— When alluding to the SUEZ CANAL a week or two since, we alluded to the probability that the gardener would have to be called in to the assistance of the engineer. An extract from the "British Medical Journal" of the 10th April last will show what has already been done by the gardener at Ismaila:—The ground on which stands Ismaila, a town of 6000 inhabitants, and the headquarters of M. DE LESSEPS, was, but a few years since, a dry sandy desert, on which rain was never known to fall. All is now transformed. The old dried-up basin of Lake Timsah has been again filled with water from the Nile by a freshwater canal. Trees, shrubs, and plants of all descriptions grow rapidly wherever the soil is irrigated, and the artificial oasis widens fast. Accompanying this extraordinary transformation of the aspect of the place, there has been a corresponding change in the climate. At the present time Ismaila, during eight months of the year, is probably the healthiest spot in Northern Egypt. The mean temperature for the four months June to September is 91°, the following four months, 74°; and the four winter months, 45°. Until two years ago rain was unknown, but in the twelve months ending April last, there were actually 14 days on which rain fell, and no later than Sunday last there fell a tremendous shower of rain, a phenomenon which the oldest Arab had never previously witnessed. Rain ceases to fall on a country deprived of its forests, or only falls in violent storms. Here we see rain returning to the desert on restoring the trees.

—— Our French neighbours have got the start of us. Under the auspices of the Imperial and Central Horticultural Society of France, a TRIAL of BOILERS—open to makers of all nations—is to take place. The object of the trial is to ascertain by comparative examination, under similar circumstances, what form or kind of apparatus heats a definite quantity of water

most economically, regularly, rapidly, and continuously. Here is an opportunity for some of our manufacturers! Here is a chance for enthusiastic inventors, who would have us believe that they get more heat out of a bushel of coal than was ever put into it by Sun, the great fireman.

— Our Edinburgh contemporary, *The Farmer*, gives the following particulars respecting Melville's Perfumed Muscat Grape, a new variety, raised by Mr. Melville of the Dalmeny Park Gardens, in the vicinity of that city. Compared with the well-known White Muscat of Alexandria, says our northern contemporary, the variety is a good deal like it both in bunch and berry, but of a more golden-yellow colour when fully ripe. It is, however, decidedly sharper, richer, and more perfumed in flavour, very thin-skinned, tender-fleshed, and dissolving in the mouth, so that it may be looked forward to as one likely to stand in successful competition with the Duchess of Buccleuch and other best flavoured white sorts. But its most distinguished peculiarity is the delicate agreeable perfume which it possesses, and which is distinctly appreciable on entering the vinery where it is growing, as well as at the dessert table. It is said to have been obtained from "Snow's Muscat," by which we presume is meant the Muscat Hamburgh, *alias* Black Muscat of Alexandria.

— We inadvertently endorsed a statement of Mr. A. W. Bennett's last week (p. 1205) to the effect that the Chimonanthus præcox does not fruit in this country for want, at the season of flowering, of the proper insects to effect cross-fertilisation. We are reminded that the plant in question does occasionally fruit in this country, though rarely.

New Plants.

Macadamia ternifolia, *F. von Mueller*.

Foliis verticillato-ternatis, mucronato-dentatis, ovato-v. oblongo-lanceolatis, v. ovatis, glabris, breviter petiolatis, raro fere integerrimis, passim oppositis; pedicellis liberis, calyce parvo ad trientem tantum v. pluries brevioribus, bracteolam lineari-subulatam caducam superantibus; filamentorum parte libera antheram ovalem longitudine æquante v. excedente; annulo hypogyno vix denticulato; germine sericeo, villosulo; fructibus ovato globosis tenuissime velutinis. In vallibus silvaticis ad sinum Moreton Bay. F. v. Mueller, Trans. Phil. Instit. Victoria ii., p 72, c. tab. 2.—*Helicia ternifolia*, F. v. Mueller, Fragment Phytogr. Austr. ii. p. 91, et vi., p. 191.

The genus Macadamia (Proteaceæ) was originally described by our indefatigable friend, Dr. von Mueller, who afterwards referred it to Helicia. More recently a further and more complete supply of specimens and ripe fruit have induced him to consider his first impressions as correct, as the fruit distinguishes the present plant from Helicia. Some small plants of the species, of which the above is the technical description, were exhibited by Messrs. E. G. Henderson & Son at the meeting of the Floral Committee, on November 16, but we believe Mr. Bull was the first to introduce the plant into cultivation, some two or three years ago. In its native country (Moreton Bay) it is described as a tree sometimes attaining a height of 100 feet, but generally of about 30—40 feet, with leaves in whorls of three or four or rarely two, each shortly stalked, leathery, shining, glabrous, oblong or oblongo-lanceolate, entire or dentate at the margin, from 4—6 inches to a foot long, by one inch and upwards in breadth. The flowers, which are not very showy, are arranged in a long-stalked raceme, each subtended by a single bract, and described as having four linear spoon-shaped sepals reflexed at the points. The stamens are four in number, inserted near the middle of the calyx-tube; the filaments are longer than the anthers, which latter are linear, with a lengthened connective. The ovary is sessile, surrounded at the base by a denticulate ring. The style is thread-like, terminated by a thickened stigma. The fruit is a kind of drupe, with a fleshy exterior, encircling a hard shell, like that of a Walnut, and within which is a kernel, described by Mr. Berkeley as particularly sweet and agreeable to the taste, thus confirming the statement of its discoverer, Mr. Walter Hill, who compares the flavour to that of Almonds. This circumstance is the more noteworthy from the paucity of native fruits in Australia, and the rarity of any edible seed among Proteaceæ. As a conservatory plant it will be grown in this country for the sake of its shining Brexia-like foliage. It is altogether a very interesting but not very showy addition to our list of conservatory plants; and should some fortunate cultivator succeed in inducing the plant to produce its seeds, great will be the delight of the Fruit Committee after the eulogium pronounced by Mr. Berkeley on the imported fruit. *M. T. M.*

VINE SOILS.

Hackneyed as may be almost every subject pertaining to viticulture, we were nevertheless favoured by Mr. Cramb, in his interesting paper, read at the Manchester meeting, with some new food for discussion, in respect to the desirability of certain soils for Vines. We are indebted to Mr. Cramb, who is one of our best practical gardeners, and is moreover one of long standing, for setting us a-thinking on the subject. We are indebted to him for bringing certain facts of his own observation before us relating to the important subject of soils. It is a subject of considerable importance, and one but very little understood. We turn in vain to the back pages of this paper, to all sorts of treatises on the Vine, to the many scores of notices of wonderful Vines, and the way to make Vine borders, but we learn nothing further, however, than that the said borders have been composed of good turfy loam, which is so vague a term, passing from clay on the one hand to sand on the other, that practically the information is worth nothing. Nearly all the writers on Vine culture recommend the admixture of "old lime rubbish," besides manures of various kinds. But few, however, like Mr. Cramb, have ever ventured in the fields of the geologist and chemist to search for the secret of success or non-success in Grape cultivation.

In my plain, matter-of-fact sort of article on the Vines at Trentham (p. 1081), I had the temerity to make some remarks on Mr. Cramb's theory. I ventured in some measure to disagree with Mr. Cramb in his wholesale condemnation of calcareous soils, and to state that "facts would hardly bear out his assumptions," &c.; and for this (see p. 1137) I am (somewhat severely I think) called to account. Mr. Cramb lays his statement before us, and presumably invites discussion. I have been expecting to see it ably discussed—to have our Grape cultivators, whether successful ones or not, bringing their facts forward, not in the spirit of contradiction or opposition, but with an honourable desire thus to gain some useful and reliable information. It may not be a pleasant thing to Mr. Cramb for anyone like myself to try to upset such a long-cherished pet theory as this has been. It has, as it were, become so wound up in his very existence, that, lover-like, he can see in it no blemishes, nor listen to one word of argument against his pet, from whatever quarter it may come. Therefore, although I have but little hope of convincing Mr. Cramb by any fact or argument of mine, I hope he will believe in my sincerity. I would just suggest to Mr. Cramb, that it is not a particularly nice plan of self justification to accuse his opponents of false motives. Let me assure Mr. Cramb that I have not only read his paper carefully, but I had also the pleasure of hearing the author himself read it. I am told that I have "no right to silt up truth," whatever that rather ambiguous expression may mean. Is Mr. Cramb, himself, the personification of truth, that his writings must be accepted as the veriest gospel? Mr. Cramb gives us a few facts, which are valuable, and it is a pity he did not confine himself to these—the rest is belief or matter of opinion. Very dogmatic opinion, too, the reasonings of which I dispute.

It is impossible for any one to rise up from a perusal of Mr. Cramb's paper without feeling that it was not so much to ask, or even to prove "what soil is best suited for the production of Grapes," although we have his verdict in favour of the siliceous soil of the old red sandstone (not excluding others), as a laboured attempt to prove bad, and a wholesale condemnation of all calcareous matter in our Vine borders. The question, then, is not that with which Mr. Cramb heads his paper, but are calcareous soils injurious to Vines? Or are calcareous soils to be recommended for the formation of our Vine borders?

I hope I have shown in my previous writings that I can be very liberal minded as regards Vines and their cultivation, not an exclusive advocate for any one kind of soil, whether the major portion of it be either calcareous, siliceous, or aluminous. I believe more in its mechanical than in its chemical composition. The texture of the soil, its porosity and permeability in its relations to heat and moisture, and its power of retaining and transmitting under all circumstances, wet and dry, the necessary quantities of moisture, are of ten times more consequence than its mere chemical constituents, for as Anderson, in "The Elements of Agricultural Chemistry," says:—"The soil must not merely be considered as the source of the inorganic food of plants, for it has to act also as a support for them while growing, and to retain a sufficient quantity of moisture to support their life, and unless it possess all the properties which fit it for this purpose it may contain all the elements of the food of plants, and yet be nearly or altogether barren." Vegetation is by no means a sure indication of the chemical constituents of a soil; for analysts have proved, over and over again, that plants frequently possess in a great degree that which is almost entirely absent from the soil; and it must never be forgotten that the essential food of plants is found in water with light and air; where these, therefore, can be best supplied will the plants best succeed.

There are abundant examples to prove that the Vine is one of the most accommodating of plants as to soil, &c. 'Tis but to-day, on making some alterations in our Vine-borders, that I have had to note another illustration of my statement. I do not find the roots in the finely prepared borders of Wimbledon loam. I do not find them greedily devouring the top-dressings of manure which have been oft applied. I find them, however in the gravel walk; I find them clustering round the broken bricks, coal-clinkers, &c. I wonder how that would analyse; I wonder how much silex there would be present, &c. 'Tis not so very long ago since Dr. Lindley, in the columns of this paper, wrote a glowing account of Mr. Wilmot's Vines at Isleworth, telling us that their roots were almost entirely in coal ashes and coal clinkers, which set everybody with any of these commodities to spare to turn them to good account in their Vine-borders. But I need not multiply instances; one grows good Grapes in one kind of soil—it may be siliceous; another in another, which may be calcareous; and a good gardener who knows how to compose and manipulate his soil will grow good Grapes in either, despite Mr. Cramb's disclaimers. How is it, for instance, that our neighbours, who grow their Grapes in exactly the same sort of soil as we do, should generally have Grapes much inferior to ours? Is it, or can it be, owing to soil, or management?

I am not about to dispute for one moment that Mr. Cramb has not found the siliceous soil superior to the calcareous mixture, as he has found it at Tortworth, or that he has not good grounds for preferring the one to the other. Are we, however, to be led from this solitary example, on the extremely limited actual experience of Mr. Cramb, to such a hasty conclusion, and protest against the presence of all calcareous matter? I hope not. I hope the subject now agitated will be thoroughly discussed.

Mr. Cramb is guilty of a grievous error in accounting for the bad effects of the calcareous soil when he states that "the caustic property of the lime worked all the mischief." Did Mr. Cramb apply lime to his borders in a caustic state? because such a thing as caustic lime does not exist in a state of Nature. It has to be made so by an artificial process, that of burning. Again, Mr. Cramb says, "the nearer it approaches to a state of carbonate, the more fatal the effect." It is difficult to understand what is clearly meant by this, whether it is carbonate of lime, which is virtually the limestone itself, or chalk, or effete lime, or whether it is carbonate of magnesia, which is a component part of the magnesian limestone, which, when in a caustic state, rendered so by burning, is said to be injurious to vegetation. A very slight acquaintance with chemistry ought to have enabled Mr. Cramb to understand this. Telling us that the nearer the calcareous particles of soil approach to a state of carbonate is like saying that the nearer water approaches the liquid state the wetter it becomes. Chalk and limestone when burnt, form lime; the burning drive soff the carbonic acid; it is then caustic. By exposure to the air, &c., it again absorbs the carbonic acid gas, and returns to its original state of carbonate of lime, or, in other words, to the same chemical nature as powdered chalk or limestone, which act merely as earthy ingredients of the soil, improving its texture in its relation to absorption, &c. These are the opinions of the most learned chemists, including Sir H. Davy. The evil, therefore, of which Mr. Cramb complains must be traced to the magnesia, and not to the lime; yet it is difficult to account for it even here, as the soils on the magnesian limestone are as fertile as any others. The question which will come uppermost is this—Is not this a mere supposition of Mr. Cramb's?

All fertile soils, say our learned chemists, contain some portion of calcareous earth. The three earths which constitute the principal ingredients in all cultivated soils, are lime, clay (alumina), flint (silex); not one of these singly can be considered fertile, and the richest soils are those in which these three earths are mixed in the most intimate proportions. As note our great river valleys—that of the Thames, for example: where do we find richer land, or land more favourable for the cultivation of the Vine, using it in what we are pleased to call its natural state, without any admixture whatever? These are called alluvial loams, being the deposits by water from the various formations, along with decayed vegetable matter. In these alluvial loams there is a good percentage of calcareous matter, without which they would probably be almost sterile. Calcareous soils attract more moisture than siliceous soils, which being sandy are very open and porous, and consequently require a more abundant and continuous supply of moisture than the former. In a rainy county like Gloucester, it is not then at all remarkable that a siliceous soil should prove the best, simply because its great porosity allows the superabundant moisture to readily pass away. Siliceous soils are hungry soils, and decompose manure faster than do either of the other two. This Mr. Cramb confirms somewhat by having for the cultivation of his pot Vines to use one-third part manure, which must strike every practitioner as being a very large proportion, and tempts one to fancy that the silex had not, after all, such a great deal to do with the success. *B.*

(To be Continued.)

EVERBEARING STRAWBERRY.

During the last two seasons the agricultural and horticultural world in America has been much interested by the advent of a Strawberry, claimed to be new by its introducers, and affirmed to be an old variety under a new name by its traducers. As it really is a curiosity, and without taking part with either its proprietors or abusers, I will proceed to describe it for the benefit of your readers.

The plant is called by its proprietors the "Mexican Everbearing Strawberry;" it has been most extensively advertised and puffed by one portion of the Press, and considerably decried by the other. Strange to say, those who decry the plant, "don't advertise it;" whether from not being paid to do so, or from conscientious motives, it would be difficult to decide, but it is quite clear that the advertisements are very long, highly illustrated, and must be exceedingly costly. In the beginning of the present season, about May, the writer procured some of the plants, and set them in his garden. They had been a good deal injured by detention in transit, and were therefore some time before they recovered; but no sooner did they take hold of the ground, and throw out new leaves, than they also began to blossom and bear fruit, and they have continued bearing ever since, the plants never having been three days without ripe fruit on them, and now (October 8) each plant has a considerable number of berries on it in every stage, from the blossom to the ripe fruit. By actual measurement of some just picked, they are one and one-tenth of an inch long, six-tenths of an inch broad at the upper end, tapering to a blunt point; they are a pretty lively scarlet, covered with yellow seeds, highly fragrant to the smell, but not highly flavoured to the taste; they are, however, possessed of the true Strawberry flavour, and though not so acid as many kinds they are very pleasant.

They would not be much noticed during the season of the ordinary Strawberries, but later they become a rarity and a treat; they all part from the crown in gathering, and are very light in weight compared with their size; the flower is perfect, and requires no other to fructify it, it is very small, and the plants are, as a matter of course, continually covered with blossoms. The plants do not throw many offsets, but many of these blossom before being well rooted, and bear fruit,

and sometimes the second offset does so too. The proprietors claim perhaps more than it deserves, and as they sell the plants at two dollars and a half a dozen (10*s.* sterling), temptation is strong to do so; but that it is an "everbearing" variety, the writer can vouch, as he has gathered them more or less every week during the present season, and they show for fruit now as much as ever.

Whether it is a new variety or not, botanists alone can decide, but that it is a Mexican variety, the writer is certain. A gentleman just from Mexico recognised it, and said that he had been in the place from whence it was brought, *i.e.*, the mountain range near Jalapa, Mexico; that he had there seen it in a wild state, bearing profusely, from early spring throughout the year, until the frost stopped it. Of course the frosts in Mexico are not severe, but the plant comes from the high Andean chain of mountains which form the highlands of Mexico, from 5000 to 10,000 feet above the sea. The berries there are much larger than they are here, and higher flavoured. In Mexico they are delicious, but there all fruits come to greater perfection than elsewhere. It grows well under glass, and in pots.

As a native of a hot climate, and from its everbearing habits, it would I should imagine be a valuable variety for forcing in England, and I have no doubt that a proper house devoted to this purpose would be a productive speculation. At all events to those to whom such fruit all the year round is an object, the experiment would be worth trying; the plants could easily be sent from here by steamship at a small expense during the proper season. The traducers of the plant say that it is nothing but the old bush Alpine revamped up; but it is strange that the old bush Alpine has a much rounder berry, and is a very shy, though perpetual bearer, whereas this is a long slender berry and a profuse bearer. That it is an "Alpine" or rather an "Andean" plant there can be no doubt, for we have good evidence of its existence in a wild state in the Andean range, and in great profusion.

The plant with the writer is not a strong grower, but it spreads into a stock of several inches across in one season, and thus each plant becomes a considerable tuft. The leaves are not large, nor hairy, they are of a lighter green, and different character from any of the ordinary cultivated varieties. They have not had fair play in the writer's garden, which four years ago was a mere sand-bed, bearing nothing but the poorest kinds of grass and Sorrel, though now brought up to tolerable fertility by manure. No Strawberry, however, does well in this garden, and hitherto all have died out but the "scarlet" and the present Mexican. The latter has not yet stood the winter here; but the growers assure us of, and warrant, its perfect hardiness.

As a stock for raising new seedlings from, it must be valuable; hybridised with others to increase its size and flavour, and care being taken to retain its everbearing qualities, it must become a useful variety for the forcing house, if for nothing else. *Vectis, Lower Canada, October* 8.

POTATO CULTURE.

I HAVE just secured a most satisfactory crop of Potatos, exhibiting all that could be desired in size, quality, and quantity, and as the results obtained are by no means general this season, I feel more satisfied that my success is in some measure due to the system of culture I pursue,—a system, it should be remarked, calculated to counteract the disadvantages that attend the cultivation of Potatos on cold clay soils, and which may be called, by way of distinction, the super-surface plan of planting. The system was devised to meet certain difficulties attendant on the growth of Potatos on cold retentive soils; but its general applicability to all descriptions of land is not for a moment asserted.

It would be wrong to dogmatise on modes of culture practised in the case of Potatos, so various are the circumstances of soil and position which exist in every district; but if every large grower of Potatos were to try to learn lessons by his failures, and borrow hints from his successes, and so adapt his management to the special peculiarities of his land, we should hear of fewer failures in the Potato crop. My Potatos are grown in well worked but strong soil, resting on clay. By following the old plan of drawing deep drills 4 or 5 inches in depth, the Potato sets were within 6 inches of the cold subsoil: so placed, the roots of the plant soon struck down and suffered from the low temperature and dampness of the retentive subsoil. Potato crops of inferior quality, and more often badly diseased than not, were too often the result.

The plan I now pursue is based on the principle that the Potato, being a tender exotic, requires all the heat and light we can give it, deep good mould, and immunity from sour soil, in which water rests and stagnates. I place the sets on the surface 18 inches apart, having well dusted the ground with burnt earth and wood ashes. The Potato rows are drawn out 3 feet apart from each other. The soil for 18 inches on each side of the row is drawn over the sets in a continuous ridge. The furrows thus formed are made deeper than the natural level, and in this way the sets enjoy the advantage of being above the surface, and heavy rains never rest among the tubers. The Potato thus placed has 12 inches of good soil below it, with a base of 36 inches laterally for its roots to ramify in. The rows are run east and west, so that one side of the ridge is fully exposed to the sun.

In the winter preparation of the land I avoid the use of fresh manure, and if employed at all a light dressing is all I think necessary to apply. Burnt earth and wood ashes is an application rich in the best manure for Potatos; potash is more liberally applied, but this is not all. In digging I have as much of the subsoil brought to the surface as the weather is likely to operate upon. As soon as wind and frost and rain have caused these heavy, sulky lumps of clay to break up, a dusting of burnt earth is thrown upon them, and the cohesion of the lumps is destroyed for ever. In thus treating the land the Potato gets a certain quantity of fresh soil, and this, with the dry warm dressing of ashes, its elevated position securing all possible heat, free space, air, and light, without obstruction, it is perhaps no wonder that, even in our old kitchen gardens, crops of excellent Potatos, averaging 20 tons to the acre, are obtained. *William Ingram, Belvoir.*

Home Correspondence.

Colouring of Pelargonium Leaves.—By the leave o' you grand editors i' the sooth, I want to hae a word wi' twa o' your writers, that ca' the hectic flush o' comin' death nonsense. If that's nonsense, it is a kind of fulery that Nature—that mustna be ca'd a fule—indulges in gie muckle. A' the woods are flushed ower wi' this nonsense jist afore the bonnie leaves fa' down and dee. And in a' sic cases the flush is no a proof o' robust health, but jist the sign o' comin' death. And hoo does Mr. Sandy Dean ken that it is jist the contrarie in Pelargonium leaves? At ony rate, he disna prove his pint by telling us a' that a droothy bottom and excessive root action baith alike paint the cheeks of the Pelargonium leaves sae prettily. Nae man, gin Sandy had ever suffered frae whusky drooth he would hae kent brawly that that maks pale faces; whereas, when oor feet are under a weel-spread table, they become a bonnie red colour; and I am no sure that it wadna be jist sae wi' the plants. But I canna see hoo the starving o' the roots in the Elegant Pelargonium could cause the robust health that maks the high development o' beauty. Neither is it sae easy to unnerstan hoo warm or nimble feet (roots) can mak a rosy face or bricht leaves. Gin it be sae, oor fair leddies hae only to put their feet in het water, and their hands oot in the cauld, to mak the roses on their cheeks bloom tae perfection; which seems rather a nonsensical and dangerous proceeding, no to be followed by leddies or plants, without we kent mair aboot it than Mr. Sandy Dean has yet telt us. *A Canny Scot.*

Judging Melons.—It would perhaps be well if the managers of our horticultural shows would follow the rule laid down for judging Melons at the Edinburgh show. I am of opinion that it is not necessary to cut a Melon to arrive at a pretty correct estimation of its qualities, unless it be a new or unknown kind. The present system of judging fruit by flavour is, to my mind, most unsatisfactory. It is simply impossible for any one to go over a multitude of dishes and make just awards by flavour alone. If we are to judge our fruits at horticultural exhibitions by flavour, it will often be at the expense of good cultivation. Rather let us place this in the foreground, and judge with our eyes, and we shall not often err in forming a correct judgment of the qualities of most fruits. A repetition of tasting cloys the palate, and often misleads, but it is an easy matter to run the eye over a large number of dishes and pick out the best; and as your correspondent has it, there are the two senses to guide to a decision, viz., sight and smell, *versus* taste, but if the number of dishes are thus reduced by selecting the best grown, it is easy to decide by flavour, if the competition is very close. We much want a code of fixed rules to judge by, as it is not uncommon to find at one show that the judges have cut a fruit on almost every dish, and perhaps an inferior looking collection has the award, while at the next show size and general appearance have carried the day. *J. Sheppard, Woolverstone Park.*

Melon Judging at Edinburgh.—Mr. Thampson has explained a' aboot hoo it was that the grumblin' arose aboot the Melon judging. It seems that the Caledonian Society, after scoorin the countrie for able judges, sent their officers to those same judges to tell them hoo to dae their wark. They micht look at and smell the fruit, but daurna cut nor taste them. Weel-a-well, wonders will never cease. If sic a mode o' judging the Melons was to be adopted the Society needna hae sent sae far for judges. The nearest grocer body has a pair o' scales, and ony bit o' a painter frae the Schule o' Design could hae judged the Melons as weel, or better, than the best gairdner in Britain. A' that was needed was an ee to see the beauty, a hand to clap the fruit into the scales, and a nose to sniff it a wee bit. Then, presto! begone! 1st prize heaviest, handsomest, fullsomest. Weel-a-weel, sic a display o' judgment is simple at least; an' ance admit that Melons are only grown to be eed and smelt and no eaten, and the plan is a' richt enough. But, then, on sic a plan we micht jist as weel grow Gourds or Squashes, which are larger an' handsomer than mony Melons; an' they could be scented wi' Eau-de-Cologne or ither gude stuff. If twa senses can but be pleased, wha cares aboot the taste? Sae at least thinks ane o' the judges, wha has written to approve o' the tasteless mode o' judgment. He likewise gangs on to haud up the practice on the queerest ground ever heard o' this side o' the Tweed. Scotch tobacco and whusky toddy are no only strong but irresistible to oor southern judges. But it seems that while sic things dunt or destroy the taste, they leave the senses o' smell an' sicht strong an' clear as afore. Noo, it is weel kent that this doesna square wi' oor experience. Toddy will mak the een see dooble; and it is kent gie weel that onything that benumbs or bemuddles the palate blunts the smell as weel as sends the taste wrang. Besides, we dinna want either toddy-muddled or 'bacca-numbed judges, we hae plenty o' the sort at hame, without scoorin England for them at show times. But Mr. Thampson has mair to say in favour o' ee-an'-nose judging. He will hae it that it beats the ither mode o' tasting a'thegither, because it gies us twa senses to ane. Weel, that beats a' I ever heard! Suppose we jist let in the taste, wouldna that gie us three senses against twa? Or does Mr. Thampson mean to say that the judges wha insist on tasting shut up their noses an' close their een? Surely a man can baith see an' smell when he is tastin'; in fact, he does baith better after the Melon is cut than afore. For the skin shuts in the best o' the perfume and hides up the texture, an' baith o' these tell us muckle anent the quality. I' the face o' Mr. Thampson and a' the wise officers o' the Caledonian Horticultural Society, whase rules he admires, I mak bold to say that the sense they shut oot is worth baith the ithers put thegither, an' in fact is the ane that ocht to be first considered. If Melons were grown to be worn as chignons, or suspended as nose jewels, why then ee-an'-nose judgment ocht to rule amang them, but as they are grown for to please the mou' surely the sense o' taste ocht to be consulted an' hae its way. But there need be nae rivalry ava atween the senses in judging sic fruits. It's no a question o' twa senses to ane, o' three against twa even, but it is ane o' a' the senses doing their very utmost to fin' oot the best. An' Melons are sic kittle fruit to judge that it needs a sharp nose, a keen ee, an' a weel seasoned taste—neither o' them numbed wi' 'bacca, nor muddled wi' toddy—to fin' oot the best. Mr. Thampson seems to think it maun hae been a' richt because baith the prizes went sooth to the same grower. Noo, I confess, I thocht sae mysel until I read Mr. Thampson's letter. But noo, as I think o' the toddy, the interference o' the officers, the twa senses pitted against the ane, &c., I hae nae hesitation in saying that I think the judgment, richt or wrang, a meddle fan' muddle fra beginning to end, and the final award a loup i' the dark. An' if sic is the way that oor Melons are to be judged at ane o' oor greatest shows, a gude mony o' us will rather keep oor fruit at hame than hae them sniffed at an' passed ower in sic fashion. The proof o' the Melon, like that o' the pudding, is i' the preeing o't; an' it is jist as absurd to attempt to judge the former wi' a look o' the ee an' a sniff o' the nose, as it would be to test the natur' o' a pudding i' the same way. If the fruit is thocht mair o' than the prize, let it be keepit at hame; but i' the name o' common sense let's no gang on rewarding quality without testing for it like sensible craturs. Even insects winna eat their fruit withoot tasting it to see if it's gude; and surely oor judges ocht to show as muckle sense as a wee bit waspy. *A Canny Scot.*

Herbaceous Grafting.—A correspondent at p. 1184, wrlting on Potato grafting, reminds me of some experiments tried in herbaceous grafting during the early part of the present season, and which experiments were described in a paper read by me at the Manchester Congress, "On the Influence of the Stock upon the Scion, &c.," and subsequently published in the *Gardeners' Chronicle.* The writer at p. 1184 (Mr. Burnett) says:—"What I value most would be any seeds that may be produced on the grafted Potato." This is precisely my view of the subject, and I have carefully preserved seeds produced by grafted Peas, Beans, Scarlet Runners, &c., with a view to discover whether or not the stock will produce any appreciable influence upon the produce of the scion. This of course cannot be ascertained before next season, but what I at present wished to allude to, was the extraordinary luxuriance with which the Scarlet Runner grew when grafted upon the common dwarf French Bean. This was contrary to my expectation, and the wonder was how the robust and vigorous Runner could draw the necessary sustenance through the fragile stem of the dwarf Bean, and this without any effort on the part of the scion to emit roots above the junction; while, on the other hand, dwarf French Beans grafted upon the Scarlet Runner were considerably less vigorous than the same varieties growing upon their own roots; and in neither of the cases can I perceive any difference in the seeds so produced from that of the same sorts grown upon their own roots. *P. Grieve, Culford.*

P.S. In my remarks at p. 1184, on "Ornamental-foliaged Pelargoniums for the purposes of winter decoration," I intended to say Orchid-house, and not an orchard-house, as there printed.

Potting Liliums. — Hark! Nature speaks! She loudly calls to "W. E." to discontinue the "drying off" of the bulbs of these plants. He is awakened! and we see him apologising to the old dame! What a pity "W. E." had not got within hearing before! Because she has been saying the same thing for ages! Now if "W. E." will follow Nature, there will be but little difference between us—and that may be our theory. "W. E." will persist in writing in the "last week of January," while I am writing in November. He has not turned out Liliums yet, or he would not write such—will he pardon me?—nonsense, as dead roots supporting dead stems, for the roots of the stem die with the stem—and the "scaly bulbs below are actively engaged in collecting support" from dead stems. This is some of "W. E.'s" theory, not mine. Here is mine, fresh! and fresh! I say—pot your Liliums when the stem is dead, as being the time when the vitality of the bulb is least active, for the bulbs of these plants in m opinion never "rest," in the fullest sense of the term The bulbs cease to make new roots at the time th stem begins to decay, this may be called the "advent of its resting period. While the stem is decaying, the bulb seems to draw up the required sap from its succulent roots, thereby charging itself with vigour to make other roots, and at the same time doing the "invisible" part "W. E." speaks of. As soon as this process is completed, if the soil is not "dead dry," the bulb will begin again to make roots, and otherwise prepare itself to throw up another stem, and before the stem is visible by this practice the bulb will have laid such a foundation in the way of roots that the stem will not be those "drawn reeds" we too often see. I must refer "W. E." to Mr. Tanton's letter; that gentleman has so well disposed of many points which have been raised that I need not attempt a further explanation. I must own I was for many years

content to abide by the teaching of our forefathers, but was, like "W. E.," awakened by the teaching of Nature, by following up the process by which she so wonderfully carries the Lilium round with the year. I like "J. D.'s" note, it is candid. I hope he will try November potting, and report; I must leave to him the task of explaining "spring." I would also respectfully ask Mr. Smith to give us the true interpretation of his time of "potting" Liliums. I would advise "Youngster," and all—I question if they are many—who have not tried November potting or thinning, as the case may require, to prove it, and begin at once. *M.*

Vine Roots.—When I propounded the question (see p. 1137), Do Vines make leaves and branches without the aid of new rootlets? I expected that it would be intelligently understood, and debated upon its merits. It seemed to me to be a very suggestive question, interesting to science and practice combined, where the men of the spade and the men of science could mutually co-operate to settle the question. In order that there might be no misunderstanding of the text, I averred that it appeared to me that spongiole or young rootlet formation, was more the consequence than the cause of leaf and branch manufacture. This was no foregone conclusion, but warranted by repeated observations of Vine plants growing under different circumstances, all tending to demonstrate and confirm the theory propounded. Mr. Knight's additional experience since 1866 is more emphatic, and enables him to speak with more decision and power; while Mr. Dawson's observations also go to establish the simple fact, so far as Vines are concerned. But novices in the construction and meaning of sentences are apt to run away with the idea that because spongiole manufacture does not take place simultaneously with leaf-and-branch development, that hence the supporters of that theory are committed to the idea that the established roots are dormant, and that the leaves and branches are entirely indebted to the stem, which is supposed to be like a river and its tributaries. Only there is this difference, to be true to metaphor—the river of sap which is manufactured into branch extension flows uphill. Mr. M'Millan, who "has given particular attention to this subject for a considerable time," seems to fully appreciate and understand the hydraulic pressure of sap in active motion, and its tendency to ooze out and "bleed" at any fracture, when it cannot be otherwise utilised; but his utterances upon other physiological questions—such, for instance, as "a vacuum left somewhere equivalent to the increased bulk of every bud upon the tree," and his theory as to leaf-fall, viz., "by their (the roots) desire to go to rest refuse to supply the food necessary for keeping the leaves on the trees,"—are more original than sound; and in fact, to borrow a line of his own imagery, never had the "fang." Most people know that the ascending sap is manufactured into leaves and branches, and the descending sap into spongioles. [Loose physiology this. Eds.] Between root and branch there is the most intimate relationship, and because we see leaves and branches forming in Vines and deciduous trees generally as precursors to new roots, it would be a species of unwisdom to surmise, and then credit, that root action was fast asleep, or that every available particle of sap was withdrawn without the old roots having the power to replenish themselves. That seems to me to be the foregone idea upon which the whole question turns. As to the time occupied before the descending sap elaborates itself, and manufactures additional feeders, it depends upon circumstances of situation, of heat and moisture, and of plant constitution. A heated Vine border will accelerate the work, but only in degree, as has been abundantly testified by pot Vines, where root and branch are living in the same heat and atmosphere. But by far the most important lesson to be drawn from the subject is, that spongiole formation, following, and not preceding, nor going hand in hand with branch extension, follows on after the wood is apparently ripe. If the ascending sap takes priority in the race during spring, the descending claims a given time to finish up the activity of the year. Hence, the example adduced by Mr. Dawson with the Gooseberry bushes, and the oft-observed habit of orchard trees generally having spongiole-like roots after the trees are defoliated. The Vine plant shows the same habit, and illustrates the same theory, as anyone may see by probing his Vine borders that the white spongioles, judging by the eye, are crying "Give! give!" when the wood is apparently ripe, and plants seemingly in their winter repose. There may be such a thing, therefore, as too early pruning; and is there not a crying necessity for the conservancy of roots of these choice plants at that particular season? A border exposed to the elements, particularly during autumnal rain and cold, bodes no good results to the extended Vine roots, and therefore there is a much better plea for autumn than even early spring protection. This root finishing must be going on when, as you remarked in a recent leader, the cells and vessels are filling with starch, and when the organising layer between the bark and the wood has assimilated and is consolidating nutritive material. But bulbs and bulbous plants generally differ from exogenous plants; the roots in all cases precede the foliage, as any one can see with a Hyacinth bulb in a glass. Pseudobulbous plants, again, as in the case of Orchids, borrow life from their established connection, and are only furnished with roots on their own account after the young growths probably are from two to three months old. In the case of Lilies it is also patent that the pot in which they are growing may be well furnished with roots before their crowns show symptoms of upward growth; and hence the necessity for the cultivator studying their various habits and catering for them accordingly. To be sure there are plenty of abnormal instances that might be placed on record, as for example, that of Hyacinths being destroyed at the root base and pushing leaves by a reversion of the sap, but death was ultimately the consequence. It is possible also to adduce instances of any deciduous scion of a fruit tree having its eyes either accidentally or intentionally rubbed off, and the scion by the force of the sap emitting roots without leaves, but death, too, ultimately took place. To the best of my belief, founded on several observations, I am bound to declare upon the side of those upon whose banner is inscribed "spongiole formation is the consequence of leaf and branch extension." *James Anderson, Nov. 22.*—Do Vines commence growth without root action taking place? Buds certainly cannot expand without a flow of sap takes place, nor "taties" sprout from the same cause, or, more properly, I should say, without expansion taking place. Neither can life exist either in the animal or vegetable world without a continuous supply of life's juice, or a sufficiency of it stored up, as in bulbous roots, to expand, flow on, perpetuate, and multiply their kind. If a Potato or other fleshy root were kept in a very low temperature, probably growth would not take place. Apply heat, and the stored-up sap at once expands, finding a natural outlet in the production of shoots. It is the same in a large tree if cut down early and full of sap; the return of spring causes an expansion of this locked-up moisture, and probably an immense pressure is brought to bear, at least it is often sufficient to push the buds into leaf. Any one who has attempted to stop a Vine bleeding can form some idea of the immense pressure caused by the flow of sap. Do what you may it will escape somewhere. The more active this root action, so in proportion will the sap be propelled, resulting in robust shoots and handsome clusters. Your correspondent, Mr. Knight, infers, that because his Vine shoots, inserted in claret bottles of water, lived and pushed into leaf, that a long broomstick-like Vine will do the same thing without the action of roots, after a little heat and dewing is applied. It is just this heat and dewing that causes the sap to flow more actively, and a corresponding activity at once takes place in the roots to supply the increased demand. If your correspondent wants proof of this fallacy of Vines starting into growth without root action, let him sever all connection between roots and top of one Vine just before starting his house, and wait the result. I will venture to predict that scarcely a bud will break. I am of opinion that roots are ever at work in a greater or less degree, and that the circulation of sap is as continuous. If it were not so, the branches of every tree would be dried up by the winds and frost of winter, and plants would cease to exist. Mr. Dawson appears to have fallen into a similar error in the case of his Gooseberry bushes, as he says at the time they were forming roots, there was no corresponding action taking place aboveground. The roots had had their allotted work, viz., to supply wood, rind, and bud with sap, and keep the whole plump, ready to push forth fresh leaves at the proper time; and who shall say that no increase of rind or stem was taking place because not visible to our ken? *J. Sheppard, Gr. to J. Berners, Esq., Woolverstone Park.*

Fuchsia Princess Beatrice.—To all lovers of Fuchsias allow me to recommend the above. A cutting was given me in February last; I struck it at once, grew it on, and began flowering it in the first week in August. A finer plant for its age I have never seen: it measured 8 feet high and 4 feet 6 inches in diameter at the bottom—a grand pyramid. Besides being a free flowering variety it is a splendid grower, with good habit and foliage. These two points, I think, are generally forgotten by the raisers. What we want is something that will grow, make a specimen, and repay us for our trouble. *T. P. Turner, Gr. to E. S. Simpson, Esq., Walton, York.*

Yellow Bedding Plants.—I find Œnothera macrocarpa a most efficient plant for bedding or ribbons; it grows evenly to a height of 8 to 9 inches, but should be pegged down to 5 or 6 inches; it is a hardy, herbaceous plant and a free grower, and lasts all the summer in bloom. I have two round beds of it, planted 16 years ago, and it continues as beautiful as when first planted. This old plant has succeeded better than anything I have tried, and it suits itself to almost any soils and seasons. It is easily increased by seed and divisions of the roots, and cuttings may be struck under a hand-glass in andy soil in the spring, when the cuttings are 3 inches long. *William Smythe, The Gardens, Elmham.*

Amaryllis Johnsoni.—I have here at present a bulb of Amaryllis Johnsoni, with two large blooms on it, each bloom is 7½ inches in diameter. About the middle of last January it showed three blooms, which were large and fine; as soon as they were over it showed three other blooms, which were fully out in May—they were equally large and fine. The last four years it has had six flowers in each year. I should like to know if it is an unusual thing to have this plant flower a third time in the year. *Robert Stokoe, Gr. to H. C. Marshall, Esq., Westwood Hall, Leeds.* [We suppose this to have been a case of "anticipation," where the buds, destined under ordinary circumstances for future seasons, become developed before their time. Eds.]

Cordons and Calvilles.—In your report of the last meeting of the Royal Horticultural Society, it is stated that "from Mr. Shepherd, gardener to P. N. Laurie, Esq., Paixhill Park, Sussex, came a good dish of Calville Blanc Apples from small trees on the Paradise stock;" and further, that to these Apples a Special Certificate was given. It may interest some of your readers to learn that these Apples were gathered from trees worked on the true French Paradise stock; that the trees (maidens) were planted during the spring of the present year, and that the fruit was matured against a south wall. It need hardly be added that the Calville is usually grown in the orchard-house at Trentham and other large gardens, where it is much esteemed. Compared to these, other Calvilles grown in the open air, and shown at Kensington lately, were mere Crabs. The trees from which these Calvilles were gathered are not small in the sense of being pinched into dwarf bushes, but long, handsome, vigorous rods, from 6 to 10 feet long, inlaid with plump fruit-buds from base to apex. Mr. A. McKenzie, of Alexandra Park, also sent a box containing a considerable variety of fruit gathered from cordons planted during the past spring, and a plant showing the beautiful and abundant way the trees are furnished with buds for the coming year, without betraying a trace of the contortions or nakedness of dwarf trees grafted on other stocks when submitted to the cordon form. Both fruit and tree came too late for notice. In doing me the honour of reproducing figure 143 from my "Parks, Promenades, and Gardens of Paris,"—a cut which shows how the Calville Blanc, Lady Apple, American Mother, Newtown Pippin, and all the finer and tenderer French, American, and British Apples may be grown to a perfection they have never yet attained in this country—you praise the system "for small gardens." I should never have devoted a page to it were I not certain that it will prove of infinitely greater use in all the large gardens in these islands. In the gardens where there is space and light and intelligence to give it a fair chance—the hardier kinds round the open border, such kinds as those above named on low walls, the faces of pits, &c.—in the gardens where there is a large fruit room to be stocked, and where discriminating tastes both in dining room and kitchen have to be catered for, in these it will be found in good time all I have asserted it to be. I may add that I have had some of the finest Apples and Pears I ever saw either in France or England grown on this system in the past unfavourable season from Mr. Tillery, of Welbeck,—one of the largest and noblest gardens we have; and I hear that Mr. Stevens, of Trentham, is also trying the system on a large scale. *W. Robinson.*

Salisburia adiantifolia.—The fine specimens of Salisburia adiantifolia, mentioned in your last Numbers, are all surpassed by one in the Botanical Garden at Pisa. In January last it attained 2.95 m. in girth (*i. e.* 9 feet 7 inches), at 3 feet above ground. I could not take an exact measure of its height, but I am sure that it must range between 75 and 90 feet. It was received from England, and planted in 1787. It is a splendid tree, and very remarkable for the rich golden colour which the leaves assume before falling. Two other large specimens are in the same garden, both under 6 feet, and unluckily male trees, like the first. I think that this must be one of the largest, if not the largest, of its kind in Europe. The Ginkgo, of Montpellier, is only 2.04 m., and is regarded as the largest in France. In the same garden at Pisa, among many interesting plants, are also to be found a Cedrus Libani, introduced from England in 1787—girth 11 feet 6 inches; a Magnolia grandiflora, of the same age, which measures 6 feet—it is a perfect cone of verdure, the spreading branches covering an area of almost 60 feet in diameter; a Laurus Camphora, planted in 1842, measures 4 feet 6 inches; and last, but first for age, the veteran of the garden, Æsculus Hippocastanum, planted in 1597, has attained 10 feet 6 inches. I will send by-and-by some other notices about remarkable trees in Italy, which may perhaps interest your readers. Our country is really in her gardens, and in the beautiful remains of her ancient forests, more rich in rare and gigantic trees than is generally believed. *E. Fenzi.* [We cordially thank our correspondent for his communication, and shall be pleased to receive the notices he speaks of. Eds.]

Cedrus Deodara for Timber.—I would advise your correspondent "O. M." to be cautious how he plants the Deodar for timber. If his land lies low, and is well sheltered, it will do; but in a high and cold situation it will barely live, and never become much more than a shrub. I have some on my lawn, 1100 feet above the sea. They were planted nine years ago. The best of them is sheltered from the south-west by a high bank, and it is now not quite 6 feet high, and two others more exposed are scarcely 3 feet. Wellingtonias planted at the same time are more than 10 feet high, stout and healthy. *G. A. H.* [It is quite clear there are Deodars and Deodars. The severe frost of a few winters since destroyed the tops of several and left other adjacent trees unscathed. We can scarcely recommend the Deodar as a timber tree in the midland or northern counties, unless under exceptional circumstances. Eds.]

Iberis gibraltarica.—May I record a few words of praise of a very beautiful hardy plant not generally known in cultivation? Of the perennial species of Iberis, none are so ornamental as the Candytuft, which decorates and takes its name from the Rock of Gibraltar. Last April I procured and sent home plants which have almost ever since been continuously in flower; and one specimen in the open border, which was frozen hard three weeks ago, is now (Nov. 19) covered with delicate lilac flowers. The corymbs and individual flowers are twice the size of those of Iberis sempervirens, and the foliage and habit is also much larger. It seems to differ from all the other species in being a continuous bloomer, the lateral shoots outgrowing and hiding the old flowers as they decay. It is readily propagated from cuttings. The usual colour of the flowers is a delicate lilac, but I found in the mountains south of Tetuan, in Barbary, a variety with pure white flowers. I did not, however, succeed in preserving it in a living state. Messrs. Backhouse, I believe, imported the plant from Gibraltar last year. *George Maw, F.L.S., Benthall Hall, Broseley, Nov.* 19. [See an article on this plant and its allies, at p. 711, 1868. Eds.]

Melastoma granulosa.—The cultivation of this showy and attractive plant is very simple. It grows freely in

rough sandy peat, treated as a stove plant during the winter. The most luxuriant shoots should be kept stopped until spring; then shift, and grow the plant in an airy greenhouse till autumn, when it is sure to blossom freely. I do not stop after March. Young shoots, not too luxuriant, root freely in bottom-heat under a bell or hand-glass. I have a young plant here now, not more than 2 feet high, which a week ago had three large bunches of flowers on it. The plant is not by any means tender; the stove in which it is grown during the winter is often below 45°. I have not seen the least injury done to the plant by a low temperature. *P. Frost, Dropmore.* [The specimens forwarded by Mr. Frost were very beautiful. EDS.]

Blue Viola.—Mr. Dodds, of Bower Ashton, has this day called my attention to Mr. Dean's remarks respecting the Blue Viola, which he saw in bloom here last August, and I hope I may be pardoned for correcting a mistake which has been made regarding it. It is not Blue Perfection, but was sent out a few years ago under the somewhat alarming name, Good Gracious; at least, such was the name which I received with it, and which I have every reason to believe correct. Whether it is, or is not, synonymous with the variety sent to South Kensington by Mr. Jobson, I cannot say: but in respect to its good qualities of healthy constitution, free and perpetual blooming, and deep blue colour, I may say that I have not seen its equal either in the spring or summer garden. Many visitors to Wilton House, have been much pleased with the effect it produced. Allow me to add, if any one is particularly desirous to possess it, that I shall be happy to make an exchange for a white Pansy, possessing the same good qualities of habit and constitution. *Thomas Challis, The Gardens, Wilton House.*

Monstera deliciosa.—This luscious fruit has been brought to great perfection by W. Addison, Esq., of Oak Lawn, near Leatherhead; fine fruit, measuring upwards of 13 inches in length and 11 inches girth, have ripened most successfully, the scales swelling most prominently and separating distinctly when matured, exposing a delicious amber-coloured fleshy fruit of unsurpassed flavour. The course of treatment pursued by this gentleman was such as to offer a hint to any one wishing to grow and mature tropical fruits. In an ordinary span stove a brick arched chamber was constructed, through which the flow and return pipes passed, a false bottom was laid on, and the Monstera planted out in a bed of loamy soil of about 2½ feet in depth. During the growing season water was plentifully supplied, but almost withheld after the spikes of flower were set. The subterranean warmth was kept up correspondingly to that of the atmosphere. The result of this treatment is that while fine fruit have been cut for table up to a few days ago, the auxiliary buds upon the terminal shoots have all again set flower. Thus the fruiting of this tropical delicacy, and indeed many others, may be periodically secured if the alternation of seasons, together with the terrestrial condition of the countries of which the plants are indigenous are studied, and a system of treatment based upon these principles adopted. *Beasley Tanton, F.R.H.S., Epsom.*

Green Peas in November.—Mr. Carmichael, of the Sandringham Gardens, has for three years past kept up a good supply of green Peas through the winter by sowing, early in September, about five or six Peas in a pot of Maclean's Little Gem, a delicious early Marrowfat kind, which is coming into general use for early work, and is undoubtedly the best for that purpose. These, when sown, are placed in a cold frame, and towards the end of October they are removed to the shelves in the various houses, to come in in succession. Mr. Carmichael gathered the first dish on the 11th inst., full-sized Peas—truly a dish to set before a prince at this time of year; and a succession will now be kept up for some weeks. Maclean's Little Gem must not be confounded with Beck's Little Gem, and greatly indebted as we are to the late Dr. Maclean for so many fine Peas, we must especially welcome for early use two such first-class early Marrowfats as Maclean's Little Gem and Advancer. We want now an early Pea possessing the character of Advancer, with the earliness of First Crop or Dillistone's. *W. D.*—I am still obtaining Peas, which were supplied to me for Daniel O'Rourke, that have been grown without any protection, and were sown in the first week in August. Another, of which I do not know the name, yielded well up to the end of last week. It was sown about the middle of July, in mistake for Dickson's Favourite, which I have always found, since its introduction in 1853 or 1854, the best of all varieties for my last crop. I remember gathering from it one year as late as December 2. A row of Ringleader, sown July 14 last, produced only a small quantity of unfilled little pods, so that, however desirable this variety may be for a first crop, my experience proves to me it is quite worthless for a last one. I find no difficulty in obtaining late Peas, provided the frost does not come on so severely as to destroy them. The only conditions are to put plenty of moist well decomposed manure in the trench where they are sown, and never to allow the earth about their roots to become afterwards quite dry. Also, in the event of very dry weather occurring during their period of growth, to syringe them well overhead occasionally with a mixture of soft water and sulphur, in order to prevent the mildew appearing—with which, as every one knows, late Peas are almost invariably attacked. *Amateur, Whitland, Carmarthenshire, Nov.* 18.

Foreign Correspondence.

PROSPECT PARK, BROOKLYN.—This new park, the laying-out of which has been entrusted to the same garden architects as that at New York, is nearly completed, and must be pronounced to be one of the finest of American public parks. In extent (about 550 acres) and variety of surface and decoration it is fully equal to the Central Park, while it has already even a more aged appearance, owing to the skilful retention of some grown-up timber trees that happened to be on the place. The new planting, too, has been done with material sufficiently large to give immediate effect, and, owing to skilful previous preparation, the trees, since they have been put in, have thriven unusually well.

It will thus be seen that in selecting a site for a park it is important that such natural advantages should be secured as are found in well-grown woods—an agreeable variety of surface, and fair prospects, both of distant and local scope. It is true that a site may be deficient in any of these characteristics, and yet with time enough and money enough be convertible, by well-directed skill and labour, into a park of varied and attractive scenery. If, however, such conditions as are most desirable to be added should have been already provided by Nature in the immediate vicinity of a site, it would be felt on the one hand to be an extravagance to repeat them upon it by artificial means, while on the other the disadvantage of its being without them would be greater, because more obvious. Moreover, there are two possible misfortunes in a site which, in no period of time and by no expenditure of labour, can ever be remedied: these are, inadequate dimensions and inconvenient shape. Small parks are of little use; a sense of enlarged freedom is to all, at all times, the most certain and the most valuable gratification afforded by a park.

The scenery which favours this gratification is, therefore, more desirable to be secured than any other, and the various topographical conditions and circumstances of a site thus in reality become important, very much in the proportion by which they give the means of increasing the general impression of undefined limit. The degree of this impression which will be found in any particular park must unquestionably depend very much upon the manner in which it is laid out; that is to say, on the manner in which the original topographical conditions are turned to account by the designers. The latter must first determine what accommodations are desirable within the park, and next how these shall be situated with reference to one another and to exterior circumstances; for the best possible way to release the mind wholly from matters of business is to interest it in objects agreeable to the taste, and, at the same time, entirely different from the objects connected with those occupations by which the faculties have been overtasked. And this is what ought to be found by townspeople in a park, in which to maintain anything of a rural, natural, or tranquillising character; the driving room, riding room, walking room, skating, sailing, and playing room, must be not only liberally designed, but must be studied and adapted to all natural circumstances of the site with the greatest care.

These points have not been overlooked in Brooklyn Park, and I may add that one feature peculiar to American parks is having in them what are called "concourses," *i. e.*, places for congregation and rest adapted to the assemblage of large numbers of people. Three of these are to be found in Prospect Park. The first of them is designated the "look-out," an elevated position from which is obtained a view of the neighbouring harbour, the distant mountain ranges of New Jersey, the ocean offing, and other scenery of interest; while from its occupying the highest ground in the park, it is exposed to refreshing sea breezes, and at the same time a view can be had from it of military spectacles held occasionally on the parade-ground attached to the park. It is proposed to form here a terraced platform 100 feet in length, with seats and awnings connected, by a broad terrace walk and staircase, with an oval court for carriages, 300 feet long, and 150 feet wide. From this "look-out" broad walks lead across the park to the east end of the lake, where, at a point commanding the largest water view, together with a rich open verdant landscape backed up by evergreens, arrangements for open air concerts have been made.

The orchestra is to be situated on an island in a bay of the lake, so that it can be seen from three sides. On the main land, within a distance of 275 yards, at which distance the music of a well-appointed band can be perfectly appreciated, standing-room is provided for horses and carriages in a circular space about 500 feet in diameter, and in an oval space at a higher elevation, 300 feet long, and 175 feet wide; while in front, at a distance varying from 100 to 500 feet, a space is provided to be occupied by shaded seats sufficient to accommodate upwards of 10,000 people.

Midway between what is termed the "look-out concourse" and the "music concourse," and with approaches from both, a series of terraces and arcades is provided, connected with which is room for a large *restaurant*. These terraces look out upon the lake, and, the floor of the lower arcade being nearly on a level with the surface of the lake, it can be readily entered from the ice in winter or from boats in summer. The upper terrace is 500 feet in length by 60 feet in width, and the floor space of the structure 175 feet by 200 feet. These arcades are intended to form the principal architectural feature of the park.

Of sylvan characteristics there are four of considerable importance. First, upon the green sward and slopes of the upper lake some of the finest American forest trees stand singly and in open groups, so as to admit of the amplest individual development. Second, in the central portion of the park is an open grove of forest trees, in which visitors may ramble in shade, without impediment from underwood. Third, a collection of the more delicate shrubs, especially evergreens, both Conifers and what we call in England American plants, such as Rhododendrons, Kalmias, Azaleas, and Andromedas, is arranged in a natural way. Fourth, there are picturesque groups of evergreens and deciduous trees and shrubs on the shore of the lake, while near the boundary and central portion of the park is a considerable amount of woodland scenery. An open flat piece of grass of large dimensions has been set apart as a playground or common for rural sports, and is open to all persons on foot. Grazing ground for deer, and a site for a Zoological Garden, are also provided within the park.

As regards water, this park, like that at New York, has its lake of considerable extent, the feeders of which meander through other parts of the grounds in the form of streamlets for a long distance before they enter the lake. Water for supplying these is, we believe, to be pumped from the lake to aid a spring on the west side of a distant hill, so as to have always a good flow from that point, the pump for this purpose being worked by steam-power. The stream thus furnished is intended to take first the character of a series of pools overhung by trees, so as to give it the resemblance of a small mountain rivulet taking a very irregular course with numerous small rapids, falls and eddies, among rocks and Ferns, until it emerges from the shadow of the wood upon a grassy slope; then it flows more quietly until, after falling over a body of rock in connection with a foot bridge on the side of the park opposite that on which it started, it assumes the appearance of a small river with high shaded banks; and at length, passing what is called the "music concourse," empties itself into the eastern bay of the lake. Here, on the north shore, is a fine lawn, ornamented with large trees and small thickets of bushes, the latter overhanging the water. In the recesses are stations for water Lilies and other aquatic plants, which also appropriately ornament some portions of the shore, giving some interest and variety to the water scenery.

In shape Prospect Park is somewhat angular, and, "singularly enough," remarked a Hibernian, "the entrances are at the corners." But if your readers could only see them, I think they would admit that their positions had not been injudiciously chosen. The principal approach is, indeed, quite a marvel of constructive ability, and as entrance to a park or garden, and terminal to an avenue, I know of nothing comparable with it, except the Place de la Concorde, at Paris. It is made to pass through an oval, about 1000 feet in length and 800 feet in width, the end of which just cuts off the sharp angle of the park, while straight avenues lined with trees pierce its opposite end and sides in various directions. It is belted with a plantation, something in the shape of a horseshoe, and a fountain in its centre forms an elegant terminal to at least two of the main thoroughfares that lead to it. An ornamental appearance has also been given to a formal-looking reservoir contiguous to this gateway, by means of judicious treatment of the ground connected with it.

As to drives, the principal one, commencing with a width of 60 feet at the entrance, just alluded to, is carried in a southerly direction for some little distance, but diverges slightly to the east, so as to accommodate itself to some high ground in the neighbourhood. It there branches to the south-east and south-west, and becomes a part of what is called the "circuit drive," which has an average width of 40 feet. The south-easterly branch leads nearly directly into the heart of the park. It commands, moreover, from a point very near the entrance, a view lengthwise of an open lawn or extensive grassy glade, dotted with trees and shrubs, in small masses. Continuing on the course already indicated, this road soon curves to the right, and ascends to a point from which it is proposed to obtain an extensive view in a westerly direction over the principal open ground of the park. From this point the road descends into a woody defile, where it is intended to have some architectural memento of a battle which is reported to have taken place near this spot. Passing through the defile in question, a view is obtained over a pretty glade of turf to the left, bounded on the opposite side by thick coppice wood. Keeping to the right the drive continues to pass through woods; but presently divides into two somewhat narrower branches, by which means full advantage is taken of already existing opportunities for shade, and then reuniting continues to run in a southerly direction till it approaches what is termed the Franklin Avenue boundary line; at this point it divides again, and one branch enlarges almost directly into the open space, called the music concourse. The other branch or main drive after passing the two entrances to the concourse is carried round the head of the lake, and along the shore in a westerly direction until it approaches what is termed the refectory. It then curves to the northward, still following the shores of the lake until it reaches the west side of Look-out Hill. Although there is nothing in the natural scenery here very remarkable, yet agreeable views are obtained of the grounds across the water, the north shore being the most picturesque part of the park. The length of the drive is about 5½ miles. A walk passes all round the lake; and a system of bridle roads and walks is so introduced as to connect all the principal points of interest within easy access of each other.

One point in connection with American parks seems to receive more attention than with us—I mean the ground outside their boundaries. This is always bought along with the site for the park, and is either built on, or is planted ornamentally, so as to shut out from view anything which would be inharmonious with, or counteractive to the park design. Surroundings of American parks thus either consist of villas belonging to well-to-do inhabitants, from whom the Park Commissioners obtain recuperative rentals, or carefully laid-out ground of a highly decorative character. How we manage such matters in England is amply illustrated by the surroundings of Victoria Park, and those at Finsbury and Southwark.

Boston, Baltimore, Philadelphia, and other American cities can also boast of public parks; but, as these are not materially different from those about New York, I shall not occupy further space in describing them.

Concerning Washington Park, at Brooklyn, I should, however, like to say a few words in my next; it is about three times as large as Lincoln's Inn Fields, and is well worth attention, showing as it does the clever way in which the Americans decorate what may be called their open town spaces. *J. Newton, Oxford Terrace, Hyde Park.*

Societies.

HORTICULTURAL OF LIVERPOOL: *Nov.* 23.—The usual autumn exhibition of Chrysanthemums and Fruit took place at St. George's Hall on this date, and proved to be successful in every respect. The show of Chrysanthemums was up to the usual high average; while the display of Fruit, especially of Apples and Pears of high quality, was good. The specimen plants of Chrysanthemums occupied staging placed around the hall, the cut flowers, fruit, and smaller plants being arranged on tables running the length of the hall. Some groups of Ferns placed about among the Chrysanthemums, and plants with ornamental fruit, with Poinsettias, standard and pyramidal Mignonette, &c., staged about on the tables, helped to vary and enliven the somewhat flat appearance otherwise presented. A few groups of ornamental foliaged plants stationed about the hall were sadly wanted, to aid in saving many of the smaller things from the inevitable dwarfness which the interior of lofty buildings invariably imparts.

Groups of large-flowered Chrysanthemums, in pots, while generally well done, were trained in a most severely formal fashion, and being closely tied down to wire trellises, they had a flat appearance. The best nine came from Mr. Wilson, gr. to J. C. Reynolds, Esq. These were capitally grown and well flowered plants. The next best came from Mr. Airey, who had better varieties in some respects than in the first group, but not so well managed. Mr. Titherington, gr. to Col. Thomson, had the best six plants. These were no doubt the best six plants in the exhibition, being both finely grown and flowered, though tortured by being so closely tied out to shape. Mr. Rhodes, gr. to J. B. Morgan, Esq., had the best three plants. The best specimen large-flowered variety came also from Mr. Rhodes, a Julia Lagravière, an immense plant, fully 6 feet in diameter. There were also good examples of White Christine and General Slade.

In the class for nine Pompon varieties, shown by nurserymen, Mr. Bushell, Bootle, contributed some small plants, much inferior to the nine fine specimens staged in the amateur's class by Mr. Airey, gr. to J. McArdle, Esq. The plants averaged fully 4½ feet in diameter, and were well covered with fully developed flowers. These were also a capital lot of plants. The best group of 6 came from Mr. Williamson, gr. to J. Brand, Esq. Mr. Airey was 2d in this class. In class 9, the group of three plants placed 3d should have been 1st; they were small, but finely grown and bloomed. The specimen plants of Pompons were of great size, the best White Cedo Nulli, the others Holène and Bob.

Standard plants of both large-flowered and Pompon kinds were also well done. Some, however, were trained umbrella fashion, others were conical in shape. The pyramidal shaped plants, which averaged some 4 feet in height, and were flowered to the base, were trained much in the shape of the small specimen Azaleas seen at the London exhibitions.

Though numerous, the cut blooms of the large-flowered Chrysanthemums were inferior, both in size and quality, to those exhibited at South Kensington on the 16th inst. Mr. Foster, gr. to Colonel Thomson, had the best 18. The same competitors occupied the same positions in the class for 12 blooms, and Mr. McHardy had the best 6 kinds.

In the way of flowering plants, Primulas, of which there were several groups, mainly of the pyramid-flowering type; standard and pyramid-trained Mignonette, of which there were plenty, though they had generally a drawn and attenuated appearance; Poinsettias, many of them finely coloured; Gesneras, Euphorbias, &c., made an effective display, though too small to show to much advantage. A somewhat interesting feature was presented by the pans of the Double Roman Hyacinth, twelve bulbs in a pot, and quite charming piles of fragrant snow-white blossoms. In the way of ornamental fruited plants were seen Weatherill's hybrid Solanums, Rivina humilis, and Skimmia japonica; and with these were Dracænas, Marantas, and other coloured foliaged plants.

In the way of fruits there were a nice group of Pine-apples, including a fine Charlotte Rothschild, from Mr. Ward, of Bishop Stortford, weighing 9¼ lb.; a big white Providence, and some fair Queens. Black Grapes comprised Black Hamburgh, Lady Downe's, Black Alicante, and Gros Guillaume; white Grapes: Muscats, Trebbiano, Child of Hale, and Raisin du Calabre. Some of the Black Alicantes were very good. Mr. Tyerman exhibited a basket of Mrs. Pince's Muscat, which was grown in a cool house without heat, in Cornwall, to show that it will colour as freely as the Black Hamburgh under the same conditions. The bunches were very good, considering that they were cut from Vines struck from eyes in the spring of 1868.

Collections of hardy fruits consisted of Apples and Pears, Mr. C. Rylance, nurseryman, Aughton, sending a capital group; Mr. Woolley, gr. to Sir W. Jackson, Bart., was first with a collection of 12 dishes of fruit. The 2d and 3d collections, like the 1st, were very creditable indeed, and consisted, like it also, of Grapes, Apples, and Pears. Mr. Smith, gr. to H. Walker, Esq., had the best 6 dishes.

In the class for 8 dishes of dessert Pears the judges found a trying task in making their awards, as 15 collections were staged, all extremely good; in fact the show of Pears was the feature of the exhibition. Mr. Brown, gr. to Col. Biddulph, Chirk Castle, was 1st with splendid examples of Crassanne, Urbaniste, Baronne de Mello, Marie Louise, Beurré Diel, Napoléon, Beurré d'Anjou, and Beurré d'Aremberg. 2d, Mr. Auchterlonie, with another fine lot, having Baronne de Mello, Napoléon, Glou Morceau, Hacon's Incomparable, Beurré Clairgeau, Beurré Diel, Brown Beurré, and Marie Louise. The third group contained, distinct from the foregoing, Comte de Flandres, Easter Beurré, and Prince Albert. Three extra prizes were awarded in this class; and a fine lot from Mr. Manderson was disqualified owing to having Beurré Diel under the name of Duchesse d'Angoulême, though it appeared to be identical in every respect with the variety of Duchesse d'Angoulême known as Pitmaston, exhibited at South Kensington, before the Fruit Committee, on the 16th inst.(?) Mr. Loundes, gr. to S. S. Parker, Esq., had the best 4 dishes, which comprised fine examples of Beurré Diel, Marie Louise, Easter Beurré, and Duchesse d'Orléans. The best flavoured Pear was Doyenne du Comice, from Mr. Manderson; it was also the second best, and Marie Louise the third. Other good sorts exhibited in the several classes were Beurré Rance, Winter Nelis, Forelle, Flemish Beauty, Passe Colmar, Knight's Monarch, Beurré Bachelier, very fine; Jersey Gratioli, Seckel, White Doyenne, Beurré Bosc, Huyshe's Bergamot, Delices de Hardenpont, and Van Mons Leon le Clerc.

Equally fine were the dessert and culinary Apples; of the latter especially there were some fine examples. The best 6 dishes of dessert Apples came from Mr. Brown, Chirk Castle, and consisted of Bess Pool, Ribston, Cockle, and King of Pippins, Winter Strawberry, and Blenheim Orange. The next best came from Mr. Orr, gr. to H. Peirce, Esq., and comprised Ribston Pippin, Court-Pendu Plat, Orange Pearmain, Newtown Pippin, Blenheim Pippin, and Melon Apple. The best 3 dishes contained Ribston, King, and Newtown Pippins. The best dessert Apple was Ribston Pippin.

Mr. Manderson, gr. to H. R. H. Jones, Esq., was 1st with 8 dishes of culinary Apples, comprising grand examples of St. Sauveur, Alfriston, King of Apples, London Pippin, Small's Admirable, Mère de Ménage, Winter Hawthornden, and Bedfordshire Foundling. 2d, Mr. Turner, gr. to R. Bates, Esq., with fine specimens of Kentish Fillbasket, Alfriston, Mère de Ménage, Royal Russett, Gloria Mundi, Pomme du Roi, Cox's Herd, and one unnamed. Mr. Manderson had the best 4 dishes also, similar to those in the large group. Altogether there were some 500 dishes of fruit staged on this occasion.

ENTOMOLOGICAL: *Nov.* 1.—Mr. H. W. Bates, President, in the chair. A large accession of new members and donations to the library since the last meeting in July was announced, as well as the publication of two new parts of the Society's "Transactions." Dr. Power sent for exhibition eight species of small Coleoptera, new to the British list, including four species of Bruchidæ and Triarthron Maerckelii. Mr. F. Bond exhibited new species of beetles from Trebizond, captured by M. Deyrolle, including several new species of Carabus. Mr. R. M'Lachlan exhibited specimens illustrating the transformation of Mantis religiosa, which has been discovered to be parasitic in the larva state, in the nest of a spider of the genus Lycosa, by Dr. Brauer, of Vienna. In the full-grown larva state the legs are almost obsolete, and the pupa resembles that of Homerobius. Mr. Ward, of Halifax, exhibited some rare and beautiful exotic butterflies, including Papilio Autimachus, obtained from the neighbourhood of Old Calabar by Mr. Cuttor, and a female of Ornithoptorus Brookeanus, from Borneo, also Papilio Zalmoxis, from the Cameroons, and some species of Charaxes. Mr. F. Smith exhibited specimens of the rare Meloe rugosus, of Marsham, taken in the middle of October near Southend, crawling at the roots of Grass in the neighbourhood of the nests of a colony of wild bees (Anthophoza retusa). Mr. Albert Müller exhibited a very interesting collection of galls found upon various plants in this country, including two species found on the stalks of Maple leaves. It was stated that the collection of galls formed by the late Mr. Armitage is at present in the Museum of the Philosophical Society of Leeds. Various species of butterflies and moths from Shanghai were sent for exhibition by Mr. Wormald and Mr. Holdsworth. A letter from Prof. Stal, addressed to Prof. Westwood, containing an account of all the typical collections of insects in the Swedish museums, was read; also a memoir by Mr. Kirby, containing notices of the species of butterflies introduced and named by Gmelin in his edition of the "Systema Naturæ," from the Museum Leskeanum, in which they had been described, but not named by Schach, and of which the types are now in the Museum of Dublin. A drawing by Mr. Birchall, of New Granada, was exhibited by the President, representing a large caterpillar, dreaded by the natives as a poisonous snake, the resemblance being caused by two large eye-shaped spots on the neck of the caterpillar.

Notices of Books.

First Book of Indian Botany. By Daniel Oliver, F.R.S., F.L.S. With numerous Illustrations. Macmillan.

This little work is an adaptation of its author's "Lessons in Elementary Botany," for use in India. These lessons, which are doubtless well known to our readers, form an excellent handbook of elementary physiology and of systematic botany, and we gladly see them, in their new shape, fitted for the use of Indian teachers, who have long felt the need of some such work. In its original form, with the illustrations taken entirely from British plants, and with the series of natural orders limited to those most important to the British botanist, its valuable contents were comparatively useless in India, the plants selected for description being for the most part beyond the reach of the student.

The work is divided into two parts. The first of these, called "The Elements of Structural and Physiological Botany," is very nearly a reprint of the "Lessons," with this important exception, that Indian plants are selected for description. In the original work, Professor Oliver took for his starting point the Buttercup, a herbaceous plant, in which all the floral organs are perfectly distinct. As the species of Ranunculus are not at hand in most parts of India, the student is directed to study the characters of the stem in any common annual weed, and those of the flower in the Orange. Other flowers are afterwards compared with the Orange, so as fully to explain the various modifications of cohesion and insertion of organs, and in case of any of these being inaccessible, woodcuts are introduced to supply their place.

The second part, or "First Book of Indian Botany," is necessarily an enlargement of the systematic part of the earlier work, owing to the much larger number of natural orders which have to be gone over. It begins with a chapter on classification, in which the principles on which it is based, and the meaning of the terms individual, species, and genus, and of the higher groups, are simply but clearly explained, and illustrated by three common species of Fig, the leaf characters of which are strongly contrasted, while the floral characters of all closely correspond. A key to the natural orders follows, which will be much prized in India, and the characters of all the important natural orders are given, not of course at length, but with the aid of Professor Henslow's schedules and the numerous woodcuts (by Fitch), so clearly, that beginners will readily understand and learn them.

Professor Oliver modestly tells us in his preface that he has never visited India. He has, however, had more to do with Indian plants than many an Indian botanist, and he has in this little book conferred a great boon on Indian botany. We trust that it will find many readers, and that it will lead to a great extension of our still limited knowledge of the flora of that great country.

Garden Memoranda.

MR. BULL'S NURSERY, KING'S ROAD, CHELSEA.—Mr. Bull, whose collection of new and rare Orchids is becoming more extensive, has recently erected a new house for their special reception and cultivation. This house has been constructed so as to embody many of the special features that have from time to time been suggested and described as to the manner in which an Orchid-house should be erected. In its present form it seems to be a model Orchid-house for amateur growers, and seems likely to prove an admirable house of its kind for nurserymen also. It is a span-roofed structure, 15 feet long, 15 feet 6 inches wide, and 9 feet high in the centre. The outer walls are 2 feet 6 inches high; and on this wall there is 2-feet glazed frame, on which the roof rests. Along the apex of the roof there is a good substantial wooden coping, under which a roller is fixed, which, when suitable materials for shading are fastened to it, will be used either for keeping out the bright rays of the sun in summer, or for keeping out frost in severe weather in winter.

The house is divided into four compartments. The first is a lobby, 5 feet by 4, which must be entered before reaching the other divisions; so that, let the condition of the external atmosphere be what it may, no cold draughts are admitted into the Orchid-house proper. The first division, after passing through the lobby, is 11 feet in length, and is intended for cool orchids and flowering specimens. This is, no doubt, a great point in connection with Orchid culture, as not only do the flowers last much longer in such a structure, but their beauty is seen to greater advantage and with much more pleasure by ladies than when the plants are regularly kept in the hot and damp atmosphere of the growing-house. The second division, which is called the East Indian house, is 19 feet 6 inches in length; and the third, or Cattleya-house, is 20 feet long. Down the centre of the two latter compartments is an open tank, containing three hot-water pipes, for giving off moisture. The tanks are kept filled by a pipe and taps from a reservoir outside. These pipes are also perfectly under control, as, by using valves placed in the cool house, the temperature can be raised or lowered, as required.

At the end of the Cattleya-house, a compact and useful potting shed, heated by hot water, is attached. This being entered from the house greatly facilitates the operation of potting, &c.; and here, again, is a precaution against draught. Under the floor of this shed is a spacious tank, which receives all the rain-water from the roof. Pipes are laid from the hot-water tank in the house to this cistern, so that warm or chilled water can be easily had when required, either for watering the plants, or for any other purpose. The hot-water pipes for heating the houses are arranged along the outer walls, and provision is made for regulating the temperature in each house, by having separate stop-valves fitted to each set of piping. Ventilation has also been provided for with the same care to prevent the introduction of cold currents of air. This is effected by having small apertures made in the outer wall, just below the heating medium, so that cold air, before passing into the interior, must first come in contact with the hot pipes, and so become somewhat warmed. The ventilation is effected simply by a sufficient number of small sliding glass frames for the requirements of each house. Another important feature is the staging, which is open, both in the breadth that runs down the centre over the tanks, and around the sides; the latter also, instead of being fixed close up to the wall, have a space of about 6 inches between them for the heat to pass into that portion of the house which in most other erections is the coldest part, *i. e.*, that portion of the stage nearest the glass. The stages being made open, the genial humidity which rises from the tanks is allowed to pass freely amongst the plants throughout the house, and the paths can be kept comparatively dry, which is a pleasure scarcely dreamt of where no tanks of this kind are provided.

Having briefly noticed the arrangement of the structure, we may give some idea of the contents of the three divisions, by stating that amongst plants in flower in the cool house were Barkeria Skinneri, Sophronitis grandiflora, Calanthe Veitchii superba, the flowers of which are of a beautiful warm rose colour; several varieties of Lycaste Skinneri, the pretty Odontoglossum cristatum, and several varieties of Odontoglosum biotoniense, a fine spike of Dendrobium speciosum, and the same of the small flowered Frog Oncidium, O. raniferum; a deep rose coloured Orchid, named Mesospinidium sanguineum; Burlingtonia venusta, different varieties of Calanthe and Cypripedium, &c. Several other good or rare species may be noticed as showing good spikes, though not yet expanded, such as Lælia albida, a thriving specimen some 18 inches through; Odontoglossum triumphans, a specimen with bulbs 2 inches across; the rare O. Dawsonianum, and the pure white O. Alexandræ nivalis, &c., &c. In the East Indian house was a fine bank of Cypripediums, amongst them Selenipedium longifolium, described at p. 1206; Cypripedium niveum, white, from Moulmein, not yet exhibited; and nice little tufts of the rare C. Dayanum. On the centre stage was a fine lot of Saccolabiums and Vandas, the latter between 4 and 5 feet high. Amongst them is a new white-flowered species of Vanda, and a new Saccolabium, which has not yet flowered in this country, from Borneo—a new locality for Saccolabiums. This specimen shows an old flower-spike, and has long spear-pointed leaves, some measuring 18 inches in length; a variegated-leaved variety of Phajus grandiflora, and the Violet-scented Oncidium ornithorhynchum. The Cattleya-house contains fine specimens of new and rare Cattleyas, Lælias, &c., a fine specimen of Arpophyllum giganteum, about 20 inches through, with about two dozen fine growths. Amongst a group of Phalænopsids were eight plants of P. Schilleriana, all that were saved from a consignment of between 500 and 600. No wonder, with such disastrous results as these, that some species should command such high prices as are often asked. While speaking of importations, we remarked a large batch of Dendrobium japonicum, which had just arrived in good condition from Japan. At the end of the house were some nice little specimens of Anæctochilus Dawsonianus, Lowii, &c., and several imported

plants of the new A. Ordianus. A very remarkable circumstance in connection with this house is, that since the plants have been placed in it they have nearly all commenced to make new growth at the roots, in a very decided manner, sending out numerous strong green "feeders" in every direction; even old dry stems, about 18 inches in height, are throwing out roots all down the stems, showing plainly that they like their situation.

The winter garden has recently been improved by removing one side of a span-roof that formerly marred the view from the entrance, and the wooden latticed framework that did duty as a path down the centre has been replaced by a handsome arrangement of Minton's tiles. This path being much more effective, inasmuch as the contrast in colour between it and the sombre green tints of the Tree Ferns and other fine-foliage plants, is very pleasing.

In one of the other houses we noticed the largest of two specimens of the wonderful Aroid, Godwinia gigas, with its top cut off, an attempt being made to flower it by first inducing it to rest. Another plant, new to this country, is Psychotria cyanocarpa, which is just now bearing small fruit of a rich bright indigo-blue colour. It was introduced by Dr. Seemann from South America. The new Bertolonia primulæflora was also blooming very freely. The plant is a neat compact grower, and produces its clear soft rose coloured flowers in profusion. It is a fine introduction to our stoves, from Ecuador. In the same structure was also a specimen of the plant producing strychuine, Strychnos nux vomica, from the East Indies. In a cool house devoted to Palms, of which highly ornamental class of plants there is here a large collection, is a species of Artocarpus named grandis, which was thought to bear a considerable resemblance to the Bread-fruit tree, Artocarpus incisa, but proves to be more hardy, and has broader and more deeply lobed leaves than the latter species. This plant is doing well in a cool house, whereas the leaves of the Bread-fruit tree turned yellow in the same temperature, and the plant had to be transferred to its proper place, a stove.

Amongst the Palms there are many species deserving a more extended notice, on account of their graceful habit and general adaptability for the adornment of our homes, but though we have now so many species we have only a few variegated ones. Amongst them Mr. Bull has three or four species, including Rhapis flabelliformis aureo-variegata, one of Mr. Fortune's fine introductions, and Chamædorea Ghiesbreghtii fol. var. Curculigo recurvata variegata, though not a Palm, is a fine substitute for one, the leaves being long and recurved, of a fine green tint, banded clearly with white stripes,—an extremely ornamental stove perennial. A new species, named Welfia regia, is extremely pretty in its young state. It has smooth slender leaf-stalks and bilobed leaves, which, when young, are of a pleasing bronzy chocolate colour.

Obituary.

MANY visitors to the nurseries of Messrs. Rivers, of Sawbridgeworth, will regret to hear of the decease, on the 20th inst., of Mr. W. H. PERRY, for nearly 50 years in the employ of that firm. Mr. Perry was well known as a judge at the metropolitan Rose shows, and had an extensive acquaintance with fruits.

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

THOUGH not so much labour is required in *Orchid-houses* at this period of the year as during the growing season, they nevertheless require daily—nay, almost hourly—supervision and attention to their sundry minor wants. As unimpeded light is of the utmost importance in connection with their successful cultivation, it will be necessary to keep the glass as clean and free from dirt or other accumulations as is possible. Resort should, therefore, be frequently had to actual cleansings with clear water. At no period of the year, moreover, is it more essential than it is at present, that the plants be separated and kept in at least two different temperatures, &c. I refer to those two divisions known popularly as the Mexican and the Indian Orchids. The former, if kept at this time in the higher temperature which is needful to the well-being of those which are natives of the tropics are sure to suffer in a variety of ways; not the least of which results from the want of a proper season of rest. Some little variation from the ordinary course may have to be made in the case of such varieties as are from time to time pushing up spikes preliminary to flowering, when a few degrees more warmth will tend to increase the beauty of the Mexican or Indian sorts. This increased heat may be afforded with greater immunity from risks, because any moderate amount o excitement which may be given will exhaust its powers in giving greater magnitude to the spikes, or increased size to the individual blooms. Those gems amongst Orchids, the *Sophronitis*, will now be blooming, and they may be maintained longer in beauty by hanging the blocks upon which they grow in a cool dry corner of the house. *Cymbidium insigne*, which affords such a delightful fragrance about Christmas, will now be showing its spikes, and may safely receive a slight aid as above. Plants of *Cypripedium insigne*, which may have been grown in cool greenhouses, &c., during the past summer months, may be induced to flower more freely, and to produce finer flowers, by introducing them into stoves or other similar structures, where a moderate warmth exists. In regard to the mean temperature best suited to the two divisions before alluded to, the Mexican or cooler house should range somewhere between 48° and 50° by night, with an increase of from 6° to 9° by day, according to the amount of sunlight. The Indian house may be from 9° to 10° higher at all times. Be very careful, when water is needed by any plant, not to pour it immediately on to the pseudo-bulbs, or they may rot off. Pour it carefully round the inner rims of the pots, and thus avoid this and other similar risks. Do not let water stand about more than is absolutely necessary, whether in tanks or otherwise, at this time. With a supply of pipes sufficient to distribute the heat, without much forcing, a very fair supply of humidity will pervade the house from the pots, &c, without resorting to other means. *Cinerarias* and *Pelargoniums* of the Cape section, which are intended to bloom somewhat late in the ensuing summer months, cannot possibly have too much air on all proper occasions, as it gives them a sturdy form of growth, and greatly increases their future flowering capabilities. Where they have begun to push their crowns up, and where the pots are well filled with roots, they should have alternate waterings with liquid manures; this may be afforded tolerably strong, as they are rather gross feeders. Where it is practicable to deluge them overhead with fresh water without running antagonistic to the wants of other inmates, this should be done occasionally in the fore-part of fine days.

FORCING HOUSES.

Those *Vineries* which were started a few weeks ago will now be swelling their buds somewhat prominently, hence very uniform treatment must be entered upon. The moderate amount of night temperature which I have often suggested must still be maintained, as undue forcing by night too surely ends in a stunted growth. Maintain, therefore, an average temperature of 50° to 51° by night, and from 60° to 62° by day, with a rise of 8° or 10° by actual sun-heat or external atmospheric influences alone for some few weeks to come. Moisture may be freely permitted within such vineries at this time, and until the shoots have pushed. Give a good soaking with water, at a warmth of about 85°, to the internal border, if at all dry. In instances where the borders are outside keep a nice uniform warmth of 70° to 75°. By no means let it exceed a maximum of 90°, as I have previously intimated. Let both heat and moisture decline gradually as we approach the month of December; a day temperature by artificial means of about 66° will now be ample, and 62° will suffice by night. Watch the bottom-heat contained in tan-beds; if it exceeds the requisite temperature, give it vent by sinking holes into the material, and if it declines materially, let a moderate quantity of hot water be poured into it, sufficient to produce a fresh supply of warmth in process of fermentation. In regard to such structures, let air be now given at all times when the thermometer reaches 60°; and as soon as the buds commence swelling, let them be damped over two or three times daily. In instances where *Peach* or *Nectarine-trees* are already in flower, if any so early do exist, I suggest the desirability of setting the blooms artificially. Bring forward a few *Strawberries* where early forcing is intended, and place them into a light airy pit or cool vinery, after first well washing the pots.

HARDY FLOWER GARDEN.

Do not let fallen leaves and other similar litter accumulate too thickly around freshly planted subjects, such as *Saponarias*, *Silenes*, *Pyrethrums*, &c., otherwise they will become so drawn and weakly that they will not be able to withstand such frosts as may visit us before the winter is over. Look occasionally over beds of *Pansies*, *Pinks*, and *Carnations*, and should any have become loosened in consequence of the action of the wind, let them be pegged down or otherwise made firm at the base forthwith. If any have not yet planted their *Tulips*, let them do so immediately. I beg to thank a "Lover of Spring Flowers," for drawing my attention to the Calendar at p. 1188. What I meant and should have written was Aubrietia, and not Arabis, as he seems to surmise. The general who, as your correspondent seems aware, "marshals the flowers around the Tower," deserves the thanks of all visitors to the Castle for the fine display afforded upon such a steep and confined space during both spring and summer. Those who have delayed placing ashes or other kind of protection around stools of *Tritomas*, should do so without further delay, for we may expect such an amount of frost as would be likely to injure them at any time. Proceed with the customary forking over of all *Shrubbery Borders* as soon as the leaves have fallen from surrounding deciduous trees, and there is a fair likelihood that they may remain tidy afterwards. I have frequently referred to the fact that walks which are kept regularly rolled during the autumn and winter months, mild weather prevailing, of course amply repay the labour expended on them by being firmer and cleaner in consequence, during the ensuing summer, independently of the fact that they afford so much more pleasure and comfort to the pedestrian during the winter. Good clean walks are indeed a feature to be commended in any place; they afford a certain amount of cheerfulness when all around is dull.

KITCHEN GARDEN.

Place successional batches of *Seakale* in Mushroom-houses or other similar places. This, of course, where this mode of growing it is practised. When grown in Mushroom-houses, where a little air is needed, it is a good plan to place a nice layer of fresh leaves over the crowns after they are placed in the house; this not only tends to ward off direct air-currents, but obstructs the passage of any light which may be admitted. These remarks apply to *Chicory* and to *Endive*, in instances where it is desirable to push them along quickly. Now that we have had some rather searching frosts, it may be desirable to make use of the supply of *Red Cabbage* before any symptoms of decay appear. These Cabbages, as is well-known, are far better after having been submitted to the influences of a frost or two. As I have previously stated, *Parsnips* should not be taken up otherwise than as they are required for use. They lose their chief characteristic properties by so doing, however carefully they may be packed away or attended to afterwards. *W. E.*

TOWN GARDENING.

THE *Chrysanthemums* should all be correctly labelled before cutting down, as the arrangement for a display next season much depends on this process. The best labels I find are those made from yellow deal, painted with white lead and oil; and if written on when wet, the inscription will be indelible. Go over the shrubs, and, before digging, prune as required all rambling shoots of last summer's growth. Cut out all dead wood and suckers that come up from the roots; let none of the branches of two or more shrubs interfere with one another, or interlace, but keep each one separate, as this is more orderly and pleasing to the eye. Likewise see that the drains in the walks are not choked; if so, clear them at once and set them right before winter. The worms at this season, if the walks are not well bottomed, make a great mess with their casts. The walks should be well watered with a strong solution of salt and water, which will suffice to clear them off; and if the walks be well rolled after, they will be firm and clean for the winter. The grass plots should also be frequently rolled, which will improve the turf and make it agreeable to look upon. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending Nov. 24, 1869, as observed at the Horticultural Gardens.

Nov.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind	Rain.
Thurs. 18	15	30.312	30.379	52	29	40.5	46	48	W	.00
Friday 19	○	30.281	30.203	57	24	40.5	46	46	S.W.	.00
Satur. 20	17	30.259	30.213	47	19	33.0	45	45	N.	.00
Sunday 21	18	30.073	29.679	49	33	41.0	42	44	W.	.02
Mond. 22	19	29.495	29.437	48	38	43.0	45	43	S.W.	.26
Tuesd. 23	20	29.474	29.419	44	26	35.0	45	44	N.W.	.00
Wed. 24	21	29.781	29.525	42	23	32.5	44	44		.00
Average		29.953	29.822	48.4	27.4	37.9	44.7	44.5		0.28

Nov. 18—Dense fog; very fine; clear and cold.
— 19—Overcast; cloudy, but fine; clear and cold.
— 20—Clear and frosty; very fine; clear and fine.
— 21—Sharp frost; very fine; densely overcast.
— 22—Slight rain; heavy rain; cloudy.
— 23—Densely overcast; overcast; densely overcast.
— 24—Densely overcast; overcast; densely overcast.
Mean temperature of the week, 3 3-10 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 43 years, for the ensuing Week, ending Dec. 4, 1869.

November and Dec.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..28	48.1	33.9	41.0	22	1.21 in.	2	5	3	3	10	7	9	4
Mon. ..29	51.3	33.8	42.5	20	0.55	4	1	8	4	6	12	6	2
Tues. ..30	48.0	34.5	41.3	22	0.30	5	4	4	5	5	10	8	2
Wed. .. 1	48.5	34.9	41.7	23	0.30	2	3	4	5	6	8	11	4
Thurs. .. 2	47.4	33.7	40.5	19	0.63	3	4	4	2	5	15	3	7
Friday .. 3	47.0	35.8	41.4	24	0.26	2	6	5	2	5	13	7	1
Satur. .. 4	48.1	36.4	42.2	20	0.39	4	2	2	3	9	16	6	1

The highest temperature during the above period occurred on the 1st, 1857—therm. 62 deg.; and the lowest on the 30th, 1858—therm. 14 deg.

Notices to Correspondents.

CHEAP GREENHOUSES: *T P S.* Consult our advertising columns. Unless you have sufficient knowledge to plan, and see your plan carried out, you had better avail yourself of the services of a hothouse builder, stating the kind of house you require.

GLASS: *Anon.* Messrs. Chance Brothers & Co., 2, Coleman Street Buildings, Moorgate Street, E.C., are manufacturers of green glass. We are not aware that this colour has any special recommendation for propagating purposes, though a slight green tint is not injurious.

MANURING VINE BORDERS.—In answer to some inquiries (p. 1159) that have been made as to the mixture with which I top-dress my Vine border, I may say that it is composed of the following ingredients, viz., two good-sized barrow-loads of partially rotted yellow turfy loam from an upland pasture, one barrow-load of well-decomposed pig dung, and half-a-peck of superphosphate of lime. The whole is then well mixed and incorporated together before spreading over the surface of the bed, which extends 25 feet in length, and is 5 feet 4 inches in width. *S N.*

NAMES OF FRUITS: *M N 0. Pears:* 1, Beurré Clairgeau; 2, Eyewood.—*E P. Apples:* 2, Caroline; 3, King of the Pippins; 5, Rhode Island Greening; 6, Baxter's Pearmain; 8, Winter Nonsuch. The others had the numbers rubbed off, the small angular fruit being Winter Codlin. Two others unknown. *Pears:* 7, Knight's Winter Crassane; 8, probably Bergamotte d'Esperen; 9, not known; 10, Broom Park; 11, Susette de Bavay; 12, Glou Morceau.

NAMES OF PLANTS: *T C P G.* 1, Niphobolus Lingua; 2, Asplenium cicutarium; 3, Aspidium trifoliatum; 4, Polypodium cambricum; 5, Asplenium Fabianum; 6, Pteris crenata; 7, Nephrolepis tuberosa; 8, Selaginella Wildenovii.—*T H S.* 1, Asplenium cirrhatum (*alias* rhizophorum, Karstenianum, &c.); 2, Meniscium simplex.—*W.* 1, Cheilanthes leudigera; 2, Nothochlæna tomentosa; 3, Goniopteris diversifolia (*alias* fraxinifolia).—*A K.* Abies Nordmanniana. *A M.*—*S E.* Common Hornbeam.—*Fungi: Mr. Cox.* The Agaric is A. odorus, but the attenuated stem is not a specific character. Answer delayed, owing to a miscarriage of the post.—*J Y., Horndean.* The common pear-shaped Puff-ball, Lycoperdon pyriforme.—*Amateur.* 1, Rhus Cotinus. We cannot name such scraps.

NEPENTHES: *T C P G.* These plants are freely propagated by seeds, whenever obtainable. Otherwise they are increased by taking off the offshoots which spring from the base of the plants after they have acquired some age.

POT VINES: *Enquirer.* The Vines should not be repotted. Keep the roots intact, start them gently, and by-and-by feed them by placing a false rim of turf to the pot, filling the space with a rich compost.—*Amateur.* See the preceding reply. You must start the Vines very gently. The details of treatment will be from time to time given in the Calendar.

SUCCULENTS: *A W.* If you read French there are two capital and cheap little books by M. Lemaire, on the "Cultivation of Succulents and Cacti." See p. 140.

ERRATUM. At p. 1159, col. c, last line of 5th paragraph, for "streaked or imperfect berry" read "shanked or imperfect berry."

COMMUNICATIONS RECEIVED.—A. J.—T. S.—T. Y.—Ebor.—H. W.—R. W. S.—W. R.—O. M.—B.—G. H. V.—An Amateur.—W. C.—W. M.—E. H.—W. H.—J. B.

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"Edinburgh, October 20, 1869.
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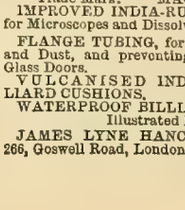
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TWO THOUSAND ONE HUNDRED POUNDS in PRIZES.
Admission:—On Saturday, November 27 (to witness the whole of the Judging), 10s.; on Monday, November 29, till 5 P.M., 5s., after that hour, 1s.; on Tuesday, November 30, 1s.; on Wednesday and Thursday, December 1 and 2, 1s. till 5 P.M., after that hour, 6d.
For Special Railway Arrangements, see the Advertisements and Bills of the several Companies.

CENTRAL CHAMBER of AGRICULTURE.—The GENERAL BUSINESS COMMITTEE will meet at the Salisbury Hotel, Fleet Street, on WEDNESDAY, December 8, at 1 o'clock.
Same day, at 2 o'clock, MEETING of the COUNCIL, consisting of the Deputed Members from the Provincial Chambers, and of the Elected Members of Council.
Same day, at 3 o'clock, or when the business of the Council is concluded, ANNUAL MEETING of the Members of the Central Chamber.
AGENDA:
To receive the Report of the Council.
To Elect a Vice-Chairman for the year 1870.
To Elect Eight Members of the Central Chamber to be Members of Council, in lieu of the following, who retire by rotation, but who are eligible for re-election:—Mr. R. H. Masfen, Mr. R. Jasper More, Mr. J. Paine, Mr. Albert Pell, M.P., Mr. Charles Rea, Mr. C. S. Read, M.P., Mr. Edmond Riley, Mr. John Smyth.
To appoint Auditors, and to transact other Business.
JOHN ALGERNON CLARKE, Secretary.
The Salisbury Hotel, Fleet Street, E.C.

The Agricultural Gazette.

SATURDAY, NOVEMBER 27, 1869.

MEETING FOR THE ENSUING WEEK.

Nov. 29 to Dec. 2 } Birmingham and Midland Counties Fat Stock and Poultry Show, in Bingley Hall, Birmingham.

SOME weeks ago Miss BURDETT COUTTS made an earnest appeal to the public against the cruelties inflicted on cattle during their transit by steamer and railroad. Now the recent Act of Parliament which the Privy Council has to carry out in detail, contains certain clauses intended to prevent the continuance of the evil complained of. But the Privy Council have not yet issued their Orders on the subject. They are, indeed, in the meantime only taking counsel with the several Chambers of Agriculture as to the best means to be adopted under existing circumstances, with due deference to the interests of shippers, railway proprietors, and owners of stock. While the authorities, therefore, are yet deliberating, Miss BURDETT COUTTS has attempted to solve the question of the possibility of conveying cattle by rail without cruelty or suffering, and without deterioration of value—by actual trial.

Acting upon the suggestion of Mr. REID, of Granton, near Edinburgh, who for some years has devoted his attention to the improvement of the ordinary cattle truck, she directed the following experiment. Mr. REID was instructed by her to supply one of his recently patented cattle waggons, in which provision for the animals carried is made by a trough and hayrack, crossing the waggon in the centre; by wooden partitions to separate the cattle from one another; and by protection from cold winds afforded by the waggon being closed at the sides and top. Upon the roof is a water tank, from which the water flows into the trough. The cattle stand face to face; and there is room for six when the partitions are in their places, and for eight when they are removed. On Wednesday, Nov. 3, Mr. REID, by direction of Miss COUTTS, purchased six black heifers in Edinburgh market for conveyance to London,

These animals had been taken from Grass, and conveyed in the usual cattle truck 100 miles to Edinburgh. They were placed in Mr. REID'S truck at 4.30 P.M. on Saturday, and left the Waverley Goods Station of the North British Railway at 8.30 P.M. the same night. At Carlisle the truck passed on to the North Western line; at Ingleton it was transferred to the Midland; and it reached London at 2.20 A.M. on Monday morning. The cattle never left the truck from 4.30 P.M. on Saturday until 6.30 A.M. on Monday, when they were taken out and driven to the Islington market. At starting there were 42 gallons of water in the tank which is fitted to the truck, and the whole of it was consumed by 7 o'clock on Sunday night, before reaching Trent. At that station 12 more gallons were run into the water trough, which were drunk before the train started. No more was given until reaching London, when the heifers drank about 7 gallons. Of hay the animals ate 9¾ stones, 10 stones having been placed in the rack at starting; and, in addition to the hay, 3 stones of oatmeal were consumed with the water. The cost of this food was 10*s.* for hay, and 6*s.* for oatmeal; and the fine appearance of the beasts was the subject of general comment in the market.

It is plain that Miss BURDETT COUTTS could not have adopted a more effectual plan of illustrating the position maintained in her published letter than by an experiment of this kind. She had asserted in her letter that, under the present system, cattle in railway trucks suffer a great amount of bodily distress during their conveyance from place to place. And this may be confidently inferred from the result of her experiment. Thus, it is shown that in the journey from Edinburgh, in a comfortable carriage, these cattle drank 61 gallons of water and ate 13 stones of hay and oats. How much greater would have been their need, then, if crowded in an ordinary truck? Again, if they drank 61 gallons of water in a convenient truck during 38 hours in November, how much would they have wanted in an ordinary crowded and unsheltered truck in July or August? But suppose them sent in this ordinary truck, with a desire to drink 61 gallons of water, and not a single drop attainable to soften their parched throats—not a mouthful of food given for them to masticate and to ruminate upon, so as to produce the saliva necessary to keep the palate moist, and the tongue from cleaving to the mouth!

This, then, is the great lesson the experiment teaches:—Water and food are necessary in winter when cattle are in a comfortable truck; in summer, therefore, they are much more necessary.

In addition to its proof of the inhumanity now practised on railways in the conveyance of cattle, it certainly gives other results that will facilitate the adoption of a better system than now exists. In the first place, whether the present truck used by Miss COUTTS be the one that best combines efficiency and economy of construction, or not, is of no importance. If there be a better, so much the better, but even this demonstrates the following facts:—That the cattle, if not actually improved in appearance by the journey in a truck, where they can feed and drink, are not at all deteriorated by the journey. They were, in fact, sold readily at more money than they would have fetched if they had been conveyed in the ordinary manner.

Here, then, is a sum of money in the hands of the salesman greater than he would have had if the cattle had not received this humane treatment, and this will pay for the food and water and attention. Taken at option, and comfortably, such provision is as valuable to the animal system as any food it has received during the time that it has undergone feeding. And the farmer must not grumble about the cost of it. As to the railway companies, whether the better trucks be more expensive ones or not, it is certain that they have no right to practise systematic cruelty because it will cost money to build proper carriages. The costermonger, whose horse's collar galls its shoulder, is obliged to give up his horse's work till he recovers, to get a new collar, or pay a fine or go to prison. There is little sympathy shown when the policeman pounces on him and shuts up his trade in this manner. Railway companies have been too big to be dealt with by the ordinary Act. Now, however, that the Special Act is about to catch them, the obligation on their part to provide proper carriages for the traffic of live stock becomes imperative.

The experiment now alluded to can, for these reasons, have no other than a favourable influence in promoting the establishment of a better, more comfortable, and more humane mode of conveying animals by railway during long journeys. At the same time it most clearly shows the extent to which animals undergo a deprivation that is of all others the most painful to endure; and Miss COUTTS has rendered one of her many good services to society by calling attention to a very serious evil, capable of so easy a remedy.

Whether the particular mode of conveyance on rails she has tried be the one to be adopted or not, the experiment has at least done this great good—it has shown positively that animals do suffer hunger and thirst on the road, and that the public opinion she has raised throughout the country, denouncing the system now in practice, is well founded.

THE Report of Mr. HOPE'S Paper on sewage utilisation before the Institution of Surveyors last Monday, will be read with interest, as the latest utterance on this subject of the man to whom, more than any other, will be awarded the credit of having achieved the success, when the country shall have been aroused to the enormous loss it now sustains in this particular way. Only the former part of the lecture is here given. The facts at Barking and at Parsloes, and those regarding the utilisation scheme at Romford, of which Mr. HOPE has taken the whole burden on himself, are here related, and on the whole they are sufficiently encouraging. At any rate the discouragements and failures are stated as frankly as the successes; and the reader may judge with confidence for himself. We think that the conclusion to which he will come is, that for most ordinary English agricultural crops sewage, applied with discretion, is the most fertilising manure he ever heard of; but that for crops to which our climate is of only occasional, or of doubtful fitness, sewage, like other manures, will produce only occasional or doubtful results. The life and character of a plant are, in fact, an unalterable "quantity" in all our agricultural calculations. They may be improvable within very narrow limits, but no enthusiastic belief in the power of any new agency in agriculture should blind us to the fact that however animals—and, *à fortiori*, men—who are capable of influence by many other motives than the merely material ones may improve under education, plants have very limited capacities indeed.

We may educate our animals to some extent to bear with, and perhaps to profit by, an unaccustomed set of circumstances; plants, however, must be simply *selected* for their ascertained natural aptitudes. And however wonderful may be the produce, for example, of the Maize plant under its own climate, we must not think that, even with the aid of sewage, anything more than an occasional success, in a year like 1868, will be attainable in ours. Happily, however, there are plants enough for which our climate is well adapted, by which we can most perfectly utilise this wonderful agency. Italian Rye-grass, Mangel Wurzel, Cabbages, Celery, Strawberries, Asparagus—all these prosper wonderfully under its influence; and even grain crops, judiciously treated, will answer satisfactorily to the sewage whip.

The latter part of Mr. HOPE'S lecture was a clever argument, based upon the facts which he had just enumerated, in which sarcastic criticism and exuberant fluency of rhetorical illustration are brought to bear upon the assertion—"It won't pay." An extract will suffice:—

"When a sailor wishes to describe a peculiarly desperate situation, he says that a man is between the devil and the deep sea. Now, if we substitute for the chief enemy of mankind the Court of Chancery—and there are some persons who would think the substitution no amelioration—this description very accurately defines the present position of most of the towns in England. Unless they utilise their sewage in some way or other, the deep sea, far away from all oyster beds and bathing machines, salmon fisheries and salt pans, is the only place where the Court of Chancery will allow sewage to be discharged; and even in such a case as this, I am strongly of opinion that, if a respectable and duly qualified resident merman or water baby applied to the Court for an injunction, the present Lord CHANCELLOR, who is such a conscientious disciple of Mrs. Doasyouwouldbedoneby, would decide that the petitioner had a *locus standi*, or, perhaps, *locus natandi*, and would prohibit the further pollution of the deep sea.

"But in the case of London, what says poor Father Thames? Poor old fellow! for many centuries past he has had to undergo so many indignities, that it was apparently considered that one more could not do him any very great harm; nevertheless, this last piece of ingratitude seems to have been too much for him, and this fatal stream of sewage seems to have been the last drop that made his bitter cup overflow; for his official spokesman, the Solicitor to the Conservancy, has just inserted an advertisement in the *Times*, giving notice of a Bill that he is going to apply for to Parliament this next session, 'to prohibit the discharge of solid matter into the river Thames from the sewers and drains of the Metropolitan Board of Works, at Barking, in the county of Essex, and at Crossness, in the county of Kent, and from any other sewers or drains belonging to them, or any other body or persons; and to compel the Metropolitan Board of Works to deodorise, or otherwise render innocuous the effluent waters or other liquid matters allowed to flow into the river Thames'

"I smiled when my eye caught this advertisement—this cry of anguish from Father Thames. 'Hullo! old gentleman,' said I, 'deodorise the sewage of London, indeed! Don't you wish you may get it? Why, if it "wont pay" to utilise the sewage of London, how do you suppose it can possibly pay to deodorise it?' Then I began to remember what the Court of Chancery had said in one or two cases, and began to think that perhaps Parliament would not care whether it 'paid' or not, to do what the old fellow wanted, and would say that he had as much right to be heard as anybody else. But the dry-weather sewage of London, north of the Thames, is alone sufficient to fill a lake of 92 acres in area, 3 feet deep, every 24 hours; so how is it within the remotest bounds of practical possibility to 'deodorise' this enormous mass, unless by allowing it to deodorise itself in flowing over and through the land?

"In fact, it is quite plain that the days of the existing state of things are numbered, and that the utilisation of sewage 'has got to be done,' as the expressive Yankee phrase goes, and 'done' it will be, for truth will triumph in the end, in spite of all opposition and all assertion, and all apathy—which latter is so often the greatest impediment to any improvement."

—— GREAT depression has continued in the Wheat trade throughout the markets of the kingdom, and although the large foreign arrivals have been offered readily at 2*s.* per quarter further reduction, only a small retail trade has resulted, as confidence in existing prices is still wanting, The trade in spring corn is also depressed; there is a reduction of 1*s.* to 2*s.* per quarter upon Beans, Peas, and best Barley, while grinding sorts of Barley and Oats are 6*d.* to 1*s.* per quarter lower.——In the seed market there is an improved inquiry for Clover seed; and for the best sorts an advance of 2*s.* to 3*s.* per cwt. has taken place.——The Potato trade dull and slow.——In the cattle market of Monday the supply of beasts was shorter than in the previous week, and trade was brisk, so that there was a slight advance in the prices of the choicest qualities of beef. Sheep, too, were not quite so plentiful, and were readily disposed of at an advance on the previous Monday's prices. On Thursday last there was a large supply of English beasts, but a short foreign supply; so that trade was again active at Monday's quotations, and a fair clearance was effected of all kinds of cattle. Sheep were more plentiful, demand slack, and prices were lower for the small amount of business transacted.——Wool trade improved, for better qualities prices a shade higher. Trade in manufacturing districts slack, and though a large quantity of wool is being used, the profits are very meagre.

—— Compared with former years, we are informed that the entries for the Birmingham Cattle and Poultry Show are far above the average. The prizes for sheep having been much increased, a grand display is anticipated, particularly from the local Shropshire breeders, whilst there is no doubt that the exhibition of pigs will maintain its character as one of the first in the kingdom. The raising of the fees on poultry has slightly diminished the numbers, but 2500 pens of nearly every known variety of fowls and pigeons will certainly be as many as most visitors will care to inspect. The root and corn show forms a most useful and interesting feature, and will be far better than anticipated in the earlier part of the season. As regards the space appropriated to implements and miscellaneous articles, we understand that the applications for its allotment have been unprecedentedly numerous—so much so, indeed, that in nearly all cases they have had to be curtailed.

—— The second report of the Commissioners appointed to inquire into the employment of women and children in agriculture has just been issued, and we shall refer in detail to the substance of its conclusions next week. The two gentlemen to whom the task of framing recommendations, upon the evidence which they have collected, has been committed, differ as to the lessons which it teaches: and they have accordingly issued separate reports on the subject.

OUR LIVE STOCK.

THE Shobnall Grange catalogue, just issued, contains the pedigrees of 28 cows and heifers, and 11 bulls. The names of the sires lately used in Mr. Meakin's herd is evidence of the pains which has been taken to breed stock of first-rate quality. DUKE OF CUMBERLAND (21,584), by Mr. Tanqueray's MARMADUKE (14,897), and of the Bates *Cambridge Rose* tribe, is the sire of seven of the lots; GRAND DUKE OF ESSEX 5TH by ROYAL WHARFDALE (22,805), and from *Lady Bates* by THE BUCK (13,836), and therefore splendidly bred, is the sire of two promising young bulls of the Charmer and Zeal families, and ROYAL MASTER BUTTERFLY 2D is represented by two excellent heifers. First on the list we notice *Zeal 9th* by LENTON FAVOURITE, and from *Zeal 6th* descended from *Zeal* by ROMAN, and previously from Chilton stock. Two younger members of the same family will also be offered on the coming sale day. We anticipate some competition for lot 7, *Charming Maid* by LORD LIVERPOOL, and of Milcote extraction, and her son KING CHARMING by GRAND DUKE OF ESSEX 5TH will not be without admirers. Lastly we mention *Fidget 7th*, a 3-yr.-old heifer by 3d Lord Oxford, and from Captain Blathway's *Fidget 6th* by 7TH DUKE OF YORK, the previous cross having been the renowned Bates' sire, DUKE OF NORTHUMBERLAND.

—— The Belmont sale on the 18th inst. was a successful one. The very fair average of 32*l.* 7*s.* 10*d.* was realised upon the 20 animals offered, while 33*l.* 12*s.* was the average of the 17 females. *Amelia* by SURPRISE (20,922), and of the Asia or Acomb family, was purchased by Mr. Savage for 51 gs.; *Ruth* by DUKE OF

DARLINGTON, made 60 gs.; *Lady Florence* by EARL OF DARLINGTON, was sold for 52 gs.; and the twins *Petunia Foggathorpe* and *Primula Foggathorpe*, by DAIRY DUKE, brought respectively 32 gs. and 10 gs. DAIRY DUKE, the sire of all the young stock, was knocked down at 15 gs.

—— The sixth number of Thornton's Circular, just issued, demands a more lengthy notice than we can give on the present occasion. We however remind our readers that it has made its appearance, and that it fully equals its predecessors in interest, and rather excels them in volume. Mr. Thornton may well be congratulated on the success of his publication, as may also the Shorthorn world, in having so concise and correct a statement of Shorthorn transactions placed within their reach.

—— Mr. William Smith, of Higher Hoopern, Devon, has for many years been in the habit of inviting his farming friends to inspect his famous fat cattle before sending them off to the Birmingham, London, and Plymouth Shows. The interest of this year's meeting was enhanced by the inauguration of a sale of Devon cattle and Exmoor sheep, "the best of which are calculated for keeping 12 months, and exhibiting in the Christmas shows of next season." The first lot offered was a pen of fat Exmoor sheep, which brought 91*s.* each, Mr. Smith reserving the right of showing them at Plymouth, in return for which he will continue to fatten them at his own cost till after they have been exhibited. We borrow from a contemporary the following particulars of the sale. Three lots of three sheep each made respectively 81*s.*, 81*s.*, and 81*s.* per head; 12 lots, five to the lot, of a darker coloured wool than the above, were knocked down at prices varying from 58*s.* to 43*s.* each. The remainder were in lots of 10 Dorsets, and Dorsets and Exmoors. They sold at prices ranging from 43*s.* to 51*s.* Next came the North Devon bulls and bull-calves, the first, a 2½-yr.-old, bred by Mr. G. Shapland, of South Molton, made 28*l.*; DUKE OF BEAUFORT, 20 months old, bred by Mr. Quartly, of Molland, went for 26*l.*; YOUNG TRIO, 22 months old, and bred by Mr. J. A. Smith, of Bradford Peverell, Dorset, was purchased for 32*l.*; YOUNG EXETER, bred by Mr. Smith, brought 20*l.* 10*s.*; lastly, two bull-calves, by YOUNG EXETER, fetched 10 gs. and 12½ gs. respectively. Next came 25 fat Devon oxen and steers, which sold at prices varying from 24*l.* to 36*l.* 10*s.* Mr. Randell purchased a grand ox, 26 months old, for 35*l.*, Mr. Smith reserving the right of exhibiting him at Plymouth. Three heifers were sold, one for 28*l.*, one for 27*l.* 10*s.*, and one for 23*l.* 10*s.* The total amount realised was about 1300*l.* After the sale the five fat oxen, steers, and heifers, which Mr. Smith is about to send to Birmingham and Islington, were walked round the ring for inspection.

—— A novel objection to white cattle has found a place in the columns of *Bell's Weekly Messenger*, namely, that they contain less blood than red cattle. This "fact" is based on the observation of a butcher described as "a man of education and of thought," who "repeated again and again, as the invariable result of his experience, that a white animal has not nearly as much blood in it as one of another colour—little more than half as much." Such a statement could of course be easily tested by weighing the blood from animals of various colours, and it is our firm conviction that the application of such a test would show the absurdity of this so-called observation. Ridiculous as the statement may seem, it has an instructive side. It is an admirable example of the rash generalisations and irresponsible theories too often hazarded by practical men. Whether whiteness is a real disparagement to an animal may of course be open to discussion, but while we have vigorous and well-grown sires, or excellent milking cows of the "objectionable" hue, we can hardly believe that they are deficient in blood. Neither is the fact insignificant that not only our native wild cattle are nearly white, but that escaped cattle tend to the same colour. "On the Ladrone Islands, in the Pacific Ocean, immense herds of cattle which were wild in the year 1741 are described as 'milk white, except their ears, which are generally black' (Anson's Voyage). The Falkland Islands, situated far south, offer a more interesting case. Cattle have run wild there during 80 or 90 years, and in the southern districts the animals are mostly white, with their feet or whole heads or only their ears black" (Darwin). Now it is evident that where animals are unrestrained, a kind of natural selection is constantly taking place. The "weakest go to the wall," the strongest bulls become the sires, and, if any particular colour was correlated with constitutional weakness, it is hardly probable that it would at length predominate over other tints. We should not have any difficulty in naming famous bulls and cows among our most noted herds, of a white colour, and the results of sales show that the opinion of breeders is not averse to white.

FIXITY OF TENURE *v.* TENANT RIGHT.

No. II.

THE preliminary conclusions which we arrived at last week, after a general consideration of the land laws affecting both the English and Irish tenants, were briefly these:—That the general cultivation of the soil was lamentably deficient, and might be so improved as to double the crops at present produced; that it was the interest and the duty of the consumer (the public) to see that such improvements were carried out as far as practicable, and to remove any impediments to such improvements; and that one of the chief hindrances to high farming was the state of the relations existing between landlord and tenant, which checked the expenditure of capital and raised misgivings as to its security in the minds of the occupiers. And there can be no doubt but such misgiving is real, and that it is the cause of the present dissatisfaction existing on both sides the Channel. In no other trade or profession is a man called upon to lay out his money with so uncertain a prospect. A majority of farmers are only yearly tenants. The rest have leases terminable every seven years; many with two years' notice only. Is it possible that any other farming than such as we now witness, from hand to mouth, should be the result?—that the elaborate and expensive cultivation which would double the produce is confined to the case of proprietors and their bailiffs, and some few tenants whose faith in the landlord has overcome their natural scruples? To counteract this feeling of insecurity I do not imagine that any violent alteration in the existing law would be found necessary, or any sudden infringement of the rights of the landowner; but at the same time I think it expedient, for the reasons before given, that every encouragement should be held out to an improving tenant, that the full increase of our annual produce should be fostered; and if any perverse landlord should, like a dog in the manger, set himself to hinder the public benefit by opposing such improvements, the Legislature, as representing the public, might safely be called upon to interfere.

The remedy that I should first propose would be the establishment of an equitable tenant-right, applicable to all holdings and chargeable upon the land for a term of years in either of the following ways:—1st. I would enlarge the powers of tenants for life which they now possess under the several Acts of Parliament, enabling them to charge the inheritance with a proportion of the costs of permanent improvements. I would include the breaking-up of poor lands, subsoiling, and the removal and straightening of fences, so as to adapt farms for steam cultivation; subject to this proviso, that such improvements shall be maintained in full effect up to the death of the tenant, so that the increased value of the lands he has so charged shall be an equivalent to the sum charged upon the next heir.

2d. I would give to a tenant for years the powers of borrowing, and of charging the inheritance with the cost of all the improvements sanctioned by all these Acts, including the additions above specified, under the following conditions:—That the landlord should have the offer of charging the estate in the first instance; and, in the event of his refusal, the tenant shall have the power of carrying out all or any of the specified improvements, and should be entitled to a rent-charge for a term to be fixed on, not exceeding 30 years, and taking precedence of all other charges, except the actual rent to the landlord, to be secured to himself, his heirs, and assigns for that period. And that the amount of such rent-charge should be the annual sum fixed upon by two valuers chosen in the usual way as representing the increased value of the property so proposed to be charged.

3d. I would give the tenant a power of securing to himself a rent-charge, for a period not exceeding five years, for such acts of husbandry and cultivation as are not a permanent improvement to the freehold, but are a legitimate and profitable expenditure of capital, such as subsoiling by steam or otherwise, liming, boning, and other tillages and half tillages, as are in many places chargeable on an incoming tenant by the custom of the country; provided that the landlord should have notice of such intention, and be empowered to have the lands valued—such present value to be an ingredient in ascertaining the increased value for which compensation is to be claimed upon the death or removal of the tenant. I would suggest that these clauses should be a part of all existing and future leases: but the provisions not to take effect with respect to any improvements already effected except in Ireland, where it would be necessary that they should be retrospective. I would also make such rent-charges saleable, so as to be an available asset in the case of death or removal. Any dispute that may arise in carrying out these three provisions I would leave to the decision of the County Courts or of Petty Sessions, with an appeal, in case of large sums, to the Quarter Sessions.

I think the system of tenant-right just sketched out would meet all the just requirements of the different parties; and I do not apprehend that either landlord or tenant would have any reasonable objection to urge against its enactment. I think the landlord would be enabled to secure an improving tenant, who would raise the value of his property without putting him to any expense, he would in the meantime have the security of a responsible tenant instead of an impoverished one. The tenant on his side would have that full security for his capital, if judiciously laid out, to which he is entitled. He would have every encouragement for high farming, and would probably be induced to take neglected farms for the purpose of improving them; than which, if well and carefully done, nothing pays better. He would thus be enabled to make his 5 or 10 per cent. off his money invested as long as he continued in the occupation, with the certainty of a considerable provision for his own use or that of his family in the event of his removal or death. He would also have the opportunity, if so disposed, of selling his rent-charge, and laying it out again in a similar manner on a fresh undertaking; while the public at large, who we saw had an interest in the matter, would reap the benefit of the increased production of food, the larger employment of labour, and the general progress of agriculture. The only objectors that I foresee are some landowners who use their estates more as preserves for game than as farms, or those who, for political purposes, prefer keeping their tenants in greater subjection. While I fully agree with those who think landed property should be represented, I cannot but foresee that real representation would be effected more thoroughly by the encouragement of a more highly educated and more independent tenantry, who would be able to see that the welfare of the agricultural community was bound up in the common good of owner, tenant, and labourer; and would be able to judge themselves of what measures would be materially beneficial, instead of taking an opinion blindly from an agent.

And as regards game, I would suggest that game farms should be preserved and cultivated as such. I would be the last to abridge the field sports of the country squire, which I believe, by encouraging the residence of proprietors on their estates, and the performance of their duties as guardians and magistrates, has tended more to make old England popular as a place of residence, and the landowners powerful among their dependents and neighbours, than is seen to be the case in any foreign country; yet high farming by a tenant, and high preserving of ground game, are evidently incompatible one with the other. No man can be expected to lay out his capital in improvements which it is in the power of an unneighbourly keeper to destroy; and I believe the tendency of the measures I have been recommending would be to check such practice, and to cause highly preserved lands to be held in hand, and cultivated specially by the owner and his bailiff for sporting purposes. In all other respects I am convinced the tendency of these measures would be to draw closer the bonds of mutual goodwill between the different classes; they would gradually do away with the necessity of leases, and the periodical quarrellings attending them; they would be the means of securing good tenants for neglected farms, and tenants at higher rents for the better situations; they would thus tend to make estates more valuable at every change of tenancy, and though they would not probably be a cure for all our troubles—either here or in Ireland—they would take away one of the chief sources of discontent by removing all dread of injustice, and substituting a feeling of confidence and a sense of equitable treatment which are the foundations of contentment, industry and progress. Above all, I believe they would be the means of securing the full amount of improvement in our agriculture which is so much required, and which the different model farms scattered over the country show to be so practicable. They would be the means of attracting into our ranks the many men of capital who are searching for a pleasant and independent occupation rather than for a high rate of interest, increasing thereby the number of resident gentry, the employment of all classes connected with the land; eventually they would lead to the doubling of our production of corn and meat, thereby rendering our increasing number of mouths less dependent on extraneous sources for their daily bread. *J. B. M.*

STEAM CULTIVATION.

I READ in your columns that "Messrs. Fowler & Co. are as a matter of fact pulling the agriculture of all England along;" and that their works are "a spoke in the great wheel of English agricultural progress." It is satisfactory to think of the rapid progress that agriculture is likely to make now that it is mounted on wheels; and let us remember that Messrs. Howard and others are "pulling" as well as Messrs. Fowler. I have used steam-power to a large extent in farming operations, and especially in tillage; and if I am of opinion that we exaggerate the advantages we shall ultimately derive from steam-power, it is not because I am unacquainted with its present capabilities. The aid of steam is indispensable in such work as threshing, but steam cultivation makes comparatively little progress, and is not relied on by one farmer in ten thousand. The reason for this is because, from want of knowledge, we have looked on steam tillage as a sort of panacea by which the land was to be made fertile, whereas it is nothing of the kind. Its success is dependent on the fertility of the soil being maintained. Tillage operations and deep cultivation are means of inducing the land to part with its stores, and yield up its fertility in the shape of crops. Steam tillage, therefore, which increases the crops, ultimately increases the necessity for food. We sometimes hear of rich clays which are inexhaustible. I confess I never saw them. Land can seldom be cultivated profitably even for the short period of 10 or 14 years with the aid of steam and without manure. And even if it could, in certain isolated instances, we want a system of agriculture for all England, and not one which is only applicable in a few fields. Then there is the national as well as the commercial view of this subject: England holds her land in fee simple, not under a short lease; instead of "running it out" in a few years she ought to improve it. Steam tillage alone will not do this; there are more important "spokes in the wheel of progress."

There are two great sources of manure outside our farms from which we may restore the condition of the land and bring back in another form the crops we have sold:—1. The artificial manures and the cakes and feeding stuffs which become manures in our feeding-stalls. The demand for all these has increased in the last 10 years, so that it does not appear that steam tillage has obviated the use of manure, but the contrary. 2. There is the manure arising from the consumption of 8,000,000 of quarters of foreign Wheat, and of all our home-grown Wheat, beef, mutton, milk, &c., and this is almost entirely wasted. So far as London is concerned, the fertilising stream is poured into the river at Barking, where it is forming a bar across the stream. But as the port of London must be kept open the sewage must be kept out of the river, and ultimately it will be taken on the land from necessity. It is as difficult to persuade engineers and corporate bodies that manure should be put on the land, not into the rivers, as it is to induce an American to spit into a spittoon. They prefer any place but the right place. Professional men run very much in a groove, and it worries them beyond measure to have to get out of it. They have always said with one voice on these occasions—"It can't be

done." The engineers said so when Stevenson proposed to drag trains of carriages on a tramway by means of locomotives, at even the moderate pace of 12 miles an hour. But once show them a railway with the trains of carriages running on it, get them into the new groove, and they will make railways under the metropolis, or over it, or across the Alps, or the Channel, if anybody will pay for them. The idea of steam navigation across the Atlantic was met by a shout of "Can't be done!" and the idea of saving the larger half of the manure due to the land, and using it profitably is met with a similar exclamation. Yet it will be done; and we shall then no longer find extensive arable districts, and even whole counties, where steam tillage is scarcely adopted by a single tenant-farmer.

Steam cultivation will advance rapidly when the land is properly fed; it cannot advance while it is starved, any more than it can go into the Great Sahara to drive a cotton-mill where there is no cotton, or plough up the sand which is sterile. We don't say that English agriculture is literally starved, it is the best in the world; but the price of feeding it is, as we have said, constantly increasing; and it is because English agriculturists feel this that they are shy at present of steam tillage, knowing as they do that deep cultivation increases the appetite for manure, sooner or later.

I believe that the duty of writers is not to side with obstructives who take "can't" for their motto, but to endeavour to rouse the public opinion when it slumbers, as it does on the important subject we have referred to. It is quite unnecessary to patronise or defend steam tillage, which with a fair field and no favour can take care of itself. "Steam" and "progress" are words of some pretension, and the way in which they are sometime used reminds one of the story of the old woman's hen and her cat, who so sadly bullied their visitor, the young swan. If he ventured to express his ideas they put him down at once; "Can you catch mice, lay eggs, mew and purr?" —"No." "Then hold your tongue!" *H. E.*

THE CONDITION OF MANURES.

A MOVEMENT is being adopted in some districts for farmers to club together and contract for large quantities of superphosphate, supplied by tender. Although the plan, no doubt, offers advantages in cases where a large quantity of soluble phosphate is the chief consideration, it may be questioned whether it is generally desirable for obtaining the best class of manures,—that is, if the condition of the manure and the character of the phosphates of which it is made be taken into account. In such cases it behoves the purchaser to make sure, by having the bulk delivered to him tested, that it is really of the quality guaranteed.

The "condition" of manures has of late attracted more attention amongst farmers, since it is well proved by experience that a well-mellowed, powdery manure, which runs easily through the drill, is of much more practical value than one having the same composition but wanting in these physical qualities. In fact a good condition is almost tantamount to an additional quantity of soluble phosphate, since it allows of that which is present being applied to much better advantage through the more complete incorporation with the soil.

A word should also be added with respect to the "precipitated" phosphate, of which a good deal has been heard of late, and the nature of which I explained in my last report. The following passages are extracted from a paper of mine on the method I adopt for estimating this constituent of manures, and which appeared in the *Chemical News* of Sept. 10, 1869:—

"The fact of superphosphates 'going back,' or losing in soluble phosphate on keeping, will hardly at present be disputed,—the question at issue being whether the phosphate so reduced can be estimated or not.

"It often happens that a quantity of superphosphate which when freshly made contains, say 25 per cent. of soluble phosphate, is found after keeping (in some cases only a short time) to have lost 2, 3, 5, or even more per cent. of its soluble phosphate."

The process for the estimation of the phosphate so reduced is then described:—

"I need scarcely say that it is not my intention to introduce the determination of precipitated phosphate into my ordinary analysis of superphosphate, nor include it in the usual determination of soluble phosphate, unless specially requested, and then to state it separately,—since whatever its agricultural value may be (space forbids me entering into this part of the subject), it is no longer soluble phosphate, and will not obviously pass as such when a definite percentage of soluble is bargained for: its value is, however, at the same time, very superior, I consider, to the undecomposed or ordinary insoluble phosphates."

The following remarks are offered more especially to manufacturers, or those connected with the preparation of manures:—

1. *The Relation between the Total Phosphates in the Manure (the Phosphate made soluble, and the insoluble together) and the Acid used.*—It is evident that the less acid used, the more total phosphates will be present, but the less of them will be soluble. The converse is also evident: viz., that the more acid used, the less total phosphates, but the more of them will be soluble, but not necessarily the higher percentage in the manure. Thus, supposing we were to use 200 parts of bone-ash of 70 per cent. phosphate, and 100 parts of acid, we should have in the product 140 parts of phosphate in 300 of material (leaving out for simplicity the loss referred to in my last), or about 46½ per cent., which is obviously too little acid. If, on the other hand, 100 parts of ash were dissolved with 200 parts of acid, we have only 70 parts of phosphate in the 300 of material, or only about 23½ per cent., which is as much too little (the right quantity lying evidently between the two). Although this is, of course, an extreme case, it is mentioned to prove the fact that beyond a certain point more acid will lessen the percentage of soluble phosphate instead of increasing it,—simply because it brings down the total phosphates too low, notwithstanding the whole of this (as far as practicable) may be made soluble.

The same rules of proportion of course apply to the addition of any other materials which may be added to superphosphate, or other materials mixed together in the preparation of special manures. Thus the addition of any extra quantity of water in mixing of course lowers the percentage of everything in the manure: many makers take no account of the weight of the water used (the better plan is to use a weaker acid and no water); and, when left to the men engaged in the operation, is the commonest source of variation in the product—especially as a little extra water gets the work on quicker. If a bone manure, when freshly made, is found to contain—say 25 per cent. of soluble, but does not dry up well, and it is thought advisable to add a little drying material, the mass will not have 25 per cent. after the addition of such material, since the same quantity of phosphate is spread over the increased quantity of material. Although this may appear self-evident to some, it would seem to be incomprehensible to others, to judge by the correspondence I sometimes receive.

2. *As regards the Soluble Phosphate Produced from a given weight of Acid*—the theoretical quantity is 80 parts of real acid (SO^3) for 156 parts of tribasic phosphate; or for 100 parts of bone ash, as above, 55½ parts of ordinary brown acid.

Bone ash, however, also contains, as is well known, variable quantities of carbonate of lime as well as phosphate,—while other phosphatic materials often contain much more carbonate, and also oxide of iron, alumina, &c.; but, taking all these into account, it is found, as well known, in practice, that more than the theoretical quantity of acid is always needed, and which may, I think, be due to the following causes:—

(*a*) To the necessarily imperfect state of division of the phosphatic materials operated on, even when ground as fine as practically possible, and by which a portion of the phosphate of lime escapes actual contact with the acid, even under the best mechanical arrangements. This is shown by the fact that the finer the state of division the more complete the decomposition,—it being almost instantaneous in the case of chemically divided phosphate. A too rapid decomposition is not, however, the most desirable in practice: hence the necessary excess of acid is borne with for practical considerations presently to be touched on.

(*b*) To acid consumed in decomposing phosphates which are not rendered actually soluble, and on which the question of "precipitated" phosphates I think throws some light. This is especially noticeable in well-made bone manures in which the greater part and sometimes the whole of the bone has evidently undergone decomposition, as proved by its mellow and pulverulent condition, although only a portion of it is obtained as actual soluble phosphate on analysis, but considerably more when the "precipitated" is determined.

The primary object of the skilful manufacturer is thus to obtain the most marketable article,—that is, a superphosphate having the largest amount of soluble phosphate, associated with the best mechanical condition (the difficulty of preserving the latter increasing with the former) without a strict regard to the greatest economy of acid—this at present prices especially—being usually considered a secondary consideration.

To attain this end a certain amount of chemical information is, of course, indispensable, but a good deal besides is requisite, since it is just the point on which the individual experience and skill of the manufacturer is needed, and which no rules can altogether replace. *Alfred Sibson, F.C.S., Consulting and Analytical Chemist, 11, Eaton Terrace, St. John's Wood.*

FARMING IN THE NEW FOREST.

HAVING introduced in 1845, by the request of the late Duke of Richmond and Lord Portman, the Italian Rye-grass, and the mode of growing nine crops a year, about 70 tons per acre (Royal Agricultural Society's Journal, p. 576), and again by their request in 1847, with further illustrations (Royal Society's Journal, p. 572), I may presume I am not altogether a stranger to the agriculturists of that period, and hope no apology will be required for troubling them with my present farming operations; and that those of the present will excuse me if I am troublesome by taking this opportunity of introducing myself through the medium of the year's produce of the farm of which I am a tenant, in the New Forest, where there are between 60,000 and 90,000 acres of land in a wild state, growing little else than a few Oaks, many Firs, an immense quantity of Furze, Fern, and Heather; grazed from May to November by those who have forest rights, with an interior class of ponies, worse cattle, and bad pigs, where anyone turning out animals of a better kind are not sure they will take them up again. My year's produce consists of white and red Wheat, Barley, Oats, Mangels of both kinds, Swedes, Carrots, Cabbages, Australian Prairie Grass and Italian Rye-grass. Samples of the white Chidham Wheat, Mangels of both kinds, Swedes, Carrots and Cabbages, have gone to the Birmingham Exhibition for competition against all England, Ireland and Scotland. Others are sent, through the kindness of Mr. George Gibbs, of Down Street, Piccadilly, to the Smithfield Fat Cattle Show, Islington, for the inspection of the public.

He has my white Chidham Wheat, 68 lb. per bushel; April Wheat, 66 lb.; Chevalier Barley, 58 lb.; Winter Oats, 43 lb.; Mangels of both kinds, Swedes, Carrots, and two specimens of the Australian Prairie Grass, dug up and potted, from one of which three crops were cut, between October 10, 1868, and October 11, 1869; one pound of which was dried in the kitchen in the plate warmer in the day, upon the oven at night, and produced at the rate of 30 tons of hay per acre per annum, so dried; the short cut specimen being the growth since October 11 last,—the specimen indeed was sown in the summer, and has not been cut. The Grass is of excellent quality, and eaten freely by every kind of animal, from the horse to the pig.

I have been asked whether it or the Italian Rye-grass is the more productive: to this I must be content at present to reply that 70 tons of Italian Grass have been grown by others as well as by me—at Barking, for instance; therefore that is an established fact. It does not lose more than from 5 to 2 by artificial drying, of which I was satisfied 20 years since; the three cuttings of Australian Grass amounted to 55 tons, and loses by drying from 16 to 9. The Italian was very highly fed, received one dressing of liquid manure (urine and water) after every cutting—the Australian had no manure at all; I have some now growing under the liquid dressing.

I know of no plant that pays so well for high feeding, I know no limit to its produce well fed; I know no plant so productive without manure as the Australian; I know no plant that allows itself to be fed over so many times a year with all kinds of cattle as the Italian Rye-grass, and after which such crops of Wheat, Barley, and Oats can be grown. All my corn and root crops are grown after Italian Rye-grass. My Chidham Wheat, which had the 2d prize at Birmingham last year, was grown after it, and it was sold at Guildford market, on two distinct market days, by Messrs. Leggatt & Son, who stated that on those two days there was not one sample of Wheat in the market that sold for so high a price. *William Dickinson, New Park, Lymington, Hants.*

Home Correspondence.

Depth of Drains.—I willingly respond to the invitation which you have given to practical men to communicate their experience, and the inferences which they have drawn from it in respect to the depth generally advisable for drainage. I adopt unreservedly the well-motived opinion of Mr. Paget on this subject. We possess land which I believe to be of similar geological formation, and I have a well-founded confidence in his judgment. I have long experience to guide me as to the most prudent course for our new red sandstone soils, for I have provided during 49 years of management of my own property, under my own observation, not less than 7,000,000 of draining tiles for the use of myself and my tenants. When I began in the year 1830 to give them every encouragement to employ during the winter their own labourers at this work, and followed the same practice on my own farm, I acted chiefly with the motive of employing labour, which at that period was so redundant that discontent was rife, and the poor-rates were unequal to cope with the distress occasioned by the want of work in winter on our clay soils. I, therefore, catered for the labourers' employment in my tile-yard and on my fields. But from limited experience in draining my grass-land, which, in the prevalent culture of clay land had then seemed to me the only remunerative application of drainage, I had practised and recommended the depth of 2 feet as adequate to the purpose, for we have no wet or pervious subsoils except in rare patches of ground, and only casual fissures on shaley strata through which springs can find a course, but the consequence has been that a great deal of the work was ill-done, and has required to be rectified or supplemented since the practice of subsoiling has been resorted to. We now usually adopt 3 feet as the depth, though in unstratified stiff clay I would not go deeper into meadow land than 2½ feet; for I have often seen the water lie over drains when sunk deeper, and I have seen this still more remarkably in the Oxford clay, while within the same park it was necessary to go to the depth of 4 or 5 feet in order to tap the spongy subsoil of the overlying upper green sand or gault; and I have found the same necessity here, where, on the top of a hill, a basin of sandy soil covers the clay for a space of 100 acres. The result, therefore, of my experience is, that no rigid rule ought to be laid down, and that the requirements of the Government and of the drainage companies in this question are too arbitrary. The effect of the drainage on my estate has been wonderful in the promotion of the cultivation of Turnips and Mangel Wurzel, and Barley and seeds, and the consequent improvement of sheep farming, and the prosperity of landlord and tenants. *G. H. V., Grove.*

Sugar-Beet.—So much has been said about Beetroot growing, and the advantages derived from its cultivation, that my employer was induced to obtain some seed this spring direct from Mr. Duncan. The land here is perhaps as good for the cultivation of Mangel as any in the country; at least, if we judge from the fact that it has produced—if not always, frequently for many years—the heaviest Mangel roots which have been shown at the Smithfield Club Show. My experience with Beetroot, which was grown on the same land, and received the same treatment in every respect as Mangel, is as follows,—while the Mangels weighed 25 tons an acre, the Beetroot weighed 16 tons only. How this difference in weight occurred I am unable to account for, and would be under an obligation to any of your correspondents who could assist me to a solution of this question The Beetroot did not produce a continuous tap-root. That portion of the root which penetrated the soil was divided more or less into roots of inferior dimensions; and I should suppose, even taken collectively, a dimination in weight from that of an individual root. The top was also much larger than in the Mangels, and had more disposition to produce seed. On our Mangel crop of this year—about 100 acres, the seed of which came from several firms—I have not

observed that peculiar "bolting" tendency which some of your correspondents have experienced; however we do not recognise such aspirants, for so soon as the disposition to run up is apparent, the offender's top is cut off, and often more than once during the season. The consequence is, at storing time there is little difference between the would-be seeder and his next neighbour. To my eye there is nothing more offensive in a Mangel field than a lot of seed-stalks towering all the season, and I am sure there cannot be a more mischievous weed. *P. Mitchell, Rainham, Nov.* 16.

Steam Cultivation.—Let me tell "G. A. H." that I am very busy this week with about 30 men, all at job work, stooking, digging and delving; some knocking down trees, some pulling up hedges, some clearing away trees, &c., and some filling in clay pits, for I cannot get on with my draining; the ground a few inches under the surface is much too hard for that work; therefore I cannot attend to his "interest of money and depreciation" question now, but by another week I will prove that mine is the fair way of calculating it, and the way that has been accepted by all excepting him. Please give him my letter from the *Times* of Saturday last, to let him see what can be done on a small occupation. *William Smith, Woolston, Bletchley Station, Bucks, Nov.* 23.—[The following is Mr. Smith's letter to the *Times*:—

SIR,—I have made up my book on Steam Cultivation for the 14 years ending March, 1869, showing the operations both by steam and horse-power, and the cost and cropping on the several fields during the whole period. Here is a summary of it:—

HEAVY LAND.—*Field No.* 1.

	£	s.	d.
One ridge-ploughing and subsoiling by steam-power	0	7	3
Ten smashings by steam-power	3	6	8
Eight cultivatings by horses	0	16	0
One subsoiling by horses	0	3	0
Two ploughings with horses	1	4	0
Total	£5	19	11

Or an average of 8*s.* 7*d.* an acre a-year. The cropping has been: Oats one, Clover two, Wheat four, Swedes one, Barley two, and Beans four.

Field No. 2.

	£	s.	d.
Two ridge-ploughings and subsoilings by steam-power	1	0	4
Eight smashings by steam-power	2	11	5
Two cultivatings and drilling at one operation by steam-power	0	10	0
Five cultivatings with horses	0	11	6
Two subsoilings with horses	0	6	0
One ridge-ploughing with horses	0	4	0
Total	£5	3	3

Or an average of 7*s.* 4½*d.* an acre a-year. Crops: Beans five, Wheat five, Swedes one, Barley two, and Clover one.

Field No. 3.

	£	s.	d.
Two ridge-ploughings and subsoilings by steam-power	1	0	4
Eleven smashings by steam-power	3	11	5
Three cultivatings and drillings by steam-power	0	17	0
Seven cultivatings with horses	0	14	0
One subsoiling with horses	0	3	0
One ridge-ploughing with horses	0	4	0
Total	£6	9	9

Or an average of 9*s.* 3*d.* an acre a-year. Crops: Peas one, Barley two, Beans five, Wheat five, and Swedes one.

Field No. 4.

	£	s.	d.
Two ridge-ploughings and subsoilings by steam-power	0	17	5
Ten smashings by steam-power	3	6	8
Three cultivatings and drillings by steam-power	0	17	0
Nine cultivatings with horses	0	18	0
One subsoiling with horses	0	3	0
One ploughing with horses	0	12	0
Total	£6	14	1

Or an average of 9*s.* 7*d.* an acre a-year. Crops: Wheat five, Beans six, Barley two, and Swedes one.

LIGHT LAND.—*Field No.* 1.

	£	s.	d.
Three ridge-ploughings and subsoilings by steam-power	1	10	6
Five smashings by steam-power	1	11	5
Three cultivatings and drillings by steam-power	0	19	0
Seven cultivatings by horses	0	14	0
One subsoiling by horses	0	3	0
Two ploughings by horses	1	1	0
One ridge-ploughing by horses	0	4	0
Total	£6	2	11

Or an average of 8*s.* 9*d.* an acre a-year. Crops: Beans three, Wheat five, roots two, Barley two, Clover one, and Peas one.

Field No. 2.

	£	s.	d.
Two ridge-ploughings and subsoilings by steam power	1	0	4
Five smashings by steam-power	1	13	4
Two cultivatings and drillings by steam-power	0	12	0
Six cultivatings by horses	0	12	0
One subsoiling by horses	0	3	0
Three ploughings by horses	1	8	0
One ridge-ploughing by horses	0	4	0
Total	£5	12	8

Or an average of 8*s.* 0½*d.* an acre a-year. Crops: Roots three, Wheat five, Clover two, Beans two, and Barley two.

Field No. 3.

	£	s.	d.
Three ridge-ploughings and subsoilings by steam-power	1	7	7
Six smashings by steam-power	2	0	0
Ten cultivatings by horses	1	2	0
Two subsoilings by horses	0	6	0
Two ploughings by horses	1	1	0
Total	£5	16	7

Or an average of 8*s.* 4*d.* an acre a-year. Crops: Wheat five, roots three, Barley two, Beans three, and Clover one.

Field No. 4.

	£	s.	d.
Four ridge-ploughings and subsoilings by steam-power	1	17	9
Two smashings	0	13	4
One cultivating and drilling by steam-power	0	7	0
Four cultivatings by horses	0	10	0
Two subsoilings with horses	0	6	0
Four ploughings by horses	1	15	0
Total	£5	9	1

Or an average of 7*s.* 9½*d.* an acre a-year. Crops: Wheat five, Beans three, roots two, Barley two, and Clover two.

Field No. 5.

	£	s.	d.
Three ridge-ploughings and subsoilings by steam-power	1	10	6
One smashing by steam-power	0	6	8
One cultivating and drilling by steam-power	0	7	0
Six cultivatings with horses	0	12	0
One subsoiling with horses	0	3	0
Four ploughings with horses	1	11	6
One ridge-ploughing with horses	0	4	0
Total	£4	14	8

Or an average of 6*s.* 9*d.* an acre a-year. Crops: Clover three, Wheat five, Beans two, Barley two, and roots two.

Field No. 6.

	£	s.	d.
One ridge-ploughing and subsoiling by steam-power	0	7	3
Three smashings by steam-power	1	0	0
One cultivating and drilling by steam-power	0	7	0
Nine cultivatings with horses	1	0	0
One subsoiling by horses	0	3	0
Three ploughings with horses	1	11	6
One ridge-ploughing with horses	0	4	0
Total	£4	12	9

Or an average of 6*s.* 7½*d.* an acre a-year. Crops; Wheat four, Clover three, Oats two, roots one, Barley three, and Peas one.

My land was not clean at starting, but it is clean now. The heavy land part of my farm under horse culture had a dead fallow every fourth year; under steam culture it has had none, yet it is clean.

The turn-over plough has not been in Nos. 2 and 3 heavy land during the whole period of 14 years. It has been upon No. 1 twice, and No. 4 once, and that is all, thereby proving that the plough on heavy land, under steam culture, is of little or no use. On the light land part of my farm it has been more used—twice on No. 1, thrice on No. 2, twice on No. 3, four times on No. 4, four times on No. 5, and thrice on No. 6; worked on all by horse-power, thereby showing that on lighter soils it is more needed.

The average cost of seed-beds, as may be seen above, has been on the heavy land 8*s.* 8*d.* an acre, and on the lighter land 7*s.* 4½*d.* an acre. Under horse culture the former would cost over 1*l.*, and the latter would cost near upon 1*l.* per acre; therefore I have effected a great saving.

"The saving in horse-keeping has been very great. Under horse culture I used six to work my farm, not over 6 inches deep. Under steam culture I have kept only three, and they on an average have worked only 118 days a year. Now, if we fix the cost of the keeping of a horse, with shoeing, &c., at 25*l.* a year, exclusive of the value of its manure, I save 75*l.* a year by the reduction of six horses to three. This, for 14 years, gives a total of 1050*l.*, the cost of two complete sets of tackle—even three sets, if we set off half the engines to threshing.

The increased produce question I went into in August last, in a letter that you published, showing that it had been quite 2 quarters per acre upon my heavy land. Therefore, if we calculate it upon my 40 acres of heavy land, leaving the light land unnoticed, we get a gain of 80 quarters a year for 14 years, which gives a total of 1120 quarters, and at 40*s.* per quarter a value of 2240*l.*

You see that there is not only a saving in the cost of seed-beds, and in the keeping of horses, but there is also on heavy clay land a great gain by increased produce, and the land can always be kept clean and ready for crop at the cost shown above, provided the work is done at proper time.

Will the landlords and farmers of England, with these facts before them, still turn a deaf ear to what I say, and let their 800,000 acres of dead fallow, as shown by the Board of Trade, still remain under dead fallow, when a mere 8*s.* 8*d.* an acre could work and keep it clean for ever.

I now start a new book under altered circumstances, viz., with 131 acres of land added to my farm. The arable heavy land part joining my old heavy land, therefore a re-arrangement of field is required. This has been done, and this year's work has been entered into it accordingly. Hereafter my saving in horse keep will be greatly increased, and my produce will also be greatly increased, for a dead fallow has been the rule on the new part of my farm. I had to pay by valuation for some this year, I shall not have to do so another year.]

Glass Coverings for Stableyards.—In these days, when glass structures are so cheap and essential, I often wonder glass is not more frequently used for the purpose of covering in stable-yards. Two years before the death of my late employer, Sir O. P. Wakeman, Bart., of Perdiswell Hall, Worcester, he consulted me on the propriety of covering in the stable-yard, at the same time he also wished to know if Vines could not be grown and trained under the roof, both for shade and profit. My answer was decidedly in favour of his proposition. Accordingly the yard was covered in (ventilation being admitted at the sides), and the Vines planted; but how the latter have succeeded I never heard, for at his death, the place, after erasing several of the glass structures, was let, and very indifferently kept up. I left to fulfil another appointment, and within a few months left the neighbourhood for my present situation. Now, whether the Vines succeeded or not, the covering-in of the yard was a grand idea, and proved of immense service both in the winter and in wet weather. In the former, when the ground was frozen and covered with snow, it proved a fine place to exercise the horses in, and in wet weather it proved equally useful for washing the carriages, &c., in; but, above all, it was appreciated and found most serviceable upon party nights, especially in a snow storm, a pelting heavy rain, or strong dews, everything being nice and snug under cover; there was no running with coats here and rugs there on the approach of a storm, but just as the conveyance was backed into the yard so it remained with all its paraphernalia, a great boon to the owners, drivers, and helpers. Indeed I heard Sir Offley say, it would pay the cost of outlay in a very short time, by the extra care the servants bestowed on his property. This can easily be understood, it being so much more pleasant to work in the dry, that things could be properly attended to at once, instead of being put off for a more favourable day to-morrow. What can be a more miserable sight than to see a lot of splendid equipages standing out for hours in the wet and snow? And this occurs every season on party nights, for it is seldom there is convenience for housing more than the family conveyances. Now most stable-yards are available for covering, either by a span or ridge-and-furrow roof, and the expense would be very trifling. Indeed, if the roof is covered with Vines it would repay the outlay in a few years, I would certainly recommend the practice, and I feel convinced if our great hothouse builders would take the hint, and add the covering in of stable-yards to their advertisements, they would stimulate the proprietors of such to have them enclosed. At any rate, give them the cue. *Edward Bennett, Osberton, Worksop.*

Foreign Correspondence.

PARIS.—Some time since the Emperor purchased about 3000 acres of marsh land at Arx, in the neighbourhood of Cape Breton. A portion of this estate has been thoroughly reclaimed, and is now devoted to the formation of a model agricultural colony. The other day, as it were, the domain was nothing more than a huge morass; but the waters have been drawn off by the formation of about 18 miles of canal, varying in width from 20 to 60 feet, and connected with another for navigation, which passes across the low lands to the port of Cape Breton. The portion reclaimed is furnished with excellent macadamised roads, bringing the 30 farms already formed in the domain into communication with the surrounding neighbourhood.

This large plot of ground was the hotbed of fevers, which at times ravaged the neighbouring villages fearfully, and its reclamation and cultivation are the greatest benefits that could possibly be conferred upon the district. The use of wealth and power is felt when applied to such objects as these.

—— A judge has made a wonderful discovery, if the account of it is to be relied on, namely, that the soil of the department of the Haute-Saône contains a stratum of rich mineral manure, lying just beneath the surface, and being from 120 to 300 feet in thickness. The analysis of this wondrous manure, which is described as bearing about the same relation to dung that coal does to wood, gives the following result:—

Mineral oil	4.0
Nitrate of ammonia	2.8
Nitrate of potash	5.8
Carbonate of lime	40.0
Silica	25.0
Oxide of iron	0.5
Sulphur	0.6
Carbon	0.1

The precious deposit is described as the result of the decomposition of fish, animals, molluscs, &c. But the most wonderful part of the story is that it is to be found in almost every part of France, lying close to the surface. Research is being continued, and further results are promised shortly.

—— Important changes have been made this autumn in the arrangements of the Imperial Schools of Agriculture. Until the other day the rules remained the same as they were at their establishment, 20 years ago. Formerly all the pupils were boarders in the school. Day scholars and what are called free scholars are now added. The age of admission for all classes is raised from 17 to 18 years, in order that they may come to the school better prepared for the higher branches of agricultural science. The course of study, on the other hand, is now reduced from three to two years, the number of lessons being increased, and the practical lessons in cultivation reduced. Each school will now have six bursarships per annum to award to its boarders. There are three of these Imperial schools in France. Candidates who possess the diploma of Bachelor of Science are admitted without examination, but all others, with the exception of the free scholars, who are admitted by special authority of the Minister of Agriculture, are examined before admission by a jury appointed by the Minister for each school, in the following subjects:—Surveying, levelling, and plan-drawing; arithmetic, as far as progression; geometry; the elements of natural philosophy and chemistry; the geography of Europe, and especially of France. At the end of the term of study the re-examination of the out-going pupils consists of a written composition on a given subject, oral examination by the masters, and a dissertation on a subject drawn by lot, or on a mode of culture which has been practised in the month preceding the examination. Each pupil who passes in a satisfactory manner receives a diploma of Agricultural Instruction, and the first and second gold and silver medals in addition.

Those pupils who stand well on the list are allowed to study two years longer in public or private establishments, obtain commissions to travel and collect statistics and information, their expenses being paid by the State.

The courses of study comprise—1, Natural history, chemistry, mineralogy, and geology; 2, rural engineering, mechanics, and construction; 3, agriculture, proper and comparative; 4, zoology and zootechny, applied to agriculture; 5, horticulture, arboriculture, and botany; 6, rural economy, legislation, &c.; 7, agricultural book-keeping. In addition to the collegiate instruction, the pupils are practically taught the use of all implements, and all modes of culture.

The fees are—for boarders, 30*l.* a year, for board, lodging, medical attendance, fire, lighting, washing, and instruction; and the day scholars 10*l.* a year, for instruction only, each paying an examination fee of 1*l.* on quitting the school.

Born or naturalised French subjects alone have the right of admission as boarders in these schools, but the Minister of Agriculture can present a foreigner as a special favour. The day school is open to all the world on examination, so long as there are vacancies existing.

Societies.

INSTITUTION OF SURVEYORS.

The Distribution and Agricultural Use of Town Sewage: Nov. 22.—Mr. William Hope, V.C., Associate of the Institution, read a Paper on this subject, from which we make the following extracts:—

I have been asked to re-open the adjourned discussion on the utilisation of town sewage, by furnishing a

short account of some of our successes and some of our disappointments at Barking during the past season. And to this I will add such general observations as further experience has enabled me to make.

I will commence with my disappointments, or rather with a few of them, because as they belong to the order of mischances termed by the Registrar-General "preventable," were I to finish with them I should leave an erroneous impression on your minds.

DISAPPOINTMENTS.

Italian Rye-grass.—With regard then to the best known sewage crop, namely Italian Rye-grass, I stated in the spring that, under proper cultivation, 10 crops, averaging 9 or 10 tons each per acre, would always be obtained in one season by the application of a sufficient quantity of sewage, if the Grass were sown at the right time of the year, namely in the month of August. This statement I repeat now, and further experience has only confirmed me in this view; yet I am sorry to say that in actual production I can only bring you 1 ton nearer the promised 100 than before. On my own land I have, as yet, no Rye-grass under sewage, but on the Metropolis Sewage Company's farm one piece of ground had been sown in the month which I had so frequently recommended, and I was in great hopes even although it had been somewhat starved in the winter, yet that it would have been sufficiently liberally dealt with during the growing season to have given a result approaching, at all events, to the standard of 100 tons. If you consider that it is now upwards of eight years since I first began to labour towards the utilisation of sewage of London, you will better understand the disappointment that it was to me on finding that when there seemed at last to be a chance of a fair experiment, this chance should have been thrown away and the desired result postponed untilt he end of the ninth or perhaps tenth year. I say, or perhaps tenth year, because, as I shall presently explain, it is now fortunately in my power to make reliable quantitative experiments, independently of the Metropolis Sewage Company, who have for so long stopped the way. But as full result can only be looked for from Grass sown in the month of August, I cannot obtain that full result next year. I must wait for the year following, which will be the tenth of my labours. Let us hope that there may be something lucky and auspicious in that figure, and that the tenth crop of Grass cut at the close of the tenth year of work will complete the last 10 tons required to make up the promised 100.

Maize.—I have to record another disappointment with regard to Maize. I had, and still have, great hopes of this as the cereal pre-eminently adapted to utilise large quantities of sewage, and to yield maximum quantities of food per acre whether for man or beast. I stated, that so forcing was the effect of liquid food upon this crop, that I had every expectation that I should be able to ripen it in any year in the climate of Essex, because the growth of the plant in its early stages would be so hastened, that it would be able to avail itself, for ripening, of the heat which we always have in August and September. This expectation I still entertain, but with one modification, and that is, that to guard against the effect of a cold spring, followed by a cold early summer, such as we had this year, it is absolutely essential that the seed should be sown in an open porous soil, so that when the sun does come, it may penetrate and warm the soil and roots of the plant in the shortest possible time. The soil in which I ripened the Maize last year, and in which I have failed to ripen it this year, was a cold dense brick-earth, which was never thoroughly warmed this year at all. The 3 inches a day, or one-eighth of an inch an hour, as Mr. Bramwell forcibly put it, which the sewage enabled the Indian corn to grow last year for a month continuously, was never attained this year for a single day. No sooner had it struggled above the surface of the stiff earth, than the cold north winds in June nipped it, and, in fact, it was frost-bitten, so much so, that down to the middle of July it was completely white and blanched, like Celery or Seakale, and appeared to be all but dead. However, having entire confidence in the stimulating powers of sewage, I then commenced applying it with an obstinacy in proportion to the strength of the previous north wind, and the result was that the colour rapidly reappeared; towards the end of July it began to grow; and, at last, in the middle of October, it attained the proportions you see in this plant; the cobs being about two-thirds formed. I have no doubt, from what I observed this year, that even in an exceptional season, such as the past, the crop would ripen if sown in an open warm soil such as I have described. As it was, the result has been in one respect very satisfactory, for it has proved to me that Maize would always be a paying crop for a sewage farmer to grow, even if it did not ripen. The piece of land on which I grew it this year was exactly the ninth part of an acre, and from this I obtained a weight of Maize-straw of no less than 2½ tons, although it was partially dried by the bitter north wind, which you will recollect in the latter half of October. Every ounce of this was valuable food, whether for horses or cattle, and all classes of stock are ravenously fond of it, leaving all other food to feast upon it; it is therefore difficult to place the feeding value of the straw in this state, including the half-formed cobs, at less than 30*s.* per ton, for the percentage of sugar in the straw is very large, besides which there is the partially formed starch in the cob. It is clear that 22½ tons of such food per acre would effectually protect a farmer against any possibility of loss, and, in fact bring him in a very handsome profit.

With regard to the calculations which I made, but which I did not venture to put before you on the previous occasion, as to the probable amount of grain to be obtained per acre from this crop, under sewage cultivation, I am happy to say that I have since been informed by Mr. Henry Evershed, the well-known agricultural writer, that these calculations are borne out in every place in the United States where there is anything approaching to a careful and exhaustive cultivation. The calculations I made were based upon the average weight of a great number of different seeds of Maize, which I weighed individually. I then carefully observed the nature of the plant, and compared my observations with written accounts, and I came to the conclusion that if Maize were planted at the rate of one plant to every 4 square feet, which I am satisfied would not be a bit too close—and well fed—the return in grain would amount to the astonishing quantity of from 20 to 30 quarters per acre, and this not in the cob, but after being shelled. Now, if we consider that this is a grain which weighs 60 lb. to the bushel, and that its analysis shows a feeding value very little, if at all, inferior to Wheat, it is quite clear that for stock-feeding and for horse-keep it is one of the most profitable crops that a sewage-farmer can grow for home consumption; and even if he sells it at the low price which it usually commands in our markets, say 30*s.* a quarter, he will get a return, including the further value of the straw, equal to about double that which he can hope for from the finest crop of Wheat.

Strawberries, &c.—Among the minor disappointments of the year have been—first, Strawberries, which suffer, of course, as much from cold north winds under sewage as under any other kind of cultivation; secondly, Lettuces, which, under the combined influence of a cold clay soil and cold north wind, were very much retarded in their growth, and, although moderately good, never attained maximum size; thirdly, I may mention all other kinds of market-garden produce, which I tried in my own stiff land, with the exception of Celery, Scarlet Runners, and common Beetroot.

The Celery, which is one of the most difficult and expensive crops to produce under ordinary cultivation, has succeeded in a remarkable degree, and I have brought here a plant as a specimen. I am assured that the rent of the rich black mould to the south of London, where the greater part of the Celery for market is produced, is no less than 16*l.* an acre. This I was informed on the best possible authority, namely, that of the gentleman who is agent for a great part of the land, and who was more struck, on a visit which he paid me a couple of months ago, by the appearance of the Celery than by anything else.

SUCCESSES.

Among the successes of the season, either at the Lodge Farm or on my own ground, may be mentioned also the following:—

Grain Crops.—A crop of Wheat on 4⅜ acres, the land being a poor gravel, and the crop being the third crop of Wheat in succession, gave just under 4 quarters to the acre of grain, weighing 61 lb. to the bushel, from an application of about 700 tons of sewage per acre; however, in the judgment of Professor Voelcker as well as in my own, this crop was starved and mismanged at a critical period of its growth.

Two acres of Oats, following two successive white crops, with green catch crops in between, received, on a poor yellow gravel, some 600 tons of sewage per acre, and yielded 10½ quarters of grain to the acre, weighing 41 lb. to the bushel.

Six acres of Barley, following two successive white crops, on a poor gravel, and said to have received rather more sewage, yielded 4⅜ quarters to the acre, weighing 52 lb. to the bushel.

Green Crops.—An acre of Beans received 800 tons of sewage, and yielded 5 quarters of grain.

Four acres 1 rood and 12 poles of Mangel received a more uncertain quantity of sewage, and produced altogether 201 tons of roots, or not far short of 50 tons per acre; but this was starved for many weeks together.

Three roods 10 poles of Potatos realised nearly 26*l.* in the Borough market; the quantity of sewage uncertain.

An acre of Carrots, which received about 1000 tons of sewage, realised 36*l.* 10*s.*

An acre and three quarters of Onions, which received one light dressing and two heavy ones, sold for 80*l.* 12*s.* 11*d.*, or about 46*l.* an acre.

An acre of Sugar-Beetroot, grown experimentally according to the directions, as regards distance apart between the roots, of some eminent Belgian sugar manufacturers, yielded 22½ tons from the application of about 1000 tons of sewage; but the seed was not very good, and the amount of top was enormous, and out of all proportion to the roots, partly, as Mr. Duncan believes, owing to the inferior seed, and partly, I have no doubt, owing to their being too close together. Next year, with better seed, and a distance between the roots better adapted to the particularly forcing character of sewage manure, I shall get much superior results. Nevertheless, this is, I believe, a greater weight than has been obtained by any of the farmers at Lavenham. Still it is a question whether, in view of the large returns to be obtained by the growth of other crops, Sugar-Beetroot will be a paying crop for a sewage farmer to grow: for it must be recollected that it is almost impossible to precede it by any winter catch crop, and that it remains in the ground so late that it can hardly be followed by any other crop, unless it is desired to take a crop of cereals off the ground, for which, however, it would not be a very good preparation, inasmuch as full dressings of manure cannot be applied to it without the risk of reducing the percentage of crystallisable sugar, or, rather, increasing the difficulty and expense of crystallisation, and therefore, of course, diminishing the value of the root.

PARSLOES EXPERIMENTAL FIELD.

Many now present are aware, from personal observation, of the peculiarly sticky, ungenial character of the soil of the experimental field on which I have been working. Those who have not seen the field themselves will, perhaps, be interested in seeing this clod, which is a perfectly fair sample of the whole. Those gentlemen, however, who gave me the pleasure of a personal visit during the summer, will also recollect the peculiarly backward, unprofitable appearance that the field then presented. It is not, therefore, without some satisfaction that I am able to produce this specimen of Mangel, which I selected, on the crop being taken up, as among the best of the kind. It weighed when taken up, 31 lb. The total crop I have not been able to weigh, as I have no weigh-bridge at Parsloes; but I have measured it accurately, and off 4½ acres I have obtained 352 cubic yards; and the weight of a cubic yard I find to be slightly over 10½ cwt. Consequently, as from the whole, there were 352 cubic yards, equal to 184 tons 8 cwt., there would be almost 41 tons per acre, which would be considered a satisfactory result by a high farmer, on the ordinary system, with moderately good land, and is, I venture to submit, as remarkable a result from a sticky yellow brick-earth as the Celery before alluded to.

SEWAGE FARM AT ROMFORD.

I have said that, for the future, I shall be able to record accurate quantitative experiments in the application of town sewage. This is because I have recently taken a lease of another farm about three miles further from London, together with a lease of the sewage of the town of Romford. I am informed that Romford contains a population of about 8000, of whom 6000 or 6500 are believed to be "sewered," as the phrase is, at the present time. However, correct information will be obtained in the course of the coming year as to the actual amount of population drained by the sewers.

The farm consists of about 120 acres, of which the greater part is a light sandy and gravelly loam, admirably adapted for sewage irrigation, but, in itself, exceedingly poor land. For the land, with commodious buildings, I pay a rent of 300*l.* a year. For the sewage, delivered upon the farm, I pay a rent which is, I believe, the largest dead rent paid for the sewage of any town, no matter what the population, up to the present time—namely, 600*l.* a year. For instance, the Local Board of Croydon only gets about 300*l.* a year, or half of what I pay, for the sewage of a population nearly seven times as great as that at present drained by the Romford sewers. Nevertheless, I believe that I have got an exceedingly good bargain, as I have got the sewage for something like 2*s.* per head of the present population. It is my intention, so soon as I have got the land laid out, and ready for the proper distribution of the sewage, and so soon as I can procure a self-recording meter, which will not become clogged with the dirt of the sewage, to commence a series of quantitive experiments, of which a correct and rigid account shall be kept for the benefit of the public.

Having this farm to lay out, which is fortunately almost in a ring fence, and having it entirely under my own control, I am anxious, of course, to make it a model sewage farm in every respect, and I have taken very great pains to ascertain the best breadth of beds in which to lay land out for irrigation. I took into consideration, first, the effect of running water in ploughing channels, in arable land; secondly, convenience for distributing an equal quantity of sewage over each square yard of the bed; thirdly, economy, both in laying out the land and in the labour of ploughing and cultivating it after it was laid out. The result of many careful observations and experiments was, that the breadth which combined the most advantages was 15 feet from the ridge to the furrow, with as great a length as possible, and I therefore desire to amend the statement that I made in my last paper, to the effect that the best width of bed was from 40 to 45 feet from furrow to furrow; and I find that after the shallow ploughings and cross ploughings that may be necessary to obliterate the former cultivation, two ploughings are amply sufficient to lay the land up to the necessary slope of 1 in 25; and as two ploughings would not be considered too much for ordinary cultivation, the cost of preparing the surface for sewage irrigation resolves itself into the labour necessary to obliterate the former cultivation, plus, in the case of flat land, that required to give the necessary fall along the ridge of the bed. It will therefore be seen, that further experience has only served to cheapen the process of laying out land, and that it is not one of those cases where fresh difficulties arise the more the subject is investigated.

For the distribution of the sewage over the farm, wherever to obtain a sufficient fall a height has to be given to the carrier of over 30 inches, I am making use of the description of sheet-iron trough which I alluded to in my former paper, with a slight improvement. In addition to the prolongation of the sides, to give vertical stiffness, and so to admit of a greater distance between the supports, the top of the sides will be turned over as a flange, to give lateral strength. The sides will farther be tied together every three feet by iron straps. The supports will be cut out of yellow deals, and will consist of a pair of uprights to take the sides of the trough, with a cross-piece to take the bottom of the trough. The uprights will spread slightly towards the base, and will be mortised into a sleeper placed about a foot below the suaface. There will be openings at every 30 feet, with a simple water-tight valve and down pipe, and a shutter in the main trough, by which the further flow of the sewage can be regulated or stopped altogether at pleasure. The sectional area of the main trough will be equal to that of an 18-inch pipe: and the contract price of the trough with supports and shutters, with two coats of paint, fixed in position, ready for work, is 6*s.* 8*d.* per yard forward, with an extra 5*s.* for each opening with valve and down-pipe; making a total, including these openings, of 7*s.* 2*d.* per yard forward, which is a triumph of economy. The contractor is Mr. Edwin Maw, the

well-known manufacturer of sugar and gas machinery. The simple water-tight valve to which I have alluded is his invention, and is so ingenious that a short description of it may be useful. A circular opening having been made in the side of the trough, a light iron casting is rivetted to the edges. This casting is in the nature of a three-way-piece, and in form resembles the little cistern at the head of a common rain-water down-pipe on the side of a house, except that from one side projects the third way, so to say, which is the part that is rivetted to the edges of the opening in the side of the trough. The bottom of this casting fits and delivers into the down-pipe, and is slightly conical, and the water-tight valve is simply a wooden plug which jams into the conical part, a pin with holes at the top keeping it either partially or wholly open. These openings discharge 200 gallons a minute; and those who have had to deal with water, and know the difficulty and cost of making water-tight valves or sluices, will the better appreciate the ingenuity which has enabled Mr. Maw to produce so complete an opening, valve, and down-pipe, for the trifling sum of 5*s*.

My lease of the sewage of the town of Romford has given me some little insight into the general conditions in which the sewage of an ordinary country town is likely to be presented; and I find that the dilution is so much less than that of the sewage of London, that one of my first stipulations in treating for the sewage was, that the dilution should be largely increased; not because I believe that the strong black stuff which I saw on my first examination would have been too strong, chemically, for any crop to which it might have been applied, but because it deposited a black sediment which, as it dried, formed a cake upon the surface of the ground, through which no seeds could have burst, and which must have greatly injured all young crops by stopping the healthy ventilation of the soil, and, possibly, even by mechanical pressure round the stems of the young plants. This pressure is an injurious action, which the sticky brick-earth of my experimental field at Parsloes exercised largely on my unfortunate young plants, struggling for existence in the cold north wind of June last. The wind dried up the surface, and formed a coating analogous to the black cake formed by the Romford sewage; and I observed many thousands of young plants of all kinds mechanically squeezed to death by this action. In fact, in sewage farming, where at least the supply of sewage is abundant, the only thing that has to be attended to is the physical condition of the soil; its chemical condition may be totally disregarded, provided it does not contain matter actually poisonous.

Having stated that I have endeavoured to tone down the Romford sewage to the same strength as that of London, I may mention one of the means that I have taken to do so, as it is a means that may often be in the power of others to apply. It is simply draining all the upper part of the farm into the tank from which the sewage is pumped to the highest level. There of course is (or, rather, will be) the necessary arrangement for diverting the pure drainage water into the river, if, and when it is not wanted, but at other times it will go back upon the land along with the fresh sewage coming down. I should here remark, that from a farmer's point of view, the dilution of the sewage of a town should, if possible, be not less than 25 to 30 gallons of liquid per head of the population.

I am continually asked what I propose to do with so large a volume of liquid in the winter months. Winter is the time when the greater part of the farmyard manure all over the country is applied, and, instead of carting heavy loads of solid manure, with struggling horses, over muddy roads and sticky fields, it is simpler and cheaper to open a few sluices, and put in a few stops, and let the manure distribute itself. This necessitates good drainage, that is all. [Mr. Hope proceeded in the remainder of his lecture to discuss the assertion—"It won't pay." See remarks in the leading section of our Paper.]

Reviews.

Land Improvement Instructions, with the Plans and Conditions under which Loans are made; and Addenda containing Specimens, Plans, Specifications, &c. Dublin. Printed by Alexander Thom, 37 and 38, Abbey Street, for Her Majesty's Stationery Office. 1869.

Here is an official "Blue Book," as we should call it, but that it is stitched in a brown paper cover, which contains the true remedy for Irish agricultural, and much of Irish social, distress. While great names and great principles are being marshalled as leaders in our contact with the knotty problem, here is the humble "serving man"—the representative of rank and file—on whom the great burden of the fight after all must rest. Irish properties, the worst equipped as a rule of any estate property in the United Kingdom, can have their wants supplied more cheaply than any other. The advantages are attainable with less of permanent burdens than in England or in Scotland. And in this volume there is offer not only of help but of guidance. In successive addenda, giving most admirable plans and sections and elevations, the fullest specifications and information are offered for the guidance and assistance of proprietors obtaining loans for the erection of farm buildings and of cottages. We do a real service to English proprietors, also, by letting them know of the existence of so much useful information in so compendious and accessible a form.

Farm Memoranda.

SOUTH STAFFORDSHIRE: *November* 17.—Here we are in the middle of November, and in a dense fog—the first of the season here. Upon the whole, we have had a very fine autumn; a frost now and then, short and sharp, but doing little (if any) mischief. The country looks green, and work is forward.

Wheat sowing is nearly complete, in very good manner, and the early sown is up and healthy. A full breadth is put in, and if the weather continues favourable many a patch of Mangel ground will be sown. Said Mangels have been clamped in good order, and a fair crop—though they are said to weigh light. I see Proctor & Ryland's (our great manure manufacturers) prize is taken by a 30-ton crop, which is one-third under average weight. In this district the best Turnip crop is 25 tons; in Warwickshire 27, and in Anglesea 35 tons. These weights are very fair, and far over the average—for I don't think the Turnip crop in this neighbourhood is of average weight; besides, it is not over sound, and somewhat woody in character. However, the large crop of hay, secured in good condition, will make up any deficiency; and there need be no fear of winter keep. Sheep are generally healthy, and in fair condition; hoggetts are on Turnips, and are doing pretty well.

This is the bright side of the picture. Fatting cattle are mostly in stalls, for two reasons—fear of, and in consequence of, foot-and-mouth complaint. Many steadings in this neighbourhood are under ban, and stock cannot be removed. There are 108 cases of foot-and-mouth, and five cases of pleuro-pneumonia, advertised in our county paper of this week. This has raised the price of good meat in the market, and will probably affect Christmas sales. We, who are free of the disease, are afraid to buy stock either for the stalls or yards. Labour is not over plentiful, though men are earning from 14*s*. to 17*s*. a week. I should think Canon Girdlestone would be happy here, if anywhere. Has not this labour question been sadly over-talked, or misstated—or both? The great want in our cottage homes is thrift. Is this virtue ever taught in schools?

All kinds of grain thresh out badly, both in quality and in yield. Thousands of acres of good Barley ground will not yield 20 bushels to the acre, and Wheat is no better. If 40*s*. a quarter for Barley and 50*s*. for Wheat is to be the price, there will be a good many defaulters at rent-day. This is the dark side. *G. A. M.*

The Poultry Yard.

BIRMINGHAM POULTRY SHOW.—To-day is the day *par excellence* of the poultry year, for it is the judging day at Birmingham. The care, attention, expense and trouble of many months' poultry rearing will next week be thought no more of by many an exultant winner, but will be keenly remembered by a large proportion of the losers. Bingley Hall will be crowded with visitors, and we hope for a fine week and satisfactory receipts at the doors.

Saxon Poultry.—The traveller passing by railway or road through Saxony would wonder what becomes of all the geese he sees about the villages and the plains. In flocks of from 40 to 300 or 400—sometimes even in larger numbers—everywhere is the goose to be seen. In the markets they are brought in alive, and sold to the shopkeepers, who kill and pick them, and retail them, always selling them by weight. They appear to be of a better breed than the Dutch and French geese (always excepting the Toulouse breed), and many of them are fine birds, the meat good in grain, and the frame well covered. We should imagine them descended from the real Emden breed. The goose must be a very favourite dish with the Germans in general, for, unlike the French and Dutch, they import in addition to the geese they rear many thousands annually. Next to the geese, the countless flocks of pigeons must strike every one, and of them, as of the geese, the home consumption must be very great, for one does not see them exposed for sale in any numbers, nor, as far as we know, are they exported. There must be a very different feeling with regard to pigeon keeping among the farmers of Germany and those of England. In the former country the pigeons feed in the fields unmolested, or rather encouraged by every one, while with us they are shot like vermin. A German homestead does not seem complete without its dovecote, and the greater number of the cottages and houses in the country have their pigeon-holes in the roof. A saving and thrifty people, it is hardly probable the pigeons would be tolerated in such numbers if they were as mischievous and destructive as they are said to be by us. The country between Dresden and Leipzig is in many places very closely cultivated, the crops coming up to the road; no hedges or fences, and everything made the most of. Between Riesa and Cosing such is especially the case, and yet, flying from field to field, the pigeons abound, and appear to get their own living. The fowls are mongrels all through Germany. There seems to be no recognised breed, no standard, and no improvement. The generality gave one the idea of degenerate Hamburghs crossed with indifferent game; and in collections where all the other birds show that they have been selected by a *connoisseur*, one will see fowls that in an English market or saleroom would not find a purchaser. The fowl houses are miserable, and an unlucky trio of cock and two hens may often be seen living a miserable, roupy life in an old dog kennel or tea-chest, while they might, without annoying any one, have a good run. In an extensive collection at Dresden we saw half-a-dozen Spanish fowls kept in a pen not big enough for two, while next to them some kestrels and sparrowhawks had a large *voliére* to themselves. The pigeon fancy is pursued with an attention, a passion, and an amount of success that makes it almost a science. Different districts are noted for different varieties, and men buy, borrow, breed, exchange, and contrive in order to attain excellence in the kind they keep. Varieties of pigeons that when seen here have been described as chance birds or "sports," are with them recognised breeds, and may be depended on. Many kinds they have developed to a great extent, indeed much in same manner and to the same excellence as the carriers, pouters, and tumblers with us; but in others they make no progress, and are content with the bird as it is.

Poultry in America.—Some months since we gave a short notice of the New York State Poultry Society. We are glad to be able to record that the progress the Society is making is very great. It holds its second annual meeting the week after next, and from its programme, which has just reached us, we find that it takes high ground with regard to poultry, ground that is calculated to give an importance to it as farm stock that it should have, but does not possess here. The prize list opens with three prizes for the best essay on the breeding and management of poultry; first prize 100 dollars; 2d, 50; 3d, 25. These are followed by three prizes for plans and specifications for poultry buildings and yards. These are followed by 120 classes for different kinds of birds, rabbits, &c. The show remains open until the 9th proximo.

Calendar of Operations.

NOVEMBER.—*Martinmas*, Nov. 22, is the winter half-yearly term in Scotland, when farms are entered, servants engage for the winter half year, and when the yearly accounts are generally balanced. Formerly it was a quarterly term it England. The killing and salting of beeves at this season was universally practised in the olden time, not only in the United Kingdom, but throughout the whole of Northern Europe. The term "mart" or "mairt," a fat beeve, familiar in Scotland and the north of England, is derived from the practice of Martinmas slaughtering. It was common in Tussen's time, who thus alludes to it in his "Husbandry"—

> "When Easter comes, who knows not than
> That veal and bacon is the man?
> And Martinmas beef doth bear good tack,
> When country folks do dainties lack.

Covered Homesteads, and the various places of housing and feeding cattle in—stalls, boxes, &c.—are questions which have long been discussed at this season. The practice of feeding in boxes, under well-ventilated covered homesteads, is fast gaining ground, promising, at no very distant date, to be the general rule: in other words, as the old homesteads are pulled down the new ones erected are assuming more and more the appearance of large manufactories, each covered by a common roof, or system of roofing, under which the different kinds of live stock and feeding materials are kept. The progress thus made, therefore, renders it no easy matter for landowners and tenants to keep pace with the times, under the four topics:—(1) How to make live stock pay for their food; (2) the economy of food; (3) economy of manure, and (4) economy of manual labour. Of late years the losses arising from contagious diseases introduced from the Continent have been against the solution of the first of these questions, otherwise the old idea that fattening cattle did not pay for their keep would have been almost exploded by this time.

Manure Economy is a question second to none, whatever may be the character of the homestead. The old plan was to mix the daily cleanings from the stables, cow houses, fatting bullocks, and other housed stock in the open yards in which the store beasts were kept. Under this plan much liquid flowed from the yards in rainy weather, which was either conveyed into a tank or on to earth in a pit. Some placed a layer of earth under the manure in the yards, purposely to absorb as much of the liquid as possible, and others preferred having all the earth in pits. When the cattle are fed in boxes, or when the whole homestead is covered over, liquid manure tanks and pits are not needed, the liquid being economised in the manure. As yet the system is generally a mixed one, horses and milch cows being stall-fed, fatting bullocks box-fed, the remainder of the space being divided into yards for store beasts or young cattle, the manure from the horses and cows being spread over the yards daily. The fewer animals in a yard the more successful the practice, as they do better than a greater number. Some breeds, as Shorthorns, herd better together than others, while some horned breeds should be in single boxes. In short, the principle is that of a feeding-box in which each animal gets its own food, and has room to exercise itself according to the requirements of health and manurial economy.

Ant-hills.—Cut and spread as soon as frost sets in, to kill the ants. In going over the pastures, Tussack Grass, Docks, Thistles, and other weeds should be dug out and removed. If the land is to be top-dressed, immediately cart ants and all as they are dug up to a compost heap, and mix with lime or liquid manure, &c., so as to destroy both animal and vegetable life.

Trenching in the reclaiming of waste or new land and in the deepening of old, is to be preferred to ploughing and subsoiling in all cases where there is much effete vegetable matter on the surface that requires rotting, and where the subsoil is sound, or can be made so by exposure to the atmosphere. The work is either done by two ploughs, the one steam-ploughing before the other, or by manual labour. Much waste land is so full of stones that it cannot be skim-ploughed, so that the whole of the work has to be done by the pick and spade. On the other hand, much new land can now be broken up by steam, which hitherto could not be done by horses. Whether the land is being reclaimed from a state of Nature, or is old land being deepened, if it requires draining, this should first be done, as the heavy rains which now begin to fall not only carry off much noxious matter to the drains, but also draw in much air, thereby oxidising and fertilising the newly trenched soil, thus preparing it for the production of root crops next season. When the stones dug up in trenching are to be used in filling the drains,

or are to be put over pipes with the view of getting them out of the way, open two or three drains at one side; put pipes in these; trench the two or three ridges between, one ridge being trenched in advance of the other, and the stones gathered into small wooden boxes may be carried across to fill the next set of drains being opened. In this way we have drained and trenched large areas of old and new land, the whole work being done by contract at about 10*l.* per acre—the land the following season being under Turnips, after bonedust dibbled in on the trenched surface. In examples of very bad, poisonous bottoms, the top spit or furrow only is turned over, the bottom being loosened with the pick, dug over, to remove stones, or subsoiled. When done by the plough, the bottom may require to be subsoiled several times before it is fit for being mixed with the staple or arable soil. In such cases it is a prudent plan to deepen by degrees, bringing up an inch or so at a time, and exposing it on the surface as much as possible to the influence of the weather before seed time.

The Stable.—As the days shorten some horsekeepers reduce the daily allowance of corn, others take nearly as much work out of their teams this month as any other, whether ploughing or carting, *i. e.*, they plough deep, and hence do not reduce the feed. As a rule, horses should be kept in good working condition this month.

Breeding Ewes.—Attend to as last month. As the weather becomes colder they require more food and shelter; the latter being equivalent to so much of the former. In the lowlands of Scotland and northern counties of England, the rams are generally taken from the ewes about the latter week of the month; but in Highland sheep-walks, or rather if ewes have to lamb there, the rams are only put to the ewes about this time. The bathing or smearing of blackfaced and Cheviot hogs is concluded about the same time. Flocks leave the more elevated districts of Scotland for the low country grazings, where they remain during the winter months, returning hence in the spring, the times of departure and return depending upon the nature of the season. Thus Heather, and some of the mountain Grasses, are in their prime during November, and when the weather is open they supply an abundance of feed, not only relished by sheep, but by black cattle also, and both do well upon it. Milch cows, when turned out about mid-day for an hour or two, browse the young Heath greedily; but the change from open to stormy weather is often rapid, and stocks must be shifted accordingly to their winter quarters, to avoid being "storm-stayed."

The Dairy, in the common acceptation of the phrase, is now a secondary question as regards the daily produce in milk; but to this old rule there are exceptions, more in number than formerly. According to the old plan, two or three cows were timed to calve about this season, or else calvers were bought in, and the remainder of the herd allowed to run dry—not all at once, but to suit the calving in spring time. But improvements in stock management enable dairymen now to produce more and richer and better milk during the winter months than formerly, so that those who supply our large towns with milk and fresh butter by railway endeavour to produce at this season what their customers require, the daily supply being little short of that of summer. But to accomplish this, the newly or recently-calved milch cows must be kept uniformly warm, and well fed on proper food; and if this is done, they will yield an abundance of rich milk throughout the winter months. Dry cows, and those nearly so, should be kept fresh on plenty of Turnips, but not fattened; and equal attention requires to be paid to their warmth; frosty Turnips and winter hay highly objectionable. The currycomb and brush, more especially the latter, should be freely used on both the calved and in-calf, to keep up a healthy clean state of the skin.

Gorse comes into use when the sewage Grass fails. When properly bruised, it is excellent food for milch cows, and it should be more extensively grown for this purpose than at present. If a man can cut as much in a day as will serve 16 cows, and if an acre and a-half of Gorse will feed the 16 cows for a month, the value of an acre compared with Grass is easily calculated by any dairyman. As to the crushing, the engine that threshes, cuts chaff, &c., will also work the Gorse mill. The above calculation is at the rate of three bushels of bruised Gorse to a cow daily; but at 2 bushels daily, with Turnips, an acre would serve the 16 cows a month, and so on.

The Pig-stye.—Bacon-hogs fatten as the days shorten. Increase the allowance of sour food as you force them forward. This latter applies also to small porkers. Breeding sows serve about the end of the month to bring forth towards the end of March. *W. B.*

Notices to Correspondents.

JERSEY COWS: *A G* writes:—"On October 29 a Jersey heifer calved three weeks before her time, and the calf (a dead one) had to be taken from her. She recovered, and went on well till about 10 days since, when her milk became so tainted as to be quite useless, and her breath smells as badly as the milk. I can only compare it to bad fish. We are at a loss what to do, and I should feel much obliged if you could give me a hint, as the cow is a valuable one, and a great pet. [It is possible that the cow may have eaten some putrid substance. Were the foetal membranes removed out of her reach? Try the effect of 2 ounces of hyposulphite of soda dissolved in the drink-water twice a day, or give it as a drench in a quart of warm water. We conclude from your letter that the cow is in good health.]

POULTRY BOOK: *Dealer.* Tegetmeier's "Poultry Book" is a very handsome and serviceable work; Baily's 613, Mount Street, Grosvenor Square, W.) little book on poultry is practical and instructive.

SALT: *R A B.* 4 cwt. per acre will not kill weeds on light land. You must get the weeds up by scarifying, harrowing, gathering, and burning. Earlier in the year you might have done a good deal to it by mere sunshine.

HOT-WATER, GAS, RAIN-WATER PIPES BOILERS, &c., delivered in London, Liverpool, Bristol, or equivalent.

		2-inch.	3-inch.	4-inch.
HOT-WATER PIPES, Nos. 6 & 7 on illustrated sheet	per yard	*s. d.* 0 11	*s. d.* 1 5	*s. d.* 1 11
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TEE PIPES	No. 33 on do. „	2 0	3 0	4 0
SYPHONS	No. 23 on do. „	1 9	3 0	4 0
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GEORGE ROBINSON, Dial Iron Works, Stourbridge. London Warehouse, 16, Grand Junction Wharf, Paddington Basin.

W. H. LASCELLES' MACHINE-MADE MELON LIGHTS.



	Each.
6 ft. by 4 ft. Lights, 2 ins. thick, unglazed	£0 5 0
„ „ Primed and Glazed with 10 oz. Sheet	0 11 0
„ „ with stout Portable Box, not Painted	1 3 0
„ „ Painted four coats, and Handles on	1 8 0
„ „ Packed and Delivered in Railway Van	1 10 0
6 ft. by 8 ft., Double Lights, do.	2 15 0

GREENHOUSES.

	Per ft. super.
Woodwork only Prepared and Fitted	0 0 6
„ Primed and Glazed with 16 oz. Sheet	0 0 9
„ Delivered, and Fixed with Ironwork	0 1 0
„ Painted four coats, two sides, ready for use	0 1 3

Finsbury Steam Joinery Works, 121, Bunhill Row, E.C.

HOT-WATER APPARATUS Erected Complete, or the Materials Supplied for Heating

Peill's Conical. GREENHOUSES, HOTHOUSES, CONSERVATORIES, CHURCHES, PUBLIC BUILDINGS, &c. Tubular Boiler.





HOT-WATER PIPES at wholesale prices, Elbows, T Pieces, Syphons, and every other connection kept in stock.

WROUGHT and CAST IRON CONICAL, SADDLE, and IMPROVED PEILL'S and ELLIPTIC BOILERS, from 24*s.* each.

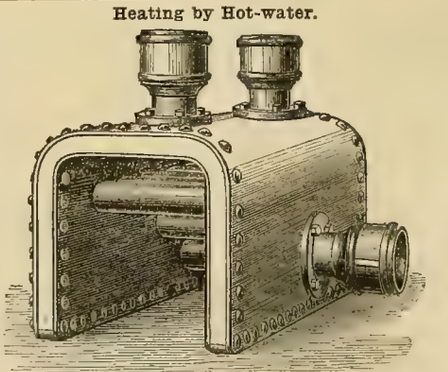
IMPROVED and EXTRA STRONG CAST IRON TUBULAR BOILERS, with or without Water Bars, from 62*s.* 6*d.* each.

CAST and WROUGHT IRON PORTABLE BOILERS on STAND, for use without brickwork, from 60*s.* each.

PATENT and IMPROVED THROTTLE and other VALVES, FURNACE DOORS, BARS, and FURNACE WORK of every description and size.

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Old Barge Iron Wharf, Upper Ground Street, London, S.E.
(Surrey side Blackfriars Bridge).
Price List on application.

Heating by Hot-water.



SHANKS' IMPROVED WROUGHT-IRON BOILER.—This Boiler is made on the principle of the Saddle and Tubular combined. The Tubes, Fire-box, and Shell-plates are all of Wrought-iron, and consequently are not liable to break from expansion and contraction of the metal, as Cast-iron Boilers are. The Tubes are placed in the Fire-box, and so arranged as to expose a very large effective heating surface to the direct action of the fire, the advantage of which is obvious.

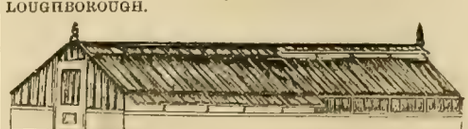
A. S. AND SON will be glad to furnish their IMPROVED BOILERS separately, or to furnish Plans and Estimates for Erecting Hot-water Apparatus complete in any part of the country.

HORTICULTURAL BUILDINGS in IRON or WOOD.

Catalogues, containing Designs of Houses, &c., will be forwarded on application. Special Plans and Estimates for Ranges of Houses to be erected in any part of the country will also be furnished.

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T. G. MESSENGER, MIDLAND STEAM POWER HORTICULTURAL WORKS, HOT-WATER APPARATUS, VALVE MANUFACTURER, LOUGHBOROUGH.



Honourable Mention awarded at the International Exhibition, 1862, and at the Dublin Exhibition, 1865; also a First-class Certificate by the Royal Horticultural Society.

T. G. MESSENGER, Patentee of many important improvements in Buildings and Implements connected with Horticulture, and which meet with unqualified approbation, is prepared to give reference to hundreds of works entrusted to him and pre-eminently answering the purpose for which they were constructed.

Any House Glazed, single or double, with or without putty. The mode adopted by T. G. MESSENGER for Heating and Ventilating Forcing Houses is particularly successful, drip being entirely prevented.

Houses can be constructed on his Patent Ventilating principle to open the whole of roof and sides as though the glass were entirely removed, at once placing the plants in the external atmosphere.

T. G. MESSENGER'S Boiler possesses all the advantages of the Tubular and Saddle combined, has hollow furnace bars, requires but a shallow stokehole, exposes as much surface to the direct action of the fire as can possibly be obtained, the whole of which can be easily cleaned; and it is an important fact, that out of upwards of 500 now at work made upon the improved principle not one has cracked.

T. G. MESSENGER'S Valve (single or double) is effective, simple, easy to work, and as durable as the pipe to which it is attached.

Designs and estimates supplied for all kinds of Horticultural Work, and guaranteed to answer the purpose for which they may be intended. A richly Illustrated Catalogue, with descriptions, forwarded post free on receipt of 33 stamps.

LOOKER'S PATENT EARTHENWARE PROPAGATING BOXES.—The most simple, effective, and by far the cheapest arrangement for Raising Seeds, Striking Cuttings, and other Horticultural purposes. Price, complete, from 1*s.* each.—Hooper & Co., Covent Garden; Rosher & Co., Upper Ground Street, Blackfriars, Kingsland Road, and Queen's Road West, Chelsea; and Dixon & Co. 48*a*, Moorgate Street.

BENJAMIN LOOKER, Inventor and Sole Manufacturer, Kingston-on-Thames.

SMITH'S PREPARED CHARCOAL.—The most economic Fuel of the day for Warming Greenhouses, &c. Will burn in Smokeless Stoves; only need replenishing every 12 hours. Price, 2-bushel bag, 3*s.* Two bags delivered within 5 miles. G. SMITH, 24, Cavendish Street, New North Road, N.

Rosher's Garden Edging Tiles.



THE above and many other PATTERNS are made in Terro-Metallic Ware, Terra-Cotta, Stoneware, and Redware, and of great durability. The planer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



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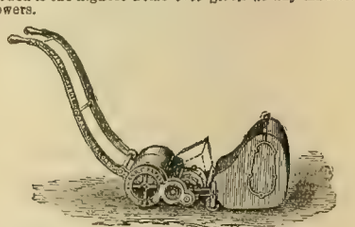
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F. & G. ROSHER.—Addresses see above.
N.B. Orders promptly executed by Railway or Vessel.
A liberal discount to the Trade.

SHANKS'S PATENT LAWN MOWERS for 1869,
The Patent Improvements recently introduced give
SHANKS'S MACHINE
Several important advantages possessed by no other Lawn Mower.
PATENT DOUBLE-EDGED SOLE-PLATE, WIND-GUARD, &c.

The unprecedented Sale for 1868, notwithstanding the Dryness of the Season, forms the most convincing testimony how much these advantages have been appreciated.

ALEXANDER SHANKS & SON beg to intimate that, among all the Exhibitors of Lawn Mowers at the Paris Exhibition, they are the only Firm to whom the Jury awarded a Medal. The Silver Medal then awarded is the highest Prize ever given at any Exhibition for Lawn Mowers.



ALEXANDER SHANKS & SON have for some time past been making the Revolving Cutter of their Machines Self-Sharpening—that is, with Steel on both Sides of each Blade, so that when the Cutter becomes blunt by running one way, it can be reversed, thus bringing the opposite or sharp edge of the Cutter to act against the Sole-Plate. In addition to this, A. S. & SON now make the Sole-Plate or Bottom Blade of their Machine with Two Edges—one in front as usual, and one in reserve at the back; when the front edge gets worn down, the plate has only to be unscrewed and the unused edge brought to the front. It will be seen at a glance that this arrangement enables the cutting parts to last twice as long as in other machines, where the single-edged Sole-plate must be entirely renewed when the edge is worn down.

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There is no ribbing with these Machines. The Lawn when mown has a most beautiful appearance, being as smooth as a piece of velvet.

Every Machine warranted to give ample satisfaction, and if not approved of can be at once returned.

Illustrated Circulars, with full particulars, sent free on application.

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GREEN'S Patent Lawn Mowers have proved to be the best, and have carried off every Prize that has been given, in all cases of competition.

The extraordinary success of GREEN'S Patent Lawn Mowers is an established fact. During the last five years the demand has been unprecedented, which alone is a proof of their superiority over all others. The following are their characteristic features:—1st. Simplicity of construction, every part being free of access. 2d. They are worked with far greater ease than any other Lawn Mower. 3d. They are the least liable to get out of order.

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RANSOMES, SIMS, & HEAD, IPSWICH,

WILL EXHIBIT A COLLECTION OF THEIR

CELEBRATED AGRICULTURAL IMPLEMENTS AND MACHINES

AT THE ABOVE SHOW.

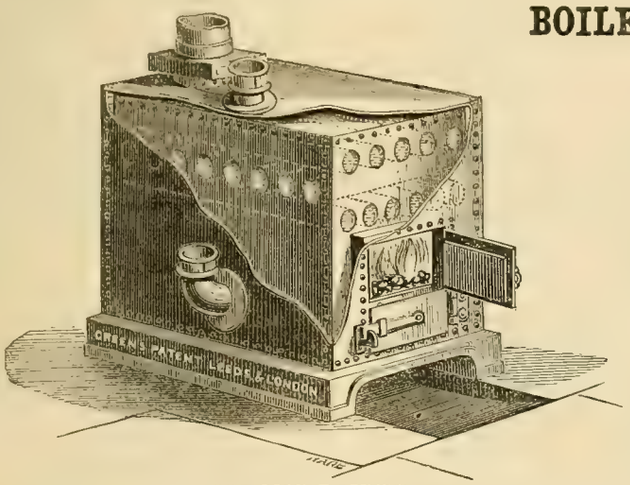
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CELEBRATED NEWCASTLE AND LEICESTER PRIZE PLOUGHS,

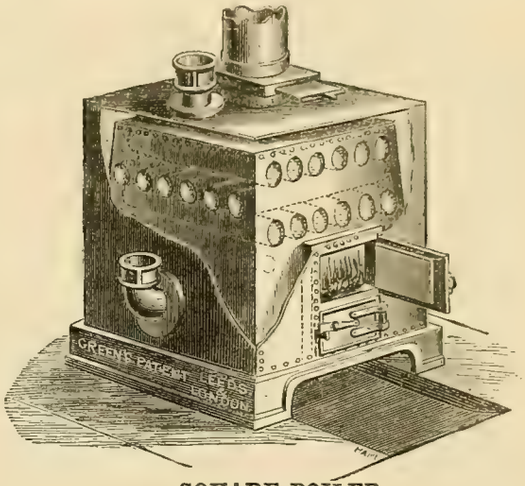
Which have won, since September 8, 1864, Two Hundred and Twelve All England Champion Prizes.

COMPLETE ILLUSTRATED CATALOGUES FREE ON APPLICATION.

GREEN'S PATENT IMPROVED TUBULAR HOT-WATER BOILERS.



OBLONG BOILER.



SQUARE BOILER.

THE ABOVE BOILERS ARE

THE MOST EFFECTIVE AND DURABLE EVER INVENTED.

They can be set to work at a nominal cost, inasmuch as no brickwork is required; as will be seen from the above drawing, they are placed upon a Cast-Iron Sole-plate which answers the purpose of Foundation and Ashpit.

From the peculiar and substantial manner in which these Boilers are made, they are warranted to last for years without getting out of order; in fact, we guarantee them for ten years, but feel convinced that they will serve all the purposes for which they are intended for a much longer period.

They are specially adapted for Heating Greenhouses, Churches, Chapels, Schools, Public Buildings, Entrance Halls, Warehouses, Workshops, &c.

THE FOLLOWING ARE THE ADVANTAGES OF THESE BOILERS:—

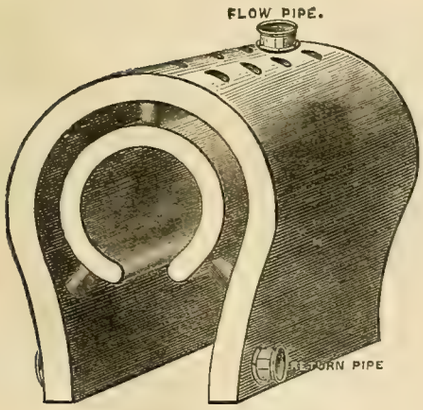
1st, They require no setting in brickwork.
2d, They are complete in themselves, having perfect means of regulation.
3d, They take up little room, and can be put in places inaccessible to other Boilers.
4th, They are economisers of fuel, owing to the great amount of heating surface upon which the fire acts in a direct manner, and the consumption of smoke.
5th, The fire can be made to last from 12 to 24 hours without attention.
6th, Any number of Flows and Returns can be annexed to the Boilers by means of T-pipes.
7th, By means of mud doors, they can be readily cleaned out when required.
8th, The Chimney is made of cast-iron, which can either be taken through a roof or turned into a flue, to meet the convenience of the situation that it may be fixed in.

☞ *PRICE LISTS ON APPLICATION.*

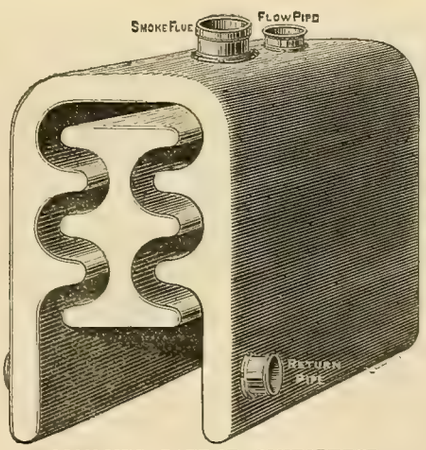
THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;
and 54 & 55, BLACKFRIARS ROAD, LONDON, S.E.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

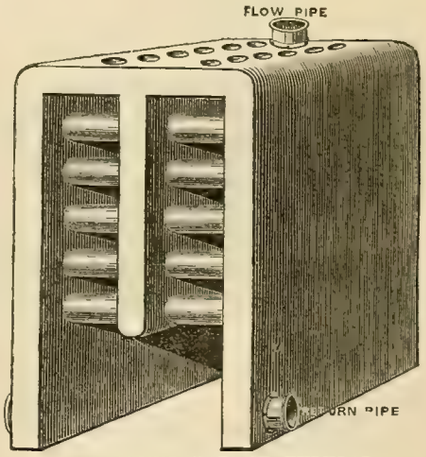
ORMSON'S PATENT ECONOMIC BOILERS.



ORMSON'S PATENT CONCENTRIC SADDLE BOILER.



ORMSON'S PATENT CONVOLUTED BOILER.



ORMSON'S PATENT TUBULAR BOILER.

From the Construction of these Boilers, it will be at once seen that the object of the Inventor is to economise fuel, by concentrating its entire force and vertical action on the surfaces of the Boiler, and not wasting it by Heating Brickwork and Chimneys, a fault common to the great majority of Boilers now in use.

These Boilers are made of the best Welded Wrought-iron, of good substance, having no overlapping plates, holes, or rivets, and are therefore perfectly secure against failure from expansion and contraction of the metal, an occurrence so frequent and fatal to all forms of Cast-iron Boilers.

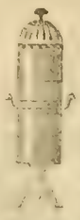
Please to state diameter and length of Pipe to be Heated.

HENRY ORMSON, HORTICULTURAL BUILDER TO HER MAJESTY,
AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,
STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

Trotman's Hot-Water Gas Stoves.
THE SIMPLEST and BEST METHOD of HEATING SMALL GREENHOUSES. Price £2.
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Indestructible Terra Cotta Plant Markers.
MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c. MAW AND CO., Benthall Works, Broseley.

LABELS, LABELS.—PARCHMENT or CLOTH LABELS.—Tree or Plant Labels, punched parchment, 4 inches long, 4s. per 1000, or 10,000 for 35s., cash on delivery. Sample Label sent on receipt of 4 postage stamps. Orders delivered free in London by JOHN FISHER AND CO., Label Works Boston, Lincolnshire.



The Only Stove without a Flue.
NASH AND JOYCE'S PATENT, for WARMING HALLS, SHOPS, GREENHOUSES, &c.
These Stoves burn without attention or replenishing 12 to 24 hours. From 12s. 6d. to Six Guineas. PATENT FUEL, 4s. 6d. per bag.
STOVES made expressly for Greenhouses, to Burn all Winter by filling up with the Patent Fuel every 12 hours.
S. NASH, Patentee, General Furnishing Ironmonger 253, Oxford Street, W.; Joyce's Stove Depôt, 119, Newgate Street, E.C.; and Leinster Terrace, Bayswater, W.
Prospectus of Patterns and Prices post free.

HOT-WATER APPARATUS of every description, fixed complete in any part of the country, for Warming Greenhouses, Conservatories, Forcing Pits, &c.
Plans and Estimates on application.
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Manufactory, 6, Bankside, Southwark.

SIR J. PAXTON'S PATENT HOTHOUSES for the MILLION, are cheap, substantial, and easily fixed.
Illustrated Price Lists, with sizes, &c., free on application.
ESTIMATES given for CONSERVATORIES, HEATING APPARATUS, &c. A HANDBOOK of VINE and FRUIT-TREE CULTIVATION, post free, 13d.
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Works in London, Gloucester, Coventry, and Scotland.

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ROYAL BOTANIC SOCIETY, LONDON.
ROYAL BOTANIC GARDENS, DUBLIN.
ROYAL BOTANIC GARDENS, LIVERPOOL.
ROYAL BOTANIC GARDENS, CAMBRIDGE.
ROYAL WINTER GARDEN, DUBLIN.
ROYAL DEPARTMENT OF SCIENCE AND ART, LONDON.

It is with great gratification that we announce our permission to refer upon any occasion to the various

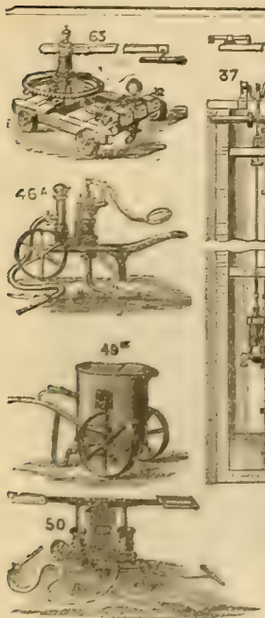
HEATING APPARATUSES at the above, where our "ONE BOILER SYSTEM"

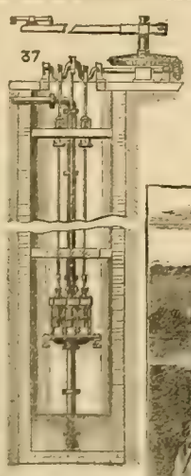
HAS FOR YEARS BEEN SUBJECTED TO THE MOST CRITICAL TESTS WITH EVERY SATISFACTORY RESULT.
IT IS MATCHLESS FOR EFFICIENCY, AND IS WORKING THE LARGEST APPARATUS ON RECORD.

These are no theoretical statements, but positive facts, and it is not too much to add, that no boiler can boast a parallel.

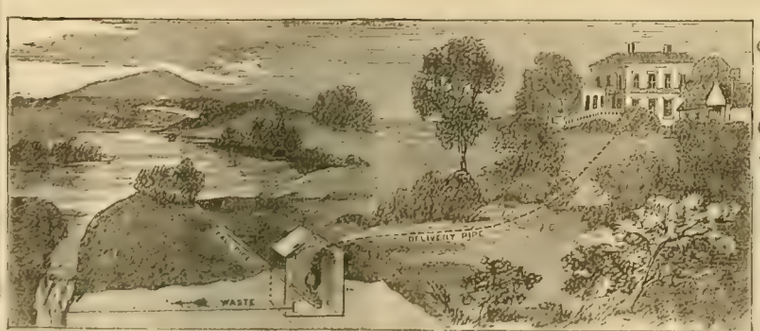
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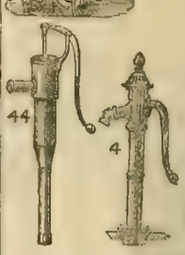




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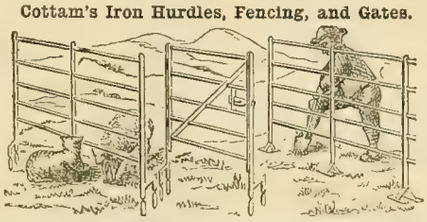
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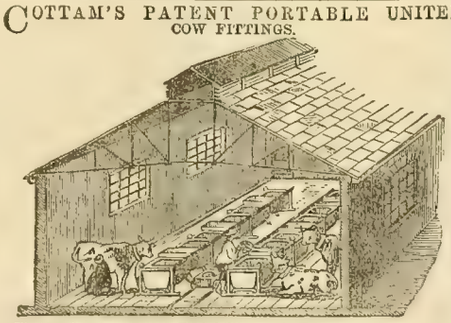
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Sales by Auction.

TUESDAY NEXT, at 11 o'Clock.—350 Lots genuine NURSERY STOCK, including Forest and Fruit Trees, Evergreen and Deciduous Shrubs, Greenhouse Lights, &c., by

MR. F. W. SEARLE, at Park Lane, Tottenham. Auction Offices, 6, Bishopsgate Street, and Tottenham, N.

Lea Bridge Road, Leyton, Essex.
IMPORTANT SALE of VALUABLE NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Nursery, Lea Bridge Road, by order of Messrs. Pamplin & Son (without reserve, in consequence of the expiration of lease and the Ground being required for Building purposes), on MONDAY and TUESDAY, November 29 and 30, at 12 o'Clock precisely each day, the whole of the valuable NURSERY STOCK, including fine specimen Araucarias, Cedrus (sorts), Taxodiums, Thuja aurea, Variegated Hollies, Sweet Bays, Evergreen Oaks, Cupressus (sorts), Pines (sorts), Juniperus cryptomeria, &c., from 3 to 12 feet high; 100 English Yews, 4 to 12 feet; Common Laurels, Standard and Bushy Portugal Laurels; 1250 Green Tree and other Box, 1 to 8 feet; 600 Rhododendrons, 220 Chinese and other Arbor-vitæ, 4 to 12 feet; 150 Aucubas, 3 to 8 feet; 100 Irish Yews, 5 to 7 feet, &c.; a fine assortment of Standard and Dwarf H.P. Roses; selected Fruit Trees; a large quantity of Ornamental and Forest Trees; together with a 2-horse power Threshing and Chaff-cutting Machine, three capital Horses, two Cows, Heifer, handsome young Bull, and numerous other effects.
May be viewed three days prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers, Leytonstone, Essex.

Consignment from Ghent for Absolute Sale.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the City Auction Rooms, 38, Gracechurch Street, E.C., on WEDNESDAY, December 1, at half-past 12 o'Clock precisely, without reserve, about 200 Choice Double CAMELLIAS and AZALEA INDICA, compact plants, 1 to 3 feet, beautifully set with bloom-buds; 300 very handsome Standard and Dwarf ROSES, of the choicest varieties; selected FRUIT TREES, hardy AMERICAN PLANTS, choice CONIFERÆ and EVERGREEN SHRUBS, LILIUMS, GLADIOLI, with a first-class Collection of DUTCH BULBS, &c.
On view the morning of Sale. Catalogues had at the Rooms as above, and of the Auctioneers and Valuers, Leytonstone, N.E.

Lewisham, Kent.
EXTENSIVE CLEARANCE SALE of VALUABLE NURSERY STOCK, 3 MILCH COWS, 3 HEIFERS, BLACK PONY, &c.

MESSRS. PROTHEROE AND MORRIS have received instructions from the Executors of the late Mrs. E. Thompson, to SELL by AUCTION, on the Premises, Lewisham Park Nursery, near the Old Church, Lewisham, S.E., on MONDAY, December 13, and following days, at 12 o'Clock precisely each day, without reserve (the land being required for other purposes), the whole of the VALUABLE NURSERY STOCK, consisting of Evergreen and Coniferous Shrubs, Fruit Trees, Standard and Dwarf Roses, Ornamental and Forest Trees, 3 Greenhouses, Pits, Hot-water Piping, Boilers, Carts, Barrows, Farming Implements, the Growing Crops, together with 3 Milch Cows in-calf, 3 Heifers, a Black Pony, Heaps of Manure and Potting Mould, &c., and numerous other effects.
Further particulars in future advertisements.

Shobnall Grange, Burton-upon-Trent.
IMPORTANT SALE of SHORTHORN CATTLE.

MR. STRAFFORD begs to announce that he is favoured with instructions from Henry J. Meakin, Esq., of Shobnall Grange, to SELL by AUCTION, without reserve, on WEDNESDAY, December 15 next, his entire Herd of Pure-bred SHORTHORNS, consisting of about FORTY HEAD of BULLS, COWS, and HEIFERS, which have been selected and carefully bred from some of the most fashionable strains of blood. Amongst them will be found some choice specimens of the Kirklevington Lenton, Milcote, and Penrhyn Castle sorts. The young Stock are chiefly by "Duke of Cumberland" (21,584), descended from "Cambridge Rose." The Herd has not been prepared for Sale, but is offered, at a short notice, in their general store condition.
Also will be SOLD TWELVE Fat BULLOCKS, COWS, and HEIFERS, most of them prime Christmas Beef.
Catalogues with Pedigrees may be had on application to Mr. STRAFFORD, 18, Euston Square, London or of Mr. MEAKIN, Shobnall Grange, Burton-upon-Trent.

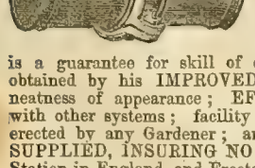
To Noblemen, Gentlemen, Nurserymen, Gardeners, and Others.

MR. H. NASH having received instructions from the Proprietors, Messrs. R. Gadd & Son, to OFFER by PUBLIC AUCTION, early in December, at the Salvington Nurseries, two miles from the Worthing Station, South Coast Railway, a large quantity of surplus NURSERY STOCK, consisting of Araucaria imbricata, 1 to 3 feet; 20,000 Sweet Bays, 1 to 2 feet; 10,000 Tree Box, various, 1 to 4 feet; 20,000 2-yr. Evergreen Oaks, 30,000 Common Laurels, 2 to 8 feet, fine; 20,000 Laurustinus, 1 to 2½ feet, full of bloom; Silver and Spruce Firs, 5 to 10 feet; Pinus austriaca, 1 to 4 feet; 10,000 Pinus insignis, 1 to 4 feet; Common Yew, 3 to 4 feet; Portugal Laurels, 2 to 3 feet; Picea lasiocarpa, 3 to 5 feet, specimens; Black Italian Poplars, 8 to 10 feet; Evergreen Privet, &c.
Full particulars will be duly announced in Catalogues, to be obtained at the Nursery, and of the Auctioneer, Ambrose Place, Worthing.

PORTABLE AND FIXED HOT-WATER APPARATUS,

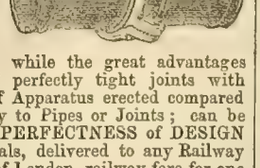
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Begs to state that the immense number of APPARATUS annually Designed and Erected by him in all parts of the kingdom, and for the ROYAL HORTICULTURAL SOCIETY at SOUTH KENSINGTON and CHISWICK, with unrivalled satisfaction, is a guarantee for skill of design, superior materials, and good workmanship; while the great advantages obtained by his IMPROVED SYSTEM cannot be over-estimated, consisting of perfectly tight joints with neatness of appearance; EFFECTS A SAVING OF 25 PER CENT. on cost of Apparatus erected compared with other systems; facility for extensions, alterations or removals without injury to Pipes or Joints; can be erected by any Gardener; an ordinary size Apparatus erected in one day; and PERFECTNESS of DESIGN SUPPLIED, INSURING NO EXTRAS. Complete Apparatus, of the best materials, delivered to any Railway Station in England, and Erected at the following prices. Erection beyond 25 miles of London, railway fare for one man additional. Considerable reduction on large works.



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Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
20 feet by 10 feet ..	£9 0 0 ..	£2 0 0	50 feet by 15 feet ..	£17 10 0 ..	£3 0 0
30 feet by 12 feet ..	11 15 0 ..	2 10 0	75 feet by 15 feet ..	20 0 0 ..	3 0 0
40 feet by 15 feet ..	15 0 0 ..	2 15 0	100 feet by 15 feet ..	26 0 0 ..	3 5 0

Bath and Gas Work erected in town or country. **The Trade Supplied.**
Price Lists, Plans, and Estimates forwarded on application to
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IRON MERCHANT, HOT-WATER APPARATUS MANUFACTURER,
AND HORTICULTURAL BUILDER,
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RESPECTFULLY SOLICITS ORDERS FOR

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THE Public is requested to observe—1, That they are all growing on the COOL MOIST STRONG SOIL of Waltham and Loughton, and have consequently suffered nothing from the past dry, hot summer; and 2, That the whole of the stock is KEPT CONSTANTLY REMOVED, so that the plants are stout and bushy, the roots are fibrous and brought into a small compass, by which practice the losses by removal are comparatively trifling.

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	Per dozen.—s.	d.
STANDARDS	15s. to 24	0
DWARF STANDARDS ..	12s. to 18	0
NEW ROSES, Dwarfs	24s. to 30	0
CLIMBING ROSES	9s. to 12	0
ROSES, for Forcing, 6-inch pots	24s. to 42	0
Mixed ROSES, for Shrubberies, per 100 ..	30	0
DWARF PERPETUAL ROSES, „ 75s to	100	0
MANETTI STOCKS .. .. „	3	0

2. FRUIT TREES.

APPLES, PEARS, CHERRIES, PLUMS, &c., Standards	18s. to 24	0
Do. Pyramids	18	0
Do. Pyramids, fruiting	24s. to 36	0
Do. Dwarfs or Cordons	12s. to 18	0
Do. Dwarfs, trained	30s. to 42	0
APRICOTS, NECTARINES, & PEACHES, Standards	30	0
Do. Standards, trained .. each, 5s. to	10	6
Do. Dwarfs .. .. .. „	1	6
Do. Dwarfs, trained .. .. „ 3s. 6d. to	5	0
Do. Pyramids for orchard houses „ 3s. 6d. to	5	0
FRUIT TREES, various, in pots, for orchard houses .. each, 15s. to	10	6
GOOSEBERRIES and CURRANTS, the best sorts .. per 100, 20s.; 3s. to	4	0
FIGS, all the best sorts, in pots, each, 2s. 6d. to	5	0
GRAPE VINES—		
60 sorts, planting canes .. each, 2s. 6d. to	5	0
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RASPBERRIES, of sorts, per 100 16s. to	25	0
STRAWBERRIES, of sorts „ 3s. 6d. to	15	0
MEDLARS .. .. each	2	6
QUINCES .. .. .. „ 1s. 6d. to	2	0
WALNUTS .. .. .. „ 1s. 6d. to	3	6

3. EVERGREENS.

ARBUTUS, Common, 2 feet, bushy ..	12	0
Do. ANDRACHNE, 1½ foot .. .. each	2	6
Do. CROOMII, 1½ foot .. .. .. „	2	6
AUCUBA JAPONICA, 2 feet, bushy ..	18	0
Do., 10 best sorts, male and female, green and variegated .. .. 12s. to	30	0
BAMBUSA FORTUNEI .. .. each	1	6
BAYS, Sweet, 2 to 3 feet .. .. 12s. to	24	0
BERBERIS DARWINII, 2 to 4 ft., 12s. to	18	0
Do. DULCIS, 2 feet	9	0
Do., 3 to 4 feet .. .. .. 12s. to	18	0
Do. STENOPHYLLA, 2 to 3 feet	18	0
BOX, green and variegated, 2 to 3 feet ..	12	0
Do., 4 to 5 feet	30	0
Do., 6 to 7 feet .. .. .. each, 5s. to	10	6
Do., 4 feet stems .. .. the pair	21	0
BROOM, white and yellow, 4 feet	9	0
COTONEASTER MICROPHYLLA, 2 ft.	6	0
EUONYMUS RADICANS VARIEGATA, 9s. to	18	0
Do. FLAVESCENS .. .. .. each	10	6
Do. JAPONICUS, 2 to 2½ feet	12	0
Do. do. ROSEA .. .. .. 9s. to	18	0
FURZE, double-flowering, strong, in pots	9	0
HOLLIES, Green, 2 feet .. .. per 100	40	0
Do. do., 3 feet .. .. „	60	0
Do. do., 4 feet .. .. .. 12s. to	18	0
Do. do., 5 feet .. .. .. 30s. to	42	0
Do. do., 6 feet .. .. .. each, 5s. to	7	6
Do. Variegated, 1½ to 2 feet	30	0
Do. do., 3 feet	42	0
Do. do., 4 feet	60	0
Do. do., 5 to 6 feet .. each, 7s. 6d. to	10	6
Do., 30 varieties, gold, silver, and green, each, 1s. 6d. to	10	6
IVY TREE, 1½ foot	12	0
LAURELS, Common .. per 100, 8s. to	50	0
Do. COLCHICUM, 2 feet	6	0
Do. do., 3 feet	9	0
Do. do., 4 feet	12	0
Do. do., 5 to 6 feet	18	0
Do. CAUCASICUM, 2 feet	18	0
Do. do., 3 feet	24	0
Do. do., 4 feet	30	0
LAURELS, Portugal, 2 by 2 feet broad ..	12	0
Do. do., 3 feet	18	0
Do. do., 4 feet	30	0
Do. do., narrow-leaved, 3 ft., each, 1s. 6d. to	2	6
LAURUSTINUS, 1½ ft. (well set with bloom)	9	0
Do., 2 to 3 feet, bushy .. .. 12s. to	30	0
MAHONIA AQUIFOLIUM, per 100, 8s. to	50	0
Do. FASCICULARIS HYBRIDA, 1 to 2 feet .. .. 9s. to	18	0
Do. do., 2 to 3 feet .. .. 18s. to	24	0
Do. JAPONICA, 1½ foot	12	0
Do. do., 2 feet .. .. .. 18s. to	30	0
OAK, Evergreen, 3 to 5 ft., each, 2s. 6d. to	5	0
OSMANTHUS ILICIFOLIUS, 1 foot ..	18	0
Do. do. VARIEGATA .. each, 1s. 6d. to	3	6
PRIVET, Evergreen .. per 100, 8s. to	25	0
Do. OVALIFOLIUM, gold edged, 2 feet ..	18	0
Do. do. do., 5 feet stems .. .. each	3	6
Do. JAPONICUM, gold edged, 1½ foot ..	18	0
Do. CORIACEUM, 9 inches .. 18s. to	24	0
PHILLYREAS, 2 feet	15	0
Do., 3 to 4 feet .. .. .. 24s. to	30	0
RHAMNUS HYBRIDA, 2 feet	12	0
Do. do., 3 to 4 feet	24	0
RAPHIOLEPIS OVATA, 1 foot	30	0
Do. do., Seedlings, single pots	12	0
SKIMMIA JAPONICA, in pots 12s. to	18	0
ST. JOHN'S WORT, 1 foot .. per 100	25	0
YUCCA FILAMENTOSA, strong, 12s. to	18	0
Do. RECURVA .. .. .. 18s. to	30	0
Do. GLORIOSA .. .. each, 3s. 6d. to	5	0

4. CONIFERÆ.

ABIES EXCELSA, Spruce Fir, 2 to 3 ft., per 100	40	0
Do. do., 3 to 4 feet .. .. „	60	0
Do. ALBA, White Spruce, 3 feet	12	0
Do. do., 4 feet	18	0
Do. do., 5 feet	24	0
Do. NIGRA, Black Spruce, 3 feet	12	0
Do. do., 4 feet	18	0
Do. do., 5 feet	24	0
Do. CANADENSIS, Hemlock Spruce, 2½ to 3 feet .. .. .. 9s. to	12	0
Do. do., 4 to 5 feet .. .. 18s. to	24	0
Do. DOUGLASII, 3 feet .. each ..	2	6
Do., 7 to 12 feet .. .. „ 7s. 6d. to	21	0
Do. ORIENTALIS, 3 feet .. .. „ ..	5	0
Do., 4 feet .. .. .. „	7	6
Do., 5 feet .. .. .. „	10	6

	Per dozen.—s.	d.
ABIES FINEDONENSIS, Silver Spruce, 4 feet .. .. each	5	0
Do. do., 5 feet .. .. „	7	6
Do. STRICTA and CLANBRASILIANA, Dwarf Spruce .. each, 2s. 6d. to	7	6
ARAUCARIA IMBRICATA, 2 feet, each	3	6
Do. do., larger sizes .. .. each, 5s. to	42	0
CEDRUS ATLANTICA, Mount Atlas Cedar, 3 to 4 feet	30	0
Do. do. do., 4 to 5 feet .. .. .. each	3	6
Do. DEODARA, 2 feet	24	0
Do. do., 2½ to 3 feet	30	0
Do. do., 5 to 6 feet	60	0
Do. do., larger specimens each, 10s. to	63	0
CEDRUS LIBANI, Cedar of Lebanon, 3 ft.	42	0
Do. do. do., 6 feet .. .. .. each	7	6
Do. do. do., 10 to 12 feet each, 21s. to	42	0
CEPHALOTAXUS FORTUNEI, 2 feet ..	30	0
Do. do., 3 feet	42	0
CHAMÆCYPARIS SPHÆROIDEA VARIEGATA, 2 to 3 feet .. 24s. to	30	0
CRYPTOMERIA LOBBII, 3 feet	18	0
Do. do., 6 to 8 feet .. .. each, 3s. 6d. to	5	0
CUPRESSUS, Cypress, Common, 2 to 3 ft.	6	0
Do. do. LAMBERTIANA, 4 feet	18	0
Do. do. LAWSONIANA, 2 to 3 feet ..	12	0
Do. do. do., 3 to 4 feet	18	0
Do. do. do., 4 to 5 feet	24	0
Do. do. do., 5 to 6 feet	30	0
JUNIPERUS, Juniper, Irish, 3 to 4 ft., 18s. to	24	0
Do. CHINENSIS, Chinese, 2 to 3 feet ..	18	0
Do. do. do., 4 feet .. .. 30s. to	42	0
Do. do. do., 5 to 6 feet	60	0
Do. do. do., 6 to 8 feet .. each, 7s. 6d. to	10	6
Do. VIRGINIANA, Red Cedar, 3 to 4 feet	18	0
Do. do. do., 5 feet	30	0
Do. do. do., 6 to 9 feet .. each, 3s. 6d. to	7	6
Do., 20 other handsome sorts, 2 to 3 feet..	30	0
Do. do., 3 to 4 feet	42	0
Do. do., 5 to 6 feet	60	0
PICEA AMABILIS, 1½ foot .. .. each	10	6
Do. LOWII, 2 to 3 feet .. each, 10s. 6d. to	21	0
Do. NOBILIS, 1½ to 2 feet .. each, 5s. to	7	6
Do. do., 3 to 4 feet .. each, 10s. 6d. to	42	0
Do. do., larger specimens, each, £3 3s. to £5	5	0
Do. NORDMANNIANA, 1 foot	24	0
Do. do., 1½ to 2 feet	42	0
Do. do., 3 feet .. .. each	15	0
Do. do., 4½ feet .. .. „	21	0
Do. do., larger specimens, each, £2 2s. to £5	5	0
Do. PINSAPO, 2½ to 3 feet	60	0
Do. do., 4 feet .. .. each	15	0
Do. do., larger specimens each, 21s. to	105	0
PINUS AUSTRIACA, 3 feet	18	0
Do. do., 4 feet	24	0
Do. do., 5 feet	30	0
Do. BENTHAMIANA, 3 feet	24	0
Do. CEMBRA, 3 feet	30	0
Do. do., 4 feet	42	0
Do. do., 5 to 6 feet	60	0
Do. do., 8 to 9 feet .. each, 10s. 6d. to	15	0
Do. EXCELSA, 3 to 4 feet	30	0
Do. do., 4 to 5 feet	42	0
Do. do., 6 feet .. .. .. each, 5s. to	7	6
Do. do., larger specimens, each, 10s. 6d. to	21	0
Do. INSIGNIS, 2 to 3 feet .. .. each	1	6
Do. LARICIO CALABRICA, 4 to 5 feet..	24	0
Do. do., 6 to 7 feet	36	0
Do. do., 8 feet	60	0
Do. MACROCARPA, 3 feet	42	0
Do. do., 6 feet	60	0
Do. MONTICOLOR, 3 feet	42	0
Do. do., 4 feet	60	0
Do. PINEA, 3 feet	30	0
Do. PYRENAICA, 3 to 4 feet	30	0
Do. do., 5 feet	60	0
Do. SABINIANA, 3 feet	42	0
Do. do., 5 feet	60	0
Do. STROBUS, Weymouth Fir, 3 feet ..	12	0
Do. do. do., 4 feet	15	0
Do. do. do., 5 feet	18	0
Do. do. do., 6 feet	24	0
Do. do. NIVEA, Snow Pine, 7 to 9 feet, each, 21s. to	63	0
TAXODIUM DISTICHUM, 3 feet	18	0
TAXUS, Yew, Common, 2 feet per 100	40	0
Do. do. do., 3 feet	18	0
Do. do. do., 4 feet	30	0
Do. do. do., 5 feet	42	0
Do. do. do., 6 feet	60	0
Do. FAN, for hedges .. .. each, 2s. to	5	0
Do. Irish, 2 feet	12	0
Do. do., 3 feet	15	0
Do. do., 4 feet	21	0
Do. do., 5 feet	30	0
Do. do., 6 feet	42	0
Do. do., 8 to 9 feet .. each, 7s. 6d. to	10	6
Do. ELEGANTISSIMA, 1½ to 3 ft., 30s. to	84	0
Do., 20 best kinds, 2 to 3 feet..	30	0
Do. do., 3 to 4 feet	42	0
Do. do., 4 to 5 feet	60	0
Do. do., larger specimens, each, 7s. 6d. to	10	6
Do., Standard, variegated, 4 to 5 ft. stems, good heads .. .. each	21	0
THUJA ARBOR-VITÆ, American, 3 to 4 ft.	9	0
Do. do. do., 5 feet .. per 100, 75s.;	12	0
Do. do. do., 6 feet .. „ 100s.;	18	0
Do. do. Chinese, 3 ft., 12s. p. doz.; 4 to 6 ft.	30	0
Do. do. Variegated, 2 feet .. .. each	2	0
Do. do. WARREANA, 2 feet .. per 100	50	0
Do. do. do., 3 to 4 feet .. per 100, 100s.;	16	0
Do. do., 5 feet .. .. each	5	0
Do. do. GIGANTEA, 2 to 3 feet	24	0
Do. do. do., 4 feet	42	0
Do. do., 5 feet .. .. each	6	0
Do. do., 8 feet .. .. „	21	0
Do. AUREA, 1½ foot	18	0
Do. do., 2 feet	30	0
Do. do., 2½ feet	60	0
Do. do., 3 feet .. .. .. each, 5s. to	10	6
Do. COMPACTA, 2 to 3 feet	30	0
Do. do., 4 feet	42	0
Do. do., 6 feet .. .. each, 7s. 6d. to	10	6
Do. LOBBII, 2 to 3 feet	12	0
Do. do., 3 to 4 feet	15	0
Do. do., 4 to 5 feet	30	0
Do. do., 7 feet .. .. .. each, 5s. to	7	6
Do. JAPONICA, 3 feet	42	0
Do. do., 4 feet	60	0
Do. do., 5 to 6 feet .. each, 7s. 6d. to	10	6
Do. PYRAMIDALIS, 2 to 3 feet	9	0
Do. do., 4 feet	24	0

	Per dozen.—s.	d.
THUJA PYRAMIDALIS, 5 feet	30	0
Do. do., 6 feet	42	0
Do. do., 8 feet .. .. .. each, 5s. to	10	6
Do. NEPALENSIS, 3 feet	12	0
Do. do., 4 to 5 feet	30	0
Do. PLICATA, 2½ feet	24	0
THUJOPSIS BOREALIS, 2 to 3 feet ..	18	0
Do. do., 3 to 4 feet	24	0
Do. do., 4 to 5 feet	36	0
Do. do., 5 to 6 feet .. .. .. each	5	0
Do. do., 7 feet .. .. „	7	6
Do. DOLABRATA, 1 foot	42	0
Do. do., 1½ foot	60	0
Do. do., 1½ foot .. .. each, 7s. 6d. to	10	6
WELLINGTONIA GIGANTEA, 2 feet ..	30	0
Do. do., 3 to 4 feet .. each, 5s. to	7	6
Do. do., 5 to 6 feet .. each, 10s. 6d. to	21	0
Do. do., larger .. .. each, 42s. to	105	0

5. DECIDUOUS TREES and SHRUBS.

ACACIA, Common, 6 ft. stems, good heads	18	0
Do. MONOPHYLLA, 6 feet	12	0
Do. PYRAMIDALIS, 6 to 8 feet	12	0
Do. ROSEA, 2 to 3 feet	18	0
Do. do., 6 feet stems	30	0
Do. GLUTINOSA, 6 feet stems	18	0
ACER (MAPLE) NEGUNDO, 10 to 12 feet	30	0
Do. do. VARIEGATA, 3 to 4 feet	9	0
Do. do. do., 6 feet	18	0
Do. do. do., 4 to 6 feet stems	30	0
Do. Scarlet, 6 to 8 feet	18	0
Do. do., 8 to 10 feet	30	0
Do. Norway, 10 to 12 feet	18	0
Do. do., 14 feet	30	0
ALMONDS, 5 feet stems	18	0
ARALIA JAPONICA, 5 to 6 feet	18	0
ASH, MOUNTAIN, 10 to 12 feet	18	0
Do. FLOWERING, 10 feet	30	0
Do. MONOPHYLLA, 10 to 12 feet ..	30	0
Do. PYRAMIDALIS, 8 feet	18	0
Do. SPECTABILIS, 8 feet	18	0
BEECH, Purple .. .. 18s. to	42	0
BIRCH, Silver, 8 to 10 feet	18	0
BERBERIS, Purple, 3 to 4 feet	12	0
CARAGANA, 6 sorts, 4 feet stems	18	0
CATALPAS, 4 to 5 feet	12	0
CHERRY, Double Blossom, Dwarfs ..	12	0
Do. do., 5 feet stems	24	0
Do. AUCUBÆFOLIUS, 5 feet stems ..	30	0
Do., Var. Mahaleb, 4 to 5 ft. stems each	3	6
CHESTNUT, Horse, 8 feet	9	0
Do. do., 9 feet	12	0
Do. do., 10 feet	18	0
Do. Scarlet, 6 to 8 feet	18	0
Do. do., 8 to 10 feet .. .. 24s. to	42	0
Do. Variegated, 5 feet stems	30	0
CYTISUS, 6 sorts, 5 feet stems	18	0
ELM, English, 8 feet	9	0
Do. do., 10 feet	18	0
Do. Hertfordshire, 6 to 8 feet	12	0
Do. Huntingdon, 8 feet	9	0
Do., best sorts, 8 to 10 feet .. 12s. to	24	0
Do., WYCH, 12 feet	18	0
GLEDITSCHIA TRIACANTHOS, 5 feet stems	18	0
GYMNOCLADUS, 3 feet	12	0
KOLREUTERIA PANICULATA, 6 feet	12	0
LABURNUMS, 8 feet	9	0
Do., 10 feet	15	0
LEYCESTERIA FORMOSA, 4 feet	6	0
LILACS, Common, stout, 4 feet .. 9s. to	12	0
Do. Persian, 3 to 4 feet .. .. 9s. to	12	0
Do. do., 5 feet stems, fine heads, each, 2s. 6d. to	5	0
LIMES, Common, 8 feet	12	0
Do. do., 9 to 12 feet .. .. 18s. to	30	0
Do., 6 best sorts, 3 to 4 feet	12	0
NUT, Purple-leaved, 2½ to 3 feet .. 9s. to	12	0
OAK, Turkey, Standards, 8 feet	12	0
Do. do. do., 10 feet	18	0
Do. do. Variegated, 5 ft. stems, each, 3s. 6d. to	5	0
Do. do. Scarlet, 4 to 6 feet	9	0
PAULOWNIAS, 5 feet .. .. each	1	6
PAVIA RUBRA, 5 feet .. .. „	2	6
Do. FLAVA, 5 feet	2	6
PHILADELPHUS GRANDIFLORUS, 3 to 4 feet	6	0
PLANES, Occidental, 7 to 8 feet	12	0
Do. do., 9 feet	18	0
Do. do., 10 to 12 feet	30	0
Do. Oriental, 8 feet	18	0
POPLARS, Silver, 10 to 12 feet	18	0
Do. Lombardy, 10 to 12 feet	12	0
Do. Black Italian, 10 to 12 feet	12	0
Do. Laurel-leaved, 10 to 12 feet	18	0
Do. Ontario, 10 to 12 feet	18	0
Do., the above sorts, 5 to 6 feet per 100	30	0
PRUNUS, Double Sloe, Pyramids	18	0
Do. do., 4 to 5 feet stems	24	0
Do. TRILOBA, Dwarfs	12	0
Do. Cherry Plum, Dwarfs	12	0
Do. do., 5 feet stems	24	0
PYRUS ARIA, 6 feet	6	0
Do. SORBUS, Service Tree, 6 feet	9	0
Do. SPECTABILIS, 4 to 5 feet	12	0
Do. RINGO and TORINGO, 4 feet	12	0
Do. 12 sorts, Hybrids, beautiful foliage, 6 to 8 feet	18	0
RIBES SANGUINEUM, stout, 3 to 4 feet	9	0
ROBINIA INERMIS, 4 to 7 feet stems, 30s. to	42	0
SALISBURIA ADIANTIFOLIA, 3 to 4 ft.	30	0
SIBERIAN CRAB, 6 feet	12	0
SNOWBERRY, stout, 4 to 5 feet	9	0
SOPHORA JAPONICA, 5 feet stems	30	0
SPIRÆA, 20 sorts, 2 to 4 feet .. 6s. to	9	0
SYCAMORE, Common, 8 to 12 feet 9s. to	18	0
Do., Purple, 5 feet	9	0
SUMACH, Stag's Horn, 6 to 10 feet 9s. to	18	0
Do. Venice, 3 feet	12	0
THORNS, Single Scarlet, Double Pink, Double White, new Double Scarlet, and 30 other best varieties, 6 feet stems, fine heads .. .. .. 18s. to	24	0
Do., new Double Scarlet, plants, established in pots, well set with bloom for forcing .. .. each, 2s. 6d. to	3	6
Do., Standards and Pyramids .. each	2	6
TULIP TREES, 6 feet	18	0
VIRGILIA LUTEA, 5 feet	12	0
WEIGELIA ROSEA, 3 feet	9	0
WILLOW, Gold and Purple, 7 to 8 ft., per doz.,	9s.	
Collections of TREES and SHRUBS, selected from more than 1000 varieties, from 21s. per 100 upwards.		

6. WEEPING TREES.

	Each.—s.	d.
ASH, Common Weeping, 8 to 10 feet stems	3	6
Do. Chinese do., 6 feet stems	2	6
Do. Gold-barked do., 6 feet stems	2	6
Do. Mountain do., 8 feet stems	2	6
Do. do. Variegated do., 8 feet stems ..	2	6
ALMOND, Weeping, 5 feet stems ..	2	6
BIRCH, Cut-leaved, Weeping, 7 feet stems	2	6
CHERRY, Weeping, 5 feet stems	2	6
ELM, 6 best sorts, 5 to 12 ft. stems, 2s. 6d. to	7	6
HOLLY, Variegated, 6 ft. stems, 10s. 6d. to	21	0
LIME, 7 to 8 feet stems .. 2s. 6d. to	5	0
OAK, Turkey, 6 feet stems	5	0
POPLAR, Weeping, 10 to 12 ft. stems, 3s. 6d. to	7	6
WILLOW, Common Weeping, 6 to 8 ft., p. doz.	9	0
Do. do., 10 feet .. per dozen, 12s. to	18	0
Do. American do., fine, 5 to 6 ft. stems, p. doz.	12	0
Do. Kilmarnock, 5 to 6 feet stems	2	6
Do. WOLSEYANA, 5 to 6 feet stems ..	3	6

7. AMERICAN PLANTS.

	Per dozen.—s.	d.
ANDROMEDA FLORIBUNDA 18s. to	42	0
AZALEA PONTICA .. .. 12s. to	18	0
Do. GHENT varieties .. .. 18s. to	30	0
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Do. WILSONI .. .. .. 12s. to	30	0
Do., finest named sorts .. 30s. to	60	0

8. CLIMBING and WALL PLANTS, in pots.

	Each.—s.	d.
ALATERNUS, Gold, 2 feet	1	6
Do., Silver, 1 to 1½ foot	1	6
BIGNONIA RADICANS MAJOR	2	6
BUDDLEA GLOBOSA	1	6
CLEMATIS, 24 best sorts .. .. 1s. to	2	6
ELEAGNUS REFLEXA AUREA MACULATA, 2 feet	1	6
Do. PUNGENS VARIEGATA, 1 foot ..	2	6
ESCALLONIA MACRANTHA, 2 feet ..	1	6
Do. MONTEVIDENSE, 2 to 3 feet ..	1	6
Do. RUBRA, 2 to 3 feet	1	6
EUONYMUS JAP. AUREO-VARIEGATUS, 2 feet	2	6
Do. do. MARGINATUS, 2 feet ..	2	6
Do. do. MACROPHYLLUS, 2 to 3 feet ..	1	6
GUM CISTUS, 2 to 3 feet	1	6
GRISLINIA, 1½ foot	1	0
GARRYA ELLIPTICA	1	6
IVY, IRISH, 4 to 5 feet .. per dozen	9	0
Do., 20 best green sorts .. „	12	0
Do., 20 best variegated sorts .. „	18	0
JESSAMINE, White, 3 to 4 feet	1	0
Do. do. Variegated, 2 feet	1	6
Do. NUDIFLORUM, 3 feet	1	0
Do. REVOLUTUM, 2 feet	1	6
LONICERA (Honeysuckle), 12 best sorts, named .. .. .. per dozen, 6s. to	9	0
MAGNOLIA GRAND EXONIENSIS, 3s. 6d. to	7	6
PASSION FLOWERS .. .. 1s. to	1	6
PHOTINIA SERRULATA, 2 feet	1	6
PYRACANTHA .. .. .. 9d. to	1	6
PYRUS JAPONICA, White and Red, 9d. to	1	6
VINE, Purple-leaved	1	6
Do., Variegated .. 1s. 6d. to	2	6
VIRGINIAN CREEPER .. .. 9d. to	1	0
WISTARIA SINENSIS .. 1s. 6d. to	2	6

9. HERBACEOUS PLANTS.

Principally Spring-flowering.

	Per dozen.—s.	d.
ALYSSUM SAXATILE per 100, 20s.;	3	0
Do. do. VARIEGATA	6	0
ARABIS ALPINA .. per 100, 16s.;	3	0
Do. do. VARIEGATA	4	0
ARUNDO CONSPICUA .. .. each	1	6
Do. DONAX VARIEGATA, each, 1s. 6d. to	3	6
AUBRIETIA, of sorts .. .. .. 3s. to	8	0
DAISIES, of sorts .. per 100, 16s.;	3	0
HEPATICAS, of sorts .. .. .. 6s. to	9	0
HOTTEA JAPONICA .. each, 1s. to	1	6
GYNERIUM ARGENTEUM, „ 9d. to	1	6
Do. do. .. .. 6s. to	12	0
Do. do. VARIEGATUM each, 2s. 6d. to	5	0
LILY of the VALLEY .. per 100, 8s.;	1	0
MYOSOTIS SYLVATICA, p. 100, 12s. 6d.;	3	0
POLYANTHUS, of sorts .. .. 3s. to	6	0
PRIMROSES, of sorts .. .. .. 6s. to	12	0
PHLOXES, 30 best s

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 49.—1869.] SATURDAY, DECEMBER 4. {Price Fivepence. {Stamped Edition, 6d.

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Everlasting and Dried Natural Flowers.

JAMES CARTER, DUNNETT, AND BEALE'S WHOLESALE LIST of the above is now ready, and will be forwarded immediately on application.
237 and 238, High Holborn, London, W.C.

Established 1806.

T. HANDASYDE AND DAVIDSON have to intimate that their CATALOGUE of NURSERY STOCK is now ready, and will be forwarded on application.
Seed Warehouse: 24, Cockburn Street, Edinburgh.
Nurseries: Brunstain Glen, Musselburgh.

ALFRED LEGERTON, SEED MERCHANT, 5, Aldgate, London, E.C., begs to announce that his WHOLESALE CATALOGUE for the present season is now ready, and can be had upon application. Intending purchasers would do well to see this before ordering.

Pelargoniums, Carnations, Picotees, Pinks, Cloves, Auriculas, &c.

CHARLES TURNER can supply fine plants of the above. A CATALOGUE, containing select Collections of each, is now ready.
The Royal Nurseries, Slough.

Special Offer.—Madame Lemoine.

WILLIAM BADMAN offers strong Plants of this most beautiful of Double Pelargoniums, in single pots, 9s. per dozen. LORD DERBY, finest Pelargonium grown, 4s. per dozen. Package included. Terms cash.
Cemetery Nursery, Gravesend.

Pelargoniums for the Million.

JAMES HOLDER'S unrivalled Collection of French, Fancy, and Show varieties is now ready, at the following low prices:—100 plants, distinct sorts, for 50s.; 50 plants for 30s.; or 25 plants, distinct sorts, for 20s., hamper and package included.
Crown Nursery, Reading.

To the Trade.

GEORGE R. DAVIDSON, The Nurseries, Newry, Ireland, offers Two Acres of THORNS, 2-yr. old, 10 to 18 in.; 1,000,000 FOREST TREES; 40,000 COMMON LAUREL, transplanted, bushy plants, 1½ to 3 ft.; large lot PORTUGAL LAURELS, 2 to 3 feet. Samples sent on application.

Vines.

JAMES CARTER AND CO. can now offer strong, well-grown CANES, this year's growth. For description of Varieties and Prices, see AUTUMN CATALOGUE, now published.
JAMES CARTER AND CO., Seedsmen and Nurserymen, 237 and 238, High Holborn, W.C.

Vines, Five Shillings each.

LEWIS WOODTHORPE having an enormous stock, begs to offer strong Fruiting and Planting CANES of all the leading sorts, at 5s. each. L. W.'s system of packing saves nearly half the cost of carriage.
Munro Nursery, Sible Hedingham, Essex.

FRUITING VINES, warranted to fruit well this following season, of all the most approved kinds, from 5s. to 10s. 6d. each; ditto Planting Canes, 2s. 6d. to 3s. 6d. each.
J. PEED, Effra Nursery, Brixton, S.W.

Grape Vines.

B. S. WILLIAMS' stock is remarkably fine, and in good condition. Can supply all the best kinds. Prices on application.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

Pines.

B. S. WILLIAMS has all the best kinds, in splendid condition, warranted clean. Prices on application.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

Strong Fruiting Vines.

J. C. PADMAN has a splendid lot of the above, 5s. to 7s. 6d. each.
Providence Nursery, Boston Spa, Yorkshire.

THE EVERBEARING STRAWBERRY.—Plants of the above desirable Strawberry can be supplied at 7s. 6d. per 100. A CATALOGUE of New and Choice Plants and general Nursery Stock free.
L. WOODTHORPE, Munro Nursery, Sible Hedingham, Essex.

WANTED, 3000 CROWN BOB GOOSEBERRIES and 3000 BLACK CURRANTS, 2 and 3-yr. old, and COMMON HOLLY. State lowest cash price to
Messrs. TREMBLE, Nurserymen, Penrith.

To Orchard Planters and Market Gardeners.

PAUL AND SON beg to offer STANDARD WELLINGTON, BLENHEIM, and other leading APPLES; WILLIAMS, HAZEL, and BEURRÉ PEARS (sorts). Fine straight 6-feet stemmed Trees, in quantity, and at reasonable prices.
The Old Nurseries, Cheshunt, N.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LIST of these varieties from Mr. WEBB, Calcot, Reading.

TEN ORANGE and TWO LEMON TREES for SALE, height from 6 to 8 ft., with stems about 3 feet. For particulars apply to J. GIBSON, Jun., 29, Bridge Road West, Battersea, S.W.

STRONG CRABS, 20s. per 1000; THORN QUICKS, strong WYCH ELM, SPRUCE, and SCOTCH FIR, a sample 1000 for 10s.; LARCH, 1 to 1½ foot; WHEELERS' MILKY WHITE POTATO, 6s. per bushel.
Messrs. TREMBLE, Nurserymen, Penrith.

Mulberries.

SALTMARSH AND SON offer good STANDARD MULBERRIES, of various sizes. Price per dozen on application.
Moulsham Nurseries, Chelmsford.

Tree Ferns and Todea superba.

FOWLER AND CO., NURSERYMEN, Glasgow, have a few hundred TREE FERNS, from 2 to 16 feet high, and TODEAS, 1 to 4 feet across, all splendid plant. Prices moderate.

WANTED, HELEBORUS, of sorts; Double PRIMROSES; Single, White, and Double Blue HEPATICA, or other varieties of Spring blooming plants.
L. WOODTHORPE, Munro Nursery, Sible Hedingham, Essex.

PYRETHRUM AUREA (Golden Feather) and LOBELIA SPECIOSA.—Enough SEED of either to produce 500 Plants for 13 stamps. Price to the Trade on application.
CHARLES YOUNG, Balham Hill Nursery, London, S.W.

Wholesale Catalogue of Good Transplanted Nursery Stock.

GEO. JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1869-70 will be forwarded free on application. Woking Nursery, Surrey.

Planting Season.

THE SUBSCRIBERS announce that their PRICED LIST for the season may now be had on application.
WM. URQUHART AND SONS, Dundee.

EVERGREEN OAKS, 1-yr. Seedlings, in drills, fine quality, 12s. 6d. per 1000.
THOS. HORTON, Nurseryman, Bromham Road, Bedford.

Spruce Firs.

THOS. CRIPPS AND SON, NURSERYMEN, Tunbridge Wells, have a large Stock of the above in all sizes, from 1 to 10, 12 and 15 feet. Prices on application.

M. CROOK AND SONS have the following to offer, in fine healthy plants:—SPRUCE, 2 to 4 feet; ASH, 3 to 6 feet; WYCH ELM, 4 to 6 feet. Prices on application.
Walton le Dale, Preston.

Ten Thousand Laurustinus.

TOOLE AND CO., The Nurseries, Cullenswood, Ranelagh, Dublin, beg to offer a fine stock of the above, from 2 to 3 feet in height, which they can supply from 20s. to 30s. per 100.

FOR SALE, at a very low price, several Thousands of ENGLISH OAKS, from 4 to 6 feet, also from 6 to 9 feet. Clean and straight, with excellent roots.
W. ROSSITER, Nurseryman and Seedsman, Paington, Devon.

BLACKTHORN, BLACKTHORN.—2-yr. Seedlings, 3-yr. transplanted. Samples and price by applying to
JAMES BARKWAY, Nurseryman, Dereham, Norfolk.

WANTED, LARCH for cash, 3 and 4 feet. State lowest price to
S. RANDALL, West of England Seed Establishment, Exe Bridge, Exeter.

Fruit Trees and Evergreens.

SALTMARSH AND SON have a fine stock of extra strong STANDARD and TRAINED FRUIT TREES to offer, at reasonable prices. Also of large EVERGREENS of various kinds suitable for immediate effect. CATALOGUES and prices on application.
Moulsham Nurseries, Chelmsford.

The Roses of the Season are those of

PAUL AND SON, The "Old" Nurseries, Cheshunt, N.
PRICED DESCRIPTIVE LIST post free on application.

Splendid Roses.

TRY the SALISBURY ROSES.
CATALOGUES ready.
JOHN KEYNES, Castle Street Nursery, Salisbury.

Rose Catalogue.

JOHN CRANSTON'S ROSE CATALOGUE for 1869 is now ready, and will be sent post free on application.
The Nurseries, King's Acre, near Hereford.

Roses.

CHARLES TURNER'S DESCRIPTIVE and PRICED CATALOGUE of ROSES is now ready; it also contains full LISTS of FRUIT TREES, SHRUBS, CONIFERÆ, &c., and may be had post free on application.
The Royal Nurseries, Slough.

Paul's Rose Catalogue.

"A very complete and able Catalogue."—*Floral World.*

WM. PAUL begs to announce that his NEW CATALOGUE of ROSES is now ready, and will be forwarded post free on application. The stock of Plants is large and excellent.
Paul's Nurseries, Waltham Cross, London, N.

RICHARD SMITH'S ROSE LIST, containing all the leading and most popular kinds of Roses, may be had free by post.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

FIFTY THOUSAND TEA-SCENTED and NOISETTE ROSES, in pots, all the most popular and best kinds, at 9s. to 18s. per dozen. DESCRIPTIVE LIST on application.
RICHARD SMITH, Nurseryman, Worcester.

ROSES, 9s. per dozen, of the best sorts; stems about 1½ foot high. For cash only.
A. WILKIN, Tiptree, Kelvedon.

STANDARD ROSES, STANDARD ROSES.—A splendid lot of good headed plants of Maréchal Niel, Gloire de Dijon, and a general collection of the above. CATALOGUES on application to
J. C. PADMAN, Nurseryman, Boston Spa, Yorkshire.

ROSES.—Fine Hybrid Perpetual, best kinds, up to 1868, 16s. per dozen; Dwarf do., 8s. ROSES of 1869, in pots, 20s. per dozen, strong plants. COMMON LAURELS, 15s. per 100; strong HAWTHORN QUICK, 20s. per 1000, cash. Special prices for large quantities on application.
GEORGE DAVISON, White Cross Nursery, Hereford.

Manetti Stocks.

WM. PAUL has a few thousand MANETTI STOCKS, extra fine, to offer in the Trade. Price low, given on application.
Waltham Cross, London, N.

Special Offer to the Trade.

MANETTI STOCK, splendid stuff, for immediate working, 40s. per 1000.
CLIMBING ROSES, own roots, in variety, 25s. per 100.
WM. KNIGHT, Floral Nursery, Hailsham, Hurst Green, Sussex.

Gladioli—New Roses.

EUGÈNE VERDIER Fils Ainé, NURSERYMAN, 3, Rue Dunois, Paris, publishes in August and September of each year complete and descriptive CATALOGUES, with prices. They comprise all the finest and newest varieties of Gladioli, Pæonies, and New Roses. Gratis and post free on application.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.—Mr. WEBB, Calcot, Reading.

To the Trade.—Continental Flower Seeds, &c.

G. MACINTOSH, Agent to F. W. WENDEL, SEED GROWER, &c., Erfurt, Prussia, begs to announce that he is now receiving orders for the above. CATALOGUES free on application. High Road, Hammersmith, London, W.

EVERY GARDEN REQUISITE KEPT in STOCK at CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

Home-grown Agricultural and Garden Seeds.

H. AND F. SHARPE'S WHOLESALE CATALOGUE of HOME-GROWN SEEDS is now ready. The prices are very low, and the quality of the Seeds very fine.
Seed Growing Establishment, Wisbech.

To the Trade.

ASPARAGUS ROOTS.—A large quantity, of from 2 to 4-yr. old, strong Asparagus roots. No reasonable offer refused.
GEO. WINFIELD, Gloucestershire Seed Warehouse, Gloucester.

Asparagus Plants.—To the Trade.

JAMES CARTER AND CO. having grown a splendid lot of strong 3-yr. old plants, are prepared to make special quotations.
JAMES CARTER AND CO., 237 & 238, High Holborn, London, W.C.

The Earliest Pea known is

SUTTONS' RINGLEADER, price 2s. per quart. The best Pea for Market Gardeners is SUTTONS' IMPROVED EARLY CHAMPION. Lowest price per bushel on application.
SUTTON AND SONS, Seedsmen to the Queen, Reading, Berks.

To the Trade.

WINDSOR and LONG-POD BEANS, SANGSTER'S No. 1, and BADMAN'S IMPERIAL PEAS, &c., on offer, at advantageous prices.
FREDK. GEE, Seed Merchant and Grower, Biggleswade, Beds.

EARLY ROSE POTATO.—A few sacks of this extraordinary POTATO to offer to the Trade cheap. Also a few tons of RED CARROTS. For price, apply to
W. JACKSON, Blakedown Nursery, Kidderminster.

Early Rose Potato.

H. AND F. SHARPE have just imported a very true Stock of the above extraordinarily prolific POTATO, direct from one of the best growers in America; and are prepared to offer it to the Trade at a reduced price.
Seed-Growing Establishment, Wisbech.

Seed Potatos.

H. AND F. SHARPE'S WHOLESALE LIST of all the new and best varieties of Early and Late POTATOS is now ready, and may be had on application. The quality is very fine, and prices low.
Seed Growing Establishment, Wisbech.

KNAP HILL NURSERY,

WOKING, SURREY.

ANTHONY WATERER

Solicits the notice of intending Planters to the following LIST of specimen CONIFERS, &c., all of which he believes are as handsomely grown, as carefully managed, and as finely rooted as can be desired.

ABIES ALBERTUS, 5 to 9 feet, 30s. to 60s. per dozen. Transplanted April, 1869.
ABIES DOUGLASII, 6, 7, to 10 feet, 7s. 6d. to 10s. 6d. each. Transplanted August, 1868.
ABIES ORIENTALIS, 5, 6, and 7 feet, 7s. 6d. to 21s. Splendid plants, moved April, 1869, 10 to 12 feet high, 15 and 20 feet in circumference.
ABIES EXCELSA, the Common Spruce Fir, beautifully furnished, 5, 6, to 8 feet high, £5, £7 10s., to £12 10s. per 100.
The dwarf varieties of Spruce, such as pumila, pygmæa, Gregorii, Clanbraziliana, &c., large numbers, many of them 20 and 30 years' growth.
CEDRUS DEODARA, 5 to 6 feet, 60s. per dozen; 7 to 8 feet, 84s. per dozen; 10 to 12 feet, 10s. 6d. to 21s. each, and upwards. We have several thousands of these large Deodars. All have been removed since August, 1868: many since April, 1869.
CEDRUS ARGENTEA, 6 to 7 feet, 42s. to 60s. per dozen; 8 to 10 ft., 7s. 6d. to 10s. 6d. each. All removed since September, 1868.
CEDRUS LEBANON, 6, 7, to 10 feet. Moved September, 1868.
CUPRESSUS LAWSONIANA, 6 to 7 feet, 30s. to 42s. per dozen; 8 to 10 feet, 5s. to 10s. 6d. each.
" " ARGENTEA, 3 and 4 feet, and as much in circumference, 7s. 6d. to 10s. 6d. each.
" " GRACILIS, 4 to 5 feet high, and 7 and 8 feet round, 7s. 6d. to 21s.
JUNIPER, CHINESE, 4 to 5 feet, 42s. per dozen, £15 per 100; 5 to 6 feet, 60s. per dozen, £20 per 100; 7 to 8 feet, 7s. 6d. to 10s. 6d. each. All removed since August, 1868. Purchasers may select from a stock of many thousands of this fine plant, 5 to 8 ft. high.
PICEA NOBILIS, hundreds of splendid specimens, 5, 6, 7, to 10 ft. high, all recently removed, and are undoubtedly the finest plants to be found in any Nursery. None are grafted.
PICEA NORDMANNIANA, 5, 6, to 8 feet, 21s. to 42s. each, and upwards. Splendid plants, moved August, 1868, 10 to 15 ft. high.
PICEA LASIOCARPA.—Hundreds of most beautiful plants, 4, 5, 6, 8, and 9 feet high. All removed 1868-69.
PICEA MAGNIFICA, 3, 4, and 5 feet.
PICEA PINSAPO, 4, 5, 6, and 8 feet, 21s. to 63s. each. Some grand plants, 10 to 15 feet high, transplanted April, 1869.
THUJA AUREA, beautiful specimens, 3, 4, 5, and 6 feet high; 10 to 20 feet in circumference. This plant originated in this Nursery, and our stock is unsurpassed.
THUJA GIGANTEA, 5, 6, to 12 feet high. Moved August, 1868.
THUJA LOBBII, 8 to 14 feet high, and as much in circumference; transplanted April, 1869.
THUJOPSIS BOREALIS, 5 to 6 feet, 7 and 8 feet round; 42s. to 60s. per dozen; 7 to 8 feet, 7s. 6d. to 10s. 6d. each. All removed since August, 1868.
WELLINGTONIA GIGANTEA, 4 to 5 feet, 7s. 6d. to 10s. 6d. each; 6, 7, 8, and 9 feet, 21s. to 42s. each. Transplanted in August.
PINUS AUSTRIACA, 3 feet, £5 per 100. Transplanted, Sept. 1868.
PINUS CEMBRA, 8 to 10 feet, 10 to 12 feet round, 10s. 6d. to 21s. each.
YEWS, the COMMON ENGLISH, 4, 5, 6, 7, 8, 10, and 12 feet high. Thousands, all constantly removed; invaluable where immediate effect is sought.
YEWS, GOLDEN and ELEGANTISSIMA.—We have these in large numbers, and of all sizes, as pyramids, globes, and worked as standards, with from 3 to 5 feet of gold, and up to 10 feet high.
YEWS, IRISH, handsome plants, up to 10 feet high.
HOLLIES.—The stock of Hollies at this Nursery is, we believe, the finest to be met with in Europe; it comprises, as well as ordinary sizes, together, many thousands of the following varieties:—
HOLLY, VARIEGATED SILVER and GOLD, of sorts, 4 to 10 feet.
HOLLY, GOLDEN QUEEN, magnificent plants, 4 to 8 feet high, and as much in circumference.
HOLLY, SILVER QUEEN, 4, 5, and 6 feet.
WATERER'S HOLLY.—This variety originated in this Nursery; we have hundreds 4, 5, and 6 ft. high, 10 and 15 ft. circumference.
PERRY'S WEEPING HOLLY.—Standards, 10s. 6d. to 21s. each.
HOLLY, COMMON WEEPING.—The finest specimens we have seen. Moved, April, 1869.
HOLLY, COMMON GREEN, 4, 5, 6, 7, 8, 10 to 14 feet high, by the thousand. All moved since April, 1868.
HOLLY, Green varieties of the following kinds. An immense stock of splendid plants, all transplanted in 1868-9:—
LAURIFOLIA and SCOTTICA, 4, 5, 6 to 10 feet high.
HODGINS' YELLOW BERRIED, | ANGUSTIFOLIA, | MYRTIFOLIA, &c. 4, 5, 6, and 8 feet high.
STANDARD, WATERER'S and GOLDEN QUEEN HOLLIES, 4 to 6 feet stems, with heads 6 to 10 feet in circumference. A large number.
N.B.—Purchasers of Hollies may select from a stock occupying at the present moment considerably over 6 acres of ground; finer or better rooted plants cannot be wished or obtained. The prices are fair and reasonable.
BOX, Green and Variegated, 4, 5, 6, to 8 feet.
BOX, do. do., fine pyramids, up to 8 feet.
BAYS, standards and pyramids.
LAURUSTINUS, standards.
AUCUBA JAPONICA, thousands of beautiful plants, all moved 1868, 3 and 4 feet high.
AUCUBA JAPONICA, Berried, hundreds, 1½ to 4 feet high; in the open ground and in pots, from 18s. to 120s. per doz. and upwards.
AMERICAN PLANTS.—The Stock of American Plants at Knap Hill is, we believe, as fine as, and more extensive than, anything of its kind to be met with in England, considerably over 50 acres of land being devoted to their cultivation. We shall be pleased to supply—
RHODODENDRONS, nice bushy plants, from layers, named kinds, £5 per 100, £40 per 1000. A dozen sent as sample on application.
RHODODENDRONS, the finer kinds, by name, from £7 10s. to £12 10s. per 100, and upwards.
RHODODENDRON PONTICUM, good plants for Cover, from £10 to £15 per 1000.
STANDARD RHODODENDRONS.—Of these we possess a large number of the oldest and finest specimens in the country, many being from 20 to 30 years old, with heads varying from 15 to 20 feet in circumference. There is probably no kind better adapted for standards than that we call roseum elegans, many of which we supplied to Rotten Row. We have also Rhododendrons, standards, of many other kinds.
RHODODENDRONS, fine hybrids, of good hardy habit, and great variety in colour, from £5 to £12 10s. per 100. Sample on application. Large and handsome plants by the 1000, 4 to 8 feet high.
AZALEAS, fine very best kinds, nice plants, £10 per 100, upwards.
AZALEAS, common kinds, £5 per 100.
AZALEAS, splendid plants, of the finest varieties, 3, 4, 5, and 6 feet high, and as much in circumference.
KALMIA LATIFOLIA, nice plants, bushy, healthy, and covered with bloom, £5 to £10 per 100.
ANDROMEDA FLORIBUNDA, £5 to £7 10s. per 100, and upwards.
HARDY HEATHS, a very fine collection, every plant a specimen, and all removed in bud, from 20s. to 40s. per 100.
ERICA CARNEA, for winter blooming, many thousands.
ERICA MEDITERRANEA ALBA, remains in bloom from October to May, and stands like snow-mown bay—indispensable for Winter Gardening.
SKIMMIA JAPONICA, nice healthy plants, moved April, 1869, covered with berries, 12s. to 18s. per dozen.

As well as the above, the Knap Hill Nursery contains upwards of 200 Acres of ordinary NURSERY STOCK of a superior class, such as Flowering Shrubs (Deciduous and Evergreen), Roses, Ornamental Trees for Avenues, &c.

A PRICED and DESCRIPTIVE CATALOGUE will be forwarded on application. Purchasers to any extent are strongly recommended to make a personal inspection of our stock, and obtain the prices on the spot. No Catalogue can fairly describe many of the plants we offer.

The Nursery is readily reached by train from Waterloo to Woking in 40 minutes.

N.B.—There is now no difficulty in sending Plants through in the same truck, without package, from Woking to almost any Railway Station in England.

SUNNING DALE NURSERY,

BAGSHOT, SURREY.

Five minutes' walk from Sunning Dale Station, South-Western Railway.

CHARLES NOBLE

Invites special attention to the select PLANTS and TREES he has to offer, which will be found in quality unsurpassed, in PRICE lower than most other houses.

CATALOGUES should be written for by ALL INTENDING PLANTERS.

ROSES.

ROSES.—A large number of HYBRID, PERPETUAL, BOURBON, and NOISETTES.
" TEAS, fine plants in pots.

RHODODENDRONS.

RHODODENDRONS.—One of the most select and extensive collections of named kinds extant.
" SEEDLINGS, from finest varieties.
" SEEDLING, HYBRID CATAWBIENSE.
" PONTICUM, for cover planting.
" STANDARDS, fine specimens. In fact, Rhododendrons of all colours, all sizes, and all prices.

SKIMMIA JAPONICA, covered with berries.
ERICA CARNEA, in any quantity, beautiful plants.
COMMON and COLCHIC LAURELS, 18 to 24 inches, 15s. per 100 24 to 36 inches, 18s. per 100.
PORTUGAL LAURELS, 36 to 60 inches, specimens as far through as high.
VIOLETS, in 12 best varieties, 18s. per 100.
" established in pots for winter flowering, 25s. per 100.

FRUIT TREES.

PEACHES and NECTARINES, maiden and dwarf-trained.
PLUMS, PEARS, and CHERRIES, maiden and dwarf-trained.
APPLES, PEARS, PLUMS, and CHERRIES, standard, pyramid, and dwarf.
These are remarkably healthy and good, and the selection very carefully made.

CONIFERS.

ARAUCARIA IMBRICATA, 1 to 10 feet, fine specimens.
ABIES DEODARA, 1 to 10 feet, fine specimens.
" DOUGLASII, 1 to 10 feet, fine specimens.
" GRANDIS, 1 to 10 feet, fine specimens.
" LASIOCARPA, 1 to 10 feet, fine specimens.
" MAGNIFICA, 1 to 10 feet, fine specimens.
" MENZIESII, 1 to 10 feet, fine specimens.
" NOBILIS, 1 to 10 feet, fine specimens.
" NORDMANNIANA.—Of this last (perhaps the most magnificent tree in the world) an unusually fine stock, from 3 to 5 feet, are offered. For AVENUES this would be invaluable, and the facilities here offered can scarcely be overrated.
CUPRESSUS LAWSONIANA, 2 to 10 feet.
THUJA GIGANTEA, 2 to 10 feet.
" LOBBII, 2 to 10 feet.
THUJOPSIS BOREALIS, 2 to 10 feet.
CUPRESSUS LAWSONIANA ERECTA. — Perfect columns, 6 to 10 feet. These plants are believed to be unequalled in any other establishment.

SPECIAL OFFER.

To Gentlemen, Builders, and others engaged in large planting operations.

DECIDUOUS FLOWERING SHRUBS and TREES, 3 to 6 feet, 42s. per 100.
CONIFERS, in variety, 1 to 2 feet, 50s. per 100.
" " 2 to 3 feet, 75s. per 100.
" " 3 to 4 feet, 100s. per 100.
" " 4 to 5 feet, 130s. per 100.
" " 5 to 6 feet, 150s. per 100.

CHRISTMAS TREES.

Extra fine, 2 to 5 feet, splendidly grown.
50,000 to select from.

The Sunning Dale Nurseries are easily reached from any part of England, being close to the Sunning Dale Station, South-Western Railway.

Purchasers will find their time saved by visiting this Establishment to select for themselves, but all Orders receive the most careful personal attention of the Proprietor; and he would here mention that an advertisement can give but a faint idea of the subject on which it treats.

All interested are invited to write for a CATALOGUE, pay a Visit, or send an Order, and their interest will be studied.

BAGSHOT.—November, 1869.

THE AMERICAN NURSERY,

BAGSHOT, SURREY.

Near Sunning Dale Station, South-Western Railway.

JOHN WATERER & SONS

Respectfully invite the attention of Gentlemen and Planters to the undernamed selections from their general stock; every plant may be depended upon as in the best order possible for removal, having been transplanted within the last season.

ARAUCARIA IMBRICATA, grand specimens, 4 to 6 to 8 to 12 feet.
CUPRESSUS LAWSONIANA, 3 to 4 to 6 to 10 feet.
" LAWSONIANA ARGENTEA (JOHN WATERER'S var.). — By far the most desirable of all the glaucous varieties, 5s. to 7s. 6d. each.
" MACROCARPA, 4 to 6 feet, 42s. per dozen.
THUJA AUREA.—Beautiful plants, about 2 feet, 42s. per dozen; larger, 5s. to 21s. each.
" GIGANTEA.—An unequalled stock of hundreds of Seedlings, 4 to 6 to 8 feet, 3s. 6d. to 63s. each.
We would remark, that unless plants are on their own roots of this fine Thuja they are quite worthless.
THUJOPSIS BOREALIS, 3 to 4 feet, 30s. per dozen; extra fine, 5 to 6 and 7 feet, 5s. to 10s. 6d. each.
" DOLABRATA.—Fine plants, 5s. to 7s. 6d. each.
" " VARIEGATA, 5s. to 7s. 6d. each.
WELLINGTONIA GIGANTEA. — Good plants, 30s. per dozen; 2 to 3 feet, 42s. to 60s.; larger, up to 10 feet, 7s. 6d. to 63s. each.
ABIES NOBILIS, 2 to 3 feet, 21s. each; larger, 4 to 5 feet, 42s.
" NORDMANNIANA, 2 to 3 feet, 7s. 6d. to 10s. 6d.; 3 to 4 feet, 21s.; 4 to 8 to 12 feet, 31s. 6d. to 105s. each.
" LASIOCARPA, 3 to 4 to 5 feet, 10s. 6d. to 42s. each.
" GRANDIS, 4 to 5 to 6 and 10 feet, 10s. 6d. to 63s. each.
" PINSAPO, 2 to 3 feet, 5s.; 3 to 5 to 8 feet, 7s. 6d. to 63s.
" DOUGLASII, 3 to 4 feet, 42s. per dozen; 4 to 6 to 10 feet, 5s. to 21s. each.
" MAGNIFICA, 3 to 4 feet, 31s. 6d. to 42s.
" ORIENTALIS, 3 to 5 to 8 feet, very beautiful examples, 21s. to 63s. each.
CEDRUS DEODARA, 2 to 3 feet, 30s. per dozen; larger, up to 12 feet
YEWS, COMMON.—Immense quantities, 2 to 3 to 4 to 6 feet, from 18s. to 60s. per dozen.
" IRISH.—Perfect columns, up to 12 feet.
" GOLDEN, as Standards on Irish stems, perfect globes, 31s. 6d. to 42s. each.
HOLLIES, GREEN COMMON.—Many thousands, of all sizes, from 1 foot up to 10 feet.
" the best GOLDEN, WATERERS', and SILVER varieties, in any quantity, and of all sizes.
STANDARD HOLLIES, GREEN, 10s. 6d. to 21s. each.
" " WATERERS' variety, many hundreds of symmetrically grown specimens, perfectly straight stems, 42s. to 105s. per pair.
" WEEPING, GREEN, and SILVER VARIEGATED, fine plants, from 21s. each.
" PORTUGAL LAURELS.—Very close grown handsome plants, 10s. 6d. to 21s. each; very large imposing specimens, 42s. to 63s. each.

AMERICAN PLANTS.

Of this very popular tribe of plants we have the pleasure of observing that our stock is unequalled, and that it is from our Establishment that nearly all the approved crimson varieties of Rhododendrons have emanated. The Grand Exhibition of Rhododendrons annually displayed at the Royal Botanic Gardens, Regent's Park, has been for the past 20 years supplied from our Nursery.

RHODODENDRON PONTICUM, for undercover or shrubberies, strong established plants, £10 10s. per 1000; larger, 25s. to 63s. per 100.
" CATAWBIENSE and HYBRIDS, bushy well-grown plants, 50s. to 75s. per 100.
" better class (SEEDLINGS) and named varieties for extensive planting, £5 per 100.
" of superior kinds, many on own roots, £7 10s. to £10 per 100.
" very superior, leading, crimson, rose, white, £12 10s. to 0 per 100.
" STANDARD and HALF-STANDARD, of the most imposing varieties, of all shades of colour, from 21s. to 63s. to 105s. each.
AZALEAS, common kinds, 50s. to 75s. per 100.
" very best, in fine plants, £10 per 100.
KALMIA MYRTIFOLIUM, very handsome, 30s. per dozen.
" LATIFOLIA, 18s. to 30s. per dozen.
ANDROMEDA FLORIBUNDA, fine plants, 18s. to 42s. per dozen.

We have likewise immense quantities of the leading kinds of

EVERGREENS OF ALL SIZES,

SUCH AS

AUCUBAS, BAY, BOX, LAURUSTINUS, COMMON and PORTUGAL LAURELS, ARBOR-VITÆ, PHILLYRÆA, &c.

As well as **FOREST TREES,** 2 to 3 and 4 to 5 feet,

CONSISTING OF

ASH, BIRCH, BEECH, HAZEL, SPANISH CHESTNUTS, ALDER, SPRUCE, PINUS AUSTRIACA, &c.

From the immensity of our stock, we are enabled to treat on most liberal terms, and Purchasers are recommended in every practicable case to visit and choose for themselves, it being an impossibility to adequately describe by advertisement.

CATALOGUES, describing faithfully the colours of Rhododendrons, with height and prices, will be forwarded on application.

Purchasers of large quantities are informed that Goods can be forwarded from Sunning Dale to all parts of England in through truck, thereby causing a great saving in transit as well as diminishing the cost of package.

THE AMERICAN NURSERY,
BAGSHOT, SURREY.

ROSES.

"The Roses of Mr. PAUL * * * are things to see once and dream of for ever."—*Athenæum.*

WILLIAM PAUL

HAS AS USUAL A MAGNIFICENT STOCK OF ROSES,

For which he respectfully solicits Orders.

STANDARDS and HALF-STANDARDS, sound healthy heads and clear straight stems, well varied, 18s. per doz., £6 10s. per 100
STANDARDS and HALF-STANDARDS, ditto, ditto, very superior sorts, 24s. per dozen.
DWARF STANDARDS, fine sorts, 12s. to 18s. per dozen, £5 per 100.
DWARFS, well varied and good sorts, 9s. to 18s. per dozen, 60s. to 100s. per 100.
,, new sorts, 24s. to 36s. per dozen.
DWARFS, mixed summer kinds, for borders or shrubberies, 30s. per 100.
CLIMBING ROSES, in variety, 9s. to 12s. per dozen.
EXTRA-SIZED ROSES, in pots, for forcing or greenhouse culture, 24s. to 42s. per dozen.
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STANDARD and DWARF ROSES of all the finest and most effective sorts for bedding, massing, or forming a Rosarium, at special and reduced rates, by the 100 or 1000.

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PRICED DESCRIPTIVE CATALOGUES Free by Post.

IMPORTANT.—ADDRESS, WM. PAUL, PAUL'S NURSERIES AND SEED WAREHOUSE, WALTHAM CROSS, LONDON, N.

RHODODENDRONS, FINEST NAMED VARIETIES.

MESSRS. VEITCH & SONS

Beg to announce that they have a splendid STOCK of the above, well set with flower-buds, and are enabled to offer beautiful Plants, 1½ to 2 feet high, suitable for Forcing or Planting in Beds, at 30s. to 42s. per dozen.

MESSRS. VEITCH AND SONS have a large STOCK of named sorts in other sizes, as also of

HYBRIDS AND PONTICUM RHODODENDRONS,

And will be happy to send samples and quote sizes and prices by the Hundred or Thousand.

ROYAL EXOTIC NURSERIES, CHELSEA; and COOMBE WOOD, KINGSTON, S.W.

FRUIT TREES OF EVERY DESCRIPTION.

WILLIAM ROLLISSON & SONS

BEG RESPECTFULLY TO ANNOUNCE THAT THEIR

NEW CATALOGUE OF HARDY AND ORCHARD-HOUSE FRUITS

Is now published, which contains a full and Descriptive List of all the Popular Favourites in Cultivation, together with additions of most of the Novelties, worthy of merit, of the season; and will be forwarded, Gratis and Post Free, on application to

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EARLY SANDRINGHAM KIDNEY POTATO.

THE EARLIEST, MOST PROLIFIC,

AND BEST VARIETY FOR FORCING PURPOSES IN CULTIVATION.

Price to the Trade and further particulars may be had on application to

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THE ROSES OF THE SEASON ARE THOSE OF

PAUL & SON,

THE "OLD" NURSERIES, CHESHUNT, N.,

HAVING GAINED THE PAST YEAR

FIFTY OF THE LEADING PRIZES FOR POT AND CUT ROSES.

They beg to submit Prices as under, and to solicit early Orders—

STANDARD ROSES, all leading show kinds, 18s. to 24s. per dozen.
STANDARD ROSES, new, of last two seasons, 24s. to 42s. per dozen.
DWARF STANDARDS, a most useful form, 12s. to 18s. per dozen.
DWARFS, strong bushy plants of H.P. and Bourbon on Manetti, 12s. to 18s. per dozen.
DWARF TEA ROSES (all in pots), in 48's, 15s. to 18s. per dozen.
DWARF TEA ROSES, extra size, in 32's, 30s. per dozen; in 24's, 42s. per dozen.
DWARF NEW ROSES of 1869, 30s. to 36s. per dozen.

Half Specimen Roses, in pots, 7s. 6d. to 15s. each; a few Full Specimens, 21s. to 100s. each.

Carefully prepared CATALOGUE post free on application.

British Fern Catalogue.

ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
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ADAM FORSYTH begs to inform his Friends and the Public that his Specimen and other CHRYSANTHEMUMS are unusually fine this season, and may be seen every day (Sundays excepted). A visit is respectfully solicited.
Brunswick Nursery, Stoke Newington, N.

New Japanese and other Chrysanthemums.

JOHN SALTER AND SON beg to announce that the CHRYSANTHEMUMS are unusually fine this season. Their large Collection, NOW in BLOOM in the Winter Garden, may be seen throughout the months of November and December, every day except Sunday. Admittance free.
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New Chrysanthemums.

H. CANNELL has now a splendid Stock of 217 varieties, consisting of all the New, and best older varieties in cultivation, and will supply them either as Cuttings or Rooted Cuttings, or Potted Plants, at the very lowest price consistent with quality and economy.
See H. C.'s FLORAL GUIDE, giving particulars how to grow the Japan and other varieties. Other kinds are classed according to what they are best adapted for, and a great deal of other valuable information, including the Second Chapter on the Art of Gardening and the Natural Requirements of Plants. Free for Four Stamps.
New Florist Flower and Florist Flower Seed Merchant, Woolwich.

Choice Seeds.

HOOPER AND CO. beg to state that all TENDERS of CHOICE and RARE EXOTIC SEEDS of the present year, from any part of the world, must be submitted to them if possible before DECEMBER 31.
HOOPER AND CO., Seed Merchants, Covent Garden, London, W.C.

Lilium auratum.—To the Trade and Others.

HOOPER AND CO. expect to receive very fine Bulbs of the above, viâ the New Pacific Railway, due about January next. They are collected by a Person thoroughly acquainted with their requirements, and will doubtless arrive in the best condition. They will be in London in about 55 to 60 days from their native soil. Orders now booked, and persons requiring them will oblige by sending their orders without delay. Prices on application.
HOOPER AND CO., Covent Garden, London, W.C.

Lilium auratum,

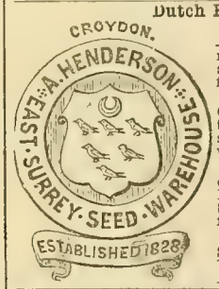
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MR. WILLIAM BULL can supply good Bulbs at 2s. 6d. each, or 24s. per dozen; 3s. 6d. each, or 36s. per dozen; 5s. each, or 50s. per dozen. A few extraordinary Bulbs, at 7s. 6d. and 10s. 6d. each.
L. LANCIFOLIUM RUBRUM, immense Bulbs, 3s. 6d. each, or 36s. per dozen.
L. LANCIFOLIUM ALBUM, immense Bulbs, 2s. 6d. each, or 24s. per dozen.
Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

Arrival of Bulbs.

BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.
CATALOGUE containing much additional valuable information now ready, and on application sent free to the Readers of the *Gardeners' Chronicle*. BULBS for Early Flowering now ready to send out, of first-class quality.

Dutch Flower Roots.



ARCHIBALD HENDERSON begs to announce that he has received a large Consignment of Dutch and other Roots, carefully selected from the most celebrated growers.
DESCRIPTIVE and PRICED CATALOGUES are now ready, containing practical directions for their successful cultivation on all the various systems now adopted.
Also a CHOICE and SELECT LIST of VEGETABLE and HARDY FLOWER SEEDS for Autumn Sowing. Catalogues gratis and post free upon application.
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JAMES CARTER AND CO. have a beautiful Stock of Seedlings, in excellent condition, of their choicest Strains of CALCEOLARIA, CINERARIA, and PRIMULA, in 60-pots, fit for potting-on immediately for early Spring Blooming. Worthy the attention of those who have omitted to sow at proper time. Price, 21s. per 100, 3s. per dozen.
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MESSRS. PAMPLIN AND SON, Lea Bridge Road, Leyton, Essex, owing to the bad weather on Monday and Tuesday last—the days of Sale by Auction, at their Nurseries as above—can offer Bargains to any one requiring fine EVERGREENS, who may favour them with a visit, as the ground must be cleared before Christmas.

The Present Time is most favourable for Planting.

GEORGE JACKMAN AND SON'S Hybrid and Hardy CLEMATISES awarded Twenty First-class Certificates and Two Specials. A Set of Five Engravings, from Photographs taken at Woking Nursery, and a general DESCRIPTIVE CATALOGUE of prices will be forwarded by enclosing two stamps.
FIRST-CLASS HARDY and PERMANENT PLANTS.
Engraving No. 1. For Conservatories, Terraces, &c.
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GEO. JACKMAN AND SON, Woking Nursery, Surrey.

Cheap, Cheap, Cheap.

JOHN BARRETT begs to offer his strain of HERBACEOUS CALCEOLARIAS at the following low prices:—In small pots, 4s. per doz., 25s. per 100; from pans, free by post, 2s. per doz., 12s. 6d. per 100.
The following choice GERANIUMS:—
LADY CULLUM, 6s. per dozen, 45s. per 100.
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BEAUTY of OULTON, 3s. 6d. per dozen, 25s. per 100.
Fine healthy plants, package included.
St. John's Nursery, Bury St. Edmund's.

Fruit Trees.

J. LE CORNU, NURSERYMAN, SEEDSMAN, and FLORIST, begs to inform his Friends and the Public that he has this season to offer an immense quantity of beautiful and well-grown FRUIT TREES, all of the best leading varieties, such as Apples, Apricots, Peaches, Nectarines, Pears, Plums, and Cherry Trees, as Dwarf, Trained, and Standards, 4 to 6 feet stems.
CATALOGUE on application.
High View Nurseries, Mont a l'Abbé, St. Helier's, Jersey.

French Roses.—To Florists and Nurserymen.

LÉVÊQUE ET FILS, 132 and 134, Boulevard de l'Hôpital, Paris, beg to state that they have a large Stock of strong Dwarfs of the best sorts of ROSES employed in Paris for the Market Flowers, such as Jules Margottin, Triomphe de l'Exposition, Du Roi, Sénateur Vaisse, Baronne Prevost, Mdme. Boll, Gloire de Dijon, Charles Margottin, &c. Prices, 38s. per 100, and £16 per 1000. Also Dwarfs of all good sorts (their choice), £2 per 100, £16 per 1000. TEA Sorts, NEW ROSES, and others. See previous Advertisements.

Golden Champion Grape.

OSBORN AND SONS can supply good CANES of the above-named remarkable GRAPE, which has again been exhibited and very much admired, fully sustaining the high character previously formed of it. Price 10s. 6d., 21s., and 30s. each.

Fulham Nursery, London, S.W.

EXTRA STRONG FRUITING VINES.—2000 close-jointed thoroughly ripened Canes can be supplied of Black Hamburgh, Golden Champion, Mrs. Pince, and other varieties, for fruiting in pots and for planting. Descriptive CATALOGUE upon application.

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THOMSON'S WHITE LADY DOWNE'S GRAPE.—Plants of this remarkable White Grape, the latest keeping in cultivation, are now being sent out. The Canes are strong and thoroughly ripened. Immediate orders are respectfully requested. Price 21s., 42s., and 63s. each.

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Vines.

CHARLES TURNER can supply

GOLDEN CHAMPION	
MADRESFIELD COURT	MRS. PINCE, and
BLACK MUSCAT	ROYAL ASCOT

In Fruiting Canes, or second size for planting out; also the established old varieties, in fine plants.

The Royal Nurseries, Slough.

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JOHN KEYNES has for several years grown some of the finest VINES in the Trade. He has not been in a position to offer any until this season. They are all of only one year's growth, from the eye, never having been cut down, as is often the case. These Vines will always insure a crop; they are best adapted for planting, never having been checked in their growth.

They comprise all the leading varieties, and are now fit for immediate forcing, being well ripened to the top. LISTS will be forwarded on application.

Castle Street Nursery, Salisbury.

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Four Under Gardeners at Studley Royal ..	0	6	6
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Mr. W. Dean, Southwark Street	1	1	0
Mr. C. Deavin, Gr., Porter's Park, Barnet	1	1	0
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Four Under Gardeners at Grimston Park ..	0	7	0
Mr. A. Dickson, Covent Garden	0	10	6
Mr. Donaldy, Royal Exotic Nursery ..	1	1	0
Mr. J. Douglas, Gr., Loxford Hall	1	1	0
Mr. J. Douglas, Gr., Kilkea	1	0	0
Mr. H. Downing, Hawkstone Gardens	0	10	6
Mr. W. Durey, Gr., Hothfield Place, Ashford ..	0	10	0
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Messrs. F. Farrell & Sons, Nurserymen, Dublin .	1	0	0
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Mr. T. Featherstone, Gr., Woolbeding House	0	5	0
Mr. D. T. Fish, Gr., Hardwicke House ..	1	1	0
Mr. Fitzgerald, Gr., The Manor, Loughgall ..	0	5	0
Mr. Ford, Gr., Wrest Park	1	1	0
Mr. F. Fowler, Gr., Ravensdale Park ..	1	1	0
Mr. J. Fowler, Gr., Harewood House ..	1	1	0
Three Under Gardeners at Harewood Gardens	0	12	6
Mr. R. Fowler (per Mr. Culverwell)	0	10	0
Mr. R. Frost, Bakewell	0	2	6
Mr. H. Gadd, Gr., Wollaton Hall	1	1	0
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The Under Gardeners at Sandbeck Park ..	0	15	0
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The Under Gardeners at Alnwick Castle ..	0	15	6
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Mr. S. James, Gr., Patshull, Wolverhampton	1	1	0
Mr. A. Jamieson, Gr., Hooton Hall, Chester.	1	1	0
Three Under Gardeners at Hooton Hall ..	0	7	6
Mr. Jobson, Foreman, Rosebank House Gdns.	0	10	0
Mr. A. Johnson, Gr., Savernake Forest ..	1	1	0
Mr. W. Johnstone ..	0	1	0
Mr. J. Jones, Gr., Petworth	1	1	0
Foremen and Under Grdrs. at Petworth..	0	13	0
Mr. W. Jones, Gr., Oteley Park	1	1	0
Mr. D. Judd, Gr., Hawkstone	1	1	0
Mr. Julian, Royal Exotic Nursery	0	10	6
Mr. R. Keen (per Mr. Smythe)..	1	1	0
Mr. J. Kennard, Old Kent Road	1	1	0
Mr. A. King, St. Dunstan's Lodge Gardens.	1	1	0
Mr. J. Loveridge, Foreman, Shipley Hall Grds.	0	10	0
Mr. S. H. Low, Clapton Nursery	10	10	0
Mr. W. Lunt, Gr., Broughton Hall..	1	1	0
Mr. Manning, Royal Exotic Nursery ..	1	1	0
Mr. Manning, Gr., Tingrith House, Woburn..	1	1	0
Mr. Martin, Gr., Woodlands, Harrow Weald	0	10	6
Mr. J. Mason, Jun., Ilam Hall, Ashbourne ..	0	10	0
Mr. May, Royal Exotic Nursery	0	10	6
Mr. G. McBey, Gr., Sudbrooke Holme	1	0	0
Mr. C. McDonald, Gr., Woodstock Park ..	1	1	0
Mr. A. McKay (per Mr. Westcott)	0	10	6
Mr. A. McKenzie, Alexandra Park	2	2	0
Mr. J. McPherson, Osborne	3	0	0
Mr. J. McPherson, Jun., Osborne	0	10	0
Mr. D. Melville, Fulham	1	1	0
Mr. W. Miller, Gr., Coombe Abbey	1	1	0
Mr. F. Moore, Gr., Howick	0	10	6
Mr. J. Morley, Gr., Appleby Hall	1	1	0
Mr. G. Morrison, Gr., Stanmore Hall.. ..	1	1	0
Mr. C. W. Mounsdon, Gr., Moreton Hall, Congleton	1	1	0
Two Under Gardeners at Moreton Hall	0	5	0
Mr. W. Muirhead, Gr., Conholt Park	1	1	0
Mr. Myers, Gr., Grove Park, Watford.. ..	1	1	0
Mr. Naylor, Gr., Woodside, Barnet	1	1	0
Mr. A. Ness (per Mr Stevens)	1	0	0
Mr. Newman, Royal Exotic Nursery ..	0	10	6
Mr. F. Norman, Bakewell	0	2	0
Mr. H. W. Notman, Foreman, Wentworth Grdns	1	1	0
Messrs. Nutting & Son, Barbican	1	1	0
Mr. G. Ormiston, Woodend Gardens	0	10	0
Messrs. Osborn & Sons, Fulham	2	2	0
Mr. Osmond, Gr., Stanmore Hall	1	1	0
Mr. Outram, Royal Exotic Nursery ..	0	10	6
Mr. J. Pearson, Gr., Rangemore	1	1	0
Five Under Gardeners at Rangemore Gardens..	0	12	6
Mr. J. Peel, Gr., Cambridge House	1	1	0
Mr. J. Pegg, Foreman, Rangemore Gardens..	0	10	0
Mr. C. Penny, Gr., St. Dunstan's Lodge, Regent's Park.. ..	1	1	0
Mr. Perkins, Gr., Warren House, Stanmore ..	1	1	0
Mr. J. Petch, Gr., Manley Hall	5	5	0
Mr. P. Phelcar, Burton Closes	0	10	0
Mr. Wm. Phipps, Gr., Ingestrie Hall.. ..	1	1	0
Foreman and Three Under Gardeners at Ingestrie Hall	0	15	0
Mr. J. Pottle, Gr., Bealings Grove	1	1	0
Mr. R. M. Pollett, Barbican	2	2	0
Mr. T. Pyper (per Mr. Smythe)..	1	1	0
Mr. Reid, Fulham Nursery	1	1	0
Mr. W. Robinson, Kensington	2	0	0
Mr. J. Ricks, Foreman, Rangemore Gardens..	0	10	0
Mr. J. Robson, Gr., Linton Park	0	5	0
Mr. W. R. Robson, Gr., Beau Desert	1	1	0
Mr. G. W. Rogerson, Gr., Rosebank House, Waterloo	1	1	0
Mr. F. Rutland, Gr., Bentley Priory ..	1	1	0
The Under Gardeners at Bentley Priory.. ..	1	0	0
Mr. G. Sage, Gr., Ashridge Park	1	1	0
Mr. Wm. Scammell, Gr., Bowood	1	1	0
Mr. Wm. Searle, Gr., Himley Hall	1	1	0
Mr. T. Selwood, Calverley Hall	1	1	0
Mr. J. Seward, Gr., Cyfarthfa Castle	0	5	0
Mr. J. Shaw, Nurseryman, Manchester ..	1	1	0
Mr. A. Simpson, Gr., Dunstall Hall	0	10	0
Mr. J. Smith, Gr., Exton Park	1	1	0
Mr. W. Wasley, Exton Park Gardens	0	5	0
Mr. W. Smith, Gr., Hanover Lodge, Regent's Park	1	1	0
Mr. W. Smythe, Gr., Elmham Hall	1	1	0
Small Sums collected by Mr. Smythe ..	0	10	0
Mr. D. Snelling, Mount View, Sheffield ..	1	1	0
Mr. T. Speed, Gr., Chatsworth	1	1	0
17 Under Gardeners at Chatsworth	1	10	6
Mr. J. Spencer, Gr., West Bank, Ledbury..	0	5	0
Mr. M. Stalker, Gr., Hemsted Park.. ..	0	5	0
Mr. Z. Stevens, Gr., Trentham Hall ..	1	1	0
Ten Under Gardeners at Trentham	1	10	0
Mrs. C. Stewart, Heathy Lea, Chatsworth ..	0	5	0
Mr. J. Stone, Gr., Holme, Regent's Park	1	1	0
Mr. J. G. Temple, Gr., Packington Hall ..	1	0	0
Mr. G. Thomson, Gr., Stansted Park.. ..	1	1	0
Mr. T. Thornton, Frimley	1	1	0
Mr. A. Toward, Gr., Osborne	5	0	0
Mr. Trowbridge, Bealings Grove Gardens ..	0	10	6
Mr. J. Vair, Gr., Dangstein, Petersfield ..	1	1	0
The Under Gardeners at Dangstein	0	11	6
Mr. W. Wallis, Gr., Kirby Hall	1	1	0
Mr. G. Warren, Gr., Wychnor Park	0	5	0
Mr. J. Watson, Gr., Casewick Hall	0	10	6
Messrs. Webber & Co., Covent Garden ..	2	2	0
Mr. E. Welsh, Gr., Armagh Palace ..	1	1	0
Mr. R. Westcott, Gr., Raby Castle	1	1	0
The Under Gardeners at Raby Castle	0	5	0
Mr. G. Westland, Gr., Witley Court	1	1	0
The Under Gardeners at Witley Court	1	1	0
Mr. G. Wheeler, Gr., St. John's Lodge, Regent's Park	1	1	0
Mr. W. Whitaker, Gr., Crewe Hall, Crewe ..	1	1	0
Foreman and Under Gardeners at Crewe Hall .	0	12	6
Mr. W. Wilford (per Mr. Smythe)	0	7	0
Mr. J. Wilkes, Royal Exotic Nursery ..	0	10	0
Mr. R. Wilmot, Hawkstone Gardens	0	10	6
Mr. J. Wingfield, Aldenham Park Gardens ..	1	1	0
Mr. T. Woodford., Gr., Eastwell Park.. ..	0	5	0
Mr. T. Wright, Gr., Rye	0	5	0
Mr. P. Wright, Holt Rectory	0	5	0
Mr. J. Young, Gr., Wentworth	2	2	0
Three Under Gardeners at Wentworth Gardens	0	12	0
Mr. T. Young, Gr., Stanford Court, Worcester	0	10	0

Botanic Garden, Chelsea, Dec. 1, 1869. THOMAS MOORE, Hon. Sec.

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Hyacinths	Ranunculus
Narcissus	Anemones
Tulips	Scillas
Crocus	Muscari
Snowdrops	Lily of the Valley
Winter Aconites	Triteleias
Iris	&c., &c.

The most desirable Plants for a Spring display are

Alyssum	Polyanthus
Arabis	Dwarf Phloxes
Aubrietia	Primroses
Daisies	Silenes
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Hepaticas	Wallflowers
Pansies	Gentiana acaulis, &c.

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50 " striped
50 " large yellow
50 " white
24 Anemones, extra fine mixed
6 Gladiolus Brenchleyensis
12 Iris, extra choice mixed, English
12 Iris, extra fine mixed, Spanish
3 Lilium candidum
3 " tigrinum
24 Ranunculus, extra fine mixed
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The Gardeners' Chronicle.

SATURDAY, DECEMBER 4, 1869.

MEETING FOR THE ENSUING WEEK.

TUESDAY, Dec. 7—Royal Horticultural (Gardeners' Examination).

THE POTATO GRAFTING question is progressing. It has passed through the stage of assertion; it has had to bear the brunt of ridicule—this stage is probably not yet complete; and now it is passing through the examination period. By-and-by, if after due examination it shall be accepted, we shall have people crying out that they knew all about it years ago; that it is not new, that their grandfathers practised it, and so forth—just as a lady of our acquaintance, after a visit to the Great Exhibition of 1851, declared that she had seen it all before when she was a young woman. We think it well in the interests of truth to help on the examination process, by calling attention to the case as it now stands, merely noting by the way that those who are most inclined to ridicule, or to doubt the possibility of the process, are, for all that appears to the contrary, persons who have never tried the experiment for themselves. Those who have done so, even though they have not attained any success, are yet much more reticent of their opinion, *pro* or *contra*, than those who are endeavouring to solve the matter on paper.

We have first of all the remarkable evidence given by Mr. TAYLER, of Fencote (see p. 220); then comes that of Dr. HILDEBRAND, and of Dr. TRAILL; besides the assertions that have been made quite recently. Much of the evidence has been purely negative, and in other cases, where some results have certainly been obtained, there is a doubt, not yet fully solved, as to whether the results in question were the effect of grafting or of the "sporting" tendency to which the Potato is notoriously subject.

Now let us advert once more to Mr. FENN's experiments (see p. 1011, 1018). In a former issue we adverted to the trials carried out by that gentleman in the matter of Potato grafting, and we then showed how, at least in one instance, perfect adhesion of scion to stock had taken place, and how the new tubers partook of the characters both of the scion and the stock. The specimens exhibited shortly afterwards by Mr. LAXTON, were, like those of Mr. FENN, for the most part negative in their results; but still in several cases, where evident adhesion had taken place, there was some change apparent in the produce,—a change in the appearance and colour of the tuber, a change in the vigour or precocity of the haulm; indeed, it was a matter of remark, what an ugly set of Potatos were produced! Now this result, which was patent to every one, furnishes at least strong evidence that some disturbance in the organising forces had taken place. Assuredly, under ordinary circumstances, even allowing for the variation that does constantly occur, no such collection of misshapen Potatos would be produced from well-known and established varieties; and be it specially remarked, these ugly fellows only occurred where there had been adhesion between stock and scion. In those cases where no union had taken place the set developed tubers of average size, form, and shape, according to the particular variety. It is, moreover, to be remembered that the experiment is not complete until we see, next year, the produce of these now ungainly tubers.

In our former article we showed how, in ordinary grafting, the stock, to a large extent, serves as a channel of communication between the scion and the soil. The nourishment imbibed by the roots of the stock passes upwards through it into the tissues of the graft. Hence the little alteration in visible characteristics that takes place in the scion is not, after all, so much a matter to be surprised at. But in the case of the Potato grafts, the stock is not a mere channel of communication only, but itself supplies the *pabulum* whereon the graft is to feed; and under such circumstances we might, as a matter of theory, fairly expect the scion to manifest some of the outward characteristics of the stock. But it has been objected that the set can never act as a stock, inasmuch as it throws out no roots. Mr. A. DEAN even goes so far as to say that there is no passage or flow of sap through the tuber into the haulm. These objections may be met by the fact that roots are not necessary in this case—the scion has to draw upon the set for its nourishment, and that it does so, when union has been perfect, is shown we think by the fact that in such cases the set is so exhausted that nothing remains of it but an emptied bag of skin—whereas on the other hand when NO union has taken place, the set remains plump.

By the ordinary process of grafting we secure such advantages as a dwarfer habit, increased fertility, enhanced flavour, earlier maturation, greater hardihood, and the like, according to the stock which is selected. These are facts, a knowledge of which has been obtained by accident, or as a result of direct experiment, and their value in a practical point of view is beyond dispute.

It remains now for our Potato grafters to follow out their experiments, so as to arrive at some practical result. They must not be discouraged because in the majority of instances no result was arrived at, or because that result is not at first satisfactory. We may recall the fact that one excellent variety is positively stated to have thus originated, and if one, why not more? Mr. BENNETT's objection that he got no result in the case of the Dahlia does not outweigh the positive testimony adduced by those who have. Moreover, there is the case of the Dahlia imperialis, the habit of which was altered by Mr. SALTER (see p. 1182), though that experiment must be repeated before much stress can be laid upon it. Again, it seems necessary to caution some experimenters against the very common error of mistaking *post* for *propter*. Mr. SIMPSON may have induced his scion of Jerusalem Artichoke to grow when attached to a Fluke, and it may even have produced "red tubers," but those tubers were of the Artichoke, not of Potato. He must excuse us if we are still sceptical on the point, though we trust we are not steeled against conviction.

Future experiments should be directed, not merely to the attainment of additional proofs, but also to the procuring of new varieties of greater hardihood, stronger constitution, enhanced fertility, and so on. And if our premises be correct, there can be no doubt that with a well-devised purpose, and an intelligent selection of stocks, much may be done in the future.

Turning now to the other experiments of Mr. FENN—to the results of cross fertilisation in the ordinary manner, we think they exemplify the tendency that Major CLARKE so wittily and truthfully bewailed at the Manchester Congress—the tendency, that is, of raisers and experimenters to run in one groove. Thus among Mr. FENN's hybrid Potatos there were good, bad, and indifferent, all mixed up together like the fragments of glass in a kaleidoscope; shift its position

a little and the fragments arrange themselves differently, but still they are the same fragments—and throughout their almost infinite permutations one common semblance runs; and so in these Potatos the "blood" of one or other parent was to be manifestly traced in greater or less degree throughout — the combinations were diverse to a wonderful extent, but the material was the same. The most interesting fact, physiologically, was the production of a small, round, mottled tuber, almost precisely identical with the wild forms introduced to Chiswick from Peru. But this reversion, however interesting as a matter of science, affords an illustration of the necessity of getting out of the rut, and of striking out a new course. We don't want endless combinations of old forms, still less do we want, for practical purposes, to go back. In the matter of the Potato, our Hibernian friends even would object to advance backwards.

But how are we to get out of the beaten track—how are we to make real progress—how baffle disease—how improve constitution—how secure new and really improved varieties? Numerous methods have been recommended, and all sorts of schemes proposed. Here is another, probably not a new, suggestion:—There are several hundreds of species of the genus Solanum. In the case of the great majority there would probably be no good result forthcoming from an attempt to cross-fertilise their flowers with those of the Potato, but there are some few with which it would be quite worth while to make the attempt—such as S. Maglia, S. immite, S. Commersoni, S. demissum, S. cardiophyllum, S. verrucosum. We should look to our Botanic Gardens to introduce the plants where necessary, and to carry out the preliminary trials; should such trials be sufficiently promising, the experiment might be pursued by private individuals, abandoned if unsuccessful, or followed up on the large scale by growers for sale. It is quite clear that in-and-in breeding has been carried on long enough—a little new blood is required, but we don't know how it can be supplied, except by some such means as we have pointed out.

THERE are two distinct forms of Picea Pinsapo cultivated in our gardens: the one with obtuse leaves, which has borne cones plentifully this year in different parts of the kingdom; and the other with acute leaves, of which a fine specimen was in Mr. STANDISH'S collection at South Kensington on Nov. 16, of which we have never seen fruit, and which is sometimes confounded with Picea cephalonica. This is the form of which an authentic specimen from BOISSIER is contained in the Kew Herbarium; but on reference to his plate and text we find that it is considered as a sterile branch of the obtuse-leaved Pinsapo. Be this as it may, large plants exist in this country like that exhibited by Mr. STANDISH, and time alone will show whether when old they exhibit the characters of the obtuse-leaved tree.

A supposed variety of the species, named var. baboriensis, from the locality in which it has been found, has been described from Algiers; a specimen of this, with ripe cones, is in the Kew collection. The locality in question is noted as the upper woody region of the mountains Babor and Tababor, in Eastern Kabylia. An important difference, however, appears in the leaves, though the cones seem identical. In both the acute and obtuse leaved Pinsapo the leaves come straight from the branches, a character by which they are distinguished from the Silver Fir; but in the baboriensis variety there is the same twist at the base, and the leaves have much the character of those of the Silver Fir. Now, exactly as in the Pinsapo, there is an acute-leaved variety named P. cephalonica or P. Apollinis,* and the ordinary obtuse-leaved form of the Silver Fir; and Mr. Cox lately sent up to South Kensington a branch with cones, referred, both by himself and subsequently by Mr. ANDREW MURRAY, to P. cephalonica, with obtuse leaves; confirming the judgment of PARLATORE in considering it a variety of Picea Abies.

It appears, then, either that the variety baboriensis must be considered as an intermediate species,† with the leaves of the Silver Fir and the cones of Pinsapo, or there will be reason to believe that, however different they may be, the three are forms of one highly variable species. It is particularly requested that if any one has fruiting plants of the *acute-leaved* Pinsapo, specimens may be sent to the meeting at South Kensington on December 21. *M. J. B.*

* There is an obtuse leaved form of P. Apollinis, from Attica, in the Kew Herbarium, as well as an acute-leaved form marked "Greece."

† Of this Mount Babor or Tababor Fir, there is an excellent coloured figure in Van Houtte's "Flore des Serres" (vol. xvii. pp. 5, 6, 7, 8), under the name of Abies numidica, and we saw young plants of the same Fir growing in M. Van Houtte's nursery in the early part of last year. EDS.

— IN accordance with the announcement made in our last, HIS MAJESTY the KING OF THE BELGIANS, attended by Viscount TORRINGTON, General GREY, and several other members of his suite, visited the gardens and art collection at South Kensington. The KING was received at the Museum by Mr. FOSTER, Mr. H. COLE, C.B., Mr. OWEN, Mr. THOMPSON, and Mr. REDGRAVE, R.A., and was for two hours occupied with the inspection of the whole establishment. From the Museum HIS MAJESTY proceeded to the gardens of the Royal Horticultural Society, where he was received, at the north-east entrance, by Mr. W. W. SAUNDERS, F.R.S., and Mr. JAMES BATEMAN, F.R.S., vice-presidents of the Society, and by other members of the Council. The deplorably wretched state of the weather prevented any attempt to enjoy the sight which, even at this time of the year, the open grounds afford; but in the large conservatory, where a numerous company of Fellows had assembled, a beautiful and extensive exhibition was furnished by the principal nurserymen and florists.

— There are, we believe, but few gardeners who ever grow their SHALLOTS FROM SEED. This doubtless arises from the seed not coming to perfection regularly in our climate. Nevertheless, we recently saw some very fine specimens grown in this manner by Mr. TRIGG, of Hayling, Hampshire, five of which weighed 1 lb. 7 oz. Mr. TRIGG informed us that to obtain them he planted the offsets in the usual manner, and allowed them to seed, which they do the second year. He sowed the seed in good rich soil, at the same time as he sowed his Onion seed, and obtained the crop from which the above were taken as fair average specimens. When growing in rows in the same manner as Onions, they much resemble the latter for some time, until they begin to divide into offsets, when the peculiar difference between them is readily distinguished. These improved examples are said to be much milder in flavour than those obtained in the usual manner.

— We believe that SCHACHT was the first who pointed out that the FALL of the LEAF was due to the formation of a few loose, powdery-looking cells formed between the living and dying portions of the plant. This is equally the case in the curious phenomena called Cladoptosis, in which twigs of the Oak, Willow, and some other trees are thrown off by a process of natural pruning. This is especially visible in the nodes below the point from whence the stalk of the Pear has been thrown off, each internode in its turn separating from that below it. In no case, however, have we seen it more strongly exemplified than in the Vine, where the cells are so abundant that they may be easily rubbed off, in the shape of a thick glittering dust, by the finger. What, however, we wish to call attention to at present, is a fact which we have not ourselves observed before, neither has it been noticed by our most distinguished British pomologist (the word being taken in its widest sense), viz., that the blade of the leaf in the Vine is often thrown off before the petiole, the denuded petioles remaining still attached to the shoot. This is, of course, the indication that the leaf of the Vine is essentially compound, though only one leaflet is developed,—a circumstance which might be expected from the habit of many of its near relations. This is at first not so manifest as in some other apparently simple leaves, as for example in the Orange, though a swelling will be observed at the point of junction, which is indicative of the true nature of the case. It is very probable that this fact may have been recorded before, but it was a useful doctrine of Professor HENSLOW, that it is very desirable to record as soon as possible such observations, as their publication can do no harm, and may very possibly direct attention to points which might otherwise be long overlooked. *M. J. B.* [The phenomenon alluded to has once or twice only come under our own notice. V. MOHL and others have shown the gradual formation of a very delicate layer of cells athwart the leaf-stalk at right angles to the direction of the other tissues, and which act as a knife edge would do in separating the leaf. These cells are formed originally long before the leaf falls; and we presume that it is these cells enlarged, and often filled with starch grains, which furnish the white mealy substance alluded to by "M. J. B.;" but we do not recollect whether the whole course of development has been continuously watched. EDS.]

— The employment of sublimed SULPHUR in our HOP GROUNDS has, beyond all doubt, been a great boon to cultivators in checking mildew, and its use is now pretty general, having outlived the unreasonable prejudices which were at first raised against it, as indeed is the case with all innovations. Powdered sulphur was found to be less efficacious, though not entirely without benefit. A communication was, however, lately made to the French Academy by M. MARÉS with reference to the change which flowers of sulphur or ground sulphur undergo when cast on the soil of vineyards. It is found that it is converted into sulphuric acid, which then combines with the lime in the soil to make sulphate of lime. Whether the chemical change takes place merely from the direct action of the oxygen of the atmosphere, or from the sulphuretted hydrogen emanating from the manure in contact with the sulphur, does not appear certain, though no odour of sulphuretted hydrogen is perceptible; but it is found that its effects are very beneficial in the repression of the Vine mildew. It would clearly be a great gain to Hop growers if the parasite could be arrested before the bine springs out from the soil, and it would be well worth the attention of our more intelligent cultivators if they would make the experiment. The parasite could not be stamped out immediately, as the wind would bring spores of the mould from neighbouring Hop grounds, where matters were allowed to take their course; but if it was once established that sulphur applied to the soil was efficient, the comparative ease of the application would recommend itself so strongly, that we might hope for its general adoption. The subject is scarcely less important to our GRAPE GROWERS, who still occasionally suffer from the mildew, and we recommend it to their careful consideration. *M. J. B.* [Especially those into the composition of whose Vine-borders lime enters! EDS.]

New Plants.

STANHOPEA GIBBOSA, *sp. n.*

Aff. Stanhopeæ Wardii hypochilio incurvo, latere utroque superiori unicarinato, lato, pectore argute præcincto, canali angustissimo, aperto, portione apposita lata eboracea quadrata utrinque, cornubus falcato ligulatis; epichilio oblongo acuto, basi gibbere solido magno; columnæ curvæ auriculis anguste triangulis, alis semiovatis angustis a medio auriculas usque.

A species in the way of Stanhopea Wardii, but quite distinct. We obtained it from Messrs. Veitch & Sons. *H. G. Rchb. fil.*

RESTREPIA ANTENNIFERA, *H. B. K.*

Sepalo dorsali triangulo caudato apice clavato incrassato, sepalo inferiori lato ligulato apice bifido laciniis oblongis; petalis sepalo superiori subæqualibus, brevioribus, angustioribus; labello ima basi auriculis gominis cartilagineis erectis, unguiculato, a latiori basi ligulato apice bilobo, utrinque basin versus in setam excurrente, ceterum lævi; columna gracilenta clavata. — *Restrepia antennifera*, H. B. K., in Kth. Syn. i., 341.

Restrepias of the original shape are regarded with favour by amateurs. The Restrepia elegans of Karsten is known in gardens, though rather rare. It is a very curious plant, easily offended, and thus often does not do well for long together. We found it in a splendid state in the Hamburgh garden, but it having been divided and partially lost without our knowledge, the remainder of the three great patches got into ill-health for four years, and are only now recovering, forming a single patch. Here is now the old type of the genus sent from the snowy sierras of New Grenada by Mr. Gustav Wallis. The flower is considerably larger than that of R. elegans, of a claret colour, with numberless small cinnamon-brown blotches, nearly of the colour of port wine. The extreme base of the lip is furnished with two orange-yellow auricles, and the base of the deep crimson lip has two slender yellow tendrils. The apices of the connate inferior sepals are honey-coloured. Sent by Director Linden. *H. G. Rchb. fil.*

TRICHOCEROS PARVIFLORUS, *H. B. K.*

Caules recti, pseudobulbis parvis crassis monophyllis; folio carnoso ligulato acuto seu in apiculum reducto, foliis fulcientibus ad 5, inferioribus ad vaginas reductis; pedunculo apice racemoso ceterum elongato axillari, pseudobulbis ipsis longidistantibus. Flores "postici." Ovaria pedicellata bracteas triangulas multoties excedentes. Sepala oblongo-triangula viridia vittis brunneis. Petala cuneata oblongo-triangula acuta maculis transversis brunneis. Labellum tripartitum: partitiones laterales lineares obtuse acutæ erectæ, hinc ciliatæ, partitio media excavata oblonga acuta, disco barbellata, limbo brevissime ciliatula; partitionis mediæ maculæ brunneæ barba violacea; partitionum lateralium maculæ violaceæ. Columna brevis crassa; androclinium postice ligula semiovata ciliolata antheræ superne adnata; rostellum triangulum apice retusum cum apiculo, fovea immersa limbo erecto subpentangulo; latera juxta antheram valde violaceo barbata; maculæ multæ violaceæ in superficie antica viridi columnæ; anthora pyriformis; pollinia incumbentia pyriformia bifaria utroque pari basi connato; caudicula linearis; glandula ovata cinnabarina. — *Trichoceros parviflorus*, H. B. K., in Kth. Syn. i., 127.

Formerly Trichoceros was a great morphological curiosity, the lateral parts of the lip having been regarded as staminodes, a mistake we corrected long ago. It comes near Telipogon; but all Telipogons have an uncinate glandule. The small green flowers, with violaceous and brown spots and bars, are of mere botanical interest, yet the hairy column might remind one of the head of a puss, though violaceous cats are not to be found. We have at hand dried specimens from Humboldt, Bonpland, Hartweg, Krause, and Mandon. Mr. Gustav Wallis sent it alive to Director Linden, with whom, and with W. Wilson Saunders, Esq., it is now flowering. *H. G. Rchb. fil.*

SPRING BEDDING PLANTS.—No. II.

BIENNIAL plants for spring flowering first occupy our attention, and these I will notice in the order of their superiority for this purpose. The Myosotes or Forget-me-Nots furnish such beauty to the spring garden, that we cannot, or do not, wish to dispense with them. There are several beautiful species and varieties of which very little is at present known.

M. sylvatica is the species so generally used at Cliveden and other places where this system of gardening is carried on. It is very free-flowering, and forms a charming mass of bright blue flowers early in the spring. It grows from 12 to 18 inches in height, but this depends in a great measure upon soil and circumstances. M. sylvatica alba is a pure white variety of the above. It is very pleasing, and well adapted for grouping with the typical plant. M. sylvatica rosea is a new variety, which I see offered for the first time by a well-known firm for this class of plants. I saw it in flower last season, and considered it a very desirable acquisition, its pleasing mass of rose-coloured flowers blending harmoniously with those previously mentioned. M. dissitiflora is a very distinct and beautiful species, introduced under the name of montana. I

think there has been sufficient said of this in the papers of last spring, to obviate the necessity of my saying a word. It grows from 6 to 9 inches in height, and when in bloom presents a beautiful mass of sky-blue flowers with yellow eyes. For massing this stands pre-eminent.

Myosotis azorica is a very dwarf-growing species obtained from the Azores, scarcely exceeding 4 inches in height, its flowers are light blue, with a yellow centre, and are produced in innumerable quantities. M. azorica alba is a pure white variety of the above, equally as dwarf, and a charming companion for the blue one. M. azorica cœlestina is another charming variety, of which too much cannot be said. It claims special attention from every lover of spring flowers, on account of its dwarf distinct habit, its free-flowering capabilities, and the heavenly blue colour of its flowers. I saw it for the first time at Erfurt, in Prussia, during the past season, and I think I never saw anything more lovely. There was a bed containing some 2000 of these sturdy little plants, not more than 4 inches in height, each forming a distinct, compact, pyramidal little bush, and not a plant varying the slightest, either in size or height. Every plant was smothered with flowers of a magnificent deep blue colour. It reproduces itself freely from seed, and it must be considered one of the greatest acquisitions for the spring garden that has been raised for many years. A bed of these varieties of M. azorica, edged with Arabis lucida variegata, would make one of the sweetest beds imaginable.

There are other species of the Myosotis, but those I have mentioned constitute the cream of the family. Most of them may be considered perennials, but as they are all freely obtained from seed this is the best way of producing them, and the plants thus raised grow and flower more freely than those propagated in the usual way. The best time to sow the Myosotis is in August. Prepare the bed by digging, and rake it rather fine; water the bed some days before the seed is sown, so that it will not readily get dry. After the seed is sown the bed should be shaded with some light material, but as soon as the seed appears gradually remove it, until the plants are strong enough to bear the sun. By the end of September or beginning of October they should be removed to their winter quarters, care being taken not to plant them too closely. A very small space in the kitchen garden will suffice to produce many thousands of these plants. I find one of the best places is under the Gooseberry and Currant trees, where they can receive protection from the heat of the sun, or in the alleys of the Asparagus beds, shading them with the tops of the Asparagus. But I should recommend devoting a small piece of the kitchen garden to form a nursery for the propagation of these plants, as they can then be looked after more effectually.

Another capital plant for this kind of gardening is the Silene pendula; it is very free in growth, and from its pleasing colour is indispensable to the spring garden. It grows from 18 to 24 inches in height, and forms a dense mass of lively rose-coloured flowers, which have a very pleasing appearance. There is a white-flowered variety, which forms a fine contrast with the former. Sow in August, similar to the Myosotis, and they will then be strong enough to plant out with them. Saponaria calabrica is another charming biennial, and admirably adapted for grouping with such as the dwarf Myosotis; it forms dense cushions, about 4 inches in height, of bright pink-coloured flowers, which remain in bloom a long time. It is one of the loveliest of the spring flowers, and deserves unlimited cultivation. There is a white-flowered variety of this also, which is very pleasing. Sow at the same time as Silene, and treat in the same way. Another very important plant for the spring garden is the old-fashioned purple Honesty, Lunaria biennis; it is admirably adapted for the centre of beds, as it grows about 2 feet in height; it is of a very vigorous habit, and an abundant bloomer, and is freely reproduced from seed. Sow in August, and treat in the same way as Myosotis.

The Wallflowers next claim our attention. The single yellow Italian Wallflower is a charming addition to the spring garden, to which it stands in the same relation as the Calceolaria does to the summer garden. It is exceedingly dwarf, not exceeding 12 inches in height; it flowers as freely as the common Wallflower, but the flowers are of a bright dazzling yellow. This plant is strictly perennial, and it can be moved without any risk, but as it comes from seed there is no occasion for troubling about them, unless you transfer them to the border. The seed of this should be sown as soon as ripe, or you will not get plants strong enough to flower the following season. Pyrethrum Parthenium aureum, or the Golden Feather, should be treated in the same way as the Myosotis, and will be found invaluable for spring decoration.

Among other plants of this character may be mentioned Collinsia bicolor, C. grandiflora and C. verna, Nemophila insignis, N. bicolor, and N. atomaria, Clarkia pulcherrima fl.-pl., and the double white var., Candytuft, Limnanthes Douglasii, Lasthenia, and the Vesicaria. These should also be sown about the middle of July, and should be transplanted as soon as ready into their winter quarters. There are also many other places where these plants may be used with a very pleasing effect, such as in the vacant places in the shrubbery; if these plants are once located there, they will reproduce themselves every year, without any further trouble. The Myosotis and Silenes would grow much more vigorously and flower more freely there than in the borders where they are fully exposed to the sun. You could introduce many more, such as Primroses, Polyanthus, Violets, and such-like plants, which would greatly enliven the scene. I know of a walk about half-a-mile in length, at Walthamstow, around a piece of ornamental water; it is surrounded by high trees, and under these thousands of Primroses grow luxuriantly, and perpetuate themselves without any trouble. Besides masses of such plants as I have mentioned, here and there we find a complete carpet of the common Anemone nemorosa and A. apennina. I live in hopes of seeing our shrubbery borders and waste places thus filled, and until we endeavour to imitate Nature by the cultivation of these hardy plants, our gardens will only prove to what a low ebb horticulture has subsided. In my next paper I shall give some descriptive notes upon perennials adapted for spring decoration, with hints upon their cultivation and propagation. *A. J. P., Tottenham.*

CHURCH DECORATION.—No. II.

Drawing and Making Designs.—There are few kinds of handywork which illustrate so forcibly the truth of the maxim that "what is worth doing at all is worth doing well," as that of drawing designs; for unless they are produced correctly, the effect is anything but pleasing to either the educated or the uneducated eye; the former will at once observe their inaccuracy and want of symmetry, while the latter will be impressed with an indescribable feeling of something being somehow or somewhere not quite what it ought to be, without being able to point out, or even recognise, what is wrong.

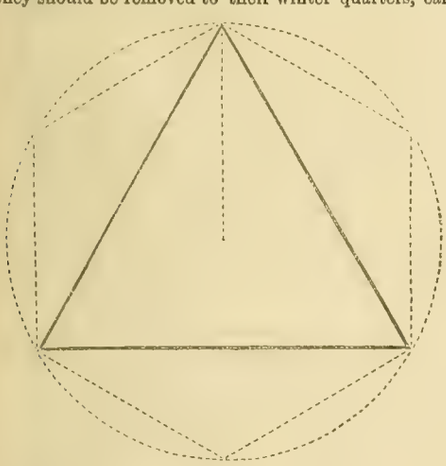


Fig. 1.

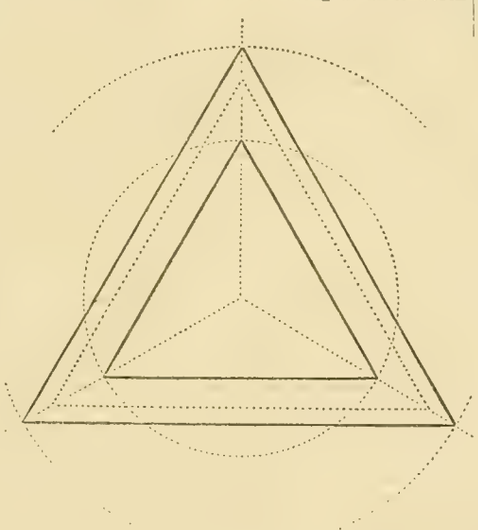


Fig. 2.

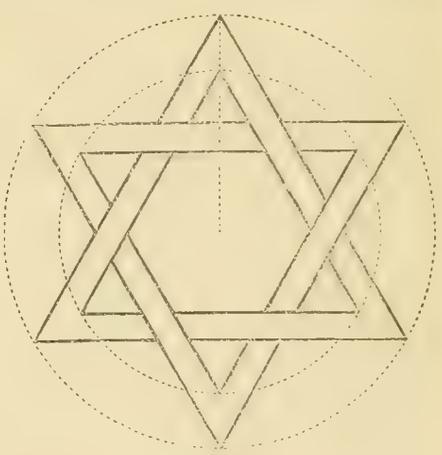


Fig. 3.

When we speak of a design being incorrectly drawn, we mean that certain lines which should be of the same length, are not of equal length, or that certain points which should be at equal distances from each other are not so. If there be any doubt as to the correctness of any design, it can be determined by describing a circle upon it from the centre of the design, and measuring the distances from its various points to the circumference of that circle.

It will consequently be found to be the best plan in all cases to commence by drawing a circle, within or around which the design should be drawn. A square piece of soft deal should be provided—2 or 3 feet square would be a convenient size,—over this the paper to be drawn upon should be fastened, either by pins to the edge of the board, or by pasting the edges of the paper upon the board. The advantage of the soft deal is, that if you do not possess a large pair of compasses you can fix in a pin for the centre of your circle, and having prepared a piece of fine string or strong thread with a loop at each end, you can put one loop over the pin, and put a pencil-point through the other loop, and thus draw a circle without compasses.

Let us begin with a triangle, which is not only one of the designs most frequently required for church decoration, but at the same time one of those in which the least inaccuracy of drawing is readily observed. Let us suppose that you have drawn a circle of 12 inches diameter; that is to say, that it is 6 inches from the centre to any part of the circumference. Now, if you start from a point at the top of the circle and mark off distances of 6 inches all round the circle, you will find that you have made six marks. A reference to Figure 1 will show that by ruling a line between every mark you make a hexagon; while by ruling a line between every other mark or point, the required triangle will be produced, and its three sides will be equal, so that by whichever angle you hang it up, it will look always the same.

We will next assume that the triangle which you have drawn is larger than you want, and that you require one of a different size. Upon Figure 2 you will find a dotted triangle, of the same size as that in Figure 1. You will also find that dotted lines have been drawn from the centre to the angles of the dotted triangle, and that a smaller circle has been described; and, lastly, you will see that a smaller triangle has been formed by ruling lines between the points where the circle crosses the dotted lines from the centre.

Upon Figure 2 will also be found a larger triangle, which it is scarcely necessary to explain has been obtained in like manner by means of a larger circle. It is only by thus correctly drawing one triangle within another, that a proper form is to be obtained, for covering with evergreens or everlasting flowers.

In order to produce the very pleasing design of two triangles interlacing, it will be seen, on reference to Figure 3, that by dividing the circumference of a circle, as before, into six parts, and by ruling lines between every other mark, you get two large triangles. Then describe a smaller circle from the same centre, and determine the six points upon its circumference by ruling lines (as shown by the dotted one) from the centre to the angles of the large triangles; then connect by straight lines every other one of these points, and you will find that you have two smaller triangles, arranged perfectly symmetrically with the two larger triangles. By erasing or rubbing out a little piece of the lines where you wish another triangle to appear to pass over, the effect of interlacing is produced.

Hanging or Fixing-up Designs.—It is grievous to see, as we have so often observed, really nicely-made designs so fixed up as to deprive one of all pleasure in looking at them. We well know that it is not an easy matter to use a hammer upon the top of a tall ladder unless by those used to such work; nevertheless, designs must be hung horizontally, perpendicularly, and at regular distances apart, or otherwise the effect which they are intended to produce will be seriously marred. For instance, an equal-sided triangle looks better when fixed with one angle pointing upwards than with one angle pointing downwards, but in either case the side opposite to that angle must be perfectly horizontal. Again, a star composed of an odd number of rays, such as 5, 7, or 9, must always have one of its rays pointing upwards, and must be so placed that when a plumb-line is dropped from that topmost point it shall pass exactly midway between the two lowermost points. But if the star have an even number of rays, say 6, 8, 10, or 12, it does not matter whether the highest part of it is a ray-point or an imaginary line connecting two of the ray-points; in the latter case, however, the imaginary line must be a horizontal one, or in other words, a plumb-line placed at a point equally distant from the two topmost ray-points must, when the star is correctly fixed, pass exactly half-way between the two lowermost ray-points. *W. T.*

VINE SOILS.

(*Continued from p.* 1231.)

I am asked to bring forward my facts in order to prove where Grapes are grown to perfection in soils composed in a great part of calcareous matter. This is intended as a "closer," no doubt, but "B." is no partisan of either one soil or the other. To the question, however. Calcareous soils are widely distributed over the country. I do not possess acquaintance with all. Calcareous matter is found in almost every soil. Soils, however, which may be termed strongly calcareous, are to be found in the counties of Kent, Sussex, and Hampshire, and in these counties can it be said that good Grapes are not cultivated? I would refer Mr. Cramb to the Vines and Vine-borders at Denbies, Dorking, under the management of the veteran Mr. Drewett. These borders were formed in 1853-4, and contain a very large quantity of calcareous matter, purposely provided for them by Mr. Drewett, who, unlike Mr. Cramb, believes in the efficiency of lime for the Vine. Since their formation to the present time, Mr. Drewett has never failed to have satisfactory crops; and I am informed that the "Denbies" Trebbianos to be seen at the present moment are worth going a long way to see. Mr. Drewett's success at the metropolitan shows for

many years is sufficient evidence of their quality. Who can fail to remember the splendid Muscats exhibited by Mr. Drewett, which obtained the 1st prize at the great fruit show in St. James's Hall, in 1858, which, as reported in these columns, "were the most perfect specimens of the kind that have been exhibited for years. There was not a malformed berry, the bunches were beautifully symmetrical, and, above all, they possessed that fine golden hue which this Grape always possesses when in perfection. They richly deserved the 1st prize." The official report of the show by Dr. Hogg, Mr. Moore, and Mr. Thompson, speaks also as follows:—"The three bunches exhibited by Mr. Drewett were objects of universal admiration, and were excellent examples of first-rate culture. They were large, handsome, and well-set; the berries also were large, of a fine amber colour, and almost as uniform in size as if they had all been cast in the same mould. Their flavour was rich, and the Muscat aroma was delicate and subdued." Is this evidence for or against calcareous soils? At Brighton, the Grapes are all grown on calcareous soils. At Arundel Castle the famous old vineyard is on a calcareous soil, and Mr. McEwen obtained not a few prizes for Grapes grown in the same soil.

At the Grange, Alresford, Hants, the Vine-borders are calcareous, and very much so, and from them Mr. Cross cut Grapes which took a good many of the leading prizes at the Crystal Palace and Royal Horticultural shows some six or eight years ago. Mr. Baker now informs me that they are in splendid condition, and produce first-class Grapes—the Golden Champion, moreover, growing very vigorously. At Welbeck, again, the Vine and fruit tree borders are all composed of calcareous soil, and here it was that I saw the best examples of Golden Hamburgh I have ever met with, the bunches and berries as sturdy as the sturdiest Frankenthal; and this, be it noted, is the variety which Mr. C. instances as an example, to give strength to his argument. We have all heard of the famous Black Tripoli Grapes, grown at Welbeck. It was at Welbeck, also, that Speechley grew his famous 19-pounders. Go to Mr. Rivers, who, although not a cultivator, but an experimentalist with Grapes, yet grows some of the best flavoured Grapes. Witness also the noble example of Trentham Black in his ground vinery, the like of which is not to be seen in the country, and it is growing in nothing but the natural calcareous earth. Then, again, quite recently, at the meeting of the Fruit Committee, Mr. Wottam, gr. to C. Longmans, Esq., Shendish, Hemel Hempstead, was awarded a Special Certificate for very superior examples of Alicante Grapes from calcareous soil. Examples may be multiplied if necessary, but here, I should think, would be sufficient to convince the greatest sceptic that good Grapes are grown in calcareous soils.

I may, however, *en passant*, look for a moment across the water to the Vine countries, although Mr. Cramb has refused to accept facts of that sort. The vineyards all around Paris—the best vineyards and the best Grapes—are all on calcareous soil; Grapes, it may be answered, however, which are anything but good examples of cultivation. But be it remembered that they are grown with little attention, and for flavour it must be admitted that we can never equal their Chasselas de Fontainebleau with our best examples. In addition, have we not the example of Mr. Knight, an English gardener, before us, who at Pontchartrain triumphantly showed the world that it was not owing to the climate of England, nor to its soil, but altogether to skill and management that we have been enabled to astonish the world with our English Grapes. Mr. Knight grew magnificent examples of Grapes, which were exhibited at Paris time after time, for which he received several medals, and which would have graced any exhibition table in this country, and these were grown in calcareous soil. Having seen the Grapes I can speak positively about them. For the rest I cannot do better than let Mr. Knight speak for himself. "The whole district surrounding Pontchartrain for miles is calcareous. Our indoor Vines were planted in the natural soil of the district, with an addition of one-fifth deodorised lake mud, and sand. Outside Vines all over the country were planted in the strong *terre franche*, or calcareous soil, in some cases quite white and limy in texture. Chasselas de Fontainebleau, or Royal Muscadine, fruited in masses in this soil, and, strange to say, I never saw shanking either in or out of doors, with Vines planted in this soil. My firm conviction is that calcareous soils are the most fruitful for all hardy fruits—the trees longer livers, as witness the splendid specimens of Pear trees in the neighbourhood, 300 years old, and as healthy as one of 50, and many a Vine more than 100 years old, against gables of houses, still bearing good fruit, and not much bigger to-day than it was 100 years ago. In other soils, big sensational bunches may for a time be produced, but at the expense of an impaired constitution in the end; but in a calcareous soil, I believe a fruit tree never fails in producing good fruit, and the plant is subject to little or no disease. I confess to some astonishment on being told that calcareous soils are next to poison to Vines, after having lived in a part of the world where Vines do so well in them, and where every *goût d'eau* has to be filtered from its living particles ere a drop is taken into the human stomach." The Vines at Grimston Park, the seat of Lord Londesborough, in Yorkshire, are on the magnesian limestone, which Mr. Cramb says is the worst of all; yet here the Grapes are remarkably good, or, as described by "M." (p. 717), "all that can be desired;" and Mr. Denning states that "they root between the crevices of the lime-stone rock, which is only from 12 to 15 inches below the surface, and nowhere in the garden more than two feet." Samples of the produce just received are, in every respect, excellent. The Vine-borders at the Deepdene are also calcareous, and resting on the chalk. And thus I leave the question, hoping that Mr. Cramb may long continue to grow good Grapes out of flints (silex), and make sermons on them. *B.*

P.S. I omitted to enlighten Mr. Cramb as to the difference between the new and the old red sandstone soils. Well, it isn't much; so that Mr. Cramb is welcome to all the consolation the knowledge of such a fact will bring him. In the new red sandstone there is, however, a much larger percentage of calcareous matter, and more clay in its composition. The Grapes from Trentham have not always been good. "B." remembers a time when the fruit as exhibited was a long way below par, although growing in the same kind of soil as that which produces such splendid results under the management of Mr. Stevens.

THE MESEMBRYANTHEMUM.

IT was once my good fortune to see a house entirely devoted to the culture of the Mesembryanthemum, the collection numbering between 200 and 300 kinds. I cannot call to mind the name of the gentleman who owned this fine collection, but I recollect he was a member of the Society of Friends, and lived in Britannia Square, Worcester. I was so delighted with this charming collection of plants, that I remarked I never witnessed a more pleasing sight. Now we have fabulous sums of money spent annually in the purchase of Orchids, and houses erected and devoted entirely to their cultivation; but it must be admitted that many Orchids are more curious than beautiful: and if houses are erected for curious plants, surely we have in the Mesembryanthemums the most remarkable group of plants in the world, and equally worthy of a house being set apart for their culture.

The majority of their flowers are remarkable for expanding only beneath bright sunshine, which, perhaps, is not much in their favour. They possess in many instances very vivid hues, and have a very interesting appearance. Some bloom in spring, some in summer, some in autumn, and others in winter, and many carry such a profusion of flowers as to be entirely covered with them during the hours of their expansion. Their leaves have some of the most singular forms which are known in the vegetable kingdom. Their capsules have somewhat the appearance of little Figs, and, viewed in connection with the composite-looking flowers, occasion the plants to be sometimes popularly called Fig Marigolds. The papillæ, or warts of the largest subgenus, in some instances look like pimples full of moisture, and glitter in sunshine like bubbles of ice. A correct idea cannot be formed of the beauty and singular appearance of these plants unless seen in a group, similar to the one I witnessed. They were likewise most tastefully arranged, some being suspended from the roof, some planted on rockwork in the centre of the house, some standing on elevated shelves, and drooping elegantly over and concealing their pots; whilst others of more upright growth were arranged on a stage all round the house, by the side of the pathway. The arrangement was most effective, the sight dazzling.

In my boyhood's days I remember my father bedding-out many of the more hardy kinds with good effect, but of late years I have scarcely seen a plant anywhere, except perchance in some cottage window, where it is generally much prized by the worthy dame, who will tell you with pride they have not got such a one up at the Squire's garden. Surely we are going astray in losing sight of so many of our once old favourite flowers; but as the fashions in dress change, and old styles occasionally become popular, so let us hope the love for our old favourite flowers will again return and be once more in fashion. The age and skill in the art of hybridising is so far advanced, that should any of the faculty take a fancy to improve the race of any of our old-fashioned favourites, we should scarcely be able to recognise any of our old friends in a few years, with their new and altered faces. I would certainly advocate the more extensive cultivation of the Mesembryanthemum.

Their culture is simple and easy. The annual species must be propagated from seeds, which should be sown thinly, about the end of March, in well drained shallow pots, in sandy soil and peat. The pot containing the seeds should be plunged into a gentle hot-bed until they germinate; when the young plants have formed three leaves, they should be potted off singly into small pots, in a mixture of loam, peat, and sand, and placed in a warm frame until they are established. They may then be transferred to a cool frame or house, where they should stand near the glass, in order that they may receive the full benefit of the light. Water should be used very sparingly, because their succulent nature makes them liable to be destroyed by damp. At the next shifting they should be repotted into a richer loam, with a little peat, mortar rubbish, and sand mixed with it, or planted out in the flower garden, selecting a very sunny spot. The perennial sorts are easily propagated during the summer months by cuttings, which will require the same treatment as the seedlings. Some few of the more fleshy varieties should have their cuttings taken off a day or so prior to their being inserted into the cutting-pot. Many of the shrubby kinds are so hardy that they require no other winter protection than to be kept from frost and rain, under a common garden frame. Most of the varieties are suitable for rockwork. *Edward Bennett, Osberton.*

Home Correspondence.

Sulphur as a Prevention against Mildew.—In an account (given at p. 94 of the new scientific journal, "Nature") of a meeting of the French Academy of Sciences, it is mentioned that flowers of sulphur, spread on the soil of the vineyards, are effectual in preserving the Vines from disease. Could mildew in Roses be averted by the same means? I have two beds of Géant des Batailles, which I was about to discard in consequence of the difficulty of keeping mildew under, but I think it would be a good experiment (as the soil and situation of the beds are exactly similar) to try the sulphur in one, leaving the other alone. Will any of your correspondents be so good as to tell me the quantity and time of application? *E. H.* [See p. 1254.]

Budding Evergreens.—I should be glad to know whether evergreens can be successfully budded. Last July I inserted several buds in the stems of some seedling Rhododendrons; they remained green and fresh for more than two months. At the beginning of October I removed the ligatures, which had become too tight; the bark then gaped, and in a week or two many of the buds fell off, having apparently never united, although they had remained fresh so long; others which had united gradually withered away, and only a very small proportion now look promising. The same occurred in the case of buds inserted in the bark of Aucuba japonica. Some years ago I budded Rhododendrons with still less success, but on that occasion thought I had removed the ties too soon. Would it be a good thing to cover the bark with the mastic I see recommended for budding? *E. H.*

Monopanax Ghiesbreghtii.—Among your recent list of Plant Portraits (at p. 1182) you quote from Regel's "Gartenflora," 1859, p. 35, tab. 606, that of the above plant, which is there described as a new Mexican introduction to our gardens. From the materials published by Regel I hold it to be the old Aralia xalapensis, H. B. K., which Humboldt and Bonpland found in Mexico, Linden in Chiapas, and I in the mountains of Veraguas, and which is enumerated in my "Revision of Hederaceæ" (Reeve & Co., 1868), p. 62, under the name of Oreopanax xalapense, Dcne. et Planch. (Hedera xalapensis, De Cand. Prodr. iv., p. 264). I believe the plant is not new to our gardens, but Regel's figure is acceptable, as it is the first ever published. The reason why so excellent a botanist as my friend Dr. Regel is, failed to recognise in it the genus Oreopanax, is that he mistook the abortive ovary of a male flower (with its consolidated styles) for a fertile ovary of a hermaphrodite one, and described it as one-celled, one-ovuled. This of course renders the genus Monopanax untenable. *Berthold Seemann.*

Root Action.—As far as I can understand the subject, your correspondents seem at a loss to account for the formation of leaves and branches without root action, and one of them relates his experience of root action in some Gooseberry bushes without the action of leaves. May I ask one question, which they seem to have overlooked, namely, what becomes of the sap of Vines and trees after the summer season is over? I cannot but think that on the answer to that question depends the whole secret of leaf and branch action. While the weather is warm and the sap in full flow, it is no doubt fluid enough, but as soon as the cold weather comes on does it descend into the roots, or, as I believe is the case, is it congealed [!] by the cold? The leaves lose their nourishment and being paralysed by the cold drop off, and the branches assume the appearance (which they soon do) of ripened wood. The sap being congealed, they are solid. As soon as a house of Vines is started, every care is taken to insure progression by fermenting materials, and the like; the sap naturally begins to melt in the young wood first, and then like melting ice the fluid sap helps to melt the rest until it reaches the roots; when, if the borders are or can be warmed, the joint action of root and branch takes place, and a full supply of food is obtained. Now, take Vines or trees out-of-doors. Sometimes a warm or early spring takes place. The sun, shining on the young shoots, of course warms and melts the sap, the buds swell and burst; or perhaps a return of frost or cold soon fixes or congeals the sap, and, as we say, keeps things in their places until the sun has sufficient power to start both root and branch, and all goes well. But, if the buds have burst, and frost takes place, we know the consequences if unprotected. So if the lights are kept off the house, and the Vines are kept back as long as possible, the borders cannot want artificial warming; but your correspondents have shown the results of forcing without warm borders. And now to prove that the sap is congealed, cut off a branch of a tree or Vine, and put it on the fire, how soon the heat makes the sap boil; that does not take place with dead wood. Or cut down a tree, and let it lie, how often it produces both leaves and small shoots; here root action is impossible: where then does the sap come from, if not congealed, or stored, as they say, for stored it must be to produce the results? But in the case of the Gooseberry trees making root as described, probably they were removed early in October, and with the earth warm it was only natural they should do so—or, as we say, establish themselves, hence the advantage of early planting. There is one question I should like to ask some of your scientific correspondents—What is the cause of trees, or parts of trees, being killed by frost; is it the too great expansion of the congealed sap bursting the vessels containing it, and so causing death?—for it seems a paradox for heat and cold both to cause such an expansion of fluids, and yet it must be so.* I am but an humble gleaner in Nature's field of wonders; but as the proof of ever so slight a cause is a standpoint to start from again, you will, I trust, pardon my attempting to write my thoughts on the subject. *H. Horsman, Hampton Wick, Middlesex.*

The Stubbard Apple.—The Stubbard or Stubbert Apple is an excellent early variety, ripening in September. The fruit is conical in shape, and ribbed on the sides; the flesh is white, crisp and juicy. The usual colour of the skin is pale yellow, but it is occasionally coloured on the side exposed to the sun. I have trees of it

* This subject was fully discussed by Professor Caspary in our volume for 1856.

growing in my nurseries at St. Saviour's, Jersey, which are very productive. The young trees are generally very vigorous in growth, but as they become aged the branches are liable to canker and die off. Grown against a wall, it is one of the best early Apples known, and well suited to adorn the dessert table and gratify the palate. I will send you cuttings at the grafting season, and also a few fruits, if you wish them. It is one of my earliest pomological acquaintances, and one which I feel a pleasure in maintaining for its intrinsic merits. *Charles B. Saunders, Cæsarean Nurseries, Jersey.* [We gladly accept our correspondent's offer of a few scions. Eds.]

Scotch Fir Timber.—Much difference of opinion seems to prevail as to the value of Scotch Fir timber, and much disappointment has been incurred by many who have found the timber planted by their predecessors of little use. Competent men in this neighbourhood are, I believe, persuaded that age is all that is required to produce excellent timber from the Scotch Fir, while if cut young it is soon worm-eaten, and comparatively worthless. My attention has been drawn to this subject by having to renew a pair of solid framed farmyard gates. The old gates were formed of Scotch Fir, probably of a full century's growth, and I am assured on good authority had lasted above 40 years. Part of the framework, no doubt where the wet had got in, was thoroughly rotten, but considerable parts seemed as sound as the day it was put up. I hope some of your correspondents will send the results of their experience in this matter, as it is a point of some importance. Also I beg to inquire whether it is certain that winter is the proper season for felling resinous-wooded trees, as I have been assured that the Pine and Fir timber that comes to us from the north of Europe is felled in summer? *P. P.*

The Circulation of the Sap.—I am induced to pen a few additional observations on sap circulation, in order that a point which has elicited editorial comment may be cleared up. I said (see p. 1233) that "most people know that the ascending sap is manufactured into leaves and branches, and the descending sap into spongioles." For this I am charged, from the editorial chair, with propounding loose physiology. But notwithstanding I am inclined to defend the gist of the thesis which the sentence contains. I presume I shall receive no opposition upon the first clause, as one very generally understood and agreed upon, *i.e.*, that the ascending sap is, in the main, manufactured into leaves and branches. Upon the latter clause, which refers to the descending sap, there has been a wide difference of opinion among all physiologists. I presume that the Editors will not question the point of the existence of descending sap; so that the ground of discussion is narrowed to how far it has an influence on spongiole formation. I have learned as much physiology to know and believe that the ascending sap ascends by the woody matter, passing along until it reaches the leaves, and then, in its altered state, descends through the liber —meandering through what Lindley calls the horizontal system, and finishing up its course at the extremity of the roots. There can be no doubt upon the main point, for it is fortified by the experience and writings of our greatest physiologists, including the celebrated natural philosopher Hales, who acknowledged the presence of a returning sap to form new wood bark, and to go to other parts of the plant. "The celerity of the sap must be very great," says Hales, "if that quantity of moisture must, most of it, ascend to the top of the tree, then descend and again ascend before it is carried off by the perspiration." Rhind also supported this hypothesis, and pointed out, what every observer knows, that by applying a strong ligature to the trunk of a dicotyledonous tree, the swelling forms above and not below the ligature, patently showing the influence of a descending sap. But doubtless you will accuse me of proving everything but the main question, and to this I now specially come. I will call the evidence of your great predecessor to show that descending sap is instrumental in no small degree in root formation. He says, in that invaluable volume of his, "Theory and Practice of Horticulture," that the root lengthens from the perpetual creation of new matter from within; and that although the immediate cause of the formation of roots is involved in obscurity, and is one of the most important points of vegetable physiology still to be investigated with reference to horticulture, that—mark the words—"the remote cause is apparently the elaboration of organisable matter by the leaves; for there can be no doubt that the development of roots is much assisted by the descending sap." Such are the matured deductions of Dr. Lindley. (See pp. 24, 25 of the work above noticed.) And pray, what is loose in the physiology I have propounded, with such evidence as the foregoing to call to my assistance? Does not the very fact of spongiole formation late in the day, after the dawn of upward growth, afford some tangible data for the conclusions, that the elaborated sap in its downwards passage, while it extends the dimensions of the plant or tree, only completes its office perfectly when it distends and extends root dimensions? It seems to me and to reason that the ascending sap will do the same duty for the roots as it will do for the trunk and branches of the tree, and the descending fulfil a like duty before it can be held to have properly discharged its functions. It seems quite clear from the investigations of numerous observers, both in and out of the pale of horticultural literature, that the sap of many evergreen plants is attracted with much greater force upwards, in the presence of heat and moisture, than it is downwards, in spite of all coaxing of heat and moisture combined; and it would be exceedingly interesting to me, as one ready at all times to sip at the fountain of knowledge, to know why these spongioles are so long in being manufactured, and—if their presence be not mainly due to the downward elaborated sap—to get some "inklin'," as Jamie puts it in "Noctes Ambrosianæ," what they are actually made of. *James Anderson, Nov.* 29. [We shall shortly devote an article to the consideration of this question in its physiological bearings—far more complicated and uncertain than our correspondent appears to be aware of. In the meantime we protest against his doctrine that the *ascending* sap is manufactured into leaves and branches, while the *descending* sap is manufactured into spongioles. If the ascending sap were, in the main, used up as our correspondent suggests, there would be none left for the spongioles so called. We were very gentle when we styled this "loose physiology." Eds.]

Mildew on the Roots of Trees.—While the discussion on this subject is going on, it may be interesting to quote some particulars of certain examples illustrative of the destructive effects of mildew on the roots of trees and shrubs, and of the injury likely to result from suffering old stumps and rotting wood to remain in the ground in which such trees are intended to be planted, which I communicated some years since to the *Gardeners' Chronicle*. Since that time several fine trees, planted where the old hedge had been grubbed, have failed. The cases were as follows:—No. 1. Four large Deodars, growing at the corners of a square piece of water at Bicton. After some hot, sunny weather the foliage of one of these suddenly turned from a luxuriant green to a pale yellow; next spring the plant was unable to put forth new foliage, and as the season advanced the old leaves fell off, leaving it naked. On examination, the roots were found to be eaten up with Fungi, which had also run up the heart of the tree. The soil contained a good many old roots and pieces of wood from a shrubbery which had formerly been grubbed. This wood was white with mildew, which was no doubt the real enemy. No. 2. A clump of Deodars was planted on a piece of pasture land, and grew away vigorously. Some 10 years after, one of them became unhealthy, and it was found on examination that an old hedge had formerly run across the spot; and that when this hedge was grubbed, the roots and broken wood were left in the ground to decay. Since then three more of this fine clump of Deodars, standing in the direction of the old hedge, have sickened and died from the same disease. Within the last 25 years I have often observed the ill effects of burying rubbishy wood, and then planting the ground with other trees. It would be much safer to rake up the refuse and set fire to it, and on trenching the ground to cast on the surface such roots as may come to hand. I have observed Scotch Firs, Spruce, and other Conifers, Oak, Beech, and other forest trees, and many shrubs, sicken and die through the same disease. As to Larch, there seems but poor encouragement to plant this very useful quick growing Conifer—effective in the landscape at all seasons of the year—in consequence of its being so extensively destroyed by the same pests, Fungi and dry rot, which attack at all ages and all sizes. I fear that much of our native timber, though outwardly in apparent health, is more affected by this destructive disease than is imagined to be the case. *James Barnes, Exmouth, Devon.*—The remarks of "M. J. B." and those of Mr. Gardiner (see pp. 1181 and 1209) throw but little light on the cause of the parasitical Fungi on the roots of the Picea at Eatington Park. Both writers appear to ignore altogether that Fungi arise from any other source than from decayed bits of wood, or rotten tree roots, but the presence of neither of those substances has yet been traced, so that this statement can only be accepted as hypothetical. I do not deny that Fungus spawn may be created amongst decaying vegetable matter, but I believe we are taught to look upon it with unnecessary alarm. If we look upon decaying vegetable matter with dread, lest by contact with it healthy roots should contract Fungus, resulting in death, we simply make war against one of Nature's primary laws. Is it not to the *débris* of decaying vegetable matter that we are indebted for the richness of our meadows and the grandeur of our forests? Is it not to these economic laws of Nature that we are indebted for our entire flora—and without flora there could be no fauna, yet we are taught to dread these very laws which govern our existence. Darwin, in his description of Terra del Fuego, mentions a parasitical Fungus (Cyttaria Darwinii) which forms a staple article of food amongst the Fuegians, and in the same chapter he mentions Beech trees girthing 13 feet, and one 7 feet in diameter 17 feet from the roots—goodly proportions in presence of so dire an enemy. Take, for instance, a forest of British Oak, clear it of its underwood, broken branches, Brambles, Fern, and long grass; keep its grass closely shaven by continuous grazing of sheep, deer, and other cattle; sweep up and carry away every successive crop of fallen leaves; drain, because it is the custom, with pipes 4 feet deep, and provide as well surface furrows, to show the water the nearest way to the brook or pool, and watch the consequences—they may be seen daily in every nobleman's park in the country. Premature decay becomes visible in a stunted growth of both leaves and branches, then decayed branches and dry-rot in the bole, followed by a hollow heart, which serves as a sheltering place for foxes, deer, bats, and owls, and Fungus, all in consequence of this denudation and induration preying upon the roots: thus, too, preventing being fulfilled the allotted poetic life of the Oak—namely, 300 years for growth, 300 to remain in health, and 300 more to die. Mr. Gardiner has told us (see p. 1137) that the formation over which the tree is planted is lias, and neither "M. J. B." nor Mr. Gardiner appear to have suspected that decay may have originated by the roots coming in contact with that formation, Fungus following as a consequence of this, and not originating from decayed wood or roots, which existed only in imagination. Lias, we are told, is an argillo-calcareous deposit, commonly containing numerous organic remains; it is often bituminous, and is impregnated with sulphate of soda, sulphate of magnesia, and common salt. Among these, the component parts of the formation over which Mr. Gardiner's tree is planted, is it not quite as reasonable to look for the cause of decay, as it is to attribute it to contact with decayed vegetable matter? The fact of the roots not going deeply into the "dry obdurate formation" is sufficient proof that there was something in it which they did not like: decay was the result—Fungus the consequence, and this in turn was conveyed to the roots which ramified in the "black *pabulum*" which formed the upper 12 inches of the surface. Had the cause of decay been traced as lurking in the upper 12 inches, then in my opinion the case would have been a hopeless one, and death only could have resulted; but in these 12 inches no objectionable matter was found, and nothing was removed—even the affected parts do not appear either to have been cut away or washed. All this tends to convince me that the seat of mischief lay deeper; for we have before us the simple facts of the case, and they are as follows:—The small roots in the obdurate clay became decayed, decay was passed to the surface roots, Fungus was contracted, and the roots were unable longer to maintain their own against Nature's rude blasts; the tree was twice violently thrown to the ground, and as often reared up, deprived by the agency of the ever-fretful wind of any contact with the poisonous substrata which lay beneath the 12 inches of healthy dark loam, thus leaving that which Mr. Gardiner has already stated—a tree, with marked evidence of renewed vigour evinced by terminal growth of branches. But for this strange interposition of the winds, which removed the cause and effected the cure, we might have still been sitting down by this "horrid Fungus, and haunted by it in our sleep as by a nightmare." *Wm. Miller, Combe Abbey Gardens.*

Duration of Life in Plants Raised from Cuttings.—I am obliged to your correspondents for their answers and cautions concerning the value of the Deodar for timber. For the present I must be content with the well-tried Larch. As regards my second question about cuttings, I find an answer in your volume for last year; but as it does not agree with the opinion given by Mr. Frost, perhaps you may think it worth while to make further inquiries. The following is stated in your volume for 1868, p. 182:—"Plants from cuttings as a rule are *not* to be approved of. * * * Cuttings of the Deodar seem quite to alter the character of that species; a plant in the gardens in question [Edinburgh Botanical Gardens] about 12 feet high, looks like an ill-grown variety of the Atlas Cedar." Your correspondent then describes its deformities, but adds that Abies Douglasii (a tree mentioned by Mr. Frost as growing well from cuttings), and certain other Conifers, "although not of the vigorous character of the foreign seedlings, are by no means despicable trees." The question I ask is—Does a bough, by being cut off a tree and turned into a cutting, live any longer than it would if it had been left on that tree, or does it take a new lease of life, and start afresh as if from a seed? The truth I expect is between the two propositions. I suppose new vitality is produced by the new roots, or otherwise, in a few generations (of trees), the vitality would be worn out. But is the new vitality produced by the make-shift roots of a cutting as strong as that naturally produced from the seed? *O. M.* [Our correspondent revives an old subject. Knight broached the notion propounded in our correspondent's first question, but he did not succeed in convincing many, and the general opinion now is that the cutting, once started, runs a wholly independent career. Eds.]

Vine Budding.—There really is nothing new under the sun. I ought to have known that, and not have exhibited my ignorance and folly at the same time, by expressing my admiration, while writing, of the clever way in which Mr. Stevens budded a whole houseful of the new Madresfield Court Muscat Grape at Trentham, thus enabling his employer, the Duke, to enjoy the fruit ere the plant had 12 months left the nursery. It seems a weak thing to confess ignorance in these days of so much enlightenment. I own to it, however, in this case, like many more of my brethren. At the Manchester meeting Mr. M'Donald, of Inistioge, alluded to this Vine-budding of Mr. Stevens as a novel practice. The chairman, Major Clarke, who is one of our greatest experimental horticulturists, remarked that he and his gardener had once attempted Vine-budding, "and, to the intense delight of the latter, his grew, while the major's died." It was doubted, however, if the practice was altogether the same. I knew this when writing my notes, and ought to have been more guarded. At all events, it is Mr. Stevens who has first practically proved the value of the operation, and "B." has the credit of making it known to the public through these pages. You have so well explained the nature of the operation at p. 1209, that I need not repeat it here. Your correspondents, as you state, have been confounding it with bud-grafting, which is, truly, an old practice, and practised, too, in a much better way than that described by Mr. Reid at p. 1209. I have often heard marvellous accounts of Mr. Reid's success in grafting Azaleas, &c. I think, however, in Vine budding as well as in Vine grafting, he has not a little yet to learn. The modesty of your correspondent Mr. Bain (p. 1137) is quite refreshing. It is a thousand pities that we don't hear more often of him, or that so much practical knowledge as he, no doubt, possesses should not be made known amongst us; what a pity too that so many good practical gardeners, as Mr. Bain speaks of, should keep all their knowledge to themselves, doing good to nobody, but blocking up the wheels of knowledge. I esteem lightly the character of the man who knows so much, yet imparts so little. It is a pleasure to most gardeners to impart what knowledge they possess. And it is no less our bounden

duty to assist one another. Why has Vine budding been kept so long a secret? *B.*

Root Action.—Questions have been mooted in your columns respecting the priority of action of roots or stems, especially in Vines, as bearing on the application of bottom-heat; also as to the cause of their bleeding. The *rationale* of the process of their life and growth is this:—In the seed the radicle is the first to start, nourished by the cotyledons under the influence of heat and moisture: from it descends a chain of cells, the extreme one collects water from below, in which nutritious elements are dissolved. These ascend through the stem by virtue of the power named endosmose by Dutrochet, while the stem returns by exosmose a fluid elaborated by the leaves or other surface exposed to light. It has lately been proved by Professor Graham that without any influence of vitality all crystaloid liquids, as water, &c., will, in definite proportions, pass through any septum to take the place, by diffusion, of any colloid liquid, as gum, &c., which in less quantity will pass to the opposite side: this is the explanation of the transfusion in the animal system of the chyle, the blood, and the liquids conveyed by absorbents and glands. During cold weather or drought, the sap contained in the vessels of the roots, and of the stem, and leaves, is in a state of equilibrium, and therefore no action occurs in deciduous trees, but a slight movement continues in evergreens, as it does in hybernating animal life. It may be seen accordingly that snow melts first on evergreens. Warmth, however, causes the buds to swell which had been stored with starchy materials in autumn, arrested by cold in their progress of cell structure: thus a vacuum, or at least a line of less resistance becomes established, which calls into action the principle of endosmose. That growth proceeds first downwards is exhibited in the roots which descend in the Pandanus from considerable heights of the stem, and from the simple example of the Duckweed, which sends roots down from each of its leaves, thus creating a gradually increasing family of plants. It has been found by recent researches that the copious transpiration from plants, which is the effective cause of the active pumping by the spongiole of the root, takes place chiefly from the smooth or upper surface of the leaf; and the red and yellow rays of light chiefly operate on it. It has also been shown by Deherain to the French Academy that this transpiration takes place equally in a saturated atmosphere, and therefore depends on light, and not on simple evaporation. It is also worthy of notice that the process of diffusion is not dependent, except secondarily, on capillary attraction, to which it is commonly attributed, because the sap passes upwards and downwards, not through tubes, but through a succession of closed cells, each of which is subject to the aforesaid law of endosmose. Doubtless bottom-heat would accelerate the movement, and may, if carefully restricted, be useful to the Vine, but should not be used to originate its action, and it demands abundant supplies of water. *G. H. V.*

Salisburia adiantifolia.—There was a fine healthy specimen of the Maiden-hair tree growing in the pleasure grounds of the Marquis of Bath's, at Longleat, about 14 years since. If still in existence, it must now be one of the largest in this country, as at that time I should say it was at least 40 feet high. Perhaps the present gardener will be so good as to give a few particulars of this plant. Specimens of the Tulip tree (Liriodendron tulipifera) were grand at the same place. If this noble tree will stand the atmosphere of London, it would be one of the handsomest and most suitable for the Thames Embankment, rivalling the Plane for rapidity of growth [?] and singularly cut foliage; and, in addition, its autumnal tints are of the most varied and beautiful character, and of the most exquisite polish. *J. Sheppard, Woolverstone Park.*—Our foreman, a native of Surrey, informs me that 18 or 20 years ago there grew a splendid specimen of the Maiden-hair tree at Milford, in that county. The tree was between 60 and 70 feet high, growing side by side with a noble specimen of the deciduous Cypress (Taxodium distichum), that measured nearly 20 yards through. Will any of your numerous correspondents kindly inform me if the two plants mentioned above are still at Milford? *Solihull.*

Barbe de Capucin.—I procured a packet of this salad plant from Messrs. Barr & Sugden last spring, seeing that it is so highly prized by our neighbours across the Channel. I think it ought to be grown by all who have hitherto used chicory for salads. It is equally free in growth, hardihood, &c., whilst the leaves, in lieu of the Dandelion-like narrow ones of the chicory, resemble more nearly those of the Batavian Endive, really forming in some instances a heart of their own accord; which characteristic they carry with them and maintain in process of secondary growth and blanching. *William Earley, Welwyn.*

Heliotropes.—It may interest some of your readers to know, in corroboration of an extract from the "Florist and Pomologist," at p. 1212, that I have a plant of Heliotrope, planted more than 15 years ago against a wall in a cold conservatory, the stem of which at 3 inches from the ground is now 12 inches in circumference, and has from the main stem two branches, which are each fully 6 inches in circumference. The plant is kept down to about 8 feet by frequent pruning, and is covered periodically with an abundance of bloom. *H. W.*

The "Achapesnorricher" Melon.—[Phœbus, what a name!]—Seeing this Melon favourably mentioned in a catalogue sent out by a London firm as a "hardy ridge" variety, I obtained from them a packet, which contained eight seeds. These I sowed on April 3 in two 5-inch pots, four seeds in each, and placed them in a moderate hotbed, used for raising half-hardy annuals. Out of the whole, four seeds vegetated, and when the plants had acquired a couple of leaves they were transferred singly into the same sized pots and replaced in the bed, where they remained till June 4, by which time the heat had entirely departed from it. I then planted out, without disturbing the ball of earth, one each on two separate ridges, prepared exactly as is done for ridge Cucumbers. Over one of these was placed a 4 feet square glazed frame, the other was left wholly exposed to the weather. A third plant was taken out of the pot and inserted in the original bed, the frame not being removed. The fourth plant was unfortunately destroyed by a slug, so that I had but three plants altogether. The whole grew in a very healthy vigorous state, but the two in the frames much more rapidly than the unprotected one. They all produced, I observed, numerous male flowers before the shoots had extended far, without any female ones appearing; but afterwards, when the male blooms had all withered, and the shoots become more lengthened, a number of females presented themselves instead, which turned yellow and dropped off without swelling. This circumstance I attribute to the want of impregnation, which was not attended to by me owing to my previous ignorance of the habits of the plant, and, no doubt, was the reason of my obtaining the small return of fruit that I did eventually. The following is a statement of the results. The ridge plant within the frame produced three fruit, which weighed 2 lb. 13 oz., 2 lb. 11 oz., and 1 lb. 11 oz., and all ripened perfectly during September. That in the other frame had but one fruit, which came to full maturity the first week of October, the weight of it being 3 lb. 5 oz. The open ridge plant set five fruit, three of which had attained the size of an Orange, and two rather less, when a slight frost that occurred on the 1st or 2d of August, though it did not injure my Dahlias or other flowers, nor even my Tomatos, so curled and blackened the leaves of the Melon, that it never rallied, and consequently the produce did not ripen. From my experience, then, of this Melon, as above adduced, I should say that owing to the vicissitude of the weather about the time of its ripening, it cannot be grown in this country as an open-air variety with any degree of certainty, but that it will answer well in the generality of seasons, without artificial heat being applied, if simply protected by a frame, and may be made very prolific by care being taken with regard to impregnation, as I have before mentioned, the fruit weighing from 2½ lb. to 3½ lb. each, or perhaps more. As to the qualities of the fruit, it is not only very handsome in appearance, but its flavour surpasses that of many of the more tender-constitutioned kinds, that are grown at so much greater an expense and trouble in a hotbed or pit expressly prepared for them. The form is completely circular, evenly quartered, and flattened at both top and bottom; the skin roughish, mottled with a dark and paler green, which turns yellow when ripe, and slightly netted. The flesh is pretty thick, deep orange-coloured in the centre, passing to yellow-green next the skin, melting, juicy, and agreeable to the palate; but it does not possess so powerful an aroma as some of the more tender-growing kinds. I think, therefore, considering its cheap and easy management, as well as other qualifications, this Melon is decidedly an acquisition, worthy of more extensive cultivation; and it appears to me surprising that, although introduced some years ago, its existence should be so little known throughout the country. I had visits from two first-class provincial nurserymen, and also an extensive grower of Melons for the market, as well as private gardeners, who all told me they had never before seen, or even heard of, such a variety; nor am I aware of its ever having been noticed in any of the horticultural publications. As it is my intention, if I be still in the land of the living, to give it another trial next year, I shall feel greatly obliged by some one of your correspondents who has grown it, affording me, through the medium of your paper, a statement of his experience, as well as opinion of its merits, which will also, I have no doubt, prove interesting and serviceable to many others of your readers besides myself. *Amateur, Whitland, Carmarthen, Nov.* 26.

Colouring of Pelargonium Leaves.—"A Canny Scot" has given us such a display of his "learning" on this subject, that we poor "bogles awa' doon sooth" ought to be quite dumbfoundered—but we are not; we are "na sae daft" as to be deceived by his "whigmaleery," and still think that the expression of "the hectic flush of coming death," as applied to tricolor Pelargoniums, is sheer nonsense. What on earth has the fall of the leaf in autumn to do with the question? or does he class Pelargoniums with deciduous trees, and expect them to shed their foliage in the autumn also? What if I were to go into his stove at midsummer, and in the presence of his Caladiums, then rich with glorious colour but still in robust health, tell him such nonsense? or take him to his plantations, and point to some magnificent Purple Beech, and there repeat it? If he did not "ca' me a fule," he certainly would think it. Then why should not tricolor Pelargoniums be subject to the same conditions. His remarks about Pelargonium L'Elégante are not to the point. Mr. Fish has shown how pink coloration would be obtained in the leaves of this variety by twisting the leaf-stalk. I simply stated that like results were obtained by excessive drought, but I did not set up the absurd theory that coloration in this variety was the result of rude health; it is not a tricolor at all, but a simple bicolor, and has no third colour under any conditions but those mentioned. When pink appears it is as a discoloration of the white edge only, and not as a zone. But the remarks of Mr. Fish and myself, in the latter portion of our notices respectively, did apply to the tricolor Pelargoniums, a class of plants that I maintain are most healthy, and growing under the most favourable conditions, when exhibiting their richest colours. "A Canny Scot" seems to think that foliage only is healthy when robed in densest green, and that all departures from this normal colour of Dame Nature's dress must necessarily be unhealthy; but he forgets that the "old lady," like many ladies of the present day, likes bright ribbons and richly-coloured trimmings, and she has them too, whether in the form of beautiful flowers or gorgeous foliage. I "ken naething aboot the whusky drouth;" I usually cool my tongue with the drink of old Father Adam; but I can tell him that the "nimble feet," whether of plants or "leddies," are the true causes of bright leaves or rosy cheeks. To talk about "puttin' their feet in het water, and their hands oot in the cauld," is rubbish. When next our "Canny Scot" gets pale in the face, and "cauld in his puir feet," let him, instead of putting them into "het water," make them "nimble" by running a mile or two, and he will then realise what he as yet "canna unnerstan," that nimble warm feet are the accompaniments of bright cheeks. *Alex. Dean.*

Judging Melons.—Are we to understand Mr. George Thomson that Melons are to be judged by sight and smell, and not by taste? Mr. Thomson has offered a very weak argument. In the first place I would ask, what is a Melon worth without good flavour? Let scent and appearances be what they may, I say that no judge should give an opinion on a Melon without first tasting it. I think no exhibitor ought to object to his Melons being cut. If this system of judging is to be allowed at all exhibitions, why not have wax fruit, and give up growing Melons for that purpose, if it is only the sight and scent that is required to please? The sooner we have this matter settled by our great fruit growers and practical judges, the better for all parties. A rule should be laid down as a guide for growers and judges. I always make it a rule to cut all Melons that come before me to be judged before I award a prize. I may mention that many times I have seen green-fleshed Melons exhibited for scarlet-fleshed, and *vice versâ*. I was judge at Fakenham, two years since, when Mr. Wilkins showed as Scarlet Gem a very fine green-fleshed variety, of first-rate quality, and to all appearances just like Scarlet Gem. Mr. Wilkins informed me that he had saved it true from Scarlet Gem. The first point of merit is flavour, and then thickness of flesh, and a nice compact and beautiful shaped fruit. Those large, coarse Melons that too often take 1st prizes should not be encouraged. *William Smythe, The Gardens, Elmham.*—"A Canny Scot" asks, "if two senses can but be pleased, who cares aboot the taste?" And then he adds, "so at least thinks one of the judges, who has written to approve of the tasteless mode of judgment." "A Canny Scot" is in error if he thinks my object in writing was to defend the non-tasting principle; it was rather to defend myself and co-judges from the imputation that *we* had introduced a new system by which Melons were to be judged. In doing so I hinted that I thought much might be said in favour of the non-tasting mode of judging. When one has tasted a good Melon, and a bad one, it is a difficult matter to tell what the third one is like. Fancy tasting, before breakfast, 48 such Melons as were shown at Edinburgh, some rotten and some as green and hard as Swedes! I believe if "A Canny Scot" had seen such Melons as I have seen get prizes from the tasting test, he would think them neither handsome enough for nose jewels, nor large enough for chignons—they were certainly no credit to the growers, and would have been better kept at home. "A Canny Scot" is not very happy in comparing the Melon to the Gourds or Squashes, for although he might grow either to please the eye and scent them to please the nose, he would never have the satisfaction to have his sense of taste gratified, as he might, if he cut a Melon that had been judged by sight and smell only. *George Thomson, Stansted Park.*

Pears at the Liverpool Show.—The disqualification visited upon Mr. Manderson's collection of dessert Pears, at the recent exhibition of the Liverpool Horticultural Society, has been upheld by Mr. A. F. Barron, of Chiswick. At my desire a fruit of Beurré Diel and one of the Pears set up as Duchesse d'Angoulême were submitted to him, and he pronounced both to be Beurré Diel. I shall be glad if you will publish this, as there was much discussion in the Hall in regard to the matter; and as it was well known the fruits were to be submitted to Mr. Barron, many will be glad to learn his decision thereon. Mr. Manderson stated, that the tree bearing the fruit set up as Duchesse d'Angoulême came from Mr. Rivers under that name some two years ago; and as the fruit had that somewhat lengthened, tapering, yellow appearance, similar to the Pitmaston Duchesse d'Angoulême, I was led to suggest it might be the latter. The circumstance shows how Pears vary in character when grown under different conditions, and in different aspects. I may add that the judges were Mr. Tillyard, of Brocklesby, and Mr. Stevens, of Trentham. *Your Reporter.*

Foreign Correspondence.

ANTIBES.—Among private gardens in the south of France there is none, I believe, to compare in interest with that of M. Gustave Thuret, near Antibes, whether on account of its extent, richness in species, or the perfect manner in which it is kept up. About 12 years have elapsed since M. Thuret commenced planting operations on this spot, which at that period was covered with Olive trees, Vines and cereals, precisely like the adjacent country is at the present moment.

Before attempting any description of this garden, which indeed can be but very imperfect, let me say that Antibes is an ancient walled seaport, some 6 or 7 miles from Cannes, and that it is on the eastern side of a promontory, which, stretching into the sea far beyond, separates the Golfe de Jouan from the large bay at the northern extremity of which lie Nice and Villa Franca. The villa of M. Thuret, which is situated on this promon-

tory, is a spacious and picturesque building, in cottage style, quite devoid of the ornate and pretentious character which is so common to modern French country houses. In the drapery of luxuriant climbing plants which clothe its walls and verandahs, I noted Bougainvillea spectabilis, Tacsonia manicata, (T. ignea Hort.), Holböllia latifolia, and Tecoma australis; likewise Clematis patens and C. lanuginosa, but for these Japanese species the climate is rather too hot and dry, and they can be cultivated with more success in England. A sunny border close to the chief entrance afforded a good position for Aloe ferox, A. arborescens, A. ciliaris, Sempervivum arboreum, Euphorbia grandidens, Cotyledon orbiculata, Portulacaria afra, Kleinia neriifolia, and K. anteuphorbium—the last now flowering freely. In another spot near the house, but less exposed to the sun, was a splendid specimen of Banksia marcescens, forming a large bush bearing numerous cones.

An English lawn is impossible in this dry country, but the garden has a spacious grassy slope, bounded by a fine mass of wood, to the beauty of which some lofty Eucalypti largely contribute. The lawn is adorned about its circumference with some very noble groups, of which a mass of Gynerium argenteum is the finest I have seen. Another striking plant in this situation is Yucca filifera, of which five stems, each 8 or 9 feet high, and clothed with leaves from the base, stand together as a clump. This plant, I was told, has not yet flowered. *Apropos* to the lawn, let me say that some part of it, which is more or less dotted over with Pines, has been planted with Anemones, which are very beautiful in the winter and spring. The rough lawns in this country allow this fashion of ornamentation, and I have seen even Ixias flowering among the grass with very good effect.

Gravel, which forms such good paths in our English gardens, is not procurable here, nor in so dry a climate would it be of any value. In its place a loose white shingle is employed, while for edging a variety of small plants is used: two species of Statice, Gazania splendens, Santolina viridis, and a Mesembryanthemum do duty for the neat and useful Box.

The chief roadway leading to the house is bordered with Orange trees and Date Palms, the latter still in a stemless condition. There are several other Palms about the grounds, as Jubæa spectabilis, Corypha australis, Sabal Palmetto, and Chamærops excelsa, also good plants of Cycas revoluta, which is perfectly hardy in this climate. Agave americana is cultivated as in all the warmer parts of Mediterranean France, but I have seen no specimens of such magnificent dimensions as here. Several other species of Agave, grown in the open ground, are also exceedingly fine, as A. Ixtli, A. mexicana, A. Scolymus and A. coccinea.

It is impossible for me to enumerate the mass of miscellaneous shrubs which line the walks, or even within the limits of a letter to notice the more interesting. I shall therefore pass on to the more botanical part of the grounds, which, with a spacious kitchen garden and vineyard, occupies a plot somewhat detached from the rest. Here, planted on some rockwork under a south wall, is a collection of Cactaceæ, succulent Euphorbias and Stapelias; also a large number of plants in pots. Near by are long ranges of frames in use for propagating, and also for the preservation of some of the rarer or more tender plants in winter. These frames, with a small unheated greenhouse used as a nursery, are the only glass shelters about the grounds.

Among the more noteworthy plants on this portion of the property I observed with pleasure Diospyros Kaki, producing a fruit which for shape or size reminded me of a green walnut. When mature, it is said to have a well-flavoured pulp resembling plum jam. Psidium Cattleyanum, growing to the size of a small Currant bush and bearing its ripe fruits, was also in this part of the garden. Here too are some beds of Cistus, a genus which has afforded material for long and laborious studies on hybridisation to M. Thuret's friend, Dr. E. Bornet. Both gentlemen are devoted to botanical pursuits, of which one striking evidence is the patient care bestowed in correctly naming the plants in the garden. All, moreover, are beautifully ticketed with labels of the most permanent kind, and a copious catalogue is kept of the plants in cultivation. *Daniel Hanbury, Palazzo Orengo, near Mentone, Nov.* 17, 1869.

Societies.

LINNEAN: *Nov.* 18.—G. Bentham, Esq., President, in the chair. The following papers were read:—1. *Review of the genus Hydrolea, with descriptions of three new species.* By Alfred W. Bennett, Esq. The author adopted the view of R. Brown and others, that the Hydrolaceæ, which had been severally referred to the Convolvulaceæ and Hydrophyllaceæ, must be retained as a separate order, including, however, two tribes, the Hydroleæ with septicidal, the Nameæ with loculicidal dehiscence. The tendency which exists in several species of Hydrolea to substitute for the normal bilocular a trilocular ovary, indicates, in the author's opinion, a closer affinity with the Polemoniaceæ than has been generally supposed. From Solanaceæ they differ by their two styles and straight embryo; from Scrophulariaceæ, by their regular corolla, five equal stamens, and two styles. The order is essentially tropical and subtropical, and especially American. The genus Hydrolea, which is nearly synonymous with the suborder Hydroleæ, ranges from Arkansas to Monte Video, with a few Asiatic and African species, to which Mr. Bennett adds two new ones from tropical Africa, contained in the Kew Herbarium, namely, H. graminifolia and H. macrosepala, making a total of 13 species, of which descriptions were given, in several cases accompanied by a figure of the ovary or capsule. One other new species was proposed, namely, H. paludosa, from Brazil; while the H. glabra of Choisy was distinguished as H. elegans. The species were classified thus:—Spinosæ: H. spinosa, ovata, paludosa, quadrivalvis, elegans, and uligicaulis. Inermes: H. megapotamica, glabra, corymbosa, zeylanica, multiflora, graminifolia, and macrosepala. ——II. *On the Classification and Nomenclature of the Species and Varieties of Hedera.* By Mr. Shirley Hibberd; communicated by Mr. W. Robinson. The author admitted three species, namely, H. Helix of Linnæus, H. canariensis of Willdenow, and H. colchica of Koch, for the latter two of which the new specific names of grandifolia and variegata were proposed, and which the author trusted "the botanist would allow, if only in aid of an experiment which has for its principal objects simplicity and utility in the nomenclature of plants." The subdivisions proposed were:—1, Scandent, or climbing Ivies, with green leaves; 2, Scandent, or climbing Ivies, with variegated leaves; 3, Arborescent, or fruiting Ivies, with green leaves; and 4, Arborescent, or fruiting Ivies, with variegated leaves. "Under one or more of these four subdivisions may be placed every garden Ivy known." "A very brief experience with Ivies will convince the observer that every scandent form tends inevitably to the fruiting form, requiring only age and immunity from the pruning-knife to produce in due time abundance of berries. It is not, however, so generally known that every fruiting form, however arborescent, is capable of reverting to its corresponding scandent form; the mere opportunity for climbing—as, for example, proximity to an old brick wall—and the roots having free range in a rich soil, tending to what may be properly termed its rejuvenescence." After a double revision of the numerous so-called varieties (over 200), the author found a remnant of about 50 distinct sorts; which, having been carefully compared, and in many cases re-named, were sufficiently separated by their characters to take their places in his classification.

Notices of Books.

THE *Birds of Somersetshire*, by Cecil Smith, pp. 640 (Van Voorst), is a conscientious painstaking account of the birds of the county. The description of the form and habits of the birds seems, so far as we have been enabled to judge, accurately and carefully drawn up. The following passage will show the spirit in which the author has treated the small bird question. "The constant residents and regular migrants, which we can number by thousands, such as some of the finches, the thrushes, the warblers, the tits, the swallows, the crows, and the pigeons,—these are the birds for the destruction of which sparrow clubs, poisoned grain, and petitions to landlords, are set on foot. How little cause there is for such wholesale slaughter, and how far the birds are either rightfully or wrongfully accused, I hope I have in many cases made apparent by the list of foods I have given in my account of each bird. These lists I have partly made out from what I have been able to gather from the writings of others, and partly from observations I have been able to make myself, either by actual dissection or by watching the birds feed. In this way I have endeavoured to state, as fairly as possible, most of the benefits conferred, or the peccadillos committed; some of these latter, indeed, by the most useful of the birds; for with them, as amongst Christians, it would certainly be difficult to pick out any perfectly blameless, and perhaps equally so to pick out any entirely mischievous without some redeeming points. It is always upon the balance of good or mischief done that we must decide whether the birds generally or individually are to be considered our feathered friends or foes. I have, therefore, as I went on, tried to lay such facts before my readers, as far as the birds of Somersetshire are concerned, as would enable them to form their own judgment; and in doing so, I have always tried to bear in mind Othello's injunction—

> 'Nothing extenuate,
> Nor set down aught in malice.'"

—— An eighth edition of Lord St. Leonard's *Handy-Book on Property Law* (Blackwood) has been published, posted up, we are assured, to the present date. In view of the imminent discussion on the land laws of Ireland, this book will be a serviceable companion for the newspaper reader desirous of making himself acquainted with the laws affecting purchase or sale and tenure of land in this country.

Florists' Flowers.

HAVING had many applications for a list of the varieties of TREE or PERPETUAL FLOWERING CARNATIONS in flower here, and an account of their cultivation, I send you the names of a dozen of the best I know. There are, however, a great number of varieties that have not come under my notice, which doubtless are quite equal, or possibly may be better than those I am about to notice, but I can at least vouch that these are good:—

Bride (not Hodge's): a fine serrulated white flower, very sweet and free.

Covent Garden Scarlet: the finest of all where it does well, but it is subject to canker. This variety was discovered growing in the gardens of Hampton Court some years ago by a lady, who took the liberty of helping herself to three cuttings, placing them in her parasol, and bringing them home to a gardener to strike for her, on condition that she had one plant!

Dragon: scarlet, good habit, and free.

Boule de Feu: a fine scarlet variety.

Prince of Orange (Perkins): a very promising yellow variety, free.

Jean Bart: a compact growing scarlet.

Oscar: yellow.

Beauty: scarlet flake.

Duke of Wellington: scarlet bizarre.

Henshaw's Scarlet: in the way of La Grenadier.

Lee's Scarlet: a free serrulated variety.

Atinie.

These beautiful plants may be increased by cuttings or layers. When rooted they are to be potted in 3-inch pots (sixties), in a mixture of loam, coarse sand, and rotten dung, and kept in a close place until established, after which they should have plenty of air. The plants must never be allowed to get root-bound—this is the point where a number of growers have failed with them, but they must be kept shifted on, as soon as the pots get filled with roots. During the summer months they should be plunged out-of-doors, but as soon as the autumn rains come on they should be got under cover, or they will get over-wet, and will, in consequence, suffer from mildew and canker. They should be placed for the winter in a dry, light, airy house, where they can get all the sun possible, without being exposed to draughts. They will flower all the winter, and if shifted on when they may require it, and receive liquid manure once a week, when the pots get full of roots they will continue to grow on and flower in succession. In case mildew appears, apply sulphur, and for green-fly wash with soft soap and water.

The present is a very good time to get plants for growing into specimens for flowering next winter. Every person who has a greenhouse should grow a few of the varieties, for they are very beautiful, and may be had in flower all the year. *W. Howard, Balham.*

The Apiary.

STARVATION IN THE MIDST OF PLENTY.—Early in the summer my Observatory Unicomb hive was peopled by a fine swarm. This hive is made very long in proportion to its height. The central portion of the comb was almost exclusively devoted to the brood, only a little honey in the latter part of autumn having been stored there. The two sides were made the chief depositories of the stores of honey and pollen. The right-hand side, looking from the back, contained mostly sealed honey; on the left, though there was a considerable space of comb filled with honey, it was almost entirely unsealed.

As this hive is so arranged that I can transfer the comb from an ordinary frame hive into it, for the purpose of stocking it with a swarm, and *vice versâ*, I seldom attempt to winter the bees in a domicile so unsuited to their natural requirements, and fully intended shifting them and their combs into another box. But business occupations prevented my doing so as early as I intended; then a period of cold, unfavourable weather set in. I looked at the bees to see if they were sufficiently provided with food; they were then in the centre part of the combs, and seemed to be finishing all the honey in that part first. About two weeks after I again opened the hive, and a sad sight met my view; the bees had left the central portion, but had divided into two clusters, one of which had, with the queen, moved to the left, the other to the right. That on the left, finding little else but honey in unsealed cells, had quickly consumed it all, and were, with the queen, actually quite dead from starvation; the other cluster, which had moved to the right, where the sealed honey was, were alive and active, taking wing immediately on the hive being opened.

It is not often that the queen is among the early victims to starvation; more frequently than not she may be found alive after all the rest of the bees are dead. It was after some little time spent in unsuccessfully searching for her among the living bees that I turned to the dead ones, which still retained their position on the comb, when I discovered her directly. It seems strange that the bees should have separated into two divisions, and also strange that the queen should have accompanied the one which selected the worst provisioned portion of the hive.

Bee-keepers often wonder at finding the bees of a hive dead, evidently from starvation, while there is a large quantity of food still unconsumed. The reason is that all the stores within easy reach of the cluster have been consumed; cold weather prevents their breaking the cluster, and separating for the purpose of getting near to their supplies, and they literally die of starvation while surrounded by superabundance of provisions. To obviate the probabilty of such a calamity, some bee-masters take the trouble to transpose the combs at the approach of winter, shifting those in the centre which have been used chiefly for breeding, and which are comparatively empty of food, to the sides, and putting in their place those which are well furnished with sealed honey, taking care, if drone-celled combs are used for this purpose, to re-transpose them in the spring, before breeding becomes general. *Apiator.*

Miscellaneous.

Poppy Culture at Tien-Tsin.—In an Imperial decree, dated January 31, 1869, and comprised in commercial reports of her Majesty's Consuls in China and Siam, the following passages occur:—"The Censor Yu Pochuan has presented a memorial praying that, with a view to the preservation of the lives of the people, orders may be issued strictly prohibiting the cultivation of the Poppy plant. The cultivation of the Poppy is injurious, since it is an obstacle to the production of food for the people. It was first introduced from Kansuh into Shen-si and Shan-si, and by slow degrees came afterwards to be grown in the provinces of Chiang-su Honan and Shan-tung. We now instruct the officers under the Governors-General and Governors to instruct the officers under them everywhere, and without delay, to use the utmost diligence in publishing proclamations altogether forbidding the cultivation of the plant." Tien-Tsin is distant about 70 miles from Pekin, the capital of China. *Daily Telegraph.*

Garden Operations.

(For the ensuing week.)

PLANT HOUSES.

WHERE successional batches of *Herbaceous Calceolarias* and *Cinerarias* are grown, some of the younger stock will now want potting on. It should, however, be understood, in regard to the latter, that if they have commenced to throw up their flower-spikes, shifting will be of very little use to them. This fact, I scarcely need add, is of equal importance to the *Calceolaria*, though these, we do not suppose, are yet showing

for bloom very prominently. Both thrive well in a cool place,—any locality, in fact, will suit them, provided the frost is kept out, and all the light and sunshine possible afforded them. Some of the main stock, or second early *Cinerarias*, may be induced to form more compact and spreading heads of bloom if the points are pinched back just as they show symptoms of starting for flower. The forwardest ones, being now well pot-bound, will be much benefited by frequent applications of wholesome manure-water. Let the temperature in all stoves be still further reduced; from 56° to 59° will now be ample by night, with an increase by day in proportion to the brightness of the weather. Attend well to the cleaning of the foliage of trees of *Oranges, Citrons*, &c., during this their season of rest. Give them but a moderate supply of root-waterings at this time. The conservatory should now be kept gay with relays of blooming plants obtained from any other houses which the grower may be in possession of. A slight amount of heat may be kept constantly in those conservatories which are kept as show-houses, and which are not used as growing houses. Under these circumstances most plants when in bloom may be safely placed therein, even *Orchidaceous plants*, especially such as the showy *Phajus, Brassias, Oncidiums, Zygopetalums*, and such *Dendrobiums* as *D. chrysanthum, D. nobile, D. Pierardi*, &c. Root-waterings should, however, be withheld, as I have before intimated, as in all instances where a minimum temperature is maintained sufficient moisture exists in the air for all their presents wants. Make as much advance as possible from this time with all subjects intended for indoor and other decorations at Christmas. *Poinsettias, Euphorbias*, especially *E. jacquiniflora* and *White Camellias* are all more or less useful, and likely to be made good use of, if at hand at that time. Even plants of the Christmas Rose, *Helleborus niger*, taken up at once and forced, may come in very acceptable. Flowering *Chrysanthemums* which have become in the least degree shabby should be removed immediately. Healthy foliage plants, even if but sparingly intermixed with other blooming plants, will be far more pleasing to the eye than the above. In our efforts to make a rather large display, we are most of us rather prone to crowd unduly such valuable subjects as *Azaleas, Ericas, Epacris*, &c. Immediately an opportunity offers, by the removal of the Chrysanthemums, let not a moment be lost in thinning out the stock, so that as much light and air as possible at this dull season may fall to the lot of each specimen alike.

FORCING HOUSES.

Be very cautious not to allow the temperature to fluctuate materially in those *Vineries* in which the buds, having swelled to the full, are about bursting into leaf. Let those rods which have been bent down to assure a more uniform growth throughout, be now placed and tied securely into their permanent quarters. Do this before the buds push forth more prominently, as in that case there will be greater risk of breaking them in the performance. The vinery at such a stage cannot well be kept too moist, all other circumstances being favourable to a good growth. If the borders are within doors, the requirements of the roots, in regard to the necessary waterings, must have constant attention. Always use tepid water, and even though the season be as infelicitous as it well can be, the fact must not be overlooked, that, with an active surface growth, the roots must have such an amount of supply as they would require under like circumstances at a more natural growing season. The frequency with which water at the root is needed must depend wholly upon the site, and depth, and drainage of the border, the age of the Vines, and so many other circumstances that it is not possible to offer advice on this point. When water is really requisite, let it be afforded liberally. Too frequently at this season we err on the side of affording a too meagre supply. Moreover, occasional surface-sloppings, consisting of three or four 4-gallon watering-pots-full, are far more likely to cause a stagnation than are any over copious waterings at regular intervals. By too frequent surface-waterings we so bemire the surface soil, that it becomes perfectly impervious to air—a state of things which is most injurious to healthy root formation or active vegetation. Where the borders are outside keep the warmth of the fermenting materials as near to a mean of 85° as is possible. This will afford to the surface of the border a moderate warmth of from 65° to 70°. *Peach* and *Nectarine trees*, which are advancing to the blooming stage, having been started as previously suggested, must be kept constantly syringed from two to four times a day, according to the state of the weather. Keep up an average temperature of about 58°, by means of artificial heat, of giving air at all times when the outer atmosphere is capable of influencing this by a rise of 3° or 4°. Do not slop a drop of water about more than is absolutely needful for a week or so previously to the first flowers opening, and use every endeavour to make the internal surfaces as dry as possible preparatory for that event. Make a successional sowing of *Dwarf Kidney Beans* if necessary.

HARDY FLOWER GARDEN.

Amateurs with limited means at their disposal take a larger amount of interest in this department of our Calendar than do most others. I will therefore commence at this, the planting season, to direct attention to a few such hardy plants as are likely to be useful herein. I will begin with *Hardy Climbing Plants*, which are so desirable in all confined or enclosed spaces, apparently extending, as they do, the area by the beauty of their display, and concealing most unsightly objects. As staple plants for backgrounds, and to climb high if needed, the Virginian Creeper (*Ampelopsis hederacea*), the Trumpet-flower (*Bignonia radicans*), the Chinese Wistaria (*Glycine sinensis*), the sweet white Jasmine (*Jasminum officinale*), Magnolia *conspicua*, and sundry climbing Roses, such as varieties of the Boursault, multiflora, Ayrshire, and sempervirens groups, and, though less hardy, the Banksian, with certain hybrid climbing varieties, are amongst the best of deciduous plants. Amongst evergreen climbing plants, of which there is rather a dearth at the present time, though we hope to see the number extended, we have the following:—Ivies with variegated foliage, such as *Hedera Helix latifolia variegata, H. argentea variegata, H. rhombea variegata, H. elegantissima*, and *H. maculata*. As a very strong grower, with large heart-shaped leaves, bright, shining, and constant, the *H. colchica* (*Rœgneriana*) is not to be surpassed, attaching itself freely and firmly to the driest walls, &c.

KITCHEN GARDEN.

In continuation of some previous remarks regarding a system of successional cropping, I pass on to what is a very general crop with all. I refer to the plantations of *Spring Cabbages*. If these have been planted upon the current year's Onion-bed, as I have frequently urged, seeing that they do so much better thereon, the beds will have become somewhat impoverished. The only way to thoroughly renovate them will therefore be to either bastard-trench, or thoroughly trench them over, placing at the bottom a good layer of manure, and another at from 4 to 5 inches below the surface. So treated, this will then be the best possible site for the summer crop of Peas, as here they may find appropriate nutriment during the greatest drought. One thing I would observe, however, even if it be necessary to take some of the old stumps up at the present time and lay them by in some corner, let the ground be operated upon as soon as possible if at all light in its nature. It will then have ample time to settle down firmly. This is a matter of no little importance. Another hint should not be overlooked in connection with light hungry soils, which is, that the cruder or less decayed the manure, if given in the same quantities as spit-manure would be, so much the better. The soil will have ample time to turn it to account ere required by the roots. The soil is so hungry in some places, as also here, that if a man leaves his coat by chance on the ground all night, the buttons thereon are well-nigh consumed by morning! Do not be concerned as yet in regard to the necessary space for next summer's *Onion-bed*. Those who are in possession of light dry soil may now make a sowing of *Peas*, for the early crops. I have purposely waited till this time, as for the last two or three years November-sown Peas have become too winter-proud. Sown now, they will be soon enough, if at all favourable weather ensue. Those who have a cold retentive soil should sow in boxes or frames in the spring, and transplant in the usual manner. *W. E.*

TOWN GARDENING.

If to convert sooty spots into agreeable gardens be the object in view, the soil should now be attended to at once. It is quite certain that in many instances the ground is actually poisoned with soot, and choked with the accumulated rubbish of years. Therefore as much of the old soil as is unfit for supporting vegetation should be at once removed, and its place supplied with fresh loam from the country, with a mixture of rotten dung. There should not be less than 2 feet deep for the beds and borders, and 6 inches for the grass plots. This will greatly improve the vegetation, and also have a tendency to purify the atmosphere. The arrangement and laying-out of the garden embrace a variety of considerations, such as situation, exposure, &c. The beds and borders should be exposed to the sun as far as possible, but the form must be left to the taste of the owner, which should now be put in action—so that the groundwork can be done in time for planting and turfing in February. Walks should be bottomed with brick rubbish, ready to receive the gravel after all other work is done. *British Ferns* do well in town in the most confined situations in fresh soil, and the present is a good time to throw up a bank of earth to build the rockery on. This should be built of an irregular outline; the material best suited for this purpose being "clinkers," from glass works, and burnt bricks. These should be so placed that vacancies are left between the rockwork, to be filled with such soil as is likely to suit each individual species. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Dec. 1, 1869, as observed at the Horticultural Gardens.

Nov. and Dec.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind	Rain.
Thurs. 25	22	29.847	29.813	51	38	44.5	45	44	N.W.	.00
Friday 26	0	29.720	29.712	50	36	43.0	45	43	W.	.00
Satur. 27	24	29.720	29.409	46	42	44.0	45	44	S.W.	1.04
Sunday 28	25	29.725	29.443	54	29	38.5	46	44	N.W.	.00
Mond. 29	26	29.930	29.826	40	35	37.5	44	44	W.	.40
Tuesd. 30	27	29.860	29.629	41	22	31.5	44	43	N.	.00
Wed. 1	28	29.966	29.960	39	20	29.5	42	43	N.	.00
Average.		29.824	29.685	45.4	31.3	38.3	44.4	43.5		1.44

Nov. 25—Frosty fog; very fine; clear and fine.
— 26—Overcast, densely overcast, overcast.
— 27—Rain, heavy rain throughout.
— 28—Cloudy, very damp, very fine; clear and cold.
— 29—Overcast and cold, densely overcast, drizzling rain.
— 30—Overcast, very cold wind, clear and frosty.
Dec. 1—Sharp frost, very fine, clear, sharp frost.
Mean temperature of the week, 2.7 10 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending Dec. 11, 1869.

December.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday.. 5	49.0	35.2	42.1	25	0.25 in.	—	3	2	1	7	14	11	5
Mon. .. 6	48.2	36.7	42.4	22	0.76	3	1	2	4	7	15	8	2
Tues. .. 7	48.4	38.5	43.5	21	1.02	2	6	2	3	5	15	8	3
Wed. .. 8	47.9	36.8	42.3	19	0.58	2	6	1	2	2	13	9	6
Thurs. .. 9	46.7	34.9	40.8	17	0.49	3	5	4	3	6	11	4	7
Friday ..10	47.0	32.8	39.9	26	0.67	2	7	3	3	9	11	4	4
Satur. ..11	46.5	32.6	39.5	17	1.02	3	5	6	2	7	13	5	3

The highest temperature during the above period occurred on the 11th, 1844—therm. 65 deg.; and the lowest on the 8th and 9th, 1867—therm. 13 deg.

Notices to Correspondents.

*** We regret to have to repeat the announcement made in our columns several months since that Mr. McHutcheon is now in no way connected with the *Gardeners' Chronicle*. Letters relating to matters of business should be addressed to the Publisher; editorial communications to the Editors, at the office, 41, Wellington Street, Covent Garden, London.

APPLE TREES DESTROYED WITH INSECTS: *W. G.* The pieces of bark sent are covered with the Apple-bark louse, Coccus conchiformis. We hope shortly to publish an article on the subject, wherein several remedies are suggested.

BEET: *T. C.* A fine sample of the purple-stemmed form of Beta Cycla, which is commonly grown in gardens under the name of Beta brasiliensis.

BOOKS: *Rumford Street, Manchester* (signature quite illegible). 1, Hoopes' "Book of Evergreens," an American book, to be had of any foreign bookseller; 2, consult our advertisement columns. Apply to Lovell Reeve & Co.; or to Mr. Casbourn, *Herald* Office, Newbury.—*C. C.* Obtain M. Chatin's little book on Watercresses, entitled "Le Cresson," published in 1866 by Baillière, Paris.

CUCUMBER: *G. Edward.* Your Cucumber, raised from Edward's Eclipse crossed with Craig's Prolific, and which you say is one of the strongest constitution and most prolific varieties known, belongs to the spined class. The samples of fruit sent are good-looking, evenly swelled, of moderate length, and of good average quality as to flesh, flavour, &c. As regards these latter points, however, we do not consider it equal to Telegraph and other varieties of that race.

DECAYED SOUTH AMERICAN BEEF: *Manuribus.* We have no practical experience in its use for Vine-borders, and we should be loth to try it.

EVERBEARING STRAWBERRIES: *L W.* Magnificent examples of Sir Charles Napier and British Queen Strawberries were shown at South Kensington not quite six weeks ago, which had been grown in the open air. There are many Strawberries like yours which possess the property of late flowering, &c. The alpine varieties are, however, the only ones which can lay any claim to the character of everbearing, and that in a very modified sense, to which class we strongly suspect this new American will be found to belong. We think so from the description given of it by our correspondent, "Vectis." The habit of growth, leaf, flowers, and fruit, are all in character. We have long-fruited alpines. Yours, the examples of which you send, is of a totally different character, a form of our ordinary European Strawberry, possessing, as you state, the character of late bearing.

FLORAL CRITICISM: *Tyro.* Our correspondent should inquire of the Secretary of the Royal Horticultural Society.

FLORIST AND POMOLOGIST: *F W.* Published monthly at 171, Fleet Street, E.C.

GARDENERS' EXAMINATIONS: *An Enquirer.* Apply for forms, &c., to James Richards, Esq., Royal Horticultural Society, South Kensington, W., and to P. Le Neve Foster, Esq., Secretary, Society of Arts, Adelphi, London, W.C.

GARDEN MEMORANDA: *A. D.* At present we are quite overdone with such articles. We trust shortly to make fresh arrangements, which will give us more space for these and other matters. We must, however, request our correspondents to confine themselves strictly to such points as are peculiar to the places visited, and not to indulge in generalities. If brevity be the soul of wit, it must be easy to possess the soul if not the body of that faculty; and where both are happily combined no one need fear being obscure. The proverb, *Brevis esse laboro, obscurus fio*, does not apply in this case.

GRAFTED VINES: *R W S.* You have not only acted wisely but well by grafting your Black Hamburgh Vines with late varieties, which future results will no doubt show. Our own experience has already proved that late Grapes grafted on Black Hamburghs succeed fully better than when the varieties are grown on their own roots. Your first adviser was a wise one; your second was otherwise. Graft Mrs. Pince on Black Hamburgh by all means. Diamant Traube is a good early white Grape, having fair sized bunches, and berries of a very pleasant Sweetwater flavour. It is somewhat difficult to set well, yet, when well grown, is very handsome and hangs well on the Vine. We believe it is synonymous with Scotch White Cluster.

GRAFTING WAX: *H W.* Mix tallow, beeswax, and rosin in equal parts, or you may put a little more tallow, to render it more pliable.

HEATING APPARATUS: *J P.* If the pipes get so hot that you cannot bear your hand upon them, then you require more piping. If this is not the case, your boiler is deficient, or probably requires cleaning. We would advise you to let the man who arranged it look it over.

INSECTS: *P P.* Your larvæ are those of some species of weevil, possibly of the destructive Otiorhynchus vastator, which arrives at the perfect state in the spring. Had you been more communicative as to their habits, we might have been more decided in our reply. *W.*

LAURUS REGALIS: *A Correspondent* in Rutlandshire has forwarded us, through Messrs. Lawson, some branches of this shrub in berry, under the impression that it does not often bear seed in England. We never saw the fruit before. It seems to be rather larger than the berry of the common Bay Laurel.

NAMES OF FRUITS: *T B. Apple:* Baldwin.—*R W R. Pears:* 1, Hacon's Incomparable; 2, Beurré de Capiaumont; 3, Beurré Bosc; 4, Thompson's; 5, Vicar of Winkfield; 6, Beurré Diel; 7, rotten; 8, Passe Colmar; 9, Comte de Lamy; 10, rotten.

NAMES OF PLANTS: *R J.* No. 1 is Glyptostrobus pendula; No. 2, Taxodium distichum. It is a disputed question whether they are the same or not. The foliage is very much alike, and the Glyptostrobus never perfects its fruit; but the one is from China, and the other from America. *Adhuc sub judice lis est. A M.* Probably you mean Primula imperialis.—*Bp. Stort.* Libonia floribunda.—*T S.* We cannot make out any real difference between the specimen sent and Lycaste cruenta, although the latter has usually a more clouded spot.

SALISBURIA ADIANTIFOLIA: *G Y, Bath.* The tree at Brentford is still in existence, but is not, we believe, so large as you imagine.

SHRUBS FOR THE BANKS OF A GULLY: *Thorne.* In addition to Rhododendrons, you may plant any of the small-leaved group of Cotoneasters, Portugal Laurels, Berberis Darwinii, the double-flowered Gorse, and the Broom. Yuccas planted along the top would be very effective. For underwood, the Ivy and St. John's Wort, Hypericum calycinum, are good subjects.

SPRUCE FIR DYING: *W D F.* The information is insufficient to enable any one to form an opinion worth having. If our correspondent will tell us something about the subsoil, the state of drainage, and the condition of the roots and root fibrils, we shall then say what we think. At present, it would be mere conjecture to name a cause.

TRANSFERRING OF PLANTS: *H T.* forgets that every text-book on botany or horticulture contains the information in question. The fact is abundantly well established.

VARIEGATED LAUREL: *N A B.* A pretty sport, but there are others as good in cultivation.

COMMUNICATIONS RECEIVED:—H. W. C. (yes.)—A. C.—W. S.—G. G.—J. McM.—Rustic.—H. L. H.—J. F.—W. T.—J. V.—W. P.—G. E.—J. P.—G. R. A.—J. McJ.—C. G.—G. W.—R. C. S. (next week.)—J. B.—T. P. T.—T. C.—J. W. K.—C. N.—A. D.

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To the Trade.

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W. K. feels great confidence in offering it in fine specimens, 4 to 5 feet, full of bud, per pair, 16s.; second size, 3 to 4 feet, do., 10s.; third size, 2 to 3 feet, do., 7s.; fourth size, 1½ to 2 feet, do., 6s.

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T. THORNTON begs to intimate to the Trade that the Stock offered below cannot be surpassed for health and fibrous roots. All been grown on maiden soil, and the stock, very extensive, is offered at low prices:—

Pinus austriaca, 9 to 15 inches
P. Laricio, 9 to 15 inches
P. rigida, 2 to 3 feet
P. taurica, 1 to 1½ foot
P. Pinaster, 2 to 3, and 3 to 4 feet
Scotch, 9 to 15 inches
Spruce Fir, 1 to 2, and 2 to 2½ feet
Laurel, 1 to 2 feet
Turkey Oak, 1 to 2 feet
Cryptomeria japonica, 12 to 15 inches
Chinese Arbor-vitæ, 9 to 15 inches

THOMAS THORNTON, Heatherside, Bagshot, Surrey.

Limes, Purple Beech, &c.

LIMES, best Red-twigged Variety, 6 to 10 feet, 15s. to 30s. per dozen.
PURPLE and COPPER BEECH, very fine, transplanted in spring of 1869, 6 to 10 feet, 18s. to 42s. per dozen.
WEEPING BEECH, very fine, 21s. to 36s. per dozen.
ELMS, Chichester and Hertfordshire, 8 to 14 feet, 12s. to 30s. p. doz.
Price to the Trade on application to
EWING AND CHILD, the Royal Norfolk Nurseries, Norwich.

PARSONS' NEW HYBRID TREE MIGNONETTE.—This new Tree Mignonette has no equal, it is robust in growth, of very compact habit, and deliciously sweet.

G. P. has been improving it by careful selection for the last ten years, and he is quite certain it will become a universal favourite, he has grown plants of it 3 feet in height, and 8 feet in circumference, in nine months from the time of sowing; moderate sized plants take about five months from the time of sowing. In sealed packets, 1s.

To be had from G. PARSONS, Nurseryman and Seedsman by appointment to her Majesty, 27 and 28, Western Road Brighton; and Hassock's Gate, Keymor, Hurstpierpoint. May also be had at HURST AND SONS, 6, Leadenhall Street, London, E.C.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY (Limited),
CORN, SEED, MANURE, and OILCAKE MERCHANTS.
Address, 26, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

To the Wholesale Trade.

HERBERT H. NICHOLSON, SEEDGROWER, Great Clacton (near St. Osyth), Essex, has the following SEEDS to offer, for cash only:—

ROBINSON'S PRIZE CHAMPION ON CABBAGE, 80s. per cwt.
NONPAREIL CABBAGE .. .. 112s. "
WHITE CELERY (Leviathan) .. .. .. 95s. "
SELECTED DARK RED BEET .. .. .. 100s. "
STUDENT PARSNIP .. .. 80s. "
MYATT'S CURLED PARSLEY .. .. .. 28s. per bush.
STUBBLE TURNIP .. .. 12s. "
&c. Also all the Annual FLOWER SEEDS, at low prices.

Johnstone's St. Martin's Rhubarb.

W. P. LAIRD AND SINCLAIR, NURSERYMEN, Dundee, N.B., have pleasure in offering the above NEW VARIETY of RHUBARB, which they have confidence in recommending as the earliest and best sort in cultivation. The raiser of it describes it "as one of a batch of Seedlings from 'Victoria;' the seedling plant was a fortnight earlier than any of the remainder of the lot, and grown beside 'Prince Albert' and 'Linnæus,' always ten days earlier than them, and giving a larger quantity of superior stems to either of these varieties. It forces better than any variety I know, and has a splendid colour."

Strong Roots, 2s. 6d. each. Usual Discount to the Trade.

The following Testimonials, selected from amongst many others, speak to its merits by disinterested parties:—

From CHAS. GUTHRIE, Esq., *of Taybank, Dundee; a well-known and celebrated Horticulturist.*—Taybank House, October 18, 1869.

"GENTLEMEN,—I have much pleasure in saying that Johnstone's St. Martin's Rhubarb is the best I have in my possession. It is a thick fleshy-stalked variety, bears a heavy crop twice a year, and if cut early, would, I have no doubt, give a third, as even ten days ago it was throwing up fresh leaves. One peculiarity it possesses of not throwing up flower-stems, only one having appeared on one of my plants in the course of two years. It makes an admirable preserve.—I am, &c., "CHAS. GUTHRIE."

From WM. GORRIE, Esq., *Horticultural Editor of "The Farmer."*
"Edinburgh, October 20, 1869.

"GENTLEMEN,—I have fully tested the merits of your Johnstone's St. Martin's Rhubarb, both by cultivation and cooking, and compared with the well known Victoria variety, I find it to be considerably earlier in spring, to yield fully a heavier crop, and to stand out later in autumn; while in quality it is much milder and decidedly more agreeably flavoured, requiring considerably less sugar, which is no inconsiderable advantage in the estimation of cottage gardeners, and others with limited incomes. "WILLIAM GORRIE."

From Mr. LAMB, *Restaurateur, Dundee.*—October 18, 1869.

"GENTLEMEN,—I have pleasure in testifying to the fine quality of your St. Martin's Rhubarb. In the course of my business I use Rhubarb to a very large extent—many tons during the season. Yours is the first supplied to me from the open air, and I always give a preference to it over others in the market.

"THOMAS LAMB."

London Agents:—Messrs. Hoopor & Co., Covent Garden Market, W.C.
May be had true from the following Firms, who have it direct from us:—

Sheffield .. .. .. Messrs. Fisher, Holmes & Co.
Lichfield .. .. .. Mr. Edward Holmes.
Exeter .. .. .. Messrs. Sclator & Co.
Andover .. .. .. Mr. Wm. Miller.
Glasgow .. .. .. Messrs. Austin & McAslan.
Dublin .. .. .. Joseph Berry & Sons.

Further names published as received.
GENERAL TRADE NURSERY LIST may be had on application.

To the Trade.

JOHN PERKINS, Sen., begs to offer the following FRUIT TREES, all of the finest quality:—

STANDARD PEARS, 5 to 7 feet stems, with good heads, at 50s. per 100, consisting of the following and other leading varieties:—

Louis Bonne of Jersey
Williams' Bon Chrétien
Jargonelle
Beurré de Amanlis
Doyenne d'Eté
Comte de Flandre
Lammas
Marie Louise
Swan's Egg, &c. &c.

STANDARD MAYDUKE CHERRIES, 5 to 6 ft. stem, 75s. per 100.
Dwarf-trained do. do., ex. fine, 6 to 10 shoots, 18s. p. doz.; 130s. p. 100.
Do. do. MORELLO do., do. 6 to 10 do., 18s. per doz.; 130s. per 100.
All letters to be addressed
JOHN PERKINS, Sen., 62, Market Square, Northampton.

Special Offer of Specimen Coniferæ, Evergreens, &c.

WM. KNIGHT solicits Orders for the following TREES and PLANTS, which have been recently Transplanted, are in perfect health, and cannot be surpassed in the Trade:—

Araucaria imbricata, 3 to 10 feet
Abies Douglasii, 4 to 8 feet
Cryptomeria Lobbii, 6 to 10 feet
Picea magnifica, 3 to 5 feet
" grandis, 5 to 8 feet
" Pinsapo, 3 to 5 feet
" nobilis glauca, 2 to 4 feet
Pinus insignis, 4 to 6 feet
" austriaca, 4 to 6 feet
Wellingtonia gigantea, 4 to 8 feet
Large Spruce Firs, perfect specimen, from 7 to 10 feet
Laurustinus, Specimen, in bud, 4 to
Portugal Laurels, 3 to 6 ft. (6 ft.
Common Laurels, 4 to 5 feet
Arbutus, 3 to 5 feet
Rhododendron ponticum, fine plants, in bud, 2 to 4 feet
Rhododendrons, finest named, 60 leading sorts, well budded.

ROSES, 50,000, all heights, all the newest and best.
FRUIT TREES, 100,000, all the leading sorts; may give a good crop the first season.
ORNAMENTAL TREES, 100,000, all kinds.
CLIMBING PLANTS, ROSES, and other Plants, great variety, very cheap.
CATALOGUES and special prices on application.
Floral Nursery, Hailsham, Hurstgreen, Sussex.

SURPLUS STOCK. Reduced Prices. Mostly transplanted in 1868 and 1869.

Abies Nordmanniana, 4, 6, 9, to 12 inches; ditto, 1 to 2 feet
Juniperus chinensis, 3, 4, to 5 feet
Pinus austriaca, 1 to 2 feet
Thuja Warreana, 3½ to 4½ feet
Fir Larch, 10 to 12 feet
Ash, Common, 9 to 12 feet
Deutzia crenata flore-pleno, 2 to 3ft
Laurels, Common, 2 to 3 feet
Laurels, Portugal, 1, 2, to 3 feet
" " 3 to 4 feet
Phillyrea, Hex-leaved, 3 to 4 feet

All well furnished, bushy, and good rooted.
Standard and Pyramid Pears and Plums, fine; besides a general stock of Fruit and Rose Trees, American Plants, Conifers, Hardy Evergreen and Deciduous Trees and Shrubs, Climbers, and Forest Trees, &c. Prices on application to
GEO. JACKMAN AND SON, Woking Nursery, Surrey.

DOWNIE, LAIRD, AND LAING beg to offer the undermentioned VALUABLE NURSERY STOCK, which is all in the best possible health. To ensure a Sale, the whole will be offered at (as near as possible) one-half the usual sale price. The Fruit Trees are all of the finest sorts, and true to name. Inspection invited.

45,000 Oak, English, 2½, 3, to 4 ft.
200 Portugal Laurel, 3 to 5 ft., very fine.
5,000 Laurel, Bay, 3 to 4 feet.
40 Irish Yew, 7 to 8 feet.
150 Tree Box, 4 feet.
200 Thuja tatarica, 3 to 4 feet.
50 Picea Nordmanniana, 1 to 1½ foot, fine.
6 Thuja gigantea, 5 to 6 feet.
30 Araucaria imbricata, 4 to 5 feet, very fine.
20 Abies Menziesii, 5 to 6 feet.
30 Cedrus Deodara, 4, 5, to 6 feet.
200 Aucuba japonica, 2 to 2½ feet, very fine.
30 Cupressus Lawsoniana, 2 to 3 feet.
30 Cupressus Lawsoniana, 4 to 5 feet.
100 Taujopsis borealis, 2 to 2½ feet.
12 Wellingtonia gigantea, 5 to 7 feet, very fine.
3,000 Miscellaneous Shrubs.
1,000 Dwarf Trained Apples, sorts named.
1,000 Dwarf Trained Pears, sorts named.
500 Dwarf Trained Cherries, sorts named.
4,000 Gooseberries, sorts named.
1,000 Currants, sorts named.

N.B.—As the above must shortly be cleared off to make way for building purposes, early orders are respectfully solicited.
West Coates Nursery, Edinburgh.—November 20.

The Smithfield Club Cattle Show—Stand 77.

SUTTON AND SONS, THE QUEEN'S SEEDSMEN, Reading, will exhibit Specimens of—
SUTTONS' MAMMOTH LONG RED MANGEL, weighing 16 lb. each
SUTTONS' YELLOW INTERMEDIATE MANGEL
SUTTONS' BERKS PRIZE YELLOW GLOBE MANGEL.
SUTTONS' CHAMPION SWEDE.
SUTTONS' IMPROVED varieties of TURNIPS.
SUTTONS' KOHL RABI, CABBAGE, CARROTS, &c.
SUTTONS' GRASS SEEDS for ALL SOILS.
CHOICE POTATOS, for Planting.
And will receive Orders for the same, at very moderate prices.
STAND 77.—SUTTON AND SONS.

Special Offer for Sale, to Clear Out.

ASPARAGUS ROOTS, 1-yr. old, 10s. per 1000; 2-yr. old, 15s. per 1000; 3-yr. old, 22s. per 1000. SEAKALE ROOTS, 1-yr. old, 6s. per 100; 2-yr. old, 10s. per 100; 3-yr. old, 16s. per 100; extra strong, for forcing, 20s. per 100.
GLADIOLUS BRENCHLEYENSIS, true, 10s. per 100.
Mr. MASTERS, 51, Ball Ring, Ludlow.

Autumn Gardening.

SEAKALE, ASPARAGUS, and RHUBARB ROOTS, &c.

JAMES CARTER AND CO. offer the following, in splendid quality:—

SEAKALE, extra fine roots, for Forcing, 15s. per 100.
" very fine roots, for Forcing, 10s. 6d. per 100.
" large, 7s. 6d. per 100.
ASPARAGUS, Giant, extra large plants, for Forcing, 10s. per 100.
" " strong, 3-yr. old, 6s. per 100.
" " strong, 2-yr. old, 4s. per 100.
RHUBARB ROOTS, Baldry's Scarlet, extra strong, 1s. 6d. each
" other varieties, extra strong, 8s. to 12s. p. doz.
MUSHROOM SPAWN, best Milltrack, 6s. per bushel.
" the French, 4s. to 6s. 6d. per box.

JAMES CARTER AND CO., the Royal Seedsmen, 237 and 238, High Holborn, London, W.C.

CENTRAL CHAMBER of AGRICULTURE.—The GENERAL BUSINESS COMMITTEE will meet at the Salisbury Hotel, Fleet Street, on WEDNESDAY, December 8, at 1 o'clock.

Same day, at 2 o'clock, MEETING of the COUNCIL, consisting of the Deputed Members from the Provincial Chambers, and of the Elected Members of Council.

Same day, at 3 o'clock, or when the business of the Council is concluded, ANNUAL MEETING of the Members of the Central Chamber.

AGENDA:

To receive the Report of the Council.
To Elect a Vice-Chairman for the year 1870.
To Elect Eight Members of the Central Chamber to be Members of Council, in lieu of the following, who retire by rotation, but who are eligible for re-election:—Mr. R. H. Masfen, Mr. R. Jasper More, Mr. J. Paine, Mr. Albert Pell, M.P., Mr. Charles Rea, Mr. C. S. Read, M.P., Mr. Edmond Riley, Mr. John Smyth.
To appoint Auditors, and to transact other Business.

JOHN ALGERNON CLARKE, Secretary.
The Salisbury Hotel, Fleet Street, E.C.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.—The GENERAL MEETING of MEMBERS will be held at the Society's House, 12, Hanover Square, on THURSDAY, December 9, at 12 o'Clock, when the REPORT from the COUNCIL will be read, and the Election of Auditors will take place.

By Order of the Council. H. M. JENKINS, Secretary.

The Agricultural Gazette.

SATURDAY, DECEMBER 4, 1869.

MEETINGS FOR THE ENSUING WEEK.

Dec. 6 to Dec. 10 — Smithfield Club Cattle Show, at Agricultural Hall, Islington.
— 6 — London Farmers' Club (Mr. R. H. Masfen on Farm Agreements), at Salisbury Hotel—6 P.M.
— 7 — Smithfield Club (General Meeting) in the Hall—Noon. London Farmers' Club (General Meeting) at Salisbury Hotel—3.30 P.M. Ditto, Dinner—5.30 P.M. North of England Chamber of Agriculture, at Newcastle-on-Tyne.
— 8 — Royal Agricultural Society (Council Meeting), at Hanover Square—Noon. Central Chamber of Agriculture (General Meeting), at Salisbury Hotel—3 P.M.
— 9—Royal Agricultural Society (General Meeting)—Noon.

THE above list of meetings shows that we are to have a busy agricultural time next week. The Smithfield Club will open its annual show on Monday morning, at 9 A.M., when the judges will commence their labours, and when members of the Society and the representatives of the Press—and the general public on payment of 5s.—will be admitted to witness the awards. By the way we find we are mistaken as to the general public—they are excluded till 2 P.M., when the process of selecting the prize animals is concluded; though why they should not be admitted with the others is hard to understand. In the evening of this day, at the Salisbury Hotel, the important subject of farm agreements, to which we refer below, will be introduced by Mr. MASFEN, to be discussed for the 50th time, with, as it seems to us, wonderfully little result. It would be a capital effort of what may be called the statistical department of the Royal Agricultural Society—which seems to have awakened to the fact that a description of things as they are is really better than all the direct agricultural teaching in the world—if an attempt were made to ascertain how much more and in this country is now let on lease or now let on a formal farm agreement than was so let 20 years ago. It would, we fear, be found that there had been marvellously little direct result of all the writing, publishing, and speechifying on this vexed question, whatever the fruits indirectly may have been.

On Tuesday the general meetings of members of the Smithfield Club and Farmers' Club will take place at twelve and half-past three respectively. The Farmers' Club dinner will take place at 5.30 P.M., at the Salisbury Hotel, where Mr. NEWTON, the retiring chairman of the year, will preside and introduce his successor, Mr. JAMES HOWARD, M.P., the elected President for 1870. The monthly Council meeting of the Royal

Agricultural Society will take place at noon on Wednesday, and on the same day, at 3 P.M., the annual meeting of the members of the Central Chamber of Agriculture will be held at the Salisbury Hotel. The general meeting of the members of the Royal Agricultural Society will be held at Hanover Square on Thursday at noon.

WITH his usual eloquence and luxuriance of imagery, HUMBOLDT describes nations as passing through three stages in their progression. There is, first, the rude period when the inhabitants subsist on the unbidden fruits of Nature, and by hunting. Then follows the pastoral age when the land is as yet unsubdued by the ploughshare; herds and droves wander almost at will over the unenclosed country, and the wolf prowls among the flocks. After that comes the glorious age of productive agriculture, and of gardening, when the earth teems with plenty as the result of skill, and yields all that man's art can produce or his luxury require.

It might have been expected that we should soon reach the latter stage in this country. But for the present we are disappointed; a retrogressive movement has set in; we are laying down our arable land, and returning to the pastoral age. We are told by those who retail political economy—very much adulterated—that the movement is entirely in obedience to economic laws, that it will cease with the natural adjustment of the prices of labour, meat, and corn—dear labour and dear meat tending to increase the area of pasturage, and cheap corn tending to reduce the area of arable.

These arguments are constantly used to account for the rapid increase of pasturage and of corn importations in consequence. That pastures produce more meat and other animal products than arable land is a fallacy commonly introduced in discussions on the question of food supply. The fact is, the production of arable land, under good management, far exceeds any possible production of pasturage. During a four-course rotation, well-farmed arable land produces more meat than the best farmed pasturage, and it produces corn at the same time. If this be so, it disposes of a very common fallacy. We are aware that this does not affect the question of profit, which may no doubt be greater on the pasture than on the arable, although the returns are much smaller, while the amount of agricultural wealth and population is less.

Turning for a moment to the other points, neither "dear labour" nor "cheap corn" can alone account for the conversion of arable to pasture land. Cheap cotton goods did not stop the cotton mills; instead of the number of mills having been reduced, production has been increased, and consumption has been encouraged by a low price. It is not so with meat, which may be called a manufactured article in agriculture; because it requires capital and combination, buildings, machinery, much labour, and a costly system of cultivation to turn the raw materials (Turnips, hay, corn, and lean stock) into meat. But instead of encouraging consumption, we are compelled periodically to starve the country by means of famine prices, and so to reduce the demand to a level with our small supply. "Poor and content is rich, and rich enough," no doubt; but that does not mean that we are to remain contented when we are half starved. Besides, the country is rich, and ready to pay reasonable price. We hope it will not accept small scraps of bad political economy in the place of a more abundant supply of food.

The fact is, meat can be produced on arable land as cheaply as on pasture, and much more can be grown on the same space. But this can only be done by a system of farming that requires an amount of capital which is not forthcoming, because the long-established custom of land tenure does not allow of secure investment.

There has been an increase of costs in other industries besides farming, but the increased outlay has not raised the price, because skill has interposed and has reduced the cost per pound, or per yard, by means of mechanical and other improvements. And have there been no improvements in agriculture? Probably the improvements in agriculture in the last 40 years have been as great as in any other branch of industry. Why have they not had the same effect in reducing the cost of production? We have adopted a retrogressive and unproductive system, not because our agriculturists want skill and energy, but because our national customs contract the field of our agricultural development. Pasture farming, to which we are reverting, means cheap farming; it is the natural or rude method of raising stock with little outlay. Unfasten the fetters which trammel his enterprise, and the English farmer will speedily break up unproductive pastures, and increase our flocks and herds by farming the arable better.

—— THE corn trade has been depressed for home-grown corn; Wheat and Malting Barley unaltered; feeding stuffs all cheaper. Winter American Wheat, however, is 2*s.* to 3*s.* per quarter dearer.——The stock and meat markets have been dearer, both beef and mutton making 5*s.* 10*d.* per stone.——There is next to nothing doing in the agricultural seed trade.——English wool remains without change in value.

—— At the general meeting next Wednesday of the members of the Central Chamber of Agriculture, it is no improbable that the conduct of affairs by the secretary, Mr. JOHN ALGERNON CLARKE, may come under discussion. A very vigorous attack upon both him and it, in a published letter,* by Mr. W. WALTER GOOD, addressed to Mr. CLARE SEWELL READ, M.P., the President of the Chamber, has attracted a good deal of notice, and can hardly fail of being mentioned at the meeting. It appears that the periodical known as the *Chamber of Agriculture Journal and Farmers' Chronicle—the accredited organ of the Chambers of Agriculture throughout the kingdom*—which was originally established as a monthly journal, and has latterly appeared as a weekly agricultural paper, is edited by Mr. CLARKE, and is owned by him and by his friends; and it is alleged that his personal interest has so far biassed him in the discharge of his duties as secretary, that these duties are not discharged with that perfect disinterestedness which, for the sake of the Chamber, ought to have been exhibited. Certain shortcomings in the management of the affairs of the Association,—which are not, as it appears to us, in any way traceable to connection with any special agricultural journal—are also alleged; and the general impression which is sought to be conveyed is, that the secretary is both onesided and inefficient. On the latter division of the complaint, thus urged, we do not care particularly to inquire at present. It is certain that neither individual nor association ever yet existed whose conduct was not capable of improvement. And it has appeared to us that there has been hitherto an impulsiveness and occasionally an *impromptu* character, with some consequent uncertainty, about the arrangements and even the utterances of the Central Chamber, which is especially to be deprecated in the mouthpiece of an organisation planned for the express purpose of ensuring the deliberate discussion of agricultural topics, and of finally representing the views of the country upon them to the Government. On this, however, it will suffice to say that experience will, no doubt, teach both the Council of the Central Chamber and their secretary how, more perfectly, to manage its affairs; and the influence of the Agricultural Voice of England, which they profess to interpret, will thus, doubtless, every year increase. But the former portion of the complaint is a more serious matter; and, therefore, although we do not in the least sympathise with MR. GOOD in his attack, we are bound to notice it. We cannot claim to have been a "constant reader" of the *Chamber of Agriculture Journal* from its commencement, but certainly whenever we have looked through its pages it has always appeared to us to be an able, energetic, and efficient exponent of the views which the Central Chamber has desired to urge upon the country. Certainly no other journal has so well earned the title given to it as "the accredited organ" of both local and central Chambers of Agriculture: and in the interests of English agriculture we are well pleased to hear of its success. Mr. CLARKE has been well known to English agricultural readers for very many years. A tenant-farmer and a clever writer, possessed of much practical knowledge, and of an unusually graphic style of English composition—one of the representatives, moreover, of agricultural progress in the columns of the *Times*—we can hardly imagine any one so well qualified to act either as secretary of the Central Agricultural Chamber, or as Editor of an agricultural periodical. The offices are certainly not incompatible, and we readily bear our witness to the straightforward honesty of purpose with which, as it appears to us, the duties of both these offices have been hitherto discharged.

—— The tenth annual show of fat stock, under the management of the Leeds Smithfield Club, has been held during the past week. The prevalence of the foot-and-mouth disease has prevented so large a show of cattle as usual, but the cattle sent for exhibition were all of the highest class. A cross-bred ox, aged 3½ years, belonging to Mr. J. P. MCPHERSON, took the 1st prize in its class, the Leeds Tradesmen's Plate for the best beast in the classes of cross-bred or Irish oxen or heifers, and the Mayor's 20 gs. Cup as the best animal on the ground. Mr. J. OUTHWAITE, of Bainesse, Catterick, was the exhibitor of the best ox of any age, a good animal throughout, and of great weight. The sheep were very fine, the principal prizes going to Mr. JOHN BYROM, of Sleaford; to Mr. JOHN HUNTER, of Dipple, Fochabers, and to Lord WENLOCK. Most of the prizes for pigs went to local exhibitors, and the exhibition also contained 617 poultry, 227 pigeons, 48 rabbits, and 33 root specimens.

—— Messrs. SUTTON & SONS, of the Reading nursery and seed establishment, held their annual show of roots on Saturday last. This commendable private enterprise is increasing in importance and favour; for the 250 entries of last year increased on Saturday last to 270, and the prizes offered numbered 50. The principal exhibitors were HER MAJESTY THE QUEEN, the Duke of SUTHERLAND, Lord DACRE, Lord LEIGH, Lord PENRHYN, A. F. H. DRUCE, Esq., R. ALLFREE, Esq., J. BLYTH, Esq., and Messrs. J. CAVE, BOXALL, and other distinguished farmers of Berkshire and adjoining counties. The show itself was an extraordinary one; in fact, it was the best, taking it altogether, either public or private, that we ever saw. Mammoths (Long Red Mangel Wurzel) were wonderful for their clean growth and great size, the heaviest one weighing 47 lb., and the average of the best dozen of one grower's was 40 lb. each. "Berkshire Prize" Yellow Globe averaged 30 lb. each; "Yellow Intermediate" weighed 26 lb. each, and very neat, clean, and fine they were. Of Swedes, the "Champion" were very large; but some of these were very coarse, from having been sown too early and fertilised with soluble manures, which caused too rapid growth early in the season. Generally, however, the quality was remarkably good, and the size large enough for any reasonable farmer. White Swedes, which are now more and more appreciated, where land has been over-cropped and become "sick" of other varieties, were almost as fine and clean as the "Champion" and other kinds. The Kohl Rabi weighed 20 lb. each, and the best Cabbage 56 lb.; others coming nearly up to this great weight. The principal part of these productions will no doubt be shown in the Agricultural Hall next week.

—— A very handsome Testimonial was last week given to MR. JOHN CLAYDEN, of Littlebury, in acknowledgment of his many services to Agriculture. At a dinner given at Saffron Walden, in the midst of his neighbours, and in the presence of many subscribers from a distance, a very valuable service of plate was presented by Colonel BRISE, from whose most appropriate speech on the occasion we make the following extract:—

"The people at large appreciate fully MR. CLAYDEN'S valuable services as a member of the Council of the Royal Agricultural Society, as a member of the Council of the Smithfield Club, as one of the committee of the Agricultural Benevolent Association, as chairman of the Home Cattle Defence Association, and last, though not least among many others, as chairman of the Islington Agricultural Hall. All who have been connected in any way in business matters with our friend wish now publicly to acknowledge his great services, and the great satisfaction he has given in these vast undertakings. Had not MR. CLAYDEN brought to bear great diligence, great intelligence, great industry, and great business-like habits, those great undertakings would not have advanced to the extraordinary extent they have. And now what shall I say as to the local character of our proceedings? I will endeavour not to tax you by any personal allusion; but I will draw you, gentleman, a picture of a man of genial disposition, of pleasing exterior, with a heart large enough to rejoice with those who do rejoice, and feeling enough to weep with those that weep—a heart warm enough to glory in the success and to sympathise with the misfortunes of his fellow-men—a man with a kind word ever ready on his lips for rich or poor alike—a man who cannot be spoilt by flattery—a man who cannot be put down by vulgar prejudice—a man always prepared to deny himself for others—a man of straightforward, business-like habits, of uncompromising honour, and of unswerving integrity.

—— At a dinner given at Chelmsford, on Thursday last, to Mr. SCRATTON, who is giving up the mastership of a county pack of hounds, he said:—"There was one point upon which he looked as a matter of congratulation, and that was deep cultivation by steam. He believed such cultivation was for the benefit of the land and for the benefit of the occupier of the land; he was quite sure that it was for the benefit of fox-hunting. Deeply cultivated land, although it would bear hounds, would not bear horses. Mr. OFFIN (the new master) had done a great deal with steam cultivation on his occupation, and he believed that in future the members of the Hunt would see the field dividing right and left of the line of the fox. The hounds would run with nobody behind them, they would be free to exercise their instinct, and the field would have more enjoyment of the thing from being where they ought to be. The fault of a great many gentlemen was that they would ride directly after hounds, and some rode along with them when they ought not to go near them. He looked then, upon a deep cultivation as favourable to fox-hunting."

OUR LIVE STOCK.

THE sixth number of Thornton's Circular contains much valuable information, from which we select the following:—An importation of two heifers and two young bulls from Mr. James O. Sheldon's herd at Geneva, New York, U.S.A., left the port of New York, *ex* Douan, Nov. 18. The heifers and one of the bulls have been imported at a very high price by Mr. E. H. Cheney, of Gaddesby Hall, Leicester. The animals are 11*th Duchess of Geneva*, red, 2-year-old, by BARON OXFORD (23,371), dam 9*th Duchess of Thorndale*, by 3D DUKE OF AIRDRIE (23,717); 14*th Duchess of Geneva*, by 10TH DUKE OF THORNDALE, dam 8*th Duchess of Geneva*, by 3D LORD OXFORD; 9TH DUKE OF GENEVA, calved April, 1869, by 10TH DUKE OF THORNDALE, dam 4*th Duchess of Geneva* by GRAND DUKE OF OXFORD (16,184); and lastly 8TH DUKE OF GENEVA, calved November, 1868, by BARON OF OXFORD (23,371), dam 3*d Duchess of Thorndale*, by DUKE OF GLOSTER (11,382). These animals are entirely of pure Bates' blood, except the 11*th Duchess of Geneva*, and she through her dam gets the cross of Mr. Booth's LORD GEORGE (10,439), who begot 2D DUKE OF ATHOL, the sire of 3D DUKE OF AIRDRIE'S dam, so that this heifer is bred similarly to several of the Grand Duchesses. Mr. Sheldon has also sold half his herd to Messrs. Walcott and Campbell, Oneida County, U.S.A. It includes six *Duchesses, at an average of* 1109 *gs. each*, and three *Oxfords*, at 509 gs. each. These prices are certainly without parallel. Messrs. Walcott and

* "Where are We Now?" A Political-Agricultural Letter, &c. By Mr. Walter Good. Pp. 48. 34, Bouverie Street, Fleet Street.

Campbell recently imported from this country some of Mr. Booth's animals, including *Bride of the Vale* for 1000 gs., particulars of which were given in our issue of June 12. We are able to add that the cattle above referred to arrived safely at Southampton early in the week. They accomplished the passage in 11 days, arriving in England in good condition.

—— The annual sale of Sir Wm. Stirling Maxwell's surplus stock took place some weeks since at Keir, Mr. Young acting as auctioneer. Five young bulls were offered and sold at an average of nearly 50 gs. each; four of these, seven and nine months calves, made 48, 50, 64, and 65 gs. each. The seven cows and heifers averaged just over 30 gs. Keir has been celebrated for its Clydesdale horses; eight fillies and colts were sold at an average of 38*l.*, one making 75 gs. The Shorthorn calves were mostly by KEIR BUTTERFLY 1ST (24,235), who, with ROYAL BUTTERFLY 11TH (20,719), is in use. The Butterfly heifers are, however, running with CHIEFTAIN (20,942), bred by her Majesty at Windsor.

—— Mr. Duckham has advertised his second periodical sale of pure-bred Herefords for Tuesday, Feb. 1. The auction will be held in the cattle market, Hereford.

—— Next Thursday Mr. Dodds will hold his second annual sale of Shorthorns at York, in a field adjoining the Sea Horse Inn. The catalogue, which is now before us, contains many good names, some of proved excellence, while others are backed with pedigrees of a most assuring character. The list comprises 28 females and 29 bulls. We cannot pretend to name all the animals that are worthy of attention. We may, however, mention that an "Oracle" on Shorthorn matters has pronounced favourably with regard to Mr. Dawson's four cows, *Lady Viola*, *Lady Belle*, *Lady Salome*, and *Savannah*. The first three are by LORD COBHAM (20,164), bred by the Earl of Zetland, and the last is by THORNDALE LAD (23,066), to whom she is now three months gone in calf. *Charmer 9th*, the property of Mr. Pawlett, Beeston, is an excellent 3-year-old cow, and a prize-taker during the present year at Huntingdon and Bedford. She is by PRINCE HOPEWELL (22,592), and of the well-known Milcote tribe, whose name she bears. The list of bulls is headed by THORNDALE LAD (23,066), described as large, well haired, and in good working order. His pedigree is unexceptionable —Bates' Duchess on one side, and Cambridge Rose on the other. This bull was bred by Mr. Betts, and is now the property of Mr. Dawson, Weston Hall, Otley. 2D EARL OF OXFORD is also a remarkably well bred animal. His sire and grandsire were both Wetherby bulls, and his 2d grandsire was 6TH DUKE OF OXFORD, bred by Mr. J. S. Tanqueray. MARQUIS (26,825), another Weston Hall bull, was bred by Lord Feversham, and comes of the *Titania* by ORONTES tribe. LORD MILTON, bred by, and the property of, Captain Gunter, is by ALLERTON LAD (23,300), dam *Mild Eyes*, by ROSE DUKE (22,760), and previously descended from the famous Bates' Wild Eyes family. Lastly, Mr. Bromet's CAPTAIN BEVERLEY, by 3D DUKE OF FLANDERS, and out of *Miss Beverley 26th*. A representative of Mr. Stephenson's (of Fourstones) *Beverley* tribe is a well-bred bull, full of Bate's blood, a grandson of Colonel Towneley's ROYAL BUTTERFLY 16TH. Want of space compels us to omit noticing many other animals, whose merits will no doubt provoke considerable competition on the sale day.

—— The following remarks on the quantity of food in the form of hay required for horned stock are translated from Moll and Gayot's excellent work on cattle. The authors quote from M. Riedesel, who paid much attention to the subject of feeding milch cows, and who sums up his experience in a manner singularly concise and exact: — To preserve life, or more correctly to maintain the animal at the same weight, requires a quantity of nutritive principles proportioned to the live weight of the animal. If the nutritive principles contained in the food are insufficient, the animal diminishes in weight; if, on the contrary, there is an excess of nutritive principles, he increases in weight, fattens, grows, or furnishes other products, as work, milk, &c. The maintenance of life among horned cattle requires 830 grammes (1.83 lb.) of hay, or the equivalent, for each 50 kilogrammes (110 lb.) of the animal's live weight, or 1-60th of his live weight. For to satisfy the animal completely he must have hay equal to 1-30th of his live weight per day. Besides the 30th part of his weight in dry substances, the animal requires 4-30ths of his weight of water, or of liquid contained in his food. If to be completely satisfied a horned beast has need of a quantity of nutriment equal to 3¾ for every 100 of his weight; and if 1¾ are necessary to preserve life, it follows that half of the rations is for maintenance (*nourriture d'entrétien*), and that the other half is productive (*nourriture de production*), from which results fat in fatting animals, growth among young stock, milk and the growth of the fœtus in cows, &c. Forage of production (this forage being always supposed to be hay or the equivalent) produces among milch cows, for each kilogramme (2.2 lb.) of forage, one kilogramme of milk, or 28 grammes of increase in the calf in the womb of the mother, and among young stock and fatting cattle 10 kilogrammes of forage give 1 kilogramme of increase in the weight of the animal. It follows from this that a cow eats in one year (or 360 days, to make a round sum) 360 times 1660 grammes, or 600 kilogrammes (1320 lb.) of hay for every 50 kilogrammes (110 lb.) of her weight, or, what is the same thing, 12 times her own live weight. If, then, a cow weighs 300 kilogrammes (660 lb.), she eats in one year 12 times 300 kilogrammes or 3600 kilogrammes (7920 lb.) of hay; if she weighs 600 kilogrammes she eats double, or 7200 kilogrammes (15,840 lb.) of hay.

STEAM CULTIVATION.

A HEALTHY discussion has followed my letter last month on the Peterborough steam cultivation trials. Mr. Smith contends that his roundabout tackle works cheaper than any other, and gives us an account, which has been analysed by your correspondent, "G. A. H.," who believes it to be incorrect, inasmuch as Mr. Smith puts down for interest on the outlay, for depreciation, repairs, and for wear and tear, only 2½ per cent. I endeavoured in my letter to show that a 20-horse power double engine was capable of working cheaper than a roundabout tackle. I based my argument on the assumption that one 20-horse power Fowler's tackle was capable of performing as much work in the same time as four roundabout tackles. I believe this to be a correct statement, for my 20-horse power tackle has, since August 1, averaged 120 acres per week, including rainy days, removals, and other stoppages, and this exclusively upon the heaviest clay lands in the vicinity of Sleaford; many of the fields having been awkward in shape, very unlevel, and also full of weeds. The cost of a 20-horse power Fowler tackle with two engines, one turning cultivator, one 8-furrow plough and watercart and other accessories, is 2000*l.* The cost of four 10-horse power roundabout tackles, without ploughs and watercarts, is at least equal to that. The working staff of a 20-horse power tackle consists of three men and a foreman, and a man with two horses to lead water. The staff of four roundabout tackles is: five men, two porter-boys and one water-leader to each tackle, equal to 20 men, eight porter-boys, and four water-leaders; altogether, 32 hands and four horses. The 20-horse power tackle is self-moving; the four roundabout tackles require a large staff of horses for their removal, their aggregate weight being at least 36 tons. The 20-horse power tackle requires 800 yards of rope; the four roundabout tackles require four times 1600 yards of rope = 4800 yards, nearly three miles. The 20-horse power tackle works with two engines; the four roundabout tackles must have four engines. A 20-horse power tackle is a simple contrivance when compared with the complicated nature of four roundabout tackles. In a letter dated May 17, 1869, Mr. Smith, of Woolston, says: — "The grand secret to all who may apply steam-power to the cultivation of the soil is, how to farm the deepest, cleanest, and at the least cost. The cost for tackle and the size of the occupation are secondary in comparison with that." I cordially agree in this with Mr. Smith. It is difficult to understand why Mr. Smith should object to powerful tackle when he himself admits that deep and cheap cultivation is necessary, and that cost of tackle is only a secondary consideration. Mr. Smith was mightily pleased when he found "An East Essex Farmer" paid 24*s.* per acre for cultivating twice in a place, whereas his own account showed 6*s.* 8*d.* per acre for a seed-bed of Wheat. Apart from Mr. Smith's cultivation having been proved [Alleged. ED.] faulty by "G. A. H.," has he taken into consideration the circumstances under which "An East Essex Farmer's" work was done? Single quotations of price per acre are no proof of the costliness of the hiring system. I have at the present time some work in hand, for which I am receiving 3*l.* 10*s.* per acre, but this is for ploughing up some land which had been planted with Scotch Fir trees, and entails the removal of all the remaining tree stems and roots. On the other hand I have performed work at 6*s.* per acre equally profitable to myself, but of course under the most favourable circumstances, in large fields, with straight boundaries, where we got over 35 acres and more per diem, with a 14-horse power tackle.

When the question is raised, whether it is cheaper and more advantageous to a farmer, especially on stony clay land, to work his land by horse-power or by a set of roundabout steam tackle, I shall certainly say that the steam tackle, though roundabout, is far preferable. But we have had to do with other questions altogether, viz., which is the best means of making steam cultivation more general and available for farmers; and secondly, which is the cheapest mode of steam cultivation to the farmer. I emphatically assert that the hiring tackle is the one which may lay claim to being the pioneer in the first question. It gives every farmer an opportunity of testing upon his own soil what steam cultivation can do for him. As an instance of the hiring tackle being successful I will quote the following. In 1865 I took the first hiring tackle into the neighbourhood of Sleaford; now there are working in that locality, besides my tackle, four hiring tackles belonging to another resident owner, and two belonging to an owner resident about ten miles off. All of us have Fowler's double engine tackle. I may here mention that a Smith's roundabout tackle, nearly new, having worked only two seasons, was sold for 48*l.* during this summer by auction in Sleaford market place, on a market day, at a time when 10 of Fowler's double tackle were working in a circle of less than 10 miles from the place, this tackle having cost over 250*l.* Another owner of a roundabout tackle about five miles from Sleaford, who has a roundabout tackle on his premises, prefers letting it stand in his yard idle, at the same time regularly using a hiring tackle.

In the other question—Which is the cheapest mode of steam-cultivation to the farmers, and especially to the men of capital?—I can only repeat the advice I gave them in my last—buy a 20-horse power double tackle, or a share of one, and jointly with some neighbours work their land by the best known apparatus.

"W. W. G.," in his letter of October 23, in criticising my former letter, *naïvely* asks, "What farmer of 100, 200, 300, or 400 acres wants his work doing at the rate of 20 to 36 acres per day?" Why, my customers, chiefly farmers of that class, all exclaim, "Indeed, that is the consummation most devoutly to be wished."

Mr. Smith's roundabout tackle was a baby very sound, very healthy, and vigorous for its age, but its father has nursed and fondled it, and kept it in its swaddling clothes, until it runs a danger of being smothered by those very kindnesses. Let it have its liberty and the use of its legs to emerge from its cramped-up position a giant. *Richard Toogood*, 56, *Newland, Lincoln.*

[The following letter, by Mr. Aveling, of Rochester, has appeared in a Kentish paper, and is reproduced here as an extremely fair comparison of the rival systems:—]

The great importance of steam cultivation, not only to tenant-farmers, but to the landlords of this country, must be my excuse for asking your permission to bring the subject before your readers.

It is now 15 years since I first introduced steam ploughing into this county, and many will remember the constant breakages and other annoyances which then occurred, some due to unskilfulness in management, but more from unfitness of the machinery itself for the work, but since that time many thousands of pounds have been expended in perfecting it.

The thanks of all interested in steam cultivation are due to the gentlemen who in its early stages became purchasers of machinery, and who have since adopted, and by their perseverance assisted in carrying out, each improvement as it arose. Among the pioneers in this county the names of Messrs. Neame, Messrs. Pye, and Mr. James Lake will occur to every one.

Of the many schemes and systems which have been practically brought before the public, two only (and those the simplest) have proved thoroughly successful.

In both of these the traction power is transmitted to the implement through a steel wire-rope winding upon a drum. In the one case the two winding drums are fixed in a windlass frame, and connected to a stationary steam-engine, and can be worked from one corner of a field, the rope being led all round the land intended to be ploughed, through pulley-sheaves anchored in convenient positions. One end of each rope being made fast to the plough, the implement is drawn backwards and forwards, by the drums pulling alternately, and the pulley-sheaves and anchors at each end of the furrow are moved forward as the plough proceeds.

In the other system each of the winding drums is placed under the boiler of a self-moving steam-engine, and one engine at each end of the furrow working alternately and pulling the plough towards it, the other moving forward into position, ready for the return of the plough.

These two systems are known as the single engine, or roundabout, and the double engine, or direct system of steam cultivation.

The advantages of the roundabout system are in the cheapness of the machinery, as the tackle can be driven by an ordinary portable engine, and in its superior fitness for very hilly and for awkwardly-shaped fields.

Its disadvantages consist in loss of power, great length of wire rope, useless expenditure of time in removals, and great quantity of apparatus necessary.

The advantages of the direct system are:—Short length of rope required, and consequent economy of power, the little time taken in getting to work, and the small amount of wear and tear due to the simplicity of the tackle.

Its disadvantages are its first cost, the width of the headlands left, and the difficulty in moving the engines on wet land. This last difficulty has been almost entirely removed by increasing the diameter and width of the driving wheels.

For large farms and for letting for hire the double engine or direct system is the best, and has proved itself to be capable of doing more work per day at a less cost than any other. With this tackle I find from experience that 10 acres can be ploughed from 8 to 9 inches deep in a day of 9 hours, at this time of year, in ordinary soils, with a pair of 12-horse power engines, and a 6-furrow plough, at a cost in no case exceeding the following estimate:—

Chief engineer	£0	5	0
Second do.	0	4	0
Ploughman	0	4	0
Assistant ploughman	0	3	0
Two boys	0	4	0
15 cwt. of coal	0	15	0
Water	0	7	6
Oil, &c.	0	2	6
Depreciation, renewals, interest of capital, &c., to replace in 10 years at 3*s.* per acre on 10 acres	1	10	0
	£3	15	0

Or 7*s.* 6*d.* per acre. The lowest price at which this work could be done by horse-power is 15*s.* per acre, many farmers having stated it would cost them 20*s.* and have offered me that sum per acre for 100 acres of similar land as that referred to above.

That "good work" can now be made by the steam plough is shown by the remarks of the judges at the several ploughing matches where these machines have worked this season, more especially at the meeting of the Isle of Thanet Association, where it was acknowledged by all that the horse ploughs were fairly beaten.

A very considerable increase in the yield, amounting in some cases to as much as three sacks per acre, has been found to result on the application of steam-power to the cultivation of heavy clay lands, and this is not surprising when we consider the damaging effect to the drainage of such lands caused by four horses following each other in the furrows when ploughing it, and the low temperature of the soil consequent upon the water being unable to find its way to the drains. I believe that great advantages will also be found to follow the application of steam-power to the drilling and harrowing in the seed on heavy soils, as there is, without question, much injury done by the horses' foot-marks, every one of which, acting like a dish, will hold the water it gathers until it be evaporated by the sun's rays.

I think it possible that some injury to the cause of steam ploughing has resulted from an indiscriminate use of deep ploughing for whatever crop the land may have been intended. I am of opinion that for green crops, &c., the land should be cultivated at least from 12 to 14 inches in depth, say once in every four years, stirring up the subsoil but not bringing it to the surface, and thus enabling the air and water to descend; but that where Wheat, &c., is to be grown, especially on light lands, the depth of the ploughing should not exceed from 4 to 5 inches, leaving a good firm subsoil with no horse-trodden "pan" to obstruct the roots of the corn in their downward growth. Both heavy and light lands would thus be kept at a more even temperature, the heavy lands not suffering from excess of water in the spring time, and the light lands from drought in the summer.

In conclusion I should say that steam cultivation will enable the farmer to become more independent of seasons, and better able to take advantage of the proper time for getting in the seed; he will be able to dispense with a large number of horses, whose food can then be applied to better purposes, the steam engine consuming nothing except when actually at work, and requiring no attention on Sundays; and the land can by its means be cultivated to a depth practically unattainable by animal power. It is also an important advantage of steam tillage that, the land being once thoroughly broken up by it, every succeeding operation is performed more rapidly and at less cost.

It would be difficult to show in what other direction farmers are to look for the means of meeting their constantly increasing expenses. *Thomas Aveling, Rochester, Nov.* 19.

THE DEPTH OF DRAINS.

I SHOULD have responded to your desire for practical information with regard to the depth of drains, had I not deemed it best to wait until the weather had been sufficiently wet to afford a fair test of the state of the grass-field which I drained last winter, at a depth of 3 feet, at 18 yards apart. For, although after the heavy rainfall during the spring, the field was perfectly dry, this might have been regarded as due to the exceptional action of drains which have been recently executed. I can now, however, state that, having carefully examined every part of it, there is no trace of stagnant moisture to be found; but, on the contrary, the whole field presents the appearance of well-drained land. In this case, therefore, drains 3 feet deep and 18 yards apart have proved a decided success. Granting, for the sake of argument, that 4 feet at 12 yards apart might have been equally successful, the expense would have been nearly double. In reply to your question whether it is not an advantage to obtain on turf land an additional foot of dry subsoil, I shall answer in the affirmative, as a general rule. But where, as in my field, the subsoil partakes more or less of the nature of rubble from between 2 and 3 feet below the surface, after which it becomes a bed of solid clay, it is doubtful whether, by placing the drains a foot deeper, this extra foot of dry subsoil would in practice be obtained; for, owing to the tenacity of the clay, the water would be a longer time making its way into the drains than at present, and thus the clay would become thoroughly saturated before they began to run. This slowness of filtration I take to be the principal cause of the failure of 4-feet drainage in another of my fields, which I have recorded in your columns. During continuously wet weather the whole mass of the soil becomes saturated with wet up to the top, so that I have actually witnessed water standing in pools above drains which were discharging much more water than they ought to have done. In the other case—of drains laid so as to be immediately below the open gravelly or rubbly subsoil, and which consequently quickly remove the greater part of the surface water—I think that if the foot of soil between them were tested, it would be found drier than if the drains had been laid a foot deeper. I consider that success in draining, as in every other agricultural operation, requires experience and practical tact. There is nothing on which an unbending rule can be laid down to suit all soils, climates, and circumstances.

Thick or thin seeding, early or late sowing, shallow or deep ploughing, permanent pasture or alternate husbandry, breeding or feeding, may each be advisable in its proper place and time. But there is no agricultural question to which there is not another side. As regards draining, I am a decided advocate for depth, where the circumstances are favourable. But as cost is so important a consideration, I am certain that where drains 3 feet, at 18 yards apart, are more effectual than those of 4 feet at 12 yards, the owners and occupiers of land will prefer the former.

I had written thus far when the instructive letter of Mr. William Smith to *Bell's Weekly Messenger* came under my notice. While advocating deep draining in general, that gentleman says, "I have no rule as to depth. Judgment, moderation, and a regard to cost is my motto." As illustrating how he carries out this principle, he gives the following interesting statement:—"Forty years ago the grass-land at the back of my house was (although a good field) very wet in the winter. It is mixed gravel and clay. At that period it was drained 2 feet deep, 8 yards from drain to drain. Up the furrows from then till now it has been dry, let the weather be ever so wet, and it has not had a little the matter with any of its drains. This is what I call good draining on such a soil."

It is instructive to note how the practical sagacity of Mr. Smith enables him to meet a difficult case with totally different treatment. "Sixteen years ago I drained my field No. 5, light land. It is gravel mixed with patches of clay. I put the drains in from 4 to 6 feet deep, 60 yards from drain to drain. The cost per drain for labour was 10*s.* 6*d.*, and I put in 4-inch pipes. This field in a wet time used to be very wet; since I drained it, it has always been very dry." Some strong land Mr. Smith has drained at 4 feet, and finds that—especially since it has been steam cultivated—it has been dry ever since. In like manner I found, many years ago, that a large grass-field, which had been drained by my predecessor, at a depth of about 2 feet 6 inches, was in parts still wet. The land is strong, but intersperse t to a considerable depth with rubble. I have completely cured these wet places by 4-feet drains, running into a new main, which in some places is 6 feet deep. These deep drains invariably run after wet sooner than the shallow ones. In short, an occupier who has his eyes open will generally drain his own land both more effectually and at less cost than a stranger, who comes with preconceived ideas of depth and distance. And draining is so expensive an operation that it is important that it should be carried out both effectually and economically. *Willoughby Wood, Holly Bank, Nov.* 30.

ON THE PRODUCTION OF SUCCESSIVE GREEN CROPS.

THE Strines Calico Printworks are in Derbyshire, distant from Manchester 14 miles, Stockport 7, and Buxton 12. They employ from 500 to 600 workpeople, and in connection with them is a farm of about 105 acres. Part of the land is in Derbyshire, and the remainder in Cheshire, the river Goit passing through the midst. About 50 acres are level and low-lying, the remainder being elevated. The climate is late, especially if east or north-east winds prevail in the spring, and there is not much growth before the month of May.

The stock at present on the farm consists of 14 horses, 1 mule, 1 ass, 21 cows, 13 young cattle, 26 sheep, and 3 pigs.

The horses are heavy draught horses, and are mostly used for draught purposes at the works, as also are the mule and ass; the cow-manure is used for dyeing purposes at the works.

A good supply of manure is obtained from the works, consisting of a mixture of human excrement, flue-ashes, and ammonia-water from the gas manufactory; also a supply of gas-lime. I have had charge of the above farm for nearly nine years, and have conducted the following operations, by means of which I have obtained a continuous succession of green crops:—

40 acres meadow land. Grass cut and made into hay; aftermath grazed.
43 acres grazed.
22 acres under cultivation.

105 acres.

Sixteen acres of the 22 are about half a mile distant from the works and farmyard, and on high ground; they are cultivated under a four-course rotation, namely,—4 acres Oats, 4 acres Swedes, 4 acres Barley or Oats, and 4 acres Rye-grass and Clover.

The Turnips are pulled and carted home in October and November; the Rye-grass and Clover are ready to cut the first time the fourth week in June; the second cutting being ready about the second or third week in August. This, for distinction, I will call the 16 acres.

The other six acres are near the works and farmyard, and are level, with a good strong soil, gravelly subsoil, and good natural drainage. They have been devoted entirely to the production of successive green crops for the last seven years.

The six acres have been divided into five as equal parts as possible, which I will call Nos. 1, 2, 3, 4, 5.

No. 1 is manured during the autumn with gas-lime, which is ploughed in; the land is prepared during the spring; in the third week of April drills, 27 inches apart, are made; the land is manured with farmyard manure, and Potatos (the early sort) are planted in alternate drills. In the first week of May Ox Cabbage plants, 30 inches apart, are put in the drills remaining (the Ox Cabbage seed having been sown the previous August and pricked out during the autumn); during the months of May and June the land is hoed, cleaned, and the plants earthed up; in August the Potatos are dug, and sold at once, the small and diseased ones being steamed and stored for pigs.

Immediately the Potatos are cleared the land is scarified, and the cabbages earthed up, as they will soon cover the vacant space. In October the outer leaves are taken off, and the Cabbages are ready to cut in November.

No. 2.—In January or February the Cabbage-stalks are ploughed out, and gathered off; the land is harrowed and ploughed, and sown with spring Tares, with Rye and a few Beans to hold up the crop. The sowing is made in February or March (according to weather), and the crop is ready to cut in July.

No. 3.—Immediately the Tares are cleared the land is manured with manure from the works, which is ploughed in; it is then prepared for sowing Italian Rye-grass not later than August. During the autumn, winter, and more especially in the spring, liquid manure from the farmyard is applied; the first cutting is generally ready to cut in the beginning of May, and the last cutting not later than the first or second week in September. Under ordinary circumstances there will be three cuttings, and if the land is well supplied with liquid manure between each cutting, there will be four.

No. 4.—Immediately the Italian Rye-grass is cleared off, the land is dressed with manure from the works, which is ploughed in; and winter Tares are sown, to be ready to cut in May and June. The crop is cut up in small strips at a time; and as a strip is cleared the land is ploughed, manured with manure from the works, and drilled 21 inches apart; Savoy Cabbages are then planted 18 inches apart (the Savoy Cabbage-seed having been sown in February or March, and pricked out in April or May, and held in readiness); each successive strip is treated in the same way, only, in case the last strip should be rather late, the plants are put in a little thicker there. The Savoy Cabbage will be ready to cut in January.

No. 5.—The Cabbage-stalks are ploughed out, and gathered off as in No. 1; the land is then ploughed and sown with spring Tares, with Rye, and a few Beans to hold up the crop. The sowings are made twice, one in April the other in May; the first sowing is ready to cut in August, the other in September.

Having described the mode of raising the above crops, I will now describe the mode of consuming them.

May.—A supply of Italian Rye-grass and winter Tares from Nos. 3 and 4 is cut and carted into the farmyard, and the greater part passed through one of Richmond's chaff-cutters (attached to steam-power). When too succulent, they are mixed with hay or straw chaff. All the horses, the mule, the ass, and the cows, get an allowance, the young cattle being out at Grass.

June.—Winter Tares from No. 4, and Clover and Rye-grass from the 16 acres, form the supply for this month; the winter Tares are now strong, and have to be cut into chaff. All the horses, mule and ass, and the cows, consume Tares and make room for the Cabbages. When the Tares are all consumed, about six of the horses are put out on the pastures during the night, and the cows are more at pasture until the next supply from the 16 acres, and the second cutting of Italian Rye-grass come in. All the young cattle are out at Grass; what is not required of the Rye-grass and Clover is made into hay.

July.—Spring Tares from No. 2 now come into use; and a strong heavy crop requires cutting into chaff. To these are added Rye-grass and Clover from the 16 acres, and in the first week a second cutting of Italian Rye-grass off No. 3. The six horses are out at pasture during the night, the cows are partly at Grass, and the young cattle entirely.

August.—Spring Tares are obtained from No. 5, first sowing Italian Rye-grass, a third cutting from No. 3, and Clover from the 16 acres if required. Six of the horses are at pasture during the night, all the others receiving green food; all the cows are at pasture on aftermath, and the young cattle are also at Grass.

September.—Italian Rye-grass from No. 3, spring Tares from No. 5 (second sowing), a strong crop being passed through the cutting-machine, and Clover from the 16 acres are got this month. All the horses receive a supply, but all the cows and young cattle are at pasture.

October.—Ox Cabbage leaves from No. 1, and Turnip-tops from the 16 acres, are used this month; the horses receiving a small quantity of Turnips from the 16 acres, and the cows a cartload per day of the Cabbage leaves or Turnip-tops, carted out into the meadows and spread there, so that all can be consumed. The young cattle are at grass.

November.—Ox Cabbages are got from No. 1, viz., two feeds per day for the cows, and one feed per day for young cattle (or Turnip-tops); the Cabbages are cut as near to the ground as possible with a strong hedging-bill; each Cabbage is cut in four quarters, taking care to cleave the stalk up the middle, as there is some valuable eating in it. The horses have a small quantity of steamed Turnips the last week.

December.—Ox Cabbages continue to be obtained from No. 1, viz., two feeds per day for the cows, one feed per day for the young cattle. A week's supply is always kept cut beforehand, in case frost should set in, as the Cabbage breaks like glass in frost. If the weather seems settled for frost, another week or ten days' stock is got in; and if the storm should last longer, Turnips are substituted; the sheep receive a few Cabbages this month, and the horses get a small quantity of steamed Turnips, as in November.

January.—Savoy Cabbages from No. 4 are now commenced; and a supply is kept cut beforehand as in December. The cows obtain two feeds per day, and the young cattle one; the sheep also get a few, and the horses are kept the same as during last month.

February.—Same as in January.

March.—Swede Turnips are used from the 16 acres, all the cows receiving two feeds per day, with corn purchased by the money got for Potatos sold off No. 1. The young cattle get one feed per day, some of them being out at pasture a few hours per day. The horses have a few steamed Turnips as before, and the sheep a small quantity also.

April.—Swede Turnips continue to be got from the 16 acres, all the cows receiving two feeds per day as in March, but the young cattle, being out at pasture all day, do not require any, nor do the sheep. The horses have a small quantity steamed. If the season be early, the Italian Rye-grass will be ready towards the latter end of this month.

REMARKS ON THE ABOVE.

No. 1. *Potato or Cabbage System.*—I have tried Swede Turnips, Mangels, and Cabbages, each singly, in the place of the Cabbages and Potatos, but they did not answer so well as the present system, as the Cabbages are not of much size before the latter end of July, and after that the Potato-tops begin to decay, and the Cabbages, now beginning to spread out their leaves, would cover up the Potatos if they were not dug out. I have frequently seen the leaves of two Cabbages projecting over each other several inches when the stems have been 54 inches apart; and the Potatos are readily sold to the workpeople, and realise a good price. In getting the Potatos, every alternate drill is dug out first, and in a few days the Cabbages will incline over the vacant space, just like a tree over a turnpike road.

No. 2. *Spring Tares, with Rye and Beans.*—I have tried Tares with Oats, but could not keep the crop up: with the above it will stand either rain or wind, and not go down. If the crop did go down, it would either

have to be consumed at once or made into hay, and it would leave a vacancy in the continuous supply which could not be filled up. The above crop is too heavy and strong to admit of Italian Rye-grass being sown in the spring.

No. 3. *Italian Rye-grass.*—This is an excellent crop, with its three or four cuttings, and it is always ready. I have had but one failure in this crop during the last seven years, and that was caused by my not being able to attend to the sowing at the proper time.

No. 4. *Winter Tares and Rye.*—I have tried Tares with Wheat, but could not keep the crop up; sown with Rye it is sure to stand. I have tried Swede Turnips, and also Yellow Turnips, after the Tares, but have not succeeded in raising a full crop, as the season is too far advanced in this locality, as I find from experience in the 16 acres that the first or second week in May is the best time in this district; and, as the Yellow Turnips come in at a time when not required, I am in favour of the Savoy Cabbages, for I have never yet failed in raising a full crop, and the Savoy Cabbages come just when the others are done.

No. 5. *Spring Tares, with Rye and Beans.*—(Same as No. 2.) I have tried them with Oats, but could not make the crop stand.

The Spring Tares in Nos. 2 and 5, and the Winter Tares in No. 4, ought not to be cut until they are at their full growth, if it can be avoided, as there is no second cutting like that yielded by Italian Rye-grass, each cutting of which ought not to be allowed to grow too long, as by so doing it interferes with the next. There is sufficient time, after each crop is cleared, to prepare and sow or plant the next, and there will not be any failure if the dates given are attended to.

The result may be thus briefly summed up: the land has grown heavier crops each succeeding year; and, by careful management, a supply of green food has been kept up for each succeeding day in the year. *John Chambers, Bailiff to the Strines Calico-Printing Company, in the "Journal of the English Agricultural Society."*

Home Correspondence.

Manures on Grass Land.—In the belief that the details of an experiment tried by me this year on eight half-acre plots of permanent pasture, may interest your readers, I annex a table showing the results. The quality of the soil and the character of the herbage was the same throughout. It will be observed that the only plot which gave a profit was that dressed with lime and salt, the quality of the hay, too, from this plot was the best of all. I propose to allow the land to remain unmanured for the next two seasons, with the view of testing the value of the manure left in the soil by the subsequent yield of hay. *Coles Child, Bromley Palace, Kent, Nov.* 24.

No.	Manure applied.	Quantity.	Cost at per acre.	When applied.	When cut.	Produce at per acre.	Value at 80*s.* per load.	Profit.*	Loss.*	Remarks.
			£ *s. d.*	1869	1869	l.ds. Tr.	£ *s. d.*	£ *s. d.*	£ *s. d.*	
1	Farmyard manure from open yard.	6 lds. at 5*s.* p. ld.	3 0 0	Mar. 1	June 27	2 21	10 6 5	—	2 2 7	Quality of hay, good.
2	Ditto, from covered yard ..	6 ,,	3 0 0	,, 5	,, 26	2 27	11 0 0	—	1 9 0	Hay very coarse.
3	Sulphate of ammonia, 43 lb. ,, soda 43 ,, ,, potash 43 ,, ,, lime 86 ,, Salt .. .. .. 43 ,, Dried clay .. .. 200 ,,	c. q. lb. 4 0 10	1 17 0	,, 19	,, 27	2 19	10 2 3	—	1 3 9	Rather better than No. 2.
4	Sulphate of ammonia 70 ,, Superphos. lime .. 70 ,, Salt .. .. .. 70 ,, Dried clay .. .. 200 ,,	3 2 18	1 16 0	,, 19	,, 27	23 2	10 11 1	—	0 13 11	Same as No. 3.
5	Guano .. .. .. 70 ,, Nitrate of soda .. 18 ,, Superphos. lime .. 70 ,, Salt .. .. .. 70 ,, Dried clay .. .. 200 ,,	3 3 8	1 15 0	,, 19	,, 26	2 15	9 13 4	—	1 10 8	Similar to No. 1.
6	Marl	10 lds.	2 13 0	,, 6	,, 26	2 13	9 9 0	—	2 13 0	Quality fine.
7	Lime .. .. .. { yards Salt .. .. .. { cwt.	1½ 1½	1 2 6	,, 9	,, 27	2 24	10 13 4	0 1 10	—	Best quality of any.
8	Unmanured	—	—	—	,, 27	2 13	9 9 0	—	—	Quality, fine.

* This at per acre, as compared with unmanured plot.

Dairy Farming against Breeding.—It seems to me that very few people appreciate the benefits of dairy farming. The same sort of land which rears and fattens good stock will produce first-rate dairy produce. Now, let us look at the relative returns from each. Suppose I have a farm which will keep 40 breeding cows, my regular winter stock will be 160 head—40 cows, 40 calves, 6 to 12 months old; 40 beasts, 1½ to 2 years old; 40 beasts 2½ to 3 years old, which will be sold off just before the new crop of calves come. Now all the beasts, except the calves, eat a full average ration, and the calves I consider will eat half a ration—that is to say, 40 calves will eat as much as 20 beasts. Therefore I have to provide rations for 140 head instead of 160 head. But if instead of breeding I kept a dairy of 140 cows, the same food would keep them. Now, let us compare the money returns. Every one will admit that a good average cow will produce at the very least 12*l.* a year in butter and cheese, so that 140 cows would give at this low estimate, 1680*l.* But if I keep a breeding stock of 160 head, say 40 breeding cows, I should sell off every year 40 fat beasts three years old, worth, say 20*l.* each, and bringing in only 800*l.*, or less than half what a dairy using the same food would bring in. But it may be said, "if you have 40 breeding cows you will not use all the milk for the calves; you may make 20 cows bring up the 40 calves, which will leave you 20 cows for a dairy, and at the end of three months you may wean the calves, and get the other 20 cows for the dairy for the remainder of their time, during which they would give you about half profit." Let us then see how much this would add to the profit. Twenty cows at 12*l.* would be 240*l.*, and 20 cows at 6*l.* (half profit after calves are off), would be 120*l.*, the two together being 360*l.*; which added to the 800*l.* for beasts sold fat, would make 1160*l.* from a breeding stock, instead of 1680*l.* from a dairy stock: which still shows a balance of 520*l.* in favour of the dairy. These few simple figures will, I think, satisfy most people that dairy farming is much more profitable than breeding or growing beef. *G. A. H.*

Mangel Wurzel and Sugar-Beet.—Mr. Mitchell asks for a solution of the question as to the growth of Beet, as compared with Mangel. The weight is, I think, confessedly in favour of Mangel, even when the Beet is closely cultivated. I have grown Beet in alternate rows with Mangel, from seed from Mr. Duncan, and I have seen it grown from other seed elsewhere on various soils. The weight of the crop seems to be much in proportion to the depth of cultivation more than liberal treatment with manure. On the deeper cultivation the roots carried their size well into the soil, on the shallower, "that portion of the root that penetrated the soil was divided more or less into roots of inferior dimensions;" the Mangel grown under the same conditions were remarkably fine. On cultivation exceptionally deep in a clay soil, the root seemed to force itself into the soil without the division into roots of inferior dimensions. Deep cultivation seems to be the secret of success in growing Beet. *J. C. C.*

Sugar-Beet.—Will you allow me to correct a statement which appeared in your journal touching the cultivation of this crop? It is supposed that no crop can immediately precede or immediately follow Sugar-Beet. This is an error, as our experience at this farm will show. The best return of Sugar-Beet which we have had this year is that from 7 acres of land, which yielded 196 tons, or 28 tons an acre. This crop followed immediately upon the removal of Winter Rye and Winter Onions (the heaviest Beet came after the latter), and a close crop of Cabbages and Wheat followed at once the removal of the Beet. The land destined for Beet-growing next year is now in Grass, which will be allowed to stand as long as possible, and will be ploughed up only when we are ready to put in the Sugar-Beet seed. *Henry J. Morgan, Lodge Farm, Barking, December* 1.

Woolston Steam Cultivation.—I am afraid Mr. Smith has got a dig in the ribs which he does not feel very comfortable under. He talks of having 30 men employed, and therefore has no time to attend to "G. A. H." and his "interest of money and depreciation;" but as these men are all employed, as he himself says, at "jobwork," why need they take up so much of his time? I, too, have a great many men employed (far more than 30), and fully half of them are at day work, not jobwork, yet I can find time to poke through Mr. Smith's figures and point out his fallacies. What was the use of asking you to reprint his letter to the *Times?* I read the *Times* and have seen it there, but what is the value of it? It is a "mere estimate," and therefore simply "trash." So I quote against himself his own words, addressed to Mr. Tospffer (see p. 1097), "let him give over talking of what he can do, and instead tell us what he does do." Mr. Smith proposed to give us "facts," and I have already shown by his own figures that his so-called "facts" are fallacies, and that he never has made a seed-bed for Wheat at 6*s.* 8*d.* per acre, because his own figures prove that in order to do so he must occupy a farm on which he has 1067 acres under rotation on the four-field system, and of which 800 acres must be actually ploughed or, as he calls it, "smashed" each year. Now he never has occupied such a farm, and therefore he never has made a seed-bed for Wheat at 6*s.* 8*d.* per acre. He has, in fact, been telling us, not what he does do, but what he estimates he can do. This is a hard nut for Mr. Smith to crack, and I think he will break his teeth before he does it. And now one word about Mr. Mechi. Mr. Smith evidently thinks that I am a great friend of Mr. Mechi, and that my attack on the Woolston fallacies was a retaliation for the attack on Mr. Mechi's accounts, and he accuses me of keeping open "the raw" which he fancies he has established. I suspect Mr. Mechi's hide is too tough to be rubbed into a raw by Mr. Smith's criticisms; he must employ a professional accountant to assist him before his *critique* of the Tiptree accounts is any better than hen-scratching. As to my friendship for Mr. Mechi, I never saw him in my life, and he is no more my friend than he is the friend of every gentleman in England who takes an interest in agriculture. I may occasionally smile at his enthusiasm, but I most thoroughly respect his honesty of purpose and his truthfulness. Nay—tell it not in Gath, let it not go forth into the streets of Ascalon—I actually believe that Tiptree has done more good to British agriculture than Woolston has—ten times over. I hope Mr. Smith will understand that I am still waiting patiently for his reply when his 30 men have finished their jobs. *G. A. H.* [Neither "G. A. H." nor his readers must imagine, from the silence of Mr. Smith, that he has not an answer to his clever assailant. We have received a long report on the subject from Woolston, for which we are unable to find room this week.]

Foreign Correspondence.

TORONTO: *Turkey Raising.*—The turkey is a native of the American continent, and is found in the wild state all through the Western States, and often in the south-western part of Upper Canada. The wild mix with the tame, and do not produce mules, and are therefore, doubtless, of exactly the same species. The tame turkeys often associate with the wild, and join their flocks, breeding with them, and sometimes coming home to the barn-yard in the winter with some of their progeny.

Turkeys, in their wild state, always separate after the breeding season, the males and females into separate flocks, and they seem to avoid each other; they certainly migrate to considerable distances, and there is no known rule for their returning: the separation between the sexes seems to be complete, and if they ever meet again in pairs it is undoubtedly chance. It has been observed that the broods of the wild bird are very large, whilst the broods of those kept in confinement are often very small. American turkey breeders assert that the cause of small broods is that the same male bird is kept year after year, and those who look to their turkeys for profit, therefore, spare no pains to change the male bird every year, replacing him by one from as great a distance as possible. Many who have tried it say that, with the same male, they get good broods the first year, poor broods the second, and very bad ones the third year. This is a piece of "henwife lore" that may be worth putting in force in England, where, for some reason or other, they do not raise one young turkey where they raise ten in America. It can do no harm to try the experiment. *Vectis, Toronto, Canada, October* 8.

Societies.

BATH AND WEST OF ENGLAND.

November 30.—At a special meeting of the Council at Bristol, Sir J. T. B. Duckworth, Bart., in the chair.

Guildford Meeting, 1871.—The deputation which visited Guildford, on the 4th November last, reported in highly favourable terms of the site in Shalford Park, proposed to be placed at the disposal of the Society for the meeting to be held in 1871, and it was resolved by the Council that the invitation from the inhabitants of Guildford be accepted, and that the usual conditions be signed by the secretary on behalf the Council, and interchanged with the conditions already signed by the authorities at Guildford.

Privileges of Members.—Several new members were proposed for election at the next meeting of the Council to be held on Tuesday, February 22; and it transpired that no person not proposed on or before that day will be eligible to exhibit at the Taunton meeting on the same terms of advantage as those enjoyed by duly elected members.

BIRMINGHAM AND MIDLAND COUNTIES.

THE 21st meeting of this Society was opened on Saturday last, when the judges, from the uneven character of the cattle, got through their complicated duties with unusual ease. We say "complicated duties," because there are so many extra and special prizes offered by this Society that some of the animals come before the judges as many as five times. This was the case, as will be seen by our prize list, with the Earl of Aylesford's steer, for in addition to the 1st prize of his class, he was awarded the extra prize for the best Shorthorn, the gold medal for the best *male*, the Innkeeper's Prize for the best *animal* in the Hall, and so on; the value of the whole amounting to upwards of 120*l.*, or more than double the intrinsic value of the steer himself.

A remarkable feature of the Bingley Hall cattle was their inferiority as compared with last year. Then there was the most uniformly good collection of cattle that we ever saw together, and in addition to their regular fatness, their fine firm touch had never been equalled. The animals which have just been dismissed from the show, however, besides being very irregular, were in many cases very infirm, or oily, instead of being firmly fat, under the hand. This, of course, has nothing to do with the directors and managers of the Bingley Hall show, as they do not select the animals which appear in response to their prize list. But in this contrast we infer there is a great practical lesson for us to learn, for last year there was scarcely a bit of fine quality or wholesome green food to be had during the six months preceding the Christmas shows, while this year there has been an ample supply, and in some places almost a super-abundance of green food and roots for our live stock. The conclusion we may therefore draw is that, if our breeders and graziers could see their way clear to keeping their domestic animals free from foreign diseases, and otherwise be assured that a more certain direct profit on feeding stock would accrue, not only might the quality of our animal food be greatly improved, but its home-produce might be increased to any extent. The means for effecting both these desirable ends consist, of course, in the supply and use of a much larger amount of foreign corn. If these shows, with the wide differences in the quality of the animals in question, do not teach this practical lession, of what practical value are fat

stock shows? Last year corn and cake had to be almost entirely relied on, while this year there has been the fullest possible choice of the ordinary green crops and roots produced by modern farming. If, therefore, our conclusions are right, the British farmer ought to be encouraged in every possible way to increase his herds and flocks by resorting to the consumption of foreign corn; for while the health, stamina, and therefore intrinsic value of them will be increased, the fields which have been exhausted by stimulating manures and over-cropping will be restored by the best of all fertilisers, viz., the *excreta* of animals fed on corn grown on the "maiden" soils of foreign countries. These direct advantages, however, for extending the consumption of foreign corn, and the indirect profits which would ramify themselves through every branch of our national agriculture, need not now be further discussed.

The entries of cattle numbered altogether 111, some of which, however, were absent in consequence of the district from which the animals would have come, being under the ban of an "infected district." This was the case with the Prince of Wales' entry from Sandringham, for, as the conditions under which the show was convened could not be complied with, the West Highlander from his Royal Highness's Norfolk farm was absent.

The *Herefords* are placed in the first position at Bingley Hall, and it was among this breed that the falling off, as compared with last year, was more especially conspicuous. Mr. Heath's 1st prize ox was well fed, it is true; and although he was very irregular of form, his condition made him an easy winner. The other prize animals were very irregular, and nothing more nor less than flabby under the hand. Mr. Ridgley, of Steventon, near Ludlow, sent an enormous beast, with a corresponding head and Roman nose; but although he was thus far from being of the modern type of the fashionable Hereford, he was a very servicable rent-paying farmer's beast, more so in fact than several of the prize animals. The steers of this breed were better looking, but a similar want of firmness pervaded the whole class. The cows were two only, and these were of so mean a character that the 1st prize—the one of the three offered—was necessarily withheld. The heifers were a very handsome class, but they were short and small, and otherwise unprofitable to look at.

The *Shorthorn* oxen were few—two entries, one by Mr. Harris, Forres, Morayshire, and the other by Mr. Heath, of Ludham Hall, Norwich, being absent. If we say of this class the beasts composing it were big and useful, we do them a full measure of justice. In the steer class, as we have intimated above, the greatest honours of the show were conferred; for here was the Earl of Aylesford's splendid steer, with which the noble Earl took his first gold medal, although he has been a constant exhibitor at Bingley Hall. This steer is 3 years and 2 months of age, and he is by VICEROY (21,019), dam *Alexandra*. He is certainly a steer which does credit to the Shorthorns. About him there is great style and substance, a fine roan coat, which is ample in quantity, and altogether he is a very "taking" beast. The gold medal for the best female also went to the Shorthorns, a cow having been awarded that honour. This said cow, however, is not to be compared with the gold medal steer, for her coat, colour, outline of body, and small curly horns, give her more the appearance of an over-grown Ayrshire than the desirable type of a meat-growing Shorthorn. Her name is *Princess of Yetholm*, by GYPSEY PRINCE, dam *Young Honeysuckle*, and her age was 5 years, 3 months, and 3 weeks. The heifers were only six, one of which was Colonel Towneley's *Thistledown*, by DUKE OF TYNE (17,751), dam *Lady Favourite*. This heifer is far more like the fashionable style of Shorthorn, although she is too short and clumsy in her forequarters to be what our notions are of a correct female form.

The *Devon* oxen were better grown than usual, and the second prize was very handsome and well fed. The extra prize for the best of this breed was awarded to the steer of C. Hambro, Esq., M.P.; but although he is very beautiful, he is much too small of frame, in our opinion, to merit this honour. The class, too, was altogether composed of a collection of underlings. The Devon cows were three, the 1st prize animal being the only one in the hall which was over-fed; the second was very neat, and the third very small. In the heifers there was a most extraordinary little creature for depth and width of body on short legs. To her, however, the third honour of the class was awarded.

The six *Longhorn* oxen and cows did good credit to this peculiarly formed and hardy, heavy milking breed. The exhibitors names, to whom this breed is now principally confined, will all be found in our prize list.

The Scotch cattle, excepting the 1st prize Aberdeen black polled ox, were not up to the character of past years. Mr. McCombie, M.P., was not an exhibitor at all. His successful feeding has, however, seldom surpassed the practical result of this art as evidenced in the animal sent by Mr. Stephen, of Conglass, Inverurie. The Highland oxen were meanly fed, but the 1st prize was a fine showy fellow in his long shaggy mouse-coloured coat, set off as this was with a grand pair of up-standing horns. The Scotch cows were two, the 1st prize, a Highland lassie, being perfect for form and condition from feeding.

The *Welsh cattle* were only three oxen, the prize animals being fairly fat, but not firm, and the third one very coarse and ugly.

The *Cross-breds* were a dozen remarkable animals, taking them altogther. In the oxen, the one sent by Messrs. Martin, of Aberdeen, was the only animal about which there was a difference of opinion in regard to the award of the gold medal for the best male. Messrs. Martin's beast had an extraordinary touch for a cross-bred, and he had been fed up to a great weight, as well as mellowness. The award of the gold medal for the pure-bred one was, however, well judged. Unless there be something very superior in size and form, this honour for the best animal ought certainly to go to the pure-bred. Any one can cross and get something bigger and heavier the first time, but to keep up the size and character of a pure herd requires much study, as well as a large amount of intuitive and sound judgment. From Anglesea there was an ox which looked as though he was half-bovine, half-camel, and why he had been kept to the age of 5 years and 7 months seems strange. He looks 20 hands high, and he is above 6 feet in stature, while his strange and rugged formation made him as attractive in appearance, and looking as likely to fatten, as a pollard tree on stilts would have been. Another great beast, but of fine condition and feeding, apparently of a Gloucester-Shorthorn breed, was sent from Tewkesbury. The heifers were a very neat and good class.

In the *Extra Class* for oxen there was no entry, and in the same for cows there was only one, which, however, was a grand Hereford cow, 6 years of age.

SHEEP.—Among these classes the *Leicesters* were increased in numbers, and their character did credit to this pure breed. Lord Berners, as usual when he exhibits, took the 1st prize.

The *Lincolns* displayed a great deal of the character which is due to the pure Leicester element. There were only three pens, and these were placed in the same position as they stood at the Lincolnshire county show at Lincoln in August last.

The *Shropshires* were the most numerous, as they have been for some years past. They have greatly improved, too, both in form and uniformity of character. Lord Chesham took the 1st and 2d prizes, which are a great honour to his lordship, his bailiff, Mr. Clarke, and Day, his shepherd, considering how young the Latimer flock is. Mr. Nock, of Sutton Maddock, was 3d; and some good pens were sent by Mr. W. Yates, of Grindle; Mr. Matthews, of Montford; and some comparatively new breeders. A singular feature of this department was, that such names as Horley, May, Keeling, Masfen, Harry Smith, Bowen, Crane, and Willoughby Wood, were altogether absent.

The *Oxfordshires* were a very shabby lot, the only noticeable points about them being the way in which the wool had been cut down flat on their backs, and bedaubed all over with grease and some kind of brown or yellow dust. These abominations ought certainly to be prohibited by the authorities.

The cross-breds were very few, and otherwise unworthy of notice. Messrs. Howard, of Bedford, had entered a pen, but they were not sent.

PIGS.—These animals were so generally good, that there is no room for criticism. The 1st prize hog was of the large white breed, and it was a fine and neat animal. Mr. Peter Eden sold it for 20*l.* to Mr. Hollingsworth, of Birmingham. Messrs. James and Frederick Howard sent a fine pen of large breeding pigs, for which they were awarded the 1st prize. Mr. Lynn's pen of a small breed were the perfection of form and condition. The Berkshires were the leading breed, as they usually are at Bingley Hall; but the absence of Mr. J. Smith, as an exhibitor, after taking for so many years the principal prizes, is only another instance of the uncertainty of pig-breeding, and further proof that it is easier to raise up a herd of first-class swine than to be sure of its preservation.

The following are the Awards of the Judges:—

HEREFORDS.

Class 1. Oxen or Steers, not exceeding 3 years and 3 months old.—1st, 15*l.*, and extra prize of 20*l.*, as best Hereford, Mr. W. Heath, Ludham Hall, Norwich; 2d, 10*l.*, Mr. T. Dew, Almley, Herefordshire; 3d, 5*l.*, Mr. H. Bettridge, East Hanney, Wantage, Berks.

Class 2. Steers not exceeding 3 years and 3 months old.—1st, 15*l.*, Mr. John Price, Court House, Pembridge; 2d, 10*l.*, Mr. H. Bettridge, Wantage, Berks; 3d, 5*l.*, Mr. John Williams, Saint Mary's Farm, Kingsland, Herefordshire.

Class 3. Cows.—1st, withheld for want of merit; 2d, 10*l.*, Mr. W. G. Sexty, Old Sefton Court, Hereford; 3d, 5*l.*, Mr. J. Craddock, Easington, Northleach, Gloucestershire.

Class 4. Heifers.—1st, 15*l.*, and Silver Medal as breeder, Mr. T. Garrett, Compton Scorpion; 2d, 10*l.*, J. H. Arkwright, Esq., Hampton Court, Leominster, Herefordshire; 3d, 5*l.*, Her Majesty the Queen, Windsor Castle.

SHORTHORNS.

Class 5. Oxen or Steers, exceeding 3 years and 3 months old.—1st, 15*l.*, Colonel Loyd-Lindsay, M.P., Lockinge Park, Wantage, Berks; 2d, 10*l.*, Mr. R. Wood, Clapton, near Thrapston, Northamptonshire; 3d, 5*l.*, the Marquis of Anglesey, Beaudesert, Rugeley.

Class 6. Steers, not exceeding 3 years and 3 months old.—1st, 15*l.*, extra prize of 20*l.* as best Shorthorn, 15*l.* as best Shorthorn bred by exhibitor, Gold Medal as best ox or steer, President's prize of 25*l.*, Hotel and Innkeepers' Cup as best animal in the cattle classes, and Silver Medal as breeder, the Earl of Aylesford; 2d, 10*l.*, Mr. R. Wood, Clapton, Northamptonshire; 3d, 5*l.*, Mr. J. Clayden, Littlebury, Essex.

Class 7. Cows.—1st, 15*l.*, Gold Medal as best Cow or Heifer, and Silver Medal as breeder, Sir W. C. Trevelyan, Bart., Wallington, Newcastle-on-Tyne; 2d, 10*l.*, Messrs. A. and A. Mitchell, Alloa, Clackmannan; 3d, 5*l.*, Mr. J. Whyte, Clinterty, Aberdeen.

Class 8. Heifers.—1st, 15*l.*, Colonel C. Towneley, Towneley, near Burnley; 2d, 10*l.*, Mr. T. Atherton, Chapel House, Speke; 3d, 5*l.*, Mr. J. Reid, Graystone, Aberdeenshire.

DEVONS.

Class 9. Oxen or Steers, exceeding 3 years and 3 months old.—1st, 15*l.*, and extra prize of 20*l.* as the best Devon, Mr. W. Farthing, Stowey Court, Somerset; 2d, 10*l.*, Mr. R. Burton, Place Barton, Devon; 3d, 5*l.*, Mr. W. Smith, Hoopern, Exeter. Commended: Mr. C. Gibbs, Bishops Lydeard; W. G. Nixey, Esq., Upton Court Farm, Slough.

Class 10. Steers, not exceeding 3 years and 3 months old.—1st, 15*l.*, extra prize of 10*l.* as best Devon, bred by the exhibitor, and Silver Medal as breeder, C. Hambro, Esq., M.P., Milton Abbey, Blandford, Dorset; 2d, 10*l.*, W. G. Nixey, Esq., Slough, Bucks; 3d, 5*l.*, Mr. C. Gibbs, Bishops Lydeard. Commended: Mr. W. Farthing, Stowey Court, Bridgewater.

Class 11. Cows.—1st, 15*l.*, Mr. W. Farthing, Stowey Court; 2d, 10*l.*, Mr. J. Hitchcock, Broomhouse, South Molton, Devon; 3d, 5*l.*, Mr. W. Smith, Hoopern, Exeter.

Class 12. Heifers.—1st, 15*l.*, and Silver Medal as breeder, Mr. W. Farthing, Stowey Court; 2d, 10*l.*, W. G. Nixey, Esq., Upton Court; 3d, 5*l.*, Mr. W. Smith, Hoopern, Exeter.

LONGHORNS.

Class 13. Oxen or Steers.—1st, 10*l.*, and Silver Medal as breeder, Mr. J. H. Burbery, the Chase, Kenilworth; 2d, 5*l.*, Sir J. H. Crewe, Bart., Calke Abbey, Derbyshire.

Class 14. Cows or Heifers.—1st, 10*l.*, and Silver Medal as breeder, W. T. Cox, Esq., Spondon Hall, Derby; 2d, 5*l.*, Mr. J. Godfrey, Wigston Parva, Hinckley.

SCOTCH BREEDS.

Class 15. Polled Oxen or Steers.—1st., 15*l.*, extra prize of 20*l.* as best Scot, prize of 10 gs., given by Col. Ratcliff, and Silver Medal as breeder, Mr. J. Stephen, Conglass, Inverurie, Aberdeenshire; 2d, 10*l.*, Mr. A. Longmore, Linksfield, Banffshire.

Class 16. West Highland Oxen or Steers.—1st, 15*l.*, Captain Gunter, The Grange, Wetherby, Yorkshire; 2d, 10*l.*, Messrs. J. & W. Martin, Aberdeen; 3d, 5*l.*, G. Lawson, Esq., Clynelish, Sutherlandshire. Highly Commended: T. L. M. Cartwright, Esq., Melville, Ladybank, and Newbottle, Northamptonshire. Commended: R. Sneyd, Esq., Keele Hall, near Newcastle-under-Lyme; G. Lawson, Esq., Clynelish, Sutherlandshire; Messrs. G. and J. G. Smith, the Glenlivat Distillery, near Ballindalloch, Banff.

Class 17. Scotch Cows or Heifers.—1st, 15*l.*, Sir W. C. Trevelyan, Bart., Wallington, Newcastle-upon-Tyne; 2d, 5*l.*, Mr. J. Reid, Graystone, Aberdeenshire.

WELSH BREEDS.

Class 18. Oxen or Steers.—1st, 15*l.*, Captain H. Platt, Gorddinog; 2d, 5*l.*, Caytain Platt.

OTHER PURE-BREEDS AND CROSS-BREDS.

Class 19. Fat Oxen or Steers.—1st, 15*l.*, Messrs. J. & W. Martin, Aberdeen; 2d, 10*l.*, Mr. J. P. M'Pherson, Muirtown, Elgin; 3d, 5*l.*, Mr. A. Pike, Mitton, Gloucestershire.

Class 20. Fat Cows or Heifers.—1st, 15*l.*, and Silver Medal as breeder, Mr. H. L. L. Morrison, Blair Guise, Aberdeenshire; 2d, 10*l.*, Mr. A. Pike; 3d, 5*l.*, Mr. G. Mitchell, Meikle Haddo, Aberdeen. Highly Commended: Mr. A. Cowie, Crombley Bank, Aberdeen.

EXTRA CLASSES.

Class 21. Oxen or Steers.—For animals not qualified to compete in any of the preceding classes.—No entry.

Class 22. Cows or Heifers, not qualified to compete in any of the preceding classes.—1st, 5*l.*, and Silver Medal as breeder, Mr. J. Walker, Westfield House, near Hereford.

SHEEP CLASSES.

LEICESTERS.

Class 23. Fat Wethers, not exceeding 22 months old.—1st, 15*l.*, extra prize of 10*l.*, and Silver Medal as breeder, Lord Berners, Keythorpe Hall, Leicester; 2d, 10*l.*, Mr. W. Browne, Highgate, Yorkshire; 3d, 5*l.*, Mr. W. Browne, Highgate. Commended: the Executors of the late Mr. Francis Jordan, Eastburn, Driffield, Yorks.

LINCOLNS.

Class 24. Fat Wethers, not exceeding 22 months old.—1st, 15*l.*, extra prize of 10*l.*, and Silver Medal as breeder, J. Byron, Kirkby Green, Sleaford; 2d, 10*l.*, Mr. T. R. Casswell, Quadring, Spalding; 3d, 5*l.*, Mr. R. N. Morley, Leadenham, Grantham.

COTSWOLDS.

Class 25. Fat Wethers, not exceeding 22 months old.—1st, 15*l.*, extra prize of 10*l.*, and Silver Medal as breeder, Sir John Rolt, Ozleworth Park, Wotton-under-Edge; 2d, 10*l.*, Mr. R. Hall, Great Barford, Oxon; 3d, 5*l.*, Mr. John Baldwin, Luddington, Stratford-on-Avon

SOUTHDOWNS.

Class 26. Fat Wethers, not exceeding 22 months old.—1st, 15*l.*, extra prize of 10 gs. and Silver Medal as breeder, Lord Walsingham, Merton Hall, Norfolk; 2d, 10*l.*, Walsingham; 3d, 5*l.*, Lord Sondes, Elmham Hall, Norfolk.

SHROPSHIRES.

Class 27. Fat Wethers, not exceeding 22 months old.—1st, 15*l.*, extra prize of 10 gs., and Silver Medal as breeder, Lord Chesham, Latimer, Bucks; 2d, 10*l.*, Lord Chesham; 3d, 5*l.*, Mr. T. Nock, Sutton Maddock, Shiffnal. Highly Commended: Mr. W. Yates, Grindle House, Shiffnal, Salop. Commended: Mr. H. Matthews, Montford, near Shrewsbury. The class generally Commended.

Class 28. Fat Wethers, exceeding 22, but not exceeding 34 months old.—Silver Cup, for other article of plate, value 10 gs., Mrs. Beach, The Hattons, Brewood, Staffordshire.

OXFORDSHIRES.

Class 29. Fat Wethers, not exceeding 22 months old.—1st, 15*l.*, extra prize of 10*l.*, and Silver Medal as breeder, Mr. A. Rogers, Bromham, near Bedford; 2d, 10*l.*, Mr. Z. W. Stilgoe, Adderbury Grounds, Oxon; 3d, 5*l.*, Mr. N. Stilgoe.

SHEEP NOT QUALIFIED TO COMPETE IN ANY OTHER CLASS.

Class 30. Fat Wethers, not exceeding 22 months old.—1st, 15*l.*, and Silver Medal as breeder, Colonel Loyd-Lindsay, M.P., Lockinge Park, Wantage, Berks; 2d, 5*l.*, J. Walter, Esq., Bearwood, Wokingham, Berks.

CROSS-BREDS.

Class 31. Fat Wethers, not exceeding 22 months old.—1st, 15*l.*, and Silver Medal as breeder, Mr. N. Stilgoe, Adderbury, Banbury; 2d, 5*l.*, Mr. Z. W. Stilgoe.

PIGS.

Class 32. Three Fat Pigs of one litter, not exceeding 10 months old.—1st, 10*l.*, and Silver Medal as breeder, Mr. J. Treadwell, Upper Winchendon, Aylesbury; 2d, 5*l.*, T. L. M. Cartwright, Esq., Newbottle, Northamptonshire; 3d, 3*l.*, Her Majesty the Queen, Windsor Castle.

Class 33. Three fat Pigs of one litter, not exceeding 15 months old.—1st, 10*l.*, Silver Cup, value 5 gs., and Silver Medal as breeder, Her Majesty the Queen, Windsor Castle; 2d, 5*l.*, Mr. J. Lynn, Church Farm, Grantham; 3d, 3*l.*, Mr. J. H. Clark, Altwood, Berks.

Class 34. Fat Pigs, exceeding 15 months old.—1st, 6*l.*, and Silver Medal as breeder, Mr. P. Eden, Cross Lane, Salford, Manchester; 2d, 4*l.*, Mrs. Beach, The Hattons, Brewood, Staffs; 3d, 2*l.*, Mr. W. J. Sadler, Bentham, Crickdale. Highly Commended: Mr. T. Bantock, Merridale House, Wolverhampton; Mr. J. H. Clark, Altwood, Maidenhead.

BREEDING PIGS.—BERKSHIRES.

Class 35. Five Pigs of ones litter, exceeding 3 and not exceeding 6 months old.—1st, 10*l.*, Silver Cup, value 5 gs., and Silver Medal as breeder, Mr. J. Spencer, Villers Hill, Kenilworth; 2d, 5*l.*, Mr. R. Fowler, Broughton Farm, Aylesbury; 3d, 3*l.*, Capt. Stewart, Saint Bridge House, Gloucester.

PIGS OF OTHER LARGE BREEDS.

Class 36. 5 Pigs of one litter, exceeding 3 and not exceeding 6 months old.—1st, 10*l.*, and Silver Medal as breeders, Messrs. J. and F. Howard, Britannia Farms, Bedford; 2d, 5*l.*, Mr. J. Fisher, Wood House, near Cross Hills, Yorkshire; 3d, withheld for want of merit.

PIGS OF A SMALL BREED.

Class 37. 5 Pigs of one litter, exceeding 3 and not exceeding 6 months old.—1st prize, 10*l.*, Silver Cup value 5 gs., and Silver Medal as Breeder, Mr. J. Lynn, Church Farm, Grantham; 2d, 5*l.*, Mr. P. Eden, Cross Lane, Salford, Manchester; 3d, 3*l.*, Her Majesty the Queen, Windsor Castle.

SEEDS AND ROOTS.

This department was not equal to last year as regards the specimens of grain and pulse, but the roots, it is almost superfluous to say, were far better. The Swedes and Mangel Wurzel were, however, in some instances very coarse, and in regard to the award of the 1st prizes for Swedes, we must say that very poor judgment was displayed. Coarser or more ugly lots we never saw shown. The only thing which appears to have been considered was the weight, which any one can produce by sowing early enough and throwing down any and every sort of fertiliser. Weight is no doubt an important element of a root crop, but some regard ought to be had for quality and form. The best Swedes in the Hall were from Ireland, and shown, but too late for competition, by Messrs. Francis & Arthur Dickson, of 106, Eastgate Street, Chester, and the Upton Nurseries.

The following are the Awards of the Judges:—

SEEDS.

Wheat—white: Colonel Loyd-Lindsay (Talavera); Mr. J. H. Clark (Chidham). Red: Mr. Thomas Horley, Leamington (Nursery); Mr. R. Hall, Deddington.

Barley—Mr. Edward Parrott, Tetsworth (Hallett's Pedigree); Mr. H. Frampton, Newbury, ditto.

Oats—white: Mr. Joseph Greatorex, Stretton, near Burton-on-Trent; Mr. F. Lythall, Banbury (Australian). Black: Mr. F. Lythall, Banbury; Mr. R. Hall, Deddington.

Beans—Mr. J. H. Clark, Altwood, Maidenhead (White Eyes); Mr. F. Lythall, Banbury (French Eyes).

Peas—white: Mr. J. H. Clark (Ringwood Marrow); Mr. F. Lythall (Banbury Prize-takers). Blue: Mr. F. Lythall. Grey: Mr. F. Lythall.

ROOTS.

A Silver Cup, value 5 gs., by Messrs. Proctor & Ryland, for the best collection of the three following varieties, viz., long Mangel Wurzel, Globe Mangel Wurzel, and Swedes, six roots of each to be shown for this prize alone.—Sir William Heathcote (Hall's Mangels, and Hall's Imperial Westbury Swede).

Kohl Rabi.—2*l.*, Mr. G. Fleming, Stone, Staffordshire; 1*l.*, Colonel North, M.P.

Long Mangel Wurzel.—2*l.*, with 2 gs. added by Messrs. Proctor and Ryland, Mr. G. Baylis, Gryton Farm, near Ross (Suttons' Mammoth); 1*l.*, Mr. W. Dickinson, New Park, New Forest.

Globe and Intermediate Mangel Wurzel.—2*l.*, with 2 gs. added by Messrs. Proctor and Ryland, Sir F. Smythe, Bart.; 1*l.*, Mr. W. Dickinson, New Park.

Swedes of any variety.—2*l.*, with 2 gs. added by Messrs. Proctor and Ryland, J. Moore, Esq., Warwick (Bangholm); 1*l.*, the Duke of Portland (Skirving's seed, supplied by J. R. Pearson).

Common Turnips (white flesh).—2*l.*, the Duke of Portland (seed supplied by J. R. Pearson); 1*l.*, Mr. J. H. Clark, Altwood, Maidenhead (Green Globe).

Common Turnips (yellow flesh).—2*l.*, Mr. James Stephen, Congiass, Aberdeen (Green-topped Aberdeen Yellow); 1*l.*, T. L. M. Cartwright, Esq. (Aberdeen Yellow Bullock).

Carrots of any variety.—2*l.*, the Duke of Portland (Altringham, seed supplied by J. R. Pearson, Chilwell); 1*l.*, the Duke of Portland (Altringham, seed supplied by J. R. Pearson, Chilwell).

Ox Cabbage.—2*l.*, Mr. S. Robinson, Melbourne, Derby (Robinson's Champion); 1*l.*, Mr. S. Robinson (Robinson's Champion).

Ashleaf Kidney.—15*s.*, Mr. F. Lythall, Banbury; 10*s.*, Mr. John Choyce, Atherstone.

Rivers' Royal Ashleaf Kidney.—15*s.*, Mr. F. Lythall; 10*s.*, Mr. John Choyce.

Gloucestershire Kidney.—15*s.*, Mr. John Choyce; 10*s.*, Mr. John Choyce.

Daintree's First Early.—15*s.*, Mr. John Choyce.

King of Potatos.—15*s.*, Mr. J. K. Fowler, Prebendal Farms, 10*s.*, Mr. J. Choyce.

Wheeler's Milky White.—15*s.*, Mr. J. Choyce.

Flukes.—15*s.*, Mr. R. Hall, Great Barford, Oxon; 10*s.*, Mr. J. Choyce.

Dalmahoys.—15*s.*, Mr. T. B. Wright, Great Barr, Staffordshire; 10*s.* Mr. J. Lynn, Stroxton.

Red Regents.—15*s.*, Mr. J. K. Fowler, Prebendal Farms, Aylesbury; 10*s.*, Mr. F. Gottwaltz, Birmingham.

Paterson's Victoria.—15*s.*, Mr. W. W. Pearce, Measham, Atherstone; 10*s.*, Mr. F. Birch, Perry Barr, near Birmingham.

Skerry Blue.—15*s.*, Mr. John Choyce.

Any other named variety.—15*s.*, Mr. John K. Fowler (Shackell's Conqueror); 15*s.*, Sir F. Smythe, Bart. (Lapstone Kidney); 10*s.*, Mr. R. Hall, Great Barford, Oxon; 10*s.*, the Duke of Portland (Dunbar Regents).

JUDGES OF CATTLE.—Mr. W. Sunday, Ratcliffe on-Trent, Nottingham; Mr. H. W. Keary, Bridgnorth; Mr. J. Thompson, Badminton, Chippenham.

JUDGES OF SHEEP.—Mr. C. Clarke, Scopwick, Lincoln; Mr. H. Lugar, Ingham, Bury St. Edmund's; Mr. T. Mansell, Ercall Park, Wellington, Salop.

JUDGES OF PIGS.—Mr. E. Little, Lanhill, Chippenham; Mr. A. F. M. Druce, Burghfield, Reading.

REFEREE FOR THE AGES OF STOCK.—Professor Gamgee, Queen's Road, Bayswater, London.

VETERINARY INSPECTOR.—Mr. E. Stanley, 35, Islington, Birmingham.

IMPLEMENTS.

An increased number of stands of machinery was in the Hall, and every available foot of space was filled with specimens of modern farm implements—ploughs, harrows, and rollers for cultivation, and mills, pulpers, slicers, and so on, for preparing roots and grain for the sheep-fold, and rearing and fatting stalls. All the principal agricultural engineers were represented excepting Messrs. John Fowler & Co., of Leeds, whose machinery appears to be so well known that they do ...t care to exhibit, unless it be at the Royal and Smith...ld shows, or in the open field. Messrs. Ransome, ...ms & Head, of Ipswich; Mr. Humphreys, of Pershore; Messrs. Hornsby & Sons, of Grantham; Mr. Walter Wood, ...f London; Messrs. Howard, of Bedford; Messrs. Page & Co., of Bedford; Messrs. Garrett & Sons, of Leiston; Messrs. Richmond & Chandler, of Manchester; Messrs. Ashby, Jeffreys & Luke, of Stamford; the Beverley Ironworks Company; Messrs. Griffin, Morris & Griffin, Wolverhampton; Messrs. Proctor & Ryland, and others were efficiently represented with a display of the specialities for which each firm is celebrated. But as the much greater show in the Agricultural Hall, London, begins on Monday next, and we shall have to take this larger collection into consideration *seriatim* and in detail, it is unnecessary for us to do more than say here that, with the exception of Messrs. Amies & Barford's excellent self-acting anchor for steam cultivation, there was nothing new or novel in the hall. Agricultural machinery, indeed, has become so efficient that there is apparently no room left for further profitable invention.

Reviews.

Second Report of the Commissioners on the Employment of Children, Young Persons, and Women in Agriculture (1869). Printed by G. E. Eyre and W. Spottiswoode for her Majesty's Stationary Office.

Messrs. Tufnell and Tremenheere, her Majesty's Commissioners to inquire into the employment of women and children in agriculture, have just issued their second report, founded on evidence collected for them in 18 English counties. They do not agree in the conclusion to which their evidence ought to lead the reader, and therefore they issue separate reports upon the subject.

They both apparently start from the same standpoint on the subject of Government interference, which is admitted to be often inefficient, sometimes mischievous — and wholly injurious whenever the natural growth and tendency of circumstances is of itself rapidly attaining the end which is desired; and they both agree on many other points to which the Assistant-Commissioners had directed their inquiries. They nevertheless differ on the important question as to how the better education of country children is to be enforced. It seems proved that the field employment even of the youngest children is not injurious to their health, and cannot be condemned on the score of cruelty; and the only other ground of interference, viz., that it is fatal to the acquisition of even the rudiments of education, is looked at by the Commissioners from different points of view. Mr. Tremenheere would not have any limit fixed, below which it shall be unlawful to employ young children in the field. He says:—

"I have shown that there is no ground, from a physical point of view, for adopting the suggestion made by so many employers of labour, that all children under 10 years of age should be excluded from farm work; and I have adverted to the two species of work—the going with horses and 'tenting' on Sundays—in respect of which a very moderate amount of legislative interference is required. The next question for consideration is—Is it necessary to fix any minimum age, as under the Factory Acts, below which it shall not be lawful to employ children in agriculture? I am of opinion that it is not."

He would therefore attain his end by requiring a certain number of school attendances during every year in which at least 12 weeks' farm employment had been given; in fact, he looks with favour on the half-time system which Mr. Paget has found so efficacious, or some modification of it. Mr. Tufnell, on the other hand, would put the pressure on educational progress, by forbidding all employment to a child under nine years of age. He is of opinion that no scheme for dealing with the existing low standard of education is feasible, except that which proposes a *minimum* of working age.

He quotes the testimony of landowners, Boards of Guardians, and others, including farmers, in favour of a prohibition of the employment of children under 10 years of age, and the evidence of some labourers and labourers' wives, to the effect that there is little or no nett profit from the small earnings of a young boy; and he comes to the conclusion that neither employers nor employed would have "any material objection" to such a prohibition. The plan of requiring that no children be hired for farm work unless they can produce a certificate of a certain amount of schooling and of passing an examination he dismisses as impracticable. It would require an army of Government officials, for the pressure of undue influence would render it unsafe to intrust the examinations to a local authority A clever boy passing the test early would in consequence have little chance of further instruction; and it would be necessary to fix how long a stupid boy who cannot pass is to be kept at school. Under the Mining Act a test examination appears to be nugatory. A pass examination must fix a low standard in order to avoid too great an amount of failures, and the result would be that high and advanced instruction would be stopped; children would "take their degree," and never enter a school again. It would be a retrograde movement in the educational condition of the country. Mr. Tufnell agrees with those who recommend that 10 should be the earliest age at which a child should be allowed to be employed in agriculture, but as eight is at present the legal age for beginning factory work—an age too early for children to be put to constant work—and as all ought to be treated alike in the competition for children's labour, he is in favour of a compromise by making nine for the present the *minimum* limit of age for commencing work, whether in factory or agriculture, except during 10 weeks of school holidays; in two years the prohibition to be advanced to the age of 10.

We quote these words from a very complete summary of the report given in the *Times*, and for the present we must be satisfied with this statement of the conclusions to which the Commissioners have severally arrived, leaving any discussion of them till another day.

Farm Memoranda.

LISCARD, BIRKENHEAD.—Having a few hours to spare when in Liverpool last autumn, and being within 1½ mile of Mr. Littledale's model farm at Liscard, I determined to avail myself of the opportunity of seeing this well-known establishment.

The buildings are probably as complete and well arranged for the purposes intended as any in Britain. They were designed and planned by the celebrated Lincolnshire farmer, William Torr and are substantially built of brick, faced with stone, and slated, and consist of bailiff's house, eight two-storied cottages for workpeople; horse-stable is well ventilated, and fitted with iron mangers—no racks used, the fodder being all cut into chaff; piggery is nicely arranged, with poultry-houses overhead, so contrived that the heat from the hogs ascends to the houses above them; cow-stables are well arranged, and kept beautifully clean and sweet, great attention being paid to ventilation, the temperature being maintained as regular as possible—stalls divided by slate flags, secured with iron rods, and connected with the mangers, which are of iron. There is a passage at the head for feeding, and also one behind, which are paved with Welsh tiles. I was particularly pleased with these arrangements, being so much easier to keep clean and sweet than the common wooden stalls; in fact they are slushed down every morning, and kept remarkably clean. Whitewash is used very freely both here and in the rest of the buildings. I ought perhaps to have remarked previously that Mr. Littledale's is a dairy farm, and that the milk is disposed of in Liverpool. The cows are cross-bred Shorthorns, and splendid dairy cows they are, being large and most of them fit for the butcher—in fact, they increase in flesh from the time they are purchased or put in stalls until slaughtered; and after being once tied up, they never leave the stalls until sent to the butcher. Some are kept seven years, but the average is about five. I understood the herdsman to say that they were much freer from the various epidemics, such as "foot-and-mouth" and "pleuro," than their neighbours who pursued the old system; but probably the secret lies in the extreme cleanliness, regularity, and system of feeding. Keeps about 94 cows, which are fed during winter as follows:—4 A.M.: half a bushel of grains each, then milk; at 7 A.M. as many Turnips fed whole as the cow can eat, then clean out and water. About 10 A.M. feed as much straw and hay cut into chaff and steamed as they require, generally about 1 bushel per head. At 2 P.M. give a feed of Mangels, then water, and clean out, after which a feed of steamed chaff. Milk at 3.30, and again at night feed steamed chaff, if required. Cows milking very heavy or losing flesh get, in addition, 3½ lb. of linseed-cake per day. In summer Italian Rye-grass is substituted for roots and chaff. Each man has to attend and feed 22 cows. With the above feed and management, the average is about 800 gallons milk per head.

The farm contains about 350 acres arable and 150 meadow and pasture, on which are kept the young stock and sheep. Large quantities of roots and Italian Rye-grass are grown, the latter being sometimes cut four times in a season, and will average 3 feet in length. The first cutting takes place in April; the plots are irrigated with liquid manure after each cutting, which is forced by the steam-engine through pipes laid down all over the farm for that purpose. I have not space to describe the steaming apparatus, in which 2 tons of cut straw can be steamed at a time, nor the various root, straw, artificial manure, and tool houses, cart-shed, butcher's shop, curing house, blacksmith and carpenter shop, churning house—churn worked by steam, and capable of churning 80 gallons of cream at once: nor the steam-engine, threshing-machine, chaff-cutters, and various mills, all driven by belts from shafting arranged along the beams.

The dairy is the most perfect I ever saw. The tables at the sides are of wood, as white as snow, with marble table at the end. The walls are lined with glazed tiles. The milk dishes are made of glass, being more cleanly, and it is considered that the cream rises better than when made of tin. The milking pails are of some white wood, and spotless; the hoops shone like burnished steel.

The same order, regularity, and tidiness as were found in the dairy and cattle stalls, were to be observed over the whole of the premises. I much regretted that the manager, Mr. Teasdale, was from home. *Albany Cultivator.*

The Poultry Yard.

THE BIRMINGHAM POULTRY SHOW.

WE have seen in our own country instances where the eldest son of a family has proved unable or unwilling to sustain the prestige of his name or to raise it, and where the younger sons have put their shoulders to the wheel, and have lifted the family coach out of the mud.

There is at present now open in New York a State poultry show on a grand scale. There will be held in Paris in a week or two the grand cattle show under the auspices of the French Government; in this latter show poultry plays a very important part. We have next week our grand cattle show, and poultry does not appear in it. We have our summer meeting of the R. A. S. E., and poultry is unmentioned. Luckily we have the praiseworthy younger sons to fall back on; and the Birmingham and Midland Counties, with the Bath and West of England to help to redeem our credit a little. We are promised a great meeting at the Crystal Palace in January, but our present business is with that one just now concluded at Birmingham, and which may justly be styled the poultry show *par excellence.*

For 20 years the show has held its own through evil report and good report, carried out by the same clear-headed and straightforward committee; and now we may congratulate its promoters on seeing the twenty-first meeting close satisfactorily. History is said to repeat itself, poultry history certainly does, for as at Ascot in 1869, ten days after the Derby people are backing horses for the race of 1870, so in all probability by the time these lines are in print the pens will be made up for the campaign which it is hoped will result in victory at Bingley Hall in December next.

A full report of such a show as has just terminated would exceed the limits allotted to us, and we can therefore only notice the more prominent classes, but we may say, by way of encouragement, that the birds are still making progress as regards size, and that the increased attention bestowed on them is well repaid.

One hundred and five grey Dorking cocks were entered in classes 1 and 2, which comprised old and young birds. Seldom, if ever, has such a collection come together. Mrs. Arkwright won the 1st prize with a very excellent bird, Mr. Denny 2d, Admiral Hornby 3d, Mr. J. Martin 4th; these were for old

birds. In the class for chickens (No. 2), Mrs. Arkwright again won 1st, and took the cup as well. The competition in this class was very great, and the result showed that the old breeders hold their own pretty well.

Classes 3 and 4, for hens and pullets, grey Dorkings, but not silver greys. More than 90 pairs competed, Mr. John Fox winning for hens, and Mr. Crossley 1st and cup for pullets.

Mr. Thomas Raines had 1st prize for a very handsome silver grey cock, and Mr. R. D. Holt 1st for a pair of hens of great merit. The appearance of this latter class was extremely interesting, from the symmetry of shape and beauty of plumage.

We think we may report progress and improvement in the white Dorkings; they show more frame and stamina. Mr. John Choyce was 1st for cock birds, and Mr. J. Robinson for hens or pullets.

Mr. W. A. Taylor may be proud of the adult Cochin cock that won him Mr. Mapplebeck's cup, and Mr. Zurhorst's 2d prize bird was well worthy of his position.

Mr. William Sanday was 1st for cocks of 1869, with a young bird that will, we think, be hard to beat in future; Mr. Cattell was 2d, and Captain Heaton 3d. These names will give some idea as to the quality of the birds sent.

The classes for buff Cochin hens and pullets were an exhibition in themselves. All the best known breeders competed, and hard was the struggle, many who have been accustomed to substantial honours having to content themselves with commendations. Mr. W. A. Taylor took 1st for hens, and Mr. Cattell for pullets. The brown and partridge-feathered Cochins do not make progress. By dint of pushing they were made to take a more prominent place a year or two back, but they do not hold it either in quality or numbers. Mr. White and Mr. Amies won 1st for cock birds (old and young), and Messrs. Taylor and Tudman for hens and pullets.

Mr. A. O. Worthington and Mr. Swindell were the winners of the two 1st prizes for white Cochin cocks, and Mr. Smalley and Mr. Williamson for hens and pullets.

The competition in dark Brahmas was immense, the entries numerous, and the quality very high. The winning bird in the class for adult cocks was one that has seldom been equalled. He was exhibited by Mrs. Hunt, of Aldermasley. The Rev. John Bowen won 1st for young birds with an excellent chicken, in a competition of 70 birds. Mr. Lingwood was 1st for hens, and Mrs. Hurt for pullets. The light Brahmas have been fostered, praised, and pushed into notice by their own admirers, but they will never take the place of the dark ones, nor do we think they will ever equal them. The entries of them were small. Mr. Lacy and Mr. Crook won 1sts for cocks, Mr. Williamson and Mr. Crook 1sts for pullets and hens. Eighteen pens of Malays divided into four classes made but a poor show. A young Malay cock is not a bird that appears to advantage in a pen by himself: he gives one the idea of a boy in corduroys too small for him. The Crèvecœurs were excellent; seldom, if ever, has the class for the cocks of this breed been equalled. The increase of frame and size is great, and the improved constitution and stamina of the birds speak for the pains that have been bestowed on their development. Mr. W. R. Park won 1st prize, Mr. Zurhorst 2d. Mr. Park also won 1st with a pair of hens; Mr. Durbell for Houdan cocks, and Mr. C. Morris for hens. The Hon. C. W. FitzWillliam took all the 1st prizes for the La Flèche fowls.

Mr. H. Lane won in a canter 1st prize for Spanish cocks (adults). He won, but not so easily, the 1st for chickens. The Hon. Miss Pennant 1st for hens, and Mrs. Hyde for pullets. Black Hamburghs having made themselves a position, keep it. The birds shown were very good. Messrs. Mason & Walker were 1st for cocks, and the Rev. W. Sergeantson for pullets. In golden pencilled Mr. Whittaker won 1st in the class for cocks, and Mr. H. Beldon for pullets; this latter exhibitor was 1st for silver pencilled cocks, and the Duke of Sutherland took 1st prize for pullets.

Mr. W. A. Hyde took the 1st honours for golden spangled Hamburghs in both classes; Mr. H. Pickles for the best cock bird, and Miss E. Browne for the best pullets in the silver spangled.

Mr. Shaw took both the 1st prizes for black Polish, Mr. Nicholls for cocks, and Mr. Harvey for pullets in the golden spangled, but the competition was poor.

Mr. G. C. Adkins took a double first in silver Polands, winning both for cocks and pullets. The class for silver Poland cocks was a very good one indeed.

Class 59, for "any other variety," was more interesting than usual, the 1st prize being taken by Mr. Montresor, with a pen of very handsome Indian game called "Bajsa." The second was awarded to silkies, the 3d to Andalusians, and high commendations and commendations were distributed freely.

(To be Concluded next week.)

Calendar of Operations.

DECEMBER.—*Steam Culture*, in favourable climates, ought to be finished before this time, as stated in previous months; but to the general rule there are many exceptions. Lands, however, which could not be cultivated at an earlier date, should now be ploughed or smashed up without delay. And besides the exceptional examples of ordinary tillage, this is one of the best months for trenching and deepening old pastures or worn-out arable soils. To get the newly deepened or reclaimed land turned up to the frost and rains of winter is a cardinal point, upon which much of the success of the work depends; hence, as much as possible should be gone over by steam in the early part of the month, for the alternate washing by heavy rains and freezing of newly broken-up land has a powerful effect in sweetening it and preparing it for manure and the growth of crops. Indeed, without this preparation, it is in many cases hopeless to put manure or seed into it. Often exceptional examples, calcareous, gravelly, and sandy stubbles, leys and fallows, may be cultivated by steam as successfully just now as at an earlier period, so far as the mere work of tillage is concerned. It is otherwise with tenacious clay soils, which by this time have absorbed their maximum of water; and hence they more or less "squeeze" and "paste;" whereas, when worked in a comparatively dry state the furrow-slice breaks up into a thousand fragments, thus exposing nearly as much surface to the weather as do gravelly and sandy soils when ploughed or smashed at this season.

Horse Ploughing (in the absence of steam) is general this month in open weather. In early and ordinary seasons the stubbles are ploughed before this in the northern counties of Scotland, but in late seasons it is otherwise; and when much rain falls, the ploughs may have to be sent to the ley until the stubbles become sufficiently dry. Beans are sometimes sown upon the stubbles in February, and covered thinly by ribbing or ridging, in preference to poaching the land in December; and if frosty weather intervenes, manure may be carted and spread upon the stubbles. In favourable springs fine crops of Beans have been thus grown; but the practice can only be commended as the least of two evils. It is, however, only the heavier class of soils that are thus left to spring. When the ploughs have been removed from stubbles adapted for the growth of Turnips, they may be returned in a day or two after the rain ceases, and on no account should they be allowed to lie over uncultivated during the winter months; and now that steam can be hired in every county, there is no occasion for poaching.

Draining operations continue to be carried on with vigour, as stated last month. There is still a large breadth of the country undrained, and much that has been drained is only half done, while not a few of the pipes in the earlier drained land are beginning to give way, thus proving that the artificial drainage of land is not a permanent work. It further proves that the useful duration of a drain is anything but a uniform period. The practical conclusion to be deduced from this is manifest, viz., the drains require to be carefully examined at this season after every storm, to see if they are all flowing freely; and this is not all, for the fields upwards require close examination also, to see if wet places are making their appearance—in other words, to see if the whole field is being thoroughly drained. Where a drain ceases to act in young Wheats, Clovers, &c., the wet spots should be marked either by stake, or pit, or the intersection of cross lines, so that the injury can be repaired at the close of harvest, when no such wet spot may be perceptible. But when the old drain or a new one can be opened, the sooner the reparation is made the better. Where there are doubts as to the whereabouts of the defect in the drain, it is better to open cross-drains above and below, and to put new drains half-way between the old, than to open the old ones. The cross-drain should be sufficiently far above and below to make sure work. Two or three main drains angularly across the bottom of the field, when drains cease to drain off the water properly in wet weather, afford instant relief, and, in putting in such mains, the common drains crossed should be carefully examined, one by one, and new drains put in half-way between, when needful. On comparatively level land the drains, whether filled with stones or pipes, are liable to be silted up, and when there is much declivity, the water is liable to flow below the pipes, here and there, washing away soil, and thus derange the continuity of the flow in the drains. The soil above is also liable to be washed into the pipes. When such defects are suspected a cross-cut should be made in time and the drains examined.

Fat Stock.—December is pre-eminently a season when the fattening properties of our different breeds of cattle, and the merits of individuals in each breed are discussed and tested in various ways, so as to determine which is the most profitable for producers and consumers. The great fat stock exhibitions have begun, and it has been complained that in getting up stock for these meetings the fatting process is carried to an extreme; but the objection is no longer generally applicable. The process of fatting is a natural one, and where wholesome food is given in buildings properly lighted and ventilated, and when animals have a sufficiency of daily exercise, there is no fear of the abnormal productions complained of. The best kind of food for fatting neat cattle, sheep, and pigs, is no doubt, for each, an open question, which is subject to no little diversity of opinion. But although it applies to the few animals exhibited at our winter fat stock shows, it is otherwise with the great bulk of stock fatting for the shambles; for, generally speaking, the relative price of cake and corn, with the quantity and quality of the root-crops, hay, and straw grown on the farm, form together the practical solution of the question. It follows that each farmer has to solve it for himself. That which was the most profitable dietary last year may not be the best this year. Diversity of breed and age have each their peculiar demands, so that those who purchase stock for fatting select animals according to the food they have to give. Some Scotch and Welsh breeds pay more for corn than for cake generally; and corn, when ground into meal and properly given, produces a better quality of beef and mutton than oilcake. Of late years the consumption of meal has been on the increase, along with pulped roots and chaff, with a still greater increase in the weight of corn-fed meat from a given quantity of food consumed; and there cannot be a doubt that the improvement is based on sound principles, and therefore permanent. *W. B.*

Fruit Trees for Sale.

J. SCOTT, The Nurseries, Merriott, Somerset, will be glad to receive orders for the above, which will be carefully attended to. The Trees consist of 1000 sorts of PEARS, 700 do. of APPLE, 170 do. of PLUM, 150 do of CHERRY, with other kinds in proportion. Standards, 6 to 7; Pyramids, 6 to 7; and Bushes, 3 to 5 feet high; also very fine Dwarf-trained Trees of all kinds, of superior growth, are offered. The above are described in the "Orchardist," the best work on Fruit Trees in England, price 1s. 6d. in stamps. A printed List or Index sent gratis.

J. S. also offers a splendid stock of FOREST TREES, DECIDUOUS SHRUBS and EVERGREENS in every variety.

CATALOGUE free on application.

Nursery Stock (one of the Largest in Scotland).

THOMAS KENNEDY AND CO. have as usual a very large and superior stock of FOREST, FRUIT, and ORNAMENTAL TREES, DECIDUOUS and EVERGREEN SHRUBS, &c., which they are selling at moderate prices. The Trees and Shrubs being of all ages and sizes, are particularly well suited for extensive planting, or giving immediate effect in the formation and improving of Ornamental Parks, Pleasure Grounds, &c.

Dumfries has long enjoyed the pre-eminence of being one of the best localities in Great Britain for rearing young Trees—its soil and climate being peculiarly adapted for that purpose; and wherever these Trees have been planted throughout the three Kingdoms (where Millions are sent by T. K. & Co. every season), they have invariably done well.

Dumfries, from its central position, is most favourably situated for the speedy transmission of goods to all parts of the United Kingdom.

T. K. & Co. will forward a Copy of their DESCRIPTIVE PRICED CATALOGUE to any address on application.

Nursery and Seed Establishment, Dumfries.—November, 1869.

To Noblemen, Gentlemen, Nurserymen, Planters, and Others.

Two Hundred fine Single Specimen GOLDEN QUEEN HOLLIES, varying in height from 3 to 8 feet, and from 3 to 6 feet in diameter.

JOHN FRETTINGHAM begs to offer the above, all of which are fine Single Specimen Plants, recently removed, and will carry splendid balls of earth. They are well furnished to the ground, in the best possible state of health, good in shape, and in every way fine specimens—probably such plants as cannot be seen anywhere else in England.

Also a quantity of similar sized SILVER QUEEN and SILVER-STRIPED HEDGEHOG HOLLIES; Standard-trained MOOR-PARK APRICOTS, on fine legs; strong Standard FRUIT TREES, by the 1000, suitable for orchard planting, on 6 feet stems, in a bearing state. The above are accurately described, and may now be seen growing in the Nursery. Full particulars as to price, &c., upon application. N.B.—One Hundred of the Golden Queen Hollies are from 3 to 5 feet, the rest from 5 to 8 feet in height.

JOHN FRETTINGHAM, Stapleford Nursery, Nottingham; or 18, Corn Market, Derby.

TRANSPLANTED FOREST TREES, clean, healthy, and finely rooted.

	Per 1000.—£.	d.
ALDER, 2 to 3 feet	30	0
,, 3 to 4 feet	40	0
ASH, 2 to 3 feet	30	0
,, 3 to 4 feet	40	0
,, 4 to 5 feet	50	0
BEECH, 1 to 2 feet	40	0
,, 2 to 3 feet	50	0
BIRCH, 3 to 4 feet	50	0
CHESTNUT, Spanish, 2 to 3 feet	50	0
ELM, Chichester, 6 to 8 feet per 100	50	0
,, Hertfordshire, 6 to 8 feet ,,	50	0
FIR, Scotch, 1 to 2 feet	40	0
,, Spruce, 1 to 2 feet	40	0
,, ,, 2 to 3 feet	60	0
,, 3 to 3½ feet	70	0
HAZEL, 2 to 2½ feet	40	0
NORWAY MAPLE, 6 to 8 feet per 100	20	0
,, 8 to 10 feet ,,	40	0
OAK, British, 2 to 3 feet	40	0
,, 3 to 4 feet	50	0
POPLARS, Lombardy, Black English, Black Italian, Ontario, 6 to 8 feet per 100	20	0
COMMON LAUREL, 1½ to 2 feet ,,	10	6
,, ,, 2 to 3 feet ,,	15	0
,, ,, 3 to 4 feet per 100, 25s. to	30	0
MAHONIA AQUIFOLIUM, fine per 100	12	6

Price to the Trade on application to

EWING AND CHILD, the Royal Norfolk Nurseries, Norwich.

WHANDSCOMB, The Nurseries, Aspley Guise, Woburn, Beds, offers the following—prices on application—all recently transplanted, with fine roots:—

100,000 2-yr. ASH, 6 to 9 inches.
20,000 3-yr. OAK, 9 to 15 inches.
10,000 SPRUCE FIR, 2 to 2½ feet.
2,000 ,, 3 to 5 feet.
10,000 COMMON LAURELS, 2 to 4 feet.
5,000 3-yr. BEECH.
1,000 3 to feet
5,000 SCOTCH FIRS, 2½ to 4½ feet.
3,000 LARCH ,, 3 to 4 feet.
3,000 ,, ,, 5 to 6 feet.
3,000 HAZEL, 3 to 5 feet.
2,000 BLACK ITALIAN POPLAR, 6 to 8 feet.
2,000 WEEPING BIRCH, 4 to 5 feet.
2,000 TREE BOX, bushy, 2 to 2½ feet.
600 LIME, Red Twigged, 6 to 8 feet.
300 PINUS AUSTRIACA, 2½ to 3 feet.
60 EVERGREEN OAK, bushy, 4 to 6 feet.
ELMS, of Sorts, 12 to 15 feet.
RED MULBERRIES, 8 to 10 feet.
2,000 HORSE CHESTNUTS, 3 feet.
50 New Double SCARLET THORN, 5 to 8 feet.

To the Trade.

MR. WILLIAM MASTERS, Exotic Nursery, Canterbury, has a fine stock of FRUIT TREES to offer, upon moderate terms.

MULBERRIES, 5 and 6 feet, Standards and Half Standards. Such a clean healthy set is seldom seen.
PEACH and NECTARINE, Dwarf Maiden and cut back, 2 and 3-yr. trained. In the most healthy state.
PLUMS and CHERRIES, Dwarf Maiden and cut back; also 2 and 3-yr. trained, of all the leading sorts, as well as Bush and Pyramids, for early fruiting.
PEARS, of very choice sorts, of the same descriptions.
WALNUT and QUINCE, Standards, of small and large sizes.
APPLES, of the leading kinds, both the Dessert and Kitchen use. They are as Standards, Pyramids, Dwarfs, and Trained.

FLOWERING SHRUBS and TREES.

ROSES, of the very best kinds that could be got together, both Standards and Dwarfs.
ACACIA INERMIS, clean, 6 feet stems.
ACER, or Negundium variegatum, of different sizes.
COPPER BEECH, 3, 4, 5, and 6 feet stems.
ROSE ACACIA, dwarfs. | CARAGANA, several sorts, 4 ft.
Double APPLE, CHERRY, PEACH, of sorts.
DROOPING MOUNTAIN ASH, LABURNUMS, WILLOWS, COMMON ASH, &c.
RHODODENDRONS, of choice named kinds, and also many thousands for Shrubbery and Wood planting.
HEATHS, AZALEAS, ANDROMEDAS, KALMIAS, &c.

Aucuba, 6 in., and 1, 2, and 3 feet	Thorns, of choice worked sorts 1, 2, and 3-yr.
Althæa frutex, many named kinds	Laurels, 2 to 3, and 4 to 5 feet
Box, of sorts, 1, 2, and 3 feet	Berberis and Mahonia, many species
Philadelphus, of many sorts	Variegated Hollies, 1, 2, and 2½ feet.
Lilacs, of many varieties	Daphne pontica, 2 feet
Spiræa, do. do.	Yews, 3, 4, and 5 feet
Guoldres Rose, and other Viburnums	Yucca recurva, 1, 2, and 3 feet
Sweet Bay, 1 and 2 feet	
Laurestine, 1 and 2 feet	

CONIFERS.

Firs and Pines, of many kinds	Junipers, of sorts
Cypress, do.	Biota and Thuja, or Arbor-vitæ
Cedar (Red), Atlantic, &c.	Araucaria, 1 to 2 feet

Chamœcyparis variegata, beautiful plants.

MISCELLANEOUS.

Lime layers, 3 to 4 feet	Seakale, 1, and 2-yr. old
Asparagus, 1, 2, and 3-yr. old	Rhubarb, strong roots

Prices upon application.

ORCHARD-HOUSE TREES for SALE, in first-class Bearing order, the property of a Gentleman.—PEACHES and NECTARINES, fine specimens. Eight Standards, 8 feet high, good heads; Six Dwarf Bushes, 5 feet high. For further particulars apply to JAMES CARTER AND CO., Crystal Palace Nurseries, Forest Hill, S.E.

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Ten minutes' walk from Clapham Junction.

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SILVER SAND and PEAT, from Bedfordshire, in any quantity. This Sand is acknowledged by Florists to be the best yet obtained. Price Lists on application to MR. JOHN ARNOLD, Builder, 29, Clarendon Square, St. Pancras, N.W.

SHELL GRAVEL, for Gardens, Conservatories, and Terraces; clean, dry, and neat in appearance, used in the Parks and the Horticultural and Botanic Gardens. Sold by FRANCIS AND CO., Surrey (foot of Vauxhall Bridge), London, S.E.

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Have now ready for delivery, in fine condition,
CORN MANURE, for Spring Use
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PREPARED GUANO
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Also Genuine PERUVIAN GUANO, and NITRATE of SODA ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c.

E. PURSER, Secretary.

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ODAMS'S NITRO-PHOSPHATE or BLOOD MANURE for WHEAT.—This Manure, specially prepared for Autumn Sowing, is rich in Ammonia, Phosphates, and other ingredients required for the healthy growth of Grain Crops. Analysis of Blood and the grain of Wheat show that they are nearly identical in composition, hence the value of Blood as an ingredient in Manure. It may be applied at the rate of from 3 to 4 cwt. per acre, according to the condition of the soil, either drilled with the seed or sown broadcast; if the latter, it should be well harrowed in. Prepared by the Patent Nitro-Phosphate or Tenant-Farmer's Manure Company, whose Members are Cultivators of upwards of 50,000 acres of land, which has been for years under management with Manures of their own manufacture; consequently the Consumer has the best guarantee for the genuineness and efficacy of the Manures manufactured by this Company.

Particulars will be forwarded upon application to the Secretary, or may be had of the Local Agents. C. T. MACADAM, Sec.

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6 to 7 per cent. of Ammonia (fixed).
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POOLEY'S TOBACCO POWDER, for the Prevention and Destruction of Blight and other Diseases in Plants.

Sold by Nurserymen, Seedsmen, and Florists,
In Tins at 1s., 2s. 6d., and 5s.
Powder Distributors, 2s. 6d. and 3s. 6d. each.

"I find it exceedingly useful for killing the Aphides on Roses and other Plants."—GEO. EYLES, Superintendent, Royal Horticultural Gardens, South Kensington. May 7, 1868.

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GISHURST COMPOUND.

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

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APPLEBY'S GENUINE TOBACCO PAPER, in 2 lb. and 4 lb. packets. Testimonials too numerous for insertion. Price on application to HENRY APPLEBY (Foreman to Messrs. Ivery & Son, Nurserymen), Dorking, Surrey.

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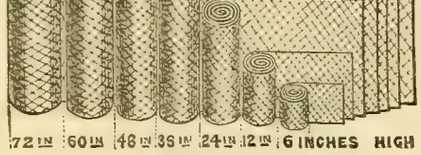
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Best quality machine-made Wire Netting, Galvanised after making, in Rolls of 50 Yards long, of every width, strength, and mesh.

Full Illustrated List upon receipt of stamped and directed envelope.

Land and premises inspected. Designs and Estimates submitted for Erecting Poultry Houses and Yards, Aviaries, Pheasantries, &c., to any extent in town or country.

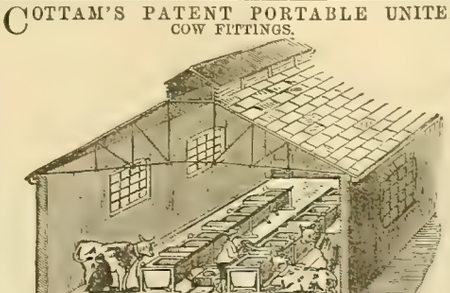
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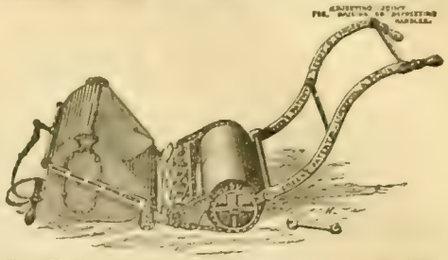
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Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rick dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of Iron. Prices of Fittings per Cow, 55s.

Prospectuses free of COTTAM AND CO., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

GREEN'S PATENT SILENS MESSORS, or NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES for 1869.



Every Machine is warranted to give entire satisfaction, and if not approved of, can be returned at once unconditionally.

PRIZE MEDALS AWARDED to GREEN'S PATENT LAWN MOWERS.

First Prize Medal at the International Exhibition, London, 1862.
First Prize Medal at the International Exhibition, Dublin, 1865
First Prize Medal at the Namur Exhibition.
First Prize Medal at the Gand Exhibition.
First Prize Medal at the Laeken Exhibition.
First Prize Medal at the Lucerne Exhibition.
First Prize Medal at the Brussels Exhibition, on two occasions.
First Prize Medal at the Hamburg Exhibition.

GREEN'S Patent Lawn Mowers have proved to be the best, and have carried off every Prize that has been given, in all cases of competition.

The extraordinary success of GREEN'S Patent Lawn Mowers is an established fact. During the last five years the demand has been unprecedented, which alone is a proof of their superiority over all others. The following are their characteristic features:—1st. Simplicity of construction, every part being free of access. 2d. They are worked with far greater ease than any other Lawn Mower. 3d. They are the least liable to get out of order.

GREEN'S Patent Lawn Mowers combine all the advantages of self-sharpening, and when the cutters become blunt by running one way round, they can be reversed again and again, bringing the sharp edge of the cutters against the bottom blade, which operation can be done by any inexperienced person, owing to the peculiar adaptation of the Machine, which is possessed by no other. Illustrated Price Lists free on application.

THOMAS GREEN AND SON, Smithfield Iron Works, Leeds; and 54 and 55, Blackfriars Road, London, S.

N.B.—All orders are executed on the day they are received.

Vases and Fountains, for the Garden and Conservatory.



ANDREW HANDYSIDE AND CO.,
Britannia Foundry, Derby. | 32, Walbrook, London.

The Britannia Iron Works have for the last 40 years been well known for the production of fine Iron Castings. The use of Cast-iron permits a delicacy of outline, and smoothness of surface, impossible in cheap Stone or Terra-cotta. Cast-iron Vases, if occasionally painted, are imperishable, and will not crack when exposed to wet or frosty weather.



Five large Sheets of Designs and Price Lists post free for 6 stamps.

A. H. & Co. make the better kind of IRON and GLASS CONSERVATORIES, and have constructed some of the largest and finest in the kingdom.

Rosher's Garden Edging Tiles.



THE above and many other PATTERNS are made in Terro-Metallic Ware, Terra-Cotta, Stoneware, and Redware, and of great durability. The planer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability and superior finish, and in much variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.E. Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs. Likewise more elaborate designs. Pattern Sheets of Pavements, with prices, forwarded for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.

To be obtained of F. & G. ROSHER, at their premises as above.

SILVER SAND (REIGATE), at the above addresses—14s. per Ton, 1s. 2d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less. A coarser grained Sand 4s. per ton more. Samples of Sand by post on receipt of stamp.

FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEAT and LOAM supplied at lowest rates.

F. & G. ROSHER.—Addresses see above.

N.B. Orders promptly executed by Railway or Vessel.

A liberal discount to the Trade.

SMITHFIELD CLUB CATTLE SHOW, AGRICULTURAL HALL, STAND No. 22.

RANSOMES, SIMS, & HEAD, IPSWICH,

WILL EXHIBIT A COLLECTION OF THEIR

CELEBRATED AGRICULTURAL IMPLEMENTS AND MACHINES

AT THE ABOVE SHOW.

RANSOMES, SIMS, AND HEAD would especially draw attention to their ECONOMICAL PORTABLE STEAM ENGINES, SINGLE and DOUBLE BLAST STEAM THRESHING MACHINES, CORN SCREENS, MILLS, and FOOD-PREPARING MACHINES, and

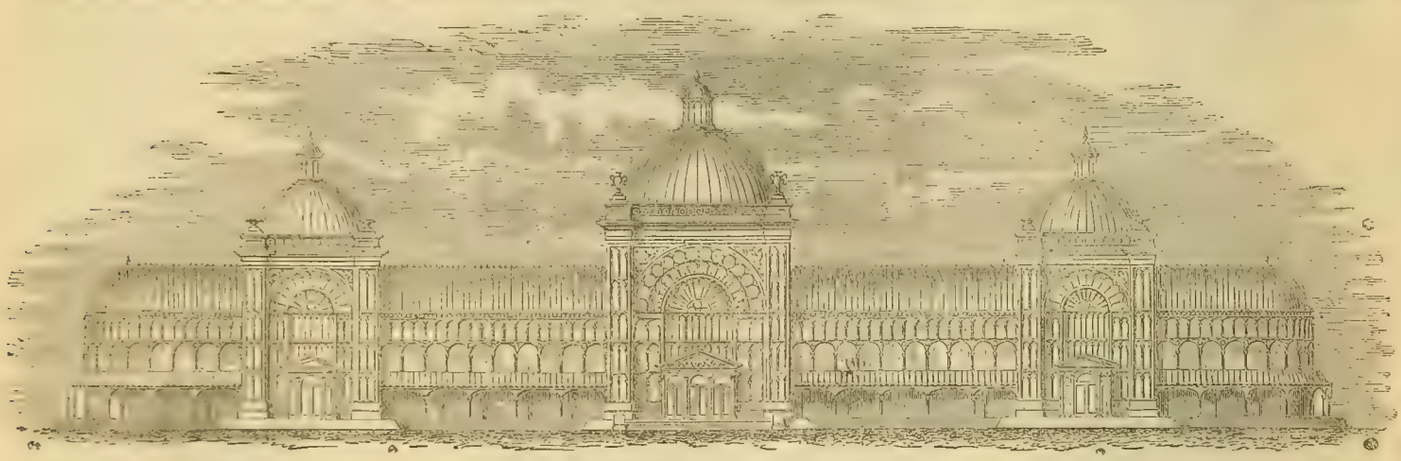
CELEBRATED NEWCASTLE AND LEICESTER PRIZE PLOUGHS,

Which have won, since September 8, 1864, Two Hundred and Twelve All England Champion Prizes.

COMPLETE ILLUSTRATED CATALOGUES FREE ON APPLICATION.

T. H. P. DENNIS & COMPANY, PATENTEES,

HORTICULTURAL ENGINEERS AND BUILDERS IN WOOD AND IRON.



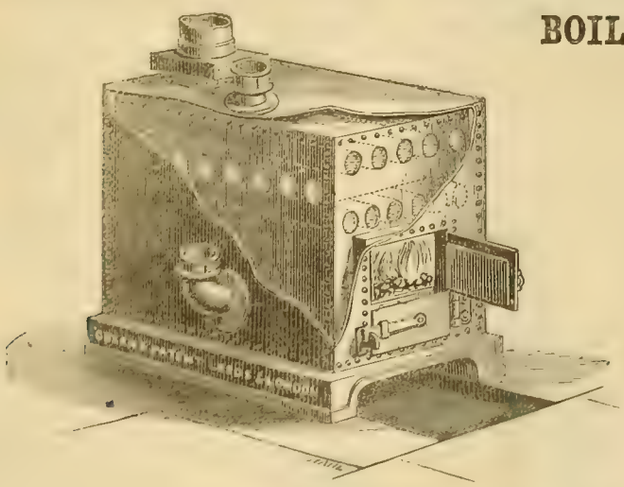
T. H. P. DENNIS AND COMPANY beg to direct the attention of Noblemen, Gentlemen, Nurserymen, and Gardeners, to the many and varied improvements they have made in every description of Horticultural Erections. They continue to Manufacture Buildings of the highest order in Wood, Galvanized Metal, and their HIGHLY APPROVED Patent Wrought Iron Construction. They have much pleasure in announcing that by the aid of modern appliances, in their Manufactory, all kinds of Horticultural Buildings will be supplied at the most moderate prices consistent with the high standard of their workmanship. Every description of Garden Structure arranged, designed, and heated on T. H. P. D. & CO.'S improved system, will be guaranteed to fully answer the purpose for which they are intended.

Gentlemen waited upon by Members of the Firm to advise and arrange for contemplated Buildings.

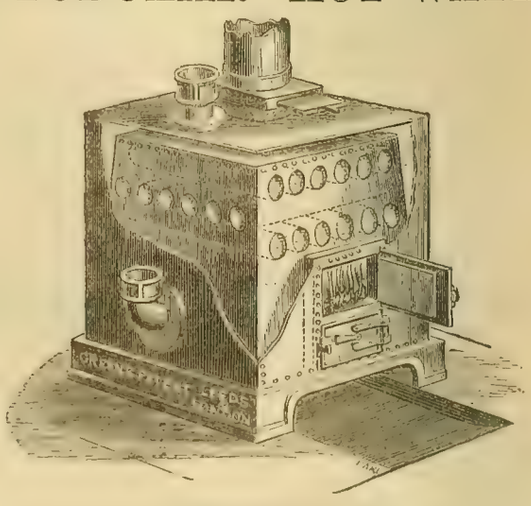
Our NEW HOT-WATER BOILER and other Specialities and Patented arrangements are described in other Advertisements, and also in our Catalogue, which may be had on application.

ANCHOR IRON WORKS, CHELMSFORD.

GREEN'S PATENT IMPROVED TUBULAR HOT-WATER BOILERS.



OBLONG BOILER.



SQUARE BOILER.

THE ABOVE BOILERS ARE

THE MOST EFFECTIVE AND DURABLE EVER INVENTED.

They can be set to work at a nominal cost, inasmuch as no brickwork is required; as will be seen from the above drawing, they are placed upon a Cast-Iron Sole-plate, which answers the purpose of Foundation and Ash-pit.

From the peculiar and substantial manner in which these Boilers are made, they are warranted to last for years without getting out of order; in fact, we guarantee them for ten years, but feel convinced that they will serve all the purposes for which they are intended for a much longer period.

They are specially adapted for Heating Greenhouses, Churches, Chapels, Schools, Public Buildings, Entrance Halls, Warehouses, Workshops, &c.

THE FOLLOWING ARE THE ADVANTAGES OF THESE BOILERS:—

1st, They require no setting in brickwork.
2d, They are complete in themselves, having perfect means of regulation.
3d, They take up little room, and can be put in places inaccessible to other Boilers.
4th, They are economisers of fuel, owing to the great amount of heating surface upon which the fire acts in a direct manner, and the consumption of smoke.
5th, The fire can be made to last from 12 to 24 hours without attention.
6th, Any number of Flows and Returns can be annexed to the Boilers by means of T-pipes.
7th, By means of mud doors, they can be readily cleaned out when required.
8th, The Chimney is made of cast-iron, which can either be taken through a roof or turned into a flue, to meet the convenience of the situation that it may be fixed in.

☞ *PRICE LISTS ON APPLICATION.*

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;
and 54 & 55, BLACKFRIARS ROAD, LONDON, S.E.

JAMES BOYD AND SONS, HORTICULTURAL BUILDERS, Paisley, N.B., Manufacturers of CONSERVATORIES, GREENHOUSES, VINERIES, and every description of HOTHOUSE in Wood or Iron; also of HOT-WATER HEATING APPARATUS for Horticultural Buildings, Churches, Mansions, Warehouses, &c.

JAMES BOYD & SONS beg to call attention to the superior facilities they possess for executing all orders entrusted to them, in a first-class style, at a moderate price, and with despatch. Their works are fitted up with the most improved machinery, specially adapted for this trade. Their system of ventilation gives the least possible trouble, each range of sashes or ventilators opening by one movement without the risk of cords breaking, as in sliding sashes, and thorough ventilation is secured during wet weather, without admitting the rain. Plans and Estimates on application.

HOT-WATER, GAS, RAIN-WATER PIPES, BOILERS, &c., delivered in London, Liverpool, Bristol, or equivalent.

		2-inch.	3-inch.	4-inch.
HOT-WATER PIPES, Nos. 6 & 7 on illustrated sheet	per yard	s. d. 0 11	s. d. 1 5	s. d. 1 11
ELBOWS	No. 12 on do. each	1 4	2 1	2 9
TEE PIPES	No. 13 on do. "	2 0	3 0	4 0
SYPHONS	No. 23 on do. "	1 9	3 0	4 0
VALVES	"	10 0	11 0	12 0

GEORGE ROBINSON, Dial Iron Works, Stourbridge.
London Warehouse, 16, Grand Junction Wharf, Paddington Basin.



The Only Stove without a Flue.

NASH AND JOYCE'S PATENT, for WARMING HALLS, SHOPS, GREENHOUSES, &c.

These Stoves burn without attention or replenishing 12 to 24 hours. From 12s. 6d. to Six Guineas. PATENT FUEL, 4s. 6d. per bag.

STOVES made expressly for Greenhouses, to Burn all Winter by filling up with the Patent Fuel every 12 hours.

S. NASH, Patentee, General Furnishing Ironmonger 253, Oxford Street, W.; Joyce's Stove Depôt, 110, Newgate Street, E.C.; and Leinster Terrace, Bayswater, W. Prospectus of Patterns and Prices post free.

HOT-WATER APPARATUS
Erected Complete, or the Materials Supplied for Heating
GREENHOUSES, HOTHOUSES, CONSERVATORIES, CHURCHES, PUBLIC BUILDINGS, &c.

Peill's Conical. Tubular Boiler.





HOT-WATER PIPES at wholesale prices, Elbows, T Pieces, Syphons, and every other connection kept in stock.

WROUGHT and CAST IRON CONICAL, SADDLE, and IMPROVED PEILL'S and ELLIPTIC BOILERS, from 24s. each.

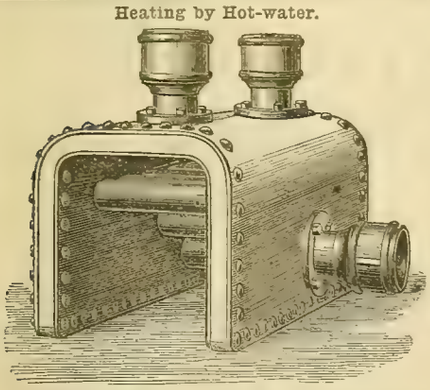
IMPROVED and EXTRA STRONG CAST IRON TUBULAR BOILERS, with or without Water Bars, from 62s. 6d. each.

CAST and WROUGHT IRON PORTABLE BOILERS on STAND, for use without brickwork, from 60s. each.

PATENT and IMPROVED THROTTLE and other VALVES, FURNACE DOORS, BARS, and FURNACE WORK of every description and size.

LYNCH WHITE,
Old Barge Iron Wharf, Upper Ground Street, London, S.E.
(Surrey side Blackfriars Bridge).
Price List on application.

Heating by Hot-water.



SHANKS' IMPROVED WROUGHT-IRON BOILER.—This Boiler is made on the principle of the Saddle and Tubular combined. The Tubes, Fire-box, and Shell-plates are all of Wrought-iron, and consequently are not liable to break from expansion and contraction of the metal, as Cast-iron Boilers are. The Tubes are placed in the Fire-box, and so arranged as to expose a very large effective heating surface to the direct action of the fire, the advantage of which is obvious.

A. S. AND SON will be glad to furnish their IMPROVED BOILERS separately, or to furnish Plans and Estimates for Erecting Hot-water Apparatus complete in any part of the country.

HORTICULTURAL BUILDINGS in IRON or WOOD.

Catalogues, containing Designs of Houses, &c., will be forwarded on application. Special Plans and Estimates for Ranges of Houses to be erected in any part of the country will also be furnished.

A. SHANKS AND SON, Dens Iron Works, Arbroath, N.B.; and 27, Leadenhall Street, London, E.C.

LOOKER'S PATENT EARTHENWARE PROPAGATING BOXES.—The most simple, effective, and by far the cheapest arrangement for Raising Seeds, Striking Cuttings, and other Horticultural purposes. Price, complete, from 1s. each.—Hooper & Co., Covent Garden; Rosher & Co., Upper Ground Street, Blackfriars, Kingsland Road, and Queen's Road West, Chelsea; and Dixon & Co., 154, Mount-ain Street.
BENJAMIN LOOKER, Inventor and Sole Manufacturer, Kingston-on-Thames.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their REDUCED PRICES as follows:—

PROPAGATING GLASSES.



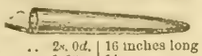
Each.—	s.	d.	Each.—	s.	d.
2 inches in diameter ..	0	3½	12 inches in diameter ..	1	9
3 " " ..	0	4½	13 " " ..	2	0
4 " " ..	0	6½	14 " " ..	2	6
5 " " ..	0	6½	15 " " ..	3	0
6 " " ..	0	8	16 " " ..	3	6
7 " " ..	0	10	17 " " ..	4	0
8 " " ..	1	0	18 " " ..	5	0
9 " " ..	1	2	19 " " ..	6	0
10 " " ..	1	4	20 " " ..	7	0
11 " " ..	1	6			

BEE GLASSES, with ventilating hole through knob.

4 inches in diameter ..	0s.	6d.	9 inches in diameter ..	1s.	8d.
5 " " ..	0	8	10 " " ..	2	0
6 " " ..	0	10	11 " " ..	2	6
7 " " ..	1	1	12 " " ..	3	0
8 " " ..	1	4			

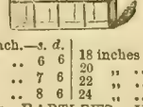
Either flat or conical tops.

CUCUMBER GLASSES.



24 inches long ..	2s.	0d.	16 inches long ..	1s.	4d.
22 " ..	1	10	14 " ..	1	2
20 " ..	1	8	12 " ..	2	6
18 " ..	1	6			

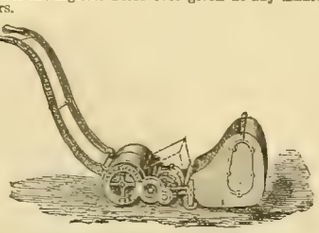
HAND GLASSES, WITH OPEN TOPS.



Each.—	s.	d.	Each.—	s.	d.
12 inches ..	6	6	18 inches ..	9	6
14 " ..	7	6	20 " ..	10	6
16 " ..	8	6	22 " ..	11	6
			24 " ..	12	6

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS. PAINTS of various colours ground ready for use.
SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of Prices and Estimates forwarded on application to JAS. PHILLIPS AND CO., 180, Bishopsgate Street Without, E.C.

SHANKS'S PATENT LAWN MOWERS for 1869, The Patent Improvements recently introduced give SHANKS'S MACHINE
Several important advantages possessed by no other Lawn Mower.
PATENT DOUBLE-EDGED SOLE-PLATE, WIND-GUARD, &c.
The unprecedented Sale for 1868, notwithstanding the Dryness of the Season, forms the most convincing testimony how much these advantages have been appreciated.
ALEXANDER SHANKS & SON beg to intimate that, among all the Exhibitors of Lawn Mowers at the Paris Exhibition, they are the only Firm to whom the Jury awarded a Medal. The Silver Medal then awarded is the highest Prize ever given at any Exhibition for Lawn Mowers.



ALEXANDER SHANKS & SON have for some time past been making the Revolving Cutter of their Machines Self-Sharpening—that is, with Steel on both Sides of each Blade, so that when the Cutter becomes blunt by running one way, it can be reversed, thus bringing the opposite or sharp edge of the Cutter to act against the Sole-Plate. In addition to this, A. S. & SON now make the Sole-Plate or Bottom Blade of their Machine with Two Edges—one in front as usual, and one in reserve at the back; when the front edge gets worn down, the plate has only to be unscrewed and the unused edge brought to the front. It will be seen at a glance that this arrangement enables the cutting parts to last twice as long as in other machines, where the single-edged Sole-plate must be entirely renewed when the edge is worn down.
A Wind-Guard has also been introduced to prevent the Mown Grass being blown past the Box during the prevalence of wind.
There is no ribbing with these Machines. The Lawn when mown has a most beautiful appearance, being as smooth as a piece of velvet.
Every Machine warranted to give ample satisfaction, and if not approved of can be at once returned.
Illustrated Circulars, with full particulars, sent free on application.
A. SHANKS AND SONS, Dens Iron Works, Arbroath; and 27, Leadenhall Street, London, E.C.
☞ A Stock of all sizes of Lawn Mowers always kept at 27, Leadenhall Street.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen for Windsor Castle and Frogmore Gardens, the Duke of Northumberland, Duke of Devonshire, late Sir J. Paxton for the Crystal Palace; Royal Gardens, Kew; Professor Lindley for the Horticultural Society, &c.

The best Shading is "Frigi Domo" Netting.

White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for
PROTECTION from the COLD WINDS and MORNING FROSTS.
"FRIGI DOMO" NETTING, 2 yards wide, 1s. 6d. per yard run.
"FRIGI DOMO" CANVAS.

Two yards wide	1s. 9d. per yard run.
Four yards wide	3s. 6d. per yard.
An improved make, 2 yards wide ..	1s. 9d. per yard.
An improved make, 3 yards wide ..	2s. 8d. per yard run.

Scrim Canvas, 72 inches wide, 70 yards long, 5½d., 6½d., 7½d., 7¾d. and 8½d. per yard.
Hessian Canvas, 54 and 72 inches wide, 6½d. and 8½d. per yard. ½d. extra for cut lengths.
ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.

GEORGE HALL, late Manager to the late Saynors' Firm. He was for 30 years in their employ.
GEORGE HALL AND SON'S celebrated PRUNING and BUDDING KNIVES, SCISSORS, &c., may be obtained from the most respectable Nurserymen and Seed Merchants in the Kingdom, also America, France, Germany, Holland, Brussels, Russia, &c.
N.B.—We only make one quality, the best that can be manufactured, the same as the late Saynors always made during their lifetime, with all the latest improvements.
CAUTION.—None are genuine unless marked "GEO. HALL & SON." Other marks would cause disappointment, as these blades are tempered by a process known only to the Makers.
Engravings of Patterns, with PRICE LISTS, gratis on application. Horticultural Cutlery Works, Sheffield.

WM. DILLISTONE, HORTICULTURAL AUCTIONEER and VALUER, Sible Hedingham, Essex.

PARTNER WANTED, in the Nursery, Florist and Seed Business, with moderate Capital.—The Advertiser has two Nurseries, with comfortable Dwellings on each, with about 2000 feet of Glass. Would prefer a Person competent to conduct the Seed Department, &c.—For particulars apply to Messrs. FRASER, GOAD, AND RATFORD, 82, Bishopsgate Street, Within, E.C.; or to Mr. S. B. DICKS, Messrs. Beck, Henderson & Childs, 221 and 222, Upper Thames Street, London, E.C.

WANTED, within 20 miles of London, a PIECE of GARDEN GROUND, with South Walls, suitable for the Erection of Vineries, Greenhouses, &c., and if with Vineries, &c., preferred.
S. M., Mr. Googe, Mason's Hill, Bromley, Kent, S.E.

Sales by Auction.

Consignment from Ghent for Absolute Sale.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the City Auction Rooms, 38, Gracechurch Street, E.C., on THURSDAY, December 9, at half-past 12 o'Clock precisely, without reserve, about 200 Choice Double CAMELLIAS and AZALEA INDICA, compact plants, 1 to 3 feet, beautifully set with bloom-buds; 500 very handsome Standard and Dwarf ROSES, of the choicest varieties; selected FRUIT TREES, hardy AMERICAN PLANTS, choice CONIFERÆ and EVERGREEN SHRUBS, LILIUMS, GLADIOLI, with a first-class Collection of DUTCH BULBS, &c.
On view the morning of Sale. Catalogues had at the Rooms as above, and of the Auctioneers and Valuers, Leytonstone, N.E.

Lewisham, Kent.

IMPORTANT CLEARANCE SALE of VALUABLE NURSERY STOCK, 3 MILCH COWS, 3 HEIFERS, BLACK PONY, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Lewisham Park Nursery, five minutes' walk from Lady Well Station, on the South-Eastern Railway, on MONDAY, December 13, and four following days, at 12 o'Clock precisely each day, by order of the Executors of the late Mrs. E. Thompson, without reserve (the land being required for other purposes), the whole of the VALUABLE NURSERY STOCK, consisting of many thousands of Evergreen and Coniferous Shrubs, a large quantity of Ornamental and Forest Trees and Deciduous Shrubs, of the usual assortment; 15,000 Fruit Trees, including Standard, Pyramidal, Maiden, and Dwarf-trained Apples, Pears, Plums, Cherries, Peaches, Nectarines, &c.; Gooseberries, Currants, &c.; also 500 fine Standard and Dwarf Roses, of the best varieties; strong Fruiting Vines, Strawberries, Ivies, Pyrus, Clematis, Virginian Creepers, Lonicera, &c., in pots; the choice Collection of Greenhouse and Bedding Plants, including large Double Camellias and Azalea indica, Ericas in flower, choice Ferns, Geraniums, &c. The several Greenhouses, in capital order, Seed Shop, Pits, Boxes, Boilers, Hot-water Piping, Bricks, Barrows, Carts, Harness, Farming Implements, the Growing Crops of Cabbage, Colewort, Broccoli, &c.; together with 3 Milch Cows in-calf, 3 Heifers, a Black Pony, large Heaps of Mould, Manure, &c., and numerous other effects.
May be viewed three days prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, Leytonstone, E.

Woolston, near Southampton.

To GENTLEMEN, NURSERYMEN, GARDENERS, and OTHERS.

MR. W. ABRAHAM begs to inform intending Planters that he has a large Consignment of upwards of 4000 PLANTS of CHOICE ENGLISH NURSERY STOCK, well selected and in excellent condition, which he will SELL by AUCTION in the Grounds of the Railway Inn, Woolston, near Southampton, on THURSDAY, December 9, at 12 o'Clock punctually. They consist of Ornamental Evergreen and Deciduous Trees and Shrubs, with Standard, Dwarf, Pyramidal, and Trained Fruit Trees, Roses, Hardy Climbers, 2000 Quick, Privet, Yuccas, Pampas Grass, &c.
On view the day prior and morning of Sale, and Catalogues had on the premises or (free by post) of the Auctioneer, Goldworth Nurseries, Woking, Surrey.

To Horticulturists.

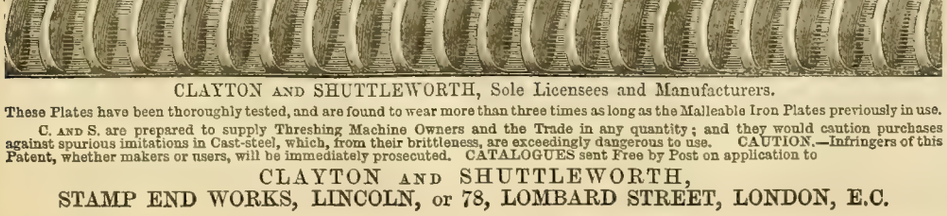
MESSRS. LANE have been instructed by the Proprietor to SELL by AUCTION, on FRIDAY next, DECEMBER 10, at Noon precisely, in the stable-yard of Wyddrington House, Pettville Lawn, Cheltenham, a Collection of GREENHOUSE and other PLANTS, among which will be found choice specimens of Camellia alba-plena, 9 feet by 7 feet; C. Marchioness of Exeter, 8½ feet by 6 feet; and others of similar dimensions, all well set with flower-buds; Aralia papyrifera, 11 feet; Ficus elastica, 14 feet; Ficus indica, Chamærops humilis, Dracæna Draco, Ferns, Orchids, Cacti, Æchmea fulgens, Strelitzia Regina, Stephanotis floribunda, Rhipiodendron plicatile, Aloe socotrina, Citrus, various, &c., &c.
May be viewed the morning of Sale, by Catalogue only, price 1s., to be returned to Purchasers, to be had early next week of the Auctioneers, 4, Montpelier Walk, Cheltenham.

Shobnall Grange, Burton-upon-Trent.

IMPORTANT SALE of SHORTHORN CATTLE.

MR. STRAFFORD begs to announce that he is favoured with instructions from Henry J. Meakin, Esq., of Shobnall Grange, to SELL by AUCTION, without reserve, on WEDNESDAY, December 15 next, his entire Herd of Pure-bred SHORTHORNS, consisting of about FORTY HEAD of BULLS, COWS, and HEIFERS, which have been selected and carefully bred from some of the most fashionable strains of blood. Amongst them will be found some choice specimens of the Kirklevington, Lenton, Milcote, and Penrhyn Castle sorts. The young Stock are chiefly by "Duke of Cumberland" (21,534), descended from "Cambridge Rose." The Herd has not been prepared for Sale, but is offered, at a short notice, in their general store condition.
Also will be SOLD TWELVE Fat BULLOCKS, COWS, and HEIFERS, most of them prime Christmas Beef.
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THRESHING MACHINES, SINGLE, DOUBLE and TREBLE BLAST,
WITH PATENT ROLLED STEEL RIBBED BEATER PLATES, AND ALL OTHER RECENT IMPROVEMENTS.
PATENT ROLLED STEEL RIBBED BEATER PLATES (GRAY'S PATENT).



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STAND 77

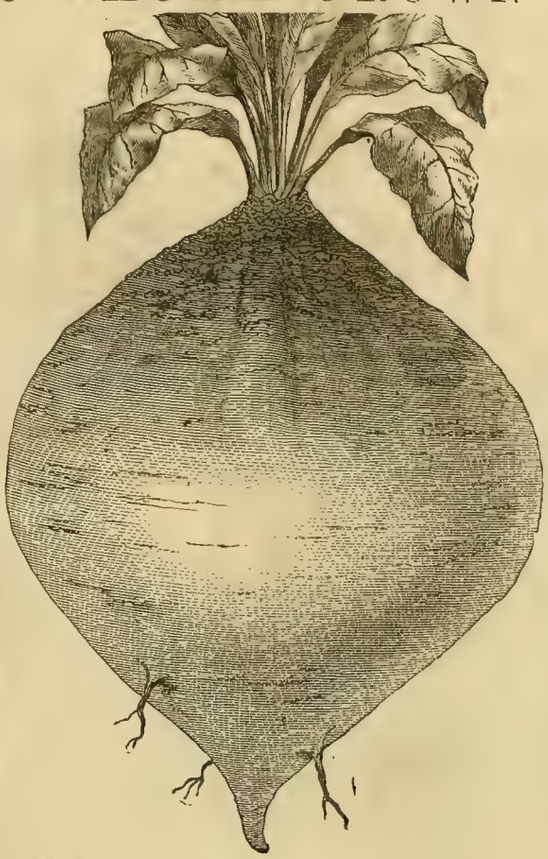
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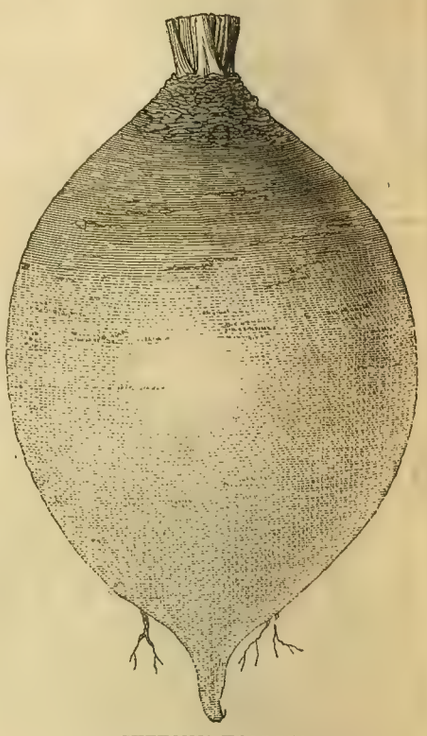
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The best and heaviest Globe variety in cultivation.



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INTERMEDIATE MANGEL.
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One of the heaviest croppers in cultivation, having the peculiar merit of the Potatos being all of full size, and weighing from 12 to 20 ounces each, with scarcely a small tuber to be seen on a pole of land. While other red varieties boil yellow, this is white, and is most correctly described as "Flourball." For supplying the London dining-rooms especially, we feel confident it will supersede every other kind when sufficiently known. In a field where many other kinds were all more or less diseased, our "Red-skinned Flourball" was entirely free, which we can only attribute to its remarkably vigorous growth. It is a seedling, and we offer it now for the first season.
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Editorial Communications should be addressed to "The Editor." Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 50.—1869.] SATURDAY, DECEMBER 11. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.
NOTICE to EXHIBITORS.—The SCHEDULE of PRIZES for 1870 for the SHOWS at SOUTH KENSINGTON and OXFORD are ready, and can be had on application to
JAMES RICHARDS, Assistant Secretary.

NOTICE.—Mr. F. HARLEY is no longer in my Employ. I will not be accountable for any DEBTS he may contract in my name.—Yours, very faithfully, JOSEPH MEREDITH.

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JAMES CARTER AND CO. can now offer strong, well-grown CANES, this year's growth. For description of Varieties and Prices, see AUTUMN CATALOGUE, now published.
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The best Potato for the latest crop.
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SUTTON AND SONS, Seedsmen to the Queen, Reading.

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PALMS, for House Decoration.

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Apples	Figs	Peaches
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Raspberries, and other miscellaneous Fruit Trees.

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STRAWBERRIES, older varieties.
VINES.
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Climbing Perpetual Musk,
Noisette, Tea-scented, Hybrid Perpetual, Perpetual Moss,
Ile de Bourbon.

COLLECTIONS of ROSES.
Dwarf Hybrid Perpetual Roses, in pots, for Forcing.

JAMES CARTER AND CO., 237 and 238, High Holborn, London, W.C.; and Crystal Palace Nurseries, Forest Hill, S.E.

Choice Flower Seeds.

JAMES BACKHOUSE AND SON have pleasure in informing all lovers of SPRING GARDENS that they have obtained the stock of SEEDS of the following choice Plants from the far-famed Belvoir Castle Collection, orders for which can be executed at once:—

AUBRIETIA PURPUREA GRANDIFLORA.—By careful cultivation, and the progressive selection of the larger and freer blooming kinds, Mr. Ingram has secured a very superior strain of this most valuable plant for Spring Gardens. Blooming in dense masses, his plants have been pronounced "perfection," as presenting a perfect and even mass of colour, which may be described as bright lilac-purple. These continue many weeks in bloom. 1s. per packet.

IMPROVED OXLIP.—Saved from varieties large in flower and truss, and of great richness of colour, varying from light purple to maroon and bright red, approaching scarlet. The early flowering habit of this strain makes it most desirable for Spring Garden decoration. Rich colours, and the capability of producing effect, have been sought for more than the floricultural perfection of the flowers. 1s. per packet.

DWARF EARLY BLOOMING WALLFLOWER.—Saved from a strain presenting many desirable traits for Spring Gardening. Of a dwarf compact habit, it has a dense bright green appearance during the winter, followed by an abundant display of its bright clear yellow blossoms through the spring months, and continued often until midsummer. The individual flowers are large and well shaped, and its habit of early blooming makes it desirable both for beds and borders. (Young plants 4s. per doz.) 1s. per packet.

JAMES BACKHOUSE AND SON can also offer the following Choice Seeds of their own saving:—

FERNS, TENDER, saved from our own well known Collection, 6 packets, for packet, 1s. 6d.; 12 varieties, 2s. 6d.; 30 vars. 5s.
FERNS, HARDY, saved from our own well known Collection, 6 varieties per packet, 1s.; 12 varieties, 2s.
HYACINTHUS AMETHYSTINUS.—A dwarf species, with spikes of bright porcelain-blue. Fine for borders and cut flowers. 6d. per packet.
LINARIA ALPINA.—A very pretty rock or border plant, blooming continuously; of dwarf growth, with an abundance of bright purple-orange centred flowers. 6d. per packet.
MATTHIOLA BICORNIS.—This delightfully fragrant night-scented Stock has proved itself a worthy addition to the number of our Hardy Annuals. 6d. per packet.
MATTHIOLA TRISULPIDATA.—A choice species (quite distinct from the preceding), forming branching masses, covered with a profusion of manve-tinted flowers. These continue long in bloom, remain expanded during the day as well as in the evening, and exhale a delicate and delicious fragrance. Growth free and even, producing a close mass of colour. 1s. per packet.

Early Orders are requested.—Usual Discount to the Trade.

JAS. BACKHOUSE AND SON, York Nurseries.

T. THORNTON begs to intimate to the Trade that the Stock offered below cannot be surpassed for health and fibrous roots. All been grown on maiden soil, and the stock, very extensive, is offered at low prices:—

Pinus austriaca, 9 to 15 inches	Spruce Fir, 1 to 2, and 2 to 2½ feet
P. Laricio, 9 to 15 inches	Laurel, 1 to 2 feet
P. rigida, 2 to 3 feet	Turkey Oak, 1 to 2 feet
P. taurica, 1 to 1½ foot	Cryptomeria japonica, 12 to 15 inches
P. Pinaster, 2 to 3, and 3 to 4 feet	
Scotch, 9 to 15 inches	Chinese Arbor-vitæ 9 to 15 inches

THOMAS THORNTON, Heatherside, Bagshot, Surrey.

TRANSPLANTED FOREST TREES, clean, healthy, and finely rooted. Per 1000.—s. d.

ALDER, 2 to 3 feet	30 0
" 3 to 4 feet	40 0
ASH, 2 to 3 feet	30 0
" 3 to 4 feet	40 0
" 4 to 5 feet	50 0
BEECH, 1 to 2 feet	40 0
" 2 to 3 feet	50 0
BIRCH, 3 to 4 feet	50 0
CHESTNUT, Spanish, 2 to 3 feet	50 0
ELM, Chichester, 6 to 8 feet per 100	50 0
" Hertfordshire, 6 to 8 feet "	50 0
FIR, Scotch, 1 to 2 feet	30 0
" Spruce, 1 to 2 feet	40 0
" " 2 to 3 feet	60 0
" " 3 to 3½ feet	70 0
HAZEL, 2 to 2½ feet	40 0
NORWAY MAPLE, 6 to 8 feet per 100	20 0
" 8 to 10 feet "	40 0
OAK, British, 2 to 3 feet	40 0
" 3 to 4 feet	50 0
POPLARS, Lombardy, Black English, Black Italian, Ontario, 6 to 8 feet per 100	20 0
COMMON LAUREL, 1½ to 2 feet "	10 6
" 2 to 3 feet "	15 0
" 3 to 4 feet per 100, 25s. to	30 0
MAHONIA AQUIFOLIUM, fine per 100	12 6

Price to the Trade on application to

EWING AND CHILD, the Royal Norfolk Nurseries, Norwich.



Surplus Stock.—Very Cheap.

SPECIMEN CONIFERS and EVERGREENS, handsome and well-grown, for Lawns, Pleasure Grounds, and Parks, have been recently transplanted, and are full of health and vigour. For Descriptions, also Prices of other sizes, see RICHARD SMITH'S LISTS.

Trucks for 1 ton and upwards may be sent through to any Railway Station on the narrow guage lines, at a moderate cost, thereby saving delay and expense of packing.

At 12s. per dozen.

Abies canadensis (Hemlock Spruce), 4 to 5 feet	Laurel, narrow leaved, 2 to 2½ feet
" excelsa, 3 to 4 feet	" Portugal, 2½ to 3 feet
Arbor-vitæ, American, 5 to 6 feet	Picea balsamea, selected, 4 to 5 ft.
" Siberian, 3½ to 4 feet	Quercus ilex (Evergreen Oak), 15 to 18 inches [24 inches
Gorse, double, in pots, strong	Rhododendron ponticum, 21 to
Hartogia capensis (Cape Laurel), 1½ to 2 feet	Holly, screw-leaved, green, 1½ to
	Phillyrea oleafolia, 2 to 2½ ft. [2 ft.

At 18s. per dozen.

Abies canadensis, 5 to 6 feet	Phillyrea oleafolia, 2½ to 3 feet
" excelsa, 4 to 5 feet	Picea balsamea, 5 to 6 feet
Alaternus, broad leaved, 2 to 2½ ft.	Pinus austriaca, 3 to 4 feet
Arbor-vitæ, American, 6 to 7 feet	Quercus ilex, 2 to 2½ feet
" Siberian, 4 to 4½ feet	Rhododendron ponticum (very bushy), 2 to 2½ feet
Aucuba japonica, 18 to 21 inches	" hybrids, fine varieties, 18 to 21 inches
Box, green tree (pyramids, very handsome), 2½ by 2½ feet	Taxus japonica (Japan Yew), 12 to 15 inches
Hartogia capensis, 2 to 2½ feet	
Laurel, narrow leaved, 2½ to 3 feet	

At 24s. per dozen.

Abies elegans, 18 to 24 inches	Ivy, green tree, 18 to 24 inches
Arbor-vitæ, Siberian, 4½ to 5 feet	Laurel, Portugal, pyramids, 3 to 4 feet [4 feet
Aucuba japonica, 21 so 24 inches	Phillyrea oleafolia, very fine, 3 to
Cryptomeria Lobbii, 5 to 6 feet	Rhododendrons, hybrids (fine varieties), 21 to 24 inches
Cupressus Lawsoniana, 4 to 6 feet	Taxus japonica, 15 to 18 inches
Holly, screw leaved, green, 2 to 2½ feet	

At 30s. per dozen.

Abies canadensis, extra fine, 6 to 7 feet	Ivy, green tree, extra fine and bushy, 2 to 2½ feet
" elegans, 2 to 2½ feet	Juniperus chinensis, 3 to 3½ feet
Arbor-vitæ compacta, 2½ to 3 feet	" drupacea, 18 to 24 inches
Aucuba japonica, very bushy, 2 to 2½ feet	" glauca, 3 to 4 feet
Cryptomeria Lobbii, 6 to 7 feet	" Leeana, 3 to 4 feet
" viridis, 6 to 7 feet	Pinus austriaca, 4 to 5 feet
	Thujopsis borealis, 4 to 5 feet

At 36s. per dozen.

Abies inverta (Weeping Spruce), 2½ to 3 feet	Juniperus Smithiana, 3 to 3½ feet
Arbor-vitæ compacta, 3 to 3½ feet	" viridis pendula, 3 to 4 feet
" Siberian (very fine), 5 to 6 feet	Laurel, Portugal (pyramids, very fine), 4 to 5 feet
Cupressus Lawsoniana, 5 to 6 feet	Pinus laricio, 6 to 7 feet
Juniperus chinensis fœmina, 3 to	Taxus elegantissima (gold
" densata, 3 to 4 feet [3½ feet	leaved), 18 to 24 inches
" Schottii, 3 to 3½ feet	" Irish, 5 to 6 feet

At 42s. per dozen.

Abies inverta, fine specimens, 3 to 4 feet	Juniperus phœnicia, 3 to 4 feet
Arbor-vitæ compacta, 3½ to 4 feet	" Schottii, 3½ to 4 feet
" Siberian (very fine), 6 to 7 feet	" thurifera (IncenseJuniper), 4 to
Juniperus Chinensis, 3½ to 4 feet	" virginiana, 6 to 7 feet [5 feet
" " fœmina, 3½ to 4 feet	Picea Nordmanniana, 18 to 24 ins.
" drupacea, 24 to 30 inches	Pinus austriaca, 5 to 6 feet
" Leeana, 4 to 5 feet	" laricio, 7 to 8 feet
	Thujopsis borealis, 5 to 6 feet

At 48s. per dozen.

Abies inverta, 4 to 5 feet	Juniperus Smithiana, 3½ to 4 feet
Juniperus chinensis, 4 to 5 feet	" thurifera, 5 to 6 feet
" densata, 4 to 5 feet	" virginiana, 7 to 8 feet
" glauca, 4 to 5 feet	" viridis pendula, 4 to 5 feet
" Leeana, 5 to 6 feet	Pinus laricio, 8 to 9 feet
" phœnicia, 4 to 5 feet	Taxus, Irish, 6 to 7 feet
" Schottii, 4 to 5 feet	Wellingtonia gigantea, 2½ to 3 feet

At 60s. per dozen.

Abies Menziesii, 7 to 8 feet	Juniperus virginiana, 8 to 10 feet
" nonalrosa, 7 to 8 feet	" viridis pendula, 5 to 6 feet
Arbor-vitæ compacta, 4 to 4½ feet	Laurel, colchic (very fine), 8 to 10 feet [5 to 6 feet
Juniperus chinensis, very fine, 5 to 6 feet	" Portugal, pyramids (very fine),
" densata, 5 to 6 feet	Picea Nordmanniana, 2 to 2½ feet
" glauca, 5 to 6 feet	Pinus cembra, extra fine, 6 to 7 ft.
" phœnicia, 5 to 6 feet	Taxus elegantissima, 2 to 2½ feet
" Smithiana, 4 to 5 feet	Thujopsis borealis, 6 to 7 feet
" thurifera, 6 to 7 feet	Wellingtonia gigantea, 3 to 3½ ft.

Abies albertiana, 7 to 8 feet, 10s. 6d. each.	Picea hasiocarpa, 2½ to 3 feet, 15s.; 3 to 3½ feet, 21s.; 3½ to 4 ft., 31s. 6d.; 4 to 4½ feet, 42s.; 4½ to 5 feet, 52s. 6d. each
" Douglasii, 8 to 10 feet, 7s. 6d.; 10 to 12 feet, 10s. 6d.; extra fine, 12 to 15 feet, 15s. each	" nobilis (best glaucous var.), 18 to 24 inches, 7s. 6d.; extra fine, 2 to 2½ feet, 10s. 6d.; 2½ to 3 feet, 15s. ea.
" orientalis, 4 to 5 feet, 6s.; 5 to 6 feet, 7s. 6d.; 6 to 7 feet, 10s. 6d. each.	" Nordmanniana, 4 to 5 ft., 15s.; 5 to 6 feet, 21s.; 6 to 7 feet, 31s. 6d.; 7 to 8 ft., 42s. each.
Araucaria imbricata, 5 to 6 feet, 21s.; 6 to 7 ft., 31s. 6d.; 7 to 8 ft., 42s.; 8 to 9ft., 52s. 6d.; 9 to 10 ft., 63s. to 84s. each.	" Pinsapo, 3 to 3½ ft., 10s. 6d.; 3½ to 4 ft., 15s.; 4 to 4½ ft., 21s.; 5 to 6½ ft., 31s. 6d.; 6½ to 6½ ft., 42s. ea.
Juniperus densata, 6 to 7 feet, 6s.; 7 to 8 feet, 7s. 6d. each	Pinus Cembra, 7 to 8 feet, 6s.; 8 to 9 feet, 7s. 6d. each.
" thurifera, very fine, 7 to 8 feet, 6s.; 8 to 9 feet, 7s. 6d. each	Wellingtonia gigantea, 3½ to 4 ft., 7s. 6d. each.
Laurel, Portugal, pyramids, extra fine, 7s. 6d.; very large, 10s. 6d. each.	Yews, for hedges, about 12 feet high, 40 years old, recently transplanted, 31s. 6d. each
Picea grandis, extra fine, 5 to 6 ft., 15s.; 6 to 7 feet, 21s. each.	

RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Special Offer to the Trade.

TWENTY THOUSAND YARDS of BOX EDGING.
10,000 MANETTI STOCKS, very good.
200,000 Seedling AUSTRIAN PINES, 2-yr.
A few tons of SEED POTATOS, chiefly Kidneys.
Prices and samples forwarded on application.
T. THORNTON, Heatherside, Bagshot, Surrey.

Limes, Purple Beech, &c.

LIMES, best Red-twigged Variety, 6 to 10 feet, 15s. to 30s. per dozen.
PURPLE and COPPER BEECH, very fine, transplanted in spring of 1869, 6 to 10 feet, 18s. to 42s. per dozen.
WEEPING BEECH, very fine, 24s. to 36s. per dozen.
ELMS, Chichester and Hertfordshire, 8 to 14 feet, 12s. to 30s. p. doz.
Price to the Trade on application to
EWING AND CHILD, the Royal Norfolk Nurseries, Norwich.

To the Trade.

JOHN PERKINS, Sen., begs to offer the following FRUIT TREES, all of the finest quality:—

STANDARD PEARS, 5 to 7 feet stems, with good heads, at 50s. per 100, consisting of the following and other leading varieties:—

Louis Bonne of Jersey	Doyenne d'Eté
Williams' Bon Chrétien	Comte de Flandre
Jargonelle	Lammas | Marie Louise
Beurré de Amanlis	Swan's Egg, &c. &c.

STANDARD MAYDUKE CHERRIES, 5 to 6 ft. stem, 75s. per 100.
Dwarf-trained do. do., ex. fine, 6 to 10 shoots, 18s. p. doz.; 130s. p. 100.
Do. do. MORELLO do., do. 6 to 10 do., 18s. per doz.; 130s. per 100.
All letters to be addressed
JOHN PERKINS, Sen., 52, Market Square, Northampton.

To the Trade.

SPECIAL OFFER of LAURUSTINUS PYRAMIDALIS (NEW).

WM. KNIGHT solicits orders for the above new variety of LAURUSTINUS, having now grown it for five years past for Stock. It has been seen growing in his Nursery by many eminent Nurserymen, by whom it has been pronounced a fine hardy, compact plant, of sterling merit, the habit being robust, compact; flowers pure white, nearly twice the size of the old varieties, and very sweet-scented, with a continuation of flowers during the most severe weather.

W. K. feels great confidence in offering it in fine specimens, 4 to 5 feet, full of bud, per pair, 16s.; second size, 3 to 4 feet, do., 10s.; third size, 2 to 3 feet, do., 7s.; fourth size, 1½ to 2 feet, do., 5s.

Floral Nursery, Hailsham, Sussex.

Wandsworth Common Nursery.

Ten minutes' walk from Clapham Junction.

MR. ROBERT NEAL begs to invite the attention of the Nobility, Gentry, and the Trade in general to his very extensive and healthy stock of PLANTS, consisting of a large collection of Standard, Pyramidal, and Dwarf-trained FRUIT TREES, of all sizes; Standard and Dwarf ROSES, Coniferous and other Evergreens, Forest and Ornamental TREES and SHRUBS; also a large collection of RHODODENDRONS, all the very best in cultivation, and are of endless variety, from deep crimson and dark purple (every shade), up to white, and Hybrid Seedlings, and all the leading kinds of Scarlet, both Standard and Dwarf, set with Bloom-buds, which he can supply in large quantities at a very low price.

CATALOGUE will be sent on application.

SPECIMEN CONIFERS, consisting of the following, from 5 to 20 feet in height, handsome, suitable for immediate effect, will transplant with safety:—

ABIES DOUGLASII
" MORINDA
ARAUCARIA IMBRICATA
CEDRUS ATLANTICA
" DEODARA
" LIBANI
CRYPTOMERIA JAPONICA
CUPRESSUS LAWSONIANA
JUNIPERUS CHINENSIS
" EXCELSA
PICEA PINSAPO
PINUS AUSTRIACA
" CEMBRA
" EXCELSA
THUJA COMPACTA
" GIGANTEA
" LOBBII
" AUREA, 3 to 5 feet—perfection.
THUJOPSIS BOREALIS
WELLINGTONIA GIGANTEA

JAMES W. TODMAN, Eltham Nursery, S.E., 1¼ mile from Blackheath Station (North Kent); 1 mile from Eltham Station (Loop Line).

Nursery Stock (one of the Largest in Scotland).

THOMAS KENNEDY AND CO. have as usual a very large and superior stock of FOREST, FRUIT, and ORNAMENTAL TREES, DECIDUOUS and EVERGREEN SHRUBS, &c., which they are selling at moderate prices. The Trees and Shrubs being of all ages and sizes, are particularly well suited for extensive planting, or giving immediate effect in the formation and improving of Ornamental Parks, Pleasure Grounds, &c.

Dumfries has long enjoyed the pre-eminence of being one of the best localities in Great Britain for rearing young Trees—its soil and climate being peculiarly adapted for that purpose; and wherever these Trees have been planted throughout the three Kingdoms (where Millions are sent by T. K. & Co. every season), they have invariably done well.

Dumfries, from its central position, is most favourably situated for the speedy transmission of goods to all parts of the United Kingdom.

T. K. & Co. will forward a Copy of their DESCRIPTIVE PRICED CATALOGUE to any address on application.

Nursery and Seed Establishment, Dumfries.—November, 1869.

Notice to Debtors and Creditors.

WILLIAM HEALE, Deceased.—All Persons having any CLAIM or DEMAND against the Estate of WILLIAM HEALE, late of Calne and Chippenham, Nurseryman, Seedsman, and Florist, Deceased, are requested to send Particulars thereof in writing, either to Mrs. MARIA KIRBY, Calne, Executrix, or to Mr. JOHN SPENCER, Bowood, Executor, forthwith, that the same may be examined and, if found correct, Discharged.

And all Persons INDEBTED to the said WILLIAM HEALE at the time of his Death are desired to PAY the same to one of the above-named parties on or before JANUARY 1, 1870.

NOTICE to the PUBLIC.—The Business, in all its branches, will be carried on as heretofore, under the name of "HEALE AND CO.," Nurserymen, Seedsmen, and Florists, at Calne and Chippenham, Wilts.—Calne, Dec. 1.

Special Trade Offer.

S. NAIRN AND SONS, SEEDSMEN and FLORISTS, 62, Pilgrim Street, Newcastle-on-Tyne, have the following to offer, all pure, prices on application:—

BALSAM (Smith's), in separate colours.
BROCCOLI, NE PLUS ULTRA, the best April Broccoli in cultivation.
CELERY, SANDRINGHAM, well known as being the best White Celery in cultivation.
LEEK, HENRY'S AYTON GIANT, Scotch; saved.

To the Wholesale Trade.

HERBERT H. NICHOLSON, SEEDGROWER, Great Clacton (near St. Osyth), Essex, has the following SEEDS to offer, for cash only:—

ROBINSON'S PRIZE CHAMPION GX CABBAGE, 80s. per cwt.		
NONPAREIL CABBAGE	112s.	"
WHITE CELERY (Lovinthan)	95s.	"
SELECTED DARK RED BEET	140s.	"
STUDENT PARSNIP	80s.	"
MYATT'S CURLED PARSLEY	28s. per bush.	
STUBBLE TURNIP	18s.	"

&c. Also all the Annual FLOWER SEEDS, at low prices.

IVERY'S NONSUCH LETTUCE.—The best Summer variety in cultivation. 1s. per packet, sealed with initials M. A. I. Also IVERY'S NONSUCH CELERY, true, own saving; acknowledged by all who have grown it to be superior in flavour to all other varieties. Price to the Trade on application.

The Trade supplied with superior MUSHROOM SPAWN.
M. A. IVERY, Hanover Nursery, Peckham, London, S.

RICHARD WALKER has the following to offer for cash:—Splendid SEAKALE, for forcing, extra fine, 9s. per 100; fine GIANT ASPARAGUS, for forcing, at £1 per 1000, or 3s. per 100; ROBINSON'S CHAMPION DRUMHEAD CABBAGE plant at 2s. 6d. per 1000.
RICHARD WALKER, Market Gardens, Biggleswade, Beds.

Special Offer for Sale, to Clear Out.

ASPARAGUS ROOTS, 1-yr. old, 10s. per 1000; 2-yr. old, 15s. per 1000; 3-yr. old, 22s. per 1000. SEAKALE ROOTS, 1-yr. old, 6s. per 100; 2-yr. old, 10s. per 100; 3-yr. old, 16s. per 100; extra strong, for forcing, 20s. per 100.
GLADIOLUS BRENCHLEYENSIS, true, 10s. per 100.
Mr. MASTERS, 51, Bull Ring, Ludlow.

Autumn Gardening.

SEAKALE, ASPARAGUS, and RHUBARB ROOTS, &c.

JAMES CARTER AND CO. offer the following, in splendid quality:—
SEAKALE, extra fine roots, for Forcing, 15s. per 100.
" very fine roots, for Forcing, 10s. 6d. per 100.
" large, 7s. 6d. per 100.
ASPARAGUS, Giant, extra large plants, for Forcing, 10s. per 100.
" " strong, 3-yr. old, 6s. per 100.
" " strong, 2-yr. old, 4s. per 100.
RHUBARB ROOTS, Baldry's Scarlet, extra strong, 1s. 6d. each.
" other varieties, extra strong, 8s. to 12s. p. doz.
MUSHROOM SPAWN, best Millbrook, 6s. per bushel.
" the French, 4s. to 6s. 6d. per box.
JAMES CARTER AND CO., the Royal Seedsmen, 237 and 238, High Holborn, London, W.C.

Johnstone's St. Martin's Rhubarb.

W. P. LAIRD AND SINCLAIR, Nurserymen, Dundee, N.B., have pleasure in offering the above NEW VARIETY of RHUBARB, which they have confidence in recommending as the earliest and best sort in cultivation. The raiser of it describes it "as one of a batch of Seedlings from 'Victoria;' the seedling plant was a fortnight earlier than any of the remainder of the lot, and grown beside 'Prince Albert' and 'Linnæus,' always ten days earlier than them, and giving a larger quantity of superior stems to either of these varieties. It forces better than any variety I know, and has a splendid colour."
Strong Roots, 2s. 6d. each. Usual Discount to the Trade.

The following Testimonials, selected from amongst many others, speak to its merits by disinterested parties:—

From CHAS. GUTHRIE, Esq., *of Taybank, Dundee; a well-known and celebrated Horticulturist.*—Taybank House, October 18, 1869.

"GENTLEMEN,—I have much pleasure in saying that Johnstone's St. Martin's Rhubarb is the best I have in my possession. It is a thick fleshy-stalked variety, bears a heavy crop twice a year, and if cut early, would, I have no doubt, give a third, as even ten days ago it was throwing up fresh leaves. One peculiarity it possesses of not throwing up flower-stems, only one having appeared on one of my plants in the course of two years. It makes an admirable preserve.—I am, &c.,
"CHAS. GUTHRIE."

From WM. GORRIE, Esq., *Horticultural Editor of* "*The Farmer.*"
"Edinburgh, October 20, 1869.

"GENTLEMEN,—I have fully tested the merits of your Johnstone's St. Martin's Rhubarb, both by cultivation and cooking, and compared with the well known Victoria variety, I find it to be considerably earlier in spring, to yield fully a heavier crop, and to stand out later in autumn; while in quality it is much milder and decidedly more agreeably flavoured, requiring considerably less sugar, which is no inconsiderable advantage in the estimation of cottage gardeners, and others with limited incomes. "WILLIAM GORRIE."

From Mr. LAMB, *Restaurateur, Dundee.*—October 18, 1869.

"GENTLEMEN,—I have pleasure in testifying to the fine quality of your St. Martin's Rhubarb. In the course of my business I use Rhubarb to a very large extent—many tons during the season. Yours is the first supplied to me from the open air, and I always give a preference to it over others in the market.
"THOMAS LAMB."

London Agents:—Messrs. Hooper & Co., Covent Garden Market, W.C.
May be had true from the following Firms, who have it direct from us:—

Sheffield	Messrs. Fisher, Holmes & Co.
Lichfield	Mr. Edward Holmes.
Exeter	Messrs. Sclater & Co.
Andover	Mr. Wm. Miller.
Glasgow	Messrs. Austin & McAslan.
Dublin	Joseph Berry & Sons.
Cirencester	Messrs. John Jeffries & Son.
Downham	Mr. James Bird.
York	Messrs. Backhouse & Son.
Kilmarnock	W. & T. Samson.
Chester	F. & A. Dickson & Sons.
Tunbridge Wells	Thos. Cripps & Sons.

Further names published as received.

GENERAL TRADE NURSERY LIST may be had on application.

FOR SALE, a quantity of COCOA-NUT FIBRE REFUSE, in bags, 1s. per cwt. Price to Nurserymen, per ton, on application.
W. F. BOFF, 131A, Holloway Road, Islington, London, N.

GENUINE TOBACCO PAPER, of the finest quality, 10d. per lb., or 84s. per cwt.
WILLIAM RUSHFORTH, Nurseryman and Seed Merchant, Leeds.

APPLEBY'S GENUINE TOBACCO PAPER, in 2 lb. and 4 lb. packets. Testimonials too numerous for insertion.
Price on application to HENRY APPLEBY (Foreman to Messrs. Ivery & Son, Nurserymen), Dorking, Surrey.

TOBACCO TISSUE, for Fumigating Greenhouses. Will destroy all the Insects, and not injure the Plants, and Burns without the assistance of Blowing. Price 3s. 6d. per lb., carriage free. A reduction in price for large quantities.
To be had of Messrs. R. ROBERTS AND SONS, 112, St. John Street, Clerkenwell, London, E.C.; and of all Seedsmen and Nurserymen.

The Cheapest and Best Insecticide.

DUTY-FREE TOBACCO.
BY HER MAJESTY'S ROYAL LETTERS PATENT, AND BY PERMISSION OF THE HON. BOARD OF CUSTOMS.

POOLEY'S TOBACCO POWDER, for the Prevention and Destruction of Blight and other Diseases in Plants.
Sold by Nurserymen, Seedsmen, and Florists,
In Tins at 1s., 2s. 6d., and 5s.
Powder Distributors, 2s. 6d. and 3s. 6d. each.
"I find it exceedingly useful for killing the Aphides on Roses and other Plants."—GEO. EYLES, Superintendent, Royal Horticultural Gardens, South Kensington. May 7, 1868.
Sole Manufacturer, T. A. POOLEY, Bonded Warehouse, Sussex Wharf, Wapping, E.



GISHURST COMPOUND.

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d.

Wholesale by
PRICE'S PATENT CANDLE COMPANY (Limited),
Battersea, London, S.W.

REES AND CO.'S BIPHOSPHATED PERUVIAN GUANO (Registered Trade Mark, Flying Albatross), is now ready for delivery in quantity and in fine condition. It is believed to be the best Artificial Manure yet produced. Its base is Peruvian Government Guano; it contains 21 per cent. of Soluble Phosphates, 6 to 7 per cent. of Ammonia with Salts of Potash. See reports of Dr. Voelcker, Dr. Anderson, Professor Way, Mr. Ogston, and Mr. Sibson. Delivered in 2 cwt. bags, each of which is secured by a London seal, bearing the Company's Trade Mark. The analysis is guaranteed so long as the seals remain unbroken.
Agents for the North of England—Messrs. Keighley, Maxsted & Co., Hull.
Agent for Lancashire and neighbouring Counties—W. S. Gladstone, Esq., 24, Old Hall Street, Liverpool.
Agents for South-West of England—Messrs. Wm. Smith & Co., Bristol.
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ODAMS'S NITRO-PHOSPHATE or BLOOD MANURE for WHEAT.—This Manure, specially prepared for Autumn Sowing, is rich in Ammonia, Phosphates, and other ingredients required for the healthy growth of Grain Crops. Analysis of Blood and the grain of Wheat show that they are nearly identical in composition, hence the value of Blood as an ingredient in Manure. It may be applied at the rate of from 3 to 4 cwt. per acre, according to the condition of the soil, either drilled with the seed or sown broadcast; if the latter, it should be well harrowed in. Prepared by the Patent Nitro-Phosphate or Tenant-Farmer's Manure Company, whose Members are Cultivators of upwards of 50,000 acres of land, which has been for years under management with Manures of their own manufacture; consequently the Consumer has the best guarantee for the genuineness and efficacy of the Manures manufactured by this Company.
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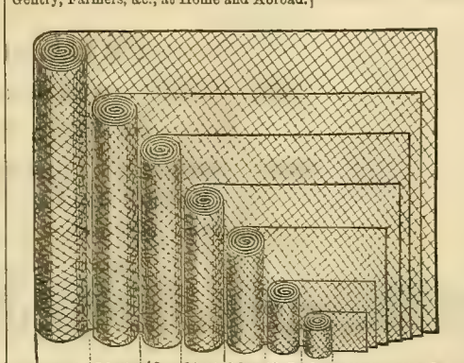
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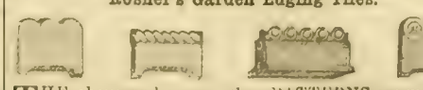
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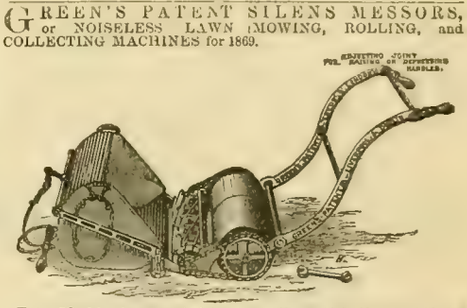


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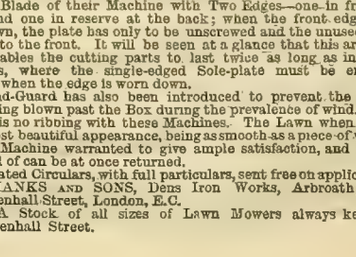
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Every Machine is warranted to give entire satisfaction, and if not approved of, can be returned at once unconditionally.
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The Patent Improvements recently introduced give
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Several important advantages possessed by no other Lawn Mower.
PATENT DOUBLE-EDGED SOLE-PLATE, WIND-GUARD, &c.
The unprecedented Sale for 1868, notwithstanding the Dryness of the Season, forms the most convincing testimony how much these advantages have been appreciated.
ALEXANDER SHANKS & SON beg to intimate that, among all the Exhibitors of Lawn Mowers at the Paris Exhibition, they are the only Firm to whom the Jury awarded a Medal. The Silver Medal then awarded is the highest Prize ever given at any Exhibition for Lawn Mowers.



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There is no ribbing with these Machines. The Lawn when mown has a most beautiful appearance, being as smooth as a piece of velvet.
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☞ A Stock of all sizes of Lawn Mowers always kept at 27, Leadenhall Street.

CHERRY TREES, for Market Gardens.—Fine Pyramids of the following sorts of Cherries, all of which bore good crops last season, can now be supplied. They may be planted from 6 to 8 feet apart:—May Duke, Archduke, Empress Eugenie (very early), and Royal Duke.

As the above form of Tree is new in Market Gardening, a Tree of each sort can be sent as sample. Price per 100 or per 1000 given by Messrs. RIVERS AND SON, Sawbridgeworth.

ORDERS respectfully solicited for PYRAMIDAL PEAR TREES, fine stuff, best sorts, 18s. per dozen.
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SALTMARSH AND SON have a fine stock of extra strong STANDARD and TRAINED FRUIT TREES to offer, at reasonable prices. Also of large EVERGREENS of various kinds suitable for immediate effect. CATALOGUES and prices on application. Moulsham Nurseries, Chelmsford.

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Some fine Standard Trained PEACHES, NECTARINES, PEARS, PLUMS, and CHERRIES, three years trained on a wall.

A large quantity of FRUIT TREES, in pots, to be Sold at a Bargain, for want of room; all grown under glass, and have been potted two years. For particulars, apply to
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STRONG STANDARD APPLES and PEARS.—Large horizontal Trained and Pyramid Apples and Pears; fine Standard and Dwarf-trained PEACHES and NECTARINES; fine bushy LAURELS and LAURUS COLCHICUM, up to 4 feet; extra bushy LAUSTINUS and PORTUGAL LAURELS, 1½ to 3 feet; a large collection of Standard and Dwarf Perpetual, Dwarf China, and Climbing ROSES of the leading sorts; deciduous flowering SHRUBS; ASH, 2 to 5 feet; LARCH, SCOTCH, SPRUCE, and AUSTRIAN FIRS, and all kinds of FOREST TREES; strong Evergreen PRIVET and THORN QUICK for Hedges. All the above have been regularly transplanted, and are well rooted. Prices on application to
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THE "OLD" NURSERIES, CHESHUNT, N.,

BEG TO OFFER AS FINE RECENTLY REMOVED PLANTS OF

THE RARE MEXICAN PINUS DEVONIANA, HARTWEGII, MACROPHYLLA, AND LLAVEANA.

Species now unrepresented in some of our best Pinetums.

ALSO LARGE QUANTITIES OF

ARAUCARIA, 3 to 6 feet; PINUS MACROCARPA, DON PEDRI, MURICATA, INSIGNIS, BENTHAMIANA, PICEA PINSAPO, NORDMANNIANA, CEDRUS ATLANTICA, WELLINGTONIAS, 4 to 9 feet. Also a most comprehensive collection of other classes of Coniferæ.

HARDY EVERGREENS—as LAURELS, COMMON and PORTUGAL, 2 to 6 feet; RHODODENDRONS, 1 to 4 feet; VARIEGATED HOLLIES, at really reasonable prices. YEWS and AUCUBAS, DECIDUOUS TREES of all kinds, FRUIT TREES in many varied forms, are all described in

PAUL AND SON'S NEW DESCRIPTIVE CATALOGUE, post free.

For PRICES of ROSES, see p. 1251 of last week's *Gardeners' Chronicle*.

SUTTONS'
HOME-GROWN SEEDS.

SEASON 1869 AND 1870.

THE FORWARDEST PEA KNOWN IS

SUTTONS' RINGLEADER.

The Royal Horticultural Society tested carefully the merits of the leading kinds of Early Peas, and in the *Gardeners' Chronicle*, June 27, 1868, the following brief but emphatic statement appeared:—"The earliest form of all was Ringleader. Several of the Peas blossomed at the same time, but Ringleader was fit to gather first."

SUTTONS' RINGLEADER PEA is also the Best Variety for very Late Sowing. The following is extracted from the *Gardeners' Chronicle*:—"Late Peas are indeed a luxury. I sowed Suttons' Ringleader the second week in July, and gathered one peck of well-filled pods the second week in September. I sowed two rows a fortnight later, and gathered Peas on October 6—a really good dish—much to the satisfaction of my employers. I have to-day (October 13) picked another good dish of Peas from plants which show no appearance of mildew."—E. HAWTHORN, *Gr. to* P. Kemp, Esq., *Goldwell House*.

The following UNSOLICITED Testimonials are selected from a large number received to the same effect:—

May 18.—*From* Mr. CHARLES TURNER, *The Royal Nurseries*. "We had our first gathering of Early Peas this day for dinner—Ringleader, sown in November in the open ground, and has never had any protection."

May 20.—*From* Mr. H. BEAMS, *Gr. to* Sir Charles Pressley, *Fern Hill*. "I gathered to-day a good dish of your far-famed Ringleader Pea. I have grown it now three seasons in succession, and never began gathering later than May 24."

May 27, 1868.—*From* Mr. T. HOLLOWAY, *Gr. to* Lord Grantley. "I picked your Ringleader Pea a week ago from this day."

December 1, 1869.—*From* Mr. W. H. BARNES, *Gr. to* Major Boys, *The Oaks, Deal, Kent*.

"Your Ringleader Pea is still the earliest in cultivation and the best for first crop. I planted them out in the spring, and gathered from them on May 21 and save some of the seed, and planted again on August 20, and gathered from them the middle of October till November 4, 1869."

Price 2s. per quart, cheaper in large quantities.

The Largest and best EARLY PEA for Market Gardening purposes is

SUTTONS' IMPROVED EARLY CHAMPION.

This excellent large-podded Early Pea is only four days later than our "Ringleader," and quite a week earlier than Daniel O'Rourke or Sangster's No. 1. It produces a complete mass of fine large green pods, and is specially adapted for growing in large quantities to pick green for market. The numerous Testimonials we have received, together with the increasing demand, prove its great superiority over the sorts usually grown for that purpose.

Price 1s. 6d. per quart, or much cheaper in large quantities.

The THREE best POTATOS for the ensuing season are, for the Earliest Crop,

SUTTONS' EARLY RACEHORSE KIDNEY

The forwardest in cultivation.

The tubers nearly double the size of Walnut-leaf. Of the many Early Kidney Potatos sent out for some years past, we know of none at all equal in earliness or productiveness to this. We speak with confidence, having planted in our trial grounds every new variety offered for sale. We have hitherto always sold out long before the season closed, and as our stock is limited, early orders are necessary to secure a supply.

Price 5s. per peck, cheaper by the bushel.

For the Main Crop,

SUTTONS' BERKSHIRE KIDNEY,

Raised and selected from among 40 Seedlings of the Fluke. Having planted it side by side with the different varieties of that class, we have proved it to be by far the best of them all, and quite a fortnight earlier. The tubers are of good size, very numerous, and remarkably clear skin. It is most valuable for the main garden crop, and has been remarkably free from disease, while other varieties growing close by were almost destroyed.

Price 5s. per peck, cheaper by the bushel.

For the Latest Crop,

SUTTONS' RED-SKINNED FLOUR-BALL.

This Potato has the pecular merit of producing tubers all of full size, and weighing from 12 to 20 ounces each. While most other red varieties boil yellow, this is white, and is most correctly described as Flour-ball. For supplying the London dining rooms especially, we feel confident it will supersede every other kind when sufficiently known. In a field where many other sorts were all more or less diseased, our Red-skinned Flour-ball was entirely free, which we can only attribute to its remarkably vigorous growth. It is a Seedling, and we offer it now for the first season.

Price 7s. 6d. per peck, cheaper by the bush.

SUTTONS' NEW CATALOGUE for 1870

Is now in course of delivery.

Intending Purchasers can obtain it Gratis on application.

☞ *All Goods Carriage Free.*

SUTTON AND SONS,
SEEDSMEN TO THE QUEEN, READING, BERKS.

JAMES CARTER AND CO. have a beautiful Stock of Seedlings, in excellent condition, of their choicest Strains of CALCEOLARIA, CINERARIA, and PRIMULA, in 60-pots, fit for potting-on immediately for early Spring Blooming. Worthy the attention of those who have omitted to sow at proper time. Price, 21s. per 100, 3s. per dozen.
JAMES CARTER AND CO., 237 and 238, High Holborn, W.C.; and Crystal Palace Nurseries, Forest Hill, S.E.

New Geraniums.

JOHN KEYNES begs to announce that he has secured the stock of those two first-rate flowers which have excited so much admiration at the Royal Horticultural Society; First-Class Certificates have been awarded them. They comprise COLESHILL (ECKFORD), bright scarlet Zonal, the finest of its class; and LADY EDITH, a bright purply pink Ivy-leaf. These are the two best acquisitions of the season. They will be sent out in April next, at 10s. 6d. each. Drawings may be had on receipt of 15 postage stamps.
Castle Street Nursery, Salisbury.

French Roses.—To Florists and Nurserymen.

LÉVEQUE ET FILS, 132 and 134, Boulevard de l'Hôpital, Paris, beg to state that they have a large Stock of strong Dwarfs of the best sorts of ROSES employed in Paris for the Market Flowers, such as Jules Margottin, Triomphe de l'Exposition, Du Roi, Sénateur Vaisse, Baronne Prevost, Mdme. Boll, Gloire de Dijon, Charles Margottin, &c. Prices, 38s. per 100, and £16 per 1000. Also Dwarfs of all good sorts (their choice), £2 per 100, £16 per 1000. TEA Sorts, NEW ROSES, and others. See previous Advertisements.

Autumn Planting.

PETER LAWSON AND SON will be glad to send their CATALOGUE (just published) of FOREST and ORNAMENTAL TREES and SHRUBS, free upon application.
The stock of LARCHES, SCOTCH FIRS, AUSTRIAN and CORSICAN PINES, &c., comprises some millions of healthy, well-grown plants, and special offers will be made for large quantities when personal inspection is not convenient.
Edinburgh and London.

RICHARD SMITH'S LIST of EVERGREEN and DECIDUOUS SHRUBS, RHODODENDRONS, STANDARD ORNAMENTAL TREES, CLIMBING and TWINING PLANTS, with their generic, specific, and English names, native country, height, time of flowering, colour, &c., and general remarks, free by post.
RICHARD SMITH, Nurseryman and Seedsman, Worcester.

JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, 7, Borough Market, London, S.E., beg to inform their Friends and the Public, that their WHOLESALE CATALOGUE of SEEDS is now ready, and will be forwarded post free on application. Early orders are recommended, which will meet with prompt attention.

Established 1806.

T. HANDASYDE AND DAVIDSON have to intimate that their CATALOGUE of NURSERY STOCK is now ready, and will be forwarded on application.
Seed Warehouse: 24, Cockburn Street, Edinburgh.
Nurseries: Brunstain Glen, Musselburgh.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.—Mr. WEBB, Calcot, Reading.

The Gardeners' Chronicle.

SATURDAY, DECEMBER 11, 1869.

MEETING FOR THE ENSUING WEEK.

THURSDAY, Dec. 16—Linnean .. .. 8 P.M.

THE EXTENSION SYSTEM of VINE MANAGEMENT is silently working its way. Those cultivators who tacitly ignore its claims to notice, find it advantageous to increase the breadth of foliage upon their Vines. Some allow the leading shoot to take its course down the back wall of the house; others, who have been in the habit, after the Vines have been stopped at the spring dressing, to remove every lateral branchlet except the leading one, and to stop that most resolutely as fast as it makes a fresh growth, now find it convenient to leave all the laterals, and not to be too particular about stopping them; while many allow the laterals to run entirely wild for the remainder of the season after the fruit is cut. Calling in the autumn upon a noted Grape grower, whose Vines are planted with a naked stem outside the house, we found a whole forest of shoots running wild over and almost covering the border; and upon going inside the houses we found that anything but close pinching or stopping had been practised. Our friend said he was afraid we should consider him a very slovenly Grape grower; but rallying him upon his change of practice, he confessed that the Vines the preceding season had carried an exceedingly heavy crop, and as they showed the effects of it in the following crop refusing to colour, the plants had been allowed to run comparatively wild, with the hope of increasing the root action. Quite right! But if a more extended leafage increases the root action one season, why not every season? And if it is good to restore the plants to luxuriance after being overcropped, why should it not be good for them at all times? To answer these questions would, however, open up a field much too wide for us to explore at the present.

The early failure of the Bishop Stortford Vines comes before us as a severe condemnation of the restrictive system of cultivating the Vine. While we have been exclaiming against worn-out borders and roots having gone wrong, it is not impossible that, if we could probe Nature's secrets to their ultimate result, we should find that the loss of vigour consequent upon the dwarfing system of pruning has had as much to do with our failures as unsuitable soil. A word of caution may also be gathered from this case, relative to excessively light and to the now fashionable aërated borders. The Stortford borders, properly speaking, are not aërated—that is, no special provision was made for the purpose by piercing them with air drains; but from the exceeding porosity of the material of the borders, viz., London street garbage, local loam, brick rubbish, and bones, and the care which Mr. NASH took to prevent a foot being at any time set upon them, it is probable they were as well aërated as those where more trouble had been taken to secure that purpose. According to Mr. FOWLER, ten years may be considered the life of a Vine as grown upon the Castle Kennedy plan; and if such is the fact, we must confess that the light is not worth the candle, especially when we know that Vines 10 to 15, or perhaps 20 times their age, grown upon the extension plan, continue to produce good fruit. Upon this latter point we have a fact or two to record.

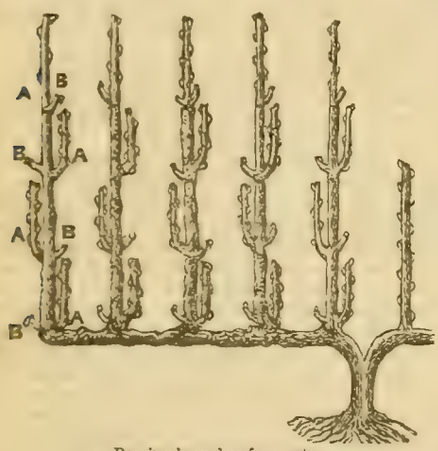
In the county of Leicester, not far from Ashby-de-la-Zouch, are some fine old Vines, the history of which we had recently the curiosity to ascertain, and here it is:—"The Vines here are 39 years old, and have been pruned upon the extension system for more than 20 years. I began to compete at Chiswick in 1841, and at the Royal Botanic Garden in 1848. I took the first prize the first time I exhibited at the latter place—the first time I showed Black Hamburghs; I took it on June 30 last, and have seldom missed the first prize during the whole time. I know I took it every show at the Botanic, for three years without intermission, and if I remember rightly for 12 lb., as well as for the single dish. I have had four first prizes for Grapes in one day, and I exhibited Hamburghs eight times in one season, and was first each time. I have exhibited at the Crystal Palace and many local shows, but have no conception of the number of prizes I have taken altogether." We need scarcely say the gentleman here referred to is the veteran Grape grower, Mr. M. HENDERSON, gardener to Sir GEORGE BEAUMONT, Bart. The Vineries at Cole Orton are limited in extent, so much so that probably the whole area is not so much as that of one of the vineries at Bishop Stortford; yet the Vines are in vigorous condition after 28 years of hard forcing, and continue to produce fruit such as for general excellence can rarely be excelled. These Vines are pruned upon the "cut to the best bud" principle, and it matters not whether that be the first, fifth, or fifteenth—to that bud will the shoot be shortened. The quantity of old wood left in them is something remarkable, there being at the least four times the quantity that would be considered necessary for a systematic method of training. But there it is, and, viewing the results, we cannot say it is without its use. Not a strip of bark has been removed, we should think, for 20 years, and so gnarled and ragged do the Vines look, that if a young gardener from one of the modern fashionable Grape-growing establishments could be dropped into the gardens without knowing the history of the Vines, we have no doubt his first and fixed impression, until he saw the produce, would be to root them out, and cast them to the rubbish heap. But these Vines have yet good service to perform, and perhaps we shall hear of them and their produce when some of the modern wonders have sunk into insignificance.

Recurring to the Bishop Stortford Vines, if they are not already destroyed, it would be an exceedingly interesting and perhaps valuable experiment if Mr. NASH would test the feasibility of filling one of the houses with two or more of the old Vines. This could be effected by laying two or three of the best Vines down horizontally, and at proper distances, taking up a shoot to each rafter, and stopping or removing the remainder. If the increased growth should be accompanied by increased root action, which it must be, then fresh vigour would be imparted to the plants, and possibly they might go on bearing for a century or more. At Cliveden, where Mr. JOHN FLEMING found a mixed house of Muscats and Hamburghs a complete failure, shanking and shrivelling constantly taking place, he cut out all the Vines except one Muscat, from which he filled the house, and it answers completely. Why should not the Bishop Stortford Vines do the same? We hope Mr. NASH will make the experiment, not only for his own gain, but in the interest of practical investigation.

The engraving which we here introduce, shows how the Vines retained for such an experiment may be trained into a systematic form. Presuming the old Vines to be closely pruned and laid

down horizontally we would select, when they broke into growth in the spring, the strongest shoots at about 30 inches to 3 feet apart, and stop all the other shoots at the fourth or fifth leaf, as root encouragers, until such time as the shoots retained got fully established. Then, supposing the rafter to be 15 or 20 feet long, we would establish spurs or gnaurs at 3 feet or 4 feet apart, and nearly opposite each other upon each branch, and from these spurs in alternate years we would take the young shoots which would produce the crop in the following season. The engraving supposes the Vine to be thoroughly established, and pruned for the succeeding year. B are the young shoots that will produce the crop next season, say 1870, and will then be cut out to the bud nearest the main stem; while A are the spurs from which the shoots will be produced to carry the crop in 1871. In this way it will be seen the pruning of the Vine is reduced to some half-dozen cuts upon each rod, and the removal of the laterals—a system which any person may understand.

The advantages of the system will be a very large reservoir of sap stored up in the Vine at all times, ready to repair any shortcomings on the part of the roots, consequent upon cold weather; and, secondly, a regular succession of young shoots which have not borne fruit, for the following season. These we regard as root



A. Bearing branches for next year.
B. Spurs for successional rods.

promoters, and our experience is much at fault, and our physiological knowledge also, if they would not be found to play a most important part in the economy of the plant. With such shoots we must get fine well-matured buds; and such buds—the treatment being suitable—are the precursors of fine crops of well-matured fruit. *P.*

—— WE are requested to state that the PRIZE of 5*l.* 5*s.* offered by Lieut.-Col. SCOTT, R.E., secretary of the Royal Horticultural Society, for an essay on the PRINCIPLES OF FLORAL CRITICISM, will be awarded on Wednesday, May 4, 1870, and not on January 19, as previously announced. We may add that many correspondents complain of the vagueness of the proposal, and ask whether an essay on the "correct standard" for floriste' flowers be intended, or one on the proper method of judging plants in general at exhibitions. Perhaps some light might be thrown on the matter, if the names of the judges were announced. The subject is one of so much interest and importance that we trust fuller information may be forthcoming, and for our own parts we should like to see the matter treated in a broad catholic spirit.

—— The following communication relating to the EVERBEARING ANDINE STRAWBERRY, from Dr. SPRUCE, the South American traveller, whose services in the cause of botany and horticulture are beyond all praise, will be read with much interest:—"The 'Everbearing Strawberry,' from the highlands of Mexico, so well described by your Canadian correspondent, 'Vectis,' is doubtless one of those varieties of Fragaria vesca commonly cultivated throughout the Andes within the tropics, where the perpetual spring of that favoured region has had the effect of rendering the Strawberry perennially fruitful, and many of the deciduous-leaved trees of Europe evergreen. In the Equatorial Andes the province of Ambato is famed for its Strawberries, which equal in size and flavour some of our best varieties, and which are to be seen exposed for sale in the market place of Ambato every day in the year. They are cultivated at an altitude of from 7000 to 9500 feet above the sea, where the mean temperature of the year ranges between 59° and 67°; but the best are grown a little way out of Ambato, as you go towards Guayaquil, on the slopes of Guachi (lat. 1½° S.), at near 9000 feet, and in a mean temperature of 60°; where, however, the thermometer does sometimes descend to the freezing point in the early morning, perhaps half-a-dozen times in the year, and scarcely ever on two successive days. Down-right rainy weather is almost as rare as frost, and the climate is, on the whole, dry. The soil is entirely derived from matters ejected by the adjacent volcanos, and consists chiefly of loose sand and baked mud, to appearance almost utterly sterile, but by the aid of irrigation it is rendered exceedingly fertile, gardens, corn fields, and meadows meeting the eye on all sides, wherever water can be thrown over the foil. From the main 'acequia,' or watercourse, water is every day turned into the furrows that alternate with the rows of Strawberries, or Maize, or Alfalfa (Medicago sativa), or Meadow-grass. A native poet, describing this very spot, speaks of the fertilising streamlets—

'Entre cesped dormidas ó entre fresas.'
('Sleeping in the turf, or among Strawberries.')

Without this artificial aid, a moisture-loving plant, like the Strawberry, would hardly survive under the vertical sun of the equator, even at that great altitude; but near Quito, where the climate is much moister—10 months out of the 12 being rainy—little irrigation is needed. Quito, however, is near the upper limit of Strawberry cultivation, and the fruit is much inferior to that of Ambato. The Strawberry is generally considered a true native of the Andes of Ecuador, and I have seen it wild in two or three places, especially on the northern declivity of Pichincha, at 10,000 feet; but even there it grew by the side of a much-frequented path; and as the Indians appear to have no native name for it, but call it by its Spanish names 'Fresa' and 'Frutilla,' I can only consider it an introduced plant. However that may be, it is known to have been cultivated there fully 300 years; and its character of perennial fruitfulness—whether native to it or acquired—would doubtless be preserved in any other locality (so far as changed conditions would allow) for a good number of years, especially if propagated by stolons; so that its introduction to England, as the foundation of (at least) an autumn-fruiting Strawberry, seems highly desirable. Whether it will retain its everbearing property here when raised from seed, will, I hope, soon be tested, as seeds of it, obtained from Ambato, have already been sown near London, by Mr. D. HANBURY."

—— The Royal Horticultural Society of Ireland has announced its intention to hold a SPRING EXHIBITION of HYACINTHS on the 24th of March next. The exhibition is to include Tulips, Narcissi, and Crocuses, as well as other spring flowers. Of Hyacinths there are four classes provided for amateurs and two for nurserymen, besides various special prizes, one of which is a Gardeners' Cup, to be provided by subscription, and held by the gardener who wins the greatest number of prizes at this show.

—— Don't say modest worth is not appreciated. Of course not, when neither time, season, nor place are favourable for the exercise of the softer virtues; but alter the conditions, and then see. Here is an illustration from the *Natal Mercury*, published at Durban, on September 25 of the present year:—"Mr. PERRIN has kindly left at our office a nice little *Primrose* and a *fine Dandelion*, both grown in his garden. The latter grows admirably, and the former with care in a moist and shady spot. These are only some of the many plants which Mr. PERRIN has carefully planted and reared in his garden in the city."

—— MM. PLANCHON and LICHTENSTEIN, in recently commenting on the fact of the existence on Vine leaves of GALLS which shelter families of Phylloxera, similar to the Phylloxera vastatrix of the roots, suggest that the insect found on the leaves is probably a transitory form—in itself injurious—of that which destroys the roots, and with them the entire stem of the Vine. According to this hypothesis, it will be necessary to admit two states of the Phylloxera vastatrix—the gall-inhabiting and the root-inhabiting. The former, they go on to say, should be carefully compared with the Pemphigus vitis folii of ASA FITCH, which, according to that learned entomologist, produces galls upon the leaves of Vines in the United States of America. The latter has perhaps its analogue in the so-called thrips, which, according to M. SÉRIGNE, of Narbonne, infests the Vines of the same country. Nothing is easier than to recognise the galls, which are often very numerous on the leaves, especially towards the ends of the twigs, to which they give a crisped appearance.

—— Dr. TÉLÈPHE DESMARTIS communicates to the *Indicateur Vinicole* the following intelligence concerning a REMEDY for the VINE DISEASE. In the vineyard under his observation there were in the spring about 60 Vine stocks attacked with the disease. They were treated with earth mixed in the proportion of 8 or 10 per cent with coal-tar. Of the 60 stocks, 50 have now recovered their vigour perfectly, and the Grapes have swollen and ripened; five present a doubtful appearance, and the remainder have succumbed to the disease. M. DESMARTIS also mentions having found the Phylloxera on the leaves, from which he concludes that the evil is progressing. The insecticide of M. GORREAU, of Saint-Loubès, is favourably spoken of.

—— The Friday evening meetings of the ROYAL INSTITUTION are arranged to commence on the 21st of January. The evening discourses before Easter will probably be given by Prof. TYNDALL, Prof. ODLING, Prof. RUSKIN, Dr. CARPENTER, Mr. CLIFFORD, Prof. SYLVESTER, Dr. ROLLESTON, Prof. ROSCOE, Prof. HUXLEY, Prof. WILLIAMSON, and Dr. BLACKIE. The Christmas lectures (adapted to a juvenile auditory) will be by Prof. TYNDALL, who has chosen Light for his subject: the first will be delivered on the 28th inst. at 3 o'clock. Arrangements have been made for the following courses before Easter:—On the Architecture of the Human Body, by Prof. HUMPHRY, F.R.S.; on the Vegetable Products of Chemistry, by Prof. ODLING, F.R.S.; on Meteorology, by Mr. ROBERT SCOTT; on Plant Life as contrasted to that of Animals, by Dr. MASTERS, F.L.S.; Deductions from the Comparative Anatomy of the Nervous System, by Prof. ROLLESTON, F.R.S.; an Introduction to the Science of Religion, by Prof. MAX MÜLLER; on the Sun, by J. NORMAN LOCKYER, F.R.S. After Easter, the following courses will be delivered:—On the Principles of Moral and Political Philosophy, by Prof. BLACKIE; on Physics, by Prof. TYNDALL, F.R.S; on Astronomy, by Prof. ROBERT GRANT, F.R.S.; on History, by Prof. SEELEY.

—— We perceive that the Editorship of the "GARDENER" is in future to be entrusted to Mr. W. THOMSON (Dalkeith), and Mr. RICHARD DEAN (London), *Arcades ambo*. We hope that the repute of this well conducted magazine will be enhanced by the new arrangements.

—— We are informed that at the meeting of the Royal Horticultural Horticultural Society, to be held on Tuesday, December 21, the following prizes are offered for competition, viz:—By the Rev. GEORGE KEMP, F.R.H.S., and member of the Fruit Committee—1. For the best winter dessert of Apples and Pears, 3 dishes of each. 3*l.*, 2*l.*

PLANT PORTRAITS.

ALOCASIA JENNINGSII.—*Flores des Serres*, t. 1818—193; *Ill. Hort.* t. 585. Araceæ. This beautiful stove perennial, which has the large cordate-ovate bright green leaves marked in sections between the veins with broad wedge-shaped black-brown patches, and is now pretty generally known, is well represented in the above-cited coloured figures.

ANTHURIUM LANCEOLATUM.—*Refug. Bot.* t. 14. Orontiaceæ. A stove perennial, with lanceolate stalked green leaves a foot long, narrowed to the base. The tall peduncles support a dark brown spadix, which issues from a lanceolate deflexed yellowish-green spathe. The plant was introduced to the Royal Gardens at Kew from the West Indies.

APHELANDRA ACUTIFOLIA.—*Bot. Mag.* t. 5789. Acanthaceæ. One of the most brilliant-flowered species of a very showy group. It forms a stove shrub of erect habit, the stems being furnished with broad oblong-ovate acuminate leaves, and terminated by imbricated spikes 4 to 6 inches long, of large deep vermilion-red flowers, the upper lip of which is concave and projected forward, while the lower lip consists of three oblong-obtuse spreading lobes. It has been introduced from Peru by Messrs. Veitch & Sons.

ASPARAGUS SCANDENS.—*Refug. Bot.* t. 21. Liliaceæ. A remarkably elegant climbing greenhouse perennial, formerly met with in cultivation, and recently re-introduced from South Africa by Mr. Wilson Saunders. The annual, much-branched, unarmed stems bear usually in threes, numerous small linear-pointed leaves, which on the ultimate branches spread nearly in one plane. The whitish pendent flowers are axillary on these ultimate branchlets, and are succeeded by round orange-coloured berries. It is an admirable climber for greenhouses or conservatories, and one which may be made to climb up a small cord, and may then be readily moved about to any position it may be required to occupy.

BETULA ALBA PENDULA ELEGANS.—*Rev. Hort.* 1869, 135, fig. 33. Betulaceæ. A deciduous weeping tree, of a very ornamental character, differing from the ordinary weeping Birch (which has the branches curving downwards, giving a rounded form to the head) in having the long slender and flexible branches directed perpendicularly towards the earth in lines parallel with the stem, which gives to the tree a very distinct and truly weeping aspect. It has been obtained by MM. Bonamy frères, of Toulouse.

CALCEOLARIA HENRICI.—*Bot. Mag.* t. 5772. Scrophulariaceæ. This elegant greenhouse or half-hardy shrub, has been introduced by Mr. Anderson-Henry, after whom it is named, from the Andes of Cuenca, whence it was sent by Prof. Jameson. It is of slender erect habit, with rather large elongate-lanceolate leaves, downy beneath, and produces terminal corymbose cymes of clear yellow flowers, both lips of which are much inflated, so as entirely to close the mouth. It is closely related to C. hyssopifolia.

CEREUS LIVIDUS.—*Bot. Mag.* t. 5775. Cactaceæ. This is described by Dr. Hooker as being one of the most striking of the columnar Cacti in the succulent-house at Kew. It is of erect and very sparingly branched habit, and has attained a height of 12 feet, and a diameter of from 4 to 6 inches, the stems being 5 or 6-angled, constricted or jointed at intervals, with thick, flat, straight, round-edged ribs, an inch or more in depth, and bearing on the terminal joint one or two large flowers, 10 inches in diameter, which are white, with a yellow-green tinge towards the outside. It is a native of Brazil, La Guayra, and Curaçoa, and has recently flowered at Kew.

COREOPSIS ARISTOSA.—*L'Hort. Franç.* 1868, 360, t. 12; *Rev. Hort.* 1869, 72, with tab. Compositæ. A much-branched, glabrous annual, growing about 3 feet high, and furnished with deep pinnatifid leaves, having coarse lanceolated segments, and producing large radiate flower-heads, resembling those of a small single Dahlia, numerously produced in a terminal panicle, and of a fine orange-yellow colour. Introduced from the United States by Mr. W. Thompson.

CORDYLINE GUILFOYLEI.—*Ill. Hort.* t. 600. Liliaceæ. A greenhouse shrub, of considerable promise as an ornamental plant, with the usual erect, Palm-like habit of the Draceenas, forming a fine head of recurved leaves, an inch or rather more in breadth, striated in an oblique direction with creamy white, and in age acquiring more or less of a red tint, especially at the margin. It has not, however, been exhibited so highly coloured as in the figure above quoted. It is said to have been found in New Zealand or Australia by M. Guilfoyle, and was first exhibited at the Ghent show in the spring of 1868 by M. Ambroise Verschaffelt.

CROCUS ORPHANIDIS.—*Bot. Mag.* t. 5776. Iridaceæ. A free-flowering and very distinct ornamental autumn Crocus. It is furnished with large bottle-shaped corms, bears narrow elongate leaves, which are developed with the pale lilac-blue veinless flowers, which latter spread to a diameter of 2 inches or more, and are yellow in the throat, whence issues a tuft of multifid stigmas of a deep orange-red. It is a native of Greece, and was received at Kew from Professor Orphanides, of Athens.

GEONOMA LACERATA.—*Floral Mag.* t. 446. Palmeæ. A provisional garden name for a neat-growing stove Palm, apparently of dwarf close habit, the leaf-stalks of which are broad and sheathing at the base, and terminate in broad bilobed blades, with an excurrent thread in the sinus, the lobes being lacerately split at the apex, and the surface ribbed so as to appear plicate. It is a native of Central America, whence seeds were brought home by Dr. Seemann.

GEONOMA SEEMANNI.—*Floral Mag.* t. 428. Palmaceæ. A provisional garden name for a remarkably distinct and beautiful dwarf stove Palm, remarkable in the young state for its close leafy character, and for its bilobed plaited leaves, which widen from the top of the angular petiole, and form two pointed fish-tail-like lobes. Introduced by Dr. Seemann from Central America, and cultivated by Mr. Bull.

ILEX AQUIFOLIUM CILIATA AUREO-MARGINATA.—*Flore des Serres*, t. 1811. Aquifoliaceæ. An elegant hardy evergreen shrub, of a somewhat close, erect, formal habit, and having quite the character of the small saw-leaved green Holly, which is not uncommon in gardens. In this case the narrow lanceolate leaves, which are finely saw-toothed at the margin,

are edged with yellow, and give the plant a bright-looking variegation. It is a Belgian variety, cultivated by M. Van Houtte, and is a most desirable ornamental shrub.

ONCIDIUM GAUTIERI.—*Gardeners', t.* 611, fig. 2. Orchidaceæ. A very curious and pretty dwarf stove epiphyte, furnished with oblong sulcate monophyllous pseudobulbs, linear-lanceolate leaves, and few-flowered racemes of small flowers, remarkable for their dark brown lanceolate sepals and petals, and their subcordate semiorbicular crenulato-undulate lip, which is broader than long, yellow, with a deep blood-red spot on the disc, from which projects a long curved yellow horn. It has been introduced from St. Catherine's, Brazil.

PALAVA FLEXUOSA.—*Bot. Mag.* t. 5768. Malvaceæ. A pretty half-hardy branching annual, with slender sparingly-branched stems, 8 to 10 inches high, furnished with bipinnatifid leaves of deltoid ovate outline, and producing from their axils numerous mauve-coloured flowers, paler in the centre, and about 1½ inch across. The Messrs. Veitch & Sons have recently introduced it from Peru.

PLACEA GRANDIFLORA.—*L'Illust. Hort.* t. 574. Amaryllidaceæ. A bulbous greenhouse perennial of moderately vigorous habit, producing bottle-shaped bulbs, a few long linear leaves, which are rounded and fistulose at the margin, and an erect flower scape, terminating in an umbel of several beautiful large white flowers, which are freely striped with bright crimson, and much larger than in P. ornata, the only species previously known. It was obtained by M. Ambroise Verschaffelt from Valparaiso, whence it was sent by the Belgian Consul, M. Jules Grisar.

THE DEODAR.

I OBSERVE that some correspondence has taken place respecting this noble tree, the Cedrus Deodara, but, so far, I do not find that much fresh light has been thrown on the subject. I fully concur with my old friend, Mr. Frost, in recommending the Deodar to be planted to a large extent, if only as a noble free-growing tree: and I have observed that it grows well on almost any kind of soil. It is one of the noblest and grandest trees we have for our landscapes, on account of its distinct colour and elegant growth, while it is invaluable for early game cover, for making quickly a shelter against winds and storms, or for planting in open cleared places in our woods and plantations, in ravines, and on the slopes of hills, either amongst other Conifers or along with deciduous trees. Thus freely introduced, how grand it would be in our landscapes, every day in the year, but more particularly in spring or autumn.

I have observed that the Deodar stands bravely against the sea breezes, and will grow well in the vicinity of the sea. For evidence that it will also grow freely on poor sandy and brashy soils we have only to look at its condition about Farnborough and Aldershot, the vicinity of the Haldon Hills, and in many other poor sandy hungry soils, where it may be seen in a flourishing state.

There is in this country—not only in Hants, Surrey, and Devon, but in other counties also—thousands and tens of thousands of acres of poor, hungry, sandy, brashy, gravelly, uncultivated soil, that has not yet been turned to any account, and which might be profitably planted with various Conifers, if trenched, subsoil-ploughed, or in some way loosened up by steam-ploughs or other means. Thus treated they would add to the beauty of our landscapes, would be of great importance in affording shelter to exposed tracts of country, and in time would also greatly add to our wealth, were the work to be methodically set about and carried out on a good principle. Besides, after thus yielding a crop of timber trees, this now poor useless soil, not yet brought into cultivation, would for a future generation have become fit to produce fine root crops, Italian Rye-grass, Clover, and other herbage for feeding, thus making meat and butter. The growing of corn crops would follow after; and at length the land would be available for forming into noble parks, pastures, and farms, for the maintenance of deer, sheep, and bullocks, if only it were judiciously cleared and trees enough were left to form a shelter to the surrounding country and adjacent crops. This would also be the means of enticing the clouds to such localities there to drop their moisture and fatness; and of breaking the brunt of the cold, searing, cutting wind. If a mixture of the beautiful Conifers introduced into the country during the last 50 years were judiciously planted, filling up with the older commoner kinds as sheltering nurses, to be methodically thinned in due season, one might soon observe what kinds would prove most suitable for the various soils, localities, and aspects. The new, good, and well-known valuable varieties could be first planted at from 50 to 100 feet apart, according to kind and circumstances; then filled up with others at half the distance, and finally closed up with the common fast-growers as nurses.

Reverting to the Deodar as a timber tree, I do not believe that at the present time there is any reliable information obtainable as to its value as grown in this country; nor has any tree, fully grown, been taken down and sawn up in the United Kingdom. Like all other Cedars and Coniferæ, it requires considerable age. In my opinion, nothing under a century can prove its value; and then, as with the Scotch Fir, Larch, and other Conifers, it must be grown on various soils, and in different situations and aspects, throughout the kingdom, before any fair estimate can be formed of its real value. I have not yet seen a tree above 50 years old, nor more than 80 feet high, though I have known it to produce cones for years; and have seen perfect seed produced from home-grown plants, as well as plants raised from the home-grown seed.

That the Deodar will strike freely from cuttings, and that the plants thus obtained will grow into as handsome trees as seedlings is well-known, so that any quantity of plants can now be produced. As to waiting till we know the value of Deodar timber of our own growth, that is nonsense; for the question is one, the satisfactory solving of which must be left to coming generations. I have, however, seen enough of this grand and noble tree in different places, and under various aspects, to justify me in saying, plant—yes, plant it extensively. Those of us who live will enjoy its beauty as a distinct and splendid landscape tree—while there is little doubt that future generations will both enjoy its beauty, and have the satisfaction of turning it to account as a useful timber tree. *James Barnes*, 1, *Rolle Street, Exmouth.*

ORCHID-EATING INSECTS.

Centrinus Epidendri.—Will you allow me to add a word to "I. O. W.'s" interesting chapter on the above subject at p. 1230 of the *Gardeners' Chronicle?* I think I am able to complete his tale by identifying the curculionideous larva, of which he found two specimens in the eaten Orchid leaves submitted to him. Some time after he received these (and while he was, I believe, abroad) I received two perfect curculionideous insects from the same houses whence he got the larvæ. They correspond in size to them, and are, I have little doubt, the perfect insect into which other larvæ, the same as his, but which had escaped notice, had turned after undergoing their metamorphoses.

The species belongs to the genus Centrinus, and in size and appearance comes close to the North American species, named by Say, Centrinus scutellum-album, but is quite distinct. There are also one or two Brazilian species which are very like it, both in size and sculpture, but neither does it correspond with any of them. I cannot find in the books any species described which agrees with it; nor is it represented in the British Museum. Considering how rich that museum is in Curculionidæ, I have therefore little hesitation in regarding it as new, and describing it as such.

I have made inquiry as to the source from which it has originally been imported, but find that this is not known, although it was thought that it might be South America, as its finders had received importations not long before from that continent. It was only discovered by its eating the leaves of the Orchids, and it does not particularly attack any kind or species, but all such as have soft hearts, as Dendrobiums and Epidendrums. It gets down into the heart of the shoots, and it is only when the leaves grow up that the damage it has done is perceived. As it attacks both Dendrobiums from India and Epidendrums from South America, its food gives us no clue to its native country; but as the genus Centrinus is exclusively American, and the present species is so nearly related to known American species, and the gentleman who found it had lately imported species from South America, there can be no doubt that it comes from the New World, and in all probability from South America. For the same reasons we may rest assured that its natural food is not Dendrobiums but Epidendrums, and I therefore think I am warranted in describing it under the name of Centrinus Epidendri.

CENTRINUS EPIDENDRI.

Affinis C. scutellum-album, totus niger thorace fortiter punctato-parum ante basin latiore. Elytris humeris prominentibus, cancellato-punctato-striatis, long. 1½ lin., lat. ⅝ lin. Habitat in America meridionali?

Of the same size and very similar to Centrinus scutellum-album, but wholly black, somewhat narrower, and with the rostrum stronger, the thorax more deeply punctate, more convex, and widest a little before the base instead of being widest at the base. The shoulders of the elytra are more prominent, the striæ are cancellate-punctate-striate and more distinctly defined. *A. M.*

CONTINUITY OF GROWTH.

I HAVE read all that has appeared on the subject of root *versus* top action with great interest. The arguments on both sides seem somewhat weakened in force, by ignoring the great fact that growth is continuous in both root and top. The rest of plants is not the torpor of death, but something more akin to the sleep of animals. Now, in sleep, no vital function is arrested. The repose of the body may check the energy of their working, but they work on nevertheless, and the circulation of fluids never stops from birth to death. In a lesser degree this is likewise probably true of plants. At no period of their existence is there a complete stoppage of fluids, unless indeed the life of both root and branch is arrested, and bound hard and fast in the iron fetters of frost. Therefore, instead of dwelling on the question when the sap begins to flow in either root or branch, it would be more pertinent to inquire when, if ever, it ceased flowing?

This question elicits another of great importance to this inquiry, and that is, whether there may not be a circulation of fluids, without any apparent extension of parts? We know that in the animal economy every vital function may be performed for years without any addition to the size and weight of the body. The new matter simply supplies the waste of the old, and the equilibrium between the two forces of waste and supply is maintained. Now, is it not possible that something like this may take place during the wintry sleep or rest of plants? The languid action of root and branch during the cold sunless season may simply supply the waste incident to the season, and in a normal state of the plant do but little more; in an abnormal condition the roots at least can do much more than sustain the *status quo*, they can repair accidents, and freely form themselves anew without the aid of leaves, as must be well known to every practical man. This of itself proves that there is no stagnation of fluids, and makes an irretrievable rent in the theory that spongioles cannot be formed without the ministry of the leaves, sending down new matter for that purpose. Why, every winter millions of such spongioles are emitted by thousands upon thousands of transplanted plants, in such profusion and with a power and a persistency that destroys the basis of any such absolute theory. But leaving this matter, and turning to the point that there may possibly be actual circulation and nutrition without the addition of new matter or any extension of parts at all, it is much more obvious that there may be extension of parts which we cannot see by a mere superficial examination with the naked eye. Growth is so slow in its advances, so hidden in its manifestations, that it never can be seen. We can only see that a root or a shoot has or has not made visible progress. We cannot even for certain say positively whether it is in a growing state. Hence the uncertainty and worthlessness of the phrases, roots had or had not begun to grow. The roots had never ceased growing, and at the very moment that they were pronounced torpid, they were doubtless feeding the plant with all necessary supplies. The very position of the roots, far down in the ground beyond the reach of ordinary frosts, preserves them from the full force of the cold. And thus, doubtless, in what is termed the dead season, they are more active than the top. But this expression, the dead season, applied to plants, is misleading. The truth is, it has nothing whatever to do with death; it is but another and a different phase of life.

Even the leaf falls, as Professor Owen has so beautifully told us, not because an old leaf dies, but because a new leaf is born; and this new leaf all the winter long is being prepared for coming out into the world of light and beauty next year. True, the baby leaf may be cradled in storm, swaddled round with glassy robes of shivering ice, and furnished with a swan's-down cloak of drifting snow, but all these but work together for its good, and help to send it forth at the best time, and in the most beautiful array. Amid all these apparent hardships, every gleam of sunlight, every passing zephyr nourishes the baby bud with warmth, and comforts it as with a mother's lullaby. The warmth of spring does not find the bud as the winds of autumn left it; slowly and surely it has been advancing, like the chrysalis unseen in its hiding-place; and when spring comes its mission is, not to arouse the dead, but to furnish a suitable air media for the manifestation of the living. Leaves leap forth from their scaly envelopes, and seeds from their tiny cells, less from an invitation from without, than by the irrepressible impulses of a struggling and advancing life within.

This theory of a continuity of circulation and nutrition, if accepted, will enable us at least to assess at their proper worth the terms—dormancy and growth. It may also help to explain most of the facts that have been adduced by your correspondents; for I believe that this continuous tendency to grow is not confined to any particular part of a plant. It is alike manifested by root and branch, leaf and bark. Hence when any of these parts are separated the one from the other, the detached portion makes a special effort to continue growth as before, and it is astonishing to observe for how long a time such efforts can be sustained. Trees that have been cut down and left lying on the ground have been noticed to live and form branches for one, two, or even three years, without a vestige of root. Roots, as already observed, are likewise frequently formed without the aid of leaves. More marvellous still, roots have the power, not only of living, but actually creating both stems and leaves for themselves, and thus forming every portion of a plant; while the universal practice of striking cuttings shows that stems have the power, not only of subsisting without roots, but likewise of creating them. Mr. Knight, of Floors, gives a case at p. 1183 of this growth of shoots without the formation of roots. Last winter, or rather this spring, I had more than a hundred illustrations of the formation of roots in abundance without the development of a single leaf. [This happens often when an Oleander leaf is struck as a cutting in water: we have seen such a leaf produce roots in abundance year after year for several years, but not a single bud. EDS.] On the 24th of December last year I cut half a house of Muscat Grapes, and stored them away on the French method. The last of these Grapes were used on the last day of April. As they were cut during the spring, I observed that most of the spurs of wood were forming roots, and as the water continued sweet, the shoots were left until September, when the fruit-room was cleared for summer fruit. At that time most of the bottles were half full of roots, though in no case had a single leaf been fully developed. The fruit room was cool and dark—hence I presume the energy or growing power of the spur went rootwards, instead of, as in Mr. Knight's case, leaf and shootwards, thus confirming Mr. G. Dawson's view, that the direction of growth is much dependent on atmospheric or other conditions. The fact of my Vine shoots forming roots so plentifully without leaves also knocks an unmendable hole in the theory so confidently advanced by Mr. M'Millan (p. 1161), that the roots have absolute and entire control over the entire tree, and that spongioles cannot be formed without the aid of leaves. In all these cases the shoots acted wholly without roots, and formed them in plenty, mostly thick spongioles too, without a leaf at all. However, as this gentleman proceeds to say that the leaf draws the sap to it in much the same way as a valve draws water in a pump, and as a pump valve does not draw water at all, the two theories may be dismissed together.

In the case cited by Mr. Gill at p. 1064, that has originated this discussion—the growth of the roots of one Vine ceasing when inarched upon another,—this case, if I understand it rightly, might be one of the mere substitution of force. I have read Mr. Gill's short note carefully, and it seems that the roots of both Vines were left in the ground, and that when the union of the Muscat was completed upon the Royal Vineyard, the roots of the Muscat Vine ceased to grow. If such is the true version of the case there is no mystery about it, and the present discussion has not touched the question involved in it. So far, that case is not a matter of top *versus* root, or of root *versus* top, but simply of one root *versus* another, and of the

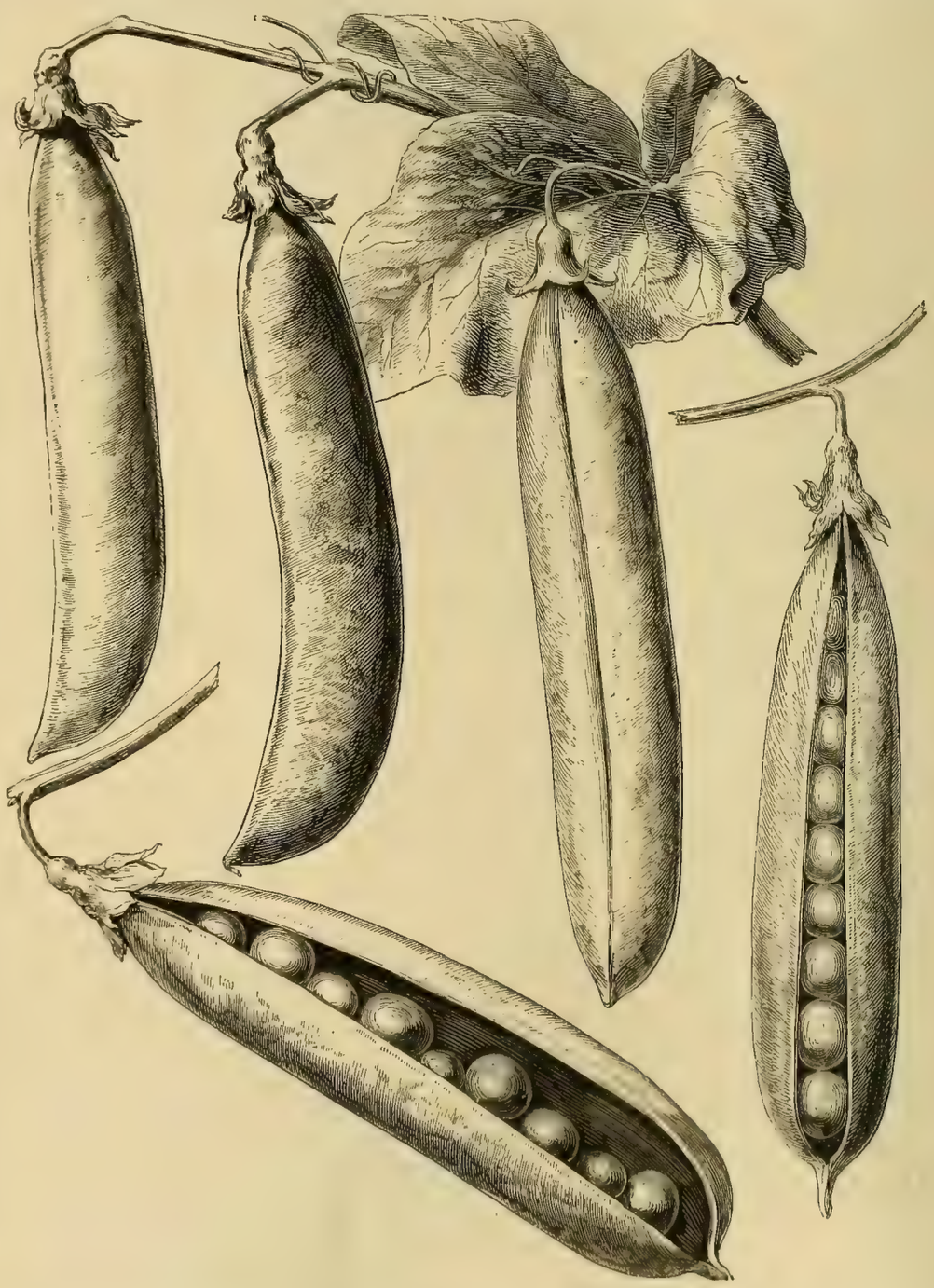
stronger superseding the weaker. The two sets of roots were more than were needed for the sustentation of one shoot, and the stock set aside the roots of the scion as soon as the union by approach was consummated. When two currents of unequal volume meet, the stronger will dam up the weaker, and that may possibly be all that happened here.

The other cases advanced seem to be sufficiently explained by the continuity of growth here contended for. In what direction that growth will be first manifested, will be to a large extent determined by external circumstances, and the internal wants of the plant. In cases of injury, especially underground, the growing powers will be first directed to their repair. This is abundantly proved by the extraordinary activity of roots injured by transplantation. There is not only an unusual effort made to restore the loss of absorbing power, but likewise to extend the roots, so as to hold the plant firmly in its place. Call it plant instinct, the faculty of self-preservation, or what you will, the fact remains indisputable, that there is an abnormal activity of root action in all transplanted plants immediately after their removal, compared with those that have not been disturbed. Mr. Anderson (p. 1064) cites a case to the contrary, but that case, as it stands, is not conclusive; we need other data to determine its value, chiefly the time of removal, and the bottom and top temperature afterwards. If the Vine tops were immediately placed in a higher temperature than the roots, or even if the temperatures were equal, and growth instantly excited in the top, the result would be as Mr. Anderson states. But had the roots been placed in a higher temperature than the stems, and especially had sufficient time been allowed the roots to repair the injury of removal, the order of growth would most probably have been reversed.

In a state of nature, I believe, root and top action proceed simultaneously. Under artificial or accidental circumstances either root or top growth may be made to precede the other at pleasure to a limited extent. But growth is ever continuous, and there is no such thing during the life of the plant as an entire stagnation of fluids, unless induced by frost or intense drought. While each plant is a whole, that whole is made up of an endless series of independent units, most or all of which have an individual power of growth in themselves, while contributing their quota to the growing force, strength, and beauty of the entire plant. Moreover, growth can be hindered or accelerated, but not entirely arrested, by art, without the destruction of the plant. As to the precedence of root or branch it is more safe and successful practice to stimulate the roots into vigour by the application of heat and moisture, before exciting the top, as without doubt the supplies sent forward by the roots are essential to the healthy development of leaf, flower, and branch, and to the maturation of the fruit. Continuous root action is needed to supply the wants and stimulate the vigour of the whole plant; and notwithstanding what may be said to the contrary, most practical men will agree with me that it is quite possible to excite root action, and cause it far to outrun that of the top. Bulbs may be held to be exceptional cases, possessing in themselves sufficient stores of organisable matter to develop either root or stem without external aid. But ripened buds are endowed with somewhat similar powers, and by keeping the crowns of bulbs and of buds alike cool and dry, while the roots of both are warm, root growth can be made without arousing the top into activity. Our mode of treating bulbs after potting is a daily illustration of this, and I have seen Rose pots, destined for early blooming, crammed full of spongioles before a single bud had burst into leaflet, by simply plunging the pots in bottom-heat out-of-doors in November. *D. T. Fish.*

NEW PEAS.

WE are indebted to Messrs. Carter & Co. for the use of the block representing one of their newly-raised Peas—the Cook's Favourite—concerning which we reported as follows in August last:—"The most promising variety in this lot appeared to be one called Hundredfold or the Cook's Favourite, which was obtained from Laxton's Prolific and Ne Plus Ultra, height 4 feet, a late prolific variety (about fourteen days later than Supreme), with remarkably fine pods, which are slightly curved, and of the fine deep colour of Ne Plus Ultra, with a very fine bloom. The Peas



when boiled are said to be of a fine dark green colour. The seed is of a distinct pale olive-green. This is a sort that is likely to become popular both for marketing and garden use." The woodcut has been taken from a photograph, which we have had the opportunity of inspecting. Next season we may have the chance of ascertaining whether the promise of the present be fulfilled in the future.

Home Correspondence.

The Lime as a Town Tree.—It will be remembered that I was pretty severely handled for recommending the Lime for this purpose in your pages. It therefore affords me considerable satisfaction to find my favourable impression of the Lime confirmed by the able critique of Mr. Robinson's work on "The Parks, Promenades, and Gardens of Paris," in the last number of the "Edinburgh Review." The reviewer states at p. 467 that "If a formidable minority will dissent from Mr. Robinson's exaltation of the Plane into the first rank (as a town tree), we are sure an overwhelming majority will protest against his out-and-out condemnation of the Lime. Here, too, however, it is matter of taste; and although it would be easy to show that the instances he gives of failure or misuse are exceptional, and do not apply to the normal or proper application of the tree, we prefer to ask those who feel shaken by Mr. Robinson's pleading, to examine the young Limes growing in our parks, and to remember the beauty and fragrance, which, when in flower, they diffuse all around them." *D. T. Fish, F.R.H.S.*

Tricks of the Trade.—As this is the season when nurserymen's catalogues abound, and many, like myself, are either adding to or improving their collections, will you let me tell you what has happened to myself? Among the plants I cultivate are those magnificent Firs which, if ever they attain the dimensions of those in their native forests, will give to our parks a grandeur they have not as yet reached. I have planted a Pine grove, not dotting the trees about singly, but grouping the several kinds together, so that the brightness of one sort may relieve the dull green of another, and harmony reign over the whole. Most of the kinds I have, but one, perhaps the handsomest of all, I was without, the Picea amabilis. Early in the autumn I ordered one from some nurserymen, who were not too far off; I received a good plant, but grafted. As I naturally should have preferred a seedling, even if smaller, I wrote to say so; and was in return assured that no such thing existed in the trade. Surprised at this, I inquired of two friends, who do a large business, if they could supply me. I was at once informed that each of them had plenty of seedling plants, which were at my command. These communications I at once enclosed to the nurserymen who had sent me the grafted plant, in order that I might convince them of their error. For some days I did not get any answer; and, when I did, instead of the expression of regret I expected, I received a correspondence addressed to my nurserymen from the same firms to whom I had written, and in which they were told that they could not be supplied with plants certainly true to name; that the so-called amabilis were probably magnifica or robusta, and could not therefore be warranted. I hope this is not the usual practice of the trade, for though it may sell a plant and promote business, it is certainly not honest. Again, I wanted some Roses, so after much consideration and pondering over the opinions of the eminent rosarians who contribute to your pages, I selected some, untainted, as I thought, with the slightest reproach, whose character could sustain the closest scrutiny. I order them from what I understand to be a sure quarter; and in due time arrive Roses, of which only half are my own choosing, while the remainder were substituted for the absent. Of course I am told they happened to be out of the kinds I wanted, that those which I have received are equal on the average to those which did not come, and I am requested to pay for Roses I don't want. It seems to me very like a tailor sending a green coat when you ordered a blue, and expressing his opinion it was quite as good, and suited to your complexion. If a tradesman is able to send you a better kind than one you may have in ignorance ordered, so much the better, but the superiority must be clear, and the object not merely to fill up an order. I recollect at an agricultural dinner in Ireland a waiter being asked by a gentleman to inform a friend at some distance that he would be happy to take wine with him. The waiter conveyed the information to some one else, and

explained that the one "gentleman being in action," he thought the other, who had finished his dinner, would do just as well. I dare say many have met with the same experience as I have. It is time that nurserymen should become accurate in naming, not give qualities to plants they hardly possess, or try to take in the unwary by extravagant descriptions. *B. M.*

Salisburia adiantifolia.—It may interest some of your readers to know that one of the best specimens of this tree is to be seen at the Highgate Nurseries of Messrs. Cutbush & Son. This plant is about 50 feet in height, beautifully symmetrical, strong, healthy, and vigorous. Another older tree, but perhaps not in such good condition, may be seen at Caen Wood, Highgate, the seat of the Earl of Mansfield. *J. P., Highgate.*——In the garden at Hessop Hall, Bakewell, Derbyshire, there probably is to be seen about as fine a plant of this tree as can be found in this country. I saw it there a few years ago, and was told that only one larger than it existed in England. The specimen certainly was a splendid one. *Mor.* [Can any correspondent favour us with fuller particulars of this specimen? EDS.]——I believe that the oldest and highest known Maiden-hair tree in England is to be found in the grounds of Lord Ravensworth, Walham Green, Fulham, Middlesex. A letter just received from Mr. Wood, his lordship's gardener, gives the height of the Maiden-hair at Purser's Cross, Walham Green, as 70 feet, that is 17 feet higher than the Panshanger tree; and according to historical accounts, Lord Ravensworth's tree was planted in the year 1767, which is nine years before the date of planting the Rev. Mr. Clive's tree (see p. 1158). The oldest in England of the following trees are said to be found in the parish of Fulham (an account of height, age, and by whom planted, will be given in another paper, if you think proper):—Quercus Suber (Cork tree), Pomegranate, Cercis Siliquastrum, &c. *D. Cunningham.* [We shall gladly receive this information. EDS.]

Potato Grafting.—More than 18 years ago, when residing in the neighbourhood of Dumfries, I read an account of a Scotch minister having successfully grafted Potatos, and I tried the experiment. The minister tied on his graft. My plan was to cut a goose quill square, and use it like a cheese-taster, going down over the eye of a Potato, and then with a turn extracting the eye; next to take another Potato, the one desired to be the improver, and do the same with it, inserting that eye in the hole. This was done with another eye, in case the first failed, and then the remaining eyes were cut away, so that if the grafted Potato grew, it must be from the inserted eyes. At my first attempt I grew a set of Potatos which received the award of merit at the Dumfries Horticultural Society's show, if I remember right, in September, 1859. I explained to Messrs. Downie, Laird & Laing's agent the process. He asked me why I had tried the Regent—what was the matter with that? I answered, because it was a good medium. "Now is my Potato better than a Regent?" He said, "It is." "That, then," I said, "is praise enough." My cross was a Flour-ball on a Prince Regent. I gave away the whole stock, and do not know what the ultimate result was. By using a coarse graft you breed back, and the produce becomes coarser than the original. *Archibald Grant.*——When doctors and editors differ, who shall decide? On the vexed question now at issue respecting Potato grafting, the opinions of editors certainly differ, for while the editors of this Paper evidently lean to the method of grafting as practised by Mr. Fenn to obtain hybrids, the editor of the "Magazine" does not believe in any such thing. I am quite of opinion that Potato grafting as practised by your correspondent is a mere delusion; the experiments at Stoke Newington and other places are ample to prove the fact. I am quite prepared to admit the perfect adhesion of scion and stock, and that it will grow; and this is all I am prepared to admit. To raise true hybrids by this method I believe to be impossible, much more to change the colour of the tuber. A graft, or a sprout, taken from a Potato, is self-supporting at such a very early period, as shown by me in an article on the American Rose Potato in the "Florist," that it scarcely requires to draw any nourishment from the stock to aid it in growth. A sprout, ⅛th of inch long, is self-supporting, and a scion would grow equally well if placed in a piece of Turnip, Carrot, or Artichoke, as if inserted into a Potato. It is stated at p. 1253, that "the scion has to draw upon the set for its nourishment; and that it does so when union has been perfect is shown, we think, by the fact that in such cases the set is so exhausted that nothing remains of it but an emptied bag of skin. Whereas, on the other hand, when no union has taken place, the set remains plump." This is a fallacy: for the very opposite often occurs. Again, it is said that "one excellent variety is positively stated to have thus originated, and, if one, why not more?" It never has been shown satisfactorily to my mind that any one variety ever was raised by the process of grafting. I believe the variety in question was obtained by a sport. I am "not steeled against conviction," but I must see, and feel, before I can be convinced. What about the experiments with the two Beets (see *Gardeners' Chronicle*, 1855, p. 20)? I shall return again to this subject after it has been well ventilated. *Edward Bennett, Osberton, Worksop.* [We do not overlook the case of the Beet. We take it as a fact, and trust we shall get more of the same kind—not mere assertions. EDS.]

Scotch Fir Timber.—Your correspondent, at p. 1257, asks at what age Scotch Fir timber may be used, and also the season of the year for cutting it down. No Scotch Fir should be cut down until 80 years of age, while 100, and, in some cases 120 years, may be allowed before it is cleared off as a matured crop. The age at which Scotch Fir timber ought to be cut will in all cases be regulated by the soil, subsoil, climate, and altitude. On bare rocky soil, on gravel, or even deep sand, it will be found to succeed the best and live the longest. It is sometimes found good on poor clay, but certainly the most durable Scotch Fir timber is found on boulder gravel at from 600 to 1200 feet and upwards above the sea level. For roofing and building purposes, if manufactured, prepared and seasoned the same as Baltic timber, it is, if of age, and off the soils, &c., I have named, much superior, yea very much superior to quantities of Norway small logs imported into this country, and sold as Baltic timber at the present day. Many proprietors who have the machinery for cutting up old timber on their estates, sell good Scotch Fir at a nominal price per foot, and buy, at three times its price, foreign timber which is no better in quality, and often not so good. Where the soil is of a good deep loam, and rich vegetable soil, Scotch Fir, being pushed beyond its natural growth, never lives so long, and does not commence to form heart-wood, but frequently bursts out, forming ulcerated places on the surface of the bole, at ages varying from 40 to 50 or 60 years. This frequently occurs in hollow places in the natural forests in the North of Scotland. The time I would prefer to have it felled would be from October 1 to March 1. I know Scotch Fir, felled in June and July, soon turns blue under the bark, and, under these conditions, seems to me to decay more rapidly than when cut at any other time. I have myself seen four-barred fencing cut and sawn out of the natural forest in the North, the posts, no doubt, taken from the root ends of trees, which, at 25 years old, seemed to me quite good. No greater mistakes are made than in the purchasing of wood, and it frequently happens that both buyer and seller are totally ignorant of what they deal in. What in regard to Oak and to Ash, could be said of the soil, which has everything to do with its durability and elasticity—but not more so than in the case of the Scotch Fir? For my own part, I would have a good hard-grown Scotch Fir in preference to Larch in a fast-grown unhearted state. With regard to tanking Scotch Fir so much used by railways, I could go into the natural forest and pick out Scotch Fir trees that would sink in water to the bottom. No Oak could last longer. In such cases it would be an utter absurdity to attempt to force out the natural sap, as the sap in such trees is a solid mass of resin; and were the timber to undergo any chemical process known at the present day, it would not compare in point of durability to the same timber in its natural state. With regard to Scotch Fir gate-posts, if you procure root-cuts of old hard-grown trees, they will last much longer than Oak grown in light, thin, and gravelly soils. *W. G., York.*

Vanda cœrulea.—I observed some time ago, in the *Gardeners' Chronicle*, a notice of a fine specimen of Vanda cœrulea, flowered by Mr. Thomson, gardener to the Duke of Buccleuch. I am tempted to tell you that we flowered here this season a plant of this beautiful Orchid, which produced five fine spikes of flowers. The three lower spikes had 20 and 21 flowers respectively, and the two upper 17 and 15, making 93 blooms. Since 1853 we have flowered this plant every year, and we have had spikes with more flowers than this season. It came to us from Calcutta in a box with other Orchids. We have observed that every year the flowers last a shorter time. In 1853 it bloomed in October, and in January the flowers were still fresh enough to remain in the drawing-room. This year the flowers remained fresh for about six weeks. *J. M. D., Dale Park, Arundel.*

Garden Ivies.—At p. 1259 you give a brief abstract of a paper on garden Ivies, submitted by Mr. S. Hibberd to the Linnæan Society, and of which I have also seen the full report. Mr. Hibberd does me the honour of adopting, though without acknowledgment, my interpretation of the genus Hedera, and the species composing it, as published in my "Revision of Hederaceæ," pp. 29-36, illustrated with woodcuts and plates. He tells us that, during the last 15 years, he has assiduously collected and studied the species and varieties (so-called), representing the three well-known types, viz., H. Helix, L., H. canariensis, Willd., and H. colchica, C. Koch. Now, I don't think that, until I, by excluding 85 species, reduced the genus Hedera to intelligible limits, representing nothing more nor less than what are termed Ivies by gardeners, any approach was made towards disentangling any specific types from several hundred kinds known to exist, either wild or cultivated. That these three types are well-known, as Mr. Hibberd asserts, may be doubted, though I have tried hard, both by description, woodcuts, and plates, to make them so. I could find no specific character in the form of leaf, and had to rely in H. colchica upon the scaly covering of the calyx and pedicel, in H. Helix and H. canariensis upon the nature of the stellate hairs covering the same organs, these hairs having from 6—8 rays in H. Helix, and from 13—15 in H. canariensis, besides being smaller in the latter, and the species itself having a distinct geographical range. I have no fear that any transitions between the scaly and the stellate-haired Ivies will be discovered, but it is quite within the range of possibility that some may turn up which may obliterate altogether the characters relied upon for distinguishing H. Helix from H. canariensis. A careful study of our garden Ivies might thus prove of direct scientific value, and I was in hopes that Mr. Hibberd's paper would have been the result of such a study. But I cannot help thinking that he has been ill-advised to submit his researches in their present raw state to the consideration of the Linnæan Society. He is altogether wrong, as every botanist will tell him, to change well established specific names—absolutely inassailable as far as their right of priority is concerned,—because they do not harmonise with the system of nomenclature set up for his varieties. Who would dream of following him in rejecting the name of colchica for that of coriacea (all Ivy leaves being coriaceous), and that of canariensis for the (relative) name of grandifolia? Nor do I think that the author has any very clear notions of the object and character of classification. He puts the varieties of the different species in four divisions. This of course would be a convenience to any one searching them out by diagnoses arranged under these headings. But unfortunately, the different divisions break down, so that some varieties, as he tells us, may be classed under several of them. The scandent Ivies may become fruiting and arborescent if you wait long enough, and the arborescent have an inclination to become scandent if opportunity presents itself (proximity of an old wall, rich soil, &c.) This should have taught Mr. Hibberd that his classification is absolutely useless, and that he ought to try to find in another direction more reliable characters for his purpose. At all events that is the lesson it would convey to botanists. To lead in any question it is necessary to make oneself acquainted with all that has been written thereon, and then endeavour by additional study to advance it. I do not think that Mr. Hibberd has done this. There are many observations about the varieties of Ivies of which he does not seem to have taken cognisance, and hence his paper is not up to the mark. He is perfectly mistaken, for instance, in considering the Irish Ivy of gardens as a variety of Hedera canariensis; it remains yet to be shown that it is aught else but a variety of H. Helix. He has evidently confounded it with the sharp-leaved Irish Ivy (Seem. Rev. Hed. tab. 3), which is a form of H. canariensis. It is, therefore, most reprehensible to change the name of H. canariensis for H. grandifolia, when this large-leaved, quickly growing form of H. Helix has nothing whatever to do with H. canariensis true. Again, about H. Helix poetica. Is not this the H. poetarum (H. chrysocarpa, Walsh, in Hort. Soc. Trans. 1826) which has yellow fruit, and is the classical Ivy or Kissos, the plant of which Pliny speaks as Ederæ genus chrysocarpon? And why is it placed amongst Mr. Hibberd's scandent, non-fruiting division? What strikes one as singular is that some varieties, of which (if I understand Mr. Hibberd aright) the flowers have never been seen, are classed under H. Helix and H. canariensis respectively. Now, as the flowers are absolutely necessary to distinguish the species, how does Mr. Hibberd manage to classify his varieties under these two species? If the characters I have relied upon for distinguishing the three species hold good, the most simple way of classifying their varieties would be to divide them in the first instance into black-fruited, yellow-fruited, and white-fruited kinds, and then again into subdivisions, characterised by the form and nature of their leaves and general habit. I have never yet been able to find out, and perhaps some of your correspondents may be able to answer the question, whether Ivies with white blotched leaves have white fruit, and those with yellow blotched leaves yellow fruit. If so, it would materially simplify the classification. Biologically, too, some of the varieties may be distinguished, some being liable to be killed by a temperature which others will stand without any ill effects; and again, while the tints of the leaves of some are not affected by temperature, others undergo a perceptible change as soon as the thermometer sinks below a certain degree. All this and a great deal more will have to be fairly met before we are in a position to deal definitively with the classification and nature of our garden Ivies. Mr. Hibberd, I trust, will not be discouraged by this and kindred criticisms from pursuing the subject, but rather regard it as a spur to a further series of observations, which may help to set a question at rest in which scientific botany and horticulture are alike interested. *Berthold Seemann.*

Vine Soils.—Your correspondent, Mr. Cramb, has undoubtedly attributed the failure of which he complained in his Vines, to the wrong cause, when he attributes it to the presence of lime in his soil. I may be in error in attributing my success in a great measure to an addition of that element to that naturally existing in the soils of this neighbourhood. My vinery is placed on the bare oolitic rock from which the thinner surface stone had been raised for building. I need hardly observe that carbonate of lime is a prominent feature in that rock. Over that bare foundation was laid a foot of broken stone of the same character. On that was laid 2 feet deep of our ordinary soil, mixed with half-inch bones and rough scrapings from our limestone roads. This bed of earth is under the glass roof, and I see no way of escape for the roots from it. The Vines were planted in this nine years ago, and my visitors have been, during this season, so much struck with the size and deep green colour of the leaves, and the abundance of fine fruit, that your readers may, at least, remain satisfied that the presence of lime in the soil for their Vines is harmless. *Charles Lawrence, Cirencester.*

Vine Budding and Grafting.—That "there is really nothing new under the sun," as "B." says at p. 1257, is undoubtedly true, and this remark applies to the mode of Vine budding recently practised at Trentham, for that Mr. Stevens is unfortunately not the inventor of the process will appear on reference to p. 1137, where we have information of its being practised many years before the introduction of the Madresfield Court Muscat Grape. As Mr. Bain (p. 1137) very justly remarks, "there are many excellent practical gardeners throughout the country who never pen their experience," and for my part, I agree with "B." in thinking that this a great loss to those who wish to learn, for it would be especially advantageous to have the opinions of really practical men on the controverted subjects brought before the public—much more so than is the gratuitous criticism of those who do give their experience. I, like every other gardener who is desirous of gaining knowledge, should be only too glad to be informed of a better mode of grafting than that described by me at p. 1209, and to be initiated into the mysteries not only of budding, but of grafting the Grape Vine, in reference to which "B." says I have much to learn. Writers who would do a service to the public should be less

profuse with their irony, and more generous in imparting their practical experience. If "B." can explain any method by which the budding or grafting of the Vine may be made more certain, and more prompt as regards the production of ripe Grapes, than that I have advanced, I shall be glad to hear it. *John Reid, Haigh Hall Garden, Dec.* 6.——At the tail-end of a paragraph in the *Gardeners' Chronicle*, at p. 1258, I observe "a little crook-backed gentleman." My reply to him is that the budding of the Vine being slow in action, and to some extent uncertain, "practical men" find grafting so very superior in a general way that they adopt the most useful methods of it in their practice, leaving the less important, such as budding, in abeyance, so that it may be cried up at the nick of time to keep the craft awake. *J. R.*

Bottom Heat for Vines.—We have not yet been furnished by any of your numerous correspondents with any real proofs of the relative merits or demerits of the two systems of culture. Therefore I should like to see it put to some practical test, everything connected with the Vines, except the bottom-heat, being made as much alike as possible. We shall start a vinery in the second week of December, and in this house I intend subjecting six pot Vines to the test, and trust it may induce others interested in the subject to try a similar experiment; by so doing we may arrive at some practical conclusion. The Vines I shall try are in 10-inch pots, struck from eyes last spring, and have, as nearly as possible, the same length and strength of canes. They are—two Black Hamburghs, two Frankenthals, and two Royal Muscadines. One of each will be plunged in the border outside, covered with dry litter, will be brought in through the front wall, and tied to the wires. The other three will be placed inside, close to the front wall, the canes will be placed alongside of the others, and both will in every respect receive the same treatment, except that the roots in the latter case will be kept in the same temperature as the tops. With your permission I will report the result when the Grapes are cut. *J. McIntoe, The Palace Gardens, Bishopsthorpe, York.* [Pray do. EDS.]

Root Action.—An interesting controversy is being carried on in your columns as to whether spongiole or young rootlet formation is the cause or the consequence of leaf and branch manufacture. In the island of Madeira, I managed for some years a model farm, which received a subsidy from the Portuguese Government. Owing to my success in showing how the vineyards could be restored by the use of sulphur, and by a return to a proper system of cultivation, and also to the introduction of many new and useful plants, such as the Holcus saccharatus, the use of this plant, and of many other novelties, was insisted upon in letters to the papers, and in a book written in Portuguese describing my experiments. The seed of the Holcus was sown at different times of the year, with varying results. The most usual course, however, was to sow about February. In about eight or 10 days the young grasses grew up, some in their permanent location, and some in pots to be distributed amongst those who liked to try a few plants on their own lands, especially amongst my own tenants. Taking these young plants at about a month old, you saw nothing but a little grass plant with two leaves, and five or six thread-like roots. They were planted at a distance of about 18 inches, and carefully and anxiously watched from, say, March to May. The progress was most disappointing to the eye, and distracting to the enthusiastic *impresario*, who was terribly quizzed by the neighbours. May was fairly commenced, and still they showed no sign, beyond putting out two or three narrow stunted leaves. The tenants came in and asked sarcastically if that was the new Sugar-cane that was so loudly praised? In desperation, I pulled up one of the plants, and if Linnæus really fell down and worshipped a splendid specimen of Furze, he would certainly have done so on witnessing the hidden forces of Nature exemplified in the roots of the Holcus. There was a solid stump or neck of the plant surrounded by masses of spongioles which must have weighed some pounds—transparent, juicy rootlets, bursting with sap, and only waiting the stimulus of a slightly hotter sun to force the leafy portion into growth. The weather became hotter, and in three weeks the plant, from a little tender grass about 9 inches high, became a robust cane 6 feet high, with, in most cases, four or five other canes which had tillered from the roots. In three weeks more they had ripened their seed, and were cut down. The rootlets were then examined, and found wiry and act throughout the winter, instead of going entirely to rest when the leaves have fallen, as some of your correspondents seem to think. I also believe that Vines will make fresh roots without any perceptible action taking place in the branches, also that they will make leaves and branches without fresh roots. In proof thereof, I would cite the following experiments. In February I took four Vines grown in pots, and having disentangled the roots, I placed them on four large pieces of turf, covering over with soil; they were placed in a pit, where they had a steady bottom-heat of 60°, while the minimum temperature of the atmosphere averaged 50°. Two of the canes were kept inside the pit, whilst the other two were taken out into the open air. For convenience I will style the former A. and the latter B. When the buds of A. showed signs of bursting, we found many fresh roots. On B. the young roots were scarcely so far advanced but quite as numerous. Later, when the shoots on A. were 2 or 3 inches in length, the rootlets were from ½ an inch to 2 inches. Whilst B. showed no perceptible increase in the size of the buds, the young roots were much increased in size and number, many of them being over ½ an inch in length, and by the time the buds had burst the most forward were 1½ inch in length. Simultaneously with this experiment I introduced a Vine rod into a plant stove, the minimum temperature of which was 60°; the roots were entirely outside. When the shoots were from 6 to 8 inches in length, the leaves flagged much in sunshine. I carefully lifted them, but failed to find a single fresh root; in fact, the smaller roots had rotted off. The Vines had been planted three years before, under circumstances over which I had no control; and the soil being a perfect morass, it was no wonder that all the smaller roots were gone. Whence, then, came the supply of food that enabled this Vine to grow from 6 to 8 inches? It must have been the sap stored up previously to the decay of the roots. It at least goes far to prove that Vines will make leaves and branches without the aid of fresh rootlets, and also without the corresponding root or branch action, provided circumstances favour the production of either. In the case of an early vinery planted in a raised bed inside the house (without bottom-heat), the Vines being old and showing want of vigour, I determined to add 2 feet of fresh soil to the border, by removing the front wall of the bed. On this being done I found many healthy spongioles, and upon disentangling the roots and removing 2 or 3 inches of the old soil, I found them still more numerous; as nearly as I could calculate, I should say one-third of them were in healthy action, whilst the remainder were seemingly inert. Now the leaves had been off those Vines two months, yet here we have a considerable porportion of the spongioles in good health, and doubtless in action; and this I believe goes on to a much greater extent than is generally supposed. May not the number of active spongioles be proportioned to the diminished wants of the plant until such time as it is again excited into action? I could cite other instances wherein fruit trees, bushes, &c., have made fresh roots in midwinter without any corresponding top action. *J. B.*

Judging Melons.—I have always been opposed to the practice of cutting every Melon exhibited for competition at horticultural shows, although when acting as a judge of such productions I have usually been compelled to do so, by the rules of the society, or in compliance with the wishes of its officers, who are generally under the impression that exhibitors would not feel satisfied unless this was done. Nevertheless, I quite agree with your correspondent, Mr. Sheppard (p. 1232), in thinking that in a majority of instances a sufficiently correct estimation of the quality of a fruit can be arrived at without actually eating a portion of it. Or why should flavour be the only quality taken into consideration in estimating the merits of a Melon, and ignoring all other qualities—such as weight, size, form, colour, &c.? I am quite aware that I may be told that Melons are grown to be eaten, and that "the proof of the pudding is the eating of it, &c." This, of course, is true enough, but there may be more than one opinion respecting a pudding even after it has been subjected to this ordeal. And Pine-apples are also grown to be eaten, but judges are neither expected nor allowed to cut them in their endeavours to decide upon their merits. It is a common saying, and it is also quite a true one, "that there is no accounting for taste," and the taste exercised by the palate is as capricious and diversified as any other. Delicate Spanish girls will slice and eat a raw Onion with as much relish as an English beauty would a ripe Peach or an Apricot; and while Mrs. A. drinks her tea nearly as sweet as sugar will make it, Mrs. B., on the other hand, abominates the minutest introduction of either cream or sugar into her beverage. And it is even possible that your correspondent, "A Canny Scot" (see p. 1232), would mightily enjoy his toddy of a degree of alcoholic potency which might compel the learned Editors of the *Gardeners' Chronicle* to make wry faces. I have also heard of sundry means being used to give the desired flavour to partially ripened fruit, which has little to do with good cultivation, and has not, I believe, been recommended by any horticultural writer, such as that referred to in the admission of the winner of a 1st prize, who confessed that at the suggestion of his "ingenious moiety" his prize fruit passed the night previous to the exhibition enveloped in moist flannel in a slow oven. But be this as it may, there is no doubting the fact that many Melons find a place upon the exhibition table which are the produce of plants which have paid the debt of Nature long before the ripening process had even commenced in the fruit. In conclusion, I think that the system recently inaugurated at Edinburgh was a step in the right direction, which, I hope, will be generally followed; and that the knife will only be appealed to as a *dernier resort* when all other means of arriving at a satisfactory decision have failed. *P. Grieve, Culford.*——At the first exhibition held at the Crystal Palace I exhibited three Melons—one for the heaviest, which obtained the 1st prize; one for the best scarlet-fleshed, to which the 1st prize was awarded; one for the green-fleshed (the Green Gage), which received the 2d prize. None of the Melons were cut. The judgment went by sight and smell. I was very much disappointed at not getting the 1st prize for the Green Gage, as I knew what it could do, it having taken several 1st prizes before. And Mr. Thomson, now of Dalkeith, once being a judge at the Royal Botanic Gardens exhibition, where it got the 1st prize, said to me, "Mr. Monro, that Melon will beat the world;" so, as I had a fine fruit at the Crystal Palace, I felt disappointed that it only got the 2d prize, but all the other exhibitors of Melons were very much annoyed, and said, "That it was not fair, as the fruit had not been cut, and they would see the judges about it," which they did. I said "I was very glad, and if my Green Gage did not get the 1st prize I would eat it." The result was the judges came, cut all the fruit except the heaviest, and they took the 2d prize card off my Green Gage, and put the 1st prize upon it, leaving the others as they were. I don't believe any person can judge a Melon without he tastes it; as for whiskey, &c., that is all nonsense, the taste of a bad Melon will soon put the taste of a good one out of the mouth—the same with a good one. A person that cannot judge a Melon without whiskey or brandy has no business to be a judge. *John Monro, Potter's Bar, N.*—— Some few years since I offered a few remarks on Melon judging in these columns, a portion of which I again quote, thinking it may be of some service in settling the vexed question now at issue in your paper. No class of fruit, perhaps, is more difficult to judge than Melons, and I have no hesitation in stating that Melon showing is on this account rendered a mere lottery. It is, indeed, hardly possible to select the best Melon shown from among perhaps the hundred which are staged sometimes at our great London exhibitions. It is true that the judges are at liberty to cut and taste them; some, however, are passed over in consequence of their uninviting appearance, others are overlooked because the name they bear is known not to represent a first-class variety; and a third group, no doubt, are disregarded for other reasons. But, even admitting that they have all been tasted as well as cut, what with some being inferior, some good, and some middling in flavour, the mouth gets sadly out of order before arriving at the hundredth or last specimen. Melon judging, as I have stated, therefore becomes quite a lottery. I do not say, however, that this is always the case, for there is no rule without an exception. Some prizes must be awarded, and although there are many losers, still there must be some winners. Having been at various exhibitions myself, I can faithfully assert that Melons which have been awarded prizes by one set of judges would not have got any award at all from others. So much for taste, and as every man's taste is not alike, how is it possible to believe that the best Melons always obtain the proper prizes? I do not for a moment insinuate unfairness, quite the contrary; it is merely a matter of taste. What we want is some standard to guide us; to judge by taste alone is not sufficient, for I have seen Melons awarded 1st prizes at our great exhibitions so ludicrously small that I should have been ashamed to have sent them to my employer's table. I am of opinion that moderate size and weight, thin skin, thick melting flesh, and handsome appearance should have the preference over small size. In one respect Melons are like Potatos, some varieties are good in certain places and under some particular course of culture, while the same kinds in other places are poor and insipid. Some nine years since we put up a new Melon-house at Osberton which answers admirably, the crops in it being very abundant. In this house I have tried a great many varieties of Melons now in cultivation, and from experience I have come to the conclusion I have just stated, viz., that the same variety, under different conditions, varies very much in flavour. In modern books I find Melon lists so overburdened with names that in the case of beginners it would be a difficult thing to make a selection of any one particular variety: how different is this from years gone by, when the Beechwood and Cantaloupe were the two principal favourites. But time changes all things, and why should not the judging of Melons on the old principle of tasting only, change? *Edward Bennett, Osberton.*—— "Dear *Chrony*,—Could you not settle these quarreling gardeners by asking the tasting ones if they pree the Melons before sending to their employer's table? If so, do they use a cheese-piercer, and plug up again? If so, I hope they don't chew tobacco. Or how do the purveyors for the dessert of the Belgravians and other West-enders do when in Covent Garden? They don't pree. Do apply your screw at once, and end them. *D.*" [*Chrony* owns to a weakness for tasting good Melons! EDS.]

Potting Lilies.—I can fully endorse all your correspondent "M.'s" remarks (see p. 1232) when advising November potting. My advice is to pot them as early as you can in November, or should the stems die down sooner, repot at once. I have always found the roots at work even after the stems have died down for some time. I firmly believe that Lilium auratum is always growing, as I have just turned mine out and repotted, and found some splendid roots in a fine growing state; these I disturbed as little as possible, only reducing a little of the old soil and shifting into a size or two larger, according to the strength of the bulbs. After all potting is completed I place them in a cool pit, excluding frost, and then cover them well over with cocoa fibre, withholding water until they have started say 3 inches in length, and then gradually inure them to the light and air of the greenhouse. The soil I use is good turfy peat, with a little loam and plenty of silver sand, all chopped up roughly with a spade, and well incorporated together. *G. Willers, Cambridge,*. ——In answer to your correspondent "M.," p. 1232, with reference to the time I pot my Lilies, I have no doubt he will be surprised to hear that the plant referred to in p. 1061 was potted on February 1, but I do not mean to say that February is the best month to pot all Lilies. I consider that any one in possession of a fair collection of bulbs, and the convenience to grow them, can have a succession of bloom from the month of May up to the month of October. Consequently the potting must be done at intervals, according to the time the plants are required to bloom. I prefer commencing in the month of August, with the smaller bulbs of the auratum varieties, leaving the

large bulbs for late flowering. If plants be brought into flower in the month of May or June, it naturally follows they will be ready for potting before those that flower in September. Then why should we wait till November, or pot those in November which ought to be deferred till January? My experience teaches me that it can be done with advantage from the month of August to the month of February. I differ from "M.," p. 1064, where he says, keep them dry through the winter; in my opinion they should never be allowed to get dry. Again, he says, take away all the small bulbs, and "to shift the larger ones without disturbing them is still better." I ask, can this be done without disturbing the large bulbs, and what is the advantage of so doing? I consider that, if large specimens are aimed at, we must have them entire, as we get much better-furnished plants than by taking the small bulbs away. In p. 1138 we are told that the stem is kept alive sometimes by roots emitted from itself. Independently of the bulb, these roots sustain it after the bulb has stopped its supply. But, in the absence of these roots, I ask what sustains the stem but the scaly bulbs below, which we are told are gone to rest previously? In p. 1232 we find "M." has changed his mind. He there says, "for the bulbs of these plants never rest." I quite agree with him on that point. *J. Smith, Gr. to James Bland, Esq., Quarry Bank, Allerton, near Liverpool.* ["M.'s" reply to this note is subjoined. EDS.]——My object at first in writing about these bulbs, was to break through the practice—the old practice—of storing away the bulbs in winter, to be pulled to pieces in spring for fresh potting, when vitality ought to have been vigorous. Mr. Smith bears me out in this matter. Mr. Smith was fortunate in being in possession of so large a bulb of Lilium auratum when the price kept many—myself for one—from purchasing. That, doubtless, partially explains Mr. Smith's success, though I do not wish to detract anything from his skill. I dare say, as Mr. Smith alleges, that Liliums can, by potting bulbs at different times, be prolonged in flower to the period he mentions; but there must be no storing away in that practice through the winter, but rather "potting when the stem is dead." Mr. Smith differs with me on the condition of the soil through the winter, or in the state of partial dormancy. He would certainly find fault if I said, keep the soil "wet." I considered the term "dead dry," would convey my meaning—a state of soil where it is possible for anything just to live and make roots. That is the meaning I intended to convey. If Mr. Smith had his pots bursting with the quantity of bulbs contained in them, as I have had this season (not auratum), he would, if not inclined to disturb all his bulbs, find a means to thin them. Although Mr. Smith finds fault with this, my middle proposition, he quite agrees with my last, and what I styled the best, that is, leaving the bulbs alone as long as possible without potting. In answer to Mr. S.'s question respecting the sustenance of the stem when no roots are emitted from it, I say, as he surely knows, a dying stem requires no sustenance; the withholding of sustenance is the cause of decay. Mr. S. is wrong in his impression that I changed my mind on such a point as the resting of these plants. I do not know what better term to use that would be intelligible and give the true meaning of what I said. I said, "in the fullest sense of the term they do not rest." Mr. Smith agrees with me. I am very glad Mr. Smith has given the public the benefit of his experience, and that he has come to my aid in the endeavour to show that storing away the bulbs of those plants is wrong, as advised in this journal. *M.*

"**Good Gracious!**" **Pansy.**—I see at p. 1234 a notice of a blue Viola, called by one person "Blue Perfection," and by another "Good Gracious." Now, I remember the late Donald Beaton writing very much in favour of, I believe, this very Pansy, in the "Journal of Horticulture," some six or seven years since. Mr. Beaton said it would be the best blue bedder in cultivation, and it seems his words are likely to come true. Mr. Beaton also, in his amusing way, described how a lady acquaintance on first seeing it, held up both hands and cried, "Good gracious!" and said, "Mr. B., I don't think it could have a better name." So judging from that, it must have been sent out under that name, and poor Beaton's words are likely to come true. *J. W. Kingston, Bolton Hall Gardens.*——I have received so many inquiries during the last few days respecting the blue Viola referred to by Mr. Dean, that I find it too great a tax upon my time to reply to them by letter. As I before stated, I received the name I have given with it, and believed it to be the true one. As Mr. George Smith, nurseryman, Fisherton, Salisbury, supplied it to me, perhaps that gentleman will kindly give its previous history, and so clear up any mystery respecting it. I have this week been informed, by those who have seen Beaton's Good Gracious, that the two are distinct. Mr. Williams, of Holloway, to whom I sent a cutting, also says it is not like Mr. Jobson's variety. I have not a plant in bloom at the present time, but will send one at the earliest opportunity, to the Floral Committee, South Kensington, for its opinion respecting it. *Thomas Challis, The Gardens, Wilton House.* [Beaton's Good Gracious Pansy, was a double-flowered variety, and a deep purple. EDS.]

The Heliotrope and Carnation.—I can confirm all that Mr. Tillery says (see p. 1212) in favour of the Heliotrope as a very useful and desirable plant for greenhouse or conservatory decoration, either planted out and grown as a bush, or planted against a wall and trained as a climber. We have here the back wall of the conservatory planted with Heliotrope, and at the present time, when loaded with its highly perfumed blooms, it is the admiration of all who see it. There is also another plant which, for pot culture, is worthy of more extended cultivation,—that is, the Tree, or perpetual blooming Carnation, which for its fragrance, and great variety of colour, is indispensable for greenhouse or conservatory decoration. I have had plants in bloom for several weeks, and they are likely to continue so through the winter months; and as my employer is passionately fond of them (indeed, I don't know who is not), I am able to give him one for his button-hole every morning. I have a variety now in bloom called the Dragon, a beautiful bright crimson, measuring from 3 to 4 inches across, a bloom of which is no mean object at this season of the year, when sweet-scented flowers are both scarce and valuable; indeed, I think no greenhouse or conservatory of any pretensions ought to be without them. They are equally valuable to those who have no greenhouse at command, as I shall presently show. We have a fine collection growing in the borders of the kitchen garden, and many of them have not ceased blooming since the beginning of the summer; and, if the weather continues mild, I have no hesitation in saying that we shall be able to cut nearly up to Christmas. I may state that many of the kinds now in flower in the borders are the produce of a packet of seed. Therefore, I would say to all lovers of the Carnation "set your borders in order, and try your luck with seed or plants." I say luck, because, if from seed, all will not be prizes, or, in plain terms, perfect flowers; but nevertheless, I say to all, try, as the results from a packet of seed here are perfectly encouraging. I think if the Royal Horticultural Society of London would take the subject in hand another season, and offer prizes for Tree Carnations in pots, or for cut flowers, it would be an inducement for their more extended cultivation. [Hear! hear!] Why should they not meet with encouragement as well as the Chrysanthemum? True, they would not make such a gorgeous display as the latter; but, on the other hand, their sweetness and variety of colour ought to place them in the first rank of sweet-scented flowers. This is merely a suggestion; and as I know there are several good growers in the neighbourhood of London, perhaps they would favour the readers of the *Gardeners' Chronicle* with a few cultural hints. Perhaps some one may turn round and say they are so easily grown, that no hints are required. How often, however, do we see them neglected, or not properly cared for in due time? If these few remarks should be fruitful in bringing this much-esteemed flower into more general cultivation, I shall be glad, as I feel sure it will well repay a little extra attention. It is encouraging to see plants grown from 3 to 4 feet high in one season from cuttings. *George R. Allis, Hurtsholme Hall, Lincoln.* [See Mr. Howard's remarks on this subject in our last and present Number. EDS.]

Conifers in South Devon.—We have here a specimen of Cupressus Lambertiana, 36 feet in height and 90 feet round; the greatest distance through is 33 feet, and the girth of the trunk 4 feet 6 inches; the latter three measurements were taken at 3 feet from the ground. Another of C. macrocarpa measures 32 feet in height (fully 6 feet of top has been taken off), and at 3 feet from the earth, 63 feet round, with a trunk 4 feet in girth. We have also Wellingtonia gigantea, 26 feet high, 47 feet round, and 4 feet 4 inches round the stem. The above have all been planted about 11 years, and are exceedingly handsome, being well furnished throughout, and forming fine pyramids. Of Wellingtonias, I may observe, that, although we have upwards of 40 in the grounds here, I notice but one of them producing cones, and that by no means the largest one. This I think is somewhat unusual in this country, at least in small plants. The Cupressus Lambertiana mentioned has, at the present time, some hundreds of fine cones upon it. Those Wellingtonias that are in some degree protected by other trees, &c., from the salt-impregnated winds from the sea (about half a mile distant), present a far more healthy appearance than those exposed to its full action. Pinus insignis has proved nearly a failure, being subject to the ravages of a grub, which commences its havoc in June, and completely hollows out the interior of the young shoots. As I do not remember having noticed it in any other part of England to such an extent, I shall take the liberty of forwarding for your inspection some of the attacked shoots when it commences its active operations again. It is completely ruining the Pines at many places in South Devon. I may also observe that the Fig does remarkably well here, one growing on a very exposed part of the lawn being 20 feet high, 111 feet round, and having a bole 6 feet in circumference. It forms a huge compact bush. During the past autumn I have gathered from this tree several bushels of fine well-ripened fruit. *John Fairey, Gr. to T. Allcard, Esq., Hermosa, Teignmouth.*

Cedrus Deodara for Timber.—According to my experience with the Deodar as a timber tree, your correspondent "G. A. H.," p. 1233, is quite right in dissuading anyone from planting it in large quantities, unless in very favourable situations. The severe frosts in 1860 and 1861 nearly killed all the finest specimens in the midland counties in exposed situations, and it can only be depended on to arrive at timber size in the shelter of other plantations or trees. I am not certain that its timber will be of much value either in this country, unless it is grown slowly, like the Larch and Scotch Fir, on hill-sides and in rocky soils. A few years ago I sent a slab of it to the museum of the Horticultural Society, from a tree nearly of timber size, for it measured 4 feet in circumference at the base. This tree was originally grafted on a Cedar of Lebanon, in 1838, from a branch taken from a young tree raised from the first seeds sent from India by Lord William Bentinck. It grew in a very sheltered corner in the park, on a sandy soil, and was about 25 feet in height, when it was transplanted to the shrubbery, where the situation was lower and colder. This was in 1858, and in 1861 the severe frost so injured it that it had to be cut down. The slab was taken from the centre of the tree, and showed the Lebanon and Deodar sections in equal proportions. Where they had been grafted was easily seen, for the Deodar portion was thicker, the bark rougher, and more knots in the timber from branches, although the number of rings was the same. Mr. Murray took small slips of the timber of each kind, of equal length and thickness, to try their relative breaking powers, and found the Deodar wood was the toughest, but this may have arisen from the number of knots in it. To me the timber, when first sawn up, seemed much alike in colour and texture; but the Deodar was the knottiest from branches, and perhaps if grown slowly, and in poor soil, it might be resinous and hard, as it is said to be in its native habitat. *William Tillery.*——Probably it is as yet premature to speak of the quality of British grown Deodar timber. The wood of most of the Fir tribe is soft when young; still the Deodar can be compared with Spruce, Scotch, and Larch Firs of the same age, and it is softer than any of them. I have recently cut down a Deodar about 20 years of age and 30 feet high. It was very soft and spongy. Great chips flew from the axe in a shower, and the tree seemed to be down in the shortest possible time. As soon as it was felled I decided to test it, and found it soft throughout. The heart was small, and not much harder than the other. There was little or no resin, no perceptible perfume, and the wood in grain and quality resembled the spongiest Scotch Pine drawn up in stuffy plantations on rich soil in England. It must not for a moment be compared in quality to the mountain-grown Scotch deal, or black Pine, which is more durable than foreign Memel. And yet this tree was grown in the open, with free exposure, and no crowding. I do not anticipate any difficulty in growing the Deodar throughout most portions of England. Here (in East Anglia) it grows very rapidly on good soils, and with moderate shelter, and in many places without either; but I fear its timber may be of but little use after it is grown. Still the tree is highly ornamental, and splendid for hiding feathered game, while its weeping and drooping form gives it a special value in the eyes of the artistic planter and landscape artist. In all boundary belts for parks, clumps, or home scenery, and every position where beauty is held to be of more consequence than utility—the effect of the growing tree more highly prized than the commercial value of its timber—the Cedrus Deodara should be plentifully introduced. But the mere timber grower for profit should fight shy of the Deodar, lest his profits should be consumed in the billets and faggots of mere firewood that will probably be the inglorious end of his charming so-called timber trees. *Observer.*

Yellow Bedding Plants.—I have read with great interest the various papers under this heading, but many of your readers will concur with me in thinking that very little good has been derived from them. Therefore, "what can we get as a substitute for the Yellow Calceolaria?" must still be an open question. Mr. Bennett, of Osberton, recommends the Viola and Pansy. The latter has been tried over and over again, but has always failed as a summer bedding plant. By the end of July it is used up; then the Viola and other subjects, such as the Œnothera, introduced by other correspondents, what are they compared with the delightful yellow and glowing effect produced by the Calceolaria? I feel sure there would not be half the disappointment with the Calceolaria, if proper pains were taken with it at planting time. The soil in the beds should be taken out a foot deep, and some good rotten stable manure placed at the bottom. I find them to do better in Yorkshire than on the gravelly subsoil in Middlesex. *T. P. T., Thornhill Gardens, York.*

Tobacco Free of Duty.—What we want for horticultural uses is a good strong and cheap compound of tobacco, prepared for fumigating all kinds of greenhouses. This we want, free from sulphur and greasy matter. If the Duty-free Tobacco Company would prepare a mixture of Cayenne pepper with grains or rough chopped tobacco, that would improve the quality of the mixture for all purposes, and would destroy all kinds of insects without injuring the revenue. I have not yet found any good and cheap substance for fumigating. Tobacco-paper, if kept too long, becomes useless. I should like to have the opinions of others on this subject, and also to hear what the Duty-free Tobacco Company has to say about it. *William Smythe, The Gardens, Elmham Hall.*

Chimonanthus grandiflorus.—I herewith forward for your inspection a seed vessel of Chimonanthus grandiflorus, which has fruited with me during the three last seasons, although the seeds of the past season have not come to perfection, owing perhaps to the ungenial spring. I have one fruit much larger than the one sent, which I have not opened. I have never observed fruit upon the Chimonanthus præcox, although I have been acquainted with it for the last ten years. *Rustic, West Kent.*

Foreign Correspondence.

WASHINGTON PARK, BROOKLYN.—This is only about 30 acres in extent, and, therefore, scarcely deserves the name of a park; it is in reality what may be termed an open town space or public square, and it is on that account that I am anxious to direct special attention to it. It was once called "Fort Greene," a location in the very heart of the city, and it is for the most part elevated above the adjoining land. The rise in parts is, indeed, so considerable, that the surrounding buildings are overlooked, and interesting views are commanded, extending far up the East river, and down what is called the lower bay, bringing their ever varying scenic incidents almost within the limits of the park. An invigorating sea breeze is wafted in from the waters, which is most captivating to all who seek the higher level of the "Greene" on a warm summer's day.

Owing to the advantage thus offered of fine prospect and pure air, combined with extended and varied

character of surface, the ground, out of which the park has been formed, has received a more complete and interesting arrangement of accommodations for popular recreation than can often be attempted in public squares of large towns. The chief requisites sought to be obtained were ornamental grounds in connection with convenience for public meetings, or for other incidental purposes which bring together large crowds—requirements essentially dissimilar and difficult to incorporate in grounds of limited extent intended for popular resort. This desideratum has, however, been accomplished, and that too, in a very satisfactory manner. For refreshing purity of air and beauty of prospect, the central part of the grounds is the best, and that portion has been chosen for floral decoration, while the lowest ground has been devoted to public assemblage accommodation, a space being left there sufficiently large to afford easy standing room for 30,000 persons. This ground is paved, and is provided in the centre with a "rostrum" for public speakers. It also offers a convenient site for concerts, and it is sometimes used as a drill ground. The whole space can be brilliantly lighted, and while the park, properly so called, is fenced round, so as to be closed at night, this is left open. The interior of the enclosure immediately opposite the "rostrum" has been the scene of great historical events, and for many years has been used by the citizens of Brooklyn as a place for patriotic demonstrations. A "saluting ground" has, therefore, been formed at this point, and a memorial monument for the "Prison-ship Martyrs" is to be erected at a little distance off, where they are entombed, while, with the intention of securing to visitors an agreeable walk in the immediate vicinity of the square when the gates of the enclosure are shut for the night, the adjoining side walks have been increased in width to 30 feet, and have been ornamented with a double row of trees. Gates are provided at the various angles and in the centre of each side. I may likewise add that special prominence is given to the angular approaches, which have been enlarged and symmetrically planted with trees, so that they may present a more agreeable effect to visitors entering the park than they otherwise would do, and also offer facilities for an easy turn in connection with the exterior side walks.

In the enclosed pleasure ground broad walks are so laid out that the whole space is thoroughly traversed by them, and turned to account. As has been stated, the general surface of the ground is very irregular; but it has been thought desirable to arrange for a nearly level lawn of considerable extent for boys, and for another lawn of about the same dimensions for the use of girls and children. The undulating ground has been somewhat closely planted, and is laid out so as to offer a series of shady walks that have outlooks over open grassy spaces at intervals. About the centre of the park there is to be a Vine-covered walk in the form of a cross, which will serve to furnish protection from the fierce rays of the sun in hot weather. One arm of this shelter connects it with the "saluting ground," another with a refreshment department, and a third with an observatory, while a fourth commands the most interesting view over the city that can be obtained within the limits of the property. Taken altgether this park, when completed, will, considering its size, form one of the finest public pleasure grounds in the gardenesque style anywhere to be found.

How desirable would it be if the centre of London had such an agreeably laid out open space? It is true we could not have the bold natural inequality of ground that is to be found in Washington Park; but by raising mounds artificially, and by means of skilful planting, much might be done to relieve the flat squares of London of their existing uninteresting monotony. Above all, our squares should be thrown open to the public, as is done both in America and France. Outsiders cannot be expected to take interest in them until that is done, and that they would then take a lively interest in them and thoroughly appreciate their beauties, is abundantly proved in the case of Kew Gardens, and in some of our open spaces nearer town, in which the flowers and shrubs receive but trifling injury. "Liberal hands make many friends." Let us hope that some one "in authority" may take the matter earnestly in hand, pull down the unsightly railings, and let the pent-up children of the London poor enjoy a run on the green sward, amid trees and flowers, as they annually do, during the autumn months, in the Temple Gardens. Then, and not till then, will our London squares be a public benefit.
J. Newton, Oxford Terrace, Hyde Park.

Societies.

LINNEAN SOCIETY, *Nov.* 11. This was the first meeting of the session. Dr. Cleghorn, President, in the chair. The President delivered the opening address, on the Progress and State of Botany in Britain, from which we extract a portion relating to the *Indian Forest Service*:—"It may not be out of place here to allude to the openings for young men in the department of public service with which I have had the honour to be long connected. With the greatly extended forest operations which the formation of railways necessitated, the want of trained assistants was much felt, and the Secretary of State for India resolved, in 1856, to send out a few young men, properly trained, for service in the forests of India. The first detachment of assistants, after two years and ten months' training, chiefly on the Continent, have sailed for India; a second party are now in the forests, and a third will enter on the preliminary examination next month. Many letters have been written in the Government Gazettes and other papers, with reference to these appointments; and as much misapprehension seems to exist, it may be desirable to give the facts in regard to the system adopted in the present arrangement. In Britain, while school duties are conducted with the greatest skill and success, as the finest specimens of ornamental trees and shrubs testify, there is a comparatively small area of land under wood for crops, and that is diminishing rapidly every year. Of the trees grown for ornament or game, there is a much greater extent. It is humbling for a Scotchman to confess that there is no school of forestry in this country where the different branches of study can be mastered. It is to be hoped that by the joint action of the Highland Society and the Scottish Arboricultural Society an organised system of instruction may be set on foot. In Germany, the system of forest science and management is most elaborate and carefully arranged. The works of Hartig, Burckhardt, &c., all published under Government auspices, show the importance attached to forestry in a country where the population depends entirely on wood for fuel. France also has large and well-regulated establishments for the conservancy of State forests. The chief training school is the Ecole Impériale Forestière at Nancy, an excellent institution; and in the immediate neighbourhood are very extensive tracts of natural forest, where the different branches of study can be mastered. Four youths are now under training in Prussia and four in France, and they are to finish their education by spending some time with a practical forester in Scotland. The experiment now being tried is of great importance, and I doubt not such alteration will be made as seems expedient. The object is to secure the largest amount of theoretical knowledge and practical training combined. It will be admitted that the youths would be imperfectly prepared for their duty in India if they had not an opportunity of seeing the timber slides of the Austrian and Bavarian mountains, the valuation surveys, economical manufacture of tar and charcoal, and the collection of various articles of forest produce. In Britain, from the force of circumstances, the forests are very small, and the system of management, though sound and suitable on the small scale, is less adapted for the vast forests of India. With regard to the development of the botanical resources of India, I may notice that the Cinchona plantations in Bengal now cover 1000 acres, and those in Madras are considerably more extensive. Vigorous efforts are also made to introduce Cephaëlis Ipecacuanha on the same principle, and, so far as it is possible to obtain a sufficient stock of plants from the botanic gardens and scientific nurseries of Britain, without a special mission to the Organ Mountains, this has been done. Dr. Anderson hopes, on his return to India, to take out sixty plants obtained in Europe. This introduction has been forced on Government by the new views in the medical treatment of dysentery, and the greatly increased price of the drug, which now sells at 9*s.* per lb. Some of the skilled Cinchona gardeners, set free in consequence of the completion of operations, are available for the charge of cotton farms, instituted by Government in various suitable districts." The following communications were read:—I. *On Equations to the Curved Outlines of the Leaves of Plants.* By Mr. Wm. Mitchell.——II. *Supplementary Notes on the Lichen Flora of Greenland.* By W. Lauder Lindsay, M.D., F.L.S., F.R.S.E. ——III. *On Dr. Gray's Arrangement of the Hepaticæ.* By Benjamin Carrington, M.D.——IV. *Miscellaneous Communications.* Professor Dickson, Glasgow, made some remarks regarding the formation of the fruit of Hippophaë rhamnoides, and exhibited preserved specimens. He stated that Mr. Sadler and he had paid a visit to Tynninghame last month, where they found the plant fruiting in the greatest profusion on the shore. Dr. Dickson also exhibited a flower of Tropæolum (Indian Cress) having two spurs. Mr. Gorrie exhibited cones of Picea cephalonica and Cupressus Lambertiana, produced at St. Fort, Fifeshire. Duncan Forbes, Esq., presented cones of Picea cephalonica, taken from a tree at Culloden House, 15 feet 8 inches high. Mr. Fowler, gr., Castle Kennedy, sent cones of Picea Pindrow, P. Webbiana, and Abies orientalis, produced there. Mr. Bissett presented cones of Picea cephalonica, produced at Moncrieffe, Perthshire. Mr. M'Nab exhibited cones of Picea Nordmanniana from the Cambridge Botanic Garden. Professor Christison presented the fruit of a species of Strophanthus, which yields an arrow-poison used by the African natives on the Shire.

ENTOMOLOGICAL: *Nov.* 15.—Mr. H. W. Bates, president, in the chair. Mr. Edwin Brown, of Burton-upon-Trent, sent for exhibition a large species of Locust recently captured near that town, which Mr. F. Smith stated was identical with specimens of a fine unnamed species in the British Museum from North Bengal. Mr. F. Smith exhibited specimens illustrating the economy of Rhipiphorus paradoxus, which resides as a parasite in the nests of the common wasp, in opposition to the views contained in Mr. Murray's paper on this insect in the last number of the "Annals of Natural History." These specimens had been collected by the late Mr. Stone, and distinctly showed the parasitic larva with its head immersed in the soft body of the wasp-grub, which was sucked dry in the course of 48 hours. In one instance a pupa of Rhipiphorus and one of the wasp had been found in a single cell, but both were stunted in size, and Mr. Smith mentioned instances in which a parasitic larva had not succeeded in killing its victim. Professor Westwood cited the Rev. Lansdown Guilding's observations on Horia to the same effect. Mr. Pascoe exhibited a number of new species of Australian Heteromerous beetles, including a species of Helœus, covered with a white secretion, which had been considered to be a Fungus growing on the insect during its lifetime. Mr. Wallace, however, considered it highly doubtful whether the secretion was really vegetable and not of an animal nature. Mr. Briggs exhibited Deiopeia pulchella, taken on Oct. 1, at Folkestone, and Mr. Dairy, a number of beautifully-preserved lepidopterous larvæ. Mr. A. Müller made some observations on the peculiar scent emitted by Cynips lignicola and another oakgall fly. Mr. Salvin read a paper on Clotilda, a genus of beautiful American butterflies, of which he exhibited six species. Mr. Bates read a paper containing descriptions of new species of Lamellicorn and Longicorn Beetles, collected at Chontales, in Nicaragua, by Messrs. Belt and Janson; and Mr. Baly sent a memoir containing descriptions of new genera and species of Hispidæ, chiefly from the East Indies and South America. Mr. Horne and the Secretary communicated various observations on the great swarms of Syrphidæ observed by them on the southern and eastern coasts of England during the past autumn, and which were almost unanimously regarded by the members present as having been reared in this country, and not blown across the sea from abroad, the vast swarms of Aphides previously observed being sufficient to account for the extraordinary numbers of these aphidivorous flies.

Notices of Books.

Doltings on the Roadside in Panama, Nicaragua, and Mosquito. By Bedford Pim, Captain, R.N., and Berthold Seemann, Ph.D., F.L.S., F.R.G.S., &c. London: Chapman & Hall. 1869. Pp. 468.

"On April 4, just when the morning star had announced that dawn of day was nigh, two solitary horsemen on muleback might have been seen slowly wending their way through the suburbs of Leon, and their Cactus and Pine-apple fences. It was yet too dark to distinguish their expression of countenance, but judging from their conversation, and the snatches of tunes one of them was whistling, they were evidently pleased." We seem to have read something very like this before, probably in one of our old friend Mr. G. P. R. James's novels; but in this true history one of the travellers, no doubt the whistler, was Dr. Seemann, and the other was Mr. John Holman, "a Cornish mining captain of great experience," and they were bound east from the Pacific coast for the little-known parts of Nicaragua, New Segovia and Metagulpa, in order to ascertain the value of certain mines, and, if need be, to purchase the best of them. In the few months (March to July, 1866) devoted to this investigation our two travellers explored the districts on the west or Pacific side of Nicaragua pretty thoroughly, and though somewhat disappointed with most of the mines visited, they succeeded in purchasing for the company on whose behalf they were engaged, the really valuable gold and silver mine of Javali in the district of Chontales.

Javali itself is about midway between the two great oceans, but stands on a small branch of the Blewfields river, which flows into the Atlantic at a place of the same name. The nearest town is Libertad, "which derived its name from a grog-shop where everybody had liberty to do pretty much as he liked;" the virgin forest stretches away in an unbroken line from this place, and in its centre is the very productive Javali mine.

Dr. Seemann has long ago earned his laurels as an investigator, but it is very evident from this book that he still travels with his eyes open. His "Dottings" or jottings are certainly fascinating reading; he sees all going on around him, and knows the value of what he sees; added to this he possesses a reserve stock of facts collected in most parts of the world, and he has the power of putting his ideas into words in a very easy and pleasant, if somewhat abrupt style. Nor is the botanist eclipsed by the practical man; quite the contrary, for when on Peña Blanca the highest known peak in Chontales, he found that many of the plants had been destroyed by fire, he tells us that "the gentleman who had kindled the flame was with me, and was somewhat astonished when, instead of receiving unqualified praise for having cleared the view, I told him it was fortunate, standing as we did on the brink of a yawning precipice, that the enraged botanist within me was somewhat mollified by my appreciation of the fine landscape which he had, as it were, unrolled."

There are many notes scattered through the pages of the volume on the character of the vegetation of various districts, and on individual new or rare species, some of which have been already quoted in this journal. At Leon the yards or pateos in the centre of the low houses "are in some instances neatly kept as gardens, where one finds a few Plantain, Orange, Pomegranate, Soursop and Mango trees, as well as Roses, Cockscombs, Gomphrenas, Frangipanis, Jesamines, and Polianthes tuberosa; highly-scented flowers seeming to be those most cultivated." In the Chontales gold region many plants with variegated leaves were observed. "There are some fine species of Costus (including besides the well-known C. zebrinus and malortianus several new ones); two beautiful species of Cissus, one with bright scarlet flowers (introduced by me into English gardens), and several Marantaceæ and Aroideæ. But the finest of these is the one I have named Cyrtodeira chontalensis, a gesneraceous plant." (See *Gardeners' Chronicle*, p. 655, 1867).

Our author's views with reference to "popular" science are worth notice, and may be gathered from the following. He says: "Make it a point in all popular scientific writings to have your facts strictly correct, and you need not, in my opinion, be ashamed of whatever form you may choose to employ in placing them before those whom you have undertaken to instruct." Whilst we heartily recognise the nucleus of truth in this sentence, we must enter a slight protest against its furthest application. No one can convey sound scientific information in non-technical language better than Dr. Seemann, when he does not try to do it. Though one may not follow him in some of his rather bold conclusions, one cannot fail to be struck with the ease with which in ordinary language the discussions on pile-buildings, on the gradual extinction of races, on the native country of the Cocoa-nut, and on the similarity in character of the sculptured rocks in the north of England and in Chiriqui, are treated. This sort of writing is natural to him, and is such as no merely popular naturalist could pen. But when Dr. Seemann labours to be over-condescending to the non-scientific mind, the result is far less satisfactory, as is shown in the story of the Mistleto and the Apple-tree, in which the elaborate verbal machinery seems altogether out of proportion to the somewhat meagre scientific result attained.

We should not be giving a fair view of the book under notice were we to omit its humorous aspect: many parts are very amusing. What can be better than the following "petition" of a negro boy from Jamaica, unfortunately in the chain-gang at Panama:—"My dear Gentlemen.—I have just take up my Pen in hand to address you in these few Lines hoping when it Reaches your hand it may find you as it leaves me at present, Sir, and i have just ask you this favour if you could let me have something if you please, for i am a Poor Stranger and i as got No Person to give me nothing at all, Sir, for I am in the Chain Gang, Sir, not for stealin, for the Holy Bible says in the 15th Chapter of Exydos Honesty is the best of Policies." Can we be surprised at hearing that the request of this interesting convict was complied with? Again, the following religious tale evidently loses nothing in the telling:—Whilst at breakfast in a small village, "a man of the place came into the house, and after steadily gazing at me for some time, rather startled me by the information that his brother was in Purgatory. All I could do was to assure him that I was very sorry to hear it. But couldn't you do anything to get him out of it? he asked. I don't think that I have any direct influence in that quarter, was my reply. Yes, you have, the stranger assured me; I am going to have masses said for his soul, and should feel obliged by

your giving a few reals towards paying the cost." Of course, as before, the ingenuity of the beggar was rewarded, though the donor was afterwards of opinion that he had only relieved a thirsty soul.

But we must pass on to the remainder of the book. Captain Pim and Dr. Seemann are old shipmates, and thoroughly understand one another, so that when the latter lays down his pen at the end of p. 208, the Captain starts off on a new tack on the next page, and finishes off the volume. He is so well known in connection with the development of Central America that it is scarcely necessary to say that his chapters are full of information, and show how completely he has mastered the whole subject. It is chiefly the Mosquito coast that is treated of here, and especial attention is drawn to the various political events which have occurred in connection with Grey Town and Blewfields. Captain Pim, who writes with all the humour and blunt honesty of a sailor, is no admirer of United States diplomacy, as shown in the application of the Monroe doctrine to Mosquito, which is under British protection; nor does he look upon the "irrepressible nigger" as an interesting creature, equal with, if not superior to, the white races, to be indulged to the utmost on every opportunity.

Our author's valuable and suggestive work, the "Gate of the Pacific," was published in 1862. Since that date he has been four times into Nicaragua, constantly endeavouring to open up the country and establish an overland route from sea to sea; and in spite of all the disappointment he has had to endure, his writings show how enthusiastic he still remains in his favourite project.

Perhaps the most interesting portion of Captain Pim's part of the "Dottings" is that devoted to the King of Mosquito. This monarch, however little known to European sovereigns, is, if the Captain's account is not tinged with the flattery usually tendered to royalty, well worthy of his rank. He is very anxious to improve his country by every means in his power, and especially by the cultivation of English relations. A rather singular feature in his character is a melancholy, produced by the conviction that he is the last of his race, and by the spectacle of the evident though gradual extinction of his people. It is the same in Mosquito as in all other countries where races are in conflict, the old nation is dying out, slowly but surely; and here too, as elsewhere, the immediate cause of extinction, from whatever this may result, is the fact that sterility constantly increases. In Mosquito, we are told, that a birth is now a very rare event among the Indians. The ugly spot in the king's character is his partiality to the bottle, but he showed a self-control in this respect, remarkable in one of his race, during the whole period of his cruise in H.M.S. Gorgon; Captain Pim having represented to him the bad example which would be set to the crew by one of his exalted station giving way to habits of intoxication.

We have dwelt at sufficient length on this book to show its varied nature; and can only allude to Captain Pim's account of a 45 hours' cruise in a canoe up the Blewfields river, by which he determined with certainty that it was navigable for 65 miles from its mouth—and to Dr. Seemann's very well-digested and instructive historical sketch of the rise of the bucanneers, and their invasion and destruction of Old Panama. In connection with the latter we may also draw attention to the extensive list of books and papers, arranged in chronological order, relating to Central America, which must be of very great service to all interested in the chequered history of those countries.

If the book is somewhat loosely put together, or the matter not very satisfactorily arranged, still we must remember that it does not profess to be more than a collection of "dottings." We have no hesitation in recommending it to our readers as a book containing an immense amount of accurate information on the history, topography, ethnology, and natural productions of a little known part of the world, conveyed in so amusing a style that we fancy few persons will commence reading it without finishing the volume.

Florists' Flowers.

The simplest way of getting up a stock of Tree or Perpetual Carnations is the following:—Place the stock plants in a gentle heat at once. Take off the cuttings early in February, and put them in around the edges of 60-sized pots, in equal parts of loam, leaf-mould, and sand; then water well, and plunge in a gentle bottom-heat, taking care it is not too damp. When they are rooted, pot them off singly in 3-inch pots, and replace them in heat until they are well established, after which harden off gradually, and place in a cold frame until April. At that time, if the weather permits, plant them out on a piece of open ground, which has been well dressed with soot, dung, and lime, and trenched from 2 to 3 feet deep. Place a 4-foot stick to each plant, and keep it regularly tied up so that the winds and rains do not break it. By the middle of September it will be in a fit state to pot into a 6 or 7 inch pot, as the case may be. After potting the plants must have a good watering, and be placed in a shady place for a fortnight, being also syringed overhead twice a day in bright weather.

By the time the plants are again established, place them in the sun on a bed of ashes or boards. As soon as the autumn rains come on, get them under cover at once, but give them plenty of air. They should at once commence flowering, and continue all through the winter and spring months, if assisted with a little fire-heat and liquid manure, which latter, when they are well established, they may have once a week. They delight in being plunged in sweet dung, so as to keep the roots cool, and will root through the bottom of the pot, and over the top. Occasionally dissolve 1 oz. of ammonia (carbonate) in a gallon of water, and water with this solution. If the plants are in a healthy state the feathery roots may be seen on the surface in the course of a few days, after each watering with the ammonia.

I hope to be able to give you the names of a number of other varieties—English, Continental, and American—in case they prove good for anything. The best lot of seedlings that has yet come under my notice belong to a private gentleman at Arundel, who declines to circulate them in the trade, but who gives to his friends with a very liberal hand. Most people who have travelled between Arundel and Worthing, at any time within the last 12 months, must have noticed the floral display in the windows and gardens at Cross Bush. *W. Howard, Balham.*

Mr. Salter's Chrysanthemums.—We supplement the remarks made at p. 1187 by the following notes on some of the novelties which have blossomed since our previous visit, among which occur some remarkably showy and novel forms. Taking the new Japanese varieties first, one of the most strikingly distinct is named Colonel Hemery. In this variety the flower-heads form a semiglobular open mass of straight, stiff, long, narrow, strap-shaped florets, and being of a deep golden-yellow colour, they are exceedingly showy. Another, named Sol, is of similar form, but of a paler and brighter yellow. These two novelties will be extremely useful for decorative purposes. Of the Japanese type with contorted thready florets, La Chinoise, a fine chestnut-red with yellow tips, and producing large flower-heads, is a decided improvement on the older sorts. Helen McGregor is also an advance on the varieties previously obtained, its colour being a rich deep chestnut-red, and its flower-heads very full and fringe-like. Gloriosa is another fine large sort, with the flower-heads formed of long loose florets, forming a flattish head, yellow slightly tinted with red in some stages, but eventually becoming almost entirely yellow. To another style of flower belong the two following, which are decided acquisitions; in them the florets are tubular at the base but split open at the upper end, and they form large, loose, and highly characteristic flower-heads. Their names are Meg Merrilies, a bold-flowered white, somewhat yellowish in the centre; and Rob Roy, very distinct as to colour, the tubular portion of the florets being of a dull purplish red, and the flattened expanded parts, which show the inner surface, of a pale amber or buff—very nearly, in fact, the colours prevalent in the wild Honeysuckle.

We have also to notice two additions to the new Chinese varieties—Beauty of Stoke, a large incurved flower of a pale yellow hue, suffused with a tint of red, which becomes more pronounced in age; and Meyerbeer, a medium-sized variety of a pale rosy tint, lighter towards the centre, and remarkable for the breadth of its neatly incurved florets. Virginalis is a good addition of the present season, to the group of large white Anemone-flowered sorts.

Another very interesting plant now blooming with Mr. Salter, is the variegated-leaved Sweet Violet. Its distinctly white-edged leaves, and deep purple flowers, are well-contrasted and pleasing.

Garden Memoranda.

Messrs. E. G. Henderson & Son's, Wellington Road, St. John's Wood.—This is one of the principal emporiums for novelties in the metropolis; and especially so in regard to bedding plants, of whatever kind they may consist. It may also faithfully be said! to be, not the birthplace of, but the "nursery" from which the pioneers of that now universally admired class of ornamental-foliage Pelargoniums were first introduced to our gardens, where, by their markings and colour they lend a charm which is justly appreciated by all who possess a taste for floriculture.

During the summer months Messrs. Henderson's trial grounds are well worthy a visit, for here are to be seen the newest candidates for bedding-out honours, grown side by side with their more established rivals. Unfortunately our visit was made somewhat late in the season, for already many of the choicest plants had been cut up for stock. Amongst golden-foliaged plants, the Fuchsia has been making perhaps slow, but steady progress in making its way into the summer borders. Already several good novelties in this way have appeared; and, in some new varieties which Messrs. Henderson possess, still further improvement is perceptible: of these three new varieties, named Golden Treasure, Golden Mantle, and Crown of Jewels, are not yet sent out. The former is a prostrate-growing kind, with beautiful yellowish foliage and good habit; Golden Mantle produces exceedingly fine, large golden-coloured leaves, and in effect is much superior to the variety known as Golden Fleece, sent out by this firm in 1867; Crown of Jewels is the dwarfest, or more prostrate growing form. The young growing points of the shoots are of a rich ruby colour, and as they get older they become golden coloured, making the plant somewhat suggestive of clusters of rubies on Cloth of Gold, one of the earlier breaks in this form. As seen in a small group, this variety produced an effect which is equalled by few other plants.

A comparatively new feature in bedding out, and one which is greatly rising in estimation, is the "carpet bedding," a system which seems to be much appreciated by Mr. Gibson, who adorns the nooks and corners at Battersea Park in this fashion. Of plants suitable for this purpose there is here a fine collection, including also many of the choicest gems of the alpine flora; and a good collection of herbaceous border plants. Amongst the latter we noticed a dwarf free growing form of Antirrhinum, named Tom Thumb, with orange-yellow flowers. This is a welcome addition to a pretty class of autumn flowering plants, which are easily propagated by cuttings, and thrive in any good garden soil. The variety Tom Thumb, when planted out, and its roots established, should have the centre shoot picked out, which makes the plant become dwarf and bushy, and greatly improves its appearance when flowering, which it does freely. Cineraria acanthifolia, a compact growing variety, is a fine substitute for the Centaurea, which it surpasses for ribbon borders, on account of its uniform and regular growth and its neat appearance. For growing in pots for conservatory decoration in autumn and winter, it is one of the most useful subjects of its kind. Centaurea ragusina compacta is a dwarf and compact growing variety, with fine silvery foliage. Gnaphalium tomentosum, a small close-growing silvery leaved plant, was here planted as an edging round a circular bed of Mrs. Pollock, producing a distinct effect. A good feature in this plant is, that when planted out it can be kept to any moderate height by pinching, without looking too stiff. Achyrocline Sandersoni was also doing well. Of this plant it may be remarked that it succeeds admirably when planted in a similar manner to Box. Another very dwarf silvery-foliaged plant, more suitable for carpet bedding than for edging, is the Achillea umbellata.

We also remarked a fine variety of yellow Pansy, named Golden Bedder, a dwarf compact grower and profuse bloomer; a good variety for associating with the Imperial Blue. Though there are several good yellow Pansies mentioned as possible successors to the yellow shrubby Calceolarias in situations where the latter does not do well, we cannot see the propriety of dispensing with the Calceolaria altogether, for where it does do well it is immeasurably superior to the Pansy for ribbon borders. Of perpetual flowering Pinks there are here two good varieties, named Rose of England and Plato, the former a belted, and the latter a self-coloured rosy flower, both of which are said to flower more or less for nearly the whole year; also a reddish-striped winter flowering Carnation named Attila.

Amongst hardy plants were fine little specimens of Cryptomeria elegans, a much neglected graceful-foliaged Conifer, that is perfectly hardy; a golden variegated variety of Chinese Privet, which is very beautiful planted *en masse*; Genista prostrata, a capital subject for rockwork, and also for hanging baskets; Hydrangea paniculata grandiflora, a fine large free-flowering variety introduced about three years ago, but since almost lost sight of, until a specimen appeared at one of the autumn meetings of the Floral Committee, where its merits were judged worthy of a First-class Certificate. It is not a particularly quick grower, but it possesses the desirable qualities of hardiness and adaptability for forcing. In a collection of hardy Ferns was a specimen of Polystichum Louchitis, obtained from Donegal, and growing very freely here; this is said to be more free in growth than the Scotch form of the same species.

The houses are numerous, and are built on economical principles, being for the most part span-roofed structures on walls but little raised above the ground, and with a sunk path down the centre. In this manner stages are dispensed with, and the plants are well exposed to the light. We noticed one house entirely filled with Caladiums of almost all forms and shades of colour. This class of plants, though requiring plenty of heat and moisture for its successful growth, is nevertheless admirably adapted for grouping with other plants in warm greenhouses, where the bold, varied, beautifully coloured foliage is greatly admired in summer when really good flowering plants are at a discount. In a comparatively cool damp house, containing principally Cattleyas, were several specimens of Dendrobium Falconeri, thriving and looking remarkably well; and the rare and beautiful Cattleya Dowiana, with numerous fine flowers. In another house was a very handsome variety of Oncidium Papilio, and a large specimen of the magnificent Gloriosa superba in full bloom. It is thought that this latter is a variety, being stronger and robuster in growth than the species in question is generally seen. Cobæa penduliflora is very distinct, having dark green foliage, and producing bell-shaped flowers, with long, wavy, greenish-white segments. Another plant of which little is known in this country is a species of Eupatorium, named gracile odoratum, which forces well, and comes into flower about Christmas, producing sweet-scented white flowers; it is said to be largely grown in America for cut flowers, and is in much demand for wedding bouquets.

Miscellaneous.

A Fruit and Flower Farm.—They are blowing for button-holes all the year round, and the hunting men now wear yellow ones in their scarlet coats, with a background of Neapolitan Violets. From February to August from 500 to 2000 yellow Roses are sent up per week by the first train in the morning to the establishment at Knightsbridge, for the button-holes and bouquets of the day. The yellow Roses are eight months in flower, and four at rest. Their three principal varieties are Madame Falcot, a deep copper yellow; Isabel Sprunt, which is perhaps the *prima donna*, with its lovely pale straw colour; and Marshal Niel, "a fat flower," of a rather more decided yellow. The button-hole business has increased immensely during the last two or three years, and as *à la Russe* dinners have rather gone out, the flower has become far more profitable than the fruit trade. Bridal bouquets have the pure white Gardenia to encircle the Orange blossom, Stephanotis (which is in bloom for eight months) next to it for the general groundwork, and then Hoteia japonica, which gives a feathery appearance and breaks up the flatness; white Bouvardia, with its star-like variety; white Orchids, with their oriental caste; and fairy rosebuds set on silver springs, the whole being backed up with Fern and Myrtle, &c. More Gardenias are employed in the composition of Court bouquets, and the place of the Orange blossom is often taken by a Camellia. For general business there is also a run on

the Eucharis amazonica, Stephanotis, Jasmines, Carnations, Picotees, Neapolitan Violets, Anthurium Scherzerianum, Orchids, Camellias, Heaths, Lilies of the Valley, Myosotis, and double Pelargonium. Perhaps no flower does more service than the Bouvardia, the white for bouquets, and the red for button-holes. The Anthurium Scherzerianum is a very favourite crimson, with a horn like a shepherd's crook from the centre: as the flower fades the horn grows larger and hardens, and becomes the pouch for the seed. Maiden-hair, with its minute black stems, comes well into a bouquet, and the Amazonian Lily (Eucharis) is first favourite for ladies' back hair, along with flowers and Ferns. We found a plant of it in one of the houses, with fifteen spikes and seven flowers on a spike. When it is rifled of these treasures it will rest till Christmas, and then take the place of white Camellias, and with rest it will flower three times a year. The Italian Tuberoses last for five months, and afford a nice autumn white flower; and Forget-me-Not, blue Hyacinth, and dark Myosotis have a heavy run on them when the Oxford and Cambridge boat race comes round. Thujopsis borealis alba takes its part among the white division all the summer, and in winter the "Ascot yellow" Picotee flourishes bravely. The City folks generally wear a small flower or single bloom in their button-hole, whereas the West-enders like one much larger. *The Gentleman's Magazine.*

The Tyranny of Gardeners.—In an article relating to the Royal Horticultural Society's Fungus meeting, which appeared in the *Echo* shortly afterwards, the writer thus describes the relationship between gentlemen and their gardeners:—"A gentleman who only knows the few things necessary to obtain a double first at Oxford, or perhaps to take a share in the government of this little State, indulges himself in the dream that his leisure hours, few and far between, may be advantageously passed in his own garden, amid the flowers which he loves, albeit he has no time to cherish them himself. Oh, vain delusion! He enters the sacred precincts. Perhaps he is audacious enough to keep a key, and to let himself in without humbly ringing the bell; but once inside the wall, he meets his master. The gardener approaches, courteous, though somewhat stern; and the gentleman rouses himself to make some encouraging remarks and criticisms. Poor fellow! how soon his little light is extinguished! How he is snubbed with Cinerarias, and brought up short with Calceolarias, and extinguished with Scolopendras [!], each and all of them having another long name tacked on to its tail. There is no use in talking about wishing this bed here, and the other there, or pleading for more sweet flowers, or asking what has become of all his old favourites. The despot settles him every time he opens his lips with a mouthful of uncouth syllables, to which it is impossible he can attach any single idea. Then he learns by degrees that gardens are not kept for their ostensible proprietors, but that flowers are grown to be exhibited, so that the gardener may obtain prizes, and three-fourths of the fruit is plucked in the blossom to allow of a few specimens attaining gigantic size and being sent to a horticultural show, to be eventually eaten by the judges."

Peach Palm.—The clustered stems of the Peach Palm (Bactris Gasipaés) grow to 60, or even 90, feet high, and are thickly armed with long prickles. The numerous curling and drooping leaves rarely exceed 7 feet, and they have from 50 to 60 leaflets on each side, aggregate by threes and fours, and pointing in all directions. The fruits are massed into large pendulous corymbs, and if from their size and vivid colours of yellow and red they may be likened to a well-ripened Peach, in shape they more resemble a hen's egg, although usually rather more conical. The thick, firm flesh is mealy when cooked, something between a Potato and a Chestnut in flavour, and superior to either. A seedless variety is common, but the fruits are much smaller, and contain no more edible matter than those that have a stone (or endocarp) in the centre. *R. Spruce in "Journal of the Linnean Society."*

Garden Operations.

(For the ensuing week.)

PLANT HOUSES.

AMONGST the subjects which will now come in useful to maintain the display of flowers are some of the varieties of the beautiful genus *Amaryllis*. *A. aulica*, which, when grown from seedlings, affords so many shades of scarlet, we have had in bloom some time. The varieties to which I more immediately refer are *A. formosissima* (the Jacobæa Lily), *A. splendens*, *A. Brilliant*, and *A. solandræfolia*, &c. To insure fine blooms of either kind, a slight amount of bottom-heat may be afforded. As it does not often occur that the operator has a nice, moderately dry, warm bed of tan for the purpose—beds of fermenting materials being so moist—perhaps the best place for them would be upon a board placed either upon a pipe or a flue or other fixture near them. At this, their flowering period, moderate waterings only should be afforded; and if short, sturdy flower-stalks are required, they must be kept in as much light as can be admitted to them. The lovely *Schizostylis coccinea*, if it was turned out into the border during the summer, and potted up a month ago as advised, will now be blooming freely, and will continue to do so in an open, airy conservatory or greenhouse for some time to come. Keep the two species of *Tropæolums*—namely, *pentaphyllum* and *speciosum*—if grown in pots, somewhat dry, and so hasten the resting period. Some varieties of the semi-hardy shrubby *Veronicas*—especially *V. Andersoni fol. var.*, &c., will also afford a very gay addition to the flowering plants; the only care they require, except occasional waterings, is to keep damp from settling upon their flowers. However severe the weather may become during the incoming week, be particular not to encourage too high a temperature, which many are very apt to do when they have fires in full work. I have frequently urged the desirability of covering up all houses during severe frosty periods with mats, or any other materials which may be at hand. It is astonishing the amount of both labour and anxiety which is saved by this simple process, especially to the amateur, who may have many other things to attract his attention apart from gardening. Besides saving fuel, it is far better for the health of the plants. Should the frost at any time—and the wonder is that this is not more frequently the case—take hold of the inmates of any structure, the only remedy which the amateur has is to increase the internal artificial heat at the earliest possible moment, watching the thermometer in its upward tendency until the freezing-point is reached, when between which point, *i. e.*, 32°, and the next degree, 33°, let every plant be copiously syringed with cold water over all the frozen parts. This being done, shade them well from the sun, and do not allow the temperature to be raised for the rest of the day above 44° or 45°. Air should be given sufficient to dry up the excess of water which has been expended. Let the temperature of all greenhouses proper be now reduced to as near a mean of 40° as possible by artificial means only. Of course an upward tendency of some 8° to 10° must at all times be admitted from sun-heat, wholly apart from any aid by artificial heating.

FORCING HOUSES.

Those *Vineries* which are in preparation for starting between the present time and the last week of this month, may now have the necessary amount of fermenting materials placed on to the outside borders. This will afford a kindly warmth by the time it is wanted. To delay this operation until the inside is being started is, to say the least, a mistaken idea. Be careful not to let those Vines which are actually growing have a night temperature exceeding a mean of 57° by night, and 61° or 62° by day, if severe weather supervene, and much forced heat is necessary to maintain such a maximum. Those persons who may be just starting their vineries should not allow the temperature to exceed a mean of 50° by night, and 55° by day; this, with frequent moistenings until such time as foliage is produced, when a somewhat modified humid regimen will have to be adopted. In regard to *Pines* it will be necessary, should severe weather exist during this month, to keep the night temperature down to as near 60° as possible. Be particular to use mats as protective coverings to all Pine-pits, &c., where practicable, for the reasons given above. Give as much air as possible to all *Peach* and *Nectarine trees* which may be in flower, and have recourse to artificial fertilisation. Do not force *Cherries* too quickly at first, but by beginning as low as from 44° to 46°, bring the bloom buds forth very gently, so that as much strength as possible may be given to each bloom. Those *Strawberry plants* which were introduced into cool pits or vineries a few weeks ago, may now, if early forcing is intended, have the pots plunged into bottom-heat of from 68° to 70°. Keep the tops or crowns cool for a week or longer, so that the roots may have a good start.

HARDY FRUIT GARDEN.

Bush fruits, such as Gooseberries, Currants, &c. must now be watched to see that the birds do not destroy the buds. Independently of bullfinches and blackcaps, I have known sparrows to strip the buds from both Red and White Currants at a dull, hard period. To prevent this, few things are better than to twist a few reels of white cotton conspicuously around the branches.

HARDY FLOWER GARDEN.

In continuation of my previous remarks upon *Hardy Climbing Plants*, I will now allude to such evergreens as are used to embellish walls and vacant spaces, with less rambling growth than those previously referred to, and amongst which the best variety of *Magnolia grandiflora* stands pre-eminent. *Escallonia macrantha* is another very beautiful glossy-leaved evergreen, bearing a profusion of red flowers; both these plants require the protection of a mat or two in winter. *Cotoneaster Simonsii* is a very neat foliaged plant, with bright red berries; next to which, *C. uva-ursi* is commendable for the size of its leaves. The red Pyracantha (*Cratægus Pyracantha*) has the peculiar merit of retaining its clusters of scarlet berries through the winter—that is, if not consumed by birds, who like them much. There also exists a white-fruited variety. Two or three of the well-known *Berberries*, if well trained, make very pretty objects for walls and the like, especially such as *B. Darwinii*. The large-leaved Mahonia (*B. macrophylla*); the Japanese evergreen varieties, *B. japonica*, as well as *B. dulcis*, &c., are all pretty. *Chimonanthus fragrans*, though leafless, produces very fragrant blooms at a season when they are very acceptable. *Forsythia viridissima* will afford a very pleasing variety, whilst *Jasminum nudiflorum* enlivens the winter through with its plentiful yellow flowers. The Box-leaved and the azurean varieties of *Ceanothus* from Mexico are now seldom to be met with, though they do well against south walls. I would just enumerate, by the way, *Lonicera aureo-reticulata*, *Aristolochia Sipho*, a fine large-leaved plant for summer display alone, especially if trained upon poles or attached to verandahs; also *Dioscorea Batatas*, for a like purpose; the *Parsley-leaved Bramble*, and to those who would not grumble at a good 5*s.* worth, I may mention that there is a new Japanese variety of the *Virginian Creeper*, which is rather more compact in habit, with more colour than the old one. Then for minor fretwork, such as for small screens to embellish the base of aviaries, for fire-screens, window-sills, and every place where a healthy, thriving, minute creeper is a desideratum, there is Veitch's miniature-foliaged Virginian creeper (*Ampelopsis tricuspidata Veitchii*), a perfect gem in its way. I have not exhausted the list, but will now refer—last, though not least—to the recent acquisitions in the way of *Clematises*. From *C. Flammula*, the smallest, and also the sweetest, up to *C. Thomas Moore*, lately figured in the "Florist," the largest, there is every form and shade of colouring which the most fastidious taste could wish for; whilst as a double-flowered variety, the azure blue *C. John Gould Veitch*, should find a place in every garden. I must leave other subjects of more lowly growth, such as shrubs, both deciduous and evergreen, for a future time.

KITCHEN GARDEN.

Continue to collect and store fallen leaves. Procure and place any fresh soils upon beds or borders, where it is intended to renovate any this winter. Get up a fortnight's supply of *Jerusalem Artichokes*, *Parsnips*, *Horse Radish*, and all other things which are not easily obtained during severe weather. *W. E.*

TOWN GARDENING.

THOUGH the *Chrysanthemum* is a tolerably hardy plant, I have known a long and hard winter to kill many plants; therefore I advise that they should be taken up, and laid in by the heels in rows, keeping each sort separate. They can then be easily covered and protected from frost. The borders will then be rendered ready for a winter fallow, which is of great importance. It will also be advisable, where *Hyacinths* and other bulbs are planted in beds, to cover them with a layer of cocoa-nut fibre or tan 2 or 3 inches deep. During heavy showers of rain or snow a covering of mats should be superadded. In February, if the frost breaks, this covering should be nearly all removed with the hand as carefully as possible, so as not to injure the tops of the leaves that are coming through the ground, for if the covering is suffered to remain the footstalks will be long and slender, and incapable of supporting the flowers. After this they should be protected from heavy rain and frost by mats thrown over hoops. The forwardest of the Hyacinths in glasses that have been placed away in the dark should now be brought to the light, and a few more firm roots placed away, as directed at p. 972. This will aid in keeping up a succession till they come into bloom in the open air. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Dec. 8, 1869, as observed at the Horticultural Gardens.

Dec.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs. 2	29	29.968	29.896	34	17	25.5	41	41	N.	.00
Friday 3	●	29.826	29.614	38	29	33.5	40	41	N.	.00
Satur. 4	1	30.213	30.211	48	26	37.0	41	40	E.	.00
Sunday 5	2	30.220	30.193	42	36	39.0	40	39	E.	.00
Mond. 6	3	30.201	30.151	39	35	37.0	41	40	E.	.00
Tuesd. 7	4	30.151	30.016	41	35	38.0	41	40	E.	.00
Wed. 8	5	29.887	29.831	43	36	39.5	41	40	E.	.00
Average .		30.071	29.945	40.7	30.5	35.6	40.7	40.1		0.00

Dec. 2—Overcast; sharp frost; densely overcast.
— 3—Sharp frost, very fine; clear and cold at night.
— 4—Sleet; densely overcast; clear and frosty.
— 5—Cloudy; overcast, very dull; overcast.
— 6—Densely overcast, foggy; hazy; overcast and cold.
— 7—Dense fog; densely overcast; overcast, cold wind.
— 8—Dense fog; overcast; densely overcast.
Mean temperature of the week, 6 1-10 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending Dec. 18, 1869.

December.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..12	48.0	37.0	42.5	18	0.56 in.	3	5	6	4	4	8	9	3
Mon. ..13	47.5	36.5	42.0	23	1.16	2	10	4	4	6	7	6	4
Tues. ..14	46.9	34.3	40.6	21	1.24	7	5	5	6	3	7	7	4
Wed. ..15	47.0	33.6	40.3	19	0.34	3	7	5	3	6	11	6	2
Thurs. ..16	46.5	32.9	39.7	15	0.34	6	4	4	3	7	9	8	2
Friday ..17	45.9	34.0	39.9	20	0.38	10	5	3	1	8	9	4	3
Satur. ..18	45.8	33.7	39.7	20	0.56	4	6	3	3	4	13	4	6

The highest temperature during the above period occurred on the 15th, 1868—therm. 59 deg.; and the lowest on the 16th, 1853—therm. 7 deg.

Notices to Correspondents.

ABYSSINIAN MIXTURE: *F S.* Received, and under trial.

BOOKS: *C R.* Grigor's "Arboriculture" is the most likely to suit you of any book we know.—*C. Lawrence.* The "Florist and Pomologist," if not too expensive.

DISEASED ORCHID LEAF: *G G.* We have never seen anything like the affection on your Orchid leaf. It is not a case of spot, nor does it in the least resemble that disease. Is there any local cause to account for it, depending on its peculiar position in the house? It shall be submitted to the Scientific Committee at the next meeting at South Kensington. *M J B.*

INDIAN FOREST SERVICE: *Constant Reader.* Write to the Secretary at the India Office.

LOMARIA GIBBA: *H H.* There are several well-marked varieties of this fine dwarf Tree Fern, namely, Bellii, crispa, and major. The latter, in its aspect, in some degree approaches Blechnum brasiliense.

NAMES OF FRUITS: *H L H.* 1, Suffolk Thorn; 2, Knight's Monarch; 3 and 4, Beurré d'Aremberg; 5, doubtful; 6, Ne Plus Meuris; 7, Glou Morçeau.

NAMES OF PLANT: *J B.* We will ascertain.—*W P, Shrewsbury.* Agaricus squamosus. We do not know the work referred to: you had better wait for the publication of the forthcoming work by Mr. W. Wilson Saunders and Mr. W. G. Smith.—*R J B.* Your plant is neither Atriplex nor Chenopodium, but the common Mercurialis annua.—*A J.* (Four Elms). Veronica elliptica.

OXFORD SHOW: *H J C.* Now arrangements will be made, embodying some of your suggestions.

PICEA PINSAPO: *W. Wildsmith.* The specimens have been received. We will exhibit them at the next meeting of the Scientific Committee, on December 21.

PRUNING FRUIT BUSHES: *H M.* Yes; but prune close.

STRAWBERRY: *A M'A.* We believe not at present.

VINE STYPTIC: *Clonmel.* John Young & Son, Dalkeith. People with goods to sell should advertise them.

COMMUNICATIONS RECEIVED:—W. F.—J. G.—G. A. H.—J. T.—J. C.—D. C.—C. L.—Q. R.—G. P.—J. McM.—Sap.—Inquiror.—A. F.—J. B.—A. W.—P. G.—E. C.—F. S.

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The Agricultural Gazette.

SATURDAY, DECEMBER 11, 1869.

A VERY interesting agricultural week has given its annual enjoyment to an unusually large number of visitors. The Smithfield Club Show has been hardly equal to its average merit, but it has been more attractive than ever; and immense crowds, including all ranks, from his Royal Highness the PRINCE OF WALES downwards, have thronged the Hall since Monday last. Probably the finest classes of the live stock department of the Show are those which, for their general utility, must stand lowest on the general scale. The Devons among cattle, and the Southdowns among sheep, are as good as they ever were; but neither Shorthorns nor Herefords, on the one hand, nor the larger framed and long-woolled sheep upon the other, are so well illustrated; and the first-prize examples in the several sections of the Show are certainly inferior to the "senior wranglers" of past years. Good, nevertheless, as many of the live stock classes on the floor of the Hall have been, we believe that the specimens of farm crops in the galleries are the more wonderful of the two. A display of Mangel Wurzels and Cabbages, in which almost every seedsman seems to have found with ease abundant instances weighing from 40 to 60 lb. a-piece, is surely an extraordinary thing. Kohl Rabi, too, on several stands prove what a capital and useful crop they are; and specimens of the commoner Turnip, Carrot, and Potato crops are of unusual excellence. Reports of all sections of the Show will be found in the following pages.

The London Farmers' Club held their meeting on Monday evening, and heard Mr. MASFEN discuss the several clauses of Mr. CADLE'S Farm Agreement; which had received the prize of the Royal Agricultural Society. The paper was not so definite and outspoken as so experienced a land agent might have been expected to make it, and the discussion following it was also unusually discursive and inconsequent.—The meeting of the Central Chamber of Agriculture, on Wednesday, confined itself to the reception of the Council report, and no reference was made to the subject which last week we supposed might have aroused discussion.

The general meeting of the Royal Agricultural Society, on Thursday, was well attended, and, barring objections to the horse jumping display at Manchester, it was cordial and unanimous. In particular, the Council were heartily congratulated on the two principal events of the past year—the general meeting at Manchester, which has been in every way a general success—and the appointment of Mr. H. M. JENKINS as Secretary and Editor, which has been equally fortunate. The current number of the Society's Journal is the first which Mr. JENKINS has edited, and it was referred to by every one as affording conclusive testimony to his fitness for the united offices, and to the wisdom and good-fortune of the Council in appointing him to them. Among the other subjects which the annual report of the Council names, is the offer of a prize of 100*l.* for the best cultivated farm in the Oxford district, at the next annual country meeting. Mr. MASON, High Bailiff of Oxford, has the merit of having inaugurated this form of premium, which can hardly fail of being an annual feature in the proceedings of the Society for the future. The Council add their own second prize of 50*l.* for the second best competing farm; and we anticipate a most interesting competition.

WE have just received, by the kindness of Dr. J. S. BILLINGS, the volume of REPORTS ON THE DISEASES OF CATTLE IN THE UNITED STATES, which is in many points of view full of interest. We shall confine our observations at present to the chapter which is entitled "The Ill-effects of Smutty Corn on Cattle," not only because it broaches a subject which has been more than once discussed in this country, but on account of its bearing on a puzzling case which came under our own notice. The corn in question is the Maize; and it is subject to a kind of smut, which is developed to a size and extent to which the smut of our own more usual cereals bears a very small ratio. When, however, Maize has been cultivated on a large scale, as has been attempted in one or more of our southern counties, the smut (Ustilago mayidis) occurs, as it does very frequently in the South of Europe, an illustration of which will be found in the magnificent work on the varieties of Indian corn which was published many years since by Signor BONAFOUS. It was found in several departments of the United States that considerable mortality occurred amongst cattle turned into the corn stubble, if we may use the term for the standing stems after the cobs had been gathered, but where there were still many diseased ones affected with smut; and it was supposed that the mortality arose from "smut in the cornfield in which the herd ranged." It became thus important to ascertain by experiment whether the smutty parasite had really any effect on the health of cattle. Dr. GAMGEE, therefore, whose assistance had been secured by the American Government, procured no less than 42 lb. of smut in excellent condition, and gave it in large doses for some time without deranging the health. It is, we believe, well established that a cutaneous affection, called Pellagra, is common in Italy, where Indian corn forms the staple of food; and pigs and other animals fed on it often lose hair; but this does not appear to arise at all from the admixture of smut.

It was necessary then to inquire further into the matter, and it appeared quite clear that the constipation and subsequent inflammation, with other distressing symptoms, and amongst them intense delirium, were due to the dry innutritious character of the food, which formed a solid cake in the stomach defying all power of digestion.

A few years since some valuable beasts died in our neighbourhood under precisely the same symptoms, and as foul play was suspected Mr. HARRIS, of Northampton, was called in to make a *post mortem* examination, and we ourselves afforded all the assistance we could. Among other points was the convulsion delirium, which caused the animals to lash themselves with great violence against the walls—a matter which is guarded against in America by tying the affected beast to a revolving post. On examination it was found that the solid cakes which gorged the folds of the maniplies consisted of extremely rigid fibre, in which nothing could be discovered but some minute fragments of blue paint, which had evidently been gnawed off some palings, but in such small quantities as to make it quite clear that it was not a case of lead poisoning. The pasture was carefully searched for noxious herbs, none of which, however, were found; but in hunting for them we noticed to the master of the herd that it abounded in tussocks of exhausted Italian Rye-grass, and that we thought it very probable that this dry innutritious food was the cause of the evil—an opinion which seems fully confirmed by the case before us. There are other observations in the volume, which tend to show that some very different affections which have been supposed to arise from the common parasites of pasture Grasses are quite independent of them, though mouldy hay, or grain in a musty or decomposed condition, may induce serious injury. We have on record a case of considerable mortality which arose from the use of musty Oats, where poison was suspected, and where we had an opportunity of examining a sample. No Fungus was developed in the grain, though placed in a condition to favour its growth; and the evil seemed due to the grain itself being in a condition likely to excite putrefactive fermentation. Dr. GAMGEE reports a curious case of Hemiplegia, which came under his notice near Kirkcaldy, from the use of musty hay, and he states that he was often consulted in similar cases, which yielded to a smart purgative and improved food.

To return, however, to the constipation, which has been compared to broomsticks, arising from the use of food without a sufficient admixture of softer and more genial diet: it is clear that when the food has once been set in the omasum or maniplies, the inflammation will generally have got to such a head as to give no hope of yielding to medical treatment. Where matters have not gone too far, a strong purgative, consisting of 1 lb. of Epsom salts, 1 pint of linseed oil, and 2 drachms of powdered aloes, half that quantity of ginger, and a quart of water, administered with gruel, will sometimes prove efficacious; or if the salts are not at hand, the quantity of oil may be doubled: and if the effect is not sufficient, half-drachm doses of carbonate of ammonia may be administered highly diluted, care being taken that the mouth is not excoriated. We shall hope in some future number to advert to other matters in the excellent volume before us, which is highly creditable in every point of view, whether as regards the experts themselves, or the department by which they were employed. *M. J. B.*

—— THE trade in English Wheat is without alteration; in foreign, too, excepting American, on which there has been a slight rise in price, there has been no alteration in value.——Beef and mutton remain at previous high rates.——The seed trade is at next to a standstill.——English wool remains at past prices.

—— The following tabular account of the attendance at the Midland Counties Cattle Show for several years past, has been published:—

RECEIPTS AT BINGLEY HALL.

	1865.	1866.	1867.	1868.	1869.
Monday	£244	£214	£249	£213	£195
Tuesday	234	158	249	249	310
Wednesday ..	256	162	257	291	437
Thursday	200	113	223	239	419
Totals.. ..	£934	£647	£798	£992	£1361

SUMMARY OF ADMISSIONS.

	1865.	1866.	1867.	1868.	1869.
Monday	5,424	5,101	7,480	6,368	6,099
Tuesday	6,652	5,729	9,144	10,215	8,840
Wednesday ..	6,705	6,394	16,670	16,970	13,484
Thursday	7,991	3,209	12,270	10,730	12,336
Totals.. ..	26,772	29,433	45,654	44,283	40,759

POULTRY SALES.

1866 ..	.. 294 pens	..	.. £1408
1867 ..	.. 220 pens	..	.. 1103
1868 ..	.. 203 pens	..	.. 1004
1869 ..	.. 337 pens	..	.. 1120

Highest price obtained for poultry—Pen 62, 1st prize, Dorking cockerel, 12*l.*
Ditto ditto, for pigeons—Pen 2276, 2d prize, black barbes, 25*l.*

—— The annual meeting of the members of the Central Chamber of Agriculture was held on Wednesday, at the Salisbury Hotel; Mr. C. S. READ, M.P., in the chair. The report showed a considerable increase in the membership, congratulated the meeting on the advance of the movement throughout the English counties, and on its extension to Ireland, and represented the affairs of the association to be in a prosperous condition. It also described the action of the Chamber in reference to several agricultural questions. After the report had been unanimously adopted, the vacancies in the council, through retirement by rotation, were filled up. A report from the committee of council on local taxation was presented by its chairman, Sir M. LOPES, M.P., who was afterwards elected president of the Chamber for the year 1871. Some discussion arose with regard to the propriety of adopting measures to recruit the ranks of the Chamber; but although various suggestions were made for that purpose, no change was made in the existing machinery, which most of the members seemed to consider the best for the end in view. The subjects for consideration at the monthly meetings in the ensuing year were announced, those for the next meeting, in February, being "The best means of providing for the future maintenance of Turnpikes and Highways," and "The present system of collecting Agricultural Statistics." The proceedings terminated with a cordial vote of thanks to the chairman for his services in the chair during his year of office.

OUR LIVE STOCK.

THE following measurements of cattle were taken during the past week at Islington. Lord Penrhyn's steer, in the Shorthorn class, not exceeding 3 years and 3 months old, is a noble-looking animal: he girths 8 feet 6 inches, and is 5 feet 4 inches long. In this case the live weight is 20 cwt. 0 qr. 13 lb.; and as he will probably yield about 70 per cent. of beef, his dead weight will not be far off 14 cwt. On the other hand, calculating his weight from measurement and using ·28 as the decimal multiplier (see "Ewart's Agriculturist's Assistant"), he ought to weigh 13½ cwt. We measured Mr. Outhwaite's steer (No. 84), the winner of the first place in the class for steers above 3 years and 3 months old. His girth is 8 feet 7 inches, and his length from shoulder to rump 5 feet 6 inches. His live weight is 20 cwt. 1 qr. 6 lb., which, if it yields 70 per cent. of beef, makes his carcase weight to be 113⅓ stones. Taking the method of calculation from measurement, his weight ought to be 113⅓ stone. The method used in the above cases in order to calculate the carcase weight is as follows: square the girth, reducing the inches to decimals of feet, next multiply by the length in feet and decimal parts of a foot, and finally multiply by a number varying from ·23, in the case of half fat inferior animals, up to ·28, which would only be used in extraordinary cases, such as we are now considering. Among other extraordinary cattle may be mentioned one exhibited by Mr. Scales, of Grantham (No. 95): the girth and length of this animal were respectively 8 feet 10 inches and 5 feet 4 inches, and his live weight is 21 cwt. 3 qr. 14 lb. The fineness of bone in the case of many cattle was very remarkable, especially among the Devons. We noticed one case particularly, that of Mr. Nixey's beautifully level 4-year-old heifer, No. 29 in the catalogue: the bone immediately below the knee of this heifer was smaller than a man's wrist, only measuring 6 inches, and yet this was supporting a weight of above 12 cwt.! We hope on a future occasion to be able to give the absolute weights of some of the above-mentioned animals, and also of many others whose measurements were ascertained during the Islington show week.

—— We have received the following communication from Mr. Willoughby Wood:—"I am happy to tell you that *Oxford's Ada* brought yesterday a fine rich roan heifer-calf by NORTHERN DUKE (22,431), which does great credit both to his sire and his dam. She has all the marks of high blood, together with a degree of vigour not always exhibited by the possessors of long pedigree."

COST OF STEAM CULTIVATION.

"G. A. H." says, "I observe that Mr. Smith adopts your explanation of the 1*s.* 6*d.* per acre for interest of money and wear and tear. . . . I assert that Mr. Smith's own figures prove his declaration to be totally devoid of foundation, that he is in fact deceiving himself, and in deceiving himself he is deceiving the public." And he goes on to say, "What I complain of in Mr. Smith, is that he endeavours to persuade small farmers, having only 100 acres to plough every year, that it will pay them to purchase, for their own use only, a set of steam tackle, and that when they have done so their seed-beds for Wheat will only cost them 6*s.* 8*d.* per acre."

I will take the points as they stand. In 1855 I provided myself with a 7-horse engine (cost 200*l.*), with a windlass, &c. (cost 80*l.*), and with a smasher and a digger and subsoiler, made by my own blacksmith (cost together 18*l.*—total 298*l.*). With this engine and apparatus I started in December, 1855, but found the engine, windlass, and anchors all defective. I then altered the engine and windlass, and had made by my own blacksmith a set of new anchors, and got another snatch-block, and afterwards another, at a cost of 33*l.* This brought my total up to 361*l.* With the apparatus thus improved I made some further trials, and on November 13, 1856, I wrote thus to the *Mark Lane Express*:—

"I have since harvest ploughed by steam the whole of my farm except a bit of Wheat stubble left to try an experiment on in the spring, and a bit of Clover ley ploughed by horses. . . . In ploughing my Bean and Pea-stubble at a depth of 6 inches I did an average of 5 acres per day, including men, coal, water, and horses for shifting, at an average cost of 5*s.* 2*d.* per acre; and in ploughing my Wheat stubble at a depth of 8 inches on the heavy, and 10 inches on the light land, I did an average of 3 acres per day, at an average cost of 8*s.* 8*d.* per acre, including men, coal, water, &c. To this must be added interest, and wear and tear—say, 1*s.* 6*d.* per acre, which will be the outside, the tackle coming in nearly as good as it went out."

Now this extract does not tell us the quantity of work done in 1856, but my book on steam cultivation does. Here it is:—

Smashed 6 inches deep:—		
Heavy land—Field No. 2	.. ..	8 acres.
,, 3	.. ..	12 ,,
Light land—Field No. 1	.. ..	12 ,,
,, ,, 3	.. ..	11 ,,
Total	.. ..	43 ,,
Ridge-ploughing and subsoiling, 9 to 10 inches deep:—		
Heavy land—Field No. 1	.. ..	10 acres.
Light land—Field No. 4	.. ..	12 ,,
Total	.. ..	22 ,,

Therefore the total for the year of the two kinds of work was 65 acres. After completing the work I estimated the fair amount for depreciation and interest that should be charged upon this small quantity of work done, taking into consideration that the engine was employed for threshing, &c.; and besides this, I had sold three horses off for 150*l.* to make way for the engine. I came to the conclusion that 1*s.* 6*d.* per acre would be a fair charge for interest and depreciation, &c. That has been my charge down to this day, and it has never until now been questioned, although it has been regularly published in the *Messenger* every year when that paper reported my cropping, and that mode of estimating has been adopted and practised by all excepting "G. A. H."

Only the Royal Agricultural Society took two hundred days as a basis when it awarded its 500*l.* prize at Chester, and it has made similar estimates ever since in the award of its prizes. But let us test the point, and see whether it was fair or not. The work done was 65 acres. The total cost of tackle stood at 331*l.*, from this I must deduct the 150*l.* for three horses sold off to make way for the engine; this reduced the total, and I must charge the half of the engine to threshing, 100*l.* These two items together reduced the total to 81*l.*, therefore in December, 1856, there was 4*l.* 1*s.* due for interest; 1*s.* 6*d.* per acre on 65 acres would over-pay this by 16*s.* 6*d.*, but 16*s.* 6*d.* would not be enough for wear and tear and depreciation, although the tackle went in without any apparent wear and tear: but I have another item to bring in—the saving of the keeping of three horses sold off to make room for the engine, &c.; this, at 25*l.* each, gives me 75*l.* Here is enough and to spare. I was not "deceived," for I knew that I was winning. And here is another item of gain that I must bring into consideration—60 quarters of Peas grown upon 12 acres of heavy clay land, that under horse culture would have been dead fallow. Surely I have said enough to show that I did not make an unfair estimate of interest and wear and tear when I fixed it at 1*s.* 6*d.* an acre.

Will "G. A. H." tell me again that I am deceived about my 6*s.* 8*d.* an acre seed-bed for Wheat, or my 1*s.* 6*d.* an acre for interest and wear and tear? The fact is, I had no extra interest to pay, and the 1*s.* 6*d.* per acre might all have been placed to wear and tear without using the word interest. I need not go into the question of 100*l.* for change of engine in 1859, for you see that I had already gained enough to pay it.

I will now state my case again, by taking my starting-point at Michaelmas last, when I entered upon my new occupation, bringing my total arable land up to 163 acres, showing the number and cost of horses, &c., that would have been needed to work it by horses only, and the number and cost of horses, &c., with the cost of an engine and a set of steam tackle to work it upon the Woolston system. I shall fix the cost of a horse with its tackle and implements to work with at 45*l.*; the cost of an engine at 300*l.*, charging the half of it to threshing; the cost of a set of tackle with a 5-tined smasher and a ridger—the two implements I use—at 266*l.*, the price at which they are offered by the makers to the public, and the cost of the keeping of a horse at 25*l.*

My 163 acres of arable land consist of 90 acres very heavy clay, hilly, and uneven; in fact, there are five hills upon it, all at points very steep, and 73 acres of what I call light land, but, in fact, not so. It is upon the flat—mixed gravel and clay. Under horse culture, to work the whole 6 inches deep, would need 10 horses; under steam culture, to work it 10 inches deep, I have started off with five. That number will not get half employment throughout the year; but as yet I have a lot of landlord's work to do, and I mean to be well up to the mark for doing all, both tenant's and landlord's, for at least this year. Now, let us look at this picture:—

Steam-power Cultivation from Michaelmas, 1869, to Michaelmas, 1870.			
Half the cost of the engine	£150	0	0
Cost of tackle	216	0	0
Cost of five horses, with implements, &c., at 45*l.* each horse	225	0	0
Cost of keeping five horses, at 25*l.* each ..	125	0	0
	£716	0	0

Horse Culture from Michaelmas, 1869, to Michaelmas, 1870.			
Cost of ten horses, with implements, &c, at 45*l.* each horse	£450	0	0
Cost of keeping ten horses, at 25*l.* each ..	250	0	0
Balance on the side of horse culture	16	0	0
	£716	0	0

This is grand; the large sum of 16*l.* more tenant's capital is needed to work this 163 acres farm of mine the first year, having the whole in crop, than would have been needed under horse culture having a portion of fallow. "G. A. H." will want interest on this large sum of 16*l.*, and he shall have it, for with my extra cropping under steam culture I shall be able to pay it. Having considered the matter over again, I will not alter my estimate of 1*s.* 6*d.* per acre, therefore my seed-bed for Wheat stands at 6*s.* 8*d.* an acre.

Now there is a point about this interest on tenant's capital worth looking into. You never hear of interest being charged on horses, their tackle and implements, or on money for payment of labour. When a valuation is made horse-keeping is taken into account, their tackle and implements are also considered, and so is their doctor's bill, and the knowledge of now and then a dead horse is not tossed on one side; payment of labour is also considered, but interest of money never is. I will support my case by an extract from Mr. Morton's paper, read before the Society of Arts, Dec. 7, 1859:—

"Now the cost of horse labour on 21 farms in different parts of the country, of which the particulars have been kindly given to me: those farms employ 282 horses, and they cost for food, for depreciation of value, and saddler's and blacksmith's bills, 7815*l.* a year; their implements need 870*l.* a year to keep them good, and the ploughmen and boys employed about them cost 4241*l.* a year in wages,—about 13,000*l.* in all, or 46*l.* per horse per annum."

The farmers had to find this 13,000*l.*, yet interest upon it is not considered. Yet "G. A. H." will make us use the word interest when we talk about steam ploughing. I knew that I must, and I did so, although in my own case I knew that but little additional tenant's capital was needed, and more when increased produce was brought to bear upon it. "G. A. H.'s" assertion about Mr. Smith's figures being totally devoid of foundation must fall to the ground, for the evidence above proves that I am not "deceived," and therefore am not "deceiving the public."

Now for the last point. Mr. Smith endeavours to persuade small farmers. Here is an extract from a letter that, in 1858, I addressed and published to the farmers of England:—

"September, October, and March are the best months for applying steam power to the cultivation of the soil; and after deducting Sundays and a few days for threshing and stoppage by rain, the working days for September and October may be put down at 45: this, multiplied by five for heavy land, and seven for light land, gives 225 acres, and 315 acres, as the quantity of land that can be cultivated once over with a set of apparatus within three months. By this it is clearly seen that if steam-power is to be generally applied to the cultivation of the soil, every large farmer must possess a set of apparatus of his own. Two or three small farmers may have a set between them on hire, one of another, according to arrangement, for September and October will not wait, and if the work is to be done well it must be done in those months."

My advice to the farmer has always been the same as it was in 1858, "every large farmer must possess a set of apparatus of his own.

"Two or three small farmers may have a set between them, or hire one of another, according to arrangement, for September and October will not wait, and if the work is to be done well it must be done in those months."

My own practice shows that it would pay to have a set on a very small farm of heavy clay land, and "G. A. H." must see that it pays well on this farm of mine—interest, wear and tear, depreciation, and all being considered. Then let him pack up his pepper-box about his 1100-acre farm, for if he continues the swinging of it about we must add "deceiver" to his name. 6*s.* 8*d.* an acre is the cost of my seed-bed for Wheat—interest and wear and tear, at 1*s.* 6*d.* per acre being well considered and included; and I will tell him one word more—20 acres of my growing Wheat on my old heavy land are Wheat after Wheat. This I did to give time on my new land to drain and clean it before it is planted. It will all be under crop next summer, a part Beans and a part Peas, and it will all come in for Wheat the following autumn. We can do wonders when aided by steam-power. The Wheat above-noticed is up, and looks well, and this new land of mine will never need a dead fallow again, although dead fallow has been the rule heretofore.

Now, it may be seen that in 1856 a smashing cost 6*s.* 8*d.* an acre, and that in 1869 a seed-bed cost 6*s.* 8*d.* How is this? is a question that may be fairly asked. I will tell you. In 1856 my land was raw, and about the same for cleanliness with other people's. The under, hard, horse-trodden surface made furrows and water-furrows a matter of necessity. My 7-horse engine could work my three-tined smasher 6 inches deep, clearing a width of from 30 to 36 inches, and do on an average 5 acres a-day. The cost for men, coal, oil, and water was 5*s.* 2*d.* an acre, and I fixed the extras at 1*s.* 6*d.* per acre; this brought the total to 6*s.* 8*d.* I use the word extras advisedly, for hereafter I will drop the word interest: I will not be pulled up by it again. In 1869 my land, from the 14 years' working by steam-power, had become dry, friable, and clean. The pitch-plaster having been completely smashed, my engine that I took in exchange 11 years ago could work a five-tined cultivator 48 inches in width, and do on an average 8 acres a-day, at a cost for men, coal, oil, and water, of 3*s.* 2*d.* per acre; to this add 1*s.* 6*d.* for extras: this brought it up to 4*s.* 8*d.*, and a cross-cultivating with horse, at a cost of 2*s.* per acre, brought the total cost of seed-bed up to 6*s.* 8*d.* per acre. That is a fact, "G. A. H.;" you shall learn a little before I have done with you, for I am not a "deceiver."

Now, I ask "G. A. H.," "Agricola" (whom Mr. Toepffer will not talk to), Mr. Greig, and Mr. Toepffer, who fell foul of the roundabout tackle at Peterborough, and all the contracting men together, to tell us where we can find a farm worked by steam-power upon the contract plan? That is where all the hard work is done by steam-power, the horses having been sold off, leaving just enough to do the harvest, dung and job-work, as well as the light cultivatings and seedings Mr. Torr has been a great advocate of the contract plan, yet he has only had a few acres a-year done on his large occupation, and I cannot hear of any one who has done more than he. Mr. Bates in the *Times*, in August, and a Berkshire farmer in *Bell's Messenger* three weeks ago, showed us to some extent the reason why. The former had 7½ acres done twice over at a cost of 44*s.* 4*d.* an acre, and the latter had 50 acres done twice over at a cost of 27*s.* 2*d.* an acre. Such figures as these would make beggars of any men who would thus continue to scatter their money for the contracting men to scramble for. I do not ask Mr. Campbell the above question, for he is a private worker, but I should like to know when he began working his tackle "since harvest," for could not have begun "since harvest" until he had cleared a bit of corn I cannot fix "since harvest" this year earlier than middle of August, and from that period to the Pet borough trials there were but 36 working days. H said that he did 36 acres a day—at this rate of work he would get over in the 36 days 1296 acres. How could do "from 2000 to 3000" "since harvest," a before the Peterborough trials, I cannot understan Mr. Campbell would do well to explain. "G. A. H. must not call upon him to pay interest on the larg sum of money he must have spent on his several sets o tackle; if he does, his cost per acre will be a lot over 2*s.* 6*d.*—5 per cent. on 8000*l.* would come to 4*s.* per acre on 2000 acres, and the tackle that he has had must have cost that large sum. He is an experimentalist I should charge him with his last set of tackle, only I am an experimentalist, and cannot stand a charge on all I have spent; for instance, the cost of my first windlass must not be added to the cost of my four-

wheeler—one that I have had 11 years—although I have it by me as a relic, and am proud of it, it being the first that practically worked land by steam-power: and surely he would not require the 500*l.* to be added that I have spent in making and improving my combined cultivator and drill that I have condemned and cast aside as worthless, giving the public the advantage of my experience.

And now, in conclusion, let me ask "G. A. H." to look over my letter that you have kindly taken from the *Times*, and see whether a set of steam tackle would not be very valuable on small holdings of heavy clay land. Forty acres have given me a gain of 240*l.* in 14 years, in the shape of increased produce. Will he ask now is this done? I will tell him. A great portion is due to having all my land in crop instead of a fourth part of it in fallow yearly, and the remaining portion is due to a greater fertility of the whole. Will he turn round and say, Smith's is an exceptional case? No, he cannot, for there are the 800,000 acres of fallow, as shown by the Board of Trade. This large number of acres must be multiplied by four, to represent the quantity of land worked under the fallow system. This gives 3,200,000 acres of heavy land especially needing steam-power upon it, and if you take my data for gains, you get a gain of over 12,000,000*l.* a year to the country. Surely such a sum as that is worth trying for, especially as it can be won without any increased tenant's capital, excepting a little that must be lost in making the change from one system to the other. In pulling down a house and rebuilding it, there is always a cost, be the old material ever so good, yet we seldom hear of regret or loss after it is done. *William Smith, Woolston, Bletchley Station, Bucks, Nov.* 29.

Home Correspondence.

The Yield of Sugar-Beet Contrasted with Mangel.—In last week's *Agricultural Gazette* there is a letter from Mr. Mitchell, of Rainham, asking for an explanation of the fact, that while his Mangel yielded 25 tons per acre, his Sugar-Beet yielded but 16 tons. If, as he says, they received the same treatment in every respect, that explains the difference of yield. For there ought to have been a difference in regard to the distance of the plants from each other. As a rule the Sugar-Beet does not grow so large as the Mangel, and therefore, to ensure the same weight per acre, more must be grown. To make this plain, I presume that in an ordinary crop of large Mangel there will be from 60 to 80 roots to the pole. Now, in Sugar-Beet there should be about 200 roots on the same area. This increase of the number of the roots will compensate for their individual lightness, and the gross yield of Sugar-Beet will probably be as great as that of Mangel. Already they are running each other pretty close in the Lavenham district. The heaviest crop of Sugar-Beet this year weighed in the gross 31 tons per acre. The best crop of Mangels seen weighed 1 ton less, or 30 tons. Weighed without tops the Mangel reached 24 tons per acre, and the Sugar-Beet 21½ tons. The number of Mangels per pole was 100 roots, of Sugar-Beet 200. These facts and figures point a lesson and indicate the direction improvement should take in regard to Sugar-Beet. Many one who remembers the first crop of Mangels, with their uncouth roots and coarse large leaves, and contrasts them with the fine stock and small leaves of the most approved sorts of to-day, will see at a glance that the same course of improvement by selection and crossing, if needful, must be pursued with the Sugar-Beet. Amongst the crops now there are great differences in regard to top and habit. These have been noted by the growers, and most of them are saving their own seed from what they consider the best samples. I believe in a few years we will have model crops of Sugar-Beet, with little or any greater development of top than among the best Mangels. Once this is accomplished the roots may go yet closer together, and as, bulk for bulk, they weigh heavier than common Mangel, it follows that by-and-by we shall have as heavy or even heavier crops of the Sugar-Beet per acre. Meanwhile, I do not think that even now there is much loss incurred by growing the Sugar-Beet, even for feeding purposes. Possibly Mr. Mitchell may get as much meat, butter, milk, or cheese out of his 16 tons of Sugars as from his 25 tons of common Mangel. True he loses a little over a third in weight; but probably that loss is converted into a gain by the doubling of his percentage of sugar. As to the bolting of such crops, I regret that it has not been discussed apart from the names of any particular firms. The public are not asked to state whose seed had or had not bolted, much or little, but whether seed that was known to be old had bolted more generally than that which was known to be new. During the hot summer of 1868 the Lavenham Sugar-Beets hardly bolted at all. During the cool changeable season of 1869 the self-same seed, only a year older, bolted fearfully. Can anyone vine the cause, or determine the question on its erits, without puffing up or running down any seeds-an, great or small? Further, the bolting this year as by no means confined to Sugar-Beet. Since last vriting on the matter I have seen many fields of common Mangel, and some of them were more seedy than any of the Lavenham Sugar crops. I highly approve of Mr. Mitchell's plan of beheading the bolters, and thus improving immensely the appearance of the crops, and giving the runaway plants a chance of converting their growing force to useful purposes by sending it rootwards. *D. T. Fish.*

Depth of Drains.—I have read with much pleasure the very intelligent paragraph on the above subject, by "G. H. V., Grove," in your last week's paper; and I am of the same opinion as himself in regard to Government and drainage companies. Their agents or inspectors seem to be too much restricted to certain depths; so much so, that no other person's opinion, however practical, seems to be of any value. The consequence of which is, that undoubtedly a great deal of money and labour is to some extent wasted through the rigid rules enforced. Instead of which, I find from many years' experience in draining both light and heavy land, that the depth and distance between drains can be decided in the field only. The practice frequently adopted is to send a man forward to open holes in the fields to be drained, and for these holes to be inspected perhaps on the next day, or it may be a week afterwards: when, it matters not of what nature the subsoil may be, there will in nine cases out of ten be water found in the holes; and if the holes have been dug 3 or 4 feet, as the case may be, it will at once be considered necessary to drain to the same depth; whereas, it may be just possible that all the water in the holes has gone down from the surface instead of having risen from beneath the bottom of the drain. Now, to prevent this error, the man with the spade and the inspector should go both together; and as the man digs the hole, the inspector sees with his own eyes where the water comes from—whether from the surface or the subsoil. If a strong impervious clay bottom, the water will all be found from the surface, but if, on the contrary, an open, porous, sandy, or gravelly bottom, then the water will be found at the bottom of the drain, instead of on the surface. Now, the question to be solved is how to drain in the best manner, and at least expense, the different kinds of land, and to further illustrate the subject I will simply give the following, which any well digger can answer, viz.: We will sink a well to supply an establishment at any desired spot, and in doing so it will all depend on the nature of the subsoil whether we get water quick or not. Should the subsoil be of a strong clay nature, it is well known that 20 to 30, or even 50 feet may be sunk before getting water, whereas, on the contrary, should the subsoil be of a porous and free nature, the result is that water is found near the surface, or within a few feet, seldom over 10 to 15. Now, in draining the two different kinds of land, I find from practice that, in the case of the strong clay subsoil, what has to be considered is the best and quickest means of providing for the surface water to escape, and to accomplish which I find that from 2 feet 6 inches to 3 feet is better than a greater depth—the former more especially in grass-land, because there are no springs from beneath to contend with. The drains to be not more than 10 to 12 feet apart. But in draining the open and porous subsoil a very different practice is necessary, as we have here to contend with springs from beneath, therefore drain from 4 to 6 feet deep, and from 20 to 30 feet between the drains. As it is a matter of £ *s. d.*, it behoves every landowner to consider seriously before he lays himself under the clutches of drainage companies, who may compel him to entail a burden upon his tenantry beyond what is really necessary. However good such companies may be, I consider the depth of drains should be an open question. *W. C. Kiplin.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL, *Wednesday, December* 8.—Present: the Duke of Devonshire, K.G., in the chair; the Earl of Powis, Viscount Bridport, Lord Chesham, Lord Kesteven, Lord Tredegar, Lord Vernon, Lord Walsingham, Sir Massey Lopes, Bart., M.P., Mr. Acland, M.P., Mr. Baldwin, Mr. Barnett, Mr. Barthropp, Mr. Booth, Mr. Bowly, Mr. Cantrell, Colonel Challoner, Mr. Druce, Mr. Brandreth Gibbs, Mr. Hassall, Mr. Holland, Mr. Hornsby, Mr. Hoskyns, M.P., Colonel Kingscote, M.P., Mr. Leeds, Mr. Milward, Mr. Pain, Mr. Randell, Mr. Ransome, Mr. Rigden, Mr. Sanday, Mr. Thompson, Mr. Torr, Mr. Turner, Mr. Webb, Mr. Wells, M.P., Mr. Jacob Wilson, Professor Simonds, and Dr. Voelcker.

Sefton, the Earl of, Croxteth, Liverpool
Allison, Arthur, Filgate Forest Lodge, Crawley, Sussex
Allison, Charles F., Crawley, Sussex

—were elected Governors of the Society. The following new members were elected:—

Dutton, John, Curbridge, Farringdon, Berks
Fenton, Kirkby, Caldecote Hall, Nuneaton
Frankish, William, Limber Magna, Ulceby
Franklin, Joseph, Little Milton, Tetsworth, Oxon
Mackinder, Harwood, Langton Grange, Spilsby
Wilson, John, Kettleby Thorpe, near Brigg
Spurr, Anthony, Dowlands, Lyme Regis, Dorset
Tiuley, Edward, Southwell, Nottingham
Westhorp, Rev. Richard A., Berners Roding, Ongar, Essex
Whitworth, Henry, 96, King Street, Manchester

FINANCES.—Major-General Viscount Bridport (chairman) presented the report, from which it appeared that the Secretary's receipts during the past month had been duly examined by the committee, and by Messrs. Quilter, Ball & Co., the Society's accountants, and found correct. The balance in the hands of the bankers on November 30 was 3067*l.* 18*s.* 6*d.* The committee recommend that Mr. J. Gale's salary be increased 20*l.* per annum, in consideration of his long and efficient services to the Society; that a list of members in arrear with their subscriptions be sent to each member of the Council, with a request that individually he will assist in obtaining payment of such arrears; and that a sum of 2000*l.* be placed on deposit with the Society's bankers.—This report was adopted.

JOURNAL.—Mr. Thompson (chairman) reported the decision of the judges of the essays competing for the prize of 25*l.*, offered for an essay on any agricultural subject, awarding it to one on the Potato in Jersey, bearing the motto, "Practical." The motto-paper having been opened by the President, the essay was declared to have been written by Mr. C. P. Le Cornu, of Trinity Manor, Jersey. With reference to the prize of a piece of plate, of the value of 100 gs., offered by Mr. Mason to the occupier of the best managed farm within a certain area round Oxford, the committee made the following recommendations:—(1). That an entrance-fee of 2*l.* be required from candidates who are members of the Royal Agricultural Society, and of 3*l.* from all other competitors; (2). That the competition be confined to tenant-farmers; (3). That no farm be allowed to compete which does not contain at least 200 acres; (4). That a second prize of 50*l.* be awarded to the 2d best farm. (5). That no entry be received later than Saturday, February 26. And (5) that the certificate of entry shall contain the name and address of the candidate and of the proprietor of the farm, the kind of soil (light or heavy), the acreage of the farm, and its distance and bearing from the nearest town.—This report was adopted.

CHEMICAL.—Mr. Wells (chairman) presented the report of the committee, which contained the annual report of the consulting chemist. This report was referred back to the committee for the purpose of enabling them to select certain portions of it for publication in the agricultural newspapers.*

VETERINARY.—Lord Bridport (chairman) having presented the usual annual report, Mr. Jacob Wilson drew the attention of the Council to the question of the equivalent which the Society obtained for the annual grant of 200*l.* to the Royal Veterinary College. After a conversation it was resolved (with two dissentients) that the Veterinary Committee, after conferring with the governing body of the Royal Veterinary College, be requested to make a special report to the Council, on the suggestion made by Mr. Jacob Wilson, that a portion of the grant of 200*l.* be in future placed at the disposal of the Veterinary Committee to obtain reports on special subjects of interest connected with veterinary science—the committee to report to the Council at their meeting in March.

SHOWYARD CONTRACTS.—Mr. Randell (chairman) reported that the plan of the showyard for 1870 had been placed in the hands of the local committee at Oxford, to enable them to proceed with the levelling required, which is now in progress; and that the arrangements for the railway siding, and for the supply of water to the ground, had been satisfactorily determined.—This report was adopted.

SELECTION.—Mr. Thompson (chairman) reported that the committee had completed the revision of the bye-laws, but desired to take the instructions of the Council as to certain points. They also recommended that a copy of the new edition of the charter, bye-laws, and resolutions of Council be sent to each member of the Council, and to all future members of the Society on their election; and that the same be printed in the next number of the Journal, and circulated amongst the present members of the Society. It was also recommended that the annual report of each standing committee shall contain a list of its members, omitting those who have absented themselves during the whole year, and that it shall contain the names of those proposed to be added to the list for the ensuing year. The questions relating to the bye-laws having been disposed of, and the other recommendations of the committee adopted, the Chairman stated that the committee had agreed to recommend Mr. Charles Whitehead, of Barming House, Maidstone, to fill the vacancy in the Council caused by the election of his Grace the Duke of Devonshire, K.G., as a Vice-President. Mr. Wells, M.P., having proposed, and Mr. Randell seconded the nomination of Mr. Whitehead, an amendment, substituting the name of Mr. R. Russell, of Farmingham, was moved by Mr. Cantrell, and seconded by Mr. Rigden. On a show of hands the amendment was lost by one vote, the numbers being, for Mr. Russell 11, and for Mr. Whitehead 12.

The Secretary was instructed to communicate with the local authorities at Chester, Shrewsbury, Stafford, and Wolverhampton, informing them that the Society's country meeting in the year 1871 will be held in the district including Cheshire, Shropshire, Staffordshire, and North Wales.

Mr. Sanday, having given notice that he would move "that the rule for the non-payment of judges who are members of Council be rescinded," stated that as no such rule could be found, his resolution was unnecessary. It was therefore moved by Mr. Milward, and seconded by Mr. Thompson, "that Mr. Sanday and Mr. Bowly be paid for their services at Manchester;" whereupon, under clause 36 of the bye-laws, Lord Bridport requested that the consideration of the question be deferred until the next monthly Council. On a show of hands 13 votes were given against the postponement and 7 for it. The question being therefore deferred, Lord Vernon gave notice that at the next monthly Council he should move "That judges who are members of Council may be paid for services rendered to the Society."

The Earl of Lichfield gave notice that at the next monthly Council he will call the attention of the Council to the inconvenience arising out of the conditions of the charter fixing the date and place of holding the general meeting, and excluding from the Society's meetings the discussion of all subjects having reference to measures pending, or to be brought forward in either House of Parliament.

The standing committees for the year 1870 were appointed.

The report of the Council to the half-yearly general meeting was prepared.

A letter from Mr. W. A. Gibbs on the harvesting of hay and corn in wet seasons was referred to the Implement Committee.

The Council having given the usual leave of absence to the secretary and clerks, adjourned over the Christmas vacation.

At a special Council, which met, by order of the President, at the rising of the monthly Council, the stock and implement prize-sheets for the Oxford

* These extracts will be forwarded for publication in the course of next week. *H. M. J.*

meeting were arranged, certain prizes for Dorset sheep having been added to the draft of the former, on the motion of Lord Bridport.

THE ANNUAL MEETING of this association was held on Thursday last at the offices, Hanover Square, the Duke of Devonshire in the chair.

There was a more than ordinarily large attendance, and among those present were Mr. W. Caldwell, Colonel Challoner, Mr. H. S. Thompson, Mr. J. Fawcett, Lord Denman, Mr. J. L. Hythe, Mr. Edward Johnstone, Lord Vernon, Mr. G. A. Hankey, Sir Walter Stirling, Mr. T. C. Booth, Mr. J. Bigg, Mr. J. Yardley, Mr. C. Cadle, Mr. Duckham, Mr. G. Smythe, Mr. C. S. Roberts, Mr. C. S. Read, M.P., Mr. Fytche, Mr. Botley, &c. The proceedings were commenced by his Grace calling upon the Secretary to read the following report:—

REPORT OF THE COUNCIL.

Since the last General Meeting in May, 2 Governors and 32 Members have died, and 4 Governors and 182 Members have been elected, so that the Society now consists of 75 Life Governors, 75 Annual Governors, 1469 Life Members, 3962 Annual Members, 16 Honorary Members; making a total of 5597, and showing an increase of 86 for the year 1869.

The half-yearly statement of accounts to the 30th June, 1869, has been examined and approved by the auditors and accountants of the Society, and has been furnished to all members in the last number of the Journal. Owing to the great financial success of the Manchester meeting, the funded capital of the Society has been raised to the sum of 20,000*l.* Stock in the New Three per Cents., while an additional sum of 4612*l.* 7*s.* 8*d.* New Three per Cents. has been invested as a Reserve Show Fund. The Council regret that owing to the continued difficulty experienced in collecting arrears of subscriptions, they have been compelled to take legal proceedings against some members of the Society; but they have obtained the only satisfaction possible under such circumstances; the arrears have been paid, and the legality of the Society's claims has been most clearly established.

Under the Presidency of H.R.H. the Prince of Wales, the Manchester meeting attained an unusual degree of success. Their Royal Highnesses the Prince and Princess of Wales honoured the exhibition with their presence on two occasions. The expectations of the Council as to the magnitude of the meeting were even surpassed by the result. The entries of implements largely exceeded those at any previous meeting of the Society, and the exhibition of stock was on a still more extended scale. The crowd of members and visitors more than doubled in number those who were admitted to the show-yard at Leicester, and the amount received for admission was proportionately large. The interest created by the magnificent exhibition of live stock and implements may be estimated by the fact that more than a thousand pounds was realized by the sale of catalogues.

The local committee carried out the various arrangements which had been entrusted to them with remarkable zeal and liberality; and their secretary (Mr. Whitworth), in particular, was untiring in his exertions to promote the success of the meeting. Considering that during the six days of the show it was visited by more than 200,000 people, the Council believe that no slight praise is due to the arrangements by which so large a number of persons could obtain excellent refreshments without inconvenience, and at a moderate price—the more so as these arrangements were made by Mr. Whitworth with the advantage of a considerable profit to the Society. Mr. Whitworth's indefatigable efforts on behalf of the Society induced the Council to request his acceptance of the sum of 150 gs. as an acknowledgment of his services.

The great agricultural feature of the meeting was, no doubt, the careful and prolonged trials of reaping and mowing machines; and whether tested by the interest exhibited in them each day by crowds of intelligent spectators, or by the great increase in the extent to which reapers were reported to have been used during the following harvest, there can remain no question that the Society's trials of implements at Manchester have already yielded good results.

On the two Sundays during which the stock was in the yard, Divine service was performed by the Vicar of Stretford, before large and attentive congregations chiefly composed of the servants in attendance on the animals.

The Council have fixed the commencement of the Oxford meeting for Monday, July 18. They have decided that the live stock shall all be in the yard by 4 o'clock in the afternoon of Saturday, July 16, which will allow of the animals recovering from the fatigue of the journey to the show (and thus place those which have travelled from distant counties more on an equality with others which have come only a short distance), before the judges commence their inspection on the Monday morning following. The show will close on Friday, July 22, at 4 o'clock, thus enabling most of the stock to commence their homeward journey the same evening, and to arrive at their destination before the following Sunday morning.

In addition to the usual classes contained in the stock prize-sheet, the Council have offered for competition at Oxford, prizes for Norfolk and Suffolk polled cattle, for Dorset sheep, and for Lincoln as distinguished from other long-woolled sheep. The Oxfordshire Agricultural Society has offered special prizes for pairs of dairy cows, for Oxfordshire Down sheep, and for hackneys; and the local committee have offered prizes for a class of 4-year-old, and for another of older hunters.

The High Sheriff for Oxfordshire (James Mason, Esq.) has offered a piece of plate of the value of 100 gs. as a prize for the best managed farm in the district, included within a line drawn through the towns of Reading, Great Marlow, Aylesbury, Buckingham, Banbury, Stow-on-the-Wold, Lechlade, Wantage, and back to Reading. The Council have agreed to fix the conditions of competition; to appoint, and to defray the expenses of, the judges and a reporter; and to arrange all other details. They have determined that an entrance fee of 2*l.* be required from competitors who are members of the Society, and 3*l.* from all others; that the competition be confined to tenant-farmers; that no farm shall be entered which does not contain 200 acres; that a second prize (of 50*l.*) be given to the occupier of the second best farm; that no entry be received later than Saturday, February 26; and that every certificate of entry shall contain the name and address of the candidate, and of the proprietor of the farm, the kind of soil (light or heavy), the acreage of the farm, and its distance and bearing from the nearest town.

The schedule of prizes for implements and machinery to be awarded at Oxford contains classes for fixed steam engines, horse-gears, mills, crushers, chaff-cutters, oilcake breakers, turnip cutters, steaming apparatus, dairy implements, bone mills, guano breakers, coprolite mills, flax-breaking machines, tile machinery, and draining tools.

The continually increasing number of implements exhibited at the country meetings of the Society has compelled the Council to consider by what method a sufficient number of judges in each department could be appointed beforehand, and also by what means a large portion of the time of the judges, hitherto devoted to a preliminary examination, and a selection of implements for trial, could be advantageously economised. The Council have, therefore, resolved—That every implement intended by the exhibitor for competition shall be entered in its respective section and class for trial at the time when the specification is sent in to the secretary; but notwithstanding such entry, the discretion of trial will rest with the judges; also, That no exhibitor may enter more than one implement of the same construction for competition in any one class. Further, in order to protect the interests of purchasers, it has been resolved, That although certain implements, belonging to the classes for which prizes are offered, are not entered for trial, the stewards may, on the recommendation of the judges, order any of them to be tried and their capabilities made public.

The attention of the Council having been drawn to the increasing adulteration of manures and feeding cakes, especially guano, nitrate of soda, ground bones, and linseed-cakes, Dr. Voelcker has been requested to submit to the monthly Council in March, June, and December, a report of the various samples forwarded to him by members of the Society, so that such report, together with the names of the dealers who supplied the substances analysed, shall, if the Council think fit, be published in the agricultural journals.

The Society's educational examinations in April last were conducted on the same plan as those of the previous year, and the results were so satisfactory, that the Council have renewed the grant (200*l.*) for the year 1870, with this alteration, however, viz.,—that whereas, hitherto, it has been considered advisable not to fix any limit to the ages of candidates, in order that all comers might be admitted during the earlier stages of our proceedings, it has now been thought advisable to fix a maximum of age for candidates; no one who has passed his 21st birthday before March 31, can in 1870 be admitted as a candidate for the Society's honours and prizes. —By order of the Council, H. M. JENKINS, Secretary.

LORD DENMAN, in moving the adoption of the report, said that it was one which could not be other than highly satisfactory to the Society. Their meeting at Manchester had been highly successful, and every effort must be made to make that of July next equally successful. He might mention that the disease known as blackfoot [Quarter-ill?] had appeared among cattle in his neighbourhood, and as its causes and prevention are not at all known, it might be well that it should be investigated, and some account of its prevention and cure be inserted in the Journal. He had lost many animals by it, and he dare say others had. He should be very glad to find their meeting successful next year, especially as it would be presided over by so illustrious a member of the association.

MR. W. G. CALDWELL seconded the motion. He had only one remark to make, and that was with respect to the rules of competition for the prize offered by the High Sheriff of Oxfordshire. He observed that the acreage of the farms was to be returned distinguishing the land whether light or heavy. He thought they ought to distinguish also whether it was arable or pasture, because a dairy farmer might not be a good arable one. They ought therefore to obtain a return which would inform them in which the preponderance of arable or grass-land was. He approved of the steps taken by the Council to make the work of the judges easier, and to put an end to the terrible system of having to look at everything for two or three days before they could really tell what to do. He thought that the rule requiring competitors to send in the number and description of the implements for trial in their respective sections, and that no exhibitor should enter more than one implement of the same construction or class for trial, was an uncommonly good one. He had himself been a judge for two years consecutively, and could say that everything which would ease their shoulders a little would be of essential service and work well for the Society. He thought also it was advisable for the Council to give a more definite description of what were to be considered miscellaneous articles, which might be of use to agriculturists, so as to guide the judges as to what they might look at and what they should pass by entirely.

MR. READ, M.P., expressed his satisfaction at the improvement in the Journal. It was now more practical and useful than anything they had hitherto had. The review of Castleacre Farm, which appeared in the last Journal, was singularly opportune, and he regretted that Mr. Hudson, who was so long a member of the Council, and a most useful member of the Society, had passed away before it was printed. That review was most important, because it proved what could be done by capital when applied to bad or, at least, to inferior land. If it was the prominent duty of the British farmer to supply the nation with corn and meat, no one performed that duty more successfully than did Mr. Hudson; but whether exceedingly high farming paid was a question not yet quite determined. If he might make a criticism where there was so much that was good, he would say that when gentlemen wrote reviews in the dull season of early spring, and in so doing mentioned the wages of the agricultural labourer, they should be good enough to inquire what the average earnings of labourers were, rather than the wages of that particular period. Those at Castleacre were put down at 11*s.* a week, when, in point of fact, Mr. Hudson spent 2000*l.* a-year in labour on a farm of 800 acres. In the larger portion of the year men could readily earn 2*s.* 6*d.* per day, and in harvest time often 2*l.* and never less than 30*s.* per week. He hoped the Journal would be issued as early as possible, and he looked forward with a great deal of pleasurable anticipation to the report on Belgian farming, and that not only on account of its agricultural but its political bearing.

MR. NIELD, as one of the not most inactive members of the Manchester local committee, expressed on its behalf his pleasure at the handsome recognition made in the report of the value of their labours. He was glad to say that his predictions of a successful meeting had been verified to the letter, and he sincerely hoped that a similar successful gathering would be held next year at Oxford. He ventured to say that a large margin of saving had been effected in the fittings of the show-ground, and regretted that their present arrangements precluded them from adopting changes the benefits of which were apparent when they were carried out by the local bodies. He witnessed with pleasure the increase in the number of members, and expressed a hope that the time would come when every farmer of 100 acres would feel it an honour and a privilege to belong to the Royal Agricultural Society. He had advocated for the last two or three years, both privately and publicly, the drawing together to the Royal Agricultural Society of every leading agricultural association in the kingdom: and, though he admitted that they had taken a step in the right direction by dividing the country into five districts, yet he should not be satisfied till he found the principal associations in union with them, and a deputy from each present at their meetings. They might look with conservative eyes on the rapid progress of the times in which they lived. He admitted the advantages which agriculturists had derived from the services rendered to the Association by the great territorial magnates of the country; and he believed that the more noblemen were brought into personal contact with sensible and practical tenant-farmers, the better it was for themselves and the country. He agreed with the hon. member for Norfolk that the Journal was greatly improved, and it was quite a pleasure to read it.

MR. BOTLEY expressed the pleasure he felt at hearing the report, and also at the improved character of the Journal; the more so as he had himself stated that it would be better if it were more popularised, and practical essays inserted which would make it more read and quoted. That had been the case, and he was happy to see the result he had predicted had followed. He congratulated the Society on the success which had attended the institution of the educational examinations, for no money could be better laid out than that which was spent in promoting an industrial and useful education, and the result would be for the general benefit of noblemen, the middle classes, farmers, and even the agricultural labourer.

MR. T. WILLSON complained that some of the horses had been withdrawn from the showyard at Manchester, to form part of a jumping exhibition, and that many persons who had come hundreds of miles to see them had to pay 4*s.* extra, and in many cases did not see them at all, because they had no change, and there was no means of getting any. He considered that it should not be permitted to remove any animal exhibited from the Society's show-ground.

DR. CRISP expressed an opinion that the Journal might be still further improved, and suggested that it should contain a summary of what was passing in other parts of the world. He also referred to the necessity of dissolving their connection with the Veterinary College, and expressed an opinion that no improvement could be made while such connection existed. He thought the Council should advise the Government to establish a national Veterinary College. He also advocated a system of inspection and registration of minor diseases in cattle, which would, he had no doubt, be eventually carried into effect.

MR. THOMPSON expressed his gratification at the practical feeling which pervaded the meeting, and the approval which had been expressed in favour of the appointment of the Secretary. That gentleman, it was now admitted, had shown himself an able Editor. With respect to the blackfoot rot [Quarter-ill?], the best cure was to seton very early. Those who had adopted early setoning had found it very effectual in calves.

A MEMBER: Combined with good living.

MR. THOMPSON said that the well-kept cattle were not so subject to the disease as those which were poorly kept, but setoning had been found very effectual. Mr. Caldwell had expressed some doubt about the admission of so many miscellaneous articles, yet their exhibition proved very useful in attracting visitors to the showyard and increasing their receipts. The number of members was now 6000. He thought it very advisable to have an invested sum, for the purpose of keeping up their prize list, and it was only in that way they could carry on their operations on a uniform scale. Their object in investing was to pay by the interest for the standing expenses of the Society. It was not intended to have a large invested sum, but only to have sufficient to conduct its operations in a uniform manner. The present attendance showed that the day selected for the meeting proved that Thursday was a better day for the general meeting.

MR. CRISP said that the practice of setoning was so cruel that it ought to be put down by the Society for the Prevention of Cruelty to Animals.

Professor COLEMAN suggested that in future it would be expedient to send a gentleman down to the place of show, in order to see the implements entered, and arrange as to their mode of trial, so that when the judges came down they would find the implements all prepared for them, and be able to commence their work at once without wasting so much time as they now did in arranging the details of the trials.

MR. TORR explained that the exhibition of the jumping of horses at Manchester was no part of the Society's display. In point of fact the Society was against horses jumping, but their Manchester friends would have it, and the only condition made was that the horses should come through the Society's show-yard. With respect to the miscellaneous articles displayed, no prizes were given for articles which were not agricultural, and the exhibition in question was very remunerative.

MR. DUCKHAM thought that members of the Society had a right to see everything sent for exhibition without any extra charge.

LORD VERNON said that the Council would pay great attention to any suggestions with regard to the economical arrangements of the showyard, and would be obliged to any member of a local committee who would make them.

MR. JACOB WILSON agreed that people who went to the showyard had a right to see the whole exhibition; but a glance at the catalogue would show that the jumping exhibition was not theirs, and the horses at

it were only withdrawn for a short time from the showyard.

Mr. GRAY thought it rather beneath the dignity of the Society to listen to a proposition from the local committee that they should have an exhibition of that kind.

Mr. J. NIELD pointed out that the local committee had expended a large sum, and though they had recouped themselves to the extent of 5000*l.* by this means they were still a good deal out of pocket.

Mr. T. WILLSON thought it very objectionable that horses should be taken out of the showyard to be spoilt in jumping over fences which no good sportsman could take without the risk of breaking his neck.

Mr. THOMPSON said that due notice was given that there would be such an exhibition, but only those horses left the yard which were entered for it, and none without the express sanction of the owners.

Sir W. STIRLING regretted that the question should have arisen, because it was the only thing calculated to mar their perfect unanimity. He had no doubt that union of commerce and agriculture at Manchester would be productive of the best results. There had been a public spirit manifested at Manchester on the occasion of the meeting most creditable. No misunderstanding whatever had arisen, and he considered it a fortunate circumstance that the Manchester meeting had taken place in what was almost a crisis in the history of the country. Agriculture was now one of the staple topics of the day, and was not only discussed at their meetings, but at those of the Social Science Congress, and the subject was treated not only in an agricultural but in a commercial spirit.

The report was unanimously adopted; and, on the motion of Mr. Arkell, the auditors received a vote of thanks; and subsequently, on the motion of Mr. Badham, seconded by Mr. Torr, they were re-elected.

A cordial vote of thanks to the noble Duke in the chair was given, on the motion of Mr. Duckham, seconded by Mr. Read, M.P.; and

His Grace, in returning thanks, said it gave him great pleasure to fill the position in which the Council had placed him, and to listen to the discussion which had taken place.

THE SMITHFIELD CLUB CATTLE SHOW.

AGRICULTURAL HALL, ISLINGTON.—The Smithfield Club Show was opened for the eighth time in the Agricultural Hall, Islington, on Monday last, with all its previous prospects of success; and these have been amply realised. If the cattle have slightly fallen off in consequence of a number of animals entered being last week within an "infected district," so declared because of the prevalence of the foot-and-mouth disease, the quality and appearance of the large number sent were generally excellent, while the sheep are as good as, if not better than, they ever were; and the pigs are so uniformly good, that nothing more can be desired in this department. Whether, therefore, this show be intended for a practical lesson to farmers, or a country display for the pleasure of the metropolitan inhabitants, it has been perfectly successful.

The *Devons*, as has been always customary, have been placed in the first position; and, so far as beauty of form and colour go, the collection of this breed in the Agricultural Hall this week have well earned their place; but as regards the practical, or meat-paying value of the little creatures, with which the younger, and the greater part of the older, classes were filled, there is ample room for discussion. Some of the Devons were heavy and well grown; but taking them as a whole, there was not that thriftiness and hardiness of appearance which are now required to make both ends meet when a farmer has to depend on the profit of feeding for his fixed expenses and livelihood, or, in other words, for a good interest on the capital he employs. The steers were very remarkable for their perfect ripeness at their early age. They were as mellow in their touch as most cross breeds are when three times as old. Mr. Buller's and Mr. Nixey's were peculiarly of this description, and Mr. Smith's, of Hoopern, Exeter, was as perfect for form and touch as could well be found. The weights do not correspond with the prizes, for in the next class, the 1st prize steer, shown by Mr. Hambro, M.P., did not weigh so much as the 2d prize by 110 lb. In the next class, too, the 1st weighed 14 cwt. 0 qr. 3 lb.; the 2d, 15 cwt. 0 qr. 13 lb.; and Mr. Smith's great and good, but not very ornamental beast, weighed 19 cwt. 2 stones 25 lb. or nearly 5 cwt. 3 stones over the 1st prize. As the quality of this beast was equal to any shown we do not understand the use of weighing the animals, if it be not taken into account at all in estimating the merits of each. This view, too, is more particularly important when it is observed that the 1st prize is only one month younger than the unnoticed beast, which weighed upwards of 5½ cwt. more. The heifers were as pretty as could be, and the cows full of flesh and remarkably firm, from their natural character and skilful feeding.

The *Herefords* were a far greater improvement on the Birmingham muster than they usually are, although Mr. Heath's ox, with a disfigured back, took the highest honour, as he did at Bingley Hall. Nevertheless, the breed is by no means so well illustrated this year as we have seen it. Her Majesty the Queen was 2d, with a beautifully fed steer, and 3d, with an equally good heifer. In the oxen the Earl of Darnley's beast was remarkable for his fine character of head, horn, and coat, while he had great substance, well and evenly distributed, and his feeding was not surpassed, if equalled, among any animals of this breed. Mr. Bettridge's 3d was very beautiful. The Hereford heifers under four years of age were attractive, from the 1st and 2d prizes having appeared at Birmingham, and the decision in Bingley Hall having been here, very properly as we think, reversed. Mr. Arkwright now takes 1st, and Mr. Garrett the 2d. Mr. Baldwin's cow at nine years of age was a wonderful beast for youthfulness of appearance and touch. She deservedly took 1st in her class.

The *Shorthorns* carried off all the special honours, but the males were particularly honoured with the new premium of a 100 gs. cup. This however did not fall to the younger class, wherein her Majesty the Queen was 1st with a well bred and well proportioned steer, but to the medium-aged animals, the steers under three years and three months. In short the Earl of Aylesford's steer, which took upwards of 120*l.* in prizes at Birmingham, here took everything in his class that a breeder and feeder could take, and the greatest honour of the Hall, in the form of the 100 gs. cup, for the best *animal* in the Hall. The value of these prizes, as will be seen by our prize list, is 170*l.* Thus in two weeks this animal has been awarded prizes to over the amount of 290*l.* As the Earl of Aylesford has been so constant a breeder and feeder and patron of agricultural shows, we cordially congratulate him on this signal triumph. The live weight of his beautiful steer was 19 cwt. 2 stones 13 lb. The judges of the Shorthorns had evidently an eye to fine character, for Mr. Outhwaite's 1st among the oxen was of a similar stamp to the gold cup steer, while the Marquis of Exeter's had everything good about him, excepting a slack back, which partook more of the character of a malformation than any defect of character or breeding. Mr. D. R. Davies, of the Old Hall, Cheshire, added to this class by sending a very fine animal, but too masculine in appearance. Mr. J. Scales sent an ill-formed ox into this class,—a disfigurement to the Shorthorn classes of fat stock generally. Colonel Towneley's heifer was 1st here, as at Bingley Hall, but the cup went against her in favour of the cow sent by Sir W. C. Trevelyan, Bart., as it did at Birmingham. Mr. Atherton's 2d in the heifers, and the Duke of Devonshire's 3d among the cows, were both fine well-grown and massive white animals. The Messrs. Mitchell's 6 years and 10 months cow was only attractive for her beauty of colour and form, for she was very small for a Shorthorn. She was also 2d at Bingley Hall.

The *Sussex* animals have made a rapid stride in improvement. The form and general character of this breed clearly indicates that they once belonged to the herds from which the Devons spring. Even now there is not more difference between them and the Devons in general, than there is between the North and South Devons themselves. Indeed, when the younger animals are touched, we are inclined to ask where do the Devons end and the Sussex begin. As a whole, however, there is a far greater size and a more valuable proportion of flesh in the Sussex classes than there is among the Devons. Their quality cannot be described as superfine, although in many cases, and, indeed, in most cases, it is excellent, in fact good enough for anybody who is blessed with fair health and a corresponding digestion. Mr. Lee Steere's 1st prize is a grand steer, fine and mellow under the hand, and massive in his flesh. The oxen are very large, and their quality is good, while the cows are very handsome as well as hardy to look at. The breed furnishes good serviceable beasts for farmers who have their rent to pay, either out of beef or butter, or both.

The *Suffolk* breed made a very poor show, the only one out of the six which was worthy of notice being a very handsome little 3-year-old cow sent from Sandringham by his Royal Highness the Prince of Wales. The two steers had mean, ridgy backs, and were correspondingly coarse all over.

The *Longhorns* were four only, the 1st prize ox being the one which we described last year from Bingley Hall, as having as perfect a touch as any in the Hall; and having been kept over for this show he has grown into so remarkably good a beast that he would do credit to any breed.

In the *Scotch Horned* steers or oxen there is the most extraordinary decision we ever saw. In the first place, the 1st prize is described as "breeder unknown," while his age is set down as "about 4 years and 6 months." This may be a fair guess, but no one could guess what his breeding is. If there was another animal in the Hall of a type at all similar it was the black heifer in the class for the female Irish breed. This, however, would not have mattered had there been nothing in particular shown with him, but there was a really good show of Highlanders, and the 2d was a deep well covered brindle, with a perfect outline set off with fine towering horns; while the ox of Mr. Cheves, of Middleton of Rora, Longside, Aberdeen, was as finely formed, massive, and altogether picturesque a Highlander as any one could desire to see in a day's ride in their native county. The 1st prize certainly had a fine back, but his smooth black coat and degenerated Welsh appearance made him a contemptible object beside the grand "Scotch Horned" animals with which he was classed.

The *Welsh Cattle* were exactly as they were at Birmingham, and Captain Platt again took both prizes.

The *Cross-breeds* had some good animals among them, but, as we said last week, unless there is something very striking among them, the honours outside of classes ought to go to the pure breeds. After the remarks we then made we were glad to see that the judges awarded the special honours as they did. The enormous blue and white beast from Anglesea and Bingley Hall put in his appearance here, but he was more adapted for pleasing the unsophisticated than for attracting the attention of practical men.

In the *Extra Classes* Mr. Foljambe sent a very much overdone white ox, and for some reason or other he was taken out to be compared with the Earl of Aylesford's steer when the 100 gs. cup was being decided upon. But why this was done we could not guess. Here, too, as if to set off the fine home-bred beasts, the "Concessionaires from the Argentine Republic and Uruguayan Governments," whatever that may mean, sent a specimen of the animals they contemplate bringing from the River Plate, but unless they can surpass this brute there is not much fear of the breed over there coming into competition here beyond what they have done in the shape of bone and hides.

The following were the Judges and their Awards:—

CATTLE.—Devons, Herefords, Sussex, Norfolk or Suffolk Polled, Long-horned, Irish Cross or Mixed.—W. H. Keary, Bridgenorth, Salop; W. Yeomans, Stretton Court, Hereford; John Ford, jun., Rushton, Blandford. Shorthorns, Scotch and Welsh.—Hugh Aylmer, West Dereham, Norfolk; Charles Howard, Biddenham, Beds; William Sanday, Radcliffe-on-Trent, Notts.

DEVONS.

Steers, not exceeding 2 years and 6 months old.—1st, 20*l.*, J. H. Buller, Downs, Crediton; 2d, 15*l.*, W. G. Nixey, Upton Court Farm, Slough; 3d, 10*l.*, Her Majesty the Queen, Prince Consort's Norfolk Farm, Windsor.

Steers, not exceeding 3 years and 3 months old.—1st, 30*l.*, C. Hambro, M.P., Milton Abbey, Blandford; 2d, 20*l.*, C. McNiven, Perrysfield, Godstone; 3d, 10*l.*, W. G. Nixey, Upton Court Farm, Slough. Commended: R. Farthing, Farrington, North Petherton.

Steers or Oxen, above 3 years and 3 months old.—1st, 30*l.*, W. Farthing, Stowey Court, Bridgwater; 2d, 20*l.*, J. J. Farquharson, Langton House, Blandford; 3d, 10*l.*, R. Burton, Broadclyst, Devon.

Heifers, not exceeding 4 years old.—1st, 25*l.*, W. G. Nixey, Upton Court Farm, Slough; 2d, 15*l.*, W. Farthing, Stowey Court, Bridgwater; 3d, 10*l.*, C. McNiven, Perrysfield, Godstone. Commended: W. Smith, Hoopern, Exeter.

Cows, above 4 years old, having had at least one live calf.—1st, 25*l.*, W. Farthing, Stowey Court, Bridgwater; 2d, 15*l.*, W. Smith, Hoopern, Exeter; 3d, 10*l.*, J. Hitchcock, Broomhouse, Devon.

HEREFORDS.

Steers, not exceeding 2 years and 6 months old.—1st, 20*l.*, P. Turner, The Leen, Pembridge; 2d, 15*l.*, Her Majesty the Queen, Prince Consort's Flemish Farm, Windsor.

Steers, not exceeding 3 years and 3 months old.—1st., 30*l.*, J. Price, Court House, Pembridge; 2d, 20*l.*, the Earl of Darnley, Cobham Hall, Gravesend; 3d, 10*l.*, H. Bettridge, East Hanney, Wantage. Commended: A. Pike, Milton, Tewkesbury.

Steers or Oxen, above 3 years and 3 months old.—1st, 30*l.*, W. Heath, Ludham Hall, Norwich; 2d, 20*l.*, the Earl of Darnley; 3d, 10*l.*, H. Bettridge, East Hanney, Wantage.

Heifers, not exceeding 4 years old.—1st, 25*l.*, J. H. Arkwright, Hampton Court, Leominster; 2d, 15*l.*, T. Garrett, Compton Scorpion, Shipston-on-Stour; 3d, 10*l.*, R. Coston, Hayton, Stanton Lacy, Salop. Commended: Her Majesty, the Queen, Prince Consort's Flemish Farm, Windsor.

Cows, above 4 years old, having had at least one live calf.—1st, 25*l.*, J. Baldwin, Luddington, Warwick; 2d, 15*l.*, A. Benjafield, Stalbridge; 3d, 10*l.*, R. Wortley, Norfolk.

SHORTHORNS.

Steers, not exceeding 2 years and 6 months old.—1st, 20*l.*, Her Majesty the Queen, Prince Consort's Shaw Farm, Windsor; 2d, 15*l.*, Z. W. Stilgo, Adderbury, Oxford; 3d, 10*l.*, R. E. Oliver, Towcester.

Steers, not exceeding 3 years and 3 months old.—1st, 30*l.*, the Earl of Aylesford, Packington Hall, Coventry; 2d, 20*l.*, R. Wood, Clapton, Northampton; 3d, 10*l.*, Lord Penrhyn, Penrhyn Castle, Bangor. Highly Commended: T. Fulver, Broughton, Kettering.

Steers or Oxen, above 3 years and 3 months old.—1st, 30*l.*, J. Outhwaite, Bainesse, Catterick; 2d, 20*l.*, the Marquis of Exeter, Burghley Park, Stamford; 3d, 10*l.*, Colonel Loyd-Lindsay, M.P., Lockinge Park, Wantage. Highly Commended: P. Brown, Glentworth, Lincoln.

Heifers, not exceeding 4 years old.—1st, 25*l.*, Colonel Chas. Towneley, Towneley, Burnley, Lancaster; 2d, 15*l.*, T. Atherton, Speke, Garston; 3d, 10*l.*, J. B. Aylmer, Fincham Hall, Downham, Highly Commended: J. Reid, Grayston, Alford.

Cows, above 4 years old, having had at least one live calf.—1st, 25*l.*, Sir W. Calverley, Bart., Wallington, Newcastle-on-Tyne; 2d, 15*l.*, A. and A. Mitchell, Alloa, Clackmannan; 3d, 10*l.*, the Duke of Devonshire, Holker Hall, Grange, Lancashire. Highly Commended: J. Whyte, Clinterty, Blackburn, Aberdeen. Commended: R. Eastwood, Clitheroe.

SUSSEX.

Steers or Oxen, not exceeding 3 years old.—1st, 20*l.*, Lee Steere, Jayes Park, Dorking; 2d, 10*l.*, J. and A. Heasman, Angmering, Sussex; 3d, 5*l.*, G. C. Coote, Tortington, Sussex. Commended: G. Napper, Orfold, Sussex; and J. M. Montefiore, Worth Park, Crawley.

Steers or Oxen, above 3 years old.—1st, 25*l.*, Lee Steere, Dorking; 2d, 15*l.*, E. Cane, Berwick Court, Lewes; 3d, 10*l.*, J. M. Montefiore, Worth Park, Crawley, Sussex. Commended: class generally.

Heifers, not exceeding 4 years old.—1st, 20*l.*, E. and A. Stanford, Eatons Ashurst, Sussex; 2d, 15*l.*, Lee Steere.

Cows, above 4 years old, having had at least one live calf.—1st, 20*l.*, J. and A. Heasman, Angmering; 2d, 15*l.*, J. Shoosmith, Berwick, Lewes. Highly Commended: W. Botting, Hurstpierpoint, Sussex. Commended: class generally.

NORFOLK OR SUFFOLK POLLED.

Steers or Oxen of any age.—1st, 15*l.*, R. C. Symonds, Aylmerton, Norfolk; 2d, 10*l.*, W. Harvey, Timworth, Bury St. Edmund's.

Heifers or Cows of any age.—1st, 15*l.*, H.R.H. the Prince of Wales, Sandringham, Norfolk; 2d, 10*l.*, W. T. Mullen, North Walsham, Norfolk.

LONGHORNS.

Steers or Oxen of any age.—1st, 10*l.*, Sir J. Harpur Crewe, Bart., Calke Abbey, Derby; 2d, W. T. Cox, Spondon Hall, Derby.

Heifers or Cows of any age.—1st, 10*l.*, W. T. Cox, Derby.

SCOTCH HORNS.

Steers or Oxen of any age.—1st, 30*l.*, Wishart & Wyslie, Gallowgate, Aberdeen; 2d, 15*l.*, C. Morrison, Basildon Park, Reading. Highly Commended: T. L. Melville Cartwright, Melville, Ladybank, Fife. Commended: class generally.

Heifers or Cows of any age.—1st, 15*l.*, Sir W. Calverley Trevelyan, Bart., Wallington, Newcastle-on-Tyne; 2d, 10*l.*, R. Eastwood, Thorneyholme, Lancashire.

SCOTCH POLLED.

Steers or Oxen, of any age.—1st, 30*l.*, J. Stephen, Conglass, Inverurie, Aberdeen; 2d, 15*l.*, A. Longmore, Linksfield, Rattie, Banff.

Heifers or Cows, of any age.—1st, 15*l.*, R. Jardine, Esq., M.P., Castlemilk, Lockerbie, Dumfries; 2d, 10*l.*, J. Reid, Greystone, Alford, Aberdeen.

IRISH (AND BRED IN IRELAND).

Steers or Oxen, of any age.—1st, 10*l.*, R. Wortley, Suffield Hall, Aylsham, Norfolk; 2d, 5*l.*, W. Slipper, Calfield, Stalham, Norfolk.

Heifers or Cows, of any age.—1st, 10*l.*, Lord Berners, Keythorpe Hall, Leicester; 2d, 5*l.*, no entry.

WELSH.

Steers or Oxen (runts), of any age.—1st, 20*l.*, H. Williams, Abercothy, Nantgaredig, Carmarthen; 2d, 10*l.*, Capt. H. Platt, Gorddinog, Bangor.

Heifers or Cows, of any age.—No entry.

CROSS OR MIXED-BRED.

Steers, not exceeding 3 years old.—1st, 25*l.*, J. and W. Martin, Aberdeen; 2d, 5*l.*, W. and J. Lawson, Meikletown, Aberdeen; 3d, 10*l.*, R. Walker, Altyre, Forres. Highly Commended: J. Wortley, Felmingham, Aylsham. Commended: class generally.

Steers or Oxen, above 3 years old.—1st, 25*l.*, J. P. McPherson, Muertan of Kinloss, Forres, Elgin; 2d, 15*l.*, J. and W. Martin, Aberdeen; 3d, 10*l.*, R. H. Harris, Earnhill, Forres, Moray. Commended: class generally.

Heifers, not exceeding 4 years old.—1st, 20*l.*, J. D. Allen, Pyt House Farm, Tisbury; 2d, [illegible], H. N. L. Morrison, Blair Guise, Whitehouse, Aberdeen. Commended: G. Mitchell, Fovern, Aberdeen, and H.R.H. the Prince of Wales, Sandringham.

SILVER CUPS.

Silver Cup, value 40*l.*, to the exhibitor, for the best Steer or Ox in any of the classes, the Earl of Aylesford, Packington Hall, Coventry.

Silver Cup, value 40*l.*, to the exhibitor, for the best Heifer or Cow in any of the classes, Sir W. Calverley Trevelyan, Bart., Wellington, Newcastle-on-Tyne.

GOLD MEDALS.

Gold Medal to the breeder of the animal winning the Silver Cup for—

The best Steer or Ox in any of the classes, the Earl of Aylesford, Packington Hall, Coventry.

The best Heifer or Cow in any of the classes, Sir W. Trevelyan, Bart., Wellington, Newcastle-on-Tyne.

EXTRA STOCK.

(That cannot be shown in any of the Classes.)

Silver Medal and 5*l.* to the exhibitor, for the best Steer or Ox, G. S. Foljambe, Osberton Hall, Worksop. Highly Commended: Her Majesty the Queen. Commended: G. Lawson, H.R.H. the Prince of Wales, Messrs. Wishart & Wyslie, T. Bromwich, and J. Overman.

Silver Medal and 5*l.*, to the exhibitor, for the best Heifer or Cow, J. Christy, Boynton Hall, Chelmsford. Highly Commended: R. Jardine, Esq., M.P.

CHAMPION PRIZE.

Piece of Plate, value 100*l.*, for "the best beast in the show," the Earl of Aylesford, Packington Hall, Coventry.

SHEEP.

The *Leicesters* were placed in the first position, and were a small show of ten pens. Lord Berners took the first prize for shearlings of both heavy and light weights, the former trio weighing 6 cwt. 2 qr. 21 lb., and the latter 5 cwt. 3 qr. 7 lb. These were admirable for their symmetry, fine lustrous fleeces, and general pure traits. Mr. Newman's and Colonel Lowther's were also fine of form and pure as regards character, while Mr. Jordan's, of Driffield, were only a trifle coarse, and weighed 19 lb. more.

The *Cotswolds* were a poor lot of two pens. The disinclination of Cotswold breeders to exhibit on these occasions is something altogether unintelligible. They have the grandest breed of sheep in the world to show, but the outside public do not know it.

The *Lincolns* stood just as they did at Birmingham, the same exhibitors taking the same prizes, and only one additional pen being shown, which received no honour.

The *Kentish or Romney Marsh* were fine pens, and although their backs were not flat and their coats white and staring, there was a considerable improvement in the touch. The hardiness of these sheep appears to make them a desirable breed on the bleak marsh from which they take their name.

The *Cross-bred Long-woolled* sheep were generally very mean; but Mr. T. W. D. Harris sent three Leicester and Lincoln, first cross, which were extraordinary for size, symmetry, and the fineness and lustre of their fleeces.

In the *Extra Stock* Lord Berners was fairly beaten, the cup going to the executors of the late Mr. Jordan. Lord Berners' wether weighed 1 cwt. 3 qr. 26 lb., and the prize wether 2 cwt. 1 qr. 19 lb., or 41 lb. more. For the cup for ewes there were only two entries. In the Long-woolled sheep (not Leicesters) Mr. Harris was again the winner, with a magnificent Lincoln-Leicester ewe, the weight of which was 2 cwt. 1 qr. 12 lb.

The *Southdowns* appear to have been put thus far down the list that they might be outside the gallery pillars, so that their beautiful symmetry might be towards the light, and thereby be more plainly seen by the spectators. If this be so, it was good judgment on the part of the stewards, for a finer lot of beauties were never seen together. Lord Walsingham almost surpassed himself on this occasion, and it must have been highly gratifying to his agent, Mr. Henry Woods, and his clever shepherd, Day, to see that, even in such good company, the Merton sheep carried everything so easily before them. The Merton 1st prize in the class not restricted to weight, took, in addition, the 20*l.* cup, as the best pen of Hants, Wilts, or Southdowns. Their weight was 6 cwt. 1 qr. 7 lb. Lord Sondes' 2d prize weighed 6 cwt. 0 qr. 3 lb. In the class not to exceed 200 lb., the Merton sheep were marvellously pretty, and their touch was equal to their beauty. Mr. Foljambe was 2d here with a very pretty trio, their weight being 4 lb. less in the three. The Merton 1st prize two-shears were the most perfect in form for sheep of this age that we ever saw. Sir W. Throckmorton, Bart., was a good second, and the Earl of Radnor a corresponding third.

The *Hants and Wilts Downs* were a great improvement on last collection; in fact, these sheep come better and better every year. Messrs. R & J. Russell's were extraordinary for size and quality, their backs being equal to most of the neater Southdowns. Their weight was 7 cwt. 1 qr. 11 lb. Mr. Walter's were but little inferior as regards form and quality; but they were lighter by 31 lb. the three. As an indication of the suitability for early forcing, and the great size this breed will come to at an early age, there were no entries of two-shears.

The *Shropshires* were few, and, as far as they could do so, the prizes stood the same as they did at Birmingham. In the absence of Lord Chesham's 2d shearling pen, Mr. Nock took 2d prize, and three entries having failed to appear, Lord Wenlock took the 3d. In the two-shears, Lord Wenlock was 1st and Mrs. Beach 2d, in a very weak class.

The *Oxfordshires* were anything but a fine show, and it seems to be the fashion to besmear the coats of these sheep with oil and dust. This, we presume, arises from the habit of cutting their coats flat on the back, and, indeed, something of the kind is necessary to disguise this deep cutting into the fleece. The backs of the 2d prize sheep were awfully disfigured, the whole of them being in but little better form. The prizes for fat wethers had only one pen shown for them.

The *Mountain Breeds* where of the whitefaced and blackfaced tribes, the former being Dartmoor, and the latter the bold, wild, and wiry Scotch.

Ryelands, Cheviots, and Dorsets were represented by a pen of each, the former taking 1st, the latter the 2d, and the Cheviots 3d. This and the previous class are more ornamental than useful as competitors.

In the second edition of *Extra Stock* there were some remarkable sheep. Mr. Rigden sent a wether, weighing, however, only 1 cwt. 2 qr. 15 lb., and Lord Walsingham took this cup also very easily. Sir W. Throckmorton, however, took the cup for ewes with a very handsome and heavy sheep. In the class for Short-woolled, not Southdown, Mr. Nock took the cup for a splendid Shropshire wether; and in the ewes Mr. J. Rawlence won the cup with as grand a sheep as any in the Hall. This was of the Hampshire breed, the weight being 2 cwt. 2 qr. 26 lb.

The *Cross-bred Long and Short Woolled Sheep* were remarkable for their variety, and also for the pen with which Mr. Overman took the medal as well as cup for his Long-wool and Southdown cross. Mr. Rook's second prize were Lincoln-Herts, their weight being 7 cwt. 2 qr. 18 lb.; Mr. Overman's weighing 7 cwt. 1 qr. 3 lb. Mr. Overman was again first for a single fat wether, and he also took the medal for the best Long and Short-woolled cross; and a more beautiful sheep we have never seen.

The following were the Judges and their Awards:—

SHEEP.—Leicesters, Cotswolds, Lincolns, Kentish or Romney Marsh, and other distinct Long-wools, Oxfordshire, Mountain, and Cross—Charles Clark, Scopwick, near Lincoln; Ralph Newton, Campsfield, Woodstock; John Davis, Webton Court, Hereford. Southdowns, Hampshire or Wiltshire, Shropshire, Ryland, Cheviot, and Dorset—Henry Masfen, Pendeford, Wolverhampton; Henry Lugar, Ingham, Bury St. Edmund's; Henry Hart, Beddingham, Lewes, Sussex.

LEICESTERS.

Fat Wethers, 1 year old (under 23 months).—1st, 20*l.*, Lord Berners, Keythorpe Hall, Leicester; 2d, 15*l.*, W. Brown, Holme-on-Spalding Moor, York; 3d, 5*l.*, B. Painter, Burley-on-the-Hill, Oakham, Rutland.

Fat Wethers, 1 year old (under 23 months), each sheep not to exceed 220 lb. live weight.—1st, 20*l.*, Lord Berners; 2d, 15*l.*, J. Newman, Harrowden, Bedford; 3d, 5*l.*, Colonel Lowther, Oakham, Rutland.

COTSWOLDS.

Fat Wethers, 1 year old (under 23 months).—1st, 20*l.*, Right Hon. Sir J. Rolt, Wotton-under-Edge, Gloucester; 2d, 15*l.*, J. Baldwin, Luddington, Warwick.

LINCOLNS.

Fat Wethers, 1 year old (under 23 months).—1st, 20*l.*, J. Byron, Kirkby Green, Sleaford; 2d, 15*l.*, J. R. Caswell, Quadring, near Spalding; 3d, 5*l.*, R. N. Morley, Leadenham, near Grantham.

KENTISH OR ROMNEY MARSH.

Fat Wethers, 1 year old (under 23 months).—1st, 15*l.*, W. Burch, Rhode Court, Faversham, Kent; 2d, 10*l.*, J. Newport, Ashford, Kent.

CROSS-BRED LONG-WOOLS.

Fat Wethers, 1 year old (under 23 months).—1st, 15*l.*, T. W. D. Harris, Wooton, Northampton; 2d, 10*l.*, Sir W. De Capel Brooke, Bart., Kettering, Northampton.

SOUTHDOWNS.

Fat Wethers, 1 year old (under 23 months).—1st, 20*l.*, Lord Walsingham, Thetford, Norfolk; 2d, 10*l.*, Lord Sondes, Thetford, Norfolk; 3d, 5*l.*, Sir W. Throckmorton, Bart., Buckland, Berks. Highly Commended: Duke of Richmond, Goodwood. Commended: Earl Radnor, Coleshill, Highworth.

Fat Wethers, 1 year old (under 23 months), each sheep not to exceed 200 lb. live weight.—1st, 15*l.*, Lord Walsingham; 2d, 10*l.*, G. S. Foljambe, Worksop, Nottingham; 3d, 5*l.*, Lord Sondes. Commended: Lord Braybrooke, Audley End, Essex; the Duke of Richmond, Goodwood.

Fat Wethers, 2 years old (above 23 and under 35 months).—1st, 20*l.*, Lord Walsingham, Thetford, Norfolk; 2d, 10*l.*, Sir W. Throckmorton, Bart.; 3d, 5*l.*, Earl Radnor. Highly Commended: Duke of Richmond, Goodwood. Commended: class generally.

HAMPSHIRE OR WILTSHIRE DOWNS.

Fat Wethers, 1 year old (under 23 months).—1st, 20*l.*, R. and J. Russell, Horton Kirby, Kent; 2d, 15*l.*, J. Walter, Bearwood, Berks; 3d, 5*l.*, L. Loyd, Monk's Orchard, Addington, Surrey. Highly Commended: J. Russell, St. John's, Sutton-at-Hove, Kent. Commended: class generally.

Fat Wethers, 2 years old (above 23 and under 35 months.)—No entry.

SHROPSHIRES.

Fat Wethers, 1 year old (under 23 months).—1st, 20*l.*, Lord Chesham, Chesham, Bucks; 2d, 10*l.*, T. Nock, Sutton Maddock, Shropshire; 3d, 5*l.*, Lord Wenlock, Escrick Park, York.

Fat Wethers, 2 years old (above 23 and under 35 months).—1st, 15*l.*, Lord Wenlock; 2d, 5*l.*, S. Beach, Brewood, Penkridge, Stafford. Commended: Earl of Aylesford, Coventry.

OXFORDSHIRES.

Fat Wethers, 1 year old (under 23 months).—1st, 20*l.*, A. Rogers, Bromham, Bedford; 2d, 15*l.*, F. Street, Harrowden, Bedford; 3d, 5*l.*, S. Druce, Eynsham, Oxford.

Fat Wethers, 2 years old (above 23 and under 35 months).—1st, 15*l.*, A. Rogers, Bromham, Bedford; 2d, no entry.

MOUNTAIN BREEDS.

Fat Wethers (of any Whitefaced Mountain breed, of any age).—1st, 15*l.*, W. Smith, Hoopern, Exeter; 2d, 10*l.*, J. Tapp, Twitchen, Devon.

Fat Wethers (of any Blackfaced or Speckledfaced Mountain breed, of any age).—1st, 15*l.*, J. M'Gill, Rotchell, Dumfries; 2d, 10*l.*, Marquis of Aylesbury, Marlborough, Wiltshire.

RYELANDS, CHEVIOTS, DORSETS, &C.

Fat Wethers.—1st, 15*l.*, J. B. Downing, Holme Lacy, Hereford; 2d, 10*l.*, H. Farthing, Nether Stowey, Bridgwater; 3d, 5*l.*, J. M'Gill, Rotchell, Dumfries.

CROSS-BRED LONG AND SHORT-WOOLS.

Fat Wethers, 1 year old (under 23 months).—1st, 20*l.*, J. Overman, Burnham Sutton, Norfolk; 2d, 15*l.*, W. Rook, Watton, Thetford, Norfolk; 3d, 5*l.*, G. Hine, jun., Oakley, Bedford.

Fat Wethers, 1 year old (under 23 months). Each sheep not to exceed 220 lb. live weight.—1st, 10*l.*, J. Overman, Burnham Sutton; 2d, 5*l.*, Colonel Loyd-Lindsay, M.P., Wantage, Berks.

SILVER CUP.

Silver Cup, value 20*l.*, to the exhibitor, for the best pen of Leicesters, Cotswolds, Lincolns, Kentish, or other long-woolled breed, in any of the classes, Lord Berners, Keythorpe Hall, Leicester.

EXTRA STOCK.

(That cannot be shown in any of the Classes.)

Silver Medal to the exhibitor, for the best Leicester Wether Sheep, the executors of F. Jordan, Eastburn, Driffield.

Silver Medal to the exhibitor, for the best Leicester Ewe, W. Brown, Highgate, Holme on Spalding Moor.

Silver Medal to the exhibitor, for the best Long-woolled Sheep (not Leicester), T. W. D. Harris, Wootton, Northampton.

Silver Medal to the exhibitor for the best Southdown Wether Sheep, Lord Walsingham, Merton Hall, Thetford. Highly Commended: W. Taylor. Commended: class generally.

Silver Medal to the exhibitor for the best Southdown Ewe, Sir W. Throckmorton, Buckland, Faringdon. Highly Commended: H. Humphrey. Commended: Lord Walsingham.

Silver Medal to the exhibitor for the best Short-woolled Wether (not Southdown), T. Nock, Sutton Maddock.

Silver Medal to the exhibitor for the best Short-woolled Ewe (not Southdown), J. Rawlence, Bulbridge, Wiltshire.

Silver Medal to the exhibitor for the best Cross-bred Sheep (Long and Short-woolled Cross), J. Overman, Burnham Sutton.

PIGS.

These creatures become more and more uniform in general character and quality from feeding every year. At this show there were 55 pens, and not one was overdone from excessive forcing, while large flabby dowagers were altogether absent. The fact that swinish monstrosities are now considered to be as unworthy a place in a show of agricultural stock as the flabby, patchy cattle which used to appear now are, is a great proof that these shows are at length becoming more instructive, both to the rising generation of farmers and the concourse of town visitors.

In the class for white breeds under 9 months of age, Mr. Cattle's 8 months and 28 days old pen are extraordinary for substance and fine mellow and firm fat. These are of the greatest possible weight, according to their kind and age. Mr. Lynn was 1st in the next class, as he was at Birmingham, with a pen fed as well as his animals always are. The younger black pigs did not present so much uniformity. Mr. Chamberlayne's, 1st, had the appearance of the bare skin of a negro; and Mr. Coate's, 2d, were flabby and very "lardified." The Berkshires were unusually few, there being only three pens over 9 months and two pens over 12 months of age. As regards character, too, there was nothing remarkable, excepting that this breed, like others, is "sporting," as the gardeners say, so that we shall soon have Berkshires of a large and small breed, in the same way as we have large and small white breeds.

The following were the Judges and their Awards:—

PIGS.—Joseph Smith, Henley-in-Arden, Warwick; Richard Woodman, Southease, Lewes; Gilbert Murray, Elvaston Castle, Derby.

WHITE.

Not exceeding 9 months old.—1st, 10*l.*, C. Cattle, Bawtry, Nottingham; 2d, 5*l.*, Captain R. P. Warren, Basingstoke. Highly Commended: Rev. J. O. Stevens, Savernake, Wilts.

Above 9 and not exceeding 12 months old.—1st, 10*l.*, J. Lynn, Stroxton, Lincoln; 2d, 5*l.*, W. H. Dunn, Hungerford, Berks. Highly Commended: T. L. M. Cartwright, Melville, Fife.

Above 12 and not exceeding 18 months old.—1st, 10*l.*, W. H. Dunn, Hungerford, Berks; 2d, 5*l.*, Earl Radnor. Commended: Her Majesty the Queen, Prince Consort's Shaw Farm, Windsor.

BLACK.

Not exceeding 9 months old.—1st, 10*l.*, T. Chamberlayne, Cranbury Park, Winchester; 2d, 5*l.*, J. Coate, Hammoon, Blandford. Highly Commended: J. Kent, Whyke, Chichester, Sussex.

Above 9 and not exceeding 12 months old.—1st, 10*l.*, T. Chamberlayne, Cranbury Park, Winchester; 2d, 5*l.*, A. Benjafield, Stalbridge, Dorset. Highly Commended: J. Kent, Whyke, Chichester, Sussex.

Above 12 and not exceeding 18 months old.—1st, 10*l.*, J. Coate, Hammoon, Blandford, Dorset; 2d, 5*l.*, Capt. R. P. Warren, Basingstoke. Commended: C. McNiven, Perrysfield, Surrey.

OTHER BREEDS.

Not exceeding 9 months old.—1st, 10*l.*, S. Druce, Eynsham, Oxford; 2d, 5*l.*, J. Biggs, Cublington, Beds.

Above 9 and not exceeding 12 months old.—1st, 10*l.*, J. Roberson, Hertford; 2d, 5*l.*, J. Biggs, Cublington, Beds. Highly Commended: J. Treadwell, Upper Winchenden, Berks.

Above 12 and not exceeding 18 months old.—1st, 10*l.*, J. H. Clark, Altwood, Berks; 2d, 5*l.*, J. P. King, North Stoke, Berks.

SILVER CUP.

Silver Cup, value 20*l.*, to the exhibitor, for the best pe[n] Pigs in any of the classes, J. Coate, Hammoon, Blandf[ord], Dorset.

EXTRA STOCK.

(That cannot be shown in any of the Classes.)

Silver Medal to the exhibitor for the best Pig, C. McNiv[en], Perrysfield, Godstone, Surrey. Highly Commended: J. Robe[rt]son. Commended: J. Overman, T. Chamberlayne, Rev. J. [O.] Stephens, and J. Coate.

IMPLEMENTS.

The exhibition of implements in the Agricultura[l] Hall this year is not above an average. The numbe[r] of stands in the main body of the hall exceeds that o[f] last year, there being on the ground floor 31 for 1869 against 28 for 1868; and in the galleries, 177 agains[t] 164. Total this year, 208; last year, 192; increas[e] 16 stands. But the number of stands indicates onl[y]

the number of exhibitors; and as the space both years is equal—or we may say, the same—it follows that many of the exhibitors have not been able to get the articles entered in the catalogue into the Hall. On the other hand, we never saw the stands more closely packed or better arranged, while the selection is in the highest degree creditable to the exhibitors. In the Arcade, or Avenue, there are some 22 stands; and in the new department opened this year, viz., the Concert Hall Bazaar, about 50: total in this department, 72 stands. Grand total on exhibition, 280 stands.

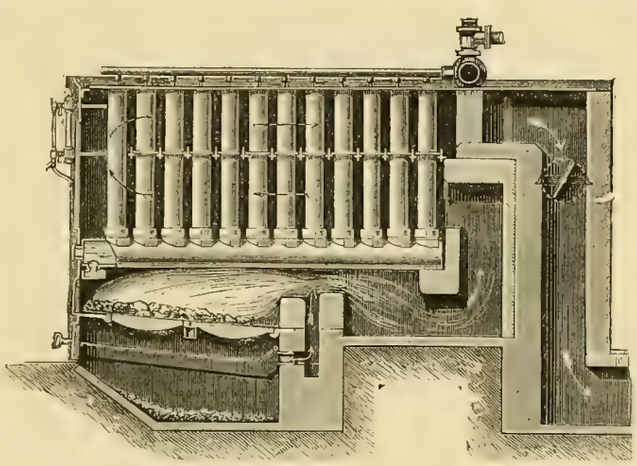
Horizontal Engines form an interesting class. Some of them are becoming perhaps rather familiar Christmas friends; but, upon the whole, we have to report progress. The number is also on the increase. Horizontal engines are on the increase for indoor threshing, especially in our northern and western counties, where the climate is unsuited for outdoor threshing.

Vertical engines continue to merit growing patronage. They have their advantages over the horizontal engines, not only in construction as to the working and extra and unequal tear and wear of the piston and cylinder, but in their adaptation to light work—as grinding, chaff-cutting, and root-pulping. The small area of space they occupy is also greatly in their favour. Of late years very great progress has been made in the cattle feeding department of farm practice, hence the growing demand for engines of this class; but this is not all that must be reported, for they are evidently also entering into competition with their rivals in the threshing barn. They have long been in extensive use by builders for hoisting and pumping, being made locomotive by means of rails; and constructed on this plan they are proving equally effective and advantageous in the brick-field, quarry, wood-yard, large dairies for churning, laundries, for driving washing machines, and the like. Add to this the growing use of a heavier class of engines for steam culture, which necessitates as it were the employment of small vertical ones at the homestead, it is easy accounting for the growing popularity of the latter at all our implement exhibitions. In construction there is a close similarity on the whole, but in details of mechanism they are diversified. Something of course depends upon the special purposes for which they have been made, and whether they are to be used outdoors or indoors, and whether they are to burn coal or coke, and so on.

Portable Engines continue to claim the chief share of the Hall. They are of all sizes, from the small "pony" up to the big "steam horse." They exemplify the highest standard of skilled labour, and in the details of mechanism we have to report progress likewise. The improvements made by Roby & Co., Perseverance Iron Works, Lincoln, merit special notice; they consist chiefly of a patent "governor," regulating the cut-off of the steam in a very effective manner; it is placed and works horizontally in the crank-shaft, and acts directly upon the eccentric, by which the full boiler pressure of the steam is always got in the cylinder. The admission of full-pressure steam to the cylinder being thus regulated in the most effective manner, the engine always works at its maximum point, effecting thereby a corresponding economy in the consumption of fuel as compared with the old plan. The cylinder is jacketed and well cased, and from the brackets carrying the crank-shaft and governor being cast in a piece with the saddle, the boiler is thus strengthened where it most requires it. Improvements have also been made in the boiler, both as to the generation of steam and the easy keeping of it in effective working trim. The steel boiler of William Alchin & Son, and other improvements of their portable engine, merit special notice.

Traction Engines.—This favourite class is not so well represented in numbers as it should have been, several examples not being admitted for the want of room. This reduction in the admission of traction engines gives a prominence to the old portables, which they otherwise would not have enjoyed in the Hall. The limited number on view are, however, a first-rate selection, a flattering but trustworthy sample of the whole class exhibited at Manchester, Leicester, and other summer meetings of the Royal Agricultural Society of England, the different exhibitors showing respective peculiarities of construction. Thus, the engine of Messrs. Richard Garrett & Sons differs from the two, a 14-horse and a 12-horse ploughing engine, of John Fowler & Co.; these latter, again, from the Messrs. Clayton & Shuttleworth's, Mr. Burrell's, and the Messrs. James & Frederick Howard's; and the Bedford engine, again, from the Messrs. Aveling & Porter's. The agricultural public is now familiar with the distinctive characteristics of all these engines, and it is highly interesting to hear how closely farmers scrutinise differences, each from his own point of view, as determined by experience and observation. The grand desideratum generally at issue is the cultivation of land by steam. But the absence of the steam-plough this year—the prominence which this gives to the cultivators, shows the great diversity of soil and climate; harvest results, an increase of from 8 to 20 bushels per acre, when thrown in the scales, so influence the balance of opinion as to baffle any approximation at a general conclusion in favour of this or that peculiarity of mechanism. At the same time twin-engine hauling-tackle and smashing are obviously this year in the ascendancy; but a few words more on this head under steam tillage implements.

Steam Boilers.—The Messrs. J. & F. Howard exhibit their "patent safety boiler and superheater," which continues to receive a well-merited patronage in agriculture and all the other arts and branches of manufacture where steam-power to any considerable extent is used. It is adapted for small works as well as large ones, but in large concerns, where a number of boilers are used, the economy of steam and fuel, taking into account at the same time the greater safety, leaves, perhaps, a higher balance in its favour. One large house, for example, some time ago, after making the necessary inspection of those in use, had four boilers put up on the Howard plan, as illustrated in the longitudinal section annexed; and before two years had expired they were so satisfied with the advantages realised that they gave orders for four more boilers to take the place of those in use on the old plan long before they were worn out. Such facts speak for themselves. With the view of placing the matter-of-fact argument fairly before them, we give the following description of the illustration. The new boiler, it will be seen, is built up of wrought-iron tubes, the bursting pressure of each of which is fully 2000 lb. per square inch, and the whole of the steam pipes and connections are tested to a cold water pressure of 500 lb. before they leave the Britannia Iron Works. When a common boiler bursts at work, the upshot is generally more easily imagined than described. It is otherwise with the safety boiler, for in the event of the bursting of a single tube, say any of those shown in section, the result would only be equivalent to the forcible opening of the safety-valve and blowing off of steam into the heating chamber, thereby suddenly lowering the temperature and steam pressure, and putting out perhaps the fire, so that no dangerous accident or serious loss of property could be sustained. The simplicity of parts, the facility with which they can be set up and repaired, economy of house room, and the durability of the whole, form together another characteristic of the safety-boiler and superheater. Thus, as there are no rivets or seams in their construction, there is not a single bolt or joint exposed to the action of the fire. The tubes being all counterparts of each other, those farthest from and those nearest when the heat is most intense, can be interchanged in succession, so as to increase the durability of the whole to a maximum. The tubes being also so arranged and fitted in sections that each is free to expand and contract reciprocally, as they absorb or give out heat, it follows that the expansion or contraction, as the case may be, produces no harm. Again, as the parts are all made on the interchangeable principle, they are easily set up and repaired, and with regard to house room the new boiler does not require over half the space of a Cornish one of equal horse-power. The circulation of the water is so perfect throughout the boiler that no burning out or fouling of the tubes takes place. Thus, as each tube has within it an internal one rising up through the water space, the water is consequently divided into annular concentric columns. The upper portion of the tubes is divided from the lower by a diaphragm, and the current of heated gases from the fire the (direction of which will be seen in the section by the arrows) impinging upon the tubes, causes the water in the outer space or ring to rise to the top and flow down to the bottom of the inner tube, thereby keeping up a most active circulation in every part of the boiler. The upper part of the tubes form the heating chamber, and from the manner they are exposed to the heat, it will readily be seen that the high-pressure process of superheating can easily be carried to the desired degree.



HOWARD'S NEW PATENT SAFETY BOILER AND SUPERHEATER.

Corrugated Tube Boiler, or more correctly speaking, *Three-lobed Tube Boiler.*—The Messrs. Kinsey, Norton, Hill & Co., Robin Hood Works, Nottingham, exhibit a boiler with three-lobed tubes (Kinsey's patent), which has an awkward resemblance to the Messrs. Howard's safety superheater in more respects than one. Thus the mode of applying heat—*i. e.*, the flue and chimney—and the position of the lower horizontal tube and the diaphragm are identical; and even the vertical outer corrugated tubes, each with three lobes—each lobe opening into the other with a central tube rising up in each lobe—is virtually an imitation of three of Howard's tubes, shown in the above section. The one exhibited has six three-lobed tubes. They may be made with any number according to the horse-power required. As to the specific mechanism of a "corrugated surface," we quote the catalogue—there is nothing new in that—corrugated tubes having long ago been used; but we do not recollect having seen any in use with three lobes, as in Kinsey's patent.

Gas Engines.—The Hugon Gas Engine is in its place, in the clock gallery—a 1-horse power engine, and is exhibited at work by Mr. F. B. Vallance, Greenwich and London. In almost all sorts of household work it is freer from objection than steam-power, and wherever it is in use it is giving very great satisfaction. It is well adapted for driving the churn in the dairy, or the washing and wringing machines in the laundry, where a supply of gas can be had; also for grinding, chaff-cutting, pumping, &c., as you can start the moment the gas is turned on, and stop instantly by turning it off, without any loss of time or motive power, while gas is cheaper than steam, and the Hugon Gas Engine more easily kept in working order.

Steam Ploughs.—What shall we say to the reader—"that there is not a steam plough in the great hall?" No, not one! Mr. Smith, of Woolston, does not require a steam plough, and if memory does not fail us he once told us, perhaps half-joke, half-earnest, "the day is not far distant when steam ploughs will not be shown at our general meetings," but we never imagined that that time would be Christmas, 1869! The poet Drayton tells his readers that the Hereford birds sat on the ground and sang curses against the plough, because they had not a branch to perch on, every tree having been ploughed up; and those who have come up purposely to see steam ploughs may take up the song of the choristers of the poet against smashing up!

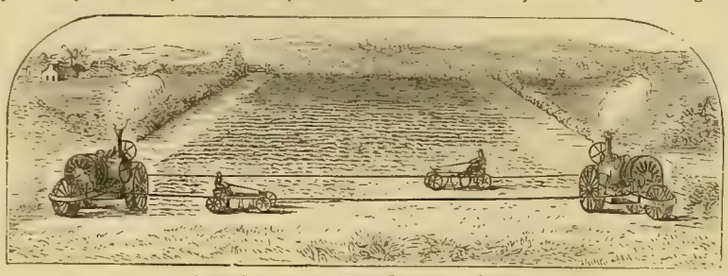
Steam Cultivators have it all their own way this year in the Agricultural Hall. The fact, apart from any other argument, goes far to prove that harvest results are in their favour, and we aver that this is likewise the general testimony of experience. It will no doubt be said that, had there been room in the Hall, steam ploughs would have been shown? But that is not the question at issue. It is an old and true saying, "Whatever touches the purse-strings eventually tells its own tale," and leaving the reader to apply this we have to report the two cultivators on the stand of John Fowler & Co., and the very high degree of perfection they exemplify in mechanism and manufacture. Being entirely free from all complication the resistance falls equally upon the working parts, so that they are both strong and simple; while the wearing parts, so to speak, are, on the other hand, reduced to a minimum. The main axle that carries the road wheels is cranked, and as the frame carrying the tines is connected to the crank, the latter (the tines) are lowered or raised and adjusted to any depth required by the tillage or nature of the land. The body or framing fixed to the crank is of a breadth suitable for heavy land, but when crossing or working light soils, hinged sides are put on, adding as many tines as you like, and when hauled by double-engine tackle the cultivator may go over 40 acres in a day. The two ropes—one from each engine—are attached to the free end of the long turning (or lifting) lever, seen in advance of the single wheel in front. This long lever is carried on a stud sufficiently far back to place the lever within the reach of the steersman so as to give him complete command of it. The two ropes become alternately the hauling rope and the tail rope; and at the end when the alternation takes place, in the act of turning, self-acting rope guides receive the tail rope; and in this way one man only is required to work the implement. On the other end of the turning lever are two chains, connected with two quadrant pulleys on the crank axle, and as the lever is pulled round the chains turn the axle by means of the quadrant, and thus raise the implement out of the ground. Thus when it comes up to one headland the engine on the opposite headland is thrown into gear, when it pulls the lever round, raises the frame, which is held by a catch, and when up to the proper height the implement is then hauled into fresh ground by the lever coming against a stop. The steersman, who remains seated all the while, then releases the catch, when the implement drops into work and is hauled along the field; the tail rope being laid down in the rear ready to become the hauling rope when the cultivator comes up to the hauling engine: and so on until the field is finished, the turning at the headland occupying less time than is required to describe it.

The Different Systems of Rope Traction in the cultivation of land by steam-power are now familiarly known under various designations; as (1), twin engine and twin implement system; (2), twin engine and single implement system, or double engine and single implement work; (3), single engine, and twin or double implement system; (4), the roundabout system—single engine and implement; (5), the single engine, anchor, and implement system; and (6), the flying rope and twin rigger anchor, or single engine system (Fisken's). Then there are winding drums and clip drums, attached or detached, but they do not necessarily form systems. That shown in the Hall by the Messrs. John Fowler & Co. is included in the two engines—a 14-horse and 12-horse—each carrying a winding drum under the boiler; the two engines, of course, representing *two* 14-horse and *two* 12-horse, each pair for working a cultivator as described above. The Messrs. James and Frederick Howard exhibit a traction-engine adapted for either the first or fifth systems, and models and drawings illustrating how both systems, and also the fourth, are carried out. The Messrs. Coleman & Morton, Chelmsford, show drawings of the third system, which is, *par excellence*, their own. The Britannia Steam Cultivation Company enter the sixth in the catalogue, "Model of Fisken's light rope steam ploughing tackle," but the stand is empty.

The following engraving illustrates the system of

the Messrs. Howard—No. 1—which we shall briefly describe thus:—

According to this plan of steam tillage, a pair of the Bedford traction-engines are shown, one on each headland, working simultaneously two implements alternately between them, the two engines and two implements doing continuously full work. To effect this it is necessary to make the implements either take on fresh ground midway, or the one implement go over again the ground cultivated by the other in advance, which in not a few cases may be advantageous—the two implements being of different kinds. The drawing shows two Howard cultivators, each working half the length of the land—the one being a breadth of itself in advance of the other across, so as not to come in contact when they meet half way, and begin to take on fresh ground—otherwise a mid-headland across the field would be required. But, as shown, the implements take on fresh ground without either missing or running foul of each other, while they and the engines do the greatest possible quantity of work that can be done in a day. And, besides, the reader will perceive that this mode of haulage is admirably adapted for the Bedford engines; the hauling ropes come directly up to the winding drums. As the implements advance across the field, the engines keep pace with them along the headlands. Besides quantity of work done, and the minimum tear and wear upon the working parts, which forms another important item in favour of the system, the other advantages—as the absence of anchors, the little time required to start or shift from one field to another, adaptation for any size or form of field, and the like—are now too well known to require more than reference to them.

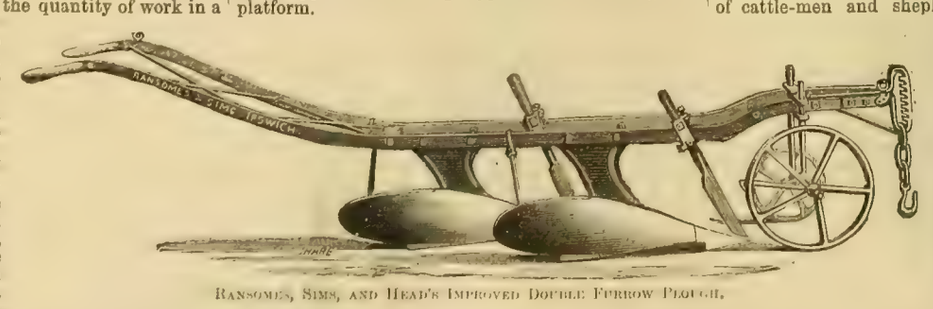


TWIN ENGINE AND TWIN IMPLEMENT SYSTEM.

According to this system, one Bedford engine, with two winding drums, moves along one headland, working an implement to and fro between it and two anchors on the opposite headland, with a person to shift them as the work advances. A shorter rope, and one anchor-man less, are required to work this system than the roundabout one. The first system, referring to the drawing, may often be advantageously worked by two different implements, each going the full length of the furrow, as in opening drills for manure with the one engine, and in covering the manure with the other, there being a sufficient distance between them for carting and spreading the manure.

Horse Ploughs.—There is a fine show of these in the Hall, but the double-furrow ones are engaging the most attention, and to these we shall confine our remarks.

Double-furrow Ploughs, or gang-ploughs, as they are termed in the United States of America, where they have long been in use, the ploughman (generally the farmer himself or his son) being seated on the plough. About the commencement of the present century they were warmly advocated by Lord Somerville, who obtained a patent for one. Campbell & White's patents include a number of ploughs in a frame or gang, with guide-wheels in the furrow, and ever since the date of the former patent they have been less or more in use. The Messrs. Ransomes, Sims & Head exhibit one, the Messrs. J. and F. Howard two, and Pirie's is shown on the stand of the Messrs. J. Fowler & Co. The annexed illustration will give a general idea of the construction of the working parts. The implement, it will be seen, simply consists of two of the common ploughs, with all the recent improvements, each upon its own beam, so put together that one man can hold it by a pair of handles common to both ploughs, with a common double-wheeled carriage and single head in front, adapted for a pair of horses, so that the ploughman and his team can turn over two furrows at once, doing twice the quantity of work in a day on light land. The breasts and beams are also so put together that they can easily be adjusted for ploughing any breadth of furrow required, between two given extremes, and the draught is surprisingly light.



RANSOMES, SIMS, AND HEAD'S IMPROVED DOUBLE FURROW PLOUGH.

Howard's new patent Double-furrow Plough.—This and the above firm have long been well-matched rivals in the ploughing field, and as it has been with single ploughs, so may it be with double ones. The Messrs. Howard's double plough consists of two of their single ones with all the latest improvements, while they have patented a carriage and swivel beam-head, which obviates much of the difficulty hitherto experienced in turning double furrow ploughs at the headlands. The width and depth of the furrow are easily adjusted.

Pirie's Double Plough we noticed last year and at Manchester, and nothing has since been added to require further description. It differs from the other in being wholly carried on wheels, and needing no plough handles for its guidance.

Turnwrist Ploughs make a fine out-turn in the galleries, as well as below stairs, on the stands of the above and other firms. There is evidently a growing favour for one-way ploughing on level land as well as on hill-sides. Open out-and-in-gs have from time immemorial been objectionable, and with the increasing employment of mowing and reaping machines, horse rakes, and haymakers, they are becoming doubly so.

Cultivators, Grubbers, Harrows, and Whippletrees, are unusually conspicuous, both below stairs and in the galleries. We have noted numerous minor improvements, but our limits will not permit going into such a wide field of detail. Suffice it to say, that the whole class merits first-rate commendation.

Land Pressers, Clod-crushers, and Rollers are not so numerously represented, but those on view are of the best description.

Liquid Manure Drills, &c., continue to enjoy their growing popularity, but not quite so highly as last year. Whether this is owing to the weather we shall not say.

Water Carts are on the increase. Many of them profess, so to speak, to be adapted for applying not only water but liquid manure to grass-lands and growing crops in drill, as Turnips and Potatos; but all of them are subject to one objection—too high, so that they dash the water and liquid manure with destructive force against the ground, thereby closing its pores, and injuring the growing crops; it also wastes the fertilising elements of liquid manure. All liquid applied to the land should be on the principle of irrigation, so as to work its way gently and imperceptibly, as it were, into the soil, and to draw in air after it, instead of clothing the health-giving breathing pores purposely, as it were, to keep it out.

Seed and Manure Drills, Broadcast Sowing Machines and Distributors, Gaping Drills, &c., are well represented. Those on the stands of R. Garrett & Sons, J. Smyth & Sons, Holmes & Sons, Robert and John Reeves, merit the highest commendation. There are two or three varieties of gaping drills, but L. Butt's continues to be the favourite here, as at Manchester and Leicester.

Horse Hoes are shown on several stands below and above-stairs, most of them old friends in their Sunday's dress.

Mowing and Reaping Machines, although not so numerous as at Manchester, are above an average here. R. Hornsby & Sons have made an improvement in their Progress self-raker reaper, which is applicable to almost all their machines of this class. It consists of a foot lever with a weighted lever-catch for throwing the machine out of and into gear. At Manchester this was done by a hand lever; but the simple and effective foot lever leaves the driver both hands to guide his team at the turnings. Burgess & Key have also applied improved leverage for raising the knife. First the finger-points to protect the knife, then the heel, and afterwards to preserve the parallelism of the finger here with the surface of the ground at any required height of stubble. J. & F. Howard have made various improvements in proportioning the strength of parts, reducing friction, and securing uniformity of action. On all these points they fell short at Manchester. The Beverley Iron and Waggon Company have improved their Bell's reaper, and also their one-horse tilting platform. The former is in the simplifying and reducing the friction in the crank, connecting-rod, and slide for actuating the knife, and the extent of the improvements is such as to enable them greatly to reduce the price of the machine. To the other they have applied self-acting apparatus for tilting the platform.

Haymaking Machines have also been improved since the summer meeting of the Royal Agricultural Society. The Messrs. Howard exhibit their central axle haymaker, patented in 1867, and since improved, on their own home farms, where its peculiar action has been tested in every possible way. The principle of the improvement consists in placing the axle of the fork barrels directly in a line between the wheels, and not behind them as heretofore, so that the forks left the Grass along this line in tedding, which enables the machine to work equally well in crossing furrows as on level ground. Another advantage is, that there is less dead surface for the Grass to lodge upon and load in working, and that its strength, durability, and effective working, are increased.

Horse-rakes and Hand-rakes are both well represented. Numerous improvements have to be reported of the former, such as the seat of the driver on the rake, and adapting the leverage for raising and unloading the rake, being actuated by the foot when riding, or by the hand when walking behind.

Hay and Corn Drying Machine and Apparatus.—Mr. Gibbs shows a model of his plan so improved as to dry loose corn in the straw on the old plan of drying wet grain on a series of travelling bands, the one above the other. The loose corn or hay as it comes from the field is forked in at an open hopper on the top on to a toothed traveller-band, which moves it slowly along against the drying current, and delivers its load on to another toothed traveller-band moving in the opposite direction, and so on from one traveller-band to another until it is dry. The traveller-bands are so housed and actuated that their speed can be regulated as required.

Threshing Machines, from their size, are perhaps more conspicuous than numerous. Most of the firms below stairs are exhibitors, and several entries in the catalogues have not been got crammed into the Hall. Too much cannot be said in favour of this classs, which is keeping pace with the general progress of things.

Corn Dressing, or Winnowing Machines, corn screens and other barn and granary things, are upon the whole as numerous as usual. The former (winnowing machines) are perhaps fewer, but corn screens and some other things turn the balance the other way. The old plan of sending badly dressed corn to market or the mill was a losing one, and at the present time every effort is being made to equalise and improve the quality of all barn produce.

Flour Mills and *Mill Gear* are exhibited in great variety. The stands of Bryan Corcoran & Co., W. R. Dell, J. Hughes & Sons, and of John Tye, merit a detailed notice, did space permit; and there are several other stands which ought not to be passed by hurriedly. As to the so-called "family mills," home and foreign of all sizes and quality to suit the pockets of purchasers, their number is legion.

Corn Bruising, Crushing, Kibbling, and Grinding Mills are very numerous, but not more so than last year. They are, however, equally attractive, very little whole corn of any kind being now given to live stock.

Chaff-cutters.—Long or uncut hay is seldom or ever given to horses in the British capital, and this is no doubt one reason why this class of machines is so numerously exhibited at the Smithfield Club shows. The giving of chaff to neat cattle and sheep is also extending throughout the provinces. The contrary is a thriftless and wasteful practice.

Straw Elevators, Stacking Apparatus and covers exceed those of last year. The want of space to show full-sized straw elevators have induced several to exhibit by models. Rickcloths are very numerous and efficient. Teighe & Smith, Limehouse, London, show Garrard's circular rick cover on model ricks of various sizes, which is intended as a substitute for thatch. G. O. Gooding, of Chelmsford, shows his well known and highly prized thatch-sewing machine, the web from which not only answers for thatch, but for stuffing hurdles and providing shelter for ewes and lambs about the lambing time; a grand desideratum to shepherds.

Cake-breakers, Turnip-cutters, Pulpers, &c., are equally numerous as chaff-cutters, and deserving of notice. The Beverley Iron and Waggon Company show a new patent turnip-cutter, an improvement of Gardner's. Its principal feature, that covered by patent, is the attaching of a row of tooth-pickers under the front plate, which clean the knives as they come round of the broken bits which used to stick between the cutting teeth of this machine. This makes a cleaner and more easy cut, and also a more uniform size of slice. The machine also delivers the cut Turnips into the scuttle more clean. Before the dirty bits more especially stuck between the teeth, and were thus taken round in the barrel until forced out, thereby earthing the whole and increasing the labour of cattle-men and shepherds in working, while in frosty weather bits of stones and hard-frozen Turnips, were liable to blunt and even break the teeth.

Steaming Apparatus, portable and fixed. The stand of Amies, Barford & Co., is this year, as usual, well worthy of inspection Several of the exhibitors show articles under this class. The steaming and preparing of food for cattle of all sorts is second to no other work in successful stock management.

Stable Furniture, including loose-boxes, stalls, mangers, corn-bins, horse-clothes, harness, &c., was never better represented by the London firms.

Cow-houses and Piggeries are equally well provided for, and so is the poultry-yard, aviary, apiary, do kennels, and homes for other family pets too numero to individualise.

Models of Labourer's Cottages, Farm Buildings, a exhibited in great variety; so are gates, hurdles, wir fencing and netting, sheep-netting, and so on.

Carts and Waggons which gained the prizes at Manchester are all here, and many more in the great body of the Hall, both below and above stairs, while in the arcade there is a splendid out-turn of family carriages for all classes, springs carts, vans for dogs and horned cattle, &c.

Draining Tools and Pipes, brick and tile machines, pumps and pumping apparatus. The stands of Tangye Brothers & Holman, Samuel Owens & Co., possess very high merit.

Kitchen Furniture may include coffee-mills, sausage machines, vegetable slicers, saucepans, tea kettles,

coffee pots, kitchen ranges, and so on, including, of course, sewing machines.

Dairy Utensils as last year, with the exception of Ash's current churn, in which the cream flows against a fixed dasher; and Hunt & Pickering's milk can (Howitt's patent), in which the neck and lid of the ordinary cans in use about Leicester is replaced by collars in brass, or tinned wrought iron, turned perfectly true and faced. A conical wooden cover, seated with cork, is fitted and secured inside the neck by a compound lever, which is made to act with considerable pressure on the milk, while it at the same time keeps down the cover and makes the can air-tight, and the levers are secured by a lock. The cans are made in all sizes, of the best charcoal tinned sheet-iron, and fitted with wood bottoms.

Carpenters' Tools, grindstones, saw-benches, endless saws, oil feeders, leather and vulcanised india-rubber bands, may form another class.

Artificial Manures, oilcakes, and feeding stuffs, are well represented by C. F. Stoffell's concentrated fish manure below stairs in the arcade, and by Raynbird & Co., Davis's compressed fodders, &c., and others in the galleries.

Henry Allnatt, Esq., of the Estate Office, has the most interesting stand in the Agricultural Hall. His diagrams are drawn with surprising fidelity of purpose and effect.

SEEDS AND ROOTS.

Messrs. Hooper & Co., seed merchants, Covent Garden, exhibit a finely arranged selection of seed Potatos, consisting of small samples of the most noted varieties of the day. Paterson's Bovinia, or cattle-feeder, occupies a prominent central position. The roots, although exceedingly large, are perfectly healthy, which indicates a vigorous constitution.

Messrs. Thomas Gibbs & Co., corner of Half Moon Street, Piccadilly, London, W., the seedsmen to the Royal Agricultural Society of England, exhibit splendid collections—1st, of dried specimens of selected natural Grasses; 2d, of all the most approved kinds of Wheat, Barley, Oats, &c.; 3d, seeds of the above two specimens; 4th, growing specimens in pots. Their collection of roots is of first-rate quality and finely arranged:—Drumhead Cabbage (Robinson's), each weighing upwards of 50lb.; Yellow Globe, Orange Globe, and Red Globe Mangel are superior, and so is the Long Red variety; Swedes, excellent; and this also applies to their purple and green Kohl Rabi, their yellow and white-fleshed Turnips, and to their Parsnips and Belgian Carrots.

Messrs. J. C. Wheeler & Son, Gloucester, exhibit a fine collection of roots and seeds. The different varieties of Mangels are both large and superior in quality.

Messrs. George Gibbs & Co., 24, 25, and 26, Down Street, Piccadilly, London, W., have, as usual, a large stand, tastefully laid out with magnificent roots of the finest quality, surmounted ornamentally with dried specimens of all the best Grasses, thus illustrating the produce of their mixtures for laying down land to permanent meadow and pasture, and also for renovating worn-out grass-land. Their Drumhead Cabbages (Robinson's) are of enormous size, one weighing 59 lb., and another 60 lb., when newly pulled. A Gourd weighs 84 lb., Long Red Mangel about 46. Their Yellow Oval Mangels are also unusually large and fine. The Globe varieties are also splendid; Swedes and Kohl Rabi very fine; and the same may be said of yellow and white-fleshed Turnips, and of Belgian and long Surrey Carrots.

Messrs. Raynbird, Caldecott, Bawtree, Dowling & Co., Basingstoke and Mark Lane, London, exhibit finely selected samples of agricultural seeds, including seed corn and the Grasses, also of roots, oilcakes, feeding stuffs, and manures, all of the very best quality.

Messrs. Isaac Wright & Son, Great Bentley, Essex, exhibit fine Cabbages, Swedes, and the different varieties of Globe and Long Mangel Wurzel, with samples of agricultural seeds and specimens of the Grasses.

Messrs. Thomas Harrison & Son, Midland Seed Warehouse, Leicester, have a splendid stand. The numerous articles exhibited are judiciously selected, and of the very best quality; and this applies equally to seed roots and dried specimens.

Messrs. James Carter & Co., High Holborn, London, have a most magnificent collection, very skilfully selected from their own farms and those of their customers. The splendid show of roots are from the latter, and the seeds and growing specimens in garden pans and pots from the former. The gigantic Brussells Sprouts, which are without a rival in the Hall, are most attractive objects, and so are the enormous Drumhead Cabbages and Drumhead Savoys, produced by Mr. Robinson this year. The Warden Mangels, Mammoth Long Reds, and sewage produce from Barking, at the rate of 50 tons per acre, are all wonderful specimens of vegetable growth. So are the splendid Swedes, grown by B. Allan, Esq., Wexford. The Kohl Rabi are fine; the yellow and white-fleshed Turnips are very excellent, and the same may be said of Belgian Carrots and Jersey Parsnips. The Sugar-Beet and the "Perfection Salad Beet" merit the highest commendation. There is a fine show of seed Potatos, including Paterson's Bovinia and Victoria, and some other varieties more interesting to gardeners than farmers. The growing specimens show the germinating powers of the seed, and the constitutional health of the specimens themselves.

Mr. John K. King, Great Coggleshall, Essex, has a fine collection of his pedigree prize stocks of Mangel Wurzel, Swedes, and other roots, whose superexcellence of quality is attracting the attention of good judges, practically acquainted with the growth of fine seed. His roots are but of medium size, finely formed, and remarkably free from abnormal growth or unhealthy development; and this applies to the Mangels as much as to the Swedes and Turnips.

Messrs. Sutton & Sons, Royal Berks Seed Establishment, Reading, Berks, show a splendid collection of dried Grasses, and also of Grasses in growth, showing their germinating powers. The roots are superexcellent and finely arranged. The Mammoth Long Red Mangels in the centre, and the intermediate or oblong orange and yellow varieties on either side are magnificent, and universally admired both for size and quality. Their Champion Swedes are also very superior, and so is their Kohl Rabi, more especially the green variety. The yellow and white-fleshed Turnips are also very fine, and so are the different kinds of Sugar-Beet, Carrots, and Parsnips. The Drumhead Cabbages are remarkable productions of vegetable growth. Their Early Racehorse and Walker's Regents are superior specimens of seed Potatos, and so are Drummond's Prolific and the King of the Potatos. A fine sample of Paterson's Bovinia is shown. The Reading Onions are also excellent.

Mr. Alfred Hall, Westbury Farm, Westbury Wilts, has a most attractive exhibition of his Westbury Swede, all growing as it were. He also shows his Long Red and Yellow Globe Mangels, Green Kohl Rabi and Belgian Carrots.

The almost incredible size of roots shown this year and the enormous produce per acre call for a general remark in conclusion. When Cabbages weigh 60 lb. and upwards each, Mangels 48 lb., and Potatos are grown as big as dumb-bells, and when 50 tons of the former (Mangels) are grown per acre, and 40 tons of Potatos, does it not augur well for the future?

At the annual dinner of the Smithfield Club, held on Monday evening, in the new dining hall, a larger number than has been known for some years assembled. The Duke of Marlborough was in the chair, and in giving "Success to the Smithfield Club," his Grace reminded his hearers how the society, from a small beginning, had developed itself, increasing more and more in usefulness, in public estimation, and in prosperity, until at last it had become the most important agricultural association in the country. He then drew a comparison between the Royal Agricultural Society and the Smithfield Club, speaking of the former as a society which fostered the breeding of cattle, while the Club promoted the feeding of the animals for the use of man. Lord Walsingham returned thanks for the prize winners, expressing his gratification that he had obtained prizes for every pen of sheep (three in number) which he had exhibited. The noble lord expressed his opinion that the show was, on the whole, a fair average one. Mr. Keary, for the judges, said that the show was a good average one, no doubt, but he had known better animals take the gold medals; still he was much surprised at seeing so large an amount of food produced at such early maturity as the show of 1869 in a most remarkable degree exhibited.

HIGHLAND AND AGRICULTURAL.

AT the monthly meeting of the directors of this Society, held last week, it was resolved that the anniversary general meeting of the Society should be held on Wednesday, January 19, 1870.

Dumfries Show.—The following are the principal points noticed in the report with reference to the show to be held at Dumfries in July next year:—1st. It was resolved to add a section for Ayrshire cows in-calf, of any age. 2d. That the premiums for stock should be the same as at the Edinburgh show, with the exception of those for Ayrshire cows, extra horses, and Leicester sheep, in regard to which a modification is proposed. 3d. That the premiums for extra sheep and for dairy produce should be the medium gold and silver medals. 4th. That a silver medal should be given to the commended animals in all classes of stock, and as a 2d prize for poultry in place of the Bronze Medal. The following additions to the regulations were recommended:—1. No animal to be allowed to compete in more than one section. 2. With reference to regulations 6 and 8, birth of at least a seven months' calf must be certified; and in regard to regulation 9, birth of at least a nine months' foal. 3. A veterinary surgeon will attend each set of judges of horses. He shall examine those selected for premiums, and shall declare as to their soundness before the judges finally decide, but the veterinary surgeon shall in no way interfere with the judging. 4. In the class of horses, all breeding stock selected for premiums shall be examined by a veterinary surgeon, but shall only be cast by him on the ground of unsoundness which may be likely to affect their progeny. 5. No protests on veterinary grounds will be received. The board approved of the various suggestions contained in the minute in regard to the Dumfries show; and the secretary was instructed to submit the revised list and regulations to a meeting of members to be held at Dumfries on Wednesday the 15th current. In regard to the implement department, the board resolved that the judges at Dumfries should be authorised to award medals or commendations, as was done at the Edinburgh show, for general collections, and for new inventions or improvements, where a trial is not practicable.

Proposed Show at Perth in 1871.—The classes of stock for the proposed show at Perth in 1871, as suggested by the committee on general shows on Nov. 17, was approved of by the board; and the secretary was instructed to bring the list before the members in the district at a meeting to be held at Perth on Friday the 17th current.

Premiums for Essays and Reports.—The following new subjects were added:—On the operation of the Contagious Diseases (Animals) Act, 1869; on the different modes of shoeing horses, with special reference to those recently introduced: on lambing and the diseases incident thereto, particularly whether some of these diseases are of an infectious or contagious nature, with statistics (competition for this premium to be limited to shepherds); on the methods of management of woods and forests in the schools of Germany, Hanover, France, and other parts of the Continent; on the current prices realised for forest produce in different districts throughout Scotland; on the effects of the very dry summer of 1869 on trees and shrubs generally in different soils, situations and exposures; on the comparative advantage of ploughing-in manure immediately after it is spread on the land or of allowing it to remain on the ground for some weeks before it is covered; on the causes of the failure of winter Wheat sown after early Potatos lifted in July or August.

Farmers' Clubs.

LONDON.

On Farm Agreements: Monday, Dec. 6. — Mr. MASFEN read a paper on this subject, in which, after some very discursive remarks on the general relations of landlord, tenant, and labourer, he discussed Mr. Cadle's form of farm agreement, to which the Royal Agricultural Society of England had awarded their premium.

MR. CADLE'S FORM OF FARM AGREEMENT.

In the year 1868 the Royal Agricultural Society offered a premium for the best form of agricultural agreement, or an essay upon the same, and in awarding this prize to Mr. Cadle they recognise the existing necessity for more liberal covenants. I do not know how far my views may be endorsed by the members of this Club, but if the motive power of the Royal Agricultural Society will assist in carrying out the revolution proposed in Mr. Cadle's agreement, I think we have grounds for hope that a point is gained, and we shall soon find a better system than the present unsatistory mode of meting out justice to quitting tenants.

This agreement sets forth that the straw, hay, &c., all belong to the landlord, and that the hay, straw, fodder and roots of every description be consumed on the farm, except that certain quantities of hay, straw, and roots be sold, the full value being returned to the farm in the shape of cake or artificial manure. Now, this is a boon not generally given to farmers, and the great waste you frequently see of straw, where a tenant is compelled to consume it all, is such as to render it little better than rotted straw, returning nothing fertilising to the land for succeeding crops. Another clause not generally found is, that a tenant may sow two white straw crops in succession. Now this, I think, will be advantageous in many localities, and not injurious to the land; it has been so in my case, having frequently found a great difficulty in the growth of Clover, and in each case, when I have adopted the second white straw crop, preceded by a liberal application of manure, the result has been a satisfactory root of red Clover. Mr. Cadle proposes compensation for artificial food and manure, and that on a liberal scale, and I think it will meet with many supporters; as far as the food is concerned I will go with him, but I am not disposed to sanction his views as regards superphosphate, except as regards that used in the last year of the occupation. For draining and all permanent improvements in building, fencing, laying down grass-land, and planting fences and fruit trees (the sanction of the landlord for all improvements being given), I fully endorse his proposals, and coincide with his general mode of compensation for the various appliances referred to as the productive elements which a tenant, farming highly, must leave for the benefit of his successor. In clause 9 stipulation is made for all land seeded to be paid for, if clean, 5*s.* to 30*s.* per acre, at the discretion of valuers, in addition to the Clover or Grass seeds sown; thus returning to the tenant an equivalent for good cultivation, for which he would receive no direct benefit, but is enjoyed by his successor.

In a discussion at the Midland Farmers' Club, Mr. Randell, of Chadbury, alluded to the absence in almost all agreements of a stipulation for clean farming. He proposes that, at the expiration at Michaelmas of any year, half the arable land shall be fit to plant with white straw crops; one moiety shall have been fallowed with green crops during the previous summer; the other moiety shall have been wholly under Clover or mixed Grass seeds, or part in Clover, the rest Beans and Peas; after being manured, none of the Clover or Grass seeds being allowed to stand for seed. He requires that no more than one-fourth of the arable land should need to be fallowed in the year after the termination of the tenancy, nor require an outlay of more than 2*l.* 10*s.* per acre to clean it; if it required less than that sum the landlord or in-coming tenant to pay the difference, if more the out-going tenant to pay it. Then follow the compensation clauses. Not less than one-fourth of the Clover or mixed Grass seeds shall be mown for hay during the last year, for the use of and to be paid for by the in-coming tenant; for the remainder of the land, whereon Clover or other Grasses have been grazed the whole summer by sheep, the in-coming tenant shall pay after the rate of 40*s.* per acre, provided such land be clean and that only one crop of corn has been taken since the previous fallow. There are other covenants that relate to the purchase of manures, which are dealt with in the manner proposed by Mr. Cadle. With one exception, Mr. Randell proposes that one-half the proceeds of the hay, straw, &c., sold be returned to the land.

TIME OF ENTRY TO FARMS.

Much diversity of opinion exists on the time of quitting and entry on farms; it is contended in some localities that Michaelmas is a more desirable time for change than Lady Day.

It is not general in my locality; but on several occasions I have valued on farms where a change has taken place at Michaelmas, and in those cases I have found it has given satisfaction. In the Michaelmas change one thing is apparent—that the off-going tenant can clear away, and that the in-coming tenant, by paying for the produce, which is then secured, is at liberty to proceed in all matters without hindrance, and carry on the various operations of the farm, which are often very unsatisfactorily performed by an off-goer who leaves at Lady Day. I should here observe that, although I oppose any set rule of cropping, I should require the farm to be given up in a certain course, although the valuers would never consider a farm up to the required standard of good husbandry when a preponderance of any one crop prevailed. I have always contended an agreement should be made to suit a good tenant. It is said, "No; there is no necessity for one with a good tenant. They are required to make bad ones farm better, and against any fraud that might be practised." My reply is, "Give liberal agreements, and the number of bad tenants will soon be reduced to the lowest possible point." All practical men know much land is improved by the aid of artificial food, and the extent of benefit it derives from a liberal diet to domestic animals. The return for invested capital is not expected to be made by the animals who consume the food, but from the fertilising properties of the manure: hence,

you see, the want of recognition in all farming customs of ancient date. In some instances the manure upon the farm belongs to the tenant; he pays on entry, and, as a matter of course, receives for it on leaving. In that case there is no object gained by lowering the condition of the farm. If he has a limited quantity of manure on entry, and leaving a larger proportion at the expiration of his tenancy, he receives for all additional, and is thus recompensed for the expense to which he has been put by that increase. This is considered by many farmers the best form of occupation, and as one of the best of all old agreements has certainly much to recommend it. In other counties there are various customs in general use, called compensation for dressings and acts of husbandry, that find favour as tending to a good state of husbandry: the off-going tenant receives compensation for the last year's artificial manure bill, deducting certain sums for the roots, as per the mode of consuming them.

THE LABOURER.

Another most important consideration for the tenant is to see that he stipulates for the provision of good cottage accommodation:—

We are often told we provide our cattle with comfortable and warm shelter, but the lodgings of our agricultural labourer is not taken into consideration. This is a thing that requires attention; proper accommodation within a reasonable distance from his labour should be provided. The Union Chargeability Act has in some measure removed an obstacle in the way of this great good; but there is much still to be done to make the matter as satisfactory as I could wish. Lord Leicester expressed a good opinion upon this subject a few years ago. He told us that in improving the dwellings of the labourer we were not to expect a return for our capital direct, but must charge the additional convenience we receive with some share of the expense incurred, which should be borne by both landowner and tenant; and in that view I think he would find many of those best able to form an opinion join him. The labourer must be better educated, and with that increased education you fit him for a more elevated position in the social scale, and in no way so well reward him, as in increasing the happiness of his own fireside. Education enlightens him, and should make him a better labourer, and that same information makes him more alive to the position in which he has been too much of a reproach to our class and of commiseration by another. I believe the agricultural labourer of this kingdom will bear favourable comparison with the operative classes generally, still I consider there is necessity for his condition being improved, the requirements of the age make the service he has to perform more intricate than formerly. The education of the labourers' children will occupy the attention of Parliament during the next session, and I trust that in dealing with it provision will be made to educate them to the position they are expected to fill; and if in addition to their book knowledge some scheme can be devised for their technical education, an additional object will be achieved. The steam-engine, plough, reaping-machine, in fact every new appliance for the general cultivation of the farm, is rendered more valuable, the amount of property in the shape of machinery more costly than formerly, hence you require a better man, as more intelligence must be brought to bear in nearly every branch of labour in which he is engaged.

GAME.

The next is one of the most difficult questions to deal with in connection with landlord and tenant—I allude to game.

Mr. Cadle, in his agreement, provides for the destruction of rabbits all the year, and for no dog during the breeding season, which is quite right, and with the general stipulation I agree. With regard to compensation for damage done by game I cannot coincide with the proposal, knowing from practical experience the evil attending the clause, viz., "To allow for all damage done by game, exceeding 20*s.* per acre for each and every acre so injured." I have frequently been called in to assess damages done by game, and all who have been similarly placed will agree with me that it is surrounded by a variety of disagreeable circumstances. You must first as per this agreement, submit to an amount of damage, receiving no compensation; you then have to make a claim of a nature not the most agreeable, and no claim is viewed either by a landowner or his advisers with a more jealous eye than the one alluded to. I will ask you as practical men, in how many cases of this kind have you not found that a notice to quit has followed on almost the very next opportunity after such a claim has been made? If, gentlemen, you have not, I have. When consulted upon matters of this kind, my first question is, Do you value your occupation? If so, do not do anything likely to irritate your landlord, or those in his employ, for it must be well known there are besides the owner those who are often fully as difficult to deal with in things of this kind. I believe no greater evil exists than this over-preservation of game. Another most objectionable practice on some estates is to introduce a second tenant by setting the game. This should never be done without first offering it to the tenant, and if he refuses to have it at the value placed upon it when he takes the farm (which should always be a fair one) the landlord should then be considered at liberty to deal with it as he thinks well. I look for the whole question to be more set at rest by public opinion being brought to bear upon it than anything else. Men and things are more influenced by that than by any other power. The law now gives the tenant the game, but by a voluntary act he resigns his right to the owner, feeling at the same time he has little option in the matter. There is one remark I wish to make upon the rabbit clause in Mr. Cadle's agreement; it provides for the destruction of them at any time, but there are hundreds of farms where rabbits never remain on the land during the day, although at night they visit you by hundreds, to the utter destruction of your crop. Now, in cases of this sort, the stipulation affords no remedy, you have no power to enter the coverts where these pests of the farm take shelter during the day, and to attempt to interfere there would be considered sacrilege.

THE LEASE.

One word upon Scotch farming and leases. As you are aware, in Scotland the general system of tenure is by lease of 19 or 21 years, renewable at a certain period, prior to the expiration of the term specified.

The system of farming there has much to recommend it to our notice—land well farmed, masters and labourers happy and prosperous, the amount of capital there invested contrasting very favourably with that of England. No complaint can there be heard of the uncertainty of tenure, and the want of security for invested capital; the tenant immediately makes a liberal investment with an assurance that there is an opportunity during his term to reap the reward of the same—and it is an applicable to the case of a yearly tenancy, if the security which Mr. Cadle sets forth in his essay be acted upon. We were told by the late Mr. Grey, of Dilston, a lease will bring a barren heath to the productiveness of a garden, and that a yearly tenancy will return the garden to its original desert state.

POSSIBILITIES OF ENGLISH AGRICULTURE.

I feel persuaded that if either of the systems here proposed were generally adopted, it would tend more than anything else to increase the value of the land of this kingdom, and would double the available food for the people.

Mr. Allison has recorded an opinion that the husbandry of Flanders in our plains, and of Tuscany on our hill sides, would easily raise food enough for double our population. Mr. Smith, of Deanston, whose name will everywhere command respect, has expressed his conviction that by draining and subsoiling alone, leaving the question of manure out of sight, Great Britain in 20 years will become a corn-exporting country; while Professor Johnstone, in his lectures upon agricultural chemistry, expresses his deliberate conviction that, as a whole, this island does not produce one-half the food for man which it might be made to bear with profit to the farmer, and which by the time our population is doubled he believes will be found readily to yield. The late Prince Consort, who took so deep an interest in the progress of agriculture, in one of his speeches said:—"Agriculture, which was once the main pursuit of this as of every other nation, holds even now, notwithstanding the development of commerce and manufactures, a fundamental position in the realm; and, although time has changed the position which the owner of the land with his feudal dependents held in the empire, the country gentleman with his wife and children, the country clergyman, the tenant and the labourer, still form a great and, I hope, united family, in which we gladly recognise the foundation of our social state. Science and mechanical improvement have in these days changed the more practice of cultivating the soil into an industrial pursuit, requiring capital, machinery, industry, skill, and perseverance in the struggle of competition. This is another great change, but we must consider it a great progress, as it demands higher efforts and a higher intelligence." His Grace the Duke of Marlborough so aptly said: "Whatever the material prosperity of the country may be, it must be based on that which supplies the resources of natural life and vigour to the nation." Sir John Pakington also "repudiates the idea of a man placing confidence in his landlord; let him treat it commercially, and place his trust in a written document." If then we are to credit these assertions—and I fully believe to a great extent in their correctness—I ask my brother farmers if we should not be "Up and doing." The name of Earl Ducie is familiar to most in this room; his views upon the question before us are clear and concise. At an agricultural dinner he thus addressed those present: "Those farmers who look with dislike upon the progress of improvement, under the impression that it operates against themselves, could not entertain a greater mistake; for go through the length and breadth of England, it would be seen that where the landlord was found the most enlightened, the tenant was found in the most flourishing circumstances; the tenant knew his duty to his landlord, and the landlord to his tenant. No question could affect more the relative position of both parties than that of leases, and his opinion was, that till that question was fairly and clearly understood, all their efforts after improvement would fall short of what they ought to be. He (Lord Ducie) would give every tenant a lease, but in return he must have intelligence. He considered a man a fool who invested his capital without security." Mr. Randell says, that by sensible and business men a lease was considered most desirable: but we are often told by landlords, what we know to be a fact, that in very extensive and highly cultivated parts of the country (he alluded to Yorkshire and Lincolnshire) land was occupied from year to year. The farms in the neighbourhood alluded to remained from generation to generation in the hands of the same family of tenants, who considered if they had leases their farms would be re-valued, and might be called upon to pay an increase of rent, which increased value was mainly due to their own industry and outlay.

CONCLUSION.

In the first place I feel bound to express my opinion in favour of a lease, considering it the best security for the investment of capital tending to the independence of the occupier, and an increase of value to the landlord, with a largely increased production for the benefit of the nation at large. Secondly, in cases where an objection is made to granting a lease a liberal tenant-right should be given, extending a scale of compensation for unexhausted improvements, or for clean farming to such an extent, or in an equal ratio to that proposed in the agreement selected by the Royal Agricultural Society, and with at least twelve months' notice to quit.

During the subsequent discussion (after some explanatory remarks by Mr. CADLE)—

Mr. BROWN, of Tring, said as a land agent he could declare there were bad tenants as well as bad landlords. An agreement cuts both ways. And that was true also of one clause in his agreements that was worth all the rest. "The landlord agrees to a valuation, at the end of the tenancy, of all permanent improvements made by the tenant, for which full compensation has not been received." As to excessive rental, he had valued a farm and the rent was objected to by a member of this Club. He then "put it on the market," as it was called, and the result was an increase of 8*s.* per acre over his valuation. It was the farmers who did this. The farmers raised the rents, and not the land agents. He was opposed to Michaelmas outgoings. It was a great inconvenience for one to begin before the other had left; but at Lady Day one could walk in and the other out. There ought to be protection against bad tenants as well as bad landlords. With regard to game, he would annihilate it if he could, but the gentlemen of the county loved sport, and he would give them encouragment.

Mr. MECHI asked if we were at all agreed as to who should do the improvement to the land? He found that if he spent 6*l.* for dung and 6*l.* for chalk, and should die at the end of 12 months, his widow would not be able to claim one farthing for the outlay. He had drained land 26 years ago, and every drain was now perfect. That certainly ought to be called a permanent improvement, and the widow or family of a man who made such an investment ought to have compensation. He did not believe in rents remaining at one price. As wealth increased property would become more valuable, and surely we could not imagine land to be the only property which remains stationary as regards value. He knew a farmer who spent 3*l.* an acre in oilcake, which he brought and consumed on the farm. Now, will you tie a man like this not to sell his hay and straw? He expended 3000*l.* a year for extraneous food, because he found it more profitable than it was to consume straw and depend on roots; and he ought to have some security.

Mr. TRETHEWY said the tenant ought to do his own chalking. If this were not so, it would soon be expected that landlords should do the ploughing. But he would not compensate for this or any other permanent improvement by valuation, but before liming or chalking, or anything else was done, he would have a written agreement defining the liability of the landlord. As regards landlords and tenants, all tenants are not right and all landlords are not wrong. He preferred a compensation clause to leases. As to selling hay and straw, his experience was, that the farmer who consumed his hay, straw, and roots was the best farmer. Who was to check the quantity of hay sold, and the manure brought back in return?

Mr. COUSSMAKER, too, did not approve of long leases. He rather believed in arrangements for compensation. A tenant might be a good fellow and a bad farmer, or he might be a good farmer and a disagreeable fellow. The landlord and tenant might not "hit it off," and if a long lease were granted, the term might be disagreeable to both.

Mr. READ said—Whoever makes an improvement of the land ought to be compensated. He differed from Mr. Trethewy on the question whether a tenant ought to go to his landlord to make an agreement for every improvement. If we had such tenant-right as there was in Lincolnshire, farming would rapidly improve. He was in favour of long leases, and no county could have been more benefited than Norfolk had by long leases; but he thought the time had come when a fair and reasonable tenant-right ought to be general in this country.

Mr. SMITHERS said there were too many running after land. A large number of persons who had made a few thousand pounds in towns wanted to hire a farm, thinking they were going to teach farmers how to farm the land. They went there to spend a fortune. This was no doubt very pleasing to them, but it was very detrimental to the agricultural progress of this country. He thought that such vapid generalities as "unexhausted improvements," "tenant-right," and so on, ought to be reduced to words and figures. What are unexhausted improvements? Write them down. As regards tenant-right, a farm ought to be viewed in the same light as a mill, a manufactory, or any other place of business.

Farm Memoranda.

WEST GLOUCESTERSHIRE: *December* 4.—Winter has come upon us unusually early, and with unusual severity; for on October 27 our hills were covered with snow, and several rather sharp frosty nights followed. This somewhat aroused our energies as to the securing of the root crops, which has been rapidly proceeded with during the past month, and, thanks to a very favourable time for the carting off and pitting, is now pretty well completed hereabouts; and not a day too soon, for we had another fall of snow on the morning of the 1st inst., accompanied with more frost, which has very nearly put a stop to ploughing up our fallows. Fortunately the Wheat sowing is well advanced in this neighbourhood; all the fallow land and Clover leys are sown, and in most cases well up, the plant appearing strong, except upon some of the clay soils, which by the way were sown when in a dry rough state, and not wet enough for the seed to germinate properly; therefore it has not rooted as it otherwise would have done had the rain come as soon as it was sown. But upon the whole a more favourable seed-time could scarcely be desired. Advantage has been taken as much as possible of the very fine weather for the carting out of the dung for Beans and roots next year. We are now ploughing it in for roots, and subsoiling the land, a plan which we should like to see more practised than it is; for it certainly is worthy of greater patronage, inasmuch as it greatly assists the drainage of the soil, as well as adds to the production of heavier crops of roots.

Stock of every description is selling well; graziers are more sought after than common at this time of year, owing probably to an abundant supply of winter food; they range from 12*l.* to 18*l.* per head. Milch cows, 16*l.* to 22*l.*; beef, 75*s.* to 80*s.* per cwt.; mutton, 8*d.* to 8½*d.* per lb. Store lambs are high in price, good ones fetching 24*s.* to 30*s.* per head. Bacon pigs, 11*s.* 6*d.* to 11*s.* 9*d.*; porkers, 12*s.* to 12*s.* 3*d.* per score.

Much anxiety is felt hereabouts at the breaking out of the foot-and-mouth disease in four or five different herds, and at a distance of several miles apart. About a month ago, in a village near here, some milking cows were attacked with the disease, which for some days was confined to the one homestead; but unfortunately, within a fortnight or so, two other herds close by have become infected, but not seriously; at two other places within the division it has broken out, at places at least eight miles apart, and neither of the owners can assign any cause for the outbreak, as they have not imported any fresh stock into their respective herds for some time past. It behoves us all to be very careful about going to inspect another stock (especially infected herds) out of curiosity, as this disease is surely of a most contagious character, and is carried in one's clothes from one herd to another, as certainly as one beast will give it to another. Authorised inspectors, too, should be most careful in visiting different herds, or they, instead of preventing the spread of the disease, will be the conveyors of it from herd to herd. Indeed, so long as one's cattle are free from disease, they need not tax themselves with anxiety about them. The magistrates in the various petty sessional divisions are doing all in their power to suppress the spread of it, but we trust they will not be too desirous for the inspectors to overstep the opinions of the public, as we really do not see what good can be derived from their interference. Every farmer having his herd infected will be but too careful to try his utmost to restore them as soon as possible, and therefore he is perhaps the best able to manage his own cattle. That a restriction as to driving our cattle from place to place, suffering from the disease, should be at once put upon us, is perfectly right and just. About six years ago we were asked by a neighbouring butcher to allow him to leave a fat heifer in our cowhouse for a night on its way to the slaughter-house, which was readily granted. Upon her arrival she was put into a loose box, and was fetched away on the following morning. As soon as she was gone the cowman swept out the dung, and littered down the box again, in order to put in one of our cows, whose time was up to calve; in a few days the cow became very unwell, and refused her food. Having no suspicion that anything was the matter, beyond expecting her to calve, we did not examine her so narrowly as we should have done; but, as no calf came within a reasonable time, suspicions were soon aroused, and we found to our sorrow that she had the foot-and-mouth disease. We immediately shut off all communication with the infected shed, in which were 19 cows and a bull, the whole of which had it except one. If she had it at all, it was in the mildest possible form. The cow first attacked calved when in the very worst stage of the

disease, and was down for some time; indeed, we hardly expected she could recover; but she did, and also all the others. We did not give any medicine whatever; simply kept them very clean, and nursed them thoroughly. Not one of the cattle at the homestead had it, although it is situated only a few hundred yards from the cow-house; neither did either of our neighbours have it amongst their cattle; thus showing that the disease can, with proper care on the part of the owners of stock, be stamped out, or its ravages greatly alleviated. The fat heifer above referred to showed no sign whatever of being infected, but it was proved that she had been taken to market in a cattle van, which had had in it a beast suffering with foot-and-mouth disease only a few days before. *F. W.*

NEW HALL FARM, PENDLETON, MANCHESTER.—Farm, 201½ acres—Pasture, 61 acres; meadow not covered with dung-water, 63 acres; meadow covered with dung-water, 20 acres; Wheat after Potatos, 21 acres; Oats, 17 acres; Rye, 2 acres; Potatos, 16 acres; Swedes, 7 acres; Mangel Wurzel, 2 acres; orchard and gardens, 2 acres; plantations and roads, 12½ acres. Customary rotations: 1st, green crops, 2d, Wheat; 3d, Oats—with seeds for two years and upwards. Live stock—seven horses, seven colts, 30 dairy cows, 17 stirks and heifers, 30 sheep and lambs, 5 pigs, 10 rearing calves, and 3 bulls. Total, 112. Have top-dressed over 80 acres of grass-land since this year came in, with town's manure, lime compost, and other manures. Also used 550 tons for Potatos, Swedes, and Mangels, and five tons of superphosphate. No drainage. Since I last gained the prize I have put up at my own expense a strong wood shedding, slated and tiled. Have subsoiled 16 acres from 18 to 20 inches deep, and trenched ploughed 10 acres. *Hugh Higson, August 6.*

Mr. Higson's farm lies on the banks of the Irwell, a little above Manchester, and is well sheltered from the E.N.E. and N.W. by high ground and plantations. The climate good for the district. Not at a great altitude, being very few feet above the river. The surface is nearly level. The soil a good deep sandy loam and alluvial. Good public roads through it, and close to a good market for anything, and for procuring fertilisers of every description without railway or water carriage. The Potatos, Swedes, and Mangels very vigorous crops, and perfectly clean, with the headridges well fallowed. The 2 acres of Rye had been cut for soiling, and the land sown with common Turnips, which were thinned, very clean, and looking well. A 9-acre field of Wheat the heaviest crop we have seen. The remainder, 12 acres, also a heavy clean crop. A 7-acre field of Oats, after Potatos, a heavy clean crop. A 10-acre field after seeds, not so good or so clean—had failed in places. The meadow and pasture lands produces good herbage, free from coarse Grass or weeds, a considerable portion lying on the banks of the river. All the fences, gates and posts in good order. Roads, all public ones and in good keeping. The farm buildings not in uniform order, built no doubt at different periods, but very clean, and in good repair. Sufficiently commodious, three neat fancy cottages in the yard. Mr. Higson does not live in the farmhouse, which is neat and in good repair. He has other callings more profitable than farming. He has a good and useful assortment of implements, and 21 stack frames, all round ones. The cattle mostly of improved Shorthorns, but long pedigrees, and many real good animals, but perhaps not the deepest milkers. The bulls are well bred animals. The entire farm is in first-class order, and we cannot see where much improvement can be made.—Inspected August 6th, 1869.

We have never had a greater difficulty in deciding on our awards than in this case. Had the cases been parallel we might have had an easy task, but we have had to consider point by point. The circumstances in every respect so different. The position of the parties, the soil, the climate, and locality all different. Mr. Higson's opponent's farm is 300 acres, a mossy soil, and in a worse climate, and 10 miles from Manchester. Gets a living solely by farming, and has expended a great amount of money in draining, new fences, and roads; but, with the exception of the Oats, the crops are not quite so heavy. Two points only brought us to our conclusion, but whether right or wrong we cannot say. His opponent's Potatos are in butts, and he had not finished his hay making on the 7th of this month. *Inspector of Manchester Agricultural Society.*

Miscellaneous.

Return showing the Average Annual Price of Wheat for each of the 21 years from 1826 to 1846, both inclusive; and also for 21 years, from 1847 to 1867, both inclusive; and the maximum and minimum prices distinctively in each of those series of years, together with the average price, on the whole, of each series:—

	Per Qr.—*s.*	*d.*		Per Qr.—*s.*	*d.*		Per Qr.—*s.*	*d*
1826	.. 58	8	1833	.. 52	11	1840	.. 66	4
1827	.. 56	9	1834	.. 46	2	1841	.. 64	4
1828	.. 60	5	1835	.. 39	4	1842	.. 57	3
1829	.. 66	3	1836	.. 48	6	1843	.. 50	1
1830	.. 64	3	1837	.. 55	10	1844	.. 51	3
1831	.. 66	4	1838	.. 64	7	1845	.. 50	10
1832	.. 55	8	1839	.. 70	8	1846	.. 54	8

Average of the 21 years .. .. .. 57*s.* 4*d.*
Maximum price 70 8
Minimum price 39 4

	Per Qr.—*s.*	*d.*		Per Qr.—*s.*	*d.*		Per Qr.—*s.*	*d.*
1847	.. 69	9	1854	.. 72	5	1861	.. 55	4
1848	.. 50	6	1855	.. 74	8	1862	.. 55	5
1849	.. 44	8	1856	.. 69	2	1863	.. 44	9
1850	.. 40	3	1857	.. 56	4	1864	.. 40	2
1851	.. 38	6	1858	.. 44	2	1865	.. 41	10
1852	.. 40	9	1859	.. 43	9	1866	.. 49	11
1853	.. 53	3	1860	.. 53	3	1867	.. 64	5

Average of the 21 years .. .. .. 52*s.* 6*d.*
Maximum price 74 8
Minimum price 38 6

A. W. Fonblanque, Comptroller of Corn Returns.

Glue which will unite Polished Steel.—The following is a Turkish recipe for a cement used to fasten diamonds and other precious stones to metallic surfaces, and which is said to be capable of strongly uniting surfaces of polished steel, even when exposed to moisture. It is as follows:—Dissolve five or six bits of gum mastic, each the size of a large pea, in as much spirits of wine as will suffice to render it liquid. In another vessel dissolve in brandy as much isinglass, previously softened in water, as will make a 2-ounce phial of strong glue, adding two small bits of gum ammoniac, which must be rubbed until dissolved. Then mix the whole with heat. Keep in a phial closely stopped. When it is to be used, set the phial in boiling water. *The Stationer.*

Calendar of Operations.

DECEMBER.—*Carting:* Keep in advance. The days are now short, but that is no reason why steam work of any kind should be allowed to fall behind, but the contrary, for the lengthening days of spring invariably bring with them enough to do. If field work is concluded for the time being, or if the teams are driven out of the field by frost or bad weather, all sorts of carting that can be done should be set about without delay.

Claying Fen Land is done at this time without horses, the clay or clayey marl being found under the peat earth, sometimes only 2 or 3 feet below the surface. Trenches are opened, the clay dug out and spread across between the trenches with the spade or spade and barrow at the rate of from 50 to 200 cubic yards per acre. The trenches are then filled with the peat earth dug out above the clay. The work is heavy, but remunerating, and much land is clayed annually in our fen districts.

Chalking or marling.—In those places where drifted chalk is covered by a bed of clay only a few feet in depth, by opening trenches it is brought up and spread upon the surface with the spade. In other places greensand and gravelly marl lie below 3 or 4 feet of clay, when each is dug up and applied in the same way, at this season, wholly by manual labour.

Trenching.—Reclaiming waste land, and deepening what is already under the plough, by trenching, are works which are prosecuted this month, as in November. In some places hands are more easily got in the present state of the labour market during December and January, than earlier, and when such is the case the work of trenching proceeds accordingly. Shallow, rocky soils are deepened, either by trenching out the rock or by carting on fresh soil, and not unfrequently partly by both these operations; trenching being necessary to remove portions of the rock which crop out in some places nearly to the surface, and in others to the surface altogether.

Fences.—Steam culture is causing the removal of many old fences with the view of enlarging fields. In stubbing out old ones it is better to trench the ground well under the hedge, as the roots are smaller and more easily cut than at the surface. If there is no ditch, begin at one end by opening a trench 2 or 3 feet deep, according to the nature of the subsoil and the depth to which the roots have gone. But if there is a ditch or two ditches, one on each side, put a drain-pipe in one ditch, and then undermine the hedge on one or both sides, as the case may be. In this way an experienced hand will soon stub out an old hedge and fill the ditches without any botheration from the roots. Before planting a new hedge on the flat the ground should be trenched 2 feet deep, well manured with compost, and limed. Lime compost makes excellent manure for a young Thorn hedge. If planted on a bank between two open ditches, trenching will be unnecessary, unless in the case of moorland; but the young hedge will stand more in need of manure. Some farmers plant two rows vertically on the top, others form two horizontal banks, on which the plants are laid. The former is the more natural, as the roots will not grow horizontally; but the latter is best adapted for many soils, as the roots strike downwards, and thus spread over a wider surface.

Early Lamb.—On many farms in Sussex, Hants, and Dorset, this is the height of the lambing season. The month is unusually trying for the health of cattle, as may be judged by the rapid fluctuations of the thermometer, and the peculiar natural physical condition of live stock at this season of the year. Ewes, therefore, require careful attention both before and after lambing. Wet coats must be avoided. It follows that there should be a lambing shed or hovel sufficiently large to hold the ewe flock with their followers in wet and stormy weather, and such the most successful flockmasters endeavour to have. In open weather those that are able have a run of the pastures during the day, but are housed over-night. Ewes about the lamb should have a small paddock close by, as they will thus do better during the day than in the hovel, particularly if we have the very mild weather sometimes experienced at this season in our southern counties. The Belgian Carrot is one of the best roots for milk ewes, while it is equally well adapted for indoor feeding in stormy weather, and for the lambs when they begin to feed. They should be given pulped along with a little meal and Clover hay chaff. *W. B.*

Notices to Correspondents.

LAND AGENCY: *Inquirer.* Possibly Mr. H. Allnutt, of the *Estates' Gazette*, 200, Fleet Street, may be able to help you.

MANURES ON GRASS-LAND.—(Erratum).—In col. 7 of the table, p. 1265, the produce per acre in loads and trusses for plot 4 was, by a transposition, rendered "23 l. 2 t.," instead of "2 l. 23 t."

ROYAL AGRICULTURAL COLLEGE: *M.* The annual fee is more than the sum you name. An earnest student will get first-rate knowledge of chemistry as well as of agriculture there.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen for Windsor Castle and Frogmore Gardens, the Duke of Northumberland, Duke of Devonshire, late Sir J. Paxton for the Crystal Palace; Royal Gardens, Kew; Professor Lindley for the Horticultural Society, &c.

The best Shading is "Frigi Domo" Netting,

White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for

PROTECTION from the COLD WINDS and MORNING FROSTS.

"FRIGI DOMO" NETTING, 2 yards wide, 1*s.* 6*d.* per yard run.
"FRIGI DOMO" CANVAS.

Two yards wide .. .. 1*s.* 9*d.* per yard run.
Four yards wide .. .. 3*s.* 6*d.* per yard.
An improved make, 2 yards wide .. 1*s.* 0*d.* per yard.
An improved make, 3 yards wide .. 2*s.* 8*d.* per yard run.

Scrim Canvas, 72 inches wide, 70 yards long, 5½*d.*, 6½*d.*, 7½*d.*, 7½*d.* and 8½*d.* per yard.

Hessian Canvas, 54 and 72 inches wide, 6½*d.* and 8½*d.* per yard. ½*d.* extra for cut lengths.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

GLASS for ORCHARD HOUSES,

As supplied by them to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.

Each Box contains 100 feet. The prices only apply to the sizes stated.

Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.

	16 oz. to the foot.	21 oz.
Fourth quality	15*s.* 0*d.*	.. 19*s.* 6*d.*
Third ditto	16*s.* 0*d.*	.. 22*s.* 6*d.*
Seconds	18*s.* 6*d.*	.. 26*s.* 0*d.*
English	20*s.* 0*d.*	.. 27*s.* 0*d.*

The above prices include the boxes, which are not returnable.

HORTICULTURAL GLASS.

Stock sizes, 16-oz., in 100 feet boxes, boxes included.
These prices only apply to the sizes stated.

				4ths.	3rds.	2nd.
				s. d.	*s. d.*	*s. d.*
11 by 9	12 by 9	13 by 9	14 by 9	13 6	15 6	17 0
12 „ 10	13 „ 10	14 „ 10	15 „ 10			
13 „ 11	14 „ 11	..	..			
14 „ 12	15 „ 12	15 „ 11	16 „ 11			
18 „ 12	19 „ 12	16 „ 12	17 „ 12			
16 „ 13	17 „ 13	20 „ 12	..	15 0	16 0	18 6
16 „ 14	20 „ 13	18 „ 13	..			
	17 „ 14	18 „ 14	..	16 to 17 oz. to the foot.		
	20 „ 14					

SMALL SHEET SQUARES.

In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	.. 12*s.* 6*d.*
8 by 6	8½ by 6½	9 by 7	9½ by 7½	
		10 by 8	10½ by 8½	.. 13*s.* 6*d.*

Boxes 2*s.* each returnable at full price.

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS. PAINTS of various colours ground ready for use.

SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of Prices and Estimates forwarded on application to

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NEW LIST for ORCHARD-HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD-HOUSE SIZES.

in.	in.		4ths.	3rds.	2nds.	Best
20 by 12						
20 by 13		15 oz.	12*s* 3*d*	15*s* 6*d*	16*s* 9*d*	18*s* 0*d*
20 by 14	Per 100 feet					
20 by 15		21 oz.	18*s* 0*d*	20*s* 0*d*	22*s* 0*d*	24*s* 0*d*
20 by 16						

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4		7 by 5		8 by 6		9 by 7		11*s* 3*d*	12*s* 6*d*	14*s* 0*d*	15*s* 6*d*
6½ by 4½		7½ by 5½		8½ by 6½		9½ by 7½					

Per 100 feet.

10 by 8		12 by 9		12½ by 10½		14½ by 10½		11*s* 9*d*	14*s* 9*d*	15*s* 3*d*	17*s* 6*d*
10½ by 8½		12½ by 9½		13 by 10		15 by 10					
11 by 9		13 by 9		13½ by 10½		13 by 11					
11½ by 9½		12 by 10		14 by 10		14 by 11					

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
15½ by 10½		14 by 12		22 by 12		22 by 16		12*s* 3*d*	15*s* 6*d*	16*s* 9*d*	18*s* 0*d*
16 by 10		14½ by 12½		17 by 13		24 by 16					
14½ by 11½		15 by 12		23 by 13		20 by 17					
15 by 11		15½ by 12½		18 by 14		22 by 17					
15½ by 11½		16 by 12		22 by 14		24 by 17					
16 by 11		16½ by 12½		24 by 14		20 by 18					
21 by 11		17 by 12		22 by 15		22 by 18					
13 by 12		18 by 12		24 by 15		24 by 18					

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.

In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case, 36*s.*		4ths quality, per 200 feet case, 36*s.*	
3ds „ „	42*s.*	3ds „ „	42*s.*
2ds „ „	62*s.*	2ds „ „	62*s.*
Best „ „	75*s.*	Best „ „	75*s.*

SHEET GLASS is made only in the following substances, 15 oz. 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.

HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.

BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.

STUCCO PAINT, 24*s.* per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

WHITE ZINC PAINT, 36*s.* per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a-half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.

IMPROVED ANTI-CORROSION PAINT, 28*s.* to 34*s.* per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4*s.* per gallon.

	Per cwt.—*s. d.*		Per gallon.—*s. d.*	
GENUINE WHITE LEAD	30	0	LINSEED OIL	2 9
SECONDS WHITE LEAD	28	0	BOILED OIL	3 2
GROUND PATENT DRYERS, 3*d.* to 4½*d.* per lb.			TURPENTINE	2 9
„ OXFORD OCHRE, 3*d.* to 4½*d.* per lb.			LINSEED OIL PUTTY, 8*s.* per cwt.	
„ RAW UMBER, 4½*d.* to 6*d.* per lb. [per lb.			Fine OAK VARNISH, 10*s.* to 12	0
„ BURNT do., 6*d.* to 9*d.*			„ CARRIAGE do., 12*s.* to 14	0
GREEN PAINT, all shades,	28*s.* to 60	0	„ PAPER do. 10*s.* to 12	0
BLACK PAINT,	24*s.* to 36	0	„ COPAL	16 0
RED PAINT ..	28*s.* to 36	0	KNOTTING	10 0
			Patent GOLD SIZE ..	10 0
GROUND BRUSHES.			„ BLACK JAPAN ..	12 0
DUSTERS. | SASH TOOLS.			GLAZIER'S DIAMONDS and TOOLS	
DISTEMPER BRUSHES.			MILLED LEAD and PIPES	
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The above are Net, for Cash, and as such cannot be booked. Lists of any of the above on application.

NOTICE.

ROYAL HORTICULTURAL SOCIETY, LONDON.
ROYAL ZOOLOGICAL SOCIETY, LONDON.
ROYAL BOTANIC SOCIETY, LONDON.
ROYAL BOTANIC GARDENS, DUBLIN.
ROYAL BOTANIC GARDENS, LIVERPOOL.
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It is with great gratification that we announce our permission to refer upon any occasion to the various

HEATING APPARATUSES at the above, where our "ONE BOILER SYSTEM"

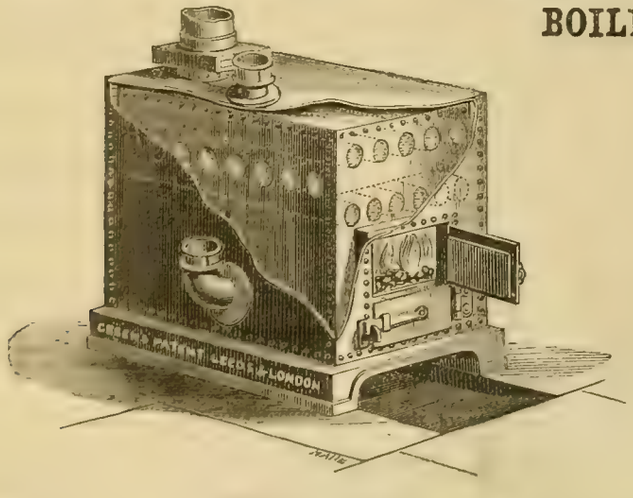
HAS FOR YEARS BEEN SUBJECTED TO THE MOST CRITICAL TESTS WITH EVERY SATISFACTORY RESULT.
IT IS MATCHLESS FOR EFFICIENCY, AND IS WORKING THE LARGEST APPARATUS ON RECORD.

These are no theoretical statements, but positive facts, and it is not too much to add, that no boiler can boast a parallel.

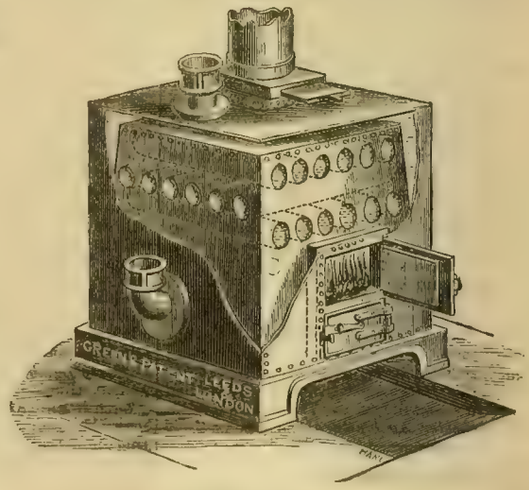
For List of Details, see "ILLUSTRATED BOOK of DESIGNS" (12th Edition), which can be obtained by addressing a note to

JOHN WEEKS AND COMPANY, HORTICULTURAL ENGINEERS, &c., KING'S ROAD, CHELSEA, S.W.

GREEN'S PATENT IMPROVED TUBULAR HOT-WATER BOILERS.



OBLONG BOILER.



SQUARE BOILER.

THE ABOVE BOILERS ARE

THE MOST EFFECTIVE AND DURABLE EVER INVENTED.

They can be set to work at a nominal cost, inasmuch as no brickwork is required; as will be seen from the above drawing, they are placed upon a Cast-Iron Sole-plate, which answers the purpose of Foundation and Ashpit.

From the peculiar and substantial manner in which these Boilers are made, they are warranted to last for years without getting out of order; in fact, we guarantee them for ten years, but feel convinced that they will serve all the purposes for which they are intended for a much longer period.

They are specially adapted for Heating Greenhouses, Churches, Chapels, Schools, Public Buildings, Entrance Halls, Warehouses, Workshops, &c.

THE FOLLOWING ARE THE ADVANTAGES OF THESE BOILERS:—

1st, They require no setting in brickwork.
2d, They are complete in themselves, having perfect means of regulation.
3d, They take up little room, and can be put in places inaccessible to other Boilers.
4th, They are economisers of fuel, owing to the great amount of heating surface upon which the fire acts in a direct manner, and the consumption of smoke.
5th, The fire can be made to last from 12 to 24 hours without attention.
6th, Any number of Flows and Returns can be annexed to the Boilers by means of T-pipes.
7th, By means of mud doors, they can be readily cleaned out when required.
8th, The Chimney is made of cast-iron, which can either be taken through a roof or turned into a flue, to meet the convenience of the situation that it may be fixed in.

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W. H. LASCELLES' MACHINE-MADE MELON LIGHTS.



	Each.
6 ft. by 4 ft. Lights, 2 in. thick, unglazed	£0 5 0
" " Primed and Glazed with 10 oz. Sheet	0 11 0
" " with stout portable Box, not Painted	1 3 0
" " Painted four coats, and Handles on	1 8 0
" " Packed and Delivered in Railway Van	1 10 0
6 ft. by 8 ft., Double Lights, do.	2 15 0

GREENHOUSES.	Per ft. super.
Woodwork only Prepared and Fitted	0 0 6
" Primed and Glazed with 16 oz. Sheet	0 0 9
" Delivered, and Fixed with Ironwork	0 1 0
" Painted four coats, two sides, ready for use	0 1 3

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HOT-WATER APPARATUS
Erected Complete, or the Materials Supplied for Heating
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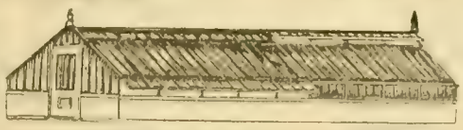




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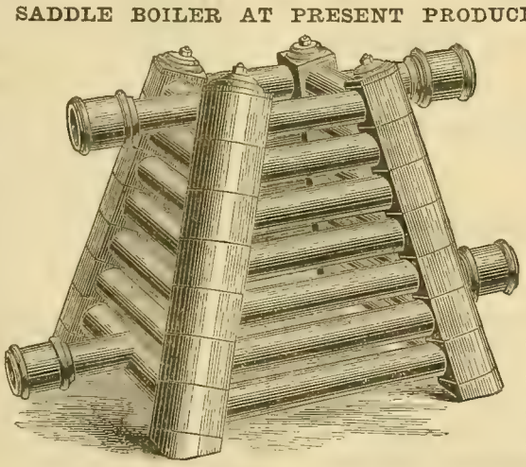
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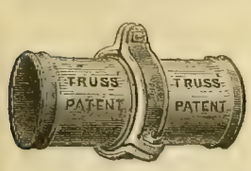


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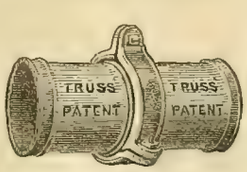
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MR. DUCKHAM has fixed to hold his NEXT PERIODICAL SALE in the Cattle Market, Hereford, on TUESDAY, February 1, 1870. Early Entries are important.
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IMPORTANT SALE of SHORTHORN CATTLE.

MR. STRAFFORD begs to announce that he is favoured with instructions from Henry J. Meakin, Esq., of Shobnall Grange, to SELL by AUCTION, without reserve, on WEDNESDAY, December 15 next, his entire Herd of Pure-bred SHORTHORNS, consisting of about FORTY HEAD of BULLS, COWS, and HEIFERS, which have been selected and carefully bred from some of the most fashionable strains of blood. Amongst them will be found some choice specimens of the Kirklevington, Lenton, Milcote, and Penrhyn Castle sorts. The young Stock are chiefly by "Duke of Cumberland" (21,584), descended from "Cambridge Rose." The Herd has not been prepared for Sale, but is offered, at a short notice, in their general store condition.
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Catalogues with Pedigrees may be had on application to Mr. STRAFFORD, 18, Euston Square, London, or of Mr. MEAKIN, Shobnall Grange, Burton-upon-Trent.

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MR. H. NASH having received instructions from the Proprietors, Messrs. R. Gadd & Son, to OFFER by PUBLIC AUCTION, early in December, at the Salvington Nurseries, two miles from the Worthing Station, South Coast Railway, a large quantity of surplus NURSERY STOCK, consisting of Araucaria imbricata, 1 to 3 feet; 20,000 Sweet Bays, 1 to 2 feet; 10,000 Tree Box, various, 1 to 4 feet; 20,000 2-yr. Evergreen Oaks, 30,000 Common Laurels, 2 to 8 feet, fine; 20,000 Laurustinus, 1 to 2½ feet, full of bloom; Silver and Spruce Firs, 5 to 10 feet; Pinus austriaca, 1 to 4 feet; 10,000 Pinus insignis, 1 to 4 feet; Common Yew, 3 to 4 feet; Portugal Laurels, 2 to 3 feet; Picea lasiocarpa, 3 to 5 feet, specimens; Black Italian Poplars, 8 to 10 feet; Evergreen Privet, &c.
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We would remark, that unless plants are on their own roots of this fine Thuja they are quite worthless.
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Alyssum	Polyanthus
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Aubrietia	Primroses
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The dwarf varieties of Spruce, such as pumila, pygmæa, Gregorii, Clanbraziliana, &c., large numbers, many of them 20 and 30 years' growth.
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CUPRESSUS LAWSONIANA, 6 to 7 feet, 30s. to 42s. per dozen;
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JUNIPER, CHINESE, 4 to 5 feet, 42s. per dozen, £15 per 100; 5 to 6 feet, 60s. per dozen, £20 per 100; 7 to 8 feet, 7s. 6d. to 10s. 6d. each. All removed since August, 1868. Purchasers may select from a stock of many thousands of this fine plant, 5 to 8 ft. high.
PICEA NOBILIS, hundreds of splendid specimens, 5, 6, 7, to 10 ft. high, all recently removed, and are undoubtedly the finest plants to be found in any Nursery. None are grafted.
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PICEA PINSAPO, 4, 5, 6, and 8 feet, 21s. to 63s. each. Some grand plants, 10 to 15 feet high, transplanted April, 1869.
THUJA AUREA, beautiful specimens, 3, 4, 5, and 6 feet high; 10 to 20 feet in circumference. This plant originated in this Nursery, and our stock is unsurpassed.
THUJA GIGANTEA, 5, 6, to 12 feet high. Moved August, 1868.
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THUJOPSIS BOREALIS, 5 to 6 feet, 7 and 8 feet round; 42s. to 60s. per dozen; 7 to 8 feet, 7s. 6d. to 10s. 6d. each. All removed since August, 1868.
WELLINGTONIA GIGANTEA, 4 to 5 feet, 7s. 6d. to 10s. 6d. each; 6, 7, 8, and 9 feet, 21s. to 42s. each. Transplanted in August.
PINUS AUSTRIACA, 3 feet, £5 per 100. Transplanted, Sept. 1868.
PINUS CEMBRA, 8 to 10 feet, 10 to 12 feet round, 10s. 6d. to 21s. each.
YEWS, the COMMON ENGLISH, 4, 5, 6, 7, 8, 10, and 12 feet high. Thousands, all constantly removed; invaluable where immediate effect is sought.
YEWS, GOLDEN and ELEGANTISSIMA.—We have these in large numbers, and of all sizes, as pyramids, globes, and worked as standards, with from 3 to 5 feet of gold, and up to 10 feet high.
YEWS, IRISH, handsome plants, up to 10 feet high.
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HOLLY, VARIEGATED SILVER and GOLD, of sorts, 4 to 10 feet.
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HOLLY, SILVER QUEEN, 4, 5, and 6 feet.
WATERER'S HOLLY.—This variety originated in this Nursery; we have hundreds 4, 5, and 6 ft. high, 10 and 15 ft. circumference.
PERRY'S WEEPING HOLLY.—Standards, 10s. 6d. to 21s. each.
HOLLY, COMMON WEEPING.—The finest specimens we have seen. Moved, April, 1869.
HOLLY, COMMON GREEN, 4, 5, 6, 7, 8, 10 to 14 feet high, by the thousand. All moved since April, 1868.
HOLLY, Green varieties of the following kinds. An immense stock of splendid plants, all transplanted in 1868-9:—

LAURIFOLIA and SCOTTICA, 4, 5, 6 to 10 feet high.	
HODGINS' YELLOW BERRIED,	ANGUSTIFOLIA, MYRTIFOLIA, &c.
4, 5, 6, and 8 feet high.	

STANDARD, WATERER'S and GOLDEN QUEEN HOLLIES, 4 to 6 feet stems, with heads 6 to 10 feet in circumference. A large number.
N.B.—Purchasers of Hollies may select from a stock occupying at the present moment considerably over 6 acres of ground; finer or better rooted plants cannot be wished or obtained. The prices are fair and reasonable.
BOX, Green and Variegated, 4, 5, 6, to 8 feet.
BOX, do. do., fine pyramids, up to 8 feet.
BAYS, standards and pyramids.
LAURUSTINUS, standards.
AUCUBA JAPONICA, thousands of beautiful plants, all moved 1868, 3 and 4 feet high.
AUCUBA JAPONICA, Berried, hundreds, 1½ to 4 feet high; in the open ground and in pots, from 18s. to 120s. per doz. and upwards.
AMERICAN PLANTS.—The Stock of American Plants at Knap Hill is, we believe, as fine as, and more extensive than, anything of its kind to be met with in England, considerably over 50 acres of land being devoted to their cultivation. We shall be pleased to supply—
RHODODENDRONS, nice bushy plants, from layers, named kinds, £5 per 100, £40 per 1000. A dozen sent as sample on application.
RHODODENDRONS, the finer kinds, by name, from £7 10s. to £12 10s. per 100, and upwards.
RHODODENDRON PONTICUM, good plants for Cover, from £10 to £15 per 1000.
STANDARD RHODODENDRONS.—Of these we possess a large number of the oldest and finest specimens in the country, many being from 20 to 30 yards round, with heads varying from 15 to 20 feet in circumference. There is probably no kind better adapted for standards than that we call roseum elegans, many of which we supplied to Rotten Row. We have also Rhododendrons, standards, of many other kinds.
RHODODENDRONS, fine hybrids, of good hardy habit, and great variety in colour, from £5 to £12 10s. per 100. Sample on application. Large and handsome plants by the 1000, 4 to 8 feet high.
AZALEAS, the very best kinds, nice plants, £10 per 100, upwards.
AZALEAS, common kinds, £5 per 100.
AZALEAS, splendid plants, of the finest varieties, 3, 4, 5, and 6 feet high, and as much in circumference.
KALMIA LATIFOLIA, nice plants, bushy, healthy, and covered with bloom, £5 to £10 per 100.
ANDROMEDA FLORIBUNDA, £5 to £7 10s. per 100, and upwards.
HARDY HEATHS, a very fine collection, every plant a specimen, and all removed in 1868, from 20s. to 63s. per 100.
ERICA CARNEA, for winter blooming, many thousands.
ERICA MEDITERRANEA ALBA, remains in bloom from October to May, and smells like new-mown hay—indispensable for Winter Gardening.
SKIMMIA JAPONICA, nice healthy plants, moved April, 1869, covered with berries, 12s. to 18s. per dozen.
As well as the above, the Knap Hill Nursery contains upwards of 200 Acres of ordinary NURSERY STOCK of a superior class, such as Flowering Shrubs (Deciduous and Evergreen), Roses, Ornamental Trees for Avenues, &c.
A PRICED and DESCRIPTIVE CATALOGUE will be forwarded on application. Purchasers to any extent are strongly recommended to make a personal inspection of our stock, and obtain the prices on the spot. No Catalogue can fairly describe many of the plants we offer.
The Nursery is readily reached by train from Waterloo to Woking in 40 minutes.
N.B.—There is now no difficulty in sending Plants through in the same truck, without package, from Woking to almost any Railway Station in England.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by JAMES MATTHEWS, at the Office of Messrs. BRADBURY, EVANS & Co., Lombard Street, Precinct of Whitefriars, City of London, in the Co. of Middlesex, and Published by the said JAMES MATTHEWS, at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, December 11, 1869.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 51.—1869.] SATURDAY, DECEMBER 18. {Price Fivepence. {Stamped Edition, 6d.

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NOTICE to the TRADE.—Saturday, the 25th instant, being CHRISTMAS DAY, the GARDENERS' CHRONICLE and AGRICULTURAL GAZETTE will be PUBLISHED at 2 P.M. on FRIDAY, the 24th instant. ADVERTISERS will please send their COPY a day earlier than usual.

Universal Transit Agency for Plants, Seeds, and Merchandise.

CHAS. J. BLACKITH begs to announce that the PARTNERSHIP existing between Mr. JOHN BEDHAM and himself WILL TERMINATE on the 31st of this month, from which date he intends continuing business on his own account, at the same address, under the style of CHAS. JOS. BLACKITH AND CO., and hopes in the future to receive the kind support of the Trade.
Cox's Quay, Lower Thames Street, London, E.C.—Dec. 18, 1869.

Rose Catalogue.

JOHN CRANSTON'S ROSE CATALOGUE for 1869 is now ready, and will be sent post free on application.
The Nurseries, King's Acre, near Hereford.

Paul's Rose Catalogue.

"A very complete and able Catalogue."—*Floral World.*
WM. PAUL begs to announce that his NEW CATALOGUE of ROSES is now ready, and will be forwarded post free on application. The stock of Plants is large and excellent.
Paul's Nurseries, Waltham Cross, London, N.

RICHARD SMITH'S ROSE LIST, containing all the leading and most popular kinds of Roses, may be had free by post.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

FIFTY THOUSAND TEA-SCENTED and NOISETTE ROSES, in pots, all the most popular and best kinds, at 9s. to 18s. per dozen. DESCRIPTIVE LIST on application.
RICHARD SMITH, Nurseryman, Worcester.

STANDARD ROSES, STANDARD ROSES.—A splendid lot of good headed plants of Maréchal Niel, Gloire de Dijon, and a general collection of the above. CATALOGUES on application to
J. C. PADMAN, Nurseryman, Boston Spa, Yorkshire.

The Roses of the Season are those of

PAUL AND SON, The "Old" Nurseries, Cheshunt, N. PRICED DESCRIPTIVE LIST post free on application.

Splendid Roses.

TRY the NEW SALISBURY ROSES. CATALOGUES ready.
JOHN KEYNES, Castle Street Nursery, Salisbury.

Manetti Stocks.

WM. PAUL has a few thousand MANETTI STOCKS, extra fine, to offer in the Trade. Price low, given on application.
Waltham Cross, London, N.

Suttons' Fresh Imported Gladioli.

SUTTONS' DESCRIPTIVE LIST of the best varieties is now ready, and may be had gratis and post free on application.
SUTTON AND SONS, Seedsmen to the Queen, Reading.

To the Trade.

CHOICE SCARLET INTERMEDIATE STOCK SEED, saved only from plants grown in pots. 7s. 6d. per ounce.
GEO. MACINTOSH, High Road, Hammersmith, London, W.

To the Trade.—Continental Flower Seeds, &c.

GEO. MACINTOSH (Agent to F. W. WENDEL, Seed Grower, &c., Erfurt, Prussia) begs to announce that he is now prepared to receive orders for the above. CATALOGUES free on application. High Road, Hammersmith, London, W.

CARTER'S ILLUSTRATED VADE MECUM for 1870 is in the press, and will be published in a few days. Post free, 1s.; gratis to Customers.
JAMES CARTER AND CO., 237 & 238, High Holborn, London, W.C.

British Fern Catalogue.

ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, Sidcup Hill, Kent.

Chinese Pæonies and Iris germanica.

JOHN SALTER AND SON have a large stock of the above, which they can offer in strong roots at the following prices:—Fine PÆONIES, 30s. per dozen; fine IRIS, 12s. per dozen.
Versailles Nursery, William Street, Vale Place, Hammersmith (near Kensington Railway Bridge).

EVERGREEN HEDGES. AMERICAN ARBOR-VITÆ, 2 to 2½ feet, 40s. per 100; 2½ to 3 feet, 50s. per 100; 3 to 3½ feet, 60s. per 100; 3½ to 4 feet, 84s. per 100.
RICHARD SMITH, Nurseryman, Worcester.

CARTER'S GENUINE SEEDS. See page 1324.
237 and 238, High Holborn, London, W.C.

CARTER'S GENUINE SEEDS. See page 1234.
237 and 238, High Holborn, London, W.C.

CARTER'S GENUINE SEEDS. See page 1234.
237 and 238, High Holborn, London, W.C.

Strong Fruiting Vines.

J. C. PADMAN has a splendid lot of the above, 5s. to 7s. 6d. each.
Providence Nursery, Boston Spa, Yorkshire.

Grape Vines.

B. S. WILLIAMS' stock is remarkably fine, and in good condition. Can supply all the best kinds. Prices on application.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

Pines.

B. S. WILLIAMS has all the best kinds, in splendid condition, warranted clean. Prices on application.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

Vines.

JAMES CARTER AND CO. can now offer strong, well-grown CANES, this year's growth. For description of Varieties and Prices, see AUTUMN CATALOGUE, now published.
JAMES CARTER AND CO., Seedsmen and Nurserymen, 237 and 238, High Holborn, W.C.

Golden Champion Grape.

OSBORN AND SONS can supply good CANES of the above-named remarkable GRAPE, which has again been exhibited and very much admired, fully sustaining the high character previously formed of it. Price 10s. 6d., 21s., and 30s. each.
Fulham Nursery, London, S.W.

WANTED, four dozen dwarf-trained WALL FRUIT TREES—varieties, Pears, Plums, Apples and Peaches—ready for fruiting next season. Apply, stating price, size, and sorts, to
J. AND R. THYNE, Woodside Nursery, Glasgow.

WANTED, BRUSSELS, BROMPTON, and COMMON PLUM STOCKS (true). State price per 1000 to
EWING AND CHILD, The Royal Norfolk Nurseries, Norwich.

WE REQUIRE, at once, some good 2 and 3-yr. old BROWN COB GOOSEBERRIES. Say quantity you offer and price, to Messrs. FRASER, GOAD AND KATFORD, 82, Bishopsgate Street Within, London.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LIST of these varieties from Mr. WEBB, Calcot, Reading.

TEN ORANGE and TWO LEMON TREES for SALE, height from 6 to 8 ft., with stems about 3 feet. For particulars apply to J. GIBSON, Jun., 29, Bridge Road West, Battersea, S.W.

ORCHARD-HOUSE TREES, Fruiting in Pots.—Peaches, Nectarines, Plums, Pears, Apples, Vines, and Figs.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

CUT CAMELLIA FLOWERS.—Wanted immediately, white or coloured. Write, stating quantity and price per dozen, to A. B., 28, Crawford Street, W.

CHRISTMAS TREES.
CHARLES NOBLE, Bagshot.

CHRISTMAS TREES.—Very handsome SPRUCE FIRS, 4 to 5 feet high, at 15s. per dozen.
RICHARD SMITH, Nurseryman, Worcester.

Mulberries.

SALTMARSH AND SON offer good STANDARD MULBERRIES, of various sizes. Price per dozen on application.
Mouisham Nurseries, Chelmsford.

FOR SALE, ACORNS (Quercus coccinea), the true scarlet Oak. Good sound new seed.
C. HASTIER, 12, Water Street, Blackfriars, London, E.C.

PYRETHRUM AUREA (Golden Feather) and LOBELIA SPECIOSA.—Enough SEED of either to produce 500 Plants for 13 stamps. Price to the Trade on application.
CHARLES YOUNG, Balham Hill Nursery, London, S.W.

EVERGREEN OAKS, 1-yr. Seedlings, in drills, fine quality, 12s. 6d. per 1000.
THOS. HORTON, Nurseryman, Bromham Road, Bedford.

Planting Season.

THE SUBSCRIBERS announce that their PRICED LIST for the season may now be had on application.
WM. URQUHART AND SONS, Dundee.

Spruce Firs.

THOS. CRIPPS AND SON, NURSERYMEN, Tunbridge Wells, have a large Stock of the above in all sizes, from 1 to 10, 12 and 15 feet. Prices on application.

See "Gardeners' Chronicle," pp. 1258*a*, 1281*a*.

SALISBURIA ADIANTIFOLIA (Maiden-hair Tree), well grown good fibrous roots, 2 to 3 feet, 12s. per dozen; 3, 4, to 5 feet, 18s. to 24s. per dozen, selected from hundreds.
GEO. JACKMAN AND SON, Woking Nursery, Surrey.

WANTED, BIRCH and LARCH, 1½ to 2 feet and 2 to 3 feet. State price and number to offer to
JOHN CARTER, Nursery, Keighley, Yorkshire.

WANTED to PURCHASE, SEEDS of EXOTIC PLANTS, principally Palms. Send List, with prices, prepaid, to Mr. ALFRED SERDOBBEL, Faubourg d'Anvers, Ghent, Belgium.

WANTED, PINUS AUSTRIACA, 2 to 3 feet, twice or thrice transplanted. Quote lowest price and quantity to offer to FRANCIS & ARTHUR DICKSON & SONS, Upton Nurseries, Chester.

WANTED, 100 CUPRESSUS SEMPERVIRENS (upright Cypress) to match. Well-rooted and carefully removed. State height and price at a London Railway Station, to
A. MCINTYRE, Pampesford Hall Gardens, Cambridge.

WANTED, STOCKS of RHODODENDRONS and COMMON HOLLIES, fit for immediate grafting. Apply, stating price, &c., to
WM. WOOD AND SON, Nurseries, Maresfield, Uckfield, Sussex.

WANTED IMMEDIATELY, LARCH FIRS, about 2 feet or 2 to 3 feet; SPANISH CHESTNUTS, 3 feet; and 2-yr. Seedling LARCH. Samples and prices to be sent to
MAURICE YOUNG, Milford Nurseries, near Godalming, Surrey.

SUTTONS' RINGLEADER PEA. The orwardest known. Price 2s. per quart.

SUTTONS' RACEHORSE KIDNEY. The earliest Potato in cultivation. Price 5s. per peck.
For description, see p. 1304 of this week's Paper.

SUTTONS' BERKSHIRE KIDNEY. The best Potato for the main crop. Price 5s. per peck.
For description, see p. 1304 of this week's Paper.

SUTTONS' RED-SKIN FLOUR-BALL. The best Potato for the latest crop. Price 7s. 6d. per peck.
For description, see p. 1304 of this week's Paper.
SUTTON AND SONS, Seedsmen to the Queen, Reading.

EARLY POTATOS.—Ashleaf, Rivers' Royal and Milky White, all true and sound. Prices, low, given on application to ISAAC DAVIES, Brook Lane Nursery, Ormskirk.

Seed Potatos.

H. AND F. SHARPE'S WHOLESALE LIST of all the new and best varieties of Early and Late POTATOS is now ready, and may be had on application. The quality is very fine, and prices low.
Seed Growing Establishment, Wisbech.

Early Rose Potato.

H. AND F. SHARPE have just imported a very true Stock of the above extraordinarily prolific POTATO, direct from one of the best growers in America; and are prepared to offer it to the Trade at a reduced price.
Seed-Growing Establishment, Wisbech.

Extra Strong Roots for Forcing.

ASPARAGUS, SEAKALE, and RHUBARB.
JAMES DICKSON AND SONS, Newton Nurseries, Chester.

To the Trade.

WINDSOR and LONG-POD BEANS, SANGSTER'S No. 1, and BADMAN'S IMPERIAL PEAS, &c., on offer, at advantageous prices.
FREDK. GEE, Seed Merchant and Grower, Biggleswade, Beds.

SURPLUS STOCK of PRINCE ALBERT, LINNEAS, and VICTORIA RHUBARB ROOTS; strong SEAKALE, true FASTOLF RASPBERRIES, extra strong CHINA ROSES; Yellow Spanish, and White Portugal BROOM, transplanted this year. Cheap.
ISAAC DAVIES, Brook Lane Nursery, Ormskirk.

RICHARD WALKER has the following to offer for cash:—Splendid SEAKALE, for forcing, extra fine, 9s. per 100; fine GIANT ASPARAGUS, for forcing, at £1 per 1000, or 3s. per 100; ROBINSON'S CHAMPION DRUMHEAD CABBAGE plant at 2s. 6d. per 1000.
RICHARD WALKER, Market Gardens, Biggleswade, Beds.

EVERY GARDEN REQUISITE KEPT in STOCK at CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

Home-grown Agricultural and Garden Seeds.

H. AND F. SHARPE'S WHOLESALE CATALOGUE of HOME-GROWN SEEDS is now ready. The prices are very low, and the quality of the Seeds very fine.
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Farm Seeds.

CHARLES SHARPE AND CO., SEED GROWERS and MERCHANTS, Sleaford, Lincolnshire, will be glad to send, post free on application, their new PRICED CATALOGUE of FARM SEEDS, grown from carefully selected stocks.

Garden Seeds.

CHARLES SHARPE AND CO., SEED GROWERS and MERCHANTS, Sleaford, Lincolnshire, will be glad to send, post free on application, their new PRICED CATALOGUE of GARDEN SEEDS, grown from carefully selected stocks.

Wholesale Catalogue of Good Transplanted Nursery Stock.

GEO. JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1869-70 will be forwarded free on application. Woking Nursery, Surrey.

JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, 7, Borough Market, London, S.E. DUTCH FLOWER ROOTS. Some of the leading varieties of HYACINTHS, &c., still on hand. Prices on application.

To the Trade only.

THOS. CRIPPS AND SON'S WHOLESALE LIST of GENERAL NURSERY STOCK (containing 75 pages) may be had post free on application.
The Nurseries, Tunbridge Wells, Kent.

Established 1806.

T. HANDASYDE AND DAVIDSON have to intimate that their CATALOGUE of NURSERY STOCK is now ready, and will be forwarded on application.
Seed Warehouse: 24, Cockburn Street, Edinburgh.
Nurseries: Brunstain Glen, Musselburgh.

JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, 7, Borough Market, London, S.E., beg to inform their Friends and the Public, that their WHOLESALE CATALOGUE of SEEDS is now ready, and will be forwarded post free on application. Early orders are recommended, which will meet with prompt attention.

Pelargoniums for the Million.

JAMES HOLDER'S unrivalled Collection of French, Fancy, and Show varieties is now ready, at the following low prices:—100 plants, distinct sorts, for 50s.; 50 plants for 30s.; or 25 plants, distinct sorts, for 20s., hamper and package included.
Crown Nursery, Reading.

Special Offer.—Madame Lemoine.

WILLIAM BADMAN offers strong Plants of this most beautiful of Double Pelargoniums, in single pots, 6s. per dozen. LORD DERBY, finest Pelargonium grown, 4s. per dozen. Package included. Terms cash.
Cemetery Nursery, Gravesend.

OSIERS for SALE, suitable for packing bundles of trees, &c.
CHAS. BARNARD, near the Railway Station, Harlow, Essex.

Everlasting and Dried Natural Flowers.

JAMES CARTER, DUNNETT, AND BEALES' WHOLESALE LIST of the above is now ready, and will be forwarded immediately on application.
237 and 238, High Holborn, London, W.C.

To the Trade.

DOBSONS' CELEBRATED PRIZE CALCEOLARIA. New Seed 1869, now ready, of this unequalled strain; only sent out in sealed packets. The principal Prizes have been awarded our Collections whenever exhibited at the Crystal Palace, Royal Horticultural and Botanic Society's Flower Shows, besides numerous Prizes at Provincial Exhibitions. A very liberal discount allowed.
DOBSON AND SONS, Woodlands Nursery, Isleworth, W.

To the Trade.

DOBSONS' PRIZE CINERARIAS are acknowledged to be very superior in quality; being saved exclusively from named flowers that have invariably been awarded 1st Prizes for several years.
DOBSON AND SONS, Woodlands Nursery, Isleworth, W.

To the Trade.

DOBSONS' SUPERB PRIMULA SINENSIS FIMBRIATA, both Red and White, may be depended upon for the finest and richest, and cannot be surpassed.
DOBSON AND SONS, Woodlands Nursery, Isleworth, W.

Specimen Chamærops excelsior.

J. AND R. THYNE, Woodside Nursery, Glasgow, have at present two magnificent specimens of the above high-class greenhouse PALM for SALE, the one measuring 23 feet stem, 26 perfect leaves, stands 8 feet from pot, 10 feet diameter, £15 15s.; the other measuring 27 in stem, 18 perfect leaves, 6 feet high from pot, 9 feet diameter, £10 10s.

French Roses.—To Florists and Nurserymen.

LEVÊQUE ET FILS, 132 and 134, Boulevard de l'Hôpital, Paris, beg to state that they have a large Stock of strong Dwarfs of the best sorts of ROSES employed in Paris for the Market Flowers, such as Jules Margottin, Triomphe de l'Exposition, Du Roi, Sénateur Vaisse, Baronne Prevost, Mame. Boll, Gloire de Dijon, Charles Margottin, &c. Prices, 30s. per 100, and £16 per 1000. Also Dwarfs of all good sorts (their choice), £2 per 100, £16 per 1000. TEA Sorts, NEW ROSES, and others. See previous Advertisements.

New Roses now ready.

DUCHER, Chemin des Quatre Maisons, Lyons, France.

BENGALE DUCHER.—Growth and flowering similar to ordinary Bengal. Pure white.

TEA ROSES.

MADAME DUCHER.—Strong and dwarfish growth; flowers medium full, well shaped, abundant flowering; from Gloire de Dijon. Bright yellow.
CHAMOIS.—Vigorous, straight, and strong branches; flowers medium full; yellow Chamois, at times with copper tint.
JEANNE D'ARC.—Vigorous, flowers medium full, well made; light yellow; style of the Pactole.
LE MONT BLANC.—Very vigorous; flowers very large, full, well made; white, slightly tinged yellow.
TOUR BERTRAND.—Very vigorous; flowers very full, large, well made, cup-shaped; strong pedicle; light yellow; from Gloire de Dijon.
SULPHUREUX.—Vigorous; flowers medium, full, well made; sulphur-yellow; very beautiful.

NOISETTES.

LAMORQUE JAUNE.—Branches strong; flowers large, very full, flowering on each branch; dark yellow; very beautiful; from Noisette Lamorque.
REVE D'OR.—Very vigorous; flowers large, full, well made; dark yellow, sometimes of a light tint; from Madame Schulz.
MICROPHYLLA IMBRICATA SARMENTEUX.—Flowers medium, well imbricated; very light pink. The finest of the class.
Price 25 francs each.

Beautiful Gardens.

JAMES CARTER AND CO. offer the following most liberal assortment of FLOWERING BULBS for 21s., including packing, and can recommend it with confidence to all who wish for a pretty display in their Drawing Room and Gardens during the Winter and early Spring.

CARTER'S SPECIAL "GUINEA" COLLECTION
Contains—

6	extra fine NAMED DOUBLE HYACINTHS
6	extra fine NAMED SINGLE HYACINTHS
6	very fine named MINIATURE HYACINTHS
2	Double Roman POLYANTHUS NARCISSUS
2	paper-white POLYANTHUS NARCISSUS
2	STATES GENERAL POLYANTHUS NARCISSUS
2	GLORIOSA POLYANTHUS NARCISSUS
6	Single sweet-scented JONQUILS
6	Double sweet-scented JONQUILS
6	Double DUC VAN THOL TULIPS
6	Single DUC VAN THOL TULIPS
12	TOURNESOL DOUBLE TULIPS
12	extra fine mixed SINGLE TULIPS
50	CLOTH of GOLD CROCUS
50	WHITE CROCUS
50	STRIPED CROCUS
24	fine mixed SPANISH IRIS
12	DOUBLE DAFFODILS
12	GLADIOLUS BYZANTINUS
6	GLADIOLUS, extra fine mixed
12	SCILLA BELGICA
12	STAR of BETHLEHEM
12	SNOWFLAKES
24	SCARLET TURBAN RANUNCULUS

N.B. Half the above for 10s. 6d.

JAMES CARTER AND CO., The Royal Seedsmen, 237 and 238, High Holborn, London, W.C.

CALCEOLARIAS, Herbaceous, of our choice strain, nice well-rooted healthy plants, free by post, at 2s. 6d. per dozen, and 12s. 6d. per 100.
AZALEA INDICA, blooming plants, in 50 varieties, at 1s. each; not less than 6 varieties.
EPACRIS, in 40 choice named, at 1s. each.
ERICAS, in 50 choice named, at 9s. per dozen.
GREENHOUSE CLIMBERS, in 24 varieties, at 9s. and 12s. per doz.
CRASSULAS, in 10 choice named, for 7s. 6d.
ACACIAS, 100 varieties, blooming plants, for 6s.
CYTISSUS, Improved, 12 fine blooming plants for 6s.
ROSES, in pots, 12 choice varieties of Tea, Noisette, Bourbon and China, for 9s.; 24 varieties, 18s.; 36 varieties, 27s.; Hybrid Perpetuals, 24 fine varieties, 9s.; 24 for 15s.; 50 for 25s.
STOCK, Nice-rooted, 12 for 6s.
PIMELEA HIRTA, blooming plants, 12s. per dozen.
DESFONTAINEA SPINOSA, good plants, 12s. per dozen.
H. AND R. SIBRAKER, Seedsmen Nurseries, Lancaster.

Laurus latifolia.

L. PAILLET, Nurseryman, Chatenay les Sceaux, near Paris, France, is now filling the numerous orders received for the splendid novelty. Persons wishing to secure good plants are requested to send their orders as soon as possible, for the plants are now getting very limited in number.
M. L. Paillet offers also to the Trade a large quantity of FRUIT TREE STOCKS, at the following rates:—

	Per 1000—£ s. d.		Per 10,000.—£ s. d.
Pears, extra choice	1 10 0.	first choice	11 12 0
Quince, do.	1 10 0.	,,	5 12 0
Apples, do.	0 17 0.	,,	3 0 0
Damas, do.	1 6 0.	,,	8 10 0
Prunes, do.	1 4 0.	,,	6 16 0
Peaches and Nectarines, do.	1 10 0.	,,	0 16 0
Cherry, do.	1 4 0.	,,	6 12 0
St. Lucas, do.	0 19 0.	,,	0 6 0

ROSES, our own best sorts in—Standards, good, £4 per 100; Half Standards, 2s. per 100; Less Budded Dwarfs, £16 per 1000; on these terms only, £12 per 1000. Beware, unless best sorts, £9 per 1000; Maréchal Niel, on Standards, 10s. per dozen.
Young seedling FOREST TREES and SHRUBS, 1, 2, or 3-yr. old, such as Acacia, Ash, Beech, Birch, Quercus, Thorn, Maple, &c.; and EVERGREENS, such as Yews, Ornamental Trees and Shrubs, at per 1000, per annum.
DWARF ROSES.—Special Offer to the Trade.—M. L. Paillet has several thousand fine Dwarf Roses to sell and send carriage free to London, packing included, at £16 the 1000, best selection. Can confidently
All orders must be sent to L. PAILLET, as above; or to his Agents, Messrs. SILBERRAD AND SON, 6, Harp Lane, Great Tower Street, London, E.C.

OFFER TO THE TRADE.

FRED. ADOLPHUS HAAGE, JUN.,

(ESTABLISHED 1822)

SEEDSMAN AND FLORIST,

ERFURT, PRUSSIA,

CALLS attention to the following fine COLLECTIONS of FLOWER SEEDS. His ASTERS, STOCKS, WALLFLOWERS, &c., have been awarded First Prizes at many Horticultural Exhibitions.

Orders may be sent direct as above, or to Messrs. CHAS. J. BLACKITH AND CO., Cox's and Hammond's Quays, Lower Thames Street, London, E.C., and will have immediate attention. They are delivered free to London.

COLLECTIONS of CHOICE FLOWER SEEDS

12 varieties double Dwarf ASTERS, 9d. each (100 seeds)
12 varieties double Quilled ASTERS, 6d. each (100 seeds)
12 varieties double Globe-flowering ASTERS, 9d. each (100 seeds)
8 varieties double Quilled REID'S ASTERS, 6d. each (100 seeds)
8 varieties new Original ASTERS, from China, 6d. each (100 seeds)
12 varieties Peony-flowered Globe or Uhland ASTERS, extra, 1s. each (100 seeds)
6 varieties double Globe-flowering ASTERS, with white centre, splendid, 9d. each (100 seeds)
6 varieties Boltze's Dwarf Bouquet ASTERS, 9d. each (100 seeds)
3 varieties new Schiller ASTERS, 6d. each (100 seeds)
12 varieties Dwarf large-flowered Chrysanthemum ASTERS, very beautiful, 9d. each (100 seeds)
12 varieties new early-flowering Dwarf Chrysanthemum ASTERS, 9d. each (100 seeds)
12 varieties new Victoria ASTERS, splendid, 1s. each (100 seeds)
12 varieties tall Chrysanthemum or Imbriqué ASTERS, very large flowered, extra, 9d. each (100 seeds)
12 vars. Imbriqué Pompon ASTERS, very beautiful, 9d. each (100 seeds)
6 varieties double Pyramidal ASTERS, 6d. each (100 seeds)
12 varieties Globe-flowering Pyramidal ASTERS, 9d. each (100 seeds)
6 varieties improved Cocardeau ASTERS, very beautiful, 6d. each (100 seeds)
12 varieties Truffaut's Globe-perfection ASTERS, 1s. each (100 seeds)
12 varieties Peony-flowered Pyramidal ASTERS, 1s. each (100 seeds)
9 varieties Truffaut's Dwarf Peony-flowered Pyramidal ASTERS, 12 inches high, 6d. each (100 seeds)
12 varieties Truffaut's Peony-perfection ASTERS, 1s. each (100 seeds)
12 varieties Hedgehog ASTERS, very beautiful, 9d. each (100 seeds)
12 vars. new Perfection Hedgehog ASTERS, 1s. 3d. each (100 seeds)
6 varieties Hedgehog ASTERS, with white centre, new and splendid, 9d. each (100 seeds)
12 vars. new Giant Emperor ASTERS, splendid, 1s. 6d. each (100 seeds)
24 varieties Dwarf TEN-WEEK STOCKS, 2s. each (100 seeds)
12 varieties Dwarf TEN-WEEK STOCKS, the most distinct colours, 1s. each (100 seeds)
9 varieties Dwarf robust TEN-WEEK STOCKS, 9d. each (100 seeds)
varieties Wallflowered-leaved TEN-WEEK STOCKS, 6d. each (100 seeds)
12 varieties new Dwarf Bouquet TEN-WEEK STOCKS, splendid, 1s. each (100 seeds)
12 varieties Dwarf large-flowered Improved TEN-WEEK STOCKS, very fine, 1s. each (100 seeds)
18 varieties Dwarf large-flowered Improved TEN-WEEK STOCKS, 1s. 6d. each (100 seeds)
12 varieties Lavender-leaved large-flowered TEN-WEEK STOCKS, 1s. each (100 seeds)
12 varieties large-flowered Pyramidal TEN-WEEK STOCKS, very beautiful, 1s. 6d. each (100 seeds)
12 varieties Dwarf large-flowered Pyramidal TEN-WEEK STOCKS, most beautiful, 1s. 6d. each (100 seeds)
9 vars. Wallflowered-leaved large-flowered Pyramidal TEN-WEEK STOCKS, 1s. each (100 seeds)
12 vars. large-flowered branching Pyramidal TEN-WEEK STOCKS, extra, 1s. each (100 seeds)
9 vars. large-flowered branching Pyramidal TEN-WEEK STOCKS, splendid, 1s. 3d. each (100 seeds)
6 varieties new Goliath Pyramidal TEN-WEEK STOCKS, 3s. 6d. each (100 seeds)
6 vars. new Giant TEN-WEEK STOCKS, 1s. 3d. each (100 seeds)
12 varieties Early-flowering AUTUMNAL STOCKS, 2s. 6d. each (100 seeds)
6 vars. Wallflower-leaved early-flowering AUTUMNAL STOCKS, very beautiful, 1s. 6d. each (100 seeds)
6 vars. Pyramidal autumnal-flowering ROCKET STOCKS, 1s. 6d. each (100 seeds)
6 varieties Rose-formed autumnal-flowering ROCKET STOCKS, splendid, 2s. each (100 seeds)
12 varieties EMPEROR STOCKS, 2s. each (100 seeds)
12 vars. EMPEROR STOCKS, new large-flowering, 2s. each (100 seeds)
12 varieties BROMPTON STOCKS, 1s. each (100 seeds)
6 vars. Wallflower-leaved BROMPTON STOCKS, 9d. each (100 seeds)
3 varieties Dwarf BROMPTON STOCKS, 6d. each (100 seeds)
3 varieties GIANT CAPE STOCKS, 6d. each (100 seeds)
12 varieties double WALLFLOWERS, extra, 1s. 3d. each (100 seeds)
10 varieties double Camellia BALSAMS, 1s. each (25 seeds)
10 varieties double Dwarf BALSAMS, 1s. each (25 seeds)
10 varieties double Dwarf Camellia BALSAMS, 1s. each (25 seeds)
10 varieties new improved Rose BALSAMS, the best double largest flowering class, unsurpassable in quality, 1s. 6d. each (25 seeds)
6 varieties Spotted Rose BALSAMS, splendid, 9d. each (25 seeds)
10 varieties double tall Rocket LARKSPURS, ½ oz., 6d. each
6 varieties double branching LARKSPURS, ¼ oz., 4d. each
6 varieties double Dwarf branching or Candelabro LARKSPURS, splendid novelty, 2s. 6d. per packet
10 varieties double Hyacinth-flowered LARKSPUR, ½ oz., 6d. each
12 varieties FRENCH and AFRICAN MARIGOLD, 6d. per packet
8 varieties SWEET PEAS, ¼ oz., 6d. each
10 varieties MARVEL of PERU, 6d. per packet
12 varieties best Annual Ornamental GRASSES, 6d. per packet
12 varieties EVERLASTINGS, 9d. per packet
12 varieties POPPIES, Double, 6d. per packet
12 varieties double CHINESE PINKS, 6d. per packet
12 varieties NEMOPHILAS, 6d. per packet
10 varieties CONVOLVULUS MAJOR, 6d. per packet
12 varieties LUPINUS, Annual, 6d. per packet
12 varieties PHLOX DRUMMONDI, 9d. per packet
8 varieties HELICHRYSUM MACRANTHUM, splendid colours, 6d. per packet
12 varieties PANSIES, large flowered, 1s. per packet
8 varieties PORTULACAS, 6d. per packet
6 varieties PORTULACAS, new Double, 1s. per packet
6 varieties SCABIOUS, large flowered, 1d. per packet
6 varieties SCABIOUS, Dwarf, 9d. per packet
6 varieties SCABIOUS, Dwarf, Double, new, 4d. per packet
8 varieties SALPIGLOSSIS, 6d. per packet
8 varieties double JACOBEA, 6d. per packet
8 varieties double JACOBEA, new Dwarf, 6d. per packet
12 varieties TROPÆOLUM LOBBIANUM, 6 seeds in packet, 1s.
6 varieties ZINNIA ELEGANS, 1d. per packet
6 varieties ZINNIA ELEGANS, new Double, 4d. per packet
12 varieties CANNAS, the best, 1s. per packet
12 varieties GLOXINIAS, finest large flowered sorts (flowers about 3 inches in diameter), 2s. 6d. per packet.
12 vars. choicest double HOLLYHOCKS, English sorts, 1s. per pkt.
8 varieties COCKSCOMBS, 6d. per packet.
6 vars. PRIMULA SINENSIS, best vars., 1s. each (100 seeds)
12 varieties RHODODENDRON ARB. HYBRIDUM, finest sorts, 1s. per packet
12 varieties Ornamental GOURDS, 6d. each (5 seeds)
12 varieties choice ALPINE PLANTS, 1s. per packet
12 SNAPDRAGON (Antirrhinum majus), 6d. per packet

☞ More or less varieties can be supplied in the Collections if required.

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MESSRS. CHAS. JOS. BLACKITH AND CO.,
COX'S and HAMMOND'S QUAYS,
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Dutch and other Bulbs.

WM. CUTBUSH AND SON are celebrated for HYACINTHS, TULIPS, CROCUSES, and other DUTCH BULBS. All the Great Prizes, including the Two Special Prizes offered by the Dutch Growers, awarded to their Collections again last Spring. They import only ONE QUALITY, therefore Customers may rely upon having the finest Bulbs. CATALOGUES post free.
Highgate Nurseries, London, N.

New Catalogue of Dutch Bulbs, Plants, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select Descriptive and Priced Lists of Amaryllis, Crocuses, Cyclamens, Gladioli, Hyacinths, Liliums, Narcissus, Tulips, and other bulbs, Miscellaneous Plants, Fruit Trees, Sweet Violets, &c., is now published, and will be forwarded to applicants.—Exotic Nursery, Tooting, Surrey, S.W.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.—Mr. WEBB, Calcot, Reading.

Lapageria rosea.

J. HARRISON, having ripened a quantity of fine SEED of the above beautiful Greenhouse Climber, begs to offer it to the Trade at 2s. per dozen, or 12s. per 100. If sown immediately it will vegetate in two or three weeks.
North of England Rose Nursery, Darlington.

Chrysanthemums.

ADAM FORSYTH, in answer to numerous applications, begs to offer 50 Pairs CUTTINGS, best varieties, from his great collection of Chrysanthemums, for £1; 25 Pairs ditto, 10s. 6d.; 25 Pairs POMPONS, 10s. 6d.; 12 Pairs best JAPANESE CHRYSANTHEMUMS, 6s. Any of the above forwarded post free on receipt of Post Office order or stamps for the amount.
Brunswick Nursery, Stoke Newington, N.

The Present Time is most favourable for Planting.

GEORGE JACKMAN AND SON'S Hybrid and Hardy CLEMATISES awarded Twenty First-class Certificates and Two Specials. A Set of Five Engravings, from Photographs taken at Woking Nursery, and a general DESCRIPTIVE CATALOGUE of prices will be forwarded by enclosing two stamps.
FIRST-CLASS HARDY and PERMANENT PLANTS.
Engraving No. 1. For Conservatories, Terraces, &c.
Engraving No. 2. For Lawn, Flower Garden, &c.
Engraving No. 3. For Hardy and Permanent Bedding, &c.
Engraving No. 4. For Festoons, Verandahs, &c.
Engraving No. 5. For Rootery, Rockwork, Ruins, &c.
GEO. JACKMAN AND SON, Woking Nursery, Surrey.

RHODODENDRON MULTIFLORUM and AZALEA HYBRIDA ODORATA.—These plants gained First-class Seedling Prizes both in London and Liverpool, and the following Nurserymen have been purchasers, whose knowledge of this class of plants cannot be doubted:—

W. Skirving and Thos. Davies & Co., of Liverpool.
J. Veitch & Sons, H. Low & Co., W. Bull, J. & C. Lee, and A. Henderson & Co., of London.
W. Fletcher and Thos. Jackson & Son, Surrey.
F. & A. Dickson & Sons, and J. Dickson & Sons, Chester.
G. & W. Yates, Manchester.
Lucombe, Pince & Co., Exeter.
James Backhouse & Son, York.
Robert Morrison, Elgin.
Thos. Methven and Downie, Laird & Laing, of Edinburgh.
J. Stewart & Sons and Urquhart & Son, Dundee.
E. Sang & Sons, Kirkcaldy.
Thos. Imrie & Sons, Ayr.
Thos. Cripps & Son, Tunbridge Wells.
E. Holmes, Lichfield.
Fisher, Holmes & Co., Sheffield.
Jas. Smith, Matlock; E. P. Francis & Co., Hertford.
H. Walton, Burnley.

Prices—R. MULTIFLORUM, 3s. 6d. to 7s. 6d.; bushes 1 foot high with from 200 to 400 flower-buds, 42s. to 63s. each. A Plant with 500 flower-buds on may be seen at Messrs. J. Veitch & Sons' Nursery.
A. HYBRIDA ODORATA, 5s. to 7s. 6d., strong bushes, with flower-buds, 21s., 42s., and 63s. each.
N.B.—L. DAVIES' GENERAL CATALOGUE will be forwarded to any address on application.
ISAAC DAVIES, Brook Lane Nursery, Ormskirk.

To the Trade.

SPECIAL OFFER of LAURUSTINUS PYRAMIDALIS (NEW).

WM. KNIGHT solicits orders for the above new variety of LAURUSTINUS, having now grown it for five years past for Stock. It has been seen growing in his Nursery by many eminent Nurserymen, by whom it has been pronounced a fine hardy, compact plant, of sterling merit, the habit being robust, compact; flowers pure white, nearly twice the size of the old varieties, and very sweet-scented, with a continuation of flowers during the most severe weather.
W. K. feels great confidence in offering it in fine specimens, 4 to 5 feet, full of bud, per pair, 16s.; second size, 3 to 4 feet, do., 10s.; third size, 2 to 3 feet, do., 7s.; fourth size, 1½ to 2 feet, do., 5s.
Floral Nursery, Hailsham, Sussex.

WANTED, one good Standard BRUGMANSIA ARBOREA, 5 to 6 feet stem; one ditto SANGUINEA, 3 to 4 feet stem; one ditto FLAVA, 3 to 4 feet stem; also LILY OF THE VALLEY roots, by the bushel; Double PRIMROSES and HEPATICAS, of sorts, by the 100. Send price and full particulars to
T. JACKSON AND SON, Nursery, Kingston, Surrey.

LARCH, 9 to 15 inches, stout; transplanted OAK, 1½ to 2, and 2 to 3½ ft.; BERBERIS AQUIFOLIA, 12 to 24 ins., bushy; splendid GERMAN WALLFLOWERS, mixed colours; HELENIUM HOOPERI (new and fine), strong; PANSIES, mixed, for spring blooming. Prices on application.
J. J. MARRIOTT, Highfield Nursery, Matlock, Derbyshire.

Nursery Stock (one of the Largest in Scotland).

THOMAS KENNEDY AND CO. have as usual a very large and superior stock of FOREST, FRUIT, and ORNAMENTAL TREES, DECIDUOUS and EVERGREEN SHRUBS, &c., which they are selling at moderate prices. The Trees and Shrubs being of all ages and sizes, are particularly well suited for extensive planting, or giving immediate effect in the formation and improving of Ornamental Parks, Pleasure Grounds, &c.
Dumfries has long enjoyed the pre-eminence of being one of the best localities in Great Britain for rearing young Trees—its soil and climate being peculiarly adapted for that purpose; and wherever these Trees have been planted throughout the three Kingdoms (where Millions are sent by T. K. & Co. every season), they have invariably done well.
Dumfries, from its central position, is most favourably situated for the speedy transmission of goods to all parts of the United Kingdom.
T. K. & Co. will forward a Copy of their DESCRIPTIVE PRICED CATALOGUE to any address on application.
Nursery and Seed Establishment, Dumfries.—November, 1869.

JOSEPH SMITH, JUN., Moor Edge Nurseries, Tansley, near Matlock, Derbyshire, has to offer the following, from grounds that must be cleared, viz. (at per 1000):—
ASH, Common, 1½ to 2 feet, 18s.; 2 to 2½ feet, 22s.
ASH, Mountain, 1½ to 2 feet, 18s.; 2 to 3 feet, 20s.
ALDER, 1½ to 2 feet, 16s.; 2 to 2½ feet, 20s.
ELM, Wych, 1½ to 2½ feet, 18s.
FIR, Scotch, 9 to 15 inches, 15s.; 1 to 1½ foot, 20s.; 1½ to 2 feet, 25s.
FIR, Spruce, 1 to 1½ foot, 15s.; 1½ to 2 feet, 25s.; 2 to 2½ feet, 30s.
OAK, English, 1½ to 2 feet, 18s.; 2 to 3 feet, 22s.
PINUS MARITIMA (Sea Pine), 2 yr. seedling, 3s.
,, transplanted, 6 to 12 inches, 8s.; 1 to 1½ foot 17s.; 1½ to 2 feet, 20s.
PRIVET, Evergreen, 1½ to 2 feet, 20s.; 2 to 2½ feet, 25s.
QUICKS, 2 yr. transplanted, 8s.; 3 yr. transplanted, 10s.
SYCAMORE, 2 to 3 feet, 30s.; 3 to 4 feet, 40s.
WILLOWS, Bedford, 2 to 3 feet, 18s.; 6 to 8 feet, 100s.
BROOM, Yellow, 2 to 3 feet, 25s.; White, 2 to 3 feet, 40s.
FURZE, or Gorse, 1 yr., 2s.; 2 yr., 2s. 6d.
COTONEASTER, Microphylla, transplanted, 1½ foot, 40s.
RHODODENDRON, twice transplanted, 9 to 15 inches, £6 10s.; 1 to 1½ foot, £8; 1½ to 2 feet, £14; 2 to 2½ feet, £20.
Hirsutum, 9 to 12 inches, £5.
TREE BOX, 9 to 12 inches, 35s.; 1 to 1½ foot, 80s.; 1½ to 2 feet, 130s. (At per 100).
ABIES ALBA, 3 to 4 feet, 15s.
ARBOR-VITÆ, American, 2 to 3 feet, 15s.; 3 to 4 feet, 20s.; 4 to 5 feet, 30s.
BROOM, White, 3 to 4 feet, extra, 8s.
CEDRUS ATLANTICA, 2 to 3 feet, 60s.
LIMES, 1 to 1½ foot, 6s.; 1½ to 2 feet, 8s.; 2 to 2½ feet, 12s.
And a large general Nursery Stock, of which CATALOGUES may be had post free. N.B. Prices to the Trade on application.

Lilium auratum.

WM. PAUL has to offer a magnificent lot of the above, Dutch-grown roots, at 2s. 6d., 3s. 6d., and 5s. each; 24s., 36s., and 50s. per dozen; a few extra large roots, 7s. 6d. each. The usual discount to the Trade off the dozen rates when ordered by the dozen.
PAUL'S Nurseries, Waltham Cross, London, N.

LILIUM AURATUM.—Fifty Seeds of this handsome and richly scented hardy Lily, free by post for 12 stamps.
TRITOMA UVARIA GRANDIFLORA.—Fifty Seeds of this splendid hardy herbaceous plant, free by post for seven stamps.
T. JACKSON AND SON, Nursery, Kingston, Surrey.

Lilium auratum,

POTTED NOW WILL BLOOM MAGNIFICENTLY.

MR. WILLIAM BULL can supply good Bulbs at 2s. 6d. each, or 24s. per dozen; 3s. 6d. each, or 36s. per dozen; 5s. each, or 50s per dozen. A few extraordinary Bulbs, at 7s. 6d. and 10s. 6d. each.
L. LANCIFOLIUM RUBRUM, immense Bulbs, 3s. 6d. each, or 36s. per dozen.
L. LANCIFOLIUM ALBUM, immense Bulbs, 2s. 6d. each, or 24s. per dozen.
Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

Lilium auratum.—To the Trade and Others.

HOOPER AND CO. expect to receive very fine Bulbs of the above, viâ the New Pacific Railway, due about January next. They are collected by a Person thoroughly acquainted with their requirements, and will doubtless arrive in the best condition. They will be in London in about 55 to 60 days from their native soil. Orders now booked, and persons requiring them will oblige by sending their orders without delay. Prices on application.
HOOPER AND CO., Covent Garden, London, W.C.

JAMES CARTER AND CO. have a beautiful Stock of Seedlings, in excellent condition, of their choicest Strains of CALCEOLARIA, CINERARIA, and PRIMULA, in 60-pots, fit for potting-on immediately for early Spring Blooming. Worthy the attention of those who have omitted to sow at proper time. Price, 21s. per 100, 3s. per dozen.
JAMES CARTER AND CO., 237 and 238, High Holborn, W.C.; and Crystal Palace Nurseries, Forest Hill, S.E.

Gladioli—Seedlings, and by Name.

GLADIOLI Seedlings, first-class—Per 100, 7s., per 1000, £3.
100 Gladioli, by name, 10 sorts .. .. 8s.
100 " " 25 sorts .. .. 18s.
100 " " 50 sorts .. .. 30s. to 40s.
LEVEQUE ET FILS, Nurserymen, 132 and 134, Boulevard de l'Hôpital, Paris.

TRANSPLANTED FOREST TREES, clean, healthy, and finely rooted. Per 1000.—

	s.	d.
ALDER, 2 to 3 feet	30	0
" 3 to 4 feet	40	0
ASH, 2 to 3 feet	30	0
" 3 to 4 feet	40	0
" 4 to 5 feet	50	0
BEECH, 1 to 2 feet	40	0
" 2 to 3 feet	50	0
BIRCH, 3 to 4 feet	50	0
CHESTNUT, Spanish, 2 to 3 feet	50	0
ELM, Chichester, 6 to 8 feet .. per 100	50	0
" Hertfordshire, 6 to 8 feet .. .. "	50	0
FIR, Scotch, 1 to 2 feet	40	0
" Spruce, 1 to 2 feet	40	0
" " 2 to 3 feet	60	0
" " 3 to 3½ feet	70	0
" " 2 to 2½ feet	40	0
HAZEL, 2 to 2½ feet	40	0
NORWAY MAPLE, 6 to 8 feet .. per 100	20	0
" 8 to 10 feet .. .. "	40	0
OAK, British, 2 to 3 feet	40	0
" 3 to 4 feet	50	0
POPLARS, Lombardy, Black English, Black Italian, Ontario, 6 to 8 feet .. per 100	20	0
COMMON LAUREL, 1½ to 2 feet .. "	10	6
" 2 to 3 feet .. .. "	15	0
" 3 to 4 feet .. per 100, 25s. to	30	0
MAHONIA AQUIFOLIUM, fine per 100	12	6

Price to the Trade on application to
EWING AND CHILD, the Royal Norfolk Nurseries, Norwich.

Vines, Five Shillings each.

LEWIS WOODTHORPE having an enormous stock, begs to offer strong Fruiting and Planting CANES of all the leading sorts, at 5s. each. L. W.'s system of packing saves nearly half the cost of carriage.
Munro Nursery, Sible Hedingham, Essex.

EXTRA STRONG FRUITING VINES.—2000 close-jointed thoroughly ripened Canes can be supplied of Black Hamburgh, Golden Champion, Mrs. Pince, and other varieties, for fruiting in pots and for planting. Descriptive CATALOGUE upon application.
JAMES DICKSON AND SONS, Newton Nurseries, Chester.

THOMSON'S WHITE LADY DOWNE'S GRAPE.—Plants of this remarkable White Grape, the latest keeping in cultivation, are now being sent out. The Canes are strong and thoroughly ripened. Immediate orders are respectfully requested. Price 21s., 42s., and 63s. each.
THOMAS METHVEN, Leith Walk Nurseries, Edinburgh.

To the Trade.

STANDARD CHERRIES, MAYDUKE, and other leading varieties.
STANDARD PEARS, MARIE LOUISE, and other leading varieties, with clean, straight stems and fine heads. Prices on application to
EWING AND CHILD, The Royal Norfolk Nurseries, Norwich.

ORDERS respectfully solicited for PYRAMIDAL PEAR TREES, fine stuff, best sorts, 18s. per dozen.
PYRAMIDAL APPLE TREES, fine stuff, best sorts, 12s. per dozen.
Dwarf-trained MAYDUKE, MORELLO, and BIGARREAU CHERRY TREES, very strong stuff, 20s. per dozen.
Dwarf-trained MOORPARK APRICOT TREES, 30s. per dozen.
CHARLES B. SAUNDERS, Nurseryman, Jersey.

VINES.—Well-ripened planting and fruiting Canes (including Mrs. Pince and Madresfield Court), from 2s. 6d. to 10s. 6d. each; names on application. Eyes of Mrs. Pince, 3d., and Madresfield Court, 6d. each.
Some fine Standard Trained PEACHES, NECTARINES, PEARS, PLUMS, and CHERRIES, three years trained on a wall.
A large quantity of FRUIT TREES, in pots, to be Sold at a Bargain, for want of room; all grown under glass, and have been potted two years. For particulars, apply to
J. HOUSE, Eastgate Nursery, Peterborough.

Vineries.

JOHN KEYNES has for several years grown some of the finest VINES in the Trade. He has not been in a position to offer any until this season. They are all of only one year's growth, from the eye, never having been cut down, as is often the case. These Vines will always insure a crop; they are best adapted for planting, never having been checked in their growth.
They comprise all the leading varieties, and are now fit for immediate forcing, being well ripened to the top. LISTS will be forwarded on application.
Castle Street Nursery, Salisbury.

CHERRY TREES, for Market Gardens.—Fine Pyramids of the following sorts of Cherries, all of which bore good crops last season, can now be supplied. They may be planted from 6 to 8 feet apart:—May Duke, Archduke, Empress Eugenie (very early), and Royal Duke.
As the above form of Tree is new in Market Gardening, a Tree of each sort can be sent as sample. Price per 100 or per 1000 given by Messrs. RIVERS AND SON, Sawbridgeworth.

EDWARD TAYLOR, NURSERYMAN, Malton, Yorkshire, offers Transplanted LARCH, 9 to 15 inches, 1 to 1½ foot, 1½ to 2, and 2 to 3 feet.
Fine Dwarf-trained APRICOTS, PEACHES, NECTARINES, PLUMS, &c.—GOOSEBERRIES in 150 choice Prize Dessert and Kitchen sorts, 10s. per 100.
GLADIOLUS BRENCHLEYENSIS, 6s. per 100.
PAMPAS GRASS, strong, 20s. to 30s. per 100.
TRITOMA UVARIA, very strong, 20s. per 100.
GIANT ASPARAGUS ROOTS, 1, 2, and 3-yr., 8s., 10s., and 15s. per 1000.
ARUNDO CONSPICUA, strong, 6s. per dozen.
LABURNUMS, 6, 7, 8, to 10 feet, strong fine.
TRITONIA AUREA, 10s. per 100.
VIOLETS, THE CZAR, 4s. per dozen, 25s. per 100.
CATALOGUES gratis on application.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their synonyms, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by Post for one stamp.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

NEW EARLY and LATE PEACHES, &c.—The following kinds, Seedlings raised by Messrs. RIVERS AND SON, are the earliest of all Peaches, ripening in July and early in August: Early Beatrice, Early Louise, Early Rivers, Rivers' Early York, and Early Leopold
LATE PEACHES.—Lord Palmerston, Lady Palmerston, and Princess of Wales, Maiden Trees, 3s. 6d. each. Young Trained Trees, 5s. each. Trees in pots with blossom-buds, 5s. each.
NEW NECTARINES.—Albert Victor, Large Elruge, Stanwick Elruge, Lord Napier—Maiden Trees and others, the same prices as for the Peaches.
THOMAS RIVERS AND SON, Sawbridgeworth.

To the Trade.

JOHN PERKINS, Sen., begs to offer the following FRUIT TREES, all of the finest quality:—
STANDARD PEARS, 5 to 7 feet stems, with good heads, at 50s. per 100, consisting of the following and other leading varieties:—

Louis Bonne of Jersey	Doyenne d'Été
Williams' Bon Chrétien	Comte de Flandre
Jargonelle	Lammas | Marie Louise
Bourré de Amanlis	Swan's Egg, &c. &c.

STANDARD MAYDUKE CHERRIES, 5 to 6 ft. stem, 75s. per 100. Dwarf-trained do. do., ex. fine, 6 to 10 shoots, 18s. p. doz.; 130s. p. 100.
Do. do. MORELLO do., do. 6 to 10 do., 18s. per doz.; 130s. per 100.
All letters to be addressed
JOHN PERKINS, Sen., 52, Market Square, Northampton.

Fruit Trees and Evergreens.

SALTMARSH AND SON have a fine stock of extra strong STANDARD and TRAINED FRUIT TREES to offer at reasonable prices. Also of large EVERGREENS of various kinds suitable for immediate effect. CATALOGUES and prices on application.
Moulsham Nurseries, Chelmsford.

Forest, Fruit, and other Trees.

JAMES DICKSON AND SONS' NURSERY STOCK is NOT surpassed in Britain; therefore, they have EVERY CONFIDENCE in soliciting Orders, and inviting intending planters to visit their EXTENSIVE NURSERIES, which can now be reached, on foot, in seven minutes, from the Chester Railway Station, by their new private road from the foot of the Flookersbrook Railway Bridge.
PRICE LISTS on application.
(*Old Established Nursery and Seed Business.*)
"Newton" Nurseries, Chester.

Fruit Trees for Sale.

J. SCOTT, The Nurseries, Merriott, Somerset, will be glad to receive orders for the above, which will be carefully attended to. The Trees consist of 1000 sorts of PEARS, 700 do. of APPLE, 170 do. of PLUM, 150 do. of CHERRY, with other kinds in proportion. Standards, 6 to 7; Pyramids, 6 to 7; and Bushes, 3 to 5 feet high; also very fine Dwarf-trained Trees of all kinds, of superior growth, are offered. The above are described in the "Orchardist," the best work on Fruit Trees in England, price 1s. 6d in stamps. A printed List or Index sent gratis.
J. S. also offers a splendid stock of FOREST TREES, DECIDUOUS SHRUBS and EVERGREENS in every variety.
CATALOGUE free on application.

Limes, Purple Beech, &c.

LIMES, best Red-twigged Variety, 6 to 10 feet, 15s. to 30s. per dozen.
PURPLE and COPPER BEECH, very fine, transplanted in spring of 1869, 6 to 10 feet, 18s. to 42s. per dozen.
WEEPING BEECH, very fine, 24s. to 36s. per dozen.
ELMS, Chichester and Hertfordshire, 8 to 14 feet, 12s. to 30s. p. doz.
Price to the Trade on application to
EWING AND CHILD, the Royal Norfolk Nurseries, Norwich.

Autumn Planting.

PETER LAWSON AND SON will be glad to send their CATALOGUE (just published) of FOREST and ORNAMENTAL TREES and SHRUBS, free upon application.
The stock of LARCHES, SCOTCH FIRS, AUSTRIAN and CORSICAN PINES, &c., comprises some millions of healthy, well-grown plants, and special offers will be made for large quantities when personal inspection is not convenient.
Edinburgh and London.

Planting Season.

DICKSONS AND CO., NURSERYMEN and SEEDSMEN, 1, Waterloo Place, Edinburgh, beg to call the attention of those about to plant to their very large and healthy Stock of FOREST TREES, FRUIT TREES, ORNAMENTAL TREES and SHRUBS, which are now in fine condition for Transplanting. They are growing on very exposed ground, are finely rooted, and their wood is thoroughly ripened. Samples and Catalogues on application. Special prices will be quoted where large quantities are taken.

RICHARD SMITH'S LIST of EVERGREEN and DECIDUOUS SHRUBS, RHODODENDRONS, STANDARD ORNAMENTAL TREES, CLIMBING and TWINING PLANTS, with their generic, specific, and English names, native country, height, time of flowering, colour, &c., and general remarks, free by post.
RICHARD SMITH, Nurseryman and Seedsman, Worcester.

Cedrus Deodara.

FINE SPECIMENS, 7, 8, 9, 10, to 15 feet, at 1s. per foot.

WM. MAULE AND SONS have to offer a large supply of extra fine EVERGREEN TREES and SHRUBS, calculated to give immediate effect to Parks, Cemeteries, and Plantations, and suitable for screening and blocking out new Buildings, that are springing up daily in the vicinity of all large towns.
The Nurseries, Bristol.

Wandsworth Common Nursery.

Ten minutes' walk from Clapham Junction.

MR. ROBERT NEAL begs to invite the attention of the Nobility, Gentry, and the Trade in general to his very extensive and healthy stock of PLANTS, consisting of a large collection of Standard, Pyramidal, and Dwarf-trained FRUIT TREES, of all sizes; Standard and Dwarf ROSES, Coniferous and other Evergreens, Forest and Ornamental TREES and SHRUBS; also a large collection of RHODODENDRONS, all the very best in cultivation, and are of endless variety, from deep crimson and dark purple (very shade), up to white, and Hybrid Seedlings, and all the leading kinds of Soarlet, both Standard and Dwarf, set with Bloom-buds, which he can supply in large quantities at a very low price.
CATALOGUE will be sent on application.

SEEDLING FOREST TREES, &c., free from Frost, healthy, and well grown.

	Per 1000—s.	d.
2,000,000 1-yr. Larch.. ..	2	0
1,000,000 1-yr. Scotch Fir ..	2	0
500,000 2-yr. Scotch Fir ..	2	6
300,000 1 yr. and 1-yr. transplanted Scotch Fir ..	3	6
2,000,000 1-yr. Spruce Fir ..	1	6
300,000 2-yr. Spruce Fir ..	2	6
500,000 1-yr. Silver Fir ..	2	6
150,000 2-yr. Silver Fir ..	4	0
400,000 1-yr. Pinus austriaca	2	6
200,000 2-yr. Pinus austriaca	4	0
300,000 1-yr. Pinus Laricio..	3	0
50,000 1-yr. Pinus Weymouth	5	0
800,000 1-yr. Birch	2	0
1,000,000 1-yr. Alder.. ..	1	6
100,000 1-yr. Oak	3	6
50,000 1-yr. Spanish Chestnut	12	6
25,000 1-yr Horse Chestnut	7	6
100,000 1-yr. Acacia ..	4	0
400,000 1-yr. Sycamore ..	2	0
200,000 3-yr. Elm	4	0
50,000 1-yr. Holly	6	0
20,000 1-yr. Sweet Bay ..	30	0
25,000 2-yr. Laurustinus from cuttings	30	0
2,000,000 2-yr. Thorn Quick	2	6
100,000 1-yr. Crab stock ..	2	6
20,000 transplanted Ash, 2½ to 4 feet	20	0
40,000 Oak, in drills, 1½ to 2½ feet	20	0
50,000 Elm, 1½ to 2½ feet ..	20	0
5000 Spanish Chestnut, 2 to 3 feet	30	0
20,000 Horse Chestnut, 3 to 4 feet	25	0
4000 Irish Yews, 3 to 4 feet, several times transplanted, per 100—60	0	
6000 American Arbor-vitæ, 3 to 4 feet, stout and well rooted .. per 100—25	0	

Any order amounting to £5 will be delivered free at Dublin on ship board on application to MICHAEL BURKE, Drumlargan Nursery, Summerhill, County Meath, Ireland.

IMPORTANT TO THE TRADE.

FERDINAND JÜHLKE'S SUCCESSORS,

SEED GROWERS AND MERCHANTS, ERFURT, PRUSSIA,

BEG TO INFORM THEIR CUSTOMERS THAT THEIR

ANNUAL CATALOGUE of IMPORTED FLOWER SEEDS, &c.,

is now ready, and will be forwarded Gratis and Post Free on application to their

LONDON DEPOT, 129, HIGH HOLBORN, W.C.

PRIZE MEDALS: ERFURT and HAMBURGH. DICK RADCLYFFE AND CO., Managers.

ROSES.

"The Roses of Mr. PAUL * * * are things to see once and dream of for ever."—*Athenæum.*

WILLIAM PAUL

HAS AS USUAL A MAGNIFICENT STOCK OF ROSES,

For which he respectfully solicits Orders.

STANDARDS and HALF-STANDARDS, sound healthy heads and clear straight stems, well varied, 18s. per doz., £6 10s. per 100
STANDARDS and HALF-STANDARDS, ditto, ditto, very superior sorts, 24s. per dozen.
DWARF STANDARDS, fine sorts, 12s. to 18s. per dozen, £5 per 100.
DWARFS, well varied and good sorts, 9s. to 18s. per dozen, 60s. to 100s. per 100.
" new sorts, 24s. to 36s. per dozen.
DWARFS, mixed summer kinds, for borders or shrubberies, 30s. per [100.
CLIMBING ROSES, in variety, 9s. to 12s. per dozen.
EXTRA-SIZED ROSES, in pots, for forcing or greenhouse culture, 24s. to 42s. per dozen.
SPECIMEN POT ROSES, 5s. to £10 10s. each.
STANDARD and DWARF ROSES of all the finest and most effective sorts for bedding, massing, or forming a Rosarium, at special and reduced rates, by the 100 or 1000.

For FRUIT TREES, EVERGREENS, CONIFERÆ, DECIDUOUS TREES and SHRUBS, WEEPING TREES, AMERICAN PLANTS, CLIMBING PLANTS, &c., see previous and future Advertisements.

PRICED DESCRIPTIVE CATALOGUES Free by Post.

IMPORTANT.—ADDRESS, WM. PAUL, PAUL'S NURSERIES AND SEED WAREHOUSE, WALTHAM CROSS, LONDON, N.

KNAP HILL NURSERY,

WOKING, SURREY.

ANTHONY WATERER

Solicits the notice of intending Planters to the following LIST of specimen CONIFERS, &c., all of which he believes are as handsomely grown, as carefully managed, and as finely rooted as can be desired.

ABIES ALBERTUS, 5 to 9 feet, 30s. to 60s. per dozen. Transplanted April, 1869.
ABIES DOUGLASII, 6, 7, to 10 feet, 7s. 6d. to 10s. 6d. each. Transplanted August, 1868.
ABIES ORIENTALIS, 5, 6, and 7 feet, 7s. 6d. to 21s. Splendid plants, moved April, 1869, 10 to 12 feet high, 15 and 20 feet in circumference.
ABIES EXCELSA, the Common Spruce Fir, beautifully furnished, 5, 6, to 8 feet high, £5, £7 10s., to £12 10s. per 100.
The dwarf varieties of Spruce, such as pumila, pygmæa, Gregorii, Clanbraziliana, &c., large numbers, many of them 20 and 30 years' growth.
CEDRUS DEODARA, 5 to 6 feet, 60s. per dozen; 7 to 8 feet, 84s. per dozen; 10 to 12 feet, 10s. 6d. to 21s. each, and upwards. We have several thousands of these large Deodars. All have been removed since August, 1868: many since April, 1869.
CEDRUS ARGENTEA, 6 to 7 feet, 42s. to 60s. per dozen; 8 to 10 ft., 7s. 6d. to 10s. 6d. each. All removed since September, 1868.
CEDRUS LEBANON, 6, 7, to 10 feet. Moved September, 1868.
CUPRESSUS LAWSONIANA, 6 to 7 feet, 30s. to 42s. per dozen; 8 to 10 feet, 5s. to 10s. 6d. each.
" " ARGENTEA, 3 and 4 feet, and as much in circumference, 7s. 6d. to 10s. 6d. each.
" " GRACILIS, 4 to 5 feet high, and 7 and 8 feet round, 7s. 6d. to 21s.
JUNIPER, CHINESE, 4 to 5 feet, 42s. per dozen, £15 per 100; 5 to 6 feet, 60s. per dozen, £20 per 100; 7 to 8 feet, 7s. 6d. to 10s. 6d. each. All removed since August, 1868. Purchasers may select from a stock of many thousands of this fine plant, 5 to 8 ft. high.
PICEA NOBILIS, hundreds of splendid specimens, 5, 6, 7, to 10 ft. high, all recently removed, and are undoubtedly the finest plants to be found in any Nursery. None are grafted.
PICEA NORDMANNIANA, 5, 6, to 8 feet, 21s. to 42s. each, and upwards. Splendid plants, moved August, 1868, 10 to 15 ft. high.
PICEA LASIOCARPA.—Hundreds of most beautiful plants, 4, 5, 6, 8, and 9 feet high. All removed 1868-69.
PICEA MAGNIFICA, 3, 4, and 5 feet.
PICEA PINSAPO, 4, 5, 6, and 8 feet, 21s. to 63s. each. Some grand plants, 10 to 15 feet high, transplanted April, 1869.
THUJA AUREA, beautiful specimens, 3, 4, 5, and 6 feet high; 10 to 20 feet in circumference. This plant originated in this Nursery, and our stock is unsurpassed.
THUJA GIGANTEA, 5, 6, to 12 feet high. Moved August, 1868.
THUJA LOBBII, 8 to 14 feet high, and as much in circumference; transplanted April, 1869.
THUJOPSIS BOREALIS, 5 to 6 feet, 7 and 8 feet round; 42s. to 60s. per dozen; 7 to 8 feet, 7s. 6d. to 10s. 6d. each. All removed since August, 1868.
WELLINGTONIA GIGANTEA, 4 to 5 feet, 7s. 6d. to 10s. 6d. each; 6, 7, 8, and 9 feet, 21s. to 42s. each. Transplanted in August
PINUS AUSTRIACA, 3 feet, £5 per 100. Transplanted, Sept. 1868.
PINUS CEMBRA, 8 to 10 feet, 10 to 12 feet round, 10s. 6d. to 21s. each.
YEWS, the COMMON ENGLISH, 4, 5, 6, 7, 8, 10, and 12 feet high. Thousands, all constantly removed; invaluable where immediate effect is sought.
YEWS, GOLDEN and ELEGANTISSIMA.—We have these in large numbers, and of all sizes, as pyramids, globes, and worked as standards, with from 3 to 6 feet of gold, and up to 10 feet high.
YEWS, IRISH, handsome plants, up to 10 feet high.
HOLLIES.—The stock of Hollies at this Nursery is, we believe, the finest to be met with in Europe; it comprises, as well as ordinary sizes, together, many thousands of the following varieties:—
HOLLY, VARIEGATED SILVER and GOLD, of sorts, 4 to 10 feet.
HOLLY, GOLDEN QUEEN, magnificent plants, 4 to 8 feet high, and as much in circumference.
HOLLY, SILVER QUEEN, 4, 5, and 6 feet.
WATERER'S HOLLY.—This variety originated in this Nursery; we have hundreds 4, 5, and 6 ft. high, 10 and 15 ft. circumference.
PERRY'S WEEPING HOLLY.—Standards, 10s. 6d. to 21s. each.
HOLLY, COMMON WEEPING.—The finest specimens we have seen. Moved, April, 1869.
HOLLY, COMMON GREEN, 4, 5, 6, 7, 8, 10 to 14 feet high, by the thousand. All moved since April, 1868.
HOLLY, Green varieties of the following kinds. An immense stock of splendid plants, all transplanted in 1868-9:—
LAURIFOLIA and SCOTTICA, 4, 5, 6 to 10 feet high.
HODGINS' | ANGUSTIFOLIA,
YELLOW BERRIED, | MYRTIFOLIA, &c.
4, 5, 6, and 8 feet high.
STANDARD, WATERER'S and GOLDEN QUEEN HOLLIES, 4 to 6 feet stems, with heads 6 to 10 feet in circumference. A large number.
N.B.—Purchasers of Hollies may select from a stock occupying at the present moment considerably over 6 acres of ground; finer or better rooted plants cannot be wished or obtained. The prices are fair and reasonable.
BOX, Green and Variegated, 4, 5, 6, to 8 feet.
BOX, do. do., fine pyramids, up to 8 feet.
BAYS, standards and pyramids.
LAURUSTINUS, standards.
AUCUBA JAPONICA, thousands of beautiful plants, all moved 1868, 3 and 4 feet high.
AUCUBA JAPONICA, Berried, hundreds, 1½ to 4 feet high; in the open ground and in pots, from 18s. to 120s. per doz. and upwards.
AMERICAN PLANTS.—The Stock of American Plants at Knap Hill is, we believe, as fine as, and more extensive than, anything of its kind to be met with in England, considerably over 60 acres of land being devoted to their cultivation. We shall be pleased to supply—
RHODODENDRONS, nice bushy plants, from layers, named kinds, £5 per 100, £40 per 1000. A dozen sent as sample on application.
RHODODENDRONS, the finer kinds, by name, from £7 10s. to £12 10s. per 100, and upwards.
RHODODENDRON PONTICUM, good plants for Cover, from £10 to £15 per 1000.
STANDARD RHODODENDRONS.—Of these we possess a large number of the oldest and finest specimens in the country, many being from 20 to 30 years old, with heads varying from 15 to 30 feet in circumference. There is probably no kind better adapted for standards than that we call roseum elegans, many of which we supplied to Rotten Row. We have also Rhododendrons, standards, of many other kinds.
RHODODENDRONS, fine hybrids, of good hardy habit, and great variety in colour, from £5 to £12 10s. per 100. Sample on application. Large and handsome plants by the 1000, 4 to 8 feet high.
AZALEAS, the very best kinds, nice plants, £10 per 100, upwards.
AZALEAS, common kinds, £5 per 100.
AZALEAS, splendid plants, of the finest varieties, 3, 4, 5, and 6 feet high, and as much in circumference.
KALMIA LATIFOLIA, nice plants, bushy, healthy, and covered with bloom, £5 to £10 per 100.
ANDROMEDA FLORIBUNDA, £5 to £7 10s. per 100, and upwards.
HARDY HEATHS, a very fine collection, every plant a specimen, and all layered in loam, from 20s. to 40s. per 100.
ERICA CARNEA, for winter blooming, many thousands.
ERICA MEDITERRANEA ALBA, remains in bloom from October to May, and smells like new-mown hay—indispensable for Winter Gardening.
SKIMMIA JAPONICA, nice healthy plants, moved April, 1869, covered with berries, 12s. to 18s. per dozen.

As well as the above, the Knap Hill Nursery contains upwards of 200 Acres of ordinary NURSERY STOCK of a superior class, such as Flowering Shrubs (Deciduous and Evergreen), Roses, Ornamental Trees for Avenues, &c.

A PRICED and DESCRIPTIVE CATALOGUE will be forwarded on application. Purchasers to any extent are strongly recommended to make a personal inspection of our stock, and obtain the prices on the spot. No Catalogue can fairly describe many of the plants we offer.

The Nursery is readily reached by train from Waterloo to Woking in 40 minutes.

N.B.—There is now no difficulty in sending Plants through in the same truck, without package, from Woking to almost any Railway Station in England.

THE AMERICAN NURSERY,

BAGSHOT, SURREY.

Near Sunning Dale Station, South-Western Railway.

JOHN WATERER & SONS

Respectfully invite the attention of Gentlemen and Planters to the undernamed selections from their general stock; every plant may be depended upon as in the best order possible for removal, having been transplanted within the last season.

ARAUCARIA IMBRICATA, grand specimens, 4 to 6 to 8 to 12 feet.
CUPRESSUS LAWSONIANA, 3 to 4 to 6 to 10 feet.
" LAWSONIANA ARGENTEA (JOHN WATERER'S var.). — By far the most desirable of all the glaucous varieties, 5s. to 7s. 6d. each.
" MACROCARPA, 4 to 6 feet, 42s. per dozen.
THUJA AUREA.—Beautiful plants, about 2 feet, 42s. per dozen; larger, 5s. to 21s. each.
" GIGANTEA.—An unequalled stock of hundreds of Seedlings, 4 to 6 to 8 feet, 3s. 6d. to 63s. each.
We would remark, that unless plants are on their own roots of this fine Thuja they are quite worthless.
THUJOPSIS BOREALIS, 3 to 4 feet, 30s. per dozen; extra fine, 5 to 6 and 7 feet, 5s. to 10s. 6d. each.
" DOLABRATA.—Fine plants, 5s. to 7s. 6d. each.
" " VARIEGATA, 5s. to 7s. 6d. each.
WELLINGTONIA GIGANTEA. — Good plants, 30s. per dozen; 2 to 3 feet, 42s. to 60s.; larger, up to 10 feet, 7s. 6d. to 63s. each.
ABIES NOBILIS, 2 to 3 feet, 21s. each; larger, 4 to 5 feet, 42s.
" NORDMANNIANA, 2 to 3 feet, 7s. 6d. to 10s. 6d.; 3 to 4 feet, 21s.; 4 to 8 to 12 feet, 31s. 6d. to 105s. each.
" LASIOCARPA, 3 to 4 to 5 feet, 10s. 6d. to 42s. each.
" GRANDIS, 4 to 5 to 6 and 10 feet, 10s. 6d. to 63s. each.
" PINSAPO, 2 to 3 feet, 5s.; 3 to 5 to 8 feet, 7s. 6d. to 63s.
" DOUGLASII, 3 to 4 feet, 42s. per dozen; 4 to 6 to 10 feet, 5s. to 21s. each.
" MAGNIFICA, 3 to 4 feet, 31s. 6d. to 42s.
" ORIENTALIS, 3 to 5 to 8 feet, very beautiful examples, 21s. to 63s. each.
CEDRUS DEODARA, 2 to 3 feet, 30s. per dozen; larger, up to 12 feet
YEWS, COMMON.—Immense quantities, 2 to 3 to 4 to 6 feet, from 18s. to 60s. per dozen.
" IRISH.—Perfect columns, up to 12 feet.
" GOLDEN, as Standards on Irish stems, perfect globes, 31s. 6d. to 42s. each.
HOLLIES, GREEN COMMON.—Many thousands, of all sizes, from 1 foot up to 10 feet.
" the best GOLDEN, WATERERS', and SILVER varieties, in any quantity, and of all sizes.
STANDARD HOLLIES, GREEN, 10s. 6d. to 21s. each.
" " WATERERS' variety, many hundreds of symmetrically grown specimens, perfectly straight stems, 42s. to 105s. per pair.
" WEEPING, GREEN, and SILVER VARIEGATED, fine plants, from 21s. each.
" PORTUGAL LAURELS.—Very close grown handsome plants, 10s. 6d. to 21s. each; very large imposing specimens, 42s. to 63s. each.

AMERICAN PLANTS.

Of this very popular tribe of plants we have the pleasure of observing that our stock is unequalled, and that it is from our Establishment that nearly all the approved crimson varieties of Rhododendrons have emanated. The Grand Exhibition of Rhododendrons annually displayed at the Royal Botanic Gardens, Regent's Park, has been for the past 20 years supplied from our Nursery.

RHODODENDRON PONTICUM, for undercover or shrubberies, strong established plants, £10 10s. per 1000; larger, 25s. to 63s. per 100.
" CATAWBIENSE and HYBRIDS, bushy well-grown plants, 50s. to 75s. per 100.
" better class (SEEDLINGS) and named varieties for extensive planting, £5 per 100.
" of superior kinds, many on own roots, £7 10s. to £10 per 100.
" very superior, leading, crimson, rose, white, £12 10s. to £20 per 100.
" STANDARD and HALF-STANDARD, of the most imposing varieties, of all shades of colour, from 21s. to 63s. to 105s. each.
AZALEAS, common kinds, 50s. to 75s. per 100.
" very best, in fine plants, £10 per 100.
KALMIA MYRTIFOLIUM, very handsome, 30s. per dozen.
" LATIFOLIA, 18s. to 30s. per dozen.
ANDROMEDA FLORIBUNDA, fine plants, 18s. to 42s. per dozen.

We have likewise immense quantities of the leading kinds of

EVERGREENS OF ALL SIZES,

SUCH AS

AUCUBAS, BAY, BOX, LAURUSTINUS, COMMON and PORTUGAL LAURELS, ARBOR-VITÆ, PHILLYRÆA, &c.

As well as **FOREST TREES**, 2 to 3 and 4 to 5 feet,

CONSISTING OF

ASH, BIRCH, BEECH, HAZEL, SPANISH CHESTNUTS, ALDER, SPRUCE, PINUS AUSTRIACA, &c.

From the immensity of our stock, we are enabled to treat on most liberal terms, and Purchasers are recommended in every practicable case to visit and choose for themselves, it being an impossibility to adequately describe by advertisement.

CATALOGUES, describing faithfully the colours of Rhododendrons, with height and prices, will be forwarded on application.

Purchasers of large quantities are informed that Goods can be forwarded from Sunning Dale to all parts of England in through truck, thereby causing a great saving in transit as well as diminishing the cost of package.

THE AMERICAN NURSERY,
BAGSHOT, SURREY.

SUTTONS'
HOME-GROWN SEEDS.

SEASON 1869 AND 1870.

Now ready, price 1s., Gratis to Customers,

SUTTONS' SPRING CATALOGUE

AND

AMATEUR'S GUIDE FOR 1870,

Containing complete and valuable information on the successful cropping of the Vegetable and Flower Garden; also SUTTONS' ABRIDGED LIST for 1870, gratis and post free on application.

THE FORWARDEST PEA KNOWN IS

SUTTONS' RINGLEADER.

The Royal Horticultural Society tested carefully the merits of the leading kinds of Early Peas, and in the *Gardeners' Chronicle*, June 27, 1868, the following brief but emphatic statement appeared:—"The earliest form of all was Ringleader. Several of the Peas blossomed at the same time, but Ringleader was fit to gather first."

SUTTONS' RINGLEADER PEA is also the Best Variety for very Late Sowing. The following is extracted from the *Gardeners' Chronicle*:—"Late Peas are indeed a luxury. I sowed Suttons' Ringleader the second week in July, and gathered one peck of well-filled pods the second week in September. I sowed two rows a fortnight later, and gathered Peas on October 6—a really good dish—much to the satisfaction of my employers. I have to-day (October 13) picked another good dish of Peas from plants which show no appearance of mildew."—E. HAWTHORN, *Gr. to* P. Kemp, Esq., *Goldwell House*.

Price 2s. per quart, cheaper in large quantities.

The Largest and best EARLY PEA for Market Gardening purposes is

SUTTONS' IMPROVED EARLY CHAMPION.

This excellent large-podded Early Pea is only four days later than our "Ringleader," and quite a week earlier than Daniel O'Rourke or Sangster's No. 1. It produces a complete mass of fine large green pods, and is specially adapted for growing in large quantities to pick green for market. The numerous Testimonials we have received, together with the increasing demand, prove its great superiority over the sorts usually grown for that purpose.

Price 1s. 6d. per quart, or much cheaper in large quantities.

The THREE best POTATOS for the ensuing season are—

For the Earliest Crop,

SUTTONS' EARLY RACEHORSE KIDNEY

The forwardest in cultivation.

The tubers nearly double the size of Walnut-leaf. Of the many Early Kidney Potatos sent out for some years past, we know of none at all equal in earliness or productiveness to this. We speak with confidence, having planted in our trial grounds every new variety offered for sale. We have hitherto always sold out long before the season closed, and as our stock is limited, early orders are necessary to secure a supply.

Price 5s. per peck, cheaper by the bushel.

For the Main Crop,

SUTTONS' BERKSHIRE KIDNEY,

Raised and selected from among 40 Seedlings of the Fluke. Having planted it side by side with the different varieties of that class, we have proved it to be by far the best of them all, and quite a fortnight earlier. The tubers are of good size, very numerous, and remarkably clear skin. It is most valuable for the main garden crop, and has been remarkably free from disease, while other varieties growing close by were almost destroyed.

Price 5s. per peck, cheaper by the bushel.

For the Latest Crop,

SUTTONS' RED-SKINNED FLOUR-BALL.

This Potato has the pecular merit of producing tubers all of full size, and weighing from 12 to 20 ounces each. While most other red varieties boil yellow, this is white and is most correctly described as Flour-ball. For supplying the London dining rooms especially, we feel confident it will supersede every other kind when sufficiently known. In a field where many other sorts were all more or less diseased, our Red-skinned Flour-ball was entirely free, which we can only attribute to its remarkably vigorous growth. It is a Seedling, and we offer it now for the first season.

Price 7s. 6d. per peck, cheaper per bushel.

SUTTONS' NEW CATALOGUE for 1870

Is now ready, and may be had Gratis on application.

☞ *All Goods Carriage Free.*

SUTTON AND SONS,
SEEDSMEN TO THE QUEEN, READING, BERKS.

Roses Suitable for Climbers or Stocks.

ROBERT PARKER begs to state that he can supply, in large or small quantities, extra fine plants of BOURSAULTS, AMADIS, and INERMIS, CELINE and MANETTI ROSES at very reasonable prices, or in EXCHANGE for Hardy Shrubs or Trees. Prices forwarded on application.
Exotic Nursery, Tooting, Surrey, S.W.

Gladioli—New Roses.

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MR. WILLIAM BULL begs to intimate that his new Model Orchid House is now looking charming, the following ORCHIDS being magnificently in bloom:—
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GARDENERS' CHRONICLE PRIZES.—At the GREAT PROVINCIAL SHOW of the ROYAL HORTICULTURAL SOCIETY to be held at OXFORD, in JULY, 1870, in connection with the Show of the Royal Agricultural Society, the following PRIZES will be offered by the PROPRIETORS of the GARDENERS' CHRONICLE:—
For the Two best COLLECTIONS of FRUIT and VEGETABLES, 6 distinct kinds of each, a 1st prize of £7, and a 2d prize of £3.
☞ The Vegetables to be neatly set up in flat baskets; the Fruit to be displayed on stands or in dishes.
The competition is open only to AMATEURS and to GARDENERS of Private Families. The Winners of the *Gardeners' Chronicle* Prize in 1867, 1868, and 1869 excluded from competition. The articles produced to be of the EXHIBITOR'S OWN GROWING.

The Gardeners' Chronicle.

SATURDAY, DECEMBER 18, 1869.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, Dec. 21	Royal Horticultural (Fruit and Floral Committees), at South Kensington	11 A.M.
	Scientific Committee	1 30 P.M.
	Ditto (General Meeting)	3 P.M.

WE have now before us the ROYAL HORTICULTURAL SOCIETY'S PROGRAMME for 1870. The proposed arrangements differ from those of preceding years, rather in the amplification of the Fruit and Floral Meetings, than in any other feature, though an attempt will be made to render the meetings as far as possible illustrative of particular flowers, after the manner of the Rose shows of former years. This idea could not indeed be adopted in its entirety without shutting out many interesting subjects; but it is evident, considering the Hyacinths of March 16, the Azaleas and Auriculas of April 20, the pot Roses of May 4, the Pelargoniums and Heaths of May 18, the Cut Roses of July 6, the Variegated-leaved Pelargoniums of August 3, the Gladioli of August 17, the Dahlias of September 21, the Grapes of October 5, and the Chrysanthemums of November 2, that the Society has in some measure, and on the whole, we think wisely, resolved to devote its Wednesday shows to the illustration of particular subjects.

We are glad to find, in what may be called the Great Show of June 15, and which is to include the leading features of Orchids, stove and greenhouse plants, fine-foliage plants, Azaleas, pot Roses, variegated zonal Pelargoniums, and various fruits, that provisions have been made which admit to competition others than those who have been for years training up plants for show purposes. Thus we find there is a class of 20 distinct stove and greenhouse plants, limited to 12-inch pots, as well as a similarly limited group of nine kinds, restricted to amateurs; besides 20 distinct fine-foliage plants, and 15 Azaleas, all limited to 12-inch pots. On other occasions we find classes provided for 12 Heaths, and for 12 Roses, with a similar limitation as to pots. These arrangements are most satisfactory, inasmuch as they admit both new exhibitors and new specimens and subjects to competition, while they do not interfere with the larger and more familiar plants already grown up, and with which visitors have become so well acquainted. It may be hoped, on account of the variety they impart, and the novelty they may be the means of introducing, that these classes may be well responded to, so as to admit of their gradual extension, in so far as may be necessary to bring about the re-appearance of many of the choice subjects of former times, now rarely met with, owing to the limitation of numbers, and the consequent increase of the size of individual plants. The depreciation of large collections in favour of large individual specimens has had this most undesirable effect on exhibitions generally, that it has materially curtailed the variety of subjects brought forward, and thus done its part towards bringing about the sameness, repetition, and monotony of which all classes complain. It must, however, be confessed that the experiments the Society has made in introducing classes for the admission of new subjects and new exhibitors, have not been responded to in a manner which is very encouraging. We would, however, impress on the Council the absolute necessity, if any permanent reform under this head is to be secured, of avoiding further change in these classes for some few years at least. Plants of the character sought cannot be manufactured in a season, to meet the wording of a prize schedule; it takes a good grower two years or even more to approach the style of growth which is aimed at. An assurance on the part of the Society that points like that we are referring to, will not be altered in next year's schedule, would do much towards inducing cultivators to make a new start with the 12-inch pot specimens.

Among the novel features of this schedule, as compared with former years, we find that provision is made for a somewhat important show of Gladioli, with a premier prize of 10*l.*, offered by the Duke of BUCCLEUCH, as President of the Society. This, with the other prizes, will no doubt bring up a good competition. Then we have Palms and Fuchsias introduced with the cut Roses, no doubt with the object of taking off the flatness which too often characterises a pure Rose show. In the early meetings of the year we find bedding Pansies in boxes, hardy Primroses in boxes, and hardy spring flowers grouped in baskets not exceeding 4 feet in diameter; together with groups of double Wallflowers, Dielytras, Ivies, &c. There are also announced two prizes of 10*l.* and 5*l.*, to be offered in 1871, "to the exhibitor who, during 1871, shall obtain the largest number of marks for specimen plants illustrative of the phenomena of hybridisation."

So much relates to South Kensington. We get, moreover, this year, a vast improvement upon last, in the early announcement of the Society's own portion of the schedule for the Oxford meeting (fixed for July 19 to 22 inclusive), and which is to be supplemented hereafter by a list of special prizes, &c. This schedule is not materially different from that of the Manchester meeting, which, though issued so late in the season, brought together an admirable as well as ample exhibition; but its early announcement enables us to note that various outdoor flowers, which too often look wretched when shown as cut specimens, are here invited in pots, as Phloxes, Pentstemons, Delphiniums, Antirrhinums, tall Lobelias, Pyrethrums, &c. There can be no question that all these can be grown and shown in pots in admirable condition, and that if well done they will form a very striking feature of the show. We trust to see that the Oxford cultivators, and many others of our enterprising florists, at least in the neighbouring counties, will have taken this hint and profited by it.

We mentioned the Dublin Hyacinth show last week, and we may now add that the Royal Caledonian Horticultural Society will hold a Hyacinth show on the 29th and 30th of March. The Royal Botanic Society proposes to have three summer and two spring shows, each of two days' duration, to open on March 30, April 27, May 25, June 22, and July 6 respectively. Manchester holds its great national show in Whitsun week (June 3 to 9) as usual; while the days occupied by the Royal Horticultural Society at South Kensington are to be the third Wednesday in January and February, the first Wednesday in October, November and December, and the first and third Wednesdays in the intervening months, except July, when the second meeting will be set aside by the Provincial Show occurring on the 19th of that month. The Committees have their new plants, flowers, and fruits to adjudicate upon in addition to all this; so that exhibitors and censors have their work before them; and we cannot close the year 1869 better than by wishing both, in the campaign of 1870, all the good fortune and satisfaction which may fitly attend upon right and just decisions.

LAST week we inserted an extract from the *Echo*, headed the TYRANNY OF GARDENERS. In that letter there was much truth mixed with some error. This week it is our painful province to publish the record of some transactions of quite another character. We say painful, because, while we cannot but congratulate Mr. BARNES, to whose skill and worth we have often had occasion to advert, on the result of this action, it is a matter for humiliation and regret that the good understanding that ought to exist between employer and employed, particularly after so many years of faithful service, should have been so rudely outraged. We extract the following particulars from the columns of the *Times*, and we need make no further comment of our own, save to refer the reader to the report on the condition of the gardens at Bicton, from the pen of our own reporter in April last, and which will furnish as unprejudiced and correct a reply to the insinuations contained in Lady ROLLE'S letter as could well be given:—

"*Libel.—Barnes v. Lady Rolle.*—This was an action for libel in the Queen's Bench, in which the defendant, Lady LOUISA ROLLE, had allowed judgment to go by default, and a writ of inquiry was executed to assess the amount of compensation to be awarded. The damages were laid at 100*l.* Mr. Sergeant ROBINSON (with whom was Mr. COLLINS) appeared for the plaintiff, JAMES BARNES; Mr. LOPES, Q.C., and Mr. PETHERAM were for Lady ROLLE.

"The plaintiff had been head gardener to Lord and Lady ROLLE for nearly 30 years, at Bicton, Devonshire, and, according to his testimony, and that of other witnesses, he had bestowed great care on the management of the gardens, and they were represented as the finest in England. One gentleman, Mr. ROBINSON, the horticultural Editor of the *Field*, said they were second to none in England. Mr. BARNES said he had worked 18 hours a day, and was obliged to resign the situation through serious illness, which he had contracted in his avocations as head gardener. After he had left, Lady ROLLE had written two letters, and the libel now complained of was contained in them. His attorney had asked for an apology; and, on being refused, the action was brought, and Lady ROLLE had not pleaded. Mr. BARNES had obtained prizes for horticulture, and said the expenses were about equal to the prizes.

"The letters were put in as evidence, and the passages containing the libel read to the jury, and were set forth in the proceedings. The first letter was addressed to a lady named CATLEIGH, who had purchased some of Lady ROLLE'S surplus Pines. The first note was in the following terms:—

"Upper Grosvenor Place, May 27.

"Lady ROLLE received the 30*s.* Mrs. CATLEIGH sent her. She thinks it would have been more to hers and her friend BARNES' credit had they told her sooner that Mrs. C. did not intend to take any more of Lady ROLLE'S surplus Pines, &c., and not left it until the very last moment—a planned thing, no doubt, of BARNES to cause Lady ROLLE great loss, her new gardener great inconvenience and anxiety."

"The second letter was dated the 18th of June, 1869, and addressed to a gentleman named MAULLIERS who had applied to see the gardens at Bicton, in which her ladyship made the following statement:—

"Lady ROLLE certainly has a new gardener at Bicton during the last three weeks, but everything in her garden and hothouses and greenhouses and arboretum are left in such a neglected state that she does not think it right to take up the time of her new gardener or his men."

"The plaintiff was now 64 years of age. He said when he left Bicton a service of plate was presented to him, and when he resigned the gardens were in a perfect state. He had nothing to do with Mrs. CATLEIGH'S refusal to take any more of the surplus Pines. The plaintiff said Lady ROLLE never allowed the gardens to be seen without her permission.

"No evidence was given on the part of Lady ROLLE.

"Mr. Serjeant ROBINSON, in his opening address and in summing up, asked the jury to award fair and temperate damages. Mr. BARNES felt that he had been hardly used by the conduct of Lady ROLLE after a service of nearly 30 years to the late Lord ROLLE and to her ladyship. The jury would form some opinion of her ladyship when it was elicited by the other side that she never suffers the gardens to be seen without her express permission. The learned Serjeant said that persons in high stations were to be respected, but when they forgot what was due to those who had faithfully served them they became contemptible. His learned friend had been very polite to Mr. BARNES in the witness-box, and had the politeness come earlier, and an apology been tendered, there would have been no need of the present proceedings; but rather than do so to an old and faithful servant her ladyship had maintained her dignity, and the jury would now say what fair and reasonable damages her ladyship ought to pay.

"In the course of the case it was proved that Mr. FLOOD, attorney for the plaintiff, residing at Exeter, had obtained the letter written to Mr. MAULLIERS.

"Mr. LOPES invited the jury to arrive at the conclusion that the justice of the case would be satisfied by an assessment of one farthing in damages. Lady

ROLLE was advanced in years, and felt irritated at the plaintiff leaving her service so soon as he did. The learned Counsel commented in strong language on the conduct of the attorney, and said that if BARNES had been left to himself the action would not have been brought, but it was an attorney's action, and he trusted the jury would express their opinion by the nominal amount they awarded.

"Mr. Under-Sheriff BURCHELL told the jury that the libel was admitted. The only question for them was the loss the plaintiff had sustained by the letters. There was no pretence for special damage. The letters were written to two persons only, and it was not because the plaintiff was poor in comparison with Lady ROLLE, nor that her ladyship was rich, that they should give considerable damages. It was their province to say whether mere nominal or substantial damages would satisfy the justice of the case.

"The jury retired, and on their return, after a brief consultation, assessed the damages at 100*l*., the full amount claimed in the declaration."

—— THE following letter has been sent us for publication:—The Council of the Workmen's International Exhibition, to be opened on July 7, 1870, at the Agricultural Hall, Islington, has determined to hold a conference of delegates from the towns of the United Kingdom, and of other countries, on the 10th January next, at the rooms of the Society of Arts (in John Street, Adelphi), which have kindly been lent for that occasion. The day's business will begin at 10 A.M., and will be distributed as follows:—

1. Statement and discussion of the proposed method of arrangement of exhibition.
2. Statement and discussion of the proposed system of prizes, and appointment of jurors.
3. Discussion on the opening of workshops in the exhibition.
4. Reports, statements, and suggestions from local committees.
5. Statement and discussion as to the means to be adopted to make the exhibition promote the interests of technical education.

Mr. MUNDELLA, M.P., and Mr. S. MORLEY, M.P., will successively occupy the chair, during the day's sitting. The conference will be brought to a close at 4 P.M., and all the delegates are invited to meet the Council at dinner (Mr. T. HUGHES, M.P., to preside) at 5.30. In the evening a public meeting will be held at 8 P.M. at Exeter Hall, at which Professor HUXLEY will preside, if it should be impossible for the president (the Rt. Hon. W. E. GLADSTONE, M.P.) to be present. The following resolutions will be moved:—

1. That the principles laid down in the prospectus of the Workmen's International Exhibition of 1870, which require the worker's name to be attached to the article produced, are both just and useful; as tending to give workmen their share in the credit of production, and to increase the pride and interest which attaches to skilled labour.
2. That it is of the highest importance to develop amongst all the people a true perception of what is beautiful in colour and form, and a scientific knowledge of the machinery and material employed in existing industries, and this meeting pledges its best exertions to promote the success of the Workmen's International Exhibition of 1870, as a valuable instrument to this end.
3. That the trade knowledge and aptitude for combination shown by workmen who can produce for a Workmen's Exhibition an article requiring many different kinds of labour, deserve the encouragement of every class, as the first step towards greater and more important kinds of co-operation.
4. That it is in the interest of all nations that each should stimulate the other in the development of their higher productive powers; the prosperity of every people requiring continual progress in the cultivation of human faculties, and that perfection of method and machinery which yields the largest return to the day's labour.

We ought to add that the Council strongly hopes that all towns in this and other countries will lose no time in calling together a public meeting, and appointing delegates to attend the conference. Such delegates must be appointed by public meeting, and we shall be extremely glad to receive as early as possible the names of those who will attend. The Council are specially desirous that co-operative, trade, benefit, and other societies, and workmen's clubs and institutes, and large workshops will also send delegates on this occasion. We are directed to request that all such societies should put themselves in communication with us, and to assure them that their representatives will be gladly welcomed. The Council will provide accommodation for the night of January 10 for those delegates who wish them to do so, and will otherwise do all in their power to facilitate the attendance of their visitors, on receiving communications on the subject. We would therefore urge, not only our own local committees, but all those who are interested in the carrying out of a workmen's international exhibition, to take immediate steps for calling together a meeting of their fellow townsmen for the purpose of making better known the character of the undertaking, to appoint committees where they are not already in existence, to multiply the number of intending exhibitors, and to appoint delegates to the conference. AUBERON HERBERT, THOMAS PATERSON, J. W. PROBYN, Hon. Secs., 150, Strand, London, Nov. 30, 1869. Several noblemen and gentlemen of high position and great influence, but whose names we are obliged to omit, have promised to take part in the meeting.

—— M. VICTOR CHÂTEL has raised the alarm cry of "War with the grubs of the May-bug" (*vers blancs des hannetons*), and predicts an immense invasion of these insects in the spring of 1870 or 1871, and which he believes will take the proportions of a great plague. Hence he urges that it is necessary to act without delay, and daily. The grubs must be picked up by school children, or eaten by poultry, as soon as the ground is ploughed or dug, while ravens, magpies, starlings, wood-pigeons, sparrows, and hedgehogs, the great enemies of May-bugs, must be preserved and encouraged.

—— A correspondent has sent us a sample of the seeds of the two Conifers called THUJA GIGANTEA—the true and the false—for the purpose of again directing attention to the confusion existing in gardens, and perpetuated in many nursery catalogues and advertisements, as to the proper application of the name. The seeds, like the plants, are most dissimilar. It may be, therefore, useful to repeat that the plant usually called Thuja gigantea in gardens, is not Thuja gigantea at all, properly so called, but the LIBOCEDRUS DECURRENS of Torrey, which bears the synonyms of Thuja Craigiana, *Murray*, and Thuja gigantea, *Carrière* and *Gordon*; while the plant called Thuja Lobbii in gardens is the true THUJA GIGANTEA of Nuttall, the original describer—Thuja Menziesii, *Douglas*, *Carrière*, and *Gordon*, and Thuja Lobbii, *Hort.*, being synonyms. Cultivators will please make a note of this, and correct their lists accordingly.

—— M. ERNEST FAIVRE gives the subjoined *resumé* of his experience as to the effects of ANNULAR WOUNDS in the BARK OF TREES. In the Mulberry trees, as in all trees deprived of latex, annular incisions generally produce the following manifestations:—1, formation at the upper lip of the wound of a swelling or tissue restorer; 2, diametrical growth of the parts above the zone of bark taken off; 3, hardening of the wood in that region; 4, stationary condition of the parts below, if they are deprived of leaves and of buds; or, if not, vigorous shoots from below the lower lip of the wound; 5, more easy, more early, and more abundant flowering and fructification; 6, destruction, after a variable time, of all the parts above the annulation.

—— A good deal of interest has lately been excited in India, especially about the NEILGHERRIES, as to the possibility of raising MUSHROOMS artificially. It was known that an esculent Fungus is occasionally developed on white ant's nests, and experiments have been made at Bangalore with white ant's nest soil. We have just received a quantity of Agarics, preserved in alcohol, which have appeared on it, but we have no information as to whether they have proved to be useful esculents or not. The species is certainly undescribed, but approaching in some respects one of which we have a drawing transmitted from Ceylon by the late Dr. GARDNER, with strongly twisted gregarious stems, arising from a common base. It does not, however, appear amongst the numerous figures which have been sent us by Mr. THWAITES, so that Dr. GARDNER'S Agaric is probably not a common species in Ceylon. The species before us probably belongs to the subgenus Armillaria, and may be called Agaricus termitigena—the characters of which, so far as they can be elicited without dried specimens, for those before us may have lost their colour, may be given as follows:—

Pileus 1—2 inches across, strongly and obtusely umbonate, smooth centre, or notched at the margin, which is thin and even, or slightly striate; edge at first slightly inflexed.

Stem 8 inches high, ¼ inch thick, solid, cartilaginous, not twisted, darker than the pileus, especially towards the base, slightly tomentose or fibrillose; ring ascending, permanent, situated near the top of the stem, with a more or less lacerated margin.

Gills rather narrow, very much crowded, quite free, rounder behind; edge entire. *M. J. B.*

—— We have on more than one occasion had before us samples of Mr. STEVENSON'S ABYSSINIAN MIXTURE, a compound prepared for the destruction of insects, such as mealy-bug, scale, thrips, red spider, &c., which infest plants; and our experience of its action upon these pests is very satisfactory. When used at the strength indicated by the vendor, namely, 4 oz. to the gallon, a single application when the parts are well wetted is sufficient to kill the greater number, while the few stragglers such as may have escaped the first application are cleared off by a second. The mixture has to be dissolved in hot water, and used after cooling. The experimental trial we have made of it warrants us in stating that it will be a very useful help towards keeping a collection of plants clean.

—— From some recent experiments by M. E. PRILLIEUX on the GREENING OF ETIOLATED PLANTS, communicated to the French Academy of Sciences, he concludes that in order to acquire the maximum of chlorophyll, that is to say a healthy green colour, such plants should at first be submitted to moderated light (*peu intense*), and afterwards, in order that assimilation may be carried on under the best possible conditions, to a more energetic light. M. PRILLIEUX educes from his studies the following general law:—In order that the action of light may be utilised by plants, it must, like that of heat, be kept within certain limits, beyond which it remains without effect. Those limits do not appear to be the same for different functions: thus a quantity of light which is excessive for the production of green matter is utilisable for the decomposition of carbonic acid by the green matter already formed. The maximum is not the same for both these phenomena, much less light being required for the greening than for the reduction of the carbonic acid.

—— The proprietors of the "Journal of Horticulture" offer the following PRIZE for COMPETITION at the show of the ROYAL HORTICULTURAL SOCIETY at OXFORD in July next, viz.:—Dessert of Fruits, unlimited as to quantity and kind, fit for the table, and combining excellence of quality with taste in arrangement, 10*l*. Open to amateurs and gentlemen's gardeners only.

PLANT PORTRAITS.

BEGONIA SEDENI.—*Flor. and Pomol.* 1869, 169, with tab. Begoniaceæ. This is one of the finest hybrid Begonias in cultivation, being of good habit, a free flowerer, and bright coloured. It is the result of a cross, B. boliviensis being one of the parents, and it requires cool stove treatment. The purplish red fleshy stems, grow erect, and bear obliquely ovate-lanceolate, dull green, red haired leaves, from the axils of which spring the 3-flowered cymes, bearing flowers of a rich carmine crimson, the central one male, larger than the lateral smaller five-petaled females, and composed of two ovate sepals and two oblong ovate spreading petals. Messrs. Veitch & Sons were the fortunate raisers of this fine novelty.

CALOCHORTUS UNIFLORUS.—*Bot. Mag*, t. 5804. Liliaceæ. A lovely dwarf-habited half hardy herb, with small ovoid bulbs, a single narrow-lanceolate radical leaf sheathing at the base, and a slender leafy scape supporting from 1 to 5 flowers, which have three narrow sepals and three broad petals, are of a pale pink colour, and measure 1½ inch across. "For this most lovely little liliaceous plant the Royal gardens are indebted to Dr. Bolander, of San Francisco, California, an eminent botanical explorer, who sent it under the unpublished name of C. lilacinus. It is a native of the high plains of Santa Cruz." "Though called uniflorus the flowers are usually more than two."

CHOISYA TERNATA.—*Rev. Hort.* 1869, 332, with tab. Rutaceæ. This ornamental and little-known greenhouse evergreen shrub, which comes from the temperate parts of Mexico, is furnished with long-stalked trifoliolate leaves, composed of subsessile elliptic-oblong leaflets, and bears an umbellate corymb of white sweet-scented flowers, which bear some resemblance to those of the Orange tree. Though introduced some years since, it is now very rarely met with.

COTONEASTER THYMIFOLIA.—*Refug. Bot.* t. 50. Rosaceæ. A neat, very pretty, hardy evergreen undershrub, less than a foot in height, with congested, crowded, often decurved branches, clothed with small obovate-oblong leaves, which are not ¼ inch long, but are of a shining dark green above, and silvery-white beneath; the flowers are small, pinkish, and succeeded by depressed, globose, crimson berries. It is the smallest of the Cotoneasters, and was raised by W. Wilson Saunders, Esq., from North Indian seeds, obtained through the late Dr. Royle.

COTONEASTER CONGESTA.—*Refug. Bot.* t. 51. Rosaceæ. A neat hardy evergreen shrub, resembling C. microphylla in aspect, and forming a compact rounded mass, with rigid, recurved, remarkably congested branches, the leaves on which are obovate-oblong, of a palish green, and thinly glaucous silky beneath; the flowers are white, succeeded by depressed, globose, crimson berries. This was also raised from North Indian seeds, communicated to Mr. Wilson Saunders by Dr. Royle. It is a plant of slow growth, and scarcely attains a foot in height.

COTONEASTER PROSTRATA.—*Refug. Bot.* t. 53. Rosaceæ. A prostrate-habited sub-evergreen hardy shrub, with elongated branches, having longish nodes, and roundish-oblong or roundish-obovate leaves, dark green above, and slightly glaucous and silky beneath; the white flowers are succeeded by globose turbinate berries. A native of Northern India, introduced by W. Wilson Saunders, Esq. It is said to be the least effective as a decorative plant of any of this section of Cotoneaster.

COTONEASTER SIMONSII.—*Refug. Bot.* t. 55. Rosaceæ. This is an excellent representation of a tolerably well-known bushy evergreen shrub, one of the most ornamental of the dwarf Cotoneasters, and hitherto undescribed botanically. The leaves are larger than in the allied species, oblong-acute, rather dull green above, with the berries turbinate, and of a bright scarlet. It is a native of Khasya.

CUPRESSUS MACROCARPA VARIEGATA.—*L'Illust. Hort.* t. 587. In this variety of the well-known C. macrocarpa the younger branches appear irregularly blotched with white, in consequence of some of the twigs being without colour. The variegation is similar in character to that which occurs in Thujopsis dolabrata variegata. It is a variety of garden origin.

DENDROBIUM CRASSINODE.—*Bot. Mag.* t. 5766. This very remarkable and beautiful stove epiphyte, of which an account will be found at p. 164, has the pendulous stems a span to two feet long, and curiously knotted; these bear from their nodes, either solitary or in pairs, the large white flowers, all the parts of which are prettily tipped with rose colour, while the lip is marked with a broad yellow disc. It was obtained by Col. Benson from the Arracan Mountains, at an elevation of 2500 feet; and was also found by the Rev. C. Parish in the Siamese provinces of Kiong-koung.

DIANTHUS NEGLECTUS.—*Flor. and Pomol.* 1869, 217, with tab. Caryophyllaceæ. This lovely little tufted-growing alpine perennial grows from 1 to 4 inches in height, according to the soil or position which it occupies, and the leaves are from ½ to 1 inch long, linear, concave, pointed, slightly glaucous; and the flowers, 1 to 2 on each stem, measure an inch or more across, and are of the purest and brightest rose colour. Messrs. Backhouse and Son have obtained it from the alps of Dauphiny, and the Pyrenees.

HELICONIA DENSIFLORA.—*Rev. Hort.* 1869, 274, with tab. Musaceæ. A remarkably showy stove plant, with pseudo-stems of about 2 feet in height, bearing long-stalked ovate or ovate-lanceolate acuminate leaves of a bright green colour, and an inflorescence consisting of distichous ovate erect bracts, of which the outer ones are longest, and all are of a deep coral-red, orange-red towards the base; the flowers which issue from these bracts are of an orange-yellow. The plant is a native of Guiana whence it was sent by M. Mélinon, to the Jardin du Muséum at Paris.

LEDENBERGIA ROSEO-ÆNEA.—*L'Illust. Hort.* t. 591.—Phytolaccaceæ. This is a finely coloured, ornamental-foliaged, hothouse plant, with robust, erect, succulent stems and branches, which are of reddish-purple colour, and bear alternate large, thick, obovate-lanceolate leaves, of a dark, shining, coppery green on the upper surface, and bright rosy violet colour beneath. The small, inconspicuous, whitish flowers are produced in long, drooping, axillary racemes. The plant bears in gardens the name of Phytolacca purpurascens, and was introduced from the country of the Upper Amazon by M. A. Verschaffelt.

LILIUM MAXIMOWICZII.—*Gartenflora*, t. 596. Liliaceæ. A hardy bulb, closely allied to *L. tenuifolium*, and producing slender stems from 2 to 3 feet high, clothed with linear leaves, and bearing comparatively large brilliant orange-scarlet drooping flowers, with lanceolate recurved segments, which are marked with small elliptic black-purple spots on the basal half, where is found a distinct nectariferous furrow, and are spirally twisted at the point. It appears to have been introduced to the St. Petersburg Botanic Garden from Japan.

LIRIODENDRON TULIPIFERUM AUREO-PICTUM.—*L'Illust. Hort.* t. 571. Magnoliaceæ. A well marked variety of one of our finest hardy deciduous trees, the curiously shaped truncated leaves of which are freely blotched with yellow in an irregular manner over the central portions or disc. It is cultivated in the Belgian Gardens.

MESEMBRYANTHEMUM CORDIFOLIUM VARIEGATUM.—*Flor. Mag.* t. 469. Mesembryaceæ. This is a procumbent, greenhouse, succulent herb, the close matted growth of which renders it well suited for outdoor summer bedding, or for basket culture. The fleshy stems are thickly clothed with flat, fleshy, heart-shaped leaves, which are distinctly margined with cream colour, so that the plant forms a diffuse yellowish mass, entirely covering the surface; the flowers are bright rosy purple. It is a garden variety, and is cultivated by Mr. Bull.

ONCIDIUM FUSCATUM.—*Flore des Serres*, t. 1831. Orchidaceæ. One of the most charming of stove epiphytes, having elongated compressed pseudobulbs, and bearing 6-8 flowered racemes of large and beautifully-coloured flowers, the sepals and petals oblong-ligulate, obtuse, wavy, purple tipped with white, and the lip large, oblong-flabellate, and bilobed, pure white in the front half, and marked at the base with a large blotch of purple, which passes in a kind of belt around a broad patch of rich orange colour. It was originally called Miltonia Warscewiczii. It comes from Central America and Peru, and has been introduced by M. Linden.

Oncidium splendidum.—*Florist's Series*, t. 1825. Orchidaceæ. This grand and extremely rare epiphyte has short roundish subcompressed pseudobulbs, bearing each a single oblong leaf, and an erect raceme of large showy flowers, the sepals and petals of which are oblong-ligulate, nearly covered with chestnut-coloured blotches on a dull greenish ground, and the lip is very large, obreniform, with a broad claw like base, and of a clear bright yellow colour. It comes from Guatemala, and appears to be in the hands of Messrs. Thibaut and Ketelaer.

Posoqueria multiflora.—*Illustr. Hort.* t. 597. Cinchonaceæ. This magnificent evergreen stove shrub is furnished with broad oval oblong subcoriaceous leaves, which are velvety-villose beneath. The inflorescence consists of terminal cymes of numerous large white fragrant flowers, which have a slender tube, 4 inches long, and a spreading star-shaped limb, measuring some 2½ inches across, and consisting of five unequal narrow oblong-obtuse segments. It was introduced to the establishment of M. A. Verschaffelt, from St. Catherine's, Brazil, by M. Gautier in 1866.

Salvia involucrata Deschampsiana.—*Rev. Hort.* 1869, 134, with tab. Lamiaceæ. A warm greenhouse sub-shrubby plant, of great beauty, growing 3 feet or more in height, and furnished with cordiform acuminate leaves, the stems being terminated by ovato-oblong terminal spike-like collections of flowers, which are of a lively rose colour, with the tube of the corolla very much inflated, and the ovate caducous bracts and spreading calyx both of a deep red colour. It is cultivated in the French gardens.

Vellozia elegans.—*Bot. Mag.* t. 5803. Hæmodoraceæ. An interesting warm greenhouse or stove perennial, with a slender erect, rigid, flexuous stem, clothed above with the tristichous, recurved, ensiform leaves, which are sharply keeled, and become sheathing at the base. The terminal peduncles become divided into from three to five long slender pedicels, supporting the flowers, which are pale lilac in bud, then pure white, enlarging and turning green after flowering. "Our first knowledge of this plant," writes Dr. Hooker, "was derived from a specimen brought from his garden by the Hon. H. Fox Talbot, F.R.S., to the Kew Herbarium, in 1866, and which was raised from seed procured either from the Cape or Madagascar." For this specimen Prof. Oliver proposed the name of Vellozia elegans. Subsequently, when a plant which had been presented to the Edinburgh Botanic Gardens bore flowers, the species was named by Prof. Balfour, Vellozia Talboti, which name he afterwards changed to Talbotia elegans. Dr. Hooker, however, regards it as not separable from Vellozia.

THE PRIMROSE.

The Primrose family is eminently distinguished amongst flowers as being one of the earliest harbingers of the spring, and is no less conspicuous for the simplicity and beauty of its flowers, and the delightful odour which they impart. Several of the species grow wild in Britain, forming the most pleasing ornaments of our woods and valleys. Primula vulgaris, the common species of our woods, which in its wild state, has been sung by poets, admired by lovers, and is known to almost every one as one of the most charming flowers of early spring, needs no comment, but being the supposed parent of all our innumerable varieties of beautiful Primroses it would be hardly fair to omit to mention it in this short notice.

The whole of this beautiful spring-flowering genus has of late years been much neglected, but the rage in the present day for spring gardening is now calling to our aid those old early favourites of our youth. Nothing can look more cheerful in the early spring months; every variety is full of interest, and the heart of a child seems to leap with joy at the first sight of a Primrose. Most of the varieties are of the most easy culture, and their free flowering properties make them valuable either for beds, pots, or borders.

The most highly-prized cultivated varieties of this flower are the double ones, yet how scarce (judging by the high prices asked for them) they appear to have become. In my boyhood's days they could have been purchased for much less money, but then I have no doubt they were much more extensively grown. I fear these high prices will deter people from planting them so extensively as they deserve to be, and thus prevent their being distributed through the country as plentifully as in bygone days. The double varieties, of which there are several colours, can be grown and bloomed in pots, 32's being the most suitable size for the purpose; they should be grown out in the open beds during the summer season, and lifted and potted about the end of September, in a mixture of leaf-mould, loam, and sand, and either plunged in ashes and placed in a shady situation, or put into a cool frame, where they may remain until they come into flower, and then be removed into the greenhouse.

After the flowering season is over, turn the plants out of the pots, and divide them into as many parts as there are eyes; plant them out in a shady situation, in a bed composed of leaf-mould, loam, sand, and well rotted manure, and protect them well from slugs. They are likewise gems when bedded out for early spring. The best time to plant out both the double and single varieties for a spring display is early in October, that their roots may have strength to flower early in spring; they delight in rather a strong rich soil, but will grow in almost any soil in a shady situation.

After they have done flowering divide the roots, and remove them into a shady border, composed of rich strong soil, and carefully attend to watering until they have taken root, after which they will require no further care beside keeping them free from weeds until the following autumn, when they should be taken up and planted as before recommended. New varieties may be raised from seed if carefully selected. I have this autumn planted out several thousands of the single varieties of various colours in my arrangements of spring bedding plants. *Edward Bennett, Osberton.*

CHURCH DECORATION.—No. III.

Drawing and Making Designs (continued).—We started with asserting how important it is to base almost every design upon a circle; and we have already gone even further, and been obliged to avail ourselves of the use of two circles, one within the other. Let us now proceed to draw some stars, in doing which we again find two circles indispensable. Describe two circles from the same centre, one with a radius of 12 inches, the other with a radius of 5 inches. Divide the outer one into six parts, by six points at equal distances apart. Do the same on the smaller circle, but place the points just half-way between the points of the larger circle, as shown on figure 4. By ruling lines from the points on one circle to the points on the other, a six-rayed star is obtained of correct proportions.

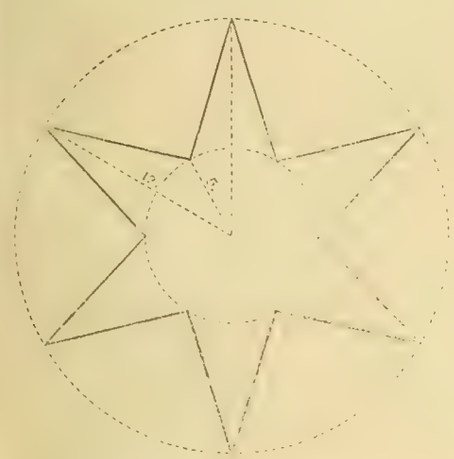


Fig. 4.

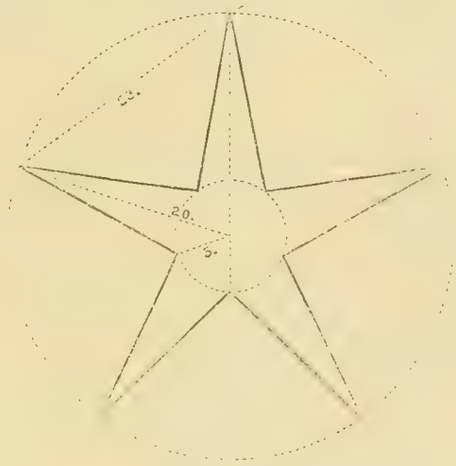


Fig. 5.

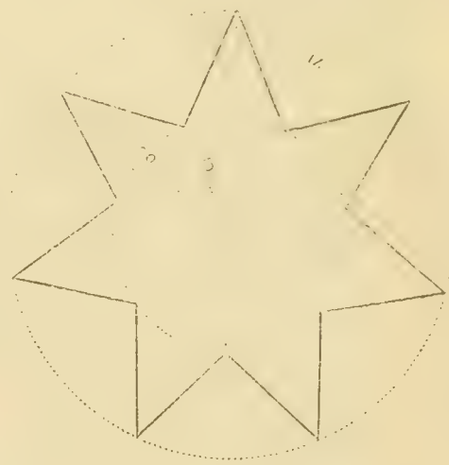


Fig. 6.

Illustrations of five-rayed and seven-rayed stars will be found in figures 5 and 6. With reference to these, as well as to other stars having an odd number of rays, it is worth while to notice, that when you have fixed the points upon the outer circle, you can most easily determine the points on the inner circle by ruling lines from the points on the outer circle through the centre and beyond it, until you come to the inner circle. In each of these last two figures such a line is indicated by dots.

On comparing these two stars, it will doubtless be noticed that one is a sharp or long-pointed, and the other a blunt or short-pointed star; and, on further examination, it will be seen that this difference is entirely dependent upon the relative sizes of the circles; for in the blunt-pointed star the diameter of the smaller circle is half that of the larger one, while in the sharp-pointed star the inner circle has a diameter of only one-fourth of that of the outer circle.

In determining the position of the points upon the outer circle for the formation of five and seven-rayed stars, it will be useful to remember that they are most readily drawn upon a circle with a radius of 20, in which case the points of a five-rayed star will be 23 from each other, and the points of a seven-rayed star will be 17 from each other.

Reverting to the subject of hanging designs high up upon church walls, we may add that where it is practicable to suspend such designs on a single nail, it is advisable to hang them up temporarily upon a nail in some place within easy reach, and thus to test whether or not they will, with their existing arrangements for suspension, hang "square" when they reach the nail for which they are intended. This trial will afford ready means of making any necessary corrections, and thus much valuable time will be saved at the final hanging.

Artificial Flowers.—Many are accustomed to condemn the use of artificial flowers in churches, for reasons which we need not discuss. Our views on this matter depend upon the quality of the flowers, upon the amount of art, or of ignorance, displayed in their manufacture, upon the extent to which they resemble, and might be mistaken for, the living flowers. A badly-made artificial flower ought never to be allowed to come into a church—it were better to have faded or dead flowers—and better still to have none at all. But there are now such beautifully-made flowers to be had, that there is no excuse for using inferior and bad imitations. And where decorations are required to last for some days, and there are no conveniences either for keeping flowers alive or for replenishing with fresh ones as they fade, it is quite in good taste, and in every way commendable to use well-made artificial flowers; at least, such is our opinion. We studiously select our finest flowers for church decoration, as the Jews of old obeyed the command, "the first of the first fruits of thy land thou shalt bring into the house of the Lord thy God." And who shall say that there is not more art in making a plant bloom well just when its flowers are wanted, than in any artificial flower that ever was made?

The great dangers to be apprehended from permitting the use of artificial flowers for church decoration are, first, that a wrong flower may be introduced, say a white Japan Lily instead of a common Lily, when the one blooms in autumn and the other in early summer; and, secondly, that they are liable to be placed in impossible positions. All this, however, may be obviated by obtaining the assistance of some experienced head gardener or amateur, who is familiar with the flowers which it is proposed to be use. *W. T.*

[Here for the present we take leave of this portion of the subject, with the intention of reverting to it about Easter. In the meantime we shall from time to time allude to certain plants of special interest or value for church decoration, and to the readiest mode of growing them. Eds.]

CALCAREOUS SOILS FOR VINES.

The discussion respecting the influence of calcareous soils on Vines which has appeared in your columns has afforded some interesting information, and will bear still further illustration. The recorded experience of a practical and observant man always deserves consideration, and although Mr. Cramb's conclusions do not accord with the opinion largely entertained by Vine growers, his arguments are not the less instructive, and have the recommendation of being suggestive of inquiry into a subject that has not, as far as I am aware, been fully investigated, viz., the peculiar character and qualities of the various limestones in relation to horticulture. Experience is the best teacher, and information coming from persons who have practically tested the value of the different limestones on their natural beds will materially advance the inquiry. Your correspondent "B." has brought forward many arguments and illustrations in favour of lime in its various conditions in the cultivation of Vines, and there can be no doubt that soils which, from contiguity to chalk, and similar aggregations of lime, have been largely intermixed with such substances, are amongst those that are highly favourable for fruit and Vine culture.

Limestone formations are extensively developed in this country, and their partial disruption and degradation during the drift period caused the matters composing them to be widely distributed, and our best soils have been strengthened and fortified by the admixture of calcareous elements; but it must be remembered that lime, when thus amalgamated with soil, is no longer caustic in its action, but by the loss of its more active properties it has become more identified with the soil of which it forms a part, and more available for the support of vegetation.

The great limestone formations, as they now exist, and where their surfaces are not obscured by accumulations of drift, afford soil very characteristic of such formations; and such soil, derived immediately from the rock on which it rests, does not contain all the fertile qualities which are found in the alluvial soil of the valleys. The magnesian limestone in Yorkshire and Nottinghamshire, without adventitious aid from other formations, does not present any very encouraging basis to work upon; and, independently of any peculiarities it may possess obnoxious to the Vine, it would certainly fail to afford those elements of nutrition required by that plant in the artificial and forcing culture it is subjected to in our hothouses. Limestone will certainly exercise a chemical influence on matters exposed to it, and certain kinds of magnesian limestone are said to possess noxious properties, so as to make their use objectionable for agricultural purposes. This stone examined chemically has been found to contain the same component parts—about three of lime and two of magnesia. The magnesian lime in a certain time imbibed only 42-100th parts of fixed air, while common lime had imbibed 4-5ths of its quantity; and to this non-absorption and the consequent remaining of the magnesian lime for a longer time in a state of causticity, the noxious

quality has been attributed. But, however objectionable may be the lime and the exposed surfaces of magnesian rock sparsely covered with soil, there are many places situated on the magnesian limestone formation which are exceptionally favourable for Vine culture; but it is where considerable deposits of drift of a light loamy character have been made, or where the soft shaly argillaceous beds have been exposed and broken up during the glacial drift period, and rendered more friable and mouldy by the subsequent action of the weather and artificial management. I need only instance Bury Hill, near Mansfield, where Grapes of great excellence have been grown.

If we turn to another great lime-producing formation —the carboniferous or mountain limestone—I question if instances can be found of soils resting immediately upon that rock, and derived directly from its decomposition, being in themselves rich enough, and affording all that is required in a soil, to produce Grapes of superior quality. Although it is highly fossiliferous, the true limestone of this formation is excessively hard, and subcrystalline in character—so much so, that in Derbyshire it is worked up as marble. In some localities, when freshly broken, it smells offensively, and in the neighbourhood of trap dykes it is bituminous in character. This description relates only to the limestone beds. Leaving them, as being most unlikely to form Vine soils, we reach a series of stratified beds associated with the mountain limestone, and derived from the degradation of all preceding rocks, exhibiting great variety of composition. There are examples of sandstones, shales, slaty flags, and grits. The waste of these matters, washed down the precipitous Derbyshire hills, added to limestone detritus, forms a soil that possesses, with but little artificial aid, every constituent of fertility, and has doubtless greatly assisted the cultural efforts of the great gardeners who have rendered Chatsworth famous.

The extensive and important oolite limestone formation stretches across the country, from Lyme Regis in Dorsetshire to Yorkshire. It appears in hill ranges and elevations of the excellent altitude for climatic advantages of from 400 to 600 feet above the sea; it is throughout strongly calcareous, and varies in composition, being in some instances soft and friable, and in others hard and siliceous. In some cases the upper beds have been swept away, and deposits of marly clay left. The lime soil resting immediately on the oolitic rock is thinly spread upon the surface, and it is only within the last half century that its capabilities, in an agricultural point of view, have been appreciated. With the aid of artificial manure and stock, good cereal crops are obtained, but I cannot regard it as being likely to afford a congenial or sufficient soil for Vine culture. The rock is cold, retentive of moisture, and not broken up sufficiently to allow the penetration of roots or the passage of air; and again I am unable to instance any remarkable cases of success in Vine cultivation pursued upon this limestone, and on the soil afforded by it. But descending to the valleys which everywhere intersect the hill ranges, an accumulation of soil, partly derived from the calcareous hills, and from the clay beds of the lias and marlstone is found, which has the character and some of the qualities of rich alluvium or loam; with this natural compost at command, a good cultivator may justly calculate on satisfactory results in Vine culture. The vineries at Belton, near Grantham, situated in one of the valleys near the limestone hills, for many years afforded the finest Grapes grown in the district.

I think it will be found that very many more instances of successful Vine cultivation will be found in the valleys adjoining the chalk, than on the chalk itself. I am not indisposed to believe that chalk being softer than ordinary limestone, under cultivation may decompose more rapidly, its silicates may be more readily available, and its causticity less than the magnesian lime; still I am persuaded that the Vine will be found to thrive best in the composts nature has spread on our hillsides and on the plains and valleys; composts that contain all the varied mineral riches of calcareous hills, contributions wrenched from the primitive rocks by the devastating floods of the drift period, matters yielded up by the old sea-beds of the lias, or borrowed from the gypseous beds of the red sandstone. These loamy deposits, some the gifts of great floods, others of rivers that year by year pursue their work of mixing, amalgamating, and depositing earthy and other matters on the soils that give us the best corn, the best vegetables, the best fruits, and finally the best Grapes — when we most closely imitate these in preparing matters for our Vine borders, our success is the most assured. *William Ingram, Belvoir Castle Gardens.*

POTATO GRAFTING.

"HEY, Giles" Potato! In what a garb you are likely to become dressed? Blended with your fine Latin titled relations, how caressed you will be? I wish you much joy. Solanum tubero—ahem! Giles Potato, my boy! why, you have got—let me see—nearly a thousand of your fine family connections, most of whom, let me tell you, would snub, ay, even poi-son you, poor Giles! Therefore be careful how you make your selection: take the Editors' advice: some half dozen or so out of the whole lot might prove congenial, not caring to notice the "hair on your hock," and submit to marry you into their families, where your fine robust constitution might work such wonders, by producing a generation to wear "such coats" that "e'en their own fathers wouldn't know 'em."

I must say I felt rather famous, as I arose one fine morning lately to find my patronymic placed in much honour amongst those of other and better men. But fate is driving, otherwise I would give a good pull at the reins, in so far as the cross-fertilisation of the Potato is concerned. I cannot, however, see the slightest chance of my getting out of these "ruts" for the next seven years; and I do hope and believe, if I am permitted to live so long, that I shall be able to show you a fine smooth surface, with a good sound bottom by that time. I have got, I am happy to say, after long and weary years of trials, my Dukes of Oxford, viz., good male Potato sires, which merely want "licking into form," and this must be done by cross-fertilisation again, kidneys with kidneys, and rounds with rounds. I assure you that those kaleidoscopic "fellows," which you so pleasurably animadverted upon, could be placed in a line of beauty and symmetry. I have not arrived at their creation for nothing, and I could give you a correct pedigree of each "coloured piece," though I own I fear Dame Nature will ever play her pranks in the Potato, as in most other things, by occasionally in her most precocious moods "advancing backwards" as well as forwards. But she will never recede farther than natural origin, let it be human, animal, or vegetable. No art in the world could induce that wild-looking seedling of mine to enter into any other than Potato existence. Was there ever a perpetuated cross between the pheasant and the fowl? Then I must beg with yourself to remain very sceptical indeed about uniting the distinct genera Helianthus and Solanum. I stick to species, and the varieties of species, in my attempts at improvement, dismissing for ever from my mind considerations how men, once monkeys, happened to lose their tails through an acquired habit of sitting down! This Potato-grafting affair has certainly laid those who have hitherto practised, or recommended its continuance, under ridicule; but there is much more reasonableness and hopefulness in it than there would be in grafting the Artichoke on to the Potato. It is possible to cause results in the one case, impossible in the other; and if any good is to be the result of my persistence in grafting the Potato, I do propose to follow it up; and if it should take me about as long as the cross-breeding process, why the year 1900 will strike before I could gain the "brush," and Nature would, in my regards, have "advanced backwards" into Shakespeare's second stage of childhood! I am sure I ought not to advise any one to enter on the improvement of the esculent, as a hobby. Let me rather advise others to take to Pelargoniums, Roses, or Pomology: one successful effort in those ways will bring them more credit and acknowledgement, in every probability, in a tithe of the time than a hundred masterful summersaults in the other.

Great satisfaction, however, remains in the consideration that we cannot all produce Yorkshire Heros, nor are we all born to be Kings! But there are two names in connection with this Potato grafting, now that it has met with the prominence you have been good enough to bestow upon it, which you have left out, and which should be remembered, viz., the Rev. W. F. Radclyffe, as being the first to unearth the process, and Mr. Thomas Almond, of Bedale, Yorkshire, for producing his hybrid, the Yorkshire Hero —certainly not the least prominent of its class yet in the field. I still retain Mr. Taylor's notes by me, carefully guarded as the apple of my eye, but I feel it due to him for me ere long to return them to their rightful owner: their honest open faces first proved to me that in them there could be no guile, and so it has proved, and will prove more and more for many years to come, or I am very much mistaken.

One sentence more:—I think my friend Mr. A. Dean has hardly treated this subject with his usual acumen. If he would allow himself some opportunity to conceive of the graft-tuber, as he will call it—seeing that he objects to its being named a "stock"—and the graft, in the light of cotyledons, as merely supplying *pabulum* for the subsistence of the young germ or shoot till such time as the latter has formed roots, it can by a very slight stretch of the imagination become understood how the act of hybridisation will have already commenced in the cases of healthy action during the process of the cicatrisation of the skins and the combining of the cellular tissue; in fact, the cross is and must be so completed: the roots afterwards formed upon the shoot merely cater for the support of the life of the foliage and the crop.

Another correspondent proposes to graft by approach of two distinct young shoots. Here we get minglings of constituents from above, and the plant supported through life from below by nourishment from Mother Earth through the roots, which have nothing to do with actual hybridisation; for if they had, how could individual products remain true from year to year, and for the ever of their existence? *Robt. Fenn, the Rectory Woodstock, Oxon, December 9.*

Home Correspondence.

Mildew on Roots of Trees.—In further reference to this subject, permit me to observe that though Mr. Miller has in his last paper laboured hard to show that the diseased state of the Picea—recently alluded to by me in your columns—originated rather from the influence of some deleterious constituent in the substrata over which the tree is growing, than from the effects of Fungi alone, he has unfortunately done so partly under false premises, inasmuch as he has (perhaps unwittingly) confounded my description of the strata pertaining to the Tulip tree with those belonging to the Picea, thereby invalidating his supposition that the roots of the latter were not enabled to penetrate the obdurate formation, which exists only under the Tulip tree, whereas that underlying the Picea differs considerably in its composition from the former. Secondly, this invalidity is rendered still more apparent by the fact that the tree is supported in position by means of the stout poles, arranged so as to resist even the force of a tornado, hence the "ever restless winds" can have no appreciable effect on the root process, as Mr. Miller seems to imagine. Thirdly, Mr. Miller, again, taxes his imagination in assuming that the affected parts were not cut away, whereas every visibly infected vestige was subjected to excision when the tree first became prostrate on Mother Earth, hence my remark, "the Fungus is now apparently in a state of non-vitality," or, in other words, no longer exists. Recurring, however, to Mr. Miller's theory, relative to the chemical composition of the substratum over which the Picea in question is growing, allow me to remark that in the vicinity of the Picea there are several Spruce, Fir, and other trees and shrubs, planted several years anterior to the existence of the tree in question, and not one of which, as far as I am cognisant, have ever evidenced aught pernicious in the substrata. This I submit is evidence favourable to the assumption that the decay of the roots arose from the influence of Fungi alone. This assumption is strengthened by the fact that recently I have ascertained that some of the old roots of pre-existing trees and shrubs were left in the ground, when the latter were cut away to make room for the Picea—hence it is not difficult to assume that these old roots were the progenitors of the fungous spawn, and by contact conveyed it to the roots of the Pinsapo. I will however grant that my rather limited exploration in the soil under the tree does not go far in support of the above assumption, but it does not deny that the old roots in question are really not present somewhere in the soil under the tree. It would involve much labour to institute a thorough search, from the fact that the old roots and stumps are at a considerable depth below the surface occasioned by the adding of other soil for levelling purposes. That the cause of the decay of some trees may be in accordance with the ideas of some authorities, there is perhaps no reason to doubt; but to affirm that Fungus spawn alone is not capable of affecting the healthy tissues of trees, is, I conceive, unwarranted from the direct observation of facts. In proof of which, allow me to adduce an example that has recently presented itself to my notice; it is that of a well-developed Wellingtonia, about 13 feet high, growing in a nobleman's pleasure grounds in this neighbourhood, and which during the past summer assumed a sickly hue, which was attributed to the effects of drought. Scrutiny, however, proved it to arise from a severe attack of Fungi, arising from contact with bits of decayed old roots that had generated fungous spawn, these old roots having been inadvertently conveyed in the soil that forms the *plateau* on which the Wellingtonia was planted, I believe, some five or six years ago. Here, then, is an addition to the many proofs already on record of the danger of leaving old roots in fresh planted ground, and in addition to which I may advert to those cases relative to some Deodars at Bicton, lately adduced by Mr. Barnes in your columns (see p. 1257). In conclusion I would merely observe that, notwithstanding it has become an established fact that the spawn of extraneous Fungi has a pernicious influence on the healthy tissues of trees, it is really surprising that intelligent practitioners should yet affect a disregard of the presence of such as old roots and bits of decayed stick in their Vine borders. Such persons cannot be very materially impressed with what happened to the Vine roots at Rabley Gardens some few years ago, as attested by Mr. J. Munro, the then gardener, in the *Gardeners' Chronicle* of April 20, 1861. In this case the disease arose from fungous contagion generated in the Elm boughs, old roots, and faggots, which formed the artificial drainage of the Vine border. *William Gardiner, Eatington Park.*

Tricks of the Trade.—Is your correspondent "B. M." aware that there are three different Piceas in our English nurseries under the name of P. amabilis? Did he in the first instance make it plain which of these he wanted? If botanists are agreed as to which is the true one, horticulturists are not, and hence a nurseryman might be willing to sell, but not to "warrant" the one he considered the true one. One only of these three forms exists with me as a seedling, and that does not appear identical with any other Picea I possess; but in the opinion of some of my friends it will prove to be magnifica, and I certainly would not undertake to "warrant" that it will not. It seems to me, from "B. M.'s" own account, that his nurserymen were conscientious enough not to take advantage of him (they did not sell him one thing for another), and they were also acute enough not to "warrant" a plant, the identity of which (horticulturally at least) is not established. In all friendship I would put it to "B. M." whether he was not disappointed rather than deceived? *An Old Nurseryman.*

Garden Ivies.—Not having seen Dr. Seemann's "Revision of Hederaceæ," and hearing of it now for the first time, it was simply impossible that I should, in my paper on "Garden Ivies," acknowledge my indebtedness to him. If, however, Dr. Seemann feels honoured because I have taken a leaf from the book of Nature, and have had more regard for common sense than for authority in my reading of that leaf, I can have no objection at all. It occurs to me just to ask whether Dr. Seemann has been indebted to me in any way, for in a paper on Hedera, which I contributed to the "Gardeners' Magazine" of Dec. 12, 1863, I described a lot of apocryphal species, and flung them aside as distant relations simply of the Ivies of the garden. It is evident that Dr. Seemann has not yet mastered the purport of my paper, which perhaps is more my fault than his; but I am content to wait for his perception of my object, and the approval which must necessarily follow. When I found my selected 50 varieties were severally known by upwards of 200 names, and the majority of these names were extravagant in length, hideous in construction, and deceptive in meaning, there was but one course left, and that was to do as I have done—name them all afresh, and after a strictly descriptive system.

What am I to understand by "Hedera helix minor marmorata elegans?" Is it the elegant marbled small-leaved British Ivy? It cannot be, because "marmorata" does not mean veined or coloured like marble, but hard and cold like marble. I could not go about the garden mouthing such names as these; so I seized upon the most distinctive characteristic of each, and founded the new name thereupon. Thus, the "marmorata elegans" above cited bears now the name discolor, which conveys the idea of something blurred and blotched with unattractive colouring, as this particular Ivy is. For garden purposes it is "discolor;" for botanical purposes it is Hedera helix v. discolor. As to the determination of Ivies, as Ivies, there is no occasion to look after hairs and scales at all. It does not even need the botanical eye, much less the supplementary aid of the microscope, to enable any one to distinguish my three species of Hedera as "garden Ivies," distinct from other so-called species of Hedera of the books. I admit authority rules in these matters, which fully accounts for the absurdities and forbidding eccentricities of botanical nomenclature. As Dr. Seemann asks for information on a few practical points, I have great pleasure in replying to his request:—First, as to determining the place of an Ivy in my classification. It is easily done without the aid of fruit, and I will undertake to tell Dr. Seemann in an instant to what part of my classification any Ivy he can show me should be assigned. If we were to adopt the colour of the fruit as the principal characteristic, we should never attain to a classification at all, as I could easily explain, could I dare to trespass on your space. Dr. Seemann says, "I have never been able to find out whether Ivies with white blotched leaves have white fruit, and those with yellow blotched leaves have yellow fruit." This confession ought to make an end of the discussion, for it proves that the writer has had a very limited experience with Ivies, and therefore should not be in haste to snuff me out because I do not bow my neck to the Baal of Authority. My aurea (Hedera helix aurea maculata baccifera nigra of Authority) has golden leaves and black berries. My pallida (Hedera canariensis aurea maculata) has white blotched leaves and black berries. This, however, is a climbing Ivy, which I had to grow into a fruiting state in order to determine its relationship. In altering its form the variegation vanished, which was a matter of no consequence, seeing that my object was accomplished. I do not expect that my classification will endure for all time, but I maintain first, that it is my own, and the result of much observation and some little hard work; second, that it is calculated to be useful to cultivators, and perhaps suggestive to the botanists, who appear to be too often prepossessed with the idea that plants were made for their names, whereas in truth their names must be made for the plants. Any who wish to see the 50 selected sorts enumerated in my paper may do so by calling at Mr. Turner's nursery, Slough, as I have lately sold to that gentleman upwards of 200 specimens, comprising examples of all the 50 kinds. *Shirley Hibberd.*

Specked Apples.—In reference to your note on "specked Apples," in the Notices to Correspondents in the *Chronicle*, at p. 1068, I wish to inform you that having lately occasion to compare another thermometer with that (one of Negretti's) which my gardener had been using, I was sorry to find that it had escaped his notice that the column of spirit had been separated, so that his observations had for some time been recorded 6° at least below the true temperature. I have no doubt the specks on the Apples were caused by the sun's action. *W. C. Trevelyan, Wallington.*

Vine Budding.—For the benefit of the uninitiated, perhaps you will have the goodness to clear up a little difficulty which has occurred in my endeavour to interpret your directions (p. 1209) for inserting the bud, "as practised by Mr. Stevens." You say the bud is inserted "exactly as in budding the Peach tree; and differs from Rose budding only in the non-removal of the wood cut with the bark." The non-removal of the wood I can understand, as a manipulatory necessity, because, owing to the extreme tenuity of the bark of the Vine, little or nothing that could be handled would remain if the wood were removed; its office, I imagine, being merely that of a vehicle for the bud. But are we to understand that the bark of the stock is to be raised, for the reception of the bud, in the manner of Peach or Rose budding? Neither my gardener (who is a skilful hand) nor myself can conceive such raising of the bark to be possible, and after a few trials we gave up the attempt. Instead of raising the bark, we were content to cut a clean slice out of the stock, laying bare the alburnum exactly to the shape and size of the shield containing the bud, applying the latter with great nicety to the stock, liber to liber, binding all up in the usual manner, and sealing with plastic wax. This method, I hope, differs in no essential particular from the method you have described; and it is, in fact, the nearest approach we were able to make to it. We found the sap in a liquid state; and in a vinery protected from frost and rain I know of no natural law that would forbid "a happy union," even at the han dsof *An Uniniated Amateur, Clapham Park*

[Perhaps Mr. Stevens will be good enough to explain the process he adopted, about which there seems to be so much misapprehension. Eds.]

Salisburia.—The Maiden-hair tree alluded to by Mr. Sheppard, at p. 1258, is still in existence and flourishing. Its height is now 61 feet, and the circumference of stem at 4 feet from the ground is 5 feet 8 inches. One of the Tulip trees is 98 feet high, and 9 feet 7 inches in girth at 4 feet from the ground. *The Gardener, Longleat, Dec.* 14.

Pollard Vines.—In a leading article (p. 1229), signed "P." allusion is made to the failure of the Bishop Stortford Vines, and a conclusion drawn from it which I hardly think logical. "P." says "these Vines have been kept to the single rod, restrictive and close pruning systems, and have failed as thousands of Vines have done before them." Now this might be quite true and strictly logical if the object were to grow a Vine as a handsome plant to look at, and to preserve it like the Hampton Court Vine to a vigorous old age. But it seems to me that the real object in this country is to grow Vines to produce the greatest quantity of fine fruit in a limited space. Glasshouses are expensive, and if by one system we can grow every year 1000 lb. of Grapes in a house which by another system will only produce 250 lb., what does it signify if the Vines die in a few years and have to be replaced? Respecting the system of close pruning Vines, I say, do not give it up, if it pays. If anyone will calculate the amount of Grapes which may be grown in a given space by means of "whip pruning" of Vines as compared to the ordinary system it will astonish him. In an ordinary vinery, 1 lb. to each 2 square feet of surface covered by the glass is considered a great crop. Mr. Thomson says, in a house 15 feet wide allow the rods to run up at distances of 30 inches, and upon each rod allow eight bunches of 1½ lb. each, or 12 lb. to a rod, occupying a space of 37½ square feet, which is less than 1 lb. from 3 square feet. Let us, however, take it at 1 lb. from each 2 square feet of house room, or ½ lb. to each foot. Now, I maintain that, by "the whip system of pruning," we can grow four times that weight of Grapes. By the usual system we grow ½ lb. from each square foot of house room, but by the whip system we can grow 2 lb. from each square foot. No doubt our Vines may die in a few years; but what then? The replanting of Vines is a very trifling matter. Supposing we had to replant our Vines every two years we should still be gainers by the system, because the cost of young Vines is very trifling, and we can always get a half crop the first year after planting, if we plant proper sized Vines, and a full crop the second year. [Rather sharp work, if meant to be taken as the rule. Eds.] In saying this I speak from actual experience. I have Vines planted as standards under glass pruned on the whip system, and I know that each rod can be made to produce 10 lb. of Grapes. The Vines are planted in rows 4 feet apart, running north and south, and are 15 inches apart in the row; consequently each Vine occupies a space of 5 square feet, and if each rod produces 10 lb. of Grapes, it follows that each square foot of house room produces 2 lb. of Grapes. Now, I freely admit that the ground must be highly manured to do this, but after all what is the cost of manure? It is a mere bagatelle compared with the cost of the glasshouse and the artificial heat. No doubt some of your readers will say the thing is impossible. All I can say is that I know it to be quite possible, and I think a very little reflection will show them that there is really nothing wonderful in it. Suppose we have a Vine in a 16-inch pot. That Vine has just 1 square foot of surface to root into, whereas each of my Vines has 5 square feet to root into. But 5 lb. of Grapes from a Vine in a 16-inch pot would not be considered anything very wonderful. If thus a single square foot of surface in a pot will, with careful culture, produce 5 lb. of Grapes, why should it be thought unreasonable to expect 10 lb. from 5 square feet of the soil, which forms the floor of the hothouse itself? No doubt pot Vines are usually worn out in a single year, but then if a pot Vine has been grown in a 16-inch pot, and is meant to be thrown away after one crop, it will be made to produce considerably more than 5 lb. of Grapes; in fact, it will produce 8 lb. or 10 lb., or five times as much from the same extent of soil as I speak of. I doubt very much whether a Vine in a 16-inch pot, restricted to 2 lb. of Grapes yearly (which would be the proportionate quantity), would ever wear out, or at all events it would last with careful treatment for many years. Whether my Vines will wear out or not experience only will show, for I have not had them long enough yet; I shall not, however, be greatly disappointed if they do. To replace a few Vines every year is not a very great outlay. But in reality I see no reason whatever why they should wear out. Some of the vineyards in Burgundy are said to be several hundred years old, and the Vines in them have not been replanted in the memory of man, yet these Vines are every year cut down to a "stump" that has only some half dozen eyes left upon it. Surely these Vines are as "closely pruned" as those which in this country are treated on the single-rod whip system. How comes it, then, that they are not "used up" or "pumped out?" There is an expression in France, *vieux ceps*, which means literally "old Vines," and which is synonymous with "good wine," implying that the older the Vine the better the wine; yet we know that in all the large vineyards of France the Vines are every year pruned down to a stump, from 6 to 15 inches high, and from this stump starts forth every year 6 or 8 shoots, each of which is allowed to bear one or two bunches, and is rigidly stopped when it is about 3 or 3½ feet long. Indeed, the rough pruning that Vines get in the Vine countries would astonish many a Grape grower in England. Can "P." then explain why these Vines do not die off, or get used up just at the very time when they ought to be in their prime? *G. A. H.*——Your leader upon this subject demands the attention of every Grape grower. The fact is, most gardeners are in constant danger of sacrificing freedom for trimness. To cut close is a more common practice than to cut skilfully or wisely. The fishing-rod or walking-stick is too often the model that the close spurrer tries to follow. Smoothness, too, must be had at any price—even though the whole of the strongest eyes on the Vine must be paid for it. Many show much more anxiety to cut homewards than fruitwards. All the noble spurs, though burdened with embryo fruit, fall victims to the knife, chisel, or saw, simply because they are ugly looking things. No matter though the branch becomes barren, solong as the barbarous hacker can rejoice in the spectacle of a straight stick on rafter or wall. The winter faggoting is only too often followed by spring stopping and summer pinching. Leaves are looked as on things unworthy of space, and are treated as if they robbed, not nourished the fruit. The plant is overburdened with the latter, and this with the lack of foliage, breaks the back of its strength. Still the Vine does not willingly give up the contest. Its vital power is strong; it bears injury with the resolution and philosophy of a giant. Baffled in its attempts to grow in one direction it tries others. Closely shaven in at the sides, it makes a rush headwards. The leading shoots run up our rafters like racehorses. But the eye of the savage pruner is upon them. He is marking their paces. One, two, three, four, five, six, or more inches, and they are beheaded. This gives a powerful shock to the entire system. For a time the furthest off roots are paralysed; a state of collapse ensues. Life trembles in the balance with death; it, however, conquers. But the effect of the shock endures for a time. The plant gradually regains strength, but proceeds generally more slowly—cautiously. There is a new distribution of force. It seldom again ventures to risk all its energy in one channel. It seeks many and various outlets for its growing power. These have a better chance of escaping observation than the decapitated leader. But the pruner's eye is upon them. He no longer measures inches, but counts leaves—one, pinch; two, cut; three, slash back to one; and so on, throughout the season. And yet many affect to wonder at pollarded Vines wearing out prematurely, and fading in their prime. Why, the pollards in our hedgerows have a natural and pleasant time of it compared to the barbarous cruelties perpetrated upon Grape Vines under glass. The former are permitted to make at least one summer's growth in peace, and sometimes as many as four or five; but the poor Vines are under the thumb or knife of the operator from January to December. They do all they can to counteract the evils of such cruel treatment; they hoard up clandestine shoots behind leaves, and grow away rapidly in every hidden nook or corner, that they may preserve that healthy root action upon which the maturation of the crop and the preparation for the succeeding one depends. Could our close spurrers and pinchers only see the checks which the practice gives to the roots, and how they resent the cramping of the top, this might possibly lead them to abandon it. I am not forgetful of the fact that excessive root-action may favour sterility, while the moderate activity of the roots induces fertility. But where root action is excessive it is much safer to deal with it directly by root pruning, than indirectly by top cramping, or close pruning. In the former case, we perform a surgical operation where it is needed; in the latter, we bring about a state of general debility of the entire plant, which often ends in death, in our attempts to cure a well understood and easily managed malady. But as, doubtless, those who have spurred Vines all their lives will continue to do so, and as many are only beginning to spur who will also become enamoured of the system, and as, moreover, the spurring system is simple, and has the merit possibly of packing the utmost amount of fruit-bearing wood into the smallest possible area, it may be well to notice an effectual means of neutralising to a great extent the evils resulting from the practice. The greatest evil possible is the hindrance which it offers to the formation of roots. This evil might be neutralised or remedied by allowing the leading shoot of the Vines to run on without stopping each year. Mr. Ward, Mr. Miller's successful Grape grower at Bishop Stortford, also allows shoots to proceed from the base of his Muscat Vines near the wall plates. Both top and bottom shoots act powerfully to form roots; while doubtless the top one, by drawing up a full supply of fluids through the entire length of the canes, brings the raw supplies of food needed within easy reach of the bunches. At the autumn pruning both shoots are cut back, to be succeeded by others the following season. Possibly no better means could be adopted in combination with a system of close spurring. But I greatly doubt the wisdom of adopting the system of close spurring for a permanency. It is all very well to mix it with the long or short rod systems. By such means no rod, nor portion of a rod, need be spurred for a longer period than three years. It could then be cut out to make way for another, and so on in succession. On long rafters three or four rods could be climbing them together, and portions of them spurred or not as desired. On shorter ones two rods would be enough. When once furnished a rod could be cut out and another started every year, and thus the roots as well as the top be made to renew their youth annually. Vines so treated could hardly ever wear out, provided the borders were properly formed and kept well nourished. Though I believe "P." is substantially right in regard to the cause of failure of Mr. Nash's Vines, yet it ought to be stated that the chief symbol of their weakness, consists in the shanking of their fruit. For close spurred Vines of their age, the leaves developed are respectable, and the show of fruit promising, but the fruit becomes wrecked in the last stage by shanking off in battalions of berries and bunches. The border is wide, and mostly raised above the surrounding ground. I agree with "P.," that the roots would not be likely to take much harm, even if they had run out of the borders into the kitchen garden, that run out in front of them. What is certain is, that they cannot be found near the surface of the border. As these Vines are historical, perhaps you could send a trustworthy reporter to see them taken up, and give a full and particular account where they were found, and in what condition. I do not consider the extraordinary porosity that delighted the late Dr. Lindley

as a good quality in a Vine border. This quality in excess is a great deal more likely to foster the development of gross and short-lived roots and wood than of healthy and long-lived plants. Possibly the Vines burst through the borders, as described by "B." (p. 1231). Most practical men can confirm his description, that Vine roots will often hasten away through the best soils and the richest dressings, and bury themselves in gravel walks or hard roadways. They choose to endure hardness, and I have long learned that firmness, amounting to obstinacy, is one of the best physical conditions of a Vine border. Has the want of it caused the wreck, by shanking, of the famous Vines of Jones Nash, Esq., at Bishop Stortford? *David Tell Fact.*

Soil for Ferns.—Although most Ferns thrive in the usual compost of peat and sand, sometimes with, and sometimes without the addition of a little loam, my experience tells me that, generally speaking, they do not get enough of what they require out of it in time to ensure a full development before the season of growth is over. This is owing to the insoluble nature of ordinary peat. By adding a plentiful proportion of thoroughly decayed wood to my compost of peat, sand and loam, I find that my plants exhibit a very superior luxuriance to that of the collection from which they were taken. *J. H. Maw, Broseley.*

Chilian Beet.—I venture to send you my experience of the above Beet this summer, in the belief that it may prove of some little interest to those of your readers who may have tried the plant or who contemplate giving it a trial for bedding purposes. I got some of the seed with my general supply of flower seeds in the beginning of May, and had it sown in a well-prepared border, composed of good loamy soil. The seed germinated well enough, the plants grew vigorously, and were soon ready for removing to the position that I had assigned for them in the flower garden. I must tell you that I sowed it for the express purpose of introducing it into the composition of my summer bedding, having heard so much said in favour of it by the party sending it out (which, as a matter of course, I could not escape), and it having otherwise been recommended to me. I was much astonished, on close examination of the plants at the stage of growth at which they were fit for transplanting, to be unable to perceive any points in them approaching to anything of a superior character to other Beets used for a like purpose. I thought, however, that it would improve as it saw more days. On that assumption I transferred to the centre of each of the various beds one of the most promising plants, and promised to myself a treat in witnessing its expected fine, dark, rich colour blend admirably with the other plants composing the beds. But lo! what was my annoyance and disappointment to observe, when too late, that instead of improving, as I had so sanguinely predicted, a retrograde movement had set in; and from thenceforward it daily became worse and worse—coarser and coarser every moment of its wretched life, until it reached the climax of its monstrosities, and displayed to my disappointment a rough, coarse, dirty, half-green Beet, approaching to the size and coarseness of a Mangel used for agricultural purposes; and, of course, completely spoiling the look of my beds, and proving an eyesore to all who had the misfortune to see it. Thus have I recounted to you my first, and, I dare say, my last, experience of the Chilian Beet, which from the very bottom of my heart I wish God-speed out of the horticultural world. In the ever-interesting columns of the *Gardeners' Chronicle* might I ask some of your readers to let appear their experiences in the cultivation of this so-called acquisition in bedding? *Tap, Dublin, December 7.*

Low Border Pear Trees.—I have a row of these trees grafted on the Quince stock, and now about six years old. They are on a border sloping to the south and sheltered behind. They are in fine health, and every season delight me with the abundance of blossoms they annually produce. But alas! they do not give me any fruit worthy of notice. In 1866 there was a total failure; in 1867 I was gratified with two or three dozen—a poor crop, but it made me hope on; in 1868, three Pears; and this season, 1869, one poor solitary fruit made me almost despair. I have tried tiffany and bushes of evergreens as protectors, without avail. The question I now wish to ask is, can Mr. Robinson, who is a great advocate for this French mode of training, suggest any safe protector, or can any of your contributors? I think I have read in your columns a suggestion from some one that ridges of thin boards would answer well the purpose. It is just possible that some one of your numerous readers may have tried this method; if so, I hope to see it reported on, for I fear that without some efficient mode of protecting the blossoms, fruit from such trees must be a myth in our English climate. *Inquirer.*

Potting Liliums.—I would not have troubled you further on this matter but for the fact that your correspondent "M.," now that he finds some of his arguments untenable, wishes, by shifting them off his own shoulders, to encumber me with them. Thus, at p. 1138, "M." writes: "The stem is kept alive sometimes by roots emitted from itself, independently of the bulb. These roots sustain it after the bulb has stopped its supply, consequently the bulb is at rest previously, and when the stem is dead the advent of the resting period is long past." I disputed this theory, *i. e.*, that "the bulb had been long gone to rest previously to the stems dying." And here is "M.'s" rejoinder (see p. 1232):—"'W. E.' has not turned out Liliums yet, or he would not write such nonsense as dead roots supporting dead stems, &c." Now, what I did wa. to write of "dead roots," quoting "M." fairly by saying, "living roots existing but to support dead stems, &c." It is not necessary that I should further notice this, though I reassert, that to say a bulb has long gone to rest whilst the stem with roots, and it may be leaves attached, is active, is somewhat strange reasoning, and cannot, I think, rightly explain the real meaning of so acute an observer as your correspondent seems to be. Why it is the bulb which receives support from the stem at this juncture, and not that the former "refuses further support" to the latter! I freely endorse "M.'s" inference that the bulbs are "never really at rest." But I cannot see how this aids his argument, unless, indeed, he would hasten them off to a state of semi-rest in October, and then immediately force upon them some four months of unobservable underground activity ere any sign of superficial growth exhibits itself. Rather let him with me give them that well-timed annual ebb and flow of a bulb's, or other deciduous plant's mode of growth, as regularly as each tides moves to and from our shores, and as Nature so beautifully illustrates in all her doings. Take the time of the plant's decadence aboveground in the autumn, to that of its surface activity in the spring, and by draining a line at or about mid-winter, not November, may we not naturally infer that a change is developing itself, and that greater vitality is becoming co-existent with the equally remarkable change of the season? Again, "M." is beside the mark when with characteristic ability he calls upon your readers to observe my recent bit of tuition from "Dame Nature." I said, as did "M." himself, that long ago I received this lesson at her august hands. Mr. Tanton's remarks, to which he refers me, afford valuable information, as do "M.'s" also. They are nevertheless combatable upon sound principles, but I do not intend to enter further into the question, as sufficient has already been advanced on this subject by *W. E.*—I fear, in my hurried reply to Mr. Smith's letter, I left unnoticed an important point, which is this: in speaking of "potting," a distinction ought to be drawn between "potting" and "shifting" plants. One would come to the conclusion on reading Mr. Smith's letter that he must have shifted his Lilium so late as February 1, because he dreads the disturbance of his bulbs at any time, and of course much more so just at the time they start into growth. If such is not the case, he has succeeded in stretching out his late Liliums as far from the usual habit of the plants as he has pushed his early ones. I never had occasion to pot before October; and November I consider is as late as I can safely leave them, this being about the middle of the time Mr. Smith takes to get through his potting. It is, no doubt, a safe time to recommend to those who have a few bulbs only. I must thank Mr. Smith for his letter. It shows there is more to be done with Liliums than many of us imagined. Although Mr. Smith endeavours to find fault with me, he has, nevertheless, although indirectly, fully endorsed the most important points I raised; and I hope he may live to see Liliums in flower all the year round. Your correspondent "A.," who lately treated on Nerines, lays himself open to the same charge; at least, he was not sufficiently explicit when speaking of potting. The flowering of that class of plants almost entirely depends on their management in this respect. Autumnal floral display, to which this class of plants lends no unimportant aid, may suddenly be a blank, by pulling to pieces the pots of bulbs, and separating them one from another, in order, it may be, to increase the supply. The best plan would be to divide the batch into smaller batches without more disturbance than is actually necessary. I have known some varieties of these plants flower successively for nearly 20 years, with no more attention paid to them than a little additional soil at the surface; and other varieties, by being potted as above described, have refused to flower for several years after. *M.*

Dry Rot.—Attentive readers of your Journal cannot fail to have noticed with satisfaction an increasing interest in Fungological matters. Upon the subject of dry rot there is still much to be discovered, and if I am correctly informed we are without any knowledge at present of the form of the fructification of this most mischievous mycelium. Having occasion just now to order the re-binning of the whole of a cellar, containing many thousand pounds worth of wine, I send you this note of all the information that I have been able to obtain, in the hope of eliciting further knowledge from yourself and others. Deal laths, soaked for three weeks in a solution of sulphate of copper, are said to be impervious to dry rot. Lime-washing the bin before using it again, is said by others to be all that is necessary, provided that all affected laths have been removed and destroyed. But for the recent notices about mildew at the roots of Fir trees, I should have thought seriously of using pitch-Pine laths. Now I am assured that dry rot will not attack either East Indian Teak or Demerara Greenheart. Do you know of any chemical principle in these woods antagonistic to Fungoid growth? Sulphur or creasote would be apt to affect the flavour of the wine through the corks. *W. T.* [The fructification of dry rot (Merulius lachrymanus) is well known, and consists of myriads of snuff-coloured spores. Many other Fungi, however, occur in cellars, which must not be confounded with true dry rot. We have never seen true dry rot on Teak or Greenheart, but they are subject, especially where they come in contact with other wood, to that form of decomposition which is known under the name of Eremacausis. No one can tell why particular Fungi affect particular kinds of wood, while others affect almost all wood equally. A solution of corrosive sublimate is a certain cure, but its effect wears out after a few years. Perhaps the best substitute for laths is strong felt, which might be previously steeped in creasote or the above-mentioned solution. True dry rot, however, seldom originates in the laths. *M. J. B.*]

Continuity of Growth.—I notice at p. 1279 of your impression for December 11, an able article by Mr. D. T. Fish upon this subject. In that article he makes reference to my letter upon Vine roots at p. 1161, and therein repeatedly misrepresents what I said. Will you, therefore, have the goodness to allow me a little space to rectify the matter. All that he, and most of the others who have written upon the subject, says, only tends to strengthen my ideas upon the matter. If Mr. Fish will have the goodness to again read the first ten lines of my article, he will find that the conclusion to which he has come at the top of the last paragraph of his article is just the same which is contained in the little word, "No," which answers the two opposite questions of Mr. Gill and Mr. Anderson, viz., "that root and top action proceed simultaneously" when plants are grown in a natural condition. The case brought forward by Mr. Knight, to prove that leaves could be produced without the aid of roots, has no bearing upon the subject whatever, nor yet have the cases cited by Mr. Fish to prove the reverse, for both are extraordinary circumstances, not having any bearing whatever upon what is, or what is not, the result of root and leaf formation in a young and healthy tree in a natural condition. Now, it must be remembered that this is the point upon which I took my stand. From beginning to end of my article there is no reference made to what shoots or roots might do if placed in a condition not akin to their natural state. Every one knows what extraordinary things are accomplished by the members of the vegetable kingdom in their struggle for existence. Roots in some cases will form stems, and stems or shoots in almost every case will form roots, but still this has no bearing upon the subject at issue, as I at first understood it, and wrote accordingly. If those who have written upon the subject had borne this in mind, there would have been less said upon the matter, and far sounder conclusions would have been arrived at by them. Again, Mr. Fish misrepresents me, by saying that I said "spongioles cannot be formed without the aid of leaves;" and by denying this he misrepresents himself; for does he not adopt the language of Professor Owen at the top of his third paragraph, and tell us that "the leaf falls not because an old leaf dies, but because a new leaf is born," clearly showing that the tree is never without leaves the whole year round. It was looking at it in this light that I wrote what Mr. Fish attributes to me, for had he looked towards the end of my article he would have found these words, when referring to this point:—"So that there may be no misconception upon this point, let me say that buds are leaves, flowers, and branches in embryo, and consequently act as stomach and lungs until such time as the leaves begin to develop." Had Mr. Fish taken this sentence, in conjunction with that he attributes to me, he would have done me more justice; but, by taking the one without the other, he entirely misrepresents my meaning. I certainly like to be put right when I am wrong, but I don't like to be misrepresented. Regarding my reference to the value of a pump, the simile was used for simplicity's sake, not to be literally understood; and a man of such intelligence as Mr. Fish cannot fail to perceive what I meant by it. If, however, as Mr. Fish says, the valve of a pump does not draw water at all, will he have the goodness to enlighten us by stating how he could accomplish this without it, unless he used a bucket. *James McMillan.* [We believe that the unexpanded buds act rather as consumers than as producers of food, as our correspondent states. EDS.]

Vine Soils.—I know the authors of your leading articles are so competent to put controversialists right, and instruct your readers on sound principles; and, moreover, I so highly approve of your liberal admission of different opinions into the *Chronicle*, that I confine myself to the question of the action of calcareous soils for Vines. In common parlance, a soil may be calcareous or sandy, but, strictly speaking, no surface soil is calcareous, that is, exclusively formed of carbonate of lime. The calcareous soil of this place is composed, in round numbers, of 45 parts carbonate of lime, 45 parts aluminous earth, and 10 silex, and certainly is not sandy. In it the Vines grow vigorously and bear abundantly. I have two Vines, planted 30 to 40 years ago, the roots of one run under a carriage road, the other under a grass plat; they are never manured, they promise to live for centuries. Last winter, by mistake, I sawed off one of them close to the ground; this year the two main shoots that were allowed to grow, grew 2 to 3 inches in length daily in July, and are now about 16 feet in length, strong red rods. Surely my calcareous soil is good for Vines. As to siliceous soils, I have also had a little experience, but never analysed them. I have no doubt it would be found that there are few soils of pure silex, but I know a part of a field in Berkshire that was black sand, and almost barren, which, with a view to improve it, was first dressed with clay, with small results, then chalk was added, and it immediately became fertile. My recommendation, therefore, is, to designate no soil as unfruitful until you have ascertained its component parts; and I am sure there would be a great advantage if writers treating on horticulture or agriculture would let us know the facts of the composition of the soil they write about. *T. C. Brown, Farther Barton, Cirencester*

Yellow Bedding Plants.—Your correspondent "T. P. T." (p. 1283) is in error when he states that "the Pansy has been tried over and over again as a summer bedding plant but has always failed, and by the end of July it is used up." If "T. P. T." will call here next August, September, or October, I will convince him otherwise, and take him to see such masses of Yellow Pansies as will perhaps astonish him, and thus prove by ocular demonstration that they are not used up by the end of July. I have also seen Viola lutea, in the middle of October, one perfect sheet of flowers, with my friend Mr. Wills, when at Huntroyde. Success in the cultivation of the Pansy entirely depends upon its proper management. *Edwd. Bennett, Osberton.*

Foreign Correspondence.

AMERICAN GRAPES.—The present season has not been a favourable one for this new branch of industry; it has been unusually cold and wet, and we fear that a large proportion of the crop will not ripen. The berries, which are large and fine, are now (October 1) colouring rapidly, but we can hardly expect to have the crop in any great perfection. The Vines are, however, absolutely loaded, and the unripe Grapes, with the help of sugar, will produce wine of excellent quality, if they should be unfit for general consumption. We have so many kinds that some are sure to come to perfection. One class of our Vines, which originated from the wild Frost Grape, requires a greater or less degree of frost to ripen it. I doubt if it is generally known in England that the Grapes of this continent are of entirely different species from those of Europe, and as the information may to some be interesting, I venture to describe them. European Grapes for the vineyard or out-of-door growth are a failure throughout America.

The native Grapes of the American continent, although there are now a great number of varieties, may be traced to four sources, namely, the Vitis Labrusca, or Northern Fox Grape, the V. æstivalis, or Summer Grape, the V. cordifolia, Winter or Frost Grape, and the V. vulpina, Southern Fox Grape. From one or other of these all our present American Grapes have been raised, but the latter, being a Southern variety, does not succeed so far north as Canada. From seedlings, cultivation, grafting, and regrafting, and hybridisation our present varieties have been produced, and the results may be classified into "wine Grapes" and those used for eating and ordinary consumption, or "table Grapes." The approved varieties number about 30, having marked qualities of their own; there are hundreds of other named sorts, but the best are all comprised in the 30 kinds alluded to.

The edible sorts are some of them excellent, and would suit any taste, and many of them are quite equal, if not superior, to your Sweetwater and other outdoor Grapes. Others of the "Fox tribe" have a peculiar flavour, but which flavour seems to grow on the palate of the consumer, although to a stranger they would be called vile and uneatable. Others, again, instead of having the fine melting juice of the European Grape, are composed of a thick skin and a firm pulp, which requires to be crushed in the mouth; this kind also seems to grow on the taste of the consumer, and, like Tomatos and Egg plants, to produce an appetite for itself; they are all wholesome, and extensively used. The class of wine Grapes abounds in acid and flavour, but wants sweetness; the flavours soften down or change during fermentation, and give a special character to the wine; but in this northern climate, and even in the Northern States, the wine Grape does not of itself furnish sufficient sugar to make a palatable wine without addition.

Cane sugar, and other manufactured sweets (all of the latter being chemically identical with Grape sugar), are cheaper than Grape sugar as raised in the Grape itself, and are therefore used to give body and to make up for deficiencies. American wine made from American Grapes is now all through the States a regular marketable commodity, and is generally sold in bulk at a dollar a gallon; it is as wholesome as any other wine—is more like the lighter classes of European wine than it is like port, sherry, or Madeira; some classes of it also make excellent effervescing wines, not surpassed by the best European varieties.

These Vines, however, have more to recommend them than their fruit alone; they are all free growing, beautiful in foliage, and not liable to disease. As screen plants they are unsurpassed, and as climbers over trees and trellises they are unequalled by anything I know of. I very much wonder that these Vines are not an accepted fact in English landscape and other gardening. They are perfectly hardy, never want pruning or trimming, except to reduce redundancy of vegetation, and I have no doubt, from the length of the English summer, the fruit would come to perfection every year. As hedge plants for binding other shrubs together, and making an impenetrable fence, they would, I am certain, be most useful as well as beautiful, and would afford a plentiful supply of fruit fit for making home-made, if not marketable wines. All the kinds seem to do as well unpruned as pruned, and the crop of fruit is as heavy when the branches run wild as when they are ever so elaborately trained.

At a late discussion about Vines, an American vineyardist remarked, when the labour question came up (which is always the question in America, where wages are double and treble what they are in Europe)—"I find," said he, "that the cheapest plan is to train my Vines to upright posts, with a few cross pins put through the posts. A simple tying up of the branches round the post may be necessary during the summer, but not often. I leave two or three main stems firmly fastened to the post, and there they remain. In the fall or winter, at convenient times, I take a hook set straight on a staff, and striking at the branches from below cut off most of the last year's growth, leaving the old untouched. There is always enough young wood left to form fruit for the succeeding crop; and I never fail in getting an excellent yield."

A neighbour of the writer, who was one of the first to introduce the American Vine into Canada, trains his Vines to a wall. He lets them grow to upright branches for old wood, and then trims off the present year's wood down to three or four eyes, so that in the winter the Vines look like a series of old sticks, thickly covered with short spurs. He obtains excellent crops.

This being the case, persons in England wishing to adorn their gardens and grounds with a new climber and verdant screen, need not hesitate to try these plants. As to the treatment the American Vines require, all they want is good soil and plenty of room, and the result will be a lovely foliage, and in its season, heaps of fruit; inferior to what they are used to it may be, but far superior to the various classes of Currants and Gooseberries; raised without trouble, and coming at a time when the early cheap fruits are not be to had. Any American work on the Vine (and there are many such) will give full particulars as to names and qualities of varieties, and cuttings or rooted plants can be had throughout this continent at any place where nursery trees are sold. They will pack well, and reach England by steamship in perfect condition. *Vectis, Toronto, Canada.*

Societies.

ROYAL BOTANIC, REGENT'S PARK.—At a meeting of this Society held at the gardens last Saturday, Mr. James Heywood in the chair, a letter was read from his Serene Highness the Prince of Teck, President of the Society, nominating the following members of the Council to be Vice-Presidents for the ensuing year:—The Duke of Buckingham and Chandos, K.G., the Marquis of Bristol, Lord Calthorpe, Lord Chesham, Lord Tredegar, Lord Alfred Hervey, Bishop of Oxford, Sir Walter Stirling, Sir William Hutt, K.C.B., and Mr. Charles Robert Turner. Seven new Fellows were added to the Society, and the chairman read a list of dates as fixed for the exhibitions and fêtes, promenades, lectures, and other meetings for the next season, cards of which are being issued to the Fellows of the Society.

ROYAL CALEDONIAN HORTICULTURAL: *Annual Meeting.*—Mr. Thomson, Dalkeith Gardens, in the chair. Mr. Methven, treasurer, submitted the financial statement for the past year. The expenditure had been, for the March show, 157*l.* 2*s.*; the June show, 100*l.* 16*s.* 6*d.*; and the International Show, 628*l.* 4*s.* 9*d.* The profit on the March show was 6*l.* 5*s.* 7*d.*; the loss on the June show, 33*l.* 12*s.*; and the profit on the International Show, 67*l.* 6*s.* 4*d.* The total funds at the disposal of the Society at December 1, were 368*l.* 1*s.* The report was approved of. Mr. Methven resigned his appointment as treasurer. Mr. Macintosh, seconded by Mr. Syme, moved that in future the offices of secretary and treasurer should not be held by a seedsman or nurseryman. This was agreed to. Mr. Young, assistant secretary, resigned his appointment, but at the unanimous wish of the meeting he withdrew his resignation. Mr. A. F. Adam, W.S., Mr. Downie, and Mr. Mitchell were elected members of Council. At the adjourned meeting, Patrick N. Fraser, Esq., of Canon Mills Lodge, Edinburgh, was unanimously elected treasurer, in the place of Mr. Methven.

Notices of Books.

Winter and Spring on the Shores of the Mediterranean, or the Riviera, Mentone, Italy, Corsica, Sicily, Algeria, Spain, and Biarritz as Winter Climates. By J. Henry Bennet, M.D. London: Churchill.

We are glad to welcome a fourth edition of this interesting work, whose author needs no introduction from us. His letters, several of which were published in our columns, were heartily welcomed and keenly relished by our readers. Dr. Bennet speaks with the authority of ten years' experience of the chief districts described.

During all his journeyings, Dr. Bennet has carefully noted the various circumstances that determine climate, such as elevation, shelter, proximity to the sea, geological formation, vegetation, &c. By such jottings this book, which first appeared in 1861 as a mere essay on the climate and vegetation of the Mentone amphitheatre, has expanded in successive editions until it may now be considered a careful study of the winter and spring climates of the shores of the Mediterranean in general. We have in this edition a most interesting account of beauties seen and scenery enjoyed, in various wanderings in search of health quarters, for winter and summer, in Italy, Corsica, Sicily, Algeria, Spain, and the Italian lakes, with a short description of Biarritz and Arcachon. Throughout the work the author has succeeded in his endeavour to show, that by the study of Nature not only may a charm be thrown over the hours of invalid leisure, but information useful to others may be collected and conveyed far and wide.

The author concludes his preface with the following comforting assurances and sound advice to those stricken in affliction. It is worth many fees, and we transcribe it here for the benefit of any of our circle of readers who are exposed to disease. All are well assured that in communion with Nature they will find an inestimable solace—quite compatible with other and more serious thoughts. "This fellowship with Nature will enable them to attain to that cheerful frame of contented resignation, which is all but indispensable to their recovery. In a word, let them adopt the motto assumed by the valued relative, Joseph Langstaff, Esq., to whom I have dedicated my labours, on his return from India, where he had spent 40 years in positions of honour and difficulty, 'Going and returning he rejoiceth.'

'Euns redierisque gaudet.'"

The author has in this instance done more than most physicians—he has taken his own prescription. His work is brimful of cheerfulness. Throughout its pages there is no wail of the care-worn, overworked, invalid heard. Nature and all her works are looked at from the sunlight side of life. Doubtless the countries visited are beautiful in physical conformation, and rich in vegetation. The sky is of the deepest blue, the lakes placid, deep, and clear, and mountain and sea invested with rare grandeur and matchless loveliness. And they lose nothing by their transposition to these pages.

The first eight chapters of Dr. Bennet's work are devoted to Mentone and its neighbourhood, in which we are introduced to its situation, climate, foundations, or geology, physical geography, meterology, vegetation, flowers and horticulture. Then its inner life is revealed to us in its amusements—drives, rides, pedestrianism, casinos, churches, and social intercourse within itself, and with the mountain villages around. We are next treated to a dip into the deep, warm blue waters of the Mediterranean, and make acquaintance with its tides—for it has tides, poetry, &c., to the contrary—fishes, birds, and rocks. An exquisite woodcut of the St. Louis Bridge and Rocks is given at page 159.

But we must hurry on to the second part of the work. This is devoted, as already hinted, to a fruitless search for a better climate than that of Mentone. It is equally interesting as the other. The physical conformation, natural characteristics, vegetation, character, social habits of the inhabitants, &c., are all passed in review as in a panorama in these pages; so full and complete is the information here offered that the invalid or traveller at home is provided beforehand with all needful data for estimating the advantages, or otherwise, of any particular place. These chapters are succeeded by a valuable appendix, giving full instructions to the invalid how he may go to or return from any of the places indicated, with the least risk of danger or sense of fatigue. Valuable meteorological tables of the temperature and humidity of the air at Mentone for ten years are likewise given, as well as a table of the temperatures of foreign climates by Sir James Clark. These tables, with the author's remarks upon them, possess an independent value to the horticulturist and the naturalist, wholly apart from the special use for which they are given by the author. A copious index concludes the work, which is profusely illustrated with nearly 40 maps and woodcuts: the former are beautifully chromo-lithographed, and the woodcuts faithfully rendered from sketches by the best artists.

Altogether the work is especially adapted either for invalids in search of genial climes for the winter, for naturalists in quest of facts about climate as affected by altitude and shelter respectively, for the mere traveller for pleasure, and for that largest of all classes—those who wish for reliable information concerning such places, but who lack the time or means needful to visit them themselves. To all such we can commend this work as a trustworthy guide. It would form an admirable Christmas box for young men or maidens, while none are too old to read it with pleasure and profit.

—— Among the Almanacs and Year-books for the forthcoming year which bestrew our table, we may mention *en premier ligne* as specially serviceable to horticulturists, Dr. Hogg's *Gardeners' Year-book* (171, Fleet Street), which can hardly be dispensed with by the class for whom it is intended.—*Glenny's Garden Almanac* (Lemare) is not so good a shilling's worth as the one we have mentioned, nevertheless it contains some good practical articles, and a little amusing egotism.—*Dietrichsen & Hannay's Royal Almanac* (Cleaver) is, as usual, as full of meat as an egg; while *Whittaker's Almanac* might be described without exaggeration—we mean no pun—as even fuller.—Messrs. Weeks & Co., acting on the principle of throwing sprats to catch herrings, issue to their friends not only an almanac and diary, but also a handy and convenient case to hold the same. The diary is prefaced with a brief notice of the early history and development of the hot water apparatus, from which we extract the following:—"For the original idea we are indebted to the Marquis de Chabannes, a nobleman then known as an amateur gardener and engineer. This idea was further developed by his architect, Mr. Atkinson, who, in the year 1815, was the first to exemplify it in a really practical state of usefulness, by fixing two pipes, one above another, in the greenhouses of the Botanic Gardens, Chelsea. The principle adopted was simple in the extreme, consisting of two cisterns, each about 4 feet long by 2 feet square; the one built in brickwork, with furnace under for heating, and placed outside the building, while its contemporary was situate at the opposite extreme internally; both on one and the same level. The former formed the boiler, the latter the supply cistern. These so-called cisterns of corresponding capacity were connected by means of two 4-inch pipes, of position and level as before described, the upper one forming the flow, and the under one the return pipe."

CATALOGUES RECEIVED:—*Kelway & Son's* Gladioli. *W. Chater's* Hollyhocks and Roses. *R. M. Stark's* Select New or Rare Plants. *E. G. Henderson & Son's* Bulbs, Roses and Fruit Trees. *J. H. Ley's* Ferns and Stove Plants. *W. Drummond & Sons'* Forest, Ornamental, and Fruit Trees. *W. Knight's* Nursery Stock. *J. Verschaffelt's* Catalogue de Plantes. *L. Van Houtte's* Hardy Perennials, Ornamental Trees, Gesneraceous Plants, &c. *J. Linden's* Supplément et Extrait de Catalogues Généraux. *J. M. Krannich's* Preis-Courant. *Dippe Brothers'* Wholesale Flower Seeds. *H. Laurentius'* Herbst-Catalog für 1869. *J. M. Helm's* Preis-Courant. *Patz & Rees'* (late Jühlke) Seed List. *J. M. Thorburn & Co.'s* Wholesale American-grown Seeds.

Garden Memoranda.

OSBERTON, THE RESIDENCE OF G. S. FOLJAMBE, ESQ.—Mr. Bennett has recently called attention in your columns to the beautiful Croton elegans, and I should like to supplement his letter by a few notes on plant growing at Osberton, more especially stove plants in both the foliage and flowering sections.

The first objects one's eye rests upon, on entering the stove, are three fine Crotons, consisting of C. elegans in the centre, with C. variegatum and C. angustifolium on either side, and I certainly think that three other such plants are not to be met with in any other private establishment in the country. Their symmetry of growth and beauty of colour are exquisite. Acalypha Wilkesiana, an immense plant, stands next in my estimation; no collection of foliage plants is complete without it, producing as it does such an interesting and striking contrast, and doubtless after Mr. Bennett's description it will be much sought for. It strikes freely from cuttings, and will some day be used for flower garden decoration; it is admirably adapted for the summer decoration of the greenhouse or conservatory. It is perhaps well to remark, however, that it will not grow much in this cool temperature, therefore it should be grown to the required size in a warm structure.

Next in order of merit to the Acalypha comes Sanchezia nobilis variegata, of which there are two plants, each of them well grown, well coloured, and

entirely free from the greenfly, which is sometimes very troublesome to this plant. Dieffenbachia maculata stands next, a remarkable plant, and all the more creditable by reason of the small pot it was grown in. How seldom we see this plant shown to perfection: generally speaking, as the leaves attain age they turn a dingy brown colour, which entirely destroys its character and usefulness for exhibition. But such is not the case with Mr. Bennett's plant, it retains its pretty green leaves, freely blotched with white throughout. This plant should always be cut down in the winter, and must be shaded from the scorching sun, to grow it to perfection.

Alocasias of sorts, and Dracœnas of sorts, have also a place here, as also have the Sanseviera zeylanica—an immense plant, Bœhmeria argentea, Pavetta borbonica, Cyanophyllum magnificum, Marantas of sorts, and last, but not least, that seldom-seen plant, Campylobotrys refulgens. In days gone by, Mr. Bennett has shown this plant probably better than any other man in the country. Abundant drainage, a light, porous soil, with plenty of silver sand, and close shading, give the clue to success.

I find I have accidentally omitted to mention a good specimen of Cyperus alternifolius variegatus, which is the largest of the kind and the best coloured I have ever seen, not an entirely green leaf being seen on the plant. To colour this plant to perfection requires some amount of skill; but if the following simple rules are adopted, the desired object may invariably be secured. 1st. Don't have a plant that has been obtained from seed, as that cannot be relied on to produce variegation. 2d. Rest the plant every winter, and cut it down, keeping it in a warm house. 3d. Pot in a compost containing equal quantities of peat, leaf-mould, silver sand, and brick or mortar rubbish, and only pot once a-year. This plant is especially valuable for the trimming of vases, &c., and should have a place in every collection.

Before taking my leave of the house containing the above remarkable specimens, I would just state that I noticed several young plants of recent introduction, including some of the new Crotons, but as their characters are not sufficiently developed in their young state to enable one to form an accurate opinion of their respective merits, I refrain from making any comment upon them at present. In another house devoted to flowering plants I noticed the following as being remarkably fine and well-flowered, but as I did not take any notes, I am unable to give particulars as to size and the number of flowers each plant carried:—Bougainvillea glabra, Allamandas — cathartica, Schottii, grandiflora (very beautiful), Hendersoni, and neriifolia (good); Ixoras — salicifolia, javanica, and coccinea; Dipladenias—splendens (good), crassinoda, and the lovely amabilis (the latter unusually fine); Clerodendron Kæmpferi and Thomsonæ, good; Rondeletia speciosa and Stephanotis floribunda were alike good. I cannot conclude this incomplete account of the plants without stating that there are many good specimen greenhouse plants in another house; and further, that the place looked remarkably well at the time of my visit (middle of September) throughout. The Vanilla has also abundance of fruit pods this season. *Thos. Simpson, Broomfield, Chelmsford.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

THE ornamental and useful *Francisceas* will now generally be more or less enlivening stoves with their variably tinted blue, or mauve and white flowers. Whilst at this stage no moisture should be allowed to settle upon the plants, neither should any great amount of humidity be permitted in the structure containing them. The flowers being somewhat delicate, they readily damp off before their usual time if any excess is permitted in either way. *Kalosanthes* should now be kept as dry as they conveniently can be without allowing them to become at all shrivelled in the leaf. They do not require much heat; a moderately cool, but dry corner, in any intermediate house which is kept up to a mean of from 45° to 50°, will suit them well. Bulbs, such as *Hyacinths*, *Crocuses*, *Narcissus*, &c., will now become an attractive feature in gardens generally. A constant successional supply should therefore be maintained. There is one point in the culture of these favourites to which all growers do not seem to attach the proper amount of attention, and concerning which a few words may not be out of place here. I refer to the fact, that instead of removing them from beneath the material which was placed over them during the process of root-making, as soon as they have fairly established themselves, many let them remain, one batch after another, until they are wanted for forcing, when, in many instances, the later lot has made some inches of growth. The leaves and flower-spikes so produced are thoroughly blanched, and as ill adapted as anything can well be to carry forward those necessary offices in connection with roots which are necessary to produce fine individual flowers, and in the absence of which no cultural merit is attainable. As soon as the bulbs have made roots, and become properly attached to the soil, let them be removed to the full light, where both sun and air may freely reach them; the cooler the situation the better, provided always that frost is not permitted to reach them. The nearer they are placed to the glass the better, and it may be said in regard to waterings that the more frequently the soil needs a fresh supply the better, provided at all times that the balls dry kindly, and nothing in the way of stagnant soil exists, as the roots delight in a fresh supply. There may be some few instances in which certain cultivators wish to make a good show of blooming plants at a very early date, and who, in order to do so, are not averse to forcing their plants out of season. To furnish such a display as this, there are some few rather unusual subjects which will respond with tolerable freedom to a little extra pushing, especially *Clerodendrons*—the varieties C. Thomsonæ and C. Balfourii in particular; *Impatiens flaccida* and *I. flaccida alba*; most of the *Gardenias*, excepting G. Stanleyana; such varieties of evergreen shrubs, like *Hibiscus*, as may be grown; *Bougainvilleas* and *Libonias*; which may all be turned to very useful account.

FORCING HOUSES.

I have little to add in regard to *Early Vineries*. Be particular not to enforce too much artificial warmth at any stage, as far more injury will accrue therefrom than is to be seen at the moment by the superficial observer. Attend constantly to the state of heat of the fermenting materials upon the outer borders. The fluctuating weather we have experienced of late in this wise—sometimes sharp and frosty, at others a densely surcharged humid atmosphere—will necessitate constant watchfulness to keep the heat at a uniform mean. See that the Vines in the *Late Vineries* do not suffer at any time during severe weather from frost, but afford protection therefrom in some shape or form. I need add little in regard to *Pines*, excepting it be to recommend in those instances where an uninterrupted supply of *Pine-apples* is necessary, that a few of the forwardest successionals be sorted out, and means be assured to cause them to show as soon as possible. This to follow those now showing fruit. Should very severe weather ensue—and it often happens about this time—let me suggest that the utmost caution be exercised, not to exceed by a single degree the maximum of artificial heat which is absolutely necessary; for depend upon it the dry, heated atmosphere, even at a minimum, will prove a sufficient tax upon all well cultivated plants. Especially is this to be enforced if the cold is of some duration, when a slight reduction of the mean heat may be advisable. Keep well above the temperate point at all times, but hug it as closely as is possible during such periods as these, of course according to the requirements of each separate batch of plants. Keep up a successional supply of such things as *Seakale*, *Mushrooms*, *Asparagus*, &c., by the continued introduction of the necessary material at properly regulated intervals, in order that no scarcity of a proper supply may show a faulty place in past arrangements.

HARDY FRUIT GARDEN.

Those who may not yet have placed the necessary protective material against *Fig trees* attached to walls out-of-doors, should now do so at once. Straw hurdles neatly hung up against them, so as to represent a thatch, do as well as anything; as, while they ward off any really severe frosts that occur, they nevertheless admit more air amongst the branches behind them than is possible when they are tightly bound up with straw or hay. I lately referred to the necessity of running white cotton athwart *Gooseberry* or *Currant trees*, for the purpose of keeping small birds from destroying the fruit-buds. I find that the best material for this purpose is the best white hempen or flax string used by shoemakers. It is procurable in balls, costing about 2½*d*. These balls contain many yards, and the material is very strong.

HARDY FLOWER GARDEN.

When I last wrote, and, indeed, but a day or two since, everything seemed to indicate a frosty period. The change in the moon's quarter on the forenoon of the 10th inst. has, however, changed the aspect of affairs, though there can be no certainty of a mild period for many days together. It will be necessary, therefore, to provide proper protection for all subjects likely to require it, should a frosty period ensue. This will be the more imperative after so mild a period. Young plants of *Gynerium argenteum* (the Pampas Grass) should have some sort of protection placed around their base. Outdoor beds of *Hyacinths* and *Tulips* should have some protecting material for a like purpose. Should there be a mild period, push forward all planting, or any form of alterations which may be in hand, &c., with the utmost despatch; this especially in regard to the removal of turf and the necessary occasional rolling of grass plots. Give *Neapolitan Violets* all the air possible during mild periods, keeping them clear of everything in the form of decay. Protect *Pot Roses* which are intended for forcing shortly, and keep them moderately dry. During unusually wet periods, even on light soils, the *Bellis perennis aucubæfolia* (both white and red flowered varieties) will scarcely exist; they should therefore be potted up and receive the protection of a frame; the same remarks will also apply equally to the best double varieties of *Pyrethrums*.

KITCHEN GARDEN.

It will be advisable to look over those crops which were lately protected by the use of litter, whether dried Fern or straw, and, by removing all such from them, to allow the air, with what drying tendency it may have, full play. In those instances, where the rows of *Celery* have not been so protected—and it was not needful, it will be seen that the sides of the somewhat abrupt and upright mounds have crumbled or wasted by the influence of the frost. These it will be advisable to go over and to replace the soil to its former position, or should a sharper period ensue the crop will be liable to suffer, so attenuated have the sides of the mounds become. Look through all frames or pits containing *Lettuces* or *Endive*, and remove such as are at all decayed, which some are certain to be at this time, even with every attention. In the case of good stock frames it will be advisable to fill up all vacancies with other suitable plants taken up from the outer borders. Look out for the necessary materials for making hotbeds; for the time will now soon come round when they must be turned to account. *W. E.*

TOWN GARDENING.

A VERY useful subject for hiding blank walls in town gardens is the *Grape Vine*. Now is the best time for pruning and nailing it, an operation which should be done as follows:—Considering that the foliage is of more importance (for the purposes above mentioned) than the fruit, the plants must be so pruned as to favour the production of the leaves. The principal or leading shoots may be trained either horizontally or perpendicularly about 12 inches apart from one another. These shoots should be cut back to a plump eye, and be nailed straight towards the extremity of the wall. Any old wood which is not well furnished with side shoots, should be cut back to the best of the lowest buds. The young wood of the past season's growth should be pruned to one or more eyes, according to the strength of the shoot and the space to be filled. Sufficient quantity of last year's wood should also be secured, to fill up spaces caused by cutting out older branches. When the pruning is finished, nail all in neatly and regularly. A good dressing of rotten dung, forked in a few feet round the stem, would be of great service to them. Should the weather prove open and fine, roll the Grass well, sweep and roll the walks, and clear the borders of everything in the form of rubbish, so that the garden may be in keeping with the house at Christmas. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Dec. 15, 1869, as observed at the Horticultural Gardens

Dec.	Moon's Age.	Barometer.		Temperature.					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 9	6	29.852	29.838	42	33	40.0	42	41	E.	.00
Friday 10	)	29.882	29.824	49	39	44.0	43	41	E.	.00
Satur. 11	8	29.436	29.356	51	24	37.5	45	42	N.	.30
Sunday 12	9	29.523	29.408	47	35	41.0	44	43	S.	.04
Mond. 13	10	29.456	29.200	52	39	45.5	44	42	S.	.02
Tuesd. 14	11	29.467	29.252	52	35	43.5	46	43	W.	.30
Wed. 15	12	29.347	29.321	49	32	40.5	45	43		.00
Average		29.566	29.428	48.8	34.6	41.7	44.1	42.1		0.66

Dec. 9—Dense fog; exceedingly foggy; dense fog.
— 10—Overcast; dull and heavy; overcast.
— 11—Cloudy; densely clouded; heavy rain.
— 12—Clear and frosty; showery; clear and fine.
— 13—Overcast; densely overcast; boisterous.
— 14—Clear and fine; very fine; clear at night.
— 15—Exceedingly boisterous and stormy; clear and cold.
Mean temperature of the week, 9-10 deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending Dec. 25, 1869.

December.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..19	45.4	32.5	39.5	16	0.87 in.	1	4	4	4	4	12	4	9
Mon. ..20	44.1	33.6	38.9	16	0.76	3	9	1	3	6	13	5	3
Tues. ..21	44.1	34.0	39.0	17	0.30	1	8	3	2	4	16	4	6
Wed. ..22	45.0	32.5	38.7	21	0.37	6	8	3	1	2	14	6	3
Thurs. ..23	44.1	31.7	37.9	21	1.13	6	9	2	3	2	12	5	4
Friday ..24	44.0	31.3	37.6	17	0.30	4	5	4	3	1	18	4	4
Satur. ..25	43.4	29.4	36.4										

The highest temperature during the above period occurred on the 25th, 1827—therm. 58 deg.; and the lowest on the 24th, 1860—therm. 4 deg.

Notices to Correspondents.

CAPE GOOSEBERRY: *Constant Reader*. Physalis pubescens.

COOK'S FAVORITE PEA. By an oversight we omitted to mention last week that the stock of the Pea to which we referred under the above name is in the hands of Messrs. Hurst & Son, and Messrs. Carter & Co., jointly.

EUPHORBIA LEAVES DISCOLOURED: *W.* So far as we can judge from the specimens without seeing the plants themselves, there appears to have been an extravasation of the milk, which has become thickened, forming the bright brown spots with which the leaves are mottled. If this opinion be correct, there can be little doubt that the sudden change of position, and probably of temperature too, has been the cause of the leaves falling off. We have not at this moment an opportunity of examining living plants of the Euphorbia jacquiniflora, but should we obtain any more certain information we will not fail to record it. *M J B.*

FRUITS NEAR TO THE SEA: *Nemo.* The best variety of Strawberry for general purposes is Vicomtesse Hericart de Thury. Plant Strawberries as soon as you can get the runners. August is the best time; that having passed, if you can get the plants, plant as soon as the ground is in fit condition. *Peaches:* Early York, Bellegarde, Barrington, Late Admirable. *Nectarines:* Hunt's Tawny, Elruge, Violette Hâtive.

GARDENERS' EXAMINATIONS: *J M B.* You must either come to London or you could enter for the Society of Arts' examination at Doncaster if you are a member of some literary institution in that town. Put yourself into communication with the Secretary of the Society of Arts, John Street, Adelphi, or with the Secretary of the Royal Horticultural Society.

MESEMBRYANTHEMUMS: *B.* We are delighted to find there are symptoms of reviving interest in this beautiful class of plants, but it is rather hard on our correspondents that they should be expected to answer private letters addressed to them. If persons want Mesembryanthemums they should order them of their nurserymen. The nurserymen again should advertise what they have to dispose of. It is not fair to intrude (without previous permission having been asked) on the time and good nature of our correspondents.

NAMES OF FRUITS: *G Goldsmith.* Your Pear is probably Passe Colmar, but we are not quite sure, as the specimen sent was somewhat decayed ere it reached us.—*W D.* Your Pear is Rouse Leach.

NAMES OF PLANTS: *J V, Shrewsbury.* Agaricus velutipes, Paxillus pannoides, Agaricus grammopodius. We have unfortunately mislaid the numbers.—*H B.* Chimonanthus fragrans var. grandiflorus.

PEAT CHARCOAL: *E.* We do not know. Apply to the maker of the stoves in question.

STANDARD ROSES: Jules Margottin, General Jacqueminot, Sénateur Vaisse, Madame Victor Verdier, Gloire de Dijon.

TOBACCO CULTURE: *H B.* Please send us your method of culture.

TWIN CUCUMBERS AND MUSHROOMS: *J C.* We have frequently seen similar cases. Several have been alluded to at various times in our columns, and in Dr. Masters' "Vegetable Teratology" you will find a full account of these and other similar deformities.

VEITCH MEMORIAL: *J H. Darlington.* Your letter has been referred to the Committee.

COMMUNICATIONS RECEIVED.—E. Fonzi (received, with many thanks. The publication of your interesting communication is deferred for a week or two, as a *bonne bouche.*)—N.—T. C.—A. M.—H. M.—Voyageur.—Novice.—Hortus.—Nemo.—G. B.—G. D.—J. M.—J. R. P. (thanks).—W. B. M.—R.B.

DELL'S JET BLACK-LEAVED BEET surpasses the Perilla as a decorative plant, and is decidedly the best Beet in cultivation, being uniform in height and colour, also fine for culinary purposes. Price 1s. 6d. per oz. The Trade supplied. To be had genuine from
DAVID MITCHELL, Nurseryman and Seedsman, Edinburgh.

IVERY'S NONSUCH LETTUCE.—The best Summer variety in cultivation. 1s. per packet, sealed with initials M. A. I.
Also IVERY'S NONSUCH CELERY, true, own saving; acknowledged by all who have grown it to be superior in flavour to all other varieties. Price to the Trade on application.
The Trade supplied with superior MUSHROOM SPAWN.
M. A. IVERY, Hanover Nursery, Peckham, London, S.

Special Trade Offer.

S. NAIRN AND SONS, SEEDSMEN and FLORISTS, 62, Pilgrim Street, Newcastle-on-Tyne, have the following to offer, all pure, prices on application:—
BALSAM (Nairn's), in separate colours.
BROCCOLI, NE PLUS ULTRA, the best April Broccoli in cultivation.
CELERY, SANDRINGHAM, well known as being the best White Celery in cultivation.
LEEK, HENRY'S AYTON GIANT, Scotch; saved.

Seed Potatos.

JOHN AND GEORGE BELL, Covent Garden Market, London, W.C., beg to call attention to the prices of the undermentioned SEED POTATOS:—
PATERSON'S VICTORIAS, £6 10s. per ton.
EARLY SHAWS, £8 per ton.
MYATT'S EARLY PROLIFIC, £8 per ton.
RED FLOUR-BALLS, large croppers, £10 per ton.
In ton lots and upwards.

To the Wholesale Trade.

HERBERT H. NICHOLSON, SEEDGROWER, Great Clacton (near St. Osyth), Essex, has the following SEEDS to offer, for cash only:—

ROBINSON'S PRIZE CHAMPION GX CABBAGE,	80s.	per cwt.
NONPAREIL CABBAGE	112s.	,,
WHITE CELERY (Leviathan)	95s.	,,
SELECTED DARK RED BEET	140s.	,,
STUDENT PARSNIP	80s.	,,
MYATT'S CURLED PARSLEY	28s.	per bush.
STUBBLE TURNIP	18s.	,,

&c. Also all the Annual FLOWER SEEDS, at low prices.

BROCCOLI, ELLETSON'S NEW SURPRISE, Large late White Protecting.—A great improvement upon the Mammoth Cauliflower Broccoli sent out 20 years ago by those eminent Market Gardeners, J. & J. Elletson, of Thorngumbald, who have for many years been so successful in the cultivation of Broccolis, and who by great industry have so far improved upon the old kind as to produce the above variety, which possesses the hardiness of the parent and surpassing it in size and quality. I have every confidence in its giving the same satisfaction which was given when the stock of Mammoth was originally sent out. Having the entire stock, I am enabled to supply the seed genuine. Price 1s. 6d. per packet.
CUCUMBER, FOSTER'S XL, fine Long Ridge.—Is a remarkably fine hardy long dark green Cucumber, and one that can be recommended with the greatest confidence. It is very prolific, and keeps its colour to the last. All who have seen it growing are satisfied that it cannot be surpassed, and those who have tried its flavour are convinced of its excellent quality. Length 12 to 18 inches. 1s. per packet. Trade supplied.
EDMUND PHILIP DIXON, The Yorkshire Seed Establishment, 57, Queen Street, Hull.

Johnstone's St. Martin's Rhubarb.

W. P. LAIRD AND SINCLAIR, NURSERYMEN, Dundee, N.B., have pleasure in offering the above NEW VARIETY of RHUBARB, which they have confidence in recommending as the earliest and best sort in cultivation. The raiser of it describes it "as one of a batch of Seedlings from 'Victoria;' the seedling plant was a fortnight earlier than any of the remainder of the lot, and grown beside 'Prince Albert' and 'Linnæus,' always ten days earlier than them, and giving a larger quantity of superior stems to either of these varieties. It forces better than any variety I know, and has a splendid colour."
Strong Roots, 2s. 6d. each. Usual Discount to the Trade.
The following Testimonials, selected from amongst many others, speak to its merits by disinterested parties:—
From CHAS. GUTHRIE, Esq., *of Taybank, Dundee; a well-known and celebrated Horticulturist.*—Taybank House, October 18, 1869.
"GENTLEMEN,—I have much pleasure in saying that Johnstone's St. Martin's Rhubarb is the best I have in my possession. It is a thick fleshy-stalked variety, bears a heavy crop twice a year, and if cut early, would, I have no doubt, give a third, as even ten days ago it was throwing up fresh leaves. One peculiarity it possesses of not throwing up flower-stems, only one having appeared on one of my plants in the course of two years. It makes an admirable preserve.—I am, &c., "CHAS. GUTHRIE."
From WM. GORRIE, Esq., *Horticultural Editor of* "*The Farmer.*"
"Edinburgh, October 20, 1869.
"GENTLEMEN,—I have fully tested the merits of your Johnstone's St. Martin's Rhubarb, both by cultivation and cooking, and compared with the well known Victoria variety, I find it to be considerably earlier in spring, to yield fully a heavier crop, and to stand out later in autumn; while in quality it is much milder and decidedly more agreeably flavoured, requiring considerably less sugar, which is no inconsiderable advantage in the estimation of cottage gardeners, and others with limited incomes. "WILLIAM GORRIE."
From Mr. LAMB, *Restaurateur, Dundee.*—October 18, 1869.
"GENTLEMEN,—I have pleasure in testifying to the fine quality of your St. Martin's Rhubarb. In the course of my business I use Rhubarb to a very large extent—many tons during the season. Yours is the first supplied to me from the open air, and I always give a preference to it over others in the market. "THOMAS LAMB."
London Agents:—Messrs. Hooper & Co., Covent Garden Market, W.C.
May be had true from the following Firms, who have it direct from us:—

Sheffield	Messrs. Fisher, Holmes & Co.
Lichfield	Mr. Edward Holmes.
Exeter	Messrs. Sclater & Co.
Andover	Mr. Wm. Miller.
Glasgow	Messrs. Austin & McAslan.
Dublin	Joseph Berry & Sons.
Cirencester	Messrs. John Jeffries & Son.
Downham	Mr. James Bird.
York	Messrs. Backhouse & Son.
Kilmarnock	W. & T. Samson.
Chester	F. & A. Dickson & Sons.
Tunbridge Wells	Thos. Cripps & Sons.

Further names published as received.
GENERAL TRADE NURSERY LIST may be had on application.

T. THORNTON begs to intimate to the Trade that the Stock offered below cannot be surpassed for health and fibrous roots. All been grown on maiden soil, and the stock, very extensive, is offered at low prices:—

Pinus austriaca, 9 to 15 inches	Spruce Fir, 1 to 2, and 2 to 2½ feet
P. Laricio, 9 to 15 inches	Laurel, 1 to 2 feet
P. rigida, 2 to 3 feet	Turkey Oak, 1 to 2 feet
P. taurica, 1 to 1½ foot	Cryptomeria japonica, 12 to 15 inches
P. Pinaster, 2 to 3, and 3 to 4 feet	
Scotch, 9 to 15 inches	Chinese Arbor-vitæ, 9 to 15 inches

THOMAS THORNTON, Heatherside, Bagshot, Surrey.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)
Have now ready for delivery, in fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES.
Also Genuine PERUVIAN GUANO, and NITRATE of SODA ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c.
E. PURSER, Secretary.
Offices, 116, Fenchurch Street, E.C.

How to Grow good Mushrooms.—See
SUTTONS' AMATEUR'S GUIDE for 1870, price 1s. Gratis to Customers.
SUTTON AND SONS, Reading.

The Best Peas for Succession.—See
SUTTONS' AMATEUR'S GUIDE for 1870, price 1s. Gratis to Customers.
SUTTON AND SONS, Reading.

The Successful Cropping of the Kitchen Garden.—See
SUTTONS' AMATEUR'S GUIDE for 1870, price 1s. Gratis to Customers.
SUTTON AND SONS, Reading.

Potatos.—The Best Varieties for Successional Cropping, with Illustrations.—See
SUTTONS' AMATEUR'S GUIDE for 1870, price 1s. gratis to Customers.
SUTTON AND SONS, Reading.

Novelties for the Vegetable and Flower Garden.—See
SUTTONS' DESCRIPTIVE LIST for 1870, gratis and post free on application.
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SUTTON AND SONS can supply all the leading kinds of POTATOS, at moderate prices, for large quantities. Lowest price per sack or ton on application.
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Suttons' Selected Stocks of Farm Seeds.
SUTTON AND SONS are now prepared to make quotations for their selected stocks of FARM SEEDS, which have given such satisfaction the past season, and which were so much admired at the recent Smithfield Club Cattle Show. Apply, stating quantities required, to
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RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY (Limited),
CORN, SEED, MANURE, and OILCAKE MERCHANTS.
Address, 26, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

The Agricultural Gazette.

SATURDAY, DECEMBER 18, 1869.

THERE are two capital illustrations of new life and prompt activity, afforded by recent proceedings of the Royal Agricultural Society of England, which must give confidence to all its friends, and tend to increase their number. A most serviceable contribution towards the urgent and current wants of tenant-farmers, which will be especially recognised at a time when tradesmen's bills are coming in, is seen elsewhere, in a column communicated by Mr. JENKINS, the Secretary of the Society, where an attempt is made to warn unwary purchasers of the risks they run in buying imperfectly authenticated guano. The full histories of the samples specified as having been actually bought and used are given along with their analysis, not necessarily for the purpose of attaching any stigma, of either folly on the one side or dishonesty upon the other, but simply that the nature of the risks which are incurred whenever guano is bought otherwise than from the authorised importers, may be fully understood. If this series shall continue to be published, we may hope that the rank and file of English tenant-farmers, as well as the leading men who are, no doubt, already wide-awake, may at length be made to share in the benefits conferred by chemical analysis. And whether that be an end, or only an occasional incident of the work, we shall none of us be sorry to see roguery outwitted and exposed, as well as simplicity instructed and protected.

The other point which we desire to acknowledge as an important step in the proceedings of the National Society is their acceptance of the noble prize offered by Mr. MASON, the High Sheriff of Oxfordshire, for the best cultivated farm in the district of the Society's annual show. The work of awarding this premium, which can hardly fail of being an annual offer for the future, will be one of the most important offices which the Society can undertake. The tenant-farmers who shall thus be decorated, will be the "senior wranglers" of the agricultural world; and the influence of good management illustrated on their farms will, by the publicity thus conferred on them, be made infinitely more serviceable than would otherwise be possible. It is very important, therefore, both that the kind of farms open to this competition should be properly defined, and that the items which are to constitute merit should be well considered. A correspondent urges, we think very properly, that if the farms be confined to those occupied by men who have no other pursuit than the cultivation of them, the field of judgment will be injuriously limited. There are many capital tenant-farmers who pick up a large share of their income "outside of the fences," whose management of their land is first-rate, might very well obtain a place in the forthcoming competition. Even, however, if the list of competitors should be properly prepared, the work of comparison will have to be considered with most careful regard to the points which in the general interest are to be taken as indicating merit. Profitableness of management cannot be ignored, and yet obviously it cannot be the sole or even the first consideration. It may be due to a shrewdness which is no part of agriculture proper, but which may be so clever, in a money-making point of view, as to dominate or hide the results of palpable mismanagement. On the other hand the Society's inspectors cannot take abundance of produce, even although estimated with a due regard to the natural fertility or infertility of the soil, as the sole guide. Nor can the condition of the fields and buildings on the day when they are visited be the sole consideration which should determine a decision. It is plain that the rules which are to guide the judges must be well considered before they are adopted; and that their reports, fully detailing the reasons for their award, will be the most influential and important agricultural publication of the year.

IT was one of ARTHUR YOUNG'S shrewd remarks that, "a country is signally blessed above others which can grow India Corn." Some one else might add,—the people are blessed who are not compelled to eat it! But that is a matter of taste and habit. The strongest prejudices yield to circumstances; and our English preference for Wheat would be superseded if the disparity in the price of the two grains were a little greater. Oswego corn-flour, and other preparations, have already found favour with the rich; and in Ireland Maize has been largely consumed for some years past, in an unsophisticated form, by a needy class. This famous bread-corn of the Americans was not in favour with the first settlers. In GERARDE'S "Herbal," 1636, we are told that Indian corn was first brought into the Old World from "America and the islands adjoining, where the barbarous Indians, who know no better, are constrained to make a virtue of necessity, and think it a good food." At the present time, most of the nations living between the St. Lawrence and the Amazon "make a virtue of necessity," including Americans, Texans, Mexicans, and all the whites and blacks about the tropics, from the aristocratic Spaniard, in Havanah, to the naked Indian of the Oronoco. Mexico, where Maize provides the supply of bread for the great bulk of the people, is at present inhabited by a very small population, as compared with the extent of its resources. When that country becomes settled and prosperous, however, it will open a market for the Wheat of California and Oregon, which at present goes to some of the South American coast settlements, or to a market nearer home, where it would not find purchase if our "modern agriculture" produced as good crops as that of China. Texas, now annexed to the States, and one of the finest fields for emigration, is another of those American countries with great capabilities. Like Mexico, it is subtropical, and unsuited for Wheat, and the inhabitants will have to import it, or make a "virtue of necessity," and subsist on such fruits of the earth as can be produced with an extremely fertile soil, and a fine and very healthy climate. These productions include, according to the reports of emigrants, the products of the Mediterranean—wine, cotton, silk, and oil—with the addition, on the southern coast, of the Banana and the Papaw, the two famous alimentary trees of South America.

Hitherto, the consumption of Wheat has steadily increased in Europe. It is preferred to Rye and Buckwheat, and its use has become the test of the amount of comfort or luxury enjoyed by the people. The rapid progress in wealth and in manufacturing industry—to our own disadvantage it is said—which is taking place in Germany, France, Belgium, Bavaria, &c., will increase the demand for Wheat. The number of thinly inhabited, or backwood countries, which export Wheat will be gradually reduced, and the number of wealthy, populous, and advanced countries, which import it, will be increased.

The result of these changes will be, that in this country we shall probably have to consume a larger portion of some other bread-corn, besides Wheat, or we shall have to copy the Chinese in the economy of our farming, and so increase our home crops.

And why not? If we seriously made up our minds to farm as well as the Chinese, does anybody suppose that we should be unable to accomplish it? We derived our manufacturing skill from the Flemings and other mechanical people; why not imitate the agriculture of an ancient people, who, by all accounts, have entirely

outstripped us in agricultural economy and production? For ourselves, although aware of the industrious and indefatigable character of the Chinese, we have full confidence that English agriculturists might overtake and even surpass them. It is surprising that questions affecting the welfare of agriculture excite so little public interest. Yet we are persuaded that no very important steps will be taken in the improvement of farming until popular intelligence has cleared away certain obstacles which we have often pointed out, and which, as they are social, or political, can only be removed by the pressure of public opinion.

No one can seriously compare the agricultural skill and contrivance of any other European nation with that of England; our farming is that of a thickly populated and enterprising nation. It is deficient only where it wants a fair field for enterprise and materials for the exercise of skill.

—— THE grain trade in London has been in a slow and almost unaltered condition throughout the week. A trifling exception may, however, be made to Wheat, both English and foreign, which has declined 1*s.* per quarter, and to Oats, which are lower in value by 6*d.* per quarter. Barley, Beans, Peas, and feeding stuff generally have been a dull sale at previous rates. The highest quotation for this year's Wheat of English growth is 43*s.*, and red samples are quoted as low as 36*s.* per quarter. Country markets have corresponded.

—— The Metropolitan great Christmas stock market has confirmed the remarks we made on the Bingley Hall animals in regard to the want of firmness in their fat. There were some of the more corn fed stock which were firm and good, but the great bulk of the animals were in the worst condition which has been seen at the Christmas market for several years. This created a large amount of surprise in some quarters, but if it be looked at from the light in which we viewed it, it will at once become intelligible. The question, therefore, may be again asked—Would it not be better for us if circumstances should discourage the importation of live stock, which is so often diseased, and thereby increase the encouragement to import foreign corn for producing a largely increased amount of animal food at home? It was further remarked in many places that in-and-in-breeding is proving yearly to be more and more unremunerative. Does this apply to the small-boned pedigree Shorthorns? the diminutive pedigree Devons? or to the less fleshy and more uniform pedigree Herefords? Does it also apply to sheep? As to pigs, we may at once say we know it does. While this is the result of home breeding too, it is equally clear that foreign animals are greatly improved in their form and character. This was particularly noticeable on Monday last in the Dutch and French beasts. The Scotch beasts, again, took the lead as regards form and condition from feeding. This was not anticipated, for the animals of late, where they have come off grass and turnips, have been soft and flabby, the result no doubt of an excess of moisture in their green food and roots. The following is the return of the numbers at the "great market" during the last 28 years:—

Year.	Beasts shown.	Price.	Year.	Beasts shown.	Price.
		s. d. s. d.			*s. d. s. d.*
1841	4500	3 8 to 5 0	1856	6718	3 4 to 5 0
1842	4511	3 4 to 4 8	1857	6856	3 4 to 4 8
1843	4519	3 8 to 4 4	1858	6424	3 4 to 5 0
1844	5713	4 0 to 4 6	1859	7469	3 6 to 5 4
1845	5526	3 6 to 4 8	1860	7869	3 4 to 5 4
1846	4570	4 0 to 5 8	1861	8840	3 4 to 5 0
1847	4282	3 4 to 4 8	1862	8430	3 4 to 5 0
1848	5942	3 4 to 4 8	1863	10370	3 6 to 5 2
1849	5765	3 4 to 4 6	1864	7130	3 8 to 5 8
1850	6341	3 0 to 3 10	1865	7330	3 4 to 5 4
1851	6103	2 8 to 4 2	1866	7349	3 8 to 5 6
1852	6271	2 8 to 4 0	1867	8110	3 4 to 5 0
1853	7037	3 2 to 4 10	1868	5429	3 4 to 5 8
1854	6541	3 6 to 5 4	1869	6728	3 4 to 5 10
1855	7000	3 8 to 5 2			

The trade was not in a very animated state, in consequence of the length of time there was before the coming festival. It was besides anticipated that an unusually large supply would arrive for the Thursday's market. This, however, did not transpire, for there were only 1812 beasts in the market, including those left over from Monday. Previous prices were therefore maintained for both choice and middling qualities, 5*s.* 8*d.* per 8 lb. being the highest quotations. In such provincial markets as Wakefield, Manchester, Liverpool, Birmingham, Bristol, and so on, the numbers are reported as larger, and the condition of most of them as good. Of sheep, but few of the show class were present either on Monday or Thursday. The large supply of 21,790 on the two days made all but the show sheep and ripe handlers slow of sale.

—— On Saturday morning last an outbreak of foot-and-mouth disease was discovered among the few cattle which remained in the Agricultural Hall after the close of the Smithfield Club exhibition on the previous day. Under the provisions of the special order for holding the exhibition, arrangements had been made for removing cattle out of the metropolis with a police order, which was granted only on the production of a certificate of health, signed by one of the veterinary surgeons, and in pursuance of this provision Professors SIMONDS and BROWN examined all the cattle in the Hall on Friday, and signed the required certificates, all the animals being free from disease. During Friday night the greater part of the stock was removed. On Saturday morning, however, one of the remaining cattle, a Devon ox, was discovered to be ill, and was immediately taken from the Hall and put in the hospital, as it is termed,—a distant part of the building, which is appropriated to the reception of animals which may be taken ill during the show. An examination was made of the ox by the veterinary inspectors, and he was found to be suffering from the incipient stage of foot-and-mouth disease. Pending the issue of instructions from the Privy Council respecting the disposal of the animals, directions were given to prevent any of the 45 which were left in the Hall being taken away. The police licenses for the removal of cattle out of the metropolis were revoked in the course of the afternoon. On Monday the cattle were again inspected, and several of them indicated the existence of the disease; the total number of attacks amounted to seven. Police licences were issued on Monday for the slaughter of the cattle within the metropolis, and they were all removed from the Hall during Monday and Tuesday. Disinfection of the manure was commenced immediately under the supervision of the inspector to the local authority. It is somewhat remarkable that this is the first instance of the appearance of a contagious disease among cattle at the Smithfield Show since the outbreak of cattle plague in this country led to the holding of exhibitions under the restrictions of the Privy Council licence. Respecting the cause of the outbreak the professional opinion is, that the infection was in some way conveyed to the cattle, probably by persons coming from diseased animals, two or three days before the discovery of the disease. This opinion is based on the well-known fact of the limited duration of the incubative stage of foot-and-mouth disease; not more than 48 hours intervening between the time of infection and the declaration of symptoms in the majority of instances.

—— The West Herts fat stock show at Watford on Tuesday last was a most successful local exhibition. Seven cups were awarded, in addition to money prizes. W. H. SMITH, Esq., M.P., offered two 10-guinea cups, one for the best bred ox or steer in any of the classes, and the other for the best bred cow or heifer, both to have been bred by a tenant-farmer. These were judicious premiums, as in each case the selected animal had not taken a prize in its class. Mr. LEACH LONGCROFT, Hemel Hempstead, took the 1st for a very handsome steer, and Mr. JOHN WHITE the 2nd for a good 2-year-old heifer. The 1st class prize in the oxen was taken by Mrs. MORTEN, Lea Farm, Watford, and also the cup given by the Earl of ESSEX for the best ox or steer, without any conditions as to breeding. The Earl of CLARENDON, K.G., was 2d with a good steer of 2 years and 8 months. In the heifers the Earl of CLARENDON was 1st, and W. JONES LOYD, Esq., 2d. In this class, however, there was the best animal bred by a tenant-farmer, and for her was awarded the handsome prize of a 20-guinea cup, subscribed for by the innkeepers and tradesmen of Watford. Mr. G. STONE, Cassio Bridge Farm, Watford, was the possessor of this fine blood-red cow. Lord CHESHAM was also a winner in the heifer class, with a very pretty West Highlander. Two cups were offered for sheep, one by W. JONES LOYD, Esq., and the other by H. R. BRAND, Esq., M.P. These were both to be competed for by tenant-farmers only. Lord CHESHAM took the 5-guinea prize offered by the Old Berkley Hunt for the best sheep (ewe or wether) of any age or breed. This was with one of five 2-shear Shrops. The pigs were excellent, W. JONES LLOYD, Esq., taking three 1st prizes with excellently bred and fed pens. The Ear lof ESSEX was also a successful exhibitor. Poultry, pigeons, and dead poultry, to the number of 142 prizes, made up a very attractive show, and the number of visitors indicated that it was well appreciated. This show was arranged in tents; but it is anticipated that by next year a public hall for this show and public meetings generally will be completed.

OUR LIVE STOCK.

BUFFON long ago remarked that domestic animals breed oftener in the year, and produce more young at a birth than wild animals of the same species; they also sometimes breed at an earlier age. Mr. Darwin in discussing this interesting point tells us that some authors have lately attempted to show that fertility increases and decreases in an inverse ratio with the amount of food. This strange doctrine has apparently arisen from individual animals when supplied with an inordinate quantity of food, and from plants of many kinds when grown on excessively rich soils, as on a dunghill, becoming sterile. With hardly an exception, our domesticated animals which have long been habituated to a regular and copious supply of food without the labour of searching for it are more fertile than the corresponding wild animals. It is notorious how frequently cats and dogs breed, and how many young they produce at a birth. The wild rabbit is said generally to breed four times yearly, and to produce from four to eight young; the tame rabbit breeds six to seven times yearly, and produces from four to eleven young. The ferret, though generally so closely confined, is more prolific than its supposed wild prototype. The wild sow is remarkably prolific, for she often breeds twice in the year, and produces from four to eight, and sometimes even twelve young at a birth; but the domestic sow regularly breeds twice a-year, and would breed oftener if permitted; and a sow that produces less than eight pigs at a birth "is worth little, and the sooner she is fattened for the butcher the better." The amount of food affects the fertility even of the same individual; thus sheep, which on mountains never produce more than one lamb at a birth, when brought down to lowland pasture frequently bear twins. This difference is apparently not due to the cold of the higher land, for sheep and other domestic animals are said to be extremely prolific in Lapland. Hard living, also, retards the period at which animals conceive; for it has been found disadvantageous in the northern islands of Scotland to allow cows to bear calves before they are four years old. In some cases direct selection of the more fertile individuals has probably much increased the fertility of a race. But with cats, dogs, and ferrets, which are not valued for their prolificacy, selection can only have played a subordinate part, and their increased fertility must be attributed to the more favourable conditions of life under which they have long existed.

—— Mr. Dodd's sale at York, on the 9th inst., was attended with considerable success. The average obtained for 27 cows and heifers was 30*l.* 18*s.* 4*d.*, while the 30 bulls brought an average of 27*l.* 15*s.* 9*d.*, the total average for the 57 animals sold being 29*l.* 5*s.* 5*d.* No remarkably high figures were realised, and a pretty uniform range of prices characterised the sale. The late Mr. Dawson's *Savannah*, by THORNDALE LAD (23,066), brought the highest bid for cows, and became the property of Major Stapylton, whose name has so frequently been before the public as a spirited buyer of high-bred Shorthorns, at 56 gs. *Charmer 9th*, of Beeston origin, and descended from Milcote stock, was purchased very cheaply by Mr. Wilkinson for 36 gs., and *Ada*, another of THORNDALE LAD's heifers, was also secured by Major Stapylton for 40 gs. The reputation of the same sire also induced Mr. Singleton to offer 40 gs. for *Beauty*, of the Weston Hall herd, but bred by Mr. Betts, hence these three heifers, all by the same Duchess bull, and bred by the late Mr. C. H. Dawson, brought the excellent average of 47*l.* 12*s.* The first bull offered to the company was THORNDALE LAD himself, bred by Mr. Betts, of Preston Hall, and possessing an admirable pedigree, tracing back to the famous Bates Cambridge Rose tribe, and got by Mr. Thorne's 3D DUKE OF THORNDALE. After some competition, this excellent sire, now 5 years old, became the property of Mr. Lambe, of Auburn, Lincoln, for 82 gs. 2D EARL OF OXFORD, a son of Captain Gunter's EARL OF OXFORD (15,966), a grandson of 7TH DUKE OF YORK, and a great-grandson of 6TH DUKE OF OXFORD (12,765), only made 33 gs., and DUKE ROYAL 2D, a well-bred yearling, full of the best Wetherby, Towneley, and Kirklevington blood, and also a prize-taker, was sold to Mr. Palfreyman for the low figure of 15½ gs.

—— Few persons who visited the Agricultural Hall in the recent exhibition of fat stock, omitted to notice the gigantic ox shown by Mr. J. Jones, of Treanna. This animal, now 5 years and 7 months old, is the produce of a Welsh bull and a Shorthorn and Welsh cow, second cross. Although far from as fat as he might be, he has attained the extraordinary live weight of 27 cwt. 3 qr. 19 lb., and the measuring tape revealed the following dimensions:—Girth, immediately behind the shoulder, 9 ft. 4 in.; length from shoulder to rump, 6 ft.; height from ground at shoulder, 5 ft. 7 in.; height of hind-quarters, 5 ft. 8 in.; from centre to centre of hocks (hips or pin bones), 2 ft. 8½ in.; round bone below knee, 10 in.

SPURIOUS GUANOES.

[TO THE EDITOR OF THE "AGRICULTURAL GAZETTE."]

"SIR,—The attention of the Council of the Royal Agricultural Society having been drawn to the increasing adulteration of manures and feeding cakes, especially guano, nitrate of soda, ground bones and linseed cakes, Dr. Voelcker has been requested to submit to the monthly Council in March, June, and December, a report on the various samples forwarded to him by members of the Society, so that such report, together with the names of the dealers who supplied the substances analysed, shall, if the Council think fit, be published in the agricultural journals.

"At the monthly Council meeting held on December 8, Dr. Voelcker presented a report in accordance with the above resolution, and I now beg leave to forward you the following extracts from it, and to request that you will publish them in the next number of your Paper.

"I have the honour to be, sir,
"Your most obedient servant,
"H. M. JENKINS,
"Secretary."

Analysis No. 1 represents the composition of a sample of guano which I analysed for Mr. C. C. Hamilton, Harlstone. This analysis was produced by Messrs. Perkins & Sons, auctioneers, of Southampton, at the time of the sale. No. 2 shows the composition of a material sent to me as a sample of the bulk, bought by auction by Mr. Horace Leggatt, Brownwich, Titchfield, Hants.

	No. 1	No. 2
Moisture	15·28	4.66
Organic matter and salts of ammonia	46.41	22.22
Phosphate of lime and magnesia (bone earth)	24.65	8.29
Oxide of iron and alumina (clay)	..	11.81
Sulphate of lime	2·28	43.52
Carbonate of lime		.70
Alkaline salts	8.71	1.70
Insoluble siliceous matter	2·67	7.08
	100.00	100.00
*Containing nitrogen	12.06	1.99
Equal to ammonia	14.66	2 42

Instead of 14½ per cent. of ammonia, as in the analysis No. 1, No. 2 barely contained 2½ per cent. The latter further contained scarcely one-third the amount of phosphates which is found in genuine Peruvian guano, and appeared to be principally made up of gypsum and a yellowish coloured loamy soil.

The next illustration of a spurious guano was furnished in a sample sent for analysis by Mr. Alexander Howden, Marston Court, Pembridge, Herefordshire, who informed me that he bought it of Messrs. G. C. Dobell & Co., of Liverpool. These gentlemen maintain that this is guano genuine as imported. This may be quite correct, for they may have imported a spurious article; nevertheless it is not a genuine guano, but a compound resembling guano in external

characters, and having but little else in common with that fertiliser.

Spurious guano sent by Mr. Alexander Howden, Marston Court, Pembridge, Herefordshire.

Moisture	11.53
*Organic matter, salts of ammonia, and water of combination	9.51
†Phosphoric acid	13.07
Lime	2.06
Oxide of iron and alumina	14.61
Alkaline salts	traces
Insoluble siliceous matter (fine clay and sand)	48.29
	100.00
* Containing nitrogen	.73
Equal to ammonia	.89
† Equal to tribasic phosphate of lime	28.53

These analytical results do not require any explanation.

The latest case was brought under my notice by Mr. H. Barneby-Lutley, Brockhampton Court, Worcester:—

Composition of a sample of Adulterated guano marked "Feathers," sent by Mr. H. Barneby-Lutley, Brockhampton Park, Sept. 23.

Moisture	7.27
*Organic matter and salts of ammonia	14.31
Phosphate of lime (bone-phosphate)	5.93
Oxide of iron and alumina	6.42
Carbonate and a little sulphate of lime	10.98
Alkaline salts	4.33
Insoluble siliceous matters (sand)	50.86
	100.00
* Containing nitrogen	2.34
Equal to ammonia	2.84

It will be seen that this so-called guano contained only 5¾ per cent. of phosphate of lime in round numbers, instead of 22 to 25, the percentage found in genuine Peruvian guano, and that it yielded not quite 3 per cent. of ammonia, instead of 16 per cent., which is the average percentage in good guano. Adding together the worthless matters in this feathery compound, for it was nothing else but a mixture of a sandy yellow loam with a little Peruvian guano and plenty of guano bird feathers, we have no less than 75 per cent. of useless materials, and only 25 per cent. of fertilizing constituents. On inquiry, I find that the "Feather Manure" was sold as Peruvian Guano at 14*l.* a ton by a Mr. Weekes, of Bromyard, Herefordshire. Its real value cannot be put higher than 2*l.* 10*s.* or 3*l.* at the most. *Augustus Voelcker.*

LAND RECLAMATION AND IMPROVEMENT.

A Paper by John Scott, Hermongers Farm, Rudgwick.

In the reclamation and improvement of the waste lands of the United Kingdom there is a work to be done of immense magnitude, involving an enormous outlay, and of the very first importance in its bearing upon the material welfare and prosperity of the nation. It has been so customary to hear British agriculture spoken of as an example of perfect rural economy, and the statement has been so generally accepted as true, that the real facts of the case are, by the majority, either lost sight of or totally discredited.

Of all the branches of industry which occupy the attention and absorb the capital of millions of our population, that which is the oldest, and forms the basis and staple of the whole, has been most neglected, and advanced most slowly. It has been regarded in the popular mind as the adaptation of a stereotyped practice to a pursuit which, if not exhausted, leaves little room for further development. Even in modern times, when the spirit of enterprise has permeated every section of society, when science conjoined with art has triumphed over what were not long ago considered as Nature's insuperable barriers, and the whole tendency of human thought and effort has been to utilise and develop the resources at command,—even under such influences the science of agriculture has to a great extent remained enveloped in the false ideas which have so long attached to it a position of inferior importance.

The ideas and the practice were no doubt in harmony with the previous requirements, but with the present altered conditions of a greatly increased population and the facilities afforded by the advancement of the collateral arts and sciences, it becomes imperative that agriculture should yield to their pressure in the march of progress.

Our present supply of agricultural produce is yearly becoming more incapable of satisfying the growing demand which increasing numbers entail, and this result can only be corrected by making a better use of the land at our disposal. No one can yet affirm what the ultimate capabilities of the soil may be; but few will dispute the assertion that within the area of the United Kingdom we have a field which, when developed and improved, will sustain in comfort and plenty a population many times exceeding its present number.

The means of deriving an increased supply are, either by the reclamation of waste lands, or by rendering more productive those already under cultivation. There is abundance of scope for effort in both directions, for it is hard to say which is most to be regretted, the pretence of cultivating so much half-improved land, or the utter neglect of so much that is capable of improvement and cultivation.

It is estimated that of the 45,500,000 acres in Great Britain and Ireland classed as occupied land, upwards of 20 millions of acres are improperly drained, and consequently unfit to yield a fair crop of any description. The increase to be derived from the improvement of this source alone would double of our whole trade and commerce. The total amount of uncultivated and waste land is not less than 32 millions of acres; and if we assume one-half of this portion to be improvable for cultivation, we obtain an increase to our arable land of 16 millions of acres of virgin soil, equal to an area of 25,000 square miles, or about four-fifths of the whole extent of Scotland; while of the remaining 16 millions of acres not adapted for cultivation, at least 10 millions might be greatly improved in value as sheep-walks, and the climate ameliorated by judicious drainage and planting.

The slow appropriation of these waste lands to purposes of cultivation need not be wondered at when we consider the general amount of improvement required and the connection of agriculture with other divisions of science and industry. While forming the basis and support of commerce and of all the arts, it has this in common with every one of them, that it is powerless and spiritless in isolation. Though there may be none which could exist so well alone, yet few are so dependent for growth and progress upon the collateral aid and advancing light of the other branches of art and science. The necessity for agricultural progress did not arise until the modern extension of the commercial and industrial arts, and it is only the recent advancement of the physical and natural sciences which has placed the means at our disposal and elucidated the true principles of the cultivation of the soil. But now that the necessity is created, the mechanical powers provided, and the scientific principles investigated and explained, we may expect to see a great and steady increase in the reduction and application of the soil to its utmost uses and capacity.

In all works of reclamation the conditions of soil and climate exert a powerful influence, and the correlation which subsists between them becomes a point of much interest and importance. Soils differ greatly, not only in chemical constitution, but also in physical characteristics, and in our estimate of them we must be guided by their climatic and physical relations no less than by the results of chemical analysis. It is comparatively easy to adapt the plants or crops to the nature of the soil when once we know what mineral ingredients are afforded by the one and required by the other, but it demands more observation and diligent application of means to bring the physical or mechanical qualities of the soil into the state most conducive to the growth of its natural products. The necessary influence of mechanical operations here becomes obvious, for the conditions of air, moisture, and warmth which are essential to the development of the changes which occur in the process of germination, have little or nothing to do with the chemical qualities of the soil, but are all dependent upon its mechanical relations. And this influence is not confined to the first stage of vegetation, for in no period of growth or maturity can the plants avail themselves of their full amount of food unless the state of the soil admits of the free passage of air and water, and favours the extension of the roots in all directions. These requirements can only be provided by efficient drainage and mechanical admixture and pulverisation of the soil.

When there is excess of water in a soil, and no provision for withdrawing it, the interstitial canals become completely filled to the exclusion of the necessary amount of air. But when the soil is drained the superfluous water is drawn off through the air canals, and only so much moisture is retained as can be absorbed by the minuter pores which separate the small particles of earth. As there is communication through the canals between the pores and the drains, it is evident that the water will all be withdrawn from the soil except that which is held by capillary attraction. Thus the water which falls upon and is absorbed by the surface-ground, percolates towards the drainage level, flushing every crevice and canal in its descent, leaving behind it all the nutritive ingredients which it carries in suspension or in solution, and which the soil, acting as a filter, extracts and appropriates.

The moist condition of a well drained soil which occurs after a thorough wetting, is very aptly illustrated by means of the asorbent properties of the common sponge. If a piece of sponge be first immersed in water so as to bring it into a condition analogous to that of a saturated soil, and then suspended in the air without any compression, the atmosphere will fulfil the purpose of a drain and soon draw off all the water from the canals or larger pores of the substance. When the flow of water has entirely ceased even to fall in drops, we might naturally infer that, as it had been subjected to the most favourable condition for extracting the water, the sponge would be almost dry. But its powers of imbibition, and, by analogy, those of the soil, are seen to perfection if we now hold it between the forefinger and thumb, and fetch a sweeping stroke with the arm, when a large amount of water which had been absorbed will be disoharged.

The temperature of a soil depends very much upon its humidity. Dry land absorbs heat more quickly and loses it sooner than that which is wet; and, as the temperature of a place is chiefly dependent upon that of the superincumbent air, which again is regulated by radiation of the solar heat from the earth's surface, it follows that excess of water in a soil must render the climate colder and more backward. Consequently the summer temperature of an undrained district will be greatly lower than if it had been drained, while the winter temperature will be unnaturally high; thereby rendering the annual temperature more uniform, an effect which is not considered favourable to health and vigor in vegetation. The uniformity of annual temperature will be greater in proportion to the wetness of the soil, which, while its power of absorption will be lessened and the loss by evaporation increased, will longer retain the heat which it has acquired.

The effects of altitude upon climate are somewhat similar to those of latitude, but more marked, because the same degree of change occurs within a much smaller limit. A change of elevation of only a few feet will alter the temperature as much as an equal number of miles of latitude. The rarity of the air, which is the chief cause of the lowering of the temperature in elevated positions, cannot be overcome; but by drainage, which will render the soil better adapted to absorb and radiate the solar heat, and by providing artificial shelter where required, the climate may be considerably altered and improved.

The other causes, which regulate the condition of the climate of a place, being of a geographical character, and therefore more or less beyond the power of human control or alteration, do not require notice here.

The preliminary points, of a more practical character, which require consideration before commencing a work of land reclamation and improvement, are chiefly those of "ways and means."

The amount of permanent outlay that may be required to complete the work will always largely determine the relative advantages to be derived from it. It is, therefore, necessary that an approximate estimate should be formed of the various expenses that may be entailed before any portion of the work is taken in hand.

The outlay will, in many cases, be much affected by the proportion of land drainage which requires to be executed, but it sometimes happens, even where the land is not in want of drainage, that a sum far exceeding the cost of this operation has to be expended in clearing the land, and in rendering it suitable for cultivation. Where large quantities of stone infest the soil, these present a more formidable obstacle to improvement, and with works of a similar kind, as grubbing or levelling, frequently occasion more trouble and expense in their removal than would be required to drain effectually the wetted soil. A large quantity of stone can usually, however, be utilised, since they afford lasting material for the construction of fences, and for making and keeping in a state of efficient repair the roads of the farm. But if the land has been previously subdivided and laid out in suitable divisions, it will add considerably to its present value, by obviating the necessity for any additional outlay in this respect.

Another point of great importance is the position and exterior surroundings of the land itself, and the facilities which may thereby be afforded or denied for its improvement. In many districts where land reclamation may now be profitably carried out, labour was at one time so scarce and dear as to prevent its application, not only to inferior soils, but also to those of better quality, where much labour required to be expended before the land would admit of being cultivated. Such an objection can now scarcely be said to exist, for with the diffusion of knowledge and a general application of science to mechanical pursuits, we see labour of every kind become simplified and cheapened in all its parts. In place of bodily energies mental powers are called into requisition, and mind begins to assert its natural superiority in the conduct of the material world. Efficient power is thus brought within reach of even the least populous districts, and means afforded to the owner or occupier of inferior soils for the bestowal of increased care and attention upon lands formerly cultivated on a system requiring the least possible amount of labour. It is by means of labour alone that we derive every advantage afforded by the soil; and the difficulty attending its judicious appliance to the varied operations of agriculture becomes in a great degree surmounted when we find a horse or a steam-engine completing in the most perfect manner the equivalent toil of many hands. The rapid means of transit now enjoyed between different parts of the country tends also to regulate the price of this commodity, and renders the transmission of a few hands from one place to another a comparatively trivial affair.

The insulated position of a large extent of the reclaimable area of Great Britain, and the means of communication existing between such districts and the nearest market towns, for the disposal of farm produce and the purchase of lime and manures, is a matter for greater calculation, since these facilities have a direct influence upon the result, and are themselves less within the power of individual effort. In many of our upland districts the difficulty of obtaining the requisite supplies alone deters cultivation, and there the farmer is compelled to follow the practice of his forefathers, although often surrounded by considerable tracts of low-lying land, which, comparatively worthless in its present state, when drained, cultivated, limed, and manured, becomes a valuable acquisition by enabling him not only to maintain a greater number of live stock, but also to effect an improvement in the health and character of the breed. In the south of Scotland, where many spirited works of reclamation have been carried out, we could refer with pleasure to numerous instances where these satisfactory results have been attained; and where, by the conversion of a few hundred acres of poor mountain pasture, the flocks and herds of large hill-farms have become more than doubled, while the corresponding advantages resulting from the movement in other respects have necessitated a complete revolution of farm economy, and been the means of introducing into high and exposed districts a new and improved system of sheep husbandry. But even there, as in many other mountainous parts of the country, little further advancement need be looked for in this respect, until a more extended system of railway communication places the drain-pipe and lime-kiln more within the reach of every upland farmer.

It is impossible to say what distance these supplies may be profitably conveyed where the carriage has to be undertaken by the ordinary teams of the farms, or by others employed for the purpose. That will partly depend upon the quantity of material to be so conveyed, and upon the value of its application to the soil. We are aware of one case, in Wales, where extensive works of mountain reclamation are now being carried out, and for which lime and manures are carted a distance

of ten miles or upwards, from the nearest railway station. In this instance, however, the drain-pipes are manufactured upon the estate, and it is certain that the disadvantages above alluded to may be greatly lessened where the clay is suitable for the purpose, or where limestone is to be had for burning on or near to the farm, if the works are of sufficient magnitude to induce the first necessary outlay.

After inquiring how far the resources of the soil may be influenced by the foregoing considerations, some comparison should be drawn between its present worth and probable improved value. The real money value of this difference will always be found to be in proportion to the insufficiency of the lands already under cultivation to supply the ruling demand for the article of consumption which the land in question is best fitted to produce.

It thus becomes apparent that to undertake the reclamation of land which in its improved condition would only be adapted for the proper growth of Grass and root crops, and not for the production of any of the cereals, at a time when grain was at a premium and live stock at a discount, it could not, for the time being, be rendered so profitable an investment as if the demand had been contrariwise. But, notwithstanding that longer time would be required in this case before the investment yielded the expected returns, it could scarcely, on that account, be regarded as less certain. On commencing reclamation the land is taken at its unimproved value, and any outlay expended upon it and effecting what it professes, viz., "improvement," ought eventually to repay itself. Where the land has been improved, the numbers of live stock will be increased whether the prices are high or low, and this surplus should afford good interest for the money expended, until the price of provisions finds time to re-adjust itself. One point which may induce the undertaking of land-reclamation at a time when its returns may be considered as subject to such restrictions, is, that when its natural productions do increase in value, it can at once be turned to the best and fullest advantage.

A large amount of circulating capital is requisite for the proper conduct of a work of reclamation. This capital, forming as it does the motive-power of the whole concern, is exposed to the greatest risks; and much personal knowledge and experience of the different operations is necessary in order to insure its proper appliance. There is nothing simpler than to squander a large amount of capital in attempting such improvements, and that sometimes without effecting the desired result; and therefore a work of this kind should never be undertaken by any one who has not thoroughly studied the economy of the farm, and is, moreover, possessed of the necessary talent, judgment, and energy, as well as skilful administrative ability.

Next to having sufficient means at command wherewith to carry out our designs, it is essential that there be some trustworthy security for the return of the capital so invested. No prudent agriculturist will expend his own capital in the improvement of another's estate unless he has some assurance of being able to reap a profit by his outlay; and, short of absolute ownership, this contingency cannot be amply provided for otherwise than by renting the land for a certain number of years. The longer, therefore, the terms of a lease extend, the more identical do the interests of farmer and proprietor become; for the farmer soon discovers that during the currency of his lease he may bring the soil into the highest state of culture, and, after reaping a fair return for his trouble and outlay, leave the land, at its expiry, worth more to his landlord and more to himself.

CONTINENTAL AGRICULTURAL NOTES.

[FROM BRITISH CONSULS' REPORTS.]

The Cattle Trade of Denmark.—Previous to 1865, when the export from Jutland to Great Britain was set on foot, the trade in cattle was divided into four branches. All the best fat animals were sent to Hamburgh, the next best to Copenhagen, and all the lean and commoner kinds were used for general home consumption. The trade to Hamburgh, which was the most profitable, left the breeders but a small gain, inasmuch as the greater portion of the Jutland beasts sent to Hamburgh was re-exported to England, and not only had to bear the expense of a long and wearisome transport, but also double commissions and other onerous agents charges.

The trade to Copenhagen was very uncertain and fluctuating, partly owing to the limited nature of the market, and partly from the uncertainty of the supplies from the Zeeland breeders. It was likewise found that the Copenhagen consumers would not buy prime meat when inferior kinds could be had. This state of things acted very depressingly on the country cattle breeders, who often found that their fat oxen after remaining days in Copenhagen had to be transshipped to Hamburgh for want of purchasers. The demand for home consumption was generally less than the supply, and only for the commoner kinds. The most important branch for Jutland was, and still is, the trade in stall-fed cattle—that is to say, in animals housed during the winter, and in the spring driven down and sold to the Sleswig and Holstein graziers, who after having fattened them on their rich pasture lands, again send them on to Hamburgh or England; this trade is, however, very precarious, and, perhaps, the most uncertain of all, for changes of weather and seasons influence prices in a most arbitrary and sudden manner.

The uncertainty, therefore, of the Jutland cattle trade in general, the want of suitable markets, and of a steady demand for prime, well-fed animals, had, as may be supposed, hindered the natural development of this branch of agricultural industry, and it had long been felt that a direct trade with England would afford a steady and remunerative market, and rapidly develop this source of national wealth. It was not, however, until 1865 that an attempt was made to open a direct steam communication with Great Britain, which was successfully effected in that year, both from Copenhagen and Aarhuus, and with highly satisfactory results, not only for the breeders but for agriculture in general. The breaking out of the cattle plague in England, and the prohibitory and restrictive measures adopted by the Danish Government in consequence, was a serious blow to this new and promising trade, and the result has been that it has ceased to be remunerative, and the Jutlanders are forced to fall back on their old trading channels, to the mutual disadvantage of both countries. A statement of the extent of the exports to England in 1865, and the two subsequent years, will best show the effect of the restrictive measure above referred to. There were exported to England from Denmark:—

From April.	Horned Cattle.	Sheep.	Pigs.
1865 to 1866	10,794	27,326	2061
1866 to 1867	8,937	8,723	237
1867 to 1868	6,138	2,920	37

The amount exported in 1865, it is stated, must not be taken as a normal standard, since it was only in that year the first attempt at direct trade was made. On the contrary, it is believed that the removal of the precautionary restrictions in England would have the effect of giving it a very considerable development. Denmark is eminently an agricultural country, and her farmers are in general a well-to-do set, possessing good and extensive flocks and herds, although the quality of these latter is scarcely comparable to English fed animals. A considerable improvement in this respect has of late taken place, and the Danes are endeavouring to enter into competition with the better description of English cattle, and already the Holstein beasts are a favourite breed with the London butchers. The total export of cattle, sheep, and pigs from Denmark to foreign countries has been during the last three years 141,149 head, 129,830 head, and 118,272 head respectively. About three-fourths were from Jutland, which province, under the influence of the encouragement which a steady and remunerative demand such as the English market affords, would rapidly increase its productive powers, and export, no doubt, much larger quantities.

Mr. Consul Crowe concludes this interesting portion of his report as follows:—I am informed that the home supplies are likely to be short throughout this year (1869), owing to the graziers being compelled to retain a larger number of stock to make up for the deficiency caused by the forced sales of 1868; the importance, therefore, of an increased foreign importation will be seen, as meat will probably continue scarce throughout the year. It is to be regretted, therefore, in view of the high price of animal food in England, and the importance of cheap provisions for our working classes, that the present restrictions which check the importation of Danish domestic animals into Great Britain cannot be removed. There has been no epidemic of any kind among domestic animals in Denmark proper since 1781; neither in Sleswig nor Holstein since 1813; and the Danish Government, which, by virtue of a law passed in 1857, possesses almost despotic powers for the prevention of the propagation of contagious diseases, contemplates issuing very stringent precautionary measures to guard against the possible importation of infection from the Swedish and Baltic ports. It is to be hoped, therefore, in the interest alike of the Danish exporter and the English consumer, that a freer importation of Danish cattle may soon be permitted.

Hamburgh.—The cattle market of Hamburgh has become of great importance, owing to the convenience of shipment to foreign countries. The exact number of cattle and sheep exported to British and other foreign ports cannot be ascertained; but the number and value of those brought to the market of Hamburgh during the last year, from Holstein, Mecklenburg, Hanover, and the interior of Germany, principally by railway, were as follows:—

Oxen and cows	50,461	Pigs	232,432
Calves	32,095	Sheep and lambs	163,091

Throughout the whole of the year the cattle in this part of the country were in a healthy state: and although there were cases of sheep pox upon some farms in Mecklenburg and Hanover, there is no reason to suppose that any diseased sheep have been shipped from the port of Hamburgh.

Memel: Horse Breeding.—For more than a century this province of Prussia has been celebrated, more than any other part of Germany, for its horse-breeding, and at the present moment about three-fifths of the entire number of horses required annually for the use of the Prussian army, are bred in this province. Frederick William I., in founding the breeding establishment at Frakehnen (near Gumbinnen), in the year 1730, gave the first impulse to horse-breeding in Prussia; and under the reign of Frederick II. a plan was carried into execution which consisted in placing a number of the stallions bred at Frakehnen at certain stations in this province for the use of the landowners and other private persons in possession of mares. By enabling these persons to send their mares to the next stallion station without the expense attending a long journey, by charging a very low fee for the covering, and by guaranteeing comparatively pure blood, the number and the breed of horses throughout the country was raised in a short time. In the course of a few years this plan was found to have worked so successfully that the King founded three more establishments similar to that at Frakehnen in other parts of Prussia. Thus, after a few years it was found possible to mount the Prussian cavalry, which hitherto had been obliged to purchase their horses in foreign countries, on Prussian-bred horses, and a new source of gain was at the same time opened to the inhabitants of the country. The Royal establishment at Frakehnen covers an area of 16,000 Prussian morgen (or about 10,000 English acres), and includes the chief farm and 12 out-farms, besides a large tract of land which is laid out partly as grazing ground, and partly for growing the various kinds of grain wanted for food. At the chief farm are kept only mares of the purest blood without distinction of colour, and at the various out-farms either mares arranged according to blood or colour, and fillies, or one, two, or three-year-old stallions. All of the horses are turned out to graze during summer (the grounds being, of course, partitioned off by fences) under the care of keepers, and if found necessary, are fed also on corn. When the stallions are three and a-half years old they are placed at one especial out-farm, where they are trained provisionally for a term of six months, in order to be fit (on the completion of their fourth year) to be sent to the various covering stations established in this province of Prussia. After having passed a certain time of probation at these stations, the stallions are distributed for further use amongst the large country breeding depots, which exist in various parts of the Prussian monarchy. Those stallions which, for some reason or other, are considered unfit to be sent to the last-mentioned depots, together with a certain number of mares, are placed at the disposal of the Royal Master of the Horse, who selects thereform such horses as may be required for the King of Prussia's stud. The Master of the Horse having made his selection, the remaining number of horses, and likewise those which for some reason or other are considered by the director of the establishment at Frakehnen to be unadapted for breeding purposes, are in the autumn of every year sold by auction at Frakehnen. The Royal Commissioners who annually purchase the requisite number of horses for the Prussian army either buy what they want directly from the landed proprietors, or make their purchases at the horse fairs. The average price paid by the Commissioners for a horse in the province of Prussia is about 200 Prussian dollars (30*l.*)

WOOLSTON STEAM-PLOUGHING.

I OBSERVE that Mr. Smith's men have finished their jobs, and so he is at leisure to resume his correspondence. He does not, however, depart from his favourite mode of battle, he throws out a cloud of undigested figures as the Parthians did a cloud of arrows, and thinks to advance amid the confusion he thereby hopes to create. If his figures were facts they might have some value, but they are mere estimates. What a pretty little estimate he gives us when he balances 716*l.* against 716*l.* Dear me, what a useful account! Does he really suppose that men of common sense, men able to appreciate sound honest farm accounts, put any value on such a ridiculous estimate? What have we to do with horses? He will persist in bringing up these horses, although they have nothing to do with the question, and so now I will give him a tap about the horses. He has a small farm containing 112 acres of arable ground, of which he never ploughed so much as 100 acres in any one year. This farm is partly "heavy land" (four fields are so) and partly "light land" (six fields are so), and before he took to steam-ploughing he used six horses on that farm. All I can say is—"Mr. Smith you were in those days (whatever you may be now) a desperately bad farmer." Mr. Mechi calls himself an apron-string farmer; now I do not even call myself so much, for I took to farming late in life, and I have a deal to learn; but fortifying myself with the published opinions of the best authorities, farming such a farm ought to have been worked with "four" horses instead of "six," which Mr. Smith required. I have a farm in the Weald of Sussex, as stiff clay as you will find; there are nearly 150 acres of arable, and it is worked with five horses. The best authorities reckon 50 acres of plough to each pair of horses if the farm be "heavy" land, or 80 acres if the farm be "light" land. Mr. Smith, during the last 14 years, has used three horses on his 112 acres of mixed (light and heavy) land, and a steam cultivating apparatus beside. Now, hear it, ye small farmers of England, who Mr. Smith wants to bamboozle into buying steam "smashers:" Mr. Smith's own apparatus has just done the work of one horse! His next paragraph, too, about horses is really delicious—"You never hear of interest being charged on horses, their tackle and implements." Indeed, Mr. Smith. What, then, is the meaning of the extract which you yourself give us from Mr. Morton's paper, wherein he says, "those farms employ 282 horses, and they cost for food, for depreciation of value, and saddlers' and blacksmiths' bills, 7815*l.* a-year." At the end of each year every good farmer values his live and dead stock, and the depreciation is thereby brought into the account. The best book-keepers amongst them charge 5 per cent. interest on the whole capital embarked before they reckon a single penny as "farming profit," while others again strike their profits first and then deduct the 5 per cent. from it. The first practice is the best, for very few men work wholly on their own capital, many work with borrowed capital, and interest on that must be paid whether the farm leaves a profit or loss. What is the use, however, of going into those "roadside" questions? let us keep to the point. Mr. Smith declares that 1*s.* 6*d.* for each acre actually ploughed each year is sufficient to cover interest, and wear and tear, and depreciation upon a set of steam cultivating tackle working a farm of 112 acres arable, and of which less than 100 acres are ploughed each year. This I assert to be a pure fallacy, which even a child (unless he were one riding a hobby-horse) could see through. Mr. Smith admits that a set of his apparatus (including half the price of the engine) costs 375*l.*, while 1*s.* 6*d.* per acre in 100 acres would only amount to 7*l.* 10*s.* per annum, or exactly 2 per cent. per annum to cover interest and wear and tear and depreciation!

And now about Mr. Smith trying to persuade small

farmers to buy steam cultivators. He denies that he had done so, and brings up a sentence printed in 1858 (eleven years ago) in support of his denial, and yet in the very same breath he reasserts the advisability of small farmers having an apparatus exclusively for their own use: he says, "My own practice shows that it would pay to have a set on a very small farm of heavy land, and 'G. A. H.' must see that it pays well on this farm of mine, interest, wear and tear, depreciation and all being considered."

Is Mr. Smith in his senses when he makes such an assertion? The apparatus is admitted to be worth 375*l.*, and the whole yearly sum put aside to cover interest, and wear and tear, and depreciation, is less than 7*l.* 10*s.*, or less than 2 per cent. per annum! Mr. Smith had better quietly give up the contest. He invented the word "smashing," and I am afraid he has got "smashed" himself. He is going to drop the word "interest," for he "will not be pulled up by it again;" and so he will in future call his 1*s.* 6*d.* per acre "extras." There is an old proverb, "A rose by any other name would smell as sweet;" so Mr. Smith need not expect to alter the fact by altering the word. Let him do the honest thing by telling his brother farmers, "if a man has a farm large enough to require 800 acres to be ploughed each year, then 1*s.* 6*d.* per acre is enough to cover interest, and wear and tear, and depreciation upon a steam-ploughing apparatus; but if his farm is smaller, that charge will increase in inverse ratio to the size of the farm—that is to say, 400 acres of actual plough would require 3*s.* per acre, 200 acres of actual plough would require 6*s.* per acre, and 100 acres of actual plough would require 12*s.* per acre to cover interest, and wear and tear, and depreciation." Let him also add that "he is sorry for having misled them by saying that he had made a seed-bed for Wheat at a cost of 6*s.* 8*d.* per acre, for the real cost of it was 17*s.* 2*d.*, inasmuch as the 1*s.* 6*d.* for 'extras' ought to have been 12*s.*" Let him do this, and "G. A. H." will trouble him no more. Nevertheless, I cannot part with him without one parting shot, for he is what schoolboys call "so coxy." He is always telling me that I shall learn something from him before he is done with me. I have no doubt, sir, that Mr. Smith could teach me a good deal about farming, for he was brought up to it, while I took to it late in life. Farming, however, is not Mr. Smith's hobby, of which he has two,—one is to criticise Mr. Mechi's accounts, and the other is to vaunt his inventions in the matter of steam-ploughing. It may be a rude speech to make; but what will he say when I tell him he is neither a good accountant nor a good mechanic? When an old hen lays an egg she cackles in a most fearful way about it, as if no hen had ever laid an egg before, or ever would lay such an egg again. Mr. Smith set to work at steam-ploughing some years ago, and he has ever since been crackling in such a loud tone that he has not been able to hear what others have been doing, and he fancies himself still cook of the roost.

If Mr. Smith would undertake to teach me farming, possibly I might feel obliged, and sit at his feet, as Saul did at the feet of Gamaliel; but I should not like to pay "a five-guinea fee," unless he would undertake to show me how to work 112 acres of arable mixed light and heavy land with less than six horses. As to accounts and mechanics I really would not like to pay a fee for them, for if I may gauge his knowledge of them by his writings in your columns, I am inclined to think I knew more about both those subjects a quarter of a century ago than he knows about them now after his 14 years' experience of steam ploughing, or "smashing," as he so facetiously calls it. *G. A. H.*

Home Correspondence.

Steam Cultivation by the Roundabout Tackle.—I must have a few words with Mr. Toepffer, who tells us that I contend that my tackle, the roundabout tackle, works cheaper than any other. I do: but then he tells you that my evidence has been analysed and found incorrect; yet he does not tell us where, or whom by. I know what he is driving at; it is at "G. A. H.'s" half-fought battle. Let him see it out before he talks of "incorrectness." The plain facts are these. I can make seed-beds for Wheat at 6*s.* 8*d.* an acre. Can he do so with his 14 or 20-horse power two-engine tackle. The evidence in his letter is clear that he cannot; for after telling us that he has ploughed some Scotch Fir tree land up at 3*l.* 10*s.* an acre, he says:—"On the other hand, I have performed work at 6*s.* an acre." What work? He tells you, and these are his words;—"In a large field with straight boundaries, where we get over 35 acres and more per diem, with a 14-horse power tackle." I take that to mean two 14 horse-power engines. My engine can do, on an average, 8 acres a day smashing; that is all first work. If we fix his engines to do double that quantity of work, all smashing or first work, that is quite all they can do. Then his 35 acres a day is mere scratching—2*s.* an acre work when done by horses, but then his cost is vastly over 6*s.* per acre, for we must add the coal and water found by the farmers, and when that is done his is only a scratch towards a seed-bed. The evidence brought forth by Mr. Toepffer proves that my application is the cheaper, and his telling us that a set or two of Smith's tackle has been sold at a loss does not weigh much, for the same remark would apply to many a set of direct-action tackle, to say nothing about the clip-drum; and it may be that there is a man to be found that has got a set of roundabout tackle, yet has some work done by contract. What of that? It is not every farmer who knows how to apply tackle, and, what is worse, in some cases will not be guided. Mr. Toepffer may repeat his blind advice to the farmer, and crack up his "giant" as much as he likes, yet for all that my "baby" can thrash it at seed-bed making. There are my seed-beds for Wheat at 6*s.* 8*d.* per acre to be seen by any man. Let him tell us on what farm you can find this done by the double-engine tackle. Let him do that, or give over talking. It is all very well for Mr. Toepffer to tell us that there are a lot of farmers in the locality of Sleaford who will scatter a lot of money for him and other contracting men to scramble for. His lowest figure, 6*s.* an acre for scratching over 35 acres a day, gives him 10*l.* 10*s.* a day. Such figures ought to make him fat, but when coal and water are added to it, it will not make the farmers fat, neither will it give to England the big loaf. Hence the landlords in that locality arranged their lands and buildings so that the farmers can cart their corn at harvest with the fewest number of horses; and have the farmers sold off half their horses to make way for these contracting men? for if that is not done, they are scattering their money by the aid of horse and steam-power; and you must know that that will never give the big loaf, and I am quite certain that they will never find out my grand secret—how to farm the deepest, cleanest, and at the least cost. Mr. Toepffer's evidence is dead against him upon these points, for, as to depth, he says nothing; 120 acres in a week must mean scratching. As to cleanliness, he says that "many of the fields were full of weeds," and as to cost I have shown above that 6*s.* an acre, with coal and water to be added, is the cost of a mere scratching; that is what Mr. Toepffer calls "testing" the thing upon their own farms, he does not pretend that any of them have thoroughly set-to to farm regularly by steam-power upon the contract plan. *Wm. Smith, Woolston, Dec. 7.*

The reply of Mr. Smith, of Woolston, to "G. A. H.," as also his letter to the *Times* a few days back, are worthy of careful perusal; and whatever charge may be laid at Mr. Smith's door of hastiness of temper or curtness of reply, is in a degree compensated for by the fulness of his communications. And when we would measure the relative value of the two modes of steam cultivation—direct *v.* roundabout tackle—by the evidence of witnesses on both sides, the witnesses representing the former are conspicuous by their absence, at least, in replying to communications in your Journal. "Steam-ploughs. What shall we say to the reader—that there is not a steam-plough in the great Hall? No, not one!" are the words in your report of the Smithfield Club Cattle Show. Also, "Mr. Smith, of Woolston, does not require a steam-plough." You then quote his remark: "'The day is not distant when steam-ploughs will not be shown at our general meetings,'" adding, "but we never imagined that that time would be Christmas, 1869." Their absence would imply that the cultivators, even in the makers' opinion, were more deserving of the costly space. There are one or two points on which Mr. Smith would perhaps be good enough to give an answer, or express an opinion. The first more immediately in reference to steam as a motive powre on a farm, that is, the use of a traction engine for the purposes of harvesting corn, drawing out manure, and any other draught purpose to which horse-power has hitherto been applied. Secondly, has the increased fertility of his land been altogether owing to the better and deeper cultivation of the soil? or, as Baron Liebig puts it, in his "Modern Agriculture, p. 108: "As the smallest portions of food cannot of themselves leave the spot, in which they are held firmly fixed by the soil, we can understand what immense influence must be exerted on its fertility by its careful mechanical division and thorough intermixture." Or, has he stimulated it by manures; beyond that used under horse cultivation; in other words, is the average of live stock on his farm the same now, per acre, as before the introduction of steam or improved cultivation? Is hay or straw sold in any quantity? Certainly, with such payments as in Mr. Bates' case, of 44*s.* 4*d.* per acre, and a Berkshire farmer of 27*s.* 2*d.* per acre (twice over), no doubt the contract system is the best for owners of double tackle; and although steam or deeper cultivation may make the natural stores in soil and subsoil more available, still the profit will be all on one side. *West Indian.*

Land-fast Stones and Steam Cultivation.—I should be much obliged if any of your numerous correspondents would give me their advice as to whether steam cultivating would answer on my farm. I hold 180 acres of arable land (mixed soil), but throughout the whole of it there are occasional land-fast stones varying in size from a few pounds up to half a ton. What would be the effect of a steam-cultivator coming in contact with one of them? Of course afterwards they could easily be removed, but it would be impossible to know beforehand where they are. Coals are cheap, and most of the fields have running water in the dykes. *H. H., Leicestershire.*

The Depth of Drains.—In my last article on draining, part of one sentence is so printed as to convey an opposite meaning from what I intended. Instead of "I have actually witnessed water standing in pools above drains which were discharging much more water than they ought to have done," read "much more feebly than they ought to have done;" my complaint being that the drains did not discharge sufficient water. It so happens that being in the field to-day to which I alluded as having been wet previous to redraining at a depth of 3 feet, and which is now perfectly dry, I observed water standing in an adjoining field of similar character which is drained 4 feet deep, thus affording evidence that the water was unable to make its way through such tenacious soil with sufficient celerity. A correspondent of *Bell's Messenger* finds fault with Mr. Smith for using 4-inch pipes, in one of the instances which I quoted last week, and maintains that 2-inch pipes would probably have been sufficient. As the drains were placed so far apart as 60 yards, Mr. Smith had probably a sufficient reason for what he did, and I remember seeing some hilly land in Derbyshire, on the limestone, which was effectually dried by a few deep drains at wide intervals. The evil to be remedied in this case was not principally caused by surface water, but by springs, which flowed so abundantly that 2-inch pipes would certainly not have proved an adequate outlet. *Willoughby Wood.*

Dairy Farming.—When "G. A. H.," on dairy farming against breeding and feeding (Dec. 4), takes as an example 40 cows, 40 from 2 to 3 years, 40 from 1 to 2 years, and 40 from 6 to 12 months, and assumes the last 40 to be equal to 20 cows, the others being considered equal to cows in consuming, he commits a palpable error. I beg to state a few facts which I hope may do something to correct "G. A. H." and others interested in the matter to which he has called attention. I have apportioned 9½ acres to four cows—viz., 4½ pasture, 5 mowing—and I turn them in May 15, which in a goodish season supplies them till August. A change by this time being required, and aftergrass not being ready in the mown 5 acres they have to be supplied elsewhere till it is ready (there has been none these last two years), they then go in on aftergrass, and so on to spring pasture again. September finds them requiring a few mouthfuls of hay, mornings, and by 15th of following May these four cows, by keeping them in good profit condition, will have eaten every bent of hay grown on the 5 acres, so that this shows four cows consume the produce of the 9½ acres completely. Now "G. A. H." allows 12*l.* each cow upon 140, and shows between the processes 580*l.* balance in favour of dairying over breeding and feeding. I will assume, though I don't suppose, my four cows to produce 15*l.* each all round all told, viz. 60*l.* gross receipt. on 9½ acres, 2*l.* 10*s.* per acre. Expenses, milking, fodderings, and general attention, 5*s.* weekly=13*l.*, preparing compost, composting, beating, chaining, rolling, stone-picking, &c., mowing and raking, carrying, ricking, thatching, bought straw=13*l.*—deterioration in cows annually=4*l.*, saying nothing of weather risks, dry summers, and home labour and wear of utensils; then thus it stands, 60*l.*—30=30, or 7*l.* 10*s.* each. Against it I put 8 heifers at 12*l.* the 1st of May, if Grass enough, and towards the end of October sell them on an average of 20*l.* each, labour *nil*, risks about equal, twice the profit for the same outlay, and land at liberty to May following. *C. F. Brinklow, Coventry.*

Lambs and their Disorders.—There has been here what appeared to be a very healthy fat flock of lambs up to the 25th of November, and then purging made its appearance. Five have died in four days. I was induced to examine their stomachs, and found in them all the secret of the disease, viz., tape-worms. I would persuade all flock-masters and lamb-rearers, who let their lambs run loose, to inspect for themselves. The worms can be seen by applying to *J. S. Hind, Penau Farm, Truro.*

Royal Agricultural Society's Prize Farms.—Every member of the Royal Agricultural Society must join heartily in the congratulations offered to the Council at the annual meeting, on the practical steps they are now taking, both in the Journal and the proposed prizes, to bring the best models and instances of farming before the public. And I hope that the tenant-farmers round Oxford, to whom the proposed prizes are restricted, will second the efforts of the Society, and enter for the sweepstakes. In the meantime, the Council and the judges, whom they may appoint, will have to weigh several delicate and difficult questions which they must needs encounter if they are to arrive at any satisfactory conclusion. What is to be considered "the best managed farm?" The one that looks best when the judges go over it—the one that produces the greatest amount of saleable food in corn and meat—or is it the one that pays the highest interest to the occupier? I take it all three points will be ingredients in their decision, and certainly if there are many competitors some will rest their claim on one or more of these points. Again the area round Oxford contains such varieties of soil and cultivation as to render any comparison almost impossible. There is the Thames valley, with its early spring and dry soil on the south, with the cold and backward Cotswolds on the north. There are the sheep breeding farms on the Ilsley Downs and Chiltern Hills to compare with the oolite pastures and the dairies of the Aylesbury Vale. There is some of the richest corn-producing land between Didcot and Wantage, where 6 or 7 quarters of Wheat are not uncommon, to be contrasted with poor uplands where 3 quarters is a difficult average to attain. The same with roots. One farmer with artificial aid may grow as much food on 1 acre as another can get off 10, with a considerable amount of superphosphate. The result will probably show the necessity, if these prizes are continued, of distinguishing hill from vale farms, clays from chalks, and arable from pasture. I do not write this to discourage any one from entering the lists in February next, and trying his luck. On the contrary, I hope all who have any pretensions of being in any respect better farmers than their neighbours will join in the combat. It cannot be otherwise than useful to all to have their proceedings compared and criticised, and to have the benefit of the judges' report and opinion upon their system. My only regret is that the *concours*, as our French friends call it, is confined to tenants. I should have opened it to all comers. My opinion is that the landlords and their bailiffs, who would have entered in large numbers if permitted, would have shown some excellent farming, some well cropped and well cultivated fields, which would command admiration, but if the three points I first mentioned are carefully inquired into they would fail in showing the necessary amount of profit on the capital employed. I should have been glad myself to have entered my farm without any hope of a prize, for the sake of the benefit which I

can foresee would arise from the criticism and report of my neighbours, from an inspection of the system I have often advocated in these columns and in the Society's Journal, of my heavy dressings, followed by heavy crops. The great object of the Council is to demonstrate by example what may be done in each locality; and I trust there will be no backwardness or jealousy on the part of the tenant-farmers to mar the success of the experiment. *J. B. M.*

Broad Clover.—When, last summer, Mr. John Ford, Mr. Henry Fookes, Mr. W. James, and other noble specimens of English yeomen came here to dine and eat Strawberries, I showed Mr. John Ford the article on Clover sent by me to the *Agricultural Gazette*. He read it, and said it was all right; and then he told me as follows:—"My experience of Wheat after broad Clovers this year is this. I fed off with sheep one-half of a field when the Clovers were full grown, skim-coultered it and ploughed it for Wheat, which was sown on a stale fallow. The other half of the field was seeded, and dunged, and ploughed up. The first gave me the best Wheat crop. When both pieces were ploughed I could see no difference in the Clover roots, but when I sowed the field the roots of the first moiety of the field had disappeared." Mr. Ford also said "cattle like broad Clovers better than Cow-grass." Now for the testimony of Stephen Rogers, my servant, yclept by "D., Deal," "Steevie," who lived many years as carter with Mr. Ford and his father. His version is that "maiden Clover seed is the finest and best, but that Clover seeded after hay produces most seed; that the former is generally better harvested than the latter, and that whether maiden seed or otherwise, if it is well taken and kept in the rick unheated, and thatched up by the sides, according to his experience the seed will be good at least for three or four years." Stephen is a very accurate man, as I have reason to know. He was my clerk at Rushton, and still performs the same office. I once gave out the wrong second lesson in church, when Stephen popped up his head and said *sotto voce*, but loud enough for everybody to hear, "You be wrong; it ain't 'G'latians,' its 'Fegians' to-day!" The congregation did not exactly laugh, but the muscles of their faces assumed "tetanic complications," and I looked as red as a harvest moon! *W. F. Radclyffe.*

Thin Seeding.—At a time when Mr. Mechi is so strongly advocating the policy of thin sowing, I think the enclosed experiment of a hundred years ago may be interesting to him, which I met with the other day in the "Gentleman's Magazine" of October, 1769:—"The following experiment was made by Mr. Wheatley, of Morden, in Cambridgeshire. He last year caused an acre of land to be planted with Wheat, leaving the distance of a foot between each grain, which took up just half a peck and a pint of seed, and this year produced 39 bushels of corn." *B. E. H.*

Societies.

STAFFORDSHIRE.

On Tenant-Right.—At a late meeting of the Staffordshire Chamber of Agriculture, Mr. CARINGTON SMITH opened a discussion by proposing—"That the recognition by the Legislature of the principle of tenant-right would promote the interests of landlord, tenant, and labourer, and also increase the prosperity of the nation at large." He argued that there was room for improvement in the condition of the three classes he had named, and the remedy he believed to be in tenant-right. By tenant-right he meant a balance of accounts between landlord and tenant at the expiration of a tenancy, whether that balance was due to the landlord for depreciation of his property by the tenant, or whether the balance was due to the tenant for unexhausted improvements made entirely at his expense. He repudiated all intention of advocating odious schemes of fixity of tenure, which would be a return on one side only to the feudal system; nor did he advocate a system of leases, which had been tried and found wanting. He proposed to apply the principle of tenant-right in the following manner:—At the expiration of every tenancy it should be compulsory, in the absence of an amicable arrangement between the landlord and tenant, for each party to appoint a duly qualified valuer, whose award (or that of an umpire, to be appointed by them in case of their being unable to agree) should be final. It would be their duty to say what was due to the landlord or to the tenant; there should be no appeal from their decision, and their award should be recoverable as a common debt by distress.

Mr. J. S. NORRIS seconded the resolution.

The CHAIRMAN (Lord Harrowby) thought the resolution was rather too vaguely framed, for he could not see how the Legislature could interfere. He was not opposed to the principle of tenant-right, and he had adopted the principle of arbitration with respect to his farms; but he would point out that English farmers occupied a very different position from farmers in Ireland. The English farmer generally found everything made to his hand, or if not he made a stipulation with his future landlord as to the terms on which improvements should be made, whether by landlord or tenant; but in Ireland there was no definite understanding at all between landlord and tenant, and the latter did what he pleased with the land, without consulting either the landlord or his agent. He frequently laid out a great deal of money, and then found that the law afforded him no protection. A state of things so wholly devoid of common sense was unintelligible to an English farmer. Tenant-farmers in England were quite competent to take care of themselves, and he feared that if the meeting affirmed the simple principle of tenant-right without qualifications they might lead to inferences very different from those they intended.

Mr. W. J. CARRINGTON said, if the tenant-farmers of Staffordshire were only properly protected the grazing land of the county might very soon be increased in value 20*l.* or 30*l.* per acre.

Lord LICHFIELD censured the landowners of the county for their want of interest in this subject, and maintained that it was one of the first duties of a landlord to encourage his tenants to the utmost of his power to lay out their capital on the improvement of the land. He held very firmly that property ought to be protected, and he believed he was promoting that end by giving the utmost protection possible to the rights of tenants in the soil. He would like to know whether Mr. Smith meant that a tenant was to receive compensation for improvements made without the consent of the landlord.

Mr. SMITH replied that a tenant ought to receive compensation for drainage done without the consent of the landlord.

Lord LICHFIELD was prepared to support the interference of the Legislature, within certain limits, for the protection of tenants; but he could not vote for the resolution unless the phrase "tenant-right" were properly defined. With regard to the land question in Ireland, he desired to say most emphatically that if in the Irish Land Bill any principle were adopted which would be unjust to either tenant or landlord, nothing could save that principle from being eventually adopted in England. He utterly failed to see why any principle which might fairly be applied to Ireland should not be applied to England. Public opinion on the subject was ripening so rapidly that if it had been possible to avoid legislative interference things would soon have righted themselves under the pressure of that public opinion. There could be no doubt, however, that legislative interference was necessary in Ireland; that some attempt must be made to unravel the hopeless confusion there seen; but any legislation for Ireland would be far more just and efficient if they applied the same legislation to England than if they did not. He had devoted a good deal of attention to the subject of agreements between landlords and tenants, and he found that there was great difficulty in deciding on what principle to allow compensation for commercial and for permanent improvements. Varying decisions by arbitrators were highly undesirable, and therefore he would recommend that a county should be divided into districts, that the landlords of a district on one side, and the tenants on the other, should appoint a valuer, who should serve for 12 months, and before whom, in the presence of an umpire, disputes should be brought. If the valuer and the umpire were unable to agree, the dispute should be taken before some competent tribunal, whose decision should be final. As to approaching legislation on the question of the land, he would point out one or two particulars in which Ireland differed from England. In Ireland they would have to deal with existing improvements. No land bill for Ireland would be of the slightest avail which did not give compensation to tenants for improvements already effected. At the present time all those improvements were the property of the landlord, and it was melancholy and absurd to hear those who took the extreme landlord view talk about the way in which the tenant was protected. The difficulties in the way would be very great; but he thought they might be met in the following manner:—After a certain date, to be named in the Act, landlords and tenants must start afresh and upon a fair footing. The principle upon which compensation was to be given in the future must be clearly stated; but if the question of existing improvements were allowed to stand over, the subject would be as full of difficulties 30 years hence as it was now. He thought the only way of settling the compensation to be paid for existing improvements would be some such court of arbitration as he had described. Every tenant who had a disputed claim on his landlord for unexhausted improvements must register his claim by a certain day, and supposing the award were given for 20*l.* or 30*l.* the landlord would meet the claim either by paying the money down and starting afresh, or by giving the tenant a certain number of years' occupation in the nature of compensation, or the sum awarded should be registered against the landlord, to be paid at any future time upon the eviction of the tenant. This scheme would have the effect of bringing landlords and tenants together in Ireland, and so remove the crying evil of separation and consequent want of sympathy between the two classes. He desired to point out that in Ireland, in consequence of the absence of trade and manufactures, a person who was turned out of his holding had often no choice between the workhouse and starvation; and this brought him to the question whether compensation ought to be allowed for eviction. If he were at once to say that it ought, he would be put down as an advocate of fixity of tenure, and all that sort of thing; but he could not conceal from himself that it would be useless to pass any land bill for Ireland which did not provide against capricious ejectments, made merely for the purpose of improving property. If a landlord desired to throw 10 farms of 30 acres each into one farm of 300 acres, and if he found thereon 10 or 20 tenements which had been built without his leave, he would declare that, so far from being improvements, they were injurious, and a great difficulty would arise; but it must be remembered that those houses would have been built under a system which the landlords had themselves allowed to grow up. At the present time good landlords made handsome compensation to tenants evicted under such circumstances; but there was this difficulty—if compensation were given by law for eviction, the right of the tenant to property in the soil would be recognised. Compensation under this head would have to be given, but in such a way that the rights of property must not be interfered with. After entreating the Chamber to give these subjects the fullest consideration, Lord Lichfield moved the adjournment of the discussion.

Farmers' Clubs.

LAVENHAM.

Clay Land cultivated Flat.—At the last meeting of this Club, Mr. R. EDGAR read a paper on the advantages of cultivation on the flat over cultivation on the stetch. He said:—I mean by the flat, land ploughed on stetches not less than 12 yards in width. I would advise a greater width where the land is of sufficient length to make up for loss of time in slipping round at the ends of the field. I ought also to say that my remarks only apply to land that is well underdrained, for then every drop of water that falls has a beneficial influence; instead of letting it run off the top by surface drains, we ought to hinder it as much as possible, and make it percolate through the soil to the underdrains, to be carried off by them. A large amount of soil is washed off by surface drains, especially on hilly land, which would be avoided by laying it on the flat across the hill, and the fertilising properties of the rain would be left in the soil. The first great advantage we derive from this system is, that the land is better ploughed; every practical man knows that in making a fallow the land is ploughed on the broad stetch, because it can only be ploughed sound and well that way; then why do we plough on the small stetch when half the furrows are of different depths, and about one-sixth useless labour is required? The great secret in farming heavy land is to keep the work forward, and how is this to be done better than by applying the labour that is now wasted, such as drawing out land every three years, throwing back the furrows, doing out water furrows, &c., to a better purpose? It was perhaps the best system, laying land on small hog-backed stetches, and having plenty of water furrows, before underdraining was thought of; but it is fast exploding everywhere, and cannot long remain in this district. Another advantage in favour of flat farming is that more land is planted by one-sixteenth, and you get a more level crop, and better sample; for if the furrows of small stetches are planted, there is never sufficient soil to bring those rows up to the others; the result is underlying weak straws, and small heads, and thin kernels; with more trouble to the mower to make his work look well than if it all stood up strong and even. The drilling is done equally well on the flat, and on large farms where drills to fit the small stetches have been used with six horses, a couple of two-yard drills working the same number of horses will do 3 acres a day more; and land on the flat will always drill a day or two sooner than the other, because the furrows are the last places to dry. In all the other operations an advantage is gained, such, for instance, as rolling; the roller presses more evenly than on small round stetches. Then there is horse-hoeing; that implement works best with the shafts in the middle, where they can be when land is level, but not so on small stetches, where they must be placed on the side, quarter-cart fashion, giving an unpleasant wring to both horse and man.

In folding land with sheep I think we cannot have too few furrows, for in addition to losing them by being cast, the manure from them is not so evenly distributed over the surface, but is nearly all dropped in the furrows (which in the succeeding crop will be the middle of the stetch), causing the corn there to be lodged, when the sides of the stetches are not near strong enough. I do not know of an operation that cannot be done better on the flat than on the small stetch; we all know it is best for the reaping-machine, at least those of us who have tried the difference between being jerked over furrows every 3 yards, your whole attention required to keep your seat, or going easily along over a nice flat field. In carting the corn, also, the loads are not so likely to slip down, causing a stoppage sometimes of half-an-hour, which is a loss on a fine day, besides very often pitching a man off the load and hurting him. I do not say this will all be avoided by farming on the flat, but I know it is not so likely to occur.

From what I heard the owner of the steam-plough lately at Lavenham say, it was better for his cultivator where there were no furrows, as it kept a uniform depth, and there was not so much strain on his rope. I notice that many of our best and largest farmers of heavy land never have a small stetch, and surely if there was anything to be gained by them they would have. I can see clearly the flat system is the cheapest, and if all the modern implements and machinery work best on the flat, the sooner we get into that system the better. I believe the land may be kept cleaner, for the furrows are great harbourers of Grass and weeds, as they get ploughed but once in twice ploughing the other part of the stetch.

The last advantage I shall notice in this paper is the saving of a ploughing in the spring time, which is often done to get land level, at a risk, if the weather is unfavourable, of losing the winter mould, which often means losing three or four coombs per acre of Barley. Now, if the land had been worked on the broad stetch it would be level enough; and I must think ploughing in the spring for a crop on heavy land is one of the worst pieces of farming we can do. In conclusion, I would say, if I have made any random statements they can easily be rectified by discussion; but I have endeavoured to keep as near the truth as far as my experience in flat farming has gone, which, on one of my heaviest fields, has been 10 years. I see no reason at present to alter my opinion; should I do so, I will come at once and read you a paper on the *dis*advantages of farming on the flat.

DISCUSSION.

Mr. WRIGHT said the occasional advantages in cultivation on the stetch were out balanced by the advantages of the other system. Once in about seven years they had a tremendous rain, and then the soil on the flat was likely to be washed away.

The CHAIRMAN said if they agreed with Mr. Edgar they did

not practise accordingly, for in this neighbourhood the greater part of the land was on the small stetch.

Mr. VINCE said if they wanted to see ploughing on the flat done they must go into Kent. He believed by ploughing on the flat they sometimes made deeper furrows than they did on the small stetch. He thought they would find most of the heavy land farms had not adopted the wide stetch. He admitted that by flat cultivation they got their work done cheaper, but he did not believe they got an increased crop.

Mr. CATCHPOLE said he had got most of his land on the 12-foot stetch, and all his Wheat was drilled athwart. He liked the flat stetch system very much indeed, and as to what Mr. Vince had said about their getting deeper furrows by that system, he thought if they drilled athwart they would prevent that.

Mr. W. B. HUSTLER said during the last few years they had had better seasons for the system of flat cultivation; but if they had another wet season he thought they would have some difficulty in getting their Wheat in. He was quite an advocate for the flat system; but they might get a season when they would find some lands too wet for it.

Mr. VINCE said if they were all fortunate enough to get their ploughing over directly after harvest they would be all right, but they did not; and when they got a wet season, they had a difficulty in getting the Wheat in. In Barley sowing there would be a good deal of stamping under the new system, and Barley was a crop of which they ought not to lose a coomb, much more an acre. Mr. Edgar might be fortunate enough to have his land well drained, but his (Mr. Vince's) was a different description of land. He thought that if they had another season like 1860 it would be a trouble to some of them.

Dr. WHITE said there could only be a certain amount of light and air get to the crop on whatever system the land was cultivated, and as far as respected these matters he did not think one system had any advantage over the other.

The Rev. J. M. CROKER said it might seem presumptuous of him, being entirely ignorant of such matters, to offer an opinion on this subject. It appeared that the use of the small stetches was for draining the land; but now that they had got deep drainage, they might do away with them, and adopt the principle advocated by Mr. Edgar. This deep drainage, as Mr. Mechi had told them, caused a better percolation of the water, and it seemed to him that as they drained their land the more, so might they widen their stetches, and do away with surface draining.

Mr. WRIGHT said Mr. Mechi at first put his land upon the large stetch system, but he had now got it on the small stetch. There was a peculiarity in the Essex land which did not exist in the Suffolk clay. In some parts of Essex they would find that draining was no use whatever, for the land held the water, and it would not percolate to the drains; and they used the small stetches to carry off the surface water. When there was a heavy rain, the soil did not let the water get away far enough to do any good.

The CHAIRMAN said he had very little to say, for Mr. Edgar had said a very great deal in his short paper. He was one of Mr. Edgar's disciples, but at the same time, the opinions of the Lavenham gentlemen were in one direction, and their practice in the other, for they would find three-fourths of the land in that district on the small stetch. But perhaps many of them, like him, had hardly had time to carry out the alteration completely. He quite agreed with Mr. Croker that their small stetches were used to meet the want of drainage, but now they could drain with tiles and steam they could dispense with them. With regard to lands not being affected by draining, he was rather sceptical about them. He had a friend in Essex who had tile-drained his land, and he was laughed at by his neighbours, but it had turned out a decided success. Many of the gentlemen in that neighbourhood inherited the opinion of their grandfathers, and did not investigate them. There was a vast deal of land between Maldon and the sea that did not produce what it would do if it were under-drained. In Kent there was some of the best land in England, yet all that county was not cultivated on the large stetch. If the furrows were of great good in wet weather, at the same time they did harm to the corn near them. There were objections to cultivating on the flat, of course, but they were very trifling—one was that it was harder work for the horses. He did not see that it was necessary to have the furrow wider on the large stetch than on the small. There was one remark of Mr. Vince's that he could not see the logic of. He stated that his crop was not more when he used the large stetch system than when the small stetch system was in use. But taking into consideration the cutting and carting, Mr. Vince admitted that the work could be done cheaper; therefore, if the crop was not less, it must be the best. But the question was, did they grow equally as much on the one as the other, and he thought they did. It was a most material point that they should have uniform samples. They must not neglect their Barley crops, therefore they must study what would suit that best.

Mr. S. B. HUSTLER said the land the Chairman referred to was not a fair specimen of heavy land in Dengie Hundred, as just in that part it was a soil that percolated more freely than in any other part of the hundred. There was a farm in Southminster drained 4 feet deep, and he had seen the water stand about as if it were not drained at all.

Mr. EDGAR then proposed "That this Club is of opinion that heavy land should be farmed on the flat or large stetch in this district."

The resolution was seconded by Mr. VINCE, and carried unanimously.

Reviews.

Twenty-fifth Report of the Botley and South Hants Farmers' Club. Southampton: *Hampshire Advertiser.* 1869.

Thanks to very efficient and public-spirited guidance, the Botley Farmers' Club has now for many years issued an annual testimony to its usefulness, in the form of a pamplet, containing reports of its monthly meetings. The present number contains papers on pedigree in cereals—a local taxation—on the rearrangement of farm buildings—and again on the possibilities of relieving agriculturists from the burden of local taxation. Besides these topics of general interest, there are reports of the local root show and the local cattle show. The whole is a capital example of the way in which local agricultural interests can be directly promoted by a few public-spirited men. It also shows how wider and more general agricultural interests can be indirectly promoted: and the preface contains the following account of the way in which the Southampton meeting of the Bath and Southern Counties Agricultural Society depended to some extent on the Botley Farmers' Club:—

"In recording the debates and occurrences with which our club has been occupied during the past session, we cannot forbear to mention the very successful meeting of the Bath and West of England and Southern Counties Association in June last, because during many months preceding the show, throughout which the preliminary measures were being carried on, by far the greater part of the practical duties of the local committee were undertaken and successfully carried out by the members of this club, who, besides taking with others their full share in obtaining subscriptions, formed the deputation to Falmouth, where they carried on a difficult but successful negotiation with the council of the Society, and having secured more satisfactory terms than were first proposed, gave their personal guarantee for the amount of contribution and other conditions long before the sum was subscribed. They also secured and arranged the site for the showyard, and also the lands required for the trial of implements, on fair and moderate terms; prepared the schedule of local prizes which contributed so much to the *éclat* of the meeting, and provided the horses and the materials for machinery in motion. These duties, which (without disparaging the meritorious exertions of the mayor for 1868, and of others) their agricultural knowledge and experience of former shows enabled them to render, involved no small amount of time and trouble; and attended as they were by great self-abnegation at the time, it is but fair to record them in this place, and the more so as the services of the local committee have received no acknowledgment from the neighbourhood, nor recognition from other sources."

Farm Memoranda.

WEST SUSSEX: *Dec.* 13.—We are now near the end of the year, and so far as farming operations are concerned nearly at a standstill. Light land farmers are still sowing a little Wheat in some places, but the most common work is roadmaking and threshing, and the inducement to thresh is not great so far as Wheat is concerned. The price is low, and the yield in some cases far from good, less than was expected, and the quality of some of it very inferior, and I think this has been so mostly where it was sown thickly, so that those who are called thin seeders have the best of it this year, as much of the thickly sown crops were blighted as harvest commenced.

Barley has turned out pretty well, and though there are not many very superior samples yet there is a large proportion of fair quality for malting, and the price has been about 40*s.* per qr. Oats yield fairly and sell well, and Peas are in demand at 40*s.*

We have had our fat cattle show at Chichester, but it was rather a small affair, and I think upon the whole we are rather losing ground; and this is rather to be wondered at, as we have such a good market, but the foot-and-mouth disease has been rather prevalent about us, and may have kept some back from being shown. We had only some half score beasts, and six or eight pens of sheep, and two pens of pigs, while our market for beef was very small, and beef is getting rather scarce, as many fat fewer now than they used to do; and the reason is clear enough, lean stock has been very dear, and feeding stuff has been dear, and some of it not at all what it ought to be, and we have come to believe that there is no such thing as pure linseed-cake in the market, and as it is not linseed-cake it may be anything, and is not likely to do much good. I do not think that fatting will be so general for some time as it has been, and there is not much chance that Australian meat will take much in our markets; people now will rather go without meat than have it of a very inferior quality, and only beef of fair quality will be in demand, and prices are sure to keep up.

We have had some very sharp frosts and sudden thaws, and upon the whole damp and uncomfortable for cattle, but have not been obliged to be hard upon the root crops, as there has been a good deal of autumn Grass, and it, with a little of the roughest hay, keeps lean stock in fair order. The Wheat plant has come up slowly, but looks regular upon the ground, and as the soil below must be still up to the average heat, the roots are no doubt striking downward, and establishing themselves well, and will be all the better in the spring. The young Clovers are good, and appear to be well rooted, and we may expect them to hold on. *G. S.*

SUGAR-BEET GROWING AT LAVENHAM.—Mr. James Duncan, the large sugar factor of Mincing Lane, London, with a boldness and a faith that deserve and will command success, has erected a Beet-sugar factory at Lavenham. He sunk, so it is reported, between 8000*l.* and 10,000*l.* in buildings and machinery without even exacting a guarantee from the farmers that the raw material to fill the one or set the other in motion should be forthcoming. The only favour he asked was that they should try the crop. If it paid them as well, or better than any other, of course they would continue to grow it and feed his factory, but if not—well, he did not expect them to grow it at a loss, and no farmer is under any obligation to grow it at all. There is no co-partnership in the matter. Should the venture prove a failure, no farmer will be a penny the poorer. If a fortune is made out of the sugar, no grower will directly participate in the profits. Indirectly this new industry promises substantial benefits to the farmer. He is left free either to grow Sugar-Beet or not, as his interests prompt him; but his price, both as a seller of the root and a buyer of the pulp, is guaranteed. For every ton of roots delivered at the factory he receives one sovereign; and he carries back to his farm dry pulp or Beet bread at the rate of 12*s.* per ton.

In these two statements we have the profits of Sugar-Beet growing concentrated, as it were, into a nutshell. The feeding value of common Mangel has been assessed at about 7*s* per ton. It is worth about as much for conversion into beef. Of course, in the vicinity of towns, it has a fictitious value, for the use of milch cows, &c. But the above is a fair estimate of its average worth. Sugar-Beet, weight for weight, is worth possibly for conversion into beef 10*s.* per ton. The excess of sugar makes it more valuable for feeding purposes. But, assuming its superiority, here is 10*s.* clear profit to the farmer, minus, however, the expense of cartage, by selling it to the sugar-maker.

But this by no means exhausts the farmer's advantages derived from sugar growing. Of course when a farmer converts his Mangel or his Sugar-Beet into beef there is an end of it. The 7*s.* 6*d.* or 10*s.* per ton exhausts its value. But it is far otherwise with the roots sent to the sugar factory. When at Lavenham the other day, which is just now all excitement and bustle harvesting its Sugar-Beet, I observed that nearly all the carts were laden both ways. They carried Beet in, in the gross, and were carrying most of its flesh-forming matter back in detail. It requires eight tons of Beet to form one of pulp, and this pulp is the veritable essence of the Beet itself, minus all its water and, perhaps, four-fifths of its sugar. The experience of last season proved beyond all controversy that the pulp is most nourishing and grateful food. Stock of all kinds, including horses, eat it greedily, and do remarkably well upon it. Bullocks were found to fatten as rapidly on a peck of pulp mixed with chaff or cut straw as they were wont to do on a bushel of roots.

By sugar growing we thus arrive at a clear profit of say 10*s.* on the raw roots, and another profit on a cheap nutritious food which will keep sweet and good for six or eight months, is greedily devoured by stock, and rapidly converted by them into beef or mutton, milk, butter, or cheese.

The expense of growing Sugar-Beet need not exceed that of Mangel. The culture and treatment may be identical in their main features, only the Sugar-Beet may be grown closer together—18 inches by 9 inches is a good distance, and the root should be earthed up to the leaves.

On good soils and in favourable seasons 20 tons an acre may readily be grown. At Lavenham this year the best crop, on September 20, reached 21½ tons per acre, and 9½ tons of tops, or a gross yield of 31 tons. The average would be about 16 tons. But wireworms had been very destructive among the young plants, and an unusual quantity of the crop had bolted or run to seed. These runaways and the blanks played sad havoc with the gross returns. Had there been a full plant the average would certainly have reached 20 tons to the acre. By growing 200 roots to the pole, and cultivating them up to about 3 lb. per root, 40 tons per acre might be netted. The latter weight seems quite within the range of possibility, as at the exhibition of roots in connection with the Lavenham Farmers' Club last week the Sugar-Beet shown averaged 5 lb. each root. The sugar factory is now in full work night and day with three relays of hands in the 24 hours, doing about 160 tons of roots into sugar and pulp during that period. Already it has quickened thought as well as ploughs, and sent both deeper down in quest of new and perchance better materials. It is reported that about the produce of 400 acres will find its way to the factory this season. Operations are vigorously commenced for next year's sugars. Two steam cultivators have been tearing through the bottom of the furrow, and making deep tilth from field to field. Workmen are becoming more scarce. "They are all off to the factory," is the cry. Wages are looking up; money is flowing in, and the quiet old place, from genteel mansion to tottering garret, seems to feel the quickening pulse of the sugar factory and to be starting forwards on the road to agricultural improvement and social progress. Without any of the risks of manufacture the farmers seem about to reap many of its advantages, one of the chief possibly being an increase of their bankers' balances at the dead season. *D. T. Fish, in the "Times."*

The Poultry Yard.

THE BIRMINGHAM POULTRY SHOW *(Concluded).*

THE ancients said that when Greek met Greek then came the tug of war. The modern estimate of the Hellenes would be very different, but the saying remains a proverb. The tug of war at Birmingham laid heavily in the game classes, and the most potent warrior in the black-red classes was Mr. Charles Chaloner, taking no less than two silver cups and four money prizes in the four classes. Following him were Messrs. Fletcher, Price, Matthews, Beldon, &c. Every one will be prepared to learn that Mr. James Wood, of Wigan, won both the 1st prizes for brown-red cocks; and a great many will be equally surprised to learn that he did not do so for hens and pullets. He was closely run in the class for old cocks by Mr. Statter, who always shows to win and generally wins where he shows. Brown-red hens are very handsome, and the richness and softness, we might almost say depth of their body colour, makes them very attractive. Messrs. Burgess, Brierley, and Homfray beat Mr. Wood in this class. Brown-red pullets seldom show to advantage; the darkness of their face and comb militate much against their appearance. The class at Bingley Hall was a good one, and the winners were Messrs. Matthews, Boulton, Brierley, Miss Crawford, and Mr. Wood.

Mr. Samuel Matthews, always and everywhere a successful exhibitor, was 1st for duckwing cocks; Mr. Chaloner for cockerels, the Rev. F. Watson for hens, and Mr. Parkes for pullets. The classes for this very beautiful variety of game fowls were well filled, and we need hardly say formed one of the great attractions of the show. The blacks and brassy-winged, with the white and piles, are the camp-followers of the grand army.

The golden-laced bantams were very handsome, better than have been exhibited for some years. Mr. Harrison, of Hull, took 1st, and Mr. Cruwys 2d. In silvers, which were not so clear as might be wished,

Mr. Leno was 1st. The white bantams are not as good as formerly, when Norfolk in general, but Norwich and its neighbourhood in particular, sent forth birds equal to the ideal of any amateur. The Rev. F. Searle, of Gazeley, near Newmarket, won 1st with a good pen, followed by Mr. Edwin Pritchard. The black bantams were more numerous and of better quality than the white. Mr. H. Draycott sent a pen of very good ones, and won 1st with them.

The Hon. Clement E. Finch took 1st prize for bantams of any other variety except game, with a pen of Japanese, which gave one the idea of a set of old-fashioned China, so quaint and squat were they. The 2d prize was taken by birds of the same breed, exhibited by Mrs. Woodcock, of Rearsby. It was hard work to decide as to the merits of the game bantams; positive and negative points and qualities were nicely balanced: and Mr. Crosland's pen, which won the 1st prize and silver cup, was closely run for it. Miss Crawford took 1st prize for game bantam cocks of any other variety.

The Aylesbury duck is losing ground, or perhaps we should say the Rouen is gaining it, as at Birmingham in every way was the Rouen in the ascendant. Mrs. Seamons took 1st, Mrs. Burrell 2d, and Mr. Fowler 3d for Aylesburys.

Mr. Statter was 1st with a wonderful pen of Rouens, large, handsome, and beautifully coloured. Mr. Hayne was 1st with a pen of Black East Indian, and Mr. Brown exhibited a pair of mandarins in splendid condition, and took 1st prize with them. Toulouse geese beat the whites in number and weight, and the introduction of the pure Toulouse breed has been of great service to goose breeders in general, by giving a bird of greater size, and at the same time more productive.

The great increase in the weight of the turkeys may be noticed, and the bird that weighs, at two or three years' old, upwards of 30 lb., is worthy of some consideration at the hands of those whose province it is to grow food. Mr. F. Lythall took 1st prize for adult and Mr. Patten for young cocks; Mr. Sanday and Mr. Stott for hens.

The pigeons are always a grand collection at Bingley Hall, and this year formed no exception. The cages filled by these universal favourites were great centres of attraction, although some of them were very badly placed. The well-known committee men, who, with "a long pull, a strong pull, and a pull altogether," have done so much to bring the meeting to its present eminence, may congratulate themselves on the successful termination of the show of 1869, and soon commence the programme for 1870. It would be a great thing to get the prize list issued earlier in the year.

The judges were Messrs. Andrews, Hodson, Bailey, Dixon, Hewitt, Teebay, Smith, Woods, and Lorde. The receipts for the week reached the respectable figure of 1412*l.* 1*s.*

Miscellaneous.

Cottages for Labourers.—Will you allow an eye-witness to relate what he has seen of the possibility of building thoroughly substantial and comfortable cottages for labourers on terms eminently satisfactory for both tenant and landlord? The Rev. Christopher Nevile has shown me the cottages which he has built on his estate at Horsey, and which he described last May in a letter addressed to the *Times*. Two are constructed under one roof, and each contains, besides the living-room on the ground floor, two bed-rooms upstairs. There is a fifth bed-room, so placed as to be available for either cottage, according as the wants of the one tenant may render a third bed-room more important for him than for the other. They possess ample conveniences of every kind, including pantry, closets, kitchen range, copper, pigstye, and enclosure for fuel. The building can bear successfully the strictest inspection, as the following statement from a most eminent land-agent, perfectly unconnected with Mr. Nevile, will show:—"After a very critical examination, I say they combine more completely than any I have heretofore seen economy of space, material, and money, with decent accommodation and convenience of arrangement. My opinion is, that they could be built more cheaply than any pair I have devised or seen with similar accommodation." The tenants expressed to me their most entire satisfaction with their lodging, as well as their belief that any labourer would be eager to be lodged like them. With respect to them, Mr. Nevile has shown the accounts to professional persons, who were also jealous critics, and every one has declared that he had no objections to make. They cost 170*l.* a pair, everything of every kind paid; and Mr. Nevile obtains a rent of 4*l.* for the cottage with two bed-rooms, and 4*l.* 10*s.* for the one with three. This gives him an interest of 5 per cent. on the whole expenditure incurred. Horsey possesses no special advantages over any other locality which would enable building to be carried on there at a cheaper rate. I should add that all the rooms are cheerful, large, and airy. These facts demonstrate that a substantial cottage can be raised for the labourer which shall provide amply for every want of comfort and decency, and at the same time yield a satisfactory interest on his capital to the landlord; and I think you will agree with me in holding that the erection of such cottages, so good and so remunerative, is now transferred from the region of possibility to that of actual fact. If such an experience were generally imitated throughout England, a bright day will have dawned for many of her agricultural labourers. It is worth while to point out that Mr. Fraser, the Commissioner, has declared that if 30 per cent. of the cottages built had three bed-rooms the wants of the labourers will be sufficiently provided for. Mr. Nevile, it will have been seen, supplies 50 per cent., or one in two. *Bonamy Price in the "Pall Mall Gazette."* [Will any competent critic explain Mr. Nevile's experience?]

Calendar of Operations.

DECEMBER.—*Wheat Sowing:* It is better to sow Wheat in December with a good season than in February and March with a bad one, and accordingly in fine open weather, with a tempting seed bed, large breadths of Wheat are sown at this season south and north, in some cases on a lea furrow, in others after Turnips, Cabbages, &c. Rather more seed is needed than when sown earlier, and care should be taken to drill it in at the proper depth with a roughish clod to drink in heavy continuous rains should they fall. Clayey soils not sufficiently under-drained to drain off the rain-water as fast as it falls, had better be ploughed up into narrow stetches, with deep open furrows between, so that the young Wheat may root safely "high and dry," just as Wheat is said to grow on the lazy beds of the Irish farmer in the moist climate of the sister country, where it rains "black, blue, and grey all the winter over."

Wheat Fields and Autumn Fallows.—Examine after every storm, and also every now and then in open weather, as directed last month, to see if the surface and under-drainage are right. It is common to talk of the thorough advantage of clayey soils and wet-bottomed gravelly land; but in a vast number of such cases more than half the rain-water may be seen at this season flowing in the furrows during heavy storms, washing away the heart of the land, and doing an immense harm in various ways. Thus furrows cut and undermine the Wheat on either side, which consequently falls in after the first frost. In this example the furrows require to be cleaned out, and the water-way between the ridges re-opened in its proper place. In other cases the flow of water in the furrows gets into a main drain, which it crosses, washing in soil, &c. The ingress of the water to the drain must be stopped; the open water-furrows and ditches at the lower ends of the fields silt up, choke the main drains, and so on the unwelcome story of the season runs. The harm thus done to Wheat fields when improperly under-drained is great, but that done to autumn fallows, manured for Mangel Wurzel, Potatos, &c., is incalculably greater when rainwater flows between the drills or ridges, as it does in too many cases towards the lower ends of fields, more especially when lying comparatively level, or at a less inclination than the upper part of the fields. Additional drains should have been put into the lower ends of such fields, and into all places in them where the rainwater flows in the furrows, before the manure was applied in early autumn, and the land afterwards subsoiled to promote the percolation of the rainwater to the drains. In not a few instances where this was not done, it may be done at this season—the subsoiling being effected by steam in the open furrows—between the ridges containing the manure.

Subsoiling.—Continue to use the subsoil plough on all hard bottoms that require ventilation. Some clays are too soft by this time, but there are exceptional seasons when the winds and rains may be let into them up to Christmas, and wherever the rain can be let down to the drains, keep the subsoiler going. This can be done successfully by steam on soft, sour, tenacious bottoms, where it cannot be done by horses, owing to the trampling of their feet, which consolidates the loosened subsoil, thereby closing the newly opened water-way to the drains. Even where the clay has become too wet to rise in broken fragments, the steam-hauled implement may act effectually as a mole-plough, so that when worked across the drains it will open a water-way to them, and thus relieve the land of stagnant water within and flowing water on the surface. It will even do more than this, for the rainwater draws in air after it, so that oxidation—washing and changing the nature of the soil—takes place. On some wet-bottomed sandy and gravelly soils we have seen springs piping up in the bottom of the plough furrow from 1 to 3 feet from the drains before they were subsoiled, but after subsoiling the land was effectually drained as deep as the subsoil plough went, being changed to a rich fertile Turnip soil. Part of one field, a springy sandy clay, was subsoiled twice, two seasons in succession, the second operation being angularly across the first, and the second subsoiling paid better than the first. Both crossed the drains, each with a slight inclination down hill, so as to drain off the springs in the sole marks of the plough, herring-bone ways from the centre of the ridge halfway between two drains. In very bad cases we should recommend cross subsoiling.

Brood mares often endure enough hardships at this season to kill them, and this happens as often to those not worked as to those daily in harness. What has been said above under farm horses, and something more, apply to the latter (those in harness), inasmuch as by this time the fœtus draws largely upon the daily sustenance of the mare, while it, at the same time, weighs heavily in a two-fold manner upon her physical energies. How carefully therefore should she be attended to in the field, and on the road, as well as in stable. Mares kept for breeding only generally suffer from exposure to the changeable weather of this season, and also from an improper dietary. Lying and standing on their own dunghills is also against them, and rather than submit to this in badly ventilated hovels, they will stand in the open yard, with their tails to the weather, be it frosty or wet. Field grazing is equally unsuited, and out of date. What they require is proper food in a well ventilated loose box, and grooming with moderate exercise daily.

Notices to Correspondents.

LACTOMETER: *Aberdeen.* All you require is a wide tube, graduated downwards, and divided below zero into 100 parts. Fill with milk up to zero, and in six hours' time you can read off the percentage of cream on the scale.



Surplus Stock.—Very Cheap.

SPECIMEN CONIFERS and EVERGREENS, handsome and well-grown, for Lawns, Pleasure Grounds, and Parks, have been recently transplanted, and are full of health and vigour. For Descriptions, also Prices of other sizes, see RICHARD SMITH'S LISTS.

Trucks for 1 ton and upwards may be sent through to any Railway Station on the narrow gauge lines, at a moderate cost, thereby saving delay and expense of packing.

At 12s. per dozen.

Abies canadensis (Hemlock Spruce), 4 to 5 feet
" excelsa, 3 to 4 feet
Arbor-vitæ, American, 5 to 6 feet
" Siberian, 3½ to 4 feet
Gorse, double, in pots, strong
Hartogia capensis (Cape Laurel), 1½ to 2 feet
Laurel, narrow leaved, 2 to 2½ feet
" Portugal, 2½ to 3 feet
Picea balsamea, selected, 4 to 5 ft.
Quercus ilex (Evergreen Oak), 15 to 18 inches [24 inches
Rhododendron ponticum, 21 to
Holly, screw-leaved, green, 1½ to
Phillyrea oleafolia, 2 to 2½ ft. [2 ft.

At 18s. per dozen.

Abies canadensis, 5 to 6 feet
" excelsa, 4 to 5 feet
Alaternus, broad leaved, 2 to 2½ ft.
Arbor-vitæ, American, 6 to 7 feet
" Siberian, 4 to 4½ feet
Aucuba japonica, 18 to 21 inches
Box, green tree (pyramids, very handsome), 2½ by 2½ feet
Hartogia capensis, 2 to 2½ feet
Laurel, narrow leaved, 2½ to 3 feet
Phillyrea oleafolia, 2½ to 3 feet
Picea balsamea, 5 to 6 feet
Pinus austriaca, 3 to 4 feet
Quercus ilex, 2 to 2½ feet
Rhododendron ponticum (very bushy), 2 to 2½ feet
" hybrids, fine varieties, 18 to 21 inches
Taxus japonica (Japan Yew), 12 to 15 inches

At 24s. per dozen.

Abies elegans, 18 to 24 inches
Arbor-vitæ, Siberian, 4½ to 5 feet
Aucuba japonica, 21 so 24 inches
Cryptomeria Lobbii, 5 to 6 feet
Cupressus Lawsoniana, 4 to 5 feet
Holly, screw leaved, green, 2 to 2½ feet
Ivy, green tree, 18 to 24 inches
Laurel, Portugal, pyramids, 3 to 4 feet
Phillyrea oleafolia, very fine, 3 to
Rhododendrons, hybrids (fine varieties), 21 to 24 inches
Taxus japonica, 15 to 18 inches

At 30s. per dozen.

Abies canadensis, extra fine, 6 to 7 feet
" elegans, 2 to 2½ feet
Arbor-vitæ compacta, 2½ to 3 feet
Aucuba japonica, very bushy, 2 to 2½ feet
Cryptomeria Lobbii, 6 to 7 feet
" viridis, 6 to 7 feet
Ivy, green tree, extra fine and bushy, 2 to 2½ feet
Juniperus chinensis, 3 to 3½ feet
" drupacea, 18 to 24 inches
" glauca, 3 to 4 feet
" Lecana, 3 to 4 feet
Pinus austriaca, 4 to 5 feet
Thujopsis borealis, 4 to 5 feet

At 36s. per dozen.

Abies inverta (Weeping Spruce), 2½ to 3 feet
Arbor-vitæ compacta, 3 to 3½ feet
" Siberian (very fine), 5 to 6 feet
Cupressus Lawsoniana, 5 to 6 feet
Juniperus chinensis fœmina, 3 to
" densata, 3 to 4 feet [3½ feet
" Schottii, 3 to 3½ feet
Juniperus Smithiana, 3 to 3½ feet
" viridis pendula, 3 to 4 feet
Laurel, Portugal (pyramids, very fine), 4 to 5 feet
Pinus laricio, 6 to 7 feet
Taxus elegantissima (gold leaved), 18 to 24 inches
" Irish, 5 to 6 feet

At 42s. per dozen.

Abies inverta, fine specimens, 3 to 4 feet
Arbor-vitæ compacta, 3½ to 4 feet
" Siberian (very fine), 6 to 7 feet
Juniperus Chinensis, 3½ to 4 feet
" fœmina, 3½ to 4 feet
" drupacea, 24 to 30 inches
" Lecana, 4 to 5 feet
Juniperus phœnicia, 3 to 4 feet
" Schottii, 3½ to 4 feet
" thurifera (incense Juniper), 4 to
" virginiana, 6 to 7 feet [5 feet
Picea Nordmanniana, 18 to 24 ins.
Pinus austriaca, 5 to 6 feet
" laricio, 7 to 8 feet
Thujopsis borealis, 5 to 6 feet

At 48s. per dozen.

Abies inverta, 4 to 5 feet
Juniperus chinensis, 4 to 5 feet
" densata, 4 to 5 feet
" glauca, 4 to 5 feet
" Lecana, 5 to 6 feet
" phœnicia, 4 to 5 feet
" Schottii, 4 to 5 feet
Juniperus Smithiana, 3½ to 4 feet
" thurifera, 5 to 6 feet
" virginiana, 7 to 8 feet
" viridis pendula, 4 to 5 feet
Pinus laricio, 8 to 9 feet
Taxus, Irish, 6 to 7 feet
Wellingtonia gigantea, 2½ to 3 feet

At 60s. per dozen.

Abies Menziesii, 7 to 8 feet
" monstrosa, 7 to 8 feet
Arbor-vitæ compacta, 4 to 4½ feet
Juniperus chinensis, very fine, 5 to 6 feet
" densata, 5 to 6 feet
" glauca, 5 to 6 feet
" phœnicia, 5 to 6 feet
" Smithiana, 4 to 5 feet
" thurifera, 6 to 7 feet
Juniperus virginiana, 8 to 10 feet
" viridis pendula, 5 to 6 feet
Laurel, colchic (very fine), 8 to 10 feet [5 to 6 feet
" Portugal, pyramids (very fine),
Picea Nordmanniana, 2 to 2½ feet
Pinus cembra, extra fine, 6 to 7 ft.
Taxus elegantissima, 2 to 2½ feet
Thujopsis borealis, 6 to 7 feet
Wellingtonia gigantea, 3 to 3½ ft.

Abies albertiana, 7 to 8 feet, 10*s.* 6*d.* each.
" Douglasii, 8 to 10 feet, 7*s.* 6*d.*; 10 to 12 feet, 10*s.* 6*d.*; extra fine, 12 to 15 feet, 15*s.* each
" orientalis, 4 to 5 feet, 6*s.*; 5 to 6 feet, 7*s.* 6*d.*; 6 to 7 feet, 10*s.* 6*d.* each
Araucaria imbricata, 5 to 6 feet, 21*s.*; 6 to 7 ft., 31*s.* 6*d.*; 7 to 8 ft. 42*s.*; 8 to 9ft., 52*s.* 6*d.*; 9 to 10 ft., 63*s.* to 84*s.* each.
Juniperus densata, 6 to 7 feet, 6*s.*; 7 to 8 feet, 7*s.* 6*d.* each
" thurifera, very fine, 7 to 8 feet, 6*s.*; 8 to 9 feet, 7*s.* 6*d.* each
Laurel, Portugal, pyramids, extra fine, 7*s.* 6*d.*; very large, 10*s.* 6*d.* each.
Picea grandis, extra fine, 5 to 6 ft., 15*s.*; 6 to 7 feet, 21*s.* each.
Picea lasiocarpa, 2½ to 3 feet, 15*s.*; 3 to 3½ feet, 21*s.*; 3½ to 4 ft., 31*s.* 6*d.*; 4 to 4½ feet, 42*s.*; 4½ to 5 feet, 52*s.* 6*d.* each
" nobilis (best glaucous var.), 18 to 24 inches, 7*s.* 6*d.*; extra fine, 2 to 2½ feet, 10*s.* 6*d.*; 2½ to 3 feet, 15*s.* ea.
" Nordmanniana, 4 to 5 ft., 15*s.*; 5 to 6 feet, 21*s.*; 6 to 7 feet, 31*s.* 6*d.*; 7 to 8 ft., 42*s.* each.
" Pinsapo, 3 to 3½ ft, 10*s.* 6*d.*; 3½ to 4 ft., 15*s.*; 4 to 4½ ft., 21*s.*; 5 to 5½ ft, 31*s.* 6*d.*; 5½ to 6 ft, 42*s.* ea.
Pinus Cembra, 7 to 8 feet, 6*s.*; 8 to 9 feet, 7*s.* 6*d.* each.
Wellingtonia gigantea, 3½ to 4 ft., 7*s.* 6*d.* each.
Yews, for hedges, about 12 feet high, 40 years old, recently transplanted, 31*s.* 6*d.* each

RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

SILVER SAND and PEAT, from Bedfordshire, in any quantity. This Sand is acknowledged by Florists to be the best yet obtained. Price Lists on application to MR. JOHN ARNOLD, Builder, 29, Clarendon Square, St. Pancras, N.W.

THOMSON'S STYPTIC prevents Bleeding in the Vine, and all other Plants. Manufactured and Sold by JOHN YOUNG AND SON, Dalkeith, and may be had of all Nurserymen and Seedsmen. Price 3*s.* per bottle.

GENUINE TOBACCO PAPER, of the finest quality, 10*d.* per lb., or 84*s.* per cwt.
WILLIAM RUSHFORTH, Nurseryman and Seed Merchant, Leeds.

APPLEBY'S GENUINE TOBACCO PAPER, in 2 lb. and 1 lb. packets. Testimonials too numerous for insertion. Price on application to HENRY APPLEBY (Foreman to Messrs. Ivery & Son, Nurserymen), Dorking, Surrey.



Red Spider

Magnified.

GISHURST COMPOUND.

Used by many of the leading Gardeners since 1860, against Red Spider, Mildew, Thrip Green Fly, and other Blights in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.*

Wholesale by
PRICE'S PATENT CANDLE COMPANY (Limited),
Battersea, London, S.W.

REES AND CO.'S BIPHOSPHATED PERUVIAN GUANO can be obtained of the undernamed, in any quantity, from one bag upwards, at the following cash prices. Remittance to accompany order:—

One Bag, containing 2 cwt. £1 4 0
Five Bags, containing 10 cwt. 5 10 0
Ten Bags, containing 20 cwt... .. .. .. 10 12 6

Address, JOHN G. BARRY,
8, Old Jewry, London, S.E.,
London Agent for "Rees & Co.'s Biphosphated Peruvian Guano Company, Limited."

The Biphosphated Peruvian Guano combines the stimulating power of Peruvian Guano with the nourishing properties of Superphosphate. It is sent out in sealed bags, and each bag is guaranteed by Sellers to contain—

6 to 7 per cent. of Ammonia (fixed).
20 to 22 per cent. of Soluble Phosphates.
5 to 7 per cent. of Alkaline Salts (chiefly Potash).

Write for Copy of Analysis by Dr. Voelcker, Consulting Chemist to the Royal Agricultural Society of England; Professor J. T. Way, of London; and other leading Chemists.

REES AND CO.'S BIPHOSPHATED PERUVIAN GUANO (Registered Trade Mark, Flying Albatross), is now ready for delivery in quantity and in fine condition. It is believed to be the best Artificial Manure yet produced. Its base is Peruvian Government Guano; it contains 21 per cent. of Soluble Phosphates, 6 to 7 per cent. of Ammonia with Salts of Potash. See reports of Dr. Voelcker, Dr. Anderson, Professor Way, Mr. Ogston, and Mr. Sibson. Delivered in 2 cwt. bags, each of which is secured by a leaden seal, bearing the Company's Trade Mark. The analysis is guaranteed so long as the seals remain unbroken.

Agents for the North of England — Messrs. Keighley, Maxsted & Co., Hull.
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Agents for South-West of England—Messrs. Wm. Smith & Co., Bristol.
Agent for Kent, Surrey, Sussex, Essex, Herts, and Middlesex—Mr. John G. Barry, 8, Old Jewry, London.
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Messrs. Allan, Edwards & Co., Dundee.
Agents for Ireland—Messrs. R. F. Gladstone & Co., Dublin.
Price £11 per ton, delivered free to Rail or Wharf in London.
REES AND CO.'S Biphosphated Peruvian Guano Company (Limited), 32, King William Street, London, E.C.
PERUVIAN GOVERNMENT GUANO, £13 10s. per ton.

TOBACCO TISSUE, for Fumigating Greenhouses. Will destroy all the Insects, and not injure the Plants, and Burns without the assistance of Blowing. Price 3s. 6d. per lb., carriage free. A reduction in price for large quantities.

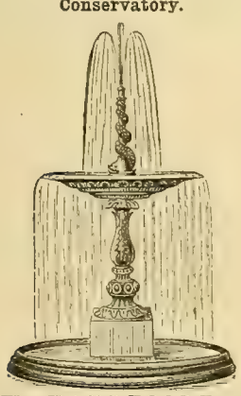
To be had of Messrs. R. ROBERTS AND SONS, 112, St. John Street, Clerkenwell, London, E.C.; and of all Seedsmen and Nurserymen.

The Cheapest and Best Insecticide.
DUTY-FREE TOBACCO.
BY HER MAJESTY'S ROYAL LETTERS PATENT, AND BY PERMISSION OF THE HON. BOARD OF CUSTOMS.

POOLEY'S TOBACCO POWDER, for the Prevention and Destruction of Blight and other Diseases in Plants.
Sold by Nurserymen, Seedsmen, and Florists,
In Tins at 1s., 2s. 6d., and 5s.
Powder Distributors, 2s. 6d. and 3s. 6d. each.
"I find it exceedingly useful for killing the Aphides on Roses and other Plants."—GEO. EYLES, Superintendent, Royal Horticultural Gardens, South Kensington. May 7, 1868.
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S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.
S. & C.'s PRUNING and BUDDING KNIVES are the best and the cheapest in the market.
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Vases and Fountains, for the Garden and Conservatory.



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The Britannia Iron Works have for the last 40 years been well known for the production of fine Iron Castings. The use of Cast-iron permits a delicacy of outline, and smoothness of surface, impossible in cheap Stone or Terra-cotta. Cast-iron Vases, if occasionally painted, are imperishable, and will not crack when exposed to wet or frosty weather.





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A. H. & Co. make the better kind of IRON and GLASS CONSERVATORIES, and have constructed some of the largest and finest in the kingdom.

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WITH PATENT ROLLED STEEL RIBBED BEATER PLATES, AND ALL OTHER RECENT IMPROVEMENTS.

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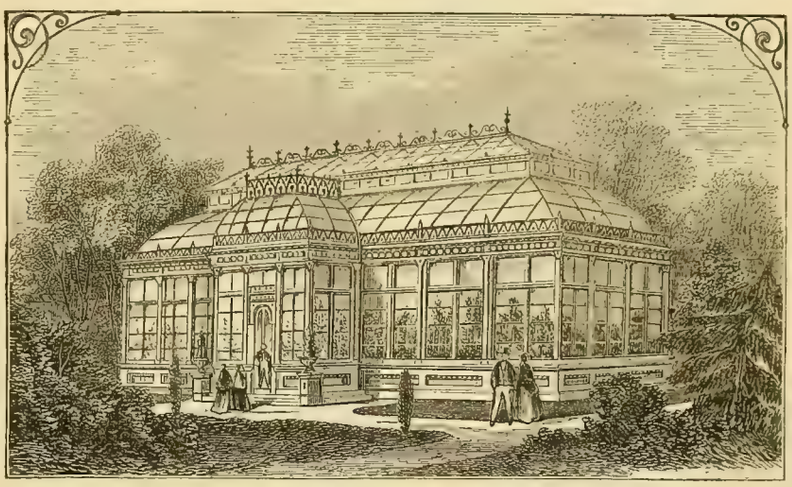


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These Plates have been thoroughly tested, and are found to wear more than three times as long as the Malleable Iron Plates previously in use
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ST. PANCRAS IRON-WORK COMPANY.



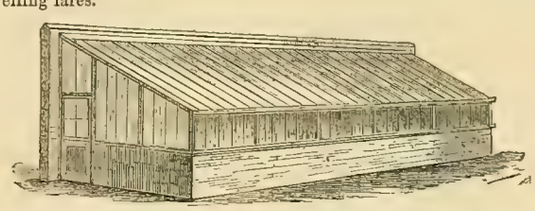
CONSERVATORIES, GREENHOUSES, &c.
ARCHITECTS' DESIGNS CAREFULLY CARRIED OUT.

APPLY FOR ESTIMATES TO
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A LONG-FELT WANT PROVIDED.
A NEW ERA IN THE HORTICULTURAL WORLD.
EVERY PERSON POSSESSING a GARDEN CAN NOW ERECT for HIMSELF a GREENHOUSE at a TRIFLING COST.

DENNIS & COMPANY, CHELMSFORD,

Have succeeded in producing a really good, strong, and useful Building for less than £5, so simple in its construction that any ordinary mechanic can fix it with ease, thereby doing away with the cost of expensive mechanics' time and travelling fares.



LEAN-TO, with Front Lights to Open (Class B.)

Suitable for Cucumber or Melon Houses, Stoves or General Forcing Houses, Small Vineries, Greenhouses, Peach-houses, &c. They are made only of the following external widths, with two glass ends and one door, including 16-oz. Horticultural Glass, cut up, and one priming coat of paint on the wood framing:—

Width.	Height to Eaves.	Height to Ridge.	Length 6 feet 4½ inches.	For every additional 6 feet, add	For glass partition and door, add	If doors at both ends, add	If only one glass end, deduct
Ft. Ins.	Ft. In.	Ft. In.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
5 4½	5 0	7 8	4 11 0	2 8 3	1 4 6	0 5 3	0 18 6
6 3½	5 0	8 1½	5 6 9	2 14 3	1 9 3	0 5 3	1 13 3
			12 ft. 4½ in.				
			£ s. d.				
7 2½	5 0	8 7	8 16 0	2 17 6	1 13 9	0 5 3	1 7 9
8 1	5 0	9 0	9 15 2	3 3 0	1 17 9	0 5 3	1 11 6
10 0	5 0	10 0	12 10 3	3 16 9	2 11 6	0 5 3	2 5 6
12 0	5 0	11 0	14 6 9	4 7 6	3 3 0	0 5 3	2 17 9

Note.—For every additional length of less than 6 feet, the cost of 6 feet will be charged.

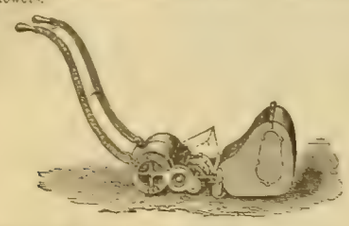
Full particulars as to the various classes of Buildings, their dimensions, adaptations, and suitability for different purposes are contained in their Catalogues, which will be forwarded on application to

T. H. P. DENNIS AND COMPANY, HORTICULTURAL BUILDERS and ENGINEERS,
ANCHOR IRON WORKS, CHELMSFORD.

SHANKS'S PATENT LAWN MOWERS for 1869.
The Patent Improvements recently introduced give
SHANKS'S MACHINE
Several important advantages possessed by no other Lawn Mower.
PATENT DOUBLE-EDGED SOLE-PLATE, WIND-GUARD, &c.

The unprecedented Sale for 1868, notwithstanding the Dryness of the Season, forms the most convincing testimony how much these advantages have been appreciated.

ALEXANDER SHANKS & SON beg to intimate that, among all the Exhibitors of Lawn Mowers at the Paris Exhibition, they are the only Firm to whom the Jury awarded a Medal. The Silver Medal then awarded is the highest Prize ever given at any Exhibition for Lawn Mowers.



ALEXANDER SHANKS & SON have for some time past been making the Revolving Cutter of their Machines Self-Sharpening—that is, with Steel on both Sides of each Blade, so that when the Cutter becomes blunt by running one way, it can be reversed, thus bringing the opposite or sharp edge of the Cutter to act against the Sole-Plate. In addition to this, A. S. & SON now make the Sole-Plate or Bottom Blade of their Machine with Two Edges—one in front as usual, and one in reserve at the back; when the front edge gets worn down, the plate has only to be unscrewed and the unused edge brought to the front. It will be seen at a glance that this arrangement enables the cutting parts to last twice as long as in other machines, where the single-edged Sole-plate must be entirely renewed when the edge is worn down.

A Wind-Guard has also been introduced to prevent the Mown Grass being blown past the Box during the prevalence of wind.

There is no ribbing with these Machines. The Lawn when mown has a most beautiful appearance, being as smooth as a piece of velvet.

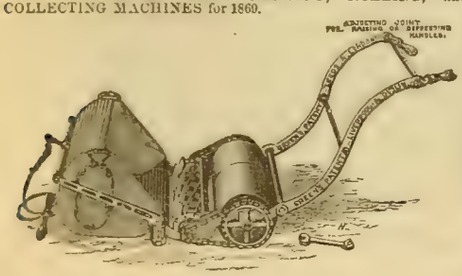
Every Machine warranted to give ample satisfaction, and if not approved of can be at once returned.

Illustrated Circulars, with full particulars, sent free on application.

A. SHANKS AND SONS, Dens Iron Works, Arbroath; and 27, Leadenhall Street, London, E.C.

☞ A Stock of all sizes of Lawn Mowers always kept at 27, Leadenhall Street.

GREEN'S PATENT SILENS MESSORS, or NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES for 1869.



Every Machine is warranted to give entire satisfaction, and if not approved of, can be returned at once unconditionally.

PRIZE MEDALS AWARDED to GREEN'S PATENT LAWN MOWERS.

First Prize Medal at the International Exhibition, London, 1862.
First Prize Medal at the International Exhibition, Dublin, 1865
First Prize Medal at the Namur Exhibition.
First Prize Medal at the Gand Exhibition.
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GREEN'S Patent Lawn Mowers have proved to be the best, and have carried off every Prize that has been given, in all cases of competition.

The extraordinary success of GREEN'S Patent Lawn Mowers is an established fact. During the last five years the demand has been unprecedented, which alone is a proof of their superiority over all others. The following are their characteristic features:—1st. Simplicity of construction, every part being free of access. 2d. They are worked with far greater ease than any other Lawn Mower. 3d. They are the least liable to get out of order.

GREEN'S Patent Lawn Mowers combine all the advantages of self-sharpening, and when the cutters become blunt by running one way round, they can be reversed again and again, bringing the sharp edge of the cutters against the bottom blade, which operation can be done by any inexperienced person, owing to the peculiar adaptation of the Machine, which is possessed by no other. Illustrated Price Lists free on application.

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N.B.—All orders are executed on the day they are received.

Rosher's Garden Edging Tiles.



THE above and many other PATTERNS are made in Terro-Metallic Ware, Terra-Cotta, Stoneware, and Redware, and of great durability. The plainer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability and superior finish, and in much variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.E. Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E. Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in Blue, red, and buff colours, and capable of forming a variety of designs. Likewise more elaborate designs. Pattern Sheets of Pavements, with prices, forwarded for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stone-ware Drain Pipes, Slates, Cements, &c.

To be obtained of F. & G. ROSHER, at their premises as above.

SILVER SAND (REIGATE), at the above addresses—1s. per Ton, 1s. 2d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less. A coarser grained Sand 4s. per ton more. Samples of Sand by post on receipt of stamp.

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F. & G. ROSHER.—Addresses see above.
N.B. Orders promptly executed by Railway or Vessel.
A liberal discount to the Trade.

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RABBIT-PROOF GARDEN FENCING, WIRE TRELLIS WORK, GARDEN ARCHES, ROSARIES, ROSE FENCES, or SCREENS. All kinds of WIRE WORK for Gardens, Conservatories, &c.
R. HOLLIDAY, Wire Worker, &c, 2A, Portobello Terrace, Notting Hill Gate, London, W.

"Every Cottage should be provided with a Water Tank." *Disraeli.*

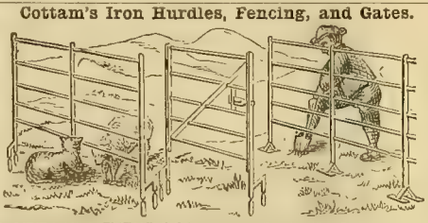
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F. BRABY AND CO. having laid down more extensive and Improved Machinery on their Deptford premises (IDA WHARF), are prepared to supply WROUGHT-IRON TANKS, GALVANISED or PAINTED, of superior quality, at reduced prices, and at very short notice.



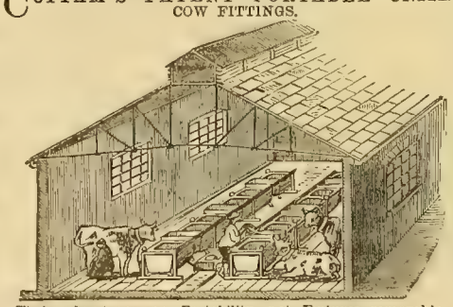
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N.B. Open Tanks of different sizes packed one in another to save carriage.

Cottam's Iron Hurdles, Fencing, and Gates.



COTTAM'S HURDLES are made in the best manner, of superior Wrought Iron, by an improved method. Illustrated Price Lists on application to COTTAM AND CO., Iron Works, 2, Winsley Street, Oxford Street, London, W.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rick dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of Iron. Prices of Fittings per Cow, 55s.

Prospectuses free of COTTAM AND CO., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

HOT-WATER APPARATUS of every description, fixed complete in any part of the country, for Warming Greenhouses, Conservatories, Forcing Pits, &c.
Plans and Estimates on application.
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HOT-WATER, GAS, RAIN-WATER PIPES BOILERS, &c., delivered in London, Liverpool, Bristol, or equivalent.

		2-inch.	3-inch.	4-inch.
		s. d.	s. d.	s. d.
HOT-WATER PIPES, Nos. 6 & 7 on illustrated sheet	per yard	0 11	1 5	1 11
ELBOWS	No. 12 on do. each	1 4	2 1	2 9
TEE PIPES	No. 33 on do. "	2 0	3 0	4 0
SYPHONS	No. 23 on do. "	1 9	3 0	4 0
VALVES	"	10 0	11 0	12 0

GEORGE ROBINSON, Dial Iron Works, Stourbridge.
London Warehouse, 16, Grand Junction Wharf, Paddington Basin.



The Only Stove without a Flue.

NASH AND JOYCE'S PATENT, for WARMING HALLS, SHOPS, GREENHOUSES, &c.

These Stoves burn without attention or replenishing 12 to 24 hours. From 12s. 6d. to Six Guineas. PATENT FUEL, 4s. 6d. per bag.

STOVES made expressly for Greenhouses, to Burn all Winter by filling up with the Patent Fuel every 12 hours.

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W. H. LASCELLES' MACHINE-MADE MELON LIGHTS. Each.



6 ft. by 4 ft. Lights, 2 in. thick, unglazed	£0	5 0
" " Primed and Glazed with 10 oz. Sheet	0	11 0
" " with stout portable Box, not Painted	1	3 0
" " Painted four coats, and Handles on	1	8 0
" " Packed and Delivered in Railway Van	1	10 0
6 ft. by 8 ft., Double Lights, do.	2	15 0

GREENHOUSES. Per ft. super.

Woodwork only Prepared and Fitted	0	0 6
" Primed and Glazed with 16 oz. Sheet	0	0 9
" Delivered, and Fixed with Ironwork	0	1 "
" Painted four coats, two sides, ready for use	0	1 3

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HOT-WATER APPARATUS Erected Complete, or the Materials Supplied for Heating

Peill's Conical. GREENHOUSES, HOTHOUSES, CONSERVATORIES, CHURCHES, PUBLIC BUILDINGS, &c. Tubular Boiler.





HOT-WATER PIPES at wholesale prices, Elbows, T Pieces, Syphons, and every other connection kept in stock.

WROUGHT and CAST IRON CONICAL, SADDLE, and IMPROVED PEILL'S and ELLIPTIC BOILERS, from 24s. each.

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PATENT and IMPROVED THROTTLE and other VALVES, FURNACE DOORS, BARS, and FURNACE WORK of every description and size.

LYNCH WHITE,
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Price List on application.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen for Windsor Castle and Frogmore Gardens, the Duke of Northumberland, Duke of Devonshire, late Sir J. Paxton for the Crystal Palace; Royal Gardens, Kew; Professor Lindley for the Horticultural Society, &c.

The best Shading is "Frigi Domo" Netting,

White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for

PROTECTION from the COLD WINDS and MORNING FROSTS.

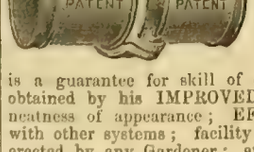
"FRIGI DOMO" NETTING, 2 yards wide, 1s. 6d. per yard run.

"FRIGI DOMO" CANVAS.

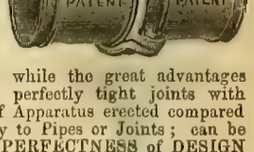
Two yards wide	1s. 9d. per yard run.
Four yards wide	3s. 6d. per yard.
An improved make, 2 yards wide	1s. 9d. per yard.
An improved make, 3 yards wide	2s. 8d. per yard run.

Scrim Canvas, 72 inches wide, 70 yards long, 5½d., 6¾d., 7½d., 7¾d. and 8½d per yard.
Hesian Canvas, 54 and 72 inches wide, 6¼d. and 8¼d. per yard. ½d. extra for cut lengths.
ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.

PORTABLE AND FIXED HOT-WATER APPARATUS,
FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH
TRUSS'S PATENT UNIVERSAL FLEXIBLE AND LEAKLESS PIPE-JOINTS.



T. S. TRUSS



Begs to state that the immense number of APPARATUS annually Designed and Erected by him in all parts of the kingdom, and for the ROYAL HORTICULTURAL SOCIETY at SOUTH KENSINGTON and CHISWICK, with unrivalled satisfaction, is a guarantee for skill of design, superior materials, and good workmanship; while the great advantages obtained by his IMPROVED SYSTEM cannot be over-estimated, consisting of perfectly tight joints with neatness of appearance; EFFECTS A SAVING OF 25 PER CENT. on cost of Apparatus erected compared with other systems; facility for extensions, alterations or removals without injury to Pipes or Joints; can be erected by any Gardener; an ordinary size Apparatus erected in one day; and PERFECTNESS of DESIGN SUPPLIED, INSURING NO EXTRAS. Complete Apparatus, of the best materials, delivered to any Railway Station in England, and Erected at the following prices. Erection beyond 25 miles of London, railway fare for one man additional. Considerable reduction on large works.

TWO FOUR-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
20 feet by 10 feet	£9 0 0	£2 0 0	50 feet by 15 feet	£17 10 0	£3 0 0
30 feet by 12 feet	11 15 0	2 10 0	75 feet by 15 feet	20 0 0	3 0 0
40 feet by 15 feet	15 0 0	2 15 0	100 feet by 15 feet	26 0 0	3 5 0

Bath and Gas Work erected in town or country. **The Trade Supplied.**
Price Lists, Plans, and Estimates forwarded on application to
T. S. TRUSS, C.E., CONSULTING HORTICULTURAL ENGINEER, &c., SOLE MANUFACTURER, IRON MERCHANT, HOT-WATER APPARATUS MANUFACTURER, AND HORTICULTURAL BUILDER,
FRIAR STREET, BLACKFRIARS ROAD, LONDON, S.E.

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For Samples and Prices apply to
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TRELOAR'S FINE COCOA-NUT MATTING, warranted unbleached. No other kind is durable,—all other kinds are dear. Catalogues free by post.
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RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post-free on application.
JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London.

Indestructible Terra Cotta Plant Markers.
MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c. MAW AND CO., Benthall Works, Broseley.

LABELS, LABELS.—PARCHMENT or CLOTH LABELS.—Tree or Plant Labels, punched parchment, 4 inches long, 4s. per 1000, or 10,000 for 35s., cash on delivery. Sample Label sent on receipt of a penny stamp. Orders delivered free in London by JOHN FISHER AND CO., Label Works Boston, Lincolnshire.

F. A. HAAGE'S WOOD GARDEN STICKS and TALLIES, commended by the Royal Horticultural Society, acknowledged to be the neatest, cheapest, and best Training Sticks and Tallies made.
The above can now be had, of all sizes, Wholesale, of BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London, E.C.; and Retail of the principal Seedsmen and Florists.
Price Lists on application.

IRON HURDLES
(Silver Medal of the Royal Agricultural Society):
SHEEP, 3s. 6d.; CATTLE, 4s. 3d.; OX, 5s. 11d.
List by post. GATES and FENCING of every description.
St. Pancras Iron Work Company, Old St. Pancras Road, London, N.W.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.
For particulars apply to JOHN FOWLER AND CO., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

Hothouses for the Million.—Notice of Removal.
MESSRS. HEREMAN AND MORTON beg to give notice to their Patrons and the Public that in consequence of the offices occupied by them at 7, Fall Mall East being required for other purposes, they have taken larger rooms at 14, TICHBORNE STREET, REGENT'S QUADRANT, W., to which address *only* all applications for prices of SIR J. PAXTON'S HOTHOUSES, and other information respecting Horticultural Buildings and Heating Apparatus of every description, should be made after the first week in January, 1870.
A PAMPHLET and PRICE LIST, &c., with 15 illustrations, description, and testimonials, will be sent post free on receipt of two stamps.
A HANDBOOK of VINE and FRUIT TREE CULTIVATION, with Views and Sections of Houses, Hints for Heating, complete Lists of Trees, &c, by S. HEREMAN, Chatsworth, post free for 13 stamps.
HEREMAN AND MORTON, Horticultural Builders and Hot-water Engineers. Country Works in Gloucester, Coventry, near Ulverstone, Paisley, and Aberdeen.

Horticultural Glass Warehouse.
THOMAS MILLINGTON AND CO.,
87, Bishopsgate Street Without, London, E.C.
NEW LIST for ORCHARD-HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD-HOUSE SIZES.

in.	in.		4ths.	3rds.	2nds.	Best
20 by 12						
20 by 13						
20 by 14	Per 100 feet	15 oz.	12s 3d	15s 6d	16s 9d	18s 0d
20 by 15		21 oz.	18s 0d	20s 0d	22s 0d	24s 0d
20 by 16						

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7					11s 3d	12s 6d	14s 0d	15s 6d
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½								

Per 100 feet.

10 by 8	12 by 9	12½ by 10½	14½ by 10½					11s 9d	14s 9d	15s 3d	17s 0d
10½ by 8½	12½ by 9½	13 by 10	15 by 10								
11 by 9	13 by 9	13½ by 10½	13 by 11								
11½ by 9½	12 by 10	14 by 10	14 by 11								

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
15½ by 10½	14 by 12	22 by 12	22 by 16					12s 3d	15s 6d	16s 9d	18s 0d
16 by 10	14½ by 12½	17 by 13	24 by 16								
14½ by 11½	15 by 12	23 by 13	20 by 17								
15 by 11	15½ by 12½	18 by 14	22 by 17								
15½ by 11½	16 by 12	22 by 14	24 by 17								
16 by 11	16½ by 12½	24 by 14	20 by 18								
21 by 11	17 by 12	22 by 15	22 by 18								
13 by 12	18 by 12	24 by 15	24 by 18								

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.
In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	36s.	4ths quality, per 200 feet case,	36s.
3ds " "	42s.	3ds " "	42s.
2ds " "	62s.	2ds " "	62s.
Best " "	76s.	Best " "	75s.

SHEET GLASS is made only in the following substances, 15 oz. 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.
HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.
BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.
STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.
WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a-half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.
IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4s. per gallon.

	Per cwt.—s. d.		Per gallon.—s. d.
GENUINE WHITE LEAD	30 0	LINSEED OIL	2 9
SECONDS WHITE LEAD	28 0	BOILED OIL	3 2
GROUND PATENT DRYERS, 3d. to 4½d. per lb.		TURPENTINE	2 9
" OXFORD OCHRE, 3d. to 4½d. per lb.		LINSEED OIL PUTTY, 8s. per cwt.	
" RAW UMBER, 4½d. to 6d. per lb. [per lb.		Fine OAK VARNISH, 10s. to 12	0
" BURNT do., 6d. to 9d.		" CARRIAGE do., 12s. to 14	0
GREEN PAINT, all shades, 28s. to 60	0	" PALE do. 10s. to 12	0
BLACK PAINT, 24s. to 36	0	" COPAL	16 0
RED PAINT 28s. to 36	0	KNOTTING	10 0
		Patent GOLD SIZE	10 0
		" BLACK JAPAN	12 0
		GLAZIER'S DIAMONDS and TOOLS	
		MILLED LEAD and PIPES	
GROUND BRUSHES.		OLD LEAD Bought or taken in	
DUSTERS. SASH TOOLS.		exchange.	
DISTEMPER BRUSHES.			

The above are Net, for Cash, and as such cannot be booked.
Lists of any of the above on application.

Glass for Garden Purposes.
JAMES PHILLIPS AND CO.
beg to submit their REDUCED PRICES as follows:—

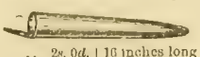
PROPAGATING  GLASSES.

Each.—	s.	d.	Each.—	s.	d.
2 inches in diameter ..	0	3½	12 inches in diameter ..	1	2
3 " " ..	0	4½	13 " " ..	2	0
4 " " ..	0	6½	14 " " ..	2	6
5 " " ..	0	6½	15 " " ..	3	0
6 " " ..	0	8	16 " " ..	3	6
7 " " ..	0	10	17 " " ..	4	0
8 " " ..	1	0	18 " " ..	5	0
9 " " ..	1	2	19 " " ..	6	0
10 " " ..	1	4	20 " " ..	7	0
11 " " ..	1	6			

BEE GLASSES, with ventilating hole through knob.

4 inches in diameter ..	0s.	6d.	9 inches in diameter ..	1s.	8d.
5 " " ..	0	8	10 " " ..	2	0
6 " " ..	0	10	11 " " ..	2	6
7 " " ..	1	1	12 " " ..	3	0
8 " " ..	1	4			

Either flat or conical tops.

CUCUMBER  GLASSES.

24 inches long ..	2s.	0d.	16 inches long ..	1s.	4d.
22 " ..	1	10	14 " ..	1	2
20 " ..	1	8	12 " ..	2	6
18 " ..	1	6			

HAND GLASSES,  WITH OPEN TOPS.

Each.—	s.	d.	Each.—	s.	d.
12 inches ..	6	6	18 inches ..	9	6
14 " ..	7	6	20 " ..	10	6
16 " ..	8	6	22 " ..	11	6
			24 " ..	12	6

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours ground ready for use.
SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of Prices and Estimates forwarded on application to
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OSLER'S CRYSTAL GLASS CHANDELIERS.
WALL LIGHTS and LUSTRES for Gas and Candles.
CHANDELIERS in Bronze and Ormolu.
MODERATOR LAMPS and LAMPS for INDIA.
TABLE GLASS of all kinds.
ORNAMENTAL GLASS, English and Foreign.
Mess, Export, and Furnishing Orders promptly executed.
ALL articles marked in plain figures.
LONDON—Show Rooms, 45, OXFORD STREET, W.
BIRMINGHAM—Manufactory and Show Rooms, Broad Street
Established 1807.

"Invaluable," the invariable report.
THE "VOWEL" WASHING MACHINE sent to all parts of Great Britain upon trial, carriage free. Particulars free by post.
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The New Vade Mecum (Invented & Manufactured by
CHARLES H. VINCENT, OPTICIAN, of 23, Windsor Street, Liverpool), consists of a TELESCOPE well adapted for Tourists, &c., to which is added an excellent MICROSCOPE of great power and first-class definition, quite equal to others sold at ten times the price. Wonderful as it may seem, the price of this ingenious combination is only 3s. 6d.; and Mr. VINCENT sends it (carriage free) anywhere, with printed directions, upon receipt of Post-office order or stamps to the amount of 3s. 10d.

Sauce.—Lea & Perrins.
THE "WORCESTERSHIRE," pronounced by connoisseurs "the only good Sauce," improves the appetite and aids digestion. Unrivalled for piquancy and flavour.
Ask for LEA AND PERRINS' SAUCE.
Beware of imitations, and see the names of LEA & PERRINS on all bottles and labels.
Agents—CROSSE AND BLACKWELL, London; and sold by all Dealers in Sauces throughout the World.

COCKLE'S ANTIBILIOUS PILLS,
THE SAFEST
FAMILY APERIENT.
In boxes at 1s. 1½d., 2s. 9d., 4s. 6d., and 11s.

COCKLE'S ANTIBILIOUS PILLS,
in use the last 60 years for
INDIGESTION.
In boxes at 1s. 1½d., 2s. 9d., 4s. 6d., and 11s.

COCKLE'S ANTIBILIOUS PILLS,
in use the last 60 years for
BILIOUS AFFECTIONS.
In boxes at 1s. 1½d., 2s. 9d., 4s. 6d., and 11s.

COCKLE'S ANTIBILIOUS PILLS,
in use the last 60 years for
LIVER COMPLAINTS.
In boxes at 1s. 1½d., 2s. 9d., 4s. 6d., and 11s.

COCKLE'S ANTIBILIOUS PILLS,
THE OLDEST
PATENT MEDICINE.
In boxes at 1s. 1½d., 2s. 9d., 4s. 6d., and 11s.

BREAKFAST.—EPPS'S COCOA.
GRATEFUL and COMFORTING.
The *Civil Service Gazette* remarks:—"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. EPPS has provided our breakfast tables with a delicately-flavoured beverage which may save us many heavy doctors' bills."
Made simply with boiling water or milk. Sold only in ¼ lb., ½ lb., and 1 lb. tin-lined packets, labelled—
JAMES EPPS AND CO., Homœopathic Chemists, London.

DINNEFORD'S FLUID MAGNESIA.—
The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion; and the best mild aperient for delicate constitutions, especially adapted for Ladies, Children, and Infants.
DINNEFORD AND CO., 172, New Bond Street, London
and of all Chemists throughout the World.

SOMERSET HOTEL, 162 and 163, Strand, adjoining King's College and Somerset House. This Hotel has been enlarged, and a LADIES' COFFEE-ROOM added. For quietness, comfort, economy, and central situation, is not surpassed. Beds 2s., Breakfasts 1s. Dinners, Luncheons, Suppers, &c., at equally moderate charges. Attendance 1s per day. A Night Porter kept.

LEGAL and GENERAL LIFE ASSURANCE SOCIETY, 10, Fleet Street, Temple Bar, London, E.C.
TRUSTEES.
The Right Hon. the Lord Chancellor.
The Right Hon. the Lord Cairns.
The Right Hon. Sir W. Bovill, Lord Chief Justice, C.P.
The Right Hon. Sir Edward Vaughan Williams.
The Hon. Sir George Rose.
Thomas Webb Greene, Esq., Q.C.
John Osborne, Esq., Q.C.
Edward Smith Bigg, Esq.
Robert Bayly Follett, Esq., Taxing Master in Chancery.
FINANCIAL POSITION on January 1, 1869.

Existing Assurances and Bonus	£4,650,000
Annual Income	200,000
Invested Funds	1,540,000
Claims and Bonus paid	1,050,000

Annual Accounts have always been published in full detail.
SECURITY.—The Assurance Fund amounts to more than seven times the total annual income. The further guarantee of a fully subscribed Capital of £1,000,000.
WHOLE-WORLD POLICIES granted for a single extra payment of 10s. per £100, where no special Liability to foreign residence then exists. Policies on lives of full age when assured, after five years' existence without incurring extra charge for foreign license, allow unrestricted residence in any part of the world.
NINE-TENTHS of the total Profits divisible every five years amongst the Assured. A valuable provision for Policies becoming Claims between two divisions. Very moderate Non-bonus Premiums.
The GENERAL CONDITIONS of Assurance printed thereon are specially framed to secure to Policies of the Society, when once issued, absolute freedom from all liability to future question.
LOANS are granted on Life Interests and Reversions.
E. A. NEWTON, Actuary and Manager.

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The Share Capital of this Corporation is £896,550, of which one-half, or £448,275, has been paid up. The total Invested Funds on December 31, 1868, amounted to £2,502,540.
A printed abstract of the General Balance-Sheet, together with particulars of the Life Department, may be had on application at the Head Office. The following items relating to the Life Business, have been extracted therefrom.

Policies in force for		£1,804,189
Annual Income from—		
Premiums	£159,083	
Interest	54,560	
		£213,643
Accumulated Premiums		£1,331,150

The Fire Duty having been abolished, Fire Insurances are now effected without any charge beyond the Premium.
Marine Insurances can be effected at the Head Office, and at Calcutta, Madras, Bombay, Mauritius, Hong-Kong, and Shanghai.
JOHN P. LAURENCE, Secretary.

The Best Remedy for Indigestion.
NORTON'S CAMOMILE PILLS are confidently recommended as a simple but certain remedy for indigestion. They act as a powerful Tonic and general Aperient; are mild in their operation; safe under any circumstances; and thousands of persons can now bear testimony to the benefits to be derived from their use. Sold in bottles at 1s. 1½d., 2s. 9d., and 11s. each, in every town in the Kingdom. CAUTION.—Be sure to ask for "NORTON'S PILLS," and do not be persuaded to purchase the various imitations.

WM. DILLISTONE,
HORTICULTURAL AUCTIONEER and VALUER,
Sible Hedingham, Essex.

WANTED, a WORKING PARTNER, of good practical knowledge, with £200, to extend a business in Early Forcing, to an energetic man this is a good opportunity. Convenient Premises.—F. B., 5, Exeter Place, Walham Green, S.W.

SEED and GUANO BUSINESS to be DISPOSED OF.—In consequence of the death of the late Mr. Thomas Beardwood, jun., the valuable Business established by him is to be Disposed of. Trade Connections extensive, respectable, and rapidly increasing. The Premises are held on an unexpired lease of eight years, and are situated in the best part of Preston, being immediately opposite the Corn Exchange, Butter and Cheese Markets.
For particulars apply on the premises, 16, Lune Street, Preston, Lancashire.

To Nurserymen, Fruit Growers, & Market Gardeners
TO BE SOLD, a beautiful FOUR-ACRE FIELD, 14 miles from London, one mile from the Potter's Bar Station on the Great Northern Railway, having 1000 feet facing the South, which would make a splendid range of Glass, and 1000 feet frontage to the Great North Road. The Land is of the best quality for Horticultural purposes, with plenty of Water, and a first-class neighbourhood. The Land will be Sold in One Lot, or in Lots of One Acre each. For further particulars apply to
JOHN MONRO, Great North Road, Potter's Bar, N.

Sales by Auction.

Dutch Bulbs, Fruit Trees, Roses, &c.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, December 20, at ½ past 12 o'Clock precisely, 700 first-class Standard and Dwarf ROSES from a well-known English Nurseryman; 50 lots of Pyramid PEARS, in bearing condition; and an importation from Holland of HYACINTHS, TULIPS, CROCUSES, GLADIOLI, LILIUMS, and other Bulbs.
On view the morning of Sale, and Catalogues had.

Salvington, near Worthing, Sussex.
To NOBLEMEN, GENTLEMEN, NURSERYMEN, GARDENERS, and OTHERS.
MR. H. NASH begs to inform the above that he has received instructions from the Proprietors, Messrs. R. Gadd & Son, to SELL by PUBLIC AUCTION, on TUESDAY and WEDNESDAY, December 21 and 22, at the Salvington Nurseries, two miles from the Worthing Station of the South Coast Railway, commencing at 11 o'clock precisely, a large quantity of SURPLUS NURSERY STOCK, consisting of Araucaria imbricata, 1 to 3 feet; 20,000 Sweet Bays, 1 to 2 feet; 10,000 Tree Box (various), 1 to 4 feet; 20,000 2-yr. Evergreen Oaks, 30,000 Common Laurels, 2 to 8 feet, fine; 20,000 Laurustinus, 1 to 2½ feet, full of bloom; Silver and Spruce Firs, 5 to 10 feet; Pinus austriaca, 1 to 4 feet; 10,000 Pinus insignis, 1 to 4 feet; Common Yews, 3 to 4 feet; Portugal Laurels, 2 to 3 feet; Picea lasiocarpa, 3 to 5 feet; Specimen Picea Nordmanniana, 1½ to 4 feet, fine. A quantity of the leading kinds of Apple Trees, suitable for Orchards; Black, Italian and other Poplars, Evergreens, Privet, &c.
Full particulars will be duly announced in Catalogues, to be obtained at the Nurseries, and of the Auctioneer, Ambrose Place, Worthing.

"THE ADVANTAGES OF PROCURING SEEDS DIRECT FROM THE GROWERS CANNOT BE OVER-ESTIMATED."

THE ROYAL SEEDSMEN.

JAMES CARTER & CO.'S

NEW AND UNADULTERATED GARDEN, FARM, AND FLOWER SEEDS,

HARVESTED ON THEIR OWN SEED FARMS, AND SUPPLIED DIRECT TO THE CONSUMER.

CARTER'S COLLECTIONS OF VEGETABLE SEEDS FOR LARGE AND SMALL GARDENS

WILL PRODUCE A PLENTIFUL SUPPLY OF CHOICE VEGETABLES ALL THE YEAR ROUND.

COLLECTION No. 1.—VEGETABLE SEEDS suitable for a Cottage Garden (including packing), **12s. 6d.**

COLLECTION No. 2.—VEGETABLE SEEDS suitable for a Small Garden (including packing), **21s.**, contains—

BEANS, NONPAREIL .. .. .. 1 qt.	CABBAGE, ENFIELD MARKET large pkt.	LEEK, AYTON CASTLE .. .. large pkt.	PEAS, CARTER'S SURPRISE .. .. 1 pt.
„ BROAD WINDSOR .. .. .. „	„ DWARF NONPAREIL .. .. „	LETTUCE, CARTER'S GIANT WHITE „	„ CHAMPION of ENGLAND .. .. 1 qt.
„ best FRENCH .. .. .. 1 pt.	„ TOM THUMB .. .. „	„ DRUMHEAD .. .. „	„ CARTER'S VICTORIA .. .. 1 pt.
„ SCARLET RUNNERS .. .. .. „	„ SAVOY, best curled .. .. .. „	„ VICTORIA .. .. „	„ VEITCH'S PERFECTION .. .. „
BEET, ST. OSYTH .. .. .. large pkt.	CARROT, EARLY HORN .. .. .. 1 oz.	MUSTARD, WHITE .. .. 4 oz.	RADISH, WOOD'S FRAME .. .. 2 oz.
BORECOLE or KAIL, COTTAGERS' .. „	„ JAMES'S GREEN-TOP .. .. „	MELON, CARTER'S EXCELSIOR .. packet	„ EARLY SCARLET SHORT-TOP .. „
KAIL, new, ASPARAGUS .. .. .. „	CARROT, selected Scarlet .. .. .. „	ONION, GIANT MADEIRA .. large pkt.	„ MIXED TURNIP .. .. .. „
„ DWARF SCOTCH .. .. .. „	CAULIFLOWER, Carter's Dwf. Mammoth, lrg. pk.	„ READING .. .. „	SPINACH, SUMMER .. .. .. ½ pt.
BRUSSELS SPROUTS, best .. .. „	CELERY, Incomparable Dwarf White .. „	PARSNIP, STUDENT .. .. .. 1 oz.	„ WINTER .. .. .. „
BROCCOLI, CARTER'S CHAMPION .. „	„ MANCHESTER GIANT RED .. „	PARSLEY, DUNNETT'S GARNISHING lrg. pkt.	TURNIP, EARLY SIX-WEEK .. .. 1 oz.
„ SNOW'S WINTER .. .. .. „	CRESS, plain .. .. 4 oz.	PEAS, CARTER'S EARLY .. .. .. 1 qt.	„ YELLOW MALTA .. .. .. „
„ ADAM'S EARLY WHITE .. .. „	„ AUSTRALIAN .. .. 1 oz.	„ PREMIER .. .. 1 pt.	TOMATO .. .. packet
„ PURPLE SPROUTING .. .. „	CUCUMBER, CARTER'S CHAMPION .. packet	„ BISHOP'S LONG-POD .. .. „	VEGETABLE CREAM, MOORE'S .. „
CABBAGE, CARTER'S EARLY .. .. „	ENDIVE, FRENCH CURLED .. large pkt.	„ PRIZETAKER .. .. .. „	POT HERBS .. .. ¼ pkt.

COLLECTION No. 3.—VEGETABLE SEEDS for a Garden of a Quarter of an Acre (including packing), **42s.**

COLLECTION No. 4.—VEGETABLE SEEDS for Larger Gardens (including packing), **63s.**

For detailed Table of Contents of these Collections, see Carter's Special Order Sheet for 1870, *gratis and post free.*

CARTER'S FIRST CROP PEA, The earliest in cultivation, **2s. per quart.**

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LAXTON'S "ALPHA" PEA, The earliest wrinkled variety, **7s. 6d. per half pint.**

HUNDREDFOLD PEA, or the COOK'S FAVOURITE. See Illustration, p. 1280, *Gardeners' Chronicle*, Dec. 11, 1869. **4s. per pint, 7s. 6d. per qrt.**

LAXTON'S SUPREME PEA, "described as a Grand Pea" of excellent quality. **2s. 6d. per half-pint, 4s. 6d. per pint, 8s. 6d. per quart.**

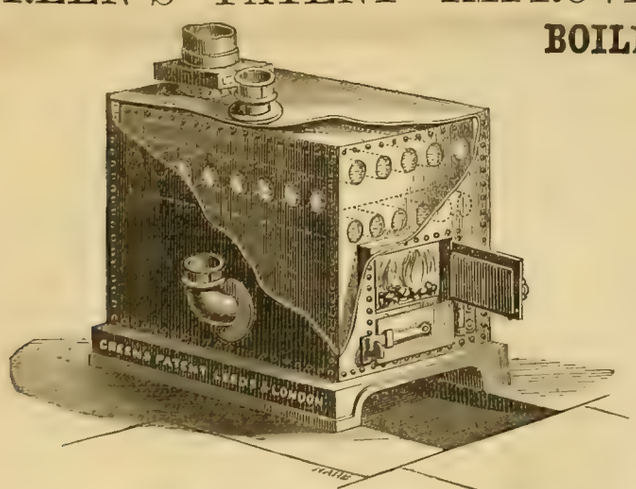
PATERSON'S BOVINIA or CATTLE FEEDER POTATO, the heaviest cropper known, per lb., **1s. 6d.**; 7 lb., **9s.**; 1 bushel (56 lb.), **65s.**

CARTER'S ILLUSTRATED GARDENER'S and FARMER'S VADE MECUM for 1870

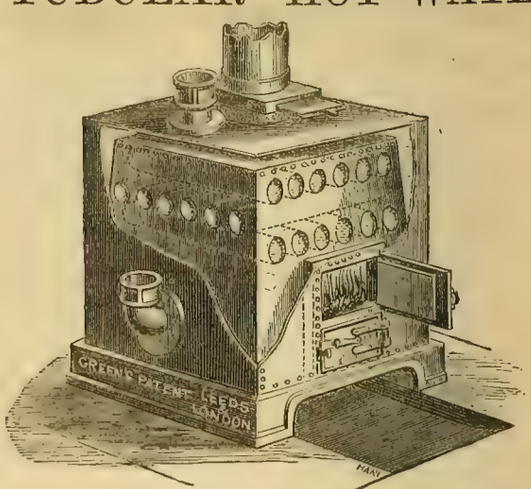
Is in the Press, and will be forwarded, post free, 1*s.* (Gratis to Purchasers).

JAMES CARTER AND CO., 237 AND 238, HIGH HOLBORN, LONDON, W.C.

GREEN'S PATENT IMPROVED TUBULAR HOT-WATER BOILERS.



OBLONG BOILER.



SQUARE BOILER.

THE ABOVE BOILERS ARE

THE MOST EFFECTIVE AND DURABLE EVER INVENTED.

They can be set to work at a nominal cost, inasmuch as no brickwork is required; as will be seen from the above drawing, they are placed upon a Cast-Iron Sole-plate, which answers the purpose of Foundation and Ashpit.

From the peculiar and substantial manner in which these Boilers are made, they are warranted to last for years without getting out of order; in fact, we guarantee them for ten years, but feel convinced that they will serve all the purposes for which they are intended for a much longer period.

They are specially adapted for Heating Greenhouses, Churches, Chapels, Schools, Public Buildings, Entrance Halls, Warehouses, Workshops, &c.

THE FOLLOWING ARE THE ADVANTAGES OF THESE BOILERS:—

1st, They require no setting in brickwork.
2d, They are complete in themselves, having perfect means of regulation.
3d, They take up little room, and can be put in places inaccessible to other Boilers.
4th, They are economisers of fuel, owing to the great amount of heating surface upon which the fire acts in a direct manner, and the consumption of smoke.
5th, The fire can be made to last from 12 to 24 hours without attention.
6th, Any number of Flows and Returns can be annexed to the Boilers by means of T-pipes.
7th, By means of mud doors, they can be readily cleaned out when required.
8th, The Chimney is made of cast-iron, which can either be taken through a roof or turned into a flue, to meet the convenience of the situation that it may be fixed in.

☞ *PRICE LISTS ON APPLICATION.*

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;
and 54 & 55, BLACKFRIARS ROAD, LONDON, S.E.

Editorial Communications should be addressed to "The Editor," Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 52.—1869.] SATURDAY, DECEMBER 25. {Price Fivepence. STAMPED EDITION, 6d.

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Universal Transit Agency for Plants, Seeds, and Merchandise.

CHAS. J. BLACKITH begs to announce that the PARTNERSHIP existing between Mr. JOHN BETHAM and himself WILL TERMINATE on the 31st of this month, from which date he intends continuing business on his own account, at the same address, under the style of CHAS. JOS. BLACKITH AND CO., and hopes in the future to receive the kind support of the Trade.
Cox's Quay, Lower Thames Street, London, E.C.—Dec. 18, 1869.

CARTER'S GENUINE SEEDS. See page 1344.
237 and 238, High Holborn, London, W.C.

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CARTER'S GENUINE SEEDS. See page 1344.
237 and 238, High Holborn, London, W.C.

EXTRA STRONG FRUITING VINES.—2000 close-jointed thoroughly ripened Canes can be supplied of Black Hamburgh, Golden Champion, Mrs. Pince, and other varieties, for fruiting in pots and for planting. Descriptive CATALOGUE upon application.
JAMES DICKSON AND SONS, Newton Nurseries, Chester.

Grape Vines.

B. S. WILLIAMS' stock is remarkably fine, and in good condition. Can supply all the best kinds. Prices on application.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

Pines.

B. S. WILLIAMS has all the best kinds, in splendid condition, warranted clean. Prices on application.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

Golden Champion Grape.

OSBORN AND SONS can supply good CANES of the above-named remarkable GRAPE, which has again been exhibited and very much admired, fully sustaining the high character previously formed of it. Price 10s. 6d., 21s., and 30s. each.
Fulham Nursery, London, S.W.

Strong Fruiting Vines.

J. C. PADMAN has a splendid lot of the above, 5s. to 7s. 6d. each.
Providence Nursery, Boston Spa, Yorkshire.

Vines.

JAMES CARTER AND CO. can now offer strong, well-grown CANES, this year's growth. For description of Varieties and Prices, see AUTUMN CATALOGUE, now published.
JAMES CARTER AND CO., Seedsmen and Nurserymen, 237 and 238, High Holborn, W.C.

WANTED, CROWN BOB GOOSEBERRIES and BLACK CURRANTS, 2 and 3-yr. old. Our Friends offering the above will oblige by quoting price and quantity to spare to JOHN PALMER AND SON, Nurserymen, Annan, N.B.

FOR SALE, about 20 Bushels of fine APPLES, Dessert and Kitchen sorts, the best of choicest kinds, at 8s. per bushel.
J. SCOTT, The Nurseries, Merriott, Taunton, Somerset.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LIST of these varieties from Mr. WEBB, Calcot, Reading.

TEN ORANGE and TWO LEMON TREES for SALE, height from 6 to 8 ft., with stems about 3 feet. For particulars apply to J. GIBSON, Jun., 29, Bridge Road West, Battersea, S.W.

ORCHARD-HOUSE TREES, Fruiting in Pots.—Peaches, Nectarines, Plums, Pears, Apples, Vines, and Figs.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

FRUIT TREES, best named varieties. — Strong Standard Plums, 1s. each; Pyramidal Apples, Pears, Plums and Cherries, 1s. each; Dwarf-trained Peaches and Plums, 2s. 6d. each; extra strong Standard William's Pears, 1s. each.
W. HOOPER, New Wandsworth, S.W.

NOTICE.—Gentlemen, Gardeners, and others having CAMELLIA BLOOMS, ROSES, ORCHID FLOWERS, &c., may DISPOSE of them, in any quantity, through the Winter and Spring, to W. F. BOFF, Florist, Holloway, Islington, London, N. Cash returned within 24 hours. Distance from London no object.

Everlasting and Dried Natural Flowers.

JAMES CARTER, DUNNETT, AND BEALE'S WHOLESALE LIST of the above is now ready, and will be forwarded immediately on application.
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Chinese Pæonies and Iris germanica.

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J. C. PADMAN, Nurseryman, Boston Spa, Yorkshire.

The Roses of the Season are those of

PAUL AND SON, The "Old" Nurseries, Cheshunt, N.
PRICED DESCRIPTIVE LIST post free on application.

Splendid Roses.

TRY the SALISBURY ROSES.
CATALOGUES ready.
JOHN KEYNES, Castle Street Nursery, Salisbury.

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WM. PAUL has a few thousand MANETTI STOCKS, extra fine, to offer in the Trade. Price low, given on application.
Waltham Cross, London, N.

MANETTI STOCKS.
For immediate use, 30s. per 1000.
For summer use, second size, 25s. per 1000.
THOS. CRIPPS AND SON, Nurserymen, Tunbridge Wells.

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JAMES HOLDER'S unrivalled Collection of French, Fancy, and Show varieties is now ready, at the following low prices:—100 plants, distinct sorts, for 50s.; 50 plants for 30s.; or 25 plants, distinct sorts, for 20s., hamper and package included.
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JAMES CARTER AND CO., 237 & 238, High Holborn, London, W.C.

To the Trade only.

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Established 1806.

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Nurseries: Brunstain Glen, Musselburgh.

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SPRUCE FIRS for CHRISTMAS TREES, near London; 2 to 3½ feet, very handsome.
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CHRISTMAS TREES. — Very handsome SPRUCE FIRS, 4 to 5 feet high, [illegible] per dozen.
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CHRISTMAS TREES.
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J. HARRISON, having ripened a quantity of fine SEED of the above beautiful Greenhouse Climber, begs to offer it to the Trade at 2s. per dozen, or 12s. per 100. If sown immediately it will vegetate in two or three weeks.
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Spruce Firs.

THOS. CRIPPS AND SON, [illegible]SERYMEN, Tunbridge Wells, have a large Stock of the a[illegible]ve in all sizes, from 1 to 10, 12 and 15 feet. Prices on application.

See "Gardeners' Chr[illegible]icle," pp. 1258*a*, 1281*a*.

SALISBURIA AI[illegible]A (Maiden-hair Tree), well grown good fi[illegible]feet, 12s. per dozen; 3, 4, to 5 feet, 18s. to 24s. per [illegible] hundreds.
GEO. JACKMA[illegible]g Nursery, Surrey.

WANTED, PI[illegible]A, 2 to 3 feet, twice or thrice tra[illegible]owest price and quantity to offer to FRANCI[illegible]CKSON & SONS, Upton Nurseries, Chester

WANTED, [illegible]NISH CHESTNUTS.
THOS. CRIP[illegible]ice to [illegible]nen, Tunbridge Wells.

WANTED, [illegible]IDENTAL PLANES, 12 feet hi[illegible]12 or 18 of each required. Price, &c., to [illegible]rseyman, Shrewsbury.

WANTED, [illegible].ODODENDRONS and COMMO[illegible]nmediate grafting. Apply, stating price, &c.
WM. WOOD [illegible]uresfield, Uckfield, Sussex.

WANTED, [illegible]ard BRUGMANSIA ARBO[illegible]ne ditto SANGUINEA, 3 to 4 feet stem; on [illegible]et stem; also LILY OF THE VALLEY root[illegible]e PRIMROSES and HEPATICAS, of sort[illegible]e and full particulars to T. JAC[illegible]sery, Kingston, Surrey.

Lilium auratum.

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ISAAC DAVIES, Brook Lane Nursery, Ormskirk.

To the Trade.

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SUTTONS' AMATEUR'S GUIDE for 1870, price 1s.
Gratis to Customers.
SUTTON AND SONS, Reading.

The Best Peas for Succession.—See

SUTTONS' AMATEUR'S GUIDE for 1870, price 1s.
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The Successful Cropping of the Kitchen Garden.—See

SUTTONS' AMATEUR'S GUIDE for 1870, price 1s.
Gratis to Customers.
SUTTON AND SONS, Reading.

Potatos.—The Best Varieties for Successional Cropping, with Illustrations.—See

SUTTONS' AMATEUR'S GUIDE for 1870, price 1s.
Gratis to Customers.
SUTTON AND SONS, Reading.

Novelties for the Vegetable and Flower Garden.—See

SUTTONS' DESCRIPTIVE LIST for 1870, gratis and post free on application.
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Fine Selected Seed Potatos.

SUTTON AND SONS can supply all the leading kinds of POTATOS, at moderate prices, for large quantities. Lowest price per sack or ton on application.
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EARLY POTATOS.—Ashleaf, Rivers' Royal and Milky White, all true and sound. Prices, low, given on application to ISAAC DAVIES, Brook Lane Nursery, Ormskirk.

Seed Potatos.

H. AND F. SHARPE'S WHOLESALE LIST of all the new and best varieties of Early and Late POTATOS is now ready, and may be had on application. The quality is very fine, and prices low.
Seed Growing Establishment, Wisbech.

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H. AND F. SHARPE have just imported a very true Stock of the above extraordinarily prolific POTATO, direct from one of the best growers in America; and are prepared to offer it to the Trade at a reduced price.
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GARDENERS' CHRONICLE PENNY NEWSPAPER

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HOOPER AND CO. expect to receive very fine Bulbs of the above, via the New Pacific Railway, due about January next. They are collected by a Person thoroughly acquainted with their requirements, and will doubtless arrive in the best condition. They will be on Location in about 55 to 60 days from their native soil. Orders now booked, and persons requiring them will oblige by sending their orders without delay. Prices on Application.

HOOPER AND CO., Covent Garden, London, W.C.

Gladioli—Seedlings, and by Name.

GLADIOLI Seedlings, first-class—Per 100, 7s., per 1000, £3.

100 Gladioli, by name, 10 sorts	8s.	
100 „ „ 25 sorts	14s.	
100 „ „ 50 sorts	18s. to 40s.	

All in good flowering bulbs.

LEVEQUE ET FILS, Nurserymen, 132 and 134, Boulevard de l'Hôpital, Paris.

Rose Prices, from Paris.

LEVÊQUE ET FILS, NURSERYMEN, 132 and 134, Boulevard de l'Hôpital, Paris, beg to offer the following ROSE TREES, in first quality, as plants and sorts (their choice):—

100 Standards, strong heads, 100 sorts	£5	0	0
100 Half-Standards, strong heads, 100 sorts	4	0	0
100 Dwarfs, strong heads, 100 sorts	2	0	0
1000 Dwarfs, strong heads, 100 sorts	16	0	0
100 Tea Roses, grafted, in pots, or on their own roots, p. 100	3	0	0
New sorts, 1869 .. .. per dozen	0	12	0
New sorts, 1868 .. .. „	0	10	0

New sorts, 1870 (15 per cent. discount).

Roses Suitable for Climbers or Stocks.

ROBERT PARKER begs to state that he can supply, in large or small quantities, extra fine plants of BOURSAULTS, AMADIS, and INERMIS, CELINE and MANETTI ROSES at very reasonable prices, or in EXCHANGE for Hardy Shrubs or Trees. Prices forwarded on application.

Exotic Nursery, Tooting, Surrey, S.W.

North of England Rose Nursery, Darlington.

JOHN HARRISON begs to inform his Friends and Patrons that his stock of DWARF ROSES on the Manetti, as well as those on their own roots, were never so fine as they are this season; and to those who have not yet tried the Northern Roses, which are grown on a strong poor soil, J. H. particularly solicits their orders, as he feels confident they will, as they have hitherto done, give universal satisfaction. J. H. would also call attention to his stock of STANDARD ROSES, which are also very good, as well as his general stock of EVERGREEN SHRUBS. FOREST TREES of every description. MANETTI STOCKS, 10s. per 100.

CATALOGUES, now ready, can be had free on application.

Prices exceedingly low.

To the Trade.

SPECIAL OFFER of LAURUSTINUS PYRAMIDALIS (NEW).

WM. KNIGHT solicits orders for the above new variety of LAURUSTINUS, having now grown it for five years past for Stock. It has been seen growing in his Nursery by many eminent Nurserymen, by whom it has been pronounced a fine hardy, compact plant, of sterling merit, the habit being robust, compact; flowers pure white, nearly twice the size of the old varieties, and very sweet-scented, with a continuation of flowers during the most severe weather.

W. K. feels great confidence in offering it in fine specimens, 4 to 5 feet, full of bud, per pair, 16s.; second size, 3 to 4 feet, do., 10s.; third size, 2 to 3 feet, do, 7s.; fourth size, 1½ to 2 feet, do., 5s.

Floral Nursery, Hailsham, Sussex.

Camellias, Azaleas, and Epacris.

HENRY WALTON, having a large stock of the above, finest plants possible, well set with bud, being all home worked, can with confidence recommend them.

AZALEAS, 24s. to 63s. per doz. | CAMELLIAS, 24s. to 63s. per doz.

EPACRIS, 18s. to 24s. per dozen.

Having several hundreds of beautiful trained Azaleas, from 2 to 4 feet, fine for exhibition purposes, 10s. 6d. to 63s. each; also fine Half and Specimen Camellias, 10s. 6d. to 100s. each—this is a favourable opportunity for parties furnishing new houses or improving their present collections. Trade liberally dealt with.

CATALOGUES on application.

Edge End, Marsden, near Burnley, Lancashire.

CALCEOLARIAS, Herbaceous, of our choice strain, nice well-rooted healthy plants, free by post, at 2s. 6d. per dozen, and 12s. 6d. per 100.

AZALEA INDICA, blooming plants, in 50 varieties, at 1s. each; not less than 6 varieties.

EPACRIS, in 40 choice named, at 1s. each.

ERICAS, in 50 choice named, at 9s. per dozen.

GREENHOUSE CLIMBERS, in 24 varieties, at 9s. and 12s. per doz.

CRASSULAS, in 10 choice named, for 7s. 6d.

ACACIA, in 6 varieties, blooming plants, for 6s.

CYTISUSES, fragrant, 12 blooming plants for 6s.

ROSES, in pots, 12 choice varieties of Tea, Noisette, Bourbon and China, for 9s.; 24 varieties, 18s.; 36 varieties, 27s.; Hybrid Perpetuals, in pots, 12 varieties, 8s.; 24 for 15s.; 50 for 25s.

STOCK, Night-Scented, 12 for 6s.

PIMELEA HISPIDA, blooming plants, 12s. per dozen.

DESFONTAINEA SPINOSA, good plants, 12s. per dozen.

H. AND R. STIRZAKER, Skerton Nurseries, Lancaster.

Choice Flower Seeds.

JAMES BACKHOUSE AND SON have pleasure in informing all lovers of SPRING GARDENS that they have obtained the stock of SEEDS of the following choice Plants from the far-famed Beilvoir Castle Collection, orders for which can be executed at once:—

AURICULA PURPUREA GRANDIFLORA.—By careful cultivation, and the progressive selection of the larger and freer blooming sorts, Mr. Ingram has secured a very superior strain of this most valuable plant for Spring Gardens. Blooming in dense masses, his plants have been pronounced "perfection," as presenting a perfect and even mass of colour, which may be described as bright lilac-purple. These continue many weeks in bloom. 1s. per packet.

IMPROVED OXLIP.—Saved from varieties large in flower and truss, and of great richness of colour, varying from light purple to maroon and bright red, approaching scarlet. The early flowering habit of this strain makes it most desirable for Spring Garden decoration. Each colours, and the capability of producing these, have been sought for more than the floricultural perfection of the flowers. 1s. per packet.

DWARF EARLY BLOOMING WALLFLOWER.—Saved from a strain possessing many desirable traits for Spring Gardening. Of a dwarf compact habit, it has a dense bright green appearance during the winter, to which by an abundance of gay of its bright scarlet yellow blossoms through the spring months, and continued often until midsummer. The petals are large and well shaped, and the habit of early blooming makes it desirable both for pots and borders. (Young plants 1s. per doz.) 1s. per packet.

JAMES BACKHOUSE AND SON can also offer the following Choice Seeds of their own saving:—

FERNS, TENDER, saved from our own well known Collection, 6 varieties, per packet, 1s. 6d.; 12 varieties, 2s. 6d.; 30 varieties, 5s.

FERNS, HARDY, saved from our own well known Collection, 6 varieties, per packet, 1s.; 12 varieties, 2s.

HYACINTHUS AMETHYSTINUS.—A dwarf species, with flowers of an azure colour. Fine for borders and pot flowers. 6d. per packet.

LINARIA ALPINA.—A very pretty rock or border plant, blooming continuously, of small growth, with an abundance of bright purple and orange coloured flowers. 6d. per packet.

MATTHIOLA BICORNIS.—This delightfully fragrant night-scented stock has proved itself a worthy addition to the number of our Hardy Annuals. 6d. per packet.

MATTHIOLA TRISTIS-PIDATA.—A choice species (quite distinct from the preceding), forming branching masses, covered with a profusion of inconspicuous flowers. These continue long in bloom, remain expanded during the day as well as in the evening, and exhale a delicate and delicious fragrance. Growth free and even, producing a fine effect in a bed or mass. 1s. per packet.

Early Orders are requested.—Usual Discount to the Trade.

JAS. BACKHOUSE AND SON, York Nurseries.

British Fern Catalogue.

ROBERT SIM will send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

Foot's Cray Nursery, Sidcup Hill, Kent.

Beautiful Gardens.

JAMES CARTER AND CO. offer the following most liberal assortment of FLOWERING BULBS for 21s., including packing, and can recommend it with confidence to all who wish for a pretty display in their Drawing-Room and Gardens during the Winter and early Spring.

CARTER'S SPECIAL "GUINEA" COLLECTION

Contains—

6 extra fine NAMED DOUBLE HYACINTHS
6 extra fine NAMED SINGLE HYACINTHS
6 very fine mixed MINIATURE HYACINTHS
2 Double Roman POLYANTHUS NARCISSUS
2 paper-white POLYANTHUS NARCISSUS
2 STATES GENERAL POLYANTHUS NARCISSUS
2 GLORIOSA POLYANTHUS NARCISSUS
6 Single sweet-scented JONQUILS
6 Double sweet-scented JONQUILS
6 Double DUC VAN THOL TULIPS
6 Single DUC VAN THOL TULIPS
12 TOURNESOL DOUBLE TULIPS
12 extra fine mixed SINGLE TULIPS
50 CLOTH of GOLD CROCUS
50 WHITE CROCUS
50 STRIPED CROCUS
24 fine mixed SPANISH IRIS
12 DOUBLE DAFFODILS
12 GLADIOLUS BYZANTINUS
6 GLADIOLUS, extra fine mixed
12 SCILLA BELGICA
12 STAR of BETHLEHEM
12 SNOWFLAKES
24 SCARLET TURBAN RANUNCULUS

N.B. Half the above for 10s. 6d.

JAMES CARTER AND CO., The Royal Seedsmen, 237 and 238, High Holborn, London, W.C.



Surplus Stock.—Very Cheap.

SPECIMEN CONIFERS and EVERGREENS, handsome and well-grown, for Lawns, Pleasure Grounds, and Parks, have been recently transplanted, and are full of health and vigour. For Descriptions, also Prices of other sizes, see RICHARD SMITH'S LISTS.

Trucks for 1 ton and upwards may be sent through to any Railway Station on the narrow guage lines, at a moderate cost, thereby saving delay and expense of packing.

At 12s. per dozen.

Abies canadensis (Hemlock Spruce), 4 to 5 feet
„ excelsa, 3 to 4 feet
Arbor-vitæ, American, 5 to 6 feet
„ Siberian, 3½ to 4 feet
Gorse, double, in pots, strong
Hartogia capensis (Cape Laurel), 1½ to 2 feet
Laurel, narrow leaved, 2 to 2½ feet
„ Portugal, 2½ to 3 feet
Picea balsamea, selected, 4 to 5 ft.
Quercus ilex (Evergreen Oak), 15 to 18 inches [24 inches
Rhododendron ponticum, 21 to
Holly, screw-leaved, green, 1½ to
Phillyrea oleafolia, 2 to 2½ ft. [2ft.

At 18s. per dozen.

Abies canadensis, 5 to 6 feet
„ excelsa, 4 to 5 feet
Alaternus, broad leaved, 2 to 2½ ft.
Arbor-vitæ, American, 6 to 7 feet
„ Siberian, 4 to 4½ feet
Aucuba japonica, 18 to 21 inches
Box, green tree (pyramids, very handsome), 2½ by 2½ feet
Hartogia capensis, 2 to 2½ feet
Laurel, narrow leaved, 2½ to 3 feet
Phillyrea oleafolia, 2½ to 3 feet
Picea balsamea, 5 to 6 feet
Pinus austriaca, 3 to 4 feet
Quercus ilex, 2 to 2½ feet
Rhododendron ponticum (very bushy), 2 to 2½ feet
„ hybrids, fine varieties, 18 to 21 inches
Taxus japonica (Japan Yew), 12 to 15 inches

At 24s. per dozen.

Abies elegans, 18 to 24 inches
Arbor-vitæ, Siberian, 4½ to 5 feet
Aucuba japonica, 21 to 24 inches
Cryptomeria Lobbii, 5 to 6 feet
Cupressus Lawsoniana, 4 to 5 feet
Holly, screw leaved, green, 2 to 2½ feet
Ivy, green tree, 18 to 24 inches
Laurel, Portugal, pyramids, 3 to 4 feet [4 feet
Phillyrea oleafolia, very fine, 3 to
Rhododendrons, hybrids (fine varieties), 21 to 24 inches
Taxus japonica, 15 to 18 inches

At 30s. per dozen.

Abies canadensis, extra fine, 6 to 7 feet
„ elegans, 2 to 2½ feet
Arbor-vitæ compacta, 2½ to 3 feet
Aucuba japonica, very bushy, 2 to 2½ feet
Cryptomeria Lobbii, 6 to 7 feet
„ viridis, 6 to 7 feet
Ivy, green tree, extra fine and bushy, 2 to 2½ feet
Juniperus chinensis, 3 to 3½ feet
„ drupacea, 18 to 24 inches
„ glauca, 3 to 4 feet
„ Leeana, 3 to 4 feet
Pinus austriaca, 4 to 5 feet
Thujopsis borealis, 4 to 5 feet

At 36s. per dozen.

Abies inverta (Weeping Spruce), 2½ to 3 feet
Arbor-vitæ compacta, 3 to 3½ feet
„ Siberian (very fine), 5 to 6 feet
Cupressus Lawsoniana, 5 to 6 feet
Juniperus chinensis fœmina, 3 to
„ densata, 3 to 4 feet [3½ feet
„ Schottii, 3 to 3½ feet
Juniperus Smithiana, 3 to 3½ feet
„ viridis pendula, 3 to 4 feet
Laurel, Portugal (pyramids, very fine), 4 to 5 feet
Pinus laricio, 6 to 7 feet
Taxus elegantissima (gold leaved), 18 to 24 inches
„ Irish, 5 to 6 feet

At 42s. per dozen.

Abies inverta, fine specimens, 3 to 4 feet
Arbor-vitæ compacta, 3½ to 4 feet
„ Siberian (very fine), 6 to 7 feet
Juniperus Chinensis, 3½ to 4 feet
„ „ fœmina, 3½ to 4 feet
„ drupacea, 24 to 30 inches
„ Leeana, 4 to 5 feet
Juniperus phœnicia, 3 to 4 feet
„ Schottii, 3½ to 4 feet
„ thurifera (Incense Juniper), 4 to
„ virginiana, 6 to 7 feet [5 feet
Picea Nordmanniana, 18 to 24 ins.
Pinus austriaca, 5 to 6 feet
„ laricio, 7 to 8 feet
Thujopsis borealis, 5 to 6 feet

At 48s. per dozen.

Abies inverta, 4 to 5 feet
Juniperus chinensis, 4 to 5 feet
„ densata, 4 to 5 feet
„ glauca, 4 to 5 feet
„ Leeana, 5 to 6 feet
„ phœnicea, 4 to 5 feet
„ Schottii, 4 to 5 feet
Juniperus Smithiana, 3½ to 4 feet
„ thurifera, 5 to 6 feet
„ virginiana, 7 to 8 feet
„ viridis pendula, 4 to 5 feet
Pinus laricio, 8 to 9 feet
Taxus, Irish, 6 to 7 feet
Wellingtonia gigantea, 2½ to 3 feet

At 60s. per dozen.

Abies Menziesii, 7 to 8 feet
„ nobilis, 7 to 8 feet
Arbor-vitæ compacta, 4 to 4½ feet
Juniperus chinensis, very fine, 5 to 6 feet
„ densata, 5 to 6 feet
„ glauca, 5 to 6 feet
„ phœnicea, 5 to 6 feet
„ Smithiana, 4 to 5 feet
„ thurifera, 6 to 7 feet
Juniperus virginiana, 8 to 10 feet
„ viridis pendula, 5 to 6 feet
Laurel, colchic (very fine), 8 to 10 feet [5 to 6 feet
„ Portugal, pyramids (very fine),
Picea Nordmanniana, 2 to 2½ feet
Pinus cembra, extra fine, 6 to 7 ft.
Taxus elegantissima, 2 to 2½ feet
Thujopsis borealis, 6 to 7 feet.
Wellingtonia gigantea, 3 to 3½ ft.

Abies albertiana, 7 to 8 feet, 10s. 6d. each.
„ Douglasii, 8 to 10 feet, 7s. 6d.; 10 to 12 feet, 10s. 6d.; extra fine, 12 to 15 feet, 15s. each
„ orientalis, 4 to 5 feet, 6s.; 5 to 6 feet, 7s. 6d.; 6 to 7 feet, 10s. 6d. each
Araucaria imbricata, 5 to 6 feet, 21s.; 6 to 7 ft., 31s. 6d.; 7 to 8 ft., 42s.; 8 to 10 ft., 52s. 6d.; 9 to 10 ft., 63s. to 84s. each.
Juniperus densata, 6 to 7 feet, 6s.; 7 to 8 feet, 7s. 6d. each
„ thurifera, very fine, 7 to 8 feet, 6s.; 8 to 9 feet, 7s. 6d. each
Laurel, Portugal, pyramids, extra fine, 7s. 6d.; very large, 10s. 6d. each.
Picea grandis, extra fine, 5 to 6 ft., 15s.; 6 to 7 feet, 21s. each.
Picea lasiocarpa, 3 to 3½ feet, 15s.; 3 to 3½ feet, 21s.; 3½ to 4 ft., 31s. 6d.; 4 to 5 feet, 42s.; 5 to 6 feet, 52s. 6d. each
„ nobilis (best glaucous var.), 18 to 24 inches, 7s. 6d.; extra fine, 2 to 2½ feet, 10s. 6d.; 2½ to 3 feet, 15s. ea.
„ Nordmanniana, 4 to 5 ft., 15s.; 5 to 6 feet, 21s.; 6 to 7 feet, 31s. 6d.; 7 to 8 ft., 42s. each.
„ Pinsapo, 2 to 3½ ft., 10s. 6d.; 3½ to 4 ft., 15s.; 4 to 4½ ft., 21s.; 5 to 5½ ft., 31s. 6d.; 5½ to 6 ft., 42s. ea.
Pinus Cembra, 7 to 8 feet, 6s.; 8 to 9 feet, 7s. 6d. each.
Wellingtonia gigantea, 3½ to 4 ft., 7s. 6d. each.
Yews, for hedges, about 12 feet high, 46 years old, recently transplanted, 31s. 6d. each

RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

THOMSON'S WHITE LADY DOWNE'S GRAPE.—Plants of this remarkable White Grape, the latest keeping in cultivation, are now being sent out. The Canes are strong and thoroughly ripened. Immediate orders are respectfully requested. Price 21s., 42s., and 63s. each.

THOMAS METHVEN, Leith Walk Nurseries, Edinburgh.

Vines, Five Shillings each.

LEWIS WOODTHORPE having an enormous stock, begs to offer strong Fruiting and Planting CANES of all the leading sorts, at 5s. each. L. W.'s system of packing saves nearly half the cost of carriage.

Munro Nursery, Sible Hedingham, Essex.

Vines, Extra Strong Fruiting.

FRANCIS & ARTHUR DICKSON & SONS have several thousand extra strong, thoroughly well-ripened, short-jointed VINES to offer, of the best known kinds, including the new ones of this season. Inspection invited. All who have seen them pronounce them to be as fine a lot of Vines as were ever grown. Price List free by post on application.

The "Upton" Nurseries, Chester.

VINES.—Well-ripened planting and fruiting Canes (including Mrs. Pince and Madresfield Court), from 2s. 6d. to 10s. 6d. each; names on application. Eyes of Mrs. Pince, 3d., and Madresfield Court, 6d. each.

Some fine Standard Trained PEACHES, NECTARINES, PEARS, PLUMS, and CHERRIES, three years trained on a wall.

A large quantity of FRUIT TREES, in pots, to be Sold at a Bargain, for want of room; all grown under glass, and have been potted two years. For particulars, apply to

J. HOUSE, Eastgate Nursery, Peterborough.

NEW EARLY and LATE PEACHES, &c.—The following kinds, Seedlings raised by Messrs. RIVERS AND SON, are the earliest of all Peaches, ripening in July and early in August; Early Beatrice, Early Louise, Early Rivers, Rivers' Early York, and Early Leopold.

LATE PEACHES.—Lord Palmerston, Lady Palmerston, and Princess of Wales, Maiden Trees, 3s. 6d. each. Young Trained Trees, 5s. each. Trees in pots with blossom-buds, 5s. each.

NEW NECTARINES.—Albert Victor, Large Elruge, Stanwick Elruge, Lord Napier—Maiden Trees and others, the same prices as for the Peaches.

THOMAS RIVERS AND SON, Sawbridgeworth.

ORDERS respectfully solicited for PYRAMIDAL PEAR TREES, fine stuff, best sorts, 18s. per dozen.

PYRAMIDAL APPLE TREES, fine stuff, best sorts, 12s. per dozen.

Dwarf-trained MAYDUKE, MORELLO, and BIGARREAU CHERRY TREES, very strong stuff, 20s. per dozen.

Dwarf-trained MOORPARK APRICOT TREES, 30s. per dozen.

CHARLES B. SAUNDERS, Nurseryman, Jersey.

FASTOLF RASPBERRY (TRUE).—The Advertiser begs to offer strong well-ripened Canes of this above unrivalled RASPBERRY, in packages of 50 for 5s.; 100 for 8s.; 500 for 40s. Also, GLADIOLUS BRENCHLEYENSIS, extra large Bulbs, 2s. per dozen; 12s. per 100. Second size, 1s. 6d. per dozen; 9s. per 100. New CLOVE CARNATION, Brunning's Prince of Scarlets, the brightest and best variety ever offered, 6s. per dozen. True Old Crimson CLOVE, 2s. per dozen; 15s. per 100. Garibaldi Scarlet CLOVE, 3s. per dozen. No charge for package. The usual Discount to the Trade.

ISAAC BRUNNING, Great Yarmouth Nurseries.

STRONG STANDARD APPLES and PEARS.—Large horizontal Trained and Pyramid Apples and Pears; fine Standard and Dwarf-trained PEACHES and NECTARINES; fine bushy LAURELS and LAURUS COLCHICUM, up to 4 feet; extra bushy LAURUSTINUS and PORTUGAL LAURELS, 1½ to 3 feet; a large collection of Standard and Dwarf Perpetual, Dwarf China, and Climbing ROSES of the leading sorts; deciduous flowering SHRUBS; ASH, 2 to 5 feet; LARCH, SCOTCH, SPRUCE, and AUSTRIAN FIRS, and all kinds of FOREST TREES; strong Evergreen PRIVET and THORN QUICK for Hedges. All the above have been regularly transplanted, and are well rooted. Prices on application to

CHARLES BURGESS, The Nurseries, London Road, Cheltenham.

Fruit Trees for Sale.

J. SCOTT, The Nurseries, Merriott, Somerset, will be glad to receive orders for the above, which will be carefully attended to. The Trees consist of 1000 sorts of PEARS, 700 do. of APPLE, 170 do. of PLUM, 150 do. of CHERRY, with other kinds in proportion. Standards, 6 to 7; Pyramids, 6 to 7; and Bushes, 3 to 5 feet high; also very fine Dwarf-trained Trees of all kinds, of superior growth, are offered. The above are described in the "Orchardist," the best work on Fruit Trees in England, price 1s. 6d in stamps. A printed List or Index sent gratis.

J. S. also offers a splendid stock of FOREST TREES, DECIDUOUS SHRUBS and EVERGREENS in every variety.

CATALOGUE free on application.

Forest, Fruit, and other Trees.

JAMES DICKSON AND SONS' NURSERY STOCK is NOT surpassed in Britain; therefore, they have EVERY CONFIDENCE in soliciting Orders, and inviting intending planters to visit their EXTENSIVE NURSERIES, which can now be reached, on foot, in seven minutes, from the Chester Railway Station, by their new private road from the foot of the Flookersbrook Railway Bridge.

PRICE LISTS on application.

(*Old Established Nursery and Seed Business.*)

"Newton" Nurseries, Chester.

THORNTON begs to intimate to the Trade that the Stock offered below cannot be surpassed for health and fibrous roots. All been grown on maiden soil, and the stock, very extensive, is offered at low prices:—

Pinus austriaca, 9 to 15 inches	Spruce Fir, 1 to 2, and 2 to 2½ feet
P. Laricio, 9 to 15 inches	Laurel, 1 to 2 feet
P. rigida, 2 to 3 feet	Turkey Oak, 1 to 2 feet
P. taurica, 1 to 1½ foot	Cryptomeria japonica, 12 to 15 inches
P. Pinaster, 2 to 3, and 3 to 4 feet	Chinese Arbor-vitæ, 9 to 15 inches
Scotch, 9 to 15 inches	

THOMAS THORNTON, Heatherside, Bagshot, Surrey.

Autumn Planting.

PETER LAWSON AND SON will be glad to send their CATALOGUE (just published) of FOREST and ORNAMENTAL TREES and SHRUBS, free upon application.

The stock of LARCHES, SCOTCH FIRS, AUSTRIAN and CORSICAN PINES, &c., comprises some millions of healthy, well-grown plants, and special offers will be made for large quantities when personal inspection is not convenient.

Edinburgh and London.

Cedrus Deodara.

FINE SPECIMENS, 7, 8, 9, 10, to 15 feet, at 1s. per foot.

WM. MAULE AND SONS have to offer a large supply of extra fine EVERGREEN TREES and SHRUBS, calculated to give immediate effect to Parks, Cemeteries, and Plantations and suitable for screening and blocking out new Buildings, that are springing up daily in the vicinity of all large towns.

The Nurseries, Bristol.

Nursery Stock (one of the Largest in Scotland).

THOMAS KENNEDY AND CO. have as usual a very large and superior stock of FOREST, FRUIT, and ORNAMENTAL TREES, DECIDUOUS and EVERGREEN SHRUBS, &c., which they are selling at moderate prices. The Trees and Shrubs being of all ages and sizes, are particularly well suited for extensive planting, or giving immediate effect in the formation and improving of Ornamental Parks, Pleasure Grounds, &c.

Dumfries has long enjoyed the pre-eminence of being one of the best localities in Great Britain for rearing young Trees—its soil and climate being peculiarly adapted for that purpose; and wherever these Trees have been planted throughout the three Kingdoms (where Millions are sent by T. K. & Co. every season), they have invariably done well.

Dumfries, from its central position, is most favourably situated for the speedy transmission of goods to all parts of the United Kingdom.

T. K. & Co. will forward a Copy of their DESCRIPTIVE PRICED CATALOGUE to any address on application.

Nursery and Seed Establishment, Dumfries.—November, 1869.

Forest Trees, Fruit Trees, Evergreens,

PLANTS for GAME COVERS, CONIFERS, ROSES, &c

FRANCIS & ARTHUR DICKSON & SONS invite the attention of Planters to their very large stock of the above, which in extent and variety is not excelled by any Nursery in the Kingdom. Their Nurseries, which are very bleak and exposed, extend over some 150 acres, and their Plants are well known to be unusually hardy, as well as in the most perfect health and condition in every respect; and are found to thrive admirably when removed to other parts of the country. PRICED CATALOGUES post free upon application. Estimates and special prices for large quantities.

The "Upton" Nurseries and "Old" Established Seed Warehouse, 106, Eastgate Street, Chester.

SPECIMEN CONIFERS, consisting of the following, from 3 to 20 feet in height, handsome, suitable for immediate effect, will transplant with safety:—

ABIES DOUGLASII
" MORINDA
ARAUCARIA IMBRICATA
CEDRUS ATLANTICA
" DEODARA
" LIBANI
CRYPTOMERIA JAPONICA
CUPRESSUS LAWSONIANA
JUNIPERUS CHINENSIS
" EXCELSA
PICEA PINSAPO
PINUS AUSTRIACA
" CEMBRA
" EXCELSA
THUJA COMPACTA
" GIGANTEA
" LOBBII
" AUREA, 3 to 5 feet—perfection.
THUJOPSIS BOREALIS
WELLINGTONIA GIGANTEA

JAMES W. TODMAN, Eltham Nursery, S.E., 1¼ mile from Blackheath Station (North Kent); 1 mile from Eltham Station (Loop Line).

Wandsworth Common Nursery.

Ten minutes' walk from Clapham Junction.

MR. ROBERT NEAL begs to invite the attention of the Nobility, Gentry, and the Trade in general to his very extensive and healthy stock of PLANTS, consisting of a large collection of Standard, Pyramidal, and Dwarf-trained FRUIT TREES, of all sizes; Standard and Dwarf ROSES, Coniferous and other Evergreens, Forest and Ornamental TREES and SHRUBS, also a large collection of RHODODENDRONS, all the very best in cultivation, and are of endless variety, from deep crimson and dark purple (every shade), up to white, and Hybrid Seedlings, and all the leading kinds of Scarlet, both Standard and Dwarf, set with Bloom-buds, which he can supply in large quantities at a very low price.

CATALOGUE will be sent on application.

SEEDLING FOREST TREES, &c., free from Frost, healthy, and well grown.

	Per 1000	s.	d.
2,000,000 1-yr. Larch		2	0
1,000,000 1-yr. Scotch Fir		2	0
500,000 2-yr. Scotch Fir		2	6
300,000 1-yr. and 1-yr. trans-planted Scotch Fir		3	6
2,000,000 1-yr. Spruce Fir		1	6
500,000 2-yr. Spruce Fir		2	6
500,000 1-yr. Silver Fir		2	6
150,000 2-yr. Silver Fir		4	0
400,000 1-yr. Pinus austriaca		2	6
200,000 2-yr. Pinus austriaca		4	0
300,000 1-yr. Pinus Laricio		3	0
50,000 1-yr. Pinus Weymouth		5	0
800,000 1-yr. Birch		2	0
1,000,000 1-yr. Alder		1	6
100,000 1-yr. Oak		3	6
60,000 1-yr. Spanish Chestnut	per 100	12	6
25,000 1-yr. Horse Chestnut		7	6
100,000 1-yr. Acacia		4	0
400,000 1-yr. Sycamore		2	0
200,000 2-yr. Elm		4	6
50,000 1-yr. Holly		6	0
20,000 1-yr. Sweet Bay		30	0
25,000 2-yr. Laurustinus from cuttings		30	0
2,000,000 2-yr. Thorn Quick		2	6
100,000 1-yr. Crab stock		2	6
20,000 transplanted Ash, 2½ to 4 feet		20	0
40,000 Oak, in drills, 1½ to 2½ feet		20	0
50,000 Elm, 1½ to 2½ feet		20	0
5000 Spanish Chestnut, 2 to 3 feet		30	0
20,000 Horse Chestnut, 3 to 4 feet		25	0
4000 Irish Yews, 3 to 4 feet, several times transplanted	per 100—60	0	
6000 American Arbor-vitæ, 3 to 4 feet, stout and well rooted	per 100—25	0	

Any order amounting to £5 will be delivered free at Dublin on ship board on application to MICHAEL BURKE, Drumlargan Nursery, Summerhill, County Meath, Ireland.

Paul's Rose Catalogue.

"A very complete and able Catalogue."—*Floral World.*

WM. PAUL begs to announce that his NEW CATALOGUE of ROSES is now ready, and will be forwarded post free on application. The Stock of Plants is large and excellent.

Paul's Nurseries, Waltham Cross, London, N.

EVERGREEN HEDGES.

AMERICAN ARBOR-VITÆ, 4 to 5 feet, at 10s. per 100; 5 to 6 feet, at 30s. per 100.

SIBERIAN ARBOR-VITÆ, 2 to 2½ feet, 10s. per 100; 2½ to 3 feet, 50s. per 100; 3 to 4 feet, 6s. per 100; 4 to 5 feet, 8s. per 100.

RICHARD SMITH, Nurseryman, Worcester.

RICHARD SMITH'S LIST of EVERGREEN and DECIDUOUS SHRUBS, RHODODENDRONS, STANDARD ORNAMENTAL TREES, CLIMBING and TWINING PLANTS, with their generic, specific, and English names, native country, height, time of flowering, colour, &c., and general remarks, free by post.

RICHARD SMITH, Nurseryman and Seedsman, Worcester.

Everlasting and Dried Natural Flowers and Grasses

For CHRISTMAS and WINTER DECORATION.

JAMES CARTER, DUNNETT, AND BEALE are now executing orders for the above. TRADE LISTS may be had on application.

237 and 238, High Holborn, London, W.C.

Special Trade Offer.

S. NAIRN AND SONS, SEEDSMEN and FLORISTS, 62, Pilgrim Street, Newcastle-on-Tyne, have the following to offer, all pure, prices on application:—

BALSAM (Smith's), in separate colours.
BROCCOLI, NE PLUS ULTRA, the best April Broccoli in cultivation.
CELERY, SANDRINGHAM, well known as being the best White Celery in cultivation.
LEEK, HENRY'S AYTON GIANT, Scotch; saved.

Seeds Direct from the Growers the best means of Preventing Disappointment.

SUTTONS' PRICED CATALOGUE of GENUINE HOME-GROWN SEEDS is now ready, and may be had gratis and post free on application.

SUTTON AND SONS, Seed Growers, Reading.

PEAS.—Maclean's Premier, Little Gem, fine Wrinkled Marrows, Early Emerald, Advancer.

For full description see CHARLES TURNER'S DESCRIPTIVE CATALOGUE, now ready.

The Royal Nurseries, Slough.

Potatos.

CHARLES TURNER'S SEED CATALOGUE contains a Select List of Kidney and Round varieties, including two new kinds, now offered for the first time.

UNION, a Round variety, and BEACONSFIELD, Kidney.

The latter received a First-class Certificate at the Royal Horticultural Society. The Royal Nurseries, Slough.

Seed Potatos.

JOHN AND GEORGE BELL, Covent Garden Market, London, W.C., beg to call attention to the prices of the undermentioned SEED POTATOS:—

PATERSON'S VICTORIAS, £6 10s. per ton.
EARLY SHAWS, £8 per ton.
MYATT'S EARLY PROLIFIC, £8 per ton.
RED FLOUR-BALLS, large croppers, £10 per ton.

In ton lots and upwards.

IVERY'S NONSUCH LETTUCE.—The best Summer variety in cultivation. 1s. per packet, sealed with initials M. A. I.

Also IVERY'S NONSUCH CELERY, true, own saving; acknowledged by all who have grown it to be superior in flavour to all other varieties. Price to the Trade on application.

The Trade supplied with superior MUSHROOM SPAWN.

M. A. IVERY, Hanover Nursery, Peckham, London, S.

To the Wholesale Trade.

HERBERT H. NICHOLSON, SEEDGROWER, Great Clacton (near St. Osyth), Essex, has the following SEEDS to offer, for cash only:—

ROBINSON'S PRIZE CHAMPION GX CABBAGE	80s.	per cwt.
NONPAREIL CABBAGE	112s.	"
WHITE CELERY (Leviathan)	95s.	"
SELECTED DARK RED BEET	140s.	"
STUDENT PARSNIP	80s.	"
MYATT'S CURLED PARSLEY	28s.	per bush.
STUBBLE TURNIP	18s.	"

&c. Also all the Annual FLOWER SEEDS, at low prices.

BROCCOLI, ELLETSON'S NEW SURPRISE, Large late White Protecting.—A great improvement upon the Mammoth Cauliflower Broccoli sent out 20 years ago by those eminent Market Gardeners, J. & J. Elletson, of Thorngumbald, who have for many years been so successful in the cultivation of Broccolis, and who by great industry have so far improved upon the old kind as to produce the above variety, which possesses the hardiness of the parent and surpassing it in size and quality. I have every confidence in its giving the same satisfaction which was given when the stock of Mammoth was originally sent out. Having the entire stock, I am enabled to supply the seed genuine. Price 1s. 6d. per packet.

CUCUMBER, FOSTER'S XL, fine Long Ridge.—Is a remarkably fine hardy long dark green Cucumber, and one that can be recommended with the greatest confidence. It is very prolific, and keeps its colour to the last. All who have seen it growing are satisfied that it cannot be surpassed, and those who have tried its flavour are convinced of its excellent quality. Length 12 to 18 inches. 1s. per packet. Trade supplied.

EDMUND PHILIP DIXON, The Yorkshire Seed Establishment, 57, Queen Street, Hull.

Caution to Gardeners.—When you ask for

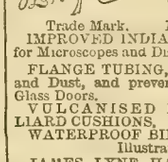
SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the Corporate Mark, OBTAIN WARRANTED without which none are genuine

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.

S. & C.'s PRUNING and BUDDING KNIVES are the best and the cheapest in the market.

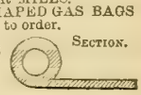
Paxton Works, Sheffield. Established upwards of 125 years.

Established 1833.



Trade Mark.

HANCOCK'S INDIA-RUBBER HOSE and TUBING.
CARRIAGE, GIG, & DOG-CART APRONS.
HORSE SINGEING APPARATUS, with GAS BURNERS, and INDIA-RUBBER TUBING.
Improved INDIA-RUBBER DOOR STOPS.
WATERPROOF CART and WAGGON COVERS made any size.
HORSE-LOIN COVERS (Waterproof), with Straps complete.
BELTING for SAW MILLS, THRESHING MACHINES, and FLOUR MILLS.
IMPROVED INDIA-RUBBER WEDGE-SHAPED GAS BAGS for Microscopes and Dissolving Views; any size to order.
FLANGE TUBING, for excluding Draught and Dust, and preventing the Slamming of Glass Doors.


SECTION.

VULCANISED INDIA-RUBBER BILLIARD CUSHIONS.
WATERPROOF BILLIARD TABLE COVERS.
Illustrated Price Lists on application.

JAMES LYNE HANCOCK, Vulcanised India-Rubber Works, 266, Goswell Road, London, E.C.

GENUINE SEEDS ONLY.

JAMES VEITCH & SONS

BEG TO ANNOUNCE THAT THEIR

ILLUSTRATED PRICED CATALOGUE OF GARDEN AND FLOWER SEEDS for 1869,

WITH LIST OF IMPLEMENTS AND OTHER GARDEN REQUISITES,

Is now published, and will be forwarded Post Free on application.

ROYAL EXOTIC NURSERY, CHELSEA, LONDON, S.W.

IMPORTANT TO THE TRADE.

FERDINAND JÜHLKE'S SUCCESSORS,

SEED GROWERS AND MERCHANTS, ERFURT, PRUSSIA,

BEG TO INFORM THEIR CUSTOMERS THAT THEIR

ANNUAL CATALOGUE of IMPORTED FLOWER SEEDS, &c.,

is now ready, and will be forwarded Gratis and Post Free on application to their

LONDON DEPOT, 129, HIGH HOLBORN, W.C.

PRIZE MEDALS: ERFURT and HAMBURGH. DICK RADCLYFFE AND CO., Managers.

NOW READY, POST FREE ON APPLICATION,

PETER LAWSON & SON'S

DESCRIPTIVE PRICED SEED CATALOGUE

OF KITCHEN GARDEN AND FLOWER SEEDS, GARDEN IMPLEMENTS, GLADIOLI, &c.

The true SANDRINGHAM CELERY, EMERALD CUCUMBER, DELL'S SUPERB BLACK BEET, SANDRINGHAM SPROUTING CABBAGE, INCOMPARABLE WHITE DUTCH CABBAGE LETTUCE, BANBURY IMPROVED WHITE SPANISH ONION, and other recently introduced VEGETABLES and FLOWER SEEDS, are fully described and are recommended.

20, BUDGE ROW, CANNON STREET, LONDON, E.C.; and EDINBURGH.

THE SHIPLEY PROLIFIC FRAME CUCUMBER.

THIS IS A NEW CUCUMBER

Of most extraordinary productiveness, having had as many as NINETEEN CUCUMBERS on two young plants, READY FOR CUTTING AT THE SAME TIME, with many more coming on. It has a very smooth skin, of a rich deep green colour, and grows from 18 to 20 inches long. It has also the advantage of being a first-rate variety for winter work.

Price, 1s. 6d. and 2s. 6d. per packet.

GEORGE JOHN CHILD, SEED MERCHANT AND NURSERYMAN,
49, DARLEY STREET, BRADFORD; and BRADFORD NURSERIES, SHIPLEY.

It can also be obtained of—

London—Messrs. BECK, HENDERSON & CHILD.
" Messrs. HURST & SON.
London—Messrs. NUTTING & SONS.
Norwich—Messrs. EWING & CHILD.

Other names to follow as received.

THE AMERICAN NURSERY,

BAGSHOT, SURREY.

Near Sunning Dale Station, South-Western Railway.

JOHN WATERER & SONS

Respectfully invite the attention of Gentlemen and Planters to the undernamed selections from their general stock; every plant may be depended upon as in the best order possible for removal, having been transplanted within the last season.

ARAUCARIA IMBRICATA, grand specimens, 4 to 6 to 8 to 12 feet.
CUPRESSUS LAWSONIANA, 3 to 4 to 6 to 10 feet.
" LAWSONIANA ARGENTEA (JOHN WATERER'S var.). — By far the most desirable of all the glaucous varieties, 5s. to 7s. 6d. each.
" MACROCARPA, 4 to 6 feet, 42s. per dozen.
THUJA AUREA.—Beautiful plants, about 2 feet, 42s. per dozen; larger, 5s. to 21s. each.
" GIGANTEA.—An unequalled stock of hundreds of Seedlings, 4 to 6 to 8 feet, 3s. 6d. to 63s. each.
We would remark, that unless plants are on their own roots of this fine Thuja they are quite worthless.
THUJOPSIS BOREALIS, 3 to 4 feet, 30s. per dozen; extra fine, 5 to 6 and 7 feet, 5s. to 10s. 6d. each.
" DOLABRATA.—Fine plants, 5s. to 7s. 6d. each.
" " VARIEGATA, 5s. to 7s. 6d. each.
WELLINGTONIA GIGANTEA. — Good plants, 30s. per dozen; 2 to 3 feet, 42s. to 60s.; larger, up to 10 feet, 7s. 6d. to 63s. each.
ABIES NOBILIS, 2 to 3 feet, 21s. each; larger, 4 to 5 feet, 42s.
" NORDMANNIANA, 2 to 3 feet, 7s. 6d. to 10s. 6d.; 3 to 4 feet, 21s.; 4 to 8 to 12 feet, 31s. 6d. to 105s. each.
" LASIOCARPA, 3 to 4 to 5 feet, 10s. 6d. to 42s. each.
" GRANDIS, 4 to 5 to 6 and 10 feet, 10s. 6d. to 63s. each.
" PINSAPO, 2 to 3 feet, 5s.; 3 to 5 to 8 feet, 7s. 6d. to 63s.
" DOUGLASII, 3 to 4 feet, 42s. per dozen; 4 to 6 to 10 feet, 5s. to 21s. each.
" MAGNIFICA, 3 to 4 feet, 31s. 6d. to 42s.
" ORIENTALIS, 3 to 5 to 8 feet, very beautiful examples, 21s. to 63s. each.
CEDRUS DEODARA, 2 to 3 feet, 30s. per dozen; larger, up to 12 feet
YEWS, COMMON.—Immense quantities, 2 to 3 to 4 to 6 feet, from 18s. to 60s. per dozen.
" IRISH.—Perfect columns, up to 12 feet.
" GOLDEN, as Standards on Irish stems, perfect globes, 31s. 6d. to 42s. each.
HOLLIES, GREEN COMMON.—Many thousands, of all sizes, from 1 foot up to 10 feet.
" the best GOLDEN, WATERERS', and SILVER varieties, in any quantity, and of all sizes.
TANDARD HOLLIES, GREEN, 10s. 6d. to 21s. each.
" " WATERERS' variety, many hundreds of symmetrically grown specimens, perfectly straight stems, 42s. to 105s. per pair.
" WEEPING, GREEN, and SILVER VARIEGATED, fine plants, from 21s. each.
" PORTUGAL LAURELS.—Very close grown handsome plants, 10s. 6d. to 21s. each; very large imposing specimens, 42s. to 63s. each.

AMERICAN PLANTS.

Of this very popular tribe of plants we have the pleasure of observing that our stock is unequalled, and that it is from our Establishment that nearly all the approved crimson varieties of Rhododendrons have emanated. The Grand Exhibition of Rhododendrons annually displayed at the Royal Botanic Gardens, Regent's Park, has been for the past 20 years supplied from our Nursery.

RHODODENDRON PONTICUM, for undercover or shrubberies, strong established plants, £10 10s. per 1000; larger, 25s. to 63s. per 100.
" CATAWBIENSE and HYBRIDS, bushy well-grown plants, 5os. to 75s. per 100.
" better class (SEEDLINGS) and named varieties for extensive planting, £5 per 100.
" of superior kinds, many on own roots, £7 10s. to £10 per 100.
" very superior, leading, crimson, rose, white, £12 10s. to £20 per 100.
" STANDARD and HALF-STANDARD, of the most imposing varieties, of all shades of colour, from 21s. to 63s. to 105s. each.
AZALEAS, common kinds, 50s. to 75s. per 100.
" very best, in fine plants, £10 per 100.
KALMIA MYRTIFOLIUM, very handsome, 30s. per dozen.
" LATIFOLIA, 18s. to 30s. per dozen.
ANDROMEDA FLORIBUNDA, fine plants, 18s. to 42s. per dozen.

We have likewise immense quantities of the leading kinds of

EVERGREENS OF ALL SIZES,

SUCH AS

AUCUBAS, BAY, BOX, LAURUSTINUS, COMMON and PORTUGAL LAURELS, ARBOR-VITÆ, PHILLYREA, &c.

As well as **FOREST TREES,** 2 to 3 and 4 to 5 feet,

CONSISTING OF

ASH, BIRCH, BEECH, HAZEL, SPANISH CHESTNUTS, ALDER, SPRUCE, PINUS AUSTRIACA, &c.

From the immensity of our stock, we are enabled to treat on most liberal terms, and Purchasers are recommended in every practicable case to visit and choose for themselves, it being an impossibility to adequately describe by advertisement.

CATALOGUES, describing faithfully the colours of Rhododendrons, with height and prices, will be forwarded on application.

Purchasers of large quantities are informed that Goods can be forwarded from Sunning Dale to all parts of England in through truck, thereby causing a great saving in transit as well as diminishing the cost of package.

THE AMERICAN NURSERY,
BAGSHOT, SURREY.

KNAP HILL NURSERY,

WOKING, SURREY.

ANTHONY WATERER

Solicits the notice of intending Planters to the following LIST of specimen CONIFERS, &c., all of which he believes are as handsomely grown, as carefully managed, and as finely rooted as can be desired.

ABIES ALBERTUS, 5 to 9 feet, 30s. to 60s. per dozen. Transplanted April, 1869.
ABIES DOUGLASII, 6, 7, to 10 feet, 7s. 6d. to 10s. 6d. each. Transplanted August, 1868.
ABIES ORIENTALIS, 5, 6, and 7 feet, 7s. 6d. to 21s. Splendid plants, moved April, 1869, 10 to 12 feet high, 15 and 20 feet in circumference.
ABIES EXCELSA, the Common Spruce Fir, beautifully furnished, 5, 6, to 8 feet high, £5, £7 10s., to £12 10s. per 100.
The dwarf varieties of Spruce, such as pumila, pygmæa, Gregorii, Clanbrazilliana, &c., large numbers, many of them 20 and 30 years' growth.
CEDRUS DEODARA, 5 to 6 feet, 60s. per dozen; 7 to 8 feet, 84s. per dozen; 10 to 12 feet, 10s. 6d. to 21s. each, and upwards. We have several thousands of these large Deodars. All have been removed since August, 1868; many since April, 1869.
CEDRUS ARGENTEA, 6 to 7 feet, 42s. to 60s. per dozen; 8 to 10 ft., 7s. 6d. to 10s. 6d. each. All removed since September, 1868.
CEDRUS LEBANON, 6, 7, to 10 feet. Moved September, 1868.
CUPRESSUS LAWSONIANA, 6 to 7 feet, 30s. to 42s. per dozen; 8 to 10 feet, 5s. to 10s. 6d. each.
" " ARGENTEA, 3 and 4 feet, and as much in circumference, 7s. 6d. to 10s. 6d. each.
" " GRACILIS, 4 to 6 feet high, and 7 and 8 feet round, 7s. 6d. to 21s.
JUNIPER, CHINESE, 4 to 5 feet, 42s. per dozen, £15 per 100; 5 to 6 feet, 60s. per dozen, £20 per 100; 7 to 8 feet, 7s. 6d. to 10s. 6d. each. All removed since August, 1868. Purchasers may select from a stock of many thousands of this fine plant, 5 to 8 ft. high.
PICEA NOBILIS, hundreds of splendid specimens, 5, 6, 7, to 10 ft. high, all recently removed, and are undoubtedly the finest plants to be found in any Nursery. None are grafted.
PICEA NORDMANNIANA, 5, 6, to 8 feet, 21s. to 42s. each, and upwards. Splendid plants, moved August, 1868, 10 to 15 ft. high.
PICEA LASIOCARPA.—Hundreds of most beautiful plants, 4, 5, 6, 8, and 9 feet high. All removed 1868-69.
PICEA MAGNIFICA, 3, 4, and 5 feet.
PICEA PINSAPO, 4, 5, 6, and 8 feet, 21s. to 63s. each. Some grand plants, 10 to 15 feet high, transplanted April, 1869.
THUJA AUREA, beautiful specimens, 3, 4, 5, and 6 feet high; 10 to 20 feet in circumference. This plant originated in this Nursery, and our stock is unsurpassed.
THUJA GIGANTEA, 5, 6, to 12 feet high. Moved August, 1868.
THUJA LOBBII, 8 to 14 feet high, and as much in circumference; transplanted April, 1869.
THUJOPSIS BOREALIS, 5 to 6 feet, 7 and 8 feet round; 42s. to 60s. per dozen; 7 to 8 feet, 7s. 6d. to 10s. 6d. each. All removed since August, 1868.
WELLINGTONIA GIGANTEA, 4 to 5 feet, 7s. 6d. to 10s. 6d. each; 6, 7, 8, and 9 feet, 21s. to 42s. each. Transplanted in August.
PINUS AUSTRIACA, 3 feet, £5 per 100. Transplanted, Sept. 1868.
PINUS CEMBRA, 8 to 10 feet, 10 to 12 feet round, 10s. 6d. to 21s. each.
YEWS, the COMMON ENGLISH, 4, 5, 6, 7, 8, 10, and 12 feet high. Thousands, all constantly removed; invaluable where immediate effect is sought.
YEWS, GOLDEN and ELEGANTISSIMA.—We have these in large numbers, and of all sizes, as pyramids, globes, and worked as standards, with from 3 to 5 feet of gold, and up to 10 feet high.
YEWS, IRISH, handsome plants, up to 10 feet high.
HOLLIES.—The stock of Hollies at this Nursery is, we believe, the finest to be met with in Europe; it comprises, as well as ordinary sizes, together, many thousands of the following varieties:—
HOLLY, VARIEGATED SILVER and GOLD, of sorts, 4 to 10 feet.
HOLLY, GOLDEN QUEEN, magnificent plants, 4 to 8 feet high, and as much in circumference.
HOLLY, SILVER QUEEN, 4, 5, and 6 feet.
WATERER'S HOLLY.—This variety originated in this Nursery; we have hundreds 4, 5, and 6 ft. high, 10 and 15 ft. circumference.
PERRY'S WEEPING HOLLY.—Standards, 10s. 6d. to 21s. each.
HOLLY, COMMON WEEPING.—The finest specimens we have seen. Moved, April, 1869.
HOLLY, COMMON GREEN, 4, 5, 6, 7, 8, 10 to 14 feet high, by the thousand. All moved since April, 1868.
HOLLIES, fine varieties of the following kinds. An immense stock of splendid plants, all transplanted in 1868-9:—
HODGINS' YELLOW BERRIED, LAURIFOLIA and SCOTTICA, 4, 5, 6 to 10 feet high. ANGUSTIFOLIA, MYRTIFOLIA, &c. 4, 5, 6, and 8 feet high.
STANDARD, WATERER'S and GOLDEN QUEEN HOLLIES, 4 to 6 feet stems, with heads 6 to 10 feet in circumference. A large number.
N.B.—Purchasers of Hollies may select from a stock occupying at the present moment considerably over 6 acres of ground; finer or better rooted plants cannot be wished or obtained. The prices are fair and reasonable.
BOX, Green and Variegated, 4, 5, 6, to 8 feet.
BOX, do. do., fine pyramids, up to 8 feet.
BAYS, standards and pyramids.
LAURUSTINUS, standards.
AUCUBA JAPONICA, thousands of beautiful plants, all moved 1868, 3 and 4 feet high.
AUCUBA JAPONICA, Berried, hundreds, 1½ to 4 feet high; in the open ground and in pots, from 18s. to 120s. per doz. and upwards.
AMERICAN PLANTS.—The Stock of American Plants at Knap Hill is, we believe, as fine as, and more extensive than, anything of its kind to be met with in England, considerably over 50 acres of land being devoted to their cultivation. We shall be pleased to supply—
RHODODENDRONS, nice bushy plants, from layers, named kinds, £5 per 100, £40 per 1000. A dozen sent as sample on application.
RHODODENDRONS, the finer kinds, by name, from £7 10s. to £12 10s. per 100, and upwards.
RHODODENDRON PONTICUM, good plants for Cover, from £10 to £15 per 1000.
STANDARD RHODODENDRONS.—Of these we possess a large number of the oldest and finest specimens in the country, many being from 20 to 30 years old, with heads varying from 15 to 30 feet in circumference. There is probably no kind better adapted for standards than that we call roseum elegans, many of which we supplied to Rotten Row. We have also Rhododendrons, standards, of many other kinds.
RHODODENDRONS, fine hybrids, of good hardy habit, and great variety in colour, from £5 to £12 10s. per 100. Sample on application. Large and handsome plants by the 1000, 4 to 8 feet high.
AZALEAS, the very best kinds, nice plants, £10 per 100, upwards.
AZALEAS, common kinds, £5 per 100.
AZALEAS, splendid plants, of the finest varieties, 3, 4, 5, and 6 feet high, and as much in circumference.
KALMIA LATIFOLIA, nice plants, bushy, healthy, and covered with bloom, £5 to £10 per 100.
ANDROMEDA FLORIBUNDA, £5 to £7 10s. per 100, and upwards.
HARDY HEATHS, a very fine collection, every plant a specimen, and all removed in 1869, from 20s. to 40s. per 100.
ERICA CARNEA, for winter blooming, many thousands.
ERICA MEDITERRANEA ALBA, remains in bloom from October to May, and smells like new-mown hay—indispensable for Winter Gardening.
SKIMMIA JAPONICA, nice healthy plants, moved April, 1869, covered with berries, 12s. to 18s. per dozen.

As well as the above, the Knap Hill Nursery contains upwards of 200 Acres of ordinary NURSERY STOCK of a superior class, such as Flowering Shrubs (Deciduous and Evergreen), Roses, Ornamental Trees for Avenues, &c.

A PRICED and DESCRIPTIVE CATALOGUE will be forwarded on application. Purchasers to any extent are strongly recommended to make a personal inspection of our stock, and obtain the prices on the spot. No Catalogue can fairly describe many of the plants we offer.

The Nursery is readily reached by train from Waterloo to Woking in 40 minutes.

N.B.—There is now no difficulty in sending Plants through in the same truck, without package, from Woking to almost any Railway Station in England.

SUTTONS'

HOME-GROWN SEEDS.

SEASON 1869 AND 1870.

SUTTON AND SONS are now prepared to receive Orders for their

COMPLETE COLLECTIONS OF SEEDS

FOR THE

VEGETABLE and FLOWER GARDEN,

And which will produce a valuable supply during the whole year.

FOR THE KITCHEN GARDEN.

No. 1 COLLECTION, for a large Garden, Carriage Free	£3	3	0
No. 2 COLLECTION, for medium sized do., Carriage Free	2	2	0
No. 3 COLLECTION, for medium sized do., Carriage Free	1	11	6
No. 4 COLLECTION, for an ordinary sized do., Carriage Free	1	1	0
No. 5 COLLECTION, for a small do., Carriage Free	0	15	0
No. 6 COLLECTION, for a very small do	0	12	6

FOR THE FLOWER GARDEN.

No. 1 COLLECTION, Free by Post or Rail	£2	2	0
No. 2 COLLECTION, Free by Post or Rail	1	11	0
No. 3 COLLECTION, Free by Post or Rail	1	1	0
No. 4 COLLECTION, Free by Post or Rail	0	15	0
No. 5 COLLECTION, Free by Post or Rail	0	10	6

THE FORWARDEST PEA KNOWN IS

SUTTONS' RINGLEADER.

The Royal Horticultural Society tested carefully the merits of the leading kinds of Early Peas, and in the *Gardeners' Chronicle*, June 27, 1868, the following brief but emphatic statement appeared:—"The earliest form of all was Ringleader. Several of the Peas blossomed at the same time, but Ringleader was fit to gather first."

Price 2s. per quart, cheaper in large quantities.

The Largest and best EARLY PEA for Market Gardening purposes is

SUTTONS' IMPROVED EARLY CHAMPION.

This excellent large-podded Early Pea is only four days later than our "Ringleader," and quite a week earlier than Daniel O'Rourke or Sangster's No. 1. It produces a complete mass of fine large green pods, and is specially adapted for growing in large quantities to pick green for market. The numerous Testimonials we have received, together with the increasing demand, prove its great superiority over the sorts usually grown for that purpose.

Price 1s. 6d. per quart, or much cheaper in large quantities.

The THREE best POTATOS for the ensuing season are—

For the Earliest Crop,

SUTTONS' EARLY RACEHORSE KIDNEY

The forwardest in cultivation.

The tubers nearly double the size of Walnut-leaf. Of the many Early Kidney Potatos sent out for some years past, we know of none at all equal in earliness or productiveness to this. We speak with confidence, having planted in our trial grounds every new variety offered for sale. We have hitherto always sold out long before the season closed, and as our stock is limited, early orders are necessary to secure a supply.

Price 5s. per peck, cheaper by the bushel.

For the Main Crop,

SUTTONS' BERKSHIRE KIDNEY,

Raised and selected from among 40 Seedlings of the Fluke. Having planted it side by side with the different varieties of that class, we have proved it to be by far the best of them all, and quite a fortnight earlier. The tubers are of good size, very numerous, and remarkably clear skin. It is most valuable for the main garden crop, and has been remarkably free from disease, while other varieties growing close by were almost destroyed.

Price 5s. per peck, cheaper by the bushel.

For the Latest Crop,

SUTTONS' RED-SKINNED FLOUR-BALL.

This Potato has the peculiar merit of producing tubers all of full size, and weighing from 12 to 20 ounces each. While most other red varieties boil yellow, this is white, and is most correctly described as Flour-ball. For supplying the London dining rooms especially, we feel confident it will supersede every other kind when sufficiently known. In a field where many other sorts were all more or less diseased, our Red-skinned Flour-ball was entirely free, which we can only attribute to its remarkably vigorous growth. It is a Seedling, and we offer it now for the first season.

Price 7s. 6d. per peck, cheaper per bushel.

SUTTONS' NEW CATALOGUE for 1870

Is now ready, and may be had Gratis on application.

☞ *All Goods Carriage Free.*

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The Gardeners' Chronicle.
SATURDAY, DECEMBER 25, 1869.

WHEN in 1841 the *Gardeners' Chronicle* was established, and when in 1844 the *Agricultural Gazette* was added to it, the object of the promoters was to secure to the Gardening and Agricultural world, as well as to country proprietors and residents, a Journal which, while supplying all the special wants of the classes for whom it was intended, should also give them, in a condensed form, a summary of the general events of the week. This was in the days before Penny Papers were in existence, at a time when the gardener, farmer, or bailiff, in country districts, could hardly procure without much expenditure and inconvenience, intelligence as to what was going on in the world. How much circumstances have altered this state of things every reader can judge for himself. The Proprietors, ever anxious to cater for the advantage of their subscribers, have, therefore, determined, in conformity with the expressed wishes of a very large number of their friends, to discontinue the newspaper matter at the commencement of the ensuing year. By so doing the Editors of the several departments will be enabled to devote more space to questions of Gardening and Agricultural interest and at the same time to introduce certain modifications which it is believed will meet with the general approval of their readers. Among the proposed changes, it may be mentioned that, by the adoption of an entirely new and more legible type, the appearance of the Paper will be materially improved; illustrations will be more freely supplied than has hitherto been the case; and many matters of general interest to country gentlemen, gardeners, farmers, and others interested in Horticulture or Agriculture, which have hitherto been excluded for want of space, will be introduced. The Editors believe that they may confidently refer to the past in support of their assurance that every effort will be made by them not only to maintain the high character of the Paper, but to increase its general interest and utility.

THE controversy which has been going on in our columns for some time past as to the question whether ROOT FORMATION and root action precede LEAF DEVELOPMENT and leaf action, or *vice versâ*, reminds us forcibly of that famous contest 'twixt eyes and nose of which COWPER sings. It seems to us that all the disputants, as was the case in that *cause célèbre*, have more or less right on their side, and that if all could but be brought to see the facts of the case in the same light, there would be little room for further difference of opinion. As it is, we have fact added to fact, argument piled on argument, the facts being supposed to be antagonistic the one to the other, and the arguments in like manner to be reciprocally destructive. Now, so far as we can understand, mid the din of the contest, the facts adduced are not necessarily antagonistic; marshal them in another manner, and the apparent discrepancies disappear. For instance, these questions have been asked—Do Vines make roots without the action of leaves and branches? And, again—Do Vines make leaves and branches without the aid of roots, or of *new* roots?—in other words, does top-action precede that in the roots, or *vice versâ*? Each disputant has answered these questions for himself, and in some cases, at any rate, expressed his doubts as to the accuracy of his opponents' facts, without sufficiently considering the different conditions under which they were observed. For our own parts, we should be disposed to answer all the above-cited questions in the affirmative. As this statement involves a seeming paradox, we must enter into some explanations.

In the first place we would deprecate the idea of speaking dogmatically or *ex cathedrâ*. The present state of vegetable physiology is not yet sufficiently advanced to enable even the best-informed student or observer to assert his infallibility. An Œcumenical Council of vegetable physiologists, we fear, would have no better claim to absolute accuracy. As within the limits of this article it would be impossible to refer at length to the facts on which our opinions are based, this caution seems the more necessary. We may, however, refer the reader to the facts as they stand recorded in our columns, and to those which may be found in any text-book. When we replied to the above questions affirmatively we should have added—provided that there be an available store of nutrient organisable matter at hand, out of which the new growths, whether of leaf, shoots, or roots, may be made. Now in a living Vine stem there is always such a store. This store is well furnished or nearly empty, according to season, temperature, state of growth, and other conditions. Given a stem, a bud, a tuber, nay, even in some cases a leaf only, in which are stored up sufficient organisable materials, and given the requisite conditions, and forthwith new leaves, new shoots, new roots, one or all simultaneously, or one before, or one after the other, may be produced. In some cases under certain conditions roots will be formed; in other instances leaf action will predominate; in a third set of cases buds and tubers will be developed. We had illustrations of the latter kind this season, when many people complained that their Potatos made no haulm, but produced small tubers in abundance. Similar occurrences happen now and then in the case of terrestrial Orchids, where years may elapse without the production of leaf and flowers, but where year after year new tubers are formed beneath ground ready when conditions alter to start into leaf and amaze the observer by their abundance where previously there had been none seen for many years.

The real difficulty is to know what are the precise conditions which determine root growth at one time, leaf growth at another. Sometimes these are obvious, but generally they are not so. For instance, when we have a Vine with its roots in an outside border, and its well ripened wood (well garnered store-house) inside, leaf growth and leaf action decidedly predominate over root action. In such a case probably root action to any great extent does not take place till the demands made on the store-house become so pressing that it is necessary to make provision for replenishing it. Many experiments have been made with Vines by passing the stems repeatedly into and out of a house, the roots being outside. In all these cases the parts of the stem inside the house push leaves, while those portions outside remain quiescent. If the growth of leaves and shoots in this case were dependent absolutely on the outside roots, would there not be some attempt at least to form leaves on the portions of the stem outside the house as well as on those within? Of course there comes a time when the store is exhausted, or when it demands the influx of more water to make it soluble and available for growth, and then the roots are called into play to furnish what is required. Our knowledge is, unhappily, very defective upon this important point—the particular conditions which favour root growth or leaf growth respectively. Where a store exists, as we have said, we may have new leaves, new roots, or new buds formed without, in the first instance, any special demand being made on the existing roots. What we want to know more about is, as to the reasons why sometimes roots are produced, at other times leaves, at other times buds. We have some evidence on these points, but it is not enough. For instance, there is a well-ascertained relation between the degree of moisture and the formation of root-fibrils—an almost equally well marked correspondence between the formation of tubers and the existence of drought. These are matters of cardinal importance to the gardener and farmer, and every fact bearing on them is important, and should be recorded. We cannot pursue the subject further in this article, but we may find occasion to revert to it in future. In the meantime, to avoid possible misapprehensions, we must not forget to state that, in order to establish and furnish such a store-house as we have above alluded to, the co-operation of root and leaf is, of course, absolutely essential, the formation of the root no less than its functional activity taking precedence of the leaf, as indeed may be seen in any germinating seed. Until the store-house is made, and filled with available material, all new growths, of whatever nature they may be, are dependent on the material absorbed by the roots, transmitted through the stem, and elaborated and rendered fit for their purpose they have to serve by passing through the leaves. In this case, then, divided action is useless, combined action, as in the nose and eyes question, all important.

—— THE BOTANICAL GARDENS AT GLASNEVIN are known to the majority of the visitors to Dublin; they are beautifully situated on the banks of the little river Tolka, and contain a large collection of rare plants. Some years ago the committee of botany of the Royal Dublin Society, acting on the advice of the director of the gardens, purchased a large iron shed, in which were displayed portions of a collection of plants and their products useful to man. This structure was from the first quite unfit for preserving the valuable collection placed in it; the specimens were necessarily crowded together, and any arrangement was impossible. Still, the large numbers that visited this room to study the contents of the cases, and oftentimes to take notes of the history of the specimens, as told on their labels, testified to the great and intelligent interest that was taken in the collection by the public. The special function of the Science and Art Department appears to be to provide for the improvement of the people in science and art, and they placed on the estimates for the four years between 1865 and 1869 a sum of 4000*l.* for building a museum at the Botanical Gardens, close to the front entrance gate, through which so many thousand visitors pass in the course of each year. This sum, small though it may appear, would have been sufficient to have built and cased a large plain building, which would have contained all the present collection, and the additions to it, for many years; but though the money was voted by Parliament for several years, it was never applied to this purpose: and we think it but justice to the cause of science in Ireland, to call the attention of the Science and Art Department to this fact, and to urge them to have this sum inserted in the estimates for the coming year.

—— At a meeting of the Ashmolean Society, Oxford, Nov. 29, Prof. LAWSON read a short paper on CHLOROPHYLL. In speaking of the optical properties of chlorophyll, he called particular attention to the observations made on this branch of the subject by Professor STOKES; observations which had disproved the old theory that chlorophyll could be separated into two primary substances of a yellow and blue colour (the xanthophyll and cyanophyll of M. FRÉMY.) He dwelt also upon the fact that Mr. H. L. SMITH's careful comparison of the spectrum of the endochrome of diatoms with that of chlorophyll went far to prove the two substances to be identical. Chlorophyll had been formerly supposed to be a product of the vegetable kingdom only; but more recently a green colouring matter, closely allied to chlorophyll if not identical with it, had been detected in many of the lower forms of animal life. These discoveries illustrated in a striking manner how the supposed gaps between the two kingdoms were filled up.

—— At the meeting of the Royal Horticultural Society on Tuesday last, it was announced that W. E. HUBBARD, Esq., of Leonard's Lee, Horsham, offered a prize for the best Essay on the MANAGEMENT of COTTAGE GARDENS, to be printed on cards for disposal

at a cheap rate to the members of Cottage Gardening Societies. The amount of the prize offered, the date upon which it is to be awarded, and the names of the judges, will be announced at a future time. Mr. BATEMAN suggested the desirability of having a similar kind of treatise on the management of Window Gardens in Towns. How much interest is felt in this subject is manifested by the large demand that still exists for that useful little book, "Paxton's Cottager's Calendar of Garden Operations."

—— In reference to the VEITCH MEMORIAL, it has been suggested that, as the late Mr. VEITCH was one of the most active promoters and supporters of horticultural exhibitions, both at home and abroad, the committees of the various Horticultural Societies throughout the country should be invited to further the movement now in progress for perpetuating his memory.

—— A new form of Entomological Society, called INSECT-DESTROYING SOCIETY, is being started in New Jersey, with a view to the more successful cultivation of Apples, Pears, Peaches, &c. The object (says *Scientific Opinion*) is to adopt a plan which will tend to clear orchards of injurious insects of every kind.

New Plants.

GODWINIA, *Seem.* (gen. nov. *Aroidearum*).

Spatha inferne convoluta, erecta, apicem versus fornicata, aperta, persistens. Spadix perigonanthus, stipitatus, spathæ limbo multo superatus, cylindricus, liber, erectus, densi ac pluriflorus. Floriculi perigonio 6-sepalo, sepalis apicem versus dilatatis, fornicatis, vertice convexulis, in præflorationc irregulariter imbricatis; stamina 12, biseriata, exteriora sepalis alterna, interiora sepalis opposita, filamentis parum compressulis, apice repentino in connectivum tenue acuminatum angustatis, pistillo multo brevioribus, antheræ loculis subopposilis, lineari-ellipticis, apiculo nullo præditis, connectivum autem superantibus, rimula apicali lateraliter dehiscentibus, extrorsum versis, pistillum elongatum, ovario ovoideo 3-loculari, in stylum longum subrepentino attenuatum, stigmate 3-partito, e centro styli apicis partitionibus spathulato-linearibus angustis protensoextensum, septis ovarii non ex toto perfectis, loculamentis 1-ovulatis, ovulis e placenta infra medium loculamenti ex axi exsertis, funiculo brevi suffultis, anatropis. Fructus ignotus.—Folium solitarium, hysteranthium, petiolo longo crasso clato acicleolato maculato, vertice 3-chotomo v. 3-ceruri, cruribus in laminam trichotomam abeuntibus, partitionibus principalibus pinnatipartitis v. confluenti pinnatipartitis, costa iterato-dichotomati. Spatha et spadix saturate violascentes, prior magis in brunneo-rubrum, posterior magis in cæruleum. Species unica:—

G. egens, Seem., Journ. of Bot., 1869, p. 278; Ic. p. 313, tt. 95, 96. —Mountains of Chontales, Republic of Nicaragua, between the Javali Mine and the Quebrada de los Lajas (Seemann!)

This is the largest Aroid of which we have any knowledge. [Dr. Welwitsch tells us of one still larger which he met with in Angola, and to which we may hereafter refer. EDS.] It was discovered in January, 1869, near to Javali Mine, in the Chontales Mountains of Nicaragua (see *Gardeners' Chronicle*, p. 220), where it grows in broken ground, near rivulets (*quebradas*), amongst brushwood. I have never seen it in any other part of Tropical America, but I am led to believe that this, or a plant very much like it, is found in the mountains of neighbouring Central American republics.

The root-stock with its whorl of roots, turned topsy-turvy, much resembles an old man's head, bald at the top; in the two specimens dug up it was 2 feet 2 inches in circumference, and weighed from 90 to 92 ounces. There are no roots whatever on the lower part of the corm, which is perfectly smooth and white; all are placed in a whorl around the top, and between them many young corms, by which the species propagates itself, are nestling. The plant has only one leaf at a time, and after that has died off the flower spathe makes its appearance, both being of gigantic dimensions. The petiole (of the largest specimens measured in Nicaragua) is 10 feet long, and 10 inches in circumference, covered with minute spiny projections, and with a metallic, beautifully mottled surface (brimstone-yellow, barred and striped with purple), giving it the appearance of a snake standing erect. The blade of the leaf (which is green on both sides), is 3 feet 8 inches long, so that the whole leaf is 13 feet 8 inches long (English measurement). The blade is divided into three primary sections, which are again repeatedly subdivided, the extreme divisions being ovate-acuminate. The peduncle is 3 feet long and 4 inches in circumference, mottled, and with minute spiny projections at the petiole, and furnished towards the base with several large bracts. The flower spathe is the greatest curiosity, measuring, as it does, 1 foot 11 inches in length, and 1 foot 8 inches in width. It is of a thick, leathery texture, outside of a dark bluish-brown, and inside of a dark brownish-red, with the exception of the base and those parts surrounding the spadix, which are whitish-yellow. The spadix is only 9 inches long and 9 lines across, and bears hermaphrodite flowers, the technical description of which is given above.

The plant grows with great rapidity—several inches during a single night—and the flowers emit the odour peculiar to many Aroideæ and other dark-coloured flowers. The plant has nothing to do with Amorphophallus and kindreds with which it agrees in habit; it, however, is closely allied to Dracontium, both in habit and technical character, but chiefly differs from that genus in having twice as many stamens as verticinal segments. It therefore constitutes a new genus, which I have great pleasure in dedicating to Mr. George Godwin, F.R.S., F.R.H.S., &c., a gentleman who has rendered much willing and substantial aid to literature, science, and art, and who, by his active support of window-gardening in the metropolis, has spread amongst even the humbler classes that taste and love for plants without which, after all, the race of botanists would soon become extinct.

Additional details will be found in the "Journal of Botany," vol. vii., p. 278, where also one of the specimens is described, which Mr. W. Bull, of King's Road, Chelsea (to whom the plant was consigned), exhibited at a meeting of the Royal Horticultural Society at Kensington. This specimen (leaf only) attained within a few inches the dimensions I noted in Nicaragua, and had it not begun to sprout during its passage to England, and suffered at the tip from pushing against the lid of the box in which it was planted, there can be no doubt that even this year it would have quite equalled them. Mr. W. W. Saunders having pointed out the interest attaching to the plant, the Royal Horticultural Society recorded its appreciation of it by awarding to this novelty an honorary distinction. *B. Seemann, in "Journal of Botany."*

FRENCH PLUMS.

THE culture of the French Plum is chiefly confined to the department of Lot-et-Garonne, and to some few portions of the adjacent departments. In 1841 the port of Bordeaux alone exported 2,709,500 francs worth of French Plums. Twenty years later (in 1861) the director of the customs at Bordeaux stated that the quantity exported had increased to about 7,200,000 francs worth. If to this quantity (forwarded by sea) be added that sent by rail, there cannot be a total of less value than 15 millions of francs. This largely increased quantity has not caused any reduction in the price. In 1806 the medium price was estimated at about 40 francs the 100 kilogrammes. In 1824 their value increased, although the quantity produced had doubled. In 1864 the value of French Plums was still greater, and it continues to increase, the medium price for the last year's being 70 francs per 100 kilogrammes.

There is no fruit tree more profitable to the cultivator, especially to those living far away from manufacturing cities, for while many kinds of fruit cannot be disposed of, on account of the distance they have to be sent, the cost of transit, &c., French Plums are always saleable. The Plums begin to ripen about the first fortnight in August, and are ready for gathering about the middle of September. Many hundred women are occupied during three or four months of the year in selecting Plums, and a great number of coopers are employed in the manufacture of the casks and barrels which are to contain the fruit, in order to ensure its safe carriage.

The trees grow very well in calcareous loam, especially when planted on an incline. They are placed in the vineyards in ranks, at a distance of from 15 to 20 mètres one from the other, leaving a space of from 6 to 10 mètres between each tree, and when the soil suits them it is not difficult to find shoots of from 1.5 to 2 mètres in length the second year. Cultivators who pride themselves on the size of their fruit pay much attention to the trees, and every year, or at least every two years, fresh earth of good quality, or the scrapings of ditches, are placed in little hillocks round the base of the trees. It must, of course, be understood that when new earth is brought the old is taken away. These trees are pruned regularly every year, in winter, by men who attend to this department only, as the method pursued is very different to that adopted for other Plums. The trees are for the most part sent out from the nurseries, though many proprietors raise them themselves. At one time nurserymen did not graft Plums, but were content to plant suckers, to let these grow in a nursery for two years, after which time they were cut back, to induce them to throw out strong shoots about 2 yards in length, and the fourth year they were sent out. In this way it was soon discovered that there were many varieties of this Plum, and that it was very seldom one row consisted wholly of the true French Plum, or Robe de Sergent, the remainder were of very little value. This defective system is never pursued now, cultivators having discovered that grafted trees produce much finer fruit. Many nurserymen use for stocks the commoner kinds of Plum, but preference is now generally given to the Myrobolan, as a stock not only for the French Plum but for Greengages, Apricots, and even Almonds. They are obtained from seeds or from cuttings. One of the great advantages of this plan is that the trees never make long shoots, contrary to the habit of all other Plum trees. In order to succeed, the grafting should be done about the last fortnight in September, otherwise the result is unsatisfactory. It is not desirable that the French Plum trees should have very long stems. They are too much disturbed by the winds, and they seldom make good growth.

The production of French Plums has, however, its drawbacks, and their preparation has many difficulties. At one time all, and even now many persons engaged in this occupation, bake the Plums more than once in an oven. The oven is very slightly heated at first, and several trays covered with the fruit are placed in it. When the fruit is partially dry, the trays are withdrawn, the Plums are turned, the heat of the oven is increased, and the trays are replaced in it. This operation is repeated four, five, and sometimes six times. It is easy to understand how costly and tedious such a process is. The large proprietors possess 10, 12, or even 20 ovens, attended by a large number of women. But this is not the chief inconvenience: the ovens rapidly cool; it is requisite, therefore, in order that the warmth may be maintained for a certain time, to heat them to a high degree at first, so that each time the Plums are placed in the oven they undergo a complete baking (*coup de feu*), which hardens the outer skin, and prevents the pulp from becoming converted into marmalade. The smaller fruits, too, are reduced to a stone covered with parchment, and are wholly valueless. The result of this is a great reduction in weight, and consequently in the profits of their sale, as the fruits are generally disposed of by the quintal (100 lb.). The necessity of some other process has caused the introduction of stoves wherein the Plums are cooked by steam first, and afterwards dried in ovens. Little by little these stoves have been brought almost to perfection, and transformed into drying rooms, where the Plum is placed in its fresh state and completely cooked. The Plum is then dried by means of very gentle heat, maintained by the action of a continuous fire. They require no turning. The juice does not escape, or the skin break. There is more pulp and more weight. One woman can prepare 100 kilogrammes in a day, and the saving of fuel is enormous, as the small dimensions of the oven required will prove (the size is 25 centimètres by 22). The apparatus occupies no more space than an ordinary baking oven of 3 mètres in diameter. Its construction in brick and cement will not cost more than 500 francs.

To sum up, the advantages of drying by stoves are proved by statistics; generally, on account of the expense of labour and of firing, the cost of drying by means of ovens costs nearly one quarter the value of the fruit. The stove dries as much fruit as six or eight ovens of the same diameter can. The Plums keep quite as well, although more moist. They are better, and weigh heavier. *Condensed from the "Revue Horticole."*

Home Correspondence.

Cones of the Wellingtonia.—Will some of your correspondents kindly inform me what size the cones of Wellingtonia ought to be when fit to take from the tree, or when they are fit for taking? Several specimens are this season producing cones here for the first time, though not from being in a stunted state. They were planted in the spring of 1862, being then about 2 feet high; many of them now measure from 16 feet to 17 feet in height, and measure, within 6 inches of the ground, from 2 feet 10 inches to 3 feet 7 inches in girth. They are growing in a strong clayey loam, which appears to suit them better than soil of a lighter desoription. In other parts of the park are several that I planted in 1857; they are now fine specimens, but as yet they have not produced any cones, neither are they growing so fast, although favourably situated; the soil is, however, of a lighter nature. *R. Bowie. The Gardens, Chillingham Castle.*

Removing a Greenhouse.—I have a greenhouse built next to my residence on a piece of ground at the back. It is entered at one end from a door, which was formerly a window. It is built of wood, upon raised pillars, the ground at back being lower than the road in front of the house. It is a span-roof, and is not in any way supported by the house. Can I remove it on the expiration of my lease? I have always been given to understand that all glass structures used entirely for the purposes of trade (as mine is) are removable at tenant's option. Will any of your correspondents kindly enlighten me on the subject. *W. B. Morle.*

Growth and Sap Circulation.—The manufacture of leaves and branches on the one hand, and roots on the other is the great question of contention. It has widened, like a good many other subjects of dispute, from its original bases until the whole field of Flora and Pomona is laid under contribution. Nevertheless, I would again revert to the practical illustrations adduced in reference to the Vine in its annual routine of growth, as opening up a field of inquiry for physiologists. No amount of declamation can get over well-established facts. These facts, in so far as I have been an observer, go to show that spongelets in spring do not appear until after leaves have been manufactured in the case of deciduous or dicotyledonous plants. Some observers agree and others disagree as to this. It must be borne in mind that I look upon this, in the case of the plants referred to, as the nearest approach possible to a natural condition. As to certain facts that have been recorded with reference to cuttings making roots without the evolution of buds, I cannot accept that as testimony of a natural order of things. Roots do appear in a variety of ways in the position of being adventitious, secondary or abnormal; but this only shows the admirable provision of Nature in accommodating plants with the power to reproduce themselves. Because a twig of a Willow will strike root under what might be called adverse circumstances would it be considered a good argument in favour of the precedence of roots, in an established Willow tree, over the elongation of stem or development of leaves in the presence of such dynamic forces as heat and light? I think not. We require to probe deeper into the mystery of fluid circulation and its elaboration, to get at the natural history of root and branch manufacture. Hundreds of instances might be cited from a Vine twig to a Ribes cutting, showing generally that root action takes precedence of leaf formation, but these are mere examples of adventitious root formation which no physiologist, in searching after a normal circulation of the sap, would accept as safe evidence. I, therefore, look upon all such illustrations as wide of the mark, and only of secondary importance in regard to the solution of the main question. Neither can I add my testimony to the utterances of some writers who declare the possibility of a wide field of root formation without some corresponding action above. I look upon all such as either abnormal instances, brought about by an unnatural state of excitement, or capable of being explained away, as in the instances of bulbs and corms, which are forms, in some degree, of leaf buds. In properly modulated and well-balanced media, for the roots in the one instance, and the stem and its tributaries in the other, on the return of warmth accompanied by moisture, taking the Vine for instance, the sap is propelled with such force upwards —as shown by Hale's and many other more recent experiments—that it is not astonishing that leaves take priority of spongelets. I am taken to task

for asserting that the ascending sap is manufactured into leaves, and the descending sap into spongioles. But while my idea was that the elaborated sap did all I proclaimed, I did not mean that it did nothing else in its passage upwards and downwards. The organisation of the vegetable fabric is so intricate, so much dependent upon the formation and congregation of units, that to go into the question satisfactorily, would be beyond my limits and power. Neither do I think sufficient credit for what I did not esteem it necessary to say was given me about the absorbing surface of the leaves as a replenishing power, and the metamorphosis of the fluid in its passage downwards to create new layers. But while saying thus much I by no means wish to wriggle out of the position I assumed. My observations, so far as they have gone, lead me to agree with Walker, Mohl, and Hoffman, who found the spring sap in its active state move from the root upwards, and that there is no descent of sap until after the development of the leaves. But what about its after diffusion? There can be no doubt, from the various experiments which have been made, that it descends in the direction of the bark, and, even when that is mutilated, it finds its way through the cellular system of the stem in dicotyledonous plants, and, from its specific gravity, must travel to the root extremities. But what puzzles me most—and on this I should like to get some information—is to know what other auxiliary is present to extend root dominion, besides this returning sap, manufactured through the leaves, and without which vitality would become impaired? Is Schacht's theory right, "that each cell may direct the substances it holds in solution upwards, laterally, or downwards, according to the demands of the neighbouring cells?" I admit the possibility of it, but is that its normal condition? [Most probably. Eds.] That same authority further says the current of sap will be directed according to the wants and the degrees of vital activity of cells having different functions. But this leads me to comment upon the additional evidence of roots growing in autumn on deciduous trees when branch growth is at rest. The Vines I alluded to at p. 1137, as being root pruned 12 months ago, and which had given no symptom of spongelet formation for a month after the buds burst into leaf, are now clad with spongelets six weeks after defoliation! Of course, I ought to state that they are growing in an aërated border, protected from rain by tarred boards, and show considerable luxuriance among the plastic loam in which they have found a home. To tell the "whole truth," the roots in a 10-feet inside border were introduced at the time their outside fellows were crippled, to start new life. Nevertheless, here is an important fact, that these rootlets are only beginning to finish up the activity of the year, after the stems are as brown as a nut, and the protoplasmic layers in the cells indurated and their particles impacted together by the attraction of cohesion. Does not this favour the idea of a descending sap being in a greater state of activity, as exemplified by the roots, than an ascending, as exemplified by the leaves? Any examples that I have put under ocular demonstration of the roots of hardy fruit trees in the dead of winter do not, it must be said, favour the same license of construction. I have occasionally seen young rootlets appear, but not at the extremity of the system; they were rather in a lateral position, and I looked upon their appearance more as the utilisation of an extravagant flow of sap, than as a normal state of things. In the case of transplanting and mutilating the roots of the Gooseberry bush, I believe what Mr. Fish calls the faculty of self-preservation will be the means of inducing new roots without corresponding elongation of tops; but it is just questionable whether new roots would have been generated if the plant or plants had remained in their growing position. It is very different, however, with evergreen plants, as I have seen over and over again with Laurels, with Aucubas, and with Rhododendrons, although their roots are much more minute. The difference, however, is palpable; the leaves are always present, and exercise a mutual influence downwards and upwards on every blink of heat in an autumn or a winter day. Even plants such as Ghent and other Azaleas, Tree Pæonies, and such plants as have large prominent buds to reciprocate a more active continuity of growth, have young rootlets in abundance even in the dead of winter. I have examined and seen this for myself more than once. One other fact I have to record, to show that the descending system is in a greater state of activity than the ascending system in winter. Let any one cut through large roots of almost any forest tree in a good state of health, and it will not only bleed, but to such a degree as is sometimes astonishing. This is a well known fact, particularly commented on by Lindley, who instanced the case of a Birch tree of the Hon. J. Stuart Wortley's, whose roots bled incessantly for a fortnight, and another was recorded by Mr. Spencer, of Bowood, who observed it during March and April; but any one may see it in autumn and winter, although not to the same extent. Roots will therefore bleed when stems and branches won't, both at the so-called season of repose, and also during the height of growth, when, of course, the leaves economise the fluid. More particularly have I observed this with the Ash, the Elm, and the Horse Chestnut. *James Anderson.*

Sambucus racemosa.—It may be some satisfaction to your correspondent, "I. O. W.," to learn that the scarlet-berried Elder has had at least one trial in this country. About fifteen years ago I brought over to this country some of the berries, from which a healthy plant was raised. This was planted in a shrubbery a few miles from Canterbury, on a dry soil, at a moderate elevation on the chalk downs, where it grew to be a good sized bush, and produced its much-admired scarlet fruit. In reply to recent inquiries, I have been informed that it died many years ago, as is supposed, from the effects of cold. It was remarked that nothing like it had been seen in that neighbourhood. The situation was, perhaps, as favourable as could be in this country, and it may probably be concluded that this highly ornamental shrub requires a hot summer, such as that of Germany, to ripen the wood against the cold of winter. It would surely else be as common with us as the Lilac and the Laburnum. *S. S.*

Salisburia adiantifolia.—We have heard lately a good deal about the large Maiden-hair trees in this country, but little about their fruiting, which, owing to the separation of the sexes in this genus, does not take place unless the one is grafted on the other. Indeed the only tree I have seen in fruit is that at the Botanic Gardens at Vienna, which, if I remember rightly what Dr. Fenzl told me some years ago, was planted by one of the Jacquins, and began to fruit after Endlicher, when he was preparing his "Synopsis Coniferarum," published in 1847, had brought one of the sexes (I forget which) from Italy. To what sex do the generality of trees in this country belong? I am sure Dr. Fenzl would be only too glad to supply English gardeners with the sex they stand in need of. *Berthold Seemann.*

Cyclamen hederifolium var. græcum.—I send flowers of Cyclamen hederifolium var. græcum—a variety well worthy of more extensive cultivation than it has yet received. It differs from the ordinary hederifolium in being much later, and in continuing much longer in bloom. The leaves rise with the flowers, those of the ordinary variety grow up after them. The leaves are very various in shape, and beautiful in colour; the flowers are fragrant and continue very long in bloom. My orchard-house has been very gay with them for nearly three months, and at the dull season any flowers are an acquisition; they are quite hardy, and still in bloom in the open borders, though the late heavy rains have much injured their beauty. *James Atkins, Painswick, Dec.* 20. [Charming alike in flowers and foliage. Eds.]

Potting Liliums.—I firmly believe that these may be potted with success at any time from November till February. I have grown all the varieties of Lilium lancifolium with great success. I potted them about the end of January or in the early part of February. Much depends upon how the bulbs are kept through the winter; if in a warm place, they require earlier potting, being easily excited. When the stems of my bulbs began to turn yellow, they were placed in a cold shed; if hard frost set in I protected them by placing dry Fern or litter round the pots. In potting, I sometimes shook all the soil off, and placed the bulbs singly six or eight in a 12-inch pot. From others I shook most of the soil off, but left the bulbs in a mass; both did equally well, and were admired by every person that saw them. *J. M.*

The Heliotrope and Luculia.—Much as I admire the Heliotrope for decorative purposes, I think it out of place when tacked to the wall or rafter of a cold conservatory, filled with hard-wooded plants. I would advise Mr. Allis, see p. 1283, to do as I did many years ago. I tore up a Heliotrope plant that had been planted on the back wall of a conservatory here. In its place I planted two plants from the cutting-pot of Luculia gratissima close together. My object in planting the two together was to have a chance of keeping the strongest plant; but they grew away so rapidly that it was difficult to say which was the strongest, and they were both allowed to remain. The plants soon covered a back wall 30 feet long by 8 feet in height, and then took to the rafters, seven of which they soon covered 15 feet long, and are now sprawling about in a small half circular dome. If room could have been given, the plants could have covered three times the space in the time. We have now given them three more rafters by removing other plants. The plants commenced to bloom in October, and will last to the end of February if all goes well. The number of heads of bloom open and coming into bloom is 700, or thereabouts, many of them measuring 8 inches across. This is a sight which no weedy Heliotrope can be compared to for a winter-blooming conservatory plant. The perfume, too, is stronger than any plant that I know grown in a cold house—equal to that of many of the Orchids. The foliage, in a healthy state, is very fine through the summer months, and is quite an ornament to any house. In the month of March the plant is spurred in just as Vines are pruned, without a leaf. It breaks into leaf in a very short time, and the shoots are thinned two or three times during summer to allow the shoots and leaves room to develop themselves. The Luculia is a very clean growing plant; it is seldom ever attacked by insects. *William Culverwell, Thorpe Perrow.*

Vine Extension.—I have read with great interest your leaders on Vine extension. Having some under my care, I should like to arrive at the best mode of treating them, and I therefore suggest that your correspondents should explain the summer treatment of their Vines, in regard to pinching the shoots, specifying how much foliage is left, and the mode of training during growth. I should also be glad to learn how far the Vines are apart, the time of ripening their crop, how old the rods are, and what they produce in pounds per rod per year, according to length. I am only a young hand, but I can tell of a housefull of Vines that were as bad as the Stortford Vines can be, but which were restored to produce good crops (or as good as common people grow) without extending them in the least, as they had been to the back of the house for years; and these are still, I believe, in good health. I will give you the particulars, with dates, &c., if you think them worth recording. If your readers would report on the matters above-named, much might be learned therefrom. *Learner.* [Statistics of this kind would be worth recording. "Learner's" other questions are reserved. Eds.]

Close Pruning.—The interesting statements made as to the Bishop Stortford Vines have set me a-thinking, as to whether the same may not be said by and by of the trees trained on the system of Dubreuil. The same agencies seem to be at work there, and the question in my mind is, whether the unnatural pinching and dwarfing of the shoots for the production of fresh buds may not have a similar effect on Peach trees. Pears, owing to the character of their roots, would not probably suffer, but might not Peach trees? *Nemo.* [There is this difference, that the Peach is not naturally a rampant grower like the Vine, and, therefore, sustains less check by a reasonable amount of stopping back. In all cases there should be as full leafage as can be turned to good account under the circumstances. Eds.]

Grapes.—In the acquisition of Grapes we have certainly made considerable progress during the last few years. Moderate-minded people were well satisfied with the Muscat of Alexandria, but in size and quality it must suffer eclipse placed in opposition to the Golden Champion. The new black Grapes with Muscat flavour give us what was very desirable in that direction. That very trite truism, "Tastes vary," may here be illustrated, for however excellent the Muscats may be thought by some, others say that the Muscat is good for a *bonne bouche*, but the very intensity of sweetness and aroma it possesses tends to cloy the palate, which by a fruity freshness it should stimulate. Our Continental friends, who are no bad judges of Grapes, and certainly eat more than we do, prefer as a rule those varieties that have but little flavour, or rather aroma, and are crisp, juicy, and refreshing. The Muscadine or Chasselas de Fontainebleau seems an established favourite, and when it ripens against a wall in sunny France, and looks, as the people slyly say, as if the fox had been that way, it is a Grape that one does not soon tire of eating. It is, unfortunately, not big enough to make a show in our houses in England. If those gentlemen who are so industriously hybridising would give us a Muscadine as large and as easy to grow as the Hamburgh, they would confer a boon on the world of Grape eaters. The absence of any decided flavour in the Hamburgh, its juiciness and agreeable sweetness, size, and colour make it a Grape that is enjoyed by the most fastidious as well as the least discriminating consumer. But there is room here for something better, and in size our black Grapes are eclipsed by white. Let us at least match the Golden Champion with a black Grape with the flavour of Chasselas de Fontainebleau. It is not my intention to review all the Grapes grown in our hothouses, but while on the subject of new Grapes and flavour in Grapes, I am reminded of a result of successful hybridising obtained by Mr. Pearson, of Chilwell, who, employing the American Strawberry Grape as the parent on one side and the Royal Muscadine on the other, has secured a cross that combines in itself the qualities of both parents, and, what is of more importance, shows the advantages of the union in a vigorous habit, peculiar to the American Grapes. I regard this union as an immense step in the cultivation of Vines. The infusion of the vigour of a newly cultivated perfectly healthy tree into an old, and partly exhausted stock, will, in all probability, lead to great results, both here and in the vineyards of Europe. The Grape, the produce of this union, is not of large size; and is white, or rather yellow. Those gourmands who seek after novelty will, in tasting this Grape, find a new pleasure; it has something of the Strawberry aroma of its American parent, and a little Muscadine and other flavours which I cannot describe: it has lost the peculiar pulpiness of the Grape from which it was raised. Mr. Pearson has happily called it after the great man of the day, Monsieur F. de Lesseps, who has united two seas, just as Mr. Pearson has brought together two great floods—the juicy tides of America and Europe. *William Ingram, Belvoir.*

English-made Cloches.—One Paris Cos Lettuce, grown under the French *cloche* (such as can be purchased early in the season in Covent Garden market) is nearly enough to fill a good sized salad bowl. These can be supplied from Paris at a price that ought to justify an attempt to cultivate them in a similar manner at home. I intend to try the cultivation of some of our best varieties of Cos Lettuce under the *cloche*, and have obtained some of the largest size at a moderate price from Messrs. E. Breffit & Co., Normanton Works, Yorkshire, for that purpose. I shall give them a fair trial, and I hope in due time to furnish you with a report of my success or failure. I grew some of the Grand Admiral Cabbage Lettuce, under ordinary bell-glasses last spring, which improved them in crispness very much. I believe that growing them in a confined atmosphere close to the glass, with plenty of light, is the main secret of success. *J. Miller, Worksop Manor.*

French Mushroom Spawn.—Having had a consignment of this article, I am anxious to know whether any of your correspondents have given it a trial, and whether they have been more fortunate in obtaining a crop than I have been. When the French spawn came to hand I had a bed fit for spawning, composed principally of horse-droppings, with a mixture of cow dung and turfy loam. The bed was spawned in the usual manner, when the temperature declined to below 80°. The French flaky spawn was placed at one end, with English spawn, broken in small pieces, at the other. Care was taken that the temperature of the bed did not rise beyond the above with any change in the weather. Both ends of the bed were top-dressed and soiled alike, the temperature of the house ranging about 55°. At present the English end of the bed is quite a picture with fine fleshy Mushrooms; but upon the French part there is not the slightest appearance of a Mushroom to be seen. The sample of French spawn which I received was very dry and dusty, which may account for its being so long in showing behind the English-made spawn, under the same treatment. I have no doubt but that the French spawn was good when it was first taken out of the subterranean quarries, although upon its arrival here it appeared to be only

composed of flaky straw and dust. Had it come to hand in a fresher condition, I believe that it would have "run" as quickly as our English spawn. The French principle of making and keeping spawn is often adopted in this country by some of our most successful Mushroom growers, by making a small bed in a corner of the Mushroom-house, and by breaking English-made Mushroom bricks into small pieces, and inserting them thickly in the bed, or mixing them promiscuously with the droppings when the temperature is not too hot. The mass shortly becomes a heap of spawn ready for immediate use. *J. M., Worksop Manor.*

Camellia Buds Dropping.—I have had under my charge for twelve months a number of sickly Camellias about 3 feet high, which drop their buds as they are about to expand. They have never been too dry since I have had them. Water was applied at a temperature of 60° during last winter, with a little weak manure-water in the spring, but there was no appearance of any improvement. I am now getting some fresh compost into the yard, not having had any before which was suitable for repotting, indeed they did not appear to be in want of it. Can you or any of your correspondents recommend any system of culture that would render such plants again worth growing? They are kept in a vinery from March 1 to the end of June, when they are placed outside until the end of September. *A. B., Strath Tay.* [We sent your letter to Mr. Pearson, of Chilwell, an able cultivator of Camellias, who kindly replies as follows:—] "If I had a lot of Camellias in the state described by your correspondent, I would get some nice turf from a good pasture, cut as thin as if it were intended to be laid down for a grass plat. I would cut such turf up by chopping it in pieces as small as nuts with a spade, and use it without any admixture, and quite fresh—unless it were from a clay or strong loam. In this case the chopped turf should be shook in a riddle to get rid of some of the soil, and the grass and grass roots mixed with as much fine white sand as will make it a sandy turf. I would then at once shake each plant free from soil, and wash its roots, removing with a knife any that were dead, and repot them in the fresh turf, in clean pots no larger in size than would comfortably contain the roots. As these unhealthy plants will require stimulating to make fresh roots, they should be kept in a warm greenhouse, not a stove, and be moistened every day with a syringe till they have made fresh roots and shoots; after which they ought to be kept in a cool house always, and never receive more heat than is necessary to prevent their roots being frozen. Of all the plants grown in our houses, none are so miserably managed as Camellias. Where, in the neighbourhood of London, can a collection of well grown plants be seen? A plant as hardy as a Laurel, or nearly so, is forced to death at one time of the year, and exposed to every change of temperature at another. It is generally potted in a mixture of loam and peat—one an acid soil, the other an alkaline one, which must in time produce a sour mixture. Forced in spring, dry or deluged by rain, as it may happen, in summer, exposed to the heavy dews and rains of autumn, and then treated to the dry and perhaps hot atmosphere of a vinery, is it any wonder the poor plants look miserable? Pot in sandy fresh turf, never give heat more than is required to keep out frost; keep them if possible in the house all the year, and if not possible, have a roof of some kind over them to preserve them from heavy rains. When they require potting, let it be done immediately they are out of bloom. When they require watering, be sure that every particle of soil is soaked. Keep the foliage as clean as a well washed face, and you will have no trouble to keep Camellias from dropping their buds. *J. B. Pearson.*

Cutting Down Strawberries.—In September last, I wrote to you about the practice of an old market gardener, in my neighbourhood, on the heights above Boulogne-sur-Mer, which was to walk into his Strawberry beds, and with a scythe remorselessly mow off the leaves of his plants; that he then threw this haulm over the plants so treated until they began to push, when he uncovered them, and that he was always rewarded with a good crop. I knew that my old friend Dr. Lindley and other good horticulturists condemned this as contrary to Nature, and in the *Gardeners' Chronicle* (p. 992) the Rev. Mr. Radclyffe denounced the practice in no measured terms—"ignorance" being among the number, if I remember right—and said the practice must have been used in dripping weather or under peculiar circumstances. I went down to my old neighbour shortly afterwards, and translated the opinion in England against him. The old man smiled, and looking shrewdly, said: "Monsieur, I have followed this practice 50 years, and have always had abundant crops of Strawberries; and as to dry weather, that would be all in their favour, as the plant would have less to support. No, I will tell you what the secret is—people cut their plants too late. Never cut them later than the second week in August, and you will find that my plan will succeed. Here is M—— in the next garden, who cut his a few weeks later, and *voyez vous!*" I looked, and certainly the poor plants in October looked wretched enough, while my old friend's were in the utmost vigour. My landlord is trying in a little garden the two methods: very slight, as contrasted with wholesale pruning. In the summer it will be proved which plan is best, and if practice may not beat precept. *Querist, Boulogne-sur-Mer.*

Root Action.—If you take a well-ripened branch of a Vine of the current year's growth, insert it in soil, and put it in a temperature of 80°, it will swell its buds, and put forth leaves, before it emits any roots. This shows that, under the influence of heat, a Vine can expand its leaves without the aid of roots: but how long it can continue to progress without such assistance is a problem not so easily solved. If, when pruning the Vine, you take a leading shoot that has been allowed to extend itself during the summer, and then fasten the base of it in two or three coils, then pot it, and plunge it in a bed of fermenting materials in the open air, it will emit roots without any corresponding action in the part of the branch exposed. This shows that the Vine is capable of making roots while its branches remain dormant. Taking the latter circumstance into consideration, I thought it would be good policy to apply heat to the roots of permanent Vines during the whole of the winter months; but the only trial I ever saw did not bear out the opinion formed. We had a range of three vineries; the centre one of the three was pruned in November, and a bed of fermenting materials was put on the border, the house being kept cold for some time. When started the Vines did well. The canes in the adjacent house were pruned about a month later, with the exception of the one nearest the centre house; this bled so much (no doubt from part of its roots extending into the other border) that we were obliged to leave it, and disbud it when breaking. Now, speculating on my theory, this Vine should have grown better than the others, but I confess I could see no difference in them; this one was as good as, but no better than, the other Vines in the same house. No doubt the loss of sap helped to weaken it, as it was some time before we could succeed in stopping it. Another item against it was having to swell so many buds. No doubt if it had been pruned sooner, the sap being forced through its length would contribute something to its strength if concentrated in one bud, instead of being divided between at least a dozen. *G. B.*

Potato Grafting.—At p.1281 Mr. Bennett states, that to raise true hybrids by this method, much more to change the colour of the tuber, is, he believes, impossible. Has he ever tried the experiment with a red or blue and white Potato? If not, I would advise him to do so next season, then perhaps he will prove for himself the fallacy of his own conviction. Last October I had dug up 14 grafted roots: part were Paterson's Blue grafted in the Regent, and the others the Regent grafted in Paterson's Blue, simply to test the influence of stock on scion, and I found, on examination, at the one and same root tubers, some white, some purple, and others varying in colour between the two, *i.e.*, of various shades from purple to white. I do not wish to enter into any discussion on the subject, as my time is too fully occupied; but what I state is a simple fact, and I feel convinced that Mr. Bennett can never have successfully tested the experiment himself. *T. C.* [Will our correspondent favour us with his name? EDS.]

Foreign Correspondence.

[THE subjoined extracts from a letter received in the early part of the month from our valued correspondent, M. Naudin, tell the same tale of drought in the Mediterranean district as alluded to in the communications of Mr. Hanbury and others from Mentone, p. 1258:—]

From Paris to Toulouse nothing but rain—soil saturated. At Castelnaudary, where the culture of the Olive begins in sheltered places, the soil was still moist, and the sky partly clouded over. At Carcasonne, a little nearer to the Mediterranean, the sky was cloudless and the drought frightful; the streams were dried up, the wheels sent up clouds of dust. Everything in the plant way was burnt by the sun; nothing remained but the remnants of herbaceous plants, and even the shrubs had their branches shrivelled and dead. Spartium junceum was the only shrub which had resisted this torridity. It grows on the borders of fields, and was as green as if it had been watered all the summer. The same state of things prevailed at Narbonne, Montpellier, Hyères, &c.; in fact, the whole Mediterranean region has been subjected to a drought, the like of which has not been seen for the last 15 years. At Collioure (Eastern Pyrenees) not a drop of rain had fallen for six months. There, owing to the proximity to the sea and to the mountains, the drought was less injurious than it had been further to the north, the nightly dews compensating to some extent for the want of rain. At this place three plants were especially remarkable for their powers of resisting the drought—Phillyrea angustifolia, Rhamnus Alaternus, and an Opuntia (O. inermis?) which is naturalised, and grows everywhere on the rocks, propagating itself spontaneously by means of the joints of the stem when they fall on the ground. This Opuntia yields an abundance of fruit of the size of a medium-sized Fig, of a deep violet colour, and containing an abundance of bright purple-coloured juice. Although this plant attains a height of 3 feet, and forms large tufts, it cannot be confounded with O. ficus indica, which is arborescent, and the fruits of which are longer and better. In addition to these three plants, I may add the Agave americana, and some Aloes, as also preserving their succulence throughout this terrible season. I consider the Phillyrea and the Alaternus as valuable shrubs for making hedges in southern Europe.

On my way back to Paris I stopped at Bordeaux, in order to visit the public garden, directed by M. Durieu. I do not hesitate to say that this is the most interesting garden that exists in France, on account of its arrangement, its space, and especially in the variety and beauty of the trees it contains. Among these latter may be mentioned several fine specimens of Chamærops Fortunei, in flower and fruit. One of them last year produced 45,000 ripe seeds. This beautiful Palm is much appreciated here, and before 10 years are over it will be counted by thousands in the southern gardens. The hotter the climate the quicker is its growth. Thus at Perpignan I saw a tree five or six years old, 6 feet high, which had already produced an abundance of flowers.

I may add in conclusion that the wine called Grenache Gris at Collioure has been recently found to be one of the best solvents for quinine, preferable for this purpose even to Malaga. *Charles Naudin.*

Societies.

ROYAL HORTICULTURAL: *December* 21.—W. W. Saunders, Esq., F.R.S., in the chair. The preliminary business of the meeting being concluded, the Rev. J. Dix announced the awards of the Floral Committee, and G. F. Wilson, Esq., those of the Fruit Committee. The Rev. M. J. Berkeley then stated, with reference to the species of Abies alluded to at the last meeting under the provisional name of A. japonica, that on comparison with specimens in the Kew Herbarium he had ascertained that Mr. Standish's plant was the A. obovata of Ledebour. He regarded the sharp-leaved form of A. Pinsapo as being produced by the sterile tree, the blunt leaves being produced by the cone-bearing tree. A similar difference had been observed in other Conifers, as in Picea firma, the sterile form of which had been called P. bifida. Mr. Berkeley stated that 200 collections of seeds of species of Cratægus and allied genera had been collected at Chiswick for distribution among the Fellows. Attention was next directed to some specimens of Maize grown at Chiswick, a full report upon which will be given in the Society's Journal. The best variety was that known as Bates' Early Bronze, which was the same as that shown by Mr. Dancer at a former meeting; but it was remarked that none of the trials made in cooking the green cobs had been successful. Williams' Archimedian Lawn Mower, which had been sent to Chiswick for trial by the Editors of the *Gardeners' Chronicle*, was stated to have met with great approval. A letter from W. E. Hubbard, Esq., of Leonard's Lee, offering the prize alluded to at p. 1330, was then read, on which the Chairman and Mr. Bateman made a few remarks. Mr. Bateman also alluded to specimens of the double Cocoa-nut, Lodoicea sechellarum, and of the Sago Palm, presented to the Society by Mr. Fernyhough, Belsize Park, Hampstead, who also exhibited coloured drawings of various tropical fruits grown in Mauritius. A few remarks were then made upon the Orchids, including the beautiful white variety of Lælia anceps, named Dawsoni, and a supposed new species of Polycycnis, proposed to be named after Professor Reichenbach. Attention was also called to the new Hippeastrum Leopoldi, named after the King of the Belgians, on the occasion of his recent visit to South Kensington. Notice was given that the meetings in the following year would be held on Wednesdays instead of on Tuesdays, as heretofore.

Scientific Committee.—Mr. W. W. Saunders in the chair. The Secretary, Rev. M. J. Berkeley, exhibited a leaf of Aerides "Fox-brush" with a peculiar form of spot differing from any he had previously seen (see p. 1286). Mr. Laxton sent specimens of Peas of the most varied character, the result of a single cross, further particulars of which will be given hereafter.

A very interesting paper on the Fertilisation of Grasses, from Dr. R. Spruce, from which the following are extracts, was communicated through Dr. Masters. The paper had reference to the statement of M. Bidard (see p. 1110), that Grasses are usually self-fertilised while in the bud, and will be published *in extenso* in the Journal of the Society.

In gently flowing rivers of tropical America, grow many fine aquatic Grasses, species of Luziola, Oryza, Leersia, &c. The following note is from my journal, under date December, 1849, when threading in my canoe among the islands of the Trombetas:—"This channel was lined on both sides by a beautiful Grass—a species of Luziola—growing in deep water, and standing out of it 2 or 3 feet. The large male flowers, of the most delicate pink, streaked with deep purple, and with six long yellow stamens hanging out of them, were disposed in a lax terminal panicle; while the slender green female flowers grew on the bristle-like branches of much smaller panicles springing from the inflated sheaths of the leaves that clothed the stem. As the Indians disturbed the grassy fringe with the movement of their paddles, the pollen fell from the anthers in showers," and would, doubtless, some of it, attain the female flowers disposed for its reception.

A parallel case to the above is that of the common Maize (Zea Mays, L.) where the male flowers are borne in a long terminal raceme or panicle, and the female flowers are densely packed on spikes springing from the leaf-axils. Here the male flowers must plainly expand before the pollen contained in their anthers can be shed on the female organs below, whether of the same or of a different plant. That there are frequent cross-marriages in Maize is evidenced by the numerous varieties in cultivation in countries where it is a staple article of food, as in the Andes of Ecuador, where nine kinds, varying in the colour of the grain (through white, yellow and brown, to black,) in its size, consistence and flavour, are commonly cultivated; besides many others less generally known.

In Pharus scaber (H. B. K.) another tall broad-leaved Grass, the spikelets stand by twos on the spike—a sessile female spikelet, and a stalked male spikelet.

In the fine forest Grasses of the genus Olyra, whereof some species, such as O. micrantha (H. B. K.), rise to 10 feet high and have lanceolate leaves above 3 inches broad, and a large terminal panicle, with capillary branches, like those of our Aira cæspitosa, it is the lower flowers that are male, with large innate (not versatile) anthers, and the upper that are female, with two large stigmas, that are either dichotomously divided, or clad with branched hairs, thus exposing a wider surface to the access of the pollen. And as the panicle is often pendulous, many of the male flowers, although placed lower down the axis, are actually suspended over the terminal female flowers.

It is generally to be remarked of diclinous Grasses, that either the male flowers are very numerous, as in Zea Mays, or the stamens are multiplied in each male flower, as in Pariana, Leersia, Guadua, &c.; or the stigmatic apparatus of the female flowers is enlarged, so as almost to ensure impregnation, as in Olyra and Tripsacum.

In the Bambuseæ I have gathered belonging to the genera Guadua, Merostachys, and Chusquea, the flowers are more or less polygamous, and the stamens of the male flowers often doubled. But there is scarcely a genus in the whole order which is not described as having some flowers by abortion, neuter or male, and especially those that have biflorous spikelets, such as the Paniceæ. Some Grasses, of normally hermaphrodite genera, are not unfrequently truly unisexual, such

as certain species of Andropogon. I have occasionally seen panicles of Orthocladus rariflorus (Nees), a Grass peculiar to the Amazon, quite destitute of stamens, and therefore purely female.

To come home to our own country: is all the pollen wasted that a touch or a breath sets free from the flowers of Grasses in such abundance? Watch a field of Wheat in bloom, the heads swayed by the wind, lovingly kissing each other, and doubtless stealing and giving pollen. Consider, too, that throughout Nature, heat or moisture, or both, are essential to the emanation of the impregnating influence. In all our Festuceæ, as well as in Cynodon, Leersia, and some other genera, the stigmas are protruded from the side or from the base of the flower at an early stage, often before the stamens of the same flower are mature—thus as it were inviting cross-fertilisation from the more precocious stamens of other plants which are already shedding their pollen.

All who have gathered Grasses will have remarked that some have yellow anthers, others pink or violet anthers; and that anthers of both types of colour may co-exist on distinct individuals of the same species. The same peculiarity is just as noticeable in tropical Grasses, and (without professing to give a complete physiological explanation of it) this is what I have observed respecting it. The walls of the anther-cells are usually of some shade of purple, but are so very thin and pellucid, that when distended with mature pollen the yellow colour of the latter is alone visible. When the pollen is discharged, the anthers resume their original purple colour, shortly, however, to take on the pallor or dinginess of decay. Where the anthers emerge of a purple hue, and change from that to brown, it will probably be found that they have discharged their pollen while still included in the flower. These observations, made without any reference to the question now in hand, require to be renewed and tested; and in them, as in all that precedes, I am open to correction.

Of Grasses with bisexual flowers, there are two ways in which the ovary may be fertilised, viz., either by the pollen of its own flower (closed or open), or by that of other flowers, after the manner of the diclinous species. In the latter case, the pollen may be transported by the wind, or in the fur of animals (as I have observed the seeds of Selaginellas in South America), or in the plumage of birds. The agency of insects has not been traced in the fertilisation of Grasses, but may exist. The little flies I have seen on the flowers of Grasses seemed bent on depositing their eggs in the nascent ovaries, but may also have aided in cross-fertilisation. In the Amazon Valley Grasses are often infested by ants, who, indeed, leave nothing organic unvisited throughout that vast region; and they also, I think, cannot help occasionally transferring grains of pollen from one flower to another.

The flowers of Palms and Grasses agree in being usually small and obscurely-coloured, but contrast greatly in the former being in many cases exquisitely and strongly scented, whereas in the latter they are usually quite scentless. The odour of Palm-flowers often resembles that of Mignonette; but I think a whole acre of that "darling" weed would not emit more perfume than a single plant of the Fan Palm of the Rio Negro (Mauritia Carará, Wallace). In approaching one of these plants through the thick forest, the sense of hearing would perhaps give the first notice of its proximity, from the merry hum of winged insects which its scented flowers had drawn together, to feast on the honey, and to transport the pollen of the male to the female plants; for it is chiefly dioicous species of Palms that have such sweet flowers. The absence of odoriferous flowers from the Grasses seems to show that insect aid is not needed for effecting their fecundation, but does not render its accidental concurrence a whit less unlikely.

That Grasses, notwithstanding their almost mathematical characters, vary much as other plants do, is plain from the multitude of osculating forms (in such genera as Eragrostis, Panicum, and Paspalum), which puzzle the botanist to decide when to combine and when to separate, in order to obtain what are called "good species." Hence the conclusion is unavoidable that in Grasses, as in other plants, variations of surrounding conditions induce corresponding modifications of structure, and that amongst the former must be enumerated cross marriages, however brought about.

If the flowers of Grasses be sometimes fertilised in the bud, it is probably exceptional, like the similar cases recorded of Orchids and many other families.

To conclude: the more I ponder over existing evidence, the more I feel convinced that in its perfect state every being has the sexes practically separated, and that natural selection is ever tending to make this separation more complete and permanent; so that the hypothesis of Plato, that the prototype even of man was hermaphrodite, may one day be proved to be a fact!

Mr. Saunders alluded to the circumstance that the dead bodies of a species of fly might occasionally be found imprisoned in the flowers of Lolium perenne, as if the plant exerted some poisonous influence on the insect.—Mr. A. W. Bennett stated, as a result of his observations, that it is impossible to predicate of any given family whether its members are self or cross-fertilised. In the same group some species may be cross-fertilised, others self-fertilised. Many winter-flowering plants are self-fertilised, and amongst them the common Poa annua.—Mr. Horne stated that in India different varieties of Maize remain constant, even though grown in adjacent fields, so that it would seem as if no crossing took place in this instance.

A conversation then ensued as to the best method of conducting in future the meteorological observations at Chiswick, when Mr. Glaisher stated that he would be willing to reorganise the system of observation in such a manner as to introduce the requisite changes, without impairing the value of the record kept at Chiswick for upwards of 40 years. In reference to ground temperature he stated that at a depth of 25 feet, the ground was coldest in July, and warmest in January.

Fruit Committee.—G. F. Wilson, Esq., in the chair. This meeting was made very attractive by the competition for the prizes for dessert Apples and Pears offered by the Rev. Geo. Kemp, one of the Vice-Chairmen of the Committee. The 1st prize was taken by Mr. Garland, gr. to Sir T. Dyke Acland, Bart., Killerton, Devon, who contributed good examples of Winter Nelis, Glou Morceau, and Bergamot Esperen Pears; and Golden Pippin, Nonpareil, and Ross Nonpareil Apples. Mr. Sidney Ford, gr. to W. E. Hubbard, Esq., Leonard's Lee, Horsham, was 2d, with fine dishes of Knight's Monarch, Duchesse d'Angoulême, and Josephine de Malines, Pears; and Ribston Pippin, Red Pearmain, and Blenheim Orange Apples. Other very good exhibitions were sent by Mr. Earley, Digswell Park Gardens; Mr. Gilbert, Burghley Park Gardens; Mr. Tillery, Welbeck; and Mr. Stevenson, gr. to F. C. Barker, Esq., Leigh Hall, Essex. It was remarked, that though many of the specimens of Pears were fine in size and colour, they were not so good in flavour as usual. Special Certificates were awarded to Mr. Dancer, Little Sutton, for some splendid examples of Apples, including Cox's Orange Pippin, much superior to the specimens of this variety shown in any of the above collections; to Mr. J. Hepper, gr. to J. H. Walmsley, Esq., Acton, for a very fine dish of Chaumontel Pears, and also for some nicely grown fruit of Rollisson's Telegraph Cucumbers; to Lady Dorothy Nevil, for specimens of home-grown Tangierine Oranges; to Messrs. Carter & Co., for very large examples of the Giant Rocca Onion of Naples, weighing upwards of 3 lb.; to Mr. P. J. Perry, of Banbury, for fine specimens of a good strain of white Spanish Onion, averaging in weight over 1 lb. each; to Mr. Trigg, Hayling, Hants, for splendid examples of Shallots, grown from seed (see p. 1264), 1 weighing 3 lb. 3 oz.; and to Mr. Sidney Ford, for a large assortment of well-grown Potatos. Mr. Thomson, Dalkeith, sent a bunch of his new seedling White Lady Downe's Grape. It was not considered to have been kept long enough to have come to its proper flavour, and Mr. Thomson was requested to send it again at a later period. From Mr. W. Crament, gr. to E. Backhouse, Esq., Ashburne, Sunderland, came a bunch of a seedling white Grape in the way of the old Syrian, but little, if at all, better in flavour. Messrs. Lane & Son, Great Berkhampsted, again contributed some grand and well-kept bunches of Alicante and Muscat of Alexandria Grapes; and from Mr. Parsons, gr. to W. J. Blake, Esq., Danesbury Park, Herts, came very fine home-grown Oranges.

Floral Committee.—The Rev. J. Dix in the chair. Owing to the lateness of the season, and to the inclemency of the weather, this was a small meeting as to novelties, but many interesting collections were exhibited. Messrs. E. G. Henderson & Son produced a large and varied collection of garden Ivies, comprising many different forms of variegation and several new varieties, to one of which, named Hedera rhomboidea obovata, a very distinct sort with purple-tinted bluntly hastate leaves, the lobes of which overlap at the base, a First-class Certificate was awarded. Other distinct kinds were H. algeriensis, a rapid grower, with large leaves, but which is said to be a little tender; H. Helix arborescens albo-lutescens, a white belted attractive form of tree Ivy: and a golden form of the same kind; H. algeriensis arborescens, a fine bold dark green-leaved kind; two varieties of H. canariensis, and several kinds of the small-leaved type, including H. Helix digitata; also the Golden-berried Ivy, H. chrysocarpa, the "North Indian" variety, very distinct, with small deeply lobed leaves, which are marked with a light green colour along the midribs; the arrow-head English-leaved Ivy, H. Helix sagittæfolia; the palmate-lobed English Ivy, H. Helix palmata; and one or two supposed new species from the River Amoor, not sufficiently developed to be noticed here. Along with them came a basket of small flowering plants of a dwarf Heliotrope, named Jersey Beauty, 6 to 9 inches in height, with compact heads of fragrant lilac flowers; and a basket of the golden bedding Pansy alluded to at p. 1285. A Special Certificate was awarded to the collection. From Messrs. Veitch came a small group of interesting Orchids, including Masdevallia Veitchii, with one very fine flower; Vanda insignis, nicely coloured; the pretty Oncidium Phalænopsis, the beautiful white purple-lipped Lælia anceps Dawsoni, and the new Cypripedium pardinum, a species in the way of C. venustum. With them came flowers of their new Hippeastrum Leopoldi, named in honour of the King of the Belgians; it is a bold showy flower, with claret-crimson greenish-tipped segments, which however become whiter with age. A First-class Certificate was awarded to the latter, and a Special to the collection. The latter award was also made to a fine group of exceedingly well-grown Cyclamens from Mr. Edmunds, of Hayes; to a small group of similarly well-grown plants from Mr. Welch, Parkfield House, Hillingdon; and to a fine collection of handsome hardy shrubs from Messrs. J. & C. Lee, of Hammersmith, among which the Golden Spruce Fir was conspicuous. From the Society's Garden came a choice collection of Orchids, including the Polycænis above alluded to. From Messrs. J. Salter & Son, Hammersmith, a new variegated Violet, named odorata alba-marginata; and from Mr. George, gr. to C. H. Maxwell, Esq., Caversham, came Calanthe Veitchii, with an exceptionally fine spike of flowers, to which a Special Certificate was given.

ENTOMOLOGICAL: *December* 6.—Mr. H. W. Bates, President, in the chair. Mr. Smith exhibited the case made by the caterpillar of a species of Oiketicus, found by Mr. Lloyd crawling on the sand on Mount Sinai; also the cells of a bee of the genus Halictus, from the neighbourhood of Cairo, which had been found clustered together at the bottom of a small tubular tunnel 12 inches deep, the mouth of which had been protected by a small trumpet-shaped tube of sand. Mr. Jenner Weir exhibited specimens of Heliothis armigera, the larvæ of which had devoured the fruit of a large number of Tomatos from Portugal; and Mr. Albert Müller, photographs of a monstrous Harpalus, having three legs attached together at the base, in the place of one of the ordinary hind legs. Mr. MacLachlan read a note on Boreus Westwoodii. The Secretary read a circular from Dr. Wallace, of Colchester, on the rearing of the several new species of silkworms; also a notice by Mr. Sidebottom, on the effects produced on the colours of caterpillars, chrysalids, and moths, by rearing them under glass of different colours. A considerable discussion followed the reading of this memorandum. Professor Westwood described a number of new and remarkable exotic species of Pselaphidæ and Chalcididæ, of which he exhibited highly magnified coloured drawings.

Florists' Flowers.

PERHAPS of all bedding plants, the Verbena not even excepted, that useful class, BEDDING PELARGONIUMS, has been most considerably augmented during the past few years. From all parts of the United Kingdom new varieties have come; and not only so, but the Continent has sent forth its quota, and added rich stores to what we already possessed of floricultural wealth. In new and improved forms they still come, especially the representatives of the nosegay class; and what has been, and what is, as in many other things, is only an earnest of something better to follow; and so the law of progress in matters floricultural becomes fulfilled year by year.

Mr. Fleming, of Cliveden—than whom no man has perhaps better reason to speak in praise of bedding Pelargoniums—once wrote well and truthfully, that "If Donald Beaton had never, in the course of his busy life, raised any other Geraniums except Cybister and Stella, every flower gardener ought to be grateful to him for these alone." But he did more than that, for he left to the horticultural world a rich legacy of seedling bedding Pelargoniums; so fresh and new in many points, that "Beaton's race" has become a floricultural household word. They resulted from his patient and persistent efforts at hybridising "the rich and varied species of the genus Pelargonium." At his death, a large number of seedling plants, bloomed and unbloomed, passed into the hands of Mr. William Paul, Waltham Cross, and from these Mr. Paul selected the first batch of varieties he sent out, which had to pass through a certain season of detraction, though now and for some time past they have come to be recognised and extensively used as including some of the best things in the way of decorative plants for the flower garden yet given to floriculture. The first distinct break obtained by Mr. Beaton gave novelties of colour, compactness of habit, freedom of flowering, and flowers that would stand the sun and rain—qualities that were speedily recognised and appreciated; and since then there has been superadded to these, nosegay varieties showing so much of improved form in the flowers, that the distinction between a zonal and a nosegay Pelargonium is rapidly receding from view. Already we have in use the terms "semi-nosegay," and "hybrid nosegay," though what these now really represent, and wherein they differ, is by no means clearly apparent. How far we have improved in point of form in the flowers of the nosegay Pelargonium, let some of Mr. Paul's new varieties of the present year, and those fine new nosegays of Messrs. Downie, Laird & Laing, and Mr. George, of Putney, testify.

In the lines of beds on either side of the long grass walk in Mr. W. Paul's nursery at Waltham Cross—a walk which reaches from the main road by the shop and offices, away to the Cambridge line of the Great Eastern Railway—Mr. Paul annually plants out the new batch of flowers he sends out in each year, with older varieties as well. Here, fully exposed as they are to all changes of the weather, a tolerably accurate idea can be obtained of their capabilities to stand exposure, and do good service in the flower-garden. It is due to Mr. Paul to state that no protection is afforded these Pelargoniums. They simply rough it, as do the specimen Coniferæ and other plants about them, and so their capacities are put to the fullest test. Looking over these at the end of September, one could form a pretty correct estimate of their effectiveness and usefulness, and it was pleasant to note what charming and even rich masses of colour they presented at even that late period of the season.

Commencing with the new varieties sent out in the spring of the present year, the record of my observations stands as follows:—Annibal, flowers rich deep bright scarlet, pip of excellent shape and substance, and bold trusses; a fine hue of colour; leaves plain. Claude Lorraine, bright purplish rose, a very fine and distinct hue of colour, the foliage slightly zonate; a variety promising to take a high position both as a bedding and pot plant. Cyrus, bright orange-crimson, with a ring of blue round the eye; very large and showy trusses, a fine nosegay variety, the foliage zoned. Fausta, purplish rose, a very pleasing hue of colour, something in the way of Dr. Hogg, but the flowers of better shape and substance; unfortunately the habit is bad. Lord Falkland, a fine zonal variety, with deep orange-scarlet flowers of good substance and fine form, good habit, and leaves darkly zoned. Proserpine, flowers rich deep crimson, flushed and softened with orange, dwarf and close habit, plain leaves; and Titan, flowers salmon-rose, with conspicuous white eye, pip large and fine, bold trusses; foliage slightly zonate.

Of the new varieties sent out by Mr. Paul in 1868, the following could not fail to challenge attention:—Aurora, pale salmon, dashed with carmine round a white eye; habit good; leaves darkly zonate. Chief Justice, rich deep scarlet flowers, of a dark yet bright hue, in the way of St. George, but with more breadth of petal, fine compact trusses, and dark foliage; a nosegay variety. Fame, also a nosegay, flowers orange-carmine, a striking and lively hue of colour, and a decided beat on Orange Nosegay, very free of bloom, producing good trusses; leaves plain. Lilac Rival, a very good nosegay variety, flowers bright lilac, with a white blotch on the upper petals; leaves plain; one of the best of the lilac-coloured Pelargoniums. Murillo, dark orange, or lively blood-crimson, a singularly striking and effective hue of colour; the trusses, which are somewhat small, borne on erect foot-stalks; a free bloomer, and of upright yet close habit. Pæan, another fine purple-tinted variety, the strong dash of purple on the flowers forming a very beautiful glow of colour; a fine and effective variety, with dark zonate foliage. Rainbow, flowers bright orange-scarlet, slightly dashed with blue; fine pip, truss, and petal; a hybrid nosegay, with plain foliage. Robin Hood, deep rosy crimson flowers, with dash of fiery orange-scarlet round the eye, very pleasing; good petal and substance: a nosegay variety, with slightly zonate foliage. Vesta, deep crimson-scarlet, very bright and effective, zonate foliage; and Virginia, pale rose, shaded and yet softened with blue; pip stout, and of fine form.

Of the older kinds Mr. Paul and others have distributed in previous years, the following were highly effective as bedders:—Bayard, a zonal nosegay, flowers dark crimson, fine petal, but small truss. Enchantress (W. Paul), bright deep rose, suffused with purple; very dwarf close habit; a hybrid nosegay. Jean Sisley, very bright blood-crimson; extra fine. La Vestale, white, delicately shaded with rose; very good. Madame Thibaut, in the way of Indian Yellow, having fine stout flowers, and a dark zonal leaf; very good. St. George (W. Paul), a plain-leaved free-blooming variety, with deeply shaded crimson flowers; a variety that stands the weather remarkably well, and one which Mr. Eyles, of South Kensington, thinks can scarcely be beaten as a bedder; here at Waltham Cross it was very fine and effective. Surpasse Beauté de Suresnes, quite a failure out-of-doors, being almost destitute of flowers, though when grown indoors it comes fine and striking; and Waltham Seedling (W. Paul), a zonal nosegay, a splendid bedder, and of the highest value where grand and effective masses of colour are required.

Of the double kinds, Mr. Paul had beds of Madame Lemoine and Triomphe de Thumesnil, the one with pink flowers, the other with those of a rosy carmine hue; the last really does well as a bedder, better than Madame Lemoine: all that is required to keep the trusses effective is that the dead blooms be occasionally plucked from the trusses, when the flowers soon fill up

the slight spaces caused by the removal of the dead ones.

One of Mr. Paul's new golden-edged variegated zonals, Plutarch, was growing out-of-doors, and it deserves to be recorded as one of the most promising of the new kinds as a bedder—after all, the best test of their usefulness. Having a lively zone shaded with dark bronze, a broad golden leaf edge, excellent habit, and freedom of growth, it possesses all the requisites of an effective bedder, conjoined to robust habit.

It is not too much to say that we are very much indebted to Donald Beaton in the first instance, and to Mr. William Paul at a later period, for those pleasant shades of blue and violet now so frequent in our bedding Pelargoniums. All flowers having any admixture of these tints have a charming freshness and softness, and they serve to tone down the ruddy and almost unpleasant glare of the self scarlet and crimson flowers. Shades of blue are badly wanted in the flower garden, and these Pelargoniums are doing much to supply it; and as year by year these hues become more intensified and apparent, why a really blue Pelargonium is a thing in all probability not so very remote after all, even though the traditional blue Dahlia seems to be as far off as ever. Mr. Paul has some seedlings of this year's flowering that have fine tints of blue about them; and there is no doubt but that, during the past season, a great and most decided advance has been made in the direction of novelty among the bedding Pelargoniums. The great things to which we have so well attained are surely only prophetic of greater things in store. Mr. Paul states that the blue tints first appeared in Alexandra and Magenta Queen, which were bred from Amy Hogg, this last being one of Beaton's seedlings. To get the purple and blue tints of a more decided and solid tone, Mr. Paul has been crossing between Amy Hogg and Blue Bell, as well as from some fine seedlings not yet sent out.

During the past summer I frequently met with a blue tinted zonal variety, named Celestial, which was one of the most effective things I ever saw in the way of a pot plant. It has the reputation of being a hybrid nosegay, though it is difficult to define that term now-a-days. The top petals were rosy lake, the lower petals crimson, with a strong dash of purple; added to this was a white eye and capital form. I think that this and Clio, a really fine rosy purple variety, also came from Waltham Cross. To these I should add Pearson's Chilwell Beauty, and George Smith's Eclat, as both having the blue tint to some extent; and then there is a splendid quartette that will not disappoint, and, it is equally certain, cannot fail to please. *E. D.*

Obituary.

WE learn, with great regret, that Mr. WILLIAM BARNES, of Camberwell, so well known as a first-class plant-grower, died from an attack of bronchitis early on the morning of the 22d inst., in the 61st year of his age.

Miscellaneous.

Nicaraguan Vegetation.—We frequently perceived a most offensive, carrion-like smell, which at first was thought to come from some dead animal matter, but was speedily traced to the flowers of a middle-sized tree, in habit not unlike the Caoutchouc (Castilloa elastica, Cerv.). This tree our men called "Palanca," its wood being used, amongst other things, for levers or palancas. The leaves were oblong and velvety, and from the growing branches developed flowers not unlike, in shape and size, those of Tulips. The most remarkable thing was that these flowers on first opening were quite green, and free from smell, but they gradually changed into a dark purple, almost black, and then emitted a most powerful smell, quite as, or rather more disagreeable, than that of some Stapelias, Aristolochias, and Aroideæ, and, in a less degree, the fruit of St. John's Bread. It is strange that this carrion-like smell in plants should in so many cases accompany a dark brown or dark blue colour, and it would be worth while to endeavour to ascertain the chemical principle here at work. At the base of each of the six petals, the Palanca has a gland, and I fancied that the smell principally proceeded from its secretions. To my delight I found that the plant constituted a new genus of Anonaceæ, distinguished by having the largest known petals of the Natural Order to which it belongs. Afterwards I met with it in abundance between Leon and Granada, and collected good specimens of it for our herbaria. At the suggestion of Mr. J. J. Bennett, F.R.S., of the British Museum, I gave it the name of Sapranthus nicaraguensis. I am sorry to add, however, that my travelling companions, who afterwards saw me busy myself with the plant, would not adopt this correctly-formed and expressive Greek name, but insisted upon dubbing it "Stinkodora." *Dr. Seemann's "Dottings in Nicaragua."*

Garden Operations.

(For the ensuing week.)

PLANT HOUSES.

Hyacinths are now extensively cultivated in glasses for window and indoor decoration, and are often grown in greenhouses, &c., until the blooming period arrives; hence no excuse is necessary for introducing the subject here. Soft water should always be used, both when the bulbs are first placed in the glasses, and every time after that it is replenished; I consider charcoal, especially animal charcoal, or bone-black, an important addition to the water, if used in small quantity. The base of each bulb should be so placed that it will only just touch the water. For the first month or five weeks after having been so treated they should be kept in a dark cool place, when roots will form readily. Immediately these have made a few inches in growth the plants may be gradually inured to bear exposure to the full light. As they grow, the spikes should be supported by some means, and it is of great importance that the leaves be kept as clean and free from dust as possible, by the frequent use of a soft sponge and clear tepid water. Be careful not to afford any more fire-heat than is absolutely necessary to *Heath houses*. It is far better practice to let the temperature fall to a minimum of 34° or 35° than to give a forced dry heat when not absolutely required. Do not let any *Orchidaceous plants* become too dry at the root, as they are sometimes apt to be at this season. I refer more directly to such *Oncidiums* as *O. flexuosum*, and certain *Cœlognes*, as *C. cristatum*, &c.

FORCING HOUSES.

In continuation of previous remarks concerning fermenting materials on outdoor Vine-borders, I would here add that, as the heat is quite as likely to exceed the desirable mean during the fluctuating weather through which we are now passing as it is to fall below it, the thermometer should be often examined; and should there happen to be a mild period, and the heat in consequence increase, the borders should be at once attended to. Neglecting this for even six or eight hours may do an irretrievable amount of mischief. I am no advocate for any large amount of root warmth, as I have frequently urged the use of moderation in this respect. Rather than err upon the side of an excess of heat, with its debilitating influences, keep somewhat below the mark when the external elements are so exceedingly fluctuating as they have been of late. These cautions will require even more attention as the Vines advance to the fruiting period, when no relaxation therefrom can possibly be allowed. Not only will the young rootlets be creeping nearer day by day to the congenial warmth above, but so in like manner will the requirements of the Vines themselves increase; hence the greater need of enforcing the above suggestions. In regard to *Pines*, it may now be necessary to increase the temperature in houses containing those which are intended for early fruiters. To insure an increase of temperature to the roots, the necessary addition or renovation of the heating materials should be attended to preliminary to such an increase, as this cannot be afforded with the same facility as top-heat. Keep *Peach* and *Nectarine trees* which are showing bloom moderately warm; in fact increase with the most regular gradation up to 60° only, allowing an increase of from 5° to 8° by the aid of sun-heat. These remarks in regard to proceeding slowly at first must also be reiterated in connection with *Strawberry forcing*. No great amount of heat should by any means be permitted until such time as the flower-stalks protrude beyond the scaly crowns, when both heat and humidity should be afforded in plenty until such time as the flowers actually expand, and then a somewhat drier atmosphere should be maintained. *Mushroom beds* which have been in bearing for some time, should receive a moderate soaking with tepid water, into which a handful of salt has been previously placed. Much will depend on the position which the beds occupy as to the quantity of water they require. It is usual when beds are made in the close vicinity of flues to give them a good soaking once or twice a week, to induce them to crop more freely for a time, and then to renew them oftener than those which are treated to a cooler and more moderate temperature.

HARDY FRUIT GARDEN.

Those who are troubled to any great extent with the *Gooseberry Caterpillar* should, during the winter months, remove all the surface soil surrounding *Gooseberry Bushes* to the depth of 3 or 4 inches, and bury it at a depth of from 1 to 2 feet; this, though a very simple remedy, is nevertheless an effective one, as it prevents the increase of the insects. *Apricots* may now be pruned and nailed, in view of keeping the work well in hand. All rambling superfluous shoots may be removed near their base, filling in all vacancies with others better adapted for the purpose. There is some difference in the varieties of the Apricot, in their manner of forming and producing bloom-buds. The good old Moor Park produces flowers freely upon spurs, whilst other kinds produce fruit better on the young wood of the past summer's formation. These considerations must, of course, influence the operator in the use of the knife when engaged in pruning.

HARDY FLOWER GARDEN.

Auriculas still require every ray of light, and every breath of air which can be afforded them; they will now need but little water, and should be kept as free from surface damp as possible. Any *deciduous Shrubs* or *Standard trees* of the Laburnum type which need pruning, may now have the operation performed at any favourable moment. I would again draw attention to the planting of *Roses*, as the sooner that operation is performed, the more likely will they be to give a fair supply of blooms in the ensuing summer. I may here remark that those Roses which are taken up or transplanted at this time, should not be pruned yet. Late pruning will in their case suit them better, because when pruned late the buds, not being so prominent, do not "break" and grow so quickly, and thus the roots gain more time to establish themselves. I hope to return shortly to the question of what are desirable sorts of shrubs to choose for planting.

KITCHEN GARDEN.

Make another sowing of *Broad Beans* and *Peas* during favourable weather, in suitable soils and situations. Attention should be directed at this time to the clamps in the open ground in this department, whether these consist of *Potatos*, *Carrots*, or *Beet-root*, more especially such as were covered over with straw before being closed in with soil, &c. So copious have been the showers of late, and so densely humid at times the air, that it is not improbable, in the case of large clamps, that the materials which have thus been placed exclusively to protect the contents from severe cold, may ferment through having become unusually wet; hence it would be well to examine them. In those instances where it is necessary, from the limited size of the garden, to rely upon the farm fields for a supply of winter *Turnips*, it will be well to get a load or two together and to clamp them in a similar manner to other crops. Do not, however, when procuring them for keeping, cut the top off too near to the crown or injure the roots at all, otherwise they will not keep so long or so well. For the rest, with the end of the old year fetch up all arrears, that a good start be insured for the incoming one, throughout which I desire to wish all who read my simple suggestions, week by week, a prosperous voyage. *W. E.*

TOWN GARDENING.

THE beds and borders in town gardens should never be laid high and rounding, as the drying process goes on much faster than in the country, owing to the great amount of drainage in the neighbourhood. Where it is intended to give a dressing of manure, and the borders are sufficiently high before digging, take off a portion of the top soil and spread it over the grass, where it will do good service. Then, if the beds are free from plants, let the ground be dug in the following manner:—Take out a trench where it is to commence 18 inches wide and 2 feet deep, and take it to where the work is to terminate; then mark out the next trench, the same width, and turn it out to the same depth, reversing the position of each spit, so that what was before surface may now be buried, and *vice versâ*. This should be left as rough as possible till March, and by the action of frost it will become sweetened and pulverised. It should then be levelled down, and a good dressing of rotten dung forked in, when it will be found that many plants will do well in town which have scarcely existed before. It will be sufficient to lightly fork over the ground in the shrubbery, to give a neat and fresh appearance. The *Manure heap* should now be turned over and well mixed, throwing out all sticks and stones, preparatory to its being forked in the borders. *J. D.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the six days ending Dec. 21, 1869, as observed at the Horticultural Gardens.

Dec.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 16	13	29.720	29.626	55	37	46.0	43	42	S.	.60
Friday 17	14	29.796	29.544	53	37	45.0	45	43	W.	.06
Satur. 18	O	29.502	29.351	56	40	48.0	46	43	S.W.	.08
Sunday 19	16	29.353	29.255	54	28	41.0	48	45	W.	.00
Mond. 20	17	29.532	29.460	51	25	38.0	45	44	S.W.	.30
Tuesd. 21	18	29.386	29.276	41	33	36.5	44	43	N.W.	.40
Average		29.548	29.419	51.7	33.1	42.4	45.1	43.3		1.42

Dec. 16—Cloudy, but fine; boisterous; exceedingly boisterous.
— 17—Clear and fine; very fine; overcast at night.
— 18—Drizzling rain; densely overcast; boisterous.
— 19—Very fine; cloudy but fine; stormy.
— 20—Clear and frosty; very fine; clear and fine.
— 21—Rain; dense fog; rain; cloudy and cold.
Mean temperature of the six days, 2 8-10 deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 43 years, for the ensuing Week, ending Jan. 1, 1870.

December and Jan.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..26	43.2	31.4	37.3	16	0.54 in.	3	7	3	4	5	12	5	4
Mon. ..27	43.0	29.7	36.4	15	0 40	5	5	2	6	2	9	10	4
Tues. ..28	42.6	29.5	36.0	13	0.21	4	5	4	3	4	8	13	2
Wed. ..29	43.9	33.0	38.5	20	0.62	2	5	1	6	5	12	7	5
Thurs. ..30	44.4	31.7	38.1	17	0.18	1	7	2	2	5	12	13	1
Friday ..31	43.9	32.4	38.2	15	0.44	1	10	1	3	6	13	6	4
Satur. .. 1	43.0	30.3	36.6	12	0.70	5	8	3	3	4	11	5	4

The highest temperature during the above period occurred on the 28th, 1855—therm. 58 deg.; and the lowest on the 28th, 1853—therm. 8 deg.

Notices to Correspondents.

CONDITION OF BICTON GARDENS: *B.* Your letter has been handed to our reporter. Is it not a pity that your statement was not put in evidence at the recent trial?

CUCUMBER ROOTS: *Hortus.* Your plants are probably attacked by a minute worm of the genus Vibrio. You had better burn the roots, and not use the soil again in which they have grown.

ENGINE SMOKE *v.* GOOSEBERRY BUSHES: *W H.* We think the smoke would be prejudicial at the distance you name.

GRAPES: *H L.* The Victoria Hamburgh is a synonyme of Frankenthal, which is distinguished from the Black Hamburgh by its round, hammered berries, and vigorous constitution. Champion Hamburgh is a synonyme of Mill Hill Hamburgh, "a noble grape, of first-rate quality." It is readily distinguished by the pale and sickly appearance of its foliage, which seems as if the plant was flagging. The Dutch Hamburgh resembles the Mill Hill Hamburgh in having large, roundish, uneven berries, but is much inferior in flavour, and has very coarse flesh, with a cavity around the seed.

HEDERACEÆ: *H W E.* See our review at p. 994, 1868. It is intended more particularly for botanists. The Parsley-leaved Bramble is Rubus laciniatus.

NAMES OF FRUITS: *E. H. Barnes.* 1, Passe Colmar; 2, Bezi Tardif; 3, Glou Morçeau; 4, not known; 5, Easter Beurré; 7, Winter Nelis; 10, probably Knight's Monarch; 11, Glou Morceau.—*W L R.* 1, Passe Colmar; 2, Winter Nelis; 3, Simon Bouvier; probably Beurré Diel.—*T Bunyard & Sons.* Your Apple most nearly resembles Gloria Mundi of any one we know.

NAMES OF PLANTS: *W S D.* Your plant is the Bladder Cherry, *Physalis Alkekengi*. The rest next week.

PUBLICATIONS OF THE ROYAL HORTICULTURAL SOCIETY: *G R.* We have forwarded your letter to the Secretary of the Society.

SALVIA SPLENDENS: *M.* Your request will be attended to.

STRAWBERRIES: *S Mayne.* Apply to Messrs. Vilmorin-Andrieux & Co., 4, Quai de la Mégisserie, Paris.

COMMUNICATIONS RECEIVED.—B. S.—J. C.—A. F.—Butler & McCulloch.—J. M'M.—W. H.—Youngster.—H. L.—T. H. E. —Stop-gap.—S. & S.—S. B.—J. P. G.—A Devonian.—Ficus. —J. R.—R. M. W.—A. W.—Vitis Vulpus.—Tap.—D. B.—Eltham.—H. B.—R. D.—R. A. C.—B. M.—W. S. D.—T. C.

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OXFORD MEETING, 1870.
FARM PRIZES.
A PRIZE of a PIECE of PLATE, value 100 Guineas, offered by JAMES MASON, Esq., and a SECOND PRIZE of FIFTY POUNDS offered by the Society, will be given to the Occupiers of the two best managed Farms (which shall be entered for competition) in the district comprised within a line drawn through the Towns of Reading, Great Marlow, Aylesbury, Buckingham, Banbury, Stow-on-the-Wold, Lechlade, and back to Reading.
The Competition is limited to Tenant-Farmers, and the LAST DAY of ENTRY is SATURDAY, February 26.
Further particulars and Forms of Entry may be obtained on application to
12, Hanover Square, London, W. H. M. JENKINS, Secretary.

The Agricultural Gazette.

SATURDAY, DECEMBER 25, 1869.

OUR columns continue to give evidence of the increasing power, in every way, possessed by agricultural societies. There is nothing in the year just past to make one think that English agriculturists are not growing, like other national interests, in influence and power. The National Society, teaching by great shows and publications, has evidently accomplished a good year's work in 1869. Chambers of Agriculture, an almost new organisation, are doing their work of thoroughly directing agricultural discussion to subjects of public and political importance; and, with the older form of Farmers' Club, to which their competition has done no kind of harm, they are also usefully engaged in discussing practical and professional subjects on which the money-making of land occupation hinges.

What can be more satisfactory in all these particulars than the history of agricultural societies during the past few weeks? The Royal English Agricultural Society, with its warning publication of manure and food analyses; and the Smithfield and Midland Counties Agricultural Societies, almost equally national in their influence, with their great annual shows, are satisfactorily performing their respective duties. The Scottish Chamber of Agriculture, in a most serviceable interview with the law officers of the Crown, have urged, with temperate and well considered argument, the evils connected with the Game Laws. The Cirencester Chamber of Agriculture have summed up a most useful year with a capital after-dinner general discussion and review of the existing agricultural position. And Mr. MECHI has been stirring up an Eastern Counties' audience with one of his dashing and discursive agricultural discourses on things in general and farm capital in particular. Of these the Cirencester and the Edinburgh occasions are perhaps the most important. The former is reported in another page as fully as our space allows; and the reader will, we are sure, join with us in congratulating Mr. HOLLAND and the authorities of the Royal Agricultural College on the increasing efficiency and success of the life-long labours there, shown not merely in the direct teaching power which has been for so many years usefully exerted, but in the local results which are at length appearing—the life and energy of the local Chamber of Agriculture being one of them. For the discussion on the Game Laws before the LORD ADVOCATE at Edinburgh we have not yet found room. Mr. WILSON'S and Mr. SKIRVING'S speeches will, however, appear in our columns; and the quiet force with which the reasonable complaint of the tenant-farmer on the subject of the Game Laws has been thus laid before the Government will, we are certain, be acknowledged.

We quote a single sentence from Mr. WILSON'S address to the LORD ADVOCATE.

"His lordship might be aware that there was what he might call a taunt with which they were constantly met, when they complained of the grievances under which they laboured and the evils that resulted from the operation of the Game Laws. The taunt was this—"But you go and sign leases in which you bind yourselves to preserve the game; and you have yourselves to blame for that." Well, that just led him to impress upon his lordship that the case was one in which they required to get redress by public means. The farmers really could not defend themselves. If farmers were to prosecute the business of farming, they must have land to farm. But now that the matter had been agitated, these reservations as to the preservation of game were becoming so universal, he might say, that he believed it would not be long till not a lease in Scotland would be granted unless it had such a reservation. If a farmer, then, refused to give such a reservation, he would lose the farm he had occupied, and he would not get another. He must either sign that or turn his attention to some other means of livelihood, or go to the colonies. He could not help himself under present circumstances. It was therefore quite gratuitous to say that the farmers were to blame for putting their names to their leases, and agreeing to the reservation regarding game that was required by the landlord."

Mr. WILSON, of Edington Mains, the President of the Scottish Chamber of Agriculture, who speaks these words, has long been known as one of the most influential of Scottish tenant-farmers; and his personal and professional reputation lend great force to his temperate representation of the injuries inflicted or permitted by the Game Laws as they at present stand.

OUR attention has been called to a passage at p. 383 of No. 180 of the "Veterinarian," where Mr. G. FLEMING, M.R.C.V.S., Royal Engineers, states he constantly found a Cryptogam, resembling Oidium albicans, on the vesicles of the mouth and the white matter that covers the ulcers of cattle suffering from the foot-and-mouth disease, and that this disease might be originally due to animals eating plants covered by this rust. There is no proof whatever that the Oidium of Grass, which is an infant state of an Erysiphe, or at any rate a mere form, has anything to do with Oidium albicans, which is much more likely to be a condition of some mould. Low forms of Fungi, however, frequently occur on morbid growths or fluids in an abnormal state, as in thrush, diphtheria, &c., but there is not the least reason for believing that they are the causes of disease, whatever may be the case with respect to some cutaneous affections. *M. J. B.*

CHEAP corn for the mechanic, and cheap coal for the engine, are indispensable in a manufacturing country. We have heard much lately of the emigration of many of our most skilful mechanics, and of the successful rivalry of our manufacturers which has commenced in Belgium, Germany, Russia, and America. No doubt the ingenuity and industry of other nations will raise up competitors where formerly we stood alone, and we shall find companions in that race of prosperity and material progress which has distinguished the age. Still, in that race which we commenced in advance of other countries, we shall no doubt hold our own so long as our native forces are maintained by abundant food and fuel.

The future welfare of the country depends on this. The food supply has already become inadequate, so far as meat is concerned; in regard to corn, it is not improbable that an increasing population here and abroad may tax the sources of supply so heavily as to raise the price. No doubt the effect of a general rise in the price of corn would be a corresponding rise in the price of labour, and our position in relation to other countries would be unaltered in that respect. But the rise of price would disturb the equilibrium of trade and of production. Other nations might cease to send us their corn and to take our manufactures in return. The competition that has commenced might in fact become ruinous.

We repeat, that cheap corn and cheap coal are

necessary to a manufacturing country. Where there is a population of 30 millions on a very limited area, the home farm must necessarily be made extremely productive, if the people are to be well fed. Even assuming—though we do not believe it—that sufficient corn can always be imported, bread alone is not a liberal diet; there are other articles which ought to be abundant, and which cannot be imported. Therefore, it is essential to the prosperity of this country that its agricultural production should be progressive, like its population. It has been said, "The more fodder, the more flesh; the more flesh, the more manure; the more manure, the more grain;" and if these common agricultural maxims were true, the necessaries of life would all become more plentiful, and the increasing demand for both flesh and grain would be met by the resources of our own land. But they are only partly true. Cattle increase our manure-heaps in the first instance—they bring cake, feeding corn, and guano for Turnips, on our farms—but the moment the flesh is eaten by man the good results are all lost; our stock farming has become an elaborate mode of "robbing Peter to pay Paul." Hence the retrogression in the production of corn, which we have several times pointed out in these columns; and hence the complete falsification of agricultural maxims, which would be true if what we imported to serve our stock farming were not lost by that fearful system of waste to which we are all so blind that, at present, no serious attempts have been made to prevent it.

—— WHEAT of home growth has sold freely at full prices, and American and Russian have advanced 1*s.* per quarter. Other kinds of grain, and pulse and feeding stuffs, remain without alteration.——With only 2128 beasts on Monday, and 615 on Thursday, beasts retained previous quotations. Sheep freely made 6*s.* and 5*s.* 10*d.*, and best calves made 6*s.* 4*d.*, per 8 lb.

OUR LIVE STOCK

ON Wednesday, the 15th inst., Shobnall Grange was the scene of an attractive Shorthorn sale, long looked forward to as an event of importance among breeders of pedigree stock. The cattle, and especially the cows and heifers, were in poor and low condition, nevertheless, blood will tell, and some high prices were given, as well as a respectable average obtained over the 38 animals disposed of. The first few lots went for ordinary figures, such as might be given in open market for unpedigreed cattle of fair quality, but on the appearance of *Charming Maid*, by LORD LIVERPOOL, and of the *Charmer* by LITTLE JOHN tribe, one of the same family as *Charmer 9th*, who made so poor a price at York last week, a change took place. This heifer, although light of flesh and very poor, is exceedingly sweet-looking, and withal a good milker; and after some competition was knocked down to Mr. F. Leney's bid of 170 gs. *Purity* (lot 9), from *Purity* by ROMAN, was a bargain for Mr. Parr at 26 gs.; and *Lady Genera*, by DUKE OF GENEVA, having attracted the attention of Lord Dunmore, would doubtless have been bought at any price. She is a well-bred heifer, two-thirds gone in calf to GRAND DUKE OF ESSEX 5TH, and was sold for 75 gs. This was followed by another succession of low prices until *Fidget 7th* appeared in the ring. In our notice of the Shobnall Grange catalogue on the 27th ult., we expressed an opinion that *Charming Maid* and *Fidget 7th*, simply on account of their lineage, would provoke considerable competition, and the result has shown the truth of our surmise. *Fidget 7th* is not a beauty, but this is not altogether an unaristocratic family. She is described by an exceedingly competent eye witness as not particularly like a Shorthorn, as unattractive in appearance, wanting in symmetry, and deficient in milking properties. She is, however, *Fidget 7th* by 3D LORD OXFORD, and she is backed by a pedigree worthy of study, and of which we give the accompanying outline:—

A cow descended from BROWN'S RED BULL (97). — A son of YOUNG WYNYARD (2859).
Fidget. — 2D EARL OF DARLINGTON (1915).
Fidget. — DUKE OF NORTHUMBERLAND (1949).
Fidget 2d. — 4TH DUKE OF YORK (10,167).
Fidget 4th. — 7TH DUKE OF YORK (17,754).
Fidget 6th. — 3D LORD OXFORD (22,269).
Fidget 7th.

This representative of pure Bates blood finally became the property of Mr. F. Leney, at 210 gs. Next came *Zeal* by MOUNTEBANK, daughter of lot 1, and of good old Chilton blood; she was bought by Mr. W. Fowler for 52 gs.; and the same purchaser secured *Lady Genera 2d*, by DUKE OF CUMBERLAND, and a daughter of Lord Dunmore's *Lady Genera*, for 50 gs. The bulls met with a less ready sale. OXFORD COMET was sold as fat for 42 gs.; KING CHARMING, a son of GRAND DUKE OF ESSEX 5TH and *Charming Maid*, above spoken of, was purchased by Mr. W. Fowler for 37 gs. The 27 cows and heifers realised 1130*l.* 6*s.*, or an average of 42*l.* 1*s.* 8*d.* each; the 11 bulls brought 272*l.* 9*s.* 6*d.*, or an average of 24*l.* 15*s.* 5*d.*; while the 38 animals averaged 37*l.* 3*s.* 7d.

—— The following remarks upon abortion in cows, by Mr. McCombie, of Tillyfour, are of peculiar importance at this season of the year:—When a cow is with calf she has strong sympathetic feelings. The fœtus and afterbirth from a cow that has slinked are very offensive, and if left within reach the other cows will sniff at it, and bellow around it; and in a short time many more of the cows will abort. Many reasons have been given as the cause of abortion; from my own observation, frosty Turnips are one great cause, and I never allow my cows to get these. If I happen to run short of fresh Turnips from the store, I order the cows straw and water, and perhaps a little cake or corn at the same time. I have paid dearly for this experience. I believe hove to be another cause of abortion, and that particular atmospheric conditions have a good deal to do with it. The skilful veterinary surgeon should be consulted: he will, probably, recommend physic to cool the system, the fœtus and placenta to be buried, the animal to be separated, and the cow-house to be disinfected. The cow should be fattened and sold, unless she be a very valuable breeding animal, as the chances are she will slink again.

—— The Rev. W. Radclyffe writes as follows:—It may be of service or interest to the readers of the *Agricultural Gazette* to know that a great many cows and heifers have gone barren this year, and a great many have slipped their calf. Mr. Stickley, dealer, of Shillingstone, told me a few days ago that, on this account, cows and calves would be scarcer and dearer, and barrenness more plentiful, than ever known. Five cows and heifers round my own door have lately slipped calf. Mr. Phillips, of this place, who buys the butter and cheese of most of the dairies for many miles round for the London market, told me that he knew of one dairy of 30 cows in which 15 only were in calf.

Sheep.—Lord Bathurst is seldom or never an exhibitor of stock out of his own county, Gloucestershire, although for size of carcase and weight of fleece his Southdowns would give way to none. At Cirencester market (6th inst.) he showed 10 very superior 6-tooth wethers, which were not considered to be sold dear at an average of 5*l.* 3*s.* 6*d.* each. They became the property of butchers in the neighbourhood. Some exceedingly handsome Hampshire Down sheep were disposed of at the same market. They were fed by one of the best practical farmers of the neighbourhood (Mr. Hulbert), and had been living upon cotton-cake and roots without any linseed-cake. We mention this as a good example of successful feeding with cotton-cake. As an instance of what we believe to be mere prejudice, we may mention that this substance has been accused of causing the wool to come off sheep. The coats of the animals in question were in beautiful order, but if any of our readers have really observed the wool to have been injured by the use of cotton-cake, we should be glad to know the facts of the case. We believe cotton-cake, either alone or mixed with other feeding stuffs, to be an admirable food, as was pointed out some time since by Messrs. Lawes & Gilbert.

FARM CAPITAL.

[The following paper was read on Monday evenin last by Mr. J. J. Mechi, before the Framlingham Farmers' Club.]

ACCEPTING the invitation given to me by your intelligent club to say a few words about agricultural capital, I approach the subject with a full appreciation of the difficulty of removing long-cherished convictions based upon the practice of our forefathers, who were, no doubt, fully entitled to our respect and confidence; but the circumstances under which they lived are now changed, and are still rapidly changing, so that we, as landlords and farmers, must deal with these altered conditions in a commercial spirit, which always adapts itself to the peculiar influences that at the time surround it. Who would have thought in my time, some 60 odd years ago, that the smoke from coal would be made to flow in underground channels, and re-appear, almost magically, in our chambers as a blazing light, sending to the shades the gloomy flickerings of the venerable oil lamp, with its contemporary dips and moulds. Again, we have no longer to beat about for three weeks within sight of Dublin harbour in the face of an adverse wind, but can now make sure our voyage with almost unerring regularity. Lovers can exchange soft words, and merchants may buy or sell cargoes at lightning speed beneath the broad Atlantic. In fact, in my early days we had no ocean steamers or railways, no gas, no telegraphs or photographs, no penny post, no cabs, omnibuses, or police; but we had to boose over our port wine because the coaches could only accommodate 20 people, who had, in many cases, to book their places a day or two previously, and then to travel at 7 or 8 miles per hour. The now broadsheets of daily news were then puny slips, as cramped as were then our general education and literary opportunities. But mighty steam has changed all this.

And we can and must advance at modern not ancient speed. I feel sure that you will agree with me in this view of our changed position, and that both you and your landlords will gradually but surely glide into the profitable stream of steam-driven progress. It is wrong to charge agriculture alone as prejudiced and attached to old customs, for, once upon a time, even the Lord Mayor and Corporation of enterprising London petitioned the King to prevent the introduction and consumption of coal, as its smoke created such a nuisance! Now, the supply to the metropolitan district exceeds 5,000,000 of tons annually. Our principal towns once opposed the approach of railways as a nuisance, and have since repented of their folly. Even now there are people who won't believe that the safest place you can live in all your life is in a first-class railway carriage.

It is, in my opinion, too much the custom, and a great mistake, to congratulate each other upon improvements that have been made in our agriculture, rather than to lament over that which remains undone, and for which there can be no excuse, seeing that there is no lack of customers for our produce (one third of our food comes from abroad), and that our overflowing and rapidly increasing capital goes to encourage foreign enterprises, instead of being applied to the increased fertilisation of our soil. The bright examples of agricultural progress which are so frequently brought to public notice in bold relief rest as mere specks upon a most extensive and dark background of bad and imperfect farming. It must be so, or we should produce more per acre than the admitted average of less than 4*l.* Remember that I do not speak of Suffolk, or any particular county, but of the 45 millions of available acres that constitute the agricultural area of the United Kingdom, as returned annually to the Board of Trade.

It is not in my nature to despond, rather the contrary; but I consider it a duty to endeavour to awaken public attention to that paramount national question, the means of increasing the food and employment of the people by a profitable and enlarged investment of capital. I am not a believer in large farms, for they are already, most of them, too large by more than one half for the capital employed both by landlord and tenant. A farm can never be too large where the tenants' capital is 20*l.* per acre, and where the landlord has effected the necessary permanent improvements.

My own small farm of 170 acres is an illustration of what should be done—for with a tenant's capital of 16*l.* per acre there has been, for several years, an annual surplus of more than 600*l.*, available for rent and profit, after paying every other expense. In this case the landlord (myself) bought the land for 23*l.* per acre, and expended nearly as much in drainage, building, roads, removal of trees and fences and other improvements, thus raising the rent to 40*s.* per acre.

The time will come when a landowner will be appreciated, not by the number of his acres, but by the amount of his rent-roll, the latter representing a high rate of rent and a well-ordered estate.

Steam-power has so multiplied population by affording increased and more profitable manufacturing employment, that we are now no longer in the primitive pastoral period, when the people were few and the acres many. All this is being rapidly reversed:

	Population.	Available Acres.
In 1800	10,000,000	45,000,000
„ 1869	32,000,000	45,000,000

These thriving and hungry millions who throng our manufacturing districts demand of us agriculturists (I mean landowners and their tenants) a change of practice, and a progressive increase of food more in accordance with the rapidly-enlarging demand for it.

A considerable area of land is passing into the hands of manufacturing and commercial millionnaires, who happily, in many cases, bring to bear upon the soil the power of intelligence and capital, unfettered by a previous attachment to antique customs. I consider it a disgrace to us, that wanting 10 million quarters of foreign Wheat annually, besides other grain, we permit one-half of our acreage (22,000,000 of acres) to remain in primitive pasturage, producing a minimum of food, and employing a minimum of labour. I know that there is a strong feeling in favour of permanent pasture, but when I see that I can, not infrequently, realise on my poor farm as much as from 15*l.* to 26*l.* per acre in corn and straw, I feel vexed that those 22,000,000 of acres of permanent pasture should be starving the people by producing probably not more than 40*s.* to 50*s.* worth of food per acre.

How much is the Capital of British Agriculture.—I mean the landowners' and tenants' capital. Taking the average of the kingdom, the 45,000,000 of acres returned to the Board of Trade, the landowners' capital would probably be 33*l.* per acre, or 1,500,000,000*l.*, besides the value of timber, possibly 30,000,000*l.* more. The average rent is probably 25*s.* per acre, or about 56,000,000*l.* annually.

The Farmers' Capital can hardly reach 5l. per acre, or 227,000,000*l.*—I have taken no account of the mountains, wastes, &c., which are not enumerated in the Board of Trade returns. My estimate of the farmers' capital may appear low to arable farmers, but we must not forget that 22,500,000 acres (half the land) are in permanent pasture, much of it very neglected, and employing little labour or capital. The gross produce I estimate as under 4*l.* per acre, or 182,000,000*l.*; probably 3*l.* 12*s.* would be nearer the truth.

Additional landowners' capital will be some day required in the matter of town sewage, for on to the land it must ultimately go. Probably it will be dealt with (when landowners can agree) on the principle of the great Fen drainage, by Acts of Parliament and local commissioners. The London sewage will be indeed a great affair, for it takes the annual average produce of 20,000 acres, landlord's measure, to feed the population of London for only one day, and about an equal quantity to feed the horses of London.

One can judge from this how great must be the daily manurial power and value of the London sewage. Farmers will then have sewer meters (as manufacturers have water meters), and take their supply according to their requirements. If I am asked by landowners where the capital is to come from for necessary improvements, I point to the several land improvement and drainage companies which are overwhelmed with unused capital, seeking for employment in this agricultural channel that remains, as yet, almost unopened.

Covered yards, cottages, farmhouses, roads, drainage, &c., may be all effected even to the extent of 20*l.* to 30*l.* per acre, without any outlay on the part of the landowner, and at a moderate annual charge, divisible in

equitable proportions between landowner and tenant, to both of whom it must prove a source of profit, as well as a boon to the nation.

When I purchased my poor land in 1841, it cost me 23*l.* per acre. I invested nearly that sum in drainage, roads, and buildings, clearances, and machinery, so that I have to pay myself 10*s.* per acre annual rent. Last year, 1868, I sold one field of white Wheat for 23*l.* per acre, and the straw for an additional 3*l.* 10*s.* My farm capital is 16*l.* per acre, invested as follows on the 31st of last December (see p. 45 of my book, published by Routledge & Co., Ludgate Hill, London) :—

	£	s.	d.
Live stock	6	10	0
Farm horses	1	1	0
Tillages, manure, &c.	3	15	6
Implements and machinery	2	10	0
Hay, corn, &c., unsold	2	5	0
Per acre	£16	1	6

This may appear to you a large sum, especially for live stock and tillages, but I want you to believe that the considerable amount invested in live stock, fed mostly on purchased food, is the very key to my profit, and to those large and frequent crops which many people will hardly credit until they see them. The costly tillages arise from very deep cultivation, and a much larger dose of rich cake and corn manure than is generally administered. It is thus that I grow 40 tons of Mangel per acre, as I have done this year; and this, too, accounts for my frequently growing from 6 to 8 quarters of Wheat per acre, and on my highly manured Clover leas two heavy crops of Wheat in succession (the second crop Rivett Wheat). Some of you have on various occasions seen my crops, and can form your own opinions. Although not a good season, my best two fields of white Wheat have yielded 6 quarters per acre, and my Barley (grown after 6 quarters of white Wheat) was threshed last week, and yielded over 6½ quarters per acre, sold at 38*s.* per quarter. The quantity of seed Wheat drilled was 1 bushel per acre, and of Barley 6 pecks per acre. This has not been a good year for arable land farmers, for the crops vary a good deal, and the price of Wheat is now very low. Stock breeders have the best of it this year, for the abundant crops of roots and hay have caused a large demand for their store stock at higher prices. They, however, suffered severely in 1868 from the drought, while the arable farmers prospered, especially on heavy lands.

My experience has taught me that on such farms as mine 16*l.* will pay a much better profit on one acre than on two. Poor farms require more manure, and consequently more live stock than rich farms, and, of course, much food must be provided that did not grow on the farm, thus adding to its fertility. Many Norfolk and Lincolnshire farmers have from 20*l.* to 30*l.* per acre capital. They are thus enabled to hold their corn a proper time, keep plenty of stock, and purchase food for it. I could do better than I do now had I 20*l.* to 25*l.* per acre capital; 16*l.* is not enough. I presume, from my knowledge of Suffolk, that its general tenants' capital does not exceed 7*l.* to 8*l.* per acre, and that there is ample room for investment of landlords' capital in drainage, buildings, and other necessary improvements.

It is true that you have more grass-land than I have (I have only 14 acres), but I predict that the introduction of steam cultivation will annually diminish the area of pasture, especially of poor pasture in heavy land. Steam cultivation will place land in a more favourable position than it has hitherto had. The advantages of ample capital are obvious. You can buy when other people are obliged to sell, and sell when other people are compelled to buy, and can maintain ample stock and machinery. Ample capital sometimes leads farmers to hold their corn when they ought to sell it. As a safe maxim, I would say, always hold Wheat at 40*s.* per quarter, but sell when it is at 60*s.* I have known of a good deal of money lost by farmers who always hold their corn for a higher price than buyers are willing to give. We see, in consequence, old corn stacks riddled by rats and mice, and, when threshed, minus the grain. Capital with judgment is an immense power, and only fails when it is overstrained.

If I am asked how I would employ additional capital, I reply that our subsoil, immediately below the ploughed soil, is now a mass of undisturbed poverty, unaërated, unmanured, and unfit for the roots of plants; we dare not, in its present unwholesome state, bring it to the surface and bury our top soil; we should, therefore, uncover the subsoil by ridging or ploughing together the top soil, and incorporate with the subsoil an immense quantity of rich manure. To obtain this additional manure, a large capital must be invested in live stock and purchased food. In fact, to farm to the greatest advantage, the soil and subsoil, to the depth of 3 feet, should be well manured; now, we only manure the top 5 or 6 inches. Our root and green crops can never be over manured, for they feed in the deep subsoil when in a fit condition. Market gardeners understand this well, and around the metropolis they easily grow 70 tons of Mangel per acre, and other crops in proportion.

This system of large capital and highly manuring has an immediate bearing upon the growth of Beet-root either for sugar or for distilling. In times to come factories for both purposes will be greatly multiplied. Landowners are very anxious on this point. They say to me, "It is all very well for our tenants to sell off their roots, but how about the restoration of fertility?" My reply is, let them farm as they like, provided they invest a capital of 15*l.* to 20*l.* per acre, one-half of it invested in cake-fed live stock. The frequent growth of Red Clover and Swedes is rendered impossible by the absence of manure in the subsoil. Baron Liebig, and the late Rev. Samuel Smith, of Lois Weedon, well understood this. Before free trade, "Down corn, down horn" was the motto. Since then bread, milk, butter, and cheese have increased in price, and are free from the fluctuations that occasionally, as at present, depress the price of Wheat. Let us, therefore, go in for more live stock and more capital. The return of the Beet pulp to the soil restores most of its inorganic elements, and they to some extent prevent exhaustion.

Live stock purchased cheaply in July, when feed is scarce, pays well for carrying on with a little cut straw, cake, &c., until the root season commences, Poor land may be almost immediately made fertile by heavily folding with sheep, consuming 10*l.* or 15*l.* worth per acre of cake, corn, hay, roots, &c., not the produce of the land on which the sheep are placed —supposing that there should be a loss even of 3*l.* to 5*l.* per acre—great will be the after gain. This system requires capital; but where there is capital, it is by far cheaper than guano or other artificials. Where my 40 tons of Mangel per acre grew this year, the land was autumn-manured with shed manure at the rate of 20*l.* worth of cake, &c., consumed for every acre manured, and some guano in addition. This is what I call capital farming, as well as farming with sufficient capital. It is the true way to make land pay. The land of England is generally not one-third manured. One can never over-cultivate or over-manure, for a root crop especially, when, like mine, it follows two Wheat crops, and is followed by another Wheat crop. There is no need for landowners to tie down tenants who farm with a capital of 20*l.* to 30*l.* per acre. Their land must improve.

Your Sugar-Beet land should be all richly manured and very deeply cultivated before Christmas, and only scarified and guanoed before sowing in April. This I find is the best plan for Mangel.

My farm is all arable except 14 acres of permanent pasture. I have no fences except an external one, and I am very glad to hear that some of your distinguished landowners have realised the propriety of removing many of those fences and pollard trees that disfigure the country and prevent the farmer from deriving the full benefit of his land, for you know he has to pay rent for the ground occupied by fences, trees, and their roots, besides suffering a diminution in his crops. A farmer of 600 acres told me the other day that he offered his landlord an extra 100*l.* per annum rent, provided he might clear the ground of those obnoxious and unprofitable obstructions to good tillage. Yet his offer was declined, although the growth of the timber did not come to one-fourth of the proffered annual increase of rent.

Now that 30-horse power steam-engines are cultivating 36 acres per day, we shall soon see such a clearance as at one time was never anticipated. Said an implement maker to me at the show last week, "A farmer declined to buy one of the great traction-engines because his gateways were too narrow!" The implement maker wondered, smiled sarcastically, and thought many things—some of which he told me.

Remember, that while I advocate ample fields untimbered, I strongly urge the formation of plantations or belts at intervals, not only as shelter, but as breeding places for birds—the farmer's friends. We must remember that as we clear and drain the country, we not only produce a drier and warmer climate, but our buildings should be strong enough to resist the gales that will sweep less interruptedly over the country.

By the way, speaking of tillage, my trustworthy friend, the Rev. Mr. C., plumbed the depth of the cultivation at Buscot, near Farringdon, the other day, and found it to be 30 inches. It was done by two of Fowler's 30-horse power engines, and when the land is cross cultivated the depth is to be 3 feet—in preparation for Sugar-Beet. My shallow-drainage friends may as well take a hint, and consider whether even 4 feet will be deep enough when the 50-horse engines are put to work.

We are on the eve of many great changes—your middle-class college, so creditable to Suffolk, is doing much to enlighten the rising generation of agriculturists. The Royal Agricultural College at Cirencester, in which I, many years ago, took a great interest, has now become an established institution, granting diplomas for agricultural efficiency, and sending forth men learned in the theory as well as practice of agriculture. I begin therefore to hope that the peroration to a lecture which I delivered at Chelmsford in 1852 (17 years ago) may soon be in some degree realised, I therefore give it as a conclusion to this long paper, which you have heard so patiently, trusting that I may ultimately be found a true prophet.

"I see in perspective a railway activity pervading agriculture. The time is coming when farms will be squared, trees removed, and game moderated; when tramways will intersect estates, and one horse will draw to market the load of four; when the sewage of our towns will ebb back to its original source, when the waters of our rivers and drains will be applied to the irrigation of fields, when our millers will use steam instead of water, when our farmers and their children will be better educated and rank higher in the social scale, when our labourers will be better housed, taught, and fed. Then will the blundering rudeness and clumsiness of ignorance be exchanged for the watchfulness and thought of an enlightened intelligence, then will the fractional calculations of profit outweigh the fears of cost, then will antiquated territorial legalities be superseded by personal responsibility, identity, and possession.

"I see all this in the distance, it is a mere question of time. I see mighty engines on railwayed open fields, tearing up furrows a yard deep, making the land look like a sea. I see those hungry earthy masses saturated and immediately fertilised with the sewage of towns. I see ample evaporation and facile percolation. Tottering and dilapidated farmeries will give way to permanent and convenient homesteads; the pinching enemy of a penurious and pernicious system will be exchanged for liberal views and large operations; capital will develop its giant strength, unfettered by seigneurial restrictions; agriculture, commerce, and manufactures will unite by the ties of a great common interest and common intelligence for the good of our people and for the honour of this great nation."

CONTINENTAL AGRICULTURAL NOTES.

[FROM BRITISH CONSULS' REPORTS.]

Trebizond, Turkey.—This province being mostly mountainous, the stock of horned cattle is neither large nor fine, nor is any attempt made by the peasants to improve the breed, but the sheep and goat stock is very abundant. A rough computation, based on the quota furnished by the yearly sheep-tax, gives about 1,500,000 head for the entire province. The wool is much esteemed and largely exported; it approaches that of Angora in quality. Cattle plague breaks out here from time to time; but, thanks to quarantine regulations, and still more perhaps to the difficulties and infrequency of local communication, seldom spreads.

France.—The increased value of the imports of cattle during the year 1868 over previous years is worthy of remark, because of the stringent measures in force against the importation of cattle supposed to be infected with the prevalent disease. It is a singular fact also that the Government, while taking precautions against the introduction of a disease from foreign countries, is actually investigating the nature of an indigenous one, which has for many years caused great ravages amongst the live stock in some parts of France. As the Commission appointed for this purpose has not yet published its report, I can only state some general facts concerning it. This disease is peculiar to the Departments of the Cantal and Puy de Dôme in the centre of France, and is known by the name of "Mal de Montagne." It infects the cattle fed upon the highlands of these departments, which form a vast volcanic plateau about 3500 feet above the level of the sea. The Southern and Western Departments are supplied with cattle from these pastures, and almost all the young beasts which are fattened in Normandy are bred here. Large quantities of cheese are also made in these districts. It seems to be established that the malady consists in an affection of the viscera of the animals, caused by the presence in the blood of an undue quantity of carbon, whether produced by the peculiar properties of the flora or water remains doubtful. Although it does not extend to the neighbouring districts, and has not hitherto been considered contagious, it is, I think, questionable, whether cattle infected with it, and removed to the other pastures, may not reproduce it, under different conditions, in a more virulent and even contagious form.

Uruguay.—With regard to the trade in fresh beef and mutton, and in Extractum Carnis, in Uruguay, the report says:—A new branch of exportation, which, if reduced to a certainty of success in the means applied to render it marketable in Europe, would soon become very extensive, is that of the preserved fresh beef and mutton; but as yet, of the many methods for its preservation of which experiments have been made, none appears to have effected the result desired, that of producing for European consumption an acceptable article. The meat of this country is without fat and comparatively insipid. Of the Extractum Carnis, or essence of meat, prepared on Baron Liebig's system, at the very complete works of the company at Fray Bentos, the exportation is on a large scale, 50,000 lb. a month of the extract being the calculated amount to be shipped in 1869. With regard to the crops grown in the republic of Uruguay, Wheat and Maize are the only corn crops raised, for both of which the soil and climate are highly favourable. There is, however, compared with the amount of corn consumed, a very small extent of land in the republic under cultivation, though during the last few years Wheat growing has become more followed as a regular means of income than formerly. The introduction of American ploughs and other implements of husbandry having made the labour lighter, and the rapid increase of population in the towns requiring a supply far beyond the production of the country.

Harvest in Morocco.—The prospects of the year were cheering, the rains having fallen at opportune intervals; crops of all kinds promise well, and there is great hope of an abundant harvest. The prices of Wheat and Barley are consequently unusually low. The pasturage is also very fine, and cattle are in an exceptionally fine condition.

Memel.—The state of this part of the province of Prussia with respect to agriculture is by no means flourishing, and it is, therefore, not wonderful that the unprecedented distress which prevailed amongst most classes of the inhabitants, in consequence of the total failure of the harvest of 1867, has completely ruined a large number of landed proprietors.

Spain.—The state of agriculture is said to be improving in Majorca, and cultivation increasing, and with few exceptions, the quantity of produce has increased, and the quality improved in this island. The climate of Minorca, although the island is exposed to strong and blasting winds from the north, is healthy and mild; its soil, full of rocks and with little vegetable earth, is dry and arid, yet in the years of sufficient rainfall it yields abundant crops, as in the case of the present year, when the prospect of an unusually good harvest has already tended to lower prices generally. The principal agricultural produce of Minorca consists of Wheat of excellent quality, and cattle. The Wheat is far superior to that imported, and commands a much higher price. It seems to retain its good qualities in other soils, a sample which was recently sent to the United States gave a most satisfactory result, and

an order now exists on the island for 1000 bushels to be sent to the States for seed. The pastures which this island naturally yield hitherto constituted almost the exclusive food of the cattle, which in the years of drought were left to perish of hunger, particularly in the northern part of the island, where this calamity is more frequent. This state of things occasioned considerable losses to the landowners, and has induced them of late to take new measures for the necessary feeding of the animals. Stalls have now been built on many farms, where the cattle are protected from the rigours of the winter or the heat of the summer, and the culture of a new plant has been introduced, which is likely to produce important beneficial changes. This plant, said to be a native of Spain, is named "Mover," or "Zulla," and appears to have been imported from England, where it is also cultivated, and known by the names of Spanish Trefoil and Clover-grass. It has proved on the island an excellent food for the cattle, and, as a proof of the good results of its culture, it will be sufficient to mention that on one farm it yielded 85 quintals of dry forage per acre.

The division of land into small lots by stone walls, which is so striking to the eye of the foreigner, is explained as a necessary employment of the rock in which the earth abounds; while serving to protect the crops from the effect of wind, it also renders unnecessary the employment of cattle-keepers.

The labour, care, and attention bestowed by the inhabitants of this island on the cultivation of its rocky soil are beyond all praise. It is hardly an exaggeration to say that every yard of land is highly cultivated and made the most of, while it is a matter of surprise that so much can be produced on ground which is in many parts rock hardly covered by an inch of earth. The farms in nearly all cases are cultivated by the peasantry, who live upon them, and who provide seed, &c., and pay the working expenses, dividing the profits with the landowners. This system, while it stimulates the energy of the farmer, seems to conduce to the apparent inactivity of the upper classes, who are the chief landowners, who, relieved of the cares of their estates, having no commercial pursuits, and removed from the active scenes in politics, which engross the attention of the continent, seem almost to rest in a prolonged "siesta," leaving the country people, with whom they share the profits of their estates, the fatigue almost of thought as well as of labour. But the number of proprietors in proportion to the population is extraordinary. At Mahon, for instance, with a population of 15,000 inhabitants, there are nearly 2000 landowners. The land is consequently divided into very small estates, which are in great demand, although not producing, as an investment, on an average above 3 per cent. on the capital. *J. R. J.*

STALL FEEDING.

To enter fully into the details connected with stall-feeding requires much knowledge, both theoretical and practical; but having last season successfully tried a system little used on this side of the water, I conceive I am only doing my duty towards those around me by making it generally known. In one of my out-buildings I had fixed two 60-gallon iron boilers; these were set in brickwork, with flues around them, and leading to the same chimney. In the same house were placed two large wooden tanks, 9 feet long by 3½ at the top and 2¾ at the bottom; one had a lid to it; their height is about 3 feet. The above named are for the preparation of the night feed, which consists of a bushel of oaten straw mixed with from ½ lb. Locust beans and 1 lb. rape-cake to 1½ of the former and 4 of the latter. It is cooked as follows:—About half a gallon per head of cattle is placed in one of the boilers, and when boiling, the cake and beans, previously broken into moderately-sized pieces, are added, and formed into soup; a foot deep of the chaff is then put into the tank, with a lid to it, and a portion of the soup ladled over it. The whole is stirred up and pressed down with an ordinary fork; another foot of the straw and more of the liquid poured over it, &c., till the bushel per head and the boiler's contents are mixed together; the lid is then closed till an hour before feeding time, and when the food is taken out it has a pleasant smell, and appears as if it had been steamed. At the morning and mid-day feeds each beast consumes 35 lb. pulped roots and a bushel of oaten straw chaffed. My feeding hours are 6 A.M. and 6 P.M., punctually. The other boiler and tank are for boiling pig's food. Labour is thus economised, for the same man and boy who attend my 20 stall-feeders look after an equal number of swine. The cost is, per 30-day month:—

2 lb. rape-cake a day, or 60 stones in 30 days, at 7*l.* 10*s.* per ton	..	..	29 6 4
1 lb. Locust beans a day, or 2 1-7th stones, in 30 days, at 2*l.* a ton	..	..	0 2 4
12 lb. oaten straw a day, or ½ cwt. in 30 days, at 20*s.* a ton	..	..	0 5 3
7 bushels roots a day, or nearly a ton in 30 days, at 1*l.* a ton	..	..	0 13 4
Labour, each beast	..	..	0 2 6
Firing	..	..	0 1 0
			£1 11 8

You will perceive I have charged oaten straw at 35*s.*, Turnips at 13*s.* 4*d.* a ton, and labour at full rate, thus obtaining that for the pigs gratis. The cake, firing, &c., is at cost price. I mix chaffed hay with the oaten straw during the last three weeks. This I have not charged in the above, but in the total, subsequently given, I debit myself with 2*s.* per head. The 20 beasts put into the stalls by me on November 3 were valued by a good practical farmer at 12*l.* 10*s.* each. On January 6 I sold the four smallest at 16*l.* 10*s.* each nett. Deduct 2 1-10th month's feeding at 1*l.* 11*s.* 8*d.*, together with 2*s.* extra for hay, or 3*l.* 8*s.* 6*d.*, and I had a profit of 11*s.* 6*d.* a head, or 2*l.* 6*s.* on the four. On January 8 six more were disposed of at 20*l.* These were 2 1-16th months in the stalls—3*l.* 8*s.* 7*d.*, and 2*s.* for difference between hay and oaten straw—3*l.* 10*s.* 7*d.* This left a balance in my favour of 4*l.* 1*s.* 5*d.* each, or 24*l.* 8*s.* 6*d.* on the lot. On March 11 five more realised in Dublin, clear of all expenses, 22*l.* 2*s.* 4*d.* each, four and a half months as before, and hay amounted to 6*l.* 14*s.* 7*d.*, leaving me 2*l.* 17*s.* 9*d.* each, or 14*l.* 8*s.* 9*d.* on the five. The remaining five I kept till May 2, when they fetched only 21*l.* 6*s.* each clear, or 8*l.* 16*s.* more than cost price. Their feeding for six months was 9*l.* 12*s.*, I therefore lost 16*s.* a head on these, or 4*l.* On January 21 I bought five heifers at 15*l.* 5*s.* These on May 2 made 21*l.* 6*s.*, or a profit, after deducting 3 2-5ths months' keep, &c. (5*l.* 7*s.* 3*d.*), of 11*s.* 9*d.* a head, or 2*l.* 18*s.* 9*d.* Thus it will be seen that on the season I cleared over 40*l.*, besides having all the manure for nothing, and this after using my roots at 19*l.* 17*s.* 6*d.*, and my oaten straw at 2*l.* 12*s.* 6*d.* per acre. If we count the value of the dung as estimated by Lawes, viz:—

3 tons of rape-cake, at 4*l.* 18*s.*	£14 14 0
1 ton of Locust beans, at 2*l.* 2*s.* 6*d.*	2 2 6
108 tons of Swedes, at 4*s.* 3*d.*	22 19 0
15 tons of oaten straw, at 13*s.* 6*d.*	10 2 6
1 ton of hay, at 30*s.*	1 10 0
It amounts to	£51 8 0

I had 30 tons of Swedes to the acre. Thus, in round numbers, three and a-half acres gave me the profit of over 91*l.* I believe the usual custom in Ireland is to give from 10 to 12 stones of roots a day to each stall-feeder. If so, only half the number can be fattened. I contend, therefore, that if I can, with the addition of artificial foods, turn out fat double the number of cattle, off an equal extent of Turnips, than is done by the generality of my neighbours, and thus (for the sake of argument) with the same money profit, I am farming more successfully than they are. We all know that the manure formed from animals fed with rape-cake, &c., must be of a better quality than that obtained from roots and hay only. My land is receiving the benefit, and my subsequent crops must eventually be heavier. I use the word eventually advisedly, as there may be some around me who, in the course of discussion, and to prove the goodness of their own system, may challenge me to show an equal amount of grain off an acre of my lands to that grown by them last season; and, in all probability, I should be unable to do so. Their lands may be rank; mine is not, but will be, I hope, in the course of time. We should, therefore, not meet on equal terms. It may be urged that the system I am now advocating is troublesome. I will grant that it is for the first day or two, but when the men get into the regular routine all goes smoothly, and there is little difficulty in pulping and chaffing if you do it by intermediate motion affixed to your horse-power threshing-machine. Mr. O'Neill fixed mine at a slight expense, and one horse will cut and pulp enough for 20 beasts and 4 cows in about an hour. In England, where stall-feeding is carried out to a greater extent, the practice of the above system is, I am informed, yearly on the increase. Mechi, one of the most distinguished farmers of the day, speaks most strongly in favour of rape over linseed-cake. He says it has more fattening qualities, and the manure from a ton of the former is valued at 4*l.* 18*s.*, while that from an equal quantity of the latter is only estimated at 4*l.* 12*s.* If such is the case, and one is 50 per cent. cheaper than the other, it is quite evident which is the most profitable to the farmer. Locust beans are mixed with the rape-cake to take away the flavour, which otherwise at first is distasteful. I found only two cases out of 25 where the beast did not take to the prepared food at once. A few gentlemen have inspected my mode of preparing food for cattle—I believe approving of it; and it will always give me great pleasure to demonstrate the working, or lay my accounts before anyone who will favour me with a visit at Raheenderry. [*Captain Morgan, before the Athy Farmers' Club.*]

Home Correspondence.

Draining.—I rent this place (about five acres and a house) of Lord Rivers. The field did not want draining, but the three gardens and lawn—about two acres—were a swamp. My residence and gardens are on the highest ground on Okeford Fitzpaine, which was so wet, that it was in vain to think of gardening till the land was drained. So I consulted Mr. Todd, yeoman, and tenant of Lord Rivers, of this place, and he and his men drained it thoroughly for me. The general depth of the drains is 3 feet 6 inches. In some places the drains are 6 feet deep. The materials used are tiles. The gardens are now healthy, and the lawn is full of Dutch Clover and Hop, of which, before draining, there was no sign. The lawn is now firm instead of being swampy. I elicited from him and his men the following:—"The head of the water is usually round the crown of the highest ground, where it is hard enough to thresh corn; the swampy part of a field is the subsidence: the head of the water must be cut off; there is no settled depth for draining; at whatever depth the water lies, there you must put the drain; the under-water being carried off by the drain, the top-water subsides into its place, and is thus carried off. The distance at which drains are placed depends on the nature of the soil; swampy light lands will not bear such severe drainage as heavy lands, as they will "bleed" too much; after draining, all grass-land should be top-dressed; our forefathers cut the drains athwart the slope of the field, but experienced drainers cut the drains with the slope; if strong land is deeply broken up by steam-ploughing, the drains need not be so near as when the land is ploughed by horses. If land is very wet and very heavy, the drains should be 8 (? 18) feet apart; after the drain-tiles are put in, brushwood should be put over them, or the clod reversed should be placed over them, so as to prevent the soil from running into the drains." *W. F. Radclyffe, Rose Hill House, Okeford Fitzpaine, Dorset.*

Scientific Book-keeping.—In Morton's "Encyclopedia of Agriculture," also Professor Wilson's "Our Farm Crops," tables are given showing what the several crops grown by the farmer extract from the soil. Having, according to the instructions given, and the strong recommendation with which it is backed up, made up an account against my fields of the ash constituents drawn from the soil, I am desirous of showing what I have returned to the land by manures, home-made or artificial, but am brought for a while to a standstill for want of corresponding tables, giving me the analysis of manures. I purchased to-day Professor Johnson's new work, "How Crops Grow," hoping to get the information I am in search of, but on reading the preface I am doomed to disappointment, for it says—"The modes in which plants absorb their food are but partially discussed in the present volume. This subject would, in fact, have involved the study of soils and manures, and consequently an extension of the idea of the work." I hope the learned Professor will send out another volume, containing what has, from want of space, been crowded out. In the "Encyclopedia," p. 144, it is shown that a crop of Wheat, estimated at 25 bushels, at 60 lb. the bushel, that is 1500 lb., and as the straw is generally twice the weight of the grain, its produce will be 3000 lb. On this assumption, the grain of Wheat containing 1.67 of ash, and that of straw 5.10, there will be carried away from the soil, in 1500 lb. of the grain, 25 lb. of mineral food; in 3000 lb. of straw 153 lb.; total, 178 lb. of mineral food. For the sake of round numbers, the quantity of mineral matter in the straw may be taken at 150 lb. Then, on the average of the analyses, the above 175 lb. will be composed as follows:—

	Grain.	Straw.	Total.
	lb.	lb.	lb.
Potash	7.49	18.21	25.70
Soda	0.97	0.90	1.87
Magnesia	3.07	4.11	7.18
Lime	0.85	9.34	10.19
Phosphoric acid	11.47	8.15	19.65
Sulphuric acid	0.08	5.82	5.90
Silica	0.84	101.82	102.65
Peroxide of iron and loss	0.20	1.32	1.51
Chloride of sodium	0.03	0.33	0.35
	25.00	150.00	175.00

Now, how much of these several constituents, or their equivalent, do I return to the soil in 15 or 20 tons of average manure, or 3 cwt. of superphosphate and 2 cwt. guano, in mustard and other green crops, ploughed in, &c.? Such information may be in works already published, but any aid will lighten the work of one who has not had the advantages of *Scientific Training.*

Societies.

CIRENCESTER.

"*The Landowners.*"—At the annual dinner of this Society the health of Lord Bathurst and the landowners was given by Sir CECIL BEADON, who said: I wish to address myself particularly to the tenant-farmers. I venture confidently to think that there is not one amongst us who does not regard the institution of landed property, as it exists in these realms, as the very foundation of agricultural progress and prosperity, the only system in which, by the application of science and capital to the cultivation of the soil, it can be made to yield all that ingenuity and labour can extract from it, and to contribute adequately towards the support of our vast and increasing population. Perhaps it is conceivable that the accumulation of land in the hands of one individual may be carried to such an extent as would be injurious to the interests of the state. On the other hand there can be no doubt it is perfectly certain that without large properties there would be no large farms, and without such large farms as are possible under the existing system any considerable development of the productive powers of the land by means of machinery and steam cultivation would be practically unattainable. We have only to look to France to see to how deplorable an extent the agriculture of a country may be crippled and ruined by the subdivision of property, and we may draw from the spectacle its legitimate conclusion. It may also, gentlemen, be as well to remember that if the rights of the greater landowners should under any circumstances be successfully assailed the position of the smaller proprietors and tenant-farmers would be by no means safe. Even now what do we see? There are men who advocate for Ireland not only fixity of tenure, that is to say a parliamentary grant of a proprietary interest in the soil, where the position of the landowner would be reduced to that of a mere annuitant, but also to grant to every labourer a cottage and a plot of ground with perpetual guarantee of work at the cost of the State. These sentiments may appear to us chimerical and strange, but there certainly are people who entertain them, and they are the results of communism and agrarian aggression. I venture to remind you that the whole acreage of the United Kingdom is altogether insufficient to provide sustenance for its teeming population, and therefore it must be for the interests of all that the land should be so disposed as to make it capable of yielding the greatest possible return; and this, I take it, is the effect of the present system. Therefore, whether as agriculturists or as taxpayers, is seems to me that it concerns us to protect the rights of landed property intact, and I cannot for myself doubt, when Parliament comes to deal with the Irish land question that, while it is ready to offer every facility for security

to the tenant, it will peremptorily reject any measure which is calculated to disturb the rights of property, and so eventually tend to the ruin of scientific agriculture, the destruction of agricultural property, and the creation and maintenance of proletarian peasantry, supported out of the general taxes of the country.

"*The Tenantry.*"—Mr. MASTER proposed "The Tenants." He said, I may claim for the tenantry of this country and the landlords the reciprocity of feeling, that mutual understanding, and the interest for the welfare of each other which we consider very valuable indeed as between class and class. I am not one of the stand-still sort, but still I have considerable doubts whether either proprietors or occupiers are prepared to endorse those views we read of continually, I may call them those revolutionary views, advocated by a certain school in this country. With reference to the management and cultivation of our estates we must all rejoice, I think, at the increased interest manifested throughout the country in the agricultural labourer. Very much remains to be done. First and foremost, I believe, is the improvement in their dwellings. I speak as a landowner, and I am sure every landowner will agree with me that this is a slow process. I wish we could get through it quicker, and perhaps we have somewhat disappointed others that we don't seem to progress more hastily. Then we have the educational question pressing upon us. I hope and trust that all here present will set their faces against the godless education advocated by a certain school in this country. I don't see how we can make head against vice if we give education without religion. How are you to make head against vice if you give no sound religious foundation to work upon? I know these remarks are somewhat stale, but nevertheless I think they cannot be too often repeated. I will now give "The Tenants," and I venture to express a hope that not only tenants but landlords will prove themselves fully equal to their increasing responsibilities.

Mr. RUCK said: I beg to return you our best thanks for the honour you have done us in drinking our good healths as tenants. There is an old saying that landlord, tenant, and labourer must sink or swim in the same boat. I am almost afraid that the old saying is so long forgotten that it is not always now adhered to; and the rule of life now seems to be every-body to take care of himself. Now, it so happens a word or two has been said about the agricultural labourer. This morning I looked over some of my books, and I find I have men living rent free, and taking wages from me of from 70*l.* to 80*l.* per annum. We had just now a remark that the Irish were going to have a plot of land and a cottage to live in. Compare this with what the labourer takes from me. He takes from me five acres of the best Wheat I have grown in the year; he takes from me the same value which is grown in the county of Gloucester on eight acres a year, —what used to be grown on 16 acres. It is perfectly ridiculous to talk of these little occupiers. They may perhaps grow enough to keep their families, but what are we to do with those who don't live in a cottage at all? I can say I do wish the landlords would sweep away many of their restrictions from their statute books. I feel convinced that if the tenant had what liberty it is desirable he should have, he would not only improve his own estate but he would improve the land and the labourer and the country generally. On behalf of the tenants, I beg to thank you for your kindness.

"*The Labourer.*"—Mr. BAZLEY gave this toast. The condition of the agricultural labourer, he said, means employment and subsistence for the great body of the people. Our population increases rapidly, but the opportunities for employment do not appear to increase in the same proportion. In passing through the country one can hardly help being struck with the magnitude of the estates and the size of the farms. Now I am not going to say anything in contravention of large farms. Where capital is available there is no doubt that large farms can be managed more profitably than small ones, and I know more than one estate where the largest farm is in all respects emphatically the best; but like the manufactory, like the railway, they must be conducted on sound commercial principles; and I venture to suggest whether it would not sometimes pay better for the farmer to be content with a less amount of acreage, to pay a less rent for that quantity, to cultivate it more fully, and to employ more labour and to pay less poor rates. But there are two kinds of capital required for this efficient cultivation. There is the tenant's capital, but there is also the landlord's capital, which is necessary for the erection of suitable buildings, and very often this latter capital is not forthcoming. I will venture to place my Lord Bathurst in the witness box on this occasion. You have heard his lordship deplore that many landlords who are called upon to make improvements are really unable. But why should this be so? The wealth of the country increases in a rapid ratio. The English people are ready to invest their savings in all sorts of schemes, at home and abroad, limited and unlimited; but as a rule the spare capital of the country does not find its way to the land. For the existing laws with respect to the transfer of land are such that in their effects, in many instances, the legal difficulties are insurmountable in the way of investing money upon it; but I do not hesitate to avow my conviction that the laws of strict settlement and entail are those which keep land in an uncultivated state, which lend a shadow of ownership when the substance has gone which keep the land inactive, and prevent an increase in the employment of the people. There is another point upon which the condition of the agricultural labourer depends. I refer to the question of the Game Laws. Generally, the gentlemen who object to the Game Laws are not sportsmen themselves. I have myself a strong objection to them as they now stand, but then I am no sportsman; and it is, therefore, no credit to me to say to Mr. Edmonds, when he complains of the great damage done by the rabbits, to tell him to shoot, ferret, or kill them to his heart's content. I am happy to oblige so eminent an agriculturist upon such reasonable terms.

"*The Experimental Committee of the Cirencester Chamber of Agriculture.*"—In acknowledging this toast, Professor WRIGHTSON said: I will not detain you with anything like a speech, but I may mention that between 110 and 120 experiment plots have been planned and treated in various ways by various gentlemen connected with the Chamber of Agriculture, at the suggestion of the Experimental Committee. I do not think there is any one in this room who will doubt the advantage of accurate experiments. Whenever we meet with farmers we hear them speak of various experiments which they have been undertaking; one has tried a certain method, another another, but those who have tried agricultural experiments in a more exact way find that little dependence can be placed upon results which are only judged by the eye; the crop may appear better, and the scales and balances may prove that it is really worse. On the other hand, in the Chamber experiments, the exact amount of manure has been known, its chemical constituents, and the exact weight of its produce ascertained. That has been the arduous duty of the gentlemen who have carried on the work of the experiments, and I may say that the results have been of a very interesting character, without troubling you with figures. We have tried experiments upon various kinds of tillage; we have had our Wheat drilled at various depths. The manures which had been used have been taken from the same sample, and subjected to analysis in the college laboratory. In trying experiments we make the conditions as simple as possible, and I believe that is a great point in trying agricultural experiments. Cirencester has been spoken of as the metropolis of the Cotswolds, and I should like to find co-operation with the sub-committee of this Chamber over the whole of the Cotswold hills, and farmers undertaking experiments in connection with the Cirencester Chamber of Agriculture. I think I may very briefly recount the system upon which we go. We endeavour to obtain as many practical farmers as possible to try the experiment—seven or eight—I should like to see 20 farmers—and the results are all the produce of one season. The experiments made in one season cannot be taken as an index of what would be the produce of the next, and this is the cause of the unreliableness of many of the experiments made by solitary experimentalists. We are therefore careful to get the results all in one season, and if you have numerous experiments all accurately made in one season I think you have very good data to go upon.

"*The Royal Agricultural College.*"—In returning thanks, Mr. HOLLAND said: I remember when there were no Chambers. We had our large county agricultural meetings, but they were in the open air or under tents, and a strange history I could tell you of what had passed in the quarter of a century in which I have been connected with it. During that time many faces have disappeared, many faces have grown old, and in addition to that many faces are so covered with beards and moustaches that I do not recognise them. I have seen many curious things in this room. Twenty years ago no gentleman would sit in his chair without having his pipe and his brandy and water. I remember one gentleman—I won't say whom—making a speech about science and the march of intellect, and characterising the man of science as one who would walk after a cow with a teaspoon, and when the cow had a natural occasion would carefully taste the results with his teaspoon. On one memorable occasion the noble lord who now sits on the right of the chairman really was obliged to leave the room immediately. In that five and twenty years we have made many advances, and I do for myself feel proud of being one of the humble individuals who have been connected with that advance. Allusion has been made to the old saying that the landlord and tenant must sink or swim in the same boat, but the difference is that in those days the landlord was the sitter and the tenant the puller, and now they are working together for their mutual interest. The manufacturer has a great advantage over the agriculturist in one respect. He calls to his scientific man and orders him to prepare a certain dye —the dye is made, the pot is put on, but it boils over and the dye is lost. Well, he has only to call his scientific man and have the pot filled again, but the farmer if he lose his crop must wait for another season; and therefore more than in any other branch of industry the farmer requires such knowledge as will prevent him from making any mistakes, which shows that he ought to have some knowledge of science. Since our land is limited we must make it as productive as we can, and I believe a great deal is to be done by deep cultivation.

Reviews.

The Farmers' Almanac, 1870. By Cuthbert W. Johnson. W. Ridgway, 169, Piccadilly.

Morton's New Farmers' Almanac, 1870. Edited by J. C. Morton. London and New York: Cassell, Petter & Galpin.

The Illustrated Farmers' and Gardeners' Almanac. 150, Fleet Street, London.

The Rural Almanac and Sportsman's Illustrated Calendar, 1870. The *Field* Office, 336, Strand, W.C.

We name them in the order of their seniority. Johnson and Shaw's Almanac, now in its 30th year, is as full and various, readable and sprightly, as ever. Mr. Cuthbert Johnson confers a real agricultural benefit on his generation by his annual publication.

The "New Farmers' Almanac," already in its 15th year, is a closely packed but heavier-looking compilation, containing, however, a quantity of useful reading, some of which is provided expressly for this publication. We extract paragraphs on food for invalids, and on artificial milk, both of which are certain to do good by this publication of them:—

"*Invalids' Food.*—One-third of a pint of new milk is allowed to stand until the cream has separated. The latter is removed, and to the blue milk thus obtained a pea-piece inch of rennet is to be added, and the milk to curd placed in warm water. In about five minutes the curd will have separated, and, the rennet being removed, the whey is carefully poured off, and immediately heated to boiling, to prevent its becoming sour. A further quantity of curd will separate, which must be removed by straining. In one-fourth of a pint of this hot whey is to be dissolved three-eighths of an ounce of milk, and sugar; and this solution, along with the cream removed from the one third of a pint of milk, must be added to half a pint of new milk. This will constitute the food for an infant of from five to eight months for 12 hours; or more correctly speaking, it will form one-half of the quantity required for 24 hours. It is absolutely necessary that a fresh quantity should be prepared every 12 hours, and it is scarcely necessary to add that the strictest cleanliness in all the vessels is indispensable. Many an infant at the point of death from prolonged diarrhœa has been saved by the use of this artificial milk."

"*Food for Invalids.*—In the preparation of a nutritive diet for invalids, the great object in view is the production of a material which shall contain all the constituents requisite for the formation of blood, and which shall at the same time be capable of assimilation with the least possible expenditure of the vital force. This object has not hitherto been accomplished. Beef tea, which was the nearest approach to it, was completely wanting in the albumen of blood, as well as some other constituents necessary for the formation of healthy blood. The new diet contained apparently all the constituents requisite for the nutrition of the human body, and it was assimilated with the greatest ease by the organs of digestion. It was prepared as follows:—Half a pound of beef, free from fat, or the same weight of the flesh of a fowl (in both cases recently killed), was chopped very fine, and well mixed with one pint of distilled water, to which four drops of hydrochloric acid (or twice as much in the case of very hard water) and one-eighth of an ounce of common salt has been added. After the mixture has been allowed to stand for one hour, it is thrown upon a fine hair sieve, or piece of calico, and the liquid allowed to drain off without pressure. The first portion of liquid is usually turbid, and must be returned to the sieve until it runs clear. When all the liquor has drained off, a quarter of a pint of pure water must be gently poured, in small quantities at a time, upon the matter in the sieve, and allowed to run into the liquid previously collected. There is in this way obtained about three-fourths of a pint of the cold extract of flesh, having a red colour and a pleasant soup-like taste. It is to be administered cold to the patient, a tea-cupful at a time. It must on no account be warmed, as the application of the slightest heat causes its decomposition, and the separation of a solid mass of coagulated albumen. This cold extract of flesh is not only much more highly nutritious than the ordinary beef-tea, but also contains a certain quantity of the red colouring matter in blood, in which is a much larger proportion of iron requisite for the formation of the blood particle. The hydrochloric acid also greatly facilitates the process of digestion. The cold extract of flesh has been employed with great success both in the hospital and in private practice in Munich, especially in certain stages of typhus and cholera, in which, owing to the absence of all energy in the digestive organs, there is the greatest difficulty in sustaining the strength of the patient. A very striking case of its efficacy occurred in the family of Professor Liebig himself. A young lady who, in consequence of an inflammatory disease, could not take solid food, was nourished exclusively upon this diet for two months —in fact, until she had perfectly recovered; and it was remarkable that during this time she evidently increased both in flesh and strength."

The "Illustrated Farmers' and Gardeners Almanac" contains 104 large quarto pages, of which pp. 25—82 are republished from year to year, and sadly want re-editing. What kind of instruction is conveyed by telling the reader that "Wheat straw contains 79 lb.," and "Barley-meal 84 lb. of real food in every 100 lb."? The remaining pages of this Almanac are fully illustrated with drawings of cattle, implements, and plants.

The "Rural Almanac" is a beautifully illustrated quarto, full of information and interest to the sportsman and naturalist, also serviceable often to the agriculturist. The following paragraph is the last bit of its last page:—

"*Cattle Bridges.*—A pole 5 inches square is sawed from corner to corner, thus forming two triangular pieces, with a base of nearly 7 inches each. These pieces are joined at one edge by common iron butt hinges, the number varying with the length of the poles, which have a handle at each end to open them. When open, with the angles downwards, there is a safe and easy foot-bridge about 14 inches wide; but when shut, with the one flat surface on the top of the other, there is presented only the sharp angular projection, over which neither cattle nor sheep can pass, and which, moreover, throws off the wet, and protects the under rail from the effects of the weather."

Farm Memoranda.

MR. ALLAN POLLOK'S ESTATES IN GALWAY.—Mr. Pollok's two estates comprise an area of some 32,000 acres, of which 25,000 are arable, and they were purchased some 15 years ago at a cost—I do not here pretend to accuracy—of not less than 500,000*l.* The lands when they came into Mr. Pollok's hands were in the condition of most Galway estates; that is, they were for the most part held by a peasantry of small farmers and cottiers, they had been much exhausted after the famine, and their resources had never been developed. It is easy to imagine what their look then was—rude tracts broken into narrow fields, ill-drained and divided by unsightly fences, with scanty crops and inferior cattle, and covered over with small dwellings inhabited by a dense population. Mr. Pollok's first care was to buy out almost every one of these petty holders, to convert some into farm-labourers, and to induce others to emigrate to the west; and having by a process, not ungentle indeed, yet rather painful, made a *tabula rasa* of this enormous area, he applied himself to improving the lands, to bringing them under thorough cultivation, and farming them upon the best Scotch system. It is unnecessary to say how dikes were levelled and fields squared into vast breadths; what miles upon miles of drains were opened; how, in the place of the Irish village, the huge solitary steading rose at wide distances; what

thousands of tons of artificial manures were lavished upon the hungry soil; what sheets of Turnips and masses of corn were grown where the plough had never been before; how the hills were covered with the finest kine and sheep; how, in a word, capital and science transformed these great tracts by degrees, as if by magic. The carrying out this social revolution cost not less certainly than the fee-simple of the soil, and the results have really been wonderful. I walked over a part of one of the estates, and admired the magnificent farm buildings, the huge mills with their lofty chimneys, as though husbandry had become a manufacture, the steam engines and perfect appliances of tillage, the vast spaces of corn that reached the horizon, the thoroughbred sheep in the immense pastures—the spectacle, in a word, of agriculture on the largest scale in the highest development. Yet the whole scene had a look of desolation in spite of the monotony of its splendour. I missed the smoke of the frequent house-top; and as my eye rested on the scanty cottages which here and there only dotted the rich expanse, I could not help thinking that this form of society had, like all human things, its imperfect side.

How opposite to this state of things is the condition of the village communities, which have reclaimed parts of the flats of the Shannon! How different is their primitive husbandry, how completely distinct the types of their life! In one case a lavish outlay of capital has suddenly raised a noble monument of cultivation of the most perfect kind, and has produced a splendid model of extensive farming. Yet you feel that this in an exotic growth, and that it anticipates the natural march of society; and you see that it is not without its drawbacks in its severance of the population from the soil. In the other case, the slow industry of ages, advancing with gradual but beneficent steps, has changed the barren waste into fruitfulness, has, with difficulty almost incredible, subdued the worthless swamp to fertility, has, too, not grandly or quickly, but quietly and peacefully, transformed the character of the landscape.

The circumstances of Mr. Pollok's experiment suggest considerations of great interest with reference to the Irish Land Question. First, perhaps, in importance is the inquiry whether this wonderful attempt to introduce Scottish agriculture on the largest scale into a district where it had been unknown before is remunerative, or is likely to be so; for, if it be, it can be hardly doubted that its author's example will be extensively followed. From all that I have heard, and my own calculations, this question must be answered in the negative. *Times.*

Miscellaneous.

Waterproof Packing Paper is thus made by some manufacturers:—The paper must first be covered with a resinous liquid, then painted over with a solution of glue and soot, as, without this, the paper will later show blotches. After this is dried, the actual waterproof coat is applied. This is prepared with 2½ oz. of powdered shellac, dissolved in two pints of water, which is gradually brought to boil, and stirred until the substance is perfectly dissolved and softened, when gradually one-third of an ounce of powdered borax is added, until an intimate union of the substances takes place. The liquid is then left to cool, and, while still hot, any mineral colour may be added, such as lamp-black, yellow ochre, red ochre, iron blue, or burnt umber, whereupon it is left to get entirely cold. It is then ready for use. The operation can be so quickly performed with a brush that two women can prepare 3000 feet in ten hours. *The Stationer.*

Calendar of Operations.

DECEMBER.—*Water Meadows*: Attend to these in southern counties as in November, in the north frost and snow frequently interfere with the operation. But in open weather it may be carried on successfully by carefully watching the weather, and an extra flow of water, where there is a command of it, will carry the waterman safely through a slight frost, when otherwise his labour would be locked up under ice. Not a little depends upon the natural temperature of the water used for irrigation and the mode of applying it, and also upon the temperature of the land over which, or through which, it flows in the carriers, and upon that of the meadows to which it is applied. Were the temperature of river water and the temperature of the earth to remain as high at Christmas as in the summer time, it would take a sharp frost of some days' duration to freeze the meadow. But the reverse of this is true, for both the water and the meadow are colder than they were in November: and with this fact watermen are familiar, and hence watch the changes in the weather accordingly, and the times of flooding. When the water has far to flow in open carriers and gutters, it will be colder when it reaches the meadow than when it left the river. If conveyed in underground stone or brick conduits, wooden or iron pipes, the reverse may be the case. In the summer time, however, the water in the open carriers acquires generally an increase of temperature, while that conveyed belowground loses heat. Of the importance of these facts in regulating the labours of the waterman at this fickle season nothing requires to be said, and with regard to the actual temperatures of the water and of the meadow, these should always be ascertained by a wet-bulb thermometer.

Irrigation Works.—Rivers are now sufficiently high to determine "the feed and tail levels," *alias* "influx and efflux levels." Springs are likewise open, so that the season is favourable for laying out new works, more especially those where river or spring water only is to be applied to grass-land, whether lying in permanent meadow or under alternate husbandry. No doubt there still exists much prejudice to the irrigation of land only lying one, two, or three years in Grass, but the thorough under-drainage of the land, with subsoiling to break moorland and let down the water to the drains, &c., has removed the practical objections of the olden time, so that this prejudice is fast dying out. River and spring water can be successfully applied to land only lying one year in Grass; but if several successive cuttings of Italian Rye-grass can be taken in one season, two years in Grass may be more profitable than one; and once so applied, it is only a question of time whether it cannot with equal success be applied to the corn and other crops of the rotation. As to the nature of the works, the water levels and surface of the land must be the rule in each case. Where the water can be applied to a plain sloping surface of permanent meadow on the ridge-and-furrow plan, or catch-water plan, at 1*s.* or so per acre, the gutters and drains being opened by a plough, the rule is plain.

Farm horses keep in active working order. There is something in the dulness of the season that is peculiarly depressing upon their physical energies which, if not counteracted, will lower them in condition. Tied up to the manger in a narrow sloping stall in a dark and badly ventilated stable during the long nights of winter is not in accordance with the natural requirements of this noble animal. In point of fact, the day is not far distant when a loose box will be considered as absolutely necessary for a farm horse, as for any of his race. Something more, too, is needed than the common prescription of a soft laxative diet to keep nerve and muscle in mettle. Feed and groom early and late, as the artificial habits of the horse require it.

Sheep, whether folded on the Turnips or housed in pens, or at large in the pastures in our midland and northern counties, require special attention during the whole of the month, more especially our improved breeds, whose constitutions, naturally and artificially, are severely tried by the peculiarities of the season. In the Turnip field or yard, dry frosty weather will not hurt them, but frozen Turnips are injurious; while rotten roots and tops, when the thaw comes, are many degrees worse. Turnips, therefore, should be stored and given clean and fresh daily, with corn and chaff. The sudden changes from wet to frost do much harm when their coats are soaked to the skin, and when their skins are thus wet they should be moved about gently when the rain ceases and the frost sets in until the wool next the skin becomes dry. On no account give frosty Turnips to the in-lamb ewes in the pastures, although lambing time may be March. If the old "faggage" is scanty, give hay-chaff with a little meal. The chaff should be slightly damped, so as to make the meal adhere to it. But an abundance of roots should always be in store for the ewe flocks of our midland and northern counties, and they should have a shed or hovel to go into during night and in rainy weather, of a size sufficient to permit of the whole flock being fed indoors without crowding. Small hovels with open strawyards in front are objectionable, as the weaker ewes will go outside in close wet nights and in frost and snow rather than breathe the polluted atmosphere within. And it is better to divide the interior of the hovel into pens, and to place so many ewes in each pen, than to allow the flock to run about promiscuously through the whole. The pens, or subdivisions, may be equal in size, but it may not always be advisable to put an equal number of ewes in each pen. The pens should open into each other, and the shepherd will know best how to separate his flock, both for feeding and rest. And we need hardly add, they both feed and rest better when thus subdivided than when flocking together. Thus kept during the winter months, fewer casualties occur at lambing time in spring. In Highland sheepwalks the rams are taken from their ewes during this month. When flocks remain on the hills they require corn and hay during snowstorms, and so do those sent to the lowlands.

Milch cows timed to calve during December require great attention, both as to dietary and household management. If fattening cattle should be housed in loose boxes, milch cows stand tenfold more in need of them; and if our milch cows were thus housed and fed on wholesome food, we should hear of fewer mishaps than we now do when they are tied up to a stake in a narrow sloping stall, and fed occasionally on frosty Turnips, rotten Turnips, dirty Turnips, mouldy hay and straw, with bad water! We should prefer cow-boxes to be cleaned out daily the same as horse-boxes, and kept every bit as clean. Fresh clean roots, steamed or pulped, with chaff and a little bean-meal, form an excellent dietary for newly-calved cows, and for all cows giving milk at this season; and if properly cooked it will produce rich milk, that will yield butter and cheese, provided always that the cowhouse and dairy are kept at the proper temperature, which at Christmas means artificial heat in the latter, and for the most part in the former. If we find it impossible to keep our farmhouses and labourers' cottages at a proper temperature and free from damp and a polluted atmosphere without artificial heat, how can it be otherwise with cowhouses and dairies in northern climates, where success depends upon a pure atmosphere, of a proper temperature? and in both these respects, purity and temperature, a milch cow is as sensitive and easily affected as is her milk. And from experience it has been found that cows and their milk pay handsomely for all the firing they require, at this season, when it is economically used. *W. B.*

Notices to Correspondents.

Kent Rent. *J. J.* We think not. Fells next week.

Royal Agricultural Society. *Inquirer.* Get any member to propose you for membership, or write to the Secretary, and he will at once remove any difficulty.

GENUINE TOBACCO PAPER, of the finest quality, 10*d.* per lb., or 8*s.* per cwt.
WILLIAM RUSHFORTH, Nurseryman and Seed Merchant, Leeds.

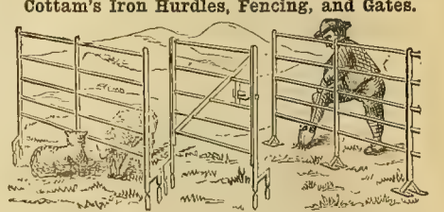
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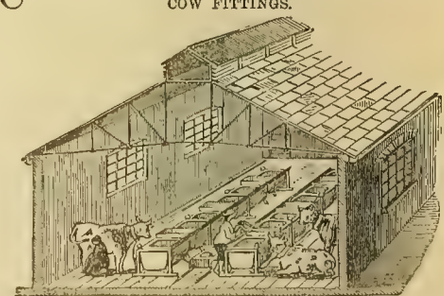
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Powder Distributors, 2*s.* 6*d.* and 3*s.* 6*d.* each.
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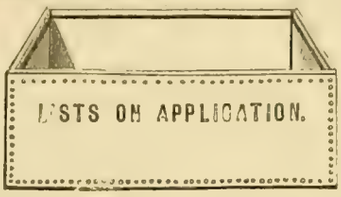
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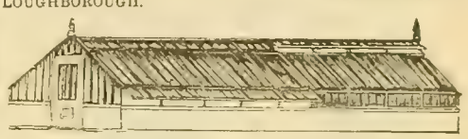
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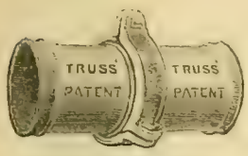


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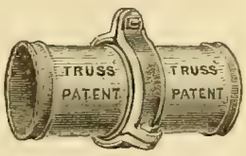
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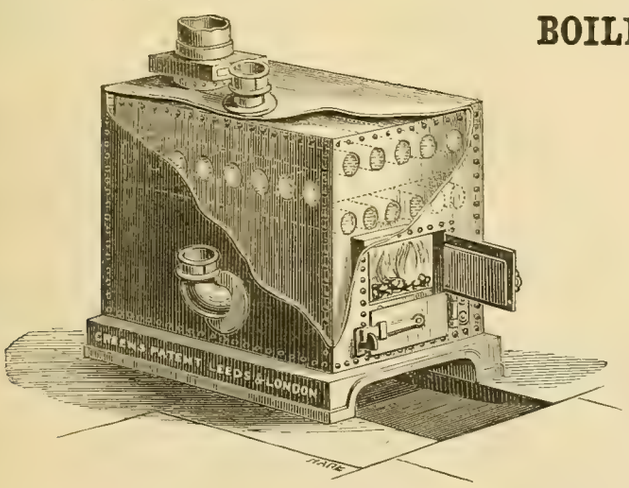
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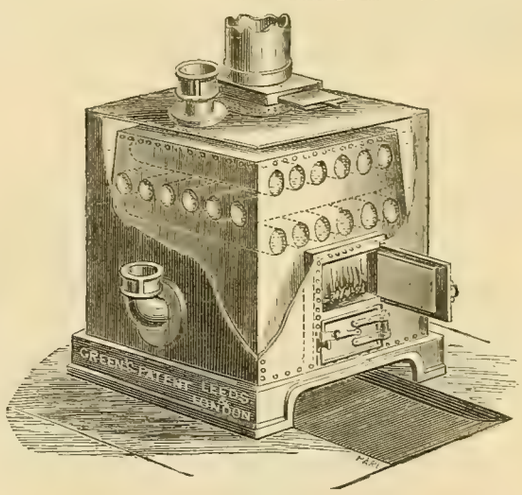
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SYPHONS	No. 23 on do. ,,	1 9	3 0	4 0
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GEORGE ROBINSON, Dial Iron Works, Stourbridge.
London Warehouse, 16, Grand Junction Wharf, Paddington Basin.

Indestructible Terra Cotta Plant Markers.

MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c. MAW AND CO., Benthall Works, Broseley.

LABELS, LABELS.—PARCHMENT or CLOTH LABELS.—Tree or Plant Labels, punched parchment, 4 inches long, 4s. per 1000, or 10,000 for 35s., cash on delivery. Sample Label sent on receipt of a postage stamp. Orders delivered free in London by JOHN FISHER AND CO., Label Works Boston, Lincolnshire.

W. H. LASCELLES' MACHINE-MADE MELON LIGHTS.



	Each.
6 ft. by 4 ft. Lights, 2 in. thick, unglazed	£0 5 0
,, ,, Primed and Glazed with 10 oz. Sheet	0 11 0
,, ,, with stout portable Box, not Painted	1 3 0
,, ,, Painted four coats, and Handles on	1 8 0
,, ,, Packed and Delivered in Railway Van..	1 10 0
6 ft. by 8 ft., Double Lights, do.	2 15 0

GREENHOUSES.	Per ft. super.
Woodwork only Prepared and Fitted	0 0 6
,, Primed and Glazed with 16 oz. Sheet ..	0 0 9
,, Delivered, and Fixed with Ironwork ..	0 1 0
,, Painted four coats, two sides, ready for use	0 1 3

Finsbury Steam Joinery Works, 121, Bunhill Row, E.C.



The Only Stove without a Flue.

NASH AND JOYCE'S PATENT, for WARMING HALLS, SHOPS, GREENHOUSES, &c.

These Stoves burn without attention or replenishing 12 to 24 hours. From 12s. 6d. to Six Guineas. PATENT FUEL, 4s. 6d. per bag.

STOVES made expressly for Greenhouses, to Burn all Winter by filling up with the Patent Fuel every 12 hours.

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HOT-WATER APPARATUS of every description, fixed complete in any part of the country, for Warming Greenhouses, Conservatories, Forcing Pits, &c.
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HOT-WATER APPARATUS Erected Complete, or the Materials Supplied for Heating

Peill's Conical. GREENHOUSES, Tubular Boiler.



HOTHOUSES, CONSERVATORIES, CHURCHES, PUBLIC BUILDINGS, &c.



HOT-WATER PIPES at wholesale prices, Elbows, T Pieces, Syphons, and every other connection kept in stock.

WROUGHT and CAST IRON CONICAL, SADDLE, and IMPROVED PEILL'S and ELLIPTIC BOILERS, from 24s. each.

IMPROVED and EXTRA STRONG CAST IRON TUBULAR BOILERS, with or without Water Bars, from 52s. 6d. each.

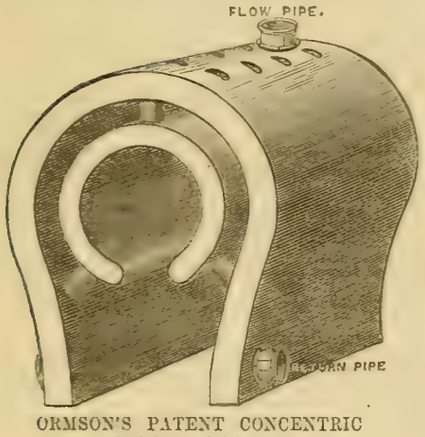
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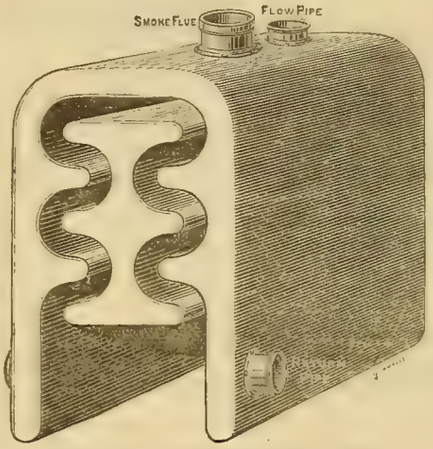
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(Surrey side Blackfriars Bridge).
Price List on application.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

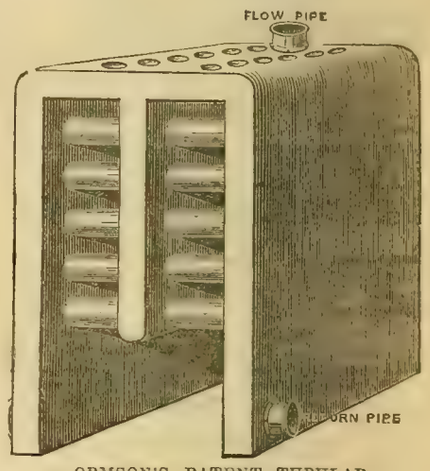
ORMSON'S PATENT ECONOMIC BOILERS.



ORMSON'S PATENT CONCENTRIC SADDLE BOILER.



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ORMSON'S PATENT TUBULAR BOILER.

From the Construction of these Boilers, it will be at once seen that the object of the Inventor is to economise fuel, by concentrating its entire force and vertical action on the surfaces of the Boiler, and not wasting it by Heating Brickwork and Chimneys, a fault common to the great majority of Boilers now in use.

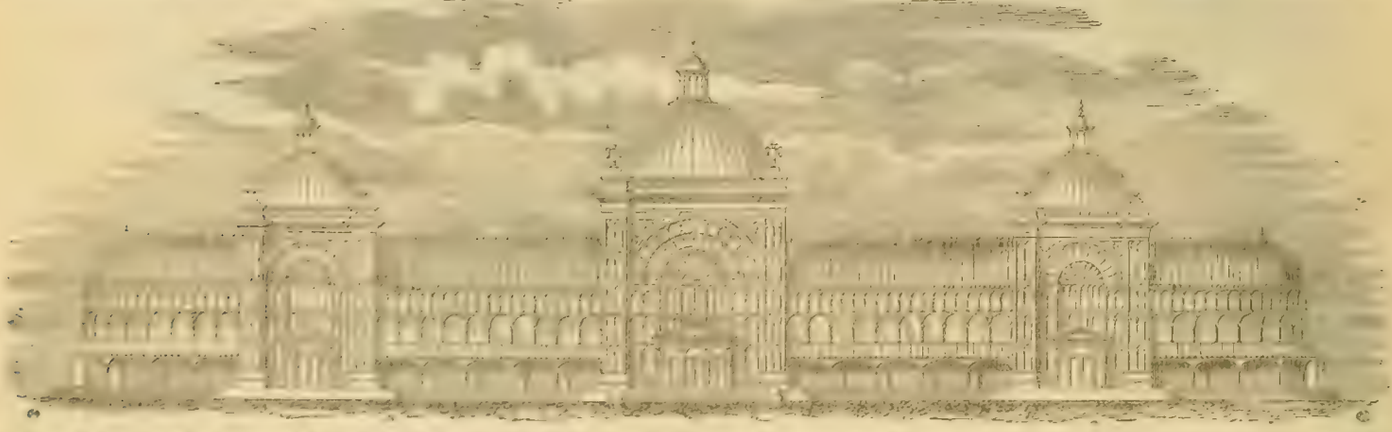
These Boilers are made of the best Welded Wrought-iron, of good substance, having no overlapping plates, holes, or rivets, and are therefore perfectly secure against failure from expansion and contraction of the metal, an occurrence so frequent and fatal to all forms of Cast-iron Boilers.

Please to state diameter and length of Pipe to be Heated.

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AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,
STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

T. H. P. DENNIS & COMPANY, PATENTEES,

HORTICULTURAL ENGINEERS AND BUILDERS IN WOOD AND IRON.



T. H. P. DENNIS AND COMPANY beg to direct the attention of Noblemen, Gentlemen, Nurserymen, and Gardeners, to the many and varied improvements they have made in every description of Horticultural Erections. They continue to Manufacture Buildings of the highest order in Wood, Galvanized Metal, and their HIGHLY APPROVED Patent Wrought Iron Construction. They have much pleasure in announcing that by the aid of modern appliances, in their Manufactory, all kinds of Horticultural Buildings will be supplied at the most moderate prices consistent with the high standard of their workmanship. Every description of Garden Structure arranged, designed, and heated on T. H. P. D. & CO.'S improved system, will be guaranteed to fully answer the purpose for which they are intended.

Gentlemen waited upon by Members of the Firm to advise and arrange for contemplated Buildings.

Our NEW HOT-WATER BOILER and other Specialities and Patented arrangements are described in other Advertisements, and also in our Catalogue, which may be had on application.

ANCHOR IRON WORKS, CHELMSFORD.

GEORGE HALL, late Manager to the late Saynors' Firm. He was for 30 years in their employ.
GEORGE HALL AND SON'S celebrated PRUNING and BUDDING KNIVES, SCISSORS, &c., may be obtained from the most respectable Nurserymen and Seed Merchants in the Kingdom, also America, France, Germany, Holland, Prussia, Russia, &c.
N.B.—We only make one quality, the best that can be manufactured, the same as the late Saynors always made during their lifetime, with all the latest improvements.
CAUTION.—None are genuine unless marked "GEO. HALL & SON." Other marks would cause disappointment, as these blades are tempered by a process known only to the Makers.
Engravings of Patterns, with PRICE LISTS, gratis on application.
Horticultural Cutlery Works, Sheffield.

The New Vade Mecum (Invented & Manufactured by CHARLES H. VINCENT, OPTICIAN, of 23, Windsor Street, Liverpool), consists of a TELESCOPE well adapted for Tourists, &c., to which is added an excellent MICROSCOPE of great power and first-class definition, quite equal to others sold at ten times the price. Wonderful as it may seem, the price of this ingenious combination is only 3s. 6d.; and Mr. VINCENT sends it (carriage free) anywhere, with printed directions, upon receipt of Post-office order or stamps to the amount of 3s. 10d.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—
GLASS for ORCHARD HOUSES,
As supplied by them to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.
Each Box contains 100 feet. The prices only apply to the sizes stated. Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.

	16 oz. to the foot.	21 oz.
Fourth quality	15s. 0d.	19s. 6d.
Third ditto	16s. 0d.	22s. 6d.
Seconds	18s. 0d.	26s. 0d.
English	20s. 0d.	27s. 0d.

The above prices include the boxes, which are not returnable.
HORTICULTURAL GLASS.
Stock sizes, 16-oz., in 100 feet boxes, boxes included.
These prices only apply to the sizes stated.

				4ths.	3rds.	2nd.
				s. d.	s. d.	s. d.
11 by 9	12 by 9	13 by 9	14 by 9	13 6	15 6	17 0
12 „ 10	13 „ 10	14 „ 10	15 „ 10			
13 „ 11	14 „ 11	..	..			
14 „ 12	15 „ 12	15 „ 11	16 „ 11			
18 „ 12	19 „ 12	16 „ 13	17 „ 12			
16 „ 13	17 „ 13	20 „ 12	..	15 0	16 0	18 6
16 „ 14	20 „ 13	18 „ 13	..			
	17 „ 14	18 „ 14	..	16 to 17 oz. to the foot.		
	20 „ 14					

SMALL SHEET SQUARES.
In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½ .. 12s. 6d.
8 by 6	8½ by 6½	9 by 7	9½ by 7½ ..
		10 by 8	10½ by 8½ .. 13s. 6d.

Boxes 2s. each returnable at full price.
London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS. PAINTS of various colours ground ready for use.
SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of Prices and Estimates forwarded on application to
JAS. PHILLIPS AND CO., 180, Bishopsgate Street Without, E.C.

Horticultural Glass Warehouse.
THOMAS MILLINGTON AND CO., 87, Bishopsgate Street Without, London, E.C.
NEW LIST for ORCHARD-HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.
ORCHARD-HOUSE SIZES.

in.	in.		4ths.	3rds.	2nds.	Best
20 by 12						
20 by 13		15 oz.	12s 3d	15s 6d	16s 9d	18s 0d
20 by 14	Per 100 feet					
20 by 15		21 oz.	18s 0d	20s 0d	22s 0d	24s 0d
20 by 16						

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7						
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½			11s 3d	12s 6d	14s 0d	15s 6d

Per 100 feet.

10 by 8	12 by 9	12½ by 10½	14½ by 10½		
10½ by 8½	12½ by 9½	13 by 10	15 by 10		
11 by 9	13 by 9	13½ by 10½	13 by 11	11s 9d	14s 9d	15s 3d	17s 6d
11½ by 9½	12 by 10	14 by 10	14 by 11				

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
16½ by 10½	14 by 12	22 by 12	22 by 16						
16 by 10	14½ by 12½	17 by 13	24 by 16						
14½ by 11½	15 by 12	23 by 13	20 by 17						
15 by 11	15½ by 12½	18 by 14	22 by 17						
16½ by 11½	16 by 12	22 by 14	24 by 17	12s 3d	15s 6d	16s 9d	18s 0d		
16 by 11	16½ by 12½	24 by 14	20 by 18						
21 by 11	17 by 12	22 by 15	22 by 18						
13 by 12	18 by 12	24 by 15	24 by 18						

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.
SHEET GLASS.
In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	30s.	4ths quality, per 200 feet case,	36s.
3ds „ „	42s.	3ds „ „	42s.
2ds „ „	62s.	2ds „ „	62s.
Best „ „	76s.	Best „ „	76s.

SHEET GLASS is made only in the following substances, 15 oz. 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.
HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.
BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.
PAINTS, COLOURS, VARNISHES, &c.
STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.
WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a-half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.
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Per cwt.—s. d.		Per gallon.—s. d.	
GENUINE WHITE LEAD	30 0	LINSEED OIL	2 9
SECONDS WHITE LEAD	28 0	BOILED OIL	3 2
GROUND PATENT DRYERS, 3d. to 4½d. per lb.		TURPENTINE	2 9
„ OXFORD OCHRE, 3d. to 4½d. per lb.		LINSEED OIL PUTTY, 8s. per cwt.	
„ RAW UMBER, 4½d. to 6d. per lb.		Fine OAK VARNISH, 10s. to 12s.	0
„ BURNT do., 6d. to 9d.		„ CARRIAGE do., 12s. to 14s.	0
GREEN PAINT, all shades,		„ PAPER do. 10s. to 12s.	0
28s. to 60s.	0	„ COPAL	16 0
BLACK PAINT, 24s. to 36s.	0	KNOTTING	10 0
RED PAINT .. 28s. to 36s.	0	Patent GOLD SIZE ..	10 0
		„ BLACK JAPAN ..	12 0
		GLAZIER'S DIAMONDS and TOOLS	
		MILLED LEAD and PIPES	
		OLD LEAD Bought or taken in exchange.	

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DUSTERS. | SASH TOOLS.
DISTEMPER BRUSHES.
The above are Net, for Cash, and as such cannot be booked. Lists of any of the above on application.

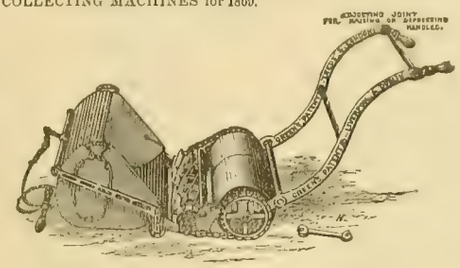
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RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post-free on application.
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TRELOAR'S FINE COCOA-NUT MATTING, warranted unbleached. No other kind is durable,—all other kinds are dear. Catalogues free by post.
T. TRELOAR, Manufacturer, 67, Ludgate Hill, E.C.

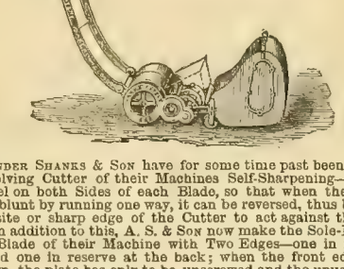
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TEN THOUSAND COCOA NUT MATS, size about 6 feet by 3 feet, price 15s. per dozen, for not less than a dozen. Everlasting wear. The first lot of 10,000 sold in two days.
Post Office orders, THOS. TRELOAR, Cocoa Nut Fibre Warehouse, 67, Ludgate Hill, London.

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Every Machine is warranted to give entire satisfaction, and if not approved of, can be returned at once unconditionally.
PRIZE MEDALS AWARDED to GREEN'S PATENT LAWN MOWERS.
First Prize Medal at the International Exhibition, London, 1862.
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First Prize Medal at the Lacken Exhibition.
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First Prize Medal at the Brussels Exhibition, on two occasions.
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GREEN'S Patent Lawn Mowers have proved to be the best, and have carried off every Prize that has been given, in all cases of competition.
The extraordinary success of GREEN'S Patent Lawn Mowers is an established fact. During the last five years the demand has been unprecedented, which alone is a proof of their superiority over all others. The following are their characteristic features:—1st. Simplicity of construction, every part being free of access. 2d. They are worked with far greater ease than any other Lawn Mower. 3d. They are the least liable to get out of order.
GREEN'S Patent Lawn Mowers combine all the advantages of self-sharpening, and when the cutters become blunt by running one way round, they can be reversed again and again, bringing the sharp edge of the cutters against the bottom blade, which operation can be done by any inexperienced person, owing to the peculiar adaptation of the Machine, which is possessed by no other. Illustrated Price Lists free on application.
THOMAS GREEN AND SON, Smithfield Iron Works, Leeds; and 54 and 55, Blackfriars Road, London, S.
N.B.—All orders are executed on the day they are received.

SHANKS'S PATENT LAWN MOWERS for 1869.
The Patent Improvements recently introduced give
SHANKS'S MACHINE
Several important advantages possessed by no other Lawn Mower.
PATENT DOUBLE-EDGED SOLE-PLATE, WIND-GUARD, &c.
The unprecedented Sale for 1868, notwithstanding the Dryness of the Season, forms the most convincing testimony how much these advantages have been appreciated.
ALEXANDER SHANKS & SON beg to intimate that, among all the Exhibitors of Lawn Mowers at the Paris Exhibition, they are the only Firm to whom the Jury awarded a Medal. The Silver Medal then awarded is the highest Prize ever given at any Exhibition for Lawn Mowers.



ALEXANDER SHANKS & SON have for some time past been making the Revolving Cutter of their Machines Self-Sharpening—that is, with Steel on both Sides of each Blade, so that when the Cutter becomes blunt by running one way, it can be reversed, thus bringing the opposite or sharp edge of the Cutter to act against the Sole-Plate. In addition to this, A. S. & SON now make the Sole-Plate or Bottom Blade of their Machine with Two Edges—one in front as usual, and one in reserve at the back; when the front edge gets worn down, the plate has only to be unscrewed and the unused edge brought to the front. It will be seen at a glance that this arrangement enables the cutting parts to last twice as long as in other machines, where the single-edged Sole-plate must be entirely renewed when the edge is worn down.
A Wind-Guard has also been introduced to prevent the Mown Grass being blown past the Box during the prevalence of wind.
There is no ribbing with these Machines. The Lawn when mown has a most beautiful appearance, being as smooth as a piece of velvet.
Every Machine warranted to give ample satisfaction, and if not approved of can be at once returned.
Illustrated Circulars, with full particulars, sent free on application.
A. SHANKS AND SONS, Dens Iron Works, Arbroath; and 27, Leadenhall Street, London, E.C.
☞ A Stock of all sizes of LAWN MOWERS always kept at 27, Leadenhall Street.

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Black Register Stoves	8s. to £9 5s.
Bright do., with Ormolu ornaments	..£3 8s. to £33 10s.
Bronzed Fenders	.. 3s. 6d. to £5 12s.
Steel Fenders	from £3 3s. to £25.
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The Burton and all other Patent Stoves, with Radiating Hearth Plates.
WILLIAM S. BURTON, FURNISHING IRONMONGER by appointment to H.R.H. the Prince of Wales, sends a Catalogue containing upwards of 700 Illustrations of his unrivalled Stock, with LISTS of PRICES and Plans of the 29 Large Show Rooms, post free.—39, Oxford Street, W.; 1, 1a, 2, 3, and 4, Newman Street; 4, 5, and 6, Perry's Place; and 1, Newman Yard. With the present RAILWAY FACILITIES, the cost of delivering goods to the most distant parts of the United Kingdom is trifling. WILLIAM S. BURTON will always, when desired, undertake delivery at a small fixed rate.

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HOOPER AND CO., Covent Garden Market, London, W.C.

Vases and Fountains, for the Garden and Conservatory.



ANDREW HANDYSIDE AND CO., Britannia Foundry, Derby. | 32, Walbrook, London.
The Britannia Iron Works have for the last 40 years been well known for the production of fine Iron Castings. The use of Cast-iron permits a delicacy of outline, and smoothness of surface, impossible in cheap Stone or Terra-cotta. Cast-iron Vases, if occasionally painted, are imperishable, and will not crack when exposed to wet or frosty weather.



Five large Sheets of Designs and Price Lists post free for 6 stamps.
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"Invaluable," the invariable report.
THE "VOWEL" WASHING MACHINE sent to all parts of Great Britain upon trial, carriage free. Particulars free by post.
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CHRISTMAS PRESENTS and NEW-YEAR'S GIFTS for all who court the gay and festive scenes. ROWLANDS' MACASSAR OIL, preserver and beautifier of the Hair beyond all precedent. ROWLANDS' KALYDOR, for imparting a radiant bloom to the complexion, and a softness and delicacy to the skin. ROWLANDS' ODONTO, or Pearl Dentifrice, for giving a pearl-like whiteness to the Teeth, and a pleasing fragrance to the breath. Sold by all Chemists and Perfumers.
☞ Ask for "ROWLANDS'" Articles.

BREAKFAST.—EPPS'S COCOA.
GRATEFUL and COMFORTING.
The *Civil Service Gazette* remarks:—"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. EPPS has provided our breakfast tables with a delicately-flavoured beverage which may save us many heavy doctors' bills."
Made simply with boiling water or milk. Sold only in ¼ lb., ½ lb., and 1 lb. tin-lined packets, labelled—
JAMES EPPS AND CO., Homœopathic Chemists, London.

COCKLE'S ANTIBILIOUS PILLS,
THE SAFEST
FAMILY APERIENT.
In boxes at 1s. 1½d., 2s. 9d., 4s. 6d., and 11s.

COCKLE'S ANTIBILIOUS PILLS,
in use the last 69 years for
INDIGESTION.
In boxes at 1s. 1½d., 2s. 9d., 4s. 6d., and 11s.

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in use the last 69 years for
BILIOUS AFFECTIONS.
In boxes at 1s. 1½d., 2s. 9d., 4s. 6d., and 11s.

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in use the last 69 years for
LIVER COMPLAINTS.
In boxes at 1s. 1½d., 2s. 9d., 4s. 6d., and 11s.

COCKLE'S ANTIBILIOUS PILLS,
THE OLDEST
PATENT MEDICINE.
In boxes at 1s. 1½d., 2s. 9d., 4s. 6d., and 11s.

DINNEFORD'S FLUID MAGNESIA.—The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion; and the best mild aperient for delicate constitutions, especially adapted for Ladies, Children, and Infants.
DINNEFORD AND CO., 172, New Bond Street, London; and of all Chemists throughout the World.

WM. DILLISTONE,
HORTICULTURAL AUCTIONEER and VALUER,
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To Market Gardeners, Nurserymen, &c.
TEN ACRES FREEHOLD LAND, abutting upon South-Western Railway near Ashford, Middlesex, 17 miles from London, to be SOLD or LET.
Messrs. DEBENHAM, TEWSON AND FARMER, 80, Cheapside, E.C.

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